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A CAVERNICOLOUS PSEUDOSCORPION OF THE GENUS *CHTHONIUS* (*CHTHONIUS*) C. L. KOCH FROM DALMATIA

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Abstract — A new cave-dwelling pseudoscorpion from the Badanj (or Vilišnica) Cave, nr. Sveti Filip i Jakov, Dalmatia (Croatia) is thoroughly described and illustrated. Its main morphometric characteristics and important diagnostic traits are analyzed and compared to those of its phenetically close congener *Chthonius* (*Chthonius*) *absoloni* Beier from Dalmatia. The new species is relict and endemic to the area studied.

Key words: Pseudoscorpions, Chthoniidae, *Chthonius* (*Chthonius*) *pristani* n. sp., endemism, cave-dweller, Dalmatia

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INTRODUCTION

A recent visit to the Badanj (or Vilišnica) Cave, nr. Sveti Filip i Jakov, Dalmatia by one of us (TR) resulted in the collection of a unique pseudoscorpion. Careful examination of the collected female specimen revealed the presence of a new taxon: *Chthonius* (*Chthonius*) *pristani* n. sp. Its diagnostic characteristics are carefully examined and the new species is compared to its closest congener.

Setal designations follow Beier (1939).

SYSTEMATIC PART

CHTHONIIDAE DADAY, 1888

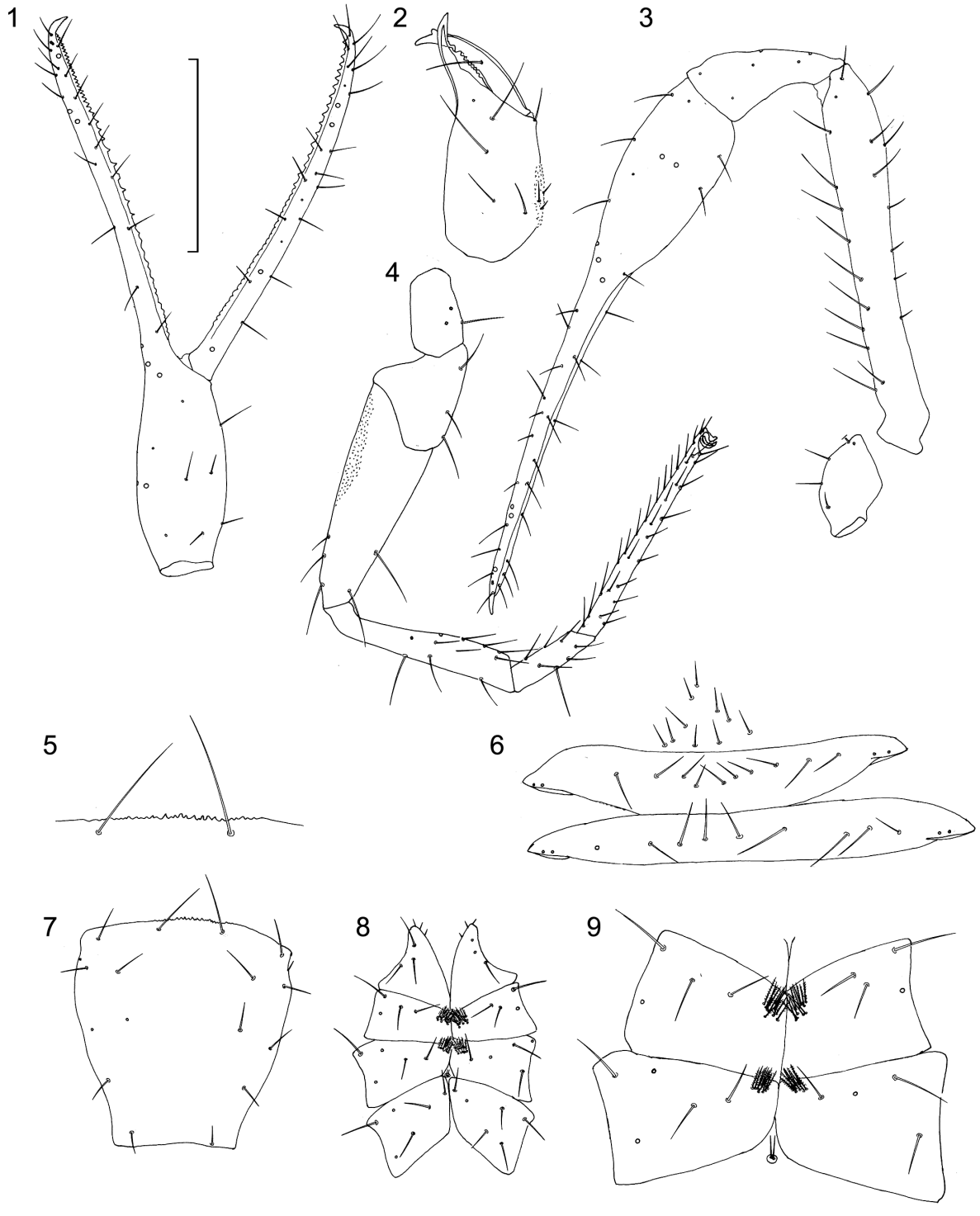
CHTHONIUS C. L. KOCH 1843
CHTHONIUS (CHTHONIUS) PRISTANI ĆURČIĆ, NEW SPECIES

(Figs. 1-9; Table 1)

Etymology — After Pristan, an earlier name of St. Filip and Jakov, situated halfway down the Adriatic cost in the Pašman channel and along the highway between the Zadar and Šibenik. The settlement, named Pristan until 16th century, has developed around a medieval church dedicated to apostles Philip and Jacob. Northeast of the place there is a field with St. Rocco, a remnant of a once rich Benedictine abbey from the 11th century.

Material examined — Holotype female from Badanj (or Vilišnica) cave, nr. Sveti Filip i Jakov, Dalmatia (Croatia); 6 March 2009, collected by Tonći Rađa.

Description — The dorsal side of the cephalothorax (carapace) is slightly longer than broad and the anterior border is considerably wider than the posterior border (Fig. 7; Table 1). Neither eyes nor eyespots are present (Fig. 7). The anterior border is slightly convex and without differentiated epistome, although there are denticulations particularly be-



Figs. 1 - 9. *Chthonius* (*Chthonius*) *pristani* n. sp., holotype female. 1 - pedipalpal chela, 2 - chelicerae, 3 - pedipalp, 4 - leg IV, 5 - epistome, 6 - female genital area, 7 - carapace, 8 - coxal area, 9 - coxae II and III. Scale lines = 0.25 mm (Figs. 5, 6, and 9) and 0.50 mm (Figs. 1 - 4, 7, and 8).

Table 1. Linear measurements (in millimeters) and morphometric ratios in *Chthonius* (*Chthonius*) *pristani* n. sp. and *C.* (*C.*) *absoloni* Beier. Abbreviations: ♀ = female, ♂ = male.

	C. (*C.*) *pristani*	*C.* (*C.*) *absoloni*
Character	♀	♂
Body		
Length (1)	2.00	2.06
Cephalothorax		
Length (2)	0.58	0.55
Breadth (2a)	0.56	0.51
Ratio 2/2a	1.04	1.08
Abdomen		
Length	1.42	1.51
Chelicerae		
Length (3)	0.62	0.50
Breadth (4)	0.25	0.205
Length of movable finger (5)	0.34	0.27
Ratio 3/5	1.82	1.85
Ratio 3/4	2.48	2.44
Pedipalps		
Length with coxa (6)	3.605	3.145
Ratio 6/1	1.80	1.53
Length of coxa	0.41	0.47
Length of trochanter	0.295	0.25
Length of femur (7)	1.03	0.86
Breadth of femur (8)	0.14	0.12
Ratio 7/8	7.36	7.17
Ratio 7/2	1.775	1.56
Length of patella (tibia) (9)	0.41	0.32
Breadth of patella (tibia) (10)	0.16	0.15
Ratio 9/10	2.56	2.13
Length of chela (11)	1.46	1.245
Breadth of chela (12)	0.23	0.19
Ratio 11/12	6.35	6.55
Length of chelal palm (13)	0.46	0.425
Ratio 13/12	2.00	2.24
Length of chelal finger (14)	1.00	0.82
Ratio 14/13	2.17	1.93
Leg IV		
Total length	2.655	2.465
Length of coxa	0.295	0.29
Length of trochanter (15)	0.22	0.22
Breadth of trochanter (16)	0.13	0.13
Ratio 15/16	1.69	1.69

Table 1. Continued

	C. (*C.*) *pristani*	*C.* (*C.*) *absoloni*
Character	♀	♂
Length of femur + patella (17)	0.78	0.71
Breadth of femur + patella (18)	0.22	0.19
Ratio 17/18	3.545	3.74
Length of tibia (19)	0.52	0.445
Breadth of tibia (20)	0.08	0.08
Ratio 19/20	6.50	5.56
Length of metatarsus (21)	0.24	0.24
Breadth of metatarsus (22)	0.06	0.075
Ratio 21/22	4.00	3.20
Length of tarsus (23)	0.60	0.56
Breadth of tarsus (24)	0.04	0.05
Ratio 23/24	15.00	11.20
TS ratio - tibia IV	0.43	0.49
TS ratio - metatarsus IV	0.46	0.43
TS ratio - tarsus IV	0.40	0.43

tween the two anterior and median setae. However, indentations can be seen almost up to the lateral anterior setae (Fig. 5 and 7).

The carapace is beset with 16 setae arranged in five rows; four anterior, four 'ocular', four median, two intermedian and two posterior (Fig. 7). In the posterior row, only two long setae (macrosetae) are developed. One or two small setae are carried in each preocular recess (Fig. 7).

The number of setae on the abdominal tergites I - X is 4-4-4-4-6-6-6-6-6-6. Sternite II of the female carries 10 setae. The next sternite also carries 10 setae and two suprastigmal microsetae anterior to each stigma. Sternite IV has 9 posterior setae and two suprastigmal microsetae along each stigma. Sternites V - X carry 11-13-11-11-11-10 setae. The anal papilla has two pairs of small setae. The cheliceral galea is represented by a well-developed hyaline tubercle (Fig. 2). There is no isolated tooth distally on the movable finger. The first large tooth is contiguous with a series of smaller teeth which end below the insertion site of the galeal seta (Fig. 2).

The movable finger carries one large galeal seta and there are six on the palm of the chelicera. In addition, 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 1.82 (Table 1). The cheliceral flagellum consists of ten blades, more or less in pairs. The most distal members of the series are curved but all are pinnate on two sides.

The coxae of the pedipalps each carry 5 setae; 2 at the anterior end and 3 at the posterior border. The femur is 7.36 times longer than its breadth and 1.775 times longer than the carapace (Table 1). As usual, the patella at its distal end is slightly broader than the pedipalpal femur (Fig. 3). The ratio of the patella length-to-breadth is 2.56 (Table 1).

Four trichobothria are carried on the movable and eight on the fixed chelal finger (Fig. 1). The fixed chelal finger is 2.17 times as long as the chelal palm. The ratio of the pedipalpal chela length-to-breadth is 6.35 (Table 1). The teeth of the fixed finger (48) are distributed unevenly along its inner length; of these

the distal teeth are close-set and apically rounded as are the proximalmost teeth. Only median teeth are triangular and interspaced (Fig. 1). The movable finger has 42 teeth which resemble the proximal teeth of the movable finger. Distally the teeth increase in size, becoming triangular and slightly interspaced (Fig. 1).

Pedal coxae I - IV carry 3, 4, 5 or 6 setae, respectively. The pedal coxae carry 12-13 spines medially; coxa III has 9 such spines. The intercoxal tubercle carries two small setae (Fig. 8).

The measurements of the different podomeres of leg IV as well as the different morphometric ratios are presented in Table 1. Tibia IV, metatarsus IV, and tarsus IV each carry a long tactile seta (Fig. 4). The claws are slender, smooth and sickle-formed.

Remarks — The new species is distinct from its phenetically close congener *Chthonius* (*Chthonius*) *absoloni*, from Dalmatia, in the setation of sternites V - X (11-13-11-11-11-10 vs. 9-7-7-6-6-6), in the number of setae of the cheliceral palm (6 vs. 5), the number of teeth on the fixed (48 vs. 36) and the movable chelal finger (42 vs. 36) as well as in their form and disposition, in the number of coxal spines on coxa II (12 - 13 vs. 5 - 6) and III (9 vs. 3), in cheliceral length (0.62 mm vs. 0.50 mm), pedipalp length (3.605 mm vs. 3.145 mm), pedipalpal femur length-to-breadth ratio (7.36 vs. 7.17), pedipalpal femur to carapace length ratio (1.775 vs. 1.56), length of the chela (1.46 mm vs. 1.245 mm), pedipalpal chela length-to-breadth ratio (6.35 vs. 6.55), leg IV length (2.655 mm vs. 2.465 mm), tibia IV length-to-breadth ratio (6.50 vs. 5.56), tarsus IV length-to-breadth ratio (15.00 vs. 11.20), as well as in other measurements and ratios (Table 1).

Distribution — The new taxon is probably endemic to mid-Dalmatia, Croatia, where it inhabits caves (Beier, 1939; Ćurčić, 1972, 1988; Ćurčić et al., 1993, 1997, 2004, 2011; Hadži, 1933, 1937).

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