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ON THE IDENTITY OF TYPES OF *RONCUS DIOCLETIANI* ĆURČIĆ, DIMITRIJEVIĆ & RAĐA AND *ARCHAEORONCUS TENUIS* (HADŽI) (PSEUDOSCORPIONES, NEOBISIIDAE) FROM CROATIA

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Abstract - Five years ago, Ćurčić et al. (2008) described two new pseudoscorpions: *Roncus diocletiani* Ćurčić, Dimitrijević and Rađa (from Croatia) and *R. orjensis* Ćurčić, Dimitrijević and Rađa (from Montenegro). The pseudoscorpions studied were mounted on slides with gum-chloral medium. They are deposited in the collection of the Institute of Zoology, Faculty of Biology, University of Belgrade, 11000 Belgrade, Serbia and in the collection of the Natural History Museum, 21000 Split, Croatia. It has been shown that only the male of *R. diocletiani* belongs to the nominal species, while the female of the same taxon belongs to *Archaeoroncus tenuis* (Hadži). Therefore, the "allotype male" of *R. diocletiani* is actually a holotype of this species, while the "holotype" of *R. diocletiani* becomes a paratype of *A. tenuis*.

Key words: Pseudoscorpiones, Neobisiidae, taxonomic characters, *Roncus diocletiani*, *Archaeoroncus tenuis*, synonymy, endemism, Croatia (Dalmatia).

INTRODUCTION

A careful analysis of a sample of pseudoscorpions (Neobisiidae, Pseudoscorpiones) from two epigean habitats in Dalmatia has uncovered that the male of *Roncus diocletiani* Ćurčić, Dimitrijević and Rađa is actually a paratype of *Archaeoroncus tenuis* (Hadži). The female of the species (or the "allotype") is the holotype of *R. diocletiani*. In the present paper, both types and species are thoroughly described, diagnosed, and illustrated. In addition, some taxonomic, biogeographical and evolutionary traits of these taxa are briefly discussed. Setal designation follows Beier (1963).

SYSTEMATIC PART

NEOBISIIDAE J. C. CHAMBERLIN

RONCUS L. KOCH

RONCUS DIOCLETIANI

ĆURČIĆ, DIMITRIJEVIĆ & RAĐA
(Figs. 1-17; Table 1)

Specimens examined — Holotype female and "allotype male" (which now becomes a paratype male of *A. tenuis*) and a "paratype male", which is now also a paratype of *A. tenuis*. Marasovića, Split, Dalmatia (Croatia), 18 October 2005, collected by Tonći Rađa.

Differential diagnosis — *Roncus diocletiani* differs significantly from all other *Roncus* species known to date in the absence of a well-developed sclerotic knob on the base of the interior lateral surface of the pedipalpal femur of the female. The absence of such a tubercle in the female indicates that this sex belongs *R. diocletiani* from Croatia.

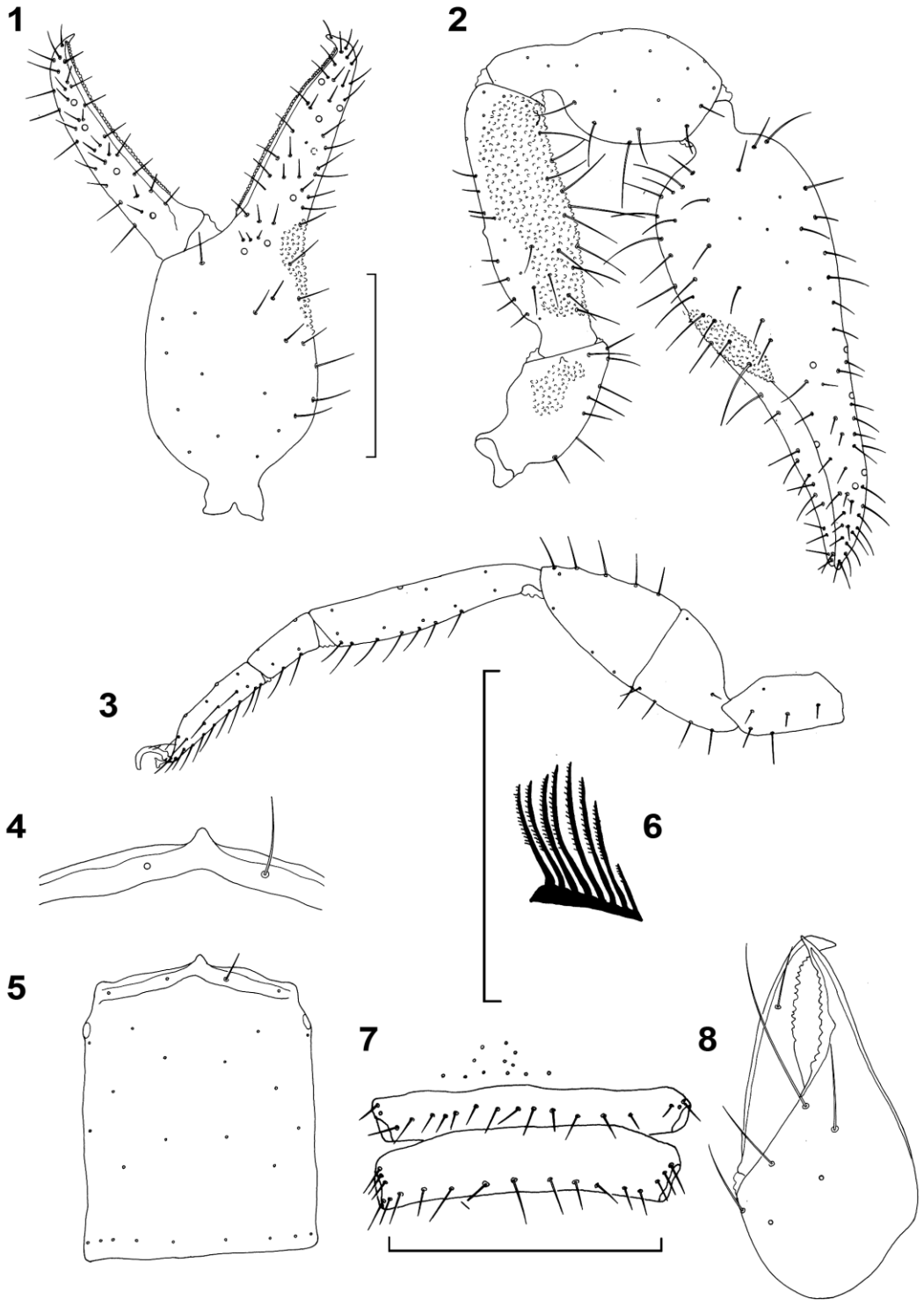

Fig. 1-8. *Roncus diocletiani* n. sp., holotype female from Dalmatia. 1 – pedipalpal chela; 2 – pedipalp; 3 – leg IV; 4 – epistome; 5 – carapace; 6 – flagellum; 7 – female genital area; 8 – chelicera. Scales = 0.50 mm (Figs. 1-3, 5, 7) and 0.25 mm (Figs. 4, 6, 8).

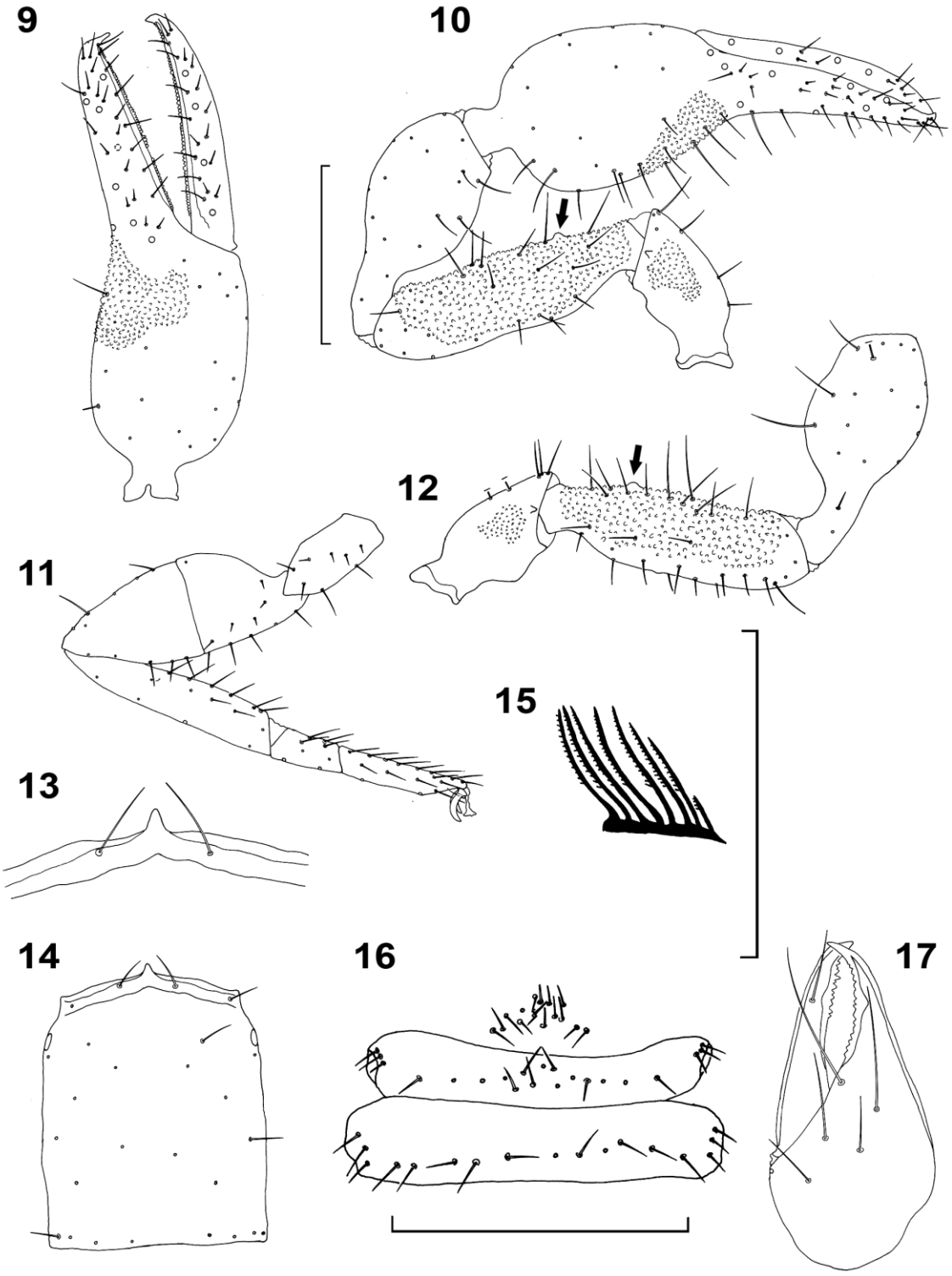

Fig. 9-17. *Archaeoroncus tenuis* (Hadži), paratype male from Dalmatia. 9 – pedipalpal chela; 10 – pedipalp; 11 – leg IV; 12 – pedipalpal trochanter, femur, and tibia (paratype male); 13 – epistome; 14 – carapace; 15 – flagellum; 16 – male genital area; 17 – chelicera. Scales = 0.50 mm (Figs. 9-12, 14, 16) and 0.25 mm (Figs. 13, 15, 17).

Table 1. Linear measurements (in millimeters) and morphometric ratios in *Roncus diocletiani* Ćurčić, Dimitrijević & Rađa, and *Archaeoroncus tenuis* (Hadži) from Croatia. Abbreviations: F = female, MM = males.

	R. diocletiani	A. tenuis	
Character	F	MM	F
Body			
Length (1)	3.115	2.19 – 2.92	2.49
Cephalothorax			
Length (2)	0.815	0.61 – 0.79	0.67
Breadth (2a)	0.61	0.54 – 0.60	0.63
Ratio 2/2a	1.35	1.13 – 1.32	1.06
Abdomen			
Length	2.30	1.58 – 2.13	1.82
Chelicerae			
Length (3)	0.48	0.37 – 0.46	0.41
Breadth (4)	0.25	0.195 – 0.23	0.21
Length of movable finger (5)	0.34	0.25 – 0.33	0.29
Ratio 3/5	1.41	1.39 – 1.48	1.41
Ratio 3/4	1.92	1.90 – 2.00	1.95
Pedipalps			
Length with coxa (6)	3.98	3.21 – 3.815	3.28
Ratio 6/1	1.28	1.31 – 1.465	1.32
Length of coxa	0.60	0.50 – 0.57	0.51
Length of trochanter	0.49	0.39 – 0.48	0.39
Length of femur (7)	0.835	0.63 – 0.815	0.67
Breadth of femur (8)	0.24	0.195 – 0.23	0.21
Ratio 7/8	3.48	3.23 – 3.54	3.19
Ratio 7/2	1.02	1.03	1.00
Length of patella (tibia) (9)	0.71	0.54 – 0.68	0.55
Breadth of patella (tibia) (10)	0.315	0.24 – 0.305	0.25
Ratio 9/10	2.25	2.23 – 2.25	2.20
Length of chela (11)	1.345	1.15 – 1.27	1.16
Breadth of chela (12)	0.47	0.35 – 0.45	0.38
Ratio 11/12	2.86	2.82 – 3.285	3.05
Length of chelal palm (13)	0.69	0.57 – 0.66	0.58
Ratio 13/12	1.47	1.47 – 1.63	1.53
Length of chelal finger (14)	0.65	0.58 – 0.61	0.58
Ratio 14/13	0.94	0.92 – 1.02	1.00
Leg IV			
Total length	2.71	2.355 – 2.65	2.385
Length of coxa	0.43	0.38 – 0.41	0.39
Length of trochanter (15)	0.34	0.31 – 0.33	0.32
Breadth of trochanter (16)	0.16	0.14 – 0.15	0.15
Ratio 15/16	2.125	2.07 – 2.36	2.13
Length of femur + patella (17)	0.74	0.59 – 0.71	0.61
Breadth of femur + patella (18)	0.26	0.22 – 0.26	0.22
Ratio 17/18	2.85	2.68 – 2.73	2.77
Length of tibia (19)	0.63	0.55 – 0.64	0.545
Breadth of tibia (20)	0.12	0.11 – 0.13	0.11
Ratio 19/20	5.25	4.92 – 5.00	4.95
Length of metatarsus (21)	0.21	0.195 – 0.20	0.20
Breadth of metatarsus (22)	0.09	0.09 – 0.10	0.08
Ratio 21/22	2.33	1.95 – 2.22	2.50
Length of tarsus (23)	0.36	0.33 – 0.36	0.32
Breadth of tarsus (24)	0.08	0.07 – 0.08	0.08
Ratio 23/24	4.50	4.50 – 4.71	4.00
TS ratio - tibia IV	0.60	0.57 – 0.60	0.58
TS ratio - metatarsus IV	0.19	0.15 – 0.21	0.21
TS ratio - tarsus IV	0.31	0.33 – 0.37	0.30

From its geographically close congener, *R. pripegala* Ćurčić, 1988, from Dalmatia, *R. diocletiani* clearly differs in carapacal and appendage dentition, as well as in many morphometric ratios and linear measurements.

Probably endemic, epigean, under stones and rotten wood.

ARCHAEORONCUS TENUIS (HADŽI)

Specimens examined — The type series consists of two specimens (one of each sex); neither of these was designated as the holotype by Hadži (1933). Therefore, Ćurčić et al. (1992) designated the syntype male as the lectotype and a syntype female as the paralectotype. The lectotype is mounted on a slide and labeled "*Roncus*, ♂, Malinska, 1929". The paralectotype is mounted on a separate slide and labeled "*Roncus*, ♀, 17 April 1927, under stone, Malinska". This locality is situated on the Island of Krk, in the Northern Adriatic region, Dalmatia, Croatia.

Differential diagnosis — *Archaeoroncus tenuis* is easily distinguished from *R. diocletiani* in a number of linear measurements and morphometric ratios, in the setation of carapacal, abdominal sternites and appendages, as well as in the presence of a large tubercle on the pedipalpal femur, and in the chelal denticulation. It has been also found in the vicinity of Split (Dalmatia).

Since the female of *A. tenuis* has been erroneously described as the same sex in *R. diocletiani* (Ćurčić et al., 2008), it is now clear that it belongs to another species and genus, i.e. it represents a junior synonym of *R. diocletiani*.

A number of pseudoscorpion species occurring in Croatia has been included, at one time or another, in the genus *Roncus* L. Koch, 1873, which is restricted to the eastern United States, Europe and Southwestern Asia (Cvijić, 1926; Ćurčić, 1972, 1988; Ćurčić et al., 1992, 1993, 1998, 2004, 2008, 2010a, b, c, d, e, f, g; 2011a, b, c, d, e, f, g, h; 2012; Hadži, 1933, 1937). These records would pose an interesting biogeographical problem if the species were correctly placed. However, as is shown below, they belong to different taxa.

Although new forms of pseudoscorpions are still being described, taxonomic and phylogenetic studies of higher categories have, in general, lagged far behind description of species. This study of the *Roncus* genus in the Mediterranean (Croatia) was undertaken to add to knowledge of the taxonomy and to present a better understanding of the systematic positions of the species in the light of modern concepts of higher taxa. Taxonomic investigations were carried out by studying, in types and type series, the variation of morphological characters, and especially of those with higher taxonomic weight. This has resulted in appearance in the synonymy in the previously accepted name and in the description of some differentiated taxa.

The aims of this paper are: (i) to demonstrate the outstanding heterogeneity of "*Roncus*" in the Mediterranean (Croatia), (ii) to offer evidence supporting the view that the newly established taxa are genetically and specifically distinct, (iii) to present objective criteria for the identification of specimens of some Croatian species of '*Roncus*', and (iv) to analyze their geographical distribution in South Europe which hosts more *Roncus*-related genera which will be described elsewhere.

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