

Nematodes from the Botanical Garden in Sopron, Hungary

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Abstract. This article presents some nematode species observed in the Botanical Garden in Sopron, western Hungary. One species, *Anatonchus hortensis* is described in detail.

The Botanical Garden, the terrestrial nematodes of which were studied, is situated in Sopron, a West-Hungarian town. It is rich in various plant species, particularly the evergreen collection of the garden is of European reputation. Two dozens of species of fir trees, more than thirty species of spruces, more than thirty ones of junipers, barberries and hundreds of species of deciduous trees and shrubs are on show (Kocsó, 2003).

MATERIALS AND METHODS

Soil and moss samples were collected under *Metasequoia glyptostroboides* (dawn redwood), *Sequoia sempervirens* (coast redwood), *Taxodium distichum* (bald cypress), *Acer tetramerum* (birch-leaf maple) and soil of greenhouse from Sopron Botanical Garden (University of West Hungary), in September 2008 by the present author. Nematodes were isolated using Bearmann's funnel method (Andrássy & Farkas, 1988). They were fixed in FAA and then transferred in anhydrous glycerine by a slow method. The nematodes were examined using a light microscope. Drawings were made with the aid of a drawing tube attachment. Measurements were taken by an ocular micrometer, curved structures measured along medial line.

RESULTS

Twelve nematode species have been identified from terrestrial habitats of the Botanical Garden (Table 1). There were no nematodes in samples

taken from the greenhouse because the soil was treated with nematicid chemicals.

Anatonchus hortensis Andrásy, 1973

(Figs. 1–7)

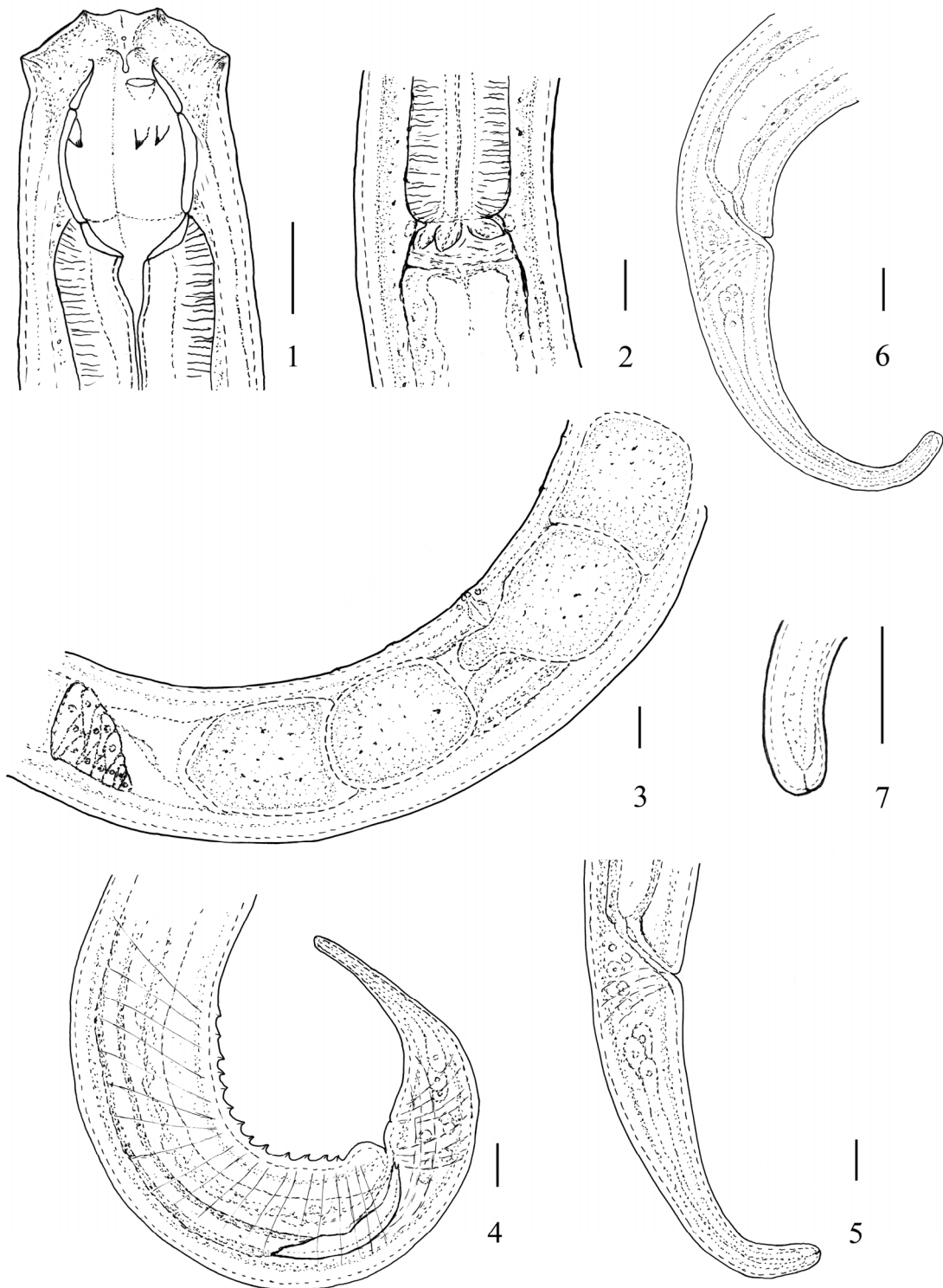
Females (n = 9): L = 1.5–2.0 mm; a = 21–23; b = 3.8–4.5; c = 8–12; c' = 3.0–4.8; V = 61–65%.

Males (n = 4): L = 1.5–1.8 mm; a = 20–22; b = 3.8–4.0; c = 10–12; c' = 2.9–3.9.

General description. Body ventrally curved, C-shaped after fixation, 74–84 µm wide at the mid-region. Cuticle smooth, 2–3 µm thick. Labial region 40–49 µm wide, slightly set off from body. Buccal cavity oblong, 41–46×23–28 µm. Dorsal and subventral teeth somewhat before the mid-stoma with apices located at 40–45 % (from anterior end of buccal capsule). Dorsal tooth 4–5 µm long. Oesophagus 412–450 µm long, occupying 24–27 % of entire body length. Body at proximal end of oesophagus 1.5–1.8 times as wide as head. Amphids located at level of anterior end of buccal cavity, 7 µm wide, cup-shaped, at 16–18 µm from anterior end. Oesophago-intestinal tubercles well developed.

Female. Female genital system amphidelphic, occupying 27–33 % of body length. Vulva transversal with slightly sclerotized lips. Vagina 21–25 µm long. Eggs: 75–92×50–56 µm, oblong, somewhat longer than wide, partly pressed against each other. Three females contain three, one four and two five eggs. Each gonad 3.5–4.1 times as long as body diameter. Anterior to vulva one or two, posterior to it two ventral papillae. Rectum 33–37 µm long, shorter than one anal body width.

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Figures 1–7. *Anatonchus hortensis* Andrassy, 1973. 1: anterior end; 2: cardial region; 3: vulval region; 4: male tail; 5–6: female tail; 7 tip of female tail. (Scale bars 20 μ m each)

Distance between vulva and anus 2.3–2.9 times as long as tail. Tail 142–230 µm long, 9–12 % of total body length, 3.8–4.8 times as long anal body diameter. Tip of tail finely rounded. Caudal glands with terminal opening.

Male. Body more strongly curved in posterior region. Ventromedial supplements 13–14. Spicula 65–73 µm long, slender. Tail 150–180 µm long, 3.6–3.9 times the anal body diameter, 9–10 % of entire body length, elongate-conical, gradually tapering to the finely rounded terminus. Caudal glands and spinneret similar to those of females.

Remarks. *Anatonchus hortensis* was described by Andrásy (1973) from a garden soil in Budapest. Subsequently, it was observed in several countries in Europe, viz. Serbia, Romania, Bulgaria, Spain and France. Good descriptions are found in the publications of Barsi (1989), Popovici (1990) and Peneva, Neilson & Nedelchev (1999). The present specimens well correspond to the previous descriptions, only some minor morphometrical differences can be observed.

Habitat and locality. Soil and moss from under dawn redwood (*Metasequoia glyptostroboides*) and bald cypress (*Taxodium distichum*) from Sopron Botanical Garden; collected in September 2008 by the present author.

FURTHER SPECIES OBSERVED

Class TORQUENTIA

Plectidae

Anaplectus granulatus Bastian, 1865

Habitat and distribution. Cosmopolitan, one of the most common species of soil-inhabiting nematodes.

Plectus parietinus Bastian, 1865

Habitat and distribution. A very common cosmopolitan species, predominantly in terrestrial habitats.

Class SECERNENTIA

Cephalobidae

Acrobeles ciliatus Linstow, 1877

Habitat and distribution. A worldwide distributed species. Frequent in different terrestrial habitats.

Class PENETRANTIA

Tripylidae

Tripylina arenicola (de Man 1880) Brzeski, 1963

Habitat and distribution. Moderately frequent species, living in soil and moss.

Alaimidae

Alaimus primitivus de Man, 1880

Habitat and distribution. Very frequent species, terricolous and aquatic.

Alaimus similis Thorne, 1939

Habitat and distribution. Common species, frequent in soil.

Mylonchulidae

Mylonchulus brachyuris (Bütschli, 1873) Cobb, 1917

Habitat and distribution. Frequent in terrestrial habitats, distributed all over the world.

Aporcelaimidae

Aporcelaimellus alius Andrásy, 2002

Habitat and distribution. Soil species, known from Hungary: Fertő-Hanság National Park (Andrásy, 2002) and Sas Hill in Buda (Kiss, 2009).

Aporcelaimellus medius Andrásy, 2002 (Figs. 8–11)

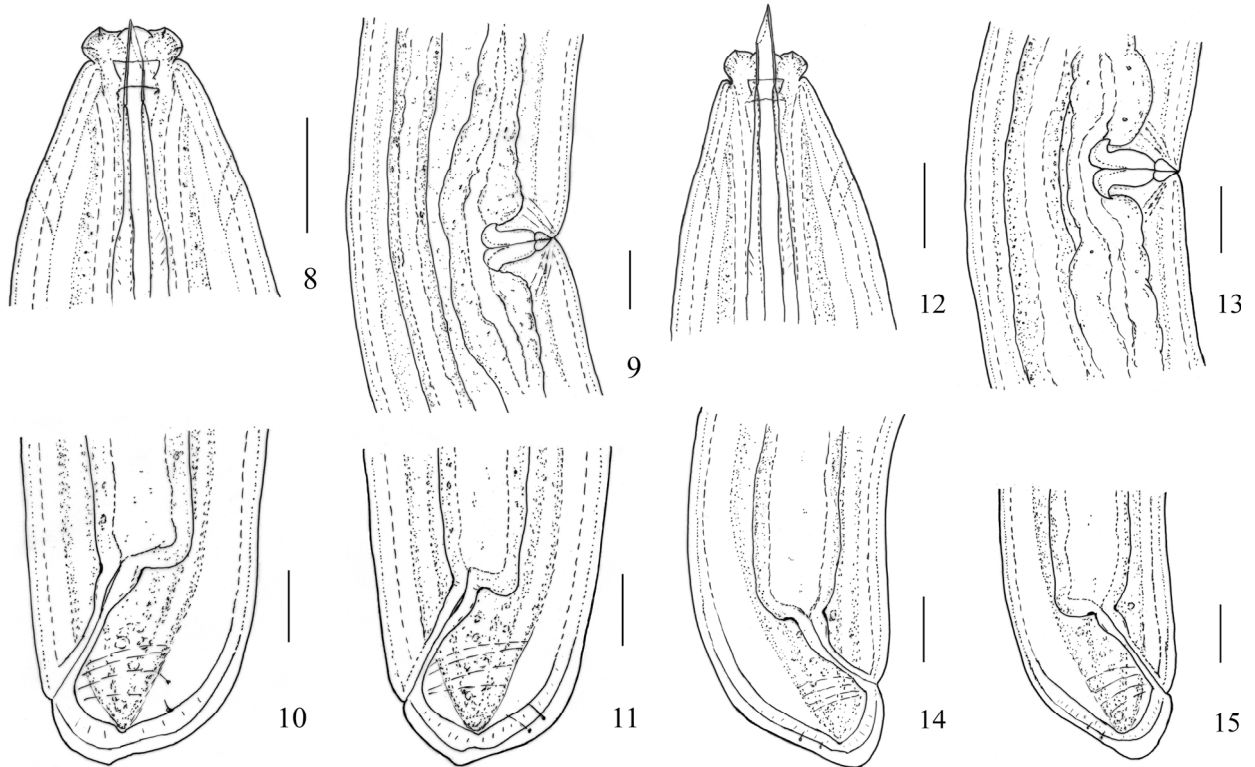
Habitat and distribution. Soil species, known from Hungary: Fertő-Hanság National Park (Andrásy, 2002).

Aporcelaimellus obtusicaudatus (Bastian, 1865) Altherr, 1968

Habitat and distribution. Cosmopolitan species, very frequent in a wide range of terrestrial habitats.

Aporcelaimellus samarcandicus (Tulaganov, 1949) Baqri & Khera, 1975 (Figs. 12–15)

Habitat and distribution. Known from Uzbekistan and Hungary, Fertő-Hanság National Park (Andrásy, 2002).



Figures 8–11. *Aporcelaimellus medius* Andrassy, 2002. 8: anterior end; 9: vulval region; 10–11: female tail. (Scale bars 20 µm each)

Figures 12–15. *Aporcelaimellus samarcandicus* (Tulaganov, 1949) Baqri & Khera, 1975. 12: anterior end; 13: vulval region; 14–15: female tail. (Scale bars 20 µm each)

Table 1. List of nematode species observed. 1: soil under *Metasequoia glyptostroboides* (dawn redwood); 2: soil under *Sequoia sempervirens* (coast redwood); 3: soil under *Taxodium distichum* (bald cypress); 4: soil from the greenhouse; 5: soil under *Acer tetramerum* (birch-leaf maple)

| Species | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------|---|---|---|---|---|
| <i>Acrobeles ciliatus</i> | - | + | - | - | - |
| <i>Alaimus primitivus</i> | - | - | + | - | + |
| <i>Alaimus similis</i> | + | - | + | - | + |
| <i>Anaplectus granulosus</i> | + | + | - | - | + |
| <i>Anatonchus hortensis</i> | + | - | + | - | - |
| <i>Aporcelaimellus alius</i> | + | - | + | - | + |
| <i>Aporcelaimellus medius</i> | + | - | + | - | + |
| <i>Aporcelaimellus obtusicaudatus</i> | - | + | + | - | + |
| <i>Aporcelaimellus samarcandicus</i> | + | - | + | - | - |
| <i>Mylonchulus brachyuris</i> | + | - | + | - | + |
| <i>Plectus parietinus</i> | + | + | - | - | - |
| <i>Tripylina arenicola</i> | + | - | + | - | + |

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