

Distribution of plant parasitic nematodes associated with Black pepper in Idukki district, India

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Black pepper (*Piper nigrum*) production in Kerala is in steady decline due to several reasons, among which plant parasitic nematodes is a major constraint. Several nematodes have been reported from the rhizosphere of black pepper in all the pepper growing districts of Kerala (Ramana & Mohandas, 1987). However, no information available about nematode fauna of this black pepper growing region. Hence, present study was undertaken to determine the present status and distribution of plant parasitic nematodes associated with black pepper in Idukki district, Kerala.

Soil samples were collected from black pepper rhizosphere from different locations of taluk viz., Thodupuzha (14), Devikulam (16), Udumbanchola

(30) and Peermedu (16) of Idukki district. These samples were mixed to make a composite sample and from this 100 cc of soil were taken for processing for nematode extraction by Cobb's sieving and decanting technique. Analysis of plant parasitic nematodes population in different taluk of Idukki district was made by determining parameters viz., absolute frequency, density and prominence value.

Total nine plant parasitic nematodes were found in all taluk. Among them, six PPN were found each in Thodupuzha, Devikulam and Udumbanchola, whereas four in Peermedu (Table 1). *Radopholus similis* and *Pratylenchus zaeae* were found in all taluk, Laha *et al.* (2009) whereas *M. incognita*

Table 1. Community profile of plant parasitic nematodes associated with black pepper rhizosphere in different taluk of the district Idukki.

Taluks	N	AF (%)	D	PV (%)
Thodupuzha	14	71.4	24.4	2.0
Devikulam	16	75.2	41.1	3.5
Udumbanchola	30	66.6	23.8	1.9
Peermedu	16	62.5	34.3	2.7

N- Number of sample collected; AF – Absolute frequency; D – Density and PV – Prominence value.

(*J*₂) was found in Thodupuzha and Peermedu. However, *Scutellonema* sp. and *Xiphinema* sp. was found in Udumbanchola and Devikulam, respectively (Fig. 1). Among the taluk, Devikulam taluk had most PPN frequency (AF – 75.2%), density (D – 41.1) and prominence value (PV – 3.5%), followed by in Thodupuzha (AF- 71.4%; D- 24.4 and PV- 2.0%). Whereas, Peermedu taluk had less frequency,

density and prominence value (AF- 62.5%; D- 34.3; PV-2.7%, respectively) of the PPN (Table 1). *Radopholus similis* was the most frequent, abundant and prominent (AF – 62.5%, D- 34.37 and PV- 2.72) in Peermedu followed by Devikulam (AF – 50%, D- 22.75 & PV- 1.60), whereas, less frequent, abundant and prominent (AF – 20%, D- 4.85 & PV- 0.21) in Udumbanchola taluk. Charles (1995) also reported abundance of *R. similis* associated with banana in Kerala. Burrowing nematode *R. similis* and lesion nematode *Pratylenchus zaeae* were key nematodes of black pepper and their occurrence were ubiquitous and found in almost all the taluk. Diversity among the species of plant parasitic nematodes could not be compared due to lack of information but it may be assumed that diversity vary considerably with habitat, area and the number of individual (Charles 1995).

Present study revealed that, plant parasitic nematodes were the most frequent in Devikulam

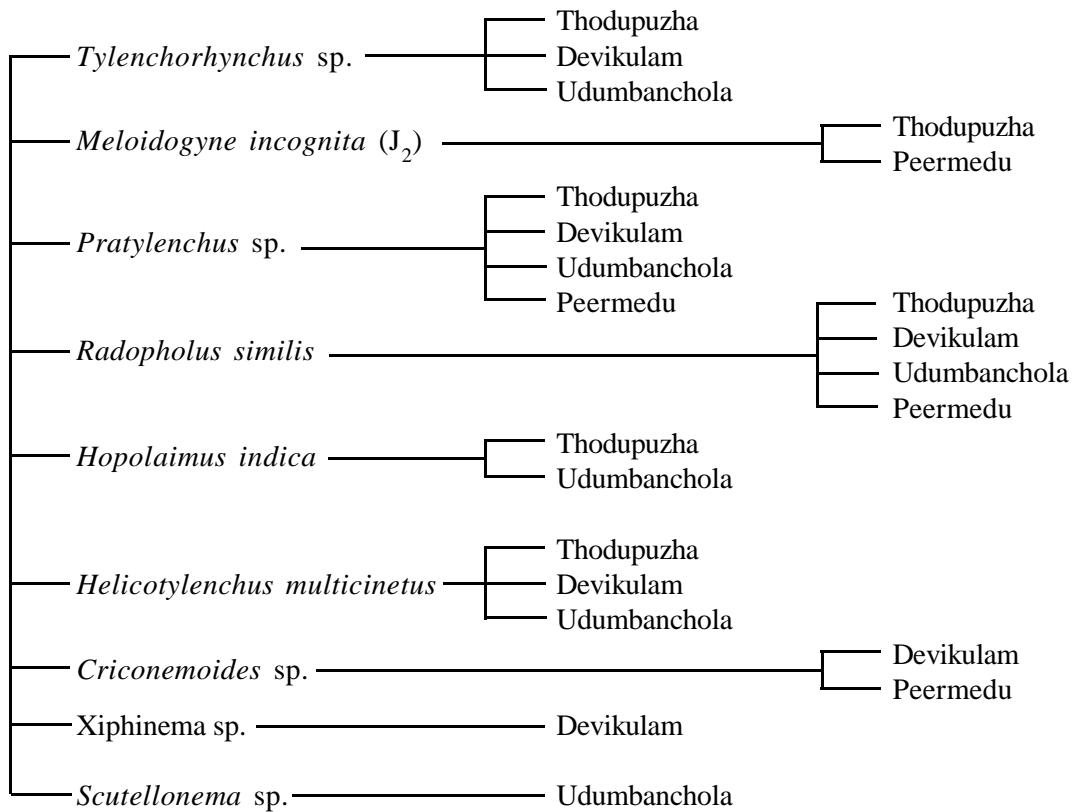


Fig. 1. Distribution of plant parasitic nematodes in different taluk of the Idukki district.

and Thodupuzha taluk, while less in Peermedu taluk. A minimum of one and a maximum of five PPN were recorded in a location. However, *R. similis* was the most frequent, abundant and prominent in Peermedu and less in Udumbanchola taluk.

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