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A new record for the Turkish mite fauna: *Ledermuelleriopsis tamariski* Maleki & Bagheri (Acari: Stigmaeidae)

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Abstract: In the present work, it has been evaluated mite specimens collected from Erzincan Province (Turkey). Two female mite specimens from litter and soil under *Juglans* sp. were identified as *Ledermuelleriopsis tamariski* Maleki and Bagheri, a newly recorded species for the Turkish fauna. Drawings and measurements for some body parts of the specimens were made; its morphological characters were reviewed.

Keywords: Acari, *Ledermuelleriopsis*, New record, Erzincan, Turkey.

Introduction

The members of the genus *Ledermuelleriopsis* Willmann live in soil, litter, grass, moss, lichen, decayed stump, bark trees and old dune sand. Up to now, 33 species belonging to the genus *Ledermuelleriopsis* are known in the world (Fan et al., 2003; Dönel and Doğan, 2011; Khanjani et al., 2012a, b; Maleki et al., 2013). To date, 10 species of *Ledermuelleriopsis* have been reported from Turkey (Doğan, 2007; Erman et al., 2007; Dönel and Doğan, 2011). *Ledermuelleriopsis tamariski* Maleki and Bagheri has been found for the first time from Erzincan (Turkey). In the present work, we aimed to contribute to the knowledge on mite diversity in Turkey.

Materials and Methods

The mite specimens were extracted from soil and litter by Berlese funnels. The mites were cleared in 60% lactic acid and mounted in Hoyer's medium on microscope slides. The collected mites were examined and illustrated under Leica DM4000 B phase-contrast microscope. Identification of mites was done using the relevant literature. All of the measurements are given in micrometres (μm). Measurements of one specimen are given first followed in parentheses by those of other specimen. Body length measurements represent the distance between the base of the gnathosoma and the posterior part of the idiosoma; width was measured at the broadest point of the idiosoma. Setae were measured from the setal base to tip of the seta; distances between setae were measured between the setal bases. Leg length was measured from the tip of the claws to the trochanter base. Palp length was measured from the tarsal tip to the trochanter base. Dorsal and leg setal designations follows Kethley (1990) and Grandjean (1944), respectively. The slide-mounted specimens are deposited in the Acarology Laboratory of Erzincan University, Erzincan, Turkey.

Results

Family: *Stigmaeidae*, Oudemans

Genus: *Ledermuelleriopsis,* Willmann

Type species: *Ledermuelleriopsis triscutata* Willmann, 1951: 487 (by subsequent designation).

Diagnosis: Prodorsum covered with a large shield, bearing 4 pairs of setae (*vi*, *ve*, *sci* and *sce*); eyes present, post-ocular bodies absent. Dorsal hysterosomal area covered with either completely or incompletely divided two shields, each bearing 3 pairs of setae, metapodosomal shield with setae c_1, d_1, d_2, opisthosomal shield with setae e_1, e_2, f_1. Suranal shield entire with 2 pairs of setae (h_1 and h_2). Humeral shields large, ventro-lateral, with c_2. Coxisternal shields divided or fused. Ventral opisthosoma with 1-3 pairs of aggenital setae. Genital setae absent. Palp with a tridentate terminal eupathidium. Chelicerae separated. (Fan and Zhang, 2005; Dönel and Doğan, 2011).

Ledermuelleriopsis tamariski Maleki and Bagheri

Female (n=2)

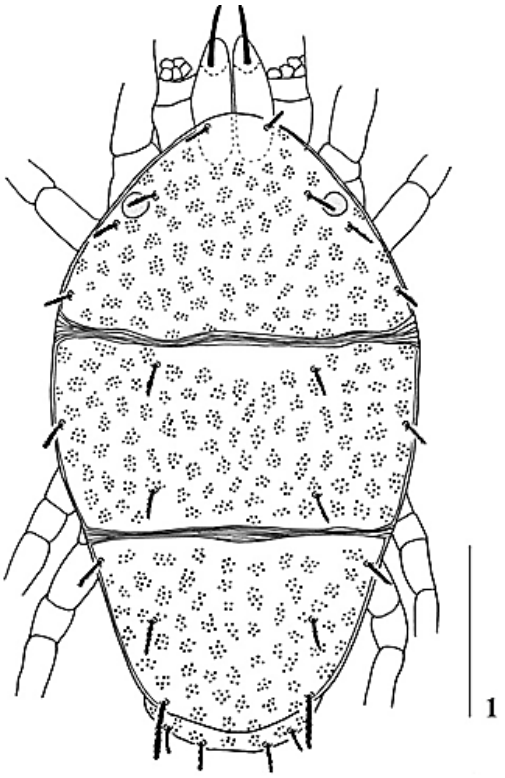


Figure 1. *Ledermuelleriopsis tamariski* (Female), Dorsum; scale 100 µm.

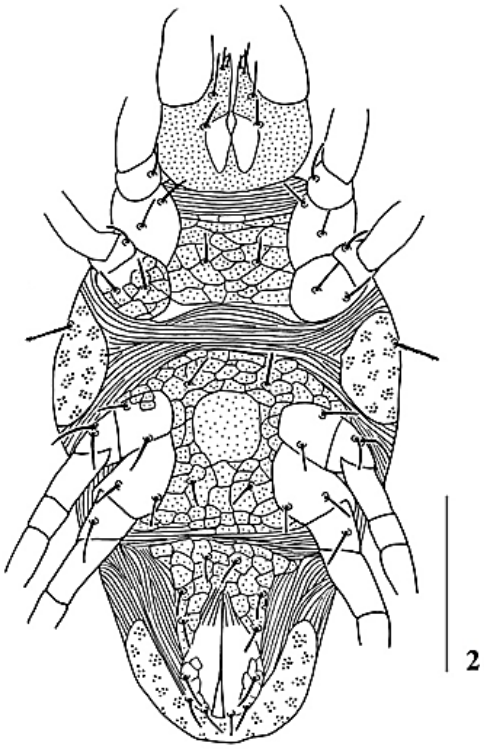


Figure 2. *Ledermuelleriopsis tamariski* (Female), Venter; scale 100 µm.

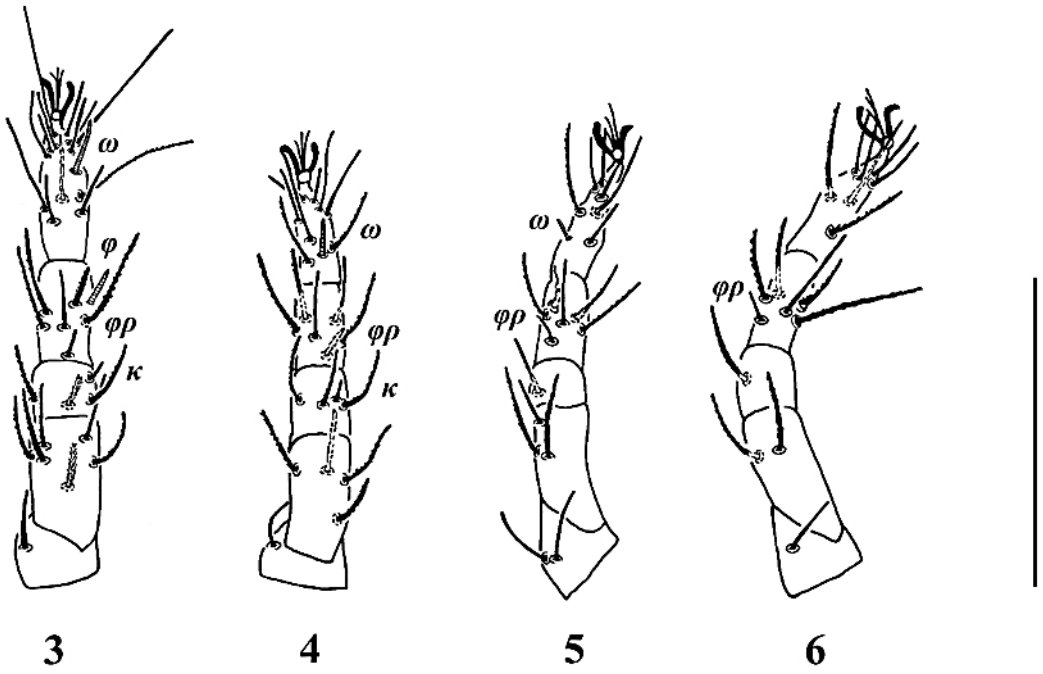
Idiosoma: oval, 260 (282) long (excluding gnathosoma), 165 (168) wide.

Gnathosoma: Gnathosoma punctated, 59 (60) long. Chelicerae separate, 53 (59) long. Palp 90 (92) long. Counts of setae and solenidia from palptrochanter to palptarsus: 0, 3, 2, 2 + 1 claw + 1 seta like accessory claw, 4 + 1 solenidion+ 1 subterminal seta-like eupathidion + 1 tridentate eupathidion. Subcapitulum with two pairs of adoral setae ($or_{1,2}$) and 2 pairs of subcapitular setae (*m*, *n*). Dimensions and distance between subcapitular setae, *m* 10 (11), *n* 9 (11), *m*–*m* 19 (20), *n*–*n* 21 (23), *m*–*n* 11 (11).

Dorsum: (Fig. 1) Dorsal shields of small pits mostly filled with evenly distributed vacuoles. Propodosomal shield with four pairs of setae (*vi*, *ve*, *sci, sce)* and one pair of eyes located between setae *ve* and *sci*. Metapodosomal and opisthosomal shields each with three pairs of setae, c_1, d_1, d_2, and e_1, e_2, f_1, respectively. Suranal shield with two pairs of setae ($h_{1,2}$). All dorsal setae rod-like and with small spinules. Lengths and distances of dorsal idiosomal setae as follows: *vi* 10, *ve* 15 (17), *sci* 10 (12), *sce* 11 (13), c_1 14 (15), c_2 19 (20), d_1 14 (14), d_2 13 (13), e_1 15 (15), e_2 15 (15), f_1 23 (26), h_1 13 (17), h_2 8 (13), *vi*–*vi* 34 (35), *ve*–*ve* 69 (71), *vi*–*ve* 35 (37), *sci*–*sci* 113 (114), *ve*–*sci* 26 (28), *sce*–*sce* 150 (151), *sci*–*sce* 33 (36), c_1–c_1 73 (74), c_2–c_2 146 (156), c_1–c_2 34 (45), d_2–d_2 152 (158), c_1–d_1 54 (58), c_1–d_2 46 (51), d_1–d_1 69 (75), d_2–d_1 51 (51), e_2–e_2 122 (125), d_2–e_2 57 (63), d_1–e_1 51 (55), d_1–e_2 38 (38), e_1–e_1 73 (78), e_2–e_1 33 (34), f_1–f_1 65 (70), e_1–f_1 31 (36), e_2–f_1 62 (65), f_1–h_1 27 (28), f_1–h_2 16 (17), h_1–h_1 34 (35), h_2–h_2 58 (59), h_1–h_2 12 (13).

Venter: (Fig. 2) Ventral shields reticulated and punctated. Humeral shields bearing setae c_2, the pattern on humeral shields similar that of dorsal shields. The coxisternal shields fused, reticulated and punctated, and bearing three pairs of setae (*1a*, *3a*, *4a*). Lengths and distance of these setae *1a* 9 (13), *3a* 9 (14), *4a* 8 (11), *1a*–*1a* 24 (26), *3a*–*3a* 36 (37), *4a*–*4a* 26 (28). Aggenital shield with three pairs of setae with faintly serrate (ag_{1-3}). Three pairs of pseudanal setae (ps_{1-3}), ps_3 longest in the pseudanal setae. Lengths of ventral setae as follows: ag_1 8 (9), ag_2 9 (9), ag_3 12 (13), ps_1 10 (12), ps_2 11 (13), ps_3 9 (15).

Legs: (Figs. 3-6) Coxae I-IV with reticulations and punctuations. Leg I 139 (143), leg II 112 (126), leg III 126 (137), leg IV 146 (149) long. Counts of setae on legs I-IV: coxae: 2–2–2–2, trochanters: 1–1–2–1, femora: 6–4–3–2, genua: 3(+1κ)–3(+1κ)–1–1, tibiae: 5(+1φ+1φρ)–



Figures 3-6. *Ledermuelleriopsis tamariski* (Female), 3. Leg I, 4. Leg II, 5. Leg III, 6. Leg IV; scale 100 µm.

5(+1φρ)–5(+1φρ)–5(+1φρ), tarsi: 13(+1ω)–8(+1ω)–7(+1ω)–7. Lengths of solenidia: Iω 18 (19), IIω 12 (15), IIIω 5 (7).

Distribution: Iran (Maleki et al., 2013).

Material examined: 2♀♀, from soil and litter under *Juglans sp.*, Binkoç Village, Erzincan, Turkey, 15 March 2015.

Remarks: *Ledermuelleriopsis tamariski* Maleki and Bagheri given from Iran by Maleki et al. (2013) is very close to *L. ayhani* Maleki and Bagheri; but it can be distinguished the latter by dorsal shields with small pits filled with vacuoles (polygonal structures filled with vacuoles in *L. ayhani*), dorsal setae rod-like and with small spinules (clavate and with coarse serrations in *L. ayhani*) and different distances of c_1–c_1, d_1–d_1, e_1–e_1, f_1–f_1, longer than those of *L. ayhani.*

This species also resembles to another Iranian species *Ledermuelleriopsis punicae* given by Khanjani et al. (2012a), but it can be distinguished from *L. punicae* by bearing *k* solenidion on genu II (absent in *L. punicae*), dorsal shields with small pits filled with vacuoles (faint pits but without vacuoles in *L. punicae*), ventral shields reticulated and punctated (smooth in *L. punicae*) and different distances of c_1–c_1, d_1–d_1, e_1–e_1, f_1–f_1, longer than those of *L. punicae.*

Ledermuelleriopsis tamariski is a newly recorded for the Turkish fauna. Generally, the Turkish specimens are similar to the type specimens except the gnathosoma punctated, but without reticulations, anogenital region and palp femora with faintly reticulations. Additionally, coxisternal setae of the Turkish specimens are shorter than those of the type specimens.

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