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A new species of *Hymenaphorura* Bagnall, 1949 (Collembola, Onychiuridae) from Luxembourg

by

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Abstract: A new species of *Hymenaphorura* from Luxembourg is described; it is closest to *Hymenaphorura parva* Skarżyński & Pomorski, 1996.

Résumé: Une nouvelle espèce de *Hymenaphorura* est décrite du Luxembourg; elle est proche de *Hymenaphorura parva* Skarżyński & Pomorski, 1996.

Key words: Collembola, *Hymenaphorura*, new species, Luxembourg.

In the present paper we present a description of a new *Hymenaphorura* species. Our study was based on material collected during the investigations on Collembola Poduromorpha in Luxembourg.

***Hymenaphorura arantiana* n. sp.**

Etymology: The name of the new species is derived from the medieval name of the Ernz Noire river, *Arantia*, in whose vicinity it was found.

Types: Holotype (female: L-98-21/2 in: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland), paratypes (female: L-98-21/2, adult male: L-98-21/8, juvenile: L-98-21-/6 in: Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland; female: L-98-21/5, adult male: L-98-21/3, juvenile male: L-98-21/7, juvenile: L-98-21/4 in: Musée national d'histoire naturelle, Luxembourg).

Type locality: Luxembourg, near Christnach-Breidweiler and Blumenthal-Mullerthal junction, near the bank of the Ernz Noire river, deciduous forest with beech and ash, undergrowth with *Vinca minor*, litter with alluvial soil, July 2, 1998, leg. W. M. Weiner & N. Stomp.

Description: Holotype (female) length 1.18 mm, length of paratypes: 0.56 mm (juvenile, second instar), 0.84-0.87 mm (juvenile males), 0.77-1.0 mm (adult males), 0.89-1.18 (females). Body elongated, cylindrical. Colour in alcohol white. Distinctive areas of variable granulation on dorsal side of body of c2 type (*sensu* Arbea & Jordana 1994) (Fig. 1). Usually 11-13 grains around each pseudocellus (Figs 4 & 8).

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Antennae of almost the same length as head. Antennal segment I with 8 setae, antennal segment II with 15 setae. Sensory organ of antennal segment III consisting of four setae, five fairly large papillae (fourth papilla and sometimes first or second papilla slightly bilobate apically), two smooth sensory rods, two equally sized sense clubs slightly morel-like and slightly bent, and small lateroexternal sensillum (Figs 2 & 3). Antennal segment IV with slender, distinguished sensilla, one inner dorso-lateral sensillum rather strong, with small subapical organite and one latero-external microsensillum in the posterior half of this segment (Fig. 2).

Postantennal organ with 10-11 simple vesicles, parallel or oblique in relation to the long axis of this organ, in elongated groove (Fig. 4). Labrum with 4/142 setae. Labial palp with sensilla A thickened and blunt at top (type A *sensu* Fjellberg 1998, 1999).

Pseudocellar formula per half tergum 20/011/11112, ventral pseudocelli absent. Parapseudocelli very difficult to distinguish: their formula per half segment: 0/011/1111 (dorsal) and 01/000/11111 (ventral). Subcoxa I of each leg without pseudocelli, with one parapseudocellus. Each femur with one parapseudocellus. Pseudopores 1+1 on thoracic terga II-III and abdominal terga I-IV. Abdominal sterna II-V with one medial pseudopore.

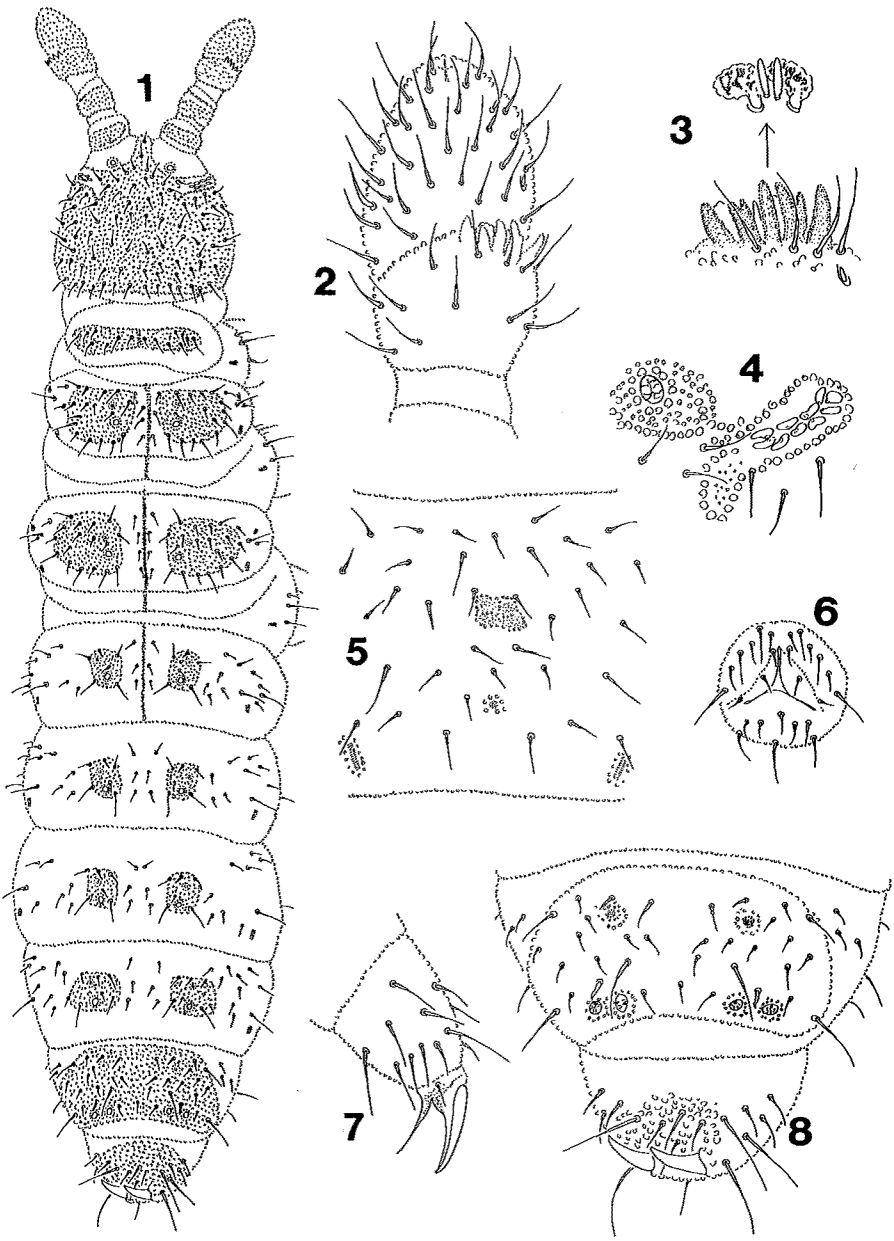
Dorsal chaetotaxy as in Figs 1 & 8, always with some asymmetry present. Seta d0 absent on the head. Body with macro- and microchaetae of different length, with slightly marked setae s (well distinguished on abdominal tergite V), their formula per half tergum: 011/111121 (thoracic terga II, III with a4 = s, abdominal terga I-IV with a3 = s, abdominal tergum V with a2, p3 = s), head with 2+2 setae s. Thoracic terga II-III with lateral microsensilla (ms). On thoracic terga II-III setae a2, a5, m7, p2, p3, p5 and p7 are fairly strong and subequal (short macrochaetae). On abdoninal terga I-IV setae p2, p3 and p6 as macrochaetae, on abdominal tergite V setae a1 (short macrochaeta), a4 (short macrochaeta), p2 and p5 as macrochaetae. Ratio a4:p1:p2:p5=1:0.62:1.25:1.5 in holotype (Fig. 8), 1:0.47-0.68:1.29-1.67:1.26:1.89 in paratypes. One macrochaeta on abdominal subcoxae "1" I-III and on abdominal pleura I-V. Thoracic sterna I-III with 0+0, 1+1, 1+1 setae, respectively. Ventral tube with 7+7 setae, in holotype 7+8 and in juveniles 5-6+5-6 setae.

Male ventral organ absent. Furcal rudiment (Fig. 5): small area with fine granulation and two dental setae situated posteriorly, one or two irregular manubrial rows present (*sensu* Weiner 1996). Macrochaetae of posterior manubrial row (mp) deplaced to anterior row (ma).

Anal spines 1 and 1/4 of length of inner edge of claw and 2.5 times as long as their basal diameter. Basal papillae less than half of length of the spines (Figs 1 & 8). Each of even anal valves with three setae in a-row (a0, a1) and five setae in c-row (c0, c1, c2); odd valve with one seta in a-row (a0), four setae in b-row (b1, b2) and three setae in c-row (c0, c1) (*sensu* Yoshii 1996).

Tibiotarsi I, II and III with 20, 20, 19 setae respectively, with seta M, C2 present, seta B1 displaced towards B7, tibiotarsus III without seta B6. Claw without tooth. Empodial appendage with very narrow basal lamella. Apical filament reaching top of claw or even sligthly extending beyond it (Fig. 7).

Discussion: The new species is closest to *Hymenaphorura parva* Skar□y□ski & Pomorski, 1996. Both species are the smallest in size among all the species of *Hymenaphorura*; dorsally they have the same number of pseudocelli (1/011/1112) and the same type of distinctive areas of variable granulation (c2 type *sensu*



Figs. 1-8: 1. Dorsal chaetotaxy. 2. Antennal segments III and IV, dorsal side. 3. Sensory organ of antennal segment III. 4. Postantennal organ and pseudocellus on base of antenna. 5. Central part of abdominal sternum IV: furcal rudiment, pseudopore and parapseudocelli. 6. Anal lobes. 7. Tibiotrasus III with claw and empodial appendage. 8. Chaetotaxy of abdominal tergites V and VI.

Arbea & Jordana 1994). The two species differ by the number of macrochaetae on abdominal tergite V (three in the new species and one in *Hymenaphorura parva*). Ratio a4:p1:p2:p5 = 1:0.47-0.68:1.29-1.67:1.26-1.89 in the new species and 1:0.82-1.08:0.82-1.08:2.18-2.3 in *Hymenaphorura parva*. Sense clubs are slightly morel-like and slightly bent in the new species and smooth spherical in *Hymenaphorura parva*. The latter species is known from the gravel riverbed the Kamienna river (Skarżyński & Pomorski 1996) and *Hymenaphorura arantiana* sp. n., from deciduous forest with beech and ash, and the undergrowth with *Vinca minor*, in litter with alluvial soil, on bank of the Ernz Noire river.

References

Arbea, J. I. & R. Jordana, 1994. - Cuatro nuevas especies de la familia Onychiuridae de la Península Ibérica (Collembola, Poduromorpha). - Publ. Biol. Univ. Navarra, Ser. Zool. 24: 39-59.

Fjellberg, A. 1998. - The Collembola of Fennoscandia and Denmark. Part I: Poduromorpha. - Fauna ent. scand. 35: 1-183.

Fjellberg, A., 1999. - The labial palp in Collembola. - Zool. Anz. 237 (1998-1999): 309-330.

Skarżyński, D. & R. J. Pomorski, 1996. - A new species of *Hymenaphorura* from Poland (Collembola: Onychiuridae). - Genus 7(3): 319-323.

Weiner, W. M. 1996. - Generic revision of Onychiurinae (Collembola: Onychiuridae) with a cladistic analysis. - Ann. Soc. Entomol. Fr. 32(2): 163-200.

Yoshii, R., 1996. - Identity of some Japanese Collembola IV. *Deuteraphorura* group of *Onychiurus* – continued. - Ann. Spel. Japan 14: 1-15.