CHEMICAL COMPOSITION AND INSECTICIDAL ACTIVITY STUDIES: ON SOME WILD PLANT EXTRACTS AGAINST *SPODOPTERA LITTORALIS* (BOISD.)

By

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B.Sc. (Pesticides), Ain Shams University ١٩٩١
M.Sc. (Pesticides), Cairo University, ٢٠٠٠

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SUPERVISION SHEET

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DEDICATION

I dedicate this work to whom my heart felt thanks to my husband ***Khaled*** *and my kids* ***Mai*** *and* ***Mohamed*** *for their patience and help, as well as to my parents and brothers for all the support they lovely offered along the period of my post graduation.*

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Introduction

Botanical plants are an important source of insecticide agents for pest control (Castillo *et al*., ١٩٩٩). Thousands of plants are screened in programs to discover new agents (mainly for pharmaceutical purposes but as well as in the agrochemical industry) in a costly process that can take ١٠-٢٠ years to product development (Cragg *et al*., ١٩٩٣).

Insecticides are depending on the chemical structure of bioactive material, synthetic analogues can be developed. However, wild harvesting, plant cultivation, or tissue cultures are alternative for large scale production of natural products either directly or providing the raw material required yielding the end products in a few steps of a synthetic route.

The increasing interest in the possible application of secondary metabolites to pest management has directed the investigation toward search for new sources of biologically active natural products with low mammalian toxicity, lack of neurotoxic different mode of action, low persistence in the environment and biodegradability to non toxic products (Singh *et al*., ١٩٩٧) as well as to avoid the development of resistance of the insect pest (Gonzalez-Coloma *et al*., ١٩٩٧). These characteristics may enhance their value as botanical pesticides (Isman *et al*., ١٩٩٥ and Gonzalez *et al*., ١٩٩٨) and are potentially suitable for use in integrated pest management (IPM) programs (park *et al*., ٢٠٠٠).

Several wild plant extracts or isolated active compounds play an important role in plant-insect interactions and has been found to act as acute or chronic insecticides (Sammour, ١٩٩٦), (Pascual & Robledo ١٩٩٨) and (Pascual & Robledo ١٩٩٩), antifeedant (Swidan, ١٩٩٤) and (Ntonifor *et al*., ٢٠٠٦) and insect growth regulators (Abo El -Ghar *etal*., ١٩٩٦), (Bede *et al*., ١٩٩٩), (Cespeds *et al*., ٢٠٠٠) and (Martinez & Emden ٢٠٠١).

So, the continuous screening of plant extracts from wild species for insecticidal activity could lead to the discovery of new agents for pest control.

Therefore, in the present study we have selected some wild plants belonging to different families to investigate the following points:

١- Biological activity of some wild plant extracts against *Spodoptera littoralis.*

٢- Phytochemical screening of the most promising extract and an attempet to isolate and identificate the major compounds in the bioactive plants.

٣- Biochemical Studies to explore the mechanism of action of the most promising extract concerning the effect of these extracts on some enzymatic and metabolic activity of *Spodoptera littoralis* larvae.