Research Paper :

Distribution of entomopathogenic nematodes in natural habitats

L.S. VANITHA, MANJU KUMARI, J. JAYAPPA AND S.C. CHANDRASHEKAR

International Journal of Plant Protection (October, 2010), Vol. 3 No. 2 : 179-181

See end of the article for authors' affiliations

Correspondence to :
L.S. VANITHA
Department of Plant Pathology, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

SUMMARY

A total of 13 different habitats were evaluated for the presence of rhabditid entomopathogenic nematodes in University of Agricultural Sciences, GKVK, Bengaluru, Karnataka. The EPNs were collected by using *Galleria mellonella* baited traps at 13 locations representing different cropping systems. In each location, 50 traps were placed and these traps were harvested at 4th, 7th and 12th days after placing them. The data on infestation of *G. mellonella* larvae in each trap were recorded and data was converted to per cent infestation of total larvae sampled. The total per cent mortality of *Galleria mellonella* larvae to EPNs was recorded and it varied from (0-20%). The recovered isolates were identified as a *Steinernema* spp.

Key words : *Galleria mellonella*, Entomopathogenic nematodes, *Steinernema* spp., *Xenorhabdus, Photorhabdus*

Accepted :
April, 2010

Entomopathogenic nematodes (EPNs) in the families Steinernematidae and Heterorhabditidae are obligate parasites of mainly soil-inhabiting insects and have great potential as biological control agents of many insect pests and these are in association with symbiotic bacteria, *Xenorhabdus* and *Photorhabdus* spp. which have insecticidal and antimicrobial properties. EPNs were found in a variety of soil habitats, and the various species and isolates exhibit considerable variation in terms of host range, reproduction, infectivity and conditions for survival (*i.e.* temperature, soil moisture etc. (Kung *et al.*, 1991). Surveys for EPNs were conducted in temperate, subtropical and tropical regions to further advance the use of EPNs as biological control agents in South Africa (Ehlers, 1996). Exploration of entomopathogenic nematodes from native habitats is needed to know their diversity and distribution for their utilization as a biocontrol agent.

MATERIALS AND METHODS

Isolation of entomopathogenic nematodes from soil:

Isolation of EPNs was done using *Galleria mellonella,* a susceptible host by baiting method (Bedding and Akhurst, 1975). Small plastic vials of 50 ml capacity with wire mesh on both sides with last instar larvae (8th instar) of greater wax moth, *Galleria mellonella* (Fig.1) were placed in the pits at a depth of 15 cm dug in different locations, later these were covered with soil. The traps were harvested at 4th, 7th and 12th days to know the per cent infectivity of *Galleria mellonella*

Fig. 1 : ***Galleria mellonella*** **baited trap**

larvae to EPNs. Water containing infective juveniles in the White's trap (White, 1927, Fig. 2) were poured in 100 ml beaker filled with distilled water. Nematodes were left to settle for about 30 minutes at the bottom of the dish, the washing process was repeated three times until water became clear (Fig. 3).

In vivo mass multiplication of nematodes:

Galleria larvae which were infected with EPNs were kept on White's trap and collected nematode culture suspensions were sterilized with 0.1% hyamine to get rid of all contaminants