THE ROLE OF BIOCIDES IN CONTROLLING POTATO TUBER MOTH *PHTHORIMAEA OPERCULELLA* (ZELLER) IN EGYPT

BY

El-Sayed Abdel-Ghafar Moharam
B.Sc. Agric. Sc. (General), Alexandria Univ., 1971

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This Thesis for the M. Sc. degree has been approved by :

Prof. Dr. Ahmed Ismail Gadallah .....
Prof. of Economic Entomology and Head of Plant Protection Dept., Fac. of Agric., Al-Azhar Univ.

Prof. Dr. Soad Abu-Al-Sued El-Sayed (.....)
Prof. of Entomology and, Fac. Of Science, Ain Shams Univ.

Prof. Dr. Mohamed Ibraheam Abdel-Megeed (.....)
Prof. of Pesticides, Fac. of Agric., Ain Shams Univ. (Supervisor)

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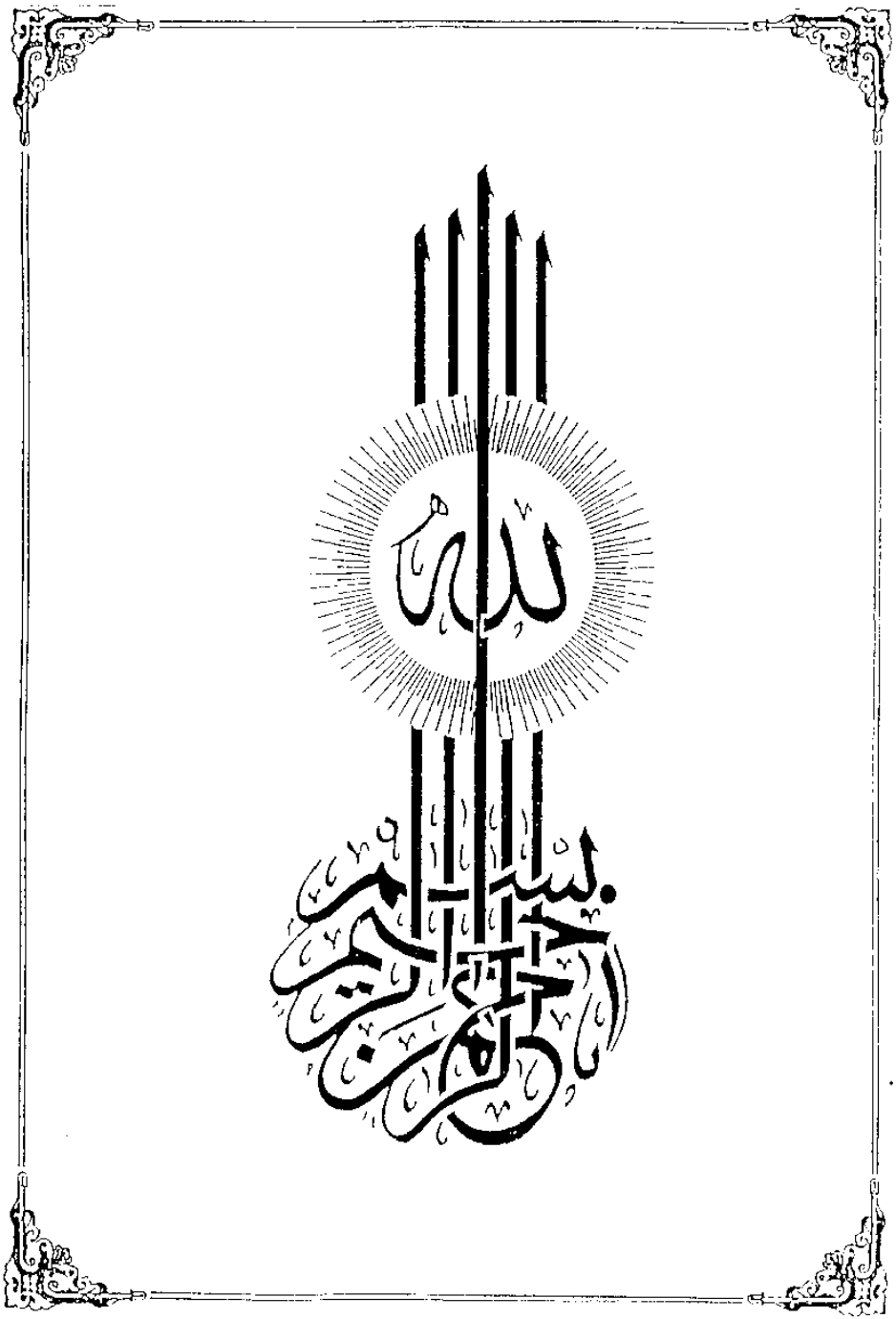

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Under Supervision of
Prof. Dr. Mohamed Ibraheam Abdel-Megeed
Prof. of Pesticides, Fac. of Agric., Ain ShamsUniv.
Prof. Dr. Samy Mohamed El-Sayes
Prof. of Entomology, Institute of Environmental Studies and Research, Ain Shams University
Prof. Dr. Mohamed Gomaa Abbas
Director of Plant Protec., Res., Inst., Agric. Res. Centre

ABSTRACT

The main goal of this study is controlling of potato tuber moth, *Phthorimaea operculella* (Zeller) (gellechiidae : Lepidoptera) using biocides. Studies concern the fluctuation of the pest during summer season using pheromone traps throughout the period from February, 1996 & 1997 to May, 1996 & 1997. Studies concerning the susceptibility of 5 potato varieties to the infestation of *P. operculella* . Proved that Desiree was the least susceptible one to that pest infestation but Nicola, was the most susceptible one in this respect. Comparison between the efficacy of biocides viz., BT, virus and abamactin and recommended chemical pesticides on *P. operculella* in potato field and store had been done during the two seasons of 1996 & 1997. Data revealed that abamectin (fungi) was the most effective one in this respect.

Key words : Potato tuber moth, biocides, potato

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I. INTRODUCTION

Potato is considered one of the most important vegetable crops that are successfully grown under different ecosystems. It is the fourth most important food crop in the world after wheat, rice and maize. Every year, potato cultivation in Egypt is taken in three successive seasons (summer, autumn and winter) with total area about 200,000 feddan. Because of growth in output by improvements in production and postharvest infrastructure, it has increased at an annual rate of 5 percent for the last thirty years. For example, throughout the period from 1979 to 1981, Egyptian farmers harvested 1.1 million metric tons of potatoes; yields averaged 17.3 metric tons per feddan. For 1991-1993, production had climbed 65 percent to 1.7 million metric tons and yields averaged 21 metric tons. Egyptian sources estimated potato production in 1995 at 2 million metric tons and per-capita consumption at 32 kilos. A generation ago, per-capita consumption was only 8 kilos.

In Egypt, a number of factors threaten potato cultivation identified leaf-roll virus Y (PLRV), virus x as well as the nematode *Melodegyne javanica* (Treub). Among the fungal diseases present are stem canker (*Rhizoctonia solani* Kuhn) and early blight (*Alternaria solani* Sorauer). The insect pests include the potato tuber moth (*Phthorimaea operculella* Zeller) , the black cut worm (*Agrotis ipsilon* Hfn), Aphid (*Aphis gossypii*), White fly (*Bemasia tabaci*).

The potato tuber moth, *Phthorimaea operculella* (Zeller) (gellechiidae : Lepidoptera) is a cosmoplitan insect-pest of stored potato

tuber and infests potatoes outdoor in the worm climates. Several investigations recognized the potato tuber moth as the most serious and destructive pest of potato in various countries (Ortu and Floris 1989, Chernii *et al.* 1994 and Ono 1994).

In general the potato tuber moth is the most common serious pest of potato plants and other solanceous crops. The use of chemical insecticides for controlling this insect pest is undesirable, to avoid health hazards and environmental pollution.

Therefore the present work was conducted to study the following :

1- **Ecological studies on potato tuber moth in relation to pheromone traps.**
2- **Susceptibility of certain potato cultivars to potato tuber moth infestation.**
3- **Efficacy of certain novel compounds against potato tuber worms under field and store conditions.**