

STORCHIA YAZDANIANI N. SP., A NEW SPECIES OF THE GENUS *STORCHIA*
Oudemans, 1923 (ACARI: PROSTIGMATA: STIGMAEIDAE) FROM NORTHERN
IRAN

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ABSTRACT — A new species of *Storchia* Oudemans (Acari: Stigmaeidae) is described and illustrated based on specimens collected from moss and soil in Golestan Province, Iran. A key to all species of *Storchia* (female) is also provided.

KEYWORDS — Acari; Stigmaeidae; *Storchia*; new species; key; Iran

INTRODUCTION

Members of the genus *Storchia* Oudemans live in soil, moss, litter, tree bark and stored products (Doğan and Ayyıldız, 2003). This genus is one of the smallest genera of Stigmaeidae and just has seven known species, namely *S. robustus* (Berlese, 1885); *S. pacifica* (Summers, 1964); *S. shanghaiensis* (Liang and Hu, 1988); *S. annae* Fan and Li, 1993; *S. cunneata* Fan and Yan, 1997; *S. hendersonae* Fan and Zhang, 2005 and *S. ardabiliensis* Safasadati, Khanjani, Razmjou and Doğan, 2010. These known species have been reported from China, South Africa, New Zealand, Indonesia and Philippine Island, Turkey and Iran (Summers 1964; Liang and Hu 1988; Fan and Li 1993; Fan and Yan 1997; Fan and Zhang 2005;

Safasadati *et al.* 2010). In this paper, we describe and illustrate the eighth species of this genus, *S. yazdani* n. sp. which is the second species of *Storchia* from Iran. An updated key to the species of this genus is given.

MATERIAL AND METHODS

Mites were extracted from the soil using a Berlese funnel; specimens were cleared in Nesbitt's fluid and mounted in Hoyer's medium. The length of idiosoma was measured from the base of chelicerae to the posterior margin of suranal shield, the width of idiosoma at the broadest part of the idiosoma and setae were measured from their insertion to their tip; distances between setae were measured

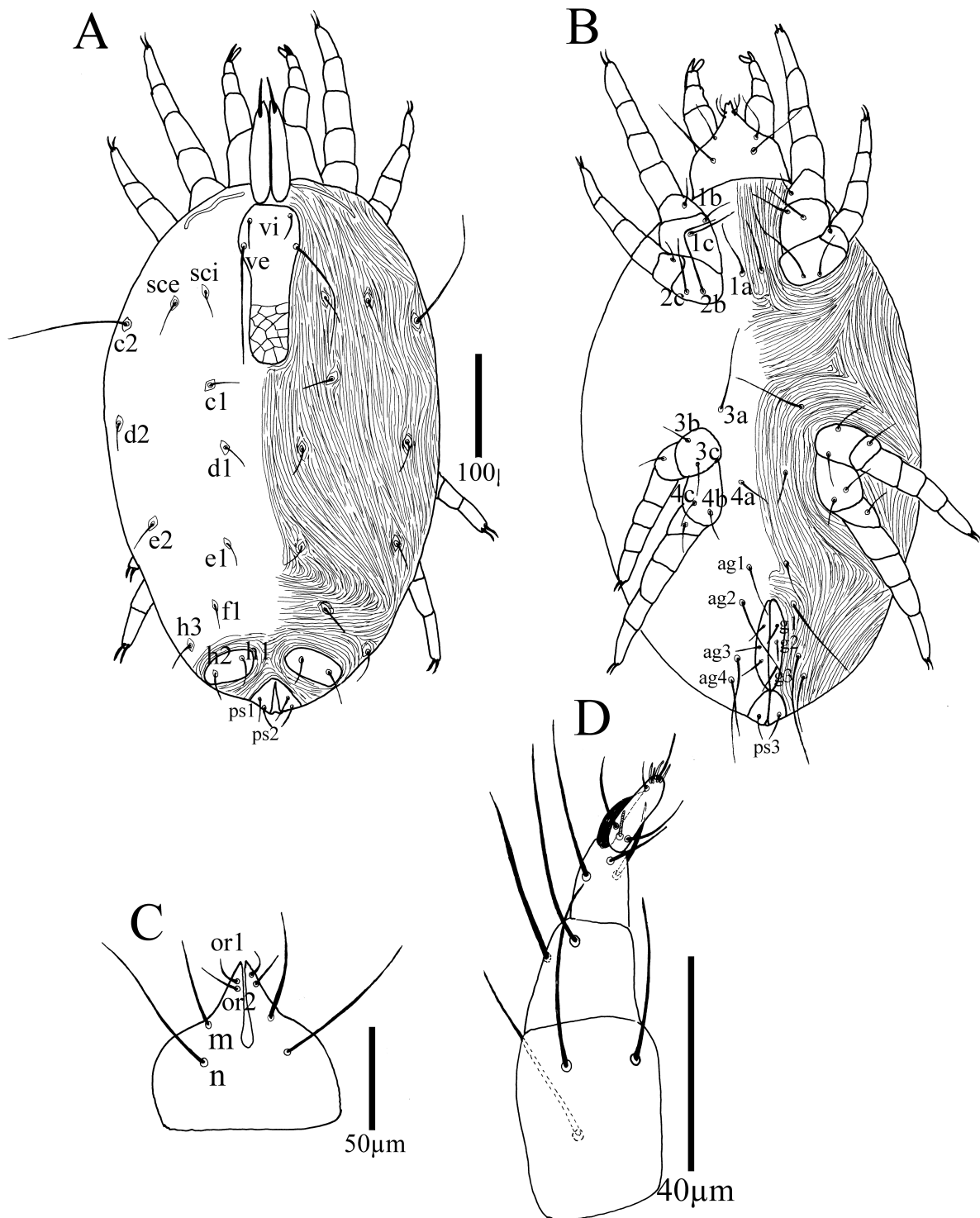


FIGURE 1: *Storchia yazdaniani* n. sp. (Female) A – Dorsal view of body. B – Ventral view of body. C – Subcapitulum. D – Palp.

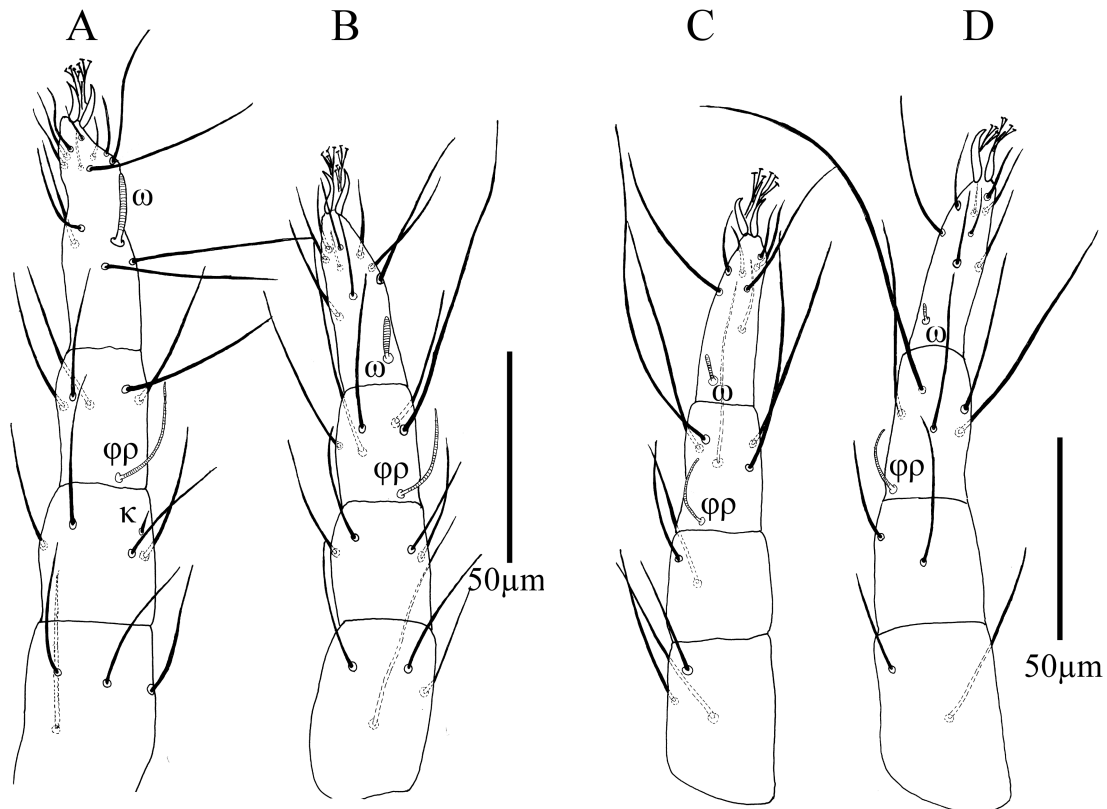


FIGURE 2: *Storchia yazdani* n. sp. (Female) A – Leg I, femur-tarsus. B – Leg II, femur-tarsus. C – Leg III, femur-tarsus. D – Leg IV, femur-tarsus.

between their insertion. The terminology and abbreviations are based on Kethley (1990). All measurements are given in micrometers (μm).

STIGMAEIDAE

Storchia Oudemans, 1923

Type species: *Caligonella robustus* Berlese, 1885

Diagnosis — Idiosoma elongate to broadly oval; chelicera separated; palptarsus with 4 simple setae + 1ω + 2 subterminal spine-like eupathidia + 2 terminal eupathidia, palptibia with 2 simple setae + 1 claw + 1 accessory claw, palpgenu with 2 setae, palpfemur with 3 setae and palptrochanter without setae; prodorsum with an elongate shield, smooth or reticulated, bearing 2 pairs of setae (vi and ve); sci and sce on platelets; eyes and postocular bodies

(pob) absent; dorsal hysterosomal area C – F mainly striated, without prominent shield, bearing 6 pairs of setae ($c1$, $d1$, $d2$, $e1$, $e2$ and $f1$); with or without intercalary shields; suranal shield divided, with 2 or 3 pairs of setae ($h1$, $h2$ and $h3$); setae $h3$ in ventrolateral position; humeral shield small or vestigial, dorsolateral, with setae $c2$; endopodal shields absent; aggenital area with 4 pairs of aggenital setae; genital and anal valves separated, with 2 – 4 pairs of genital setae and 3 pairs of pseudanal setae (Fan and Zhang 2005; Safasadati *et al.* 2010).

Key to species of *Storchia* of the world (female) (based on Safasadati *et al.* 2010)

1. Trochanter III with two setae.....2
- Trochanter III with one seta.....4

2. Tibia I with two solenidia (φ), genu I with $5+(1\kappa)$ setae 3
— Tibia I with one solenidium (φ), genu I with $4+(1\kappa)$ setae *S. annae*
3. Genua III–IV each bearing three setae, tarsi $13+(1\omega)-8+(1\omega)-6+(1\omega)-6+(1\omega)$ *S. pacifica*
— Genua III–IV each bearing two setae, tarsi $14+(1\omega)-10+(1\omega)-8+(1\omega)-8+(1\omega)$ *S. cuneata*
4. Coxa IV with two setae, number of setae on genua I–II: $4+(1\kappa)-4$ 5
— Coxa IV with one seta, number of setae on genua I–II: $3+(1\kappa)-3$ *S. shanghaiensis*
5. With 2–3 pairs of genital setae 6
— With 4 pairs of genital setae *S. ardabiliensis*
6. Genital valves with two pairs of setae, tarsus IV with $7+(1\omega)$ setae *S. hendersonae*
— Genital valves with three pairs of setae, tarsus IV with $8+(1\omega)$ setae 7
7. Dorsal hysterosomal setae $c1$ nearly $1/4$ distance of $c1 - c1$, setae ve very long and reaching posterior end of prodorsal shield, setae $c2$ more than 3 times length of $c1$ *S. yazdani* n. sp.
— Dorsal hysterosomal setae $c1$ nearly $1/3$ distance of $c1 - c1$, setae ve normal and do not reach to posterior end of prodorsal shield, setae $c2$ about 1.6 times length of φp *S. robustus*

***Storchia yazdani* Bagheri n. sp.
(Figures 1-2)**

Diagnosis

Prodorsal shield reticulated posteriorly; setae ve very long and reaching posterior end of prodorsal shield; dorsum with 14 pairs of setae; trochanter III with one seta; femur IV with two setae; dorsal hysterosomal setae $c1$ nearly $1/4$ distance of $c1 - c1$; $vi/(vi - vi)$ 0.75; $c1/(c1 - c1)$ 0.25; $c1 - c1$: $d1 - d1$: $e1 - e1$: $f1 - f1$ = 1.4: 1: 1: 1.4.

Description

Female (n=5) — Holotype (measurements of paratype in parentheses): Idiosoma oval, length of body (excluding gnathosoma) 538 (520 – 540); length of gnathosoma 110 (105 – 114); width of body 325 (320 – 340); length of leg I 238 (230 – 250); leg II 200 (200 – 215); leg III 200 (188 – 205); leg IV 225 (220 – 238).

Dorsum — (Figure 1A): Prodorsum with a long prodorsal shield, reticulated posteriorly and smooth anteriorly, bearing two pairs of setae (vi and ve); ve very long, 4 times longer than vi and reaching posterior end of prodorsal shield; eyes absent; setae sci and sce on integument; opisthosoma with 6 pairs of setae ($c1$, $d1$, $d2$, $e1$, $e2$ and $f1$); suranal shield divided and with two pairs of setae ($h1$ and $h2$); setae $c2$ and $h3$ situated ventrolaterally; setae $c2$ at least 2 times longer than other dorsal setae excluding ve ; length of dorsal setae vi 32 (30–35); ve 120 (115 – 122); sci 42 (40 – 45); sce 35 (35 – 39); $c1$ 28 (27 – 29); $c2$ 105 (95 – 104); $d1$ 25 (24 – 25); $d2$ 32 (30 – 33); $e1$ 24 (23 – 27); $e2$ 32 (30 – 32); $f1$ 27 (26 – 30); $h1$ 27 (27 – 33); $h2$ 37 (36 – 40); $h3$ 30 (27 – 30); distances between dorsal setae: $vi - vi$ 40 (40 – 45); $ve - ve$ 55 (54 – 58); $vi - ve$ 27 (27 – 30); $sci - sci$ 116 (115 – 120); $sce - sce$ 195 (184 – 194); $ve - sce$ 52 (49 – 53); $sci - c1$ 92 (92 – 95); $sce - c2$ 55 (55 – 62); $c1 - c1$ 110 (109 – 114); $c1 - c2$ 65 (67 – 70); $c2 - c2$ 285 (280 – 290); $c1 - d1$ 65 (64 – 67); $d1 - d1$ 80 (77 – 81); $d1 - d2$ 90 (94 – 100); $d1 - e1$ 92 (90 – 97); $d1 - e2$ 109 (100 – 108); $e1 - e1$ 80 (80 – 88); $e1 - f1$ 62 (55 – 64); $f1 - f1$ 110 (107 – 111); $f1 - h1$ 62 (60 – 65); $f1 - h2$ 70 (65 – 70); $h1 - h1$ 59 (55 – 61); $h2 - h2$ 112 (110 – 117); ratios: $vi/(vi - vi)$ 0.8; $c1/(c1 - c1)$ 0.25; $d1/(d1 - d1)$ 0.31; $e1/(e1 - e1)$ 0.30; $f1/(f1 - f1)$ 0.25; $h1/(h1 - h1)$ 0.45; $h2/(h2 - h2)$ 0.33; $c1 - c1$: $d1 - d1$: $e1 - e1$: $f1 - f1$ = 1.4: 1: 1: 1.4.

Venter — (Figure 1B): Venter with transverse striate between coxisternal II – III, length of setae $1a$ 52 (50 – 55), $1b$ 35 (34 – 37), $1c$ 55 (50 – 57), $2b$ 95 (90 – 95), $2c$ 55 (45 – 50), $3a$ 90 (90 – 96), $3b$ 35 (35 – 37), $3c$ 30 (30 – 32), $4a$ 50 (45 – 50), $4b$ 30 (30 – 32), $4c$ 25 (25 – 27); aggenital area with four pairs of setae ($ag1 - ag4$), $ag1$ 45 (44 – 45), $ag2$ 62 (60 – 64), $ag3$ 90 (88 – 92) and $ag4$ 50 (44 – 50); genital valves with three pairs of genital setae ($g1 - g3$), $g1$ 25 (25 – 27), $g2$ 22 (22 – 23), $g3$ 22 (22 – 23); pseudanal valves with three

pairs of pseudanal setae (*ps1* – *ps3*), *ps1* 22 (22 – 24); *ps2* 22 (22 – 24); *ps3* 22 (23 – 24).

Gnathosoma — Subcapitulum (Figure 1C) with two pairs of subcapitular setae (*m* and *n*), *m* 40 (38 – 41), *n* 80 (78 – 82) and two pairs of adoral setae (*or1* and *or2*), *or1* 25 (23 – 25), *or2* 22 (21 – 22); distances *m* – *m* 38 (37 – 39), *n* – *n* 40 (39 – 40), *m* – *n* – 17 (17 – 18); palpi (Figure 1D) five segmented; palptarsus with 4 simple setae + 1 ω + 2 subterminal spine-like eupathidia + 2 terminal eupathidia; palptibia with three setae + one seta-like accessory claw + one well-developed claw; palpgenu with 2 setae; palpfemora with three setae; palptrochanter without setae.

Legs — (Figures 2A–D): Solenidia φ on tibiae I absent; number of setae and solenidia on legs I – IV: coxae 2-2-2-2; trochanters 1-1-1-1; femora 4-4-3-2; genua 4+1 κ -4-2-2; tibiae 5+1 φ p-5+1 φ p-5+1 φ p-5+1 φ p; tarsi 13+1 ω -9+1 ω -7+1 ω -8+1 ω ; lengths of solenidia: *I* ω 15 (14 – 16), *II* ω 11 (10 – 11); *III* ω 6 (6 – 7); *IV* ω 5 (5 – 6); φ p 28 (27 – 29); *II* φ p 24 (24 – 25); *III* φ p 19 (19 – 20); *IV* φ p 17 (15 – 17).

Male and immature stages — Unknown.

Remarks — *Storchia yazdani* **n. sp.** resembles to *S. robustus* but can be separated by: (1) – *ve* is very long, (115 – 122 μ m), and which can reach the posterior end of prodorsal shield (*vs* 55 – 62 μ m in *S. robustus*); (2) – Humeral setae *c2* long, (95 – 104 μ m), and more than 3 times the length of *c1* (*vs* 32 – 37 μ m and 1.4 times length of *c1* in *S. robustus*); (3) – dorsal hysterosomal setae *c1* nearly 1/4 distance of *c1* – *c1* (*vs* 1/3 distance *c1* – *c1* in *S. robustus*); (4) ratio *1a*: *3a*: *4a* = 1: 1.8: 1 (*vs* 1: 3.2: 1); (5) – ratio *ag1*: *ag2*: *ag3*: *ag4* = 1: 1.4: 2: 1.1 (*vs* 1.5: 1.6: 2.7: 1).

Etymology — This species is named in honour of Dr. Mohsen Yazdani, Gorgan University of Agricultural Sciences and Natural Resources and the friend of the first author

Type material — Holotype and 4 paratype females of *S. yazdani* **n. sp.** were collected from soil and moss, 9 May 2010, in Gorgan (Golestan Province, Iran) by Shiela Shirnbeik Mohajer. The holotype and 1 paratype females were deposited in the Arachnida Collection of Plant Protection Research Institute (Pretoria, South Africa); 2 paratype females were deposited in the Acarological Collec-

tion of the Department of Plant Protection, Faculty of Agriculture, University of Maragheh (Iran) and 1 paratype female was deposited in Jalal Afshar museum (Karaj, Iran).

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