

**THE EFFICIENCY OF SOME NATURAL
ALTERNATIVES IN ROOT-KNOT NEMATODE
CONTROL**

By

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B. Sc., Agric. Sci., (Plant protection), Fayoum Univ., 2013

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ABSTRACT

Plant extracts are, nowadays, extensively used as environment friendly ways for biological control of parasitic pests, including the root-knot nematodes, instead of using chemical pesticides. Therefore, the aim of this study was to analyze leaf and root extracts nematocidal activities of four selected medicinal plants (i.e., *Azadirachta indica*, *Moringa oleifera*, *Lantana camara*, and *Glycyrrhiza glabra*) against the root-knot nematode; *Meloidogyne* spp. Roots of *G. glabra* and leaves of *A. indica*, *M. oleifera*, and *L. camara* were collected from different sites in Fayoum Governorate. Roots and leaves were air-dried, powdered and then extracted by ethanol 95% for *L. camara* and *G. glabra* or by petroleum ether for *A. indica* and *M. oleifera*. The nematode eggs and juveniles (J₂) were exposed to the different extracts at different concentrations (i.e., 500, 1000, 2000, and 4000 ppm) for 24, 48, and 72 h. Results showed that all four plant extracts caused significant decrease in egg hatching and significant increase juvenile mortality, but to varying degrees. *A. indica* extract was the most effective in preventing egg hatching and increasing juvenile mortality (J₂), followed by *M. oleifera* extract. There was a gradual decrease in egg hatching and a gradual increase in juvenile mortality with increasing the extract concentration and the duration of exposure. As the most effective, the crude extract of *A. indica* was analyzed by using GC/MS for the effective ingredients and found to be included alkaloids, flavonoids, saponins, amides including benzamide and ketones, and others, which showed effectiveness in preventing the egg hatching and increasing juvenile mortality of the root-knot nematode; *Meloidogyne* spp.

Key words: plant extract, *Azadirachta indica*, *Moringa oleifera*, *Lantana camara*, *Glycyrrhiza glabra*, *Meloidogyne* spp., Egg hatchability, Juvenile mortality, GC-MS.