

**CHTHONIUS (GLOBOCHTHONIUS) MEDEONIS N. SP.:
A NEW CAVE FALSE SCORPION FROM MONTENEGRO**

B. P. M. ĆURČIĆ^{1*}, S. B. ĆURČIĆ¹, NINA B. ĆURČIĆ² and B. S. ILIĆ¹

¹ Institute of Zoology, Faculty of Biology, University of Belgrade, 11000 Belgrade, Serbia

² Geographical Institute "Jovan Cvijić" SASA, 11000 Belgrade, Serbia

Abstract — The pseudoscorpion sample from a cave in Montenegro has been studied. A new species, *Chthonius (Globochthonius) medeonis* n. sp. is described. A reanalysis of the type material of *Chthonius (Ephippiochthonius) polychaetus* Hadži supports its transfer to the subgenus *Chthonius (Globochthonius)* Beier). The species studied is considered to be endemic to the Balkan Peninsula. The diagnostic characteristics of the analyzed taxon are thoroughly described or figured. Taxonomic interrelationships and geographic distribution are briefly discussed.

Key words: *Chthonius (Globochthonius) medeonis* n. sp., cave fauna, pseudoscorpions, endemism, Montenegro

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INTRODUCTION

To date, only three epigeal or cave species of *Chthonius* C. L. Koch, 1843 (subgenus *Globochthonius* Beier, 1931) (Chthoniidae) are presently known from Serbia. The epigeal *Chthonius (Globochthonius) polychaetus* Hadži, 1937 lives in the village Kovačevac, near Kačanik, southern Serbia, while *Chthonius (Globochthonius) pancici* Ćurčić, 1972 inhabits a cave in Perućac, western Serbia. Lastly, *Chthonius (Globochthonius) purgo* Ćurčić, Lee and. Makarov, 1993 inhabits a cave near Minićevo, in eastern Serbia.

In the present study, material from a sample of pseudoscorpion collected in 1997 has been examined. This sample from the cave Ćafa Pješatica, Fundine, nr. Medun, Montenegro, consisted of a previously undescribed species *Chthonius (Globochthonius) medeonis* n. sp. The new species, described in this paper, is probably an endemic and relict form, inhabiting caves in the southern areas of the Dinaric Arch in Montenegro.

Setal designations follow Beier (1963).

SYSTEMATIC PART

CHTHONIIDAE DADAY, 1888

CHTHONIUS C. L. KOCH, 1843

CHTHONIUS (GLOBOCHTHONIUS) MEDEONIS
ĆURČIĆ, NEW SPECIES

(Figs. 1-8; Table 1)

Etymology — After Medun (Medeon), once the stronghold of an Illyrian tribe called Labeati; situated about 12 km to the northeast of Podgorica, Montenegro.

Material examined — Holotype female, from the cave Ćafa Pješatica, Fundine, near Medun, Montenegro; collected on 6 February 1997 by an unknown investigator.

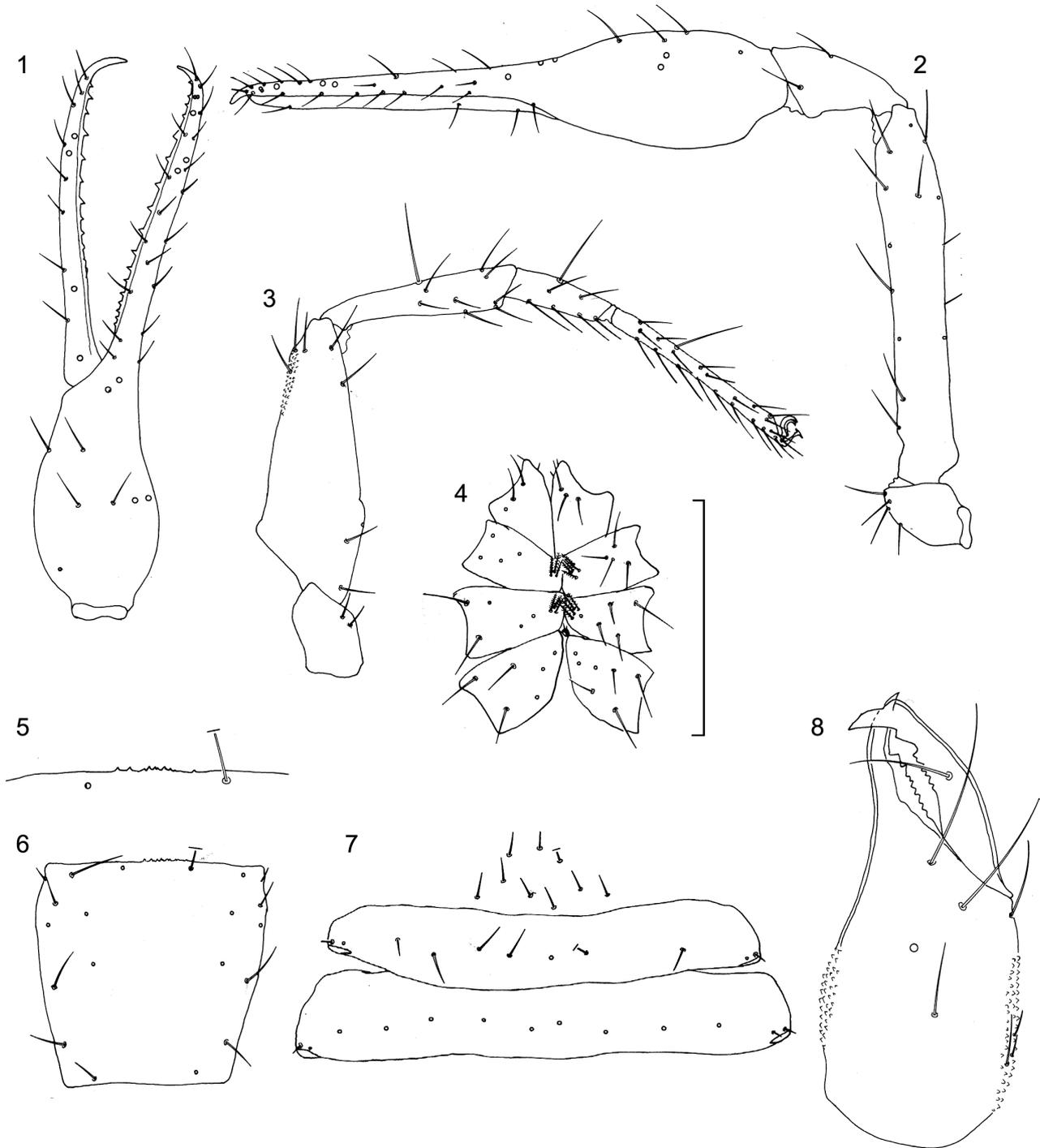


Fig. 1. *Chthonius (Globochthonius) medeonis* n. sp., from Montenegro. Holotype female: 1 - pedipalpal chela; 2 - pedipalp; 3 - leg IV; 4 - coxal area; 5 - epistome; 6 - carapace; 7 - female genital area; 8 - chelicera. Scale lines = 0.25 mm (Figs. 5, 7, and 8) and 0.50 mm (Figs. 1-4, and 6).

Table 1. Linear measurements (in millimeters) and morphometric ratios in *Chthonius (Globochthonius) medeonis* n. sp., *C. (G.) purgo* Ćurčić, Lee & Makarov, *C. (G.) pancici* Ćurčić, and *C. (G.) polychaetus* (Hadži). Abbreviations: ♀ = female, ♀♀ = females.

Character	<i>C. (G.) medeonis</i>	<i>C. (G.) purgo</i>	<i>C. (G.) pancici</i>	<i>C. (G.) polychaetus</i>
	♀	♀	♀♀	♀
Body				
Length (1)	1.68	1.60	1.24-1.25	1.54
Cephalothorax				
Length (2)	0.49	0.43	0.38-0.41	0.48
Breadth (2a)	0.45	0.41	0.42-0.46	0.46
Ratio 2/2a	1.09	1.05	1.23-1.30	1.04
Abdomen				
Length	1.19	1.17	-	-
Chelicerae				
Length (3)	0.45	0.36	0.37-0.38	0.45
Breadth (4)	0.20	0.17	0.17-0.20	0.21
Length of movable finger (5)	0.25	0.195	0.20-0.22	0.245
Ratio 3/5	1.80	1.85	1.73-1.85	1.84
Ratio 3/4	2.25	2.12	1.90-2.18	2.14
Pedipalps				
Length with coxa (6)	2.88	1.845	2.10-2.25	2.51
Ratio 6/1	1.71	1.15	1.68-1.80	1.63
Length of coxa	0.37	0.34	0.25-0.27	0.40
Length of trochanter	0.21	0.15	0.16-0.17	0.15
Length of femur (7)	0.845	0.47	0.59-0.67	0.70
Breadth of femur (8)	0.13	0.10	0.10-0.11	0.10
Ratio 7/8	6.50	4.70	5.82-6.09	7.00
Ratio 7/2	1.72	1.09	1.55-1.63	1.46
Length of patella (tibia) (9)	0.315	0.205	0.20-0.23	0.26
Breadth of patella (tibia) (10)	0.13	0.11	0.13	0.15
Ratio 9/10	2.42	1.86	1.54-1.77	1.73
Length of chela (11)	1.14	0.68	0.89-0.92	1.00
Breadth of chela (12)	0.24	0.15	0.20-0.22	0.215
Ratio 11/12	4.75	4.53	4.18-4.45	4.60
Length of chelal palm (13)	0.48	0.27	0.34-0.38	0.215
Ratio 13/12	2.00	1.80	1.70-1.75	1.80
Length of chelal finger (14)	0.66	0.41	0.54-0.57	0.60
Ratio 14/13	1.375	1.52	1.42-1.63	2.79
Leg IV				
Total length	2.24	1.68	-	-
Length of coxa	0.26	0.38	-	-
Length of trochanter (15)	0.21	0.22	0.20	0.20
Breadth of trochanter (16)	0.13	0.10	-	-
Ratio 15/16	1.615	2.20	-	-
Length of femur + patella (17)	0.63	0.41	0.54-0.58	0.58
Breadth of femur + patella (18)	0.22	0.18	0.19-0.24	0.23
Ratio 17/18	2.86	2.28	2.42-2.84	2.52
Length of tibia (19)	0.44	0.26	0.35-0.40	0.38
Breadth of tibia (20)	0.09	0.075	-	-
Ratio 19/20	4.89	3.47	-	-

Table 1. Continued

Character	<i>C. (G.) medeonis</i>	<i>C. (G.) purgo</i>	<i>C. (G.) pancici</i>	<i>C. (G.) polychaetus</i>
	♀	♀	♀♀	♀
Length of metatarsus (21)	0.23	0.14	0.20-0.22	0.22
Breadth of metatarsus (22)	0.07	0.065	-	-
Ratio 21/22	3.285	2.15	-	-
Length of tarsus (23)	0.47	0.27	0.38-0.41	0.32
Breadth of tarsus (24)	0.04	0.03	-	-
Ratio 23/24	11.75	9.00	-	-
TS ratio - tibia IV	0.49	0.50	-	-
TS ratio - metatarsus IV	0.43	0.33	-	-
TS ratio - tarsus IV	0.30	0.31	-	-

Description — The dorsal surface of the cephalothorax is slightly longer than wider and the anterior border is distinctly wider than the posterior one (Fig. 6, Table 1). Neither eyes nor eyespots are present (Fig. 6). The anterior carapacial border is with no protuberances. It is also without a differentiated epistome, although there exist denticulations, particularly between the two anterior and median setae. However, these indentations cannot be seen lateral to the anterior setae (Figs. 5, 6).

The carapace is beset with 18 setae arranged in five rows; four anterior, six ocular, four median, two intermedian, and two posterior setae are developed (Fig. 6). In front of the ocular setal row, one or two small setae are developed in each preocular process (Fig. 6).

The number of setae carried on the abdominal tergites I-X can be expressed as 4-4-4-4-6-6-6-6-4. The anal papilla has two pairs of small setae.

The sternite II of the female carries nine setae, the next sternite has seven posterior setae and two or three small setae along each stigma. Sternite IV carries nine posterior setae and two microsetae along each stigma. Sternite V has six posterior setae, and the sternites VI-X each carry six posterior setae.

The cheliceral spinneret (galea) is represented by an elevation of the finger margin (Fig. 8). There is an isolated tooth distally on the movable finger. The first large tooth is contiguous with a row of smaller

teeth which end at the level of insertion of the galeal seta (*gl*). On the fixed finger the teeth extend backwards, diminishing abruptly in size, below those on the movable finger (Fig. 8).

The movable cheliceral finger carries one large galeal seta and six setae on the palm of the chelicerae; three setae occur in the dorsal row, *dt*, *dst*, and *db*; one in the intermediate, *it*, and two in the ventral row, *vt* and *vb*. Additionally, two or three small accessory setae are carried exterior to *vb*. The movable finger is longer than the cheliceral breadth, and the ratio of the cheliceral length to breadth is 2.25 (Table 1). The cheliceral flagellum consists of nine or ten blades, one small blade proximally and 8-9 blades twice this length, more or less in pairs, distally. The most distal members of the series are curved, but all, to some extent, are pinnate on two sides.

The coxae of the pedipalps each carry five setae: two at the anterior and manducatory process, and three on the posterior border of the trochanteric foramen. The femur is 6.50 times longer than its breadth (at the widest part) and 1.72 times longer than the carapace (Table 1). The patella is tulip-like and its distal end is slightly broader than the pedipalpal femur (Fig. 2, Table 1). Two accessory setae (*ds*) lie immediately in front of the most distal trichobothrium *et*, while *it* and *est* on the fixed finger are slightly proximal to *t* and *st* on the movable finger, just inside the distal third. The two basal trichobothria, *isb* and *ib* lie in the middle of the palm, on the dorsal side at its maximum breadth.

The contours of the chelal palm on the dorsal and dorsal-lateral side are globular (Figs. 1, 2) with a conspicuous dorsolateral swelling between the trichobothrium *isb* and *ib* and a base of the chela (a characteristic of the subgenus *Globochthonius* Beier; Beier, 1931). The fixed chelal finger is 1.375 times as long as the chelal palm (Table 1); the ratio of the pedipalpal chelal length to breadth is 4.75 (Table 1). The teeth of the fixed finger (17) are small, interspaced and pointed, and eventually merge in the even smaller and lower teeth proximally (Fig. 1). The movable chelal finger has a pronounced apodeme. The movable chelal finger has 12 interspaced, slightly asymmetrical and pointed teeth: distally these teeth merge into a dental lamell with small tooth-like eruptions at the base of the finger (Fig. 1). In addition, the fixed chelal finger carries an obvious small accessory tooth at its extreme distal end. A single small tooth is developed distal to *ds*.

The pedal coxa II carries 3-5 spines medially; coxa III has three or four spines. The intercoxal tubercle carries two small setae.

The measurements of various podomeres of leg IV, as well as the tactile seta ratios, are presented in Table 1. Tibia IV, metatarsus IV and tarsus IV each carry a long tactile seta. On tibia IV this sensitive seta is found on the middle of the podomere (Table 1). The claws are slender, smooth and sickle-shaped.

Remarks — The new species is easily distinguished from its congener, *Chthonius (Globochthonius) polychaetus* Hadži (from southern Serbia) by the number of setae on sternites V-IX (6-6-6-6-6-6 vs. 8-7-7-7-7-7) and by the number of teeth on the fixed (17 vs. 20) and movable chelal finger (12 vs. 5). Furthermore, *Chthonius (Globochthonius) medeonis* n. sp. differs in pedipalpal length (2.88 mm vs. 2.51 mm), pedipalpal femur length (0.845 mm vs. 0.70 mm), pedipalpal femur length to breadth ratio (6.50 vs. 7.00), femur length to cephalothorax length ratio (1.72 vs. 1.46), pedipalpal length to breadth ratio (2.42 vs. 1.73), pedipalpal chelal finger to chelal palm ratio (1.375 vs. 2.79) as well as in many other morphometric ratios and linear measurements (Table 1).

From *Chthonius (Globochthonius) purgo* Ćurčić, Lee et Makarov, *C. (G.) medeonis* n. sp. differs in many important respects: presence/absence of eyes (present vs. absent), the setation of the carapace (21 vs. 18), the setation of sternites V-X (6-6-6-6-6-4 vs. 6-6-6-6-6-6), the number of teeth on the fixed (37 vs. 17) and movable chelal finger (27 vs. 12). The new species is also distinguished from *C. (G.) purgo* by its pedipalpal length (2.88 mm vs. 1.845 mm), pedipalpal length to body length ratio (1.71 vs. 1.15), pedipalpal femur length to breadth ratio (6.50 vs. 4.70), pedipalpal chelal length (1.14 mm vs. 0.68 mm), length of the chelal finger to length of chelal palm ratio (1.375 vs. 1.15). Additionally, *C. (G.) medeonis* n. sp. is easily distinguished from *C. (G.) purgo* by the length of leg IV (2.24 mm vs. 1.68 mm), by the metatarsus IV length to breadth ratio (3.285 vs. 2.15) as well as in many other ratios and measurements (Table 1).

From its third congener, *C. (G.) medeonis* n. sp. can be distinguished by the presence/absence of eyes (present vs. absent), by the number of carapacial setae (20 vs. 18), the number of setae on sternites V-X (8-6-6-6-6-7 vs. 6-6-6-6-6-6), the number of spines on coxa II (5-10 vs. 3-5) and coxa III (4-6 vs. 3-4), and by the number of teeth on the fixed chelal finger (16-21 vs. 17) and movable chelal finger (10 + dental lamella vs. 12). *C. (G.) pancici* Ćurčić and *C. (G.) medeonis* n. sp. differ in body length (1.24 - 1.25 mm vs. 1.68 mm), carapacial length to breadth ratio (1.23 - 1.30 vs. 1.09), pedipalpal length (2.10-2.25 mm vs. 2.88 mm), pedipalpal femur length to breadth ratio (5.82 - 6.09 vs. 6.50), pedipalpal chela length (0.89 - 0.92 mm vs. 1.14 mm) and in many other measurements and ratios (Table 1).

The abovementioned facts and the existing literature point to the fact that the subgenus *Chthonius (Globochthonius)* Beier originated in the Balkan area, with two existing distribution centers; one in the Dinarids and the other in the Romanian and Serbian Carpathians.

Distribution — Montenegro, in a cave. This is probably an endemic and relict species.

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