



Ph.D. Research Plan Entitled

*Evaluation of different local Baculovirus isolates  
On Spodoptera littoralis (Boisd)*

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# 1-Introduction

The human desire to control insects has existed about as long as human they have. Human attempts at insect control have changed over time, from natural to synthetic chemical control, and now again we look to natural control methods.

Long-term exposure to synthetic insecticides causes many healthy problems, such as cancer, immunotoxicity and other complicated problems to man, animals and environment. Insecticides are not specific in their action; they kill non-target and beneficial insects, so biological control has received more attention lately.

There are many biological control agents, such as bacteria, fungi and viruses. Among the promising biological agents are the pathogenic viruses (**Jones, 1990 and Pawar *et al.* 1991**). In Egypt viruses had been employed as cost effective and environmentally acceptable alternatives to chemical insecticides

Baculoviridae is a family of large enveloped DNA virus, these are characterized by rod shaped nucleocapsids and relatively large double stranded and circular DNA. Baculoviridae includes nuclear polyhedrovirus (NPV), which has polyhedron-shaped occlusion bodies. Polyhedron is composed of polyhedrin protein which crystallized around many enveloped nucleocapsids. The prototype member is *Autographa californica* nuclear polyhedrovirus (AcNPV), isolated from alfalfa lopper *Autographa californica* (**Seema Mishra, 1998**).

The baculovirus isolates showed a limited host range, and infect only closely related species, only for insects mostly of order Lepidoptera.

The nature life cycle of baculovirus occurs when the lepidopterous larvae take the polyhedra as contaminant in their food. The crystalline polyhedrin is solublized in the alkaline midgut of the insect, releasing the infectious nucleocapsids. Those nucleocapsids enter the gut cells by fusion and uncoated in the nucleus. The multiplication of the virus takes place in the nucleus to produce nucleocapsids, which continue to spread infection within the larval host.

**Aim of work:**

The present work aimed to evaluate and compare between the effects of different Egyptian isolates of baculovirus on the cotton leafworm *Spodoptera littoralis*, determination of their insecticidal activities and searching for a new baculovirus strain with natural improved characteristics to be used as potential insecticide.