

ABSTRACT

DETERMINATION OF INSECTICIDE RESISTANCE BASED ON THE KDR MUTATION IN *Anopheles maculipennis* COMPLEX FROM MEDITERRANEAN AND AEGEAN REGIONS

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2013, 83 Pages

In this study, it is aimed to determine the level of insecticide resistance against DDT, Deltamethrin and Permethrin insecticides within the populations of *Anopheles maculipennis* complex in the region of Aegean and Mediterranean. For this purpose, adult female samples of *An. maculipennis* complex were collected from Aydın, Burdur, Muğla, Isparta and İzmir populations. By using the samples obtained from the populations, World Health Organization's standard insecticide susceptibility tests were carried out in the laboratory. After the insecticide susceptibility tests, genomic DNA isolation were done for 145 samples by both the dead and the surviving individuals. By using genomic DNA of 97 samples, *Vssc1* gene region sequences which provides *kdr* resistance were obtained and polymorphisms in proteins were determined. For *Vssc1* gene region, TTG (leucine) in 59, TCG (serine) in 2 and T(T/C)G (leucine/serine) in 36 of 97 samples was determined at 1014th position. Moreover, RFLP analysis was carried out on *Asetilcolin esterase 1* gene by using *AluI* restriction endonuclease for 107 samples. As a result of analyses, no mutation correlated with insecticide resistance was found in *Ace-1* gene. In order to confirm the validity of these results at species level, molecular species identification studies were done. By using genomic DNAs, ITS 2 region sequences were obtained for 75 samples and based on comparisons of the ITS 2 sequences with those in GenBank, three species as *An. maculipennis* s.s., *An. melanoon* ve *An. sacharovi* were determined.

Key words: *Anopheles maculipennis* complex, insecticide resistance, *kdr*, *Ace-1*, Mediterranean, Aegean.