

**Abstract:**

In recent decades, many studies have done on botanical compounds to access safe or low- risk and more effective alternatives for pest control. In this study lethal and sub lethal effects of four plant extracts of Fennel *Foeniculum vulgare*, Datura *Datura stramonium*, Rosemary *Rosmarinus officinalis* and Pennyroyal *Mentha pulegium* were evaluated on third larval stage of *Diaphania indica* under laboratory conditions. Results showed that LC<sub>50</sub> rates of extracts in the topical method 24h after exposure were 11.8, 11.7, 15.7, 21.2 µg/insec respectively and 0.98, 1.01, 1.5, 2.02 mg/ml for pashesh method. It was revealed that all tested extracts had lethal effects against third larval stage of the insect and mortality percentages were increased by increasing of extracts concentrations in each one. In another part of this study, sub lethal effects of LC<sub>30</sub> and LC<sub>10</sub> rates of all extracts 24h after exposure, were evaluated. Results showed that all extracts were reduced offspring production significantly. Life table evaluation showed that sub lethal concentrations of all extracts significantly reduced the intrinsic rate of population increasing (R<sub>m</sub>), net reproductive rate (r<sub>0</sub>) and generation period (T). These results can use as a base for next researches to progress management programs of *D. indica*.

Key words: Botanical products, Sub lethal effects, lethal effects, *Diaphania indica*



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**Lethal and sublethal effect of *Rosmarinus officinalis*, *Foeniculum vulgare*,  
*Datura stramonium* and *Mentha pulegium* extracts on *Diaphania indica***

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