

## EFFECTIVENESS OF INSECT GROWTH REGULATORS ON THE COTTON LEAFWORM, *S. LITTORALIS* (BOISD.) POPULATION ON COTTON FIELD IN MENOFIA GOVERNORATE.

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### Abstract

The efficacy of five insect growth regulators Lufenurone 5% Flufenoxuron 10% EC ,Triflumuron 48% SC, Teflubenzuron 15 % and Chlorofluazurone 5% EC were evaluated at two successive seasons of 2008 and 2009 on cotton leaf worm *Spodoptera littoralis* on cotton field at menofea governorate. It is obvious that the tested IGRs induced highly reduction in the rate of *S. littoralis* infestation in both seasons up to 15 days after spray. Generally, there is no any significance differences among the general mean percent of reduction in the rate of *S. littoralis* infestation as a result of using the tested IGRs application between the two seasons 2008 and 2009 . Also the effectiveness of the used insect growth regulators on the cotton leafworm, *S. littoralis* expressed as Percentage of mortalities after feeding the 2<sup>nd</sup> and 4<sup>th</sup> larval instars on pretreated cotton leaves as field - laboratory treatment were evaluated at both seasons Further more all treatments affected some enzymes activities such as amylase ,invertase ,chitinase and protease .

### INTRODUCTION

The Cotton leafworm, *Spodoptera littoralis* (Boisduval (Lepidoptera : noctuidiae) is highly polyphagous insect infesting about 120 host plants in Egypt including important field crops such as maize, clover and vegetables , and various fruit and ornamental trees. Thus it is consider a destructive pest throughout the year in Egypt. However, the extensive use of insecticides to control *S. littoralis* larvae has led to resistance to various classes of insecticides (Tabashink *et al.*, 1987), residual toxicity and environmental pollution (Frank *et al.*, 1990) and negative effects on non-target organisms (Franz,1974). The insect growth regulators (IGRs), have been classified as "biorationals" to distinguish them from conventional insecticides. This term implies that IGRs are selective and specific to the target pest , they are referred to as "fourth generation pesticides" (Metcalf *et al.*, 1975). Moreover, IGRs elicit their primary action on insect metabolism, ultimately affecting development and growth of the target insect, particularly when such compounds are applied during the sensitive period of