ABSTRACT

Studies on the movement of the infective juveniles (IJs) of the entomopathogenic nematode *Steinernema carpocapsae* (Weiser) (Nematoda: Rhabditida) in four Jamaican soils - Maverly Sandy Loam (MSL), Lluidas Gravelly Sandy Loam (LGSL), Linstead Clay Loam (LCL), and Carron Hall Clay (CHC) - at 5, 10, 15, 20 or 25% moisture level revealed that dispersal was restricted mainly to the top 5 cm of soil, regardless of moisture content; though some of them (30 - 45%) moved deeper (>5 - 25 cm) in the sandy loam.

The IJs entered the neonate larvae of the citrus root weevil (CRW) *Exophthalmus vittatus* Lin. through the anus in about 3.5 hrs. after finding the host, which always tried to fight by moving away or creating peristaltic waves in order to eject the intruder. In older larvae, the entry point was the spiracles.

The preference of the IJs for different hosts was - sweet potato weevil (SPW) larvae > SPW pupae > CRW neonate larvae > CRW 6-week-old larvae. The time of exposure for 95% infestation (ID_{95}) was less than one day for the SPW larvae, 5.6 days for SPW pupae and 19.6 days for neonate larvae of the CRW.

Infestation of neonate larvae of *E. vittatus* by the IJs increased significantly ($P < 0.05$) with soil moisture level; the number of IJs required to infest 50% of the larvae (ID_{50}) within 11 days, was best at 15% moisture in CHC (2,700 IJs), 25% in LCL (3,000 IJs) and 15% in LGSL (5,200 IJs).

Under field conditions, the pathogenicity of the IJs persisted for 18 weeks in CHC > 15.8 weeks in MSL > 13.8 weeks in LCL > 8.6 weeks in LGSL.

The IJs are more promising in suppressing the populations of SPW than CRW larvae in Jamaica. Since the nematodes prefer to remain near the soil surface, they will have much lower survival during the dry periods in Jamaica. Regular soil inoculation will therefore be needed.