Research note

First record of three nematode species in Slovakia with new data on their morphology

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Summary

During a survey of the nematode fauna of river bank vegetation in the central and south eastern regions of the Slovakia three species were found which are all new records for the country viz. *Aulolaimus nannocephalus* Andrassy, 1972, *Hemicycliophora aberrans* Thorne, 1955 and *Paratylenchus paramonovi* Bagaturia & Solovyova in Solovyova, 1972.

Key words: Nematode species; new records; riverbank vegetation; Slovakia

Introduction

For this study of the nematode fauna of riverbank vegetation in the Slovakia, three different sites were chosen throughout the central and south eastern regions of Slovakia. During a survey of these areas three nematode species viz. *Aulolaimus nannocephalus* Andrassy, 1972, *Hemicycliophora aberrans* Thorne, 1955 and *Paratylenchus paramonovi* Bagaturia & Solovyova in Solovyova, 1972, were observed. In all three cases very little is known about the geographic distribution of these species. *Aulolaimus nannocephalus* is known only from Hungary, Germany and Georgia. *Hemicycliophora aberrans* was described from a riverbank in Cottonwood Canyon, Utah, USA and *Paratylenchus paramonovi* was originally described from Russia and was subsequently reported from soil near water reservoirs in Poland (Brzeski, 1995). Additional morphometrical and morphological data are given for these relatively scarce species. All three appear to prefer moist riverbank habitats in the Slovakia each with a specific vegetation type. In this paper more data is given on morphological characters as well as on the distribution and ecology of these species.

Material and Methods

Soil samples were collected from the chosen sites of stream and riverbank vegetation in central (C) and south eastern (SE) Slovakia during May and June 2000. Sampling sites were characterised by permanent wet soil and the specific flora present viz. mostly *Alnus glutinosa*, *Fraxinus angustifolia*, *Populus* sp. and *Salix* sp. with undergrowth of *Urtica dioica*, *Rubus caesius* and *Deschampsia caespitosa*. Soil samples were collected at a depth of 5 – 20 cm. Nematodes were isolated from the soil using Cobb's flotation sieving method, fixed in FAA and mounted in pure glycerine on permanent slides.

Results

Descriptions of the nematode species

Aulolaimus nannocephalus Andrassy, 1972 (Fig. 1)

This species was collected from a very wet, heavy clay-loamy soil on the Latorica River bank near Svätá Mária in SE Slovakia, orographic unit Východoslovenská rovina plain, at an altitude of 110 m, 49°28'N, 21°52'E, soil pH 4.8.

Measurements:

7 females: L = 710 µm (680 – 780), a = 34.3 (32.1 – 39.0), b = 5.1 (4.8 – 5.5), c = 4.5 (4.3 – 4.6), V = 46.9 % (44.1 – 48.6). Measurements and morphology agree with the original description of the species (Andrassy, 1972). Head is extremely narrow about 2.0 µm wide, 10 times narrower than base of oesophagus which is „ripped“, muscular, crossed by nerve ring and elongated with a lap similar cardia. Inside a wing similar enlarged vulva, paired gonads, anus distinct, tail long (about 170 µm), about 25 % of its length behind anus the tail suddenly narrows, ending filiform. Males not observed.

The only representatives of the genus *Aulolaimus* de Man, 1880 in Slovakia so far are *A. oxycephalus* de Man, 1880

Fig. 1. *Aulolaimus nannocephalus*: A – Female; B - Anterior region; C – Vulval region; D – Tail region

Fig. 2. *Hemicyclophora aberrans*: A – Female; B – Anterior region; C – Vulval and tail region

which has been found in soil of fruit and forest nurseries (Stollárová *et al.*, 1999) and an unidentified *Aulolaimus* sp. from soil from barley, hyso and maize (Sabová *et al.*, 1980). *A. nannocephalus* is readily distinguished from *A. oxycephalus* by the presence of a long filiform tail and a differently structured lip region.

Hemicyclophora aberrans Thorne, 1955 (Fig. 2)

This species was collected from wet sandy and loamy-sandy soil on the Čremošná stream bank near Lipovník, orographic unit Rožňavská kotlina basin, a valley in SE Slovakia, at an altitude of about 340 m, 48°42'N, 20°32'E, soil pH 6.0.

Measurements:

2 females: L = 910; 990 μ m, a = 26.8; 27.5, b = 5.3; 5.5, c = 20.2; 22.5, V = 86.0; 87.3 %, Stylet = 92; 99 μ m, 293; 295 body annules, position of excretory pore 56 or 57 annules from anterior end, number of annules from anterior end to vulva = 246; 258, Rva = 27; 29, tail – Rt = 19; 20 (anus not distinct), VT/VB = 3.4; 3.8. The Slovakian specimens comes close to those of the original description (Thorne, 1955) as well as those of Brzeski (1974) but differ

slightly in the following: stylet shorter (92 – 99 μ m vs 118 μ m), more body annuli (293 – 295 vs 244 – 255) resulting in a larger Rex value 56 – 57 vs 49; RV = 246 – 258 vs 209 – 218; Rva = 27 – 29 vs 19 – 23; Rt = 19 – 20 vs 16 and VT/VB value = 3.4 – 3.8 vs 2.6. Males and juveniles were not found. These specimens occurred together with a large population of *H. thienemanni*, from which it differs mainly in having a more broadly rounded female tail.

Paratylenchus paramonovi Bagaturia & Solovyova in Solovyova, 1972 (Fig. 3)

This species was collected from a wet, light sandy gravel on the bank of the Slatina River near Detva in C Slovakia, orographic unit Zvolenská kotlina basin, in a valley at an altitude of about 410 m, 48°34'N, 19°25'E, soil pH 3.6.

Measurements:

2 females: L = 520; 540 μ m, a = 28.9; 33.7, b = 4.0; 4.4, c = 10.4; 10.5, V = 80.0; 81.5 %, EP = 106; 108 μ m, Stylet 36; 38 μ m, c' = 3.7, EP%L = 20.0; 20.3 %. The morphometrics agree with the descriptions of numerous populations from Poland (Brzeski, 1995). The acute tail tip is

Fig. 3. *Paratylenchus paramonovi*: A – Female; B – Anterior region; C – Vulval and tail region

the main characteristic of this species. The present specimens of *P. paramonovi* occurred in mixed populations together with *P. bukowinensis* which can be separated from *P. paramonovi* mainly in the following: having a shorter body ($L = 320 - 400 \mu\text{m}$ vs $520; 540 \mu\text{m}$) and stylet ($24 - 28 \mu\text{m}$ vs $36; 38 \mu\text{m}$) and a rounded tail tip. This species appears to prefer moist, light sandy soils as was found by Brzeski (1995) and also supported by this study.

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