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

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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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List of Abbreviations

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