

Management of root-knot, *Meloidogyne incognita* in tomatoes using medicinal plant-based compost

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Sedentary vascular endoparasite Root-knot nematode, *Meloidogyne incognita*, is the major pest of tomato (*Lycopersicon esculentum* L.). As *M. incognita* is a polyphagous pest, it is very difficult to manage unless proper monitoring from the planting. Therefore, this research was aimed at managing root-knot nematode with different medicinal plant composts to reduce hazards of chemical application. Leaves of lantana (*Lantana camara*), cotton seed (*Gossypium hirsutum*), castor seed (*Ricinus communis*), neem oil cake (*Azadirachta indica*), marigold flower (*Tagetes erecta*), tamarind leaf (*Tamarindus indica*), avaram flower (*Alexandrian senna*) were mixed with fresh cow dung in 1:1 ratio separately and allowed to decompose for one month. Derived compost was tested for its nutritional quality (N-Kjeldhal method, P-Spectrophotometer method, K- flame photometer method). All the experiments for eight treatments including the control treatment were carried out under a Complete Randomized Design (CRD) with three replicates. Data were subjected to ANOVA using SAS *statistical software*. In the NPK analysis of each compost, the highest significant nitrogen value (4.81%) was recorded in neem cake and the highest phosphorus content (2.6%) was recorded in cotton-based compost. The highest potassium value (7.9%) was recorded in tamarind-based compost. All the plant-based compost showed the lowest gall formation in varying degrees compared to the control. Although, the number of root galls was significantly low in castor compost (6.00 ± 0.2). The results confirmed that the castor, marigold, neem cake, and cotton plant-based compost stimulated the plant height, and reduced the nematode infestation. Lantana has a significant effect on plant growth parameters however the number of galls was high (20.6 ± 0.3) in Lantana. Nematicidal properties of castor, marigold, neem cake, and cotton-based compost need to be investigated in future studies.

Keywords: Medicinal Plants, Root-knot nematode, Root gall, Tomato

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