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## Article

### A new species of *Leptus* (Acari: Erythraeidae) from Iran

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#### ABSTRACT

*Leptus* (*Leptus*) *pouryayevalii* sp. nov. (Acari: Erythraeidae), collected by shaking the leaves of weeds on white tray (off host) from Koushk Bala village, Chalous road, Alborz Province, Iran, is described and illustrated based on larva. This species belongs to the *sudanensis* species group and *hospeticus* species subgroup which can be identified based on the following characters: TFe I without solenidion, Ge I with two solenidia.

**KEY WORDS:** Alborz Province; larva; Leptinae; Prostigmata; *sudanensis* species group; Trombidiformes.

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#### INTRODUCTION

Erythraeidae family contains seven subfamilies, among them Leptinae Billberg, 1820 is the most speciose. It contains only one genus *Leptus* Latreille, 1796 with two subgenera, *Leptus* (*Leptus*) and *Leptus* (*Amaroptus*) Haitlinger, 2000 (Małkol and Wohltmann 2012, 2013).

Saboori *et al.* (2020) presented keys to all *Leptus* species known as larvae. The authors considered 216 valid species in 8 groups and 40 subgroups based on various characters such as number of palpal femorala and genuala as well as the number of intercoxal setae. After their work, five species have been described: *L. (L.) guarani* Haitlinger, Šundić, Ázara & Bernardi, 2020 which belongs to the *gifuensis* species subgroup (*phalangii* species group) from Brazil, *L. (L.) cameroonicus* Haitlinger, Šundić & Nkwala, 2020 from Cameroon, *L. (L.) andongensis* Hakimitabar, Joharchi & Jung, 2020 from South Korea which belong to the *gagzoi* species subgroup (*phalangii* species group), and *L. (L.) grancanaricus* Haitlinger & Šundić, 2020 and *L. (L.) machadoi* Haitlinger & Šundić, 2020 from Canary Islands, Spain which belong to the *bogoriacus* species subgroup (*sudanensis* species group) and *pasopaicus* species subgroup (*sudanensis* species group) respectively (Haitlinger & Šundić 2020; Haitlinger *et al.* 2020a, b; Hakimitabar *et al.* 2020).

Until now, seven species of *Leptus* have been collected from Iran (Saboori *et al.* 2020). In this paper we describe a new species of *Leptus* from Koushk Bala village, Chalous road, Alborz Province, Iran.

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## MATERIAL AND METHODS

The specimen was collected by shaking the leaves of weeds on white tray, removed with a 00 paint brush and preserved in 70% ethanol, subsequently cleared in Nessbitt's fluid and mounted in Faure medium on microscope slides (Walter and Krantz 2009). Figures were drawn and measurements were calculated using a BX51 Olympus microscope equipped with a drawing tube. Terminology and abbreviations follow Saboori *et al.* (2020). Measurements are given in micrometers ( $\mu\text{m}$ ).

### Superfamily Erythraeoidea Family Erythraeidae

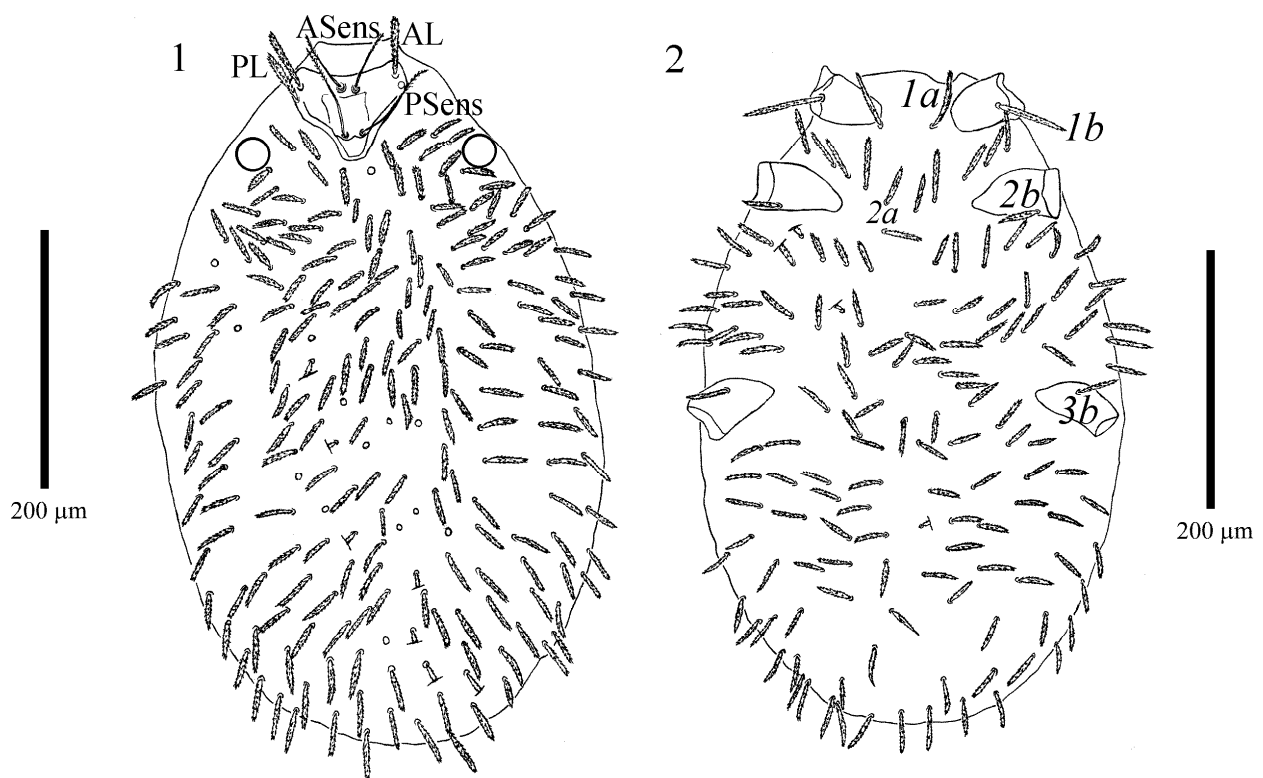
#### *Leptus (Leptus) pouryayevalii* sp. nov. (Figs. 1–10)

##### *Diagnosis*

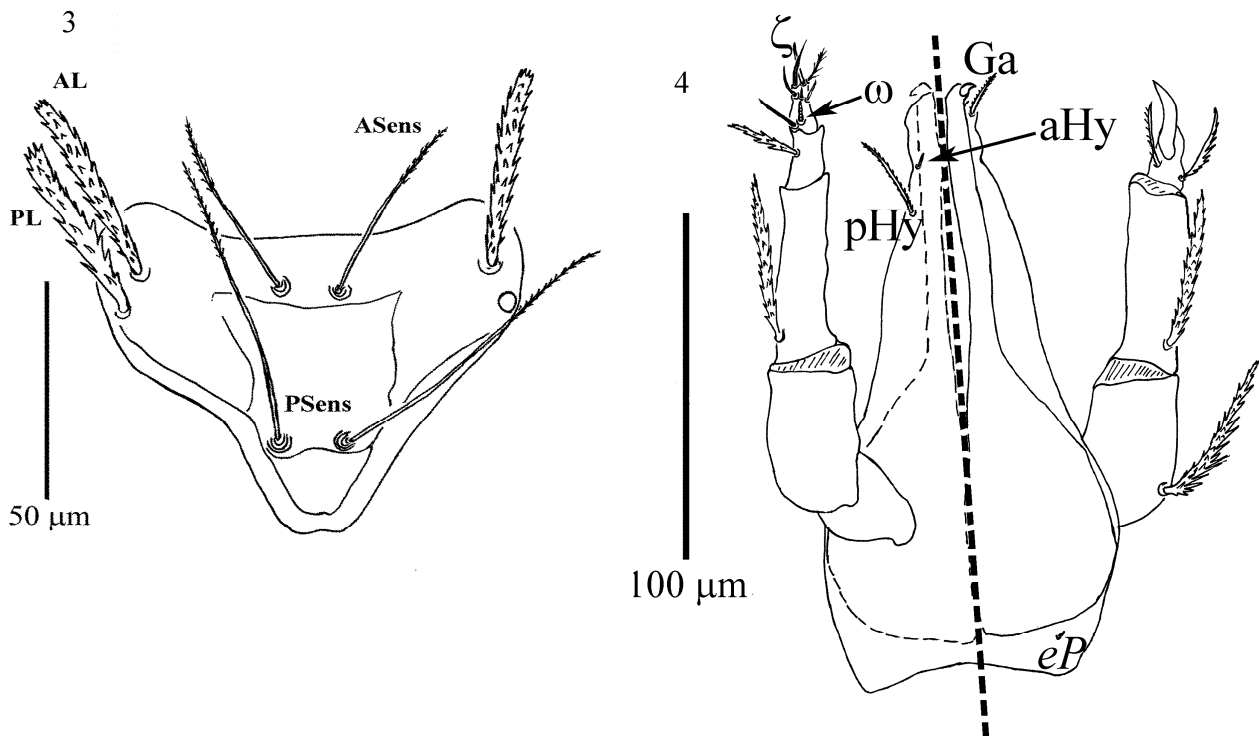
One seta on palpal femur and two setae on palpal genu, more than four setae between coxae II–III, Ge I with two solenidia, scutum wider than long with anterior border concave, fD 211, Ti III 275.

##### *Description (Larva, n = 1)*

Idiosoma ovoid with 211 barbed setae (Fig. 1). Scutum wider than long, punctate, with two pairs of sensilla and two pairs of scutalae, anterior border concave, posterior border straight, anterolateral and posterolateral borders slightly concave. ASens bases slightly posterior to level of AL bases, ASens and PSens filiform, barbed on distal 1/3; AL (54) and PL (52) semi-equal (Fig. 3). One eye on each side of scutum, both spherical in shape and 32 in diameter (Fig. 1).



**Figures 1–2.** *Leptus (Leptus) pouryayevalii* sp. nov. – 1. Dorsal view of idiosoma; 2. Ventral view of idiosoma.



**Figures 3–4.** *Leptus (Leptus) pouryayevalii* sp. nov. – 3. Scutum; 4. Gnathosoma: Ventral view (left) and dorsal view (right).

Ventral surface of idiosoma with barbed sternalae; two barbed sternalae between coxae I (*1a*) and between coxae II (*2a*); sternalae *1a* longer than sternalae *2a*. Eight barbed intercoxalae between coxae I and II, 51 barbed intercoxalae between coxae II and III, 76 barbed setae behind coxae III (Fig. 2). NDV = 211 + 139 = 350 (holotype)

Gnathosoma cone-shaped, 215 long with barbed galealae (Ga) and two pairs of hypostomalae, anterior hypostomala (aHy) smooth, pointed and minute (7), shorter than barbed, pointed and long posterior hypostomalae (pHy) (37). Bulbus basal segment of chelicerae punctate. Palpfemur and palpgenu with one and two setae, respectively. Palptibia with three barbed setae. Palptarsus with 8 setae including 6 barbed setae, a solenidion and an eupathidium. Palpal setal formula: fPp= 0-B-BB-BBB-6B $\omega$  $\zeta$  (Fig. 4). Supracoxal seta of palp (*eP*) peg-like, 5 long.

Lengths of legs I, II & III: 991, 846 & 1022. IP = 2859. Coxae I–III each with one seta; coxalae *1b*, 2.7 times longer than coxalae *2b*; coxalae *3b* longer than coxalae *2b*; all coxalae barbed (Fig. 2).

Leg segmentation formula: 7-7-7. Leg setal formula: Leg I: Ta - 1 $\omega$ , 1 $\epsilon$ , 2 $\zeta$ , 28n; Ti - 2 $\phi$ , 1 $\kappa$ , 14n; Ge - 2 $\sigma$ , 1 $\kappa$ , 8n; TFe - 5n; BFe - 2n; Tr - 1n; Cx - 1n (Figs. 5–6). Leg II: Ta - 1 $\omega$ , 1 $\epsilon$ , 2 $\zeta$ , 26n; Ti - 2 $\phi$ , 15n; Ge - 1 $\sigma$ , 1 $\kappa$ , 8n; TFe - 5n; BFe - 2n; Tr - 1n, Cx - 1n (Figs. 7 & 8). Leg III: Ta - 1 $\zeta$ , 26n; Ti - 1 $\phi$ , 15n; Ge - 8n; TFe - 5n; BFe - 1n; Tr - 1n; Cx - 1n (Figs. 9–10).

Measurements are given in Table 1.

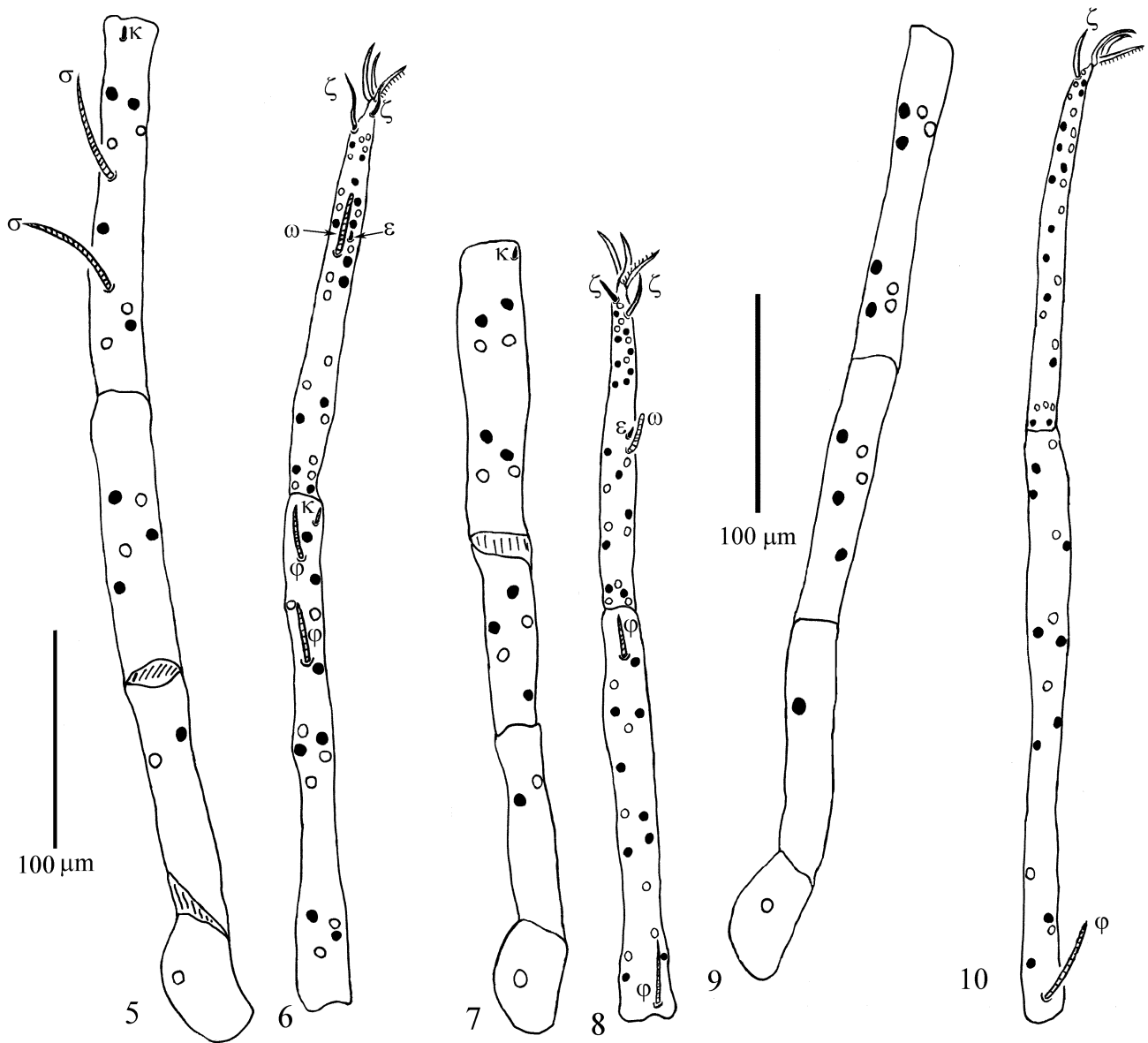
### Etymology

The species is named in memory of the late Pahlavan Mahmoud, more commonly known as Pouryaye Vali (deceased 1322 CE), a Persian Sufi and wrestling champion. The nickname Pouryaye Vali has been attributed to Pahlavan Mahmoud in Khwarazm.

### Type Material

The holotype (ARS-20201010-1a) was collected by M. Hakimitabar, off host, 23 July 2009 in Koushk Bala village, Chalous road, Karaj, Iran (35° 59.057' N, 51° 5.296' E, 1824 m a.s.l.). The

holotype is deposited in the Acarological Collection, Jalal Afshar Zoological Museum, Faculty of Agriculture, University of Tehran, Iran (JAZM).



**Figure 5–10.** *Leptus (Leptus) pouryayevalii* sp. nov. – 5. Tr–Ge I; 6. Ti–Ta I; 7. Tr–Ge II; 8. Ti–Ta II; 9. Tr–Ge III; 10. Ti–Ta III.

#### Remarks

*Leptus (Leptus) pouryayevalii* sp. nov. belongs to the *sudanensis* species group and *hospeticus* species subgroup of *Leptus (Leptus)* (see Saboori *et al.* 2020). There is only one species, *L. (L.) hospeticus* Haitlinger, 2002 from India in this subgroup. The new species differs from it in eight setae between coxae I & II (vs. two setae in *L. (L.) hospeticus*), fD (211 vs. 114), shape of scutum (anterior margin concave in *L. (L.) pouryayevalii* sp. nov. vs. deeply concave in *L. (L.) hospeticus*), the shorter LX (18 vs. 24–30), longer Ta I (181 vs. 132–140), Ti I (238 vs. 144–154), Ge I (186 vs. 120–124), Ta III (173 vs. 130–144), Ti III (275 vs. 190–206), and Ge III (163 vs. 112–116). For more differences see Table 1.

**Table 1.** Metric data for larvae of *Leptus (Leptus) pouryayevalii* sp. nov. and *L. (L.) hospeticus* (Haitlinger 2002).

Character	<i>L. (L.) pouryayevalii</i> sp. nov.	<i>L. (L.) hospeticus</i>	Character	<i>L. (L.) pouryayevalii</i> sp. nov.	<i>L. (L.) hospeticus</i>
SD	97	88–100	Ta I (L)	181	132–140
W	114	94–102	Ti I	238	144–154
AW	87	76–80	Ge I	186	120–124
PW	94	84–90	TFe I	124	76–82
AA	12	12–14	BFe I	126	84–92
SB	17	12–14	Tr I	64	44–50
ISD	45	44–50	Cx I	72	52–72
AP	12	16–18	Leg I	991	–
AL	54	42–50	Ta II (L)	151	110–114
PL	52	36–42	Ti II	191	116–128
ASBM	10	–	Ge II	136	94–100
ASBa	30	–	TFe II	89	64–68
AAS	35	32	BFe II	106	68–94
LX	18	24–30	Tr II	59	42–46
ASens	60	34–42	Cx II	114	54–70
PSens	106	60–70	Leg II	846	–
GL	215	176–190	Ta III (L)	173	130–144
aHy	7	–	Ti III	275	190–206
pHy	37	–	Ge III	163	112–116
1a	77	34–40	TFe III	129	90–100
1b	74	46–50	BFe III	131	84–92
2a	35	24–32	Tr III	64	40–48
2b	27	20–26	Cx III	87	56–64
3b	37	24–30	Leg III	1022	–
DS	27–50	24–34	IP	1837	–

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## گونه‌ای جدید از جنس *Leptus* (Acari: Erythraeidae) از ایران

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### چکیده

لارو گونه *Leptus (Leptus) pouryayevalii sp. nov.* (Acari: Erythraeidae) جمع‌آوری شده به روش تکاندن شاخ و برگ علف‌های هرز روی سینی سفید از روستای کوشک بالا در جاده چالوس، استان البرز توصیف و ترسیم شد. این گونه به گروه گونه‌ای *sudanensis* و زیرگروه گونه‌ای *hospeticus* تعلق دارد. ویژگی‌های مهم این زیرگروه عبارتند از: بند انتهایی ران پای نخست بدون موی سولنیدی و زانوی پای نخست دارای دو موی سولنیدی.

**واژگان کلیدی:** استان البرز؛ لارو؛ *Leptinae*؛ پیش‌استیگمایان؛ گروه گونه‌ای *sudanensis* Trombidiformes.

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