

CONTENTS

	Page
INTRODUCTION.....	1
REVIEW OF LITERATURE.....	3
I. The biological insecticides and their biological effects on larvae of some Lepidopterous cotton pests.....	3
1. Bacterioinsecticids.....	3
1.a. Mode of action.....	3
1.b. Biological effects.....	6
II. Viral insecticides.....	18
III. The effect of some bioinsecticides on cotton leafworm in the field.....	23
1. Bacterial insecticides.....	23
2. Viral insecticides.....	31
MATERIAL AND METHODS.....	34
1. Rearing of the cotton leaf worm, <i>Spodoptera littoralis</i> (Bosid.).....	34
2. Tested compounds.....	34
3. Relative toxicity of different bio compounds on larvae of <i>S. littoralis</i>	35
3.1. Toxicity of bacterial compounds.....	35
3.2. Toxicity of Viral insecticide.....	35
4. Latent effects of the tested compounds after treatments to newly hatched larvae of <i>S. littoralis</i>	36
4.1. Latent effect of bacterial products.....	36
4.2. Latent effect of Viroset (NPV).....	36
5. Effect of the bio-compounds on some biological aspects of cotton leafworm.....	37

5.1. <i>B. thuringiensis</i> products.....	37
5.2. NPV virus.....	38
II. Field experiments.....	38
RESULTS AND DISCUSSION.....	41
I. Laboratory studies.....	41
1. Residual toxicity of different tested commercial microbial products on larvae of <i>Spodoptera littoralis</i>	41
1.1. Residual toxicity of Protecto	41
Newly hatched larvae.....	41
The 2 nd larval instar.....	44
The 4 th larval instar.....	45
1.2. Residual toxicity of Dipel-2x.....	45
Newly hatched larvae.....	45
The 2 nd larval instar.....	47
The 4 th larval instar.....	48
1.3. Residual toxicity of Ecotech bio on.....	48
Newly hatched larvae.....	48
The 2 nd larval instar.....	51
The 4 th larval instar.....	51
1.4. Residual toxicity of Viroset (NPV virus)... ..	53
Newly hatched larvae.....	53
The 2 nd larval instar.....	56
The 4 th larval instar.....	56
2. Latent effect of the tested compounds on percentages of larvae failed to pupate.....	59
2.1. Effect on the 2nd larval instar.....	59
2.2. Effect on the 4th larval instar.....	59
3. Latent effect of the tested compounds on some biological aspects of cotton leafworm.....	71

3.a. Effect on percentages of pupation, emergence and malformation of moths ..	71
3.b. Influence of different tested bio-compounds on fecundity of <i>S. littoralis</i> females and hatchability of eggs.....	85
3.b.1. Fecundity of females resulting from treated 2nd instar larvae.....	86
3.b.2. Fecundity of females resulting from treated 4th instar larvae.....	90
3.c. Latent effect of tested bio-compounds on no. of emerged adults after treatment.....	96
II. Field studies.....	106
II.1. First season (2000).....	106
II.2. Second season (2001).....	111
SUMMARY.....	117
REFERENCES.....	122
ARABIC SUMMARY	