Distribution of the pepper nematode, *Trophotylenchulus piperis* on black pepper (*Piper nigrum* L.) roots

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Pepper nematode, *Trophotylenchulus piperis* is one of the predominant species infecting black pepper in all the major black pepper growing areas in Kerala and Karnataka (Ramana & Mohandas, 1987, 1989). *T. piperis*, a new species infecting black pepper roots was described by Mohandas *et al.* (1985). It is a semi endoparasite with only head portion embedded in the root tissues with the remaining body outside the root. The second stage juvenile of the nematode infests the roots. During further development of the nematode to adult stage, a protective hard brown cover (case) forms around the nematode. A study was conducted to find out the distribution pattern of the nematode cases on two types of black pepper roots viz., thick primary and secondary roots and fibrous roots; the efficient method for extraction of second stage juveniles from soil, which are useful for proper sampling to estimate nematode load.

A black pepper field highly infested with *T. piperis* at Agricultural Farm, Koothali, Calicut district, Kerala was selected for the study. Thirty root samples consisting of primary and secondary roots and fibrous roots were collected randomly from the black pepper vines. Roots were washed gently and main and fibrous roots were separated. Each type of roots was mixed thoroughly and three sub samples (1 g each) were taken from each sample for nematode analysis. Roots were cut into small bits and nematode cases were counted. Mean value was calculated for each of three sub samples and the data were subjected to statistical analysis. The results showed that number of nematode cases was significantly high on fibrous roots (60) compared to the number on primary and secondary thick roots (53) (Table 1). This showed that *T. piperis* preferred fibrous roots to primary and secondary thick roots and hence for proper estimation of the nematode infestation level it is suggested to collect only fibrous roots without damaging the main roots.

TABLE 1: Distribution pattern of *Trophotylenchulus piperis* on black pepper roots (Mean of 30 samples)

Type of root	Cases/g of root
Primary and secondary roots	53
Fibrous root	60
CD (0.05)	6.71

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To find out the efficient method for extraction of second stage larvae of *T. piperis* from soil, 30 samples were collected from rhizosphere of black pepper vines. Each soil sample was subjected to two extraction techniques viz., centrifugation technique (Caveness & Jensen, 1955) and Cobb's decanting and sieving technique (Cobb, 1918). It was found that the centrifugation technique was superior as more number of larvae (11/100 ml of soil) could be extracted by this method compared to decanting and sieving technique (7/100 ml of soil) (Table 2).

TABLE 2: Efficacy of different techniques for extraction of *T.piperis* larvae from soil (mean of 30 samples)

Extraction technique	Larvae/100 ml of soil
Centrifugation technique	10.61
Decanting and sieving technique	7.47
CD (0.05)	1.58

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