

Research Paper :

An ecofriendly approach to control the root knot nematode, *Meloidogyne javanica* infecting pigeonpea, *Cajanus cajan* using few organic amendments



K. KARTHIKAI RAJ, S.P. SEVARKODIYONE, S. SUNDARRAJ, C. SUNDARAVADIVELAN,
P. KUMAR, T. KUBERAN, J. ANBURAJ AND P. PRABHAKARAN

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SUMMARY

Root – knot nematodes (*Meloidogyne javanica*) are economically important plant pathogens that can be managed by cultural practices, chemical nematicides and resistant cultivars. Use of nematicides for the management of root-knot nematode is being restricted due to environmental and human health concerns in addition, nematicides often do not provide long term suppression of the pathogen. Therefore, there is a need to develop alternative environmentally friendly management strategies for root – knot nematodes, including use of bio – control agents and organic amendments. Hence, the present study was carried out to find the effects of organic amendments on the growth characteristics of pigeonpea, *Cajanus cajan* infected by *Meloidogyne javanica*. The growth characteristics, such as shoot length, root length, fresh shoot weight, fresh root weight, dry shoot weight, dry root weight, and number of leaves found to be decreasing with increased inoculum levels (5,10, and 15 egg masses). These characteristics were found to be increasing with increasing percentages of organic amendments. In contradictory, the root gall index was found to be increasing with increasing inoculum levels.

See end of the article for authors' affiliations

Correspondence to :
C.
SUNDARAVADIVELAN
Entomology Division,
U.P.A.S.I. Tea Research
Institute,
COIMBATORE (T.N.)
Email : sundarsudharsh
@gmail.com

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The root-knot nematodes (*Meloidogyne javanica*) are sedentary endoparasites and are among the most damaging agricultural pests attacking a wide range of crops. Due to problems caused by chemical control, mainly their deleterious effects on human health and environment, the development of alternative control methods is of great importance. *Trichoderma* spp. have been widely studied as a biological control agent against microbial diseases of crops (Sahebani and Hadavi, 2008). Oka *et al.* (2007) suggested that control of soil borne disease, including plant parasitic nematodes in organic farming systems is difficult because effective control methods and monitoring systems are not available compared to foliar diseases and insect pests. In Israel, organic farmers have struggled to control plant diseases and pests by using compounds permitted by the authorities including natural enemies and physical and cultural control

methods. Soil solarization has been developed as a physical control method and has been used to control soil borne diseases and weeds.

MATERIALS AND METHODS

The nematicidal effect of organic amendments has been studied against the root knot nematode, *Meloidogyne javanica* affecting the pigeonpea (*Cajanus cajan*). *Cajanus cajan* is very heat-tolerant plant and prefers hot moist conditions. Under Hawaiian conditions it grows between 18 and 30°C and grows at temperature above 35°C under adequate soil conditions of moisture and fertility.

Collection of egg masses:

The egg masses of the root-knot nematode, *Meloidogyne javanica* were separated from the root galls of infected plants of *Acalypha indica* collected from the village of Thambipatti near Srivilliputtur town.

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