

## SEASONAL FLUCTUATION, INOCULUM LEVELS AND CONTROL OF THE ROOT- KNOT NEMATODES; *MELOIDOGYNE INCOGNITA* ON CASSAVA

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**ABSTRACT:** *The experiments were conducted under both greenhouse and field conditions to determine seasonal fluctuation, inoculum levels of the root-knot nematode, Meloidogyne incognita and application of some bioagents to control this nematode on cassava. Seasonal fluctuation of the root knot nematode Meloidogyne incognita were studied on two cassava cultivars (Brasilia and Endonisy) during the period from January to December 2008. Results reveal that M. incognita population fluctuated in soil of two cassava cultivars (Brasilia and Endonisy) increased from 420 individuals per 250 g. soil in Brasilia cultivar and from 180 individuals per 250 g. soil in Endonisy cultivar as the initial population in January 2008 to 3220 or 2100 individuals per 250 g. soil in August 2008 and then declined down to 640 or 420 individuals / 250 g. soil in December 2008 where soil temperature reached  $17 \pm 4^{\circ}\text{C}$ , respectively.*

*Results showed that Brasilia cultivar was more susceptible than Endonisy cultivar. Nematode population increased during July, August and September in the two cultivars and then nematode population decreased to from November to December. Two cultivars of cassava were examined for their relative susceptibility to the infection with M. incognita. Brasilia cultivar was more susceptible than Endonisy to the root knot nematode. The nematode population in 250g soil and in root (number of developmental stages, females, egg masses number and eggs/ egg mass) were significantly higher on Brasilia as compared to the same criteria on Endonisy cultivars. Also data indicated decreasing % of fresh weight of the whole plant in cultivar Brasilia at inoculum 3000 where the percentage of decrease reached (88.6%) while, in cultivar Endonisy at inoculum 1000 was (26.2%).*

*Five treatments (Pseudomonas fluorescens, Trichoderma viridi, Bacillus thuringensis, DiTera; Myrothecium verrucaria and Nemathoren were evaluated to control M. incognita. Using Nemathoren (10%) and Myrothecium verrucaria specially at the highest concentration performed the highest decrease in both soil. and root (developmental stages, females, egg-mass and number of eggs/ egg-mass) comparing with the other treatments. Pseudomonas fluorescens and Bacillus thuringensis occupied the intermediate rank in reducing the nematode populations, whereas Trichoderma viridi resulted the lowest number of nematode populations in both soil and roots. The results expressed as increasing % over control. Data*

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*indicated percent increase of fresh weight of the whole plant were greatly improved in both treatments of Nemathoren(10%G) and Myrothecium verrucaria at the highest concentration where the percentage of increase reached (87.2, 72.1%) respectively while, the treatment of Trichoderma viridi was (42.5%)at the lowest concentration. Also data showed a positive correlation between the amounts of total or reducing sugars and concentration of the used treatments. Amounts of phenols increasing the concentrations of the treatments. Amounts of total amion acids were decreased by increasing the concentration of the used treatments.*

**Key Words:** *Cassava cultivars, root knot nematode Meloidogyne incognita, seasonal fluctuation, Psudomonas fluorescens, Trichoderma viridi, Bacillus thurngenthis, DiTera; Myrothecium verrucaria , Nemathoren, sugars, phenols and amion acids.*