analysis of Cloves flowering buds essential	
oils	
3-Effect of saponifiable and unsaponifiable faction of	188
Cloves petroleum ether extract on mortality of 4th	
larval instar of S. littoralis	
4- GLC analysis of fatty acid petroleum ether extract	191
of Cloves flowering buds unsaponifiable	191
16.1 Effectiveness of the disapoint able	
16.1.Effectiveness of certain plant extracts, insecticides	193
alone and some of their mixtures on the toxicity of	
4" instar larvae of S. littoralis (Boisd.) infesting	
tomato plant in the field	
16.2.Bio-residual activity of plant extracts, insecticides	200
and their combinations on the 2^{nd} instar larvae of S .	200
littoralis in the laboratory after field application	
and the factory after field application	
16.3. Yield of tomato and chlorophyll content of tomato	204
leaves	204
SUMMADV	
SUMMARY	207
REFERENCES	221
ARABIC SUMMARY	
33 33 42 57 74	

÷

	110
5.2.Lethal values of Cloves flowering buds and Radish	118
seeds extracts for 4 th instar larvae of S. littoralis	
(Boisd.) after 3 days post-treatment	100
6. Ovicidal activity of certain plant extracts against S.	122
littoralis eggs	100
7.Effect of different plant extracts on some biological	128
aspects of S. littoralis after dipping the pupae for 5	
seconds in each plant extract concentration at	
laboratory conditions	107
8. Efficacy of the tested insecticides (lannate and	137
Dipel2x) against S. littoralis in the laboratory	1.10
o Efficiency of the tested insecticides (Lannate and	142
Dipel 2x) on 2 nd and 4 th instar larvae of S. littoralis	
(Boisd)	* 4.4
10. Effect of lannate and Dipel 2x on some biological	144
parameters of S. littoralis (Boisd.), when 4th instar	
larvae were fed for 24 hr. on treated leaves in the	
laboratory	
11. Ovicidal activity of certain of lannate and Dipel 2x	150
concentrations against S. littoralis eggs	
12. Effect of lannate and Dipel2x on some biological	156
parameters of S. littoralis after dipping the pupae 5	
seconds in each treatment at laboratory conditions	
13. Joint action of acetone extracts of various plants	164
and Less of lannate on S. littoralis larvae	
14. Effect of certain host plants as food on some	167
biological aspects of the Egyptian cotton leafworm	
S. littoralis (Boisd.)	
15. Identification of the active fractions of cloves	171
flowering buds extracts and its essential oil	
1- Preliminary phytochemical screening	171
2- Gas Chromatography-Mass spectrometry (GC/Ms)	175

CONTENTS

INTRODUCTION	Page
INTRODUCTION	1
REVIEW OF LITURATURE	3
1. The bioactivity of plant extracts and insecticide	3
2. Effect of fisecticides on insect.	19
J. Effect of plant extract plus mixtures insecticide on	
insects	29
T. Diological studies	33
activity.	33
4.2.Effect of plant extracts, Bacillus thuringiensis and insecticides on the biological aspects of <i>Spodoptera littoralis</i> :-	39
4.3.Plants chemical component effect of food type on the biology of insects:	44
5. Isolation and Identification of clove	46
6. Field studies	55
MATERIALS AND METHODS	67
AUD DISCUSSION	
1. Effect of different plant extracts as antifoodent	87
tittoratis (Doisa.)	87
2. Effect of the plant extracts on certain biological parameters of S. littoralis (Boisd.)	93
3 Toxicity of different 1	
3. Toxicity of different plant extracts against 2 nd instar larvae of <i>S. littoralis</i> (Boisd.)	108
4. Toxicity of different plant extracts against 4 th instar larvae of <i>S. littoralis</i> (<i>Boisd.</i>)	112
5.1.Efficiency of various plant extracts on 2 nd instar	
larvae of S. littoralis (Boisd) after 3 days	117