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BIOLOGICAL AND CHEMICAL SCIENCES

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ABSTRACT BOOK

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1.1. ORAL PRESENTATIONS

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➢ **ORAL PRESENTATION**

Novel gallium(III) and indium(III) phthalocyanines for photodynamic therapy

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Abstract

There are much more important studies on the treatment of cancer disease that one of them is photodynamic therapy (PDT) [1]. Phthalocyanine compounds are very important for treatment cancer using this method because they can effectively generate singlet oxygen when stimulated with light at a specific wavelength. In this study, the novel non-peripheral tetra 4-mercaptopyridine substituted phthalocyanine compounds that contain gallium (III) or indium (III) metals in their cavity were synthesized. These phthalocyanines were converted to their water soluble counterparts by quaternization for investigation their PDT applications. The structures of these four novel phthalocyanines were characterized by different spectroscopic techniques such as FT-IR, UV-Vis, NMR and mass. The photophysical and photochemical properties of these phthalocyanines were also investigated for determination of PDT properties for these photosensitizers.

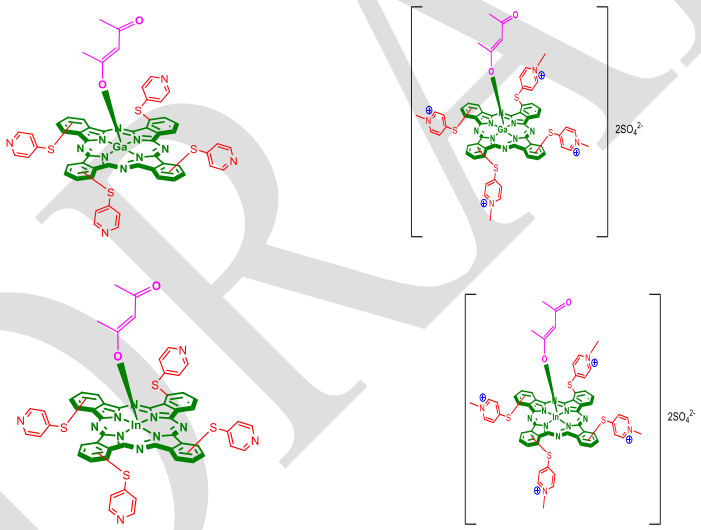


Figure 1: Novel Gallium (III) and Indium (III) phthalocyanine compounds.

Keywords: Photodynamic Therapy (PDT) , Phthalocyanines, MCF7 cell lines, Cancer, Gallium(III) and Indium(III) metals.

We would like to thanks Tübitak for financial support (Project Number: 118Z204)

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➢ **ORAL PRESENTATION**

Electrochemical investigation of fluometuron by modified electrode based on iron (II) phthalocyanine

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Abstract

Fluometuron (1,1-Dimethyl-3- [3- (trifluoromethyl) phenyl] urea) is a phenyl urea herbicide commonly used in cotton farming to control broadleaf weeds such as dicotyledon and monocotyledons [1]. Multi-walled carbon nanotube powder was modified with iron (III) phthalocyanine (modified carbon electrode). The electrode was constructed by 30% mineral oil, 65% multi-walled carbon nanotube and 5% iron (III) phthalocyan(Iron (III) phthalocyanine-4,4,4; 4 "-tetrasulfonic acid, monosodium hydrated salt). The surface morphology of the composited working electrode was characterized by the scanning electron microscope (SEM), FTIR spectra and X-Ray diffraction (XRD) method. Then, the square wave stripping voltammetric technique was used to investigate the sensor behavior of bare and modified electrodes using fluometuron. As a result, a new method has been introduced to the literature for fluometuron determination.

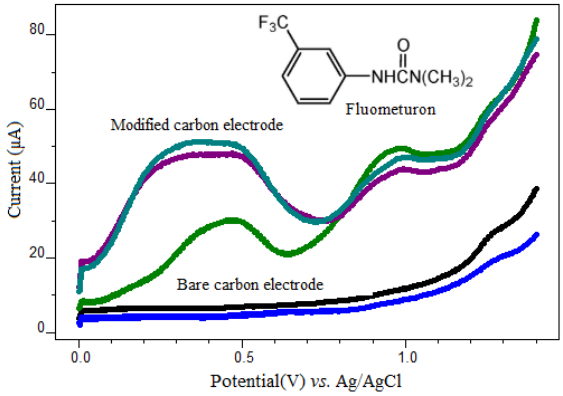


Figure 1. Square wave stripping voltammograms of iron (III) phthalocyan modified and bare multi-walled carbon nanotube paste electrodes. (pH 1,7, f = 100 Hz, ΔE = 50 mV, ΔE_d = 5 mV, t_d = 30 s E_d = 0 mV)

Keywords: Fluometuron herbicides, Iron phthalocyanine, Modified electrode, Electrochemistry.

Acknowledgment: This work was supported by the Scientific and Technological Research Council of Turkey (TUBITAK) (project number 118Z489).

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➢ **ORAL PRESENTATION**

Carbonic anhydrase inhibition profile of novel aromatic sulfonamide derivatives

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Abstract

Carbonic anhydrases are metalloenzymes that catalyze the reversible hydration of carbon dioxide to bicarbonate ion and proton. To date, catalytically active thirteen CA isoforms have been identified. As these isoforms involve in different pathologies like epilepsy, glaucoma and cancer, they became important targets for drug design studies. Among the active isoforms, CA I and II are known to be ubiquitously expressed in many tissues and involve in edeuma and glaucoma. Though CA VII isoform mainly expressed in brain tissues and reported to have an impact on glutamergic/GABergic transmission. As the disorganisation of this pathway resulted with important neurological disorders like epilepsy and neuropathic pain, CA VII became an important target for the management of these disease statements.[1]

In this study, we designed a group of CA targeted molecules to explore their CA VII inhibition profile.[2] For this aim, the titled compounds were synthesized, fully characterized by spectroscopic and elemental analyses and tested for their CA inhibitory activity by using stop flow CO_2 Hydration Assay[3].

Titled compounds displayed low to medium inhibition profile against the cytosolic hCA I, II and VII isoforms. This study gave important results that can be used for designing selective CA VII inhibitors in the future.

Keywords: carbonic anhydrase inhibitors, 2-aminoethanesulfonic acid derivatives, CA VII isoform

Acknowledgements: This project was supported by The Scientific and Technical Research Council of Turkey (TUBİTAK 116S705) and Ege University (BAP 2018.BİL.002).

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➢ **ORAL PRESENTATION**

An enzyme-free glucose biosensor based on CuO nanostructures anchored on flexible printed circuit board

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Abstract

Diabetes is foreseen as an emerging pandemic, particularly for low- and middle-income countries; an increasing number of patients during the following years is anticipated, owing to the increasing trend in childhood obesity and hence prediabetes condition. Therefore, for the early diagnosis of diabetes, we aimed to develop a point of care glucose testing using non-enzymatic glucose biosensors which reduce sensor instability and repeatability issues attributed to immobilized glucose oxidase activity degradation over time and storage conditions. Here, we report the flexible printed circuit (FPC) board integrating passive microfluidics and non-enzymatic glucose electrochemical biosensor using CuO nanostructures drop-casted on an FPC electrode surface.

The sensing electrodes were designed in FPC CAD software (Altium®) and commercially fabricated. The working, counter, and reference electrodes, which were commercially copper electroplated with a hard-gold finish, were connected to a potentiostat (Ivium pocketstat, The Netherlands) to obtain the chronoamperometric signals. The gold-plated electrodes were cleaned prior to drop casting of CuO nanostructures including nanoparticles and nanofibers by two step-ultrasonication process with acetone/ethanol/water followed by ammonium hydroxide/hydrogen peroxide/water solution. CuO nanostructures, which were conducted by thermally treated both metal precursors and electrospun composite fibers, were dispersed in ethanol solvent and drop casted for five times on the working electrodes. 100 mM glucose was prepared in 0.1 M NaOH solution and stored it overnight at ambient conditions for mutarotation. 60 µL glucose sample that prepared in NaOH was dispensed onto the sensor. This assay exhibits a highly linear response from 0 µM to 9 mM for CuO nanostructures. The detection limits were found as 10 µM and 50 µM for thermally treated copper precursors with different particle size. In the case of electrospun CuO nanofibers, a lower limit of detection of 15 µM was obtained with a higher glucose selectivity against the NaOH, ascorbic acid and fructose.

Keywords: Electrochemical, non-enzymatic, glucose detection, copper oxide nanostructures, flexible printed circuit board

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➢ **ORAL PRESENTATION**

The Effect of Initial Ph on the Removal of Metronidazole and Generation of Hydrogen Peroxide By Using Fe/Ni Bimetallic Particle in Heterogenous Fenton Process

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Abstract

Some organic compounds, which are difficult to biodegrade in wastewater and have high molecular weight, easily move to environmental environments through industrial activities. The removal of these resistant organic pollutants is of great environmental importance, and since traditional methods are insufficient, advanced treatment methods are required. Advanced oxidation processes (AOP) are one of the preferred treatment methods in recent years and are called versatile technologies due to the production of hydroxyl radicals by alternative reactions. Hydroxyl radicals are produced by hydrogen peroxide and iron catalyst in fenton process, which is widely used from AOP processes. Compared to other advanced oxidation processes, fenton treatment is the most popular due to its wide and easy use and attractive advantages such as rapid degradation and mineralization. In homogeneous Fenton processes; the disadvantages of the process include the need for continuous pH adjustment before and after the reaction with the advanced treatment requirements of iron ions and sludge, the formation of a highly iron-containing sludge and the lack of reusability of the catalyst. In addition, there are adverse situations related to the type of salt used, the high cost and excessive consumption of hydrogen peroxide (H_2O_2). Therefore, the use of heterogeneous Fenton processes, which can reduce costs and are more technically feasible, is of interest.

Metronidazole (MNZ), one of the antibiotics in the micro-pollutant group in water sources, is a type of nitroimidazole antibiotic with antibacterial and anti-inflammatory properties and is widely used in clinical applications and in the treatment of infectious diseases caused by Ciardia lamblia and Trichomonaz vaginalis.

In this study, Fe/Ni bimetallic particle was synthesized and used for hydrogen peroxide production and metronidazole removal at different initial pH values in heterogeneous Fenton process. Dissolved oxygen concentration was kept at saturation concentration in aqueous solution. In the experimental series, the initial pH value was 3 and 7; Fe / Ni dosage was adjusted to 1 g / L and MNZ concentration of 25 mg/L. For this purpose, H_20_2, Fe^{+2}, Fe^{+3} and MNZ concentration were analyzed during the reaction period in the experimental series. H_20_2 production did not occur and no MNZ removal was observed in the experimental series performed at pH 7. In contrast to, 90% of MNZ removal efficiency observed in the first minutes of the reaction and the highest H_20_2 concentration was determined at pH: 3.

Keywords: Heterogenous process, Fe/Ni bimetallic, Metronidazole

Acknowledgements: This study was supported by The Scientific and Technological Research Council of Turkey (TUBITAK) with the project number of 119Y001.

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➢ **ORAL PRESENTATION**

Synthesis, Characterization and Polymerization of Plant Oil Based Allyl Acrylates

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Abstract
In this study, a simple and efficient method for the synthesis of allyl acrylates and methacrylates of soybean oil and methyl oleate is demonstrated. The esters were synthesized by the substitution reaction between allylic bromides of soybean oil and methyl oleate and K or Na salts of acrylic and methacrylic acids under mild conditions. At the end of the reaction allylic acrylate (ACSO) and methacrylate (METACSO) of soybean oil and allylic acrylate (ACMO) and methacrylate (METACMO) of methyl oleate were synthesized. The allyl esters were characterized by ^{1}H NMR and IR techniques. Then the monomers synthesized were polymerized with benzoyl peroxide at 80 ^{o}C. Homopolymerization of the ACMO and METACMO gave waxy solids but unfortunately ACSO and METACSO gave viscous oils. The molecular weight of the linear homopolymers of ACMO and METACMO were around 2000. Copolymers of the allylic esters with acrylic acid, methacrylic acid, n butyl acrylate and styrene gave different type of soft solids. Especially, copolymerization product of allyl acrylate and methacrylate esters of soybean oil with styrene gave excellent rubbery materials. METACSO-Styrene and ACSO-styrene copolymers showed 35.3 and 24.9 kPa tensile strengths with more than 200 % of elongation. Thermal properties of the polymers synthesized were characterized by DSC, and TGA. Almost all polymers showed multiple glass transition temperatures and all of them showed a Tg at – 50 ^{o}C due to the dangling of alkyl chains of the fatty acid residues. Thermal decompositions of homo and copolymers of the ACMO and METACMO started around 200 ^{o}C. Among the copolymers, n butyl acrylate copolymers showed the highest 5 % weight lost temperatures. However thermal decomposition of styrene copolymers of ACSO and METACSO started at around 150 ^{o}C. ACSO-styrene copolymer showed the highest 5% weight lost temperature at 155 ^{o}C..
Keywords: Allyl acrylates, biopolymers, plant oil triglycerides, soybean oil, allylic bromides.

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➢ **ORAL PRESENTATION**

E. coli Nissle 1917- history, probiotic affect and medical use

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Abstract
Probiotics are non-pathogenic living microorganisms that, when taken in sufficient amounts, have positive effects on the health of the host. Among the gram negative microorganisms with probiotic properties, *E.coli* Nissle 1917 (EcN) strain is one of the strains studied extensively today. This strain was isolated by Alfred Nissle in 1917, from stool of soldiers during the First World War, in the camp of the Balkan peninsula. While the diarrhea due to infection is expected to develop in the remaining soldiers in this region, the soldiers were found to be healthy. This result led Nissle to think that the *E. coli* strain, which has an antogonistic effect that protects the soldiers from infection, is present in the intestines of the soldiers and Nissle proved this idea by laboratory work. For over 100 years, the EcN strain has been used as an active pharmaceutical ingredient in a licensed medicinal product distributed in Germany and other countries. This strain has the effect of regulating intestinal diseases such as diarrhea, ulcerative colitis, Crohn's disease, irritable bowel syndrome, immune system regulating effect and infection prevention effect. The probiotic success of this is due to some of its characteristics that are important for survival, colonization ability, persistence and therapeutic efficacy in the intestinal ecosystem. The H1-type flagella is characterized by mobility, the ability to colonize due to its specific interaction with the mucin layer in the flagella, antagonistic activity against foreign microbes due to antimicrobial microsins, and strain-specific surface structures of EcN, which form the probiotic mechanisms of EcN.
Keywords: *E. coli Nissle* 1917, EcN, probiotics

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➢ **ORAL PRESENTATION**

Functionalization of carbon nanotubes for the use in cancer treatment

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Abstract

Cancer is an important health problem and the main death cause worldwide. Targeted drug delivery is a possible replacement for classical cancer treatment which includes chemotherapy, surgery, and radiation therapy. With this treatment, single-walled carbon nanotubes (SWNTs) are widely exploited. They have the advantage over other materials with their conductivity, large specific surface area, and chemical stability. However, the cytotoxicity of SWNTs is still a challenge in this field. Our goal is to obtain biocompatible SWNTs to use in targeted drug delivery. To reduce the toxicity of SWNTs and obtain an excellent drug carrier, we are modifying SWNTs with a novel noncovalent functionalization method: adsorption of 9-fluorenylmethyloxycarbonyl (Fmoc)-terminated aromatic amino acid-functionalized with Poly (ethylene glycol) (PEG) chains onto pristine SWNTs. For that purpose, among biocompatible agents, we are using a Fmoc-Cys(Trt)-OH, Fmoc-terminated aromatic amino acid, due to operational simplicity, and PEG, an FDA-approved safe polymer, with two different molecular weights (PEG5000, PEG12000). Our results show that we achieved to obtain functionalized SWNTs and our modifications improve the blood stay of SWNTs.

Keywords: Carbon nanotubes, Fmoc, Poly (ethylene glycol)

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➢ **ORAL PRESENTATION**

Analysis of mitochondrial DNA control region of *Apodemus* Kaup, 1829 (Mammalia: Rodentia) species in North Anatolia and Thrace

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Abstract

In this study, variations in control region of mitochondrial DNA in the samples of the genus ***Apodemus*** distributed in northern Turkey, Thrace and three islands in Turkey (Imbros, Marmara Island and Tenedos, which are the biggest islands of Turkey according to their surface areas, respectively) were investigated. The findings provided by DNA sequence analysis revealed that six species of ***Apodemus*** (***Apodemus flavicollis***, ***Apodemus mystacinus***, ***Apodemus witherbyi***, ***Apodemus uralensis***, ***Apodemus sylvaticus*** and ***Apodemus agrarius***) live in the study area. It was determined that Thrace and Anatolia populations of ***Apodemus flavicollis*** formed two different genetic lineages. ***Apodemus mystacinus*** populations were divided into two different genetic groups (Western Black Sea and Central/Eastern Black Sea). So far, ***A. witherbyi*** populations, which has been known to be lived in the most parts of Anatolia, were recorded from Thrace for the first time by this study. A continuing gene flow and therefore little genetic differentiation between ***A. uralensis*** populations were determined. It was deduced that there was high genetic differentiation between Kurupelit (Samsun) population and populations from Imbros, Marmara Island and Tenedos of ***A. sylvaticus*** distributed in fragmented habitats. It was found that one population of ***A. agrarius*** from only one locality in Thrace had high haplotype diversity, but low nucleotide diversity.

Keywords: *Apodemus*, control region, genetic variation, Turkey

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➢ **ORAL PRESENTATION**

Meta-analysis of prevalence of *Cronobacter sakazakii* in foods consumed in Turkey

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Abstract

In this study, it is aimed to make meta-analysis of the prevalence of *Cronobacter sakazakii* in various foods consumed in Turkey. The prevalences of *C. sakazakii* detected in the different independent studies were combined to provide a common prevalence estimate and heterogeneities between studies were investigated. The study material consisted of 22 studies investigating *C. sakazakii* prevalence in a total of 2463 food samples included infant formula, infant formula ingredients, milk and dairy products and meat and meat products between the years 1997-2019 was carried out in Turkey. As a result of the meta-analysis, the common prevalence of *C. sakazakii* was detected as (%95 Confidence Interval; 0.021-0.044) for all studies. In the evaluated studies, infant formula, infant formula ingredients, milk and dairy products and meat and meat products were identified as sub-groups due to sufficient prevalence data and meta-regression analysis was applied between sub-groups. Accordingly, the prevalence of *C. sakazakii* in infant formula, infant formula ingredients, milk and dairy products and meat and meat products were determined as 0.01 (0.00-0.01), 0.11 (0.04-0.18), 0.05 (0.02-0.08) and 0.03 (0.00-0.06) in Turkey, respectively. Heterogeneities due to sampling size of studies on the presence of *C. sakazakii* in foods consumed in Turkey were corrected and main prevalence of the pathogen in Turkey is calculated. The study concluded that the pathogen is epidemiologically important and effective implementation of food safety management systems in the food production chain is necessary for public health.

Keywords: *Cronobacter sakazakii*, meta-analysis, prevalence

DRAFT

➢ **ORAL PRESENTATION**

Askorbik asitin yara iyileşmesi üzerine etkisi

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Özet

L-askorbik asit (C Vitamini) 1921 yılında izole edilmiş, 1933 yılında da tanımlanmış ve sentez edilmiştir. Askorbik asit (L-askorbik asit, L-ksilo askorbik asit, L-treo-heks-2-enoik asit-γ-lakton) askorbik asidin biyokimyasal isimlendirilmesidir. L-askorbik asit bitkilerde ve hayvanlarda geniş dağılım göstermektedir. İnsanlar, diğer primatlar, kobaylar, yarasalar, bazı kuşlar, som balığı, alabalık ve sazan gibi balıkların karaciğerinde askorbik asit sentezinde kullanılan L-gulono-γ-lakton oksidaz enzimi yoktur ve bu nedenle sözü edilen canlılar askorbik asit sentezleyemezler. Yara iyileşmesi hemostaz ve inflamasyon, proliferasyon ve yeniden modellenme (remodeling) olmak üzere birbirinden farklı üç fazdan oluşmaktadır. Askorbik asit, yara iyileşmesinin bütün aşamalarına katılan bir antioksidan olup aynı zamanda birçok enzimatik reaksiyon de için gereklidir. İnflamasyon fazında nötrofillerin apoptoz ve fagositozu için gereklidir. Proliferasyon sürecinde ise kolagenin sentezi, sekresyonu ve parçalanması olaylarında etkili bir rol üstlenir. Özellikle kollagen sentezinin sağlıklı bir biçimde sürdürülebilmesi için askorbik asidin homeostazisinin sıkı bir biçimde korunması gerekmektedir. Yaralanmalardan sonra askorbik asidın plazma ve dokudaki seviyeleri hızla azaldığı için askorbik asit suplementlerinin verilmesi iyileşmenin sağlanmasında etkili olabilir. Yapılan bir çalışmada yaralanmayı takiben verilen askorbik asidin, iyileşmenin 7. gününde yara bölgesindeki dokuda seviyelerinin yüksek olduğunu ve böylelikle iyileşme sürecini hızlandırdığını rapor etmişlerdir. Buna karşın iyileşmeyen yaralarda ise askorbik asit konsantrasyonlarının iyileşme zamanına herhangi bir katkısı olmadığı bildirilmiştir. İnflamatuar yanıtta oluşan radikaller özellikle hücre membranının yapısında bulunan doymamış yağ asidlerini etkilemektedir. Güçlü bir antioksidan kapasiteye sahip olan askorbik asit, özellikle yara bölgesindeki nötrofiller tarafından üretilen OH, H2O2 ve hipoklorik asit radikallerini indirgeyici özelliğe sahiptir. Fakat bu konuda da tam bir fikir birliği sağlanamamıştır. Bazı araştırıcılar askorbik asidin antioksidan özelliğini savunurken diğerleri ise askorbik asidin özellikle demir iyonlarının varlığında oksidan etki gösterdiğini ve daha fazla serbest radikal üretimine sebep olduğunu ileri sürmüşlerdir. Askorbik asit yara iyileşmesinin bütün basamaklarını etkilediğinde yara iyileşmesinde kullanılmasında katkı sağlayacağı kanısındayız.

Anahtar Kelimeler: Yara iyileşmesi, Antioksidanlar, Askorbik asit, Oksidatif stres

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➢ **ORAL PRESENTATION**

Investigation of protein content and digestibility of some sports protein powders

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Abstract
The aim of this study is to determine the protein contents and the digestion rates in *in vitro* conditions by using Dumas method of different types of protein powders which are widely used as nutritional supplements by athletes. In the research protein and digestion levels of whey, bovine milk casein, soy, egg white, beef protein, pea protein powders were determined. The protein content reported in the labels of the protein powder samples examined in the study and the protein levels determined in the study for whey, casein, soy, meat, egg white, pea powders and standard were respectively; 76-72.49, 86-83.01, 91-76.61, 88-99.28, 85-85.89, 84-77.32, 91.4-90.42. According to data, the determined protein contents of bovine milk casein which was used as standard and egg white powder were in agreement with the label information; the amount of protein contained in whey powder, casein powder, soy powder, pea powder was lower than the value indicated on the label; and meat powder contained protein above the level indicated in the label information. According to the findings and statistical evaluations obtained from the digestion experiments, the highest digestion degree was in meat powder protein (66.28%), the second was casein powder (60.61%) and followed by milk casein (56.88%), whey protein powder (54.42%) and pea protein powder (53.67%), soy protein powder (43.68%), lowest digestion rate was in egg protein powder (36.57%). The difference between the groups was statistically significant ($p < 0.05$). As a result of the research, it is important to note that protein powders sold as sports food supplements should be expressed correctly in the label information of the protein contents, which may lead to misleading of the consumer. It is underlined the importance of informing the consumer about the methods used in the production of protein powders since it is associated with digestibility and protein conversion to body protein.
Keywords: Digestibility, dumas method, *in vitro*, protein content, sport supplements.

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➢ **ORAL PRESENTATION**

A Novel and efficient disinfection modelling with BiOCl/Bent catalyst against variety microorganisms under visible light

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Abstract

In the present study photocatalytic disinfection of *E. Coli*, *C. Albicans, S. Aureus, P.aureginosa* by BiOCl/Bent sample was tested under visible light. The new composite catalyst which highly active under the visible light was synthesized by immobilizing onto Bentonite surface using BiOCl materials (BiOCl/Bent). For this sample in situ participant technique was used. The samples were characterized by using SEM, XRD, BET, UV-DRS techniques. SEM figures indicate that BiOCl/Bent samples are platelet structure. XRD results presents that there is no effective shifting on characteristic 2 theta degrees indicating efficient dispersion onto Bentonite surface. Where, Bentonite clay was used to increase the functional surface area of the photocatayst. The obtained BET surface area of the samples shows that BiOCl/Bent catalyst was lower than pure Bentonite. UV-DRS results shows the shifting to red region (>380 nm). It can thus be suggested that BiOCl/Bent catalyst is useful material to remove some microorganism under visible light. The aim of the research was to evaluate the efficiency of photocatalytic disinfection with (BiOCl/Bent). composite against *E. Coli, C. Albicans, S. Aureus, P.aureginosa* under visible light. The obtained results show that when *E. coli* strain was subjected to BiOCl/Bent photocatalytic disinfection agent under visible light, more than 99% of the targeted *E. coli* was inactivated within 2 hours and also 100% of *S. aureus* colonies were inactivated within 4 hours under visible light.

Keywords: Photocatalytic disinfection, (BiOCl/Bent) *E. Coli, C. Albicans, S. Aureus, P.aureginosa*

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➢ **ORAL PRESENTATION**

Listeriosis outbreaks

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Abstract

Listeria monocytogenes is one of the most important foodborne pathogens, often associated with a lethal disease, listeriosis. Therefore, it is of great importance for food safety and public health. Listeriosis is a serious infection caused by consumption of food contaminated with *L.monocytogenes*, which can develop at low temperatures and high salt concentrations. In cases reported by the European Food Safety Authority (EFSA) and Centers for Disease Control and Prevention (CDC), consumption of ready-to-eat foods such as smoked and dried fish, soft/semi-soft cheese, heat-treated meat and salads is often reported to cause listeriosis outbreaks. In addition to, experts report that the development of *L.monocytogenes* in home-made and refrigerated foods is responsible for one-third of listeriosis outbreaks. While low doses of *L.monocytogenes* are not a problem for healthy individuals, susceptibility to this pathogen occurs for immunocompromised individuals, sensitive individuals such as newborn, pregnant and elderly. According to EFSA data, listeriosis outbreaks increased between the two groups of the population between 2008 and 2015. These two groups include people over 75 and women aged 25-44. According to the CDC data, approximately 1600 people catch listeriosis each year and approximately 260 of them die. In 2015, EFSA reported that approximately 2200 people were affected by the listeriosis outbreak, causing the deaths of 270 people, the highest number reported in the European Union (EU). The number of listeriosis outbreaks, which was 2509 in 2016, decreased to 2480 in 2017. However, listeriosis outbreaks have tended to increase since 2008. In 2019, CDC reported 10 people infected with listeriosis outbreak resulting in the death of one person and resulting from deli-sliced meat and cheese in the United States. EFSA reported that cold smoked seafood plays a leading role in the listeriosis outbreaks in 2019. In this study, listeriosis outbreaks published by EFSA and CDC will be summarized.

Keywords: CDC, EFSA, *Listeria monocytogenes*, Listeriosis outbreaks

DRAFT

➢ **ORAL PRESENTATION**

Çeşitli jojoba yaprak ekstrelerinin güneşten koruma potansiyelinin belirlenmesi

Meltem Aşan-Özüsağlam*, Songül Tacer, Gülden Koç, Fatma Hilal Demir

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Özet

UV radyasyonuna uzun süre maruz kalmak, kanser, iltihaplanma (eritem veya güneş yanığı), pigmentasyon, hiperplazi, immünosüpresyon ve kutanöz fotoyaşlanma gibi hastalıkların riskini artırır. Güneşin bu zararlı etkilerine karşı korunmak için kullanılan kimyasal güneş koruyucularının bazı toksik etkileri nedeniyle, bitki içerikli doğal güneş koruyuculara ilgi artmaktadır. Ekonomik ve tıbbi değeri yüksek olan Jojoba (*Simmondsia chinensis*) son yıllarda Türkiye'de de yetiştirilmektedir. Jojoba yağı güneş koruyucu kremlerin içeriğinde kullanılabilmektedir. Çalışmada, Jojoba yaprağı ekstrelerinin güneşten korunma faktörleri in vitro olarak incelenmiştir. Soksilet sistemi kullanılarak çeşitli ektsreler (etanol, metanol, aseton ve hekzan) hazırlanmıştır. Ektrelerin güneşten koruma faktörleri spektrofotometrik olarak belirlenmiştir. Güneşten korunma faktörü, etanol ekstresi için 30.449 ve metanol ekstresi için 28.669 olarak bulunmuştur. Aseton ve hekzan ekstreleri, 29.522 ve 16.086 güneşten korunma faktörlerini göstermiştir. Test edilen Jojoba yaprak ekstreleri arasında güneşten korunma faktörü sıralaması etanol > aseton > metanol > hekzan olarak belirlenmiştir. Bu çalışmadan elde edilen sonuçlar, Jojoba yaprak ekstrelerinin, yağına alternatif olarak kozmetik ve farmasötik preparatlarda güneşten koruyucu olarak kullanılabileceğini göstermiştir. Jojoba yaprak ekstreleri, günümüzde sanayide kullanılan zararlı yan etkilere sahip olabilen kimyasal güneş kremlerine ucuz ve güvenli bir alternatif olabilecektir.

Anahtar Kelimeler: *Simmondsia chinensis*, ekstre, güneşten koruma faktörü

DRAFT

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➢ **ORAL PRESENTATION**

Kamkat (*Fortunella margarita*) meyve ve yaprak ekstrelerinin antibakteriyel aktivitesi

Meltem Aşan-Özüsağlam*, Gülden Koç, Fatma Hilal Demir

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Özet

Günümüzde antibiyotik kullanımının artışı ve mikroorganizmaların kullanılan antibiyotiklere kazanabileceği dirençlerden dolayı doğal antimikrobiyal kaynakların önemi artmaktadır. Kamkat meyve ve yaprakları geleneksel tedavide kullanılmaktadır. Bu çalışmada, Türkiye'den toplanan Kamkat meyve ve yaprağının metanolik ekstrelerinin antibakteriyel aktivitesi, insan gıda ve klinik test mikroorganizmaları (*Bacillus cereus* RSKK 863, *Escherichia coli* ATCC 11229, *Mıcrococcus luteus* NRRL B-4375, *Staphylococcus aureus* ATCC 25923, *Yersinia enterolitica* ATCC 11175) üzerinde araştırılmıştır. Antimikrobiyal aktivite disk difüzyon yöntemi ile belirlenmiştir. Ayrıca ekstrelerin minimum inhibisyon konsantrasyon (MİK) ve minimum bakterisidal konsantrasyon (MBC) değerleri de tespit edilmiştir. Disk difüzyon sonuçlarına göre, en yüksek inhibisyon zon çapı kamkat meyve metanol ekstresinde *S. aureus* ATCC 25923'e karşı 16.09 mm olarak kaydedilmiştir. Ekstrelerin MİK değerleri 6.25-100 mg/mLve MBC değerleri 6.25-200 mg/mL olarak belirlenmiştir. En düşük MİK ve MBC değerleri (6.25 mg/mL) *Yersinia enterolitica* ATCC 11175'e karşı metanol yaprak ekstresinde belirlenmiştir. Elde edilen veriler, kamkat meyve ve yaprak ekstrelerinin doğal antimikrobiyal madde katkıları olarak gıda ve ilaç sanayilerinde kullanım potansiyeli taşıyabileceğini göstermiştir.

Anahtar kelimeler: Kamkat, antibakteriyel aktivite, ekstre, metanol

DRAFT

➢ **ORAL PRESENTATION**

Pistacia terebinthus meyve ekstrelerinin *Bacillus cereus* ve *Micrococcus luteus* üzerinde antibakteriyel aktivitesi ve probiyotik adayı laktik asit bakterileri ile kullanım potansiyelinin belirlenmesi

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Özet

Pistacia terebinthus (menengiç), Türkiye'de genellikle Güney ve Güneydoğu Anadolu Bölgesinde doğal olarak yetişmekte olan bir bitkidir. Bu çalışmada, menengiç meyve ekstrelerinin antibakteriyel aktivtesi belirlenmiştir. Bu amaçla, menengiç meyvelerinden aseton, etanol, metanol, hekzan, diklorometan, su çözücüleri ile sonikasyon yöntemi kullanılarak ekstreler hazırlanmıştır. Ekstrelerin antibakteriyel aktivitesi disk difüzyon ve mikrodilüsyon yöntemleri kullanılarak test edilmiştir. Test bakterileri olarak *Bacillus cereus* RSKK 863 *ve Micrococcus luteus* NRLL B-4375 kullanılmıştır. Ayrıca anne sütü orijinli probiyotik adayı iki laktik asit bakterisi *Lactobacillus gasseri* MA-5 ve *Lactobacillus vaginalis* MA-10 üzerinde ekstrelerin antibakteriyel etkisi tespit edilmiştir. Disk difüzyon yönteminin sonuçlarına göre, menengiç meyve ekstreleri *B. cereus* RSKK 863 ve *M. luteus* NRLL-4375 karşı 12.24-18.74 mm ve 9.94-15.65 mm zon çapı ile antibakteriyel aktivite göstermiştir. Ekstrelerin MİK ve MBC değerleri ise 2.5-20 µg/µL ve 20-80 µg/µL olarak bulunmuştur. Ekstrelerin *L. gasseri* MA-5 ve *L. vaginalis* MA-10 üzerinde MİK ve MBC değerleri değerlendirildiğinde diğer iki test bakterisinin MİK ve MBC değerlerine yakın olduğu tespit edilmiştir. Çalışmanın sonucunda, *P.terebinthus* meyve ekstreleri ve bu ekstrelerin test edilen probiyotik adayı LAB ile uygun konsantrasyonlardaki kombinasyonlarının gıda ve farmasötik sanayilerinde doğal koruyucular olarak kullanılma potansiyeli taşıdığı belirlenmiştir.

Anahtar Kelimeler: Menengiç, antibakteriyel aktivite, ekstre, sonikasyon

DRAFT

➢ **ORAL PRESENTATION**

Farklı fungusitlerin (kresoxim-methyl, propamocarb ve hymexazol) genotoksik potansiyellerinin Drosophila komet yöntemi ile araştırılması

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Özet

Pestisitler yaklaşık 5000 yıldır çeşitli zararlılara karşı kullanılmaktadır. Farklı pestisitlerin, karsinojenik, mutajenik ve teratojenik etkiler gibi farklı olumsuz etkileri uzun zamandır dikkati çekmektedir. Pestisitlerin organizmalara olan biyolojik etkileri çeşitli metodlar ile test edilmesine karşın elde edilen veriler yeterli değildir. Diğer taraftan her yıl birçok yeni pestisit kullanım amacıyla üretilmektedir. Fungusitler, bitkileri mantar ve mantar hastalıklarından korumak için kullanılmaktadır. Ürünlerin hasar görmesini önlemek ve hasat edilen ürünlerin depolanmasında veya taşınmasında bozulmaya karşı korumak için gıda ve süs bitkileri üzerinde fungusitler kullanılmaktadır. Bu çalışmada Türkiye'de tarımsal mücadelede yaygın bir kullanıma sahip olan kresoxim-methyl, propamocarb ve hymexazol'ün genotoksik potansiyelleri araştırılmıştır. Literatürdeki pestisit çalışmalarının büyük çoğunluğunu insektisit ve herbisit araştırmaları oluşturmaktadır ancak fungusitlerin yaygın kullanımına rağmen çok az kısmına ait in vivo ve in vitro araştırma bulunmaktadır. Bunların içindeki genotoksisite çalışmaları da oldukça kısıtlıdır. Bu çalışmada, yaygın olarak kullanılan fungusitlerin 1, 5 ve 10 mM'lık dozlarının genotoksik potansiyelleri *Drosophila* Tek Hücre Jel Elektroforezi Testi (*Drosophila* Komet Testi) kullanılarak araştırılmış ve kuyruk uzunluğu parametresi ile değerlendirilmiştir. Son yıllarda genetik çalışmalarda yaygın olarak kullanılan *Drosophila*, insan genetik hastalıkları araştırmalarında, genetik ve moleküler yaklaşımların kullanılmasında güçlü bir sistem sağlamaktadır. Çalışmadan elde edilen sonuçlarda propamocarb'ın tüm dozlarında kresoxim-methyl ve hymexazol'ün ise yüksek dozlarında kuyruk uzunluğunun istatistiksel olarak anlamlı şekilde arttığı gözlemlenmiştir. Bu çalışma pestisitlerin insan sağlığı ve olası genetik hastalıklar üzerine potansiyel etkileri hakkında önemli yeni veriler sunmaktadır.

Anahtar Kelimeler: *Drosophila*, fungusit, genotoksisite, komet

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Effect of brewing conditions on antioxidant capacity of linden tea

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Abstract

The aim of this study was to investigate the effects of brewing conditions on the antioxidant capacity of linden tea. The effects of infusion temperature (75°C to 95°C) and infusion time (2 to 10 min) on the antioxidant capacity of the linden tea were evaluated using response surface methodology (RSM). A two-factor and three-level central composite design was applied for RSM study. Total phenolic content (TPC), 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity, and ferric reducing antioxidant power (FRAP) of the linden tea samples were analysed. The obtained quadratic models explained more than 90% variability in the responses, indicating that the obtained models can be used to evaluate the effects of independent variables on the responses. Both infusion temperature and infusion time presented significant positive effects on the TPC and antioxidant activity of the linden tea ($p<0.05$). Our findings revealed that the best combination of temperature and time was 85-95 °C and 8–10 min for the linden tea.

Keywords : herbal tea, linden, antioxidant activity

DRAFT

➢ **ORAL PRESENTATION**

The impact of acrylamide and crocin on muscle tissue: An empirical study

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Abstract

The present study aimed to determine the impact of acrylamide (AA) and protective effect of crocin (Cr) against acrylamide in rat muscle tissues. 40 male rats were randomly divided into 4 groups with equal rats in each group in the study: Control, Cr, AA, Cr + AA groups. 25 mg/kg AA and 50 mg/kg Cr were administered daily at the same hour for 21 days via oral gavage. Malondialdehyde (MDA), reduced glutathione (GSH), total antioxidant status (TAS), total oxidant status (TOS), Oxidative stress index (OSI), superoxide dismutase (SOD), catalase (CAT) and protein levels were investigated in the muscle tissues. It was determined that MDA, TOS and OSI levels increased in AA administered rat muscle tissues and GSH, TAS, SOD and CAT levels decreased in the same group when compared to the control group ($p < 0.05$). However, GSH, TAS, SOD and CAT levels increased and MDA, TOS and OSI levels decreased in the AA + Cr administration group when compared to the AA group ($p < 0.05$). It was determined that oral administration of acrylamide changed the oxidant antioxidant balance in favor of the oxidants in male rat muscle tissues and caused oxidative stress. However, concomitant administration of crocin recovered the normal antioxidant oxidant balance and prevented oxidative stress. In the study, it was determined that AA administration led to muscle tissue damage. Crocin had a positive impact on the recovery of muscle tissue. Due to the increasing human lifespan, adequate consumption of Cr and similar agents daily against toxic agent such as AA is recommended for skeleton and muscle health.

Keywords: Acrylamide, crocin, muscle tissue, oxidative stress parameters.

DRAFT

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➢ **ORAL PRESENTATION**

The effects of acrylamide and vitamin e on pregnancy model rats

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Abstract

The effects of Acrylamide (AA) and Vitamin E (Vit E) on various rat tissues were investigated during pregnancy (days 0-20). On the last day of pregnancy, the pregnancies were terminated with cesarean section under anesthesia and examined. In the study, where 5mg/kg AA and 100 mg/kg Vit E were administered, an increase in oxidative stress parameters in fetal brain and placenta tissues and histopathological damages were determined in postnatal AA administration group, while these parameters improved in the AA + Vit E group when compared to the AA group. In another study, where 5 mg/kg AA and 100 mg/kg Vit E were administered, the impact on postpartum maternal rats and fetus liver tissues were investigated. It was reported that while the oxidative stress parameters were affected in the AA group maternal liver tissues, AA + Vit E group exhibited an improvement when compared to the AA group, while AA and Vit E administration did not induce any changes in the fetal liver tissue oxidative stress parameters. In a study where 10 mg/kg AA and 100 mg/kg Vit E were administered to investigate their effects on maternal and fetal rat kidney tissues, deterioration in biochemical parameters and histopathological findings was determined in both maternal and fetal kidney tissues in the AA administration group. The study also reported significant improvements in the AA + Vit E group when compared to the AA group. AA led to oxidative stress in tissues and increased oxidant capacity and decreased antioxidant capacity and caused tissue damages. Vit E could shift antioxidant/oxidant balance in favor of antioxidants via its strong antioxidant properties. Based on the present study findings, we recommend the consumption of fresh nutrients with adequate Vit E content daily for both maternal and fetal health during pregnancy.

Keywords: Acrylamide, vitamin E, pregnancy, oxidative stress, rat.

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➢ **ORAL PRESENTATION**

Apelin-13 inhibits the gastric mucus content in ischemia-reperfusion injury

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Abstract

The mucosal barrier compounds as blood flow, mucus and PGE_2 are very important for the protection of gastric tissue against to the damaging factors. Sensorial nerves and vagus are known to regulate the motility, secretion properties and protection mechanisms in gastrointestinal tract. Apelin is a widely expressed peptide in gastric tissue and induces the variety of protective mechanisms in pathologic conditions such as ischemia-reperfusion (I/R)-injury via activating of sensory nerves and vagus. The aim of present study was to investigate the role of apelin-13 on gastric wall mucus content in I/R and to test whether or not the sensory nerves and vagus have role in the effect of apelin.

Wistar rats (250-300g) divided into the experimental groups (n=12) as control, I/R, apelin+I/R, vagotomy+apelin+I/R and capsaicin+apelin+I/R (Akdeniz University, Scientific Research Project No:TDK-2015-593). Ischemia was induced by clamping the celiac artery for 30min and 3h of reperfusion was obtained by removing of the clamp from the artery. Apelin-13 (4mg/kg, i.v.) was administered immediately before I/R. Bilateral subdiaphragmatic vagotomy was performed 10 days before I/R and capsaicin (25, 50 and 50mg/kg for three days, s.c.) was administered to the rats 2 weeks before I/R. After the I/R, gastric specimens were used to measure mucus levels based on the alcian blue dye-binding capacity. Results calculated as µg of Alcian Blue/g of tissue and expressed as means±standard error (SE). The difference between means was evaluated using ANOVA and Tukey test.

According to our findings, mucus level was significantly higher in I/R group (192±26 µg/g tissue) than control (96±11 µg/g tissue, $p<0.01$). Pretreatment of apelin-13 prevented the increasing effect of I/R on mucus (112±11 µg/g tissue, $p<0.05$). Vagotomy (114±6 µg/g tissue) or capsaicin (129±18 µg/g tissue) had no effect in apelin-13-induced inhibition. These results suggest that apelin-13 may inhibit mucus-secreting cells directly through its receptor APJ.

Keywords: apelin-13, I/R, mucus, capsaicin, vagus

DRAFT

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➢ **ORAL PRESENTATION**

Aptamer usage for lateral flow assay

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Abstract

Aptamers are single stranded DNA/RNAs bound to their targets, specifically. They can be produced for various targets, and also good candidate for sensing technology since their high affinity. Lateral flow assay (LFA) is a kind of rapid immunochromatographic test generally developed by gold nanoparticles for labelling. Although antibodies are commonly used for developing the LFA, aptamers are also being used with the increasing interest. Aptamer usage in LFA for small molecule detection is highly effective. However, it has some drawbacks for the whole organisms or cells. Food pathogens have significant role for public health and they can be resulted with death. Therefore, the recognition of them sensitively and rapidly is always become crucial. In this work, new aptamer candidates specific to food pathogen which are reported in the literature were experienced by lateral flow test using gold nanoparticles as a first study. According to the preliminary results, live cell detection by aptamers was achieved and further optimizations are needed.

Keywords: Aptamer, food pathogen, lateral flow assay

DRAFT

➢ **ORAL PRESENTATION**

Zeytin yaprağı metanol ekstresinin *Escherichia coli* O157:H7 ve *Candida albicans* ATCC 10231'e karşı antimikrobiyal aktivitesinin belirlenmesi

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Özet

Bu çalışmada, Manisa'da yetişen Trilye çeşidi zeytin yaprağından elde edilen metanol ekstresinin antimikrobiyal aktivitesi, gıda kaynaklı patojen *Escherichia coli* O157:H7 ve klinik kökenli fungal patojen *Candida albicans* ATCC 10231'e karşı araştırılmıştır. Antimikrobiyal aktivite disk difüzyon, mikrodilüsyon ve makro-dilüsyon yöntemleri kullanılarak değerlendirilmiştir. Zeytin yaprağı ekstresinin inhibisyon zon çapları *E. coli* O157: H7'ye karşı 9.42 mm ve *C. albicans* ATCC 10231'e karşı 19.42 mm olarak gözlenmiştir. Zeytin yaprağı ekstresinin *E. coli* O157:H7 ve *C. albicans* ATCC 10231 üzerinde Minimum İnhibisyon Konsantrasyonları (MİK) ve Minimal Bakterisidal/Fungusidal Konsantrasyonu 10 mg/mL ve 20 mg/mL olarak belirlenmiştir. Makro-dilüsyon yönteminden elde edilen veriler, 20 ve 50 mg/mL konsantrasyonundaki ekstrenin, patojenik test mikroorganizmalarının büyümesi üzerinde engelleyici bir etkiye sahip olduğunu göstermiştir. Sonuçlar, Manisa'dan toplanan Trilye çeşidi zeytin yaprağı metonol ekstresinin tıp ve ilaç endüstrilerinin yanı sıra gıda endüstrisinde de doğal bir antimikrobiyal katkı maddesi olarak kullanılabilme potansiyeli taşıdığını göstermiştir.

Anahtar kelimeler: Antibakteriyel, antifungal, zeytin yaprağı, metanol ekstresi

DRAFT

➢ **ORAL PRESENTATION**

Ankara Bölgesi'nde 2015 ve 2016 yıllarında çeşitli gıdalardan izole ve identifiye edilen gıda patojenlerinin ve indikatör bakterilerin durumu

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Özet

Bu çalışmada amaç, Ankara Bölgesi'nde toplanan çeşitli gıdalardan Türk Gıda Kodeksi'ne göre yapılan mikrobiyolojik analizler sonucunda tespit edilen bakterilerin durumunu araştırmaktır. Pazarlardan, marketlerden toplanan çeşitli gıdaların patojen bakteriler yönünden analizi VIDAS UP cihazı ile; indikatör bakteriler yönünden analizleri ise TEMPO cihazı ile yapıldı. 2015 yılında yapılan analizler sonucunda % 9,3'ü *E. coli* O157, % 8,4'ü *E. coli*, % 24,2'si koagülaz pozitif Stafilokok, % 17,8'i koliform, % 10,2'si maya-küf ve % 1'i *Salmonella* spp., % 42,3'ü Aerobik Koloni Sayısı, % 13'ü *B. cereus* yönünden uygunsuz olarak tespit edilmiştir. 2016 yılında yapılan analizler % 7,9'u *E. coli* O157, % 8,5'i *E. coli*, % 9,2'si koagülaz pozitif Stafilokok, % 18,9'u koliform, % 3,4'ü maya-küf ve % 1,9'u *Salmonella* spp., % 0,4'ü *Listeria monocytogenes*, % 68,1'i Aerobik Koloni Sayısı, % 3,6'sı *B. cereus* yönünden uygunsuz olarak tespit edilmiştir. Genel olarak analizler incelendiğinde sırasıyla Aerobik Koloni Sayısı, koliform, koagülaz pozitif Stafilokoklar, *E. coli* her iki yılda da uygunsuz tespit edilen analizler olmuştur. Piyasada satılan gıdaların mikrobiyolojik analizlerine bakıldığında daha çok indikatör bakteriler yönünden, özellikle de Aerobik Koloni Sayısı, koliform, koagülaz pozitif Stafilokoklar, *E. coli* yönünden kontamine olduğu tespit edilmiştir. Patojenler bazında değerlendirildiğinde ise en sık *E. coli* O157'nin tespit edildiği belirlenmiştir. Bu sonuçlar ülkemizde gıda sektörünün en önemli sorunu olan "hijyen" yönünden halen yeterince istenilen düzeyde olmadığını göstermiştir. Bu çalışmada Ankara Bölgesi'nde birçok gıda mikrobiyolojik yönden ele alınmış, mikrobiyolojik açıdan riskli olan gıdalar ve risklerin hangi bakteriler olduğu bu çalışmada tespit edilmiştir.

Anahtar Kelimeler: Gıda, mikrobiyoloji, hijyen, patojenler, indikatör bakteriler

DRAFT

➢ **ORAL PRESENTATION**

Ameliorative effects of spermidine on cold-inhibited of pollen tube elongation in *Camellia sinensis*

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Abstract

The aim of the current study was to examine the effect of spermidine treatment on cold inhibited pollen tube elongation of *Camellia sinensis*. Pollen grains were germinated in pollen culture medium at 25 °C for control and 4 °C for cold stress. The medium containing 5% sucrose was supplemented by 0, 0.025, 0.05 or 0.1 mM spermidine. The germination rate and pollen tube length were significantly decreased after cold stress. Spermidine treatments stimulated the pollen germination rates and pollen tube length under cold stress. Therefore, in the following process, the pollen tubes of the control group, the cold stress group and 0.05 mM spermidine treatment group that gave the best result under cold stress were examined. Cold-induced tube abnormalities were reduced after spermidine treatment. Besides, cold-induced disruptions in actin organization were improved. Anisotropy levels of actin filaments in shank and apex were decreased and filaments gained dynamism. Changes in stress-induced cellulose and callose distribution in the tube cell wall were partially improved. Degradation of Ca^{+2} and pH gradient, and an increase in accumulation of reactive oxygen species were decreased to appropriate levels that the tubes can cope with stress. Thus, spermidine treatment reorganized the growth pattern of tubes, by modulating cytosolic Ca^{+2} and ROS homeostasis, actin cytoskeleton organization, and cell wall deposition in *Camellia sinensis* pollen tube.

Keywords: actin cytoskeleton; cell wall; cold stress; pollen tube; polyamines; reactive oxygen species; spermidine

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➢ **ORAL PRESENTATION**

Synthesis and characterization of a new luminescent Schiff base receptor for selective detection of D-amino acids in aqueous DMSO solution

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Abstract

A novel Schiff base receptor **L²** in Figure 1a was prepared by selective reduction of nitro group of mono-amine Schiff base **L¹**, and later the condensation with 2-hydroxy-1-naphthaldehyde. Their structures were identified on the basis of melting point, elemental analyses, FT-IR, $^{1}H/^{13}C$ NMR, UV–vis, HRMS and PL data. The tautomeric equilibria in these compounds was investigated in solid state and DMSO solution by using various spectroscopic methods. The obtained results indicated that **L²** exists in enol-imine tautomer in the solid state and keto-amine tautomer in DMSO solution. **L²** gave red-point luminescence (λ_{em} = 711 nm) in the solid state after photoexcitation with He-Cd laser (λ_{exc} = 325 nm) (Figure 1b). Upon excitation with laser and Xenon lamp (λ_{exc} = 365 nm), DMSO solution of receptor emitted yellow luminescence (λ_{em} = 603–613 nm).

The selectivity of receptor **L²** towards *α*-D-amino acids (glycine, alanine, phenylalanine, valine, serine and threonine) was investigated in 50% DMSO–H_2O mixture (1:1 volume relation). The changes in the color and the absorption spectrum of **L²** with the addition of amino acids were determined at different pH values (pH = 5 and 8.5). **L²** had a better selectivity for detecting of glycine in acidic solution, while it showed good recognition towards all the tested D-amino acids in basic solution (Figure 1c). Based on UV–vis titration, the binding stoichiometry of receptor with amino acids was evaluated by using Benesi–Hildebrand curve fitting method. The B-H plot confirmed that a 2:1 [A.acid:Receptor] stoichiometry complex is formed in acidic and basic solutions. Accordingly, the binding constant of the complexes was calculated to be in the range of $1.24 \times 10^4 - 2.55 \times 10^5$ M^{-2}. The detection limit (LOD) of **L²** was found to be within the concentration range of 119.58-731.22 μM.

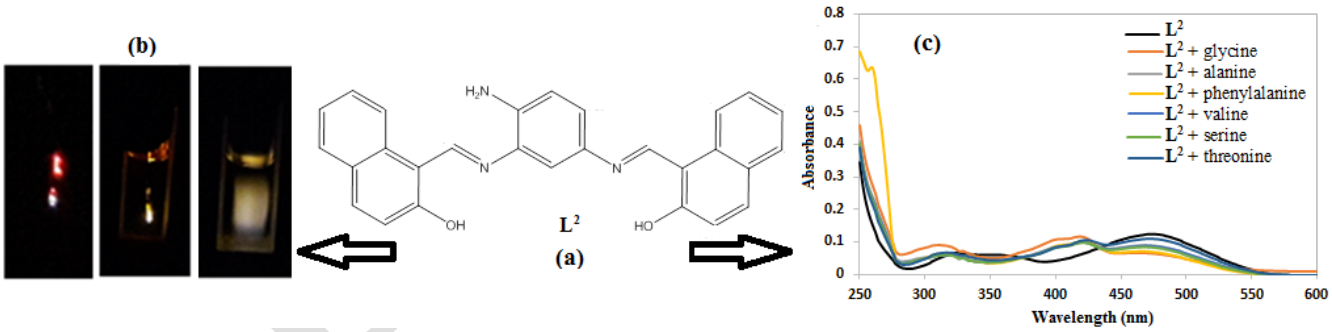


Figure 1. (a) The structure of receptor **L²**, **(b)** the photographs of **L²** after excitation with He-Cd laser (λ_{exc} = 325 nm) and Xenon lamp (λ_{exc}= 365 nm) in the solid state and DMSO solution, **(c)** UV–vis spectra of **L²** in DMSO-water mixture (v/v, 1:1, 25 μM) after addition of D–amino acids (v/v, 1:1, 7.5×10^{-3} M), the set pH of mixture was 8.5.

Keywords: Schiff bases, Reduction of nitro group, Photoluminescence spectra, D-amino acids

➢ **ORAL PRESENTATION**

Identifying the role of speedy/RINGO on mitogenic (MAPK) and survival (AKT) pathyways interaction in neuroblastoma cells

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Abstract

Over-activation of mitogenic MAPK and AKT survival pathways is one of the most important contributing factors in the formation of many types of cancer, including neuroblastoma. This main causative factor also indicates a poor prognosis by causing chemotherapy resistance. This state demonstrates that there is a cross-talk between these two signaling cascades and they act together by one triggering the other, during cancer progression. Studies are performed with cell and tissue types other than neuroblastoma show that there is more likely a novel cell cycle regulator protein, Speedy/RINGO at the heart of this interaction. It has been shown that over-expression of some cell cycle regulators such as Speedy/RINGO causes cells to become cancerous and become aggressive by escaping them from apoptosis. Speedy/RINGO, is a cyclin like cell cycle regulator protein that binds and activates CDKs and has a functional role in G1/S transition. The aim of this study is to show the connective role of Speedy/RINGO in between AKT and MAPK pathways in neuroblastoma for the first time. In this direction, the MAPK pathway was inhibited by U0126, causing a decrease in the Speedy/RINGO expression level. Due to this decrease, CDK2-Cyclin A expression levels and AKT phosphorylation were declined. In the second part of the study, the Speedy/RINGO gene was silenced by the siRNA method to confirm that these effects were seen after MAPK inhibition depended on Speedy/RINGO. As a result, similar data were obtained as in MAPK inhibition. CDK2-Cyclin A and AKT expression levels decreased due to the silencing of the Speedy/RINGO.

Keywords: Neuroblastoma, MAPK, AKT, Speedy/RINGO, Cyclin A-CDK2

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DRAFT

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➢ **ORAL PRESENTATION**

Isolation and characterization of thermophilic bacteria from hot spring in Çermik, Diyarbakır

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Abstract

Hot water springs are one of the natural habitats, especially for thermophilic microorganisms, which also provide an important opportunity for thermostable biomolecules. In this study, it was aimed to isolate and characterize thermophilic bacteria from Çermik hot water spring in Diyarbakır. Twenty two thermophilic bacterial strains were isolated and the colony and cell morphology, physio-biochemical tests, antibiotic susceptibility tests, MALDI-TOF MS (matrix assisted laser desorption/ionization mass spectrometry) and 16S rRNA gene sequencing of these strains were evaluated by comparing both phenotypic and phylogenetic characteristics. The optimum growth conditions (time, temperature, pH, salt tolerance, etc.) of the strains were determined. The potential of the isolated strains to produce enzymes of biotechnological importance was also investigated. Five of the isolated thermophilic bacteria, including *Brevibacillus agri*, *Bacillus zhangzhounesis*, *Deinococcus sahariens*, *Bacillus licheniformis* grew at 55 ºC. It was determined that 10 bacteria out of 22 isolated bacteria showed some enzyme activity such as □□amylase, protease and lipase etc. which have biotechnological potential. Furthermore, in this study, the diversity of the bacteria isolated from both the Çermik hot spring and other hot water springs in the Southeast Anatolia Region from previous studies was compared by using culture-dependent approach. The present study comprehensively demonstrates the diversity of bacteria in the Çermik hot water springs and thus contributes to data base on the thermophilic bacteria.

Keywords: Hot water springs, Thermophilic, *Bacillus*, 16S rRNA

DRAFT

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➢ **ORAL PRESENTATION**

Time dependent gene expression analysis of vitamin D_3 (1,25 $(OH)_2$ D_3) treated HL–60 cells by Q-RT-PCR

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Abstract

Objective: The treatment of Acute myelogenous leukemia (AML) with differential effect of 1alpha,25-dihydroxyvitamin D(3) (1,25$(OH)_2D_3$) has been one of the popular research topics. We aimed to analyze expression of several genes related to cell cycle regulation and apoptosis in realization of 1,25$(OH)_2D_3$-induced differentiation of HL-60 cells.

Methods: We analyzed 13 genes (TNFR1, Bcl-w, Bax, Bak, Caspase–6, Caspase–8, AIF, Survivin, Cdk1 (Cdc2), Cdk2, Cdk4, Cyclin-D1 and Cyclin-E) for changes in expression associated with the apoptosis of human promyelocytic leukemia HL-60 cells induced by 1,25$(OH)_2D_3$ at 18^{th}, 36^{th}, 48^{th} and 72^{nd} h, using quantitative real-time PCR.

Results: We did not significantly find down or up-regulated expression profiles at mentioned time points. In our experiments, we observed decreased expression of TNFR1, Cdk-4, Cyclin-D1, Cyclin-E and Survivin genes at 72^{nd} hours, and increased expression of Caspase-8 and Bak genes. The tendency of cell cycle related genes to decrease from 18^{th} to 72^{nd} hours suggests that the cells entered the process of differentiation from the proliferation process. The anti-apoptotic genes Bcl-w and Survivin gene expressions generally follow a decreasing line, and the tendency to increase expression of Bak gene and Caspase-8 suggest that the apoptotic process starts around 72^{nd} hours.

Conclusion: In conclusion, our results suggest that the leukemic cells are exposed to the effect of vitamin D3 as expected, the repetitive clonal development process ends, the differentiation is completed, and the apoptotic process has just begun.

Keywords: HL–60 cells, 1,25 $(OH)_2$ D_3, Cell Cycle, Differentiation, Apoptosis, Quantitative Real Time Polymerase Chain Reaction (Q-RT-PCR)

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DRAFT

➢ **ORAL PRESENTATION**

Liken (*Pseudoevernia furfuracea*) biyokütlesi kullanılarak sulu çözeltiden Allura red giderimi

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Özet

Allura red, renklendirici (E129) olarak bilinen, gıda endüstrisinde yaygın olarak kullanılan, monoazo sınıfı sentetik bir gıda boyasıdır. Azo boyalarının potansiyel toksisitesi ve patojen özellikleri nedeniyle endüstriyel atık sulardan uzaklaştırılması çevre açısından çok önemlidir. Atıksuların arıtılmadan kontrolsüz bir şekilde çevreye boşaltılmaları o çevredeki canlılara toksik ve mutajenik etki yapmaktadır. Literatürde biyolojik arıtım yöntemlerinde mantarlar, algler ve likenler kullanılmıştır ve başarılı sonuçlar elde edilmiştir (Gül 2013). Bir mantar ve alg veya siyanobakteri olabilen bir fotosentetik partnerin bir araya gelerek oluşturduğu simbiyotik organizmalara 'Likenler' adı verilmektedir (Nash 1996). Literatürde likenlerin havadaki ağır metalleri biriktirme özelliği, bulunduğu ortamlardaki hava kirliliğinin tespit edilmesi amacıyla biyoindikatör olarak kullanımı üzerine çalışmalar bulunmaktadır. Ancak Likenlerin gıda boyaları gideriminde kullanımı ile ilgili nadir çalışma bulunmaktadır. Bu çalışmada Liken (*Pseudoevernia furfuracea*) biyokütlesi kullanılarak sulu ortamdan allura red gıda boyasının giderimi için biyosorbent özellikleri araştırılmıştır. Liken (*Pseudoevernia furfuracea*) biyokütlesi biyosorpsiyon öncesi ve sonrası FT-IR ve SEM-EDX analizleri ile karakterize edilmiştir. Biyosopsiyon çalışmaları; pH, biyosorbent miktarı, derişim, kinetik, termodinamik ve desorpsiyon açısından değerlendirilmiştir. Elde edilen deneysel veriler Langmuir, Freundlich ve Dubinin Radushkevich izoterm modellerine uygulanmış, ilgili parametreler türetilmiştir. Langmuir eşitliğinden maksimum adsorpsiyon kapasitesi 25 ^{o}C'de 0.280 mol kg^{-1}olarak bulunmuştur. Biyosorpsiyon kinetiğinin yalancı ikinci derece ve parçacık içi difüzyon modellerine uyum sağladığı görülmüştür. Bisorpsiyon termodinamiği, liken biyosorbentine allura red biyosorpsiyonunun mümkün, kendiliğinden ve endotermik olduğunu göstermiştir. Sonuç olarak, Liken (Pseudoevernia furfuracea) biyosorbenti, atık sulardan allura red gıda boyasının gideriminde alternatif bir biyosorbent olarak kullanılabilir.

Keywords: Liken, *Pseudoevernia furfuracea*, biyosorpsiyon, gıda boyası, allura red

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➢ **ORAL PRESENTATION**

Liken (*Evernia prunasti*) biyokütlesi kullanılarak sulu çözeltiden kurşun giderimi

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Özet

Ağır metal kirliliğinin gelişen medeniyet seviyesiyle artması başta insanlar olmak üzere bütün canlılar için tehdit oluşturmaktadır. Bu yüzden başta içme suyu kaynakları olmak üzere, tarım toprakları, besin maddeleri ve hatta atık sularda bile ağrır metal seviyelerinde sınırlandırıcı yönetmelikler getirilmiştir (Dursun ve Köysüren; 2014). Ağır metal kirliliği oluşturan metallerden biri olan kurşun çevrede her yerde bulunur ve yüksek seviyelerde tehlikelidir. Genel bir metabolik zehir ve enzim inhibitörüdür ve kemikler, beyin, böbrek ve kaslarda birikebilir (Denizli ve ark., 2000). Yüksek düzeyde uzun süreli kurşun içeren içme suyu, anemi, böbrek hastalığı ve zeka geriliği gibi ciddi rahatsızlıklara neden olabilir. Bu nedenle kurşunun çevredeki atık sulardan giderilmesi gerekmektedir. Ağır metallerin giderimde likenler de kullanılmaktadır. Ancak literatürde *Evernia prunasti* liken türünün ağır metal gideriminde biyosorbent kullanımı ile ilgili nadir çalışma bulunmaktadır. Bu çalışmada Liken (*Evernia prunasti*) biyokütlesi kullanılarak sulu ortamdan Pb^{2+} giderimi için biyosorbent özellikleri araştırılmıştır. Liken (*Evernia prunasti*) biyokütlesi biyosorpsiyon öncesi ve sonrası FT-IR ve SEM-EDX analizleri ile karakterize edilmiştir. Biyosopsiyon çalışmaları; pH, biyosorbent miktarı, derişim, kinetik, termodinamik ve desorpsiyon açısından değerlendirilmiştir. Elde edilen deneysel veriler Langmuir, Freundlich ve Dubinin Radushkevich izoterm modellerine uygulanmış, ilgili parametreler türetilmiştir. Langmuir eşitliğinden maksimum adsorpsiyon kapasitesi 25 ^{o}C'de 0.067 mol kg^{-1}olarak bulunmuştur. Biyosorpsiyon kinetiğinin yalancı ikinci derece modele uyum sağladığı görülmüştür. Bisorpsiyon termodinamiği, liken biyosorbentine Pb^{2+} biyosorpsiyonunun mümkün, kendiliğinden ve endotermik olduğunu göstermiştir. Sonuç olarak, Liken (*Evernia prunasti*) biyosorbenti, atık sulardan allura red gıda boyasının gideriminde alternatif bir biyosorbent olarak kullanılabilir.

Keywords: Liken, *Evernia prunasti,* biyosorpsiyon, ağır metal, kurşun

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DRAFT

➢ **ORAL PRESENTATION**

Hidroponik (su kültürü) seralarda rüzgar-güneş hibrit sistemlerle iklimlendirmenin sağlanabilirliği: Tekirdağ ili örneği

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Özet

Su kaynakları ve tarım alanlarında her geçen gün artan şekilde azalma meydana gelmektedir. Yenilenemeyen enerji kaynaklarının tükenme noktasına gelmesi ise yenilenebilir enerji kaynaklarına olan talebi arttırmıştır. Bu durumların yanı sıra, küresel ölçekte nüfus artışı da devam etmektedir. Gıda maddesi üretim kaynaklarının azalmasına karşın artan nüfusun beslenme ihtiyacının karşılanma zorunluluğu, su tasarrufu sağlayan modern sistemlerin geliştirilmesi sonucunu doğurmuştur. Bu nedenle, son yıllarda tarımsal anlamda direk su içerisinde yetiştiricilik anlamına gelen hidroponik sistem yaygınlaşmaktadır. Bu sistemde bitkisel ürünler toprak olmadan su içerisinde yetiştirilmekte, büyüme için gerekli bitki besinleri ise yine su içerisindeki sıvı karışımdan sağlanmaktadır. Su kültürü sistemleri genellikle iklimlendirme kontrollü modern sera koşullarında kullanılmaktadır. Sera iklimlendirmesinde ise yenilenebilir enerji kaynaklarından faydalanılmakta olup, bu sayede enerji tasarrufu sağlanarak sürdürülebilir tarımsal üretim gerçekleştirilmektedir. Güneş, rüzgar, biyokütle gibi yenilenebilir enerji kaynaklarından ayrı ayrı yararlanma imkanı olmakla birlikte, günümüzde rüzgar ve güneş enerjisini birlikte değerlendiren hibrit sistemler ile modern sera iklimlendirilmesinin sağlanması da mümkündür. Bu çalışmada Tekirdağ bölgesinde su kültürü ile oluşturulabilecek hidroponik seralarda, rüzgar-güneş hibrit sistemli iklimlendirme sağlanarak sürdürülebilir tarımsal üretimin gerçekleştirilmesi amaçlanmıştır. Bu amaçla, öncelikle su kültürü sisteminden bahsedilmiş olup, daha sonrasında Tekirdağ ilinin tüm ilçelerinin güneş ve rüzgar enerji potansiyelleri araştırılarak, hidroponik sistemli seraların enerji ihtiyacını karşılama oranı belirlenmiştir. Tekirdağ ilinin tüm ilçelerinin yıllık güneşlenme süreleri, global radyasyon değerleri ve toplam güneş radyasyonu analiz edilmiştir. Rüzgar enerjisi potansiyeli, rüzgar hızı ve kapasite faktörü dağılımı ışığında, hangi bölgelerde rüzgar-güneş hibrit tip enerji kaynağı ile iklimlendirilecek hidroponik (su kültürü) seraların oluşturulabileceği belirlenmeye çalışılmıştır. Yapılan analiz sonucunda rüzgar-güneş hibrit sistem için toplam enerji potansiyelinin Şarköy, Malkara, Çerkezköy ve Çorlu ilçelerinde diğer bölgelere göre daha yüksek olduğu görülmüştür. Ancak diğer ilçelerde de belirli kapasitelerde rüzgar- güneş hibrit enerji kaynakları kullanılarak hidroponik seraların oluşturulmasının mümkün olduğu söylenebilir.

Anahtar Kelimeler: Hidroponik (Su kültürü) sistem, Sera, Seralarda İklimlendirme, Rüzgar- güneş hibrit enerji

DRAFT

➢ **ORAL PRESENTATION**

Diyarbakır Eğil'de petrolle kirletilmiş topraktan petrol parçalayan bakterilerin izolasyonu ve tanımlanması

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Özet

Petrol, tüm ülkelerdeki enerji taleplerini karşılamak için önemli bir stratejik kaynaktır. Bununla birlikte, petrol kullanımından dolayı petrol ile kirlenmiş alanlarda sürekli ve kalıcı çevresel riskler vardır. Petrol hidrokarbon parçalayıcı bakteriler, petrol kirleticilerinin tedavisi için adaydır. Bu çalışmada, Diyarbakır'ın Eğil İlçesi'nin 30-35 km kuzeydoğusunda yer alan petrolle kirlenmiş toprak alanlarından petrol parçalayan bakteriler izole edilmiştir. Elde edilen bakterilerin koloni morfolojisi ve hücre morfolojisi incelendi. Ayrıca biyokimyasal (sitrat, oksidaz, üreaz, jelatin, tirozin, nişasta, indol, katalaz), fizyolojik (hareketlilik testi, optimum büyüme süresi, sıcaklık, pH), antibiyogram testleri ve MALDI-TOF MS (Matrix destekli lazer desorpsiyon iyonizasyon süresi) analizi yapıldı. İzolatlar PD2-1, PD2-2, PD2-3 olarak kodlandı. Hidrokarbon parçalayıcı mikroorganizmaları taramak için n-heptan, n-pentadekan, n-hekzadekan ve skualen gibi hidrokarbonlar test edildi. MALDI-TOF MS analizi ve diğer tarama testlerine göre, suşların *Pseudomonas aeruginosa, Pseudomonas putida, Acinetobacter calcoaceticus* ile yakından ilişkili olduğunu belirlenmiştir.

Anahtar kelimeler: Petrol-kirliliği, petrol-parçalanması, *Acinetobacter, Pseudomonas*

DRAFT

➢ **ORAL PRESENTATION**

Seralarda yağmur sularının değerlendirilmesi ile sulama ve sisleme sistemlerinin sağlanabilirliğinin belirlenmesi

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Özet

İklim koşullarına bağlı olmaksızın sürdürülebilir bitkisel üretimin sağlanması, sera koşullarında üretim ile gerçekleştirilebilmektedir. Seracılık, bitkilerin gelişimi için gerekli koşulların kapalı ortamda kontrol edilerek sağlanması ile yapılan bitkisel üretimdir. Günümüz koşullarında modern sera sistemleri ile bitkilerin gelişme için ihtiyaç duydukları çevre koşulları, uzaktan kontrollü ve otomasyonlu bir şekilde sağlanmaktadır. Sera içi sulama işleminin yapılması ve nem dengesinin sağlanması, bitki gelişimi açısından gerekli çevre koşulları ile ilgili sistemlerin başında gelmektedir. Otomasyonlu şekilde tasarlanacak olan bu sistemlerin her ikisinde de suya ihtiyaç duyulmaktadır. Tarımsal sulamada gelişigüzel şekilde hoyratça yapılan uygulamalar ve atık maddelerin doğrudan su kaynaklarına sızması sonucu oluşan kirlilik nedeniyle, tüm su kaynakları her geçen gün daha da azalmaktadır. Bu durum, mevcut suyun tasarruflu bir şekilde kullanılmasını zorunlu kılmıştır. Bu zorunluluk, peyzaj alanlarının sulanmasından tarımsal sulamaya kadar her alanda kısıtlayıcı ve tasarruflu sulama yöntemlerinin kullanımının arttırılması sonucunu doğurmuştur. Bu nedenle, sera koşullarında yapılacak olan sulama ve sisleme sistemlerinde, su tasarrufu sağlayan yöntemlerin kullanılması gerekmektedir. Günümüz koşullarında kullanılmaya başlanan yağmur sularının hasadı yöntemiyle, mevcut su kaynaklarından kullanım olmadan sera içi su ihtiyacı karşılanabilmektedir. Bu yöntemde, sera tasarlama aşamasında çatı sisteminde özel su toplama sistemi planlanmakta olup, biriktirilen su borular yardımıyla su toplama havuzuna aktarılmaktadır. Su toplama havuzunda biriktirilen su, ihtiyaç duyulduğunda basınçlı sistemlerden yararlanılarak sera içi sulama ve sisleme sistemlerine aktarılmaktadır. Bu şekilde sera içi ihtiyaç duyulan su, yağmur hasadı ile sağlanmakta ve hiçbir doğal su kaynağından su temini yapılmamaktadır. Bu çalışmada, günümüzde modern seralarda yeni kullanılmaya başlanan yağmur sularının toplanması ve biriktirilmesi ile sulama - sisleme sistemlerinin oluşturulması ile ilgili literatür kapsamında bilgi verilmesi amaçlanmıştır. Bu amaçla, literatür taraması ile elde edilen bilgiler derlenerek seracılıkta su tasarrufunun sağlanabileceği ortaya konulmuştur. Yapılan derleme çalışmasında seracılıkta yağmur sularının hasadı teknolojisi ile ilgili çalışmaların desteklenmesi ve bu alanda yapılacak yatırımların teşvik edilmesinin gerekliliği tavsiye edilmektedir.

Anahtar Kelimeler: Sera**,** Sulama sistemleri, Sisleme sistemleri, Yağmur suları, Su hasadı, Su depolama

DRAFT

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➢ **ORAL PRESENTATION**

Çok değişkenli kalibrasyon metotları ve spektroskopik teknikler kullanarak farklı bölgelerde yetiştirilen natürel sızma zeytinyağlarının sınıflandırılması

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Özet

Natürel sızma zeytinyağı (EVOO), zeytin ağacının (*Olea europaea L.*) sağlıklı ve bozulmamış meyvelerinden sadece mekanik yollarla (kırma, malaksasyon ve santrifüj) elde edilen ve doğrudan insanlar tarafından rafine edilmemiş olarak tüketilebilen bir bitkisel yağdır. Bu yağ elde etme işleminde hiçbir kimyasal kullanılmadığından EVOO, diğer yenilebilir yağların rafinasyon prosesi sebebiyle kaybolan başta biyoaktif bileşenleri olmak üzere orijinal özelliklerini ve bileşenlerini korur (Nieto, Hodaifa ve Peña, 2010). Tüm bu özelliklerinden dolayı EVOO, tüketiciler tarafından çok talep gören değerli bir yenilebilir bitkisel yağdır. EVOO'in içerdiği yağ oranı ve insan sağlığı için önemli olan biyoaktif bileşenleri yetiştirildikleri bölgenin iklim, coğrafya ve toprak gibi birçok özelliğine göre değişmektedir ve bu bölgelere göre karakterize olmaktadır. Bu sebeple yetiştirilen ve tüketicilere sunulan EVOO'ların sınıflandırılması ve buna göre analiz edilmesi sahtecilik ve tağşiş gibi istenmeyen olayların önüne geçilmesi açısından büyük önem arz etmektedir. EVOO'ların sınıflandırılması ve karakterizasyonu için içerdiği biyoaktif bileşenlerin türleri ve miktarları kromatografik yöntemlerle incelenmektedir. Bu metotlar kesin ve doğru sonuçlar vermesine karşın uzun zaman alan, çok kimyasal kullanılan ve pahalı metotlardır. Araştırma grubumuzca ilk kez yapılan çalışma kapsamında farklı bölgelerde yetiştirilen EVOO'ların sınıflandırılması için ATR-FTIR, UV-Vis ve Floresans spektroskopisi gibi farklı spektroskopik teknikler kullanılmış ve numuneyi yok etmeyen, çevre dostu, hızlı ve ekonomik bir analiz metodu geliştirilmiştir. Test edilen spektroskopik metotların 20 adet farklı marka EVOO numunelerini sınıflandırma kabiliyeti, çok değişkenli kalibrasyon metotlarından biri olan temel bileşen analizi (PCA) kullanılarak karşılaştırılmıştır. Elde edilen sonuçlara göre UV-Vis spektroskopisi kullanılarak geliştirilen model, 20 farklı EVOO numunesini en yüksek temel bileşen (PC) ayırma skorları ile (PC1: %56, PC2: %25) sınıflandırmayı başarabilmiştir. Diğer spektroskopik teknikler kullanılarak geliştirilen modellerin ayırma skorları ise sırasıyla floresans ve ATR-FTIR için PC1: %53, PC2: %25 ve PC1: %40, PC2: %27 olarak tespit edilmiştir.

Anahtar Kelimeler: ATR-FTIR; Floresans; Natürel sızma zeytinyağı; Sınıflandırma; Spektroskopi; UV-Vis

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➢ **ORAL PRESENTATION**

Probiotic effects of *Bifidobacterium* species

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Abstract

Probiotics are defined as living microorganisms that provide health benefits to the host when administered in adequate amounts. *Bifidobacterium* is one of the most widely used and studied probiotic bacteria among the various probiotic bacteria. *Bifidobacterium* genus which have high GC content, belong to *Bifidobacteriaceae* family, *Bifidobacteriales* order and *Actinobacteria* class are Gram-positive, immobile, non-spore-forming, anaerobic microorganisms. Some *Bifidobacterium* strains are considered probiotic microorganisms due to their beneficial effects and used as bioactive agents in functional foods, especially dairy products, as well as in food supplements and pharmaceutical products, alone or in combination with other microbial / microbial substrates. *Bifidobacterium* genus consists of 70 species and 10 subspecies. *Bifidobacterium bifidum*, *Bifidobacterium breve*, *Bifidobacterium infantis*, *Bifidobacterium longum* species are important species in terms of probiotic properties. *Bifidobacteria* are able to perform protective intestinal actions through various mechanisms and also show promising progress in the areas of treatment. As probiotic agents, *Bifidobacteria* have been studied for their effectiveness in the prevention and treatment of a broad spectrum of animal and/or human gastrointestinal diseases such as colonic transit disorders, intestinal infections and cancer. *Bifidobacteria* are commercially used as probiotic agents due to their health benefits and GRAS (Generally Recognized as Safe) status. *Bifidobacteria* with probiotic properties are found in the natural flora of the human intestinal tract and are used in the production of many fermented dairy products due to their various dietary and therapeutic properties. It is known that there are more than 70 products containing *Bifidobacteria* worldwide and that *Bifidobacteria* are widely used as health promoting microorganisms in many functional foods. Therefore, it is important to investigate and know the probiotic characteristic of *Bifidobacteria*. The aim of this review is to focus on the probiotics effects of *Bifidobacteria*.

Keywords: *Bifidobacteria*, probiotics, food, health.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Synthesis and characterization of functionalized magnetic core/shell Fe_3O_4@Au nanoparticles for used to immobilization L-asparaginase enzyme

Tuba Tarhan[1*], Ahmet Ulu[2], Melike Sariçam[3], Mustafa Çulha[3], Burhan Ateş[2]

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Abstract

In this study, maltose-functionalized magnetic core/shell nanoparticles (Fe_3O_4@Au NPs) as a promising carrier matrix for a simple and effective immobilization of L-asparaginase (L-ASNase) are prepared and characterized using imaging techniques including atomic force microscopy (AFM) and transmission electron microscopy (TEM), and vibrating sample magnetometry (VSM). The results indicate that the NPs are monodispersed with an average diameter of 10 nm and magnetization of 9.0 emu g^{-1}. The crystallinity of the magnetic nanoparticles before and after modification was characterized by XRD. The chemical compositions of the magnetic nanoparticles were analysed using EDX. Under the optimal conditions, 77.2 ± 2.3% of the total L-ASNase is immobilized. It is found that the acid-base tolerance and thermal stability of immobilized L-ASNase are significantly improved comparison to the free form of the enzyme in solution. Moreover, the free and immobilized L-ASNase maintains their initial activities about 25 and 64% after 28 days storage at 25 °C, respectively. Km value of immobilized L-ASNase decreases to 1.59 mM from 2.95 mM as an indication of increased enzyme affinity for the substrate. The results of this study suggest that the maltose-coated magnetic nanoparticles are excellent nanovehicles to carry enzymes for a range of industrial applications.

keywords: functionalized magnetic core/shell nanoparticles, L-asparaginase, enzyme immobilization

DRAFT

➢ **ORAL PRESENTATION**

Synthesis and characterization of hexagonal boron nitride (hBN) for an effective removal of organic dyes: kinetics and equilibrium studies

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Abstract

In this study, hBN nanostructure is synthesized from boric acid for removal organic dyes in aqueous solution. The characteristic peaks of hBN are performed by using Raman and Fourier transform infrared (FT-IR) spectroscopies. Moreover, the morphology of hBN and particle size is determined by scanning electron microscopy (SEM) and transmission electron microscopy (TEM). During the studies, the various essential factors are investigated such as pH of the aqueous dye solution, initial dye concentration, adsorbent dose, and contact time. Further, the equilibrium isotherm and the kinetic models are studies for removal of Metanil Yellow (MY) and Victoria Blue B (VBB) anionic and cationic organic dye respectively. Under optimal condition, it is found removal of the 42.6 % Metanil Yellow (MY) and 90 % Victoria Blue B (VBB) from aqueous solution using by hBN nanostructure.

Keywords: Hexagonal Boron Nitride Nanostructure; Victoria blue B; Metanil Yellow; Adsorption Isotherm and Kinetic Models

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➢ **ORAL PRESENTATION**

Atomistic simulation study on determination of trimetallic nanoalloy structures

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Abstract

In this study, trimetallic nanoalloy structures composed of platinum, nickel and silver atoms were investigated with various sizes and compositions. The optimal ordering structures of nanoalloys were determined by Basin-Hopping algorithm within Gupta potential. The lowest energy structures were obtained by an energetic analysis. Since the geometry of the nanoalloys is important in determining the structural properties, the segregation tendency of the atoms in a Mackay icosahedron was analyzed in detail. It was observed that the lower surface and cohesive energy atom exhibits a single atomic layer. Also, it was observed that the placements of the inside atoms of the structures change with size and composition.

Keywords: Nanoalloys, optimization, atomistic simulation.

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➢ **ORAL PRESENTATION**

Lavandula angustifolia'nın bazı antimikrobiyal, antioksidan ve fitokimyasal özelliklerinin araştırılması

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Özet

Uçucu yağların antibakteriyel aktiviteleri, bakteri hücre zarlarının hidrofobik yapısı ve membran fonksiyonunun bozulması ile ilişkili olduğu düşünülmektedir. Yan etkilerinin az olması, dermatolojide popüler kullanımları, kolay bulunabilirlikleri ve antimikrobiyal direncin ortaya çıkmasıyla birlikte, giderek daha güçlü bir tedavi seçeneği haline gelmektedir. Yapılan çalışmada; *Lavandula angustifolia*'dan sokslet yöntemiyle elde edilen yağın, GC-MS Head Space analizi ile uçucu yağ bileşenleri, agar kuyu difüzyon MIC testi ile bazı gram negatif/pozitif patojen mikroorganizmalar ve laktik asit bakterileri üzerine antimikrobiyal etkisi ve antioksidan kapasitesinin (DPPH, Metal Şelatlama, FRAP) değerlendirilmesi amaçlanmıştır. Yapılan analizler sonucunda, GC-MS head space analizinde en yüksek %22.58 oranında Okaliptol, ikinci sırada 19.44 oranında a-Linalol ve % 14.61 oranında Linalil asetat tespit edildi. Lavanta'nın önemli bileşeni olan Lavandulol %1.39 oranında belirlendi (Tablo-1). Lavanta yağının en çok *B. Subtilus* ve MRSA üzerine (sırasıyla 24 ile 22 mm zon çapı), sonra sırasıyla *Staph. Aureus* ve *E. coli*, *Campliobacter jejuni*, *Salmonella poona*, ve *laktik asit bakterisi* (*Lactobacillus reuteri* ve *Lactobacillus plantarum*) üzerine antibakteriyel etkisi olduğu tespit edilmiştir (sırasıyla 17, 16, 14,14, 12, 12, 11 mm zon çapı, Tablo-2). Aynı zamanda yapılan DPPH, FRAP ve metal şelatlama analizlerinde antioksidatif etkisi belirlenmiştir (Tablo-3). Sonuç olarak, Lavanta yağının bazı patojen mikroorganizmalara antimikrobiyal etki göstermesi, uçucu yağ bileşiminin önemli etken maddelerinin head space ile tespiti ve antioksidan etkisi ile endüstriyel ve geleneksel koruyucu olarak kimyasal koruyuculara alternatif olabileceği belirlenmiş olup; aynı zamanda tamamlayıcı tıp ve aroma terapide kullanımının hastalıklara karşı koruyucu ve semptomatik tedavide önemi tespit edilmiş olup yapılacak *in vivo* çalışmalara kaynak sağlayacağı düşünülmektedir.

Anahtar Kelimeler: *Lavandula angustifolia,* Antimikrobiyal aktivite, MIC, Antioksidan kapasite, GC-MS, Head space

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➢ **ORAL PRESENTATION**

Greener approaches and innovative technologies for the extraction of edible oils in food industry

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Abstract

The most common way of the extraction of oils from edible oil sources is the solvent extraction where *n*-hexane, which is a petroleum derivative solvent with toxic and harmful effects, is intensively used due to its great ability of oil extraction. However, the food industry has been recently seeking alternative ways to avoid the environmental issues and the potential health risks of the hexane extraction. Thus, greener solvents and innovative technologies are now being studied for a replacement for the solvent extraction. The major innovative technologies for oil extraction include microwave-assisted extraction (MAE), ultrasound-assisted extraction (UAE), pressurized liquid extraction (PLE), supercritical fluid extraction (SFE), pulsed electric field (PEF)-assisted extraction, and enzyme-assisted aqueous extraction. In addition to these novel technologies, bio-based greener solvents which are energy-efficient, environment-friendly, non-toxic and non-harmful have been investigated for oil extraction in order to replace hexane. The most studied greener solvents include alcoholic liquids such as ethanol and isopropyl alcohol and terpenes such as D-limonene, *α*-pinene, and *p*-cymene. The use of these alternative ways is expected to be widespread in the future when their positive effects on food quality, environment, and human health are studied further.

Keywords: green approaches, innovative technologies, oil extraction, food industry

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➢ **ORAL PRESENTATION**

Isothermal amplification methods: Application in virology

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Abstract

Nucleic acid amplification methods based on the detection and analysis of nucleic acid are frequently used in the forensic medicine and diagnosis of infectious, genetic and tumoral diseases. One of these methods, polymerase chain reaction (PCR), is the most widely used DNA amplification method. In the PCR methods, there is required extensive and high cost laboratory equipment and a thermalcycler. Nowadays, some new techniques that allow the amplification of DNA under isothermal conditions without the need for a thermalcycler have been developed. These techniques include *transcription mediated amplification* (TMA), *self-sustained sequence replication* (3SR), *nucleic acid sequence-based amplification* (NASBA), *strand displacement amplification* (SDA), *loop-mediated isothermal amplification* (LAMP), *Recombinase polimerase amplification* (RPA) and *helicase-dependent amplification* (HDA) are among the most widely used methods in the field of virology. In this rewiew paper, it is aimed to explain the basic principles of these isothermal nucleic acid amplification methods and opportunities for field applications in virological researchs.

Keywords: Isothermal amplification methods, LAMP, NASBA, RPA, SDA, TMA, 3SR, HDA, PCR, Virus

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➢ **ORAL PRESENTATION**

Influence of serine and proline on the crystallization of paracetamol

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Abstract

This work illustrates the influence of serine and proline used as the additives on paracetamol crystallization. The crystallization experiments were carried out in batch mode at 50 ppm amino acid concentrations. The crystals obtained were characterized by X-ray diffraction spectroscopy, Fourier transform infrared spectroscopy, light microscopy, particle size and thermogravimetric analysis. The amino acids used in this study were found to significantly affect the size and morphology of the obtained crystals. In addition, the thermal decomposition of the produced crystals was examined and the obtained data were used to investigate the decomposition kinetics of the crystals with the help of Coats-Redfern kinetic model. The thermal analysis results indicated that the decomposition of paracetamol went through one stage. Thus, the results of this work are useful for selecting paracetamol morphology modifiers and explaining the decomposition kinetics of paracetamol crystals.

Keywords: Paracetamol, crystallization, amino acid, kinetics.

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➢ **ORAL PRESENTATION**

New data about state of black sea species of *Spicara* genus

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Abstract
The Black Sea perches are an important link in the trophic chain, because they have a wide range of food objects, are dolphin food, as well as they are a second commercial species. In the present work, we have studied the population and morphophysiological parameters of the *Spicara flexuosa* caught in the coastal zone of the Sevastopol city from 2015 to 2019.

It was previously shown that the value of resorption of scales of fish decreased from 2008 to 2016, but in 2017-2018 this indicator has increased significantly for old fish. Based on long-term study of the species composition of the ichthyofauna in the coastal area of Sevastopol, the appearance of the Mediterranean specie *Spicara maena* was noted. The two indicated species differ in maximum body height and body height at the end of the gill cover, the distance from the top of the lower jaw to the beginning of the base of the first pectoral and first dorsal fins, the length of the anal and dorsal fins, and the number of rays in the dorsal fin. In addition, the hepatosomatic index and gonadosomatic index (GSI) of the high body pickerel are significantly higher than for *S. maena.* Investigations of deviations in the spawning period and the state of the gonads, as well as the GSI values of *S. flexuosa* in the Crimean coast waters caused by global warming were also carried out.

Keywords: Black Sea, Crimea, Spicara.

The work was carried out on the topic “Molismological and biogeochemical foundations of homeostasis of marine ecosystems” (№ 0828-2019-0006) (registration number: AAAA-A18-118020890090-2).

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➢ **ORAL PRESENTATION**

Antioxidant and anti-inflammatory activities of *Andryala pinnatifida* methanolic extract

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Abstract

As they are implied in virtually all human and animal diseases, inflammation and pain have become the major focus of global scientific research. İnflammation is a complex pathophysiological process mediated by a variety of signaling molecules produced by leucocytes, macrophages and mast cells undergoing various cellular responses.
Due to the adverse effects of non-steroidal anti-inflammatory drugs (NSAİDs) and opioids, there is a high demand for the search of new drugs with lesser or no side effects. İn the context, current trend of research has shifted towards medicinal plants because of their affordability and accessibility with lesser side effects. *Andryala pinnatifida* is a plant endemic to Morocco, widely used in the Moroccan pharmacopoeia. Even though, the resin of this plant is traditionally used in treatment of inflammation, there is no scientific data avalable on its traditional use. Therefore, on the basis of the above evidences, present study was designed to scientifically validate anti-inflammatory and anti-oxidant activities of methanolic extract from aerial parts of *A. pinnatifida*. To evaluate the anti-inflammatory activity of the methanolic extract, from the aerial parts of *A. pinnatifida* subsp *mogadorensis*, two experimental models of acute inflammation induced in mice by xylene and carrageenan were selected.

The demonstration of the antioxidant activity was determined via three complementary tests: the reduction of the free radical DPPH, the reducing power on ferricyanide of potassium and the test of the discoloration of β-carotene. The results obtained showed that our sample has a very interesting antioxidant power, showing highly significant differences ($P < 0.001$) with reference antioxidants (BHT and Quercetin). Phytochemical screening was used to characterize the main chemical groups that could be responsible for the biological properties of *Andryala pinnatifida*. The chemical compounds highlighted are flavonoids, saponins, coumarins, tannins, triterpenes and sterols. Furthermore, the oral pretreatment of mice with methanolic extract at doses of 100 mg/kg, 200 mg/kg and 300 mg/kg inhibited significantly the edema induced in mice, these results prove that the methanolic extract has a very potent, and statistically significant, anti-inflammatory activity compared to the positive control (Diclofenac).

Keywords: *Andryala pinnatifida* subsp *mogadorensis*, methanolic extract, phytochemical screening, anti-inflammatory.

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➢ **ORAL PRESENTATION**

Juvenile hormone analogue, Fenoxycarb, delays proliferation and differentiation of midgut stem cells by altering ecdysone signaling cascade in the silkworm, *Bombyx mori (Lepidoptera:Bombycidae)*

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Abstract
The midguts of insects show remarkable similarities with vertebrate intestine especially in respect to controlling of cell regulation by the stem cells. The pupal midgut is formed by differentiated stem cells during larval-pupal metamorphosis. Steroid hormone 20-hydroxyecdysone regulates these remodeling events of midgut; but unlike ecdysone, the effects of sesquiterpenoid juvenile hormone during pupal midgut formation are unknown. For this reason, effects of juvenile hormone analogue, fenoxycarb on pupal midgut formation process were evaluated with the expression profiles of ecdysone related genes and morphologic observations of midgut. Fenoxycarb application on day 0 of 5th instar delayed the formation of pupal midgut from stem cells. Expression states of ecdysone related genes in the midgut stem cells were differently affected by fenoxycarb treatment in a stage-specific manner. Presence of USP2, E74A, BR-C, βFTZ-F1 mRNAs during prolonged feeding period and their reduced mRNA levels just before cessation of feeding supported their roles for the maintenance of stemness characteristics of the cells. The inhibitory effect of fenoxycarb treatment was observed in the expression of ecdysone receptors, USP1 and E75A during the early prepupal stage, in contrast, the stimulatory effect was detected during late prepupal stage especially for E75 isoforms, BR-C Z1, and BR-C Z2.
Keywords: *Bombyx mori*, ecdysone related genes, juvenile hormone, midgut, stem cell

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➢ **ORAL PRESENTATION**

Determination of parabens in urine by ultrasound and vortex-assisted dispersive liquid–liquid microextraction and HPLC with fluorescence detection

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Abstract

Parabens are esters of *p*-hydroxy benzoic acid, which are used as preservatives in a wide variety of food products, pharmaceuticals and cosmetics due to their low cost, antimicrobial activity over a wide pH range, high stability and water solubility. However, researches have shown the weak estrogenic activity of parabens with an affinity for binding to estrogen receptors, which would be able to promote breast cancer. Also they might affect the male reproductive system negatively. In the light of these works, parabens are currently classified as suspected endocrine disruptors and carcinogens [1, 2]. Sample preparation prior to paraben analysis is a very critical step because of the low concentration levels and complex sample matrices. Dispersive liquid–liquid microextraction (DLLME) is one of the recently developed sample preparation techniques based on the extraction of the analyte by an immiscible extracting solvent and a disperser solvent. DLLME overcomes the disadvantages of requirement of large volumes of sample and extraction solvent and being time consuming. A specific technique of DLLME, ultrasound and vortex-assisted dispersive liquid–liquid microextraction (USVADLLME), reduces the required volume of extracting solvents which generally have toxic effects like chlorinated solvents. In USVADLLME ultrasonication provides a well dispersed phase for the quantitative extraction of the analyte, and vortex prevents the formation of a biphasic system [3]. In this study an USVADLLME method was developed for the extraction of parabens from a synthetic urine sample. The type and the volume of the extracting and dispersing solvents, the ultrasonication and vortex times were optimized. Also the salting-out effect (by NaCl) was investigated. The analysis were evaluated by an HPLC-FD method developed and validated in terms of linearity, accuracy, precision, LOD and LOQ. This sensitive determination of parabens in urine might give an idea on the level of exposure to them.

Keywords: Paraben, ultrasound and vortex-assisted dispersive liquid–liquid microextraction, HPLC, urine

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➢ **ORAL PRESENTATION**

Investigation of the cytotoxic and genotoxic potential of 2-monochloro 1,2-propanediol in mouse TM3 leydig cells *in vitro*

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Abstract

2- Monochloro 1,*2*-propanediol (2-MCPD), 3-monochloro 1,*2*-propanediol (3-MCPD), their esters and *glycidyl esters (GE) are food* processing contaminants which can be formed under high temperatures. The occurrence of high levels of 2-MCPD, 3-MCPD and their esters in refined vegetable oils especially palm oil, margarine, bread, biscuits, baby foods, infant and follow up formula has led to an increase in the need for safety studies. In 2013, the International Agency for Research on Cancer (IARC) has classified 3-MCPD as group 2B "possibly carcinogenic to humans". European Food Safety Authority (EFSA) published two reports in 2016 and 2018 *that* described potential harmful effects of 2-MCPD, 3-MCPD, their fatty acid esters and GE to human health. However, there is a lack of data concerning *in vitro* toxic effects of 2-MCPD in reproductive system. Therefore, our study aimed to provide evidence for the *in vitro* cytotoxic and genotoxic effects of 2-MCPD on mouse TM3 Leydig cells which have a crucial role in controlling and producing androgen hormones. According to the results of MTT and NRU tests, 2-MCPD was not found to be cytotoxic on mouse TM3 Leydig cells depending on the *concentrations tested (1*-1000 µM). Besides that, these concentrations did not induce DNA damage in TM3 Leydig cells. Data of our study indicate that the tested concentrations *(1*-1000 µM) were *neither cytotoxic nor genotoxic* in TM3 Leydig cells *to* the assays used. The results of our study have great importance to be the first report about the toxic effects of 2-MCPD in male reproductive system cells. Further studies are needed to evaluate the possible toxic impacts, maximum tolerable and acceptable intake limits of these contaminants.

Keywords: 2-MCPD, Comet assay, MTT, NRU, Palm oil

Acknowledgement: This work was funded by Scientific and Technological Research Council of Turkey (TÜBİTAK) [Grant number: 117S863].

DRAFT

➢ **ORAL PRESENTATION**

Chemical composition of essential oils of *Hypericum perforatum* L. growing wild in Turkey

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Abstract

The chemical composition of the essential oils obtained from the leaves of *Hypericum perforatum* naturally grown in Turkey. The essential oil components determined by GC and GC-MS and chemical differences were discussed in means of chemotaxonomy. The aerial parts of the plant samples were hydro-distilled to produce oils in the yields of 2%. Twenty seven components were identified representing 98.8% of the oils. The main compounds in the essential oil of *H. perforatum* were; -Pinene (22.1%), β-Caryophyllene (13.3%), β-Cubebene (13.1%) and 2-Methyloctane (10,1%).

Keywords: *Hypericum perforatum*, GC-MS, Essential oil, Chemotaxonomy

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➢ **ORAL PRESENTATION**

Evaluation of neuroprotective potential in the Alzheimer model of iminodiacetic acid

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Abstract

Alzheimer's disease (AD) is one of the most common neurodegenerative diseases and accounts for more than 80% of the worldwide population of dementia in elderly people. AD is pathologically characterized by the accumulation of intracellular neurofibrillar tangles and extracellular amyloid protein. Yet, there is no fully qualified treatment for AD. For this reason, therapeutic studies in the areas of AD prevention or slowing down are of great importance. In the study, the anti-Alzhemer potential of iminodiacetic acid (IDA) amino acid was investigated. The potential neuroprotective effect of IDA amino acid, WST-8 test with SH-SY5Y cell line and histopathological evaluations were determined in rats induced experimentally with $ALCl_3$ exposure. Four groups of female Sprague-Dawley rats were used in the study. These groups were as; Group 1 control (n=4), Group 2 $ALCI_3$ exposed experimental AD model group (n=4), Group 3 IDA (n=4) and IDA 's neuroprotective effect on AD Group 4 $ALCI_3$+IDA (n=4). Neurodegeneration were observed in AD-induced rats with $ALCl_3$ exposure. Our results revealed that the application of IDA amino acid could reduce the levels of neurodegeneration caused by aluminum toxicity. We believe that the data obtained from this study will give a different perspective to the synthesis of new compounds with $ALCI_3$-dependent neurodegeneration, and to new treatment strategy researches.

Keywords: Alzheimer's Disease, Iminodiacedic Acid, Neuroprotective effect.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Zeytinyağı endüstrisi atıksularının kitosan koagülasyonu ile ön arıtımı

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Abstract

Zeytinyağı üretimi Akdeniz bölgesindeki en önemli tarımsal faaliyetlerden biridir ve birçok Akdeniz ülkesi için ekonomik olarak önemlidir. Zeytinyağı endüstrisi atıksuyu (karasu), zeytinyağı üretim aşamalarında meydana gelen sayısız işlemden kaynaklanan önemli bir sıvı atıktır. Karasuyun bertarafı, özellikle yüksek organik madde, askıda katı madde, fenolik bileşik içeriği ve asidik pH değeri ile Akdeniz bölgesinde ciddi bir çevresel sorundur. Bu çalışmada karasuyun kitosan koagülasyonu ile kimyasal olarak ön arıtımı araştırılmıştır. Kitosan koagülasyonunun Kimyasal Oksijen İhtiyacı (KOI) giderme verimi üzerindeki etkisi Box-Behnken istatistiksel deney tasarımı ile belirlenmiştir. Bu yöntem, üç bağımsız değişkenin (kitosan konsantrasyonu, yavaş karıştırma ve çökeltme süresi) tepki fonksiyonu (KOI verimliliği) üzerindeki etkilerini araştırmak ve KOI giderme verimini en üst düzeye çıkaran optimum koşulları belirlemek için kullanılmıştır. Çalışma kapsamında Design expert programı kullanılmış, gözlemlenen ve tahmin edilen KOİ giderme verimleri arasındaki korelasyon katsayısı (R^2) 0.941 olarak bulunmuştur. Bu sonuç, gözlemlenen ve tahmin edilen değerler arasında mükemmel bir uyum olduğunu göstermektedir.

Keywords: Box-Behnken istatistiksel deney tasarımı, Karasu, Kitosan, Zeytinyağı endüstrisi.

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➢ **ORAL PRESENTATION**

Determination of the reduced height-1 (Rht1) variants in EMS-mutagenized population of wheat using high resolution melting (HRM) analysis

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Abstract

Plants are exposed to various adverse conditions including salinity, drought, cold, hot, excess water and oxidative stress that reduce crop yield. In order to meet the food demand of the growing population and secure the food supply, global agricultural production must be increased. Therefore, new higher yielding varieties with improved nutrient quality and also tolerant varieties against biotic and abiotic stresses are urgently acquired.

Wheat (*Triticum aestivum* L.) is one of the most widely grown crops in the world providing a significant proportion of the calories and protein consumed by human. Plant height is an important agronomic trait in wheat and tall plants are more susceptible to lodging than shorter ones. Lodging seriously affects grain production of the major cereal crops including wheat. Reduced Height-1 (Rht1) gene, one of the dwarfing genes that reduce the sensitivity of the plants to gibberellic acid, prevents excessive stem elongation, consequently leads to reduction in height of plants, which resulting in higher grain production rather than straw.

One of the keys to sustainable agriculture and plant improvement is the creation of genetic variation in plant crops by induced mutations. The detection of the mutations and identification of the traits associated with novel phenotypes is possible with the assistance of reverse genetic techniques and molecular screening methods. High resolution Melting (HRM), which has assisted with TILLING in mutation scanning, enables researchers to rapidly and efficiently discover genetic variations including SNPs. In this study, 33 Rht1 variants were detected among 800 lines of EMS-mutagenized wheat population using HRM technique. It is also found that 3 lines of 33 variants have double mutation points for Rht1 gene. While 17 mutation points were detected on genome A of wheat variants, 19 mutation points were on genome D.

Keywords: Rht1, Wheat, HRM, Reverse Genetics, Mutation Scanning, TILLING

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➢ **ORAL PRESENTATION**

Antimicrobial activity of different extracts of *Tragopogon porrifolius* and *Anchusa leptophylla*

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Abstract

Antimicrobial resistance is a growing problem in modern healthcare around the world. Natural plants can be considered as a vital source for antimicrobial agents instead of synthetic drugs because their costs and side effects. In this study, antimicrobial effects of *Tragopogon porrifolius* L. and *Anchusa leptophylla* Roem. & Schult plants sold in the local markets of Diyarbakır were investigated. All plant samples were extracted with four different solvents (sterile distilled water, ethanol, methanol and *n*-hexane). The antibacterial effect of all plant extracts was evaluated using *Enterococcus faecalis* ATCC 49452, *Escherichia coli* ATCC 25922, *Klebsiella pneumoniae* ATCC 700603 and *Staphylococcus aureus* ATCC 25923. Aquatic extract of *A. leptophylla* showed antimicrobial activity against *K. pneumoniae*. The ethanolic extract of *A. leptophylla* is effective on *E.coli, S. aureus and K. pneumoniae*, while methanolic extract of *T. porrifolius* is highly effective on *S. aureus.* In addition*S. aureus* is affected by *n*-hexane extract of *A. leptophylla* and *T. porrifolius.*

Keywords: *Anchusa leptophylla*, antimicrobial, *Tragopogon porrifolius*

DRAFT

➢ **ORAL PRESENTATION**

Köpeklerde sol ventrikül segmenter duvar hareket bozukluğunun ekokardiyografi ile değerlendirilmesi

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Özet

Kalp yetersizliği sendromu miyokard, perikard, endokard veya büyük damarları ilgilendiren herhangi bir patolojiden kaynaklanabilir. Çalışmamızda köpeklerde yapılan transtorasik ekokardiyografi ile sol ventrikül duvar kalınlıkları, boşluk boyutları ve kalp kapakları normaldi. Bütün köpeklere M mode, iki boyutlu, Renkli Doppler ekokardiyografi yapıldı. Çalışmamızda yaşlanma sürecinde diyastolik fonksiyonların belirgin olarak değiştiğini ve ekokardiyografide EF'si daha düşük bulunan hastalarımızda belirgin segmenter duvar hareket bozukluğuna rastlanıldı.

Bu çalışmanın amacı; Köpeklerde elde ettiğimiz bulgular, diğer hayvanlarda yapılacak, ekokardiyografide sol ventrikül segmenter duvar hareket bozukluğu çalışmalarına katkı sağlayacağı kanısına varılmıştır.

Anahtar kelime; ekokardiyografi, köpek, segmenter bozukluk

Teşekkür: Hayvanseverlerimize ve hasta yakınlarına, manevi yönünden destek veren arkadaşlarımıza

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➢ **ORAL PRESENTATION**

Evaluation of the *in vitro* and i*n vivo* neuroprotective effects of sarcosine

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Abstract

Alzheimer's disease (AD) is a neurodegenerative disease characterized by behavioral and psychological disorders in addition to loss of cognitive function and memory loss. Due to the molecular mechanism, pathophysiology and genetic background of AD are not clear, there is no effective treatment method. For this reason, it is aimed to reveal the protective effect of sarcosine for AD. The neuroprotective effect of sarcosine in SH-SY5Y cell line was evaluated by cell viability tests. . In this study, in order to evaluate the neuroprotective effect of sarcosine, 16 female Sprague-Dawley rats were used in 4 different experimental groups. Group 1 Control group (n=4), Group 2 experimental AD group with administration of $AlCl_3$ (n=4), Group 3 Sarcosine group (n=4) and Group 4 treatment with Sarcosine (n=4). The effect of sarcosine on genetic background was elucidated by qRt-PCR. As a result of these genetic analyzes, it has been found that $AlCl_3$ decreases α-secretase activity while increasing β-secretase and γ-secretase activities. It is thought that the results obtained from this study may contribute to the design of drugs that have protective and curative effect against $AlCl_3$-induced neurodegeneration and cognitive impairment.

Keywords: Sarcosine, Alzheimer's Disease, $AlCl_3$.

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➢ **ORAL PRESENTATION**

Chromomycin A_3 and DAPI staining of the endemic *Gobio battalgilae* (Teleostei: Cyprinidae) from Anatolia

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Abstract

Cytogenetic studies in Anatolian fishes have been started recently. However, most of the previous cytogenetic data published on the features such as diploid chromosome number, chromosome morphology, arm number, C-band and Ag-NOR location. Otherwise, the chromosomes and other cytotaxonomic markers of the genus *Gobio* fishes have been little studied. This study presents chromomycin A_3 (CMA_3) and DAPI chromosomal banding staining in the endemic cyprinid species *Gobio battalgilae* Naseka, Erk'akan & Küçük, 2006 from Anatolia. The individuals were collected from central Anatolia. The collected individuals used for cytogenetic analysis were transported alive to the laboratory and kept in well-aerated aquarium until analysis. Chromosome slides were prepared according to the air drying technique. After air drying, CMA_3/DAPI staining technique was applied to chromosome slides. Metaphases were photographed with a camera equipment fluorescence microscope. Two CMA_3 positive signals were observed in *G. battalgilae*. The CMA_3 positive blocks covered the entire short arms from the pericentromeric region to the telomeres. No DAPI positive signal was detected in this species. This study is the first that detects molecular cytogenetic characters in Anatolian fishes. Also, this study may improve the cytogenetic data of the genus.

Keywords: Cyprinid, fluorochromes, chromosome.

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➢ **ORAL PRESENTATION**

Fiber optic chlorine sensor by using fiber loop ringdown spectroscopy technique

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Abstract

High sensitive, real-time response, low cost and easy setup fiber optic chlorine sensors by employing the Fiber Loop Ringdown (FLRD) spectroscopy technique were fabricated by etching a part of single mode fiber in Hydrofluoric Acid solution. Fabricated sensor heads were coated with N,N-Diethyl-p-phenylenediamine to detect only Chlorine in several type of water solutions such as tap water, drinking water, chlorinated water in different concentrations. Baseline stability and the minimum detectable ringdown time (RDT) of the fiber optic chlorine sensors were calculated. Differences between RDTs when non-modified (uncoated) and N,N-Diethyl-p-phenylenediamine coated sensor heads were immersed into water samples shows that coated fiber otpic sensors are readily sensitive to the chlorine molecule since changing evanescent field intensity around the sensor head region. The results proved that fiber optic chlorine sensors are sensitive to several water samples with different chlorine concentrations. As a result, fiber optic sensors can be enhanced to trace all other chemicals in any solutions by a special treatment of sensor head region in which sensitive to the target parameter.

Keywords: fiber optic sensors, chemical trace, fiber optic, fiber optic chlorine sensors, evanescent field, FLRD Spectrometer Technique.

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➢ **ORAL PRESENTATION**

Investigation of mobile phone usage behaviors of students according to education status

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Abstract

The aim of this study is to determine the behaviors and approaches of students of different educational level using mobile phones. A total of 1000 students (secondary school 250, high school 250, associate degree 250 and bachelor degree 250) were included in this study. A questionnaire consisting of 23 questions was used to question the relationship between the level of education of the students and their use of mobile phones. The mean age of the students included in the study was 17.97±0.68, 41.5% were boys and 58.5% were girls. 93.3% of the students stated that they used mobile phones (p=0.000), 82.7% stated that mobile phones were harmful, 62.7% stated that mobile phones caused brain tumors (p=0.153). While 90.3% of the students could not ask for Specific absorption rate (SAR) value (p=0.034), 66 % of them stated that they used the phone adhered to their ear and carried it in their pocket (p=0.000). As the biological effects of mobile phones were not known by the students, it was noticed that the usage behaviors were not correct. It is seen that the SAR value generated by mobile phones is important during the purchase of mobile phones and to a large extent students and adolescents do not pay attention to this.

Keywords: Cell phone, Students, Behavior, Harmful effects, SAR

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➢ **ORAL PRESENTATION**

Sükrozdan şablonlu sentez yöntemiyle gözenekli karbon eldesi, sürfaktanla yüzey modifikasyonu ve karakterizasyonu

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Özet

Karbon materyaller kataliz, adsorpsiyon, gaz ayırma, enerji depolama, süperkapasitörler gibi pek çok alanda kullanılmaktadır. Çoğu gözenekli karbonlar mikrogözeneklidir. Buna rağmen büyük hidrofobik moleküllerin adsorpsiyonu, kromatografik ayırmalar, elektrokimyasal çift tabaka kapasitörleri ve lityum pilleri gibi çok sayıda diğer potansiyel uygulamalarda tercihen mezogözenek aralığında daha geniş gözeneklerin varlığı bir avantaj olmaktadır. Bu nedenle kontrol edilebilir gözenek yapısına sahip karbonlar elde etmek üzere farklı üretim yöntemleri kullanılmaktadır. Gözenekli karbon materyaller şablon karbonizasyon metoduyla sentezlenebilir. Bu metotla karbonların gözenek yapıları kontrol edilebilir ve bağıl olarak daha dar bir aralıkta gözenek boyut dağılımı veren karbonlar elde edilebilir. Şablonlu sentez metodunda genellikle ilk aşamada şablon olarak kullanılacak mezogözenekli silikalar sentezlenir, ikinci aşamada ise bu silika şablonlar kullanılarak uygun bir karbon kaynağının karbonizasyonundan sonra silikanın yapıdan uzaklaştırılmasıyla karbonlar üretilir. Son zamanlarda karşılaşılan tek kap metodu (One Pot Method) olarak isimlendirilen metotta ise silika ve karbon eş zamanlı olarak aynı kapta birlikte oluşturulur, böylece mezogözenekli silika oluşurken karbon ile kaplanmaktadır. Gözenekli karbonların yüzeyi çeşitli fonksiyonel özellikler kazandırılmak amacıyla modifiye edilebilir. Bu çalışmada, gözenekli karbon, tek kapta şablonlu sentez metodu uygulanarak üretilmiştir. Gözenekli karbon sentezinde karbon kaynağı olarak Sükroz ve silika kaynağı olarak Tetraetilortosilikat (TEOS) kullanılmıştır. Gözenekli karbon elde edildikten sonra yüzey özelliklerini geliştirmek için bir katyonik sürfaktan olan setiltrimetil amonyum bromür (CTAB) ile modifikasyon işlemine tabi tutulmuştur. Elde edilen gözenekli karbonun ve modifiye gözenekli karbonun azot adsorpsiyonu, alan emisyonlu taramalı elektron mikroskobu (FE-SEM), X-ışını kırınımı (XRD) analizi, Raman spektroskopi analizi ve FTIR analizi ile karakterizasyonları gerçekleştirilmiştir.

Anahtar Kelimeler: Gözenekli karbon, Şablonlu sentez, Modifikasyon, Karakterizasyon

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➢ **ORAL PRESENTATION**

Modifiye gözenekli karbon ile Cr(VI) iyonlarının sulu çözeltiden adsorpsiyonunun incelenmesi

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Özet

Ağır metaller, teknolojik önemlerinden dolayı birçok endüstriyel uygulamaya sahiptir. Ağır metal iyonlarının çeşitli endüstriyel kaynaklardan sucul ortamlara salınması önemli bir çevre sorunu oluşturur. Krom veya bileşiklerinin elektrokaplama, deri, tekstil boyama ve metal işleme gibi endüstrilerde yaygın olarak kullanılması, krom içeren atıksuların çevreye salınmasına neden olur. Krom kanserojen olduğu bilinen bir metaldir ve deşarj edilmeden önce atıksulardan giderilmesi gerekir. Ağır metallerin atıksulardan giderilmeleri için kullanılan çeşitli yöntemler arasında adsorpsiyon kullanım kolaylığı, ekonomikliği ve verimli olması nedeniyle öne çıkan bir yöntemdir. Bu alandaki son çalışmalar kapasitesi yüksek adsorbanların geliştirilmesine odaklanmıştır. Karbon malzemeler, adsorban olarak en yaygın kullanılan malzemelerdir. Bu çalışmada karbon kaynağı olarak sükroz kullanılarak şablonlu sentez yöntemiyle gözenekli karbon sentezi geçekleştirilmiştir. Elde edilen bu karbon materyal, setiltrimetil amonyum bromür (CTAB) ile modifiye edildikten sonra çözeltiden Cr(VI) iyonlarının uzaklaştırılması için kullanılmıştır. Başlangıç pH'ı, krom derişimi, sıcaklık, adsorban miktarı ve temas süresinin adsorpsiyon üzerine etkileri incelenmiştir. Maksimum Cr(VI) gideriminin pH=2'de olduğu gözlenmiştir. Adsorpsiyon 4 saat içinde dengeye ulaşmaktadır. Adsorpsiyon kinetiğini tanımlamak için çeşitli kinetik modeller kullanılmış ve sözde ikinci derece kinetik model iyi uyum göstermiştir. Deneysel denge verilerine Langmuir ve Freundlich izoterm modelleri uygulanmış ve Langmuir denklemi en uygun izoterm olarak belirlenmiştir. Maksimum adsorpsiyon kapasitesi 25ºC sıcaklık için 191.8 mg/g olarak bulunmuştur.

Anahtar Kelimeler: Adsorpsiyon, ağır metal, Cr(VI), şablonlu gözenekli karbon, modifikasyon

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➢ **ORAL PRESENTATION**

Zenginleştirilmiş ekmekte biyoaktivite ve fizikokimyasal özelliklerin belirlenmesi

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Özet

Tahıllar, eskiden beri yetiştirilip, tüketilen temel besin grubudur. Tahıla dayalı beslenmenin yaygın olduğu ülkemizde, günlük alınan enerjinin önemli bir kısmı (%50'den fazlası) Türk beslenme kültürünün temeli olan ekmekten sağlanmaktadır. Ülkemizde kentleşmeyle birlikte geleneksel ekmek üretim alışkanlıklarından uzaklaşılmış, beyaz ekmek tüketimi artmış; dolayısıyla bireyler ağırlıklı olarak basit karbohidratlarla beslenmeye başlamıştır. Ancak; son dönemlerde bireylerin beslenme dengesine katkıda bulunmak üzere, ekmeklerin çeşitlendirilerek bir bakıma protein, lif ya da önemli bazı bileşenlerce zenginleştirilerek besin değerini artırmaya, fonksiyonel özelliklerini ortaya çıkarmaya yönelik yapılan bilimsel araştırmaların sayısı artmıştır. Bu amaçla, bu çalışmada çeşitli tahıl unları, baharat ve doğal katkıların farklı formülasyonları denenerek ve duyusal özellikler ön planda tutularak, antioksidan, antimikrobiyal, fizikokimyasal özellikler açısından en iyi sonucu veren zenginleştirilmiş/fonksiyonel ekmek üretilmesine çalışılmıştır. Çalışma süresince 60'tan fazla farklı formülasyonda ekmek üretilmiş ve her bir ekmek üretim sonrası duyusal özellikleri bakımından kontrol ekmekle karşılaştırılmıştır. Çalışma kapsamında sıralamada en iyi duyusal ve fenolik madde içeriğine sahip ilk üç ekmek ve kontrol ekmekte fizikokimyasal ve biyoaktivite analizleri yapılmıştır. Ekmeklerde tekstür görüntü analizi, pH-kül-protein-nem miktarı tayini, spesifik hacim belirlemenin yanı sıra duyusal analiz, toplam fenolik madde miktarı analizi, antimikrobiyal ve antioksidan aktivite analizleri, HPLC ile ferulik ve organik asit içeriği, GC-HeadSpace ile aromatik-uçucu bileşiklerin tayini yapılmıştır. Zenginleştirilmiş ekmeklerin rutubet analiz sonuçları ve formülasyon içerikleri dikkate alındığında, beyaz un dışındaki farklı tahıl unlarının ekmek üretiminde kullanılmasının, üretilen ekmeğin su tutma kapasitesinin yüksek olmasına; dolayısıyla rutubet kaybının, bayatlama ve dökülmesinin az olmasına, ancak raf ömrünün de antimikrobiyal açıdan kısa olmasına sebep olduğu söylenebilir. Ekmeklerin tekstür, pH, spesifik hacim gibi kalite özellikleri kontrol ekmekle benzer; ancak protein ve kül miktarı, toplam fenolik madde miktarı ve antioksidan kapasite değerleri (FRAP, DPPH, ABTS) kontrol ekmekten oldukça yüksek bulunmuştur. Ekmek ekstraktlarında toplam fenolik içerik 30.00-59.13 µg GAE/mL arasında değişirken; ABTS, DPPH ve FRAP seviyeleri sırasıyla 1263, 15263, 53.15 µM TEAC'dan 3057, 37438, 215.37 µM TEAC düzeylerine yükselmiştir.

Anahtar Kelimeler: Ekmek, zenginleştirme, fizikokimyasal özellikler, toplam polifenol, biyoaktivite.

DRAFT

➢ **ORAL PRESENTATION**

Dondurma üretiminde kullanılan maddeler ve fonksiyonel bir gıda olarak meyveli dondurma

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Özet

Süt ve sütten elde edilen ürünler, canlılığın sürdürülebilmesi ve gelişimsel birtakım faaliyetlerin gerçekleştirilebilmesi için gerekli olan; karbonhidrat, yağ, protein ve mineral maddeleri yapısında dengeli bir biçimde barındırması sebebiyle canlılar için önemli bir yere sahiptir. Dondurma, bir süt ürünü olarak kendine has lezzet ve aroması ile günümüzde her yaş grubundan insanın severek tükettiği kolay sindirilebilme özelliği taşıyan değerli bir gıdadır. Özellikle protein, kalsiyum, vitamin A, D ve riboflavin gibi maddeleri yapısında yüksek oranda ihtiva etmektedir. Ayrıca süte göre daha konsantre bir yapıda olup, besin değerinin sütten daha yüksek olmasıyla da ilgileri üzerine çekmektedir. Fakat günümüzde dondurmanın besin değerinin yüksekliğinin yanısıra bazı fenolik bileşenler, diyet lifi ve vitaminler bakımından yetersiz bileşime sahip olduğu tespit edilmiş ve bunun geliştirilmesi amacıyla çeşitli çalışmalar yapılmasının uygun olduğu görüşüne varılmıştır. Son yıllarda sağlık üzerine olumlu etkileri olan gıdalara ilginin artış göstermesiyle birlikte dondurma endüstrisinde de yeni ürün geliştirme faaliyetleri hız kazanmış ve dondurmanın yetersiz kaldığı bu maddelerce zenginleştirilmesi amaçlanmıştır. Bu sebeple dondurmanın bileşimine; doğal antioksidan ve diyet lifleri bakımından zengin içeriği ile dikkat çeken meyvelerin ilavesi yapılmaya başlanmış ve sonuçta antioksidan özellik gösteren fonksiyonellik kazanmış yeni dondurmalar üretilmiştir. Fonksiyonel özellik gösteren meyveli dondurmalar, meyvelerden gelen doğal renk maddeleriyle hoş bir görünüm elde etmesinin yanında ayrıca yağ ve kolesterol içeriğinin düşük olması sebebiyle de birçok kişinin ilgi odağı olmuş ve her geçen gün aranan bir gıda olma özelliği kuvvetlenmiştir.

Anahtar Kelimeler: Dondurma, Meyveli dondurma, Fonksiyonel gıda

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Süt ve süt ürünlerinde aflatoksinlerin önemi ve Türkiye'deki durum

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Özet

Aflatoksin bazı hayvan yemleri, yağlı tohumlar, baharatlar, süt ve süt ürünlerinde karşımıza çıkan karsinojenik ve toksik maddelerdir. Bazı gıdalar ve hayvan yemleri; işleme, depolama veya taşıma gibi işlemler esnasında aflatoksinler ile kontamine olabilmektedirler. Aflatoksin; başlıca Aspergillus türü küfler tarafından meydana gelmektedir. Bu küfler başlıca *Aspergillus flavus*, *A. parasiticus* ve *A. nomius* olarak sıralanabilmektedir. Kontamine olmuş yemlerle beslenen hayvanların et ve sütlerinde aflatoksine rastlanmaktadır. Aflatoksinler B_1, B_2, M_1, M_2, G_1, G_2 şeklinde altı ana gruptan oluşur. AFB_1 en toksik olanıdır. AFM_1, AFB_1'in; AFM_2 ise AFB_2'nin sütle hayvan vücudundan atılan metabolitidir. Süt ile hayvan vücudundan atılan bu ürünler süt ve süt ürünlerinde karşımıza çıkmaktadır. AFM_1 pastörizasyon ve UHT gibi yöntemler ile uzaklaştırılamadığı için süt ve süt ürünlerinde tehlike arz etmektedir. Bu çalışmada; aflatoksinin gıdalarda oluşumu, süt ve süt ürünlerindeki varlığı ele alınmıştır.

Anahtar kelimeler: Aflatoksin, Süt, Peynir, Tereyağı, Yoğurt

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➢ **ORAL PRESENTATION**

Production of Dy_2O_3: Eu^{3+} nanoparticles by sol-gel method and investigation of luminescence properties

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Abstract

The rare earth (lanthanide) oxides, although constituting a closely related group of compounds, exhibit a rich variety of characteristic behaviours and solid-state properties, including several features that make them interesting subjects for photoluminescence studies. In particular, these oxide nanoparticles are frequently used as semiconductors in the structure of electronic materials. There is a continuous study of the development of these materials. In this study, Dy_2O_3: Eu^{3+} nanoparticles were synthesized by sol-gel method and heat treated at 1100 degrees. Structural and microstructural properties of nanoparticles were investigated by using FTIR, DTA, XRD, XPS, SEM and PL devices. Materials in the cubic phase structure and in the size range of 100-600 nm were observed. The electronic transitions of Dy^{3+} and Eu^{3+} elements and decay time values were determined by photoluminescence device. The luminescence properties obtained were compared with the literature.

Keywords: Photoluminescence, sol-gel, rare-earth nanoparticles

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➢ **ORAL PRESENTATION**

Işıklı Gölü'nde tek hücre jel elektroforezi ile *Cyrinus carpio*'nun DNA hasarının belirlenmesine ilişkin ön çalışma

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Özet

Suda yaşayan organizmalar iç ve dış kaynaklı maddelerle genetik yapısında bir takım olumsuz değişiklikler meydana gelmektedir. Organizmaların hücrelerindeki genetik materyal bu değişiklikleri önleyen çeşitli mekanizmalar vardır fakat üstesinden gelemeyeceği hasarlar, DNA'da bozulmalara yol açmaktadır ve sonrasında ise bunlar birikerek, canlının yaşamını tehdit etmektedir. Bugün, DNA hasarlarının biyoizleme ile tespiti birçok yöntemle tespit edilebilmektedir. Tek hücre jel elektroforezi yani comet analizi, ökaryotların tek bir hücresindeki comet (kuyruklu yıldız) uzunluğu ölçülerek ya da göz ile cometler sayılarak derecelerine göre DNA hasarları değerlendirilebilmektedir. DNA'daki tek zincir kırıklarını tespit eden bu yöntemde, agaroz jele gömülen hücreler, lize edilerek proteinlerden ayırılır, daha sonra elektroforezde yürütülerek, nötralize edilip boyanmasıyla cometler floresan mikroskobunda görüntülenir. Oluşan görüntüler istatiksel olarak değerlendirilir. Işıklı Gölü, Denizli sınırları içerisinde Büyük Menderes Nehri'nin besleyen kaynakların birleşim yerinde yaklaşık 7m. derinliğinde doğal bir göldür. Kaynakları ise Akçay Deresi, Kufi Deresi, Işıklı Pınarları, Büyük Menderes'in yukarı havzasındaki iki büyük kolu ve tabanındaki yeraltı sularıyla beslenmektedir. Gölün ortasında saz adacıkları bulunmaktadır. Batı ve doğu kıyılarında geniş kavaklıklar ve tarım alanları, güneyinde ise geniş bir ova bulunup tarım arazisi olarak kullanılmaktadır.

Bu çalışmada, Işıklı Gölü'nde Ekim ve Aralık 2019'da iki farklı istasyondan balıklardan kan örnekleri alınmıştır. Laboratuvara getirilen kan örnekleri, süspanse edildikten sonra daha önceden hazırlanan agaroz kaplı lamların içerisine gömülerek, fikse edildikten sonra elektroforezde yürütülerek hücrelerin anottan katoda göçü sağlanmıştır. Daha sonra ortam nötralize edilerek, boyama yapılmıştır. Bu şekilde hücre içindeki tek zincir DNA kırıkları, cometler oluşturur. Lamlar, floresan mikroskobunda incelenerek seçilen 100 hücre 0 ile 4 arası derecelendirme ile yapılan DNA hasarları, istatiksel olarak değerlendirilmiştir. Elde edilen verilerle bu türlerde çok fazla DNA hasarına rastlanmamıştır. Buna bağlı olarak göldeki kirliliğin endişe verici boyutta olmadığı anlaşılmıştır.

Anahtar kelimeler: DNA hasarı, Tek hücre jel elektroforezi, Işıklı Gölü, Cyrinus carpio.

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➢ **ORAL PRESENTATION**

Synthesis of novel anticancer compounds by ultrasonic sonication

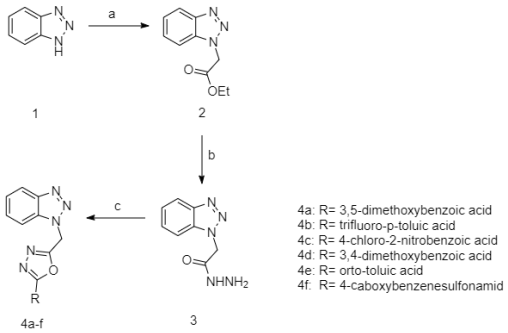
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Abstract

Cancer is a major health problem involving numerous spatiotemporal changes in cell physiology in both developed and undeveloped countries. According to the World Health Organization (WHO) report, in 2015, 8.8 million people died globally from cancer [1]. While 20% of all diagnosed cancers are associated with obesity, physical inactivity, excessive alcohol consumption and / or malnutrition, some cancers include human papilloma virus (HPV), hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV) and Helicobacter pylori (H. pyroli). The hybrid anticancer drug approach is an novel synthetic strategy that is an innovative synthetic synthetic method based on either combining the hepatophoric portions of different drugs in a new molecular structure, or directly linking two or more potential anticancer pharmacophores via cleavable / non-cleavable linkages based on the ability to retain affinity and activity for biological targets in the newly synthesized molecular hybrid. It is believed that two or more pharmacophore groups in a single structure not only synergize with their biological effects, but also increase their ability to inhibit multiple biological targets. Recently, the molecular hybrid approach has resulted in the synthesis of new chemical compounds with improved anticancer activity and selectivity with reduced side effects. Hydrazones containing the azomethine (- NH - N = C) group form an important class of compounds for new drug development. In many research areas, these compounds have been synthesized as target structures and their biological activity has been studied. Hydrazones have been reported to have antimicrobial, antitubercular, anticonvulsant, analgesic, anti-inflammatory, antiplatelet, anticancer, antiviral, antitumoral and antimalarial activity [2-4].



Scheme 1. a: Ethylbromoacetate, THF, TEA, b: Hydrazine hydrate, EtOH, c: $POCl_3$, substituted aryl acid.

Keywords: Anticancer activity, Ultrasonic Sonication, Benzotriazole, Oxadiazole, Computational study.

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➢ **ORAL PRESENTATION**

pectrophotometric methods for reactive oxygen species scavenging activity measurement

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Abstract

Reactive oxygen species (ROS) include oxygen radicals (superoxide (O_2•$^-$), hydroxyl (•OH), peroxyl (ROO•), and alkoxyl (RO•)) and certain nonradicals that are either oxidizing agents or easily radical-convertible species, such as hypochlorous acid (HOCl), singlet oxygen ($^1O_2$), and hydrogen peroxide (H_2O_2). ROS are essential for humans to maintain homeostasis and health, but uncontrolled and excess ROS causes various diseases including cancer and cardiovascular and neurodegenerative diseases as well as aging [1]. ROS can be scavenged by antioxidants, which are defined as any substances that when present at low concentration compared to those of an oxidizable substrate significantly delay or prevent oxidation of that substrate [2]. All cells possess antioxidant defense systems consisting of enzymatic and nonenzymatic antioxidants components to defend against ROS attack [3].

Because of the importance of antioxidant activity measurement, many methods have been developed for the determination of antioxidant activity. In view of many different antioxidants having various scavenging activities against O_2 •-, H_2O_2, or •OH, many methods for measuring these properties have been developed with different mechanisms, respectively, such as spectrophotometry, cyclic voltammetry, automatic flow injection based methodologies, electron spin resonance, etc. Recently, several nanomaterials have been utilized in the measurement of antioxidant activity. Compared with conventional methods, these approaches with high sensitivity, rapid determination, relative ease of measurement, inexpensive, and simple apparatus have attracted a widespread attention [2].

Keywords: antioxidants, reactive oxygen species, spectrophotometry.

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DRAFT

➢ **ORAL PRESENTATION**

Comparison of CUPRAC based optical sensors with the solution based CUPRAC method

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Abstract

Antioxidant compounds are natural combat agents against oxidative stress−originated diseases such as heart disease, cancer, and diabetes. Because of known health beneficial effects of food antioxidants, selective and sensitive assays for rapid sensing of antioxidants have gained importance. Compared to classical instrumental methods, optical sensors offer advantages such as low cost, flexibility, remote control, speed, miniaturization and on-site/in situ analysis [1]. The CUPRAC method is currently being widely used in leading world research centers of food science and antioxidant research [2]. CUPRAC is an ET-based method, utilizing the Cu(II)-Cu(I) reduction in the presence of antioxidants, where cupric-neocuproine is converted into the highly absorbing (yellow-orange colored) cuprous-neocuproine chelate by receiving an electron from antioxidant polyphenols, thiols, or vitamins. Recently developed optical antioxidant sensors based on CUPRAC method by immobilizing the copper(II)-neocuproine (Cu(II)-Nc) reagent onto a cation-exchange polymer membrane matrix, and the colored Cu(I)-Nc cation was produced on the membrane without diffusing into solution. The Cu(II)/Cu(I) reduction by electron-donating antioxidants in the presence of neocuproine ligand did not cause a drastic change in the coordination geometry of the copper-chelate, and therefore both cationic species were retained on the anionic membrane, and the color change took place on the sensor. These membrane sensors provided great ease and convenience to TAC determinations, like a sensitive pH-indicator paper strip (immersed in solution) on which a series of neutralization indicators were previously impregnated. In addition, as opposed to the solution-based method, the sensor worked well in turbid solutions without pretreating samples.

Keywords: CUPRAC, Optical Sensors, Antioxidants, Food Extracts.

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DRAFT

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➢ **ORAL PRESENTATION**

Can metal organic frameworks (MOFs) recover anesthetic Xe from exhale gas mixtures?: Molecular modeling investigation for using MOFs in clinical industry

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Abstract

Xenon (Xe), as being a noble gas, has been shown to be successfully used as an anesthetic agent in clinical industry. Xe has high chemical stability, low flammability, low solubility in blood, minimal respiratory side effects, low interactions with drug molecules, thus, it is a perfect candidate to be used as anesthetics. According to the experimental studies, Xe inhibits N-methyl- D -aspartate receptors, which the mechanism of anesthetic effect of the Xe. Although, Xe's promising usage in anesthesia, its high price prevents its usage in the clinical industry. An alternative approach is to recover Xe from anesthetic exhale gas mixture and recycle it to the inhale gas stream. Although, many membranes and/or adsorbents have been proposed for recovering anesthetic Xe, using metal organic frameworks (MOFs) for adsorption based separation of anesthetic Xe exhale gas mixtures has been newly studied. MOFs have tunable pore sizes, large surface areas, and high porosities which make them potential candidates for gas separation applications. Currently, very little is known about anesthetic Xe recovery performances of MOFs. We, therefore, theoretically investigate adsorption based separation of single component and binary mixtures of CO_2, Xe, and N_2 in three MOFs, namely CECYOY, SUDBOI, and ZUQPOQ. Single component and binary adsorption isotherms and adsorption selectivities are calculated using Grand Canonical Monte Carlo simulations for each MOF in order to characterize their performances as adsorbents. Results suggest that while MOFs prefer adsorption of CO_2 for CO_2/Xe mixture, Xe adsorption is favorable in the case of Xe/N_2 mixture. While SUDBOI shows significantly large CO_2 adsorption selectivity for CO_2/Xe mixture, ZUQPOQ has the largest adsorption selectivity for Xe/N_2 mixture. According to the results, Xe recovery scenarios are different in these MOFs, since SUDBOI separates Xe by facilitated CO_2 adsorption over Xe, and ZUQPOQ separates Xe by facilitated Xe adsorption over N_2. Thus, two step procedure for recovering anesthetic Xe can be proposed, such as firstly CO_2 can be separated from the exhale gas mixture by CO_2 adsorption in SUDBOI, then Xe/N_2 gas mixture can be separated by Xe adsorption in ZUQPOQ in the second step.

Keywords: Grand Canonical Monte Carlo simulations, metal organic frameworks, gas separation

DRAFT

➢ **ORAL PRESENTATION**

Mikroorganizmalardan biyohidrojen eldesi yöntemlerinin karşılaştırılması ve uygulanabilirliği

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Özet

Dünya nüfusunun büyümesi ve buna bağlı olarak artan kontrolsüz sanayileşme yüksek enerji taleplerinin yanı sıra yükselen yakıt fiyatlarının zorluklarını da beraberinde getirmektedir. Dolayısıyla, bu tür zorluklarla başa çıkmak için araştırmacılar enerji üretiminde sürdürülebilir ve uygun maliyetli yöntemler önermektedirler. Fosil yakıtların çevre kirliliğini artırdığı kanıtlanmıştır ve bu nedenle yenilenebilir enerji kaynaklarının ekonomik ve çevre dostu olması için daha fazla çalışma geliştirilmiştir. Biyokütlenin enerji kaynağı olarak kullanımı farklı yenilenebilir biyoyakıt türlerinin (biyodizel, biyoetanol, biyogaz ve biyohidrojen) üretimine olanak tanımıştır. Ayrıca biyokütleden elde edilen enerji, ticari faaliyetlerdeki artış nedeniyle artan bir enerji arzına ve yerel topluma katkıda bulunması araştırmacılar tarafından öngörülmektedir. Temiz bir yakıt olan biyohidrojen çevre açısından güvenli, yenilenebilir enerji kaynağı ve fosil yakıtların alternatifi olmaktadır. Bilinen tüm diğer yakıtların yanı sıra güvenilirliğine teknik, sosyo-ekonomik ve çevresel açıdan en yüksek enerji verimliliğine sahip potansiyel bir aday olarak görülmektedir. Biyohidrojen yakıtı (ton başına 143 GJ) ve elektrik üretiminde yakıt hücrelerinde kullanıldığında yan ürün olarak karbondioksit üretmeyen yakıttır. Bu çalışmada biyokütleden hidrojen eldesi yöntemleri araştırılmış ve maliyet, işletme, kurulum, saklama, üretim vs. durumları karşılaştırılarak uygulanabilirliği değerlendirilmiştir.

Anahtar Kelimeler: Biyohidrojen, mikroorganizma, enerji

DRAFT

➢ **ORAL PRESENTATION**

Biyodizel üretiminde kullanılan çeşitli kaynakların enerji verimliliğinin ve sürdürülebilirliğinin değerlendirilmesi

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Özet

Yenilenemeyen enerji kaynaklarının aşırı kullanımı, rezervlerin hızla tükenmesine ve petrol bazlı yakıtların fiyatının yükselmesine yol açmaktadır. Bu nedenle, geleneksel yakıtlar için uygun ve sürdürülebilir kaynakların bulunmasına ihtiyaç duyulmaktadır. Alternatif ve sürdürülebilir yakıt için gereken temel özellikler, kullanılabilirlik ve yenilenebilirlik veya düşük kirliliğe veya daha az kirlilikle birlikte kısıtlı kaynaklara daha az bağımlılıktır. Biyodizel çevre dostu ve toksik olmayan yapısı nedeniyle araştırmacılar tarafından son zamanlarda oldukça ilgi görmektedir. Biyodizel üretimi, çeşitli hammaddeler, katalizörler ve teknolojiler kullanılarak gerçekleştirilebilir. Son yıllarda nano-katalitik teknolojisi, geniş yüzey alanı, tekrar kullanılabilirlik ve nanokatalitin yüksek aktivitesi gibi sayısız avantajı nedeniyle biyodizel üretimi için yaygın olarak kullanılmaktadır. Bu çalışma, kullanılan çeşitli hammaddeleri tanımlayacak, avantajları ve dezavantajları ile biyodizel üretimine genel bir bakış sunacaktır. Ayrıca, karakterizasyon, niteliklerin ve sınırlamaların değerlendirilmesi ve her türün kalite analizi dahil olmak üzere farklı biyodizel sınıflarının ayrıntılı bir açıklamasını yapacaktır. Biyodizel üretimi için kullanılan çeşitli yöntemler de nanokatalitik süreçlerinin potansiyeline odaklanarak açıklanmaktadır. Nanokatalit yenilenmesi ve yeniden kullanımı da dikkate alınmaktadır. Bu çalışma, ekonomik açıdan sürdürülebilir biyodizel üretiminin geliştirilmesini daha da geliştirecek olan bu alandaki son eğilimleri ve zorlukları tartışarak biyodizel sentezine kapsamlı bir genel bakış sunmaktadır.

Anahtar Kelimeler: Enerji, sürdürülebilirlik, biyodizel

DRAFT

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➢ **ORAL PRESENTATION**

Karasu kent merkezinin çevresel gürültü düzeyinin saptanması

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Özet

Günümüzde teknolojinin, endüstrinin, ulaşım araçlarının gelişmesi ve artmasıyla birlikte Türkiye'de ve Dünyada, gürültü önemli bir çevre, yaşam ve sağlık sorunudur. Gürültüyü insanlar üzerinde olumsuz etki yaratan, istenmeyen, hoşa gitmeyen rahatsız edici ses topluluğu olarak ifade etmek mümkündür. Gürültü haritaları, özellikle hızlı kentleşme sürecinde hem doğal kaynakların hem de kent insanın yaşam kalitesini arttırmak amacıyla kent planları için önemli bir veridir. Çalışma kapsamında; Karasu belediyesi mücavir alan sınırları içerisinde konut, sanayi, ticaret, turizm merkezi, yeşil alan gibi farklı kullanımlarda ve çevresel gürültünün en büyük sebeplerinden olan, karayolları ulaşımı sağlayan ana arterlerde belirlenen 84 noktada on iki ay boyunca gürültü ölçümleri yapılmıştır. Çalışmanın amaçları, belediye mücavir alan sınırı içerisinde on iki ay boyunca yapılan ölçümler sonucunda kentin gürültünün izin verilen değerleri geçen ve izin verilen değerlere yaklaşan bölgelerinin tespitinin yapılması, mevsimlere göre gürültü haritalarının oluşturulmasıdır. Bunun için elde edilen gürültü değerlerinin mevsimler açısından istatistiksel analizi gerçekleştirilmiştir. Gürültü ölçümleri Svantek 971 model ölçüm cihazıyla gerçekleştirilmiştir. Elde edilen veriler Esri ArcGIS 10.1 yazılımı kullanılarak enterpolasyon yöntemi ile gürültü haritaları oluşturulmuştur. Sonuç olarak gürültünün ana sebebinin tarafikten kaynaklandığı, gürültünün izin verilen değerleri aşan bölgelerde, ilçeleri bir birine bağlayan İstanbul ve Ankara Caddeleri üzerinde olduğu görülmüştür. Karasu kent merkezinde gürültünün mevsimlere göre farklılık gösterdiği bulunmuştur. En yüksek değerler yaz mevsiminde ölçülmüştür.

Anahtar Kelimeler: Gürültü, gürültü harita, kent, Karasu, mevsim

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➢ **ORAL PRESENTATION**

Hatay ili Arsuz Bölgesi topraklarının pH, kireç, organik madde ve KDK içeriklerinin belirlenmesi

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Özet

Bu çalışmada Hatay ili Arsuz bölgesi topraklarının pH, kireç, organik madde ve katyon değişim kapastesi (KDK) içeriklerinin belirlenmesi amaçlanmıştır. Bu amaç için bölge topraklarını temsil edecek şekilde 0-30 cm derinlikten ve 70 ayrı noktadan olmak üzere toplamda 70 toprak örneği alınmıştır. Örneklerde bölge topraklarının pH. kireç, organik madde ve KDK içerikleri belirlenmiştir. Araştırma sonuçlarına göre; toprakların pH içerikleri 7.65-8.42 arasında değişmekte olup, çalışma alanı toprak örneklerinin pH'larının tamamı hafif alkalin özellikte olduğu görülmüştür. Arsuz ilçesi topraklarının kireç içeriklerinin % 0.62-28.04 arasında olduğu ve kireç içeriklerinin çok az kireçli ile çok fazla kireçli arasında değişmekle birlikte, toprakların % 2.86'sı çok az kireçli, % 4.28'i az kireçli, % 48.57'si kireçli, % 38.58'zi fazla kireçli ve % 5.71'i ise çok fazla kireçli olarak belirlenmiştir. Çalışma alanı topraklarının organik madde içeriklerinin % 1.68-4.09 arasında olduğu ve toprak örneklerinin organik maddelerinin az ile yüksek değerler arasında değişmekle birlikte, toprakların % 14.28'zi az, % 72.86'ı orta, % 11.43'ü iyi ve % 1.43'ü ise yüksek miktarda organik madde bulunmuştur. Çalışma alanı topraklarının KDK içerikleri 13.09-34.25 me/100 gr arasında değişmekle birlikte toprakların ortalama KDK içerikleri 22.57 me/100 gr olarak belirlenmiştir. Toprakların organik madde ile KDK içeriği arasında pozitif önemli ilişki belirlenmiş olup, diğer özellikler arasında ise önemli bir korelasyon ilişkisi belirlenememiştir.

Anahtar Kelimeler: pH, Kireç, Organik Madde, KDK

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➢ **ORAL PRESENTATION**

The role of the capping agents on the inorganic nano-pigment synthesis

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Abstract

Inorganic metal oxides are commonly stable to high temperatures and chemicals. This makes them useful in the colourization step of the ceramic sector. The particle shape and size gain important with the recent development in printing technology. The preparation procedure of synthesized particles can affect the particle shape and size. The effectivity of the inorganic compounds can be improved by the optimization of particle morphology and size. The capping agents are the basic components to control the morphological properties. These molecules are classified according to the centre atom and different types of capping agents can be used for each different experimental setup. In the use of capping agents on the inorganic nano-pigment preparation, nanoparticles at homogeneous morphology can be achieved. The interaction between the capping agent and the nucleus determines the growth of the particle mechanism.

Keywords: capping agent, inorganic pigment, nano-pigment, printing technology.

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➢ **ORAL PRESENTATION**

Green synthesis of silver nanoparticles using leaves extract of *Mariposa christia vespertilionis* and their stability and antibacterial activity

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Abstract
Green synthesis of silvernanoparticles (AgNPs) has sparked interest due to its environmentally safe, inexspensive and simple method compared to chemical and physical method. In this study, the synthesis of AgNPs was done using *Mariposa christia vespertilionis* as reducing and capping agent by adding 10 mL extracts into 90 mL silver nitrate. The solution undergo incubation for 48 hours and left in the dark room temperature. The observation was done at 24 hour, 48 hour and every two weeks within 2 months to ensure the stability. The formation of AgNPs was confirmed by the appearance of reddish brown colour of solution and the presence of surface plasma resonance (SPR) band in the range of 380 – 450 nm that was observed from ultra violet-visible (UV-Vis) spectroscopy. This was further confirmed by scanning electron microscope (SEM) to see the size range of AgNPs range at 64 nm – 128 nm with the mixture of spherical and triangle shape of AgNPs aggregates. Fourier transform infrared (FTIR) study was done to know the functional groups presence in the extracts which give the reducing and capping agent properties Antibacterial assessment was done using disc-diffusion method and it shows that AgNPs produced exhibited antibacterial activity on both gram-positive and gram-negative bacteria
Keywords: green synthesis, silver nanoparticles, antibacterial activity.

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➢ **ORAL PRESENTATION**

Energetic and kinetic aspects that control oriented processes for facilitated extraction and recovery of glycerol through polymer inclusion membranes

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Abstract

Glycerol is the main by-product of biodiesel and also the main co-product of the vegetable oil industry. It is considered as a source of renewable raw material for organic chemistry. Today, glycerol is at the origin of a wide variety of domestic and industrial uses.

Our study consists in comparing the facilitated extraction of glycerol substrate through two polymer inclusion membranes (**PIM**s), with the polyvinyl alcohol polymeric support and the two different amphiphile extractive agents, **β-cyclodextrin** and **Resorcinarene**. The heat vulcanization method was used to synthesize the developed membranes and the FTIR and SEM techniques were adopted to identify their compositions and characterize their morphologies and porosities.

To quantify the performance of facilitated extraction oriented processes of the glycerol substrate through these membranes, we studied the influence of substrate concentration and the effect of temperature factor. Then, we determined several parameters, the macroscopic parameters, initial flux (J_0) and permeability (P) for the membrane performance, as well as the microscopic parameters, association constant (K_{ass}) and apparent diffusion coefficient (D^*) relating to the interaction of the substrate with the extractive agent during its diffusion through the membrane phase. The results enabled us to determine the activation parameters (activation energy Ea, entropy $\Delta S^{\#}$ and activation enthalpy $\Delta H^{\#}$). Finally, all parameter values allow identifying the performances of the developed membranes, to elucidate the mechanism of these processes through this membrane type and especially to elucidate ***the energetic or the kinetic aspect*** which controls the diffusion movement of the glycerol compound to through these polymer membranes

Keywords : Polymer inclusion membranes, Facilitated extraction processes, Permeability, Flux, Association constant, Apparent diffusion coefficient.

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➢ **ORAL PRESENTATION**

Ocratoxin A and its problems in food

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Abstract

Mycotoxins are formed by secondary metabolism of some molds (*Penicillium, Fusarium, Aspergillus, Clavicep* and *Alternaria*) and are natural toxins with various chemical structures that threaten human and animal health. Ochratoxin, trichothecenes, aflatoxin (AF), cyclopyazonic acid, patulin, fumonisin and zeranol are mycotoxins in foods. Ochratoxin A (OTA) is a nephrotoxic toxin synthesized by *Penicillium* and *Aspergillus* fungi (molds) (*A.melleus, A.ochraceus, A.albertensis, A.wentii, A.niger var. niger, A.alliaceus, A.sclerotorium, A.ostianus, A.auricomus, A.sulphureus* and *P.viridicatum*) commonly found in nature. *Penicillium* molds produce OTA in temperate-cold regions while molds of the genus *Aspergillus* are produced in tropical-sub-tropical regions. These mold genera can produce various toxins simultaneously, usually ochratoxin A, B, C. Ochratoxin A (OTA); barley, wheat, rye, corn, as well as nuts, pulses, wine, beer, raisins, coffee beans, cocoa and grapefruit juice are found in various food products. *Aspergillus* species are mainly responsible for OTA contamination in grapes, coffee and spices and *P. verrucusoum* is responsible for OTA contamination in cereals. In addition, *P. nordicum* is the mold species responsible for OTA contamination in meat and cheese. These toxins produced by molds cause immunotoxic, teratogenic and carcinogenic effects in humans. Ochratoxin A (group 2B) has been classified as a possible human cancer agent by the International Agency for Research on Cancer (IARC). In recent years; vinegar, wine, grape juice and raisin fruits may contain significant amounts of OTA. It also causes significant problems in grain products. Good agricultural practices and HACCP procedures should be applied during harvesting and production to prevent or reduce the risk of OTA contamination. Ochratoxin A maximum limits for various foods according to Turkish Food Codex (TGK); unprocessed grains and roasted coffee beans and ground coffee for 5.0 µg/kg; dried vine fruits and coffee extract, soluble coffee extract or soluble coffee for 10.0 µg/kg; wine - fruit wines and grape juice, grape juice concentrate, grape row and grape row concentrate for direct consumption with grape nectar for 2,0 µg/kg; supplementary foods and dietary foods to infants and young children for 0,5 µg/kg. In this study, the importance of OTA problem, which can be encountered in different foods and threatens our health is emphasized and measures and practices that can be taken in our country and in the world and the acceptable minimum limits of OTA according to the countries are discussed.

Key Words: Food safety, Health, OTA.

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➢ **ORAL PRESENTATION**

Phenol and bisphenol A removal by covalently-bound tyrosinase enzyme onto poly(NIPAM) cryogel

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Abstract

Phenol and a quite number of its derivatives are hazardous and toxic substances for human health and aquatic life. Removal or degradation of these contaminants are crucial treatments to deal with the worldwide expanding environmental pollution. Although conventional treatments such as adsorption on activated carbon, chemical oxidation, microbial degradation, solvent extraction and deep-well injection are applied, these methods remain insufficient, expensive and require specific conditions. Environment-friendly applications to transform phenols to finally quinones are succeeded *via* tyrosinase catalysis. Besides soluble tyrosinase, immobilized tyrosinase gained attention for industrial processes due to the low enzyme and chemical consumption, recyclability, resistance to deactivation, thermal and operational stability aspects provided by the benefits of immobilization. In current study, poly(NIPAM) cryogel decorated with epoxy groups using glycidyl methacrylate was fabricated and used for covalent immobilization of tyrosinase enzyme. Characterization of cryogel was conducted using ATR-FTIR, SEM analysis and swelling test. Enzyme loading efficiency was calculated to be 80 ± 3.5 %. Tyrosinase activity was measured using catechol as substrate. Optimum pH of free tyrosinase was 7.0 whereas it was 5.0 for immobilized tyrosinase. Optimum temperature was 25°C for free and immobilized tyrosinase. K_m and V_{max} were calculated to be 0.025 µM and 500 µmol/min for free enzyme and 0.005 µM and 50 µmol/min for immobilized enzyme. Tyrosinase immobilized poly(NIPAM) cryogel was utilized in phenol and Bisphenol A (BPA) removal. Removal was detected by following the absorbance decrease due to the reaction between phenols and the reaction mixture of 4-aminoantipyrine and $K_3Fe(CN)_6$. Removal efficiencies were calculated as 66% for phenol and 90% for BPA. Immobilized tyrosinase was effective for six consecutive phenol and BPA degradation cycles. It can be concluded that reusable immobilized tyrosinase on NIPAM-based cryogel may be a potent remover of toxic and hazardous compounds, phenol and Bisphenol A.

Keywords: Tyrosinase, NIPAM, cryogel, immobilization, phenol, bisphenol A.

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➢ **ORAL PRESENTATION**

Phytofabrication of silver nanoparticles by plant extract

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Abstract

Development of environmental friendly procedures for the synthesis of metal nanoparticles through biological process is evolving into an important branch of nanobiotechnology. Generally, nanoparticles are synthesized by chemical and physical methods, which are not eco-friendly. In this paper, we report the fabrication of silver nanoparticles (AgNPs)and discuss the possible mechanism involved. Silver nanoparticles were rapidly synthesized by challenging silver ions with leaf extract of Orchidaceae. The reaction process is rapid, simple and easy to handle. The UV-Vis spectrum of aqueous medium containing silver nanoparticles showed peak at 420 nm corresponding to plasmon absorbance of silver nanoparticles. Transmission electron microscopic analysis of the silver nanoparticles indicated that they ranged in size from 16 to 40 nm and were assembled in solution into quasilinear superstructures. X-ray EDS analysis confirmed that Ag constituted the nanoparticles. It is assumed that components (Alkaloid or Flavonoid) present in leaf extract is mainly responsible for reduction of silver ions thus indicating a possible mechanism of synthesis of silver nanoparticles by *Orchidaceae*. The antibacterial activities and bilofilm inhibition of AgNPs were investigated against some Gram positive and Gram negative bacteria using Minimum Inhibition Concentration (MIC) assay.

Keywords: AgNPs; Orchidaceae (leaf extract); bio reduction; biologic activity; bilofilm inhibition

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➢ **ORAL PRESENTATION**

Improvement of the properties of recycled PA-6 by reactive extrusion with chain extenders

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Abstract

The recycling of the polymers has become more important nowadays due to the increasing environmental concerns and limited fossil resources. However, in practice the up-grading plastic recycling technology has some difficulties like thermo-mechanical degradation of the polymers during multiple processing cycles. Such degradation reactions result in splitting polymer chains thus molecular weight of the polymer decreases. One of the solutions to this problem is reactive extrusion method based on the reaction of chemical compounds called as chain extenders with reactive end groups of split polymer chains during extrusion process. This study investigates rebuilding the molecular weight of the recycled polyamide-6 (rPA6) using two different commercial chain extenders (a multi-anhydride functional chain extender and a multi-epoxy functional chain extender) in a twin-screw extruder. The thermo-mechanical degradation of rPA6 was observed by rheology, tensile test and thermo-gravimetric analysis. It was found from rheological data that epoxy functionalized chain extender showed a slight enhancement (25%) in the complex viscosity of rPA6, whereas the relative change is interestingly striking for anhydride functionalized chain extender indicating a 306% in that of rPA6. Mechanical and thermal (DSC and TGA) tests confirmed the outstanding efficacy of the multifunctional anhydride chain extender. The research brings out important knowledge on developing chain extenders for other degraded polymers regard to understanding the degradation reaction and finding the most reactive end group of the split chains.

Keywords: Recycling, reactive extrusion, chain extender, polyamide-6, rheology.

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➢ **ORAL PRESENTATION**

Metal-catalyzed condensation-free synthesis of polyesters from carboxylic acids and alkenes

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Abstract

Polyesters constitute a highly important branch of macromolecules that find widespread use in material applications. The main synthetic route to polyesters relies on condensation reactions of alcohols with diacid or diester monomers. In this study, a distinctive approach was utilized towards the polymerization of carboxylic acid and alkene functional monomers for the synthesis of polyesters without by-product formation. The polymerization reactions proceed on step growth polyaddition of diacids and dinorbornene functional monomers with the aid of a transition metal complex catalyst. The method allows easy combining of dinorbornene functional monomers with different dicarboxylic acids under benign catalytic conditions, leading to a range of polyesters with tunable properties.

Keywords: Polyesters, step-growth polymerization, acid-norbornene addition.

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➢ **ORAL PRESENTATION**

Investigation of biosurfactant production by oil field adapted bacterial strains

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Abstract
The microbial remediation process is more effective, environmentally friendly, cost- effective and applicable method than other physical and chemical cleaning methods. In this process, various bacteria, yeast and filamentous fungi produce biological surfactants. Biosurfactants are important for increasing microbial cohesion, solubility, bioavailability, biodegradation and surface area of insoluble compounds such as petroleum in terrestrial and aquatic areas. Due to the advantages of biosurfactants such as biodegradability, low toxicity, high selectivity with specific functional groups and efficiency in extreme temperature pH, salinity; these surfactants are getting more interest day by day. In this context, this study was aimed to determine the biosurfactant production by oil field adapted bacterial strains with drop-collapse and oil spreading methods. As a result, the biosurfactant presence was observed by isolated bacterial strains. Furthermore, *Bacillus sp.* was the most effective strain in producing of biosurfactant. The results clearly showed the biosurfactant production from oil field adapted bacterial strains has been shown to be advantageous for further bioremediation studies.
Keywords: Biosurfactant, oil field, bacteria

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➢ **ORAL PRESENTATION**

Kuzeydoğu Akdeniz kıyılarında heterotrofik bakteri bolluğunun mevsimsel değişimi

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Özet

Bakteriler, besinlerin parçalanması ve geri dönüşümündeki rolleri nedeniyle deniz ekosistemindeki besin döngüsünün temel parçasıdır. Çözünmüş organik karbonu (DOC) partiküler forma dönüştürerek diğer mikroorganizmalar için kullanılabilir hale getirirler ve bu nedenle ekosistemdeki varlıkları çok önemlidir. Bu çalışmada heterotrofik bakteri bolluğunun mevsimsel değişimi (Ekim 2017, Şubat 2018, Nisan 2018, Temmuz 2018) üç farklı bölgeyi temsilen (Mersin Körfezi batı kıyısal alanları, Göksu Nehri deşarj alanı ve açık suları) 50 farklı istasyonda izlenmiş ve değerlendirilmiştir. Hücre sayımları Apogee marka akış-sitometri cihazı kullanılarak gerçekleştirilmiş ve bolluğu etkileyen faktörlerin araştırılmasında temel bileşenler analizi (PCA) kullanılmıştır. Mevsimsel olarak heterotrofik bakterinin değişimi incelendiğinde, sıcaklık arttıkça heterotrofik bakteri bolluğunun arttığı tespit edilmiştir. Su kolonundaki bakteri bolluğu Ekim ayında 2,6-14x10^4 hücre/mL, Şubat ayında 0,4-17x10^4 hücre/mL, Nisan ayında 5,8-33x10^4 hücre/mL ve Temmuz ayında 1,2-58x10^4 hücre/mL arasında değişim göstermiştir. Özellikle nehir girdisinin olduğu bölgelerde bakteri bolluğunun daha fazla olduğu tespit edilmiştir. Yüzey dağılımları incelendiğinde ise, kıyıdan açığa doğru gittikçe azalan besin tuzu miktarına bağlı olarak bakteri bolluğu da azalmıştır. PCA sıcaklık, besin tuzu miktarı gibi çevresel faktörlerin yanı sıra derinliğin de bolluğu etkilediğini göstermiştir. Bolluk genel olarak derinliğe bağlı olarak azalmakla beraber, tabakalaşmanın olduğu dönemlerde derin klorofil maksimumda (DCM) bolluk artış göstermiştir.

Anahtar Kelimeler: heterotrofik bakteri, bolluk, Kuzeydoğu Akdeniz, Göksu Nehri

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➢ **ORAL PRESENTATION**

Novel biosensors for measuring total prooxidant activity

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Abstract

Aerobic organisms generate reactive oxygen or nitrogen species (ROS/RNS) during normal cellular metabolism. Oxidative stress may occur as a result of the imbalance of antioxidants and prooxidants in the presence of copper and iron ions which are major redox–active metals present in serum and tissue. As a result of this situation, irreparable damage may occur on cellular macromolecules such as lipids, proteins, nucleic acids eventually leading to chronic diseases and cancer. Metal (iron, copper) ion–catalyzed protein oxidation may be a site-specific process due to the presence of some amino acid residues in proteins such as proline, histidine, arginine, lysine, and cysteine, which are highly sensitive to catalytic oxidation by transition metal ions. Prooxidant activity originates from the ability of antioxidant compounds to reduce transition metal ions to their lower oxidation states, stimulating the production of reactive species *via* Fenton-type reactions. Although the main health-beneficial effects of natural bioactive compounds originate from their antioxidant properties, they may exhibit prooxidant behavior in the presence of high metal ion concentrations. Thus, the determination of prooxidant activity of phenolics has gained importance as it may guide to special diets and the treatment of various diseases. There are a limited number of biosensors in the literature for the determination of prooxidant activity of natural antioxidant compounds depending on protein oxidation. In this context, various prooxidant biosensors have been developed by our research group using egg white protein solution [1], calcium proteinate based solid biosensor [2], chicken egg white protein−protected gold nanocluster (CEW–AuNC) [3], fluorometric CEW–AuNC biosensor [4] to measure the Cu(II)–induced prooxidant activity of natural antioxidants and also calcium proteinate based solid biosensor [5] for Fe(III)−induced prooxidant activity measurement. Prooxidant activity determination methods can be used for the control of the oxidative stability of foods with a prolonged shelf life.

Keywords: Prooxidant, biosensor, natural antioxidant, protein oxidation, gold nanocluster.

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➢ **ORAL PRESENTATION**

P(SNS-An) iletken tabanlı amperometrik glikoz sensörü

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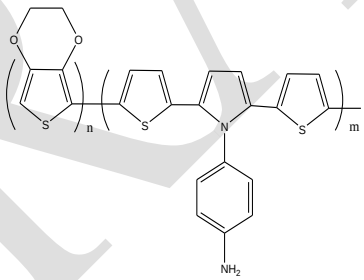
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Özet

Biyosensörler tıp, tarım, gıda, eczacılık, çevre, savunma sanayi ve birçok endüstriyel alanda özellikle otomasyon ve kalite kontrolünde çok önemli bir yere sahiptir. Özellikle insan sağlığına olumsuz etkileri nedeni ile kontrol altında tutulması gereken glikoz, fenol türevleri ve üre kolay, yüksek hassasiyetli analizine ihtiyaç duyulmaktadır. Biyosensörlerin yüksek spesifikliklerinin yanında, renkli ve bulanık çözeltilerde geniş bir derişim aralığında doğrudan ölçmeye olanak sağlamak gibi üstünlükleri vardır[1]. Poli (2,5-ditiyenilpirol) (PSNS) türevleri düşük yükseltgenme potansiyeline sahip olmaları, kimyasal ve elektrokimyasal yöntemler ile kolayca sentezlenebilmeleri nedeniyle özellikle elektrokromik uygulamalarda ve biyosensörlerde tercih edilmektedirler. Bu çalışma kapsamında 4-(2,5-di(tiyofenil-2-yl)-1H-pirol-1-l) benzenamin P(SNS-An) and P(SNS-An-co-EDOT) elektrokimyasal olarak polimerleştirilmiş ve glikoz biyosensörlerinde elekro-aktif tabaka olarak kullanılmıştır.

Analitik özellikler ve stabilite çalışmaları, katalitik reaksiyon sırasında üretilen H_2O_2'nin oksidasyonunu takiben glikoz oksidazın glikoza doğru katalitik reaksiyonu sonucu hem katodik potansiyelde hem de O_2 tüketimini izleyerek gerçekleştirildi. EDOT ile yapılan kopolimerin etkisi pozitif taraftaki ölçümlerde genişletilmiş bir doğrusal aralık (0.01-5.0 mM) sunarken, negatif tarafta ise daha dar bir aralıkta 104.96 µA / mMcm $^{-2}$ 'e kadar yüksek hassasiyet sağladı. LOD ve Km değerleri sırasıyla, 1,9 µM ve 0,49 mM olarak hesaplanmıştır. Hazırlanan biyosensörler, ticari olarak satılan numunelerde glikoz tayininde kullanılmış ve referans yöntem ile karşılaştırılmıştır.



Anahtar Kelimeler: İletken Polimerler, amperometrik Biyosensör, Glikoz

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➢ **ORAL PRESENTATION**

Antimicrobial socks for orthosis-prosthesis users

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Abstract

Orthotics are auxiliary supports made of metal, plastic, leather or fabric pieces used for loss of function in a limb due to congenital or subsequent reasons, inability to support/protect one of the body parts. Prosthetics is a finger, hand, arm, and leg externally applied limbs which are prepared to perform the functions of the limb and to ensure the visual integrity of the body in the complete/partial loss of a limb. It is estimated that 0.5% of the world's population needs prosthetics, orthotics and rehabilitation treatment; this corresponds to approximately 35-40 million people. In Turkey, there are approximately 2.000.000 orthotic-prosthetic users.

Orthotics and prostheses are usually worn over the cotton stump-socks*. The stump-socks should be washed every day. Also the stump-area must be cleaned and maintained regularly (approximately 15-30 min). Especially fungal infections are common on the stump of orthosis-prosthesis users. They occur in airless and damp regions in patients who cannot perform regular care.

Considering that 70% of patients using orthosis-prosthesis have such problems, it is understood that patients cannot provide adequate hygiene or care in the problematic areas. Antimicrobial stockings are aimed to find solutions to this problem and to facilitate patient life.

Due to the high price of the existing antimicrobial copper and silver ion socks and the presence of heavy metal ions, cotton stump-socks will be treated with tragacanth of nitens which are grown in Turkey (in Sivas Region).

This study aims firstly to solve the problem of orthosis-prosthesis users and these socks will be preferred under plaster-splint after body fractures.It might be also a solution for diabetics' wound .

Stump socks will be promote skin integrity and hygiene. As a result, the patients will be offered a better quality of life as it will be reduced the daily care period and infections.

Keywords: Astragalus nitens, antimicrobial, orthotics, prosthesis, stump socks

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➢ **ORAL PRESENTATION**

Küçük RNA'ların bakterilerde biyofilm oluşum sürecine etkileri

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Özet

Biyofilm yapısı, canlı veya cansız bir yüzeye tutunan bakterilerin oluşturdukları topluluğun kendi ürettikleri polimerik matriks içerisinde paketlenmesi sonucu oluşan yaşam formu olarak tanımlanmaktadır. Sahip oldukları bu koruyucu tabaka nedeniyle biyofilm bakterileri; çeşitli çevresel stres koşulları ve konak bağışıklık sistemi başta olmak üzere, antibiyotiklere ve dezenfektanlara karşı da daha dirençli olmaktadır. Son kanıtlar, bakterilerin, biyofilm yapısının oluşumunun ya da hücrelerin planktonik formda canlılıklarını sürdürmesinin kodlama yapmayan küçük RNA'lar (sRNA'lar) tarafından düzenlendiğini göstermektedir. Çevresel sinyallere cevap olarak sRNA'lar regülatör yolaklarda yer alan proteinlerin ifadesini etkileyerek ya da doğrudan biyofilm oluşumunda rol alan proteinleri regüle etmek suretiyle biyofilm oluşumunu kontrol etmektedir. Biyofilm oluşumu çok sayıda genin regülasyonunun gerçekleştiği kompleks bir süreçtir. Bu süreçte hücrenin büyüme koşullarına bağlı olarak aktive olan sRNA'lar da hedef genlerin transkripsiyonlarını regüle ederek hücrenin hayatta kalma olasılığını artırırlar. sRNA'lar, transkripsiyon, translasyon ve mRNA stabilitesini hem pozitif hem de negatif olarak modüle edebilirler. Bu nedenle biyofilm gelişimi sırasında sRNA'ların rolü çok önemlidir ve bu regülasyonun tam bir resmini elde etmek için biyofilm büyümesi, olgunlaşması ve dağılmasına odaklanan çalışmaların ötesine geçilmesi gerekecektir.

Anahtar Kelimeler: Biyofilm, sRNA, CsgD, Hfq.

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➢ **ORAL PRESENTATION**

Phellinus igniarius (L.) Quél türünden elde edilen metanol ve su ekstraktlarının A431 hücre dizisi üzerine prooksidan ve antioksidan etkilerinin araştırılması

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Özet

Akciğer kanserleri küçük hücreli (SCLC) ve küçük hücreli dışı akciğer kanseri (NSCLC) olarak sınıflandırılır. NSCLC, akciğer kanserlerinin yaklaşık %80'ini oluşturmakta ve bu oran katlanarak artmaktadır [1]. Kanser tedavisinde kemoterapinin yeterli olamamasının en önemli nedenleri, kanser hücrelerinin kemoterapötiklere direnç geliştirmesi ve antikanser ilaçlarının hedefe yönelik olmamasıdır [2]. Bu durum bilim insanlarının karşılaştıkları sorunları azaltmaya yol açacak, doğal olarak yetişen, tedavi edici özelliklere sahip olan fungus gibi kaynakları kullanmaya yönlendirmiştir [3;4]. Makrofungusların içerdiği biyoaktif bileşenler, alternatif tedavi amaçlı kullanılabilecek ilaçların üretimi için yüksek bir potansiyele sahiptir [5]. Bu bileşenler immün yanıtları modüle edebilir, bazı tümör büyümelerini önleyebilir [6].

Kanser tedavisinde kullanılan mevcut kemoterapötiklerin makrofunguslarla kullanılabilme potansiyelinin belirlenmesi açısından makrofungus ekstraktlarının *in vitro* çalışmalarla antioksidan-prooksidan özelliklerinin ortaya konulması gerekmektedir. Ancak halen *Phellinus* türleri dahil pek çok fungus türünün antikanser etki mekanizması tam olarak açıklığa kavuşturulmamıştır. Literatür taramaları sırasında *Phellinus igniarius*'un metanol ve su ekstraktlarının A431 hücreleri üzerine antikanser, antioksidan-prooksidan etkilerini inceleyen bir çalışma ile karşılaşılmamıştır. Bu nedenle çalışmamızda A431 hücrelerinde *P. igniarius* ekstraktlarının antikanser-antioksidan-prooksidan aktivitesi karşılaştırmalı olarak değerlendirilmiştir.

Ekstraktların hücreler üzerine prooksidan etkisi, MTT testi ile belirlenmiştir [7]. Hücreler, ekstraktlara farklı konsantrasyonlarda 24 saat maruz bırakılmış, prooksidan etki ortaya konmuştur. İşlemler H_2O_2 ile tekrarlanmıştır. Ekstraktların hücreler üzerine antioksidan etkisinin belirlenmesi için, hücreler $<IC_{50}$ değerindeki ekstraktlarla ön inkübasyona bırakıldıktan sonra H_2O_2 (IC_{50}, IC_{70}) ile 24 saat inkübe edilmiş ve antioksidan etki belirlenmiştir. Ekstraktların membran üzerine prooksidan aktivitesi, hücrelerin IC_{50} ve IC_{70} konsantrasyonlarında ekstraktlara maruz bırakılarak MDA seviyesinin ölçülmesiyle belirlenirken [8] membran üzerine antioksidan etkisi, hücrelerin farklı konsantrasyonlardaki ekstraktlarla ($<IC_{50}$) ön inkübasyona maruz bırakılmasının ardından H_2O_2 ile inkübe edilmesi ve MDA düzeylerinin ölçülmesiyle belirlenmiştir.

Yüksek konsantrasyon değerlerinde uygulanan ekstraktlar, membran hasarı oluşturmuş, MDA düzeylerini arttırmıştır. H_2O_2 uygulaması öncesinde hücreler düşük konsantrasyonlardaki ekstraklar ile inkübe edildiğinde, indüklenmiş prooksidan etkiye ve membran hasarına karşı hücreyi korumuştur.

Ulaştığımız sonuçlar ekstraktların biyolojik aktivitesinin gerçekleştiği konsantrasyonların gösterilmesi açısından oldukça değerlidir.

Anahtar Kelimeler: Antikanser, antioksidan, ekstrakt, MDA, *Phellinus igniarius*, prooksidan

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➢ **ORAL PRESENTATION**

Fluorene substituted Zinc(II) phthalocyanine; Synthesis, characterization and investigation of its properties

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Abstract

Phthalocyanines (Pcs) are widely used as dyes and pigments and possess a wide range physical and chemical properties that make them interesting building blocks for a number of applications (1). Owing to high extinction coefficients and long absorption wavelengths in the near infrared region, phthalocyanines are extensively studied in many area such as optical storage, photodynamic therapy (PDT), dye sensitized solar cell, and electrochemistry. The properties of phthalocyanines are affected by both the nature of substituents on the ligand and the nature of the metal ion in the inner core. In the synthesis of phthalocyanines, many substituents and metal ions have been used (2). Fluorene is a polycyclic aromatic hydrocarbon soluble in many organic solvent. Fluorenes are one of the most important fluorescence molecules with different applications such as polymers and sensors (3).

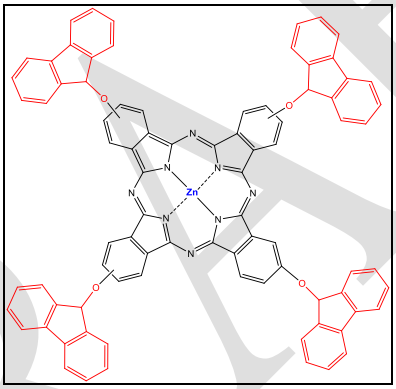


Fig. 1 Structure of Zinc(II) phthalocyanine

In this study, 4-((9H-fluoren-9-yl)oxy)phthalonitrile was synthesized using 9-hydroxyfluorene and 4-nitrophthalonitrile in DMF presence K_2CO_3 as a base. Zinc(II) phthalocyanine was synthesized directly by reaction of 4-((9H-fluoren-9-yl)oxy)phthalonitrile and zinc(II) acetate in n-pentanol presence DBU as a base. These compounds were characterized by elemental analysis, FT-IR, UV-Vis, NMR and MS techniques. The spectral investigations on the 4-((9H-fluoren-9-yl)oxy)phthalonitrile and its Zn(II) phthalocyanine derivative are in accord with the proposed structures. In addition, aggregation properties of Zn(II) phthalocyanine was studied in DMSO solvent. The results showed no aggregation for this compound. Finally, photophysical and photochemical properties of Zn(II) phthalocyanine were studied. The data obtained indicate that this compound is a suitable candidate for photodynamic therapy.

Keywords: Hydroxyfluorene, Phthalocyanine, Zinc, Synthesis

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➢ **ORAL PRESENTATION**

Observation the responses of *Escherichia coli* strains with multiple drug resistance and overexpressed efflux pumps against efflux pump inhibitors

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Abstract

The aim of this study is firstly of determine the efflux pump expressions of *E. coli* strains presenting multi drug resistance by using ethidium bromide and secondly to observe the responses of these *E. coli* strains against efflux pump inhibitors by using a combination of an antibiotic and an inhibitor. Antibiotics are compounds that can stop or kill the viability of microorganisms, but for some reason, microorganisms in time show resistance to antibiotics. One of these reasons for developing resistance to antibiotics is efflux pumps. By means of these pumps, the antibiotic entered into the bacterial cell is pumped out; therefore, it cannot act against the bacteria. This situation increases the antibiotic resistance. Thus, microorganisms will develop multiple drug resistance against not only the antibiotic used, but also for many other antibiotics and they rapidly spread to the environment. For this reason, antibiotic resistance has become a major problem all over the world, and new antibiotics and efflux pump inhibitor studies, which can affect these microorganisms that are resistant to multiple drugs are continuing rapidly. According to the results of this study; effect of verapamil and thioridazine was observed to be more effective than PAβN. As a result 98.41% of the *E. coli* strains used in the study was found to be affected by verapamil, where 96.82% by thioridazine and only 38.09% was affected by PAβN inhibitor.

Keywords: Multiple drug resistance, antibiotics, efflux pumps, efflux pump inhibitors, *E.coli*.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Screening *in vitro* efflux pump inhibitor activities of some extracts

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Abstract

Bacterial drug resistance is one of the most common problems of last several decades and it continues to delay the treatment of bacterial infections. Efflux pumps, which are one of the factors causing this resistance, prevent the drug from being kept inside the cell. Thus, the drug released outside the cell by the bacteria, and it cannot exhibit its activity and lead to antibiotic resistance. Although there are some efflux pump inhibitors to block the activity of these pumps, the use of currently known inhibitors is not suitable for clinical purposes, because of toxicity problems due to their chemical structure. The aim of this study is to screen *in vitro* efflux pump inhibitor activities of some extracts, which may be suitable for clinical use instead of using toxic synthetic inhibitors, in several *Escherichia coli* strains presenting multiple drug resistance and overexpressed efflux pumps. For this purpose, potential efflux pump inhibitors were extracted by using two solvents having different polarities. The results presented that all these extracts contain potential efflux pump inhibitors, which could have possible uses for blocking efflux pumps during antibiotic treatment. This experiment is a preliminary study, and it is necessary to purify and determine the active compound(s) in order to reach more detailed results about their mechanisms and to try the compounds with the combination of antibiotics to prove their potential use. Since the possibility of the use of these compounds depend on their toxicity, determining whether they are toxic or not will be a key step to continue to further studies.

Keywords: Efflux pumps, multiple drug resistance, *Escherichia coli*, efflux pump inhibitors, extract.

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➢ **ORAL PRESENTATION**

Sucul ortamlarda mikrokirleticiler ve mikroplastikler: Etkileşimleri, analizleri ve giderimleri

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Özet

Sucul ortamlarda µg/ ve ng/L gibi çok küçük konsantrasyonlarda bulunan organik iz element ve ağır metaller mikrokirleticiler olarak adlandırılmakta ve mevcut miktarlarıyla bile sucul yaşamı ve içme suyu kaynaklarını olumsuz etkilemektedirler. Günlük kullanımdaki ilaç, deterjan, kişisel bakım, zirâi vb. ürünlerinden kaynaklanan bu kirleticiler, evsel ve endüstriyel deşarjlar ile tarımsal alanlardan gelen yağmur akışları ve yetersiz arıtma yapan klasik atıksu arıtma tesislerinin deşarjları sonucu yüzeysel su kütlelerine karışabilmektedirler. Mikrokirleticiler arasında yer alan ilaç kalıntıları (PR), kişisel bakım ürünleri (PCPs) ve endokrin bozucu kimyasallar (EDCs) literatürde "emerging micro-pollutants" (yeni ortaya çıkan mikro kirleticiler) olarak sınıflandırılmakta ve genel olarak "endokrin bozucular" olarak da adlandırılmaktadır. Bu maddeler, biyolojik parçalanmaya oldukça dirençli olup, genellikle suda çözünebilir olduklarından atıksularda yer alabilmekte ve kolaylıkla doğal sulara taşınabilmektedirler. Ayrıca içme suyu kaynaklarına ulaşarak insanlar üzerinde de potansiyel risk oluşturabilmektedirler. Kanserojen etkilerinin bulunduğu, büyüme ve gelişmeyi olumsuz etkilediği ve erkeklerde üreme özelliğini azalttığı ya da yok ettiği bildirilmekle beraber, doğal yaşam ve insanlar üzerindeki etkilerinin tam olarak ne (kadar) olduğu hakkında yeni çalışmalara ihtiyaç duyulmaktadır. Son yıllarda mikrokirleticiler ile ilgili çalışmaların güncel olmasının bir nedeni de, gelişen teknoloji ile çok küçük konsantrasyonlardaki pek çok mikrokirleticinin ölçülebilir olmasına bağlanmaktadır.

Su türlerine olduğu kadar, insanlara da tehdit oluşturmaları sebebiyle son birkaç yıldır gündemde olan bir diğer kirletici grubu da mikroplastiklerdir. Plastikler günümüzde hafif, esnek, kolay işlenebilen ve ucuz bir madde olduğundan dolayı çok yaygın kullanılmaktadır. Kozmetik, tekstil, plastik hammadde endüstrisi ve ulaşım araçlarının lastiklerinden yoğun olarak yayılan plastiklerin genellikle 5 µm'den küçük boyutta olanları mikroplastikler olarak adlandırılmakta ve sadece çevrede plastik birikmesine sebep olmayıp, aynı zamanda absorpsiyon nedeniyle, yukarıda bahsedilen mikrokirleticilerin çevreye taşınmasına ve yayılmasına da neden olabilmektedirler. Plastik ürünlerin yoğun kullanımı ve plastik atıkların bertarafının kötü yönetimi, mikroplastiklerin yüzeysel sulara karışmasına sebep olmaktadır. Bu çalışmada, mikrokirleticiler ve mikroplastiklerin kaynakları, birbirleriyle etkileşimleri, analiz ve giderme yöntemlerindeki son gelişmeler ve öneriler değerlendirilmiştir.

Anahtar Kelimeler: Mikrokirleticiler, mikroplastikler, kromatografik analiz, mikroskopik analiz, su ve atıksu arıtma teknolojileri

DRAFT

➢ **ORAL PRESENTATION**

Thiophene and benzimidazole-based electrochromics

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Abstract

Benzimidazoles are exclusive acceptor units for band gap engineering, due to the ability of functionalization at the 2C position. Thus, various types of benzimidazole derivatives have been designed and used in the synthesis of DAD-type conjugated polymers. In this study, new DAD-type conjugated monomers and their corresponding polymers were synthesized and electro-optical properties were revealed. Cycloheptyl- and cyclooctyl-substituted benzimidazole derivatives were used as the acceptor and thiophene was used as the donor. The polymer films were obtained electrochemically. Electrochemical and optical characterization of the polymers showed that both polymers can be doped and dedoped effectively and have an effective intramolecular charge transfer between the donor and the acceptor. Furthermore, changing the ring size on the benzimidazole has no appreciable effect on the properties of the resulting monomers and their corresponding polymers. Exhibiting good electrochemical stability and scan rate dependency makes these polymer films good candidates for electrochromic applications.

Keywords: Thiophene, benzimidazole, electrochromic polymers.

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➢ **ORAL PRESENTATION**

A benzimidazole containing turn-off fluorescent sensor for mercury (II) ions in aqueous solutions.

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Abstract

In this study, potential fluorescent sensing ability of a donor-acceptor-donor type conjugated monomer over various metal ions (Ni(II), Zn(II), Cu(II), Cd(II), Pb(II), Fe(II), Fe(III), As(III), Se(IV), Hg(I) and Hg(II)) was investigated. The monomer basically consists of a benzimidazole unit as the acceptor and 3,4-propylenedioxythiophene as the donor unit, exhibiting an emission with having a maximum at 632 nm in tetrahydrofuran as the solvent. Upon 1.07 eq. addition of Hg(II) into monomer, a 25 nm red-shift in the emission spectrum and a 88 % fluorescent quenching was observed, making a difference among other ions. The corresponding spectral-shift and quenching degree are found to be time-dependent and reach to equilibrium after 10 minutes. Studies showed that Hg(II) can be detected even in the presence of other ions. Reported monomer is found to be a selective fluorescent sensor for Hg(II) detection. Moreover, presence of Hg(II) ion changes the color of the monomer solution from pink to pale violet, indicating that this sensor is not only fluorescent but also a chromogenic sensor for Hg(II) detection. Limit of quantification was found to be 39.2 nM, which is comparable to the most of the fluorescent Hg(II) sensors in the literature.

Keywords: Mercury (II); fluorescent sensor; benzimidazole based donor-acceptor-donor systems.

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➢ **ORAL PRESENTATION**

Detection of breakpoint in pome fruit growth using piecewise linear regression

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Abstract

Piecewise linear regression is a type of regression models that let multiple linear segments to be fit to the data for different ranges of the controlled variable (i.e. independent (*x*) variable). In the present study, piecewise linear regression models of the four pome fruit species (apple, pear, quince, and medlar) were obtained. The rootstock-cultivar combinations were 'Golden Delicious'/M.9, 'Akça'/Q.A, 'Eşme'/Q.A and 'İstanbul'/Q.A for apple, pear, quince, and medlar, respectively. Fruit diameter was measured using a digital caliper at 6-10 days intervals. Twenty fruit in each measurement day were chosen randomly. Fruit of apple, pear, quince, and medlar were harvested at 151, 83, 173, and 171 days after full bloom (DAFB), respectively. The breakpoint and its day were 74.3 mm and 106 DAFB, 43.5 mm and 74 DAFB, 73.3 mm and 156 DAFB, and 32.9 mm and 136 DAFB in apple, pear, quince, and medlar, respectively. The slope was 0.68, 0.62, 0.43, and 0.16 for apple, pear, quince, and medlar (respectively) when fruit diameter is smaller than the breakpoint. The results implied that the piecewise linear regression models could reveal the time when the growth of fruit diameter changed abruptly.

Keywords: dependent variable (*y*), interpretation, linear models, simple linear regression.

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➢ **ORAL PRESENTATION**

Mezbaha atıksularının elektrokimyasal arıtımında elektrot materyali ve hibrit dizilimin etkisi

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Özet

Et işleme tesislerinin atıksuları, içerdikleri kompleks yağ, protein, lif, yüksek konsantrasyonlarda organik madde, patojenler ve veterinerlik uygulamalarında kullanılan farmasötik bileşikler sebebiyle, çevresel alıcı ortamlar için en zararlı atıksular arasında kabul edilmektedir. Ayrıca yiyecek-içecek endüstrisine ait atıksuların yaklaşık %25'ini de et işleme ve kesimhane atıksuları oluşturmaktadır. Türkiye'de 2020 yılı itibariyle kişi başına düşen yıllık et tüketimi yaklaşık 30 kilograma ulaşmış olup, ekonomik olması sebebiyle tercihen bunun 20 kilogramını tavuk eti meydana getirmektedir. Tavuk kesimhanelerinde (mezbaha) kanatlı hayvan başına açığa çıkan atıksu yaklaşık 15 litre olup ,büyük miktarlarda su tüketimi ve atıksu oluşumuna sebep olmaktadır. Bu atıksular yüksek miktarda biyokimyasal oksijen ihtiyacı, kimyasal oksijen ihtiyacı, toplam organik karbon, toplam azot, toplam fosfor, yağ-gres ve toplam askıda katı madde bileşenlerini içermektedir. Yasal düzenlemeler, kısıtlı doğal kaynaklar, yüksek arıtma maliyetleri ve çevreye duyarlı bilinçli tüketiciler sebebiyle mezbaha atıksu arıtımı da özel önem verilmesi gereken atıklar arasında yerini almıştır. Mezbaha atıksularının arıtımında kullanılan fizikokimyasal prosesler arasında; basit, güvenilir, ekonomik, ilave kimyasal gerektirmeyen ve ikincil kirliliğe ve yüksek çamur hacimlerine neden olmayan "elektrokoagülasyon" (EC) prosesi, mezbaha atıksularının arıtımında tercih edilen proseslerden biri olmuştur. EC yönteminin verimi; atıksu pH'ı ve iletkenliği, akım yoğunluğu, elektroliz süresi, güç kaynağının tipi, elektrot malzemesi, şekli ve atıksudaki yeri gibi bir dizi parametreye bağlıdır. Bu çalışmada, yaklaşık 600 m^3/gün atıksu açığa çıkaran bir tavuk kesimhanesinin proses atıksularının arıtımında laboratuvar ölçekli bir elektrokoagülasyon düzeneği kullanılmış ve elektrot tür ve diziliminin arıtma verimine etkisi incelenmiştir. Kesikli işletilen EC reaktöründe dört adet levha elektrot (alüminyum (Al) ve demir (Fe)) farklı dizilimlerde denenerek, değişik atıksu pH'ı, akım yoğunluğu ve elektroliz süresi şartları altında KOİ, toplam azot, toplam fosfor ve yağ-gres giderimi incelenmiştir. Arıtma maliyeti de hesaplanmıştır. Optimum şartlarda, %98'e varan KOİ ve yağ gres gideriminin elde edildiği EC tankı içerisinde Fe(anot)-Al(katot)-Fe(anot)-Al(katot) elektrot diziliminin, konvansiyonel Al-Al-Al-Al ve Fe-Fe-Fe-Fe dizilimlerine göre %10-15 daha fazla giderme verimi sağladığı görülmüştür.

Anahtar Kelimeler: Elektrokoagülasyon, mezbaha atıksuları, elektrot materyali, elektrot bağlantı şekli, kimyasal oksijen ihtiyacı, işletme maliyeti

DRAFT

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➢ **ORAL PRESENTATION**

Synthesis and hydrolysis of the polymers gels transporters of triazolic active ingredient

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Abstract
The development of new controlled release systems formed by the combination (polymer-active ingredient) offer important advantages, especially when it is necessary to ensure a constant concentration of the active ingredient in the organism or a long duration of action. In this context, many synthetic polymers have been used in various fields, among which the biomedical domain, as polymers vectors of active Ingredients such as insulin and amoxicillin. For our part, we are interested in the synthesis of new monomers based on triazole imines reacting, respectively, the p-and m-vinylbenzaldehyde on triazole amines that could be used as active ingredients. Indeed, heterocyclics derived from triazole play an essential role in therapeutics and thus form an important class because of their biological applications, as antimicrobial agents, anti-inflammatories. In order to fix these active ingredients on a polymer support, we proceeded to the radical polymerization of the triazole monomers using, as initiator, 2,2'-azobisisobutyronitrile (AIBN). The study of the hydrolysis of these compounds was followed in a homogeneous medium buffered at pH = 1.2 assimilable to the physiological gastric medium, in order to verify that the support polymers are capable of releasing the active ingredients. The results obtained show that the release of the active ingredients is governed by the Fickien diffusion phenomenon.
Keywords: polymer, active ingredient, triazole, vinylbenzaldehyde, hydrolysis.

DRAFT

➢ **ORAL PRESENTATION**

Exploring mutable *TREX1* gene in systemic lupus erythematosus patients

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Abstract

Apoptosis is highly relevant to the pathogenesis of autoimmune diseases such as lupus erythematosus in 18-20 patients age. A mutation in the exonuclease responsible for degrading DNA during apoptosis initiated by the most abundant cytotoxic T lymphocyte and natural killer cell protease may lead to improper clearance of altered DNA. We reported the identification of a missense mutation in *TREX1* gene caused effector mechanism responsible for autoimmune destruction of healthy cells. *TREX1* Nucleotides sequences were determined by the chain termination method for 3 patients for exploring the differential Nucleotides were compared with control.

Keywords: lupus erythematosus, mutation ,TREX1 gene

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➢ **ORAL PRESENTATION**

Effect of carbon sources on poly(3-hydroxybutyrate) (phb) synthesis From obligate alkaliphilic *Bacillus marmarensis*

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Abstract

Accumulation of plastic waste is one of the main pollutions all over the world. It was reported that 335 million tons of plastics were produced while only 8,1 million tons of it were able to be recycled in 2016. The development and production of degradable plastics are one of the best ways to develop more eco-friendly plastics. Poly(3-hydroxybutyrate) (PHB) is a biodegradable and biocompatible thermoplastic polyester and can be an alternative to petroleum based synthetic polymers. Recently, it was determined that the novel obligate alkaliphilic *Bacillus marmarensis* DSM 21297 has an ability to produce PHB. However, its alkaliphilic behavior affects the glucose utilization which is very important for PHB synthesis. In the present work, the effect of different salt concentrations and carbon sources on the production of poly(3-hydroxybutyrate) (PHB) from *B. marmarensis* DSM 21297 was investigated. Salt concentrations varied between 0-0,16% and glucose, fructose, maltose, lactose and starch were used as carbon sources. PHB concentration was determined by using the crotonic acid method. PHB yield and productivity were determined at different salt and carbon sources to evaluate the best condition for the highest PHB synthesis from *B. marmarensis*.

Keywords: *Bacillus marmarensis*, poly(3-hydroxybutyrate), biopolymer, optimization

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➢ **ORAL PRESENTATION**

Synthesis and characterization of novel 5-substituted isatins-thiosemicarbazone including methyl benzoate

Halit Muğlu

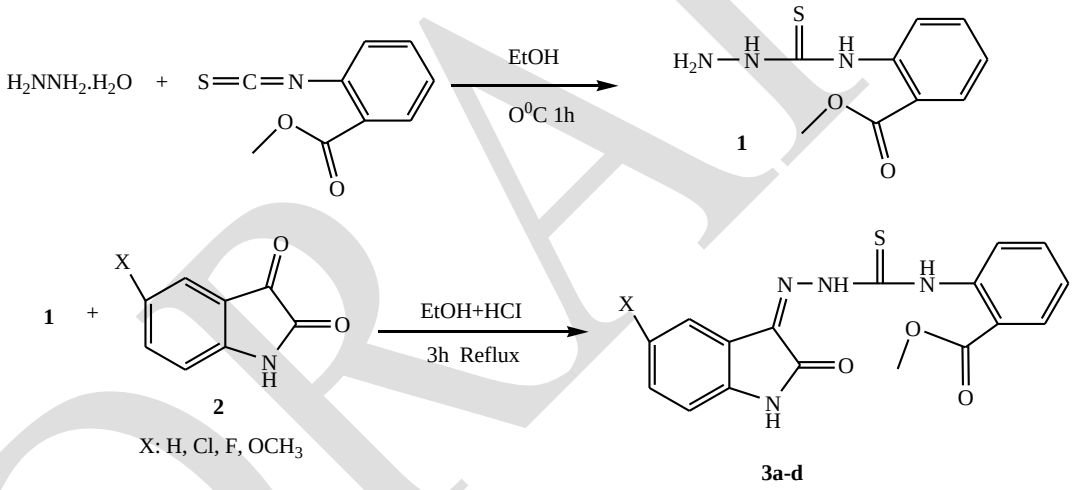
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Abstract

Isatins (indole-2,3-dione) are an significant class of organic chemistry. They have become a popular topic owing to its biological activity and application in pharmaceutical chemistry such as anti-microbial [1], anti-oxidant [2], anti-tubercular [3], anti-HIV [4], anti-cancer [5].

Firstly, thiosemicarbohydrazides were prepared by the reaction of hydrazine monohydrate with aryl isothiocyanate in cold dry ethanol at 0 ºC for 1 h. A new series of isatin derivatives were synthesized by treatment of 5-substituted isatin derivatives with thiosemicarbohydrazide including methyl benzoate in ethanol containing one drop of hydrocloric acid at reflux for 3 h. The chemical structures of the compounds were confirmed by means of IR, ^{1}H and ^{13}C NMR spectroscopic techniques and by elemental analysis.



Keywords: Isatin, thiosemicarbohydrazide, spectroscopic techniques.

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➢ **ORAL PRESENTATION**

Synthesis of poly (vinyl chloride –graft- caprolactone) graft copolymer with combination of ring opening polymerization and click technique

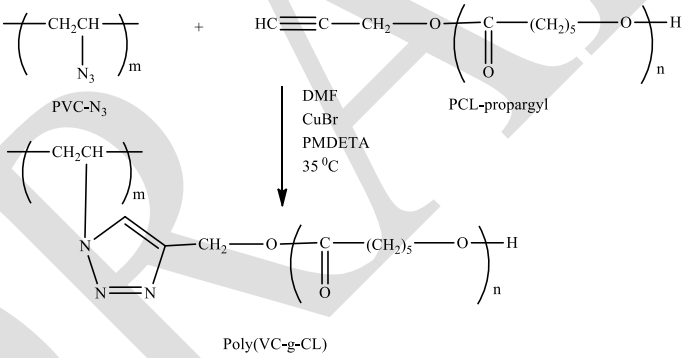
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Abstract

Recently, complex-structured macromolecules, in which the polymer chain end functionality and the graft chain moiety are formed, are highly synthesized starting from controlled polymerization processes. Functional polymer chains are assembled in the desired polymer architecture. Coupling reactions "click reaction" as it is called in chemistry. These reactions allow for the synthesis of modular, sterospecific, functional groups tolerant, large area, high yield and reliable products. Successful synthesis of many complex architectures, polymers, macromonomers and macromolecules has been successfully accomplished with click reactions. In our work, macromonomers were synthesized by click reaction (Cu (I) catalyzed azide-alicyclic cyclization) of terminal alkynes and azides formed on different monomers. Characterization of the products was performed by using FT-IR, ^{1}H-NMR and GPC analyses. Thermal transitions and degradation features of graft copolymers were investigated by using DSC and TGA methods. Spectroscopic and thermal analyses revealed that both the group modifications and the coupling reactions were successfully achieved.



Scheme 1. Reaction outline for synthesis of poly(vinyl chloride-graft- ε-caprolactone) graft copolymer

Keywords: "Click" chemistry, Ring opening polymerization (ROP), Graft copolymer, poly(vinyl chloride), poly(ε-caprolactone).

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➢ **ORAL PRESENTATION**

Synthesis and spectroscopic studies of novel Schiff bases from carbohydrazide

Hasan Yakan

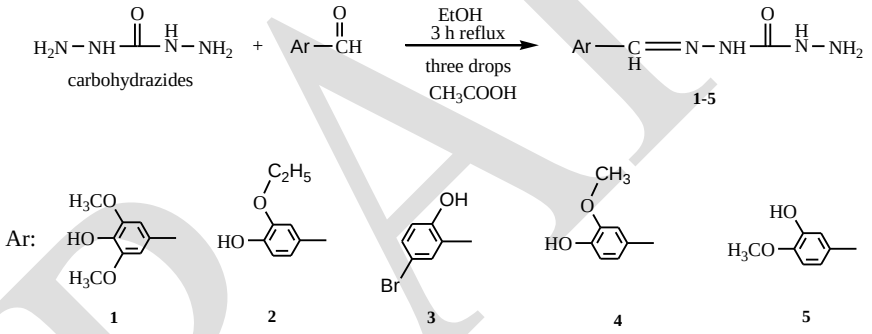
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Abstract

Schiff bases are occurred when any amines reacts with an aldehyde or a ketone. They are a significant class in chemistry. They have several biological activities and applications in medicinal chemistry [1-3]. They have been reported as antioxidant [4], antifungal [5], antibacterial [6] and anticancer [3].

New Schiff bases were prepared from carbohydrazide and various aldehydes in the presence of three drops acetic acid under reflux in ethanol for 3h. The structures of these synthesized compounds were determined using IR, ^{1}H NMR, ^{13}C NMR spectroscopy and elemental analysis.



Keywords: Schiff bases, aldehydes, carbohydrazide, spectroscopic methods**.**

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Microwave assisted synthesis of 2-dimethylaminoethyl methacrylate grafted κ-carrageenan; optimization of grafting parameters and swelling characteristics

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Abstract

Carrageenans are nontoxic biodegradable water-soluble gums that are found in certain species of some red seaweed families. Chemically, they are composed of sulfated linear polysaccharides of D-galactose and 3,6-anhydro-D-galactose. According to the variation in disaccharide-repeating units, carrageenans are named in Greek-letter prefixes as mu-, kappa-, nu-, iota-, and lambda-, theta-, and xi-carrageenans. Carrageenan and their derivatives form valuable ingredients for cosmetics and pharmaceuticals. In recent years, they have been demonstrated to play significant role in antioxidant activities.

Poly(2-Dimethylaminoethyl methacrylate) (PDMAEMA) is a weak cationic polyelectrolyte that is ionizable, has tertiary amine groups. It is sensitive to pH and temperature, and soluble in water. PDMAEMA can be used as a flocculant, or ion-exchange resin and a dye mordant.

In this study, pH- and temperature-sensitive PDMAEMA was grafted onto κ-carrageenan using 4,4'-Azobis(4-cyanovaleric acid) under microwave irradiation. The structure of the CRG-g-PDMAEMA copolymer obtained was confirmed by using the XRD, GPC and SEM techniques. To determine the optimum grafting conditions of the copolymer, κ-carrageenan concentration, microwave power and ACVA concentration on the graft yield and conversion were examined. The highest graft yield and conversion were obtained to be 179% and 76%, respectively. Furthermore, the swelling capacity and LCST of the copolymer were studied under different pH conditions and temperatures. The synthesized CRG-g-PDMAEMA copolymers exhibited a temperature-dependent phase transition compared to κ-carrageenan, and their lower critical solution temperature (LCST) value in deionized water was found to be 47°C. The carrageenan based copolymers displayed temperature and pH sensitive swelling behavior. The biocompatibility of the CRG-g-PDMAEMA was analyzed by using the MTT assay. The *in vitro* cell compatibility results of CRG and CRG-g-PDMAEMA showed that they were biologically compatible.

Keywords: κ-carrageenan, 2-Dimethylaminoethyl methacrylate**,** 4,4'-Azobis(4-cyanonvaleric acid), LCST.

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➢ **ORAL PRESENTATION**

Determination of antimicrobial activity of different extracts of *Enteromorpha intestinalis* (Linnaeus Nees.1820) against pathogenic microorganisms

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Abstract

It is known that components such as polyphenols, flavonoids and polysaccharides have antioxidant and antimicrobial activity in macroalgae in aquatic environments. In this study, it was aimed to determine the antimicrobial activities of Enteromorpha intestinalis methanol, 70% ethanol and water extracts against different pathogenic microorganisms, which are economically important marine macroalgae. According to Broth Microdilution Method; Antimicrobial activities of different extracts of the studied species against Escheri*chia coli* (ATTC 25922*), Pseudomonas aeruginosa* (ATTC 27853), *Klebsiella pneumoniae* (ATTC 70603), *Staphylococcus aureus* (ATTC 43300), *Salmonella enteritidis* (ATTC 13076), *Sarcina lutea* (ATTC 9341) and *Bacillus ce*reus (ATTC 11778) standard bacterial strains and *Candida albicans* fungus strain were evaluated by determining the Minimum Inhibition Concentration (MIC).According to the findings, it was observed that the water extract of the studied species showed no antimicrobial activity against any test organism. The methanol extract of Enteromorpha intestinalis was found to have antimicrobial activity against Pseudomonas aeruginosa, *Staphylococcus aureus*, *Sarcina lutea* ,*Bacillus cereus* and *Candida albicans* strain, while ethanol extract was observed against *Pseudomonas aeruginosa* ,*Sarcina lutea* and *Candida albicans* strains. The highest antibacterial effect was observed in Entereomorpha intestinalis methanol extract and the most effective strain was Bacillus cereus (0.390 mg / ml). Nowadays, the rise of resistant bacteria and pathogens that arise against conventional chemotherapeutic compounds renders the use of these compounds useless. In this case, algae are of great importance in terms of being very useful drug raw material, containing the basic components, being more effective and less toxic, as well as being models for drugs with original drug-like physiological activity. Since the data obtained with this study are intended for prospective application, it is thought that alternative drug applications will be provided as a basis for the studies aimed at reducing the use of commonly used antibiotic and antifungal agents against pathogenic microorganisms.

Keywords: *Enteromorpha intestinalis*, macroalgae, antimicrobial activity, pathogen microorganism

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➢ **ORAL PRESENTATION**

Synthesis of bionanocomposite films with PLA/Halloysite

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Abstract

Polylactic acid (PLA) is a kind of biodegradable and biocompatible polymer which can be replaced of other polymer groups based on petroleum. It is used in wider application areas such as packaging due to their unique properties. On the other hand, mechanical (brittleness) and thermal properties of PLA are inadequate so that it should be improved. Therefore, halloysite (HNTs) which is a kaolin group clay can be used to overcome from these obstacles due to their high mechanical strength and modulus. It is aimed to synthesize biocompatibility PLA/HNTs film and collaborate with plasticizer materials to improve mechanical properties of film. Moreover, it was examined effect of iron oxide proportion to features of film. PLA/natural HNTs films were prepared and plasticizer's material was mixed by solution casting method to investigate their tensile properties. In addition; HNTs sample which were taken from TURKEY contained iron impurities. Therefore, it was leached using by oxalic acid as an agent. HNTs clay was characterized using Fourier Transformed Infrared (FTIR), X-ray fluorescence (XRF) and X-ray diffractometer (XRD). Additionally, the resultant films tensile properties were observed and FT-IR was used to interpret characteristic band values of film.

Keywords: Polylactic acid (PLA), halloysite (HNTs), solving casting method, leaching.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of the comb-type graft copolymers including poly(methyl methacrylate) by redox polymerization and "click" chemistry

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Abstract

Since "click" chemistry technic was introduced in literature by Sharpless et al. [1], the technic has been used for comb-type graft copolymer synthesis [2]. In this study, the synthesis of poly(vinyl chloride-g-methyl methacrylate) comb-type graft copolymers were carried out by use of a "click" chemistry reaction to graft terminally propargyl poly(methyl methacrylate) (PMMA-propargyl) to poly(vinyl chloride) azido (PVC-N_3). For this purpose, PVC-N_3 was synthesized by using poly(vinyl chloride) and sodium azide as the literature [3]. PMMA-propargyl was obtained by reaction of methyl methacrylate and propargyl alcohol by redox polymerization as shown the literatures [4,5]. By using PVC-N_3 and PMMA-propargyl, the comb-type graft copolymers were obtained. Characterization of the modified homopolymers and the comb type graft copolymers was performed by using FT-IR, ^{1}H-NMR, SEM, TGA, and GPC analyses. Spectroscopic and thermal analyses proved that both group modifications and coupling reactions were successfully achieved.

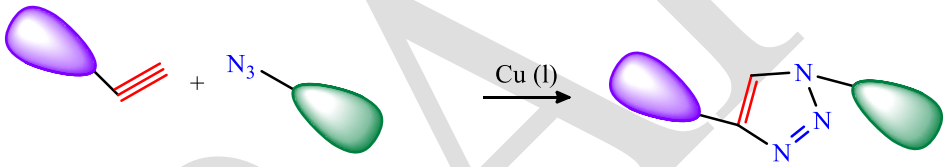


Fig. 1. Proposed mechanism for copper-catalyzed azide-alkyne cycloaddition (CuAAC).

Keywords: "Click" chemistry, redox polymerization, comb-type graft copolymer, poly(vinyl chloride), poly(methyl methacrylate).

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➢ **ORAL PRESENTATION**

Temperature/pH responsive of κ-carrageenan-graft-poly(2-dimethylaminoethyl methacrylate/acrylic acid) copolymers; synthesis and swelling behavior

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Abstract

Graft copolymerization is one of the modification techniques for natural polymers to produce new biomaterials with specific properties. In the last decade graft copolymers of natural polymers such as alginate, chitin and cellulose have been synthesized and characterized. Intelligent or stimuli-responsive polymers according to their types are mainly classified as temperature, light, electric field and pH responsive.

pH responsive polymers are composed of polymeric chains with ionic groups, which can give or receive proton the result of the changes at the pH of the environment. Poly(acrylic acid) based copolymers display pH responsive swelling-deswelling transitions.

Temperature responsive polymers are a class of "intelligent" materials that have the ability to respond to an alteration in temperature, a property that makes them useful materials in a wide range of applications, so they have great scientific and technological importance. Poly(2-dimethylaminoethyl methacrylate) is a cationic polymer with an LCST in the range of 35-60 °C in water.

In present work, it was aimed to synthesize a novel temperature and pH responsive graft copolymer of κ-carrageenan (CRG-g-P(DMA/AA)) with 2-dimethylaminoethyl methacrylate as well as acrylic acid using 4,4-Azobis(4-cyanovaleric acid) under microwave irradiation, and to investigate the physicochemical properties of it. Influence of all the reaction conditions such as carrageenan concentration, microwave power and ACVA concentrations was assessed to obtain the best grafting yield and grafting efficiency. The best grafting yield and grafting efficiency was found to be 150% and 85%, respectively. To investigate the effect of grafting yield on the swelling ratio of CRG-g-P(DMA/AA) copolymers with grafting yields of 95%, 113%, 135% and 143%, copolymers were swelled at two pH values (1.2 and 7.4). Hydrophilic character of CRG-g-P(DMA/AA) copolymers as well as swelling ratio increases with the increasing grafting yield. MTT results showed that CRG-g-P(PMA/PAA) copolymer is biocompatible.

Keywords: κ-carrageenan, 2-dimethylaminoethyl methacrylate, Acrylic acid, 4,4-Azobis(4-cyanovaleric acid).

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➢ **ORAL PRESENTATION**

The ratio effect of hydroxypropyl cellulose and polyvinylpyrrolidone on the infiltration and erosion behavior of the matrix including ibuprofen: A kinetic parameter with a gravimetrical approach

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Abstract

Controlled drug delivery systems have advantages such as enhancement of therapeutic effectiveness of drugs, maintain of proper medicinal drug concentration in blood and reduction of side effects. Ibuprofen is a non-steroidal anti-inflammatory drug that is mostly used to reduce fever, pain and inflammation. Moreover, ibuprofen is used in the treatment of headache, rheumatic, parkinson's disesase and breast cancer [1]. Hydrophilic polymers like cellulose ethers (methylcellulose, hydroxypropyl cellulose, hydroxypropyl methylcellulose, sodium carboxymethylcellulose) are extensively used to control the release of drugs [2]. The purpose of the current study is to prepare oral hydrophilic matrice and to evaluate the different ratio effects of the polymers on the kinetic parameters. The matrix tablets used for wet/dry determinations involve different compositions of hydroxypropyl cellulose (HPC) and polyvinylpyrrolidone (PVP) with slightly soluble drug of ibuprofen. Ibuprofen amount was fixed constant as 100mg. It was observed that water uptake increased with an increase in HPC content in the matrix. The prepared matrix tablet was characterized by thermal gravimetric analysis (TGA), Fourier transform infrared spectroscopy (FTIR), X-ray diffraction and differential scanning calorimetry (DSC) techniques.

Keywords: Polyvinylpyrrolidone, ibuprofen, hydroxypropyl cellulose, drug release.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Investigation of the removal of malachite green and copper ions by dual system using natural and biochar pea shells

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Abstract

The aim of this study is to investigate the simultaneous removal of natural and thermally modified (biochar) pea shells, malachite green dye and copper heavy metal. Here, the removal of dye and heavy metal ions at the same time depending on different adsorption parameters was studied by using dual biological system. Adsorption parameters were selected as different contact times (1-120min), different pollutant initial concentrations (30-400 mg/L) and different adsorbent doses (0.4-12g / L). In addition, adsorption experiments were applied to different isotherm models and kinetic models in order to better reveal the structure of adsorption. As a result of all these studies, natural pea shells have a removal efficiency 70% for copper ions and 90% for malachite green ions, while biochar pea shells have a removal efficiency 90% for copper ions and 98% for malachite green ions. In addition, natural and biochar adsorbents have adapted to the Freundlich isotherm model and the pseudo second order kinetic model. These results showed that pea shells can be used as an effective and inexpensive adsorbent for dye and heavy metal removal.

Keywords: Adsorption, biochar pea shell, copper removal, dye removal, isotherms, kinetics, natural pea shell

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➢ **ORAL PRESENTATION**

Removal of methyl red from aqueous solutions with natural and biochar prina: A full factorial modeling study

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Abstract

Wastewater from various industries contains a high concentration of dyes. Dyeing wastewater discharged into natural receiving waters without treatment; they are dangerous for both of the environment and human health.Therefore, it is necessary to remove the dyes before it is discharged to the receiving environment. In this study, full factorial modeling of methyl red removal was studied by using adsorption method which is widely used in dye removal with natural and modified prina adsorbent. 2^3 factorial design is used in the modeling method. In there 3 factors; adsorbent content (0.03g/30mL - 0.3g/30mL), initial dye concentration (30mg/L - 300mg/L) and adsorbent type (natural and biochar pomace) were selected. These factors were studied in two low (-1) and high (+1) levels. Effects of selected factors on adsorption efficiency; adsorbent type> initial concentration> adsorbent dose. In addition, removal efficiencies up to 88% were obtained with biochar prina and it was found that prina is a good alternative adsorbent for methyl red removal.

Keywords: Adsorption, biochar, dye, full factorial design, prina.

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➢ **ORAL PRESENTATION**

Fabrication of the calixarene based Langmuir-Blodgett Thin Films for Harmful Vapour Sensing Applications

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Abstract
In this work, the Langmuir-Blodgett (LB) thin film fabrication and vapor sensing properties of the calixarene based diamide derivative materials is reported. In order to investigate the monolayer behaviour at the air-water interface, the isotherm (π-A) graph was taken with the compression speed of 30 cm^2 min^{-1} at the room temperature. This graph was repeated several times to check the stability of monolayer and to determine the deposition pressure value. The calixarene based diamide LB thin films were deposited onto a gold-coated glass for an application of chemical sensing element as an organic vapor sensor. Surface Plasmon Resonance (SPR) and UV-vis Spectroscopy were used to control the deposition of LB film monolayer onto a suitable substrate. UV-vis results indicated an increasing on absorbance value when the number of deposited layers increased. The calixarene based diamide LB thin film sensor element was exposed to various harmful organic vapors by the SPR technique. The results showed the response of the calixarene based diamide LB films to the harmful vapors fast, large and reversible at room temperature.
Keywords: Calixarene based diamide; LB thin film; vapor sensor; SPR.

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➢ **ORAL PRESENTATION**

Effective removal of Cu(II) from aqueous solution over graphene oxide encapsulated carboxymethylcellulose-alginate hydrogel microspheres: Batch and fixed bed column studies

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Abstract

Water pollution by various heavy metal ions is representing today a serious environmental problem due to the high toxicity of these elements, which can accumulate in living tissues through the food chain, causing long-term risk to the ecosystem and human beings[1]. For example, copper, one of the most commonly used heavy metals in metal processing, is considered very toxic to most forms of life and can cause adverse effects on human health. It can cause stomach, intestinal distress, liver and kidney damage, even in small quantities. Currently, many technologies have been developed for the removal of heavy metals from aqueous solutions including the chemical precipitation, ion exchange, membrane filtration and solvent extraction[2]. Adsorption is generally recognized as the most suitable and promising physicochemical technique for this purpose owing to its simplicity, high efficiency and cost-effectiveness. For practical applicability, the fixed-packed-bed column is the most utilisable technique due to cyclic sorption/desorption and treat large quantities of wastewater.

In the current study, the graphene oxide (GO) encapsulated carboxymethyl cellulose-Alginate (CMC-Alg) hydrogel microspheres were prepared via ionotropic gelation method and characterized using FTIR, TGA, SEM-EDS and surface charge by determining pHpzc. The adsorption of Cu2+ ions from aqueous solution on the graphene oxide embedded CMC-Alg was studied under different experimental conditions, and the results showed that embedded beads had high adsorption capacity compared with pure CMC-Alg beads due to synergetic effect between functional groups GO and CMC-Alg matrix. Adsorption capacities at equilibrium were calculated experimentally as 22.10, 39.96, 41.72 and 64 mg/g for pure CMC-Alg, CMC-Alg/GO 1%, CMC-Alg/ GO 3% and CMC-Alg/GO 5%, respectively. The adsorption kinetics were found to follow the pseudo-second-order, and the equilibrium data fitted well with the Langmuir adsorption isotherm. Moreover, the intraparticle diffusion model has been inspected pointing that the adsorption process was found to be sequence of surface adsorption and intraparticle diffusion (IPD). The results suggest that graphene oxide embedded CMC-Alg bead matrix can be efficiently used as an adsorbent for metal ions removal from wastewater [3]. A continuous up flow fixed-bed column study was applied and improved by a response surface methodology (RSM) based on Box-Behnken design (BBD). Column bed height, flow rate and initial Cu (II) concentration were selected as independent variables, while the percentage of Cu (II) removal was considered as the response to optimize. In optimal conditions, a maximum of 98.5 % was obtained for Cu (II) continuous removal. The breakthrough curves were obtained at different flow rates, bed heights and initial metal concentrations and the experimental data were fitted by Thomas, Adams-Bohart and Yoon-Nelson models.

Keywords: Adsorption, Graphene oxide, Hydrogel beads, Cu(II) removal, Fixed-bed column, optimization-based RSM.

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➢ **ORAL PRESENTATION**

Evidence of oxidative stress in experimental rats exposed to graded dosages of d-trans-allethrin based mosquito coil insecticides

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Abstract
D-trans-allethrin based mosquito coil insecticides (Antelop coil) is manufactured in Kano, northern Nigeria. It is sold for use against biting Anopheles mosquito. However, the safety of this insecticides formulation to human remains unknown. Here we exposed (male Wistarrats) to smoke from smoldering Antelop coil, then we established its potential toxicity by determining oxidative stress markers, including serum malondialdehyde (MDA). Serum bilirubin and serum alkaline phosphates were conducted to determine the integrity of the liver cells and the hepatobillary system. We also conducted a dry layer oxidative stress test using the whole blood from the experimental rats. The rats were divided into five groups: A_1, A_2, A_3, A_4 and A_5 of four rats, each.The rats from group A_1, A_2, A_3 and A_4were exposed to Antelop coil for 15minutes, 30minutes, 1hour and 2hours, respectively. Rats in group A_5 served as control and were not exposed to the smoke.The experimental rats were treated for a period of four weeks after which they were sacrificed and blood samples taken. Statistically significant difference ($P<0.05$) was obtained when the serum MDA level in group A_1-A_4 was compared to values from control group. No statistical difference was obtained when the serum bilirubin in group A_1-$A_4$was compared with control. No statistical difference was obtained when the serum alkaline phosphatase of all groups was compared to control. Statistically, significant difference ($P<0.05$) was observed when the dry layer oxidative stress reading of A_1-A_4 was compared to control. The elevation of malondialdelyde in the experimental rats may be due to production of lipid peroxides and the apparent changes in the clotting patterns of blood from experimental rats could be due to the production of free radicals triggered by exposure to D-trans-allethrin in the smoke from the Antelop coil.
Keywords: d-trans allethrin, smoke, malodaldehyde (MDA), oxidative stress

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➢ **ORAL PRESENTATION**

The Relationship between the antiepileptic activity of pantoprazole and nitric oxide synthase in pentylenetetrazole-induced epileptic seizures in rats

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Abstract

Several results have suggested that proton pump inhibitors have positive effects on the nervous system. Pantoprazole is one of the proton pump inhibitors and widely used. The aim of this study was to investigate the effect of pantoprazole on epileptic seizures and interaction with nitric oxide synthase (NOS) in this effect. In this study, 18 male Wistar Albino rats were used. Animals divided into three groups as control, saline (serum physiologic 1 ml/kg for 7 days) and pantoprazole (10 mg/kg for 7 days). Seventh days after 30 min the administration of the last drug, pentylenetetrazole (PTZ; 45 mg/kg) was given to saline and pantoprazole groups to induced seizures. The animals were observed for 30 min. Seizure stages (according to the Racine Scale) and first myoclonic jerk times (FMJ). After 24 hours of PTZ injection, brain tissues of all groups animal were removed. Cortex and hippocampus separated and homogenized. NOS was measured by using the sandwich-ELISA method in the homogenates. Statistical evaluation of the data was performed by one-way ANOVA and multiple comparisons were determined by the Tukey test. Statistical significance was defined at $p<0.05$. Obtained data suggest that pantoprazole decreases seizure stages and increases FMJ compared to saline group ($p<0,05$). On the other hand, there is no statistical significance on NOS levels in the cortex between groups ($p>0.05$). However, there is increasing in NOS levels in the hippocampus for pantoprazole group compared to saline ($p<0,05$). In conclusion, this study suggests that pantoprazole has antiepileptic effects on PTZ-induced seizures and this effect may occur because of NOS modulation.

Keywords: Epilepsy, Seizures, pentylenetetrazole, pantoprazole, nitric oxide synthase, rats

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➢ **ORAL PRESENTATION**

N-(5-oxopentylidene)-N-phenylbenzenaminium Schiff bazının bazı biyolojik aktivitelerinin belirlenmesi

Mert Atacan Kucuk, Recep Tas, Hasan Ufuk Çelebioğlu*

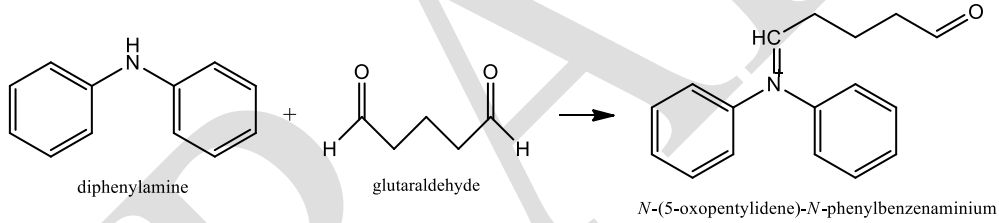
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Özet

Schiff bazları, sentezlenmesi nispeten kolay olan popüler bileşiklerdir. Primer amin ve aldehitin reaksiyonu sonucu oluşurlar. Doğal biyolojik yapılara olan benzerliği sebebiyle bir çok farklı alanda kullanımı yaygındır. Kimyanın pek çok alanında, endüstride, tıp ve eczacılıkta ve gıda üretim proseslerinde antioksidan olarak kullanıldığı bilinmektedir. Schiff Bazları çeşitli kalitatif ve kantitatif tayinlerde, radyoaktif maddelerin zenginleştirilmesinde, ilaç sanayinde, boya endüstrisinde ve plastik sanayinde kullanımının yaygınlaşması, biyokimyasal aktiviteleri yüzünden büyük ilgi çekmesi ve özellikle son yıllarda sıvı kristal teknolojisinde kullanılabilecek pek çok Schiff bazının sentezlenmesi bu maddelerle ilgili çalışmaların önemini daha da artırmıştır (Marck, 1980).

Bu çalışmada, iki fenil grubuna bağlı bir aminden oluşan, bir anilin türevi olan ve antioksidan özellikleri bilinen Difenilamin ile Gluteraldehit'in tepkimesinden oluşan yeni bir Schiff bazı sentezlenmiştir (Şekil 1). Sentezlenen bileşiğin IR (Infrared) spektroskopisi kullanılarak yapıları aydınlatılarak C=N çift bağının karakteristik pikleri incelenmiştir.



Şekil 1. Elde edilen Schiff bazının reaksiyonu

Sentezlenen bileşiğin *Escherichia coli* ve *Staphylococcus aureus* bakterileri kullanılarak antibakteriyel özellikleri ile DPPH Testi kullanılarak antioksidan özellikleri incelenmiştir.

Sonuçlar göstermektedir ki sentezlenen bu Schiff bazı hem *Escherichia coli* hem de *Staphylococcus aureus* bakterisine karşı antibakteriyel özellik taşımaktadır. Ayrıca, DPPH serbest radikali süpürücü etkisi gözlemlenmiştir.

Sonuç olarak Difenilamin ile Gluteraldehit'in tepkimesinden sentezlenen bu yeni Schiff bazının biyoaktif bir bileşik olarak potansiyeli mevcuttur. Daha detaylı çalışmalarla bu bileşiğin biyolojik aktiviteleri detaylandırılabilir.

Aanahtar kelimeler: schiff bazı, amin, aldehit, gluteraldehit, difenilamin

Kaynaklar

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➢ **ORAL PRESENTATION**

Sıçan fetuslarında mide dokusunda bulunan antioksidan enzimler üzerine kafeinin etkisi ve melatoninin koruyucu rolü

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Özet

Gebelik süresi boyunca istemli ya da istemsiz olarak alınan nikotin, alkol, kafein gibi maddelerin hem anneye hem de doğrudan veya dolaylı olarak fetal dokulara zarar verebilir. Melatoninin farklı organ ve dokularda doğrudan serbest radikal toplayıcısı ve dolaylı antioksidan etkileri olduğu gösterilmiştir. Bu çalışmada, fetüslerin mide dokularında gebe sıçanlara uygulanan yüksek ve düşük dozdaki kafeinin etkisine karşı güçlü bir antioksidan madde olan melatoninin değerlendirilmesi amaçlanmıştır. Çalışmamızda 35 adet yetişkin dişi Sprague-Dawley sıçan kullanıldı. Gebe sıçanlar, her grupta 5 sıçan olmak üzere 7 gruba ayrıldı. Gebelere 20 gün boyunca invaziv işlemler uygulandı. Deney grubuna kafein, tedavi gruplarına ise kafeinin yanı sıra melatonin maddesi uygulandı. Fetüsler sakrifiye edildi ve mide dokuları çıkarıldı. Süperoksit dismutaz (SOD), Glutation (GSH), Glutation disülfür (GSSG), toplam oksidan durumu (TOS), toplam antioksidan durumu (TAS), Kalsiyum (Ca) ve D vitamini (Vit-D) spektrofotometrik analiz ile ölçüldü. Oksidatif stres indeksi (OSI) ve Total glutation (GSH/ GSSG), oksidatif stres dokularının yararlı göstergeleridir ve sırasıyla TOS/TAS ve GSH/GSSG oranı olarak hesaplandı. En yüksek TAS Melatonin grubunda elde edilmiştir. GSH ve GSH / GSSG oranı da yine melatonin grubunda en yüksek değerde iken, GSSG ise HDC grubunda en yüksek değerde olduğu gözlenmiştir. HDC grubunda SOD diğer gruplara göre en yüksek değere sahipti ($P<0,05$).Bu verilere göre, gebelikte kullanılan kafeinin midede oksidatif stress parametrelerini artırdığı ve güçlü bir antioksidan olan melatonin ise bu etkiyi azalttığı gözlendi.

Anahtar Kelimeler: Sıçan, fetüs, kafein, melatonin, mide

DRAFT

➢ **ORAL PRESENTATION**

Medical preparedness against CBRN disasters

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Abstract

The incidents led to mass mortality or terrorist attacks shows us clearly that we have to be prepared about these kinds of disasters which can take place in the future. So, in 1986 Chernobyl reactor disaster, in 1995 Sarin gas attack in Tokio subway system, in 2001 anthrax attacks in the United States can be given as examples and explosion of the Fukushima power plant triggered by a tsunami which has happened recently and Sarin attack in Syria reveal that the disasters would be enormous in following days. There has been increased amount of concern recently over the possibility of using chemical agents listed in the Chemical Weapons Convention. When exposed to such these agents, the most important practical issue is not only the medical treatment, but also to protect all medical staff in the hospital. Personnel who treats to the CBRN events should know how to use drug therapy against effects of toxic agents and they also know using the CBRN detectors. However, casualties should be decontaminated using copious amounts of water and decontaminant agents before admission to hospital. Otherwise, medical staff might have the signs of poisoning. If the staff was prepared against the use of CBRN agents, the number of dead could be diminished. On top of all these items the medical staff should be able to use the chemical detectors which is used to establish the chemical effects must be reliable and not give false positive results. In this study we would like to address the importance of being-well prepared against absolutely CBRN incidents through lessons learned from the recent cases and we also aimed to evaluate the medical personnel whether they know how to use the detector of chemical warfare agents or not!

Anahtar Kelimeler: Medical preparedness, CBRN, toxic chemicals

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➢ **ORAL PRESENTATION**

Evaluation of sulphur and calcium accumulation and adaptation to gypsum soils in the *Gypsophila parva*

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Abstract

Gypsum soils consisting of calcium and sulfate composition are special areas where endemism is high. Due to the speciation caused by edaphism in gypsum soils, here is called edaphic endemic plants. *Gypsophila parva* species, which takes its name from the habitat where it grows, is also one of the endemic species spread in gypsum soils.

The best environments for understanding the mechanism of action of limiting factors are ecosystems that develop on rare geological formations. In such habitats, some elements are found in trace amounts, while other elements are in considerable amounts. Gypsum habitats are the best example of this. Calcium (Ca) and sulphur (SO4, sulfate) content in gypsum soils is quite high, so these values are high in plants. As a result of the field studies carried out in gypsum habitats in Beypazarı district of Ankara province, Ca and S accumulation was observed at a high rate in ppm level in *Gypsophila parva* and it is thought that this type is accumulator.

The most important factor in explaining *gypsophily* occurring in gypsum habitats is phytochemical content. Plants develop ecological strategies with Ca and S concentrations that are especially effective in gypsum soils. Gypsum specialists who can penetrate the physical soil crust early in their lives have physiological arrangements that can withstand the chemical limitations of gypsum soils. Endemic plants grown in gypsum soils such as *Gypsophila parva* show a broad strategy, such as tolerance due to low nutrient content, physical ability to overcome the gypsum bark, and musilage seed shell to overcome the limitations / restrictions created by these soils. The roots of *Gypsophila parva* species, which is the one-year species, are also very weak and they do not have the possibility to go deeper in the hard gypsum crust and show physical adaptation.

Keywords: Accumulation, *Gypsophila parva*, gypsum soils, Turkey.

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➢ **ORAL PRESENTATION**

Effect of proline on the polymorphic transformation behavior of calcium carbonate

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Abstract

The effect of proline used as additive on the polymorphic transformation behavior of calcium carbonate was investigated in the present study. For calcium carbonate production, calcium chloride dihydrate and sodium carbonate were used as reactants. The experiments were carried out using the batch method in a double-jacketed glass crystallizer. The structure, functional groups, morphology, and size of calcium carbonate crystals obtained were evaluated experimentally through XRD, FTIR, SEM, and particle size analysis. While the calcium carbonate obtained at lower additive concentration (50 ppm) included both the phases i.e. calcite and vaterite, only vaterite was present in the presence of 100 ppm proline. SEM and particle size analysis results indicated that the additive and its concentration affected the size and crystal morphology. When the additive concentration was 100 ppm, only sphere-like vaterite formed, whereas cubic-like calcite was observed in the absence of additive. These results indicate how proline can be used to effectively modify calcium carbonate structure, size and shape.

Keywords: Calcium carbonate, polymorphism, proline.

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➢ **ORAL PRESENTATION**

Phytoplankton composition of Hirfanlı Dam Lake (Kırşehir-Turkey)

Özlem Ablak Gürbüz

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Abstract
The phytoplankton of the Hirfanlı Dam Lake was investigated monthly between August 2008 and July 2009. The samples were taken using plankton net with a pore diameter of 55 µm. A total of 69 taxa belonging to 6 divisions have been identified, including Bacillariophyta (32 taxa), Chlorophyta (18 taxa), Cyanobacteria (11 taxa), Euglenophyta (2 taxa), Charophyta (4 taxa), Miozoa (2 taxa). Seasonal distribution of phytoplankton was also investigated. Seasonal increase rate was determined higher in spring, summer and autumn. Even though seasonal distribution of phytoplankton species varied, *Navicula* sp., *Cyclotella* sp., *Nitzschia* sp., *Gomphonema sp.*, and *Lyngbya* sp. were found as dominant.
Keywords: Phytoplankton, algae, Hirfanlı Dam Lake

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➢ **ORAL PRESENTATION**

Endemic fishes in transboundary river basins in Turkey

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Abstract
Transboundary rivers flow between two or more countries. Turkey is located between two continents, Asia and Europe. Five of Turkey's 25 river basins are transboundary named Maritsa, Orontes, Euphrates-Tigris, Kura-Araks and Coruh and spanning two continents and eight countries. All information on fish species distributed in the transboundary river basins in Turkey were gathered and presented in this study using published sources. 185 fish species in 25 families identified in transboundary river basins and 31 of them (17%) are endemic. The highest and lowest rate of endemism were found in Euphrates-Tigris and Maritsa basin, respectively. Most fish species in the area are threatened by human induced changes especially dams and habitat loss.
Keywords: Endemic fish species, transboundary river, Turkey

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➢ **ORAL PRESENTATION**

Yara örtü malzemesi olarak CAPE yüklü nanofiberler: üretimi, karakterizasyonu ve biyolojik aktivite değerlendirmesi

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Özet

Arıların enfeksiyonlardan korunmak amacıyla salgıladığı propolisin etken maddesi olan kafeik asit fenetil ester (CAPE) antioksidan, antibakteriyel, antifungal, antiviral ve antikanser özelliklere sahip bir moleküldür[1]. Bu çalışmada CAPE, elektro-eğirilmiş PLGA (Ma= 190-240 kDa) membranlara ilaç molekülü olarak yüklenmiştir[2]. CAPE yükleme işleminde aktif bir ilaç yükleme mekanizması olan damlatma metodu uygulanmıştır. FTIR spektroskopisi ve XRD analizleri ile CAPE'nin membrana başarılı bir şekilde yüklendiği gösterilmiştir. Yapılan çalışmada ilaç yükleme verimi %86 olarak bulunmuştur. Yapılan *in vitro* salım çalışmasında 7 gün sonunda CAPE molekülünün %77 oranında membrandan salındığı tespit edilmiştir.

CAPE yüklü membranların antioksidan aktivitesi DPPH yöntemiyle ve ilaç yüklü olmayan membran ile karşılaştırmalı olarak test edilmiştir. Antioksidan aktivitesi % 85.7 bulunan membranların bir sonraki aşamada antimikrobiyal özellikleri incelenmiştir. Antimikrobiyal aktivite tayini zamana bağlı ölüm metodu (*time-kill*) yöntemi ile *S. aureus, P. aeruginosa* ve *C. albicans* suşları üzerinde ilaç yüklenmemiş membranla karşılaştırmalı olarak değerlendirilmiştir.

Zamana bağlı ölüm metodu çalışmasının sonucunda CAPE yüklü PLGA nano liflerin *S. aureus* ve *P. aeruginosa* türleri üzerinde %100 büyüme inhibisyonu etkisine sahip olduğu bulunmuştur. *C. albicans* türü üzerinde ise 8. saatte %93 büyüme inbisyonu etkisi görülmüştür. Bu çalışmada kullanılan tüm mikroorganizmalar için zamana bağlı OD_{560} ve canlı hücre sayısı grafikleri çizilmiştir. Ayrıca CAPE yüklü PLGA membranların tüm mikroorganizmalar üzerindeki büyüme inhibisyonu yüzdeleri karşılaştırmalı grafiklerle ifade edilmiştir.

Anahtar Kelimeler: elektroeğirme, nanofiber, kafeik asit fenetil ester, PLGA, antimikrobiyal, antioksidan, zamana bağlı ölüm metodu

Teşekkür: Bu çalışma TÜBİTAK (2210-C Lisansüstü Burs Programı) ve Yıldız Teknik Üniversitesi Bilimsel Araştırma Koordinatörlüğü'nün (BAP, Proje No. FYL-2019-3566) destekleri ile yapılmıştır. Yazarlar TÜBİTAK'a ve Yıldız Teknik Üniversitesi Bilimsel Araştırma Koordinatörlüğü'ne teşekkürü borç bilirler. Ayrıca elektroeğirme konusundaki teknik desteklerinden ötürü Inovenso Ltd. Co.'ya teşekkür ederiz.

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➢ **ORAL PRESENTATION**

Computational study on pazopanib and pemetrexed anticancer drug molecules interacting with a small peptide link

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Abstract

Cancer is a group of diseases that are defined as uncontrolled cell proliferation, impaired function of vital tissues and cell death. Chemotherapy is treatment using anti-cancer drugs to destroy cancer cells or control the growth of these cells. In chemotherapy applications pharmacologically active anticancer drugs reach with low specificity to tumor tissue, and also their toxicity is dose-dependent. Classical drug administration routes are either oral or intravenous. Orally taken pills result in irregular pharmacokinetics due to the passages of different metabolic pathways and their low specificity. This leads to frequent damage to healthy tissues. Nanoparticle containing drug delivery systems may overcome these harmful side effects partially (or sometimes totally). Binding peptide-drug conjugates inside of some appropriate nanoparticles is one of the prominent methods among targeted drug delivery systems. Such a system containing Pazopanib (Pz) and Pemetrexed (Pm) drug complexes attached to magnetite nanoparticles with a short polypeptide chain (Ala-Lys-Ala-Leu-Arg-Cys) were designed in our laboratory.

In the present study, we computationally investigate the conjugation mechanisms of Pz and Pm drug molecules to the above-mentioned polypeptide chain (Ala-Lys-Ala-Leu-Arg-Cys). The stable structures on the complex formation pathways and their free energies values were obtained at the B3LYP/6-31G(d) level in the water. The mechanism of Pept-Pz complex formation has two steps whose free energy barriers are found to be 21.37 and 27.72 kcal/mol. On the other hand, the free energy barrier of the Pept-Pm complex having a single-step mechanism was calculated as 28.16 kcal/mol.

Keywords: Anticancer drugs, pemetrexed, pazopanib, DFT-B3LYP

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➢ **ORAL PRESENTATION**

Green synthesis of palladium nanoparticles using antioxidants extracts and investigation of their catalytic activity in degradation of dyes

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Abstract

In this study, we developed cinnamon/palladium nanoparticles (Cnm-PdNPs) and carob/palladium nanoparticles (Crb-PdNPs) evaluated their potential to be degradation of Rhodamine B (RB), Methylene Blue (MB) and Methyl Orange (MO) dyes. Firstly nano particles are synthesized and the prepared Cnm-PdNPs and Crb-PdNPs are characterized using Fourier transfer infrared spectroscopy (FT-IR), transmission electron microscopy (TEM) and Scanning electron microscopy (SEM-EDX). UV-Visible measurements are made at regular intervals to understand the reduction of the dyes (RB,MB, MO).

Green approach of nanoparticles synthesis by biological entities has been gaining great advantages which are environmental benign, less toxic, and time consuming; and also it is a single step process. Currently, plant and plant derived materials are used for nanoparticles synthesis which is more compatible than the microbe-mediated nanoparticles synthesis process because they eliminate the culture maintenance and are easy to handle. Dyes are the major effluents from various industries such as paper, plastic, leather, food, and textiles that cause significant water pollution. Most of these dyes are toxic, non-biodegradable and persist in the environment and have a potential toxicity toward humans, animals and plants. Among them methylene blue and congo red are usually toxic and have carcinogenic and mutagenic effects towards the biosphere. Therefore, the degradation of these pollutants from the environment is an important challenge in ecological systems, due to their toxicity and carcinogenic properties. Antioxidant plants will be used to keep the nanoparticles stable. Antioxidant plants prevent oxidation of the formed particle and add antibacterial properties to the particle. Thus, on the one hand the water is removing organic pollution while the healthier and hygienic waters are saved by eliminating possible bacteria in the water. In this study, using cinnamon and carob extracts at room temperature (25^{o}C) characterized using spectroscopic techniques and the potential of Cnm-PdNPs and Crb-PdNPs with regard to the catalytic degradation of organic dyes (e.g., RB, MB, MO) was evaluated in the presence of NaBH4. The synthesized nanoparticles have been successfully applied as a catalyst in the degradation of RB, MB and MO by NaBH4.

Keywords: Catalytic degradation, carob, cinnamon, palladium nanoparticles, dye.

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➢ **ORAL PRESENTATION**

Preparation and antioxidant activity of Cbz-protected dipeptide-quinoline derivatives

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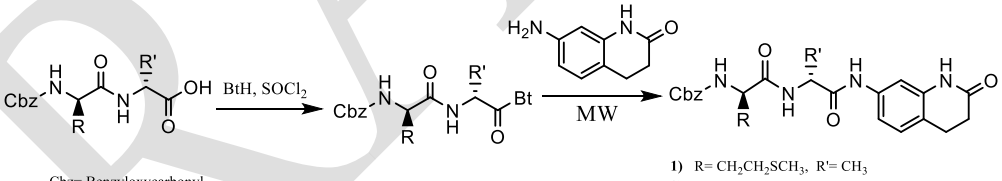
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Abstract

Quinolines exhibit a variety of pharmacological properties according to the substituents they contain, which can be identified as benzene derivatives adjacent to the pyridine ring. Natural and synthetic quinolines are known to have antifungal, antitumor, HIV replication inhibitor and antibacterial properties (Keri & Patil, 2014).

A series of new dipeptide-quinoline derivatives (**1**-**6**) have been synthesized by benzotriazole mediated nucleophilic acyl substitution reaction (Küçükbay et al., 2016) and their antioxidant properties were determined using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging method (Blois, 1958). The structure of the new dipeptide-quinoline derivatives were elucidated by ^{1}H-NMR, ^{13}C-NMR, MS, FT-IR spectroscopy and element analysis techniques.

The antioxidant activities of the compounds were compared to those of BHA, BHT and alpha-tocopherol as reference antioxidant radical scavenger compounds. However, the compounds showed weak antioxidant activity according to the DPPH method.



1) R= $CH_2CH_2SCH_3$, R'= CH_3
2) R= $CH_2CH_2SCH_3$, R'= $CH_2CH_2SCH_3$
3) R= $CH_2CH_2SCH_3$, R'= H
4) R= CH_3, R'= CH_2Ph
5) R= $CH_2CH_2SCH_3$, R'= CH_2Ph
6) R, R'= H

Keywords: Dipeptide, quinoline derivatives, benzotriazole methodology, antioxidant activity.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Degradation of rhodamine b, methylene blue and methyl orange using biologically synthesized antioxidant gold nanoparticles

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Abstract

In this study, we developed ginger/gold nanoparticles (Gng-AuNPs) and turmeric/gold nanoparticles (Trm-AuNPs) evaluated their potential to be degradation of Rhodamine B (RhB), Methylene Blue (MB) and Methyl Orange (MO) dyes. Toxic chemicals are used in several of the processes for production of nanoparticles, either in the form of reducing agents to reduce various metal salts to their corresponding nanoparticles, or as stabilizing agents to prevent agglomeration of nanoparticles. These compounds are highly dangerous to organisms and to the environment, and due care must be exercised in their proper handling and disposal of toxic chemicals.

Various herbs and plant sources occlude powerful antioxidants that are present as phytochemical constituents in seeds, stems, fruits and leaves. These naturally occurring antioxidants have existed in the human food chain for thousands of years and are known to be non-toxic to living organisms and to the environment. The synthesis of metallic nanoparticle using plant extracts as the reducing agents is one of the most widely used green methods. Dyes are the major effluents from various industries such as paper, plastic, leather, food, and textiles that cause significant pollution. There are several methods in the literature such as chemical reduction, catalytic degradation, adsorption and coagulation for the safe disposal of these compound. Among them, the chemical reduction of organic molecules using a strong reducing agent in the presence of noble metals such as Au, Ag, Pt and Cu is one of the famous removal methods in this field. For example, ginger was used to produce gold nanoparticles and the synthesized nanoparticles were found to have superior catalytic property to organic molecules degradation. In this study, using ginger and turmeric extracts at room temperature (25^{o}C) characterized using spectroscopic techniques and the potential of Gng-AuNPs with regard to the catalytic degradation of organic dyes (e.g., RhB, MB, MO) was evaluated in the presence of $NaBH_4$.

The prepared Gng-AuNPs and (Trm-AuNPs) were characterized using Fourier transfer infrared spectroscopy (FT-IR), transmission electron microscopy (TEM), and Scanning electron microscopy (SEM-EDX). The synthesized nanoparticles have been successfully applied as a catalyst in the degradation of RhB, MB and MO by NaBH4.

Keywords : Catalytic degradation, ginger, turmeric, gold nanoparticles, dye.

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➢ **ORAL PRESENTATION**

Ontogenetik varyabilitenin *Echinacea purpurea*'nın uçucu yağ oranı ve kalitesine etkisi

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Özet

Bu araştırma Ege Bölgesi'nin iç kesiminde bulunan ve geçit iklim kuşağı özelliğine sahip Afyonkarahisar'da yetiştirilen *Echinacea purpurea* (L.) Moench çiçeklerinin uçucu yağ oranı ve kimyasal bileşenleri bakımından en doğru hasat zamanının belirlenmesi amacıyla yapılmıştır. Örnekler Afyonkarahisar Tıbbi ve Aromatik Bitkiler Merkezi üretim sahasında proje kapsamında ekili olan 3 yıllık bitkilerden temin edilmiştir. Araştırmada tomurcuk başlangıcı, tam çiçeklenme ve tohum olgunlaşma dönemleri, farklı 3 hasat zamanını oluşturmuştur. Kurutulmuş bitki materyalinden hidrodistilasyon yöntemi ile elde edilen uçucu yağ oranları; tam çiçeklenmede 0.22%, tohum olgunlaşmada 0.18% ve tomurcuk başlangıç döneminde 0.15% olarak saptanmıştır. GC/FID-MS analiz sonuçlarına göre, kimyasal gruplar geniş varyasyon göstermekle beraber en büyük grubu seskiterpen hidrokarbonlar (57.1-71.5%) oluşturmuştur. Seskiterpen hidrokarbonlar tomurcuk başlangıcında, oksijenli seskiterpenler ve oksijenli monoterpenler tam çiçeklenmede, monoterpen hidrokarbonlar tohum oluşumunda ve diğer bileşikler ise tomurcuk başlangıç dönemlerinde diğerlerinden daha fazla birikmiştir. Bileşen sayısı bakımından tam çiçeklenme döneminin uçucu yağı ilk sırada yer almıştır (69 adet). En az bileşen sayısı ise tohum olgunlaşma dönemine ait olmuştur (50 adet). Germacrene-D (41.4-56.6%) major bileşen olarak tomurcuk başlangıç döneminde en yüksek yüzde saptanmıştır. α-Humulene (1.28-1.53%), β-Elemene (1.01-1.79%), Bicyclogermacrene (1.26-1.82%), 1,6-Germacradien-5-ol (1.27-1.86%), δ-Cadinene (1.34-1.90%), Caryophyllene oxide (2.17-2.40%), (+) spathulenol (0.67-2.42%), α-Cadinol (1.14-3.53%), Caryophyllene (3.17-3.60%), α-Pinene (1.48-3.96%), γ-Curcumene (0.24-4.68%), β-Pinene (1.62-5.81%) ve l-Phellandrene (3.37-12.82%) farklı hasat dönemlerinin diğer önemli bileşenleri olarak belirlenmiştir. Araştırmada uçucu yağ oranı ve kalitesi sonuçlarına göre; *Echinacea purpurea* bitkisinin en iyi hasat zamanı tam çiçeklenme dönemidir. Çiçek verimi bakımından da en iyi verim tam çiçeklenme döneminde alınmaktadır. Bazı bileşenlerin yoğunluğu gelişme dönemine bağlı olarak değişmiştir. Uçucu yağ taşıyan bitkilerin sekonder metabolit biyosentezi genetik yapı başta olmak üzere iklimsel, ekolojik, tarımsal yönetim, hasat ve hasat sonrası faktörlere bağlıdır. Bu sebeple üretici kontrolünde olan uygun hasat dönemi ontogenetik varyabiliteye göre belirlenmelidir.

Anahtar kelimeler: *Echinacea purpurea*, GC-MS, Germacrene, Ontogenetik, Sekonder metabolit

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➢ **ORAL PRESENTATION**

Van gölü havzasında bulunan *Cladophora fracta*'nın biyokimyasal özellikleri

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Özet

Bu araştırmada, geleceğin gıda, gıda katkısı ve yem kaynaklarından biri olacağı düşünülen makro alglerden tatlı su algi *Cladophora fracta'*nın çeşitli biyokimyasal özellikleri incelenmiştir. *Cladophora fracta* örnekleri Van Gölü havzasında bulunan; Erçek Gölü Sulak Alanı, Gevaş Göründü Sulak Alanı, Çaldıran Kaz Gölü Deresi sulak alanlarından su sıcaklığının nisbeten düşük olduğu iki farklı dönemlerde alınılmıştır. Alınan örneklerde ham protein, ham yağ, ham selüloz, ham kül (AOAC 925.10, 923.03, 991.20, 928.08, 989.05 ANKOM 200 Fiber Analyzer), heptadekanik asit, heptadesenoik asit, stearik asit, oleik asit, linoleik asit, arasidik asit, linolenik asit, gadoleik asit, berhanik asit lignoserik asit, miristik asit, palmitik asit, palmitoleik asit (GC-FID), Kolestrol, Kompestarol, Sitigmasterol, Beta sistesterol, Brassikasterol, Delta7-Stigmesterol, Eridrodiol+uvaol (GC-FID), fosfor (P), potasyum (K), kalsiyum (Ca), magnezyum (Mg), demir (Fe), mangan (Mn),bakır (Cu), sodyum (Na), çinko (Zn), Kurşun (Pb) Kadmiyum (Cd), (ICP ve ICP-OES) içerikleri belirlenmiştir. Yapılan bu çalışmada, düşük su sıcaklıklarına adepte olmuş *Cladophora fracta*'nın incelenen biyokimyasal madde miktarları bakımından gıda, gıda katkısı ve yem olarak kullanıma uygun oranlarda çeşitli bileşenleri içerdiği sonucuna varılmıştır.

Anahtar Kelimeler: *Cladophora fracta,* yağ asitleri, steroller, mineraller

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➢ **ORAL PRESENTATION**

MgO nanopartikülleri'nin *Drosophila melanogaster* üzerindeki davranış ve gelişim biyolojisi üzerine etkisi

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Özet

Günümüzde nanoteknolojiye olan ilginin artmasıyla birlikte nanopartiküllerin (NPs) üretimi ve hayatımıza girişleri de bir o kadar yaygınlaşmıştır. Üç fiziksel boyuttan en az birinin 1-100 nm aralığında olduğu nano nesnelerden oluşan ve belirli nano-ölçekli özellikler gösterebilen maddeler olarak tanımlanan bu NPs tıp, elektronik, kozmetik, çevresel temizlik gibi birçok farklı alanda kullanımları yaygınlaşmıştır. NPs lerin gün geçtikçe artan kullanımı nedeni ile insanların da nanopartiküllere olan maruziyet riskleri oluşmaktadır. Bu sebeple de nanopartiküllerin biyolojik etkileriyle ilgili yer alan eksikliklerin giderilmesi için yapılan çalışmalar da hız kazanmıştır. Bu bağlamda bu çalışmada da MgO Nanopartikülleri'nin *Drosophila melanogaster* üzerindeki larval motor davranışları, larval gelişimi ve ergin bireylerde negatif jeotaksisine bakılmıştır. Elde edilen verilere göre uygulanan farklı MgO nanopartikül konsantrasyonlarının model organizma *D. melanogaster* larvalarının motor davranışlarında doza bağlı artan bir toksite gözlenmiş ve motor hareketlerdeki bu azalışın kontrol grubuna oranla istatistiksel olarak anlamlı olduğu tespit edilmiştir. Larval gelişim açısından değerlendirildiğinde doza bağlı olarak gelişim sürelerinde gecikmenin de istatistiksel olarak anlamlı olduğu bulunmuştur. *D. melanogaster* ergin bireyleri ile yapılan negatif jeotaksi deneyinde elde edilen sonuçlar MgO nanopartiküllerinin uygulanmış olduğu bireylerin kontrol grubuna göre düşüş olduğu gözlemlenmiştir. Sonuç olarak bu çalışma MgO nanopartikülleri'nin çalışılan dozlarda *D. melanogaster* larva ve erginlerinde davranış ve gelişim biyolojisi üzerinde olumsuz etkisinin olduğu ortaya konmuştur.

Anahtar Kelimeler: *Drosophila melanogaster*, nanopartikül, nörotoksite

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➢ **ORAL PRESENTATION**

Novel 2-hydroxynaphthalene based Schiff base receptor for selective and sensitive determination of OH^-, Fe^{3+} and Cu^{2+} ions in aqueous DMSO solution

Özlem Özdemir

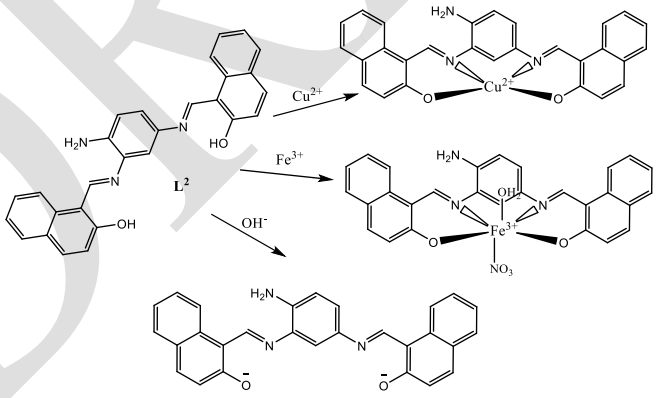
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Abstract

In recent years, considerable attention has been focused on the development of new chemosensors that can selectively detect of biologically and environmentally significant species via colorimetric and optical responses. Among different types of sensors, Schiff bases play an important role as a chemical probe due to their simple synthesis and good coordination ability. A large number of Schiff bases have been prepared for determination of heavy transition metal ions in solution. As well, some of them exhibit good performance for recognition of anions such as F^-, CN^-, AcO^- and $H_2PO_4^-$.

In this work, the sensing ability of the new Schiff base receptor (**L^2**) against inorganic anions (F^-, CH_3COO^-, $H_2PO_4^-$, SO_3^{2-}, and OH^-), and metal ions (Cr^{3+}, Al^{3+}, Fe^{3+}, Pb^{2+}, Co^{2+}, Cu^{2+}, Mn^{2+}, Cd^{2+}, Zn^{2+} and Ni^{2+}) was determined in aqueous DMSO solution by colorimetric and UV–vis experiments. **L^2** exhibited a highly selective naked-eye sensing of hydroxide ion comparing to the other ions. Moreover, the solution of **L^2** changed from light orange to dark yellow for Cu^{2+} ion, and turned to colorless nearly after adding of Cr^{3+}, Al^{3+}, Fe^{3+} ions. Receptor showed excellent selectivity and sensitivity toward Cu^{2+} and Fe^{3+} ions. The detection limit of **L^2** was found to be 0.772 μM and 3.79 μM for Cu^{2+} and Fe^{3+} ions, showing its potential applications for the detection of these ions in environmental and physiological media. The binding stoichiometry between **L^2** and these cations was determined to be a 1:1 [M:L] (Scheme 1) by using Benesi–Hildebrand and Job's plots. Competition experiments were performed by the naked-eye and UV–vis spectra in the presence of other cations. The reversibility nature of receptor was evaluated using Na_2EDTA as a good coordinating chelate. The obtained results indicated reversible chelation process between receptor and Cu^{2+}/Fe^{3+} ions.



Scheme 1. The proposed interaction of Schiff base receptor (**L^2**) with OH^-, Cu^{2+} and Fe^{3+} ions.

Keywords: Schiff bases, Chemosensors, Anions, Metal cations

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➢ **ORAL PRESENTATION**

An electrochemical sensor based on Au-Ag bimetallic nanoparticles and poly(l-cysteine) composite for simultaneous detection of dopamine and acetaminophen

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Abstract

Electroanalytical methods are used in analytical applications and clinical studies to determine the concentration of biological compounds in the human body fluids. Dopamine (DA) is an important neurotransmitter for the human body. It is well-known for its key role in the function of cardiovascular, kidney and central nervous systems[1] Abnormal DA concentrations in the brain and peripheral nervous system are associated with various neurological diseases such as schizophrenia and Parkinson's disease[2]. Acetaminophen (AC), is a commonly used analgesic, anti-inflammatory, and antipyretic drug and it also reduces pain in the human body[3]. In addition, overdose AC intake causes kidney and liver disorders[4]. Various analytical strategies such as high-performance liquid chromatography[2], spectrophotometry[2] and fluorimetry[5] have been reported for the detection of AC and DA. However, these methods have disadvantages such as long analysis time, high cost, several pre-treatment steps, and low sensitivity. Therefore, the development of a facile, precise and accurate method to determine AC and DA is highly desired [6].

In this study, a composite glassy carbon electrode (GCE) based on Au-Ag nanoparticles/poly (L-Cysteine) was prepared for the simultaneous detection of AC and DA. The composite was characterized by cyclic voltammetry (CV), X-ray photoelectron spectroscopy (XPS) and scanning electron microscopy (SEM). Differential pulse voltammetry (DPV) was employed for the analytical determination of AC and DA. AC and DA can be well separated by their different peak potentials and they can be simultaneously detected in the binary mixture. The proposed sensor was also successfully applied to pharmaceutical samples and high recovery values were obtained.

Keywords: electrochemistry, dopamine, acetaminophen, bimetallic nanoparticles.

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➢ **ORAL PRESENTATION**

Identification of structural differences between ubiquitinated and non-ubiquitinated peptides using trapped ion mobility-mass spectrometry

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Abstract

Various post-translational modifications may occur on proteins in different cells. This complexity can be resolved by performing detailed analysis for obtaining useful and accurate information about the genome and proteome. Ubiquitination is one of the most important post-translational modifications take place in the living organisms. It plays a key role in the regulation and degradation of many protein groups. Analysis of ubiquitinated proteins can be performed using mass spectrometric techniques with high sensitivity and reliability. Technological advances in mass spectrometry increase the number of reliable studies in proteomics field. These advances directly provide solutions for low detection sensitivity of techniques which is one of the most important analytical problems. In this study, monoubiquitinated and nonubiquitinated Histone 2B peptides were analyzed using trapped ion mobility spectrometry time of flight mass spectrometry technique. This analytical technique provides detailed data to identify the structural differences between these peptides according to their ubiquitination state.

Keywords: Post-translational modification, Ubiquitination, Ion mobility-mass spectrometry

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➢ **ORAL PRESENTATION**

Poly(alanine) modified pencil graphite electrode for the determination of sunset yellow in beverages by differential pulse voltammetry

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Abstract

Food safety is a popular topic worldwide. Human health is greatly influenced by the use of synthetic dyes in foods and drinks. The dyes are often added to improve the appearance, color, and taste of foods and drinks but may be toxic if intake exceeds a certain amount.[1] Sunset Yellow (SY, E110) belongs to the azo-dye family and contains an azo functional group (N=N) and aromatic rings, that may be harmful to human health. Since it is cheaper and more stable than natural dyes, SY is frequently used in food and beverage products.[2] According to the World Health Organization (WHO), the accepted daily intake value for sunset yellow is 0–4 $mg.kg^{-1}$ and its concentration in non-alcoholic beverages should not exceed 50 $mg.L^{-1}$.[3] Electrochemical detection of SY using poly(alanine) modified electrodes may be a suitable alternative to the more demanding high-performance liquid chromatography (HPLC) method.

The polymer-modified electrodes have received great attention in recent years, as the polymer film which is deposited onto the surface of the electrode by electropolymerization has good stability, reproducibility, more active reaction sites, homogeneity and strong adherence to the electrode surface.[4]

In this study, a sensor (poly(alanine) modified pencil graphite electrode) was developed for the electrochemical determination of sunset yellow by taking advantage of the electroactive properties of SY. The preparation, characterization, and performance of the sensor have presented in this study. The characterization of the poly(alanine) modified pencil graphite electrode was investigated using scanning electron microscopy (SEM), cyclic voltammetry (CV), and electrochemical impedance spectroscopy (EIS) techniques. The electrode was successfully tested for determining SY in beverages samples. The sensor has advantages such as low cost, short analysis time and easy modification. These advantages are the prominent aspects of this study.

Keywords: Sunset yellow, electropolymerization, poly(alanine), pencil graphite electrode, cyclic voltammetry, differential pulse voltammetry.

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➢ **ORAL PRESENTATION**

Endokrin bozucu kimyasalların obezojenik etkileri

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Özet

Obezite, Dünya Sağlık Örgütü tarafından vücutta sağlığı tehdit edecek ölçüde anormal veya aşırı yağ birikmesi şeklinde tanımlanmaktadır. Obezitenin neden olduğu bazı hastalıklar arasında insülin direnci, tip 2 diyabet (T2DM), kardiyovasküler hastalık, infertilite, osteoartirit ve bazı kanser türleri bulunmaktadır. Obezojen olarak tanımladığımız maddeler çeşitli mekanizmalarla vücut lipit metabolizmasını düzenleyen olaylara etki ederek obezitenin gelişmesine neden olabilmekte ve bu mekanizmalarda genetik veya epigenetik faktörlerin de etkili olabileceği düşünülmektedir. Endokrin bozucular, vücudun normal işleyişini hormonları taklit ederek ya da engelleyerek bozan doğal yada sentetik kimyasal maddelerdir. Çevresel endokrin bozucu maddeler obezojen maddelerin içerisinde en çok dikkat çekici olanlarıdır. Endojen peptid ya da steroid hormonların metabolizmalarını arttırarak ya da engelleyerek, hipotalamus, adipoz doku, karaciğer ve diğer doku/organlardaki nükleer reseptörleri aktive veya antagonize ederek etki gösterirler. Bisfenol A (BFA) fenol yapısında olan, plastiklerin sertleşmesini sağlamak amacıyla plastik materyale eklenen; yemek kapları, bebek biberonları, yapıştırıcılar, boya tozları ve diş hekimliğinde dolgu maddesi olarak kullanılan ve çok sayıda *in vitro* ve *in vivo* çalışmada da gösterildiği üzere östrojenik etkili bir endokrin bozucu kimyasal maddedir. Bununla birlikte BFA'nın insülin direnci ve vücut yağ oluşumuna sebep olduğu çalışmalar da ortaya konulmuştur. Tüm bu bilgilerin ışığında çalışmamızda zebra balıklarında BFA'nın obezojenik etkileri dört hafta süre ile incelenmiştir. Çalışmamızın sonuçları BFA'nın zebra balıklarında vücut ağırlıkları ve kan glukoz düzeylerinde kontrol grubuna göre anlamlı farklılığa neden olduğu gösterilmiştir.

Anahtar Kelimeler: Endokrin bozucu kimyasal, Bisfenol A, Obezojen, Zebra balığı

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➢ **ORAL PRESENTATION**

Structural characterization of cyclodextrin-vitamin C complexes using trapped ion mobility-mass spectrometry

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Abstract

Ion mobility spectrometry (IMS) becomes an analytical technique that provides detailed information about the conformational features of the species when combined with mass spectrometry (MS), which is a very powerful analytical technique for molecular characterization. The IMS separates ions according to their size and shapes in the gas phase, while the MS separates them according to the mass-to-charge ratio (m/z). With the combination of MS and the IMS systems (IM-MS), not only the m/z information is obtained but also the size and shape of the molecules can be determined. Trapped ion mobility spectrometry (TIMS) hybridized with mass spectrometry is a recent development in the field of IM-MS. In this study, the complexes of cyclodextrin and vitamin c molecules formed and characterized using trapped ion mobility spectrometry-time of flight-mass spectrometer (TIMS-TOF-MS) instrument. The conformational features of the complexes in the gas phase were investigated and evaluated using data obtained from ion mobility-mass spectrometry analysis. The data obtained from this study provides important information about the changes in the conformational features of the species while the formation of drug and carrier complexes.

Keywords: Noncovalent complexes, Conformational characterization, Trapped ion mobility-mass spectrometry

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Enzyme electrodes fabricated by dad type poly (2,5-di(furan-2-yl)thiazolo[5,4-*d*]thiazole) conducting polymer

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Abstract

Poly(2,5-di(furan-2-yl)thiazolo[5,4-*d*]thiazol) polymer was coated over a platinum electrode and new enzyme electrodes were produced that are not found in the literature. The formation of polymerization was shown by cyclic voltammetry. Kinetic parameters of immobilized polyphenol oxidase enzyme were determined. V_{max} and K_m were obtained as 0.028 ± 0.001 umol min^{1-} $electrode^{1-}$ and 669.68 ± 64.73 mM respectively. The effect of reaction conditions over enzyme activity were examined. The pH and temperature at which immobilized polyphenol oxidase enzyme showed the highest activity were found as pH 7.5 and 45 ℃. Amount of enzyme and gluteraldehyde immobilized to the electrodes were changed and in the examination, it was detected that it is sufficient to add 2x6 uL enzyme and 1x6 uL gluteraldehyde to the electrode. The activity of Pt/PTTzFr/PPO electrode was followed by 50 consequential measurements. It has been seen after 50 measurements that immobilized enzyme activity is 70%. As a result of shelf life examinations, it was determined that Pt/PTTzFr/PPO electrode lost 30% of its initial activity at the end of the 50th day and the remaining activity was 70%. Calibration graph was plotted for Pt/PTTzFr/PPO electrode (y = 0.0139x + 0.0479). LOQ value was calculated as 7.827 mg mL^{-1} and the working interval was found as 1.0 – 90.0 mg mL^{1-}. In total phenolic material analyses made with this electrode, the results found in waste water samples have also been confirmed by Folin-Ciocalteau method.

Keywords: Electrochemical polymerization, conducting polymer, enzyme immobilization, polyphenol oxidase, enzyme electrode.

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➢ **ORAL PRESENTATION**

Blue-emitting fluorescence dyes and their applications

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Abstract

Blue-emitting fluorescence dyes have attracted great attention for analytical sensing and optical imaging because of their high sensitivity and technical simplicity. In particularly, those dyes emit the light at the wavelength range of 450–495 nanometers has various application in the labeling of biomolecule, monitoring of conformational changes in the protein structure and to determine the concentrations of ions or any species. So far, among the fluorescence dyes, the blue emitting dyes mainly based on pyrene, coumarin, fluorene, naphthalene and BODIPY backbone which is called the fluorophore in the structure have been reported. Those fluorophores emitting in the blue range of spectra show dramatic photophysical property changes upon substitution of functional groups or pi bond elongation on the main core structure and also are responsible in the emission of the dye upon addition of target species. In this study, a protocol has been reported for the synthesis of novel blue-emitting florescence dyes. The synthesized compounds were isolated and characterized by using spectroscopic methods such as IR, NMR, and MS. Their photophysical properties has been investigated by using UV-Vis absorbance spectroscopy and fluorescence spectroscopy. The quantum yields of the compounds have low to moderate quantum yields.

Keywords: Fluorescence dyes, Blue-emitting dyes, Fluorophore groups, Synthesis, Spectroscopic techniques

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Psychobiotics

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Abstract

Probiotics play an important role in health protection. Psychobiotics described in 2013 are a group of probiotics with antidepressant or anxiolytic activity that affect the central nervous system (CNS) via neural, immune and metabolic pathways. In addition to, they act on the gastrointestinal tract. They are capable of producing and delivering neuroactive molecules which act on brain-gut axis. These molecules modulate neural signals that affect neurological and psychiatric parameters like appetite, mood, sleep and cognition. In recent years, the studies have suggested that some psychobiotics strains are efficacious in improving of the symptoms of psychiatric disorders such as anxiety and depression. Psychobiotics have impact on many types of neurodegenerative and neurodevelopmental disorders, including autism spectrum disorder, Parkinson's disease and Alzheimer's disease. More systematic studies in this area are needed to understand the mechanism and efficacy of psychobiotics as an alternative treatment for this type of disorders.

Keywords: Psychobiotics, probiotics, mental health

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➢ **ORAL PRESENTATION**

Investigation of antioxidant and antimicrobial activities of *Urtica dioica* plant extracts

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Abstract

Urtica dioica (nettle) has been widely used in industry, cosmetics and medicine and has long been used by the public in phytotherapeutic applications. Despite its economic potential, it is still not cultivated but consumed as wild. In this study, total phenolic and flavonoid content, antioxidant and antimicrobial activities of nettle extracts obtained by different methods were investigated. In this study, as well as antioxidant and antimicrobial activities of nettle extracts obtained by different methods, the oil content of the extracts was analyzed by GC-MS. As a result of GC-MS analysis, 12 different fatty acids were determined. The main fatty acid components of nettle extracts are linoleic acid (61.40%), oleic acid (14.66%) and palmitic acid (10.42%).Ultrasonic bath was found to be more effective in extracting bioactive contents of extracts than fermentation and water boiling methods. Total phenolic content of plant extracts (USB) was 26.78 mg g^{-1}, total flavonoid amount was 3.07 mg g^{-1}, FRAP value was 21.53µg $g^{-1}$and DPPH value was 6.20 mg g^{-1}. As a result of the antimicrobial activity test against 9 microorganisms (7 bacteria and 2 yeast), ethanolic extract showed a better inhibitory effect compared to other extracts, but it was determined that the extract obtained by water boiling had no effect on test organisms.

Keywords: Antimicrobial activity, antioxidant activity, bioactive compounds, fatty acid, *Urtica dioica*

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➢ **ORAL PRESENTATION**

Evaluation of The Cytotoxic Activity of *Calendula officinalis* on Glioblastoma Cell Line

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Abstract

Glioblastoma multiform is the most common brain tumor in humans, accounting for approximately 60% of all brain tumors. Rapid infiltrative growth in glioblastoma and high metastasis capacity make it difficult to fight the disease. Glioblastoma treatment usually includes surgery followed by chemotherapy. However, most chemotherapeutic agents have multiple toxic side effects [1]. Additionally, the development of drug resistance to chemotherapeutic agents makes chemotherapy insufficient to combat this disease [2]. Various natural products of plant origin have potential value as chemo-preventive or therapeutic agents in cancer. *Calendula officinalis* is a plant known for its wide biological activities such as wound healing, anti-inflammatory, anti-bacterial, antioxidant, anti-viral and most importantly anti-tumor activities [3]. This study aimed to evaluate the anti-proliferative and cytotoxic properties of *C. officinalis* on U87MG glioblastoma cell line. For this aim cytotoxic activity of *C. officinalis* essential oil was determined by using MTT(-(4,5-dimethyltiazole-2-YL)-2,5-diphenyltetrazolium bromide) method. U87MG cell proliferation was effectively inhibited after treatment with *C. officinalis* oil for 24 and 48 h. After 24 and 48 h treatment of cells with *C. officinalis* oil, IC50 values were determined as 11.45 and 8.6 µl/ml respectively. Our results suggest that *C. officinalis has potential in the development of novel cancer treatment strategies for glioblastoma.*

Keywords: Calendula officinalis, glioblastoma, cytotoxicity, anti-cancer

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➢ **ORAL PRESENTATION**

Antimicrobial activity and some phytochemical properties of extracts from *Achillea aleppica* D.C. subsp. *aleppica*

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Abstract

Achillea L. is one of the most widely used medicinal plants in the world. It's been used in traditional medicine as an astringent, antiseptic, anti-inflammatory agent and antispasmodic agent to treat digestive disorders, menstrual irregularity, and promote healing of cuts and wounds, burns and ulcers, as well as relieving menstrual cramps. In this study, antioxidant, antimicrobial activity and total phenolic and flavonoid contents of extracts obtained from flower and stem of *Achillea aleppica* D.C. subsp. *aleppica*, were investigated. Fixed oils content of the extracts was examined by GC-MS analysis. Totally 31 different fatty acids were determined. The main fatty acid components of plant extracts were butyric acid, oleic acid, linoleic acid, palmitic acid and cis-4,7,10,13,16,19-docosahexaenoic acid. It was observed that the amount of fatty acid varies according to the location and the plant parts (flower and stem).Two different solvents, chloroform and methanol, with different polarities were used in the study and the extracts with strong activity were determined. It was found that plants collected from Ahir mountain had higher bioactivity than Sarıçukur location and in terms of solvents, methanol was more effective than chloroform. Total phenolic content, flavonoid amount, FRAP value and DPPH value of the plant extracts ranged between 8.42-38.49 mg g^{-1}; 4.54-14.04 mg g^{-1}; 14.48-48.31 µg g^{-1} and 0.7-33.37 mg g^{-1}, respectively. Antimicrobial activity assay carried out against 10 microorganisms (8 bacteria and 2 fungi) showed no inhibitory effect against only *Sarcina lutea* and *Candida albicans.* In addition, methanolic extracts from the plants from Sarıçukur location produced better results than that of Ahir mountain.

Keywords: Antimicrobial activity, antioxidant activity, bioactive compounds, fatty acid, *Achillea aleppica* D.C. subsp. *aleppica*

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➢ **ORAL PRESENTATION**

The affect of intraperitoneal ropivacaine and incisional bupivacaine combination to the comfort of the patient by laparoscopic cholecystectomy operation

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Abstract

In this study, we aimed to investigate the effect of intraperitoneal ropivacaine combined with postoperative incisional bupivacaine application to the pain level and patient comfort after laparoscopic cholecystectomy. In our clinic, 53 ASA-I and II patients who were subjected to elective laparoscopic cholecystectomy were included in the study. 27 of the patients comprised the working group (Group 1), and 26 of them the control group (Group 2). In the working group, intraperitoneal 15 ml ropivacaine and at the end of the operation 10 ml of 2%-bupivacaine were injected to the trocar-sites, under the skin and to the fascia layer. For pain evaluation, VAS (visual analogue scale) scores, nausea and vomiting, sedation level were evaluated and recorded when the patient was transported to postanesthesia care unit immediately and at 2, 4, 8, 12, 18 and 24. hours after the operation. postoperative analgesia was provided by patient-controlled intramuscular diclofenac sodium. Whereas the VAS scores in Group 1 were found meaningfully low compared to Group 2 (p0.05), this difference was only at 24. hour statistically meaningless (p0.05). The amount of postoperative intramuscular diclofenac sodium used by patients was found in Group1 meaningfully low (p0.05). The combination of intraperitoneal ropivacaine and local post incisional bupivacaine applied in laparoscopic cholecystectomy provided a positive effect on the comfort of the patient in the time of recovery by decreasing the postoperative pain and the need for analgesics meaningfully.

Keywords: laparoscopic cholecystectomy, ontraperitoneal ropivacaine, incisional bupivacaine

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➢ **ORAL PRESENTATION**

Importance of abdominal facial suture in the development of trocar site hernia after laparoscopic surgery

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Abstract

Trocar site hernias are defined as hernias developing in cannulation site. Trocar site hernia is a serious complication during laparoscopy. Trocar site herniation can be difficult to diagnose because lead to a variety of clinical conditions and it can occur at any time during the postoperative period. This article is about the role of suturation of the insertion site to prevent trocar site hernia and its importance. Patients with trocar site hernia after laparoscopic surgery in our clinic were reviewed retrospectively; according to their age, sex, comorbidity, location and size of the hernia, the operation, risk factors and closure the insertion site by suture. In 167 patients who underwent laparoscopic surgery, patient's BMI was 31.3 and the mean age was 49.67. Port hernias were seen in 5 patients with sutured fascia and 4 patients with unsutured fascia during laparoscopic surgery. There is no statistically significant difference between both groups ($P<0.05$). Average BMI in patients with hernia was 36.2 and there was one patient with chronic obstructive pulmonary disease from both group. Trocar diameter, trocar design, pre-existing fascial defects, direction of the trocar insertion, place where the trocar applied, and also diabetes mellitus, obesity, age and COPD affect significantly the development of the trocar site hernia. Closure of 10 mm or greater fascial defects is recommended to prevent trocar hernia development. However, in our study, it's observed that the closure of the fascial defects in the development of trocar hernia during laparoscopic surgery has not predominant.

Keywords: Trocar site hernia, laparoscopic surgery, abdominal facial suture

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Kudret narı (*Momordica charantia* L.) ve zeytinyağı karışımının probiyotik bakteriler üzerine etkisi

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Özet

Gelişen teknolojiyle birlikte çeşitli metotlarla besinlerin incelenip bir sorunu aydınlatması ya da işlenip yararlı hale getirilmesi mümkündür. Bitkilerin birçoğu araştırılmış fakat hepsinin her yönden incelenmesi mümkün olmamıştır. Bunlar karışmış hale getirildiğinde iki maddenin verecekleri reaksiyonlar sonucu daha kuvvetli veya farklı bir soruna etki eden formüller bulunabilmektedir. Zeytinyağı ve kudret narı da üzerinde çalışılmış fakat karışım halinde iken yararlı mikroorganizmalara faydası hiç incelenmemiştir.

Günümüzde bilinçsiz antibiyotik ve ilaç kullanımının artışı vücudun bağışıklık sistemine zarar vermektedir. Bağırsaklarımızda binlerce çeşit yararlı bakteri vardır ve birlikte bağırsak florasını oluşturmaktadır. Bağırsak florasındaki çok az bir zayıflama zararlı bakterilerin kan ile dolaşım sistemine geçmesine ve bağışıklık sisteminin zayıflamasına sebep olur. Bu nedenle probiyotik ve prebiyotik gıdaları tüketmek sağlığımız açısından önemli yer kaplamaktadır.

Bu çalışmadaki amacımız da kudret narının zeytinyağında bekletilmesiyle verdiği reaksiyonlar sonucunda, çekirdekteki KLNA (konjuge linolenik asit) ile zeytinyağındaki yağ asitlerinin kompleks hale getirilip insan sindirim kanalında birlikte bulunabileceği bakterilerden *Lactobacillus acidophilus* LA-5 (LA-5) ve *Lactobacillus rhamnosus* GG (GG) üzerine *in vitro* etkilerini araştırmaktır. Bu amaçla, öncelikle kudret narının zeytinyağı ile kompleksi hazırlanıp, seçilen probiyotik bakterilerin besiyerine eklenip, bu bakterilerin bu ortamda büyümesi sağlanmıştır. Bunun devamında, bakteriyel gelişim kinetiğine, yüzey hidrofobisitesine (Solvente olan Mikrobiyal Adezyon – MATS Testi) ve bakterilerin agregasyonuna (Oto-Agregasyon Testi) etkileri incelenmiştir.

Bu çalışmada, kudret narı ve zeytinyağı karışımının farklı konsantrasyonları bakteriyel kültürlere eklenmiş ve bu konsantrasyonların LA-5 veya GG gelişimi üzerine herhangi bir inhibisyon göstermediği gözlemlenmiştir. Hücre yüzeyi hidrofobisitesi, bakterilerin gastrointestinal kanalda tutunabilmeleri için önemli bir özelliktir. Kudret narı ve zeytinyağının değişen konsantrasyonlarının bakteriyel yüzey hidrofobisitesini artırdığı gözlemlenmiştir. Otoagregasyonda da genel olarak bir artış gözlemlenmiştir.

Bu sonuçlar göstermektedir ki, kudret narı ve zeytinyağı karışımı, probiyotik bakteriler üzerine olumlu yönde etki edebilir. Bu etkilerin mekanizmasını daha detaylı moleküler çalışmalarla aydınlatmak gerekmektedir.

Anahtar Kelimeler: Kudret narı, zeytinyağı, KLNA, *Lactobacillus acidophilus* LA-5, *Lactobacillus rhamnosus* GG

Teşekkür: Yazarlar, probiyotik suşların temini için Chr. Hansen, Türkiye'ye teşekkür eder. Bu çalışma, TÜBİTAK 2209-A Üniversite Öğrencileri Araştırma Projeleri Destekleme Programı tarafından desteklenmiştir (Proje No: 1919B011802325)

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➢ **ORAL PRESENTATION**

Computational study on anti- inflammatory and anti-hypertensive drug molecules interaction with base pairs

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Abstract

Non-steroidal anti-inflammatory drugs (NSAIDs) and anti-hypertensive drugs have been in use for a long time for the treatment of inflammation, pain, hypertension. Besides these functions, they also show different types of other activities. Many of them exhibit chemopreventive and chemosuppressive effects in different types of cancer such as colon, lung and breast cancer.

In the present study, we investigated the interactions of some nonsteroidal anti-inflammatory and anti-hypertensive drugs with nucleobases with quantum chemical methods, especially with DFT. The main aim here is that knowing the strengths of these interactions will provide insight into the side effects of drugs. The stable geometries of drug molecules and nucleobases have been obtained at the B3LYP/6-31+G (d) level. The effect of implicit water solvation on complex formation is investigated using integral equation formalism of the Polarized Continuum Model (IEF-PCM). The interaction of the drug (Acebutolol, Naproxen, Diflunisal, Bisoprolol) with nucleobase pairs was calculated by the DFT-B3LYP / 6-31 + G (d) method, the following findings were obtained. Acebutolol has the lowest Gibbs free energy of all in the drugs, is found to be -39 kcal/mol. The negative Gibbs free energy indicates that the system can overcome the entropic effect originating from complexation. Thus, the products are spontaneously formed, the complex formed has strong binding energy. This interaction can have a breaking or disrupting effect on DNA. This means that the drug can have a negative effect on DNA when this drug is used for a long time.

Keywords: NSAIDs, beta blockers, nucleobase pairs, binding energies, DFT methods

DRAFT

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➢ **ORAL PRESENTATION**

Juniperus macrocarpa'dan endofitik mikroorganizmaların izolasyonu, tanımlanması ve antimikrobiyal aktivitesinin belirlenmesi

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Özet

Juniperus macrocarpa, Cupressaceae familyasına ait iğne yapraklı genellikle çalı formundaki bir ardıç türüdür. Geleneksel tıpta ağrı, öksürük, romatizma, tüberküloz vb. hastalıklarda antiseptik olarak kullanılan *Juniperus* türleri içerdiği uçucu yağ, tanen, flavanoid, triterpen gibi aktif maddeler nedeniyle özellikle farmakolojide büyük önem taşımaktadır. Endofitik mikroorganizma, bitkilerin sağlıklı dokularına kolonize olan, konukçusuna patojenik bir etkisi bulunmayan bakteri ve funguslardır. Endofitler, tıpta, ziraatte ve endüstride kullanılmak üzere araştırılan yeni doğal ürün kaynağı olarak yüksek potansiyele sahip, az çalışılmış mikroorganizmalardır. Bu çalışmada *Juniperus macrocarp*a'nın endofit çeşitliliğinin araştırılması amaçlanmıştır. Bu amaçla İzmir-Çeşmeden alınan bitkiye ait kök, gövde ve dal örnekleri toplanarak laboratuvara getirilmiş, çeşme suyunda yıkandıktan sonra epifitik mikroorganizmaları uzaklaştırmak amacıyla yüzey sterilizasyonu uygulanmıştır. Yüzey sterilizasyonu amacıyla gövde ve dal kısımları %70'lik etanol, %3'lük NaOCl, %70 etanol; kök kısmı ise %35'lik H_2O_2, %3'lük NaOCl, %70 etanol ile muamele edildikten sonra distile suda 3 defa durulanmıştır. Yüzey sterilizasyonu yapılan bitki dokularından steril bistüri yardımıyla kesitler alınmış ve bakteri, aktinobakteri, fungus izolasyonu amacıyla TSA, AIA, MEA, PDA besiyerlerine aktarılmıştır. Besiyerleri 25°C'de 8-10 haftaya kadar inkübe edilmiştir. Elde edilen bakteri ve fungus kolonileri saflaştırılmıştır. Saflaştırma sonucunda 12 bakteri, 7 fungus izole edilmiştir. Elde edilen izolatlar polifazik yaklaşım kullanılarak tanımlanmıştır. Genotipik tanımlama amacıyla 16S rDNA ile ITS PCR yapılmış ve ürünler dizi analizine gönderilmiştir. Bakterilerde fenotipik tanımlama amacıyla gram boyama, oksidaz ve katalaz testleri yapılmıştır. 12 endofitik bakterinin %92'si Gr(+) ve tamamı basil morfolojisinde ve katalaz pozitiftir. Tüm izolatların ilgili sıvı besiyerinde fermantasyonları yapılarak, *Escherichia coli* O157H7, metisilin dirençli *Staphylococcus aureus* ATCC43300, Vancomycin dirençli *Enterococcus faecium* DSMZ 13590, *Candida albicans* DSMZ 5817, *Pseudomonas aeruginosa* ATCC 27853 and *Bacillus cereus* ATCC 10876 mikroorganizmalarına karşı antimikrobiyal aktivitesi belirlenmiştir.

Anahtar Kelimeler: *Juniperus,* endofit, antimikrobiyal aktivite

DRAFT

➢ **ORAL PRESENTATION**

Sinapik asit yüklü nanopartiküllerin meme kanseri hücre dizilerinde incelenmesi

Gülşah Akbaş[1*] , F.Şayan Poyraz[1*], Melike Ersöz[2*] , Dilek Duranoğlu Dinçer[3*], Serap Derman[4*], Banu Mansuroğlu[1*]

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Özet

Nanopartiküler sistemler biyolojik ortamda toksisitesini en aza indirgeyen biyouyumlu materyallerin üretimi,antitumor ajanların taşınması gibi birçok *in vivo* ve *in vitro* olumlu tedavi yöntemi çalışmalarında tercih edilmektedir. Bu sistemler özellikle suda çözünür olmayan moleküllerin suda çözünürlüğünü sağlayarak, moleküllerin biyodağılımlarını ve biyoyararlanımlarını arttırmaktadır [1].

Bitkilerde yaygın olarak bulunan fenolik bir bileşik olan sinapik asit, geniş spektrumlu farmakolojik özellikler göstermektedir [2]. Bu çalışmada sinapik asitin, biyolojik sistemdeki kullanımını sınırlayan özelliklerinin iyileştirilmesi amacıyla nanopartiküler sistemlere yüklenmesi hedeflenmiştir. Deneysel tasarım metoduyla sinapik asit molekülünün nanopartiküler taşıyıcı sistemlere yüklenmesi gerçekleştirilmiştir. Sinapik asit yüklü nanopartikül için maksimum enkapsülasyon verimini, minimum partikül boyutunu sağlayan proses parametreleri optimize edilmiştir. Sinapik asit yüklü nanopartiküller ve serbest Sinapik asitin MCF-7 ve MCF10A hücre soyları üzerindeki sitotoksik etkisi MTT [3-[4,5-dimethylthiazole-2-yl]-2,5-diphenyltetrazolium bromide] yöntemi, antiproliferatif etkisi immunositokimyasal olarak PCNA ile apoptotik hücre ölümü ise TUNEL yöntemiyle incelenmiştir. Sinapik asit yüklü nanopartiküller ve serbest Sinapik asitin MCF-7 hücrelerindeki SOD aktivitesi, katalaz aktivitesi, Glutatyon seviyesi ve Malondialdehit (MDA) seviyesi düzeyleri analiz edilmiştir.

Elde edilen bulgular doğrultusunda polifenolik bileşiklerin nanopartikül formulasyonlarının oluşturulması ile tedaviye yönelik ilaç tasarımlarının yapılmasına katkı sağlayabilir nitelikte olduğu belirlenmiştir. Geliştirilen nanopartiküler formülasyonun diğer hidrofobik biyolojik etken maddeler için de faydalı bir model oluşturacağı düşünülmektedir.

Anahtar Kelimeler: Nanopartikül, Sinapik Asit, Apoptoz, Kanser, Toksisite
Teşekkür: Bu çalışma TUBİTAK 117Z016 no'lu proje tarafından desteklenmiştir.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Insertion reaction of carbodiimides with diborane(4) derivatives

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Abstract

Carbodiimides are often used to prepare the organic, inorganic and organometallic compounds as the easily tunable ligands [1] Although there are a lot of papers about examination of the reaction of carbodiimides with main group elements, the studies including boron compounds are very rare [2]. Especially reactions of diboranes(4) with them have been neglected. The insert reaction of carbodiimides with diborane(4) derivatives were examined at first time with the present study. These reactions generated the cyclic diborane compounds via insertion into the boron-nitrogen, boron-aryl or boron-halide bonds. The structural elucidations of novel compounds were done by using ^{1}H, ^{11}B and ^{13}C NMR spectroscopy. Also, molecular structures of some compounds were determined by the single-crystal X-ray diffraction (SC-XRD) spectroscopy. All spectroscopic data showed that the cyclic compounds consist of the migration of a substituent from boron atom to carbon atom and re-arrangement process at same time. Furthermore, the occurrences of compounds were investigated using computational calculations. The quantum mechanical calculations were performed on Orca4 [3] package program using DFT for geometry optimizations. NMR calculations were done with the GIAO method [4]. To enlighten the reaction mechanism, transition states (TS) of the prepared compounds were calculated with PM7 [5] semi-empirical methods on MOPAC2016 [6] package program.

Keywords: Diborane(4), carbodiimide, insert reaction, spectroscopy.

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➢ **ORAL PRESENTATION**

Aloe vera'dan endofitik mikroorganizmaların izolasyonu, tanımlanması ve antimikrobiyal aktivitesinin belirlenmesi

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Özet

Aloe vera Liliaceae familyasına ait yaprakları uzun ve dikenli bir sukkulent bitkidir. *A. vera* bitkisinin öz sularının cilt üzerindeki iyileştirici etkisi yüzyıllardır bilinmektedir ve geleneksel tıpta ve kozmetik ürünlerinde kullanılmaktadır. Endofitler, bitkilerin iç dokularını kolonize eden ancak konukçusuna patojenik bir etkisi bulunmayan bakteriyel veya fungal mikroorganizmalardır. Her bitki türünde bulunan endofitler, özellikle tıp, tarım ve endüstride kullanılmak üzere biyoaktif doğal bileşiklerin potansiyel kaynağı olarak görülmektedir. Bu çalışmadaetnobotanik bir bitki olan *Aloe vera*'nın endofitik çeşitliliğinin araştırılması amaçlanmıştır. Bu amaçla Ege Üniversitesi botanik bahçesinden alınan *Aloe vera* bitkisinden endofitik aktinobakteri ve fungus izolasyonu için öncelikle yüzey sterilizasyonu işlemi gerçekleştirilmiştir. Sırasıyla %70'lik etanol, %3'lük NaOCl ve distile su ile yıkama basamakları uygulanmıştır. Yüzey sterilizasyonu yapılan bitki dokularından steril bistüri yardımıyla 1-2 cm büyüklüğünde kesitler alınmış ve aktinomiset izolasyon agar, malt ekstrakt agar, rose bengal kloramfenikol agar ve patates dekstroz agara aktarılmıştır. Besiyerleri plastik kutularda 25-28 °C'de 8-10 haftaya kadar inkübe edilmiştir. Elde edilen koloniler saflaştırılmıştır. İzolasyon sonucunda 4 endofitik fungus izole edilmiştir. Elde edilen izolatlar polifazik yaklaşım kullanılarak tanımlanmıştır. Genotipik tanımlama amacıyla ITS PCR yapılmış ve sekansa gönderilmiştir. Sekans verilerine göre elde edilen izolatlar *Rhizopycnis vagum, Acrocalymma vagum, Didymella glomerata* ve *Thielavia terrestris* olarak tanımlanmıştır. Ayrıca elde edilen 4 endofitik fungusun fermantasyonu gerçekleştirilmiş ve fermantasyon sıvısından *Escherichia coli* O157H7, metisilin dirençli *Staphylococcus aureus* ATCC43300, Vancomycin dirençli *Enterococcus faecium* DSMZ 13590, *Candida albicans* DSMZ 5817, *Pseudomonas aeruginosa* ATCC 27853 and *Bacillus cereus* ATCC 10876 mikroorganizmalarına karşı antimikrobiyal aktivitesi disk difüzyon yöntemi ile belirlenecektir. Çalışmanın sonucunda EFII kodlu fungus ile simbiyotik bir yaşam süren bir bakteri izole edilmiştir. Saflaştırılan bakteri 16S rDNA analizi yapılarak tanımlanmış ve *Luteibacter* sp. olduğu belirlenmiştir. Ayrıca elde edilen simbiyotik bakteri *Luteibacter* sp. ile her bir endofitik fungusun co-kültürleri yapılacak ve elde edilen fermantasyon sıvılarının da antimikrobiyal aktivitesi belirlenmiştir.

Anahtar Kelimeler: *Aloe vera,* endofit, antimikrobiyal aktivite.

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➢ **ORAL PRESENTATION**

Yapay aydınlatmanın pankreas gelişimi üzerine etkileri

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Özet

Gün ışığı, biyolojik saatin korunmasında ve tüm canlı organizmalarda sirkadiyen ritmin düzenlenmesinde önemli bir faktördür. Öte yandan, bu doğal süreç, çeşitli elektromanyetik spektrumları içeren yapay ışık kaynakları tarafından sürekli olarak bozulmaktadır. Yapay aydınlatma, kentsel yaşamın önemli bir parçası haline gelmiştir. Öte yandan, yapay ışığa maruz kalma biyolojik metabolik süreçlerin eş zamanlı olarak düzenlenmesini zorlaştırmıştır. Gelişen teknoloji ile beraber son yıllarda artan yapay ışık kaynakları ve bu ışıklara maruziyet sirkadiyen ritimin bozulmasına neden olmaktadır. Özellikle bu amaçla kullanılan LED kaynaklı aydınlatmalar günlük hayatımızın bir parçası haline gelmiştir. Bununla beraber sirkadiyen ritim bozukluklarının doğal yaşam sürecinde meydana getirdiği değişiklikler metabolizmayı olumsuz yönde etkileyebilir. Yapay ışık kaynaklarına maruziyete bağlı sirkadiyen ritim bozukluklarının çeşitli hastalıklarla ilişkilendirildiği çalışmalar mevuttur. Zebra balıkları ve embriyoları son yıllarda kullanımı yaygınlaşan model organizmalardır. Zebra balıklarında embriyolar eksternal fertilizasyonla oluşur ve embriyo gelişim evrelerini dış ortamda tamamlar. Bu nedenle zebra balığı embriyosu özellikle gelişim biyolojisi ile ilgili çalışmalarda kullanışlı modeller olarak değerlendirilmektedir. Çalışmamızda farklı dalga boylarında ışık yayan diyotların normal gelişim sürecindeki zebra balığı embriyolarında pankreas gelişimi ve insülin metabolizması ile ilgili bazı genler üzerine olan etkileri RT-PCR yöntemi incelenmiştir. Çalışmamızın sonucunda farklı LED ışık kaynaklarının zebra balığı embriyosunda pankreas gelişimi ve insülin metabolizmasını farklı yönde etkilediği gösterilmiştir. Bulgularımız embriyonel dönemde sirkadiyen ritmin, pankreas gelişimindeki önemini vurgulamaktadır.

Anahtar Kelimeler: Sirkadiyen ritm, LED ışık kaynakları, pankreas, insülin, Zebra balığı embriyosu

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➢ **ORAL PRESENTATION**

Nano calcium carbonate incorporated electrospun chitosan–gelatin–polyvinyl alcohol composites

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Abstract

Electrospinning is a simple and versatile method for fabricating nanofibers with diameters from micrometers to nanometers. Thanks to unique properties of electrospun fibers such as high specific surface area (SSAs), high porosity and small diameter, they have potential use in medicine, biomedical applications [1]. In literature, there has been many attempts to product composite nanofibers from various synthetic or natural polymers. Morphology of the nanofibers depend on many factors that system voltage, electrical conductivity of solvents, collector type, surface tension and viscosity of polymers etc. In addition, nanofibers with inorganic material have exhibited biological property and they are widely used in dental applications bone tissue engineering [2].

In this study, calcium carbonate ($CaCO_3$) nanoparticles were added in the process and PVA-gelatin-chitosan/$CaCO_3$ nanofibers were produced as potential tissue engineering scaffolds. Functional groups in the nanofibers determined by the Attenuated Total Reflectance-Fourier Transform Infrared Spectroscopy (ATR-FTIR), morphologies and average diameters were analyzed by Scanning Electron Microscopy (SEM). Additionally, contact angle measurements were carried out to determine surface wettability behavior of the fibers.

Keywords: electrospinning, nanofiber, $CaCO_3$, morphological properties.

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➢ **ORAL PRESENTATION**

Probiyotik kaynaklı ekzopolisakkaritlerin SHSY-5Y hücrelerinde amiloid beta 1-42 ile oluşturulan Alzheimer hastalığı modelinde oksidatif stres ile ilişkili yolaklar üzerine etkilerinin araştırılması

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Özet

Alzheimer hastalığı (AH) nöronal ve sinaptik kayıp, beyinde nörofibriller yumak ve amiloid plak birikimini içeren özgün nöropatolojik bulgular ile karakterizedir. AH oksidatif stresin arttığı ve bu artışın hastalıkta ortaya çıkan nöronal dejenerasyona neden olduğu bilinmektedir. Bu sebeple, AH'nda oksidatif stres ile ilişkili yolaklar üzerinde etkili olacak ajanların tespitine yönelik çalışmalar önem kazanmıştır. Bu çalışmanın amacı probiyotik kaynaklı ekzopolisakkaritlerin (EPS) SHSY-5Y hücrelerinde amiloid beta $(A\beta)_{1-42}$ ile oluşturulan AH modelinde oksidatif stres ile ilişkili yolaklar üzerine etkilerinin araştırılmasıdır. Çalışmada, probiyotik suşlardan (*Lactobacillus delbrueckii* ssp. *bulgaricus* B3 ve *Lactobacillus plantarum* GD2) elde edilen EPS'ler kullanılmıştır. Suşların EPS üretim kapasiteleri fenol sülfirik asit yöntemine göre spektrofotometrik olarak tespit edilmiştir. EPS'ler farklı süre ve konsantrasyonlarda SHSY-5Y hücrelerine uygulanmış, sitotoksik etki MTT yöntemi ile mikroplaka okuyucuda tespit edilmiştir. $A\beta_{1-42}$ ile oluşturulan toksisite AH için geçerli *in vitro* nöral dejenerasyon modellerinden biridir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin AKT/PKB, ERK1, ERK2, JNK, JUN, NF-κB/p65 ve p38 genlerinin ekspresyon seviyelerine göre, GAPDH geni referans alınarak, oksidatif stres ile ilişkili yolaklar üzerine etkileri qRT-PCR ile belirlenmiştir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin AKT/PKB, ERK1/2, JNK1/2, NF-κB/p65 ve p38 proteinlerin ekspresyon seviyelerine göre, oksidatif stres ile ilişkili yolaklar üzerine etkileri ELISA ile belirlenmiştir. Çalışmada kullandığımız bütün suşların yüksek miktarda EPS ürettiği belirlenmiştir. Tüm suşların EPS'lerinin çok düşük oranda sitotoksik etki gösterdiği tespit edilmiştir. Suşlardan elde edilen EPS'lerin $A\beta_{1-42}$'nin sebep olduğu ERK1, ERK2, JNK, JUN, NF-κB/p65 ve p38 mRNA ve protein ekspresyon seviyesindeki artışı, doza bağlı olarak engellediği ve AKT/PKB mRNA ve protein ekspresyon seviyesindeki azalışı, doza bağlı olarak arttırdığı tespit edilmiştir. AH'nın tek bir mekanizma üzerinden değil multi mekanizmalarla etkili olarak geliştiği bilinmektedir. EPS'lerin de oksidatif stres ile ilişkili yolaklarda çoklu gen ve proteinleri etkileyerek anti-oksidan özellik gösterdiğinin tespit edilmiş olması, alternatif bir terapötik ajan olabilme potansiyelini arttırmaktadır. Bu özellikler EPS'lerin anti-oksidan ajan olarak kullanılabileceğinin göstergesidir.

Anahtar Kelimeler: Alzheimer, Amiloid beta 1-42, ekzopolisakkarit, oksidatif stres, probiyotik, SH-SY5Y hücreleri.

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➢ **ORAL PRESENTATION**

Distinctive features of species of Spicara genus in Sevastopol coastal area

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Abstract
Based on the results of long-term observations of the species composition of the ichthyofauna in the coastal waters near the city of Sevastopol (Black Sea), we noted the occurrence of Mediterranean species *Spicara maena* from 2010, mainly in the Balaklavskaya bay. The frequency of blotched picarel, *Spicara maena* L. 1758 in catches of Sevastopol fishermen made it possible to carry out a detailed analysis of two species of the Spicara genus to identify differences in values of morphophysiological and morphometric parameters for *Spicara flexuosa* and *Spicara maena* in the period 2016 – 2018. The findings can be regarded as sound evidence of the existence of two species of the genus Spicara - *S. flexuosa* and *S. maena* - in Sevastopol coastal waters since such characteristics as the maximum body height and body height at the end of gill cover, the length of the segment between lower jaw apex and starting point of the base of the first pectoral and first dorsal fins, the length of the anal and dorsal fins, the number of rays in the dorsal fin differ significantly for these two species. The ratio of the height of fish head to its length, which is one of diagnostic signs used to differentiate species, also differs significantly for *S. flexuosa* and *S. maena*. In addition, during periods of rest, hepatosomatic and gonadosomatic indexes for the high body pickerel are noticeably higher than those for the blotched picarel.
Key words: *Spicara flexuosa*, *Spicara maena*, Black Sea

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➢ **ORAL PRESENTATION**

Use of a biofertilizers to improve physiological responses of *Stevia rebaudiana* Bertoni under salt stress

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Abstract
The use of saline water for plant irrigation in arid and semi-arid areas became a necessity because of water deficiency. However, the exposure of plants to salt stress can affect various plant physiological processes which result in a reduced biomass production. This adverse effect of salt stress appears on the whole plant level at almost all growth stages including germination, vegetative growth and reproductive stage. The use of the biofertilizers plays a key role in improving the growth and the crops yield. In the sameway, they can be used to improve crop resistance to abiotic stresses. The aim of this study was to evaluate the effects of an organic amendment on physiological responses of *Steviare baudiana* Bertoni under salt stress (growth parameters, photosyntetic activity, stomatal conductance, Protein contents, soluble sugars accumulation, total chlorophyll …). The experiment was carried out in a completely randomized design with ten replicates under the green house conditions during seven weeks. Results indicated that the organic amendment increased all the physiological parameters studied as stomatal conductance and the photochemical efficiency of photossystem II compared to the control plants (stressed plants without organic amendment). The use of the this biofertilizer had also a positif effect on the Protein contents, soluble sugars accumulation and Photosynthetic pigments.Thus, the obtained results suggest a protective effect of our biofertilizer on *Stevia rebaudiana* Bertoni against salt stress.
Keywords: *Stevia rebaudiana* Bertoni, salt stress, bio-fertilizer.

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➢ **ORAL PRESENTATION**

Safety assessment, anti-nociceptive and antioxidant effect of C*rocus sativus* stigma from Morocco

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Abstract

Crocus sativus stigma correspond to the well noun saffron which is the most expensive spice in world. This spice is broadly used as a pigment, a condiment to enrich food and for medicinal purposes like in pain and rheumatism management. The four major bioactive compounds in saffron are crocin, crocetin, picrocrocin, and safranal. These compounds contribute to the sensory profile and health promoting properties of saffron.

In this study, we aim to evaluate the antioxidant and the anti-nociceptive activities of the hydro-ethanolic extract of *Crocus sativus* stigma (CSSE). To achieve our objective, the antioxidant activity was determined by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging method, ferric reducing power and β-carotene discoloration assay. The oral acute toxicity was evaluated in mice up to 2g/kg. Then, the anti-nociceptive effect was assessed using three animal models: the hot plate, writhing and formalin tests.

The results showed that CSTE showed a high activity with both tests the DPPH and the reducing power. Oral administration of CSSE to mice did not cause any toxic effect and mortality up to 2g/kg body weight. The results of the anti-nociceptive activity showed that CSSE (200 mg/kg) induced an important reduction of abdominal contortions triggered by intraperitoneal injection of acetic acid. In hot plate test, CSSE (200 mg / kg) exhibited an anti-nociceptive activity greater than paracetamol and an inhibitory effect on acute pain during early phase and late phase characterized by formalin-induced-nociceptive inflammation. The results conclude that CSSE can reduce pain in animal models likely by inhibiting inflammation through its antioxidant properties. Therefore, CSSE could be a potential treatment for pain as well as a potential natural antioxidants.

Keywords: Saffron, stigma, antinociceptive, antioxidant.

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➢ **ORAL PRESENTATION**

The effect of bitter melon on brain of rats in bile duct ligation

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Abstract

Liver diseases can lead to various neurological disorders. Hepatic encephalopathy is a neuropsychiatric syndrome that can be seen frequently in these patients. Studies have reported that cirrhosis increases free radical production in the organism. The bile duct ligation (BDL) is a preferred model for examining cirrhosis and damages of various organs related to cirrhosis in rats. Studies with this model show that increased free radicals and inflammation damage tissues
Momordica charantia (Bitter Melon) is a plant which used for medicinal purposes in traditional folk culture in Turkey, especially in western Anatolia. It has been reported that this plant is an antioxidant and contains mucin, momordicin, resin, saponin glycoside, alkaloids, polysaccharides and carotenoids.

In this study, we investigated possible antioxidant effects of bitter melon on brain damage in rats with BDL induced cirrhosis model. Brain glutathione levels decreased significantly in the BDL group compared to the control group. The glutathione levels significantly increased on giving bitter melon and reached the levels of control group. Brain tissues were also examined histologically.

Keywords: Bitter melon, brain, bile duct ligation model

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➢ **ORAL PRESENTATION**

Biberiye ekstresi ve kaolin içeren polivinil alkol/nişasta kompozit filmler

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Özet

Ambalaj malzemeleri, tedarik zinciri boyunca gıdaların korunmasında önemli role sahiptir. En sık kullanılan ambalaj malzemeleri petrol esaslı polimerlerden elde edilmektedir. Biyobozunur ambalaj endüstrisi, petrol esaslı plastiklerin yol açtığı atık bertaraf sorunlarının önlenmesi ihtiyacı nedeniyle sürekli büyümektedir. Son yıllarda, biyobozunur ambalajların geliştirilmesine yönelik çalışmalarda polivinil alkol ve nişasta blendleri ekonomik olması nedeniyle büyük ilgi görmektedir. Özellikle, bariyer, fiziksel ve mekanik özelliklerin yanı sıra antioksidan ve antimikrobiyal aktivitelere sahip polivil alkol/nişasta esaslı kompozit filmlerin geliştirilmesi birçok araştırmacının odak noktası olmuştur. Biberiye (*Rosmarinus officinalis* L.) yaprakları, potansiyel olarak gıdalarda veya gıda ambalajlarında katkı maddesi olarak kullanılabilecek antioksidan bileşenler açısından zengin bir kaynaktır.

Bu çalışmada, polifenollerce zengin biberiye (*Rosmarinus officinalis* L.) ekstresi ve kaolinin polivinil alkol/mısır nişastası esaslı filmlerin özelliklerine olan etkisi incelendi. Filmlerin yapısal özellikleri FT-IR analizi, mekanik özellikleri çekme testi, morfolojik özellikleri optik mikroskop ile belirlendi. Filmelerin şişme davranışları incelendi. Ayrıca, ABTS ve DPPH radikali giderme aktivitesi ile antioksidan aktivitesi belirlendi. Sonuçlar bu filmlerin aktif ambalajlama uygulamalarında potansiyel adaylar olarak değerlendirilebileceğini gösterdi.

Anahtar Kelimeler: Aktif ambalajlama, antioksidan aktivite, nişasta ,polivinil alkol, kompozit film

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➢ **ORAL PRESENTATION**

Drug loaded hydrophobic electrospun fibers via hybrid process

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Abstract

Nanofibers have attractive properties such as high specific surface areas (SSAs), highly porosity, low density, and small diameters, therefore, these materials are used as catalysts, as membranes for filtration systems and energy storage, as agents for controlled drug delivery systems, as cell scaffold in tissue engineering and medical patches for pharmaceutics applications and materials.

In this study, vitamin B_9 loaded with hydrophobic electrospun fibers were produced by two hybrid process: electrospinning and electrospraying. PCL, PA6 and cellulose acetate as a polymer matrix and vitamin B_9 as drug fabricated by electrospinning and electrospraying method. Vitamin B_9 loaded with electrospun nanofibers were prepared for transdermal drug delivery applications (TDDS). By the electrospinning of the drug loaded nanofibers, having successfully morphological properties and relatively low thermal stability compared to neat nanofibers were obtained. Drug efficiency and encapsulation in nanofibers was calculated by UV-Vis spectroscopy. The drug release study indicated drug loaded fibers have conventional drug release profile in acidic media (pH 5.44). The results shows the vitamin B_9 loaded fibers can be used in short-therm transdermal drug release applications.

Keywords: nanofiber, electrospinning, electrospraying, drug release, vitamin.

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➢ **ORAL PRESENTATION**

Nörotoksin Maruziyeti Durumunda 3-Piridin Boronik Asidin Etkileri

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Özet

Dikkat çekici özelliklere sahip olan bor içeren bileşikler son zamanlarda bilimsel çevrelerden ve özellikle de ilaç endüstrisinden artan ilgi görmüştür. Bor içeren bileşiklerin antibakteriyel, antifungal, antiparaziter, antiviral ve antienflamatuar aktiviteleri çeşitli çalışmalarda gösterilmiştir. Boronik asit bileşikleri, çok özel yapısal özelliklerinden dolayı potansiyel enzim inhibitörlerinin üretilmesi, kanser terapisi ve antikorların yönlendirilmiş immobilizasyonu için kullanılmıştır. Son yapılan çalışmalar, bor içeren bazı bileşiklerin Alzheimer hastalığında olumlu etki gösterebileceğini öne sürmüştür. Bu bileşiklerin potansiyel antioksidanlar olarak hareket ederek Aβ agregasyonunu inhibe edebileceği gösterilmiştir. Parkinson hastalığı (PH) dünya üzerinde en yaygın olarak görülen ikinci nörodejeneratif bozukluktur. PH'nin nörodegeneratif yönü farklı tipteki nöronların selektif bir şekilde ölmesi ile bağlantılıdır. Nörotoksin 1-metil-4-fenil-1,2,3,6-tetrahidropiridinin (MPTP), insanlarda dopaminerjik nöron kaybına neden olarak PH benzeri semptomlara neden olduğu bilinmektedir. Primatlar, fareler, akvaryum balığı ve son olarak zebra balığı dahil olmak üzere birçok hayvan türü MPTP'ye duyarlılık göstermiştir. MPTP, geri dönüşümsüz ciddi PH semptomları oluşturur ve PH'nin ana belirtilerinin (titreme, katılık, yavaş hareket etme, duruşta dengesizlik ve donma) tamamına neden olur. MPTP lipofiliktir ve kolayca kan-beyin bariyerini geçer. Mitokondri içine giren MPTP metaboliti olan MPP^+, mitokondrial kompleks I'i inhibe eder, reaktif oksijen türlerinin oluşumunu arttırır ve ATP'yi azaltır. Dopaminerjik sistem zebra balığında hem embriyonik hem de yetişkinlik döneminde iyi karakterize edilmiştir. Bu nedenden dolayı zebra balığı ve embriyosu nöronal araştırmalar için güçlü bir model olarak kabul edilmektedir. Çalışmamızda zebra balığı embriyolarında MPTP toksisitesi durumunda 3-Piridin boronik asidin etkileri incelenmiş, mortalite ve lokomotor aktivite üzerinde doza bağlı değişen etkileri belirlenmiştir.

Anahtar Kelimeler: 3-Piridin boronik asit, 1-metil-4-fenil-1,2,3,6-tetrahidropiridin, Parkinson hastalığı, Zebra balığı embriyosu

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➢ **ORAL PRESENTATION**

Risks and benefits of functional foods: An overview

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Abstract
A direct relationship between foods and health has led to various scientific studies to find out the significance of foods or food components on specific functions in the body. Studies have identified nutrition as a major modifiable determinant playing a role in health promotion and chronic diseases prevention. The term functional food refers to food with specific beneficial functions over their basic nutritional value. We reviewed the factors that have driven the functional food development, various definitions proposed by different authors and their classification. Moreover, we provided an an overview on various functional ingredients in different food sources along with their potential health benefits and risks of adverse effects associated with these products. Lots of research is required to substantiate the potential health benefits of those foods for which the diet–health relationships are not sufficiently validated, and create a strong scientific knowledge base for proper application of naturally present foods in combating various diseases and disorders.
Keywods: functional food, adverse effect, health benefits

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➢ **ORAL PRESENTATION**

Gestasyonel diyabet modeli olarak zebra balığı embriyoları

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Özet

Gestasyonel diyabet (GDM), hipergliseminin ilk kez gebelik sürecinde saptanması durumudur. Gebelik süresince görülen hafif hiperglisemi gestasyonel diyabet olarak adlandırılırken, şiddetli hiperglisemi gebelik hiperglisemisi olarak adlandırılır. Genellikle gebeliğin ikinci ve üçüncü trimesterında görülmekle birlikte herhangi bir döneminde görülebilir. GDM semptomlarını gebeliğin kendi semptomlarından ayırt etmek mümkün olmayabilir. Teşhis için oral glukoz tolerans testi uygulanmaktadır. Zebra balıkları ve embriyoları son yıllarda kullanımı yaygınlaşan model organizmalardır. Zebra balıklarında embriyolar eksternal fertilizasyonla oluşur ve embriyo gelişim evrelerini dış ortamda tamamlar. Bu nedenle zebra balığı embriyosu özellikle gelişim biyolojisi ile ilgili çalışmalarda kullanışlı modeller olarak değerlendirilmektedir. Diyabet çalışmalarında model organizma olarak zebra balığı kullanımının birçok avantajı olduğu bildirilmiştir. Bunlardan en önemlisi zebra balığı glukoz metabolizmasının, reaktif metabolit üretme yolaklarının ve bazı fizyolojik ve patofizyolojik yolaklarının insanla ve diğer memelilerle büyük oranda benzer olmasıdır. Ayrıca, insanlarda hiperglisemi kaynaklı patolojik değişimlerin zebra balıklarında da görüldüğü bilinmektedir. Tüm bunlarla birlikte, zebra balığında yapılan çalışmaların büyük bir kısmı insan çalışmalarına tercüme edilebilmektedir. İnsanlarda glikozun in-utero maruziyetini doğru bir şekilde yeniden gözlemlememize olanak sağlayacak güvenilir hayvan modelleri bulunmamaktadır. Zebra balığı embriyoları ise eksternal fertilizasyon ile oluştukları ve anneden bağımsız dış ortamda embriyonel gelişimlerini tamamladıkları için doğrudan glikoza maruz kalma sonucu gestasyonel diyabet modeli geliştirilebilir. Bu amaçla çalışmamızda zebra balığı embriyolarını beş gün boyunca glukoz çözeltilerine maruz bırakarak embriyo gelişimini izledik ve glukoz konsantrasyonlarını ölçtük. Kontrol grupları ile kıyasladığımızda glukoz çözeltilerine maruziyetin embriyoda glukoz konsantrasyonlarında artışa neden olduğunu ve bazı gelişimsel anomalilere neden olduğunu saptadık.

Anahtar Kelimeler: Gestasyonel diyabet, Glukoz, Zebra balığı embriyosu

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➢ **ORAL PRESENTATION**

Diagnostik röntgen maruziyetinin zebra balığı embriyosu üzerine etkileri

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Özet

Diagnostik röntgenler diş hekimliğinin önemli bir parçasıdır. Radyasyon dozları dijital tekniklerin gelişmesi nedeniyle azaltılmış olsa da, dental diagnostik X-ray görüntüleme oral muayene için dental kliniklerde sıkça uygulanan en yaygın radyolojik prosedür tiplerinden biri olmaya devam etmektedir. Diş etleri, tam ağız serileri ve panoramik görüntüler dahil olmak üzere belirli muayene türleri için dental diagnostik röntgenler yaygın olarak kullanılmaktadır. Yaşam boyu röntgene maruz kalma sıklığı göz önüne alındığında, bu durumun oluşturabileceği risk halk sağlığı açısından önem taşımaktadır. Dental röntgen cihazları hastaları nispeten düşük radyasyon dozlarına maruz bırakır. Bununla birlikte, düşük dozda radyasyon nedeniyle artan kanser riskine dair önemli kanıtlar da literatürde bulunmaktadır. Özellikle tekrarlanan maruz kalma durumu kanser riskini artırabilir. Dental röntgen ışınlarına maruz kalmanın neden olabileceği kanser risk potansiyelini gösteren çalışmalar literatürde mevcuttur. Radyasyona embriyonel dönemde maruziyet özellikle gelişimsel anomali riskleri açısından önem taşımaktadır. Zebra balıkları ve embriyoları son yıllarda kullanımı yaygınlaşan model organizmalardır. Zebra balıklarında embriyolar eksternal fertilizasyonla oluşur ve embriyo gelişim evrelerini dış ortamda tamamlar. Bu nedenle zebra balığı embriyosu özellikle gelişim biyolojisi ile ilgili çalışmalarda kullanışlı modeller olarak değerlendirilmektedir. Çalışmamızda zebra balığı embriyoları iki farklı röntgen cihazından kaynaklanan radyasyona maruz bırakılmış ve gelişimleri ile oksidatif stres parametreleri incelenmiştir. Çalışmamız sonucunda panaromik röntgen cihazlarından kaynaklanan radyasyonun zebra balıklarının gelişimini etkilediği ve oksidatif stres parametrelerinde değişikliğe neden olduğu bulunmuştur. Çalışmamızın bulguları röntgen cihazları kaynaklı radyasyon maruziyetinin embriyonel dönemde potansiyel zararlı etkilerini gösteren öncül nitelikte veriler sunmuştur.

Anahtar Kelimeler: Diş hekimliği, Diagnostik röntgenler, Zebra balığı embriyosu, Oksidatif stres

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➢ **ORAL PRESENTATION**

Synthesis, coating and characterization of magnetite Fe_3O_4 nanoparticles by thermal methods

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Abstract

Surfacemodification of hydrophobic nanoparticles is of great importance particularly for biological applicationsto provide hydrophilic and processiblesurface. In this study, magnetite Fe3O4 nanoparticles were synthesized by thermal decomposition method which produces superparamagnetic, monodisperse but hydrophobic nanoparticles. Various surface active reagent having both hydrophilic and hydrophobic parts wereused for rendering them hydrophilic. The dispersibility of the modified nanoparticles in water was evaluated. Hexadecyltrimethylammonium bromide was found to be the best surfactant to fit this property. Water soluble particles were charecterized by Transmission Electron Microscopy (TEM)and Scanning Electron Microscopy (SEM).

Anahtar Kelimeler: Magnetic nanoparticle, hydrophilicity

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➢ **ORAL PRESENTATION**

Rotenon toksisitesi durumunda kaprilik asidin etkileri

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Özet

Parkinson hastalığı (PH) dünya üzerinde en yaygın olarak görülen ikinci nörodejeneratif bozukluktur. PH'nin nörodegeneratif yönü farklı tipteki nöronların selektif bir şekilde ölmesi ile karakterizedir. Dopaminerjik sistem zebra balığında hem embriyonik hem de yetişkinlik döneminde iyi karakterize edilmiştir. Bu nedenden dolayı zebra balığı ve embriyosu nöronal araştırmalar için güçlü bir model olarak kabul edilmektedir. PH oluşturmak üzere en sık kullanılan kimyasallardan biri rotenondur. Rotenon rotenoid ailesinden yaygın bir kimyasaldır. Rotenonun lipofilik oluşu kan-beyin bariyerini rahatlıkla geçmesini sağlar. Hücrede proteozom aktivitesini inhibe eder ve reaktif oksijen türlerinin oluşmasına neden olur. Rotenona maruz bırakılan yetişkin zebra balıklarında motor fonksiyonlarının azaldığı, koku alma fonksiyonlarının bozulduğu ve dopamin seviyesinin azaldığı gösterilmiştir. Orta zincirli trigliserit diyetleri ketojenik diyetin bir modifikasyonu olarak geliştirilmiştir. Orta zincirli trigliseritler, gliserolün altı ila on iki karbon yağ asidi esteridir. Oldukça ketojeniktirler ve küçük boyutlarından dolayı bağırsakta serbest yağ asitlerine hidrolize edilirler ve hızla emilirler. Kaprilik asit trigliseridinin, nöronal metabolizma için alternatif bir enerji substratı olarak işlev görebildiği gösterilmiştir. Kaprilik asit, nöbet tedavisinde olumlu etkileri öne sürülen orta zincirli trigliserit diyetinin ana bileşeni olup kan-beyin bariyerini geçtiği gösterilmiştir. Çalışmamızda zebra balığı embriyolarında rotenon toksisitesi durumunda kaprilik asidin etkilerinin incelenmesi amaçlanmıştır. Çalışmamızın sonucunda kaprilik asidin oksidan-antioksidan parametreler ile lokomotor aktivite üzerinde doza bağlı değişen etkileri belirlenmiştir.

Anahtar Kelimeler: Parkinson Hastalığı, Kaprilik Asit, Zebra balığı

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➢ **ORAL PRESENTATION**

Investigation of major histocompatibility complex class II expression in intestinal lineages

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Abstract

Major histocompatibility complex (MHC) molecules are responsible to present peptide fragments derived from the pathogens to appropriate T cells. There are two major type of MHC molecules, class I and class II. MHC class II molecules are a family of molecules normally found on antigen presenting cells such as dendritic cells, macrophages, and B cells. These molecules usually present peptides generated by lysosomal proteolysis to CD4+ T helper cells (1). The intestine is one of the most important component of our immune system and it contains largest number of immune cells in the body. It is constantly exposed to various antigens and immunomodulatory agents of the food products and the commensal bacteria and most importantly, it is the main port of entry for many clinically important pathogens (2). In the intestine rapid development and growth of mature epithelial cells through intestinal stem cells are supported by wide range of cell types. However, there is not much information about interactions between immune molecules and intestinal stem cells. In this study, it is aimed to determine the expression profile of MHC class II molecules in intestinal stem cells. For this aim, MHC-II expression pattern across intestinal epithelium lineages were investigated by flow cytometry. MHC class II expression levels of stem cells, progenitor cells, paneth cells and endocrine cells were determined. Results revealed that MHC-II protein expression is higher in intestinal stem cells compared to progenitors. Further studies are needed to elucidate the molecular mechanism between intestinal stem cells and MHC class II molecules.

Keywords: intestinal stem cells, major histocompatibility class (MHC) II, intestinal lineages.

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➢ **ORAL PRESENTATION**

Investigation of the neuroprotective effects of *Sideritis brevibracteata* extract against rotenone-induced neurodegeneration

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Abstract

Parkinson's Disease (PD) is the second most common neurodegenerative disease in the world and currently, there is no effective treatment. Anti-inflammatory and antioxidant molecules should be considered as candidates for both treatment and prevention of neurodegeneration. Here, we have investigated the neuroprotective effects of *Sideritis brevibracteata* extract, which is an anti-inflammatory and antioxidant plant endemic to Turkey. Differentiated SH-SY5Y cells were used to model PD via rotenone application. In this preliminary study, we have found that 1 µg/mL *S. brevibracteata* protects the cells from rotenone-induced neurotoxicity, however higher doses are toxic to the cells. Purified compounds from the extract will be further investigated to understand the effects of individual compounds within the extract.

Keywords: SH-SY5Y; *Sideritis brevibracteata*; antioxidants; neurodegeneration.

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DRAFT

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➢ **ORAL PRESENTATION**

Bir flavanoid glikozit olan hesperidinin probiyotik bakterilerin yüzey hidrofobisitesi ve oto-agregasyonları üzerine etkileri

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Özet

Flavononlar ve flavanoidler, birçok sağlıklı biyolojik aktivite yapan bioflavonoidlerdir. Flavonoidler, bitkilerin bölümlerinde doğal yollarla oluşan ikincil metabolitler olarak, geniş bir kimyasal bileşik grubunu oluşturmaktadır. Flavanoid glikozit olan Hesperidin, portakal, mandalina gibi narenciye meyvelerinde bulunmaktadır ve suda az çözünen bir maddedir. Birden fazla biyolojik özellik gösteren Hesperidinin, *in vitro* olarak patojenlere karşı enfeksiyon koruyucu ve antimikrobiyal etkisi bulunmaktadır. Bununla birlikte, bağışıklık sistemi ve özellikle bağırsak mikrobiyotası ile olan ilişkisi araştırılmaktadır.

Yararlı bakteriler, insanlarda sindirim sisteminin mikrobiyatasını oluşturan bakterilerdir. Bağırsak mikrobiyotası, bağırsak sisteminde yaşayan çok sayıda mikroorganizma tarafından kolonize edilmektedir.Probiyotik bakteriler, bağırsak duvarına bağlanıp zararlı patojenik mikroorganizmalarla savaşarak mikrobiyata dengesinin düzelmesine yardımcı olurlar. Probiyotik bakterilerin en önemli grubunu laktik asit bakterileri oluşturmakta olup bunların en bilinenleri de *Lactobacillus acidophilus* ve *Lactobacillus rhamnosus*'tur.

Bu çalışmanın amacı, Hesperidinin probiyotik bakterilerden *Lactobacillus acidophilus* LA-5 ve *Lactobacillus rhamnosus* GG üzerindeki etkilerini araştırmaktır. Bu amaçla Hesperidin farklı konsantrasyonlarda probiyotik bakterilerin besiyerine eklenerek bakteriyel gelişme, bakteriyel yüzey hidrofobisitesi (Solventlere Mikrobiyel Yapışma – MATS Testi) ve bakteriyel agregasyon (OtoAgregasyon Testi)özellikleri incelenmiş, ayrıca hesperidinin antimikrobiyal etkileri de araştırılmıştır.

Elde edilen bulgular, hesperidinin probiyotikleri olumlu etkileyebileceği yönündedir ve detaylı moleküler çalışmalarla bu sonuçların mekanizmasının aydınlatılması gerekmektedir.

Anahtar kelimeler: Bioflovanoid, Hesperidin, Probiyotik, MATS Testi, Agregasyon, Antimikrobiyal

Teşekkür: Yazarlar olarak, probiyotik suşların temini için Chr. Hansen, Türkiye'ye teşekkür ederiz.

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➢ **ORAL PRESENTATION**

Investigation of antibacterial activities of fruit extracts against *Enterococcus faecalis*

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Abstract

The antimicrobial activities of fruit extracts prepared by different methods were investigated on *E. faecalis*. Extracts were prepared using different solvents including distilled water, ethanol and methanol. Microwave-assisted extraction (MAE) and ultrasound-assisted extraction (UAE) methods were performed. Antimicrobial activities of extracts were determined by agar well diffusion method. According to results, the highest antimicrobial activity was observed in ethanol extracts with diameter of 14 mm using ethanol solution with MAE and UAE methods.

Keywords: *Enterococcus faecalis*, extraction, natural antimicrobial effect, well diffusion method

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➢ **ORAL PRESENTATION**

Synthesis of biologically active 4-arylideneamino-2,4-dihydro-3H-1,2,4-triazol-3-one compound by ultrasonic radiation and conventional method, comparison of methods and elucidation of structure

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Abstract

Today, the majority of the drugs used in the treatment of diseases are obtained by synthesis. A large proportion of the compounds have obtained heterocyclic structure. Therefore, synthesis of new heterocyclic compounds has always attracted and continues to attract scientist. It is known that compounds bearing triazole skeleton in the heterocyclics have an important place.

The reactions of 4-amino-triazole compounds, especially with aromatic aldehydes, have been known for a long time and this reaction is carried out by conventional heating methods (1). However, the development of alternative heating methods to these conventional methods has also recently been studied. One of the most important of these is organic synthesis by microwave method and it is widely used. Another alternative method that has recently been used in organic synthesis is the realization of organic synthesis reactions with ultrasonic radiation. Ultrasound-assisted organic synthesis is an environmentally friendly, modern and economical method used to accelerate reactions (2).

In this study, optimum conditions were determined for this reaction by using ultrasonic radiation method and the results were compared with the classical method. For this purpose, in the first step iminoester was synthesized by using *Pinner* method (3). The reaction of this iminoester with ethylcarbazate gave the corresponding hydrazone (4). Then the reaction of this obtained hydrazone derivative with hydrazine hydrate, the 4-amino-1,2,4-triazole derivative compound was synthesized (5). In the final reaction step, the interaction of this amino compound with 3-bromo-4-fluorobenzaldehyde was carried out by conventional and novel method (ultrasonic radiation) to obtain the targeted imine compound. The chemical structure of the new compound will be determined by spectroscopic methods such as ^{1}H- and ^{13}C-NMR and IR.

The results will be compared in terms of reaction time, yield and purity between conventional and ultrasonic method.

Keywords: 1,2,4-triazole, ultrasonic radiation method, iminoester, schiff base, benzaldehyde, conventional method

Acknowledgment: The synthesized work was supported by Karadeniz Technical University Research Project (BAP-02-6035).

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➢ **ORAL PRESENTATION**

Bazı metal oksit nanopartiküllerinin *Allium cepa* üzerindeki toksik etkisinin incelenmesi

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Özet

Nanoteknolojinin gelişmesine paralel olarak çeşitli alanlarda kullanımları giderek artan nanopartiküller en az bir boyutu 100 nanometre (nm)'nin altında olan malzemelerdir. Metal oksit nanopartikülleri, yapısında en az bir oksijen atomu bulunduran metal içerikli bileşikler olup, günlük hayatımızda oldukça değişik alanlarda kullanım alanı bulmaktadır. Metal oksit nanopartikülleri kozmetik ürünlerde, güneş koruyucularında, deterjanlarda, gıda malzemelerinde, elektrikli ev aletlerinde, tarım ve savunma alanında sıklıkla kullanılmasının yanında, insan sağlığında magnetik rezonans görüntüleme ve terapötik ilaç iletiminde de yaygın bir şekilde kullanılmaktadır. Nanopartiküller deri, solunum, damar ve oral yollar ile vücuda alınıp, dolaşım sistemine katılarak, çeşitli organ ve dokulara yerleşebilir. Bu durumda organizmada, organlarda birikerek hasarlı organ oluşumu, inflamasyon, sitotoksisite, doku hasarı ve DNA hasarı gibi toksik etkiler oluşturabilir. Metal oksit nanopartiküllleri, en yaygın kullanım alanı bulmasına rağmen, bunların toksisitesine özellikle genotoksisitesine yönelik veriler hem kısıtlı düzeyde ve hem de birbiriyle çelişir durumdadır. Bu çalışmada, bazı metal oksit nanopartiküllerinin sitotoksik ve genotoksik etkisini belirlemek amacıyla kullanılan *Allium* testine dayalı çalışmalar derlenmiştir. *Allium* testi, çeşitli pestisitlerin, gıda katkı maddelerinin, ilaç etken maddelerinin ve nanopartiküllerin potansiyel genotoksisitesini belirlemede yaygın bir şekilde kullanılan, ucuz, güvenilir ve hassas bir testtir. *Allium* testinde kullanılan *Allium cepa* bitkisi, yetiştirilmesi kolay, kromozomları az sayıda ve oldukça büyük olması nedeniyle, yaygın olarak tercih edilen bir genotoksisite testidir. Bu derleme sonucunda, nanopartiküllerinin *Allium cepa* üzerinde sitotoksik ve genotoksik etkilere yol açabileceğini gösteren çalışmaların olduğu gibi, her hangi bir toksik etkiye neden olmadığını gösteren çalışmaların da mevcut olduğu tespit edilmiştir.

Anahtar Kelimeler: Nanopartikül, Metal Oksit Nanopartikülleri, *Allium* Testi, *Allium cepa*

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➢ **ORAL PRESENTATION**

SH-SY5Y hücrelerinin farklılaşmasına etki eden nörokimyasallar ve hücre yanıtına etkileri

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Özet

SH-SY5Y hücreleri yaygın olarak sinirbilim çalışmalarında kullanılmaktadır. Temel olarak farklılaştırılmadan kanser hücresi özelliğine sahip bu hücreler, farklı kimyasal koşullarda farklı özellikler kazanacak şekilde başkalaşarak sinir hücrelerine dönüşebilmektedirler. Çalışmamızda farklı kimyasal koşullarda hücreler farklılaştırıldı ve elektrofizyolojik yanıtlarını gözlemlendi. Bu hücreler üzerine eklenen dopamin ve nikotinin hücre yanıtlarına olan etkisi yine elektrofizyolojik ölçümlerle incelendi ve hücrelerin başkalaşım özellikleri hakkında bilgi edinildi. Retnioik asitin ve BDNF'in hücrelerin iyon kanallarını artırarak içeri ve dışarı akımı artırdığı gözlemlendi. Dopamin'in artan konsantrasyonuna parallel olarak hem içeri hem dışarı akımı azalttığı literatürü destekler biçimde azalttığı, nikotinin ise kısmi olarak içeri akımı artırdığı gözlemlenmiştir.

Anahtar kelimeler: SH-SY5Y, dopamin, nikotin, hücre farklılaşması.

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➢ **ORAL PRESENTATION**

Kırmızıbiberin karotenoidlerinden olan kapsantinin *Lactobacillus acidophilus* ve *Lactobacillus rhamnosus* bakterilerinin probiyotik özellikleri üzerine etkileri

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Özet

Kırmızıbiber, ılıman iklimlerde yetişen tek yıllık kültür bitkisi olup, anavatanı Güney ve Orta Amerika'dır. Capsicum cinsine giren kırmızıbiber *Capsicum annuum* L., *C. frutescens* L., *C. minimum* olmak üzere üç tür olarak sınıflandırılır. Bu sınıflandırmalar baharatın kaynağı, acılığı, şekli ve rengi ifade etmektedir. Kırmızıbiber, rengini bitkilerin ana pigmenti olan karotenoid bileşiğinden elde etmektedir. Olgun biberdeki temel kırmızı renk karotenoid sınıfından kapsantin ve kapsorubinden kaynaklanmakta olup kapsantin pigmenti, birçok çalışmaya öncülük etmiş fakat yararlı mikroorganizmalar üzerindeki etkileri henüz incelenmemiştir.

İnsanların ve hayvanların sağlıklı yaşam sürdürebilmeleri için sağlıklı bir gastrointestinal sisteme sahip olmaları gerekmektedir. Bunun sağlanması intestinal mikroflora ile mümkün olmaktadır. Probiyotik mikroorganizmaların en önemli grubunu oluşturan laktik asit bakterileri, sağlıklı bir bağırsak mikroflorasının doğal üyelerindendir. Laktik asit bakterileri, patojen mikroorganizma inhibisyonu sağlayabilen, immün sistemini güçlendiren ve insan bağırsak yolunun mikrobiyal dengesini geliştiren *Lactobacillus acidophilus* ve *Lactobacillus rhamnosus* türlerine sahiptir.

Bu çalışmanın amacı, kapsantinin probiyotik bakteriler *Lactobacillus acidophilus* LA-5 ve *Lactobacillus rhamnosus* GG üzerindeki etkilerinin araştırılmasıdır. Bu amaçla farklı konsantrasyonlarda kapsantin, gelişim gösteren probiyotik bakterilere eklenerek bakteriyel büyüme kinetiği, bakteriyel yüzey hidrofobisitesi (Solventlere Mikrobiyel Yapışma – MATS Testi) ve bakteriyel oto-agregasyona (OtoAgregasyon Testi) etkileri incelendi.

Sonuçlara göre kapsantin, probiyotik bakterilerin gelişimi üzerinde herhangi bir olumsuz etki göstermemiştir. Bunun yanı sıra kapsantin, *Lactobacillus rhamnosus* GG'nin hidrofobisitesini doza bağlı olarak azaltırken, *Lactobacillus acidophilus* LA-5'nin hidrofobisitesini artırmıştır. Otoagregasyonda da doza ve zamana bağlı olarak değişiklikler gözlemlenmiştir.

Yapılan bu çalışma, diyet ile beraber alınan karotenoidlerin yararlı bakterileri etkileyebileceğini ve daha detaylı çalışmalarla karotenoid-probiyotik etkileşimlerinin biyolojik aktivitelerinin de belirlenmesi gerektiğini göstermektedir.

Anahtar Kelimeler: Hidrofobisite, Kapsantin, Kırmızıbiber, Probiyotik, Oto-agregasyon

Teşekkür: Yazarlar, probiyotik suşların temini için Chr. Hansen, Türkiye'ye teşekkür eder. Bu çalışma, TÜBİTAK 2209-A Üniversite Öğrencileri Araştırma Projeleri Destekleme Programı tarafından desteklenmiştir (Proje No: 1919B011900220)

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➢ **ORAL PRESENTATION**

Production of silver nanoflakes on chitosan hydrogel beads; characterization and antimicrobial potential studies

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Abstract

The aim of this study is the fabrication of CH and CH-Ag hydrogel beads and investigation of the antimicrobial properties. Simple coacervation method was used to fabricate the beads. AgNPs loaded chitosan beads were prepared with the same method by changing the ratio between chitosan and $AgNO_3$ solutions as 1:1, 1:2 and 1:3 weight ratios (wt of chitosan:wt of $AgNO_3$), respectively. Successfully synthesized beads were characterized by FTIR and UV-Vis. The surface morphology was analyzed by SEM, the shape and diameter of the samples were determined by Optical Microscopy. The antimicrobial activities were determined against bacterial and fungal species (*Escherichia coli*, *Staphylococcus aureus*, *Aspergillus niger*, *Candida albicans*). Based on the cleared zone, our results indicated that both CH and CH-Ag beads had inhibited the growth for each test microorganism while the antimicrobial activities of CH-Ag beads were better than the plain CH beads. The results demonstrated that the synthesized CH and CH-Ag hydrogel beads had antibacterial activities and could be used for the applications of tissue engineering.

Keywords: chitosan, silver, nanoflake, bead, antimicrobial activity

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➢ **ORAL PRESENTATION**

Cytotoxic activity studies by RTCA assay of sulfur containing glycine imine derivatives in the MCF-7 cell line

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Abstract

Sulfur is also a remarkable element in biological systems. Glycine and sulfur atoms are vital antioxidant molecules and are integrated into molecules such as glutathione necessary for life. For example, glutathione, which consists of glutamic acid, cysteine and glycine, is an antioxidant tripeptide that occurs in the reducing form in the cell (GSH).

Chemotherapy means treating the tumor with medication. Various drugs are used in chemotherapy. Some of them are chemotherapeutic drugs (cytotoxic) for destroying tumor cells, some are drugs that inhibit tumor growth and proliferation by affecting the biology of the tumor (cytostatic). Cytotoxicity assays can be performed to determine the toxic effect of active substances on cancer cells. Cytotoxic agents remain the preferred treatment for numerous types of cancer. Cytotoxic chemotherapy agents affect cells that are in mitosis more compared with those in G_0 cytotoxicity assays to assess the potential of anticancer compounds should search for the lowest cytotoxic concentration.

Real-time cell analysis (RTCA) assay is a technique that uses real time cell monitoring to detect migration, cytotoxicity, and adherence/proliferation of cells during uninterrupted.

The aim of this study was to determine the cytotoxic activity of sulfur containing glycine imine derivatives in MCF-7 cell line by RTCA.

In this study, Cytotoxic activity of sulfur containing glycine imine derivatives compounds on MCF-7 (human breast cancer) cell lines was examined by RTCA assay with varying concentrations (25-50-100 µM) for 24h. Besides, the MCF-7 cell line was compared with negative controls without compound addition.

As a result of the RTCA assay, IC50 values of sulfur containing glycine imine derivatives compounds were calculated. These compounds have effective cytotoxic activity.

According to the data obtained from the research; sulphur containing glycine imine derivatives may be useful in providing preliminary data on the cytotoxic effects of anticancer, medical and pharmacological studies in the treatment of cancer, and will shed light on future research in this field.

Keywords: MCF-7, Sulfur, Glycine imine, cytotoxic activity, RTCA assay

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➢ **ORAL PRESENTATION**

Effects of sulfur containing glycine imine derivatives on the apoptotic mechanism in MCF-7 cell lines

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Abstract

Apoptosis, or programmed cell death, evolved as a rapid and irreversible process to efficiently eliminate dysfunctional cells. A hallmark of cancer is the ability of malignant cells to evade apoptosis. Because of these characteristics, cancer cells tend to survive. Enhanced tumor cellular resulting in cancer cell survival and proliferation as well as the development of resistance to apoptosis. Regulation of apoptosis is provided by the Bcl-2/Bax gene family.

Glycine inhibits angiogenic signaling of endothelial cells and tumor growth. Glycine is a promising additive to standard and targeted cancer therapies. Sulfur is an important element in biological systems. This atom is usually integrated into proteins as the redox-active cysteine residue and in molecules such as glutathione, thioredoxin and glutaredoxin which are vital antioxidant molecules, therefore essential for life. Sulfur is found in all living cells and it is a key component of some proteins which are essential for health.

The aim of this study was to determine the levels of p53, PARP, BAX, BCL2 and CASP3 mRNA which play an important role in apoptosis mechanism of sulfur containing glycine imine derivatives in MCF-7 (human breast cancer) cell line by qPCR method.

In this study, Cytotoxic activity of sulfur containing glycine imine derivatives in MCF-7 cell was determined by MTT analysis and IC50 values were calculated. Effects of sulfur-containing glycine imine derivatives on mRNA expression of apoptotic mechanism that plays an important role in p53, PARP, BAX, BCL2 and CASP3 were determined by qPCR. Sulfur-containing glycine imine derivative compounds applied to MCF-7 cells were compared cells without compounds.

These compounds were found to significantly reduce expression in BCL2 and PARP genes and besides remarkably increase expression in p53, BAX and CASP3 genes. Apoptotic mechanism genes that play an important role on cell death studies on MCF-7 cell line in sulfur-containing glycine imine derivatives compounds yielded influential findings. We deduced that these compounds are candidate compounds that are successful in breaking cancer resistance and drag the cell to apoptosis.

Keywords: Breast cancer, sulfur, glycine ımine, apoptosis, p53

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➢ **ORAL PRESENTATION**

Metal oksit (silicon dioksit, bakır oksit, demir oksit, seryum oksit) nanopartiküllerin genotoksik etkileri

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Özet

Nanomateryeller en az bir boyutu 1-100 nm aralığında olan materyallerdir. Metal oksit nanopartikülleride (MONPs), nanomateryallerin temel üyelerinden biri olup, tıp, kozmetik, boya, tekstil ve gıda ürünleri gibi çeşitli alanlarda kullanılmaktadır. Ancak, MONP'lerin yoğun kullanımı, bir yandan insanların bu partiküllere inhalasyon, dermal ve oral yollar dahil çeşitli yollarla maruz kalmasına sebep olurken, diğer yandan potansiyel toksisiteleri hakkında endişelerin artmasına da neden olmaktadır. MONP'nin karakteristik özellikleri toksisitelerinde de anahtar rol oynamakta ve potansiyel toksisitelerini önemli ölçüde değiştirebilmektedir. MONP'lerinin genotoksisitesi ile ilgili çalışmalar, bazı metal nanopartiküllerin genotoksik etkilere sahip olduğunu ve insanlar için tehlikeli olabileceğini göstermektedir. Birçok MONP'leri oksidatif hasara, kromozom anormalliklerine, DNA zincir kırıklarına ve mutasyonlara neden olabilmektedir. MONP'leri ya DNA ile direkt etkileşim ile ya da oksidatif stresi artırmak suretiyle dolaylı yolla DNA hasarı oluşabilir. MONP'lerinin toksisitesinde genotoksik etkilerin önemli rol oynadığı kabul edilmektedir, çünkü DNA hasarı mutasyona ve potansiyel olarak kanser ve doğum kusurlarının gelişmesine yol açabilmektedir. Bu derlemede, metal oksit nanopartiküllerinden silikon dioksit, bakır oksit, demir oksit ve seryum oksit nanopartiküllerinin genotoksik etkileri incelenmiştir.

Anahtar Kelimeler: Genotoksiste, metal oksit nanopartikülleri, silicon dioksit, bakır oksit, demir oksit, seryum oksit.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Investigation of the effect of beta-glucan and fucoxanthin on oxidative parameters in cerulein induced acute pancreatitis rat model

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Abstract

In this study, theraupatic effects of fucoxanthin, beta glucan and their combination was investigated in a cerulein-induced acute pancreatitis rat model. Male Wistar rats (n=32) were received four times cerulein (20 µg/kg/hr, intraperitonally) injection with an hour interval (Acute pancreatitis; AP). AP rats were treated with vehicle olive oil, beta glucan (BG; 40 mg/kg/PO), fucoxanthin (FX;40 mg/kg/PO) or beta glucan (BG; 40 mg/kg/PO) + fucoxanthin (FX;40 mg/kg/PO) administered for 3 days before first cerulein injection. Vehicle, astaxanthin or astaxanthin+GW6471 (ATX+GW) were administered after the first cerulein injection. At the 7th hour following the final injection, rats were sacrificed with cardiac puncture under anesthesia. The pancreatic tissue was collected and were used for the determination of malondialdehyde (MDA), glutathione (GSH), myelopreoxidase activity. Serum amylase, the lipase were measured. One way ANOVA and post-hoc Tukey was performed for statistical analyses. Amylase, lipase, MDA and MPO levels are significantly elevated in vehicle treated AP group while GSH was decreased ($p<0.001$). Amylase depressed more significantly ($p<0,001$) in beta glucan group compared to fucoxanthin group ($p<0,01$). GSH elevation is also more significant in beta glucan group ($p<0.001$). Beta glucan+fucoxanthin group showed less significant elevation in GSH ($p<0,01$) and depression in amylase ($p<0.05$) and lipase ($p<0.01$) as to beta glucan- treated and fucoxanthin-treated groups. Beta glucan treatment is similar to fucoxanthin treatment while beta glucan has more powerful effect on GSH. This study reveals that beta glucan only or fucoxanthin only is more effective treatment than combined therapy.

Keywords: Fucoxanthin, Beta glucan, Acute pancreatitis

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➢ **ORAL PRESENTATION**

Serulein ile oluşturulan sıçan akut pankreatit modelinde fukoksantin ve beta glukanın oksidatif belirteçler üzerine etkisinin incelenmesi

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Özet

Bu çalışmada serulein ile oluşturulan sıçan akut pankreatit (AP) modelinde bir fukoksantin (Fuko) ve beta glukan tedavisinin ve kombinasyonlarının tedavi edici etkisinin incelenmesi amaçlanmıştır.

Etik onay sonrası erkek Wistar albino sıçanlara birer saat ara ile dört kez bir kolesistokinin analoğu olan serulein (20 µg/kg)'in intraperitonal enjeksiyonu ile AP modeli oluşturuldu (n=32). İlk serulein enjeksiyonundan 3 gün önce başlamak üzere AP'li sıçanlara zeytinyağı, Beta glukan (40 mg/kg), Fukoksantin (40 mg/kg) ve Fukoksantin + Beta glukan (40 mg/kg ve 40mg/kg) oragastrik gavaj ile 3 gün boyunca uygulandı. Son serulein enjeksiyonundan 7 saat sonra sıçanlar anestezi altında (50mg/kg, sodyum pentobarbital) kardiyak ponksiyon ile sakrifiye edildi. Pankreas dokuları ve kan serum örnekleri alındı. Kan serum örneklerinde amilaz, lipaz düzeyleri incelendi. Alınan pankreas dokularında lipid peroksidasyonunun göstergesi olan malondialdehit (MDA), antioksidan molekül glutatyon (GSH) ve dokuya nötrofil infiltrasyonunun göstergesi olan miyeloperoksidaz (MPO), düzeyleri tayin edildi. Veriler tek yönlü ANOVA ve post-hoc Tukey testi ile Graphpad Prism v.7. programında istatistiksel olarak analiz edildi. Amilaz, lipaz, MDA ve MPO seviyeleri yalnızca taşıyıcı verilen AP grubunda anlamlı olarak artarken GSH azalmıştır ($p<0,001$). Amilaz beta glukan ile tedavi edilen grupta fukosantin ile tedavi edilen gruba göre ($p<0,01$) daha anlamlı bir düşüş göstermiştir ($p<0,001$). GSH düzeyleri de beta glukan grubunda daha anlamlıdır ($p<0,001$). Beta glucan+fukosantin grubunda GSH'taki artış ($p<0,01$) ile amilaz ($p<0,05$) ve lipaz ($p<0,01$)'taki düşüş tek başına beta glukan ve fukosantin gruplarına göre daha az anlamlıdır. Tek başına beta glukan tedavisi, tek başına fukoksantin tedavisine benzer ama GSH üzerinde daha güçlü etki göstermektedir. Çalışma ajanların tek başına kullanımının daha etkili olduğuna işaret etmektedir.

Anahtar Kelimeler: Fukoksanthin, Beta glukan, Akut pankreatit

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➢ **ORAL PRESENTATION**

Salvia kurdica'nın antikolinesteraz, antibakteriyel ve antioksidan aktivitelerinin belirlenmesi

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Özet

Alzheimer hastalığı (AH), bilişsel işlevlerde bozulma, günlük yaşam aktivitelerinde azalma, davranışsal ve psikolojik bozukluklarla sonuçlanan ilerleyici bir nörodejeneratif hastalıktır. AH'ye neden olan faktörler için beş hipotez önerilmiştir. Bunlar kolinerjik hipotez, amiloid hipotezi, tau hipotezi, kalsiyum hipotezi ve izoprenoid değişim hipotezidir. Hastalığın tedavisi için üzerinde en çok durulan ve başarı yüzdesi yüksek olan kolinerjik hipotezdir. Bu hipoteze göre kritik nörotransmitterler olan asetilkolin (ACh) ve bütirilkolin (BCh) eksikliği nörotransmisyonun bozulmasına neden olur ve bilişsel bozuklukla sonuçlanır. Asetilkolinesteraz (AChE) ve bütirilkolinesteraz da (BChE) kolinerjik sistemdeki en önemli nörotransmitter olan ACh, BCh ve diğer kolin esterlerini katalize ederler. AH' nın semptomik tedavisi için AChE inhibitörlerinin kullanılması ile beyindeki ACh seviyesinin arttırılması günümüzde yaygın bir stratejidir. Rivastigmin, galantamin ve donepezil gibi AChE inhibitörleri hastalığın tedavisinde halen kullanılmaktadır. Ancak mevcut AH ilaçlarının gastrointestinal sorunlar, kalp ritim bozukluğu ve diğer birçok sistem yan etkilerine sebep olduğuna dair bulgular mevcuttur. *S. kurdica* Boiss. & Hohen. ex Benth. (Kürt şalbası), Lamiaceae familyasına ait olup bu familyanın üyeleri esansiyel bileşikler, flavonoidler, fenolik bileşikler ve terpenler bakımından oldukça zengin bir familyadır. Terpenler ise son yılarda özellikle vücutta ilaç emilimini arttırmak için penetrasyon arttırıcılar olarak dikkat çekmiştir. Bitki kaynaklı çalışmanın amacı, mevcut inhibitörlerin bahsedilen yan etkilerini en aza indirmektir.

Bu çalışmada; *Salvia kurdica* bitkisinden elde edilen farklı ekstraktların AChE ve BChE üzerinde inhibisyon etkileri araştırılmıştır. Farklı ekstraktların her iki enzim üzerine farklı inhibisyon dereceleri (IC_{50}) tespit edilmiştir. Ayrıca aynı ekstraktların toplam fenolik içerikleri, antioksidan ve antibakteriyel aktiviteleri araştırılmıştır. Distile su ekstraktı DPPH radikal temizleme aktivitesi ve toplam fenolik içerik bakımından en iyi değerlere sahiptir. *S. kurdica* ekstraktlarının gram negatif (*Escherichia coli* ATCC-8739) ve gram pozitif (*Staphylococcus aureus* ATCC-6538) bakterilere karşı disk difüzyon metodu ile güçlü antibakteriyel aktivite gösterdiği belirlenmiştir. *S. kurdica'*nın güçlü antikolinesteraz ve antibakteriyel aktivitesi ile farmasötik alanında yeni bir doğal kaynak olarak değerlendirilebileceği düşünülmektedir.

Anahtar Kelimeler: *Salvia kurdica*, antikolinesteraz, antioksidan aktivite, antibakteriyel aktivite.

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19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Gold nanoparticle based total antioxidant capacity assay using carob extract

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Abstract

Antioxidants are health-beneficial compounds capable of scavenging reactive oxygen/nitrogen species (ROS/RNS), thereby retarding or preventing undesired oxidative degradation reactions of biological macromolecules like lipid, protein, and DNA which otherwise eventually leads to tissue damage. Therefore, it is very important to determine the antioxidant power of the actual specimens in which these compounds are present.

Nanotechnology has become one of the most important technologies in all areas of science. Nanoparticle-based analytical methods have undergone a rapid development at the interface of analytical chemistry, food chemistry, biochemistry, and nanotechnology, together with their related industries. The widespread practical application of metal nanoparticles (particles less than 100 nm) is attributable to a number of their unique properties.

Different physical and chemical processes are currently widely used to synthesize metal nanoparticles. However, these production methods are usually expensive, labor-intensive, and are potentially hazardous to the environment and living organisms. Various physiochemical approaches for the synthesis of metal nanoparticles are limited by the environmental pollution caused by heavy metals. Thus, synthesizing nanoparticles by biological means, which has the advantages of nontoxicity, reproducibility in production, easy scaling-up, and well-defined morphology, has become a new trend in nanoparticle production. In particular, microorganisms and plants have been demonstrated as new resources with considerable potential for synthesizing nanoparticles.

In the present work, we chose Carob (*Ceratonia Siliqua L.*) extract as biogenic reducing agent due to its polyphenolic composition. In the proposed method, we produced the gold nanoparticles by bioreduction of gold ions in the presence of carob extract and thus we developed a novel green method for measurement of total antioxidant capacity of polyphenols.

Keywords: Gold nanoparticles, green synthesis, antioxidant capacity, carob extract.

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➢ **ORAL PRESENTATION**

Antiproliferative effects of mericarps of five *Salvia* taxa against A549 human lung cancer cell lines

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Abstract

Salvia L. is the most species-rich genus of the family Lamiaceae with approximately 1000 species [1]. It has been reported since the ancient times that *Salvia* species have been traditionally used in the treatment of inflammation, tuberculosis, bronchitis, microbial infections [2], stomach ailments, common cold, and wounds [3]. This study aims to investigate *in vitro* antiproliferative effects of different concentrations (200, 100, 50, and 25 µg/mL) of ethanol extracts obtained from mericarps of five *Salvia* taxa (*S. syriaca* L., *S. virgata* Jacq., *S. longipedicellata* Hedge, *S. candidissima* Vahl subsp. *candidissima*, and *S. verticillata* L. subsp. *amasiaca* (Freyn & Bornm.) Bornm.) against A549 human lung cancer cell lines using MTT assay. When compared the studied groups, statistically significantly lower cell viability levels were determined in *S. syriaca* (200 and 100 µg/mL) and *S. verticillata* subsp. *amasiaca* (200, 100, 50 µg/mL) extracts applied groups than control group and *S. verticillata* subsp. *amasiaca* (200 and 100 µg/mL) extract applied group than DMSO group ($P<0.05$). There were no statistically significantly differences between other tested groups ($P>0.05$).

Keywords: *Salvia*, mericarp, antiproliferative activity, MTT, A549

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➢ **ORAL PRESENTATION**

Applying sonication and different pre-heating methods on seedless olive paste: Determining chemical characteristics of virgin olive oil

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Abstract

In this study, conventional-oven (215 °C, 45 min), microwave (220 °C, 15 min), ultrasound-bath (37 Hz, 50 °C, 30 min) and water-bath heating (50°C, 30 min) pre-processing methods were applied on seedless olive paste obtained from Mugla-Milas (Memecik cultivar) on 2018 off-harvest year. Total free acidity, peroxide value, K232, K270, ΔK quality parameters; total phenol content and fatty acid profile were determined on physically extracted virgin olive oils. It was calculated that free acidity was 1.54%, peroxide value was 15.36 meq active O2/kg oil, K232 value was 2.18, K270 value was 0.11, ΔK value was 0.001 and total phenol content was 135.81 mg GAE/kg oil in control samples. According to International Olive Council Regulation, analysed samples classified as “virgin". The dominant fatty acids are oleic, linoleic, palmitic, stearic, palmitoleic and linolenic acid in olive oils, and, they were detected 65.77%, 15.79%, 14.59%, 2.10%, 0.87% and 0.87%, respectively.

Keywords: sonication, microwave heating, olive oil, fatty acid composition, pre-processing

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➢ **ORAL PRESENTATION**

Investigation of the effects on human glutathione reductase enzyme activity of novel naphthylamide derivatives that would be used in cancer treatment

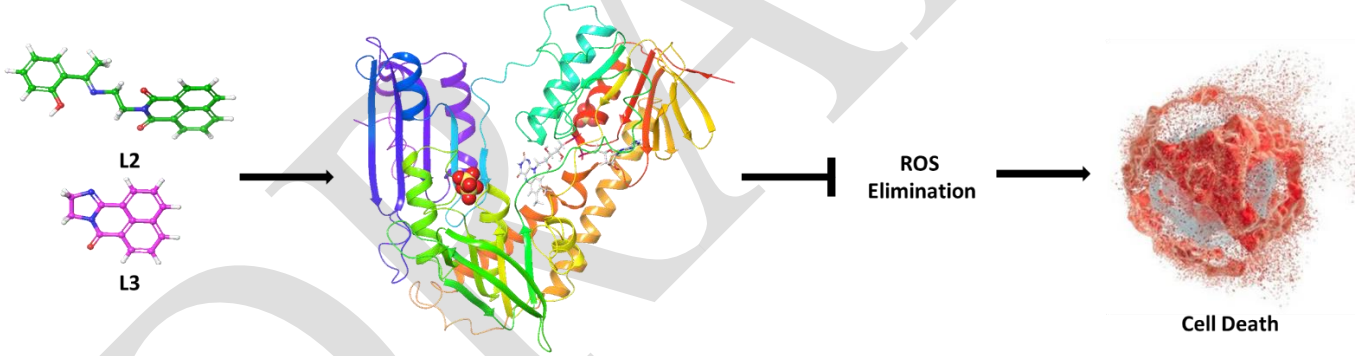
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Abstract

The level of reactive oxygen species (ROS) increase in cells depends on endogenous and exogenous factors. Organisms have enzymatic and non-enzymatic antioxidant systems which protect against adverse effects of ROS. ROS levels in cancer cells are reasonably high compared to those in healthy cells. Hence, the expression level of enzymatic antioxidants is also very high. Elimination of ROS in cancer cells can be reduced by targeting glutathione reductase which is the most important factor of the enzymatic antioxidant system. In this way, programmed cell death can be activated because of oxidative stress. In this purpose, novel naphthylamide derivatives have synthesized and characterized. Effect of synthesized naphthylamide derivatives on human glutathione reductase enzyme activity has been investigated. It has been detected that **L2** and **L3** compounds have 13.3 µM and 231 µM of IC_{50} value, and 0.6 µM and 52 µM of K_i value respectively. The results have shown that **L2** compound exhibit significantly inhibitory effect on glutathione reductase enzyme. The findings can be used for the design of more potent and selective inhibitors against the enzyme for cancer treatment.



Keywords: Glutathione reductase, Enzyme inhibition, Novel chemotherapeutics, Naphthylamide derivatives

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DRAFT

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➢ **ORAL PRESENTATION**

Otbiçenlerin (Opiliones) biyolojik kontroldeki rolü

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Özet

Aşırı ve bilinçsiz bir şekilde kullanılan ve günden güne kullanımı artan kimyasal pestisitlerin insanlara, çevreye ve genel olarak dünyanın doğal dengesine zarar verdiği herkes tarafından kabul gören bir gerçektir. Bundan dolayı günümüzde kimyasal pestisitlerin kullanımına alternatif metotlar araştırılmaya başlanmıştır. Bu metotların en başında tarım zararlarına karşı, doğada var olan canlılar kullanılarak, mevcut zararların azaltılması veya önlenmesi gelmektedir. Dünya üzerinde yaklaşık 6500 civarında otbiçen türü tespit edilmiş olup çoğu bilim insanı tür sayısının çok daha fazla oluğunu düşünmektedirler (Kury 2008). Otbiçenlerin büyük bir kısmı tropikal ve ılıman bölgelerin tarımsal ekosistemlerinde yaşamaktadırlar. Otbiçenler, tarım zararlısı olan bazı böceklerin predatörleri olmasından dolayı biyolojik mücadelede kayda değer katkı sağlamaktadır. Otbiçenler tarım alanlarında ekonomik zararlara sebep olan canlıların doğal düşmanları olduklarından dolayı biyolojik kontrol çalışmalarında birçok kez araştırmalara konu olmuştur. Bu çalışmaların bazılarında başarılı olduğu görülüp, bazılarında ise başarılı sonuçlara ulaşılamamıştır. Yapılan çalışmalarda otbiçenlerin koku bezlerinden çıkan salgıların bazı karınca türlerine karşı uzaklaştırıcı etki yaptığı, Trogulidae ve Ischyropsalididae familyasındaki bazı gastropod türlerine saldırarak onları öldürüp, onlarla beslendikleri görülmüştür. Laboratuvar ortamında yapılan bir araştırmada ise tarım zararlısı olan akarlara karşı otbiçenler kullanılarak otbiçenlerin akar yumurtalarıyla beslendiği gözlemlenmiştir. Bu çalışmalar sonucunda otbiçenlerin biyolojik kontrol ve mücadelede etkili olduğu görülmektedir. Günümüzde artan çevre bilinci sayesinde doğal düşmanlar ve otbiçenlerle ilgili önümüzdeki yıllarda çok sayıda araştırma ve çalışma yapılacağı tahmin edilmektedir.

Anahtar Kelimeler: Otbiçen, biyolojik kontrol, doğal düşman, pestisit

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➢ **ORAL PRESENTATION**

Association of polyunsaturated fatty acids, mTOR and Parkinson's disease

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Abstract

Parkinson's Disease (PD) which is progressive neurodegenerative disease is the second most common one. It has been estimated that approximately 6.2 million individuals with Parkinson's disease around the world and the prevalence is going to reach to the almost 13 million people in 2040. PD is a multifactorial disease and affected by several factors such as genetic and epigenetic mechanisms, diet, chemicals. Dopaminergic neurons in the substantia nigra pars compacta (SNc) are lost and it leads to striatal dopamine deficiency and then PD. Furthermore, PD is associated with aggregates of misfolded proteins especially α-synuclein and several metabolites involving lipids. Lipid metabolism and signalling pathways are significant for normal neuronal activities but the relationship between lipid functions and PD is not known clearly. Dietary fat intake may increase the risk of PD due to elevated neuroinflammation and oxidative stress which leads to neurotoxin-associated dopaminergic neuron loss. On the other hand, fatty acids are vital for brain functions and it has been reported that dietary fatty acid intake is required for brain. Polyunsaturated fatty acids (PUFAs) are involved in cell signalling pathways, gene expression, release of neurotransmitters, neuroinflammation, myelination and hence affecting the progression of PD. Fatty acids from the diet affects the risk of PD, but the type of the fatty acids is significant for the disease. While polyunsaturated fatty acids might decrease the risk of PD, cholesterol which is in high levels may increase PD risk. İncreased cholesterol levels cause to neuroinflammation, oxidative stress, mitochondrial dysfunction and affects aggregation of α-synuclein. In studies conducted with post-mortem human samples, it has been reported that PUFAs levels are significantly decreased in the substantia nigra pars compacta. Dysregulation of mammalian target of rapamycin (mTOR) may cause to neurodegeneration. It has been known that omega-3 PUFAs are protective against neurodegeneration via mTOR inhibition. In conclusion, PUFAs might be promising agents for prevention and treatment of neurodegenerative diseases such as PD. Nevertheless, it requires further studies in order to clarify the relationship between lipid metabolism, fatty acids and PD.

Keywords: Parkinson's Disease, lipids, fatty acids, polyunsaturated fatty acids, mTOR

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➢ **ORAL PRESENTATION**

Coronene surface as alpha radiation binder

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Abstract

Coronene consisting of six peri-fused benzene rings is a polycyclic aromatic hydrocarbon and known as super benzene. It is a yellow solid which is embedded in a very rare sedimentary rock mineral called carpathite. It is produced in the petroleum-refining process of hydrocracking and generally used in graphene synthesis. It serves as an interesting organic material with its aromatic property since it is a planar circulene including high π-conjugation. Therefore, it was thought to have a great potential of capturing hazardous alpha radiation in this computational study. The coronene molecule optimized at DFT UM062X/6-31+G(d,p) theoretical level had a point group of D_{6h}. It had potentially two benzene rings which could interact with an alpha particle (He^{2+}) in a long-range; the central ring (R_1) and one of the neighboring rings (R_2). The interaction of He^{2+} with coronene central ring was abbreviated as $[C\text{-}R_1 \ldots He]^{2+}$ whereas that of the neighboring ring as $[C\text{-}R_2 \ldots He]^{2+}$ in which C represents the coronene molecule. $[C\text{-}R_2 \ldots He]^{2+}$ complex was thermodynamically 220 calories more stable than $[C\text{-}R_1 \ldots He]^{2+}$ complex. The stabilities were directly in relation with the rings' NICS(1) aromaticity values. Both rings were aromatic but central ring's NICS(1) value was lower than that of the neighboring ring's. The BSSE corrected interaction energies were both exothermic. The formation of $[C\text{-}R_2 \ldots He]^{2+}$ complex was 218 calories more exothermic (stable) than that of $[C\text{-}R_1 \ldots He]^{2+}$ complex. According to the frontier molecular orbital analyses performed at the same theoretical level: a) Both complexes were found to be softer than coronene in terms of reactivity which specified that the complexes had more tendency to give a chemical reaction than coronene. b) The complexes both had more electrophilic character than coronene which supported the reactivity phenomena described in "a". c) Additionally, both complexes were more resistant to oxidation than coronene which was concluded by computing the $f_{H/L}$ indexes.

Keywords: Coronene, Alpha radiation, DFT, M062X, NICS(1), BSSE.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

In vivo study: The antitumor activity of the aqueous extract of Graviola in the P815 mouse tumor model

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Abstract

The medicinal plant has several beneficial properties for health, *Annona muricata* of the family Annonaceae, it is also called Graviola, and it has been the subject of several studies for its anticancer activity. Our study investigates the antitumor activity of the *Annona muricata* L. aqueous extract using the mouse model of tumor P815. Following administration of the aqueous extract of *Annona muricata* leaves, DBA2 mice were orally administered at a dose of 250 mg / kg for 20 days.

The extract of this plant has shown us a decrease in the size and weight of tumors, limiting metastasis and reducing mortality.

Keywords: *Annona muricata* L.; *antitumor*; *in vivo*; P815 mouse tumor model.

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➢ **ORAL PRESENTATION**

Redox status in chronic renal failure and hemodialysis in adults

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Abstract

Chronic renal failure is defined by a permanent decrease in the glomerular filtration rate in connection with the irreversible destruction of a significant number of nephron. Several factors go into decreasing kidney function, among them; oxidative stress which is defined as an imbalance in the oxidant / antioxidant balance. The aim of this work is to carry out a comparative study of some oxidant / antioxidant parameters (vitamin C, Glutathione, the enzyme Catalase, Superoxide dismutase as antioxidants and as oxidants (Malondialdehyde and carbonylated protein) between patients affected by chronic renal failure before and after dialysis and healthy cases. The results of this research demonstrate that patients with chronic renal failure have increased levels of vitamin C, Malondialdehyde, and carbonylated proteins on the other hand it has a decrease in Other markers It seems that the imbalance in the activity of antioxidant enzymes in chronic renal failure can lead to the accumulation of free radical species and the unscheduled oxidation of sensitive molecules.

Keywords: chronic renal failure, oxydatif stress.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Değişik oranlarda poliakrilonitril ve karbon elyaf takviyeli geri dönüşümlü polipropilen polimer kompozitlerinin mekanik değerlerdeki değişimlerin incelenmesi

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Özet

Bu çalışmada iki ayrı polimer kompozitinin özellikleri araştırılmıştır. Bunlar geri dönüşümlü polipropilen(R-PP)/poliakrilonitril (PAN) ve geri dönüşümlü polipropilen (R-PP)/karbon elyaf polimer kompozitleridir. PAN ve karbon elyaf matris içerisine %10-20 ve 30 oranlarında katılmıştır. Matris ve elyaf arasında adezyonun sağlanması için %5 oranında sisteme maleik anhidrit aşılı polipropilen (MAPP) katılmıştır. Öncelikle tüm malzemeler ektrüzyon öncesinde yirmi dört saat boyunca etüvde kurutulmuş ve daha sonra ektrüzyon işlemine geçirilerek malzemeler karıştırılmıştır. Burada homojen bir karışım elde edebilmek için çift vidalı bir ekstrüzyon tercih edilmiştir. Ekstrüzyon işlemi sonrasında tüm granür grupları tekrar kurutulmuş ve enjeksiyon makinesinde standart test numuneleri basılmıştır. Elde edilen deney numunelerinden ilgili standartlar kullanılarak mekanik testler yapılmıştır. Çekme testinde karbon elyaf ve poliakrilonitriloranınınartışı ile elastiklik modülü, çekme mukavemeti, kopma mukavemeti ve kopma uzama değerlerindeki değişimler tespit edilmiştir. Karbon elyaf oranının artmasıyla elastiklik modülü, çekme mukavemeti ve kopma mukavemeti değerlerinin arttığı görülmüştür. Aynı şekilde poliakrilonitril ilavesi ile de bu değerlerin arttığı tespit edilmiştir. Ama poliakrilonitrilde karbon elyafa oranla daha az bir artış gözlemlenmiştir. Buna karşılık kopma uzama değerinin ise karbon elyaf ve poliakrilonitril ilavesiyle düştüğü tespit edilmiştir. Bunların yanı sıra Shore sertlik, çentikli Izod darbe mukavemeti ve yoğunluk değerleri de belirlenmiştir. Burada da karbon elyaf oranının artmasıyla sertlik, darbe mukavemeti ve yoğunluk değerlerinin artığı görülmüştür. Poliakrilonitril oranının artması ile de bu değerlerde karbon elyaftan daha az bir artış olduğu tespit edilmiştir. Karbon elyaf ve poliakrilonitrilin homojen dağılıp dağılmadığını ve maleik anhidrit polipropilen bağlayıcı olarak etkisini belirlemek için taramalı elektron mikroskobisi ile kırık yüzey fotoğrafları da çekilmiştir. Çekilen fotoğraflardan karbon elyafın ve poliakrilonitrilin homojen olarak dağıldığı ve maleik anhidrit polipropilen ise ara yüzeyde etkili olduğu belirlenmiştir.

Anahtar Kelimeler: Geri dönüşümlü polipropilen, mekanik özellikler, karbon elyaf, poliakrilonitril

Teşekkür: Bu çalışma Marmara Üniversitesi Bilimsel Araştırma Projeleri Birimi tarafından desteklenmiştir (Proje No: FEN-C-YLP-100719-0252)

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Poliakrilonitril ve karbon elyaf takviyeli geri dönüşümlü polipropilen polimer kompozitlerinin fiziksel özelliklerinin incelenmesi

Şükran Güney[1], Münir Taşdemir[2]

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Özet

Bu çalışmada iki ayrı polimer kompozitinin özellikleri araştırılmıştır. Bunlar geri dönüşümlü polipropilen(R-PP)/poliakrilonitril (PAN) ve geri dönüşümlü polipropilen (R-PP)/karbon elyaf polimer kompozitleridir. PAN ve karbon elyaf matris içerisine %10-20 ve 30 oranlarında katılmıştır. Matris ve elyaf arasında adezyonun sağlanması için %5 oranında sisteme maleik anhidrit aşılı polipropilen (MAPP) katılmıştır. Öncelikle tüm malzemeler ektrüzyon öncesinde yirmi dört saat boyunca etüvde kurutulmuş ve daha sonra ektrüzyon işlemine geçirilerek malzemeler karıştırılmıştır. Burada homojen bir karışım elde edebilmek için çift vidalı bir ekstrüzyon tercih edilmiştir. Ekstrüzyon işlemi sonrasında tüm granür grupları tekrar kurutulmuş ve enjeksiyon makinesinde standart test numuneleri basılmıştır. Elde edilen deney numunelerinden ilgili standartlar kullanılarak fiziksel özelliklerini belirlemek için testler yapılmıştır.Vicat yumuşama sıcaklığı, ısıl çarpılma sıcaklığı, erime akış indisi ve nem emme miktarı belirlenmiştir. Karbon elyaf oranının artmasıyla vicat yumuşama sıcaklığı, ısıl çarpılma sıcaklığı değerlerinin arttığı görülmüştür. Aynı şekilde poliakrilonitril ilavesi ile de bu değerlerin arttığı tespit edilmiştir. Ama poliakrilonitrilde karbon elyafa oranla daha az bir artış gözlemlenmiştir. Buna karşılık erime akış indeksi ve nem tayini değerinin ise karbon elyaf ve poliakrilonitril ilavesiyle düştüğü tespit edilmiştir. Bunlara ek olarak 20-40-60 ve 80 metrede aşınma oranları belirlenmiştir. Aynı zamanda değişik yükler altında (100, 200, 300, 400 ve 500 gr) statik sürtünme kat sayıları belirlenmiştir. Karbon elyaf ve poliakrilonitrilin artmasıyla aşınma oranında artış tespit edilmiştir. Sürtünme katsayısı belirleme testinde yükün artmasıyla bir azalış olduğu görülmüştür. Karbon elyaf ve poliakrilonitrilin homojen dağılıp dağılmadığını ve maleik anhidrit polipropilen bağlayıcı olarak etkisini belirlemek için taramalı elektron mikroskobisi ile kırık yüzey fotoğrafları da çekilmiştir. Çekilen fotoğraflardan karbon elyafın ve poliakrilonitrilin homojen olarak dağıldığı ve maleik anhidrit polipropilen ise ara yüzeyde etkili olduğu belirlenmiştir.

Anahtar Kelimeler: Geri dönüşümlü polipropilen, fiziksel özellikler, karbon elyaf, poliakrilonitril

Teşekkür: Bu çalışma Marmara Üniversitesi Bilimsel Araştırma Projeleri Birimi tarafından desteklenmiştir (Proje No: FEN-C-YLP-100719-0252)

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Demir oksit (Fe_2O_3) nanopartiküllerinin genotoksisitesinin KOMET yöntemi ile araştırılması

Burçin Yalçın[1*], Merve Güneş[1], İbrahim Hakkı Ciğerci[2], Bülent Kaya[1]

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Özet

Nanopartikül (NP) kaynaklı ürünlerin giderek çeşitlenmesi ve bu ürünlerin ekonomik, çevresel ve insan sağlığı yararına fayda sağlaması nedeni ile NP'lerin kullanımı yaygınlaşmıştır. Ancak bu yoğun kullanım beraberinde bazı endişelerin oluşmasına da yol açmıştır. NP'ler kimyasal bileşimlerine, yapılarına, partikül büyüklüklerine, yüzey alanlarına ve şekillerine göre farklı toksik etkiler gösterebilmektedir. Şekilleri ve boyutları NP'lerin hücresel alımları ve potansiyel toksisitesinde önemli belirleyicilerdir. Bu çalışmada manyetik rezonans görüntülemede, *in vivo* uygulamalarda, ilaç dağıtımında, biyolojik sıvıların detoksifikasyonu gibi birçok biyomedikal ve biyomühendislik alanlarında kullanıma sahip olan demir oksit (Fe_2O_3) NP'lerinin genotoksisitesinin partikül boyutu ile ilişkisini belirlemek amacıyla *Drosophila* hemositleri ile KOMET (alkali tek hücre jel elektroforez) analizi gerçekleştirilmiştir. Çalışma sonucunda 50 nm ve 100 nm partikül boyutuna sahip Fe_2O_3 NP'leri karşılaştırıldığında istatistiksel olarak anlamlı bir farklılık bulunmamıştır. Ancak her iki boyuta sahip Fe_2O_3 NP uygulamasında da çalışılan 3 farklı dozdan (1, 2 ve 5 mM) sadece 1 mM'lık uygulamada kontrol grubu distile suya göre istatistiksel olarak anlamlı düzeyde genoksisitenin indüklendiği belirlenmiştir.

Anahtar Kelimeler: KOMET, demir oksit, nanopartikül, genotoksisite, *Drosophila*.

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➢ **ORAL PRESENTATION**

Food grade phycocyanin by using Taguchi's design

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Abstract

Blue-green microalgae are the source of many commercially important products such as protein, amino acids, fatty acids, carotenoids and phycobiliproteins, and biotechnological studies on this issue has been profoundly increasing. The most important type of phycobiliprotein, which is found in high amounts in blue-green microalgae, is blue-coloured phycocyanin. *Arthrospira* (*Spirulina) platensis* is the main source of cyanobacterial phycocyanin (C-PC) with *Anabaena* sp. and can be found in protoplasm up to about 20% of cell dry weight. Phycocyanin is used as a natural colorant that is called as "Lina blue" in the commercial area. The purity ratio and quantity of phycocyanin may vary depending on the processing method, also the purity of the phycocyanin is an important factor that determines its application area. Food-grade phycocyanin is utilized safely as a natural dye in the food formulation without offering health risk. Today, the main problem in the extraction and purification of phycocyanin is seen as low yield and purity. Many conventional methods are used in several to obtain crude extracts of C-PC, such as freezing and thawing, sonication and mechanical disruption. Also, methods for the extraction stage are include nitrogen cavitation for algal-cell disruption, acidic extraction and high-pressure extraction. For the purification stage high-speed centrifugation, precipitation with ammonium sulphate, and ion-exchange chromatography methods are used. Despite all these studies, the problems of extraction and purification processes on low concentration and purity rate keeps remain. From this point of view, it is of great scientific and commercial importance to obtain effective and efficient phycocyanin from blue-green microalgae. The aim of this study is to investigate the effects of a modified and combined extraction and purification method, including precipitation, chilling and centrifugation, at different centrifuge speeds, temperature and time on phycocyanin concentration to obtain a food grade phycocyanin from S*pirulina platensis*.

Keywords: C-phycocyanin, microalgae, food grade, purity, centrifugation.

DRAFT

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➢ **ORAL PRESENTATION**

Pregnancy outcomes of patients with Mthfr polymorphisms and additional risk factors: Activated Protein C resistance, decreased antithrombin III activity and hypocomplementemia

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Abstract

Objective: To evaluate the effect of Activated Protein C resistance (APC resistance), decreased Antithrombin III activity and hypocomplementemia on the pregnancy outcomes of the patients with methylentetrahydrofolate reductase (MTHFR) polymorphisms.

Methods: We retrospectively evaluated the pregnancy outcomes of the patients with MTHFR polymorphisms. We have performed further analysis to determine the effect of mentioned risk factors on pregnancy outcomes. We have defined "Composite Adverse Outcome" as the existence of abortion, Fetal Growth Restriction, an APGAR score of <7 at first ten minutes and/or neonatal intensive care unit (NICU) admission. We have also used Beksac Obstetric Index (BOI), which is [Number of Living Child+(π/10)]/Gravida, to evaluate and compare the obstetric history of the patients.

Results: The distribution of relevant risk factors did not significantly differ between different MTHFR polymorphisms. Homocysteine levels were also similar for different MTHFR polymorphisms and risk factors. APGAR scores were significantly lower at patients with hypocomplementemia, while NICU admission rates were higher in this group without statistical significance (p:0.03 and 0.143; respectively). Composite adverse outcome rates were also higher in cases with any of the defined risk factors despite lack of statistical significance. Statistical analysis regarding to BOI revealed no significant difference between any of the risk factors (p>0.05).

Conclusion: Pregnancies with MTHFR polymorphisms may be screened for additional risk factors as the composite adverse outcome rates are higher in these patients. Hypocomplementemia is also especially critical as the newborns born from these mothers may have lower APGAR scores and require NICU admissions.

Keywords: MTHFR polymorphism, Activated Protein C resistance, Antithrombin III activitiy, Hypocomplementemia.

DRAFT

➢ **ORAL PRESENTATION**

A ve B grubu fizik tedavi hastalarına genel sağlık sigortası kapsamında seans başına ödenen ücretlerinin yeterliliğinin fizik tedavi hizmetlerini sağlayan sağlık personelleri tarafından değerlendirilmesinin nitel olarak araştırılması

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Özet

Literatür araştırıldığında A ve B grubu hastalıklarda gerçekleştirilen Fizyoterapi ve Rehabilitasyon uygulamalarına ilişkin maliyet ve Sosyal Güvenlik Kurumu tarafından yapılan seans başı ödemelerin dengesi hakkında bu uygulamayı yapan sağlık personellerinin ilgililik, farkındalık, ve hoşnutluğuna ilişkin herhangi bir çalışmaya rastlanmamıştır. Bundan dolayı bu alanda bir açıklık vardır. Bu yüzden buna ilişkin bir çalışmaya ihtiyaç vardır. Bu çalışma nitel ve betimleyici bir odak grubu çalışması olarak planlanmıştır. Bu çalışma Malatya Eğitim ve Araştırma hastanesinde 15 katılımcıyla gerçekleştirilmiştir. Katılımcıların 3'ü fiziatrist, geri kalan 12 katılımcı ise fizyoterapistti. Katılımcıların 10'u kadın geri kalan 5'i ise erkek katılımcıydı. Bulgular katılımcıların %70 den fazlasının duruma ilişkin ilgi ve ya farkındalığa sahip olmadığını ve ya kısmen sahip olduğunu ortaya koymuştur. Ayrıca katılımcıların yaklaşık %74 ü bu durumdan hoşnut ve ya kısmen hoşnut olduğunu belirtmiştir.Sonuçlar gösterdi ki Fizyoterapi ve Rehabilitasyon uygulamalarını gerçekleştiren sağlık personelleri A ve B grubu hastalarda Fizyoterapi maliyetlerinin yapılan ödemeden yüksek olmasına rağmen buna ilgili ve ya farkında değildi, bu durumdan önemli bir hoşnutsuzlukları da yoktu.

Anahtar Kelimeler: Fizyoterapi, Farkındalık, Birim maliyet

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Kombine uygulanan borik asit ve sıcaklık stresinin ayçiçeği bitkisindeki (*Helianthus anuus* L.) bazı antioksidan enzim aktivitelerinin etkilerinin belirlenmesi

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Özet

Günümüzde ekolojik sorunların başında gelen küresel ısınma, dünya genelinde sıcaklık artışına ve buna bağlı olarak kuraklığa sebep olmaktadır. Değişen iklim koşulları özellikle bitkilerin fizyolojik ve moleküler düzeydeki metabolik faaliyetleri üzerinde olumsuz etkiler oluşturmakta; bitki verimi, kalitesi ve üretimini olumsuz yönde etkilemektedir. Sıcaklıkta meydana gelen değişiklikler, gerek yapısal gerek işlevsel proteinlerin yapısının bozulması ile sonuçlanmaktadır. Sıcaklığın yanı sıra bitkilerde abiyotik strese sebep olan bir diğer faktör ise toprakta bulunan makro ve mikro besin elementlerinin miktarlarıdır. Mikro besin elementleri içerisinde yer alan bor elementi, bitkilerin en fazla tepki gösterdiği elementler arasındadır. Her bitkinin ihtiyaç duyduğu bor miktarı farklı olmakla birlikte bitkilerin bor elementine karşı alt ve üst tolerans sınırları henüz tam olarak bilinmemektedir. Bor elementi, bitkide oksin ve fenol metabolizması, zar geçirgenliği, kök büyümesi, nükleik asit ve ATP sentezi gibi önemli fizyolojik olaylarda etkilidir. Borun fizyolojik olaylar üzerinde etkili olması, başka bir abiyotik stres faktörünün etkisini inhibe ya da stimüle edebileceğini düşündürmektedir. Literatürde yalnızca sıcaklık sıcaklık ve yalnızca borun bitkiler üzerine etkileri ile ilgili çalışmalar olmakla birlikte, farklı sıcaklık derecelerinde eş zamanlı uygulanan bor elementinin bitki metabolizmasında meydana getirdiği kombine etkileri açıklayan çalışmalara henüz rastlanmamıştır.

Çalışmamızda; üç sıcaklık (15, 25, 40°C) ve iki farklı borik asit konsantrasyonunda (10, 25 mM) yetiştirilen 5. ve 10. borik asit uygulaması sonrasında toplanan ayçiçeği bitkisinin kök ve yaprak örneklerine ait süperoksit dismutaz (SOD), katalaz (CAT) ve askorbat peroksidaz (APX) enzim aktiviteleri araştırılmıştır. 25°C'de yetiştirilen örneklerin kök ve yapraklarına ait enzim aktivitelerinin 5. ve 10. borik asit uygulamasında önemli derecede etkilenmediği, artan borik asit konsantrasyonlarında ise enzim aktivitesinin arttığı tespit edilmiştir. 40°C'de yetiştirilen bitki örneklerinin sıcaklık değişiminden 15°C'ye göre daha fazla etkilendiği; özellikle 25 mM borik asitin bitki örneklerinde yüksek sıcaklığın etkisini azalttığı belirlenmiştir.

Anahtar Kelimeler: *Helianthus annuus* L., sıcaklık, borik asit, abiyotik stres, antioksidan enzim

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Determination of the *in vitro* biocompatibility potential of hyaluronic acid produced from non-pathogenic bacteria intended to be used as wound dressing

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Abstract

Due to high viscoelasticity and water retention capacity, hyaluronic acid (HA), which is a glycosaminoglycan, is used extensively in many areas such as cosmetic products, tissue regeneration and treatment, wound healing medicines and drug delivery. In general, HA is obtained from many animal and microbial sources, however produced HA from animal sources has lower yield and higher cost than produced from microbial sources. Also, used microbial organisms are pathogenic. In our previous study, HA was recombinantly produced and characterized from the non-pathogenic *Bacillus subtilis* 1A752 strain and planned to be used in wound dressing application for the prevention and healing of wound infections. The aim of this study was to determine the *in vitro* biocompatibility potential of HA obtained from non-pathogenic bacteria.

In order to determine the *in vitro* cytotoxicity potential, 2.0-0.5 mg/mL a dose range of HA was applied to CCD34Lu human lung normal (ATCC-CRL-1491) fibroblast cell line and the MTT Assay was performed at 24, 48 and 72 h [1]. Although the highest dosing showed toxicity at 72 hours, other doses were non-toxic to CCD34Lu cells in determined time intervals. To measure hemolytic activity on rabbit erythrocytes of HA, hemolysis test was performed [2]. HA did not exhibit hemolytic activity (a dose range of 2.0-0.25 mg/mL) and hemolytic effect was calculated as below 5% in all doses. In the HET-CAM (Hen's Egg Test-Chorioallantoic Membrane) test, HA was placed (a dose range of 2.0-0.25 mg/mL) in direct contact with chorioallantoic membrane of the hen's egg (with 5 days embryo) to determine the irritancy effect of HA [3]. The membrane is scored for haemorrhage, vascular lysis and coagulation. HA did not show irritant effect.

In conclusion, further studies are planned to investigate *in vivo* toxicity and biocompatibility potential of HA.

Keywords: Hyaluronic acid, Biocompatibility, Cytotoxicity, Hemolytic effect, HET-CAM, Irritation

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➢ **ORAL PRESENTATION**

Ağır metal kirliliğinde kullanılan biyoindikatör bentik makroomurgasız türler

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Özet

Günümüzde sular önemli derecede endüstriyel, tarımsal ve evsel olarak kirliliğe maruz kalmaktadır. Su kirliliği, fiziksel biyolojik ve kimyasal etmenlerle oluşmaktadır. Kimyasal su kirliliğinin en önemlilerinden biride ağır metal kirliliğidir. Ağır metaller endüstriyel işlemlerde ve ürünlerin üretiminde sık kullanılan maddelerdir. Bu üretilen ürünlerin satın alınması, kullanılması ve atılması aşamasında da yaşanan bilinçsizlik çevrenin ciddi boyutta kirlenmesine neden olmuştur. Bu ağır metallerin en yaygın olanları kurşun, kadmiyum, civa ve kromdur. Su içinde ve sedimenttte yaşayan ve gözle görülebilen boyutta olan omurgasız canlılar bentik makroomurgasızlar olarak adlandırılmaktadır. Bu canlılardan kurtlar, karidesler, midyeler, salyangozlar, kerevitler ağır metal kirliliği indikatörü olarak kullanılmaktadırlar. Bu çalışmada indikatör türler hakkında yapılmış araştırmalara yer verilmiştir. Bu türlerden bazılarına ait ağır metal akümülasyon değerleri verilmiş ve su ürünlerinde kabul edilebilir değerlerle kıyaslamaları yapılmıştır.



Anahtar Kelimeler: Ağır metal, su ürünleri, biyoindikatör, bentik makroomurgasızlar

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➢ **ORAL PRESENTATION**

Alfa lipoik asit, asitretin+metotreksat ve alfa lipoik asit+ asitretin+metotreksat uygulamasının ratların böbrek dokularındaki malondialdehit düzeylerine etkisi

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Özet

İkinci nesil bir retinoid olan ve terapötik etki gösteren asitretin (ACT) , antienflamatuar ve antiproliferatif etkiye sahip olup bazı hastalıkların tedavisinde tek başına veya kombinasyon şeklinde kullanılabilmektedir. Metotreksatın(MTX) tek başına kullanımında hepotoksisite ve nefrotoksisite gibi ciddi yan etkilere neden olabildiği ve son yıllarda ACT ile kullanımı sonucunda ise faydalı olduğu kadar bazı organlar üzerinde de yan etkilere sahip olduğu gösterilmiştir.

Bu çalışmada, MTX, ACT ve ALA' nın rat böbrek dokusunda malondialdehit(MDA) düzeyleri üzerindeki etkileri araştırılmıştır. Bu amaçla ratlara intraperitonal enjeksiyonla ALA, ACT+MTX ve ACT+MTX+ALA verilmiştir. Bunu takiben 3., 5. ve 7. günlerdeki enjeksiyonlardan sonra ratlara servikal dislokasyon uygulanarak böbrekleri alınmıştır. Böbreklere homojenizasyon, sonifikasyon ve santrifüjleme işlemleri uygulanmıştır. Bu işlemler sonucunda elde edilen fraksiyonlar, MDA düzeylerindeki etkileri araştırmak için kullanılmıştır.

Sonuç olarak kontrol grubundaki MDA düzeylerine göre karşılaştırıldığında MTX +ACT verilen grupta genel olarak aktivasyon gözlendiği ve bu aktivasyonun MTX+ACT ile birlikte ALA' nın verilmesiyle de arttığı belirlenmiştir. Sadece ALA verilen grupta ise MDA düzeyinde inhibisyon gözlenmiştir.

Anahtar Kelimeler : Malondialdehit, asitretin, alfa lipoik asit, metotreksat

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Total protein and carbohydrate content of thermophile *Geobacillus* sp. D413

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Abstract

Geobacillus sp. D413 is a gram-positive, obligately aerobic, non-pathogenic, spore forming, thermophilic bacilli. The isolate was isolated from Dikili, Camur Hot Spring, Izmir, Turkey. The isolate's optimal growth values are 0% NaCl, pH 7.0, and 65°C. D413 isolate had monotrichous flagella and produced a fragile pellicle at 55°C for 4 days in the air-liquid interface. Thermophilic bacteria produce extracellular polymeric substances (EPSs). Protein and carbohydrate are available in EPS structure. Determination of carbohydrate and protein content in EPS component was carried out by phenol-sulfuric acid method and Lowry method, respectively. The amount of carbohydrate corresponding to the absorbance value read was calculated with the help of the standard curve ($R^2 = 0.99$). Furthermore, amount of protein corresponding to the absorbance value read was calculated with the help of the standard curve ($R^2 = 0.98$). The concentrations of total protein were quantified as 488 µg/mL. Moreover, the concentrations of total carbohydrate were quantified as 38.1 µg/mL. It seems that the amount of protein was much greater than the amount of carbohydrate.

Keywords: *Geobacillus* sp. D413, protein, carbohydrate

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➢ **ORAL PRESENTATION**

Bir seri spirotiyazolidinon bileşiğinin sentezi ve olası antiviral aktiviteleri

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Özet

Dünyada yaygın olarak görülen viral enfeksiyonlar, ciddi morbidite ve mortaliteye sahiptir. Birçok virüs enfeksiyonu tedavisi için şu anda kullanımda antiviral ilaç mevcut değildir. Virüsler çok çabuk mutasyona uğradıkları için kullanımda olan ilaçlara karşıda direnç gelişimleri görülmektedir. Grip (influenza), Orthomyxoviridae familyasına ait influenza virüslerinin yol açtığı bulaşıcı bir akut solunum yolu hastalığıdır. İnfluenza virüsleri A, B, C ve D olmak üzere 4 sınıfa ayrılır. Bunlardan influenza A ve B virüsleri bulaşıcıdır ve mevsimsel salgınlara neden olur. Son yıllarda yapılmış birkaç çalışmada N-(3-okso-1-tiya-4-azaspiro[4.5]dekan-4-il)karboksamid halka sistemi taşıyan spirotiyazolidin analoğu bileşiklerin influenza A/H3N2 virüsüne karşı etki gösterdiği ve bu etkinin hemaglutinin aracılığıyla virüsünün konakçı hücreye girişinin engellenmesi şeklinde olduğu bildirilmiştir. Tiyazolidinon halka sistemi pek çok farklı tipte aktivite gösteren moleküllerin yapısında yer alan biyolojik olarak etkin bir halka sistemidir. Sübstitüe tiyazolidinon türevlerinin antiviral etkinlik gösterdiğini belirten çok sayıda literatür de mevcuttur. Bu çalışma kapsamında yan zincirinde 4-metilfenil halkası taşıyan bir seri yeni spirotiyazolidinon bileşiği sentezlenmiş, yapıları IR, ^{1}H-NMR, ^{13}C-NMR spektrumları ve elementel analizler ile aydınlatılmıştır. Referans olarak Zanamivir, Rimantidin ve Ribavirin kullanılarak çeşitli DNA ve RNA virüslerine karşı bileşiklerin olası antiviral etkileri incelenmiştir. Bileşiklerden iki tanesinin influenza A H3N2 ye karşı antiviral etki gösterdiği gözlenmiştir. Bu da influenza tedavisinde kullanılacak antiviral etkili yeni ilaç etken maddesi kazanılması yönünde yol göstericidir.

Anahtar Kelimeler: spirotiyazolidinon, antiviral, influenza , sentez

DRAFT

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➢ **ORAL PRESENTATION**

Electrochemical sensors based on molecularly imprinted polymer-modified screen-printed carbon electrodes for sensitive detection and removal of microcystin-LR in lake water samples

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Abstract

Microcystin-LR (MC-LR), released by cyanbacteria during eutrophication, is kind of cyclic heptapeptides, which are strong inhibitors of protein phosphatases type 2A (PP2A) and type 1 (PP1) that play significant roles in dephosphorylation process of proteins. Due to its ubiquity and high toxicity, MC-LR becomes an important element in water quality control and environmental monitoring. Therefore, the development of a new generation easy-to-use and sensitive sensor systems is essential for qualitative and quantitative detection of potentially toxic contaminations. This work present the development of novel electrochemical sensors based on molecularly imprinted polymers (MIPs) on screen-printed carbon electrodes (SPCEs) for highly sensitive and selective determination and removal of MC-LR in lake water samples. In the present work, the hand-made SPCEs were produced and modified them with MIPs and with non-imprinted polymers (NIPs). Characterization studies (SEM and FTIR) showed that the nanofilms on the SPCE surfaces were successfully modified. The electrochemical characterization analysis was made by differential pulse voltammetry (DPV) and electrochemical impedance spectroscopy (EIS). The limit of detection value was found as 1.86 nM. The graphene based MIP chip showed that MC-LR was effectively removed (87%) from lake water samples. The MIP-modified sensor effectively detect MC-LR avoiding interferences of structurally similar substances like nodularin, microcystin-RR, and microcystin-YR and imprinted nanofilms showed higher sensitivity to target molecules than nonimprinted ones. The developed sensors were tested on lake water samples for detection and removal of MC-LR showing a satisfactory performance. According to adsorption isotherm analysis, it was found that Langmuir adsorption model the best fitted for the MIP-SPCEs. In addition, the sensors were successfully used ten times due to their reusability, which means that these assays are easy to perform, are cost effective, and have high precision. The sensors proved to be sufficiently accurate, with percent recoveries between 98-105%. This study proves this technology can be used as a cheap, simple and effective sensing platform for MC-LR detection making it a promising tool for future evolution of accurate and reliable environmental analysis.

Keywords: Electrochemical sensors, microcystin-LR, molecularly imprinted polymers, screen-printed carbon electrodes

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➢ **ORAL PRESENTATION**

Cultivation, isolation and identification of *Acidithiobacillus ferooxidans* from Artvin mine drainage and evaluation of its biodegradation on polycyclic aromatic hydrocarbons

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Abstract

Acidithiobacillus ferooxidans is an acidophilic organism used in desulphurization, biodegradation and bioleaching research of fossil fuels. In the presented study, primarily, *Acidithiobacillus ferrooxidan*s bacteria were obtained from the mine drainage of Artvin in our country. For this purpose, a modified 9K medium medium (solid / liquid) was used and the organism growth was observed both microscopically and spectroscopically. Identification of *A. ferrooxidans* in the culture medium was carried out molecularly with the 16s rRNA gene and was also morphologically characterized by SEM. In the next stage of the study; the effect of the obtained A. ferrooxidans on polycyclic aromatic hydrocarbons (PAHs), which cause great concerns in environmental and health related issues in crude oil, was evaluated. For this purpose, crude oil taken from İzmir Aliağa Refinery was added to *A.ferrooxidans* cultures at the rates of 0.5%, 1%, 2% and 4%. On the days 1-7-14-21 and 28 of the incubation, the degradation of polycyclic aromatic hydrocarbons in the existing oil in cultures was analyzed by 1H-NMR spectroscopy method. The ratio between the integration of proton peaks of aromatic structures and PAH fragmentation was determined by three replicate experiments in order to determine the use of organism as PAHs energy source. These results show that the A.ferroxidans bacteria obtained from the mine drainage of Artvin province of our country can be used in PAH remediation.

Keywords: *Acidithiobacillus ferrooxidans*, biodegradation, NMR, polycyclic aromatic hydrocarbons, crude oil

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➢ **ORAL PRESENTATION**

Bakteriyel biyofilm yapıları ile mücadelede lantibiyotiklerin kullanımı

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Özet

Biyofilmler, mikroorganizmaların organik (biyotik) ya da inorganik (abiyotik) yüzeylerde bir araya gelerek oluşturdukları, ilkel çok hücreli benzeri yaşam formlarıdır. Yüzeylere geri dönüşümsüz bir şekilde tutunan mikroorganizmalar burada çoğalarak koloni oluştururken, bu toplulukların etrafını proteinler, lipitler, karbonhidratlar, hücre dışı DNA ve sudan meydana gelen hücre dışı polimerik bir yapı ile kaplamaya başlarlar. Bunun sonucunda, her biri bağımsız olarak yaşama yeteneğindeki hücreler; birlikte beslenme, çoğalma ve savunma davranışı gösterdikleri çok hücreli benzeri bir form kazanırlar. Biyofilm olarak adlandırılan bu yapı içerisinde mikroorganizmalar koordineli bir genetik düzenlenmeye, besin maddelerinin dağıtımına ve savunma sistemlerine sahiptirler. Biyofilm topluluğu oluştuktan sonra; ağır metal iyonlarına, antibiyotiklere, mikroorganizmaları öldüren ya da üremesini durduran maddelere (bakteriyosinler, antibiyotikler, dezenfektanlar, biyositler gibi), konakçı immün sistem elemanlarına, çevresel tuz ve pH konsantrasyonlarına, sıcaklık ve besin maddesi değişimlerine karşı dirençlilik çok yüksek düzeylere ulaşır. Bu nedenle klasik kimyasal ve fiziksel dezenfeksiyon ve sterilizasyon ajanları kullanılarak biyofilmlerin oluşumunun engellenmesi ve eradikasyonu mümkün olamamaktadır. Bu ajanların biyofilm yapıları ile mücadelede kullanımı, özellikle belirli bir konsantrasyon üzerinde gösterdikleri toksik ve korozif etkileri nedenleriyle, bir çok durumda sakıncalı bulunmaktadır. Bunun yerine, son yıllarda yeni antibiyotiklerin eksikliği ve devam eden antimikrobiyal direnç krizi nedeniyle geniş etki spektrumuna sahip bakteriyosinlerin kullanım olanaklarının araştırılması güçlü bir alternatif yöntem olarak görülmektedir. Bu kapsamda öne çıkan bakteriyosin gruplarından biri, geniş etki spektrumuna sahip lantibiyotiklerdir. Lantibiyotikler, bakteriyosinlerin en kapsamlı incelenen alt sınıfı olması nedeni ile biyofilmleri hedefleyen bakteriyosinlerle yapılan çalışmaların çoğu ağırlıklı olarak bu grubu içermektedir. Ayrıca, biyofilm oluşumunu önlemek veya mevcut biyofilmleri yok etmek amacıyla lantibiyotiklerin ve diğer bakteriyosin gruplarının kombinasyon halinde kullanımı da biyomühendislik ve moleküler biyoloji tekniklerindeki ilerlemeler ile mümkün hale gelmiştir. Bu durum, çok sayıda bakteriyosin bankasının oluşturulmasına yol açmaya devam edecektir.

Anahtar Kelimeler: Biyofilm, kontrol stratejileri, bakteriyosin, lantibiyotik.

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➢ **ORAL PRESENTATION**

Preperation of a nanostrucered biocomposite and analysis of sensitivity to Cd (II) ions

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Abstract

Biomaterials, as well as being environmentally friendly, can be applied in many areas through their excellent integration with nanostructures. Biosensors created using plant tissue materials are alternatives of biosensors created with isolated enzymes. These biosensors are also used frequently in determination of heavy metals. Cd (II) is one of the most dangerous heavy metals and has a very high solubility in water, and it has high toxic properties even at low doses for living organisms by joining the food chain. In order to quantify the Cd (II) ions of this product with accurate, sensitive and economical methods, an electrochemical biosensor is made from the study of non-usable hybrids of the extract of green tea obtained by ethanol extraction and modification of these hybrids to glassy carbon surfaces. Modified surfaces were characterized by Scanning Electron Microscope (SEM), Fourier Transform Infrared Spectrofotometre (FTIR), Circular Voltammetry (CV) and Differential Pulse Polarography (DPP) techniques. The modified nanobiostructured electrodes proposed for the quantification of Cd (II) ions showed a well-defined voltammetric response with a high catalytic activity at -0.7 V in pH 4.5 PBS solution. The proposed nanobiostructured biosensor showed long-term stability, good repeatability, high selectivity in the quantification of Cd ions and was successfully applied to Kızılırmak river and tap water samples.

Keywords: Cd (cadmium), green tea extract, hybrid systems, nano biosensor.

DRAFT

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➢ **ORAL PRESENTATION**

Cobalt-embedded poly(3-methyl thiophene) film as electrocatalyst toward hydrogen evolution reaction

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Abstract

Reserves of the fossil-based fuels have been depleting rapidly and these fuels have also cause some environmental problems. Therefore, significant efforts have been devoted to developing clean energies and recyclable conversion technologies. Among them, water splitting system, including the generation of hydrogen (H_2) and oxygen (O_2) is promising way to afford sustainable and green energy technology. Using the noble metal-based catalysts for produce hydrogen is considered to be the bottleneck in this area. Therefore, replacement of this noble metal with abundant and cheaper metal-based catalysts have been intensively studied. Metallized polymers which is prepared by electrochemical reduction of metal ions on the polymeric surface are simple way to obtained metal-based catalysts. Herein, cobalt metal has been electrodeposited on poly(3-methyl thiophene) (P3MT) surface. The metal layer is deposited under two different methods. First, Co/P3MT was coated on electrode surface by potentiodynamically in acetonitrile solution including the monomer and $CoCl_2$. The other way, firstly P3MT was electrodeposited on electrode surface, then, Co salt was coated on the surface of P3MT by applied constant potential in $CoCl_2$ solution. Cobalt-embedded film was used as electrocatalyst toward hydrogen evolution reaction with overpotential of 580 mV at 10 mA cm^{-2} and Tafel slope 126 mV dec^{-1}.

Keywords: Cobalt, 3-methyl thiophene, hydrogen evolution, conductive polymer, electrocatalyst

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Oda sıcaklığında çalışan katkılı ZnO ince filmlerin yapısal, morfolojik ve hidrojen gaz algılama analizleri

Irmak Karaduman Er

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Özet

Son yıllarda hidrojen gazı algılama özellikleri geniş çapta araştırılmaya başlanmıştır. Hidrojen gazının patlayıcı bir gaz olmasından dolayı hidrojen gaz sensörü çalışmalarında çalışma sıcaklıklarının düşürülmesi hedeflenmektedir. Bu çalışmada Tungten (W) katkılı ZnO ince filmler kimyasal banyolama tekniği ile %1 ve % 2 katkılı olarak büyütüldü. Morfolojik, yapısal ve optiksel analizleri yapıldı. Farklı çalışma sıcaklıklarında ve oda sıcaklığında hidrojen (H_2) gaz algılama özellikleri katkılamanın etkisine bağlı olarak incelendi. Farklı çalışma sıcaklıklarında yapılan ölçümlerde çalışma sıcaklığı 100 °C olarak bulundu. %1 W-katkılı ZnO ince film 100 °C çalışma sıcaklığında diğer ince filmlere kıyasla daha yüksek algılama performansı gösterdi. Sensörler oda sıcaklığında 100 ppm H_2 gazına karşı kabul edilebilir düzeyde duyarlılık sergiledi. Ölçüm sonuçları, numunelerin gaz algılama özelliklerinin katkılamaya bağlı olarak değiştiğini gösterdi.

Anahtar Kelimeler: Gaz sensör, hidrojen, Kimyasal banyolama metodu

Teşekkür: Gazi Üniversitesi Fen Fakültesi Gaz Sensör Laboratuarındaki, gaz sensör ölçüm sisteminin kullanılmasına izin veren Sayın Prof. Dr. Selim ACAR'a çok teşekkür ederim. Ek olarak sensör malzemelerinin büyütülmesinde emeği geçen ve yardımlarını asla esirgemeyen Sayın Arş.Gör.Dr. FATMA SARF'a çok teşekkür ederim

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➢ **ORAL PRESENTATION**

The fish fauna of the Dalaman River (Turkey): Taxonomic and zoogeographic features

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Abstract

This study was carried out to determine the fish fauna of the Dalaman River and to compare with the neighboring basins from a zoogeographical point of view.

In order to establish the taxonomic and zoogeographic features of the Dalaman River Basin's (Turkey) fish fauna, samples were collected using electrofishing, gill nets (mesh size of 9x9 mm and 12x12 mm), trammel nets (multimesh size), seine nets (2 mm) and cast nets in years 2010 to 2019. The samples were fixed and preserved in a 4% formalin solution. Meristic characters such as number of gill rakers, pharyngeal teeth, dorsal and anal fin rays, total lateral line scales were counted under a stereomicroscope. The last two branched dorsal and anal fin rays are counted. The number of vertebrae in the Cyprinidae, Leuciscidae, Cobitidae and Nemacheilidae was determined by radiography.

During the field samplings, 21 species [Anguillidae (1), Salmonidae (2), Cyprinidae (4), Leuciscidae (4), Gobiidae (1), Aphaniidae (1), Nemacheilidae (1), Cobitidae (2), Poeciliidae (1), Blenniidae (1), Centrarchidae (1), Gasterosteidae (1), Mugilidae (1)] belonging to 13 families were identified. The dominant families in the river and its branches are Cyprinidae (4) and Leuciscidae (4).

The eleven species (52 %), *Alburnus carianorum*, *Barbus xanthos*, *Capoeta aydinensis*, *Chondrostoma fahirae*, *Ladigesocypris irideus*, *Squalius fellowesii*, *Aphanius meridionalis*, *Knipowitschia byblisia*, *Cobitis phrygica*, *Cobitis fahirae* and *Oxynoemacheilus anatolicus* are endemic; *Carassius gibelio*, *Lepomis gibbosus*, *Gambusia holbrooki*, *Salmo* sp. and *Oncorhynchus mykiss* are nonnative species. The endemic species on the basis of the IUCN criteria must be especially protected.

While the fish fauna diversity of the Dalaman River is similar to the Burdur Closed Basin from the neighboring basins, the Büyük Menderes River and Eşen Stream slightly are separated from the fauna.

Keywords: Anatolia, Dalaman River, ichthyofauna, endemic, non-native.

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➢ **ORAL PRESENTATION**

An experimental investigation of aconitine in trigeminal neuralgia**

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Abstract

Trigeminal neuralgia (TN) is a disease limited to one side of the face affecting oral cavity and is characterized by a recurring, sudden, unilateral, short-lasting stinging pain which originates from one or more of the trigeminal nerve branches. Carbamazepine is the most widely preferred drug for the treatment of TN. Although 20% of the patients treated with carbamazepine show liver intoxications, carbamazepine is still the most effective first line drug. When pharmacotherapy fails to stop the pain or has serious side effects, surgical approaches should be evaluated. Carbamazepine has many side effects including sedation, dizziness, confusion, imbalance, headache, nausea, vomiting, diarrhea, blurry vision, benign leukopenia and skin exfoliations. Aconitine is a diterpenoid alkaloid acquired from *Aconitum* species. In traditional Chinese and Indian medicine, *Aconitum* roots containing aconitine was used to treat illnesses including rheumatism, arthritis, broken bones and neuralgias. Aconitine is used in neuralgia treatment topically by interacting with voltage dependent sodium ion canals. Because the medical treatments for TN are inefficient and has serious complications, the objective is to achieve maximum long-term patient comfort with minimal invasive procedures. With this objective, the aim of this study is to investigate whether aconitine, acquired from the plant *Aconitum napellus* which is used for TN treatment in folk medicine, can be an alternative to synthetic drugs and surgical procedures on a scientific platform. According to the results of this study, although aconitine is not as effective as carbamazepine in the treatment of trigeminal neuralgia, it is concluded that it is effective in eliminating neuralgiform pain especially in high doses compared to the control group. Aconitine is an agent that can be used as an alternative to carbamazepine in the treatment of trigeminal neuralgia.

Keywords: Trigeminal neuralgia, Aconitine, Carbamazepine, Innovative therapy

** We would like to thank to Gazi University Scientific Research Foundation for their support in this study (Project code: 03/2017-23).

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➢ **ORAL PRESENTATION**

Genetic stability determination of *Citrus sinensis* (L.) Osbeck one-year old *in vitro* culture clones via ISSR markers

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Abstract

Citrus being member of Rutaceae family have been used for food, medicinal, herbal and other agricultural purposes for centuries. *In vitro* propagation systems are useful tools for clonal propagation of difficult species such as woody plants and these tools can offer many economic advantages for mass production of plant species, however, the resulting *in vitro* regenerated plants sometimes may show somaclonal variation. For traditional planting strategies, the micropropagated plants should be same with the mother plant. For this reason, confirmation of genetic stability is crucial for *in vitro* propagated plants. There are many protocols such as morphological, cytological, physiological, biochemical and molecular procedures for determination of somaclonal variation within micropropagated plants and they have been successfully used in several species. Molecular marker systems have been useful tools to determine genetic stability of *in vitro* grown clones after subculturing periods. A number of molecular marker techniques, including random amplified polymorphic DNA (RAPD), amplified fragment length polymorphism (AFLP), simple sequence repeats (SSR) and inter-simple sequence repeats (ISSR), have been developed and used to determine genetic stability for *in vitro* propagated plant species. ISSR analysis involves the use of SSR motifs in order to prime the polymerase chain reaction (PCR) and thereby amplify regions between adjacent, but inversely oriented, microsatellites and these markers have been successfully used for genetic stability analysis of many plant species. In this study, ISSR markers were used for genetic stability determination of *Citrus sinensis* (L.) Osbeck *in vitro* clonally propagated a period of 12 months. The total of 13 ISSR primers were assayed and the reproducible bands were obtained from 7 of them. The determined genetic stability were 100%.

Keywords: *Citrus sinensis*, genetic stability, ISSR, micropropagation, molecular marker, somaclonal variation

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➢ **ORAL PRESENTATION**

Development of a new determination method for medazepam and lorazepam in human plasma by HPLC-UV

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Abstract

A simple, rapid and reliable determination method of medazepam and lorazepam in human plasma by high-performance liquid chromatography method (HPLC) coupled with ultraviolet detection (UV) was developed. Chromatographic conditions were optimized in terms of mobile phase pH and content, column type and separation temperature and detection wavelength. Medazepam and lorazepam were separated by a reverse-phase ACE-3 C18 analytical column (150 × 4.6 mm, 3 µm particle size). 20 mM KH_2PO_4 buffer and acetonitrile, (60:40, v/v) were applied to the system as a mobile phase. Ultraviolet detection was achieved at 220 nm. Column thermostat was set at 40 °C. The mobile phase flow rate was 0.5 mL/min and the sample injection volume was 20 µL. Total chromatographic run time was ≤ 10 min. An optimized solid-phase extraction method which obtained high recovery was used in this research. Method was validated according to ICH guideline. Linearity (r^2) was ≥ 0.999. Precision (%RSD) was detected as ≤ 5.5. Accuracy (RE%) were between -3.5 and 5.2. Average recovery was found as 92.0%. We recommend this simple, reliable and precise method for routine therapeutic drug monitoring, especially in psychiatric clinics or toxicology reference laboratories.

Keywords: Madezepam, lorazepam, plasma, solid-phase extraction, validation, HPLC

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➢ **ORAL PRESENTATION**

Üzüm posası içeren broyler rasyonlarında enzim kullanımının performans üzerine etkisi

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Özet

Bu çalışmada, şarap sanayii yan ürünü olup selülozca zengin olan üzüm posasının enzim ile birlikte broyler rasyonlarına katılmasının yaşamın ilk 3 haftalık yaşında canlı ağırlık, canlı ağırlık artışı, yem tüketimi ve yemden yararlanma oranı üzerine etkileri araştırıldı. Bu amaçla 0-günlük 120 adet Ross 308 ırkı broyler civciv kullanıldı. Civcivler her grupta 40 adet olacak şekilde 3 gruba ve bu 3 grup da her birinde 10 adet civciv olacak şekilde 4 alt gruba ayrıldı. Gruplara kontrol, %5 üzüm posası (üzüm grubu) ve %0.1 enzim + %5 üzüm posası (enzim grubu) içeren üç farklı yem yedirildi. 0 günlük getirilen civcivler tartılarak yaklaşık 1 m^2 alana yerleştirildikten sonra 3 hafta süreyle beslendi ve her hafta canlı ağırlıkları ile tükettikleri yemler tartıldı. Çalışmanın ilk iki haftasında enzim grubunun canlı ağırlıkları kontrol ve üzüm grubuna göre önemli düzeyde yüksek bulundu ($p<0,001$). Üzüm grubu ile enzim grubunun canlı ağırlıkları son hafta benzer iken bunların kontrol grubundan önemli düzeyde yüksek olduğu belirlendi ($p<0,001$). Canlı ağırlık artışları yönünden enzim grubu diğer gruplara göre ilk iki hafta önemli düzeyde yüksek iken ($p<0,05$) son hafta gruplar arasında fark olmadığı görüldü ($p>0,05$). Grupların yem tüketimleri ilk hafta aynı iken ikinci hafta enzim grubunun yem tüketiminin kontrol grubuna göre önemli düzeyde yüksek ($p<0,05$), üçüncü hafta ise üzüm ve enzim gruplarının benzer ve her ikisinin kontrol grubundan yüksek ($p<0,05$) olduğu görüldü. Yem tüketimleri ile canlı ağırlık artış ortalamalarının oranlanması ile elde edilen yemden yararlanma oranları ise tüm haftalarda gruplar arasında benzer ($p<0,05$) bulunmuştur. Sonuç olarak atık bir ürün olarak açığa çıkan üzüm posası selülozca zengin olduğu için kanatlı rasyonlarına selüloz sindirimine yardımcı enzimler ile birlikte ilave edilebileceği, bunun canlı ağırlık artışı yönünden faydalı olacağı görülmüştür. Üzüm posasının yem tüketimini artırmasına rağmen yemden yararlanma oranları arasında fark olmaması üzüm posasının ucuz yem ham maddesi olarak kanatlı rasyonlarında kullanılabileceği söylenebilir.

Anahtar Kelimeler: üzüm, posa, enzim, broiler, selüloz

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➢ **ORAL PRESENTATION**

Ermenek florasında doğal olarak yetişen endemik *Origanum saccacum* bitkilerinin farklı lokasyonlardaki kimyasal bileşimi

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Özet

Origanum (*Lamiaceae*), gıda ve sağlık alanında çeşitli amaçlar için kullanılan yüksek değerli tıbbi ve aromatik bitki cinslerinden biridir. Bu cinsin pek çok türünün, dünya ticaretinde şifalı ot, baharat, ilaç ve kozmetik endüstrilerinde hammadde olarak kullanımı yerel pazarlarda önem arz eder. *Origanum* cinsi güçlü aromatik bitkiler olmakla birlikte, bu cinsin türleri arasında morfolojik ve kimyasal olarak yüksek miktarda çeşitlilik mevcuttur. Temel kimyasal kompozisyonunu karvakrol, timol, linalool ve p-simen gibi fenolik bileşenler oluşturmaktadır. *Origanum saccatum* ise Antalya çevresinde "Tahtacı Kekiği" olarak bilinen, kireçtaşı kayaçlarında ve çam ormanlarında yamaçlarda yetişen, C3 ve C4 kareleri için endemik olan bir türdür.

Bu çalışma Karamanın Ermenek İlçesinde 4 farklı yükseltiden (1196, 1323, 1449 ve 1523 m) toplanarak 2 farklı (Adana ve Ermenek) lokasyonda kültüre alınan *Origanum saccatum* bitkilerinin kimyasal bileşimlerini belirlemek amacıyla yapılmıştır. Deneme 2014, 2015 ve 2016 yıllarında 3 yıl süreyle Ermenek'te, 2015 ve 2016 yıllarında 2 yıl süreyle Çukurova Üniversitesi Tarla Bitkileri Bölümü Araştırma Alanında yürütülmüştür. Çalışmada floradan toplanan türlerin uçucu yağ oranlarının % 0.24 ile % 0.48 arasında değiştiği, Adana'da kültüre alınan türlerin uçucu yağ oranlarının ise % 0.10 ile % 0.76 arasında, Ermenek'te kültüre alınan türlerin uçucu yağ oranlarının ise % 0.18 ile % 1.20 arasında değiştiği belirlenmiştir. Floradan toplanan türlerin uçucu yağlarında ana bileşenleri karvakrol (% 21.23-58.80), p-cymene (% 18.23-61.10) olarak tespit edilmiştir. Adana'da kültüre alınan türlerde ana bileşen karvakrol (% 12.40-58.50), p-cymene (% 21.10-58.20), Ermenek'te kültüre alınan türlerde ise ana bileşen karvakrol (% 6.72-55.84), p-cymene (% 12.69-76.80) olarak belirlenmiştir.

Anahtar Kelimeler: Ermenek, *Origanum saccatum*, endemik, uçucu yağ, GC/MS, flora

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➢ **ORAL PRESENTATION**

Adsorption of 5-fluorouracil drug molecule on the surface of pure, B-, Al- and Ga-doped carbon nanotubes

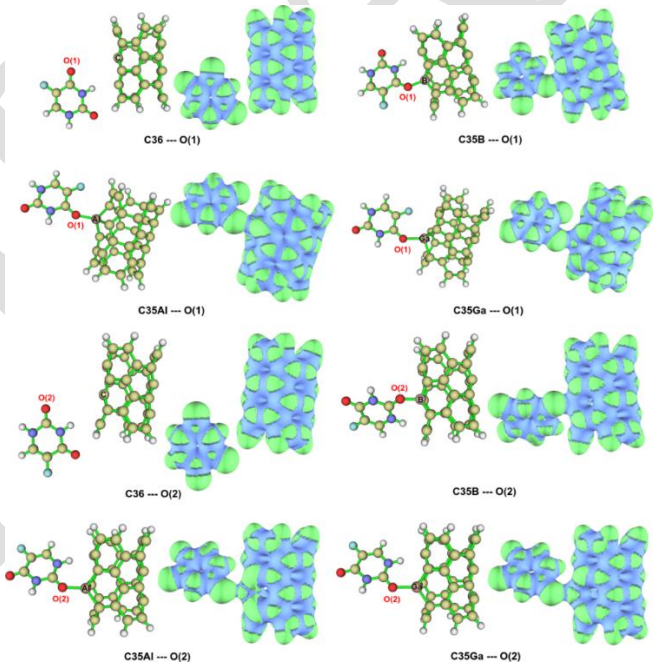
İskender Muz

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Abstract

Density functional theory (DFT) is used to examine the formation possibility of a stable interaction between 5-fluorouracil (5-FU) drug molecule and pure, boron (B), Al (aluminum), and Ga (gallium) doped carbon nanotube (CNT). The structural, electronic and optical of mentioned complexes are investigated in detail. Adsorption energy values between pure CNT and 5-FU molecule is calculated in range of -3.79 and -4.38 kcal/mol. As a result, there is very weak interaction between them. According to calculated results, there is very weak physical adsorption of 5-FU on B-doped CNT while strong adsorption takes place in the case of Al- and Ga-doped CNTs. Moreover, Al- and Ga-doped CNTs prefer to interact with the oxygen atoms of the 5-FU and the adsorption energy of Al-doped CNT and 5-FU is relatively greater than that of Ga-doped CNT. The charge transfer from adsorbed 5-FU molecule to Al- and Ga-doped CNTs was confirmed by the natural bond orbital as well as the Mulliken population analysis while there is no charge transfer with pure CNT. In addition, the first absorption peaks suggest that all complexes can absorb in visible light region with wavelengths from about 380 to 740 nanometers. The results of this study suggest that the Al and Ga dopant increases the adsorption capacity of CNT enhancing its interactions with oxygen atoms of the 5-FU, hence improving its adsorption properties. These results point to the appropriateness of Al- and Ga-doped CNTs as a powerful adsorbent for practical applications.



Keywords: Carbon nanotube, 5-Fluorouracil, Doping, DFT, Absorption.

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➢ **ORAL PRESENTATION**

Determination of volatile organic compounds by GC-MS and antioxidant capacity in methanol and ethanol extract of *Brassica oleracea* L. var. *acephala* seed

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Abstract

Brassicaceae or Cruciferae plants are a large family of plants, including 338 genera and 3709 species, used in many fields from agriculture to human food, animal feeds, oil products and biofuels. Cabbage, broccoli, cauliflower, Brussels sprouts, and kale are often consumed as vegetables. Kale (*Brassica oleracea* L. var. *acephala*) since ancient times, especially this plant grown widely in Turkey's eastern Mediterranean and Black Sea regions. It is reported that kale may contribute to neuroprotection due to its antioxidant and phytochemical properties, and it helps to reduce the risk of many types of cancer and heart diseases. To date, most of the studies done has been on the leaves of the kale plant. Therefore, there are not enough studies in the literature about seeds of kale. In this study, volatile organic compounds were determined with GC-MS, antioxidant capacity was determined by performing nitric oxide (NO) and DPPH scavenging (%) analysis in ethanol and methanol extract in the kale seeds. In addition, metal analysis was performed on the kale seeds with ICP-MS. Different results were obtained in the content of volatile organic molecules in methanol and ethanol extracts of kale seeds. Quite important compounds were observed in the results of methanol extraction. These; Sulforaphane nitrile, Palmitic acid. beta.-monoglyceride, Piperidine, 1- (3-hexenyl) -, Goitrin, Vitamin e, Ergost-5-en-3-ol, (3.beta.). Especially, sulforaphane derivatives have been shown in previous studies to be effective in reducing various tumors and apoptosis. In addition, it has been reported that the Ergost-5-en-3-ol molecule has anticancer, antioxidant, antiflammatory and hypocholesterolemic effects. Antioxidant activities were compared; NO and DPPH scavenging (%) levels were observed to be higher in methanol extraction. According to the result of ICP-MS analysis; it was found that the kale seeds are rich in Zn (41.77 µg / mL), Mn (27.51 µg / mL) and K (mg / mL).

Keywords: *Brassica*, sulforaphane, GC-MS, volatile organic molecules, antioxidants.

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➢ **ORAL PRESENTATION**

The ınvestigation of the effect of different hemofiltration models on trace elements in acute renal failure patients

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Abstract

Acute renal failure (ARF), is a manifestation that renal functions and liquid-electrolyte balance are destroyed. Continuous renal replacement therapy (CRRT), is a group of various treatment techniques that are implied to patients with renal function failure and liquid burden, considered as ARF. CRRT, describes the implementation of continuous extracorporeal blood filtration therapies, temporarily replacing hypoactive renal functions. Therefore, CRRT techniques named as hemodialysis, hemofiltration and hemodiafiltration are used. Trace elements are essential inorganic molecules. Alterations in trace element metabolism can be investigated as a result of renal failure. Trace element metabolism might be affected from diminished renal function, alteration in metabolic balance and CRRT used for renal failure. Thus, the aim of this study is to investigate the trace element filtration during CRRT in patients admitted to intensive care unit with acute renal failure and to reveal the possible alterations in the concentrations of trace elements in serum, urine and dialysate of these patients. Our study was planned as pre-treatment, 24 hours after the initial time and post-treatment by getting serum, urine and dialysate of these patients. The levels of trace elements (As, B, Cu, Cr, Fe, Mg, Mn, Se, Si and Zn) were measured in serum, urine and dialysates via spectrophotometric method. All trace element levels except Se levels in serum, and B, Fe and Zn levels in dialysate, and in urine; variations were analysed that are statistically significant.

Consequently, we concluded that definition of changes in trace element levels is more appropriate when continuous veno-venous hemodiafiltration (CVVHDF) from CRRT is preferred.

Keywords: Acute Renal Failure, Continuous Renal Replacment Treatment, Hemodiafiltration, Trace Element, Intensive Care

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➢ **ORAL PRESENTATION**

Kinetin-Induced *In Vitro* Shoot Formation of *Staurogyne repens* (Nees) Kuntze

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Abstract

In this study, multiple and rapid propagations of *Staurogyne repens* (Nees) Kuntze with tissue culture techniques were aimed. In the first stage, surface sterilization of *S. repens* was achieved by using hydrogen peroxide (H_2O_2). Nodal explants of *S. repens* were cultured in Murashige and Skoog (MS) medium containing 0.25-1.50 mg/L Kinetin (KIN) for six weeks. The frequency of shoot regeneration in culture medium ranged from 77.77% 100.00%. The highest shoot regeneration frequencies (100%) were determined in MS medium containing 0.25, 0.50 and 0.75 mg/L KIN. Maximum shoot regeneration per explant (10.27) was obtained in the culture medium with 0.50 mg/L KIN. In culture media containing KIN, the minimum number of shoots (5.10) was determined in MS nutrient medium with 1.50 mg/L KIN. Shoot lengths varied between 1.03-2.82 cm. The longest shoots (2.82 cm) were obtained in MS nutrient medium containing 1.50 mg/L KIN. Regenerated shoots were rooted in culture media containing Indole-3-acetic acid (IAA) at different concentrations (0.25-1.00 mg/L). The rooted shoots were accustomed to external conditions successfully.

Keywords: *In vitro*, Kinetin, micropropagation, nodal explant

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➢ **ORAL PRESENTATION**

Endometriozisin nadir şekli: Karın duvarında insizyonel endometriozis

Fatih Yıldırım

SBÜ Gülhane Eğitim ve Araştırma Hastanesi Genel Cerrahi Kliniği

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Özet

Endometriozis, endometrial dokunun uterin kavite dışında yerleşmesiyle karakterize bir durumdur. Obstetrik ve jinekolojik ameliyatlardan sonra hastaların % 0.03-0.4'inde karın duvarında insizyonel endometriozis görülmektedir. En çok cerrahi sırasında insizyon alanına mekanik olarak taşınmayla oluştuğu düşünülmektedir. Klinik olarak sütür granülomu, abse, karın duvarı tümörleri ve hatta insizyonel herniyle karışabilmektedir. Bu sunumda obstetrik ve jinekolojik ameliyat geçiren üreme çağındaki kadınlarda, karın ön duvarında siklik ağrılı kitle saptandığında insizyonel endometriozisin ayırıcı tanıda dikkate alınması gerektiği vurgulanmıştır.

2018-2019 yıllarında kliniğimizde karın ön duvarında ağrılı kitle nedeniyle ameliyat edilen ve patolojik incelemelerinde endometriozis saptanılan olgularımız incelemeye alındı. Bu olgularımız retrospektif olarak değerlendirildi.

Değerlendirilen 4 hastamızın tanı konulduğunda ortalama yaşı 27 (yaş aralığı 25 – 29) idi. Hastaların hepsinde sezeryan ameliyatı öyküsü vardı. Tüm hastalarda sezeryan insizyon alanında adet dönemlerinde ele gelen ağrılı kitle şikayeti vardı. Sezeryan işleminden semptomların başlangıcına kadar geçen süre 1 - 8 yıl arasındaydı. Tüm hastalara tedavi öncesi ultrasonik inceleme yapıldı. Hastaların ameliyat öncesi jinekolojik değerlendirmelerinde intraabdominal endometriozis saptanmadı. Hastaların tedavisinde geniş cerrahi eksizyon yapıldı. İki hastada eksizyon alanına greftle takviye yapıldı. Kitlelerin patolojik incelemelerinde endometriozis tanısı doğrulandı. Ameliyat sonrasında komplikasyon gelişmeyen hastalar, nüks olmaksızın takip edilmektedir.

Abdominopelvik cerrahi geçirmiş kadınlarda karın ön duvarında ele gelen, adet dönemlerde ağrılı olan kitlelerin ayırıcı tanısında insizyonel endometriozis düşünülmelidir. Karın duvarında endometriozisten korunmak için özellikle pelvik alandaki ameliyatlarda dikkatli olunmalı ve mekanik yayılıma imkan verilmemelidir. Nüksleri engellemek için geniş cerrahi eksizyon uygulanmalıdır.

Anahtar Kelimeler: Endometriozis, Obstetrik ve jinekolojik ameliyatlar, İnsizyonel endometriozis

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➢ **ORAL PRESENTATION**

Kolelitiazis tanısıyla laparoskopik kolesistektomi yapılan hastalarda saptanılan safra kesesi polipleri

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Özet

Safra kesesi polipleri (SKP), safra kesesi mukozasından köken alan lezyonlardır. Karın ultrasonografisi yapılan hastalarda % 0.3-12 oranında SKP'i saptanır. Kolesistektomi ameliyatı sonrasında yapılan patolojik tetkiklerde % 2-12 sıklıkta SKP bulunur. SKP'nin büyük çoğunluğunu kolesterol polipleri oluşturur ve malignite potansiyeli taşımazlar. Kliniğimizde safra kesesi taşı tanısıyla laparoskopik kolesistektomi yapılan ve ameliyat sonrası patolojik incelemede SKP saptanılan hastalar sunulmuştur.

2017 ile 2019 tarihleri arasında preoperatif safra kesesi taşı tanısıyla ameliyat edilen ve cerrahi piyeslerinde SKP'i saptanan olgular retrospektif olarak değerlendirildi.

Tüm hastalarda karın ağrısı şikayeti vardı. Ameliyat öncesi yapılan ultrasonografide (US) safra kesesi taşı tanısı konmuştu. Hiçbir hastada US de safra kesesi polibi görülmedi. Safra kesesi taşı tanısıyla 104 hastaya kolesistektomi yapıldı. Ameliyat sonrasında patolojik incelemede 104 hastanın % 5'inde (% 4,8) safra kesesi polibi saptandı. SKP'i saptanan hastaların yaş ortalaması 44.4 (yaş aralığı 26-56) idi. SKP'i saptanan hastalardan ikisinde tek safra kesesi taşı, üçünde multipl safra kesesi taşları vardı. Safra taşı boyutları 2-14 mm arasında değişiyordu. Üç hastada hepatosteatoz da vardı. Bir hastada geçirilmiş pankreatit öyküsü vardı. SKP'inin hepsi kolesterol polibi idi. Multipl olup boyutları 1-3 mm arasında değişiyordu. Tüm hastalarda kronik kolesistit saptandı. SKP'li hastalar komplikasyon olmaksızın taburcu edildi.

Kollesterol polipleri safra kesesi poliplerinin % 60'ını oluştururlar. Histolojik olarak kolümner tek sıralı epitelle örtülmüş kolesterol içeren histiositlerden kollesterol birikimi sonunda oluşmaktadır. Safra yolu tıkanıklığı veya pankreatit hastalığına yol açabilirler.

Anahtar Kelimeler: Safra kesesi polipleri, Kolelitiazis, laparoskopik kolesistektomi

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➢ **ORAL PRESENTATION**

SonoFenton ve ultrases/H_2O_2 prosesleri ile kağıt endüstrisi atıksuyundan KOİ giderimi

Şefika Kaya*, Yeliz Aşçı

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Özet

Endüstriyel atıksuların birçoğu, çok yavaş bozunan ya da biyobozunmayan organik maddeleri içermektedir. Klasik atıksu arıtım yöntemleri ile biyolojik arıtmaya dirençli organik bileşikleri uzaklaştırmak güçtür. Bu nedenle, son yıllarda ileri oksidasyon prosesleri, bu organik kirleticileri indirgemek için yüksek verim sağlayan alternatif bir yöntem haline gelmiştir. Bu çalışmada üretim prosesleri aşamasında büyük miktarlarda su tüketiminin gerçekleştiği ve organik kirliliğinin yüksek olduğu bilinen kağıt endüstrisi atıksuyu kullanılmıştır. Deneysel çalışmalarda sonoFenton ve ultrases/H_2O_2 prosesleri uygulanarak kağıt endüstrisi atıksuyundan KOİ giderimi incelenmiştir. Elde edilen verilere göre ultrases ve Fenton reaktiflerinin birlikte uygulandığı sonoFenton prosesinde daha yüksek KOİ giderim verimine (%88) ulaşılmıştır.

Anahtar Kelimeler: Fenton, ultrases, endüstriyel atıksu, arıtım.

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➢ **ORAL PRESENTATION**

Fe(III) iyonu içeren MnO_2 katalizörü ile endüstriyel atıksu arıtımı: Heterojen Fenton

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Özet

Son yıllarda gelişen teknoloji ile birlikte biyolojik arıtıma göre daha kısa sürede ve daha etkin arıtım sağlayan ileri oksidasyon prosesleri ile yapılan çalışmalar öne çıkmaktadır. Bu kapsamda yürütülen çalışmalarda, geniş yüzey alanlı ve bozunma işlemlerinde daha yüksek aktivitelere sahip yeni hetero-katalizörlerin geliştirilmesi önem kazanmıştır. Bu çalışmada, %8 Fe(III) iyonu içeren MnO_2 katalizörü sentezlenerek tekstil endüstrisi atıksuyundan renk ve KOİ giderimi üzerine deneysel çalışmalar yürütülmüştür. Belirlenen optimum deneysel koşullarda %90 renk ve %63 KOİ giderim verimi sağlanmıştır.

Anahtar Kelimeler: Heterojen Fenton, katalizör, endüstriyel atıksu, arıtım.

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➢ **ORAL PRESENTATION**

Utilization of hydrothermal process water for microalgae growth

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Abstract
Microalgae are one of the most effective biological sources for renewable energy production. They can propagate at great rates that can be 50 times more than that of the terrestrial crop which is the fastest growing plant and they have a capacity for oil production throughout the year. Comparing with other biomass sources such as terrestrial, agricultural and solid waste, etc., algal biomass provides a more stable and manageable energy production system. However, there are some disadvantages besides these advantages for efficient microalgae production such as the need for a large number of nutrients, the high cost of installation and operation of production systems. For these reasons, researchers have been working on various researches such as using wastewater obtained from different processes as a medium to grow microalgae with more effective and cheaper methods. In this study, aqueous phase obtained from hydrothermal carbonization of orange pomace was utilized as a nutrient source in *Chlorella minutissima* growth. Different dilution rates (50x, 100x, 200x and 400x) were used to observe the effect of aqueous phase concentration on algal growth during 30 days. According to the results of microalgae cultivation, the medium with the lowest dilution rate was determined as the optimum medium because of giving the best growth value compared to other dilution rates, and it has been found that HTC process water can be used in microalgae cultivation efficiently.
Keywords: Microalgae, *Chlorella minutissima*, HTC process water, growth kinetic

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➢ **ORAL PRESENTATION**

Phytotoxic activity of Asteraceae species

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Abstract

The term phytotoxicity usually refers to the same meaning with the term allelopathy as a chemical interaction between plants or sometimes between microbes and higher plants that include stimulatory as well as inhibitory influences. Allelopathy plays a major role in agricultural management such as weed control, crop protection, and crop re-establishment. Compositae plants have potent allelopathic activity, and the activity is confirmed through (a) bioassays with aqueous or various solvent extracts and residues, (b) fractionation, identification, and quantification of causative allelochemicals, and (c) mechanism studies on the allelochemicals. Most assessments of allelopathy involve bioassays of plant or soil extracts, leachates, fractions, and residues based on seed germination and seedling growth in laboratory and greenhouse experiments. Plant growth may be stimulated below the allelopathic threshold, but severe growth reductions may be observed above the threshold concentration depending upon the sensitivity of the receiving species. Generally germination is less sensitive than seedling growth, especially root growth. Natural products identified as allelopathic agents have been classed into the following: (a) toxic gases, (b) organic acids from Krebs cycle and aldehydes, (c) aromatic acids, (d) simple unsaturated lactones, (e) coumarins, (f) quinones, (g) flavonoids, (h) tannins, (i) alkaloids, and (j) terpenoids and steroids, etc. Asteraceae is one of the families which contained species having allelochemicals, such as Fabaceae, Acanthaceae, Apocynaceae, Euphorbiaceae, Lamiaceae, Rutaceae Malvaceae and Rubiaceae. Many Compositae plants have allelopathic potentials, and the activities and types and amount of causative compounds differ depending on the plant species. The incorporation of allelopathic substances into agricultural management may reduce the use of pesticides and lessen environmental deterioration.

Keywords: Phytotocixity, Asteraceae, agriculture, phytochemicals

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➢ **ORAL PRESENTATION**

Using a decision tree meta-predictor and accelerated molecular dynamics method together to predict the functional impact of variants

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Abstract

The main purpose of this study was to improve the prediction performance for functional impact of mutations, which is a highly crucial step in variant prioritization used to clarify the molecular mechanisms of genetic diseases and so to diagnose the patients and recommend treatments based on the enlightened mechanisms. We created the meta-predictor called PRIDA, which uses the categorical results from CanDrA (lung), MutationTaster and Condel, by decision tree modelling and observed that there are still deficiencies despite the high prediction performances on blind datasets. Moreover, we realized that structural and functional properties of the related biological machines, proteins, are mostly not involved in the prediction algorithms. Then, we tried a basic and quick method, which is to calculate the changes in destabilization tendencies (ΔΔG) by FoldX. After it was deduced as insufficient for the enhancement, we performed a much more complex and realistic computational approach called molecular dynamics (MD) simulations. MD simulations are highly informative on protein structure and function relations and so they can generate numerous new features for the classification of mutations in terms of their functional effects, but calculations require too much computational power and time. Therefore, one of the tricky MD approaches called accelerated MD (aMD), which lowers the activation energy barriers to accelerate the conformational changes for sampling more conformations in shorter timescales indicating less computational power and time for more observations, were performed. All the simulated cases with classical MD and aMD methods were re-classified correctly, even using the shorter aMD trajectories. Examination of all these results led us to create the prediction pipeline named PRaMP, which consists of PRIDA prediction, an optional filtering approach by scoring the reliability of predictions and aMD simulations.

Keywords: Decision tree algorithm, meta-predictor, molecular dynamic simulations

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➢ **ORAL PRESENTATION**

Removal of Congo Red from aqueous solution by adsorption onto raw rocks

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Abstract

Waste waters generated by the textile industries are known to contain considerable amounts of non-fixed dyes. These dyes are harmful to humans and environment, which requires prior treatment before their release into the public sewerage system.

The aim objet of this part of our studies, is to decrease the amount of pollution in textile effluent, using natural rocks collected from the mountain range of the Middle Atlas, in Khenifra region (Morocco) as a new efficient adsorbent in the field of waste water treatment using the adsorption technic.

In order to identify these rocks, analyses were conducted using: X-ray Diffraction (XRD) and scanning electron microscopic (SEM).

The collected rocks were ground, sieved and then used directly for adsorption experiments without any pre-treatment.

Removal of the anionic dye (Congo Red) from aqueous solutions using raw rocks was achieved using batch adsorption experiments. The effect of; initial Congo Red concentration, amount of adsorbent, solution temperature, and shaking speed was studied.

Maximum dye removal was found at 0.5g of the adsorbent amount, 25°C and 800 rpm, and a kinetic study yielded an optimum equilibrium time of 2 h.

Adsorption kinetic of the materials were studied using pseudo-first order and second order kinetic equations. The kinetic processes of CR adsorption onto rocks were described in order to provide a more clear interpretation of the adsorption rate and uptake mechanism. The overall kinetic data was acceptably explained by a pseudo second-order rate model, which mean a chemical adsorption.

Rocks used in this study demonstrated the best adsorptive capacity, which allows us to consider it as low-cost alternatives for expensive dye removal from industrial wastewater.

Keywords: Adsorption, Dyes, Rocks, Chemical sorption.

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➢ **ORAL PRESENTATION**

Effect of Cannabidiol on fertility of pregnant mice

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Abstract

Phyto-cannabinoids, are a terpeno-phenolic compound, acting through CB receptors. There are 113 cannabinoids that have been isolated and identified from Cannabis plants, the best-known ones are Tetrahydrocannabinol (THC) and cannabidiol (CBD). Although, THC have therapeutic potential, its psychoactive effects have largely limited its use. CBD have attracted more attention by its safety as non-psychoactive compound and its abundance, constituting up to 40% of the crude extract. Cannabidiol has been evaluated trough animal experiment models for many pharmacologic effects such as anti-inflammatory, anti-convulsant, anti-oxidant, anti-emetic, anxiolytic and anti-psychotic activities. In the same way, comes this study to evaluate CBD effect on rodent fertility. Female mice have been treated orally with CBD at 50, 100 and 200 mg/kg doses, from the first day of pregnancy until delivery, Animals were observed for any intoxication symptoms all over the period of gestation. Additionally, pregnancy, deliverance, viability and lactation indexes have been determined. The results show that mice female fertility is highly affected by CBD administration. In fact, at 200 mg/kg, cannabidiol has stopped pregnancy for 80% of fertilized female, only 60 % of pups have survived at the 4th postnatal and 100% has been dead on the 21th postnatal day.

Keywords: Cannabidiol; developmental toxicity; fertility.

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➢ **ORAL PRESENTATION**

Adsorption of palladium ions onto keratin particles extracted from wool wastes

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Abstract

Wool is one the most preferred natural polymer that has been used as a textile material, due to its unique properties such as keeping warm, having easy maintenance/handling, and being biocompatible. In addition, the functional groups present in the polypeptide structure of wool enables to modify its surface with different chemicals for fulfilling the requirements of different application fields, such as bio-textiles, adsorption, and catalytic activity (1-2). However, the S-S disulfide linkages containing external keratin layers limit the usage of wool for the modification of its surface. For that reason, in this work, to obtain a material with a significant adsorption capability, the wool fabric wastes were treated by the reduction process with organic and inorganic reducing agents containing-aqueous alkaline baths. The SH groups containing keratin particles were extracted from the wool in the powder form. Then, these particles were used in the adsorption of Pd^{+2} ions in the aqueous acidic medium by monitoring with UV-vis spectra. The effects of some experimental conditions such as the reducing agent type, concentration of Pd^{+2} ions, and adsorption time were investigated on the Pd adsorption (%) content and adsorbed Pd^{+2} amount (in g Pd/g fiber) of the composite. The highest Pd^{+2} amount of the composite (0.07 g/g wool) was obtained when 0.04 M $PdCl_2$ was used for 24 h. The samples were characterized by various techniques such as ATR-FTIR, UV-Vis, and contact angle measurements. The obtained composite has a potential of use in the various fields such as catalytic reduction and dye decolorization.

Keywords: wool keratin, reduction treatment, adsorption of palladium.

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➢ **ORAL PRESENTATION**

Phylogenetic and phylogeographic analysis of the *Simulium ornatum* species group (Simuliidae: Diptera) in the West Black Sea Region

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Abstract

Black flies (Diptera: Simuliidae) are important dipterans because of their blood sucking behaviour and their vector properities both in human and animal health. Many species are living in our country as well as all around the World. A lot of criptic species are known in the family. Difficulties in differentiating these species from classical taxonomic methods have led researchers to determine species boundaries with DNA based data in recent years. It is known that there are 5 species of *Simulium ornatum* species group in Turkey. The presence of these cryptic species identified in our country by morphotaxonomic data needs to be tested with DNA-based information and definitive species identification is required. In this study, it was aimed to determine the species of *Simulium* genus *ornatum* species group in Western Black Sea region and to determine the phylogenetic relationship between them by using 3 different gene regions (COI, $NADH_2$ and ITS1-2). 73 different stations were sampled in the region. Morphotaxonomic data showed that two different species of the target species group (*Simulium kiritshenkoi* Rubtsov, 1940 and *Simulium ornatum sp-comp*) occcurs in the region. Phylogenetic analyzes were performed using the genetic data obtained from these species and gene data obtained from individuals belonging to *Simulium ornatum* Meigen, 1818 species obtained from different regions of Europe. In the study, overlapping genetic data obtained from three different gene regions indicate that there is a single species (*S. kiritshenkoi*) spreading in the region and this species does not show a genetic variation that can be accepted as a separate species with *S. ornatum* species. It is concluded that in order to establish the phylogenetic relationship between *S. kiritshenkoi* and *S. ornatum*, comprehensive studies are needed considering the distribution areas of these species and evaluating them in the data of other species of the species group.

Keywords: Simuliidae, West Blacksea, ornatum species group.

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➢ **ORAL PRESENTATION**

Preliminary study on the effect of urbanization on Carabidae and Scarabaeidae families in Eskişehir Osmangazi University Meşelik campus and oak forest gradient

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Abstract

With this study, the effect of urbanization on the Carabidae and Scarabaeidae families was studied in Eskişehir Osmangazi University Meşelik Campus and Oak Forest gradient. 3 different areas were chosen for the sampling. These areas are; Natural Habitat, Semi Natural Habitat and Urbanization area. Specimens were collected between May 2017 and May 2018 with 15-day periods and various collection methods (pit trap, aspirator, manual collection etc.). Habitat similarities are determined by Sørensen and Jaccard indexes. Habitat diversities are determined by Shannon-Wiener and Simpson's indexes. As a result of the study, 12 different species from the Carabidae family and 7 different species from the Scarabaeidae family were determined. According to the results of the similarity index, Semi Natural Habitat and Natural Habitat were determined as the most similar areas with Jaccard's index with 0,368 value and Sorensen's index with 0,538 value. According to the diversity index, the Urbanization region is the poorest area in terms of species diversity, but this region where the highest values are observed in terms of the number of individuals of the existing species.

Keywords: Carabidae, Scarabaeidae, urbanization effect, diversity, index .

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➢ **ORAL PRESENTATION**

Phaseolus vulgaris'te metal tolerans proteininin (MTP) genom bazında analizi

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Özet

Metal tolerans proteinleri (MTP), hücre, doku ve tüm bitki seviyelerinde metallerin taşınmasında rol alan ve Fe / Zn-MTP, Zn-MTP ve Mn-MTP olmak üzere 3 grupta değerlendirilen önemli bir protein ailesidir. Günümüze dek diğer bitki türlerinde MTP gen ailesine yönelik çalışmalar yapılmış olmasına rağmen fasulyede gerçekleştirilmiş bir çalışma bulunmamaktadır. Literatürdeki bu ihtiyaca yönelik olarak planlanan bu çalışmanın amacı *Phaseolus vulgaris* bitkisinde MTP proteinlerinin genom çapında in siliko olarak belirlenmesi ve karakterize edilmesidir. Biyoinformatik analizler neticesinde fasulye bitkisinde 12 adet MTP proteini tanımlanmış ve bu gen ailesi üyelerinin Zn-MTP alt ailesine ait olduğu belirlenmiştir. Bu proteinler 41.34 ile 91.05 kDa ağırlığına sahip olup, 369-813 arasında değişen amino asitten oluşmuştur ve izoelektrik noktaları 5.08 (Phvul-MTP-7) ile 8.97 (Phvul-MTP-9) arasındadır. PhvulMTP genlerinin fasulyenin 1,2, 3, 5, 6, 7, 8, 10 ve 11 numaralı kromozomlarında dağıldığı ve PhvulMTP-9 geninin en fazla sayıda intron içeren gen olduğu tespit edilmiştir. Moleküler filogenetik analizler sonucunda ise PhvulMTP genlerinin 3 ana gruba ayrıldığı anlaşılmıştır. MTP genlerinin ifade profilleri bu genlerin farklı dokularda ifade olduğunu ortaya çıkarmış ve bitkinin gelişimi süresince çeşitli fizyolojik işlevlerde görev alabildiklerini de göstermiştir. Ayrıca tanımlanan PhvulMTP genlerinin promotör bölgelerinde farklı streslerle ilişkili çok sayıda cis elementi tanımlanmıştır. Fasulye bitkisinde MTP gen ailesinin biyoinformatik olarak tanımlandığı ve karakterize edildiği ilk çalışma olan bu çalışmadan elde edilen sonuçların gelecekteki fonksiyonel çalışmalar için önemli bir veri seti olabileceği kanaatindeyiz.

Anahtar Kelimeler: Biyoinformatik, İn siliko analiz, MTP, *Phaseolus vulgaris*, Stres

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Phaseolus vulgaris'te süperoksit dismutaz (SOD) genlerinin genom bazında biyoinformatik analizi

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Özet

Süperoksit dismutaz (SOD), bitkilerde olumsuz çevre koşullarının neden olduğu oksidatif strese karşı cevapta rol oynayan önemli bir enzimatik antioksidandır. Günümüze dek pek çok bitki türünde çalışılmış olmasına rağmen, *Phaseolus vulgaris*'te SOD gen ailesi hakkında çok az şey bilinmektedir. Literatürdeki bu eksiklikten yola çıkarak planlanan bu çalışmanın amacı SOD gen ailesinin üyelerinin *Phaseolus vulgaris* bitkisinde in siliko olarak genom çapında belirlenmesi ve karakterize edilmesidir. Bu kapsamda fasulye genomunda 8 adet SOD proteini tespit edilmiş olup bu proteinleri kodlayan SOD genlerinin 3, 4, 6, 7 ve 9 numaralı kromozomlarında yerleşik olduğu belirlenmiştir. Moleküler ağırlıkları 15.18 ile 35.66 kDa arasında değişen PhvulSOD proteinleri 152-312 arasında değişen sayıda amino asitten oluşmaktadır. İzoelektrik noktaları ise 5.17 (Phvul-SOD-2) ile 7.93 (Phvul-SOD-5) arasındadır. PhvulSOD genlerinin ekzon-intron yerleşimlerine bakıldığında en fazla sayıda intronun, aralarında tandem duplikasyon bulunan PhvulSOD-4 ve PhvulSOD-5 genleri arasında olduğu görülmüştür. PhvulSOD genlerinin korunmuş bölge yapılarının evrimsel süreçteki durumlarını aydınlatmak için yapılan filogenetik analizler sonucunda 3 farklı grupta kümelendiği tespit edilmiştir. SOD genlerinin ifade profilleri bu genlerin farklı dokularda ifade olduğunu ortaya çıkarmış ve bu genlerin bitkinin gelişimi süresince çeşitli fizyolojik işlevlerde görev aldıklarını göstermiştir. Ek olarak, tanımlanan SOD genlerinin promotor bölgelerinde farklı stres türleri ile ilişkili çok sayıda cis elementi saptanmıştır. Bu çalışmadan elde edilen sonuçların fasulyede SOD gen ailesi üzerine ileride gerçekleştirilebilecek fonksiyonel araştırmalar için faydalı olabileceği görüşündeyiz.

Anahtar Kelimeler: Biyoinformatik, İn siliko analiz, *Phaseolus vulgaris*, SOD, Stres

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➢ **ORAL PRESENTATION**

Enlightening the %C4 result falsification at Aegean pine honey samples - alternate sample preperation and evaluation For C13/C12 ısotope ratio calculation in place of Standard AOAC method

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Abstract

Pine honey is a valuable foodstuff due to its superior taste and novel health benefits [1]. Food authenticity is a rapidly growing field and as with any 'added value' product, fraud risks are increased at pine honey. A C12/C13 ratio measurement procedure was adopted as an AOAC 998.128 method for detecting sugar adulteration via addition of HFCS or cane sugar [2]. Many of Turkish unadulterated Pine honeys fail from this test with the result of above 7% where values greater than 7% are questionable. Turkish Pine Honey is generally characterized by small sized insoluble honeydew elements and they can make up an appreciable amount of precipitation and negatively affecting the C13/C12 results. Our research focuses on the usage of the isotopic values of the purified proteins after novel protein isolation and insoluble removing method and comparison of the results.

We collected pine honey samples from Aegean region of Turkey at 2019 and the samples were categorized based on their %C4 levels. Honey Proteins were concentrated, purified and cleaned-up applying ultracentrifugation and ultradiafiltration methodologies. The resulting samples were flocculated and protein solutions were centrifuged and pellet was dried at vacuum concentrator. The d13C values of whole honey samples and purified protein were measured using stable isotope analyses according to the AOAC 998.12 method at Thermo Scientific™ EA IsoLink™ IRMS System in continuous flow mode.

When the insoluble materials in Turkish pine honeys were removed from these samples and purified protein calculation was included, the difference between the d13C values of whole honey and purified protein were reduced. These results brought these honeys to within the 7% test limit if there has been no further adulteration with C4 sugar. In fact, the proposed modification to the AOAC test will reduce false positive tests and improve the overall reliability of results.

Keywords: Fraudulent, Pine Honey, Isotope Ratio Mass Spectrometry, %C4

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Assessing urban population of spur-thighed tortoise, (*Testudo graeca)* by habitat use and annual patterns between 2012 - 2019

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Abstract

The Mediterranean spur-thighed tortoise (*Testudo graeca*), is increasingly threatened in its distribution area, due to the habitat loss, pollution, and illegal removal of free-ranging individuals for pet trade. Although Anatolia provides suitable habitats for this species, and has relatively low risk compare to Europe, increasing anthropogenic activity causes serious pressure for its habitat use especially in urban sites. On the other hand, many reptiles prefer to use human-made apparatus for their ecological welfare or may alternate their typical reproductive seasonality depending on the traditional acts of those human populations that have effects on them. Therefore, long term monitoring studies provide convincible results to recommend to local stakeholders for conservation. Here, surveys, that were conducted in the last decade were to detect tortoise's habitat use and annual patterns in a rapid urbanized site, Beytepe Campus (Hacettepe University, Ankara) and around. This urban population of the Mediterranean spur-thighed tortoise was evaluated by capture – mark – recapture methodology. Censuses of the study site provided estimations of density, size-age class distributions, sex ratios. Moreover, carcasses were recorded from study stations to predict the mortality rates. The dynamics of micro- and macrohabitat structures were assessed in multiple scales. The results showed that, the tortoises were still tended to use their original habitats (grasslands and shrubs were preferred at the landscape scale) and interactions of the individuals with other wild species were more common in these sites than human-modified ones as a macrohabitat scale. However, microhabitat structures, like leaf litter and the presence of large stones may also play an important role, that cannot be ignored in human-modified landscapes. On the other hand, these urbanized sites reduced the maintaining of habitat heterogeneity. The conservation implications of this study were also discussed.

Keywords: Tortoise, urban habitat, habitat selection, threatened species

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➢ **ORAL PRESENTATION**

Piyasada "defne yaprağı" adı altında satılan numunelerin tıbbi açıdan kullanımının değerlendirilmesi

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Özet

Laurus nobilis L. (Defne, Lauraceae) herdem yeşil çalı ya da ağaçların oluşturduğu Akdeniz elementi bir bitkidir (1). Asya, Amerika ve Avrupa'da geniş bir şekilde kültürü yapılmaktadır. Bitki ülkemizde özellikle Ege, Akdeniz ve Karadeniz'in sahil kısımlarında yayılış göstermektedir.. Türkiye dünyadaki en önemli defne yaprağı ihraç eden ülkelerden biridir. Yaprakları özellikle baharat olarak kullanılmaktadır. Yaprak ve meyveleri halk arasında tıbbi amaçlı kullanılırken, bunlardan elde edilen uçucu ve sabit yağlar özellikle gıda, parfümeri, sabun ve ilaç sektörlerinde değerlendirilmektedir. Yaprakları halk arasında terletici, antiseptik ve midevi etkileri nedeniyle kullanılmaktadır (2-4).

Bu çalışma, piyasada defne yaprağı adı altında satılan bitki örneklerinin, bitkisel drog özelliklerine sahip olup olmadığını belirlemek için yapılmıştır. Bu amaçla örnekler, Türkiye'nin 5 farklı bölgesinden 6 farklı ilden (Ankara, Batman, Hatay, Isparta, İstanbul ve İzmir) satın alınmıştır. Standart olarak kullanılan örnek ise Hatay'dan temin edilmiştir. Standart örnek ile piyasadan temin edilen örnekler morfolojik özellikleri açısından karşılaştırmalı olarak incelenmiş ve safsızlıkları belirlenmiştir. Yapılan incelemeler sonucunda piyasadan temin edilen örneklerin, defne bitkisinden elde edildiği belirlenmesine rağmen Farmakope standartlarına uygunluğu açısından insan sağlığında kullanılmak üzere bitkisel drog tanımına uygun nitelikler taşımadıkları gözlenmiştir.

Anahtar Kelimeler: *Laurus nobilis*, Lauraceae, Morfoloji, Bitkisel drog

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➢ **ORAL PRESENTATION**

Gold coated 3D-titanium dioxide nanorod arrays fabricated by solid-state thermal dewetting approach and application to regulation of saos-2 cells on the surfaces

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Abstract

The decoration of 3D nanostructured platform with plasmonic nanoparticles have attracted increasing interest in recent years for varying applications in medicine, environmental protection, and homeland security due to unique properties they provide The solid-state dewetting is a simple and versatile technique to fabricate plasmonic nanostructure decorated platforms. However, understanding of the optical properties of these platforms and the effect of 3D morphology of underlying substrate on the dewetting of metallic thin films are still in need for developing effective platforms for further applications. Herein, we report a gold nanoisland decorated 3D titanium dioxide nanorod (TiNR) arrays fabricated through thermal dewetting approach. It is demonstrated that the plasmonic behavior of fabricated platforms can be manipulated by controlling of both initial gold film thickness and annealing temperature. Furthermore, fabricated platforms exhibit Raman signal enhancement up to ~10^5 for the probe molecule methylene blue. Our results clearly offer simple but important guidance for the creation of SERS platforms for real-life applications. Moreover, the surface characteristics of the fabricated platforms were evaluated for biological interactions. For this purpose, osteogenic cells (Saos-2) were seeded on the samples and results showed that cell behavior was improved on the anisotropic micro-nano pattern of TiNRs because of the features such as topography and surface chemistry. It is clear that TiNRs can be used as biomaterials for real-life applications.

Key words: Titanium, nanorod, saos-2, biocompatibility, SERS, PVD

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Synthesis of 1,2-disubstituted benzimidazole derivatives and investigation of their *in vitro* anticancer efficacy

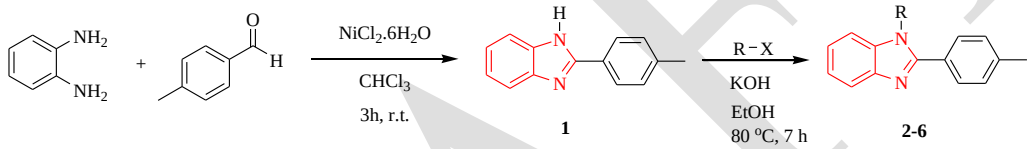
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Abstract

The 1,2-disubstituted benzimidazole compounds exhibit significant activities against various viruses such as HIV, herpes (HSV-1), RNA, influenza and human cytomegalovirus (HCMV) [1]. In addition, benzimidazole derivatives are used as topoisomerase inhibitors, selective neuropeptide YY1 receptor antagonists, smooth muscle cell proliferation inhibitors and in the treatment of interstitial cystitis [1]. Furthermore, compounds containing benzimidazole nucleus have many other biological activities such as antimicrobial, anthelmintic, analgesic, antiulcer, antiviral, anticancer, antioxidant, antihypertensive, anti-inflammatory, antifungal and diuretic activities [2-4].



Scheme. Synthesis of 1,2-disubstituted benzimidazole.

In this study, a few potential anticancer drug candidates were synthesized in two steps. In the first step, 2-*p*-tolyl-1*H*-benzo[*d*]imidazole was prepared from *o*-phenylenediamine and 4-methylbenzaldehyde. In the second step, a series of 1,2-disubstituted benzimidazole compounds were synthesized using various aryl halides. Their structures were characterized by IR, ^{1}H NMR, ^{13}C NMR and elemental analysis. The antiproliferative activity studies of the compounds were performed against human cancerous breast (MCF-7) and liver (HepG2) cell lines for 72 h. Using the MTT assay method, the developed compounds were evaluated for their cytotoxicity at different concentrations. In here, under the same experimental conditions, two positive control drugs (irinotecan hydrochloride trihydrate and 5-fluorouracil) were used as reference compounds for comparison. According to results, the developed compounds further inhibited the proliferation of liver cells rather than breast cells.

Keywords: Anticancer, benzimidazole, cytotoxic activity.

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➢ **ORAL PRESENTATION**

Antioxidative defense mechanism and oxidative damage caused by Zn stress in ruderal *Verbascum olympicum* Boiss. growing in degraded areas

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Abstract

Zinc (Zn) is so special micronutrient that is present in enzymes of all six major classes. It is involved in a lot of physiological and biochemical processes from plasma membrane function, chlorophyll biosynthesis, to oxidative stress tolerance, regulation of DNA transcription and protein-protein interactions (Broadley et.al. 2007, *Kabata-Pendias 2011*). However, when Zn concentrations increase with anthropogenic activities such as mining, sewage sludge (Broadley et.al. 2007; Santos et.al. 2009) the metabolic process of plants also begin to effect negatively because of binding of zinc to various functional groups of ligands containing sulfur and oxygen (Kozhevnikova et.al. 2014, Paula et.al. 2015). In this study, we investigated the effects of different Zn concentrations (0, 50, 200, 500µM) for 10 days in the ruderal *Verbascum olympicum* Boiss. which is dominated in disturbed areas of Uludağ Mountain. Because it also is special species with high biomass produce and high nitrate assimilation capacity (Güleryüz and Arslan 1999, Güleryüz et.al. 2001). The activity of antioxidative enzymes (SOD, CAT, APX) and nitrate assimilation enzymes (NR, GS) with some metabolic process such as the water and chlorophyll content, biomass production and soluble protein was determined in the 8-week-old seedlings growing in Hoagland's nutrient solution. Also, lipid peroxidation was measured as the amount of MDA. Results were subjected to two-way ANOVA according to different Cu concentration treatments and exposed periods. It was generally found that biomass production, water, chlorophyll and protein content was decreased. Increased MDA content indicates to being of oxidative stress. It was determined an increase tendency in antioxidative enzyme activities depending on concentration and duration by increasing Zn concentrations, whereas NR and GS activities were negatively affected by Zn treatments. This situation indicates that *V. olympicum* has a strong antioxidative defense system for scavenging Zn-induced oxidative stress. It shows the level of survival success in degraded areas.

Keywords: Zinc, Nitrate Assimilation, Lipid peroxidation, Oxidative stress, *V. olympicum*

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➢ **ORAL PRESENTATION**

Are botanical descriptions useful in large-scale pollination studies?

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Abstract

Botanical descriptions are remarkably useful in many areas, such as, morphology, character evolution and pollination studies. While these descriptions can be very subtle and detailed, yet the use of them in particularly large-scale (i.e., above genus level) pollination and character evolution studies can still be problematic. Here, I reviewed hundreds of botanical descriptions of Fabales taxa from various sources, in terms of their usefulness in these large-scale studies. The current review has clearly shown that many important details are missing in most, if not all, botanical descriptions, such as, information on floral size, the number of flowers in an inflorescence, inflorescence size, height and height of inflorescences from ground, which all are crucial in terms of choice of pollinators. Here, I discussed all these problems in detail, with various samples from published sources. I also provided ideal botanical description samples from literature.
Keywords: Botanical descriptions, character evolution, Fabales, morphology, pollination.

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➢ **ORAL PRESENTATION**

Kahramanmaraş ili serpantin topraklarının ağır metal konsantrasyonlarının belirlenmesi

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Özet

Bir alanın toprak kalitesi ve sağlığının belirlenmesi o alana ait toprakların fiziksel, kimyasal ve biyolojik özelliklerinin birlikte değerlendirilmesi sonucu mümkün olabilmektedir. Bitkiler ihtiyaç duydukları makro ve mikro besin elementlerini bulundukları alanlardaki topraklardan temin etmektedir. Ancak bazı alanlardaki besin elementlerinin fazlalığı o alanda bitki yetişmesini engelleyerek bitkisel biokütlede kayıplar oluşmasına neden olmaktadır. Serpantin alanlarının çoğu mikro besin elementlerinin bazılarını fazla miktarda bulundurması o alanda ağır metal konsantrasyonu sorununu doğurmaktadır. Bu çalışma Kahramanmaraş İlinde şehir merkezine yakın ağaçlandırma sahalarının bulunduğu serpantin topraklarındaki kobalt (Co), krom (Cr), bakır (Cu), demir (Fe), mangan (Mn), kurşun (Pb), nikel (Ni) ve çinko (Zn) ağır metallerinin toplam konsantrasyon miktarlarının belirlenmesi için gerçekleştirilmiştir.

Araştırma sahasından üst topraklardan alınan toprakların makro elementler bakımından düşük seviyelerde (organik karbonu % 0.81, toplam azot %0.12, fosfor 3.82 ppm) oldukları tespit edilmiştir. Buna karşın topraklarda fazla miktarda magnezyum 1292.20 ppm birikmesi olduğu belirlenmiştir. Bu durumda toprakların Ca/Mg oranının düşük olması erozyon riskini arttırıcı etkisinin yanında bitki beslenmesini de olumsuz etkilemektedir. Bununla birlikte serpantinit anakayasından oluşan toprakların üst kısımlarından alınan topraklarda ölçülen ağır metallerden demir (7,59 mg/kg) hariç diğerlerinin üst sınır değerlerini aşmadığı belirlenmiştir. Ölçülen ağır metal konsantrasyonları büyükten küçüğe doğru Fe>Ni>Mn>Cu>Zn>Co>Pb>Cr şeklinde sıralanmıştır. Sonuç olarak belirlenen ağır metal konsantrasyonları bakımından bu alanların bitki yetiştirme açısından bir zarar oluşturmadığı ancak makro besin elementleri bakımdan yetersiz olduğu için bu besin elementlerinin alana takviyesi gerekmektedir.

Anahtar kelimler: Ağır metaller, serpantin etkisi, Akdeniz, Kahramanmaraş, toprak sağlığı

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➢ **ORAL PRESENTATION**

Synthesis, spectra, antimicrobial activity of Schiff bases derived from dopamin and halogen substituted 2-hydroxyacetophenone

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Abstract

Considerable attention has been paid in recent years to the investigation of the properties of dopamine and L-dopa, because of their biological significance. The dopamine and L-dopa are well known for their use in neurotransmission process and in the treatment of Parkinson's disease. A prominent feature of Parkinson's disease is the loss of dopamine in the striatum and many therapeutic investigations for the disease are aimed at restoring dopamine signaling. Furtermore; the many of the dopamine containing compounds exhibit antibacterial activities.

In this work, 2-hydroxyacetophenonedopamine (afdop), 5Fluoro-2-hydroxyacetophenonedopamine (5F-afdop), 5Chloro-2-hydroxyacetophenonedopamine (5CI-afdop), 5Bromo-2-hydroxyacetophenone dopamine (5Br-afdop) Schiff bases have been synthesized. The structures of dopamine Schiff bases have been characterized by using elemental analysis and spectroscopic methods (FTIR, 1H-NMR, 13C-NMR). In addition, the new Schiff bases have been screened as *in vitro* for their antimicrobial activities by the Broth Microdilution Method (BMD) on different species of bacterial and fungal strains. A total of seven isolates, four Gram-negative (*E.coli*, *P.aeruginosa*, *K.pneumoniae*, and *S.maltophilia*) and two Gram-positive (*S.aureus* and *S. epidermidis*) and one fungal isolate (*C.albicans*) were selected for this study. Sulfisoxazole, sulfamethoxazole and fluconazole were used as a reference drugs in the study. The MIC range values (µg/ml) for compounds were 0.078–1.25 in the test. The results of this study shows, that with their *in vitro* antimicrobial properties, dopamin Schiff bases are promising new agents for the control and treatment of bacterial and fungal infections.

Keywords: Dopamin, Schiff base, 2-hydroxyacetophenone, Antimicrobial activity

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Fabrication of 2-mercaptobenzothiazole coated pencil graphite electrode for determination of Rutin

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Abstract

Flavonoids, a benzo-γ-pyrone derivatives, have received significant interest because they help treatment of health problems on human. Especially, rutin is important flavonoid present in plants, drinks and medicinal herbs [1]. Rutin (Ru) is known with its anti-bacterial, anti-inflammatory, anti-oxidation and anti-aging abilities [2]. So, it is necassary to develop a sensitive method to determine Ru in food and medicine.

This study aims to fabricate a pencil graphite electrode (PGE) coated with 2-mercaptobenzothiazole using cyclic voltammetry (CV). This electrode was characterized by electrochemical impedance spectroscopy and used for determination of Ru by differential pulse voltammetry (DPV). Therefore, the effects of covering cycle, supporting electrolyte and pH were investigated to find optimum conditions. The modification procedure of PGE was performed between -1 and +2.0 V potential range with 15 CV at 100 mV s^{-1} scan rate. The fabricated electrode was successfully used to determine Ru in real samples.

Keywords: Pencil graphite electrode, Flavonoids, Rutin, Voltammetry.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Using of entomopathogenic viruses

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Abstract
Agriculture and crop production is one of the most important factors that negatively affect the yield and quality of agricultural pests. Chemical control methods are widely used in the control of insects that cause losses in different plant products. Since these insecticides are harmful to the environment, human health and non-target organisms, alternative control methods should be used to control pests. Biological control of pests is one of these methods. Classically, parasitoid and predatory insects are used in this method. In addition, entomopathogenic microorganisms are used in biological control of pests. Especially viral entomopathogens are seen as highly specific and effective biological control agents. In recent years; viruses isolated from insects for pest control, molecular biology, gene expression and gene therapy have become the scientific study material that attracts world attention. For biotechnological purposes, entomopathogenic viruses, such as baculoviruses, reoviruses, entomopoxviruses and iridoviruses are used. However, baculoviruses are the most studied and most widely used entomopathogenic virus group for biotechnological purposes. At the same time, entomopathogenic viruses are used for biotechnological purposes. In molecular studies, virus protein interactions have attracted the most attention in recent days.
Keywords: Baculoviridae, Biological control, Entomopathogenic virus, Entomopoxviridae, Insect.

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➢ **ORAL PRESENTATION**

Investigation of thermal, mechanical and morphological properties of side chain LCP/IPP graft products

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Abstract

In the present study, it was aimed to prepare side chain liquid crystalline polymer (LCP), poly (p-benzophenoneoxycarbonylphenyl methacrylate (poly(BPOCPMA))/ isotactic polypropylene (IPP) graft products and characterize. Graft products at six different monomer content (5, 10, 15, 20, 30, 40%) were prepared via bulk-melt polymerization method at 160°C for 50 minutes reaction time. The content of poly(BPOCPMA) in the products presented as graft units in copolymers, and presented as both the graft units and the homopolymer molecules in the coproducts were determined gravimetrically. The poly(BPOCPMA) contents in copolymers were 7.3, 8.9 and 10.3% at 20, 30 and 40% BPOCPMA, respectively. On the other side, the poly(BPOCPMA) contents in coproducts increased almost linearly with monomer concentration in the reaction mixtures. Thermal, microstructural, mechanical and morphological properties of products were investigated. According to DSC results, any endothermic heat flow ascribed to the crystalline melting of the graft poly(BPOCPMA) was not observed in the thermograms of the products. However, grafting led to changes in the crystalline melting temperature and percentage crystallinity of products. The melting temperatures ranged from 164.0°C to 169.4°C and the percentage crystallinity of all copolymers were higher compared to neat IPP, but the presence of homopolymer molecules in the coproducts resulted in relatively lower crystallinities with respect to the copolymers. XRD patterns of all products and IPP were monoclinic unit cell. Yet, grafting caused to significant expansion in a and b unit cell dimensions, also particle size of IPP crystals. Mechanical properties were investigated and it was observed that the tensile strength and impact strength of products were lower compared to neat IPP, but the modulus of products increased at lower poly(BPOCPMA) content. SEM micrographs of the tensile and impact fractured surfaces of products indicated brittle nature with some ductility, but no phase separation detected at all.

Keywords: Isotactic Polypropylene, Liquid Crystalline Polymer, Tensile Strength, Ductility, Phase Seperation

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Epibatidin ve türevlerinin hesaplamalı NMR, IR çalışması ve biyolojik aktiviteye etkisi

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Özet

Bu çalışmada epibatidin ve 27 türevinin NMR ve IR spektrumları incelenmiş ve literatürden bulunabilen deneysel değerler ile karşılaştırılmıştır. Teorik ^{13}C ve ^{1}H NMR kimyasal kaymaları ve IR spektral verileri B3LYP yöntemi ile 6-311++G(d,p) ve 6-31G(d,p) olmak üzere iki farklı temel kümede belirlenmiştir. Eviews 10 programı kullanılarak literatürden bulunabilen deneysel K_i, hesaplamalı K_i ve log P değerleri ile ^{13}C-NMR ve ^{1}H-NMR sonuçları arasındaki bağlantıları ifade eden denklemler oluşturulmuştur. Bulunan denklem sonuçları aromatik halkada yer alan karbon ve hidrojenlerin aktifliği etkilediğini göstermektedir.

Anahtar Kelimeler: Epibatidin, NMR, IR, aktiflik

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Developments in Turkey health system

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Abstract

Turkey is a developing country. The best example of development is the reforms in health and the changes that occur as a result. We have evaluated our study was to compare the effects on humans of effects and development of health services in Turkey. development of the health system in Turkey has benefited from some of the criteria taken into consideration. When these are analyzed one by one, the developments related to the allowances allocated to health, the number of health personnel, the number of hospital beds, the population with health insurance, the rates of immunization, the duration of hospitalization, birth and death rates, the changes in the number of elderly population and the changes in chronic disease rates were be compared. All the years of 2000-2018 between Turkey Statistical Institute for the assessment of this situation (TUIK), the Organization of Economic Cooperation and Development (OECD) and the Centers for Medicare and Medicaid Services (CMS) data were taken into consideration. The results of the comparative analysis, Turkey's health system over the years, it is observed that a rise to the good. As a result of the analyzes made with the countries such as the USA and Greece, which are considered to have a high investment in health and that the health service is considered to be good, the analysis is still behind Greece, while the USA is ahead of many issues. The reason for these differences is thought to be caused by differences in the development of management, socio-economic level, public and private health sector.

Keywords: Comparative Management, Greece, Health system, Turkey, United States

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➢ **ORAL PRESENTATION**

Application of new heterocyclic compounds as catalysts in the Suzuki-Miyaura and Mizoroki-Heck Cross-Coupling reactions in aqueous media

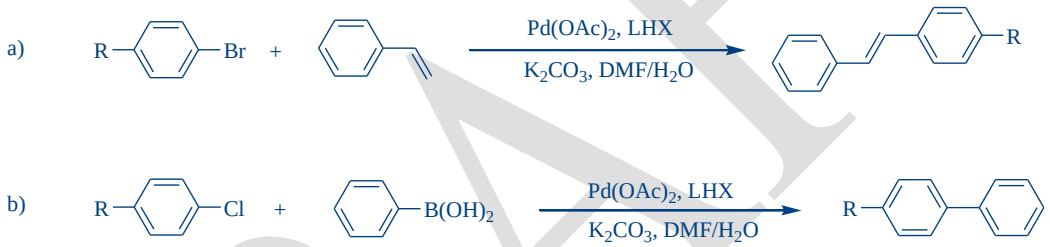
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Abstract

Carbon-carbon bond formation has been generally used in the synthesis of natural products, pharmaceuticals, herbicides and advanced functional materials [1, 2]. One of the significant synthetic transformation methods for C-C bond formation is the Suzuki-Miyaura cross-coupling reaction, which was developed in the twentieth century. On the other hand, Mizoroki-Heck reaction is also commonly used for C-C bond formation [3-5]. The general scheme for these two coupling reactions is as below.



Scheme 1. Mizoroki-Heck coupling reaction (a) and Suzuki-Miyaura couling reaction (b) in the presence of the *in situ* generated catalysts.

Using appropriated starting materials, a few heterocyclic compounds were synthesized and fully characterized by FT-IR, ^{1}H NMR, ^{13}C NMR spectroscopic methods and elemental analyses. *In situ* generated palladium complexes from these compounds with $Pd(OAc)_2$ were tested as catalysts in the Mizoroki-Heck and Suzuki-Miyaura cross-coupling reactions in aqueous media. The LHX efficiencies used in the reactions were found to be very close to each other. However, the highest yields of coupling products were obtained when p-bromotoluene and chlorobenzene as alkyl halides were used in Mizoroki-Heck and Suzuki-Miyaura reactions, respectively.

Keywords: Catalyst, Heterocyclic compound, Mizoroki-Heck reaction, Suzuki-Miyaura reaction.

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➢ **ORAL PRESENTATION**

Determination of vitamin d level in eggs using LC-MS/MS

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Abstract

The aim of the study was to investigate the vitamin D (25-OH vitamin D) levels and measure the some quality features of eggs. A total of 150 eggs including conventional (n:75) and free-range (n:75) were used in this study. The levels of 25-OH vitamin D were measured by LC-MS/MS in egg yolks. In addition, there were evaluated egg weight, yolk weight, albumen weight, yolk colour, shape index, shell thickness, percentages of albumen, yolk, and shell. A method for LC-MS/MS was optimized and validated to assess the 25-OH vitamin D in egg yolks. The 25-OH vitamin D levels were significantly higher ($p<0.01$) in the conventional than the free-range eggs. In addition, the egg weight, albumen weight, yolk weight, percentage of yolk and yolk colour were significantly higher ($p<0.01$) in the conventional than the free-range eggs. However, the shape index, percentage of albumen, percentage of shell and shell thickness were significantly higher ($p<0.01$) in the free-range than the conventional eggs. It can be concluded that vitamin D can be related to yolk colour. However, egg quality characteristics influenced by various environmental factors.

Keywords: Vitamin D, egg, LC-MS/MS.

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➢ **ORAL PRESENTATION**

Benzene, toluene, and xylene (BTX) detection using quartz crystal microbalance (QCM) sensor deposited by calixarene derivative having methyl ester moieties

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Abstract

The industrialization has brought many products and services. Although these developments are thought to provide many advantages that facilitate life such as technology, it is seen that chemical production and consumption have increased gradually. Volatile Organic Compounds (VOCs) are very important in that they can negatively affect human and environmental health, even at low concentrations among organic pollutants. Many production processes such as oil, varnish, paint, rubber and solvent production can be the source of VOCs. Among VOCs, benzene, toluene, and xylene (BTX) are very toxic chemicals that are widely used in industrial environments. For this reason, since exposure to BTX directly or indirectly causes serious health problems, they need to be monitored and kept under control. Sensors are the device which has properties of sensing to use for controlling and sensing of analytes. In sensor applications, there are several methods which are electrochemical, calorimetric, optical and acoustic systems for determination and sensing analyte via chemical interaction. Among these methods, Quartz Crystal Microbalance (QCM) technique is defined as response according to mass change on quartz crystal. QCM compose of a piezoelectric quartz crystal that has a sensitive and selective coating that serves as an adsorptive surface. Macromolecules and polymers can be widely used as a sensor for sensing of VOCs. Among macromolecules, calixarenes, well-known macrocyclic molecules that have almost unlimited derivatization potential and a unique three-dimensional structure. Calixarenes can be useful materials for sensor applications due to their sensitivity and selectivity possibilities towards many VOCs. In our previous works, we have also synthesized some calixarene compounds and they have been investigated their sensing properties for VOCs. In this study, I have prepared a calix[4]arene derivative having methyl ester moieties and coated onto QCM surface to investigate its sensing ability towards some benzene, toluene and xylene vapors.

Keywords: Benzene, calixarene, QCM, sensor, toluene, xylene.

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➢ **ORAL PRESENTATION**

The comparison of the results of platelet rich fibrin and ankaferd blood stopper - loaded platelet rich fibrin biodegradation with trypsin

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Abstract

Platelet-rich fibrin (PRF) is an endogenous coagulation system product used successfully. Ankaferd Blood Stopper (ABS) is a substance obtained from various plants and used as a hemostatic agent. The aim of this study is to show the effects of ABS on the PRF membrane, the durability and resorption time of which are being discussed. For this purpose, blood samples were taken from 10 volunteers and 20 PRF membranes obtainded. 10 PRF membranes were kept in ABS for 10 minutes and dissolved in trypsin (PRF+ABS group). The other 10 PRF membranes was dissolved in trypsin without any treatment (PRF group) and biodegradation was achieved. Percentage values of the remaining material were obtained at 24-hour intervals. The remaining mass percentage values of the PRF group at all time intervals were found to be statistically significantly higher than the values of the PRF + ABS group ($p < 0.05$). In addition, the remaining mass percentage values of both groups were shown to decrease statistically significantly in each 24-hour time interval ($p < 0.05$). In addition, the remaining mass percentage values of both groups were found to be statistically significantly reduced in each 24-hour time interval ($p < 0.05$). These results show that the ABS loaded PRF membrane was faster in the trypsin and the material obtained with ABS is more weak. But; it brings to mind the idea that the PRF membrane can be a good carrier for ABS. It is thought that it can accelerate tissue healing by rapidly introducing PRF metabolites and ABS metabolites that have been shown to be beneficial for tissue healing.

Keywords: ankaferd blood stopper, biodegradation, platelet-rich fibrin, trypsin.

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➢ **ORAL PRESENTATION**

Bone quality assessment with ınfrared microspectroscopy in preclinical applications of drug-related bone disorders

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Abstract

Bone strength depends on both bone quantity and quality. Although bone mineral density (BMD) measurement estimates bone quantity in clinics, it can not give information about bone quality. Bone quality includes the structural and material features of different hierarchical levels of bone tissue. Bone disorders and fracture risk are not only dependent on bone mass itself. Structural and material properties including collagen amount and quality, size of hydroxyapatite crystals and mineral content are all correlated with bone health. Drugs used for the treatment of neurodegenerative, metabolic and cardiovascular diseases such as antiepileptic drugs, cholesterol lowering drugs, etc. can induce adverse and/or pleiotrophic effects on bone tissues.

Fourier transform infrared (FTIR) microspectroscopy is a powerful technique to get information about the structural and material properties of bone tissue in bone disorders especially in osteoporosis. This technique enables to investigate these properties as a function of anatomic location and mineralization level. Bone quality parameters that can be measured by FTIR microscopy includes mineral to matrix ratio for mineral content, carbonate to mineral ratio for mineral carbonate substitution amount in apatite crystals, collagen crosslinks ratio (the ratio of two major Type I bone collagen crosslinks) for collagen maturity and phosphate to mineral ratio for the hydroxyapatite crystal size in bone tissues.

In this presentation two different examples of FTIR microscopic study of our group will be given in which the effects of some cardiovascular and anti-epileptic drugs on different bone tissues were determined. These FTIR microspectroscopy results can complement the results of histology, biochemical markers and BMD measurements implying unique information on the mechanisms that result in bone disorders due to the drug treatment.

Keywords: Bone quality, animal model, drug-induced bone disorders, FTIR Microspectroscopy

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

A new method to enhance the effect of local dexamethasone administration for post-operative edema: combined usage of dexamethasone and hyaluronidase

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Abstract

Corticosteroids are one of the most effective anti-edema agents. Local submucosal application of corticosteroids has become widespread in recent years. Although the method is simple, its effectiveness remains controversial. The present study evaluates whether the addition of hyaluronidase to dexamethasone enhances its anti-inflammatory efficacy.

Twenty four male Sprague-Dawley rats were divided into three groups: In Group I, all rats were administered local saline solution, in Group II, all rats were administered local dexamethasone, and, in Group III, all rats were administered local dexamethasone-recombinant human hyaluronidase r(HuPH20) to their right hind paws immediately after edema induction. The paw volume changes in all the rats were measured before and at 3, 6, 12, 24, 48, and 72 hours after edema induction. Mann-Whitney U Test was used for statistical analysis and $p<0.05$ was considered significant.

Total paw volume increase in Group I at 3, 6, 12, 24, 48, and 72 hours were: 3.5, 5.71, 3.34, 2.16, 1.74, 0.26 milliliters, respectively, that of Group II were 2.8, 2.6, 2.18, 1.17, 0.64, 0.14 milliliters, respectively, and that of Group III were 1.15, 0.5, 0.23, 0.08, 0.02, 0.01 milliliters, respectively. Group II mean edema values were significantly lesser than that of Group I at 3, 6, 12, 24, 48 hours. Group III mean edema values were significantly lesser than that of Group I at every assessed hour. Group III mean edema values were significantly lesser than that of Group II at every assessed hour.

Effectiveness of submucosal dexamethasone injection technique can be enhanced by hyaluronidase addition and it may also decrease the dose and side effects of dexamethasone. For routine application in oral, maxillofacial, and the other surgical procedures, further human studies must be performed.

Keywords: Effective submucosal steroid injection, hyaluronidase dexamethasone, local dexamethasone administration, hyaluronidase dexamethasone.

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➢ **ORAL PRESENTATION**

Evaluation of oxidative stress in tomato (*Lycopersicon esculentum*) leaves under fungicides treatment

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Abstract

Fungicides are a crucial role in the control of plant-fungal diseases in the agriculture system. However, excessive use of fungicides has a phytotoxic effect on the plant cell because of the accumulation of the reactive oxygen species. For this purpose, the effect of two modern fungicides, mancozeb, and propineb, was investigated on the oxidative stress of tomato leaves. The tomato plants were grown for 45 days in plastic pots containing perlite irrigated by ¼ Hoagland solution. The tomato leaves were sprayed with three different concentrations of mancozeb and propineb; recommended dose (X), two times higher (2X) and a half (1/2X) of the recommended dose. The phytotoxic effect of fungicides was determined by hydrogen peroxide (H_2O_2) and malondialdehyde (MDA) content 1, 3 and 7 days after spraying (DAS) in leaves. The finding revealed that foliar application of propineb and mancozeb increased the oxidative stress in tomato leaves by enhancing the production of H2O2 and MDA contents. 2X dose of propineb-treated leaves was observed to the highest H_2O_2 accumulation at 1 DAS, whereas 2X dose of mancozeb-treated leaves was at 3 DAS. In addition, MDA content was the highest level in 2X dose of propineb and mancozeb-treated leaves at 7 DAS. Analysis of the data revealed that propineb and mancozeb application at a higher concentration significantly increased H_2O_2 and MDA levels that caused toxicity in tomato leaves.

Keywords: hydrogen peroxide, mancozeb, malondialdehyde, propineb,

DRAFT

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19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Lead stress-induced changes on growth, photosynthetic pigments, lipid peroxidation and antioxidative enzyme activities in maize leaves

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Abstract

Lead (Pb) is one of the most dangerous heavy metal contaminants. Pb-contaminated soils cause a reduction in crop productivity and thus pose a serious problem for agriculture. Pb stress primarily increases the production of reactive oxygen species in plants. To prevent oxidative stress caused by Pb, plants develop enzymatic antioxidant systems. Maize (*Zea mays* L.) is an important food crop plant all around the world and it can be used to assess the ecotoxicity of soils polluted by contaminants because of its rapid growth and high biomass. However, the information available on the effects of Pb stress in maize is limited. In this study, the different concentrations (0, 50, 500 and 5000 µM) of $Pb(NO_3)_2$ solution were applied to 25 day-old maize plants in hydroponic culture. After 24 h and 96 h from Pb applications, the leaves of maize plants were harvested to analyze the growth, amount of photosynthetic pigments, hydrogen peroxide level, lipid peroxidation, total protein content, and antioxidant enzymes activities. The increase in the amounts of hydrogen peroxide and malondialdehyde in both application times depending on the Pb concentration led to oxidative stress. The fresh and dry weight loss, the destruction of photosynthetic pigments (chlorophyll a, chlorophyll b and carotenoids), the decrease of total protein content and the increase in the activities of antioxidant enzyme (superoxide dismutase, catalase, ascorbate peroxidase, peroxidase, glutathione reductase and glutathione-S-transferase) were determined in the leaves of maize plant in response to Pb-originated oxidative stress. The obtained results showed that lead stress caused oxidative stress in maize leaves at 0-5000 µM and the antioxidant enzyme system develops depending on the Pb concentration and duration of the treatment. The available data will contribute to a better understanding of the Pb tolerance mechanism in plants.

Keywords: Lead, maize, oxidative stress.

DRAFT

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➢ **ORAL PRESENTATION**

Eugenol türevi içeren periferal tetra- ve okta- sübstitüe ftalosiyanin bileşiklerinin sentezi, karakterizasyonu ve *in vitro* antimikrobiyal aktiviteleri

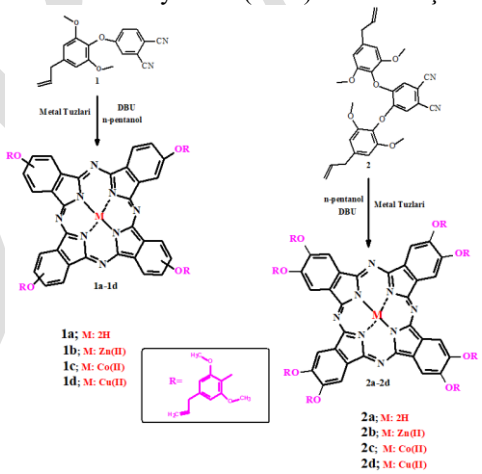
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Özet

Ftalosiyanin kelimesi (Pc) "nafta" (kaya yağı) ve "siyanin" (koyu mavi) sözcüklerinin Yunanca karşılıklarından türetilmiş olup ilk kez 1933 yılında Prof. Reginald P. Linstead tarafından kullanılmıştır. Yapısal olarak doğada bulunmayan, tamamen sentetik yollardan sentezlenen ftalosiyaninler, doğal olarak bulunan klorofil A, vitamin B_{12} ve Hemoglobin gibi porfirin içeren yapılara benzerler. Maviden kahverengiye kadar değişebilen renkleri vardır. Tetra- ve okta- sübstitüe ftalosiyaninlerin sentezinde periferal veya periferal olmayan (non-periferal) çevreli ligandlar başlangıç maddesinin siklotetramerizasyon reaksiyonu ile yerleştirilir. Ligandların mono sübstitüe türevlerinin kullanılması ile simetrik tetra sübstitüe ftalosiyaninler, di sübstitüe türevlerinin kullanılması ile de simetrik okta sübstitüe ftalosiyaninler elde edilir. Ftalosiyanin bileşikleri birçok uygulama alanında kullanılmaktadır. Özellikle son yıllarda ftalosiyanin türevleri antioksidan ve antibakteriyal aktivitelerinin araştırılmasında ilerleme kaydedilmiştir. Bu amaçla çalışmamızda başlangıç ligandı olarak doğal ve genellikle etkili bir antimikrobiyal ve antioksidan aktivitesi olan eugenol türevi bileşik kullanılmıştır. İlk olarak sentezlenen (1) nolu ftalonitril türevinden periferal pozisyonda dört adet 4-allil-2,6-dimetoksifenol grupları ihtiva eden metalsiz ve metalli ftalosiyanin bileşikleri (1a-1d) sentezlenmiştir. Daha sonra (2) nolu ftalonitril türevinden peripheral pozisyonda altı adet 4-allil-2,6-dimetoksifenol grupları içeren metalsiz ve metalli ftalosiyanin bileşikleri (2a-2d) sentezlenmiştir (Şekil 1). Sentezi gerçekleştirilen bileşiklerin (1, 2, 1a-1d ve 2a-2d) yapıları çeşitli spektroskopik yöntemlerle aydınlatılmıştır. Ayrıca sentezlenen bileşiklerin antibakteriyel ve antifungal aktiviteleri mikrodilüsyon broth yöntemiyle araştırılarak minimum inhibitor konsantrasyonları (MİK) belirlenmiştir.



Şekil 1. Eugenol türevi içeren periferal tetra- ve okta- ftalosiyanin bileşikleri

Anahtar Kelimeler: Ftalosiyanin Bileşikleri, Eugenol Türevleri, Antimikrobiyal Aktivite

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Cytotoxicity and apoptotic effects of new 2(3H)-benzoxazolone derivatives on MCF-7 cells

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Abstract

2(3H)-Benzoxazolone derivatives are new drug candidates due to the possibility of modifications at various positions on the core structure. Their pharmacological activities include antibacterial, antifungal, analgesics-antiinflammatory, anti-nociceptive and anticancer properties. In this study, we have prepared new Mannich bases of 2(3H)-benzoxazolone derivatives. These molecules have dimethylphenylpiperazine substituent at the third position of the benzoxazolone core structure. These new compounds were screened for their cytotoxicity toward MCF-7 breast cancer cell line by employing MTT assays and the possible mechanism of the apoptosis. The structures of these compounds were characterized by FT-IR and H^1 NMR. Cytotoxic effect of 2(3H)-benzoxazolone derivatives on the MCF-7 cells was measured by MTT assay. MCF-7 cells were treated with different concentrations of (5-100µM) benzoxazolone derivatives for 24 and 48 hours. Apoptotic properties of benzoxazolone derivatives were determined by immunocytochemistry using antibodies (caspase-3, cytochrome-c and FasL) and TUNEL assay. All compound 1 and 2 have the same piperazine substituent and the main difference in the structures of these compounds is the presence of Cl substituent at the 5- position of the benzoxazolone ring. MTT results showed that compound 1 and 2 were effective in terms of reduction of cell viability at 100 µM and 50 µM concentration for 48 h, respectively. As a result of immunohistochemical staining, Fas L and caspase-3 immunoreactivities were significantly increased in MCF-7 cells after treated with compound 1. Additionally, caspase-3 and cytochrome-c immunoreactivities were also increased significantly in MCF-7 cells after treated with compound 2. The number of TUNEL positive cells was significantly higher in MCF-7 cells when compared with control group after treated with both compound 1 and 2. The results suggest that compound 1 and 2 might have potential anticancer effects and they could be potential novel therapeutic agents for chemotherapy.

Keywords: 2(3H)-Benzoxazolone, cytotoxicity, mannich reaction, breast cancer

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➢ **ORAL PRESENTATION**

A palynomorphological survey on local endemics *Centaurea lycaonica* Boiss. & Heldr. and *C. tuzgoluensis* Aytac & H.Duman (Asteraceae) with close relatives in Turkey

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Özet

Bu çalışmada, Türkiye'de yayılış gösteren ve sadece tip lokalitesinden bilinen iki endemik *Centaurea* türünün polen morfolojisi ilk kez sunulmuştur. *C. lycaonica* Boiss. & Heldr. Konya bölgesinde yayılış gösteren iki popülasyonu olan ve bu popülasyonları tehlike altında bulunan lokal endemiktir. *C. tuzgoluensis* Aytac & H.Duman ise sadece Tuz Gölü'nden (Konya) bilinen lokal bir endemiktir. Polen taneleri her iki tür içinde radyal simetrik, izopolar ve trikolporattır. *C. lycaonica* türünün ekvatoral eksen 27.43-33.72 µm, polar eksen 27.72-34.48 µm; olup polen tanelerinin şekli prolat-sferoidaldir. *C. tuzgoluensis*'de ise ekvatoral eksen 27.84-35.15 µm, polar eksen ise 30.26-34.66 µm'dir. Amb şekli her iki takson için subtriangulardır. İntin incelenen taksonlarda benzer kalınlıkta olup ekzin tabakası ise *C. lyaconica*'da 1.96-2.57 µm ve *C. tuzgoluensis*'de ise 2.16-2.78 µm olarak ölçülmüştür. Türlerin her ikisinde de polen taneleri tektat ve polen skülptürü skabrat-perforat olarak belirlenmiştir. *C. lycaonica* türü polen tanelerinin bazılarında kaveaya rastlanmıştır. *C. tuzgoluensis* ise %2 oranında sinkolporat apertürlü polen taneleri gözlemlenmiştir. *C. lycaonica* yakın akrabası olan *C. luschaniana* Heimerl ex Stapf türünden kavea özelliği bakımından, *C. tuzgoluensis* ise yakın akrabası olan *C. zeybekii* Wagenitz türünden apertür özelliği bakımından farklı görülmüştür. Bu çalışma ile bu dört taksona ait veriler sayısal analizler neticesinde değerlendirilmiştir.

Anahtar Kelimeler: *Centaurea lycaonica*, *Centaurea tuzgoluensis*, Compositae, endemic, pollen

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Antibacterial and anticarcinogenic evaluation of commercial *Calendula officinalis* and *Taraxacum officinale*

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Abstract

Public interst on herbal drugs increase every passing day in both developed and developing countries. However, its regulations more strict in developed countries than developing countries. Clarifying effectiveness and adverse effects of these product is becoming more important. *Calendula officinalis* and *Taraxacum officinale* both commonly using in herbal based therapies due to the speculated antibacterial and anti-cancer effects of them. Several effects of these plants have been associated with their ingredients such as phytochemicals, flavonoids, essential oils, etc. In this study we aimed to investigate antibacterial effects and potential anticancer effects of commercial *Calendula officinali*s and *Taraxacum officinale* products that obtained from herbalist. Methanolic extracts of *Calendula officinali*s and *Taraxacum officinale* Antibacterial effects were evaluated via microbroth dilution technique using the Clinical Laboratory Standards Institute (CLSI) recommendations. Anti-cancer effects evaluated with MTT cytotoxicity test on human neuroblastoma cell line (SH-SY5Y). Our results indicate that commercial products show lower antibacterial effect separately and with 1:1 combination that reported in previous different studies. It has been observed that both plant methanlic extracts were shown 100% viability in desired concentrations.

Keywords: *Calendula officinalis, Taraxacum officinale*

Acknowledgements: This study supported by Camlica MBA Schools of Science Academy.

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➢ **ORAL PRESENTATION**

Bioinspired nanoparticle deposition on pencil graphite electrode and its application in voltammetric techniques

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Abstract

In this study, new surfaces for electrodes which have high stability, high surface area and highly catalytic activity were prepared by using polydopamine (PDA) coated pencil graphite electrodes. Afterwards, these electrodes were decorated with gold and silver (AuNPs, AgNPs) which were prepared according to conventional Turkevich method. Surface characteristics of the nanoparticle decorated electrodes were examined by SEM and EDX analysis. These observations depicted that number density of AuNPs can be easily manipulated over time and 3 hours for nanoparticle deposition was determined as optimal value according to electrochemical analysis. Firstly, modified electrodes were also investigated in voltammetric techniques by using potassium ferrociyanate standart redox solution, afterwards electrodes were employed in electrochemical analysis of dopamine by performing calibration and validation studies. Dopamine is a neurochemical agent and plays an important role in brain functions of humans and animals. Obtained LOD value of modified electrode with square wave voltammetric method was 0,4503 µM, LOQ was 0,8302 µM, with differential pulse voltammetric method LOD was 0,522 µM, LOQ was 0,7408 µM. Results of these applied methods were found to have accuracy, precision, reproducible and high confidence. Experimental results were found to be insignificant at 95 % confidence level.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Assessment of FTO Protein Expression Levels in Various Cancer Cell Lines by Western Blotting

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Abstract

Fat-mass and obesity-associated (FTO) protein is a member of the alpha-ketoglutarate dependent hydroxylase family and has demethylase activity, genome-wide association studies (GWAS), carried out since 2007, have shown that intronic FTO gene polymorphisms are closely related to obesity and increased body mass index. In addition, many recent studies have shown an association between the FTO and various diseases e.g., cardiological and neurological diseases and various types of cancers. FTO polymorphisms are found to be closely associated with many types of cancers. FTO overexpression is proposed to contribute to the growth, self-renewal and metastasis of these cancer. However, the mechanisms by which this protein play roles in cancer formation and progression are still not fully understood. The studies conducted are mostly at the mRNA level and there are no studies investigating the association between the FTO and cancer at the proteomic level. In this study, we aimed to analyze of the FTO protein expression levels in different cancer lines and their healthy counterparts by western blotting. The data produced from this study can be used to generate comprehensive TÜBİTAK or BAP projects, in which we will investigate the relationship and mechanism of FTO with cancer by proteomic methods. We observed that FTO protein expression in breast cancer cell line MDA-MB-231, lung cancer cell line DMS114 and prostate cancer cell lines DU145 and 22RV were more than the healthy counterparts. This simple observation is satisfactory to directly associate FTO with various cancers. This study also demonstrated that cancer cell lines are good models for elucidation of multifunctional roles of FTO. Tools silencing FTO in cancer cell lines can be used in comparative transcriptomics, metabolomics and proteomics studies.

Key words: FTO protein, Cancer cell lines, Western Blotting

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Response surface optimization of cryoprotectant formulation for *Lactobacillus curvatus* N19 during freeze-drying and determination of storage stability

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Abstract

The viability and stability of starter cultures has been both a marketing and technological challenge for industrial producers. Freeze-drying is the best known method to preserving the viability of starter cultures by reducing the available water content. Stability of cells during freeze-drying process and also storage period could be enhanced by the utilization of cryoprotective agents in order to minimize the cellular damage. In this study, the response surface methodology was used to optimise the cryoprotective agent (skimmed milk powder, lactose and sucrose) formulation for enhancing the viability of *Lactobacillus curvatus* N19 during freeze-drying. The storage stability of cells freeze-dried by using optimum formulation was also evaluated. Our results showed that the most significant factor influencing the viability of *L. curvatus* N19 to freezing and freeze-drying was sucrose and skim milk, respectively. The optimal formulation of cryoprotective agent was 20 g/100 mL skim milk, 3.57 g/100 mL lactose and 10 g/100 mL sucrose. Using the optimum formulation during freeze-drying, the cell survival was found more than 99%. Under the optimal conditions, although only storage of the cells at 4 ^{o}C for 6 month retained the maximum stability (8.85 log cfu/g), the employed protectant matrix showed promising results at 25 ^{o}C (7.89 log cfu/g). The storage stability of cells under optimized conditions was predicted by accelerated storage test which was demonstrated that the inactivation rate constant of the freeze-dried *L. curvatus* N19 powder was 4.06 x 10^{-7} for 4 ^{o}C and 8.67 x 10^{-5} for 25 ^{o}C. This study provides an optimum protective agent formulation that has a good protective effect for the starter culture of *L. curvatus* N19 during freeze-drying process and also optimized formulations exerted an extensive protection on strains during the storage.

Keywords: Cryoprotectant, freeze-drying, *Lactobacillus curvatus* N19, response surface method, storage stability.

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➢ **ORAL PRESENTATION**

A selective turn-off fluorescent sensor for copper (II)

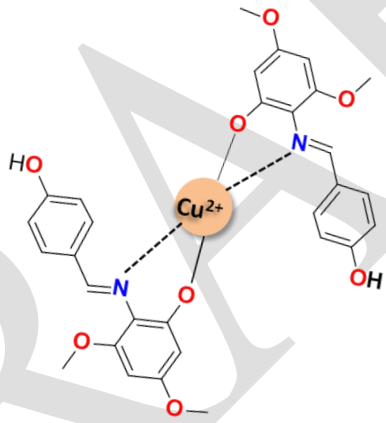
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Abstract

Among the available methodologies for detection of metal ions, fluorescent sensors based detection techniques have become attractive techniques because it is operational simplicity, low cost and selectivity and sensitivity. Therefore, the design and preparation of fluorescent sensors for preventing toxic effects of heavy metals such as copper ions have emerged as an important issue in recent years. In this study, an original probe (E)-2-((4-hydroxybenzylidene)amino)-3,5-dimethoxyphenol (**BEDIM)** was synthesized for the determination of Cu^{2+} in a mixture of EtOH/H_2O (90/10). The probe **BEDIM** demonstrated high selectivity Cu^{2+} over other metal ions. The results showed that probe **BEDIM** can be employed as an efficient probe for selective determination of Cu^{2+}.



Keywords: Copper ions, fluorescence, sensor.

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➢ **ORAL PRESENTATION**

Nutrients and gene interactions

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Abstract

Until today, researchers working on nutritional science aim to improve the health status of individuals by diet, thereby preventing dietary diseases and increasing the general health level at the community level. Dietary bioactive foods are among the major environmental factors that play a role in the pathogenesis and progression of dietary-related polygenic diseases (obesity, diabetes, cancer), which have become popular recently. There is an ongoing mutual and active interaction between nutrition and the human genome. Data on human genome sequencing have also intensified studies to understand the relationship between nutrients and genes and the effects of nutrients on gene expression. In this review, in the light of previous studies, the relationship between nutrition and epigenetics, epigenetic mechanisms, interactions between foods and genes, and diseases caused by these interactions are discussed.

Keywords: Nutrition, epigenetics, interaction, polygenic diseases

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➢ **ORAL PRESENTATION**

Determining the anti-cancer efficiency of multiple chemotherapeutic drug combinations against colon cancer cells

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Abstract

Colon cancer is one of the most common cancers in the world. During the treatment of the colon cancer; based on the tumor heterogeneity, malignancy, metastasis rate and size the therapy regimen can change. Surgery, endocrine treatment, radiotherapy or chemotherapy can be applied to the patients depending on these parameters. During the chemotherapy treatment, the chemotherapeutics can reach to different parts of the body through the blood circulation to prevent uncontrolled cell division and metastasis of the tumor cells. One of the major obstacles during the chemotherapy is the side effects associated with it. In order to circumvent this problem low dose combination of chemotherapeutic agents that work through different intracellular mechanisms are utilized. In this study, the cytotoxic and apoptotic effects of Cabazitaxel, Irinotecan, and Dacarbazine chemotherapeutics were studied either by their own or in different combinations against Caco-2 colon cancer cells. After determining the IC_{50} values of each drug and their combinations they were applied to the colon cancer cells to examine their effect on these cells in terms of apoptosis. Our study suggests a combinatorial approach against colon cancer cells would be more effective and would probably decrease the side effects during the treatment of the patients.

Keywords: Colon cancer, chemotherapy, apoptosis, combination therapy

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➢ **ORAL PRESENTATION**

Pankreas kanseri kök hücresinde kersetin ve resveratrolün hücre canlılığı ve hücre morfolojisi üzerindeki potansiyel etkileri

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Özet

Amaç: Pankreas kanseri, insidansı artan özellikle kanser kök hücrelerinin olması ile tedaviye direnç geliştirebilme ve metastaz yapabilme özellikleri görülebilen kanser türüdür. Kersetin ve resveratrol, kanser kök hücre aktivitesini inhibe ederek anti-kanser etki gösterebilen fitokimyasallardır. Bu çalışmanın amacı, pankreas kanseri kök hücresinde kersetin ve resveratrolün hücre canlılığı ve morfolojisi üzerindeki potansiyel etkilerini araştırmaktır.

Gereç ve Yöntem: Pankreas kanseri hücrelerinden (PANC-1) MiniMACS izolasyonu ile pankreas kanseri kök hücreleri (CD133+) elde edilmiştir. Kersetin ve resveratrol, kültür vasatı ile sulandırılarak beş farklı konsantrasyonda (5, 10, 25, 50 ve 100 µM) 24 veya 48 saat CD133+ ve CD133- hücrelerde inkübe edilmiştir. Hücre canlılığı 3-(4,5-dimetiltiazol-2-il)-2,5-difenil tetrazolyum bromür (MTT) testi ile, hücre morfolojileri ise inverted mikroskop ile değerlendirilmiştir. Eş zamanlı olarak kültür vasatlarında TNF-α, IL-1β ve IL-6 varlığı ELISA testi ile analiz edilmiştir.

Bulgular: Tüm konsantrasyonlar değerlendirildiğinde; kersetinin 48 saat inkübasyon süresindeki 10 µM konsantrasyonunun, kanser kök hücre büyümesini azaltmada daha etkili olduğu bulunmuştur. Ayrıca, resveratrolün 24 saatlik inkübasyon süresindeki 5 µM konsantrasyonu, kanser kök hücre büyümesini azaltmada daha etkili olmuştur. Kersetin ve resveratrol uygulandıktan sonra; pankreas kanseri kök hücrelerinin şekilleri yine epiteloid iken, hücrelerin büyüklüklerinde azalma olduğu görülmüştür. Resveratrol uygulanan CD133+ hücrelerde TNF-α ve IL-1β ortalama konsantrasyon değerlerinde CD133+ kontrol grubuna göre artış olduğu, IL-6 ortalama konsantrasyon değerinde azalma olduğu bulunmuştur. Resveratrol uygulanan CD133- hücrelerde CD133- kontrol grubu ile karşılaştırıldığında, üç antikorun ortalama konsantrasyon değerlerinde artış olduğu ve IL-1β'daki artmanın istatistiksel olarak anlamlı olduğu tespit edilmiştir.

Sonuç: Kersetin ve resveratrol uygulaması sonrasında CD133+ hücrelerin canlılığında, morfolojik görünümlerinde ve salgılanan sitokinlerde azalma olduğu sonucuna varılmıştır. Pankreas kanseri kök hücrelerinde hücre canlılığı, morfolojisi ve salgılama faktörlerinde değişiklere neden olabileceği sonucuna varıldı.

Anahtar Kelimeler: kersetin, resveratrol, hücre canlılığı, pankreas kanseri, kök hücre

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➢ **ORAL PRESENTATION**

Osteoporoz modeli oluşturulan ratlarda astaksantinin kemik iyileşmesi üzerine etkileri**

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Özet

Osteoporoz, düşük kemik mineral yoğunluğuyla ve iskelet sisteminde mikro-yapısal bozulma ile karakterize, sistemik ve metabolik kemik hastalığıdır. 50 yaş üzerindeki hastaların %55'ini etkileyen ve bu popülasyonun %80'ini kadınların oluşturduğu osteoporoz, sık karşılaşılan önemli bir sağlık problemi olarak görülmektedir. Osteoporoz, minimal travmalar sonrası kemik kırığı riskini artırmanın yanında; tümör, travma ve diğer kemik bozukluklarında, kemik iyileşmesinin yetersiz olmasına neden olmaktadır. Bu durumdan çene kemikleri sıklıkla etkilenmekte, diş çekimleri sonrası iyileşmede ve eksikliklerin rehabilitasyonunda güçlükler yaşanmakta, bu nedenlerle hastaların beslenmeleri ve hayat kaliteleri olumsuz etkilenmektedir.

Bu çalışmanın amacı; güçlü antioksidan etkileri bilinen astaksantinin kemik iyileşmesi üzerine etkilerinin değerlendirilmesidir. Bu amaçla çalışmada 60 adet Wistar Albino dişi rat kullanılmıştır. Farklı gruplardaki ratlara overektomi işlemi ile osteoporoz modeli oluşturarak veya oluşturmadan mandibula defektleri meydana getirilmiştir. Kontrol gruplarına deneysel bir ilaç uygulanmazken, deney gruplarına ayrı ayrı 5 mg/kg ve 25mg/kg olmak üzere iki farklı dozda astaksantin, referans materyal olarak 10 mg/kg raloksifen 4 hafta boyunca uygulanmış, bu süre sonunda ratlar sakrifiye edilerek biyokimyasal ve histopatolojik inceleme yapılmıştır.

Yapılan biyokimyasal testlerde serum kalsiyum, alkalen fosfataz ve osteokalsin değerleri incelenmiş, raloksifen ve 25mg/kg astaksantin gruplarında istatistiksel olarak anlamlı farklar bulunmuştur. Histopatolojik değerlendirme ile yeni kemik ve bağ dokusu oluşum oranları, osteoblast ve osteoklast sayıları histopatolojik skorlama yöntemi kullanılarak değerlendirilmiştir. Kontrol gruplarıyla karşılaştırıldığında hem osteoporoz modeli oluşturulan gruplarda hem de sağlıklı gruplarda astaksantin ve raloksifen uygulaması, yeni kemik ve bağ dokusu oluşum oranlarında ve osteoblast-osteoklast sayılarında artışa neden olmuş, bu artış raloksifen ve 25mg/kg astaksantin gruplarında istatistiksel olarak anlamlı fark oluşturmuştur.

Anahtar Kelimeler: Osteoporoz, astaksantin, raloksifen, rat, kemik iyileşmesi

**Gazi Üniversitesi Bilimsel Araştırma Projeleri Birimi'ne bu çalışmaya verdikleri destek için teşekkür ederiz.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

The functionalization of SWCNT and graphene oxide for NADH Oxidation: An experimental and theoretical approach

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Abstract

Nicotinamide adenine dinucleotide (NADH) and its oxidized form NAD^+ have been widely investigated by the researchers over the last two decades due to their vital role in living organisms and biosensor systems. However, one of the most frequently encountered issues in the practical applications of NADH biosensor is surface passivation and fouling arising from during the transformation of NADH to NAD^+. A great deal of efforts have therefore been devoted to overcome this issue. For this purpose, single walled carbon nanotube and graphene oxide immobilized onto GC were modified by dihydroxybenzene (di-HB) using solid-phase synthesis methodology subsequent to electrochemical grafting of (Boc)–ethylenediamine linker bearing mono-tert-butyloxycarbonyl protecting group. The di-HB-functionalized SWCNT and GO were shown to possess excellent catalytic activity owing to negative shift in the overpotential and increase in the peak current of NADH, compared with unmodified carbon electrodes. In order to shed light above mentioned experimental results in detail, a theoretical study along with molecular docking simulation technique was also carried out. It was found that enhancement in the binding affinity of NAD+ to modified surfaces could be attributed to the formation of hydrogen bonding interactions. Moreover, theoretical findings were also shown to be good agreement with experimental results in terms of reactivity of functionalized surfaces toward NADH oxidation.

Keywords: NADH, SWCNT, Graphene Oxide, Docking, Biosensor

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

The external morphology and histology of malleolar sensory system of *Gylippus (Paragylippus) monoceros* Werner (Solifugae, Arachnida)

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Abstract

Solifuges possess malleoli (racquet organs) on the ventral surface of forth pair of legs as distinctive anatomical structures. The detail external morphology and histology of the malleoli in male gylippid, *Gylippus (Paragylippus) monoceros* Werner, performed using Light microscopy and Scanning electron microscopy (SEM) tecniques. Each malleolus comprises of two parts; malleolar stalk and malleolar fan. The protuberances on malleolar stalk and Anterior, posterior ridges and sensory groove were shown on the front side of malleolar fan of each malleolus using SEM. The inner dendritic segment, malleolar ganglion and epithelium parts were shown on the longitudinal section of a malleolus using light microscope. Malleolar sensory system functions as chemoreceptor by contacting the ground while walking via sensory groove.

Keywords: *Gylippus*, Solifugae, Malleoli, Morphology, Histology

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➢ **ORAL PRESENTATION**

Treatment of textile effluent by the adsorption phenomena on biomass

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Abstract

On our blue planet, water covers a large area of the earth, with oceans dominating and, together with seas, lakes and rivers…, they account for no less than 75% of the total surface on earth. Urban development, industrial development and management of the water available in nature have modified the water regime and disrupted its natural functions, in fact such practices added to human activities have damaged water quality and caused ecosystem pollution. These discharges need to be treated before discharge into the sewer system. In this perspective, we have made a kinetic study of the retention of organic dyes such as MB (cationic dye) and MO (anionic dye) on a carbon based on a natural biomass (plant debris). A series of experiments were carried out in a closed and perfectly agitated reactor to study the influence on the adsorption kinetics of several parameters such as: the mass of the support, the temperature, the initial dye concentration, the pH of the solution and the stirring speed. The experimental results of the global reaction are perfectly adjustable to the pseudo-second order, with very high regression coefficients, which mean a chemical sorption. The adsorption isotherms were analyzed by Langmuir, Freundlich and Temkin models; therefore, a characteristic study was made using a scanning electron microscopy (SEM/EDX) technique in order to obtain images indicating the surface morphology and porosity of our support. Following discussions and interpretations of the experimental results we suggest the use of this porous material from the region of zagora as an industrial adsorbent in the field of water treatment.

Keywords: Adsorption, Environment, Water treatment, dyes, kinetic, isotherm, cartelization.

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➢ **ORAL PRESENTATION**

Parasitological characterization of ecto and endoparasites in *Quedenfeldtia trachyblepharus*, a high-altitude gecko endemic to the High Atlas Mountains of Morocco

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Abstract

Knowing the effects of parasites in the host species could have important implications for its conservation. In the present study, we describe ectoparasites (mites and ticks) and endoparasites (Haemogregarines and helminthes) of the Atlas Day Gecko, *Quedenfeldtia trachyblepharus* (Boettger, 1874), a high-altitude gecko endemic to Morocco. The obtained results indicated that the prevalence and intensity of infection by mites were significantly higher in adults than in juvenile geckos, but the prevalence was similar between sexes, seasons and altitudes, whereas mites intensity was higher in males than females, probably due to immunosuppressive effects of testosterone. In addition, the infection intensity differ significantly between seasons and with altitude. The prevalence of infection was 48.02%, with a mean intensity of 11.80 ± 15.69 in infested geckos (range: 0 to 96 mites per individual). There were no significant differences in infection patterns of blood-sucking mites in relation to body size. The prevalence of infection by the tick; *Ixodes ricinus* is not related to the studied factors. However, the intensity of infection was linked only to the seasons. These findings suggest that this tick uses probably Atlas Day Gecko as a secondary intermediate host. For Haemogregarines, it was clear that they were not related to any studied factors. One helminthes genus was found as endoparasite of this gecko, *Spauligodon* sp. with the first citation of this genus in the atlas day gecko. The prevalence of infection was significantly higher in adults than in juvenile lizards, but the infection intensity was similar in the two age groups. The absence of significant effect of the studied parasites in body condition suggests the stability of gecko-parasites interactions.

Keywords: *Quedenfeldtia trachyblepharus*,endemic, parasites, *Ixodes ricinus*, *Spauligodon* sp.

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➢ **ORAL PRESENTATION**

Ferulago pauciradiata Boiss ekstresinin lipopolisakkarid ile uyarılmış insan umblikal ven endotel hücreleri üzerindeki etkisinin belirlenmesi

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Özet

Bitkiler yıllarca tıbbi gelişimin bir parçası olmuştur. Tıbbi bitki olarak Ferulago türleri hemoroid, ülser, baş ağrısı gibi hastalıklarda kullanılmıştır. Bu türler salata ve baharat olarak yiyecek şeklinde tüketilmiştir. Ferulago türleri antibakteriyel, antifungal, sitotoksik ve antikanser etkilere sahiptir. Bu çalışmanın amacı *Ferulago pauciradiata*'nın bakteriyel lipopolisakkarid (LPS) ile uyarılmış insan umblikal ven endotel hücreleri (HUVECs) üzerindeki koruyucu ve/veya sitotoksik etkilerini göstermektir. Bu amaç için Ferulago pauciradiata'nın kök kısımlarının kloroform ekstresi kullanıldı. Ekstre Karakaya et al. 2018 metoduna uygun olarak gerçekleştirildi. HUVECs canlılık testi 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) ile değerlendirildi. Ekstreye ait IC50 değeri tespit edildi (0,5 mg/ml). Hücreler dört gruba ayrıldı. Kontrol grubu(K), LPS grubu, LPS ve ekstre grubu (LE), sadece ekstre grubu (E). HUVECs (5 × 103 cells/mL) 96'lık plate ekildi. E ve LE gruplarına 2µl ekstre uygulandı. Bir saat sonra LPS ve LE gruplarına ise LPS (1 µg/mL) uygulandı. Kontrol hücrelerine herhangi bir uygulama yapılmadı. Hücreler 24, 48 ve 72 saat boyunca 37 °C'de, 5% CO2 içeren nemli inkübatörde inkübe edildi. MTT solüsyonları üretici firma talimatlarına uygun olarak kullanıldı. MTT solüsyonları eklenen hücreler gece boyunca inkübatörde bekletildi. 570 nm'de formazan solüsyon yoğunluğu ölçüldü. Sonuçta LPS, uygulandığı gruplarda hücre canlılığını önemli derecede azaltmıştır. LE grubunda, kontrole nispeten 24, 48 ve 72. saatte hücre canlılığı azalmıştır. E grubunda ise hücre canlılığı sadece 72. saatte artış göstermiştir. LE grubu hücre canlılığı LPS grubundan daha yüksek bulunmuştur. Fakat K ve E grupları arasında önemli bir ilişkiye rastlanmamıştır. Bu bilgiler ışığında Ferulago pauciardiata kök ekstresinin LPS'nin etkilerini azaltan bir etkiye sahip olabileceği görülmektedir.

Keyword: LPS, HUVECs, *Ferulago pauciradiata*

(Bu çalışma Bayburt Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi tarafından 2019/02-69001-01 Kodlu proje ile desteklenmiştir.)

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➢ **ORAL PRESENTATION**

Meyve asitleriyle zenginleştirilmiş çavdar unu bazlı yenilebilir film üretim ve karakterizasyonu

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Özet

Yenilebilir film ve kaplamalar gıdaların raf ömürlerini uzatarak bozunmasını geciktiren, gıda ile birlikte tüketilebilen dış tabaka ambalajı olarak bilinmektedirler. Doğal bozunurluğu yüksek olmasından dolayı çevresel sorunları ortaya çıkarmayan yenilebilir filmlerde ana materyal olarak polisakkarit, protein ve/veya lipit bazlı biyopolimerler kullanılmaktadır. Filmin mekanik, kimyasal ve antimikrobiyal özelliklerini güçlendirmek amacıyla, filme çözücü, plastikleştirici ve fonksiyonel katkı maddeleri de eklenmektedir. Bu çalışmada piyasada düşük maliyetli ve kolay bulunabilen çavdar unundan yenilebilir film üretimi amaçlanmış; plastikleştirici derişiminin film kalitesine etkisi incelenmiş ve tannik, tartarik, suksinik ve gallik asit gibi meyve asitleriyle zenginleştirmenin filmlerin antimikrobiyal etkilerinin belirlenmesi hedeflenmiştir. Bu amaç doğrultusunda literatürde az kullanılan plastikleştirici seçilmiş ve farklı konsantrasyonlarda plastikleştirici kullanılarak film üretimi yapılmıştır. Daha sonra hazırlanan yenilebilir filmlerin görsel (ışık geçirgenliği), yapısal (FTIR,TGA), mekanik (kalınlık, gerilme kuvveti, yüzde uzama ve çekme mukavemeti), su buhar geçirgenliği, suda çözünürlük ve antimikrobiyal aktivite gibi özellikleri incelenmiştir. Çalışmanın ilk aşamasında %5 (w/v) çavdar unu farklı derişimlerde sorbitol (%30-100 (w/w un)) ile suda karıştırılmış ve yarım saat pişirildikten sonra karışım petri kaplarına aktarılmıştır. Dökme yayma yöntemiyle oluşturulan bu filmlerin kalınlık değerleri 0,15 ile 0,2 mm arasında değişkenlik göstermiştir. Filmlerin suda çözünürlüğü % 62-84 arasında bulunmuştur. Mekanik test analizlerinde yenilebilir filmlerin kopma anındaki mukavemet değerlerinin 0,71-4,88 MPa ve uzama değerlerinin % 4-46 aralığında çıkmıştır. En yüksek mukavamet değerleri %40 sorbitol ile hazırlanan filmde olduğu tespit edilince çalışmanın ikinci aşamasında farklı konsantrasyonlarda tannik, tartarik, suksinik ve gallik asit ilave edilerek filmler hazırlanmıştır. Hazırlanan filmlerin su buhar geçirgenlikleri 0,597 ile 0,728 ng m^{-1} s^{-1} Pa^{-1} arasında değişim göstermiştir. Tartarik ve suksinik asit içeren filmlerde *Bacillus subtilis* ve *Salmonella typhimurium* üzerinde antimikrobiyal etki gözlenmiştir.

Anahtar Kelimeler: yenilebilir film, çavdar unu, sorbitol, meyve asitleri, antimikrobiyal etki

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➢ **ORAL PRESENTATION**

3D yazdırma parametrelerinin ABS polimerinin mekanik özelliklerine etkileri ve enjeksiyon baskıları ile kıyaslanması

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Özet

Üç boyutlu eklemeli üretim, imalat sanayi için özellikle son yıllarda yeni ve tercih edilir bir üretim yöntemi olmuştur. Bu yöntem prototip hazırlama, bileşen ve sistem elde etme aşamasında uygun parçalar üretmek için kullanılmaktadır. Akademik ve sektörel kaynaklara göre günümüzün üretim yöntemlerinin yerini eklemeli imalat üretim yönteminin alacağı anlaşılmaktadır. Bu yöntemin önemli bir etkiye sahip olacağı alanların başında mühendislik, inşaat ve medikal sektörleri gelmektedir. Eklemeli imalat yönteminde üretilebilirliği etkileyen ana parametre geometridir ve geometrik tasarıma yeni bir yaklaşım gerekmektedir. Geleneksel üretim yöntemlerinden farklı olarak malzemeyi ayrık bir şekilde üst üste ekleyerek üretim, tasarım sırasında boyutlandırma ve tolerans seçimlerini tamamen değiştirmektedir. Kritik geometrik parametreler katman kalınlığı, duvar kalınlığı, nozül çapı, yazdırma açısı ve doluluk oranı gibi yepyeni kavramlarla tanımlanmaktadır. Bu çalışmada 3D yazıcıda farklı doluluk oranı, katman kalınlığı ve yazdırma açısı değiştirilerek ABS polimeri ürünleri yazdırılmıştır. Ayrıca enjeksiyon makinesinde de baskılar alınarak; çekme mukavemeti, elastiklik modülü, % uzama değeri, kopma mukavemeti, sertlik ve Izod darbe mukavemeti değerleri 3D ile üretilen numunelerin değerleriyle karşılaştırılmıştır.

Anahtar Kelimeler: 3D yazıcı, eklemeli imalat, ABS polimeri, mekanik özellikler.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Enjeksiyon makinesi ve üç boyutlu yazıcı ile üretilen ABS polimerinin fiziksel özelliklerini karşılaştırılması

Beyza Findik[1*], Münir Taşdemir[2]

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Özet

Üç boyutlu yazıcılar bilgisayar üzerinde modellenmiş veya üç boyutlu olarak taranmış modelleri geleneksel üretim yöntemlerine nazaran oldukça hızlı bir şekilde üretebilen bir cihazdır. Günümüzde dişçilik ve tıp sektöründen tutun da havacılık ve uzay sektörüne kadar çok farklı alanlarda yaygın olarak kullanılmaktadır. En çok kullanılan malzemeler ise akrilonitril bütadien stiren (ABS) ve polilaktik asit (PLA)'tir. Küresel rekabetle birlikte ürünlerin pazardaki yaşam sürelerinin kısalması, ürün geliştirme süreçlerinin sıklaşmasını sağlamıştır. Her sektörde olduğu gibi üretim sektöründe artan teknolojik olanaklar ile ürün geliştirme sürecinin kısalmaya devam ettiği gözlenmektedir. En yaygın eklemeli imalat teknolojileri; steryolitografi (SLA), ergiterek yığma ile modelleme (FDM), üç boyutlu yazıcı (3DP), seçmeli lazer sinterleme (SLS), seçmeli lazer ergitme (SLM), elektron ışınlı ergitme (EBM) gibi yöntemlerdir. Bu çalışmada üç boyutlu yazıcıda farklı doluluk oranı, katman kalınlığı ve yazdırma açısı değiştirilerek ABS polimeri ürünleri yazdırılmıştır. Ayrıca enjeksiyon makinesinde de baskılar alınarak; nem emme miktarı, yoğunluk, ısıl çarpılma sıcaklığı, vicat yumuşama sıcaklığı ve aşınma oranı değerleri 3D ile üretilen numune değerleriyle karşılaştırılmıştır.

Anahtar Kelimeler: 3D yazıcı, eklemeli imalat, ABS polimeri, fiziksel özellikler.

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➢ **ORAL PRESENTATION**

Antihistaminiklerin kardiyotoksik etkileri

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Özet

Canlıda birçok dokuda (mast hücreleri, bazofiller, damarlar, mide enterokromafin benzeri hücreler, beyin, vs) bulunan ve salgılanan histamin, alerjik reaksiyonlar ve yangısal reaksiyonlarda rol alır. Histaminin bu etkilerini engelleyebilmek için klasik antihistaminikler olarak da tanımlanan histamin 1 reseptör (H1R) antagonistleri hem veteriner hekimlikte hem de beşeri hekimlikte sıklıkla reçete edilmektedir. Klasik antihistaminikler klinikte kullanıldıkça zaman içinde istenmeyen etkileri gözlenmeye başlanmıştır. Bu yan etkiler arasında ise kardiyak istenmeyen etkiler hayatı tehdit edecek düzeylerde rapor edilmektedir. Bu bildiride histamin, antihistaminikler, antihistaminiklerin sınıflandırılması, kalbin çalışma prensibi ve H1R antagonistlerinin kalp üzerine etkileri güncel literatürler kullanılarak hazırlanmıştır.

Anahtar kelimeler: Antihistaminikler, kardiyak yan etkiler

Teşekkür: Bu derlemenin hazırlanmasında destek ve yardımlarından dolayı Farmakoloji ve Toksikoloji ABD Üyesi Prof. Dr. Enver Yazar' a teşekkür ederim.

DRAFT

➢ **ORAL PRESENTATION**

İnvers ve nötr Agonist: Antihistaminikler

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Özet

Günümüzde moleküler teknikler çok hızlı gelişim göstermektedir. Gelişen teknikler sayesinde reseptörler, reseptör sonrası olaylar ve yolaklar hakkında daha fazla bilgi edinilmeye başlanmıştır. Klasik olarak bilinen reseptör agonisti ve antagonisti tanımları yanında invers ve nötr agonist tanımları da bildirilmiştir. Bu yapılar sayesinde reseptörler aracılığı ile etkiyen maddelerin etki mekanizmaları daha iyi anlaşılmıştır. Bu bildiride invers ve nötr agonist tanımları antihistaminiklerin etki mekanizmaları üzerinden anlatılmaya çalışılmıştır.

Anahtar kelimeler: İnvers agonist, nötr agonist, antihistaminikler

Teşekkür: Bu derlemenin hazırlanmasında destek ve yardımlarından dolayı Farmakoloji ve Toksikoloji ABD Üyesi Prof. Dr. Enver Yazar' a teşekkür ederim.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Repellent activities of some medicinal plants against houseflies

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Abstract

Hauseflies are one of the main insects that live with humans. Besides, houseflies are carriers of various diseases in human and animals. Environmental sanitation and pesticide applications take very important place in the control of houseflies. Pesticides, organophosphates, organocarbamate and, pyrethroids have been used for housefly control. In the fight against houseflies, pesticide applications are expensive and they may cause resistance development. Researches using alternative medical plant applications instead of chemicals have increased nowadays. As housefly repellents, various medicinal plants like mint (*Mentha piperita* L.) clove (*Syzgium aromaticum*) ve blue oxaliptus (*Eucalyptus globulus*) are used. In this review, the information about the way of use of some medicinal plants, active substances and adverse effects of the housefly repellents grown in our country.

Keywords: Hausefly, repellent,mint, clove, blue oxaliptus

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➢ **ORAL PRESENTATION**

Investigation of the removal of Safranin O textile dye from the wastewater by biosorption on pistachio Shell

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Abstract

Dyes, one of the most common pollutants in wastewater; are used to color products in textile, leather, cosmetics, paper, printing, plastic, pharmaceutical, food, etc. industries (Garg et al., 2004). The ecosystem of the water is deteriorated by the discharge of paint in the wastewaters from these industries into rivers. This problem creates a huge problem for aquatic life and human health. (Sun and Yang, 2003; Ravi Kumar et al., 1998; Shariati et al., 2011). For this reason, many methods are used to remove dyes from wastewater such as coagulation/flocculation, biological degradation, chemical and photochemical degradation, ion exchange and biosorption (Debnath et al., 2017). Compared to other methods of biosorption; it is highly appealing to researchers to use natural biosorbents that are found as waste in nature because of their low cost, easy applicability, and biocompatible properties (Juang et al., 2002).

In this study, the use of pistachio as a biosorbent for the removal of Safranin O dyestuff used in the textile industry with the biosorption method was investigated. For this purpose, solution pH, biosorbent amount, contact time and adsorbate concentration parameters in the batch system were examined. A biosorption equilibrium was established at the original pH of the dye (pH = 6.2) in an amount of 0.1 g of biosorbent in 60 minutes. Experimental data obtained were evaluated with kinetic and isotherm models.

Keywords: Biosorption, Pistachio Shell, Textile Dye, Removal, Kinetic

Reference

Debnath S, Parashar K, Pillay K 2017. Ultrasound assisted adsorptive removal of hazardous dye Safranin Ofrom aqueous solution using crosslinked graphene oxide-chitosan (GO CH) composite and optimization by response surface methodology (RSM) approach. Carbohydrate Polymers, 175: 509–517.

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➢ **ORAL PRESENTATION**

The use of pumpkin shell as biosorbent in removing victoria pure blue BO dye by biosorption method

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Abstract

Wastewater from the textile dyeing and printing industry covers textile dyes, heavy metals, acids, bases, etc. pollutants. These dyes have been found to be toxic and carcinogenic due to the complex chemical structure, resistant to heat and light, and due to the presence of biodegradable benzene and aromatic rings (Aksu et al., 2008; Mittal et al., 2008). The presence of these dyes in wastewater causes serious problems for people and the environment as they have toxic and carcinogenic properties (Reddy et al., 2018). For this reason, it is very important to remove these dyes from wastewater. Since the dyes are not biodegradable, it is not possible to treat them with a conventional biological treatment process. There are a wide variety of physical and chemical removal methods for removing dyes from wastewater (Shariati et al., 2011). The cost of physical and chemical methods developed for removing dyes is quite high. The most important advantage of the biosorption method over other methods is that it enables the use of economically inexpensive biosorbents for the removal of such wastes (Debnath et al., 2017).

In this study, pumpkin shells found as food waste in nature were used to remove Victoria Pure Blue BO (VPBBO) dyes from the aqueous solution by biosorption method. In order to determine the working conditions, the pH of the solution, the amount of biosorbent, the mixing time and the adsorbate concentration parameters were investigated in the batch system. Optimum conditions: the original pH of the paint is 5.82, the biosorbent amount is 0.1 g and the mixing time is 60 minutes. Experimental data were evaluated with pseudo-first-order kinetic model, pseudo-second-order kinetic model, and intra-particle diffusion models for kinetic studies. Equilibrium data for the biosorption of VPBBO dye onto pumpkin shells were investigated using the Langmuir and Freundlich isotherm models.

Keywords: Biosorption, dye, victoria pure blue BO, pumpkin, shell.

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➢ **ORAL PRESENTATION**

Antioxidant activities of the extracts of the root and aerial parts of *Chaerophyllum bulbosum*

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Abstract

In biological systems, disruption of the balance between free radicals and antioxidants is defined as oxidative stress. Oxidative stress is responsible for the pathogenesis of many diseases, especially cancer, diabetes, cardiovascular and neurological diseases, atherosclerosis and inflammatory disorders (Özcan et al., 2015). In recent years, there has been increasing interest in the research of antioxidant activities of foods due to the harmful effects of oxidative stress.

The purpose of this research is to evaluate the antioxidant activities of the various extracts (hexane, chloroform, acetone, methanol and water) of the root and aerial parts of *Chaerophyllum bulbosum*. The antioxidant capacity of the extracts was tested by five different experiments, namely β-carotene-linoleic acid, $DPPH^{\bullet}$ scavenging, $ABTS^{\bullet+}$ scavenging, cupric-reducing antioxidant capacity (CUPRAC) and metal chelating assays. According to the result, the water extracts of the root and aerial parts of *C. bulbosum* were found as the most active. Among the extracts obtained from root part of *C. bulbosum*, the water extract demonstrated the highest activity in $DPPH^{\bullet}$ (IC_{50}: 61.55±0.12 µg/mL), $ABTS^{\bullet+}$ (IC_{50}: 66.72±0.26 µg/mL), CUPRAC ($A_{0.50}$: 126.00±0.24 µg/mL) and metal chelating (IC_{50}: 65.91±0.36 µg/mL) assays. In β-carotene-linoleic acid, $DPPH^{\bullet}$, $ABTS^{\bullet+}$, CUPRAC and metal chelating assays, the water extract of *C. bulbosum* aerial part showed the highest activity with IC_{50} values of 254.98±0.08, 101.21±0.41, 59,51±0.21, 128.04±0.67, 68,63±0.41 µg/mL, respectively.

Keywords: *Chaerophyllum bulbosum*, antioxidant activity, root and aerial parts, extracts

Acknowledgment: The authors would like to thank The Scientific and Technological Research Council of Turkey (TUBITAK-118Z610) for financial support.

Reference

Özcan et al. 2015. Oxidative stress and its impacts on intracellular lipids, proteins and DNA. Journal of Clinical and Experimental Investigations 6 (3): 331-336.

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➢ **ORAL PRESENTATION**

Cholinesterase inhibitory activities on key enzymes associated with Alzheimer's disease of extracts of *Chaerophyllum bulbosum*

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Abstract
Drugs that cause inhibition of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) are used in the management of Alzheimer's disease (AD). These enzymes hydrolyse acetylcholine responsible for regulating cognition and learning in the brain. Remaining of AChE and BChE causes acetylcholine deficiency in the brain. Therefore, inhibition of these enzymes is a key strategy for alleviating the symptoms of AD (Hassan et al., 2019).

In this research, we determined cholinesterase inhibitory activities of the various extracts (hexane, chloroform, acetone, methanol, and water) of the root and aerial parts of *Chaerophyllum bulbosum* by using the Ellman method. The hexane extracts were found to be most active against AChE and BChE. The hexane extract of the root part of *C. bulbosum* showed the highest AChE (66.27±1.29 %) and BChE (44.71±0.63 %) inhibitory activities at 200 µg/mL concentration. The hexane extract of the aerial parts of *C. bulbosum* was found as the most active against AChE (70.19±1.13 %) and BChE (50.67±1.03 %) at 200 µg/mL concentration. According to obtained results, the hexane extracts could be used as potent cholinesterase inhibitors in the treatment of AD.

Keywords: *Chaerophyllum bulbosum*, acetylcholinesterase enzyme inhibitory, butyrylcholinesterase enzyme inhibitory

Acknowledgment: The authors would like to thank The Scientific and Technological Research Council of Turkey (TUBITAK-118Z610) for financial support.

Reference
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➢ **ORAL PRESENTATION**

Kersetinin kolon kanser hücreleri sağ kalımı ve ölümü üzerine etkilerinin incelenmesi

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Özet

Kolon kanseri, kansere bağlı ölüm nedenleri arasında üçüncü sırada yer almaktadır. Mutasyona uğramış kolon ve rektum hücrelerinin kontrolsüz bir şekilde çoğalması kolorektal kanserine neden olmaktadır. Diyetle alınan besinlerde bulunan bileşiklerin kanseri önlemede ve tedavisine yardımcı olabileceği düşünülmektedir. Kersetin anti-inflamatuar ve anti-karsinojenik etki gösteren; soğan, elma, üzüm, yaban mersini, turunçgiller, maydanoz ve diğer yeşil yapraklı sebzeler gibi birçok sebze ve meyvede yaygın olarak bulunan flavanol grubu bir fitokimyasaldır.Yapmış olduğumuz çalışmada primer (Colo-320) ve metastatik (Colo-741) kolon kanseri hücre hatlarında kersetinin hücresel yaşlanma ve apoptoz mekanizması üzerine etkilerinin incelenmesi hedeflenmiştir. Hücre canlılığı MTT analiz yöntemi ile, hücresel sağ kalım ve ölümü ise Bax, Bcl-2, kaspaz-3, Lamin B1, p16, siklin B1 indirekt immunoperoksidaz yöntemi ile incelenmiştir. MTT analizi sonrası hücre büyümesini inhibe eden etkili doz ve inkübasyon süresi her iki hücre hattı için 48 saat 25µg/ml olarak belirlenmiştir. Kersetin tedavisi sonrası pro-apopototik protein olan Bax immunoreaktivitesi Colo-320 ve Colo-741 kolon kanser hücre hatlarında anlamlı bir şekilde artmıştır. Ancak anti-apoptotik protein olan Bcl-2 immunoreaktivitesi sadece primer (Colo-320) kolon kanser hücre hattında anlamlı bir şekilde azalmıştır. Apoptotik proteinlere ek olarak hücresel yaşlanmada etkili Lamin B1, p16 ve siklin B1 gibi proteinlerin seviyelerinde de değişiklik olduğu saptanmıştır. Elde edilen veriler sonucunda, kersetinin apoptoz ve hücresel yaşlanma üzerine etkilerinin olduğu ancak bu etkinin primer veya metastatik kanser hücre tipine göre farklılık gösterebileceği ortaya konmuştur.

Anahtar kelimeler: kersetin, apoptoz, hücresel yaşlanma, kolon kanseri

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➢ **ORAL PRESENTATION**

Method optimization for the simultaneous determination of flavonoids and anthraquinones in *Polygonum cognatum* Meissn plant by HPLC-DAD method

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Abstract

All seven regions of Turkey have a different climate, flora and fauna which have a wide variety of plants with different characteristics. These plants, which are found in natural flora, are used for various purposes (treatment, food, tea, spice, dye and insecticide, resin, gum and cosmetic industry etc.) among the people in our country as in other countries. Medicinal plants have great importance in terms of public health due to the high biodiversity of chemical components such as flavonoids, phenolic compounds, anthraquinones, alkaloids and tannins. *Polygonum cognatum* Meissn (Madimak), which is a member of the *Polygonaceae* family that grows naturally in our country, has been consumed as nutrient and used in the treatment of some diseases. Within the scope of the study, HPLC-DAD method with high separation efficiency, good selectivity and high detection sensitivity was developed and validated for the simultaneous quantitative determination of flavonoids and anthraquinones in the extract of *Polygonum cognatum* Meissn plant collected from Sivas region. Separation of flavonoid and anthraquinone was carried out on a SUPERCOIL LC-18 (25cm x 4.6mm, 5µm) column. Optimum method conditions were determined by working at different mobile phase compositions, flow rates and column temperatures. The data were evaluated for system compatibility tests at the optimum conditions. As a result; deionized water containing 0.1% phosphoric acid as the mobile phase A and methanol as the mobile phase B were separated by gradient program. The optimum flow rate was 1.0 mL/min and the column temperature was 43 °C. Method was validated by the determination of linearity, selectivity, limit of detection (LOD), limit of quantification (LOQ), intra-day and inter-day precision parameters. As the last step of this study, simultaneous quantitative determination of flavonoids and anthraquinones in Madimak plant extract was performed.

Keywords: *Polygonum cognatum* Meissn, flavonoids, anthraquinones, HPLC, method validation

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➢ **ORAL PRESENTATION**

Synthesis of acyl thiourea compounds from *p*-amino benzoic acid

Bunyamin Ozgeris

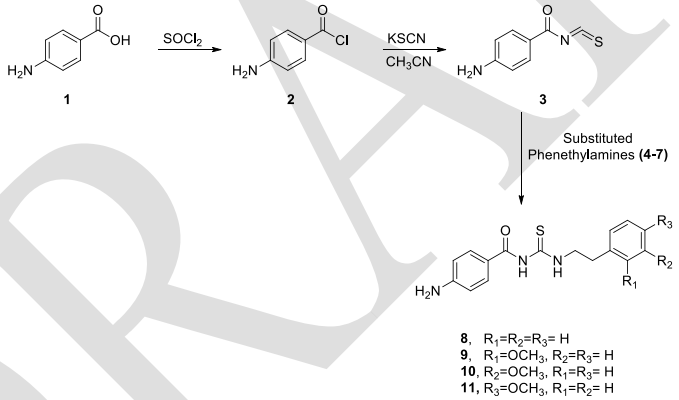
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Abstract

Thiourea-based compounds exhibited wide range of biological properties such as anti-inflammatory, antifungal, anticancer, antimalarial, antituberculosis, antithyroid and antibacterial activities. Acyl substituted thiourea derivatives are not only important intermediates in organic synthesis, but they also possess various biological activities. Acyl thioureas are well-known for their pesticidal, antifungal and antiviral activities. Furthermore, thioureas and their analogues are capable of forming stable complexes with variety of transition metals.

In the light of above mentioned knowledges, we decided to synthesized potential biological active acyl thiourea compounds from *p*-amino benzoic acid. For this purpose, *p*-amino benzoic acid **(1)** was converted to acyl chloride with thionyl chloride. Then, potassium thiocyanate was added to *p*-amino benzoylchloride **(2)** and obtained *p*-amino benzoyl isothiocyanate **(3)**. Finally, substituted phenethylamines **(4-7)** were added to *p*-amino benzoyl isothiocyanate **(3)** solution and were synthesized acyl thiourea derivatives **(8-11)** (Scheme 1).



Scheme 1. Synthesized acyl thiourea compounds

Keywords: *p*-Amino benzoic acid, thiourea, acyl thiourea.

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➢ **ORAL PRESENTATION**

Arginase immobilization onto PCL/CH nanofibers: Application in arginase stability properties

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Abstract

Electrospinning is the most efficient, easy to apply, economical, fast and versatile fiber production technique for the production of polymer fibers using electrostatic forces. This method offers numerous advantages such as high surface/volume ratio, adjustable porosity, homogeneous diameter and the ability to control nanofiber size and morphology to achieve preferred properties. Due to these advantages, nanofibers produced by electrospinning method have high potential for use especially in enzyme immobilization applications.
Thanks to advances in biotechnology in recent years, enzyme immobilization has a wide range of applications in many industrial fields. Immobilized enzymes offer many advantages over free enzymes because of easy removal of enzyme from the reaction medium, their repeated use and resistance to external factors.
In this submitted study, arginase was immobilized onto polycaprolactone (PCL) / chitosan (CH) nanofibers which were synthesized by electrospinning technique. The most appropriate operational parameters as electric voltage, distance between tip and collector, concentration of PCL and CH, injection speed were found as 18 kV, 14 cm, 20% PCL, 2% CH and 0.4 ml/h respectively. The morphology and structure of the nanofibers was characterized by scanning electron microscopy, fourier transform infrared spectroscopy and thermal gravimetric analysis. According to this results, PCL/CH nanofibers were successfully synthesized by electrospinning. Then arginase was immobilized on to the nanofibers by adsorption and crosslinking methods. For the optimization of arginase immobilization, the unit of arginase (2 U/ml), the amount of glutaraldehyde (5%), the amount of nanofiber (12.5 mg) and the adsorption time (30 min) were determined as basic parameters. Also the optimum temperature, optimum pH, pH stability, thermal stability, kinetic parameters and reusability parameters were investigated.
As a result of this study, the stability properties of arginase have been developed for the production of L-ornithine, an amino acid that is widely used in the pharmaceutical and healthcare industries.

Keywords: Electrospinning, Nanofiber, Arginase, Immobilization, L-ornithine

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➢ **ORAL PRESENTATION**

A new voltammetric approach for dopamine analysis using poly-L-cystine and gold nanoparticles modified pencil lead graphite electrode

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Abstract

Dopamine (DOPA) is an essential an coexisting biomolecule in human metabolism processes and biologicial fluids such as human urine and serum [1]. It is recognized as one of the best-known neurotransmitters with wide variety of proved functions controlling central nervous, cardiovascular, renal and hormonal systems. Abnormal concentration level of DOPA may cause several diseases including schizophrenia and Parkinson's disease [2]. Thus, selective and sensitive determination of DOPA is in great deal of attention. In past few decades, several methods have been used for the determination of DOPA including spectroscopy [3], chomatography [4] and voltammetry [5]. Among them, voltammeric tecniquies have a great attention due to having low-cost instrumentation, no requirng hard procedure before assay, giving fast response and being sensitive.

In current study, a new sensor has been developed based on poly-L-cystine (p-L-cys) and gold nanoparticles (AuNPs) modified pencil graphite electrode (PGE) for DOPA determination in urine samples. The p-L-cys layer has been covered on bare PGE surface by electropolymerization method then, AuNPs has been deposited on the p-L-cys/PGE surface by electro-reducing of $HAuCl_4$. The surface characterization of p-L-cys/AuNPs/PGE has been carried out using both cyclic voltammetry and electrochemical impedance spectroscopy. In order to obtain the best-modified electrode surface for analyzing of DOPA, the concentration of modification agents L-cys and $HAuCl_4$ have been optimized and determined as 5.0 mM and 0.1 mM, respectively. This new developed sensor has electrocatalytic effect towards to the oxidation signal of DOPA. To develop an adsorptive stripping voltammetric method for DOPA using the new modified electrode, pH, the accumulation potential and time have been optimized and found as 5.0, -0.5 V and 30.0 s, respectively. Under these optimal circumstances, the calibration curve has been composed and linear working range, the limit of detection (LOD) and quantification (LOQ) parameters have been assigned as 0.53-100 μM, 0.16 μM and 0.53 μM, respectively. The obtained results are presented a comparable LOD and a wider liner working range when compared to the previous literature reports. As a final point, the p-L-cys/AuNPs/PGE sensor has been used for the DOPA analysis in human urine samples and the obtained recovery results are very satisfactorily.

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➢ **ORAL PRESENTATION**

Synthesis, structural elucidation and biological assessment of new *N*-Acylhydrazones of 4-Chloro-3-methylphenol

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Abstract

Having a wide spectrum of biological activities, hydrazide-hydrazones are great interest. Literature survey reveals that these derivatives are associated with number of pronounced antioxidant, anticancer, antiinflammatory, antidiabetic etc. activities[1-3]. This work represents the synthesis, characterization and biological activity of new hydrazide-hydrazones. In light of this, ethyl (4-chloro-3-methylphenoxy)acetate was obtained by the reaction of 4-chloro-3-methylphenol with ethyl bromoacetate in acetone. 2-(4-chloro-3-methylphenoxy)acetohydrazide was prepared by heating ethyl (4-chloro-3-methylphenoxy)acetate with hydrazine hydrate in ethanol. By condensing hydrazide compound with substituted aldehydes in ethanol, new 2-(4-chloro-3-methylphenoxy)-*N*'-[(substitutedphenyl)methylidene]acetohydrazide were obtained. The purities of synthesized compounds were checked with TLC and HPLC. Besides elemental analysis, their structures were elucidated by the use of their UV, IR and NMR spectral data. According to the literature, the hydrazones may exist as E/Z geometrical isomers about C=N double bonds and cis/trans amide conformers[4]. ^{1}H-NMR spectra of synthesized compounds in DMSO-d_6 solution display two sets of singlets related to methylene (CH_2) and some imine (NH) protons indicating the presence of cis/trans conformers. In the ^{1}H-NMR spectra the upfield peak of CH_2 group belongs to trans conformer whereas downfield peak to cis form[5]. Thus, we may conclude that the obtained hydrazones exist in DMSO-d_6 solution as a mixture of cis/trans conformers. In addition, antioxidant activities were evaluated and especially 2-(4-chloro-3-methylphenoxy)-*N*'-[(2,5-dihydroxyphenyl)methylidene]acetohydrazide had significant activity with IC_{50} value of 1.11 µg/mL against DPPH radical. It was found to have higher activity than butylhydroxytoluene (BHT) (213.6 µg/mL), ascorbic acid (17.6 µg/mL) and trolox (14.54 µg/mL) compared to the standards. Also, this compound showed good activity (IC_{50}=26.48 µg/mL) against ABTS radical and was found to have lower activity than ascorbic acid (14.5 µg/mL) and trolox (13.00 µg/mL) and higher than BHT (26.82 µg/mL). The other biological activities are in progress. These observations have been guiding for the development of new hydrazones that possess varied biological activities.

Keywords: Hydrazone, Biological activity, Antioxidant, Phenol, Characterization

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

An electrochemical investigation of carbonized *Typha* tassel for enzymatic glucose oxidation

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Abstract

Carbonaceous materials (CMs) are widely used in bioelectronics research due to their good electrical conductivity and high surface area. Most of the CMs need complex synthesis procedures involving hazardous materials which could be a threat to the environment and human health. Electrochemical techniques are frequently employed in bioelectronic research such as biosensors and biofuel cells and there are many CM based materials used in such systems. This study shows the electrochemical performance of carbonized typha tassel (CTT) which was synthesized using a simple and cheap method without the addition of any hazardous substances. CTT was first physically characterized using SEM and FTIR to confirm the carbonaceous nature of the material. The formation of carbonaceous fibres and interconnection between them was seen from SEM analysis. Moreover, very similar characteristic peaks with carbonaceous materials such as graphene and graphite were seen from FTIR results. CTT was then prepared as a fine powder and dispersed in DMF following by a coating procedure on screen-printed electrodes (SPEs). Cyclic voltammetry technique was used for the electrochemical characterization of the prepared SPEs. The performance of the CCT modified SPEs on enzymatic glucose oxidation were then investigated using a glucose oxidizing enzyme, glucose oxidase at physiological conditions. The results showed promising results for CTT as an easy, effective and cheap alternative to its rather expensive and hazardous alternatives. CTT is a good example for biomass to bioelectronics application and could be useful for bioelectronic applications.

Keywords: Carbonaceous materials, bioelectronics, electrochemistry, *Typha* tassel, glucose oxidation, biosensors

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➢ **ORAL PRESENTATION**

Antibacterial effects of *Thymbra sintenisii* and *Thymus vulgaris* essential oils on *Klebsiella pneumoniae* strains carrying bla$_{OXA48}$, bla$_{KPC}$, bla$_{NDM}$, bla$_{VIM}$ and bla$_{SHV}$ resistance genes

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Abstract

Carbapenem-resistant and ESBL producing *K.pneumoniae* infections are associated with numerous healthcare related risk factors and with high morbidity and mortality. Sharp increase in these strains and their rapid spread are worrisome findings, as therapeutic choices against organisms are limited. There is an urgent need to identify novel substances active against them. Essential oils (EOs) are natural plant products. They are used as natural additives due to their antibacterial, antifungal, antioxidant and anti-carcinogenic properties. This study aimed to investigate the antibacterial activity of *Thymbra sintenisii* and *Thymus vulgaris* EOs on various *K.pneumoniae* strains carrying bla$_{OXA48}$, bla$_{KPC}$, bla$_{NDM}$, bla$_{VIM}$ and bla$_{SHV}$ resistance genes. In vitro antimicrobial activity was evaluated by agar diffusion test. MIC of EOs was determined using twofold dilutions technique ranging from 0.039% to 10.00% (v/v). The essential oils were dissolved in broth supplemented with DMSO at a final concentration of 0.5% (v/v). The MBC was determined by plating sample from each dish that showed no bacterial growth on agar media. The testing MDR pathogenic strains of *K.pneumoniae* were; ATCC 1705 bla$_{KPC}$, NCTC 13440 bla$_{VIM-1}$, CDC 529 bla$_{NDM-1}$, bla$_{OXA-48}$ confirmed positive strains and ATCC 700603 beta-lactamase SHV-18. EOs were given as a gift by the manufacturer (Çalışkan Tarım, Denizli,Turkey). *K.pneumoniae* ATCC 13883 was used as a quality control strains of testing methods. Both EOs exhibited significant susceptibility with inhibition zone diameters between 12-21mm against testing strains. The greatest zone diameter was observed against *K.pneumoniae* strains carrying bla$_{OXA48}$ which is the most prevalent resistant genotype in Turkey. MIC and MBC value for ATCC 1705 blaKPC, NCTC 13440 blaVIM-1, blaOXA-48 was 0.312 and 0.625, for CDC 529 blaNDM-1 and control strain was 0.625 and 1.25, and for ATCC 700603 was 0.039 and 0.078% (v/v) respectively. This present study showed that both EOs possessed antimicrobial activity against MDR *K.pneumoniae* strains carrying resistance genes.

Keywords: Thymbra sintenisii, Thymus vulgaris, *Klebsiella pneumonia*, carbapenem resistant

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➢ **ORAL PRESENTATION**

Toxicity of biologically synthesized silver nanoparticles against *Daphnia magna*

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Abstract

In this study, the toxic effects of biologically synthesized silver nanoparticles on *Daphnia magna* (*D. magna*) were examined. Silver nanoparticles used in this work were synthesized by treating $AGNO_3$ with aqueous leaf extract of *Salvia verticillata*, which is a medicinal plant as a source of reductants. The LC_{50} value for silver nanoparticles was detected as 42 ppb. To investigate the acute toxicity of silver nanoparticles on *D. magna*, 0 (Control), 5, 10, 15 and 25 ppb nanoparticle concentrations were applied to neonates for 48 h. Changes in the expression of genes related to growth and reproduction were analyzed using qRT-PCR technique. It was found that short-term exposure to biologically synthesized silver nanoparticles reduced the survival rate and remarkably enhanced the transcription level of several genes related to growth and reproductive systems. The results suggested that plant extract mediated synthesized silver nanoparticles leads to acute toxicity on *D. magna* and their use may not ecofriendly but further research is needed.

Keywords: *Daphnia magna*, Gene expression, *Salvia verticillata*, Silver nanoparticle

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➢ **ORAL PRESENTATION**

Cyclooxygenase enzyme in physiological and pathological conditions

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Abstract

The cyclooxygenase (COX) enzyme uses arachidonic acid to form prostanoids, which play a role in several physiological and pathological conditions. This enzyme has different isoforms, mainly COX-1 and COX-2. COX-3 and COX-4 are other isoforms. COX-1 is the constitutive isoform, while COX-2 is the inducible isoform. They are expressed in different tissues and at different levels, but they may also coexist within the same tissue. Both isoforms show essentially the same mode of action, but their substrates and inhibitors may be different. The COX-1 isoform, which plays a role in the continuation of physiological events, has an increased expression level in various carcinomas, and the COX-2 isoform, which is increased in inflammatory conditions, is typically expressed at low physiological levels in some tissues such as the brain, kidney and uterus. In addition to investigating the efficacies of the COX-1 and COX-2 isoforms, the discovery of potential new COX enzymes and their effect continues. In this review, it has been mentioned that roles of the COX enzyme in physiological and pathological conditions.

Keywords: Cyclooxygenase, physiologic, pathologic, tissue

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➢ **ORAL PRESENTATION**

Lipidomics analysis to understand biofilm process at molecular level

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Abstract

Biofilm formation is a natural process for many microorganisms. Biofilm formation includes three basic steps. The first one is the adherence of cells to surface. In Initiation step, cells proliferate to form a basal layer of adhered cells. In maturation step, complex layers of polymorphic cells develop and become encased in an extracellular matrix. In Dispersion, round yeast cells leave the mature biofilm to seed new sites. Biofilm formation enhances ability to live easily in different environments. Moreover, biofilm formation contributes antimicrobial resistance. In literature, there are various studies related with biofilm formation. However, there is limited information at molecular level. Especially lipid composition is one of the key elements in biofilm formation. Membrane lipids are major component for adherence of cells for attachment of cells to surface and other cells. Lipidomics studies give essential information about the lipid composition during biofilm formation. LC/MS based lipidomics studies offers great opportunity to analyse hundreds of lipids in short time. In present work, lipidomics studies were evaluated to understand mechanism of biofilm formation at lipid level. Phospholipid and fatty acid composition is very effective over biofilm formation. Moreover, other lipid classes were evaluated in biofilm formation.

Keywords: Lipidomics, biofilm, LC/MS

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➢ **ORAL PRESENTATION**

X–ray crystal structure, Hirshfeld surface analysis, DFT electronic structure properties of Nickel (II) complex with nicotinamide and succinic acid ligands

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Abstract

In this study, a polymeric-Ni (II) complex with nicotinamide and succinic acid ligands, poli[diakuabis(nikotinamit-κ^2N,N')nikel(II)-μ-süksinato-κ^2O,O'] monohidrat [1] was synthesized. Crystallographic and molecular structure determined by single-crystal X-ray diffraction techniques. The complex was crystallized in the triclinic space group P-1 with a=7.5193 (6) Å; b=7.8367 (6) Å; c=9.7637 (8) Å ve α=66.641 (6) °; β= 68.757 (6) °; γ=75.352 (6) °. The FT-IR spectrum has been recorded in the region of 4000-400 cm^{-1}. In order to support the experimental results, molecular geometry of the compound obtained from the X–ray coordinates was optimized by Density Functional Theory (DFT) using Gaussian 03W software and then, theoretical IR was calculated. PLATON and Crystal Explorer programs were used to determine the remarkable interactions between the molecules and the nature of packing the molecules in the crystal has been tried to be understood.

Keywords: Ni(II) complex, succinic acid, nicotionamide, polymer, density functional theory

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➢ **ORAL PRESENTATION**

Synthesis and evaluation of cytotoxic effects of some novel flavanol 3-*O*-glycosides derivatives

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Abstract

Flavonoids constitute an important class of naturally occurring compounds exhibiting a wide spectrum of biological activities, which include anti-carcinogenic, anti-viral, anti-inflammatory and anti-fungal effects. Flavonol *O*-glycosides have essential roles in the growth and development of plants. Quercetin is the major flavonol found in plants (though usually in glycosylated forms), representing a typical structure of a flavonol *O*-glycoside and is thus a ubiquitous part of the human diet. For example, quercetin-3-β-*O*-glucoside has been reported to have ameliorative effects on a host of disorders including cancer, renal and cardiovascular diseases and have inhibitory activity toward SARS-CoV 3CL or viral replication. In this study, some novel flavonol 3-O-glycoside derivatives were synthesized. Synthesis of corresponding chalcone derivatives by using aldol condensation between 2-hydroxyacetophenone and fluoro substituted aldehydes give chalcone under strong basic condition in ethanol for at least 24 h in moderate yields. Chalcone were converted to flavonols by treatment with alkaline hydrogen peroxide for 24 h, in yield of 40-70%. Starting from the substituted flavonols with α-acetobromoglucose in anhydrous acetone were synthesized 2,3,4,6-tetra-*O*-acetyl-3'-*O*-β-$_D$-glucopyranosyloxyflavonols. Deblocking of the latter with CH_3ONa in dry methanol results in fluoro substituted flavonol 3-O-glycosides. The cytotoxic effects of the compounds were evaluated on human lung adenocarcinoma cell line (A549) using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay.

Keywords: Flavonoids, Flavonol *O*-glycosides, Cytotoxicity

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➢ **ORAL PRESENTATION**

Inhibitory activities of four *Trametes* Species on α-Amylase and α-Glucosidase enzymes

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Abstract

Today, depending on many factors, various diseases have reached the global dimension. Diabetes is one of these diseases and the incidence of these diseases has increased significantly in recent years. Among the strategies used for the treatment of these diseases, the most accepted key is the inhibition of enzymes. According to this theory, key enzymes that play a role in the pathology of the disease are inhibited and the symptoms caused by the disease are alleviated (Uysal et al., 2016). α-Amylase and α-glucosidase enzymes are the main enzymes of sugar metabolism and their blood glucose level increases as a result of their activity. In this sense, inhibition of these enzymes is an important mechanism for controlling the blood glucose level in diabetes (Etxeberria et al., 2012).

In this study, inhibitory activities of four *Trametes* species (*Trametes bicolor, T. pubescens, T. suaveolens* and *T. versicolor*) on α-amylase and α-glucosidase were evaluated. For this purpose, the mushrooms were first extracted with hexane and methanol at room conditions, respectively, and α-amylase and α-glucosidase inhibitory activities of the extracts were determined spectrophotometrically. Among all studied mushroom extracts, *T. suaveolens* hexane, *T. bicolor* hexane, *T. versicolor* methanol extracts possessed the highest inhibitory effects on a-amylase enzyme with inhibition percentage values of 83.74±0.35, 80.41±0.19 and 79.56±0.10 % at 1.0 mg/L concentration, respectively. *T. pubescens* methanol (70.39±0.69 %), *T. versicolor* hexane (43.60±0.30 %), and *T. bicolor* hexane (39.54±0.74 %) extracts showed the highest inhibitory activity on α-glucosidase enzyme at 0.5 mg/L concentration. Also, *T. pubescens* methanol extract exhibited higher α-glucosidase inhibitory activity than the acarbose (67.01±2.28 %) used as standard.

Keywords: *Trametes* species, α-amylase inhibitory, α-glucosidase inhibitory

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➢ **ORAL PRESENTATION**

Investigation of cytotoxic effect and iNOS inhibition of resveratrol encapsulated nanoparticle

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Abstract

Resveratrol is a polyphenolic compound found in fruits such as grapes, wine, peanuts, and blueberries. It is very sensitive to environmental changes such as UV, pH and temperature and has a low stability. It has some structural similarities with human estrogens and can therefore bind to the estrogen receptor. Resveratrol affects these cells by binding to estrogen-dependent and estrogen-independent breast cancer cells. Breast cancer is a serious cancer type with a high incidence in the world. Although the exact cause is not known, it is characterized by tumoral formation in the mammary glands of the breast and between the cells that lay the channels that carry the milk produced to the breast, and which has the potential to spread to other organs as a result of various factors. Radiotherapy treatment, kemaotherapy, phytotherapy and surgical applications are available in cancer treatment. However, various reasons such as the long-term use of these techniques, and the fact that the chemotherapeutic chemicals cannot be removed from the patient metabolism in the long term direct cancer research to find different treatment methods. For all these reasons, resveratrol should be targeted by giving it to the body in different forms in order to affect the malignant tumor cell line and eliminate the tumor. In this study, resveratrol was encapsulated using sol-gel technique using PAMAM G-4 dendrimer. The effects of trans-resveratrol prepared in different concentrations on encapsulated and non-encapsulated forms on cytotoxic and iNOS inhibition were determined. For this purpose, the cytotoxic effect on estrogen-dependent MCF-7 and estrogen-independent MDA-MB-231 breast cancer cells, and the level of LPS-induced iNOS inhibition in RAW-264.7 cells were determined. As a result, it is thought that resveratrol encapsulated using sol-gel technique can be used as an effective phenolic agent in cancer treatment and this method can be developed as an alternative method to current treatment applications.

Keywords: Trans-Resveratrol, Sol-gel Technique, Breast Cancer, Cytotoxicity.

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➢ **ORAL PRESENTATION**

Development and validation of RP-HPLC method for simultaneous determination of standard compounds used *in-situ* rat intestinal permeability studies

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Abstract

Oral drug administration is the most convenient and useful route for drug delivery depends on factor like permeability. Prediction of drug permeability through the intestine is very crucial for research and development of new drug entities and products. Single pass intestinal perfusion (SPIP) technique is most common experiment to determine the intestinal absorption characteristics of drugs. Metoprolol Tartrate (MT) (reference standard) and Phenol Red (PR) (zero permeability marker) are commonly used compounds in SPIP technique.

In this study, high performance liquid chromatographic method has been developed and validated for the simultaneous determination of MT and PR for SPIP studies. Elution was performed using C18 (5µm, 250 × 4.6 mm) column at 25 ºC temperature combined with mobile phase (adjusted by pH: 3.0 with orthophosphoric acid) K_2HPO_4 and Methanol (45%: 55%, *v:v*) at a flow rate of 1.2 ml/min, with detection at 227 nm. MT and PR were injected 20 µl to the RP – HPLC/UV/DAD system. The perfusion medium was prepared with 25 mM NaCl, 10 mM KCl, 40 mM Na_2SO_4, 20 mM $NaHCO_3$ and 80 mM Mannitol (pH 7.4 adjusted by ortho-phosphoric acid). Perfusion medium was daily prepared and then filtered through 0.22 µm PVDF membrane filter. The obtained retention time of MT and PR were 2.832 and 3.795, respectively.

The developed method was validated according to the International Conference on Harmonization (ICH) guideline. The calibration curves were linear in the concentration range of 10-75 µg/ml for MT and 2-80 µg/ml for Phenol Red. The quantification limits for MT and PR were found 0.721 and 0.501 µg/ml, respectively. The recovery for MT and PR are in the range between 91.64 and 101.71%. The results of the studies showed that the proposed RP-HPLC-UV/DAD method is simple, rapid, precise and accurate, which can be applied for *in-situ* rat intestinal permeability studies.

Keywords: Oral absorption, HPLC, permeability, Metoprolol tartrate, Phenol red

DRAFT

➢ **ORAL PRESENTATION**

"Tombul" fındığının (*Corylus avellana*) çiçek fenolojisi

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Özet

Çalışma 2019 yılında "Tombul" fındık çeşidinin çiçek fenolojik özelliklerini ortaya koymak için Ordu ilinin sahil kuşağında yer alan Karapınar mahallesindeki bir üretici bahçesinde yürütülmüştür. Çalışmada erkek çiçeklerin ilk gözükmesi, püsküllerin gelişmesi, püsküldeki erkek çiçek sayısı, anter sayısı, polen sayısı, polen tüpü gelişimi, tozlanma başlangıcı, tozlanma sonu, dişi çiçek (karanfil) gelişimi, stigma oluşumu, parçalı stigma, tozlanmış karanfil, çiçek tozu kabul dönemi (reseptif) sonu, ovaryum oluşum dönemi, çotanak oluşumu başlangıcı, ilk meyve tutumu gibi özellikler gözlemlenerek her bir gelişme durumu ve dönemi makro ve mikro çekimlerle resimlenmiştir.

Anahtar kelimeler: *Corylus avellana*, Fındık, "Tombul", Çiçek, Püskül, Karanfil

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➢ **ORAL PRESENTATION**

Synthesis and biological activities of benzil-D-glucoside compounds

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Abstract

Benzil (known as 1,2-diphenylethane-1,2-dione) is one of the important organic compounds that has been received a great deal of attention due to its practical applications, such as photosensitive agents and synthetic agents in organic and pharmaceutical chemistry. The most common method used for the synthesis of benzils involves the oxidation of benzoin derivatives with an oxidizing agent. Vijayasin, representing a typical structure of benzil glucoside, has been isolated from an aqueous extract of the heartwood of *Pterocarpus marsupium*. However, there are few reports concerning the benzil glucoside. A total of 8 benzil and 5 benzil-D-glucoside compounds were synthesized. Firstly, benzoins were synthesized according to the classical procedure, then they were oxidized with a fehling solution to obtain unsymmetrical benzil derivatives. Benzil reacted with α-tetraacetobromoglucoside in anhydrous acetone to give 2,3,4,6-tetra-O-acetyl-*O*-β-D-glucopyranosyloxybenzils then acetyl groups were hydrolyzed with $NaOCH_3$ in dry methanol to give benzil-D-glucoside. The structures of the synthesized compounds were identified by the spectroscopic method using NMR (^1H, ^{13}C, APT, COSY), FT-IR and UV spectra. And also antimicrobial, antioxidant and enzyme inhibition of synthesized benzil analog compounds was evaluated.

Keywords: Benzil, benzil-D-glucoside, NMR, FT-IR, UV.

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➢ **ORAL PRESENTATION**

Hidroksi benzoin anologlarının sentezi

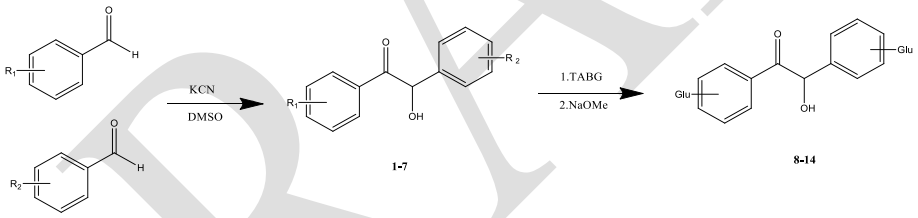
Gözde Kiliç[1*], Gonca Çelik[2], Nurettin Yayli [3], Nuran Kahriman[2], İshak Erik[3], Şeyda Kanbolat[4], Arif Bozdeveci[5], Şengül Alpay Karaoğlu[5], Rezzan Aliyazıcıoğlu[4], Hasan Erdinç Sellitepe6[7], Selin İnci Doğan[6]

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Özet

Fenolik bileşikler diyabet, Alzheimer ve kardiyovasküler hastalıklar gibi hastalıkların risklerini azalttığı bilinmektedir. Bazı fenolik yapılı benzoin bileşikleri doğada meyve ve sebzelerde bulunmaktadır. Farmasötik önemi olan hidroksi benzoin bileşikleri (Bileşik no 1-7) ultrasonik yöntemle sentezlendi. Glikozidik yapılı heterozit bileşikler doğada oldukça yaygındır. Bu amaçla benzoin bileşiklerinin D-glukozit türevleri (Bileşik no 8-14) sentezlenmiştir. Sentezlenen 1-7 nolu bileşiklerin antimikrobial, antioksidan, enzim inhibisyonları çalışılmıştır. Sentezlenen bileşikler spektroskopik yöntemlerle (NMR (1D: ^{1}H, ^{13}C, APT; 2D: COSY, HMQC, HMBC, NOESY), UV ve FT-IR) analizileri yapılmıştır. Benzoin ve benzoin-D-glukozit bielşiklerinin sentez şeması aşağıda verilmiş olup 3,5-7 ve 8-14 nolu bileşikler yenidir.



Tablo 1. 1-14 Nolu hidroksi ve D-Glukoz substitue Benzoin türevi bileşiklerin sentez şeması.

Bileşik No	Benzoin Türevleri	Bileşik No	Benzoin-O-D-Glukoz Türevleri
1	R_1=3-OH, R_2=H	8	R_1=3-D-Glu, R_2=H
2	R_1=4-OH, R_2=H	9	R_1=4-D-Glu, R_2=H
3	R_1=3,5di-OH, R_2=H	10	R_1=3,5-diD-Glu, R_2=H
4	R_1=3-OH, R_2=3-OH	11	R_1=3-D-Glu, R_2=3-D-Glu
5	R_1=3-OH, R_2=4-OH	12	R_1=3-D-Glu, R_2=4-D-Glu
6	R_1=3,5di-OH, R_2=3-OH	13	R_1=3,5-diD-Glu, R_2=3-D-Glu
7	R_1=3,5di-OH, R_2=3,5di-OH	14	R_1=3,5-diD-Glu, R_2=3,5-di-Glu

Anahtar Kelimeler: Bezoin, sentez, D-glukoz.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Environmental fate of chiral pharmaceuticals

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Abstract

The discharge regime of pharmaceuticals to wastewater systems can either be directly from humans or indirectly by rain from animals' excretion of veterinary pharmaceuticals. The natural conditions and seasons are mainly related with the amount discharged. The previous studies demonstrate that only a part of the pharmaceutical contaminants can be eliminated from water systems worldwide. The rest of the uneliminated parts stay in the swage or take place in the aquatic environment that will end up with human beings once more. Even if the studies show that the amounts in drinking water samples did not exceed the relevant degrees, their accumulation in human due to the circulation in water is not being fully explained. To explain the type and the fate of the pharmaceutical pollution more data should be obtained. Not only the parent compound, but also the metabolites and degradation products should be kept in consideration for screening. The observations performed only for parent molecule would not be enough to define the total impact on environment.

Chiral pharmaceuticals (CPs) reach the aquatic environment as a result of human and animal action. However, before they end up in water ecosystems, they are subjected to various abiotic and biotic treatment/purification processes which should remove them from wastes. Nevertheless, conventional wastewater treatment plant (WWTP) is not particularly designed to remove CPs and the efficiency of their removal depends on the type of treatment process. At the beginning, CPs are exposed to abiotic processes, such as adsorption, sedimentation, thermal and photo-degradation, which are not expected to be enantioselective, so the enantiomers should be equally removed.

Keywords: chiral drugs, enantiomers, wastewater, environment

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➢ **ORAL PRESENTATION**

Retrospective evaluation of routine biochemical blood parameters in children with cerebral palsi

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Abstract

Cerebral palsy (Cp) is a persistent developmental disorder that is common in childhood and affects movement and posture throughout life. Along with motor dysfunction, which is the main finding of the disease; Sensory cognitive problems, epilepsy, communication perception problems, oral motor failure and related nutritional problems, behavioral disorders, orthopedic disorders, neurological dysfunctions, convulsions, chronic lung problems and sleep problems are common.
The prevalence of Cp is approximately 2-3.5 per 1000 live births. In addition, this rate increases to 65 in 1000 live births in premature births below 1500 g. The aim of this retrospective study was to evaluate the biochemical blood parameters of children with Cp. The study included 50 children with Cp aged between 0 and 18 years and 50 healthy children as a control group. The Cp group was selected from the children with Cp diagnosis in the Department of Pediatric Neurology at Gazi University Faculty of Medicine between 2018-2019 and the control group was selected from the Children's Health Unit. For the study, the ethics committee permission was obtained from the meeting on 28.05.2018 (decision number: 430) from Gazi University Clinical Research Ethics Committee. In two groups, routine biochemical parameters were evaluated retrospectively. According to our study; creatinine, calcium, phosphorus, sodium, folic acid, albumin ratios were significantly different between Cp and control group ($p<0,05$). As a result; in children with cerebral palsy there may be bone metabolism disorders. This quality of life in chronic monitoring of children so that these disorders can be corrected early it is important to be noticed and treated.

Keywords: Cerebral palsy, Biochemistry, Blood parameters

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➢ **ORAL PRESENTATION**

Piperazinin *Galleria mellonella* L. (Lepidoptera: Pyralidae)'nın hemolenf dokusundaki bazı biyokimyasal özellikleri üzerine etkisi.

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Özet

Laboratuvar şartlarında yürütülen böcek yetiştirme ve beslenme fizyolojisi çalışmalarında mikrobiyal kontaminasyonları önlemek amaçlı yapay besin ortamına sıklıkla antibakteriyal ve antifungal maddeler eklenmektedir. Son zamanlarda laboratuvar koşullarında böcekler ile yapılan beslenme çalışmalarında yeni kuşak bazı antibakteriyel, antifungal ve antihelmintik maddeler kullanılmaya başlanmıştır. Bu çalışmada klinik öneme sahip, heksahidropirazin grubu bir antihelmintik olan Piperazinin *Galleria mellonella* L.'nın yapay besinine ilave edilerek böceğin hemolenf dokusu üzerine oksidatif etkisi araştırıldı. *G. mellonella* larvaları 100g besinde 0,001g, 0,01g, 0,1g, 1g piperazin bulunan besi yerlerinde 7. evreye kadar yetiştirildi. 7. evre larvalarından toplanan hemolenf kullanılarak oksidatif stres belirteçlerinden olan lipit peroksidasyonu son ürünü malondialdehit (MDA) ve protein oksidasyonu ürünü protein karbonil (PCO) miktarı ile detoksifikasyon enzimi glutatyon S-transferaz (GST) aktivitesi ölçüldü. Verilerin değerlendirilmesinde "Varyans Analizi" (ANOVA), ortalamalar arasındaki farkın önemini saptamak için LSD testi kullanılmıştır. Elde edilen sonuçlara göre kontrol grubu ile denenen piperazin konsantrasyonları karşılaştırıldığında böceğin hemolenfinde MDA ve PCO miktarlarında, GST aktivitesinde istatistiksel olarak anlamlı farklar tespit edildi. MDA miktarı kontrol grubunda 0,01 ± 0,0021 nmol/mg protein iken en yüksek konsantrasyonda (0,0231 ± 0,0050 nmol/mg proteine) bu oran yaklaşık iki kat arttı. 0,1g piperazin bulunan konsantrasyonda PCO miktarının 179,97 ± 22,42 nmol/mg protein değerine yükseldiği görüldü. GST aktivitesinde ise kontrol grubu (142,63 ± 28 µmol/mg protein/dk) ile en yüksek piperazin konsantrasyon (261,16 ± 45 µmol/mg protein/dk) karşılaştırıldığında yaklaşık iki katı oranında istatistiksel olarak anlamlı bir artışın olduğu tespit edildi. Bu çalışma denenen piperazin konsantrasyonlarına bağlı olarak böceğin hemolenf dokusundaki oksidatif etkinin ve detoksifikasyon kapasitesinin değiştiğini göstermiştir.

Anahtar Kelimeler: *Galleria mellonella*, piperazin, hemolenf, malondialdehit, protein karbonil, Glutatyon-S-transferaz.

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➢ **ORAL PRESENTATION**

Retrospective evaluation of routine hematology blood parameters in children with autism

Hale Gök Dağıdır[1*], Neslihan Çelik Bukan[1], Ebru Arhan[2], Nezrin Tombul[1], Esra Ülgen Temel[2]

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Abstract

Autism spectrum disorder is defined as a set of neurodevelopmental disorder, characterized by repetitive behaviors, restricted interests, social deficits and communication difficulties. Although the number of cases of ASD diagnosed over the last four decades has increased significantly, there is still considerable debate about the underlying pathophysiology of ASD. It is now seen that it affects 1.5% of the world's population and disproportionately affects men. The aim of this retrospective study was to evaluate the hematology blood parameters of children with autism. The study included 30 children with autism aged between 0 and 18 years and 30 healthy children as a control group. The autism group was selected from the children with autism diagnosis in the Department of Pediatric Neurology at Gazi University Faculty of Medicine between 2018-2019 and the control group was selected from the Children's Health Unit. For the study, the ethics committee permission was obtained from the meeting on 28.05.2018 (decision number: 430) from Gazi University Clinical Research Ethics Committee. In two groups, routine hematology parameters were evaluated retrospectively. According to our study; mean erythrocyte volume (MCV), neutrophil count, neutrophil percentage, lymphocyte percentage, are significantly different between autism and control group ($p<0,05$). The high neutrophil lymphocyte ratio supports the hypothesis that there is a role of neuroinflammation in the etiology of autism. The view that elevated levels of neutrophil lymphocytes may be a guide in screening and early intervention in autism may be the subject of new research.

Keywords: Autism, Blood parameters, Biochemistry

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➢ **ORAL PRESENTATION**

Chemical composition and insecticidal activity of Moroccan *Satureja calamintha* (L.) essential oil against three stored product insects

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Abstract
The use of chemical pesticides caused several negative environmental and human health consequences, which has forced researchers to look for safer and natural alternatives that are less deleterious to the environment such as essential oils (EOs) to control pests. In this context, the present study aimed to examine the insecticidal activity of EOs extracted from *Satureja calamintha*. (L.), against three important stored product insects notably, *Tribolium confusum* du val, *Lasioderma serricorne* (F.) and *Sitophilus oryzae* (L.). The result of GC/MS analysis revealed the presence of 15 compounds representing 98.14% of the total oil with pulegone (68.58%), menthone (10.15%) and menthol (9.83%) as main components. Regarding the insecticidal activity, *S. calamintha* EO displayed the highest and interesting activity against adults of all insects tested, in both contact and fumigation assays. This activity varied according to the target insect. In fact, *S. oryzae* was the most sensitive insect with LD_{50} of 0.004 µL/cm^2 and LD_{90} of 0.011 µL/cm^2 in contact toxicity and LD_{50} of 1.988 µL/L and LD_{90} of 4.106 µL/L in fumigation test. While *T. confusu*m was the most resistant insect with LD_{50} of 0.123 µL/cm^2 and LD_{90} of 0.333 µL/cm^2 in contact toxicity, and LD_{50} of 18.504 µL/L and LD_{90} of 189.370 µL/L in fumigation test. *L. serricorne* showed a moderate sensitivity to studied oil in both contact and fumigation methods. These findings suggest that the EO of *S. calamintha* may be used as potential botanical insecticides to control grain storage insects.
Keywords: *Satureja calamintha* (L.), essential oil, insecticidal activity, chemical composition

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➢ **ORAL PRESENTATION**

Anticandidal activities of the essential oils of *Ammodaucus leucotrichus*, *Artemisia herba-alba* and *Thymus pallidus* and their synergism with fluconazol

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Abstract

Therapy for candidiasis is becoming problematic due to the toxicities of currently available antifungal agents and the development of multidrug resistant pathogens. Therefore, the use of combination of the essential oils (EOs) and conventional drugs constitute a novel strategy to overcome these resistance problems. In the present study, we evaluated the possible synergistic effect of three Moroccan plant essential oils (EOs) (*Thymus pallidus* Batt, *Artemisia herba-alba* Asso and *Ammodaucus leucotrichus* Cosson), and fluconazole against two clinically isolated pathogenic *Candida* namely, *Candida albicans* and *Candida glabrata*. The broth microdilution assays indicated that all studied EOs were active against tested yeasts. The Highest anticandidal activity was observed for *A. leucotrichus* EO with minimal inhibitory concentration (MIC) values between 0.161 and 0.324 mg/ml. EO obtained from *T. pallidus* expressed a moderate activity with MIC values ranging from 0.162 to 0.596 mg/ml. However, *A. herba-alba* EO displayed the weakest anticandidal effect with MIC values equal to 4.950 mg/ml. The combination of the studied EOs at sub-inhibitory concentrations with fluconazole contributed to the decrease of their MIC values by 64- to 256- fold. Results of this study suggest that the use of EOs in combination with conventional drugs could present a promising strategy to combat some human infectious diseases caused by candida species.

Keywords: Essential oil, anticandidal activity, synergistic effect..

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➢ **ORAL PRESENTATION**

Göksu Nehri'nden Kuzeydoğu Akdeniz'e Dökülen Suların Su Kalitesinin Değerlendirilmesi

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Özet

Kuzeydoğu Akdeniz'de artan kentleşme, tarımsal aktiviteler ve sanayileşmenin bir sonucu olarak yüzey sularıyla kıyısal alanlara taşınan kirleticiler, bu bölgelerde ötrofik koşulların oluşmasına neden olmuştur. Bu nedenle nehirler ile Akdeniz'e taşınan kirlilik yükünün bilinmesi ve önlenmesi için gerekli izleme ve koruma çalışmalarının yapılması oldukça önemlidir. Bu çalışmada, Devlet Su İşleri tarafından 1992-2017 yılları arasında Göksu Nehri mansabında sezonluk olarak yürütülen izleme çalışmalarının sonuçları incelenmiştir. Bu amaçla, nehir suları biyolojik oksijen ihtiyacı (BOI), kimyasal oksijen ihtiyacı (KOİ), çözünmüş oksijen (ÇO), elektriksel iletkenlik (Eİ), amonyak (NH_4), nitrit (NO_2), nitrat (NO_3), sülfat (SO_4), toplam çözünmüş madde (TDS), askıda katı madde (AKM) ve toplam sertlik (TH) parametreleri açısından Su Kirliliği Kontrolü Yönetmeliğini dikkate alarak değerlendirilmiştir. Yağışın bol olduğu mevsimlerde yüzey akışın artmasına bağlı olarak su kalitesinde bir düşme olduğu ve bu dönemde suda çözünmüş madde miktarının arttığı tespit edilmiştir. Ayrıca, Silifke yöresinde yoğun olarak yapılan tarımsal aktivitelerin bir sonucu olarak su kalitesinin azot tuzlarına bağlı kirliliğin oldukça yüksek olduğu; fakat, çözünmüş fosfat yönünden bir risk oluşturmadığı tespit edilmiştir.

Anahtar Kelimeler: su kalitesi, yayılı kirlilik, Göksu Nehri, ötrofikasyon

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➢ **ORAL PRESENTATION**

Vitamin C prevents arsenic-induced oxidative and DNA damage in TM3 cell line

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Abstract

Arsenic and arsenic compounds are ubiquitous in nature and exhibit both metal and non-metal properties. The most common inorganic arsenic compound is sodium arsenite which is highly soluble in water. For the general population, arsenic in drinking water is the main source of exposure. Since sodium arsenite is found in groundwater and used as an insecticide, it reaches people by contaminating drinking water and nutrients. Arsenic accumulation causes hematological, hepatic, renal and neurological diseases. It is known that arsenic has negative effects on the male reproductive system. However, it is important to expand the use of natural antioxidants to investigate the mechanisms underlying these effects and to minimize negative effects. This study was aimed to determine the effects of sodium arsenite on the oxidative damage and genotoxicity and the effect of vitamin C on these damages. TM3 Leydig cells were exposed to sodium arsenite (10 ppb) and vitamin C (50 μM) for 24 h. Following the exposure time, Leydig cells were evaluated for cell viability, lipid peroxidation, hydroxyl radical, apoptosis and formation of micronucleus. The results indicated that sodium arsenite decreased the cell viability and increased the levels of lipid peroxidation, hydroxyl radical and apoptosis. Also, vitamin C suppressed the formation of micronucleus, which is an indicator of genotoxicity caused by sodium arsenite exposure in Leydig cells. In conclusion, this study found that vitamin C, a natural antioxidant, may have a therapeutic effect against the harmful effects of sodium arsenite.

Keywords: Genotoxicity, Leydig cells, Oxidative stress, Sodium arsenite, Vitamin C.

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➢ **ORAL PRESENTATION**

Reaktif Orange 16 (RO16) boyarmaddesinin Ti/IrO_2 karışık metaloksit elektrot kullanılarak giderimine destek elektrolit türünün etkisi

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Özet

Tekstil ürünlerine olan talebin her geçen gün artması ile tekstil endüstrileri ve buna paralel olarak tekstil endüstrisi atıksuları hızla artarak dünyadaki en önemli endüstriyel kaynaklı atıksulardan birini oluşturmaktadır. Tekstil endüstrisi atıksularında karşılaşılan en büyük problem atıksuların yüksek miktarlarda boyar madde içermesidir. Boyama sürecinde elyafa yapışmadan atık suya karışan boyalar arıtılmadan alıcı ortama verildiklerinde renk oluşturmakta, estetik görünümü bozmakta ve suyun ışık geçirgenliğini azaltarak fotosentezi olumsuz yönde etkilemektedirler. Bu nedenle bu atıksuların arıtılmaları daha da önemli hale gelmiştir.

Bu çalışmada Ti/IrO_2 karışık metaloksit elektrotlarla Reaktif Orange 16 (RO16) boyarmaddesinin elektrokimyasal oksidasyon yöntemi ile renk giderimine destek elektrolit tür ve derişiminin katkısı araştırılmıştır. Destek elektrolit olarak Na_2SO_4, $NaNO_3$ ve NaCl kullanılmıştır. Akım yoğunluğu, akış hızı, pH, başlangıç kirlilik derişimleri gibi parametreler belirlendikten sonra destek elektrolitlerin ortamdaki varlığı değerlendirilerek en uygun elektrolit türüne karar verilmiştir.

Başlangıç kirlilik derişiminin 30 mg/L olduğu model çalışma çözeltisinin Na_2SO_4 elektroliti ile elektrokimyasal oksidasyonunda 50 A/m^2 akım yoğunluğu, 155,84 mL/dk akış hızı, pH_{11} ve 0,01 M elektrolit varlığında 90 dk'lık bir arıtım süresi sonunda %65 renk giderim verimi ve 1,7454 kwh/m^3 enerji tüketimi elde edilmiştir.

Başlangıç kirlilik derişiminin 30 mg/L olduğu model çalışma çözeltisinin $NaNO_3$ elektroliti ile elektrokimyasal oksidasyonunda 50 A/m^2 akım yoğunluğu, 155,84 mL/dk akış hızı, pH_0(5,94) ve 0,01 M elektrolit varlığında 90 dk'lık bir arıtım süresi sonunda %51 renk giderim verimi ve 2,0534 kwh/m^3 enerji tüketimi elde edilmiştir.

Başlangıç kirlilik derişiminin 30 mg/L olduğu model çalışma çözeltisinin NaCl elektroliti ile elektrokimyasal oksidasyonunda 50 A/m^2 akım yoğunluğu, 155,84 mL/dk akış hızı, pH_0(5,71) ve 0,05 M elektrolit varlığında 20 dk'lık bir arıtım süresi sonunda ~%100 renk giderim verimi ve 0,6557 kwh/m^3 enerji tüketimi elde edilmiştir.

Anahtar Kelimeler: Elektrokimyasal oksidasyon, boyarmadde, destek elektrolit, Ti/IrO_2 elektrot

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➢ **ORAL PRESENTATION**

Functional Foods: Definition, Features and Future

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Abstract

Today, expectations have increased due to reasons such as increased treatment costs of diseases, prolonged life, increased number of elderly people in the society, and the desire of people to lead a quality life. In addition, people's demand for healthier foods is increasing, with an improvement in education, awareness and income. At this point, we have frequently heard the concept of "functional foods", which are seen as the foods of the future. Functional foods are defined as foods that provide additional benefits to human physiology and metabolic functions, besides meeting the basic nutritional needs of the body, thereby providing effectiveness in preventing diseases and achieving a healthier life. Functional foods can be a natural nutrient that has never been processed; it can also be a nutrient-enriched with a functional nutrient or modified by genetic engineering methods; and it can be a food from which a harmful compound is removed. Common features of functional foods: (i) the nutritional components it contains should have a positive effect on health, (ii) it should be natural (iii) it should be part of the diet (iv) health benefits must be scientifically proven (v) it should not be allergic (vi) it should be safe. Food engineers and nutritionists can work together on functional foods to provide very useful opportunities for human health. In addition, as genetic engineering and biotechnological analyzes evolve, new personalized foods can be created. Features such as age, gender, genetics and environmental factors will help create a personalized food concept. States will establish regulations for functional foods, this market will grow steadily in the world and will receive a serious share of business from the pharmaceutical industry.

Keywords: Functional foods, Health, Nutrition, Food quality

DRAFT

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➢ **ORAL PRESENTATION**

Plants High in Antioxidants and Their Importance for Nutrition and Health

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Abstract

Antioxidants, which have been frequently mentioned by nutritionists in recent years, are extremely beneficial substances that protect the body from various damages. The cells in our bodies produce natural free radicals that can cause damage when they use oxygen. Health problems such as heart disease, macular degeneration, diabetes, cancer are all caused by oxidative damage. Antioxidants act as 'free radical scavengers' and therefore repair damage caused by these free radicals. They also increase immune defense and thus reduce the risk of cancer and infection. They are very necessary chemical substances for the human body. While taking some of these substances with our diet (from plants); the body produces itself as a defense system against free radicals. These substances are effective protection against all diseases that can disturb human health. It is also observed by experts that antioxidants delay symptoms such as aging. The most commonly known antioxidants; (i) Vitamin A and carotenoids: carrot, zucchini, broccoli, sweet potato, tomato, cabbage, kale, melon, peach and apricot. (ii) Vitamin C : citrus fruits such as oranges and lemons, green peppers, broccoli, green leafy vegetables, strawberries and tomatoes (iii) Vitamin E: nuts and seeds, whole grains, green leafy vegetables, vegetable oil and liver oil (iv) Flavonoids / Polyphenols: soy, purple grapes or concord currant, pomegranate, cranberry, tea (v) Lycopene: tomato and tomato products, pink grapefruit, watermelon, (vi) Lutein: cabbage, broccoli, kiwi, dark green vegetables such as cabbage, Brussels sprouts, spinach (vii) Lignan: flaxseed, rolled oats, barley, rye (viii) Anthocyanins: plum, blackberry, black mulberry, cherry (ix) Polifenol: green tea, raspberry, soy, strawberry, plum, apple, blueberry (x) Resveratrol: grape, blueberry, cranberry. Diversity is important in antioxidant consumption since the effects of antioxidant components against free radicals are not the same. Antioxidant components must be taken from different sources.

Keywords: Antioxidant, Nutrition, Health, Vitamin C, Flavonoids

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➢ **ORAL PRESENTATION**

Ti/RuO_2 karışık metaloksit elektrot kullanılarak elektrokimyasal oksidasyon ile boyarmadde giderimine NaCl destek elektrolitinin etkisi ve toksik etkilerin değerlendirilmesi

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Özet

Endüstriyel kirlenmede önemli bir paya sahip olan tekstil endüstrisi yalnız gelişmiş ülkelerde değil gelişmekte olan ülkelerde de ekonomik açıdan önemli rol almaktadır. Sanayi su ihtiyacının önemli bir kısmı tekstil endüstrisinden kaynaklanmaktadır. Bununla birlikte tekstil atıksuları geleneksel arıtma yöntemleri ile giderimi güç zehirli kimyasal bileşikleri içermektedir. Ayrıca renkli boyahane atıksuları alıcı ortamda organik kirliliğin yanı sıra güneş ışığı geçirimini engellemesi sebebi ile canlı yaşamını da engellemektedir. Tekstil atıksularının arıtılarak proses suyu olarak kullanılması gerek akademik gerekse de sektör bazında büyük ilgi çekmektedir.

Bu çalışmada Ti/RuO_2 karışık metaloksit elektrot ile Reaktif Orange 16 (RO16) boyarmaddesinin elektrokimyasal oksidasyon yöntemi ile renk giderimine NaCl destek elektrolitinin katkısı araştırılmış ve analiz sonuçlarında toksik etkiler değerlendirilmiştir. NaCl destek elektroliti ile yapılan optimizasyon çalışmalarında akım yoğunluğu, akış hızı, pH, başlangıç kirlilik derişimleri gibi parametreler çalışılmıştır. Elde edilen optimum koşullar farklı kirlilik derişimlerine uygulanmış, renk ve toksisite değerlendirilerek çalışma sonlandırılmıştır.

Başlangıç kirlilik derişiminin 30 mg/L olduğu model çalışma çözeltisinin NaCl elektroliti ile elektrokimyasal oksidasyonunda 50 A/m^2 akım yoğunluğu, 155,84 mL/dk akış hızı, pH_0 (6,12) ve 0,06 M elektrolit varlığında 25 dk'lık bir arıtım süresi sonunda ~%100 renk giderimi ve 0,8008 kwh/m^3 enerji tüketimi elde edilmiştir.

Başlangıç kirlilik derişiminin 125 mg/L olduğu model çalışma çözeltisinin NaCl elektroliti ile elektrokimyasal oksidasyonunda 50 A/m^2 akım yoğunluğu, 155,84 mL/dk akış hızı, pH_0 (6,03) ve 0,06 M elektrolit varlığında 40 dk'lık bir arıtım süresi sonunda ~%100 renk giderimi ve 0,9240 kwh/m^3 enerji tüketimi elde edilmiştir.

Elde edilen optimum koşullarda başlangıç kirlilik derişiminin 125 mg/L olduğu deneysel çalışmada %80 toksisite giderimi elde edilmiştir.

Anahtar Kelimeler: Elektrokimyasal oksidasyon, boyarmadde, destek elektrolit, Ti/RuO_2 elektrot, toksisite

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➢ **ORAL PRESENTATION**

Resveratrolün kolon kanserinde hücre yaşlanması ve apoptozu indüklemesi

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Özet

Giriş: Kolorektal kanser erkeklerde üçüncü, kadınlarda ise ikinci en yaygın kanser türü olup dünyadaki kanser insidansının %10'undan fazlasını oluşturmaktadır. Literatür incelendiğinde fitokimyasalların kolon kanserinden koruyucu potansiyel etki gösterdiği bildirilmektedir. Fitokimyasallardan resveratrol trans-3,5,4' trihidroksistilben kimyasal yapıda olup stilbenoid sınıfında yer alan bir fitoaleksindir ve çöpleme otu, üzüm kabuğu, *Rheum officinale* Bail, üzümsü meyveler, yer fıstığı, *Polygonum cuspidatum* gibi bitkilerde ve şarapta bulunmaktadır. Güçlü bir antioksidan olan resveratrolün çeşitli metabolik yolakları etkileyerek akciğer, meme, kolon ve prostat kanseri gibi çeşitli kanser türlerinin başlaması ve ilerlemesini durdurucu potansiyel etki gösterebildiği yönde araştırmalar mevcuttur. Çalışmanın amacı resveratrolün primer (Colo-320) ve metastatik (Colo-741) kolon kanseri hücrelerindeki apoptotik ve hücre yaşlanması üzerindeki etkilerinin belirlenmesidir.

Yöntem ve Metod: Colo-320 ve Colo-741 hücrelerinde hücre büyümesi ve sitotoksisitesi MTT testi kullanılarak belirlenmiştir. Resveratrolün apoptotik ve hücre yaşlanmasını indükleyici aktivitesi immunositokimya yöntemi ile test edilmiştir. İmmünositokimyada Bax, Bcl-2, kaspaz-3, Hsp27, Lamin B1, p16, siklin B1 dağılımları değerlendirilmiştir. Bulguların istatistiksel değerlendirilmesinde GraphPad Prism 8 Statistical Software programı kullanılmıştır.

Bulgular: MTT sonuçlarına göre Colo-320 hücresi için 25 µg/ml, Colo-741 hücresi için 10 µg/ml resveratrol daha etkili bulunmuştur. İmmünositokimyasal boyama sonuçlarına göre, Colo-320 hücrelerinde Bax immünoreaktivitesi resveratrol uygulamasından sonra artarken ($p<0.05$), Bcl-2 immünoreaktivitisinde azalma gözlemlenmiştir ($p<0.01$). Resveratrol uygulamasından sonra Colo-320 hücrelerinde Hsp27, lamin B1 ve p16 immünoreaktivitelerinde istatistiksel olarak anlamlı olmayan bir artış gözlemlenmiş ($p>0.05$) iken, Colo-741 hücrelerinde anlamlı bir artış gözlemlenmiştir ($p<0.01$). Bununla birlikte resveratrol uygulamasından sonra Hsp27 immünoreaktivitesi, Colo-320 hücrelerinde Colo-741 hücrelerine kıyasla daha fazla bulunmuştur ($p<0.01$).

Sonuç: Resveratrol hem primer hem de metastatik kolon kanseri hücrelerinde hücre canlılığını azalttığı, ancak resveratrol primer kanser hücrelerinde mitokontrial yolak üzerinden apoptozu indüklemede daha etkili olduğu bulunmuştur. Resveratrolün apoptotik ve hücre siklusu üzerindeki etkileri hücre tipine göre farklılık gösterebilmektedir.

Anahtar Kelimeler: Resveratrol, kolon kanseri, apoptoz

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Antioxidant activity of ascorbic acid on sodium fluoride induced cytotoxicity, oxidative damage, and apoptosis in Leydig cells

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Abstract

Fluoride is a natural mineral that found abundantly in the earth's crust. Organic and inorganic fluoride elements are present in all water and soil sources, and people also take this element by consuming plants and animals as nutrients. Fluorine is in ionic form in drinking water and thus passes through the intestinal mucosa quickly. Fluoride affects male reproductive function. Endocrine disrupting effect of fluoride leads to decreased reproductive capacity, testicular spermatozoa concentration, testicular and auxiliary reproductive organs weights, reduced number of Leydig and Sertoli cells, and impaired activity of testosterone synthesis and steroidogenic enzymes in Leydig cells. In this study, cytotoxicity, oxidative damage, and apoptosis were analyzed after Leydig cells were treated with 1.5 ppm sodium fluoride (NaF) for 24 h, in addition to NaF to ascorbic acid (50 μM) as an antioxidant. The results of cytotoxicity showed that NaF significantly reduced cell viability and ascorbic acid ameliorate this effect of fluoride. We found that NaF cause oxidative damage via overproduction of intracellular hydroxyl radical and peroxidation of lipids in cell membrane. Ascorbic acid supplementation protects NaF-induced oxidative damage on Leydig cells. The findings demonstrated that ascorbic acid has protective effects of on apoptotic cell death and micronucleus formation caused by NaF in Leydig cells.

Keywords: Apoptosis, Ascorbic acid, Cytotoxicity, Leydig cells, Micronucleus, Sodium Fluoride.

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➢ **ORAL PRESENTATION**

Biotechnological potential of fungi isolated from Acıgöl/Turkey, the second largest alkaline lake in the world

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Abstract

Haloalkalitolerant fungi have inherent ability to grow and thrive under polyextreme conditions. The bioactive compounds such as enzymes, alkaloids, peptides, antibiotics, exopolysaccharides, and proteins produced and released under stressful conditions have potential biotechnological applications especially in agriculture, food, health care, and medicine. Thus, microfungi isolated from Acıgöl Lake/Turkey, were screened to reveal their antimicrobial and antioxidant properties, some hydrolytic enzymes activity and their availability in extracellular silver nanoparticle production via green synthesis.

In this study, 59 isolates were screened for biotechnological potentials. The agar diffusion method was used to determine the antimicrobial activities and the DPPH radical scavenging method was used to determine antioxidant activities. Starch-iodine method, 1% tributyrin plate assay, skim milk plate assay, carboxymethyl cellulose plate method were used for determining amylolytic, lipolytic, proteolytic and cellulolytic activity, respectively.

As a result, 26% of the isolates showed antibacterial activity while 20% showed antifungal activity. Free radical scavenging activities of the isolates were evaluated against positive control (BHT) and it was calculated in percent. Four isolates were found to have a level (90% and above) that can compete with positive control. Almost all the isolates (82%) showed lipolytic activity. It was determined that especially 12 isolates had a significant level of activity. 22% of the isolates showed amylolytic activity, more prominent in 3 of them. 33% of the isolates showed cellulolytic activity and high activity was observed in 6 isolates. While 68% of the isolates showed proteolytic activity, it was determined that especially 7 isolates had a significant level of activity. It is thought that the isolates are not suitable for extracellular silver nanoparticle synthesis. When all the results are considered, it has been determined that the isolates have the potential to serve in different industrial areas.

Keywords: polyextremophiles, alkaline lake, biological activity, microfungi

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➢ **ORAL PRESENTATION**

Synthesis and structure assignments of some new benzazole analogues

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Abstract

The design of small molecules as a pharmaceutical drug such as benzazole nucleus has become an important therapeutic approach in recent years. The benzazole nucleus is considered as a bioisostere to purine nucleus so they can easily interact with DNA, RNA, or some proteins in the organism, therefore they can exhibit a wide range of pharmacological activity. Benzimidazoles and their analogues have attracted particular interest especially because of their promising anticancer activity in these days. The synthesis of these compounds and determining their structure and purity is very important in pharmaceutical studies. A series of benzazole derivatives were synthesized in this study and their structures were determined by ^{1}H-NMR, ^{13}C-NMR, LC-MS, and elemental analysis and for characterisation of complex heterocyclic and isomeric compounds some advanced 2D NMR spectroscopy techniques were used.

Keywords: Benzazole, benzimidazole, 2D NMR techniques.

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➢ **ORAL PRESENTATION**

Antibakteriyel ilaç Ofloksasin'in multispektroskopik DNA bağlanma çalışmaları

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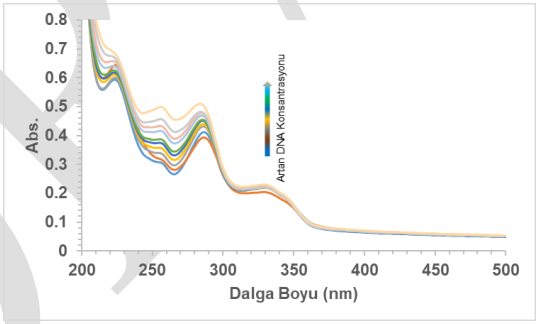
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Özet

DNA, tüm proteinlerin ve enzimlerin sentezi için gerekli kalıtsal bilgi kodlarını taşıdığından biyolojik süreçlerde önemli bir rol oynar. DNA hücrenin yapısını ve işlevini doğrudan veya dolaylı olarak kontrol eder. DNA'nın yapısının keşfinden bu yana, antikanser ilaçlarından antibiyotiklere kadar farklı ilaç sınıflarına ait çeşitli terapötik açıdan önemli küçük moleküller için ana hedef olmuştur (Neidle, 2001). DNA ile ilişkili proteinlerle etkileşime girmekten veya DNA-RNA melezleri ile etkileşmekten başka, küçük moleküller doğrudan DNA sarmalına bağlanabilir. Bu tür etkileşimler, hücrenin yapısını ve fonksiyonlarını korumaya katılan çeşitli önemli enzimlerin ve proteinlerin aktivitesine müdahale etmek gibi çeşitli akış aşağı süreçlerle sonuçlanır İlaç-DNA etkileşimlerinin incelenmesi sadece etkileşim mekanizmasını anlamak için değil, aynı zamanda yeni ilaçların tasarımı için de çok önemlidir. Küçük moleküllerin DNA ile etkileşimi temel olarak üç şekilde gerçekleşir: negatif yüklü şeker-fosfat yapısı ile elektrostatik etkileşimler, iki çift DNA sarmalının olukları ile bağlanma etkileşimleri ve doğal DNA'nın yığılmış baz çiftleri arasındaki ara bağlanma şeklindedir (Fox, 2010).

Bu çalışmada DNA ile etkileşimi incelenen Ofloksasin, bir dizi bakteriyel enfeksiyonun tedavisinde kullanılan geniş spektrumlu faydalı bir antibiyotiktir (Ribeiro vd., 2014). Ofloksasin ve balık sperm DNA'sı arasındaki moleküler etkileşimler, UV-Vis, Flüoresans, Infrared, Raman gibi teknikler kullanılarak Tris tampon çözeltisinde (pH 7.0) incelenmiştir. Ayrıca etken maddenin, DNA ile interkalasyon yaptığı bilinen etidyum bromür ile yarışmalı bir reaksiyonda, yer değiştirme yapıp yapmadığı incelenmiştir. Şekilde Ofloksasin ilaç etken maddesinin DNA ile etkileşimini uv-vis titrasyon yöntemiyle incelenmiştir.



Şekil. Ofloksasin ilaç etken maddesinin DNA ile etkileşimine ait uv-vis spektrumları

Anahtar Kelimeler: Ofloksasin, DNA, spektroskopi

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➢ **ORAL PRESENTATION**

Rheum ribes L. tıbbi bitkisinden elde edilmiş ekstraktlarda obezite ile ilgili olası etkilerinin araştırılması

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Özet

Obezite, vücutta normalden fazla miktarda yağ birikmesi sonucu ortaya çıkan ve giderek tüm dünyada artış gösteren önemli bir sağlık sorunudur. Alınan enerjinin harcanan enerjiden fazla olması durumunda ortaya çıkmaktadır. Obeziteyle beraber lipit damlacıklarının büyümesi ve sayılarının artmasıyla adipositlerde büyüme gerçekleşmektedir. İnsülin pankreasta bulunan langerhans adacıklarındaki beta hücrelerinden salgılanmaktadır ve kanda bulunan glukozun düşmesini sağlamaktadır. Dünyada ve ülkemizde giderek artış gösteren obezite ve obezitenin yol açtığı diyabet, araştırıcıları alternatif tedavi yolları aramaya yöneltmiştir. Bu alternatif tedavi yollarından birisi de tıbbi bitkileri kullanarak çözüm üretme yollarını sağlamaktır. Bizim bu çalışmada odaklandığımız tıbbi bitki ise *Rheum ribes*'dir. *Rheum ribes* L. Polygonaceae familyasından olup. tıbbi bitki olarak farmakolojik araştırmalarda çok sık yer almaktadır. *Rheum ribes* bitkisi geleneksel olarak diyabet, hipertansiyon, ülser, ishal, yara ve kesik tedavisinde kullanılmaktadır. Bitkinin kan şekerini düşürücü aktivitesi yapılan çalışmalar sonucunda ortaya konulmuştur. Literatürde bu bitkinin obezite ve sindirim sorunlarına karşı tüketildiği yer almakla birlikte bu bitki ile ilgili bu alanda çok fazla çalışma bulunmamaktadır. *Rheum ribes* bitkisinin obezite ve obeziteyle pozitif korelasyon gösteren insülin direnci ve Tip II diyabet gibi hastalıklarda iyileştirici etkisi olduğu düşünülmektedir. Bu çalışma ile *Rheum ribes* bitkisinin obezite ile ilişkili moleküler mekanizması aydınlatılmak istenmiştir. İlk olarak Tunceli ilinin dağlarından toplanan *Rheum ribes* bitkisi karanlık bir ortamda ve oda sıcaklığında kurutulmuştur. Bitkinin kök kısmı kullanılarak methanolle ektraksiyonu sağlanmıştır. Elde edilen ekstraktlar obeziteyi hücresel anlamda mimik etmek için kullanılan 3T3-L1 adipositlerine uygulanmıştır. Uygulama sonrası kontrol ve bitki uygulanan hücre gruplarının RNA'sı ekstrakte edilmiştir ve ardından cDNA sentezi gerçekleştirilmiştir. Obezite ile ilişkili DGAT ve LPL markörlerin taranması sağlanmıştır. Bu genlerin obezite durumunda ekspresyonunda artış gözlemlenirken, *Rheum ribes* bitki ekstraktı uygulaması sonrası bu genlerin bağıl mRNA ekspresyon seviyelerinde düşüş gözlemlenmiştir. Çalışmada housekeeping gen olarak 18S kullanılmıştır. Böylelikle alınan ekspresyon verileri 18S ekspresyonuna oranlanarak normalize edilmiştir.

Anahtar Kelimeler: 3T3-L1, *Rheum ribes*, Obezite, 18S

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➢ **ORAL PRESENTATION**

Fungusit dayanıklılığı olan *Botrytis cinerea* 'ya karşı bakteriyel biyolojik kontrol ajanının kullanım potansiyelinin araştırılması

Efe Berk Bozkurt[1], Ragıp Soner Silme[2], Ömür Baysal[1*]

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Özet

Botrytis cinerea, ekim alanları ve örtü altı tarım faaliyetlerinde kullanılan fungusitlere karşı hızla dayanıklılık gösterebilen ve genetik yapısını kısa sürede değiştirebilen bir bitki patojenidir. Biyokontrol ajanlarının patojen büyümesi üzerindeki inhibe edici etkisinin yanı sıra, çevre ve insan sağlığı için zararlı olan toksik kimyasalların olumsuz etkilerini de azaltabilirler. Fungusit uygulaması yapılan sera alanlarından toprak örnekleri alınmış ve bakteri örnekleri izole edilmiştir. İzolatlar gram boyama ve çizgi ekim yapılmış, 2 gün inkübasyon sonrası sırasıyla fenol ve *Botrytis cinerea* 'ya ait spor süspansiyonu uygulaması yapılmıştır. Uygulama sonucu spor gelişimini kısıtlayıcı bakteri örnekler gözlenmiştir. Yüksek antibiosis etkisine sahip bakteri örnekleri çift-katlı agar bio-assay yöntemi ile denenmiştir. En yüksek ve kararlı baskılama gösteren örnek belirlenerek spektrofotometrik ölçümler ile OD.: CFU/ ml grafiği oluşturulmuştur. Farklı konsantrasyonlarda bakteri örneklerinde çift-katlı agar denemesi kurulmuş, MIC konsantrasyonu ve inhibisyon yüzdeleri (%) istatiksel olarak hesaplanmıştır. Elde edilen verilere kontrol grubuna karşın 3 günlük inokülasyon sonucu %85 , 10 günlük inokülasyon sonucu %65 baskılama değerleri ölçülmüştür. Çalışmalar sonucunda, belirlenen yeni bakteri ile etkin biyopreperat kompozisyonu hazırlanmasına ve in-vivo denemeler kurulmasına yönelik destekleyici verilere ulaşılmıştır. Devam etmekte olan çalışmalarda shotgun genom sekanslama ile kimliklendirilmesi ve enfekte bitki yüzeylerinde denemeleri çalışılmaktadır.

Anahtar Kelimeler: antibiosis, biyolojik kontrol, *Botrytis cinerea*, fungisit dayanıklılığı, kurşuni küf hastalılığı

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Anti-proliferative, apoptotic and anti-angiogenic activities of a novel synthesized 2-substituted benzimidazole derivate in prostate cancer cells

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Abstract

A popular approach in cancer drug research is the design of new therapeutic subunits with improved efficiency from a bioactive molecular compound. Benzimidazole is a heterocyclic organic compound consisting of benzene and imidazole that can easily react with biomacromolecules. Therefore benzimidazole and its derivatives have attracted much interest with their anticancer, anti-microbial and anti-oxidant activities. In this study, a novel 2-substituted benzimidazoles molecule having oxadiazole and phenol rings was synthesized as a potential anticancer agent and evaluated for its anti-proliferative, apoptotic and anti-angiogenic activities in prostate cancer cells. Anti-proliferative effect was evaluated by MTT assay. Apoptosis was investigated by Annexin V FITC/7-AAD staining in a flow cytometry. A scratch assay evaluating cell motility was used to detect the anti-angiogenic activity. The novel synthesized compound inhibited the cell viability of both PC-3 and DU-145 prostate cancer cell lines in a concentration and time dependent manner. Flow cytometry analyses revealed that apoptosis was induced in prostate cancer cells. Cell motility was also reduced in PC-3 and DU-145 cells at 72 h. These data suggest that the novel synthesized benzimidazole derivate might be a promising candidate for anti-tumor and anti-angiogenic treatment of prostate cancer.

Keywords: Benzimidazole derivate, prostate cancer, anti-proliferative, apoptosis, anti-angiogenic.

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➢ **ORAL PRESENTATION**

Some microbiological properties of bee pollen

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Abstract

Bee pollen is a popular food due its promising effect on human health. Child, elderly, pregnant and patient can consume bee pollen easily and frequently due to the demand of natural and functional products in recent years. The microbiological of bee pollen can be affected by production method and storage condition. In this study, it was aimed to determine the microbiological properties of bee pollen samples collected in Muğla province and to evaluate the findings in the context of food safety. 10 bee pollen samples purchased from beekeepers and were tested for total mesophilic aerobic bacteria, yeasts, molds, lactic acid bacteria, total coliform, total *Enterobacteriaceae* spp., and *Staphylococcus aureus*. The presence of *Escherichia coli* O157:H7, *Listeria monocytogenes* and *Salmonella-Shigella* spp. were also investigated in these samples. The results ranged between 2.24-6.87 log CFU/g, 1.98-3.77 log CFU/g, 1.00-2.51 log CFU/g, 4.19-5.30 log CFU/g, and 1.98-3.74 log MPN/g for total mesophilic aerobic bacteria, yeasts, molds, lactic acid bacteria and total coliform, respectively. *S. aureus* were under detectable level. Total *Enterobacteriaceae* spp., *Salmonella-Shigella* spp. *E. coli* O157:H7, and *L. monocytogenes* were not detected in the pollen samples.

Keywords: Food safety, Microbiological Quality, Pathogen, Bee Pollen

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➢ **ORAL PRESENTATION**

Synthesis of coumarin-based dyes, experimental and theoretical investigation of their photophysical properties

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Abstract

Chemosensors, which are an important alternative to the traditional methods for determining ions, have attracted great attention in recent years. Many studies have been focused in developing new fluorescence colorimetric sensor that has far better accuracy and speed in determining appropriate substrates. Fluorescent chemosensors were widely applied in a variety of fields such as biology, environmental sciences and pharmacology [1,2]. They offer high sensitivity and selective determination of anions at low concentrations. Coumarins, which have important photophysical properties, are also used as chemosensors for imaging in biological systems and the qualitative and quantitative determination of analytes.
In this study, two compounds based on coumarin and indanone moieties (CI-1 and CI-2) were synthesized and their structures were characterized by FT-IR, ^{1}H-NMR, ^{13}C-NMR and LC-MS methods. The structures of the compounds were designed to have a donor-π-acceptor (D-π-A) structure and thus intramolecular charge transfer (ICT). The interactions of the dyes with F^-, Cl^-, Br^-, I^-, AcO^-, $H_2PO_4^-$, ClO_4^- , CN^-, HSO_4^-, NO_3^- and OH^- anions were investigated. Additionally, computational calculations employing density functional theory (DFT) method were performed to study the structural and spectroscopic properties of the dyes, and the results were compared with the experimental findings. DFT calculations were performed with the Gaussian G09 program package.

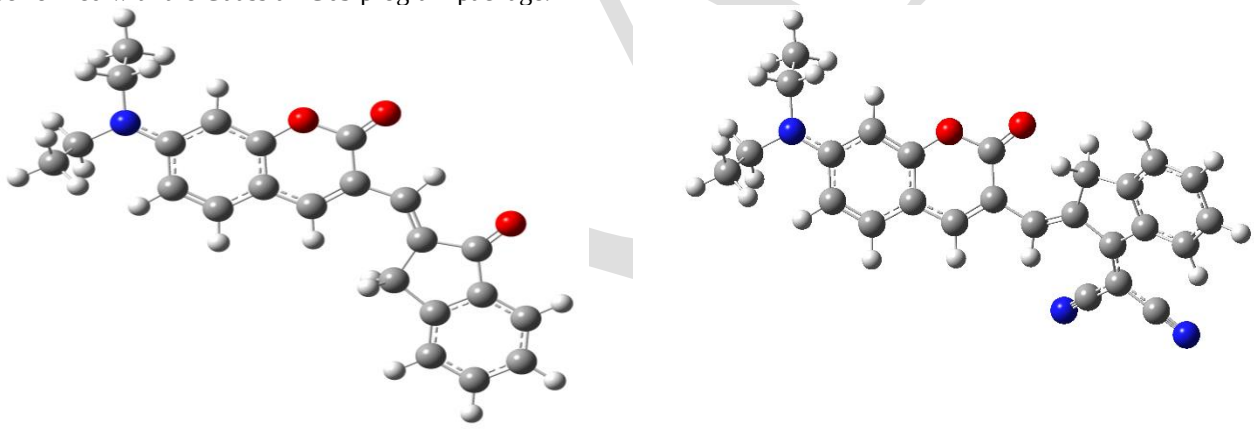


Figure: The optimised molecular structure of CI-1(left) and CI-2 (right) at the B3LYP/6-31+G(d,p) level of theory

Keywords: Coumarin, Indanone, Chemosensor, Michael addition, DFT.

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➢ **ORAL PRESENTATION**

Importance of biofilm formation during the management of cytolytic vaginosis; Necessity of essential oils

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Abstract

Cytolytic vaginosis (CV) is characterized by the overgrowth of *Lactobacilli* on the vaginal microbiota. The management of CV is generally provided by reducing the number of *Lactobacilli* by means of increasing the vaginal pH. However, increasing vaginal pH causes a suitable condition for the growth of other pathogenic microorganisms. Thus, new therapeutic alternative approaches are needed to treat CV. The aim of this study is to determine biofilm formation of mix cultures belong to different cervicovaginal samples diagnosed with CV and to investigate the antimicrobial and antibiofilm effects of sage, carrot seed and thyme oils against high biofilm forming (HBF) cervicovaginal mix culture of a CV patient. Cervicovaginal samples were obtained by a cytobrush; stained by Papanicolaou method and examined by light microcopy for CV diagnosis. Cytobrushes have also been immersed in Brain Heart Infusion (BHI) Broth media in order to grow microorganisms that exist in cervicovaginal samples of CV patients. Minimum Inhibitory Concentrations (MIC) of the oils were assessed by Micro-Dilution Method. Biofilm formation of different cervicovaginal mix cultures and antibiofilm effect of sage, carrot seed and thyme oils against the highest biofilm forming mix culture of a CV patient were determined by "Crystal Violet Binding Assay." According to our results, MIC of thyme oil against HBF cervicovaginal mix culture was the lowest (1 µL/mL); whereas, carrot seed and sage oils showed minor to no inhibitive effect. Although sage oil displayed a very low antimicrobial activity; Sub-MICs of it reduced biofilm formation. Apart from this, thyme oil not only displayed a very high antimicrobial effect but also resulted in reduction in biofilm formation of HBF cervicovaginal mix culture. Thyme oil having both antimicrobial and antibiofilm effects can be used for the management of CV by means of reducing the overgrowth and biofilm formation of *Lactobacilli* on the vaginal microbiota.

Keywords: Biofilm formation, Essential oils, Cytolytic vaginosis, *Lactobacilli*

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➢ **ORAL PRESENTATION**

Synthesis, structural characterization and biological evaluation of boron-containing alkyl sulfonyl hydrazones

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Abstract

Boron compounds have been well known since ancient times. Apart from classical applications of boric acid and its salts in detergents and bleaches, production and use of boron compounds have increased over the last decades. The uses of boron compounds expended to include semiconductors, hard materials and antitumor medicines. Boron Schiff bases are also important boron compounds which has gained vast applications such as catalysts, determination of enantiopurity of chiral amino alcohols, photoelectronic applications and in pharmacology industry.

In this work; it is tried to develop new antibacterial agents, a series of boron-containing alkyl (R=CH_3,C_2H_5,C_3H_7,C_4H_9) sulfonylhydrazones (boron-methanesulfonylhydrazone (boron-msh), boron-etanesulfonyl hydrazone (boron-esh), boron-propanesulfonylhydrazone (boron-psh) and boron-butanesulfonylhydrazone (boron-bsh), were synthesized. All synthesized compounds were checked for identity and purity using elemental analysis, TLC and were characterized by their melting points, FT-IR and NMR spectral data. In addition, the new all synthesized alkyl sulfonyl hydrazones were evaluated for their antibacterial activities against bacterial isolates by the microdilution technique (MIC values in mM) and using DMSO as solvent on different species of bacterial strains. In vitro studies were conducted by using these boron compounds and their antibacterial potency have been discussed. Four bacterial isolates comprising two Gram-negative (Escherichia coli, Klebsiella pneumoniae) and two Gram-positive (Staphylococcus aureus and B.cereus) bacterial isolates were used for these studies. The MIC values were determined to vary between 93,7 -187,5 mg/ml. The results of this study show that with its in vitro antibacterial properties, boron-containing alkyl sulfonyl hydrazones are a promising new agent for the control and treatment of bacterial infections.

Keywords: Boron, sulfonyl hydrazones, biological activity

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➢ **ORAL PRESENTATION**

Depremlerde crush sendormu ve yönetimi

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Özet

Crush, anlamsal olarak "ezilme, ezme" anlamına gelmektedir. Crush sendromu ise travma ve bunun sonucunda oluşan sistemik hasarları kapsar. Crush sendromu özellikle depremler gibi doğal afetlerde sıklıkla görülmekte ve ölümlerin en sık nedenleri arasında yerini almaktadır. Önemli ezilme sendromları tarihsel açıdan incelendiğinde 2. Dünya savaşında, Nikaragua depreminde, Çin depreminde, Kobe depreminde ve Türkiye'de ise Marmara ve Düzce depremlerinde meydana gelmiştir. Enkaz altında kalma sonucu kas hücresi parçalanır, oluşan materyaller sistemik dolaşıma katılır ve çeşitli patolojilere yol açar. Normal şartlarda kanda bulunan miyoglobin travmatik etkiye bağlı olarak kana geçer ve böbrek tübüllerine ilerleyerek akut tübüler nekroza (ATN) ve sonrasında da akut renal yetmezliğe (ARY) yol açabilir. Crush sendromunda hayatı tehdit eden bir diğer problemi ise elektrolit bozukluklarıdır. Özellikle elektrolit bozukluklarından olan Hiperkalemi, hipokalsemiyle birlikte görülen akut böbrek yetmezlikli vakalarda rabdomiyolizin hayatı tehdit eden bir komplikasyonu olarak görülmektedir. Bu bağlamda depremlerde Crush sendromunun doğru yönetilmesi medikal kaynaklı ölüm oranlarının azaltılması açısından önemlidir. Crush sendromunda tedavinin ana planını sıvı desteği oluşturmaktadır. Sıvı desteği ile birlikte hedef organ hasarının, akut böbrek yetmezliğinin ve düşük perfüzyonun neden olduğu asideminin düzeltilmesi amaçlanmaktadır. Ancak sıvı desteği sağlanırken çok az miktarda bile olsa potasyum içeren solüsyonlardan kaçınılması gerekliliği vurgulanmaktadır. Tedavi protokollerinden bir diğeri ise kardiyak problemleri önlemeye yönelik olarak hazırlanmalıdır. Önlenemeyen kardiyak problemler sistematik olarak diğer sistemlerinde etkilenmesine yol açmaktadır. Sonuç olarak Crush sendromu hayatı eden ciddi bir sorundur. Crush sendromunun yönetimi enkaz altında başlar ve acil bakımın her aşamasından devam eder. Acil bakımda sıvı desteğinin önemli olduğu fakat potasyum içerikli sıvılardan kaçınılması gerektiğine vurgu yapılmaktadır.

Anahtar Kelimeler: Crush Sendromu, Depremler, Akut Böbrek Yetmezliği

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➢ **ORAL PRESENTATION**

Ham bal ve piyasadan temin edilen bal numunelerinin invertaz enzimi açısından karşılaştırılması

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Özet

Farklı bileşenler içerdiğinden karmaşık bir yapıya sahip olan bal, kendine özgü enzimleri sayesinde yüksek antibakteriyel özellikler gösterir. Balın enzim içeriği, botanik kökenine, üretim bölgesine ve mevsimine göre değişiklik göstermektedir. Balda bulunan başlıca enzimler diastaz ve invertazdır. Balın kalitesini belirlemek için yaygın olarak baldaki diastaz enzim içeriği ve HMF değeri kullanılmaktadır. Bu çalışma diastaz enziminin ve HMF değerinin balın kalitesini belirlemede yeterli olup olmadığı sorusuna cevap aramak için gerçekleştirilmiştir. İnvertaz ve diastaz enzimi karşılaştırıldığında, invertazın diastaza oranla ısıya çok daha duyarlı olduğu görülmektedir. İnvertaz enziminin bu hassasiyeti sayesinde ısıl işlem görmüş olmasına rağmen HMF ile diastaz değerleriyle yasal limitlere göre uygun aralıklarda gözüken balların kalitesi daha anlamlı verilerle tanımlanabilir. Bu çalışmada, arıcılardan temin edilen 331 adet ham bal numunesi ile dünyada farklı mağazalardan satın alınan 51 adet piyasa balı numunesinin HMF, diastaz ve invertaz değerleri karşılaştırılmıştır. HMF ve diastaz analizleri TS 3036 metoduyla, invertaz tayini ise IHC (2009) metoduyla gerçekleştirilmiştir. Üreticiden alınan ham ballarda ortalama invertaz değeri 212,7 U / kg olduğu görülürken ısıl işlem uygulandığı bilinen piyasa ballarının ortalama invertaz değeri 66,4 U/kg olarak bulunmuştur. Yapılan analizlerin sonucunda, invertaz değerinin balın tazeliğini, saklama koşullarını ve ısıl işlem görüp görmediğini gösteren; diastaz ve HMF değerlerinden daha iyi bir belirteç olabileceği görülmüştür. Bu çalışmanın sonucunda, hem üreticinin üretim sürecine katkı sağlayacak olması hem de tüketiciye bilinçli tercih hakkı sunması açısından ham bal ve pastörize bal tanımlarının Türk Gıda Kodeksinde yer almasının gerektiği değerlendirilmektedir. Buna ek olarak, 1999 yılında Uluslararası Bal Komisyonu tarafından yapılan çalışma incelendiğinde ham bal için minimum invertaz aktivitesi sınırı 10 IN = 73,4 IU / kg olarak ve doğal olarak düşük enzim aktivitesine sahip bal türleri için (narenciye balı vb.) ise 4IN = 29,4 IU / kg olarak önerildiği görülecektir. Bu çalışmadaki öneri de mevcut çalışmamızı ve sonuçtaki önerilerimizi destekleyici mahiyettedir.

Anahtar Kelimeler: Ham bal, İnvertaz, Balda Kalite

DRAFT

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➢ **ORAL PRESENTATION**

Toxicity and removal of copper in the three species (*Tetradesmus obliquus*, *Desmodesmus subspicatus* and *Desmodesmus armatus*) belonging to the family, Scenedesmaceae (Chlorophyta)

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Abstract

In this study, toxicity of copper upon growth of three green microalgal species, *Tetradesmus obliquus* (Turpin) Wynne, *Desmodesmus subspicatus* (Chodat) Hegewald & Schmidt and *Desmodesmus armatus* (Chodat) Hegewald, and the ability of these green algae for removal copper were determined. Changes in algal growth parameters were monitored using standard growth inhibition toxicity tests over 96 h. The growth of the alga decreased with increasing copper concentrations. The least tolerance was exhibited by *D. armatus*, while *D. subspicatus* expressed the highest tolerance to this metal. Based on the calculated EC_{50} values, the following rank orders of inhibition were arranged: *D. armatus* > *T. obliquus* > *D. subspicatus*. We report the phenotypic plasticity of *T. obliquus* and *D. armatus* in response to cell numbers of copper. The phenotypic plasticity of *T. obliquus* and *D. armatus* found to be readily affected at low copper concentrations. Besides these parameters, the removal of Cu by alga was determined by using AAS. The highest copper removal percentage was determined *D. subspicatus* (60%), and followed by *T. obliquus* (51%) and *D. armatus* (43%).

Keywords: algae, copper, *Desmodesmus*, *Tetradesmus*, removal, toxicity

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➢ **ORAL PRESENTATION**

Colpomenia sinuosa (kahverengi alg)'nın antioksidan ve antikanser etkileri

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Özet

Algler, zengin biyoaktif metabolitlere sahip sucul ortamların özellikle de denizel ortamların primer üreticileri konumundadır. Bu nedenle, pekçok alanda alglerden yeni biyoaktif bileşenlerin izole edilmesi ve bunların araştırılması günümüze kadar büyük ilgi görmüştür. Bu çalışmada İzmir Körfezin'den toplanan kahverengi alg *Colpomenia sinuosa*'nın (Mertens ex Roth) Derbès & Solier, 1851 antioksidan ve antikanser etkilerinin ortaya konulması amaçlanmaktadır. Bu amaçla alg su ve ethanol ekstreleri hazırlanan alg örneklerinin antioksidan aktiviteleri DPPH metoduyla belirlenirken, antikanser aktiviteleri ise insan meme adenokarsinom (MCF-7) ve insan servikal kanser (HeLa) hücreleri üzerinde MTT yöntemiyle belirlenmiştir. *C. sinuosa*'nın etanol ekstresi, sulu ekstrelerle karşılaştırıldığında daha yüksek antioksidan aktivite göstermiştir (IC50= 21.31 ± 3.01 mg/mL). Antikanser aktiviteler incelendiğinde ise etanol ekstreleri (IC50= 27.6 ± 2.54 mg/mL) HeLa hücrelerinde sulu ektrelere (IC50>50) oranla proliferasyonu daha çok inhibe ederken, daha agresif MCF hücrelerinde her iki ektrede IC50>50 değeriyle nispeten daha düşük inhibisyonlar sağlamıştır. Antikanser aktivite sonuçları etanol ekstrelerinin HeLa hücrelerine karşı spesifik bir aktivite gösterdiğini düşündürmüştür. Bu bilgiler ışığında, *C. sinuosa* medikal endüstrisinde gelecekteki uygulamalar için umut verici bir antioksidan ve antikanser ajanı olarak kullanılabilir.

Anahtar kelimeler: Antikanser, antioksidan, *Colpomenia sinuosa*, kahverengi alg

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➢ **ORAL PRESENTATION**

Fabrication and characterization of electrospun PVC/PEO fibers

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Abstract

The manufacture of ultrafine fibers in the nanometer to micrometer range has opened up new applications where fibrous materials can be used. Highly functional fibrous mats with high surface area to volume ratio, high porosity, and uniform morphology can be easily fabricated by electrospinning. Materials fabricated through electrospinning have found their way into numerous applications, including food packaging, tissue engineering, wound dressing, protective clothing, high-efficiency filtration, etc. Poly (vinyl chloride) (PVC) is one of the most widely used and cheapest synthetic polymers that is widely applied as pipes, packaging materials, window frames, cables, bottles, and even in medical devices. Poly(ethylene oxide) (PEO) is a non-toxic, hydrophilic and biocompatible polymer and it has been used in many medical materials, i.e., wound dressings, drug delivery systems, semipermeable membranes, electrolytes for batteries, tissue engineering scaffolds, and many others. Montmorillonite (MMT) is one of the most widely used clay minerals in polymer nanocomposites as nanofiller since it is non-toxic, naturally occurring, readily available, and inexpensive. Organomodified MMT is typically obtained from octadecyl ammonium derivatives to achieve well-organized nanocomposites.

In the presented study, PVC was blended with PEO to increase the hydrophilicity of PVC for potential filtration and biomedical purposes. PVC/PEO solutions at various ratios were prepared by dissolving the polymers in the tetrahydrofuran/dimethylformamide solvent system. After the obtaining of composite PVC/PEO solutions, ODA-MMT at a given rate was added to the polymer solutions and additional stirring was applied to PVC/PEO/ODA-MMT colloidal solutions. The electrospinning method was used to produce fibers from the solutions prepared. Morphological, physical, thermal, and mechanical properties of obtained PVC-based fibers mats were investigated. This study was supported by İnonü University Scientific Researches Project unit under project number of FBA-2018-1332.

Keywords: Electrospinning, Poly (vinyl chloride), Poly (ethylene oxide)

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➢ **ORAL PRESENTATION**

The effect of adropin and spexin hormones on inflammation related interleukins in renal damage induced by adenine

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Abstract

Chronic kidney disease (CKD) can be defined as a chronic and progressive impairment of kidney function as a result of a reduction in glomerular filtration rate (GFR). CKD is a chronic inflammatory process. Pro-inflammatory cytokines such as IL-1β, IL-6, IL-17, IL-21, and IL-33 also trigger pathological disease, however, anti-inflammatory cytokines such as IL-10 reduce inflammation. Spexin is a neuropeptide that plays a role in the regulation of glucose and lipid metabolism. Otherwise, it regulates the renal/cardiovascular functions by effecting urine production. It was known that the amount of spexin reduces in diseases such as diabetes and obesity. Adropine is a peptid-formed hormone that regulates many pathways associated with glucose and lipid metabolism. Adropin suppresses inflammation by decreasing TNFα and IL-6 expressions.

The aim of our work; is to investigate how adropin and spexin affect ILs after renal damage induced by adenine.

In the Wistar albino rats, renal damage induced by adenine for 10 days. After that adropin and spexin were given intraperitoneally for 28 days. The mRNA expressions of IL-1β, IL-10, IL-17, IL-21 and IL-33 genes involved in the inflammatory process in kidney tissue were determined by qPCR.

mRNA expressions of IL-1β, IL-10, IL-17, and IL-21 were not significant in the control compared to CKD group, but spexin and adropin treatment reduce mRNA expressions of IL-1β IL-17 IL-33.

Our study has shown that adropin and spexin hormones can be protective by reducing inflammation in CKD.

Keywords: Chronic kidney disease, ınflammation, ınterleukin, adropin, spexin

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➢ **ORAL PRESENTATION**

Verbascoside'in *Lactobacillus acidophilus* ve *Lactobacillus rhamnosus* probiyotik bakterileri üzerine etkileri

Nasip Ümran Turan[1], Hüseyin Akşit[2], Recep Taş[1], Hasan Ufuk Çelebioğlu[1]*

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Özet

İnsanların ve hayvanların sağlıklı bir yaşam sürdürebilmesi adına iyi bir gastrointestinal sisteme sahip olmaları gerekmektedir. Bu da intestinal mikroflora ile sağlanmaktadır. Bağırsaktaki mikroflorayı güçlendirmek adına probiyotik, prebiyotik, sinbiyotikler gibi destekleyiciler kullanılmaktadır. Probiyotik bakteriler patojen mikroorganizmaların inhibisyonunu sağlar ve diyetle alınan gıdaların sindirilebilirliğini arttırır. İmmün sistemi güçlendirir, kan kolestrol seviyesini düzenler ve prebiyotiklerin emilimini arttırır. Bitkiler, eski çağlardan beri geleneksel tedavi yöntemlerinde kullanılan başlıca etken madde kaynaklarıdır. Günümüzde biyoloji ve kimya uygulamalarının gelişmesiyle bu geleneksel yöntemler yerini modern araştırmalara bırakmıştır. Modern uygulamalar sayesinde bitkilerin barındırdığı kimyasallar tespit edilebilmekte ve istenilen şekilde izole edilebilmektedir. İzole edilen kimyasalların özellikleri *in vitro* deneyler aracılığı ile belirlenebilmektedir. Bugün birçok bitki kaynaklı ürün immün sistem destekleyici olarak kullanılmaktadır. Bitkilerden izole edilen fenilpropanoidlerin geniş ailesine mensup bir kafeoil feniletanoid glikozit olan Verbascoside'in antimikrobiyal, anti-enflamatuar etkileri ve ayrıca protein kinaz C inhibitörü olduğu bilinmektedir. Bu araştırmada Verbascoside'in probiyotiklerin gelişimi üzerinde olumlu etkiler gösterebileceği düşünülerek, probiyotik bakteriler olan *Lactobacillus acidophilus* ve *Lactobacillus rhamnosus* üzerindeki etkilerini incelemek amaçlanmıştır. Bunun için, *in vitro* bakteriyel gelişim kinetiği deneyi yapılmış ve olumlu sonuçlar elde edilmiştir. Elde edilen sonuçlar ardından bakteriyel oto-agregasyon, bakteriyel yüzey hidrofobisitesi ve antioksidan deneyleri yapılmıştır. Sonuçlar göstermektedir ki Verbascoside, probiyotik bakterileri inhibe etmezken, bu bakterilerin probiyotik özelliklerini değiştirebilmektedir.

Anahtar Kelimeler: Verbascoside, Probiyotikler, Mikrobiyal biyoteknoloji

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➢ **ORAL PRESENTATION**

ITS2 (Internal Transcribed Spacer 2) region: A valuable marker to label some *Scrophularia* L. species native to Turkey

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Abstract

In recent years, molecular regions of DNA were used to clarify the genetic relationships of plants. Especially the *ITS* (Internal Transcribed Spacer-*ITS1+ITS2*) region was mostly preferred for molecular phylogenetic studies due to its highly repeated in number in plant genomes and large copy numbers that support amplification. At lower taxonomic levels, *ITS2* indicates significant differentiation among species; so, it is used as an important marker in both molecular systematics and evolutionary studies. Moreover, not only primary sequences also secondary structure of *ITS2* region became valuable in species divergence and was used as a molecular morphological character. In the current study, 10 different endemics and critically endangered *Scrophularia* L. taxa from Turkey were used as samples. The *ITS2* regions of the samples, which were approximately 220bp in length, were amplified and analysed. Sequences were aligned using ClustalW and Kimura2-parameter distances at MEGAX software. Phylogenetic tree was constructed by using BEAST program package (BEUTI, BEAST, TreeAnnotator, FigTree). Furthermore, secondary structures of species were predicted via the tools from the ITS2 database and mFOLD web server. According to the results, it was seen that the overall genetic distances were very close to each other, and the phylogenetic tree indicated that *S.scopolii* var. *paryii* , *S.capillaris* and *S.scopolii* var *longirostrata* were the closest taxa and except *S.scopolii* var *nusairiensis* other *S.scopolii* taxa located under the same cluster. Moreover, secondary structure prediction of the species indicated that there were 4 similar helices with different number and position of nucleotides which presented speciation. Therefore, low genetic variabilities were strongly identified both phylogenetically and molecular morphologically with *ITS2* region. Conclusively, both primary sequences and secondary structures of the *ITS2* region will be used as an ideal marker alone for taxonomic classification and phylogenetic reconstructions at lower taxonomic levels in future studies.

Keywords: *ITS2* , DNA, Marker, *Scrophularia* L., Phylogeny, Systematics

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➢ **ORAL PRESENTATION**

Axillarin'in *Lactobacillus acidophilus* ve *Lactobacillus rhamnosus* Probiyotik Bakterileri Üzerindeki Etkileri

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Özet

Son yıllarda flavonoidler ve sağlık üzerine yapılan çalışmalar yoğunluk kazanmıştır. Bitkilerdeki sarı, mavi, kırmızı renklerinin başlıca kaynağı olan flavanoidler meyveler, sebzeler, çay ve şarap gibi içeceklerde doğal olarak bulunan polifenollerdir. Günümüzde flavonoidlerin birçok biyolojik ve farmakolojik özelliklere sahip olduğu bilinmektedir. Tüketilen meyve ve sebzelerde besleyici değeri olmayan flavonoidlerin farklı yollardan insan metabolizmasına etkileri olduğu ortaya koyulmuştur. İnsan vücuduna diyetle alınan besinler sindirilmesiyle doğrudan bağırsaklardaki mikroflora ile etkileşim halinde olmaktadır. Bu etkileşim intestinal mikroflorayı etkilemekledir. Probiyotikler insan bağırsak mikroflorası ile doğrudan ilişkili olup destekleyicidir. Bitki kaynaklı bir O-metillenmiş flavonol olan Axillarin'in antiviral etkilerinin olduğu bilinmektedir. Bu araştırmada O-metilleniş flavonol olan Axillarin'in probiyotik bakteriler olan *Lactobacillus achidophlus* ve *Lactobacillus rhamnosus* üzerindeki etkilerini incelemek amaçlanmıştır. Elde edilen sonuçlar ardından bakteriyel gelişim kinetiği deneyi yapılmış ve olumlu sonuçlar elde edilmiştir. Bakteriyel oto-agregasyon, bakteriyel yüzey hidrofobisitesi, antimikrobiyal ve antioksidan deneyleri yapılmıştır. Sonuçlar göstermektedir ki Axillarin probiyotik bakterileri inhibe etmemektedir ve bu bakterilerin probiyotik etkilerini değiştirebilmektedir.

Anahtar Kelimeler: Axillarin, Flavonoller, Flavonoidler, Mikrobiyal biyoteknoloji

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➢ **ORAL PRESENTATION**

Şap aşılarının diğer aşılarla simultane kullanımı

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Özet

Çiftlik hayvanlarının hastalıkları, tarımsal gelişme, gıda güvenliği ve uluslararası ticaret önünde duran en önemli engellerden birisidir ve ilk sırada şap hastalığı yer almaktadır. Hayvan aşılarındaki hızlı gelişim ortaya çıkan yeni hastalıklarla mücadelede kritik önem taşımaktadır. Bu aşılar aynı zamanda antibiyotik kullanımının da azalmasında rol oynamaktadır. Şap hastalığı gelişmiş ülkelerin birçoğundan eradike edildiği için 80'li yıllardaki simultane aşılama çalışmalarındaki önceliğini yitirmiştir. Ancak diğer hastalıklarla mücadele planlamasında ülkemizde olduğu gibi şap aşılama kampanyalarından faydalanmak avantaj sağlayacaktır.

Simultane aşılama hayvanın farklı uygulama bölgelerinden aynı anda aşıların karıştırılmadan uygulanmasını ifade eder. Ülkemizde ve dünyada şap aşısı ile birlikte simultane uygulanabilecek aşılar üzerine birçok çalışma yürütülmüş olup kısaca şu şeklide özetlenebilir. Şap ve brusella aşılarının simultane uygulanması sonucu brucella aşısına karşı oluşan titre değerlerinde artış saptanmıştır. Pasteurella, şarbon, hemorajik septisemi, sığır vebası, kuduz, IBR/PI-3/adenovirus ve BVDV aşıları ile ayrı ayrı yapılan simultane aşılama çalışmalarında olumsuz bir etki görülmemiştir. Şap aşısı ile veziküler stomatitis aşısının uygulanmasında ise olumsuz sonuç alınmıştır. Enstitümüzde yürütülmüş olan 3 farklı çalışmada şap aşısının sığırlarda *E.coli*, koyunlarda şarbon ayrıca PPR/çiçek/mavi dil aşıları ile simultane kullanımı gerçekleştirilmiştir.

Bu çalışmada vurgulanmak istenen nokta; insan ve hayvan sağlığı için önemli etkenlerle mücadeleye katkı sağlaması bakımından şap aşılama kampanyaları sırasında diğer aşıların da uygulanabilirliğinin avantaj olarak değerlendirilmesi gerektiğidir. Ayrıca veteriner hekimlerin farklı aşıları uygulamak için tekrarlayan çiftlik ziyaretlerindeki azalmaya bağlı olarak iş gücü, zaman ve diğer maliyetlerden (benzin, araç yıpranma vb) elde edilecek tasarrufun yanı sıra hayvan refahı açısından da aşılama sayının azalmasıyla birlikte hayvanların maruz kaldıkları aşılama stresinin azalacağı da dikkate alınmalıdır.

Anahtar Kelimeler:Şap aşısı, viral aşı, bakteriyel aşı, simultane aşılama

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➢ **ORAL PRESENTATION**

Is low-level laser therapy or ozone therapy more effective on autogenous block onlay bone grafting?

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Abstract

This study aims to analyze the effect of the low-level laser therapy (LLLT) and ozone therapy (OT) on the bone healing of autogenous block onlay bone grafting (BOG) in rat calvaria. Material and Methods: A total of 30 Wistar male rats were used. A 5-mm-diameter trephine bur was used to collect BOG on the left side of the parietal bone. BOG was fixed with Histoacryl ® glue (cyanoacrylate, N-asetil 2 butyl sistein, B. Braun Melsungen AG, Germany) on the right side of the parietal bone of each rat calvarium. The animals were randomly divided into 3 groups as follows: the control group (n = 10), which received no therapy; the LLLT group (n = 10), which received only LLLT (120 seconds, 3 times a week for 2 weeks) and OT group (n = 10) (120 seconds, 3 times a week for 2 weeks). After 1 month, all the rats were killed, and the sections were examined to evaluate the presence of inflammatory infiltrate, connective tissue, and new bone formation areas. Results Histomorphometry revealed no significant difference between all groups. OT group had higher percentage of new bone formation ($P < 0.05$). Conclusion: Future randomized clinical trials with larger sample sizes and longer follow-ups are needed to further validate this treatment protocols.

Keywords: Block onlay bone grafting, Laser, Ozone, Histoacryl, rat

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➢ **ORAL PRESENTATION**

The impact of nutrition and lifestyle on infertility

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Abstract
Infertility is defined as the failure to get pregnant after a regular and unprotected sexual relationship for at least 12 months. Infertilty, which can be caused by women or men, affects about 15% of couples. The increase in the last 20 years has started to attract attention while the prevalence of infertility differs from country to country. The number of couples affected by infertility has increased approximately 3 times in five years in Turkey. It is known that some diseases such as diabetes mellitus and obesity in women and men affect fertility negatively. In addition, lifestyle factors such as stress, smoking and alcohol consumption cause infertility. On the other hand, insufficient intake of certain vitamins, minerals, amino acids and unsaturated fatty acids leads to infertility. In studies conducted, it has been reported that the inadequate amount of these nutritional components in the diet has negative effects on fertility. In this review, the relationships of nutritional habits and lifestyle factors with infertility were discussed.
Keywords: infertility, lifestyle factors, nutritional habits, nutritional components

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➢ **ORAL PRESENTATION**

Akıllı tarım uygulamalarının konvansiyonel tarım uygulamalarına göre çevre kirliliği açısından üstünlükleri

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Özet

Tarımsal faaliyetlerde kullanılan girdilerden kimyasal gübre ve tarımsal ilaçlarının tüketiminin artması, tarımsal girdilerin maliyetlere ve çevreye olan etkilerinin tartışılmasındaki en önemli nedenlerden biridir. Teknolojinin tarım sektörüne entegresiyle birlikte ortaya çıkan Akıllı Tarım (Tarım 4.0) uygulamalarının ana amaçlarından biri de tarımsal girdilerin optimal düzeyde kullanımını sağlayarak, karlılığı artırmak ve çevre kirliliğini azaltmaktır. Bu çalışmada, Aydın ili Koçarlı ilçesinde faaliyetlerini sürdüren Vodafone Akıllı Köy İşletmesi ile çevre köylerde üretim faaliyetlerine devam eden 10 adet konvansiyonel tarım işletmesinin, domates yetiştiriciliğinde kullandıkları kimyasal gübre ve ilaç miktarları değerlendirilmiştir. Domates üretiminde kullanılan gübrelerin bitki besin elementi bakımından farklılıklar gösterdiği belirlenmiştir. Değerlendirme sonucunda, konvansiyonel tarım işletmelerinde dekara kullanılan bitki besin elementleri sırasıyla 38,67 kg N, 31,77 kg P ve 8,76 kg S olurken, akıllı tarım işletmelerinde dekara kullanılan bitki besin elementleri sırasıyla 13,02 kg N, 16,86 kg P, 11,86 kg K, 0,002 kg Cu, 0,25 kg Zn ve 0,13 Mn'dir. Ayrıca konvansiyonel tarım işletmelerinde ortalama 0,23 lt/da insektisit ilacı kullanılırken, akıllı tarım işletmesinde 0,14 lt/da insektisit ilacı kullanıldığı saptanmıştır.

Anahtar Kelimeler: Tarım 4.0, Akıllı Tarım, Kimyasal Gübre, Tarım İlacı, Çevre

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➢ **ORAL PRESENTATION**

Phylogenetic Relationships of *Acer* L. species (Sapindaceae) in Turkey based on cpDNA and nrDNA sequences

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Abstract
This study investigated the taxonomic status and phylogenetic relationship of 22 taxa of the genus *Acer* L. naturally found in Turkey using the chloroplast (*trn*L and *ndh*F) and nuclear gene (*ITS*) regions. The molecular phylogeny of Turkish maple species was demonstrated by three phylogenetic trees (cpDNA, nrDNA and World). Morphological analysis was also carried out. One hundred and sixty seven individual samples were taken from field collections in Turkey and herbarium specimens from the Herbarium of Royal Botanic Gardens, Edinburgh. The results showed that the chloroplast gene regions of Turkish maples were evolutionary conserved whereas the nuclear gene region was quite diverse and elucidative. The chloroplast phylogenetic tree was found as uninformative as far as maple taxonomy is concerned due to haplotype sharing. Particularly, *A.tauricolum*, the subspecies of *A. hyrcanum* and *A.divergens*, the subspecies of *A. cappadocicum* have been raised to species level according to molecular and morphological data set. Previously, it was stated that *A. orthocampestre* is a new species in literature, but in our study it was revealed that rather than being new species, it is more similar to *A. campestre* subsp. *leiocarpum* based on comprehensive morphological and molecular data. Turkish maples away from the New World (America), shows close relationships with the Old World (Iran) species in the World phylogenetic tree.
Keywords: *Acer* L., Molecular Phylogeny, cpDNA, nrDNA, Turkey.

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➢ **ORAL PRESENTATION**

Nutritional Psychology in Elderly

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Abstract
Eating is both a physiological need and a behavior; therefore, in addition to the physiology of nutrition, its psychology has become an important research topic. The formation of eating behavior starts from the mother's womb and develops and changes until the old ages. Eating behavior is affected by factors such as cognitive, developmental, social, and learning processes. The problems experienced in these processes can cause abnormal eating behaviors and related eating disorders in each period of the life cycle. In literature, adolescents and young women are mostly focused on the problems with eating disorders, body perception and satisfaction. However, studies support that also elderly individuals frequently experience problems with eating disorders. As the older population increases day by day, the diseases and the costs associated with elderly increase. While physical and biological changes with aging affect physical appearance; psychological, physiological and social changes may also affect eating behavior. This review will provide an overview of the nutritional psychology in elderly by examining the factors affecting eating behaviors and causing eating disorders.
Keywords: aging, nutritional psychology, eating disorders, eating behavior

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➢ **ORAL PRESENTATION**

Evaluation of the effect of some types of coffee, cola, fanta and mineral water on calcium phosphate precipitation, in the point of formation of calculus

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Abstract

The calculus is a hard and calcified accumulation of microbial dental plaque layer consisting of various inorganic components and organic matrix, mainly calcium phosphate crystals, and causes problems such as gingivitis and periodontitis. In addition, with the bad image and bad breath it creates, it affects the daily life of the people negatively. The aim of the study is to examine the effects of some types of coffee, cola, fanta and mineral water, which are frequently consumed in daily life, on the mechanism of nucleation and clustering of calcium phosphate precipitation which is thought to reflect dental calculus formation *in vitro.* Calcium phosphate precipitation was investigated after mixing the appropriate concentrations of solutions containing calcium and phosphate ions by recording the absorbance change at 620 nm for 30 minutes at intervals of two minutes at 37°C. Samples, whose effects on the precipitation analyzed, were evaluated by adding 50 µL to mixture. The optical density increases first with the calcium phosphate nucleation, when the balance is reached, the optical density decreases gradually when the nuclei begin to aggregate and precipitate. At the end of the experiment, charts drawn between time and absorbance and the effects of each sample on calcium phosphate precipitation were evaluated. It was determined that coffee types and mineral water inhibit calcium phosphate precipitation, and that cola and fanta activate it. In addition to good oral care, it has being suggested that some drinks and foods consumed provide protection against dental and gum diseases. Our findings showed that the drinks consumed may have different effects on the dental calculus. For this reason, it is very important to pay attention to nutrition beside oral hygiene practices.

Keywords: Dental calculus, calcium phosphate precipitation, coffee types, cola, fanta, mineral water

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➢ **ORAL PRESENTATION**

Comperative study of molybdenum sulfide based catalysts for photocatalytic hydrogen evolution

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Abstract

Four types of tungsten sulfide based ($NiWS_x$, $CoWS_x$, $FeWS_x$ and $MnWS_x$) catalysts have been synthesized by the hot-injection technique and characterized by using Transmission Electron Microscopy (TEM) and X-ray Powder Diffraction (XRD) and Energy Dispersive X-Ray Analysis (EDX). These catalysts were tested for the photocatalytic hydrogen generation from water under visible light irradiation. The photocatalytic reactions were performed by using Eosin-y dye as a photosensitizer and triethanolamine as a hole scavenger. The HER rates of catalysts have been found as 249 $\mu molg^{-1}h^{-1}$, 201$\mu molg^{-1}h^{-1}$, 901 $\mu molg^{-1}h^{-1}$ and 646 $\mu molg^{-1}h^{-1}$ for the $MnWS_x$, $FeWS_x$, $CoWS_x$ and $NiWS_x$, respectively. The differences of photocatalytic activities in tungsten sulfide group is thought to be related to increasing the surface area of the catalyst by providing better load separation.

Keywords: photocatalytic, hydrogen evolution, tungsten sulfide

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DRAFT

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➢ **ORAL PRESENTATION**

Kuşburnu ekstraktı kullanılarak grafenin yeşil sentezi

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Özet

Grafen oksidin kimyasal olarak indirgenmesi için toksik, çevreye ve insan sağlığına zararlı maddeler kullanılmaktadır. Bu çalışmada, indirgenmiş grafen oksitin (RGO) hazırlanması için doğal ve zararsız olan kuşburnu ekstraktı indirgeyici madde olarak kullanılarak, bir yeşil sentez yaklaşımı rapor edilmiştir. Kuşburnu, askorbik asit içeren en zengin kaynaklardan biridir. Bu çalışmada grafen oksitin RGO' ya dönüşümü aynı deneysel şartlar altında hazır temin edilen askorbik asit ve kuşburnu ekstraktı kullanılarak gerçekleştirilmiştir. Ayrıca hazırlanan RGO örneklerinin termal özellikleri karşılaştırılmıştır. SEM görüntüleri ve XRD analiz sonuçlarına göre RGO örnekleri başarılı bir şekilde elde edilmiştir. Ancak Van der Waals' kuvvetlerinin etkisi kuşburnu ekstraktı ile sentezlenen RGO yüzeyinin daha yoğun tabakalı bir yapıya sahip olmasına sebep olmuştur. Hazır temin edilen askorbik asit ile sentezlenen RGO örneğinin termal kararlılığının daha yüksek olduğu belirlenmiştir. Termal kararlılığın önemli olmadığı durumlarda büyük çapta uygulamalar için kuşburnu ekstraktı ile sentezlenen RGO kullanımı bu çalışmanın bir sonucu olarak önerilebilir.

Anahtar Kelimeler: İndirgenmiş grafen oksit, Askorbik asit, Kuşburnu ekstraktı, Termal kararlılık

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➢ **ORAL PRESENTATION**

A facile approach to functionalization of highly hydrophobic PET textile coated organophilic graphene nanosheets: evaluation of waterproof performances, hydrophobicity kinetics and wettability

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Abstract

Since the discovery of the self-cleaning and lotus leaves effect, highly hydrophobic textiles have received great attention[1]. In view of their significant potential for numerous scientific and industrial applications, many strategies have been developed to create hydrophobic textiles till now[2], [3], but it remains a great challenge to prepare multi-functional textile fabrics using a low-cost and scalable method.

In this study we report the achievement of high hydrophobic properties on polyester fabric (PET) by grafting organophilic graphene nanosheets (OGN) on the fabric surface, using a dip-coating method. Wettability, surface morphology, and functionality of the modified samples will be discussed. The PET fabrics loaded with OGN were successfully prepared and characterized by several physicochemical techniques. FTIR has confirmed the formation of strong interaction between the PET and OGN functional groups. In addition, the effect of the organophilic graphene contents on the thermal stability was discussed trough Thermo-gravimetric analysis (TGA). The surface hydrophobicity kinetics of the produced PET fabrics were also investigated and discussed. Modified PET fabric showed repellency to water with a high contact angle up to 148°. The coating durability on the PET surface was also investigated; the coating can withstand over 5 repeated washing cycles while remaining its hydrophobic properties. The as prepared coated textile samples were utilized as an absorbent for oil/water separation and their separation efficiency for different oil/ water mixtures was also investigated in detail. The obtained results are very promising in terms of designing and producing functional PES fabrics with improved thermal and surface proprieties.

Keywords: Dip-coating; hydrophobic; multifunctional; organophilic graphene.

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➢ **ORAL PRESENTATION**

Surface modification of PET textile fabric using octadecylamine-functionalized graphene coating

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Abstract

In recent years, more attention has been paid to graphene and its related materials due to their exceptional properties for various applications, its unprecedented Characteristics have enabled access to it in almost every field [1]. One obvious way to exploit these properties is to incorporate graphene sheets in materials in order to conserve or to modify their properties. Incorporated Textiles fabrics, using graphene, offer an opportunity to develop textiles with new functionalities such as high flexibility, electrical conductivity, hydrophobicity, antibacterial activity and so on [2]. The properties of textile fabrics can be adjusted and manipulated by using coating and reinforcing agents.

The aim of this study is the elaboration of knit polyester fabrics (PES) coated organophilic graphene nanosheets (OGN) using a simple "dip-coating" method. The organophilic graphene was successfully synthesized and functionalized by covalently grafting a long chain fatty amine. Transform Infrared Spectroscopic (FTIR) results revealed the formation of an amide bond between graphene oxide's (GO) functional groups and the OctaDecylAmine (ODA) molecules through an amidation reaction. Organic solvent-based dispersion experiments showed that the organophilic graphene nanosheets exhibit a very good dispersion in organic solvents forming a stable and homogeneous colloidal suspension. Modified PET fabrics loaded with different OGN contents ranging from 1 to 7 wt.% were successfully prepared and characterized by several physicochemical techniques. FTIR has confirmed the formation of strong interfacial interaction between the PES and OGN functional groups. The modified PET resulted achieving enhanced thermal stability as well as excellent water repellency compared to the pristine PET. Water contact angle measurements showed a tremendous enhancement of surface hydrophobicity up to 148°. The produced PET fabric showed that it could be used for oil-water separation application with separation efficiency in absorbing oil from water-oil mixture of more than 5 times its weight. The obtained results are very promising in terms of producing multifunctional PET fabrics with improved proprieties, using a facile and scalable approach.

Keywords: Amidation, functionalization, graphene, hydrophobic, organophilic.

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➢ **ORAL PRESENTATION**

Response surface methodology for optimization of methylene blue adsorption onto carboxymethyl cellulose -based hydrogel beads: Adsorption kinetics, isotherm, thermodynamics and reusability studies

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Abstract

The effluents charged with organic dyes are considered a serious issue due to their negative impact on the aquatic environment and other living species. Methylene blue (MB), one of the most thiazine dyes widely used in the textile industry for cotton dying, is considered very toxic dye. Consequently, wastewater treatment to remove dyes is one of the biggest challenges that both industrial and academics are facing today[1]. Adsorption is recognized as the most suitable and promising technique owing to its simplicity, effectiveness, easy operation, and excellent adsorption ability to remove various harmful compounds from contaminated effluents. The efficiency of the adsorption process depend on different factors including the nature of the adsorbent, the origin of the dyes, and the type of the interactions that may occurred between the adsorbent and the adsorbate[2]. Response surface methodology (RSM) is considered as a powerful mathematical and statistical tool for designing experiments, establishing models by studying the effect of several operating variables by varying them simultaneously[3].

In this work, an environment-friendly composite hydrogel beads based on carboxymethyl cellulose (CMC), alginate (Alg) and graphene oxide (GO) were synthesized by an ionotropic gelation technique and studied as an efficient adsorbent for methylene blue (MB). The chemical structure and surface morphology of the prepared hydrogel beads were characterized by Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), thermogravimetric analysis (TGA), differential thermal analysis (DTA) and point of zero charge (pHpzc). A hybrid response surface methodology integrated Box–Behnken design (RSM-BBD) was successfully developed to model, simulate, and optimize the biosorption process. The synergistic effects between three critical independent variables including adsorbent dose (0.3–0.7 g), pH of the MB solution (6.5–9.5) and initial MB concentration (15–45 mg/L) on the MB adsorption capacity (mg/g) and removal efficiency (%) were statistically studied and optimized. The performance of the RSM-BBD method was found to be very impressive and efficient. Results proved that the adsorption process follows a polynomial quadratic model since high regression parameters were obtained (R^2-value = 99.8% and adjusted R^2-value = 99.3%). Analysis of variance (ANOVA) further confirms the validity of the suggested model. The optimal conditions for 96.22 ± 2.96% MB removal were predicted to be 0.6 g of CMC-Alg/GO hydrogel beads, MB concentration of 15 mg/L and pH of 9.5 within 120 min. The adsorption equilibrium is better described by the Freundlich isotherm, indicating that physisorption is the rate controlling mechanism. The MB adsorption process was thermodynamically spontaneous and endothermic. A reusability study revealed that the prepared adsorbent is readily reusable. The adsorbent still maintains its ability to adsorb MB for up to four cycles. Results reported in this study demonstrated that CMC-Alg/GO hydrogel beads are an effective, promising and recyclable adsorbent for the removal of MB from aqueous solutions [4].

Keywords: Optimization-based RSM, hydrogel beads, methylene blue adsorption, reusability.

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➢ **ORAL PRESENTATION**

Photocatalytic hydrogen evolution by clay-based nanocomposites

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Abstract

Photochemically inert layered clay materials have been drawn attention in the energy conversion reactions due to the increase catalytic active surfaces and suppressing the backward reaction by electron accumulation on itself. Of particular interest to the present study is the use of cheap inorganic clay Laponite D as a catalytically active electron transfer mediator, because of its disc-shaped structure with a diameter of approximately 25 nm and 1 nm thickness and asymmetric charge distribution with net positive and negative charges on its lateral edges and faces, respectively [1]. Herein, photocatalytic hydrogen evolution reaction (HER) has been performed by using triethanolamine and eosin-Y as sacrificial electron donor and visible light sensitizer, respectively, in the presence of Laponite D and H_2PtCl_6, which Pt co-catalyst is occurred on the Laponite D by in situ photodeposition. The photocatalytic HER activity of Laponite D based nanocomposites with Pt has been investigated for the enhanced activity and stability during the photocatalytic reaction.

Keywords: hydrogen evolution, photocatalysis, photodeposition, clay.

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➢ **ORAL PRESENTATION**

Investigation of the antimicrobial activities of extracts of *Campanula tomentosa* Lam. and *Verbascum mykales* Bornm.

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Abstract

In this study, the antimicrobial effects of the of *Campanula tomentosa* Lam. and *Verbascum mykales* Bornm. were examined against some microorganisms. The leaves of plant samples were dried in air and reduced to powder. Fifteen grams of the materials was added separately in 150 mL of ethyl acetate, methanol, chloroform, acetone and boiled water. The extraction was carried out for 6 hours using the Soxhlet. Then, the solvent was removed from the active ingredient by evaporation. Under aseptic conditions the extracts were filtered through 0.45µ-pore size diameter filters and stored at 4°C. These extracts were experienced on seventeen bacteria, three yeasts and three microfungi. The agar well diffusion method is used for the antimicrobial effects of extracts. In addition, MIC, MBC and MFC were tested. The extracts of the ethyl acetate, methanol and acetone of *Campanula tomentosa* Lam. were found to be high effective against tested microorganisms from high to low, respectively. However, chloroform and boiled water had no effect on tested microorganisms. The ethyl acetate extract was found most effective against *Bacilllus cereus* ATCC 11778, *Bacillus subtilis* ATCC 6633, *Entereococcus faecalis* ATCC 29212, *Proteus vulgaris* ATCC 33420, *Mycobacterium smegmatis* ATCC 607, *Micrococcus luteus*, ATCC 9341, *Serratia marcescens* ATCC 13880 and the inhibition zones ranged between 24-21 mm. The extracts of the ethyl acetate, methanol, acetone and chloroform of *Verbascum mykales* Bornm. were found to be high effective against tested microorganisms from high to low, respectively. However, the boiled water had no effect on tested microorganisms. The ethyl acetate extract was found most effective against *Micrococcus luteus*, ATCC 9341, *Escherichia coli* ATCC 35218, *Streptococcus pneumoniae* ATCC 27336, *Pseudomonas aeruginosa* ATCC 35032, *Bacillus subtilis* ATCC 6633, *Serratia marcescens* ATCC 13880, *Proteus vulgaris* ATCC 33420 and the inhibition zones ranged between 27-20 mm.

Keywords: *Campanula tomentosa* Lam., *Verbascum mykales* Bornm., Antimicrobial activity, Agar well diffusion

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➢ **ORAL PRESENTATION**

Biofilms formation and control in fish, molecular diagnosis of isolated bacteria

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Abstract

Fish is an important food for human health and nutrition. When microorganisms find appropriate conditions on foods such as fish, they come together to form a biofilm structure. Biofilm is an organization of bacteria living together and communicating with each other. Microorganisms with biofilm structure protect themselves from chemicals such as ozone, heat, light, chlorine, which will give them harm. The aim of this study is to identify biofilm forming bacteria in fish by using molecular methods and to control the formation of biofilm. The fish samples were collected from fish selling regions in Aydın. Qualitative and quantative screening for biofilm formation was performed by identifying bacteria isolated from fish. In addition to determine the effect of biofilm forming bacteria on biofilm formation nature products such as rock salt, vinegar, lemon juice and mix of three products were tested. These substances are preferred because they are natural, have no toxicity on human health and have low cost. As a result, *Staphylococcus aureus*, *Lactococcus lactis*, *Staphylococcus warnei*, *Lactococcus garviae*, *Citrobacter youngae*, *Proteus vulgaris*, *Leuconostoc mesenterioides*, *Citrobacter freundii*, *Roultella ornithinolytica*, *Proteus penneri*, *Staphylococcus pasteuri*, *Moellerella wisconsensis*, *Enterobacter cloaceae*, *Enterobacter casseflavus*, *Enterobacter gallinarum*, *Staphylococcus epidermidis*, *Enterobacter faecalis*, *Staphylococcus capitis*, *Proteus mirabilis*, *Serratia marcescens* observed formation of biofilm. While vinegar and mixture have lethal effect from natural products lemon juice has a stopping effect on biofilm forming bacteria. However, rock salt has not effect on bacteria.

Keywords: Fish, Biofilm, Exopolysaccharide, Quarium sensing, Natural products

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➢ **ORAL PRESENTATION**

Plants of the flora of Turkey with anti-inflammatory activities

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Abstract

Inflammation is a biological immune response to injury in order to remove injurious stimuli and to start the healing process. Usually, acute inflammatory responses minimize injury. However, if inflammation is not controlled, it may become persistent as chronic inflammation and contributes to a variety of diseases. Although inflammatory responses may differ in various inflammatory diseases, they share a common mechanism and a common spectrum of endogenous mediators such as growth factors, prostaglandins, chemokines, inflammatory cytokines such as interleukins IL-1, IL-6, IL-8, tumour necrosis factor (TNFα), and toxic molecules such as nitric oxide (1). *In vitro* studies enable to study the cellular responses and are also useful to understand the mechanism of anti-inflammatory activity of herbal constituents (2). This study is an overview of the *in vitro* anti-inflammatory research conducted on plants of the flora of Turkey as well as natural products and isolated compounds. The information was collected from different sources including electronic scientific search engines such as Scopus, Pubmed and TR Dizin. It is revealed that the extracts from plants and isolated compounds have been evaluated for their *in vitro* anti-inflammatory effects on a wide spectrum of *in vitro* anti-inflammatory targets such as cyclooxygenases, lipoxygenases, phospholipase A2, inducible nitric oxide synthase, elastase, mediators such as nitric oxide, cytokines, prostaglandins, transcription factors such as nuclear factor kappa B (NF-κB) and mitogen activated protein kinases. Literature review revealed that plants belonging to more than 19 families were studied and the greatest number of studied species belongs to Asteraceae and Lamiaceae families (3,4,5). This review emphasizes the potential of the flora of Turkey in contributing to anti-inflammatory drug discovery.

Keywords: *in vitro* anti-inflammatory, flora of Turkey, drug discovery

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➢ **ORAL PRESENTATION**

Investigation of cytotoxic activity and heat shock proteins expression of PhTAD-substituted dihydropyrrole derivatives in MCF-7 breast cancer cell line

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Abstract

After cardiac diseases, cancer is one of the most deadly diseases these days. As for breast cancer, its rank is on the top in women, around the world. Heat shock proteins (HSP), which play a vital role in the maturation of proteins under normal physiological conditions, shows proliferative and metastatic effects in cancer cells. These effects made HSPs an important target in cancer treatments. Identifying new active substances or determining the effectiveness of some chemicals is very important in cancer treatment. Heterocyclic molecules are important chemical compounds with known anti-tumor and anti-cancer activities. The stereoisomers of these compounds may have different vital effects.

In this study, it was aimed to determine the anticancer activities of MCF-7 (breast cancer) and MCF-12A (normal breast epithelium) cell lines in vitro under the new derivatives of biologically active bicyclic dihydropyrrole compounds formed with the addition of N- phenyltriazolinedione (PhTAD).

For this purpose, cytotoxic effects of 6 newly synthesized compounds in cell lines were investigated by RTCA method and mRNA gene expression levels of HSP (HSP27, HSP40, HSP60, HSP70 and HSP90) were investigated by qPCR method.

From the findings obtained in consequence of the study, it has been determined that the dihydropyrrole compounds derived from PhTAD have a moderate cytotoxic effect. In the mRNA gene expression levels obtained from single dose applications of these compounds; It was found that Hsp27, Hsp40, Hsp60, Hsp70 and Hsp90 gene expression decreased significantly compared to the control group.

As a result, it is thought that the tested 6 different dihydropyrrole compounds derived from N-phenyltriazolinedione may have anti-cancer activity in the MCF-7 breast cancer cell line, considering the effect of HSPs on reducing mRNA gene expressions

Keywords: MCF-7, RTCA, HSPs, Anticancer activity, PhTAD, Dihydropyrrole derivatives
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➢ **ORAL PRESENTATION**

The effect of dihydropyrrole derivatives compounds on apoptotic activity in the breast cancer cell line

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Abstract

Breast cancer is the most common cancer among women worldwide. This disease is the second leading cause of cancer death among women. Apoptosis is a programmed cell death that allows damaged cells to be removed without damaging other cells in the environment. Overexpression of anti-apoptotic members such as Bcl2, Bcl-XL promotes cell survival and proliferation, whereas overexpression of proapoptotic members such as Bax, Bad leads to apoptotic death of the cells. Therefore, the Bax/Bcl2 ratio is an important indicator of the life-death balance of the cell. Caspase 3 is a critical executioner of apoptosis, as it is either partially or totally responsible for the proteolytic cleavage of many key proteins and drives cell death. Activation of caspase 3 requires proteolytic processing of its inactive zymogen into activated p17 and p12 fragments. Triazole and dihydropyrrole form of heterocyclic compounds show effect much biological activity such as antibacterial, antitumor, antituberculosis, analgesic and anticancer.

The aim of this study is to investigate how dihydropyrrole derived compounds affect apoptotic activity in the breast cancer cell line.

For this purpose, in this study, cytotoxic activity and IC50 of dihydropyrrole derived compounds (1,56-100 µM) on breast cancer cell line (MCF-7) were determined by MTT. In addition, amounts of apoptosis-related proteins which are Bax, Bcl2 and cleaved caspase 3 measured by ELISA.

We found that Bax and Bcl 2 protein expressions upregulated by these compounds compared to negative control cells. Besides these compounds have been found to increase the Bax/Bcl2 ratio. Additionally, cleaved caspase 3 increased by these compounds compared to negative control cells.

Our study showed that these compounds activate apoptotic cell death mechanisms and so may have a potential anti-cancer effect.

Keywords: Breast cancer, apoptosis, Bcl2, Caspase 3, Dihydropyrrole

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➢ **ORAL PRESENTATION**

Investigation of alternative drug molecules for astrocytoma using bioinformatics and molecular mechanicstools

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Abstract

Astrocytoma is a type of cancer that can develop in the brain or spinal cord. To understand the genetic mechanism of astrocytoma,gene expression profiles were analyzed. The differentially expressed genes of astrocytoma were combined with protein interaction data to obtain hub disease proteins. Seven X-ray structures for one of the hub proteins, HSPA5, were docked with 5'-O-(4-Cyanobenzyl)-8-[(3,4-dichlorobenzyl)amino]adenosine[1](Figure 1)and its derivatives to detect their interactions and binding energies. AutodockVina 1.5.6[2] (O. Trott et al, 2010) was used as well asDiscovery Studio Visualizer (v19.1.0)[3]for preparations before docking applications.Conformer search and geometric optimization of ligands were done using Spartan(14v112)[4]. The aim of this research was to take advantage of both bioinformatics and molecular mechanic calculations to investigate alternative drug molecules for astrocytoma from Drugbank[5] database as well as determining the important active site amino acids of the protein of interest (Wishart et al, 2017).

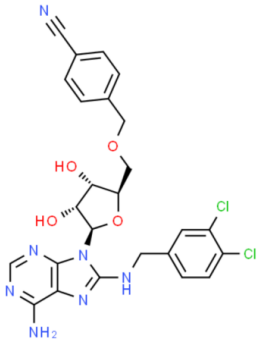


Figure 1. 2D structure of 5'-O-(4-Cyanobenzyl)-8-[(3,4-dichlorobenzyl)amino]adenosine

Keywords: Astrocytoma, gene expression, disease proteins, drug-likeness, molecular mechanics, docking

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DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

The effect of pantoprazole on brain-derived neurotrophic factor in cortex and hippocampus after pentylenetetrazole-induced epileptic seizures in rats

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Abstract

Several results have suggested that proton pump inhibitors have positive effects on the nervous system. Pantoprazole is one of the proton pump inhibitors and widely used. The aim of this study was to investigate the effect of pantoprazole on epileptic seizures and interaction with brain-derived neurotrophic factor (BDNF) in this effect. In this study, 18 male Wistar Albino rats were used. Animals divided into three groups as control, saline (serum physiologic 1 ml/kg for 7 days) and pantoprazole (10 mg/kg for 7 days). Seventh days after 30 min the administration of the last drug, pentylenetetrazole (PTZ; 45 mg/kg) was given to saline and pantoprazole groups to induced seizures. The animals were observed for 30 min. Seizure stages (according to the Racine Scale) and first myoclonic jerk times (FMJ). After 24 hours of PTZ injection, brain tissues of all groups animal were removed. Cortex and hippocampus separated and homogenized. BDNF was measured by using the sandwich-ELISA method in the homogenates. Statistical evaluation of the data was performed by one-way ANOVA and multiple comparisons were determined by the Tukey test. Statistical significance was defined at $p<0.05$. Obtained data suggest that pantoprazole decreases seizure stages and increases FMJ compared to saline group ($p<0,05$). On the other hand, there is no statistical significance on BDNF levels in the cortex between groups ($p>0.05$). However, there is increasing in BDNF levels in the hippocampus for pantoprazole group compared to saline ($p<0,05$). In conclusion, this study suggests that pantoprazole increases BDNF level in hippocampus after PTZ-induced seizures.

Keywords: Epilepsy, seizures, pentylenetetrazole, pantoprazole, brain-derived neurotrophic factor, rat

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➢ **ORAL PRESENTATION**

Nörodejeneratif süreç öncesi içme suyu ile kronik olarak uygulanan taurinin böbreklerdeki oksidatif stres üzerine etkisi

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Özet

Enerji içeceklerinde de bulunan serbest bir amino asit olan taurinin (2-aminoethanosülfonik asit) akut ve/veya kronik kullanımının çeşitli dokularda oksidatif stres üzerindeki etkileri birçok çalışmada araştırılmış ve genel olarak antioksidan rolü vurgulanmıştır. Ayrıca literatürde optimal dozda ve sürede kullanılan taurinin nöroprotektif etki sağlayabileceğini öne süren çalışmalar da mevcuttur. Bununla birlikte taurin, doz ve kullanılan süreye ya da deneklerin yaşına bağlı olarak oksidan hasara veya toksisiteye de yol açabilir. Çalışmamızda amiloid beta 1-42 (Aβ 1-42) nörotoksisitesi ile oluşturulan deneysel modelde, taurinin uzun süreli kronik uygulamasının, vücuttan filtre edilip atılması aşamasında önemli role sahip olan böbreklerdeki oksidatif stres üzerindeki etkisi araştırıldı. Çalışmamızda yaşlı (28±4 aylık) Wistar albino cinsi erkek sıçanlar rastgele; kontrol, sham, Aβ 1-42, taurin, Aβ 1-42+taurin şeklinde 5 gruba ayrıldı (n=6). Taurin, hayvanlara içme suyu ile 6 hafta boyunca 1000 mg/kg/gün dozda verildi. Taurin uygulamasından sonra hayvanlara stereotaksik cerrahi yöntemle intraserebroventriküler Aβ 1-42 enjeksiyonu (lateral ventriküllere, 5 µl) yapıldı. 14 günlük iyileşme sürecinden sonra hayvanlar feda edildi. Böbrek dokuları izole edildi. MDA ve GSH seviyeleri spektrofotometrik olarak ölçüldü. İstatistiksel analiz için; Kruskal Wallis ve Mann Whitney U testi kullanıldı. $p<0,05$ anlamlı kabul edildi. Aβ 1-42 enjeksiyonu ile böbrek MDA seviyelerinde anlamlı bir artış görülmezken kronik taurin uygulaması yapılan gruplarda böbrek MDA seviyeleri arttı ($p<0,05$). Aβ 1-42 enjeksiyonu böbrek dokusunda GSH seviyelerini anlamlı olarak azaltırken ($p<0,05$), taurin ön takviyesi yapılan gruplarda böbrek GSH seviyelerinde anlamlı fark bulunmadı ($p>0,05$). Yaşlı sıçanlarla gerçekleştirdiğimiz çalışmamız antioksidan özellikleriyle ön plana çıkmış ve enerji içecekleri gibi birçok ürünün bileşiminde bulunan taurinin 1000 mg/kg/gün dozda uzun süreli kronik uygulamasının böbreklerde oksidatif hasarı arttırıcı rol oynadığını göstermektedir. Taurin uygulanan gruplarda MDA artışına karşılık GSH düzeylerinde anlamlı bir fark olmaması ve Aβ 1-42 enjeksiyonu ile GSH seviyelerindeki azalmayı yeterince düzeltemeyişi oksidatif stresin bir göstergesi olarak kabul edilebilir. Sonuç olarak taurin çalışmamızda kullanılan dozda ve sürede böbreklerde oksidatif strese yol açmıştır.

Anahtar Kelimeler: Nörodejeneratif süreç, oksidatif stres, böbrek, taurin

Bu çalışma GÜ-BAP 01/2017-30 kodlu proje ile desteklenmiştir.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Direct blue 71 boyar maddesinin fenton ve foto-fenton yöntemi ile renk ve KOI giderimi

Merve Taşçı, Eylem Karaca, Nevzat Beyazıt

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Özet

Fenton prosesi ile gerçekleştirilen arıtım, oksidasyon, nötralizasyon, koagülasyon/flokülasyon ve çökelme olmak üzere dört aşamadan oluşmaktadır. Fenton reaksiyonu olarak bilinen reaksiyon, Fe^{+2} 'in $OH^{\cdot}$ meydana getirmek üzere H_2O_2 ile oksidasyonudur . Ayrıca fenton prosesinin etkinliği ultraviole ışınları ile birlikte geliştirilebilmektedir. UV ışığının varlığında gerçekleşen Fenton prosesi, foto-fenton prosesi olarak adlandırılmaktadır. Bu yöntemde $OH^{\cdot}$, Fe^{+2} fotolizi ve Fe^{+2} ile H_2O_2 reaksiyonuyla oluşmaktadır.Bu çalışma fenton ve foto-fenton oksidasyonu ile direct blue 71 boyasının koi ve renk giderimi üzerine yapılmıştır. Tepkime koşulları için elde edilen optimum parametreler Fe^{+2} de 2ppm, H_2O_2 de 50pmm, 60 dakika tepkime süresi, pH 3 ve tepkime sıcaklığı 20-25˚C olarak bulunmuştur. Bu koşullar altında direct blue 71 boyasının fenton prosesi ile renk giderim verimi % 96,53 olarak koi giderim verimi 45,70 olarak elde edilmiştir.Ayrıca foto-fenton prosesi ile renk giderim verimi % 99,86 olarak koi giderim verimi 82,25 olarak elde edilmiştir. Çalışmada elde edilen sonuçlar tekstil endüstrisi atıksularının arıtılması, renk giderimi ve deşarj standartlarını sağlamada yaşanan problemlerin aşılması açısından fenton ve foto-fenton proseslerinin etkin bir çözüm olarak önerilebileceğini göstermektedir.

Anahtar Kelimeler: Fenton, foto-fenton, renk giderimi, KOI.

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➢ **ORAL PRESENTATION**

Direct Yellow 86 tekstil boyar maddesinin sulu çözeltilerinden renk ve KOI gideriminde ileri oksidasyon proseslerinin verimliliğinin incelenmesi

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Özet

Bu çalışmada tekstil boyar maddesi olan Direct Yellow 86 boyasının sulu çözeltilerinden ileri oksidasyon prosesleri kullanılarak renk ve KOİ giderim verimleri araştırılmıştır. Bu çalışma ile fenton ve foto fenton benzeri prosesleri için farklı pH değerleri, H_20_2 ve Fe^{+2} konsantrasyonları denenerek proses performansı üzerine etkisinin belirlenmesi için en uygun deneysel koşulların seçilmesi amaçlanmıştır. Bu amaç doğrultusunda farklı H_20_2(5-10-25-50-60-75-100 mM) ve Fe^{+2} (0,5-1-2-2,5-3-3,5 mM) konsantrasyonlarında ve pH=2-4,5 arasında deneysel çalışmalar yürütümüştür. Tepkime koşulları için elde edilen optimum parametreler H_20_2 konsantasyonu 50 pmm, Fe^{+2} konsantrasyonu 2,5 ppm, pH 3 ve tepkime sıcaklığı 20-25˚C olarak bulunmuştur. Bu koşullar altında direct yellow 86 boyasının fenton prosesi ile KOİ giderim verimi % 88,42 olarak renk giderim verimi 95,41 olarak elde edilmiştir.Ayrıca foto-fenton prosesi ile KOİ giderim verimi % 90,67 olarak renk giderim verimi 97,95 olarak elde edilmiştir. Çalışmada elde edilen sonuçlar tekstil endüstrisi atıksularının arıtılması, renk giderimi ve deşarj standartlarını sağlamada yaşanan problemlerin aşılması açısından fenton ve foto-fenton proseslerinin etkin bir çözüm olarak önerilebileceğini göstermektedir.

Anahtar Kelimeler: Oksidasyon, foto-fenton, fenton, boyar madde giderimi, KOI.

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➢ **ORAL PRESENTATION**

Türkiye'deki bir devlet üniversitesi yerleşkesindeki kişilerin tavuk eti üretimi ve tüketimine bakış açıları

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Özet

Bu çalışma, Eskişehir Osmangazi Üniversitesi Yerleşkesindeki kişilerin tavuk eti üretimi ve tüketimine ilişkin bakış açılarını değerlendirmek için yapılmıştır. Bu amaçla, örnek hacmi, ana kitle oranlarına dayalı kümelendirilmemiş tek aşamalı basit tesadüfî olasılık örnekleme yöntemi ile belirlenen, 257 Doktoralı öğretim üyesi (akademisyen), 378 lisans öğrencisi (öğrenci) ve 166 en az ortaokul mezunu sürekli işçi (işçi) ile yüz yüze anket yapılmıştır. Akademisyenlerin tavuk eti tercih etme oranları (%16.8), öğrenci (%52.6) ve işçilerden (%30.6) daha düşük bulunmuştur. Konvansiyonel tavuk etini tercih eden akademisyenlerin oranı (%68.2) öğrenci (%25.4) ve işçilerin (%6.4) oranından daha yüksek bulunmuştur. Katılımcıların %70.5'i yazılı ve görsel basından tavuk eti güvenilirliği hakkında yanlış bilgi edinirken bu haberler tüketimi olumsuz etkilemiştir. Çalışmanın bulguları eğitim düzeyi arttıkça kişilerin tavuk eti üretimi ile ilgili asparagas medya haberleri nedeniyle tavuk eti tüketiminin azaldığını göstermektedir.

Anahtar Kelimeler: Anket, tavuk eti, tüketim, eğitim, Eskişehir Osmangazi Üniversitesi

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➢ **ORAL PRESENTATION**

Haloalkalitolerant and haloalkaliphilic fungal diversity of Acıgöl/Turkey

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Abstract
Microfungi are the most common microorganisms found in range habitats such as soil, air, water and various food products to extreme environments. They are well known as decomposer of organic materials, producer of some product in industrial and food fields, of important mycotoxins, reason major economic and health effects on plant, animal and human life. Because of these reasons, studies on the determination of biodiversity of microfungi are vitally important. Aim of this study is investigation of biodiversity of microfungi in Acıgöl Lake that is the second largest alkaline lake in the world and located between Afyon-Denizli-Isparta city boundaries, in the southwest Anatolia, Turkey.
For this aim, the water sample was compositely taken from a saltern of North site of Acıgöl Lake in November 2019. The samples have been analysed in terms of pH, and salinity. To isolate and enumerate the fungal species from water, 20 ml of each sample has been filtered through the sterile Cellulose Nitrate Membrane Filters and placed onto the DRBC and DRBC with water sample (DRBC+28% salty) media with chloramphenicol (100 mg/L). Different salt concentrations (as 0, 5, 10 and 15%) were used for determination of salt tolerance range.
A total of 260 and 65 CFU/L colonies were counted from DRBC and DRBC28 media. After purification steps, totally 52 isolates were obtained and identified by using conventional methods and multi locus gene sequencing.
The results indicated that Acıgöl Lake region rich in *Aspergillus* (26.9%) and *Penicillium* (25%) genera, respectively. Although other members of the breed were determined in the region, a total of 48.1% was found. In addition, the main part (57.7%) of the isolates were exhibited good colony formation. The fact that the microfungus biodiversity determined by this study has the ability to produce toxins, contains pathogenic and saprophyte species, has been identified as an issue to be considered for public health.
Keywords: Acıgöl, Lake, Microfungus, Biodiversity

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➢ **ORAL PRESENTATION**

Peynir altı suyundan simultane fermantasyon yoluyla mikrobiyal renk pigmenti üretimi

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Özet

Günümüzde atıkların biyodönüşümle geri kazanımı ve hammadde olarak kullanımı ekonomiye ve doğaya fayda sağlayacak yaklaşımlardan biri olarak görülmektedir. Her yıl dünyada yaklaşık olarak 190 milyon ton peynir altı suyu, gıda işletmeleri tarafından gerçekleştirilen çeşitli faaliyetler sonucunda açığa çıkarak çevreye zarar vermektedir. Bu çalışmada, peynir üretim tesislerinde atık olarak çıkan peynir altı suyundan (PAS), katma değeri yüksek biyoürün üretilmesi amaçlanmıştır.

Bu kapsamda gıda kullanımına uygun kırmızı renk pigmenti üretebilen *Monascus purpureus* CMU001 suşunun fermantasyonda alternatif besin kaynağı olarak PAS kullanımı incelenmiştir. Kırmızı renkli *Monascus* pigmentinin üretim prosesi, derin kültür fermantasyon yöntemi ile optimize edilmiştir. Çalışma kapsamında demineralize, deproteinize ve ham PAS tozu örnekleri laktaz enzimi ile hidrolize edildikten sonra substrat olarak kullanılmıştır.

En yüksek kırmızı renk pigmenti 38.38 UA_{510nm} değeri, başlangıç pH'sı 7.0 olan ve 7.5 g/l laktoz içerecek şekilde sulandırılmış ve hidrolize edilmiş demineralize PAS tozunda, *Monascus purpureus* mikroorganizmasının %2 (v/v) oranında aşılanmasıyla elde edilmiştir. Pigment üretiminde önemli bir faktör olan monosodyum glutamat (MSG) konsantrasyonunun pigment üretimine etkisi incelendiğinde, maksimum pigment değerinin 25 g/l MSG konsantrasyonunda elde edildiği belirlenmiş, ancak proses ekonomisi açısından 5 g/l MSG konsantrasyonunda denemelere devam edilmiştir. Pigment üretim kinetiği incelendiği zaman, maksimum pigment konsantrasyonunun fermentasyonun 8. gününde elde edildiği, mikroorganizmanın spesifik üreme hızının 0,023 h^{-1}, maksimum pigment verimliliğinin ise 4,55 UAd^{-1} belirlenmiştir. Bu çalışma demineralize PAS tozunun katma değeri yüksek mikrobiyal pigment üretiminde başarılı bir şekilde kullanılabildiğini gösteren ilk çalışmadır.

Anahtar Kelimeler: Pigment, Peynir altı suyu tozu, Derin kültür, Monascus *Purpureus*

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➢ **ORAL PRESENTATION**

The comparison of *MYOD1/BglI* polymorphism in Holstein and Simmental cattle

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Abstract

Meat tenderness is a major quality criterion for consumers which, is controlled by a QTL region at bovine chromosome 15. The *MYOD1* (Myogenic Differentiation1) gene is known to regulate the myoblast differentiation mechanism in the early stage of muscle development located in that region. The polymorphisms of *MYOD1* were associated with meat yield and quality for some breeds. However, the knowledge of the effect or genotype structure of *MYOD1* in Holstein ve Simmental breeds was insufficient. Hence, the objective of the study was to determine the allele and genotype frequencies of *MYOD1/BglI* polymorphism in Holstein and Simmental cattle. After the DNA isolation performed by the phenol/chloroform method from a blood sample, one hundred ninety cattle were genotyped (n=190) for *MYOD1/BglI* polymorphism by PCR-RFLP method. According to the results, the frequencies of A and B alleles were 0.752 and 0.248 for the *MYOD1* gene in Holstein and 0.778 and 0.222 in the Simmental cattle population studied, respectively. As a consequence, the investigated populations were found polymorphic for *MYOD1/BglI* polymorphism in the current study. Enlarged relationship studies of that breeds are needed to confirm the effect of these markers on meat quality. Thus, this result might be helpful to further studies that will be done to determine the effect of the meat quality or growth traits of the flocks for improving the quality by using marker-assisted technology.

Keywords: Cattle, carcass traits, PCR-RFLP, Holstein, Simmental, *MYOD1*.

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➢ **ORAL PRESENTATION**

Vitreoscilla hemoglobin geni aktarılmış Erwinia herbicola'da indol-3asetik asit (IAA) üretimi

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Özet
İndol-3-asetik asit (IAA) bitkilerde bulunan önemli bir doğal oksin hormonudur. IAA biyosentezi, bitki ile ilişkili bakteriler arasında yaygın bulunan bir durum olup, bu hormonun üretimi için farklı biyosentetik yollar bulunmaktadır. *Erwinia herbicola* bakterisi, IAA hormonu üreten bir bakteri olup, bu çalışmada, *Vitreoscilla* hemoglobinin (VHb) *E. herbicola*'da IAA üretimi üzerindeki etkisi araştırılmıştır. Çalışmada, *Erwinia herbicola* ve onun *Vitreoscilla* hemoglobin (VHb) geni klonlanmış suşu (vgb^+) ile *vgb* içermeyen (vgb^-) rekombinant suşu kullanılmıştır. *E. herbicola*'da bu şekilde endojen rekombinant bir oksijen alım sisteminin bu metabolitin üretimi üzerindeki etkisi ilk defa çalışılmıştır. VHb geni (vgb^+) taşıyan rekombinant suşun zengin ve fakir besiyerlerinde ürettiği IAA miktarlarının yabanıl suştan ve vgb^- kontrol suşundan daha yüksek olduğu kaydedilmiştir. Rekombinant suşların konakçıdan önemli derecede yüksek oksijen alımına sahip oldukları belirlendi. En yüksek IAA'nın seviyesinin L- triptofan eklenen zengin kültür ortamının ileri faz kültürlerinde olduğu gözlendi.
Anahtar Kelimeler: Erwinia herbicola, vitreoscilla hemoglobini, Indol-3-asetik asit, rekombinant DNA teknolojisi

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Molecular cloning and sequence analysis of human *ADAMTS-8* (A disintegrin and metalloproteinase with thrombospondin motif, 8) gene promoter

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Abstract

ADAMTSs, a family of extracellular matrix metalloproteinase having 19 members. They have common features with matrix metalloproteinases (MMPs) and ADAMs. ADAMTS genes important functions in physiological processes including extracellular matrix remodeling, cell proliferation, apoptosis, migration, invasion, and angiogenesis. Downregulation of some ADAMTS family members in a variety of cancer types such as gastric, colorectal, pancreatic, lung, esophageal, nasopharyngeal, and breast cancers have been elucidated so far.

As a member of the ADAMTS family, ADAMTS-8 is a novel candidate tumor suppressor gene having antiangiogenic and proapoptotic activity. It is broadly expressed in normal tissues but frequently downregulated by promoter methylation in common cancer cell lines. Although there have been studies on the methylation and expression analysis of the ADAMTS-8 in normal and cancer tissues, there hasn't been any study on its transcriptional regulation in the literature.

In the recent study, to identify the transcriptional regulatory region of the *ADAMTS-8* gene, the 5'-flanking region (1177 bp upstream of the transcription start site) of the ADAMTS-8 gene was amplified from SW480 (Human colorectal carcinoma cell line) genomic DNA by PCR based strategy. The amplified fragment was first cloned into a pGEMT-Easy vector using T:A cloning strategy for further studies. Automated DNA sequencing was performed to verify the fragment. Putative *ADAMTS-8* promoter was bioinformatically analyzed for putative transcriptional factor binding sites, promoter elements and CpG islands using web based programmes. Bioinformatic analysis of the promoter region identify a TATA box and several SP1, NFKβ, STAT, USF1, AP1, AP4,C\EBP, GATA,YY1,CREB and OCT transcription factor binding sites. CpG plot analysis identified a putative CpG island around 55 bp to 390 bp upstream of the TSS of the *ADAMTS-8* gene.

Keywords: Transcriptional regulation, ADAMTS-8, Colon Cancer.

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➢ **ORAL PRESENTATION**

Determination of the genotoxic effects of octyl gallate, an antioxidant food additive, by sister chromatid exchange assay

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Abstract

Oils and fatty essential oils must be protected by antioxidants to prevent rancidity and odour alterations. Several antioxidants are added to oils, soups, sauces, chewing gum, potato chips etc. One of them is octyl gallate (E-311). It is frequently used as an additive in the pharmaceutical and food industries. The purpose of this study was to evaluate the potential genotoxicity of octyl gallate in *in vitro* cultured human peripheral lymphocytes using sister chromatid exchange (SCE) assay. In addition, replication index (RI) was also determined. Peripheral blood obtained from three healthy young donors, a man and two women, was treated with five different concentrations (0.50, 0.25, 0.125, 0.063, and 0.031 µg/mL) of octyl gallate in culture conditions for 24 and 48 h. A negative, a positive (0.20 µg/mL Mitomycin-C), and a solvent control (8.77 µL/mL ethanol) were also applied for each treatment. Octyl gallate significantly increased the SCE/cell ratio in three highest concentrations in a concentration-dependent manner (r = 0.97) compared to negative and solvent control at 24 h treatment. Similarly, at 48 h treatment, the frequency of SCE raised significantly compared to negative and solvent controls at all the concentrations except for the lowest concentration (0.031 µg/mL), and this increase was also concentration dependent (r = 0.84). However, octyl gallate did not affect replication index. These results showed that octyl gallate may have genotoxic effect to human lymphocytes *in vitro* at high concentrations. However, other genotoxicity tests should also be applied for detail analysis.

Keywords: Octyl gallate, food additive, genotoxicity, human lymphocytes, sister chromatid exchange

Acknowledgement: This study was supported by Gazi University Research Fund under the project number 05/2019-02.

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➢ **ORAL PRESENTATION**

Development of a method for the simultaneous determination of nitrate, nitrite and bromate by capillary zone electrophoresis in some selected plants found in the black sea region of Turkey

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Abstract

We report the development of a quick method for the simultaneous determination of nitrate, nitrite and bromate ions in some plants growing in the black sea region of Turkey using capillary zone electrophoresis. A Box-Behnken response surface design was employed in the optimization of the method which only included 15 experiments. Optimal conditions of 60 mM phosphate buffer solution at 3.5 pH, capillary temperature of 40°C, -22.5 kV applied voltage, 61.5 cm total length (53. 5 cm up to detector) with 50 µm i.d, and 50 mbar injection pressure for 30 s were selected. The limits of detection for nitrate, nitrite and bromate were 2.00 mg/kg, 1.85 mg/kg and 2.67 mg/kg while linearity values were determined as 0.995, 0.993 and 0.998 respectively. The detection of the anions was achievable within 5 min with a satisfactory resolution amongst the peaks. The average spike recovery ranged between 90.7 % - 109.1 % (n = 3). The method was later applied in the analysis of nitrate (NO_3^-), nitrite (NO_2^-) and bromate (BrO_3^-) ions in the different plants which grow mainly in the black sea region of Turkey.

Keywords: Capillary zone electrophoresis, Nitrate, Nitrite, Bromate, Black Sea Turkey.

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➢ **ORAL PRESENTATION**

Oxidant /antioxidant balance and nutritional parameters in women with irritable bowel syndrome

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Abstract
Irritable bowel syndrome (IBS) is a heterogeneous disease characterized by abdominal pain and intestinal motility disorders. This case-control study was conducted in Tlemcen on a sample of 50 women with IBS to assess the nutritional intake of macros and micronutrients and the status oxidant/antioxidant.
The first part includes an assessment of socio-economic status, nutritional aspects and physical activity. In the second part, the blood samples were taken to determine the antioxidant oxidant status.
The characteristics of the study population show that the mean age is 40± 10 and 41± 10.34 years for control women and IBS women respectively, as well as women with IBS are overweight.
The survey results show nutritional disturbances such as insufficient consumption of fiber, mono- and polyunsaturated fatty acid, reduced vitamin C intake and B1 as well as an increase in lipid intake and sugar products. Patients have an average level of education and economic status with reduced physical activity.
Also women with IBS represent a state of oxidative stress by intake to control women due to high levels of MDA and PC oxidation products and a decrease in the antioxidant capacity of SOD, CATA, GSH and vitamin C.
A healthy, balanced diet and moderate physical activity can help restore the oxidant/antioxidant status, and decrease the symptoms of IBS.
Keywords: Irritable bowel syndrome, oxidant/antioxidant status, diet

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➢ **ORAL PRESENTATION**

The effects of cadmium applications on soluble compound contents of tomato (*Lycopersicon esculentum* Mill. cv Astona)

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Abstract

Heavy metals are usually found naturally in the environment or originated by human activities. Cadmium (Cd) is a kind of heavy metal and has a lot of toxic effects on plant metabolism. Cadmium has negative effects on chlorophyll synthesis, photosynthesis, transpiration, water uptake and cell membrane integrity; causes oxidative stress and reduction of plant growth. Tomato (*Lycopersicon esculentum* Mill. cv Astona) is an important plant for human diet and mostly grown in whole regions of Turkey. Just as other plants, tomato may face Cd in its life cycle. So the aim of this report is to investigate the effects of Cd on some important soluble compound contents (proline, soluble carbohydrate and total amino acids) of tomato. For this purpose, thirty days old tomato seedlings were transplanted to hydroponic medium in controlled room and Cd (as $CdCl_2$; 0-5-25-50 and 100 µM concentrations) was applied after one week later. At the tenth day of hydroponic medium, plants were harvested and sampled for proline, soluble carbohydrates (glucose and fructose) and total amino acid analyses. Whole applications had random three replications and data was analysied with SPSS programme for LSD test. All Cd applications rised proline and glucose content but the only significant effect was seen at 25 µM Cd concentration. In addition to these, this concentration increased fructose content but fructose decreased by 100 µM Cd significantly. Lastly, amino acid content increased against Cd applications, however this increment was found significant only at 25 and 50 µM Cd doses. As a result of these, Cd had toxic effects on tomato metabolism as it changed proline, total carbohydrate and amino acid levels which are the indicators of stress. In conclusion, 25 µM Cd concentration is the most effective dose for tomato seedlings' life cycle.

Keywords: Cadmium, tomato, proline, carbohydrate, amino acid

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➢ **ORAL PRESENTATION**

Anticancer drug loading and release studies on a magnetic nanocomposite containing graphene oxide

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Abstract

Graphene based nanomaterials can be used for controlled anticancer drug delivery. In this study, graphene oxide (GO)-Fe_3O_4 nanoparticles-polypyrrole (PPy) (GO-Fe_3O_4-PPy) nanocomposite was synthesized for loading and release of anticancer drug doxorubicin for the first time in the literature. Drug loading (pH 10) and release studies (pH 5.5 and pH 7.4) on GO-Fe_3O_4-PPy nanocomposite were realized in phosphate buffer solution (PBS). The drug loaded nanocomposite was analyzed by Fourier transform infrared spectrophotometer (FTIR), Ultraviolet–visible spectroscopy (UV-vis), scanning electron microscope (SEM) and transmission electron microscope (TEM). The drug content and encapsulation efficiency of the magnetic nanocomposite were determined by UV-vis method. The results indicated that doxorubicin was loaded on GO-Fe_3O_4-PPy nanocomposite successfully with 74.95 %. The release percentages at different pH values at 24 h were determined as 98.90±0.25 % and 38.63±0.49 % for pH 5.5 and pH 7.4, respectively.

Keywords: graphene oxide, magnetic nanoparticles, polypyrrole, anticancer drug, drug delivery

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➢ **ORAL PRESENTATION**

Tersakan Çayı'ndan izole edilmiş olan *Synechocystis* sp. siyanobakterisinin sekonder metabolitlerinin incelenmesi

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Özet

Siyanobakteriler deniz, tatlı su ve karasal habitatlarda bulunan fotosentetik bir bakteri grubudur. Sahip oldukları metabolitler sayesinde birçok ortama uyum sağlayabilmişlerdir. Siyanobakterilerden elde edilen sekonder metabolitler ve biyokütle hem besin desteği (Koller vd., 2012), biyoyakıt, biyofertilizer (Singh vd., 2016) olarak hem de antimikrobiyal (Chauhan vd., 2010; Swain vd., 2017) ve antikanser ajan (Dembitsky ve Rezanka 2005, Nowruzi vd., 2018) olarak kullanılmaktadır. Bu çalışma kapsamında Amasya il sınırlarında bulunan Tersakan Çayı'ndan 2018 yılı Haziran ayında örnekleme yapılarak izolasyon gerçekleştirilmiştir. Yapılan izolasyondan elde edilen tek hücreli saf bir suşun tanımlanması yapılarak biyolojik aktivitesi ve metabolitleri araştırılmıştır. İzolatın morfolojik ve moleküler tanımlaması sonucunda %98.6 benzerlik oranıyla *Synechocystis* sp. cinsine ait bir tür olduğu belirlenmiştir. Biyolojik aktivite ve metabolit analizi için BG11 besiyerinde gerçekleştirilen büyük ölçekli kültivasyon sonrasında metanol ile ekstraksiyon gerçekleştirilmiştir. Minimum inhibisyon konsatrasyonunun belirlenmesine dayanan antimikrobiyal aktivite çalışması sonucunda ekstraktın bazı Gram pozitif, Gram negatif bakteriler ve mayalar üzerinde antimikrobiyal aktiviteye sahip olduğu belirlenmiştir. Ekstraktın ABTS radikalini süpürme aktivitesi için IC_{50} değeri 1,42 mg/ml olarak belirlenmiştir. Metabolitlerin analizi için tercih edilen GC MS analizi sonucunda 17 adet metabolit belirlenmiş ve bu metabolitlerin (yağ asitleri, alkoloidler, terpenoidler vb.) biyolojik aktiviteleri desteklediği görülmüştür.

Anahtar Kelimeler: Siyanobakteri, biyolojik aktivite, antimikrobiyal, antioksidan, sekonder metabolit

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➢ **ORAL PRESENTATION**

Iron and zinc determination in dietary supplements by atomic absorption spectrophotometry

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Abstract

Iron and Zinc play an essential role in biologic systems. Iron, constitutes a most important component of blood, which allows oxygen transport. Moreover, it takes part of other hemproteins such as, cytochromes, myoglobin, catalase, and peroxidases. Iron deficiency is one of most common nutritional deficiencies in the world with over 2 billion people suffering of that. Beside, Zinc is essential for many metalloproteins, specific enzymes with about 25% of the world population under its deficiency risk. In this research, three different (commercially available) Iron dietary supplements are analyzed by Furnace Atomic Absorption Spectrometry. One of the dietary supplement was including also Zinc element. The dissolution of samples have performed three different methods respectively; acidic dissolution, wet acidic digestion and microwave-assisted leaching. Linearity, precision, accuracy and robustness of the method have been determined. Moreover detection and quantification limits have been calculated.

Keywords: Iron, Zinc, Atomic Absorption Spectrophotometry, Validation.

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➢ **ORAL PRESENTATION**

Cam boncuk üzerine kaplanmış TiO_2 nanoparçacıkların fotokatalitik etkinliğinin incelenmesi

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Özet

Endüstriyel atıksularda bulunan organik kirleticilerin giderilmesine yönelik biyolojik, kimyasal ve fiziksel yöntemler geliştirilmiş olmakla birlikte özellikle yüksek COD ve düşük BOD içeriğine sahip renkli tekstil endüstrisi atıksularının arıtılmasında bu yöntemler yetersiz kalmaktadır. Bu nedenle son yıllarda azo boyarmaddeler gibi biyolojik olarak parçalanamayan bileşiklerin giderimine yönelik heterogen ileri oksidasyon prosesleri geliştirilmiştir.TiO_2 fotokatalizörünün yaygın olarak kullanıldığı bu proseslerin temeli UV ışını varlığında hidroksil radikali ($OH^{\cdot}$) oluşumuna dayanmaktadır. TiO_2 fotokatalizörünün süspansiyon halinde kullanılması durumunda reaksiyon sonunda ayırma işlemi ek bir maliyet ve süre gerektirdiğinden TiO_2'in cam gibi inert yüzeyler üzerine tutturularak kullanılması önem kazanmaktadır. Bu çalışmada cam boncuk üzerine kaplanmış TiO_2 nanoparçacıkları kullanılarak Reaktif Red 239 (RR239) azo boyarmaddesinin fotokatalitik olarak renk giderimi giderimi incelenmiştir. RR239 boyarmaddesinin renk giderimine pH, RR239 derişimi ve ışın kaynağı gibi işletme parametrelerinin etkileri araştırılmıştır. 20 ppm RR239 çözeltisi kullanılarak yapılan deneylerde renk giderimine pH etkisinin pH 3> pH 5> pH 7> pH 9 olduğu belirlenmiştir. RR239 boyarmaddesinin başlangıç derişimi arttıkça renk gideriminin azaldığı gözlenmiştir. UV ışını yerine güneş ışığı kullanıldığında 20 ppm derişimindeki RR239 çözeltisi ile 180 dakika sonunda % 100 renk giderimi elde edilmiştir.

Anahtar Kelimeler: TiO_2, RR239, fotokatalitik

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➢ **ORAL PRESENTATION**

Investigation of phase change properties of encapsulated oleic acid-hexadecane eutectic mixture

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Abstract

Oleic acid and n-hexadecane mixtures as phase change materials (PCMs) which have the different compositions were prepared and encapsulated by inverse emulsion polymerization technique for the thermal regulation of buildings via thermal energy storage. The eutectic phase transition temperature of OA and HD mixtures in addition to latent heat storage capacity were determined. Thermal storage properties of encapsulated eutectic mixture were determined by differential scanning calorimetry and also thermal stability was investigated by thermogravimetric analysis. The chemical structure of sample was analyzed by Fourier transform infrared spectroscopy (FT-IR). The analysis results demonstrated that encapsulation of oleic acid and n-hexadecane was performed successfully. The obtained material is the potential candidate for application for energy storage in buildings with thanks to its suitable phase transition temperature besides to latent heat storage capacity.

Keywords: Thermal energy storage, PCM, oleic acid, n-hexadecane.

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➢ **ORAL PRESENTATION**

Natural material and natural material additive alginate based microcurrent synthesis and malahite green removal from wastewaters

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Abstract

Wastewater with a high concentration of dye contains, such as the textile industry, has negative effects on the environment and human health in receiving environment. In the natural environments in which they are discharged, they reduce the light transmittance and cause eutrophication and deterioration of ecological balance. Therefore, it is necessary to treat such industrial wastewater before discharge. Adsorption is an effective and easy method for dye removal. In this study, the removal of malachite green dye from wastewater by using montmorillonite, red mud, natural material added sodium alginate based microspheres as adsorbent by adsorption method was investigated. To determine the optimum adsorption conditions, different adsorbent doses, different initial dye concentrations and adsorption experiments with different contact times were carried out. In the adsorbent dose study with natural montmorillonite and red mud, the highest yield was calculated as 99.14% and 97.72% respectively, the highest yield in contact time study was 98.12% and 97.06%, and the highest efficiency was 98.14% and 87.9% in the initial concentration study. The highest efficiency was 75.36% and 43.64% in the adsorbent dose study with montmorillonite and red mud added sodium alginate based microsphere, the highest efficiency in the contact time study was 41.66% and 33.12%, and the highest efficiency was 31.12% and 21.42% in the initial concentration study. . When the adsorption isotherms were examined, it was observed that the adsorption adapted to the Langmuir isotherm model in the studies in which montmorillonite and red sludge were used without additives, and the Freundlich isotherm model in the studies conducted with the microsphere with red mud and montmorillonite. Looking at the high removal efficiencies, it has been seen that there are alternative adsorbent materials suitable for use in the removal of montmorillonite and red mud malachite green.

Keywords: Adsorption, malahite green, montmorillonite, red mud, sodium alginate, microsphere.

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➢ **ORAL PRESENTATION**

The heavy metals lead and cadmium activate antioxidant defences in barley and wheat

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Abstract

Due to rapid development in technology and globalization, heavy metals (HM) can accumulate in soil, air and water. Accumulated HMs in the earth can be transported to multicellular higher organisms, beginning with plants and this accumulation not only affects plant productivity, but also causes some more serious health problems for animals and humans in the food chain. HMs are known as agents for oxidative stress by formation of Reactive Oxygen Species (ROS). Antioxidant defense systems in plants play a crucial defense against oxidative stress, and these responses could therefore be used as early biomarkers of HM toxicity. Therefore, in this study we have examined whether antioxidant defense responses are reliable indicators of the toxicity of the HMs Cd and Pb in two crop plants. With the application of different single (0, 150, 300 µM) and combined (0, 150 + 150, 300 + 300 µM) concentrations of $CdCl_2$ and $PbCl_2$ treatments on contents of glutathione (GSH), protein and glutathione *S*-transferase (GST) activities were investigated in the roots and shoots of *Hordeum vulgare* cv. Çıldır and *Triticum aestivum* cv. Gerek. Results indicate that, HMs had an effect on the tested parameters. Variability in results reflecting differences in the rate of metabolism with regard to HMs between varieties. Although, general adaptability to stress conditions can be mentioned, due to high GSH and GST values observed in plants examined.

Keywords: Antioxidant mechanisms, crops, heavy metals, oxidative stress.

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➢ **ORAL PRESENTATION**

Influence of heavy metals cadmium and lead on plant physiological mechanisms in wheat and barley

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Abstract

While the need for healthy food increases in the world day by day, there are many constrictions for human being to reach it. Beside increasing population growth, variable types of environmental pollution also threaten mankind seriously. As one of the major causes of environmental pollution, heavy metals (HMs) accumulate in soil, air and water increasingly, due to wrong agricultural applications, disposal of sewages, progress in industry and related sectors. The **existent** food webs among living organisms affects them negatively at this stage, because influenced plants transferred to others by consumption and this may cause detrimental results in humans. To eliminate the risk factors from human diets, we have examined whether physiological parameters are reliable indicators of oxidative stress in two different crop plants *Triticum aestivum* cv. Gerek and *Hordeum vulgare* cv. Çıldır from Central Anatolia in this study. To determine the impacts of different HMs, selected concentrations (0, 150, 300 µM) of $PbCl_2$, $CdCl_2$ and $PbCl_2$+$CdCl_2$ combinations were applied and germination percentage, root and shoot lengths and water contents are compared with control samples for each species. In conclusion, all parameters decreased significantly after HM treatments by comparing to control groups, due to initiation of oxidative stress.

Keywords: Crops, Germination, Heavy metals, Root-shoot lengths, Water contents.

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➢ **ORAL PRESENTATION**

Kanserin biyokimyasal mekanizmaları

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Selçuk Üniversitesi, Veteriner Fakültesi, Biyokimya Anabilim Dalı, Konya, Türkiye

Özet

Kanser; normal hücre büyümesi ve farklılaşmasını sağlayan mekanizmalar üzerindeki kontrolün kaybolması sonucu, hücrelerin kontrolsüz ve sınırsız çoğalmasıdır. Karsinogenez olarak tanımlanan aşamalarda, genetik ve çevresel faktörlerin etkisi altında uzun ve çok basamaklı biyokimyasal değişiklikler şekillenir. Genetik faktörler içerisinde; hücre bölünmesini kontrol eden genler, DNA tamir genleri ve apoptoz molekülleri ile bunları kontrol eden genlerdeki istenmeyen değişiklikler gerçekleşirken çoğunlukla hücre bölünmesi ve farklılaşması üzerinde görevli protoonkogenler ile bunların faaliyetlerini kontrol altında tutan tümör baskılayıcı genlerde mutasyon, sinyal iletim mekanizmalarında bozukluk ve apoptoz mekanizmasında yetersizlikler şekillenmektedir. Beslenmeden fiziksel ajanlara, immünolojik değişikliklerden biyolojik ajanlara, kimyasal maddelere ve epigenetik modifikasyonlara kadar birçok etmen de karsinogenezde çevresel faktörleri oluşturmaktadırlar.

Kanser, tedavisi zor olan bir hastalıktır. Bunun en önemli nedenleri arasında; kanser hücrelerinin tek bir metabolik yolu kullanmaksızın farklı mekanizmalar sayesinde hayatta kalmayı başarması ve sürekli yayılım özelliğine sahip olmaları yer almaktadır. Kanserle mücadelede en önemli hedef bu metabolik yollara müdahale edilmesidir. Kanser hücrelerinin metabolik özelliklerinin belirlenmesi, hücre bölünmesi ve farklılaşmasında rol alan genetik ve çevresel etmenlerin incelenmesi, önümüzdeki yıllarda kanserde yeni tedavi seçeneklerinin geliştirilmesi bakımından önemlidir. Bu sunum, kanserin oluşum mekanizmalarını ve nedenlerini biyokimyasal temelleri ile ele alarak bilgi vermeyi amaçlamaktadır.

Anahtar kelimeler: karsinogenez, protoonkogen, onkogen, mutasyon, apoptoz.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Crystal viole removal study with natural and biochar pirina from aqueous solutions

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Abstract

Crystal Viole is an inexpensive dyestuff used for silk, leather, paper dyeing and for many different purposes. In addition, culture staining is also frequently used in microbiology. It has a very dense and sticky dye. When the crystal viole dissolves in water, it significantly reduces the light transmittance and disrupts the natural environment balance. Adsorption is a method frequently used in the removal of such dyes. In this study, as an industrial waste, pirina was used as an adsorbent substance with its natural and thermally modified form. By using the pyrolysis method at 700 °C, biochar form of pirina was obtained. Natural and biochar pirina and crystal violet dye have been tried under different adsorption conditions. For this purpose, experiments were carried out at different pirina dosages, different initial dye concentrations and different contact times. The highest removal efficiencies are around 75% in natural pirina, while the biochar is around 98% in pirina. In addition, concentration studies performed against concentration were applied to the Langmuir and Freundlich isotherms and it was found that the adsorption was fit with the Freundlich model. The contact time removal studies were applied to pseudo-first order, pseudo-second order and intraparticle diffusion kinetic models, and adsorption was found to be fit with the pseudo-second order kinetic model. According to the results of the experiment, it was observed that the thermal treatment caused a great increase in the removal efficiency and it was found that it is an efficient adsorbent material that can be used to remove the crystal viole dye from the aqueous solutions.

Keywords: Adsorption, biochar, crystal viole, dye removal, isotherms, kinetics.

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➢ **ORAL PRESENTATION**

Nonspecific and substrate affinity immobilization of pectinases from model mixture on magnetic support

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Abstract

In this study, the effect of surface characteristics of support on adsorptive immobilization of enzymes was investigated. A comparative study on pectinase immobilization using non-modified and pectin coated magnetic nanoparticles as a support was conducted. Initially, magnetic nanoparticles were synthesized by co-precipitation method under inert atmosphere at room temperature. The pectin coated magnetic nanoparticles were produced under the same conditions by simultaneous synthesis-coating in the presence of % 0.5 w/v pectin solution. Magnetic nanoparticles were characterized by X-ray powder diffraction (XRD), Fourier transform infrared spectroscopy (FTIR) and Thermogravimetric analysis (TGA). Fungal pectinase and Bovine Serum Albumin (BSA) were used individually and in combination as model proteins in immobilization studies. The effect of pH (2.33, 3.00, 3.50, and 4.00) considering isoelectric point (pI) of proteins and immobilization time (20 min, 1 hour) was investigated. Protein concentration was measured by Bradford Assay. Pectinase activity was estimated by monitoring the increase of reducing sugar concentration by DNSA method. Immobilization efficiency was calculated based on protein loading and pectinase activity of magnetic particles. Optimum conditions were determined as pH 3.50 and 1 h. A model mixture containing the enzyme and BSA was used for selective immobilization of pectinases on naked and substrate coated magnetic nanoparticles. Protein immobilization yields of pectin coated magnetic nanoparticle and magnetic nanoparticle were determined as 61.76% and 98.03%, respectively. The immobilization of enzyme resulted in significant increase in specific activity (free 9.46 U/mg) for both non-modified and modified magnetic support. Utilization of substrate affinity during immobilization improved the specific activity three folds (29.86 U/mg) while nonspecific immobilization resulted in two folds (19.56 U/mg) increase.

Keywords: Magnetic support, Pectin coated magnetic particles, Pectinase, Immobilization, Substrate affinity

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➢ **ORAL PRESENTATION**

Lactobacillus delbrueckii subsp. bulgaricus upregulates prostaglandin E2 production and downregulates cell migration of human bone marrow mesenchymal stem cells

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Abstract

Lactobacillus delbrueckii subsp. bulgaricus was first isolated from a fermented milk product in 1905 in Bulgaria. Thereafter, *L. delbrueckii subsp. bulgaricus* was used to treat "sour milk" for constipation, diarrhea and other gastrointestinal complaints, it was the first "modern" use of probiotics. Probiotics are generally assumed to affect systemic immunity by interacting with immunoregulatory cells in the mucous membrane of the lamina propia, in the epithelial layer and in the intestinal-associated lymphoid tissue. Mesenchymal stem cells (MSC) promote tissue repair and regeneration through modulation of the immune response and secretion of growth factors. It's well known, human bone-marrow mesenchymal stem cells (hBM-MSC) having the capacity to possess broad immunoregulatory capabilities. In this study we investigated the immunomodulatory effects of *L. delbrueckii subsp. bulgaricus* soluble factors on hBM-MSC in terms of PGE2 production. For this, *L. delbrueckii subsp. bulgaricus* was incubated at 37ºC overnight in DMEM-LG medium until OD_{600}:0,2-0,3. Then, the bacterial supernatant were filtered, and hBM-MSCs were cultured for 72 h with 1:1 diluted bacterial supernatant. Subsequently, conditional medium (CM) was obtained after 48 h, and PGE2 levels were determined by ELISA. Also, the effect of bacterial supernatant on cell migration was determined by wound healing assay. In addition, the proliferative effect of CMs of hBM-MSC on human lymphocytes was determined by MTT assay. According to our results, the bacterial soluble factors increased the PGE2 production of hBM-MSC and suppressed cell migration ability compared to control. In addition, there is no proliferation responses of lymphocytes cultured with CM of hBM-MSC treated with these soluble factors. In conclusion, the soluble factors of *L. delbrueckii subsp. bulgaricus* could contribute to immunomodulatory potentials of hBM-MSCs.

Keywords: *Lactobacillus bulgaricus*, probiotic bacteria human bone-marrow mesenchymal stem cells, PGE2, Immunomodulation.

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➢ **ORAL PRESENTATION**

Synthesis of Poly (2-[2-Methoxyethoxy] ethyl methacrylate) brushes on titanium dioxide surfaces

Ertan Yildirim

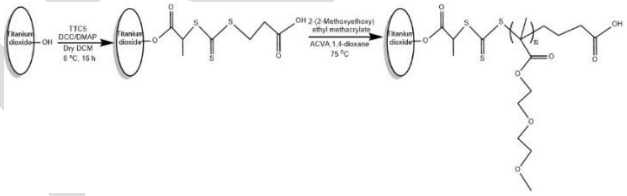
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Abstract

Polymer brushes are briefly called polymer chains that grow on any substrate. Controlled / living polymerization techniques are generally used in the synthesis of polymer brushes. Atom Transfer Radical Polymerization (ATRP), Nitroxide Mediated Polymerization (NMP) and Reversible Addition Fragmentation Transfer Radical Polymerization (RAFT); known as controlled / living polymerization techniques. Especially in RAFT technique, it has important advantages such as no monomer restriction, synthesis under milder conditions and no metal pollution [1]. In polymer brushes synthesized by RAFT polymerization, chain density and grafting parameters can also be easily determined. Polymer brushes synthesized on various substrates are easily used in cell applications, temperature and pH sensitive surfaces, protein adsorption and peptide applications [2]. Temperature sensitive, water soluble polymers have become more attractive for nanotechnology and biotechnology applications due to their low critical temperature. Many studies on phase separation, drug release from hypothermia, and Pickering emulsions have been reported in literature [3]. Poly N-isopropylacrylamide (PNIPAAm), one of the temperature sensitive polymers, has been used in many bio applications because it has an LCST around 32 °C. In addition, new temperature sensitive water-soluble hydrophilic groups continue to be developed in polymers containing oligo ethylene. PEG is used for no-load, water-soluble and biocompatible materials [4]. Temperature sensitive polymers can be easily synthesized thanks to the ethylene glycol structures in the suspended groups of the polymer chains [4].

In this study, Poly (2-[2-Methoxyethoxy] ethyl methacrylate) brushes were synthesized on titanium dioxide surfaces. Hydroxyl groups were formed on the titanium dioxide surfaces by wet etching using the uv-ozone technique. The RAFT agent suitable for methacrylate type monomers was covalently bound to these hydroxyl terminated surfaces by esterification reaction. Poly [2-(2-Methoxyethoxy) ethyl methacrylate] brushes were synthesized with the interface-RAFT polymerization technique on RAFT agent bound surfaces. Each stage was characterized by water contact angle measurements, ellipsometer and XPS.



Keywords: RAFT polymerization, polymer brushes, 2-(2-Methoxyethoxy) ethyl methacrylate

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➢ **ORAL PRESENTATION**

The effect of phenolics on the gasification of *Sorghum* hydrolysate

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Abstract

In this study, the effect of the change in phenolics on the gasification was investigated depending on the time in the hydrolysates of the sorghum plant obtained by water extraction. The total phenolic compound amounts of the *Sorghum* hydrolyzate were determined by the Folin-Ciocalteau method. Total amounts of phenolic compounds did not show significant changes during the first weeks. It was observed that the total amount of phenolic compounds of sorghum hydrolysates showed changes monthly (300-400 ppm). The 40-50 mL gas volume was obtained when the hydrolysates were gasified. It is seen that H_2, CO, CO_2 and CH_4 gases are mainly formed when the gas composition was examined. The results showed that the descrease in total phenolic compound content of sorghum hydrolysate had no significant effect on gasification, depending on the time.

Keywords: Phenolics, *Sorghum*, gasification, biomass.

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➢ **ORAL PRESENTATION**

Photocatalytic hydrogen evolution by tungsten based ternary metal selenide

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Abstract

The hydrogen evolution reaction (HER) from water splitting via photocatalytic and photoelectrochemical techniques recently is one of the most promising clean energy production methods. Tungsten sulfide is well-known as HER catalyst an alternative to Pt. The changes of morphological properties of Cu_2WSe_4 (X=S, Se) catalysts may have been resulted in different catalytic activity due to their outstanding properties such as adjustable components, variable structure, diversified morphology and unique electronic structure. Cu_2WSe_4 has been rarely reported for the photocatalytic HER until now. Thus Cu_2WSe_4 nanosheets were synthesized through a facile hot-injection method and have been used as a model for chalcogenide catalyst in the photocatalytic HER under the visible light irradiation by using triethanolamine (TEOA) and eosin-Y (EY) dye as an electron donor and photosensitizer, respectively. It has been founded that Cu_2WSe_4 has been performed efficient photocatalytic activity, which HER rate of Cu_2WSe_4 have been determined 861 $\mu molg^{-1}h^{-1}$.

Keywords: photocatalytic hydrogen evolution, renewable energy, ternary metal selenide

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➢ **ORAL PRESENTATION**

Synthesis, characterization and biological activity assays of rosemary (*Rosmarinus officinalis* L.) extract loaded chitosan nanoparticles as a preservative for meat products

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Abstract

Proper packaging of meat products results in longer shelf life and improves the food quality. Rosemary *(Rosmarinus officinalis L.)* is a plant species widely used in many areas due to its antioxidant, antimicrobial characteristics and phenolic compounds that have radical scavenging properties. The nanoparticles obtained by encapsulating the herbal extracts by nanoencapsulation technique show more stability to environmental conditions, more firm structure than free extracts, and also interact less with other components present in food compared to free extracts. This study aims to synthesize and characterize rosemary extract (RE) loaded chitosan nanoparticles in food packaging to ensure its safety and longevity. In this study, RE was obtained by decoction method and chitosan nanoparticles were synthesized by loading with the extract. According to the characterization results, unloaded chitosan nanoparticles were 57,32 nm in size with 0,065 polydispersity index and 10,9 mv zeta potential value while loaded chitosan nanoparticles with RE were 57,14 nm in size with 0.092 polydispersity index and 10,9 mv zeta potential value. The encapsulation efficiency and the loading capacity calculated as 99.23% and 8% respectively. As a result of *in vitro* release profile experiments, it was determined that chitosan nanoparticles loaded with RE released 37,27% of extract in first 24 hours and release 100% of extract in 120 hours, meanwhile the free extract released was 100% in just 4 hours. The genotoxicity of the RE concentration values obtained as a result of the controlled release test, the amount of released extract at the end of the 5th, 24th and 120th hours were examined with the Ames test. It was concluded that all three concentrations did not show any mutagenic and genotoxic effects. Lastly, the DPPH assay demonstrated that RE exhibits more free radical scavenging activity than synthetic antioxidants such as BHT.

Keywords: Nanoencapsulation, Chitosan, Rosemary Extract, Food Packaging

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➢ **ORAL PRESENTATION**

Synthesis and characterization of NIR laser responsive polymeric nanocomposites

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Abstract

In this study, nitrogen doped graphene quantum dots (N-GQDs)-Fe_3O_4 nanoparticles-polypyrrole (PPy) ternary nanocomposite prepared for the first time in the literature with a three-step approach for photothermal therapy applications. In the first step, photoluminescent N-GQDs nanoparticles with particle size of 2-5 nm were synthesized with a bottom-up approach. In the second step, Magnetic N-GQDs-Fe_3O_4 binary nanocomposite was prepared via co-precipitation of $FeCl_2.4H_2O$ and $FeCl_3.6H_2O$ in N-GQDs aqueous solution. Finally, N-GQDs-Fe_3O_4 nanocomposite surface was coated by PPy polymeric structure with in-situ polymerization of pyrrole monomer. The prepared nanocomposite samples were characterized with fourier transform infrared spectrophotometer (FTIR), UV-visible spectra, field emission scanning electron microscope (FESEM), energy dispersive X-ray spectroscopy (EDX), high resolution transmission electron microscope (HRTEM). X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), vibrating sample magnetometer (VSM). In addition, the photothermal properties were investigated with an 808 nm NIR laser. N-GQDs-Fe_3O_4-PPy ternary nanocomposites have high magnetic properties, excellent stability and superior photothermal properties. The effects of aqueous concentrations (0.025 – 0.1 mg/mL) of nanocomposites and laser power density (1.5 – 2.5 W/cm^2) on photothermal performance of nanocomposite were incvestigated. The maximum temperature difference (Δt_{max}) of the aqueous dispersion of ternary nanocomposite (0.1 mg/mL) reached up to 60.6 ºC at 2.5 W/cm^2 power density for 10 mins of irradiation. In addition, high photothermal conversion efficiency (η= 43.4%) and excellent photothermal stability were obtained. Having excellent photothermal properties, photothermal stability and photothermal conversion efficiency the magnetic N-GQDs-Fe_3O_4-PPy ternary nanocomposite is a promising photothermal agent for photothermal applications such as cancer therapy and antibacterial applications.

Keywords: nitrogen doped graphene quantum dots, polypyrrole, Fe_3O_4 nanoparticles, photothermal applications

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➢ **ORAL PRESENTATION**

Ultrasound-assisted green synthesis of some heterocyclic compounds

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Abstract

New trends in the greener synthesis of inorganic-organic compounds, materials-nanomaterials and hybrids are major areas of interest within the field of chemistry, engineering, material science and many industries. Among them, sonochemistry is a well-known, fast, simple, easy-controllable, economical and environmentally friendly green chemistry tool[1-3]. For organic synthesis reactions, ultrasound energy provides shorter reaction times, higher reaction rates, less by-products, higher selectivity, milder conditions and higher product yields[1-3]. Cavitation effect of ultrasound energy cause the increasement of solubility, diffusivity, penetration and mass transportation of chemicals in organic reactions[1]. Also, ultrasonic energy supports solventless or low amount of solvent mediums[1]. A large number of chemical reactions including heterocyclic compound synthesis, condensation, substitution, addition, protection/deprotection, oxidation/reduction, polymerization, photochemical reactions, metal-catalyzed reactions, one-pot multicomponent processes and MOF formations have been carried out by using ultrasound energy[4].

In this study, we reported the synthesize of some heterocyclic compounds by using conventional reaction conditions and ultrasound energy and comparison of the data including reaction time, product yield, selectivity and by-product formation *etc.* of these two methods.

Keywords: Ultrasound energy, sonochemistry, green chemistry, organic synthesis, heterocyclic compounds.

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➢ **ORAL PRESENTATION**

Determination of the effectiveness of nano silver additive aqueous extract of *Moringa oleifera* L. (Brassicales: Moringaceae) against root lesion nematode [*Pratylenchus thornei* Sher & Allen) Chitwood, 1949 (Nematoda: Pratylenchidae)] under laboratory conditions

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Abstract

Pratylenchus thornei (Sher & Allen) Chitwood, 1949 (Nematoda: Pratylenchidae) is widespread species and caused important damage on cereals, legumes, ornamental plants and vegetables. *P.thornei* is migratory endoparasitic nematodes, which migrate through root tissue and causing extensive root damage. Our objective was to determine the effectiveness of nano silver additive aqueous extract of *Moringa oleifera* L. (Brassicales: Moringaceae) against *P. thornei* under laboratory conditions. *P.thornei* was produced on carrot culture. Nematodes were extracted by petri dish methods and keeping them until using at 4 °C. *P.thornei* suspensions were transferred to the 24 cell plate which has approximately 50±5 nematodes each cell in 100 µl. Nano silver additive aqueous extract of *Moringa oleifera* was prepared and added to each cell at 4 concentration (168 ppm, 84ppm, 42ppm and 21ppm) in 1ml. Distilled water was used as a control. Experiment was set up 6 replicates. All dishes were kept at 20 ±2 °C. The nematode exposed 24, 48,72 and 96 hours in four concentration of *M. oleifera. P. thornei* were considered dead if they did not move when probed with a fine needle. As a result of this experiment, in 48 hours, 168 ppm (90,55± 1,74) and 84 ppm (79,79±1,89) were showed highly promising mortality. Nano silver additive aqueous extract of *M. oleifera* was found effective in reducing *P.thornei*.

Keywords: *Moringa oleifera*, *Pratylenchus thornei*, plant extract, control.

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➢ **ORAL PRESENTATION**

Synthesis and modification of silica nanoparticles and investigation of their cytotoxic properties on human cancer cells.

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Abstract

SiNPs have been synthesized and used in many areas for decades. The aim of this study is to synthesize SİNPs depending on the "Stöber Method" and modified them with Cl ions. Besides, to investigate their cytotoxic properties on several human cancerous and healthy cells including PC-3(prostate cancer), PNT1A(prostate epithelium), HUH-7(liver cancer), NCI-H295R(kidney cancer), A549(lung cancer), HELA(cervical cancer) and DLD-1(colon cancer). SiNPs has been synthesized by using Tetraethyl orthosilicate(TEOS) in basic media. The surface of the silica particles can be modified using chemical treatment with silane coupling agents such as 3-Aminopropyltriethoxy silane (APTES), Chloropropyltriethoxysilane (CPTES), 3-Mercaptopropyltritoxysilane(McPTES). The characterization of the nanoparticles was performed by TEM, DLS, BET and FTIR analyzes. According to the results of the TEM, nanoparticles were observed to have a spherical structure and TEM results was found size of the SiNPs 10.027±2.478 nm and SiNP-Cls 11.2±2.576 nm. 7 different cancer cells were used to determine the cytotoxic effects of SiNPs and SiNP-Cls. PC-3(prostate cancer), PNT1A(prostate epithelium), HUH-7(liver cancer), NCI-H295R(kidney cancer), A549(lung cancer), HELA(cervical cancer) and DLD-1(colon cancer) were grown in DMEM, RPMI-1640, DMEM F12, F12K, EMEM growth media respectively and 37°C and 5% CO_2 conditions. Cells grown in 96-well plates were treated with varying values of SiNP and SiNP-Cl at a concentration range of 0-250 µg/mL. SiNP (IC_{50}:90 µg/mL) and SiNP-Cl (IC_{50}:95 µg/mL) have the highest toxic effect in the PC-3 cell. As a result, SiNPs significantly and selectively inhibited proliferation of PC-3 cells, which might be an alternative agent for the treatment of prostate cancer.

Keywords: Silica Nanoparticles, Functionalization, Cytotoxicity, TEM, FTIR

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➢ **ORAL PRESENTATION**

Kedi ve köpeklerde yaygın olarak görülen bazı zehirlenmeler

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Özet

Kedi ve köpeklerin yaşam alanlarında bulunan kimyasallarla sıklıkla zehirlendikleri bildirilmektedir. Zehirlenme şüphesi ile kliniğe getirilen olgularda hasta sahibinden alınacak bilgilerle muhtemel maruz kalınan zehir için ipuçları elde edilebilir. Hastanın fiziksel muayenesi ve laboratuvar muayeneleri etkilenen organ sistemlerinin belirlenmesi ve ayırıcı tanıya yönelik tetkiklerin listesini oluşturmada yararlıdır. Bu makale kapsamında kedi ve köpeklerde karşımıza çıkan zehirlenme olgularında başlıca sağaltım uygulamalarından hastanın hayati bulgularını stabilize etme, zehirin vücuttan atılmasını destekleme, destekleyici ilaçların uygulanması, zehire karşı varsa antidotunun uygulanması ve hastanın yakından izlenmesi konusunda hem hayvan sahiplerine hem de klinisyen veteriner hekimlere yararlı olacak önemli bilgiler açıklandı. Ayrıca bu çalışmada kedi ve köpekler için önemli olan bazı özel zehirlerden pıhtılaşmayı engelleyen rodentisitler, kolekalsiferol, kolinesterazı baskılayan insektisitler, piretrinler ve piretroitler, steroit türevi olmayan yangı giderici ilaçlar, etilen glikol başta olmak üzere ek olarak evlerde kullanmakta olduğumuz çok sayıdaki kimyasal maddeye maruz kalmaları durumunda gelişen klinik bulgular, tanı ve sağaltım uygulamaları hakkında ayrıntılı bilgiler sunuldu.

Anahtar Kelimeler: Kedi, köpek, zehirlenme, klinik bulgular, sağaltım yaklaşımları.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Piyometralı köpeklerin adenozin deaminaz aktivitesi ve bazı biyokimyasal parametrelerle karşılaştırılması*

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Özet

Sunulan çalışmanın amacı; piyometralı köpeklerin uterus içeriğinin adenozin deaminaz aktivitesi ile bazı biyokimyasal parametreleri (Albumin, ALT, ALP, AST, Glukoz, Kreatinin, Total Bilirubin, Total Protein, Üre) karşılaştırılmasıdır. Çalışmanın materyalini, klinik ve ultrasonografik muayene ile piyometra tanısı konulan değişik yaş ve ırklardaki 7 köpek oluşturdu. Anamnez ve muayene bilgileri kayıt altına alındıktan sonra operasyon öncesi anılan biyokimyasal parametreleri ve tam kan bulgularını saptamak amacıyla antikoagulanlı ve antikoagulansız tüplere kan alındı. Antikoagulanlı tüpe alınan kandan hemogram cihazıyla tam kan bulguları belirlenirken, diğer tüpteki kandan serum çıkarılarak biyokimyasal analizler yapıldı. Adenozin deaminaz aktivitesini belirlemek için uterus içi irinden 2 ml alındı ve 8 ml serum fizyolojikle karıştırıldı. Elde edilen karışım gazlı bezden süzdürüldükten sonra sanrifüje edildi. Süpernatant kısmı özel bir laboratuvarda fotometrik yöntemle analiz edildi. Ovariohisterektomi operasyonundan 7 gün sonra tekrar kan alınarak aynı serum biyokimya ve kan parametreleri değerlendirildi. Operasyon öncesi serum albumin, ALT, ALP, AST, glukoz, kreatinin, total bilirubin, total protein, üre seviyeleri sırasıyla ortalama 3.4 g/dl, 67.1 U/I, 48.9 U/I, 51.9 U/I, 98.4 mg/dl, 0.9 mg/dl, 0.2 mg/dl, 6.4 g/dl, 29.66 mg/dl olarak belirlendi. Bu değerler operasyon sonrası sırasıyla ortalama 3.33 g/dl, 51.44 U/I, 42.14 U/I, 37.43 U/I, 98.86 mg/dl, 0.79 mg/dl, 0.29 mg/dl, 6.47 mg/dl, 23.67 mg/dl olarak saptandı. Operasyon öncesi ve sonrası elde edilen bulguların istatistiksel analizinde Neu%, Lym%, Bas%, HCT, RDWSD, PLT, WBC, Neu, Mon, Eos ve HGB değerlerinde istatistiksel fark bulunurken ($p<0.05$), diğer parametrelerde farka rastlanmamıştır ($p>0.05$). Uterus içeriğinde ortalama adenozin deaminaz aktivitesi 27.16 U/L olarak belirlendi. Adenozin deaminaz aktivitesi ile ALP (r:0.815, p:0.026), Bas% (r:0.777, p:0.046) ve PLT (r:0.853, p:0.015) arasında pozitif yönlü korelasyon saptanmıştır. Çalışmanın bulgularıyla piyometralı köpeklerin uterus akıntılarındaki adenozin deaminaz aktivitesi ilk kez belirlenmiş ve bazı parametrelerle ilişkisi ortaya konulmuştur. Ayrıca piyometralı köpeklerin bazı serum biyokimya ve kan parametre verilerine katkıda bulunulmuştur.

Anahtar Kelimeler: Adenozin Deaminaz Aktivitesi, köpek, piyometra, serum biyokimyası, tam kan bulguları.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of block-graft copolymers by ATRP-ROP polymerization techniques

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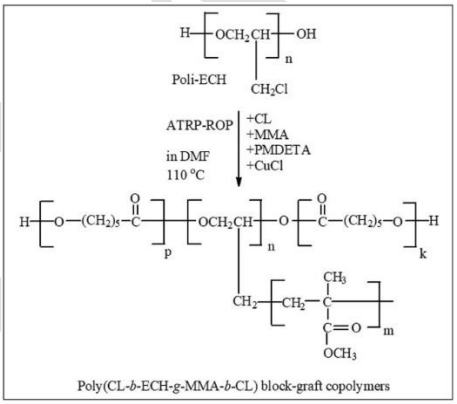
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Abstract

Macrointermediates such as macroinitiators, macromonomers, and macrocrosslinkers have been widely used for preparing various block and graft copolymers and their networks via a radical initiated process **[1]**. Atom transfer radical polymerization (ATRP) is one of the most common living/controlled radical polymerization techniques used to synthesize block and graft copolymer **[2]**. In recent years, the one-step process has been successfully used for the synthesis of block and graft copolymers using different techniques. Thanks to such different techniques, different monomers are combined in the same polymer molecule. Such block-graft copolymers can be used in a variety of application areas **[3]**.

In this study, poly(CL-*b*-EPCH-*g*-MMA-*b*-CL) block-graft copolymers were synthesized by a combination of atom transfer radical (ATRP) polymerization and ring-opening polymerization (ROP) methods using a dual-functioning polyepichlorohydrin (poly-EPCH) macro initiator. The block length of the block copolymers could be adjusted by changing various parameters such as monomer and initiator concentrations and the polymerization time. The characterization of the products was achieved using ^{1}H-NMR, FT-IR, GPC, DSC, TGA, SEM and fractional precipitation techniques.



Scheme 1. Chemical synthesis of poly(CL-*b*-EPCH-*g*-MMA-*b*-CL) block-graft copolymers.

Keywords: Atom transfer radical (ATRP) polymerization; ring opening polymerization; polyepichlorohydrin macro initiator;

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➢ **ORAL PRESENTATION**

Sıçanlarda lipopolisakkaritle oluşturulan böbrek hasarına karşı apilarnilin koruyucu etkilerinin otofajik yönden değerlendirilmesi

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Özet

Bir erkek arı larvası özütü olan apilarnilin arı sütü gibi antiviral, bağışıklık sistemini destekleyici, anabolizma uyarıcı ve vücudun rejeneratif gücünü arttırıcı özellikleri vardır. Bu çalışma lipopolisakkarit ile indüklenen böbrek hasarına karşı apilarnilin koruyucu etkisini, otofojik belirteçler olan LC3, Beclin 1 ve P62'nin immünohistokimyasal değerlendirilmesi ile ortaya koymayı amaçlamıştır. Çalışma için 32 adet adet Sprague- Dawley cinsi yetişkin erkek sıçan olmak üzere dört grup oluşturuldu. Bunlar: kontrol grubu, oral gavaj yolu ile 0,8 g/kg vücut ağırlığı (v.a.) apilarnil (API) uygulan grup, intraperitoneal olarak 30 mg/kg v.a. lipopolisakkarit (LPS) uygulanan grup ve LPS + oral gavaj yolu ile 0,8 g/kg v.a. API uygulanan grup. Apilarnil 10 gün boyunca uygulandıktan 60 dakika sonra LPS verildi. Çalışma sonunda alınan böbrek dokularından elde edilen kesitlerde immünohistokimyasal boyama yapıldı. LC3 ifadesi 0,8 g/kg API uygulanan gruba göre LPS grubunda anlamlı şekilde baskılandığı görüldü ($P<0.05$). Beclin1 yönünden gruplar arasında herhangi bir farklılık olmadığı gözlendi ($P>0.05$). LPS grubunda P62'nin diğer tüm gruplardan anlamlı olarak yüksek olduğu gözlendi. Bu yüksekliğin apilarnil uygulanması ile birlikte düştüğü tespit edildi ($P<0.05$). Sonuç olarak, sağlıklı bir böbrekte arttığı bilinen otofajinin LPS ile baskılandığı ve apilarnil ile bu durumun tersine çevrilerek koruyucu etkinliğinin olduğu gözlenmektedir.

Anahtar Kelimeler: LPS, böbrek hasarı, apilarnil, otofaji, sıçan

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➢ **ORAL PRESENTATION**

H_2 adsorption comparison of micro- and mesoporous carbon-based adsorbents

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Abstract

Hydrogen is one of the most important renewable resources that can meet the energy need without affecting global climate change. In addition, the calorific value of hydrogen is three times higher than petroleum products. The US Department of Energy (DOE) has determined that the minimum gravimetric density for hydrogen storage systems should be 5.5 wt.%. Some methods for storing hydrogen are widely studied in the literature: cryogenic, high pressure compression and physical, chemical or compounding to solid matter. Among these methods, there are some advantages of storage hydrogen in porous materials. Among them, they can be given as rapid adsorption and desorption kinetics, no need for energy to release hydrogen and high hydrogen storages at low pressures and temperatures. The most important factor for the hydrogen storage in carbon materials is the weak van der Waals forces. Therefore, the higher of ultra micropore in the adsorbents increases the stronger hydrogen-adsorbent surface interaction and provides higher adsorption capacity. Within the scope of the information mentioned above, in this study, three different adsorbents with high pore and surface area have been produced by chemical activation. The relationship between the surface area of these adsorbents and the micropore volume with hydrogen adsorption has been explained. The highest H_2 adsorption was found to be 2.60 wt.% at 77 K and ambient pressures.

Keywords: H_2 adsorption, carbon based materials, Chemical activation, micro-mesoporous.

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➢ **ORAL PRESENTATION**

Bifunctional magnetic microparticles: Enzyme adsorption and antimicrobial effect

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Abstract

Micron-sized magnetic particles currently find a wide range of applications in many areas including biotechnology, biochemistry, colloid sciences, and medicine. In this study, magnetic Poly(Glycidyl methacrylate), Poly(GMA), microparticles were synthesized by providing a polymerization around Fe(II)-Ni(II) magnetic double salt. In the next step, the nicotinamide (NAA) molecule was bound as a ligand, and Cu(II) ions were immobilized to the polymeric structure. For the characterization of m-Poly(GMA)-NAA-Cu(II) microparticles; Fourier Transform Infrared Spectroscopy (FT-IR), Scanning Electron Microscopy (SEM), thermal, surface area, elemental, Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES), confocal microscope, and Computer Microtomography (μCT) analyses were performed. Adsorption of lysozyme protein from aqueous systems was studied with these particles. The adsorption capacity of the particles was investigated, and a value of about 95.6 mg/g was obtained. Antimicrobial properties of the particles were also investigated and, six different microorganisms were used. The particles showed antimicrobial activity for all microorganisms.

Keywords: Antimicrobial, Copper, Immobilization, Magnetic, Microparticle, Polymer.

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➢ **ORAL PRESENTATION**

Cytotoxic and antiapoptotic properties of kaempferol in colon cancer cells

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Abstract

Cancer is the second leading cause of death in the world and our country. Colon cancer is common disease-causing morbidity and mortality and constitutes 10% of cancer deaths in the world. Herbal cancer medicines attract much attention due to their safety and low side effects. One of these herbal ingredients is the flavonoid compound Kaempferol, which has a large number of pharmacological activities. This study aims to investigate the cytotoxic and apoptotic properties of Kaempferol on human colon cancer (CRC). For this purpose, the cytotoxic effects of Kaempferol on colon cancer were investigated on CRC cell line; DLD-1 and healthy colon epithelial cell line; CCD-18Co. The cytotoxic effect of Kaempferol was found from the IC_{50} value obtained from the sigmoidal plot of cell inhibition using the Alamar Blue reagent. The alteration in apoptotic rates of the cells were investigated by using Annexin V-APC and 7-AAD dyes with the flow cytometer. Expression of Bax, Bcl-2, Nf-κb proteins in DLD-1 cells was determined by the western blot technique. Kaempferol showed a pronounced cytotoxic effect on DLD-1 cells. Considering the IC_{50} value, the toxic effect of Kaempferol for DLD-1 cell was found as 49.55 µM while no significant toxic effect was observed on CCD-18Co cell. Besides, Kaempferol dragged DLD-1 cells to apoptosis and increased especially early apoptosis (47%, $p < 0.001$). When protein expressions were examined, Bax protein expression, Nf-κb protein expression was significantly increased. Bcl-2 protein expression is significantly reduced.

As a result, Kaempferol showed significant inhibition of DLD-1 cell viability compared to control group cells. Besides, it terminated the cell viability by dragging the DLD-1 cells to apoptosis. These results suggest that Kaempferol may be a significant candidate for the treatment of human colorectal carcinoma.

Keywords: Kaempferol, Colon cancer, Apoptosis, Protein expression

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➢ **ORAL PRESENTATION**

Işık Dağı (Ankara – Çankırı) briyofit florası

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Özet

Floristik çalışmalar, biyolojik çeşitliliğin belirlenmesinde önemli bir yere sahiptirler. Türkiye'nin bütün çiçekli bitkilerini kapsayan Türkiye ve Doğu Ege Adaları Florası 11 cilt halinde yayınlanmış olmasına rağmen, maalesef ülkemiz briyofit florası henüz yazılamamıştır. Bu çalışma ile pek çok endemik ve tehlike altında çiçekli bitki taksonunu barındıran Ankara'nın Kızılcahamam ilçesi ile Çankırı'nın Çerkeş ilçesi arasında kalan Işık Dağı'nin briyofit florası ortaya çıkarılmaya çalışılmıştır. Çalışma kapsamında Haziran - Ekim 2019 tarihleri arasında çalışma bölgesine 2 arazi çalışması gerçekleştirilmiş olup, arazi çalışmalarında alanının vejetasyon tipinin, coğrafi yapısının, deniz seviyesinden yüksekliğinin ve su durumunun farklılığına bağlı olarak, oluşan habitat çeşitliliği göre, bölgede belirlenen 29 farklı lokaliteden yaklaşık 450 briyofit örneği toplanmıştır. Çalışma alanından toplanan briyofit örneklerinin eldeki flora, revizyon ve monograf çalışmaları kullanılarak teşhis edilmesi sonucunda: Marchantiophyta'dan 9 familya ve 10 cinse ait 16 ciğerotu; ve Bryophyta'dan 24 familya ve 58 cinse ait 97 karayosunu olmak üzere, toplamda 113 tür ve tür altı düzeyde briyofit taksonunun alandan kaydı verilmiştir. Ayrıca bu floristik listedeki bütün türlerin, Türkiye dağılımları, IUCN kategorilerine göre Avrupa ülkeleri için tehlike kategorileri ve su, ışık, asidite durumu gibi bazı ekolojik özellikleri de listede verilmiştir. Ayrıca bu araştırmalar sırasında Türkiye'den sadece 2 lokaliteden kaydı bilinen *Riccia cavernosa* Hoffm. türünün de alandan bulunmuş olması oldukça dikkat çekicidir. Bununla birlikte *Marchantia polymorpha* subsp. *montivagans* Bischl. & Boisselier, *Riccia sorocarpa* Bisch., *Schistidium papillosum* Culm. taksonları da Herderson'un Türkiye kareleme sistemine göre, A2 karesi için yeni kayıttırlar.

Anahtar Kelimeler: Işık Dağı, Briyofit, Flora, Ankara, Çankırı, Türkiye

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➢ **ORAL PRESENTATION**

Streptozotosin ile indüklenen deneysel diyabet modelinde kognitif fonksiyonlar üzerinde kuersetinin antioksidan ve antiinflamatuar etkilerinin araştırılması

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Özet

Diyabetin kognitif bozukluklara neden olduğu bilinmekle birlikte bu bozuklukların patofizyolojisi altında yatan mekanizmalar ileri düzeyde aydınlatılmış değildir. Bu çalışmada streptozotosin (STZ) ile indüklenen deneysel diyabet modelinde kognitif fonksiyonlar üzerinde kuersetinin antioksidan ve antiinflamatuar etkilerinin araştırılması amaçlanmıştır.

Erişkin Wistar Albino erkek sıçanlar üç gruba ayrılmıştır (n=8): Kontrol, Diyabet, Diyabet+Kuersetin. Diyabet tek doz intraperitonal STZ enjeksiyonuyla (50 mg/kg) oluşturulmuş ve STZ enjeksiyonundan 2 gün sonra hiperglisemi (>300 mg/dl) olan denekler diyabetik olarak belirlenmiştir. Tedavi grubundaki sıçanlara 4 hafta boyunca her gün intraperitonal kuersetin (50 mg/kg) uygulanmıştır. Kognitif davranışları değerlendirmek amacıyla hayvanlara lokomotor aktivite testi ve Morris Water Maze testleri uygulanmıştır. Sonrasında hayvanlar sakrifiye edilmiş ve izole edilen beyin dokularından malondialdehit (MDA) ve süperoksit dismutaz (SOD) düzeyleri ile proinflamatuar sitokin (TNF-α ve IL-1β) düzeyleri analiz edilmiştir. İstatistiksel karşılaştırma one-way ve two-way ANOVA ve post hoc Bonferroni testi kullanılarak değerlendirilmiş ve ‘$p<0,05$’ anlamlı olarak kabul edilmiştir.

Diyabet oluşumundan 4 hafta sonra sıçanlarda kognitif fonksiyonlarda bozulma gözlenmiştir. Diyabetik sıçanların beyin dokularında ise kontrol grubuna göre MDA, TNF-α ve IL-1β düzeyleri artarken, SOD düzeyleri azalmıştır. Kronik kuersetin tedavisi ise bu parametreleri kontrole geri döndürmüştür.

Bu çalışmanın sonuçları kronik kuersetin tedavisinin diyabetik sıçanlarda kognitif fonksiyonları nöroinflamasyonu ve oksidatif stresi azaltarak düzelttiğini göstermiştir. Diyabete bağlı olarak gelişen kognitif fonksiyonlarda bozulmanın tedavisinde antioksidan ve antiinflamatuar tedavi stratejisi etkili olabilir.

Anahtar Kelimeler: Kuersetin, diyabet, kognitif fonksiyon, oksidatif stres, inflamasyon

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➢ **ORAL PRESENTATION**

Application of low-pressure to bake gluten-free cake

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Abstract

Cereal products are an important part of the daily diet; however, these can lead to some health issues for some people due to containing gluten. Gluten has positive effects on the technological properties of cereal products; however, it has some negative effects on human health as celiac disease and gluten intolerance. Therefore, the gluten-free food market has developed and R&D investments have increased in the food sector recently. The cake is one of the most important cereal products because of high consumption rate due to its flavor, texture and mostly preferred by children. Lack of gluten causes undesired technological properties of cake such as low volume, pale color, crumble crust which is a problem both for consumers and producers. Vacuum technologies have been one of the novel technologies studied recently due to its advantages. Even though vacuum cooling, frying have been encountered in the literature, a limited number of studies have been observed in baking, especially for gluten-free products. In this study, physical (homogeneity, symmetry and volume indexes), textural and chemical properties of gluten-free cake were explored by comparing partial-vacuum baking and traditional methods (control). Similar physical properties were observed for control and partial-vacuum baked cake samples and these differences were statistically insignificant ($p>0.05$), while significant changes ($p<0.05$) for TPA results were detected for those samples. Sensorial results showed that change in color and collapsing of partial-vacuum baked samples were statistically significant ($p<0.05$) and the other properties (appearance, hardness, adhesiveness, overall acceptability) were comparable ($p>0.05$). This study showed that partial-vacuum baking had important potential for the gluten-free bakery sector because of having improved physical properties without using additives.

Keywords: gluten-free, baking, vacuum

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➢ **ORAL PRESENTATION**

A hydrazone ligand: Synthesis, structural characterization, a comparison of theoretical and experimental spectroscopic results and the investigation of interaction with DNA bases by DFT calculations.

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Abstract

In this work, a new hydrazone ligand was obtained from the reaction of ethyl carbazate with diacetyl monoxime. This compound was characterized by elemental analysis, LC-MS, IR and NMR spectroscopy techniques. The molecular geometry, NMR chemical shift values and vibrational frequencies of this compound in the ground state were calculated by using the Density Functional Method (DFT/B3LYP) with 6-31G and 6-311G(d,p) basis sets. The theoretical vibrational frequencies and chemical shift values were seen to be in agreement with the experimental values. The NBO/NPA atomic charges were performed to explore the possible coordination modes of this ligand. Finally, the global reactivity parameters were obtained and the interactions between this compound with DNA bases (adenine, cytosine, guanine, and thymine) were investigated by using the ECT (electrophilicity-based charge transfer) method.

Keywords: Hydrazone, DFT, DNA bases

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Investigation of *in vivo* effects of nifedipine on heart glutathione related enzymes of renal ischemia/reperfusion injured rats

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Abstract
The purpose of this study is to investigate the effect of nifedipine drug on rat heart tissue glutathione reductase (GR), glutathione S-transferase (GST), glutathione peroxidase (GPx) enzymes in ischemia / reperfusion (I / R) and I / R injured rats.
Control, sham, I / R and nifedipine + I / R are as follows: A total of 30 male Wistar albino rats weighing 250-300 g were equally and randomly divided into four groups. In the last group, nifedipine was administered at the 4 mg/kg dose before intraperitoneal ischemia period. Heart tissues were removed after bilateral I/R process. Tissue levels of enzymes activity of GR, GST and GPx were measured.
Specific activity values were determined for GR enzyme at four different experimental groups. Groups were determined as follows: Control group 0.187 ± 0.006 EU/mg protein, sham group 0.162 ± 0.004 EU/mg protein, I/R group 0.220 ± 0.008 EU/mg protein, and nifedipine + I/R group 0.160 ± 0.005 EU/mg protein. Specific activity values were determined for GST enzyme at four different experimental groups. Groups were determined as follows: Control group 0.345 ± 0.011 EU/mg protein, sham group 0.310 ± 0.01 EU/mg protein, I/R group 0.317 ± 0.01 EU/mg protein, and nifedipine + I/R group 0.324 ± 0.01 EU/mg protein. Specific activity values were determined for GPx enzyme at four different experimental groups. Groups were determined as follows: Control group 0.124 ± 0.004 EU/mg protein, sham group 0.112 ± 0.003 EU/mg protein, I/R group 0.138 ± 0.006 EU/mg protein, and nifedipine + I/R group 0.102 ± 0.004 EU/mg protein.
As a result, the activity of the GR enzyme was determined to be mostly inhibited in nifedipine + I/R group among all applications. Activity value of nifedipine + I/R group decreased by about 20% compared to controls was observed that $p \leq 0.05$ is as meaningful. A very different activity profile has not been observed for the GST enzyme. It has been observed that the GPx enzyme shows an activity profile similar to the GR enzyme.
Keywords: Ischemia; nifedipine; glutathione reductase; inhibition; *in vivo.*

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➢ **ORAL PRESENTATION**

First record of *Stigmaeus mitrofanovi* Khaustov (Trombidiformes: Stigmaeidae) from Turkey

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Abstract

Stigmaeus Koch is the largest genus in the family Stigmaeidae with 148 valid species. One of them, *Stigmaeus mitrofanovi* Khaustov was given before from Crimea and later recorded from Russia. Nine female specimens of *S. mitrofanovi* were found from Pülümür Valley (Tunceli) in Turkey. This species was re-described on the collected specimens and its phase-contrast micrographs were given here. This is the first record from Turkey. The Valley have very different habitats, and occurrence of *S. mitrofanovi* shows that it is rich in terms of biodiversity.

Keywords: Mite, *Stigmaeus*, Stigmaeidae, Pülümür Valley, Turkey

Acknowledgement: This study was financially supported by the Scientific and Technological Research Council of Turkey (TÜBİTAK), research project number 118Z469. We would like to express our sincere gratitude to TÜBİTAK for their support.

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➢ **ORAL PRESENTATION**

The protective effect of erythropoietin on apoptotic cell death induced by amyloid β in PC12 cells

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Abstract

Alzheimer's disease (AD) is a neurodegenerative disorder characterized by central nervous system degeneration and neuronal loss. It has been shown that in various models Erythropoietin (EPO) has a neuroprotective effect. Evaluation of the impact of EPO administration on caspase cascade and the neuronal apoptosis in the neuronal death model induced by Amyloid Beta peptide (Aβ) is aimed and planned. Apoptotic neuronal death was induced in PC12 cells by the administration of Aβ(25-35) peptide fragment. In evaluating levels of neuronal injury and the potential protective effect of EPO, dimethylthiazol diphenyltetrazolium bromide reduction cell viability assay and trypan blue exclusion were performed. Apostain immunofluorescein staining has been used for the evaluation of apoptotic cell death. Caspase-8 activation was evaluated by western blotting method. EPO administration was shown to protective effect on cell viability in Aβ induced neuronal cell death. Apostain revealed that EPO had an anti-apoptotic effect in this experimental model. A reduction in caspase-8 activation was observed after EPO administration. Erythropoietin was demonstrated to have a cell protective effect in neurotoxicity induced by Aβ(25-35) peptide and to diminish the apoptosis by decreasing activation of caspase-8 which promotes apoptosis. These results suggest that EPO may have a role in management of Aβ neurotoxicity in AD.

Key words: Erythropoietin, Amyloid β, Apoptosis, Neuroprotection, Alzheimer's disease.

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➢ **ORAL PRESENTATION**

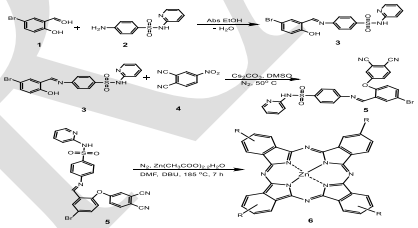
New benzenesulfonamide derivative phthalocyanine, capable of producing high singlet oxygen

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Abstract

Phthalocyanines (Pcs) are macro-heterocyclic compounds having strong conjugation provided by their 18 π electrons and this conjugation provide planarity and photo/thermal stability to the Pc ring besides having important effect on the properties of their electronic transitions. Pcs have two strong absorption at around 350 nm(B Band) and 670 nm(Q Band) in their electronic absorption spectra. The high molar absorption coefficient in the Q band provides dye and pigment properties to the Pc derivatives. All these properties make them important agents in many areas such as chemical sensors, electrochromic displaying devices, catalyst and electrochemistry. Another important feature of Pcs is their generating singlet oxygen in solutions by excitation at Q band region. Singlet oxygen reacts with organic molecules and oxidizes them. This process is favourable for many applications such as degradation of pollutants, catalysis of some reactions, anti-microbial studies, DNA degradation and photodynamic therapy of cancer. Metallo phthalocyanines have relatively high singlet oxygen quantum yields. Pcs derivatives can be prepared by using many different substituents. These substituents can change the solubility, photophysical and photochemical properties of the Pcs. In addition, it is known that electron donating/ withdrawing properties of the substituent changed the photophysical and photochemical properties of the Pcs. Even though different parameters, such as metal type, solvent, temperature, effect the properties of the Pc, generally electron releasing substituents improve the photophysical properties, by decreasing the aggregation. In this study, novel peripheral-2,9(10),16(17),23(24)-tetra-[(E)-4-((5-bromo-2-(λ^1-oxidaneyl)benzylidene)amino)-N-(pyridin-2-yl)benzenesulfonamide] zinc(II) phthalocyanine was synthesized and characterized by different spectroscopic methods such as FT-IR, ^{1}H-NMR, UV–*vis* and MALDI-TOF mass spectra and also elemental analysis. The photophysical and photochemical properties of this phthalocyanine were been investigated in dimethyl sulfoxide.



Scheme 1. Synthesis of the novel benzenesulfonamide derivative substituted zinc(II) phthalocyanine

Keywords: Phthalocyanine, benzenesulfonamide, fluorescence quantum yield, singlet oxygen, photodegradation.
Acknowledgment: This work was supported by Çanakkale Onsekiz Mart University The Scientific Research Coordination Unit. Project number: FDK-2018-2567

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➢ **ORAL PRESENTATION**

La^{3+}, ho^{3+} katkılı seryum oksidin sol-jel yöntem ile sentezi: kafes kusurları ve optik özellikleri üzerindeki değişim

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Özet

Fotokatalik aktivite, ekonomik olan güneş ışığını kullanarak ve herhangi bir kanserojen yan ürün içermeyen organik kirleticilerin degradasyonunu kullanarak çevre iyileştirme alanında etkili bir yöntemdir. Fotokatalist çalışmalarda yarı iletken metal oksitler, boya bozunması için geniş ölçüde çalışılmaktadır. Bu amaçla La^{3+}, Ho^{3+} katkılı seryum oksit toz parçacıkları sol-jel yöntem kullanılarak sentezlendi. Elde edilen örneğin kristal yapısı ve meydana gelebilecek olası farklı fazların incelenmesinde X-Işınları difraktometresi (XRD) kullanıldı. Yapıda kübik florit tipi faz oluşumu görüldü. Birim hücre parametreleri, katkı yarıçapının artmasıyla arttı. Yüzey morfolojisi SEM ile karakterize edildi. Sıcaklığa bağlı olarak kütle kayıplarını, termal davranışını TG/DTA ile analiz edildi. Fourier dönüşüm kızılötesi spektroskopisi (FT-IR) ile, elde edilen örneğin titreşimden kaynaklı yapısal ve fonksiyonel bilgileri hakkında değerlendirme yapmak için kullanıldı. Oluşan yapının simetri özelliklerini farklı titreşim modlarının görünümünü ile yapıda oluşan bozunma/ kusur hakkında bilgi edinmek için Raman analizi kullanıldı. Analiz sonucunda sentezlenen malzemenin spektrumu, yaklaşık 465 cm^{-1}'de bulunan ve seryum oksit bazlı tipik florit kafes yapısının karakteristiği olan Ce-O_8 kristal ünitesinin simetrik gerilme moduna atfedilen en yoğun zirvede (F_{2g}) görülmektedir. Farklı sıcaklıklarda kalsine edilen örneklerin UV-vis spektroskopisi çalışmalarında kirletici materyal olarak metilen mavisi üzerin bozucu etkisini incelemek için 5 ppm ve 10 ppm ölçüm yapıldı. Çalışma sonucunda fotokatalitik davranışını başlangıç bozucu maddesi metilen mavisinin konsantrasyonunu kalsinasyon sıcaklığındaki farklılığın belirleyici olduğu sonucuna varıldı.

Anahtar Kelimeler: Fotokatalitik aktivite, katkılı CeO_2, UV-vis spektroskopisi, raman, bandgap

Bu çalışma, KSÜ-BAP tarafından 2019/5-7 YLS Kodlu proje ile desteklenmiştir.

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19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Graphene oxide-iron (II,III) oxide-polyaniline ternary nanocomposite for supercapacitor applications

Furkan Soysal[1*], Zafer Çıplak[2], Bengü Getiren[2], Ceren Gökalp[2], Gülşah Kuruçam[2], Seray Akın[2], Nuray Yıldız[2]

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Abstract

Researchers have directed their attention to environmentally friendly and renewable energy sources as an alternative to fossil fuels, in order to cope with constantly increasing energy demand. Electrochemical energy storage devices have been extensively investigated for this purpose because of their broad spectrum of application areas regarding their power/energy transfer capabilities. Supercapacitors, one of the electrochemical energy storage devices, which act as bridges between capacitors with high power densities and batteries with high energy densities, can be manufactured to own both characteristic features. In this perspective, graphene oxide (GO)-iron (II,III) oxide (Fe_3O_4)-polyaniline (PANI) ternary nanocomposite (GFP) was synthesized by a two-step method. Iron (II) chloride tetrahydrate and iron (III) chloride hexahydrate mixture was co-precipitated as Fe_3O_4 nanoparticles onto dispersed GO sheets, and then poly(vinyl alcohol) (PVA) stabilized aniline monomer was polymerized on GO-Fe_3O_4. Electrochemical properties of the obtained nanocomposite was determined by a potentiostat/galvanostat in 1 M H_2SO_4 electrolyte using three-electrode configuration. GFP modified stainless steel, Ag/AgCl, and Pt wire were used as working, reference, and counter electrodes, respectively. Cyclic voltammetry (CV) measurements were performed between 0 – 0.8 V at various scan rates between 10 – 200 mV/s. Galvanostatic charge-discharge (GCD) measurements were carried out at 0.5, 1, 2, and 4 A/g charge densities between 0 – 0.8 V. Electrochemical impedance spectroscopy (EIS) measurements were performed over a frequency range of 0.01 – 100000 Hz with an AC voltage of 10 mV and presented as Nyquist plot. Obtained results indicate that GFP has excellent electrochemical properties and can be used as supercapacitors for energy storage.

Keywords: Graphene, iron oxide, polyaniline, supercapacitors, electrochemistry.

Acknowledgement: This study was supported by The Scientific and Technological Research Council of Turkey (TUBITAK) under Grant No. 115M456.

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➢ **ORAL PRESENTATION**

Green synthesis of reduced graphene oxide-Cu_2O-Au ternary nanocomposite for catalytic reduction of 4-nitrophenol

Bengü Getiren[1], Zafer Çıplak[1*], Ceren Gökalp[1], Atila Yıldız[2], Furkan Soysal[3], Nuray Yıldız[1]

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Abstract

In this study, we prepared reduced graphene oxide (rGO)-Cu_2O-Au nanoparticles ternary nanocomposite via a facile, green, and one-pot approach for the first time in the literature. Ternary nanocomposite was prepared with simultaneous reduction of graphene oxide (GO), $CuSO_4$ and $HAuCl_4$ by *Cetraria Islandica L. Ach.* extract, which undertake both reducing and stabilizing agent roles. The prepared nanocomposite samples were characterized with Fourier transform infrared spectrophotometer (FTIR), UV-visible spectra, field emission scanning electron microscope (FESEM), energy dispersive X-ray spectroscopy (EDX), and X-ray diffraction (XRD). It was obtained that small metal oxide-metal nanoparticles uniformly decorated the surfaces of rGO nanosheets. The prepared ternary rGO-Cu_2O-Au nanocomposite samples were utilized as catalysts for reduction of 4-nitrophenol (4-NP) to 4-aminophenol (4-AP). The rate constant of rGO-Cu_2O-Au obtained 0.0051 s^{-1} and the total degradation achieved in 280 s. The prepared nanocomposites exhibited high catalytic activity because of low particle size, high surface area, high electron density and fast electron transfer rate of catalysts. The environmentally friendly prepared ternary rGO-Cu_2O-Au nanocomposite is a promising catalyst for removal of organic compounds from waste water and utilization various electrochemical reactions.

Keywords: Reduced graphene oxide, Au nanoparticles, Cu_2O, nanocomposites, nanocatalysts

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➢ **ORAL PRESENTATION**

Karboplatin ile indüklenen nefrotoksisite üzerine *Nigella sativa* yağının koruyucu etkileri

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Özet

İkinci nesil platin grubu kemoteropatik olan karboplatin, over, baş-boyun, küçük hücreli akciğer kanserlerinde yaygın olarak kullanılmaktadır. Kemoteröpatiklerin yan etkilerinden en çok etkilenen organlardan biri de böbreklerdir. Bu çalışmanın amacı karboplatin kullanımına bağlı oluşan böbrek hasarına karşı Nigella sativa yağının (NSY) koruyucu etkisini araştırmaktır.Yirmidört adet dişi wistar albino sıçan 4 gruba bölündü. İlk gruba 4 ml/kg serum fizyolojik (SF) 1. ve 2.gün uygulandı. İkinci gruba ilk gün 4 ml/kg NSY ve 2. gün 4 ml/kg SF intraperitoneal (i.p.) verildi. Üçüncü gruba 1.gün 4 ml/kg SF ve 2.gün ise karboplatin 80 mg/kg i.p. uygulandı. Dördüncü gruba 1.gün NSY ve 2.gün ise karboplatin 80 mg/kg i.p. uygulandı. İkinci günün sonunda sıçanlar anestezi altında sakrifiye edildi. Böbrek dokuları çıkarılarak nötral formalin içerisine konuldu. Doku takibi sonrası histopatolojik değişiklikler ve apoptotik index (AI) değerlendirildi.AI'de, karboplatin+SF grubunda kontrol grubuna göre artış görülürken, karboplatin+ NSY grubu ile anlamlı bir fark görülmemiştir. Histopatolojik değelendirmede ise; Karboplatin+SF grubunda proksimal ve distal tubul epitelinde, glomerular kapiller yumaklarında dejenerasyon, tubuller arasında bulunan vasküler oluşumlarda konjesyon, intraglomerular, periglomerular, tubuller arası ve vasküler oluşumların tunika adventisyasında kollagen lif yoğunluğunda artış, PAS reaksiyonu sonucu yer yer basal membran bütünlüğünün bozulduğu görülmüştür. Karboplatin+ NSY verilen grupta ise bazı alanlardaki tubul yapılarında dejeneratif değişikliklerin devam ettiği görülürken glomerul yapılarının daha düzenli olduğu gözlemlenmiştir. Karboplatin+NSY verilen grupta karboplatin+SF verilen gruba göre sklerotik değişimlerin daha az olduğu gözlendi. PAS reaksiyon sonucu karboplatin+ NSY verilen grupta basal membranların daha düzenli bir yapıda olduğu görüldü. Sonuç olarak, nigella sativanın karboplatin ile indüklenen nefrotoksisite üzerine koruyucu etkileri olabilir.

Anahtar kelimeler: Apoptozis, Böbrek, Karboplatin, Nigella Sativa Yağı, Sıçan

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➢ **ORAL PRESENTATION**

Bending impact on electrochemical performance of prussian blue-based hybrid thin films

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Abstract

Flexible technologies can be utilized to produce devices on large substrates and to form thin flexible systems that can be rolled or folded without altering their functionality. These advantages provide conformability dependant applications including artificial skins, soft robotics, wearable textiles, e-paper, etc. [1]. Prussian blue (PB) is one of family functional inorganic materials [2]. PB is also known as ferric hexacyanoferrate ($Fe_4^{III}[Fe^{II}(CN)_6]_3$) [3]. Prussian blue (PB) and its analogue modified films such as copper hexacyanoferrate have gained great interest to electrochemist researchers due to their interesting features, especially the ability to mediate electrochemical reactions such as electrocatalyzed oxidations; for example, they can be used in biosensing applications, supercapacitors, etc. [4].

In this study, copper prussian blue analogue was fabricated using electrochemical deposition method onto the indium tin oxide (ITO) coated PET electrodes. The hybrid films were characterized using scanning electron microscopy (SEM)-energy dispersive X-ray spectroscopy (SEM-EDS). The electrochemical behavior of the hybrid flexible thin film was evaluated using cyclic voltammetry (CV) and chronoamperometric methods. To evaluate the mechanical impact on electrochemical performance of prussian blue-based hybrid thin films, a bending cycle test was also carried out.

Keywords: Flexible thin film, Prussian blue analogues, hybrid, electrochemical.

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➢ **ORAL PRESENTATION**

Histology and morphology of the Malpighian tubules in *Poecilimon ataturki* Ünal, 1999 (Orthoptera, Tettigoniidae)

Irmak Polat[1*], Damla Amutkan Mutlu[2], Mustafa Ünal[3], Zekiye Suludere[2]

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Abstract

The Malpighian tubules are the main excretory organs whose role in excretion is to generate the primary urine and selectively reabsorb the useful solutes in terrestrial insects. Thus, they provide the elimination of toxins and regulation of the homeostasis. *Poecilimon ataturki* Ünal, 1999 (Orthoptera, Tettigoniidae) is an endemic species in Turkey with no information in the literature regarding the histology and morphology of its internal organs. The aim of this study is to clarify the morphological and histological features of the Malpighian tubules in *P. ataturki*. Adult individuals of *P. ataturki* were collected in Hamidiye Village, Bolu, Turkey in June 2017. The Malpighian tubules were dissected under the stereomicroscope and were photographed. Afterward, they were prepared for light microscope and scanning electron microscope (SEM) studies in the laboratory. The Malpighian tubules are connected to the alimentary canal at the midgut-hindgut junction. Numerous thin and long Malpighian tubules are scattered all over the hemoceol. In the cross sections of the Malpighian tubules, it is seen that the each Malpighian tubule is composed of monolayer 3-5 epithelial cells. The epithelial cells are pyramidal in shape and the region where the nucleus is situated is larger than the other regions of the cells. In the apical side of the epithelial cells, there are many brush border microvilli. The tips of the microvilli look swelled. A great number of granules in different sizes called spherocrystals are located in the cytoplasm of the epithelial cells can be observed in SEM photographs.

Keywords: Insect, excretory system, light microscope, scanning electron microscope.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Improving the physical properties of fish gelatin by using high hydrostatic pressure

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Abstract

Gelatin is the most commonly used biopolymer in pharmaceutical, cosmetic, and food applications. The common sources of the gelatin are bovine bone and porcine skin. Rather than porcine gelatin, bovine gelatin has more applications because of religious preferences. In that regard, gelatin could also be obtained from fish, which is very common in nature but has weak gelation ability. High hydrostatic pressure (HHP) treatment affects proteins and results in modifications of them significantly. In this study, the aim was improving the weak physical properties of fish gelatin and enhanced poor functional properties with the beneficial effects of HHP. Pressure was applied at 400 MPa at two different temperatures as 10 ºC and 30 ºC by keeping process time constant as 15 minutes. Bovine gelatin was selected as reference material to compare and interpret fish gelatin physical properties. In order to monitor change in physical properties, nuclear magnetic resonance (NMR) relaxometry and gel strength measurements were used. The results showed that HHP treatment change in protein – water interactions. Moreover, NMR Relaxometry was a useful method to detect different attributes of gelatin types on free water.

Keywords: HHP, NMR, Fish Gelatin, Gel Strength

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➢ **ORAL PRESENTATION**

Ham balın süt proteinleri üzerine etkisinin elektroforetik olarak incelenmesi

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Özet

Süt zengin protein, laktoz ve yağ içeriği sayesinde besleyici bir gıda olarak kabul edilmekle birlikte, süte eklenen besinsel katkı maddelerinin sütün doğal kompozisyonu üzerine etkisi günümüzde araştırılmaya devam etmektedir. Süt proteinleri süte eklenen katkı maddelerinden en çok etkilenme potansiyeline sahip olan makromoleküllerdir. Süt proteinlerinin %80'i kazein, %20'si serum proteinlerinden oluşmaktadır. Bu proteinler süte antioksidan, antikanserojen ve antimikrobiyal özellikler kazandırmaktadır. Antimikrobiyal ve antioksidan özelliklere sahip bir başka besin gıdası olan balın kimyasal bileşiminde yüksek oranda bulunan karbonhidratın yansıra protein, vitamin, organik asit, fenolik bileşikler ve serbest aminoasit gibi makro ve mikro bileşenler bulunmaktadır. Balın düşük protein içeriğinde albümin ve globülin gibi proteinlerin yanı sıra çeşitli aminoasitleri bileşiminde bulunduran bir gıdadır. Bu çalışmada ham bal eklenen keçi ve inek sütü örneklerindeki protein kompozisyonunun elektroforetik olarak incelenmesi amaçlanmıştır. Bu amaç doğrultusunda çiğ inek ve keçi sütleri yerel bir çiftlikten, pastörize inek ve keçi sütleri ise sık kullanılan markalar arasından seçilmiştir. Keçi ve inek süt örnekleri çiğ, kaynatılmış, pastörize ve bunlara bal (75 mg/mL) eklenmiş olarak gruplara ayrılmıştır. Tüm süt örneklerinde Bradford yöntemi kullanılarak protein tayini yapılmıştır. Daha sonra kuyucuk başına 20 µg olacak şekilde örnekler SDS- poliakrilamid jele yüklenmiştir. Jel başına 30 mA elektrik akımı altında elektroforez işlemi uygulanmıştır. Elektroforez işleminden sonra süt proteinlerinde meydana gelen değişimler dansitometre kullanılarak tespit edilmiştir. Kaynatma ile her iki süt proteinlerinde de % 9 civarında azalma meydana gelmiştir. Kaynatılan süte bal eklenmesi bazı protein bantlarının daha belirgin hale gelmesine neden olmuştur. Bal eklenmesi özellikle kazein ve laktalbumin fraksiyonu çevresindeki protein bantlarını belirgin hale getirmiştir. Süte eklenen balın sütün protein içeriğine olan katkısı protein tayini ile net olarak tespit edilemezken, elektroforez yöntemi kullanılarak aslında her iki süt türünün protein içeriğine katkısı olduğu tespit edilmiştir.

Anahtar kelimeler: Elektroforez, bal, süt proteinleri

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➢ **ORAL PRESENTATION**

Which milk is more affected by heat treatment: Cow's milk or goat milk?

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Abstract

Milk components differ from each other in terms of their heat stability. While carbohydrate and fat content are less affected by heat treatment, protein content is more affected. The aim of this study is to compare the effects of different heat treatment applications (pasteurization and boiling) on the macromolecular content of goat and cow milk. For this purpose, the raw milk samples used in our study were obtained from a local farm. Pasteurized milk is selected among the frequently used brands. The protein, fat, carbohydrate contents of milk samples were determined using biochemical methods that are modified for milk analysis. The energy level, water content and density of these milk samples were calculated using protein, fat, carbohydrate values. Milk pH values were determined using pH indicator strips. After boiling, the protein values of raw cow and goat milk decreased at the same rate. The lactose concentration of cow's milk did not significantly change with the boiling process, it caused a slight increase in goat milk. It also was found to be decreased in both milk samples with pasteurization, this decrease in goat milk was lower than cow's milk. After boiling, the cow's and goat milk fat did not significantly change. The pasteurization did not change the amount of cow's milk fat while goat milk fat was found to be significantly reduced. On the lights of these results, boiling mainly affected the lactose level of goat milk and pasteurization mainly affected the lactose level of cow's milk and fat level of goat milk. As a conclusion, it was observed that the nutritional content of cow and goat milk was differently affected by heat treatments.

Keywords: Cow milk, goat milk, protein, lactose, fat

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➢ **ORAL PRESENTATION**

Pichia kudriavzevii M10 maya suşunda β-glukan'ın ekstraksiyonunun optimizasyonu

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Özet

Bazı biyoaktif besin bileşenlerinin doğal yollardan hastalıkların önlenmesi ve tedavisindeki etkinliğinin bilimsel olarak ispatlanması, sağlığımızın korunmasında beslenmenin önemini arttırmıştır. Bu sebeple, fonksiyonel besinler, nutrasötikler ve doğal sağlık ürünleri daha fazla tüketilir hale gelmiştir. Bu ürünlerden birisi de Beta-glukandır (β-glukan). β-glukanlar, bakteri, mantar, maya, yosun, liken, yulaf ve arpa gibi canlıların hücre duvarlarında bulunan polisakkaritlerdir. Bu araştırmada, laboratuvarımızda bulunan *Pichia kudriavzeii* M10 suşunun optimum β-glukan içeriğinin belirlenmesi amaçlanmıştır. Diğer metotlardan farklı olarak hiç çalışılmamış probiyotik bir mayada, doğal yöntemlerle, yüksek verimde ve saflıkta β-glukan elde edilmesi hedeflemiştir. Maya suşu üzerine uygulanan metot, molekülün doğal konformasyonunun bozulmadan elde edilmesini ve çevre kirliliğine yol açmadan endüstriyel boyutta kolayca ölçeklendirilebilmesi sağlayabilecektir. Bu amaçla, maya suşunun β-glukan ekstraksiyonu için otoliz, su ve organik çözücü muamelesi, sonikasyon ve proteaz muamelesi aşamaları izlenmiştir. Deneysel veriler, her bir aşamanın ekstraksiyon üzerinde önemli bir etkiye sahip olduğunu göstermiştir.

Anahtar kelimeler: *Pichia kudriavzevii*, β-glukan, optimizasyon

Teşekkür: Bu çalışma Gazi Üniversitesi Bilimsel Araştırma Projeleri tarafından 05/2019-20 nolu proje ile desteklenmektedir .

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➢ **ORAL PRESENTATION**

GlutoPeak profile analysis for the evaluation of protein quality in whole wheat flours

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Abstract

Protein content and gluten quality are crucial properties in terms of both determining the intended use of wheat and predicting the end-product quality characteristics. Determination of gluten quality with a method which is fast, easy, reliable and reproducible is of great importance for both wheat breeders and milling industry. In this study, different whole wheat flour samples (n=61) grown in Corum province and districts were analysed by both classical methods (Zeleny sedimentation value, wet gluten content) and GlutoPeak profile analysis method in terms of their protein content and gluten quality. A possible correlation between the results was tried to be determined by comparing the results with a statistical method. The protein content of whole wheat flour samples was found between 8% and 14% while the sedimentation values and wet gluten contents were between 8.8-17.5 mL and 11.5-39%, respectively. As a result of the GlutoPeak analysis, the parameters of the time for gluten maximum resistance (PMT), the gluten maximum resistance (BEM) and 15s after maximum peak (PM) were determined as average of 44.8±11.77; 55.0±14.7 and 38.3±6.16, respectively. BEM and PM parameters give important information about the gluten quality of flour samples while PMT gives about dough mixing time. It has been observed that the sedimentation values are not found as distinctive as the parameters of GlutoPeak analysis in the evaluation of gluten quality. However, protein and wet gluten parameters are found as related fairly with the gluten quality. Besides, gluten rheological properties (PM, BEM and BM) of whole wheat flour samples are also closely related to the protein content and quality characteristics (Zeleny sedimentation value and wet gluten content).

Keywords: Wheat, flour, gluten, protein, GlutoPeak

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➢ **ORAL PRESENTATION**

Isolation and purification of antioxidant protein and peptides from tomato seed

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Abstract

Nowadays, waste valorization becomes a very important goal for manufacturing industry. Food industry wastes, in particular, constitute a remarkable part of it because of the potential new products with high added value. Tomato seed, as an important waste of tomato-processing industry, contains high nutritional value components including proteins. The main aim of this study was to produce bioactive peptides via enzymatic hydrolysis of tomato seed proteins and the evaluation of antioxidant properties of hydrolysate and its peptide fractions. For this purpose, the tomato seed proteins were extracted from defatted tomato seed by water as a solvent and this protein extract was hydrolyzed by pepsin. The peptide fractions were purified by ultrafiltration and peptides were further separated by gel filtration chromatography using a Superdex 30 column. The molecular distribution and purity of protein and peptides were analyzed using polyacrylamide gel electrophoresis. The antioxidant activity of these fractions was determined by analysis of $ABTS^{\bullet+}$ radical scavenger activity and Ferric Reducing Antioxidant Power Assay (FRAP). The results revealed that tomato seed proteins contain peptides with antioxidant activities. Further studies will focus on identification of the amino acid sequence of these peptides using mass spectrometry. This study shows the potential of using tomato seed proteins as new value added ingredients in functional foods.

Keywords: tomato seed, protein, bioactive peptide, antioxidant, gel filtration chromatography

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➢ **ORAL PRESENTATION**

Total organic carbon and chemical oxygen demand ratio of surface waters in Konya basin

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Abstract

Total organic carbon (TOC) and chemical oxygen demand (COD) results are assessed as the organic pollution indicator in the water bodies, TOC being a more reliable indicator recently. Total organic carbon is defined as the organic carbon content of the water while chemical oxygen demand is defined as the amount of oxygen that is required for the oxidation of organics. High levels of both of them are the measures of the high organic concentrations in the water samples. When the maximum allowable concentrations are inquired, although TOC or COD is not directly of concern, due to the formation of hazardous effected disinfection by-products, they are not expected to be in high concentrations. TOC:COD ratio is a measure for the oxidation state of the carbon compounds and is a specific characteristic of the subject water sample. In this study, three water bodies from Konya basin were selected and analyzed at different seasons for the evaluation according to the TOC:COD ratios between 2015 and 2019. The selected water bodies executed similar ranges of TOC:COD ratios together with similar responses to seasonal changes.

Keywords: Total organic carbon, Chemical oxygen demand, Oxidation state, Konya Basin.

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➢ **ORAL PRESENTATION**

Kolon ve göğüs kanseri hücre hattı üzerine kinureninin *in vitro* sitotoksik aktivitesi

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Özet

Esansiyel bir amino asit olan L-triptofan vücudumuzdaki birçok yolağı kontrol etmektedir. Kinurenin triptofan amino asitinin katabolizması sonucu oluşan doğal endojen bir moleküldür. Triptofan metabolizmasının ana yolağı vücudumuzda kinurenin üzerinden gerçekleşmektedir. Kinurenin ksenobiyotik metabolizmasına ve kanser oluşmasına sebebiyet veren aril hidrokarbon reseptörleri üzerine etki göstermektedir. Yapılan bazı çalışmalar bu reseptörler üzerine etkilerinin tümör oluşumu üzerine sitotoksik etkisi ile bağlantılı olabileceğini düşündürmektedir.

GEREÇ VE YÖNTEM: Sitotoksisite deneyleri için HCT116 (kolon kanseri), MCF-7 (göğüs kanseri) ve L929 (sağlıklı fibroblast) hücre hatları kullanıldı. Hücre kültür kabından ayrılan hücreler 96 kuyucuklu plaklara her kuyucukta $5x10^3$ hücre olacak şekilde ekildi.24 saat inkübasyonda bekleyen hücrelere kinurenin 1, 2, 5, 10, 25, 40 ve 100 µM dozunda seri dilüsyonları eklendi. Tüm hücre hatları 24 ve 48 saat süreyle kinurenine maruz bırakıldı. Kinureninin kanser ve sağlıklı hücre hatlarındaki sitotoksik etkinliği, MTS (3-(4,5-dimethylthiazol-2-yl)-5-(3-karboksimetoksifenil)-2-(4-sulfofenil)-2Htetrazolyum) hücre canlılık testiyle in-vitro olarak belirlendi. Toksisite testlerinin sonucu 2 gün süreyle, 24 saat aralıklarla ELISA cihazında spektrofotometrik olarak (450 nm) ölçüldü.

BULGULAR: Çalışma sonuçlarına göre kinurenin L929 ve HCT116 hücre hattı üzerine sitotoksik bir etki göstermemiştir. Ancak MCF-7 hücre hattı üzerine ikinci günün sonun da 40 ve 100 µM konsantrasyonda %30 oranında sitotoksik etki göstermiştir.

TARTIŞMA: Kinürenin göğüs kanseri hücre hattında sağlıklı hücreye zarar vermeden antitümör etki göstermiştir. Kinureninin tümör hücrelerine karşı gösterdiği bu seçici etki umut vericidir ve bu bağlamda gelecek çalışmalar için göğüs kanseri hücre hattında yeni bir molekül adayı olabilir.

Anahtar Kelimeler: Kinurenin, sitotoksisite, MCF-7, HCT116

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➢ **ORAL PRESENTATION**

Kinetic and thermodynamic properties of methylene blue adsorption on sulfonated poly(ether ether ketone) (SPEEK)

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Abstract

The elimination of organic compounds from drinking water is considerable due to trace levels of organic pollutants have adverse effects on human health and environment. Methylene blue (MB), a cationic dye, was selected hereby because of its extensive usage in textile industry. The long term exposure of organism to MB may result in vomiting, anemia and hypertension. Various physical, chemical, and biological methods use for remediation of dyes from wastewaters. In contrast to the complex and time-consuming methods, adsorption is simple, efficient, and cost-effective, thus, it is currently the favored approach for wastewater treatments.

In this work, sulfonated poly(ether ether ketone) (SPEEK), which was priorly used as polymer electrolyte, was used as an adsorbent for the first time in cationic azo type dye methylene blue removal from aqueous solutions. The effect of contact time, initial concentration and temperature were inspected, and the adsorption capacity, isotherm, kinetic and thermodynamic parameters on the adsorption were determined. According to results, the kinetic of MB adsorption on SPEEK fits pseudo second order kinetic model. The equilibrium was reached in 40 minute, and k_2 value was calculated as 0.013. The adsorption showed Langmuirian character with the maximum adsorption capacity of 98.04 mg/g. The thermodynamic parameters, ΔH and ΔG^o were calculated as -2956.9 J/mol and -2020.12 J/mol, respectively. Adsorbent characterizations were investigated by FT-IR, SEM, TGA and BET analysis. Consequently, SPEEK can be used as a suitable adsorbent for methylene blue removal from aqueous solutions.

Keywords: adsorption, methylene blue, sulfonated polyetherether ketone, kinetics, isotherms, thermodynamic

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➢ **ORAL PRESENTATION**

Multipl miyelom tanısında akım sitometrik immünofenotipleme stratejileri

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Özet

Multipl miyelom (MM), kemik iliğinde neoplastik plazma hücrelerinin birikimine neden olan, klonal B hücre neoplazmı olarak tanımlanmaktadır. Miyelom hücrelerinin karakteristik özelliği, monoklonal protein olarak bilinen anormal paraprotein üretimidir. MM tanısı, kemik iliğinde neoplastik plazma hücrelerinin varlığı ve kandaki veya idrardaki monoklonal proteinin saptanması ile doğrulanmaktadır. Klinik bulgulara ek olarak, morfolojik (doku veya hücre bazlı), immunfenotipik (immunhistokimya veya akım sitometrisi), konvansiyonel sitogenetik ve moleküler genetik değerlendirmeler tanıda kullanılan başlıca yöntemlerdir.

Miyelom tanısında,akım sitometrisi ile yapılan immunfenotiplemede, hücre yüzey antijen ifadelerinin farklılığı, aberan antijen ekspresyonu gösteren hücrelerin bulunması ve intrasitoplasmik Ig varlığı değerlendirilmektedir. Reaktif plazma hücreleri, $CD19^{(-)}/CD56^{(-)}$ fenotipi ile birlikte düşük ileri/yan saçılma (FSC/SSC) ve yüksek CD38 ekspresyonu ile karakterize edilirken, neoplastik plazma hücreleri $CD19^{(-)}/CD56^{(\pm)}$, yüksek FSC/SSC ve nispeten düşük CD38 ekspresyonu veya $CD38^{(++)}/CD45^{(-)}$ ekspresyonlarına göre tanımlanmıştır. Ayrıca, yapılan çalışmalarla, CD19, CD20, CD27, CD33, CD38, CD45, CD56, CD117 ve CD138 gibi çeşitli antijenlerin plazma hücrelerinde eksprese edildiğini ve neoplastik plazma hücreleri ve reaktif plazma hücrelerinin farklı immünofenotipik profillere sahip olduğu gösterilmiştir. Standart bir panel olmamakla birlikte MM'daki neoplastik plazma hücrelerinin akım sitometri ile tanımlanmasında CD138 ve CD38 antikorlarının birlikte pozitifliğinin değerlendirilmesi konusunda fikir birliği mevcuttur.

Bu çalışmada, Mersin Üniversitesi Hastanesi Tıbbi Biyokimya Laboratuvarında, Temmuz-Aralık 2019 tarihleri arasında, akım sitometrisi (Becton Dickinson-FacsCalibur-USA) ile yapılan kemik iliği immünfenotiplemesinde MM olarak raporlanan hastaların retrospektif taraması amaçlandı. Çalışmaya dahil edilen 18 hastadan (30-83 yaş aralığında, 9 kadın, 9 erkek), 7 hastanın $CD45^{(+)}$ olduğu tespit edildi.

Hastalığın tanısında kullanılan antijenlerin çeşitliliği ve yapılan çalışmaların öznelliği de gözönüne alınarak oluşturduğumuz panelde rutin değerlendirmeler; $CD138^{(+)}$, $CD38^{(+)}$, $CD56^{(+)}$, $CD19^{(-)}$, $Kappa^{(+)}$, $Lambda^{(+)}$ ve $CD45^{(-)}$ olarak yapılmaktadır. Ancak bulgularımızda olduğu gibi yapılan analizlerde nadir olarak $CD45^{(+)}$ miyelom hücrelerinin varlığı da tespit edilebilmektedir. Bu nedenle tanıda, $CD138^{(+)}$, $CD38^{(+)}$ ve FSC/SCC grafiğindeki dağılıma ek olarak, $CD138^{(+)}$/SSC ve/veya $CD38^{(+)}$/SSC grafiklerinde de kapılama yapılarak $CD45^{(+)}$ hücre varlığının da araştırılmasını önermekteyiz.

Anahtar Kelimeler: Multipl Miyelom, Akım Sitometri, CD138, CD38, CD45

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➢ **ORAL PRESENTATION**

Bitki büyüme düzenleyicileri kullanılarak yapılan priming uygulamasının doğu tarla hazeranı (*Consolida orientalis* (Gay) Schröd. (Ran)) tohumlarının *in vitro* koşullarda çimlenme üzerine etkileri

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Özet

Çimlenmenin meydana gelmesi tohumdaki metabolik aktivitelerin başlaması ve artması ile gerçekleşmektedir. Metabolik aktivitelerin artışında tohumun iç ve dış yapısı aynı zamanda çevresel koşullar da (nem, sıcaklık, oksijen, ışık) etkili olmaktadır. Tohum çimlenmesi için gerekli olan tüm koşullar uygun olmasına rağmen çimlenme engeli ortaya çıkabilir. Tohumlarda çimlenme engelinin gidermek ve ekilen tohumların çimlenme oranlarını arttırmak için tohumlara çeşitli ön uygulamalar yapılması gerekmektedir. Priming, hidrasyon tekniği temeline dayanan ekim öncesi ön uygulamalar olarak bilinmektedir. Hidropriming, ozmopriming, halopriming, termopriming, katı matris priming, hormonal priming, biyopriming ve organik priming gibi farklı priming teknikleri bulunmaktadır. Bu çalışmada, bitki büyümeyi düzenleyicileri ile priming uygulamasının doğu tarla hazeranı (*Consolida orientalis*) türüne ait tohumların çimlenmesi üzerine olan etkisi araştırılmıştır. Bitkiye ait olgun tohumlar Niğde Ömer Halisdemir Üniversitesi yerleşkesinden çiçeklenme dönemini takiben toplanmıştır. Toplanan tohumlar oda sıcaklığında ve 4 °C' de muhafaza edilmiştir. Tohumlara giberellik asit, indol bütirik asit ve kinetin gibi büyüme düzenleyicilerinin farklı konsantrasyonları (5, 15, 30, 50, 100, 300, 500 ppm) kullanılarak oda sıcaklığında 24 saat boyunca hormonal priming uygulanmıştır. Daha sonra tohumlar MS_0 ortamında 10 °C, 15 °C ve 20 °C'de karanlık ortamda 21 gün boyunca çimlenme testine tabi tutulmuşlardır. Priming uygulamasının *Consolida orientalis* tohumlarının çimlenme yüzdesi ve ortalama çimlenme süresine olan etkisi belirlenmiştir. Priming uygulaması sonucunda oda sıcaklığında ve 4 °C muhafaza edilen tohumlarda 20 °C' de çimlenme gözlemlenmemiştir. Oda koşullarında muhafaza edilen tohumlarda 15 ppm GA_3 uygulaması 10 °C ve 15 °C' de çimlenmeyi arttırmıştır. 4 °C' de muhafaza edilen tohumlarda ise 300 ppm GA_3 ve 5 ppm kinetin uygulamasının çimlenmeyi arttırdığı belirlenmiştir.

Anahtar kelimeler: Bitki büyüme düzenleyicileri, *Consolida orientalis*, çimlenme, priming

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➢ **ORAL PRESENTATION**

Plant microorganism interactions as an examplary way of living in ecological context

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Abstract

Increasing human population in the world we live in causes negative and irreversible effects on the environment such as the need for more production and the decrease of available resources. These effects are tried to be reduced thanks to technological developments. However, soil, which is an indispensable source of production, affects both human health and environmental health negatively due to the dependence on chemical medicines and fertilizers and the effects of industrial pollutants, as well as disrupting the naturalness of the environment.
When we take a closer look at the soil, we enter the world of microorganisms. With life established by the roots and leaves of all plants living on the soil, microorganisms benefit from plants thanks to mutualist interaction and also continue to benefit plants at the same time. These relationships are very important for plants that are not mobile, that is, those who have to continue living in their environment without moving. These relationships established by plants are very inspiring for us. The habitats in plant regions called rhizospheres and phyllospheres, with the inclusion of some beneficial bacteria and other organisms, create a shield that can contribute to the nutrient and mineral needs of plants and also protect against stress and pathogens. The main effects of these organisms, also called PGPO (organisms promoting plant growth), can be considered as the fixation of atmospheric nitrogen, the production of hormones that affect plant growth, such as cytokinin gibberellin, the production of siderophores, the solubility of minerals such as phosphorus, and enzyme synthesis. With what we learn from these relationships, we can better understand many environmental problems and produce more rational solutions. For example, coating these beneficial microorganisms into seeds or somehow incorporating them into the plant will increase production naturally, thereby becoming an alternative natural remedy against addiction to environmentally friendly chemical drugs and chemical fertilizers.
Keywords: Ecology, Habitat, Plant, Microorganism, PGPO

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➢ **ORAL PRESENTATION**

Farklı bölümlerde eğitim gören üniversite öğrencilerinde beden algısının değerlendirilmesi

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Özet

Beden algısı, bireyin kendi vücudunu algılama şeklidir. Bireyin sahip olduğu vücut yapısı, algıladığı vücut yapısı ve idealindeki vücut yapısı arasındaki farklar arttıkça beden memnuniyetsizliği artmaktadır. Bu tanımlamada algılanan vücut yapısı kavramı önemlidir. Çünkü zayıf olduğu halde kendini şişman olarak tanımlayan bireyler mevcuttur. Bu çalışma farklı bölümlerde eğitim gören kız öğrencilerin beden algılarının değerlendirilmesi amacıyla planlanmıştır. Çalışmaya Gazi Üniversitesi Sağlık Bilimleri Fakültesi'nde eğitim gören üç farklı bölümden (beslenme ve diyetetik, fizyoterapi ve rehabilitasyon ve hemşirelik) 305 kız öğrenci dahil edilmiştir. Çalışmada bireylerin boy uzunluğu, vücut ağırlığı ve beden kütle indeksi (BKİ) değerlendirilip aynı zamanda bireylerin kendi vücudunu nasıl algıladığı öğrenebilmek amacıyla beden algısı ölçeği kullanılmıştır. Bölümlere göre BKİ dağılımına bakıldığında; Beslenme ve Diyetetik bölümünde okuyan öğrencilerin BKİ ortalaması 22,1±2.87 kg/m^2, fizyoterapi ve rehabilitasyon bölümünde okuyan öğrencilerin BKİ ortalaması 21,9±3.26 kg/m^2, hemşirelik bölümünde okuyan öğrencilerin BKİ ortalaması 21,5±2.77 kg/m^2'dir. Beslenme ve Diyetetik bölümünde BKİ sınıflaması normal olan bireylerin %32,3'ü kendisini zayıf, %6,0'sı kendisini fazla kilolu olarak görmektedir. Zayıf olan bireylerin %33,3'ü kendisini normal; hafif şişman olanların %60,87'si kendisini normal beden imajına sahip, %26,0'sı zayıf olarak görmektedir. Fizyoterapi ve Rehabilitasyon bölümündeki öğrenciler BKİ sınıflaması normal olan bireylerin, %37,7'si kendisini zayıf, %21,3'ü kendisini hafif şişman; zayıf olan bireylerin %33,3'ü kendisini normal, %66,67'si zayıf beden; sınıflaması fazla kilolu olan bireylerin ise %66,7'si normal olarak değerlendirmektedir. Hemşirelik bölümü öğrencileri ise, BKİ sınıflaması normal olan bireylerin %38,2'si zayıf beden, %7,7'si kendisini fazla kilolu; zayıf olan bireylerin %23,1'i kendisini norma; hafif şişman olan bireylerin %54,6'sı normal, %9,09'u zayıf olarak değerlendirmektedir. Beden algısı bozukluklarının ve yeme bozukluklarının kadınlarda daha fazla görüldüğü bilinen bir gerçektir. Bu çalışmada da bireylerin gerçek vücut ağırlığı değerlendirmesiyle algıladıkları arasında farklılıkların olduğu göze çarpmaktadır. Öğrencilere eğitim hayatı boyunca sağlıklı besin seçimi, sağlıklı beslenme ve sağlıklı vücut ağırlığı hakkında verilecek eğitimler özellikle medyanın oluşturduğu beden algısından korunmada olumlu katkı sağlayacaktır.

Anahtar Kelimeler: beden algısı, beslenme, sağlık

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➢ **ORAL PRESENTATION**

Yangın başlatıcı-hızlandırıcı sıvıların FT-IR ve Raman spektroskopisi ile tayini

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Özet

Kasıtlı olarak meydana getirilen yangın olaylarında, olay yerlerindeki yanmış ya da hasar görmüş artıklar genelde bozunmuş ya da kolayca uçabilen örneklerden oluşmaktadır. Bu nedenle duyarlı analitik tekniklerle, düşük konsantrasyonlarda dahi yangın artıklarından güvenilir sonuç elde edilmesi, olayın aydınlatılmasında oldukça önemlidir. Yangın başlatıcı-hızlandırıcı kimyasal maddelerin varlığının tespiti ve tanımlanması oldukça zordur ve yalnızca gelişmiş tayin yöntemleri kullanılarak gerçekleştirilebilmektedir. Bu noktada yangın başlatıcı ve hızlandırıcı madde tayininde tamamlayıcı yöntemler olan Raman Spektroskopisi ve Fourier Dönüşümlü-Kızılötesi Spektroskopisi (FT-IR) oldukça dikkat çeken teknikler olarak görülmektedir. Analizi yapılan kalıntılar ileri analitik yöntemlerde tekrar kullanılabileceği için ön tanımlama analizlerinde mümkün olduğunca Raman ve FT-IR gibi delile zarar vermeyen yöntemler tercih edilmektedir. Özellikle kundaklama orijinli yangın olaylarında benzin, çakmak gazı, mazot, gaz yağı, aseton, tiner, fren sıvısı, kerosen (jet yakıtı) ve alkol gibi maddeler yangına sebebiyet verebilecek veya yangın başlatıcı-hızlandırıcı olarak kullanılabilecek hidrokarbon temelli kimyasal maddelerdir. Çalışmamızda bu kimyasal maddelerden benzin, mazot, etil alkol ve tolüen maddeleri sıkça karşılaşılması bakımından örnek olarak seçilip; kolay tutuşabilen çeşitli tekstil örnekleri ile etkileşmesi sağlanmıştır. Yanma öncesi ve sonrası yangın başlatıcı-hızlandırıcı madde tespitine yönelik yapılan çalışmalarda, kimyasal maddelerin spektroskopik tayinleri, kütüphane eşleştirmeleri, farklı tekstil ürünleri ile birleştirildiğinde meydana çıkabilecek olası farkın ortaya koyulması için deneysel çalışmalar gerçekleştirilmiştir. Bu çalışma İstanbul Kalkınma Ajansı'nın 2018 Yılı "Yenilikçi ve Yaratıcı İstanbul" Mali Destek Programı ile İ.Ü.-C Adli Tıp ve Adli Bilimler Enstitüsü çatısı altında kurulan Yangın ve Patlayıcı Madde Analiz Merkezi (YAPAMER)'nde yürütülmekte olan öncül çalışmalardır. Geliştirilen yöntem ve işlem basamakları olay yerini taklit etmek sureti ile gerçekleştirilmekte, gerçek olay yeri örneklerine de uygulanmak üzere tasarlanmaktadır.

Anahtar Kelimeler: Yangın başlatıcı, yangın hızlandırıcı, FT-IR, Raman, kundaklama, olay yeri inceleme

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➢ **ORAL PRESENTATION**

Üniversite öğrencilerinin öğün tüketim durumları ve tercihlerinin değerlendirilmesi

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Özet

Yükseköğrenim gençliğinin doğru beslenme alışkanlıklarına sahip olması; kendi sağlıkları yanında toplumsal önem taşımaktadır. Çünkü bu grup toplumda rol model olarak yer almaktadır. Okul çevre ve yurt ortamına uyum çabalarında zorlanma ve ekonomik yetersizliklerin üzerine bilinçsiz, gereksiz yiyecek içecek tüketme, fast-food beslenme eğilimleri eklenince öğrencilerin beslenme dolayısıyla da sağlık sorunları daha da artmaktadır. Bu çalışma üniversite öğrencilerinde öğün tüketim durumlarının ve öğün tercihlerinin belirlenmesi amacıyla planlanmıştır. Çalışmaya Gazi Üniversitesi Sağlık Bilimleri Fakültesi'nde eğitim gören 306 kadın ve 136 erkek olmak üzere toplam 442 genç yetişkin birey katılmıştır. Bireylerin beslenme alışkanlıklarını değerlendirmek amacıyla ana ve ara öğün sayıları, ana öğünlerde sıklıkla tükettikleri besinler ve öğünlerin tüketildiği yerler sorgulanmıştır. Kız öğrencilerin %11.8'i, erkek öğrencilerin ise %16.9'u kahvaltı yapmadığını bildirmiştir. Kızların %27'si, erkeklerin %48.7'si kahvaltıda simit-poğaça tercih ederken, kızlarda ve erkeklerde en fazla peynir (sırasıyla %84.4 ve %69.9) tercih edilmektedir. Öğle yemeğini kızların %13.4'ü, erkeklerin ise %6.6'sı tüketmemektedir. Her iki cinsiyette de en fazla tercih edilen yer okul yemekhanesi olup, restaurant/cafe gibi işletmeleri tercih edenlerin oranı kızlarda %4.9, erkeklerde ise %11.8 olarak belirlenmiştir. Öğle yemeğinde fast food tercih edenlerin oranı kızlarda %15.1 iken erkeklerde %23.6 olarak belirlenmiştir. Akşam yemeği tüketmeyenlerin oranı ise kızlarda sadece %1, erkeklerde %2.3 olarak bildirilmiştir. Akşam yemeğinde her iki cinsiyette fazla tercih edilen yer yurt iken (kızların %57.4, erkeklerin %49.6), fast food tercih edenlerin oranı kızlarda %12.9, erkeklerde %36.1 olarak belirlenmiştir. Yapılan bu çalışmada bireylerin restaurant/cafe yiyecekleri veya fast-food tüketme alışkanlığı oldukça düşük düzeyde olduğu görülmüştür. Bireylerde öğün tüketme alışkanlığı olmayanların oranın da düşük olması dikkat çekmektedir. Bu sonuca ulaşmada, öğrenim gördükleri sağlık alanındaki bilgi düzeylerinin yüksek olması sebep gösterilebilir. Ancak kahvaltıda tüketilen simit-poğaça gibi besinlerin azaltılması, bunun yanı sıra sabah kahvaltı alışkanlığı kazandırılması bireylerin enerji alımını dengelemekle kalmayıp yeterli ve dengeli beslenmesine de katkı sağlayacaktır. Öğrencilerin beslenme sorunlarının tespit edilip, yanlış beslenme tercihleri yerine doğru beslenme alışkanlıklarının kazandırılması hedeflenmelidir.

Anahtar Kelimeler: beslenme alışkanlıkları, besin tercihleri, öğün tüketimi

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➢ **ORAL PRESENTATION**

Pentaflorofenil grubu içeren yeni Schiff bazının sentezi, karakterizasyonu ve antikanser aktivitesinin belirlenmesi

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Özet

Kanser, hücrelerin genetik yapısında meydana gelen mutasyonlar ve çevresel faktörler sonucu hücrenin kontrolsüz bir şekilde çoğalmasıyla ortaya çıkan bir hastalıktır. Hücresel büyümeyi ve hücre döngüsünü düzenleyen genler mutasyona uğrar ve normal hücreleri kanserli hücrelere dönüştürür. Bu hücreler, hücre kontrol noktalarını atlar, apoptozdan kaçınır, daha büyük popülasyonlar üretir, kütlelerini büyütür ve yakındaki erişilebilir dokulara invazyona başlar. Belirli bir vücut kısmını veya sistemi etkiledikten sonra, hastalık vücudun diğer bölgelerine de ilerler. Kanser erken teşhis edilirse etkili bir şekilde yönetilebilir ve tedavi edilebilir, ancak teşhis konulmadan kalır ve hastalık son aşamaya ilerlerse ölümcül olabilir. Kemoterapötiklere karşı büyük bir eğilime sahip olan ve ilk tedaviden sonra nüksetmeye yol açan 270'den fazla kanser türü vardır. Bu nedenle, bu zorluklarla mücadele etmek için yeni moleküllerin ve stratejilerin keşfi gereklidir. Kanser hücrelerinde apoptozun indüksiyonu, antikanser çalışmaları yapılırken yeni bir molekül tarafından elde edilecek elverişli bir hedeftir. Schiff bazları veya azometinler, birincil aminler ve aldehitler arasında bir kondensazyon reaksiyonu ile oluşturulan ve çeşitli biyolojik, tıbbi, klinik, farmakolojik ve analitik uygulamalara sahip bileşiklerdir. Çok yönlü biyokimyasal özellikleri ve kolay sentezlenebilmeleri nedeniyle popüler ligandlar olarak bilinir. Aromatik birincil aminler, biyolojik aktivitelerin arttırılmasına ve düzenlenmesine yardımcı olan -F, -Cl, -OH, $-CH_3$ gibi ilave fonksiyonel gruplar da içerebilir. Bu çalışmada pentaflorofenil fonksiyonel grubuna sahip yeni Schiff bazı sentezlendi. Ligandın moleküler yapısı FT-IR, ^{1}H ve ^{13}C-NMR ve X-Ray gibi spektroskopik yöntemlerle aydınlatıldı. Ardından ligandın insan prostat ve meme kanseri hücreleri üzerine sitotoksik etkinliği araştırıldı. Çalışma sonucunda hücreler üzerine uygulanan bileşiğin her iki hücrede canlılığı önemli düzeyde azalttığı belirlendi.

Anahtar Kelimeler: Schiff Bazı, Antikanser aktivite, Sitotoksisite.

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Kıyı bölgelerinde atık kirliliğine maruz kalan midyelerde metallerin biyoakümülasyonu ve insan sağlığı üzerindeki etkileri

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Özet

Dünyanın oluşumundan itibaren su ortamları, kullanılmış sular ve diğer atıklar için bir alıcı ve uzaklaştırıcı ortam olarak kullanılmaktadır. Gelişen endüstrilerin ve daha modern bir yaşam sağlama amacıyla sürdürülen çabaların sonucu olarak ortaya çıkan kirleticiler, her türlü çevre koşullarında ve bulundukları ortamda kalıcı olmaları, ekosistemde meydana getirdikleri etkiler nedeniyle çevre ve insan sağlığını tehdit etmektedir.

Dünyada, artan nüfus ile ihtiyacı karşılayacak besin kaynaklarına gereksinim duyulmaktadır. Deniz canlılarıda bu besin kaynaklarından bir kısmını oluşturmaktadır. Ekolojik olarak çeşitli türleri barındıran deniz suyunda insan tüketimine açık birçok canlı yaşamakta ve midyede tüketimi hızla artan deniz canlılarından biri olarak tüketiciye ulaşmaktadır.

Deniz canlılarından midyeler suyu filtre ederek suda bulunan gıdalarla beslenmekte ve gıdalarla birlikte birçok kirleticiyi de bünyelerine almaktadırlar. Kirleticilerin bir bölümünü oluşturan ağır metaller, metal bileşikleri ve çeşitli mineraller; göller, nehirler, körfez ve okyanuslar ile bunların dip kısımlarına geniş bir şekilde yayılmaktadırlar.

Derişimleri sürekli artan ağır metaller sucul organizmalar tarafından bünyelerine alınmakta ve besin zinciri aracılığıyla tüm canlılara ulaşmaktadırlar. Bazı metaller canlıların yaşamları için gerekli olsalar da cıva, kurşun, kadmiyum, bakır, çinko, krom ve arsenik gibi metallerin denizel ortamda meydana gelebilecek yüksek içerikleri, canlılar için toksik olabilmektedirler. Bu yüzden canlı bünyesinde akut ve kronik rahatsızlıklara yol açabilmektedirler. Ayrıca belirli bir derişimden sonra toksik olarak etki göstermektedirler (Fe, Zn, Cu, Ni ve Se). Yaşamsal olmayan ağır metaller (Hg, Cd ve Pb) ise başlangıç derişimlerinden itibaren toksik etki göstermekte ve çok düşük derişimlerde bile psikolojik yapıyı etkileyerek sağlık problemlerine neden olabilmektedirler.

Ağır metallerin vücuttaki toksik etkilerinin temel nedeni hücre içi metabolik süreçlerde oluşturdukları bozukluklar olabilmektedir. Söz konusu bozukluklar; DNA hasarı, oksidatif stresin artışına bağlı oksidatif protein yıkımı, organik hastalıklar (böbrek hastalığı, alerji, egzama, astım vb.) ve nörolojik bozuklukları (depresyon, migren, alzheimer hastalığı, parkinson hastalığı) olarak sayılabilmektedir.

Şu anda, metal ve organik kirleticilerin birikmesinden ve deniz ürünleri güvenliğinde, son zamanlarda gıda zincirlerinde kirletici biyoakümülasyonu hakkındaki anlayışın derinleştirilmesini gerektiren uygun dikkat çeken tehditlerden kaynaklanan çok ciddi bir endişeler bulunmaktadır. Kirleticilerin abiyotik ortamdan belirli bir gıda ürününe aktarılması, gıda kalitesi ve güvenliği açısından önemlidir ve güvenliği ayarlayan Avrupa Birliği (AB) Avrupa Komisyonu (EC) gibi uluslararası düzenleyici kurumlar tarafından tanınmıştır (EC No 1881/2006).

Anahtar Kelimeler: Midye tüketimi, metal, biyoakümülasyon, insan sağlığı riskleri

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Synthesis of 5,8-dibromo-2-((4-chlorophenyl)thio)naphthalene-1,4-dione and its use in the detection of latent fingerprints

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Abstract

Lawsone, a natural dye, is a 2-substituted-1,4-naphthoquinone derivative. Lawsone has been identified as having the potential to enhance latent fingerprints. Lawsone reacts with amino acids in fingerprint secretions and forms photoluminescence impressions. In this study, 5,8-dibromo-2-((4-chlorophenyl)thio)naphthalene-1,4-dione was synthesized by using the nucleophilic substitution reaction of 2,5,8-tribromo-1,4-naphthoquinone and 4-chlorothiophenol, and characterized using spectroscopic techniques (^{1}H-NMR, ^{13}C NMR, FT-IR and HPLC/MS). Then, the ability of the synthesized compound to enhance fingerprints was investigated on the selected paper surfaces (copy paper and thermal paper). The compound reacted with latent fingerprints on the paper surfaces to yield photoluminescence impressions. The results were compared with those obtained with lawsone and widely used ninhydrin under the same conditions.

Keywords: Forensic sciences, latent fingerprint, amino acid, naphthoquinone

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Contribution of dissolved sodium and dissolved chloride ions to total electrical conductivity of three selected water bodies

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Abstract

Sodium (Na) and chloride (Cl) ions are two of the major constituents of surface waters besides calcium and sulfate. Dissolved sodium and chloride ions can be analyzed by various methods one of which is ion chromatographic method that is superior to the others because of its simplicity and reliability. Electrical conductivity is analyzed by electrochemical method and is the most common parameter of water analyses since it gives preliminary information about the dissolved ion concentration of water sample. There are various Turkish guidelines, Turkish standards and EPA limits for the maximum allowable concentrations of sodium and chloride ions in water. In this study, the contribution of sodium and chloride ions (in meq/L) to the total electrical conductivity of three selected water bodies were inquired between 2014 and 2019 and a low contribution to electrical conductivity, especially decreasing in cold weathers when compared with hot weathers were revealed.

Keywords: Electrical conductivity, dissolved sodium, dissolved chloride

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➢ **ORAL PRESENTATION**

Decreased levels of salusin-α and salusin-β in osteoarthritis

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Abstract
Osteoarthritis (OA) is the most common form of arthritis, affecting millions of people worldwide. It is characterised by the painful loss of articular cartilage and is polygenic and multifactorial. In this study, we aimed to investigate serum salusin-α and salusin-β levels in patients with knee osteoarthritis. A total of 73 individuals were included in this study. Study group consisted of 35 patients with knee osteoarthrit. Salusin-α and salusin-β levels were determined by ELISA in serum samples. Serum salusin-α levels were significantly decreased in the OA group compared to the control group. Similarly, serum salusin-β levels were lower in OA group than in control group. Further studies are required to understand the molecular mechanisms associated with low serum levels of salusins in OA.
Keywords: Osteoarthritis; salusin-α; salusin-β ; serum

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➢ **ORAL PRESENTATION**

Ötektik donma kristalizasyonu ile endüstriyel boraks atık çözeltisinin geri kazanılması

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Özet

Bor dünya üzerindeki en önemli minerallerden biridir. Endüstriyel alanda birçok kullanım alanı bulunmaktadır. Dünya bor rezervleri içinde miktar ve oran açısından en zengin ülke Türkiye'dir. Türkiye bor oksit (B_2O_3) bazında 948.712 bin ton toplam rezerv ile dünyanın en zengin bor ülkesidir. Dünyadaki toplam bor rezervinin %73,4'ü Türkiye'de bulunmaktadır.
Türkiye'de günde tonlarca bor atığı endüstriyel süreçlerde oluşmaktadır. Stratejik öneme sahip olan bor ürünlerinin elde edilmesi sonucu açığa çıkan katı ve sıvı atıklar yüksek oranda bor oksit içermektedir. Bu atıklarının değerlendirilip ekonomiye kazandırılması gerekir. Çevre duyarlılığı ve bilinci gelişmeden önce, bu atıklar doğrudan çevreye atılıyordu. Bu atıklar çevre açısından sorun oluşturmaktadır. Bor atıklarını geri dönüştürmek hem ülke ekonomisi için hem de çevre temizliği ve insan sağlığı için önemli bir rol oynamaktadır.
Çevresel ve ekonomik koşullar göz önüne alındığında, bor atıklarının değerlendirilmesi konusunda günümüzde Ötektik Donma Kristalizasyon (ÖDK) yöntemi kullanılmaktadır. Ötektik donma kristalizasyonun temeli ötektik noktanın bulunmasına dayanır. Ötektik nokta, tuz-su karışımı faz diyagramında karakteristik bir noktayı ifade etmektedir. Ötektik nokta sıcaklığında buz, tuz ve çözelti arasında belirli bir konsantrasyonda denge oluşmaktadır. Ötektik donma kristalizasyonu ile atık çözeltiler, temiz su ve değerli katı tuz ürünlerine dönüştürülmektedir. ÖDK teknolojisi ile saf buz ve tuz son derece düşük maliyet ve yüksek verimde üretilmektedir.
Türkiye'de üretilen en önemli bor minerallerinden biri de borakstır. Boraks minerali çok çeşitli alanlarda ticari olarak kullanılan önemli bir hammaddedir. Bu çalışmada, ETİ MADEN'den alınan endüstriyel boraks atık çözeltisinin geri kazanılması hedeflenmektedir. Bunun için Ötektik Donma Kristalizasyonu (ÖDK) yöntemi kullanılmıştır. Ötektik donma kristalizasyonu için tasarlanmış olan sürekli çalışan kristalizörde endüstriyel boraks atık çözeltisi kullanılarak; kristalizör performansı, buz ve boraks tuz üretim kapasitesi, kristallerin boyutları, büyüme kinetikleri ve safsızlık içerikleri incelenmiştir.
Bu deneysel çalışmada kullanılan kristalizör 5 litre kapasiteli olup bu kristalizörün alt kısmından tuz ve üst kısmından buz almak için çıkışlar bulunmaktadır. Kristalizörün dört farklı noktasında bulunan sıcaklık sensörleriyle de sıcaklık verileri hassas bir şekilde toplanıp kontrol edilmektedir.
Yapılan deneylerde boraks-su ($Na_2B_4O_7$-H_2O)) sisteminin ötektik noktası tayin edilmiştir. Deneysel çalışmada, tuz ve buz kristalleri boyut ve görünüm özellikleri açısından Olympus BX51 marka mikroskop altında incelenmiştir. Mikroskop ile gözlemlenen kristallerin fotoğrafları optik mikroskopun 5X büyütme özelliği ile çekilmiş ve Image-Pro Plus programı yardımıyla boyutlandırılmıştır. Deney sonrası, tuz ve buz kristallerinin kaydedilen görüntüleri, Image J programı yardımıyla boyutlandırılmış ve meydana gelen değişimler hesaplanmıştır.

Anahtar Kelimeler: Boraks, Ötektik donma kristalizasyonu, Atık geri kazanımı

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Some plants used for treatment in tip 2 diabetics

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Abstract
Diabetes mellitus is a disease characterized by insulin resistance, impaired insulin secretion, or increased blood sugar resulting from the development of both. This disease has four forms depending on type 1, type 2, gestational diabetes and special causes. Type 2 diabetes results in the loss of body cells' ability to respond to insulin, starting with high blood sugar. This disease is important due to its widespread occurrence in the world, high treatment costs and no exact treatment yet. In this review, the information will be given about the nettle (*Urtica dioica L.*), Pomegranate (*Punica granatum L.*) and Blueberry plant (*Vaccinium myrtillus L.*), which determined antidiabetic effect growing in our country.
Keywords: Diabet, Pomegranate, Nettle, Blueberry plant

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➢ **ORAL PRESENTATION**

Türkiye'de yayılış gösteren *Mus* cinsinin şekil analizi

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Özet

Bu çalışmada kafatası (dorsal) ve altçene morfolojisine göre geometrik morfometri yöntemi ile iki farklı *Mus* türü (*M. musculus domesticus* Rutty, 1772 ve *M. macedonicus* Petrov ve Ruzíc, 1983) arasındaki şekil ve büyüklük varyasyonlarının belirlenmesi amaçlanmıştır. Mevcut çalışmada *M. m. domesticus* için 18 lokaliteden 62, *M. macedonicus* için 31 lokaliteden 165 örnek kullanılmıştır. Kafatası ve altçene için iki boyutlu landmark ve semilandmark yöntemi kullanılarak hazırlanan iki veri seti ile türler arası ve tür içi Temel Bileşen Analizi (PCA), Kanonik Varyans Analizi (CV), Tek Yönlü Varyans Analizi (ANOVA) ve Regresyon Analizleri yapılmıştır. Yapılan varyans analizine göre kafatası ve altçene morfolojisi yönünden türler arasında önemli farklılık mevcuttur (kafatası: $F=13.79$, $P<0.001$;altçene: $F=34.42$, $P<0.05$). Bu farklılık, PCA ve CV grafiklerinde de kendini ifade etmektedir. Büyüklük bakımından türler arasında, yalnız kafatası morfolojisi bakımından istatistiksel olarak anlamlı bir farklılığa rastlanırken ($F=16.85$, $P<0.001$), altçene morfoloji bakımından istatistiksel olarak anlamlı bir farklılığa rastlanmamıştır ($F=0.0$, $P=0.96$). Ayrıca *M. m. domesticus* için ANOVA, kafatası ve altçene morfolojisi yönünden eşeyler arasında istatistiksel olarak önemli farklılık olmadığını işaret etmektedir (kafatası: $F=1.22$, $P=0.11$;altçene: $F=1.01$, $P=0.45$). Ek olarak, *M. macedonicus* için eşeyler arası farklılık hem kafatası hem de altçene altçenede kendini göstermektedir (kafatası: $F=4.27$, $P<0,001$;altçene: $F=1.23$, $P=0.05$).

Anahtar kelimeler: *M. musculus domesticus*; *Mus macedonicus*; geometrik morfometri; Türkiye

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19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Health problems caused by veterinary medicine residues in foods of animal origin

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Abstract

Following the use of veterinary medicines for the treatment and prevention of diseases in food-producing animals, drug residues may occur in animal products, with their tissues and organs that are consumed as food. The drug residues in foods have an importance in human health and economics. Especially, long-acting drug formulations cause the residue. Related organizations, scientists, veterinarians, animal producers, producers of foods of animal origin, drug manufacturers, distributors, and vendors have important responsibilities, besides informing public, to prevent public health for the prevention of drug residues. For the prevention of drug residues, authorized organization establishes withdrawal time before slaughter, maximum residue levels, drug dosages that are permitted to be used in food-producing animals, residue control and monitoring programs. In addition, they determine the drugs that should not be used in food-producing animals. The residues in foods may be kept under control with that users use drugs consciously. In the context of this presentation, on above mentioned subjects and also implementations related to legislative regulations primarily Codex Alimentarius Commission (CAC), World Health Organization (WHO), Food and Agriculture Organization (FAO), Joint FAO/WHO Expert Committee on Food Additives (JECFA), European Food Safety Authority (EFSA), and European Union (EU), in developed countries and our country, for the prevention of veterinary medicine residues in foods of animal origin, brief information was given.

Keywords: Veterinary Medicine, Drug residues, Food.

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➢ **ORAL PRESENTATION**

Ratlarda sisplatin indüklü akciğer toksisitesinde oksidatif/nitrosatif stres parametreleri ve immunohistokimyasal etkinin araştırılması

Kezban Yıldız Dalgınlı[1], Melek Öztürkler[2], Hatice Beşeren[3*], Canan Gülmez[4], Altyn Movlamova[2], Yasemen Adalı[5], Onur Atakişi[2]

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Özet

Çeşitli kanserlerin tedavisinde yaygın olarak kullanılan platin içerikli kemoterapötik ajan olan sisplatin (SP)' in klinik olarak kullanımını sınırlandıran potansiyel toksik etkileri bulunmaktadır. Bu çalışmanın temel odak noktası, sisplatin indüklü akciğer toksisitesinde oksidatif/nitrosatif stres ve antioksidan etkiler ile immunohistokimyasal etkisinin araştırılmasıdır. Çalışmada, Kafkas Üniversitesi Deney Hayvanları Barındırma, Uygulama ve Araştırma Ünitesinden temin edilen 2 aylık 12 adet *Sprague Dawley* erkek *rat* kullanıldı. Hayvanlar kontrol (Grup I, n=6), ve sisplatin (Grup II, n=6) olmak üzere iki gruba ayrıldı. Grup I'e izotonik çözelti, Grup II' ye sisplatin 10 mg/kg tek doz i.p (*İntraperitoneal) uygulaması yapıldı.* Uygulamalar sonunda ratlara ksilazin-ketamin kombinasyonu (15mg/kg-50mg/kg) i.p uygulanarak servikal dislokasyon uygulanarak batın ön duvarı insizyonla açılıp akciğer dokuları alındı. Alınan dokularda redükte glutatyon (GSH), malondialdehit (MDA) ve nitrik oksit (NO) düzeyleri spektrofotometrik yöntemle belirlendi. Ayrıca akciğer dokularından parafin blok yapılarak hematoksilen-eozin boyaması ile boyandı. İmmünohistokimyasal olarak p53 ile değerlendirme yapıldı. Tek başına sisplatin uygulaması sıçanlarda akciğer dokusunda MDA ve GSH değerlerine etkisi olmadığı, NO düzeylerini önemli derecede arttığı saptandı ($P < 0.005$). Ek olarak akciğer dokusunun histopatolojik değerlendirmesinde H&E ile morfolojik limitlerde histolojik yapı gözlenirken, p53 immünohistokimyasal boyası ile yapılan incelemede de pozitif boyanma izlenmedi. Sonuç olarak, sisplatin toksikasyonunda akciğer dokusu oksidatif/nitrosatif stres parametrelerini etkileme potansiyelinin düşük olduğu kanaatine varıldı. NO düzeyindeki anlamlı artışın akciğerde sisplatin ilişkili hasarın başladığının bir ifadesidir.

Anahtar Kelimeler: Rat, sisplatin, oksidatif/nitrosatif stres, immunohistokimyasal

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➢ **ORAL PRESENTATION**

Investigation of oxidative / nitrosative stress, antioxidant parameters and immunohistochemical effects in cisplatin-induced lung toxicity in rats

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Abstract
Cisplatin (CP), a platinum-containing chemotherapeutic agent commonly used in the treatment of various cancers, has potentially toxic effects that limit its clinical use. The main focus of this study is to investigate oxidative / nitrosative stress, antioxidant effects and immunohistochemical effects in cisplatin-induced lung toxicity. In the study, twelve two months old Sprague Dawley rats supplyed from the University of Kafkas Experimental Animals Application and Research Center were used. The animals were divided into two groups as control (Group I, n = 6) and cisplatin (Group II, n = 6). Isotonic solution was applied to Group I and cisplatin 10 mg / kg single dose i.p (Intraperitoneal) was applied to Group II. At the end of the applications, the combination of xylazine-ketamine (15mg / kg-50mg / kg) i.p was applied to the rats, and cervical dislocation was applied, and the anterior abdominal wall was opened through an incision and lung tissues were removed. Reduced glutathione (GSH), malondialdehyde (MDA) and nitric oxide (NO) levels were determined by spectrophotometric method. In addition, paraffin block was made into the lung tissues and stained with hematoxylin-eosin staining. It was evaluated immunohistochemically with p53. Reduced glutathione (GSH), malondialdehyde (MDA) and nitric oxide (NO) levels were determined by spectrophotometric, p53 levels by immunohistochemical method in the tissues taken. It was found that cisplatin application alone had no effect on MDA and GSH values in lung tissue and increased NO levels significantly in rats ($P < 0.005$). In addition, histological structure was observed in morphological limits with H&E in the histopathological evaluation of lung tissue, while positive staining was not observed in the examination with p53 immunohistochemical stain.As a result, it was concluded that cisplatin toxicity has a low potential to affect lung tissue oxidative / nitrosative stress parameters. It is an expression that the significant increase in NO level has started cisplatin-related damage in the lung.
Keywords: Rat, cisplatin, oxidative / nitrosative stress, immunohistochemistry

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➢ **ORAL PRESENTATION**

Biyoteknolojik ilaçların analizlerinde kullanılan yöntemlere genel bakış ve biyoanalitik yöntem validasyonu

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Özet

Biyoteknolojik ilaçlar (biyofarmasötikler), kimyasal bileşimler yerine canlı organizmalardan biyolojik yöntemler kullanılarak üretilen kompleks ve büyük moleküllerden oluşan tıbbi ürünlerdir. Bu ilaçlar kan ürünleri, ileri tıbbi tedavi ürünleri, bağışıklık sistemine yönelik ürünler, rekombinant DNA teknolojisi ile üretilmiş ürünler olarak sıralanabilir. Günümüzde biyoteknolojik ilaçlar başta kanser olmak üzere alzheimer, kalp hastalıkları ve diyabeti de içeren yaklaşık 200 hastalığın tedavisinde kullanılmakta ve bu sayının artması için araştırmalar hızla devam etmektedir. Molekül ağırlıkları 4000-140000 Dalton (Da) aralığında olan bu ürünler karmaşık yapılarından dolayı konvansiyonel ilaçlara göre örnek hazırlama işlemleri ve analizleri daha karmaşık olan ürünlerdir. Bu moleküllerin analizleri için spektroskopik yöntemler, kromatografik yöntemler, elektroforez, immunokimyasal teknikler ve kütle spektrometrisi hibrit yöntemleri gibi çeşitli teknikler kullanılmakta ve bu analizler biyolojik kaynaklı olduklarından konvansiyonel ilaçların yöntemlerine göre validasyonları da farklılık içermektedir. Bu konuda FDA, ICH ve EMA'nın "Biyoanalitik Yöntem Validasyonu Kılavuzları" bulunmakta ve ülkemizde de "Biyoanalitik Yöntem Validasyonu Hakkında Kılavuz (EMEA/CHMP/EWP/192217/2009)" uygulanmaktadır.

Anahtar Kelimeler: Biyoanalitik, Validasyon, Biyoteknoloji

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

The synthesis, spectroscopic, crystallographic and biological properties of dispirocyclotriphosphazene derivatives containing benzyldiamino side groups

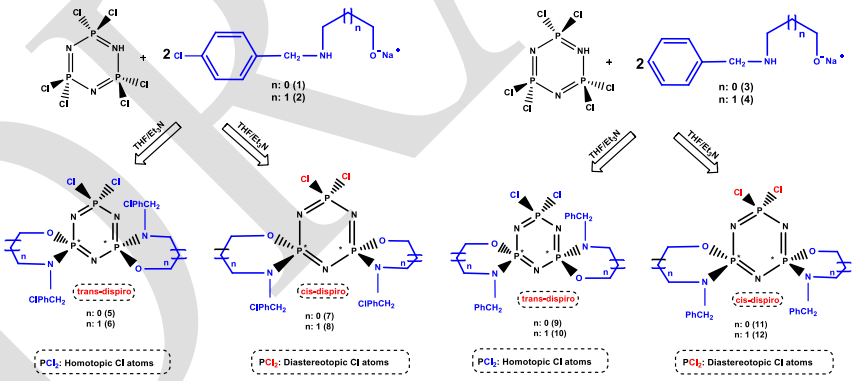
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Abstract

Phosphazenes are open-chain {[Y(N=PX$_2$)$_n$X]; n=1,2,3…}, cyclic [(N=PX$_2$)$_n$ (n=3, 4, 5...)] or polymeric {[X(PX$_2$=N)$_n$X]; X:Cl, n=15000} inorganic systems occurred by sequential bonding of P and N atoms. Especially, hexachlorocyclotriphosphazene ($N_3P_3Cl_6$;trimer;HCCP) and octachlorocyclotetraphosphazene ($N_4P_4Cl_8$;tetramer) have characteristic of simply functionalized with different substituents and gain different properties according to the bonded substituents. Cyclophosphazenes with theirs biocompatible nature have an important role in biological activity studies in drug design, pharmacology and toxicology as well as determination of their chemical, physical, crystallographic and spectroscopic properties [1]. Thus, trimer have been used as starting molecule for the preparation of organocyclophosphazene derivatives [2-5].

In this study, N/O donor-type (benzylamines) were synthesized from the reactions of 4-chlorobenzaldehyde and benzaldehyde with 2-amino-1-ethanol and 3-amino-1-propanol. The new dispirocyclotriphosphazenes with benzyl/4-chloro-benzyl pendant arm(s) were obtained from the Cl replacement reactions of trimer with Na salts of the ligands. The analytical data and spectroscopic properties of the new phosphazenes were determined by spectroscopic techniques (MS, ^{31}P-NMR, ^{13}C-NMR, ^{1}H-NMR). The crystal structures of **6** and **12** were evaluated using X-ray crystallography method. Additionally, the antibacterial, antifungal activities dispirophosphazenes were investigated. Minimum inhibitory concentrations (MICs), minimum bacterial concentrations (MBCs) and minimum fungicidal concentration (MFC) of these compounds were also determined. The interactions of the dispirophosphazenes with plasmid DNA were evaluated by agarose gel electrophoresis.



Keywords: Dispirophosphazenes, spectroscopy, crystal structure, biological activity.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Telef pamuktan selüloz nanopartikül eldesi ve enfeksiyona bağlı hastalıklarda kullanılabilirliğinin araştırılması

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Özet

Biyopolimerler çeşitli biyoteknolojik ve biyomedikal uygulamalarda kullanılan klinik olarak ilk sırada gelen biyomalzemelerdir. Özellikle, nanoteknoloji ve nanotıp alanında büyük öneme sahip olan biyopolimerik nanopartiküller biyouyumlulukları, biyobozunur olmaları ve kolay modifikasyonları ile dikkat çekmektedir. Selüloz, yenilenebilir kaynaklardan elde edilebilen ve doğada en bol bulunan biyopolimerlerin başında yer almaktadır. Telef pamuk, yeniden kullanım ve geri dönüşüm amacıyla kullanılan en iyi selüloz kaynaklarından biridir. Pamuk liflerleri çeşitli selülozik kaynaklar arasında en yüksek selüloz yüzdesine sahip (>% 95) malzemelerdir. İlaçların nanopartiküler taşıyıcı sistemlere konjügasyonu ile ilaçların farmakokinetiği ve terapötik indeksi, serbest ilaca göre önemli ölçüde geliştirilebilmektedir. Gentamisin, çeşitli enfeksiyonların tedavisinde yaygın olarak kullanılan geniş spektrumlu, aminoglikozit yapıda antibiyotiktir. Çalışmada telef pamuk liflerinden ön işlemler (yıkama, öğütme), saflaştırma (hemiselüloz ve ligninin uzaklaştırılması), saf selüloz liflerinin eldesi ve kimyasallarla muamele (asit hidrolizi) olmak üzere üç temel adımda selüloz nanopartiküller elde edilmiştir. Daha fazla sayıda ilaç molekülünün ilacın, taşıyıcı yüzeylere adsorbe edilmesi amacıyla, partikül yüzeyi farklı $NaIO_4$ (%2-10) derişimleri kullanılarak oksidasyon yöntemi ile modifiye edilmiştir. Yüzeyi modifiye edilen selüloz nanopartiküller gentamisin ile inkübe edilerek gentamisin bağlı selüloz nanopartiküller elde edilmiştir. Çeşitli enfeksiyonlara bağlı enfeksiyon odaklarına gentamisin salımında selüloz nanopartiküllerin etkinliği ve gentamisinin antibakteriyel etkisi araştırılmıştır.

TEM ile karakterizasyon çalışmaları sonucunda partiküllerin 500 nm boyutta nanokristal formda olduğu gözlenmiştir. Selüloz nanopartiküllere bağlı gentamisin nanokristallerin farklı mikrooarganizmalarla (*Pseudomonas aeruginosa, Klebsiella pneumoniae, Staphylococcus aureus, Candida albicans ve E.coli*) 37 ^{0}C'de 48 saatlik inkübasyon sonrası oldukça etkin olduğu tespit edilmiştir. Telef pamuktan hazırlanan selüloz nanopartiküllerin, etkin maddenin hedeflenen salım profilini sağlaması, ilaç salım sistemlerinde kullanımına imkan vermesi ile gelecek vaad eden sistemler olduğu düşünülmektedir.

Anahtar Kelimeler: Selüloz nanokristal, telef pamuk, gentamisin, antimikrobiyal aktivite

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➢ **ORAL PRESENTATION**

Determination of resistance levels of fresh bean lines to *Bean common mosaic virus* and *Bean common mosaic necrosis virus*

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Abstract

Bean common mosaic virus (BCMV) and *Bean common mosaic necrosis virus* (BCMNV) are one of the most destructive seed and aphid transmitted viruses in bean growing areas in the world. Using resistant cultivars is one of the most effective methods for virus control. In this study, 27 advanced fresh breeding lines improved by Black Sea Agricultural Research Institute were screened for resistance levels to BCMV and BCMNV in 2019. NL-4 strain of BCMV and NL-3 strain of BCMNV were inoculated separately by the sap onto the leaves of fresh bean plants with 10 replications. Plant reactions were evaluated according to symptomatic appearance of virus infection 21 days after inoculation. Additionally, virus presence or absence was confirmed by DAS-ELISA. The results showed that 5 breeding lines were susceptible to both of virus and 22 breeding lines were susceptible to only BCMNV. On the other hand, 22 breeding lines were found to be resistant to BCMV. Results of this study could be useful for the fresh bean breeding programs in either further evaluation of the resistant lines for varietal identification or using them as parents in the crossing.

Keywords: Fresh bean, BCMV, BCMNV, breeding, resistance.

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➢ **ORAL PRESENTATION**

İnsan over kanseri hücre hattında TRPV4 antagonisti olan RN 1734'ün sitotoksik ve genotoksik etkilerinin belirlenmesi

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Özet

Hücre içi kalsiyum sinyali hücre proliferasyonu ve farklılaşması, gen transkripsiyonu, apoptozis gibi birçok hücresel süreçte rol oynar. Transient receptor potential vanilloid 4 (TRPV4) kanalları hücre zarında bulunan kalsiyum geçirgen non-selekif katyon kanalıdır ve bunlar vücutta birçok dokuda yaygın olarak eksprese edilmektedir. Hücre içi kalsiyum düzeyinin düzenlenmesinde rol alan TRPV4 kanallarının kanser hücrelerinin proliferasyonu, apoptozis, migrasyonu ve tümör anjiogenezi ile ilgili önemli rolleri olduğu bildirilmektedir. Bu çalışmada TRPV4 antagonisti olan RN 1734'ün, insan over kanseri hücre hattında (A2780) hücre canlılığı ve DNA hasarı üzerine etkilerini araştırdık. Bileşiğin hücre canlılığına ve DNA hasarına olan etkileri sırasıyla MTT yöntemi ve Comet analizi gerçekleştirilerek belirlendi. Sonuç olarak bileşiğin A2780 hücrelerinde DNA hasarına bağlı olarak hücre canlılığını azalttığını gösterdik. Bu sonuçlar RN 1734'ün potansiyel bir antikanser ajan olabileceğini bizlere düşündürmektedir.

Anahtar kelimeler: RN 1734, TRPV4, Kalsiyum Kanalı, Antikanser aktivite, Over kanseri, Hücre kültürü

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➢ **ORAL PRESENTATION**

Telef pamuktan küresel selüloz nanopartikül eldesi ve antikanser ajan salım profilinin belirlenmesi

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Özet

Doğal biyopolimerler (selüloz, nişasta, albumin ve jelatin gibi) toksik olmamaları, biyolojik olarak parçalanabilir olmaları, biyouyumlu ve düşük maliyetli olmaları gibi avantajları nedeniyle nanopartikül eldesinde yaygın olarak kullanılmaktadırlar. Selüloz esaslı nanopartiküller kişisel bakım, gıda, elektronik ve ilaç sanayii gibi çeşitli alanlarda büyük kullanım potansiyele sahiptir. Selüloz, telef pamuk, odun, buğday samanı gibi çeşitli doğal hammadde kaynaklarından elde edilmesi nedeniyle ekonomik ve çevresel açıdan önem kazanmaktadır. Son yıllarda, geleneksel kanser tanı ve tedavisinin ortaya koyduğu yan etkileri azaltmak ya da ortadan kaldırmak üzere ilaç taşıyıcı sistemler geliştirilmektedir. Etken maddenin dozunu azaltma, dozlama aralığını uzatma, yan ve toksik etkilerden arındırma, etkin maddeyi hedef bölgeye ulaştırma gibi çeşitli avantajlara sahip kontrollü ilaç salım sistemleri ile kemoterapide kullanılan geleneksel yöntemlerde karşılaşılan dezavantajların önüne geçilebilmektedir. Doxorubisin, DNA interkalasyonu ve Topoizomeraz 2b (TOP2b) inhibisyonu olmak üzere iki farklı etki mekanizmasına sahip antrasiklin grubu antikanser ajanıdır. Çalışmada telef pamuk lifleri yıkama, öğütme gibi ön işlem uygulamaları sonrası asit ve alkali ile muamele edilmiş ve sonikasyona tabi tutulmuştur. NTU solvent sistemi (NaOH-Tioüre-Üre) içinde selüloz çözeltisi hazırlandıktan sonra mikroemülsiyon yöntemi ile küresel formda selüloz nanopartiküller elde edilmiştir. Nanopartiküllerin karakterizasyonu sonrası doksorubisin yükleme, nanopartiküllere ilaç yükleme kapasitesi ve ilaç salım profili çalışmaları gerçekleştirilmiştir. Doksorubisin yüklü selüloz nanopartiküller, ilacın NTU çözeltisinde çözülmesi ile nanopartikül hazırlanması sırasında gerçekleştirilmiştir. Bu sonuçlara göre selüloz nanopartiküllerin küresel formda, %99 gibi yüksek oranda ilaç yükleme kapasitesine sahip, 34 günün sonunda ilacın %97 sinin salındığı salım sistemine sahip olduğu görülmüştür. Telef pamuktan elde edilen selüloz nanopartiküllerin oldukça iyi ilaç yükleme kapasitesi ve kontrollü salım sistemine sahip taşıyıcı olması nedeniyle kanser tedavisinde umut vaad ettiği düşünülmektedir.

Anahtar Kelimeler: Selüloz nanoküre, telef pamuk, kontrollü ilaç salımı, doxorubisin

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➢ **ORAL PRESENTATION**

Fitozom formülasyonundan berberinin miktar tayininin yapılması için HPLC yönteminin geliştirilmesi ve analitik validasyonu

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Özet

Bitkilerden elde edilen aktif bileşenlerin önemli bir bölümü, uzun yan zincirlere ve yüksek polariteye sahiptir. Bu da gastrointestinal mukozadan veya deriden pasif difüzyonla emilime engel teşkil etmektedir [1]. Bu noktada, 'fito-fosfolipid' veya "fitozom" olarak adlandırılan yeni kompleksleştirme tekniği, absorbsiyonu kolaylaştırmak ve biyoyararlanımı artırmakta önemli bir rol oynamaktadır. Bitkisel kökenli ilaç molekülleri ve fosfolipidlerin kompleksleştirilmesiyle hücre zarına benzeyen yapılar oluşturulmaktadır [2]. Fitozomlar, bitkisel kaynaklı etkin maddelerin soya lesitini gibi doğal fosfolipidlerle uygun bir solvan/solvan sisteminde kompleks oluşturmasıdır. Silimarin, gingko biloba, yeşil çay gibi maddelerin fitozomları hazırlanmış ve biyoyararlanımlarının arttığı görülmüştür [3]. Fitozom formülasyonlarının karakterizasyonlarının yapılması amacıyla partikül boyutu ölçümü, etken madde salım hızı tayini, erime noktası tayini gibi in vitro testler yapılır. Enkapsülasyon etkinliği de ölçümü yapılarak değerlendirilen bir diğer parametredir. Formülasyon içinde tutulan etken maddenin %'de olarak ifadesidir. Fitozom yapısında tutulamayan serbest aktif bileşenin uygun bir yöntemle ölçülmesi sonucu da elde edilebilir. Bu ölçüm spektrofotometrik (UV-Vis) olarak ya da kromatografik (HPLC gibi) olarak yapılabilir [3]. Bu çalışmada fitozom formülasyonlarındaki berberin miktarını tayin etmek amacıyla HPLC metodunun geliştirilmesi ve validasyonunun yapılması amaçlanmıştır. HPLC analizleri Agilent 1260 Infinity II cihazında Zorbax Eclipse Plus C18 (100 mm x 4.6 mm x 3.5 µm) kolonda, 1 mL/dk akış hızında, mobil faz olarak 67:33 (h/h) oranında 30 mM amonyum asetat:asetonitril karışımda 30 °C'de yapılmıştır. Örnekler 10 µL olarak sisteme enjekte edilmiştir. Dalga boyu analizler boyunca 346 nm olarak ayarlanmıştır. Berberin fitozom formülasyonundan berberinin miktar tayininin yapılması amacıyla HPLC miktar tayini yöntemi geliştirilmiş ve ilgili ICH kılavuzuna göre valide edilmiştir. Berberinin fitozom formülasyonlarında bulunan yardımcı maddelerden ayrılarak miktar tayinin yapılabilmesi önemlidir. Bu noktada analitik validasyon parametrelerinden özgünlük detaylı olarak değerlendirilmiştir. Geliştirilen yöntem özgünlük, doğrusallık ve aralığı, doğruluk, kesinlik, geri elde edilebilirlik parametreleri yönünden değerlendirilmiş ve berberinin miktar tayini için güvenilir olduğu belirlenmiştir.

Anahtar Kelimeler: Berberin, Fitozom, Fosfolipid kompleks, HPLC, Analitik validasyon

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➢ **ORAL PRESENTATION**

Secondary metabolites of marine-derived *Aspergillus costaricaensis*

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Abstract

The Marine habitat is a rich source of bioactive compounds with pharmaceutical potential. Some of them are novel compounds with a novel mechanism of action. Marine microorganism such as fungi, bacteria as well as marine invertebrates (fungi , tunicates and etc.) have been proven to be a good source of compounds with intriguing structure and interesting biological activity including antimicrobial, anticancer, antiviral, antioxidant and anti-inflammatory properties have been reported. As part of our ongoing chemical investigation of biologically active metabolites from marine fungi, three known compounds; (Rubrofusarin B, decyl 3-(3,4,5-trihydroxyphenyl)propanoate and p-Hydroxyphenyl acetic acid methyl ester) were isolated from marine-derived fungi *Aspergillus costariacensis* isolated from *Petrosia ficiformis* which is collected from the Mediterranean Sea, Antalya, Turkey. Structures of the compounds was determined on the basis of NMR data comparison with spectroscopic data previously reported. Further identification of secondary metabolites of fungi is in progress.

Keywords: marine fungi, secondary metabolites, natural products.

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➢ **ORAL PRESENTATION**

Alternative ingredients for functional bread production

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Abstract

Properties of raw materials have significant effects on bread quality. Different additives are used in bread making to improve the quality, increase nutritional value of the bread and consumer appreciation, extend the shelf life and to save time and labour. Some of the main additives used are: L-ascorbic acid, surfactants, sweetening agents, enzymes, oils and fats, and some ingredients rich in proteins. Besides, usability of some plant sources rich in phenolic compounds, natural antimicrobials, hydrocolloids, flours obtained from sources other than wheat and food industry by-products has been investigated in the literature in order to improve the functionality of bread. This review discusses the effects of alternative ingredients on the dough rheology and bread quality. It was concluded that functional additives have a potential to improve the dough properties and bread quality. Moreover, the nutritional value of the bread can be increased using these ingredients. Hence, use of alternative ingredients can be a solution to prevent waste of bread and to provide a good nutrient source for individuals from low-income countries.

Keywords: ingredients, functional bread, dough, quality.

DRAFT

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➢ **ORAL PRESENTATION**

Polikistik over sendromunda CYP450 regülasyonu

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Özet

Oligo-ovülasyon veya anovülasyon, hiperandrojenizm ve ultrason incelemesinde polikistik yumurtalıkların varlığı ile karakterize olan polikistik over sendromu (PKOS), reprodüktif dönemdeki kadınları etkileyen bir endokrinopatidir. İnsülin direnci ve kompansatuar hiperinsülinemi, PKOS patofizyolojisinde kritik bir rol oynamaktadır. PKOS'un etiyolojisi açık olmamakla birlikte, çevresel faktörlerin androjen üretimini ve insülin sentezi/sekresyonunu etkileyen genler, steroid metabolizması ile obezite ve enerji regülasyonundan sorumlu genler gibi aday genlerle etkileşiminin sendromun ortaya çıkışında rol oynadığı varsayılmaktadır. Steroid biyosentezinde görev alan *CYP11A1, CYP17A1, CYP11B2, CYP19A1, CYP21A2* ile *CYP1A1* ve *CYP3A7* PKOS gelişimi ile ilgili olduğu düşünülen genlerdir. CYP11A1'in alelik varyantlarının artmış androjen sentezinde ve tüylenmede etkili olduğu belirtilmektedir. PKOS varlığında teka hücrelerinde artan CYP17A1 gen ekspresyonu aşırı androjen üretimi ile ilişkilendirilmektedir. CYP11B2'yi kodlayan genin promotör bölgesindeki 344T / C tek nükleotid polimorfizminin, CYP11B2 aktivitesini etkileyerek ve androjen fazlalığına katkıda bulunarak PKOS patogenezini etkilediği ileri sürülmektedir. Androjenin östrojene dönüşümünden sorumlu olan CYP19A1 aktivitesinin PKOS'lu kadınların foliküllerinde azaldığı ve bundan kaynaklanan androjen fazlalığının anormal folikül gelişimine yol açtığı bildirilmektedir. CYP21A2 geninde görülen p.V281L mutasyonu ile östrojen/17-hidroksiprogesteron/testosteron seviyelerindeki dalgalanma ve PKOS sıklığı arasında anlamlı ilişki olduğunu gösteren veriler mevcuttur. CYP1A1*3 alelini taşıyan bireylerde artan CYP1A1 aktivitesi ve katekol östrojen üretimindeki artış arasında ilişki görülebilmektedir. Bu nedenle, CYP1A1 genindeki bu polimorfizmin folikülogenezisi bozarak PKOS patofizyolojisine katkıda bulunabileceği düşünülmektedir. Yapılan çalışmalarda CYP3A7*1C alelini taşıyan kişilerde dehidroepiandrosteron (DHEA) ve dehidroepiandrosteron sülfat (DHEAS) atılımının artmasına bağlı olarak azalmış DHEAS seviyelerinin gözlenmesi, CYP3A7*1C'nin adrenal androjen fazlalığın düzenlenmesinde rol oynayabileceğini düşündürmektedir.

Anahtar Kelimeler: Polikistik over sendromu, CYP450, genetik faktör

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➢ **ORAL PRESENTATION**

Fruit anatomy of some *Tordylium* L. (Apiaceae) species in Turkey and notes on its taxonomic significance

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Abstract
The genus *Tordylium* L. has a widespread mediterranean distribution and is represented by 19 species in worldwide. The genus includes 17 species in Turkey, of which seven are endemic. The fruit anatomy of *Tordylium* species provides valuable taxonomic characters. In this study, fruit anatomical properties of 8 species (*T. apulum* L., *T. elegans* (Boiss. & Bal.) Alava & Hub.-Mor, *T. hasselquistia* Crantz, *T. ketenoglui* H. Duman & A. Duran, *T. lanatum* (Boiss.) Boiss., *T. maximum* L., *T. pustulosum* Boiss., *T. trachycarpum* (Boiss.) Al-Eisawi & Jury) are given. Plant samples were collected from different localities in Turkey. Mature fruits were kept in 70% ethanol. Each mericarp was rehydrated and placed in formalin-acetic acid-alcohol for a minimum of 24 h. Rehydrated materials were embedded into paraffin blocks following the traditional paraffin section method. A transverse section about 5-10 µm thick was cut using a Thermo microtome and stained with safranin solution. Micrographs were taken using a Nikon light microscope. The fruits of the genus are uniform or dimorphic. The fruits of *T. trachycarpum*, *T. ketenoglui*, *T.apulum*, *T.pustulosum*, *T. hasselquistia*, *T. maximum* are elliptic-orbicular in outline and strongly compressed dorsally. *T. elegans* and *T. lanatum* are dimorphic for fruit shape, that is, the species have either dorsally compressed elliptic-orbicular fruits or hemispherical fruits. Fruits of *T. apulum* and *T. elegans* have long marginal wings, which are expanded at the tip and look like a head. In other species, the marginal wings are short or just having thickened margin. The marginal wings of the hemispherical fruits of *T. elegans* and *T. lanatum* are strongly curved inward and the ends are expanded. In all species studied herein, the exocarp is composed of one layer of epidermal cells, the mesocarp is composed of 1-4 layers of cells and the endocarp has 1-6 layers of lignified cells. *Tordylium apulum* has 8-12 dorsal and 8-10 commissural vittae and all the remaining species have 4 dorsal and 2 commissural vittae.
Keywords: Umbelliferae, Tordylium, Turkey, anatomy

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Simultaneous reduced graphene oxide production and chemical oxygen demand removal from domestic wastewater

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Abstract

Continuing depletion of water resources force researchers to seek novel methods of wastewater treatment. Cities produce domestic wastewater (DW) containing large amounts of highly concentrated organic, inorganic and microbial pollutants. Discharge of these wastewater can cause high oxygen demand in the receiving water environment. Exposure of aquatic environments to DW causes an excessive increase in the amount of algae and plankton and contagion of waterborne diseases, which create adverse effects for human life. Wastewater treatment is mostly carried out using conventional treatment methods. Traditional wastewater treatment technologies can be grouped to include physical methods such as filtration, flotation, filtration and precipitation, chemical methods such as coagulation/flocculation, chlorination, adsorption and ion exchange, biological methods such as activated sludge, aerated ponds and membrane bioreactors, each having certain drawbacks and difficulties, not to mention their economic burden. Primary focus of this study is to treat DW by using it as a resource and at the same time obtain a value-added product, namely reduced graphene oxide (rGO). For this purpose, a simulated DW was prepared using a wide variety of chemicals and household substances. Reduced graphene oxide (rGO) was obtained from graphene oxide (GO) without any reducing agent other than DW and chemical oxygen demand (COD) removal from DW was performed, simultaneously. DW and GO were mixed and ultrasonicated for 1 h and then the process was performed at atmospheric pressure at 95 °C under constant stirring. GO and rGO was characterized with Ultraviolet-visible spectroscopy (UV-Vis), Fourier-transform Infrared (FTIR), X-ray diffraction (XRD), and Scanning Electron Microscopy (SEM). COD analyses of DW were carried out according to Standard Methods 5220 D by means of a spectrophotometer. Results show that GO was successfully reduced and 54.25% COD removal from DW was obtained.

Keywords: Wastewater treatment, graphene, COD removal

DRAFT

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➢ **ORAL PRESENTATION**

Bryophyte flora of Eflani district (Karabük, Turkey)

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Abstract

Turkey inhabits a vast amount of biodiversity both in terms of vascular and nonvascular plants. Even though the vascular plant flora of the country has begun publishing by P.H. Davies at the beginning of the 1960s, there is no complete bryophyte flora for Turkey. However, the increasing number of local bryophyte surveys, such as this one, are laying a solid groundwork for it. This study aims to reveal the bryophyte flora of Eflani district; Karabük, Turkey. Between 2017 and 2019, three field studies have been conducted in the area. During these field studies, 30 different sampling points have been selected due to their geographical, climatical, edaphic and vegetational differences. Bryophyte samples have been photographed on their substratum and collected without damaging the general appearance. The samples have been air-dried and then identified using related bryophyte floras, revisions, and monographs. As a result of identification, a total of 112 specific and subspecific taxa belonging to 36 families (97 specific and subspecific taxa and 25 families for mosses and 15 species and 11 families for liverworts) have been recorded. The three richest moss families are Pottiaceae (18), Brachytheciaceae (13), and Bryaceae (9), respectively. For liverworts, Ricciaceae (3), Aneuraceae (2), and Cephaloziaceae (2) are the richest three. All the identified specimens have been stored at Bryophyte Herbarium of Zonguldak Bülent Ecevit University (ZNG) as proper herbarium materials.

Keywords: Bryophyte, Flora, Eflani, Karabük

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➢ **ORAL PRESENTATION**

Ordu ve çevresinde yayılış gösteren *Primula acualis* subsp. *rubra* (Primulaceae) taksonunun anatomik özellikleri

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Özet

Primula L. (Primulaceae) cinsi Türkiye'de toplamda 9 tür ile temsil edilmektedir. Bu türlerden bir tanesi hibrit türdür. Cinse ait bazı türler tıbbi bitki olarak kullanılmaktadır. Bazı *Primula* türleri öksürük giderici, sakinleştirici, balgam söktürücü olarak kullanılmaktadır. *Primula. acaulis* L. subsp. *rubra* alttürü "Evvelbahar Çiçeği" olarak bilinmektedir. *Primula acaulis* subsp. *rubra,* çok yıllık, otsu, rozet yapraklı pembe renkli çiçekli bitkilerdir. Çalışmamızın amacı Ordu ve çevresinde geniş yayılış gösteren *Primula acaulis* subsp. *rubra* taksonunun anatomik özelliklerini ayrıntılı olarak tespit etmektir. Bitki örnekleri 2019 yılında Ordu Bayadı Mahallesinden toplanmıştır. Anatomik incelemeler için örnekler %70'lik alkole konularak tespit edilmiştir. Taksonun kök, rizom ve pedisellerinden enine, yapraklarından hem enine hem de yüzeysel kesitler elle alınmıştır. Ölçümler NIS Elements Imaging Software 3.00 SP5 programı kullanılarak yapılmıştır. Türlerin anatomik kesitlerinin fotoğrafları Nikon FDX-35 marka mikroskop ile çekilmiştir. Bitkilerdeki stoma indeksi hesaplanmıştır. Kökte tek sıralı epidermis ve 1-2 sıralı eksodermis tabakası vardır. Rizom bol miktarda nişasta taneleri içermektedir. İncelenen bitkinin yaprağı dorsiventral tiptedir. Yaprağın alt yüzeyinde tek hücreli ve çok hücreli salgı tüyleri bulunmaktadır. Yaprağın üst yüzeyinde ise genellikle tek hücreli salgı tüyleri vardır. Alt ve üst epidermis hücreleri dalgalı çeperlidir. Yapraklar amfistomatik olmakla beraber alt yüzeyde çok daha yoğun stoma hücreleri bulunmaktadır. Stomalar anomositik tiptedir.

DRAFT

➢ **ORAL PRESENTATION**

Anahtar kelimeler: *Primula*, *Primula acaulis*, Primulaceae, Anatomi, Ordu

Evaluation the interaction of some chemicals with trypsin

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Abstract

In recent years, there is great attention to understand the interaction of small molecules with proteinases. Especially, understanding the inhibition mechanisms of small molecules is very significant in terms of medicine, chemistry, food science, toxicology and biology (1). Trypsin (EC 3.4.21.4) is an important protease in the human digestive system and plays an important role in many physiological processes. It consists of 223 amino acid residues with a molecular weight of 23 kDa. It has two domains and six antiparallel strands making a β-sheet unit through a network of hydrogen bonds (2).
In this study, the effects of phytic acid and antihuman α-1antitrypsin on the activity and conformation of trypsin was evaluated by enzyme kinetics assay and spectroscopic methods including fluorescence spectrum, UV-vis absorption spectrum, FT-IR. Furthermore, the effect of the trypsin digestion buffer on the activity and interaction with peptide was investigated.

Keywords: Trypsin, interaction, phytic acid

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➢ **ORAL PRESENTATION**

Histopatolojik evreye göre sınıflandırılan mesane kanseri hastalarının eser element düzeylerinin incelenmesi

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Özet

Sanayileşme ve sigara içme gibi nedenlerden dolayı mesane kanseri görülme sıklığı giderek artmaktadır. Sanayileşmenin sebep olduğu hava kirliliği ve sigaradaki ağır metal konsantrasyonunun fazlalığından dolayı vücut için gerekli olan ve olmayan eser elementlerin her biri hücre, doku ve sıvılar içerisinde yüksek miktarlarda bulunması vücut için toksik olabilmektedir. Bu çalışmanın amacı, derece ve evrelerine göre gruplara ayrılan mesane kanseri hasta serumları ile sağlıklı bireylerin eser element ölçümlerini yaparak, eser elementlerin mesane kanserinde yararlı bir unsur olup olmadığını araştırmaktır. Kocaeli Üniversitesi, Tıp Fakültesi Etik Kurulundan bilimsel araştırma için izin alınmıştır. Çalışmaya Kocaeli Üniversitesi, Tıp Fakültesi, Üroloji servisinde mesane kanseri ön tanısı alan ve TUR-MT sonrası histopatolojik olarak mesane kanseri teşhişi konan hastalar dahil edilmiştir. Mesane kanseri grubu kendi içinde beş gruba ayrılmıştır (Ta-düşük dereceli, Ta-yüksek dereceli, T1-düşük dereceli,T1-yüksek dereceli, T2-yüksek dereceli). Mesane kanseri (n=51) ile sağlıklı (n=21) bireylerin serum örneklerinde Cu, Fe, Li, Mg, Mn, Li, Zn ve Se düzeyleri İndüktif Eşleşmiş Plazma-Optik Emisyon Spektroskopisi (ICP-OES) ile ölçülmüştür. Serum kotinin düzeyleri de ELABSCIENCE ELISA kiti (E-EL-0064-96T) ile ölçülmüştür. Sonuçların istatistiksel analizi SPSS paket program ile yapılmıştır. Mesane kanseri hasta grubunun yaş ortalaması 61,06±9,7, sağlıklı kontrol grubunun yaş ortalaması 59,9 ±14,13'tür. Mesane kanseri ile sağlıklı kontrol grubunu Cu, Fe, Li, Mg, Mn, Li, Zn ve Se düzeyleri arasında istatistiksel olarak anlamlı bir fark bulunamamıştır. Serum kotinin düzeyleri ile eser elementler arasında Ta düşük dereceli grup ile Mn arasında (r=0,482) ve T1 yüksek dereceli grup ile Cu arasında (r=0,899) pozitif yönde korelasyon saptanmıştır. Eser elementlerin mesane kanserindeki rolü henüz kanıtlanamamıştır. Bizim çalışmamızda da serum örneklerinde eser element düzeylerinin mesane kanseri hastalarının derece ve evrelerine göre farklılık göstermediği saptanmıştır.

Anahtar Kelimeler: Mesane kanseri, Evre, Derece, Eser elementler, Serum.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Molecular identification of dry rot pathogen in potato (*Solanum tuberosum* L.)

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Abstract

Potato (*Solanum tuberosum* L.) is one of the most important food crop in the world and also the most important non-grain source of human diet for the people living. Potato tuber suffers from many biotic stress factors during storage period. Among these factors, dry rot caused by many *Fusarium* species are one of the most important disease not only affects the quality of tubers, but also results in significant amounts of mycotoxins production. The present study was conducted to identify of *Fusarium* species in potato growing areas in Afyon region of Turkey. To this context, infected potato tuber samples grown in Afyon region were collected from fifteen different warehouses. Each potato tuber (2-3 cm pieces) was firstly surface sterilized with 70% ethanol, rinsed once with sterile distilled water and placed on Petri dishes containing potato dextrose agar (PDA). The culture plates were incubated at room temperature for 5-7 days and then purified. Total DNA was extracted from purified culture using the CTAB method. For molecular identification, the internal transcribed spacer of the fifteen isolates were amplified with ITS-1F and ITS-4 primers by using thermal cycler and PCR products were sequenced. ITS sequences of fifteen isolates showed 100% similarity with *Fusarium oxysporium* isolates in GenBank database. To sum up, only one *Fusarium* species (*Fusarium oxysporium*) was determined in this study and therefore use of different markers belong to other conserved gene regions such as Beta tubulin and EF factor instead of ITS region should be beneficial to separate differences among sub-species of *Fusarium* causing dry rot disease in potato.

Keywords: Dry rot, *Fusarium*, Potato, ITS region

Acknowledgements: This study was financially supported by The Scientific Research Projects Coordination Unit of Akdeniz University (project number: FYL-2019-4388).

1.1

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

1.2 Activated carbon supported silver nanoparticles for catalytic reduction of 4-nitrophenol

1.3

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Abstract
Silver nanoparticles (AgNPs) are widely used in water purification technologies due to their high catalytic activities. However, there are some difficulties limiting their intended usage [1]. Small size AgNPs with large surface area and stability tend to irreversibly aggregate during catalytic reactions due to their high surface energy. This process causes a *rapid decrease* in *activity*. *To prevent these problems*, AgNPs are usually supported on the surface of a solid substrate (e.g., clay, carbon, metal oxide and polymeric material) [2]. Among all these supports, porous carbon materials are the most preferred ones because of their high surface area, high chemical stability and high mechanical strength.
4-nitrophenol (4-NP) is a harmful and toxic pollutant found mostly in industrial and agricultural wastewaters. New eco-friendly nanocatalysts are receiving increasing interest in the treatment of 4-NP-containing wastewaters. In this study, activated carbon supported AgNPs were synthesized via a single-step chemical reduction method using *sodium borohydride (*$NaBH_4$). $AgNO_3$ was used as the metal salt precursor. Asphaltene-derived activated carbon (AAC) was prepared by chemical activation (physical mixing) method. The synthesized AgNP-AAC was characterized by various analytical techniques including Brunauer-Emmett-Teller (BET) surface area analysis, X-ray diffraction (XRD), transmission electron microscopy (ICP-OES), scanning electron microscopy (SEM), energy dispersive analysis of X-rays (EDAX) and transmission electronmicroscopy (TEM). The prepared AgNP-AAC was used as a heterogeneous catalyst in 4-NP reduction in the presence of $NaBH_4$. The catalyst showed high catalytic activity and the reduction of 4-NP to 4-aminophenol was completed within 8 min.
Keywords: Activated carbon, silver nanoparticle, 4-nitrophenol, catalytic reduction.

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➢ **ORAL PRESENTATION**

5-Hidroksitriptofanın antiinflamatuvar aktivite tayini

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Özet

5-Hidroksitriptofan (5-HTP), vücutta doğal olarak üretilen esansiyel aminoasit olan L-triptofanın metaboliti ve serotoninin öncül bileşiğidir. 5-HTP'nin oral absorpsiyonu %100'e yakındır ve serotoninin aksine kan beyin bariyerini serbestçe geçer. Beyindeki serotonin düzeyi büyük ölçüde 5-HTP miktarına bağlıdır. Anksiyete ve depresyon sırasında beyinde serotonin düzeyinin azaldığı bilinmektedir. Bu bilgiler ışığında anksiyete ve depresyonda uzun yıllardır 5-HTP gıda takviyesi olarak kullanılmaktadır. Son yıllarda yapılan çalışmalarda 5-HTP'nin proinflamatuvar mediyatörleri baskıladığı ve artrit, alerjik astım gibi bazı inflamatuvar hastalıklarda etkili olduğu deney hayvanlarında yapılan çalışmalarda gösterilmiştir. Ancak 5-HTP'nin periferik inflamasyondaki rolü henüz araştırılmamıştır ve 5-HTP ile inflamasyon ilişkisini değerlendiren çalışma sayısı oldukça azdır. Çalışmamızda 5-HTP'nin antiinflamatuvar aktivitesi farelerde karregeninle-indüklenen pençe ödemi testi ile değerlendirilmiştir. 5-HTP 1,5; 5 ve 20 mg/kg dozlarında; referans madde olarak indometazin 10 mg/kg dozunda 14 gün süresince oral gavaj ile uygulanmış, son dozdan 1 saat sonra farelerin pençelerine 0,01ml %2'lik karregenin enjekte edilmiştir. Enjeksiyondan hemen önce ve 2 saat sonra pençe kalınlıkları ölçülmüş aradaki fark hesaplanmıştır. Sonuçlar kontrol grubu ile karşılaştırılarak değerlendirilmiştir. İndometazin pençe ödemini kontrole göre %49 oranında azaltırken; 1,5; 5 ve 20 mg/kg dozlarında 5-HTP sırasıyla % 28, %35 ve %40 oranında azaltmıştır. Elde edilen sonuçlar doğrultusunda 5-HTP oral kullanımda indometazinle benzer oranda antiinflamatuvar aktivite sağlamıştır. Buna göre inflamatuvar hastalıklardaki olası etkinliği düşünüldüğünde 5-HTP'nin antiinflamatuvar etkinliği ve mekanizması detaylı olarak araştırılmalıdır.

Anahtar Kelimeler: 5-HTP, antiinflamatuvar aktivite, karregeninle-indüklenen pençe ödemi

DRAFT

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➢ **ORAL PRESENTATION**

Spectroscopic Characterization (FT-IR, $^{13}C/^{1}H$-NMR) and DFT Studies (B3LYP, B3PW91, mPW1PW91) of 3-Methyl-4-(3-acetoxy-4-methoxybenzylidenamino)-4,5-dihydro-1*H*-1,2,4-triazol-5-ones Molecule

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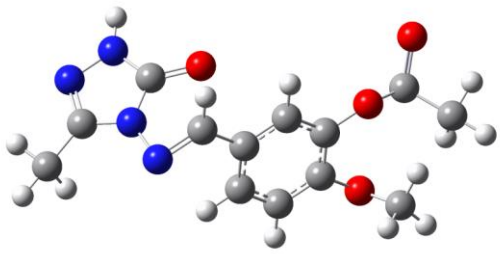
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Abstract

All quantum chemical computations of 3-Methyl-4-(3-acetoxy-4-methoxybenzylidenamino)-4,5-dihydro-1*H*-1,2,4-triazol-5-ones molecule has been studied using the 6-311++G(d,p) basis set with B3LYP, B3PW91 and mPW1PW91 functions of DFT method. Thus, optimize structure of compound was obtained. Molecular geometric optimizations (bond angles, torsion angles, bond lengths), Proton/Carbon NMR chemical shifts, vibrational wavenumbers, HOMO-LUMO analyses, E_{LUMO}-E_{HOMO} energy gap (ΔEg), electronic properties, thermodynamic parameters (heat capacity CV^0, enthalpy H^0 and entropy S^0), dipole moment, mulliken charges, total energy of the title molecule were studied using Gaussian 09W software package. Proton Nuclear Magnetic Resonance (^{1}H-NMR) and Carbon-13 Nuclear magnetic Resonance (^{13}C-NMR) spectral values was calculated in gas phase and in DMSO solvent according to GIAO method. Theoretical spectral values of molecule were calculated and compared with experimental values. Experimental data obtained from the literature. Using the veda4f program were calculated at the harmonic vibrational frequencies which were scaled with definite scala factor. The calculated results were obtained immersive via GaussView5.0 program. Also, the molecular surfaces such as molecular electrostatic potential (MEP) and MEP contour maps, the total density, the electron density and the electrostatic potential of the molecule were designated with different functions of same method.

Keywords: DFT, HOMO-LUMO, Veda4f, GIAO.



The Gaussview structure of the molecule

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➢ **ORAL PRESENTATION**

Characterization, hydration and optical properties of corn starch-polyvinyl alcohol crosslinked with citric acid

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Abstract

The increase in the use and production of petroleum-based polymers causes environmental pollution. To solve this problem, starch is possible with the use of renewable and environmentally friendly biopolymers to replace petroleum-based polymers. In many studies, starch is most preferred due to its advantages such as low cost, biodegradability, good transparency and easy availability. However, starch is limited due to its brittleness, strong hydrophilic character and poor mechanical properties. For this purpose, starch must be blended with biodegradable polymers. Polyvinyl alcohol is a colorless, nontoxic and biodegradable polymer with a good film forming property. Blending of starch and PVA improves the stretching, good film forming, physical and optical properties. In this study, films were prepared by crosslinking corn starch / pva blends with different rates of citric acid (3%, 6% and 9%) using glucose as plasticizer. The prepared films were characterized by spectroscopic methods, and the hydration and optical properties of the films were examined.

Keywords: Polyvinyl alcohol, corn starch, citric acid

DRAFT

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➢ **ORAL PRESENTATION**

Effect of food processing on food allergens

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Abstract

Food allergy is known to be the overreaction of the immune system towards a foodstuff. The allergic property of the food is originated from its proteins. Some of the most allergic foods are milk, egg, nuts, soy bean, and shellfish. The allergic reactions start after taking the allergens into the body via inhalation, digestion, injection or direct contact with the allergens. Effects of food allergens on human body can be severe that they may result in death. Different processing techniques are used to obtain safe foods, preserve food quality, and to extend the shelf life. Thermal treatment is conventionally applied to achieve these goals. However, thermal processing may adversely affect the food quality when it is applied at high temperatures. In other respects, non-thermal technologies can be also used within the scope of food processing. Non-thermal food processing technologies includes high hydrostatic pressure, pulsed electric field, UV radiation, ionizing radiation, ultrasound etc. This review examines the effect of thermal and non-thermal processing on the allergenicity of food proteins. A significant reduction in the allergenicity of various foods was reported after thermal treatments applied at temperatures above 100 °C. On the other hand, non-thermal processing technologies have promising effects for the decrease of food allergens. Use of non-thermal technologies in combination to thermal treatments can be offered to better reduce the allergenicity and preserve the food quality.

Keywords: food allergens, thermal treatment, non-thermal food processing.

DRAFT

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➢ **ORAL PRESENTATION**

$NdFeO_3$ Doped by Nano-Nickel Oxide: Structure, Morphology and Magnetic Features

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Abstract

$RFeO_3$ (R: Rare earth metals) systems are known by virtue of their interesting properties, such as colossal magneto-optic, metal-insulator transition, charge/orbital ordering which are important for spin switching, magnetic storage media, gas separators and solid oxide fuel cells (SOFCs) applications. Substitution of trivalent Fe with homovalent Ni in the $NdFeO_3$ (NFO) type subunit leads to an increasing number of interactions that may affect the whole characteristic of the system. Ni-substituted NFOs and other ferrites are commonly preferred by researchers because of their transport properties. In this study, nano NiO doped $NdFeO_3$ system prepared by two-steps synthetic procedure and all the compounds were characterized by X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), Energy Dispersive X-Ray (EDX). In addition, all the structures were also illustrated by Fourier Transform Infrared (FT-IR) spectroscopy, Vibrating Sample Magnetometer (VSM). As result, from the VSM analysis, it has been shown that controlled replacement of Ni with Fe improved the magnetic nature of $NdFeO_3$ system. The using of nano-NiO structure as dopant instead of other widely-reported structures can be regarded as novelty for this study.

Keywords: $NdFeO_3$, NiO nanoparticles, Superparamagnetism, VSM.

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➢ **ORAL PRESENTATION**

Magnetic metal Oxide (Fe_2O_3, Co_3O_4, NiO) nanoparticles: Chemical synthesis, characterizations and magnetic behaviors

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Abstract

With advances in all areas of industry and technology, attention is paid to focus on nano-structured metal oxide materials. In particular, the oxides of the magnetic transition metal ions ($Co^{2+,\ 3+}$, Ni^{2+}, Fe^{3+}) form a class of compounds with a wide range of physical properties and exhibit many exciting and interesting phenomena. These include magnetism, insulator metal transitions, charge and orbital ordering, semiconducting properties and chemical reactivity. Transition metal oxide nanoparticles have been receiving tremendous attention due to both scientific interests and its potential applications in lithium ion batteries, gas sensing, catalysis, electrochemical devices and bio-medicine. In the present work, nano-structured of iron-nickel-cobalt oxides were synthesized. The particles were characterized with the available sophisticated instruments in terms of their structure character and morphology, such as , X-ray Diffraction (XRD) pattern, Energy Dispersive X-ray (EDX) spectroscopy and Scanning Electron Microscope (SEM) respectively. The Fourier-Transform Infrared (FTIR) spectrum of the samples confirmed the formation of the samples through the presence of the expected metal oxygen interactions. From a detailed observation of the obtained XRD patterns, the presence of expected phases was observed in annealed samples. With Vibration Sample Magnetometer (VSM), their magnetization behavior including; saturation magnetization (M_s), remanent magnetization (M_r), coercivity (H_c) and squareness were determined. As a result, the synthesized iron oxide nanoparticles exhibit ferromagnetic behavior while nickel oxide and cobalt oxide nanoparticles exhibit paramagnetic behavior.

Keywords: Metal oxides, Nanoparticles, Magnetic properties, Transition metal, VSM.

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➢ **ORAL PRESENTATION**

Türkiye yerli tavuk ırkları ve süs tavuğu yetiştiriciği'nin yerli tavuk ırklarının korunmasındaki rolü

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Özet

Yerli ırkların korunması; genetik varyasyonun sağlanması, bulundukları çevresel koşullara ve hastalıklara dirençli olmaları ve gelecekte bir zamanda bilinmeyen üstün bir özelliğinin meydana çıkabilmesi ihtimali gibi sebeplerle önemlidir. Türkiye de yetiştirilen yerli tavuk ırk ve genotiplere ait fiziksel ve verim özellikleri aşağıdaki gibidir.

Denizli: Kökeni Denizli olan bu ırkın yayılma alanı tüm Anadolu ve Trakyadır. Tavuklar, bazılarının boyun ve kanat tüylerinde görülebilen eser miktardaki farklı renk dışında tamamen siyahtır. Horozlarda genellikle beş farklı renk varyetesi bulunduğu bildirilmiştir. Horozları uzun ötmeleri ve sesi ile ünlüdür. Ergin canlı ağırlık dişilerde 1914 g, erkeklerde ise 2420 g dır. Yıllık yumurta verimi 111-117 adet, yumurta ağırlığı ise 50-54 g dır.

Gerze: Gerze, Sinop çevresinde yumurta-et yönlü yetiştirilen yerli tavuk ırkıdır. Değişik varyeteleri yoktur, düz siyah renklidir. Boynuz şeklinde çatallı ibikleri bulunur. Gaga, incik, ayak derisi ve pulları; siyah , beden derisi, kulak lobu ve yumurta kabuk rengi beyazdır. Ergin canlı ağırlık dişide 1706 g, erkeklerde 2317 g dır. Yıllık yumurta verimi 82-97 adet, yumurta ağırlığı ise 47-51 g dır.

Sultan: Sultan İstanbul'dan köken alan bir tavuk ırkıdır. Beyaz ve karışık renkli olmak üzere iki varyetesi bulunsa da günümüzde siyah ve mavi gibi farklı renkler süs tavuğu yetiştiricileri tarafından üretilmeye çalışılmaktadır. Sultan tavuğunda, ayakta beş adet parmak bulur ve ayaklar teleklerle kaplıdır. Büyükçe bir tepeye ve tepe tüylerinin içerisinde gömülü V şeklide ibiğe sahiptir. Sakal tüyleri sık ve kalın bir şekilde boğazı tam kapatır.

İspenç: sabit bir vücut rengi bulunmayıp ergin canlı ağırlık 582-733 g arasında değişen minyatür yapıda bir genotiptir.

Türkiye de yerli tavuk ırklarının korunmasında süs tavuğu yetiştiricileri önemli role sahiptir. Bu amaçla Türkiye Süs Tavukları ve Bahçe Hayvanları Federasyonu kurulmuş ve federasyona bağlı 40'ın üzerinde dernek bulunmaktadır. Yetiştiriciler tarafından farklı ırkların yanı sıra yerli ırklar da beslenmekte ve federasyonun düzenlediği gösterilerde sergilenerek yetiştiriciliği yaygınlaştırmaya çalışılmaktadır.

Anahtar Kelimeler: Yerli tavuk ırkları, Süs tavukçuluğu, Denizli, Gerze, Sultan.

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➢ **ORAL PRESENTATION**

Milk added to beverages affect the color stability of composite resins?

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Abstract

Discoloration of dental composites can affect the appearance of aesthetic restorations. The aim of this study is to compare the color stability of the materials of different brand aesthetic dental composite materials used. **Material And Methods:** 50 samples of 5mm diameter and 2mm thickness were prepared from three different composite restoration materials (Gc G-Eanial, 3M Filtek Ultimate and Kuraray Clearfil Majesty Esthetic). Samples were separated to be placed in five different beverages (distilled water, filter coffee, milk filter coffee, tea, milk tea) (n = 10). Samples were kept in beverages at 37 ° C for 30 days. L *, a *, b * values were recorded using spectrophotometer (Vita Easyshade) before immersion in beverages (0. day) and in the following days (1st day, 7th day and 30th days). ΔE * values were calculated. Two-way analysis of variance was used to determine the effects of material and beverage factors on color change, and Tukey's HSD post hoc test was used to detect differences between groups (α = 0.05). **Results:** At the end of the first day, the least coloration was observed in the GC composite, which was kept in milk tea, and in the 1st week and in the 1st month, Kuraray composite that was kept in milk tea. On day 1, week 1 and month 1, the most color change occurred in the samples kept in the tea. **Conclusıon**: It was concluded that the milk added to tea and coffee reduced the color change in composite resins. The color stability of composite restorations varies depending on the type of material used and the type of beverage. The color stability of composite restoration varies depending on the type of material used and the type of beverage.

Key Words: Composite resin, aesthetics, coloration

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➢ **ORAL PRESENTATION**

Ülkemizde piyasada bulunan organik besinler ve bunlara ilişkin bazı özelliklerin değerlendirilmesi

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Özet

Artan nüfusun besin ihtiyaçlarını karşılayabilmek amacıyla bitkisel gıdaların üretiminde kimyasal tarım ilaçları ve gübre kullanımı; hayvansal gıdalarda ise hormon ve antibiyotik gibi maddelerin kullanımı artmıştır. Bu uygulama tekniklerinin, zaman içerisinde ortaya çıkan insan ve çevre sağlığı üzerindeki olumsuz etkilerinden dolayı bilinçli üreticiler ve tüketiciler organik üretim sistemlerinin ortaya çıkmasına ve yaygınlaşmasına ön ayak olmuştur. Organik Tarımın Esasları ve Uygulanmasına İlişkin Yönetmelik'e göre organik ürün; organik tarım faaliyetleri esaslarına uygun olarak üretilmiş ham, yarı mamul veya mamul haldeki sertifikalı ürünü ifade etmektedir. Organik üretim sistemlerinin, gıda güvenliği, insan, bitki ve hayvan sağlığı üzerindeki olumlu etkilerinden dolayı uzun vadede geleneksel üretim sistemlerine göre daha sürdürülebilir olduğu düşünülmektedir. Dünyada ve Türkiye'de tüketicilerin organik besinlere olan ilgisi gün geçtikçe artmaktadır. Bu çalışmada, Türkiye piyasasında bulunan organik besin çeşitliliğini ve bu besinlerin bazı özelliklerini değerlendirmek amacıyla yapılmıştır. Araştırmada yer alan organik besinlere dair bilgiler Ankara ili'ndeki büyük market zincirlerine gidilerek elde edilmiştir. Yapılan piyasa araştırmasında piyasada erişilebilen organik besinler (148 adet) ve bu besinlerin bazı özellikleri (logo var/yok, logonun olduğu yer, fiyat, vb.) incelenmiştir. Organik ürün logosu; incelenen ürünlerin %47.3'ünde paketin önünde, %22.3'ünde paketin üstünde, %18.2'sinde paketin yanında ve %12.2'sinde ise paketin arkasında olduğu tespit edilmiştir. Organik ürünler besin gruplarına göre incelendiğinde ise %12.2'sini süt ve ürünleri, %9.5'ini et ve ürünleri, %8.1'ini bal ve reçel, %3.4'ünü meyve ve sebze suları kalan kısmı ise diğer ürünler (bebek püreleri, taze meyveler, çaylar vb.) oluşturmaktadır. Organik olan ürünler ile organik olmayan ürünlerin fiyat karşılaştırması yapıldığında; organik olan ürünlerin fiyatlarının organik olmayanlardan daha yüksek olduğu ve fiyat farkının ürün grubuna bağlı olarak değişiklik gösterdiği belirlenmiştir. Organik sütlerin organik olmayanlara göre fiyatı %40.0, organik peynirlerin organik olmayanlara göre fiyatı %35.0, organik yoğurtların organik olmayanlara göre fiyatı %500.0, organik tavukların organik olmayanlara göre fiyatı %300, organik yumurtaların organik olmayanlara göre fiyatı %100.0 daha yüksektir. Bu çalışmanın sonucunda; ülkemizde diğer ülkelere kıyasla organik besin seçeneğinin kısıtlı olduğu ve beslenmede önemli yer tutan temel ürün gruplarının organik çeşitlerinin organik olmayanlara kıyasla fiyatlarının %35-300 daha fazla olduğu saptanmıştır.

Anahtar Kelimeler: Organik besin, Logo, Fiyat

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➢ **ORAL PRESENTATION**

Preparation of polymer/nanoclay composites exhibiting hierarchical porosity by using a renewable source

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Abstract

Porosity is an important physical property which supplies wide surface areas and cellular structure. Emulsion templating is one of the effective methods to synthesize well-defined porous materials. In this method; viscous and creamy like high internal phase emulsions (HIPEs) having an internal phase content over 74 % used as a template to create macroporosity. By using monomer(s) during HIPE preparation provides the opportunity of polymer film formation around the emulsion droplets under mild conditions, and the shrinkage of continuous phase volume during sol-gel transition leads interconnected porosity. Thereby, highly interconnected open porous polymer monoliths can be obtained. These monoliths are termed as polyHIPEs in order to emphasize the polymerized HIPE templates. The unique pore morphology of the polyHIPEs make them good candidates for the applications where high permeability is required. However, polyHIPEs usually suffer from weak mechanical strength due to the voids which cover most of the materials' volume.

In this study, mechanical strength of polyHIPEs were improved by using a green chemistry approach. For this purpose, myrcene, which is a terpene derived from essential oils was used. Precursor HIPE templates were prepared by dispersing high volume fraction of internal phase in the continuous phase composed of myrcene, ethylene glycol dimethacrylate (EGDMA) and a surface modified nanoclay. By changing the ratio of monomers and nanoclay loading a series of polyHIPE composite were obtained. Thanks to the three double bonds of myrcene, highly crosslinked polyHIPE monoliths were obtained. It was determined that resulting polyHIPEs were exhibited narrow cavity size distribution. In addition, mechanical properties were varied depending on the monomer ratios and nanoclay amount. It was observed that increasing ratio of myrcene decreases the fragility and leads to formation of more flexible polymer matrix.

Keywords: Myrcene; nanoclay; polyHIPE.

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➢ **ORAL PRESENTATION**

Effect of different mouthwashes on the surface properties of composite resins used for aesthetic purposes

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Abstract

The aim of this study is to evaluate the effect of two different mouthwashes on the color change and surface roughness of anterior composite resins. 90 cylindrical discs were prepared in 2 mm deep, 6 mm in diameter, 30 of each composite group. Asteria, Ceram X Duo and Beautifil placing on standard sized discs were polymerized with LED. Samples were kept in 37 ℃ distilled water for 24h. The samples were dried and the first color measurements were made by Vita Easy shade. Average CIE L * a * b * values were calculated after 3 times for each sample. First surface roughness values were recorded with the Profilometer. Mean values were recorded in Ra after repeated 5 times. Then, each composite group was divided into 3 subgroups. The first groups were kept in distilled water, second groups in Listerine Tooth Defense and third groups in Meridol for 24h. At the end of this period, the last color and roughening measurements were made. Kruskal Wallis ANOVA and Mann Whitney U tests were used for statistical analysis. When the results were examined, it was observed that the surface roughness occurred in the samples kept in Listerin and this was statistically significant and this rate decreased in Meridol and distilled water. The highest roughness occurred in the Beautifil composite held in Listerin and the least roughness occurred in the samples of the same composite, which were kept in distilled water. İt was determined that the most coloring solution was Meridol, and the most colored composite was Beautifil. In this study, it was concluded that different mouthwashes were effective color change and roughness of composites, but should be supported by new research.
Keywords: Coloration, surface roughness, anterior composite, mouthwashe

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➢ **ORAL PRESENTATION**

Antioxidant effect of B-glucan extract from *Saccharomyces cerevisiae*

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Abstract

Natural compound extracted from microorganism is one of the important compound used for treatment many diseases in the world B-glucan is one of these compound that extracted from yeast *Saccharomyces cerevisiae* by acid alkaline method used by Biron. The glucan was analyzed by FTIR ,HPLC, molecular weight was determined and antioxidant effect of b-glucan was tested . The result showed high compatibility between the sample of glucan and the standard by FTIR, B-glucan showed high purity of extraction as compared with standard of glucan by using HPLC, the molecular weight of b-glucan was e 300KD Mwt and the result of the antioxidant effect of b-glucan showed that b-glucan give high antioxidant effect than trolex especially at the concentrations250, 500,750mg/ml.

Keywords: B-glucan, *Saccharomyces cerevisiae*, antioxidant, HPC, FTIR.

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➢ **ORAL PRESENTATION**

Embryo culture and applications in biotechnology

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Abstract
In this study, we define a useful technique for studying the effects of media, plant growth regulators (PGR) and other chemical and physical factors on embryo growth and differentiation. It is done in two different ways; first, mature embryo culture is derived from ripe seeds, done when the embryo (do not survive in vitro and the seeds become dormant for a long time) and to eliminate the inhibition of seed germination usually with the addition of PGR to media. Second, immature embryo culture is avoided embryo abortion due to failure in endosperm development and sometimes endosperm produce toxins that would kill the embryo. Some of the factors affected the success of embryo are explant effect (explant size and time of collection), influence of genotype and culture media (macro or microelements, sucrose, amino acid, gelling agents) and growth regulators (auxins, cytokines, etc..) lastly, there are two phase of embryo culture, they are heterotrophic (which is require more complex media and higher osmatic pressure) and autotrophic phase (which is capable of synthesizing substance from salt and sucrose).
Keywords: Embryo culture, biotechnology, mature seed, immature seed

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➢ **ORAL PRESENTATION**

Standart yağış indeksi ve standart yağış evapotranspirasyon indeksi yöntemleri ile Ain Defla'da (Cezayir) kuraklık analizi

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Özet

Bu çalışmada temel amaç, Cezayir-Ain defla bölgesi için Standart Yağış İndeksi (SPI) ve Standart Yağış Evapotranspirasyon İndeksi (SPEI) yöntemlerini kullanarak kuraklık analizi değerlendirmeleri yapmak ve bu iki yöntemle elde edilen sonuçları karşılaştırmak olmuştur. Bu amaçla, bölge istasyonu 1984-2013 yılları uzun yıllar iklim verileri kullanılmıştır. Öncelikle, yıllık ortalama sıcaklık, toplam yağış ve referans bitki su tüketimi eğilimleri (trend) belirlenmiştir. Eğilim analizlerinde Mann-Kendall testi kullanılmış ve eğimler Sen'in eğim testi ile tahmin edilmiştir. SPI değerlerinin belirlenmesinde aylık yağış değerleri, SPEI değerlerinin belirlenmesinde ise aylık yağış ve aylık ortalama sıcaklık değerleri kullanılmıştır. SPI ve SPEI değerleri 12 aylık zaman serisi şeklinde hesaplanmış, ayrıca yıllık SPI ve SPEI eğilimleri de incelenmiştir. Sonuç olarak, yıllık toplam yağışta α=0.05 önem düzeyinde bir azalış eğilimi belirlenmiş, yıllık ortalama sıcaklık ve referans bitki su tüketiminde ise önemli düzeyde artış ya da azalış eğilimi bulunmamıştır. Mevsimlik toplam yağışta, sadece yaz mevsiminde önemli düzeyde (α=0.01) azalış eğilimi görülmüştür. Yıllık SPI ve SPEI eğilimlerinde benzer şekilde α=0.05 önem düzeyinde zamanla azalma (kuraklıkta artış) eğilimi belirlenmiştir. Kuraklık analizi sonuçlarına göre, SPI yöntemi ile 12 aylık zaman serisi şeklinde hesaplanan değerlerden; 2000-2004 yılları arasında (5 yıl) en uzun kuraklık döneminin yaşandığı, SPEI yöntemine göre de bu dönemin 1999-2007 yılları arasında (9 yıl) gerçekleştiği belirlenmiştir. SPI ve SPEI yöntemlerine göre en şiddetli kuraklıklar 2000 yılında görülürken, kuraklık sınıflandırmasına göre SPI yönteminde çok şiddetli, SPEI yönteminde de şiddetli kuraklık sınıfına girmiştir.

Anahtar Kelimeler: Ain defla, Kuraklık indeksi, Kuraklık analizi

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➢ **ORAL PRESENTATION**

Doğal bir antimikrobiyal madde olan propolisin gıda endüstrisindeki yeri

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Özet

Günümüzde beslenme bilincinin artması ile bağlantılı olarak, tüketicilerin doğal ürünlere olan ilgisi de artış göstermiştir. Propolis, arıların farklı bitki kısımlarından topladıkları bitki salgılarını, kendi bünyelerindeki enzimler ile biyokimyasal değişikliğe uğratarak balmumu ile birlikte oluşturdukları reçine benzeri bir maddedir. Propolis, içerdiği polifenoller, fenolik aldehitler, inorganik bileşenler ve aminoasitler gibi çeşitli kimyasal bileşenler sayesinde, antibakteriyel, antiviral, antifungal, antikanserojenik ve hepatoprotektif özelliklere sahip kompleks bir yapı oluşturur. Propolisin biyolojik aktivitesi, toplanma yeri ve süresi, yerel flora çeşitliliği ve arıların genetiği ile ilgili olarak değişkenlik göstermektedir. Tüketicilerin doğal gıda ürünlerine yönelmesi, sentetik gıda katkı maddeleri kullanımı yerine doğal gıda katkı maddeleri ile ilgili yapılan çalışmalara hız vermiştir. Alternatif bir gıda katkı maddesi olarak kullanılabilen propolis, kırmızı ve beyaz etlerdeki mikrobiyolojik gelişmeleri engellemesi, meyve sularında bozulmaya neden olan küf ve mayaları inhibe edebilmesi gibi antimikrobiyal özellikleri sayesinde gıda endüstrisinde kendine yer edinmiştir. Bu derlemede; propolisin kimyasal ve biyolojik kompozisyonu, antiterapötik ve antimikrobiyal etkileri ile bir gıda katkı maddesi olarak kullanılması ve gıda teknolojisindeki yeri ile ilgili yapılmış olan çalışmalardan bahsedilmektedir.

Anahtar Kelimeler: propolis, antimikrobiyal aktivite, fonksiyonel gıda

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Zebra Balığı Embriyosunda Yapay Aydınlatmanın Melatonin Ekspresyonuna Etkileri

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Özet

Sirkadiyen ritm, insan metabolizmasında gün içindeki biyolojik ritmik aktivitelerini tanımlar. Dış faktörlerin canlı biyolojik ritminde önemli değişimlere neden olduğu uzun zamandan beri bilinmektedir. Son yıllardaki yapılan araştırmalar yapay ışık kaynaklarındaki farklı ışık spektrumlarının halk sağlığını etkilediğini göstermektedir. Yapay ışık kaynaklarının sirkadiyen ritmi etkileyerek, canlıları çeşitli metabolik hastalıklara duyarlı hale getirmesi muhtemeldir. Melatonin, triptofan amino asidinden seratonin N-acetyltransferaz (arilalkilamin N-asetiltransferaz, AANAT) enziminin etkisi ile sentezlenir. Zebra balıklarında AANAT enzimini eksprese eden *aanat1* ve *aanat2* olmak üzere iki gen tanımlanmıştır. *aanat1* geni retinaya lokalize, ışığa bağımlı melatonin sentezinden sorumludur. *aanat2* geni, esas olarak pineal bezde eksprese edilir. Melatonin sentezinde bir ara bileşik olan serotonin AANAT tarafından asetillendiğinde asetil seratonin, metillendiğinde ise melatonin sentezlenmiş olur. Çalışmamızda model organizma olarak kullanılan zebra balığı embriyolarının farklı ışık spektrumu koşullarına maruziyet durumunda, melatonin biyosentezinde görevli enzim ekspresyonları belirlenmiştir. Bulgularımız melatonin hormonunun sentezinde görev yapan enzimlerin yapay ışık kaynaklarına maruziyet durumunda dalga boylarına bağlı olarak farklı yönde etkilendiklerini göstermektedir.

Anahtar Kelimeler: Sirkadiyen ritm, Yapay ışık kaynakları, Melatonin, Zebra balığı embriyosu

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➢ **ORAL PRESENTATION**

Secondary metabolites of marine-derived *Aspergillus niger*

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Abstract

Nowadays, research on metabolites from marine sources such as macroalgae and sponges has increased. The ocean environment is a unique source of structurally diverse and biologically active secondary metabolites. Marine-derived fungi have been discovered in various locations such as sediment, sponges, microalgae, fish, the deep sea and mangrove wood and etc. Marine derived microbial communities due to their extensive genetic, biochemical diversity and wide range of bioactivities such as antibacterial, antifungal, antioxidant, cytotoxic etc. properties. In this study, four known compounds (Rubrofurasin B, Flavasperone B, Aurasperone B, Fonsecinone D) were isolated from marine-derived fungi *Aspergillus niger* isolated from *Microcosmus vulgaris*(Tunicate) which is collected from the Aegean Sea, Çanakkale, Turkey. Structures of the compounds was determined on the basis of NMR data comparison with spectroscopic data previously reported. Isolation and identification of more secondary metabolites of fungi is in progress

Keywords: Aspergillus niger, marine fungi,secondary metabolites.

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➢ **ORAL PRESENTATION**

Extraction of collagen and gelatin from animal wastes

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Abstract

Collagen is the structural protein found in connective tissues in mammals and comprises about 35% of whole body protein. Gelatin is the protein product obtained from collagen via various procedures such as thermal denaturation, partial hydrolysis and chemical treatments. Animals such as bovine, sheep, chicken and fish are most commonly used for the production of foods for human nutrition. The wastes such as skins and bones raised during manufacturing of meat products are considered as rich sources for collagen. Various procedures are developed to extract collagen and gelatin as well from those wastes. The resultant protein materials with different purities can be served as value added products promising various application fields based on their characteristics. Many types of collagen are present based on structural differences however, most of the collagen in the body consists the types of I, II and III. Type A and type B are also the two common types of gelatine derived from collagen via acid or alkali treatments at different isoelectric points. Differences in amino acid composition can be encountered in different gelatin types obtained from different sources as well. Well-defined collagen and gelatine obtained from animal wastes can be used to develop biomaterials available for cell scaffolding in tissue engineering besides serving opportunity in manufacturing edible products.

Keywords: collagen, gelatine, purification, animal wastes

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➢ **ORAL PRESENTATION**

Synthesis, characterization and investigation of dielectric properties of sulfonated PEEK / chitosan / ionic liquid composite membranes

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Abstract

Fuel cells are electrochemical devices that convert chemical energy into electrical energy and are seen as a promising alternative to traditional power supplies. Fuel cell performance is affected by many factors and can be greatly improved by the chemical structure of the membrane, which has a direct effect on proton transfer. Many researchers have worked on alternative polymers for better conductivity. As a result of the researches, it has been determined that aromatic polyether ether ketone (PEEK) based membranes are very promising for fuel cell application. Because PEEKs are known to have good mechanical properties, thermal stability, toughness and superior conductivity depending on the degree of sulfonation (DS). In recent years, "chitosan", an efficient and environmentally friendly biopolymer, has been extensively researched as a new material in electrochemical processes in addition to other uses. Chitosan and its composite/blend structures can be used as proton conductive membranes in fuel cells. Ionic liquids are organic salts whose melting points are below room temperature or equal to room temperature. It has interesting properties such as high thermal, electrochemical stability and superior ionic conductivity. In this study, sulfonated PEEK / chitosan / ionic liquid based composite membranes will be prepared by solution casting method. Structural and thermal characterization (FT-IR, TGA, DSC) of imidazole based ionic liquid doped sulfonated PEEK/Chitosan blend membranes will be carried out and proton conductivities and dielectric properties will be examined. The usability of composite membranes as polymer electrolyte in fuel cells will be evaluated with the obtained results.

Keywords: Proton exchange membrane; Sulfonated PEEK; Chitosan; Ionic liquid; Proton conductivity.

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➢ **ORAL PRESENTATION**

Anatomical structure and ecological of *Orchis simia* Lam. and its on contribution to the taxonomy of Orchidaceae

Derviş Öztürk

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Abstract

In this study, in the present study reveals the morphological, anatomical and ecological characteristic of *Orchis simia* Lam. in Turkey. Plant materials of Orchis L. species were collected from one population, between 2018 in Eskişehir/Turkey. *Orchis simia* samples were analyzed for 5 morphological, 6 anatomical and soil characters and habitat properties. In morphological investigations, the structure of flower, lateral sepal, petal, dorsal sepal, lip, anther cap and column was determined. The findings were compared with those in Flora of Turkey. to habitat definition, *Orchis simia* grew up to 800 m to 1100 m. Also, *Quercus cerris* forests and glades were most common habitat of *Orchis simia*, found generally over calcareous soils.

Keywords: Anatomical, Morphological, *Orchis simia*, Eskişehir, Turkey

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➢ **ORAL PRESENTATION**

Micrometric measurements in anatomy of *Cephalanthera damasonium* (Mill.) Druce (Orchidaceae)

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Abstract

In this study, in the present study reveals the morphological, anatomical and ecological characteristic of *Cephalanthera damasonium* (Mill.) Druce in Turkey. Plant materials of Cephalanthera species were collected from one population, between 2018 in Eskişehir/Turkey. *Cephalanthera damasonium* samples were analyzed for 7 anatomical and soil characters and habitat properties. It was investigated micrometrically in the anatomy of *Cephalanthera damasonium* (Mill.) Druce. In morphological investigations, the structure of flower, lateral sepal, petal, dorsal sepal, lip, anther cap and column was determined. The findings were compared with those in Flora of Turkey. to habitat definition, *Cephalanthera damasonium* grew up to 800 m to 1200 m.

Keywords: Anatomical, Morphological, *Cephalanthera damasonium*, Eskişehir, Turkey

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➢ **ORAL PRESENTATION**

Glaucium corniculatum'dan elde edilen alkaloid ekstraktlarının Alzheimer'daki oksidatif hasara karşı antioksidan koruyucu etkisinin H_2O_2 ile indüklenmiş *in vitro* PC12 hücrelerinde araştırılması

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Özet

Alzheimer hastalığı (AH), kısa süreli hafıza kaybı, dil ve konuşma zorlukları ile karakterize ilerleyici bir nörodejeneratif hastalıktır. Çalışmalar oksidatif stresin AH patogenezinde önemli olduğunu göstermiştir. Dolayısıyla, antioksidan bileşiklerle tedavi teoride oksidatif strese karşı koruma sağlayacaktır. Bu çalışmanın amacı, *Glaucium corniculatum*'un üç farklı çözücüde hazırlanmış alkaloid ekstraktlarının nöral büyüme faktörü ile nörite farklılaştırılmış PC12 hücrelerinde hidrojen peroksit (H_2O_2) ile indüklenen oksidatif stres üzerindeki antioksidan etkilerinin araştırılmasıdır. Çalışmada, *G. corniculatum*'dan Soxhlet ekstraksiyon yöntemiyle elde edilen kloroform, metanol ve su alkaloid ekstraktlarının total alkaloid miktarı ve antioksidan aktivitileri spektrofotometrik olarak belirlenmiştir. Oksidatif strese indüklenmiş hücre modelinin oluşturulmasında kullanılan H_2O_2'nin ve alkaloid ekstraktlarının farklı süre ve konsantrasyonlarının sitotoksik etkisi MTT yöntemiyle tespit edilmiştir. H_2O_2 ile oluşturulan AH modelinde alkaloid ekstraktlarının süperoksit dismutaz (SOD) enzimi seviyesine etkisi ELISA ile belirlenirken, total antioksidan seviyesi (TAS) ve total oksidan seviyesine (TOS) etkileri spektrofotometrik olarak belirlenmiştir. Çalışmada en yüksek total alkaloid miktarı metanol (153±6,2 mg/g) ve kloroform (133±4,4 mg/g) ekstraktlarından elde edilmiştir. Kloroform alkaloid ekstraktının metal iyonlarını şelatlama (İnhibisyon % 53), DPPH serbest radikalini giderim (İnhibisyon % 82) ve total antioksidan aktivitesi (356 ±21,2 mg AAE/g) diğer iki ekstrakta göre daha etkili bulunmuştur. H_2O_2 ile muamele sonucu PC12 hücrelerinin canlılığı % 55 iken, alkaloid ekstraktları hücre canlılığını % 58-94'e yükseltmiştir. H_2O_2 ile oksidatif strese indüklenmiş nöral PC12 hücrelerinde SOD seviyesi % 55, TAS 0,120 mmol/L ve TOS 27,31 µmol/L iken, alkaloid ekstraktları SOD'yi % 78-92'ye, TAS'yi 0,190-0,640 mmol/L'ye yükseltmiş, TOS'yi ise 10,36-14,55 µmol/L'ye baskılamıştır. Bu sonuçlar, *G. corniculatum* alkaloid ekstraktlarının antioksidan özelliğe sahip olduğunu ve H_2O_2 tarafından indüklenen oksidatif stresi önemli düzeyde inhibe ettiğini göstermiştir. Yeni ve etkili tedavi ihtiyacının artması nedeniyle, doğal ürünler son zamanlarda AH'ye karşı alternatif terapötik ajanlar olarak dikkat çekmiştir. Bulgularımıza göre, *G. corniculatum* alkaloid ekstraktlarından antioksidan özellikte AH'den koruyucu, ümit verici bir terapötik stratejinin geliştirilmesi mümkün olabilir.

Anahtar Kelimeler: Alzheimer, hidrojen peroksit, *Glaucium corniculatum*, alkaloid, oksidatif stres, PC12 hücreleri.

Teşekkür: Bu çalışma 116S299/TÜBİTAK projesi tarafından desteklenmektedir.

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➢ **ORAL PRESENTATION**

Degradation of textile colourants by using laccase immobilized bentonite

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Abstract

Textile industries consume huge amounts of water and chemicals for wet weaving processes. These organic and inorganic compounds that are used both in dyeing and other processes are given to recipient waters as coloured wastewater, both reducing photosynthetic activity and increasing the need for biological and chemical oxygen demand by disrupting the pH balance of the environment. This causes a more intense colour to form in the waters. In addition to requiring high cost of physical and chemical treatment methods, new methods are being sought because of the fact that they create new environmental problems, are short-lived, and do not affect every type of dye. This puts biological treatment methods forward because they are cheap and effective. In this study, laccase enzyme immobilized to a support material was used for the removal of textile wastewaters. With the use of laccase enzyme immobilized, it is planned to recover the laccase, increase its efficiency, reusability and provide economic benefits. Bentonite is used as support material in immobilization of laccase. Bentonite is an inexpensive, easily available and environmentally friendly natural clay mineral. The biggest advantages of bentonite against other minerals are its low density, wide surface area and the high content of biomolecules on the bentonite surface thanks to the Ca and Na ions it contains. As a result, it has been observed that high loading efficiency is obtained in immobilization of laccase enzyme with bentonite. In addition, thanks to high loading efficiency, it has been concluded that laccase immobilized bentonite will achieve high removal efficiency in dye removal studies. Enzyme activity were examined using ABTS substrate for free and immobilized enzyme. Remazol Red RR decolorization was performed by free and immobilized enzymes. Moreover, it has seen that laccase immobilized bentonite seems more efficient to degrade textile colourants when compared with bentonite alone.

Keywords: Immobilization, laccase, bentonite, textile dyes.

DRAFT

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➢ **ORAL PRESENTATION**

Developing pectin-based hydrogels for controlled drug delivery: A computational and experimental study

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Abstract

In this study, controlled drug release systems based on pectin polymer, which is a natural carbohydrate [1,2], were designed and developed. The mechanical properties of pectin hydrogels were improved with the addition of zeolite-A [2]. Procaine, which has local anaesthetic and antiarrhythmic properties [3], was used as the model drug. Hydrogel films were prepared in three different loading pH (6.4, 9.1, 9.8) and two different drug concentrations (30 and 60 mg drug/ g hydrogel) at 25 °C. Glycerol and $CaCI_2$ were used as plasticizer and cross-linker, respectively. Synthesized films were characterized by FTIR, SEM, AFM, rheometer, zeta potential and UV-Vis-Spectrophotometer. The amount of drug released increased with the increasing loading medium pH.

In addition, 200 ns long molecular dynamics simulations were carried to understand the effect of drug concentration on the gelation mechanism of pectin chains, which mandate gel stiffness and degradation behaviour of the chains. The molecular interactions between the pectin chains, cross-linker and drug which control drug delivery were examined to improve the drug delivery performances. Two chains of poly(galacturonic acid) monomers cross-linked with Ca ions were modelled and solvated with explicit water. Systems were constructed with different concentrations of the model drug. We also constructed a system without drug molecules. All the simulations with NVT ensembles were performed using the CHARMM all-36_carb force field for carbohydrates with the NAMD 2.7 package. Dynamic behaviours of the pectin chains were analysed, focusing on radius of gyration, end to end distance, root mean square fluctuations, root mean square deviation, as well as non-bonded interactions between cross-linker/drug molecules and pectin chains. A good correlation was observed between the experimental data [4] and simulations, which revealed that the controlled uptake of the drug by pectin hydrogel can be achieved effectively in the case of 30 mg drug/ g hydrogel.

Keywords: Carbohydrates, Pectin Hydrogel, Controlled Drug Delivery, Molecular Dynamic Simulations

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➢ **ORAL PRESENTATION**

The importance of fluorophore choice in fluorescent microscopy: Experimental artifacts

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Abstract

Fluorescent microscopy is a method commonly used by researchers in life sciences. When it is used both alone and in combination with other methods, it promises researchers with fascinating results. Recent scientific and technological

developments have expanded the usage area of fluorescent microscopy. The new fluorophores developed, the interaction between proteins, the exchange of substances between organelles, the internal dynamics of a particular protein made it possible to monitor many conditions. By using suitable fluorophores, the same but more than one situation can be examined and interpreted.

In this study, fluorophores with different electrical charge, size, optic and spectroscopic properties that can be used or used in the examination of membrane permeability caused by P2X7 receptor activation were studied. Since the negatively electrically charged Lucifer Yellow and Calcein fluorophores are fluorescent both inside and outside the cell, their entry into the cell was measured in real time only by confocal microscopy. Since the confocal microscope enables transverse optical sections from the examined sample, intracellular and extracellular media can be separated and monitored in real time. When positively charged DNA dyes that give fluorescence when they enter the cell and bind to DNA, YO-PRO-1 and YO-YO-1 with dimer, TOPRO-1 and TO-TO-1 with dimer, TO-TO-3 are used with both conventional fluorescence microscopy. as well as with a confocal microscope. After the P2X7 receptor has been activated, the signal from inside the cell is proportional to the signal from outside the cell. This process was repeated over time and evaluated. The negatively charged fluorophores, Lucifer Yellow and Calcein, show almost homogeneous distribution when they enter the cell, while the positively charged fluorophores show heterogeneous distribution in the cell and in the nucleus. For example, TO-TO3 shows nonspecific binding (artifact) outside of the cell and gives negligible fluorescence. In studies performed by imaging such as fluorescent microscopy, these artifacts can be noticed and removed from the measurement, but not in spectrofluorometric measurements with cuvette or plate reader.

These findings show that different fluorophores produced for the same purpose and accepted as equivalent can have unpredictable behaviors in different experimental conditions and therefore can lead to experimental artifacts and misinterpretation.

Keywords: Fluorescence, DNA Staining, Spectroscopy, P2X7

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➢ **ORAL PRESENTATION**

Nanopartikül varlığında sentezlenen poli(*o*-aminobenzil alkol) filmlerin korozyon performanslarının incelenmesi

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Özet

Metallerin fiziksel ve kimyasal olarak aşınması şeklinde tanımlanabilecek korozyon, günümüzün gelişen teknolojisine rağmen insanlığa çok ciddi zararlar verebilen önemli bir olaydır. Korozyon kayıpları, hem ekonomik, hem çevre kirliliği hem de yarattığı tehlikeli durumlar göz önüne alındığında oldukça önemli olup bu konudaki çalışmaların artırılmasına ihtiyaç duyulmaktadır. Korozyondan koruma yollarından biri de iletken polimerlerin uygulanmasıdır.

Bu çalışmada anilin türevi o-aminobenzil alkol monomer sentez ortamına farklı miktarda $ZnNiFe_2O_4$nanopartikül eklenerek,316 paslanmaz çelik yüzeyine sentezlenen nanopartiküllü polimer filmlerin antikorozif özelliklerinin belirlenmesi amaçlanmıştır. Çıplak SS, SS/PABA ve SS/PABA-NP elektrotların korozyon performansları %3,5NaCl çözeltisi içerisinde AC empedans, anodik polarizasyon ve açık devre potansiyeli–zaman teknikleri kullanılarak incelenmiş olup SEM görüntüleriyle bu sonuçlar desteklenmiştir.

Çalışma sonunda sentez ortamına eklenen nanopartikülün PABA'nın sentez davranışında değişikliklere neden olduğu görülmüştür. Korozyon performans testleri sonucunda,SS/PABA-NP elektrotların, hem SS/PABA hem de çıplak SS elektroda göre daha yüksek korozyonperformansına sahip oldukları belirlenmiştir [1-2].

Anahtar Kelimeler: korozyon; iletken polimer; nanopartikül; elektropolimerizasyon; *o*-aminobenzil alkol

Teşekkür: Bu çalışma Hatay Mustafa Kemal Üniversitesi Bilimsel Araştırma Projeleri Koordinatörlüğü (HMKÜBAP) tarafından 19.YL.005 proje numarası ile desteklenmiştir.

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DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Hpv-Connected Neoplasıa Types And Features

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Abstract
The relationship between HPV and genital cancer was first introduced by Harald Zur Hausen in 1970 and then DNA sequences were first obtained from cervical cancer cells. With the development of molecular techniques, HPV infection was also observed to form lesions in the oral cavity, anogenital region and upper gastrointestinal tract. And it has been proven that these lesions can cause cancer in the future. Considering the anatomical areas infected by HPV, it is seen that it is located especially in epithelial tissue. HPV initiates carcinogenesis due to basal cells and appears to be the main cell type flat (squamous) cell. Apart from this, it is thought that tumors developed due to viral infection increase due to impaired cell-dependent immunity in immunosuppressive patients. In this review, we talked about the types of HPV and the features of the neoplasia on the organs. We believe that this article, which evaluates the general characteristics of HPV, which causes widespread health, social and economic problems in terms of both infectiousness and neoplastic features, will be a source especially for non-medical healthcare professionals.
Keywords: Human Papilloma Virus, Neoplasia, Cervix

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Transglutaminaz enzimi kullanılarak üretilen pastırma çeşitlerinin uçucu bileşikleri

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Özet

Bu araştırmada transglutaminaz enziminin, pastırma çeşitlerinin uçucu bileşiklerine etkisinin belirlenmesi amaçlanmıştır. Bu amaçla iki karkasın 5 farklı bölgesinden çıkarılan toplam 20 pastırmalık et (kuşgömü, sırt, şekerpare, kürek ve bohça) iki gruba ayrılmıştır. Birinci grup kontrol grubu olarak değerlendirilirken, ikinci grup ise 1.kurutmadan sonra %0.50 oranında transglutaminaz enzimi ile muamele edilmiştir. Üretim geleneksel yöntem ile gerçekleştirilmiştir. Pastırma çeşitlerinde alkoller, aldehitler, ketonlar, aromatik hidrokarbonlar, alifatik hidrokarbonlar, sülfürlü bileşikler, esterler, furanlar, nitrojenli bileşikler ve asitler grubuna dahil toplamda 48 uçucu bileşik belirlenmiştir. Bu bileşiklerden 9'u (etanol, hekzanal, 2-heptenal, benzaldehit, 2,4-heptadienal, 2-octanon, 1-metil-2-(metiletenil)-benzen, stiren and undekan) enzim uygulamasından istatistiki olarak etkilenmiştir ($P<0,01$ veya $P<0,05$). Pastırma çeşitleri arasında ise 14 uçucu bileşik açısından farklılıklar belirlenmiştir ($P<0.05$). Enzim uygulaması x pastırma çeşidi interaksiyonu ise benzaldehit ve asetik asit üzerinde $P<0.01$ düzeyinde değişime neden olmuştur.

Anahtar Kelimeler: Pastırma, transglutaminaz, uçucu bileşik profili

Teşekkür: Bu çalışma T.C. Tarım ve Orman Bakanlığı, Tarımsal Araştırmalar Ve Politikalar Genel Müdürlüğü tarafından TAGEM 16/AR-GE/29 no'lu proje ile desteklenmiştir.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

H_2O_2 ile oksidatif strese indüklenmiş PC12 hücre modelinde allokriptopinin nöral apoptoz üzerindeki etkisinin araştırılması

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Özet

Alzheimer hastalığı (AH), Parkinson hastalığı (PH) ve Amyotrofik Lateral Skleroz (ALS) başlıca nörodejeneratif hastalıklar olup, bu hastalıklar sinir sisteminin yapısal ve fonksiyonel işlevsizliği sonucu nöronların kaybı ile karakterize edilmektedirler. Bu sebeple, nöral ölümü kontrol etmeyi amaçlayan yeni tedavilerin geliştirilmesi oldukça önemlidir. Apoptozun nöron kaybından sorumlu olan temel mekanizmalardan biri olması nedeniyle bu çalışmanın amacı H_2O_2 ile oksidatif strese indüklenmiş PC12 hücrelerinde allokriptopinin hücre canlılığı ve apoptoz yolağı üzerindeki etkisinin belirlenmesidir. Allokriptopinin etkin süre ve konsantrasyonları, H_2O_2 ile oksidatif strese indüklenmiş AH hücresel modelinde MTT yöntemi ile araştırılmıştır (25-150 µg/mL). Nöral apoptotik yolaklar üzerindeki etkisi ise farklılaştırılmış PC12 (fPC12) hücrelerinde AH hücresel modeli oluşturularak, q-RT PCR yöntemi ile (Kaspaz-3, Kaspaz-9, Bax ve Bcl-2) ekspresyon düzeyinde incelenmiştir. Allokriptopinin H_2O_2 ile oksidatif strese indüklenmiş PC12 hücrelerinde doza bağımlı olarak düşük oranda sitotoksik etki gösterdiği tespit edilmiştir. H_2O_2'nin sebep olduğu Kaspaz-3, Kaspaz-9 ve Bax mRNA ekspresyon seviyesindeki artışın (1-2,2 kat, $p<0.05$), allokriptopin tarafından doza bağlı olarak baskılandığı (0,3-0,6 kat, $p<0.05$) ve Bcl-2 mRNA ekspresyon seviyesindeki azalışın (0,6 kat, $p<0.05$), doza bağlı olarak arttırıldığı (2,25 kat, $p<0.05$) tespit edilmiştir. *İn-vitro* AH hücresel modelindeki apoptoza bağlı nöral ölümde allokriptopinin önemli ölçüde koruyucu etkisi olduğu belirlenmiştir. Bu açıdan allokriptopinin nörodejeneratif hastalıklardan korunmayı sağlayabilecek bir etken madde olduğu söylenebilir ve bu potansiyelin geniş bir şekilde araştırılması gerektiği düşünülmektedir. Bu çalışmalar, 116S299 no'lu TÜBİTAK projesi kapsamında desteklenmiştir.

Anahtar Kelimeler: Alzheimer Hastalığı, Nöral Apoptoz, Allokriptopin

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Studies to increase the shelf life of traditional meat products exposed for sale in our country

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Abstract

Turkey is one of the most important cuisines in the world with a deep-rooted and versatile culinary culture containing the original characteristics of local cuisines. There are many local products in Turkey varied according to each city. Turkish cuisine is famous in the world, especially for meat dishes such as shish and doner kebabs. In addition, there are various traditional meat products in Turkish cuisine such as roasting, fermented sausage (sucuk), pastırma, tantuni. These local products may differ depending on the region that are produced, and may vary according to the production technique and raw materials. Fermented sausage and pastırma come first in traditional meat products which are commonly consumed in Turkey. Roasting (kavurma) is a meat product prepared by cooking beef or mutton together with salt and fat of the animal species from which meat is obtained. Tantuni is preferably consumed by cooking in a special pan after adding various vegetables, spices and oil using beef, mutton or chicken. The production of doner kebab is based on the principle of cooking the beef or lamb meat that is shaped in rotary sticks after being marinated. Shelf-life studies have gained importance to deliver traditional meat products to a large number of consumers while maintaining their quality features and safety. In the literature, there are studies on different methods such as adding natural antimicrobial and antioxidant components, using the starter culture and probiotics, different packaging techniques and process modifications in order to extend the shelf life of traditional meat products and give functional properties to the product. Usage of natural antioxidants (sage, thyme, ginger, green tea, rosemary) were detected as considerably effective on reduction of lipid oxidation in sausage production. More research is needed in order for traditional meat products to reach consumers while having a certain shelf life and maintaining their quality characteristics in markets and other sales outlets.

Keywords: Traditional meat products, shelf life, sucuk, pastırma, doner, tantuni, roasting

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Kefirin probiyotik içeriğinin 3T3-L1 hücrelerindeki lipid birikimi ve inflamatuar süreç üzerindeki etkisi

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Özet

Kefirprobiyotik içeriği zengin fermente süt ürünüdür.Birçok hastalığın önlenmesinde ve tedavisinde olumlu rol oynamaktadır. Bu çalışmanın amacı kefirin adipositlerdeki lipid birikimi ve inflamatuar sitokin eskpresyonu üzerindeki etkisini araştırmaktır. Kefir tanelerinin sütle fermentasyonu sonucu kefir elde edilmiştir. 3T3-L1 hücreleri, 24 ve 48 saat boyunca kefir süpernatant ve kefir pelet ile inkübe edildi. Kefirin sitotoksik etkisinin belirlenmesi için MTT analizi yapılmıştır.Adipositlerdekilipidbirikiminin belirlenmesi amacıylaoilred-o boyama yapılmıştır.Kefir fraksiyonlarının anti-adipojeniketkisinin ve inflamatuarsitokin aktiviteleri üzerine etkisinin belirlenmesi amacıyla indirektimmünoperoksidaz tekniği kullanılarak adipositlerindeki ANGPTL-4 dağılımı ve ELISA tekniği kullanılarak IL-6, TNF-α, IL-1β ve LPL aktiviteleri araştırılmıştır. MTT analizi sonucunda 0.1 mg/dl kefir süpernatant ve kefir peletdilüsyonuadipositler üzerinde etkili bulunmuştur. Kefir ile inkübe edilmiş 3T3-L1 adipositlerinde, kontrol hücrelerine kıyasla daha az ve küçük hücre içi lipid birikimi görülmüştür.Kefir ile inkübe edilmiş 3T3-L1 adipositlerindekiIL-6, IL-1β, TNF-alfa ve lipoprotein lipaz(LPL) antikorlarının miktarlarında herhangi bir değişiklik olmamıştır. Kontrol grubu ve kefir supernatant ve kefir pellet ile inkübe edilen 3T3-L1 adipositlerindeki ANGPTL-4 h-skor değerleri sırası ile 265,46 ± 25,54, 374,42 ± 27,47 ve 317,06 ± 45,05'dir. Kefir pellet ve süpernatant gruplarındaki ANGPTL-4 immunoreaktivitesinin anlamlı derecede arttığı görülmektedir ($p<0.05$). Kefir pellet ve süpernatant adipositlerdeki lipit birikimini ANGPTL-4 ekspresyonunu arttırarak ve bu artış LPL ekspresyonunu baskılayarakönleyebileceği düşünülmektedir. Böylelikle kefirinobezitedeki rolünü açıklamamıza yardımcı olacaktır. Kefirin proinflamatuarsitokin ekspresyonu üzerindeki etkisinin anlaşılabilmesi için daha uzun süreli kefir inkübasyonu veya proinflamatuarsitokinlerinexpresyonunu artırıcı bir faktör bulunması gerekmektedir. Bu nedenle kefirin infalamatuarsitokinler üzerindeki etkisinin anlaşılabilmesi için daha fazla çalışmaya ihtiyaç duyulmaktadır.

Anahtar Kelimeler: Kefir; Obezite; 3T3L1; ANGPTL4; İnflamasyon

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

DNAJC16 expression is associated with favorable prognostic values in breast cancer

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Abstract

DNAJC16 is a member of the DNAJ(HSP40) family of heat shock proteins. To date, many DNAJ members have been implicated in carcinogenesis, or they are suggested as biomarkers. According to The Human Protein Atlas, *DNAJC16* mRNA expression is a favorable prognostic marker in colorectal and renal cancers. In this study, transcript level, genetic/epigenetic alterations, and biomarker potential of *DNAJC16* gene were evaluated in clinical breast cancer samples by *in-silico* tools. Although *DNAJC16* transcript levels are not significantly different between normal and tumor samples, breast cancer subtypes (luminal, triple-negative, and HER2 positive) have significantly low levels of *DNAJC16* transcripts compare to normal samples (*P*= 1.44e-04, *P*= 1.81e-10 and *P*= 6.36e-05 respectively). Point mutations and copy number variations of *DNAJC16* gene are infrequent in breast cancer (0.97% and 0.2% respectively). *DNAJC16* promoter is hypomethylated in normal (n=97) and tumor samples (n=793) (beta values<0.25). Kaplan-Meier analysis revealed that breast cancer patients having high *DNAJC16* mRNA levels have better overall survival (n=1402) (*P*=5.8e-09, HR=0.5), relapse-free survival (n=3951) (*P*=8.3e-11, HR=0.66), and distant metastasis free-survival (n= 1746) (*P*=1.3e-08, HR=0.52) rates. High DNAJC16 protein level is also associated with better overall survival in breast cancer (n=65, *P*=0.034, HR=0.34). In conclusion, genetic alterations and methylation may not be involved in *DNAJC16* regulation, and *DNAJC16* expression is associated with favorable prognostic values in breast cancer.

Keywords: Breast cancer, *DNAJC16*, Biomarker, Kaplan-Meier

DRAFT

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➢ **ORAL PRESENTATION**

Pirinç kabuğundan elde edilen karbon kürelerin hidrojen depolama kapasitelerinin belirlenmesi

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Özet

Günümüzde en yaygın kullanılan enerji kaynakları fosil yakıtlar olarak adlandırılan kömür, petrol ve doğalgazdır. Fosil yakıtlar dünya üzerindeki enerji talebinin ancak % 88'ini karşılamaktadır. Dünya genelinde artan nüfus ve şehirleşmenin etkisiyle fosil yakıtlar hızla tükenmekte; neden oldukları kirlilik doğal dengeyi bozmakta ve dünyada yaşayan canlıların sağlığını tehdit etmektedir. Ayrıca, fosil yakıtların 40-50 sene gibi çok kısa bir sürede tükeneceği gerçeği göz önüne alındığında alternatif enerji kaynaklarının bulunması gerekmektedir. Geri kalan % 12 enerji talebi ise nükleer ve yenilenebilir enerji kaynaklarından karşılanmaktadır. Dünyanın artan enerji ihtiyacına karşı azalan enerji kaynakları nedeniyle, gelecekteki enerji ihtiyacını karşılayabilecek ve çevre kirliliğini önleyebilecek yeni alternatif enerji kaynakları üzerine yoğun araştırmalar yapılmaktadır ve yapılan araştırmalar, hidrojenin sahip olduğu üstün özelliklerden dolayı alternatif bir yakıt olarak fosil yakıtların yerini alacağını ve geleceğin enerjisi olduğunu göstermektedir. Hidrojenin sahip olduğu en önemli özellik depolanabilmesidir. Fakat bilinen en hafif gaz olduğundan depolanması çok büyük bir problemdir. Hidrojenin küçük hacimde ve yüksek miktarda depolanması, hidrojen enerjisi kullanımının yaygınlaşması için önemlidir. Kullanım alanlarına göre hidrojen, gaz ve ya sıvı olarak saf halde tanklarda depolanabileceği gibi, fiziksel olarak maddelere tutunarak yüzey etkileşimli ve ya kimyasal olarak hidrürler şeklinde de depolanabilmektedir. Bu çalışmada pirinç kabuğunun hidrotermal karbonizasyonu ile farklı sıcaklıklarda (200 ^{o}C, 240 ^{o}C ve 280 ^{o}C) ve farklı reaksiyon sürelerinde (1, 3 ve 6 saat) örnekler hazırlanmıştır. Elde edilen örneklerin yüzey alanı ve gözenek boyutu dağılımları BET yüzey alanı tayin cihazı ile ve yüzey özellikleri taramalı elektron mikroskonu ile karakterize edilmiştir. Ayrıca örneklerin hidrojen gaz adsorpsiyon ölçümleri, yüksek basınçlı adsorpsiyon analizörü olarak kullanılan ve belirli hacime sahip bir silindirik numune hücresinden oluşan Hiden marka IMI PSI hidrojen depolama cihazı ile gerçekleştirilmiştir. Reaksiyon sıcaklığı ve reaksiyon süresi, örneklerin morfolojisini (küre, gözenekli yapı, gözenekli olmayan yapı), yüzey alanlarını, gözenek boyutlarını ve dolaylı olarak hidrojen depolama kapasitelerini etkilemiştir.

Anahtar Kelimeler: Karbon küre, biyokütle, pirinç kabuğu, hidrojen depolama.

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

The variation in the size fractionation of chlorophyll a with phytoplankton biomass along the Dardanelles Strait.

Esra KOÇUM

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Abstract

An analysis of partitioning of chlorophyll a with bulk chlorophyll a was performed to find out variation of size structure of phytoplankton with its bulk biomass using pooled data sets collected at coastal sites along the Dardanelles Strait in two different time periods. The bulk chlorophyll a varied between 0.43 – 10.41 µg chl a L^{-1} with an average, first quartile, median and a third quartile values of 1.95 ± 0.33 µg chl a L^{-1}, 0.92 µg chl a L^{-1}, 0.65 µg chl a L^{-1}, 2.26 µg chl a L^{-1}, respectively. The average concentrations of chlorophyll a contained within the micro-, nano- and pico--plankton size fractions with their corresponding standard error values were; 0.64 ± 0.19 µg chl a L^{-1}, 0.50 ± 0.07 µg chl a L^{-1} and 0.28 ± 0.04 µg chl a L^{-1} displaying clear differences. Though the relative contributions of micro- and nano-plankton fractions were almost equal (*ca.* 38 ± 1.91 %) while that of picoplankton was 25.35 ± 1.96 %. The statistical analysis of the relation between the biomass and size structure of phytoplankton revealed the following point: 1) the response of relative contribution of microplankton fraction to phytoplankton biomass was only linear within the range of 1.19 µg chl a L^{-1} to 10.41 µg chl a L^{-1} (max.), 2) the distribution of relative contribution of nanoplankton with phytoplankton biomass was gaussian, 3) the change in the relative share of picoplankton with phytoplankton biomass fit into an inverse first order polynomial function. In conclusion; a shift occurs from a picoplankton dominated phytoplankton commmunity to a nano- and micro-plankton dominated one at bulk chlorophyll a concentrations > 1 µg L-1.Therefore the change in phytoplankton biomass size structure and associated changes in the ecosystem can be predicted by using bulk chlorophyll a concentrations in the study sites.

Key words: biomass, Dardanelles, phytoplankton, size-structure.

DRAFT

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➢ **ORAL PRESENTATION**

Food-based protein nanofibers produced by electrospining

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Abstract

Electrospinning is an electro hydrodynamic process of producing fiber micro/nanoparticles from polymers/biopolymers. A polymeric solution is exposed to high voltage to form fibers as it stretches along the surface of collector panels. Resultant nano scale fibers has high surface to volume ratio, porous nature and special mechanical properties making them useful for different applications such as encapsulation of active agents and scaffolding for tissue engineering. Food proteins are natural biopolymers used safely for various purposes in food industry. Recently, the concerns arisen regarding the use of synthetic polymers due to their health risks potential, the use of safe biopolymers have gained more attention. Collagen, gelatin, whey, soy, zein and casein proteins are commonly used ones for fabrication of protein nanofibers. Since compact globular nature, and quaternary and tertiary structure of proteins may prevent pulling of their polypeptide chains during electrospinning, those proteins are needed to be dissolved acids and denatured. In order to enhance electrospinning ability proteins can also be mixed with other natural carrier polymers or crosslinkers. PVA and PEO are widely used carrier polymers, whereas genipin and glutaraldehyde are more commonly used crosslinkers. Protein based nanofibers can be used for encapsulation of bioactive agents such as phenolics, antimicrobials and colorants, thus providing benefits for packaging of food products. Additionally, they can offer safe use and functionality for health by carrying and controlled release of drug materials.

Keywords: electrospinning, food proteins, nanofibers.

DRAFT

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➢ **ORAL PRESENTATION**

Synthesis, characterization and antioxidant capacity of three new unsymmetric double Schiff bases

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Abstract

Schiff bases are frequently studied compound group of which first example reported in 1864 by Hugo Schiff. Schiff bases receive great attention due to their wide application areas varying from pharmaceutical and food industry to agrochemical and sensor applications. In addition to their easy synthesis, structural stability and versatility can be mentioned among the advantages of Schiff bases. Bioactivity of Schiff bases was originated from especially interactions and hydrogen bonds between the azomethine group and certain sites in the cell structure. Besides, structural factors like solubility, dipole moment and cell permeability and electrons in sp^2 hybrid orbitals of azomethine nitrogen play an important role in biological applications. Also, Schiff bases behave as an effective chelator to coordinate metal ions, especially when they contain electron donor groups such as -OH, -NH, -SH in close positions to azomethine group. Coordination compounds obtained with various transition metal ions like nickel(II), copper(II), zinc(II), palladium(II) etc. and Schiff bases have wide industrial and biological coverage.

So many biological applications of Schiff bases were reported in the literature. Among them, researchers have been investigating extensively as synthetic antioxidants to reduce the effect of oxidative stress on living cells, recently. Synthetic antioxidants have exhibited antioxidant property by acting as free radical scavengers and metal chelators. To measure antioxidant capacity, several tests can be applied like the DPPH (2,2-diphenyl-1- picrylhydrazyl) method, the ABTS (2,2'-azino-bis(3-ethylbenzthiazoline-6-sulphonic acid) method, FerroZine (3-(2-Pyridyl)-5,6-diphenyl-1,2,4-triazine-p,p′-disulfonic acid monosodium salt hydrate) method, total antioxidant capacity, etc...

In this study, three unsymmetric double Schiff bases are going to be synthesized and characterized by NMR, FT-IR, UV-visible spectroscopic methods. Besides, antioxidant capacitites of these Schiff bases are going to be measured by the DPPH, FerroZine and total antioxidant capacity methods.

Keywords: Double Schiff base, Spectroscopic methods, DPPH method, FerroZine Method, Total antioxidant capacity.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Synthesis, characterization and antioxidant capacity of four new Schiff bases

Hüseyin Akbaş, Ayşegül Şenocak

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Abstract

Schiff bases are frequently studied compound group of which first example reported in 1864 by Hugo Schiff. Schiff bases receive great attention due to their wide application areas varying from pharmaceutical and food industry to agrochemical and sensor applications. In addition to their easy synthesis, structural stability and versatility can be mentioned among the advantages of Schiff bases. Bioactivity of Schiff bases was originated from especially interactions and hydrogen bonds between the azomethine group and certain sites in the cell structure. Besides, structural factors like solubility, dipole moment and cell permeability and electrons in sp^2 hybrid orbitals of azomethine nitrogen play an important role in biological applications. Also, Schiff bases behave as an effective chelator to coordinate metal ions, especially when they contain electron donor groups such as -OH, -NH, -SH in close positions to azomethine group. Coordination compounds obtained with various transition metal ions like nickel(II), copper(II), zinc(II), palladium(II) etc. and Schiff bases have wide industrial and biological coverage.

So many biological applications of Schiff bases were reported in the literature. Among them, researchers have been investigating extensively as synthetic antioxidants to reduce the effect of oxidative stress on living cells, recently. Synthetic antioxidants have exhibited antioxidant property by acting as free radical scavengers and metal chelators. To measure antioxidant capacity, several tests can be applied like the DPPH (2,2-diphenyl-1- picrylhydrazyl) method, the ABTS (2,2'-azino-bis(3-ethylbenzthiazoline-6-sulphonic acid) method, FerroZine (3-(2-Pyridyl)-5,6-diphenyl-1,2,4-triazine-p,p′-disulfonic acid monosodium salt hydrate) method, total antioxidant capacity, etc...

In this study, four Schiff bases are going to be synthesized and characterized by NMR, FT-IR, UV-visible spectroscopic methods. Besides, antioxidant capacitites of these Schiff bases are going to be measured by the DPPH, FerroZine and total antioxidant capacity methods.

Keywords: Schiff base, Spectroscopic methods, DPPH method, FerroZine Method, Total antioxidant capacity.

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➢ **ORAL PRESENTATION**

Decolorization of dye contaminated solutions by reduced graphene oxide (RGO) and cetyltrimethylammonium bromide (CTAB)- RGO composites

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Abstract
Decolorization of methylene blue (MB) dye by different graphene-based adsorbents such as reduced graphene oxide (RGO) and cetyltrimethylammonium bromide (CTAB)- RGO composites were examined in this study. And also, we compared the effects of three different CTAB concentrations on decolorization of MB. The CTAB-RGO composite performed increasing decolorization activity with the increasing CTAB concentration. Maximum decolorization rate was observed by using the CTAB-RGO composite with 120 mg/L of CTAB as adsorbent. Zeta potential measurements showed, CTAB—RGO composite with 120 mg/l having the highest value ($|\zeta|$) for the other CTAB concentrations. CTAB-RG0 with 40 and 80 mg/l composites were unstable, RGO and CTAB-RGO with 120mg/l had a good stability. As a result, the amount of CTAB concentration helped to decolorization of MB and the improvement of RGO dispersion in aqueous solutions.

Keywords: Reduced graphene oxide, Cetyltrimethylammonium bromide, Decolorization, Methylene Blue.

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➢ **ORAL PRESENTATION**

Sudak balığının taze kadavrası ile alkyd resin kullanılarak hazırlanmış kadavrasının karşılaştırılması

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Özet

Bu çalışma taze Sudak balığı kadavrası ile alkyd resin ile hazırlanmış sudak balığı kadavrasını karşılaştırmak için yapıldı. Bu çalışmada 10 adedi taze kadavra grubunda (G1), 10 adet ise alkyd resin ile hazırlanmış kadavra grubunda (G2) olmak üzere 20 adet sudak balığı kullanıldı. Alkyd resin grubundaki balıklar sırası ile formaldehit ile fiksasyon, yağ ve suyu uzaklaştırmak için alkol serisi, impregnation ve kurutma safhalarından geçirildi. G1 ile G2 grubundaki materyaller hazırlanan anket ile 20 kişilik öğrenci grubu tarafından renk, koku, yapışkanlık ve işlenebilirlik açısından değerlendirildi. Anket ile elde edilen değerler bağımlı t testine göre analiz edildi. G2 grubundaki materyallerin G1 grubundaki materyallere göre kuru ve kokusuz olduğu ancak renklerinin soluk olduğu belirlendi. Ayrıca, alkyd resinle hazırlanan kadavraların kolayca kesilerek iç organlarının incelenebileceği görüldü. Sonuç olarak, alkyd resin ile hazırlanan kadavraların (G2) renginin soluk olmasının yağ ile pigmentlerin erimesinden kaynaklabileceği, alkyd resin ile hazırlanan Sudak balığı kadavraların taze Sudak balığı kadavralarına göre anatomi pratik eğitiminde tercih edileceği sonucuna varıldı.

Anahtar Kelimeler: Anatomi, alkyd resin metod, Sudak balığı.

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➢ **ORAL PRESENTATION**

Adsorption properties of XAD-16 resin for the removal of different classes of dyes

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Abstract

Dye effluents released into the water as a result of industrial processes threaten human health. These pollutants not only cause the wastewater to become toxic, but also prevent the recovery and reuse of water. Nowadays, when "green chemistry" applications are gaining importance, many studies are carried out to clean the water environment. The adsorption process is one of the methods that is used effectively. Synthetic resins that can be used as adsorbents are polymer based, nontoxic, chemically inert, can be modified, stored and regenerated in room conditions without degradation. These properties have increased the use of polymeric synthetic resins.

In this study, commercially available Amberlite XAD-16 was used for the adsorption of brilliant green (BG), aniline blue (AB), malachite green (MG) and brilliant cresyl blue (BCB) dyes. Adsorption from aqueous media on the resin has been investigated in a batch system. In order to determine the capacity of the adsorbent, Langmuir and Freundlich isotherms were examined. In addition, initial concentration of the dye, amount of resin, contact time, temperature and pH values were adjusted experimentally in order to illuminate the adsorption mechanism.

It was observed that the most effective adsorption in the pH range examined occurred at the natural pH values of the dyestuff solutions and the experiments were continued in that range. It was determined that the increase in temperature contributed positively to adsorption.

The pseudo-first order and pseudo-second order kinetic mechanisms were examined and it was found that the adsorption processes of almost all dyes followed the pseudo-second order kinetics with the exception of MG. Thermodynamic data of the reactions were also calculated and ΔG^o values were found to be negative when ΔH^o and ΔS^o values were positive for all dyes. This finding indicates that the adsorption process is spontaneous and endothermic for all investigated dyes.

Keywords: Adsorption, XAD-16, dyes, adsorption isotherms, adsorption kinetics

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➢ **ORAL PRESENTATION**

Tokat Gaziosmanpaşa Üniversitesi kampüsünde etnobotanik değeri olan bitkilerin araştırılması ve tespit edilen bazı bitkilerin kullanım alanları

Fatma Gedikli

Tokat Gaziosmanpaşa Üniversitesi, Fen Edebiyat Fakültesi, Kimya Bölümü, Tokat, Türkiye

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Özet

Tokat, Karadeniz Bölgesinin orta bölümünde, Yeşilırmak havzasının bereketli topraklarında ve yaklaşık olarak 623 metre rakımda yer alan bir şehirdir. Tokat Gaziosmanpaşa Üniversitesi, Taşlıçiftlik Yerleşkesi Tokat-Turhal karayolu üzerinde, Tokat il merkezine 9 km. uzaklıkta bulunur ve zengin floraya sahiptir.

Bu noktadan hareketle kampüs içerisinde spontan yetişen bitkiler incelenerek; içlerinde etnobotanik özellikte olan bazı bitkiler tespit edilmiştir.

Tespit edilen bitkilerden bazıları; bağ yaprağı, ballıbaba, beyaz hindiba, böğürtlen, civanperçemi, dağ eriği/yaban mersini, ebegümeci, evelik/efelik, gelincik, hatmi, hava civa, karahindiba, kuşburnu, kuşkuş/kuşyemi, madımak, papatya, pürpürüm/semizotu, sarı kantaron, sığırkuyruğu, sütleğendir. Flora bu bitkilerle sınırlı olmayıp incelemesi devam etmektedir. Bahsi geçen bitkiler zengin kimyasal bileşime sahiptir. Sekonder metabolitleri sağlık için oldukça önemlidir.

Bitkilerin kullanım alanlarına dair (yerel ve genel anlamda) bilgiler yerel ve genel kaynaklardan toplanmıştır. Tespit edilen bitkiler genellikle; beslenme, tedavi, boyamacılık vb amaçlarla kullanılmaktadır. Yerel kullanımda olmayan ancak başka yörelerde yaygın kullanıma sahip olan bitkiler de tespit edilmiştir.

Anahtar Kelimeler: Tokat, Gaziosmanpaşa Üniversitesi, etnobotanik, sekonder metabolit

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➢ **ORAL PRESENTATION**

Investigation of electrical conductivity properties of green reduced graphene oxide coated cotton spunlace nonwoven fabric

Nergis Demirel Gültekin[1], Özgen Özturan Uçar[2*], Mustafa Sabri Özen[1], Bekir Cenkkut Gültekin[1], İsmail Usta[1]

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Abstract

A green approach for the reduction of graphene oxide coated cotton spunlace nonwoven fabric using garlic extract is reported in this study. The most commonly used approach for the reduction of graphene oxide is based on chemically toxic, dangerous and environmentally harmful. Recently, alternative reducing agents are widely mentioned for their non-toxic and environmentally friendly nature. In this study, graphene oxide nanosheets were synthesized using the improved Hummers' method and applied to the cotton spunlace nonwoven fabric thorough the dip coating method. Then, the graphene oxide coated nonwoven fabrics have been subjected to reducing process**.** The graphene oxide is reduced with chemical reduction process by using garlic extract as a green reducing agent. Furthermore, the effect of different reduction time (6, 12 and 24 h) on the electrical resistivity property of cotton spunlace nonwoven fabrics having 50, 60 and 70 g/m^2 has been investigated. The surface morphology and structural characterization of the graphene oxide coated and reduced graphene oxide cotton spunlace nonwoven fabric were studied by scanning electron microscopy (SEM) and Fourier transform infrared spectroscopy (FTIR), respectively. The surface electrical resistivity of the fabrics was measured using a four-point probe technique. The results indicate that graphene oxide coated cotton spunlace nonwoven is successfully transformed into the reduced graphene oxide coated cotton spunlace nonwoven because of the destruction of oxygen containing functional groups in the graphene oxide structure.

Keywords: graphene oxide, dip coating, cotton nonwoven, garlic extract, green reduction.

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➢ **ORAL PRESENTATION**

Green reduction of graphene oxide coated polyamide fabric using rosehip extract

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Abstract

Among the large number of chemical reducing agents used to prepare reduced graphene oxide, the mostly used reductants are toxic, harmful to the environment. Recently, there is a high demand for the reduction of graphene oxide using environmental friendly and non-toxic green reducing agents. In this study, graphene oxide nanosheets were synthesized using the improved Hummers' method and applied to the polyamide fabric thorough the dip coating method. Then, the graphene oxide is reduced with chemical reduction process by using rosehip extract as a 'green' reducing agent. The effect of reduction time is studied. The surface morphology and chemical characterization of the coated and reduced polyamide fabric were studied by scanning electron microscopy (SEM) and Fourier transform infrared spectroscopy (FTIR), respectively. The color coordinates and color difference of the graphene oxide coated and reduced graphene oxide coated fabrics were examined. The electrical resistivity measurement was carried out by the four point probe technique. The results reveal that the GO coated polyamide fabric is successfully converted to the RGO coated polyamide fabric with the effective elimination of oxygen containing functional groups in the graphene oxide structure.

Keywords: graphene oxide, coating, fabric, green reduction, rosehip extract.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Guiding neural extensions of PC12 cells on dielectrophoretically aligned MWCNTs in poly(ethylene glycol) dimethacrylate

Fikri Seven, Tansu Gölcez, Ziyşan Buse Yaralı, Ozan Karaman, Mustafa Şen*

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Abstract

PC12 cell line has been widely used as an in vitro model for neuronal diseases. It has the ability to differentiate in the presence of nerve growth factor (NGF), resulting in extensions called neurites, dendrites and axons. Cell patterning is widely used in applications such as neuron network formation, tissue engineering, and cell based biosensors. In this study, the effects of aligned MWCNTs in poly(ethylene glycol) dimethacrylate (PEGDMA) on PC12 cell neurite behavior and their differentiation in the presence of NGF were investigated. First, a gold interdigitated electrode array (IDA) microchip was fabricated using lithography. MWCNTs were aligned with dielectrophoresis in PEGDMA using the IDA microchip and then, UV treatment was used to polimerize the gel. The gel containing the aligned MWCNTs was peeled off and coated with collagen for PC12 cell seeding. The results clearly showed that cells fell into microstructures created by the IDA microchips and neurites followed MWCNT tracks. The method could be useful for guiding neural growth for tissue engineering applications.

Keywords: Microchip, PC12 cells, MWCNTs, neural differentiation, dielectrophoresis.

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➢ **ORAL PRESENTATION**

Cheletomimus (*Hemicheyletia*) *bregetovae* (Volgin) (Acari: Cheyletidae) türünün dişi bireylerinin merkezi kıllarında görülen sayısal varyasyonlar

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Özet

Keyletid akarlar (Acari: Cheyletidae) dünya çapında bir yayılıma sahiptir. Bu akarların çoğu; bitkiler üzerinde, toprak ve bitki döküntüsünde predatör olarak yaşarken, bazıları böcekler, kuşlar ve memelilerde parazit olarak yaşamaktadır. *Cheletomimus* Oudemans bu familyanın en dikkat çekici cinslerinden biridir. Bu cinsin *Cheletomimus*, *Hemicheyletia* Volgin ve *Philippicheyla* Corpuz-Raros olmak üzere üç alt cinsi bulunmaktadır. Bu çalışmada, daha önce ülkemizden kaydı verilen *Cheletomimus* (*Hemicheyletia*) *bregetovae* (Volgin) türünün dişi bireyler üzerinden tanımı gözden geçirilerek, propodozomal ve histerozomal plakları üzerindeki merkezi kıl sayılarının farklılıkları ortaya konulmuştur. Merkezi kıllar propodozomal plakta normal olarak üç çift iken, incelenen bazı bireylerde genel durumun dışında sağ ve solda 2-3, 2-4, 3-2, 2-2, 3-4, 4-4 şeklinde yerleşim göstermektedir. Histerozomal plakta ise normal olarak merkezi kıllar bir çift iken, bazı örneklerde bu kıllar iki çift veya sağlı sollu 2-1, 2-2 şeklinde yerleşim göstermektedir. Merkezi kıl sayılarındaki bu değişkenlik durumu literatüre dayalı olarak gözden geçirilmiştir. İncelenen örneklerin çoğunda merkezi kıl sayılarının varyasyon göstermesi, türün tanımının gözden geçirilmesini gerekli kılmıştır. Ayrıca, türe ait varyasyon olgusu ilk defa bu çalışmada ayrıntılı olarak ortaya konmuştur.

Anahtar Kelimeler: Avcı akar, Asimetri, *Cheletomimus*, Varyasyon, Türkiye.

Teşekkür: Çalışmanın materyalini, Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TÜBİTAK) tarafından desteklenen 107T183 numaralı proje ile Erzincan Binali Yıldırım Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi tarafından desteklenen 11BAP18 numaralı projeden edilen örnekler oluşturmaktadır. Bu çalışma, ilk yazarın devam eden doktora tezinden veriler içermektedir.

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➢ **ORAL PRESENTATION**

Electrical stimulation of PC12 cells for neural differentiation on monolayer graphene coated IDA-microchips

Tansu Gölcez[1], Fikri Seven[1], Gülsüm Ersü[2], Fethullah Güneş[3], Ziyşan Buse Yaralı[4], Ozan Karaman[5] ve Mustafa Şen[5*]

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Abstract
Injuries to the nervous system caused by diseases and accidents can lead to sensory loss, dysfunction of motor functions, and even memory loss. The neural network is a complex structure formed by the interconnection of structures called dendrites and axons. Since nerve cells cannot renew themselves in neural injuries, new platforms for inducing the formation of such neural networks could be useful for developing new treatments and drug testing. Electrical stimulation has been shown to be effective for inducing neural differentiation. Here, the impact of electrochemical stimulation on the neural differentiation of PC12 cells grown on bare and graphene coated interdigitated electrode array (IDA)-microchips was investigated. Graphene has some very useful properties in biomedical applications such as excellent flexibility, high strength, electrical conductivity, stiffness and biocompatibility. First, an ITO interdigitated electrode array (IDA) microchip was fabricated using lithography and selective etching. Then, the microchip surface was either directly coated with collagen for PC12 cell seeding or after covering the chip surface with a monolayer graphene produced by Chemical Vapor Deposition (CVD) method. PC12 cells were electrically (both AC and DC were tested) stimulated for 30 min and cells were cultured in the presence of Nerve Growth Factor (NGF). The medium was refreshed every 2-3 days, and the cells were observed on microchips for 7 days. Non-electrically stimulated PC12 cells grown on microchips were used as control groups. Results showed that electrical stimulation of PC12 cells grown on graphene covered microchips showed the most improvement in terms of neurite length and number of neurites per cell. Gene expression analysis results also supported these findings.
Keywords: Microchip, PC12 cells, ITO, neural differentiation, graphene.

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➢ **ORAL PRESENTATION**

Salt stress responses of *Indigofera zollingeriana* under *in vitro* culture

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Abstract

Indigofera genus, a perennial legume with their tolerance to abiotic stresses like drought, light floods, acidic soils and moderate salinity, are widely distributed in tropical and subtropical region of the world. *Indigofera zollingeriana* is tolerant to drought stress, and has potential for high forage production. It has rich protein contents that enables it as an important forage plant for use as livestock feeding in Indonesia. Forage crops production is optimized in sub-optimal lands. The approximately 0.44 million ha of total of Indonesian lands are saline and have tidal salt marshes. However, there is no study related to the level of adaptability of *I. zollingeriana* to salinity stress in Indonesia. This study evaluated morphological and anatomical responses of *I. zollingeriana* to salinity stress at different NaCl concentrations (20 mM, 40 mM, 60 mM, 80 mM, 100 mM and 120 mM) under *in vitro* culture conditions. Different concentration of NaCl affected growth parameters like shoot, root and leaf. Cross section of stem showing xylem and phloem structure were affected by salt treatment. The autotoxity effect was also noted under *in vitro* stress conditions.

Keywords: abiotic stress, forage, marginal, vascular tissues, woody plant

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➢ **ORAL PRESENTATION**

Cloves *(Syzygium aromaticum)* and black pepper *(Piper nigrum)* contain high amounts of Resveratrol

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Abstract
Resveratrol is a polyphenol produced by plants in response to injury, stress or attack by microbial pathogens, such as bacteria or fungi. It is also known to have anti-malarial, anti-hypertensive, anti-diabetes, cardio-protective, anti-tumor and antioxidant properties. One of the challenges for researchers has been identifying plants with appreciable amounts of resveratrol that can be consumed and efficiently extracted and purified without losing its bioactive integrity. The current research investigated the amount of resveratrol present in five (5) different samples using high-performance liquid chromatography (HPLC). Results obtained indicated two (2) out of the five samples investigated, *Syzygium aromaticum* and *Piper nigrum*, to have the highest content of resveratrol reported so far, for the same samples. *S. aromaticum* (Clove) was found to contain trans- and cis-resveratrol with a concentration of 443.66 µg/g and 321.81 µg/g respectively. Likewise, the concentration of trans- and cis-resveratrol in *P. nigrum* (Black pepper) were 374.75 µg/g and 164.01 µg/g respectively. The remaining spices showed relatively lower levels of resveratrol within the range of 02.71 µg/g to 45.67 µg/g. To our knowledge, the concentration of trans- and cis- isomers of resveratrol obtained from *S. aromaticum* were the highest ever obtained. Cloves (*Syzygium aromaticum)* and black pepper *(Piper nigrum*) can thus be used as rich sources of resveratrol.
Keywords: Resveratrol, antioxidants, Cloves, black pepper

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➢ **ORAL PRESENTATION**

Investigation of changes in growth and amount of water soluble vitamins in *Citrobacter freundii* under cadmium stress

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Abstract

In this study, *Citrobacter freundii* was incubated (LB medium) in varying concentration of cadmium and its concentration was examined by UV-VIS spectrophotometer. The amount of water soluble vitamins in the bacteria was determined by high performance liquid chromatography (HPLC). The bacteria were incubated at 0, 40, 60, 75, 100, 125, 150 and 200µg/mL cadmium with the 0 µg/mL group serving as control. The bacteria were able to grow at concentration up to 150µg/mL cadmium. However, no growth was observed at 200µg/mL cadmium. No significant difference in the bacterial concentration was observed when 40µg/mL group was compared with control group. A significant decrease in the bacterial concentration was seen when 60, 75, 100 and 125µg/mL groups were compared with control group ($p<0.05$). There was a 44.8% and 47.7% decrease in the bacterial concentration at 100 and 125µg/mL respectively.A significant decrease in the amount of vitamin C, B1, B2, B3, B5, B6, B9 and B12 was seen when 40, 60, 75, 100 and 125µg/mL groups were compared with control ($p<0.05$). Having the ability to grow under cadmium stress, *Citrobacter freundii* might be useful for cadmium remediation in contaminated environment.

Keywords: *Citrobacter freundii*, cadmium, vitamins, stress

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➢ **ORAL PRESENTATION**

Histopathological study of *Cinnamomum zeylanicum* equeous extract and *Cladosporium sp.* extract on different albino male mice organs

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Abstract

The objective of this study was to considered as an explorer for In vivo studies on the production of some secondary metabolites from local medical plants named Cinnamomum zeylanicum to study their effect on mice organs that treated with Cladosporium sp. extract (In vivo). Preparation of water extract of Cinnamomum zeylanicum. different doses were prepared (20,40,60,80%) of plant which (9) male mice were used and divided into three control group and dosed with distilled water mice were administrated with first dose 1ml/kg of Cladosporium extract for two weeks and mice were administrated Cladosporium with 80% of the aqueous extract of Cinnamomum zeylanicum at a dose of 1 ml / kg daily for two weeks. Mice treated with Cladosporium sp. fungal filtrate caused vascular congestion in the tissues of the liver resulting in cell bleeding, in addition to many changes in chromotin in and nuclei sized increased while the results indicate the ability of the mixture between fungal filtrate and Cinnamomum to counteract these adverse effect in mice and return its appearance looks like normal also the kidney of animals treated with Cladosporium fungal filtrate caused retention of congested glomeruli with a large pool of fluids while the result of interaction caused inhibition in radial growth of the fungus and reduced its effectiveness on kidney function and the synthetic form of the tissue.

Keywords: C. zeylanicum, mice, histopathology

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➢ **ORAL PRESENTATION**

High-sensitive detection of H_2O_2 and dopamine using thermally annealed carbon-fiber microelectrodes

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Abstract
Dopamine (DA) is a neurotransmitter that plays an important role in nervous system and associated with diseases related to many systems of the human body like hormonal, central nervous and cardiovascular. H_2O_2 is a kind of membrane permeable reactive oxygen species (ROS) and has a significant role as a regulator in various signal transduction pathways. It is also a byproduct of oxidase-catalyzed reactions and thus, detection of H_2O_2 is widely used for the determination of some biologically important molecules such as glucose, lactate, urea and cholesterol. So, finding alternative methods for the sensitive and selective detection of DA and H_2O_2 can have remarkable effects in the fields of clinical diagnostics, food industry and environmental analysis. Here, highly sensitive electrochemical detection of H_2O_2 and DA was demonstrated using thermally annealed carbon fiber microelectrodes (CFE). The electrode was fabricated by first inserting a single carbon fiber into a glass capillary tube, and then pulling the capillary using a micro-puller to seal the carbon fiber with the glass. CFEs were thermally annealed using a microforge. SEM images showed that this process rendered the surface nanostructed. Thermally annealed CFEs were first used for electroctrochemical oxidation and reduction of H_2O_2 and results showed that oxidation current drastically increased as compared to unmodified CFEs. In addition, thermally annealed CFEs demonstrated a concentration-dependent current change for the reduction of H_2O_2 unlike unmodified CFEs. Next, the performance of thermally annealed CFEs were assessed for DA detection and they showed remarkable electrocatalytic activity in terms of both sensitivity and selectivity in comparison to unmodified CFEs. The thermally annealed CFEs have great potential for various applications such as measurements in localized volumes and tissue analysis.
Keywords: Micro electrodes (UME), dopamine, H_2O_2, electrochemical detection, carbon-fiber electrode.

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➢ **ORAL PRESENTATION**

The function of Streptococ, Lactococ, Leuconostoc, Pediococ on polyamines, other biogenicamines formation by *Escherichia coli*, in lysine-enriched broth

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Abstract

Putrescine and cadaverine are significantly polyamines in fermented food and represent a toxicological risk for consumer health. Gram-negative bacteria as *Escherichia coli* selected on the basis of their biodiversity and in vitro polyamines and other biogenic amines-production ability, were tested in lysine riched decarboxylase broth using cell-free supernatants (CFSs) obtained from *Leuconostoc mesenterodies* subsp. *cremoris*, *Pediococcus acidilactici*, *Lactococcus lactis* subsp. *lactis*, and *Streptococcus thermophilus*. Two groups of concentrations of each cell-free supernatant (25 or 50%) and control (only lysine riched decarboxylase broth were prepared to study polyamines 'cadaverine, putrescine, spermine, spermidine agmatine' and biogenic amines formation by foodborne pathogen. Significant differences ($p< 0.05$) were observed among the amines production. Cadaverine and putrescine produced by *E. coli* (1072 .21, 1114,18 mg/L) in lysine riched decarboxylase broth. Cadaverine production by *E. coli* decreased by all of CFS from LAB strains showed inhibitory effect between 37% to 99% and CAD accumulation was mostly affected by CFS of *Pediococcus acidilactici* for *E. coli* (99%). Putrescine production by *E. coli* decreased with the addition of 50% concentration of CFS *Leu. mesenteroides* subsp. *cremoris* and *P. acidophilus* 96 % respectively. The difference of concentration of polyamine was found comparing to the control samples. Spermine and spermidine were produced in lower amount in *E. coli*, whereas spermine and spermidine following serotonin, dopamine, and tyramine increased drastically in the major part of the samples concerning the control. Agmatine was characterized by a marked concentration decrease in all of the samples, and tyramine (TYR) was accumulated in very low concentrations in the controls. Therefore, the ability of bacteria to produce certain polyamines such as, putrescine and cadaverine, spermidine, spermine, biogenic amines such as histamine, tyramine has been studied to assess their risk and prevent their formation in food products. The results obtained from this study concluded that the lactic acid bacteria (LAB) strains are capable to avoid or to limit biogenic amine formation by FBP.

Keywords: Polyamines, Cadaverine, Biogenic amines, *Escherichia coli*, Lactic acid bacteria.

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➢ **ORAL PRESENTATION**

An efficient PANI modified ZnO photocatalyst under UV light irradiation: Preparation, characterization, and its photocatalytic activity

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Abstract

The discharging of synthetic dyes that are widely used in textile and cosmetic industries causes a critical environmental and health issue. Hence, many studies have been performed for the removal of these colored effluents using different chemical and physical methods. Among these methods, photocatalysis is an effective technique based on the oxidation of the target molecule by hydroxyl radicals. ZnO is the second most extensively used photocatalyst exhibiting excellent photocatalytic activity. The main disadvantage of ZnO photocatalyst is its wide band gap energy which only allows it to be active under UV light. In this respect, several researches have been conducted including surface modified ZnO photocatalysts by using conducting polymers such as polyaniline (PANI) [1].

The aim of this study was to determine the photocatalytic performance of polyaniline modified ZnO photocatalysts (PANI-ZnO) by the degradation of methylene blue dye in aqueous medium under UV light irradiation. For this purpose, catalysts comprised of four different molar ratios of aniline/ZnO were prepared by an in-situ chemical oxidative polymerization method and characterized by SEM, FTIR and Raman Spectroscopy. The photocatalytic performances of photocatalysts were investigated by following UV-vis data and commenting on removal percentages. The effect of operational parameters such as amount of catalyst and the initial dye concentration were also studied. Referring to UV-vis parameters, PANI-ZnO photocatalysts expressed enhanced photocatalytic performance with regard to ZnO. PANI-ZnO photocatalysts could be considered as an efficient photocatalyst for the degradation of methylene blue under UV light irradiation.

Keywords: Methylene blue, photocatalysis, polyaniline, ZnO.

[1] J. Stejskal, Interaction of conducting polymers, polyaniline and polypyrrole, with organic dyes: polymer morphology control, dye adsorption and photocatalytic decomposition, Chemical Papers 74 (2020) 1-54.

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➢ **ORAL PRESENTATION**

Synthesis of potential bioactive pyrazole-carboxamides

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Abstract

Cancer is a disease being in the second order of death reasons in the World. 23 million new cancer cases are expected in the year 2030. Traditional chemotherapeutics in the clinic are not sufficient. Therefore, there is an urgent need for novel compounds with anticancer activity, which will not have available problems. Carbonic anhydrases (CAs, EC 4.2.1.1) as an important enzyme family are a group of zinc bearing metalloenzymes which catalyses hydration and dehydration of the molecules of CO_2/HCO_3. In contrast to the other CA isoforms, overexpression of CA IX and XII isoenzymes in cancer cells makes them a good therapeutic target. Sulfonamide group is the largely used zinc binding group for the design of new CA inhibitors. In addition, pyrazole and its derivatives are important pharmacophores in drug design due to the high binding affinity of the nitrogen carrying compounds to the biological receptors. Crizotinib (Xalkori®, Pfizer, for lung cancer, 2011), is the pyrazole carrying drugs approved by the FDA. Pyrazole carboxamide derivative AT7519 is an antiproliferative compound, which inhibits cyclin dependent kinases, and its phase I studies have started. Thiophene carboxamide derivative OSI-930 (OSI Pharmaceuticals LLC) is in phase III trials as a receptor kinase inhibitor. Based on the significant reports, pyrazole-carboxamide derivatives having sulfonamide, pyrazole, carboxamide, and thiophene pharmacophores were designed and synthesized as potential compounds for further studies as cancer-related CA inhibitors. Their chemical structure elucidation was carried out by ^{1}H NMR, ^{13}C NMR, and HRMS spectra.

Keywords: Anticancer, carboxamide, sulfonamide, pyrazole

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➢ **ORAL PRESENTATION**

Lactic acid bacteria profile in animal foods

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Abstract

In recent years, healthy food consumption has gained importance. LAB species as their natural preservatives in foods and their antimicrobial metabolites, application areas of organic acids and bacteriocins as other products have started to attract attention. Lactic acid bacteria, as a different group in microorganisms, are fermented carbohydrates, the final product is lactic acid-producing facultative anaerobic organisms that is gram-positive, non-spore, catalase-negative. In this study, the identification of bacil and coc lactic acid bacteria isolated from cheese, goat raw milk, packaged fish productsfrom Çukurova region. From the food samples, MRS and M17 medium were applied double-pouring method of 10-5 -10-6 dilutions of each sample from 10 g sample / 90 ml ringer solution. It was incubated for 24-72 hours at 37 oC. Then 5 typical colonies were randomly selected for each sample plate. In the result, totally 131 isolates isolated from 29 food samples were phenotypically morfologically and molecular characterised using biochemical tests. Lactic acid bacteria isolated from *Lactobacillus* isolates were identified as *Lb. rhamnosus, Lb. paracasei* subsp. *paracasei*, *Lb. brevis*, *Lb. sunkii*, *Lb. zeae*, *Lb. casei*. *Lactococcus* were identified as *L. lactis* subsp. *lactis* and *cremoris, Leuconostoc*; *L. mesenteroides* subsp. *mesenteroides*, *Weissella*; *W. confusa* and *W. cibaria*, *Enterococcus*; *E. hirae*, *E. faecalis*, *E. lactis*, *E. faecium*, *E. gallinarum*, *E. durans*, *E. casseliflavus*, *E. thailandicus.*

Keywords: Lactic acid bacteria, animal food, isolation, strain profile

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➢ **ORAL PRESENTATION**

Antimicrobial Effect of Essential Oils on *Listeria monocytogenes* Strains

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Abstract

Essential oils (EOs) are highly volatile, aromatic yields obtained from plants. In addition, they known for its antimicrobial activity against several pathogenic bacteria. The present work evaluated the antimicrobial activity of 15 different EOs on survival of different strains of different *Listeria monocytogenes* strains isolated from ready-to-eat foods by disc diffusion method. The most antimicrobial activity on the strains was found as thyme oil, clove oil, sage oil and peppermint oil. Ginger oil and garlic oil were resistant to *L. monocytogenes* strains. New studies about antimicrobial effect of EOs in vivo conditions are recommended.

Key Words: *Listeria monocytogenes*, Essential Oil, Antimicrobial Effect

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➢ **ORAL PRESENTATION**

Preparation of New Hybrid Anticancer Agents From A Natural Plant (*Styrax officinalis*)

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Abstract

In this work, the design of hybrid molecules that connect two distinct drug entities in one molecule, at least one part being a biologically active natural product will be discussed. A single molecule containing more than one pharmacophore, each with a different mode of action, may be useful for cancer treatment. Hence, in the design of new anti cancer drugs called hybrid molecules, combination ion of distinct pharmacophores have been more used in the recent years. Combination of distinct pharmacophores could improve both the anti-cancer capacities and the other biological activities of the molecules. We present the synthesis and characterization of a new thiosemicarbazone derivative (ET) from egonol (*Styrax officinalis)* and its Cu(II) complex, and a new *vic*-dioxime containing thiosemicarbazone and egonol units (ETO) and its novel homotrinuclear Cu(II) complex of the new ligand (Figure 1).

All of the synthesized ligands and complexes were tested against two human cancer cell lines (MCF-7 and PC-3) for their anti proliferative and apoptotic features. The anti-proliferative effects of products have been analyzed and their apoptotic or necrotic effects have been determined with Hoechst/Propidium iodide double staining method in both cancer cell lines. Paclitaxel used as positive control (1µM). The results indicated that the new synthesized products are effective on both cell lines between the concentration range 5-40 µM and show their effects by apoptotic mechanisms. If the effects compared between the cell lines it can be suggested that these products were found more effective on MCF-7 cell line. Additionally, a molecular docking analysis was conducted to predict the molecular interactions of the compounds with various drug targets of cancer cells. As result, cytotoxic efficiency of the some new synthesized products was found more than paclitaxel (depend on concentration) which is a chemotherapeutic agent that is using for cancer therapy.

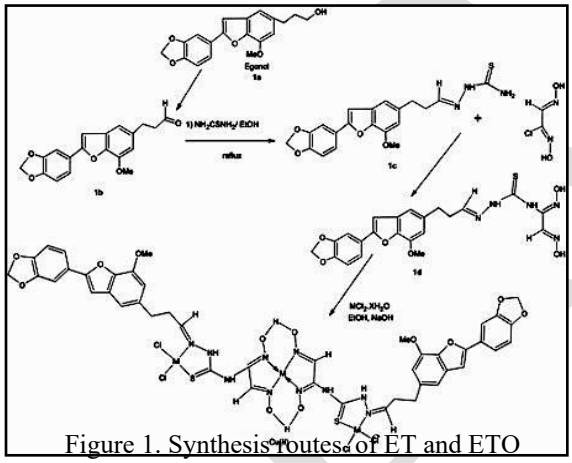


Figure 1. Synthesis routes of ET and ETO

Keywords: *Styrax officinalis*; *vic*-Dioxime; Thiosemicarbazone; Prostate cancer(PC-3); Breast cancer(MCF-7), Molecular docking, DFT, Cu complex

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➢ **ORAL PRESENTATION**

Selective oxidation of benzyl alcohol to benzaldehyde by vanadium phosphate catalyst prepared by solution combustion method

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Abstract

Benzaldehyde is an important raw material in the perfumery and pharmaceutical industries. The liquid-phase oxidation of benzyl alcohol to benzaldehyde is one of the most used industrial processes. In this process, different catalysts (*e.g.*, metal oxides, supported metal nanoparticles, MOFs or zeolites), oxidants (*e.g.*, H_2O_2, *tert*-butyl hydroperoxide, air or O_2) and solvents (*e.g.*, hexane, water, acetonitrile, xylene, methanol or solvent-free) have been studied to increase the conversion and selectivity of benzaldehyde. In this study, the selective liquid-phase oxidation of benzyl alcohol to benzaldehyde was catalyzed by vanadium phosphate as a new catalyst. The catalyst was prepared by solution combustion method. Glycine, urea, carbohydrazide, citric acid, hexamethylenetetramine and oxalyldihydrazide used as organic fuel. The structural, thermal and surface properties of the catalysts were examined. According to using fuel, the surface properties of the obtained catalysts changed and the catalytic properties were also improved. Solution combustion synthesized vanadium phosphate has emerged as an alternative catalyst for oxidation of benzyl alcohol to benzaldehyde with high conversion and selectivity.

Keywords: Benzaldehyde; Catalyst; Vanadium phosphate; Solution Combustion Method

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➢ **ORAL PRESENTATION**

Baharat üretiminde yeni bir yaklaşım: Fermente baharat

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Özet

Hâlihazırda baharat üretiminde kullanılacak biber ve benzeri sebzeler önce serilerek veya kurutma makinelerinde kurutulur. Sonra öğütülerek baharata dönüştürülür. Ancak sererek kurutmanın dezavantajları vardır. Kuruması için serilen sebzeler gerektiği kadar kuru bir yerde olmazsa kurumaları uzun sürer. Bu süreçte üründe küflenmeler sonucu hem kayıplar meydana gelir hem de küf kaynaklı insan sağlığını çok ciddi şekilde tehdit edici toksinler oluşur. Ayrıca dışarıdan bulaşan yabancı mikroorganizmalar dışında sağlığa faydalı herhangi bir mikroorganizma içermezler. Bu sebeple kuruma safhasının uzun sürmesi üründe bozulmalara neden olur ve ekonomik kayıplar meydana gelir. Dışarıda hava ile temas eden bir vaziyette yapılan kurutmada sebzelerin biyoaktif bileşikleri ve renk maddeleri zarar görür. Hem sağlığa faydasını hem de tüketici açsından albenisini kaybeder. Bu aşamada bulmuş olduğumuz yöntemle sorunların aşılması için baharat yapılacak sebzelerin önce turşu yapılması ardından kurutulması uygun bulunmuştur. Turşulaşma sürecinde probiyotik özellikli sağlığa faydalı bakteriler gelişir. Bunlar hem bakteriyosin üreterek kuruma esnasında gelişmesi muhtemel küfleri önlerler ve bu yolla toksin oluşumunun önüne geçerler hem de ortamı ekşiterek bozucu bakterilerin gelişimini baskılarlar. Bunların yanında kurutulacak sebzeler önemli miktarda tuzlanmış oldukları için kuruma esnasında herhangi bir mikrobiyal bozulma görülmez. Yaptığımız ön denemeler sonunda turşulaştırmanın sebzelerdeki etken maddelerin etki düzeyini arttırdığı fark edilmiştir. Yani aynı biber baharatının turşulaştırılmış biberden yapılması halinde daha acı bir tat verdiği görülmüştür. Turşulaşma sırasında sebzeler hoşa giden yeni bir lezzet kazanırlar.

Anahtar Kelimeler: Fermantasyon, kurutma, probiyotik,

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➢ **ORAL PRESENTATION**

Şalgam suyu üretiminde yeni tekniklerin kullanılması

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Özet

Şalgam suyu iki aşamalı fermantasyon ile üretilmektedir. İlk aşamada bulgur unu ile hamur hazırlanmakta ve bu hamur birkaç gün iyice ekşitilmektedir. Sonrasında ekşimiş hamura su eklenerek sıvı hale girilmektedir. Bu sıvı süzgeçten geçirilerek sıvı kısmı şalgam suyu üretiminde kullanılmaktadır. Elde edilen nişasta oranı yüksek ekşi hamurlu suya siyah/mor havuç ve şalgam turpu dilimlenmekte ve tuz eklenmektedir. Sonrasında önceki şalgam suyundan bir miktar eklenerek ikinci fermantasyona bırakılmaktadır. Her iki fermantasyon ortam sıcaklığına göre toplam 7 ila 40 gün sürmektedir. Bu süreçte şalgam suyuna geçen nişasta ve havuçtan geçen şekerler fermente olmakta ve ortaya asetik asit, laktik asit tadı ağırlıklı bir içecek çıkmaktadır. Şalgam suyu yaklaşık %97-98 su içermektedir. Fermantasyon süresinin uzun olması anlık taleplerin karşılanamamasına, maliyetlerin artmasına ve üretim kapasitesinin düşmesine neden olmaktadır. Bu nedenlerden dolayı çok daha kısa sürede şalgam suyu üretim yöntemine ihtiyaç vardır. Bunun ancak önceden hazırlanmış şalgam suyu konsantresinin anlık sulandırılarak tüketime sunulması veya ambalajlanması ile mümkün olacağı düşünülmektedir. Bunun için bu ürün ile şalgam suyu konsantresine fermantasyonda oluşan lezzet bileşiklerinin saf halde karıştırılması ve sonra tuz eklenerek şalgam suyu konsantresine dönüştürülerek tüketilmesi amaçlanmıştır.

Anahtar Kelimeler: fermantasyon, şalgam, hızlandırma, konsantre

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➢ **ORAL PRESENTATION**

Kanatlı hayvanlarda enkapsülasyon yönteminin organik asit ve esansiyel yağlar ile birlikte kullanılmasının etkileri

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Özet

Enkapsülasyon, aktif olan maddenin çevresinde uygun kaplama materyali ile koruyucu bir zar oluşturulması temeline dayanmaktadır. Enkapsülasyon teknolojisi günümüzde farmokoloji, kimya, kozmetik, gıda ve boya gibi farklı birçok sektörde kullanılmaktadır. Gıda ürünleri içerisinde çoğunlukla katı ve sıvı yağlar, aroma bileşenleri, vitaminler, mineraller, renk bileşenleri ve enzimler enkapsüle edilmektedir. Kanatlı sektöründe performansı arttırmak için tercih edilen katkı maddeleri, organik asitler (**OA**) ve esansiyel yağlardır (**EO**). Son yıllarda yapılan çalışmalarda OA ve EO katkı maddelerinin enkapsüle yöntemiyle kullanılması, hayvan sağlığı açısından önemi kanıtlanmıştır. Organik asitler, sindirim enzimlerinin, pankreas salgılarının ve ince bağırsaktaki villus yüksekliği ve derinliğinin üzerindeki değişiklikler performansı artırabilir. Esansiyel yağlar besin sindirimini ve emilimini arttırır, bağırsaktaki patojenlerin kolonizasyonunu azaltır, antioksidan özellikler sergiler ve hayvanın bağışıklık durumunu güçlendirir. Bu özellikler kanatlı hayvanlarda artan performansı açıklamaya yardımcı olur. Son yıllarda, katkı maddelerinin birlikte kullanılması tek bir katkı maddesi olarak kullanmasından daha iyi sonuçlar verdiği bulunmuştur. Ayrıca etlik piliçlerde enkapsüle yöntemiyle OA ve EO'nun birlikte kullanılması Salmonella kontrolünün iyileşmesine neden olmaktadır. Bu derleme, enkapsüle yöntemiyle OA ve EO'nun kullanımı ve bağırsak mikrobiyal etkileri ile ilgili araştırmacılara yol gösterecek bir kaynak olmayı hedeflemiştir.

Anahtar Kelimeler: Kanatlı hayvan, Enkapsülasyon, Organik Asitler, Esansiyel Yağlar

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Cytotoxic and antiangiogenic activities of rutin

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Abstract

This study examined the cytotoxic and antiangiogenic activities of Rutin also called rutoside, quercetin-3-O-rutinoside and sophorin which is a citrus flavonoid found in a wide variety of plants including citrus fruit. MDA-MB-231 human breast cancer and 293T human embryonic kidney cells were treated with rutin at various concentrations; cytotoxic effects were assessed by the WST-1. Rutin significantly and selectively inhibited proliferation of MDA-MB 231 cells depending on concentration and exposure time with calculated IC_{50} values of 125 ± 11.58, 108.44 ± 9.57 and 86.37 ± 5.79 µg/mL at 24, 48 and 72 h respectively. The increase in the number of apoptotic BrdU-labeled DNA fragments was measured at 450 nm. We also examined the *in vitro* antiangiogenic effects of rutin. VEGF levels were reduced by 22-68% in MDA-MB-231 cells compared to controls. The results of this study suggest that rutin may be a potential candidate for the treatment of breast cancer.

Keywords: Breast cancer, cytotoxicity, flavonoid, rutin, VEGF

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➢ **ORAL PRESENTATION**

The combination activity of phloridzin and oxacillin against methicillin-resistant *Staphylococcus aureus*

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Abstract

Resistance to antimicrobial agents has become an increasingly important global problem and has increased efforts to find novel antimicrobial agents. Flavonoids are an ubiquitous class of secondary metabolites found in photosynthesizing cells of the plants. They are very promising agents for the treatment of antibiotic-resistant bacterial strains such as methicillin-resistant *Staphylococcus aureus* (MRSA) since they are non-toxic or low-toxic compounds against normal cells. *Staphylococcus aureus* (*S. aureus*) is an important pathogen responsible for several bacterial infections worldwide. Phloridzin (phloretin 2′-glucoside) is dihydrochalcone compound which belongs to a class of flavonoids. It has been suggested that phloridzin can act as an inhibitor of bacterial or fungal parasite growth in apple trees. Based on this information, the aim of this study is to evaluate the combination activity of phloridzin and oxacillin against MRSA strain.

S. aureus ATCC 25923 (susceptible strain) and *S. aureus* ATCC 43300 (MRSA) strains were used for this study. To determine Mininum Inhibitory Concentrations (MIC) of both agents against *S. aureus* strains, broth microdilution method was performed. The combination activities of phloridzin and oxacillin on MRSA were studied with the checkerboard synergy test.

According to the results of the broth microdilution method, while the MIC values of phloridzin against both strains were 128 µg/ml, MIC values of oxacillin were found to be <0,0625 and 32 µg/ml against *S. aureus* ATCC 25923 and *S. aureus* ATCC 43300, respectively. The combination of phloridzin and oxacillin showed an indifference effect with the lowest 0.625 FICI value. This combination had no synergistic effect against MRSA.

As a result, although phloridzin has antimicrobial effects against MRSA, it could not show synergistic effect when combined with oxacillin. Therefore, in this study, phloridzin was not found sufficiently effective in decreasing oxacillin resistance.

Keywords: Methicillin-Resistant *Staphylococcus aureus*, phloridzin, checkerboard, synergistic effect

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➢ **ORAL PRESENTATION**

Chlorantniliprole toksik etkilerinin *O. niloticus* solungaç dokularında iyonoregülasyon enzimi Na/K ATPase aktivitesinin değişimleri

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Özet
Diamide türü bir insektisid olan chlorantraniliprole tarım uygulamalarında çok kullanılan, zararlılarda iyonoregülasyon sistemini bloke eden, toksik özelliği ile etkinlik gösteren bir pestisittir. Bu çalışmada chlorantraniliprole, 1ppm ve 2 ppm konsantrasyonlarının etkisinde *O. niloticus* solungaç dokularında Na/K ATPase enzim aktivitesi üzerine etklileri 7 gün süre ile araştırılmıştır. Araştırmamızda elde edilen sonuçlar solungaç dokusunda chlorantraniliprole 7 gün süreyle etkisinde Na/K ATPase enzim aktivitesinin kontrol grubuna göre 1 ppm ve 2 ppm konsantrasyonlarında sırasıyla %61 ve %65 azalma gösterdiği saptanmıştır. Çalışmanın sonuçları bizlere, *O. niloticus* balıklarının osmatik regülasyon sisteminin, chlorantraniliprole pestisitin etkisinde iyi bir belirteç olduğunu göstermektedir.
Anahtar kelime: Chlorantniliprole, *Oreochromis niloticus*, Na/K ATPase, solungaç

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➢ **ORAL PRESENTATION**

Botulinum toxin from environmental pollutants

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Abstract

Botulinum toxin is a strong toxin produced by Clostridium botulinum that is a Gram (+) anaerobic bacteria. Also, it is an environmental pollutant. There are 8 subtypes of botulinum toxin (toxin A, B, C, D, E, F, G and X). The toxin makes muscle relaxation by irreversibly blocking the release of acetylcholine in the cholinergic end of neuromuscular system and the presnaptic end of autonum nerves. This muscle relaxation continues until regeneration of nerve endings is completed. Although botulinum toxin has been widely used in the cosmetic field in recent years, it has been FDA approved for use as therapeutic chronic migraine, pain, dental treatments, strabismus, cervical dystonia, multiple sclerosis due to urinary incontinence treatments. The aim of this study is to present up-to-date information about the pharmacological properties / effects, usage areas and side effects of botulinum toxin in the light of the literature.

Keywords: Botulismus, toxin, pharmacological properties

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➢ **ORAL PRESENTATION**

Characterization of Phenolic-Flavonoid Profile and *Related* Antioxidant Potential of Bay and Nettle Seed Oil

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Abstract

Overwhelming levels of free radicals leads to weakening of antioxidant defense system and increasing oxidative damage, *resulting in* the development of several chronic diseases. *Plant derived natural products* such as oils are used to cope with these conditions. The aim of this study was to evaluate antioxidant capacity of seed oil of *Laurus nobilis* L. (bay) and *Urtica pilulifera* L. (nettle) and to determine phenolic and flavonoid profile related to this activity. The antioxidant activities of the samples were determined by scavenging effects on 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radicals. Both oil types exhibited significant inhibitor effects on ABTS and DPPH free radicals. Bay seed oil possessed higher ABTS radical cation decolorization effect than nettle seed oil. Similarly, DPPH free radical scavenging activity of bay seed oil was greater than nettle seed oil. *Total phenolic and flavonoid contents* of the samples measured by Folin-Ciocalteu and aluminium chloride methods, respectively. The *highest* amount of *total phenolic and flavonoid content* was obtained from bay seed oil. The antioxidant capacities of both samples by both assays were found directly related to the total phenolic and flavonoid content. This result is considered to be a consequence of the antioxidant properties of polyphenols.

Key words: antioxidant, bay seed oil, Laurus nobilis, nettle seed oil, Urtica pilulifera

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➢ **ORAL PRESENTATION**

Boron levels in bottled waters in Turkey

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Abstract

Boron is an element found as compounds in nature. In recent studies, boron has been shown to have important roles on human health. However, some studies have shown that high doses of boron have negative effects on testis and reproductive function. It is known that boron concentration in water and foods directly reflects the exposure of boron for humans. The toxic oral reference dose and the recommended dietary allowance of boron are currently unknown. In view of the effects of boron exposure on human health accurately, determination boron levels in the environment is much of significance. The data about boron contents of bottled water in Turkey are also insufficient. Therefore, the determination of boron levels in bottled water will provide useful information for the assessment of boron intake via drinking water and later for protecting and improving the public health for further studies. In the present study, boron levels in 149 bottled water frequently consumed in Turkey have been determined by inductively coupled plasma-mass spectrometry. Boron levels ranged between 0.000 and 0.467 mg/L. The overall mean value was around 0.031 mg/L, lower than the limit levels given by the WHO and the European Union, and also the limit level established by Turkish regulations. This is the most detailed study evaluating boron levels in the bottled waters of Turkey. To know boron levels in drinking waters is also very important for epidemiologic studies and the establishment of the database of boron level in drinking waters in Turkey.

Keywords: boron, drinking water, bottled water, ICP-MS, trace elements, Turkey

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Selective Deglycosylation of Therapeutic Proteins via Novel Bifidobacterial Glycosidases

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Abstract
Glycoproteins are composed of protein and glycans, which are the carbon source for bacterial growth. Bacteria can utilize glycans by releasing from glycoproteins with glycosidases. A therapeutic protein, lactoferrin have many biological functions such as antimicrobial, antioxidant, binding of iron, digestibility, bifidogenic effects. The contribution of glycans to the biological function of therapeutic proteins have not fully understood yet. The main reason for this problem is that currently used glycosidases are unable to isolate glycans as a sufficient level and selectivity. In this study, the novel glycosidases isolated from different Bifidobacteria found in different organisms feaces and genetically attached different fusion tags to these enzymes were used to manipulate the activity of these enzymes. The orthologs of Endo-*β*-*N*-acetylglucosaminidase enzyme in other Bifidobacteria strains were detected by using some databases (NCBI, LMG). These enzymes were produced recombinantly in *E. coli* 10G cell by using genetically attached fusion tags (N-His, SUMO, C-His) to change the target glycans of these enzymes. Molecular tagging was performed with pRham ™ N-His Kan, pRham ™ N-His SUMO Kan and pRham ™ N-His Kan vectors. Following the protein expression with rhamnose, the produced enzymes were purified with nickel columns due to the 6xHistidine residues attached to the N and C terminals in the cloning vectors. The purity of the produced enzyme was tested on SDS-PAGE and the activity was monitored on model proteins.
Keywords: Bifidobacteria, Glycosidases, Glycoproteins, Glycans

Acknowledgments: This study was supported by TUBITAK (#118z146)

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➢ **ORAL PRESENTATION**

Investigation of the glycosidase activity and recombinant production of different bacteroides species

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Abstract

Glycosylation is one of the most common types of post-translational modification observed in cells, with more than 50% of eukaryotic proteins being a glycoprotein. Glycans may exist in the form of free oligosaccharides or linked oligosaccharides (glycoconjugates). The contribution of glycan species to the biological functions of glycoproteins is not yet understood. The main reason for this is that the glycosidases used currently are unable to release glycans at sufficient levels and selectivity. The enzymes used in the field of glycobiology are two types according to the type of glycan in which they are active; N-glycosidases and O-glycosidases. O-glycans are divided into 8 groups. Currently commercially produced O-glycosidases show activity on only 2 groups of O-glycans.
A strategy has been developed to investigate whether Bacteroides possess potential glycosidases. The basis of this approach; bacteria do not contain the necessary enzymes to digest proteins. Therefore, they cannot use proteins as carbon sources. The carbon source of development observed on glycoproteins will, therefore, be glycans.
In order for the glycans to be release from the glycoproteins and taken into the cell, the bacteria must first release them with glycosidases. Studies in this context have observed the growth of Bacteroides species on mucin containing O-glycan and fetuin glycoproteins containing both N-glycan and O-glycan. The high growth of Bacteroides on glycoproteins gives us a hint of the fact that there are enzymes in the genome that can interrupt O- and N- glycans.
First, the growth of Bacteroides species on various glycoproteins will be determined, then the expression levels of candidate genes will be determined by quantitative PCR and the genes with high expression will be recombinantly produced in *E.coli* by the pEcoTM-T7-cHis vector.
These enzymes, which will be produced for the first time in this context, are pioneers in the field of glycobiology.

Keywords: Glycoprotein, Glycans, O-glycans, O-glycosidases, Bacteroides

Acknowledgments: This study was supported by TUBITAK (#118z146)

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➢ **ORAL PRESENTATION**

The importance of gamma irradiation technology on food safety

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Abstract

Food irradiation is a safe food processing technology that employs ionizing radiation or electron beams for improving food safety. Food irradiation has about 100 years of history and it was developed as a scientifically established technology and safe food process during the second half of the XXth century. Food irradiation which is approved by the Food and Drug Administration (FDA) is mainly employed to extend the shelf-life and secure the quality of foods by decreasing the microbial load, which causes the spoilage. Gamma rays are the preferred source of radiation for food because of their penetrating capability and high effectiveness in inactivating a wide diversity of microorganisms. Gamma irradiation is a non-thermal technique that has recently received considerable attention and high potential for maintaining quality attributes.Gamma irradiation does not affect important macronutrients, such as carbohydrates, proteins and fats, thus leaving the food fresh. Moreover irradiation process has no effect on food taste, color and smell, and it does not leave radioactive residues. Gamma irradiation can inhibit living cellular division such as microorganisms and promote molecular structural modification. Gamma irradiation has a direct and an indirect effect on the material that received this processing. The primary mechanism, also called direct effect, is given mostly by the double-strand breaks of DNA molecule, causing the inactivation of that cell. This process is dominant when dry spores of microorganisms are irradiated. Many researchers have reported that gamma irradiation at low doses (below 10 kGy) kill most organisms without any deterioration of food quality. In conclude, while gamma irradiation provides effective inhibition of undesired microorganisms, simultaneously it improves the physicochemical, nutritive, and biological characteristics of foods.

Keywords: gamma irradiation, irradiation technology, food safety, non-thermal technique

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➢ **ORAL PRESENTATION**

Juglon yüklü kitosan doku iskelesi üretimi ve karakterizasyonu

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Özet

Dokuların maruz kaldığı çeşitli travmalarla birlikte apoptotik hücre ölümleri meydana gelir. Bu tip hücre ölümlerinin karakteristiği serbest oksijen radikallerinin ortaya çıkışıdır. Serbest radikaller DNA'ya zarar vererek hücre ölümü ilişkili birçok hastalığın ortaya çıkışına yol açar. Apoptozla ortaya çıkan radikallerin süpürülmesi ve aynı anda travmatik dokuya destek görevi görmesi için antioksidan özellikli doku iskelesi üretilmesi hedeflenmiştir. Bu amaçla tekli emülsiyon (oil-in-water, o/w) çözücü uçurma yöntemiyle antioksidan özellikli juglon molekülü PLGA nanopartiküle enkapsüle edilmiş ve juglon yüklü nanopartiküller elde edilmiştir. Üç boyutlu doku iskelesi oluşturmak için de kitosan polimerik biyomalzemesi kullanılmış, kitosan çapraz bağlanarak yüklü nanopartiküller doku iskelesine entegre edilmiştir. Üretilen doku iskelesi morfolojisi, yüzeydeki fonksiyonel grupları, ilaç yükleme kapasitesi, şişme yüzdesi ve antioksidan aktivitesine göre değerlendirilmiştir.

Anahtar Kelimeler: Juglon, poli(laktik-ko-glikolik asit), kitosan, nanopartikül, doku iskelesi, antioksidan aktivite

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➢ **ORAL PRESENTATION**

Determination of selenium in tap water by voltammetry

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Abstract

A simple and highly sensitive electrochemical method for the determination of selenium (Se (IV)) was developed, based on an activated palladium (Pd) electrode. In pH 2.0 Britton–Robinson buffer (BR), the activated Pd electrode significantly enhanced the peak current of Se compared with non activated Pd electrode. The current responses in cyclic voltammetric experiments were investigated and a reduction peak was observed at -0.519 V vs. Ag/AgCl. Several parameters were investigated to evaluate the performance of the development method. Under optimized conditions, the linear range was 1 to 200 ppb for Se(IV), and the detection limit (S/N = 3) was 0.4 ppb. Relative standard deviations of 1.36, 0.57 and 0.74% were obtained for five successive determinations of 5, 7 and 9 ppb Se(IV). This voltammetric method was successfully applied for the direct determination of Se(IV) in tap water.

Keywords: Selenium, voltammetry, palladium electrode, tap water.

DRAFT

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➢ **ORAL PRESENTATION**

Optimization of green synthesis of silver nanoparticles using *Salvia triloba* extract

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Abstract

Among green synthesis methods, which are an eco-friendly, non-toxic, simple and safe approach for the synthesis of silver nanoparticles (AgNPs), using plant extract is the most efficient method. *Salvia triloba* which was not used formerly was selected for this research owing to its high antioxidant activity. The phytochemicals in *S. triloba* act as not only reducing but also stabilizing agents. Synthesis of AgNPs was carried out in a single-step after aqueous extract of *S. triloba* is obtained by infusion. The UV-visible spectrophotometer was used to observe the formation of nanoparticles and an absorption peak was appeared between 428 nm to 449 nm because of the surface plasmon resonance (SPR) of AgNPs in spectra. The effect of light, time, the amount of extract, extract concentration, and metal ion concentration in precursors was investigated by changing each parameter in reaction mixture one by one. The effects of different parameters on the synthesis of silver nanoparticles were mostly observed via UV-visible spectroscopy since it is a simple, easy and effective method. It was found that The phyto-synthesis of AgNPs is a photo-induced reaction. The optimum reaction mixture was determined as 9 mL of 0.5 mM silver nitrate solution and 0.5 mL of *S. triloba* extract having 0.2 mg/L concentration. The morphology of optimized nanoparticles was characterized via various techniques like X-ray diffraction (XRD), transmission electron microscopy (TEM), and zeta-sizer. AgNPs synthesized with the optimum reaction mixture were stable for more than two weeks. Consequently, obtained results confirmed that each reaction parameter has an important effect on controlling not only the size and size distribution of the AgNPs but also its stability.

Keywords: Green synthesis, Silver nanoparticles, *Salvia triloba*

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➢ **ORAL PRESENTATION**

Berrak hücreli renal hücre karsinomu hastalarının idrar örneklerinde MDA ve AOPP parametrelerinin incelenmesi

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Özet
Renal hücreli karsinom (RHK), erişkinlerde görülen kanserlerin %3'ünü oluşturmakta olup böbreğin en sık görülen kanseridir. Berrak hücreli renal hücre karsinomu (ccRCC) ise, renal hücreli karsinomların en sık görülen alt türüdür. Bu çalışmada, sıklıkla metastaz yapan ilerleyici bir tümöre dönüşen renal hücreli karsinomun ilerlemesinde oksidatif stresin önemli olup olmadığı sorusu ele alınmış ve farklı tümör evreleri ve tümör çaplarına göre gruplandırılan ccRCC hastalarının idrarında oksidatif stresin göstergesi olan MDA ve AOPP parametreleri incelenmiştir. Kocaeli Üniversitesi, Tıp Fakültesi Etik Kurulundan bilimsel araştırma için izin alınmıştır. Kocaeli Üniversitesi Tıp Fakültesi Üroloji Polikliniği'ne başvuran olgulardan radikal nefrektomi ve parsiyel nefrektomi ameliyatı sonrasında histopatolojik olarak ccRCC teşhişi konan hastaların idrar örnekleri çalışmaya dahil edilmiştir. On iki berrak hücreli böbrek kanseri hastası ile 12 sağlıklı bireyden oluşan kontrol grubunun idrar örneklerinde MDA ve AOPP düzeylerini kolorimetrik yöntemle ölçülmüştür. ccRCC hastalarında idrar MDA ve AOPP düzeyleri kontrol grubuna göre anlamlı olarak yüksekti ($p<0,05$). Histopatolojik verilere göre saptanan 4cm'den büyük (n=6) ve 4cm'den küçük (n=6) tümör çaplarına sahip hasta alt gruplarının idrar MDA ve AOPP düzeyleri arasında istatistiksel olarak fark saptanmadı ($p>0,05$). Sonuç olarak bu çalışmada, renal hücreli karsinomlu hastalarda oksidatif stresin arttığı ancak tümör çapı ve evreler (pT1a, pT1b, pT2b ve pT3a) arasında MDA ve AOPP parametrelerinde belirgin şekilde farklılık gözlemlenmemiştir.
Anahtar Kelimeler: Oksidatif stres, ccRCC, AOPP,MDA

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Kabak çekirdeği yağı yüklü PEG-PCL misellerinin meme kanseri ve glioma hücreleri üzerine etkisinin incelenmesi

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Abstract

Kanser, kardiyovasküler hastalıklardan sonra dünya çapında en çok ölüme sebep olan ikinci hastalıktır [1]. Cerrahi ve radyoterapi, lokal ve metastatik olmayan kanserler için en etkili tedavi yöntemleridir, ancak kanser vücutta yayıldığı zaman yetersizdir. Kemoterapötik ilaçlar ise, kanser hücrelerinin hızlı çoğalmasını engelleseler de sağlıklı hücreleri de etkilemektedirler [2]. Bu sebeple doğal bileşiklerin antikanser etkinliklerinin incelenmesi büyük önem taşımaktadır.

Kabak çekirdeği yağının prostat, meme, kolon, akciğer kanseri gibi bazı kanser türlerinde hücre proliferasyonunu engellediği yönünde çalışmalar bulunmaktadır. Bu çalışmada, kabak çekirdeği yağı taşıyıcı sistemler içerisine enkapsüle edilerek ilgili dokulara hedeflenmesi ve antikanser etkinliğinin arttırılması hedeflenmiştir. [3]. Bu kapsamda, öncelikle, Cucurbitaceae ailesinin bir üyesi olan *Cucurbita moschata* (bal kabağı) çekirdek yağı PCL-PEG kopolimerlerine enkapsüle edilerek nanotaşıyıcı sistemler üretilmiştir. Üretilen nanotaşıyıcılar dinamik ve elektroforetik ışık saçılması ile incelenerek hidrodinamik boyutları ve zeta potansiyelleri belirlenmiştir. Ayrıca nanotaşıyıcı yüzeyine yağ moleküllerinin tutunması FTIR spektroskopisi ile incelenmiştir. Yağ ve yağ yüklü nanotaşıyıcılar, glioma (C-6) ve MCF-7 hücre hatları üzerinde incelenerek antikanser aktiviteleri araştırılmıştır. MTT [3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolium bromid] yöntemi ile kabak çekirdeği yağının ve bu yağ ile yüklü nanotaşıyıcıların hücre proliferasyonuna ve yara iyileşmesi üzerine etkileri incelenmiş ve yağ yüklü nanotaşıyıcıların tek başına yağa göre daha yüksek aktivite gösterdikleri tespit edilmiştir.

Anahtar kelimeler: kabak çekirdeği yağı, polietilen glikol, polikaprolakton, kanser

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➢ **ORAL PRESENTATION**

Molecular characterization of obese inbred mouse strains

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Abstract

Obesity becomes an epidemic problem in the world as a result of changes in diet and lifestyle. Many health problems including diabetes, cardiovascular disease, hypertension, dyslipidemia, liver steatosis and cancer are associated with obesity. Given that obesity is a complex, multifactorial disease, it is of great importance to establish adequate experimental animal models for its study. Inbred mice are widely used to understand obesity in humans. However, it is known that mouse strains can differ not only in tissue-specific responses to obesity but also in their metabolic phenotype under normal/control, low-fat diet (LFD) and high-fat diet (HFD) conditions. Thus, animal characterization is essential to investigate the individual's response to obesity and it's associated complications. As a high-throughput technique, Fourier transform infrared (FTIR) spectroscopy is becoming increasingly efficient tool to obtain specific information on the samples' molecular composition and structure (protein, lipid, carbohydrate and nucleic acids etc.). It provides a phenotypic fingerprint at the molecular level and has exhibited it's important role in the field of characterization and discrimination of experimental animals.

Keywords: FTIR spectroscopy, obesity, inbred strains

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➢ **ORAL PRESENTATION**

Lycopene bioaccessibility from tomato processing waste using nanoemulsions

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Abstract

Tomato (*Solanum lycopersicum*), which is one of the most consumed and tradable agricultural products in the world, has a great importance in human nutrition due to its high levels of lycopene. Tomato pulp, which consists of skin and seed parts of tomato, is a waste product of industrial tomato processing that poses both environmental and economical problems. As a result of their health associated benefits, the oral bioavailability of carotenoids is often relatively low due to poor water-solubility. The main objective of this study was to evaluate the potential of nanoemulsions to increase lycopene bioaccessibility from tomato processing waste throughout the in vitro gastrointestinal model. Tomato wastes were mixed with an equal mass of nanoemulsion and then placed in a household blender for 2 min to break down the tomato structure.
The bioaccessibility of lycopene were determined by HPLC. The bioaccessibility of the lycopene was higher from all nanoemulsions than raw tomato waste which was attributed to greater disruption of the plant tissue facilitating lycopene release. The highest bioaccessibility of lycopene was observed for nanoemulsions containing corn oil, sodium caseinate, (444.7 mg lycopene/100 g). The lycopene content (after in vitro digestion) increased from 13 to 444.7 mg lycopene/100 g in the containing nanoemulsions. The particle size of nanoemulsions was 223-333 nm after in vitro digestion. In addition, there were some differences in the electrical properties (ζ-potential) of the corn oils: −2.4 to -0.5 to -23.8 mV were observed. Current study provided valuable insights into the the bioaccessibility of lycopene from tomato wastes. Moreover, this study may be useful for designing different nano-emulsions to increase the efficacy of lipophilic nutraceuticals in other natural foods.

Keywords: lycopene, bioaccessibility, in vitro digestion, nanoemulsions

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➢ **ORAL PRESENTATION**

Effects of added sugar content and fermentation on some properties of fermented sucuk

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Abstract

One of the main changes in the sucuk production is the accumulation of lactic acid due to the conversion of added or naturally occurring sugars by lactic acid bacteria during the fermentation. The accumulation of lactic acid causes pH decline in sucuks. The pH decline accelerates the water loss, increases the hardness, develops the taste, aroma and color and prevents the microbial deteriorations. The aim of the study was to evaluate effects of different added sugar contents and effects of natural fermentation or inoculating a starter culture on some properties of fermented sucuk manufactured in a pilot plant in Cukurova University. Fermented sucuk samples were prepared by adding low (0.2%), medium (0.4%) and high (1%) level of sugar and stuffing in natural casings. In addition, natural fermentation or starter culture addition was used to produce sucuk samples. A costume design fermentation cabin was used for the fermentation, drying and ripening steps under controlled temperature and humidity. A data logger was used for continuous data collection related to temperature and humidity changes in the fermentation cabin. The weight losses were similar in the sucuk samples produced with low, medium and high sugar contents and either natural fermentation or starter culture addition was applied. The end product pH values of the sucuks were different and the end product pH values decreased due to the increase in the sugar content in the formulation. Statistical analysis of the sensory evaluation results indicated that SL (starter culture-low sugar) samples had the highest scores for the appearance, NH (natural fermentation-high sugar), SM (starter culture-medium sugar) and SL (starter culture-low sugar) samples had the highest scores for the color and SM (starter culture-medium sugar) sample had the highest score for the general acceptance while SH (starter culture-high sugar) sample had the lowest scores for all three attributes.

Keywords: Sucuk, Sugar content, pH, Fermentation

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➢ **ORAL PRESENTATION**

Seasonal variations in heavy metal and mineral element status of *Robinia pseudoacacia* L. plants in Turkey

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Abstract

Detection of the heavy metals and mineral elements is crucial for monitoring and dealing with the environmental pollution. For this aim, many organisms have been used as biomonitors for monitoring different pollution types. Fabaceae family member *Robinia pseudoacacia* L., which planted all across of the world is accepted as a useful biomonitor and can be used to compare pollution levels of different environments.

In this study, mineral element and heavy metal status of *R. pseudoacacia* plants that were planted in urban ecosystems were analyzed to understand seasonal variations in heavy metal and mineral element levels. For this purpose, washed and unwashed leaf, bark and branch samples of *R. pseudoacacia* and their co-located soils were collected from four different locations in Istanbul and one in Kocaeli districts of Turkey. These locations were Prince Island (control), Bagdat Avenue, Barbaros Boulevard and TEM highway (dense traffic) from Istanbul, and Dilovasi District from Kocaeli (industrial). The samples were conducted one time for each season. ICP-OES was used for determination of B, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb and Zn elements. In addition to heavy metals and mineral elements, total protein content and photosynthetic pigments of plant samples were determined in each season.

According to our results, two patterns were observed. The first pattern was an increase in B, Ca, Cd, Cr, Cu, Fe, Mg, Mn and Pb levels in spring and autumn seasons, and a decrease in summer and winter. On the other hand, the second pattern was a decrease in K, Na, Ni and Zn levels from summer to winter, and an increase in spring. Total protein concentrations were highest in autumn and relatively lower in spring and summer. Additionally, some fluctuations were detected in photosynthetic pigment concentrations of leaf samples collected from different stations for three seasons.

Keywords: Biomonitor, soil, heavy metal, mineral nutrient, pollution.

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➢ **ORAL PRESENTATION**

The protective role of milrinone on skeletal muscle after ischemia-reperfusion of lower extremities

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Abstract
Ischemia reperfusion injury of skeletal muscle is a commonly seen complication after vascular surgery. The aim of this study was to investigate the protective effect of Milrinone (MIL), as a phosphodiesterase III inhibitor, on skeletal muscle injury after lower extremity ischemia reperfusion (IR). Twenty one female wistar rats were randomly divided into 3 groups; Group I (control, n=7): after midline laparotomy, abdominal aorta was explored. Group II (IR, n=7): normal saline (1cc, intraperitoneally (ip) was applied before ischemia. Ischemia was induced by clamping the abdominal aorta for 1 hour (h) and followed by 1 h of reperfusion. Group III (MIL+ IR, n=7): Milrinone (0.5 mg/kg, ip) was administered before IR. At the end of experiment, the skeletal muscles of the thigh were taken and investigated by histological analyses. Approximately 5 µm thick paraffin sections were stained with Hematoxylin and Eosin (HE) for histologic analyses. Histopathological damage scoring was performed by following criteria; vasocongestion, inflammatory cell infiltration and degeneration of the muscle fibers. Each of the criteria was scored semiquantitatively using a graded scale evaluated as 0 to 3 (0: normal, 1: mild, 2: moderate, 3: severe). Maximum score was calculated as 9. The average of the damage scores was calculated for each group and statistical analysis was performed. Control group showed regular morphology with well-organized muscle fibers. Severe vasocongestion, muscle fibers degeneration and inflammatory cell infiltration were revealed in the IR group. In MIL+IR, reduced vasocongestion, muscle fibers degeneration and inflammatory cell infiltration were observed. Histopathological damage scores of skeletal muscle samples were found to be significantly higher in IR group than control group. Treatment by Milrinone before IR significantly reduced the histopathological damage score. Our histological study revealed that Milrinone treatment before ischemia may have a protective effect against skeletal muscle injury caused by IR of lower extremities.
Keywords: Ischemia, Reperfusion, Milrinone, Phosphodiesterase III inhibitor, Skeletal muscle, Histology.

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➢ **ORAL PRESENTATION**

Genetic diversity and phylogenetic analysis in Turkish cotton (*Gossypium hirsutum* L.) varieties revealed by ISSR markers and *trnL-trnF* intergenic spacer sequences

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Abstract

Cotton (*Gossypium hirsutum* L.) is one of the most important agricultural crops in the world and Turkey is one of the leading countries for cotton production. There is a great importance for Turkey to obtain cotton varieties having desired superior characters. Today, plant breeding is carried out by employing molecular biological and biotechnological methods. Besides, researches intend to investigate genetic diversity and phylogenetic relationships for determining the genetic characteristics of the plants and for finding similarities and dissimilarities between the plant species and varieties as preliminary studies of biotechnological researches.

In this research, genetic diversity and phylogenetic relationships between 22 cotton varieties widely cultivated in Turkey was studied. For this aim, 20 ISSR primers were employed and only 5 of them were generated acceptable amplification products. As a result, the level of genetic diversity was found out to be moderate between the genotypes and the polymorphic locus ratio was calculated as 87.21%. Among studied varieties, the highest polymorphic locus percentage was calculated as 12.79% for the Beren variety whereas the lowest polymorphic locus percentage was calculated as 0.00% for Özbek 105, ADN 710 and ADN 98 varieties. Additionally, a comparison was carried out between the isolated and sequenced chloroplast *trnL-trnF* intergenic spacer sequences and the sequences having compatibility to chloroplast *trnL-trnF* intergenic spacer sequences from the NCBI-GenBank database. These identified sequences were the most similar sequences to the chloroplast in *G. hirsutum*, *G. hirsutum* subsp. *latifolium*, and *G. hirsutum* cv. *hainansijimian* according to specifications of coverage, similarity and maximum score ranges. Then, a phylogenetic tree was established using the sample sequences from the prominent families cultivated, especially from Malvaceae family. While the members of Malvaceae family were placed as one group, the other families were comprised in different groups located in different positions according to their genetic similarities and dissimilarities.

Keywords: Cotton, genetic diversity, chloroplast genome, ISSR, *trnL-trnF* .

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➢ **ORAL PRESENTATION**

Screening of potential probiotic properties of *Lactobacillus helveticus* and *Lactobacillus plantarum* in low pH

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Abstract

Probiotic was used as the term of "for life" in historically, but it means to use of viable bacterial supplements in currently. The lactic acid bacteria (Lactobacillus fermentum, lactobacillus plantarum, lactococcus lactics.) are the most of known to be probiotic and their important role has been known both in making the biotechnological products such as cheese, yogurt, bread and they confer a number of health benefits to the host, such as enhancement of immune function, lipid reduction, serum cholesterol reduction, anti-allergic, anticancer, antimicrobial, antioxidative properties. Aging and using antibiotics are two fundamental factors that reduce the number of probiotics dramatically. It has thought that 108-109 probiotics bacteria should be consumed to exert their beneficial effects in body. An effective probiotic should be viable, safe, bile and gastric juices tolerant, able to survive throughout the human gastrointestinal tract and to colonize a specific human tract.

We aimed to investigate the probiotic potential of the Lactobacillus Helvetius and Lactobacillus plantarum in low pH to evaluate their ability to tolerate acidic conditions. Bacterial survival in pH 6.3, pH 4, pH 3, pH 2 was determined. We prepared the MRS broth in different pHs. 1.5 ml from the fresh bacterial culture was centrifuged and the supernatant was removed. The each pellet was dissolved in 10 ml pH 6.3, pH 4, pH 3, pH 2, respectively. They put into the water bath with shaking at 110 rpm and 37 ◦C temperature. Their absorbance values were recorded versus time.Cell growth rates were presented as growth curves. Two of the bacteria displayed good probiotic features. Lactobacillus helveticus is the more sensitive than lactobacillus plantarum in pH 4.

Keywords: Probiotic, Lactobacillus Helvetius, Lactobacillus plantarum, Low pH

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➢ **ORAL PRESENTATION**

The variation in the size fractionation of chlorophyll a with phytoplankton biomass along the Dardanelles Strait.

Esra KOÇUM

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Abstract
An analysis of partitioning of chlorophyll a with bulk chlorophyll a was performed to find out variation of size structure of phytoplankton with its bulk biomass using pooled data sets collected at coastal sites along the Dardanelles Strait in two different time periods. The bulk chlorophyll a varied between 0.43 – 10.41 µg chl a L^{-1} with an average, first quartile, median and a third quartile values of 1.95 ± 0.33 µg chl a L^{-1}, 0.65 µg chl a L^{-1}, 0.92 µg chl a L^{-1}, 2.26 µg chl a L^{-1}; respectively. The average concentrations of chlorophyll a contained within the micro-, nano- and pico--plankton size fractions with their corresponding standard error values were; 0.64 ± 0.19 µg chl a L^{-1}, 0.50 ± 0.07 µg chl a L^{-1} and 0.28 ± 0.04 µg chl a L^{-1} displaying clear differences. Though the relative contributions of micro- and nano-plankton fractions were equal (*ca.* 38 ± 1.91 %) while that of picoplankton was 25.35 ± 1.96 %. The statistical analysis of the relation between the biomass and size structure of phytoplankton revealed the following points: 1) the response of relative contribution of microplankton fraction to phytoplankton biomass was only linear within the range of 1.19 µg chl a L^{-1} to 10.41 µg chl a L^{-1} (max.), 2) the distribution of relative contribution of nanoplankton with phytoplankton biomass was gaussian, 3) the change in the relative share of picoplankton with phytoplankton biomass fit into an inverse first order polynomial function. In conclusion; a shift occurs from a picoplankton dominated phytoplankton commmunity to a nano- and micro-plankton dominated one at bulk chlorophyll a concentrations > 1 µg L^{-1}.Therefore the change in phytoplankton biomass size structure and associated changes in the ecosystem can be predicted by using bulk chlorophyll a concentrations in the study sites.
Key words: biomass, Dardanelles, phytoplankton, size-structure.

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➢ **ORAL PRESENTATION**

Helianthemum sp. (Kaya gülü) türlerinin halk arasında ve modern tıpta hastalıkların tedavisinde kullanımı

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Özet

Bu çalışma ile tıbbi bir bitki olan *Helianthemum* sp. türlerinin, tedavi amaçlı kullanımlarının güncel literatürü ve uygulamaları ortaya konulmuştur. *Helianthemum* türlerinin yaklaşık 16 türü Türkiye'de yayılış göstermektedir. Bunlardan 4 tanesi ise lokal endemiktir. Halk dilinde kaya gülü olarak bilinmektedir. *Helianthemum* yaprak ekstrelerinde flavonoitler, tanenler, saponinler, basit fenolik bileşikler polifenolik içerik ve antioksidan içerikler bol miktarda bulunmaktadır. Bitkinin antimikrobiyal, antienflamatuar ve antiülser etkileri olduğu bilinmektedir. Antimikrobiyal olarak da gram (+) bakterilerden *Staphylococcus aureus*'a, gram (-) bakterilerden *Escherichia coli*'ye ve mantar olarak *Candida albicans*'a karşı etki göstermektedirler. Bunlara ek olarak *Helianthemum* türlerinin antiprotozoal etkili 5 flavon glikoziti içerdiği bilinmektedir. Bunlar; tilirosit, kamferol, astragallin, kersitrin ve isokersitrindir. Bitkinin toprak üstü kısımlarında bulunan flavonoitlerin (kamferol, kersetin ve tilirosit) antiamoebik aktivitelerinin yanı sıra tuzlu su karidesine karşı ölümcül etkileri vardır. Türkiye'de *Helianthemum* türlerini kabız ve kan kesici olarak kullanılmaktadır. Bitkinin farklı türleri İspanya ve Amerika'da geleneksel olarak antienflamatuvar, antiülserojenik, yara iyileştirici, antiparaziter, antimikrobiyal, analjezik, sitotoksik ve vazodilatör etkili olarak kullanılmaktadır. *H. glomeratum*, Güney Meksika"da gastrointestinal rahatsızlıkları tedavi etmek için sık sık kullanılan tıbbi bir bitkidir. Yaprak ve köklerin dekoksiyonları ishal, karın ve epigastrik ağrıların tedavisinde kullanımı tavsiye edilmektedir. Mayalar tarafından kanlı diyarenin tedavisinde kullanıldığı belirtilmiştir. Yaprak ve köklerin dekoksiyonları ishal, karın ve epigastrik ağrılarda tavsiye edilir. *Chenopodium ambrosioides* ile birlikte kombine edildiğinde solucan enfeksiyonuna karşı tedavi edici etkiye sahip olduğu gözlenmiştir.

Anahtar Kelimeler: Kaya gülü, *Helianthemum*, Sekonder Metabolit,

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➢ **ORAL PRESENTATION**

Sekonder metabolitler

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Özet

Bu çalışmada, bitkisel ürünlerden sekonder metabolitlerin önemi üzerinde durulmuş ve bu alanda elde edilen veriler güncel literatür taraması ile bir araya getirilmiştir. Bitkiler insanoğlunun yaşamını sürdürebilmesi için ihtiyaç duyulan temel besin kaynağıdır. Bitkiler, primer metabolitler olarak da bilinen besinlerin yanında çeşitli kimyasallar yani sekonder metabolitler de üretmektedir. Sekonder metabolitler başta ilaç sanayi olmak üzere, besin, kozmetik ve zirai mücadele sektörlerinde ekonomik açıdan oldukça önemli kimyasallardır. Örneğin digitoksin kardiovasküler tedavide, emetin amipli dizanteri tedavisi, kinin sıtma tedavisi, vinkristin kanser tedavisinde kullanılan ilaç etken maddelerinden birkaçıdır. Yine bitkilerden elde edilen çeşitli kimyasalların et, süt, meyve, sebze, deniz ürünleri ve meşrubat sektörlerinde tat ve koku verici olarak kullanılması bu sektörlerde doğal ürünlere duyulan talebi giderek arttırmaktadır. Sekonder metabolitlerin insan sağlığı ve beslenmesindeki öneminin yanında *Rosa* türlerinden elde edilen gül yağı, *Lavandula* türlerinden elde edilen lavanta yağı, *Jasminum* türlerinden elde edilen yasemin yağı parfüm ve kozmetik sanayinde de oldukça önemli bir yer tutmaktadır. Yapılan çalışmalar ve elde edilen veriler, önceleri bitkiler tarafından oluşturulan ve hiçbir işlevi olmayan atık maddeler olarak kabul edilen bu kimyasalların hayatımızda ne denli önemli işlevlere sahip olduğu gerçeğini ortaya koymaktadır.

Anahtar Kelimeler: Primer metabolit, sekonder metabolit, ilaç etken maddesi

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Kutup buzullarının optik mikroskop ve spektroskopi yardımıyla kimyasal içeriğinin incelenmesi

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Özet

Antarktika buzulları, geçmiş atmosfer bileşeni, iklim evreleri ve ekolojisi hakkında değerli tarihi bilgilerin itina ile barındığı muhteşem bir buzdolabıdır. Yağan kar, zaman içinde sıkışarak gömülür ve kara buzullarını oluşturur. Buzulların farklı katmanlarından alınan karotlar içerisinde toz, kül, polen, atmosferik gaz kabarcıkları, meteoritler, radyoaktif maddeler ve kimyasal bileşikler bulunmakta ve bunlar dünyanın geçirmiş olduğu iklim evreleri hakkında muazzam bilgi kaydı içermektedir.

İkinci Ulusal Antarktika (TAE-II) seferi sırasında Nansen, Hovgaard ve Horseshoe adalarından soğuk zincir ile buzul karotları getirilmiştir. Bu çalışmada, bu buzul karotlarından rastgele alınan numuneler içerisinde hapsolmuş inorganik inklüzyonların kimyasal analizleri gerçekleştirilmiştir. Farklı ada, bölge ve derinliklerden toplanmış yedi kara buzul karotunun içerisindeki inklüzyonların kimyasal bileşimleri tayin edilmiştir. Numune örnekleme ve hazırlama işlemi, İstanbul Teknik Üniversitesi Kimya Mühendisliği Bölümü bünyesinde inşa edilen, minimum -40˚C' ye soğutulabilen soğuk odada gerçekleştirilmiştir.

Bir sonraki aşamada buzul içerisinde tespit edilmiş olan her bir inklüzyonun, bireysel kimyasal içeriği, mikro raman spektroskopisi ile tayin edilecektir. Yapısı sıfır derece sıcaklık altında kararlı olası inorganik tuz bileşimlerinin saptanması, benzer tuz kristalinin ötektik donma kristalizasyonu ile sentetik çözeltiden sentezlenmesi ve yapısının tespit edilmesi ile desteklenecektir.

Anahtar Kelimeler: Buzul, karot, kimyasal analiz, inklüzyon, mikro raman

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➢ **ORAL PRESENTATION**

Total protein and amino acid compositions of microalgae *Chlorella vulgaris* compared between different growth media

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Abstract

In this study, microalgae *Chlorella vulgaris* biomass as to be third generation feedstock was utilized to explore its amino acid potential to seek for industrial application of value added biocompounds. It was assumed that the use of waste water integrated to the study would alleviate the cost of biomass production.

The microalgae species, *Chlorella vulgaris*, isolated from Kapulukaya Reservoir (Kırıkkale) were subjected to four different growth media, being (i) Tris-Acetat-Phosphate (TAP), (ii) Tris-Acetat-Phosphate enriched with N (N-TAP), (iii) Kırıkkale University Campus Lake Water (LW) and (iv) Waste Water from Mechanical and Chemical Industry Company (MKEK) in order to compare its growth by monitoring the parameters, cell count (CC), Optical density (OD) and Chlorophyll-a (Chl-a).

Of the experimental trials, all of which reached stationary phase on day 15, the highest biomass was detected in the LW medium. Following the end of the experiments, amounts of total protein measured on the harvested biomass by using Lowry method were found to be 2,17 mg/BSA (N-TAP), 1,96 mg/BSA (TAP), 0,87 mg/BSA (MKEK) and 0,69 mg/BSA (LW). Results from anion measurements in the media suggested the idea that phosphate (P) limitations occurred during growth but being onset earlier in the MKEK and LW media than that in the TAP and TAP-N media. The greater protein content found in TAP and TAP-N media were corresponded with similarly higher values obtained from Fourier Transform Infrared *Spectroscopy (FTIR)analysis.*

Amino acids were identified and their content measured by High Performance Liquid Chromatography (HPLC), using C18 ODS-4 colon at 0,6ml/min flow rate and in a mobile phase A of 0.1 mol NaAcasetonitril (97: 3, v/v; pH 6.5) followed by mobile phase B acetonitril-su (4: 1, v/v). A gradient method was applied as 0-13 min. 100-93% A; 13–23 min. 93-77 % A; 23-29 min. 77-65% A; 29–35 min. 65-60 % A; 35-40 min. 60-0 % A; 40-45 min. 100 % B. The amount of arginine was profoundly higher amongst amino acids. Both essential and non-essential amino acids were five fold higher in N-TAP ve TAP media compared to waste water (MKEK) and LW. This suggested a general coclusion that the used natural waters (MKEK and LW) were not compatable enough with the controlled media (TAP and TAP-N media) due mainly to that in natural waters phosphorus limited the growth despite efficient N levels.

Keywords: Biomass, *Chlorella vulgaris*, Amino acit, Protein, HPLC analysis

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➢ **ORAL PRESENTATION**

Propolisin kanser immünoterapisindeki yeri ve önemi

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Özet

Artan kanser yükü, günümüz toplumlarında büyük bir endişe kaynağı olmaktadır bu nedenle güvenli ve etkili tedaviler bulmak, araştırmacıların ana hedeflerinden biri haline gelmiştir. Bu yaklaşımlardan biri olan immünoterapi, kanserlere karşı vücudun kendi bağışıklık sisteminin gücünü kullanmayı amaçlamaktadır. İmmün sistemin kanser hücrelerini tanımasına ve tepkisinin güçlendirilmesine yardımcı olacak, immunoterapi gibi yollar bulunmuştur. İmmünoterapi; bireyin bağışıklık sisteminin kullanılarak kanser dahil çok sayıda hastalıkla mücadele etmesini sağlayan bir tedavi biçimidir. Amaç; immün sisteme ait hücrelerin kanser hücrelerini hedef almalarını ve yok etmelerini sağlamaktır. İmmünoterapi bazı kanser türlerinde tek başına etkili olurken, bazılarında ise diğer tedavi yöntemleri ile birlikte kullanıldığında etkinliği artmaktadır. Kanserde immünoterapötik stratejiler; monoklonal antikorlar, kanser aşıları, adoptif immünoterapi, sitokinler, immün sistemi destekleyici ilaçlar da dahil olmak üzere geniş bir araştırma alanına yayılmaktadır. Yeni tedavi yöntemlerinde immün yanıtın özgül olması nedeniyle, tümöre özgül bağışıklığın, hastaya zarar vermeden seçici olarak tümörü yok etmesi amaçlanmaktadır. Son yapılan bilimsel araştırmalarda propolisin, güçlü bir şekilde en umut verici immünomodülasyon ajanlarından biri olduğu ortaya konmuştur. Propolis, antik çağlardan beri yaygın olarak kullanılan doğal bir ilaçtır. Propolisin bileşimine ve biyolojik aktivitelerine karşı olan ilgi ve araştırmalar halen devam etmektedir. Sonuç olarak; propolisin 300'den fazla bileşeni bugüne kadar tespit edilmiştir. Propolisin içindeki etkili antitümör bileşenleri CAPE, chrysin, nemoroson, artepilin C, galangin ve kardanol'dür. Propolisin birçok farklı kanser türüne karşı olumlu etki gösterdiği *in vitro, in vivo* ve insan klinik çalışmalarla bildirilmiştir. Propolisin antikanser etkisi; bünyesinde bulunan birçok biyoaktif özelliklerin sonucudur. Doğal bir besin olan propolisin tüm bu özellikleri ile kanser hastalarının vücut fonksiyonlarını destekleyebileceği ve hastaların vücut direncini düşünülmektedir.

Anahtar Kelimeler : Kanser, İmmünoterapi, Kanser İmmünoterapisi, Propolis

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➢ **ORAL PRESENTATION**

Investigation of extraction method effect on yeast beta glucan production

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Abstract

Nowadays, due to their stressful, tiring and busy lives immune system of humans become weak and get sick easily. Therefore, scientists have been doing researches about new, natural and healthy products which can strengthen their immune system and can provide to adapt life standarts.. One of these products is the beta glucan. It is a polysaccharide molecule which consist of D-glucose monomers bonding with beta glycosidics bonds. Beta (β) glucans have being produced from different sources (microorganisms, cereals and mushrooms) so they have different branched structure such as (1→3) (1→6), (1→3) (1→4), (1→3) (1→2). Thus, different branched beta glucans show different physicochemical properties and biological activities that designate their usage purposes. For example, cereal beta glucans is generally used as antioxidant, cholesterol lowering, water holder and stabilizer while yeast beta glucans is usually used as antitumoral, antimicrobial and antioxidant. On the other hand, it is fact that the extraction method affects the molecular weight, yield, purity and other properties of beta glucans. The aim of this study is to compare the performances of ultrasonically assisted alkali-acidic and autolysis extraction methods to produce high yield of beta glucan. Also it was aimed to determine the effect of extraction method on the molecular weight of yeast beta glucan. *S.cerevisiae* yeast was chosen as the beta glucan source due to both having the highest beta glucan content (%8-16) and showing lots of biological activities of yeast beta glucans. As a result of this work, it was found that the yeast beta glucan yield for ultrasonic supported autolysis extraction (%12) is higher than that of the ultrasonic supported alkali-acidic extraction (%8). On the other hand, having the lower molecular weight of yeast beta glucan (87 kDa) was produced by using ultrasonic supported autolysis extraction method.

Keywords: Beta glucan, yeast, extraction

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➢ **ORAL PRESENTATION**

Salsoloideae alt familyasındaki bazı türlerde internal transcribed spacer (ITS) bölgesi kullanılarak tür teşhislerinin yapılması

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Abstract

Chenopodiaceae familyası fotosentetik çeşitlilik bakımından oldukça zengindir. Alt familyalarından olan sadece Salsoloideae alt familyasında bulunan C_3, C_4 veya C_3-C_4 ara fotosentez izyoluna sahip türler bu çeşitliliği göstermektedir.
Bu çalışmada, Salsoloideae alt familyasına ait Türkiye Florasında doğal olarak bulunan endemik *Salsola grandis, S. stenoptera, Petrosimonia nigdeensis* ve *Cyathobasis fruticulosa* türlerinin bir moleküler belirteç olan Internal Transcribed Spacer (ITS) kullanılarak tür teşhisleri yapılmış ve türler arasındaki filogenetik ilişkiler belirlenmiştir.
Salsola grandis ve *Cyathobasis fruticulosa* türlerine ait örnekler Ankara/Nallıhan'dan, *S. stenoptera* ve *Petrosimonia nigdeensis*'e ait örnekler ise Aksaray/Eskil'den toplanmıştır. Herbaryum materyallerinin tür teşhisleri "Flora of Turkey and the East Aegean Islands" adlı eserin 2. ve 11. ciltlerindeki teşhis anahtarları kullanılarak yapılmıştır. Bu türlere ait tohumlar yetiştirilmiş ve her bireyin gelişmiş yapraklarından 100'er mg yaş örnek havan içerisinde sıvı azotta öğütülmüş ve sonrasında DNA izolasyon kiti kullanılarak DNA'ları izole edilmiştir. İzole edilen bu DNA'lardan ITS-1 ve ITS-4 primerleri kullanılarak PCR'lar kurulmuş ve elde edilen PCR ürünleri sekanslanmak üzere ilgili firmaya gönderilmiştir. Sekans sonuçları NCBI (National Center for Biotechnology Information, Amerika)'da karşılaştırılmış ve "Seaview" programı kullanılarak filogenetik ağaç oluşturulmuştur.
Sonuç olarak, *Salsola grandis, Cyathobasis fruticulosa* ve *Petrosimonia nigdeensis* türlerinin ITS bölgesi sekansları bu türlerin herbaryum materyalleriyle yapılan tür teşhisleriyle uyumlu olduğu belirlenmiş, fakat herbaryum materyalinin *S. inermis* olarak teşhis edilmemesine rağmen *S. stenoptera*'ya ait sekansın NCBI taraması sonucu *S. inermis* ile %100 benzerlik gösterdiği tespit edilmiştir. Bu benzerliğin *S. stenoptera*'nın *S. inermis* ile olan yakın filogenetik ilişkisi ve *S. stenoptera*'nın NCBI'da mevcut ITS bölgesi sekansının olmamasından kaynaklandığı düşünülmektedir.

Keywords: Salsoloideae, internal transcribed spacer, molecular phylogeny.

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➢ **ORAL PRESENTATION**

Increased antibacterial activity of essential oils against foodborne pathogens through their encapsulation into chitosan based nanoparticles

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Abstract

Encapsulation of essential oils to increase their antimicrobial properties without losing their bioactive properties is a good strategy. Electrospraying technique is known to be one of the most efficient methods for the encapsulation process for this purpose. In this study, the conditions to fabricate nanoparticles were optimized by considering several characteristics of the nanoparticles such as the particle size using the electrospraying method. A combination of *Origanum vulgare* essential oil (EO) and olive oil was encapsulated into a mixed polymer (poly vinyl alcohol/Chitosan; PVA-Chitosan) matrix, and the fabricated nanostructures were characterized. The essential oil loaded nanoparticles (EONPs) were also investigated in terms of their antimicrobial activity against different foodborne bacterial pathogens; namely, *Escherichia coli* ATCC 25150, *Bacillus cereus* ATCC 11778, *Listeria monocytogenes* ATCC 13932 and *Salmonella typhimurium* ATCC 14028. Their antibacterial activities were revealed by the agar disc diffusion method. As a result, EONPs had strong antimicrobial activity against all the tested pathogens. The EONPs showed the highest antibacterial activities against *L. monocytogenes* and *E. coli*, which was revealed by the higher inhibition zone values (15.83 and 11.60 mm, respectively). The results of this study suggest the use of electrospraying technique applied under the optimized conditions in this study as natural carriers to increase antibacterial activity of the essential oils.

Keywords: Increased antimicrobial activity, Nanoparticles, Electrospraying technique, *Origanum vulgare*, Olive oil

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➢ **ORAL PRESENTATION**

Investigation of *B. subtilis* viability at different pH ranges for use in microbial cleaner formulation

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Abstract

Until today, several disinfecting methods have been proposed and studied for cleaning and disinfection, containing heavy metals and chlorine, to reduce the biological load on environmental surfaces. Most of the proposed techniques are based on the use of chemical compounds. These methods have proven to be effective in reducing the majority of pathogens, but have been ineffective in preventing the persistence of pollutant microorganisms. Nowadays, increasing demand for natural and green products has led to recognition of cleaning products containing microbial based cultures. Cleaning products containing live microorganisms as active substances are becoming increasingly common in homes and industrial cleaning applications. These products are called "probiotic or microbial" cleaners. Microbial based cleaning products are a type of environmentally friendly cleaning products that contain bacteria and spores that are suitable as active ingredients and can also contain enzymes and chemicals. The purpose of using these cleaning systems is to prevent the development of pathogens by tolerating the presence of harmless probiotic microorganisms on surfaces. Accordingly, this new understanding of cleaning systems aimed at establishing a controlled and less harmful microbiota, rather than removing microorganisms from the environment. In this study, it is aimed to analyze the effectiveness of a sustainable approach based on the use of probiotic *B. subtilis* ATCC 6633 microorganisms in the microbial cleaning system. The aim of this study is to investigate the viability of *B.subtilis* species at different pH values such as pH 3,5,6,7 and 8 for use in different types of detergent. As a result, it was observed that the probiotic species *B.subtilis*, which will be used in the microbial based cleaner formulation, showed higher growth and vitality at the neutral pH and exhibited high antibiotic resistance and auto-aggregation ability. Based on these findings, *B.subtilis* is thought to prevent the development of pathogenic species.

Keywords: *B. subtilis*, Probiotics, Microbial-based cleaning, Probiotic cleaning system.

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➢ **ORAL PRESENTATION**

Impact of particle size on physical and tablet properties of eggshell powders

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Abstract

Eggshell is an important waste of pasteurized egg industry. It is a rich source of minerals. It consists of calcium carbonate crystals, which compose 96% of its weight, 1% magnesium carbonate, 1% calcium phosphate, organic components and proteins. The eggshell constitutes 9-12% of the total egg weight. Although it depends on the diet and breeding of chickens, it mainly consists of calcium (Ca) and strontium (Sr) minerals, as well as magnesium (Mg), phosphorus (P), zinc (Zn), iron (Fe) and selenium (Se). It also has a total of 27 microelements, including copper, fluorine, manganese, molybdenum, sulfur, silicon, which are vital for the organism. Among these, calcium is very important as it is the most abundant mineral (40%) in the eggshell. In the recent years, with the increase of pasteurized egg production, it is known that there has been an increase in eggshell waste of egg factories and waste management has become difficult. Eggshell disposal methods were reported as 26.6% as fertilizer, 21.1% as animal feed, 26.3% in municipal dump and 15.8% used in other ways. Evaluated as a large proportion of fertilizer and animal feed, waste management of eggshell for human nutrition is inevitable.

In this study, eggshell with different particle sizes (<355 µm, 355 – 500 µ, <500 µm) were used for Ca source tablet production. Physical properties (bulk density, tapped density, Carr Index, Hausner ratio, compressibility) and tablet properties (weight, thickness, hardness) of eggshell powders were determined. Ca tablets with high Ca content (40%) were successfully obtained. Tablet weight, thickness and hardness increased with increasing particle size. Eggshell powder under 500 µm were the most suitable particle size in terms of tablet hardness.

Keywords: eggshell, calcium, tablet, particle size

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➢ **ORAL PRESENTATION**

Investigation of possible apoptotic effects of γ-tocotrienol combined therapy on HepG2 cancer cell line

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Abstract

Background/Aim: Hepatocellular carcinoma (HCC) is sixth in terms of incidence and second in terms of cancer-related mortality. Owing to its great burden on public health, development of therapeutic strategies for its treatment is very important. Effectiveness of doxorubicin (DOX) in clinical use does not reach desired levels due to side effects and resistance to the drug. For this reason, it is imperative to develop novel combination therapy strategies to increase the effectiveness of Dox. In recent studies, it has been shown that vitamin E group molecules, such as tocopherol and tocotrienols have potential therapeutic potential as adjuvant molecules. In liver cancer cells, γ-tocotrienol (GT3) has been shown to trigger apoptosis and restore sensitivity to chemotherapeutic chemicals. Evidence on the interplay of these effects with the biochemistry of liver cells is controversial. Therefore, we aimed to investigate the possible therapeutic effects of GT3 on liver cancer cell line using molecular biological techniques.
Materials and Methods: In order to investigate the effects of combination therapy on growth characteristics of HepG2 cells, we utilized MTT assay. Combination index was calculated by CompuSyn and impact of single versus combined drug application was investigated using western blot analysis.
Results: IC50 for GT3 and Dox were calculated as 50 µM and 0.5 µM, whereas in the combination therapy these levels were 50 µM and 0.25 µM, respectively. In immunoblotting experiments, the amount of cleaved PARP (cPARP), active Caspase-3 and -7 increased with Dox application, whereas total PARP (tPARP) amount decreased in combination therapy. Similarly, BCL-XL, Bcl2, MCl1, phosphorylated Bcl2, NFKB, pAkt and pErk amounts decreased with Dox application.
Conclusion: Our experiments have shown that GT3 combination therapy leads to an increase in the rate of apoptosis compared to Dox administration by altering the internal apoptotic pathways.

Keywords: Hepatocellular carcinoma, γ-Tocotrienol, doxorubicin, combination therapy

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➢ **ORAL PRESENTATION**

The antioxidant status of fruit extracts of *Prunus laurocerasus* under oxidative damage H_2O_2-induced on human lymphocyte culture

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Abstract

Prunus laurocerasus, also known as taflan or karayemiş, is particularly cultivated for its fruit in the Black Sea region. *Prunus laurocerasus* has been used for treatment such as eczema, sore throat, asthma, coughs, stomach ache, and hemorrhoids. Recent studies also have been indicated that its fruit is beneficial in order to reduce blood glucose. Although, there are a few studies to reveal antioxidant effect of *Prunus laurocerasus,* its antioxidant effect on living cell is unknown. For this reason, we investigated antioxidant effect under oxidative damage 50 µM H_2O_2 induced on human lymphocyte culture. The cells were administrated 100 µg/ml, 200 µg/ml, 400 µg/ml taflan, 800 µg/ml doses of methanol extract concentration of *Prunus laurocerasus'* fruit for 24h and 48h. Negative (no administrated) and positive control cell cultures (only 50 µM H_2O_2-induced) were formed. After 48h, the homogenates of cultured human lymphocyte obtained and total antioxidant status (TAS) was measured using Elisa methods. 24h and 48h administration of methanol extract of *Prunus laurocerasus'* fruit caused significantly an increase in serum TAS levels at all doses groups compare to only H_2O_2-induced group. This result have revealed that *Prunus laurocerasus* has antioxidant effect against oxidative damage on human lymphocyte culture.

Keywords: *Prunus laurocerasus*, total antioxidant status, hydrogen peroxide, human lymphocyte

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➢ **ORAL PRESENTATION**

Phytotherapy

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Abstract
In this study, the development of herbal medicines and the main components of medicinal plants were studied throughout history. Information is given about the chemical structure of some plants and the pharmaceutical properties of the components they contain. Plant medicine is used in everyday diseases, the respiratory, the digestive, disorders of the nervous and urinary, geriatrics, liver diseases, viral diseases, oncology and the immune systems. Herbal remedies have been gaining popularity in the world in recent years. Thirst for balance, return to nature and its incredibly varied pharmacy. It seems that herbal teas, capsules, essential oils and flower essences have never been so successful. Herbal remedies are formed by a complex of molecules derived from one or more plant species. For this reason, herbal medicine is making brilliant progress with the cooperation of modern production, analytical techniques and all disciplines. It is an alternative and complementary solution to classical medicine treatments. Undeniable advantages and a natural impact on our health have led to the daily consumption of medicinal plants. The origin of herbal medicine goes back hundreds of years. Secondary metabolites present in the plants are predominantly responsible for treating various diseases. The most important secondary metabolites include terpenoids, phenolics, flavonoids, alkaloids and glycosides which act as an important source for single bioactive ingredients in nutraceuticals and modern medicines. The areas of activity of metabolites in humans are very diverse: the antibacterial, antiviral, analgesic and anti-inflammatory effects are the most important. Secondary metabolites are not the only components with medicinal properties. Other components have pharmaceutical effects, such as plant components, such as vitamins, enzymes, volatiles and other. Herbal medicine is a growing field, and research continues to discover and find more information.
Keywords: medicinal plants, secondary metabolites, therapeutic activity

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **ORAL PRESENTATION**

Adaptation of plants to environmental stress conditions

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Abstract
It's an undoubted knowledge that vegetables are sessile living being thus whenever environmental conditions are not tolerable or disadvantageous; plants usually tend to adapt themselves to the given situation by ongoing through different kind of modifications in order to stay alive and survive. Plants are vital to the general good health of human beings, providing comestible products, essential vitamins and minerals, dietary fiber, phytochemicals and reducing the atmospheric CO_2, increasing the level of O_2, reducing the risk from dangerous diseases and other medical conditions. Vegetables are grown world-wide in almost 200 countries. A world vegetable survey indicated 392 vegetable crops cultivated worldwide. According to the very important role they play in the maintaining of life, vegetable are more luckily to find a way to adapt to environmental stress conditions. Different types of abiotic stress to which plants can be affected by: lack of water, high or low levels of sun exposure, air pollution, soil salinity, extreme temperatures, freezing and wind. Plants have created mechanisms to protect themselves and adapt to environmental conditions. Plants adapt to all kinds of changes and know how to get rid of disasters and natural obstacle's effects. The responses that occur depend on the type of stress. However, some of the answers given by plants to these conditions are not known clearly and this plays a very important role in the reason why advanced researches on resistance against stress in high plants must be carried on. Plants adaptation to environmental stress conditions and how they improve their ability to live under these unfavorable conditions, their biochemical, physical and behavioral modifications are going to be the most discussed subjects of this study.
Keywords: Abiotic stress, biochemical, physical and behavioral modification, adaptation.

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➢ **ORAL PRESENTATION**

The investigation of the effect of alpha lipoic acid on lung phenol oxidase activity on acitretin and methotrexate given rats

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Abstract

Oxidative stress is one of the main causes of lung damage caused by methotrexate (MTX). In addition, it has been observed that it causes serious side effects on other organs. In recent years, MTX has started to be used in therapy in combination with Acitretin (ACT). Alpha lipoic acid (ALA), which has antioxidant and anti-inflammatory activities, is naturally found in human foods. In this study, it was aimed to investigate the effect of ALA on phenol oxidase activity in lung tissue in the elimination of cellular level damage by free radicals produced by ACT and MTX. In the study, 50 Wistar albino male adult rats, selected from the same generation and weighing between 200 and 250 g, were used. The rats used were fed with standard mouse food and water was given free.

Method: Study groups were formed as control group (K), ALA group, ACT + MTX group and ACT + MTX + ALA group. ACT (20mg / kg / day), MTX (20mg / kg / week), ALA (50mg / kg / day) were dissolved in 0.9% NaCl and given to rats intraperitoneally. Polyphenol oxidase (PO) activation, which catalyzes the oxidation of phenolic compounds, was determined by the Hung and Boucias (1996) method.

Result and Discussion: Compared to the control group, PO activity was found to be 66% higher in the MTX + ACT group and 46% higher in the MTX + ACT + ALA group. On day 5, the PO activity of the MTX + ACT + ALA group was 55% lower than in the MTX + ACT group, and this decrease was found statistically significant ($p < 0.05$). It is determined that this decrease has reduced to 20% on the 7th day. When the results are evaluated, it can be said that MTX + ACT causes phenolic compounds in the lung cell and ALA has a protective effect against phenolic compounds originating from MTX + ACT.

Keywords: Alpha Lipoic Acid, Acitretin, Methotrexate, Phenol Oxidase

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➢ **ORAL PRESENTATION**

Molecular identification and antibiotic resistance of bacteria isolated from the intestine of *Pagrus Pagrus* fish from Izmir Bay

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Abstract
The number of infections caused by antibiotic resistant bacteria is rising worldwide. Fish from multisource pollution waters can harbour multidrug-resistant bacteria that can be disseminated to humans through eating or contact of contaminated fish.. In many countries, fish are consumed and are considered to be a good source of dietary protein. *Pagrus Pagrus* belonging to the *Sparidae* family Red porgy (Pagrus pagrus) is a marine teleost, belonging to the Sparidae family, with tropical and subtropical amphiatlantic distribution pattern. Being delicious and affordable makes it preferable as a food source by the local people. In this study, the isolation of bacteria from *Pagrus pagrus* fish intestine was done by the spreading plate method in Luria Bertani (LB) medium. Based on colony morphology differences, two isolates were selected and BLK1 and BLK2 codes were given. DNA sequence analysis was performed by 16s rDNA amplification to identify the isolates. Kirby–Bauer disk agar diffusion method was used to determine the antibiotic resistance of the isolates and tetracycline (1µg), ampicillin (2µg), ciprofloxacin (5µg), erythromycin (15µg), chloramphenicol (30µg), gentamycin (10µg) antibiotics were used. According to the partial 16s rDNA sequence analysis BLK1 and BLK2 revealed to be *Klebsiella aerogenes* (98.45 %) and *Vibrio alginolyticus* (99.56%) respectively. *Klebsiella* sp. BLK1 and *Vibrio* sp. BLK2 were resistant to all antibiotics used in this study. Many studies showed that *Vibrio* species, including *Vibrio alginolyticus*, have high antibiotic resistance however there are not many studies on fish related *Klebsiella aerogenes* antibiotic resistance. These findings and other studies call for effective risk assessment models and management plans to protect human, fish, seafood and environmental health in the future.
Keywords: 16s rDNA, bacteria, antibiotic resistance, , *Pagrus pagrus*

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➢ **ORAL PRESENTATION**

Carotenoids Content of Eggplant Fruits

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Abstract
Carotenoids constitute a family of secondary metabolites found in plants with potent free radical scavenging activity, enhancement of endothelial function and regulation of gene expression. We reviewed the presence of betacarotene, lycopene and vitamin A of different varieties of eggplant fruit. They have been reported to contain high amounts of moisture, fiber, and phenolic compounds, particularly flavonoids and phenolic acids. The anti-inflammatory, anti-tumoral, anti-diabetic, and cardio-protective properties of carotenoid compounds have been reported. Differences in the amounts of the carotenoids in different varieties have been reported which may be due to the cultivar, growth medium, and enviromental conditions. We therefore concluded that consumption of eggplant fruits could be important in maintaining health and wellbeing.
Keywords*:* Eggplant fruits, Carotenoids, secondary metabolites, free radicals.

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➢ **ORAL PRESENTATION**

Salsoloideae alt familyasındaki bazı türlerde CO_2 kompensasyon noktalarının tespit edilmesi

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Abstract

Chenopodiaceae en fazla C_4 fotosentez mekanizmasını kullanan türe sahip familyadır. C_4 izyolunun birbirinden bağımsız olarak toplamda 60'dan fazla soyda C_3 atalarından evrimleştiği bilinmektedir. Tüm bu soylardan 10'u Chenopodiaceae familyasının Salsoloideae alt familyasında bulunmaktadır. CO_2 kompensasyon noktasının belirlenmesi bir türün C_3, C_4 veya ara tür olduğunu kanıtlamaktadır.

Bu çalışmada, Salsoloideae alt familyasına ait Türkiye Florasında doğal olarak bulunan endemik *Salsola grandis*, *S. ruthenica* ve *Cyathobasis fruticulosa* ile doğal yayılış alanı Orta Asya ve İran olan *Haloxylon aphyllum* ve *H. persicum* türlerinin gaz değişim ölçümleri yapılarak A/C_i eğrilerinin çizilmesi, CO_2 kompensasyon noktalarının belirlenmesi ve fotosentez tiplerinin tespit edilmesi amaçlanmıştır.

Saksılarda 2-3 aylık olana kadar büyütülen fidanların gelişmiş yapraklarında Walz marka GFS-3000 taşınabilir fotosentez ölçüm cihazı kullanılarak değişen ortam CO_2 değerlerine göre ölçülen fotosentez ve hücrelerarası CO_2 değerlerinden A/C_i eğrileri oluşturulmuş, CO_2 kompensasyon noktaları belirlenmiş ve bu türlerin sahip oldukları fotosentez izyolları fizyolojik bakımdan tespit edilmiştir.

CO_2 kompensasyon noktaları *Salsola grandis*, *S. ruthenica*, *Cyathobasis fruticulosa*, *Haloxylon aphyllum* ve *H. persicum*'da sırasıyla ortalama 4.21 ppm, 6.66 ppm, 5.86 ppm, 4.68 ppm ve 3.70 ppm olarak tespit edilmiştir. Ölçülen bu CO_2 kompensasyon noktası değerlerinin C_4 fotosentez izyoluna sahip değer aralığında görülmesi çalışılan bütün türlerin gelişmiş yapraklarında C_4 fotosentez izyolunun kullanıldığını göstermektedir. Bu türlerden *Salsola grandis*, *S. ruthenica*, *Cyathobasis fruticulosa*'nın yapraklarındaki fotosentez tipinin C_4 izyolu olduğu ilk kez bu çalışmada tespit edilirken, *Haloxylon aphyllum* ve *H. persicum* yapraklarındaki fotosentez tipinin C_4 olduğu doğrulanmıştır.

Keywords: Salsoloideae, C_4 fotosentezi, CO_2 kompensasyon noktası.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of heterocyclic secondary amides

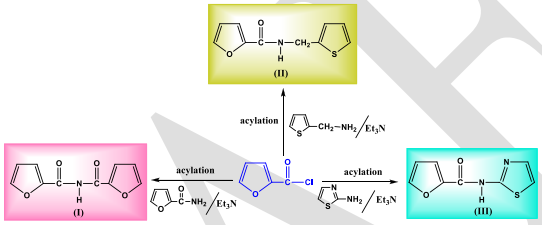
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Sinop University, Vocational School of Health Services, Environmental Health Programme, Sinop, Turkey

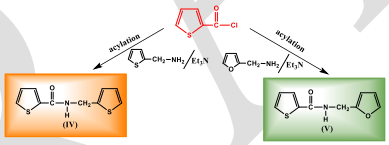
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Abstract

Amides are very important compounds because of their biological and therapeutic activities including antitumor[1], antimicrobial[2], antibacterials[3,4], antifungal[5], anti-HSV[6], analgesic[7], antiinflamatory[8] and anticancer[9] properties. They are used as building blocks for natural products such as proteins and peptides. Several amide compounds are also used in medical and industrial sectors such as plastic, rubber industry, paper industry and agricultural areas[10]. Therefore their synthesis has been, and remains, a topic of significant interest for organic chemists. In this study, a series of heterocyclic secondary amides compounds were synthesized from 2-furoyl chloride and 2-thiophenecarbonyl chloride (**Scheme 1 and 2)**.



Scheme1. Synthesis of Heterocyclic Secondary Amides (**I-III**)



Scheme2. Synthesis of Heterocyclic Secondary Amides (**IV-V**)

In the determination of the structure of these compounds synthesized, IR, ^{1}H-NMR, ^{13}C-NMR spectroscopy and elemental analysis techniques have been used.

Keywords: Synthesis, Secondary amides, Acyl chloride, Benzamides

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➢ **ORAL PRESENTATION**

Isolation, Phylogenetic Analysis and Antimicrobial Activity of strain *Streptomyces* sp. SL78 isolated from the Sediment of Sarıkum Lake, Sinop

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Abstract
The genus *Streptomyces* was described by Waksman and Henrici in 1943, and at the time of writing, the genus comprised 800 species with validly published names (www.bacterio.net/streptomyces.html). The aim of this study is to carry out isolation, phylogenetic analysis and antimicrobial activity of strain *Streptomyces* sp. SL78 isolated from the sediment of Sarıkum lake. *Streptomyce*s sp. SL78 was isolated from lake sediments collected from lake Sarıkum, Sinop province, Turkey by using humic acid–vitamin (HV) agar (Hayakawa et al. 2004) supplemented with filter-sterilized cycloheximide (50 mg ml^{-1}) and nalidixic acid (10 mg ml^{-1}). Isolation plates were incubated at 28 ˚C for 21 days. Genomic DNA of strain $SL78^T$ extraction, PCR-mediated amplification and sequencing of the 16S rRNA gene were performed as described by Chun and Goodfellow (1995). Phylogenetic analyses were performed by using three different algorithms with MEGA 7 software. Strain $SL78^T$ related to the genus *Streptomyces* with the highest 16S rRNA gene sequence similarity to *Streptomyces karpasiensis* $K413^T$ (98.62 %) and *Streptomyces glycovorans* YIM M 10366^T (98.14 %). Antimicrobial activity test of strain SL78 to inhibit the growth of 10 microorganisms including Gram-staining-positive, Gram-staining-negative bacteria and fungi was performed. Antimicrobial activity test was observed using an overlay technique according to the procedures described by Williams et al. (1983). When the polyphasic taxonomic analyses were completed, *Streptomyces* sp. SL78 isolate may be introduced into the literature as a new species of the genus *Streptomyces*. This study was supported by Sinop University (MMF-1901-16-16).
Keywords: *Streptomyces*, 16S rRNA, Phylogenetic Analysis, Antimicrobial Activity

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➢ **ORAL PRESENTATION**

Sıçanlarda metformin kullanımının karaciğer dokuları üzerine morfolojik etkilerinin ışık ve elektron mikroskopisi ile değerlendirilmesi

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Özet

Metformin, uzun etkinlik ve güvenlik öyküsü nedeniyle tip II diyabet için en sık reçete edilen oral anti-diyabetik ajandır. İnsülin direncini düşürür ve düşük kan şekeri seviyelerine neden olmadan hiperglisemiyi düzeltir. Literatürde metforminin karaciğer dokusundaki morfolojik ve ultrayapısal etkilerini değerlendiren çalışmalar, daha çok deneysel olarak oluşturulan bir karaciğer hasarını azaltıp azaltmadığı yönündedir. Ancak bu ilaç polikistik over sendromu gibi, herhangi bir karaciğer rahatsızlığı olmayan hastalarda da kullanılabilmektedir.

Bu çalışmadaki amacımız herhangi bir karaciğer patolojisi yokken metformin kullanımının karaciğerde herhangi bir değişime neden olup olmadığını ışık ve geçirimli elektron mikroskopisi yardımı (TEM) ile değerlendirmektir. Bu amaçla Wistar Albino erkek sıçanlar (n=20) kontrol ve metformin grubu olarak iki gruba ayrılmış ve hayvanlar deneyler süresince 12 saat aydınlık, 12 saat karanlık döngü içerisinde yem ve su alımları serbest bırakılarak, sıcaklığı sabit tutulan (21±3ºC) odada barındırılmıştır. Metformin grubuna üç hafta süresince oral yolla 100 mg/kg/gün Metformin HCl (METFULL 1000 mg efervesan tablet, Vitalis İlaç, Türkiye) distile suyla çözülerek uygulanmış; kontrol grubuna ise eşit hacimde distile su verilmiştir. Sıçanlar üç haftanın sonunda ketamin/xylasin anestezisi altında dekapite edilmiştir. Biyopsi sonrası karaciğer örnekleri ışık ve elektron mikroskobik incelemeler için rutin TEM takibine alınmışlardır. Örneklerden elde edilen yarı ince (700 nm) ve TEM için alınan tam ince (60 nm) kesitler Hitachi HT 7800 geçirimli elektron mikroskopi ile değerlendirilmiştir. Kontrol grubu örneklerinde düzenli hepatosit, çekirdek ve çekirdekçik içeren sağlıklı bulgular izlenirken, metformin uygulanan örneklerde bol miktarda koful oluşumu, çekirdek düzensizlik ve küçülmeleri, bol kan damarı ve hepatosit ayrılmaları gözlenmiştir.

Anahtar Kelimeler: Metformin, karaciğer, TEM, ışık mikroskopisi

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➢ **ORAL PRESENTATION**

In vitro oksin ve sitokinin uygulamalarının *Prunella vulgaris* L. yaprak ve nod eksplantlarındaki organogenez ve kallus oluşumlarına etkileri

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Özet

Bitki büyüme düzenleyicileri, bitki büyüme ve gelişimini kontrol eden doğal ya da sentetik bileşiklerdir. Bu araştırmada tıbbi bir bitki olan *Prunella vulgaris* L. bitkisi çalışılmıştır. Tohumlar *in vitro* MS besin ortamına çimlendirilmiştir. Elde edilen bitkiciklerden izole edilen nod ve yapraklar eksplant olarak kullanılmıştır. Eksplantlar oksinlerden; İndol-bütirik asit (IBA) ve Naftalen asetik asit (NAA), sitokininlerden; Kinetin (KİN) ve Benzil amino pürin (BAP) içeren 8 farklı MS besin ortamında kültüre alınmışlardır. Eksplantların bitki büyüme düzenleyicilerine verdikleri tepkiler yapılan gözlemler sonucunda belirlenmiştir. Yaprak eksplantında en iyi kallus oluşumları 1 mg/L NAA + 0.5 mg/L KİN içeren ortamda %100 oranında, en iyi kök oluşumu %68 oranında 1 mg/L NAA + 0.5 mg/L KİN ortamında gözlenmiştir. Nod eksplantında en iyi sürgün oluşumu %100 oranında 1 mg/L IBA + 0.5 mg/L BAP içeren ortamda olduğu belirlenmiştir. Yapılan uygulamalardan 1 mg/L IBA + 0.5 mg/L KİN; 1 mg/L IBA + 0.2 mg/L BAP; 1 mg/L IBA + 0.5 mg/L BAP içeren ortamlar haricindeki tüm ortamlarda %100 oranında kallus oluşumu tespit edilmiştir. Bitki büyüme düzenleyicilerin eksplant tipine bağlı olarak organogenezis, kallus tip ve renklerindeki farklılıklara neden olduğu gözlenmiştir. Elde edilen veriler sonucunda, yaprak eksplantlarının kallus kültürü, nod eksplantlarının mikroçoğaltım çalışmalarında kullanılmasının uygun olduğu belirlenmiştir.

Anahtar Kelimeler: Bitki büyüme düzenleyicileri, eksplant tipi, Prunella vulgaris L., nod, yaprak.

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➢ **ORAL PRESENTATION**

Yaşlı sıçanlarda skopolamin kullanımının karaciğer dokuları üzerine morfolojik ve ultrayapısal etkilerinin değerlendirilmesi

Bükay Yenice Gürsu[1*], Elif Aksöz[2], Büşra Aslan[3], Betül Yılmaz Öztürk[1*], İlknur Dağ[1]

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Özet

Skopolamin güçlü antikolinerjik etkileri olan doğal bir bitki alkaloididir. Muskarinik reseptörleri rekabetçi bir şekilde inhibe eder ve hem periferik antimuskarinik etkiler, hem de merkezi sedatif, antiemetik ve amnezik etkiler üretir. Uzun yıllardır bulantı, hareket hastalığı, alerjik rinit, duodenal ülser hastalığı, gastrointestinal rahatsızlık ve spazm, fonksiyonel bağırsak sendromu ve hiperaktif mesane tedavisinde antiemetik, antisekretuar ve antispazmotik ajan olarak kullanılmaktadır. Skopolamin karaciğer tarafından metabolize edilir, ancak genellikle sadece kısa süreler için düşük dozlarda (<1 mg) verilir. Karaciğer veya böbrek hastalığı olan hastalar skopolamini metabolize edemez veya idrarla atamazlar. Böyle durumlarda skopolamin kullanımı düşünülürken yan etkilerin artacağı kabul edilmelidir. Uzun yıllar boyunca yaygın olarak kullanılmasına rağmen, skopolamin karaciğer enzimi yükselmesi veya klinik olarak görünen karaciğer hasarı ile ilişkilendirilmemiştir. Bununla beraber kullanımı durumunda karaciğer dokularındaki etkilerine dair kısıtlı çalışma bulunmaktadır. Karaciğer patolojisi çalışmalarında özellikle geçirimli elektron mikroskopisinin (TEM) önemli bir bileşen olduğu düşünülmektedir.
Bu çalışmadaki amacımız skopolamin kullanımının karaciğerde herhangi bir değişime neden olup olmadığını ışık ve elektron mikroskopisi yardımı ile değerlendirebilmektir. Bu amaçla, 20 Wistar Albino erkek yaşlı sıçan (21-22 aylık) kullanılmıştır. Sıçanlar randomize olarak iki gruba ayrılmış ve Skopolamin HBr (Sigma), %0,9 salinde çözülerek hazırlanmıştır. Kontrol gruplarına 3 hafta süreyle 0.1 ml/kg oral gavajla serum fizyolojik, deneylerden 30 dk önce intraperitoneal olarak 0.1 ml/kg serum fizyolojik verilmiştir. Deney gruplarına ise 3 hafta süreyle oral gavajla 0.1 ml/kg serum fizyolojik, deneylerden 30 dk önce intraperitoneal olarak 1mg/kg skopolamin uygulanmıştır. Süre bitiminde hayvanlar anestezi altında dekapite edildikten sonra 1mm^3 boyutlarında karaciğer örnekleri alınmış, ışık ve elektronmikroskobik takip işlemleri yapılmıştır. Elde edilen bloklardan ultramikrotomla alınan yarı ince kesitler ışık mikroskopisi ile, tam ince kesitler ise boyandıktan sonra TEM (Hitachi HT 7800) ile incelenmiştir. Bulgularımız skopolamin kullanımının karaciğerde ışık ve elektron mikroskobik düzeyde önemli bir farklılığa neden olmadığını, ancak skopolamin kullanılan grubun bazı örneklerinde koful artışının tespit edildiğini göstermektedir. Ancak hepatosit bütünlüğü, şekli ve genel doku morfolojisinin iyi korunduğu gözlenmiştir. Bununla beraber verilerimizin ayrıntılı çalışmalarla desteklenmesi gerekmektedir.

Anahtar Kelimeler: karaciğer, skopolamin, geçirimli elektron mikroskopi, ışık mikroskopi

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Development of protein-clay nanocomposites as anticancer drug delivery systems

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Abstract

Drug delivery systems were gained increasing attention by taking advantage of nanotechnology together with nanomaterials. Being in nanoscale offers new features to the materials and the materials to be used are selected according to these features. There has been a great interest to develop nanoparticles from synthetic and natural materials carrying small and large molecules for drug delivery; especially the development of protein and clay based nanoparticles. On the other hand, various encapsulation processes are carried out to achieve controlled delivery of anticancer drug. By this way, drug efficiency is increased and side effect of drugs to healthy tissues is decreased. Therefore, in this study protein-clay nanocomposites were prepared for achieving anticancer drug delivery that has been used in cancer biology and in clinical experiments. Proteins have biodegradability and biocompatibility properties together with ease of production and large number of functional groups on the surface that make them a good candidate to be used as drug delivery systems. Also, clays have high adsorption properties and water uptake capacity that maintain high drug loading. Besides, the octahedral structure of the clay makes nanocomposite structure more stable. After characterization studies with different methods in terms of psychochemical properties and efficiency, the nanocomposite materials were evaluated quantitatively and quantitatively on cancer cells. As a result, with high drug loading capacity, sustainable drug release property and qualitative and quantitative effects on cancer cells demonstrated that protein-clay nanocomposites can be a good candidate to be used as drug delivery systems on cancer therapy.

Keywords: drug delivery, nanocomposite, cancer therapy

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➢ **ORAL PRESENTATION**

Important diseases transmitted from animals to humans by veterinary perspective, their controls and treatment choices

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Abstract

Human and animal that are essential in nature are brought together in rural area, urban area, farms, house environment and mutual areas in terms of occupation. Although the negative effects of animals are low on environment and human being, they may have important risks on human health by carrying various infectious agents on some occasions. Diseases transmitted from animals to humans are called zoonosis. This condition occurs directly or indirectly with contact of infected animal or products of animal origin, their secretions, and contaminated leather and fur products. Zoonoses are divided etiologically into groups as bacterial, viral, fungal, and parasitic and prion. Zoonotic diseases are considered among occupational risks that veterinary surgeons are exposed. The rate at which veterinary surgeons contract these diseases varies from 16.7% to 64%. In Turkey, 107 different zoonotic agents have been reported with respect to geography until today. At the same time, presence of some zoonotic diseases as anthrax, *Brucella*, tularemia, rabies are known. In the context of this study, information was presentedon conditions of important zoonotic diseases in our country and the world. Transmission ways, controls and preventions of these diseases, and distribution according to the certain years were given in Tables. Because zoonotic diseases comprise human, environment and animal health, information was given on that different occupation groups are needed for control, prevention, and treatment and that related agencies with One Health approach should work coordinately as multidisciplinary.

Key words: Zoonotic diseases, transmission ways, control, treatment.

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➢ **ORAL PRESENTATION**

Study on the investigation of biocompatible polydopamine nanoparticles (PD NPs) functionalized electrochemical sensor

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Abstract

The advancements made in electrochemical measuring systems, as well as the advancements in nanotechnology and materials-science fields has brought new possibilities for the construction of novel electrochemical bioassays towards different applications for a wide range of (medical, food, environmental) analyses.

Circulating tumor cells (CTCs) are known as tumor markers which can be used in phenotypic and genetic tests to monitor patient prognosis. Exploitation of functional materials for the design of cytosensors still stands as a hot topic [1]. Polydopamine is a versatile biopolymer for bioapplications owing to their excellent biocompatibility [2,3]. In this work, we aimed to design a biocompatible and a disposable polydopamine nanoparticles (PD NPs)-based surface for immobilization and electrochemical detection of cancerous cells for the first time. The Polydop NpS modified sensor showed high affinity for the attachement of cells. Compared with the traditional techniques, nanoparticle preparation step via self-assembly process and modification of the sensor surface to construct the cytosensor are simple and controllable. Moreover, the response of cytosensor showed good linearity over a wide range of CTCs number. Therefore, the study demonstrates its potential to be applied in clinical diagnosis and biomedical research for early detection of carcinoma cells.

Keywords: Electrochemistry; Cytosensor; Polydopamine nanoparticles; Biomedical application.

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➢ **ORAL PRESENTATION**

Preconcentration of cadmium (II) ions using *Prunus dulcis* shells from aqueous solution with flame atomic absorption spectrophotometry (FAAS)

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Abstract

Heavy metal pollution is a global environmental problem. Heavy metals, an integral part of the environment, are found everywhere in nature. However, that can also negatively affect health if it exceeds the specified limit. The mining, metallurgy and chemical industries are major environmental pollutants in terms of heavy metals [1]. Heavy metals refer to metals and metalloids with a density>5g/cm^3. Examples of heavy metals include lead (Pb), cadmium (Cd), copper (Cu), chromium (Cr) and mercury (Hg) [2].

Cadmium (Cd) batteries are widely used in ceramics, electronics and metal coating industries, electroplating industries, pigs, petroleum products, textile products, insecticides, solders, television sets, metallurgical industries, synthetic chemicals and photography. It is an extremely harmful metal that can accumulate in the human body and cause irreversible damage in various organic biological systems, even at very low concentrations [3]. The determination of metal concentrations is very important due to their toxicity. Solid phase extraction (SPE) method is widely used for the preconcentration of heavy metals. SPE is the most efficient and sensitive technique. It has many advantages such as low costs, high enrichment factor, high efficiency, being simple, more rapid, lower solvent use, short extraction times, being safe for the environment [4-5].

In this study, preconcentration conditions of cadmium(II) ions from aqueous solution using *Prunus dulcis* shells were investigated. To determine optimum conditions several parameters such as pH, eluent type and concentration, flow rate, breakthrough volume and adsorption capacity were studied. The modification, size and morphology of sorbent was characterized by FT-IR, SEM and XRD. Satisfactory results and good recoveries were obtained.

Keywords: Preconcentration, solid phase extraction, trace element, cadmium, *prunus dulcis*.

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➢ **ORAL PRESENTATION**

Sterilizasyon etkinliğinin izlenmesinde altın standart: Biyolojik indikatörler

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Özet

Sağlık, gıda ve ilaç alanında kullanılan ekipmanların sterilizasyon etkinliğinin izlenmesi salgın hastalıkların ve antibiyotiklere direnç geliştirmiş inatçı mikroorganizmaların yayılmasını önleme açısından oldukça önemlidir. Biyolojik indikatörler spor strip, besiyeri ve kimyasal ile doldurulmuş cam ampul, koruyucu dış muhafaza ve kapaktan oluşur. Biyolojik indikatörlerin üretimi ISO 11138-1, ISO11138-2 ve ISO 11140 standartlarına uygun olmalıdır ve referans kuruluşlar tarafından onaylanmadan piyasaya sürülemez.

Biyolojik indikatörlerde en hassas ve en hızlı sonuç veren sistem rapid read-out sistemidir. Bu sistemin çalışma prensibi vejetasyon esnasında ortaya çıkan ilk enzimlerden (esteraz, glukosidaz) birinin florimetrik olarak tespit edilmesine dayanır. Biyolojik indikatör üretim prosesinde ilk aşama Bacillus cinsi bakteriden spor üretimidir. Üretilen sporlardan, 10^6 cfu olacak şekilde spor stripleri hazırlanır. Sporların vejetatif faza geçişini hızlandırmak amacıyla besi yeri indükleyici bazı kimyasallarca zenginleştirilir. pH indikatörü ve enzim aktivite tayinininde kullanılacak florasan kimyasal maddeler de besi yerine eklenir.

Biyolojik indikatörlerin validasyonu için her parti üretimde D-değeri, Z değeri ve yaşam/ölüm penceresi değerleri hesaplanarak kullanıma uygunluğu belgelendirilir.

Anahtar Kelimeler: Biyolojik indikatör, sterilizasyon

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➢ **ORAL PRESENTATION**

Radyasyon Onkolojisi kliniğine başvuran kanser hastaların plazma ve eritrosit yağ asit düzeyleri

Saliha Ayşenur Çam [1], Gonca Altınışık İnan [2], Süheyla Aytaç Arslan [2], Fatma Uysal [1], Yılmaz Tezcan [2], Seyfullah Oktay Arslan [1*]

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Özet

Yağ asitleri birçok metabolik yolakta rol alan, hücre membranının yapısına katılan biyolojik bileşiklerdir. Beslenme ile alınan ve vücutta sentezlenen yağ asitlerinin etkinlikleri farklılık gösterebilmektedir. Belirli yağ asidi düzeylerinin kardiyovasküler hastalıklar, diyabet gibi kronik hastalıklarla ilişkisini araştıran çalışmalar mevcuttur. Çalışmamıza Radyasyon Onkolojisi kliniğine başvuran, prostat, meme, uterus, kolon kanserini de içeren hastalar dahil edildi. Hastaların plazma ve eritrosit yağ asit profilleri sağlıklı kontrollerle karşılaştırılarak bu bileşiklerin hastalık ile ilişkisi araştırıldı. Bu amaçla kanser hastalarının plazma ve eritrositlerinde literatürde önem verilen EPA, DHA, toplam ω-3, ω-6 dahil bazı doymuş, doymamış yağ asitleri ve toplam doymuş, doymamış yağ asit miktarları GC-MS (Gaz kromatografisi- Kütle spektrometresi) ile ölçüldü. Sonuçta bazı yağ asitlerinin sağlıklı kontrollere göre düzeylerinin farklı olduğu bulundu. Kanser hastalarında düzeyi farklı çıkan bu yağ asitlerinin hastalığın teşhisi için biyobelirteç olma ihtimalinin değerlendirilmesi ve kanserin patofizyolojisini aydınlatmada olası rollerinin araştırılması gerekmektedir.

Anahtar kelimeler: Yağ asitleri, GC-MS, kanser, radyasyon onkolojisi

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➢ **ORAL PRESENTATION**

Arı sütünün Alzheimer hastalık modelinde nöroinflamasyon ve öğrenme davranışı üzerine etkileri

Saliha Ayşenur Çam, Songül Benzigül, Seyfullah Oktay Arslan*

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Özet

Arı sütü insanlar tarafından milattan önce kullanılmaya başlamış ve günümüze kadar insan ve hayvanlar üzerinde etkilerini araştıran birçok çalışma yapılmıştır. Arı sütünün bileşiminde proteinler, lipitler, şekerler, vitaminler, mineraller bulunmaktadır. Daha önce yapılan çalışmalarda arı sütünün antimikrobiyal, antihipertansif etkilerinin yanı sıra antioksidan ve antiinflamatuvar etkilerinin bulunduğu bildirilmiştir. Alzheimer hastalığında artmış nöroinflamasyonun hastalığın oluşma ve ilerlemesinde önemli rol oynadığı düşünülmektedir. Çalışmamızda sıçan hipokampüsü içine $A\beta_{42}$ enjeksiyonu ile oluşturulan Alzheimer hastalık modelinde 30 mg/kg, 100 mg/kg ve 300 mg/kg dozlarda oral yoldan uygulanan arı sütünün etkileri araştırılmıştır. Arı sütünün $A\beta_{42}$'nın neden olduğu astroglial ve mikroglial aktivite artışını anlamlı ölçüde baskıladığı immünohistokimyasal incelemeler ile gösterilmiştir. Bununla beraber $A\beta_{42}$ uygulamasıyla artan hipokampüs TNF-α ve IL-1β düzeylerinin arı sütü uygulaması ile azaldığı bulunmuştur. Ancak Pasif sakınma ve Morris Su Tankı testleri ile değerlendirilen bilişsel işlevlerde arı sütünün oluşan bozulmayı düzeltemediği görülmüştür. Sonuç olarak arı sütü $A\beta_{42}$ enjeksiyonu ile oluşan nöroinflamatuvar cevabı baskılarken bu iyileşme davranış deneylerine yansımamıştır.

Anahtar sözcükler: Alzheimer hastalığı, arı sütü, sıçan, nöroinflamasyon

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➢ **ORAL PRESENTATION**

Simultaneous liquid chromatographic determination of paeoniflorin and oxypaeoniflorin in *Paeonia species* in flora of Turkey

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Abstract

In the present study, a novel, fast and simple liquid chromatographic method was developed and validated for the simultaneous determination of paeoniflorin and oxypaeoniflorin in *Paeonia species* preparations. Among the monoterpene glycosides, paeoniflorin and oxypaeoniflorin are the main compounds in *Paeonia* species. In the present study, paeoniflorin and oxypaeoniflorin were isolated from *Paeonia* species using chromatographic methods and the structure elucidations of paeoniflorin and oxypaeoniflorin were achieved by combination of 1D and 2D-NMR experiments and mass spectrometry. Reversed-phase high performance liquid chromatographic (HPLC) method with diode array detection for the determination of the paeoniflorin and oxypaeoniflorin has been developed. The HPLC separation was achieved on a Nucleosil 100-5 C_{18} (5 µm, 250 x 4.6 mm) column using a mobile phase composed of acetonitrile: 10 mM pH 3.5 phosphate buffer (20:80 v/v) at a flow rate of 1 mL min^{-1} . A wavelength of 230 nm for paeoniflorin and 259 nm for oxypaeoniflorin as dedection for diode array detection was selected. The developed method has been optimized and validated by changing the chromatographic parameters such as organic solvent ratio and pH of mobile phase. By this method, 3.47 %- 5.46 % paeoniflorin, and 0.049 %-0.422% oxypaeoniflorin were isolated from 2 g of the crude samples of *P. mascula subsp.arietina, P. daurica, P. peregrina, P. tenuifolia, P. mascula* spsp*. bodurii* collected from the flora of Turkey.
Keywords: Plant materials, simultaneous determination, high performance liquid chromatography and validation.

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➢ **ORAL PRESENTATION**

Preparation of new anticancer agents from a natural plant (*Rhynchostegium megapolitanum*)

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Abstract

In this study, it is evaluated in vitro anti-oxidant potentials and anti-cancer activity of extracts of Moss (*Rhynchostegium megapolitanum*) collected from riverside in Cayyuzu village, Aydin, Turkey. It has been used *Rhynchostegium megapolitanum* extracts, which is a member of Bryophyte particularly mosses, for testing biological activity of the plant. Antioxidant properties were assessed by using 2,2'-diphenyl-1-picrylhydrazyl (DPPH), 2,2'-azino-bis(3-ethylbenzothiazoline- 6-sulfonic acid) (ABTS) and β-carotene bleaching assays. For determining the cytotoxic effects of the novel anti-cancer products cancer cell culture have been made. Preliminary the anti-proliferative effects were determined by using breast cancer (MCF-7), prostate cancer (PC-3), leukemia (HL-60), colon (HT-29) and liver (HepG2) cancer cell lines. The anti-proliferative effects of plant extracts have been analyzed and their apoptotic or necrotic effects have been determined with Hoechst/Propidium iodide double staining method in all cancer cell lines. Paclitaxel used as positive control (1µM). The results indicated that the newly plant extracts are effective on both cell lines between the concentration range 5-40 µM and show their effects by apoptotic mechanisms. If the effects compared between the cell lines it can be suggested that plant extracts were found more effective on MCF-7 cell line. As result, cytotoxic efficiency of the some plant extracts was found more than paclitaxel (depend on concentration) which is a chemotherapeutic agent that is using for cancer therapy.

Keywords: *R. megapolitanum*; Anti-oxidant activity; Prostate cancer (PC-3); Breast cancer (MCF-7); Leukemia (HL-60); Colon cancer (HT-29); Liver cancer(HepG2)

DRAFT

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➢ **ORAL PRESENTATION**

Chemical synthesis or green synthesis of silver nanoparticle genotoxicity and cytotoxicity

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Abstract
Nowadays, nanotechnology is considered as the most important, priority and critical research field by many developed countries, and has taken its place among the projects supported by large investments, where research centers were established and supported. In recent years, thanks to advances in nanoscale technology, nanoparticles have been used in almost all areas of life. Potential damages are a cause for concern due to the ability of nanoparticles to cross cell membranes. Silver nanoparticles have been used as an antimicrobial agent for centuries because of their antibacterial, antifungal and antiviral effects. For many years, many classical methods have been applied physically and chemically for the synthesis of nanoparticles in solution medium, and today "green nanotechnology", which includes cheaper, environmentally friendly, non-toxic biological methods, comes to the fore. In this study, the effects of silver nanoparticles (~14 nm) synthesized with green chemistry and obtained with classical chemical synthesis using endemic Onosma papillosa Riedl plant on oxidative DNA damage and cell viability in human lymphocyte cells were measured. The oxidative damage occurring in DNA was determined by single cell gel electrophoresis (komet) method and the test of cell viability was determined by flow cytometry method. According to data from single cell gel electrophoresis studies, the genetic damage caused by silver nanoparticles obtained by green synthesis in human lymphocyte cultures is not statistically significant compared to negative control ($p = 0.124$). The silver nanoparticles obtained by chemical synthesis and the damage caused by the positive control are statistically significant when compared to the negative control ($p < 0.01$). In flow cytometry analysis, Ag nanoparticle obtained by both methods was observed to cause an increase in the number of early, late apoptotic and necrotic cells, and it was determined to cause a decrease in the number of live cells. When the significance level of the difference was analyzed statistically, it was seen that there was a statistical difference ($p < 0.01$) for chemical synthesis in terms of necrotic cell number compared to negative control, but this difference was not significant for green synthesis.
Keywords: tap water, Trihalomethanes

DRAFT

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➢ **ORAL PRESENTATION**

Mavi yeşil alglerin şelataz enzimi üretme kapasitelerinin belirlenmesi

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Özet

Tetrapiroller ve türevleri tüm canlı organizmalarda önemli bir rol oynar. Enerji transferi, kataliz ve sinyal iletimi gibi birçok metabolik sürece dahil olurlar. Ferroşelataz (E.C. 4.99.1.1, protoHeme ferrolyase) enzimi, canlı organizmalarında bulunan, iki değerlikli demir iyonlarının porfirin substratlarına bağlanmasını katalizleyerek, canlılar için oldukça önemli biyolojik değere sahip protoHeme (Heme) yapısının in vivo olarak sentezlenmesinde katalizör etki gösteren enzimdir (Dailey, 1990). Mg-chelatase (E.C. 6.6.1.1), Mg^{2+}'nın protoporfirin IX içine gömülmesini katalize eder. (Kobayashi ve ark. 2008). Mavi yeşil algler, tetrapirrol biyosentetik yolağının tüm ana dallarını temsil eden son ürünler (heme, klorofil, fikobilinler ve siroheme) üretebilen çok yönlü tetrapirol sentezleyicileridir. Ayrıca filogenetik araştırmalar bitkilerde bulunan tetrapirol sentez genlerinin mavi yeşil alglerden köken aldığını göstermektedir (Suzuki ve ark. 2002). Bu çalışmada Amasya Yeşilırmak'tan izole edilen 8 farklı mavi yeşil alg BG11 besi ortamında geliştirilmiş ve elde edilen biyokütle protein ekstraksiyonu için kullanılmıştır. Ferroşelataz aktivitesi için substrat olarak porfirin kullanılmıştır. İzolatlar arasında 8 nolu izolatın spesifik aktivitesi (0.217 Protoheme dk/mg) en yüksek bulunmuştur. Magnezyum şelataz aktivitesi için substrat olarak protoporfirin IX kullanılmıştır. İzolatlar arasında 2 nolu izolatın spesifik aktivitesi (0.00181 Mg-protoporfirin dk/mg) en yüksek bulunmuştur. Bu çalışma Amasya Üniversitesi FMB-BAP 18-0348 kodlu proje tarafından desteklenmiştir.
Anahtar Kelimeler: Mavi yeşil algler, Ferroşelataz, Magnezyum şelataz

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➢ **ORAL PRESENTATION**

Tekrar kullanılabilir pektinaz immobilize manyetik karakterli nanopartiküllerin geliştirilmesi

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Özet

Nanopartiküller, hızla gelişen nanoteknoloji içerisinde en önemli materyaller arasında yer almaktadır. 10-1000 nm arasındaki boyutları, manyetik özellikleri, yüzeylerinin fonksiyonlandırılabilmesi ve ortamdan kolay bir şekilde ayrılmaları akademik, medikal ve endüstriyel anlamda onlara sayısız avantaj sağlamaktadır. Pektinazlar, pektik maddeleri (yüksek molekül ağırlıklı glikozidik makromoleküller) hidroliz eden, çoğunlukla yüksek bitkilerde ve mikroorganizmalarda bulunan yüksek yapılı hayvanlarda bulunmayan heterojen bir grup enzimdir. Pektinaz enzim ailesi olgunlaşma ve saklama esnasında bazı bitki dokularında hücre duvarının yumuşatılmasına yardımcı olduklarından bitkiler için önem taşırlar. Bu çalışmada, pektinaz enzimi, manyetik özellikli olarak sentezlenen nano-boyutlu demir oksit (ɣ-Fe_3O_4) nanopartiküllerine kovalent olarak GPTES ((3-glycidyloxypropyl) trimethoxysilane) molekülü ile bağlanmış olup sentezlenen pektinaz immobilize manyetik demir oksit nanopartikülleri (ɣ-Fe_3O_4@GPTES@Pektinaz) ZETAsizer ve SEM ile karakterize edilmiştir. ɣ-Fe_3O_4 nanopariküllerine GPTES aracılığı ile pektinaz bağlanması farklı enzim derişimlerinde gerçekleştirilmiş olup ɣ-Fe_3O_4@GPTES@Pektinaz nanopartiküllerinin enzim etkinliği farklı pH değerlerinde ve tekrar kullanılabilirlik kapsamında değerlendirilmiştir. Bu çalışma Amasya Üniversitesi FMB-BAP 18-0349 kodlu proje tarafından desteklenmiştir.

Anahtar Kelimeler: Manyetik ɣ-Fe_3O_4 nanopartikül, GPTES, Pektinaz.

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➢ **ORAL PRESENTATION**

Küf izolasyonunda kullanılan besiyerleri ve özellikleri

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Özet

Doğada yaygın olarak bulunan küfler ürün yüzeyinde gözle görülür miseller oluşturan, heterotrof, ökaryotik yapılı mikroorganizmalardır. Bu mikroorganizmalar yüksek veya düşük sıcaklık, asidik veya alkali pH, yüksek basınç ve yüksek tuz konsantrasyonu gibi ekstrem ortamlarda bile rahatlıkla gelişebilmektedir. Küflerin çoğu oldukça geniş bir sıcaklık aralığında üreyebilmelerine rağmen optimum gelişme sıcaklıkları 25 ℃'dir.

Gıdalar gerek hasat öncesi tarlada, gerekse hasat sonrası işleme, depolama veya dağıtım gibi aşamalarda hijyen kurallarına uyulmaması sonucu küflerle enfekte olabilirler. Gıdada gelişen bu küfler acı tat, kötü koku vb. gibi bozulmalara sebep olarak gıdayı tüketilemeyecek hale getirirken aynı zamanda ekonomik kayıplara da neden olurlar. Bundan dolayı gıdalardaki küf yükünün belirlenmesi gıdanın kalitesinin ve bozulma derecelerinin değerlendirilmesi ve raf ömrünün tayin edilmesinde oldukça önem kazanmaktadır. Gıdaların bileşim ve su aktivitesi açısından birbirinden farklı olması sebebiyle bu gıdalarda gelişen küf türleri çeşitlilik gösterebilmektedir. Bundan dolayı, gıdalarda küf izolasyonu için çeşitli içeriklere sahip genel amaçlı ve seçici besiyerleri geliştirilmiştir.

İnkübasyon süresi (25 ℃'de 5 gün) göz önünde bulundurulduğunda küf izolasyonu en yavaş sonuç veren mikrobiyolojik analizlerden biridir. Bu sebeple, gıda endüstrisinde analiz hassasiyetinden ve doğruluğundan ödün vermeden gerçekleştirilebilecek daha hızlı ve basit yöntemlere ihtiyaç duyulmaktadır. Küf izolasyonunda inkübasyon süresinin kısaltılması amacıyla yeni besiyeri üretimi ve geliştirilmesine yönelik çalışmalar devam etmektedir. Bu derlemede, küf izolasyonu amacıyla yaygın olarak kullanılmakta olan genel amaçlı ve seçici besiyerlerinin ve son günlerde küf izolasyonunun analiz süresini kısaltmaya yönelik geliştirilen yeni besiyerlerinin özellikleri ile ilgili bilgiler özetlenmiştir.

Anahtar Kelimeler: küf, küf izolasyonu, besiyeri

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➢ **ORAL PRESENTATION**

Genotoxic effects of nutritive sweeteners in *Drosophila*

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Abstract

The global diet became larger with different animal and plant sources that consistently grew over the time in terms of calories. This dramatic increase had as well promoted the consumption of sweeteners. In this regard, two groups of sweeteners were applied, nonnutritive sweeteners (NNSs) and nutritive sweeteners (NSs). However, their pervasive use became a controversial topic due to their questionable influence on human' health since it has been linked to adverse effects such as metabolic disorders, type-2 diabetes and weight gain. Although these potential health problems have long been studied, few available genotoxicity data were provided. Given the relative scarcity of published detailed genotoxicity researches, the current study was conducted to further assess the genotoxicity potential of nutritive sweeteners in the *Drosophila* wing Somatic Mutation and Recombination Test (SMART). Therefore, third instar larvae derived from the standard cross were reared in five distinct sweeteners with different fructose-glucose ratio included to food media instead of sucrose. Positive results for total *mwh* clones and total spots were observed in pure fructose powder treated group and no significant effect was noted in four tested sweeteners. In conclusion, genotoxic effects of pure fructose powder could be considered as mutagenic in *Drosophila*.

Keywords: *Drosophila melanogaster*, Fructose, Genotoxicity, Glucose, SMART, Sweeteners.

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➢ **ORAL PRESENTATION**

The Potential Health Benefits of *Hypericum perforatum* L.

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Abstract

Hypericum perforatum L., a plant also known as yellow cantarone. For nearly 2000 years, people have been using Hypericum perforatum as an herbal medicine. *Hypericum* has 350-400 known species worldwide. *H. perforatum*, the most common species on earth, is recognized all over the world by the name ”Saint John's Wort". *H. perforatum* extracts have been used as antidepressants in herbal medicine since ancient times. Hypericin and psedohipericin are very effective against DNA and RNA viruses. It is particularly effective in preventing infections caused by a large number of viruses and the spread of HIV virus. It has also been found that hyperifin and hyperphoria cause the death of different cancer cells and prevent them from developing. It is one of a limited number of plants currently used to treat cancer. *H. perforatum* extracts and above ground plant parts of ulcers, depression, abdominal pains, indigestion, burns, bacterial infections, migraines and sciatica treatment is effective. In addition to these benefits, it also interacts with some drugs, causing side effects. It can impair the effectiveness of many drugs, such as chemotherapy drugs. In addition, HIV/AIDS patients taking protease-1 inhibitors, organ transplant patients taking cyclosporine, and those using some other drugs (such as warfarin, fenprokumone, theophylline, and digitoxin) should pay attention. Use in individuals exposed to sunlight for long periods of time is contraindicated and may cause gastrointestinal disorder, sedation and photosensitivity. For this reason, selling herbal medicines over the counter poses a great risk to the health of individuals. Therefore, the doctor or nutritionist should be consulted before using it and the possibility of drug interaction should be considered.

Keywords: yellow cantarone, health, herbal medicine

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➢ **ORAL PRESENTATION**

Resveratrol and Its Effects on Human Health: An Overview

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Abstract
Resveratrol is a secondary herbal product that has gained increasing importance in the medical and pharmaceutical literature in recent years. It is known as the French paradox and is a phenolic compound, which was first described as a structure in the roots of the *Veratrum grandiflorum* in 1940. Resveratrol in grape was defined in leaf epidermis and grape membrane in 1976. It is mostly found in grapes, plums, mulberries, cherries, blackberries, strawberries, blueberries, lemons, hazelnuts, eucalyptus, spruce, lily, acacia, bitter and cocoa. It has great benefits for human health. It has a powerful antioxidant and has been found to cardioprotective effects in the previous studies. It reduces the severity of myocardial ischemia-perfusion injury in acute and chronic models of cardiac injury and protects the cells against oxidative damage. It prevents platelet aggregation. It is known to be useful in preventing Type II diabetes and alleviating some complications. It has a protective and therapeutic effect against colon cancer, which has the third-highest mortality in the world. In addition, it has protective effects against prostate and lung cancer. It reduces LDL, triglycerol levels and protects the liver from lipid peroxidation. It helps to regulate metabolism, body weight, and blood sugar and decrease insulin resistance. It provides the regulation of estrogen and testosterone hormones. It renews the skin and contributes to muscle and bone development and protects nerve cells. By including foods containing resveratrol in our daily diet, we can have a healthier body.
Keywords: Diet, grapes, health, resveratrol

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➢ **ORAL PRESENTATION**

Flavonoids as anti-cancer agents

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Abstract

Cancer is a complex, multifaceted disease that occurs when the information incellular DNA is corrupted leading to abnormal patterns of gene expression that involves uncontrolled multiplication and metastasis of abnormal form of normal healty cells. The World Health Organization (WHO) projects suggested that the global number of deaths from cancer will increase nearly 80% by 2030. Although excellent efforts have been made to improve the current therapeutic options, cancer still remains a major cause of death because most anticancer agents display restricted therapeutic success due to their lack of selectivity against cancer cells. Therefore there is considerable research activity committed to discover more potent treatments or to minimize toxic side effects of current anticancer agents. More than 3000 different plant species have been used in treatment of cancer. Besides this, plant- based drug discovery has resulted in the development of many anticancer drugs which are currently in clinical use. Flavonoids, the polyphenolic compounds, are a class of plant secondary metabolites having many pharmacological activity including anti-cancer activities. Due to their different molecular mechanisms of action, both natural and synthetic flavonoids and their analogs are being investigated for their potential applications in the treatment of ovarian, breast, cervical, pancreatic, and prostate cancers. The main molecular mechanisms underlying the anti-cancer properties of flavonoids are; to act as protein-kinase and topoisomerase inhibitors , antiangiogenic agents, antioxidants and multidrug resistance modulators. The crucial molecular mechanisms of action of flavonoids attributing to their potential anti-cancer activities and the key structural features required for their cytotoxic activity will be discussed.

Keywords: Anti-cancer activity, cancer, flavonoid

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➢ **ORAL PRESENTATION**

Türkiye'de doğal olarak yetişen *Celtis tournefortii* Lam. *ve C. australis* L. meyvelerinin yağ asitlerinin bileşimleri ve antimikrobiyal etkilerinin değerlendirilmesi

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Özet

Cannabaceae (Kendirgiller) familyasında yer alan *Celtis* L. cinsi dünyada 72, ülkemizde ise 3 tür ile temsil edilmektedir. *Celtis australis* L. halk arasında "çitlembik", *C. tournefortii* Lam. ise " dardağan" adı ile bilinir. Anadolu halk tıbbında meyve ve yaprakları, gıda olarak, soğuk algınlığında, gripte, nefes darlığında, öksürük ve ishalde kullanılmaktadır.

C. australis ve *C. tournefortii* meyvelerinden Soxhlet apareyi ile elde edilen sabit yağ metilleme işlemine tabi tutulmuştur. Elde edilen yağ asitlerinin bileşenleri GK ve GK/KS yöntemiyle eş zamanlı olarak analiz edilmiştir. *C. australis* ve *C. tournefortii* meyvelerinde doymamış yağ asiti linoleik asit (%74.8, 49.5), oleik asit (% 10.8, 18.6) ve palmitik asit (%5.6, 8.8) olarak belirlenmiştir.

Sabit yağ numunelerin Gram negatif ve Gram pozitif bakterilerine (*Salmonella typhimurium* ATCC 13311, *Propionibacterium acnes* ATCC 11827, *Bacillus cereus* NRRL B3711, *Streptococcus mutans* ATCC 25175, *Staphylococcus aureus* ATCC 6538, *Staphylococcus aureus* ATCC 700699 ve *Pseudomonas aeruginosa* ATCC 27853) karşı *in vitro* antimiktobiyal aktivitesi CLSI mikrodilüsyon yöntemi kullanılarak gerçekleştirilmiştir. Pozitif kontrol olarak kloramfenikol (128-0.25 ug/mL) kullanılmıştır. Minimum inhibisyon konsantrasyonları (mg/mL) belirlenmiştir.

Anahtar kelimeler: *Celtis australis*, *Celtis tournefortii*, Sabit yağ, Antimikrobiyal, GK, GK/KS, CLSI

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➢ **ORAL PRESENTATION**

Pesticide Residues and Health Risk Assessment in Greenhouse Tomatoes from Mediterranean Region Turkey

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Abstract

The Mediterranean Region of Turkey presents the highest detections in the country. The lacks of evaluations of toxicological risks in human health have increased uncertainty of the potential effects of pesticides exposures in the Turkey population. This research aims to determinate health risks assessment of pesticide residues associated to greenhouse tomatoes produced in Mediterranean Region. The findings of this study reveal that tomatoes cultivated in the MR show more than 50% of samples with one or multiple pesticides residues. From the total samples, 16% were over the Turkish Maximum Residue Levels (MRLs). The main pesticides detected in greenhouse tomatoes were methomyl, difenoconazole, cyprodinil and boscalid. The results obtained using the official data of the Ministry of Health of Turkey compared to the World Health Organization (WHO), describe relevant risks through the Estimated Daily Intakes (EDI), Hazard Quotients (HQ) and Hazard Index (HI) for the Turkish population due to high concentrations of methomyl and cyprodinil. More restrictions for the use of methomyl, difenoconazole, cyprodinil and boscalid and effective control programs should be implemented in order to mitigate the impacts on the Turkish population.

Keywords: QuEChERS, LC-MS/MS, pesticide residues, food safety, tomatoes, exposure, hazard index

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➢ **ORAL PRESENTATION**

Treatment of tris(2-chloroethyl) phosphate (TCEP) from wastewater with advanced treatment methods

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Abstract
Phosphorus-based flame retardant (FR) chemicals usage has increased in worldwide recently. Tris (2-chloroethyl) phosphate (TCEP), which is listed as organophosphated FR, is mainly used in the production of liquid unsaturated polyester resins, epoxy resin, and cellulose ester compounds. TCEP is not readily biodegradable, and it is defined as persistent, bio-accumulative and toxic pollutant. It was estimated that 98.6% of the TCEP remains in the water and 1.4% of the TCEP is adsorbed to the sludge because of high water solubility. It is difficult to remove the organic compounds, which are resistant to biological treatment by conventional wastewater treatment methods like TCEP. Therefore, advanced oxidation processes (AOPs) have become alternative method providing high efficiency to reduce these organic pollutants. Advanced oxidation processes (AOPs) can convert toxic and persistent organic matter into harmless end products. AOPs is usually performed with hydrogen peroxide (H_2O_2) or ozone (O_3), catalysts (iron ions, electrodes, metal oxides) and UV irradiation. AOPs involve the combination of strong oxidizing agents (hydrogen peroxide-H_2O_2 or ozone-O3, catalysts such as iron ions, electrodes, metal oxides), UV light, sunlight, ultrasound, and their sequence and hybrid applications.
In this study, the treatment of tris (2-chloroethyl) phosphate (TCEP) was investigated by advanced treatment methods from water and wastewater. Photolysis (UV, Sonolysis (US), Fenton (Fe^{+2}-H_2O_2) and Photo-Fenton (Fe^{+2}-H_2O_2-UV), Sono-Photo-Fenton (US- Fe^{+2}-H_2O_2-UV) advanced oxidation process were examined and the toxicity of these AOPs were evaluated for TCEP removal from wastewater. The removal efficiencies of used AOPs were determined with total organic carbon (TOC) analyses identifying TCEP. As a result of the treatment studies, 99.5 % TOC removal was achieved by the treatment of TCEP with Sono-Photo-Fenton process, while the cytotoxicity of water was significantly reduced.
Keywords: Fenton, Sonolysis, Photolysis, Sono-Fenton, Sono-Photo-Fenton, tris(2-chloroethyl) phosphate (TCEP)

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➢ **ORAL PRESENTATION**

A surfactant microextraction procedure for preconcentration chromium(VI) in water samples by flame atomic absorption spectrometry

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Abstract

The presence of toxic metals in aqueous systems has become a problem due to their harmful effects on human health and other organisms in the environment. Especially, Chromium is a major pollutant for environment, usually as a result of some industrial such as plating, tanning and stainless steel [1]. Cr(III) forms of chromium is one of the essential elements for the proper functioning of living organisms. On the contrary, water soluble Cr(VI) species are highly toxic for human tissues due to its high oxidation potential. Consequently, the determination chromium species is a great of concern.

In this work, the cationic surfactant cetyltrimetylammonium bromide (CTAB) was used in the microextraction method for the determination of hexavalent chromium. Two procedure has followed, *i)* CTAB dissolved in water, *ii)* CTAB dissolved in chloroform. Some experimental conditions are optimized for obtain highest recovery of Cr(VI). Chloroform was used an extraction solvent, amount of CTAB and effect of pH of solution has worked on the quantification of chromium. Following the method, hexavalent chromium content in the enrichment phase was determined by flame atomic spectrophotometer (FAAS).

Keywords: Cetyltrimetylammonium bromide, FAAS, hexavalent chromium.

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➢ **ORAL PRESENTATION**

Preparation of chloride selective membrane electrode

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Abstract

In this study, the novel membrane chloride-selective electrode consisting of 30% of tridodesylmethylammoniumchloride (TDMC) as the active material, 50% of PVC as the membrane matrix and 20% of dibutylphatalate (DBF) as the plasticizer was developed. In this electrode, the potential change occurs from 10^{-5} to 10^{-1} M chloride ion and the slope of linear portion corresponds to 55,0 ± 2,0 mV per decade change of chloride concentration. Furthermore, the interference effects of some ions, such as F^-, I^-, NO_3^-, SO_4^{2-}, Na^+, K^+, Cu^{2+} and Fe^{3+} were not observed. The response time and lifetime of electrode was 60 s and 6 months, respectively. It has been observed that pH did not affect the sensitivity of the electrode. This electrode has been used for the direct determination of 32,0 ± 0,5 mg/L chloride in the spring water.

Anahtar Kelimeler: Chloride electrode; Determination; Membrane electrode; Chloride, Spring water.

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➢ **ORAL PRESENTATION**

Determination of vitamin B_{12} by differential pulse polarography

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Abstract

B Vitamin B_{12} is needed for the synthesis of DNA, it is also used for the prevention of Alzheimer disease. The deficiency of vitamin B_{12} may cause serious neurologic damages. Because of its importance in our life we developed a new polarographic method for its sensitive determination. This determination was possible with cobalt present in vitamin B_{12} structure. Since Co (IIII) is formed during oxidative digestion of vitamin, its polarographic behavior had to be determined in various electrolytes such as acetate, borate, phosphate and ammonia. The polarograms of Co(III) were taken in these electrolytes and 1 M NH_3 / NH_4Cl (pH=9.8) and 1 M AcOH/AcO (pH=4.0) were found as the most suitable electrolytes . This method was successfully applied for vitamin B_{12} determination in a 1 mL ampoule with high precision. The LOD was found as $3.7x10^7$ for (S/N=3) The interference of Zn(II), Ni (II), Cr (VI), Fe (III), Cu (II), Cd (II) ve Se(IV) were also studied. It was found that only Zn (II) peak had an overlap with Co(III) peak in ammonia buffer. This problem could be solved by working in AcOH/AcO (pH=4.0) buffer since in this medium there was no peak overlap.

Anahtar Kelimeler: Vitamin B_{12} , Determination of Co(III), Differential Pulse Polarography, interference studies, mercury drop electrode

DRAFT

➢ **POSTER PRESENTATION**

1.2. POSTER PRESENTATIONS

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

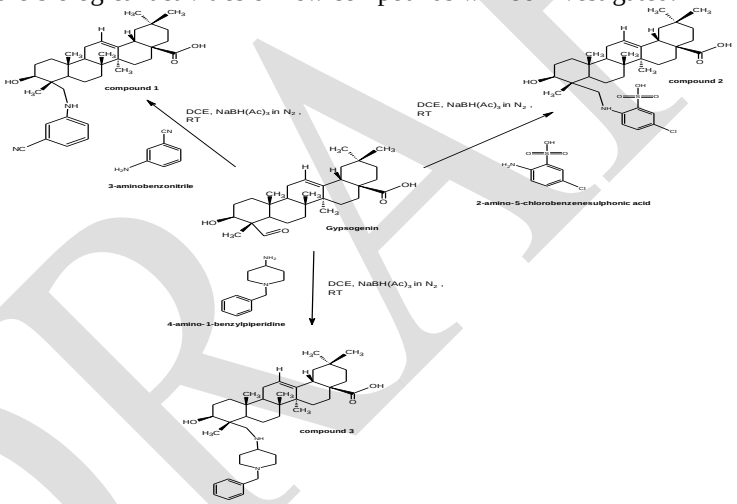
New semi-synthetic gypsogenin compounds

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Abstract

The Gypsogenin compound, which is a natural saponin, is obtained by boiling the roots of the *Gypsohila arrostii* plant. Semi-synthesis reactions were carried out by Gypsogenin compound that have important biological activities and with various amine derivatives, so it was aimed to obtain new bioactive compounds. The starting material of Gypsogenin aglycone was combined with different amine compounds using sodium triacetoxyborohydride in DCE at room temperature. Purification was carried out using chromatographic methods. Up to now, in our continuous research, elucidation of the synthesized compounds **(1-3)** has been determined by IR, UV, 1H NMR, APT and LCMS analysis. In the last part of the study, the biological activities of new compounds will be investigated.



Keywords: gypsogenin, amine, semi-synthesis

This project is supported by TUBITAK (117R034).

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Inhibition of *Pseudomonas aeruginosa* quorum sensing and biofilm by endolichenic fungi extracts from *Peltigera horizontalis* Lichen

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Abstract

Pseudomonas aeruginosa is an opportunistic Gram-negative pathogen that able to cause infections, highly invasive to poses a significant risk to global healthcare problem. The extensive use of antibiotics increases the development of multidrug-resistant *P.aeruginosa* strains. Quorum sensing (QS) is a bacterial communication process to modify their pattern of gene expression in response to activation of defence mechanisms via production of virulence and biofilm. *P.aeruginosa* is one of the model organisms in QS study. Inhibition of QS systems by natural compounds may be an alternative approach to conventional antibiotics. Antibiotics derived from fungi have been used throughout the world. Endolichenic fungi (ELF) are diverse groups of predominantly filamentous fungi that reside asymptomatically in the lichen thalli. Potential to produce bioactive metabolites from ELFs have been attracting attention for new natural drugs. ELF metabolites possess of antibacterial bioactivities. This study investigates the QS and biofilm inhibition potential by ELF extracts from *Peltigera horizontalis* lichen against *P.aeruginosa*. We isolated ELF(23) from *Peltigera horizontalis* and extracted by ethyl acetate. Dosages were tested at certain concentrations. *P.aeruginosa lasB-gfp, rhlA-gfp* biomonitor strains and PAO1 wild type were used for QS and biofilm inhibitions. Green fluorescent protein expressions were measured at 485nm excitation and 535nm emission wavelengths every 15 minutes for 16 hours with microplate reader BioTek-Cytation3. The QS inhibition rates for *lasB-gfp, rhlA-gfp* and biofilm were determined as approximately %68,24, %58,83 and %44,68(±2,35) respectively, at concentration of 240µg/ml. According to results, ELF extracts can inhibit QS systems of *P.aeruginosa* considerably instead of killing them and risking stress conditions. QS inhibition can keep virulence and pathogenicity in control and leave bacteria vulnerable. Screening natural compounds such as ELF extracts can provide opportunities for future QS inhibitor drugs.

Keywords: *Pseudomonas aeruginosa*, *Peltigera horizontalis*, endolichenic fungi, quorum sensing, biofilm formation

This study was funded by Marmara University-BAPKO Project No:FEN-C-YLP-130319-0067. We thank TUBITAK-BIDEB 2210-C Domestic Graduate Scholarship Program for Priority Areas.

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➢ **POSTER PRESENTATION**

Investigation of anti-quorum sensing and anti-biofilm activities on *Pseudomonas aeruginosa* of *Peltigera* Species by lichen and endolichenic fungus specimens *in vitro* and *in silico* methods

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Abstract

Pseudomonas aeruginosa is an opportunistic pathogen that able to cause infections, highly invasive to poses a significant risk to public health. Quorum sensing (QS) is a bacterial communication process to modify their pattern of gene expression in response to activation of defence mechanisms via production of virulence factors and biofilm. Inhibition of QS systems by natural compounds may be an alternative approach to conventional antibiotics. Lichens are symbiotic organism from the association a mycobiont, photobiont and produce specific, unique, pharmaceutical secondary metabolites which are mostly acidic and most of them can't be synthesized by any other natural sources. Effective sources of lichens to find 3D chemical structures of lichen secondary metabolites were docked with LasR protein (PDB-ID:3IX3) of *P.aeruginosa* involved in QS signalling mechanism and molecular docking simulations were calculated also applied. Protein-ligand preparation and docking processes were performed using Glide module of Maestro/Schrödinger software. According to *in silico* results, *Peltigera* lichens detected to have anti-QS properties. This study investigates the QS potential with *in vitro* and *in silico* methods of *Peltigera* species extracts against *P.aeruginosa*. The n-hexane extracts of *P. horizontalis* lichen collected from Bursa-Alaçam region and anti-QS properties with effective concentrations were determined and toxic effects were investigated. Dosages were tested at certain concentrations. *P.aeruginosa lasB-gfp* and *rhlA-gfp* biomonitor strains were used for QS inhibitions. Green fluorescent protein expressions were measured at 485nm excitation and 535nm emission wavelengths every 15 minutes for 14 hours with microplate reader BioTek-Cytation3. The QS inhibition rates for *lasB-gfp* and *rhlA-gfp* were determined as approximately %70,36 and %49,37 respectively, at concentration of 120µg/ml. *In vitro* and *in silico* results have a consistent and *Peltigera* extracts can be used as future natural QS drugs. This study was funded by Marmara University-BAPKO Project No:FEN-C-YLP-130319-0067. We thank TUBITAK-BIDEB 2210-C Domestic Graduate Scholarship Program for Priority Areas.

Keywords: *Pseudomonas aeruginosa*, *Peltigera*, lichen, quorum sensing, biofilm, molecular docking simulation

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **POSTER PRESENTATION**

Cytotoxic potential of *Viburnum opulus* against human colorectal carcinoma

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Abstract

The current trend of a healthy lifestyle has been instrumental in changing nutritional needs and increasing interest in functional foods. *Viburnum opulus* L. (Adoxaceae) is a medicinal plant with dark red colored edible fruits that have been used for the treatment of intestinal diseases in many European and Asian countries. This study aims to investigate the cytotoxic potential of methanol extract of *V. opulus* (EVO) against human colorectal carcinoma cells. Cell viability of human colon cancer cells; DLD-1, HT-29, SW-620, CACO, and healthy colon epithelial cell; CCD-18Co, and cytotoxic effects of EVO on those cells were determined by using "Alamar Blue" method. EVO significantly inhibited proliferation of DLD-1, HT-29, SW-620 and CACO-2 cells with a half-maximal inhibitory concentration (IC_{50}) of 254.3 µg/mL, 553.3 µg/mL, 327.4 µg/mL, 714.6 µg/mL, respectively ($p<0.0001$). Cytotoxicity studies proved that EVO has a dose-dependent inhibitor of human colon cancer cells and may be a complementary agent for the treatment of human colorectal carcinoma.

Keywords: *Viburnum opulus*, Human Colorectal Carcinoma, Cytotoxicity

This project was funded by the Scientific and Technological Research Council of Turkey (TUBITAK), under grant No. 217Z279

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Regulation of cell cycle and apoptosis of human colorectal carcinoma cells via *Viburnum opulus*

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Abstract

Increased mortality and morbidity of human colorectal carcinoma lead the investigators to seek new and alternative treatment for colorectal carcinoma (CRC). Therefore, identifying a new therapy to contend with CRC has crucial importance. The genus *Viburnum* L., member of Adoxaceae family, consists of more than 230 species distributed along the temperate and subtropical regions of South America to South East Asia. *Viburnum opulus* is extensively spread to Eastern Europe and North Asia. This study aims to investigate the modulatory effects of methanol extract of *V. opulus* fruits (EVO) on cell cycle and apoptosis profile of human colorectal carcinoma cell line DLD-1. The alteration in cell cycle and apoptosis was monitored by flow cytometer following the treatment of propidium iodide and annexin-V/ 7-AAD, respectively. EVO was found to increase apoptosis of DLD-1 cells while it halted the cell cycle in the G2 stage. EVO treatment-induced apoptosis was 70% higher than the control group. The apoptotic and necrotic rates in non-treated group were found as necrosis 2.72%; late apoptosis 5.86%; early apoptosis 4.45% and live cells 86.97% and they were found in EVO treated group as necrosis 5.42%; late apoptosis 12.18%; early apoptosis 5.70% and live cells 76.70%. In conclusion, late apoptosis of DLD-1 cells was significantly increased, which proved the membrane integrity of the DLD-1 cell was disrupted and the nucleus was released from the cell.

Keywords: *Viburnum opulus*, Human Colorectal Carcinoma, Gene Expression, Cell Cycle, Apoptosis

This project was funded by the Scientific and Technological Research Council of Turkey (TUBITAK), under grant No. 217Z279

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Super spreaders of wheat stripe rust pathogen (*Puccinia striiformis* f. sp. *tritici*) in Turkey

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Abstract

Puccinia striiformis is an obligate biotrophic pathogen and causes stripe (yellow) rust on cereal crops. The pathogen depending on primary host is named as *P. striiformis* f. sp. *tritici* on wheat, f. sp. *hordei* on barley, f. sp. *secalis* on rye, f. sp. *elymi* on wild barley species, f. sp. *agropyri* on *Agropyron* spp. Host range of the pathogen is directly related to the crop disease epidemiology and control. Wheat is known as specialized host for *P. striiformis* f. sp. *tritici* but this pathogen has auxiliary and alternate hosts. While barley and various grasses in the Gramineae are auxiliary, barberry (*Berberis* spp.) is alternate host of the pathogen. Turkey has very rich flora and is origin center of wheat (*Triticum* spp. and *Aegilops* spp.) and barley (*Hordeum* spp. and *Elymus* spp.) species. Wild relatives of wheat are commonly known more resistant to the biotic stresses than wheat species. However, some grasses can be even more susceptible than susceptible wheat cultivars. Goat grass (*Aegilops cylindrica* Host) and wall/false barley (*Hordeum murinum* L.) are already known as super susceptible or super spreader of stripe rust. In surveys carried out in the last two years, we also observed that stripe rust infected goat grass and false barley are commonly found in wheat fields without rust in all regions of Turkey. These grasses as spreaders provide spores to infect wheat plants in the same field or adjacent fields and initiate stripe rust epidemics. In addition, the grasses ensure to pathogen survival for a long time and so increased urediniospores add to inoculum pressure on wheat plants. To sum up, especially Southeastern Anatolian region and surroundings, located on the global migration pathway of rust spores and are origin center of these grasses, should be controlled to prevent spreading of the rust spores to all regions of Turkey in favourable climatic conditions initiating the disease.

Keywords: Migration, Resistance, Surveillance, *Puccinia striiformis* f. sp. *tritici*

Acknowledgements: The study was financially supported by TUBITAK through the research project no: 117O043.

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➢ **POSTER PRESENTATION**

Development of nanoformulation to increase antifungal activity of ketoconazole

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Abstract

Fungal infections are an important problem for individuals with weakened immune systems and patients in the intensive care unit. Due to delayed diagnosis and treatment, morbidity and mortality rates of these infections are high. A wide range of broad-spectrum antibiotics has made it possible to successfully treat different microorganism infections that were previously fatal. In this way, patients who are highly susceptible to infection are able to survive for a long time [1] Although antifungal agents are known for their toxicity, they are used in the treatment of fungal infections due to their wide spectrum of action. Ketoconazole is also one of these antifungal agents [2]. Traditional use of drugs is characterized by poor biodistribution, limited efficiency, undesirable side effects, and non-discriminatory form of distribution (lack of selectivity). Strategies such as controlled drug release can overcome these limitations by transporting the drug to the target site. Controlled drug release protects against rapid degradation of the drug and increases drug concentration in target tissues. In this way, treatment at lower drug doses is possible. Nano-sized particles exhibit unique physicochemical and biological properties, making them suitable material for biomedical applications and gaining considerable importance for the pharmaceutical sciences [3]. The aim of this study is to synthesis ketoconazole loaded biodegradable polymeric nanoparticles and to investigate their *in-vitro* antifungal activity. In the study, the oil in water (o/w) single emulsion solvent evaporation method was used to synthesis of ketoconazole loaded nanoparticles with minor modification [4]. Nanoparticles were characterized by using UV-Vis spectroscopy, Dynamic Light Scattering (DLS) and Electrophoretic Light Scattering (ELS) analysis, Fourier Transforms Infrared (FT-IR) analysis and Scanning Electron Microscopy (SEM) imaging. Antifungal activity was studied with top agar diffusion and time kill methods on *C. albicans* and *A. flavus*. The obtained results show that, thanks to controlled release, hydrophobic ketoconazole can be taken into the aqueous environment with nanoparticular systems. Thus, as a result of controlled and prolonged release, long-term biological activity was achieved at a lower concentration.

Keywords: fungus infections, controlled release, nanoparticles, antifungal, ketoconazole

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➢ **POSTER PRESENTATION**

Investigation of fermentation conditions for sourdough by *Lactobacillus curvatus* N19: An optimization study

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Abstract

During fermentation, lactic acid bacteria are subjected to various environmental stress conditions such as temperature, pH, acidity, decrease of available nutrients. The most important of these conditions is the temperature which influence the final quality of the fermented product due to the basic characteristics of lactic acid bacteria. Therefore, the investigation of the effect of fermentation temperature on the bacterial growth and quality attributes of food products is necessary. The aim of this work was to investigate optimal fermentation conditions for sourdough by freeze-dried *Lactobacillus curvatus* N19 isolated from sourdough previously. The central composite design was applied to the optimization of fermentation parameters such as temperature (22-32 ºC) and time (10-30 h). The fermentation was carried out under a simulated sourdough system and biomass concentration, total acidity (%), and lactic and acetic acid production rate were chosen as response variables. While temperature was the dominant factor influencing the biomass concentration, time was the most significant factor influencing the acid production. Results showed that the models developed for all variables were significant (P<0.05) and there was no lack of fit in any of quantifications (P>0.05), indicating the suitable for representing the relationship between variables and factors. Regression analysis indicated that the optimal fermentation conditions were determined as: temperature 28.62 ºC and time 23.44 h for obtaining desired characteristics of sourdough fermentation such as biomass (4.03 g/L), total acidity (0.79%), lactic (8.39 g/L) and acetic acid (1.79 g/L) at a desirability level of 0.987. Validation experiments using the optimized condition compared the predicted values, which were between 1.24 and 22.9% of relative error indicating good accordance except acetic acid.

Keywords: Biomass, fermentation, *Lactobacillus curvatus* N19, optimization, sourdough.

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➢ **POSTER PRESENTATION**

Probiyotik kaynaklı ekzopolisakkaritlerin SHSY-5Y hücrelerinde amiloid beta 1-42 ile oluşturulan Alzheimer hastalığı modelinde oksidatif strese karşı koruyucu etkisi

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Özet

Alzheimer hastalığı (AH) beyin fonksiyonlarının geriye dönüşümsüz olarak azalması ile karakterize, yaşlı bireylerde ölümlerin önde gelen nedenlerinden biri olan ve büyüyen bir sağlık sorunudur. Patolojisinde amiloid beta (Aβ) depozitleri içeren senil plaklar, intrasellüler yerleşimli nörofibriler yumaklar, nöron ve sinaps kaybı olmaktadır. Oksidatif stresin AH ile ilişkili fizyolojik ve fiziksel değişikliklerin temelini oluşturduğu kabul edilmektedir. Bu sebeple, AH'nda oksidatif strese karşı etkili olacak koruyucu ajanların tespitine yönelik çalışmalar önem kazanmıştır. Bu çalışmanın amacı probiyotik kaynaklı ekzopolisakkaritlerin (EPS) SHSY-5Y hücrelerinde $A\beta_{1-42}$ ile oluşturulan AH modelinde oksidatif strese karşı koruyucu etkisinin araştırılmasıdır. Çalışmada, probiyotik suşlardan (*Lactobacillus delbrueckii* ssp. *bulgaricus* B3 ve *Lactobacillus plantarum* GD2) elde edilen EPS'ler kullanılmıştır. Suşların EPS üretim kapasiteleri fenol sülfirik asit yöntemine göre spektrofotometrik olarak tespit edilmiştir. EPS'ler farklı süre ve konsantrasyonlarda SHSY-5Y hücrelerine uygulanmış, sitotoksik etki MTT yöntemi ile mikroplaka okuyucuda tespit edilmiştir. $A\beta_{1-42}$ ile oluşturulan toksisite AH için geçerli *in vitro* nöral dejenerasyon modellerinden biridir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin total antioksidan seviyesi (TAS), süperoksit dismutaz (SOD), katalaz (CAT) ve glutatyon peroksidaz (GPx) enzim aktiviteleri ve total oksidan seviyesi (TOS) ELISA ile belirlenmiştir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin ROS üzerine etkisi DFCDA ile flow sitometrede belirlenmiştir. Çalışmada kullandığımız bütün suşların yüksek miktarda EPS ürettiği belirlenmiştir. Tüm suşların EPS'lerinin çok düşük oranda sitotoksik etki gösterdiği tespit edilmiştir. $A\beta_{1-42}$'nin TAS ve SOD, CAT ve GPx enzim aktivitelerini kontrol grubuna göre azalttığı, suşlardan elde edilen EPS'lerin artan konsantrasyonlarında ise TAS ve SOD, CAT ve GPx enzim aktivitelerini arttırdığı tespit edilmiştir. $A\beta_{1-42}$'nin TOS ve ROS seviyesini kontrol grubuna göre arttırdığı, suşlardan elde edilen EPS'lerin artan konsantrasyonlarında ise TOS ve ROS seviyesini azalttığı tespit edilmiştir. Elde edilen sonuçlar, probiyotik gibi güvenli ve doğal kaynaklardan elde edilen EPS'lerin, AH'a karşı uzun süreli tedavi süreçlerinde, zararlı yan etkileri olmaksızın sentetik anti-oksidan ajanlarına iyi bir alternatif olabileceğini göstermektedir.

Anahtar Kelimeler: Alzheimer, Amiloid beta 1-42, ekzopolisakkarit, oksidatif stres, probiyotik, SH-SY5Y hücreleri.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Tip III osteogenezis imperfektalı hastada dental yaklaşım: Olgu sunumu

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Özet

Osteogenezis imperfekta (Oİ) kemik, diş, sklera ve ligamentlerin ana proteini olan tip1 kollajenin yapımından sorumlu genin mutasyonu sonucu ortaya çıkan genetik geçişli bir bağ dokusu hastalığıdır. Toplamda 7 tipi vardır. Tüm Oİ tiplerinin ortak klinik özelliği artmış kemik frajilitesi olup tip III Oİ, ağır formlardan biridir. Doğumdan itibaren ilerleyici iskelet deformiteleri ve tekrarlayan kırıklar ile karakterizedir. Oİ'nın tedavisinde osteoklastik aktiviteyi engelleyen bisfosfanatlar oral veya intravenöz olarak kullanılmaktadır.

Yürüme fonksiyonunu yerine getiremeyen 16 yaşında, 55 kg ağırlığında ve 1.32 cm boyundaki Tip III Oİ'lı hasta, ebeveyni tarafından tekerlekli sandalye ile kliniğimize getirilmiştir. Hasta doğumundan itibaren 2-3 ayda bir intravenöz bisfosfanat tedavisi almaktadır. Ekstraoral muayenesinde ekstremitelerindeki kısalık ve şekil bozuklukları, iskeletsel sınıf III profil, ve normal sklera gözlenmiştir. Radyografik incelemede 25 ve 45 numaralı dişlerin herediter olarak eksik olduğu, köklerin uzun ve dilasere oluşu ile 37 ve 47 numaralı dişlerin köklerini çepeçevre saran bir radyolusensi dikkat çekmiştir. Mandibular 2. molar dişlerin etrafındaki radyolusensi bilgisayarlı tomografi ile kesitsel olarak incelenmiş ve periodontal ligament aralığında genişleme dışında interproksimaldeki kemik trabeküllerinde kayıp olduğu belirlenmiştir. Bu durumun dilasere kök formasyonu olan dişlerin aynı zamanda sınıf III malokluzyona bağlı olarak okluzal travmasının olması ve bisfosfanat kullanımı ile ilgili olabileceği kanısına varılmıştır. Bununla birlikte ilgili dişlerin 1/3 koronal kısımlarında alveol kemiği ve buna bağlı olarak periodontal ataçman devamlılığı bulunduğundan cep formasyonu saptanmamıştır. Çekilen persiste süt kanin dişlerin histopatolojik değerlendirmesinde dentinogenezis imperfekta saptanmamıştır.

Gingivitisi olan hastaya başlangıç periodontal tedavi kapsamında diştaşı temizliği yapılarak oral hijyen eğitimi verilmiştir. Plak tutulumuna sebebiyet veren çürük kaviteleri için restoratif diş tedavisi bölümüyle temasa geçilerek hastanın oral rehabilitasyonunun biran önce temini sağlanmıştır.

Oİ'lı hastalarda dental yaklaşım son derece risklidir. Hastalara, kırılgan kemik yapılarından dolayı invaziv dental işlemlerin önemli komplikasyonları olabileceği açıklanarak ağız hijyeninin önemi vurgulanmalı, mümkün olduğunca konservatif tedavi yöntemleri uygulanmalıdır.

Anahtar Kelimeler: Osteogenezis imperfekta, dentinogenezis imperfekta, Tip I kollajen gen mutasyonu, dental tedavi planlaması

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Production and cytotoxic activity of L-asparaginase produced from locally isolated *Bacillus spp.*

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Abstract

A total of 84 soil samples were collected from different locations in Baghdad. only six of them were L-asparaginase producers with variable degrees. Among them, the isolate *Bacillus sp*. B5 was the most efficient in L-asparaginase production as the specific activity of enzyme in crude filtrate was 2.92 U/mg. Therefore, *Bacillus sp.*B5 was chosen to determine the optimum conditions for L-asparaginase production..L-asparaginase purification steps : first by ammonium sulfate precipitation with 80% saturation, second by ion exchange chromatography using DEAE-Cellulose and finally by gel filtration chromatography using Sephadex G-200. Crude and purified L-asparaginase were tested for Cytotoxicity activity using MTT assay against CCL-119 cancer cell line. Results showed that crude L-asparaginase was found to inhibit the growth of cell line at different enzyme concentrations, and the results showed that the cancer cell viability was decreased with the increase of crude enzyme concentration. Maximum decrease of cell viability was 38.9% when they were incubated with crude L-asparaginase at a concentration of 800 µg/ml. Results also showed that the inhibition rate of cancer cell line was increased with the increase of purified L-asparaginase concentration, and the maximum decrease of cell viability was 27.3 % after incubation with purified enzyme at a concentration of 800 µg/ml

Keywords: L-asparaginase , cytotoxicity , *Bacillus*

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➢ **POSTER PRESENTATION**

Melaminin DNA ile etkileşiminin incelenmesi*

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*Bu çalışma, birinci yazarın ikinci yazarın danışmanlığında Kırıkkale Üniversitesi Sağlık Bilimleri Enstitüsü'nde hazırladığı yüksek lisans tezinin bir kısmından üretilmiştir.

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Özet

Melamin, azot içeriği yüksek bir endüstriyel madde olup, daha fazla kâr elde etmek isteyen bazı üretici firmalarca yasa dışı olarak protein içeriğinin arttırılması amacıyla, süt, süt ürünleri, bebek ve evcil hayvan mamaları ve çiftlik hayvanı yemlerine eklenebilmektedir. Dünya Sağlık Örgütü (WHO) verilerine göre, organizmaya gıda yolu ile alınan melamin, idrar kesesinde taş oluşumu, inflamasyon ve hiperplazi başta olmak üzere tubuler blokaj ve böbrek yetmezliği gibi nefrolojik bozukluklara sebebiyet vermektedir. Uluslararası Kanser Araştırma Ajansı (IARC), deney hayvanlarında melamin kanserojenitesi için yeterli kanıt bulunduğunu bildirmiştir. Bu çalışmanın amacı melaminin, genomik DNA molekülleri üzerine etkisinin incelenmesidir. Bu kapsamda beş farklı konsantrasyonda (0.62, 1.25, 2.5, 5 ve 10 mM) hazırlanan melaminin, sığır timus dokusundan izole edilen genomik DNA (2800 ng/µl) örnekleri ile etkileşimi UV absorbans spektrofotometri yöntemi ile 230-320 nm dalga boyları arasında değerlendirildi. Melamin konsantrasyonundaki artışa paralel olarak dalga piklerinin yükseldiği gözlendi. Hiperkromik etki olarak adlandırılan bu durumun, genomik DNA ile melamin molekülleri arasında oluşan bir bağlanmadan ortaya çıktığı ve etkileşimin groove bağlama yoluyla oluşabileceği sonucuna varıldı.

Anahtar Kelimeler: DNA, Melamin, UV absorbans spektrofotometri, Groove bağlanma

Teşekkür: Araştırmamız Konya Gıda ve Tarım Üniversitesi KİT-ARGEM Laboratuvarı'nda gerçekleştirilmiştir. Yazarlar olarak çalışmanın laboratuvar aşamalarında önemli katkılar sunan Sayın Mert Sudağıdan ve Sayın Prof. Dr. Veli Cengiz Özalp'a destekleri için teşekkür ederiz.

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➢ **POSTER PRESENTATION**

The Mosses of Ankara University Beşevler 10. Yıl Campus Area (Ankara-Turkey)

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Abstract

Ankara University Beşevler 10. Yıl Campus (formerly known as Tandoğan Campus) is situated in Beşevler neighborhood of Çankaya district, at an elevation between 850 and 870 meters above the sea level. The area covers a total surface area of approximately 20 hectares and contains more than 350 plant species, of which roughly 150 are in tree and shrub forms. The present study is based on moss samples collected from several urban habitats in Ankara University Beşevler 10. Yıl Campus in the year 2019. As a result of the study, 28 species (*Amblystegium serpens*, *Barbula unguiculata*, *Brachytheciastrum velutinum*, *B. glareosum*, *B. mildeanum*, *B. rutabulum*, *Bryum argenteum*, *Funaria hygrometrica*, *Gemmabryum caespiticium*, *Grimmia pulvinata*, *Gymnostomum aeruginosum*, *Orthotrichum anomalum*, *O. diaphanum*, *O. pallens*, *O. patens*, *O. stramineum*, *O. tenellum*, *Oxyrrhynchium hians*, *Pseudoamblystegium subtile*, *Pseudocrossidium hornschuchianum*, *Rosulabryum capillare*, *Schistidium apocarpum*, *Syntrichia princeps*, *S. ruralis*, *S. virescens*, *Tortula inermis*, *T. muralis*, *T. subulata*) within 7 families (*Amblystegiaceae*, *Brachytheciaceae*, *Bryaceae*, *Grimmiaceae*, *Funariaceae*, *Orthotrichaceae*, *Pottiaceae*) were determined. Distributions and ecological characteristics of the species were given.

Keywords: Biodiversity, flora, mosses, Ankara

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➢ **POSTER PRESENTATION**

Lichenized Fungi determined in Ankara University Beşevler 10. Yıl Campus Area (Ankara-Turkey)

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Abstract

Ankara University Beşevler 10. Yıl Campus (formerly known as Tandoğan Campus) is located in Beşevler locality of Çankaya district (Ankara). The campus, located at an elevation between 850 and 870 meters above the sea level, consist of a total surface area of roughly 20 hectares. The current study was conducted on lichenized fungi samples collected in Ankara University Beşevler 10. Yıl Campus Area. As a result, 28 species belonging to 7 families were listed. The distribution of 28 species in to the families are as follows; *Teloschistaceae* 13, *Lecanoraceae* 5, *Physciaceae* 4, *Acarosporaceae* 3, *Candelariaceae*, *Parmeliaceae* and *Stereocaulaceae* 1. Short notes, distributions and ecological features of the species were provided and discussed briefly.

Keywords: Mycobiota, lichenized fungi, Ankara

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➢ **POSTER PRESENTATION**

Tahıllı ve Tahılsız Ticari Kuru Köpek Mamalarının *In vitro* Organik Madde Sindirimi ve Bazı Fermentasyon Özelliklerinin Karşılaştırılması

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Özet

Bu çalışmada farklı içerikli ticari tahıllı ve tahılsız kuru köpek mamalarının *in vitro* yöntemle sindirilebilirlik ve diğer parametrelerin belirlenmesi ve karşılaştırılması amaçlanmıştır. 14 adet tahıllı (7 adet tavuklu-tahıllı, 7 adet kuzu etli-tahıllı) ve 7 adet tahılsız mama olmak üzere 21 farklı ticari köpek maması taze köpek dışkısı kullanılarak *in vitro* ortamda değerlendirilmiştir.

Çalışmada tahıllı mamaların *in vitro* organik madde sindirilebilirliği daha yüksek bulunmuştur ($p<0,05$). Gruplar arası pH değişimleri önemsizdir ($p>0,05$). Toplam *in vitro* gaz üretimleri tahıllı mamalarda daha yüksek bulunmuştur ($p<0,05$). Amonyak üretimi açısından gruplar arası farklılıklar önemsizdir ($p>0,05$).

Köpek mamalarının kalitelerinin değerlendirilmesinde sindirilebilirlik konusu en önemli parametrelerden biridir. Bu çalışma genel olarak değerlendirildiğinde tahılsız mamaların tahıllı mamalardan daha çok sindirildiği ve köpekler için daha faydalı olduğu söylenemez. Çalışma sonucundan tahıllı mamaların organik madde sindirilebilirliği daha yüksektir. Köpek mamalarına katılan tahıl harici nişasta kaynakları ile ilgili bazı çalışmalar olmasına rağmen ticari tahılsız köpek mamalarının değerlendirilebilmesi için daha çok çalışmaya ihtiyaç vardır.

Anahtar Kelimeler: Köpek, *in vitro*, sindirilebilirlik, tahılsız.

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➢ **POSTER PRESENTATION**

The effects of Thymoquinone on human health

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Abstract

Nigella sativa is a plant considered to be a natural remedy and has been used for centuries as a health supplement and in the treatment of diseases. Thymoquinone (TQ), a volatile monoterpene quinone with dark yellow crystals, is the most important active component in *Nigella sativa* plant essential oil. It has a 2-isopropyl-5-methyl-1,4-benzoquinone structure ($C_{10}H_{12}O_2$) with a molecular weight of 164.201 g/mol. It was even identified in the grave of King Tutankhamen, and it was claimed that *Nigella sativa* was used by Cleopatra as a cosmetic and by Hippocrates to treat liver diseases. The increasing interest in alternative medicine led to an increased herbal medicine use in the treatment of various diseases. It was reported that *Nigella* seeds exhibited anti-carcinogen, antitumor, antibacterial, anti-inflammatory, antioxidant and immune system enhancing properties. Previous studies demonstrated that *Nigella sativa* consumption could help reduce body mass index (BMI). A systematic review published in the Journal of Diabetes and Metabolic Disorders in 2013 reported that *Nigella sativa* oil could be effective against obesity. It was also reported to have benefits in high cholesterol, psoriasis and eczema, allergies, Alzheimer's disease and digestive problems. TQ could moisturize hair, soften the skin and could be used as a moisturizer; however, there is no scientific evidence to confirm these benefits. Recent studies demonstrated that thymoquinone in *Nigella sativa* seed oil could affect programmed cell death or apoptosis in several types of cancer cells. These include brain cancer, leukemia and breast cancer cells. Individuals could take *Nigella sativa* oil in capsule form or apply it topically for skin benefits.

Keywords: *Nigella sativa*, Thymoquinone, human, health.

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➢ **POSTER PRESENTATION**

Determination of fatty acid profile of some extra virgin olive oils by gas chromatography

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Abstract

Olive oil, differently from most vegetable oils, is a natural product obtained from olive fruits. It is a natural juice and can be consumed without further treatments so it has been produced by mechanical extraction without chemicals and any treatment (Boskou, 2006). Environmental and seasonal effects, as well as the olive oil processing methods (Di Vaio et al., 2013), has been reported to affect olive oil composition and to create different categories of olive oil that has been established by the international organizations. Among the different types of olive oil, extra virgin olive oil which is the most valuable olive oil category. In this study, an automated gas chromatography system for determination of fatty acid profile of some extra virgin olive oils was used. It was seen that olive oil species analysed have high amounts of oleic acid mostly. The biggest oleic acid ratio was 72.25% in extra virgin olive oils analysed. With this study, the olive oils to be obtained from different regions of our country have been examined by chromatographic method and their results have been compared. With the results obtained, it is aimed to draw attention to the changes in the olive oil profile of our country and make important contributions to the literature.

Keywords: Extra virgin olive oil, fatty acid profile, gas chromatography.

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➢ **POSTER PRESENTATION**

The response of *in vitro* pollen germination and tube growth of lemon (*Citrus limon*) to putrescine

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Abstract

Polyamines are small polycations with low molecular weights and are recognized and used as plant growth regulators. In plants, the most abundant polyamine is putrescine. The purpose of this study is analyzing the response of in vitro pollen germination and tube growth of lemon (*Citrus limon*) to putrescine. Pollen grains were germinated in pollen germination medium with 10% sucrose, at room temperature for 6 hours. The medium 10% sucrose was supplemented by 0.05 mM, 0.25 mM, 0.5 mM and 2.5 mM putrescine. The medium without putrescine was used for control group. According to results, putrescine had no significant effect on pollen germination of lemon. Besides, it was determined that putrescine has a dose-dependent effect on pollen tube length of lemon. The tube length was not affected by 0.05 mM putrescine treatment. However, tube length was significantly increased by 21,86% after 0.25 mM and significantly decreased by 8.4% after 0.5 mM and decreased by 50.54% after 2.5 mM putrescine treatment. Also, remarkable abnormalities were detected at tube apex after 0.5 mM and 2.5 mM putrescine treatment. In conclusion, 0.25 mM putrescine treatment can be used as a tube length enhancer during the artificial pollination process. Results may provide useful information for enhancing the pollen tube length by species-specific concentrations of polyamines.

Keywords: *Citrus limon*, Pollen germination, Pollen tube, Polyamines, Putrescine

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➢ **POSTER PRESENTATION**

Kitosan-vermikülit kompoziti kullanılarak sulu çözeltiden sunset yellow gıda boyasının etkin giderimi

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Özet
Endüstrileşmenin artışı ile birlikte çevre ve atık sulara karışan organik kirleticiler arasında yapay boyalar insan sağlığı ve çevre açısından tehlike oluşturmaktadır. Sulu ortamlarda çok az miktarlarda dahi bulunduğunda görünebilmesi ve ışığın geçirimini azaltmasıyla fotosentetik olayları azaltmaktadır. Ayrıca, çoğu anyonik ve katyonik boyalar hücre membranına bağlanarak ciddi sağlık problemlerine yol açmaktadır. Boyalar arasında özellikle gıda boyaları çok kullanım alanı bulunan ve yeterince atık arıtımı işleminden geçirilmeden çevreye atılmaları durumunda hem aquatik yaşam için hem de içme sularına karışmaları sonucu insan sağlığı için ciddi tehdit oluşturmaktadır. Bu çalışmada, sulu çözeltiden Sunset Yellow FCF (SY) gıda boyasının etkin giderimi için düşük maliyetli, doğal etkin bir adsorban, kitosan (Ch) – vermikülit (V) kompozit materyali kullanılmıştır. Ch-V kompoziti FT-IR, SEM, XRD ve PZC analizleri ile karakterize edilmiştir. Adsopsiyon çalışmaları; pH, başlangıç boya derişimi, temas süresi, sıcaklık ve geri kazanım açısından değerlendirilmiştir. Elde edilen deneysel veriler Langmuir, Freundlich ve Dubinin Radushkevich izoterm modellerine uygulanmış, ilgili parametreler türetilmiştir. Maksimum adsorpsiyon kapasitesi 25 ^{o}C'de 0.387 mol kg^{-1}olarak bulunmuştur. Adsorpsiyon kinetiğinin yalancı ikinci derece modele uyum sağladığı görülmüştür. Adsorpsiyon termodinamiği, Ch-V'e SY adsorpsiyonunun mümkün, kendiliğinden ve endotermik olduğunu göstermiştir. Ch-V kompozit adsorbanı atık sulardan sunset yellow gıda boyasının gideriminde alternatif bir adsorban olarak kullanılabilir.
Keywords: Kitosan, vermikülit, adsorpsiyon, gıda boyası, sunset yellow

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➢ **POSTER PRESENTATION**

Kuşburnu

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Özet

Bu derlemenin amacı kuşburnu meyvesi hakkında bilgi vermektir. Ülkemizde de yetişen kuşburnu Rosaceae familyasına ait çalı formunda bir bitkidir. Kuşburnu meyvesi bitkisel çay, marmelat ve nektar üretiminde kullanılmaktadır. Kuşburnu C vitaminince zengin bir meyvedir. Kuşburnu antioksidan özellik gösteren fenolik bileşiklerce de zengindir. Kuersetin, kateşin, kamferol ve hidroksisinamik asit içermektedir. Karetonoidler (β-karoten, likopen ve ksantofil) de içermektedir. Mineral kaynağı olarak da oldukça önemli olan kuşburnu, özellikle potasyum ve fosfor içeriği bakımından zengindir. Kuşburnu antioksidan maddeler içermesinden dolayı sağlık açısından önemlidir. Çok eski çağlardan beri diş eti kanamaları, böbrek, mesane ve safra taşları, şeker hastalığı ve ishal gibi durumlarda kullanılmaktadır. Anti-inflamatuar ve anti-bakteriyel özelliğinden dolayı soğuk algınlığına karşı kullanılmaktadır. Kuşburnu meyvesi çay ve diğer ürünlere işlenerek her mevsim kolaylıkla tüketilebilmektedir. Sağlık üzerine olumlu etkileri bulunan kuşburnunun tüketimi teşvik edilmelidir.

Anahtar kelimeler: Kuşburnu, antioksidan, sağlık

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➢ **POSTER PRESENTATION**

Association between single nucleotide polymorphisms of vitamin d receptor gene and diabetes with progression of benign prostatic hyperplasia

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Abstract
Benign overgrowth of prostatic tissue represents the most frequent urological diseases in aging men. Vitamin D plays an important role in the regulation of the growth and differentiation of diverse cell types through the cell's specific receptor. The interaction of vitamin-D with VDR is thought to affect the development of BPH. This study was designed to reveal insight into the impacts of the correlation between vitamin D receptor gene polymorphism and diabetes with the expansion of BPH in Iraqi men. Four SNPs in the VDR gene were genotyped for 174 BPH patients and 171 healthy controls. Results reported that the danger of BPH increased with age. Biochemical tests gave a high serum level of PSA, RBS, and HbA1c with mean level (11.14 mg/dl, 247.2 mg/dl, and 8.6%) respectively in patients when compared with the healthy group. Patients expressed a low mean serum level of Vitamin D (7.67ng/ml) while the mean serum level of healthy individuals (34.97ng/ml). Hyperglycemia and vitamin D deficiency are strongly associated parameters that led to an increase of the prostate volume and excess a risk of the BPH progression. Diabetes and some SNPs in the VDR gene such as rs3782905 (Intron4, C/G),rs1544410 (Intron 10, G/A) rs7975232 (Intron 10, A/C) and rs731236 (Exon 11, T/C) were analyzed, the SNPs in non-coding region reflected the significant association with decreasing vitamin D level while rs731236 located in coding region provides non-remarkable effect. Diabetes and SNPs in the non-coding region considered potential markers to maximize the risk of BPH in the Iraqi population. Thus, they may be used in the future as a therapeutic goal in patients with BPH.
Keywords: Vitamin D Receptor, Polymorphism, Diabetes, BPH.

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➢ **POSTER PRESENTATION**

Synergistic interaction of *Lavandula maroccana* essential oil with antifungal drugs against some pathogenic *Candida* strains

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Abstract

The aims of the present study were to evaluate the chemical composition and in vitro anticandidal potential of essential oil (EO) obtained from Moroccan endemic *Lavandula maroccana* (Murb.) singly or in combination with conventional antifungals (fluconazol, and amphotericin B) against four clinically isolated pathogenic *Candida* notably, *Candida albicans, Candida glabrata, Candida krusei* and *Candida parapsilosis.* The gas chromatography/mass spectrometry (GC/MS) analysis of EO led to the identification of 20 components, representing 98.8% of the total oil. The main constituent was the phenolic monoterpene carvacrol (78.2%), followed by 2-Methoxy-4-vinylphenol (2.5%), and Spathulenol (2.2%). The results of the anticandidal assays demonstrated that *L. maroccana* EO displayed moderate activity, with minimal inhibitory concentration (MIC) values of 4.604 mg/mL for all yeasts. However, its combination with conventional antifungals elicited very promising synergistic effects against all tested strains. In fact, at sub-inhibitory concentration *L. maroccana* EO contributed to the decrease of fluconazol and amphotericin B MICs by 64- to 128-fold and by 2- to 4-fold, respectively. From these results, it can be concluded that *L. maroccana* EO can be considered as a promising source of natural antifungals, and constitute a potential candidate to be used in combination antifungal therapy in order to combat some human infectious diseases.

Keywords: *Lavandula maroccana* Murb. Essential oil, anticandidal activity, synergistic potential.

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➢ **POSTER PRESENTATION**

Malatya kayısı çekirdeği kahvesinin antioksidan kapasitesi

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Özet

Kahve, dünyada en çok tüketilen içeceklerden biridir. Ülkemizde de çaydan sonra en çok tüketilen içecekler arasında ikinci sırada yer almaktadır. Dünyada tüketilen çoğu kahve içeceği *Coffea arabica* (Arabica) ve *Coffea canephora* (Robusta) türlerinden üretilmektedir. Kahve çekirdeklerinin pişirme ve demleme teknikleri dünya ülkelerinde farklılık göstermektedir. Ülkemizde daha çok Türk kahvesi, hazır kahve ve filtre kahve olmak üzere üç ayrı hazırlama şekliyle tüketilmektedir. Türkler tarafından bulunan cezvede pişirerek hazırlama yöntemi ile öğütülmüş kahve çekirdeklerinden hazırlanan kahve "Türk Kahvesi" adını almıştır. Ülkemizde son yıllarda geleneksel Türk kahvesi pişirme yöntemi ile menengiç, dibek vb. kahveler ticari olarak tüketilir hale gelmiştir. Kayısı (*Prunus armeniaca*) çoğunlukla Akdeniz ülkelerinde yetiştirilen önemli bir meyve ağacıdır. Tıbbi ve ekonomik önemi ile bilinir. Malatya kayısısı ülkemiz ekonomisinin önemli ihracat ürünlerinden biridir. Kayısı çekirdeği aktif karbon üretiminde, içi ise kuruyemiş ve kozmetik sanayiinde kullanılmaktadır. Kayısı çekirdek içi doymamış yağ asitleri bakımından oldukça zengin olmakla birlikte, A, B, D, E ve K vitaminlerini içermektedir. Bu çalışmada, öğütülmüş kayısı çekirdeği kullanılarak Türk kahvesi pişirme yöntemi ile hazırlanan kahvelerin toplam fenolik madde içeriği ve antioksidan kapasitesi incelenmiştir. Endüstriyel içecek olarak değerlendirilmesi açısından geliştirilen ürünlerin duyusal özellikleri önemlidir; dolayısıyla çalışmada ön denemelerle özellikle renk, kıvam, lezzet ve aroma bakımından genel kabul edilebilirliği yüksek formülasyonlar seçilerek analizler bu ürünler üzerinde gerçekleştirilmiştir. Kavrularak değirmende öğütülen iki farklı kayısı çekirdek içleri kullanılarak Türk kahvesi pişirme yöntemi ile elektrikli cezvede hazırlanan kahveler filtrasyon işlemleri sonrasında antioksidan kapasitelerini belirlemek için toplam fenolik madde (Folin–Ciocalteu metodu) ve DPPH (2,2-difenil-1-pikrilhidrazil) radikali temizleme aktivite analizleri gerçekleştirilmiştir. Kayısı çekirdeği kahveleri antioksidan kapasite bakımından kontrol numunesiyle benzer sonuçlar verirken, duyusal analizde özellikle koku, lezzet ve aroma bakımından genel kabul edilebilirlik değerleri kontrol numunesinden yüksek çıkmıştır.

Anahtar Kelimeler: Türk kahvesi, kayısı çekirdeği, toplam fenolik madde, antioksidan kapasite.

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➢ **POSTER PRESENTATION**

A QM study for elucidation of interactions between BCR-ABL kinase protein and marketed drug molecules

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Abstract

Cancer is a serious disorder that is the second cause of death in the world.[1] Chemotherapy is an important way to treat cancer. The main purpose during chemotherapy is to prevent the growth and spread of cancer cells. One of the most effective methods for this is inhibition of kinase proteins.[2] Kinases are a large family of proteins that play an important role in the vital activity of cells and catalyze phosphate transfer.[3] Chronic myeloid leukemia (CML) is clonal myeloproliferative disease characterized by excessive proliferation of cells of the myeloid lineage.[4] The BCR-ABL protein is found more than normal in CML patients and is therefore considered to be a suitable targeted structure for the treatment of this disease. Several drugs have recently been developed for the clinical treatment of CML such as imatinib, nilotinib, dasatinib, bosutinib. These drug molecules are used to inhibit BCR-ABL kinase protein.

Computational methods have recently been used frequently in the field of drug design. Protein-ligand interactions can be estimated by using various computational tools as docking, MD simulations and QM calculations.

In this study, marketed drugs, for the inhibition of BCR-ABL kinase, imatinib, nilotinib, dasatinib, bosutinib and bafetinib were used to elucidate the protein-ligand interactions. For this purpose these ligands were docked into the binding site of kinase protein by using AutoDock Vina program. Critical aminoacids which interacted with these drug molecules were determined and then aminoacid-ligand binary complexes have been extracted from the docking poses. Interaction energies between the ligands and aminoacids were calculated by using these aminoacid-ligand binary complexes with QM methods. The calculated interaction energies were used to predict which amino acids were able to interact more strongly with the studied ligands. The results obtained will help to find drug candidate molecules to be developed for inhibition of the enzyme in question.

Keywords: BCR-ABL, tyrosine kinase inhibitor, molecular docking, quantum mechanics.

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➢ **POSTER PRESENTATION**

Monitoring the pesticide residues at commercially available propolis extracts: Depreciation of potential superfood due to misapplication of agrochemicals and systemic acaricides

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Abstract

Propolis is a material produced by Apis mellifera to act as an antibiotic as well as a construction material for their hives **[1].** Pesticide residues are toxic compounds that can be found in propolis and often originate from contamination produced by agricultural practices and the misapplication of pesticides in hives. It is appropriate to establish safe maximum residue limits at propolis products to prevent depreciation of this potential super food. Although the presence of residues in raw propolis has been determined by several authors, contamination in propolis extract has not been investigated **[2].** The aim of the present study was to develop a sensitive method and analyze the presence of pesticide residues in commercially available propolis extracts.

For this research, throat sprays (4), tinctures (9), pastils (1), balsams (2) and water soluble (13) liquid form of processed propolis products were collected. 57 different pesticides molecules were analyzed using UPLC-MS/MS (39) and GC-MS (18). In this study, after appopriate dilution, all samples cleaned up using novel Boronate Affinity SPE resins. Among the tested sorbents (propyl-NH_2, PSA, C18 and Phenyl Boronate), phenyl boronate packed resin offered the lowest amounts of interference.

Mean recoveries were between %79 and 104% and repeatabilities gave below 9% RSD. Amitraz metabolites, coumaphos, tau-fluvalinate pesticides were detected in 21 samples. The amounts of coumaphos and tau-fluvalinate highly exceeds the given MRLs for honey in food according to the Codex Alimentarius. It is noteworthy that 72% of the samples contained pesticide and it should not go unnoticed that this residues have toxic effects on human health. A simple preparation procedure was developed on the basis of novel SPE extraction and highly sensitive mass spectroscopic methods for determination of pesticide residues has been validated. With these results, we could emphasize the importance of controlling these commercial products.

Keywords: Propolis, Pesticides, Residue, LC-MS/MS, GC-MS.

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➢ **POSTER PRESENTATION**

Kalsiyum oksalat kristalizasyonuna deneysel parametrelerin etkisi

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Özet

Bir çok endüstriyel proseste (kağıt, gıda, içecek vb.) kalsiyum oksalatın çökmesine rastlanmaktadır. Bu çökelme nedeniyle ürünlerin saflığının düşmesi, borularının tıkanması ve ısı aktarım etkinliklerinin düşmesi gibi sorunlar ortaya çıkmaktadır. Ayrıca böbrek taşının ana bileşeni olması ve bitkilerde fazlasıyla oluşan bir biyomineral olması nedeniyle hem endüstriyel ve hem de biyomineralizasyon çalışmalarında kalsiyum oksalat kristalizasyonu ilgi çeken araştırma konularından olmuştur.

Üç farklı hidrat yapısına sahip olan kalsiyum oksalat, kristalizasyon prosesinde çekirdeklenme ve büyüme basamaklarını incelemek için çok önemli bir yapıdır. En kararlı fazı olan kalsiyum oksalat monohidrat (COM) fazı böbrek taşının ana maddesini oluşturur. Bu nedenle ürolojistler tarafından da çok geniş bir çalışma alanı bulmuştur.

İnorganik maddelerin istenilen özelliklerde sentezinin gerçekleştirilmesinde, kristal boyut ve boyut dağılımının kontrolü kristalizasyon proseslerinde en önemli parametrelerdendir. Çözelti pH'ı, yaşlanma süresi ve katkı maddeleri kullanılarak mineral oluşumunun çekirdeklenme ve kristal büyüme aşamaları kontrol edilebilir ve istenilen boyut dağılımına sahip kristaller elde edilebilir.

Bu çalışmada, $CaC_2O_4.H_2O$ kristalizasyonuna yaşlandırma süresi, reaktan oranı ve polimerik katkı maddesinin etkisi incelenmiştir. Polimerik katkı maddesi olarak polietilen glikol 400 (PEG 400) polimeri kullanılmıştır. Elde edilen kristallerin X-ışını analizleri gerçekleştirilmiştir. X-ışını analizleri sonucuna göre, yaşlandırma süresi ve polimerik katkı maddesinin oluşan kristallerin morfolojisini değiştirmediği ancak kristal yüzeylerde boyutları değiştirdiği görülmüştür.

Anahtar Kelimeler: Kristalizayon, kalsiyum oksalat, polimerik katkı maddesi.

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➢ **POSTER PRESENTATION**

Aerojeller ve gıda teknolojisinde kullanımları

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Özet

Bilimsel gelişmelerle her gün yeni özelliklerde materyaller keşfedilmekte ve yeni teknolojik alanlarda kullanılmaktadır. İlk kez Steven Kistler tarafından sentezlenen, üstün özellikleri sebebiyle birçok kullanım alanına sahip aerojeller bunlardan biridir. Aerojel, jeli meydana getiren sıvı bileşenin hava ile yer değiştirilmesiyle meydana gelen, dağınık fazın bir gaz olduğu mikro gözenekli bir yapıdır. Düşük yoğunluk, yüksek yüzey alanı ve düşük termal iletkenliğe sahip ultra hafif bir materyal olan aerojellerin silika esaslı, organik-inorganik silika esaslı, organik ve biyo esaslı gibi pek çok çeşidi bulunmaktadır. Genel olarak hidrojellerin havayla, dondurarak ve süper kritik kurutma gibi tekniklerden uygun olanının kullanılmasıyla üretilen aerojellerin hazırlanmasında en kritik faktör, üç boyutlu ağ yapısının oluşturulması ve kalıcılığının sağlanmasıdır. Söz konusu ağ, kontrollü reaksiyon koşulları altında tamamen inorganik, organik veya organik-inorganik kökenli malzemelerden jel oluşturularak elde edilebilmektedir. Kendilerine özgü olağanüstü fiziksel, kimyasal ve mekanik özelliklere sahip aerojellerin farmasötik, yalıtım, tekstil, uzay teknolojisi ve tıp gibi alanlarda uygulamaları bulunmaktadır. Modern gıda bilimi alanında selüloz, pektin, β-glukan, kitosan, nişasta da dâhil olmak üzere çeşitli gıda sınıfı polisakkaritler; peynir altı suyu, ipek fibroini ve yumurta akı proteinleriyle aerojeller geliştirilmiştir. Mikroyapısı, sorbsiyon kapasitesi, reaktif taşıyıcılık, mekanik ve termal özellikleri göz önünde bulundurulduğunda son yıllarda özellikle polisakkarit esaslı aerojellerin gıda kaplama materyali olarak kullanılması üzerine çalışılmıştır. Ayrıca çeşitli biyo-aktif (anti-oksidan, anti-mikrobiyal, anti-hipertansif vb.) moleküllerin aerojel halinde hazırlanıp, gıda maddelerine katılması mümkündür. Yine aerojeller köpük gıda alanında uygulama bulabilmektedirler. Bu sebeple bu eşsiz materyallerin gıda teknolojisi alanında uygulamalarının artacağı değerlendirilmektedir.

Anahtar Kelimeler: Aerojel, polisakkarit, biyo-aktif madde, taşıyıcı, ambalaj, gıda

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➢ **POSTER PRESENTATION**

Oleogels of lauric acid and lauric acid-amphiphile mixtures: Preparation and rheological characterization

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Abstract

The aim of this study was to prepare stable oleogels of lauric acid (LA-O), lauric acid-span 60 (LA/SP60-O), and lauric acid-pluronic F68 (LA/F68-O). The ratio of oil: lauric acid: amphiphile were 80:20 for LA-O, and 80:15:5 for the LA/SP60 and LA/F88-O. All samples had oil binding capacities well above 99%, with 17.33, 20.67, and 110.76 minutes of gelation times, respectively. Crystallization and melting peak temperatures of the oleogels were 12.52, 13.60, 6.27 ºC, and 24.01, 25.14, 24.56 ºC, for the LA-O, LA/SP60-O and LA/F68-O. The X-ray diffraction patterns of the oleogels indicated the presence of both □′and □□type polymorphs. Polarized light microscopy images showed small aggregate crystal morphologies. Rheological sweep tests indicated the presence of gelled stucture within 0.1-100 rad/s frequencies applied. All gels showed thixotropic behavior, and recovered well after the load removed. Further temperature ramp test proved that the gel structures were stable until around 32, 35 and 30 ºC, for the LA-O, LA/SP60-O and LA/F68-O, respectively. In conclusion, with suitable amphiphiles, lauric acid oleogels with much lower addition levels could be prepared, but a 15% laurate addition level is still high enough to not be proper for edible applications.

Keywords: Lauric acid, amphiphile, oleogel, rheology, stability

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➢ **POSTER PRESENTATION**

Magic fruit: Rowanberry

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Abstract

Rowanberry is a fruit of rowan tree that is known as a mountain ash tree. Rowan tree (*Sorbus* L.) consists of 100-250 species of different trees and shrubs. It can grow on rocks and crevices, and mountains because the rowan tree does not have a specific climate requirement. It can be also found in cities, parks and beside roads. The inflorescences, fruits, leaves and bark of different rowan trees have traditionally been utilized as raw materials for the treatment of bronchitis, diabetes, gastritis, inflammation, and diarrhea.

Rowanberry is a bright orange-red, round-shaped and more or less bitter taste fruit. A rowan tree can produce up to 20 kg of rowanberries per year. Rowanberry (*Sorbus aucuparia* L.) is good source of ascorbic acid, carotenoid, tocopherol, polyphenols and various minerals and is therefore used in the production of herbal products and food supplements. Consumption of rowanberry (*Sorbus domestica* L.) also helps lower blood glucose levels in diabetics. It is consumed as puree, fruit juice and/or jelly and jam to benefit from these nutritional content and health effects.

The health effects and nutritional contents of rowanberry should be investigated in detail and used as raw materials in the food industry for use in the production of innovative and new foods.

Keywords: Rowanberry, rowan tree, *Sorbus* L., *Sorbus domestica* L., *Sorbus aucaparia* L.

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➢ **POSTER PRESENTATION**

The effects of camel milk consumption on human health

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Abstract

Camel milk is one of the important components of the human diet in some countries. Camels can produce much larger volumes of milk than other domestic animals. A camel can yield 3,500 or more liters of milk during a lactation period that can last up to 18 months. Camel milk can be consumed in the form of fresh or fermented milk.
Camel milk contains approximately 11.7% total solids, 3.0% protein, and 3.6% fat. Its acidity and pH are about 0.13% and 6.5, respectively. The lactose content of camel milk (about 4.4%) is lower than that of cow milk. Also, thiamin, pantothenic acid, riboflavin, vitamin A, tryptophan and lysine contents are relatively lower than in cow milk. However, the contents of magnesium, potassium, iron, manganese, copper, sodium, zinc, niacin and vitamin C are higher than cow milk. From past to present, camel milk has been used to eliminate a number of medical problems. It has anti-cancer, hypo-allergic and anti-diabetic properties. Lactose in camel milk can be easily metabolized by patients suffering from lactose intolerance. Camel milk does not cause allergen effects such as cow's milk because it contains a small amount of β-casein and does not contain β-lactoglobulin. Other components of camel milk, such as lactoferrin, immunoglobulins, lysozyme, vitamin A, vitamin C or unsaturated fatty acids play an important role on the health properties of milk.
Consequently, camel milk can compete with other kinds of milk in the market due to its unique flavor and bioactive components, but more detailed studies are needed to clarify the nutrient content and determine its effects on human health.

Keywords: anti-diabetic, camel milk, hypo-allergic, lactose.

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➢ **POSTER PRESENTATION**

The protective role of sesamol on lead and cadmium ınduced testicular toxicity in rats

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Abstract

Lead and cadmium are heavy metals known to have toxic effects and these metals are commonly encountered in the environment. Sesamol is an antioxidant compound obtained from sesame plant. Oxidative stress is a result of imbalanced reproduction and degradation of ROS inside the body. Superoxide dismutase (SOD), Catalase (CAT), Glutathione Peroxidase (GPx), Glutathione-S-transferase (GST) are intracellular antioxidant compounds. In this study, the effects of sesamol on oxidative damage caused by lead and cadmium on a testicular tissue were investigated. This experimental study on rats was performed with approval of the Animal Experiments Local Ethics Committee (G.Ü.ET-17.086) followed protocols for ethical standards for the use of laboratory animals. In this study, 8 groups (6 animals in each group) were composed. These groups were control group, sesamol treated group, lead treated group, cadmium treated group, lead plus cadmium treated group, lead plus sesamol treated group, cadmium plus sesamol treated group, lead+cadmium plus sesamol treated group. Over the course of 28 days (experimental period) all chemicals were given to the rats daily by gavage.

At the end of 4th week, malondialdehyde (MDA) levels, antioxidant enzyme activities [superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), glutathione-S-transferase (GST)], investigated compared to control group. No significant differences were observed between control and sesamol treated groups. By the end of the fourth week, lead and cadmium increased the levels of MDA while a decrease in SOD, CAT, GPx and GST activities was observed in comparison with the control group rats. In the study it is observed that the lead and cadmium caused testicular toxicity in rats, sesamol treatment reduced lead and cadmium induced toxicity but does not protect it completely.

Keywords: Lead, Cadmium, Sesamol, Testes, Oxidative stress

DRAFT

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19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **POSTER PRESENTATION**

Investigation of cytotoxic effects of gold, silver and gold-silver nanoparticles synthesized in *Pelargonium sidoides* root extract on H1299 cell line

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Abstract

According to the National Nanotechnology Organization, nanoparticles (NPs) are defined as structures ranging in size from 1 to 100 nm. Due to NPs exhibit different properties than volumetric materials, they are used effectively in many fields including medicine-biotechnology-biomedical sectors [1].

The synthesis of metal NPs can be carried out by various methods. However, these methods are generally expensive and contain harmful chemicals. Therefore, it is important to develop non-toxic, biocompatible, environmentally-friendly methods [2]. Increasing interest in biological processes has led researchers to "Green Chemistry", an environmentally-friendly NP synthesis approach with many advantages, such as biocompatibility-simple-affordable [3]. Because of the ability of phytochemicals to reduce metallic ions, plants are seen as a more environmentally-friendly route for the synthesis of metallic nanoparticles [4;5]. For these reasons, the world of science has focused on the toxicity of nanoparticles synthesized by the green chemistry method and its availability as a drug carrier. Studies on the production of new generation drugs and the development of targeted cancer therapies have accelerated [6].

In our study, the cytotoxic effects of gold (Au), silver (Ag) and gold-silver (Au-Ag) nanoparticles synthesized by green chemistry method in root extract of *Pelargonium sidoides* on H1299 cell line were investigated.

The cytotoxic effect of NPs on H1299 cell was determined with the Cell Titer-Blue^{R} Cell Viability Assay Kit [7]. After 24 hours incubation, IC_{50} concentrations of Au, Ag and Au-Ag Nps in for the H1299 cell were calculated 428,5 µg/ml, 441 µg/ml and 300 µg/ml respectively. It was observed that Au-Ag combination application reached IC_{50} values at lower concentrations than Au and Ag application. It was shown that the application of Au-Ag combination has a higher cytotoxic effect in H1299 cells compared to the application of Au and Ag NPs alone. This suggests that H1299 cells are more susceptible to Au nanoparticles.

Anahtar Kelimeler: Cytotoxic effect, Extract, Green chemistry, H1299, Nanoparticles, *Pelargonium sidoides*

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➢ **POSTER PRESENTATION**

Mycobacterium tuberculosis'e ait *hspR* geninin tütün bitkisine aktarılması

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Özet

Bu çalışmanın amacı, *Mycobacterium tuberculosis* (MTB) bakterisinde hastalığı tetikleyen faktörlerden birisi olan HspR proteinini kodlayan *hspR* geninin moleküler tekniklerle klonlanarak tütün bitkisine aktarılmasıdır. Şu ana kadar transgenik tütün bitkileri elde edilmiştir. HspR proteinini bitkide üretilebilmek için daha sonra tütün bitkileri tarafından üretilen HspR proteininin ekstraksiyonu ve bitki tarafından üretilen proteinin doğrulanması yapılacaktır.

Anahtar Kelimeler: *Mycobacterium tuberculosis* (MTB), *hspR* geni, tütün bitkisi

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➢ **POSTER PRESENTATION**

N-methylene-N-phenylbenzenaminium Schiff bazının antimikrobiyal ve antioksidan etkilerinin incelenmesi

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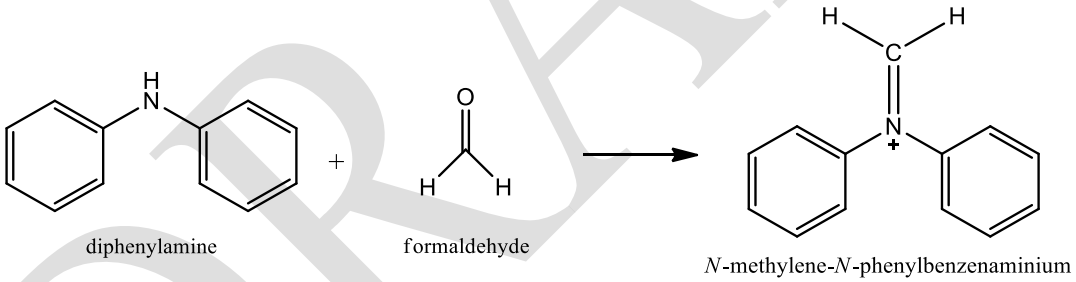
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Özet

Schiff bazları ilk olarak 1864 yılında Hugo Schiff tarafından sentezlenmiştir. Sciff bazlarının oluşum mekanizması iki basamakta gerçekleşmektedir. Birinci katılma basamağında, Schiff bazlarının primer aminle karbonil grubunun kondenzasyonundan bir karbolamin ara bileşiği meydana gelmektedir. İkincisi ayrılma basamağıdır ve bu aşamada ara ürünün dehidrasyonu sonucunda Schiff bazı oluşmaktadır ve yapılarında karbon-azot çift bağı (C=N) bulundurmaktadırlar. Schiff bazları ve komplekslerinin antifungal, antikanser, anti-inflamatuvar, antiviral ve antipiretik aktivite gibi oldukça geniş biyolojik aktivitelere sahip oldukları bilinmektedir.

Mikroorganizmalar yeryüzündeki en eski canlılardır ve bunun nedeni değişen koşullara hızlı uyum sağlayabilmeleridir. Bu yetenekleriyle birlikte geliştirilen her yeni mikroorganizma antibiyotikten kaçacak bir yol bulmaktadır. Yani enfeksiyonlarla savaşta en önemli engel olan antibiyotiklerde direnç sorunu ortaya çıkmaktadır. *Shigella spp, Neisseria gonorrhoeae, Escherichia coli, Staphylococcus aureus* en çok direnç sorunu gösteren mikroorganizmalar arasında yer almaktadır. Antimikrobiyal testler gram pozitif, gram negatif bakteriler ve mantarlara karşı kullanılarak bileşiklerin antimikrobiyal özellik gösterip göstermediğini ortaya koymaktadır.

Bu çalışma ile birlikte, difenilamin ve formaldehitten sentezlenen (Şekil 1) yeni bir Schiff bazının antimikrobiyal ve antioksidan etkileri araştırılmıştır.



Şekil 1. Elde edilen Schiff bazının reaksiyonu

Çalışma doğrultusunda yeni sentezlenen Schiff bazının yüksek derecede antimikrobiyal etki ve normal düzeyde de antioksidan etki gösterdiği görülmüştür. Sonuç olarak sentezlenen bu bileşiklerin biyolojik aktivite olarak büyük bir potansiyeli bulunmaktadır.

Anahtar Kelimeler: Schiff bazı, Antimikrobiyal Test, Antioksidan Test

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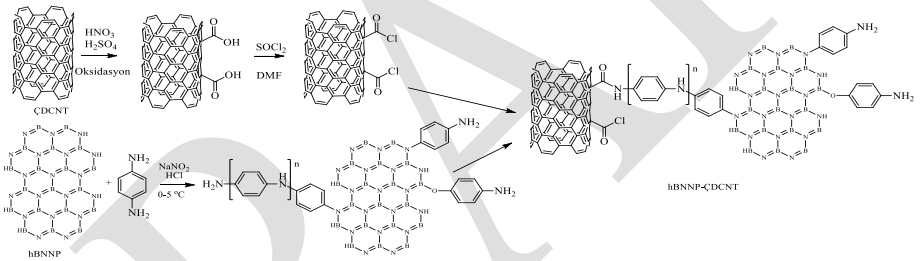
Bornitrürnanopartikül-karbon nanotüp yapılarının sentezi, karakterizasyonu ve hidrojen depolamada kullanımı

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Özet

Dünya bor rezervlerinin yaklaşık üçte ikisine sahip olan ülkemiz, sabundan gübreye, tekstil elyaflarından camlara, nükleer uygulamalardan yeni ve ileri mıknatıslara kadar çok geniş bir yelpazede kullanım alanı bulan, gün geçtikçe stratejik ve teknolojik önemleri artan bor ürünlerindeki pazar payının ancak küçük bir kısmına sahiptir. Günümüzde doğadan ham olarak çıkarılan bor minerallerinden çok reaksiyon sonucu elde edilen bor bileşikleri önem kazanmış ve ticari bor endüstrisinde büyük paya sahip olmuştur. Rafine ürünlerinden sadece bazılarını üretebilen tesislere sahip olan ülkemiz, sahip olduğu bu ulusal kaynağı akılcı bir biçimde değerlendirerek dünya ölçüsünde rekabet gücü kazanabilmek için ürün çeşidini artırmak ve yüksek katma değeri olan özellikli bor bileşiklerinin üretimine ağırlık vermek zorundadır. Bu nedenle çalışmanın amaçları hegzagonal bornitrürnanopartikül (hBNNP) yüzeyini modifiye ederek çok duvarlı karbon nanotüplerle (ÇDKNT) reaksiyona girmelerini sağlamak; bornitrürnanopartikül, karbon nanotüp ve bornitrürnanopartikül-karbon nanotüp yapılarını karakterize etmek; ve sentezlenen ürünlerin oda ve kriyojenik sıcaklıklarda basıncın bir fonksiyonu olarak hidrojen depolama kapasitelerini belirlemektir. Sentezlenen ürünlerin karakterizasyonu FTIR-ATR, BET, DTA/TG ve SEM cihazları ile ve hidrojen depolama kapasiteleri Hiden Marka IMI PSI Gaz Depolama cihazı kullanılarak gerçekleştirildi. hBNNP ve ÇDKNT'den sentezlenen hBNNP-ÇDKNT yapısına ait reaksiyon şeması aşağıda verilmektedir.



Örneklerin FTIR-ATR analizlerindeki bandların kaymalarından ve yeni bandların oluşmalarından; BET yüzey alanlarındaki değişimlerden; DTA/TG termogramlarındaki kütle kaybı farklarından ve bozunma basamaklarının farklı olmasından; ve SEM analizlerinde maddelerin morfolojilerinde meydana gelen değişimlerden dolayı bornitrürnanopartikül-karbon nanotüp yapısının sentezlendiği sonucuna varıldı. Kriyojenik sıcaklıklarda Van der Waals etkileşimlerinin meydana gelmesinden dolayı maddelerin hidrojen depolama kapasitelerinin daha yüksek olduğu ve bornitrürnanopartikül yüzeyinin modifikasyonu ile maddelerin hidrojen depolama kapasitelerinin değiştiği belirlendi.

Anahtar Kelimeler: Bornitrürnanopartikül, karbon nanotüp, hidrojen.

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➢ **POSTER PRESENTATION**

Farklı fotoaktif gruplar içeren iyonik nanoparçacılardan UV ışık varlığında nötral polimerik nanoparçacıkların üretimi

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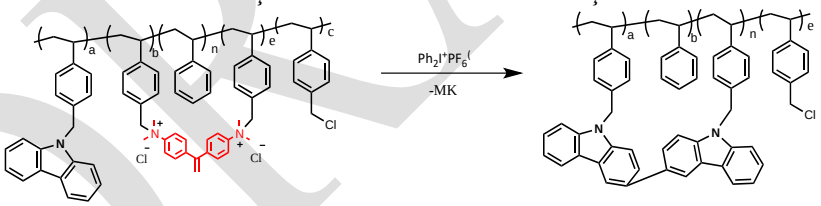
Özet

Son yıllarda ortaya çıkan polimerik nanoparçacık (nanopartikül) kavramı nano boyutlardaki kimyasalların üretilmesinde yepyeni bir kapı açmıştır ve molekül içi çapraz bağlanmış polimerik nanoparçacıkların hazırlanması, polimer sentezinde önemli bir ilgi görmüştür.

İlaç salımında kullanımı denenecek olan farklı fotoaktif gruplar içeren iyonik nanoparçacıklardan UV ışık varlığında nötral polimerik nanoparçacıkların üretimi gerçekleştirilmiştir.

UV ışık ile eş zamanlı olarak iyonik polimerik nanoparçacıklardan fotoaktif tek zincir katlanmalı nötral nanoparçacıkları elde etmek için, kontrollü radikal polimerizasyonu (NMP), Menschutkin reaksiyonu ve foto-indüklenmiş basamaklı polimerizasyon teknikleri birleştirilmiştir. NMP polimerizasyonu ile sentezlenen ve yan grup olarak karbazol içeren poli (stiren-ko-klorometilstiren) polimeri, ticari bir fotobaşlatıcı olan Michler ketonunun yapısında olan iki tersiyer amin grubunun Menschutkin reaksiyonu ile tek zincir katlanmalı iyonik nanoparçacığa dönüştürülmüştür. Bu nanoparçacık UV ışık altında aydınlatıldığında Michler ketonu yapıdan koparak serbest hale geçmektedir.

Bununla birlikte ortamdaki aydınlatma sırasında ilave edilen iyodonyun tuzu ($Ph_2I^+PF_6^-$), iyonik yapısı bozulan polimer zincirinde yan grup olarak bulunan karbazol gruplarını katyonik mekanizma ile basamaklı polimerizasyona uğratır ve dimer-trimer oluşturarak tekrar zinciri kendi içinde katlar ve nötral hale dönüştürür.



Anahtar Kelimeler: nanoparçacık, Menschutkin kimyası, tek zincir katlanmalı polimerizasyon

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➢ **POSTER PRESENTATION**

Tek zincir katlanmalı polimerik nanoparçacıklarda doğal çapraz bağlayıcıların kullanılması ve özelliklerinin incelenmesi

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Özet

Son yıllarda, "Tek zincir katlanması (Single chain folding)", "Tek zincir çökmesi (Single chain collapse)" veya "Tek zincirli polimerik nanoparçacık (Single chain polymeric nanoparticle, (SCNP))" olarak isimlendirilen yeni bir karmaşık makromolekül sınıfı ortaya çıkmış ve sentez, karakterizasyon ve simülasyonlardan potansiyel uygulamalara kadar birçok seviyede önemli ilgi görmüştür. SCNP'ler, tek tek polimer zincirlerinin kovalent, kovalent olmayan veya dinamik kovalent bağlar yoluyla yüksek seyreltmede zincir içi çapraz bağlanması yoluyla üretilebilirler. Bununla birlikte proteinlerin ve diğer biyomoleküllerin karmaşık katlanmış yapılarından ilham alınarak globüler, yıldız, iribaş gibi çeşitli morfolojilerde tek zincirli nanoparçacıklar sentezlenebilir.

Doğal bir molekül olan kurkuminin kullanılmasıyla tek zincir katlanmalı polimerik nanoparçacık sentezi gerçekleştirildi ve karakterize edildi. Sentezlenen nanoparçacığın kimyasal, morfolojik, ısıl ve fotofiziksel özellikleri aydınlatıldı.

Bununla birlikte kurkumin zincir içi çapraz bağlayıcısı kullanılarak sentezlenen nanoparçacığın ağır metallerle oluşturduğu -aynı zamanda "ikinci jenerasyon SCNP" olan- koordinasyon bileşikleri incelendi.

Anahtar Kelimeler: tek zincirli nanoparçacık, polimer, SCNP, zincir içi çapraz bağlayıcı

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➢ **POSTER PRESENTATION**

Synthesis and properties of the novel phthalocyanine compound and phthalocyanine-graphene oxide hybrid material

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Abstract

Phthalocyanines have the potential to be used in many areas of advanced technology due to their interesting physical, chemical properties and stability. Phthalocyanines in which have been widely used as dyes and pigments, draw interest as materials for optical recording media, nonlinear optical application, light absorption, electric conduction, photoconduction, energy conversion, electrodes, chemical sensors, and catalyst. On the other hand, there are many studies in the literature regarding the potential of phthalocyanine species to be used in the fields of photodynamic therapy and different biomedical areas. Graphene-based materials have the ability to adsorb various aromatic biomolecules through π-π stacking interaction and/or electrostatic interaction, making these compounds ideal materials for the fields of biosensors, drug delivery systems, and drug active substances.
In this study, we synthesized the new tetrasubstituted phthalocyanine compound by the tetramerization reaction of the substituted phthalonitrile derivative. The product was characterized by NMR, IR, UV-Vis. The new phthalocyanine-graphene oxide hybrid was obtained by self-assembly method. Sonication was performed in the formation of hybrid. UV-Vis, emission spectra and scanning electron microscopy (SEM) were used to characterize hybrid formation. The spectroscopic properties of compounds were investigated and the fluorescence quantum yield calculated.

Keywords: Phthalocyanine, graphene-oxide, synthesis, hybrid.

DRAFT

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➢ **POSTER PRESENTATION**

The novel tetrasubstituted titanium phthalocyanines: Synthesis, characterization and investigation of their potential to be used in advanced technological applications

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Abstract

Phthalocyanines are active molecules in many areas such as organic solar cells, nonlinear optical applications, light absorption, energy conversion, chemical sensors and photodynamic therapy (PDT). Phthalocyanines having stable π-conjugated system are known to have very good singlet oxygen quantum yields for PDT. Properties of the compounds can be further increased, depending on the metal center and the substituted groups to bind to the phthalocyanine ring. Also, depending on the type of substituents attached to the phthalocyanine ring, their solubility in water and organic solvents may also be increased. Since pH sensors are widely used in biotechnology and biomedical fields, especially in some electronic devices, the development and synthesis of new pH-sensitive molecules are important.
In this study, the novel titanium phthalocyanine compounds which are soluble in organic solvents with interesting properties were synthesized. In addition, a novel water-soluble titanium phthalocyanine compound was synthesized by the quaternization of the synthesized phthalocyanine compound. All prepared compounds were characterized by NMR, IR, UV-Vis and MALDI-TOF MS. The pH sensor properties of all compounds were examined. The pH sensor properties of all compounds were examined and it was observed that synthesized compounds showed very interesting colorimetric pH sensor properties. In addition, the fluorescence properties of the water-soluble compound were investigated to determine their potential for use in PDT.

Keywords: Phthalocyanine, synthesis, pH sensor, photodynamic therapy.

DRAFT

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➢ **POSTER PRESENTATION**

Tiyol-en polimerizasyonuna etki eden faktörlerin kuantum kimyasal yöntemlerle incelenmesi

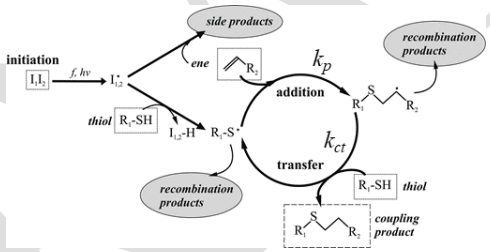
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Özet

Basamaklı polimerizasyon ile zincir polimerizasyonunun mekanizmasını birleştirebilen tiyol-en polimerizasyonu, homojen polimer elde edilebiliyor olması, oksijen inhibisyonunun minimizasyonu, geç jelleşme ve yüksek oranda monomer dönüşümü gerçekleştirebilmesi, dar bir aralıkta camsı geçiş sıcaklığına sahip ürünlerin elde edilebiliyor olması nedeniyle, radikal katılma polimerizasyonuna üstün özellikler katmıştır[1,2]. Tiyol-en polimerizasyonda, monomerin çift bağına tiyoksi radikalinin katılma tepkimesi (k_p) ve katılma tepkimesi neticesinde oluşan radikalin zincir transferi tepkimeleri (k_{ct}) hız sabitleri oranı (k_p/k_{ct}), polimerizasyonun gidişatını kontrol edebilmektedir. Polimerizasyonun mekanizmasını aydınlatmaya yönelik çok az sayıda kuantum kimyasal araştırma gerçekleştirilmiş[3,4] olup, yapılan bir incelemede, istenmeyen yan tepkimelerin polimerizasyonun gidişatını olumsuz etkileyebileceği ileri sürülmüştür (Şekil 1)[5]. Yapmış olduğumuz araştırmada ise, dört kadar farklı monomere (eten, propen, vinil klorür ve akrilonitril) metil tiyoksi radikalinin katılma tepkimesi ve oluşan radikalin metil tiyole zincir transferi modellenmiştir. Başlatıcı radikalin monomerlere katılma tepkimesi ile monomerik, dimerik ve trimerik zincir uzunluğuna sahip radikallerin tepkimesinin tiyol-en polimerizasyonuna etkisi kuantum kimyasal yöntemlerle incelendi.Tepkime kinetiği ve enerji verileri, M062X/6-31+G(d) seviyesinde hesaplamalarla gerçekleştirildi. Kuramsal hesaplamalardan elde edilen bilgiler çerçevesince, başlatıcı derişiminin yüksek tutulması durumunda, tiyol-en polimerizasyonunun olumsuz etkileneceği öngörülmüştür.



Şekil 1: Tiyol-en polimerizasyon mekanizması.[5]

Anahtar Kelimeler; Tiyol-en polimerizasyonu, yoğunluk fonksiyonları teorisi, radikal polimerizasyonu, M062X.

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DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Variation of essential oil composition of leaves and stems of *Elaeoselinum thapsioides* (Apiaceae) grown wild in Algeria

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Abstract

The genus Elaeoselinum belongs to Umbelliferae family. According to Algerian flora of Quezel and Santa, the genus Elaeoselinum includes two species: *Elaeoselinum asclepium* subsp. *meoides* (Koch.) (*E. asclepium* subsp. *meoides*) (synonym: *Thapsia asclepium* L. or *Laserpitium asclepium* L.) Fiori, called locally Afs or Klikha, and *Elaeoselinum thapsioides* (Desf.) Maire (synonym: *Elaeoselinum fontanesii Boiss.*), called locally Becibsa. The aim of this work is to determine and compare the chemical composition of the essential oils of leaves and stems of *Elaeoselinum thapsioides* grown wild Algeria. Essential oils of leaves and stems of *E. thapsioides* were isolated by hydro distillation using a type of Clevenger apparatus and then analyzed by GC and GC-MS to identify the essential oil constituent. The major constituent of essential oil isolated from leaves of *E. thapsioides* were myrcene (69.3 %), perillene and 4-terpineol. while about oil of stems induced Myrcene (54,9%) and β-pinene (11.5%).

Keywords: essential oil composition, Elaeoselinum thapsioides, β-pinene, myrcene.

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➢ **POSTER PRESENTATION**

Variation of essential oil composition of flowers and seeds of *Elaeoselinum thapsioides* (Apiaceae) grown wild in Algeria

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Abstract

Plant extracts, especially essential oils, have been employed in pharmaceutical, agronomic, food, cosmetic, and perfume industries due to several reported biological properties. The aim of this work is to determine and compare the chemical composition of the essential oils of flowers and seeds of *Elaeoselinum thapsioides* grown wild in Algeria. Essential oils of flowers and seeds of E. thapsioides were isolated by hydro distillation using of Clevenger a type apparatus and then analyzed by GC and GC-MS to identify the essential oil constituents. The major constituents of essential oil isolated from Flowers of *E. thapsioides* were myrcene (33,6 %) and α-pinene(43,7%). While about oil of Seeds of *E. thapsioides* induced α-pinene(49,3%), β-pinene (23.7%) and Myrcene (11,3%).

Keywords: essential oil composition, *Elaeoselinum thapsioides*, α-pinene, myrcene.

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➢ **POSTER PRESENTATION**

Effects of municipals wastewater treatment sludge on mineralization of biodegradable plastics*

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Abstract

Together with industrial revolution of the last century, increasing populations and desires to increase welfare also increases pressures exerted on natural environment. Such a case especially reached the industrial and municipal wastes to a dimension of "environmental problem". In this sense, treatment sludge and plastic packages have become the primary municipal wastes; a similar case is also valid for "bioplastics" obtained from natural materials like polylactic acid (PLA) during the last quarter of the century. Difficulties in disposal of resultant bioplastic wastes and treatment sludges and their accumulation in soils put forth a need for investigation of biodegradability of these materials.

This study was designed to determine the effects of municipal wastewater treatment sludge on biodegradation process on PLA-based biodegradable plastic in soil environment. Five treatment sludge doses (allowed quantity by the regulations, half of this quantity, double of this quantity, 1:1 (50% soil + 50% treatment sludge) and no-treatment sludge) were applied to soils together with biodegradable plastic plates. Throughout out 4 months of incubation process, samples were taken in 15-day intervals, buried biodegradable plastics were separated, washed, dried and weighed on a ultra-precise scale to determine mass loss. Ammonium and nitrate analyses, total microorganism counts, urease and catalase enzyme analyses were performed on soil samples taken at the same periods.

Significant differences were observed in mass loss of buried biodegradable plastic plates based on sampling times and treatment sludge doses ($p \leq 0,01$). The greatest mass loss was observed in 8th sampling (120th day) period of "1:1" sludge-treated bioplastics. While the effects of sampling time x treatment sludge interactions on microorganism counts were not found to be significant, separate effects of these factors were found to be significant ($P \leq 0.05$). Increasing number of microorganisms was observed with increasing treatment sludge doses. Effects of treatment sludge dose x incubation duration interaction on $NH4^+$, $NO3^-$, urease and catalase parameters were found to be significant ($p<0.05$). Increasing NH4+, NO3-, urease and catalase enzyme values were observed with increasing treatment sludge doses and decreasing values were observed with increasing incubation durations.

Both in the world and in Turkey, life span of regular waste repositories is prolonged through separation of durable plastics and the other recyclable materials from solid wastes and "zero waste" policies are getting more popular. However, biodegradable plastics are not collected in a separate category for recycling purposes and there is a risk of abandonment in nature for free degradation just because of their short degradation durations. Thus, bioplastics should not be considered in this sense. It should be considered that "microplastics" to be formed with degradation of bioplastics may have negative impacts on aquatic ecosystems.

Present findings revealed that municipal wastewater treatment sludge and biodegradable plastic wastes could be disposed together. Such a process could be applied in municipal regular waste repositories until elimination of recycle problems of bioplastics. Further researches are recommended in this issue.

Keywords: Polylactic acid, bioplastic, sewage sludge, soil, biodegradation

*: This study was derived from the Graduate Thesis of Nurgül Uzunboy entitled as "Investigation of the Effects of Treatment Sewage Sludge on Mineralization of Biodegradable Plastic in Soil" supplied for partial fulfillment of the Master's Degree at Soil Science and Plant Nutrition Department of Natural and Applied Sciences Institute of COMU. The study was financially supported by COMU Scientific Research Projects Department with the project number of FLY-2016-1052.

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➢ **POSTER PRESENTATION**

Metal içeren polimerik nanoparçacıkların sentezi ve eksimer oluşturma özelliklerinin belirlenmesi

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Özet

Polimerik nanoparçacık kavramı polimer zincirlerinin kendi içerisinde kovalent veya kovalent olmayan bağlarla (veya etkileşimlerle) çapraz bağlanarak katlanması (folding) esasına dayanmaktadır. Polimer zincirleri kendi içerisinde (intramoleküler) bağlandıkları için elde edilen yapılar küresel mimariye sahip olup, çözücü içerisinde tamamıyla çözünebilir özellik göstermektedirler. Son yıllarda literatürde sıklıkla çalışılan zincir içi çapraz bağlı polimerik yapıların üretimi ve uygulamaları karşımıza çıkmaktadır. Bu tip mimariye sahip polimerlere "Single chain folding polymeric nanoparticle (SCNP) (tek zincir halinde katlanabilen polimerik nanoparçacık)" ve benzeri isimlendirmeler yapılmaktadır. Bu yapılar nano-reaktör, ilaç salımı, reaksiyon katalizörü, kompozit malzemelerde dolgu bileşeni gibi uygulama alanları bulmaktadır. Polimerik nanoparçacıkların en önemli özellikleri:

- Zincir-içi fiziksel veya kimyasal çapraz bağlarla birbirlerine bağlı olması
- Çözücülerde tamamen çözünür olması
- Yüksek fonksiyonaliteye sahip olması
- Parçacık boyutlarının nanometre seviyelerinde olması (5-100 nm)

Zincir içi çapraz bağlanma kovalent, dinamik kovalent ve kovalent olmayan bağlanmalar ile gerçekleştirilir. Bu bağlanmalar hidrojen bağı, metal ligasyonu, fotodimerizasyon, sikloeklemeler, disülfid oluşumu, "klik" kimyası ile sağlanır.

Su içerisinde çözünebilen polimer zincirlerinin metallerle koordinasyon bileşikleri oluşturmasıyla polimerik nanoparçacıklar sentezlendi ve karakterize edildi. Sentezlenen bu nanoparçacıkların kimyasal, morfolojik ve ısıl özellikleri incelendi. Yan gruplarında aromatik yapılar kullanılarak sentezlenen polimer zincirlerinin metal ligasyonuyla SCNP oluşturması sonucunda ekzimer oluşturma özellikleri floresans spektroskopisi kullanılarak belirlendi.

Anahtar Kelimeler: tek zincir halinde katlanabilen polimerik nanoparçacık (SCNP), metal ligasyonu, klik kimyası

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➢ **POSTER PRESENTATION**

Karbazol ve benzofenon içeren çift çapraz bağlı polimerik nanoparçacıkların Mcmurry reaksiyonu ile çapraz bağlanması ve agregasyon ile tetiklenmiş ışık yayma özelliklerinin incelenmesi

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Özet

Polimer nanobilimi, boyutları 100 nm'den küçük olan partiküllerin üretilmesi, incelenmesi ve uygulamalarının yapılabilmesi esasına dayanmaktadır. Birçok nanoparçacık çeşidi hala araştırma konusu olmakla beraber genel itibariyle çözücü içerisinde çözünmemektedirler.

Son yıllarda literatürde sıklıkla çalışılan zincir içi çapraz bağlı polimerik yapıların üretimi ve uygulamaları karşımıza çıkmaktadır. Bu tip mimariye sahip polimerlere "Single chain folding polymeric nanoparticle (SCNP) (tek zincir halinde katlanabilen polimerik nanoparçacık)" ve benzeri isimlendirmeler yapılmaktadır. Yapılarında bulunan zincir-içi çapraz bağlar sayesinde çözücüde çözünebilirler ve termoplastikler gibi ısıl işlem görebilirler. Zincirler kendi içerisinde bağ yaptıkları için her bir polimer zinciri nanoparçacık olarak sınıflandırılırlar.Bu yapılar nano-reaktör, ilaç salımı, reaksiyon katalizörü, kompozit malzemelerde dolgu bileşeni gibi uygulama alanları bulmaktadır.

Kontrollü polimerizasyonla sentezlenen stiren-ko-klorometilstiren kopolimeri kullanılarak karbazol ve benzofenon türevi içeren çift çaprazbağlı polimerik nanoparçacık elde edildi. McMurry reaksiyonuyla nanoparçacık kendi içerisinde üçüncü kez çapraz bağlanarak karakterizasyonu gerçekleştirildi. Elde edilen polimerik nanoparçacığın kimyasal, fotofiziksel, morfolojik ve ısıl özellikleri incelendi.

Anahtar Kelimeler: Mcmurry, nanoparçacık, karbazol, benzofenon, SCNP

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➢ **POSTER PRESENTATION**

Investigation essential oil of ylang-ylang against MCF-7 cell lines

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Abstracts

Breast cancer is the most common type of cancer in women, with low survival and a high rate of recurrence [1]. It is thought that plant-derived products used as chemopreventive or therapeutic agents in cancer, as well as drugs used in chemotherapy, can reduce adverse side effects [2]. Oils obtained from plant extracts are also frequently preferred in such treatments. Ylang ylang (*Cananga odorata*) plants, antimicrobial, anti-inflammatory, antidiabetic, and antitumor properties such as antifertility because of cosmetics, aromatherapy, the food industry in recent years, has widely potential value in medical treatment [3].

In recent years, it has been aimed to increase the solubility of non-soluble substances in a biological environment by loading them into a polymeric micelle [4]. In this study, due to the low solubility of the fat molecule, it was aimed to micellar the oil obtained from the plant to increase it. The cytotoxic effect of MCF-7 on the breast cancer cell line under in vitro conditions was examined with MTT(3-(4,5-dimethylthiazol-2-YL)-2,5-diphenyltetrazolium bromide) method and determined wound healing.

In line with this goal, the oil of the ylang-ylang plant was loaded into the polymeric micelle, characterization studies were conducted and it was observed that it triggered apoptosis on the MCF-7 cell line. Inducing antitumor activity is a study that will contribute to the literature in cancer treatments.

Keywords: Ylang ylang, breast cancer, antitumor, micelle

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➢ **POSTER PRESENTATION**

Synthesis of octa substituted gallium(III) and indium(III) phthalocyanine photosensitizers for photodynamic therapy

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Abstract

Photodynamic therapy (PDT) is one of the most important treatment method for cancer [1]. Phthalocyanine compounds are one of the compounds known as photosensitizers for PDT because they can effectively create singlet oxygen when irradiated with light at a specific wavelength. In this study, the novel octa peripheral gallium (III) or indium (III) phthalocyanine compounds bearing 4-mercaptopyridine groups on the phthalocyanine framework were synthesized for the first time. These phthalocyanines were converted to their water soluble derivatives by quaternization for investigation their PDT applications. The structures of these all novel phthalocyanines were characterized by different spectroscopic techniques such as FT-IR, UV-Vis, NMR and mass.

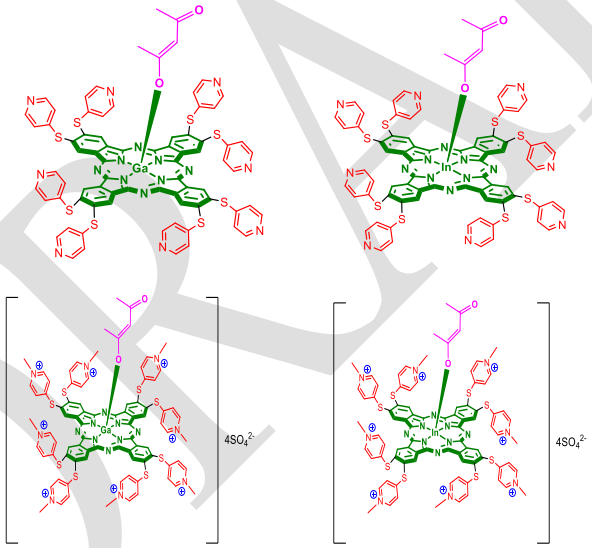


Figure 1: Novel Gallium (III) and Indium (III) phthalocyanine compounds.

Keywords: Cancer, Photodynamic Therapy (PDT) , Phthalocyanines, Photosensitizer.

We would like to thanks Tübitak for financial support (Project Number: 118Z204)

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➢ **POSTER PRESENTATION**

Kuersetin yüklü HSA nanopartiküllerin uygun sentez ve karakterizasyonu

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Özet

Oksidatif stres, serbest radikallerin üretimi ile antioksidan aktivite arasındaki dengenin bozulmasıdır ve biyolojik sistemde oksidatif hasara yol açar. Antioksidanlar ise serbest radikallerin, hücre bileşenleri ile etkileşerek biyomoleküllerin yapılarına zarar veren oksidatif hasarı geciktiren, önleyen veya ortadan kaldıran maddelerdir. Çeşitli bitkilerde bulunan majör bir flavonoid olan kuersetin güçlü bir antioksidan etkiye sahiptir ancak antioksidanların genel olarak sahip oldukları düşük stabilite, membran geçişlerinin zayıf olması ve yarılanma ömrünün kısa olması gibi dezavantajlar kuersetinin biyoyararlanımını düşürmektedir. Bu projede nanopartiküllerin sahip oldukları eşsiz özelliklerden yararlanılarak belirtilen dezavantajların üstesinden gelmek amacıyla kuersetin yüklü insan serum albümini (HSA) nanopartikülleri sentezlenmiş ve karakterizasyonu gerçekleştirilmiştir. Sentez sırasında gluteraldehit ve EDC olarak iki farklı çapraz bağlayıcı iki farklı oranda kullanılmış ve çeşitli sentez parametrelerinin nanopartiküllerin fizikokimyasal özellikleri üzerine etkileri incelenmiştir. Proje sonucunda elde edilen çıktıların ileri çalışmalarda oksitadif strese bağlı olarak ortaya çıkan serbest radikal giderici etkilerinin incelenmesi amaçlanmaktadır.

Anahtar Kelimeler: Kuersetin, protein temelli nanopartiküller, nanopartikül sentezi, kontrollü salım

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➢ **POSTER PRESENTATION**

In vitro genotoxic effects of cerium oxide nanopartices by comet assay

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Abstract

Nanoparticles (NPs) are used in a wide range of applications because of their unique properties. Cerium oxide nanoparticles (CeO_2 NPs), one of the important NPs, are used in the field of biomedical, agriculture, industry, and cosmetics. Therefore, their health effects and potential biological impacts need to be determined for risk assessment. The aim of this study is to investigate *in vitro* genotoxic effects of CeO_2 NPs in human peripheral blood lymphocytes by using comet assay. To determine physicochemical properties of NPs, they were examined by dynamic light scattering (DLS) and transmission electron microscopy (TEM). Average hydrodynamic diameter was determined as 253.6±3.84 and zeta potential was determined as 49.1±0.6 showing that the surfaces of CeO_2 NPs were positively charged. For comet assay, lymphocytes obtained from three healthy donors were incubated with 100, 200, 400, and 600 µg/mL concentrations of CeO_2 NPs for 2 and 3 hours. The comet assay measures DNA damage at the cellular level. In this study, the primary DNA damage observed by comet assay (tail intensity, tail length, and tail moment) increased at all the concentrations at both treatment periods. These results indicate that CeO_2 nanoparticles have genotoxic potential in human peripheral lymphocytes *in vitro*.

Keywords: Nanoparticles, cerium oxide nanoparticles, genotoxicity, comet assay, lymphocytes.

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➢ **POSTER PRESENTATION**

The effect of ruthenium complex against staphylococci biofilms

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Özet
Ruthenium complexes have attracted much attention as building blocks for new transition-metal-based antitumor agents. Ruthenium compounds have attracted interest in terms of microbiological studies in recent years due to the properties of binding to DNA, RNA and protein. In this study, the ruthenium with bipyridine ligand (Ru(2,2'-bipyridine)$_2$(4,4-bis(3-ethylheptyl)-2,2'-bipyridine)(PF_6)$_2$) [1] was used as antibiofilm (inhibition of biofilm formation and the reduction of preformed or established biofilm) agent against *Staphylococcus aureus* ATCC 29213. Activity studies were assessed on 96-well polystyrene plates using crystal violet assay. Our results revealed that the ruthenium complex possessed excellent antibiofilm activity against ATCC 29213. Also, the anti-swimming and anti-swarming activities of the ruthenium complex have been shown. Antibiofilm activity was confirmed by SEM analysis.
Keywords: Ruthenium, biofilm inhibition, *Staphylococcus aureus*, anti-swarming, anti-swimming

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DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Bioprocess design and technoeconomic analysis of the production of hydroxysteroid dehydrogenase enzymes (HSDH)

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Abstract

7α-hydroxysteroid dehydrogenase (7α-HSDH), 7β-hydroxysteriod dehydrogenase (7β-HSDH) and 12α-hydroxysteroid dehydrogenase (12α-HSDH) are the enzymes used to produce important pharmaceutical products. These are belong to oxidoreductase enzymes family and catalyzes the transfer of electrons from one molecule to another. 12α-hydroxysteroid dehydrogenase is responsible for oxidation of hydroxyl group at C-12 of a chemical structure. 7α-hydroxysteroid dehydrogenases (7α-HSDH) oxidize α- hydroxyl group at C-7 and 7β-hydroxysteriod dehydrogenases catalyzes the formation of β-hydroxyl group of C-7. These enzymes are dependent on NAD+ or NADP+ as electron acceptor so each enzyme can work together with own cofactor. The biological processes to produce the enzymes from ecombinant E.Coli were designed by using SuperPo Designer. This project is supported by Atabay Pharmaceutical Company.

Keywords: hydroxysteroid dehydrogenase enzymes, oxidation, SuperPro designer

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➢ **POSTER PRESENTATION**

Therapeutic approaches targeting inflammation in cardiovascular diseases

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Abstract

Cardiovascular disease; the main global cause of death; is a term for a number of linked pathologies, commonly defined as congenital heart diseases, coronary heart disease (CHD), peripheral arterial disease, rheumatic heart disease, cerebrovascular disease and venous thromboembolism. Most common risk factors of cardiovascular diseases include hypertension, hypercholesterolemia, cigarette smoking, diabetes and obesity. However; chronic inflammation illustrated by elevated inflammatory markers including high-sensitivity C-reactive protein (hsCRP) and interleukin-6 (IL-6)have emerged as strong independent risk indicator for cardiovascular diseases independent of cholesterol and other traditional risk factors. Inflammation has a central role in the pathogenesis of heart failure, myocardial infarction (MI) and atherosclerosis. How inflammation contributes to cardiovascular disease remains a topic of ongoing research where mechanisms involving both innate and adaptive immune pathways are involved. Emerging evidence supports the theory that targeting specific inflammatory proteins or pathways appears to be a promising strategy in reducing the risk of cardiovascular diseases. Studies have shown that drugs commonly used in the clinic for primary and secondary prevention of cardiovascular events, such as statins, exert anti-inflammatory effects and decrease inflammatory cytokine release. The persistent cardiovascular risk in patients optimally treated with traditional medications and revascularization highlighted the need for novel therapeutic strategies. Thereforein this review, we summarize the role of inflammatory markers in cardiovascular disease pathogenesis with a particular focus on the therapeutic strategies to target inflammation.

Keywords: Cardiovascular diseases, inflammation, therapeutic approaches

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➢ **POSTER PRESENTATION**

Dejeneratif ve inflamatuvar bir hastalık: Osteoartrit

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Özet

Osteoartrit (OA), yaygınlığı giderek artan, dünyada milyonlarca insanın yaşam kalitesini etkileyen ve sağlık giderleri üzerinde büyük bir yük oluşturan başta kıkırdak olmak üzere geliştiği bölgedeki bütün yapıları etkileyen kronik, dejeneratif ve inflamatuvar bir eklem hastalığıdır. OA'nın nedeni tam olarak bilinmemekle birlikte yaş, cinsiyet, genetik yapı, beslenme, eklem zedelenmesi, travma, obezite, fiziksel etkinlik gibi pek çok etkenin bu hastalığın seyrini ve şiddetini değiştirebildiği düşünülmektedir. OA'nın gelişimi ekstraselüler matriks degredasyonu ile başlamakta ve artan su içeriğine bağlı olarak proteoglikan derişiminde ve agregasyonunda azalma ile glikozaminoglikan kaybına bağlı olarak eklem kıkırdağı kaybı, subkondral kemiğin yeniden şekillenmesi ve osteofit oluşumu gözlenebilmektedir. Bu olaylar kıkırdağın sertliğinin azalmasına ve mekanik travmalara karşı dirençsiz hale gelmesine ve nihayetinde kıkırdak kaybının gelişmesine neden olmaktadır. Eklem kıkırdağının normal fizyolojik yapısını ve işlevini sürdürmede kritik bir rol oynayan kondrositlerin mekanik ve kimyasal travmalara karşı hücresel yanıtına bağlı olarak çeşitli inflamatuvar mediyatörler ile reaktif oksijen türleri salıverilmektedir. Bunun sonucunda, kondrositlerin anabolik ve proliferatif yanıtlarında azalma ve ilerleyici kıkırdak kaybı ortaya çıkmaktadır. Dolayısıyla OA terimi, değişen derecelerde osteofit oluşumu, subkondral kemik değişimi ve sinoviyal sıvının inflamasyonu ile ilişkili, sinoviyal eklemlerde kıkırdak kaybıyla karakterize olan yaygın, heterojen bir hastalık olarak tanımlanabilir. Klinikte en sık karşılaşılan eklem hastalıklarından biri olan OA'nın gelişiminde çok sayıda etkenin rol almasına karşın, eklemlerde görülen patolojik değişimlerin tüm OA türlerinde ortak olması nedeniyle, bu patolojiyi anlamak OA'ya yönelik tedavi stratejilerini geliştirmek açısından önem kazanmaktadır. Bu nedenle, çalışmamızda OA'nın patofizyolojisinde rol oynayan dejeneratif ve inflamatuvar süreçlerin araştırılması amaçlanmıştır.

Anahtar Kelimeler: osteoartrit, eklem, kıkırdak, kondrosit, inflamasyon, reaktif oksijen türleri.

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➢ **POSTER PRESENTATION**

Effect of various inhibitors on enzymatic browning, antioxidant activity and total phenol content of fresh-cut rocket salad (*Eruca sativa* Mill.)

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Abstract
In this study, polyphenol oxidase (PPO) was extracted and partially purified by ion-exchange chromatography on a column packed with diethyaminoethyl cellulose (DEAE) from fresh rocket salad. Its optimum temperature and pH were found to be 30 °C and 6.0, respectively. Rocket PPO was shown to the greatest substrate specificity with catechol among the substrates used. Ascorbic acid, cysteine, oxalic acid and citric acid were tested as potential inhibitors of rocket PPO. Cysteine was found as the most effective inhibitor. While ascorbic acid increased the total antioxidant activity of rocket significantly, Rocket phenolics were protected from oxidation by the treatments of these inhibitors.
Keywords: rocket salad (*Eruca sativa* Mill.), enzymatic browning, phenolic compounds, inhibitors

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➢ **POSTER PRESENTATION**

Total phenolic and flavonoid content of kumquat (*Fortunella spp.*) extracts prepared using different solvents

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Abstract

Cumquats or kumquats (*Fortunella spp*.) are a group of small fruit-bearing trees, belongs in the genus Fortunella of the family Rutaceae family. The fruits and leaves of *Fortunella* species have long been used in herbal medicine, especially for colds and coughs and other inflammation of the respiratory tract (1). It may be attributed to the presence of bioactive compounds such as flavonoids and phenolics in kumquat fruit. Since the health benefits of kumquat fruits were understood, its plantation and production have been increased both in Turkey and throughout the world in recent years. In fact, most of the kumquat literature published today focuses on the health benefits of the kumquat fruit. However, little information about the phytochemical constituents responsible for the observed activities. Thus in this study the fruits and leaves of kumquat and its six hybrids (EP.4, EP.29, EP.31, YP.117, YP.141, YP.188), obtained from Mersin Alata Horticultural Research Institute, were compared based on their total phenolics and flavonoids. In order to characterize the total phenolic and total flavonoid compounds in kumquat hybrids, extractions of kumquat fruit and leaf with different solvents, including ethanol and methanol of various concentrations and hexane were carried out and subjected to the analysis of total phenolic and flavonoid contents.

Quantitative determination of total phenolics and flavonoids, of different solvent extracts were carried out using colorimetric methods (2,3). The total phenolic content, expressed as mg of gallic acid equivalent (GAE) per gram of extract, was found to be (3.705 - 20.281 mg GAE/g dry extract) and (31.062 - 86.329 mg GAE/g dry extract) for fruit and leaves respectively. The highest total phenolic content in leaf was observed in 60% methanol extract (86.329 mg GAE/g, YP188 hybrid). In the fruit of kumquat, the highest phenolic content was obtained in absolute methanol extracts (20.281 mg GAE/g, EP.4 hybrid). No significant difference could be observed among the extracts of wet and dry samples. The highest levels of total flavonoid were obtained in ethanol extract from leaves (632,222 mg QUE/g, EP.31). In the fruit of kumquat, the highest flavonoid content was obtained in absolute methanol extracts (313,333 mg QUE/g, YP.141).

Keywords: Cumquats, total phenolic content, *Fortunella spp*. , total flavonoid compounds

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➢ **POSTER PRESENTATION**

Synthesis and characterization of juglone loaded PEG-b-PCL polymeric micelles using nanoprecipitation method

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Abstract

Nanocarriers have important properties such as increasing amount of drug reaching the site of action, decreasing side effect, minimizing degradation of drug in the biological system, specific targeting and controlled release. These features depend on the type of nanocarrier, size, shape and surface properties [1]. Polymeric nanocarrier system consist of biocompatible and biodegradable polymer loaded with a therapeutically active agent. Polymers are wide variety of materials and they are easy to produce in desired form, mechanical and chemical properties. Polymeric micelles are comprised of amphihilic block copolymers having monomer units with hydrophobic and hydrophilic properties [2]. Polyethylene glycol (PEG) and polycaprolactone (PCL) are biocompatible and biodegradable polymers that used in drug delivery system. PCL is a hydrophobic polymer which encapsulates the low solubility active substance in the core. PEG is a hydrophilic polymer that stabilizes the core, protects it from protein adsorption and increases bioavailability [3]. Juglone (5-hydroxy-1,4-naphthaquinone) is secondary metabolite synthesized by walnut tree. Juglone has antimicrobial, antioxidant and anticancer properties. However, low solubility due to its hydrophobic character restricts its use by reducing bioavailability [4]. In this study a nanocarrier system is designed by encapsulating juglone into the polymeric micelles to increase the antifungal activity of the juglone. To do this; PEG-b-PCL copolymer was synthesized by the ring opening polymerization using microwave irradiation. H-NMR and FT-IR were performed to determine chemical structure of copolymer. GPC was used to determine average molecular weight of copolymer. Juglone loaded PEG-PCL micelles was synthesized using nanoprecipitation method. Critical micelle concentration (CMC) of the copolymer was determined by fluorescence spectroscopy using pyrene as a fluorescence probe. Size and polydispersity index (PDI) of micelles were determined by dynamic light scattering method (DLS) and surface charge of micelles were determined electrophoretic light scattering technique. Encapsulation efficiency and drug loading were calculated using UV-Vis Spectrophotometer. FT-IR analysis was performed to evaluate the interaction between drug and copolymer to ensure encapsulation. Morphological characteristic of bioactive micelles were analyzed using SEM. In-vitro release profile of juglon was investigated using dialysis technique.

Keywords: nanocarriers, polymeric micelles, PEG-b-PCL, juglon, antifungal

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➢ **POSTER PRESENTATION**

Evaluation of genotoxic effects of needle-like TiO_2/polyrhodanine core/shell hybride nanostructures in human lymphocytes by micronucleus assay *in vitro*

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Abstract

Nanoparticles (NPs) are substances used in medicine, cosmetics, electronics, drug delivery, and many other areas due to unusual biological, physical and chemical properties. Human and living things are increasingly exposed to these particles. For this reason, researchers are focused on the possible effects of these particles over living things. TiO_2 nanoparticles, as a white pigment, have chemical stability and antibacterial effects while rhodanine nanoparticles have antidiabetic and antimicrobial properties. TiO_2/Polyrhodanine nanocomposite (TiO_2/PRh NPs) shows strong antibacterial effect against *Escherichia coli*, *Klebsiella pneumoniae*, and *Staphylococcus aureus*. In this study genotoxic effect of needle-like TiO_2/PRh NPs was investigated using micronucleus assay in cultured human lymphocytes. Whole blood obtained from three healthy donors (1 man and 2 women) were incubated at 37°C for 72 h. Lymphocytes were treated with different concentrations (50, 100, 200, 300, 400, and 500 µg/mL) of needle-like TiO_2/PRh NPs for 48 h. Micronucleus assay was carried out by adding cytochalasin B after 44 h of the culture. A negative (ultra-distilled water) and a positive control (mitomycine C, MMC) were also maintained. Results of this study demonstrated that none of the concentrations of TiO_2/PRh NPs significantly increased the frequency of MN compared to the control. In the literature, there are studies indicating that TiO_2 NPs and polyrhodanine NPs are both toxic and non-toxic. Due to these conflicting results TiO_2 NPs, polyrhodanine nanoparticles, and TiO_2/PRh NPs need to be investigated by other genotoxicity tests. This study was supported by Gazi University Scientific Research Project under the project number 05/2018-07.

Keywords: Nanoparticles, needle-like TiO_2/PRh nanocomposite, genotoxicity, micronucleus test, lymphocytes.

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➢ **POSTER PRESENTATION**

Romatoit artrit: Osteoprotegerinin rolü

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Özet

Romatoit artrit (RA), etiyolojisi tam olarak bilinmeyen, kronik seyirli, sistemik inflamasyon ile belirgin otoimmün bir hastalıktır. Kronik poliartiküler sinovit, kıkırdak ve kemikte ilerleyici erozyon ile belirgin olan RA'nın etiyolojisinde genetik ve çevresel faktörler önem taşımaktadır. Kıkırdak ve kemik hasarından sorumlu hücre grupları, fibroblast benzeri sinovisitler ve sinoviyal makrofajlar olmakla birlikte, kemik dokusu, osteoklastlar tarafından eski dokunun yıkılıp, osteoblastlar tarafından yeni dokunun oluşturulması ile sürekli yenilenmektedir. Bu yeniden yapılanma, kemik yapımı ve yıkımı ile hücreler arasındaki bağlantılar tarafından sağlanmaktadır. Osteoprotegerin (OPG) tümör nekroz faktörü reseptörleri (TNFR) süper ailesinin bir üyesi olup, osteoblastların yanında böbrek, karaciğer, dalak, beyin, akciğer ve kemik iliği gibi pek çok doku ve immün hücreler tarafından sentezlenmekte ve kemik yıkımını engellemektedir. Fizyolojik koşullarda osteoblastlar tarafından üretilen reseptör aktivatör nükleer kappa B (RANK) ligand (RANKL)'nin öncül osteoklastların yüzeyinde bulunan RANK'a bağlanması TNFR ilişkili faktör (TRAF6)'yı uyararak nükleer faktör kappa B (NF-κB)'nin etkinleşmesine neden olmaktadır. Etkinleşen NF-κB öncül osteoklastların olgun osteoklastlara farklılaşmasını ve canlılıklarını sürdürmelerini sağlamaktadır. OPG, RANKL'ye bağlanarak bu proteinin RANK'a bağlanmasını engellemekte ve bunun sonucunda osteoklastların yaptığı kemik yıkımını inhibe etmektedir. OPG ile RANKL ve RANK proteinleri arasındaki bu etkileşme osteoblast ve osteoklast etkinliklerinin düzenlenmesinde büyük öneme sahiptir. Bunun yanında, OPG/RANKL oranı kemik kütlesinin önemli bir göstergesi olarak kabul edilmektedir. Son yıllarda, OPG, RANK ve RANKL ile ilgili yapılan çalışmalar kemik biyolojisinin aydınlatılmasının yanı sıra RA'nın patogenezine de yeni ve farklı bir bakış açısı kazandırmıştır. Bu proteinlerin kemik rezorpsiyonunun neden olduğu RA'nın tedavisindeki kullanımı ile ilgili yapılan çalışmaların sonuçları gelecekte umut vaat etmektedir. Bu nedenle, bu çalışmamızda, OPG, RANK ve RANKL'nin kemik rezorpsiyonu ile karakterize RA'nın patogenez ve tedavisindeki yerinin özetlenmesi amaçlanmıştır.

Anahtar Kelimeler: Kemik rezorpsiyonu, osteoblast, osteoklast, osteoprotegerin, RANKL, RANK

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➢ **POSTER PRESENTATION**

An analysis of phytoplankton pigments and size structure along the Dardanelles

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Abstract

Coastal marine ecosystems lies at the interface between land, sea and atmosphere providing half of the global ecosystem services and maintaining life both on the land and in the sea. They face multiple stressors such as anthropogenic nutrient enrichment, climate change as well as natural ones. Phytoplankton are the main autotrophs and first to respond to physical, chemical and biological changes occurring due to these stressors in marine pelagic ecosystems. Hence various phytoplankton related variables are used as indicators in monitoring, ecological and management studies. Among such variables; phytoplankton biomass and its size fractionation help us to detect changes in the amount of organic matter produced and its fate within the ecosystem while the concentrations of accessory pigments give information on the broad taxonomic composition of phytoplankton. Here, an analysis of the relation between the concentrations of chl a, chl b and chl c1+c2 and the micro-, nano- and picoplankton size fractions were made using data collected from four coastal sites along the Dardanelles during two different sampling periods. It is demonstrated that the correlations and linear relations between pigments and size fractions were significant. Comparison of response of each phytoplankton size fraction to chl b and chl c1+c2 revealed the response of picoplankton to chl b was stronger than those by micro- and nano-plankton indicating importance of chl b bearing taxa in picoplankton while no such difference was observed in the responses of the micro- and picoplankton size fractions to pigments.

Keywords: biomass, phytoplankton, pigments, size-fractions.

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➢ **POSTER PRESENTATION**

Antimikrobiyal doku iskelesi üretimi ve karakterizasyonu

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Özet

Eklem kıkırdağı eklemlerdeki kemikler arasında bulunan, eklem yüzeylerini kaplayan bir dokudur. Mevcut doku yapılarını korumak veya yeni doku yapılarını oluşturmak doku mühendisliğinin çalışma alanlarındandır. Bu yeni doku yapıların oluşması, hücrelerin hasarlı bölgeyi onarmak için ihtiyaç duyduğu destek yapısına bağlıdır. İşte bu destek yapısı doku iskelesi adı verilen bir yapıyla mümkün olmaktadır (Overaker ve Contiliano., 2004). Literatürde hyaluronik asit (HA), kondroitin sülfat (CS) veya kitosan (Ch) kombinasyonlarıyla oluşturulmuş çeşitli doku iskelesi çalışmaları mevcuttur (Tan vd., 2009; Chen vd., 2007). Araştırmacıların bu şekilde kombine çalışmalar yapmalarındaki amaç, doku iskelesi çalışmalarında kullanılan doğal polisakkaritlerin biyouyumlu ve biyobozunur olmalarına rağmen mekanik olarak dayanıklı olmamaları hususudur. Genel olarak bu çalışmalarda HA ve CS ikilisine farklı biyomoleküller eklenmesiyle mekanik dayanıklılığın yanında çeşitli özelliklerin iyileştirilmesi hedeflenmiştir (Ni vd., 2015). Ayrıca doku mühendisliği uygulamalarında son yıllarda kullanımı giderek artan kitosanın da mekanik dayanıklılık ve stabilite ile ilgili problemleri nedeniyle çeşitli moleküller ile kombine edilerek kullanımı söz konusu olmuştur (Singh vd., 2019). Bu çalışmada ise kitosan nanopartiküller taşıyıcı olarak kullanılmıştır. Çünkü nanopartiküller taşıma sistemlerinin avantajları arasında; üretiminin basit ve ucuz olması, tekrarlanabilirliğin fazla olması, çok sayıda molekülle entegre olabilmesi, uygulama sonrası stabil olması ve toksik çözücü kullanımının minimum olması yer almaktadır. Yine bu çalışmada kullanılan CAPE'nin; antiviral, antioksidan, antialerjik, antienflamantuar, antikanser ve antimikrobiyal özellikte olması kitosan nanopartiküllerine entegre edilecek molekül olarak seçilmesinde ilham kaynağı olmuştur (Derman, 2015). Bu çalışmayla literatürde ilk defa hyaluronik asit (HA-1)-kondroitin sülfat (CS-2)-kafeik asit fenetil ester (CAPE) yüklü kitosan nanopartikül (CAPE-ChNPs-3) olmak üzere 3 bileşenli ve genipin ile çapraz bağlanmış antimikrobiyal doku iskelesi üretimi gerçekleştirilmiştir. Deneysel olarak önce CAPE yüklü kitosan nanopartiküller (CAPE-ChNP) üretilmiştir. Üretilen nanopartiküller için optimizasyon çalışmaları ve karakterizasyon işlemleri (Boyut ve zeta potansiyel ölçümü ile FT-IR analizi) uygulanmıştır. İkinci aşamada genipin çapraz bağlayıcısı kullanılarak HA-CS-CAPE-ChNP doku iskelesi üretimi gerçekleştirilmiştir.

Anahtar Kelimeler: Hyaluronik Asit, Kondroitin Sülfat, Kafeik Asit Fenetil Ester, Kitosan Nanopartikül, Antimikrobiyal Aktivite

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Biological control and fungal diseases of the vine in the Mascara region in relation to climatic factors and variety of vines

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Abstract

The vine (*Vitis vinifera* L.), perennial woody plant is the seat of many infections among which the cryptogamic diseases are the most important. In the region of Mascara, this crop undergoes each year, attacks of several cryptogamic diseases, which depending on their nature, can affect the foliage, the clusters, and even the entire plant. A phytosanitary analysis was carried out on some 20 vines in the region by field surveys, supplemented by laboratory analyses. The results of this survey tell us about the presence of several diseases, the most important are powdery mildew, grey rot, esca, and eutypiosis, on the other hand, the mildew was quite discreet, due to the climatic conditions unfavourable to its extension. The synthesis of the various results obtained reveals the important diversity of pathogenic and saprophytic fungi in relation to the sensitivity of the grape varieties. Some fungi, detected during our analyses may have an interesting antagonistic activity vis-à-vis phytopathogenic fungi, or other animal parasites, these fungi are of interest in biological control of diseases and pests of the vine. To conserve the wine heritage and safeguard the diversity of fungal flora, biological control, integrated into protection systems seems to be an effective and environmentally friendly solution.

Keywords : Vine, Mascara, Diseaeses, Pathogene, Grape, Antagonist.

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➢ **POSTER PRESENTATION**

Novel nitropyrene and its derivatives as OLED and OFET materials

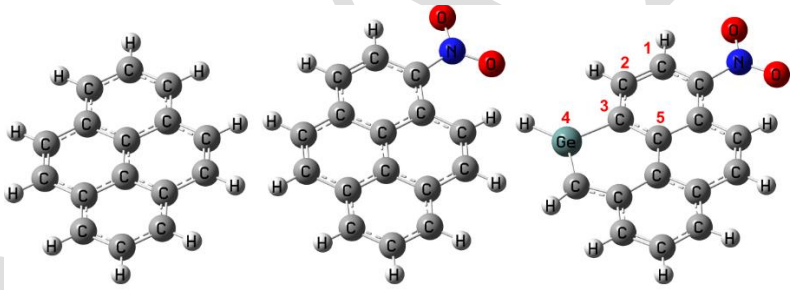
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Abstract

Pyrene and its mono-substituted derivatives are commonly used as effective materials for organic light-emitting devices (OLED) and organic field effect transistors (OFETs). This study covers research on the silicon (Si) and germanium (Ge) doped nitropyrene (a total number of 10 compounds), to determine the structural, electronic, optical and reactivity properties. Density functional theory (DFT) offers a practical means of understanding the formation energy, HOMO-LUMO energy gap, chemical hardness, electrophilicity and charge indexes. It is found that the position of doped Si and Ge atoms into nitropyrene has a profound effect on electronic and optical properties of system. Moreover, the bandgap decreases from 3.21 to 2.70 eV when a Si and Ge atom is doped to pure nitropyrene. The calculated bandgap value of nitropyrene agrees with the literature value. Note that the bandgap of the nitropyrene and its derivatives is smaller than that of pyrene and its derivatives. Similarly, the formation energies are also smaller than that of pyrene and its derivatives. Comparing to the bandgaps of Si- and Ge-doped nitropyrenes, PyNO2-4-Ge nitropyrene model is higher than the bandgap of other models, but the chemical hardness is low. Results indicate that Si- and Ge-doped nitropyrenes could be desirable in devices such as OLEDs and OFETs.



Keywords: Pyrene, Nitropyrene, Doping, DFT, Bandgap.

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➢ **POSTER PRESENTATION**

Effects of prebiotic use at varying levels in Broiler rations on performance carcass internal organ weights and some blood parameters

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Abstract

The aim of this study was to determine the effects of prebiotic use at varying doses in broiler diets on performance, carcass yield, internal organ weights and some blood parameters. A total of 108 (Ross) newly born broiler chicks were used in the study. A Control and 2 treatment groups were formed, each consisting of 36 chicks, and each treatment group was divided into 4 subgroups consisting of 9 chicks. I. Group (control), II. group low dose prebiotic (LDP) 600 ml / ton, III. group high dose prebiotic (HDP) 1200 ml / ton form groups were arranged. The study was completed in 40 days. Live weight was determined at the beginning of the trial and weekly live weight, live weight gains, feed consumption and feed efficiency ratio were calculated on the basis of subgroup. On the 40.th day of the trial, 8 chickens were randomly selected from each group and 2 animals from each subgroup were weighed and used for carcass analysis and blood collection. Blood serum total protein, albumin total cholesterol and triglyceride levels were determined. Hot carcass weight, liver, spleen, heart, pancreas, gizzard and Bursa fabricius weights of these slaughtered animals were determined. In the study, prebiotic addition to the diet tended to have an effect on live weight gain at 1.st week (P = 0.053), live weight gain at 1.st week (P =0.057) and 3.rd weeks (P =0.07) and feed efficiency ratio at 2.nd weeks (P =0.07). The other remaining weeks these parameters were similar between the groups. (P> 0.05). In general, hot carcass and internal organ weights were statistically similar between groups (P> 0.05). Also, addition of prebiotic into diets had no statistical effect on blood parameters (P> 0.05). In conclusion, prebiotic addition into broiler diets at varying rates; did not have a negative effect on performance and organ weights and did not cause any change in blood parameters, indicating the need for further studies with such prebiotics as liquid additives in order to be used as alternatives to antibiotics.

Key words: Prebiotic, Broiler, performance, Internal organ weights, Blood parameters.

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➢ **POSTER PRESENTATION**

Lactobacillus delbrueckii subsp. *bulgaricus* suşlarında beta galaktozidaz enzim aktivitesi

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Özet

Lactobacillus delbrueckii subsp. *bulgaricus*, yoğurt üretmek için sütün fermantasyonunda kullanılan bakterilerden biridir. Bu bakteri laktozun glikoz kısmını metabolize eder, galaktoz salgılar ve ana metabolik son ürün olarak laktik asit üretir. Çalışmada, Gazi Ü. Biyoloji Bölümü Biyoteknoloji Laboratuvarı kültür koleksiyonunda bulunan Türkiye'nin çeşitli ilçelerinden alınarak, geleneksel yöntemlerle yapılan yoğurtlardan izole edilen ve 16S rDNA bölgesine göre moleküler tanımlamaları yapılmış 31 *Lactobacillus delbrueckii* ssp. *bulgaricus* bakteri kültürleri kullanılmıştır. O-nitrofenil-beta-D-galaktosit (o-NPG) substrat olarak kullanılarak, kültürlerin β-galaktosidaz enzim ve spesifik aktiviteleri belirlenmiştir. *L. delbrueckii* ssp. *bulgaricus* ZN541 (6,500 U/mg), *L. delbrueckii* ssp. *bulgaricus* ZN672 (2,823 U/mg) ve *L. delbrueckii* ssp. *bulgaricus* ZN641 (2,814 U/mg) suşlarının en yüksek spesifik aktivite yeteneğine sahip oldukları tespit edilmiştir. Yüksek spesifik β-galaktozidaz aktivitesi gösteren ZN541 suşuna ait β-galaktozidaz enziminin optimizasyonu yapılmıştır. β-galaktozidaz enziminin optimum pH'sı 6,2 optimum sıcaklığı 42°C ve optimum sürenin 24 saat olduğu belirlenmiştir. Son yıllarda β-galaktozidaz enzimi endüstriyel öneminden dolayı bilim dünyasının ilgisini çekmektedir. Elde edilen sonuçlar doğrultusunda, *L. delbrueckii* ssp. *bulgaricus* ZN541 suşundan izole edilen β-galaktozidaz enzimi, saflaştırılarak endüstriyel amaçlı kullanılabilecektir.

Anahtar kelimeler: *L. delbrueckii* ssp. *bulgaricus,* β-galaktosidaz, optimizasyon

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➢ **POSTER PRESENTATION**

β-galactosidase activity in the yogurt bacterium 34 *Streptococcus thermophilus*

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Abstract
Streptococcus thermophilus is one of the bacteria used in the fermentation of milk to produce yoghurt. This species normally metabolizes only the glucose moiety of lactose, secreting galactose and producing lactic acid as the main metabolic end product. Thirty-four *S. thermophilus* isolated from different yogurts made by traditional methods in various districts of Turkey were screened for β-galactosidase enzyme activities and specific activities. The β-galactosidase enzyme activities were determined by using o-nitrophenyl-b-D-galactopyranoside (o-NPG) as a substrate. The highest specific enzyme activities observed among Streptococci cultures were at *S. thermophilus* Z1052 (5.064 U/mg), *S. thermophilus* Z752 (3.113 U/mg), and *S. thermophilus* Z151 (2.260 U/mg) strains. The enzyme optimization of Z1052 strain with highest specific β-galactosidase activity was achieved. The optimum pH was determined as 6.8, optimum temperature was 42°C and the optimum incubation time was 24 hours for the enzyme.
Keywords: *Streptococcus thermophiles*, β-galactosidase, enzyme optimization.

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➢ **POSTER PRESENTATION**

Amphibian fauna of Amasya Province, Turkey

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Abstract

This study investigated the amphibian fauna of Amasya Province. The study area includes suitable habitats for amphibians, such as relatively rich inland water sources, lakes, ponds, marshes, moisturized forests. Therefore, as the primary aim of the survey was to make a biodiversity assessment, the sampling effort varied greatly from one site to another, the survey having been designed primarily to yield the maximum number of species records from each location sampled. Field studies were carried out for two years between 2016 – 2017. Species from Hylidae (*Hyla arborea*), Ranidae (*Pelophylax ridibundus*, *Rana dalmatina*, *Rana macrocnemis*), Bufonidae (*Bufo bufo*, *Bufotes variabilis*) and Salamandridae (*Triturus anatolicus*, *Ommatotriton ophryticus*) were recorded in the borders of province with some new locality reports. These eight amphibian species were assessed according to IUCN status and six of them are described as "Least Concerned" (LC) and the rest are "Data Deficient" (DD) and "Near Threatened" (NT) for *Bufotes variabilis* and *Ommatotriton ophryticus* respectively. An overall zoogeographical assessment was also done for related amphibian species.

Keywords: Amphibians, biodiversity, zoogeographical assessment.

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➢ **POSTER PRESENTATION**

Development and characterization of bionanocomposites from electrospun PHBV/Collagen/Chitosan/*Hypericum perforatum* extract for potential wound healing applications

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Abstract

A wound can be defined as the disruption of the integrity of anatomical tissues caused by exposure to various factors such as lacerations, extreme heat or corrosives. Since ancient times, various methods have been employed to treat wounds and many of those generally includes the covering of the wound area with various materials and plants. In recent years, biopolymers and plant extracts used in combinations as perfect candidates for novel wound dressing materials due to their superior properties. Collagen is an abundant protein in all animals and it is the most prevalent component of the extracellular matrix. It's known role in the wound healing process made collagen the primary biopolymer in wound healing applications. Chitosan is a linear polysaccharide and it is the product of the deacetylation reaction of chitin. Chitosan is used in the treatment of wounds due to its homeostatic effect and it accelerates the formation of fibroblasts and increases early phase reactions related to healing. Polyhydroxyalkanoates (PHAs) are biodegradable polyesters that are produced by various microorganisms. Due to their excellent biochemical and mechanical properties PHAs are used with other proteins to form composites which can be used in wound healing and other health related treatments. *Hypericum perforatum L.* (HP, known as Sarı Kantaron in Turkey), is a member of the genus Hypericum family. It is known that the extracts of HP contain various polyphenolic biomolecules which promote the wound healing process.

In this study PHBV/Collagen/Chitosan/HP extract nanocomposite material was developed by using electrospinning technique and it was characterized by FTIR and SEM. Effects of HP extract and polymeric material containing this extract on collagenase enzymatic activity was determined. Results of this study suggest that, with further *in vivo* studies, developed biomaterial could contribute to human health as a novel wound dressing material.

Keywords: Collagen, Chitosan, Polyhydroxyalkanoates, Electrospin, *Hypericum perforatum*

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➢ **POSTER PRESENTATION**

Immobilization of lipase enzyme to zwitterionic functionalized UV-cured thiol substituted polymeric material

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Abstract

Lipases (EC.3.1.1.3, triacylglycerol acyl hydrolase) are important enzymes that catalyze the reversible hydrolysis of animal and vegetable oils under moderate conditions, and they are used in many industrial processes. Lipases, which have a wide substrate selectivity, are often used as biocatalysts in the industry because they are cheaper and easier to obtain than other enzymes. They can be preferred for a specific biochemical synthesis of products that are difficult or impossible to obtain chemically. Besides their use as catalysts, lipases also find use in detergent, dairy product, beverages, meat and fish, oil, chemical, and pharmaceutical industries. Despite the superior properties to the chemical catalysts, enzymes are limited in free use in the industry for reasons such as their low durability and the inability to recover from the reaction mixture. Therefore, enzymes have to be immobilized to a variety of materials, which have better mechanical properties and facilitate their removal from the reaction medium, as well as maintaining the enzyme activity longer.

Thiol-ene polymerization is a polymerization system that involves the addition of the "thiol" radicals to the double bond of the "ene" group. Thiol and ene groups are prepared with high efficiency by interacting 1: 1 ratio, stoichiometrically. In contrast, off-stoichiometry thiol-enes (OSTE) contains excess thiol or ene groups in the pre-polymer. The remaining thiol or ene groups allow the further development of surface properties. OSTE polymers are preferred for various applications such as enzyme immobilization, or preparation of antibacterial, hydrophobic or hydrophilic surfaces.

In this study, OSTE polymeric films with thiol functional groups were prepared by UV polymerization method and then the film surfaces were functionalized with 2-(methacryloyloxyethyl)dimethyl-3-sulfopropyl ammonium hydroxide, a zwitterionic monomer. The morphology and structural feature of the prepared material was characterized by SEM and ATR-FTIR. Lipase enzyme isolated from *Candida rugosa* was immobilized to the obtained films, and then, the activity, reusability, storage time and kinetic parameters of the free and immobilized enzyme were determined. The results suggested that zwitterionically functionalized thiol substituted polymeric material can be successfully used for immobilization of the lipase enzyme.

Keywords: Lipase, *Candida rugosa*, OSTE, immobilization

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➢ **POSTER PRESENTATION**

Kinolin substitüe ftalosiyanin sentezi, karakterizasyonu ve optik özellikleri

Tanju Kaya*, Fatih Pekdemir, Abdurrahman Şengül

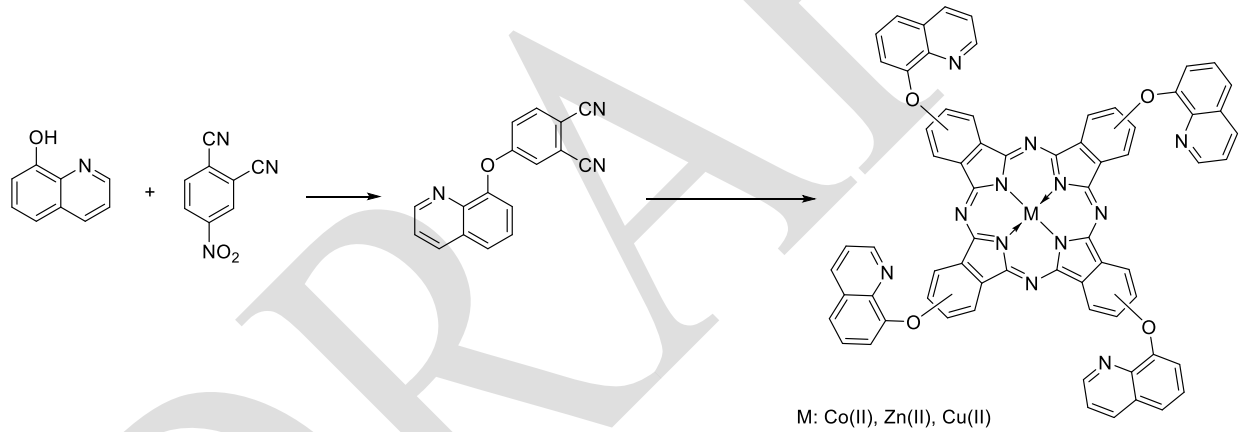
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Özet

Kinolin ve türevleri sahip oldukları yapısal özellikleri ve biyolojik aktivitelerinden dolayı tıp, eczacılık, biyoorganik gibi endüstriyel alanlarda ve sentetik organik kimyada sıkça kullanılmaktadır [1]. Ftalosiyanin türevleri de sahip oldukları ilginç fiziksel, kimyasal ve elektronik özellikleri sayesinde üzerinde çokça araştırma yapılan moleküllerdir. Boya endüstrisinden, malzeme bilimine, elektronik uygulamalardan, tıbbi uygulamalara ve daha pek çok alanda kullanılmaktadır [2-3].

Bu çalışmanın amacı, belirtilen alanlarda kullanılabilir nitelikte yeni kinolin substitüe ftalosiyanin türevleri sentezlemek ve karakterizasyonunu yapmaktır. Bu bağlamda Şekil 1'de açık yapısı verilen yeni ftalosiyanin kompleksleri sentezlenerek yapıları aydınlatılmıştır.



Şekil 1. Kinolin substitüe ftalosiyanin molekülü.

Anahtar Kelimeler: ftalosiyanin, kinolin, sentez.

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➢ **POSTER PRESENTATION**

In vitro antifungal activity of *Cistus creticus* L. against plant pathogenic fungi

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Abstract

Cistus creticus L. is a well-known member of the Cistaceae family. *Cistus* species naturally grown in Turkey are represented by five species and known as "tüylü laden, pamuklu, pamukluk" [1-3]. The natural habitat for *Cistus* species is the Mediterranean area in Turkey. As a result of various ethnobotanical studies, it is stated that *C. creticus* is used for hemostatic and wound healing purposes in different localities in Turkey [3-5]. In this present study, methanol extract of aerial parts of *C. creticus* was evaluated for its antifungal activity against plant pathogenic fungi such as *Fusarium moniliforme* NRRL 2374, *Fusarium culmorum* NRRL 3288, *Alternaria alternata* ATCC 6663, and *Botrytis cinerea* AHU 9424, respectively. The *in vitro* antifungal activity of *C. creticus* extract was determined by calculating mycelial growth inhibition. It was demonstrated that methanol extract of *C. creticus* has shown antifungal activity on *F. moniliforme* (36,7%) and *B. cinerea* (30,2%). The obtained results evidently may provide industrial advantages especially with combinations of the various antifungal agent with *C. creticus* methanol extract that can be used as pesticide. Therefore, these results can help the agricultural economy in the world for the development of potential and natural agrochemicals. More study needs to be conducted isolation and identification of responsible secondary metabolites from the extract. Moreover, we are planning to evaluate the active fractions which are responsible for the antifungal activity in further studies.

Keywords: Cistaceae, *Cistus creticus* L., antifungal, plant pathogenic fungi

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➢ **POSTER PRESENTATION**

Cytotoxic activity of the fruit extracts of *Heptaptera triquetra* (Vent.) Tutin

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Abstract

Heptaptera Marg. & Reuter is a small genus of Apiaceae family represented by six species worldwide (1). There are four *Heptaptera* species found in Turkey, *Heptaptera triquetra* (Vent.) Tutin only found in the European section of Turkey and adjacent areas of Bulgaria (2). *Heptaptera* species are known to contain sesquiterpene coumarin derivatives (3), these compounds have various biological activities such as; cytotoxicity, P-glycoprotein inhibitory, cancer chemopreventive, anti-inflammatory, antibacterial, antileishmanial, antiviral, etc. (4).
The fruits of *H. triquetra* were collected in the vicinity of Tekirdağ in June 2013. Coarsely powdered fruits of the plant were sequentially extracted with dichloromethane and methanol at room temperature. The extracts were separately concentrated in a rotary evaporator under reduced pressure to dryness. Methanol extract was redissolved in a mixture of methanol/water (10:90) and then partitioned with ethyl acetate, the resulting extracts were individually concentrated *in vacuo* to dryness. These extracts were subjected to the cytotoxic activity testing.
This is the first report on the cytotoxic activity of the fruit extracts of *H. triquetra*. The highest activity was found in the dichloromethane extract of the fruits. The dichloromethane extract of the fruits showed cytotoxic activity with IC_{50} values of 9.3 and 5.3 ug/mL on the colon cancer COLO205 and KM12 cell lines, respectively. Bioactivity guided fractionation of the dichloromethane extracts of the fruits of *H. triquetra* is planned to isolate and identify their cytotoxic principles.

Keywords: Cytotoxic activity, *Heptaptera triquetra*, Apiaceae

Acknowledgements: We thank Dr. John Beutler, Molecular Targets Laboratory, CCR, NCI, Frederick, MD, U.S.A. for the cytotoxic activity testing. We thank Prof. Dr. Ahmet Duran for the collection and identification of plant material.

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➢ **POSTER PRESENTATION**

Dopamine-derived potantial bioactive Schiff bases

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Abstract

Dopamine is a chemical produced naturally by the body. This chemical activates dopamine receptors in the brain and acts as a neurotransmitter. Dopamine is also secreted from the hypothalamus, which is the frontal region of the brain, and it mixes with blood and acts as a neurohormone.Dopamine is used to act on the sympathetic nervous system, increase heart rate and increase blood pressure. Since the blood cannot pass through the cerebrospinal fluid, it cannot directly affect the central nervous system. The L-DOPA molecule, which is used as a precursor in dopamine synthesis, is used to increase dopamine in the brains of patients with Parkinson's disease and Dopa-Sensitive dystonia. There is no obstacle between the blood and the brain.Dopamine, a hormone that can direct the muscular system in addition to the feeling of happiness, is active in many different functions in humans and animals. Dopamine is effective in functions such as movement, memory, pleasure reward, behavior, comprehension (Understanding), attention, blocking prolactin production, sleep, mood (mood), learning. In recent studies, it has been determined that dopamine-derived Schiff bases and complexes have antimicrobial effects.

In this work; Four dopamin Schiff base derived from substituted 2-hydroxyacetophenone derivative and dopamine (DA) were synthesized for the first time. All four new Schiff base (5Nitro-2-hydroxyacetophenonedopamine (5NO_2-afda), 5methoxy-2-hydroxyacetophenonedopamine (5OCH_3-afda), 5methyl-2-hydroxyacetophenonedopamine (5CH_3-afda), 4 methoxy -2-hydroxyacetophenonedopamine (4 OCH3-afda) were well characterized by elemental analysis, FT-IR, 1H-NMR, 13C-NMR, spectroscopy. Our aim; synthesized Schiff base compounds containing dopamine and then to examine their potential for use in medicine as drug.

Keywords: Dopamin, Schiff base, 2-hydroxyacetophenone, Characterization

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➢ **POSTER PRESENTATION**

The effect of *Punica granatum, Camellia sinensis, Aloe vera* on the expression of pro-apoptotic and anti-apoptotic genes ın prostate cancer

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Abstract

Prostate cancer is the most fatal malignancy and one of the most common types of cancer in males.men. Traditionally, there have been studies using extracts from plant roots, stem and fruit to protect health, increase immunity, prevent and treat chronic diseases. In this study, we aimed to investigate the effect of *P. granatum*, *A. vera* and *C. sinensis* plant extracts dissolved in ethanol on apoptosis and cell growth and development in prostate cancer cells.

In our study, *P. granatum*, *A. vera* and *C. sinensis* plant extracts were applied to LNCaP prostate cancer cell line at different concentrations. After 48 hours of experiments, cell viability was determined to investigate the effect of extracts on the cells and changes in expression levels of anti-apoptotic/pro-apoptotic genes were determined by relative quantitation.

According to experimental results, BAX and BCLXL gene expressions were decreased in 1ul *C. sinensis*-treated cells and increased in all other cells. The BCL2/BAD ratio was decreased in cells treated with *C. sinensis* and 10ul *A. vera* and increased in other samples. BCLXL/BAD ratio decreased in cells given 1ul *C. sinensis* and increased in others. The BCL2/BAX ratio was decreased in cells treated with 1ul *C. sinensis*, 1ul *A. vera* and 10ul EtOH, and increased in other samples.

In conclusion; *P. granatum*, *C. sinensis* and *A. vera* extracts have been shown to be therapeutic agents against prostate cancer, and mechanisms need to be investigated in detail. To determine the optimum concentration of the components of *P. granatum*, *C. sinensis* and A. vera, in vivo investigations should be performed in addition to in vitro.

Keywords: prostate cancer, apoptosis, gene expression, *P. granatum, C. sinensis, A. vera*.

Acknowledgements: LNCaP prostate cancer cell line used during the experiments was taken from Prof. Dr. Kemal Sami Korkmaz, Ege University Bioengineering Department, Izmir - Turkey.

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➢ **POSTER PRESENTATION**

The relationship between cocaine and amphetamine-regulated transcript (cart) gene polymorphism ın childhood obesity

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Abstract

Obesity is an important health problem caused by excessive increase in fat tissue in the body. Although it is seen in all age groups, it increases in childhood. Childhood obesity is important in adult hypertension, diabetes, cardiovascular diseases and high cholesterol formation potential. Oxidative stress has been shown to increase in obese individuals in recent years. The CART gene is located on chromosome 5 and one of the polymorphisms identified in the coding region is the A1475G polymorphism.

The aim of this study was to determine the prevalence in the CART gene polymorphism of obese children in Turkey; it is to reveal the relationship between metabolic-anthropometric parameters.

This study was conducted in 134 obese and 143 healthy controls aged between 3 and 18 years. Genotypes of the patients were determined by Real-Time PCR method after DNA isolation. The association of A1475G polymorphisms with metabolic and anthropometric parameters were investigated.

Weight, BMI, waist circumference, fat mass and fat percentage values were significantly higher in the obese group than control subjects ($p<0.05$). As a result of metabolic measurements, triglyceride levels were higher and HDL levels were lower in the obese group compared to the control group ($p < 0.05$). FBC values were significantly lower in the patients with G allele in the patient group ($p < 0.05$).

Analysis of A1475G polymorphism in CART gene did not make a significant difference in the results we see in Turkey populations. More comprehensive and meaningful results can be obtained in wider population.

Keywords: CART, obesity, polymorphism, A1475G, childhood obesity.

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➢ **POSTER PRESENTATION**

Electrochemical investigation of the interactions between propafenone and some divalent metal ions

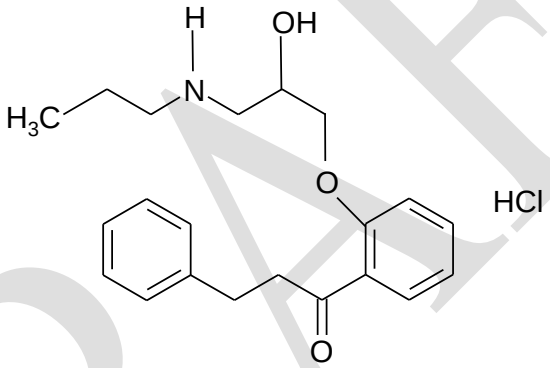
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Abstract

In the present study, the interactions of Co(II), Mn(II), Ni(II) and Zn(II) ions with propafenone hydrochloride (Scheme), a class Ic antiarrhythmic agent were investigated in the physiological pH (7.4) by voltammetric techniques. The cyclic voltammogram of propafenone hydrochloride showed a single irreversible cathodic peak, which may be attributed to reduction of the >C=O double bond. On the other hand, it was shown that the reduction potential of metal ions shifted to more negative potentials upon the addition of propafenone. At the same time, the reduction peak currents of the metal ions generally decreased by increasing amounts of propafenone. The obtained results showed that these metal ions formed the complexes with propafenone ligand. The stability constants and stoichiometries of these complexes were determined from the changes at the reduction potentials and currents of metal ions in the presence of propafenone.



Scheme. Chemical structure of propafenone hydrochloride

Keywords: Propafenone, Metal complexes, Stability constants, Voltammetry.

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➢ **POSTER PRESENTATION**

Phragmotrichum chailletii, a new ascomycete record for Turkey

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Abstract

Fungi are regarded as the second diverse group of organisms in the world and almost more than 100.000 species of them have been determined. They are found all around the world and grow in a wide range of habitats. Though most grow on terrestrial environments, several species live only in aquatic habitats. Fungi include microorganisms such as yeasts and molds, as well as the more familiar mushrooms. Those fungi with fruiting bodies which can be seen by naked eye are known as macrofungi. Almost 2700 taxa of macromycetes have also been reported from Turkey. But compared to the determined 15.000 species in Europe, we can claim that there is much to be done to determine the overall macrofungal biodiversity of Turkey.

During routine field studies in Trabzon province, some black pustule-like fruit bodies were detected on the scales of fallen spruce cones. The samples were photographed in the field and transferred to the fungarium. Necessary investigation related to its macro and micromorphology were carried out in the fungarium following the routine mycological techniques. As a result it was identified as *Phragmotrichum chailletii* Kunze. Tracing the current literature it was found that it has not been reported from Turkey and new for Turkish mycobiota. The study aims to make a contribution to the mycobiota of Turkey by presenting a new fungal record.

Keywords: Biodiversity, new record, *Phragmotrichum*, Trabzon

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➢ **POSTER PRESENTATION**

Genea papillosa, a new hypogeous macrofungi record for Turkey

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Abstract

Almost 2.700 taxa of macromycetes have been reported from Turkey as a result of the studies that have been carried out for more than one century. It is thought that this number constitute a small portion of the expected taxa number, compared to those determined in Europe. That's why biodiversity studies on the macrofungi of Turkey are in progress in an increasing manner.
During such a field study in Yeşiltepe village of Ardeşen (Rize) district, an irregularly rounded, lobulate, brownish fruit body were noticed under mossy soil. Four days later a similar fruit body was also collected from Akdere village. The fruit bodies were photographed in the field and transferred to the fungarium. Necessary macroscopic and microscopic investigation were carried out in the fungarium. As a result it was identified as *Genea papillosa* Vittad. A carefull trace of the current literature indicated that it has not been reported from Turkey and new for Turkish mycobiota. The study aims to make a contribution to the mycobiota of Turkey by presenting a new fungal record.

Keywords: Biodiversity, new record, hypogeous fungi, Rize

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➢ **POSTER PRESENTATION**

An investigation of the potential of apoptotic and genetic damage of bismuth oxide nanoparticle on MDBK cell line

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Abstract

Today, nanoparticles have been used in almost all areas of life thanks to advances in nano-scale technology. Among the available nanoparticles, Bismuth oxide nanoparticle is widely used in many products in terms of its properties such as antibacterial, antitumor and cytotoxic activity and antifungal.
In this study, we aimed to determine the in vitro genetic damage potential and apoptotic effects of Bismuth oxide nanoparticle having 90 - 210 nm size range in MDBK cell line cultures.
In this study; single cell gel electrophoresis (COMET) method and flow cytometry method were used to determine genotoxic and apoptotic effect. The MDBK (Madin Darby Bovine Kidney) cells were treated with Bismuthoxide at three concentrations of 30 µg / ml, 60 µg / ml and 90 µg / ml.
No significant difference was found between the negative control group and Bismuthoxide groups for GDI and DCP parameter. When all the concentrations were considered, there was a significant difference between negative control and other groups for early and/or late apoptotic, necrotic cell and number of live cells ($p < 0.05$).

Keywords: MDBK (Madin Darby Bovine Kidney) cell line; Genetic Damage; Bismuth Oxide Nanoparticle;flow cytometry.

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➢ **POSTER PRESENTATION**

Acidic ionic liquid synthesis as catalysis system for esterification of oleic acid with methanol

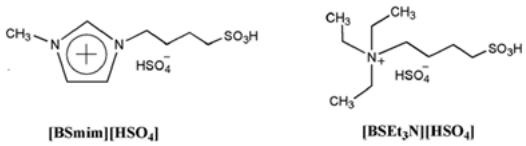
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Abstract

As a biofuel, biodiesel is a liquid fuel that could be replaced petroleum diesel in the future. Biodiesel could be synthesized from different origins, including organic oils from animal fats and vegetables. Alternative to oils, biodiesel can also be obtained through the esterification reaction of free fatty acids such as oleic acid. When free fatty acids are used as raw materials in biodiesel synthesis, homogeneous acid catalysts such as H_2SO_4, H_3PO_4 are preferred. But they have some drawbacks such as forming acidic waste and causing corrosion in equipment (Feng et.al, 2017)1. Therefore, new alternative catalyst systems are needed. In recent years, ionic liquids (ILs) have been used as catalyst in various reactions and good results have been obtained. ILs have important properties such as their thermal stability, ease of recovery, and non-volatility due to low vapor pressure (Keskin et.al., 2007). In this work, two different ionic liquids containing HSO^-_4 were synthesized and their structures were confirmed by nuclear magnetic resonance (NMR). These synthesized ILs are 1-butylsulfonate-3-methyl imidazolium hydrogen sulfate ([Bsmim][HSO_4]) and (4-sulfonic acid) butyltriethylammonium hydrogen sulfate ([$BSEt_3N$][HSO_4]). These ILs synthesized was applied as a catalyst in the biodiesel production through the esterification reaction of oleic. Among these two ILs tested, [Bsmim][HSO_4] showed the highest catalytic efficiency for the esterification.



[BSmim][HSO_4] [$BSEt_3N$][HSO_4]

Figure 1. The structures of the ILs used in this study.

Keywords: Ionic liquids, oleic acid, esterification, biodiesel

Acknowledgments: The authors thank the Research Fund of Mersin University in Turkey with Project Number: 2019-1-TP2-3473

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➢ **POSTER PRESENTATION**

In vitro vegetative propagation of *Lavandula angustifolia* and essential oil analysis under stress conditions

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Abstract

Lavandula is an economically and medicinally important genus due to its essential oils. *Lavandula angustifolia* is one of the highest essential oil producing species in the genus. It has many therapeutic properties and biological activities such as anti-inflammatory, antimicrobial, andioxidan and anxiolytic. It is also commonly used in antidepressant medication. The aim of this study is to propagate *Lavandula angustifolia in vitro* and to analyse the essential oils under the influence of some stress conditions and elicitors. Different explants of *Lavandula angustifolia* were incubated in MS medium supplemented with different Plant Growth Regulators (PGRs) in different concentrations and combinations. Callus formation was observed on leaf, shoot and internod explants. The maximum yield of callus was observed in MS medium supplemented with 2mg/L 2,4-D. The callus was transferred to MS medium supplemented with 2 mg/L BAP+3,3mg/L IBA and indirect organogenic shoots were regenerated. Also direct organogenesis was observed when shoot explant was incubated in MS medium supplemented with 2 mg/L BAP+3,3 mg/L IBA. Multiple shoot and root structures were regenerated from direct and indirect organogenesis applications. Calli were applied on different abiotic stress factors and elicitors to evaluate secondary metabolite production changes compared to control samples.

Keywords: *Lavandula angustifolia*, micropropagation, essential oil, stress

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➢ **POSTER PRESENTATION**

Biyosentezlenmiş çinko oksit nanopartiküllerin antioksidan aktivitesinin incelenmesi

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Özet

Nanopartiküller tarafından sergilenen biyoaktivite, dünya çapında araştırmacılar tarafından büyük ilgi görmektedir. Çinko oksit nanopartiküllerinin (ZnO-NP) fitojenik sentezi, düşük toksisitesi ve biyolojik potansiyeli nedeniyle çevre dostu bir yaklaşım olmuştur [1]. Günümüzde ZnO-NP'ler; biyomedikal, atık su arıtımı, çevresel iyileştirme ve ayrıca kozmetik ürünlerde uygulanabilirliği gibi çok yönlü yapısı nedeniyle yapılan araştırmalarda öne çıkmaktadır [2]. Biyosentez yöntemleriyle üretilmiş ZnO'nun antimikrobiyal, antioksidan ve antikanser özellik gösteren çeşitli nanoyapılar sergilediği bilinmektedir [3].

Enginar yaprağı (*Cynarae folium*) Avrupa Farmakopesi'nde kayıtlıdır. Yaprağın yapısında, kafeilkinik asit türevleri (sinarin, kafeik asit, klorojenik asit, neoklorojenik asit, kriptoklorojenik asit), flavonoitler (luteolin, rutin), seskiterpen laktonlar (sinaropikrin, dehidrosinaropikrin), tanen vs bulunur [4]. Enginar ekstraktının içerdiği biyobileşenlerin anti-oksidan, anti-inflamatuvar, anti-alerjik ve karsinom aktivite gösterdiği bilinmektedir [5].

Antioksidanlar, hücreleri reaktif oksijen türlerinin zararlı etkilerine karşı koruyan bileşiklerdir. Son zamanlarda doğal antioksidanlar, hastalık önleme ve sağlığın iyileştirilmesindeki potansiyelleri nedeniyle çok talep görmektedir [6]. Çinko hücresel savunmayı oksidatif strese karşı koruyarak antioksidan görevi görür. Bu özellik hücre içindeki oksidatif DNA hasarına karşı ve DNA bütünlüğünün korunmasında önemli bir mekanizma olabilir [1]. Ayrıca bitki ekstresiyle yapılan ZnO-NP sentez çalışmalarında bitkinin özelliklerinin sentezlenen nanopartiküllere de geçtiği görülmüştür. Bu sebeple yeşil sentez yöntemleriyle üretilmiş ZnO-NP'lerin antioksidan aktivitesinin araştırılması üzerine yapılan çalışmalar gün geçtikçe artmaktadır [1-3].

Bu çalışmada gıda endüstrisinde kullanılan yüksek polifenol içeriğine sahip enginar bitkisinin atık olan yaprakları değerlendirilerek optimum koşullarda ZnO-NP'lerin biyosentezi gerçekleştirildi ve UV – VIS absorpsiyon spektroskopisi, FT-IR ve SEM analizleri ile karakterizasyonu gerçekleştirildi. Bitkinin sulu ve alkollü ortamdaki ekstresinin ve ZnO-NP'lerin toplam fenolik madde miktarı Folin-Ciocalteu reaktifi (FCR) kullanılarak tayin edildi. Sentezlenen ZnO-NP'lerin antioksidan aktivitesi ise FRAP yöntemi (Demir (III) İyonu İndirgeme Gücü) ve 2.2.-Difenil-1-pikrihidrazil (DPPH) radikal söndürücü kapasite yöntemi kullanılarak belirlendi. Bitki özütü ve elde edilen ZnO-NP'lerin antioksidan özellikleri sentetik antioksidanlar (BHA, BHT) ve doğal antioksidanların (E vitamini, C vitamini) antioksidan aktiviteleri ile karşılaştırılarak sonuçlar irdelendi.

Anahtar Kelimeler: Çinko oksit, nanopartikül, cynarae folium, enginar yaprağı, biyosentez, antioksidan aktivite

Bu çalışma, YTÜ Bilimsel Araştırma Projeleri Kordinatörlüğü'nün FYL-2020-3810 numaralı projesi ve TÜBİTAK 2210-D Yurt İçi Sanayiye Yönelik Yüksek Lisans Burs Programı tarafından desteklenmektedir.

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➢ **POSTER PRESENTATION**

Preparation and characterization of perlite particles and its application in subtilisin Carlsberg immobilization

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Abstract

Enzymes in a solution has many disadvantages because purification and isolation steps of the enzymes are time consuming and costly, the enzymes used as analytical reagents are sensitive to the experimental conditions and environmental conditions, also they have short usage times at high and low temperatures and they cannot be recovered for reuse. Therefore, with the increasing use of enzymes in industrial areas, ways to make these enzymes more economical and more useful are sought. For this reason, enzymes are immobilized by making them insoluble in water with the help of supporting materials (matrices) in order to be able to use them for a long time and again, and to remove them from the reaction medium at any time. In this study, Subtilisin Carlsberg (protease from *Bacillus licheniformis*) immobilization by covalent enzyme binding to magnetic perlite particles were performed. For the purpose, support material was prepared with the related methods. Characterization of surface morphology of the carrier was determined by Scanning Electron Microscope (SEM-EDX). Thermal decomposition profile of the carriers was also identified by thermogravimetric analysis (TGA). Effects of incubation time, pH and temperature on free and immobilized Subtilisin Carlsberg were examined. Finally, Immobilization yield and Immobilization efficiency were calculated.

Keywords: Subtilisin Carlsberg, Immobilization, Perlite

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➢ **POSTER PRESENTATION**

Antibacterial activity of *Cornus mas* L. fruit extracts

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Abstract

The *Cornus* L. genus is a member of Cornaceae family. Cornaceae has just two genera *Cornus* (65 species) and *Alangium* (20 species). *Cornus mas* (Cornelian cherry) has been used as a traditional folk medicine for many years. Cornelian cherry showed many biological activities such as antidiabetic, anti-hyperlipidemic, anti-inflammatory, neuroprotective, anti-amnesic, hepatoprotective, anticoagulant, antimicrobial, and antioxidant activity [1]. The main purpose of this study is to determine the antibacterial activity of fruit extracts of *Cornus mas* L. against *Staphylococcus aureus* ATCC 29213, *Bacillus cereus* ATCC 14579, *Enterobacter aerogenes* ATCC 13048 and *Escherichia coli* ATCC 25922 by using broth microdilution and disc diffusion methods. The cornelian cherry fruit (500 g) was macerated (3 times each solvent) with hexane, ethyl acetate, methanol, and methanol:water (70:30), respectively. Each extract was concentrated under reduced pressure to give a solvent-free residue, and crude hexane (0.2 g), ethyl acetate (2.5 g), methanol (148.3 g) and methanol:water (41.4 g) extracts. 10 mg/disc of extracts were used for disc diffusion method and microdilution experiments were started with 8 mg/mL of extracts. Chloramphenicol was used as a positive control for both assays. All experiments were done duplicated. The ethyl acetate, methanol, and methanol:water extracts of plant showed inhibitory activity against the tested bacteria in disc diffusion assay. The minimum inhibitory concentration (MIC) values of ethyl acetate extract were 2 mg/mL for *E. aerogenes* and *S. aureus* and 4 mg/mL for *E. coli* and *B. cereus*. The inhibition zone diameters of ethyl acetate were 16 mm for *E. coli*, 18 mm for *E. aerogenes* and *S. aureus* and 22 mm for *B. cereus*. The most obvious inhibition zone diameters of methanol and methanol:water extracts were 16 mm and 14 mm for *B. cereus*, respectively. The methanol:water extract was effective on *E. coli* and *S. aureus* at 8 mg/mL in microdilution assay. The hexane extract was only effective on *B. cereus* at 8 mg/mL. Ethyl acetate extract was more effective on tested bacteria than other extracts.

Keywords: *Cornus mas*, antibacterial activity, extracts

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➢ **POSTER PRESENTATION**

Fonksiyonel Bir Ürün Olan Kinoanın Bitkisel Bazlı İçecek Olarak Kullanımı

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Özet

Değişen hayat tarzları ve eğitim seviyesinin yükselmesi ile birlikte insanların beslenme ile ilgili beklentileri değişmektedir. Yaşlanmaya bağlı olarak ortaya çıkan diyabet, kalp hastalıkları, kanser gibi hastalıklar, sağlık harcamalarının yüksekliği, insanların ilaç gibi tıbbi etkisi olan ürünlerden çok doğal ürünlere yönelmeleri ile birlikte genel olarak "temel besin sağlamanın ötesinde sağlık kalitesini arttıran gıdalar" olarak tanımlanan fonksiyonel gıdalara ilgiyi arttırmaktadır. Kinoa (*Chenopodium Quinoa Willd*) lipit, lif, vitamin ve mineraller, esansiyel aminoasitler bakımından zengin içeriğe sahip olmasının yanında karotenoidler, fenolik bileşikler gibi çeşitli biyoaktif bileşikler içerdiği, bu bileşiklerin çeşitli hastalıklara karşı koruyucu etki gösterdiği bildirilmektedir. Bu özellikler kinoayı fonksiyonel gıda haline getirmektedir. İnek sütü alerjisi ve laktoz intoleransı olan kişi sayısının fazla olması inek sütüne alternatif olarak bitki kaynaklarından elde edilen sütler ve bu sütler kullanılarak üretilen ürünler, günlük beslenmede güçlük çeken insanlar için ürün çeşitliliğini arttırmaktadır. Piyasada tahıl, baklagil, fındık bazlı pek çok süt ikame ürünü bulunmakta ve pazar payları gittikçe artmasına karşın süt yerine tam olarak ikame edilmeleri konusunda bazı sorunlar vardır. İnek sütü ikamesi olarak önerilen bitki bazlı sütlerin bazıları alerjeniktir, bazıları yüksek glisemik indeks gösterir, bazıları da düşük protein içeriğine sahiptir. Bu bağlamda yaklaşık % 10 - 18 protein, % 4.50 - 8.75 yağ, % 54.1 - 64.2 karbonhidrat, % 2.40 - 3.65 kül ve % 2.1 - 4.9 lif içeren, esansiyel aminoasitleri dengeli bir şekilde bulunduran, süt proteinlerinin kalitesine yakın protein kompozisyonu olan, lisin (4.8/100 g protein) ve treonin (3.7 g/100 g protein) bakımından zengin, linoleik, oleik ve linolenik gibi doymamış yağ asitlerince zengin, B_1, B_2, B_6, C ve E vitaminleri ve özellikle kalsiyum, fosfor, demir gibi mineraller bakımından zengin olan kinoa, hayvansal kaynaklı süte yakın besinsel değerleri içerdiğinden bitkisel kaynaklı süt süt ürünlerinin üretiminde kullanımı üzerine çalışmalar yoğunlaşmaktadır.

Anaktar kelimeler: Süt, süt ürünleri, Kinoa, Bitkisel bazlı sütler

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➢ **POSTER PRESENTATION**

Negatif iyon yayan mika temelli antimikrobiyal duvar boyalarının geliştirilmesi ve karakterizasyonu

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Özet

Artan nüfus yoğunluğu, gelişen endüstri ve artık hayatımızın her noktasında yer alan teknolojik aletler havadaki pozitif iyonların artmasına neden olmakta ve bu durum hava kalitesinin azalması ile sonuçlanmaktadır. Havadaki artmış pozitif iyonlar, çağımızın hastalıklarının başında gelen, kişinin biyolojik ve psikolojik dengesinin bozulmasına neden olan stres, depresyon ve anksiyete gibi rahatsızlıkların en büyük etkenlerinden biridir. Özellikle büyük şehirlerde, merkezi ısıtma sistemine sahip binalarda yaşayan, ofislerde gün boyu bilgisayar başında çalışan bireylerde sıkça rastlanan bu rahatsızlıkların yanında, ayrıca pozitif iyonlar damarların daralmasına, akciğer kapasitesinin azalmasına, alerjik reaksiyonlara, bağışıklık sisteminin etkilenmesine ve tüm bunlara bağlı olarak bireylerin yaşam kalitesinin azalmasına neden olabilmektedir. Buna karşılık, negatif hava iyonlarının ise bireyin mental olarak rahatlamasını ve güçlü bir fizyolojik sisteme sahip olmasını sağladığı bilinmektedir. Tüm bu nedenlerden dolayı, pozitif iyonların zararlı etkilerini azaltmak ve bireylerin yaşam kalitesini arttırmak için negatif iyon yayan malzemelerin geliştirilmesi büyük bir önem taşımaktadır. Bu çalışmada, özellikle kapalı ortamlardaki pozitif iyonların etkisini azaltmak için negatif iyon yayan kompozit duvar boyasının geliştirilmesi amaçlanmıştır. Boya içeriklerinde ilk seçenek olarak kabul edilen, yüksek maliyetli ve az bulunan kaynaklar tarafından sınırlandırılmış TiO_2'in, daha az kullanılmasını sağlamak adına, TiO_2, negatif iyon yaydığı bilinen sedefli bir etkiye sahip mika kili ile birleştirilmiştir. Daha az fotokatalitik aktiviteye sahip rutil fazda TiO_2 elde etmek için hidrolizasyon öncesi, mika üzerine farklı oranlarda katkı malzemesi (SnO_2) eklenmiş, böylece daha parlak ve daha yüksek kimyasal stabiliteye sahip bir boya elde etmek amaçlanmıştır. Ayrıca, elde edilen bu kompozit boyaların negatif iyon yayma etkilerini arttırmak adına, boyalar, negatif iyon yaydığı bilinen ve üzerinde antibakteriyel ve antifungal çalışmalar yapılmış *Chlorophytum comosum* ekstraktları ile birleştirilmiştir. Örneklerin XRD ve SEM-EDS analizleri, negatif iyon yayma testleri, fotokatalitik aktivite testleri ve antimikrobiyal testleri yapılmıştır.

Anahtar Kelimeler: Negatif iyon, boya, mika, sedefli pigment, kompozit

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➢ **POSTER PRESENTATION**

Bazı yabani domates türlerinin önemli domates virüslerine dayanıklılıkla ilişkili moleküler markörler yardımıyla taranması

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Özet

Solanaceae familyasının üyesi olan çeşitli iklim ve yetiştirme koşullarına uyum sağlayabilen domates (*Solanum lycopersicum*) dünyada ve ülkemizde en çok yetiştirilen tarımsal ürünlerden birisidir. Üretimin yoğun olarak yapıldığı bölgelerde abiyotik ve biyotik stres etmenleri verim ve kalitenin azalmasına ya da bazı durumlarda üretimin tamamen durmasına yol açmaktadır. Kimyasal mücadelesi olmayan virüsler domates üretimini olumsuz olarak etkileyen biyotik stres etmenlerinin başında yer almaktadır. Domates yetiştiriciliğinde bitki virüsleri ile etkin mücadele bu virüslere dayanıklı çeşitlerin kullanılmasıyla mümkün olmaktadır. Bazı yabani domates türlerinde virüslere karşı dayanıklılık genleri belirlenmiş ve bunlarla ilişkili markörler geliştirilmiştir. Virüslere dayanıklılık geliştirmek amacıyla dayanıklılık kaynaklarının ve melezlemelerden elde edilen dayanıklı genotiplerin en kısa sürede ve etkin bir şekilde belirlenmesinde markör yardımıyla seleksiyon (MAS) tekniği kullanılmaktadır. Bu çalışma kapsamında da *S. Arcanum, S. cheesmaniae S. chilense, S. chmielewskii, S. corneliomulleri, S. lycopersicoides, S. lycopersicum, S. penelli* ve *S. pimpinellifolium* türlerinden seçilen 44 adet ve yerli ve yabancı ıslah firmalarından temin edilen 11 adet domates çeşit ve/veya tipleri seçilmiştir. Seçilen bu tür, çeşit ve tiplerinin domates üretimini etkileyen en önemli virüs hastalıkları arasında yer alan Domates lekeli solgunluk virüsü (TSWV), Domates mozaik virüsü (ToMV), Domates sarı yaprak kıvırcıklığı virüsü (TYLCV) ve Domates torrada virüsü (ToTV)'ne dayanıklılıkları araştırılmıştır. Bu amaçla seçilen domates tür, çeşit ve tipleri tohumdan yetiştirilerek her birinden genomik DNA izolasyonu yapılmıştır. Domates tür, çeşit ve tiplerinden elde edilen genomik DNA'lar yukarıda belirtilen virüslere karşı dayanıklılık sağlayan genlerle ilişkili markörlere spesifik primerler kullanılarak polimeraz zincir reaksiyonu (Poymerase chain reaction, PCR) yöntemiyle taranmıştır. Kullanılan domates tür, çeşit ve tipleri her bir dayanıklılık geni bakımımda skorlanarak her birinin dayanıklılık geni taşıyıp taşımadıkları ve taşıyanların da söz konusu dayanıklılık geni bakımından homozigot ve/veya hetereozigot oldukları belirlenmiştir. Aynı zamanda bu çalışma sonucunda kullanılan primer ve markörlerin hem yabani domates türlerinde virüslere dayanıklılık genlerinin taranmasında hem de bunların domates ıslah çalışmalarında kullanılabileceği de gösterilmiştir.

Anahtar Kelimeler: Domates Islahı, Moleküler Markör, Virüs Dayanıklılığı, MAS

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➢ **POSTER PRESENTATION**

Investigation of genotoxic and antigenotoxic effect of hyperoside using micronucleus test on human lymphocytes

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Abstract

Hyperoside (chemical name is quercetin 3-O-β-D-galactoside), a naturally occurring flavonoid present in fruits and vegetables, has been reported to anti-viral and anti-inflammatory activity, cardio-protective, hepato-protective and gastric mucosal protective effects. The purpose of this study is to determine genotoxic and antigenotoxic (against Mitomycin C (MMC) and Hydrogen peroxide (H_2O_2)) effects of hyperoside using *in vitro* Micronucleus (MN) assay. Micronucleus assay was performed on human peripheral lymphocytes on two donors, a woman and a man. Four different concentrations of hyperoside (62.5, 31.25, 15.62, and 7.81 µg/mL) were used alone, and in combination with 100 µM H_2O_2 or 0.20 µg/mL MMC. Hyperoside alone did not induce significant genotoxic effect in the MN assay. Hyperoside+H_2O_2 treatments significantly decreased MN frequency at all the concentrations compared to the positive control. However, Hyperoside+MMC treatments did not significantly decreased MN frequency at all the concentrations compared to the positive control. Based on this results, it could be concluded that Hyproside is not genotoxic in human lymphocytes but may have antigenotoxic effect against H_2O_2.

Keywords: Hyperoside; Phytochemical; Genotoxicity; Antigenotoxicity; Micronucleus test, Human lymphocytes

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➢ **POSTER PRESENTATION**

The synthesis and mechanism of acid-catalysed hydrolysis of some *N*-(arylsubstituted)succinimides

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Abstract

In this study, *N*-phenylsuccinimide, *N*-(p-methylphenyl)succinimide, and *N*-(p-chlorophenyl)succinimide have been synthesised according to the reported procedure with minor modifications [1]. The acid-catalysed hydrolyses of the aryl succinimides have been studied in aqueous solutions of sulphuric, perchloric and hydrochloric acids at 50.0±0.1℃. Analysis of these data for hydrolysis of the *N*-arylsuccinimide with Excess Acid Method [2] has shown that the hydrolysis reaction proceeds with an A-2 mechanism. Catalytic order of strong acids is $HCl>H_2SO_4>HClO_4$ which indicates an A-2 mechanism. The activation entropy was also studied and negative $\Delta S^{\neq}$ values were measured. The substituent effect was investigated at 50.0±0.1℃ in aqueous solutions of sulphuric, perchloric and hydrochloric acids. Positive ρ values were obtained for the acid-catalysed hydrolyses of the aryl succinimides in aqueous acids solutions.

Keywords: Arylsuccinimides, Excess acidity, hydrolysis, acid catalysis, substituent effect.

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➢ **POSTER PRESENTATION**

AChE inhibition and molecular docking studies of new piperazine-dihydrofuran compounds

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Abstract

Dihydrofurans are a significant class of compounds since they show a wide range of biological activities and form the basic structure of many natural compounds [1] They gathered much attention due to their biological activities. They have much potential to use as building blocks for drugs. Sarcophytoxide, Clerodin, Fercoprolone and Austocystin are some natural biologically active compounds that contain dihydrofuran moieties. It is known that dihydrofurans can be synthesized from transition metal salts capable of transferring single electrons that form α-carbon radicals with enolizable functional groups and the addition of this radical to unsaturated systems can be used to generate new C-C bonds. Among these metal salts, manganese(III) acetate and cerium(IV) ammonium nitrate are widely used.

Piperazine is an organic compound that consists of a six membered ring containing two nitrogen atoms at opposite positions in the ring. Piperazine derivatives are one of the most important heterocyclic class of compounds which have diverse biologic and farmacologic activities [3,4].

In this work novel diacyl piperazine derivatives were synthesized in medium to good yields by acylating reactions of piperazine and homopiperazine. Dihydrofuran-piperazine compounds were obtained from radical addition and cyclizations of diacyl piperazine derivatives with 1,3-dicarbonyl compounds mediated by $Mn(OAc)_3$ for the first time. Structures of all novel compounds were elucidated by ^{1}H-NMR, ^{13}C-NMR, HRMS and FTIR methods.

All dihydrofuran-piperazine compounds were evaluated for their inhibitory activities towards AChE by Ellman method and IC_{50} values were calculated. Also molecular docking studies were performed on these compounds to explore their ligand-protein interaction and binding affinities with the active site of AChE.

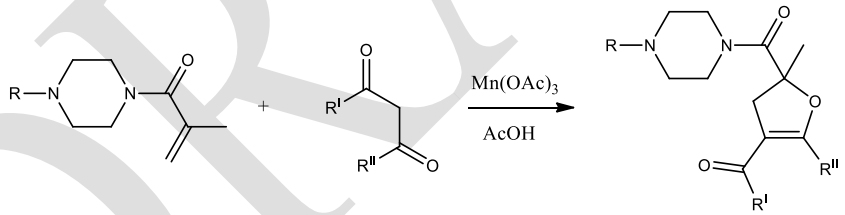


Figure 1. Synthesis of $Mn(OAc)_3$ mediated dihydrofuran compounds.

Keywords: Piperazine, Dihydrofuran, Radical cyclization, Acetylcholinesterase inhibition, Molecular Docking.

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➢ **POSTER PRESENTATION**

Head-and-neck cancer: performing functional gene enrichment and clustering study to discover the new potentials as biomarker

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Abstract

Head and neck cancer (HNC) is the one of the most important cancer type with high mortality in the world. It is described as a complex disease, and it exists in the different locations of head and neck including; hypopharynx, oropharynx, lip, oral cavity, nasopharynx, or larynx [Lo *et al.* 2017]. Novel diagnostic approaches are required for the early diagnosis of HNC with the highest accuracy and specificity, especially in terms of clarifying the subtypes of HNC [Palka *et al.* 2008]. Among many different approaches, the discovery and further development of biomarker is seen as the most popular one, utilizing different methods in the field of genomics and proteomics.
In our study, we basically aim to perform functional gene enrichment and clustering to determine the significantly expressed and/or suppressed genes as a potential of biomarker that play a crucial role for the development and staging of HNC in terms of function, mechanism and metabolic processes. It is stated in the literature that FRMD5, PCMT1, PDGFA, TMC8, YIPF4 and ZNF324B genes are playing a role in HNC [*Guo et al. 2017*]. First, we extended our gene pool by identifying miRNAs regulated by the listed genes above, and then find the corresponding genes to these identified miRNAs to obtain the extended gene pool. GEO data set (GSE83519) was analysed through R-program to identify the up-regulated and down-regulated genes according to logFC values. Through hierarchical clustering, this data set was clustered, accordingly, and we tried to identify the common pathways based on clustering results. As a further study, we will perform other clustering types and interpret their result for validation of our work.

Keywords: Discovery of biomarkers, Clustering, Pathway identification

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➢ **POSTER PRESENTATION**

Çapraz akışlı filtrasyon yöntemi ile sulu çözeltilerden tartrazinin uzaklaştırılması

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Özet

Azo boyaları, gıda ve tekstil endüstrisinde kullanılan tüm boyaların yaklaşık % 60 - % 70'ini oluşturur. Bu kadar popüler olmalarının nedeni azo boyalarının üretimlerinin ucuz olması ve çoğu doğal gıda boyalarından daha kararlı olmalarıdır. Bu boyalardan anyonik bir boya olan tartrazin, tatlılar ve şekerler, alkolsüz içecekler, çeşniler ve kahvaltı gevrekleri gibi çok çeşitli yiyeceklerde bulunmakla birlikte, tekstil sanayisinde boya maddesi olarak kullanılmaktadır. Sudaki çözünürlüğü yüksek bir sentetik madde olan tartrazin (E102) insan sağlığı açısından zararlı görülmekle birlikte günlük kullanımının belli sınırları geçmemesi gerekir. Tartrazin sadece gıda ve yiyecek yoluyla değil, bu malzemelerin ve tekstil sanayenin atıkları nedeniyle çevre kirliliği yoluyla canlılara ve doğaya zarar vermektedir.
Sunulan çalışmada aljinik asit ve aljinik asit-grafit kompozit membranlar selüloz destek tabakası kullanılarak hazırlanmış, tartrazinin sulu çözeltilerden uzaklaştırılmasında yeşil proses olarak anılan membran proseslerinden çapraz akışlı filtrasyon metodu kullanılmıştır. Filtrasyon işlemlerinde sulu çözeltilerden tartrazinin uzaklaştırılmasına membran kalınlığının, kompleksleştirici polimer olarak kullanılan kitosanın, membranlardaki grafit miktarının ve pH nın etkileri araştırılmıştır. Çalışmanın sonucunda tartrazinin sulu çözeltilerden uzaklaştırma yüzdesi selüloz destekli aljinik asit membranlar için pH 3.5'de %45, kitosan-tartrazin kompleks çözeltileri için pH 3.5'de %69 ve grafit katkılı membranlar için de pH 1.5'de %85 olarak bulunmuştur.

Anahtar Kelimeler: Yeşil proses, çapraz akışlı filtrasyon, tartrazin

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➢ **POSTER PRESENTATION**

Hypericum perforatum L. ekstraktlarının 3T3-L1 hücrelerinde Kolojen V ve FAS moleküler markörleri üzerine etkisi

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Özet

Obezite, hareketsiz yaşam tarzı, dengesiz ve yetersiz beslenme, çevresel faktörler ve genetik faktörlere bağlı olarak gelişen düşük dereceli enflamatuar bir rahatsızlıktır. Obezite, yaşam standardını düşürerek ve vücudu etkileyerek farklı sağlık sorunlarına neden olmaktadır. Obezite ve obeziteyle pozitif korelasyon içinde olan insülin direnci, Tip II diyabet, ateroskleroz, metabolik sendrom ve hiperlipidemi gibi rahatsızlıkların prevelansı tüm dünyada giderek artmaktadır. Bu rahatsızlıklar için uygulanan ilaç tedavisi ve bariyatrik cerrahi gibi tedavi yolları herkes için tolere edilebilir değildir. Bu durum araştırıcıları başta tıbbi bitkiler olmak üzere alternatif çözüm yolları aramaya teşvik etmiştir.
Hypericum perforatum L. nesiller boyunca tıbbi bir bitki olarak anksiyete, depresyon, uykusuzluk, gastrit, hemoroid, iltihap, yara, kesik ve yanık tedavisinde kullanılmıştır. Bitkinin antihiperglisemik, antidiyabetik, antiobezite ve insulin direncini iyileştirici etkisi yapılan çalışmalarla kanıtlanmıştır. Ancak bu rahatsızlıkları hangi moleküler mekanizmaları kullanarak etkilediği henüz tam olarak aydınlatılamamıştır.
Bu çalışmada obeziteyi hücresel anlamda göstermek için 3T3-L1 adipositleri kullanılmıştır ve bitkinin yağ asidi sentetaz (FAS) ve kolojen V gibi obezite durumunda upregüle olan markörlerin bağıl mRNA ekspresyonuna etkisi araştırılmıştır. 18S housekeeping geni kullanılarak ekspresyon verilerinin normalizasyonu sağlanmıştır. FAS, asetil-CoA öncülerinden uzun zincirli yağ asitlerinin biyosentezini katalize eden anahtar lipojenik bir enzimdir. Yüksek yağlı diyetle beslenen farelerde bu enzimin arttığı gözlemlenmiştir. Adipositeyle pozitif korelasyon içindedir ve obezite durumunda FAS'de artış gözlemlenmektedir. Kolojen V ekstraselüler matriksten salgılanan bir bileşendir ve adipoz dokudaki sertlikle bağlantılıdır. Çalışmanın sonucunda 3T3-L1 adipositlerine uygulanmış *Hypericum perforatum* L. ekstraktlarının bu genlerin bağıl mRNA ekspresyonunu düşürdüğü ve bu düşüşün istatistiki olarak anlamlı olduğu gözlemlenmiştir.

Anahtar Kelimeler: Obezite, *Hypericum perforatum L.*, 3T3-L1

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➢ **POSTER PRESENTATION**

Bee pollen as a functional food

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Abstract

Bee pollen is produced from honeybees, and combined with nectar of plant, bee saliva and honey. The structure and content of bee pollen varies according to the factors such as collected flower, climate, soil, geography, and beekeeping. Bee pollen is a rich source of lipids, proteins (25-30%), fatty acids, sterols (1-20%), minerals, vitamins, and some type of carbohydrates. While pollen is the bees' main source of important nutrients, the biological availability is promoted due to its characteristic of protein diversity, energy content, and phenolic compositions. Bee pollen has antimicrobial and antioxidant effect due to its polyphenol content. This natural and functional product is frequently consumed by elders, patients, children, and pregnant. Microorganism associated with bee pollen are Gram (+) and Gram (-) bacteria, yeast, molds and lactic acid bacteria. Lactic acid bacteria pass from collected nectar to the bee pollen. The quality of the final product varies according to the conditions of cleaning, drying, packing of pollen by beekeepers. The moisture content is an important property for bee pollen. Bee pollen; can be consumed as fresh and dry. Fresh bee pollen is suitable for microbial growth with moisture content of 25-30%, it should be stored by drying or freezing. The moisture content of bee pollen decreased to 6-10% after drying process. During the drying step, it is important to avoided Maillard reaction cause of preventing the loss of nutritional value of bee pollen. Physical, chemical, and microbial contamination can be happened in bee pollen due to apiculture practices, environmental factors and inappropriate process conditions. The consumption of these products may cause in both consumer harm and economic loss. In this review; the physical, chemical, and microbiological properties of bee pollen, as a popular functional food, will be discussed in terms of food safety.

Keywords: Bee pollen, antimicrobial, antioxidant, functional

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➢ **POSTER PRESENTATION**

A comparative study with three different methods for separation and purification of oleic acid from natural extra virgin olive oil

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Abstract

Epidemiological studies have revealed that consumption of olive oil, which is a major part of the Mediterranean diet, has very positive health effects. The health benefits of olive oil is mainly related to its oleic acid content, which represents 55% to 83% of total fatty acids. Although oleic acid (cis - 9,10 - octadecenoic) is perhaps the most common of the naturally occurring fatty acids, the pure acid is still one of the rare chemicals. The reason for this state of affairs is that oleic acid always occurs in fats and oils associated with saturated acids and usually with varying amounts of linoleic acid and other acids of higher unsaturation. The methods for separating these impurities are only semi-quantitative so that purification of oleic acid is extremely tedious.

The presented study includes a comparison of the effectiveness of three different methods for the separation and purification of oleic acid from natural extra virgin olive oil samples. In the study, the samples were first converted to free fatty acids and oleic acid was tried to be obtained from this fatty acid mixture by urea fractionation, low temperature crystallization and solvent crystallization methods. Afterwards, extra purification processes were applied. In comparing the efficiency of the methods used, HPLC chromatograms used in determining the amount and purity of oleic acid were taken into consideration.

HPLC results showed that saturated (containing oleic acid) and unsaturated fatty acids are not completely separated from each other in the low temperature crystallization and urea fractionation methods. In the multi-solvent crystallization method, the obtained oleic acid yield (> 90.00 %) was very close to the commercially available percentage of pure oleic acid (98.58%); therefore, this method has been found to be the most efficient method for obtaining and purifying oleic acid.

Keywords: Extra virgin olive oil, oleic acid, urea fractionation, low temperature crystallization, solvent crystallization

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➢ **POSTER PRESENTATION**

Qualitative microbiological analysis of the camel raw meat in South-Western Algeria

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Abstract

Camel meat is regularly consumed in South-Western Algeria since inhabitants choose it for its lower price compared to other meats, for its reputation of low cholesterol composition or for its likely clean outdoors habit of grazing saharian medicinal plants. The following study aims to analyze the quality of raw dromedary meat in order to assess the risk of foodborne diseases in parallel of its increasing consumption. Following the country standard related to meat science, the prevalence of three pathogenic microorganisms was investigated in raw dromedary meat: *Escherichia coli*, *Salmonella spp* and *Pseudomonas aeruginosa*. The total of 30 samples was deducted from an official slaughterhouse in an Algerian South-Western city and out of different urban butcheries. The total microbial flora was of 2,3 logufc/g, the fecal contamination rate was of 1,9 logufc/g, the high presence of Ecoli has been detected in all of the samples but no *Salmonella spp* was found in any of these samples. The cold chain must not be broken in order to preserve an acceptable quality meat, cross contamination with other meats in the abattoir and the butcheries must be controlled.

Keywords: Camel meat, Food Microbiology, Foodborne pathogens

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➢ **POSTER PRESENTATION**

Preparation of boron-derived potantial bioactive sulfonyl hydrazones by a green chemistry method

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Abstract

Boron is found as a trace element in many vegetables, fruits and nuts. Evidence shows that deficiency or excess of boron causes biological effects. It plays an important role in the mineral metabolism system as well as hormone and enzyme reactions for cell membrane functions, and boron is also an essential component for the growth process of many plants. In addition, it has been identified as a basic requirement for human life in order to be found in human and animal tissues in mild concentrations. In particular, the lack of boron minerals negatively affects agricultural products. Such problems have pushed researchers to focus on boron activities in living systems. Boron deficiency in nutrition has an effect on the brain. Boron compounds are widely used in cancer treatment called Boron Neutron Capture Therapy (BNCT). Literature research shows that the exchange of boron atoms has a significant effect on antioxidant enzymes. Many plant studies have shown that excess boron stimulates antioxidant enzymes and activates enzymes specifically related to the ascorbate cycle. It is also known that Boron compounds have antibacterial activity.
In this work; boron-derived potantial bioactive sulfonyl hydrazones were synthesized by a green chemistry method for the first time. All compounds (3-formyl phenyl boronic acid cyclopentane sulfonylhydrazone, 3-formylphenylboronic acid-4-tert-butylbenzenesulfonylhydrazone, 3-formylphenylboronicacid-4-nitrobenzenesulfonylhyrazone, 3-formyl phenyl boronicacid-m-toluenesulfonylhydrazone) were characterized by elemental analysis, FT-IR, $^{1}H/^{13}C$-NMR spectroscopy. Our aim; first synthesizing boron-containing sulfonyl hydrazone compounds and then examining their potential for use in medicine.

Keywords: 3-formyl phenyl boronic acid, sulfonyl hydrazone, green chemistry

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➢ **POSTER PRESENTATION**

Chemical investigation and *in vitro* antimicrobial activity of *Verbascum orientale* growing in Altai region of Kazakhstan

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Abstract

The purpose of the study is to establish the chemical composition of *Verbascum orientale* (Scrophulariaceae) growing in the Altai region of Kazakhstan to obtaining biologically active substances and establishing their chemical structure. Flavonoids were obtained from milled aerial plant parts (1 kg) by extraction with MeOH for 10 h in a Soxhlet apparatus. The extract was filtered. The pulp was treated with MeOH (raw-material–extractant ratio 1:9) and extracted (2×) at 90 ± 5°C for 1 h. The MeOH extract was filtered, evaporated in a rotary evaporator to 1/5 the volume, and dried in a vacuum drying cabinet. The yield of extract was 50.2–53.5 mass% of starting raw material. Lipophilic substances were removed from the extract (26.5 g) by sequential extraction with hexane then CH_2Cl_2, EtOAc, and n-BuOH.The obtained EtOAc fraction was separated over a column of RP-18 sorbent and HPLC to produce six flavonoids [kaempferide (1), luteolin (2), quercetin (3), luteolin 7-O-β-D-glucopyranoside (4), quercetin 3-O-β-Dglucopyranoside (5), and isorhamnetin 3-O-β-D-glucopyranoside (6)]. The isolated compounds were identified using chemical transformations; IR, UV, ^{1}H, ^{13}C NMR, and mass spectral data; and comparisons of physicochemical data with the literature. The antimicrobial activity of the extracts against eight microbial strains was tested by using minimal inhibitory concentration (MIC) values. All tested extracts (n-Butanol, dichloromethane, ethyle acetate and hexane) didn't exhibit any antibacterial effect against tested strains.

Keywords: *Verbascum orientale*, Flavonoids, Antimicrobial activity

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➢ **POSTER PRESENTATION**

Isolation and identification of probiotics from whey

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Abstract

The term "probiotic" is defined as beneficial, living, microbial nutrients that strengthen the intestinal system of the human microbiota. Recently, there has been an intense interest in obtaining probiotics from fermented milk products whey is the leftover liquid in milk production, and contains at least half of the nutrients in milk such as lactose, serum proteins, minerals, fats and vitamins. In this research, whey was used as a source to isolate probiotics. Whey is a medium rich in probiotic bacteria. Probiotic bacteria have therapeutic effects such as improving lactose intolerance, protection against intestinal infestations, lowering cholesterol in serum, increasing immune defense, anticarcinogenic and antioxidative activities. In the study, a comprehensive species identification and characterization was made by the morphological, biochemical and molecular methods. Isolated strains were identified by *Gram* staining, molecular identification 16S rRNA gene sequencing, biochemical identification catalase and API (Analytic Profile Index) assays. Finally, the isolated probiotic strains belonging to 2 genera *(Lactobacillus* and *Enterococcus)* were identified.

Keywords: Probiotics, Whey, *Lactobacillus, Enterococcus*.

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➢ **POSTER PRESENTATION**

Investigation of antimicrobial, antibiofilm and cytotoxic activities of some disinfectant agents

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Abstract

Disinfectants are diverse group of chemicals which reduces the number of microorganisms present in different media. The disinfectant agents used for this study; benzalkonium chloride, triclosan (ırgasan) and methylisothiazolinone. Benzalkonium chloride is quaternary ammonium salt. It is an anti-infective agent that dissolves quickly and for a long time. They can be bacteriostatic or bactericidal, depending on their dissolved concentration. Triclosan and methylisothiazolinone are widely used in antimicrobial soaps. Antimicrobial chemicals are known as antimicrobial potentials substances that reduce growth of microorganisms. Antimicrobial, antibiofilm properties and cytotoxic effects of the selected disinfectant agents were investigated. The antimicrobial and antibiofilm effects of disinfectant agents were determined by agar well diffusion, microbroth dilution (Minimum Inhibitory Concentration (MIC)) and Minimum Eradication Concentration (MBEC) against *Staphylococcus aureus* ATCC 29213, *Eschericia coli* ATCC 25922, *Enterecoccus feacalis* ATCC 51299, *Pseudomonas aeruginosa* ATCC 27853, *Bacillus subtilis* NRRL B478, *Listeria monocytogenes* ATCC 19111, *Staphylococcus epidermidis* ATCC 14990, *Candida albicans* ATCC 90028 and *Candida krusei* ATCC 6258. Disinfectant agents exhibited a broad antimicrobial spectrum by agar well diffusion method. MICs of disinfectant agents for selected microorganisms ranged between 250-7,81 µg/mL and MBECs were 1000-15,62 µg/mL. Additionally, for the cytotoxic determination brine shrimp method was used. And the results provided that, only benzalkonium chloride and triclosan (ırgasan) at 1000-125 µg/mL concentration was effective against *Artemia salina* model organism.

Keywords: Benzalkonium chloride, Triclosan, Methylisothiazolinone.

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➢ **POSTER PRESENTATION**

Green synthesis and characterization of silver nanoparticles using *Helichrysum arenarium* extract

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Abstract

The advancement of technology enables the production of silver nanoparticles of desired stability and size. However, this process is very costly. Silver nanoparticles synthesized using chemical methods are also particles with high toxicity, biological and environmental side effects [1]. Unlike chemical methods, silver nanoparticles synthesized with green synthesis using plant extracts are environmentally compatible and their toxic effect is minimal [2]. In addition, plants being renewable sources can make nanoparticle synthesis cheap, fast and continuous [3]. The tannins, phenolic compounds, flavonoids, polysaccharides and proteins in the structure of plants provide the reduction of silver ions to the element form of silver. Nanoparticle sizes can be easily optimized by changing parameters such as concentration, pH value and temperature of plant extracts [4]. Silver nanoparticles are used in the health and food industry, biomedical applications, reduction and obtaining of dyes, tissue engineering studies, genetic applications (such as labeling DNA), controlled drug release to cells, making cosmetic products and cancer treatment [2,4].

In the present study, silver nanoparticle synthesis was performed using the microwave-assisted aqueous extracts of the *Helichrysum arenarium* (golden grass) plant which has the ability to reduce silver and silver nitrate solution by green synthesis method [5]. UV-Vis spectrophotometer was used to observe the formation of the silver nanoparticles. Dynamic light scattering technique was used to determine the mean particle size and polydispersity index (PDI) of the silver nanoparticles that were synthesized, and the zeta-potential value of the nanoparticles was determined by electrophoretic light scattering technique. Plant components that reduced silver were investigated using FTIR spectroscopy. The morphological properties of the nanoparticles were analyzed by scanning electron microscopy (SEM).

Keywords: Silver nanoparticle, green synthesis, *Helichrysum arenarium*.

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➢ **POSTER PRESENTATION**

Investigation of the cytotoxic effects of escitalopram oxalate on breast cancer cell lines by xCELLigence Technology

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Abstract

Breast cancer is the most common cancer type among women in the world and constitutes 25,1% of cancers. In recent years, the diagnosis and treatment of breast cancer has improved significantly with increasing survival in breast cancer patients. Despite these developments, a significant proportion of breast cancers either resist treatment or show relapse of the disease. Breast cancer is divided into four groups: estrogen positive and negative, progesterone positive and negative.

One-fourth of breast cancer patients experience significant depressions in the years after diagnosis. Major depression is a common and untreated condition that causes increased physical symptoms, functional impairment and poor treatment compliance among breast cancer patients. It is assumed that antidepressants can change the course of neoplastic diseases and as a result of various findings, it has been observed that subject antidepressants may have anti-carcinogenic properties or improve disease outcomes. During breast cancer treatment, approximately half of the patients are prescribed psychotropic medication, such as selective serotonin reuptake intibitor (SSRI). Serotonin receptors, selective serotonin transporter and serotonin synthesis pathways are potential chemotherapeutic targets fort he treatment of many cancers with limited therapeutic approaches.

Escitalopram oxalate is a selective serotonin reuptake inhibitör (SSRI) used as an antidepressant. It has been observed in the direction of researches that this substance has a reducing effect on the hot flashes, which are side-effects that ocur due to breast cancer and menopause.

In this study; The cytotoxic effet of escitalopram oxalate, an SSRI inhibitör, was compared in MCF-7 and MDA-MB-231, two of the breast cancer cell lines.

Method; MTT cytotoxicity test was applied in a wide range of concentrations, xCELLigence real-time cell analysis system was used to determine IC_{50} value and time of effect as a result of screening. Tamoxifen was used as a positive control.

Results; In the MTT test of MCF-7 and MDA-MB-231, escitalopram oxalate was tested in the concentration range of 500µM-1,95µM. Significant results for MCF-7 and MDA-231 in GraphPad were found to be in the 125µM-3,9µM concentration range. According to the results, in the xCELLigence analysis, IC_{50} value was measured as 13µM for MCF-7 and 10µM for MDA-MB-231. The MTT test with tamoxifen was tested in the 500µM-0,97µM concentration range. Significant results were found in the GraphPad in the range of 125µM-3,9µM. According to the results, IC_{50} value was measured as 58,9µM for MCF-7 and 58,4µM for MDA-MB-231 in xCELLigence analysis. Escitalopram Oxalate has anticancer effect on breast cancer lines.

Keywords: MCF-7, MDA-MB-231, Escitalopram oxalate, xCELLigence

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➢ **POSTER PRESENTATION**

Functionalization of magnetic carbon nanotubes as drug delivery systems

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Abstract

Cancer is declared to be one of the most lethal diseases in the world by the WHO. Nevertheless, conventional treatments like chemotherapy or radiotherapy for it has been inadequate for many cases and the raging side effects of these treatments have been a polemic for the last decades. Aiming to diminish these side effects and increasing the efficacy of needed anti-cancer drug concentration, a novel approach, which is using magnetic carbon nanotubes (mCNTs) as drug delivery agents, is becoming prominent with magnetic properties which can be advantageous for cancer theranostics. However, mCNTs show low solubility and high toxicity levels, hence, they must be functionalized using certain chemical groups in order for them to be more biocompatible. In this research, mCNTs are functionalized with two different 9-fluorenylmethyl chloroformate-amino acids (Fmoc-AA), Fmoc-Cysteine (Fmoc-Cys(trt)-OH) and Fmoc-L-tryptophan (Fmoc-Trp-OH), coupled with poly ethylene glycol (PEG) with two different polymer chain lengths, PEG_{5000} and PEG_{12000}. For the characterization of functionalized mCNTs, Fourier-transform infrared spectroscopy (FTIR), Raman spectroscopy, nuclear magnetic resonance (NMR) and thermal gravimetric analysis (TGA) have been used. We have achieved to the synthesis of PEG polymers with Fmoc-AA functionality. In addition, we verified the accuracy of mCNT functionalization and compare the coating yields. It is found that Fmoc-Cys(Trt)-OH has a better bonding performance to mCNTs than Fmoc-Trp-OH for both PEG chain lengths that have been included in this research.

Keywords: PEG, Fmoc-amino acids, Magnetic carbon nanotubes

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➢ **POSTER PRESENTATION**

Detection of age-related methylation sites for different cell resources

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Abstract

DNA methylation (demethylation) can modify the function of the genes and affect gene expression. The methylation level associates with many critical processes including genomic imprinting, chromosome inactivation, repression of transposable elements, and aging. The relationships provide us with informative insight into the understanding of various disease and trait variation. In this study, I focus on the aspect of DNA methylation as an epigenetic clock. Age prediction in cultured cells is important for verification of experimental conditions. In forensic cases, age prediction approaches have been performed for unknown age samples using a regression model. However, most of these age prediction models can produce errors in predicting age because of biased cell type sampling. In this study, I propose a new age prediction model based on multiple cell resources. Finally, I applied it to empirical genome-wide methylation datasets and found several age-related methylation sites which were associated with genes that could be expressed in various tissues.

Keywords: DNA methylation, Age prediction, epigenetic clock

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➢ **POSTER PRESENTATION**

Effect of incorporation of germinated *Trigonella fænum-græcum* L. in the diet on the milk yield of California breed rabbits.

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Abstract

The aim of this study was to evaluate the effect of incorporation of germinated fenugreek (*Trigonella fænum-græcum* L.) in the diet of rabbits on their milk yield.
For this, 24 lactations carried out by 8 doe rabbits were studied. The animals were divided into 2 homogeneous groups of 4 California breed doe rabbits. These 2 groups were alternated between two diets in each reproductive cycle. The first diet (control) included pellets (200 to 250 g depending on the physiological stage) and straw (10 g), while the second diet (experimental) consisted of pellets (200 to 250 g according to physiological stage) and germinated fenugreek (85 g / d) distributed during the last third of gestation until weaning of young rabbits at 1 month after parturition. The amount of daily milk produced by the doe rabbits was estimated by weighing the females and young rabbits just before and after suckling. The growth rate of young rabbits during the breastfeeding was also an indicator of the mothers' milk yield.
Milk production results showed a superior performance ($p < 0.05$) in rabbits who consumed germinated fenugreek with a peak lactation of 285 g of milk/day *vs* 225 g/day recorded in rabbits who consumed an ordinary ration. In addition, there was a strong correlation between the amount of milk produced and the growth of young rabbits during breastfeeding. This was better in young rabbits of females consumed germinated fenugreek (growth rate of 32 g/day *vs* 24 g/day; $p < 0.05$).

Keywords: Growth, germinated fenugreek, rabbit, milk production.

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➢ **POSTER PRESENTATION**

Feeding and reproduction experimental study on rabbits

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Abstract

The impact of nutrition on reproduction has been recognized for a very long time. Ancient societies are said to have been well aware of the effects of nutrition and lactation on reproduction.
Our study took place between November 2016 and May 2017 in a laboratory at the Institute of Veterinary Sciences of Constantine, we worked on 6 females and 2 males aged 07 months with an average weight of 2.5 kg, divided into 2 lots each batch contains 3 females and one male. Lot 1 is fed on straw, hard bread, and industrial pellets. Lot 2 is fed on straw, hard bread, and green food (carrot, spinach, cabbage).
The results obtained in this study show that, lot 1 gives an excellent reproduction yield compared to lot 2, these results are comparable with the results obtained in a study by Jean BRISSON. The experiment of which was carried out on cattle, his work shows that reproduction is the first function affected if food has a deficiency in one element.

Keywords: Food, rabbits, fertility

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➢ **POSTER PRESENTATION**

Çeşitli bitki esktraktları kullanılarak yeşil sentez yöntemi ile metalik nanopartikül üretimi ve antioksidan aktivitelerinin değerlendirilmesi

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Özet

Birçok sektörde giderek artan kullanımı olan metalik nanopartiküllerin biyolojik ve çevresel güvenilirliğine de ilgi her geçen gün artmaktadır [1]. Metalik nanopartiküllerin üretimi için çeşitli kimyasal ve fiziksel prosedürler kullanılmakla birlikte, bu yöntemler toksik çözücülerin kullanımı, tehlikeli yan ürünlerin oluşumu ve yüksek enerji tüketimi gibi birçok problem içermektedir. Son yıllarda yapılan ve yeşil sentez içeren çalışmalarda, bitkiler, algler, mantarlar, bakteriler ve virüslerle düşük maliyetli, enerji tasarruflu ve toksik olmayan metalik nanoparçacıkların üretimi gerçekleştirilmiştir[2]. Bitkiler, metal nanoparçacıkların yeşil sentezi için keşfedilen canlı organizma türlerinden biri olup bugüne kadar yüzlerce tip bitki kullanılarak çeşitli nanopartiküllerin sentezi başarı ile gerçekleştirilmiştir [3]. Bitki ekstraktlarında bulunan biyomoleküller, tek aşamalı yeşil sentez işleminde metal iyonlarının nanopartiküllere indirgenmesi için kullanılabilir. Metal iyonunun indirgemesi bu yöntem ile oldukça hızlı, oda sıcaklığında ve basıncında kolayca yapılır ve kolayca ölçeklendirilebilir [4]. Sunulan bu çalışmada indirgeyici ajan olarak *Lycopodium clavatum* (kurtpençesi) bitkisi kullanılarak $AgNO_3$ çözeltisinden gümüş nanopartiküllerin elde edilmesi hedeflenmiştir. Gümüş nanopartikülleri oluşturabilmek için sentez koşulları (pH, sıcaklık,konsantrasyon vb.) optimizasyonu yapılmıştır. Optimum koşullarda elde edilen Gümüş nanopartiküllerin boyut analizi, zeta potansiyel ölçümü ve UV spektrumlarının incelenmesi gibi çeşitli karakterizasyon yöntemleri gerçekleştirilmiştir. Ayrıca üretilen metalik nanopartiküllerin antioksidan aktiviteleri de DPPH yöntemi ile inclenmiştir.

Anahtar Kelimeler: Yeşil Sentez, Gümüş Nitrat, Lycopodium clavatum, Bitki, Metalik Nanopartikül, Antioksidan Aktivite

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➢ **POSTER PRESENTATION**

2-((fenilimino)metil)fenol bileşiğinin $NaBH_4$ indirgenme reaksiyonunun FT-IR ile çözelti ortamında izlenmesi

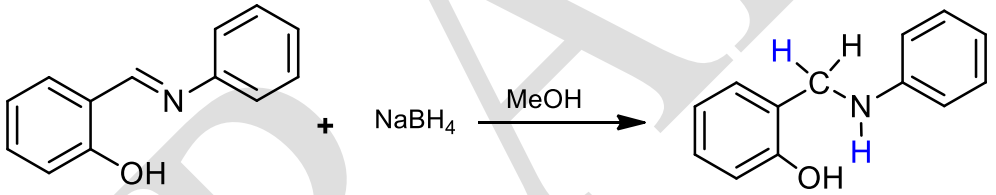
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Özet

İminler aldehit ve ketonların primer aminlerle reaksiyonu sonucu oluşur. İminlerin indirgenmesi ile de bazı sübstitüe aminler elde edilir. Endüstrinin pek çok dalında ve organik sentezlerde kullanılan aminler ve iminler kimyada ilgi gören önemli bileşiklerdir. Aminler; deterjan, plastik, tekstil endüstrisinde katkı maddesi, polimer ham maddesi, organik kimyada çözücü olarak yaygın olarak kullanılır. Bu çalışmada salisilaldehit ile anilinin reaksiyonunda ilgili imin bileşiği (2-((fenilmino)metil)fenol) sentezlenmiştir. İmin bileşiğindeki C=N çift bağlarının çözelti ortamında indirgenmesi reaksiyon başlangıcı background tanımlama yöntemi kullanılarak FT-IR ile izlenmiştir.. Bu yöntemin temelinde reaksiyon başlangıcındaki ortamdaki bütün bileşenlerden kaynaklanan titreşimler FT-IR cihazı tarafından yok sayılması vardır. Reaksiyonun ilerlemesiyle alınan reaksiyon ortamı FT-IR ölçümleri sadece ortamdaki değişimlerden kaynaklanır ve sonuç olarak elde edilen spektrum oluşan ürünlerin titreşimlerini ve ortamda azalan giriş maddelerin titreşimlerini içerir. Reaksiyon ortamındaki ürünün oluşumu ve giriş maddelerinin azalışı direk reaksiyon ortamında gözlenebilmiştir. 2-((fenilmino)metil)fenol) bileşiğinin $NaBH_4$ ile indirgenmesi oda sıcaklığında FT-IR sıvı hücresinde çözelti ortamında incelenmiştir. İminin NaBH4 ile indirgenmesi sonucunda sekonder amin bileşiği (2-((fenilamino)metil)fenol) elde edilmiştir. Saflaştırılan 2-((fenilmino)metil)fenol) bileşiğinin (imin) ve indirgenme işlemi sonunda elde edilen 2-((fenilamino)metil)fenol bileşiğinin (sekonder amin) yapıları ^{1}H-NMR ve ^{13}C-NMR analizleri ile aydınlatılmıştır.



2-((fenilamino)metil)fenol
(pamp)

Anahtar Kelimeler: İmin, İndirgenme, Background tanımlama, FT-IR

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➢ **POSTER PRESENTATION**

Benzaldehit ve 3-metoksibenzaldehitin asetofenon ile kondenzasyon reaksiyonlarının çözelti ortamında FT-IR ile incelenmesi

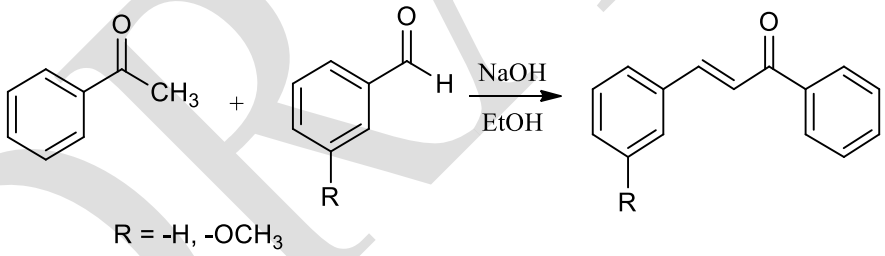
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Özet

Kalkonlar iki aromatik halkanın üç karbonla birbirine bağlı, düz zincirinde α, β-doymamış bir karbonil grubu olan açık zincirli flavonoidlerdir. Bitkilerden izole edilen veya sentetik olarak elde edilen pek çok kalkon türevleri biyolojik aktiviteye sahiptir. Kalkonların antioksidan, anti-diyabetik, anti hipertansif, anti-viral, anti-inflamatuar, anti-histaminik ve anti-malarial gibi biyolojik aktiviteleri bulunmaktadır. Kalkon türevleri üzerine çok sayıda araştırma yapılmaktadır. Bu çalışmada, asetofenonun sırasıyla benzaldehit ve 3-metoksibenzaldehit etanol içerisinde oda sıcaklığındaki reaksiyonu sonucunda sırasıyla benzalasetofenon, 3-metoksibenzalasetofenon bileşikleri elde edilmiştir. Sentezlenen ürünlerin yapı analizleri FT-IR spektroskopisi kullanılarak yapılmıştır. Bu amaçla ürünlerin ve giriş maddelerinin IR spektrumları karşılaştırılmıştır. Çalışmada kullanılan reaksiyon başlangıcı background tanımlaması yöntemi reaksiyonun başlangıç anındaki ortamdaki tüm bileşenlerinin titreşimlerinin FT-IR cihazı tarafından sıfırlanması mantığına dayanmaktadır. Asetofenonun sırasıyla benzaldehit ve 3-metoksibenzaldehit etanol içerisinde oda sıcaklığındaki reaksiyonu, reaksiyon başlangıcı background tanımlama yöntemi kullanılarak FT-IR ile izlenmiştir. Reaksiyon başlangıcı background tanımlama yöntemiyle asetofenon ile benzaldehit ve 3-metoksibenzaldehit bileşiklerinin bazik ortamdaki (NaOH) reaksiyonları oda sıcaklığında incelenmiştir. Reaksiyon ortamının eşit zaman aralıklarında alınan IR spektrumları incelendiğinde klasik bir IR spektrumundan farklı spektrumlar olduğu görülmüştür. Spektrumlar incelendiğinde giriş maddelerinin IR titreşimlerinin transmitans çizgisinin üzerinde, ürünlerin titreşimlerinin ise transmitans çizgisinin altında zamanla artığı gözlemlenmiştir.



Anahtar Kelimeler: Kalkon, FT-IR, Background tanımlama, Reaksiyon izleme.

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➢ **POSTER PRESENTATION**

Boyar maddelerin güneş ışığı ile fotokimyasal oksidasyonunun incelenmesi

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Özet

Sentetik boyar maddeler çeşitli alanlarda sıklıkla kullanılmaktadır. Özellikle tekstil endüstrisinde yoğun olarak kullanılan boyar maddelerin büyük kısmı tehlikeli kirleticilerdir. Boyar maddeler genel olarak bozunmaya dirençli ve çevrede uzun süreli kirlilik oluşturabilecek maddelerdir. Bu sebeple atıksudan boyar madde giderimi oldukça önemlidir.Boyar madde gideriminde adsorpsiyon, koagülasyon-flokülasyon gibi çeşitli fizikokimyasal yöntemler kullanılabilmektedir. Bununla birlikte bu yöntemlerle boyar maddelerin gideriminde faz transferi gerçekleşmektedir. Biyolojik prosesler ise boyar maddelerin gideriminde çoğunlukla etkili olmamaktadır. Kirletici özelliği yüksek ve bozunmaya dirençli olan boyar maddelerin gideriminde yüksek verim elde edilmesi ve atıksu geri kazanımında kullanılabilir olması, ileri oksidasyon proseslerini cazip hale getirmektedir.
Çalışmanın amacı Telon Red FRL boyar maddesinin güneş ışığı altında fotokimyasal oksidasyon prosesi ile gideriminin incelenmesidir.Fotokimyasal oksidasyon prosesinde oksidan olarak hidrojen peroksit ve peroksimonosülfat, katalizör olarak ise demir (Fe^{+2}) kullanılmıştır.Fotokimyasal oksidasyon deneyleri boyar maddenin doğal pH değeri ve asit pH değerinde gerçekleştirilmiş ve iki farklı oksidanın boyar madde giderim verimleri ve pH değerinin boyar madde giderim verimine etkisi kıyaslanmıştır.Deneysel çalışmalar sonucunda, güneş ışığı altında boyar madde gideriminde peroksimonosülfatın hem doğal pH hem de asit pH değerinde etkili olduğu gözlenmiştir. Hidrojenperoksit kullanıldığında ise asit pH değerinde daha yüksek giderim verimleri elde edilmiştir.

Anahtar Kelimeler: Fotokimyasal oksidasyon, sentetik boyar madde, güneş ışığı, oksidan, katalizör

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➢ **POSTER PRESENTATION**

New phthalocyanine derivatives for photodynamic cancer therapy

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Abstract

Photodynamic therapy (PDT) is a promising therapeutic modality for the cure of recurrent cancers. PDT is based on the use of a light-sensitive molecule called photosensitizer, which is activated by a light source. Effective photosensitizers have long fluorescence and triplet lifetimes, and high triplet and singlet-oxygen quantum yields. Phthalocyanines are commonly used second-generation photosensitizers that can be conjugated with biomolecules to increase the effectiveness of PDT at tumor tissue. In this study, two new axial silicon (IV) phthalocyanines, ***Pc5a*** and ***Pc4a***, were synthesized and were conjugated with arginine to target cancer cells. ***Pc4a*** contains a single arginine group whereas ***Pc5a*** contains two arginine groups. Here, we aimed to investigate the anticancer activities of these photosensitizers-mediated photodynamic therapy on human cervical cancer cell line (HeLa) and hepatocellular carcinoma cell line (HuH-7). In this context, the effects of these agents on cell proliferation, cell apoptosis, and DNA damage were tested. Cancer cells pre-treated with ***Pc5a*** and ***Pc4a*** (2.5-5 and 10 µM) were illuminated with a light source (680 nm) at a power density of 2 J/cm^2. Findings from this study showed that ***Pc5a*** was more effective than ***Pc4a*** in inhibiting the proliferation and increasing the apoptosis of HuH-7 and HeLa cells. In conclusion, ***Pc5a*** is a promising PDT agent for the therapy of cancer.

Keywords: Photodynamic therapy (PDT), Phthalocyanine, Arginine conjugation, Targeting Cancer Cells.

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➢ **POSTER PRESENTATION**

Synthesis and ınvestigations of antibacterial activity of new squaramide compounds

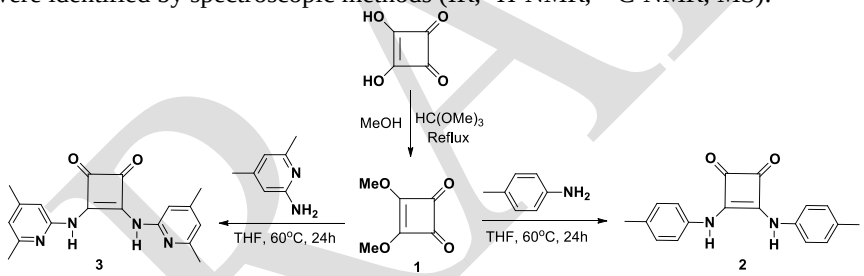
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Abstract

Squaramides are very important four-membered ring systems derived from squaric acid that are able to form up to hydrogen bonds. Squaramide carbonyl and amino groups can form donor and acceptor hydrogen bonds. A high affinity for hydrogen bonding is driven through a resultant increase in aromaticity of the ring. Furthermore, a squaramide skeleton has a very rigid structure and it is highly stable against nucleophilic attacks [1,2]. Therefore, squaramides have been applied in a wide variety of chemistry fields including bioconjugate chemistry, medicinal chemistry, molecular recognition, organometallic chemistry, organocatalysis and dyes due to its unique properties [2,3].
For this purpose, we studied synthesis and antibacterial activities of new substituted squaramides. Squaramides **2** and **3** were synthesized using methyl substituted aryl amines and dimethyl squarate **1** under relatively mild conditions. Reaction of dimethyl squarate **1** synthesized from squaric acid and trimethyl orthoformate in methanol with 4-methylaniline and 2-amino-4,6-dimethylpyridine gave 3,4-Bis[(4-methylphenyl)amino]cyclobut-3-ene-1,2-dione **2** and 3,4-Bis[(4,6-dimethyl-2-pyridinyl)amino]cyclobut-3-ene-1,2-dione **3**, respectively in good yields **(Scheme 1)**. The product structures were identified by spectroscopic methods (IR, ^{1}H-NMR, ^{13}C-NMR, MS).



Scheme 1. Synthesis of new squaramide compounds

The *in vitro* antibacterial activities of synthesized compounds were investigated against some bacteria by agar diffusion method [4,5] and at different four concentrations (2, 1, 0.5 and 0.2 g/100 ml) both compounds were shown no antimicrobial susceptibility against 4 Gram positive; Bacillus megaterium B1, Listeria monocytogenes ATCC 7644, Staphylococcus epidermidis S1, Staphylococcus aureus S2, and 4 Gram negative; Salmonella enteritidis ATCC 13076, Escherichia coli ATCC 8339, Pseudomonas fluorescens P1, Acinetobacter baumannii VP3. However, the most prevalent antibiotics (Bioanalyse, Turkey) such penicilin, chloramphenicol, tetracycline, ampicillin, gentamicin and ketoconazole had inhibitor effect on all the test bacteria.

Keywords: Synthesis of squaramides, antimicrobial activity, spectral analysis.

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➢ **POSTER PRESENTATION**

Synthesis of new polysubstituted dihydrofuroquinolinone compounds: Investigations of theoretical and experimental spectroscopic analysis

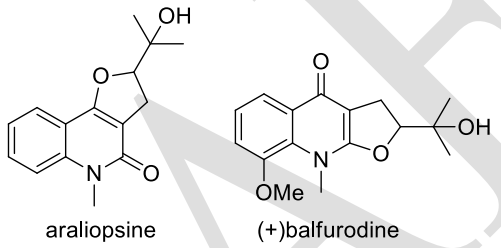
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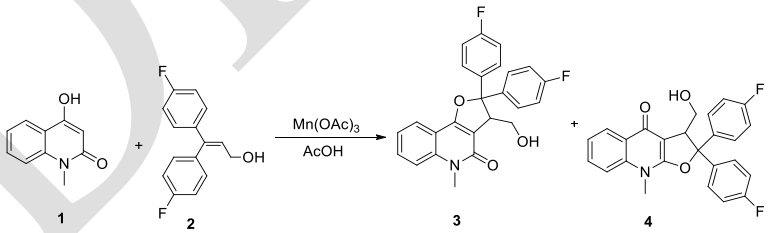
Abstract

Synthesis of quinolinone compounds is growing area of interest due to polyfunctionalized groups with a wide range of biological activities [1] . Among them dihydrofuroquinolinones is an important class of heterocycles in which a substituted furan ring is fused with quinolinone ring. These are widely distributed in nature and exhibited important pharmacological activities (**Scheme 1**) [2]. The most commonly route for the synthesis of dihydrofuroquinolinone compounds is the radicalic cyclization of various unsaturated alkenes with 4-hydroxy-quinoline-2-ones in the present of catalyst such as manganese(III) acetate and cerium(IV) ammonium nitrate [3].



Scheme 1. Naturally occurring dihydrofuroquinolinone compounds.

In this study, we report the oxidative cyclization of 1-methyl-4-hydroxy-quinoline-2-one (**1**) with unsaturated alcohol 3,3-bis(4-fluorophenyl)prop-2-en-1-ol (**2**) by using electrochemically synthesized $Mn(OAc)_3$ which afforded 2,2-bis(4-fluorophenyl)-3-(hydroxymethyl)-5-methyl-2,3-dihydrofuro[3,2-c]quinolin-4(5H)-one (**3,** 32 %) as an angular product and 2,2-bis(4-fluorophenyl)-3-(hydroxymethyl)-9-methyl-2,3-dihydrofuro[2,3-b]quinolin-4(9H)-one (**4**) as a linear product (**4,** 21 %) in moderate yields (**Scheme 2**). In addition, theoretical calculations of the synthesized compounds (**3** and **4**) also investigated. Experimental and theoretical results of UV, IR and NMR spectral analysis were compared.



Scheme 2. Synthesis of new dihydrofuroquinolinone compounds.

Keywords: Synthesis of dihydrofuroquinolinones, Spectral analysis. Theoretical calculations.

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DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **POSTER PRESENTATION**

Potential of Turkish *Salix* L. species: Bioactivity and phytochemistry-a review

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Abstract

Willow is a rich genus that spreads with 500 species in the world. 27 species are found naturally in Turkey and 4 of them are endemic. Salicylates (salicylic acid and acetylsalicylic acid) contained in willow species have been used for centuries because of their analgesic, antipyretic and anti-inflammatory properties and increased interest in this species, especially after the discovery of aspirin. However, studies have shown that the total salicin fraction in the willow bark is not sufficient to explain the pharmacological strength of the willow bark. Thus, it is believed that the anti-inflammatory potential in willow bark can be explained by additional mechanisms, such as antioxidant activity provided by other phytochemical components, especially polyphenols and flavonoids. The previous studies on the antioxidant and anti-inflammatory effects of willow species also found in Turkey (*S. purpurea, S. alba, S. amplexicaulis, S.babylonica, S.elaeagnos, S.fragilis, S.triandra, S.caprea, S.aegyptiaca*) have shown positive results. According to recently published molecular and morphological data set; from the relatives, *S.acmophylla, S.purpurea* subsp. *leucodermis* (endemic), *S.myrsinifolia* and *S.caucasica* are determined as the closest to *Salix* species used in the phytochemical and bioactivity studies. So in the current review study, it is strongly suggested that these species have potential value to be used in pharmacological studies in the long run. When considering the richness of Turkey's willow species, selected Turkish *Salix* appears to have potential both in obtaining medicinal and food-related products and in preventing oxidative stress-related diseases and it is believed that this potential is important to be evaluated for contributing the public health and the national economy.

Keywords: *Salix* L, Antioxidant, Bioactivity, Salicin, Flavonoid, Turkey.

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➢ **POSTER PRESENTATION**

Synthesis of cinnamyl chitosan and investigation of its antimicrobial activity

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Abstract

Chitosan is a natural polymer obtained through the alkaline hydrolysis of chitin, which can be extracted from the exoskeleton of shrimps and crabs. It has good antimicrobial activity against a wide range of microorganisms. Modified versions of chitosan can be synthesized and generally showed better antimicrobial activity against fungal, bacterial pathogens in literature. In this study, cinnamyl chitosan (CCh) was synthesized by reductive amination. For synthesis, 1% of chitosan (M_w:110 kDa) was dissolved in 1% lactic acid solution and 2 mol equivalent of cinnamaldehyde in methanol, was added into chitosan solution stirred for 12 hours under inert conditions (pH:5). 5 mol aldehyde equivalent of $NaBH_4$ in methanol was added and stirred for 24 hours. After the reaction, pH was adjusted to 12 and precipitated material collected and washed with ethanol to remove unreacted cinnamaldehyde. Dialysis performed against the water with 12 kDa dialysis membrane for 24 hours and purified material was lyophilized. Characterization of synthesized material was performed with a UV-Vis spectrometer and FT-IR/ATR spectrometer. From the UV-Vis spectrum of CCh, it has been observed a significant peak at 310 nm which shows the phenyl abundance in the chemical structure. FT-IR analysis was corrected the CCh synthesis; characteristic peaks observed with typical aromatic ring stretches at 1500-1600 cm^{-1} range. Antifungal activity assays of CCh performed against *Penicillium Digitatum*, *Aspergillus Niger*. Antibacterial activity assays were performed against *Escherichia Coli*, *Staphylococcus Aureus* and *Listeria Monocytogenes* and growth kinetics were measured for 24 hours. Synthesized CCh showed greater antifungal and antibacterial activity compared to unmodified chitosan. In conclusion, cinnamyl chitosan has great potential as a functional material to prevent industrial losses in food and agriculture areas.

Keywords: Chitosan, Cinnamaldehyde, Antifungal, Antibacterial.

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➢ **POSTER PRESENTATION**

Reactions of 3-formylchromone with different compound classes containing a substituted amino group

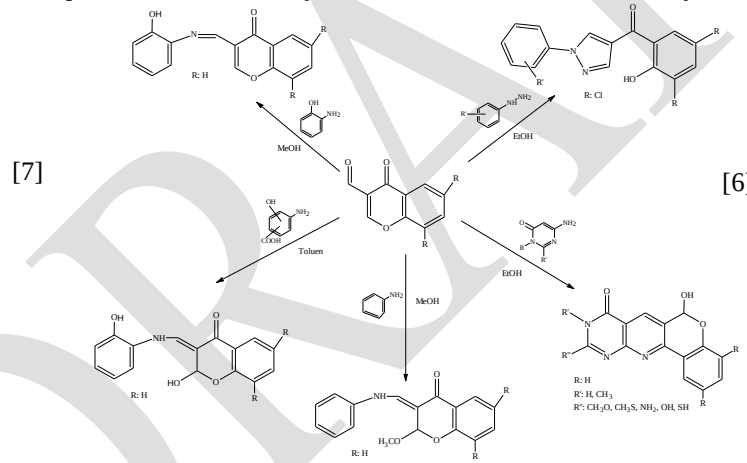
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Abstract

Chromones are compounds, which contain γ-pyrone nucleus fused to benzene ring at the 5- and 6-position. Chromones and their derivatives occur in plant life, mostly as a pigment in plant leaves and flower. Compounds containing the chromone are minor constituents of the human diet and have been reported to exhibit a wide range of biological effects such as antiinflammatory, antibacterial, antitumor, antiHIV, antioxidant, antiallergic [1], antifungal, antiulcer, immunostimulator, biocidal, wound healing, antimicrobial [2, 3]. Chromones are important for the synthesis of many oxygen heterocycles, xanthones as well as transition metal chelates [1]. In general, 3-formylchromones readily react with primary amines in an alcoholic medium yielding an enamine-adduct which rarely reacts further to give the corresponding Schiff bases [4]. The reactivity of 3-formylchromones towards several nucleophiles, as hydrazine, phenylhy-drazine and particularly two functional nucleophiles, has been investigated. In the reaction of 3-formylchromone with amino pyrazoles, it was observed that the γ-pyran ring in the chromone structure was opened and heterocyclic primidine compounds were formed by the Michael addition of the endocyclic nucleophilic nitrogen. [5].



[7] [6] [5]

Keywords: Chromone, γ-pyrone, nucleophilic reaction, reaction conditions

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[1] [8]

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Determination of antibacterial activity of *Rosa canina L.* fruit part extracts

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Abstract

The pseudo-fruit of *Rosa canina* L. (Rosaceae) consists of a u-shaped receptacle with numerous achenes inside. The pseudo-fruit is rich in Vitamin C and their fresh and dried products are frequently used as herbal tea. Dog rose pseudo-fruit is traditionally applied for the prevention and therapy of common cold, prevention of inflammation of the gastric mucosa and gastric ulcer, and gallstones and biliary complaints. It is also used as a laxative, for disorders of the kidney and the lower urinary tract. In addition, it is used as a diuretic in the case of dropsy [1]. The aim of current study is to determine the antibacterial activity of *Rosa canina* L. fruit extracts against *Staphylococcus aureus* ATCC 29213, *Bacillus cereus* ATCC 14579, *Enterobacter aerogenes* ATCC 13048 and *Escherichia coli* ATCC 25922 by using broth microdilution and disc diffusion methods. The hexane, ethyl acetate and methanol extracts from the fruit parts of *R. canina* were obtained by maceration method with 500 g *R. canina* fruit. The experiments were started 8 mg/mL of extracts for broth microdilution assay and 10 mg/disc of extracts were used for disc diffusion assay. The hexane extract showed inhibitory activity against all bacteria in broth microdilution assay. The minimum inhibitory concentration (MIC) values of hexane extract were 8 mg/mL for all bacteria. The ethyl acetate and methanol extracts showed inhibitory activity against all bacteria in both assays. The MIC values of ethyl acetate were 8 mg/mL for *E. aerogenes*, 4 mg/mL for *B. cereus*, *S. aureus* and *E. coli*. The inhibition zone diameters of ethyl acetate extract were 12 mm for *S. aureus* and *E. aerogenes*, 14 mm for *E. coli*, and 20 mm for *B. cereus*. The MIC values of methanol extract were 8 mg/mL for all bacteria. The inhibition zone diameters of methanol extract were 18 mm for *B. cereus*, 14 mm for *S. aureus* and 12 mm for *E. coli* and *E. aerogenes*.

Keywords : *Rosa canina*, antibacterial activity, extract

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

Determination of antibacterial activity of *Prunus laurocerasus* L. fruit part extracts

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Abstract

Prunus laurocerasus L. (cherry laurel) is a species in the genus *Prunus*, native to regions bordering the Black Sea in Southwestern Asia and Southwestern Europe. *P. laurocerasus* has been widely planted as an ornamental plant in temperate regions worldwide because it is a very decorative and popular tree. Cherry laurel is mainly distributed on the coast of the Black Sea region of Turkey. This species is also well known as a traditional medicine used for digestive system complaints, bronchitis, eczemas and as a diuretic agent [1]. The aim of current the study is to provide information about the antibacterial activity of *P. laurocerasus* fruit extracts against *Staphylococcus aureus* ATCC 29213, *Bacillus cereus* ATCC 14579, *Enterobacter aerogenes* ATCC 13048 and *Escherichia coli* ATCC 25922 by using broth microdilution and disc diffusion methods. The hexane, ethyl acetate and methanol extracts from the fruit parts of *P. laurocerasus* were obtained by the maceration method with 500 g *P. laurocerasus* fruit. The experiments were started with 8 mg/mL of extracts for broth microdilution assay and 10 mg/disc of extracts were used for disc diffusion assay. Chloramphenicol was used as a positive control for both assays. All experiments were done duplicated. The hexane extract did not show inhibitory activity for all bacteria. The ethyl acetate extract showed inhibitory activity against all bacteria in both assays. The minimum inhibitory concentration (MIC) values of ethyl acetate extract were 8 mg/mL for *E. aerogenes*, *B. cereus*, *E. coli* and 4 mg/mL for *S. aureus*. The inhibiton zone diameters of ethyl acetate extract were 9 mm for *E. coli* and *E. aerogenes*, 10 mm for *S. aureus*, and 18 mm for *B. cereus*. The methanol extract showed inhibitory activity against all bacteria in disc diffusion assay. The inhibiton zone diameters of methanol extract were 8 mm for *S. aureus*, 9 mm for *E. aeruginosa*, 10 mm for *E.coli* and 15 mm for *B. cereus*. The MIC values were 8 mg/mL for *E. coli* and *S. aureus.*

Keywords : *Prunus laurocerasus* L., antibacterial activity, extract

Reference

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

New phenanthroline nickel(II) organodithio-phosphorus complexes: Syntheses, structural characterizations and *in vitro* cytotoxic activity studies

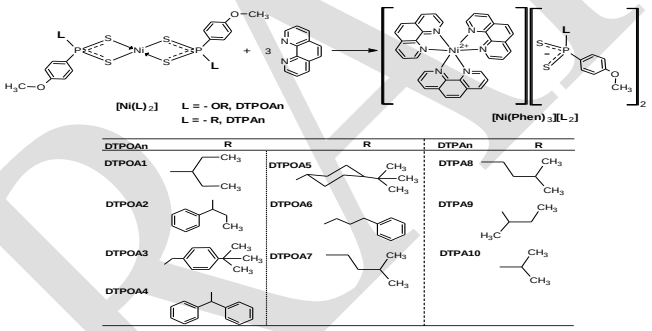
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Abstract

Seven different dithiophosphonato Ni(II) complexes, [Ni(DTPOA^n)$_2$], ((4-MeO-C_6H_4)PS(SH)(**OR**)= DTPOA^n, n= 1-7; R= 3-pentyl-, DTPOA^1; R= 1-phenyl-1-propyl-, DTPOA^2; R= 4-tert-butyl benzyl -, DTPOA^3; R= diphenylmethyl-, DTPOA^4; R= 4-tert-butylcyclohexyl-, DTPOA^5; R= 3-phenyl-1-propyl-, DTPOA^6; R= 3-methyl-1-butyl-, DTPOA^7) and three different dithiophosphinato Ni(II) complexes, [Ni(DTPA^n)$_2$], ((4-MeO-C_6H_4)PS(SH)(**R**)= DTPA^n n= 8-10; R= 3-methyl-1- butyl-, DTPA^8; R= 2-methylpropyl-, DTPA^9; R= 1-methyl propyl-, DTPA^{10}) were prepared by the reaction of $NiCl_2{\cdot}6H_2O$ and ammonium salts of the corresponding dithiophosphonic- and dithiophosphinic acids, [NH_4][DTPOA^n] and [NH_4][DTPA^n], respectively. Starting with these complexes which have been known previously, new organodithio-phosphonate salts of *tris*-phenanthroline Ni(II), [Ni(Phen)$_3$][(DTPOA^n)$_2$] and organodithio-phosphinate salts of the same complex, [Ni(Phen)$_3$][(DTPA^n)$_2$] were synthesized and characterized (Scheme 1).



Scheme 1. Synthesis reaction of [Ni(Phen)$_3$][(DTPOA^n)$_2$] and [Ni(Phen)$_3$][(DTPA^n)$_2$].

The characterization of the complex salts was done by spectroscopic methods (mass spectrometry (ESI), FT-IR, Raman spectroscopy), magnetic susceptibility measurements and elemental analysis. The crystal structures of [Ni(Phen)$_3$][(DTPOA^1)$_2$], [Ni(Phen)$_3$][(DTPOA^3)$_2$], [Ni(Phen)$_3$][(DTPOA^4)$_2$] and [Ni(Phen)$_3$][(DTPA^9)$_2$] complexes were determined by X-ray crystallography. After characterization completed, all complexes were screened against human liver cancerous cell line (HepG2), human colon cancerous cell line (DLD-1) and human breast cancerous cell line (MDA-MB-231) for 48 h using MTT assay method. A positive control drug was tested under the same experimental conditions. Results were calculated with GraphPad Prism software 5. According to the results obtained, cell viability ratio varied depending on drug concentrations, and the lowest cell viability rates were achieved at 200 µM compared to 5 µM.

Keywords: Phenanthroline Dithiophosphonate Complexes, Phenanthroline Dithiophosphinate Complexes, Lawesson's Reagent, anticancer, cytotoxic activity.

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➢ **POSTER PRESENTATION**

New heterobimetallic nickel(II) ferrocenyldithiophosphonato complexes: syntheses, structural characterization, X-ray, DFT and molecular docking studies on trans-bis-[O-3-methyl-1-butyl-(ferrocenyl)dithiophosphonato]nickel(II) and antiproliferative activity studies

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Abstract

Ammonium salts of the ferrocenyldithiophosphonates ([NH_4(FcLn)], FcLn= Fc(RO)P(S)S ; n= 1, R= 3-phenyl-1-propyl- ; n= 2, R= 1-phenyl-1-propyl- ; n= 3, R= 3-methyl-1-butyl- ; n= 4, R= 3-pentyl-) were reacted with nickel(II)acetate to yield square-planar, heterobimetallic Ni(II) complexes, [Ni(FcLn)$_2$], [1,2]. These four-coordinated ferrocenyldithiophosphonato nickel(II) complexes were further treated with pyridine (Py) to synthesis new, six-coordinated complexes [Ni(FcLn)$_2$(Py)$_2$]. The compounds were investigated by elemental analysis; MS; FTIR and Raman spectroscopies and were also elucidated by ^{1}H-, ^{13}C- and ^{31}P- NMR. The density functional theory (DFT) calculations on the compound [Ni(FcL3)$_2$], trans-bis-[O-3-methyl-1-butyl-(ferrocenyl)dithiophosphonato]nickel(II), have also been performed so as to compare the molecular structures obtained from X-ray single-crystal analysis and optimized structure [B3LYP/LANL2DZ level] of [Ni(FcL3)$_2$] complex. In addition to the optimized geometrical structures, molecular electrostatic potential surfaces and frontier molecular orbitals were predicted by the B3LYP/LANL2DZ level. Finally, as seen Figure 1, the molecular docking was performed to identify the interaction of [Ni(FcL3)$_2$] with human DNA proteins (3V9D for A-DNA and 1BNA for B-DNA).

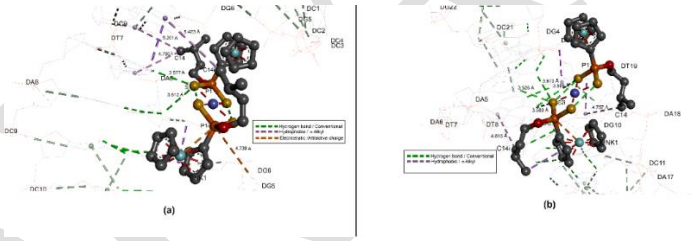


Figure 1. Binding interactions of [Ni(FcL3)$_2$] (a) with A-DNA, (b) [Ni(FcL3)$_2$] with B-DNA.

The antiproliferative activity studies of synthesized molecules were tested towards three different cell lines as *in vitro*. Compound [Ni(FcL2)$_2$] among others demonstrated the most cytotoxic activities against human colorectal adenocarcinoma epithelial colon cell line (DLD-1), human liver epithelial hepatocellular carcinoma cell line (HepG2) and human breast epithelial adenocarcinoma (MDA-MB-231) for 48 h with IC_{50} values of 88.96, 158.4 and 80.24 μM, respectively.

Keywords: Anticancer, Antiproliferative activity, Ferrocenyl Dithiophosphonic Acid, Ferrocenyl Dithiophosphonato complexes, Organo-dithiophosphorus compounds, Molecular docking, X-ray, DFT.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Determination of LC_{50} value of neonicotinoid insecticide sulfoxaflor in *Danio rerio*

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Abstract

Sulfoxaflor is a neonicotinoid insecticide containing sulfoximine group acts as a nicotinic acetylcholine receptor (nAChRs) agonist in insects. Studies on the toxic effects of neonicotinoid group insecticides are related to the neurotoxic and oxidative stress potentials in mammals and there is limited number of studies on the acute toxicity of neonicotinoid group sulfoximine insecticides on model fish species. The present study was performed to investigate 96h LC_{50} value of sulfoxaflor in adult *Danio rerio* selected as model organism. The static-renewal system was used for acute toxicity test. For this purpose, five different nominal concentrations (49.94, 40.50, 32.14, 28.13, 24.11 mg/L) of sulfoxaflor which were determined by preliminary text were applied for 96h and the numbers of dead fish in each aquarium were recorded. Behavioral changes were observed in the fish at intervals of 2h during the test. The LC_{50} value of sulfoxaflor was determined as 35.13 mg/L for adult *Danio rerio* by using the probit analysis. As a results, this study indicated that the acute toxicity of sulfoxaflor for *Danio rerio* was higher than other model fish species and sulfoxaflor induced behavioral changes including loss of equilibrium erratic swimming, motionlessness and lying down in *Danio rerio* without mortality.

Keywords: Neonicotinoid, Sulfoxaflor, acute toxicity, LC_{50}, *Danio rerio*

Funding: The financial support for this project (FBA201810503) from Cukurova University Scientific Research Commission is gratefully acknowledged.

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➢ **POSTER PRESENTATION**

Kurşun ve NTA Karışımlarının *Oreochromis niloticus* Kan Dokusundaki ALP Seviyeleri Üzerindeki Etkileri

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Özet
Bu çalışmada Pb ve Pb+NTA karışımlarının *Oreochromis niloticus* kan dokusunda alkalen fosfataz (ALP) aktivitesi üzerine etkileri incelenmiştir. Balıklar 7 ve 21 sürelerde kurşun (0.1 mg/L Pb ve 1.0 mg/L Pb) derişimleri ve Kurşun+NTA (0.1 mg/L Pb+0.3 mg/L NTA ve 1.0 mg/L Pb+3.0 mg/L NTA) karışımlarının etkisine bırakılarak kan dokusu ALP aktivitesi spektrofotometrik yöntemlerle belirlenmiştir. Her iki Pb derişiminde de kan dokusu alkalen fosfataz (ALP) aktivitesi sürenin uzamasıyla artmıştır. 7 ve 21 gün boyunca Pb'ye maruz kalan balıkların kan dokularındaki alkalin fosfataz (ALP) aktivitesi, Pb + NTA'ya maruz kalanlara kıyasla daha düşüktü: Sonuç olarak kurşunun *O. niloticus* da biyokimyasal parametreler üzerine olan toksik etkisinin NTA tarafından engellendiği düşünülmektedir.

Bu araştırma Çukurova Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi (BAP) tarafından (FBA-2018-10696) desteklenmiştir.

Anahtar kelime: Alkalen fosfat (ALP), *Oreochromis niloticus*, Kurşun,NTA

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19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

Phenolic component amounts and antioxidant activities of *Syzygium aromaticum* and *Cinnamomum zeylanicum*

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Abstract

Spices as clove and cinnamon have been used for centuries as food preservatives and as medicinal plants due to its antioxidant, antibacterial, antifungal, antiviral and anticarcinogenic properties.
Syzygium aromaticum (clove) is a median size tree (8-12 m) from the Mirtaceae family native in the east Indonesia. Clove is one of the most valuable spices that has been used for centuries as food preservative and for many medicinal purposes. This plant represents one of the richest source of phenolic compounds (eugenol, eugenol acetate and, gallic acid) and has great potential for pharmaceutical, cosmetic, food and agricultural applications. It has antioxidant, antimicrobial, anesthetic and analgesic properties [1].

Cinnamomum zeylanicum (cinnamon) is a small, tropical, evergreen tree known for its bark, a native plant of Sri Lanka and tropical Asia. Cinnamon is rich in terpenoids, including linalool, eugenol and methyl chavicol and has antioxidant, antimicrobial, and antidiabetic activities [2,3]. *C. zeylanicum* bark has been reported to have remarkable pharmacological effects in the treatment of type II diabetes and insulin resistance [2,3].

In this study, three different extraction methods (ultrasound, maceration, and boiling) were utilized for cinnamon and cloves aqueous extracts. These extracts were lyophilized and extraction yields were calculated on a dry weight base. The amount of total phenolic components for each extracts were determined by the Folin Ciocalteu method. According to our findings, the highest amount of phenolic component was obtained in the boiling method. Moreover, the antioxidant activity of aqueous extracts was tested by different *in vitro* methods as DPPH and ABTS.

Keywords: *Syzygium aromaticum, Cinnamomum zeylanicum,* antioxidant activity, total polyphenols.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Diazepam (Diazem) & Alprazolam (Xanax); A Computational Approach to Corrosion Inhibition

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Abstract

Corrosion is a natural process that leads to the deterioration of metal by electrochemical or chemical interaction with its environment. Among the various methods, the corrosion inhibitor is one of the best know methods of corrosion protection and one of the most useful on the industry. Green inhibitors can be classified into organic and inorganic inhibitors. Some substances such as plant extracts, biopolymers, ionic liquids, and drugs are used as organic green corrosion inhibitor, also, some rare earth compounds which can be used as inorganic green corrosion inhibitors. Drugs constitute one of the most potential classes of inhibitors due to their natural origin, relatively cheap, and non-toxic characteristics.

In this study DFT (density functional theory) Becke's three parameter functional with the Lee, Yang, and Parr correlation functional (B3LYP) 6-31G ++ (d,p) basis set have been applied in aqueus solvent with Gaussian 09w and GaussView 5.0 software for the theoretical analysis of Diazepam and Alprazolam molecules as acidic media corrosion inhibitors.

Keywords: Corrosion inhibitor, theoretical calculation, drugs, DFT method

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➢ **POSTER PRESENTATION**

Apoptoz ve kanser

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Özet

Apoptoz; fizyolojik bir olay olan, canlılarda hücre yapımı ve yıkımı arasındaki dengeyi sağlayan programlı bir hücre ölümüdür. Apoptoz, sıkı denetim mekanizmalar ile kontrol edilen, instrinsik ve ekstrinsik özel sinyal mekanizmalarına bağlı olarak gerçekleştirilir. Başlıca rol alan moleküller; Bcl-2 ailesi, kaspazlar ve tümör baskılayıcı gen olarak adlandırılan inhibitör proteinleridir (IAPs) ve bunlar antiapoptotik ve proapoptotik proteinler olarak ikiye ayrılırlar.
Kanser başta olmak üzere birçok hastalıkta apoptoz mekanizmasının bozulduğu görülmektedir. Epigenetik modifikasyonlar ve mutasyonlar başta olmak üzere birçok neden apoptoz mekanizmasının bozulmasına neden olmaktadır. Apoptoz ve hücre sağkalım mekanizmalarının belirlenmesi; kanser başta olmak üzere AIDS, kardiyovasküler hastalıklar ve nörodejeneratif hastalıklar için kök hücre tedavisi gibi yeni tedavi stratejilerinin ortaya çıkmasını sağlamıştır.

Hücre bölünmesi aşamasından başlanarak genetik ve çevresel etmenlerin biyokimyasal mekanizmalarının ortaya konulduğu, deneysel çalışmalarla belirtilen nörodejeneratif hastalıkların ortaya çıkmadan durdurulması, kanser gelişiminin önlenmesi ve gelişen kanserlerin tedavilerinin umut verici şekilde sonuçlanması mümkün olacaktır. Bu derleme; kanserde, apoptoz mekanizmasında meydana gelen mutasyonlar ve etkileri ile ilgili bilgi vermeyi amaçlamaktadır.

Anahtar kelimeler: apoptoz, kanser, kaspazlar, Bcl-2, IAPs.

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➢ **POSTER PRESENTATION**

Computational approaches to glyceryl ricinoleate and water interactions

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Abstract

Castor oil is also known as ricinus oil. Just like most of the vegetable oils and fats, castor oil is a triglyceride of various fatty acids. However, it is unique due to very high (87–90 wt %) content of ricinoleic acid, $C_{18}H_{34}O_3$, an eighteen-carbon hydroxylated fatty acid having one double bond. Castor oil, sometimes described as a triglyceride of ricinoleic acid, is one of the few commercially available glycerides that contain hydroxyl functionality in such a high percentage of one fatty acid. Glyceryl Ricinoleate is the monoester of glycerol and ricinoleic acid and is an emulsifier in castor oil which is used as the naturel surfactant in many industrial area primarly cosmetics and food industry.

In this study DFT (density functional theory) Becke's three parameter functional with the Lee, Yang, and Parr correlation functional (B3LYP) 6-31G (d,p) basis set have been applied to Glyceryl Ricinoleate in aqueous solvent with Gaussian 09w and GaussView 5.0 software, the NCI analysis method calculated with the Multiwfn 3.6 software and the protonation micro-species in between the pH 3.00 and 11.80 with the help of predicted via Marvin view.

Keywords: Protonation, Theoretical calculation, Castor oil, DFT method

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➢ **POSTER PRESENTATION**

Pektin ve bor bileşikleri içeren hidrojel yara örtüsü tasarımı ve prokain salımı

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Özet

Pektin doğal bir polimerdir ve biyouyumluluğu sayesinde biyomedikal alanında önemi giderek artmaktadır. Bu çalışmada bor ve pektin içeren bir yara örtüsü tasarlanarak, bu yara örtüsünün formülasyon optimizasyonunun yapılması ve bor içeren bileşiklerin pektin filme olan etkisinin incelenmesi amaçlanmıştır. Bor bileşeni olarak boraks ve borik asit kullanılmıştır. Değişik formülasyonlarda hazırlanan pektin çözeltileri, gliserin ve kalsiyum klorür katılarak film haline getirilmiş ve karakterizasyon çalışmaları yapılmıştır. Bu formülasyonlarda incelenen parametreler, kullanılan pektin çözeltisinin derişimi, filmdeki pektin miktarı, çapraz bağlayıcı miktarı bor bileşeninin miktarı ve çözücünün etkisidir. Borik asit kullanılan formülasyonlarda film oluşumu gözlenmemiştir. En iyi film oluşturan formülasyonlar belirlendikten sonra bu filmlerin şişme oranları ve ilaç salım profilleri incelenmiştir. Şişme testleri sonucunda, ilaç içeren filmlerin, ilaçsız filmlere göre daha yüksek şişme oranına sahip olduğu görülmüştür. İlaç salımı analizinde 14 gün boyunca ilaç salımının sürdüğü ve toplam ilacın %81'inin salım çözeltisine geçtiği belirlenmiştir. Daha önceki çalışmalarımızda sentezlenen boraks içermeyen ve daha yüksek çapraz bağlayıcı içeren filmin 16. saatte ilaç salımının %70'e ulaştığı ve bu değerde sabit kaldığı bilindiğinden [1]; boraksın, ilacın salım süresini ve toplam salım miktarını arttırıp daha kontrollü bir ilaç salımına katkıda bulunduğu ortaya çıkarılmıştır. Laboratuvarda elde edilen filmler, Materials Studio v8.0 programı kullanılarak bilgisayar ortamında modellenmiş ve pektin filminden ilaç salımını kontrol eden moleküler etkileşimler moleküler dinamik simülasyonları ile aydınlatılmıştır. Simülasyonlarda boraksın, gliserinin ve pektin zincirlerinin yoğun bir şekilde hidrojen bağı yaptıkları görülmüştür. Bu sonuçlardan hareketle, boraks sayesinde çapraz bağlayıcı miktarı azaltılarak mekanik dayanımdan ödün vermeden daha kontrollü bir ilaç salımı sağlanmıştır. Bor içeren bileşiklerinin antiseptik özelliği de göz önünde bulundurulduğunda boraksın, pektin temelli yara örtüsü filminde faydalı olacağı öngörülmektedir.

Anahtar Kelimeler: Boraks, İlaç salımı, Pektin, Yara örtüsü, Moleküler Dinamik Simülasyonları

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➢ **POSTER PRESENTATION**

Investigation on hydrocarbon degradation ability of some halophilic microorganism ısolates

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Abstract

This study aimed to determine the ability of 120 halophilic microorganisms isolated from different salt lakes and salterns in our country to their potential for biodegradation hydrocarbons (phenol, pyrene, benzopyrene, naphthalene and phenanthrene). Twenty-eight isolates that capable of degrading hydrocarbons were chosen for identification with 16S rRNA sequence analysis. All of the isolates were identified as *Chromohalobacter, Idiomarina, Marinobacter, Aquisalimonas, Halomonas, Virgibacillus ve Halovibrio* in Bacteria domain. Gas chromatography-mass spectroscopy analysis carried out with three representative strains confirmed their ability to efficiently degrade aromatic compounds under halophilic conditions. As a result of analysis, *Chromohalobacter salexigens, Marinococcus halophilus* and *Halomonas sp.* were able to use all hydrocarbons as the sole carbon and energy source. Results that gathered in this study demonstrate twenty-eight halophilic bacterial strains have noticeable potential for further use in bioremediation processes in hydrocarbons contaminated hypersaline enviroments.

Keywords: Halophilic microorganism, Hydrocarbon, Degradation, 16S rRNA sequence analysis.

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➢ **POSTER PRESENTATION**

Biyomedikal metalik alaşımların grafen temelli malzemeler ile kaplanarak korozyon özelliklerinin geliştirilmesi

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Özet

Ti6Al4V alaşımı, ortopedik ve dental implantlar gibi birçok biyomedikal alanda yaygın olarak kullanılmakta ve yüzeyinde oluşan TiO_2 olarak da bilinen kararlı bir oksit tabakasının varlığına bağlı olarak korozyona dirençli malzemeler olarak bilinmektedir [1]. Ancak bu implantlar implantasyon öncesi uygulanan yüzey işlemi ve implante edildiği bölgeye bağlı olarak zamanla korozyona karşı duyarlı olabilmektedir [2]. İmplantın korozyona uğraması, içeriğinde bulunan vanadyum elementinin salınımına sebep olup malzemenin biyouyumluluğunu olumsuz yönde etkilemektedir. Vücut içerisine salınan vanadyum iyonları çevre dokuda renk değişikliğine, osteoliz nedeniyle ağrıya ve implantın gevşemesine sebep olabilecek inflamatuar bir tepkiye neden olabilmektedir [3]. Bu nedenle Ti6Al4V alaşımında korozyon direncinin arttırılıp vanadyum salınımının önlenmesi hasta sağlığı açısından büyük önem arz etmektedir.

Grafen oksit (GO) sahip olduğu elektriksel yalıtkanlık, biyouyumluluk ve antimikrobiyal özellikleri sayesinde biyomedikal implantların kaplanmasında kullanılabilecek ideal malzemelerden birisidir [4]. GO sentezinde birçok farklı yöntem kullanılmasına karşın yüksek miktarlarda ve hızlı üretime olanak sağlaması nedeniyle en çok tercih edilen yöntem kimyasal oksidasyon yöntemidir.

Bu çalışmada, modifiye edilmiş Hummers yöntemi ile sentezlenen GO'ların XRD, FT-IR ve Raman analizleri yapılmıştır. GO'ların elektroforetik biriktirme (EPD) yöntemi vasıtasıyla Ti6Al4V alaşımı üzerine kaplanması ve korozyon özelliklerine olan etkisi incelenmiştir. Elektroforetik biriktirme yönteminde uygulanacak olan farklı potansiyel ve sürenin kaplama özellikleri üzerindeki etkisi incelenmiştir. GO kaplı Ti6Al4V alaşımının korozyon özelliklerinin incelenmesi için iyi bilinen Açık Devre Potansiyeli (OCP), Doğrusal Tarama Voltametrisi (LSV) ve Döngüsel Voltametri (CV) yöntemleri kullanılmıştır.

Anahtar Kelimeler: Grafen oksit, Elektroforetik biriktirme, Korozyon, Ti6Al4V

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➢ **POSTER PRESENTATION**

A newly synthesized platinum complex of aniline oxime ligand induces apoptosis of hepatocellular carcinoma cells

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Abstract
Platinum-based drugs are used for the treatment of several solid tumors types. The use of the well-known lead compound of this class of anti-cancer agents, cisplatin, is limited by its side effects and varying resistance mechanisms. Herein, we report on a platinum (II) compound with aniline oxime ligand, which shows interesting anti-cancer results on hepatocellular carcinoma (HCC) cell lines. The *in vitro* cytotoxic activities of aniline oxime ligand (**1**) and its platinum (II) complex (**1a**), were assessed on two human hepatocellular carcinoma cell lines, HUH-7 and SNU182, using xCELLigence RTCA Systems and Annexin V assay. Our results showed that **1a** is a potent cytotoxic agent than its ligand **1** on both HUH-7 and SNU182 cell lines when administered at 10 μM concentration ($P<0.01$). Furthermore, in comparison to cisplatin, platinum complex **1a** exhibited greater in vitro suppression of cellular proliferation ($P<0.001$). Therefore, our results suggest that the **1a** is a promising therapeutic agent for the treatment of HCC.
Keywords: Aniline oxime ligand, Platinum-based drugs, Cisplatin, HCC.

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➢ **POSTER PRESENTATION**

Olejel ilaveli fonksiyonel dondurma üretimi

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Özet

Trans ve doymuş yağ ikameleri gıda endüstrisi için, aktif araştırma alanları arasında yer almaktadır. Oleojellerin yenilebilir uygulamaları trans doymuş ve doymamış yağ asitlerine olan ihtiyacın yerini alarak işlenmiş gıdaları yapılandırmak için kullanılmaktadır. Dondurma üretiminde kullanılan yağların sağlık yönünden alternatif ürünlerle ikame edilmesi ve kabul edilebilir ürünlerin üretilmesi amacıyla fındık yağı ile oleojel üretiminin dondurmanın rengi ve duyusal özellikleri üzerine etkisi araştırılmıştır. Bu amaçla fındık yağı oleojeli farklı oranlarda karagenan, balmumu, monogliserit, Tween 80 ve fındık yağı ultra turraks ile karıştırılarak elde edilmiştir. Oleojel üretiminden sonra dondurma miksleri üretimi için yağsız süte %5, %10 ve %14 yağ oranına denk gelecek şekilde fındık yağı oleojeli ve süt yağı ile üretilen kontrol örnekleri stabilizer, şeker ve vanilya ilave edilerek hazırlanmıştır. Örneklerin fiziksel, kimyasal, fonksiyonel ve duyusal özellikleri araştırılmıştır. Elde edilen sonuçlara gore balmumu artışına bağlı olarak genel kabul edilebilirlik değerleri azalmış, sertlik değerleri artmıştır. Fındık yağı oleojel ilaveli %14 yağlı dondurma, %14 yağlı kontol örneklerine göre daha parlak ve beyaz renkte bulunmuştur. %10 yağlı ve %5 yağlı oleojelli dondurmalar ise aynı yağ oranlarına sahip kontrol örneklerine göre daha az beyaz ve parlak olduğu tespit edilmiştir.

Anahtar Kelime: Oleojel, Dondurma, Fındık Yağı, Balmumu

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➢ **POSTER PRESENTATION**

Oleogel Added Functional Ice Cream Production

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Abstract
Trans and saturated fat substitutes are among the active research areas for the food industry. Edible oleogel applications are used to structure processed foods by replacing the need for trans saturated and unsaturated fatty acids. The effect of oleogel production with hazelnut oil on the color and sensory properties of ice cream was investigated in order to replace the oils used in ice cream production with alternative products in terms of health and to produce acceptable products. For this purpose, hazelnut oil oleogel was obtained by mixing different amounts of carrageenan, beeswax, monoglyceride, Tween 80 and hazelnut oil with ultra turrax. The production of ice cream was prepared by adding hazelnut oil oleogel in different fat ratios (5%, 10% and 14%), stabilizer, sugar and vanilla. Control samples produced with milk fat were prepared. Physical, chemical, functional and sensory properties of samples were investigated. According to the results obtained, general acceptability values decreased and hardness values increased due to wax increase. Ice cream produced with the addition of 14% hazelnut oil oleogel was found brighter and whiter than the control samples. 10% fat and 5% fat oleogel ice creams were found to be less white and shiny than the control samples with the same fat ratios.
Keyword: Oleogel, Ice Cream, Hazelnut Oil, Wax

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➢ **POSTER PRESENTATION**

Taguchi deney tasarımı kullanılarak tekstil atıksuyunun sonofotokataliz yönetimi ile arıtımı

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Özet

Tekstil endüstrisi, Türkiye başta olmak üzere Çin, Bangladeş, Vietnam, Hindistan, Srilanka gibi birçok gelişmekte olan ülkenin ekonomik kalkınmasında hayati bir rol oynamaktadır ve bu nedenle ülkelerin gayri safi yurtiçi hasılalarını arttırmada önemli bir paya sahiptir. Bu endüstride pamuk, sentetik ve yünlü elyaflar gibi farklı hammaddeler ve boyalar ve diğer kimyasallar kullanır. Piyasada yaklaşık 10.000 farklı sentetik boya mevcuttur ve bu boyaların dünya çapında yıllık üretimi 700.000 tonun üzerindedir. Boyalar, tekstil, kozmetik, kağıt, ilaç ve gıda gibi birçok endüstride yaygın olarak kullanılmaktadır. Bu endüstrilerde üretim sonucunda yüksek konsantrasyonda organik ve / veya inorganik bileşikler içeren büyük miktarda atık su oluşturmaktadır. Bu renkli atıksuların gerekli standardı karşılamadan çevreye deşarj edilmesi, estetik problemler yaratabilir, fotosentezi engelleyebilir ve sudaki yaşamı kötü şekilde etkileyebilir, böylece besin zinciri için önemli risk oluşturmakta ve ciddi sağlık problemlerine neden olmaktadır. Bu nedenle, yüzeysel ve yeraltı suyuna girmeden önce bu organik boyalarla başa çıkabilen güvenilir ve ileri arıtma teknolojilerinin uygulanması gereklidir. İleri arıtım süreçleri, geleneksel fiziko-kimyasal ve biyolojik işlemlerle elde edilen verimliliği arttırmak ve mevcut kalıcı kirletici maddelerle başa çıkmak için çeşitli çevre örgütleri tarafından konulan sınır değerleri karşılamak için kullanılır. Bu amaçla, sonofotokataliz yöntemiyle (TiO_2 ve ZnO katalizörü + UVC + sonoliz) ham tekstil atıksuyun arıtımı incelenmiştir. Bu çalışmada, Katalizör tipi (TiO_2 ve ZnO), Katalizör konstrasyonu (TiO_2 ve ZnO) pH, zaman ve başlangıç ham tekstil atıksuyu konsantrasyonu gibi etkili parametreler Taguchi deneysel metodu kullanılarak optimizasyon sağlanmıştır. Bu çalışma sonucunda ham tekstil atıksuyunun arıtımında en etkin parametrenin pH olduğu belirlenmiş ve %88. KOİ (pH 9, 1.5 gr ZnO , 30 dakika) giderimi olduğu saptanmıştır.

Anahtar Kelimeler: taguchi, tekstil atıksuyu, sonofotokataliz, pH

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➢ **POSTER PRESENTATION**

Evaluation of gadoversetamide active substance used in magnetic resonance imaging in human peripheral lymphocytes by chromosomal aberrations test

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Abstract

Magnetic resonance imaging (MRI) is a cross-sectional radiological examination technique providing image acquisition in the presence of a very strong magnet and radio waves. With the purpose of getting more enhanced images of tissues and organs and recognizing the lesions clearly, contrast agents have been applied to patients during MRI. Gadolinium based contrast agents (GBCAs) are commonly used agents in MRI. GBCAs consist of a central paramagnetic gadolinium ion (Gd^{3+}) chelated to a ligand since free Gd^{3+} is highly toxic alone *in vivo.* Gadoversetamide is a linear and nonionic chelate and active substance used as a GBCA by the approval of U.S. Food and Drug Administration in 1999. On the other hand, common usage of gadoversetamide has increased scientific concerns on their genotoxic risks which are very limited. Therefore, the aim of this study was to evaluate the genotoxic effects of gadoversetamide by *in vitro* chromosome aberrations test. For that purpose, five concentrations (7,000, 14,000, 28,000, 56,000, and 112,000 µg/mL) of gadoversetamide were applied to lymphocytes obtained from three healthy donors (two women and one man) for 24 and 48 hours. A negative (distilled water) and a positive (Mitomycin-C) control was also used. Gadoversetamide induced significant dose-dependent increase in the frequency of chromosome aberrations (CAs) and CA/cell at all the concentrations (except the lowest one). Gadoversetamide induced mostly chromatid and chromosome breaks as structural aberrations, and polyploidy and endoreduplication as numerical aberrations. These results indicate that gadoversetamide significantly increase the chromosome aberrations in human lymphocytes, so gadoversetamide might have genotoxic potential in human. However, further *in vitro* and *in vivo* genotoxicity tests should be performed for better and safety application of GBCAs in the field of medicine.

Keywords: Magnetic resonance imaging, gadolinium based contrast agent, gadoversetamide, genotoxicity

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➢ **POSTER PRESENTATION**

An investigation of the neuroprotective effects of alpha humulene on SH-SY5Y cell line

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Abstract

Alpha humulene, the major active ingredient of the *Humulus lupulus* hops plant with its Latin name, is a monocyclic sesquiterpene consisting of three isoprene units containing three unpaired C=C double bonds. Apart from hops, cannabis is commonly found in sage, basil and ginseng plants. Alpha humulene is also known as alpha-Caryophyllene. Alpha humulene; it has many effects such as anti-inflammatory, antimicrobial, antioxidant, anticancer and local anesthetic.
In this study, SH-SY5Y (ATCC® CRL-2266™), as a result of damage caused by H_2O_2, which is a monocyclic sesquiterpene alpha humulene, whose effects have been demonstrated in neuroprotective effects on human neuroblastoma cell line were investigated.

Method: First of all in this study, the multiplication and cultivation of SH-SY5Y cells provided. At the other stage, the non-toxic concentration of the cytotoxic effects of H_2O_2 on the SH-SY5Y cell line was determined by the 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide. The effect of 2µL / mL H_2O_2 concentration determined in previous studies at 2 hours was determined by MTT method and protective effect studies were continued according to the results obtained here. The cell damage caused by H_2O_2 on the SH-SY5Y cell line was determined by MTT method of the neuroprotective effect as a result of incubation with alpha humulene. Finally in this study, apoptosis of SH-SY5Y cells was analyzed by flow cytometry using the Annexin V / PI double staining kit for determination.

Results: According to the results, IC_{50} value of alpha humulene was calculated as 25.6 µM. The apoptotic effect caused by cellular damage caused by H_2O_2 alpha humulene was reduced.

Keywords: Alpha Humulene, SH-SY5Y, Neuroprotective effect

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➢ **POSTER PRESENTATION**

Proton impact excitation of hydrogen-like beryllium ions Be^{3+} at intermediate energies

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Abstract
Variational approach to direct excitation of atoms by impact of ions was shown to be very successful in predicting the excitation cross sections at intermediate energy. In this paper, the Schwinger variational principle based on the fractional form in the framework of the impact parameter approach is applied to the evaluation of direct excitation cross section for the hydrogen-like beryllium ions (Be^{3+}) by proton (H^+) impact (the beryllium ion being one of the main impurities in the Tokamak plasmas). We present in this study the $Be^{3+}(1s)$ direct excitation cross sections to n=2 states according to two expansions. For an nl excitation, the first is calculated with a basis of two states {1s, nl} (called Schwinger-Born and denoted Schw-B). The second is calculated with a basis of 14 states (denoted Schw1414) {1s, $2l_m$, $3l_m$} for the $2l$ excitation where $0 \le l \le n$-1 and $-l \le m \le l$. Our theoretical predictions are in good agreement with available theoretical calculations, as Two Center Atomic Orbital (TCAO) expansion.

Keywords: Schwinger Variational Principle, excitation cross section.

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➢ **POSTER PRESENTATION**

Phenolic compounds as biomarkers of diversity of the Algerian *Ononis* genus

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Abstract

Phenolic compounds occupy an impressive place in molecular biochemistry; they correspond to a very wide range of chemical structures and exhibit an extraordinary capacity of biosynthesis of plants. Natural products especially from plants sources have the ability to reduce oxidative stress by acting as antioxidants capacity which allows using them in varied fields as well in pharmaceutical industry and food preparations. In Algeria, Fabaceae play an important role in the balance of the natural environment and in the fight against desertification. Ononis are a significant example of Saharan plants. In addition, spontaneous plants such as Fabaceae family are currently coveted for their richness in term of secondary metabolite, such us phenolic compounds, these biologically active molecules are accumulated under conditions of biotic and / or abiotic stresses. Indeed, these Ononis occupy an important place, as well as their roles in traditional medicine. The present work aims to: the quantification of the phenolic compounds according to different extract from aerial part of two *Ononis* spp and to explore their antioxidant potentialities.

Keywords: Phenolic compounds, Ononis genus, Biodiversity.

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➢ **POSTER PRESENTATION**

The comparison of cassava flour and algal starch for bacterial cellulose production

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Abstract

Bacterial cellulose (BC) is a homopolymer and it is distinguished from plant-based cellulose by its unique properties such as high purity, high crystallinity, high water-holding capacity and good biocompatibility. Bacterial celluloses have a wide range of applications in many areas such as environmental, medical, food and electronics. In this study, the suitability of two different carbon sources were investigated for BC production. Cassava flour, as a starch-rich material, and *Chlorella vulgaris*, as a freshwater green algae, were tested to produce BC. The use of enzymatic hydrolysate of cassava flour and acid hydrolysate of algal starch as carbon sources were studied in the production of BC by *Komagataeibacter hansenii*. BC yields on dry weight basis were 1.202±0.005 $g.L^{-1}$, 1.138±0.004 $g.L^{-1}$, and 1.104±0.002 g.L-1 from glucose (as control), cassava flour, and algal starch, respectively. The produced BCs were characterized by scanning electron microscopy, and Fourier transform infrared spectroscopy. The results have revealed that the morphological and chemical characteristics of the BCs produced from cassava flour and algal starch were similar to BC produced from glucose.

Keywords: Bacterial cellulose, Cassava flour, *Chlorella vulgaris, Komagataeibacter hansenii.*

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➢ **POSTER PRESENTATION**

Cloning and Recombinant Expression of a putative immune modulator TIR domain protein from probiotic *Lactobacillus casei 21/1*

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Abstract

TIR domain proteins have a key role in Toll-Like Receptor (TLR) signalling pathway in the innate immunity. Bacteria can also produce TIR domain proteins and some of pathogen origins were shown to manipulate TLR signal transduction via mimicking host adaptor TIR proteins. Studies show that probiotics can also affect the TLR signaling pathways, but the molecular details have not been yet elucidated. In this study, a probiotic *Lactobacillus casei 21/1* origin putative protein was identified as a TIR domain protein (LcTIR) based on sequence conservation and multiple sequence alignments showed that LcTIR has high similarity to known TIR domains. The structure of LcTIR was modelled using bioinformatics tools highlighting the presence of the TIR domain fold. Following this, the gene encoding LcTIR was cloned in several *Escherichia coli* plasmids in order to obtain pure protein enough for structural and biochemical studies. Several fusion partners (6his tag, 6his-SUMO and GST), promoter systems and different *E.coli* host strains were investigated to achieve recombinant protein production. Several strains, different induction temperatures and inducer concentrations were tested for soluble protein production. In all conditions recombinant LcTIR was expressed at low amounts. The highest amount of protein was obtained from pGEX-4T-2 plasmid; GST-LcTIR fusion; in Rosetta(DE3)pLysS cells at 37°C with 0.5mM IPTG induction, where nearly all the protein was found in inclusion bodies. Furthermore, in all the constructs and strains tested the low amount of LcTIR production suppressed cell growth. The cell growth suppressing property of LcTIR on *E.coli* might indicate its potential as an antimicrobial agent which opens a new era on the applications of bacterial TIR domain proteins. This study is one of the first studies investigating the presence of probiotic TIR domain proteins, and future studies are needed to obtain soluble protein to assay their effect on host TLR signalling mechanisms.

Keywords: TIR domain proteins, molecular cloning, probiotic, structural bioinformatics, toxic recombinant protein

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➢ **POSTER PRESENTATION**

Cytotoxic and antimetastatic effects of chlorine decorated silica nanoparticles on prostate cancer cells

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Abstract

Cancer is one of the biggest health problems in world. Among cancer types, prostate cancer (PCa) is the second most common death rate in men and has a high morbidity and mortality rate. Chemotherapy, which is one of the most frequently used methods in the treatment of PCa has severe side effects. The failure of existing anti-cancer drugs to treat PCa reveals the need for the development of new treatments. Nano scale technologies can have a significant impact on medicine and diagnosis and cancer treatments. The cytotoxic effects of silica nanoparticles (SiNP) have been demonstrated in cells. This study aims to synthesize SiNP and functionalized them with Cl^- ions to form SiNP-Cl NP and investigate their cytotoxic effects on PC-3 (prostate cancer cell line) and healthy prostate epithelial cells, PNT1A. PC-3 and PNT1A were grown in DMEM, RPMI-1640 growth media at 37°C, 95% humidity and 5% CO_2 and the cells were grown to $1x10^4$ cells in 96-well plates after the logarithmic phase. After 24 h incubation, they were treated with SiNP and SiNP-Cl at varying concentrations in the range of 0-250 µg/mL. IC_{50} value was determined by Alamar Blue reagent. Wound healing and colony formation assays were performed to understand the metastatic properties of SiNP and SiNP-Cl on PC-3 cells. When IC_{50} values were examined, SiNP was calculated as 90 µg/mL and SiNP-Cl was calculated as 95 µg/mL. SiNP and SiNP-Cl have been observed to reduce metastasis in PC-3 cells and SiNP-Cl has fewer colonies than SiNP. As a result, SiNP-based agents may be added to the new treatment options.

Keywords: Silica Nanoparticles, Prostate Cancer, Cytotoxicity, Wound healing, Colony formation

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➢ **POSTER PRESENTATION**

Sucul ortamda pH değişimini etkileyen faktörler

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Özet

İnsanlara ve tüm canlılara hayat veren su, dünya üzerinde %71'lik bir alanı kaplamaktadır ve bu oranın yalnızca %2,6'sı karalarda bulunan toplam su potansiyelini oluşturmaktadır. Sucul canlıların yaşamını devam ettirebilmesi için su kalitesinin fiziksel, kimyasal ve bakteriyolojik parametreleri önem taşımaktadır. Sanayi atıkları, kanalizasyon suları, jeotermal atıklar, pestisidler ve ağır metal birikimleri gibi çevresel faktörler su kalitesi dolayısıyla sucul canlılar üzerinde etkili olmaktadır. Suyun asit veya alkali karakterde olduğu hakkında bilgi veren pH parametresi, biyolojik olaylarla ve kimyasal yapıya bağlı olarak değişmektedir. pH değeri, suda erimiş halde bulunan CO_2 ile yakından ilişkilidir. Fotosentez sonucu fitoplanktonlar ortamda bulunan CO_2'yi tüketip pH'ı yükseltmektedir. Evsel kaynaklı, kanalizasyon ve sanayi atık sularının arıtılmadan nehirlere verilmesi pH'yı etkileyen faktörlerdendir.

Yapılan çalışmalarda sucul canlıların, bulundukları ortamın pH değişikliklerine göre farklı komüniteler oluşturdukları ve

5-9 arasındaki pH değerlerine optimum derecede uyum sağladıkları bilinmektedir. Sucul ortamlarda pH'nın 5'in altına düşmesinin; verimliliğin büyük oranda azalmasına, büyümenin durmasına ve hastalıklara karşı direncin azalmasına neden olduğu tespit edilmiştir. pH değerine göre canlıların olumsuz koşullardan etkilenme oranlarında değişiklikler olmaktadır. Örneğin; toksik olan amonyağın pH 7.0'dan 8.0'e değişim gösterdiğinde balıklar üzerindeki olumsuz etkilerinin 10 kat arttığı tespit edilmiştir. Endüstrileşme ile birlikte atıkların doğaya arıtılmadan verilmesiyle, ağır metal kirliliğini ortaya çıkmaktadır. Ağır metal birikimleri sucul canlı ekosistemlerini dolaylı ya da direk etkilemektedir. Endüstriyel atıkların suyla taşınması sonucu deniz canlılarında özellikle letal oranda kurşun bulaşmasına rastlanmıştır. Göllerdeki fosfor ve azot ideal konsantrasyonlarda verimliliği artırırken, belirli düzeyin üzerindeki konsantrasyonlarda zararlı etkilere yol açmaktadır. İçeriğinde azot barındıran nitratın sularda yüksek seviyelerde olmasının, canlılığın azalmasına neden olduğu görülmüştür.

Su kaynaklarını kirleten/etkileyen çevresel faktörler pH'da değişimlere neden olmaktadır. Bu çalışma da pH değişimlerine neden olan etmenler literatür bilgisine dayanarak incelenmiş ve sucul canlılara olan etkisine dikkat çekmek amaçlanmıştır. Göllerdeki kirlilik sadece barındırdığı canlıları etkilemekle kalmamakta, bu olumsuz etki besin zinciri yoluyla tüm canlılığı etkilemektedir.

Anahtar Kelimeler: pH değeri, su kalitesi, kirlilik, sucul canlılar

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➢ **POSTER PRESENTATION**

The effects of AZD3463 on apoptosis and cell cycle arrest in BCSC and BSC cell lines

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Abstract

Glioblastoma multiforme (GBM) is the most common malignant and aggressive brain tumor with limited efficient treatment options. Brain cancer stem cells (BCSCs), producing downstream progenitor cells for tumor cells, are one of important factors in the recurrence of GBM. ALK is one of signal pathway playing an important role in the development of the central nervous system. AZD3463 is a potent ALK/IGF1R inhibitor designed to overcome the acquired resistance to crizotinib. In this study, we aimed to investigate the effects of AZD3463 on brain cancer stem cell line (BCSC) and brain stem cell line (BSC).

The cytotoxic effects of AZD3463 on BCSC cells were determined with Xcelligence. In next experiments, while it used IC50 dose of AZD3463 only for itself in BCSC, it used IC50 dose of AZD3463 both for itself and for BCSC in BSC due to being healthy cell line. The effects of AZD3463 on apoptosis and cell cycle were determined by AnnexinV-FITC Apoptosis Detection Kit and BD Cycletest Plus DNA Reagent Kit, respectively.

IC50 dose of AZD3463 were found as 1.74 µM and 2.32 in BCSC and BSC for 48h. IC50 dose of AZD3463 induced apoptosis ~1.5 fold compared to control in BCSC. In BSC, IC50 dose of AZD3463 dose for BCSC decreased apoptosis ~1.2 fold compared to control, while IC50 dose of AZD3463 for itself induced apoptosis ~1.6 fold. While IC50 dose of AZD3463 arrested cell cycle at G2/M phase with low efficacy in BCSC, both of AZD3463 doses arrested cell cycle at G1 phase with more effectively in BSC.

In conclusion, we suggest that AZD3463 may be used as auxiliary agent in current and next approaches for treatment of GBM.

Keywords: GBM, AZD3463, Brain cancer stem cells

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➢ **POSTER PRESENTATION**

Deformation of estrogen receptor gene causing an accelerated growth of meningioma in Iraqi patients

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Abstract

A total number of 50 males with benign brain tumors were selected and subjected to study the involvement of Estrogen receptor in benign. Tissue samples were collected from Neuroscience Hospital in 2017 and submitted to molecular analysis using specific primers designed for this purpose. Estrogen levels measured in all patients with meningioma, and significant change found in their blood ($p < 0.001$). DNA sequencing for the individually amplified estrogen receptor in tumor tissue revealed the presence of many pathogenic mutations. Mixed results were obtained about exogenous sex steroids affect and the incidence of brain tumor, however into the relationship between sex steroids (epically estrogen) and the rate of brain tumor growth and based on cases. There is a reason to believe that estrogen can radically potentiate the growth of previously existing brain tumor.

Keywords: estrogen receptor, meningioma, estrogen, sex steroids

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➢ **POSTER PRESENTATION**

Predicting and classifying functional sites of proteins using support vector machines[$]

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Abstract

Protein and other biomolecules perform their interactions and, accordingly, their functions through special sites on their sequence. For this reason, the identification of these special regions defined as motifs is an important bioinformatics application in analyzing the structure and functions of biomolecules. Among the many approaches developed for determining these motifs, approaches that make estimation and classification by learning from experimental data are a current field of study. Support Vector Machines is one of the most common methods among statistical supervised learning methods and has many applications in the field of computational molecular biology.

In this study, functional regions on some selected protein families and groups are classified using experimental data using SVMs and the estimation of functional regions using SVMs is investigated. According to the results obtained in the study carried out in PERL language and by creating functional region word databases-dictionaries, SVMs make successful predictions even in limited datasets and potentially have a wide range of applications. Effects of tuning the parameters such as Kernel design are discussed.

Keywords: Bioinformatics, PERL, regulatory sites, dictionary-based algorithms, SVM

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➢ **POSTER PRESENTATION**

An overview and research studies of *Magnolia* genus growth in Indonesia

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Abstract

Magnolia sp, also known as Michelia, are woody fragrant flowering plants that have been used for distinct aroma and traditional medicinal uses. There are some *Magnolia* genus that grow in Indonesia. The *Magnolia ashtonii, M. bintuluensis, M. borneensis, M. carsonii, M. champaca, M. elegans, M. koordersiana, M. liliifera, M. macklottii, M. sumatrae, M. sulawesiana, M. tsiampacca*, and *M. vriesean* are indigenous species in Indomalaya ecozone especially in Indonesia. The *M. alba*, a hybrid origin, is also distributed in Indonesia. The aeril, a fleshy red outer layers of seed, are one of the factors that reduces seed viability and also elaiosomes which contain lipid and protein compound are responsible for spread of plants through animal dispersors. Conventional cultivation of Magnolia becomes very hard due to these two factors. Some research studies including *in vitro* culture and volatile compounds of Magnolia genus in the world, especially *Magnolia champaca*, have been conducted. However, there were not many researches of Magnolia native to Indonesia like *M. champaca*, *M. liliifera* and the hybrid origin, *M. alba*. The large opportunities to establish and develop advanced research of Magnolia especially their cultivation and *in vitro* culture studies are open due to present research status in Indonesia. The obtained information and technology of results is able to contribute to academic sector and more over economic impact especially in industry.

Keywords: Aromatic, essential oil, legume, michelia.

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➢ **POSTER PRESENTATION**

Hydrophobic deep eutectic solvent based and vortex assisted dispersive liquid-liquid phase microextraction methodology for determination cadmium in water samples

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Abstract

Heavy metal pollution is one of the biggest important problem for human and environment. The toxic metals occur in water and food chain because of industrial or mining activities. Cadmium is a heavy metal considered as highly hazardous element for all living organisms. Because of its toxicity, determination of cadmium in many samples as water and food carries importance for human health. Many modern spectrometric techniques were used for determination trace levels of cadmium in environmental samples. Among these techniques, flame atomic absorption spectrometry (FAAS) is the most preferred and useful instrument due to its low operational cost and speed. But matrix interferences and metal ions at low levels restrict direct determination of metals by FAAS. Because of these reasons, FAAS must has to be coupled with a fast, reliable and effective preconcentarion step before analysis. Nowadays liquid-liquid microextraction techniques are the most powerful, economic and green separation and preconcentration technique (Elik et., 2017, Kasa et al. 2017).

In this work, a new, green and highly sensitive vortex assisted dispersive liquid-liquid phase microextraction method was developed for the determination of trace amount of cadmium in water samples. Cadmium was determined by using FAAS. Hydrophobic deep eutectic solvent was synthesized by using trihexyltetradecylphosphonium chloride + pivalic acid mixture with the molar ratio 1:4 and used as extraction solvent. Sodium diethyldithiocarbamate trihydrate was used as a chelating agent. Some factors effecting the extraction efficiency, including extraction solvent volume, pH of sample solution, concentration of the chelating agent and matrix ions were investigated. Under the optimal conditions, cadmium was extracted at pH 6 by using extraction solvent volume at 150 µL. The developed preconcentration procedure was successfully applied to water samples.

Keywords: Cadmium, microextraction, preconcentration, water samples.

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➢ **POSTER PRESENTATION**

Tannic acid upregulates mRNA expression of TNF receptor associated factor in prostate cancer

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Abstract
Nowadays, one of the crucial and biggest health problems is cancer. In 2018, more than 1.3 million men were diagnosed with prostate cancer(PCa). To avoid apoptosis, the PCa cells generate some mechanism by modulating gene and protein expressions. In our study, we aimed to investigate effects of tannic acid (TA), a plant polyphenol, on mRNA expression of TRAF genes in human PCa. As a PCa cell lines; PC-3 and LnCaP cells and as healthy prostate epithelium cells; PNT1A were used. The cytotoxic effect of TA on those cells was found spectrophotometrically with the "Alamar Blue" method. The IC_{50} value was calculated with the help of the sigmoidal graphic formed as a result of spectrophotometer values. The IC_{50} values on PC-3 and LnCap cells was calculated as 35.5 µM, and 29.1µM, while no toxicity was observed in PNT1A cells (>200 µM). TA showed dose-dependent cytotoxicity on prostate cancer cells. Apoptosis panels (Qiagen, 330231_RT² Profiler PCR Array) were used to determine the effect of TA on apoptosis genes. As a result of gene expression studies, downregulation in the expression of TRAF-1, TRAF-2, and TRAF-5 were detected in PC-3 and LnCaP cells. According to the data obtained, it shows that TA can be a good candidate for combination therapy and an effective strategic molecule to reduce the occurrence of prostate cancer.

Keywords: Tannic Acid, Prostate Cancer, Cytotoxicity, Apoptosis, TRAF, Gene Regulation
This project was funded by Foundation of Selcuk University (SÜ-BAP-Grant Number: 16401114)

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **POSTER PRESENTATION**

Kaempferol upregulates mRNA and protein expression of P53 and Bax in prostate cancer

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Abstract

Despite advances in androgen-dependent treatments, prostate cancer is the third cause of cancer-related mortality in men in our country and the world. Chemotherapeutic drugs which possesses negative side effects during treatment are insufficient for medical treatments. Many studies have shown that dietary flavonoids are promising treatment agents in cancer treatment compared to standard chemotherapeutic agents. One of these flavonoid compounds is Kaempferol. This study was aimed to determine the cytotoxic effect of Kaempferol on human prostate cancer(PCa) cells and investigate the alteration in the gene and protein expression which has a crucial role in the apoptotic pathway. For this purpose, the effects of Kaempferol on human prostate cancer were investigated in the prostate cancer cell PC-3 and prostate healthy epithelial cell PNT1A cells. The toxic effect of Kaempferol was determined spectrophotometrically by the 'Alamar Blue' method. The effects of Kaempferol on gene and protein expressions were determined by qRT-PCR and Western blot techniques, respectively. Kaempferol exhibited a marked toxic effect on human prostate cancer cells. Considering IC_{50} values, Kaempferol had a toxic effect of 16.96 µM in PC-3, while it was 98.20 µM in the prostate healthy epithelial cell PNT1A cell. As a result of qRT-PCR studies, the expression of the TP53 gene increased compared to the control group. Apoptotic BAX protein expression increased markedly, anti-apoptotic BCL-2 protein expression decreased. In conclusion, using kaempferol as an anti-prostatic agent might be an alternative and ongoing approach for the treatment of human prostate cancer.

Keywords: Kaempferol, prostate cancer, gene expression, protein expression

This project was funded by the Foundation of Selcuk University (SÜ-BAP-Grant Number: 19401162)

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➢ **POSTER PRESENTATION**

Expression of tumor necrosis factor was upregulated by tannic acid in prostate cancer cells

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Abstract

Traditionally, the use of medicinal plants has been practiced since ancient times, and recently the contribution of ethnobotanical comprehensive studies to modern medical studies has been increasing rapidly. In our country, polyphenol compounds that are used for treatment and which we consume from the content of nutrients are stated in studies that have antioxidative, anticarcinogenic, antimutagenic and tumor-inhibiting effects. Tannins (tannic acid, TA), one of the plant-derived polyphenol compounds, have been found to have cancer prevention potentials. Prostate cancer is the most frequently diagnosed cancer in the United States and many parts of the world. It ranks second in cancer deaths among men. The risk of life-long prostate cancer is 16%. Therefore, because of radiotherapy and chemotherapy drugs kill healthy cells as well as cancer cells, the search for alternative and more reliable compounds continues by scientists. In this study, suppression of the prostate cancer cells by modulating expression of deadly dominant receptors has been investigated in *in vitro* conditions. Effects of TA on the proliferation of PC-3 and healthy prostate epithelial cell line PNT1A was monitored by spectrophotometrically. 48h TA treatment, dose-dependently inhibited the proliferation of the PC-3 cell with an IC_{50} as 35.3 µM. TA increased the mRNA expression of TNF genes as 2.9-fold ($p<0.001$) which leads the cell apoptosis.
This project was funded by Foundation of Selcuk University (SÜ-BAP-Grant Number: 16401114)

Keywords: Tannic Acid, Prostate Cancer, Tumor necrosis factor, TNF, Gene expression

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➢ **POSTER PRESENTATION**

Modulation of apoptotic Bax/ Bcl-2 gene and protein expressions in human prostate cancer via tannic acid

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Abstract

Cancer is one of the most important health problems worldwide. Prostate cancer, which is one of the most common cancer types in men, catches 750.000 people per year and 10% of them die. Therefore, increased resistance of cancer cells to radiotherapy and chemotherapeutic drugs causes the search for new and safer molecules. Therefore, in our study, the effects of tannic acid (TA) on human prostate cancer cell lines, PC-3 and LnCAP were investigated. It is aimed to identify the possible changes that may occur in the expression of genes in the cell death mechanism; apoptosis pathway in these cell lines, in which we have proven anti-carcinogen effects of TA in prostate cancer cells, and to illuminate them with molecular approaches. The cytotoxic effects of TA were studied and the IC50 values were calculated. Then, the expressions of Bax and Bcl-2 genes on the apoptosis pathway of PC-3 and LnCaP were examined. The IC50 values of TA on the PC-3 and LnCaP cell lines were 35.3 µM and 29.1 µM, respectively. The qRT-PCR analysis showed that TA regulates mRNA expressions of Bax and Bcl-2. As a result of this study, to examine the alteration in gene expressions of the apoptosis pathway, we used an apoptosis panel and we have found that TA regulated the expressions of Bcl family members. Treatment with TA downregulates (89%) mRNA expression of Bcl-2 genes while it was upregulated(9.35-fold) in the Bax gene($p<0.001$). In this way, it has been determined that the cells cause rapid entry into apoptosis. Thus, it is stated that TA, which is widely used all over the world, is an alternative method for prostate cancer treatment by proving that it carries out the proliferation of cancer cells by affecting Bax and Bcl-2 genes.

Keywords: Tannic Acid, Prostate Cancer, Cytotoxicity, Apoptosis Pathway, Bax/Bcl-2, Gene Expression

This project was funded by the Foundation of Selcuk University (SÜ-BAP-Grant Number: 16401114)

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

The impact of the predation by *Cataglyphis viatica* (Insecta, Formicidae) compared to the trophic availabilities in agricultural and naturel fields in Algiers Sahel

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Abstract

The current study was undertaken to investigate the trophic status of the predatory ant *Cataglyphis viatica* related to the food availability at three stations located in the Algier's Sahel, which is an apricot orchard in Crescia, a scrubland at Zeralda and a burnt forest located near Sidi Slimane.The food availability of the ant *Cataglyphis viatica* corresponds to a faunal inventory of 1684 individuals distributed among 210 species, 118 families, 24 orders and 8 zoological classes in Crescia and 1384 individuals divided into 97 species, 53 families, 16 orders and 5 classes in Zeralda. The most dominant class is that of Insecta with 1457 individuals (86.5 %) in Crescia and 1236 individuals (89.3 %) in Zeralda. Among the Insecta, the species of Formicidae are the most frequent with *Aphaenogaster depilis* (22.4 %) and *Messor barbarus* (7.8 %) in Crescia and with *Messor barbarus* (26.5 %) and *Tetramorium semilaeve* (16.8 %) in Zeralda. The overall analysis of the 20 *C. viatica* anthills is highlighting that ant's diet *Cataglyphis viatica* is essentially insectivorous, representing a total of 27773 prey for all species, belonging to 7 animal classes .The rate of ingested insects was 13158 individuals (98.0 %) in Crescia, 5798 individuals (96.2 %) in Zeralda, 3538 prey (96.3 %) in Sidi Slimane in 2013, and in this same station in 2014 of 4596 individuals (98.2 %). The diversity of the ingested prey is quite high, especially in burnt forest (2.54 bits ≤ H' ≤ 4.34 bits).

Keywords : *Cataglyphis viatica*, Alimentary diet, Anthills, Formicidae, Algiers Sahel

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➢ **POSTER PRESENTATION**

Phytoprotective effect of *Nigella sativa* L. oil on cadmium-induced oxidative stress in the liver and kidneys in rats.

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Abstract

Cadmium (Cd) is a very toxic xenobiotic belonging to heavy metals. It accumulates mainly in the liver and kidneys and causes deleterious effects induced a disturbance of oxidative / antioxidant status. Our aim is to test the regulating effect of Nigella sativa oil on the prevention of Cd hepato-nephrotoxicities in rats. For this and for a period of eight weeks, three groups were used; the first group of rats corresponding to the controls, the second receive a diet based on sunflower oil and were intoxicated by CdCl2 into water at 50 mg/L. The third group was intoxicated by Cd and received 4% black seed oil (BSO).

Our results show that Cd causes a decrease in the body weight of rats as well as it causes disorder of lipid and protein metabolism. It also generated hepatic and renal oxidative stress through increased lipid peroxidation and protein oxidation and decreased antioxidant defense. On the other side, the administration of BSO reduced these deleterious effects of the toxic metal by a decrease of the average values of triglycerides, cholesterol and transaminases (ASAT and ALAT) and oxidative status parameters (MDA, HP and PC). Furthermore, an improvement of the activity of antioxidant enzymes (superoxide dismutase and catalase) was noted.

At the end of this experimental study, we obtained very convincing and encouraging results in the Cd-addicted rats fed a diet based on BSO. Indeed, the results of this study have shown that the seed oil of *Nigella sativa* is beneficial for attenuating and thus correcting the toxicity induced by Cd because of its richness in antioxidant molecules essentially tocopherols, polyphenols and quinones free and more particularly thymoquinone (TQ), its active ingredient, which have shown considerable properties and pharmacological potential.

Keywords: hepato-nephrotoxicity, cadmium, *Nigella sativa* oil, oxidative stress.

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➢ **POSTER PRESENTATION**

Konya bölgesinde üretilen bazı süt ürünlerinde bulunan biyojen aminlerin kromatografik yöntemlerle belirlenmesi

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Özet

Değişik kullanım alanlarıyla ve beslenmedeki önemlerinin yanı sıra kültürel miras niteliği taşıyan süt ve süt ürünleri, gerek tüketici talepleri gerekse teknolojik gelişmelere paralel olarak günlük tüketim ve üretimlerinin dünya sanayi ve ticaretinde önemli bir konuma sahip olmalarına neden olmaktadır. Bu ürünlerde bulunan ve hormonların, alkaloidlerin, nükleik asitlerin ve proteinlerin sentezi, hücre bölünmesi, strese tepki, yaşlanma, organ büyümesi, yenilenmesi ve metabolizması yanı sıra birçok tümör hücresinin büyümesi gibi insan sağlığı açısından oldukça önemli olan biyojen aminlerin araştırılmasına yönelik çalışmalar her geçen gün artmaktadır. Bir çok gıda türünde bulunan biyojen aminlerin, süt ve süt ürünlerindeki miktarlarının tespit edilmesi ve ürünlerdeki farklılıkların incelenmesi ve araştırılması Ülkemiz açısında büyük önem arz etmektedir.

Proteinlerin, peptitlerin ve amino asitlerin enzim aktivitesi ve bakterilerin varlığında hidrolizi sonucu yüksek miktarlarda üretilen biyojenik aminler; alifatik, aromatik ve heterosiklik özellikte yapılar içeren, küçük moleküllü, toksik bileşiklerin bir sınıfıdırlar. Bu aminlerin aşırı tüketimi sinir, mide ve bağırsak sistemleri ve kan basıncını arttırması nedeniyle hastalık üretebilir ve sağlık açısından endişe verici olabilir. Özellikle fermantasyon ve mayalama yoluyla üretilen ürünlerde, yüksek mikrobiyal aktiviteler, hijyenik etkenler ve kimyasal-fiziksel değişkenler nedeniyle tiramin, 2-feniletilamin, triptamin, kadaverin, putresin ve histamin birikebilmektedir.

Gerçekleştirilen bu çalışmada; Konya bölgesinde üretilen bazı süt ürünlerindeki biyojen aminlerin yüksek performanslı sıvı kromatografisi (HPLC) yöntemi kullanarak türlerinin ve miktarlarının tespit edilmesi, bu ürünlerdeki türlerin benzerlik ve farklılıkların ortaya çıkartılması ve karşılaştırması amaçlanmıştır. Kromatografik ayırma, C18 kolon (250 mm × 4,6 mm x 5 µm) kullanılarak, akış hızı 0.8 mL/dk olan ve asetonitril-aseton hareketli fazı ile gradient şartlarda gerçekleştirilmiştir. Ayırma sonunda numunelerde bulunan biyojen amin türleri ve miktarları 254 nm'ye ayarlanmış bir DAD detektörü kullanılarak saptanmıştır. Elde edilen analiz sonuçları göz önünde bulundurulduğunda süt ürünlerinde; tiramin, 2-feniletilamin, triptamin, tiramin, spermidin, kadaverin, putresin ve histamin biyojen aminlerinin farklı miktarlarda bulunduğu tespit edilmiştir. Özellikle peynir türlerinde tiramin, sütlerde putresin yüksek miktarlarda bulunmuştur.

Anahtar Kelimeler: Biyojen aminler, HPLC, peynir, süt, süt ürünleri

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

The Use of PCL-MGF nanofibers in ligament tissue engineering

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Abstract

The aim of this paper is to assess the repair of the cruciate ligament is located in the knee joint, which connects the femur and tibia. was obtained by using the PCL-MGF bracket as effective biomedical stents. Hence, this study is considered the first attempt that directs attention to the Mechano growth factor (MGF) is a recent discovery during damage as an insulin-like growth factor expression (IGF-1) alternative splice variants. Experiments showed that MGF and 24 peptides MGF-E protect damaged tissues and cells, and play an important role in promoting injury repair. in the current study. We focused on the impact of the ACL nanofiber scaffold for the study of proliferation and migration in the ligament healing procedure. The objectives and outcomes of current study are following standard procedures for spinning PCL nanofibers preparation, and were immersed in 10 ng/ml of MGF for six hours to pass through the stent SEM, The effect of PCL-MGF scaffolds on synovial fibroblasts, MTS, PCR, and WB analyses were also done, according to which PCL-MGF scaffolds can effectively promote the proliferation and migration of synovial fibroblasts and PCL-MGF scaffolds were co-cultured with -ACL synovial membrane. When the synovial cells were cultured on the PCL-MGF scaffolds, the cell proliferation rate was 80%. In Trans-well, ACL fibroblasts were cultured in 6 well plates for EDU and transwell analysis, which confirmed that PCL-MGF can promote the proliferation and migration of ACL. The findings of this study are significant because the PCL-MGF bracket can be used as effective biomedical stents, which can play a role in ligament repair and regeneration.

Keywords: Anterior cruciate ligament (ACL), Electrospinning, Nanoibers, MGF, Synovial fibroblasts

DRAFT

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➢ **POSTER PRESENTATION**

Otomotiv sektörüne yönelik cam elyaf dolgulu PA/PP karışımlarının geliştirilmesi ve farklı uyumlaştırıcıların karışım üzerindeki etkisinin incelenmesi

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Özet

Poliamidler en yaygın kullanılan mühendislik plastiklerinden olup, endüstride birçok farklı uygulamada kullanılmaktadır. Poliamid malzemeler genel olarak yüksek yüzey kalitesi, mekanik özellikler, ısıl dayanım ve darbe dayanım özellikleri için tercih edilmektedir. Özellikle otomotiv sektöründe artan, ağırlık azaltma çalışmaları ile yoğunluk özelliklerinden dolayı polipropilen malzemeler popüler hale gelmiştir. Polipropilen özellikle düşük yoğunluğu, düşük hacim fiyatları, akışkanlık ve düşük nem absorplama özellikleri ile ön plana çıkmaktadır, fakat mekanik özellikleri mekanik parçalar için yeterli değildir. Bu sebeple bu iki polimerin karışım olarak geliştirilmesi incelenmiştir. İki bileşenli karışımların hazırlanması ile bileşenlerin her birinden daha avantajlı özellikler elde edilebilmektedir. Uyumlu polimerlerin karıştırılması ile tek bir camsı geçiş sıcaklığı gösteren homojen bir karışım elde edilirken, birbiri ile uyumsuz karışımlar, iyi bir arayüzey yapışması ve miktarda az kullanılan bileşenin etkili bir şekilde dağıtılması ile çok fazlı bir morfoloji ile karıştırılabilir. PP/PA gibi uyumsuz termoplastik polimerlerde etkili bir karışım ve uygun mekanik özellikler sağlanabilmesi için uygun uyumlaştırıcı kullanılması gerekmektedir. Yapılan bu çalışma özellikle otomotiv sektörüne yönelik kabul edilebilir mekanik özelliklere sahip ve aynı zamanda mevcut Poliamid ürününe göre düşük yoğunluklu PA/PP karışımlarının hazırlanmasına yöneliktir. Bu amaçla, çift vidalı ekstrüder ile farklı Polipropilen oranlarında cam elyaf dolgulu karışımlar hazırlanmış, ardından, enjeksiyon ile gerekli test plakaları basılmıştır. Etkili karışımın sağlanabilmesi için karışımlara uyumlaştırıcı ilave edilmiş ve farklı uyumlaştırıcıların malzemenin yapısal, termal ve mekanik özellikleri üzerine etkisi incelenmiştir.

Anahtar Kelimeler: Poliamid, Poliamid karışımlar, Polipropilen, Ağırlık azaltma, Polimer karışımları

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➢ **POSTER PRESENTATION**

Determination of the inhibitory effects of crysophanol on *Pseudomonas aeruginosa* quorum sensing mechanism via *in vitro* and *in silico* methods

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Abstract

Pseudomonas aeruginosa is a well-known opportunistic and drug resistant pathogen. It is associated with high morbidity and mortality rates in immunocompromised patients. Quorum Sensing (QS) system is a bacterial communication system to sense their population density via signal molecules. Several virulence factors and biofilm formation are regulated by QS. The secondary metabolites synthesized by lichens are unique and important resources for drug discovery. The aim of this study is to investigate potential QS inhibition properties of chrysophanol, one of lichen natural compounds, against *P. aeruginosa* by utilizing *in silico* and *in vitro* studies.
QS inhibition was tested on *P. aeruginosa pqsA-gfp* monitor strain. Test bacteria were treated with serial dilutions of chrysophanol. Positive and negative control groups were also tested. Growth ratios and green fluorescent protein (GFP) expressions were monitored using multimode microplate reader (Biotek-Cytation 3) for 16 hours, measuring absorbance and fluorescence every 15 minutes. GFP expression was measured at 485 nm excitation and 535 nm emission wavelengths. Several modules of Schrodinger molecular modeling software were used for molecular docking (Glide), molecular dynamics (MD) simulations (Desmond) and MM/GBSA calculations (Prime) for PqsR receptor protein (PDB ID, 4JVI) of *P. aeruginosa*. Azithromycin and penicillic acid molecules (QS inhibitors) were used as positive control for *in silico* studies, and their 3D structures were obtained from PubChem. All systems were subjected to long MD simulations (250 nanoseconds). *In vitro* results demonstrated that chrysophanol was capable of inhibiting *pqs* system by approximately %68.7 in 135.8 µM. It also had a docking score of -6.631 kcal/mol. Moreover, MD results showed that chrysophanol was more balanced and stable compared to the apo-state and the other systems in terms of RMSD. In conclusion, our results showed that *in vitro* inhibition ratios and *in silico* results have shown a consistency and chrysophanol has a QS inhibitory potential.

Keywords: *Pseudomonas aeruginosa*, Chrysophanol, Quorum sensing.

DRAFT

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➢ **POSTER PRESENTATION**

Morphological, anatomical and micromorphological features of the *Oliveria decumbens* Vent. (Apiaceae)

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Abstract

The genus *Oliveria* Vent. is poorly known monotypic genus. The only accepted species, *O. decumbens* Vent., is distributed in Turkey, Iraq, Syria and Iran. The morphological, micromorphological and anatomical properties of *Oliveria decumbens* were examined in this study. In anatomical studies, the paraffin method was used. Transverse sections were cut about 10 µm thickness using a microtome and stained with safranin solution. Micrographs were taken using Leica light microscope. The fruit micromorphology was examined using scanning electron microscopy. *Oliveria decumbens* is an aromatic plant and characterized by much branched and bright whitish stem; conspicuous and persistent sepals; densely hairy and divided bracts and bracteoles; dorsally hairy and white or pink petals; slightly laterally compressed, densely hairy and ovoid-oblong fruits. The fruit of *O. decumbens* consists of two homomorphic mericarps. It is oblong-elliptic in transverse section. The mericarps have equally 5 slightly projecting ribs. Dorsal vittae are four (one in each vallecula) and commissural vittae are two.

Keywords: Umbelliferae, *Oliveria*, monotypic genus, Southeastern Anatolia

DRAFT

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➢ **POSTER PRESENTATION**

Yeni benzensülfonamid türevi çinko ftalosiyanin sentezi ve Karakterizasyonu

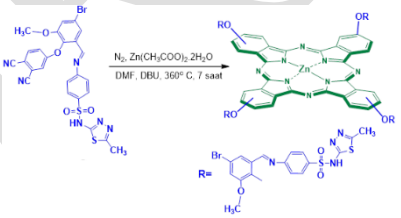
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Özet

Ftalosiyaninler(Pcs), ilk yayınlarından 100 yıllık uzunlukta tarihe ve pek çok teknoloji alanında giderek artan ilgiye sahip sentetik makro halkalı bileşiklerdir ve günümüzde ise pek çok teknoloji alanındaki uygulamalar için ümit verici maddelerdir. Pcs'in benzen halkalarının periferik olmayan ve periferik pozisyonlarına çeşitli sübstitüentler eklenerek, periyodik tablodaki hemen hemen tüm metal iyonlarıyla çok sayıda Pc hazırlanmıştır. Pcs, ısı ve ışığa karşı dayanıklı mavi veya yeşil pigmentlerdir ve mürekkep, tekstil için boyarmadde, metaller ve plastikler için renklendirici olarak kullanılan önemli bir kimyasal sınıfıdır. Şimdi ise kanserin fotodinamik terapisi ve diğer tıbbi uygulamalar için duyarlılaştırıcı olarak teknolojinin birçok alanında kullanılmakta ve kemo-sensörler ve elektrokromik göstergeler gibi çeşitli yeni alanlarda çok dikkat çekmektedirler[1,2] . Diğer uygulamaları bilgisayar okuma yazma diskini ve ilgili bilgi depolama sistemlerini içerir. Ayrıca fotovoltaik hücreler, sıvı kristaller, doymuş hidrokarbonları oksitlemek için katalizörler, olefinlerin hidrojenlenmesi [3,4], benzinin oktan oranını arttıran[5], lineer olmayan optikler ve optik sınırlayıcı malzemelerin[6] artan araştırma faaliyetinin konusu olmaya devam etmektedirler. Bunlar birçok teknoloji alanında potansiyel kullanımlarının önemli ölçüde artacağını düşündürmektedir. Bu uygulamalar için, Pcs'in çözünürlüğü önemli bir rol oynar. Sübstitüentsiz Pc çekirdeği çözünmezdir ve bu istiflenmiş oligomerizasyondan kaynaklanır. Pcs'in istenen uygulamalar için çözünürlüğünü arttırmak için iki yaklaşım mümkündür: biri moleküle bir çözünebilir sübstitüent eklemek, diğeri ise molekülün istifleme kabiliyetini indirgemektir[7]. Bu çalışmada benzensülfonamid türevi ftalonitril bileşiğinden yola çıkılarak yeni periferal 2,9(10),16(17),23(24)-Tetrakis [((E)-4-((5-brom-3-metoksi-2-(λ[1]-oksidanil)benzyliden)amino)-N-(5-metil-1,3,4-thiadiazol-2-yl)benzensülfonamid]çinko(II) Ftalosiyanin sentezlenmiş ve yapıları FT-IR, [1]H-NMR, UV-Vis ve MALDI-TOF kütle spektrumları gibi farklı spektroskopik yöntemlerle ve ayrıca elementel analiz ile karakterize edilmiştir.



Şekil 1. Yeni benzensülfonamid türevi sübstitüe çinko (II) ftalosiyaninin sentezi

Anahtar Kelimeler: Metalliftalosiyaninler, Çinko(II)Ftalosiyanin, Schiff Bazı, Benzensülfonamid, Spektroskopik.

Teşekkür: Bu çalışma Çanakkale Onsekiz Mart Üniversitesi Bilimsel Araştırma Koordinasyon birimi tarafından desteklenmiştir. Proje numarası: FDK-2018-2567

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DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

Sağlık biyoteknolojisi açısından mantarların antimikrobiyal ve antioksidan aktivitelerinin incelenmesi

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Özet

Biyoteknoloji, çeşitli endüstriler tarafından biyolojik organizmalara ve sistemlere biyoproseslerin uygulanmasıyla değerli ürünlerin elde edildiği mühendislik, bilim ve teknolojinin birleşimi olan bir alandır. Biyoteknolojik olarak yararlı ve değerli bir organizma grubu olan mantarlar uygun maliyetli fermentasyon işlemleriyle farmasötik ürünlerin sentezi gibi birçok endüstriyel üretimde kullanılmaktadır. Tıbbi mantarların antikanser, antioksidan, antimikrobiyal, hepatoprotektif, antinörodejeneratif, antidiyabetik, antianjiyojenik ve hipoglisemik etkiler gibi biyoaktiviteleri olduğu bilinmektedir. Moleküler biyoloji tekniklerindeki gelişmeler maya ve küfleri çeşitli sekonder metabolitlerin üretimi için mikrobiyal hücre fabrikaları olarak kullanmanın yeni yollarını sağlamıştır. Mantarlardan elde edilen ürünlerin tıbbi, biyoteknolojik ve çevresel uygulamalarda kullanımı giderek artmaktadır. Dünyaya penisilin, lovastatin ve diğer küresel olarak önemli ilaçları sağlayan mantarlar muazzam endüstriyel potansiyele sahip, kullanılmamış bir kaynak olmaya devam etmektedir. Bu çalışmada mantarların biyoteknolojide kullanımlarına örnekler verilerek antimikrobiyal ve antioksidan aktiviteleri üzerine genel bir inceleme yapılmıştır.

Anahtar kelimeler: Biyoteknoloji; Mantar; Antimikrobiyal aktivite; Antioksidan aktivite

Teşekkür: Bu çalışma 2019-02.BŞEÜ.01-02 no'lu Bilecik Şeyh Edebali Üniversitesi Bilimsel Araştırma Projesi kapsamında desteklenmiştir.

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➢ **POSTER PRESENTATION**

Evaluation of different sterilization methods for propagation of saffron (*Crocus sativus*) in tissue culture

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Abstract

Crocus sativus L., known as saffron, is a highly valued geophyte due to its biomedical and pharmacological potential and usage in the industries such as drugs, cosmetics, food and dye. However, the vegetative propagation of saffron is a challenge, since it is a sterile autotriploid plant producing no viable seed. Hence, its production using tissue culture or developing a method to increase its main metabolites such as crocin, crocetin, picrocrocin and saffranal are essential. In this study, corms and apical buds were used as the explants for saffron micropropagation. The explants were washed under running tap water and subsequently dipped into 70% EtOH for 2-3 minutes. Afterwards, some of the explants were sterilized in 5% NaOCl for 30 minutes, while the rest in 15% NaOCl for 10 minutes. Then they were rinsed for 4 times using sterilized water. In sterile conditions, the corms were cut into 5-6 mm of pieces, and the apical buds were vertically or horizontally divided into 1 mm pieces. The explants cultured in MS medium were placed into the climate cabinet (± 20 ° C, 16 hours bright and 8 hours dark) to promote organogenesis. However, all the corms were contaminated in a few weeks, while the apical buds were completely sterile. Although there are some studies claiming that 5-15% NaOCl was adequate for the corm sterilization, applying NaOCl and EtOH were not enough for their sterilization. Furthermore, the vertically cut apical buds showed a fast growth in 2 weeks, whereas there was no progress in the horizontally cut ones. To conclude additional sterilization agents might be crucial for the saffron corms, however further work is needed to be done for a successful micropropagation.

Keywords: *Crocus sativus*, sterilization, tissue culture, biotechnology

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➢ **POSTER PRESENTATION**

Three Raphignathoid mite species (Acari: Raphignathoidea) from Ankara City (Turkey)

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Abstract
Mites of the superfamily Raphignathoidea Kramer live in soil, litter, moss, tree bark and stored products. This superfamily comprises 11 families all around the world, 8 of which have been recorded from Turkey. Three raphignathoid mite species, *Eustigmaeus anauniensis* (Canestrini) and *E. dogani* Khanjani, Fayaz, Mirmoayedi & Ghaedi in Sigmaeidae Oudemans, *Raphignathus hecmatanaensis* Khanjani & Ueckermann in Raphignathidae Kramer, were found in soil and litter samples under *Betula pendula* taken from Ankara (Turkey). The short descriptions and the distributions of these species were given. With the present work, we aimed to contribute to distribution in Turkey of these species.
Keywords: Acari, distribution, Ankara, Turkey

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➢ **POSTER PRESENTATION**

Characterization of a designed novel cytochrome P450 variant for industrial biocatalysis

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Abstract

Biocatalysts are increasingly applied in chemical synthesis due to their high level of regioselectivity and enantioselectivity[1]. Cytochrome P450 monooxygenases are important biocatalysts due to their ability to hydroxylate unactivated carbon atoms using molecular oxygen. P450s catalyze monooxygenation reactions by using nicotinamide adenine dinucleotide (phosphate) (NAD(P)H) as electron donor and electron transfer proteins are required to transfer electrons from NAD(P)H. P450s can also utilize H_2O_2 instead of (NAD(P)H) and redox partners through the an H_2O_2-shunt pathway. However, P450 enzymes are inefficient in oxygenation reactions with H_2O_2[3]. CYP119 is an acidothermophilic P450 from Sulfolobus acidocaldarius[2]. CYP119 has high stability at high pH, mutations, higher temperatures and organic solvents, so it has many potential applications [3]. In our laboratories directed evolution was used to create of improved mutants of CYP119 with higher oxidation activity when using H_2O_2. T213R/T214I mutant was such a variant. The aim of the study is the characterization of T213R/T214I mutant and design of a stable and efficient biocatalyst for selective oxidation of hydrocarbons, which does not require expensive cofactors and electron transfer proteins. T213R/T214I mutant protein was expressed and isolated under optimized conditions. Peroxidase activity of T213R/T214I mutant was tested and compared to wild type (WT) CYP119. For the first time, we report peroxidation activity of T213R/T214I mutant. T213R/T214I shows 5 fold higher catalytic activity than WT CYP119 for Amplex® Red peroxidation reaction. Also, the biocatalytic epoxidation of styrene was also analyzed under optimized conditions. T213R/T214I mutant demonstrate 2 fold higher catalytic activity than CYP119 for styrene epoxidation. Characterization of T213R/T214I mutant shows that mutations on T213 and T214 amino acids can increase peroxygenation activity of the enzyme for Amplex® Red and styrene substrates. These mutations in the active site will shed light on the design of new CYP119 proteins in the future.

Keywords: Biocatalysts, cytochrome P450, thermophilic enzymes, catalysts, selectivity, hydrogen peroxide, directed evolution

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➢ **POSTER PRESENTATION**

Effective combinations of media components for saffron (*Crocus sativus*) micropropagation

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Abstract

Reproduction rate in natural environment of saffron is very limited due to the sterile triploid nature. Therefore, a biotechnological approach such as micropropagation is essential both conservation of biodiversity and high-throughput production in a short time. The primary focus of our research was to develop of an effective tissue culture protocol using of corms, ovary and apical/lateral buds of saffron. In this study, shoot development was achieved by taking the sterilized explants into MS medium for micropropagation of saffron. To assess the effects of different media, the explants were cultured in 4 different media with variable amounts of growth factors. In all the tested media groups, the amount of MS (vitamin free, 4.4 g/L), sucrose (30 g/L) and agar (8 g/L) were constant. In the first test group, 0.25 mg/L 2.4 D was added into the MS medium, while MS medium was supplemented with 0.5 mg/L 2.D and 1 mg/L BAP in the second one. In third group, 1 mg/L 2.4 D and 1 mg/L BAP were the additional media components. In the last one, 1 mg/L 2.D, 1 mg/L BAP and 100 mg/L ascorbic acid were tested for stimulating the shoot development. Following the arrangement of pH values of the all media into 5.7-5.8, the media was poured into 6 cm sterile petri dishes. Then, the explants were cultured in those groups of media each comprising of 25 petri dishes and put into climate cabinet for their controlled growth. According to the literature, saffron grows in almost 8 months in vitro. Although there were shoot developments in a few weeks, our observations with respect to shoot or microcorm development are still ongoing. Thus, it is still early for us to determine which group provided the highest response.

Keywords: *Crocus sativus*, medium, tissue culture, biotechnology

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➢ **POSTER PRESENTATION**

Database application on cardiomyopathy

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Abstract
Due to the great attention in personalized medicine, there exists need for health decision algorithms developed through high-level programming languages that already compromised the statistical analyses and numerical computations. Among many different programming languages, R is gaining increased recognition in the field of health science application. The expansion of biomedical literature is creating the need for efficient tools to keep pace with increasing volumes of information. In the scope of this project, our aim is to create a database that is composed by the recent information about cardiomyopathy to be effectively used for personalized medicine approach. Cardiomyopathy is known as a heart muscle disease. As it worsens, the heart becomes weaker and it leads to inefficient blood pump throughout the body that disrupts the maintaining of normal electrical rhythm. As a result, the hearth failure or irregular heartbeats called arrhythmias may occur. To reach the relating data about cardiomyopathy, e.g. clinical information, mutation and etc., PubMed, OMIM and ClinVar databases are used. But first, we performed text mining from Pubmed, known as a major database for GenBank and recent literature. To reach the gene-phenotype relationship of genetic disorders, Online Mendelian Inheritance in Man (OMIM) has been studied. ClinVar, freely accessible public archive of reports among human variations and phenotypes, has been used to reveal the supporting evidences for mutations. By employing PubMed, OMIM and ClinVar, the new dataset for cardiomyopathy has been created for effective usage in the field of personalized medicine. Our methodology has been composed of creating a data set, text mining and machine learning applications that are all performed by R-programming language. As a next step, we will perform this methodology with Python program to provide the detailed comparison in terms of effectiveness, rate, and compactness.
Keywords: text mining, Cardiomyopathy, R programming

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➢ **POSTER PRESENTATION**

Mycobacterium tuberculosis mmaa4 geninin tütün (*Nicotiana tabacum* L.) bitkisine aktarılması

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Özet

Bu çalışmanın amacı, mikolik asit sentezi, tiasetazonun aktivasyonu (tac, bir anti-tüberküloz ilacı) ve *Mycobacterium tuberculosis*'in (mtb) virülansı arasındaki etkileşimi tetikleyen faktörlerden biri olan mmaa4 proteinini tütün bitkisine aktarmaktır. Daha sonra, rekombinant antitüberküloz aşının geliştirilmesinde mmaa4 antijeninin tütün bitkisinde potansiyel üretimi incelenecektir.

Anahtar kelimeler: *Mycobacterium tuberculosis, mmaa4* geni, tütün bitkisi

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➢ **POSTER PRESENTATION**

Influence of synthetic plant growth regulators on total protein level of parasitoid *Bracon hebetor* Say (Hymenoptera: Braconidae)

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Abstract

The effects of plant growth regulators, indole-3-acetic acid (IAA) and gibberellic acid (GA_3), on total protein level of parasitoid *Bracon hebetor* Say (Hymenoptera: Braconidae) were investigated. *Galleria mellonella* were used as host species. Different concentrations (5, 50, 100, 500 and 1000 mg/L) of IAA or GA_3 were added to the synthetic diet of host species. Newly emerged female and male parasitoids reared on these hosts were used for protein analysis. Protein content was quantified according to Lowry et al. (1951) method using a folin-phenol reagent. The results showed that both IAA and GA_3 had a significant effect on protein level of *B. hebetor* adults. For females, protein level increased at all IAA and GA_3 concentrations. In males, protein level increased at 100, 500 and 1000 mg/L IAA and 5, 100, 500 and 1000 mg/L GA_3 concentrations.

Keywords: Indole-3-acetic acid, Gibberellic acid, Plant growth regulator, Protein, *Bracon hebetor*.

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➢ **POSTER PRESENTATION**

Synthesis of intermediate polymer for phenol-formaldehyde resins

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Abstract

Phenolic resins (PF) have high water-chemical tolerance and mechanical strength-adhesion strength. For this reason, it is one of the materials commonly used in refractory, casting industry, diesel fuel filters, cutting / abrasive stones due to its high resistance to friction, additives chemical in coating / lamination, rubber industry, especially in wood / furniture sector. They are obtained by condensation of phenol and formaldehyde. Phenol and formaldehyde are known to be harmful to the environment and human health. From past to present, various studies have been conducted to adjust the price performance ratio of formaldehyde based resins. Another study that has been studied on formaldehyde-based resins is the amount of reduction in the release of free formaldehyde and phenol without changing the cost and curing time of the resin. Free phenol and formaldehyde in the resin are important parameters affecting the curing time of the resin at certain temperature and pressure, and the reduction in their ratio; can cause delays in curing time. The most commonly used additives in reducing formaldehyde release are ammonia, amine etc. however, if the subject is PF resin, urea for instance, greatly affects the performance of final resin. In this case, once urea is used as a scavenger; it greatly reduces the stability of the resin and the water resistance of the resin. This situation can cause rapid deterioration due to humidity and temperature.

As part of the study, it is aimed to synthesize intermediate prepolymers that can be used as a modifying additive in phenol-formaldehyde resins. With this product, significantly improved performance and lower emissions are accomplished on phenol-formaldehyde resin systems. Prepolymer characterisation conduct with C^{13}-NMR and H^{1}-NMR analysis and the free phenol was determined by using Gas choromatograpy-mass spectroscopy. Curing time was determined by in house methods.

Keywords: Intermediate prepolymers for phenolic resin, lower formaldehyde and phenol emissions, formaldehyde scavenger

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➢ **POSTER PRESENTATION**

Middle line ovariectomy in cats

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Abstract
The ovariectomy is a surgery frequently performed by veterinarians. Almost all practitioners are called upon to carry out this type of intervention in dogs and cats. The middle line technique is practically the most used.
The work was carried out on 5 cats aged (12-36 months) including 4 cats of common breed and one cat of Siamese breed. The study was conducted from January to June 2018. The surgical equipment used in this study is the basic soft tissue surgery equipment.
Surgical techniques for oophorectomy are numerous (by the flanks, by laparoscopy and by the middle line) but remains the technique by the middle line most preferable and most practiced by veterinarians. middle line ovariectomy allows good visualization of the abdominal cavity, therefore better handling, a single opening on the abdomen is sufficient for access and excision of the ovaries.
Keywords: Ovariectomy - middle line - cats

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➢ **POSTER PRESENTATION**

The import of pregnant dairy heifers into Algeria: Is this an effective solution for improving the country's production?

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Abstract

In Algeria, the public authorities have opted for the massive import of pregnant heifers of high genetic potential in order to improve local milk production and to reduce the country's dependence on global milk powder market.
This work was carried out on 118 dairy cows of different breeds, including 56 imported at the pregnant heifer stage and 62 of their descendants, raised on a state farm located in Medea province. The study looked at the reproductive performance of these cows and their descendants through 343 lactations as well as their longevity.
Reproductive data indicate that fertility was poor. The age at first calving was 27 to 31 months for 55.88% of births, with marked precocity of imported heifers. The waiting period was around 127.4 ± 84.72 days with an average days open of 179.83 ± 109.88 days and calving interval of 461.92 ± 129.66 days. According to the LOISEL grid, the fertility of imported cows is qualified as good while that of the descendants is poor. However, the average number of inseminations per conception was around 1.89 ± 1.34. The results showed that 41.07% of cows were reformed before the fourth calving with a rate of 47.57% of female calfs kept for the herd renewal.
With this rate of exploitation of the genetic potential of these heifers, the improvement of national milk production seems difficult to achieve.

Keywords: pregnant dairy heifers, fertility, longevity, Algeria.

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➢ **POSTER PRESENTATION**

In vivo study of the antidiabetic activity of aqueous and acetonic extracts of *Drimia maritima* L.

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Abstract

Diabetes is a metabolic syndrome characterized by chronic hyperglycemia due to a lack of insulin secretion, insulin action (sensitivity), or a combination of both. Postprandial hyperglycemia is highly dependent on the amount of monosaccharides absorbed and their rate of absorption in the small intestine. One of the therapeutic approaches to the treatment of diabetes is the inhibition of digestive enzymes (α amylase and α glucosidases). Our work is based on the evaluation of the anti-diabetic activity of a medicinal plant *Drimia maritima*L. They are investigated for their anti-diabetic effect in vivo in mice subjected to post prandial hyperglycemia induced by starch or glucose. To this end, aqueous (decoction) and acetone extracts of different organs of two varieties of *Drimia maritima* L. have been prepared according to traditional use;have been subjected to phytochemical analysis to highlight different families of chemical compounds such as phenolic compounds including flavonoids, tannins and anthocyans. Among our results, we found that the content of different chemical compounds differs from one variety to another, and within the same variety from one organ to another.In comparison to the polyphenol content in the leaves and bulbs, it has been found that the content, in the leaves is higher than in the bulbs, so the red variety shows the high polyphenol content of 283µg.Eq AG/mg, compared to the white variety 152 µg.Eq AG/mg and flavonoids 98.68 µg.Eqcatechin /mg extract on the other hand the white variety 43.2 µg.Eqcatechin /mg, The polyphenols measured in the different extracts, are mainly flavonoids and more concentrated for the acetone extract. Concerning anthocyanins, they are only found in the red variety. The results of antidiabetic activity show a positive correlation between polyphenols, flavonoids and anthocyanins and the behavior of diabetic mice. They are therefore responsible for this activity. Also remains the use of acetone extracts of the red variety to treat diabetic mice, shows a greater effect than after 21 days reaches the value of 1.8g/l, compared to the white variety, this phenomenon can explain by the different chemical composition between the two varieties of rill. These results confirm the traditional use of this plant as an antidiabetic, and highlight one of their possible mechanisms of action: the reduction of postprandial hyperglycemia by slowing intestinal glucose absorption.

Keywords: Anti-diabetic activity, flavonoid, tanins, anthocyan, *Drimia maritima* L.

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➢ **POSTER PRESENTATION**

Effect of various natural fibers on the mechanical properties of polypropylene

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Abstract

Natural fibers are used as polymer additives to improve the mechanical properties of the materials. They have major advantages over synthetic fibers in terms of cost-effectiveness, more sustainable and lower carbon emission. Natural fibers take carbon dioxide from the atmosphere while growing. When they are processed, they give back the amount of carbon dioxide they take. With this reason, natural fibers show carbon dioxide neutral properties which means they have no effect on carbon dioxide emission. However, there are challenges in their use with polymer matrices due to their hydrophilic properties and sizably moisture-holding capacity. Therefore, performing various treatment methods, they need to be made compatible with the polymer matrix. In this study, different natural fibers such as jute, flax in different proportions (%) are used as reinforcement to Polypropylene (PP). The effect of reinforcement on mechanical properties is measured by tensile, bending and impact test. The structure of reinforced polymer matrices is assessed by Scanning Electron Microscope (SEM) and also thermal properties and crystallinity evaluated by Differential Scanning Calorimetry (DSC). In addition, the effect of pretreatment is investigated by alkali pretreated samples. As a result, thermoplastic materials are successfully created known as partly environmentally friendly biocomposites in the literature. Our results show that we especially achieve to increase flexural and tensile strength, flexural and tensile modulus. We also examine the effect of pretreatment.

Keywords: Biocomposites, natural fibers, natural fiber treatments, polypropylene

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Samsun ili Tekkeköy bölgesinden alınan toprak örneklerinde çinko iyonu adsorpsiyon davranışlarının incelenmesi

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Özet

Modern tarım uygulamaları, sanayileşmenin hızlanması ile birlikte hızla artan dünya nüfusunun oluşturduğu etkiyle doğal kaynaklar, ekosistemler büyük ölçüde tahrip edilmiş, kirletilmiş ve bunların sonucunda toprak kirliliği de bir çevre sorunu olarak karşımıza çıkmaya başlamıştır**.** Teknolojik gelişmelerin, sanayileşmenin ve sosyal yaşamın insanlığa kazandırdığı sayısız faydaların yanında, istenmeyen ve ekolojik dengeyi bozan etkilerinden biri olan toprakta ağır metal kirliliği her geçen gün artmaktadır. Fiziksel özellik açısından yoğunluğu 5 g/cm^{3}ten daha yüksek olan metaller ağır metal olarak tanımlanmaktadır. Bu grubun içine kurşun, kadmiyum, krom, demir, kobalt, bakır, nikel, cıva ve çinko olmak üzere 60'tan fazla metal girmektedir. Toprak çözeltisinde serbest halde bulunan ağır metaller toprak mikroorganizmaları ve bitki kökleri tarafından alınmakta veya yer altı suyuna yıkanarak yer altı su kalitesinin bozulmasına ve besin zincirinin kirlenmesine neden olmaktadır. Bunun yanı sıra uzun vadede toprakta birikim yapması temel çevresel risklerdendir. Ağır metallerin toprakta birikimini etkileyen en önemli faktörler ise bu maddelerin toprakta adsorbe olma kapasiteleri, kimyasal reaksiyona uğramaları ve iyon değiştirme kapasiteleridir.
Bu çalışmada, Samsun İli Tekkeköy bölgesinden tarım ve sanayi alanlarından alınan 2 adettoprak örneğininçinko adsorbe etme davranışları incelenmiştir. Bu amaçla bölgeden alınan toprak numuneleri öncelikle genel özellikleri bakımından incelenmiş, temel fiziksel ve kimyasal parametreleri belirlendikten sonra adsorpsiyon davranışları değerlendirilmiştir. Adsorpsiyon çalışmalarında ilk aşamada uygun adsorbent miktarı ve denge süresi belirlenmiştir. 1 gün olarak tespit edilen denge süresinde 400-1000 mg/L aralığında konsantrasyon etkisi incelenmiş ve elde edilen verilere adsorpsiyon izoterm modelleri uygulanmıştır. Adsorpsiyon sisteminin kapasitesinin belirlenmesi ve yorumlanmasındakullanılan izoterm katsayıları hesaplanmıştır. Her iki toprak numunesi için de Çinko adsorpsiyonunun Langmuir ve Freundlichizotermlerine yüksek uyumluluk gösterdiği görülmüştür. Yapılan çalışmanın toprakların kirleticiyle ilişkisinin açıklanması açısından faydalı olacağı ve adsorpsiyon davranışlarını tanımlamada yararlanılacak göstergelerin belirlenmesine imkân sağlayabileceği düşünülmektedir.
Anahtar kelime: Toprak kirliliği, ağır metal, adsorpsiyon, çinko

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➢ **POSTER PRESENTATION**

A novel oxime derivative and its metal complexes: Synthesis, characterization, theoretical calculations, enzymatic activities and *in silico* biological studies

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Abstract

From the second half of the twentieth century, researchers have focused on identifying the relationships between the molecular structure and biological effects of chemical compounds in order to reach the new drug active compounds. Today, biological activities of chemicals can be predicted with some software. It is necessary to develop serious protocols, establish a good research team and have a sufficient budget to conduct clinical drug trials.
In this study a new biphenyl based oxime ligand and its metal complexes were synthesized. Elemental analysis, ICP-OES, FT-IR, UV-vis molar conductivity, magnetic moment measurements and thermal analyses studies were carried out for the characterization of the complexes. The free ligand was also characterized by ^{1}H- and ^{13}C-NMR spectra. Quantum chemical calculations were performed by using Density Functional Theory (DFT) and the theoretical results were compared to experimental ones. Moreover, the synthesized metal complexes were tested as catalyst for the disproportionation of hydrogen peroxide to the water and molecular oxygen in the presence of 1-methylimidazole (catalase-like activity) and catalytic oxidation of 3,5-di-*t*-butylcatechol to 3,5-di-*t*-butylquinone at aerobic medium (catecholase-like activity). The druglikeness and ADME properties of the novel oxime molecule were also calculated. It was found that the complexes showed moderate catalytic activity in the selected enzymatic reactions. In addition, the ligand was determined to have favourable pharmacological properties.
Keywords: Oxime, complex, density functional theory, enzyme, druglikeness

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➢ **POSTER PRESENTATION**

Novel silver(I) complexes bearing tolfenamic acid and picoline derivatives: Synthesis, characterization and *in vitro* anticancer evaluation

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Abstract

The aim of the present study was to synthesize and characterize the silver(I) complexes with tolfenamic acid and 2/4-picoline with the molecular formula of $[Ag_2(tolf)_2(2\text{-pic})_2]$ **1** and $[Ag_2(tolf)_2(4\text{-pic})_2]$ **2,** and also to investigate their anticancer activities against human breast cancer cell line MCF-7. The crystal structure of $[Ag_2(tolf)_2(2\text{-pic})_2]$ was solved by X-ray diffraction analysis, whereas $[Ag_2(\mu\text{-tolf})_2(4\text{-pic})_2]$ was obtained as colourless microcrystal complex. Infrared spectroscopic analyses results showed that the structures of both complexes are similar. The bands at 1555 cm^{-1} for **1** and 1548 cm^{-1} for **2**; 1367 cm^{-1} for **1** and 1370 cm^{-1} for **2**, which can be assigned to the $\upsilon(COO^-)_{asym}$ and $\upsilon(COO^-)_{sym}$ stretching vibrations of the carboxylic group, respectively. The parameter $\Delta\upsilon[\upsilon(COO^-)_{asym} - \upsilon(COO^-)_{sym}]$ value is utilized for defining the coordination mode of the carboxylate group. The $\Delta\upsilon$ values are 188 and 178 cm^{-1}, which is shown a bidentate binding mode for tolfenamic acid. The complex is binuclear and each silver(I) ion is four coordinate surrounded by one 2-picoline, two tolfenamic ligands and other silver(I) ion. The four coordinated geometry can be best defined by the structural parameter $\tau_4 = [(360° - (\alpha + \beta)]/141°)$, where α and β are the largest angles around the coordination sphere ($\tau_4 = 0$ for square planar geometry, $\tau_4 = 1$ for tetrahedral geometry), which in this case has a value of 0.78, and this value is compatible with value of distorted tetrahedral geometry. TG/DTG/DTA was applied for thermal stability of the complexes. The complexes were decomposed two stage, corresponding to the remove of two picoline and two tolfenamic acid, respectively. The residual thermal product was described as metallic silver. The anticancer activity studies showed that both complexes exhibited remarkable antiproliferative activity compared to chemotherapeutic agent doxorubicin.

Keywords: Silver(I), tolfenamic acid, picoline derivatives, breast cancer.

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➢ **POSTER PRESENTATION**

$AgSbS_2$ katalizörlüğünde boya hassaslaştırılmış fotokatalitik hidrojen üretimi

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Özet

Günümüzde artan enerji ihtiyacının büyük bir bölümü fosil yakıtlardan karşılanmakla birlikte yakın bir zamanda tükenecek olması ve çevre kirliliğine neden olması sebebiyle, yenilenebilir enerji kaynaklarına olan talep gün geçtikçe artmaktadır. Fosil yakıtların yanmasıyla meydana gelen CO_2, CO gibi gazlar sera etkisi yapmakta ve bu durum alternatif enerji kaynakları arayışına sürüklemektedir. Bu bağlamda suyun fotokatalitik olarak parçalanmasından elde edilen hidrojen üretim yöntemi büyük önem taşımaktadır. Güneş enerjisi ve su kullanılarak elde edilebilecek olan hidrojen (fotokatalitik veya fotoelektrokimyasal olarak suyun ayrışması) ucuz, çevre dostu ve temiz enerji sağlayabilecek alternatif bir yakıt olarak görülmekte ve yenilenebilir kaynaklardan sağlanarak hidrojen ekonomisine geçiş için büyük önem taşımaktadır.
Çevreye zarar vermeden sürdürülebilir bir enerji geleceğinin sağlanabilmesi için bu çalışmada $AgSbS_2$ katalizörü, fotokatalitik hidrojen üretiminde incelenmiştir. $AgSbS_2$ katalizörü sıcak besleme yöntemi ile sentezlenerek görünür bölge ışığı karşısında Eosin-Y boyar maddesi ve TEOA elektron verici ortamında fotokatalitik aktivitesi çalışılmıştır. Her saat ölçüm alınarak üretilen hidrojen miktarları gaz kromatografisi kullanılarak hesaplanmıştır. 8 saat sonunda alınan ölçümlerde $AgSbS_2$ katalizörünün 6.793 mmol g^{-1} hidrojen ürettiği gözlenmiştir.

Anahtar Kelimeler: fotokatalitik, hidrojen üretimi, katalizör, $AgSbS_2$

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➢ **POSTER PRESENTATION**

Insect fat: An alternative source of soybean oil in poultry feed

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Abstract

Insect meal usage as an alternative protein source in place of conventional protein sources in poultry feed is the topic of interest. To fulfill the increasing demand for insect meal in poultry feed, large scale production and propagation of insects are major concern nowadays. Insects are propagated, collected and processed to get the final product; insect meal. During this process insect's fat is obtained as a by-product in huge amounts as insects contain a large amount of fat that ranges from 14-38%. Until now, insect's fat inclusion in poultry diet and its effects on the different parameters is not studied in detail. Inclusion of insect fat in poultry diets leads to better performance, developed gut health, decrease the increment of pathogenic bacteria and improve health status. It mainly affects the fatty acid profile of meat, especially breast, thigh, and liver. In literature, partial and complete replacement of soybean oil with insect oil especially black soldier fly and mealworm fat has been studied. In conclusion, the replacement of soybean oil with insect-derived fat doesn't show a negative influence on overall growth performance, breast and liver tissue fatty acid profile and digestibility of nutrients in the broiler. However, the fatty acid profile of poultry meat is affected significantly. Insect fat can be used as an alternative fat source in poultry diet without negative effects. Black soldier fly fat may act as an immune promoter and shows antimicrobial activity.

Keywords: Black soldier fly, Insect fat, mealworm, poultry.

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➢ **POSTER PRESENTATION**

Production and antioxidant activity analysis of quercetin Loaded PLGA nanofibers

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Abstract

Electrospinning is an advantageous technique for the production of nonwoven membranes consisting of nano and micron thickness fibers. A basic electrospinning equipment consists of a high voltage power supply, a solution flow unit and a collector. This equipment allows the production of membranes with nanopores to protect the wound area from microorganisms during the wound healing process. Electrospun membranes provide acceleration of wound healing with oxygen exchange. In addition this membranes absorb wound exudate and prevent wound from drying out thanks to their high surface areas [1]. Poly(lactic acid-*co*-glycolic acid) (PLGA) is approved by The Food and Drug Administration (FDA) and frequently used to producing nanofibers with its biocompatibility and biodegradability properties [2]. Drug delivery of electrospun PLGA changes depending on degradation rate of PLGA nanofibers and diffusion of drug molecules. Hydrophobic drug molecules such as quercetin delivered to *in vitro* medium in a controlled manner when loaded into nanofibers. Thus, nanofibers provide high advantage in terms of an effective wound healing process.

In the present study, a membrane was produced by electro-spinning of PLGA solution. Quercetin loading to PLGA nanofibers was performed by spraying method. Obtained quercetin-loaded PLGA nanofibers was characterized using SEM and FT-IR spectroscopy an their drug release profile and antioxidant activity were studied. In their SEM images, it is observed that PLGA nanofibers are produced with average diameter of 500±20 nm. Quercetin was loaded onto the PLGA membrane by spraying method. FTIR spectroscopy analysis showed that quercetin was successfully loaded onto the nanofibers. It was found that water absorption capability of PLGA membrane is 300±30%. Quercetin was completely released from membrane for 7 days. Quercetin loaded PLGA nanofibers was showed 85.1 ± 0.8% antioxidant activity.

Keywords: Electrospinning, nanofibers, wound dressing, PLGA, Quercetin, antioxidant activity

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➢ **POSTER PRESENTATION**

Dermatofitlerin konvansiyonel ve MALDI-TOF MS yöntemleri ile tanımlanmaları

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Özet

Dermatofitler, insan ve hayvanlarda deri, tırnak ve kılların stratum corneum tabakasına yerleşerek dermatofitoz oluşturmaktadır. En sık rastlanan zoonoz etkenleri *Microsporum canis* ve *Trichophyton mentagrophytes*'dir. Dermatofitlerin identifikasyonunda halen kültür altın standarttır. Matriks Aracılı Lazer Desorpsiyon İyonizasyon Uçuş Zamanı Kütle Spektrofotometresi (MALDI-TOF MS) mikroorganizmaları protein profillerine göre tanımlayan hızlı ve güvenilir bir yöntemdir. Bu çalışmada dermatofit türlerinin doğru ve hızlı tanısında MALDI-TOF MS yönteminin performansının rutinde kullanılan fenotipik yöntemlerle karşılaştırmalı değerlendirilmesi amaçlanmıştır. Bu çalışmaya; deri, saç ve tırnak örneklerinden izole edilen toplam 30 dermatofit izolatı (*M. canis* n=24; *T. mentagrophytes* n=6) ve 5 standart ATCC suşu; *T. mentagrophytes* MYA 4439, *Trichophyton rubrum MYA 4438*, *T. mentagrophytes* ATCC 9533, *Trichophyton tonsurans* ATCC 28942 ve *Epidermophyton floccosum* ATCC 26072 dahil edilmiştir. Dermatofitlerin tür düzeyinde identifikasyonları, Halk Sağlığı Genel Müdürlüğü Ulusal Mikoloji Referans Laboratuvarı'nda, besiyerlerindeki kolonilerin makro ve mikro morfolojik görünümleri, 25/35°C'de üreme, Siklohekzimit duyarlılığı ve üre hidrolizi özellikleri birlikte değerlendirilerek yapılmış; bu mikroorganizmalar aynı zamanda kütle spektrometrisi yöntemine dayanan Bruker MALDI-TOF MS (BrukerDaltonics, Bremen, Almanya) sistemi ile üreticinin talimatları doğrultusunda tanımlanmış ve sonuçlar karşılaştırılmıştır. Üreticinin önerdiği tanımlama skorları (cins ≥ 1.7 ve tür ≥2.0) ve bu çalışmada önerilen skor değerleri (cins ≥ 1.5 ve tür ≥1.7) birlikte değerlendirilmiştir. MALDI-TOF MS ile referans kökenlerin ve klinik izolatların cins düzeyinde tanımlanmasında, spektral skor ≥1.7 yerine ≥1.5 olarak alındığında doğru identifikasyon oranı sırasıyla, 19 (54 %) ve 33 (94.2 %) iken; tür düzeyinde, düşürülmüş spektral skorlar (≥2.0 yerine ≥1.7) uygulandığında sırasıyla, 8 (22.8 %) ve 27 (77.1 %)'dir. Sonuç olarak, dermatofitlerin identifikasyonlarında geleneksel yöntemler zor, zaman alıcı ve deneyim gerektirirken, MALDI-TOF MS kolay ve hızlı bir yöntemdir. Ancak MALDI-TOF skor değerlerinin dermatofitler için düşürülmesinin uygun olacağı düşünülmektedir.
Anahtar Kelimeler: Dermatofit, MALDI-TOF MS, identifikasyon

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➢ **POSTER PRESENTATION**

Assessment of water quality of Lake Ohrid- Albanian Part using physicochemical parameters

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Abstract
As Europe's deepest lake, Ohrid Lake is characterized by the presence of a large number of endemic plant and animal species. But there are a number of factors such as agriculture, chemical, metallurgical, industrial activities, mining, anthropogenic impact that risk this lake of pollution. The purpose of this research was to make an assessment of the water quality of this lake by measuring the physicochemical parameters. For this purpose, water samples were collected from surface from three selected stations of Lake Ohrid: at the entrance to the town of Pogradec, in the former of Fe-Ni mine and Lin village. The physicochemical parameters such as water temperature, pH, dissolved oxygen, chemical oxygen demand (COD), biochemical oxygen demand (BOD), total phosphorus, total nitrogen, nitrites, phosphates and ammonium were analyzed in the water samples. Water temperature, pH, dissolved oxygen and COD were analysed with electrochemistry method while the other parameters such BOD, nitrites, phosphates and ammonium were analyzed with spectrophotometric method. The temperature and pH measurements between the three points did not show a major change, and the measured values are in accordance with the EU [1978] and [1989] Directives. The results showed that the former Fe-Ni mine site had the highest values of total phosphorus (0.206 mg/l), total nitrogen (0.317 mg/l), phosphates (0.238 mg/l), nitrites (0.014 mg/l) and ammonium (0.208 mg/l). Also COD and BOD showed the highest values at this point (4.6 mg/l, 4.1 mg/l). According to the UNECE Directives, 1994 for the classification of water based on their quality the point of the former Fe-Ni mine in terms of total phosphorus belongs to the fifth class, in terms of total nitrogen belongs to the second class, in terms of COD belongs to the second class and in terms of BOD belongs to the second class. The results showed that in terms of phosphorus care must be taken for the protection of the lake from pollution.
Key words: Ohrid, physicochemical parametes, water, quality

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➢ **POSTER PRESENTATION**

Tümör hücreleri apoptoz faktörü (TCApF)'nin insan prostat ve meme kanseri hücre hatları üzerine sitotoksik ve genotoksik etkilerinin belirlenmesi

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Özet

Kanser, kalp-damar hastalıklarından sonra ikinci en önemli ölüm sebebi olan bir hastalık grubudur. Kanserin tedavisinde son yıllarda önemli gelişmeler sağlanmış olsa da bu hastalığın her kanser tipinde gelişim süreçlerinin çeşitlilik göstermesi, alınan ilaçların veya önerilen tedavilerin yeterli düzeyde olmamasından dolayı hala önemli bir sağlık sorunu olmaya devam etmektedir. Antikanser peptidler (ACP), moleküler hedefli kanser ilaç keşif ve gelişim süreci için önemli bir strateji olarak görülmektedir. ACP'ler kullanılarak normal hücrelere toksik etkileri azaltılmış yeni terapötik ilaçların tasarlanabileceği araştırmacılar tarafından öngörülmektedir. Tümör hücreleri apoptoz faktörü (TCApF), 84 aminoasit uzunluğunda peptid yapılı yeni bir hormondur. Bu hormon üzerine yapılan az sayıdaki araştırma TCApF'nin potansiyel bir ACP olabileceğini bildirmektedir. Kanser hücrelerinin fizyolojik ve moleküler işleyişlerinin farklılıklar göstermesi nedeniyle söz konusu peptid üzerine yapılacak yeni çalışmalar peptidin kanser hücreleri üzerine biyolojik etkinliğini ortaya koymada önem arz etmektedir. Bu çalışmanın amacı insan meme (MCF-7) ve prostat kanseri (PC-3) hücre hatları üzerine TCApF'nin muhtemel sitotoksik ve genotoksik etkilerini belirlemeyi amaçladık. Çalışmada insan meme ve prostat kanser hücre hatları üzerine TCApF'nin 1, 10 ve 100 ve 1000 ng/ml'lik konsantrasyonları ile referans ilaç (5- fluorouracil) 24 ve 48 saat süreyle uygulandı. Uygulamayı takiben TCApF'nin hücre canlılıkları üzerine etkileri MTT yöntemiyle, DNA hasarına etkisi ise tek hücre jel elektroforezi yöntemi (Comet Assay) ile belirlendi. Sonuç olarak uygulanan 1000 ng/ml'lik dozun her iki hücre hattında da hücre canlılığını azalttığını ve düşük seviyede DNA hasarına neden olduğunu tespit ettik. Bu sonuçlar TCApF'nin potansiyel bir ACP olabileceğini ancak düşük dozlarda etki sergilemediğini bizlere göstermektedir.

Anahtar kelimeler: TCApF, Antikanser peptid, Meme kanseri, Prostat kanseri, Sitotoksisite, Genotoksisite

Teşekkür: Bu çalışma Bartın Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi tarafından desteklenmiştir (Proje no: 2019-FEN-A-003).

DRAFT

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

The effect of alkaloids on the reproduction of the locust *Locusta migratoria* (Linné, 1758) (Oedipodinae, Acrididae)

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Abstract

All plants synthesize through photosynthesis the primary metabolites essential to perform the various functions related to the development and growth of plants; other metabolites are produced but not directly by photosynthesis but by subsequent chemical reactions which are called secondary metabolites.
These secondary metabolites constitute, today, one of the levers of a possible ecological intensification of agriculture by reducing losses caused by pests and by replacing the use of chemical inputs which damage natural ecosystems by mechanisms of natural defense of plants.
The study of the effect of the foliar extract of datura on the reproduction of adults, aimed at several parameters, such as the time of the first mating, the time of the first laying, the number of eggs per ootheca.
The ovarian development of treated and untreated female locusts that did not lay eggs was checked on the 25th day after their emergence. The observation of the appearance of the fatty substance of the treated females has shown that it is less developed than that observed in the untreated females, and it diminishes more by increasing the doses of the solution.
The first matings were made on average for the controls on the 15th day after the moult; in treaties with the solution of datura the couplings have on the 24th day.

Keywords: Datura, locust, integrated pest management, agriculture

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➢ **POSTER PRESENTATION**

Identification of BRCA1/2 germline mutations in breast cancer cases from Eastern Algeria

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Abstract

Frequencies and spectrum of BRCA1/2 mutations are largely unknown in Algeria. The present report assesses frequencies and types of heterozygous germline BRCA1/2 mutations among unselected Algerian patients with early onset breast cancer (EOBC). We screened all translated exons and adjacent intronic sequences of both genes by direct sequencing and large rearrangements by multiplex ligation dependent probe amplification in 100 unrelated women prospectively diagnosed with primary invasive BC (≤40 years), from three centers in Eastern Algeria (Setif, Batna and Constantine). Thirteen various deleterious heterozygous germline mutations were detected, one of which was previously unreported, in both genes among 17 unrelated EOBC patients. Three large rearrangements were identified: two in *BRCA1* gene (del exon 2 and del exon 16) and one in *BRCA2* (del exons 19-20) in patients without breast or ovarian cancer family history (FH). The recurrent BRCA1 c.5332+1G>A and BRCA2 c.7654dupA mutations may be considered as founder mutations for Algerian population. Furthermore, two different BRCA1 favor polymorphisms (c.19C>T and C.5117G>C) and five variants of unknown significance were found in this series. In addition, Algerian triple-negative (TN) BCs have the highest prevalence of *BRCA1/2* germline mutations. Unselected Algerian patients with EOBC were characterized by high overall frequency of BRCA mutations (17.2%), weak FH, high TNBCs incidence and sporadic cases dominant. A key finding that has emerged from this study is that a similar BRCA1/2 pathogenic heterozygous germline mutation rate (8 vs. 9 respectively). These data shed new light on the spectrum of *BRCA* mutations in the Algerian population.

Keywords: Algeria, BRCA1/2, EOBC, heterozygous germline mutation.

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➢ **POSTER PRESENTATION**

Evaluation of the insecticidal effect of two essential oils on the broad bean *Bruchus rufimanus* (Coleoptera: Chrysomelidae)

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Abstract

The poor storage conditions of the beans allow the development of many insect pests. Plants have been used since ancient times to fight against stored food insects**.** *To limit the presence of insects in grain stocks, research is directed towards the use of products from plants, in particular essential oils, as an alternative method of control to chemical insecticides.*

This work is carried out in this direction to evaluate the toxicity (contact and inhalation) and repulsivity of two essential oil namely that of *Laurus nobilis*, and of *Eucalyptus globulus* on the adults of the *Bruchus rufimanus*. Three doses of oils are used (2 µl, 4 µl, and 6 µl) which have shown an interesting toxicity towards the insect. The LD 50 obtained show that the essential oil of *E. globulus* is most effective by contact (LD50 = 1.58 µl) and by inhalation (LD50 = 0.4 µl), *L. nobilis* oil has an LD 50 equal to 2.08 µl for contact mode and 0.9 µl by inhalation. In addition to toxicity, the two essential oils have a repellent effect against this insect. Oil of *L. nobilis* is the most repellent (80%) for adults of *B. rufimanus*, compared to the essential oil of *E. globulus* which is moderately repulsive and which causes a repulsion rate of 50%.

Keywords : Bruchus rufimanus , essential oil, Laurus nobilis, Eucalyptus globulus, toxicity, repulsivity

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➢ **POSTER PRESENTATION**

Photophysical and photochemical study on non-peripherally carboxylic acid substituted Zn(II) phthalocyanine

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Abstract

Phthalocyanines (Pcs) have attracted considerable interest for many decades. Pcs are chemically and thermally stable compounds that exhibit exceptional behaviour and are important macrocyclic compounds due to versatile utility ranging from dyes and pigments to photodynamic therapy (1). Properties of Pcs are influenced both by the nature of the substituents (electron donating or withdrawing) on the non-peripherally or peripherally and by the nature of the metal ion in the core. Several derivatives of Pcs have been used as sensitizing agents for photodynamic therapy due to their ability to absorb light in the near-infrared region. For such applications a good solubility in water and DMSO is preferred. Generally, Pcs are not soluble in water and DMSO. Hydrophilic groups are attached to Pc ring to increase solubility of Pcs in non-polar solvents. Carboxylic acid containing Pcs are known to be used in several fields including photodynamic cancer therapy (PDT) and dye sensitized solar cell (DSSC) (2-4). Therefore, we intend to synthesize phthalocyanine compound as candidate for possible applications.

In the present work, we describe the synthesis and characterization of Zinc(II) phthalocyanine containing carboxylic acid groups. Zinc(II) phthalocyanine containing carboxylic acid group was synthesized from ferulic acid substituted precursor (4). The compound was characterized by elemental analysis, UV-vis, FT-IR, 1H NMR and mass spectroscopic techniques. The spectral investigations on Zinc(II) phthalocyanine are in accord with the proposed structures. Aggregation properties of this phthalocyanine were studied in different concentrations of DMSO. Finally, photochemical and photophysical studies of Zinc(II) phthalocyanine were carried out to evaluate their photodynamic therapy properties in DMSO. This phthalocyanine has high singlet oxygen quantum yield.

Keywords: Phthalocyanine, Carboxylic acid, Zinc, Synthesis, Photophysical, Photochemical

Acknowledgement: This study was supported by Yildiz Technical University (Grand number: FBA-2019-3612)

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➢ **POSTER PRESENTATION**

Antileishmanial activities of curcumin derived extrcellular vesicles on *L. tropica* promastigotes and amastigotes, *in vitro*

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Abstract

Leishmaniasis is a group of diseases caused by more than 20 Leishmania species that are transmitted to humans by the bite of infected female sand flies. According to data from the World Health Organization, in 2017, more than one billion people in 97 endemic countries and regions are threatened with Leishmania infection. Leishmaniasis is categorized into 3 groups as Cutaneous (CL), Mucocutaneous (ML) and Visceral Leishmaniasis (VL). Every year, 50,000-90,000 new VL and 600,000-1.000.000 new CL cases occur worldwide. Poor immunity, migrations, wars, problems in the diagnosis of the disease, and most importantly, the resistance of the causative agents to the drugs used and the vectors against the insecticides are causes of the increased prevalance of the disease. Although antimonials are used as the first-line treatment option today, high cost, high toxicity and resistance of the parasites to the drug over time still cause problems in the treatment. Accordingly, studies for development of new approaches in the treatment of Leishmaniasis have gained importance in recent years.

Novel studies have been carried out on the biological activities of plant-derived extracellular vesicles on various microbial agents. Their abilities to carry DNA, protein and enzymes, their immune regulatory features and their roles in providing communication between cells show that these vesicles have vital roles for cellular mechanisms. Due to their special properties, extracellular vesicles can be used for therapeutic purposes.

Curcuma longa is a species of ginger family that grows widely in the South and South-western regions of Asia. The biological activities of this plant is directly related to existence of orange-yellow, lipophilic polyphenol substance called as "Curcumin" which is obtained from the rhizomes of the plant. Curcumin is known to play an important role in the prevention and treatment of cancer, autoimmune, neurological, cardiovascular and diabetic diseases thanks to its antioxidant, anti-inflammatory and anticancer effects. However, we have not found any studies about antileishmanial activity of curcumin derived extracellular vesicles in the literature. For the first time in our study, the efficacy of curcumin-derived extracellular vesicles in *L. tropica* promastigotes and macrophage cell culture infected with parasites was investigated, in *vitro*.

Extracellular vesicles were isolated from Curcuma longa plant by ultracentrifugation method and Exospin kit. Then obtained vesicles were characterized by Zeta Sizer equipment and flow cytometry. Exosome amount in extracts were determined by Broadford Assay. Experiments related to investigation of inhibitory efficacies of Curcumin derived extracellular vesicles and plant extract were performed on *L. tropica* promastigote culture in RPMI 1640 medium containing 10% FBS and amastigote-macrophage cell culture DMEM medium containing 10% FBS. The antileishmanial performances of Curcumin extract and Curcumin-derived extracellular vesicles were comparatively examined by cell measurements in inverted microscope and cell viabilities were evaluated by MTT method. Moreover, Nitric oxide (NO) levels in macrophages that were treated with Curcumin extract and Curcumin-derived extracellular vesicles were calculated by Griess reaction.

According to results, it was detected that both formulations demonstrated significant antileishmanial activities, in vitro. However, we determined that curcumin derived extracellular vesicles had higher inhibitory effects on Leishmania promastigote and amastigote forms in contrast to Curcumin extract. Furthermore, it was also found that curcumin derived extracellular vesicles broadly increased nitric oxide amounts secreted by infected macrophages. Obtained results showed that curcumin derived extracellular vesicles possess high potential for eliciting antileishmanial activity against *L. tropica* promastigotes and amastigotes. Thus, we suggest that development of new, reliable and effective antileishmanial formulations obtained from Curcumin derived extracellular vesicles will be promising for treatment of Cutaneous Leishmaniasis in near future.

Keywords: *L.tropica*, treatment, extracellular vesicles

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➢ **POSTER PRESENTATION**

Design, synthesis and characterization of a diimine ligand and its homodinuclear complex with antibacterial activity: Theoretical vs. experimental study

Bülent Dede[1], Güvenç Görgülü[2*]

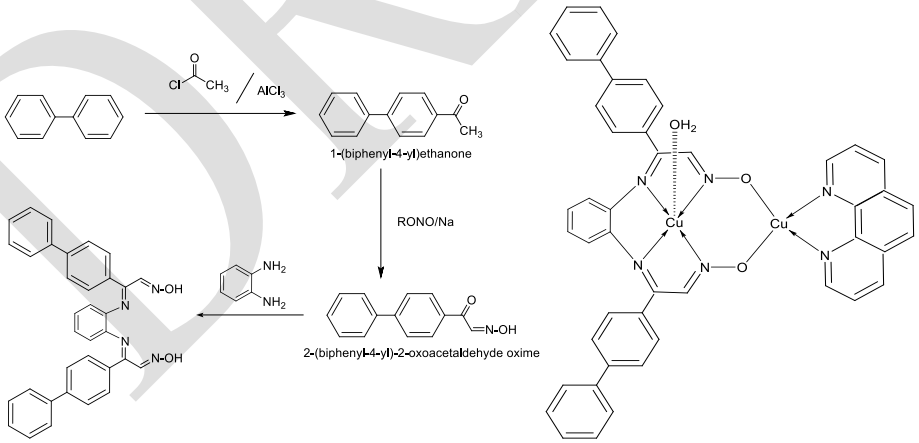
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Abstract

A diimine-dioxime Schiff Base ligand was designed to build a biologically active homodinuclear Cu(II) complex. The designation started with the addition of keto groups to biphenyl molecules. Then, the engagement of oxime groups performed. Finally, the addition of *o*-phenylene diamine, as a bridge between two biphenyl ketooxime groups, combined two moieties. Thus, the ligand was donated with six reactive groups (2 keto, 2 oxime and 2 amine) and named as 2-(biphenyl-4-yl)-2-(2-((1-(biphenyl-4-yl)-2-(hydroxyimino)ethylidene) amino)phenylimino)acetaldehyde oxime. The starting molecule biphenyl increases the molecular weight of the active compound which contributes the stability of the ligand. Cu(II) metal ions coordinated with the ligand and the homodinuclear complex was stabilized with phenanthroline group and named as Cu(II) complex $[Cu_2(L)(H_2O)(phen)](ClO_4)_2$ (BPOP: **B**iphenyl *o*-**P**henylene diamine **O**xime **P**henanthroline). The compounds were characterized with various spectroscopic and physical methods. The metal:ligand ratio of the complex was found to be 2:1. The ligand and its Cu(II) complex were further investigated by DFT method. The structural and vibrational spectroscopic data of the BPOP and its homodinuclear Cu(II) complex were calculated and confirmed by DFT method. Chemical shifts (^{1}H and ^{13}C NMR) of the ligand were also calculated using the gauge-independent atomic orbital (GIAO) method. The experimental results were compared and confirmed by the theoretical calculations. The complex was tested for antibacterial activity *in vitro* and *in silico*. The biological use of newly synthesized ligand and its homodinuclear metal complex is an outcome of this study, while the comparison and correlation of experimental results with the calculated data were a good way to build up a pattern for the characterization and further investigation of the new compounds.

Keywords: Schiff Base, Metal Complex, DFT, Molecular Docking, Catalytic activity



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➢ **POSTER PRESENTATION**

Heavy metal extraction with dye decolorization: A combined system proposal

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Abstract

Heavy metal contamination is a major issue for the environment. Uncontrolled release of wastewaters and heavy metal containing emission of gases from industrial and urban sources finally accumulated in drinking water and food causing numerous life threatening major health problems. Removal of accumulated heavy metals from ecosystem is crucial. Liquid-liquid extraction is a method basically involves the sequestering of metal ions by specific ligands. The formed metal complex may be removed by further extraction methods from the medium. In this study, the formed complex is used for the removal of dye as a combined system. Dyes are broadly used in textile, pharmaceutical, food, cosmetics, plastics, photographic and paper industries. They can easily for complexes with salts and other ions. Dye contaminated wastewaters are a major thread for the ecosystem colouring the freshwater sources which result in the prevention of light passage to underwater, blocking the photosynthesis and eventually depletion of oxygen. Methylene blue comprises all negative effects of industrial dyes besides its extensive use in biology, chemistry, medicine and agriculture. Previously synthesized and characterized biphenyl based aminoketooxime ligands were used for heavy metal extraction. The extraction potential of the ligands was investigated against eight different transition metal ions which are selected for their abundance in wastewater and toxic capacity. Namely, Cd(II), Co(II), Cu(II), Hg(II), Mn(II), Ni(II), Pb(II), Zn(II) ions were chosen. Dye decolorization was accomplished by Fenton reaction, which involves oxidation of the dye with H_2O_2 in the presence of the metal complexes.

Keywords: Metal complex, heavy metal, extraction, dye decolorization

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➢ **POSTER PRESENTATION**

Novel mannich base derivatives: Synthesis, characterization, antioxidant and antimicrobial activities

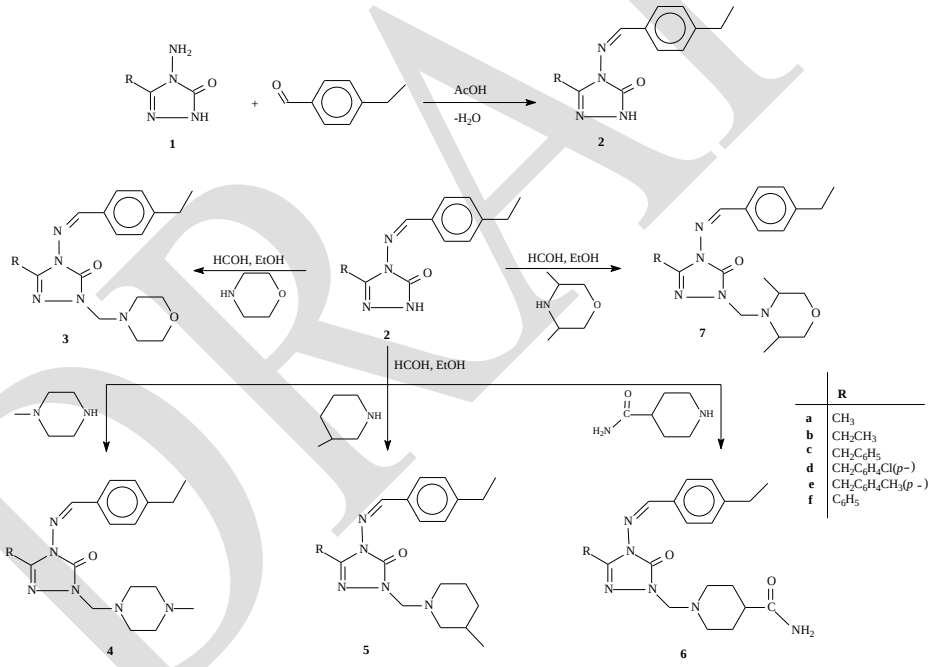
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Abstract

In this study, 3-alkyl(aryl)-4-(4-ethylbenzylidenamino)-4,5-dihydro-1*H*-1,2,4-triazol-5-ones (**2a-f**) were synthesized from the reactions of 3-alkyl(aryl)-4-amino-4,5-dihydro-1*H*-1,2,4-triazol-5-ones (**1a-f)** with 4-ethylbenzaldehyde described in the literature. Then, the compounds **2** were treated with morpholine, *N*-methylpiperazine, 3-methylpiperidine, 4-piperidine carboxyamide, 2,6-dimethylmorpholine in the presence of formaldehyde to synthesized thirty novel Mannich bases **3**, **4**, **5**, **6** and **7** type, respectively. The newly synthesized thirty *N*-Mannich bases compounds were characterized using IR, ^{1}H-NMR and ^{13}C-NMR spectral data. In addition, antimicrobial activity of the compounds synthesized were were determined on six bacteria using the agar well diffusion method. Furthermore, the antioxidant properties of the new compounds were analysed for their in-vitro potential antioxidant activities in three different methods (metal chelating activity, free radical scavenging and reducing power). These antioxidant activities were compared to those from standard antioxidants, such as EDTA, BHT, BHA and α-tocopherol.



Scheme. Synthetic pathway of Mannich Base Derivatives **3, 4, 5, 6** and **7(a-f)**

Keywords: Mannich base, Antimicrobial activity, Antioxidant activity, α-Tocopherol.

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➢ **POSTER PRESENTATION**

The effect of hedgehog pathway inhibition and autophagy modulation on the proliferation and survival of AML cell lines

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Abstract

Acute myeloid leukemia (AML) is a complex disease, which includes many chromosomal abnormalities such as translocations, deletions or insertions and results in an immature form of myeloid progenitor cells in peripheral blood. Aberrant signaling pathways such as PI3K/AKT/mTOR, Notch and Hedgehog pathway could be a crucial driver of pathogenesis of AML. Hedgehog pathway(Hh) is an evolutionary conserved signaling pathway that is important during embryogenesis. It is an important regulator of the autophagy, a cellular degradation and organelle turnover process and it crosstalks with other pathways. Several studies suggested that autophagy modulation could act as an escape mechanism in AML. Given the role of autophagy and Hh in AML, understanding the relationship between autophagy and Hh pathway is important to overcome the leukemic growth. Therefore, in this study, we checked the effect of Hh inhibition using GANT61 on MOLM-13 and CMK cells with MTT cell viability assay. GANT61 led to a decrease in these AML cells. After that, we investigated the effect of autophagy modulation on CMK and MOLM-13 cell lines and we have found that autophagy inhibitors, NH_4CI, Chloroquine, Hydroxychloroquine and Nocodazole cause a decrease in the proliferation of CMK and MOLM-13 cell lines. However, PP242, an autophagy activator, had no effect on the proliferation of CMK and MOLM-13 cell lines. Combination treatment of autophagy modulators and GANT61 had a synergistic effect on MOLM-13 but not on CMK. GANT61 treatment increased autophagy in AML cell lines, which is related with an increase in the expression of LC3B-II by western blotting. Also, combination treatment with Nocodazole and GANT61 lead to the accumulation of LC3B-II in both AML cells. AKT protein expression changed depending on the type of treatment and cell lines. In conclusion, targeting of Hh and autophagy is a promising therapy against MOLM-13 cell line but not against CMK.

Keywords: Acute myeloid leukemia, Hedgehog pathway, Autophagy

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➢ **POSTER PRESENTATION**

Schinus molle essential oils and their antibacterial effect against *Staphylococcus aureus*

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Abstract

Bacterial infections are constantly increasing due to rapid changes occurring among patient population and the increasing numbers of immunosuppressed patients and chronic diseases. Moreover, the increase of antibiotic resistance is making infections treatment more complicated. Staphylococcus aureus is one of the major human pathogens that can lead to invasive infections such as endocarditis, osteomyelitis, sepsis and even skin and soft tissue infections that can be colonized in humans and animals. The aim of this study was to investigate the antibacterial effect of *Schinus molle* against Staphylococcus aureus ATCC 29213 using disc diffusion method. Hydrodistillation method was used for the extraction of essential oils from *Schinus molle* leaves collected from two different bioclimatic regions in Algeria. For the disc diffusion method a suspension of the tested bacteria was spread on Mueller–Hinton agar plates. 6 mm Filter paper discs were placed on the inoculated plates, soaked with 8 µL of essential oil and incubated for 24 hour at 37° C. In addition filter paper discs were soaked with 8 µL of essential oils combined (4 µL of each). The inhibition zone diameter of amikacin, clindamycine and ciprofloxacin for isolate were also determined to control the sensitivity of the standard test organisms. The results showed that Schinus molle essential oils do have an antimicrobial effect. Moreover, when the essential oils of the two regions were combined the antimicrobial effect was more significant. Therefore, natural compounds found in the essential oil obtained from *Schinus molle* leaves can be a potential alternative to antibiotics to combat Staphylococcus aureus infections.

Keywords: *Schinus molle*, essential oils, antibacterial effect, *Staphylococcus aureus*

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➢ **POSTER PRESENTATION**

Demir oksit (Fe_2O_3) nanopartiküllerinin *Allium cepa*'daki genotoksik etkisi

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Özet

Demir oksit (Fe_2O_3) nanopartikülleri (NP), fiziksel ve kimyasal açıdan kararlı oldukları ve çevresel olarak güvenilir kabul edildikleri için çeşitli alanlarda kullanılmaya başlanmıştır. Bu partiküller, sahip oldukları özellikler nedeniyle başta manyetik rezonans görüntülemede (MRG) kontrast ajan olmak üzere, hücre ayrıştırılmasında ve algılanmasında, hipertermia tedavisinde ve ilaç taşınmasında yaygın kullanım alanı bulmaya başlayan önemli partiküllerdir. Ayrıca güneş koruyucularında, kozmetikte, elektrikli ev aletlerinde, gıda ürünlerinde, savunma ve tarımda da kullanılmaktadır. Ancak, son yıllarda yapılan bazı araştırmalar Fe_2O_3 NP'lerinin toksik ve özellikle genotoksik olabileceğini göstermektedir. Bu çalışmanın amacı, Fe_2O_3 nanopartiküllerinin genotoksik etkilerini indikatör bir organizma olan *Allium cepa* hücrelerinde incelemektir. Bu amaçla, *Allium cepa* kök uçları, demir oksit nanopartiküllerinin 125, 250, 500 ve 750 µg/mL konsantrasyonları ile 24 saat muamele edilmiştir. Fe_2O_3 nanopartiküllerinin bütün konsantrasyonları (250 µg/mL hariç), *Allium cepa* hücrelerinde mitotik indekste negatif kontrole kıyasla anlamlı düşüşlere sebep olmuştur. Diğer yandan, Fe_2O_3 NP'lerinin bütün konsantrasyonları kromozom anormallikleri frekansında, negatif kontrole göre anlamlı artışlara sebep olmuştur. Konsantrasyon arttıkça kromozomal anormalliklerin frekansında da bir artış gözlenmiştir. Fe_2O_3 NP'leri, en fazla C-metafaz olmak üzere, yapısı bozulmuş profaz, metafaz ve ana-telofaz, geri ve ileri kromozomlar ve kromozom köprüsü gibi anormalliklere sebep olmuştur. Bu çalışma sonuçlarına göre, Fe_2O_3 NP'leri *Allium cepa* kök ucu hücrelerinde genotoksik etki oluşturmuştur. Nanopartiküller fiziko-kimyasal özellikleri nedeniyle ya direkt olarak genetik materyal ile etkileşime girerek veya oluşturdukları reaktif oksijen türleri (ROT) vasıtasıyla dolaylı şekilde genetik materyalde hasarlara sebep olabilirler. Bu nedenle hem nanopartiküllerin olası genotoksik etkileri konusunda daha detaylı araştırmaların yapılması ve hem de kullanımında daha dikkatli olunması gerektiği düşünülmektedir.

Anahtar Kelimeler: Fe_2O_3 nanopartikülleri, *Allium cepa*, genotoksisite

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➢ **POSTER PRESENTATION**

Immobilizing of procaine hydrochloride to ZSM-5 zeolite particles in different conditions

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Abstract

ZSM-5 (MFI) is an aluminosilicate zeolite belonging to the pentasil zeolite family. They have significant physicochemical properties such as cation exchange, drug loading, molecular sieving, catalysis and adsorption [1]. Procaine hydrochloride is a drug of the amino ester group with local anaesthetic and antiarrhythmic properties. The aim of this study is to prepare a controlled drug delivery system consisting of ZSM-5 and procaine for use in intravenous applications. For this purpose, we investigated procaine hydrochloride adsorption isotherms to ZSM-5 particles at four different pH (2.3, 6.4, 8.9 and 9.8). The adsorption was carried out at 5 °C at 100 rpm using an orbital shaker. Drug loaded-ZSM-5 zeolites were characterized by XRD, FTIR and UV Spectroscopy. Our results showed that procaine molecules were successfully adsorbed on ZSM-5 zeolites. Adsorption efficiency was higher in the case of higher pH values.

Keywords: Drug loading, ZSM-5, Procaine.

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➢ **POSTER PRESENTATION**

Natural essential oils as a penetration enhancer for transdermal drug delivery

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Abstract

The transdermal patches are used for wound dressing and healing treatments [1]. They are also intended for breast and skin cancer treatments. The purpose of this study is to design a pectin based transdermal patch. Pectin is a biodegradable and biocompatible biopolymer. The drug procaine was used as a local anaesthetic and a pain reliever. Two different aromatic oils in the form of monoterpenes, ylang ylang oil, ocalyptus oil, were used for the penetration enhancer from stratum corneum layer of skin. $CaCl_2$ and glycerol were used as cross-linker and plasticizer respectively. For the synthesis of pectin-based patches, firstly, the specified amount of essential oils and the drug were mixed together. Then, this mixture was added to a pectin solution (2% w/w) and a glycerol solution (5% w/w). The obtained mixture performed overnight at 150 rpm using a magnetic stirrer. After adding $CaCl_2$ solution (7% w/w) as a cross-linker, the mixture was shaken overnight at 25°C and 100 rpm using an orbital shaker. The samples were characterized by FTIR, rheometer and UV-spectrophotometer. Swelling behaviors were also determined. A Franz diffusion cell was used for diffusion experiments. We indicated that ylang ylang oil-based pectin patch is a good candidate for transdermal drug delivery. Approximately 25% of drug diffusion was achieved.

Keywords: Transdermal drug diffusion, aromatic monoterpenes, pectin

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➢ **POSTER PRESENTATION**

Farklı miktarlarda eklenen organik madde varlığında poli(*o*-aminobenzil alkol) filmlerin sentezi vekorozyon performanslarının incelenmesi

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Özet

Korozyon, yükseltgenebilir metallerin asidik veya nemli bir ortamda kullanıma girer girmez etkileri gözlemlenebilen ciddi bir pratik sorundur.[1].Buna bağlı olarak malzemelerde ciddi hasarlar gözlenebilir. Bu zararların önüne geçmek için iletken polimer kaplamaların uygulanması oldukça ilgi çekmektedir. Özellikle polianilin ve türevlerinin korumaya yönelik üstün özelliklerinin yanı sıra yapılarına korozyon direncini arttırabilecek organik/inorganik katkıların eklenmesi de oldukça önemlidir.[2].

Bu çalışmada *o*-aminobenzil alkol sentez ortamına farklı miktarlarda organik madde eklenerek paslanmaz çelik yüzeyine poli(o-amino benzil alkol)-org (PABA-ORG) homopolimer filmlerin sentezlenmesi ve antikorozif özelliklerinin belirlenmesi amaçlanmıştır. Çıplak SS, SS/PABA ve SS/PABA-ORG elektrotların korozyon performansları %3,5NaCl çözeltisi içerisinde AC empedans, anodik polarizasyon ve açık devre potansiyeli–zaman teknikleri kullanılarak incelenmiş olup SEM görüntüleriyle bu sonuçlar desteklenmiştir.

Çalışma sonucunda sentez ortamına farklı derişimlerde eklenen organik maddenin PABA polimer film yapısının değişimine neden olduğu gözlenmiştir. SS/PABA-ORG elektrotlarınkorozyon dirençlerinin daha yüksek olduğu tespit edilmiştir. Korozyon davranışındaki bu olumlu gelişme, organik maddenin homopolimer film gözenekyapısının değişimine bağlanmıştır.

Anahtar Kelimeler: korozyon; iletken polimer; elektropolimerizasyon; *o*-aminobenzil alkol; AISI 316

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➢ **POSTER PRESENTATION**

Investigation of the encapsulation efficiency of propranolol hydrochloride loaded calcium alginate-chitosan polyionic complexes

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Abstract

The aim of this study is to investigate the loading efficiency of propranolol hydrochloride into calcium alginate-chitosan polyionic complexes. Propranolol hydrochloride is a beta-blocker used for the treatment of cardiovascular diseases. Ionotropic gelation method has been applied to prepare calcium alginate-chitosan beads because of its advantages, such as its versatility and flexibility. In this study, the effects of chitosan concentration (0.2-0.6 %,w/v), $CaCl_2$ concentration (0.5-2.0 %,w/v), sodium alginate concentration (1.0-2.5 %,w/v) and acetic acid concentration (0.05-0.3 M) on the encapsulation efficiencies were investigated. The propranolol hydrochloride content in the beads was measured spectrophotometrically at the wavelength of 216.5 nm. When the chitosan concentration and sodium alginate concentration were increased, the encapsulation efficiency also increased. When the $CaCl_2$ concentration effect was investigated, it was observed that the encapsulation efficiency increased at first, no change was observed later. When the acetic acid concentration was increased, the encapsulation efficiency increased at first, it decreased later. To obtain the maximum encapsulation efficiency, optimum concentrations were defined as 0.3% (w/v) for chitosan, 1% (w/v) for $CaCl_2$, 2.5 % (w/v) for sodium alginate and 0.1 M for acetic acid. The results of this study have shown that low molecular weight propranolol hydrochloride can be loaded into calcium alginate-chitosan polyionic complexes.

Keywords: Chitosan, alginate, encapsulation efficiency, proranolol hydrochloride, polyionic complexes.

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➢ **POSTER PRESENTATION**

Combinational effects of ruxolitinib and genistein in neuroblastoma cells

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Abstract

Neuroblastoma is one of the malignant pediatric tumors which is derived from nerve cells. Genistein is a tyrosine kinase inhibitor that has been shown to induce apoptosis in neuroblastoma cells. Ruxolitinib is an agent used in myelofibrosis treatment through its potent JAK2 inhibitory effect. In our study, we aimed to determine cytotoxic and apoptotic effects of genistein and ruxolitinib combination on human neuroblastoma SH-SY5Y cells compared to untreated control group. The combinational cytotoxic effect of genistein and ruxolitinib on SH-SY5Y cells was determined in time and dose dependent manner by using WST-1 analysis. The combination index isobologram (CI) was used to analyze the data.
In order to evaluate the isobologram analysis, concentrations for genistein and ruxolitinib were determined in the range of 2.06µM-10.32µM, 7.12µM-35.62µM, respectively. CI values at ratio 10.32:35.62 genistein: ruxolitinib combination showed additive effect. CI values of combination were calculated as 0.79, 0.80 and 0.81 (ED_{50} value: 3.55µM genistein, 12.24µM ruxolitinib; ED_{75} value: 7.05µM genistein, 24.33µM ruxolitinib; ED_{90} value: 14.01µM genistein, 48.36µM ruxolitinib). Genistein, ruxolitinib and the combination of these agents induce apoptosis at 72nd hours 45.2 fold, 30.9 fold, 54.1 fold compared to control cells, respectively.
These findings indicate that the combination of these agents has additive antiproliferative and apoptotic effects on SH-SY5Y cells. Current findings should be supported by in vivo studies for clinical reflection.

Keywords: Neuroblastoma, genistein, ruxolitinib

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➢ **POSTER PRESENTATION**

Antibacterial activities of curcumin derived extracellular vesicles on *Helicobacter pylori, in vitro*

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Abstract

Helicobacter pylori (*H.pylori*) has a variable prevalence around the world depending on various factors such as socioeconomic status, age, hygiene, and lifestyle. While the incidence of infection is around 20-40% in developed countries, it reaches up to 85-90% in developing countries. Today, as the first-line option, clarithromycin, amoxicillin or metronidazole antibiotics are used in the treatment of *H.pylori* infection in the clinic. However, due to reasons such as increasing prevalence and developing antibiotic resistance, success in the treatment of *H.pylori* decreasing day by day. Accordingly, there is a huge necessity for the development of new approaches in the treatment of *H.pylori.* In recent years studies on biological activities of plant derived extracellular vesicles have gained importance. It was known that plant-derived extracellular vesicles can demonstrate strong antibacterial performances. Although there are studies investigating the inhibitory effects of extracellular vesicles on various bacteria, we have not found any studies investigation of extracellular vesicle's effectiveness on *H.pylori* in the literature. Curcumin obtained from Curcuma Longa plant has been shown to inhibit *H.pylori* growth due to its biological activity in many studies. Therefore, in this study, it was aimed to investigate the antibacterial activities of curcumin-derived extracellular vesicles on *H.pylori* for the first time. For this purpose, firstly extracellular vesicles were isolated from Curcuma longa plant by ultracentrifuge method and Exospin kit. Then obtained vesicles were characterized by Zeta Sizer equipment and flow cytometry. The exosome amount in extracts were determined by Broadford Assay. Investigation of inhibitory effectiveness of Curcumin derived extracellular vesicles and curcumin plant extract was performed on *H.pylori* liquid culture with broth dilution method. The anti-helicobacterial performances of Curcumin extract and Curcumin-derived extracellular vesicles was comparatively examined by UV spectrophotometer. Obtained results showed that both formulations had an antibacterial effect on *H.pylori in vitro.* However, we have determined that curcumin-derived extracellular vesicles had superior killing effects on *H.pylori*, in contrast to Curcumin extract alone. Therefore, we recommend that new antibacterial formulations based on Curcumin derived extracellular vesicles will be further used for the treatment of *H.pylori* infection in the near future.

Keywords: *Helicobacter pylori*, Extracellular Vesicles, Curcumin

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➢ **POSTER PRESENTATION**

Evaluation of anti-bacterial activities of polycaprolactone nanoparticles based drug delivery systems on *Helicobacter pylori*

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Abstract

Helicobacter pylori (H.pylori) is one of the most important public health problems in the world and our country. Today, the success of the current treatments used in the clinic decreases day by day, especially due to increased antibiotic resistance. In order to increase the effectiveness of antibiotics, polymer-based nanocarrier systems have been used in recent years. Polycaprolactone polymer (PCL) is one of the most commonly used polymeric nanoparticles thanks to its FDA approved biodegradable, biocompatible, non-toxic properties. On the other hand, combination therapies containing various plant sources with antibiotics have been used in order to decrease antibiotic resistance in recent years. However, there are no studies investigating the antibacterial activities of polycaprolactone nanoparticles which contain two different biological agents on *H.pylori.* Therefore, in this study, clarithromycin (CRL), which is one of the antibiotics used in the treatment of *H.pylori*, and thymoquinone (TQ), whose antibacterial activity is well known, was encapsulated into PCL nanoparticles and its activities were investigated on *H.pylori*. For this purpose, PCL-TQ, PCL-CRL and PCL-TQ-CRL nanoparticles were synthesized by using the emulsion solvent evaporation method. The obtained nanoparticles were characterized by SEM, DLS and UV spectrophotometer. Inhibitory activity of synthesized polymeric nanoparticles was investigated in vitro on ATCC700392 *H.pylori* strain at concentrations between 25 and 100 µg/mL. The broth dilution method was used to determine antibacterial activities. As a result, PCL nanoparticles containing TQ, CRL and TQ-CRL synthesized have been shown to possess an average size in the range of 200-230 nm. At the highest concentration examined within the Broth dilution test, PCL-TQ nanoformulation was found to reduce bacterial viability by 50% compared to the control group. On the other hand, it has been determined that PCL-CRL nanoformulation reduced bacterial viability by 59%, and PCL nanoparticles containing the TQ-CRL combination decreased by 68%, compared to the control group. Accordingly, it has been proven that PCL-CRL nanoparticles are more effective than PCL-TQ nanoparticles, but TQ-CRL-PCL nanoparticles in which both components are encapsulated together are more effective on *H.pylori.* This indicates that the TQ-CRL combination has a synergistic effect on the inhibition of *H.pylori*. As a result, it is thought that using PCL nanoparticles containing TQ and CRL may be promising in the future for *H.pylori* treatment.

Keywords: *Helicobacter pylori*, nanoparticles, drug delivery systems

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➢ **POSTER PRESENTATION**

Toryum elementi ve kimyasal özellikleri

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Özet

Toryum, periyodik tablonun IV-B grubunda bulunur. Aktonitler element serisinde bulunan toryum, radyoaktif bir elementtir. Toryumun kimyasal özellikleri Hafniyum, Titanyum ve Zirkonyum elementlerine çok benzediğinden dolayı bu elementlerle birlikte periyodik tablonun 4B grubunda bulunmaktadır. Toryum suda çözünmez, HCl ve H2SO4'te çözünür. Suda çözünebilen toryum bileşikleri nitrat, klorit, sülfat ve florit tuzları içermektedir. Toryum, iyodür, florür, fosfat vs. iyonlarıyla asitlerde çok az çözünen veya hiç çözünmeyen bileşikler oluşturur. Bu bileşikler, toryumun diğer elementlerden ayrılmasında ve analizinde kolaylık sağlar.

Anahtar Kelimeler: Toryum, bileşikler, nükleer, reaktörler, fiziksel, kimyasal, özellikleri, ayrıştırma, kullanımı

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➢ **POSTER PRESENTATION**

Beyin kanser kök hücrelerinde ve sağlıklı beyin kök hücrelerinde hücre dışı LncRNA Ekspresyon profillerinin karşılaştırılması

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Özet

Beyin tümörleri, beyin ve omurilikteki primer ve metastatik neoplazmların heterojen bir grubudur ve sağ kalım oranları düşüktür. Yıllık olarak bildirilen beyin ve sinir sistemi kanserinin küresel insidansı 321000 ve ölüm oranı 229000'dir. Ameliyat, radyoterapi ve kemoterapi gibi en etkili tedavilerin kombinasyonunda bile, ileri-dereceli gliomalarda ortalama sağkalım hala düşük oranlarda (14,6 ay) seyretmektedir. Yeni nesil sekanslama metodlarındaki son gelişmeler gliomda spesifik moleküler işaretçilerin tanımlanarak, hastalığın moleküler patogenezinin anlaşılmasını ve potansiyel diyagnostik, prognostik ve prediktif biyobelirteçlerin tanımlanmasını sağlamıştır.
Genomda büyük bir yer kaplayan protein kodlamayan bölgelerden ifade edilen 200 nükleotitden uzun RNA'ların (lncRNA), farklılaşmış dokularda veya spesifik kanser tiplerinde benzersiz şekilde eksprese edildiği bilinse de bu transkriptlerin büyük çoğunluğunun işlevi tanımlanmamıştır. İnsan lncRNA'ları geniş çeşitliliğe sahiptir ve epigenetik, nükleer taşıma, alternatif kırpılma ve RNA yıkımı gibi bir dizi biyolojik sürece katılırlar. Bu nedenle, anormal lncRNA ifadesi çeşitli insan hastalıklarına ve bozukluklarına neden olabilir.
Bu çalışmada insan sağlıklı beyin kök hücresi ve beyin kanser kök hücrelerinden elde edilen hücre dışı lncRNA'ların ekspresyon profilleri arasındaki farkın in vitro olarak araştırılması planlanmıştır. Beyin kanseri kök hücresi ve sağlıklı beyin kök hücrelerinde hücre dışına salgılanan lncRNA'ların türlerini ve miktarlarını belirlemek ve karşılaştırmalı olarak analizini yapabilmek için hücre kültürü yöntemlerinden ve qRT-PCR yönteminden yararlanılmıştır.
Çalışmanın sonucunda beyin kanseri patogenezi ile ilişkilendirilebilecek veya belirteç olarak kullanılabilme potansiyeli olan 17 tane lncRNA'nın ekspresyon seviyelerinde anlamlı değişiklik olduğu belirlenmiştir.

Anahtar Kelimeler: : Beyin kanseri, Kök hücre, Hücre dışı lncRNA, qRT-PCR

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➢ **POSTER PRESENTATION**

Low methoxy pectin-borax hydrogels crosslinked with calcium for controlled drug release

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Abstract

Boron and its derivatives hold vital roles in living organisms. Boron treated animal tissues demonstrate an increased rate of wound heal by promoting inflammatory biomarkers [1]. Pectin based hydrogels have biocompatible properties such as biodegradability, oxygen and moist permeability, and antimicrobial effects [2]. However, the literature lacks an optimal formulation for hydrogels that combines the biocompatibility of pectin and wound healer effect of boron for biomedical applications. In this study, a stable film formulation is developed using borax as a boron derivative source, accompanied by calcium chloride as a cross-linking agent and glycerin as a plasticizer for pectin. Procaine and borax solutions are mixed at 5 ^{o}C at pH 6.4 or 9.1 for 48 hours, the obtained solution is added to the pectin-glycerin solution. The crosslinking is accomplished over petri dish filled with calcium chloride solution. For all synthesized hydrogels, swelling ratios, rheology, FTIR, SEM and drug release performances by UV-Visible Spectrophotometer are determined. The drug release kinetics reveal that the system prepared at pH 6.4 releases 79.1% of the loaded drug during 18 days. The observed duration is longer than previous studies that performed in our laboratories, reported as 16 hours for 70% of the drug [3]. To understand the molecular interactions between borax and procaine molecules, full-atom molecular dynamics simulations of 5 ns long are performed on Materials Studio 8.0 using universal force field with NVT ensemble. Hydrogen bonds, water clusters, and pi-pi interactions of trajectories are screened. The overall results suggest that the boron-containing pectin hydrogels are successful candidates for novel wound dressing applications.

Keywords: Boron, Drug Release, Hydrogel, Molecular Dynamics, Pectin

[1] Contributions of these authors are equal.

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

The association between live body weight and linear body measurements in Sumba Ongole (Bos indicus) and Bali (Bos javanicus) cows

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Abstract

The conducted research was aimed to predict body weight (BW) in two Indonesian native breeds' cattle through linear regression analysis. Three linear body measurements consisting of body length (BL) withers height (WH), and heart girth (HG) was computed for analysis. Total of 73 cows was conducted from two different locations. Amount of 41 Sumba Ongole/SO (±1.5year of age) and 32 Bali(±2.5 years of age) cows were conducted from Rumpin District and Kediri District respectively. Research showed that the simple linear regression equation by using HG alone as an independent variable has the highest coefficient of determination (R2) value than other measurements in SO (0.87) and Bali (0.84) cows. Pearson's coefficient of correlation (r) value between HG and BW was very high category ($0.75 < r < 0.91$). Measurement of HG is workable single predictor for BW contributing higher than 80% to BW,s disparity in SO and Bali cows.

Keywords: Body weight, body measurements, coefficient of determination, Indonesian native cattle, Pearson's coefficient of correlation

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➢ **POSTER PRESENTATION**

KOH aktivasyonu ile çörek otu küspesinden aktif karbon eldesi ve karakterizasyonu

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Özet

Gelişen teknoloji ve artan dünya nüfusu ile beraber çevre kirliliğinin artması sorunu, çevre dostu, tükenmez ve yenilenebilir enerji kaynaklarına olan ihtiyaç gün yüzüne çıkartmaktadır. Bu nedenle biyokütle, çevreye zararının olmaması, ekonomik olması, atıkların bertaraf edilmesi ve değerlendirilmesi amacıyla birçok alanda hammadde olarak kullanılmaktadır. Biyokütle, işlenmemiş nitelikli bir karbon kaynağıdır ve bu nedenle üstün özellikli karbon malzemelerin sentezlenmesinde sıklıkla kullanılmaktadır. Aktif karbon üretiminde kullanılacak malzemeler kolay temin edilebilirliğine, maliyetine ve saflığına göre seçilmektedirler. Günümüzde pek çok alanda kullanılan aktif karbon, karbon içeriğine sahip birçok malzemeden üretilebilmektedir. Aktif karbon üretiminde biyokütle olarak meyve kabukları (ceviz, fındık, badem, kestane, hindistan cevizi kabukları), çekirdekleri (kiraz, kayısı, erik, hurma, zeytin, kahve çekirdekleri), üretim sonucunda oluşan atıklar (şeker pancarı küspesi, pirina, talaş) kullanılmaktadır. Aktif karbon endüstriyel faaliyetler sonucu oluşan atık değeri yüksek bitkisel hammaddelerden elde edilmesi, ucuz, bol miktarda ve kolay bulunabilen bir materyal olması sebepleri ile halen birçok çalışma için araştırma konusudur. Bu çalışmanın temelini, sahip olduğu yüksek yüzey alanı ve gözenekliliğinden dolayı günümüze kadar önemini hiç kaybetmeden koruyan aktif karbonun hazırlanması oluşturmaktadır. Bu çalışma ile, atık değeri yüksek, temin edilmesi kolay ve ekonomik olan çörek otu küspesinden yeni tür gözenekli aktif karbonun hazırlaması, hazırlanma koşullarının optimize edilmesi ve elde edilen aktif karbonun karakterizasyonu amaçlanmıştır. Bu amaçla, aktif karbonun hazırlanmasında gıda endüstrisinde işlenme aşamalarından sonra yüksek miktarda oluşan ve endüstriyel tarımsal atık niteliği taşıyan çörek otu küspesi ham madde olarak seçilmiştir. Çörek otu küspesinden aktif karbonun hazırlanmasında KOH ile kimyasal aktivasyon yöntemi tercih edilmiştir. Aktif karbonları hazırlama koşullarının optimize edilmesi için sırasıyla aktivasyon ajanı oranı ve karbonizasyon/aktivasyon süresi etkileri incelenmiştir. Belirlenen optimum koşullarda hazırlanan aktif karbonun yüzey alanı-gözenek boyutu dağılımları BET yüzey alanı tayini cihazı ile; yüzey özellikleri FTIR-ATR ve SEM; termal özellikleri DT/TGA cihazı ile karakterize edilmiştir.

Anahtar Kelimeler: Aktif karbon, Biyokütle, Çörek otu küspesi, Kimyasal aktivasyon.

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➢ **POSTER PRESENTATION**

Inoculation methods for phenotyping of stripe rust (*Puccinia striiformis* f. sp. *tritici*) on wheat

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Abstract

Wheat stripe rust caused by *Puccinia striiformis* f. sp. *tritici* is one of the most important diseases on wheat and the pathogen is an obligate biotroph and firstly infects the leaves. High humidity and cool temperature (10-15 ºC) are ideal conditions for the optimal rust infection. The disease can be efficiently controlled by fungicides but host resistance is often preferred for economic and environmental reasons. The effectiveness of host resistance varies depending on pathogen diversity and the wheat cultivars are routinely phenotyped by researchers against race differentiations and changes in open field conditions. However, pathogenicity tests are carried out under controlled conditions such as greenhouse and growth chamber due to sensitivity of disease symptoms to environmental factors. Artificial epidemic under controlled conditions consists of several steps such as inoculation, incubation and development of the disease. Inoculation as the most important step is generally applied with two different methods "spray" and "point". Last researches have shown spray inoculation method is more efficient than the point inoculation. In both method, the spores are generally mixed with Novec 7100, Soltrol 170, water or Tween 20 and their different combinations. Novec 7100 and Soltrol 170 are the most efficient chemicals to facilitate penetration of the spores into leaf surface. In this method, rust spores were mixed with Novec 7100 or Soltrol 170 and obtained solution is sprayed with the aid of airbrush spray gun to wheat plants at two leaf stage. After the inoculation, the plants are misted in darkness at 10ºC for 24-48 hours and then transferred to normal growth conditions (15-17ºC with 16 h light-8 h dark). Disease symptoms are observed 12 to 19 days after inoculation. This process is very critical to control disease activities and breed new resistant/tolerant wheat varieties.

Keywords: Stripe rust, Wheat, Spray, Artificial inoculation, Epidemic

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➢ **POSTER PRESENTATION**

Structural stabilization or destabilization of AS1411 G-quadruplex forming aptamer with indium(III) phthalocyanine

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Abstract

Cancer is the second cause of death in the world, and one in six deaths globally results from cancer. Surgery, chemotherapy and radiotherapy methods and their combinations are frequently used for cancer treatment. It is desired that the chemical agents used for the treatment of chemotherapy to have a high treatment rate and a low side effect should have a selective and high cytotoxic value to the tumour. For this purpose, molecules that can be targeted to different cellular tumour markers are being studied as drug and / or drug delivery agents.
In the present study, the interaction of a new indium (III) phthalocyanine (**InPc**) compound with a G-quadruplex forming aptamer have been synthesized. **InPc** compound is soluble in water, which provides potential usages in photodynamic therapy (PDT). The affinity of **InPc** towards AS1411 was investigated. AS1411 is a well-known, synthetic DNA which can be in the form of G-quadruplex structure and this aptamer discovered by Bates and co-workers as an agent targeting the nucleolin protein with high affinity and specificity, eliciting a potent antiproliferative effect on a variety of cell lines (Carvalho et al., 2019). The interaction studies were conducted both in the presence of NaCl or KCl because G-quadruplex structures may show different conformation in the presence of different cations. UV-Vis spectrophotometric titration data confirmed the prevention of aggregation of **InPc** upon interaction with AS1411. The binding stoichiometry confirmed the "end stacking" and intercalative binding mechanism for AS1411 and **InPc** in the presence of potassium and sodium cations. The interaction of **InPc** with AS1411 caused stabilization of G-quadruplex structure in the presence of NaCl and destabilization of structure in the presence of KCl (figure 1). This structural stabilization and destabilization property provides potential application in cancer treatments.

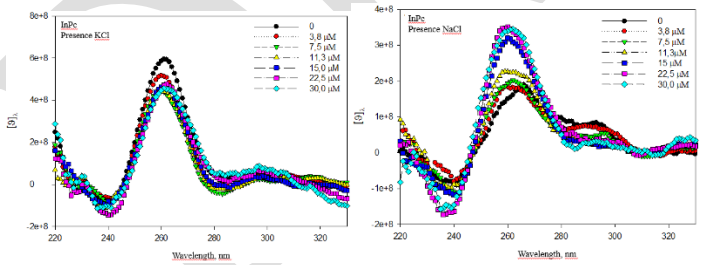


Figure1. CD spectrophotometric titration of AS1411 (2.1 µM) with **InPc**

Keywords: AS1411, CD spectroscopy, conformational differentiation.

We would like to thanks Tübitak for financial support (Project Number: 118Z204)

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Carvalho, J., Paiva, A., Cabral Campello, M. P., Paulo, A., Mergny, J. L., Salgado, G. F., … Cruz, C. (2019). Aptamer-based Targeted Delivery of a G-quadruplex Ligand in Cervical Cancer Cells. *Scientific Reports*, *9*(1), 7945. https://doi.org/10.1038/s41598-019-44388-9.

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

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➢ **POSTER PRESENTATION**

Is AS1411 G-quadruplex a drug delivery vehicle for substituted gallium(III) phthalocyanine?

Efkan Bağda[1*], Esra Bağda[2] , Nurşen Karakodak[1], Gamze Şahin[2], Nurefşan Akkuş[3,4], Mahmut Durmuş[4]

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Abstract

The major disadvantages of traditional adjuvant and nonadjuvant methods are that chemical and physical agents used in cancer treatment cause high side effects, especially limited use depending on the size and location of the tumour, and low reproducibility in the case of metastasis. For this reason, the vast majority of scientists working in the field of cancer and they focused on the development of alternative treatment methods using smart drug and / or drug delivery systems which specific to the patient and / or cancer type.

In the present, the study interaction of tetra- and octa-substituted gallium(III) phthalocyanines (**GaPc1 and GaPc2)** (Figure 1) with AS1411 was investigated by circular dichroism (CD), florescence and UV-Vis. spectrophotometric methods. The stoichiometry of the interaction was calculated by Job's method. The CD spectrophotometric results confirmed the preservation of G-quadruplex structure of AS1411 upon addition of **GaPc1** and destabilization of structure with **GaPc2** (Figure 2). The experimental results proved that the **GaPc2** compound showed higher affinity to AS1411. Reaction stoichiometry were found as 1:2 and 1:6 for AS141: **GaPc1**, and AS141: **GaPc2,** respectively. It showed that **GaPc2** strongly interacted with AS1411 and made the G-quadruplex structure completely relaxed according to the CD results including other spectroscopic data. Besides, **GaPc1** interacted with AS1411 via end stacking binding mechanism which did not disturb the G-quadruplex conformation.

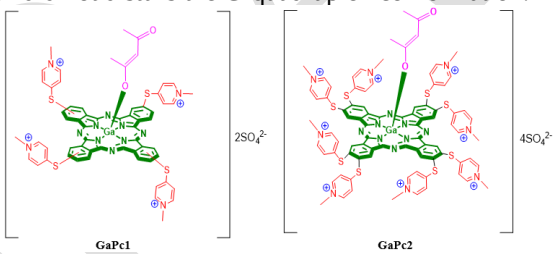


Figure 1. Chemical structures of the studied phthalocyanines

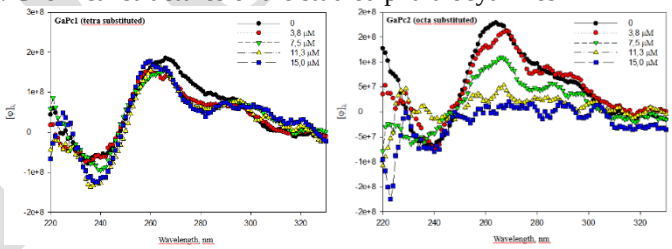


Figure 2. CD spectrophotometric titration of AS1411 with tetra- and octa-substituted **GaPcs**

Keywords: Gallium phthalocyanine, drug delivery

We would like to thanks Tübitak for financial support (Project Number: 118Z204)

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➢ **POSTER PRESENTATION**

Determination of ımmunostimulatory effects of polymer based adjuvants in conjunction with Leishmania-specific antigens

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Abstract

Leishmaniasis is accepted as one of the most serious and life-threatening tropical diseases affecting approximately 98 countries of the world. Visceral Leishmaniasis, the only fatal clinical form of the disease lead to more than 60.000 deaths annually worldwide. Although there are several antileishmanial drugs that are used as first-line treatment options for the cure of the disease, disadvantages such as toxicity, drug resistance and costliness restrict their applications in treatment. In recent years researches have mainly focused on production of vaccine formulations to prevent the distribution of the disease owing to limitations of current antileishmanial drugs. However, despite all efforts, no effective and reliable vaccine has been developed against leishmaniasis, so far. This failure is thought to correlate with several factors including inadequacies of applied adjuvants. The success of polymers in strongly augmentation of immunogenic features of antigens as adjuvants has been recently approved by several studies. Polyoxidonium (POX), which is water soluble, non-toxic, FDA approved polyelectrolyte has been lately initiated to use as adjuvant against several infectious diseases. Nevertheless, the studies investigating efficacies of POX as an adjuvant for development of vaccines against leishmaniasis are lacking. Therefore the main objective of the present study is to investigate in vitro immunostimulant activities of POX in conjunction with leishmania-specific antigens in macrophage culture models. For this purpose, macrophage cells were cultured in RPMI 1640 medium containing 10% FBS and culture was incubated at 37°C. Then, macrophage cells were put into 6-well plates and cells were incubated overnight. Thereafter, cells were exposed to free antigens, free adjuvant and antigen-adjuvant combinations at different concentrations. Cells were incubated for 96 hours and then culture supernatants were collected. Amounts of secreted nitric oxide from macrophages were visualized by using Griess reactions, while cytokine levels were measured by using ELISA kits for IL-4, IL-10, IL-12 and IFN-γ cytokines.
As a result, it was observed that the amounts of nitric oxide released by macrophages were significantly increased in contrast to control when free antigen, free adjuvant and antigen-adjuvant combination were applied. Among investigated formulations, antigen-adjuvant combinations demonstrated most effective immunostimulatory activities. Antigen-adjuvant mixture extremely increased produced nitric oxide amounts nearly 2,5 folds when compared with free antigen. Additionally, it was also determined that IL-12 and IFN-γ cytokine levels were also remarkably enhanced following to combination treatment. On the other hand, it was also discovered that antigen-adjuvant combinations did not lead to any meaningful advancements in IL-4 and IL-10 levels. Consequently, this research indicated that immunostimulatory performances of leishmania-specific antigens were markedly increased when they were applied together with POX polymer. It was also revealed that antigen-adjuvant combinations induce Th1 immune response while supressing Th2 immunity indicating that this application may give rise to disease clearance. Therefore, we think that polymeric adjuvants can be further used in development of Leishmania vaccine. However, the effect of antigen-adjuvant combinations should be investigated in mouse models before clinical trials.

Keywords: Leishmaniasis, polymer, adjuvant, antigen

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➢ **POSTER PRESENTATION**

Investigation of the modification of oleate-capped UCNPs with G-quadruplex

Esra Bağda[1*], Efkan Bağda[2], Haydar Yiğit Kizilyar[3], Masoomeh Mehrnia[3], Mohammadreza Ghaffarlou[1], Murat Barsbay[3]

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Abstract
Upconverting nanoparticles (UCNPs) are interesting inorganic crystalline nanomaterials that can convert low-energy photons into high-energy ones. Due to their low toxicity and interesting photophysical properties, they have the potential to be used in many medical applications such as bioimaging and photodynamic therapy. They can be also used for probing or labelling purposes. Some important properties of these materials, such as quantum yields and water dispersibility, can be changed by adjusting their size, structure, shape, composition and surface functionality. The modification of UCNP surface is often a design prerequisite for use in many applications.
G-quadruplexes are higher-order DNA and RNA structures formed by Hoogstein hydrogen bonding formed between guanine bases. Guanine rich regions can be formed into G-quadruplexes in the presence of monovalent cations. This secondary structures are extensively used in many biomedical applications.
In the present study, surface modification of UCNP with AS1411 G-quadruplex DNA was investigated. The size of UCNP was evaluated using a Zeta-Sizer before and after AS1411 modification. The thermodynamic data of interaction was investigated using isothermal titration calorimetry. The interaction between UCNP and AS1411 was found to be exothermic and the negative value of Gibbs free energy confirmed the spontaneous nature of interaction. The nanostructures were also characterized by AFM and TEM analysis.
AS1411 modified UCNPs were applied to cell lines and IC50 values were calculated.
Keywords: Upconverting nanoparticles, AS1411, G-quadruplex DNA

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➢ **POSTER PRESENTATION**

Green synthesis of α-aminophosphonates containing *sulfonylhydrazide* moiety under ultrasound irradiations

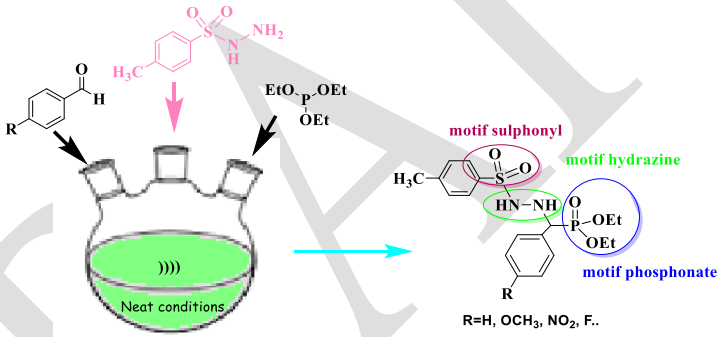
Boughaba Sarra*, Aouf Zineb , Aouf Nour-Eddine

Laboratory of Applied Organic Chemistry, Bioorganic Chemistry Group, Faculty of Sciences, Department of Chemistry, Badji Mokhtar-Annaba University, Box 12, 23000 Annaba, Algeria.

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Abstract

α-aminophosphonates have received considerable attention in organic and medicinal chemistry, because of their structural resemblance with α-amino acids. They are used as antitumor agents, antivirals, anti-inflammatory and antibiotics.In other hand, Tosyl hydrazines have an extraordinary potential in biology and medicine, this type of molecules is used as antioxidant, antimicrobial… During this work, we have developed an alternative, green, simple and efficient approach for the synthesis of some derivatives of α-aminophosphonates based on sulphonohydrazine under ultrasonic irradiations (green activation technic), without the use of organic solvents or catalyst. The synthesized compounds are likely to have some interesting biological activities. This synthesis was carried out from *p*-toluenesulfonohydrazide, various aromatic aldehydes and triethylphosphite via a multi-component reaction of Kabachnik-Fields, the desired products were obtained with excellent yields in a relatively reduced reaction time.
The experimental results will be presented.



Keywords: Green chemistry, ultrasound, multi-component reactions, α-aminophosphonate, *p*-toluenesulfonohydrazide.

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➢ **POSTER PRESENTATION**

Mycological study and research of mycotoxine, in coffee marketed at sidi belabes

Mohammed Moussaoui, Abdallah Moussaoui, Ziane Mohammed

Research laboratory for plant resource development and sanitary safety of semi-arid zones of southwestern Algeria _ University of Bechar

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Abstract

The presence of mycotoxins in foods is one of the major health problems that threaten the safety of consumers, so producers, researchers and monitoring centers to ensure consumer safety must treat it with great caution. Possibility of its presence in various agricultural products and these derivatives: coffee, rice, beans, wheat and others. This study aims to reveal the innate content of coffee and the extent of mycotoxin contamination where thirty samples are taken from wilayas from various locations as a preliminary study, count the cafes of high demand and the location most distinctive and then isolate molds by the dilution method and test their ability to produce ochratoxin, which was detected by thin layer chromatography. The results of the various mycological analyzes, reveal the high contamination of our samples because the fungal flora showed a clear dominance of the Aspergillus genus in a range of 3.1 × 103UF / g for coffee6 and 4.2 × 103 UF / g for coffee1. Compared to the genus Penicillium is infrequent 1.5 × 103UF / g for caf6 and 2.3 × 103 UF / g for caf4, these genera are evidence of contamination of maltreated food, but especially the lack of hygiene. In the end, the genera *Alternaria, Fusarium, Rhizopus, Sporobolomyces* and *Ulocladium*, are the least abundant in the different samples of coffees analyzed. The revelation of the mycotoxins in the various samples of ground coffee by thin layer chromatography revealed the presence of AFB1 and AFG1 in all the samples and the presence of OTA in 7 samples. In this work we are interested in the analysis of coffee cups served because it represents the final stage of the consumption chain because all the samples showed a positive result vis-à-vis the AFB1, AFG1 and OTA which requires the vigilance of consumers.

Keywords: Molds, Mycotoxins, Aflatoxins B1, Ochratoxin A, Aflatoxins G1, Ground Coffee

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19-20 March 2020, Ankara, Turkey
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➢ **POSTER PRESENTATION**

Feeding behavior and gregarious study of cockroaches genus *Loboptera* (B.1865)

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Abstract

Cockroaches of the genus *Loboptera* are forest cockroaches. They are abundant small cockroaches in Algerian forests live on land, in leaf litter and under stones and in some damp, free These species feed on any animal or vegetable matter; it constitutes an important link in the forest food chain.
To better understand the ecology of these species, we studied feeding behavior (tested the extract of Aleppo pine leaves) and gregarious behavior (tested the extracts of cockroaches of the genus *Loboptera*) by two species *Loboptera decipiens* and *Loboptera ovolobata*. The two species colonize the Algerian pine forests in semi-arid regions. These were tested in the laboratory through a series of ethological tests in closed enclosure.
The results of feeding behavior test show that the extract of Aleppo pine leaves attracts the two *Loboptera* species and this behavior is ensured by volatile molecules with odorous properties which guide the insect towards food sources in a movement unidirectional voluntary. And gregarious behavior tests show that the larvae are more attractive by the smell of the larvae than the smell of adults, on the other hand adults are more attracted by the smell of extracts from adults.

Keywords: *Loboptera*, extracts, feeding behavior, gregarious behavior.

DRAFT

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➢ **POSTER PRESENTATION**

Oleic acid induced lipid accumulation in HepG2 cells is reduced by *Crataegus monogyna*

Kader Fatma Algül[1], Turgut Şekerler[1], Ali Şen[2], Azize Şener[1]

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Abstract
Nonalcoholic fatty liver disease (NAFLD) is a common disease in the world and is defined as abnormal lipid accumulation in hepatocytes which is the result of an imbalance between the lipid flux and removal mechanisms. Development of the agent to reduce lipid accumulation in the liver may be one of the therapeutic approaches to NAFLD treatment. Some plant extracts and flavonoids can improve NAFLD as shown by recent studies. Crataegus *monogyna* (hawthorn) extract is one of the most popular herbal medicinal products. Crataegus *monogyna* contains a range of pharmacologically active substances such as flavonoids, triterpenic acids, and phenol carboxylic acids. Extracts from its fruits have a cardioprotective effect. In this study, the effect of Crataegus *monogyna* fruits on lipid accumulation in liver HepG2 cells was investigated. Ethanol extract prepared from Crataegus monogyna fruits was used in the study. HepG2 cells were treated with 1 mM oleic acid (OA) to induce a fatty liver cell model. The cells were exposed to various concentrations of Crataegus *monogyna* extract for 24 h. Lipid accumulation was analyzed by Oil Red O staining and intracellular triglyceride (TG) quantifcation. Cell viability was also measured. The study showed that OA significantly increased the intracellular lipid droplets accumulation and TG levels and Crataegus *monogyna* extract alleviated steatosis and reduced the intracellular TG content.
Keywords: Oleic acid, lipid accumulation, HepG2, Crataegus *monogyna*

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➢ **POSTER PRESENTATION**

1-(4-Sülfamoilfenil)-5-(tiyofen-2-il)-1*H*-pirazol-3-(N-sübstitüe)karboksamitlerin sentezi ve kimyasal yapılarının aydınlatılması

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Özet

Uluslararası Kanser Araştırmaları Ajansı 2030 yılında 23 milyondan fazla yeni kanser vakası beklemektedir. Kanser tedavisinde kullanılan mevcut ilaçlar bazı önemli kısıtlamamalara sahiptir. Antikanser ilaçların etki yöresine ulaşıp seçici olarak kanserli hücreler üzerinde etki göstermeleri, normal hücrelere karşı non-toksik olması yani selektif olmaları istenir. Heterosiklik bileşiklerden özellikle azot içeren heterosiklik halkalar, biyolojik reseptörlere karşı yüksek oranda bağlanma afiniteleri nedeniyle yeni ilaçların tasarımında önemli bir rol oynamaktadır. Pirazol, komşu iki azot atomu ve doymamışlık taşıyan beş üyeli heterosiklik bir halka olup biyoaktif birçok molekülde bulunan önemli bir farmakofor gruptur. Son yıllarda bazı kanser türlerinin tedavisinde kullanılan Pazopanib (Votrient®), akciğer, meme, yumurtalık ve mide) Amerikan Gıda ve İlaç Dairesi (FDA) tarafından onaylanan sülfonamit türevi bir ilaçtır. Krizotinib (Xalkori®, Pfizer, akciğer kanseri, 2011), Aksitinib (Inlyta®, Pfizer, böbrek kanseri, 2012), Ibrutinib (Imbruvica®, Pharmacyclics/Janssen Biotec, lenf kanseri, 2013) ise FDA tarafından onaylanan pirazol/kondansepirazol taşıyan antikanser ilaçlardır. Ayrıca bazı pirazol-karboksamit türevlerinin farklı kanser hücre hatlarına karşı da önemli antikanser etkileri bildirilmiştir. Bu kapsamda sülfonamit, karboksamit ve pirazol gibi önemli farmakoforik grupları taşıyan bileşikler potansiyel antikanser bileşikler olarak tasarlanabilirler. Bu çalışmada, 1-(4-sülfamoilfenil)-5-(tiyofen-2-il)-1*H*-pirazol-3-(N-sübstitüe)karboksamit genel kimyasal yapısına sahip bileşikler tasarlanmış ve sentezlenmiştir. Orijinal bileşiklerin kimyasal yapısı spektral teknikler olan ^{1}H NMR, ^{13}C NMR ve HRMS ile aydınlatılmıştır. Bu bileşiklerin antikanser etki profilleri ile ilgili çalışmalar devam etmektedir. Bu çalışma TÜBİTAK 219S076 projesi ile desteklenmiştir.

Anahtar Kelimeler: Sülfonamit, karboksamit, pirazol, antikanser

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➢ **POSTER PRESENTATION**

DOCA-salt hypertension: An overview

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Abstract

The deoxycorticosterone acetate (DOCA)-salt model was first used to study hypertension in the 1970s. This hypertension model forms a low-renin, neurogenic form of hypertension and is more suitable for examining high-salt diet hypothesis but not the correct choice for a genetically inherited form of hypertension. The administration of a synthetic mineralocorticoid derivative, DOCA, in combination with salt to rats following surgical removal of one kidney induces hypertension with cardiovascular remodeling characteristic of human volume-overload induced hypertension, especially hypertrophy, fibrosis, conduction abnormalities and endothelial dysfunction. Also, this model has provided important insight into the contributions of dietary and renal factors as causes of hypertension secondary to hypervolemia. DOCA-salt hypertension is thought to occur in several stages characterized as an initial rise in blood pressure over the first few days and then a sustained elevated blood pressure for weeks often termed as malignant. Specifically, this hypertensive model, model of volume-expanded hypertension, was used to describe the natural history of malignant hypertension and the biochemical and hormonal characteristics of each stage of the disease. The DOCA-salt treatment is not perfect but provides a model of hypertension that has and will continue to serve in further understanding the pathology of hypertension. In this review, we will discuss the evidence for and against the role of neural and humoral factors during early, developed and malignant DOCA–salt hypertension.

Keywords: DOCA-salt, hypertension, experimental model, blood pressure.

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➢ **POSTER PRESENTATION**

Oksidatif stres biyobelirteçleri ile kotinin düzeylerinin sigara maruziyeti ilişkisinin incelenmesi

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Özet

Sigaraya başlama yaşının düşmesi kişilerin daha uzun süre sigara ve sigaranın etkilerine maruz kalmasına, maruziyet süresinin uzaması da gelişim çağında olan adölesanların antioksidan savunma mekanizmalarında bozulmalara neden olmaktadır. Bu çalışmada amaçlanan, sigara kullanımı açısından risk grubu olan lise öğrencilerinin biyokimya perspektifinden sigara içimi ve maruziyetini değerlendirerek farkındalığı arttırmaktır. Bu çalışma, İstanbul'da bir lisede eğitim gören 16-17 yaşları arasındaki 28 öğrenci üzerinde Aralık 2017 tarihinde gerçekleştirildi. Tüm katılımcılardan toplanan, herhangi bir koruyucu içermeyen sabah ilk idrar örnekleri taze olarak incelendi. Öncelikle tam idrar analizi ve idrarda kreatinin tayini Kocaeli Üniversitesi Uygulama ve Araştırma Hastanesi Merkez Laboratuvarında gerçekleştirilmiştir. İdrarda kotinin tayini için yarışmalı enzim immunassay (ELISA) kiti kullanıldı. AOPP, GSH ve MDA düzeyleri manuel ölçüm metodları ile gerçekleştirildi. İstatistiksel analiz için SPSS 20.0 programı kullanıldı, normal dağılıma uygunluk Shapiro-Wilks testi kullanıldı, nonparametrik nümerik değişkenler için Kruskal Wallis testi, anlamlılık için $p<0,05$ değeri kullanıldı. Cinsiyet değişkeni üzerinden yapılan istatistiksel değerlendirmede sigara içmenin sadece erkek adölesanlarda GSH düzeyleri açısından oluşturduğu farklılık istatistiksel olarak anlamlıdır ($p=0,044$; ortalama [SS]=1,53; 2,31 [0,60; 1,01]). Tüm araştırma örnekleminde sigara içme davranışı üzerinden yapılan istatistiksel değerlendirmede sigara içme ile biyobelirteçler açısından bir fark yaratmadığı görülmüştür. (VKİ için $p=0,189$; GSH için $p=0,133$; MDA için $p=0,074$; AOPP için $p=0,280$; kotinin için $p=0,688$). Benzer şekilde tüm çalışma örneklemini içeren Spearman korelasyon analizinde MDA ile GSH değişkenleri pozitif yönde güçlü ilişkiye ($r=0,883$) ek, sigara içmeyen grupta idrar kotinini düzeyleri AOPP ile pozitif yönde güçlü ilişki gösterdiği saptanmıştır ($r=0,727$). Bu çalışma, sigaranın ergenlerin sağlığına olumsuz etkilerinin biyokimyasal veriler üzerinden gösterimi ile sigara kullanımı gibi riskli davranışlara yönelik aile ve toplum nezdinde farkındalığı arttırarak önleyici tedbirler konusunda yararlı olabileceğini düşünmekteyiz. Sigara içme davranışı göstermeyen bireyler için de çevresel sigara maruziyetinin önlenmesinin yadsınamayacak önemde olduğu, sigara içmeyen bireylerin de oksidatif stres açısından kotinin seviyeleri ile ilişkilendirilen bir değişimi taşıdıklarını ifade edebiliriz.

Anahtar Kelimeler: Kotinin, sigara, oksidatif stres, adölesan.

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➢ **POSTER PRESENTATION**

Voltammetric determination of nilotinib on glassy carbon electrode

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Abstract
Nilotinib(NLT), a tyrosine kinase inhibitor drug, used in the treatment of chronic myelogenous leukemia. The determination of NLT were studied using adsorptive stripping square wave voltammetric methods on glassy carbon electrode. The oxidation mechanism of NLT was investigated in the supporting electrolytes which acetate, phosphate and BR buffers in the pH range 0.3-10.0. The scan rate studies of NLT was performedby cyclic voltammetric technique in 0.1M H_2SO_4. According to the scan rate studies, the oxidation reaction of the NLT was found to be adsorption controlled process.The experimental parameters, such as pulse amplitude, frequency, deposition potential and deposition time for the square wave voltammetry technique were optimized in 0.1M H_2SO_4. Under the optimised experimental conditions, the proposed sensor was showed high sensitivity, repeatability and stability for determination of NLT in the presence of sodium lauryl sulphatein 0.1M H_2SO_4. The calibration curve was found linearly in the concentration range between $2x10^{-8}$ and $2x10^{-6}$ M. The proposed method was applied for biological samples. LOD values were found to be 1,225 x 10^{-9} M and 1,682 x 10^{-8} M for human urine and human serum, respectively.The developed method was fully validated according to ICH Guidelines.
Key Words: Nilotinib, voltammetry, biological sample, sodium lauryl sulphate

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➢ **POSTER PRESENTATION**

Glisirizik asidin bazı bitkisel etken maddelerin biyoyararlanımı üzerine etkisi

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Özet

Glycyrrhiza glabra (Meyan) Papilionaceae (Fabaceae) familyasından Anadolu' da yaygın olarak yetişen, 1-1.5 m boyunda çok yıllık, otsu bir bitkidir. Kökleri geleneksel hekimlikte yüzyıllardır kullanılmaktadır. Yaz aylarında ülkemizin güney illerinde yoğun olarak tüketilen meyan kökü şerbetinin biyolojik olarak aktif bitkiler arasında yer aldığı bilinmektedir. Kök ve rizomlar antienflamatuar, antiviral, antialerjik, antioksidan, gastrointestinal sistem koruyucu ve antikanserojen etkilere sahiptir. Son yıllarda yapılan araştırmalarda meyan kökünden elde edilen glisirizinin ağır akut solunum yolu yetersizliği sendromuna (SARS) karşı kullanılan ribavirin maddesinden çok daha etkili olduğuna ve HIV-1 (AIDS virüsü) ve Hepatit C virüsüne karşı başarıyla kullanılabildiğine yer verilmiştir [1,2]. Meyan kökünün en etkili bileşiği olan glisirizik asit sakkarozdan 60 kez daha tatlı bir bileşiktir. Glisirizik asitin immün sistem üzerine etkili olduğu ve boğaz ağrıları, bronşit, karaciğer ve böbrek hastalıkları ile ülserde kullanıldığı bilinmektedir [3]. Ayrıca glisirizik asitin naringin, piperin, kuersetin gibi bileşiklere benzer şekilde biyorarlanım arttırıcı etkisinin olduğu da rapor edilmiştir [4-6]. Bu bilgiler ışığında biyoyararlanımı düşük doğal bir bileşik olan resveratrolün, glisirizik asit ile birlikte alındığında biyoyararlanımında artış olup olmadığı tavşanlar üzerinde incelenmiştir. Bu amaçla yeni bir floresans dedektörlü HPLC yöntemi geliştirilerek valide edilmiş ve plazma analizlerinde bu yöntem kullanılmıştır.

Anahtar Kelimeler: Glisirizik Asit, Biyorarlanım, HPLC, Meyan kökü

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➢ **POSTER PRESENTATION**

Bakır nanopartiküllerinin genotoksisitesinin *in vitro* mikroçekirdek yöntemi ile araştırılması

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Özet

İn vitro sitokinezin bloklandığı mikroçekirdek (SBMÇ) yöntemi OECD kılavuzu (OECD 487) olarak yakın zamanda kabul edilmiştir. Kılavuzda, SBMÇ yönteminin A549 hücre hattında uygulanmasının validasyonu için çalışılması önerilmektedir. Araştırmamızda amaç, bakır nanopartiküllerinin (Cu-NP) A549 hücrelerindeki genotoksik etkisini, OECD kılavuzu (OECD 487) olarak kabul edilen in vitro SBMÇ yöntemine göre çalışmaktır. Nanopartiküllerin karakterizasyonu yapılmıştır. Genotoksisite testi için akut maruziyeti temsil eden 4 saatlik nanopartikül uygulamasına ait mikroçekirdek sıklığı belirlenmiş ve sitokinezin bloklandığı proliferasyon indeksi (SBPİ) hesaplanmıştır. Kullanılan konsantrasyonlardan en yüksek olan 20 ve 30 µg/mL için istatistiksel olarak anlamlı doza bağlı artan MÇ sıklığı bulunmuştur ($p<0,05$). Kullanılan konsantrasyonların sitotoksik olmadığı, hesaplanan SBPİ değerlerinden de gözlenmiştir (SBPİ=1,5-2). Bu çalışma Cu-NP'nin genotoksisitesini; A549 hücre hattında, in vitro SBMÇ yöntemiyle araştıran ilk çalışma niteliğindedir. Aynı zamanda in vitro SBMÇ yönteminin A549 hücre hattında kullanımının validasyon çalışmalarına da katkıda bulunması mümkün olacaktır.

Anahtar Kelimeler: *in vitro*, genotoksisite, mikroçekirdek yöntemi, nanopartikül

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Investigation of the effects of CCT3 and miR-24-3p on apoptosis in breast cancer cell line

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Abstract

Cancer is leading health problem of this age that commonly observed worldwide. The mechanism underlying cancerous process in cell has not deeply been elucidated, and the studies investigating the functions of non-coding RNA, e.g., miRNA and LncRNA, are primary of the studies in this field. Chaperons are protein family that catalyzes correct folding of structural and functional proteins which regulate cell metabolism. CCT3 is a chaperon protein that catalyzes correct folding of proteins employed in cell division, proliferation, and apoptosis pathways. Increased CCT3 expression leads cells to cancerous process. In the present study, the effects of CCT3 and miR-24-3p on apoptotic mechanism in breast cancer cell line. CRL-2329 cell line was cultured in normoxia condition, transfected with miR-24-3p and the apoptotic cells were observed by AO/EB staining. Also, the transfected cells were analyzed by AnnexinV/PI staining. According to AO/EB results, the cell proliferation was decreased and apoptosis was triggered, and by AnnexinV/PI staining, 30,8% (earl and late apoptotic cell) of cell population were apoptotic cells, were detected. Consequently, it was detected that miR-24-3p kills the cancer cells by suppressing CCT3 expression, and foreseen that increased CCT3 expression might be a novel biomarker for early diagnosis and treatment of breast cancer.

Keywords: Breast Cancer, Chaperon, CCT3, miR-24-3p, Apoptosis

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➢ **POSTER PRESENTATION**

Çevremizde kullanılan nano teknolojik ürünler

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Özet

Nano teknoloji, maddeleri atomik düzeyde inceleyen bir mühendislik alanıdır. Nano teknoloji**,** yepyeni özelliklerinin açığa çıkarılması, çeşitli araçların, malzemelerin ve yapıların moleküler düzeyde işlenmesi, oluşturulması ve manipüle edilmesi olarak tanımlanmaktadır. Nanometre, metrenin milyarda biridir ve maddeler üzerinde çok daha esnek işlemler yapılmasına izin vermektedir.

Nano teknoloji, birçok bilim dalında kullanılabilmektedir. Her bilim, kendi dalında küçük moleküler yapılar ile muhakkak uğraşır. Nano teknoloji; günümüzde bilgisayar teknolojileri, bilimsel çalışmalar, elektrik-elektronik, kimya, biyoloji ve elbette fizikte yaygın olarak kullanılmaktadır ve bu da nano teknolojinin, doğal olarak tüm bilimsel alanlarda kullanım alanı olduğunu gösterir. Günümüzde nano malzemeler ile üretilmiş çok sayıda ürün kullanılmaktadır. Sayılabilecek birçok ürün nanoteknoloji sayesinde gelişmiş şekillerde üretilmektedir. Bu ürünler yapılan araştırmalar ve çalışmalar sayesinde daha da artarken, ilerleyen zamanlarda hastalıkların iyileştirilmesi için de kullanılacak ürünlerde görülebilecektir. Bu şekilde yapılan teknolojiler sayesinde; insanoğlunun erişemeyeceği bir alanda kalmayacak gibidir.

Sürekli gelişen ve yaygınlaşan bir uğraş alanı olarak nano teknolojinin; önümüzdeki yıllarda daha çok yer işgal edeceğini ön görmek mümkündür. Henüz kısıtlı olan imkanlarla varılan gelişmeler, bundan sonrasında çok daha büyük fırsatlarla birleştiğinde insanlığın geleceğinde etkili bir role oynayacaktır. Bununla birlikte, nano boyuttaki yapılarla insanlığın iletişiminin ve etkileşiminin gelişmesi, keşifler açısından da önemli bir ilerleme olacaktır. Nanoskopik seviyenin keşfi ile belki de hiç bilmediğimiz şartlara sahip bir yaşam alanını keşfedilecek ve insanlığın faydasına çok sayıda yeni gelişmeler ortaya konacaktır. Ayrıca, bu küçük ölçekteki araştırmalar, büyük ölçekteki araştırmalar için de ilham kaynağı olabilecektir.

Anahtar Kelimeler: Nano Teknoloji, Kullanım Alanları, Nanoteknolojik Ürünler

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➢ **POSTER PRESENTATION**

Fabrika atık suyundan izole edilen mikroorganizmaların boyar maddeler ile etkileşimlerinin belirlenmesi

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Özet

Canlılar için büyük bir öneme sahip olan su kullanıldıktan sonra ya evsel kökenli ya da endüstriyel kuruluşlardan kaynaklanan kirlilikle birlikte çevreye deşarj olur. Çevreye bırakılan bu su "atık su" olarak adlandırılır. Biyolojik yönden değişikliğe uğramış atık sular bünyesinde çeşitli mikroorganizmalar barındırmaktadır. Bu mikroorganizmaların çeşitli izolasyon yöntemleri ile izolasyonları yapılabilir. Atık sulardaki kirleticilerin birçoğu tekstil endüstrisinde kullanılan boyar maddelerden kaynaklı olmaktadır. Tekstil endüstrisinde ürünlere renk vermek amacıyla geçmişte bitki köklerinden elde edilen boyar maddeler kullanılırken günümüzde ise hem daha ucuz hem de daha fazla boyama kapasiteli boyar maddeler kullanılmaktadır. Bu boyar maddelerin kimyasal yapıları değiştirilerek renklerinde solmaya ve diğer çevresel faktörlere dayanıklı boyar maddeler elde edilmekte ve tekstil sektörü ürünlerinin renklendirilmesinde çoğunlukla boyar maddeler kullanılmaktadır. Yapılan bazı çalışmalar başta reaktif boyalar olmak üzere boyaların %90'nının aerobik arıtım işlemlerinden değişmeden çıktığını; bir kısmının anaerobik arıtım proseslerinde parçalanabildiğini ancak parçalanma ürünlerinin toksik olduğu sonucuna ulaşılmıştır. Bu çalışmada fabrika atık suyundan izole edilen mikroorganizmaların boyar madde giderim potansiyeli araştırılmıştır. İzole edilen mikroorganizmalardan iki tanesi seçilerek bu mikroorganizmaların farklı tekstil boyar maddeler ile zenginleştirilmiş besiyerlerindeki gelişimleri ve bu boyar maddeler üzerindeki giderim etkileri incelenmiştir.

Anahtar Kelimeler: atık su, biyoremediasyon, boyar madde, izolasyon, mikroorganizma

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3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020)

19-20 March 2020, Ankara, Turkey
www. EurasianBioChem.org

➢ **POSTER PRESENTATION**

Pre-Treatment of Sunflower Seeds Hulls With Deep Eutectic Solvents Before Enzymatic Hydrolysis

Merve Çetinkaya, Müjgan Okur, NurdanSaraçoğlu

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Abstract
Climate change and usage of fossil fuels have been driving researchers worldwide to explore alternative sources of energy and chemicals. Lignocellulosic biomass, is a renewable energy source. Conversion of lignocellulosic biomass to bioethanol includes lots of steps before fermentation. These steps can be categorized mainly four category; physical pretreatment, biochemical pretreatment, chemical pretreatment, and a combination of them. In this study, Deep Eutentic Solvents (DESs), which are a new generation of solvents that greener and more economical than conventional solution and ionic liquids, have been examined in detail. Deep eutectic solvents (DESs), comprising choline chloride (ChCl) as a hydrogen-bond acceptor (HBA) and various chemical as a hydrogen- bond donor (HBD) in binary combinations were used to bioethanol production from lignocellulosic biomass such as sunflower seed hulls before enximatic hydrolysis Production of deep eutectic solvents and effects of pre-treatment conditions on lignin removal were investigated.. Lactic acid, urea , oxalic acid and glycerol were used as HBD were mixed in different mole ratio (1:1, 1:2) with choline cloride which is most widely used HBA to prapere DES. Biomass was treated with various DES solvents (1:5 solid/liquid ratio) at 90^{o}C, 6 hours. Amount of cellulose, hemicellulose and lignin in biomass before and after threatments were determined with NREL protocol.
Keywords: Deep eutectic solvent,Lignocellulosic biomass, sunflower seed hulls, renewable energy source

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➢ **POSTER PRESENTATION**

Investigation of Antioxidant Activity of Catechin Loaded Nanoparticles

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Abstract

The aim of the present study was to investigate the synthesis, characterization and biological activity of Catechin loaded PLGA nanaoparticles(CatNP). CatNP with PLGA copolymer with poly-lactic acid / poly-glycolic acid (PLA / PGA) (50:50) compositions were prepared by a single emulsion-solvent-evaporation method. Encapsulation efficiencies of the CatNP calculated from the upper phase indirect assay method using UV spectrophotometer measurements. Release study of active substance from PLGA nanoparticles at different pH media was continued for 45 days and CatNP was found to release 88% with the highest release amount in pH 6 environment. It has been observed that PLGA nanoparticles were successfully loaded by SEM (Scanning Electron Microscopy), AFM (Atomic Force Microscopy) and FTIR (Fourier Transform Infrared Spectroscopy) analyzes. The biological activity of comparatively encapsulated and free form of Catechin was investigated. The antioxidant activity of the CatNP was investigated by the 2.2-Diphenyl-1-picrylhydrazyl (DPPH) method. Anticytotoxicity activity was demonstrated using MTT (3- [4,5-dimethylthiazol-2-yl] -2,5-diphenyltetrazolium bromide) method on MCF7 breast cancer and C6 Glioma brain cancer cell line. According to the free form of Cat, the antioxidant activity of CatNP was observed for 45 days in all pH conditions, whereas the free form lost its antioxidant activity nearly at the end of 15th day. Analysis of anticytotoxicity activity on MCF7 and C6 Glioma cell lines revealed that the encapsulated Catechin had anticytotoxicity activity on the MCF7 cell line for 72 hours while the its effect on C6 glioma cell line has been shown to have a reduced effect of anticytotoxicity activity for up to 48 hours. The results show that the PLGA nanoparticle system provides controlled and long-term release of Catechin. In addition, it has been determined that PLGA nanoparticular system increases the biocompatibility and bioavailability of Catechin by protecting from biodegradation and environmental conditions.

Keywords: Catechin, Polyphenolic compunds, Nanoparticle, Poly(D,L-lactic-co-glicolic acid), Antioxidant Activity, Anticytotoxicity Activity

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➢ **POSTER PRESENTATION**

Annual dynamics of oxygen content in some areas of Lake Ohrid in Albania

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Abstract

The study represents the 12-month change in the average value of dissolved oxygen content (mg O2 / l) in the water of the three Lake Ohrid areas. According to the definitions made in the study methodology, we calculated the average monthly value of this parameter as the average of the concentrations for the six bathymetric levels, measuring for each bathymetric level the concentration of O2 at 0.5m depth and Secchi disk extinction depth.

With minor changes, which must have been determined by specific features of the water masses in the three lake areas, there were generally similar dynamics for the dissolved oxygen concentration. In the water of the three zones included in the study, we have experienced an increase in oxygen concentration from measurements taken in March to June measurements. The period from the end of June to the middle of September was characterized by a gradual reduction in the concentration of this gas. In October-February period the oxygen concentration has been characterized by relative stability while the fluctuations in the values of this parameter have been small.

In the water of the three areas included in the study we have experienced an increase in oxygen concentration from measurements carried out in March to measurements in June. The period from late June to mid September was characterized by a gradual reduction in The concentration of oxygen in the period October-February has been characterized by relative stability while the fluctuations in the values of this parameter have been small.

The average value calculated for the concentration of dissolved oxygen in the water of the Bankin area was 6.92 ± 0.727 mg O2 / l. This indicator for the Tushemisht area was 7.53 ± 0.787 mg O2 / l and for the Lin area 7.83 ± 1.046 mg O2 / l. l.The minimum value of dissolved oxygen concentration was measured in the Bankin area (5.84 mg O2 / l, for February at bathymetric 4.02 m), while the maximum value in Lin area (10.14 mg O2 / l, for June at bathymetric 0.65 m).

Keywords: Lake Ohrid, oxygen, concentration.

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➢ **POSTER PRESENTATION**

Anoxybacillus caldiproteolyticus HKGDS-4 suşundan pullulanaz üretimi ve karakterizasyonu

Damla Sihay[1], İlker Kaya[2], Seçil Berna Kuzu Hoşsöz[2], Dilek Alagöz[3], Deniz Yıldırım[4], Hatice Korkmaz Güvenmez[2*]

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Özet

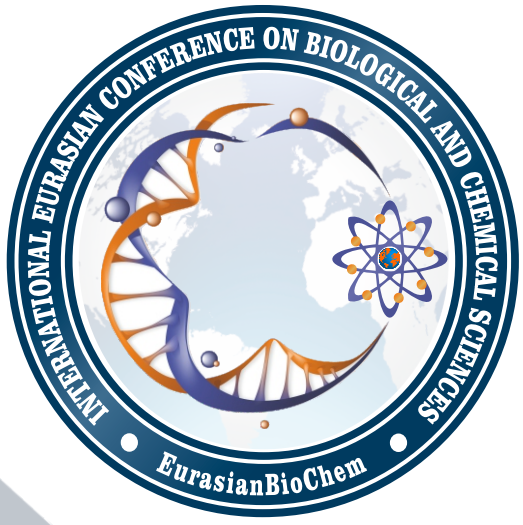
Pullulanaz, pullulan ve amilopektindeki α-(1,6) bağlarını ve nişastanın α- ve β- limit dekstrinini hidrolizleyen α-amilaz ailesine ait bir enzimdir. Pullulanazlar gıda, tekstil, deterjan gibi birçok alanda kullanılan önemli endüstriyel enzimlerdir.

Bu çalışmada, Çukurova Üniversitesi kampüs toprağından izole edilen *Anoxybacillus caldiproteolyticus* HKGDS-4'den pullulanaz üretimi ve karakterizasyonu yapılmıştır.

Pullulanaz aktivitesini saptamak amacı ile izole eden 96 suş %1 nişasta ve %1 pullulan içeren agar besiyerlerine ekilerek 50°C'de 48 saat inkübe edilmiştir. Daha sonra bakteri kültürü iyot çözeltisi ile boyanmış ve 12 suşta pullulanolitik aktivite görülmüştür. En yüksek enzim aktivitesi görülen suştan (*Anoxybacillus caldiproteolyticus* HKGDS-4) üretilen enzim, kısmi olarak saflaştırmış ve enzimin pH, sıcaklık ve termal kararlılık açısından karakterizasyonu gerçekleştirilmiştir. Pullulanaz aktivitesi pullulanın parçalanması ile açığa çıkan indirgen şekerin 3,5-dinitrosalisik asit (DNS) yöntemi ile ölçülmesi esasına dayanmaktadır.
Pullulanazın optimum pH'sı 5,5; optimum sıcaklığı ise 45°C olarak bulunmuş ve 45°C ve 50°C'de 2 saat sonrasında sırasıyla aktivitesinin %57 ve %43'ünü korumuştur. Enzimin asidik ortam (pH 4-7) ile geniş bir sıcaklık aralığında (25°C-70°C) aktivite göstermesi, endüstriyel işlemlerde kullanılmaya uygun olduğunu göstermektedir.
Bu çalışma FBA-2018-11056 proje kodu ile Çukurova Üniversitesi BAP birimi tarafından desteklenmektedir.

Anahtar Kelimeler: Pullulanaz, *Anoxybacillus caldiproteolyticus,* Karakterizasyon

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