



Ain Shams University  
Faculty of Science  
Entomology Department

# **Evaluation of Insect Infestation and Insecticide Residue Levels in Some Stored Pulses**

A Thesis

Submitted as a Partial fulfillment for requirements of  
the Master's degree of Science in Entomology

**BY**

**Sameh Nagah El-Ghoneimy**

B.Sc. in Entomology, Ain Shams University, 2007

**Entomology Department**

**Faculty of Science**

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## **DEDICATION**

This work is dedicated to my mother Prof. Suhair El-Feel who always supported me throughout this period, and to my late father Prof. Dr. Nagah El-Ghoneimy who guided me from the start to begin my academic career but he didn't witness it himself however he's here in soul and in me.

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## Table of Contents

<b>Title</b>	<b>Page</b>
<b>List of Figures</b>	
<b>List of Tables</b>	
<b>List of Abbreviations</b>	
<b>I-INTRODUCTION.....</b>	<b>1</b>
<b>II- REVIEW OF LITERATURE.....</b>	<b>4</b>
1. Detection of Insect Infestation in Pulses Seeds	4
2. Detection of Insecticides Residues in Pulses Seeds.....	8
3. Correlation Between Level of Insect Infestation and Physio-Chemical Characters of the Infested Pulses.....	17
<b>III- MATERIALS AND METHODS.....</b>	<b>25</b>
1. Detection of Insect Pests in Pulses Samples.....	25
1.1. Collection of Pulses Samples.....	25
1.2. Inspection of Insect Infestation.....	27
1.2.1. Visual inspection.....	27
1.2.2. Biological Testing.....	27
1.3. Identification of Insect Pests.....	28
2. Analysis of Insecticides Residues in Pulses Samples.....	28
2.1. Method of Insecticides Extraction.....	28
3. Evaluation of Correlation between Level of Insect Infestation and Some Physical and Chemical Characters of the Infested Pulses.....	31

3.1. Study of Some Physical Characters of Pulses Seeds.....	31
3.1.1. Seed Weight Determination.....	31
3.1.2. Seed Volume Determination.....	32
3.1.3. Determination of Moisture Contents.....	32
3.2. Determination of Chemical Constituents of Pulses Seeds.....	32
3.2.1. Determination of Total Protein Contents...	33
3.2.2. Determination of Total Carbohydrates.....	34
3.2.3. Determination of Total Lipids Contents....	35
3.2.4. Determination of Total Ash Contents.....	36
4. Data Analysis.....	36
<b>IV- RESULTS.....</b>	<b>37</b>
1. Detection of Insect infestation in the Pulses Samples.....	37
1.1. Visual Inspection.....	37
1.2. Number of Insect Species Recorded in Pulses Samples.....	40
1.2.1. Insect Infestation in Broad Bean Seeds Samples.....	40
1.2.2. Insect Infestation in Cowpea Seeds Samples	42
1.2.3 Insect Infestation in Chickpea Seeds Samples	45
2. Detection of insecticide Residues in pulses Samples.....	51
2.1. Detection of insecticide Residues in Broad Bean Seeds Samples.....	51
2.2. Detection of insecticide Residues in Cowpea Seeds Samples.....	54
2.3. Detection of insecticide Residues in Chickpea Seeds Samples.....	56



3. Evaluation of Correlation between Level of Insect Infestation and Some Physical and Chemical Characters of the Infested Pulses.....	58
3.1. Detection of Some Physical Characters of Pulses Seeds.....	58
3.1.1. Seed Weight.....	58
3.1.2. Seed Volume.....	60
3.1.3. Determination of Moisture Contents.....	63
3.2. Detection of Some Chemical Constituents of Pulses Samples.....	66
3.2.1. Determination of Total Protein.....	66
3.2.2. Determination of Total Carbohydrates.....	69
3.2.3. Determination of Total Lipids.....	72
3.2.4. Determination of Total Ash Contents.....	74
3.3. Statistical Correlation between Level of Insect Infestation and Some Physiochemical Characters of the Infested Pulses.....	77
3.3.1. Correlation with the Pulses Seeds Physical Characters.....	77
3.3.2. Correlation with the Pulses Seeds Chemical Constituents .....	79
<b>V- DISCUSSION.....</b>	<b>81</b>
<b>VI- SUMMARY.....</b>	<b>91</b>
<b>VII- REFERENCES.....</b>	<b>97</b>
<b>ARABIC SUMMARY</b>	

## List of Tables

No.	Title	Page
1	Studied pulses and their usage.....	25
2	Liquid Chromatography-Mass Spectroscopy conditions.....	31
3	The mean numbers of holes, eggs and adult insects recorded in broad bean seeds samples obtained from six governorates.....	41
4	The mean numbers of holes, eggs and adult insects recorded in cowpea seeds samples obtained from six governorates.....	44
5	The mean numbers of holes, eggs and adult insects recorded in chickpea seeds samples obtained from six governorates.....	47
6	Insect pests recorded in pulses samples collected from six governorates.....	49
7	Mean levels of insecticide residues (mg/kg) detected in broad bean seeds samples collected from six governorates.....	53
8	Mean levels of insecticide residues (mg/kg) detected in cowpea seeds samples collected from six governorates.....	55
9	Mean levels of insecticide residues (mg/kg) detected in chickpea samples collected from six governorates.....	57

10	Mean weight of pulses seeds samples collected from six governorates.....	59
11	Mean Volume of pulses seeds samples collected from six governorates.....	61
12	Percentage total moisture contents in pulses seeds samples collected from six governorates.....	64
13	Percentage total protein contents in pulses seeds samples collected from six governorates.....	67
14	Percentage total carbohydrates contents in pulses seeds samples collected from six governorates.....	70
15	Percentage total lipids contents in pulses seeds samples collected from six governorates.....	72
16	Percentage total ash contents in pulses seeds samples collected from six governorates.....	75
17	Correlation matrix for some physical characters of the pulses samples collected from six governorates related to insect infestation.....	78
18	Correlation matrix for some chemical constituents of the pulses samples collected from six governorates related to insect infestation.....	80

## List of Figures

<b>No.</b>	<b>Title</b>	<b>Page</b>
1	Pulses used in the study.....	26
2	Liquid Chromatography Mass Spectrometry System.....	29
3	Insect pests infesting studied pulses samples	39
4	The mean numbers of holes, eggs and adult insects recorded in broad bean seeds samples obtained from six governorates.....	42
5	The mean numbers of holes, eggs and adult insects recorded in cowpea seeds samples obtained from six governorates.....	45
6	The mean numbers of holes, eggs and adult insects recorded in chickpea seeds samples obtained from six governorates.....	48
7	Percentage of insect pests recorded in each of the governorate.....	50
8	Mean weight of pulses seeds samples collected from six governorates.....	60
9	Mean volume of pulses seeds samples collected from six governorates.....	62
10	Percentage total moisture contents in pulses seeds samples collected from six governorates.....	65

11	Percentage total protein contents in pulses seeds samples collected from six governorates.....	68
12	Percentage total carbohydrates contents in pulses seeds samples collected from six governorates.....	71
13	Percentage of total lipids contents in pulses seeds samples collected from six governorates.....	73
14	Percentage total ash contents in pulses seeds samples collected from six governorates.....	76

## **List of Abbreviations**

<b>Abbreviation</b>	<b>Word</b>
<b>CE</b>	Collision Energy
<b>EOS</b>	Egyptian organization for standardization and quality control.
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>LC-MS</b>	Liquid Chromatography-Mass Spectroscopy
<b>LOQ</b>	Level of quantification
<b>MOA</b>	Ministry of Agriculture
<b>MRL</b>	Maximum residue limit
<b>OC</b>	Organochlorine pesticide
<b>OP</b>	Organophosphorus pesticide
<b>Q</b>	LC/MS Quadrupole system
<b>QuEChERS</b>	Quick, Easy, Cheap, Effective, Rugged and Safe
<b>RQ</b>	Quotient risk
<b>SE</b>	Standard Error
<b>WHO</b>	World Health Organization

## ABSTRACT

The level of insect infestation was assessed in the broad bean, cowpea and chickpeas samples collected from the local markets of six Egyptian governorates. The results showed that the seeds were infested with the pulse beetle, *Callosobruchus maculatus* and Chinese bruchid, *C. chinensis* and the levels of insect infestation varied from one governorate to another. Also, insecticide residues were analyzed in all the pulses samples and results showed that broad bean, cowpea and chickpeas samples were either clear of all organochlorine, organophosphorus, carbamates and neonicotinoids insecticides or they were below Level of Quantification (LOQ). The correlation between the insect infestation and some physical and chemical characters of infested pulses was also studied. The results showed a positive correlation between the carbohydrate content of the pulses and the level of insect infestation, while there was no correlation between weight, volume, water content, total protein, total fat and ash of seeds and the level of insect infestation.

Key words: *Callosobruchus maculatus* – *Callosobruchus Chinensis* – Insecticide residues – Pulses seeds– Physical characters – Chemical characters.