

NEMATODES OF THE FAMILY HOPLOLAIMIDAE IN
WESTERN KAZAKHSTAN

L. A. BAĬDULOVA

Ural State Pedagogical Institute

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A description and illustration are given of a new species of ectoparasitic nematode Helicotylenchus conicus, along with data on the distribution of three species of the family Hoplolaimidae, observed in the rhizosphere of Lucerne (Medicago sativa L.) in the Ural region of the Kazakh Soviet Socialist Republic.

During the identification of material gathered in August--November 1976, 4 species of parasitic nematodes of the family Hoplolaimidae were detected; of them, Helicotylenchus conicus appeared to be a new species, Helicotylenchus cavenessi was noted for the first time for the fauna of the USSR, and Rotylenchus agnetis for the fauna of Kazakhstan.

The nematodes were fixed in a 4% aqueous solution of formalin. The description and illustrations were made from permanent glycerine-gelatin preparations.

The holotype (No. PT-00382) and paratypes (No. PT-00383-00390) of the new species are kept in the Zoological Institute of the USSR Academy of Sciences.

Helicotylenchus conicus BaĬdulova, sp. n.
(see figure)

Holotype: ♀ L = 0.72 mm; a = 33.7; b = 4.4; b' = 5.2; c = 40.4; c' = 1.2; V = 63; m = 50; 0 = 34; stylet 24 / μ m.

Paratypes: ♀ ♀ (n = 10), L = 0.62-0.73 (0.68) mm; a = 26-35 (31.4); b' = 4.1-6.5 (5.8); c = 40.4-55.0 (49.0); c' = 0.9-1.2 (1.0); V = 60-63 (61); m = 43.6-50.0 (47.8); 0 = 33-50 (41.3); stylet 24-25 / μ m.

Males not observed.

Body usually bent in a spiral after fixation. Cuticle finely annulated; width of annules in central part of the body 1.2 / μ m. The number of lateral lines in the central part of the body varies; usually there are 4 of them. Among 10 adult females studied, there were 4 lines in 8 of them, 5 lines in 2. Lateral field width 4-6 / μ m; the incisures reach the very tip of the tail and do not close in on one another. Lateral field open. Labial area high (height 3.6 / μ m, width 3.6-4.8 / μ m, narrow-conical, blunted in front, and offset from the body contours. Cuticle annules were not observed on head. Stylet of medium size. Stylet knobs slightly bent anteriorly (knobs width 4.8 / μ m, height 1.2 / μ m). Dorsal

esophageal gland duct opening into the esophagus lumen at 8-12 μm beyond the basal part of stylet. Esophagus length 110-156 μm , procorpus cylindrical, metacorpul bulb well developed and ovoid (10.8 x 8.4 μm). The position of the excretory pore varies from the level of the nerve ring to the middle of the glandular part of the esophagus (at a distance 66-114 (83) μm from the anterior end of the body): hemizonid 1-4 cuticular annules in front of excretory pore. Ovaries paired, straight, and sometimes flexed in the middle part; and oocytes arranged in a single row. Spermatheca rounded (10.8 x 10.8 μm), clearly offset from the contours of the uterus, and with spermatozooids inside. Vulva and vagina 9-12 μm deep. Tail conical, 11-15.6 (14) μm in length, and with a weak ventral outgrowth of varying form (sometimes the outgrowth is absent). There are 7-12 cuticular annules on the ventral side of the tail. Phasmids are at anus level sometimes 1-2 cuticular annules in front of or behind it.

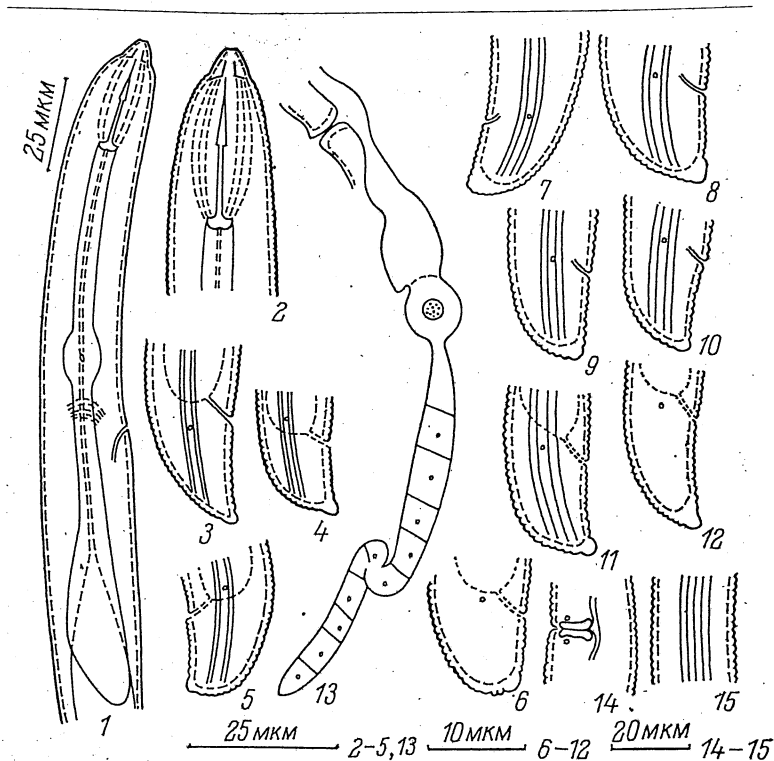


Figure 1. Helicotylenchus conicus sp. n. Female (Original)

1 - Anterior end of body (area of the esophagus); 2 - Anterior end of body; 3 - 12--Variations of tail shape; 13 - Posterior genital tract; 14 - Area of vulva and vagina; 15 - Variations of lateral field.

Differential diagnosis. The species being described is close to H. australis Siddiqi, 1972; H. cornurus Anderson, 1974; H. conicephalus Siddiqi, 1972; and H. digonicus Perry, 1959. H. conicus is distinguished from the first species by the conical form of the tail (in H. australis the tail is cylindrical with a hemispherical tip) and by the location of the phasmids (at anus level with variations of 1-2 cuticular annules in front of or behind the anus, in comparison to 6 cuticular annules in front of the anus in the case of H. australis). The latter characteristic distinguishes the species being described from H. conicephalus. Additional distinctive characteristics are: larger body measurements (0.62-0.73 against 0.46-64), and a smaller value of the index "O" (33-50 as against 50-57) in H. conicephalus.

The width of the lateral field (4-6 μ m as against 6-7), the measurements of the cuticular annules in the middle part of the body (1.2 μ m against 1.5-2), the depth of the vulva and vagina (9-12 μ m as against 15-16), and the absence of cuticular annules in the labial area (in H. cornurus the labial area is hemispherical, with 4 or 5 narrow cuticular annules): these distinguish the new species from the species H. cornurus.

In general measurements, form of the body, and length of the stylet H. conicus is similar to H. digonicus but is distinguished from it by the absence of cuticular annulation in the labial area, and by the larger value of the index "O" (33-50 as against 25.3-37.6). H. conicus is distinguished from all close species by the fact that neither external nor internal incisures of the lateral field close in on one another on the tip of the tail, and that the labial area is conical and is offset from the contours of the body.

Type habitat. The holotype and paratypes were observed in August-November 1976 in the rhizosphere of lucerne in the environs of the settlement of Derkus (selection-experimental station) 15 kilometers from the city of Ural'sk.

Helicotylenchus cavenessi Sher, 1966

$\overline{\text{OO}}$
 $\overline{\text{++}}$ (n = 3) L = 0.69-0.70 (0.68) mm; a = 23-34 (29.9); b' = 5.4-6.0 (5.6); c = 59-64 (62); c' = 0.7-0.9 (0.8); V = 60-66 (61); m = 44-59 (50); O = 33-39 (36.6); stylet 25.2 μ m.

Males not observed.

Found for the first time on manioc in Nigeria. Noted in Iran and Egypt on many agricultural cultures: cabbage, maize, sunflower, and tomato (Krall', 1978). Observed by us in the rhizosphere of lucerne in the environs of the settlement of Marakova, Ural district of the Ural region.

Helicotylenchus digonicus Perry, 1959

$\overline{\text{OO}}$
 $\overline{\text{++}}$ (n = 10) L = 0.59-0.76 (0.64) mm; a = 19-31 (25.7); b' = 4.0-7.6 (4.9); c = 50-59 (54.4); c' = 0.5-1.0 (0.7); V = 58-63; O = 25.3-37.6 (28.3); stylet 24-26 μ m.

Males not observed.

One of widely disseminated species of helicotylenchids, observed in many countries of the world. Noted in all the republics of the Soviet Union. Observed by us in the rhizosphere of lucerne in environs of the settlement of Krasnoyarska, Taipaksk district of the Ural region.

Rotylenchus agnetis Szczygieł, 1968

♂♂ (n = 15) L = 0.82-0.96 (0.88) mm; a = 26-31 (28); b = 6.0-7.3 (6.5); b' = 5.3-6.2 (5.9); c = 42-57 (46.6); c' = 0.8-1.0 (0.9); V = 56-59 (57); O = 18-22 (20); m = 52-54; stylet 32.4-38.8 (33.2) /_{um}.

Males not observed.

Observed and described for the first time in Poland from soil of strawberry plantations.

Observed by us in the rhizosphere of lucerne (up to 98 individuals were counted within 50 cubic centimeters) in the environs of the settlement of Trekino, Ural district of the Ural region.

LITERATURE

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L. A. Baydulova

SUMMARY

A new species, *Helicotylenchus conicus*, and three known species of the family Hoplolaimidae found in the near-root soil of *Medicago sativa* L. are described.

The new species is close to *H. australis* Siddiqi, 1972, *H. cornurus* Anderson, 1974, *H. conicephalus* Siddiqi, 1972, *H. digonicus* Perry, 1959.

The new species differs from the related species in having an isolated narrow-conical labial region and incisures of the lateral area not closing on the tail's termination.