EFFECT OF SOME SAFE BIOCIDES ENVIRONMENTALLY ON SENSITIVITY OF DIFFERENT STRAINS OF MEDITERRANEAN FRUIT FLY

Submitted By

Rasha Seleem Abou El Fotouh Abdel Aziz

B.Sc. of Agric. Sci. (Educational), Higher Institute for Agricultural Co-operation, 2002

A thesis submitted in Partial Fulfillment
Of
The Requirement for the Master Degree
In
Environmental Sciences

Department of Environmental Agricultural Sciences
Institute of Environmental Studies and Research
Ain Shams University

2015

APPROVAL SHEET

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ABSTRACT

Toxicity and biochemical effects of certain bio-pesticides (Emaskim, Proclaim, Radiant and Spintor) applied as surface contact against full grown larvae and in sandy soil on some immature stages (the full grown larvae and pupae) of two field strains of Giza and Qaluobiya governorates of the Mediterranean fruit fly, *Ceratitis capitata* (Wied.) compared to Laboratory strain were conducted under laboratory conditions. The obtained results revealed that the efficiency of the tested compounds varied according to the tested insecticides or the used stage. The 3rd larval instar was more sensitive than the pupal stage. The tolerance or resistance levels of the tested field strains to the used pesticides differed according to tested stage or examined compound. On the other hand, enzyme activities (acid and alkaline phosphatases) and glucose amounts as well as total protein contents were assessed in 4-day old pupae and newly emerged adults from 1-day old pupae treated with LC_{50} of the used insecticides. These biochemical components in the three tested strains significantly varied according to tested pesticide, age of individuals as well as the used strain. The obtained results revealed the following:

1- Spintor was the most effective compound as contact toxicant to full grown larvae *C. capitata* of Giza governorate strain, followed by Proclaim, Radiant and Emaskim the values of LC_{50} were 129.633, 199.649, 869.446 and 1114.517 ppm, respectively.

The tested compounds showed the same order against larvae of Qaluobiya governorate strain. Respecting Laboratory strain, Proclaim was the most toxic to the third larvae followd by Emaskim, Radiant and Spintor.

2- The two field strains were more tolerable to Proclaim, but they were more susceptible to Spintor.

3- In sandy soil, Radiant was the most efficient against the third larvae of Giza governorate strain, followed by Emaskim, Procalim and Spintor, that recorded LC50 values of 62.165, 63.657, 72.179 and 99.599 ppm respectively. Emaskim had the highest toxicity against the full grown larvae of Qaluobiya governorate strain, whereas Spintor was the lowest.

4- Emaskim was the most effective to 1-, 3- and 5- day old pupae of *C. capitata* of the three tested strains in sand. Followed by the other compound.

5- The tested bio-pesticides disturbed Glucose levels in pupae and adults of *C. capitata.*

6- A significant increment in activity of both acid and alkaline phosphateses was obtained in the treated individuals of *C. capitata.*

7- The tested bio-pesticides showed differently significant effects on level of total protein in the treated individuals of *C. capitata* of the examined strains.

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