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TAXONOMETRIC EVALUATION OF *HELICOTYLENCHUS INDICUS* AROUND *CITRUS SINENSIS, PSIDIUM GUAJAVA* AND *ZIZYPHUS JUJUBA*

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From the application of polythetic divisive classificatory system the range of coefficient of dissimilarity, mean character difference and coefficient of divergence between different attributes of *Helicotylenchus* sp. in soil around root zones of *C. sinensis vis-a-vis P. guajava, C. sinensis* vis-a-vis *Z. jujuba* and *P. guajava vis-a-vis Z. jujuba* do not fall within the range of significance, therefore it may be treated as same species *i. e. H. indicus* Siddiqi, 1963.

The morphometric and allometric studies have been made by Azmi & Jairajpuri (1976) in *Helicotylenchus indicus;* Rashid & Khan (1976) in *Pratylenchus coffeae* and Bajaj & Jairajpuri (1977) in *Xiphinema basiri.* But the polythetic divisive classificatory system has been applied for the first time to establish morphometric differences of *Helicotylenchus indicus* around *C. sinensis, P. guajava* and *Z. jujuba.*

The nematodes were collected around the root zones of *C. sinensis, P. guajava* and *Z. jujuba* and fixed in the composition of the fixatives suggested by Seinhorst (1966) and De Grisse (1965). The nematodes were mounted in anhydrous glycerine. Polythetic divisive classificatory system (Malhotra *et al.* 1981) has been applied to establish morphometric differences between the species.

Coefficient of dissimilarity (C. Dis).

$$\text{C. Dis} = \frac{\sum_{I}^{n} | X_{1j} - X_{2j} |}{\sum_{I}^{N} | X_{1j} + X_{2j} |}$$

Coefficient of divergence (C. D.)

$$\text{C. D.} = 2 \frac{(M_1 - M_2)}{(M_1 + M_2)}$$

Mean character difference (M. C. D.)

$$\text{M. C. D.} = \frac{1}{n} \frac{\sum_{I}^{n} | X_{1j} - X_{2j} |}{X_{max}}$$

where, n is the number of entities (species); X_{1j} and X_{2j} are the values of the j th attribute for any pair of entities (speices); M_1 and M_2 are the mean values of a parameter in two populations; and X_{max} is the maximum value assumed by the attribute.

The coefficient of dissimilarity and mean character difference assume a value from zero (complete similarity) to unity (complete dissimilarity), while the value are different for coefficient of divergence *i. e.* 2 0 (complete similarity) to 3 0 (complete dissimilarity).

Helicotylenchus indicus Siddiqi, 1963 (Fig. 1)

♀♀ (n=30); Stylet = 20—27 5 μ; L=0.45—0.61 mm; a=19 33—26.40;

b=4.78—5.90; c =33.33—44; v=55—65%.

Female : Body spiral shaped. Lip region broadly conical having 4 to 5 indistinct annules Spear knobs with sloping anterior surfaces. Spermatheca off set, without sperm. Phasmids 4 annules posterior to 4 annules anterior to level of anus. Tail

slightly curved dorsally, terminus hemispherical having slight ventral projection, 9–12 annules.

Male : Unknown.

The values of coefficient of dissimilarity, mean character difference and coefficient of divergence between various measurements and values of various isolates of *Helicotylenchus* sp. infesting the soil around root zones of *C. sinensis*. *P. guajava* and *Z jujuba* have been presented in Table 1.

As per the statistical evidence gathered from the application of polythetic divisive classificatory system the range of coefficient of dissimilarity (0 027–0.367). mean character difference (0.05–0.292) and coefficient of divergence (2 001–2 088) between different attributes of *Helicotylenchus* sp. in soil around root zones of *C sinensis* vis-a-vis *P. guajava*, *C. sinensis* vis-a-vis *Z jujuba* and *P guajava* vis-a-vis *Z jujuba* do not fall within the range of significance (Table 1),

Hence the author's opinion is that there are no appreciable statistically significant morphometric differences between the speciss found in soil around root zones of *C sinensis*, *P guajava* and *Z jujuba* Therefore, it may be treated as that belonging to same species *i. e. Heltcotylenchus indicus* Siddiqi, 1963.

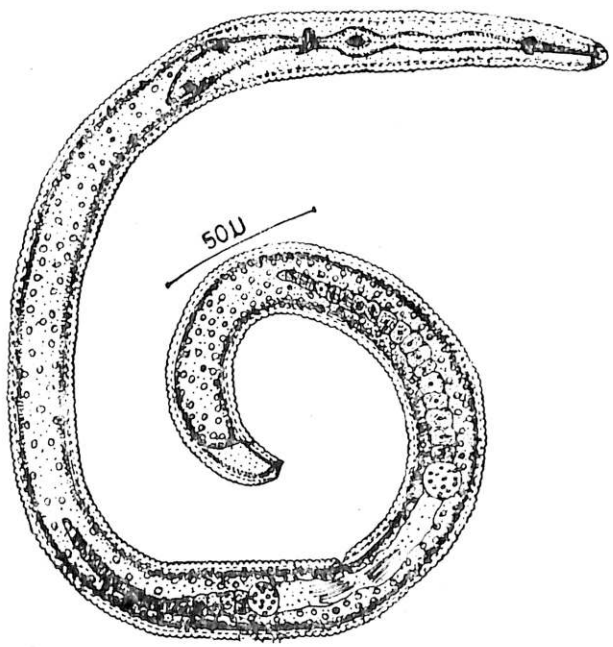

Fig. 1. *Helicotylenchus indicus* Siddiqi.

Table I. The values coefficient between morphometric measurements of 3 different populations of *Helicotylenchus indicus* around *C. sinensis*. *P. guajava* and *Z. jujuba*.

	C sinensis vis-a-vis *P. guajava*			*C. sinensis* vis-a-vis *Z jujuba*			*P. guajava* vis-a-vis *Z jujuba*		
	C. Dis	MCD	CD	C. Dis	MCD	CD	C. Dis	MCD	CD
L	0.270	0 119	2.047	0.228	0.102	2.038	0 228	0 102	2 009
a	0.248	0.110	2.052	0.148	0.068	2.008	0.196	0.087	2 044
b	0 289	0.124	2 020	0.280	0.120	2.008	0.149	0.069	2.027
c	0.278	0.122	2.012	0.246	0.110	2.008	0 264	0 117	2.004
v	0.088	0 042	2.004	0 092	0.044	2.041	0.100	0.048	2.037
Stylet length	0.244	0.109	2 006	0.269	0.119	2.014	0.225	0.101	2.008

C. Dis = Coefficient of dissimilarity; MCD = Mean character difference; CD = Coefficient of divergence.

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