

A NEW WATER MITE OF THE GENUS *TORRENTICOLA* PIERSIG, 1896 (ACARI, TORRENTICOLIDAE) FROM CENTRAL SPAIN

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ABSTRACT

The water mite *Torrenticola eureka* n. sp. is described from streams of the Sierra de Guadarrama, in the center of the Iberian Peninsula. This species belongs to the subgenus *Megapalpis* Halbert, 1944, characterized by a long, curved rostrum and P-II longer than P-IV. *T. eureka* n. sp. can be separated from the other species of the subgenus by the proportions of the palp segments, the size of the palp in relation to body size and the length of the cheliceral claw.

Key words: Water mite, Spain, rheophilous.

RESUMEN

Una nueva especie de ácaro acuático del género *Torrenticola* Piersig, 1896 (Acari, Torrenticolidae) del centro de la Península Ibérica

El ácaro acuático *Torrenticola eureka* n. sp. se describe de arroyos de la Sierra de Guadarrama, en el centro de la Península Ibérica. Esta especie pertenece al subgénero *Megapalpis* Halbert, 1944, caracterizado por un rostro largo y curvado dorsalmente y PII más largo que PIV. *T. eureka* n. sp. se diferencia de las otras especies del subgénero por la combinación de los siguientes caracteres: proporción de los segmentos del palpo, tamaño del palpo en relación al cuerpo y la longitud de la uña del quelícero, entre otros caracteres.

Palabras clave: Ácaro acuático, España, reófilo.

Introduction

Water mites of the genus *Torrenticola* Piersig, 1896 show great evolutionary success, with several hundred species and subspecies described worldwide (K. O. Viets, 1987). Sixteen species are known from the Iberian Peninsula including those found in the Pyrenees (Valdecasas, 1988). In the present work a new species of the subgenus *Megapalpis*

Halbert, 1944 is described. This subgenus was later synonymised with *Torrenticola* by Lundblad (1956) and reinstalled by Gerecke and Di Sabatino (1996).

Methods and sampled habitat

Sampling was carried out on the 13 July 1978. Samples were taken by "kicking" the stream bottom

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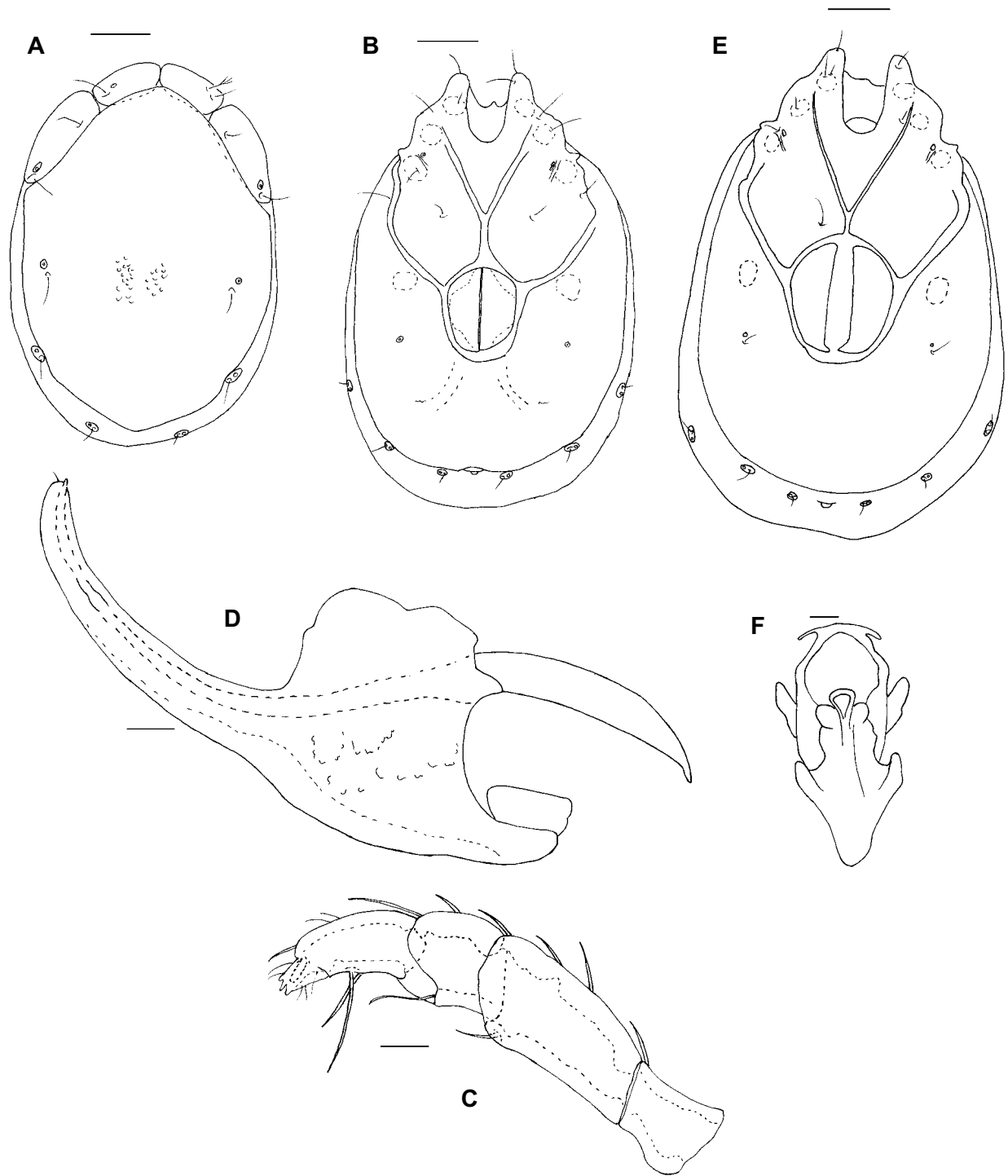


Fig. 1.— *Torrenticola eureka*. A) Dorsal shield, male. B) Ventral shield, male. C) Palp, male. D) Capitulum, male. E) Ventral shield, female. F) Ejaculatory complex. Scale bar = 100 μ m (A, B y E); 20 μ m (C, D y F).

Fig. 1.— *Torrenticola eureka*. A) Escudo dorsal, macho. B) Escudo ventral, macho. C) Palpo, macho. D) Capítulo, macho. E) Escudo ventral, hembra. F) Complejo eyaculador. Escala = 100 μ m (A, B y E); 20 μ m (C, D y F).

in two mountain streams in the Sierra de Guadarrama (in the center of the Iberian Peninsula): "Barranca stream", located at 1600 m. asl, UTM coordinates: VL162138, and Eresma stream, at 1200 m. asl, flowing from Navacerrada to Segovia, UTM coordinates: VL141248. The following environmental parameters were taken at the time of sampling (data of Barranca given first, Eresma in brackets): T air: 15.9 (23.7)°C, T water: 10.2 (16.5)°C, pH: 6.9 (-); alcalinity: 0.8 (0.8) mEqL⁻¹, Hardness: 0.5 (0.5)°d and O₂ % saturation: 122.21 (114.15).

Morphological terminology follows Cook's (1974). Measurements of the holotype are given first, with the range found for 3 additional males in brackets. The measurement range for the female is based on 4 specimens. Ratios can be problematic for discrimination purposes (e.g. Simpson *et al.*, 1960; Atchley *et al.*, 1976; Sokal & Rohlf, 1981). I avoid them in this work. No *derivatio nominis* is provided, name given is arbitrary.

Resultados

Torrenticola (Megapalpis) eureka new species

HOLOTYPE: Male. Barranca stream, Madrid, 13-7-78. Catalog number: 215 (MNCN).

PARATYPES: 1 male, Barranca stream, Madrid, 13-7-78, Catalog number: 216 (MNCN); 1 female, Eresma stream, Segovia, 13-7-78, Catalog number: 217 (MNCN).

ADDITIONAL MATERIAL: 2 males, 2 females, Barranca stream, Madrid, 13-7-78; 1 female, Eresma stream, Segovia, 13-7-78.

MALE: The body is ellipsoidal slightly elongated; the front is slightly convex and the distance between the antenniform setae is: 92 µm (105 µm); anterior transversal plate 115 µm (112-115 µm) in length and 52 µm (60 µm) in width; posterior transversal plate is 152 µm (175-180 µm) in length and 65 µm (60-65 µm) in width; the central plate is 590 µm (592-620 µm) in length and 440 µm (420 µm) in width; the distribution of setae and glandularia on the plates is illustrated in (Fig. 1A). Fig. 2A shows the dorsal view of the holotype obtained through extended depth of focus imaging (see Valdecasas *et al.*, 2001).

The ventral shield is narrowed towards the anterior end; ventral length up to the anterior end of the first coxae 700 µm (720-750 µm), width 460 µm (470-488 µm); the capitular bay is U shaped, 110 µm (102-110 µm) in depth and 65 µm (65 µm) in width; the distance between the posterior end of the

capitular bay and the anterior end of the genital area is 205 µm (205-210 µm); the disposition of the ventral glandularia is illustrated in (Fig. 1B); the extended depth of focus for the ventral shield of the holotype is shown in Fig. 2B; the genital area is irregular elliptical in shape, 138 µm (138-152 µm) in length, 110 µm (110-124 µm) in width; Fig. 1F, shows the ejaculatory complex and Fig. 2C, its extended depth of focus image; the delimitation line of the fourth coxae has a curved prolongation towards the posterior end in an ample arch, at the end of this arch there is a muscular mark. The excretory pore lies slightly anterior to the glandularia beside them; the distance between the posterior end of the genital area and the excretory pore is 195 µm (195-225 µm).

The ventral margin of the segments of the palp without tubercles (Fig. 1C); segment P-II is the longest of all segments; dorsal length and chaetotaxy of the palp segments is as follows: P-I: 42 µm (42-44 µm) with 1 dorsal seta; P-II: 80 µm (80-94 µm) 3 dorsal setae and 1 ventral; P-III: 40 µm (36-44 µm) 2 dorsal setae of different size and thickness and 1 long ventral seta; P-IV: 55 µm (55-64 µm) with 3 fine dorsal setae, 2 long ventral setae and a short one at the end of the segment; P-V: 12 µm (12 µm). The capitulum has a long, dorsally recurved rostrum (Fig. 1D); the total length of the capitulum is 260 µm (260-271 µm); the rostrum is 150 µm (150 µm) in length; the total length of the chelicera is: 300 µm (300-307 µm); the cheliceral claw measures 52 µm (52-55 µm).

The distance between the insertion of the IV legs is 265 µm (260-276 µm). The approximate length of the last segments of the IV legs are: IV-L-4: 135 µm (135-152 µm); IV-L-5: 145 µm (145-170 µm); IV-L-6: 150 V (150-165 µm). The legs lack swimming hairs.

FEMALE: Similar to male. Dorsal shield: width: 442-510 µm; length of central plate 610-712 µm; length of the anterior transversal plate 98-110 µm, and width 48-60 µm; length of the transversal posterior plate 165-210 µm and width 62-68 µm.

Fig. 1E shows the ventral shield; total ventral length up to the anterior end of the first coxa 765-858 µm; the capitular bay is 120 µm deep and 70 µm wide; the distance between the posterior end of the capitular bay and the anterior end of the genital area is 165 µm; the genital field is 170-195 µm long and 160-183 µm wide; the distance between the posterior end of the genital field and the excretory pore is 215 µm.

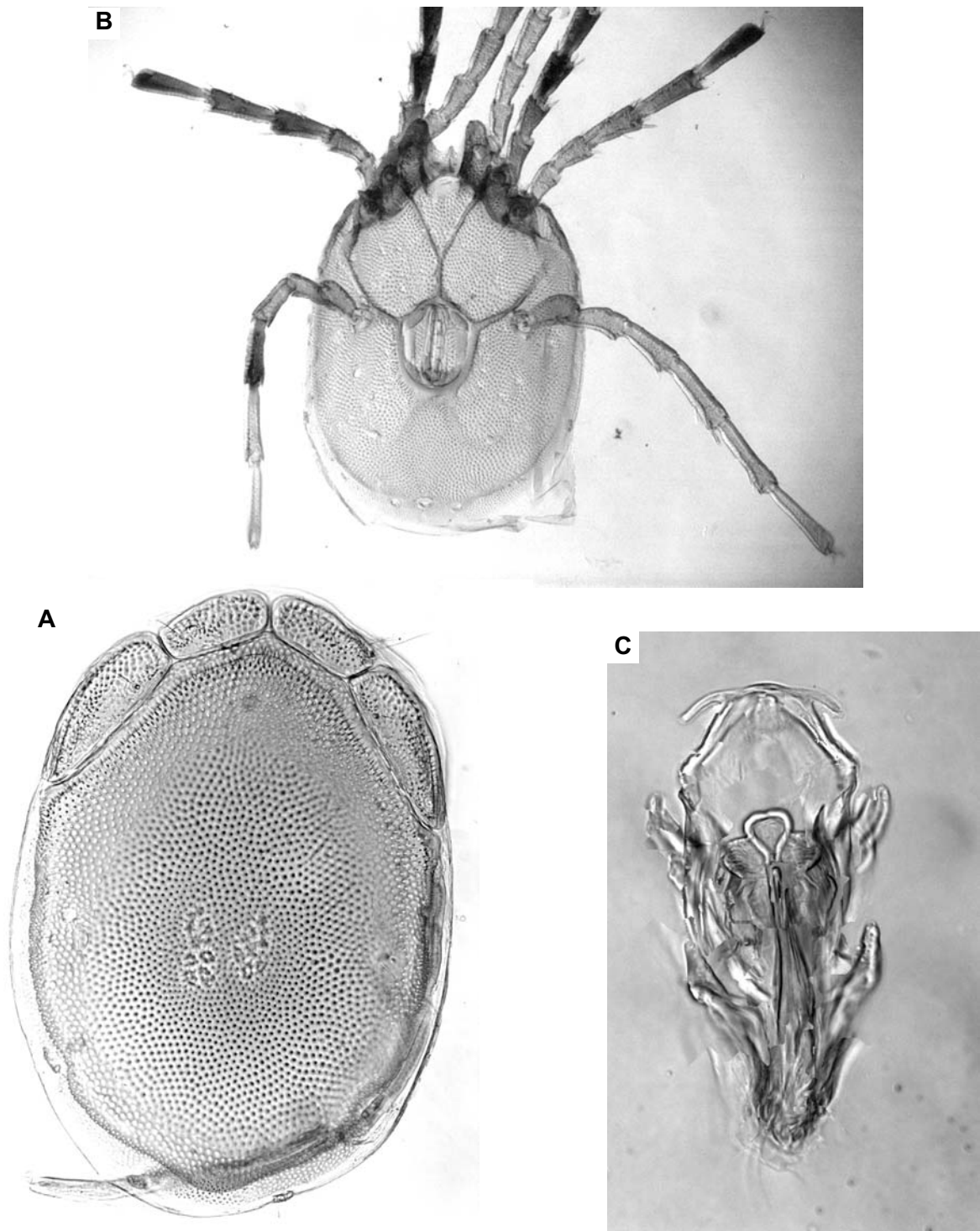


Fig. 2.— *Torrenticola eureka*. Extended depth of focus images: A) Dorsal shield, male. B) Ventral shield, male. C) Ejaculatory complex.

Fig. 2.— *Torrenticola eureka*. Imágenes de foco extendido: A) Escudo dorsal, macho. B) Escudo ventral, macho. C) Complejo eyaculador.

The palp chaetotaxy is similar to the male palp and the dorsal length of palp segments is as follows: P-I: 39-48 µm and 1 dorsal seta; P-II: 88-102 µm with 2 dorsal setae, 1 fine and 1 ventral; P-III: 40-58 µm with 2 dorsal and 1 ventral setae; P-IV: 60-70 µm with 2 ventral setae and a smaller one at the anterior end of the segment; P-V: 12-18 µm. Capitulum as in male; length 288-292 µm. Total length of the chelicera 301-315 µm; length of the cheliceral claw 55 µm.

Dorsal lengths of the last segments of the IV leg: IV-L-4: 161-167 µm; IV-L-5: 183-195 µm; IV-L-6: 167-183 µm.

Discussion

This species belongs to the subgenus *Megapalpis* Halbert, 1944. Following Angelier (1954), Angelier *et al.* (1963), Gerecke and Di Sabatino (1996) and K.O. Viets (pers. comm.) this subgenus includes the following species:

Torrenticola tenuirostris (K. Viets, 1936) (there is a description of the male in Di Sabatino *et al.* 2003), *T. pugionirostris* (K. Viets, 1939), *T. rampha* (Lundblad, 1941), *T. rampha malayensis* Wiles, 1997, *T. thori* (Halbert, 1944), *T. fagei* (E. Angelier, 1949), *T. andrei* (E. Angelier, 1950) y *T. remyi* (E. Angelier, 1954) and *T. distans* K.O. Viets, 1981, *T. macerirostris* K.O. Viets, 1981, *T. jasmineae* Bader, 1988 and *T. trinacriae* Di Sabatino & Cicolani, 1990.

Torrenticola pugionirostris, *T. rampha* and *T. rampha malayensis* have been found in Java, Burma, Malaysia and Thailand. *T. distans* has been found in South Africa. *T. macerirostris* was described from Israel and *T. jasmineae* from Iran. *T. thori* was described from Ireland. The other species inhabit the Mediterranean basin (Di Sabatino *et al.* 2003).

The present species is close to *T. tenuirostris*, but can be clearly distinguished from it by the smaller size of the palp segments despite the larger body size. It is distinguished from the other species of the subgenus by the different size relations of the palp segments. Besides this, the body length/width combinations, lengths of capitulum and chelicera have a range of values that is not present in any other species of the group. Additional characters to distinguish this species from the other species are that *T. thori*, *T. andrei*, and *T. rampha* have a P-IV of similar or longer size than P-II and that *T. distans* and *T. andrei* have a cheliceral claw that is almost half the size of the chelicera. *T. fagei*,

T. trinacriae and *T. pugionistris* have a longer palp. *T. remyi* has a much longer capitulum and chelicera than the present species. *T. macerirostris* is slender and has a longer rostrum. *T. thori* and *T. andrei* (considered as synonymous by Lundblad, 1956) have a long, narrow body. *T. fagei* and *T. remyi* have a body length/width proportion that makes them more rounded in comparison. *T. jasmineae* has a small ventral tubercle at setae insertion site in P-II and P-III.

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