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## SUMMARY AND CONCLUSION

The insecticidal, Biological and morphogenetic effects of flufenoxuron *Bacillus Thuringiensis* (Agerin) and cyanophos, as well as the effect of the two most active compounds ( flufenoxuron, *Bacillus Thuringiensis*) on the histology of the mid gut and integument of 6<sup>th</sup> instar larvae of *Spodoptera littoralis* treated as 4<sup>th</sup> larval instar with LC50 of the previous compound.

The insect growth inhibitor flufenoxuron was the most toxic compound against the larvae of 2<sup>nd</sup> and 4<sup>th</sup> instar of *S. littorali*. Both compounds of flufenoxuron and *Bacillus thuringiensis* tested significantly increased ( $P < 0.05$ ) the mean larval and pupal durations. On the other hand both compounds decreased the percentage of pupation, adult emergence, the mean pupal weight, adult longevity, fecundity and fertility. However the preoviposition, oviposition and postoviposition periods differed according to the compound used.

Flufenoxuron was decreased significantly the oviposition period ,while increased significantly the post -ovipositon period .Both compounds of flufenoxuron, and *Bacillus thuringiensis* (Agerin) exhibited larval, pupal and adult deformities as well as pupal-adult intermediates. Larval and pupal deformities were increased in case of flufenoxuron .

Treatment of 4<sup>th</sup> instar larvae of *S. littoralis* with flufenoxuron and *Bacillus thuringiensis* resulted in sever histological changes in the integument and midgut of surviving late 6<sup>th</sup> instars. Flufenoxuron disrupted formation of endocuticle whereas *Bacillus thuringiensis* (Agerin) effected only the hypodermis. The most prominent changes induced by these two compound for the midgut was the vacuolation of epithelial cells and disruption of peritrophic membrane.