# EVALUATION OF TOXICITY, RESIDUES AND HAZARDS OF SOME INSECTICIDES TESTED AGAINST SOME INSECT PESTS OF STORED FOOD STUFFS

A Thesis
Presented to the Faculty of Science
Ain Shams University

**For the Award of the Ph.D. Degree**
Entomology

By

*Afaf Lamei Nessiem*



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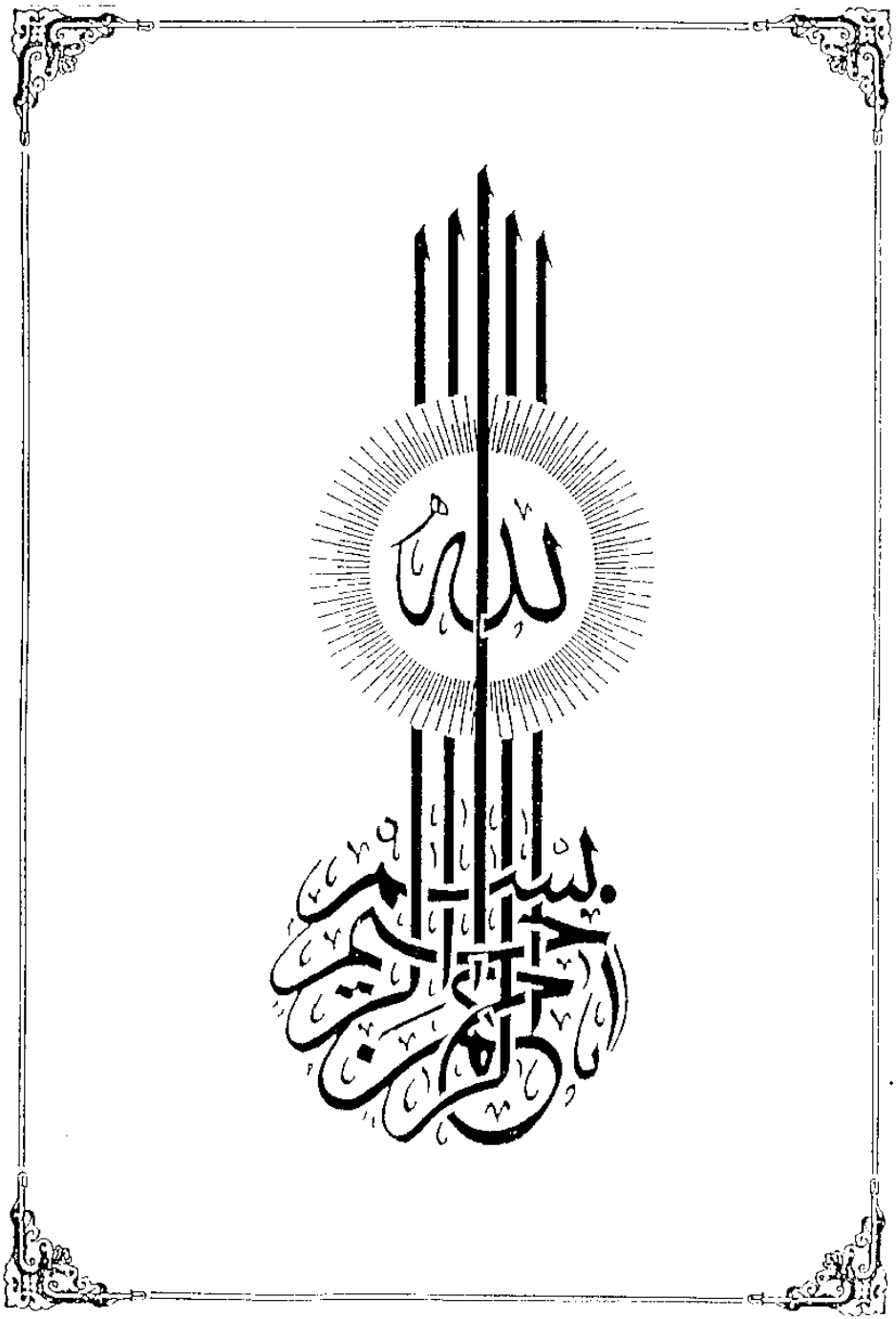
**1996**



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## ABSTRACT

Using two different methods of application (namely dusting and soaking), the toxicity of six insecticides to the larvae of *Phthorimaea operculella* Zell. was found to be in the following order: Permethrin > Methomyl > Malathion > Pirimiphos-methyl > Carbaryl > Fenitrothion in case of dusting potato tubers. While in case of soaking empty bags in the insecticidal solutions, the toxicity order was: Permethrin > Methomyl > Pirimiphos-methyl > Fenitrothion > Malathion > Carbaryl.

The residual toxicity studies revealed superiority of the soaking treatment in protecting stored potato tubers for longer time as compared with the dusting treatment.

Residue studies, either conducted by physico-chemical or biological methods, revealed that most insecticidal contamination could be effectively removed by peeling and/or boiling (cooking) the treated tubers.

Feeding of albino rats for 5 weeks on a diet containing 1/100 $LD_{50}$ of each tested insecticide, either alone or in conjunction with the antibelharzial drug (Praziquantel) , was resulted in no significant effects on body gain, food consumption and internal organs weight in most studied treatments. However, a significant increase in the liver weight relative to body weight was observed in all treatments.

Serum transaminases (GOT and GPT) , serum bilirubin, serum albumin, albumin/globulin ratio and serum creatinine were not affected by neither insecticides nor insecticides/Praziquantel treatments.

On the other hand, a highly significant rise in serum alkaline phosphatase (ALP) was observed in rats treated with Praziquantel, Methomyl and Methomyl/Praziquantel. Total proteins were significantly decreased with Methomyl or Permethrin treatments. Also, both of the latter treatments significantly decreased the globulin level in the serum.

As a general conclusion, the results of this study lead to suggest that the using of insecticides in protecting potato tubers in stores should be limited only to the tubers kept for cultivation and not for human consumption.



**Key Words:**
Insecticides - Praziquantel - Joint action - Albino rat - Potato tuber moth.

# LIST OF TABLES