



## Two New Species of the Genus *Lebertia* Neuman, 1880 (Acari: Hydrachnidia: Lebertiidae) from Western Anatolian Karstic Plateau, Turkey

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**Abstract:** Two new species of water mites of the family Lebertiidae, *Lebertia (Brentalebertia) micropalpis* sp. n. and *Lebertia (Lebertia) pesici* sp. n., are described and illustrated. Specimens of these two species have been collected from the upper part of the Köprüçay River, Antalya Basin, western Anatolian Karstic Plateau, Turkey.

**Key words:** Water mite, fauna, karstic, taxonomy, Turkey.

### Introduction

The species diversity of the family Lebertiidae reaches its maximum in the Holarctic Region (GÜLLE & BOYACI 2012). The genus *Lebertia* Neuman, 1880 is the most species-rich taxonomic group of the family Lebertiidae. Compared to other genera of water mites, most species of the genus *Lebertia* are highly uniform in the shape of coxae, legs and mouth parts. Corresponding to low degree of morphological diversity of coxal shield shapes, the insertion of legs is considered the same in all species. The main characters to distinguish between species and subgenera of water mites are integument structures, the pattern of setation, legs and palps (GERECKE et al. 2016). The genus *Lebertia* occurs mostly in the springs and low-order streams in temperate or cold climates (GERECKE 2009).

In the present article, we describe two newly-discovered species of the genus *Lebertia* sampled from the upper part of the Köprüçay River, Antalya Basin, western Anatolian Karstic Plateau.

### Materials and Methods

Water mite specimens were collected using hand nets. They were fixed in Koenike's fluid (50 % glycerol, 20 % acetic acid and 30 % distilled water). In laboratory conditions, they were dissected and mounted using Hoyer's fluid. All measurements are given in  $\mu\text{m}$ . The following abbreviations are used: Cx-I = first coxae, Cx-I mL = first coxae medial length, H = height, L = length, P-1 = palp segment 1, W = width, IV-L-5 = fourth leg, fifth segment.

### Results

#### Subgenus *Brentalebertia* Gerecke, 2008 *Lebertia (Brentalebertia) micropalpis* sp. n.

**Studied material.** A fast-flowing stream with sand and gravel bottom, 18.07.2008, Köprüçay River, Pazarköy, Isparta. Leg. Y. Ö. Boyacı. Paratypes: 5 females, same data as holotype.

**Diagnosis.** Flat integument, P-2 twice thicker than P-4, P-2 longer than P-3 and P-4 (P-2 L/H 1.3),

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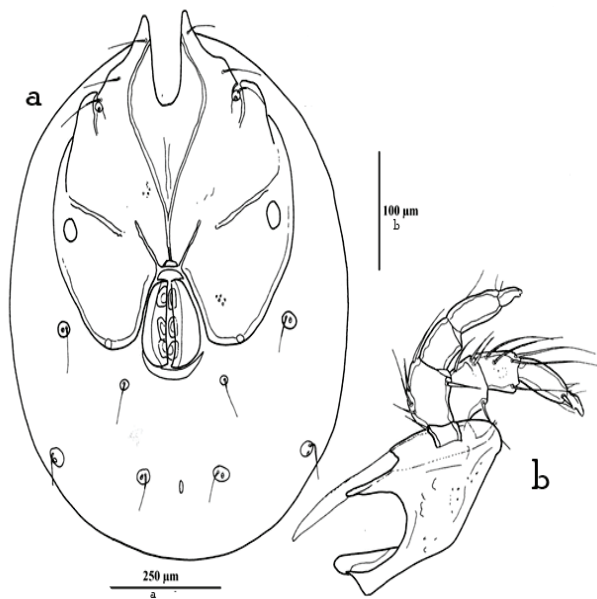
distal setae of P-3 no longer than the palp length, and dorsal setae apart, mediiodistal seta close to dorso-distal seta, all distal setae close to distal segment margin, with a stout and compact palp structure, IV-L-5 with 7-8 ventral setae, and IV-L-6, with 5 ventral setae.

**Holotype.** Female. Idiosoma 930/760, flat integument. Mouth opening 170, Cx-II mL 90, Cx-I/II mL (2.1) (Fig. 1a), capitulum L 205, chelicera L

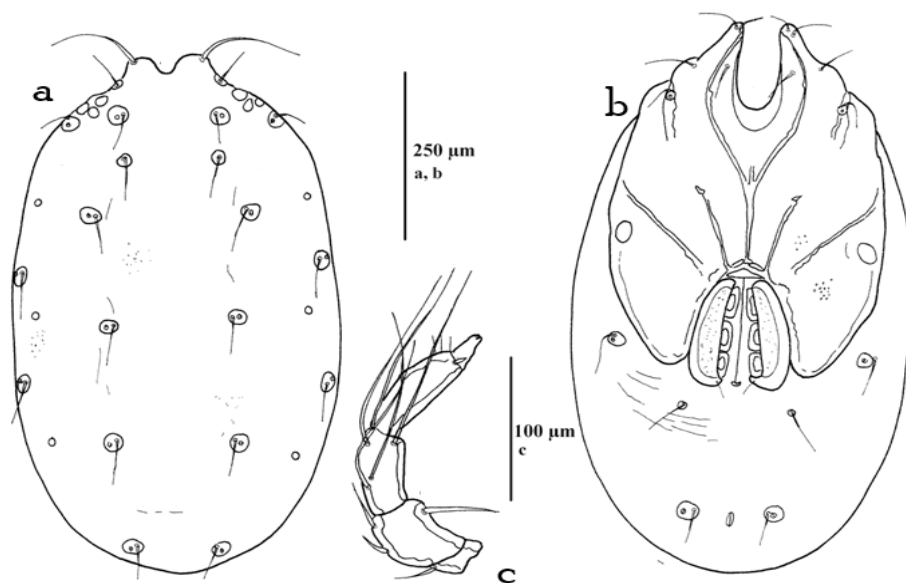
220 (Fig. 1b), claw L 33. P-2 twice wider than P-4, P-2 longer than P-3 and P-4 (P-2 L/H 1.3), distal setae of P-3 not longer than palp length, mediiodistal seta inserted close to the dorsal. P-1-5 L (ratio to total length) 33 (13.5)-65 (26.5)-48 (19.5)-63 (25.7)-36 (14.7)=245, H; 30-50-35-26-14 (Fig. 1b). P-3 L/H (1.37), Cx-IV with flat side edges and with a gland on the lower end. Cx-I-IV L 600/590. No swimming-seta on the legs. IV-L-5 with 7-8 ventral, 3 dorsal setae and IV-L-6, 5 with ventral setae (Fig. 3a). Genital plates L 152 with 7-8 setae outer and 18 setae inner (Fig. 1a).

**Etymology.** The new species is named with reference to its small palp.

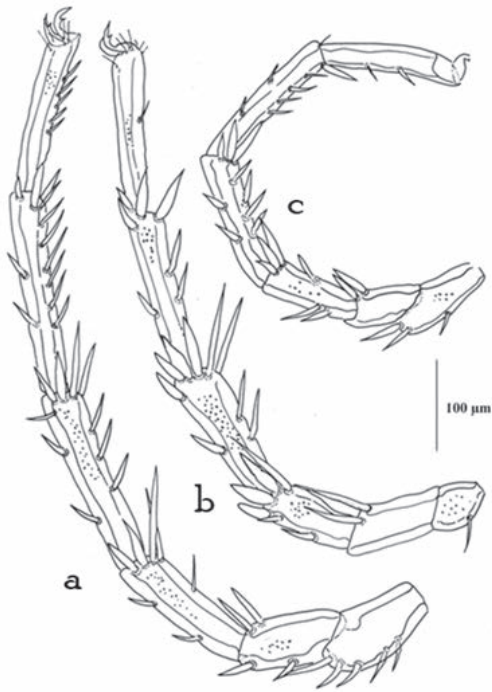
**Remarks.** *Lebertia micropalpis* sp. n. is distinguished from close species by a globose body structure, flat integument. P-2 twice thicker than P-4, P-2 longer than P-3 and P-4 (P-2 L/H 1.3). Distal setae of P-3 no longer than the palp length. Dorsal setae apart. Mediiodistal seta close to dorso-distal seta. All distal setae close to distal segment margin, with a stout and compact palp. *L. micropalpis* seems to be closely related to *L. minutipalpis* K. Viets, 1920. In the new species, the proportion of palp parts and the distribution of setae are similar but the lengths of the setae are clearly different. In P-4, maximum height is at the centre, P-3 L/H (1.37), Cx-I/II mL (2.1) are similar. However, the new species is distinguished from *L. minutipalpis* by its smooth integument (in *L. minutipalpis*, very fine striation present), length of setae on P-3 (in *L.*



**Fig. 1.** *Lebertia micropalpis* sp. n., female. **a.** idiosoma, ventral view; **b.** gnathosoma.



**Fig. 2.** *Lebertia pesici* sp. n., male. **a.** idiosoma, dorsal view; **b.** idiosoma, ventral view; **c.** palp.



**Fig. 3.** a-b. *Lebertia micropalpis* sp. n., female IV-L (a), III-L (b); c. *Lebertia pesici* sp. n., male, IV-L.

*minutipalpis*, longer than palp length), 3 dorsal and 8 ventral setae in IV-L-5 (in *L. minutipalpis*, 5-6 strong ventral setae) (GERECKE 2009).

#### Subgenus *Lebertia* Neuman, 1880

##### *Lebertia (Lebertia) pesici* sp. n.

**Type material.** A fast-flowing creek with non-cold water, sand and gravel bottom, 22.06.2008, Köprüçay River, Pazarköy, Isparta. Leg. Y. Ö. Boyacı. Paratypes: 2 males, same data as holotype.

**Diagnosis.** The idiosoma longitudinally elongated. A very long preantenniform seta located on forwardly developed two protrusions. Distal setae of P-3 longer than palp length. Mediodistal seta inserted close to dorsal and behind dorsodistal seta. Maximal height on median part in P-4.

**Holotype.** Male. Idiosoma longitudinally elongated, L 790/464. Integument flat dorsally, slightly striated ventrally. A very long preantenniform seta located on forwardly developed two protrusions (Fig. 2a). No dorsal plate. Glands relatively large. Cx-II mL 100, capitulum L 150, chelicera L 190, claw L 25. P-2 approximately the same size as P-3 and P-4. Distal setae of P-3 longer than palp length. Mediodistal seta inserted close to distal. Maximal height on median part in P-4. P-1-5 L (ratio to total length) 23 (9.4) -55 (22.6) -65 (27) -75 (31) -25 (10)=243, H; 30-42-30-27-10 (Fig. 2c). Cx-II posterior margin wide. Cx-IV with flat side edges and

without gland on lower end. Genital plates with 12 setae on both sides, L 165 (Fig. 2b). The lengths of leg parts: 52-61-55-72-85-104=429, 61-76-69-87-106-126=525, 72-86-79-104-127-127=595, 88-82-100-118-148-150=686, respectively. IV-L-5 with 3-4 ventral setae, 2 dorsal setae; IV-L-6, with 2 ventral setae (Fig. 3c).

**Etymology.** The species name is given in honour of the water mite specialist Professor Vladimir Pešić.

**Remarks.** *Lebertia pesici* sp. n. is distinguished from the other species by the presence of two protrusions with a very long anterior preantenniform seta, integument flat dorsally and striated ventrally, and location and length of P-3 setae. The new species closely resembles is *L. polonica* Biesiadka, 1972. The palp structure and the length and distribution of the setae of both species have similar features. However, on P-3, dorsal setae in *L. polonica* is too short (in new species long like other setae on the P-3); the mediodistal seta in *L. pesici* is located behind the dorsodistal seta. In contrast, the mediodistal seta in *L. polonica* is inserted close to dorsal and the dorsodistal seta is located behind the mediodistal seta. IV-L-6 differs in shape and has two ventral setae. IV-L-5 has 4 ventral and 2 dorsal setae in the new species. The shape of IV-L-6 is cylindrical whereas it narrows basally and gradually enlarges distally in *L. polonica*. In addition, Ac shapes and sizes differ from *L. polonica* (GERECKE 2009).

## Discussion

To date, 25 species of water mites belonging to the genus *Lebertia* have been reported from Turkey (recently reviewed by ERMAN et al. 2019). Together with the two new species of *Lebertia* described in the present article, the number of the species of this genus in Turkey increases to 27.

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