## **Contents**

I INTRODUCTION	1
II REVIEW OF LITERATURE	3
1- Toxicity and effect of plant extracts against stored product insects	3
2- Toxicity of insecticides against stored product insects.	22
3-Toxicity of mixtures of plant extract plus insecticides against pests	. 30
III MATERIALS AND METHODS	34
1- Insect species used.	34
2- Stock culture of the insects.	34
3- Plant species used.	34
4- Insecticides used.	35
4.1- The following organophosphorus compound.	35
4.2- The following synthetic pyrethroid compound.	35
5- Toxicity tests.	35
5.1- Preparation of the extract.	35
5.2- Preparation of insecticidal solution.	36
6- Bioassay tests.	36
6.1- Extract alone.	36
6.2- Insecticide alone.	37
6.3- Mixtures (plant extract+the LC <sub>50</sub> of the insecticide).	37
7- Repellency of the plant extract.	38
8- Statistical analysis.	38
9- Calculation of joint action.	38
IV RESULTS AND DISCUSSION	40
1- Toxicity and effect of acetone extracts of the two plants.	40
2- Toxicity and effect of petroleum ether extracts of the two plants.	44

3- Repellency effect of acetone extracts of the two plants.	49
4- Repellency effect of petroleum ether extacts of the two plants.	53
5- Toxicity of pirimiphos - methyl (Actellic Ec 50%) against S.oryzo	ae
and T. castaneum.	53
6- Toxicity of Fenvalerate (sumicidin EC20%) against S.oryzae	
and T.castaneum.	60
7- Lethal concentrations of pirimiphos methyl and fenvalerate for th	e
adults of the two insect species.	65
Joint Action of Insecticides and Plant Extracts.	68
1- Toxic effects of the mixtures of the LC <sub>50</sub> of pirimiphos methyl pl	us
acetone plant extract.	68
2- Toxic effects of the mixtures of the LC <sub>50</sub> of pirimiphos methyl pl	us
petroleum ether plant extract.	70
3- Toxic effect of the mixtures of the LC <sub>50</sub> of fenvalerate plus	
acetone plant extract.	75
4- Toxic effects of the mixtures of the LC <sub>50</sub> of fenvalerate plus	
petroleum ether plant extract.	77
5- Co-toxicity resulted from addition of the LC <sub>50</sub> of pirimiphos	
methylto acetone extract of the plant.	80
6- Co-toxicity resulted from addition of the LC <sub>50</sub> of pirimiphos	
methyl to petroleum ether extract of the plant.	84
7- Co-toxicity resulted from addition of the LC <sub>50</sub> of fenvalerate to	
acetone extract of the plant.	91
8- Co-toxicity resulted from addition of the LC <sub>50</sub> of fenvalerate to	
petroleum ether extract of the plant.	91
V SUMMARY	102
VI REFERENCES	107
VII ARABIC SUMMARY	

and the contraction of the contr