

**EVALUATION OF SOME PESTICIDE  
ALTERNATIVES IN CONTROLLING THE  
EGYPTIAN COTTON LEAFWORM, *Spodoptera  
littoralis* (BOISD.)**

**BY**

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## ABSTRACT

The lethal and sublethal effects of five insecticides from different groups namely: chlorfluazuron, emamectin benzoate, pyrethrins and *Bacillus thuringiensis* subsp. *kurstaki* compared to one of the most known organophosphorous compound (chlorpyrifos) as a chemical insecticide, were evaluated on the 2<sup>nd</sup> and 4<sup>th</sup> instars larvae of a laboratory strain of cotton leafworm, *Spodoptera littoralis* (Boisd.). The toxicity effect indicated that emamectin benzoate followed by chlorfluazuron proved to be the most effective compounds among all tested insecticides. The latent effects of the tested compounds such as; duration periods of larval and pupal stages, mortality percentage in pupal stage, pupation percentage, weight of pupae, percentage of adult's emergence, longevity of adult stage (male & female), sex ratio, female fecundity of eggs, incubation period and percentage of egg's hatching were also studied. Data revealed that all compounds varied in their influences on biological aspects, and these biological aspects could have relation with toxicity of insecticides against *S. littoralis* larvae. Chlorfluazuron and emamectin benzoate recorded the highest significant reduction of eggs/ female and the percentage of hatchability reached 0.00% by chlorfluazuron and 70.71% by emamectin benzoate. All the tested insecticides caused elongation of immature stages (larval and pupal stages), reduction in spawned eggs and hatchability. Study noticed that mixing of pesticides caused antagonism effect except chlorpyrifos plus pyrethrins at the ratio 2:1 caused potentiation effect. Total soluble protein, total lipids, carbohydrate hydrolyzing enzymes (amylase, invertase and trehalase), transaminase enzymes (AST and ALT) and phosphatase enzymes (ACP and ALP) were changed under the effect of the tested insecticides.

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