

بسم الله الرحمن الرحيم



SALWA AKL



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



SALWA AKL

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



SALWA AKL



بعض الوثائق الأصلية تالفة



SALWA AKL



بالرسالة صفحات

لم ترد بالأصل



SALWA AKL

**STUDIES ON PROFENOFOS AND THIAMETHOXAM RESISTANCE
IN WHITEFLY, *BEMISIA TABACI***

By

B77086

SAYEDA FAROUK FARGHALY

B.Sc. Agric. (Pesticides), Fac. of Agric., Cairo Univ., 1983.

M.Sc. Agric. (Pesticides), Fac. of Agric., Cairo Univ., 1997.

THESIS

**Submitted in Partial Fulfillment of
the Requirements for the Degree of**

DOCTOR OF PHILOSOPHY

In

**Agricultural Sciences
(Pesticides)**

**Department of Economic Entomology & Pesticides
Faculty of Agriculture
Cairo University**

2005

Cairo University
Faculty of Agriculture
Department of Economic Entomology
and Pesticides

Supervision Sheet

Title : Studies on Profenofos and Thiamethoxam Resistance in
Whitefly, *Bemisia tabaci*.

By

Sayeda Farouk Farghaly

B.Sc. Agric. (Pesticides), Fac. of Agric., Cairo Univ., 1983.

M.Sc. Agric. (Pesticides), Fac. of Agric., Cairo Univ., 1997.

Supervision Committee :

Prof.Dr. Mohamed Abdel-Hady Kandil

Professor of Pesticides, Fac. of Agric., Cairo University

Prof.Dr. Amal Yousef Saleh

Professor of Pesticides, Fac. of Agric., Cairo University

Prof.Dr. Wafaa Hassan El-Dib

Chief Researcher, Central Agricultural Pesticides

Laboratory (CAPL), Agric. Res. Center.



APPROVAL SHEET

Title of Thesis:

**Studies on Profenofos and thiamethoxam
Resistance in whitefly, *Bemisia tabaci***

By

Sayeda Farouk Farghaly

This thesis of PH.D degree has been approved

By

Prof. Dr. Mahmoud F. Abdel Lateef

Prof. of pesticides, Faculty of Agriculture.

El-Azhar University

Prof. Dr. Mohamed Gomaa Abass

Prof. of pesticides, Cotton insecticides Test Plant
protection research institute

Prof. Dr. Mohamed Abdel – Hady Kandil

Prof. of pesticides, Faculty of Agriculture,
Cairo university.

Prof. Dr. Amal Yousef Saleh

Prof. of pesticides, Faculty of Agriculture
Cairo university

Committee in Charge

Date: / / 2005

1.2.2.2.4. A

To submit bids as contractors go blind to milligrams and no Hall would of been made
your suit to make them suit better to release from their obligation of needed work.

100-443887-100

ACKNOWLEDGEMENT

First of all, ultimate thanks are due to Allah,
Who without his aid this work could not be done.

Second, I would like to express my sincere gratitude and deep appreciation of Prof. Dr. M. A. Kandil, Professor of Pesticides at Economic Entomology and Pesticides Department, Faculty. Of Agriculture, Cairo University for supervising the work, his valuable. Assistance and for his constructive criticism.

Deep gratitude is also due to Prof. Dr. Amal Y. Salch Professor of Pesticides at Economic Entomology and Pesticides Department, Faculty of Agriculture, Cairo University for supervision and helpful advises.

The help and encouragement offered by Prof. Dr. Waffaa H. EL-Deib, the Direction of rearing of Pest department, Central Agricultural pesticides laboratory. Are greatly appreciated.

I Wish to extent my thank to my husband, Dr. Hassan Abd-El-Keir and may Colleagues especially Dr. Karima H.E. Haggag of the central agricultural pesticides laboratory. for sincere help.

CONTENTS

	Page
1. INTRODUCTION	1
2. REVIEW OF LITERATURE	3
2.1- Neonicotinoids	3
2.2- Insect Growth Regulatons	4
2.3- Status of insecticide resistance in the whitefly <i>B.tabaci</i>	5
2.4- Mechanism of resistance	18
2.4.1- Synergists and their role to explore resistance mechanism	19
2.4.2- Protein and esterases and their roles to explore resistance mechanism	22
2.4.2.1- Bio transformation of esterases	22
2.4.2.2- Bio transformation of protein	28
3- MATERIALS AND METHODS	30
4- RESULTS AND DISCUSSION	45
4.1- Insecticide resistance in the Egyptian population of the cotton white fly <i>B.tabaci</i> conditions	45
4.1.1- Results of 2000 season	45

4.1.2- Results of 2001 season	49
4.2- Biological performance of certain pest control agent on <i>B.tabaci</i> under field conditions	58
4.2.1- Adult stage	59
4.2.2- Immature stages	61
4.3- Development of white fly resistance to thiamethoxam and profenofos	63
4.3.1- Development of resistance to thiamethoxam insecticide	68
4.3.2- Development of resistance to profenofos	68
4.4- Insecticides cross resistance in two resistance strains of <i>B.tabaci</i>	69
4.4.1- Cross-resistance of thiamethoxam-resistant strain	69
4.4.2- Cross-resistance of profenofos-resistant strain	75
4.5- Identification of the mechanism of resistance by using enzyme inhibitors and electrophoresis for protein and enzyme	78
4.5.1- Synergism studies	78
4.5.2- Electrophoretic protein and esterases patterns in resistant and susceptible strains	90
4.5.2.1- Protein patterns of <i>B.tabaci</i>	90