

NOTE BREVI - SHORT COMMUNICATIONS

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A DESCRIPTION OF A MALE *LONGIDORUS PISI*
(NEMATODA: DORYLAIMOIDEA)
FROM MALAWI WITH OBSERVATIONS OF FEMALES
AND THE TAXONOMIC STATUS OF THE SPECIES

by

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Although *Longidorus pisi* (syn. *L. siddiqii*) was earlier reported from Malawi (*Longidorus* sp. in Saka and Siddiqi, 1979), only recently has a male been found from the rhizosphere of sugar cane at Nchalo, Malawi. As longidorid males have features that are useful taxonomic characters the male of *L. pisi* is described, for the first time, from the Nchalo specimen. Measurements of females from the same site are compared with other populations and the significance of the basal flanges of the odontophore is discussed. Specimens from Nchalo were killed in hot formalin and mounted using a slow glycerol method.

Measurements

L = 2.47 mm; a = 88; b = 8.4; c = 118; c' = 1.33; t = 32;
odontostyle = 70 μ m; odontophore = 32 μ m; spear = 102 μ m; anterior end (ant.) to guide ring = 36 μ m; ant. to nerve ring = 14 μ m; ant. to oesophageal junction = 293 μ m; tail length = 28 μ m; width of lip region = 9.8 μ m; body width: at guide ring = 17 μ m; at nerve ring = 24 μ m; at oesophageal junction = 25 μ m; at anus = 21 μ m; greatest body width = 28 μ m.

Description

Body elongate-cylindrical, ventrally curved, especially near tail (Fig. 1). Cuticle thick, with very fine transverse striations, appearing

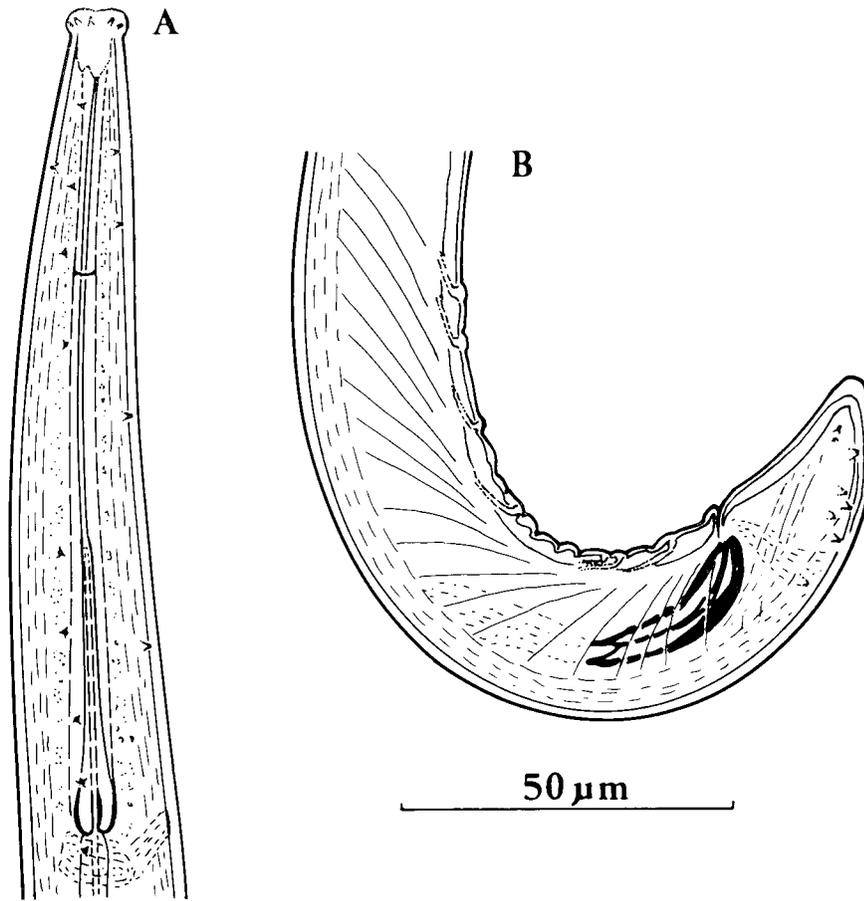


Fig. 1. - *Longidorus pisi* male; A, anterior region; B, posterior region.

as two layers; cuticle thickness: 1.4 μm in neck region, 1.7 μm at mid-body and 1.1 μm on the tail. Lateral chord occupies 1/3 of the body diameter at mid-body. Body pores generally similar to those described for the female.

Labial area flattened anteriorly followed by a cylindrical part 4.4 μm in height, distinctly set off from rest of the body by a depression 7.7 μm wide. Amphid pouch about one head width long, its base irregularly lobed. Odontostyle typical of *Longidorus*; hollow, needle-like with prominent guide ring 36 μm from anterior end. Odontophore

somewhat similar to that of *Xiphinema* because of three weakly developed basal flanges (Fig. 1A), width at flanges 3.5 μm . Nerve ring 145 μm from anterior end, just posterior to spear base; hemizonid flat, 4.4 μm long, 143 μm from anterior end almost opposite odontophore base; hemizonion 2.4 μm long, 174 μm from anterior end. Oesophagus longidorid type, a « mucro » not observed in the oesophageal wall; basal bulb measuring 63 x 13 μm ; oesophago-intestinal valve small, conoid-rounded.

Tail elongate-conoid with five caudal pores on left side, three on the right; copulatory musculature well developed and obvious; spicules paired 34 μm long; lateral guiding pieces indistinct. Supplementary papillae consist of two preanal pairs, the second pair being slightly staggered, and four single, ventral, papillae; there is some folding of the cuticle between the papillae (Fig. 1B). Testes paired, opposed, nearly equal in length.

Specimen

On slide No. 168/15/6 in the Nematology Department, Rothamsted Experimental Station, Harpenden, England.

Discussion

Schuermans Stekhoven (1951) based the description of *Xiphinema brevicaudatum* on a juvenile specimen and Thorne (1961) transferred the species to the genus *Longidorus*. Aboul-Eid (1970) proposed that the specimens described by Siddiqi (1959) as *X. brevicaudatum* be considered a new species, which he transferred to the genus *Longidorus* and called *L. siddiqii*. Khan (1978) subsequently proposed *L. siddiqii* as a junior synonym of *L. pisi* Edward, Misra *et* Singh 1964, and that *L. pisi* and *X. sandellum* Heyns, 1966 should be placed in a new genus. The new genus was not named by Khan (1978) and the nomenclature of *L. pisi* remains unaltered at present.

The body length of specimens of *L. siddiqii* described by Siddiqi (1959) as *L. brevicaudatum* from Aligarh, Uttar Pradesh, North Eastern India is generally larger than that of the type population of *L. pisi* described by Edward *et al.* (1964) from Allahabad, U.P., India. In view of the synonymy of these two species proposed by Khan (1978)

Table I. - *Morphometrics of females of different populations of Longidorus pisi.*

	AFRICA		INDIA		
	Nchalo Malawi	Cameroun (Chavez and Geraert, 1977)	Nageshwarwadi (Prabha, 1973)	Aligarh (Siddiqi, 1959)	Allahabad (type pop.) (Edward <i>et al.</i> , 1964)
n	12	1	7	10	30
L	2.7 ± 0.15 * (2.5—3.0)	3.6	2.6—3.5	3.5—3.9	2.7—3.6
a	94.0 ± 5.0 (88.0—104.0)	98.0	108.0—128.0	125.0—138.0	123.0—144.0
b	12.0 ± 2.2 (8.8—14.4)	13.0	9.2—12.3	11.3—14.8	10.0—15.0
c	73.0 ± 6.5 (66.0—82.0)	82.0	58.0—97.0	88.0—109.0	80.0—118.0
c'	2.0 ± 0.16 (1.8—2.3)	na	2.2 **	2.1	2.5 2.4—2.6
V	48.0 ± 1.5 (45.0—50.0)	50	43.0—53.0	49.0—54.0	49.0—54.0
Odontostyle	66.0 ± 3.0 (60.0—69.0)	69	64.0—68.0	68 65.0—68.0	58 56.0—61.0
Odontophore	39.0 ± 2.9 (33.0—43.0)	na	31.0—47.0	42 41.0—46.0	42.7 35.0—43.0
Anterior to guide ring	38.0 ± 1.4 (36.0—40.0)	na	32	38	32 31.0—35.0
Anterior to nerve ring	132.0 ± 3.5 (128.0—138.0)	na	135	118	133
Anterior to oesophageal junction	234.0 ± 39.0 (198.0—300.0)	na	267	na	266
Tail length	38.0 ± 2.5 (32.0—40.0)	na	32.0—43.0	39	35
Width at lip region	8.6 ± 0.60 (8.0—9.4)	na	8.5	9.5	7.5
Width at guide ring	17.0 ± 0.67 (16.0—18.0)	na	22	15	14
Width at nerve ring	23.0 ± 1.2 (22.0—25.0)	na	22	19	22
Width at oesophageal junction	25.0 ± 1.6 (24.0—28.0)	na	23	na	27
Width at vulva	29.0 ± 1.9 (25.0—31.0)	na	27		27
Width at anus	19.0 ± 1.0 (17.0—20.0)	na	16.0—22.0	27 19	15

* ± one standard deviation (n—1).

** Values in italics calculated by the authors from the original drawings.

it is interesting to see how other populations compare with these type populations. The measurements of females present in the sample collected from Nchalo, Malawi, East Africa are given in Table I together with those of the above type populations and of those from Nageshwarwadi, Maharashtra, Western India and Cameroun, West Africa.

The measurements of the different populations are broadly similar but some differences exist. Body lengths of the Nchalo, Nageshwarwadi and Allahabad populations were similar to but smaller than those of the Aligarh population. The 'a' values were similar in specimens from Nchalo and Cameroun and smaller than those values obtained from the other populations. Specimens from Aligarh and Allahabad had larger 'c' values than the other populations. The 'c' range was larger in the Allahabad population than in the Nchalo population and the ranges did not overlap. The population from Nchalo was morphologically smaller in several respects when compared with the other populations. However, most ranges of measurements were similar or overlapped between the different populations which supports the proposal of Khan (1978) to synonymise *L. siddiqii* with *L. pisi*.

The basal flanges of the odontophore were weakly developed in the specimens from Nchalo and were difficult to see in some specimens. Basal flanges were obvious in specimens examined by Siddiqi (1959) and Edward *et al.* (1964) but Prabha (1973) reported that flanges were absent in the specimens he studied. However Prabha (1973) acknowledged that apart from the apparent absence of basal flanges and some differences in measurements of his specimens compared with those of Siddiqi (1959), the specimens he studied resembled *L. pisi*. From the studies on various populations of *L. pisi*, there appear to be differences not only in morphometrics but also in the development of the basal flanges of the odontophore. However, should further observations show that these flanges are a consistent feature this would support the proposal by Khan (1978) that this species should be moved to a new genus. Meanwhile, this study has provided the first description of a male *L. pisi* and also additional information on the females from the Nchalo population that has widened our understanding of the variability within the species.

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