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Article

A new species of *Atractides* (Hydrachnidia: Hygrobatidae) from Iran

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ABSTRACT
The distribution and abundance of the species of Atrectides in Iran is significant and this genus is present in all provinces of the country. *Atractides* (*Atractides*) *khuzestaniensis* **sp. nov.** is described as new to science from one ofthe southern provinces. This is the thirty-second species of this genus from Iran.

KEYWORDS: Acari, Khuzestan province, Southern Iran, Trombidiformes, water mite.

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INTRODUCTION

Water mite species of the genus *Atractides* Koch, 1837 (Acari: Hydrachnidia, Hygrobatidae) are common in running and standing waters in the Palaearctic. Most species are found only in clean waters with well conserved substratum, thus they are probably sensitive to many forms of human impact (Gerecke 2003). So far, 31 species of the genus *Atractides* Koch are known from Iran (Schwoerbel and Sepasgozarian 1976, Pešić and Asadi 2002, Pešić and Saboori 2007, Pešić and Vafaei 2009, Asadi *et al*. 2010, Pešić *et al*. 2004a,b, 2005a,b, 2006, 2007, 2008, 2009, 2011, 2012, 2014, 2016, 2019, 2021). Currently, the genus *Atractides* has four subgenera (*Atractides* Koch, 1837; *Tympanomegapus* Thor, 1923; *Polymegapus* K. Viets, 1926; *Maderomegapus* Lundblad, 1941). Most of the *Atractides* species reported from Iran belong to the subgenus *Atractides* Koch, 1837, while two species belong to each of the subgenera *A.* (*Polymegapus*) K. Viets, 1926 (i.e. *A.* cf. *polyporus* (K. Viets, 1922) and *A. persicus* Pešić & Asadi, 2010), and *A.* (*Tympanomegapus*) Thor, 1923 (i.e. *A. acutirostris* (Motas & C. Angelier, 1927) and *A. omanensis* Smit & Pešić, 2010).

MATERIAL AND METHODS

Water mites were collected by hand netting, sorted on the spot from the living material, preserved in Koenike's fluid (Cook 1974), and mounted in Hoyer’s medium. All measurements are given in micrometers (μm), the measurements of the paratype are given in parentheses. The drawings were

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made using a drawing tube attached to an Olympus®BX51 phase-contrast compound microscope. The following abbreviations are used: alt. = altitude, asl = above sea level, Cx-I = first coxae, Cxgl-4 = coxoglandularia of fourth coxae (= E4 in Wiles 1997a), dL = dorsal length, H = height, HB = central height (in genus *Atractides*, after Gerecke 2003), L = length, I-L-6 = Leg 1, sixth segment (tarsus), lL = lateral length, mL = medial length, n = number of specimens examined, P-1 = palp, first segment, S-1 = proximal large ventral seta at I-L-5 (in genus *Atractides*, after Gerecke 2003), S-2 = distal large ventral seta at I-L-5 (in genus *Atractides*, after Gerecke 2003), Vgl = ventroglandulare, vL = ventral length, W = width.

SBUK – Collection of the Acarology Laboratory, Department of Plant Protection, Faculty of Agriculture, Shahid Bahonar University of Kerman, Kerman, Iran.

Order Trombidifomes Reuter, 1909
Family Hygrobatidae Koch, 1842
Genus *Atractides* Koch, 1837

Atractides (*Atractides*) *khuzestaniensis* sp. nov. (Figs. 1–3)

http://zoobank.org/urn:lsid:zoobank.org:act:F25A94EF-A93F-4B70-B0F0-4C196D648FE6

Type material and deposition

Holotype female (SBUK-AH201f), two female and two male paratypes (SBUK-Hyg 11–14) dissected and slide mounted, Iran: Khuzestan Province, Behbahan river, 335 m asl., 30° 39′ 28″ N, 50° 8′ 12″ E, 15 September 2020, coll. Isa Etemadi. Holotype and all paratypes are deposited at SBUK.

Diagnosis

Dorsal integument striated; muscle attachments unsclerotized; pregenital sclerite in female with denticulate and slightly concave anterior margin, sword seta in P-4 serrate in the middle to the tip and close to distoventral hairs in both male and female. I-L-5 with S-1 and S-2 homomorphic and close. Ac small and roundish, in a curved line. Excretory pore unsclerotized. Vgl-1 not fused to Vgl-2.

Description

***Female* –** Integument dorsally striated; mediocaudal margin of Cx-I slightly convex, apodemes of Cx-II in an obtuse angle; Vgl-1 not fused to Vgl-2 (Fig. 1a). Palp with convex ventrodistal margin; one of the three and one of the two dorsodistal setae of P-2 and P-3 plumose respectively. P-3 ventral margin straight; P-4 ventral margin divided by ventral hairs in sectors 1:1:1, sword seta in P-4 close to the distoventral hairs (Fig. 2b). I-L-5 long and slender, equally enlarged from the base to the insertion of S-1-2 setae, S-1-2 with a narrow setal interspace (Fig. 2a); S-1-2 homomorphic, proximally enlarged and pointed; I-L-6 slender with curved ventral margin (Fig. 2a). Excretory pore unsclerotized. Anterior margin of pregenital sclerite denticulate and slightly concave, acetabula small (Fig. 1c).

***Measurements* –** (Holotype, following paratypes in parentheses) Idiosoma L 984 (955–972), W 787 (759–773), Coxal shield L 404 (378–393), Cx-III W 501 (475–489), Cx-I+II mL 94 (81–89), Cx-I+II lL 243 (217–232), Genital field L/W 173/209 (158/189–169/196), genital plate L 145(129–136), gonopore L 113 (103–109), pregenital sclerite W 95 (84–90), L Ac-1–3:17 (14–15), 21 (19–20), 20 (17–18). Palp total L 427 (395–410); dL/H, dL/H ratio P-1 37/47, 0.78 (30/41, 0.73–33/46, 0.71); P-2 103/67, 1.53 (85/61, 1.39–98/60, 1.6); P-3 103/55, 1.87 (86/49, 1.75–97/50, 1.94); P-4 136/35, 3.88 (110/28, 3.92–106/25, 4.24); P-5 48/17, 2.82; (39/13, 3–45/16, 2.81) length ratio P-2/P-4 0.75 (0.77–1). Gnathosoma vL 169 (123–152); chelicera total L 297 (253–263), L basal segment 208 (182–198), L claw 89 (65–78), L ratio basal segment/claw 2.33 (2.8–2.53).

Legs– I-L-5 dL 299 (225–268), vL 153 (123–136), dL/vL ratio 1.95 (1.82–1.97), maximum H 74 (63–71), dL/maximum H 4.04 (3.57–3.77), S-1 L 89 (68–79), S-1 W 10 (7–9), L/W ratio 8.9 (9.71–8.77), S- 2 length 89 (68 –82), S-2 W 16 (12–14), L/W ratio 5.5 (5.66–5.85), distance S-1-2, 18.2 (13–15), L ratio S-1/2 1 (1–0.96); I-L-6 dL 156 (132–141), HB 22 (17–19), dL/HB ratio 7 (7.76–7.42); length ratio I-L-5/6 1.91 (1.7–1.9).

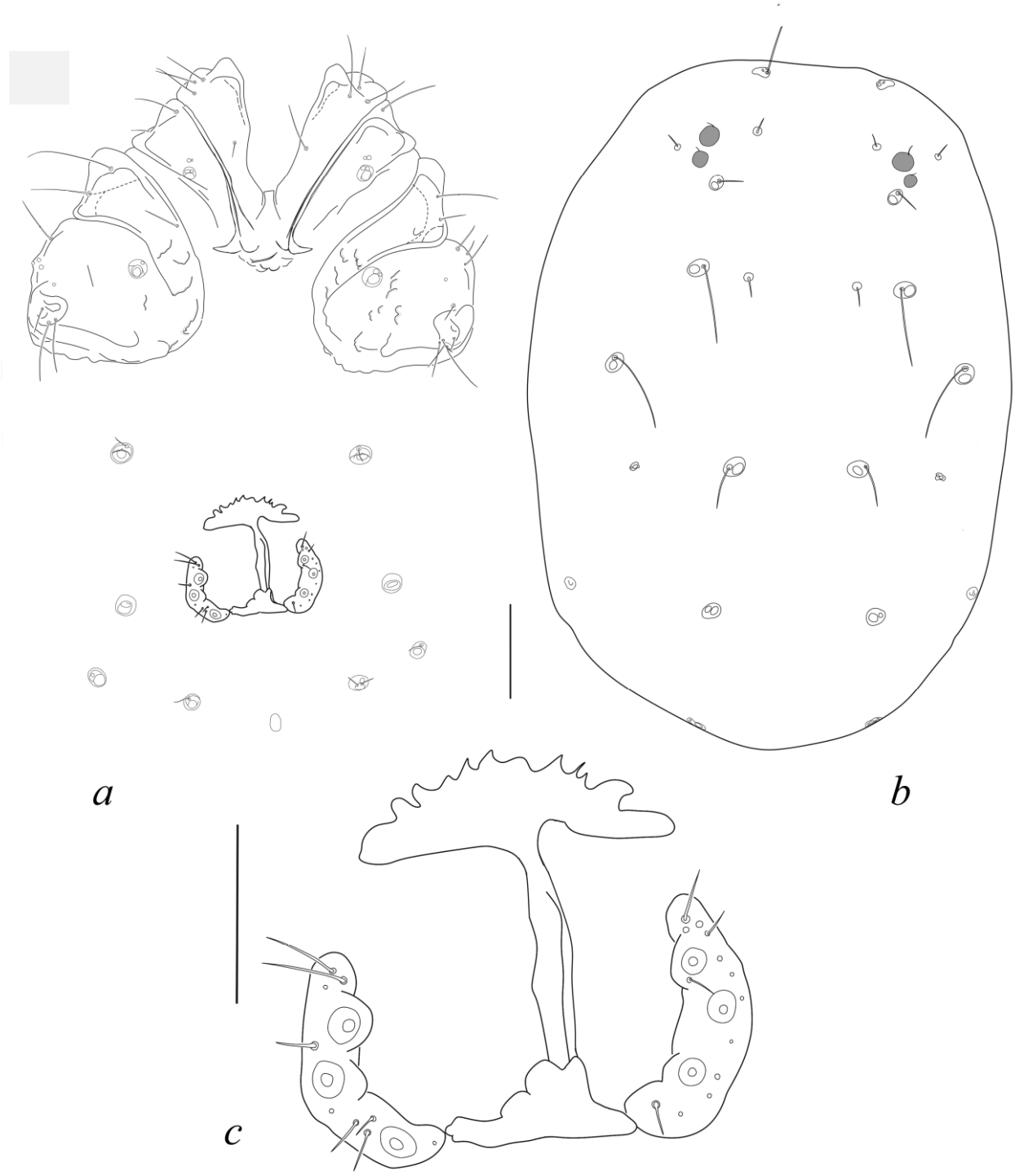

Figure 1. *Atractides khuzestaniensis* **sp. nov.** (female holotype) – **a.** Coxae, genital field and ventral glandularia; **b.** Idiosoma, dorsal view; **c.** Genital field. Scale bars: 100 μm.

***Male* (Fig. 3)**

***Measurements* –** Idiosoma L 560–588, W 431–459. Coxal shield L 266–296; Cx-III W 409–343; Cx-I+II mL 74–87, Cx-I+II lL 152–188. Genital field L/W 93/101–106/114, genital plate L 76–85, gonopore L 71–82, Ac-1–3 L: 14–15, 13–14, 13–14. Palp: total L 295–319; dL/H, dL/H ratio: P-1 29/28, 1.03–34/33, 1.03; P-2 59/48, 1.22–69/53, 1.3; P-3 59/30, 1.96–68/38, 1.78; P-4 95/28, 3.39–111/34, 3.26; P-5 29/10, 2.9–37/13, 2.84; length ratio P-2/P-4 0.62–0.62.

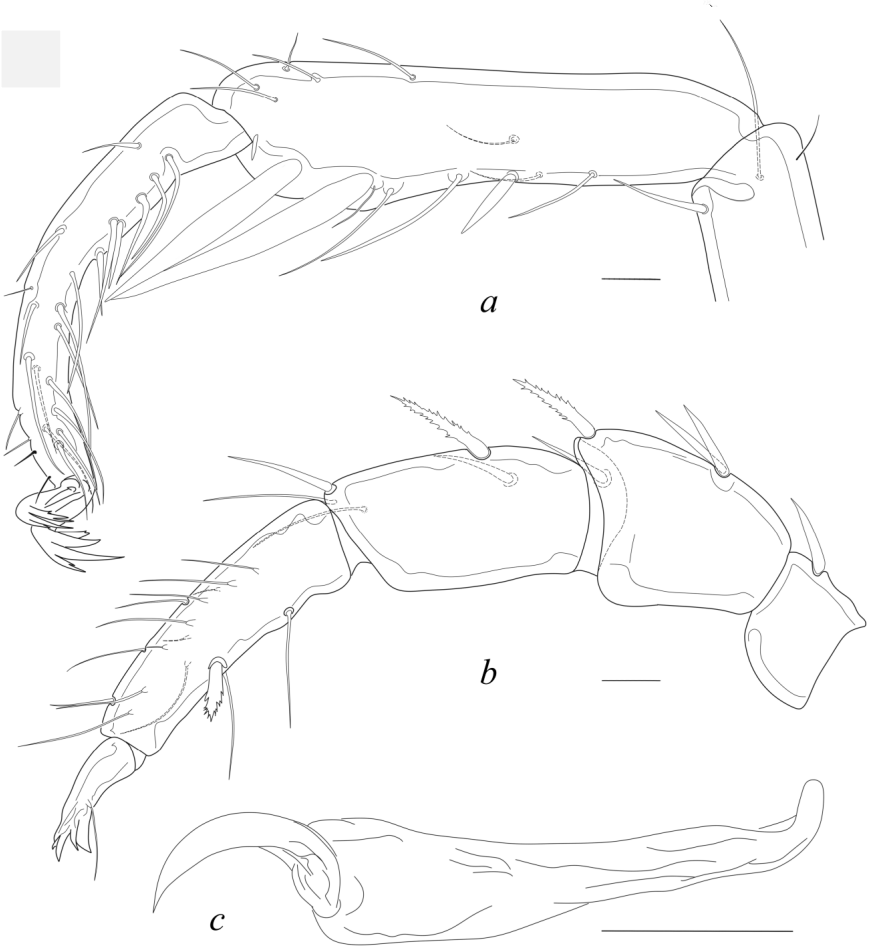

Figure 2. *Atractides khuzestaniensis* **sp. nov.** (female holotype) – **a.** I-L-5 and -6; **b.** Palp, medial view; **c.** Chelicera, lateral view. Scale bars: 100 µm.

Gnathosoma – vL 119–141; chelicera total L 213–248, basal segment L 149–174, claw L 59–74, L ratio basal segment/claw 2.52–2.35.

Legs – I-L-5 dL 143–171, vL 113–129, dL/vL ratio 1.26–1.32, maximum H 48–55, dL/maximum H 2.97–3.1, S-1 L 58–68, S-1 W 6–7, L/W ratio 9.66–9.7, S- 2 length 52–61, S-2 W 7–10, L/W ratio 7.42–6.1, distance S-1-2, 7.92–9.88, dL ratio S-1/2 1.1–1.1; I-L-6 dL 89–104, HB 18–21, dL/HB H ratio 4.9–4.95; length ratio I-L-5/6 1.6–1.6.

Etymology

Named for its occurrence in the Khuzestan province of Iran.

Remarks

Atractides (*Atractides*) *khuzestaniensis* **sp. nov.** are close to *A. baderi* Schwoerbel & Sepasgozarian, 1976, *A.* (*A.*) *hormozganus* Pešić *et. al.*, 2012 and *A.* (*A.*) *nikooae* Pešić, 2004 by

sharing striated dorsal integument; small acetabula; unsclerotized dorsal muscle attachments; smooth excretory pore and Vgl-1 not fused to Vgl-2. However, the new species differs from *A. baderi*, *A. hormozganus* and *A. nikooae* based on the dentate and slightly concave anterior margin of pregenital sclerite *vs.* simple in *A. baderi*, *A. hormozganus* and *A. nikooae*; P-4 sword seta (inserted closer to proximal ventral hairs in *A. khuzestaniensis vs.* inserted halfway between ventral hairs in *A. baderi*, close to distoventral hair in *A. hormozganus* and near the distoventral hair in *A. nikooae*); however the new species can easily be distinguished from all other species by pregenital with anterior margin dentate and slightly concave .

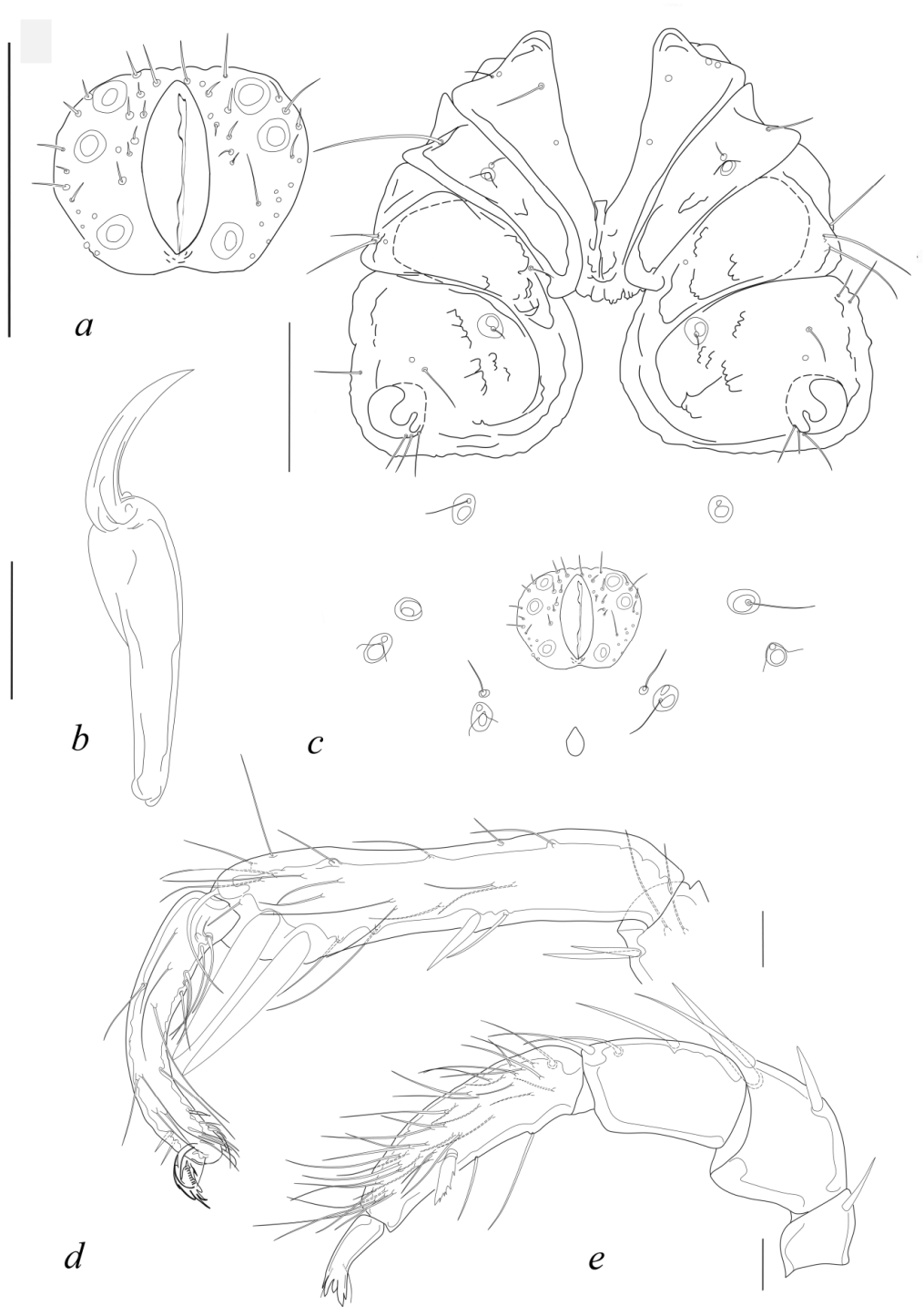

Figure 3. *Atractides khuzestaniensis* **sp. nov.** (male paratype) – **a.** Genital field; **b.** Chelicera, lateral view; **c.** Idiosoma, ventral view; **d.** I-L-5 and -6; **e.** Palp, medial view. Scale bars: 100 μm.

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گونهٔ جدیدی از *Atractides* (Hydrachnidia: Hygrobatidae) از ایران

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چکیده

پراکندگی و فراوانی گونه‌های جنس *Atractides* در ایران قابل توجه است و این جنس در تمامی استان‌های کشور وجود دارد. *Atractides* (*Atractides*) ***kuzestaniensis* sp. nov.** از یکی از استان‌های جنوبی به عنوان یک گونه جدید توصیف شده است. این سی و دومین گونه از این جنس از ایران است.

واژگان کلیدی: کنه‌ها، استان خوزستان، جنوب ایران، Trombidiformes، کنهٔ آبزی.

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