

## Trachyuropodid mites of the Carpathian Basin (Acari Uropodina: Trachyuropodidae)

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**Abstract.** Species of the family Trachyuropodidae occurring in the Carpathian Basin are summarized. Diagnoses of the family, subfamilies, genera and species are given, and keys to genera and species are provided. A new species, *Urojanetiella dentata* sp. n. is described. New combinations are: *Urotrachys formicariasimilis* (Hirschmann, 1975), *Urojanetia pecinai* (Hirschmann, 1976) and *Urojanetia cristiceps* (Canestrini, 1884). With 25 figures.

### INTRODUCTION

In the suborder Uropodina the family Trachyuropodidae is one of the most widely distributed families. The family was erected by Berlese (1917) who described several genera belonging to this family. Later Hirschmann (1961) revised the group in his specific system (“Gangsystematik der Parasitiformes”) and united them in two large, world-wide distributed catch-all genera. The species with well sclerotised dorsal shield were placed in the genus *Trachyuropoda*, while those without sclerotised dorsal shield in the genus *Oplitis*. Later, Hirschmann (1976 a) divided these two genera into several species groups. Recently about 100 species are known from all over the world occurring mainly in ant nests (Wiśniewski, 1993).

Only a few tachyuropodid records have been published from Hungary and the Carpathian Basin so far. The first Hungarian data are by Balogh (1938 a), who found two species, *Urojanetia excavata* (Wasm.) and *Uroplitella minutissima* Berl. in ant nests. In the very same year, Balogh (1938 b) published new records of other three species.

Hirschmann (1981) reported on two *Oplitis* species from the Hortobágy National Park, and prepared a list of the Uropodina species of the Bátorliget Nature Reserve, which contained only *Oplitis* species (Hirschmann, 1990). Wiśniewski and Hirschmann (1995) described a new species

from the material collected in Bátorliget (*Oplitis mahunkai* Wiśniewski & Hirschmann, 1995), and Wiśniewski (1996) published the occurrence of *Oplitis conspicua* (Berlese, 1903) in the Bükk National Park.

Recently, Kontschán (2002 a) found five *Trachyuropoda* species new to the fauna of Hungary, and listed (2002 b) four Trachyuropodid species from county Komárom-Esztergom. Following this work, several other sporadic occurrences of trachyuropodid species were recorded (Kontschán, 2003 a, 2003 b, 2003 c, 2005), until Kontschán (2007) summarized all the Uropodina species known in Hungary.

In Slovakia the first record of this family was published by Pecina (1980). Mašán and Kaluz (1997) reported on eight trachyuropodid species from this country. In his recent monograph of the Slovakian Uropodina mites, Mašán (2001) summarized all the known records of trachyuropodid species from Slovakia.

Among the surrounding countries, Ukraine is less investigated than Hungary and Slovakia. Only Wiśniewski (1993) mentioned one trachyuropodid species, and later Kontschán (2004 b) described one new species from this country.

In the present paper I will summarize all the tachyuropodid species hitherto known from the Carpathian Basin, and provide keys to the genera and species.

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## MATERIALS AND METHODS

The specimens were studied with traditional methods. They were cleared in lactic acid, stored in alcohol, and deposited in the Soil Zoology Collections of the Hungarian Natural History Museum, Budapest. Measurements are given in micrometers. Drawings were made with camera lucida.

## RESULTS

### Family TRACHYUROPODIDAE Berlese, 1917

*Diagnosis.* Gnathosoma: Corniculi horn-like, laciniae with several branches possessing long hairs. Hypostomal setae as follows: *h1* smooth, *h2*, *h3* and *h4* with serrated margin or spines. Chelicerae with nodus. Base of tritosternum narrow, its laciniae with four branches, two central branches with hairs on their apical part.

#### a) Subfamily Trachyuropodinae Berlese, 1917

*Diagnosis.* Dorsal, marginal and ventral shield strongly sclerotised. Genital shield of female scutiform. Epistome triangular with hairs on its margin.

*Remarks.* All species of this subfamily were placed previously in the genus *Trachyuropoda* (Hirschmann, 1961). Several acarologists (e.g. Błoszyk, 1999; Farrier & Hennessey, 1996) have not accepted this large catchall genus. I do not agree with Hirschmann's conception as well, and think that on the score of the structure of dorsal shield these species belong to several well separated genera (see the diagnoses below).

#### *Key to genera of Trachyuropodinae*

- 1 (2) Dorsal shield with two anvil-shaped bulges on the marginal region and some weakly sclerotised lines between the two bulges.....*Urotrachys* Berlese
- 2 (1) Dorsal shield without anvil-shaped bulges and weakly sclerotised lines
- 3 (4) Dorsal shield without well sclerotised lines.....*Urojanetia* Berlese
- 4 (3) Dorsal shield with well sclerotised lines

- 5 (6) Dorsal shield with long well sclerotised lines and wide marginal shield.....*Leonardiella* Berlese
- 6 (5) Dorsal shield without wide marginal shield, dorsal shield long or divided by well sclerotised lines.....*Trachyuropoda* Berlese

### Genus *Urotrachys* Berlese, 1903

*Trachyuropoda*: Hirschmann 1990: 706 (part.), Maşán 2001: 237-238 (part.), Kontschán 2004b: 79, 236-237 (part.).

*Diagnosis.* Shape oval, posterior margin rounded. Dorsal shield with some well sclerotised lines. Two lines on the anterior region and one X-shaped well sclerotised bulge on the central region, furthermore two strongly sclerotised anvil-shaped bulges on the marginal region. Margin of the anvil-shaped bulges smooth or with finger-like processes. Some pilose setae near and on the anvil-shaped bulges. Some weakly sclerotised lines placed between the two anvil-shaped bulges. Ornamentation of dorsal shield alveolar.

*Type species:* *Urotrachys formicaria* (Lubbock, 1881).

#### *Key to species of Urotrachys*

- 1 (2) Margin of anvil-shaped bulges smooth.....*formicaria* (Lubbock)
- 2 (1) Margin of anvil-shaped bulges with finger-like processes.....*formicariasimilis* (Hirschmann)

### *Urotrachys formicaria* (Lubbock, 1881)

(Fig. 1)

*Uropoda formicaria* Lubbock, 1881: 386.

*Trachyuropoda formicaria*: Hirschmann 1990: 706, Maşán 2001: 237-238, Kontschán 2004b: 79. Kontschán 2005: 115.

*Diagnosis.* Length of idiosoma 1020-1090 µm, width 680-750 µm. Shape oval, posterior margin rounded. Margin of anvil-shaped bulges smooth. Genital shield of female linguli-form, bearing short spines on its anterior margin.

*Distribution.* Europe.

*Previous records from the Carpathian Basin.* Hungary: Bátorliget (Hirschmann, 1990); Slovakia: Borská Nízina, Malé Karpaty, Povazsky Ino-

vec, Kremnické Vrchy, Slovensky Kras (Mašán, 2001); *Ukraine*: Krasznaja (Kontschán, 2004).

*New records. Hungary*: Magyarszombatfa, on marshland from soil, 23.05.2002, leg. S. Mahunka & L. Mahunka-Papp; Kercaszomor, nest of ants, 19.08.2004, leg. L. Peregovits. *Romania*: Transylvania, Torocko, Székelykő, from soil, 20.08.1999, leg. F. Mészáros; Maramures county, Maramures Mts, Petrova, Frumuseana, in pine-beech mixed forest. 25.05.2006, leg. L. Dányi, M. Földvári, J. Kontschán & D. Murányi

***Urotrachys formicariasimilis* (Hirschmann, 1975) comb. n.**  
(Fig. 2)

*Trachyuropoda formicariasimilis* Hirschmann, 1975: 104, Mašán 2001: 236-237.

*Diagnosis*. Length of idiosoma 870-940 µm, width 610-660 µm. Shape oval, posterior margin rounded. Margin of anvil-shaped bulges with finger-like processes. Genital shield of female linguli-form; short spines can be seen on angular process of its anterior margin.

*Distribution*. Ukraine, Slovakia, Hungary.

*Previous records from the Carpathian Basin. Hungary*: Csesztreg (Kontschán, 2006). *Slovakia*: Bukovské Vrchy, Chvojnická Pahorkatina, Veporské Vrchy (Mašán, 2001).

**Genus *Urojanetia* Berlese, 1917**

*Trachyuropoda*: Hirschmann 1990: 706, Mašán 2001: 233-238, Kontschán 2002b: 51-52, 2002c: 347. Kontschán 2003a: 118, Kontschán 2003b: 55.

*Diagnosis*. Shape oval, posterior margin rounded. Dorsal shield without well sclerotised bulges or only with small well sclerotised semi-circular, S- and C-shaped, tooth-like bulges and short lines. The ornamentation of dorsal shield al-

veolar, several T-like setae can be seen on dorsal shield.

*Type species: Urojanetia coccinea* (Michael, 1891).

*Key to species of Urojanetia*

- 1 (6) Well sclerotised bulges on dorsal shield present
- 2 (3) One pair of large tooth-like bulges on dorsal shield.....*excavata* (Wasmann)
- 3 (2) Small bulges on dorsal shield
- 4 (5) One pair of S- and one pair of C-shaped, well sclerotised short lines on dorsal shield.....  
*coccinea* (Michael)
- 5 (4) Three pairs of tooth-like strongly sclerotised bulges on dorsal shield.....*dentata* n. sp.
- 6 (1) Dorsal shield without well sclerotised bulges
- 7 (8) With small half-ring-shaped sculpture near marginal part of dorsal shield ....*pecinai* (Hirschmann)
- 8 (7) Without small half-ring-shaped sculpture near marginal part of dorsal shield.....  
*cristiceps* (Canestrini)

***Urojanetia coccinea* (Michael, 1891)**  
(Fig. 3)

*Uropoda coccinea* Michael, 1891: 646.

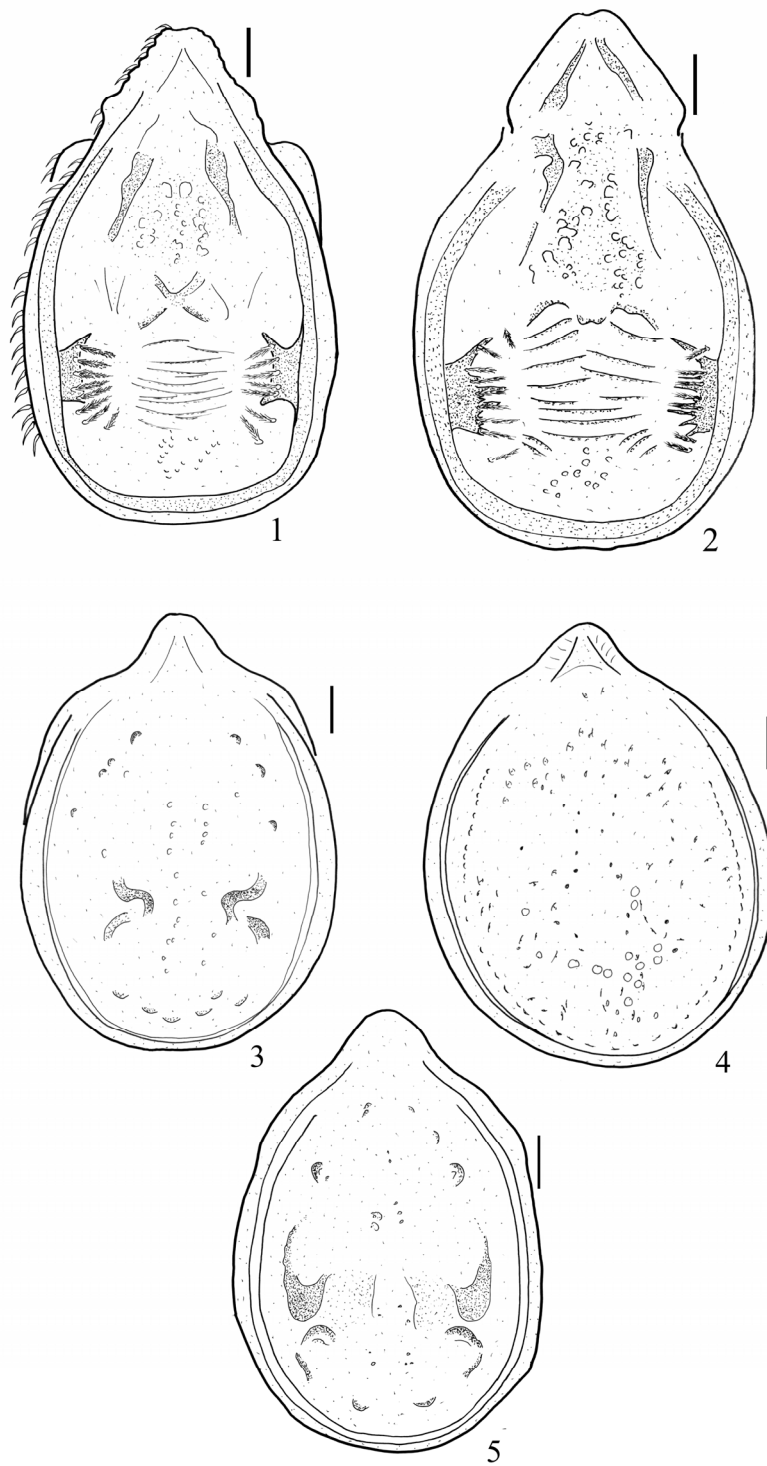
*Trachyuropoda coccinea*: Mašán 2001: 233-235, Kontschán 2002b: 51-52, 2002c: 347.

*Diagnosis*. Length of idiosoma 760-860 µm, width 590-620 µm. Shape oval, posterior margin rounded. Dorsal shield with some semicircular, well-sclerotised bulges on anterior and caudal part of dorsal shield. One pair of S-shaped and one pair of C-shaped, well sclerotised, short lines placed at level of coxae 4 on dorsal shield. Central part of dorsal shield bearing alveolar pattern.

*Distribution*. Europe.

*Previous records from the Carpathian Basin.*

*Hungary*: Budai Hegység (Kontschán, 2002b), Bársonyos (Kontschán, 2002c). *Slovakia*: Borská nížina, Malé Karpaty, Nízke Tatry, Povazsky Inovec, Slovensky kras, Vychodoslovenská rovina, Pozsky Inovec (Mašán, 2001).



**Figures 1-5.** *Urotrachys* and *Urojanetia* species from the Carpathian Basin. 1 = *Urotrachys formicaria* (Lubbock, 1881), 2 = *Urotrachys formicariasimilis* (Hirschmann, 1975), 3 = *Urojanetia coccinea* (Michael, 1891), 4 = *Urojanetia pecinai* (Hirschmann, 1976), 5 = *Urojanetia excavata* (Wasmann, 1899). (Scale bars 100  $\mu$ m each)

***Urojanetia pecinai* (Hirschmann, 1976) comb. n.**  
(Fig. 4)

*Trachyuropoda pecinai* Hirschmann, 1976a: 16.

*Diagnosis.* Length of idiosoma 760-860 µm, width 590-620. Shape oval, posterior margin rounded. Dorsal shield without well sclerotised bulges, only near marginal part of dorsal shield bearing small semicircular sculpture. Central part of dorsal shield with alveolar pattern.

*Distribution.* Czech Republic, Hungary.

*New records.* Hungary: Nagykovácsi, Nagyszénás, southern slope, from nest of ants, 10.04.1961, leg. S. Mahunka & É. Molnos; Nagykovácsi, Nagyszénás, northern slope, ant nest, 10.04.1961, leg. S. Mahunka & É. Molnos; Jós-vafő, ant nest, 09.06.1973, leg. S. Mahunka & L. Mahunka-Papp. These are the first records from Hungary.

***Urojanetia cristiceps* (Canestrini, 1884) comb. n.**

*Uropoda cristiceps* Canestrini, 1884: 720.

*Trachyuropoda cristiceps*: Hirschmann 1990: 706, Kontschán 2003a: 118.

*Diagnosis.* Length of idiosoma 770-800 µm, width 570-600 µm. Shape oval, posterior margin rounded. Similar to *U. pecinai*, but dorsal shield without well sclerotised bulges, and small semicircular sculpture near marginal part of dorsal shield lacking.

*Distribution.* Italy, Austria, France, Germany, Hungary.

*Previous records from the Carpathian Basin.* Hungary: Bátorliget (Hirschmann, 1990); South-Transdanubian (Kontschán, 2003 c).

*New records.* Hungary: Budapest, Hármashátrégy, from anthill under a stone, 15.03.1961, leg. S. Mahunka & É. Molnos.

***Urojanetia excavata* (Wasmann, 1899)**  
(Fig. 5)

*Glyphopsis coccinea* var. *excavata* Wasmann, 1899: 168-169.

*Urojanetia excavata*: Balogh 1938a: 108, Balogh 1938b: 71.

*Trachyuropoda excavata*: Mašán 2001: 235, Kontschán 2003a: 118, Kontschán 2003b: 55.

*Diagnosis.* Length of idiosoma 730-850 µm, width 460-540 µm. Shape oval, posterior margin rounded. Apical part of dorsal shield with one or two pairs of circular, well sclerotised bulges. One pair of large tooth-like, well sclerotised bulges on the central part of the dorsal shield. Central region with one converse Y-like and one U-like, well sclerotised line. Posterior part of dorsal shield with one pair of larger, and one pair of smaller, well sclerotised semicircular bulges.

*Distribution.* Europe.

*Previous records from the Carpathian Basin.*

Hungary: Budapest (Balogh, 1938 a, b), South-Transdanubian (Kontschán, 2003 c), Aggtelek National Park (Kontschán, 2003 b). Slovakia: Chvojnická pahorkatina, Malé Karpaty, Trábec (Mašán, 2001).

*New records.* Hungary: Kiskunhalas, Zsanai Újvilág TSZ, from soil, 01.06.1963, leg. T. Kaszai.

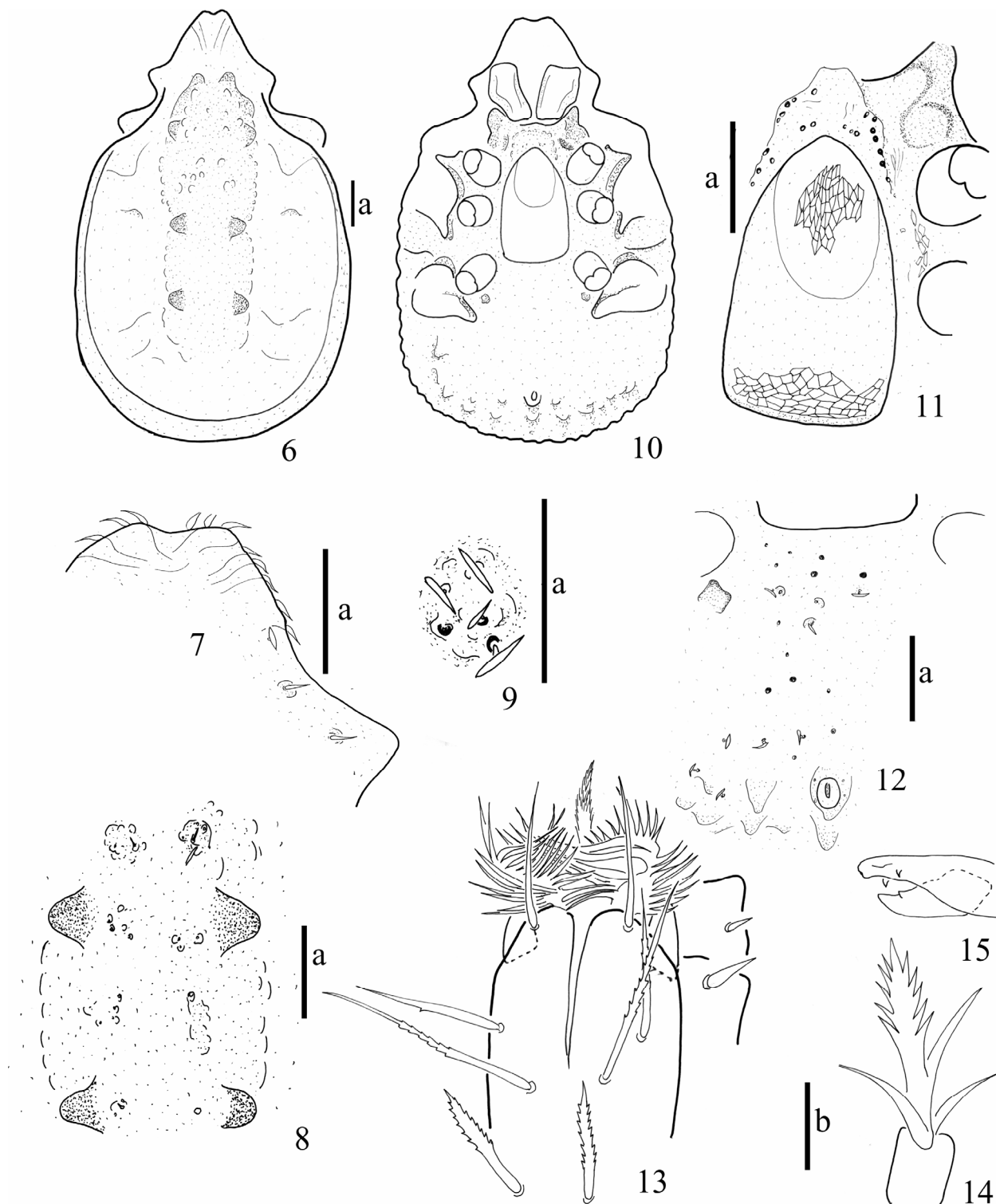
***Urojanetia dentata* sp. n.**  
(Figs. 6-15)

*Material examined.* Holotype: one female, Tata, Hungary, from pine forest, 02.02.1982, leg. T. Vásárhelyi.

*Diagnosis.* Idiosoma well sclerotised. Three tooth-like strongly sclerotised bulges on the central part of dorsal shield. Near these bulges there are several small humps, which bear T-form setae. Marginal setae spiniform, all dorsal and ventral setae short and T-form. Ornamentation of dorsal and ventroanal shield lacking, sculpture of genital shield reticulate.

*Description.* Female (n = 1). Length of idiosoma 940 µm, width 610 µm. Shape oval, posterior margin rounded.

*Dorsal side* (Fig. 6). Dorsal and marginal shield fused. Dorsal shield with well sclerotised central region, which bears three pairs of strongly sclerotised tooth-like bulges (Fig. 8). Near the bulges there are small humps, which bear T-form setae (Fig. 9). Anterior part of dorsal shield with



**Figures 6-15.** *Urojantia dentata* n. sp. 6 = dorsal view, 7 = apical part of dorsal side, 8 = central region of dorsal side, 9 = small humps with T-form setae, 10 = ventral view, 11 = sternal region, 12 = ventroanal region, 13 = ventral view of gnathosoma, 14 = tritosternum, 15 = chelicera. (Scale bars: a: 100  $\mu$ m, b: 20  $\mu$ m)

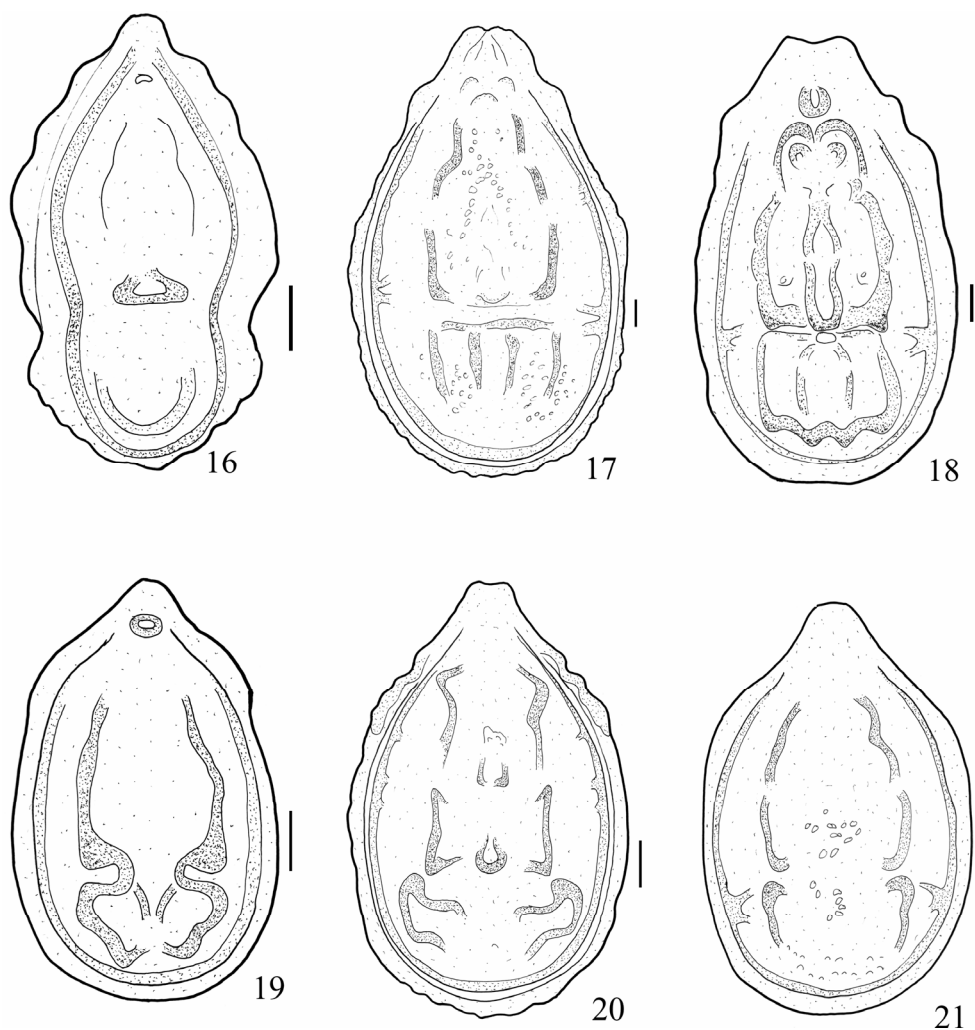
some spiniform and several T-form setae (Fig. 17). All marginal setae spiniform. Ornamentation of dorsal and marginal shield lacking.

*Ventral side* (Fig. 10). Sternal shield near the anterior margin of genital shield strongly sclerotised. This region bears several circle-shaped ornamentations which might be the basis of T-form setae. Sternal setae not clearly visible. Ornamentation of sternal shield between coxae reticulate (Fig. 11). Ventroanal shield with several T-form setae, and on posterior region with several well sclerotised V-like bulges (Fig. 12).

Stigmata and peritreme not clearly visible.

Genital shield located between coxae 2 and 4, scutiform with reticulate pattern and without processes (Fig. 11).

*Gnathosoma* (Fig. 13). Corniculi horn-like, laciniae long with some branches bearing several long hairs. Hypostomal setae as follows: *h1* long, smooth and setiform, *h2*, *h3* and *h4* with serrated margin, *h2* and *h4* as long as *h1*, *h3* longer than *h2*. Labrum with short hairs. Epistome not clearly visible. Tritosternum with narrow basis, laciniae with four branches, one of them with serrated margin (Fig. 14). Chelicerae with nodus. Digitus fixus bearing one tooth (Fig. 15).



**Figures 16-21.** Trachyuropodid mites from the Carpathian Basin. 16 = *Leonardiella riccardiana* (Leonardi, 1895), 17 = *Trachyuropoda bostocki* (Michael, 1894), 18 = *Trachyuropoda myrmecophila* Wiśniewski & Hirschmann, 1992, 19 = *Trachyuropoda hirschmanni* Pecina, 1980, 20 = *Trachyuropoda troguloides* (Can. & Franz., 1877), 21 = *Trachyuropoda wasmanniana* Berlese, 1903. (Scale bars 100  $\mu$ m each)

Male, nymphs and larva are unknown.

*Etymology.* The name of the new species refers to the three pairs of strongly sclerotised tooth-like bulges.

Genus ***Leonardiella* Berlese, 1904**

*Trachyuropoda*: Kontschán 2002b: 51 (part.), Kontschán 2002c: 347 (part.), Kontschán 2003b: 55 (part.), Mašán 2001: 238-239 (part.).

*Diagnosis.* Shape oblong, posterior margin rounded. Dorsal shield with one long, well sclerotised line, marginal shield wide.

*Type species: Leonardiella canestriana* Berlese, 1891

***Leonardiella riccardiana* (Leonardi, 1895)**

(Fig. 16)

*Uropoda riccardiana* Leonardi, 1895: 318.

*Trachyuropoda riccardiana* (sic!): Kontschán 2002b: 51; Kontschán 2002c: 347;

*Trachyuropoda riccardiana*: Kontschán 2003b: 55, Mašán 2001: 238-239.

*Diagnosis.* Length of idiosoma 680-720 µm, width 420-450 µm. Shape oblong, posterior margin rounded. Dorsal shield with one long, well sclerotised line, marginal shield wide. Central part of dorsal shield with one well sclerotised semicircular bulge.

*Distribution.* Austria, Slovakia, Romania, Italy, Hungary.

*Previous records from the Carpathian Basin.* Hungary: Budai Hegység (Kontschán, 2002 b), Bársonyos (Kontschán, 2002 c), Aggteleki Nemzeti Park (Kontschán, 2003 b). Slovakia: Malé Karpaty, Povazsky Inovec, Slovensky Kras (Mašán, 2001).

*New records.* Hungary: Vértes Mts., Gánt, ant nest, 09.08.2002, leg. J. Kontschán; Csévharaszt, ant nest, 07.05.2002, leg. J. Kontschán; Aranyosgadány, Vízsló völgy, ant nest, 15.08.1976, leg. S. Mahunka & L. Mahunka-Papp; Kám, wet meadow, 09.04.1964, leg. T. Kassai & S. Mahunka; Roma-

nia: Transylvania, Tordai hasadék, from ant nest, 28.07.1992, leg. L. Peregovits.

Genus ***Trachyuropoda* Berlese, 1888**

*Diagnosis.* Shape oblong or oval, posterior margin rounded. Dorsal shield with several long, different-shaped lines, semicircular bulges and furrows. Several T-form setae can be found on dorsal shield.

*Type species: Trachyuropoda festiva* (Berlese, 1888).

*Key to species of Trachyuropoda*

- 1 (8) Long, well sclerotised dorsal lines divided into smaller parts
- 2 (5) U- and Y-shaped bulges between long, well sclerotised lines
- 3 (4) Third part of well sclerotised lines converse U-form.....***troguloides*** (Can. & Franz)
- 4 (3) Posterior part of well sclerotised lines in contact by one long, undulate lateral line.....  
***myrmecophila*** Wiśniewski & Hirschmann
- 5 (2) Not bulges between long, well sclerotised lines
- 6 (7) Additional two well sclerotized lines between third part of well sclerotised lines.....  
***bostocki*** (Michael)
- 7 (6) No additional well sclerotized lines between third part of well sclerotised lines.....  
***wasmanniana*** Berlese
- 8 (1) Long, well sclerotised dorsal lines not divided.....  
***hirschmanni*** Pecina

***Trachyuropoda bostocki* (Michael, 1894)**

(Fig. 17)

*Glyphopsis Bostocki* Michael, 1894: 301-303.

*Trachyuropoda bostocki* (sic!): Balogh 1938b: 71.

*Trachyuropoda bostocki*: Mašán 2001: 240-241.

*Diagnosis.* Length of idiosoma 1600-1750 µm, width 1100-1200 µm. Shape oval, posterior margin rounded. The apical part of dorsal shield with three well sclerotised semicircular bulges. Central region of dorsal shield with two well sclerotised long lines divided into two or three parts. Posterior part of dorsal shield with two pairs of well sclerotised lines; near their anterior part there is a



transversal, well sclerotised line in a furrow. Central and posterior part of dorsal shield with alveolar ornamentation.

*Distribution.* The Netherlands, United Kingdom, Luxemburg, Austria, Hungary.

*Previous records from the Carpathian Basin.* Hungary: Pilisszentkereszt (Balogh, 1938). Slovakia: Povazsky Inovec, Slovensky Kras (Mašan, 2001).

*New records.* Hungary: Szanda, Szanda-hegy, from beech forest, 14.05.1994, leg. O. Merkl; Bakony, Réde, 11.09.2002, leg. J. Kontschán.

***Trachyuropoda myrmecophila* Wiśniewski & Hirschmann, 1992**  
(Fig. 18)

*Trachyuropoda myrmecophila* Wiśniewski & Hirschmann, 1992: 8-15, Kontschán 2002b: 51, Mašan 2001: 241-242.

*Diagnosis.* Length of idiosoma 1250-1400 µm, width 800-850 µm. Shape oblong, posterior margin rounded. Apical part of dorsal shield with one circular and two semicircular well sclerotised bulges. Marginal part of central region of dorsal shield with two well sclerotised, long lines divided into two or three parts. Central part of central region with one converse Y-shaped and one U-shaped, well sclerotised line. Posterior part of dorsal shield with two pairs of well sclerotised lines. Posterior part of two marginal lines in contact by one long, undulate lateral line.

*Distribution.* Poland, Slovakia, Hungary.

*Previous records from the Carpathian Basin.* Hungary: Csévharaszt (Kontschán, 2002 b). Slovakia: Povožský Inovec, Podunajská Rovina (Mašan, 2001).

***Trachyuropoda hirschmanni* Pecina, 1980**  
(Fig. 19)

*Trachyuropoda hirschmanni* Pecina, 1980: 373-376, Kontschán 2002b: 54, Mašan 2001: 235-236.

*Diagnosis.* Length of idiosoma 660-680 µm, width 420-480 µm. Shape oval, posterior margin rounded. The apical part of dorsal shield with one

circular, well-sclerotised bulge. One pair of long, well-sclerotised lines of large S-form on their posterior region can be found on dorsal shield.

*Distribution.* Europe.

*Previous records from the Carpathian Basin.* Hungary: Budai Hegység (Kontschán, 2002 b). Slovakia: Malé Karpaty (Mašan, 2001).

*New records.* Romania: Transylvania, Tordai hasadék, from ant nest, 28.07.1992, leg. L. Peregovits; Transylvania, Tordai hasadék, from soil, 28.07.1992, leg. L. Peregovits.

***Trachyuropoda troguloides* (Can. & Franz., 1877)**  
(Fig. 20)

*Trachynotus troguloides* Canestrini & Fanzago, 1877: 62. Kontschán 2002c: 347, Mašan 2001: 239-240.

*Diagnosis.* Length of idiosoma 950-1050 µm, width 610-760 µm. Shape oval, posterior margin rounded. One pair of long, well sclerotised lines can be found on dorsal shield, divided into three parts. First part can be found on apical part of dorsal shield, its shape similar to number 7, second part similar to number 1 and third part similar to converse U. First and second pairs of lines can be seen as two U-shaped, well sclerotised bulges.

*Distribution.* West and Central Europe.

*Previous records from the Carpathian Basin.* Hungary: Bársonyos (Kontschán, 2002 c); South Transdanubian (Kontschán, 2003 c). Slovakia: Vychodoslovenská Rovina, Slovensky Kras (Mašan, 2001).

*New records.* Hungary: Nagykovácsi, 09.07.1978, leg. L. Zombori.

***Trachyuropoda wasmanniana* Berlese, 1903**  
(Fig. 21)

*Trachyuropoda (Janetiella) wasmanniana* Berlese, 1903: 249-250.

*Trachyuropoda wasmannia* (sic!) Kontschán 2002b: 53.

*Diagnosis.* Length of idiosoma 980-1020 µm, width 700-780 µm. Shape oval, posterior margin rounded. One pair of long well sclerotised lines

on dorsal shield, divided into three parts. Central and posterior part of dorsal shield with alveolar ornamentations.

*Distribution.* Europe.

*Previous records from the Carpathian Basin.* Hungary: Csévharaszt (Kontschán, 2002 b).

b) Subfamily **Oplitinae Hirschmann & Zirn-  
giebl-Nicol, 1962**

*Diagnosis.* Idiosoma oval or circular. Dorsal, marginal and ventral shield not strongly sclerotised. Dorsal shield without strongly sclerotised lines, rings and furrows. Genital shield of female large, oval. Epistome with three branches, their margin serrated.

*Key to genera of Oplitinae*

- 1 (2) Perigenital line and preanal line present.....  
***Oplitis* Berlese**  
2 (1) Perigenital line and preanal line absent.....  
***Urodiscella* Berlese**

Genus ***Urodiscella* Berlese, 1903**

*Oplitis:* Hirschmann 1981: 341, Mašan 2001: 247-249.

*Diagnosis.* Idiosoma oval, posterior margin rounded, anterior margin peaky. Genital shield oval, without perigenital line. Ventroanal shield with numerous smooth, short and needle-like setae.

*Type species:* *Urodiscella alophora* Berlese, 1903.

*Key to species of Urodiscella*

- 1 (2) Two lines on anterior region of sternal shield absent.....***philoctena* (Touessart)**  
2 (1) Two lines on anterior region of sternal shield present  
3 (4) Posterior part of genital shield of female without ornamentation.....***schmitzi* (Kneissl)**  
4 (3) Posterior part of genital shield of female with alveolar ornamentation.....***wasmanni* (Kneissl)**

***Urodiscella philoctena* (Touessart, 1902)**

*Uropoda philoctena* Touessart, 1902: 36-38.

*Urodiscella philoctena:* Balogh 1938b: 71.

*Diagnosis.* Length of idiosoma 550-570  $\mu\text{m}$ , width 440-450  $\mu\text{m}$ . Shape oval, posterior margin rounded. Sternal and ventroanal shield without sculpture, all sternal and ventroanal setae short, smooth and needle-like. Anterior part of sternal shield without lines. Genital shield of female large, oval, anterior region bearing reticulate ornamentation. Peritreme hook-like.

*Distribution.* France, United Kingdom, Ireland, Poland, Hungary.

*Previous records from the Carpathian Basin.* Hungary: Pilisszentkereszt (Balogh, 1938 b).

***Urodiscella schmitzi* (Kneissl, 1908)**

*Uropoda philoctena* var. *schmitzi* Kneissl, 1908: 226-229.

*Oplitis schmitzi:* Hirschmann 1981: 341, Mašan 2001: 248-249.

*Diagnosis.* Length of idiosoma 500-600  $\mu\text{m}$ , width 400-430  $\mu\text{m}$ . Shape oval, posterior margin rounded. Sternal and ventroanal shield without sculpture, all sternal and ventroanal setae short, smooth and needle-like. Two lines on anterior part of sternal shield. Genital shield of female large, oval, anterior region with reticulate ornamentation. Peritreme hook-shaped.

*Distribution.* The Netherlands, Spain, Poland, Slovakia.

*Previous records from the Carpathian Basin.* Hungary: Hortobágyi Nemzeti Park (Hirschmann, 1981). Slovakia: Podunajská rovina, Trnavská Pahorkatina, Malé Karpaty, Slovenský Kras (Mašan, 2001).

***Urodiscella wasmanni* (Kneissl, 1907)**

(Fig. 22)

*Uroobovella wasmanni* Kneissl, 1907: 190-191.

*Oplitis wasmanni:* Mašan 2001: 247-248.

*Diagnosis.* Length of idiosoma 460-500  $\mu\text{m}$ ,

width 390-420  $\mu\text{m}$ . Shape oval, posterior margin rounded. Sternal and ventroanal shield without sculpture, all sternal and ventroanal setae short, smooth and needle-like. Two lines present on anterior part of sternal shield. Genital shield of female large, oval, anterior region with reticulate ornamentation, posterior region with alveolar ornamentation. Peritreme hook-form.

*Distribution.* Germany, Spain, Poland, Romania, Slovakia, Hungary.

*Previous records from the Carpathian Basin.* Slovakia: Borská nížina, Bukovské vrchy, Polana, Veporské vrchy (Mašán, 2001).

*New records.* Hungary: Kercaszomor, ant nest, 19.08.2004, leg. L. Peregovits. Romania: Transylvania, Torocko, Székelykö, from soil, 20.08.1999, leg. F. Mészáros.

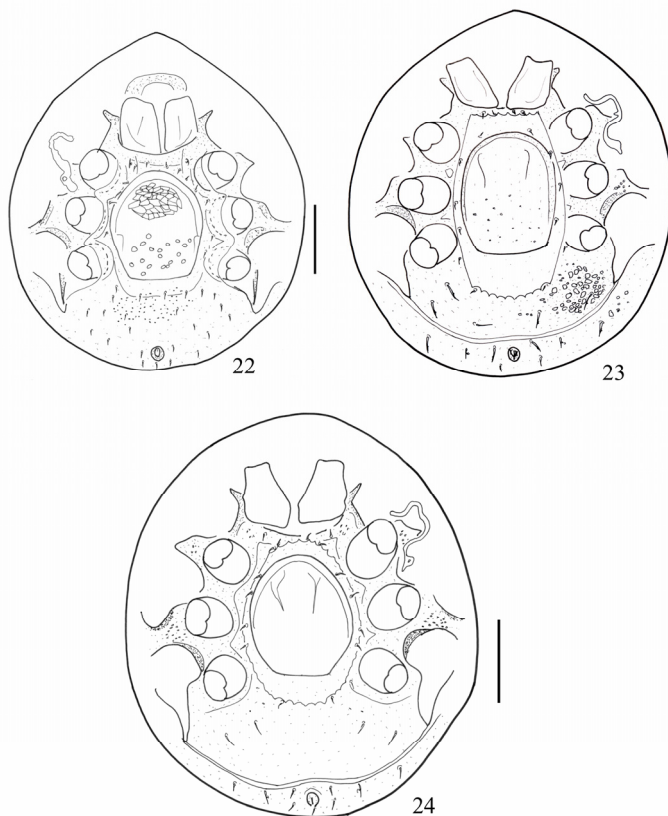
### Genus *Oplitis* Berlese, 1884

*Diagnosis.* Idiosoma oval, posterior and anterior margin rounded. Genital shield oval, with perigenital line. Ventroanal shield with preanal line and 2-6 pairs of ventroanal setae.

*Type species:* *Oplitis paradoxa* (Canestrini & Berlese, 1884).

#### Key to species of *Oplitis*

- 1 (4) All perigenital lines undulate
- 2 (3) Peritreme U-shaped.....*conspicua* (Berlese)
- 3 (2) Peritreme M-shaped.....*pecinai* Hirschmann
- 4 (1) Only anterior and posterior genital lines undulate
- 5 (6) Peritreme M-shaped.....*leonardiana* (Berlese)
- 6 (5) Peritreme U-shaped



**Figures 22-24:** Oplitinae mites from the Carpathian Basin: 22: *Urodiscella wasmanni* (Kneissl, 1907), 23: *Oplitis pecinai* (Hirschmann, 1984), 24: *Oplitis minutissima* (Berlese, 1903). (Scale bars 100  $\mu\text{m}$  each).

- 7 (8) Ventroanal shield with small alveolar ornamentations.....*mahunkai* Wiśniewski & Hirschmann  
8 (7) Ventroanal shield with both smaller and larger alveolar ornamentations.....*minutissima* (Berlese)

***Oplitis conspicua* (Berlese, 1903)**

*Uroplitella conspicua* Berlese, 1903: 250.  
*Oplitis conspicua*: Hirschmann 1981: 341; Hirschmann 1990: 705; Wiśniewski 1996: 485, Maśán 2001:252.

*Diagnosis.* Length of idiosoma 440-520 µm, width 370-450 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield with alveolar ornamentation, all sternal setae short, smooth and needle-like. Ventroanal setae arrow-like. Genital shield of female large, oval, with alveolar ornamentation. All perigenital line undulate. Peritreme U-shaped.

*Distribution.* Europe.

*Previous records from the Carpathian Basin.*  
*Hungary:* Hortobágyi Nemzeti Park (Hirschmann, 1981), Bátorliget (Hirschmann, 1990), Bükki Nemzeti Park (Wiśniewski, 1996). *Slovakia:* Malé Karpaty, Povazsky Inovec, Trábec (Maśán, 2001).

***Oplitis pecinai* Hirschmann, 1984**  
(Fig. 23)

*Oplitis pecinai* Hirschmann, 1984: 159, Maśán 2001: 250-252, Kontschán 2004: 300-301.

*Diagnosis.* Length of idiosoma 440-540 µm, width 380-460 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield without ornamentation. All sternal setae short, smooth and needle-like. Ventroanal setae needle-like. Genital shield of female large, oval, without ornamentation. All perigenital line undulate. Peritreme M-shaped.

*Distribution.* Europe.

*Previous records from the Carpathian Basin.*  
*Hungary:* Gerecse (Kontschán, 2004). *Slovakia:* Malé Karpaty, Povazsky Inovec, Slovesky kras, Tíbec (Maśán, 2001).

***Oplitis leonardiana* (Berlese, 1903)**

*Uropoda leonardiana* Berlese, 1903: 20-21.  
*Oplitis leonardiana*: Wiśniewski 1993: 265.

*Diagnosis.* Length of idiosoma 540-550 µm, width 480-450 µm. Shape oval, posterior margin rounded. Ventroanal setae arrow-like. Genital shield of female large, oval, with alveolar ornamentation. Anterior and posterior margin of perigenital line undulate. Peritreme M-shaped.

*Distribution.* Italy, Austria, Hungary.

*Previous records from the Carpathian Basin.*  
*Hungary* (Wiśniewski, 1993).

***Oplitis mahunkai* Wiśniewski & Hirschmann, 1995**

*Oplitis mahunkai* Wiśniewski & Hirschmann 1995: 215-217.

*Diagnosis.* Length of idiosoma 410 µm, width 350 µm. Shape oval, posterior margin rounded. Ventroanal setae arrow-like. Genital shield of female large, oval, with alveolar ornamentation. Anterior and posterior margin of perigenital line undulate. Peritreme U-shaped.

*Distribution.* Hungary.

*Previous records from the Carpathian Basin.*  
*Hungary:* Bátorliget (Wiśniewski & Hirschmann, 1995)

***Oplitis minutissima* (Berlese, 1903)**  
(Fig. 24)

*Uroplitella minutissima* Berlese, 1903: 318, Balogh 1938a: 108.

*Oplitis minutissima*: Hirschmann 1990: 705, Maśán 2001: 255-256, Kontschán 2002c: 347, Kontschán 2003b: 55, Kontschán 2003c: 297, Kontschán 2005: 115.

*Diagnosis.* Length of idiosoma 400-420 µm, width 290-330 µm. Shape oval, posterior margin rounded. Ventroanal setae blade-like. Genital shield of female large, oval, with punctuate ornamentation. Ventroanal shield with larger or smaller alveolar ornamentation. Anterior and pos-

terior margin of perigenital line undulate. Peritreme U-shaped.

*Previous records from the Carpathian Basin.* Hungary: Kőszeg (Balogh, 1938 a), Bátorliget (Hirschmann, 1990), Bársonyos (Kontschán, 2002 c), Aggtelek National Park (Kontschán, 2003 b), Bársonyos (Kontschán, 2003 c), Órség (Kontschán, 2005). Slovakia: Bukovské Vrchy, Polana, Povazsky Inovec, Slovensky kras, Vychodoslovenská rovina (Mašán, 2001).

*New records.* Hungary: Vértes, Gánt, ant nest, 24.08.2002, leg. J. Kontschán; Csévharaszt, ant nest, 07.06.2002, leg. J. Kontschán; Szakonyfalu, ant nest, 22.05.1989, leg. S. Mahunka & L. Mahunka-Papp; Szín from soil, 16. 06.1986, leg. S. Mahunka; Darány, Nagyberek, ant nest, 15.08.1976, leg. S. Mahunka & L. Mahunka-Papp. Romania: Transylvania, Tordai hasadék, 28.07.1992, leg. L. Peregovits; Maramures county, Maramures Mts, Petrova, Frumuseana, sidebrook of Tomnatic stream in pine-beech mixed forest, 25.05.2006, leg. Dányi L., Földvári M., Kontschán J. & Murányi D.; Maramures county, Gutai Mts, left side stream of Mara river in a beech forest, 23.05.2006, leg. Dányi L., Földvári M., Kontschán J. & Murányi D.

**Acknowledgements** – This research was supported by the National R&D Programme “The origin and genesis of fauna of the Carpathian Basin”; contact No: 3B023-04.

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