

Lauterbornia H. 5: 43-48, Dinkelscherben, September 1990

***Torrenticola meridionalis* n. sp., a new species of water mites (Acari, Actinedida, Torrenticolidae) from the calabrian apennines (South Italy)**

[*Torrenticola meridionalis* n. sp., eine neue Wassermilbe (Acari, Actinedida, Torrenticolidae) aus den kalabrischen Apenninen (Süditalien)]

7th Contribution to the knowledge of the water mites of the Apennines (Italy)*

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mit 6 Abbildungen und 2 Tabellen

Schlagwörter: *Torrenticola*, Hydracarina, Acari, Kalabrien, Italien

The male and female of *Torrenticola meridionalis* n. sp. from a river of the calabrian Apennines are described. A comparison is made with the closely related species *T. elliptica*. The role of the river typology in the availability of niches and in species-diversification is discussed.

Eine neue Art aus der Gattung *Torrenticola* (*T. meridionalis* n. sp.), aus Kalabrien wird in beiden Geschlechtern beschrieben. Die Bedeutung der Fließgewässertypologie für die Verfügbarkeit ökologischer Nischen und für die Artbildung wird diskutiert.

1. Introduction

In the course of ecological studies on water mites of the Apennines (CICOLANI & SISINO, 1983; CICOLANI & DI SABATINO, 1985; 1985a), a new species of the genus *Torrenticola* PIERSIG was found in a river of Calabria, South Italy. The genus *Torrenticola*, recently has been divided (BADER, 1988) in seven subgenera. Only three of them are present in European countries namely *Torrenticola*, *Rusetria* and *Monatractides* with about 60 species and subspecies. Seven species of

* Research supported by grants 40% and 60% by the "Ministero della Pubblica Istruzione, Italy"

the genus were collected in Italy (DI SABATINO & CICOLANI, 1988): *T. elliptica* (MAGLIO, 1909), *T. maglioi* (KOENIKE, 1908); *T. anomala* (KOCH, 1837); *T. mucronata* VIETS, 1955; *T. crenobia* DI SABATINO & CICOLANI, 1988; *T. stadleri* (WALTER, 1924); *T. madritensis* (VIETS, 1930). A description of the new species is given in this paper.

2. Sampling sites, material and methods

Material: holotype (prep. n° 250, male); paratypes (preps. n° 251 to 253, 1 male and 2 females).

Locus typicus: River Alli, near the outflow, in locality Belladonna (CZ) Calabria; 17.07.1985; temperature = 29 °C.

All the material was collected by Dr. R.Gerecke during a three-year period of investigation on the water mites of South-Italy and Sicily.

The specimens, preserved in Koenike's fluid, were completely dissected and mounted in Faure's Medium for identification. Type and paratypes are deposited in the senior author's collection at the "Dipartimento di Scienze Ambientali", University of L'Aquila, Italy.

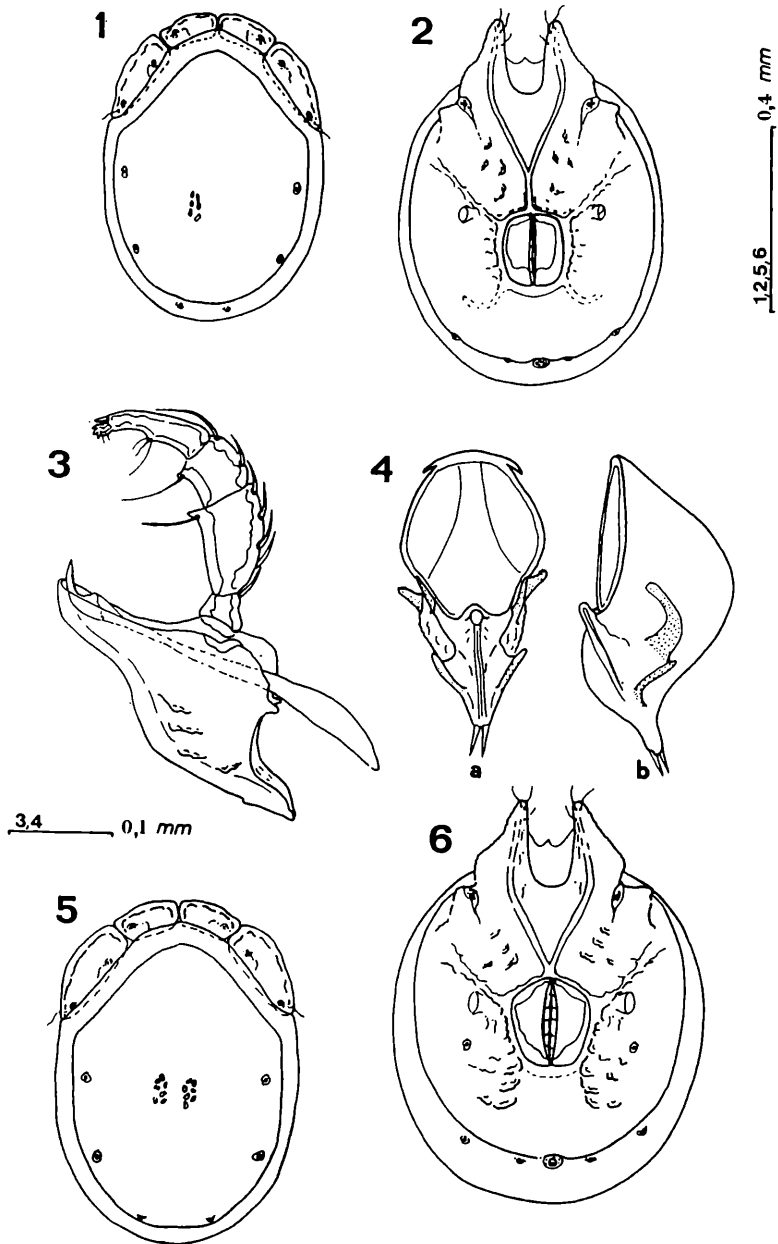
3. Description

Family Torrenticolidae PIERSIG ,1902

Genus *Torrenticola* PIERSIG ,1896

Subgenus *Torrenticola* PIERSIG ,1896

MALE (holotype) - Dorsal side : Dorsal shield (fig. 1) length 655 μ , width 456 μ ; maximal length of the anterior plate 130 μ , length of posterior plate 203 μ . Ventral side (fig. 2): length 798 μ , width 541 μ , capitular bay 168 μ deep and 82 μ wide, length of the first epimera (including the capitulum) 385 μ , length of suture line epimera II + III 94 μ , the genital organ is 157 μ long and 130 μ wide, distance between posterior margin of genital organ and excretory pore 168 μ , 219 μ between genital organ and terminal end of body; excretory pore and anal glands placed on the same line on the margin of the line of first sclerotization. The suture lines of fourth epimera are not evident.



Figs 1-6 -*Torrenticola meridionalis* n.sp.: 1: Dorsal shield -male- 2: Ventral shield -male- 3: Infracapitulum -male- 4: Ejaculatory complex -male- (a= anterior view; b= lateral view) 5: Dorsal shield -female- 6: Ventral shield -female-.

Gnathosoma (fig. 3), infracapitulum: ventral side convex, maximal length 317 μ , h height at the junction of palps 129 μ , chelicera are 352 μ long, palps without remarkable features, the dimensions of single segments are: P1 33 μ , P2 100 μ , P3 57 μ , P4 97 μ , P5 20 μ . Ejaculatory complex (fig.4): maximal length 246 μ , width of the proximal chamber 135 μ , presents a well developed proximal chamber and proximal arms, very similar in shape to the related species *T.elliptica*.

FEMALE (prep 251). Dorsal side (fig.5): length 741 μ , width 523 μ ; length of anterior plate 145 μ , posterior plate 219 μ .

Ventral side (fig.6) total length 741 μ , width 646 μ , the capitular bay is 189 μ deep and 98 μ wide, epimera I 341 μ length, epimera II + III 32 μ , length of genital organ 180 μ , width 168 μ , distanced 223 μ from the excretory pore and 301 μ from the terminal end of body.

Gnathosoma (morphology as in the male): infracapitulum is 333 μ long and 145 μ high, chelicera 380 μ , the dimensions of palps are: P1 38 μ ; P2 112 μ ; P3 62 μ ; P4 109 μ ; P5 20 μ .

4. Discussion

T. meridionalis is very similar to *T. elliptica*. Since other morphological differences between the two species are not evident, they can be distinguished only on the basis of measurements. In order to compare the dimensional values of the nominate species, a population (10 males and 10 females) of *T. elliptica* collected by the authors in the Orfento river (central Italy), was analyzed (tab. 1).

The single values do not seem to be different from those belonging to the new species excluding some characteristics regarding: length and width of dorsal shield and genital organ, the length of suture line of II + III epimera, in both sexes and the dimension of the ejaculatory complex in the male. This evidence is reported in table 2.

The values show a difference between index A, C and D. *T. meridionalis*, compared with *T. elliptica*, is characterized by a relatively wider dorsal shield and genital organ, as well as by a shorter length of Epimera II + III in confront to the Epimera I.

Tab. 1 - Mean values (in μ) and range of variability (in parentheses) of morphological characters in 10 males and 10 females of *T.elliptica*. (L=length; W=width; H=height; *=only few measurements)

Characters	Males	Females	Characters	Males	Females
Dorsal shield L	738 (703-807)	769 (731-826)	Distance genital organ-excretory pore	168 (156-196)	223 (196-254)
Dorsal shield W	470 (456-513)	495 (456-532)	Distance genital organ-terminal end of body	224 (204-243)	306 (250-360)
Ventral shield L	839 (779-874)	887 (817-950)	Infracapitulum L	312 (290-337)	336 (330-350)
Ventral shield W	592 (560-646)	618 (579-674)	Infracapitulum H	125 (117-137)	141 (137-145)
Anterior plate L	213 (196-235)	217 (203-235)	Chelicera L	352 (329-356)	380 (372-392)
Shoulder plate L	132 (121-141)	143 (133-152)	P1 dorsal L	36 (35-40)	39 (38-40)
Capitular bay L	147 (140-154)	176 (166-185)	P2 dorsal L	100 (95-112)	109 (104-116)
Capitular bay W	94 (86-105)	99 (96-105)	P3 dorsal L	59 (50-62)	64 (62-66)
Epimera I L	306 (290-309)	342 (325-350)	P4 dorsal L	100 (95-114)	107 (97-115)
Epimera II + III L	109 (102-117)	47 (35-51)	P5 dorsal L	20 (21-23)	22 (20-24)
Genital organ L	177 (172-188)	193 (175-207)	Ejaculatory complex L	280 (270-286)	
Genital organ W	136 (133-145)	168 (152-188)	* E.C. (diameter of proximal chamber)	125	

Tab. 2- Values (%) of the morphological indices

A= width/length of dorsal shield; B= length of anterior plate/ shoulder plate; C= length Epimera II + III/length Epimera I; D= width/length of genital organ; E= dorsal length of PII/PIV

	T.meridionalis Prep. N° 250 o	T.elliptica 10 oo	T.meridionalis Prep. N° 251 o	T.elliptica 10 oo
A	68.5	63.7	70.6	64.4
B	64.0	61.9	66.2	65.9
C	24.4	35.7	9.4	13.7
D	82.8	76.7	93.3	87.0
E	103.0	100.0	102.7	102.0

The ecological characteristics of the two species differ remarkably; *T. elliptica* is one of the most stenothermic species of the genus and, so far, has not been collected at low altitudes in the Mediterranean region. On the contrary, *T. meridionalis* seems eurythermic and colonizes a lowland river where the ecological parameters are affected by high thermal excursion and by heavy changings of downflow with the seasons. These ecological factors, peculiar to this zone of the Mediterranean basin, which represents, so far, the southern limit of the distribution of *T. elliptica*, could play a key role in the diversification and splitting of the species.

Acknowledgements

We wish to thank Dr. Reinhard Gerecke who submitted to us the material. We also thank Dr. Diana Ponterotto (Dipartimento di Lingue, University of L'Aquila) for her help in the translation of the article.

References

BADER, C. (1988): Die Torrenticolidae (Acari, Hydrachnellae). Eine abklärende Studie über eine schwierige Wassermilben-Familie.- Revue Suisse Zool. **95**: 87-98, Geneve.

CICOLANI, B. & SISINO, L. (1983): Idracnidi del fiume Vetoio (Acarina, Prostigmata, Hydrachnellae). 2° Contributo alla conoscenza delle Idracnelle dell'Appennino.- Riv. Idrobiol. **22**: 89-99, Perugia.

CICOLANI, B. & DI SABATINO, A. (1985): Le Idracnelle del Vomano (Gran Sasso): considerazione sul loro impiego per una caratterizzazione biologica del corso d'acqua. (3° contributo alla conoscenza delle Idracnelle dell'Appennino).- Atti 14° Congr. naz. Entomol. Palermo, Erice, Bagheria, 1985: 169-176.

CICOLANI, B. & DI SABATINO, A. (1985a): Gli Acari acquatici (Hydrachnellae e Porohalacaridae) del lago Trasimeno ed elenco delle specie raccolte nei laghi italiani.- Riv. Idrobiol; **24**: 41-64, Perugia.

DI SABATINO, A. & CICOLANI, B. (1988): Torrenticola (Torrenticola) crenobia n.sp. (Acari, Actiniedidae, Torrenticolidae) from a spring of the Calabrian Apennines, south Italy.- Riv. Idrobiol., in press, Perugia.

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Manuskripteingang: 26.05.1990

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Zeitschrift/Journal: [Lauterbornia](#)

Jahr/Year: 1990

Band/Volume: [1990_05](#)

Autor(en)/Author(s): Sabatino, di Antonio, Cicolani Bruno

Artikel/Article: [Torrenticola meridionalis n. sp., a new species of water mites \(Acari, Actinedida, Torrenticolidae\) from the calabrian apennines \(South Italy\) 43-48](#)