

TWO NEW SPECIES OF NEMATODES OF THE GENUS *HELICOTYLENCHUS* STEINER,  
1945 (NEMATODA, HOPLOLAIMIDAE) FROM TADZHIKISTAN

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In this work a description is given of two new species of ectoparasitic nematodes of the family Hoplolaimidae, *Helicotylenchus acutus* n. sp. and *H. montanus* n. sp. The first of them was observed in Central Pamir-Alai; the second, on the Eastern Pamir and in Northern Pamir-Alai.

At the end of the 1970's we began work on the study of ectoparasitic nematodes of the family Hoplolaimidae in Tadzhikistan. Data on the species composition of these parasites on grapes, and preliminary information on their distribution in the Republic, were published (Kankina & Teben'kova, 1980; Teben'kova, 1981). While continuing the study of the hoplolaimids in Tadzhikistan, we observed two species, new to science, of nematodes of the genus *Helicotylenchus*. *H. acutus* n. sp. was detected in the rhizosphere of the oleaster (*Elaeagnus* sp.) on the South slope of the Gissar range (1700 meters above sea level). *H. montanus* n. sp. was noted in two regions, on the Eastern Pamir in the environs of Lake Yashil'kul' (3800 meters above sea level) in the roots of the willow (*Salix schugnanica*) and on the Zeravshan range close by Lake Kulikalon in soil at the roots of the juniper (*Juniperus seravschanica*).

We conducted the identification of the nematode species according to the composite work of E. L. Krall' (1978) and of other sources published later. A description of the new species is given below (Figures 1 and 2).

***Helicotylenchus acutus* Teben'kova n. sp.**

Female (n = 2): L = 0.73-0.85 (0.80) mm; a = 26-28 (27); b = 5.5-6.8 (5.9); b<sub>1</sub> = 5.0-6.1 (5.4); c = 51-61 (57); c<sub>1</sub> = 0.8-0.9 (0.86); V = 57-62 (60)%; stylet = 29-31 (30) μm; m = 50-54 (52)%; o = 20-27 (23)%; males were not observed.

Holotype (female): L = 0.77 mm; a = 27; b = 5.5; b<sub>1</sub> = 5.0; c = 53; c<sub>1</sub> = 0.9; V = 62%; stylet = 31 μm; m = 54%; o = 27%.

The body, after fixation in 5% hot formalin, acquires the shape of an open spiral. The width of cuticular annuli in the middle of the body is 1.5 μm. The labial area is hemispherical, moderately sclerotized, off-set, and has four well-expressed annuli. The stylet knobs are anteriorly flattened and in several specimens are slightly concave; and the metenchium is equal or somewhat longer than the telenchium. The duct of the dorsal esophageal gland opens at a distance of 6-8 μm behind the basal part of the stylet. The metacorporeal bulb is oval (18.0 x 13.2 μm), and has a well-developed valvular apparatus. The nerve ring surrounds the isthmus at its central part. The excretory pore is located at a distance of 92-120 μm from the front end of the body in front of the esophageal-intestinal valve. The hemizonid is close to the excretory pore and occupies the width of three cuticular annuli. The hemizonion is localized on the 12<sup>th</sup> annulus behind the excretory pore. The esophageal glands extend past the beginning of the intestine, more from the ventral side. The ovaries are straight and paired. The spermatheca is faintly

perceptible, not off-set, and without spermatozooids. The vulva is in the shape of a transverse slit, and occupies 1/2 of the body width. The phasmids are pore like and are situated in the center of the lateral field, on the first to sixth cuticular annulus in front of the anus level. The lateral field is not areolated, and has 4 incisures that join at the end of the tail. The tail is short and has a sharp, finely annulated protuberance which is smooth on the ventral side in several specimens. In the majority of females a mucro is noted on the protuberance. There are 6-10 cuticular annuli on the ventral side of the tail. The annuli are narrower on the tip.

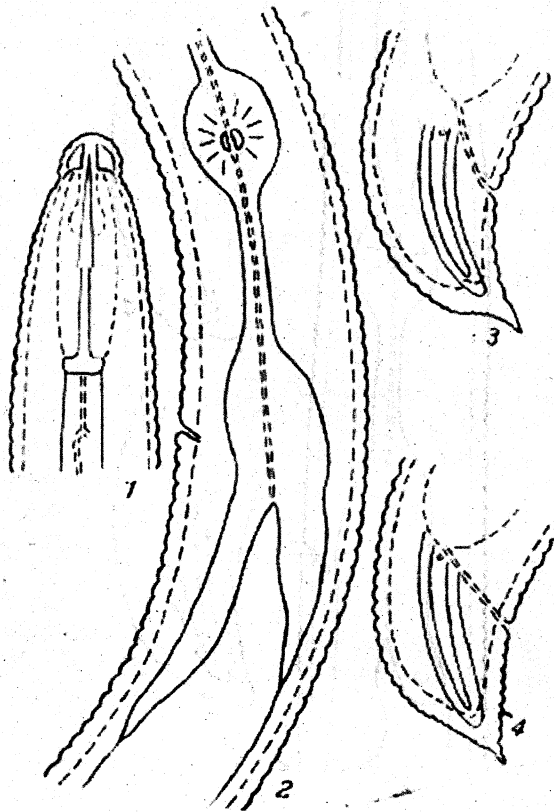


Figure 1. *Helicotylenchus acutus* n. sp. (female): 1 – head; 2 – portion of body in area of the esophagus; 3, 4 – tail shape variation

Differential diagnosis. *Helicotylenchus acutus* n. sp. is closest of all to *H. crenacauda* Sher, 1966, *H. californicus* Sher, 1966, *H. erythrinae* (Zimmermann, 1904) Golden, 1956, *H. hydrophilus* Sher, 1966 and *H. paxilli* Yuen, 1964, from which it is distinguished by the off-set labial area. Apart from this, the new species differs from *H. paxilli* and *H. erythrinae* by the smaller measurements of the tail,  $c = 51-61$ ,  $c1 = 0.8-0.9$  (as against  $c = 27-39$ ,  $c1 = 1.0-1.4$  in *H. paxilli* and  $c = 27-38$ ,  $c1 = 1.1-1.7$  in *H. erythrinae*), and it differs from the latter also by the longer stylet,  $29-31 \mu\text{m}$  (as against  $23-28 \mu\text{m}$ ) and by the absence of males. The species being described differs from *H. crenacauda*, *H. hydrophilus* and *H. californicus* by the smaller distance of the opening of the duct of the dorsal esophageal gland from the basal part of the stylet,  $o = 20-27\%$  (as against  $o = 26-39\%$  in *H. crenacauda*,  $o = 36-42\%$  in *H. hydrophilus* and  $o = 32-40\%$  in

*H. californicus*). It differs also from the last two species by the absence of males, and from *H. crenacauda* by the longer stylet (29-31 as against 24-28  $\mu\text{m}$ ).

Type locality. Observed in the rhizosphere of the oleaster (*Elaeagnus* sp.) on the South slope of the Gissar range.

Holotype No. 606 and paratypes Nos. 607-608 (7 females) are kept in the collection of the E. N. Pavlov Institute of Zoology and Parasitology, Tadzhik SSR Academy of Sciences.

***Helicotylenchus montanus* Teben'kova n. sp.**

Female (n = 8): L = 0.72-0.89 (0.82) mm; a = 26-32 (29); b = 5.2-6.9 (6.0); b<sub>1</sub> = 4.7-6.0 (5.4); c = 37-53 (46); c<sub>1</sub> = 0.9- 1.3 (1.1); V = 59-64 (63)%; stylet = 30-31 (30)  $\mu\text{m}$ ; m = 50-52 (51)%; o = 24-32 (28)%; males were not observed.

Holotype (female): L = 0.89 mm; a = 26; b = 6.9; b<sub>1</sub> = 6.0; c = 46; c<sub>1</sub> = 1.1; V = 63%; stylet = 31  $\mu\text{m}$ ; m = 51%; o = 24%.

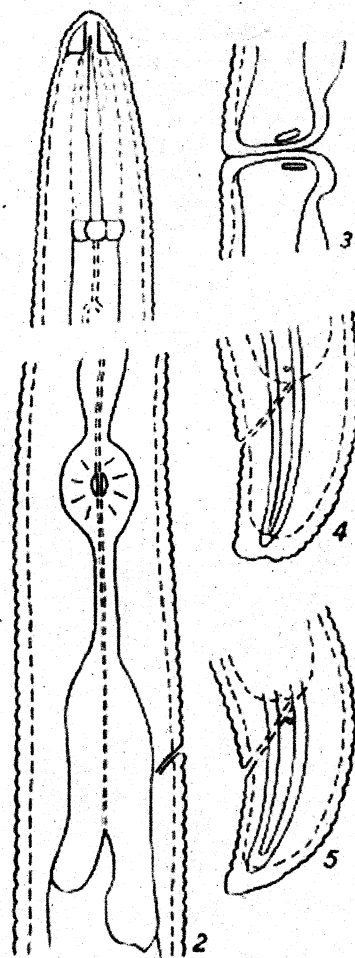


Figure 2. *Helicotylenchus montanus* n. sp. (female): 1 - head; 2 - portion of body in area of esophagus; 3 - portion of body in area of vulva; 4, 5 - tail shape variation

After fixation in 5% hot formalin the body takes the shape of an open spiral. The width of the cuticular annuli in the middle of the body is 1.7-2.0  $\mu\text{m}$ . The labial area is conical, moderately sclerotized, not off-set from the contours of the body, tall, and with 5 annuli. The stylet knobs are slightly anteriorly concave, and the metenchium is equal to or a little larger than the telenchium. The opening of the duct of the dorsal esophageal gland opens at a distance of 7-10  $\mu\text{m}$  behind the basal part of the stylet. The metacorporeal bulb is oval (14.4 x 12.0  $\mu\text{m}$ ). The nerve ring surrounds the isthmus at its middle part. The excretory pore is located at a distance of 124-146  $\mu\text{m}$  from the front end of the body in front of the esophageal-intestinal valve. The hemizonid is located on the 3<sup>rd</sup> annulus in front of the excretory pore and occupies the width of 1.5 annuli. The hemizonion is located 11-13 annuli behind the excretory pore. The esophageal glands extend past the beginning of the intestine, more from the ventral side. The ovaries are straight and paired: the spermatheca is not off-set and is without spermatozooids. The vulva is in the shape of a transverse slit and occupies 1/2 of the body width. The phasmids are pore-like and situated in the center of the lateral field, 1-6 annuli in front of the anus level. The lateral field is not areolated and has 4 incisures that join by pairs at the end of the tail. The dorsal contour of the tail is more bow-shaped and there are 7-10 annuli on the ventral side. The tip is not annulated.

Differential diagnosis. *Helicotylenchus montanus* n. sp. is closest to *H. leioccephalus* Sher, 1966 and to *H. rotundicauda* Sher, 1966, from which it is distinguished by the longer stylet (30-31 as against 24-29  $\mu\text{m}$  in *H. leioccephalus* and 23-26  $\mu\text{m}$  in *H. rotundicauda*). Beside this, the new species differs from *H. leioccephalus* by the conical labial area with five annuli (as opposed to hemispherical without traces of annulation), and by the coarser annulation of the body – the width of cuticular annuli in the center of the body varies from 1.7 to 2.0  $\mu\text{m}$  (as opposed to 1-1.5  $\mu\text{m}$ ). The species being described differs from *H. rotundicauda* also by the smaller value of the index "o", equal to 24-32% (as opposed to 37-50%). *H. montanus* n. sp. is close also to the recently described species *H. wajihi* (Sultan, 1981) from which it is distinguished by the large measurements of the body and stylet, L = 0.72-0.89 mm, stylet = 30-31  $\mu\text{m}$  (as opposed to L = 0.56-0.58 mm, stylet = 23-24  $\mu\text{m}$ ).

Type locality. Observed in the rhizosphere of the willow (*Salix schugnanica*) growing in the environs of Lake Yashil'kul' (Eastern Pamir). Noted also in the roots of the juniper (*Juniperus seravschanica*) not far from Lake Kulikalon (Zeravshan range).

Holotype No. 609 and paratypes Nos. 610-612 (10 females and 5 larvae) are kept in the collection of the E. N. Pavlov Institute of Zoology and Parasitology, Tadzhik SSR Academy of Sciences.

#### LITERATURE

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