

Article

New morphological data on *Strunkobia pamirica* Livschitz & Mitrofanov (Acari: Tetranychidae) with a new host record

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Abstract

New morphological data on *Strunkobia pamirica* Livschitz & Mitrofanov is provided from materials collected from *Euphorbia* sp. (Euphorbiaceae) and a new host plant, *Artemisia aucheri* (Asteraceae) in Iran. This species is a new record to the spider mite fauna of Iran.

Key words: *Strunkobia*, host record, new record, Kerman

Introduction

Spider mites (Acari: Tetranychidae) are of agricultural importance as pests of various crops and an enemy to reckon with as they are genetically geared to develop resistance against pesticides in a short time span. The costs incurred from crop losses and control strategies are measured in millions of dollars (Seeman & Beard 2011). To date 1270 species in two subfamilies, six tribes and 95 genera have been described around the world (Zhang 2011). The genus *Strunkobia* Livshitz & Mitrofanov belongs to the Bryobiinae Berlese subfamily and Bryobiini Berlese tribe and comprises just one species namely *Strunkobia pamirica* Livshitz & Mitrofanov (Bolland 1998). This species was originally described from Tajikistan on *Euphorbia pamirica* (Euphorbiaceae) by Livshitz & Mitrofanov, 1972. Meyer (1987) and Bolland (1998) just included it in their keys, without any description. In this paper we provide new morphological data including morphometric parameters, description and details of dorsum and venter, anal area, palp, empodium and spermatheca figures. Therefore we provide the figure of all leg segments (because of the setal variation) for this species.

Materials and Methods

Mite infested leaves and twigs were collected, placed into plastic bags and transferred into the laboratory. Samples were washed in a solution of water and commercial detergent. This solution was filtered through a sieve (400 Mesh). Mites retained on the sieve were washed with 70% ethanol into a Petri dish and were separated from the ethanol solution under a stereomicroscope. After preservation for 10 days in clean 70% ethanol, mites were mounted directly in Hoyer's medium. Mites were examined under a

phase-contrast Olympus (BX51) compound microscope. Measurements were made by means of a DINO-EYE® soft imaging system and figures were drawn with a drawing tube attached to an Olympus Research Microscope. Corel draw x5 2010 was used for figure editing.

Family Tetranychidae Donnadieu, 1875

Genus *Strunkobia* Livschitz & Mitrofanov, 1972

Body oval, convex; dorsal setae fusiform and shorter than distances between consecutive setae; prodorsum with four pairs of setae (v_1 , v_2 , sc_1 , sc_2), without anterior lobes; dorsocentral setae in normal position; tarsal claws uncinata with tenent hairs; empodium pad-like; coxal setal formula 3/4-2/3-1-1; venter with two pairs of setae (ag_{1-2}) on pregenital and hypostomal setae (Livshits & Mitrofanov 1972; Meyer 1987)

***Strunkobia pamirica* Livschitz & Mitrofanov, 1972**

Strunkobia pamirica Livschitz & Mitrofanov, 1972: 9.

Strunkobia pamirica Meyer, 1987 (key), *Strunkobia pamirica* Bolland, 1998 (key).

Diagnosis

Propodosoma with four pairs of setae and without anterior lobes; dorsal setae serrate fusiform and shorter than distances between consecutive setae; opisthosoma with 12 pairs of setae, h_2 and h_3 in ventral position; venter with two pairs of setae on the pregenital (ag_{1-2}) and mentum; without peritrematal stigmata; spermatheca (Fig. 5) long with a bog membranous bulb distally.

Female (n = 3; Figs. 1–11)

Length of body (v_1 - h_1) 523–530, width (c_3 - c_3) 453–458.

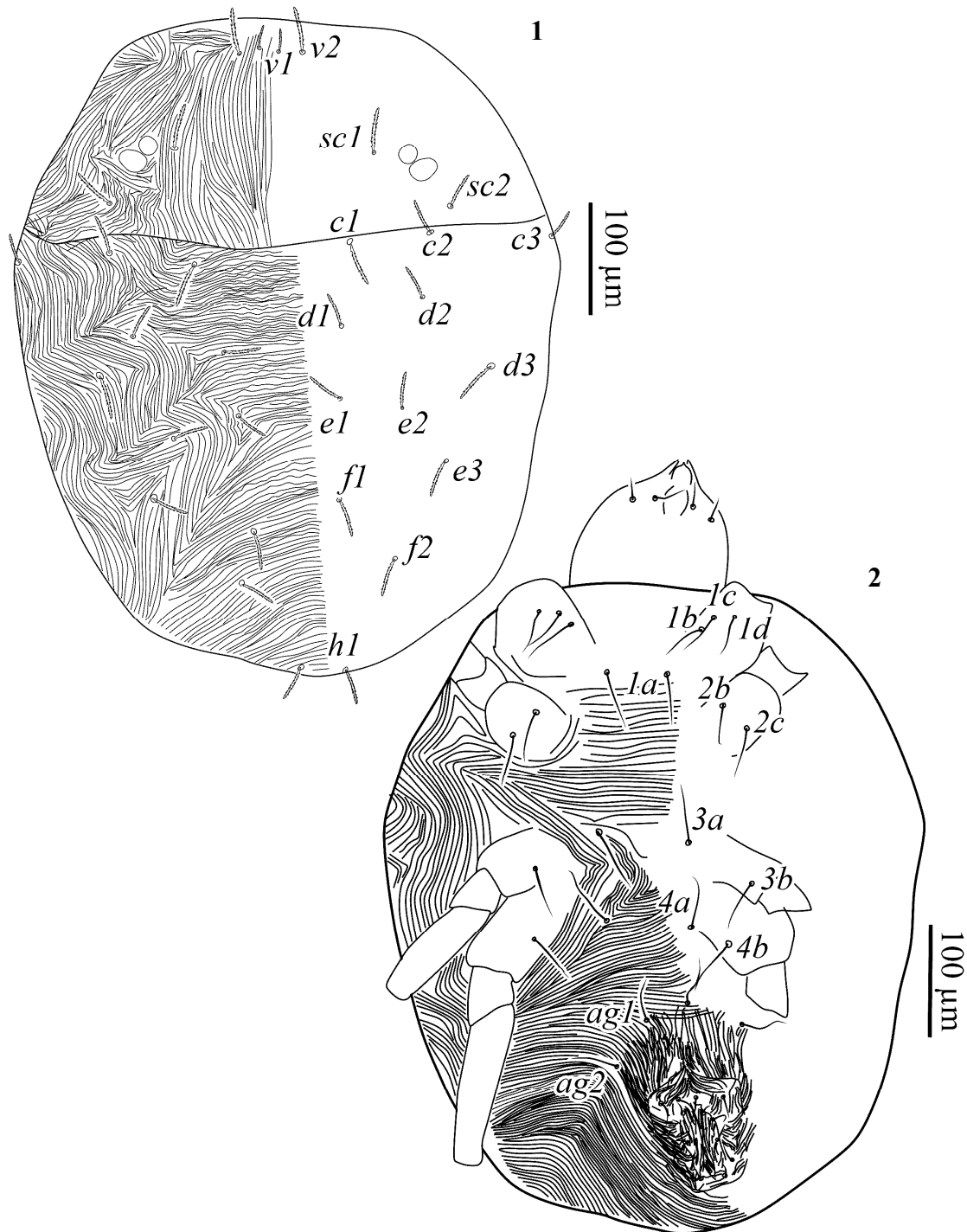
Dorsum (Fig. 1). Color in living specimens brownish-green; body oval, convex; prodorsum with longitudinal striae medially, diagonal laterally, includes four pairs of setae (v_1 , v_2 , sc_1 , sc_2), without anterior lobes and two pairs of eyes. Dorsomedian opisthosoma with transverse striae, and longitudinal to irregular posteriad of c_2 , d_2 and e_2 . Opisthosoma with four pairs of dorsocentral setae (c_1 , d_1 , e_1 , f_1), four pairs of dorsosublateral setae (c_2 , d_2 , e_2 , f_2), one pair of clonal (h_1), one pair of humeral (c_3), one pair of marginal (d_3), one pair of lateral (e_3), h_2 and h_3 ventral. Dorsal setae subequal in length (26–40), with v_1 the shortest (16).

Length of dorsal setae: v_1 26–30, v_2 39–40, sc_1 47, sc_2 32–33, c_1 44–46, c_2 30–33, c_3 25–28, d_1 30–33, d_2 31–34, d_3 42–46, e_1 – e_1 45–47, e_2 45–46, e_3 42–44, f_1 47–49, f_2 44–47, h_1 33–36.

Distances between dorsal setae: v_1 - v_1 16–19, v_2 - v_2 54–56, sc_1 - sc_1 164–166, sc_2 - sc_2 289–292, c_1 - c_1 131–138, c_2 - c_2 270–274, c_3 - c_3 453–454, d_1 - d_1 100, d_2 - d_2 173–180, d_3 - d_3 310–317, e_1 - e_1 82–85, e_2 - e_2 190–192, e_3 - e_3 234–239, f_1 - f_1 73–74, f_2 - f_2 120–124, h_1 - h_1 37–39.

Venter (Fig. 2). Venter with two broad band of transverse striae between setae $1a$ to $3a$ and $4a$ to ag . Intercoxal area between coxae III-IV striated longitudinally. Genital

area (Fig. 3) and anal plates covered with irregular and longitudinal striae, respectively.



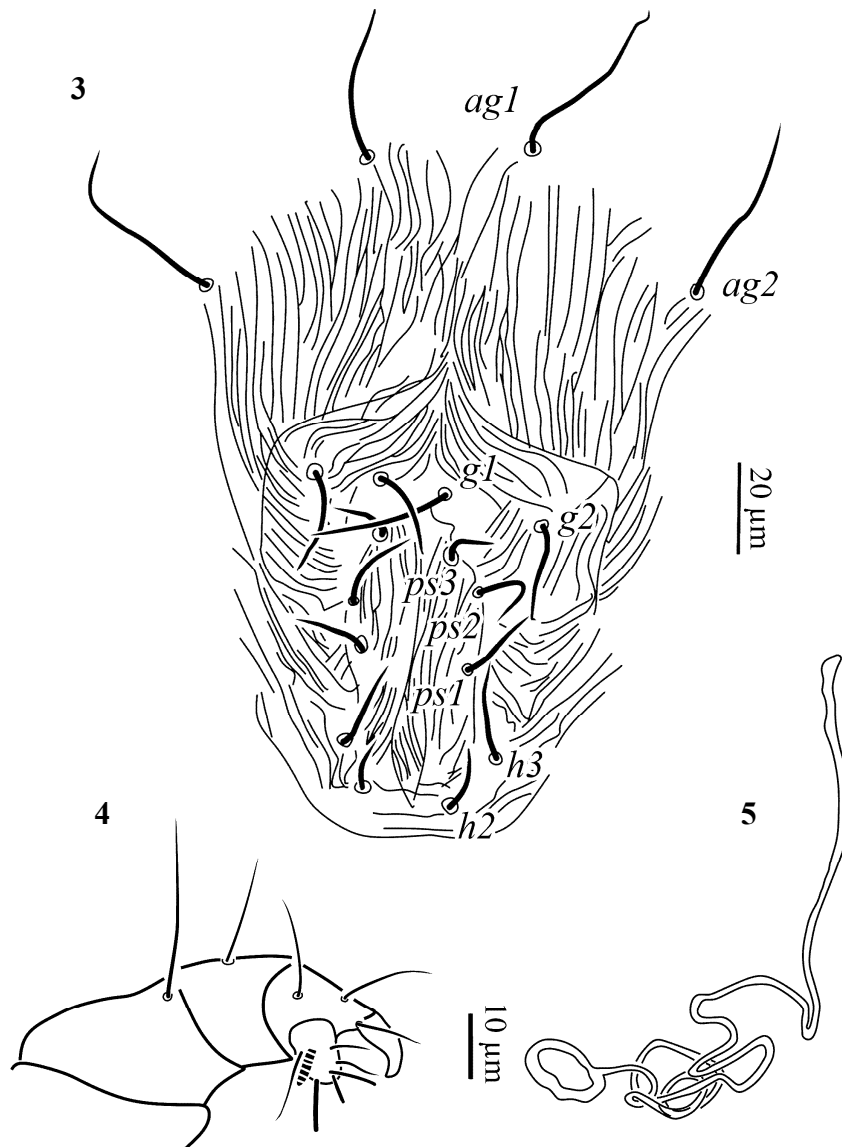
Figures 1–2. *Strunkobia pamirica* Livschitz & Mitrofanov, 1972 (female). 1. Dorsal view of idiosoma; 2. Ventral view of idiosoma.

Genital setae (*gl*-2) inserted in a more or less transverse row. Anal setae (*ps*1-3)

placed longitudinally on well defined anal plates. All ventral setae smooth.
 Length of ventral setae: *1a-1a* 53–58, *3a-3a* 80–83, *4a-4a* 79–81, *ag1-ag2* 36–38, *ag2-ag2* 101–107, *g1-g1* 13–16, *g2-g2* 40–44.

Distances between ventral setae: *1a* 40–42, *1b* 45–49, *1c* 37–41, *1d* 43–45, *2b* 42–46, *2c* 38–43, *3a* 51–57, *3b* 41–44, *4a* 48–51, *4b* 44–47, *ag1* 38–40, *ag2* 32–35, *g1* 25–26, *g2* 35–37, *ps1* 20–21, *ps2* 29–31, *ps3* 33–35, *h2* 17–18 and *h3* 20–23.

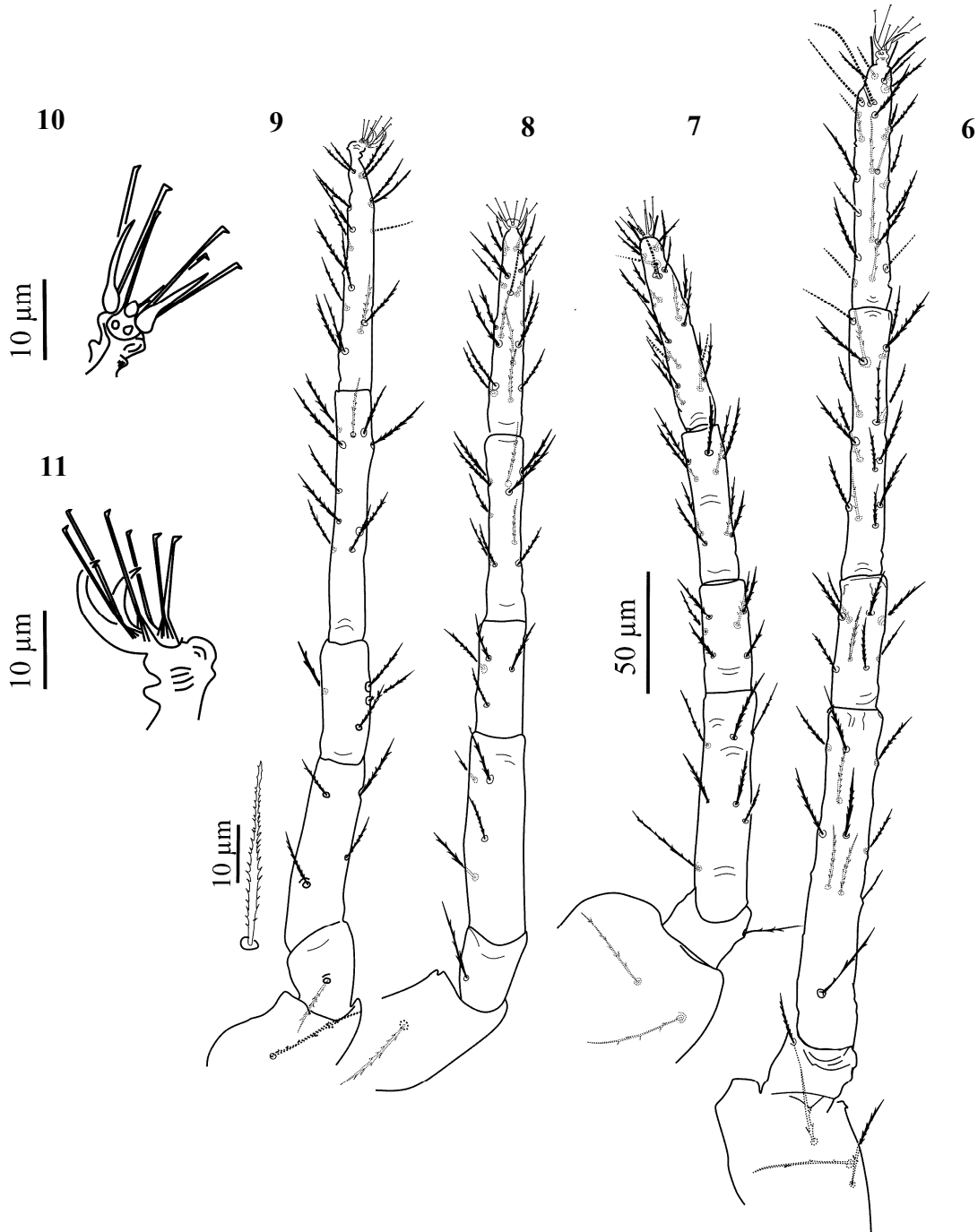
Gnathosoma (Fig. 2). With two pairs of smooth hypostomal setae. Palp four segmented, palp tarsus with one solenidion, three eupathidia and three simple setae. Second segment with three setae and one stout claw, third and fourth segments each with one dorsal seta (Fig. 4).



Figures 3–5. *Strunkobia pamirica* Livschitz & Mitrofanov, 1972 (female). 3. Genital and anal area; 4. Palp; 5. Spermatheca.

Legs (Fig. 6–11). Length of legs I–IV 503, 356, 371 and 450, respectively. Setal formula of leg segments (with solenidia in parentheses): coxae 3-2-1-1, trochanters 1-1-1-1, femora 10–11-7-4-4, genua 8-6-4-4, tibiae 13–15(1)-9-9–10-10, tarsi 19(4)+2 dupl.-16(3)+1 dupl.-18(1)-16(1).

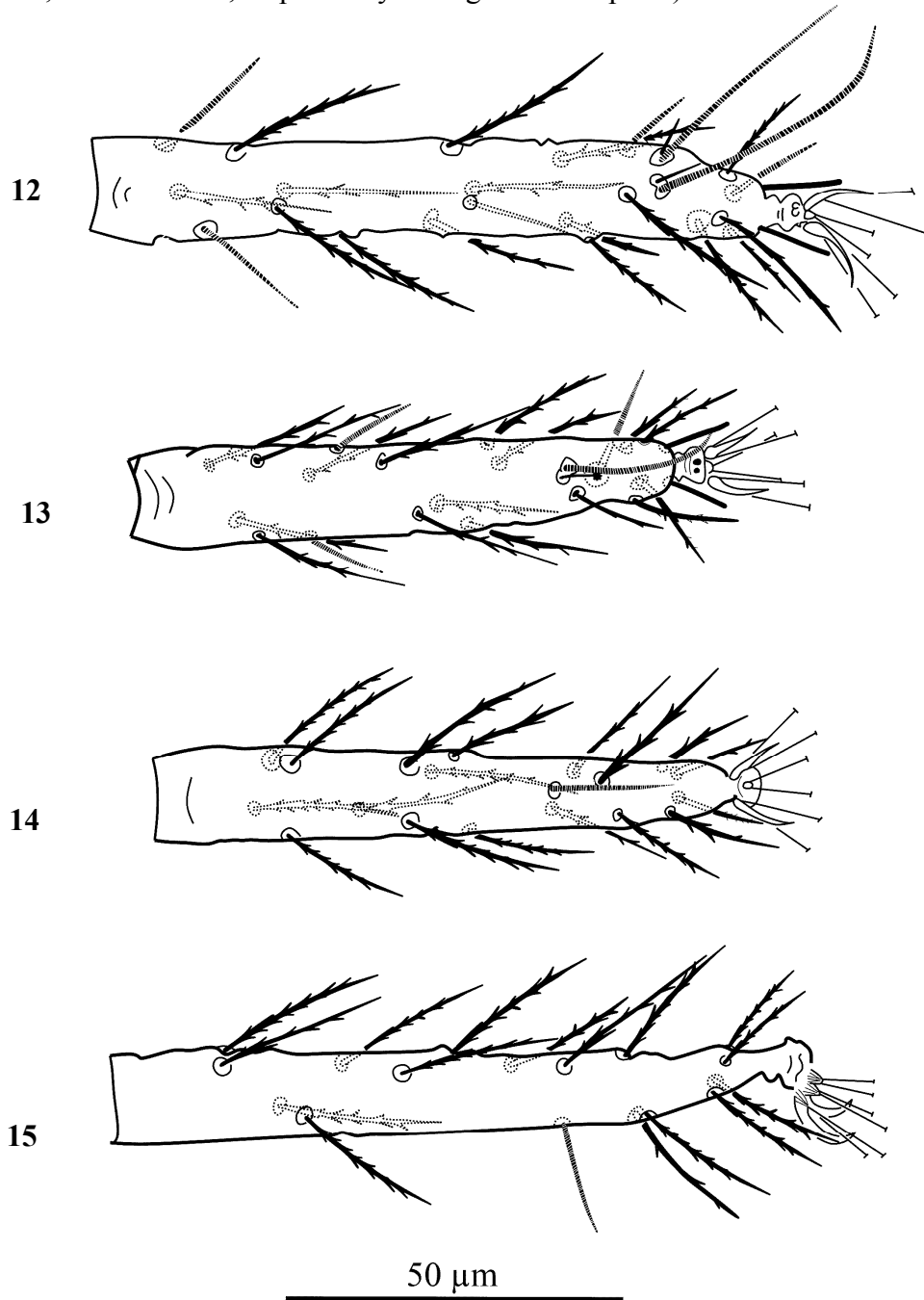
Male and immature stages: Unknown.



Figures 6–11. *Strunkobia pamirica* Livschitz & Mitrofanov, 1972 (female). 6. Leg I; 7. Leg II; 8. Leg III; 9. Leg IV; 10. Pretarsus I; 11. Pretarsus IV.

Discussion

The leg chaetotaxy of both the Iranian and Tajikistan specimens varies considerably on some segments especially on femur II (6 in original description) and tarsi I-IV (29–32; 22–24; 19–20 and 18, respectively in original description).



Figures 12–15. *Strunkobia pamirica* Livschitz & Mitrofanov, 1972 (female). 12. Tarsus I; 13. Tarsus II; 14. Tarsus III; 15. Tarsus IV.

Additionally tarsi I and II of Iranian species have one more solenidion. Despite these variations, there is no distinct structural differences between the original description and Iranian samples, therefore we decided to consider the Iranian specimens as similar to *Strunkobia pamirica* till the type specimens can be examined.

Material examined

Two females, Lalezar (29°32' N 56°50' E) (Baft, Kerman province), 18.07.2011, S.M. Mahdavi, ex leaves *Euphorbia* sp. (Euphorbiaceae). New host records collected from: Lalezar (29°32' N 56°50' E) (Baft, Kerman province), 18.07.2011, S.M. Mahdavi, ex leaves *Artemisia aucheri* (Asteraceae).

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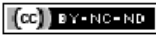
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Strunkobia pamirica Livschitz & Mitrofanov از ریخت‌شناسی جدیدی از
(Acari: Tetranychidae) همراه با ثبت میزبان جدید

سید مصیب مهدوی، مهدیه اسدی و صادق فرزاد

چکیده

اطلاعات ریخت‌شناسی جدیدی از گونه *Strunkobia pamirica* Livschitz & Mitrofanov جمع‌آوری شده از روی گیاه (*Euphorbia* sp. (Euphorbiaceae) و یک میزبان گیاهی جدید، *Artemisia aucheri* (Asteraceae) ارائه می‌شود. این گونه برای فون کنه‌های تارتن ایران جدید است.

واژگان کلیدی: *Strunkobia*، گزارش میزبان، گزارش جدید، کرمان.

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