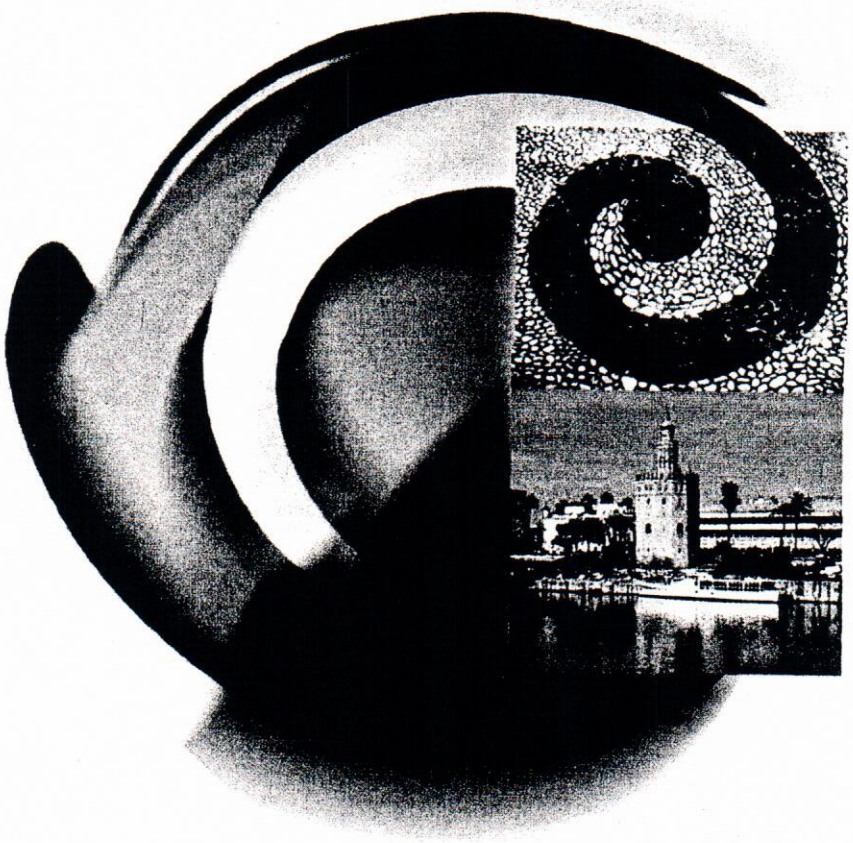
BOOK OF ABSTRACTS OF THE 14th SYMPOSIUM ON ENVIRONMENTAL POLLUTION AND ITS IMPACT ON LIFE IN THE MEDITERRANEAN REGION WITH FOCUS ON ENVIRONMENT AND HEALTH

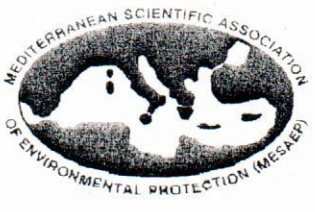


October 10-14, 2007

Seville – Spain

JUNTA DE ANDALUCIA

Instituto de Investigación y Formación Agraria y Pesquera
CONSEJERÍA DE INNOVACIÓN, CIENCIA Y EMPRESA
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A NEW APPROACH FOR WASTEWATER AND SEWAGE SLUDGE DISINFECTION: INACTIVATION OF SALMONELLA SPP. BY LOW-FREQUENCY ELECTROMAGNETIC FIELDS

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The conventional treatment of sewage sludge may contain high concentrations of pathogenic microorganisms and treatment is required to minimize the risk health if it is to be agricultural areas. Landfill is the most common method in the final disposal of sewage sludge in Turkey. The present study concerns microbial inactivation by low frequency electrical fields in batch treatment chamber with parallel plate electrodes. Salmonella spp. was chosen indicator microorganism. The aim of this study was to investigate Salmonella spp. inactivation liquid and semi-solid media. In this study, an electrical apparatus for inactivating microorganisms in sewage sludge was designed. In this system, the energy of electromagnetic fields can physically cause direct breakage of DNA strands. Also, a continuous AC electric field (50 Hz, 6 kV cm-1) applied to sewage sludge containing Salmonella spp. in order to evaluating the inactivation effect of the electrical apparatus. Finally, with electrical treatment, Salmonella spp started to inactivation after 20 minutes. The number of viable Salmonella spp. decreased 97 % and 1,22 log reduction with applied electric field (50 Hz, 6 kV cm-1) at 40 minutes.