FREE-LIVING NEMATODES FROM TWO DOLOMITE HILLS IN HUNGARY, WITH DESCRIPTION OF SCLEROLAIMUS HUNGARICUS SP. N.

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During elaborating an interesting material from the rocky grasslands of Sas Hill and Út Hill (Hungary) 30 free-living nematode species were observed, including representatives of the rare genus Sclerolaimus JAIRAJPURI et AHMAD, 1992 (Dorylaimida, Leptonchidae). A new species, Sclerolaimus hungaricus sp. n., is described. With 11 original figures and 6 photos.

Key words: Nematoda, rocky grassland, Sclerolaimus, Hungary, new species, taxonomy

INTRODUCTION

The two areas studied, Sas Hill and Út Hill, are dolomite hills of Triassic age belonging to the Duna–Ipoly National Park. The rich superficial forms resulted in a varied mosaic of plant associations, at the same time conditions were favourable for emerging of some very rare and precious endemic species, while other species could take refuge here to avoid extinction. Sas Hill has been protected since 1958. Út Hill is part of Csíki Hills, it has been protected since 1978 as part of the Buda Landscape Protection Area. The parent material of the Csíki Hills is dolomite and limestone of Triassic age (with layers of rock-flint), on which later snow-white Dachstein lime stone, then different marl deposits have been settled (JUHÁSZ 1987). The dolomite rocky grasslands thrive on rendzina soil which is dark grayish-brown, humus-rich, intrazonal soil (STEFANOVITS, FILEP & FÜLEKY 1999).

The nematode fauna of Csíki Hills and Sas Hill is scarcely known. The first data are from ANDRÁSSY (1979) who reported some rare species from Sas Hill, and later (ANDRÁSSY 1980) described a new species (Scutylenchus apricus ANDRÁSSY, 1980) from there.

I started to study the nematode fauna of Csíki Hills in 2006 and Sas Hill in 2007 and the research on its seasonal dynamics is still in progress. During my studies 30 Nematoda species have been recorded so far, including a new species here-with described.
MATERIAL AND METHODS

Soil samples were collected from closed rock grassland (Festucetum pallentii–Brometum pannonici) and open rock grassland (Seseli leucospermi–Festucetum pallentii) by the author during 2006–2007.

Nematodes were extracted from soil samples by Baermann-funnel method. An extraction period of one day was applied. Nematodes were fixed in FAA and then transferred in anhydrous glycerine using a slow method (ANDRÁSSY & FARKAS 1988). The specimens were mounted on microscopic slides in anhydrous glycerine and examined using a light microscope. Drawings were made with the aid of a drawing tube. Measurements were taken by an ocular micrometer, curved structures measured along medial line. Photographs were taken by a Zeiss Axioskope 2 microscope, using DIC (Differential Interference Contrast) illumination and an Axiocam MRc5 digital camera with Axiovision 4.7.2 software.

RESULTS

In these protected territories 23 species were observed from Út Hill and 26 species from Sas Hill. Among them, Amphidelus lagrecai VINCIGUERRA et DE FRANCISCI, 1973 known from Hungary, Spain, Italy, and Greece and Amphidelus coluber ANDRÁSSY, 1973 known from Kenya, South Africa, and Mexico proves the Mediterranean-submediterranean character of Sas Hill (KISS 2009). The following rare species were also found: Dorylaimellus egmonti YEATES et FERRIS, 1984, Nagelus hexagrammus (STURHAN, 1966) SIDDIQI, 1979, Aporcelaimellus medius ANDRÁSSY, 2002, Aporcelaimellus alius ANDRÁSSY, 2002, Aporcelaimellus amylovorus (THORNE et SWANGER, 1936) HEYNS, 1965 and Eucephalobus mucronatus (KOZŁOWSKA et ROGUSKA-WASILEVSKA, 1963) ANDRÁSSY, 1967.

LIST OF SPECIES OBSERVED

Class SECERNENTIA
Cephalobidae


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Criconematidae


Hoplolaimidae


Telotylenchidae


Class TORQUENTIA

Monhysteridae


Plectidae


**Class PENETRANTIA**

**Alaimidae**


**Mylonchulidae**


**Qudsianematidae**


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Aporcelaimidae


Dorylaimellidae

Nordiidae


Belondiridae


Nygolaimidae


Paraxonchiidae

Leptonchidae

*Sclerolaimus* JAIRAJPURI et AHMAD, 1992


Female. Female genital apparatus amphidelpic. Gonads paired, opposed and reflexed. Both ovaries are functional. Vulva transverse. Tail hemispheroid, about one anal body diameter, posterior part hollow.

Male. Spicules dorylaimoid. Ventromedial supplements present, widely spaced. Tail hemispheroid longer than anal body diameter, posterior part hollow.


Remarks. *Sclerolaimus paradoxus* (LOOF et JAIRAJPURI, 1968) was originally described in the genus *Tylencholaimus* DE MAN, 1876. Later JAIRAJPURI and AHMAD (1992) detached it as a type species of their newly described genus *Sclerolaimus* classified in the family Tylencholaiminae (Tylencholaimidae). The above mentioned authors regarded *Sclerolaimus* closely related to *Tylencholaimus* DE MAN, 1876 and *Capilonchus* SIDDIQI, 1982 differing from the former in the sclerotized vestibule, the presence of cuticularised pieces around oral opening, the very fine odontostyle, the large and basally slightly thickened odontophore, furthermore in the well-developed cardia. (In *Tylencholaimus*, the vestibule is not sclerotized, cuticularised pieces are absent, odontostyle and odontophore are provided with distinct lumen and aperture, odontophore possesses distinct basal knobs and cardia is not enlarged). It differs from *Capilonchus* by the absence of labial disc, the presence of cuticularised pieces around stoma, the shape of vestibule, the well-developed cardia and by the amphidelpic reproductive system. (In *Capilonchus* a prominent labial disc is present and there are no cuticularised pieces around the stoma, the vestibule is inverted, thistle-funnel shaped, cardia rounded and the reproductive system mono-opisthodelphic).

ANDRÁSSY (2009) transferred the genus *Sclerolaimus* in Leptonchidae (Leptonchinae) on the basis of the cap-like head region, the attenuated odontostyle with
hardly discernible lumen, the simple odontophore and on the short basal part of oesophagus. This genus is thought to be closely related to *Leptonchus* COBB, 1920, but the straight odontophore and the relatively long cylindrus distinguish it from *Leptonchus* (ANDRÁSSY 2009).

**Sclerolaimus hungaricus** sp. n.
(Figs 1–17)

**Diagnosis.** *Sclerolaimus hungaricus* sp. n. can be identified by the cap-like head region with six small sclerotized pieces, needle-like odontostyle, 7–9 ventromedial supplements, hemispheroid tail of male and conoid rounded tail of female.

**Description.** Holotype female, L = 1.27 mm; a = 28; b = 5.9; c = 44; c’ = 1.2; V = 55%. Paratype females (n = 12), L = 1.06–1.37 mm; a = 29–34; b = 5.2–5.9; c = 36–44; c’ = 1.0–1.2; V = 51–55%. Paratype males (n = 10), L = 1.06–1.27 mm; a = 29–37; b = 4.3–6.4; c = 32–44; c’ = 1.1–1.4.

Body slender, 36–42 µm wide at middle, ventrally curved after fixation. Cuticle smooth, very thin, 1 µm in most regions and 1.0–1.5 µm in the middle of tail. Outer layer of cuticle with fine transverse striations, inner layer coarsely striated and irregularly contoured. Amphids large, nearly encircling head. Lip region 9–10 µm wide. Lips offset by a deep constriction, cap-like, the central part overhang, the inner papillae very large. Body at the posterior end of oesophagus 3.1–3.3 times wider than head.

Odontostyle 6–7 µm long, very fine, odontophore straight, 8–10 µm long with small basal thickenings. Lumen of odontostyle frequently hardly discernible. Oesophagus 205–247 µm long, occupying 16–19% of body length. The two parts of oesophagus separated by a deep constriction. Glandularium 35–42 µm long, 12–19 % of entire length of oesophagus. Excretory pore not seen. Cardia cylindroid, 8–10 µm.

Intestine consisting of large, elongate-ovoid cells. Female prerectum 6–8 anal body widths long; intestine–prerectal junction with three large cells.


Male. Similar to female but generally more slender. Testes two, dorylaimid. Spicules dorylaimid, slender, 34–40 µm long with lateral guiding pieces. Tail 30–35 µm long, hemispheroid, somewhat more conoid than that of female. 7–9 (mostly 9) ventromedial supplements present.


The type material is deposited in the Soil Zoology Collection of the Hungarian Natural History Museum, Budapest.

**Etymology.** The Latin *hungaricus* means Hungarian.
Figs 1–4. *Sclerolaimus hungaricus* sp. n.: 1 = anterior end, 2 = cardial region, 3 = vulval region, 4 = intestine–prerectal junction. (Scale bars 20 µm each)
Figs 5–10. *Sclerolaimus hungaricus* sp. n.: 5–6 = male tail, 7–11 = female tail. (Scale bars 20 µm each)

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Figs 12–15. *Sclerolaimus hungaricus* sp. n.: 12 = anterior end, 13 = female tail, 14–15 = male tail. (Scale bars 40 µm each)
Remarks. This is the second species of the genus *Sclerolaimus*. The type species, *Sclerolaimus paradoxus* (LOOF et JAIRAJPURI, 1968) JAIRAJPURI & ÅHMAD, 1992 has only 3–6 supplements, female tale hemispheroid in contrast to the new species that has 7–9 preanal supplements, longer tail (females: c = 36–44 vs. c = 48–76; and males: c = 32–44 vs. c = 46–71), female tail conoid-rounded, constriction of oesophagus lies farther back (80–88% of entire length of oesophagus vs 70–74%) and somewhat thicker body (a = 29–34) than type species (a = 33–41).

The genus *Sclerolaimus* appears to have a European distribution. *S. paradoxus* was recorded from The Netherlands and Switzerland, while *S. hungaricus* sp. n. from Hungary.

REFERENCES


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