

NEW SPECIES OF PLANT NEMATODES FROM THE ARCTIC TUNDRA  
OF THE SOVIET UNION (YAMAL PENINSULA)

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During the phytohelminthological expedition from July to August 1972 on the Yamal Peninsula, we gathered a collection of phytoparasitic and free living nematodes which are encountered in the rhizosphere of arctic plant associations. The samplings of material were carried out farther north than Seyakha - 70° 10' north latitude, 72° east longitude. In all the biotopes inspected, the nematode fauna was discovered to be abundant in number and in the relation of species. With this, many species appeared new ones for science. We convey descriptions of two of them in this report.

Tylenchorhynchus jamalensis sp. nov.

Females (10): L = 0.808-0.930 mm; a = 26.9-31.8; b = 5.1-5.6; c = 8.3-9.5; V = 50.9-52.9%.

Males (5): L = 0.931-0.955; a = 30-31; b = 5.3-5.6; c = 9.8-10.2.

Holotype ♀: L = 0.925 mm; a = 28.3; b = 5.5; c = 8.6; V = 51%.

Allotype ♂: L = 0.942 mm; a = 31; b = 5.6; c = 10.2.

Nematodes average in size. Body cylindrical, slightly tapering toward both ends. Cuticle delicately annulated. Annule width in females and males 1.8  $\mu$ m. Lateral field 1/3 of body width and consisting of six incisures. Stylet powerful 27.5-28  $\mu$ m in length with large round knobs. Duct of dorsal esophageal gland opening into esophagus lumen at 1/5 of stylet length below its basal part. An equal number of females and males ususally observed in all the biotopes investigated. The rhizosphere is occupied down to a depth level of 15 cm.

Female. Genital system didelphic. Ovaries straight; spermatheca rounded. Vulva located somewhat behind the center of the body (V = 51-53%); cephalic capsule offset. Six annules distinctly visible on its surface. Skeleton of the cephalic capsule weakly sclerotized; metacorpul bulb rounded; length of procorpus usually smaller than isthmus and glandular part of the esophagus taken together; glandular part of esophagus (Cardial bulb) elongated-oval; excretory pore at level of the passage of glandular part of esophagus into the isthmus. Nerve ring enveloping the isthmus somewhat above its center. Female tail reaching 84.5-100.5  $\mu$ m in length bluntly conical and with original ornamentation of the tip. The configuration of the surface of the tail tip differs from individual to individual (Figure 1, d, e, f, f); phasmid located close to center of tail, somewhat closer to level of anal opening.

Male. Males similar to females in outward appearance. The length of the males, as also their thickness (a = 30-31), is usually the same as for the females. Spicules paired. There is a delicate curved gubernaculum. Spicules 30  $\mu$ m long; bursa peloderan, typically tylenchorhynchoid. The tail is also no different from male tails of other species of Tylenchorhynchus Cobb, 1913, being ventrally curved with a sharply conical tip; testis well developed and its germinal zone is flexed.

Differential diagnosis. T. jamalensis sp. n., according to its morphological and biometrical data, is close to the species T. lineatus Allen, 1955, but it differs from the latter by the presence of cuticular ornamentation on the end of the bluntly conical tail of the females, by the wider and more elongated glandular part of the esophagus, and by the higher (closer to the anus) position of the phasmid in the females.

Ecological notes: Individuals of T. jamalensis sp. n. (females, males, and larvae) were found in the upper level of tundra soil (up to 15 cm in depth) in the rhizosphere of various herbaceous plant associations, and also of the polar willow and polar birch. In the course of 24 hours, the temperature of the soil at this depth fluctuated within the limits from +8

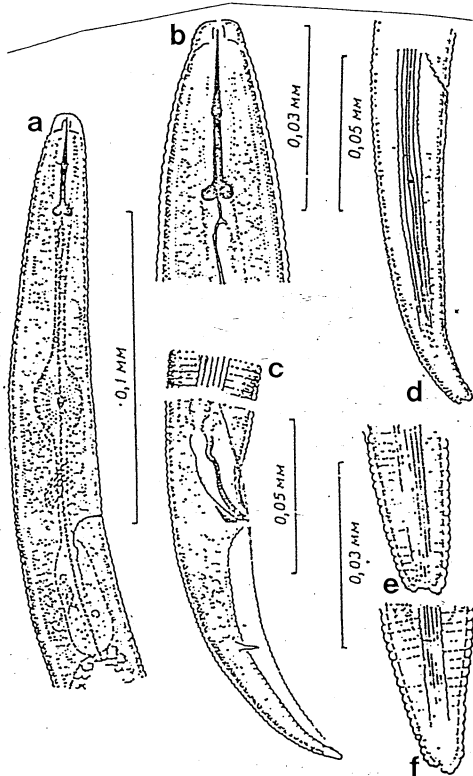


Figure 1. - Tylenchorhynchus jamalensis sp. nov. a - Trophico-sensory section of the body of the female; b - Anterior end of the body greatly enlarged; c - Posterior end of the body of the male; d, e, f - Variations in the tail of the female.

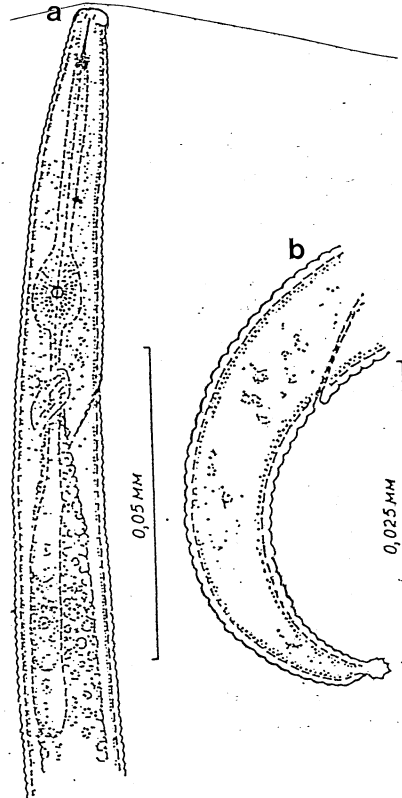


Figure 2. - Aphelenchoides seiachicus sp. nov. a - Trophico-sensory section of the body of nematode; b - Tail end of body.

to +4° C. Individuals of T. jamalensis sp. n. are usual in the rhizosphere of tundra vegetations on small hills, on damp slopes, and in moderately damp ravines. Individuals of T. jamalensis sp. n. were not observed in the intensely marsh-ridden lowlands. Apparently, this species is an ectoparasite of the root system.

Aphelenchoides seiachicus sp. n.

Females (5): L = 0.374-0.423 mm; a = 28.8-32.5; b = 3.1-3.4; c = 12.1-14.5; v = 66.4-70.5%.

Holotype (female): L = 0.380 mm; a = 29.2; b = 3.2; c = 12.6; v = 69.4%.

Males not observed.

Small, slender nematodes; cuticle delicately annulated; lateral field not noticeable; cephalic capsule clearly offset with a weakly sclerotized supporting skeleton; stylet delicate with small rounded knobs. Its length is 9.5  $\mu$ m; metacorpul bulb oblong and more broadened in its posterior part; genital system typically aphelenchoid; ovary prodelphic and short; tail conical, ventrally bent in a fixed position, and with a mucro of complex original configuration. The mucro is spherical in shape with ribs greatly enlarged, reminding one of sharply tipped warts.

Differential diagnosis. Individuals of Aphelenchoides seiachicus sp. n. are close in some of their morphological and biometric data to the small forms of A. pusilus (Thorne, 1929) Filip'ev, 1934, but differ from them by the longer stylet, by the lower coefficient "c", by the clearly offset cephalic capsule and by the presence of a wide, complex mucro on the tail; A. seiachicus sp. nov. differs from species possessing complex mucros on the tail (A. asteroaudatus Das, 1960, A. besseyi Christie, 1942 and others) by the small measurements of the body, by the indices of de Man's formula, and by the originality of the structure of the caudal mucro.

The species was named after the village Seyakha in whose vicinity individuals of this species were observed.

Ecological notes. Individuals of A. seiachicus sp. nov. (females and larvae) were observed in single specimens in the rhizosphere of tundra vegetations growing on the tops of hills where the soil is moderately damp and is more intensely heated by the sun. Individuals of A. seiachicus sp. n. were observed only in the surface layer of soil to a depth of 5 cm where the temperature of the soil in the summer season fluctuates between 5° and 15° C.