DETERMINATION OF RESISTANCE IMPROVING POTENTIAL OF BEMISIA TABACI (GENN.) (HEMIPTERA: ALEYRODIDAE) GENETIC GROUPS AGAINST CYANTRANILIPROLE

İsse Hassan Ali [1] & Utku Yükselbaba [1]*

[1] Department of Plant Protection Akdeniz University, İnstitute of Natural and Applied Sciences, TURKEY

uyukselbaba@akdeniz.edu.tr

ABSTRACT

The cotton whitefly *Bemisia tabaci* (Genn.) is one of several major insect pests that inflict widespread crop damage. Middle East-Asia Minor (MEAM1) and Mediterranean (MED) genetic groups are the two most invasive and damaging cryptic species of *B. tabaci*. İn the study, it is aimed to determine the resistance development potential in *B. tabaci* MED and MEAM1 groups against cyantraniliprole. İn addition, multiple resistance development potential in MED and MEAM1 to acetamiprid, pyriproxyfen, and spirotetramat were also determined. Cyantranilprole was applied to first instar stage of *B.tabaci* by systemic uptake method. Acetamiprid, Pyriproxyfen and Spirotetramat was applied by leaf dipping method to adults, eggs and second instar stages of *B. tabaci* respectively. After determining the LC50 values of *B.tabaci* MEAM1 and MED against to the mentioned insecticides, each group was selected six times separately with cyantraniliprole. The İnitial LC50 of MEAM1 and MED were determined as 0.298 mg a.i /l, and 0.283 mg a.i /l, respectively. After selection, The LC50 of MEAM1 and MED were observed as 0.508 mg a.i /l and 0.368 mg a.i /l respectively. Resistance ratios in MEAM1 and MED were found as 1.7 and 1.3-fold respectively. According to the findings obtained in the study, it was determined that *B. tabaci* MEAM1 and MED had developed a very low resistance to the cyantraniliprole. A multiple resistance development was observed in *B.tabaci* MED against pyriproxyfen while it was not found in MEAM1. There was no multiple resistance observed in MEAM1 and MED against acetamiprid and spirotetramat. The study revealed that in *B. tabaci* MEAM1 and MED genetic groups have a slight resistance development with cyantraniliprole when selected six times. However frequent use of Cyantraniliprole should be avoided. Resistance screening studies in *B. tabaci* populations to cyantraniliprole should be carried out regularly. The obtained data will be a useful reference for future monitoring and management of insecticide resistance.

Keywords: biotype, diamide, insecticide, resistance, tobacco whitefly

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