EFFECT OF SOME INSECTICIDE SEQUENCES ON THE RESISTANCE OF PINK BOLLWORM *Pectinophora gossypiella* (Saunders)

BY

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A thesis submitted in partial fulfillment

of

the requirements for the degree of
DOCTOR OF PHILOSOPHY

In

Agricultural Science
(Pesticides)

Department of Plant Protection
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2016

ABSTRACT

Two field strains of pink bollworm, ***P. gossypiella*** (Saund.) larvae, were collected from the infested cotton plants cultivated at different localities at Sharkiya Governorate. The first strain was diapaused larvae which collected from dried cotton bolls in cotton stalks at the end of 2012 cotton season. The second strain, PBW larvae, was collected from the infested rosetted cotton flowers (first field generation) through end of June and beginning of July of 2013 cotton season. The two field strains as well as susceptible laboratory strain were exposed to five insecticides, related to different chemical groups, to study influence of overwintering larval diapause on susceptibility of ***P. gossypiella***. Field rosetted flowers and laboratory strains were used to detect the resistance evolution to three insecticides, i.e., lambda-cyhalothrin, profenofos and methomyl, and their different sequences. The results showed that the resistance ratios in selected strains were higher than in the sequences strains. Cross resistance of the six selected strains to eight insecticides, namely, lambda-cyhalothrin, deltamethrin, alpha-cypermethrin, profenofos, chlorpyrifos, methomyl, emamectin benzoate and spinetoram, was directed. The sequences strains showed high cross resistance to some insecticides than the selected strains. In addition, the present results showed that the three selected strains lambda-cyhalothrin, profenofos and methomyl were more responded to the mixture of lambda-cyhalothrin insecticides with PB than the selected insecticides-sequences ISA, ISB and ISC strains by efficiency ranged between about 7-13 and 3-10 times, respectively. Statistical analysis of the Biochemical studies on

the six selected strains of ***P. gossypiella*** showed that there was significant difference between the activities of Glutathione-S-transferases (GST) and acetyl choline esterase (ACE) in resistant strains and susceptible one. The evolution of some biological aspects in six selected strains of ***P. gossypiella*** clearly obvious that, development of resistance had highly effect on prolongation of larval and pupal duration compared with susceptible strain. In contrary, adult longevity had reduced. Also, the six selected strains had highly effect on reproduction potential by reducing number of laid eggs and hatchability percentages per female compared with susceptible strain.

Key words: Pink bollworm, ***P. gossypiella***, PBW, susceptibility, selection pressure, cross resistance, synergist, biochemical, biological aspects and insecticides.

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