

APHELENCHOIDES ECHINOCAUDATUS SP. N. (NEMATODA, APHELENCHOIDIDAE)

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The new species described below was observed in the roots of maize grown continuously for several years on the experimental fields of the K. A. Timiryazev Agricultural Academy.

The nematodes were fixed in a solution of T.A.F. (2 parts triethanolamine, 7 parts 40% formalin and 91 parts distilled water). All measurements were made with fixed specimens. The illustrations were made by phase-contrast. The holotype, allotype and paratypes are kept by the author.

APHELENCHOIDES ECHINOCAUDATUS SP. N.

Holotype: female. L = 0.4268 mm; a = 24.5; b = 8.0; c = 16.7; V = 72.2%; stylet = 10.44 μ m.

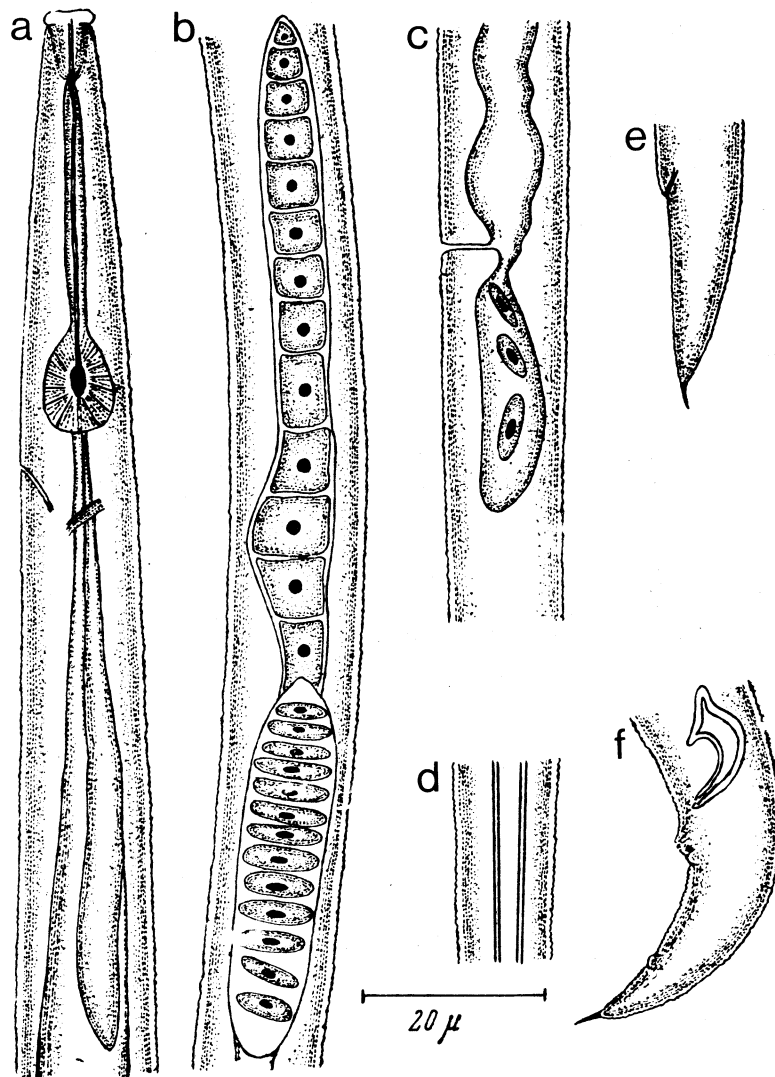
Allotype: male. L = 0.4257 mm; a = 28.2; b = 7.8; c = 15.9; T = 61.8%; stylet = 10.44 μ m.

Paratypes: males (n = 4). L = 0.3648 - 0.4716 mm; a = 23.3 - 28.2; b = 6.9 - 9.1; c = 12.6 - 19.0; T = 54 - 73%; stylet = 10.44 - 12.0 μ m; spicules = 16.24 - 18 μ m.

The fixed individuals are slightly curved. Female body cylindrical, tapering toward both ends. Body diameter at the base of the stylet 6.5 μ m; at the metacorpul bulb, 10.4 μ m; at the nerve ring, 10.4 μ m; at the excretory pore, 10.4 μ m; at the vulva, 13.0 μ m; at the beginning of the ovary, 13.0 μ m, and at the anus, 7.8 μ m.

Cuticle annulation very fine; annule width equals 0.38 μ m. Cephalic capsule smooth and separated from the body. Cephalic septa very weakly developed. Stylet small, thin, with a very clear lumen, and reaches 10.44 μ m in length (see Figure a). Basal knobs very weakly developed. Protractors marked and situated parallel to stylet axis. Procorpus of esophagus in the form of a straight tube which passes smoothly into the metacorpul bulb (see Figure a).

Metacorpul bulb oval and with a sclerotized bulbar cavity. Excretory canal sclerotized and well marked; excretory pore located somewhat behind the metacorpul bulb. Nerve ring located behind the excretory pore (see Figure a).



Aphelenchoides echinocaudatus sp. n.

a - anterior end of female body; b - ovary and spermatheca; c - posterior uterus; d - lateral field; e - female tail, laterally; f - male tail, laterally.

Ovary short and straight, oocytes with large nuclei, arranged in a single row. [Extremity of] ovary at a distance from the metacarpal bulb equal to 5.6 body diameters in the area of the beginning of the ovary. Spermatheca long, equals to almost 3 body diameters in the area of the vulva, and contains about 13 spermatozooids (see Figure b). Spermatozooids round-shaped.

Posterior uterus short; its length equals to approximately 2.1 body diameters in the area of the vulva. Spermatozooids were observed in the posterior uterus. Vulva straight (see Figure c).

Tail short, straight, conical, and gradually tapering, with a thin, long mucro, straight or slightly reflexed dorsally. Length of mucro approximately 2.32 μ m. The lateral field has four lines (see Figure d).

Male body cylindrical, tapering toward both ends. The fixed individuals are reflexed ventrally. Body diameter at base of the stylet 8.12 μ m; at the metacorpul bulb, 11.6 μ m; at the nerve ring, 12.76 μ m; at the excretory pore, 12.76 μ m; at the beginning of the testis, 13.92 μ m; and at the anus, 11.6 μ m.

Cuticle annulation fine; annule width equals 0.38 μ m. Cephalic capsule separated from the body. Cephalic septa weakly developed. Protractors marked and situated parallel to stylet axis. Stylet small, thin, with a clear lumen, and reaching 10.44 μ m in length. Basal knobs very weakly developed. The procorpus of the esophagus and the metacorpul bulb are precisely the same as in the female, just as are situated the nerve ring and excretory pore.

Testis short and straight, with spermatocytes arranged in a single row. The testis is at a distance from the metacorpul bulb of 5.8 body diameters in the area of the beginning of the testis.

Tail short, conical, with a long, thin mucro which is slightly directed dorsally. Tail slightly bent ventrally. Spicules quite slender, and reach almost 16.24 μ m in length. There is a pair of postanal papillae (see Figure f).

Differential diagnosis. Aphelenchoides echinocaudatus sp. n. is closest by its morphological characteristics to the following species: (1) Aphelenchoides helophilus (de Man, 1880) Goodey, 1933; (2) A. brevionchus Das, 1960; and (3) A. parasaprophilus Sanwal, 1964. The differences of these species are examined in the identification key.

IDENTIFICATION KEY OF FOUR SPECIES OF THE GENUS
APHELENCHOIDES FISCHER, 1894

- 1.(a) Small or average forms; measurements of the body 0.36 - 0.75 mm; index a = 27 - 37; lateral field with 4 lines; small aphelenchoid spicules, 16.2 - 21 μ m long 2
- (b) Very large forms; measurements of the body usually 0.85 - 1.3 mm; index a = 43 - 78; posterior uterus long; longitudinal lateral field lines not described; spicules aphelenchoid, 26 μ m long; 3 pairs of ventro-lateral papillae in males . . . Aphelenchoides helophilus
- 2.(a) Mucro on the tail of females and males sharp and long, 2.3 - 5 μ m; there are males and females 3
- (b) Mucro on tail normal; there are only males [sic]. Spicules 17 - 20 μ m, cuticle annulation very large; annule width about 1.0 μ m; tail papillae were not observed Aphelenchoides brevionchus

- 3.(a) Cuticle annulation very fine; annule width equals 0.38 μ m; index a = 23.3 - 28; posterior uterus short, almost 2.1 body diameters in the area of the vulva. Spicules length 16.24 - 18 μ m. There are two pairs of postanal papillae. Mucro thin, about 2.32 μ m long Aphelenchoides echinocaudatus sp. n.
- (b) Cuticle annulation very large, annule width equal to 1.0 μ m; index a = 33 - 37. Spicules length 21 μ m. Posterior uterus long - almost 3 body diameters in the area of the vulva. There are three pairs of postanal papillae. The female mucro is thin, but in the males is well-proportioned and thick, 3 - 5 μ m long Aphelenchoides parasaprophilus

LITERATURE

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APHELENCHOIDES ECHINOCAUDATUS SP. N. (NEMATODA, APHELENCHOIDIDAE)

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Summary

Aphelenchoides echinocaudatus sp. n. has been recorded from the roots of maize plants at the experimental fields of the Timiryazev Agricultural Academy (Moscow).

The new species differs in having very fine cuticle, thin stylet with slightly developed basal knobs measuring about 10.44-12.0 μ in males and 10.44 μ in females, short ovary, long spermatheca and short posterior uterine branch equal to 2.1 body diameter in the vulval region. Vulva straight and perpendicular to the body length. Lateral field with four incisures. Female tail short, conical ending in a thin long mucro about 2.32 μ in length. Male tail similar in shape, ventrally curved, bears two pairs of postanal papillae. Spicules measure about 16.24-18.0 μ in length. *Aphelenchoides echinocaudatus* sp. n. is closely related to *Aph. helophilus*, *Aph. parasaprophilus* and *Aph. brevionchus* on the basis of morphological characters. An identification key is provided for the four above mentioned species including the new one.