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MORPHO-ANATOMY OF *TYLENCHORHYNCHUS LEVITERMINALIS* FROM THE PEOPLE'S REPUBLIC OF CHINA

by
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Tylenchorhynchus crassicaudatus leviterminalis Siddiqi, Mukherjee *et* Dasgupta, was described in 1981 from a West Bengal (India) population and differentiated from the closely related subspecies *T. crassicaudatus crassicaudatus* Williams, 1960 in having a «low, smooth and continuous lip region, smaller and posteriorly sloping spear knobs and terminal tail annulus larger in size». Siddiqi (1986) recognized *T. leviterminalis* at the specific level. In November 1984 a bisexual species of *Tylenchorhynchus* was extracted from soil samples collected from the rhizosphere of strawberry (*Fragaria* sp.) in Nanjing, China. Morphological studies on females and males made by light and scanning electron microscopy (SEM) on this population, confirmed that the species was conspecific with *T. leviterminalis*. This note extends the variability of the principal descriptive characters and emphasizes the most important external features.

Specimens were killed and fixed in a hot aqueous solution of 4% formaldehyde plus 1% propionic acid, dehydrated slowly in an ethanol saturated chamber and mounted in dehydrated glycerine (Southey, 1986). Wergin's (1981) method was used for the preparation of nematodes for SEM observation. Nematodes were observed with a JEOL JSM-50A stereo electron microscope at 5 kV accelerating voltage and microphotographed.

Description of Chinese (Nanjing) specimens of
Tylenchorhynchus leviterminalis
Siddiqi, Mukherjee *et* Dasgupta

Measurements:

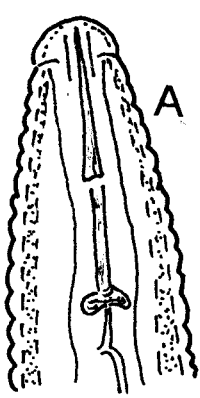
(♀ ♀: n=15) L=625 ± 17.7 (595-647) μm; a=30 ± 1.01 (28-31); b=5.1 ± 1 (5-5.3); c=13 ± 0.6 (12-13.5); c'=3.7 ± 1.25 (3.6-4.1); V=54 ± 2.3 (52-55); stylet=19 ± 0.95 (18-21) μm; MB=58 ± 4 (55-63).

(♂ ♂: n=9) L=556 ± 18.3 (528-573) μm; a=30 ± 1 (29-32); b=4.9 ± 0.34 (4.4-5.2); c=13 ± 0.63 (12-14); c'=2.7 ± 0.22 (2.4-3); T=49 ± 5.5 (48-55); stylet=19 ± 0.30 (18-20) μm; spicules=24 ± 1.16 (23-25) μm; gubernaculum=12 ± 0.8 (11-13) μm.

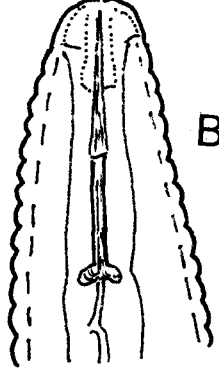
Female (Figs 1, 2). Body arcuate assuming the shape of open C when heat relaxed. Cuticular annuli distinct 1.9-2.3 μm wide at mid-body, 2-2.5 μm at the tail region. Lateral fields with four incisures and outer bands crenate, about 5-6 μm wide. Lip region hemispherical, continuous and smooth, about 3-3.5 μm high. Hemizonid one to two annuli wide just anterior to excretory pore, which opens 94 (83-110) μm from anterior end. Median oesophageal bulb 13-15 by 9-10 μm extending over 6-8 body annuli. Basal bulb saccate 22-28 μm long extending over 12-14 body annuli. Ovaries outstretched, with a single row of oocytes. Spermathecae spherical 10-12 μm in diam, full of round sperms, situated about 57-60 μm at both sides from vulva. Tail distinctly clavate 49 (45-53) μm long with 18-22 annuli and with large hemispherical smooth hyaline portion 6-9 μm long. Phasmids distinct. Anteriorly the lateral fields begin at 10-15th body annulus with three lines forming 2 regularly areolated bands and after another 5-10 annuli a third band is apparent. The internal band of the lateral field posterior to the phasmid becomes shallower and less marked (narrowness) than the external ones.

Male (Figs 1, 2). Essentially similar to female. Testis single, outstretched. Excretory pore 90 (87-93) μm from anterior end. Bursa enveloping tail. Spicules arcuate and cephalated, gubernaculum well developed. Tail pointed 39 (38-41) μm long with phasmids on its anteriorly part about 30 μm from terminus.

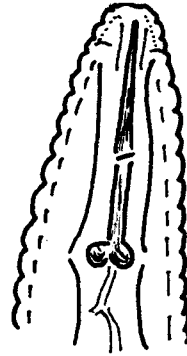
Remarks. The Chinese population shows, in general morphology, no taxonomic differences from the origi-



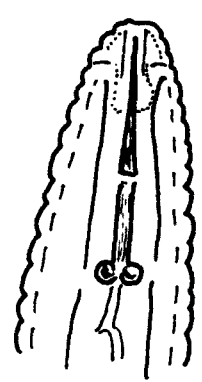
A



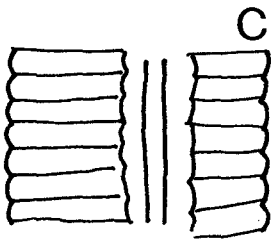
B



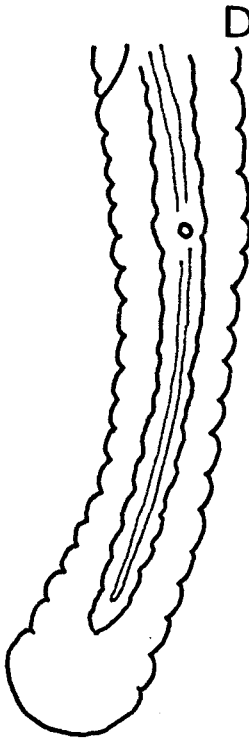
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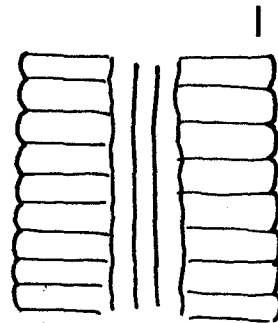
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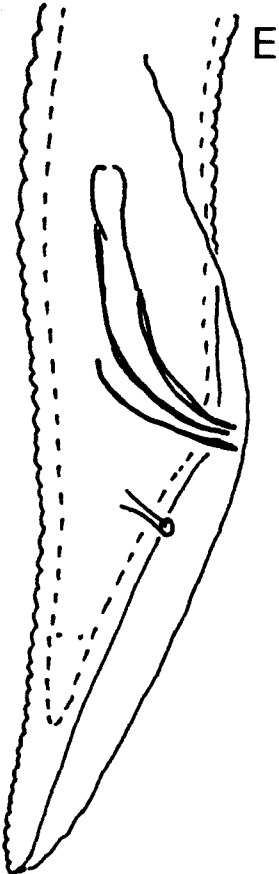
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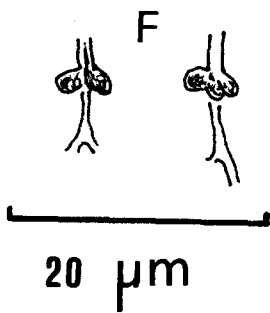
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I

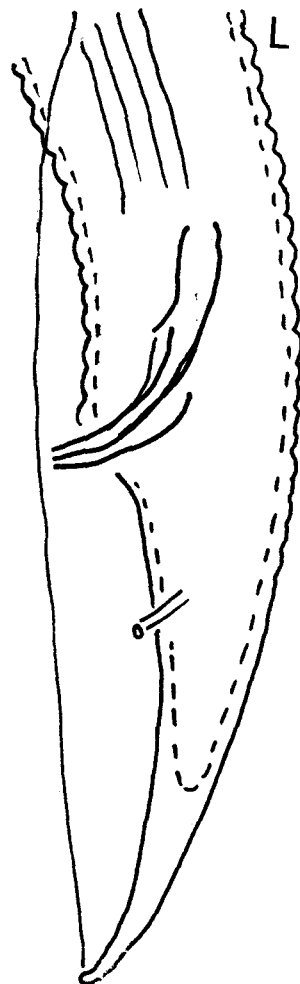


E

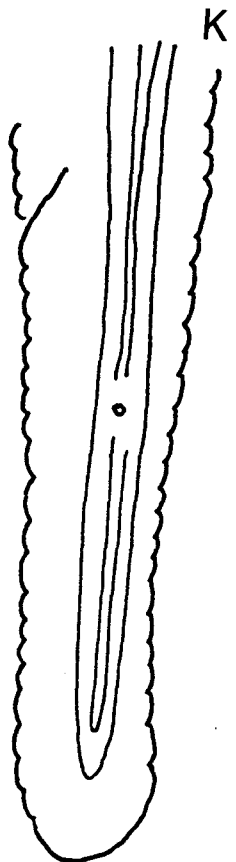


F

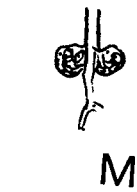
20 μm



L



K



M



N

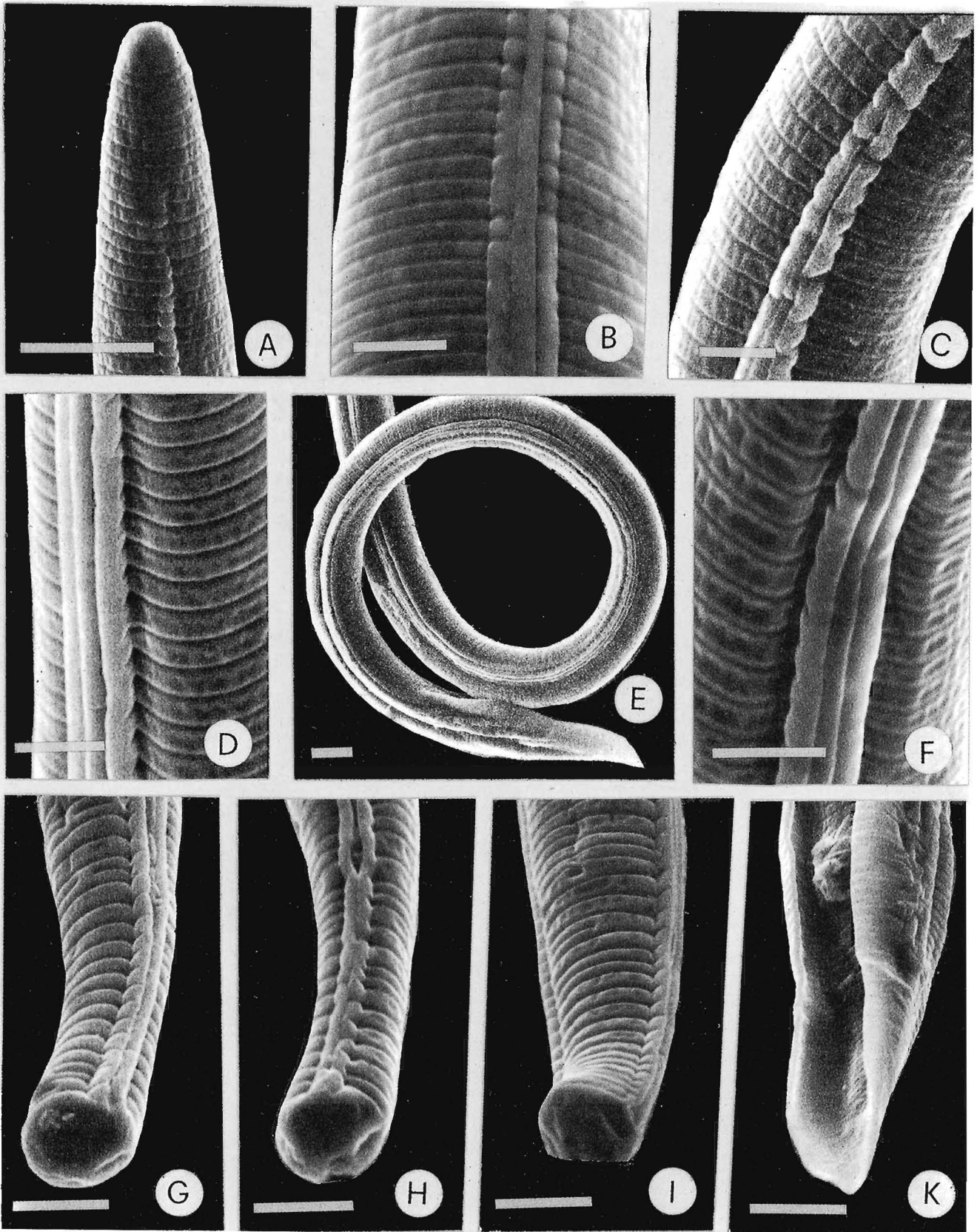


Fig. 2 - SEM photomicrographs of *Tylenchorhynchus leviterminalis*. A) female head region; B, C) female lateral field at mid-body and at the oesophageal region respectively; D, E, F) lateral fields and posterior male body portion (E); G, H, I) female tails; K) male tail (Scale bar = 10 μ m).

Fig. 1 (front page) - A-F) *Tylenchorhynchus leviterminalis*. A, B) female head region; C) lateral field; D, E) female and male tail; F) stylet knobs; G-M) *T. crassicaudatus*; G, H) female head region; I) lateral field at mid-body; K, L) female and male tail; M) stylet knobs.

nal description of the Indian population. Small differences in numerical dimensions of total body length, 595-645 vs 540-750 μm , and stylet length, 18-21 vs 17-19 μm , have been noted during this study which extends the known range of variability for this species.

The number of tail annuli in our population seems to be a more stable character (18-22 vs 14-21) than for the Indian population.

This is the first record of *T. leviterminalis* since the original description, although as *T. paranudus* Phukan *et* Sanwal, 1982 = syn. of *T. leviterminalis* (see Siddiqi, 1986) it has also been reported from the rhizosphere of guava (*Psidium guajava*) at Amkatia Gaon, Dhakuakhana, Assam, India.

The morphology of the Chinese population of *T. leviterminalis* was also compared with populations of *T. crassicaudatus* from Mauritius, kindly supplied by Professor F. Lamberti, Istituto di Nematologia Agraria, C.N.R., Bari. The two species are morphologically distinct and the differential diagnosis proposed by Siddiqi *et al.*, 1982 is confirmed by us in this study (Fig. 1).

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