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RESEARCH NOTE

A New Species of *Leptus* Bilberg (Acari: Erythraeidae) from Iran

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ABSTRACT

***Leptus* (*Leptus*) *hajiqanbari* sp. nov. (Acari: Erythraeidae), detached from unknown Noctuidae (Insecta: Lepidoptera) from Jahrom City, Fars Province, Iran, is described and illustrated based on the larva. This species belongs to the *anomalus* species group and *iguacuicus* species subgroup which can be identified based on the characters as follows: Palpal femur with one seta, palpal genu with two setae, four setae between coxae II and III and sensillary setae setulose throughout the length. A key to species of *iguacuicus* species subgroup is presented.**

Keywords: *Anomalus* species group, Fars Province, *Iguacuicus* species subgroup, Leptinae, Trombidiformes.

INTRODUCTION

Genus *Leptus* Billberg, 1820 belongs to the family Erythraeidae with 226 species in eight groups and 40 subgroups based on various characters such as palpal femorala, palpal genuala and number of intercoxal setae (Saboori *et al*., 2020; Haitlinger and Šundić 2020; Haitlinger *et al*. 2020a, b; Hakimitabar *et al*. 2020, 2021).

Hitherto, nine species of *Leptus* have been found from Iran. Six species from *sudanensis* species group namely, *L.* (*L.*) *esmailii* Saboori and Ostovan, 2000 and *L.* (*L.*) *kamalii* Karimi Iravanlou and Saboori, 2001 from *pasopaicus* species subgroup; *L.* (*L.*) *delijanensis* Khademi, Saboori and Hakimitabar, 2015 from *comosus* species subgroup; *L.* (*L.*) *darvishi* Saboori, Hakimitabar and Khademi, 2018 from *akkus* species subgroup; *L.* (*L.*) *tridentatus* Saboori, Hakimitabar and Khademi, 2018 from *tridentatus* species subgroup and *L.*(*L.*) *pouryayevalii* Hakimitabar, Saboori and Fadaei, 2021 from *hospeticus* species subgroup; also from others species group have been collected the following species, *L.* (*L.*) *trimaculatus* (Rossi, 1794) from *trimaculatus* species group; (*L.*) *fathipeuri* Haitlinger and Saboori, 1996 from *glossinarum* species subgroup and *anomalus* species group and *L.* (*L.*) *zhangi* Saboori and Atamehr, 1999 from *gagzoi* species subgroup and *phalangii* species group (Saboori *et al*. 2020; Hakimitabar *et al*. 2021). In this paper we describe a new species of *Leptus* from Jahrom city, Fars province, Iran.

MATERIALS AND METHODS

The specimens were detached from unknown Noctuidae with a minute insect pin and preserved in 75% ethanol, subsequently cleared in lactofenol and mounted on glass microscope slides using Faure's medium

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(Walter and Krantz 2009). Figures were drawn and measurements (given in micrometres) were calculated using a BX51 Olympus microscope equipped with a drawing tube. Terminology and abbreviations follow Saboori *et al*. (2009). Measurements are given in micrometers.

RESULTS

Superfamily Erythraeoidea

Family Erythraeidae

Leptus (*Leptus*) *hajiqanbari* sp. nov. (Figures 1–6)

Diagnosis. Palpal femur with one seta, palpal genu with two setae; four setae between coxae II and III; sensillary setae setulose throughout the length; with one pair of hypostomalae; scutum wider than long with anterior border deeply concave (ASBM 14–15); 140< Ti III< 180.

Description

***Larva* (*n*= 5)**. Idiosoma ovoid with 74–78 blunted and barbed setae (Figure 1). Scutum wider than long (W/SD 1.11–1.20), punctate, with two pairs of sensilla and two pairs of scutalae, anterior margin deeply concave and posterior margin convex with a concavity in the middle, anterolateral and posterolateral borders nearly straight. ASens bases slightly posterior to level of AL setae bases, ASens and PSens filiform, setulose throughout the length; AL shorter than or semi–equal to PL. One eye on each side of scutum, both circle in shape and 30 in diameter (Figure 1).

Ventral surface of idiosoma with two barbed sternalae between coxae I (*1a*) and between coxae II (*2a*); sternalae *1a* longer than sternalae *2a*. Four barbed intercoxalae between coxae II and III, 18–20 barbed setae behind coxae III (Figure 2).

NDV = fD (74–78) + fV (18–20) = 92–98

Where, number in parentheses are number of Dorsal setae (fD) and Ventral setae (fV).

Gnathosoma cone-shaped, 140–160 long with nude galealae (*cs*) and one pair of hypostomala (*bs*) smooth, pointed and long (35–38). Bulbus basal segment of chelicerae punctate. Palpfemur and palpgenu with one and two setae, respectively. Palptibia with three barbed setae. Palptarsus with eight setae including six setae, a solenidion and an eupathidium (Figure 3). Supracoxal seta of palp (*eP*) peg–like, 5 long.

Coxae I–III each with one seta; coxalae *1b*, 2.1–2.6 times longer than coxalae *2b*; coxalae *3b* longer than coxalae *2b*; all coxalae barbed (Figure 2).

Leg segmentation formula: 7–7–7. Leg setal formula: Leg I: Ta– 1ω, 1ε, 2ζ, 28n; Ti– 2φ, 1κ, 14n; Ge– 2σ, 1κ, 8n; TFe– 5n; BFe– 2n; Tr– 1n; Cx– 1n (Figure 4).

Leg II: Ta– 1ω, 1ε, 2ζ, 26n; Ti– 2φ, 15n; Ge– 1σ, 1κ, 8n; TFe–5n; BFe– 2n; Tr– 1n, Cx– 1n (Figure 5).

Leg III: Ta– 1ζ, 26n; Ti– 1φ, 15n; Ge– 8n; TFe– 5n; BFe– 1n; Tr– 1n; Cx– 1n (Figure 6).

Leg specialized setae: σGe I 14–16; φ1 Ti I 32–34, φ2 Ti I 26–28, ωTa I 26–27; φ1 Ti II 22–24, φ2 Ti II 21–23, ω Ta II 24–25; φ Ti III 30–31.

Measurements are given in Table 1.

Etymology

The species is named in memory of the late Dr. Hamidreza Hajiqanbar (1973–2021) for his great contribution to the systematics of acariform mites specially Heterostigmata.

Type Material

The holotype (ARS–20211214–1a) and paratypes (ARS–20211214–1b–1e) were collected by Ali Sedghi, 6 August 2006 in Jahrom city, Iran (28° 30’ N, 53° 33’ E, 1,050 m a.s.l.). The holotype and paratypes are deposited in the Acarological Collection, Jalal Afshar Zoological Museum, Faculty of Agriculture, University of Tehran, Iran (JAZM).

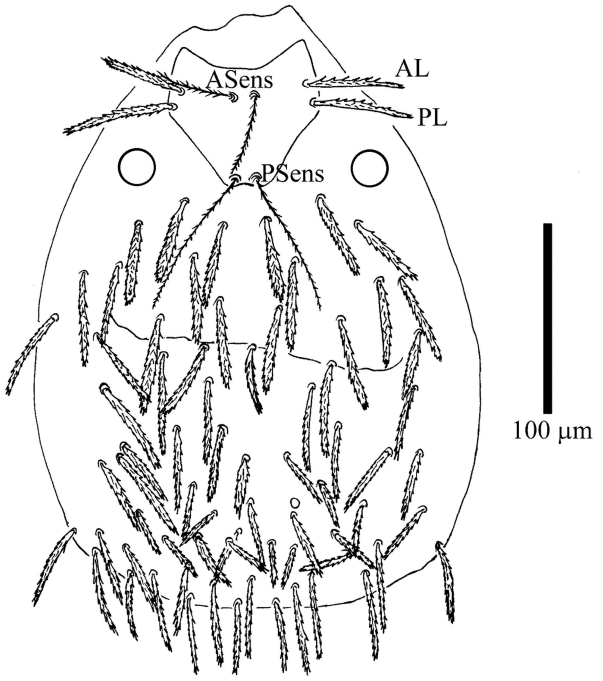


Figure 1. Dorsal view of idiosoma of *Leptus* (*Leptus*) *hajiqanbari* **sp. nov.**

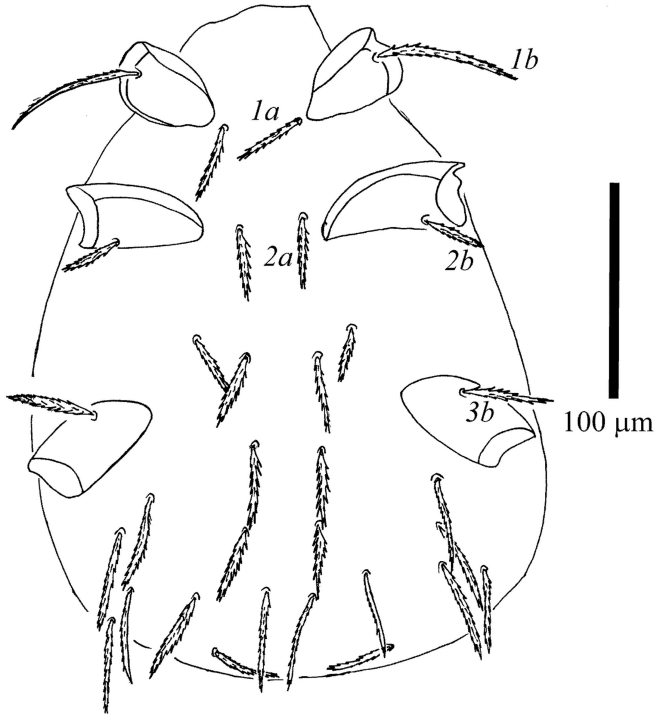


Figure 2. Ventral view of idiosoma of *Leptus* (*Leptus*) *hajiqanbari* **sp. nov.**

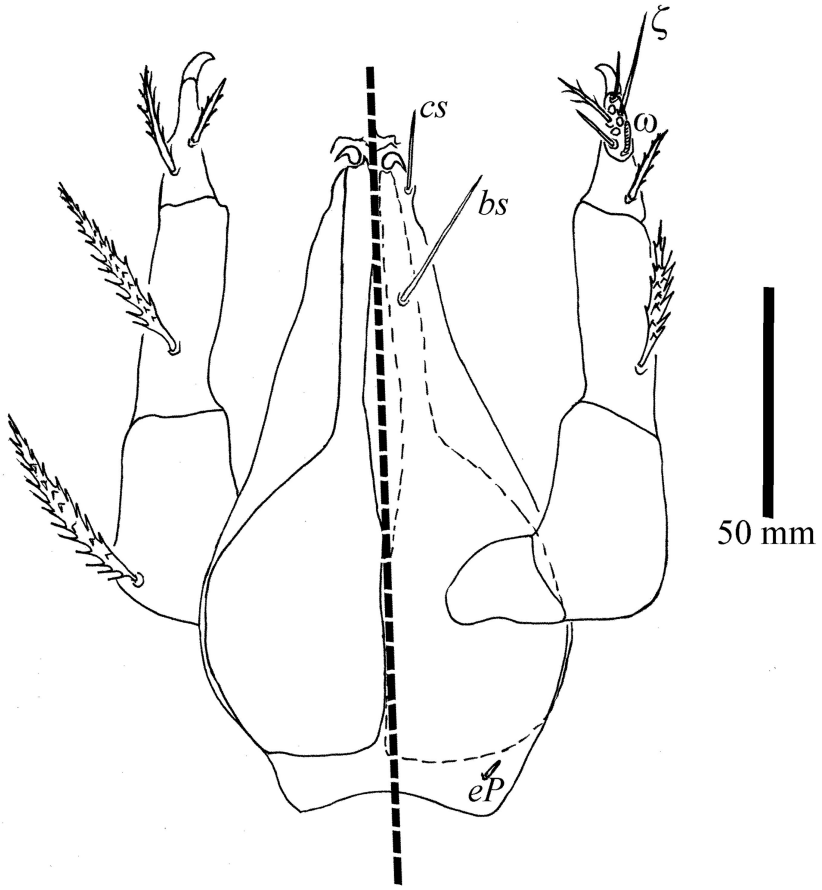
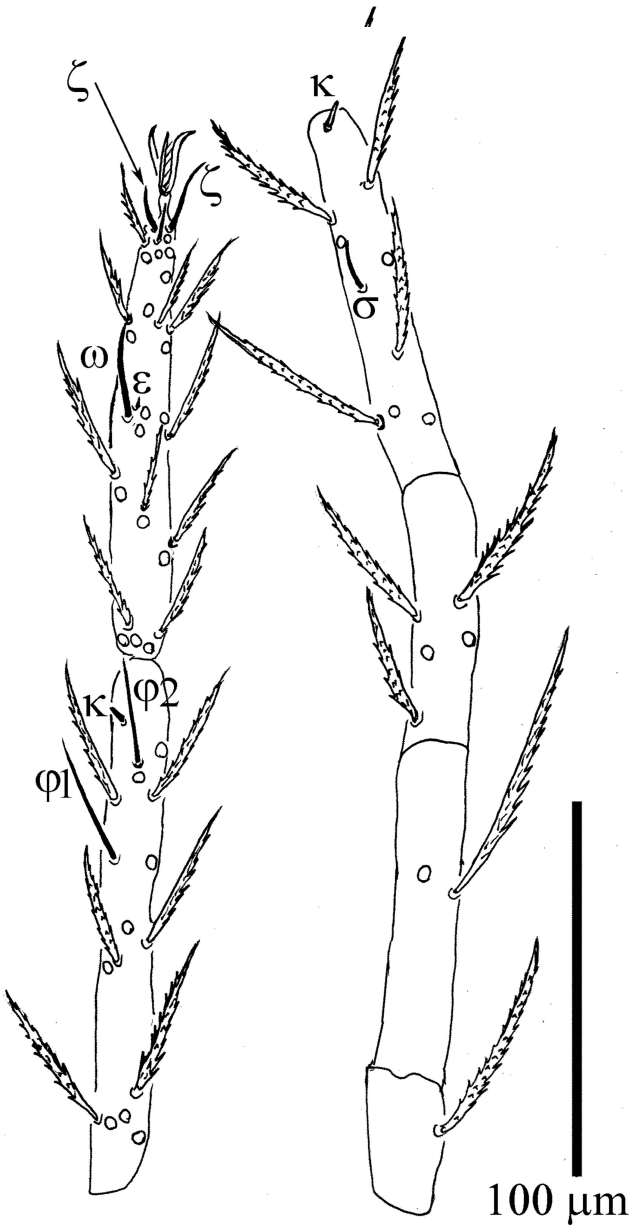
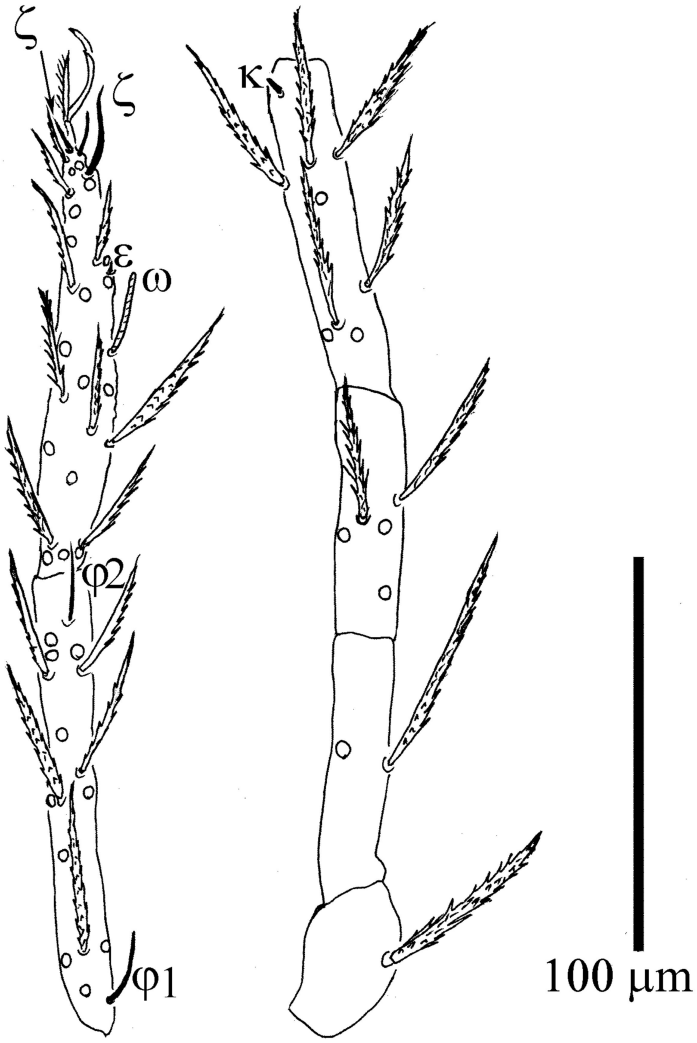


Figure 3. Gnathosoma of *Leptus* (*Leptus*) *hajiqanbari* **sp. nov.:** Ventral view (right) and dorsal view (left).



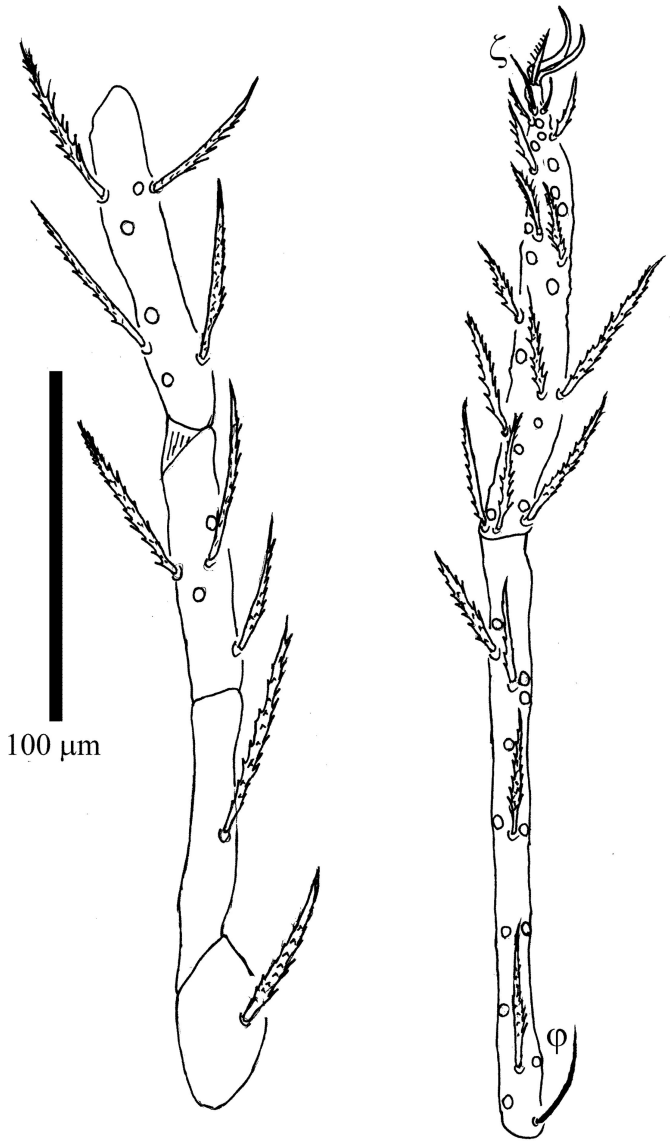
(b) (a)

Figure 4. *Leptus* (*Leptus*) *hajiqanbari* **sp. nov.:** (a) Tr–Ge I, and (b) Ti–Ta I.



(b) (a)

Figure 5. *Leptus* (*Leptus*) *hajiqanbari* **sp. nov.:** (a) Tr–Ge II, and (b) Ti–Ta II.



(b) (a)

Figure 6. *Leptus* (*Leptus*) *hajiqanbari* **sp. nov.:** (a) Tr–Ge III, and (b) Ti–Ta III.

DISCUSSION

Remarks

Leptus (*Leptus*) *hajiqanbari* **sp. nov.** belongs to the *anomalus* species group and *iguacuicus* species subgroup of *Leptus* (*Leptus*) (see Saboori *et al*. 2020). There are three species in this subgroup: *L.* (*L.*) *iguacuicus* Haitlinger, 2004 from Brazil, *L.* (*L.*) *pakistanensis* Kamran, Afzal, Bashir, Raza and Khan, 2009 from Pakistan, and *L.* (*L.*) *sulawesicus* Haitlinger, 2011 from Indonesia.

The new species differs from *L.* (*L.*) *iguacuicus* in shape of scutum (anterior border deeply concave in *L.* (*L.*) *hajiqanbari* **sp. nov.** vs. slightly concave in *L.* (*L.*) *iguacuicus*), number of hypostomalae (2 vs. 4), the shorter LX (21–26 vs. 16), fV (18–20 vs. 42), NDV (92–98 vs. 124); from *L.* (*L.*) *pakistanensis* in shape of scutum (anterior border deeply concave in *L.* (*L.*) *hajiqanbari* **sp. nov.** vs. slightly concave in *L.* (*L.*) *pakistanensis*), longer ASens (44–48 vs. 27), PSens (65–83 vs. 57), GL (140–160 vs. 125), without seta between each eye and scutum (vs. one in *L.* (*L.*) *pakistanensis*), fD (74–78 vs. 56); from *L.* (*L.*) *sulawesicus* in shape of scutum (anterior border deeply concave in *L.* (*L.*) *hajiqanbari* **sp. nov.** vs. weakly concave in *L.* (*L.*) *sulawesicus*), without seta between each eye and scutum (vs. one in *L.* (*L.*) *sulawesicus*), shorter Ta I (103–120 vs. 138), Ti III (143–175 vs. 200), fD (74–78 vs. 48), NDV (92–98 vs. 68).

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Key to Species of *iguacuicus* Species Subgroup

1. ASBM 14–15……. *L.* (*L.*) *hajiqanbari* **sp. nov.**
– ASBM< 5……2
2. Number of hypostomalae 4, fV> 40…… *L.* (*L.*) *iguacuicus*
– Number of hypostomalae 2, fV≤ 20…….3
3. Ti III 200, SD 88…… *L.* (*L.*) *sulawesicus*
– Ti III 162, SD 66…….. *L.* (*L.*) *pakistanensis*

(Oudemans, 1910) from Cameroon (Trombidiformes: Erythraeidae), with New Metric and Meristic Data for Some African *Leptus*. *Syst. Appl. Acarol.*, **25(4):** 607–621.
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یک گونه جدید از جنس Leptus Bilberg (Acari: Erythraeidae) از ایران

م. خوبدل و ف. پاکارپور راینی

چکیده

لارو گونه Leptus (Leptus) hajiqanbari sp. nov. (Acari: Erythraeidae) از روی یک گونه ناشناخته شب پره از خانواده Noctuidae (Insecta: Lepidoptera) از شهرستان جهرم استان فارس جدا و توصیف شد. این گونه به گروه گونه ای anomalus و زیرگروه گونه ای iguacuicus تعلق دارد که توسط ویژگی های زیر شناسایی می شود: ران و زانوی پالپ به ترتیب یک و دو مو دارد؛ چهار مو بین پیش راه پاهای دوم و سوم قرار دارد و تمام طول موهای حسی روی سپر مویچه دار است. کلید شناسایی گونه های زیرگروه گونه ای iguacuicus نیز نوشته شد .