

To study molecular susceptibility of pesticides to *Aphis gossypii*

Abstract

The present study was designed to study the molecular susceptibility of pesticides to *Aphis gossypii*, which has been collected from two different population hosts (cotton and melon), to different insecticides including: pymetrozine, Oxydemton methyl, Imidaclopride and Primicarb was investigated. The experiment (Bioassays) were conducted in faculty of agriculture, department of plant protection, Karag, IRAN, in laboratory condition 2007- 2008. With this regards leaf deep assay was at $20 \pm 22^{\circ}\text{C}$, RH of $55 \pm 5\%$ and a photoperiod was 16 hr: 8hr L:D. To this purpose aphids has been collected from cotton host, and calculated LC_{50} was 452, 1810, 209 and 1427 ppm, respectively, and also For aphids has been collected from melon host, and calculated LC_{50} was 625, 523, 125 and 688 ppm, respectively. LC_{50} data showed that aphids reared on melon was 1.6, 2.7 and 3.5 times more susceptible than cotton aphids to imidaclopride, Primicarb, Oxydemton methyl and 1.4 times more resistant to pymetrozine, respectively. Imidaclopride and pymetrozine had the highest and lowest effect among the insecticides tested. Esterase activity in cotton aphid was 1.6 and 1.3 times more than melon aphid, when α - and β - Naphtyl acetate med as a substrate, respectively. Native electrophoresis page showed that cotton aphid more esterase bands than mellon aphids a result it is less susceptible to insecticides. Acetylcholine esterase assay showed that cotton aphid in relative to melon aphid was less susceptible to Oxydemton methyl and Primicarb its resistance to the insecticides were 3.4 and 1.3 times, respectively. This is a good evidence to show that melon aphid is more susceptible than cotton aphid to Oxydemton methyl and Primicarb.

Key wordes: Bioassay, *Aphis gossypii*, Electrophoresis, Esterase activity, Acetylcholine esterase enzyme.



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