

Aphelenchoides tsalolikhini sp. n. (Nematoda: Aphelenchida) from Ethiopia

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Summary. *Aphelenchoides tsalolikhini* sp. n. is described from specimens collected from the Langano lake region in Ethiopia. It differs from all other species of *Aphelenchoides* by the presence of 2 pairs of dark-stained sclerotized cells on the dorsal side of the vagina. *A. tsalolikhini* sp. n. is close to *A. franklini* Sing, 1969, *A. parasaprophilus* Sanwal, 1965, *A. subparietinus* Sanwal, 1961 and differs from them by shape of the tail terminus, longer male tail and shorter dorsal wing on the spicule.

Key words: morphology, *Aphelenchoides tsalolikhini* sp. n., Ethiopia.

A new species of the genus *Aphelenchoides* was found in samples collected from a small hollow near the water border of Langano lake, Ethiopia. This new species is described here.

MATERIALS AND METHODS

Nematodes were extracted by centrifugal flotation method and then heat killed, fixed in 4% formalin and processed and mounted in glycerin. The description and drawings were made from permanent slides.

DESCRIPTION

Aphelenchoides tsalolikhini sp. n. (Figs. 1 & 2)

Holotype female: L = 640 μ m, a = 40, b = 5.5, b' = 3.9, c = 14.9, c' = 5.5, V = 65.3%, stylet = 11.5 μ m.

Paratypes females (n = 7): L = 593 (546-640) μ m, a = 40 (38-42), b = 6.7 (6.4-7.4), b' = 4.5-4.6, c = 13 (12.0-14.9), c' = 5.6 (4.6-6.2), V = 66.6 (65-68)%, stylet = 11.4 (11-12) μ m.

Paratypes males (n = 3): L = 555 (526-580) μ m, a = 41.5 (37.2-47.8), b = 5.8 (5.3-6.5), c = 17.8 (16.0

-19.3), spicule along the span = 14-15 μ m, spicule along the outer arc = 18-19 μ m, stylet = 11.2 (10.5-11.5) μ m, MB = 52 (50-60).

Female. Body curved ventrally. Lip region 3.0-5.0 μ m, offset, with 4-5 lip annules, basal ring significantly wider than anterior rings. Maximal width of lip region not greater than body width at its base. Cephalic framework with light sclerotization. Stylet weakly developed with slightly marked longitudinally stretched knobs each 1.0 x 0.3 μ m. Metacarpus oval 12.7 (11.5-13.0) x 9.0 (9.0-10.0) μ m, its length 1.3-1.4 times more than width, located at 52 (47-55) μ m distance from anterior body end. Excretory pore located at 75 (68-80) μ m from anterior body end, its position varying from the level at center of nerve ring to posterior of nerve ring, located at 1 to 1.5 times the length of metacarpus from posterior border of metacarpus. Oesophageal glands not amalgamated in syncytium, separated, located laterally in the form of a lobe 39 (35-48) μ m in length, the longest gland being the dorsal, located dorso-laterally. Lateral field with 4 lines, one species with 5-6 lines at mid-body. Cuticular annuli 0.8 (0.5-1.0) μ m wide. Anterior ovary reaching posterior end of oesophageal gland lobe or located at 2-3 body widths from oesophageal lobe. Preuterai

gland well developed. Spermatheca 24.8 (21-28) x 11.8 (11-13) μm , in length 2.1 (1.9-2.3) times greater than mid-body width and 1.2-1.4 times more than body width at vulva level. Cavity of spermatheca 15.3 (14-18) x 7.7 (7.0-8.5) μm ; length 2.0 (1.5-2.5) μm . Spermatheca filled with oval to round spermatozoa 5.4 (5.0-6.0) x 4.0 (3.5-5.0) μm . Sperm disc-form near the wall of spermatheca, cavity of spermatheca and displaced from the center. Vulval lips not offset, vagina reflexed anteriorly. Vagina with sclerotized part consisting of 2 pairs of dark-stained cells on the dorsal side. The sclerotized part separating the anterior uterus from the posterior uterus; each uterus reaching the vagina separately, not fusing one with another until reaching the junction with the vagina. Posterior genital tube 92 (68-110) μm long, equal to 5.7 (4.2-6.9) vulval diameters and 52 (38-61) % of vulva - anus distance. Posterior ovary consists of 1 to 19 cells. Anus without scutellum, anal protuberance absent. Tail conical 43 μm long, obliquely truncated with ventral thorn-like terminal mucro 3.2 (3.0-3.5) μm long, varying from distinct to forming common contour with posterior oblique side of terminus. Terminus in one specimen not reflected, but tail usually strongly reflected at terminus. Anal body width 8 μm . The hyaline part of tail including mucro 5 (4-6) μm long. Number of tail annuli on ventral side 41 (31-47).

Male. Body curved ventrally. Lip region rounded 4.8 (4.5-5.0) x 2.6 (2.5-3.0) μm , with 5 annuli, offset, its maximal width not wider than body width just after lip region base. Cephalic framework with light sclerotization. Stylet weak with obscure longitudinal knobs each 1.0 x 0.2 μm . Metacarpus 12 (11-13) μm x 8.5 μm , its length 1.4 (1.3-1.5) times more than its width, located 53 (49-55) μm from anterior end of body. Excretory pore posterior to nerve ring, 71 (70-72) μm from anterior end of body. Oesophageal glands 21 (20-21) μm long, the same as in females. Lateral field with 4 lines occupying 0.24 (0.21-0.27) of the body diameter. Annulus width in center of body 0.8 (0.5-1.0) μm . Spermatozoa oval to spherical 5.4 (5.0-5.5) x 4.5 (3.5-5.0) μm . Spicule widened with ventrally oriented obtuse angled apex. Tail 21 (29-33) μm long,

curved ventrally with 2 pairs of preanal papillae and simple flagellum-like terminal mucro 6.4 (5.5-7.0) μm long. Distance from anus to first papilla 11.5 (11.0-12.0) μm , first to second papilla 9.2 (8.5-10.0) μm . Body width at anus 10. μm . Length of hyaline part of tail terminus without mucro 4.3 (3.5-5.0) μm .

Type locality. Ethiopia, Langano lake. The hollow on the top of the volcanic tufa rock 1 m above sea level, located 2 m distance from the water border. The hollow was 10 cm deep and 5 dm³ volume. The bottom of the hollow covered by a layer of green algae up to 0.5 cm thickness. The bottom was moistened by rain and sometimes flooded by waves. Periodically it becomes dry, especially during long periods without rain. Daily temperatures range from 15 to 30^o, pH 7.0 - 9.5 in different moisture conditions and total water mineralization on 1.6.

Type material. Holotype (P 3723) and paratypes (P 3724- P 3731) are deposited in the Nematode Collection of Zoological Institute (St.- Petersburg). Paratype female and male are deposited in the German Nematode Collection (Munster).

Differential diagnosis. *Aphelenchoides tsalolikhini* sp. n. differs from all other *Aphelenchoides* species by the presence of 2 pairs of dark-stained sclerotized cells on the dorsal side of the vagina. *A. tsalolikhini* sp. n. is close to *A. franklini* Singh, 1969, *A. parasaprophilus* Sanwal, 1965 and *A. subparietinus* Sanwal, 1961 by the combination of the following characters: stylet length, c', L, the ratios: postuterine branch length to body width at vulva level and postuterine branch length to vulva-anus distance. The new species differs from the above mentioned species by the form of the tail terminus in females and males, longer male tail (c = 16-19 vs 12-14), shorter dorsal wing of spicule (18-19 vs 21-24 μm), from *A. franklini* and *A. parasaprophilus* by a more anteriorly located vulva (V = 65-68 vs 69-79%), and from *A. subparietinus* by the shape of the spicule, in the latter species the spicular dorsal wing curves at the end reaching almost to the ventral wing end.

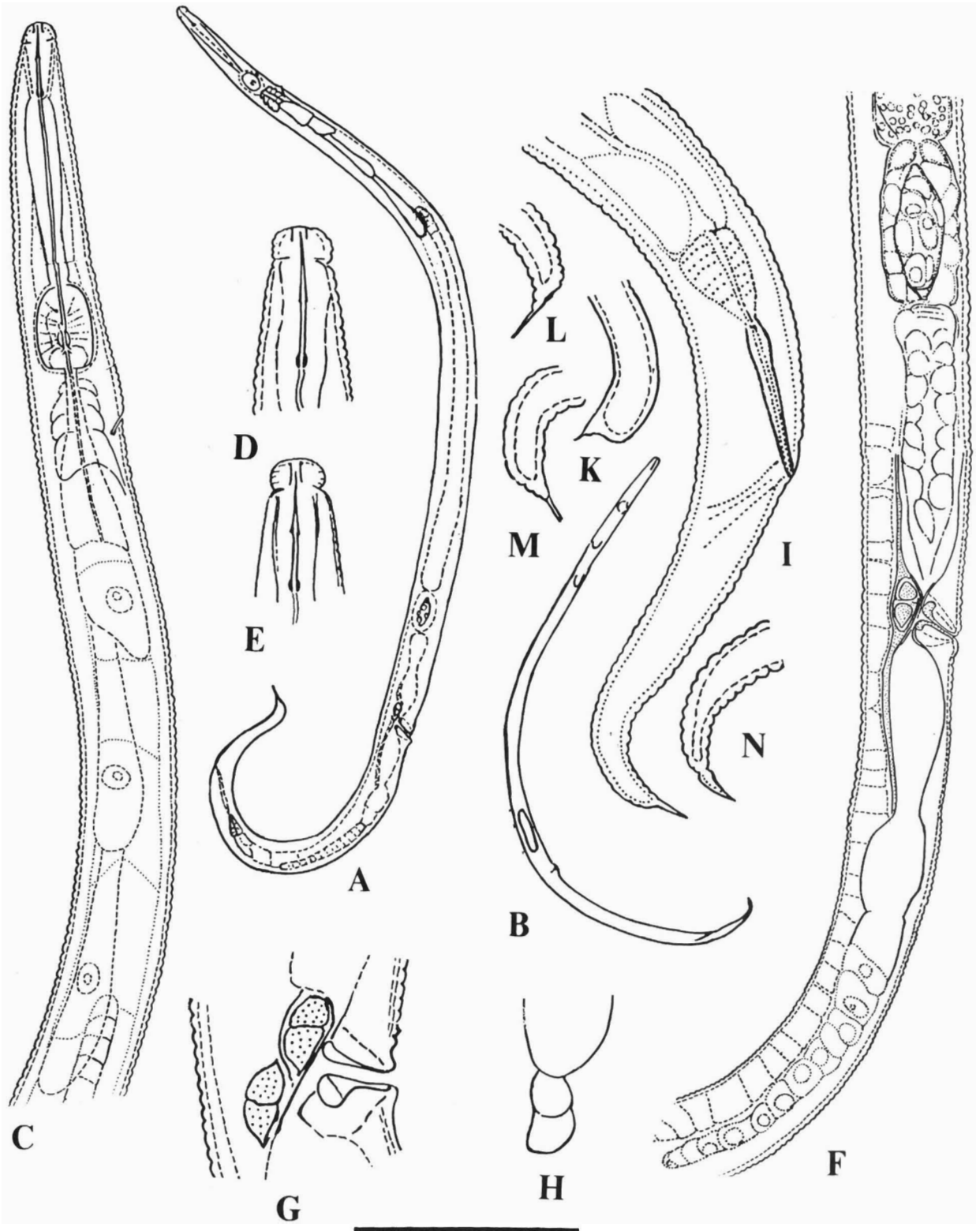


Fig. 1. *Aphelenchoides tsalolikhini* sp. n. Female. A, C, F, I: Holotype, others - paratypes. A: General view; B: Female with egg; C: Anterior end; D, E: Cephalic region; F: Reproductive system; G: Paravulval bodies; H: Variation of posterior end of postuterine genital branch; I: Tail; K-N: Tail terminus. Scale bar: A - 102 μ m, B - 190 μ m, C, F - 31 μ m, others 20 μ m.

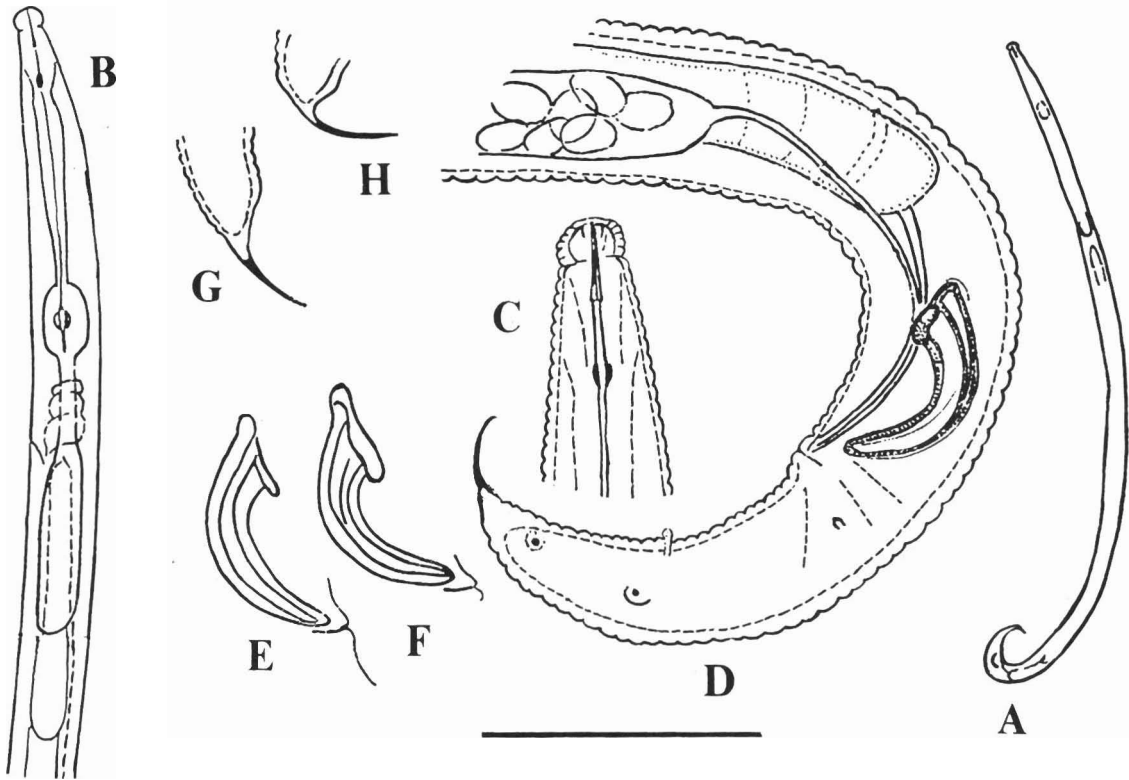


Fig. 2. *Aphelenchoides tsalolikhini* sp.n. Male. Paratypes. A: General view; B: Anterior end; C: Cephalic region; D: Tail, E, F: Spicules; G, H: Tail terminus. Scale bar: A - 190 μ m, B - 41 μ m, others 20 μ m.

Biological note. Three other species of *Aphelenchoides* have been reported from aquatic ecotopes: *A. fluviatilis* - periphyton of Danube, Hungary (Andrassy, 1960), *A. gynotylurus* - silt of saline reservoir, Pakistan (Timm & Franklin, 1969) and *A. marinus* - leaves of *Thalassia* sp. in Biscayne Bay, Florida, USA (Timm & Franklin, 1969). As the order Aphelenchida is believed to have originated and developed in soil habitats, the transition of *Aphelenchoides tsalolikhini* sp. n. and some other *Aphelenchoides* species into aquatic biotopes may be considered a secondary feature for the genus.

The newly described paravulvar bodies, consisting of 2 pairs of dark cells, may function as ganglia or as supporting cuticular structures during

copulation. The structure of the vulva and the vagina may be of help for taxonomic division of this large genus.

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Рысс А. Ю. *Aphelenchoides tsalolikhini* sp. n. (Nematoda: Aphelenchida) из Эфиопии.

Резюме. Описан новый вид *Aphelenchoides tsalolikhini* sp. n. из проб, взятых в районе озера Лангано в Эфиопии. Новый вид отличается от всех других видов рода *Aphelenchoides* наличием двух пар темноокрашенных склеротизированных клеток на дорсальной стороне вагины. *A. tsalolikhini* sp. n. сходен с *A. franklini* Sing, 1969, *A. parasaprophilus* Sanwal, 1965 и *A. subparietinus* Sanwal, 1961, но отличается от них формой терминуса хвоста, большей длиной хвоста у самцов и более коротким крылом спикюлы.