

New records of mononchid nematodes from forests in the Slovak Republic

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Summary

Three mononchid nematode species new for the Slovak Republic were recorded in forest ecosystems. In regularly-flooded forests with *Fraxinetum - Salicetum* vegetation, the species *Mylonchulus andrassyi* and *Tigrionchoides ginglymodontus* were recorded; in soil with the *Querceto - Carpinetum* forest type, the species *Miconchus hopperi* was observed. Comments on the morphometrical characteristics and ecology of the recorded species are presented here.

Key words: Mononchida; *Miconchus hopperi*; *Mylonchulus andrassyi*; *Tigrionchoides ginglymodontus*; forest; Slovakia

During the investigation of nematode communities of forest ecosystems, three mononchid species new for the fauna of Slovakia were recorded. They are *Miconchus hopperi* Mulvey, 1962, *Mylonchulus andrassyi* Loof, 1993 and *Tigrionchoides ginglymodontus* (Mulvey, 1961) Andrassy, 1993.

The nematodes were recovered from soil samples by the sieving and decanting technique using a sieve of 80 µm with final extraction using a Baermann funnel. They were heat-killed, fixed in FAA, transferred to anhydrous glycerine and mounted permanently on microscope slides. Representative specimens were deposited in the nematode collection at the Parasitological Institute of SAS, Košice, Slovak Republic.

Miconchus hopperi Mulvey, 1962 (Fig. 1. A – C)

Measurement and description

Female (1): L = 3.00 mm; a = 42.9; b = 4.7; c = 9.4; c' = 6.6; V = 66. 8 %; buccal cavity 59 x 36 µm; tail length = 316 µm.

Males (2): L = 2.5, 2.6 mm; a = 30, 32; b = 4.7, 5.0; c = 11.6, 12.4; c' = 3.6, 4.5; buccal cavity = 50 x 39, 52 x 36 µm;

spicules length = 92, 9, 96.0 µm; supplements = 12, 13; tail length = 200, 224 µm.

The morphometrical characteristics of the Slovak specimens closely concur with the original description by Mulvey (1962) from the U.S.A and the description by Popovici (1990) from Romania.

Female is ventrally arcuated upon fixation; cuticle smooth; lip region with distinct labial papillae, lips 20 µm high and 60 µm wide, set off. Buccal cavity elongate, moderately chitinised, teeth fairly large, nearly of equal size, dorsal tooth apex 20 µm or 34 % from base of buccal cavity. Oesophagus 644 µm long. Vulva transverse, reproductive tract double, reflected, egg 112 x 25 µm. Diameter of body at anal level 48 µm. Tail conoid, arcuate, strongly tapering with acutely rounded terminus; caudal glands and spinneret absent. In contrast to the original description, our female specimen is characterised by a more tapering end of the tail.

Males of smaller body length in comparison to female. The form of labia, buccal cavity and tail similar to those of female, but the posterior part of body is extremely curved with almost reversed tail. The spinneret and caudal glands absent. Diameter of body at level of anus 56, 62 µm. The gubernaculum of 20, 23 µm and lateral accessory pieces of 16 µm long.

Locality and plant association

The species was recorded at the locality of Podčiava, orographic unit Beskydské predhorie promontory of north-eastern region of Slovakia. The sampling site is characterised by *Querceto - Carpinetum* forest with undergrowth mostly of *Rubus caesius* and *Asperula* sp., by heavy clay-loamy forest soil, soil type Cambisol derived from Carpathian flysh.

This rare species is known from California, where it was originally described from the rhizosphere of *Pinetum* forest (Mulvey, 1962); in Europe it is known from Romania,

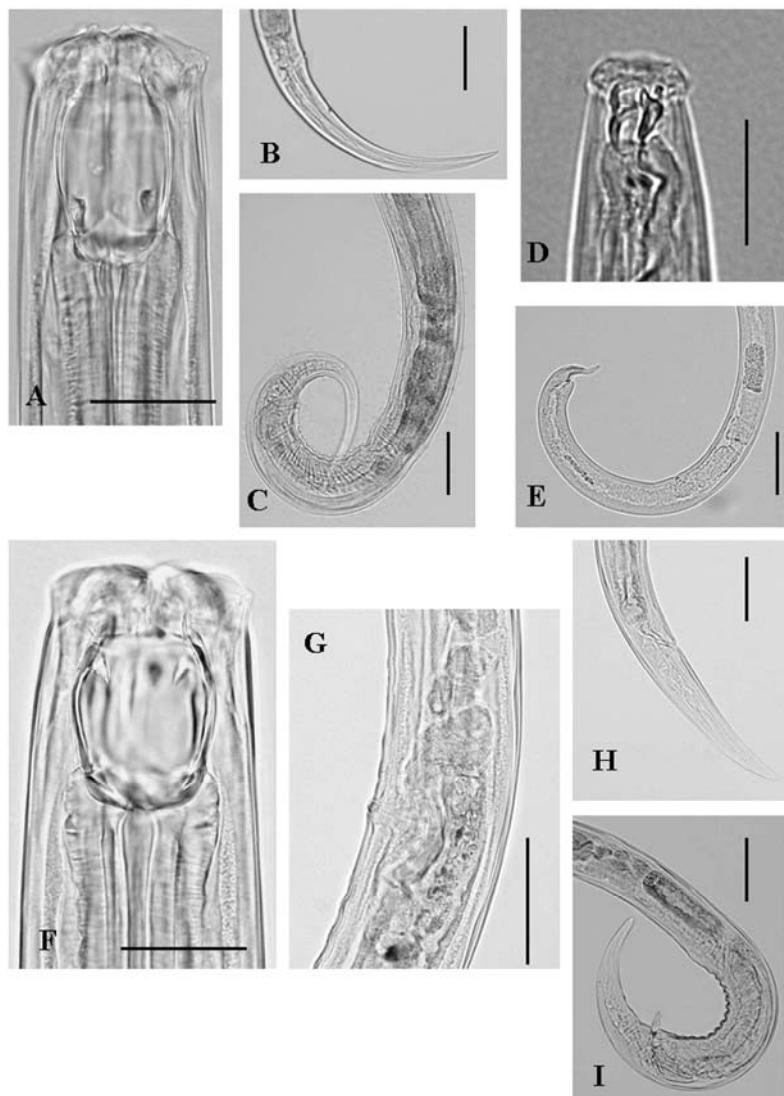


Fig. 1. *Miconchus hopperi* Mulvey, 1962. A: Female head region; B: Female tail; C: Male tail. *Mylonchulus andrassyi* Loof, 1993. D: Female head region; E: Vulva and posterior region. *Tigrionchoides ginglymodontis* (Mulvey, 1961) Andrassy, 1993. F: Female head region; G: Vaginal region; H: Female tail; I: Male posterior region;
(Scale bars: D = 25 μm ; A, F = 40 μm ; B, C = 75 μm ; E, G, H, I = 100 μm)

where it occurs in the soil of *Fagetum* and *Piceetum* forest, meadow, pasture and dwarf shrubs (Popovici, 1990) and in the Ukraine (Bongers, 2004).

Mylonchulus andrassyi Loof, 1993 (Fig. 1. D – E)

Measurement and description

Females (2): L = 1.03, 1.10 mm; a = 26.3, 32.2; b = 3.7; c = 22.4, 27.6; c' = 1.8, 2.3, 27.6; V = 71.0, 75.2 %.

Males absent.

The morphometrics of the females closely concur with the description of the female from Austria (Loof, 1993), from which it differs by larger body width (a = 26.3, 32.2 vs. 39) and by longer uterine sac (80 and 112 μm vs. 32 μm). The morphometrics of Slovak females correspond well to those listed in The Key to Species of *Mylonchulus* published by Andrassy (1992) as well. They were characterised by an arcuated C-form of the body after fixation, lip region of

one female of 20 μm wide and 6 μm high, separated, buccal cavity 20 x 10 μm , dorsal teeth apex 16 μm , or 81 % from the base of buccal cavity, 5 transverse rows of denticles. The second female showed a deformed head region. Maximal body width of 40, 42 μm , body width at anal level of 21 and 22 μm . Reproductive system monodelphic, vulva with gentle but distinct sclerotised pieces, no vulval papillae present. Post uterine sac 80, 112 μm long. One egg 52 x 20, 84 x 30 μm . Tail S-shaped, 40, 46 μm long, behind anus tail suddenly tapering off about 4 μm , then again tapering sharply, terminal part cylindrical, terminus rounded. Tail with grouped caudal glands and terminal spinneret.

Locality and plant association

The species was recorded in the locality of Brodské in the south - western region of the country, in orographic unit Borská rovina, the plain of the River Morava at the Slovak

- Czech border, in wet, heavy clay soil with Fluvisol soil type, regularly flooded forests with *Fraxinetum* – *Salicetum* vegetation, undergrowth with *Urtica dioica* sporadically with *Rubus idaeus*.

The species is known from meadows at Oberseebach near Lake Lunz in Austria (Loof, 1993), from water of Baradla cave in Hungary (Andrássy, 1959a), from groundwater in Northern Italy (Andrássy, 1959b) and from a cave near Bergamo in Italy (Zullini, 1982). After consideration of Loof (1993) the species of *Paramylonchulus californicus* from Romania reported by Popovici (1990) is probably *Mylonchulus andrassyi* as well. This can be supported by a close concordance of the morphometrics of the Slovak specimens of *M. andrassyi* with those given from Romania.

***Tigronchoides ginglymodontus* (Mulvey, 1961) Andrássy, 1993 (Fig. 1. F–I)**

Measurement and description

Females (6): L = 2.71 mm (2.43 – 2.96 mm); a = 27.6 (22.5 – 33.7); b = 4.4 (4.1 – 4.8); c = 11.7 (8.8 – 14.5); c' = 4.2 (3.8 – 4.7); V = 67.6% (64.7 – 69.7%).

Males (5): L = 2.62 mm (2.50 – 2.96 mm); a = 30.5 (25.9 – 37.8); b = 4.4 (4.2 – 4.7); c = 15.7 (13.8 – 16.6); c' = 2.8 (2.5 – 3.3); spicules = 112 µm (108 – 117 µm); supplements = 14 (13 – 15); lateral pieces 18 µm (16 – 20 µm).

The morphometrics of females and males agree closely with original description (Mulvey, 1961), with specimens from Yugoslavia (Barsi, 1991) and Bulgaria (Peneva et al., 1999). Female body ventrally arcuated after fixation. Lips sometimes flat, with distinct labial papillae, lip region slightly separated, 62 – 82 µm wide and 16 – 22 µm high. Buccal cavity roomy, barrel-shaped, 50 – 64 µm long and 40 – 64 µm wide, with three retrose teeth lying at anterior end of buccal cavity, dorsal teeth apex at 71 – 84 % from the base of buccal cavity. Oesophagus 611 – 648 µm long, oesophageal-intestinal junction tuberculate. Vulva with sclerotinised pieces, provided with 4 – 6 anterior and posterior vulval papillae. Gonads amphidelphic. Body diameter at anal level of 52 – 60 µm. Tail 204 – 280 µm long, elongate, conical, ventrally curved, tapering, tip rounded. Three caudal glands and spinneret present.

Males similar to females. In agreement with the description of males of the genus *Tigronchoides* published by Andrássy (1993) and Peneva et al. (1999), the teeth are situated more posterior in the buccal cavity - dorsal teeth is 64 – 71 % from the base of the buccal cavity. Length of oesophagus 541 – 611 µm, tail length 160 – 192 µm.

Locality and plant association

In Slovakia, the species was observed at the same sampling site as *Mylonchulus andrassyi*, in mixed populations with

this species.

According to Andrássy (1993) *T. ginglymodontus* is the most abundant species from the genus *Tigronchoides*, occurring in Poland, Romania, Serbia, Spain, Tadzhikistan, the U.S.A. and New Zealand. From Bulgaria, it was reported by Peneva et al. (1999). The species prefers terrestrial habitats, such as *Fagetum* and *Quercetum* forests, pasture, meadow, cultivated soil and soil with *Vitis* sp.

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