

Review Article

A NOTE ON HOST PREFERENCE IN *PRATYLENCHOIDES* SPECIES

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Thirty species of *Pratylenchoides* (Nematoda: Merliniidae) have been reported and described from all continents (1,2). However, the host range of eight species has been reported here because Nemaplex (3) mentioned eight species as crop pests. It, therefore, appears that other species of *Pratylenchoides* were extracted from the soil and/or rhizospheres of some vegetation. Earlier genus *Pratylenchoides* thought to be closely related to the lesion nematode, *Pratylenchus* spp. but the presence of deirids made *Pratylenchoidesa* distinct taxon. All members of the family Merliniidae are obligatory plant parasites however, they interact differently with the root system. Females from subfamily Merliniinae are ectoparasites and those of Pratylenchoidinae are known to be migratory endoparasites. The genus *Pratylenchoides* have been transferred to subfamily Pratylenchoidinae in the family Merliniidae (4).

Rathore and Ali (5) and various publications of Rathore and Tiwari (6) showed that most nematode species prefer to feed on plants of certain taxonomic group (s). To ascertain the feeding preference of *Pratylenchoides* species, the host plants reported by Nemaplex (3) were downloaded and classified as per the modern system of classification i.e. APG IV system (7). The system classified angiosperms in different clades and clades to orders and subsequently to families. Specific Association Index (SAI) and General Association Index (GAI) were calculated by following the system of Rathore and Tiwari (8) to numerically categorize the status of nematode species and was further supported by the classification of Berneys and Chapman (9).

Perusal of Table 1 revealed that 57.14% host species, in general, preferred by *Pratylenchoides* species were from Rosids followed by Monocots (21.43%) and gymnosperms (7.14%). Specific Association Index showed that except Rosids other host plant groups manifested greater affinity. Rosids utilized host plants from several genera, families and orders which made them less specific as compared to others.

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Table 1. Distribution of host plants of <i>Pratylenchoides</i> spp. to various taxonomic groups					
Host parameters	Rosids	Eudicots	Asterids	Monocots	Gymnosperms
No. of species	8 (57.14)	1 (7.14)	1 (7.14)	3 (21.43)	1 (7.14)
No. of genera	8 (57.14)	1 (7.14)	1 (7.14)	3 (21.43)	1 (7.14)
No. of families	7 (63.64)	1 (9.09)	1 (9.09)	1 (9.09)	1 (9.09)
No. of orders	6 (60.00)	1 (10.00)	1 (10.00)	1 (10.00)	1 (10.00)
SAI	0.476	1.000	1.000	1.000	1.000
Figures in parentheses are percent values; SAI= Specific Association Index					

Information provided in Table 2 indicated that out of eight species, five were monophagous (*P. baciliseenus*, *P. camachoi*, *P. ezurumensis*, *P. leiocauda*, *P. ritteri*), one oligophagous (*P. crinicauda*) and two polyphagous (*P. alkani*, *P. hispaniensis*). The General Affiliation Index (GAI) for all the monophagous and oligophagous species was 1.000 and that of polyphagous ranged from 0.600 to 0.800. Out of five monophagous species, three preferred members of Fabaceae (*Cicer arietinum*) and one each from Lamiaceae (*Rosmarinus officinalis*) and Rosaceae (*Fragaria* sp.). On evolutionary scale Fabales and Rosales are very close to each other. According to Hutchinson (10) Leguminales (Fabales) were derived from the Rosales stock through Caesalpiniaceae and Mimosaceae, ending in the very homogenous Fabaceae. *P. alkani*, though polyphagous, also feeds on Fabaceae (*Cicer arietinum*) and this is the only species which also feeds on gymnosperms (*Pinus helepensis*). Perusal of Table 2 also revealed that preference of most of the *Pratylenchoides* species can be grouped in to two categories-i) species feed on Rosids-Fabaceae (*Cicer arietinum*) and ii) Monocots-Poaceae (*Agrostis stolonifera*, *Dactylus glumerata*, *Lolium perenne*). If we go to wider group then five species of this nematode feed on Rosids exclusively and *P. alkani* partly. Rosids is, therefore, the most preferred group of plants and *Cicer arietinum* is widely preferred among Rosids. However, Hutchinson (10) considered that plants in Fabaceae (Fabales), Rosaceae (Rosales), Betulaceae (Fagales), and Fagaceae (Fagales) are fundamentally woody plants. On the basis of this it can be said that *Pratylenchoides* species have greater preference towards woody host plants.

<i>Pratylenchoides</i> spp.	Host taxonomic groups	No. of host sps.	GAI	Status
<i>P. alkani</i>	Rosids -Fabaceae (2) (<i>Cicer arietinum</i> , <i>Phaseolus vulgaris</i>); Eudicots -Papaveraceae (1) (<i>Papaver somniferum</i>); Gymnosperms Pinaceae (1), <i>Pinus halepensis</i>	4	0.600	Polyphagous
<i>P. bacilisemenus</i>	Rosids -Rosaceae (1) (<i>Fragaria sp.</i>)	1	1.000	Monophagous
<i>P. camacho</i>	Asterids -Lamiaceae (1) (<i>Rosmarinus officinalis</i>)	1	1.000	Monophagous
<i>P. crinicauda</i>	Monocot -Poaceae (3) (<i>Agrostis stolonifera</i> , <i>Dactylus glomerata</i> , <i>Lolium perenne</i>)	3	1.000	Oligophagous
<i>P. ezurumensis</i>	Rosids -Fabaceae (1) (<i>Cicer arietinum</i>)	1	1.000	Monophagous
<i>P. hispaniensis</i>	Rosids -Betulaceae (1) (<i>Corylus sp.</i>), Fagaceae (1) (<i>Quercus suber</i>)	2	0.800	Polyphagous
<i>P. leiocauda</i>	Rosids -Fabaceae (1) (<i>Cicer arietinum</i>)	1	1.000	Monophagous
<i>P. ritteri</i>	Rosids -Fabaceae (1) (<i>Cicer arietinum</i>)	1	1.000	Monophagous

Azizi et al (2) proposed identification of *Pratylenchoides* species based on the shapes of sperm cells. They found that sperm cells fall in three categories: i) those with round sperm cells, ii) with rod-shaped sperm cells and iii) with spindle shaped sperm cells. Some of the species reported in Table 2, *P. ezurumensis*, *P. hispaniensis* and *P. ritteri* have round sperm cells, whereas *P. bacilisemenus* possess rod-shaped sperm and *P. crinicauda* and *P. leiocauda* shared spindle shaped sperms. When host plants of three groups of nematode species were compared, no clear cut relationships existed between nematode species and host plant preference.

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