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Article

A new species of the genus *Aegyptobia* (Acari: Tenuipalpidae) from Lorestan province, Iran

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ABSTRACT

Aegyptobia gotohi sp. nov. is described and illustrated based on female specimens collected from barberry bushes, *Berberis* sp. (Berberidaceae) in Nurabad, Lorestan province, Iran.

KEY WORDS: Berberidaceae; Iranian species; Nearctic; Nurabad; Western Palearctic.

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INTRODUCTION

The genus *Aegyptobia* is the third largest genus of the family Tenuipalpidae and has a worldwide distribution (Mesa *et al.* 2009; Khanjani *et al.* 2012). Currently, this genus contains 104 species, of which 31 species are from the Nearctic and 37 species from Western Palearctic regions (Mesa *et al.* 2009; Khanjani *et al.* 2012; Kamran *et al.* 2016). To date, 16 species of the genus *Aegyptobia* have been recorded from Iran, of which four species belong to *A. macswaini* group, namely: *A. bromi* Khanjani, Khanjani & Seeman, 2012, *A. glyptus* Pritchard & Baker, 1958, *A. nomus* (Baker & Pritchard, 1953) and *A. persica* Khosrowshahi & Arbabi, 1997 and 12 species are placed in *A. tragardhi* group, which include: *A. beglarovi* Livshitz & Mitrofanov, 1967, *A. hamus* Chaudhri, 1972, *A. hormozgani* Farzan, Asadi & Ueckermann, 2012, *A. iranensis* Khanjani, Gotoh & Barimani, 2008, *A. jiroftiensis* Farzan, Asadi & Ueckermann, 2012, *A. kermaniensis* Farzan & Asadi, 2015, *A. khanjanii* Farzan & Asadi, 2013, *A. nazarii* Khanjani, Khanjani & Seeman, 2012, *A. pavlovskii* (Reck, 1951), *A. pirii* Khanjani, Zahiri & Khanjani, 2013, *A. tragardhi* Sayed, 1950, and *A. wainsteini* (Bagdasarian, 1962). The species, *A. beglarovi* Livshitz & Mitrofanov and *A. kermaniensis* Farzan & Asadi have been reported on Berberidaceae (*Berberis* sp.) (Farzan 2012; Farzan & Asadi 2015). In this paper, *A. gotohi* sp. nov. is described as a third species of the genus on *Berberis* sp. from Iran.

MATERIALS AND METHODS

Leaves of barberry infested by false spider mites were collected from Lorestan, Iran, and taken to the

laboratory. Mites were removed from plant leaves with a No. 0 paint brush under a stereomicroscope (Wild M8) and mounted directly in Hoyer's medium. The specimens were measured and drawn by a differential interference contrast microscopy and 1000× magnification on an Olympus BX51 microscope. Body dimensions were measured as the distance between setae v_2-h_1 (length) and sc_2-sc_2 (width) (Saito *et al.* 1999); setae were measured from their insertions to their tips; distances between setae are the distances between their insertions. All measurements are given in micrometers (μm). Legs were measured from trochanter to pretarsus.

The terminology and abbreviations used for the descriptions of the new species follow those of Lindquist (1985) and Mesa *et al.* (2009). Leg chaetotaxy is adapted from Lindquist (1985) and Seeman and Beard (2011).

Tarsal setae counts are presented as the total number of phaneres followed by the number of solenidia in parentheses.

Specimen depositories are cited using the following abbreviations:

CALBS: Collection of the Acarology Laboratory, University of Bu-Ali Sina, Hamedan, Iran.

QMA: Queensland Museum, South Brisbane, Australia.

SYSTEMATICS

Family Tenuipalpidae Berlese, 1913

Genus: *Aegyptobia* Sayed, 1950

Type species: *Aegyptobia tragardhi* Sayed, 1950

Aegyptobia gotohi sp. nov. (Figs. 1–7)

Diagnosis

Anterior marginal projection of prodorsum deeply notched. Prodorsum laterally with coarse broken, longitudinal to oblique striae, propodosomal setae narrowly lanceolate; opisthosoma rugose-areolate, setae c_{1-2} narrowly lanceolate, opisthosomal setae d_{1-3} , e_{1-3} , f_{2-3} , h_{1-2} broadly lanceolate; area between $3a-4a$ with fine, oblique to transverse striae, ventral shield with longitudinal striae and genital shield smooth. Palp genu with 2 setae. Genua I-II with 3 setae, femora I-III and genua I-II with one narrowly lanceolate seta. Tarsal claws uncinata, with tenent hairs.

Description

Female (n = 10) – Color in life red. Idiosoma oval. Dimensions of holotype (measurements of paratype in parentheses): body size: v_2-h_1 230 (228–242); sc_2-sc_2 111 (109–113).

Dorsum (Fig. 1) – Anterior marginal projection of prodorsum deeply notched [11 (10–12)]. Posterior of prodorsum medially with broken, longitudinal striae, laterally with coarse broken, longitudinal to oblique striae, two pairs of eyes present; area surrounding sejugal suture with broken, transverse striae; opisthosoma rugose-areolate; propodosomal setae and setae c_{1-3} narrowly lanceolate, opisthosomal setae d_{1-3} , e_{1-3} , f_{2-3} , h_{1-2} broadly lanceolate; between setae c_2-c_3 and d_2-e_2 , with two pairs of pore-like structures. Lengths of dorsal setae as follows: v_2 26 (22–26), sc_1 25 (22–26), sc_2 21 (16–22), c_1 22 (17–23), c_2 21 (18–24), c_3 21 (17–25), d_1 15 (13–15), d_2 15 (14–17), d_3 18 (14–17), e_1 13 (12–14), e_2 16 (15–16), e_3 17 (16–20), f_2 17 (14–16), f_3 18 (14–18), h_1 13 (13–16), h_2 14 (14–16). Distances between dorsal setae: v_2-v_2 43 (40–42), sc_1-sc_1 94 (90–94), sc_2-sc_2 111 (109–113), c_1-c_1 42 (39–42), c_2-c_2 97 (93–97), c_3-c_3 153 (148–160), d_1-d_1 35 (34–37), d_2-d_2 95 (94–99), d_3-d_3 134 (132–140), e_1-e_1 26 (26–28), e_2-e_2 82 (77–84), e_3-e_3 128 (127–131), f_2-f_2 69 (62–73), f_3-f_3 111 (113–125), h_1-h_1 31 (29–33), h_2-h_2 80 (81–85).

Venter (Figs. 2–3) – Ventral idiosoma with coarse transverse striae between setae *1a-3a* and posterior of setae *4a*, intercoxal area between legs III-IV with fine, oblique to transverse striae, among the specimens, 13 laterally with oblique striae and medially with longitudinal striae, almost forming two lobes (Fig. 2). Lengths of ventral setae *1a* 65 (68–72), *1b* 27 (26–30), *1c* 15 (14–16), *2b* 22 (19–21), *2c* 23 (20–23), *3a* 78 (68–78), *3b* 15 (14–18), *4a* 72 (70–75), *4b* 17 (14–18), *ag* 15 (14–16), *g1* 17 (14–17), *g2* 16 (15–18), *ps1* 15 (12–16), *ps2* 15 (11–15), *ps3* 12 (10–14). Setae *1a* almost as long as setae *3a* and *4a*. Ventral shield with longitudinal to oblique striae (two specimens forming V or U shape) and genital shield smooth. Setae *2c*, genital and anal setae serrated. Spermatheca depicted in figure 3.

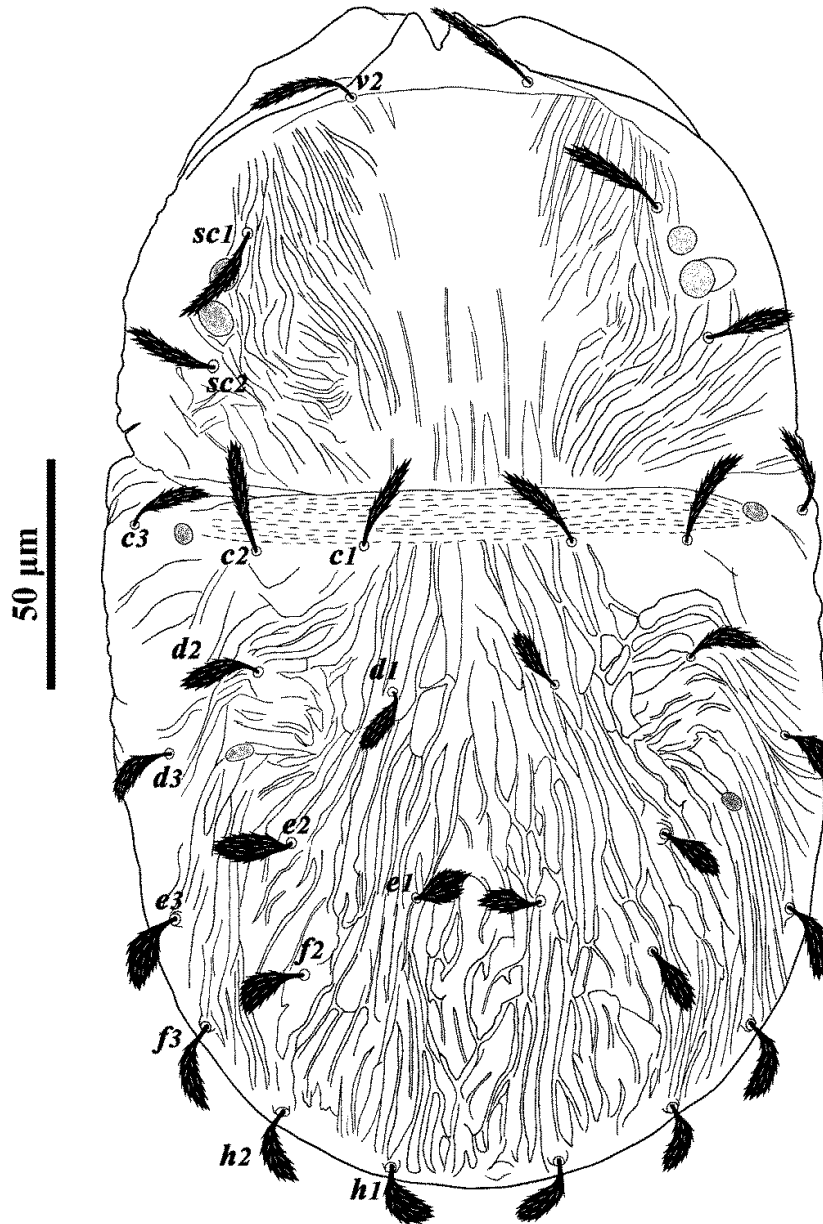
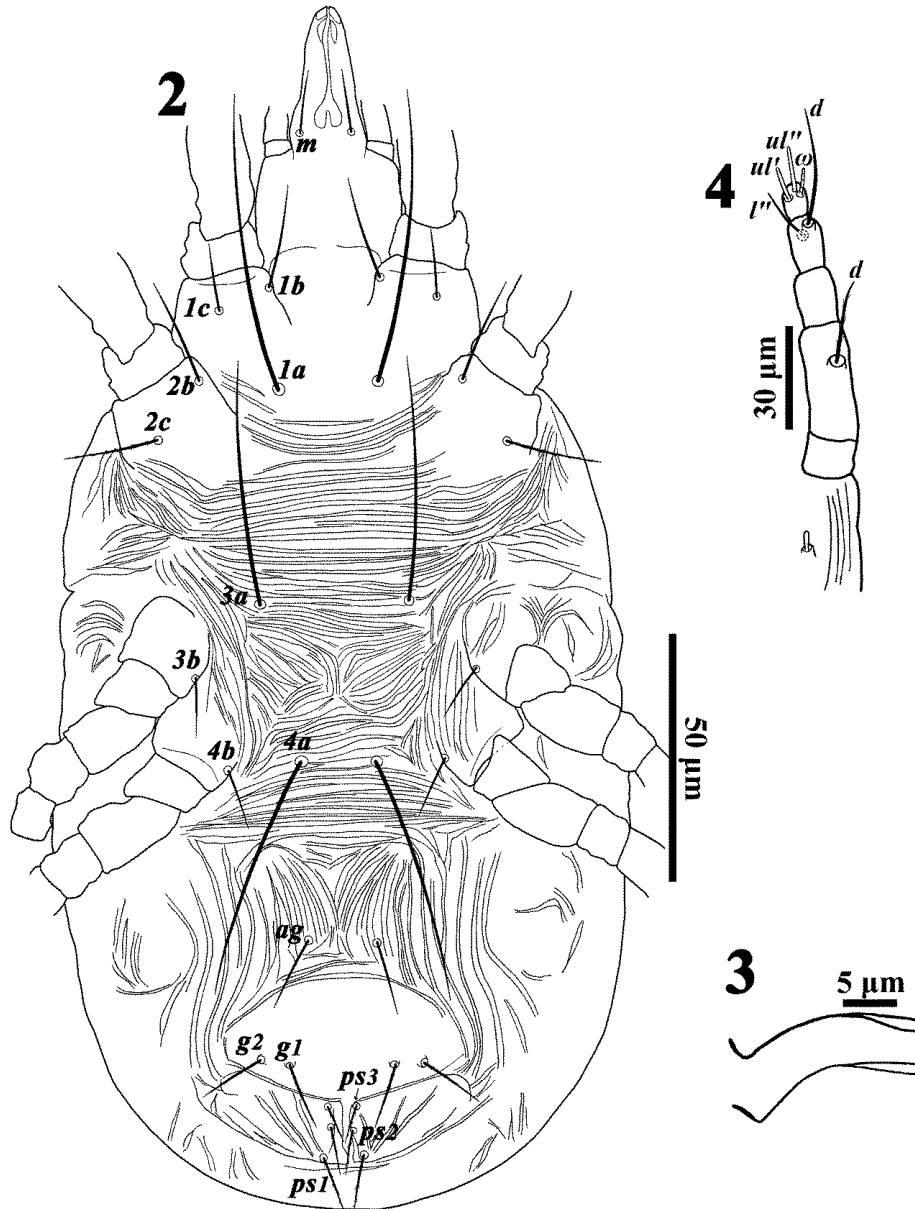


Figure 1. *Aegyptobia gotohi* sp. nov. (female) – Dorsal view of idiosoma.

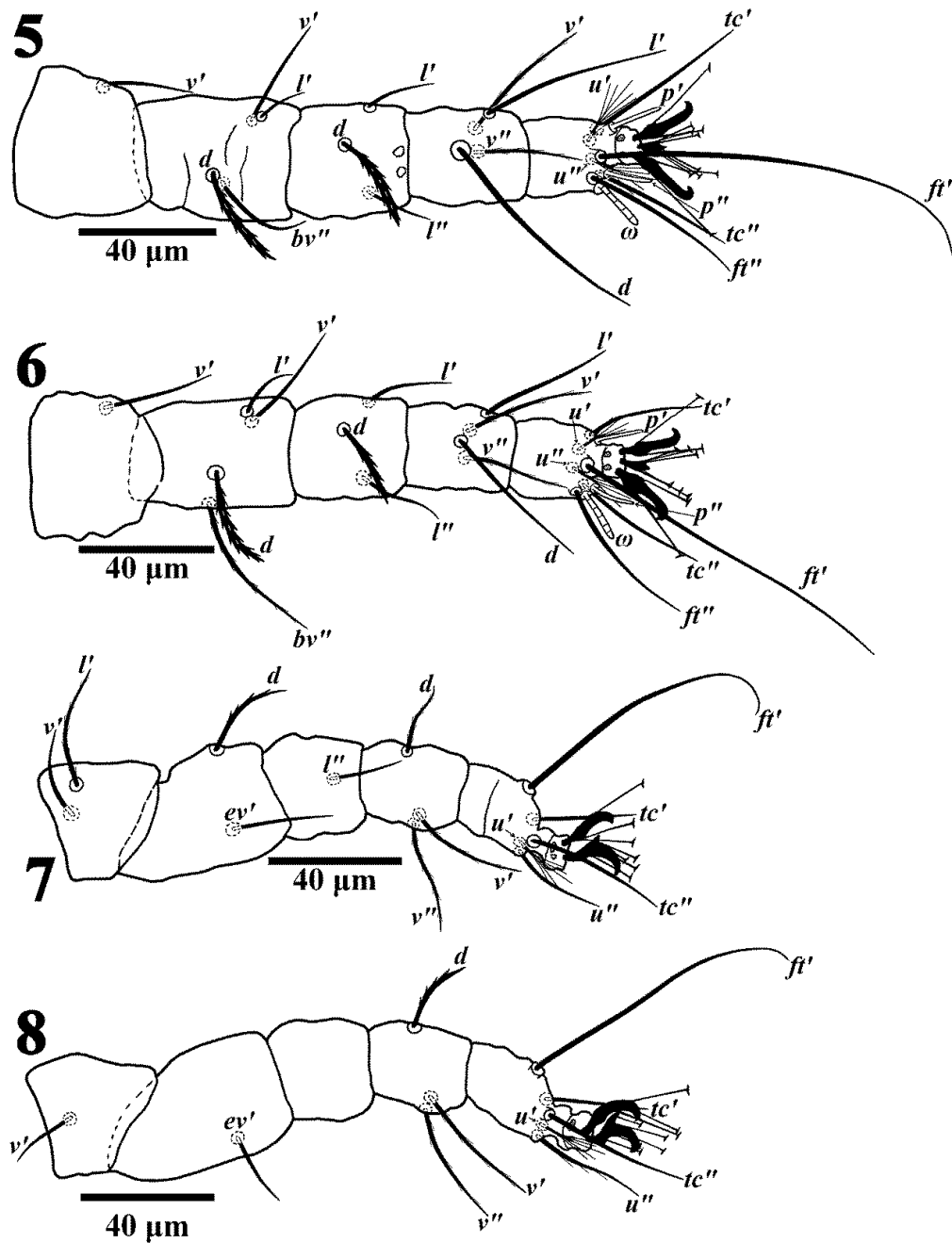
Gnathosoma (Fig. 4) – Rostrum indicated in figure 2. Palp five segmented, palp tarsus with one solenidion ω 5 (4–5) and two eupathidia ul' 6 (4–6), ul'' 6 (6–7), mostly directed anteriorly, palp tibia with two setae d 16 (16–18), l' 14 (12–15); palp genu without seta and palp femur with one barbed seta, d 9 (8–11) (Fig. 4). Ventral infracapitulum with one pair of seta m 13 (12–13) (Fig. 2).



Figures 2-4. *Aegyptobia gotohi* sp. nov. (female) – 2. Ventral view of body; 3. Spermatheca; 4. Palp.

Legs (Figs. 5–8) – Length of leg I 88 (89-95), leg II 82 (79–87), leg III 67 (65–76), leg IV 71 (73–80). Setal formulae of leg segments as follows: coxae 2-2-1-1; trochanters 1-1-2-1; femora 4-4-2-1; genera 3-3-1-0; tibiae 4-4-3-3; tarsi 9(ω)-9(ω)-5-5.

Tarsi I and II each with one thin solenidion ω [Ta I 8 (6–7), Ta II 6 (6–7)]. Leg chaetotaxy as presented in the figures 5–8. Dorsal setae on femora I-III and genera I-II narrowly lanceolate. Tarsal claws unciniate.



Figures 5-8. *Aegyptobia gotohi* sp. nov. (female) – 5. Leg I; 6. Leg II; 7. Leg III; 8. Leg IV.

Male and immature stages – Unknown.

Type material

Holotype female and 23 paratype females collected from barberry bushes, *Berberis* sp., (Berberidaceae), Iran: Lorestan province, Nurabad, Barkhordar village, 34° 02' 43" N, 48° 10' 54" E, 1810 m a.s.l., 23 September 2017, I. Hasanvand. The holotype female and 21 paratype females are deposited as slide-mounted specimens in CALBS; and two paratype females will be deposited in QM.

Etymology

The species is named in honor of Professor Tetsuo Gotoh (Department of Economics, Faculty of Economics, Ryutsu Keizai University) who kindly provided us some of the literatures of this study.

Remarks

Aegyptobia gotohi resembles *A. beglarovi* Livschitz & Mitrofanov in having the same legs setal formulae, uncinata tarsal claws and long setae *3a* and *4a* and also same host plant genus *Berberis*. However, the new species differs from the latter in: prodorsal ornamentation striated and without cells in *A. gotohi* versus prodorsal ornamentation with striae and numerous cells in *A. beglarovi*; intercoxal area between legs III-IV and ventral plate with striation in the new species instead of smooth in *A. beglarovi*; propodosomal setae and setae *c*₁₋₂ narrowly lanceolate in *A. gotohi* instead of oblanceolate in *A. beglarovi*. Our new species also resembles *A. kermaniensis* Farzan & Asadi in that propodosomal setae narrowly lanceolate and area between setae *3a-4a* with striation. But it can be separated by: deeply notched propodosomal projection, long setae *3a* and *4a* (68–78) and ventral plate with longitudinal striae in new species instead of weakly notched projection, short setae *3a* and *4a* (21–33) and ventral plate with transverse striae in *A. kermaniensis*. The new species is also closely similar to *A. khanjanii* Farzan & Asadi, 2015 in leg chaetotaxy, deeply notched propodosomal projection, long setae *3a* and *4a* and propodosomal setae narrowly lanceolate. However, it can be distinguished from the latter throughout ventral plate with striation (smooth in *A. khanjanii*), prodorsum laterally with coarse broken, longitudinal to oblique striae (with several cells in *A. khanjanii*) and opisthosomal setae *c*₁₋₂ narrowly lanceolate in *A. gotohi* (oblanceolate in *A. khanjanii*).

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گونه جدیدی از جنس *Aegyptobia* (Acari: Tenuipalpidae) از استان لرستان، ایرانایمان حسنونند^۱، شهریار جعفری^{۱*}، معصومه خانجانی^۲ و محمد خانجانی^۲۱. گروه گیاهپزشکی، دانشکده کشاورزی، دانشگاه لرستان، خرم‌آباد، ایران؛ رایانامه‌ها: imanhassanvand@gmail.com،Shahriar.jafari@gmail.com و Jafari.s@lu.ac.ir۲. گروه گیاهپزشکی، دانشکده کشاورزی، دانشگاه بوعلی سینا، همدان، ایران؛ رایانامه‌ها: mh.khanjani86@gmail.com،mkhanjani@gmail.com

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چکیده

گونه جدید *Aegyptobia gotohi* sp. nov. بر اساس نمونه‌های ماده جمع‌آوری شده از روی بوته‌های زرشک، *Berberis* sp. (Berberidaceae)، در نورآباد، استان لرستان، ایران توصیف و ترسیم می‌شود.

واژگان کلیدی: Berberidaceae؛ گونه ایرانی؛ نئارتکتیک؛ نورآباد؛ پالئارتکتیک غربی.

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