

ABSTRACT

Fatma El-Zahraa Ibrahim El-Sewerki : Ovicidal Activity of Natural and Synthetic Compounds against Cotton Leafworm.

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The cotton leafworm, *Spodoptera littoralis* is considered one of the most destructive pests to cotton plants which may be due mainly to the big number of eggs that be laid by female, so damage could be easily achieved in cotton fields by a relatively little number of egg-masses. Different laboratory experiment had been conducted to study the ovicidal, biological and biochemical activities of certain compounds related to different insecticidal groups on one and three-day-old eggs of *S. littoralis*. The obtained results could be summarized as follows :

- 1- According to the LC₅₀ values on the one-day old eggs, the eight tested compounds could be descendingly arranged as follows : deltamethrin (0.5 ppm), flufenoxuron (1.4 ppm), Bioneem (2.5 ppm), cyanophos (3.3 ppm), Nat-1 (16.3 ppm), Garlic-gard (24.2 ppm), pyriproxyfen (133.3 ppm) and Vertimec (188.2 ppm). As for the three-days-old eggs, deltamethrin and flufenoxuron showed the same position but the other compounds showed another trend.
- 2- The tested compounds are generally affected the different biological aspects either prolonged or shortened the larval and pupal duration and adult longevity, in addition to their effectiveness on pupal weight and the percentages of both pupation and adult emergence. The response of the successive stages of *S. littoralis* that resulted from treated one-day-old eggs was generally concentration-dependent.
- 3- The treatment of principal oviposition sites (*Nerium oleander*) with different concentrations of Vertimec and pyriproxyfen affected the behaviour of females in choosing the oviposition sites where they avoid the treated oviposition sites (*N. oleander*) and laid all their egg-masses on the internal wall surface of the oviposition jars. Also, the treatment of adult feeding solution with the two tested compounds affected the different biological aspects of the number of egg-masses deposited, number eggs/female, egg-hatchability and adult longevity.
- 4- The LC₅₀ values of pyriproxyfen, Bioneem, Nat-1, Garlic-gard and deltamethrin were tested to evaluate their effects on electrophoretic patterns of *S. littoralis* egg-masses (one- & three-day-old eggs). The number of protein bands was increased and/or decreased in treated eggs depending on the developmental egg ages and the compound used.
- 5- The effects of the tested compounds on the activity of the amino acid transaminases (GOT) & (GPT) and the acid and alkaline phosphatase in both one- and three-day-old eggs were also studied where some of the studied compound increased and/or decreased the tested enzymes activity.

المستخلص العربي

فاطمة الزهراء إبراهيم السويركي : نشاط بعض المركبات الطبيعية والمختلفة كمبيدات ضد بيض دودة ورق القطن. رسالة دكتوراة فى العلوم الزراعية، معهد بحوث وقاية النباتات - ٢٠٠٣.

تهدف هذه الدراسة إلى تقييم فعالية ستة من المركبات التى تنتمى إلى بدائل المبيدات التقليدية على بيض دودة ورق القطن وهى : بيربيروكسيفين، فلوفينوكسيرون، فيرتيميك، بيونيم، نات - ١، جارليك - جارد، دلتامثرين، سيانوفوس.

١- طبقا لقيم التركيز النصفى (LC_{50}) على البيض عمر يوم .. يمكن ترتيب المبيدات الثمانية المختبرة كما يلى : دلتامثرين، فلوفينوكسيرون، بيونيم، سيانوفوس، نات - ١، جارليك-جارد، بيربيروكسيفين، فيرتيميك..

٢- وجد أن المركبات المختبرة تؤثر على النظم البيولوجية فى الحشرة سواء بالزيادة أو بالنقص.

٣- وجد أن هناك عاملين مؤثرين بصورة مباشرة على سلوك الحشرة البالغة من حيث كمية البيض، نسبة الفقس، خصوبة الفراشة.

٤- تم دراسة تأثير بعض هذه المركبات على التفريد الحيوى ونماذج وحزم البروتين الذائب فى بيض دودة ورق القطن.

٥- كما تم تأثير بعض من هذه المركبات أيضا على نشاط بعض الإنزيمات الناقلة لمجموعة الأمين.

CONTENTS

	Page
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	3
2.1- Effect of Plant Extracts on <i>Spodoptera littoralis</i> (Boisd.) Egg-masses	3
2.2- Effect of Some Biocides on <i>S. littoralis</i>	5
2.3- Effect of Insect Growth Regulators on Egg Stage	8
2.4- Effect of Conventional Insecticides on Egg Stage	20
2.5- Effect of Tested Compounds on Certain Biochemical Aspects of the Egg-masses of the Cotton Leafworm, <i>S. littoralis</i>	28
2.5.1- Effect on the electrophoretic pattern of protein	28
2.5.2- Effect on certain enzyme activities	30
III. MATERIAL AND METHODS	35
1- Tested Compounds	35
1.1- Insect Growth Regulators	35
1.1.1- Juvenile hormone analogue	35
1.1.2- Insect growth inhibitors	35
1.2- Microbial insecticide (biocide)	36
1.2.1- Vertimec	36
1.3- Botanical insecticides (Plant extracts)	36
1.3.1- Bioneem	36
1.3.2- Garlic-gard	37
1.3.3- Nat-1	37
1.4- Chemical insecticides	38
1.4.1- Organophosphorus compounds	38
1.4.2- Synthetic pyrethroid compounds	38
2- Insect Rearing Technique	38
3- Methods and Treatment Techniques	39
3.1- Relative susceptibility of two developmental ages of the egg of <i>S. littoralis</i>	39
3.2- Latent effect of different compounds on the successive stages of <i>S. littoralis</i> resulted from one-day-old treated eggs	41
3.2.1- Direct egg-treatment	41
Effect of certain compounds on the adult stage of <i>S. littoralis</i>	41
3.2.2- Indirect egg-treatment	41
Effect of certain compounds on the adult stage of <i>S. littoralis</i>	41
3.2.2.1- Treatment of the adult oviposition sites	42
3.2.2.2- Treatment of the adult feeding solution	42

CONTENTS : Cont'd.

	Page
3.3- Effect of certain tested compounds on some biochemical and biological aspects of the egg-masses of <i>S. littoralis</i>	43
3.3.1- Effect of tested compounds on the electrophoretic pattern of egg-masses soluble proteins	43
3.3.2- Effect of tested compounds on some enzyme activities.....	44
IV. RESULTS AND DISCUSSION	46
Part I :	
1- Relative susceptibility of different egg ages of <i>S. littoralis</i> to some insecticides	46
1.1- The insect growth regulator compounds	46
1.2- The microbial insecticide (Biocide)	49
1.3- The botanical insecticides (Plant extracts)	49
1.4- The chemical insecticides	52
Part II :	
2- Effect of biological and botanical insecticides on the biotic potential of <i>S. littoralis</i>	61
2.1- Direct egg treatment	61
2.1.1- Insect growth regulators inhibitor	61
2.1.1.1- Effect on larval duration	61
2.1.1.2- Effect on pupal duration and weight	63
2.1.1.3- Effect on pupation and adult emergence percent	63
2.1.1.4- Effect on adult longevity	66
2.1.2- Microbial compound (biocide)	73
2.1.2.1- Effect on larval duration	73
2.1.2.2- Effect on pupal duration and weight	73
2.1.2.3- Effect on pupation and adult emergence percent	73
2.1.2.4- Effect on adult longevity	75
1.3- Botanical compounds (plant extracts)	78
1.3.1- Effect on larval duration	78
1.3.2- Effect on pupal duration and weight	78
1.3.3- Effect on pupation and adult emergence percent	80
1.3.4- Effect on adult longevity	83
2.2- Indirect egg treatment	84
2.2.1- Treatment of the adult oviposition sites	86

CONTENTS : Cont'd.

	Page
2.2.1.1- Effect on the number of egg-masses deposited	86
2.2.1.2- Effect on the number of eggs/female and hatch- ability percent	87
2.2.1.3- Effect on the adult longevity	90
2.2.2- Treatment of the adult feeding solution	92
2.2.2.1- Effect on the number of egg-masses deposited	92
2.2.2.2- Effect on the number of eggs/female and hatch- ability percent	95
2.2.2.3- Effect on the adult longevity	96
Part III :	
3- Effect of certain tested compounds on some biochemical aspects of the egg-masses	99
3.1- Effect of tested compounds on electrophoretic patterns of egg-masses soluble proteins	99
3.2- Effect of tested compounds on some enzyme activities	104
3.2.1- Effect on amino acid transaminases (AST & ALT)	104
3.2.2- Effect on acid and alkaline phosphatase	110
V. SUMMARY	116
VI. REFERENCES	125
ARABIC SUMMARY	