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TWO NEW SPECIES OF *HELICOTYLENCHUS* STEINER, 1945
(TYLENCHIDA: NEMATODA) FROM MAHARASHTRA, INDIA

by

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Soil samples were collected at random from Pune, Nasik and Solapur districts of Maharashtra State during the period of 1975-77 for knowing different soil and plant parasitic nematodes associated with agricultural crops. The nematodes were extracted by a decanting and sieving method, killed by gentle heat and fixed by adding an equal volume of 5 per cent formalin to the nematode suspension. Permanent mounts were prepared by processing the specimens in dehydrated glycerine by Seinhort's (1959) method. Two new species of *Helicotylenchus* Steiner, 1945 were found and described here.

HELICOTYLENCHUS MORASII SP. N.

(Fig. 1, A-E)

Measurements: Holotype ♀: L = 0.64 mm; a = 32; b = 6.8; b' = 5.3; c = 27; c' = 1.7; V = 61; Spear = 20 µm; O = 45.
13 ♀♀ paratypes: L = 0.45-0.64 (0.58) mm; a = 27.5-33.0 (31.4); b = 4.8-6.8 (5.5); b' = 4.1-5.3 (4.5); c = 27-39 (35); c' = 1.2-1.7 (1.3); V = 61-64 (62); Spear = 18-20 (19) µm; O = 45-50 (49).

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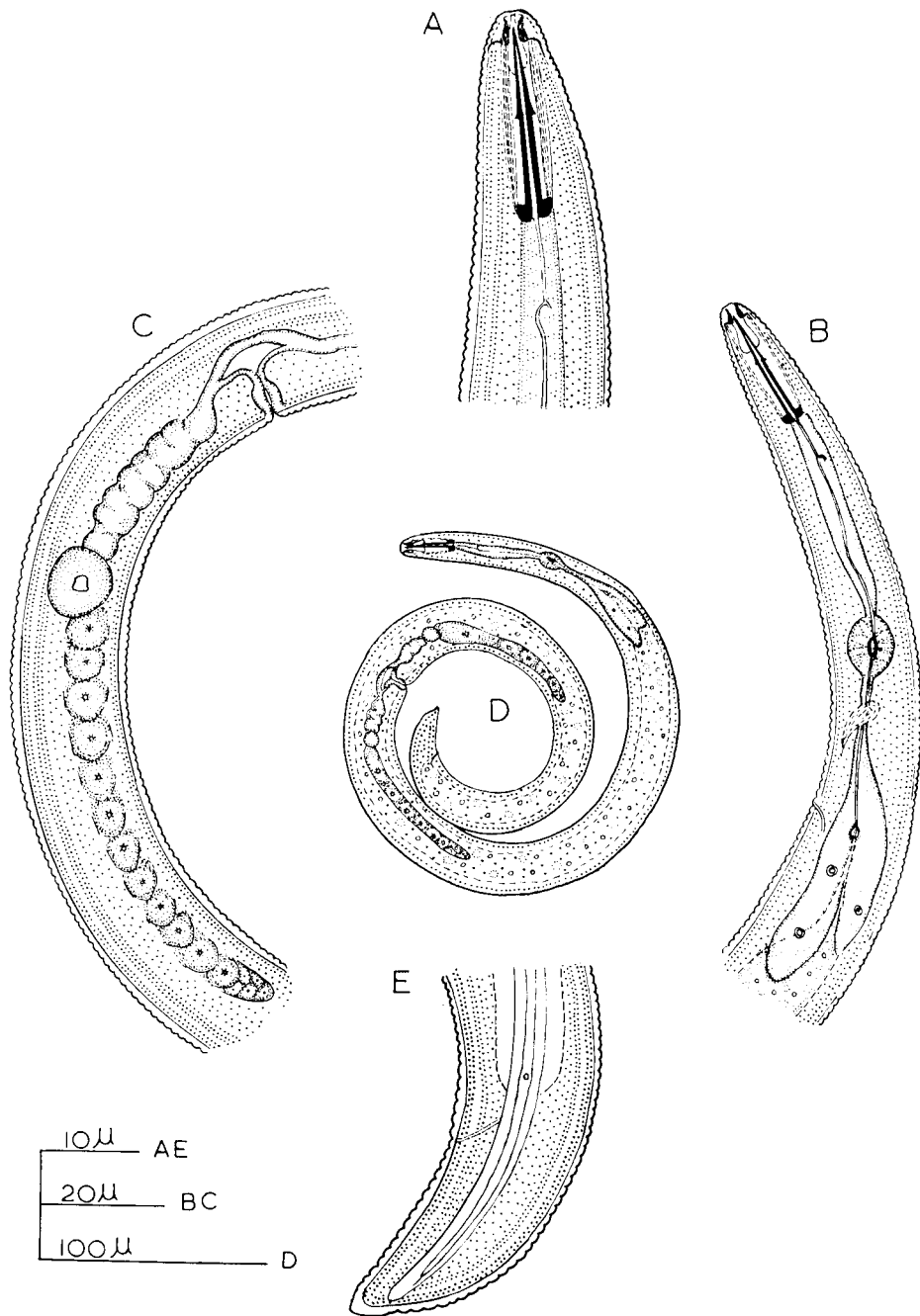


Fig. 1 - Females of *H. morasii* sp.n.: A, anterior region; B, oesophageal region; C, gonad; D, whole body; E, tail.

Description: Female: Body double spiral when fixed. Striae 1.2 μm apart near middle. Lateral fields slightly less than one-fifth of body-width at mid-body and has four smooth incisures. Head rounded, with 5-6 annules. Spear moderately developed with knobs anteriorly cupped measuring 3.5 μm (3-4 μm in paratypes) across. Opening of dorsal oesophageal gland 9 μm posterior to spear base. Metacarpus ovate, 9-11 x 6-8 μm extending to eight body annules with strongly developed valvular apparatus. Isthmus one-third the length of procorpus. Nerve ring 75 μm (73-76 μm in paratypes) from anterior end. Excretory pore 90 μm (85-94 μm in paratypes) from the anterior end at the level of oesphago-intestinal junction. Hemizonid not seen. Vulva a transverse slit. Vagina at right angle to body axis extending to two-thirds body-width into the body. Spermatheca spherical off-set without sperms. Tail dorsally convex-conoid, tapering regularly and ending in subacute unstriated terminus. Tail bearing 15 annules (10-15 annules in paratypes) on ventral side. Phasmids distinct located 5 annules (5-10 annules in paratypes) anterior to anal latitude.

Male: Not found.

Type material: Holotype and paratype females on Type Slides No 977-980 with National Nematode Collection, Division of Nematology, I.A.R.I., New Delhi, 110012 India.

Type habitat and locality: Collected from soil in the root zone of *Sorghum vulgare* Pers. at Karmala, Dist. Solapur, Maharashtra State, India.

Diagnosis and relationship: *H. morasii* sp. n. is similar to *H. abunaamai* Siddiqi, 1972 and *H. elegans* Roman, 1965. It differs from *H. abunaamai*, in having shorter spear, absence of hemizonid and inner incisures meeting in the posterior quarter of tail length (in *H. abunaamai*, spear = 24-27 μm , hemizonid two annules long and 0-1 annule anterior to excretory pore, inner incisures on tail fuse in posterior two-thirds of tail region). It differs from *H. elegans* in having longer body, shorter spear and posterior location of orifice of dorsal oesophageal gland (in *H. elegans*, L = 0.40-0.45 mm; spear = 21-24 μm and dorsal oesophageal gland opening 9-10 μm from spear base).

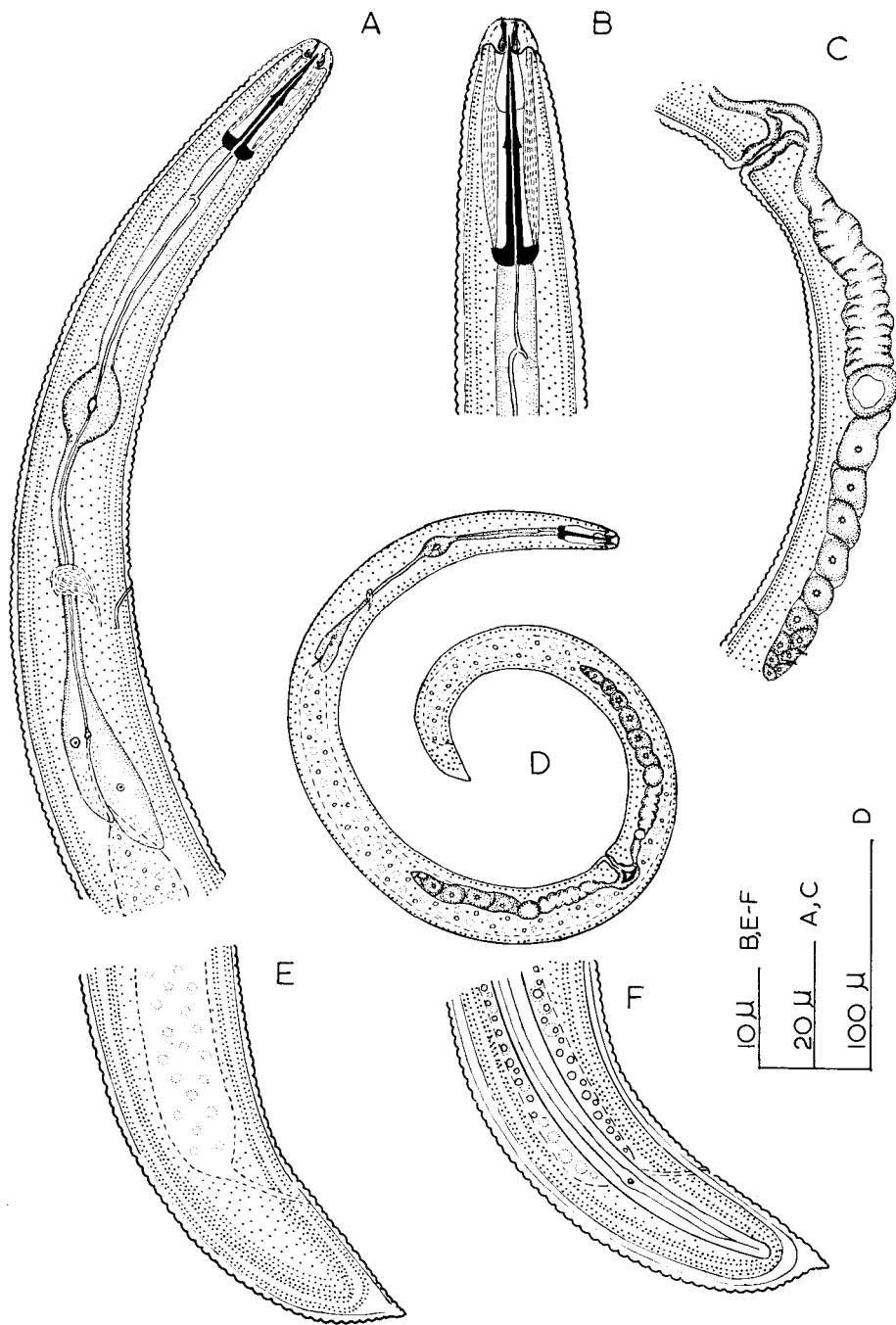


Fig. 2 - Females of *H. eletropicus* sp.n.: A, oesophageal region; B, anterior region; C, posterior gonad; D, whole body; E and F, tails.

HELICOTYLENCHUS ELETROPICUS SP. N.

(Fig. 2, A-F)

Measurements: Holotype: ♀ L = 0.6 mm; a = 28; b = 4.6; b' = 4; c = 41; c' = 1.4; V = 60; Spear = 23 µm; O = 37.
10 ♀ ♀ Paratypes: L = 0.53-0.68 (0.63) mm; a = 26-31 (28); b = 4.6 (5.3); b' = 4.0-5.7 (4.8); c = 35-45 (43); c' = 1.0-1.4 (1.2); V = 60-65 (64); Spear = 23-25 (24.5) µm; O = 25-37 (33).

Description: Female: The body assumes a single spiral when fixed. Body striae averaging 1 µm (0.8-1.5 µm in paratypes) apart at mid-body. Lateral fields marked by four incisures and occupying more than one-fourth of body width at mid-body. Head conoid truncate bearing four indistinct annules. Spear robust with knobs anteriorly cupped measuring 4-5 µm across. Orifice of dorsal oesophageal gland 9 µm behind the spear base. Metacarpus well developed 8 µm long and 6 µm wide filling half of the corresponding body width and extending upto nine body annules. The isthmus is as long as procorpus. Nerve ring 105 µm from anterior extremity encircling isthmus at its middle. Excretory pore 108 µm from anterior end. Hemizonid not seen. Vulva a transverse slit. Vagina at right angle to body axis extending to about two-thirds of body width into the body. Spermatheca spheroidal, empty. Rectum 9 µm in length i.e. two-thirds of anal body diameter long. Tail short, dorsally convex-conoid with blunt to sharply conoid terminal projection. Tail annules 13 (12-15 in paratypes) on ventral side. Phasmids located 5 annules (5-8 annules in paratypes) anterior to anal latitude.

Male: Not found.

Type material: Holotype and paratype females on Type Slides No 981-986 with the National Nematode Collection, Division of Nematology, I.A.R.I., New Delhi 110012, India.

Type habitat and locality: Collected from rhizosphere of coconut, *Cocos nucifera* L. at the Regional Fruit Research Station, Ganeshkhind, Pune, Maharashtra State, India.

Diagnosis and relationship: *H. eletropicus* sp. n. is similar to *H. tropicus* Roman, 1965; *H. elegans* Roman, 1965 and *H. delhiensis* Khan and Nanjappa, 1972. This species differs from *H. tropicus* in having indistinct lip annules, absence of hemizonid, greater c' value and different pattern of incisures in tail region (in *H. tropicus*, lip region marked by 3 or 4 distinct annules, hemizonid 2 annules anterior to excretory pore and $c' = 1$). It differs from *H. elegans* in having a differently shaped head, indistinct lip annules, anterior location of phasmids and distinct ventral projection at tail terminus (in *H. elegans*, lip region hemispherical with 5-6 distinct annules, phasmids at anal latitude, and tail terminus ending into a very short blunt projection). *H. eletropicus* sp. n. differs from *H. delhiensis* in having differently shaped head bearing indistinct annules, longer spear, anteriorly located excretory pore, anterior location of oesophago-intestinal junction and differently shaped tail terminus (in *H. delhiensis*, head hemispherical bearing 2-3 annules, spear = 21-22 μm , excretory pore located 18 μm posterior to nerve ring, oesophago-intestinal junction in posterior third of bulb, hemizonid anterior to excretory pore extending upto 2 body annules, phasmids nine annules anterior to anus and tail dorsally convex conoid with bluntly rounded terminus).

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S U M M A R Y

Two new species of *Helicotylenchus* from Maharashtra, India are described: *H. morasii* sp. n., collected from the rhizosphere of *Sorghum vulgare* Pers., has rounded head with 5-6 annules and dorsally convex-conoid tail ending into subacute unstriated terminus; *H. eletropicus* sp. n., collected from the rhizosphere of coconut, *Cocos nucifera* L., has conoid-truncated head with indistinct annules and convex-conoid tail with a blunt to sharply conoid terminal projection.

R I A S S U N T O

Due nuove specie di Helicotylenchus Steiner, 1945 (Tylenchida, Nematoda) trovate in Maharashtra, India.

Vengono descritte due nuove specie di *Helicotylenchus* trovate in Maharashtra, India: *H. morasii* n.sp., raccolto nella rizosfera di sorgo, *Sorghum vulgare* Pers., ha testa arrotondata, regione delle labbra con 5-6 anelli e coda conoide, convessa dorsalmente ed estremità subacuta; *H. eletropicus* n.sp., raccolto nella rizosfera di palma da cocco, *Cocos nucifera* L., ha testa conoide troncata, annulazione delle labbra indistinte e coda conoide, convessa dorsalmente, con una proiezione terminale conoide-arrotondata.

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