

Article

A new species of *Charletonia* (Acari: Erythraeidae) described from larvae ectoparasitic on cercopids (Hemiptera: Cercopidae) from Iran

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Abstract

Charletonia shahriari sp. nov. is described and illustrated from larvae ectoparasitic on undetermined cercopids (Hemiptera: Cercopidae) in a wheat field in Tabriz city, East Azarbaijan province, Iran. It is the second species of this genus with two setae between coxae II and III and solenidion placed in proximal half of genu I.

Key words: Trombidiformes, *Charletonia shahriari* sp. nov., larva, ectoparasite, Cercopidae, Iran

Introduction

Only nine species of larval *Charletonia* Oudemans, 1910 have been described from Iran hitherto: *Charletonia ahwazensis* Haitlinger & Saboori, 2007, *C. behbahanensis* Haitlinger & Saboori, 2008, *C. damavandica* Karimi Iravanlou, Kamali & Talebi, 2002, *C. krendowskyi* (Feider, 1954), *C. nazeleae* Karimi Iravanlou, Kamali & Talebi, 2002, *C. mehranensis* Haitlinger & Saboori, 2007, *C. saboorii* Karimi Iravanlou, Kamali & Talebi, 2002, *C. stekolnikovi* Hakimitabar & Saboori, 2011 and *C. talebii* Sedghi, Saboori & Hakimitabar, 2010 (Karimi Iravanlou *et al.* 2002; Haitlinger & Saboori 2007, 2008; Sedghi *et al.* 2010; Hakimitabar & Saboori 2011).

In this paper, we describe *Charletonia shahriari* sp. nov. collected from adults of cercopids (Hemiptera: Cercopidae) from Tabriz, East Azarbaijan province, Iran.

Material and Methods

The mites (4 individuals) were attached on legs and wings of cercopids (2 individuals). Two mites were collected on each cercopid. They are detached by an insect pin and preserved in 75% ethanol, cleared in Nesbitt's solution and mounted using Faure

medium (Walter & Krantz, 2009) on a glass slide. Figures were drawn using BX51 Olympus microscope equipped with drawing tube. The terminology and abbreviations used in the description are adapted from Robaux (1974) and Saboori *et al.* (2009). All measurements are given in micrometers (μm).

Results and Discussion

Charletonia shahriari sp. nov. (Figs. 1–11)

Diagnosis

Two setae between coxae II and III, solenidion placed in proximal half of Ge I, fn Ge 12–12–12, fn Ti 16–16–17, chelicerae striated and punctate.

Description

Idiosoma oval, 396–931 long and 238–555 wide. Scutum punctate, with two pairs of sensilla and three pairs of normal setae. Scutalae barbed; AL, ML and PL subequal. Posterior sensilla (PSens) longer than the anterior one (ASens); both barbed at distal 1/2 (Fig. 1). Two cuticular lines between AL and ASens bases which extend to around PSens bases.

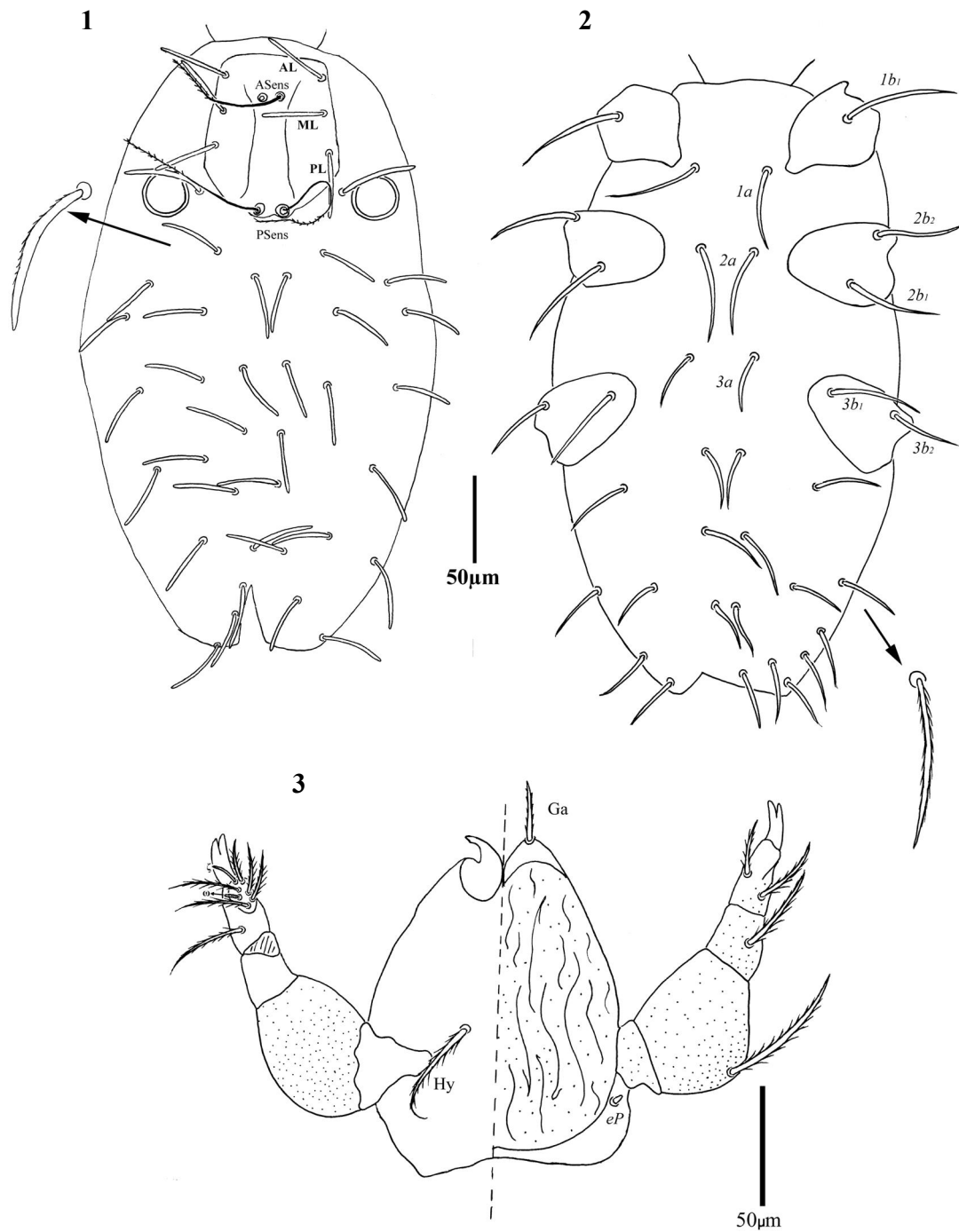
Dorsal surface of idiosoma with 35 barbed and blunted setae (fD); two setae placed between scutum and eyes (Fig. 1). Ventral surface with three pairs of barbed and pointed sternal setae (*1a*, *2a* and *3a*) and 19 barbed and pointed setae (fV), behind coxae III. Coxalae barbed. Coxalae *1b* longer than other coxalae (Fig. 2).

Cheliceral bases striated and punctate; subcapitulum with barbed galealae (Ga) and hypostomalae (Hy); palpfemur and palpgenu each with one barbed seta. Palptibia with 3 barbed setae; palpal tibial claw bifurcate; palptarsus with 5 barbed setae, an eupathidium and a solenidion; fPp = 0-B-B-BBB₂-BBBBB $\omega\zeta$; supracoxal seta of palp (*eP*) peg-like, 9 long (Fig. 3).

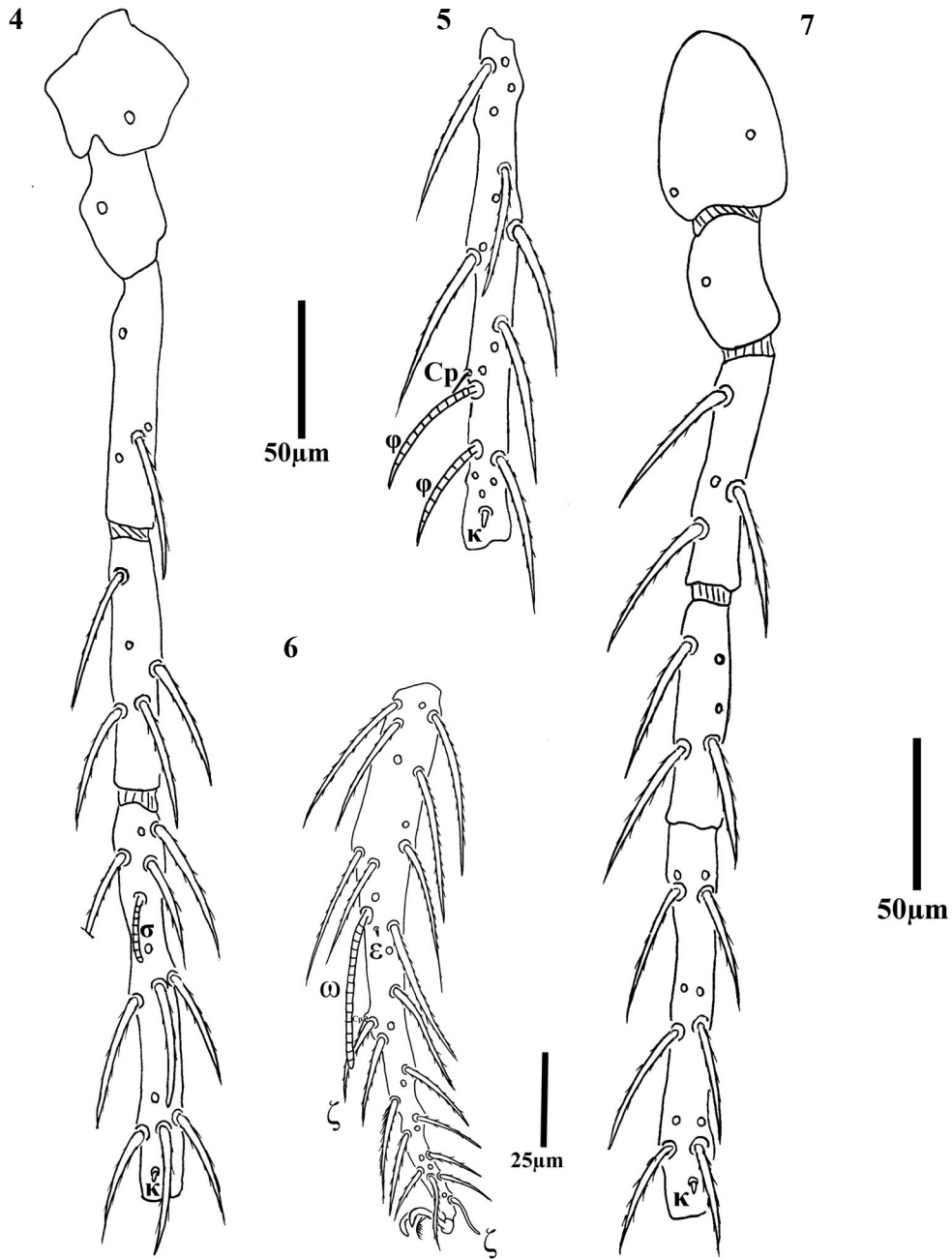
Leg segmental formula: 7-7-7. Leg setal formula: Leg I: Ta - 1 ω , 1 ϵ , 2 ζ , 1Cp, 29n; Ti - 2 ϕ , 1Cp, 1 κ , 16n; Ge - 1 σ , 1 κ , 12n; TFe - 5n; BFe - 4n; Tr - 1n; Cx - 1n (Figs. 4–6). Leg II: Ta - 1 ω , 1 ζ , 31n; Ti - 2 ϕ , 16n; Ge - 1 κ , 12n, TFe - 5n; BFe - 4n; Tr - 1n; Cx - 2n (Figs. 7 & 8). Leg III: Ta - 1 ζ , 32n; Ti - 1 ϕ , 18n; Ge - 12n; TFe - 5n; BFe - 2n; Tr-1n; Cx - 2n (Figs. 9–11).

Type material

The holotype (ARS-20090217-1a) and paratype (ARS-20090217-1b–1d) larvae were collected by S. Azimi, ectoparasitic on Cercopidae (Hemiptera) in Dizaj Olia village (38° 8.043' N, 46° 13.041' E, ~1470 m a.s.l.), Tabriz, East Azarbaijan province, Iran. The holotype and two paratypes are deposited in the Acarological collection, Jalal Afshar Zoological Museum, College of Agriculture, University of Tehran, Karaj, Iran and one paratype is deposited in the Natural History Museum of Erfurt, Erfurt, Germany.



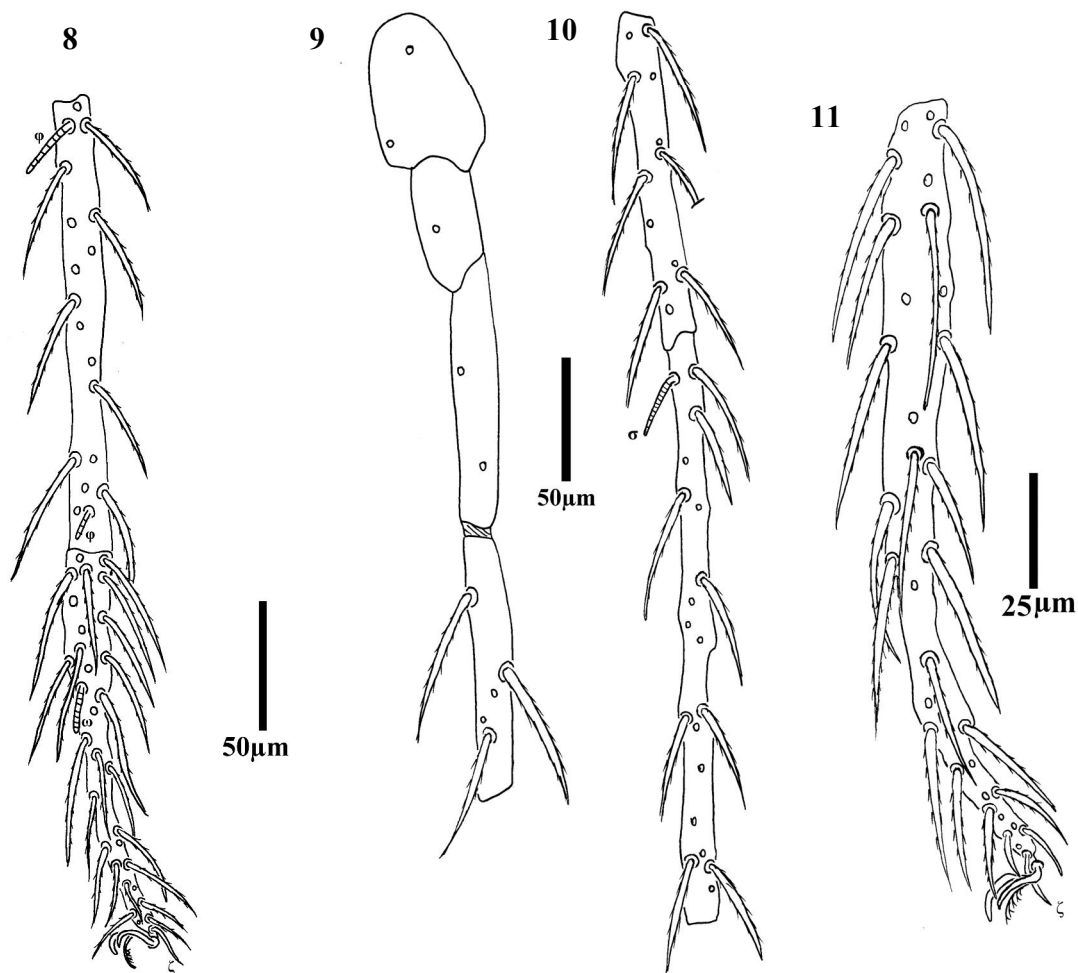
Figures 1–3. *Charletonia shahriari* sp. nov. (larva). 1. Dorsal view of idiosoma; 2. Ventral view of idiosoma; 3. Ventral view (left) and dorsal view of gnathosoma (right).



Figures 4–7. *Charletonia shahriari* sp. nov. (larva). 4. Leg I, coxa-genu; 5. Tibia I; 6. tarsus I; 7. Leg II, coxa-genu.

Etymology

This species is named in memory of Mohammad Hossein Shahriar, one of the most famous poets of Iran from Tabriz (1906–1988).



Figures 8–11. *Charletonia shahriari* **sp. nov.** (larva). 8. Tibia and tarsus II; 9. Leg III, coxa-telofemur; 10. Genu and tibia III; 11. Tarsus III.

Remarks

Charletonia shahriari **sp. nov.** belongs to the species group of this genus with two setae between coxae II and III and solenidion placed in proximal half of Ge I. Only *Charletonia glifadaensis* Haitlinger, 2003 has this feature. *Charletonia shahriari* **sp. nov.** differs from *C. glifadaensis* in the number of normal setae on Ti II (16 vs. 18), Ta I (30 vs. 23), Ta II (31 vs. 22), Ta III (32 vs. 21), Ge I (12 vs. 13), solenidion Ti I with companion seta (vs. without in *C. glifadaensis*), eupathidium on Ta I with companion seta (vs. without in *C. glifadaensis*), Ta II with one eupathidium (vs. with two *C. glifadaensis*), galealae barbed (vs. nude in *C. glifadaensis*) and cheliceral bases striated and punctate (vs. punctate in *C. glifadaensis*).

Table 1. Metric data of *Charletonia shahriari* sp. nov. larvae (1a, holotype, 1b–1d, paratypes).

Character	1a	1b	1c	1d	Range	Character	1a	1b	1c	1d	Range
IL	396	594	931	545	396–931	Hy	50	35	30	37	30–50
IW	238	356	555	396	238–555	Ta I (L)	168	161	169	166	161–169
AW	72	62	62	62	62–72	Ta I (H)	18	18	18	18	18
MW	64	62	69	64	62–69	Ti I	198	191	203	203	191–203
PW	69	69	74	69	69–74	Ge I	161	141	164	154	141–164
SBa	13	13	15	13	13–15	TFe I	99	85	102	99	85–102
SBp	18	15	22	20	15–22	BFe I	109	99	104	109	99–109
AP	20	21	22	22	20–22	Tr I	50	56	50	50	50–56
AL	40	40	42	42	40–42	Cx I	60	52	50	64	50–64
ML	37	37	40	41	37–41	Leg I	845	785	839	863	785–863
PL	40	40	40	44	40–44	Ta II (L)	149	149	160	161	149–161
AAS	25	25	25	25	25	Ta II (H)	18	18	18	18	18
ASens	62	69	67	62	62–69	Ti II	176	169	176	183	169–183
PSens	99	75	87	92	75–99	Ge II	134	122	134	134	122–134
SD	99	92	99	99	92–99	TFe II	82	75	82	92	75–92
W	82	88	87	99	82–99	BFe II	87	84	90	89	84–90
ISD	69	74	70	73	69–74	Tr II	50	50	55	50	50–55
GL	131	136	136	139	131–139	Cx II	62	65	62	62	62–65
DS	37	54	42	45	37–54	Leg II	738	718	748	789	718–789
1a	62	62	60	60	60–62	Ta III (L)	174	164	164	174	164–174
1b	67	66	64	67	64–67	Ta III (H)	20	20	20	18	18–20
2a	61	62	60	60	60–62	Ti III	248	230	245	248	230–248
2b ₁	57	57	40	40	40–57	Ge III	156	144	161	154	144–161
2b ₂	51	50	38	36	36–51	TFe III	119	107	117	114	107–119
3a	48	50	50	50	50–52	BFe III	112	117	117	117	112–117
3b ₁	56	57	44	46	44–57	Tr III	50	62	62	60	50–62
3b ₂	52	51	50	50	50–52	Cx III	62	67	67	62	62–67
Ga	23	22	24	23	22–24	Leg III	921	881	931	947	881–947
PaScFed	56	64	55	62	55–64	IP	2504	2384	2518	2603	2384–2603
PaScGed	25	37	30	40	25–40						


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چکیده

لاروهای گونه جدید *Charletonia shahriari* از روی سن‌های خانواده Cercopidae از مزرعه گندم در شهرستان تبریز، استان آذربایجان شرقی جمع‌آوری، توصیف و ترسیم شدند. این دومین گونه از این جنس است که دو مو بین پیش‌ران پاهای دوم و سوم داشته و سولنیدی زانوی پای اول در نیمه ابتدایی آن قرار گرفته است.