

CONTENTS

	<u>Page</u>
Chapter I : Introduction	1
Chapter II : Review of literature	3
1. Pesticide residues in the soil.	3
a- Organochlorine pesticide residues	4
b- Organophosphorus pesticide residues	14
c- Carbamate pesticide residues	18
d- Synthetic pyrethroids pest- icide residues.....	19
2. Absorption and translocation of pesticide residues from soil into plants.....	21
a- Systemic insecticides uptake by plants	22
b- Non systemic insecticides up- take by plants.....	26

3. The side effect of pesticide residues on plants	31
1. -The side effect on seed germination.....	32
2. The side effect on plant growth.....	36
3. Anatomical cytological and physiological response to pesticides	43
a- The antomical and histological effects.....	44
b- The physiological effects	46
c- The cytological effects	52
4. The side effect on crop yield	60

Chapter III: Materials and Methods

Part 1: Laboratory experiments	67
1. Soil used	67
2. Insecticides used	69
3. Chemical used	73
4. Plant tested	74

5. Methods of testing insecticides.....	74
---	----

The first experiment:

1- <u>Soil</u> treatment with insecticides	74
2- Cultivation of onion bulbs	75
3- Adjustment of moisture content in soil.....	76

The second experiment:

4- Sprouting onion bulbs in insecticides solutions	76
--	----

The third experiment:

5- Cytological effects on meristematic root cells:	77
Root growth and treatment	78
Preparation of Orcein stain.....	78
Staining and preparation of slides.....	79

6.- Effect on the anatomy and histology of root cells.....	79
7.- Effect on RNA and DNA synthesis in the roots.....	80

Part II: Field experiments:

1. Analysis of soil.....	82
Mechanical analysis.....	82
Microbial analysis.....	83
Chemical analysis	83
2. Treatments	
Effect on broad bean yield ..	84
Effect on cotton yield	84

Chapter IV: Results:

1. Effect of insecticides residues on the growth of onion, <u>Allium</u> <u>cepa</u> plants.....	85
1.- Effect on green leaves appearance.....	85

	<u>Page</u>
2- The phytotoxicity effect.....	85
3- Effect on flowering	87
4- Effect on root sprouting.....	88
5- Effect on root growth	88
6- Effect on the roots dry weight	96
2. The side effect of insecticides on formation of C-tumour.....	100
3. Phytotoxic symptoms in onion root tips cultivated on differ- ent concentrations of the insect- icides	104
4. The cytological effects	108
1- Effect on the mitotic index	108
2- The mitotic abnormalities induced in root tip cells in treated roots	114

5. Side effect of insectic-
ides residues on RNA and
DNA synthesis in the root
tip cells..... 120
6. Side effect of insectic-
ide residues on the crop
yield..... 128

Chapter V : Discussion, Summary and References

- Discussion..... 132
- Summary..... 144
- References..... 150
- Arabic summary.