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The Efficiency, Mode of Action and Side Effects of Two Essential Oil Formulations on *Spodoptera littoralis* and Its Predator

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Abstract : The insecticidal effect of some essential oils which prepared as natural formulations namely (mento and basicide) against 4th instar larvae of *Spodoptera littoralis* and their side effects on the predator *Cocconella undociumpanctata* L. (Coleoptera: Coccinellidae) were studied. The results indicated that Growth, morphogenetic and developmental period were influenced by two formulations, since, mento formulation was more effective than basicide in all tested parameters after feeding treatment. Concerning the predation rate of *C. undecimpunctata* adult, mento formulation had no significant effect (238.75±74.63) compared to control (272.73±37.85), Also, the mode of action of these formulations including the enzymatic activity of the digestive enzymes revealed a significant inhibition in the treated larvae which was pronounced in mento formulation treatment than basicide. Also, transaminase enzymes activity (AST and ALT) reduced after treatment, the maximum inhibition in AST and ALT was induced by mento giving 51.13% and 37.29 respectively.

Key words : Natural compounds, *Spodoptera littoralis*, natural enemies, mode of action, enzymatic activity.

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