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Article

Redescription of *Aegyptobia hamus* Chaudhri (Acari: Trombidiformes: Tenuipalpidae) based on specimens from Iran

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Abstract

Aegyptobia hamus is redescribed from new materials which were collected on *Fallopia convolvulus* (Polygonaceae) in Iran, representing a new country and host record for this species.

Key words: Flat mites; host record; new record; Prostigmata; Tetranychoidea.

Introduction

Aegyptobia Sayed, 1950 is a large genus of flat mites (Acari: Tenuipalpidae), and split into two groups: the *tragardhi*-group, with uncinate claws, and the *macswaini*-group, with pad-like claws (Meyer 1979). Three other genera are closely affiliated with the genus: the genera *Phytoptipalpus* and *Pentamerismus* seem affiliated with the *tragardhi*-group (e.g. Meyer and Van Dis 1993; Khanjani *et al.* 2012), while the close relationship between *Pseudoleptus* and the *macswaini*-group of *Aegyptobia* was noted by Khanjani *et al.* (2012).

Aegyptobia is found world-wide, but has its greatest diversity in the Nearctic and Western Palearctic regions (Mesa *et al.* 2009). The genus is also well-represented in the Middle-East and 12 species of *Aegyptobia* have been recorded in Iran (Khanjani *et al.* 2013; Farzan and Asadi 2013). In this work, we redescribe the species *Aegyptobia hamus* Chaudhri, 1972 based on specimens collected in Iran.

Material and methods

Leaves and twigs infested with mites were collected, placed into plastic bags and transferred into the laboratory. Samples were washed in a solution of commercial detergent (5%). This solution was filtered by overlapping two sieves with different mesh sizes, 16 Mesh and 400 Mesh, respectively. Mites retained in the smaller sieve were washed with 70% ethanol into a Petri dish. Flat mites were collected from the ethanol solution under a stereomicroscope, cleared with lactic acid (at 45 °C in an oven) and mounted in Hoyer's medium.

Morphological terminology follows Lindquist (1985). Leg setal counts are presented as the number of phaneres with the number of solenidia in brackets. Measurements were performed using a DINO-EYE® soft imaging system and are given in micrometers (μm) as a range. The drawings were made using a drawing tube attached

to an Olympus® Research Microscope. Figures were cleaned and edited in Microsoft Office Power Point 2003 and Photoshop CS5, respectively. Depositories are cited using the following abbreviations:

ACASI - Acarological Collection, Acarological Society of Iran (ASI), Department of Plant Protection, Faculty of Agriculture, University of Tehran, Karaj, Iran

PPRIC - National Collection of Acari, ARC-Plant Protection Research Institute, Pretoria, South Africa

SBUC - Collection of the Acarology Laboratory, Shahid Bahonar University of Kerman, Kerman, Iran

Results

Genus *Aegyptobia* Sayed, 1950

Diagnosis as of Seeman and Beard (2011).

Aegyptobia hamus Chaudhri, 1972 (Figs. 1–8)

Diagnosis

Adult female - Hysterosoma with 13 pairs of dorsal setae (*f2* present); anterior margin of prodorsal shield produced into rounded median projection; dorsal propodosoma with sparse longitudinal striations, dorsal hysterosoma reticulate submedially, smooth laterally and medially; dorsal setae broadly lanceolate to palmate, barbed, with radiating ridges; dorsal setae on femora I–III, genua I–II palmate; dorsal seta on tibiae I–II setiform, on tibiae III–IV narrowly lanceolate to spatulate. Tarsal claws uncinate. Spermatheca long, convoluted, with two membranous vesicles, one distal and one sub-basal. Palp (from trochanter to tarsus): 0–1–0–1–3. Trochanters 1–1–2–1 (*v′* present); femora 4–4–2–1; genua 3–3–1–0; tarsi 9(1)–9(1)–5–5 (*tc″* present).

Description

Female - Body ovular; length (*v2–h1*) 188, width (*d3–d3*) 118.

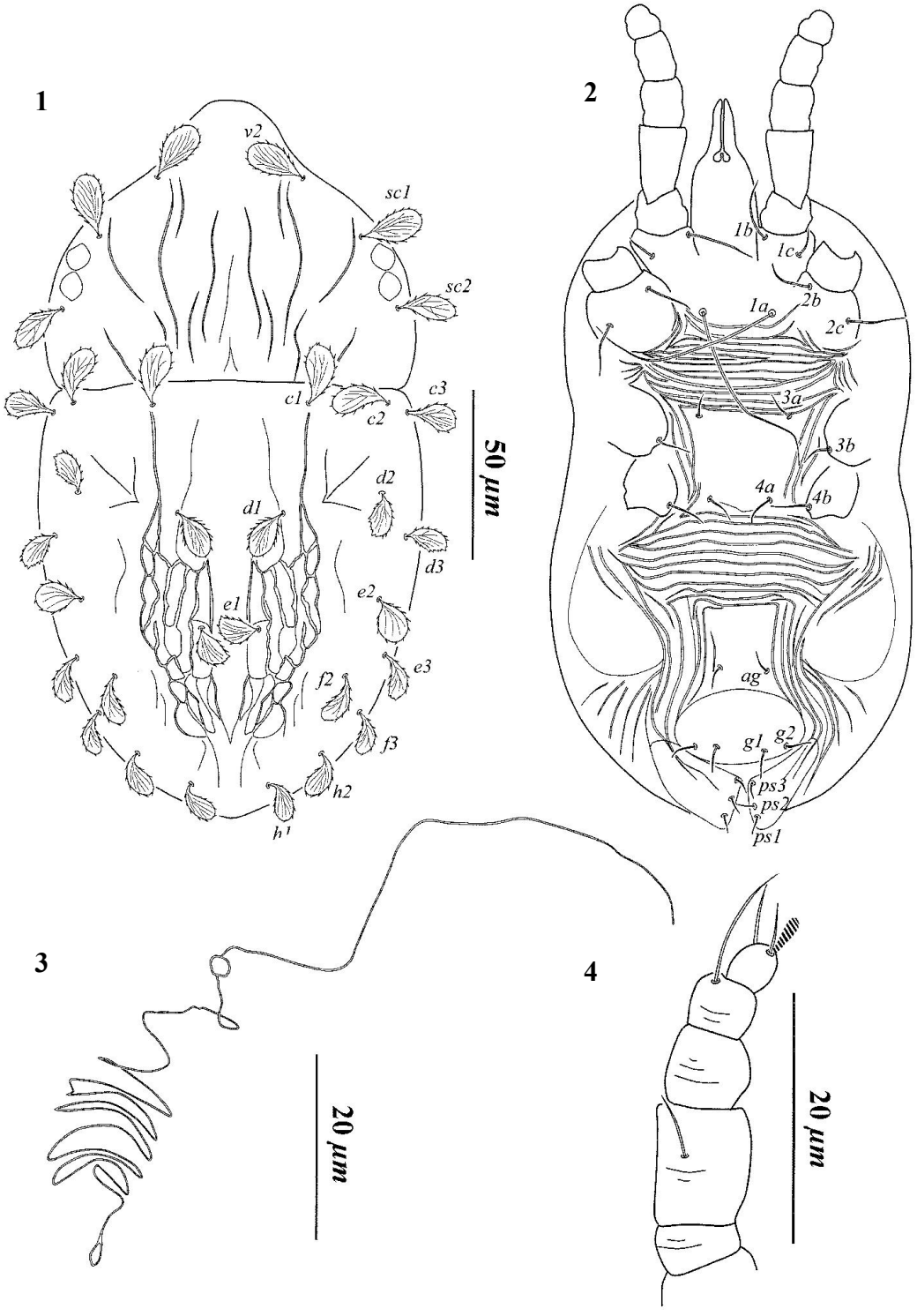
Dorsum (Fig. 1) - Propodosoma with sparse longitudinal striations; anterior margin of prodorsum with rounded median projection. Hysterosoma reticulate submedially posterior and lateral to setae *d1–e1*, smooth laterally, anteriorly and narrow medial region between *d1–d1* and *e1–e1*. All dorsal setae broadly lanceolate to palmate, subequal in length (length 11–18, width 6–9), barbed, with radiating fine ridges.

Setal lengths: *v2* 17–18, *sc1* 14–15, *sc2* 15–16, *c1* 15–18, *c2* 15–16, *c3* 14–15, *d1* 15–17, *d2* 14–15, *d3* 11–13, *e1* 12–14, *e2* 13–14, *e3* 13–15, *f2* 14–16, *f3* 13–14, *h1* 12–13, *h2* 13–15.

Distance between setae: *v2–v2* 40–43, *sc1–sc1* 85–91, *sc2–sc2* 106–112, *c1–c1* 45–48, *c2–c2* 100–105, *c3–c3* 115–124, *d1–d1* 31–37, *d2–d2* 96–99, *d3–d3* 118–122, *e1–e1* 20—25, *e2–e2* 107–110, *e3–e3* 109–112, *f2–f2* 87–89, *f3–f3* 91–93, *h1–h1* 29–30, *h2–h2* 61–65.

Venter (Fig. 2) - Cuticle between *1a–1b* and *3a–4a* smooth; smooth region between *3a–4a* flanked by few longitudinal striae; cuticle between *1a–3a* and *4a* to midway between *4a* and *ag* with transverse striae. Pregenital area with smooth ventral plate delimited by striae. Coarse longitudinal striae lateral to pregenital and genital areas. Metapodal plates well developed smooth. Genital setae *g1–2* inserted in transverse row along posterior margin of well developed, smooth genital plate. Anal setae *ps1–3*

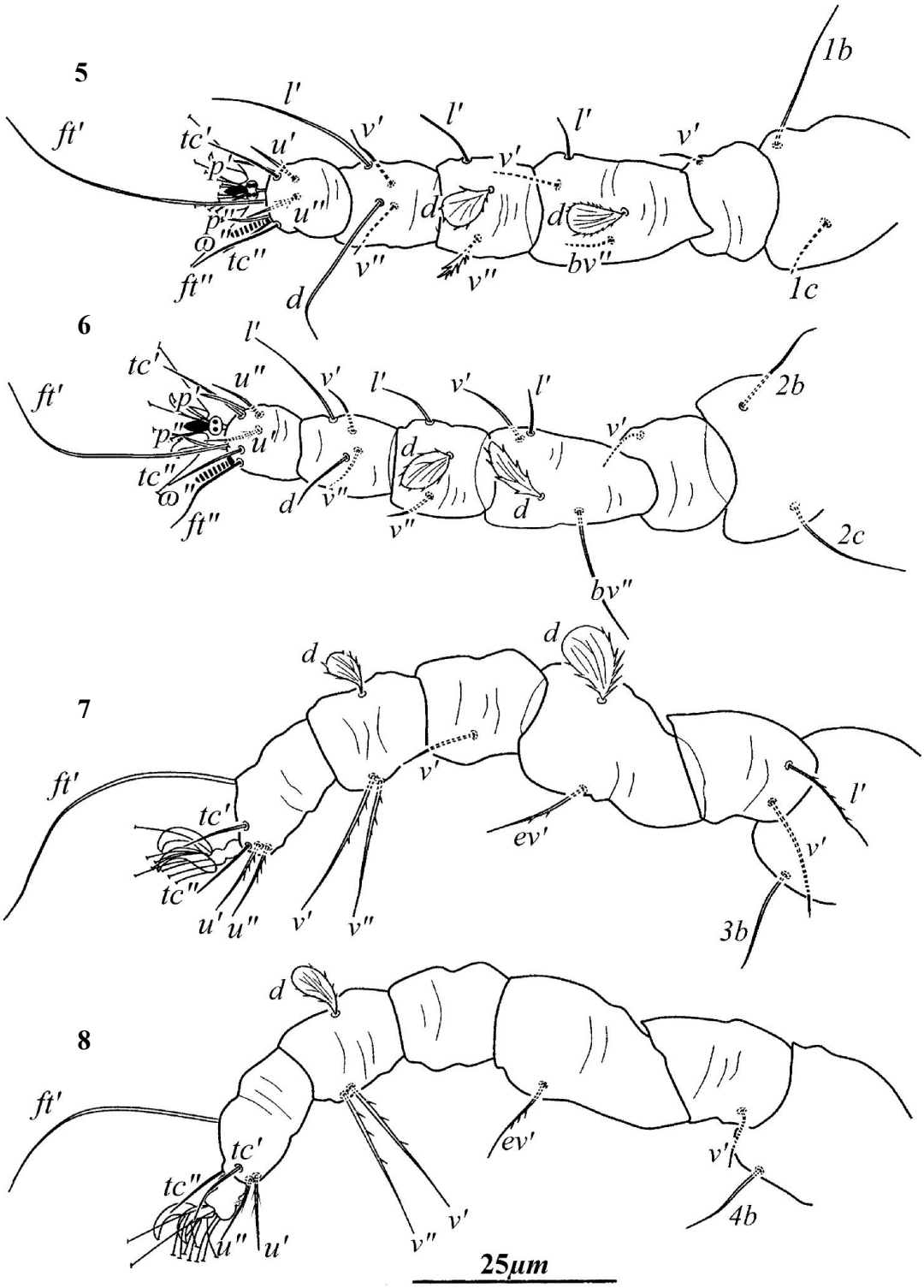
inserted longitudinally along medial margin of well defined anal plates. Coxal setae and setae *ag*, *g1–2*, *ps1–3* setiform and smooth. Intercoxal seta *1a* much longer than *3a* and *4a*.



Figures 1–4. *Aegyptobia hamus* (female) - 1. Dorsum; 2. Venter; 3. Spermatheca; 4. Palp.

Setal lengths: *1a* 66–68, *1b* 20–21, *1c* 10–12, *2b* 14–15, *2c* 20–21, *3a* 11–13, *3b* 11–12, *4a* 11–12, *4b* 8–10, *ag* 11–12, *g1* 6–9, *g2* 7–9, *ps1* 5–7, *ps2* 4–6, *ps3* 4–6.

Spermatheca (Fig. 3) - Spermathecal duct convoluted (49 long), with two membranous vesicles, one distal and one sub-basal.



Figures 5–8. *Aegyptobia hamus* (female) - left legs I–IV, respectively.

Gnathosoma (Fig. 2) - Extending to the middle of genua I; palp chaetotaxy from trochanter to tarsus: 0–1–0–1–3 (Fig. 4).

Legs (Figs. 5–8) - All legs with true uncinate claws; setal formulae as follows (solenidia included in counting): 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(ω)–9(ω)–5–5; leg chaetotaxy as follows: trochanters I, II, IV *v′*; tr III *l′*, *v′*; femora I–II *d*, *v′*, *bv″, l′*; fe III *d, ev′*; fe IV *ev′*; genua I–II *l′*, *d*, *l″*; ge III *l′*; ge IV nude; tibiae I–II *d*, *l′*, *v′–v″*; ti III–IV *d*, *v′–v″*; tarsi I–II *u′–u″, p′–p″*, *tc′–tc″*, *ft′–ft″*, *ω″*; ta III–IV *u′–u″, tc′–tc′*, *ft′*. Dorsal setae, *d*, on femora I–III, genua I–II and tibia III–IV broadly lanceolate to palmate, barbed; dorsal seta on tibiae I–II long, setiform.

Distribution - Pakistan (Karachi), Iran (Chabahar).

Male and immature stages - Unknown

Material examined

Four females, Chabahar (Sistan va Baluchestan Province, Iran), 10.xi.2010, S. Farzan, ex. *Fallopia convolvulus* (Polygonaceae) (SBUC). (2 SBUC; 1 ACASI; 1 PPRIC).

Remarks

Chaudhri (1972) originally described *A. hamus* from Karachi, Pakistan, on *Heliotropium* sp. (Boraginaceae) and *Cassia glauca* (Fabaceae). The holotype specimen could not be located and may be lost, but we received data and photographs of the paratype specimen deposited at the USNM [called an “exemplary” in Chaudhri (1972)]. Our new specimens match the exemplar, except that the dorsal setae on tibia III–IV are palmate instead of lanceolate. This difference is minor, and possibly is affected by climate or even slide mounting, and therefore we consider our specimens conspecific with *A. hamus*.

Seeman and Beard (2011) mistakenly recorded that seta *d* on the palp femur is absent in *A. hamus*, because on further examination of the exemplar and comparison with our new specimens, this seta is present. Akbar and Mushtaq (1993) noted the species had a notch, but this was reported as “very minute” in Chaudhri (1972) and illustrated without such a notch. The trochanteral setal number of 1–1–1–1 reported in the original description and Akbar and Mushtaq (1993) are incorrect (they are 1–1–2–1), which represents the usual condition in *Aegyptobia* [i.e. seta *l′* is present on trochanter III; see Seeman and Beard (2011)]. Hasan and Akbar (2002) keyed *A. hamus* with the character “femur III with 3 setae”, but this is incorrect, as reported by Chaudhri (1972), Seeman and Beard (2011) and this study. As an aside, *Aegyptobia sohanraensis* Hasan and Akbar, 2002 is a highly unusual member of the genus in need of a detailed re-description as it has several unusual characters for the genus: two pairs of *ps* setae (which would place the species in *Phytoptipalpus*), five pairs of tibia I–II setae (unlike any *Aegyptobia, Pentamerismus, Pseudoleptus* or *Phytoptipalpus*, but shared with genera allied to *Brevipalpus*) and atypical placement of opisthodorsal setae *e2* and *f2*.

We have been unable to find any species of *Aegyptobia* that share the unique dorsal ornamentation of *A. hamus* and few species combine a large rounded prodorsal margin and serrated broadly lanceolate to palmate dorsal setae. A similar species is *A. ambrosiae* Baker and Tuttle, 1987, which shares the large rounded prodorsal margine,

and broad dorsal setae, but can be distinguished by the dorsal pattern, which is striate-rugose in *A. ambrosiae*, and barbed setae, which is nude in *A. ambrosiae*. The leg chaetotaxy is complete for *Aegyptobia* although the palp does lack *l''PTi*, which is commonly lost in the genus (Seeman and Beard 2011).

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بازتوصیف گونهٔ *Aegyptobia hamus* Chaudhri (Acari: Trombidiformes: Tenuipalpidae) بر اساس نمونه‌هایی از ایران

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چکیده

گونهٔ *Aegyptobia hamus* بر اساس نمونه‌های جدید جمع‌آوری شده از روی *Fallopia convolvulus* (Polygonaceae) در ایران بازتوصیف می‌شود که کشوری جدید و میزبانی جدید برای این گونه محسوب می‌شود.

واژگان کلیدی: کنه‌های تخت، گزارش جدید، میزبان جدید، پیش‌استیگمایان، Tetranychoidea.

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