Oribatids from the Carpathian Basin with zoogeographical and taxonomical notes (Acari: Oribatida)

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Abstract. A list of oribatids collected at several sites in the Carpathian Basin includes 32 species. The researches yielded some species new for the area examined and two (Dissorrhina longispina and Conchogneta vasiliorum spp. n.) new to science. Some taxonomical notes on rare or little known species (e.g. in family Autognetidae) and notes on zoogeographical distribution of some species are presented. With 20 figures.

The main goal of our research was to explore the origin of the oribatid fauna of Hungary, and in other side to publish of data of rare and little known species in the studied territory. Our researches were, on the one hand, partly supported by the OTKA (T-45889), and on the other, by the National R&D project (No. 3B023-04) titled: The zoological values and the focal area of the fauna of the Carpathian Basin.

These researches have been carried out for many years. We successfully proved (MAHUNKA & MAHUNKA-PAPP 2004) that the oribatid fauna living in the present-day Hungary i.e. the central part of the Carpathian Basin (the faunistical and taxonomical results are present in different series of publications)*, and living in other parts of this region (today Slovakia, Romania, Croatia) (e.g. MAHUNKA 2006). In every respect of the fauna of the whole Carpathian Basin especially interesting and significant are the taxa living in Transylvania. Therefore we concentrated our studies to the Transylvanian region.

Several oppiid and autognetid taxa of the Transylvanian species are especially important and interesting for the relationships in the group. Therefore in connection of one Dissorrhina HULL, 1918 and one Conchogneta GRANDJEAN, 1963 species I studied some specimens of this group also from different European localities. Some taxonomical notes of them are given hereunder.

I examined also some species from zoogeographical point of view. It was remarkable to note the high number of the endemic species and the similarity the Transylvanian (Carpathian) and the alpine (South-Switzerland: Wallis) fauna.

The field work was made and organised by Cs. CSUZDI, J. KONTSCHÁN, D. MURÁNYI, A. OROSZ and T. PÓCS and/or their co-workers. So far three samplings have been performed, whose materials are extracted in Budapest. The elaboration of the extracted species is continuous. The voucher specimens are deposited in the Pedozoological Collection of the Hungarian Natural History Museum and some in the Collection of Musée d’Histoire naturelle, Géneve.

Our research proved the presence of 32 species, of which 2 species are new to science, and 8 are rare or little known in the examined area. In discussing 7 species I surveyed their distribution or completed some descriptions.

In this paper I usually follow the system of MARSHALL et al. (1987), with some modifications introduced by WOAS (2002), SUBÍAS (2004) and WEIGMANN (2006). In the description the morphological terminology of WOAS (2002) was used with some modifications of the studied groups (e.g. NORTON & al. 1997, MAHUNKA & MAHUNKA-PAPP 2001).

*Contributions to the knowledge of the Hungarian Oribatida fauna (Acari).

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## LIST OF LOCALITIES

### SLOVAKIA

- **E-1061** Dolno Lehota, Vajkorska dolina, Nizke Tatry, soil and litter in pine forest, 22.04.1983, leg. F. MÉSZÁROS
- **E-1295** Stos-Kupele, litter, 16-18.06.1987, leg. S. MAHUNKA
- **E-1390** Dedinky, Belij voda, wet litter and moss from rocky wall, 02.07.1991, leg. S. MAHUNKA
- **E-1613** Zadiel, Szádelő valley, moss from rocky wall, 08.10.2003, leg. E. HORVÁTH

### ROMANIA

- **E-1576** Transylvania, Retyezát Mts., Cabana Buta, 1500 m, wet moss from stones, 07.09.2002, leg. A. OROSZ
- **E-1677** Transylvania, Retyezát Mts., Lapusnyik valley, cca. 1200 m, spruce-wood, 02.07.2005., leg. CS. CSUZDI
- **E-1678** Transylvania, Gutin pass, 900 m, beech-wood, 03.07.2005., leg. CS. CSUZDI
- **E-1679** Transylvania, Vlegyásza Mt., below the hospice, 1300 m, Sphagnum and other moss near the entrance of cave, 18.07.2006., leg. D. MURÁNYI
- **E-2045** Bihor county, Padiş Mts., Staţiunea Boga, Bazarul Someşului, 900 m, beech litter, 17.07.2006., leg. D. MURÁNYI
- **E-2046** Bihor county, Padiş Mts., Staţiunea Boga, Bazarul Someşului, 17.07.2006., leg. D. MURÁNYI
- **E-2048** Bihor county, Padiş Mts., Staţiunea Boga, Aragyásza Cave, 1300 m, *Sphagnum* and other moss near the entrance of cave, 18.07.2006., leg. D. MURÁNYI
- **E-2049** Bihor county, Padiş Mts., Staţiunea Boga, 1350 m, pine litter and forest soil, 17.07.2006., leg. D. MURÁNYI

## LIST OF THE NEWLY IDENTIFIED SPECIES

### BRACHYCHTHONIIDAE THOR, 1934

- **Eobrachychthonius borealis** FORSSLUND, 1942
  
  Locality: Slovakia, E-1295.

- **Liochthonius horridus** (SELLNICK, 1928)
  
  Locality: Romania, E-1677.

- **Liochthonius leptaleus** MORITZ, 1976
  
  Locality: Romania, E-2048.

- **Sellnickochthonius hungaricus** BALOGH, 1943
  
  Locality: Romania, E-2048; Slovakia, E-1295.

### ORIBOTRITIIDAE GRANDJEAN, 1954

- **Protoribotria oligotricha** MÄRKEL, 1963
  
  Locality: Romania, E-2045.

### MALACONOTHRIDAE BERLESE, 1916

- **Malaconothrus monodactylus** (MICHAEL, 1888)
  
  Locality: Romania, E-1576.

- **Trimalaconothrus angulatus** WILLMANN, 1931
  
  Locality: Romania, E-1576.

### LICNODAMAELIDAE GRANDJEAN, 1954

- **Licnodamaeus undulatus** (PAOLI, 1908)
  
  Locality: Slovakia, E-1613.

### CARABODIDAE C. L. KOCH, 1837

- **Carabodes tenuis** FORSSLUND, 1953
  
  Localities: Romania, E-1678; Slovakia, E-1061.

### AUTOGNETIDAE GRANDJEAN, 1960

- **Autognota parva** FORSSLUND, 1947
  
  Locality: Romania, E-2048.

- **Conchogneta traegeri** (FORSSLUND, 1947)
  
  Locality: Romania, E-2045.

- **Conchogneta vasiliorum** sp. n.
  
  Locality: Romania, E-2045.

- **Conchogneta willmani** (DVRDOWSKA, 1929)
  
  Locality: Romania, E-2045.

### OPPIIDAE SELLNICK, 1937

- **Dissorhina longispina** sp. n.
  
  Locality: Romania, E-2048.

- **Dissorhina ornata** (OUDEMANS, 1900)
  
  Locality: Romania, E-2045.

- **Multioppia (Multilanceoppia) carpatica** (SCHALK, 1966)
  
  Locality: Romania, E-2049.

- **Oppiella acuminata** (STRENZKE, 1951)
  
  Locality: Romania, E-2048.

- **Oppiella (Rhinoppia) getica** (VASILIU & CALUGAR, 1981)
  
  Localities: Romania, E-2046, E-2047.

### MACHUCELLIDAE BALOGH, 1983

- **Machuela bilineata** WEIGMANN, 1976
  
  Locality: Slovakia, E-1613.

### SUCTOBELBIDAE JACOT, 1938

- **Rhynchobelba ornithorhyncha** (WILLMANN, 1953)
  
  Locality: Romania, E-2045.

- **Suctobelba altvateri** MORITZ, 1976
  
  Locality: Romania, E-1677.
**Suctobelba reticulata** Moritz, 1976  
*Locality: Slovakia, E-1390.*

**Suctobelbata prelli** Märkel & Meyer, 1958  
*Locality: Romania, E-2048.*

**Suctobelbella forsslundi** (Strenzke, 1950)  
*Locality: Romania, E-1678.*

**Suctobelbella moritzi** Mahunka, 1987  
*Locality: Slovakia, E-1390.*

**Suctobelbella similis** (Forsslund, 1941)  
*Locality: Romania, E-1677.*

**Suctobelbella subcornigera** (Forsslund, 1941)  
*Locality: Romania, E-1677.*

**LIMNOZETIDAE THOR, 1937**

**Limnozetes ciliatus** (Schrank, 1803)  
*Locality: Romania, E-1576.*

**ORIBATELLIDAE JACOT, 1925**

**Ophidiotrichus tectus** (Michael, 1884)  
*Locality: Romania, E-1678.*

**Oribatella dudichii** Willmann, 1938  
*Locality: Romania, E-2049; Slovakia, 1295.*

**Oribatella eutricha** Berlese, 1908  
*Locality: Romania, E-1576.*

**GALUMNIDAE JACOT, 1925**

**Pilogalumna tenuiclava** Willmann, 1938  
*Locality: Romania, E-1576.*

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**DESCRIPTIONS OF NEW AND NOTES ON RARE SPECIES**

**Protoribotritia oligotricha** Märkel, 1963

This is a boreo-alpine species form the Holarctic region occurring rarely and in all cases in small individual number. Only recently was it proved to exist in the Nearctic region (Niedbala 2002). In the Palearctic it had been shown from Sweden, and not yet in the area just under study. Most likely it is a glacial relict species here.

The presently studied single specimen displays small morphological differences diverging from the type (Märkel 1963) and also from Niedbala’s description and published figures. In other words, the earlier descriptions make on reference as to the position and the number of notogastral pori, whereas in the present specimen five pairs of pori clearly discernible, *ip* especially robust (Fig. 1). The sensillus of our specimen is much bigger specifically the breadth its head is much more striking than in the earlier figures (Fig. 2), furthermore, the sculpture of the aspis is comprised exclusively fine lines. The fine sculpture is also clearly seen on the notogaster. The numbers of genital setae are 7 and 8, respectively (Fig. 3).

**Locality.** Romania, Transylvania (E-2045).

**Dissorhina longispina sp. n.**


**Diagnosis:** Rostral apex separated by two incisions, sharply pointed, Prodorsal surface with complicated costulae. Sensillus very long, lanceolate, smooth. Lamellar setae very short, interlamellar setae much longer. Ten pairs of notogastral setae. Apodemes weakly developed, no connection between *ap. 2* and *ap. sej*. Aggenital and adanal setae very short.

**Measurements.** Length of body: 290-301 µm, width of body: 140-147 µm.

**Prodorsum.** Rostral apex narrow, triangular (Fig. 6) bearing the bent rostral setae, they arise very near to each other, well pilose. A pair of deep and comparatively deep, large incisions present along it. Prodorsal structure (Fig. 4) well developed, characteristic for the genus *Dissorhina* Hull, 1918. Lamellar setae arising separately from

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¹ HNHM: deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnids. MHNG: deposited in the Muséum d’histoire naturelle, Genève.
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the costulae, being much shorter than the interlamellar ones. Sensillus very long, its head lanceolate, sharply pointed, without cilia (Fig. 7).

Notogaster. Dorsosejugal suture strongly narrowed anteriorly, straight medially. Ten pairs of comparatively short notogastral setae present, setae $c_2$ shorter than the others.

Lateral part of podosoma: As shown in Fig. 7.

Ventral regions (Fig. 5). Apodemes and epimeral borders weakly developed. Sternal apodema partly reduced, partly absent or not observable anteriorly and between ap. 2. and ap. sej. A pair of peculiarly oval field present in the sejugal region, on bo. sej. All epimeral setae short, no essential difference among them. Genito-anal setal formula: 5 – 1 – 2 – 3. Anterior pair of genital setae long, much longer than the others. Aggenital, anal and adanal setae nearly equal in length, all short. Ventral plate with an unpaired depression in postermarginal position.

Remarks. The new species is well characterised by the narrow, elongated rostral apex and the smooth and peculiarly long, lanceolate sensillus. This combination of characters is unknown in the heretofore described species, e.g. Dissorhina ornata OUDEMANS, 1900 (Figs. 8-9).

Etymology. The new species is named after the form of the sensillus.

The newly collected and identified specimens without doubts are identical with the described specimens by VASILIU and CALUGAR (1981). I give drawings (Figs. 10-11) from the studied specimens.

I agree with MIKO (in WEIGMANN 2006), who – on contrary to SUBÍAS (2004) – placed this species in relationships to the *Oppiella (Rhinoppia) BALOGH 1983*. It is supported by the form of the rostrum, the shape of the prodorsal costulae, the position of the notgastral setae and by the apodemes, the borders of the epimeral costulae and the peculiar, branching epimeral setae.

**Notes on the family Autognetidae**

**GRANDJEAN, 1960**

*Autogneta parva* FORSSLUND, 1947

It is a Palearctic species, everywhere common in forests.

*Conchogneta traegardhi* (FORSSLUND, 1947)

This sylviculous species is well distributed in the Holarctic Region, but nowhere common. On the basis of the keys and figures published by WEIGMANN (2006) easily identifiable.

The studied specimens from Finland and from Romania unambiguously belong also this species. The most important characters are:
Prodorsal costulae narrow, they run over a long part parallelly, near to each other (Fig. 14). Lateral part of prodorsum with a pair of strong tubercles, placed in opposite position. A pair of basal tubercles is also present, connected by a fine, narrow lath. Rostral setae directed strongly inwards, well ciliate (Fig. 12). Lamellar setae straight, reaching to the insertions of the preceding ones. Interlalmellar setae bacilliform. Sensillus very long, with lanceolate head, bearing 3-5 short cilia. Notogastral setae comparatively strong, setae $c_2$ shorter and thinner than the others. Apodemes and epimeral borders weakly developed, sternal ones hardly observable (Fig. 13). Aggenital and setae $ad_3$ much shorter than setae $ad_1$ and $ad_2$.

**Measurements.** length of body: 356-363 µm, width of body: 207-211 µm.

**Conchogneta vasiliorum sp.n.**


**Figures 15-18.** *Conchogneta vasiliorum* sp. n. 15: body in dorsal view, 16: body in ventral view, 17: prodorsum in lateral view, 18: prodorsum in dorsal view
Ventral plate with some fine rugae in posteromarginal position and on the anal plates. All legs monodactylyous.

**Measurements.** Length of body: 500-527 µm, width of body: 263-271 µm.

**Prodorsum.** Rostral incisure narrowing basally, V-shaped. Rostral teeth sharply pointed. Distal part of lamellae running partly parallel, their distal end characteristically dilated (Fig. 15). There is a pair of lateral field, ornamented by polygonal pattern (Fig. 18). The lateral tubercles absent. A well developed transcostula present in the interbothridial region, bearing one pair of roundish tubercles. Rostral and lamellar setae setiform, thin, rostral ones only slightly bent inwards. Interlamellar setae bacilliform, blunt at tip. Bothridium with guttiform protuberances posteriorly. Sensillus thin, bacilliform, hardly dilated distally, distal part covered by spines, sometimes bi-, or trifurcate, slightly roughened.

**Notogaster.** Humeral part of notogaster with a pair of triangular protuberances. Ten pairs of bacilliform notogastral setae present, without larger variation in length, only setae c₂ shorter, than the others.

**Lateral part of podosoma.** Along the lamellae a well framed oval field present, ornamented by polygonal pattern (Fig. 17). Exobothridial region covered by characteristic, comparatively large pustules. Anterior part of this field granulate.

**Ventral regions** (Fig. 16): Apodemes and epimeral borders well developed, composing a thick network. Epimeral surface distinctly polygonate. All epimeral setae short, simple, setae 1e originating laterally, near to pedotecta 1. In the anterolateral part of the ventral plate some sigilla arranged in two longitudinal rows. Genitoanal setal formula: 6 – 1 – 2 – 3. All setae – excepting adanal ones – in posteromarginal position (ad₁ and ad₂) much shorer than the others.

**Legs.** All legs monodactylyous. Anterodorsal process of leg I conspicuously long, also very long is the solenidium ϕ₁ of leg I.

**Remarks.** In the connection of this new species I have studied some *Conchogneta* GRANDJEAN, 1963 species from different localities of Europe, e.g. *Conchogneta traegardhi* (FORSSLUND, 1947) from Finland and Hungary and *Conchogneta dalecarlica* (FORSSLUND, 1947) from Hungary and *C. willmanni* (DYRDOWSKA, 1929) from Slovakia. The new species stands nearest to *C. traegardhi*, however the new species is distinguished from it by the measurements of body (the maximum length 440 µ in *traegardhi*), by the form of the sensillus and by the absence of the lateral tubercles in the prodorsum.

**Etymology.** The new species is dedicated to Drs. NICOLE VASILIU and MIHAI VASILIU, the renowned oribatidologists in Romania.

**Conchogneta willmanni** (DYRDOWSKA, 1929)

I was able study Hungarian and Transylvanian specimens. In my opinion it is not synonymous with *C. dalecarlica* (FORSSLUND, 1947), but the two species stand very near to each other. They are distinguishable by the length and form of the sensillus (much longer in *wilmanni*, Fig. 19) and by the distal end of sensillar head (clearly bifurcate in *wilmanni* Fig. 19, distinctly pilose, nearly pectinate in *dalecarlica*, Fig. 20).

**Identification key to the *Conchogneta* species**

1 ( 4) Prodorsal costulae run far from each other, converging anteriorly.
2 ( 3) Sensillus very long, its head bifurcate

**willmanni** (DYRDOWSKA, 1929)
3 ( 2) Sensillus shorter, its head pectinate or well pilose

**dalecarlica** (FORSSLUND, 1947)
4 ( 1) Prodorsal costulae run near to each other, over a long part parallelly.
5 ( 6) Prodorsal costulae narrow, without dilated distal part. A pair of tubercles on lateral part of prodorsum, along the costulae

**traegardhi** (FORSSLUND, 1947)
6 (5) Prodorsal costulae wide, with dilated distal part. A pair of polygonate field on lateral part of prodorsum, along the costulae

**vasiliorum** sp. n.
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