

Effect of cinnamon oils on the root-knot nematode *Meloidogyne graminicola* in rice seedlings and young rice plants

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The present study was conducted to evaluate the effect of cinnamon leaf extraction and bark extraction in suppressing the root knot nematode, *Meloidogyne graminicola* in rice seedlings and young rice plants, at the Department of Zoology of University of Kelaniya during the period from September 2008 to May 2009.

This study was done in five separate experiments; Experiments I and II, to determine the LD₅₀ of cinnamon leaf oil and bark oil to kill a 50% of second stage juveniles (J₂) of *Meloidogyne graminicola* in root galls respectively; Experiment III, to determine the efficacy of cinnamon leaf oil and bark oil in controlling J₂ in rice seedling; Experiment IV and V, to determine the potential of using cinnamon leaf oil and bark oil respectively in controlling *M. graminicola* in young rice plants maintained in soil pots.

LD₅₀ values for cinnamon leaf oil and cinnamon bark oil for killing 50% of juveniles of *M. graminicola* in root galls after seven days of the treatment were 0.326 ppm and 0.454 ppm respectively. Formation of root galls by J₂ in the root system of rice seedlings was significantly reduced when treated with 0.9 ppm of cinnamon leaf oil and bark oil compared to control plants. However, there was no significant difference between leaf oil and bark oil. The root gall index has been significantly reduced in leaf oil treated and bark oil treated young rice plants compared to the untreated rice plants. However, there was no significant difference of gall indices between cinnamon leaf oil treated plants and bark oil treated plants. There was no significant difference of the mean plant height and number of dead plants in each treatment. There was a significant positive correlation between the number of galls developed and the plant growth parameters such as plant height and the mean number of roots and a significant negative correlation between the number of root galls in the plant with number of dead plants, and the mean percentage chlorosis. The mean root length did not show a significant correlation with the number of root galls.

The results revealed that, both cinnamon leaf oil and bark oil are equally effective in suppressing *M. graminicola* in rice plants.