

## Article

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### A new species of the genus *Vittacus* Keifer (Acari: Eriophyidae) from Iran

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#### Abstract

A new species of the genus *Vittacus*, *V. veronicae* Guo, Sadeghi & Xue **sp. nov.** is described and illustrated based on females collected from *Veronica anagallis-aquatica* L. (Plantaginaceae) in Ali Abad-e Katool, Golestan Province of Iran. This is the first report of the genus *Vittacus* from Iran. A key to the species of *Vittacus* is provided.

**Key words:** Trombidiformes, Eriophyoidea, taxonomy, plant feeding mites, *Veronica anagallis-aquatica*.

#### Introduction

Recently, the fauna of Eriophyoidea of Iran has been focused by several investigations. For example, Xue *et al.* (2009) reviewed the Iranian related literature and gave a preliminary list of 89 species. Since then more eriophyoids have been recorded and described from Iran by several authors (e.g. Kamali & Jalaeian 2011, 2013; Xue *et al.* 2011, 2012, 2013a, 2013b; Lotfollahi *et al.* 2012, 2013, 2014a, 2014b) increasing the known Iranian eriophyoid fauna at more than 120 species. However, eriophyoid fauna of many plant species in many parts of this country has remained undiscovered. In a survey of the Eriophyidae associated with *Veronica anagallis-aquatica* L. (Plantaginaceae) in Ali Abad-e Katool, Golestan Province of Iran, a new species was collected and is described herein.

#### Material & methods

During a survey of the eriophyoid fauna in Ali Abad-e katool region, Golestan Province of Iran, which was conducted during seasonal growth of 2013, mite specimens were collected directly from *Veronica anagallis-aquatica* L. (Plantaginaceae) under a dissecting microscope. Mite specimens were cleared in lactic acid for 7–10 days at room temperature and then mounted in Hoyer's medium. No fibers were used in the mounting medium between slide and coverslip. Specimens were examined with the aid of a Zeiss A2 (Germany) research microscope with phase contrast and schematic drawings were made. The morphological terminology used herein follows Lindquist (1996) and the generic classification is made according to Amrine *et al.* (2003). Specimens were

measured following de Lillo *et al.* (2010). The holotype female measurement precedes the corresponding range for paratypes (given in parentheses). All measurements are in micrometres ( $\mu\text{m}$ ) and are lengths when not otherwise specified. The holotype and 5 paratypes are deposited in the Arthropod/Mite Collection of the Department of Entomology, Nanjing Agricultural University, Jiangsu Province, China. Also, two paratypes are held at the Department of Plant Protection, Faculty of Agriculture, Ferdowsi University of Mashhad, Mashhad, Iran.

### Taxonomy

Family Eriophyidae Nalepa

Subfamily Phyllocoptinae, tribe Anthocoptini

Genus *Vittacus* Keifer

#### *Vittacus veronicae* Guo, Sadeghi & Xue sp. nov. (Fig. 1)

##### Description

*Female* (n = 8) - Body fusiform, 168 (168–175), 62 (61–64) wide, 56 (56–57) thick; light yellow.

*Gnathosoma* - 20 (19–20), projecting obliquely down, pedipalp coxal setae *ep* 2 (2–3), dorsal pedipalp genual setae *d* 5 (5–6).

*Prodorsal shield* - 50 (50–51) including frontal lobe, 60 (60–61) wide; semi-circular; smooth; frontal shield lobe 10 (10–11); scapular tubercles 4 (3–4) on rear margin, 47 (43–48) apart, scapular setae (*sc*) 5 (5–6), projecting posteriorly and diverging.

*Coxigenital region* - with 6 (6–7) microtuberculated semiannuli between coxae and genitalia. Coxal plates I with few lines, coxal plates II smooth, anterolateral setae on coxisternum I (*lb*) 10 (9–10), 12 (12–13) apart; proximal setae on coxisternum I (*la*) 18 (17–19), 9 (9–10) apart; proximal setae on coxisternum II (*2a*) 43 (41–45), 23 (23–24) apart; prosternal apodeme 6 (5–6).

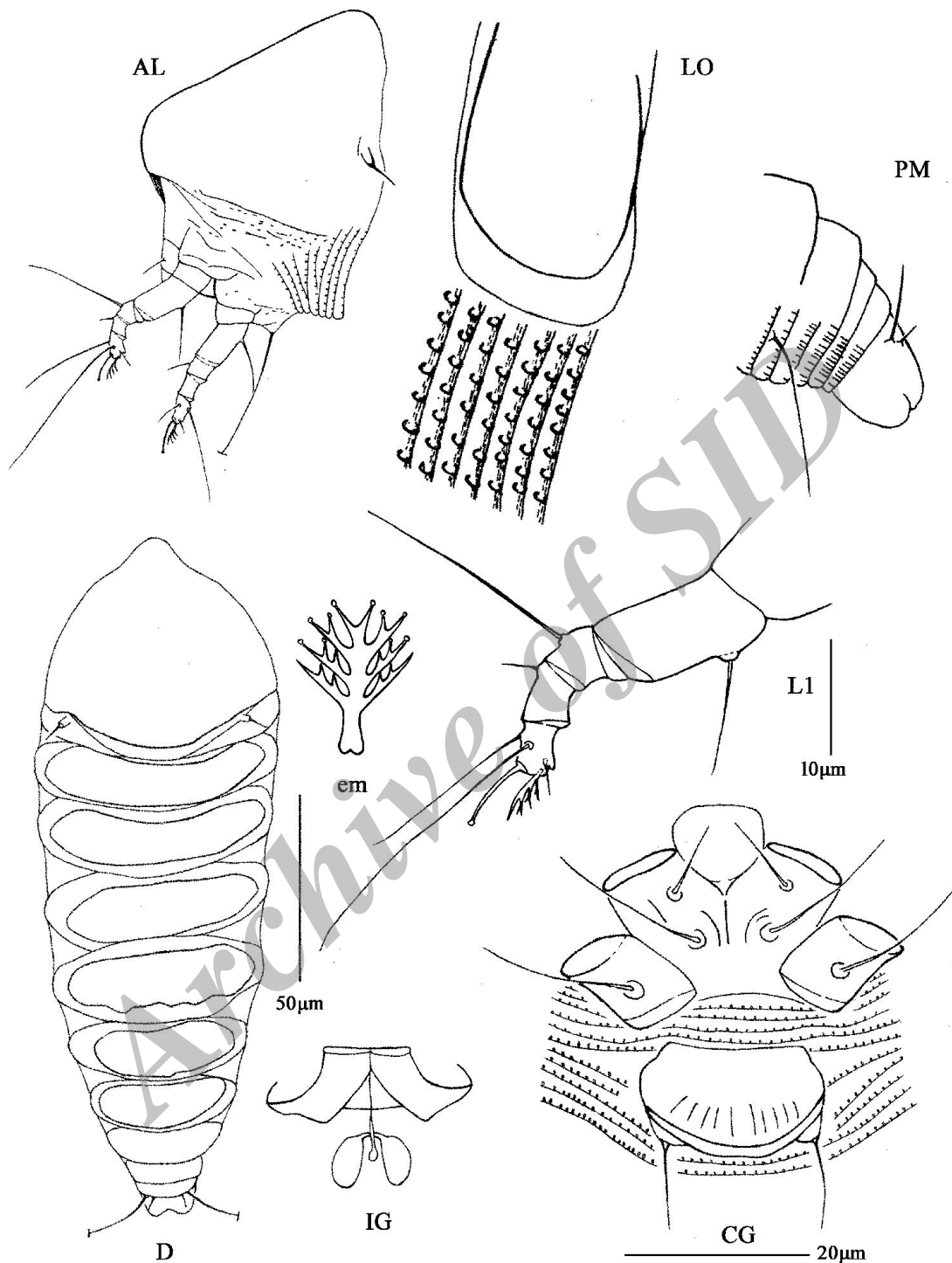
*Leg I* - 28 (28–30), femur 12 (12–13), basiventral femoral setae *bv* 10 (8–10); genu 5 (4–5), antaxial genual setae *l''* 20 (17–20); tibia 6 (6–7), paraxial tibial setae *l'* 3 (3–4), located at 1/4 from base; tarsus 5 (4–5), tarsal setae *ft'* 18 (16–19), tarsal setae *ft''* 22 (20–24), tarsal setae *u'* 4 (3–4); tarsal empodium (*em*) 5 (5–6), simple, 4-rayed,  $\omega$  7 (7–8), slight knobbed.

*Leg II* - 25 (25–28), femur 11 (11–12), basiventral femoral seta (*bv*) 10 (10–11); genu 5 (5–6), antaxial genual setae *l''* 5 (4–5); tibia 4 (4–5) long; tarsus 5 (5–7), paraxial, fastigial, tarsal setae *ft'* 5 (4–5), antaxial, fastigial, tarsal setae *ft''* 17 (15–18), tarsal setae *u'* 4 (3–4); tarsal empodium (*em*) 5 (5–6), simple, 4-rayed, tarsal solenidion ( $\omega$ ) 7 (7–8), slight knobbed.

*Opisthosoma* - dorsally with 8 (8–9) broad semiannuli, smooth, ventrally with 69 (67–70) semiannuli, with rounded microtubercles on rear annular margins. Setae *c* 2 9 (9–10), 54 (53–55) apart, on ventral semiannulus 13 (12–14); setae *d* 46 (46–50), 36 (35–36) apart, on ventral semiannulus 27 (26–28); setae *e* 15 (14–15), 17 (17–18) apart, on ventral semiannulus 45 (44–46); setae *f* 20 (18–20), 16 (16–18) apart, on 5th ventral semiannulus from rear; setae *h* 1 3(2–3), setae *h* 2 60 (60–62).

*Female genitalia* - 20 (20–22) wide, 13 (13–14) long, coverflap with 10 (10–11) longitudinal ridges, setae *3a* 14 (13–14), 17 (17–18) apart.

*Male* - unknown.



**Figure 1.** Schematic drawings of *Vittacus veronicae* Guo, Sadeghi & Xue **sp. nov.**  
 - D: Dorsal view of female; AL: Lateral view of anterior body region; CG: Female coxigenital region; em: Empodium; IG: Internal female genitalia; LO: Lateral view of annuli; L1: Leg I; PM: Lateral view of posterior opisthosoma.

*Type material*

*Holotype* - Female (slide number Iran D6.1, marked holotype), from *Veronica*

*anagallis-aquatica* L. (Plantaginaceae), Ali Abad-e Katool (36° 54' N, 54° 53' E), Golestan Province, Iran, 29 August 2013, coll. Ali Gol, deposited as a slide mounted specimen in the Arthropod/Mite Collection of the Department of Entomology, NJAU, Jiangsu Province, China.

*Paratypes* - Five females (slide number Iran D6.2–D6.6) and 2 females (slide number Iran D6.7–D6.8) from *V. anagallis-aquatica* L., same data as holotype, deposited in the Arthropod/Mite Collection of the Department of Entomology, NJAU, Jiangsu Province, China and Department of Plant Protection, Faculty of Agriculture, Ferdowsi University of Mashhad, Iran, respectively.

#### *Relation to host*

Vagrant. No damage to the host was observed.

#### *Etymology*

The specific designation *veronicae* is from the generic name of host plant, *Veronica*.

#### *Differential diagnosis*

This species is similar to *Vittacus mandshurica* Xue, Guo & Hong, 2013, but can be differentiated from the latter by prodorsal shield smooth (prodorsal shield with admedian and submedian lines in *V. mandshurica*), dorsal annuli smooth (dorsal annuli with fissures in *V. mandshurica*), semiannuli between coxae and genitalia with microtubercles (semiannuli between coxae and genitalia smooth in *V. mandshurica*).

#### Key to the world species of *Vittacus* Keifer

1. Coxal area smooth.....2
- Coxal area with granules or short lines.....4
2. Dorsal annuli with faint lines, median line on prodorsal shield present.....*Vittacus bougainvilleae* Abou-Awad & El-Banhawy, 1991
- Dorsal annuli smooth, median line absent.....3
3. Prodorsal shield with a hexagon-shape in the middle.....
- .....*Vittacus pluchae* Abou-Awad & Nasr, 1986
- Prodorsal shield with a U-shape in the middle.....
- .....*Vittacus cornusis* Xue, Song & Hong, 2010
4. Prodorsal shield smooth.....5
- Prodorsal shield with median, admedian or submedian lines.....6
5. Dorsal annuli with short lines, empodium 3-rayed.....
- .....*Vittacus humuli* Xue, Song & Hong, 2005
- Dorsal annuli smooth, empodium 4-rayed.....
- .....*Vittacus veronicae* Guo, Sadeghi & Xue **sp. nov.**
6. Scapular tubercles placed ahead of rear margin of prodorsal shield, dorsal annuli smooth.....*Vittacus fissistigmae* Wei & Kuang, 1997
- Scapular tubercles on rear margin of prodorsal shield, dorsal annuli with short lines or fissures.....7
7. Median line on prodorsal shield present.....
- .....*Vittacus cannabus* Xue, Guo & Hong, 2013
- Median line absent.....8
8. Empodium 6-rayed, prodorsal shield with granules anteriorly.....

- .....*Vittacus shaoguanicus* Xue, Song & Hong, 2010  
 - Empodium 4-rayed, prodorsal shield without granules.....9  
 9. Dorsal annuli with 13 wide annuli, seta *h1* present.....  
 .....*Vittacus mandshurica* Xue, Guo & Hong, 2013  
 - Dorsal annuli with 22 annuli, seta *h1* absent.....*Vittacus mansoni* Keifer, 1969

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## گونه جدیدی از جنس *Vittacus* Keifer (Acari: Eriophyidae) از ایران

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### چکیده

گونه‌ای از جنس *Vittacus* Keifer به نام *V. veronicae* Guo, Sadeghi & Xue **sp. nov.** بر اساس نمونه‌های ماده جمع‌آوری شده از گیاه *Veronica anagallis-aquatica* L. (Plantaginaceae) در علی‌آباد کتول، استان گلستان ایران توصیف و ترسیم می‌شود. این نخستین گزارش جنس *Vittacus* از ایران است. کلید شناسایی گونه‌های جنس *Vittacus* در دنیا ارائه شده است. واژگان کلیدی: Eriophyoidea, Trombidiformes، رده‌بندی، کنه‌های گیاه‌خوار.

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