Effect of Plant Extracts on Root Knot Nematode *Meloidogyne incognita* (Kofoid & White) Chitwood in Jaffna, Sri Lanka

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Root-knot nematode, *Meloidogyne incognita* is one of the major pests in tomato and it forms galls in plant roots leading to growth retardation and wilting. This study was aimed to manage *M. incognita* using plant extracts as an alternative to the application of synthetic chemicals. Leaves of locally available underutilized plants such as *Ocimum basilicum, Moringa oleifera, Aegle marmelos, Cassia fistula* and *Azadirachta indica* were tested against *M. incognita*. During the *in vitro* experiment, *M. incognita* second stage juveniles were exposed to 25%, 50% and 100% concentrations of aqueous extracts of plant leaves. The results revealed that 100% concentration of plant extracts at 48 hours exposure was highly toxic against the survival of *M. incognita* second stage juveniles than other concentration of plant extracts and exposure time. Maximum mortality (90.25%) was achieved in 100% of *A. marmelos* after 48 hours of time. In pot experiment all the plant extracts showed promising results inhibiting gall formation with varying degrees which was statistically significant ($p<0.05$). The extent of galls in *M. oleifera* was significantly less (12.33) in plant extracts treatments ($p<0.05$). The highest shoot height of tomato was achieved in *M. oleifera* (19.33±0.71cm), followed by *A. indica* (15.97±0.49cm), *C. fistula* (15.87±0.55cm), *A. marmelos* (14.43±1.03cm) and *O. basillicum* (12.23±0.84cm), receptively. Plant extracts treated tomato showed significantly higher root length whereas maximum root length of 37± 0.44cm was achieved in *A. indica* followed by *A. marmelos* (3.1± 0.2cm) ($p<0.05$). The study has concluded that *M. oleifera* leaf extract can be used for management of *M. incognita.* In future, investigation on the different concentrations of plant extracts on inhibition of root galls with highest shoot height and yield is suggested.

Keywords: *M. incognita*, Plant extracts, Root gall, Root knot nematode, Tomato