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Article

A new species of *Aegyptobia* (Acari: Tenuipalpidae) from Hamedan province, Iran

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Abstract

Aegyptobia pirii **sp. nov**. is described and illustrated based on female specimens collected from *Bromus tectorum* L. (Poaceae) in Tuyserkan, Hamedan province in Iran. A key to all known Iranian species of the genus is provided.

Key words: Trombidiformes, Prostigmata, key, mite, Tetranychoidea, Toyserkan, Iran

Introduction

The Tenuipalpidae (Acari: Prostigmata: Tetranychoidea), commonly known as flat mites or false spider mites, is worldwide in distribution. All false spider mites are phytophagous and some of their damages on the plant hosts are economically important. They feed directly from the epidermal cell and sub epidermal tissue like mesodermal cells of the stems, leaves and fruits (Mesa *et al.* 2009; Beard *et al*. 2012). This family contains different genera and the third largest genus is *Aegyptobia* Sayed (1950), of which 10 species recorded from Iran namely: *A. tragardhi* Sayed, 1950, *A. pavlovskii* (Reck, 1951) (Farzan *et al.*, 2012), *A. beglarovi* Livshitz & Mitrofanov, 1967 and *A. iraniensis* Khanjani *et al*., 2008, *A. jiroftiensis* Farzan *et al.*, 2012, *A. hormozgani* Farzan *et al.*, 2012 and *A. nazarii* Khanjani *et al.*, 2012 belonging to the *A. tragardhi* group and *A. glyptus* Pritchard & Baker, 1958, *A. persicae* Khosrowshahi & Arbabi, 1997, *A. bromi* Khanjani *et al.*, 2012 belonging to *A. macswaini* group (Meyer, 1979). In this paper, the 11th species is described and illustrated.

Material and methods

Grass clumps that were infested by false spider mites were collected from Hamedan, Iran and taken to the laboratory for processing. Mites were removed from plant leaves with a No. 0 paint brush under a stereomicroscope (Wild M_8) and mounted directly in Hoyer's medium. Mites were examined and drawn using an Olympus BX_{51} microscope equipped with differential interference contrast and a camera lucida.

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), Xu and Fan (2010), and Seeman and Beard (2011), and is presented on the figures. 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.

Results

Family Tenuipalpidae Berlese, 1913
Genus: *Aegyptobia* Sayed (1950)
Type species: *Aegyptobia tragardhi* Sayed, 1950

Diagnosis (based on Meyer (1979), Meyer & Van Dis 1993 and Seeman & Beard 2011):

Body oval to elliptical; rostral shield absent; anterior margin of prodorsal shield emarginate or with two lobes, rarely long; dorsal setae narrowly spatulate, lanceolate, setiform, nude or sparsely serrate; length of dorsal setae usually subequal, but dorsocentral setae usually shorter than sublateral and lateral setae; idiosoma usually regularly or irregularly reticulated, rarely striate; hysterosoma with 12–13 pairs of setae (f_2 rarely absent), setae e_2 and f_2 submarginal. Intercoxal area with setae *3a* and *4a*; genital shield with two pairs of setae (g_1-g_2), arranged in a transverse row and three (rarely two) pairs of anal setae (ps_{1-3}), usually arranged along medial edge of anal shields. Ventral plate weakly to moderately well-formed. Tarsal claws pad-like or uncinate.

***Aegyptobia pirii* sp. nov. (Figs. 1–7)**

Diagnosis

Hysterosoma with 13 pairs of setae (f_2 present). Projection on anterior margin of prodorsum weakly notched. Prodorsum with coarse broken longitudinal striae medially, becoming oblique laterally; opisthosoma rugose-areolate, with cells more elongate posteriorly; dorsal setae spatulate, barbed; opisthosomal pores absent. Idiosoma ventrally with coarse transverse striae between setae *1a*-*3a*, coarse longitudinal striae between *3a*-*4a*, and coarse complete striae on the ventral side of opisthosoma posteriorly. Ventral shield with transverse striae and genital shield smooth. Palpal setal formula (from femur to tarsus): 1, 0, 2, 2 eupathidia+1ω. Palpal tarsal phaneres mostly directed anteriorly, solenidion about 2/3 length of eupathidia. Trochanter III with two setae; genu III with one seta; femur I-III, genu I-II with one spatulate seta. Tarsal claws uncinate, with tenent hairs.

Type material

Holotype female and one paratype female collected from *Bromus tectorum* L. (Poaceae), under gum bushes, *Astracantha gossypina* (Fisch.) (Fabaceae), Iran: Hamedan Province, Tuyserkan, 34º 39′ N, 48º 23′ E and altitude 2039m a.s.l, 24 September 2012, coll. S. Alvandy.

Type deposition: Holotype female – CALBS; one paratype female – QMA

Description

Female (n = 2). Color in life red. Idiosoma oval. Dimensions of holotype (measurements of paratype in parentheses): body size: v_2–h_1 264 (248); sc_2–sc_2 132 (123); length of leg I 106 (106); leg II 96 (95); leg III 93 (93); leg IV 95 (97).

Dorsum (Fig. 1): Anterior marginal projection of prodorsum weakly notched (Fig. 1). Prodorsum with coarse broken longitudinal striae medially, becoming oblique laterally; area surrounding sejugal suture with broken transverse striae; opisthosoma rugose-areolate, with cells more elongate posteriorly; dorsal setae spatulate, barbed; opisthosomal pores absent. Lengths of dorsal setae as follows: v_2 23 (19), sc_1 26 (24), sc_2 18 (17), c_1 22 (22), c_2 21 (21), c_3 17 (17), d_1 17 (16), d_2 17 (16), d_3 17 (16), e_1 14 (13), e_2 16 (15), e_3 15 (15), f_2 16 (15), f_3 16 (16), h_1 16 (14), h_2 14 (15). Distances between dorsal setae: v_2-v_2 42 (41), sc_1- sc_1 104 (98), sc_2-sc_2 132 (123), c_1-c_1 56 (54), c_2-c_2 116 (112), c_3-c_3 167 (165), d_1-d_1 39 (36), d_2-d_2 106 (108), d_3-d_3 153 (152), e_1-e_1 30 (27), e_2-e_2 100 (98), e_3-e_3 139 (135), f_2-f_2 83 (86), f_3-f_3 118 (119), h_1-h_1 36 (38), h_2-h_2 77 (78).

Venter (Fig. 2). Ventral idiosoma with coarse transverse striae between setae *1a*-*3a*, coarse longitudinal striae between *3a*-*4a*, and coarse complete striae on the ventral opisthosoma. Lengths of setae *la* 82 (84), *1b* 40 (34), *1c* 18 (18), *2b* 27 (26), *2c* 24 (22), *3a* 20 (20), *3b* 14 (17), *4a* 19 (20), *4b* 17 (19), *ag* 16 (17), g_1 18 (16), g_2 13 (14), ps_1 9 (9), ps_2 11 (12), ps_3 10 (8). Setae *1a* long and about four times longer than *3a, 4a,* and aggenital setae. Ventral shield with transverse striae (Fig. 2) and genital shield smooth. Aggenital (*ag*) setae almost as long as genital seta (g_1); inner pair (g_1) in line with outer pair (g_2).

Gnathosoma (Figs. 2–3). Rostrum unspecialized and as indicated in Fig. 2; palp five segmented, palp tarsus with one solenidion plus two eupathidia, mostly directed anteriorly, length of solenidion about 2/3 eupathidia; palp tibia with two setae; palp genu without seta and palp femur with one dorsal barbed seta (Fig. 3). Ventral infracapitulum with one pair of setae *m* 22 (22) (Fig. 2).

Legs (Figs. 4–7). Setal formulae of leg segments as follows: coxae 2-2-1-1; trochanters 1-1-2-1; femora 4-4-2-1; genua 3-3-1-0; tibiae 4-4-3-3; tarsi 9(1)-9(1)-5-5. Tarsi I and II each with one thin solenidion ω [Ta I 8(8), Ta II 8(7)]. Leg chaetotaxy as presented in the figures 4–7. Dorsal setae on femur I-III and genu I-II spatulate. Tarsal claws uncinate**.**

Male and immature stages: Unknown.

Etymology

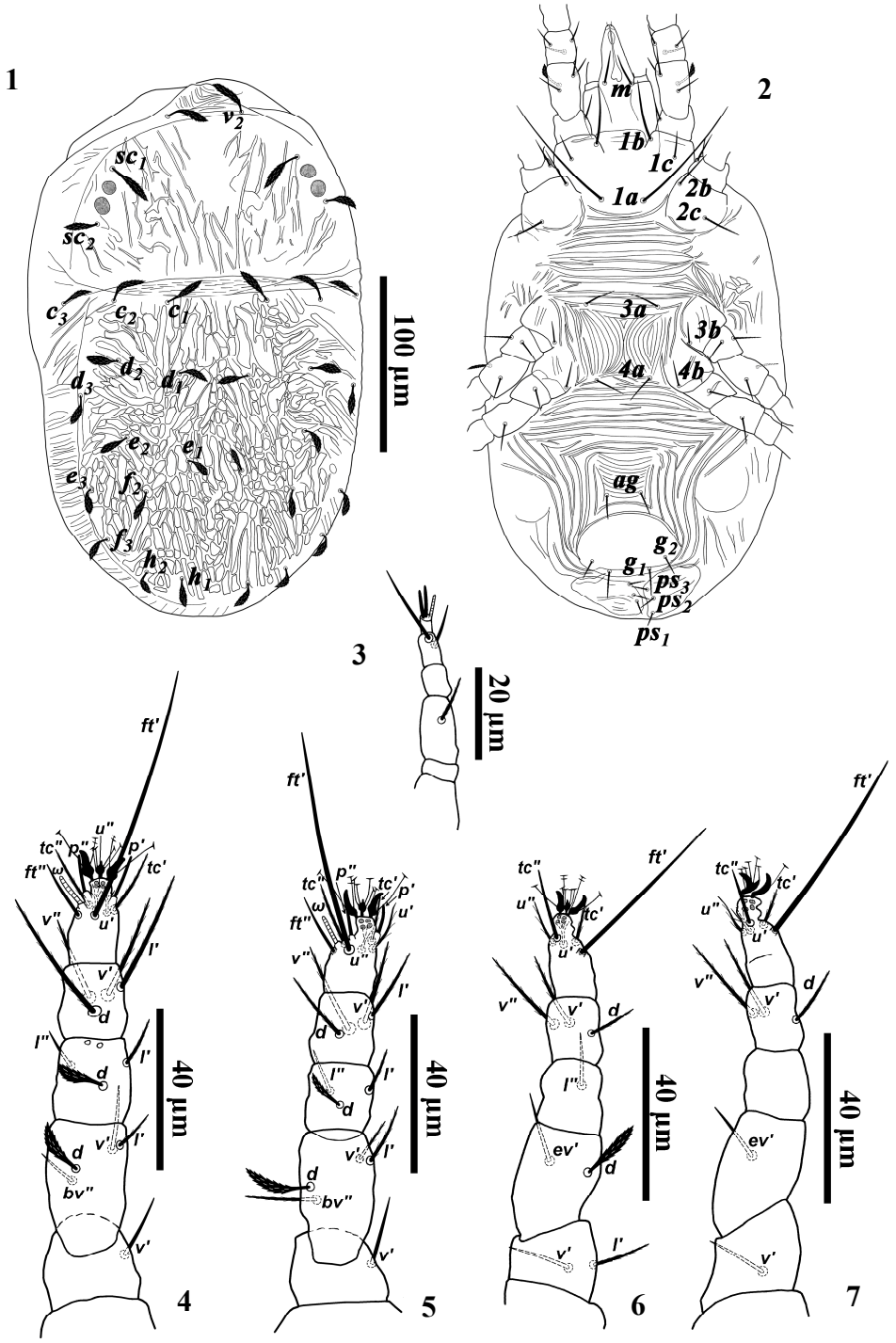
The species is named in honor of Professor Khosrow Piri, Head of the Department of Biotechnology, Faculty of Agriculture, Bu-Ali Sina University, Hamedan, Iran, who kindly supported senior author in some research projects.

Remarks

Aegyptobia pirii resembles *A. beglarovi* Livschitz & Mitrofanov, 1967 in having spatulate and barbed setae on dorsum, tarsal claws uncinate and the same legs setal formulae. However the new species differs from the latter in: ventral setae short, *3a* 20 (20) and *4a* 19 (20), in the new species instead of long (*3a* 64–67, *4a* 47–50) in *A. beglarovi*; anterior marginal projection of prodorsum weakly notched in *A. pirii* instead

of deeply notched in *A. beglarovi*; area between setae *3a-4a* with longitudinal striae vs. smooth in *A. beglarovi*; ventral plate with transverse striae in *A. pirii* whereas smooth in *A. beglarovi*.

Male and immature stages: Unknown.



Figures 1–7. *Aegyptobia pirii* **sp. nov.** (female): 1. Dorsal view of idiosoma; 2. Ventral view of idiosoma; 3. Palp; 4. Leg I (Left); 5. Leg II (Left); 6. Leg III (Left); 7. Leg IV (Left).

Key to species of *Aegyptobia* Sayed in Iran (Females)

1. Tarsal claws padlike……...*A. macswaini* group…….…..…….2
- Tarsal claws uncinate…..…….…….*A. tragardhi* group……...……4
2. All dorsal setae spatulate, femora I–III and genu I–II with one spatulate seta……..
……. *A. bromi* Khanjani *et al.*
- All dorsal setae setiform, femora I-III with setiform setae only …….……... 3
3. Anterior margin of prodorsum rounded, hysterosoma divided medially by transverse striae and with reticulations caudally……..…… *A. glyptus* Sayed
- Anterior margin of prodorsum with projections, hysterosoma without transverse striae medially……... *A. persciae* Khosrowshahi & Arbabi
4. Propodosomal setae broadly lanceolate to palmate ……...……...5
- Propodosomal setae setiform or narrowly lanceolate ……...……..8
5. Anterior marginal projection of prodorsum weakly notched; area between *3a-4a* with coarse longitudinal striae……...……...……. *A. pirii* **sp. nov.**
- Anterior marginal projection of prodorsum deeply notched, area between *3a-4a* smooth……...…….…6
6. Setae *3a* 12–21 and *4a* 9–27 …….……7
- Setae *3a* 64–67 and *4a* 47–50 ……..……*Aegyptobia beglarovi* Livschitz & Mitrofanov
7. Dorsal setae palmate; hystrosoma with polygonal reticulation.....
..... *A. jiroftiensis* Farzan *et al.*
- Dorsal setae spatulate; hystrosoma with longitudinal ridges……
……...……..…..….*A. hormozgani* Farzan *et al.*
8. Genua I-II with one seta……...……...…….…*A. tragardhi* Sayed
- Genua I-II with two or three setae…….....9
9. Genua I-II with two setae……...…….……*A. pavlovskii* (Rack)
- Genua I-II with three setae……..…….….10
10. Dorsal setae short, v_2 one third v_2-v_2 distance, setae *3a* (17) and *4a* (14), hysterosoma with longitudinal broken striae…….……*A. nazarii* Khanjani *et al.*
- Dorsal setae longer, v_2 about half of distance v_2-v_2, setae *3a* (65) and *4a* (64), hysterosoma reticulate……...……...…….….*A. iraniensis* Khanjani *et al.*

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گونهٔ جدیدی از جنس *Aegyptobia* (Acari: Tenuipalpidae) از استان همدان، ایران

چکیده

کنهٔ تارتن دروغین *Aegyptobia pirii* **sp. nov**. از روی علف پشمکی *Bromus tectorum* L. (Poaceae) در اطراف شهرستان توسیرکان از استان همدان (ایران) جمع‌آوری و از روی افراد ماده ترسیم و توصیف شد و کلیدی نیز برای گونه‌های شناخته شده از ایران ارائه شد.

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