IDENTIFICATION KEY TO THE SYMPHYLA OF ROMANIA

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Abstract. In the following paper, we present the checklist of Symphyla species found in Romania: 11 species belonging to 8 genera. We provide an identification key for these species and their distribution. Considering the species *S. microcolpa* (Muhr, 1881) as the type species for the genus *Scolopendrellopsis* Bagnal, 1913 and the presence of pubescent setae on the antennae as the main character of this species, we regard *Scolopendrellopsis* and *Symphylellopsis* Ribaut 1931 as distinct genera. As such, the genus *Scolopendrellopsis* comprises two species: *S. microcolpa* and *S. pretneri*. The second species was described from Postojna Cave (Slovenia) subsequently found also in Romania.

Key words: Symphyla, identification key, Romania.

1. INTRODUCTION

As a review of the researches points out (HANSEN, 1903; VERHOEFF, 1933–1934; DOMINGUEZ RODRIGUEZ, 1992) the first described species of Symphyla, respectively *Scolopendra nivea* Scopoli, 1763, *Scolopendrella notacantha* Gervais, 1839 and *Scolopendrella imaculata* Newport, 1845, have been included among the Chilopoda. Only in 1880, A. J. Ryder separated Symphyla as a group apart with the taxonomical rank of an order. A. S. Packard in 1881 includes Symphyla in Thysanura but Wood-Mason in 1883, R. Latzel in 1884 and B. Grassi in 1886, include Symphyla in Myriapoda.

R. I. Pocock elevates the taxa Symphyla at the rank of class and, in 1893, classifies the tracheate Arthropoda based on the position of the genital openings in two phyla: Progoneata (Symphyla, Pauropoda, Diplopoda) and Opisthogoneata (Chilopoda and Insecta).

As M. DOMINGUEZ CAMACHO (2009) pointed out in his study "Phylogeny of the Symphyla (Myriapoda)", there are at present numerous hypotheses concerning the phylogenetic position of class Symphyla. Different authors have considered Symphyla as the sister-group with very different groups: with Pauropoda, with Diplopoda, with Dignatha (Pauropoda+Diplopoda) forming the group Progoneata, with Chilopoda forming the so-called Atelopoda, with Chilopoda+Dignatha, with Hexapoda within the group Labiata or even with Onychophora. The cladogram resulting from the study of Dominguez Camacho supports the hypothesis of

Symphyla as a sister-group with Dignatha (Pauropoda+Diplopoda). This seems to us as the best reasoned hypothesis.

Among the four classes included in the subphylum Myriapoda, the class Symphyla represents a monophyletic group with the least number of species. They are small sized (2–10 mm), filiform, completely depigmented and blind tracheate arthropods. They have long, moniliform antennae, 12 pairs of legs and the body ends with a pair of cerci (spinnerets). Lucifugous and hygrophilous, they are sometimes found in caves, especially at the entrance (JUBERTHIE-JUPEAU, 1963; SCHELLER, 1961, 1990, 1996; TABACARU, 2011).

Class Symphyla contains two families and, worldwide, there are approximately 200 species belonging to 14 genera (DOMINGUEZ CAMACHO, 2015), namely the family Scutigerellidae with 5 genera, 124 species and the family Scolopendrellidae with 9 genera, 73 species (SZUCHSIC & SCHELLER, 2011).

The Symphyla have been recorded on all continents excepting Antarctica. There are approximately 50 species known from Europe and we can note they have a higher number of species in the Mediterranean regions. Thus, there are 25 species in the Iberian Peninsula but only 7 species in the Scandinavian Peninsula. Presumably, some species are thermophilous as SCHELLER & CHRISTIAN (2000) have shown for *Parviapiciella balcanica*.

In Romania, are recorded 11 species belonging to 8 genera:

Class **Symphyla** Ryder, 1880
Familiy **Scolopendrellidae** Newport, 1845 Bagnal, 1913
Genus **Symphylella** Silvestri, 1902
S. vulgaris (Hansen, 1903)
S. isabellae (Grassi, 1886)
Genus **Geophilella** Ribaut, 1913
G. pyrenaica Ribaut, 1913
Genus **Parviapiciella** Mas & Serra, 1993
P. balcanica (Remy, 1943)
Genus **Scolopendrella** Gervais, 1839
S. notacantha Gervais, 1844
Genus **Scolopendrellopsis** Bagnal, 1913
S. pretneri Juberthie-Jupeau, 1963
Genus **Symphylellopsis** Ribaut, 1931
S. subnuda (Hansen, 1903)
Family **Scutigerellidae** Bagnal, 1913
Genus **Scutigerella** Ryder, 1882
S. carpatica Juberthie-Jupeau & Tabacaru, 1968
S. orghidani Juberthie-Jupeau & Tabacaru, 1968
S. remyi Juberthie-Jupeau, 1963
Genus **Hanseniella** Bagnall, 1913
H. nivea (Scopoli, 1763)

2. REMARKS REGARDING THE SPECIES FROM ROMANIA

In his ample study on the Symphyla, H. J. HANSEN (1903) considers two genera: Gen. 1. *Scutigerella* Ryder, 1882 (12 species in 3 groups) and Gen. 2. *Scolopendrella* Gervais, 1839 (12 species in 3 groups). From the species recorded in Romania, Hansen describes in his paper the following: *Scutigerella nivea* (Scopoli, 1768) (= *Scolopendrella nivea* sensu latzel, 1884), *Scolopendrella notacantha* Gervais, 1844, *Scolopendrella microcolpa* Muhr, 1881, *Scolopendrella subnuda* n.sp., *Scolopendrella isabellae* Grassi, 1886 and *Scolopendrella vulgaris* n.sp (= *Scolopendrella notacantha* sensu Latzel, 1884).

In his classification of the Symphyla, R. S. BAGNALL (1913) elevates the two genera of HANSEN (1903), respectively *Scutigerella* and *Scolopendrella* to the rank of subfamily and the species groups to the rank of genus or subgenus, adding the genus *Neoscutigerella* established for a species described by him in 1911. Thus, he establishes the family Scolopendrellidae with two subfamilies: Scutigerellinae Bagnall (with the genera *Scutigerella* Ryder, *Neoscutigerella* Bagnall and *Hanseniella* Bagnall respective the subgenera *Hanseniella* s.str and *Scolopendrelloides* Bagnall) and Scolopendrellinae Bagnall (with the genera *Scolopendrella* Gervais, *Scolopendrellopsis* Bagnall and *Symphylella* Silvestri). H. RIBAUT (1913) describes a new genus, *Geophilella*, for which considers a third subfamily, the Geophilellinae. C. ATTEMS (1926), K. W. VERHOEFF (1934) and O. SCHUBART (1967) take into account three families: Scolopendrellidae Bagnall, 1913, Scutigerellidae Bagnall, 1913 and Geophilellidae Ribaut, 1913. But, H. RIBAUT (1931) unites the family Geophilellidae with the family Scolopendrellidae, and, as a result, at present there are only two families.

In 1931, H. RIBAUT separates from the genus *Scolopendrellopsis* Bagnall, 1913, the species *S. subnuda* (Hansen, 1903) and establishes a new genus, *Symphylellopsis*, for this species and for a new species, *S. arvernorum*, designating *S. subnuda* as the type species of the new genus. The genus *Symphylellopsis* Ribaut, 1931 has been unanimously accepted and new species have been described within this genus. L. JUBERTHIE-JUPEAU (1962) has shown the number of dorsal scutes cannot be a considered as a criterion to separate the genera and establishes differential diagnoses for the genera *Scolopendrellopsis* and *Symphylellopsis*. But, SCHELLER (1968) does not regard *Symphylellopsis* as a genus apart arguing the character associations used to define the two genera are not constant.

We have to specify the genus *Scolopendrellopsis* was established by Bagnall for the species reunited by Hansen in the second group of the genus *Scolopendrella*. Bagnall had established as type-species for the genus *Scolopendrellopsis*, the species *S. microcolpa* (Muhr, 1881). In the identification key of the species, HANSEN (1903) characterizes the species *S. microcolpa* Muhr: “Nearly all the setae on the antennae are very conspicuously pubescent (against: All setae on the antennae naked”). H. GISIN (1949) defines the genus *Scolopendrellopsis* by the character “Poils des antennes pubescents” and O. SCHUBART (1967) textually assert on the species *Scolopendrellopsis microcolpa* “Nachdem nun *subnuda* zu

einer anderen Gattung gestellt ist, ist die feine Behaarung der Fühlerborsten ein gutes Merkmal". If we consider the genus *Scolopendrellopsis* Bagnall, 1913 as defined by the presence of pubescent hairs on the antennae than this genus contains only the species: *S. microcolpa* Muhr, 1881 and *S. pretneri* Juberthie-Jupeau, 1963.

MAS & SERRA (1993), noting only 11 pairs of tergal projections at the species known under the name *Symphylellopsis balcanica* Remy, 1943 while the other species included in the genus *Symphylellopsis* present 13 pairs of projections, studied in detail the species of this genus and proposed for this species a new genus, *Parviapiciella*. Within the genus *Symphylellopsis*, the species *S. balcanica* was considered as clearly separated from the other species by the cerci with a conspicuously scaly pattern. The new genus is defined by MAS & SERRA (1993) by the possession of 11 pairs of digitiform posterior projections on tergites and by well-developed first pair of legs with tarsus almost as long as the tarsus of the second pair of legs. U. SCHELLER & E. CHRISTIAN (2000) analyzing the species *Parviapiciella balcanica* (Remy, 1943) argue that these two characters are less important and that the strongest reason for a generic separation is the scaly cuticular pattern of the cerci. This character was described also by H. RIBAUT (1913) on the cerci of *Geophilella pyrenaica*, the sole species from the family Scolopendrellidae without paired posterior projections on the tergites. MAS & SERRA (1993) but also M. DOMINGUEZ CAMACHO (2009) has shown that there are clear affinities between the genera *Parviapiciella* and *Geophilella* regarding the structure of the head, the dorsal scuta, the first leg pair and the cerci. We consider as justified the establishment of the genus *Parviapiciella* Mas & Serra for the sole species, *P. balcanica* (Remy, 1943).

Regarding the family Scutigerellidae, we note the existence of two species of *Scutigerella* described from Romania. This confirms the opinion of MICHELBACHER (1942) namly that individuals belonging in fact to different species have been quoted under the name *Scutigerella immaculata*.

We have to point out that all the three species belonging to the genus *Scutigerella* Ryder, 1882 recorded in Romania are included among the species defined by Michelbacher by the posterior margin of second scutum subtruncate or broadly, shallowly emarginated.

Scutigerella carpatica Juberthie-Jupeau & Tabacaru, 1968, through the shape of the setae from the posterior margin of the tergites (gradually shorter and wider at the middle beginning with tergite V towards the posterior tergites) is close to the species *S. silvatica* Juberthie-Jupeau, 1963. But the species *S. carpatica* clearly differs from *S. silvatica* by the differentiation of the femur from the first leg pair in females. The secondary sexually differentiation of the femur of the first leg pair is recorded in the species *S. armata* Hansen, 1903, *S. lineatus* Edward, 1959, *S. pagesi* Jupeau, 1954, *S. tusca* Juberthie-Jupeau, 1962, *S. echinostylus* Scheller, 1968 and *S. tescorum* Scheller, 1973. Through the shape of the sternal process from the female first leg pair, S. *carpatica* seems closer to *S. armata*, *S. echinostylus* and *S. tescorum*. Likewise, the species *S. carpatica* is also close to *S. echinostylus* by the presence of additional setae inserted on the styli but differs from all these three species by the shape of the hairs on the tergites.

S. orghidani Juberthie-Jupeau & Tabacaru, 1968 presents on the sternal side of the antennal articles a seta with a widened base. This character is also found at the species *S. silvatica* but *S. orghidani* clearly differs from this species by the uniform, thin and sharp setae from the tergites but also by the absence of additional setae inserted on the styli.

3. IDENTIFICATION KEY TO THE SYMPHYLA OF ROMANIA

1 (14) Paired sense calicles (trichobothria) with smooth margin to pit; scuta either with pointed posterior projections, or reduced in size; first leg pair 3-jointed, usually less than half the length of the following pair or vestigial; styli at the base of legs small or reduced to slight protuberances; 17–24 trunk scuta; length usually less than 4 mm (Family **Scolopendrellidae** Newport, 1845) **2**

2 (5) First leg pair represented only by small protuberances, with a few setae; 17 trunk scuta (Genus ***Symphylella*** Silvestri, 1902)..... **3**

3 (4) First trunk tergite with a transverse row of 6 setae (Fig. 1A & B); body length: 1.9–2.4 mm .....*S. vulgaris* (Hansen, 1903)

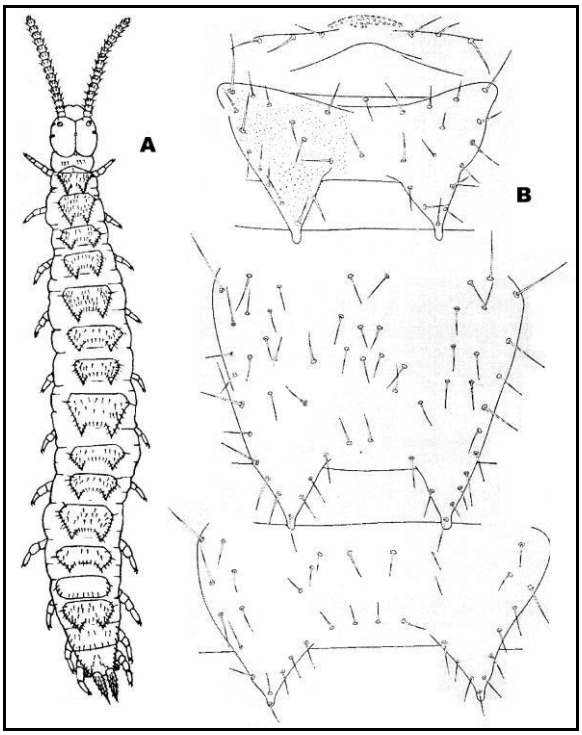

Fig. 1. *Symphylella vulgaris*: A. Habitus (after EDWARDS, 1959);
B. tergites 1–4, dorsal view (after SCHELLER, 1978).

4 (3) First trunk tergite with a transverse row of 10–12 setae (Fig. 2); body length: 2.3–3.5 mm ..... *S. isabellae* (Grassi, 1886)

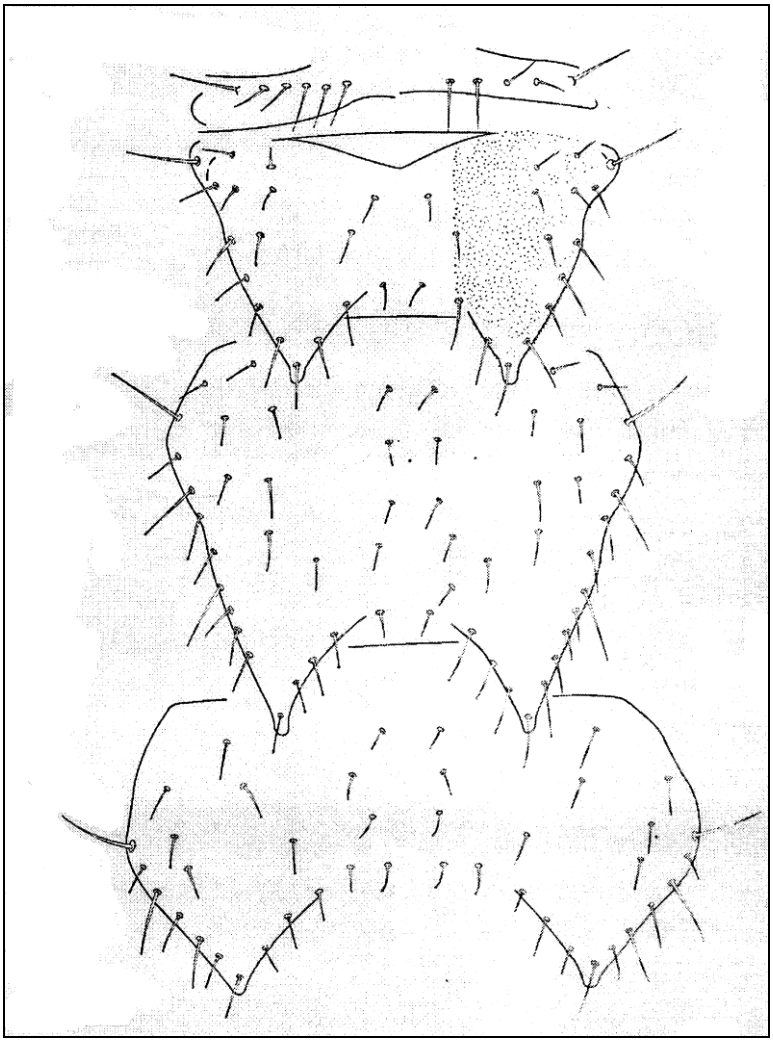

Fig. 2. *Symphylella isabellae*: tergites 1–4, dorsal view (after SCHELLER, 1978).

5 (2) First leg pair present, 3-jointed with claws **6**

6 (7) Posterior margin of each scutum with transverse belts of longitudinal striae, between the pair of triangular processes (Fig. 3, see arrows); first leg pair more than two-thirds as long as the second pair; 17 trunk scuta (Genus ***Scolopendrella*** Gervais, 1839); body length: 3–3.4 mm ..... *S. notacantha* Gervais, 1844.

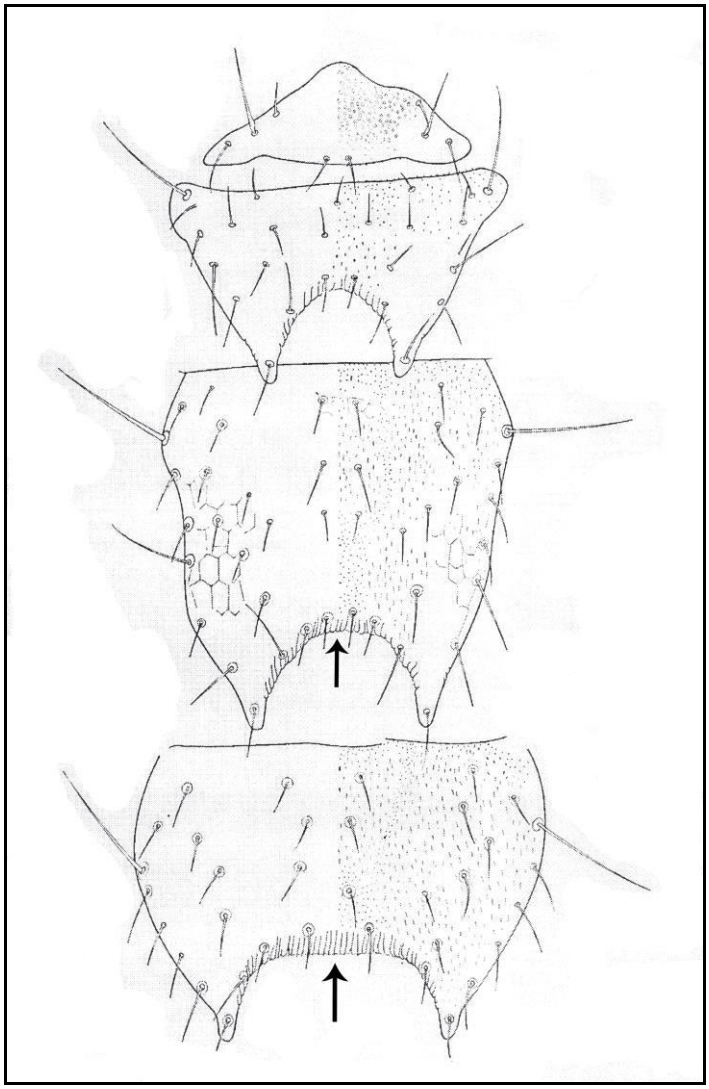

Fig. 3. *Scolopendrella notacantha*: tergites 1–4, dorsal view (after SCHELLER, 1978).

7 (6) Posterior margin of scuta without transverse belts of longitudinal striae; first leg pair half as long as the second pair; 20–23 trunk scuta **8**

8 (11) Scuta without paired posterior projections or 11 scuta with paired digitiform, posterior projections; cerci with a conspicuous scaly pattern and apical part with longitudinal ridges **9**

9 (10) Scuta without paired posterior projections. Cerci short, twice as long as broad (Fig. 4) (Genus ***Geophilella*** Ribaut, 1913); body length: 2.3–3.4 mm .....*G. pyrenaica* Ribaut, 1913

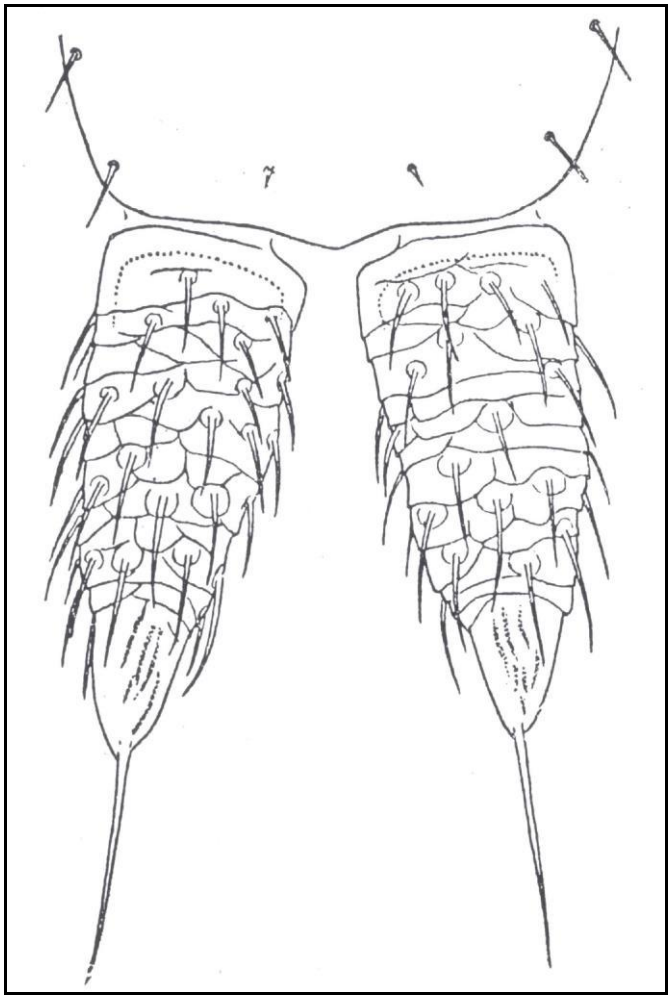

Fig. 4. *Geophylella pyrenaica*: cerci (after RIBAUT, 1913).

10 (9) Scuta with 11 paired digitiform posterior projections (Fig. 5A); cerci long, more than twice as long as broad (Fig. 5B) (Genus ***Parviapiciella*** Mas & Serra, 1993); body length: 2mm ..... *P. balcanica* (Remy, 1943)

11 (8) 13 scuta with paired triangular posterior projections; cerci without conspicuous scaly pattern and with transversal ridges in the apical part **12**

12 (13) Nearly all the setae on the antennae are very conspicuously pubescent (Fig. 6A); scutum IV with triangular posterior projections clearly broader than long (Fig. 6B) (Genus ***Scolopendrellopsis*** Bagnall, 1913); first leg pair very short, one third as long as the second pair and shorter than the tarsus of the last leg pair; body length: 2.4 mm ..... *S. pretneri* Juberthie-Jupeau, 1963.

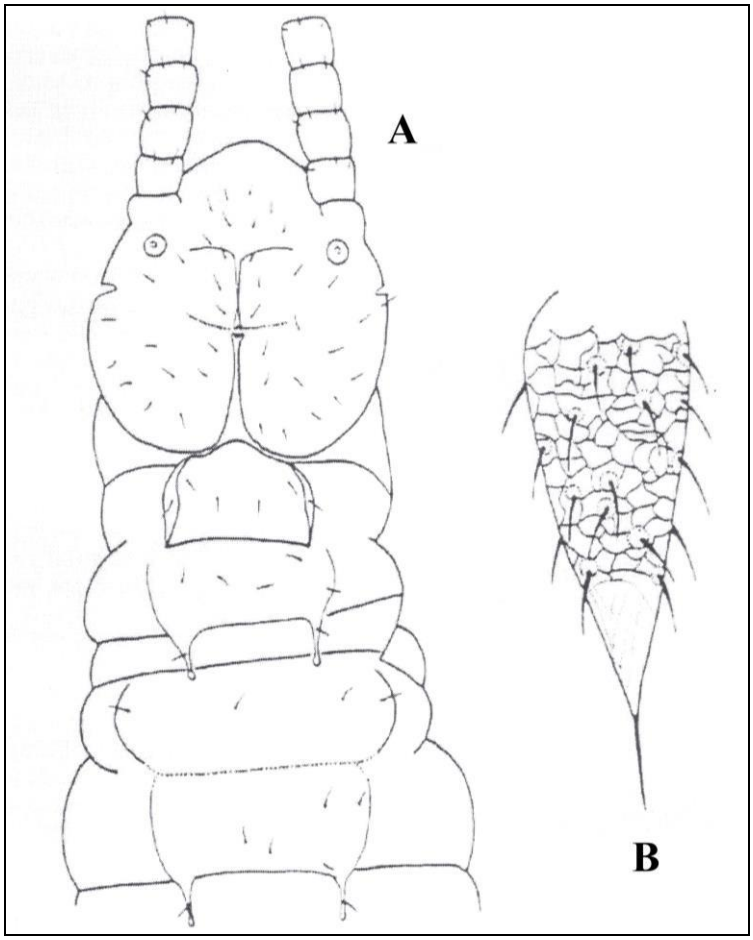

Fig. 5. *Parviapiciella balcanica*: A. Head and first tergites;
B. cerci (after MAS & SERRA, 1993).

13 (12) All the setae on the antennae naked; scuta with triangular posterior projections more or less digitiform and longer than broad (Fig. 7) (Genus ***Symphylellopsis*** Ribaut, 1931); first leg pair half as long as the second pair and longer than the tarsus of the last leg pair; body length: 2.1–2.3 mm ..... *S. subnuda* (Hansen, 1903)

14 (1) Paired sense calicles (trichobothria) with many setae irregularly distributed around margin of pit; scuta with rounded posterior margins; first leg pair 4-jointed, more than half as long as the following pairs; styli at the base of legs large; 15 trunk scuta; length usually more than 4 mm (Family ***Scutigerellidae*** Bagnall, 1913)..... **15**

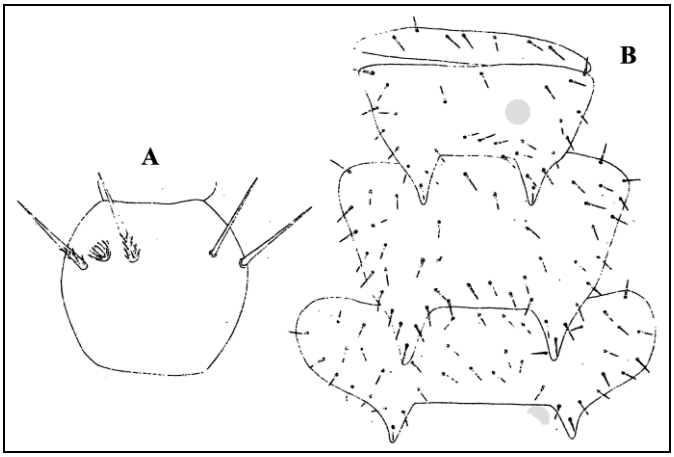

Fig. 6. *Scolopendrellopsis pretneri*: A. Antennal article, tergal side; B. Tergites1 – 4 (after JUBERTHIE-JUPEAU, 1963).

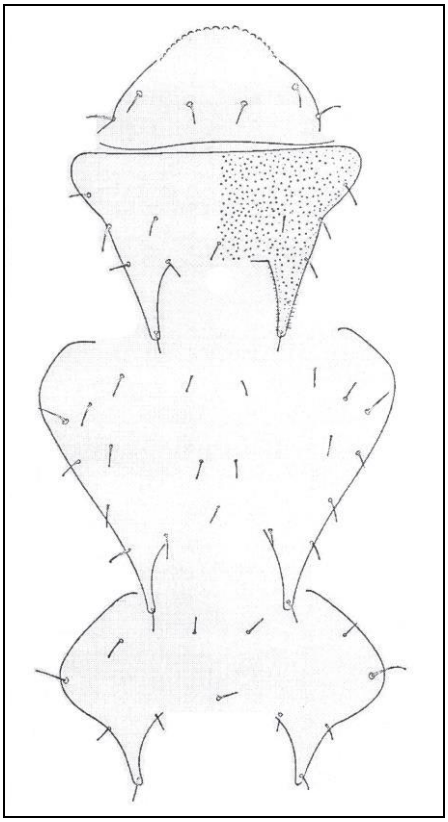

Fig. 7. *Symphylellopsis subnuda*: tergites 1–4 (after SCHELLER, 1978).

15 (20) Last scutum with a deep cavity beneath the middle of the caudal margin, between the cerci, overlapped anteriourly by the posterior margin of the scutum; scuta with posterior margin more or less emarginated (Genus ***Scutigerella*** Ryder, 1882) **16**

16 (17) Setae on the posterior margin of the tergites are gradually (from the V tergite toward the posterior tergites) shorter and wider at their mid-section (Fig. 8A); at females, a robust, cylindrical, seta with a rounded tip, on the sternal side of the first leg pair femur (Fig. 8B); styli with three lateral, supplementary setae beside the two terminal setae (Fig. 8C); body length: 5.5–7 mm ..... *S. carpatica* Juberthie-Jupeau & Tabacaru, 1968.

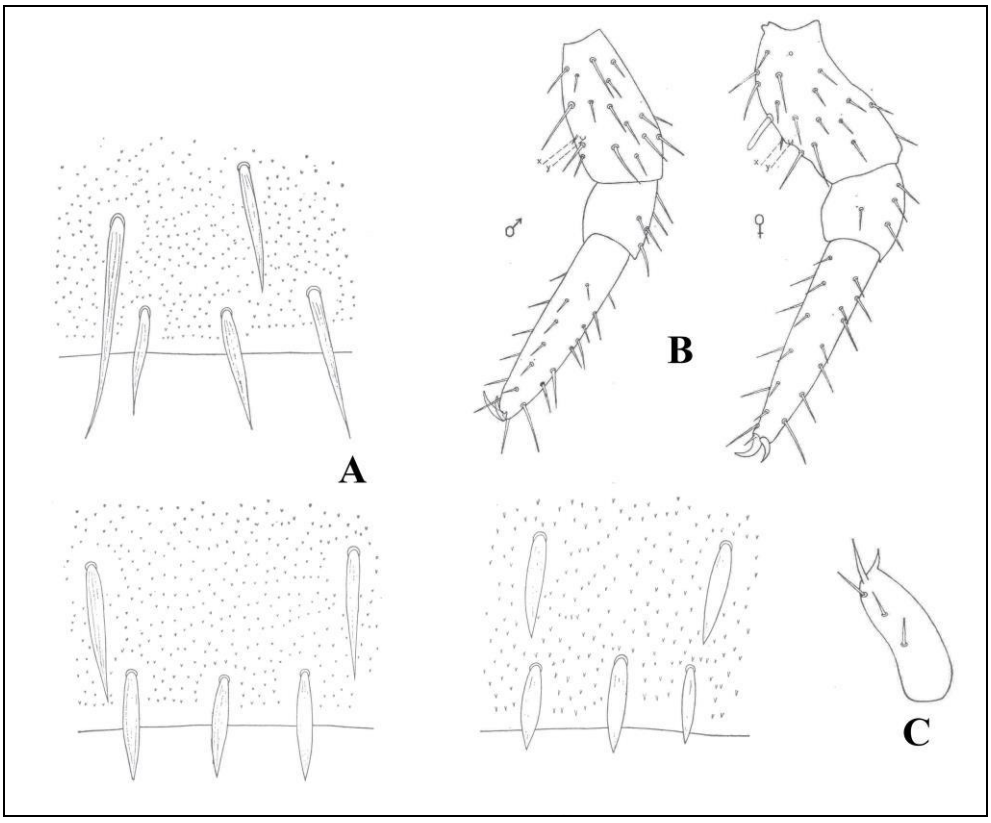

Fig. 8. *Scutigerella carpatica*: A. Tergites 2, 5, 14; B. First leg; C. Stylus (after JUBERTHIE-JUPEAU & TABACARU, 1968).

17 (16) Uniform, thin and pointed setae on the tergites (Fig. 10C); no sexual dimorphism at the femur of the first leg pair; styli without lateral supplementary setae **18**

18 (19) Tarsus of the first leg pair 4.5 longer than its maximum width (Fig. 9A); cerci four times longer than their maximum width; sternal side of the antennae with a wide based seta; body length: 3.8–4.4 mm.....*S. orghidani* Juberthie-Jupeau & Tabacaru, 1968.

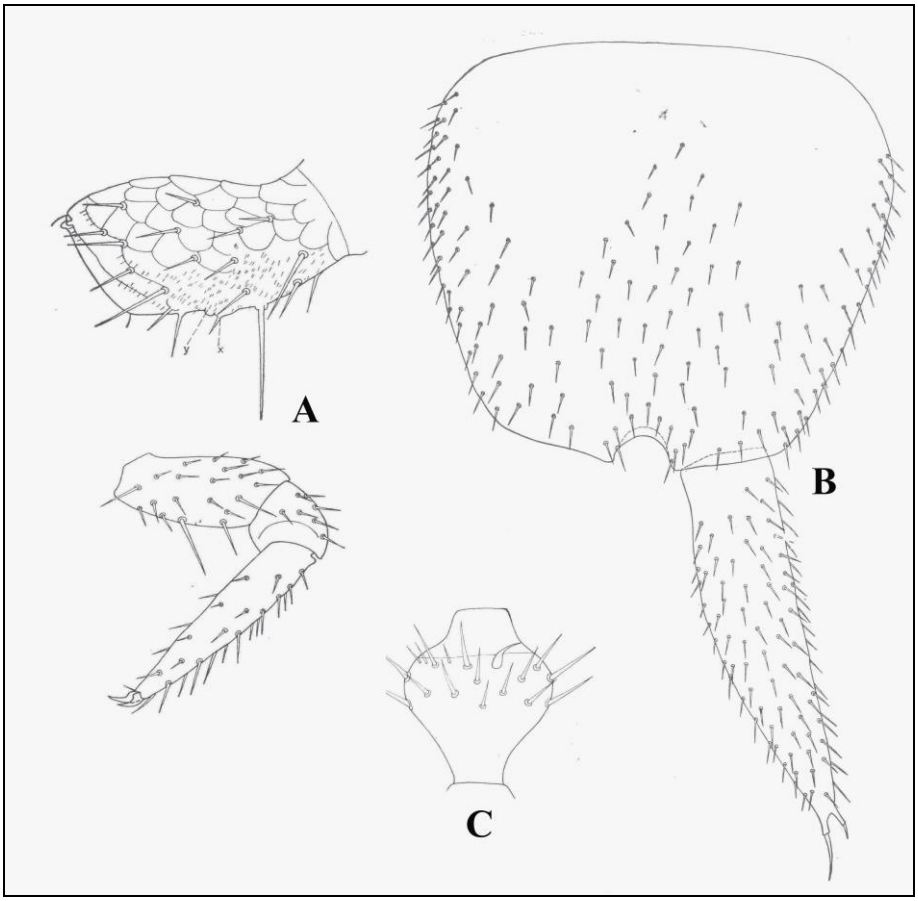

Fig. 9. *Scutigerella orghidani*: A. First leg: B. Cerci; C. Antennal article, sternal side (after JUBERTHIE-JUPEAU & TABACARU, 1968).

19 (18) Tarsus of the first leg pair 2.5 longer than its maximum width (Fig. 10A); cerci three times longer than their maximum width (Fig. 10B); sternal side of the antennae without a wide based seta; body length: 3.5 mm.....*S. remyi* Juberthie-Jupeau, 1963.

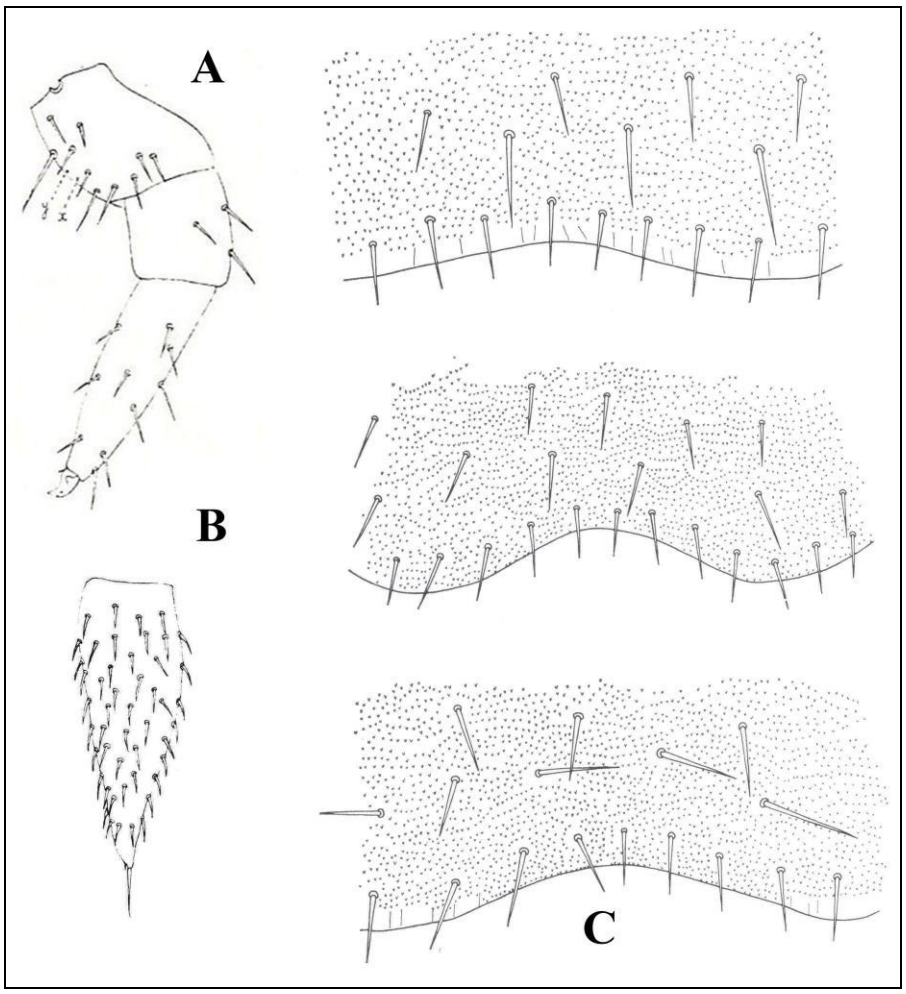

Fig. 10. *Scutigerella remyi*: A. First leg, posterior side; B. Cerci; C. Tergite 2
(A, B after JUBERTHIE-JUPEAU, 1963; C after JUBERTHIE-JUPEAU & TABACARU, 1968).

20 (15) Last scutum without a cavity beaneath the middle of the caudal margin between the cerci; scuta 2–14 convex posteriorly (Fig. 11) (Genus ***Hanseniella*** Bagnall, 1913); body length: 1.5–2 mm .....*H. nivea* (Scopoli, 1763)

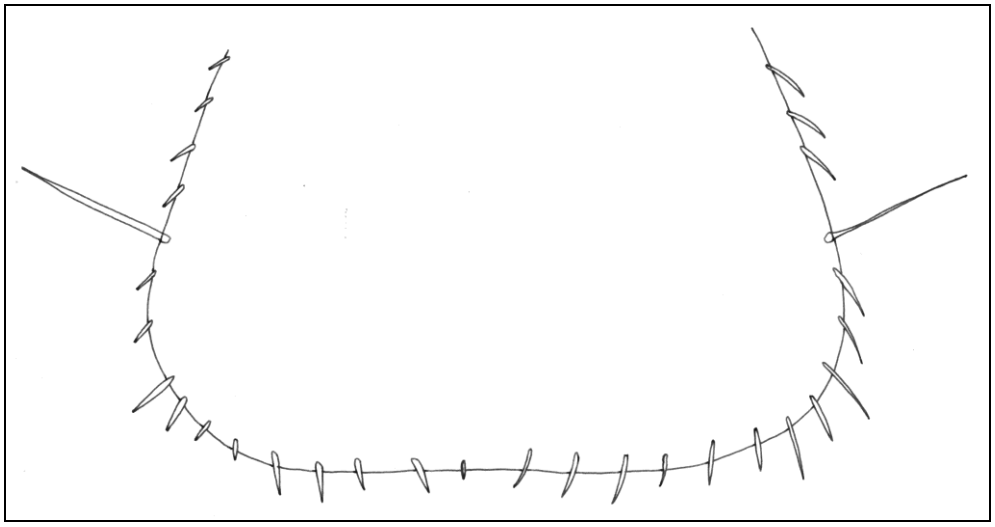

Fig. 11. *Hanseniella nivea*: Tergite 2 (after HANSEN, 1903).

4. INVENTORY OF THE SYMPHYLA FROM ROMANIA

In the following section, we draw an inventory of the species of Romania with a complete list of their records.

The general distribution of the species is based on a large number of references, especially on papers published by: SCHELLER (1968, 1972, 1978, 1986, 1990, 1996, 2006), JUBERTHIE-JUPEAU (1961, 1962, B, 1963A, B, C, D), ROCHAIX (1954), DOMINGUEZ CAMACHO (2008, 2009, 2012, 2015) and DOMINGUEZ RODRIGUEZ (1992), MAS & SERRA (1986, 1993) OLSEN (2014), LOCK (2010), VOIGTLÄNDER, DECKER, BURCKHARDT, SPELDA (2016), RUSEK (2001), GOLOVATCH (1982), CHRISTIAN (2000), STOEV (2006) , NEFEDIEV (2016).

Class Symphyla
Family Scolopendrellidae

Symphylella vulgaris (Hansen, 1903)

General distribution.

Widespread, Europe, North America, Asia, Africa, New Zealand and Australia. In Europe: Ireland, Great Britain, Norway, Sweden, Denmark, Finland, Russia, Belgium, France, Switzerland, Austria, Germany, Hungary, Czech Republic, Slovakia, Spain including Balearic Islands, Italy, Croatia, Bosnia and Herzegovina, Slovenia, Albania, Romania, Bulgaria, Greece, Turkey.

Romanian distribution.

Romanian Plain: Căscioare, Ilfov (REMY, 1943).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Bihor Mountains: Stâna de Vale; Lunca Ampoiţei (JUBERTHIE-JUPEAU & TABACARU, 1968).

Eastern Carpathians: Cheile Bicazului; the shore of the Bicaz Lake; Pângăraţi, Parul Hill (JUBERTHIE-JUPEAU & TABACARU, 1968).

Southern Carpathians: Cumpăna-Argeş; upper part of the Olăneşti Valley; Baia de Fier; Ohaba, near Şura Mare Cave; Dodoconi, near Dodoconi Cave; Ponorici; Câmpuşel; Câmpul lui Neag; Obârşia-Cloşani (Vârtoape Massif); upper basin of Cerna River; Ada Kaleh Island (presently submerged) (JUBERTHIE-JUPEAU & TABACARU, 1968).

Banat: Bigăr (JUBERTHIE-JUPEAU & TABACARU, 1968).

Dobrogea: Babadag; Casian; Mangalia Lake (JUBERTHIE-JUPEAU & TABACARU, 1968), Gura Dobrogei-Valea Icula, Hagieni Forest (DUMITRESCU & ORGHIDAN, 1969).

Symphylella isabellae (Grassi, 1886)

General distribution.

The species is known from Europe, North America (doubtful record) and Madagscar. In Europe: Great Britain, Norway, Sweden, Finland, Russia, Belgium, France, Switzerland, Austria, Germany, Czech Republic, Italy, Romania, Bosnia and Herzegovina, Serbia.

Romanian distribution.

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Dobrogea: Babadag (JUBERTHIE-JUPEAU & TABACARU, 1968).

Scolopendrella notacantha (Gervais, 1844)

General distribution.

The species is known from Europe and North Africa (Morocco, Algeria). In Europe: Great Britain, Belgium, France including Corsica, Switzerland, Germany, Austria, Czech Republic, Hungary, Romania, Russia, Spain, Italy, Slovenia, Bosnia and Herzegovina, Greece.

Romanian distribution.

Southern Carpathians: upper part of the Olăneşti Valley (JUBERTHIE-JUPEAU & TABACARU, 1968).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Geophylella pyrenaica Ribaut, 1913

General distribution.

The species is known from Europe and North Africa (Morocco, Algeria). In Europe: France, Switzerland, Germany, Austria, Romania, Spain including Balearic Islands, Andorra, Italy, Croatia, Bosnia and Herzegovina.

Romanian distribution.

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Parviapiciella balcanica (Remy, 1943)

General distribution.

The species is known from Europe and North Africa (Morocco, Algeria). In Europe: Spain including the Balearic and Canary islands, France, Switzerland, Austria, Romania, Croatia, Bosnia and Herzegovina, Montenegro, Greece.

Romanian distribution.

Bihor Mountains: Lunca Ampoiţei (JUBERTHIE-JUPEAU & TABACARU, 1968).

Southern Carpathians: Rudăreasa Valley, Ciungetu; upper part of the Olăneşti Valley; Obârşia-Cloşani (Vârtoape Massif) (JUBERTHIE-JUPEAU & TABACARU, 1968); Câmpul lui Neag, Valea cu Peşti, Peştera cu Gheaţă DUMITRESCU & ORGHIDAN, 1969).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Scolopendrellopsis pretneri Juberthie-Jupeau, 1963

General distribution.

The species was described from Postojna Cave (Slovenia) and found again only in Romania.

Romanian distribution.

Dobrogea: southern shore of the Mangalia Lake (JUBERTHIE-JUPEAU & TABACARU, 1968).

Symphylellopsis subnuda (Hansen, 1903)

General distribution.

The species is known from Europe, North Africa (Morocco, Algeria), Azores, Madeira, Reunion, Hawaii (probably introduced). In Europe: Ireland, Great Britain, Norway, Sweden, Denmark, Finland, France, Switzerland, Germany, Austria, Romania, Czech Republic, Hungary, Spain including Balearic Islands, Italy, Bosnia and Herzegovina, Croatia, Slovenia, Greece.

Romanian distribution.

Romanian Plain: Căscioare, Ilfov (REMY, 1943).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Eastern Carpathians: Pângăraţi, Parul Hill (JUBERTHIE-JUPEAU & TABACARU, 1968).

Southern Carpathians: upper part of the Olăneşti Valley; Baia de Fier; Câmpul lui Neag (JUBERTHIE-JUPEAU & TABACARU, 1968).

Dobrogea: Babadag (JUBERTHIE-JUPEAU & TABACARU, 1968).

Family Scutigerellidae

Scutigerella carpatica Juberthie-Jupeau & Tabacaru, 1968

General distribution.

Described originally from Romania, it was subsequently found in Ukraine (SCHELLER & GOLOVATCH, 1982) and in Slovenia (SCHELLER, 1990).

Romanian distribution.

Eastern Carpathians: Borşa; Bicaz Lake shore; Vârghişului Gorges (JUBERTHIE-JUPEAU & TABACARU, 1968).

Southern Carpathians: upper part of the Olăneşti Valley; Baia de Fier; Câmpul lui Neag, Alunii Negrului; Ponorici; Băile Herculane, Dealul Roşu; Domogled (JUBERTHIE-JUPEAU & TABACARU, 1968).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Banat Mountains: Anina near the Ponor-Plopa Cave (JUBERTHIE-JUPEAU & TABACARU, 1968).

Scutigerella orghidani Juberthie-Jupeau & Tabacaru, 1968

General distribution.

Described originally from Romania, it was subsequently found in Gruzia (SCHELLER & GOLOVATCH, 1982) and in Croatia and Slovenia (SCHELLER, 1990).

Romanian distribution.

Eastern Carpathians: Borşa; Vârgişului Gorges (JUBERTHIE-JUPEAU & TABACARU, 1968).

Southern Carpathians: Bogata (JUBERTHIE-JUPEAU & TABACARU, 1968).

Scutigerella remyi Juberthie-Jupeau, 1963

General distribution.

Described originally from Austria, it was subsequently recorded from Spain, France, Italy, Germany, Slovenia, Croatia, Romania, Russia.

Romanian distribution.

Eastern Carpathians: Pângăraţi, Parul Hill; Bicaz Lake shore (JUBERTHIE-JUPEAU & TABACARU, 1968).

Southern Carpathians: Bogata; Câmpul Lui Neag; Câmpuşel; upper basin of Cerna River (JUBERTHIE-JUPEAU & TABACARU, 1968).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Dobrogea: Babadag; Gura Dobrogei; Enisala; Casian; Sârtorman Forest; Mangalia Lake shore; Băneasa-Canaraua de pe Graniţă (JUBERTHIE-JUPEAU & TABACARU, 1968).

Hanseniella nivea (Scopoli, 1763)

General distribution.

Species known from Central and Southern Europe and in North-Western Africa. In Europe: France (including Corsica), Switzerland, Germany, Austria, Czech Republic, Slovakia, Romania, Russia, Italy, Croatia, Bosnia and Hertzegovina, Slovenia, Macedonia, Greece.

Romanian distribution.

Romanian Plain: Căscioare, Ilfov (REMY, 1943).

Piteşti Plain: Făget, Zăvoi and Trivale forests- "in the northern part of the High Plain of the town Piteşti, just on its contact lined with the Cotmeana and Cândeşti Piedmont" (GAVA, 1997; GAVA, 2009).

Bihor Mountains: Stâna de Vale (JUBERTHIE-JUPEAU & TABACARU, 1968).

Eastern Carpathians: Pângăraţi, Parul Hill; Bicaz Lake shore; Vârghişului Gorges (JUBERTHIE-JUPEAU & TABACARU, 1968); Mociar Forest, Gurghiu (SCHELLER, 1990)

Southern Carpathians: upper part of the Olăneşti Valley; Paroş-Peştera near Gura Cetăţii Cave; Râul de Mori; Luncani near the Cioclovina Cave; Câmpul lui Neag; upper basin of Cerna River; Băile Herculane, Dealul Roşu (JUBERTHIE-JUPEAU & TABACARU, 1968); Peştera, Peştera Gura Cetăţii (DUMITRESCU & ORGHIDAN, 1969).

Banat Mountains: Poneasca (JUBERTHIE-JUPEAU & TABACARU, 1968).

Dobrogea: Gura Dobrogei; Băneasa-Canaraua de pe Graniţă (JUBERTHIE-JUPEAU & TABACARU, 1968).

Acknowledgments — Our study has been undertaken within the framework of Program 1 of the "Emile Racovitza" Institute of Speleology of the Romanian Academy. The authors are grateful to their colleague Vasile Mihnea Cristian for his kind help concerning the figures presented in this paper.

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