

Egg Hatching Inhibition Activity of Volatile Oils Extracted from Some Medicinal and Aromatic Plants against Root-Knot Nematode *Meloidogyne hapla*

Authors : Anil F. Felek, Mehmet M. Ozcan, Faruk Akyazi

Abstract : Volatile oils of medicinal and aromatic plants are important for managing nematological problems in agriculture. In present study, volatile oils extracted from five medicinal and aromatic plants including *Origanum onites* (flower+steam+leaf), *Salvia officinalis* (leaf), *Lippia citriodora* (leaf+seed), *Mentha spicata* (leaf) and *Mentha longifolia* (leaf) were tested for egg hatching inhibition activity against root-knot nematode *Meloidogyne hapla* under laboratory conditions. The essential oils were extracted using water distillation method with a Clevenger system. For the homogenisation process of the oils, 2% gum arabic solution was used and 4 µl oils was added into 1ml filtered gum arabic solution to prepare the last stock solution. 5 ml of stock solution and 1 ml of *M. hapla* egg suspension (about 100 eggs) were added into petri dishes. Gum arabic solution was used as control. Seven days after exposure to oils at room temperature (26 ± 2 °C), the cumulative hatched and unhatched eggs were counted under 40X inverted light microscope and Abbott's formula was used to calculate egg hatching inhibition rates. As a result, the highest inhibition rate was found as 54% for *O. onites*. In addition, the other inhibition rates varied as 31.4%, 21.6%, 23.8%, 25.67% for the other plants, *S. officinalis*, *M. longifolia*, *M. spicata* and *L. citriodora*, respectively. Carvacrol was found as the main component (68.8%) of *O. onites* followed by Thujone 27.77% for *S. officinalis*, I-Menthone 76.92% for *M. longifolia*, Carvone 27.05% for *M. spicata* and Citral 19.32% for *L. citriodora*.

Keywords : egg hatching, *Meloidogyne hapla*, medicinal and aromatic plants, root-knot nematodes, volatile oils

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