

Storchia mehrvari, a new record of the genus *Storchia* Oudemans, 1923 (Acari: Stigmaeidae) from Turkey and its abnormalities of genital and aggenital setae

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Abstract: The characteristic features of *Storchia mehrvari* Bagheri & Gheblealivand, a new record for the Turkish fauna, are redescribed based on the Turkish specimens. In addition, asymmetric abnormalities in setae on the anogenital area occurring in some adult females are discussed and illustrated.

Key words: *Storchia mehrvari*, Acari, Prostigmata, Stigmaeidae, new record, Turkey

The family Stigmaeidae was erected by Oudemans (1931). The genus *Storchia* Oudemans is one of the smallest genera of the Stigmaeidae. *Storchia* is distinguished by having elongate idiosoma, longitudinal prodorsal shield, lack of eyes, short legs, and separated chelicerae (Bagheri et al., 2012). Individuals of this genus can be found on or between plants and grasses, moss (Bryopsida), soil, and leaf litter and in stored products. To date, it comprises 11 species throughout the world and four species, *Storchia robustus*, *S. ardabiliensis*, *S. hendersonae*, and *S. hakkariensis*, from Turkey (Fan and Yan, 1997; Doğan and Ayyıldız, 2003; Fan and Zhang, 2005; Doğan, 2007; Erman et al., 2007; Akyol, 2011; Uluçay, 2014; Dilkaraoğlu et al., 2015). In this study, *Storchia mehrvari* is recorded for the first time from Turkey. The specimens from Turkey are illustrated.

Soil and litter samples taken from various habitats in Gölarmara (Manisa Province) during 2013 and 2014 were extracted in a Berlese funnel and mounted on slides in Hoyer's medium. The setal nomenclature follows Kethley (1990) and Grandjean (1944). The slide-mounted specimens are deposited in the Acari Collection of Celal Bayar University, Zoology Museum. All measurements are given in micrometers, presented as average, maximum, and minimum.

Genus *Storchia* Oudemans, 1923

Type species: *Caligonella robustus* Berlese, 1885

Diagnosis (female):

Chelicerae separated; palptibial claw half the length of palptarsus; palptarsus with four simple setae, one solenidion, two subterminal eupathidia, and two terminal

eupathidia; subcapitulum with two pairs of subcapitular setae *m* and *n*, two pairs of adoral setae (*ro1-ro2*); eyes and postocular bodies absent; prodorsum with narrow longitudinal shield bearing two pairs of setae (*vi* and *ve*); suranal shield divided, with two or three pairs of setae; ventral opisthosoma with four pairs of aggenital setae; genital covers with two to four pairs of genital setae and anal covers with three pairs of pseudanal setae (Akyol, 2011; Bagheri et al., 2012).

Storchia mehrvari Bagheri & Gheblealivand, 2012

Female (Figures 1 and 2)

Body length (including gnathosoma) 586 (582–593), width 288 (281–291). Gnathosoma length 89 (70–99); ventrally with two pairs of adoral setae (*ro1* and *ro2*) and two pairs of subcapitular setae, dimension of subcapitular setae: *m* 65 (62–68) and *n* 42 (39–47). Palpi five-segmented; counts of setae and solenidion on palpi (femur to tarsi): 3–2–3+1 accessory claw+1 claw–4+1 solenidion+4 eupathidia. Palptrochanter without setae.

Dorsum: Propodosomal shield weakly reticulated posteriorly and with two pairs of setae (*vi*, *ve*); eyes absent; *sci* and *sce* located on minute platelets; dorsal setae six pairs (*c*₁, *d*₁, *d*₂, *e*₁, *e*₂, and *f*₁) located on longitudinal striations; suranal shield divided with two pairs of setae (*h*₁ and *h*₂); *h*₃ situated ventrolaterally; setae *c*₂ second longest setae of dorsal setae; all dorsal setae are simple; length of dorsal setae: *vi* 26 (23–29); *ve* 70 (65–78); *sci* 28 (26–29); *sce* 35 (31–39); *c*₁ 28 (26–29); *c*₂ 41 (39–42); *d*₁ 26 (26); *d*₂ 29 (26–31); *e*₁ 25 (23–26); *e*₂ 28 (26–29); *f*₁ 29 (29); *h*₁ 32 (29–37); *h*₂ 38 (36–39); *h*₃ 28 (23–36); distances between setae: *vi-vi* 36 (34–39); *ve-ve* 46 (44–49); *vi-ve* 27 (23–31); *ve-sci* 52

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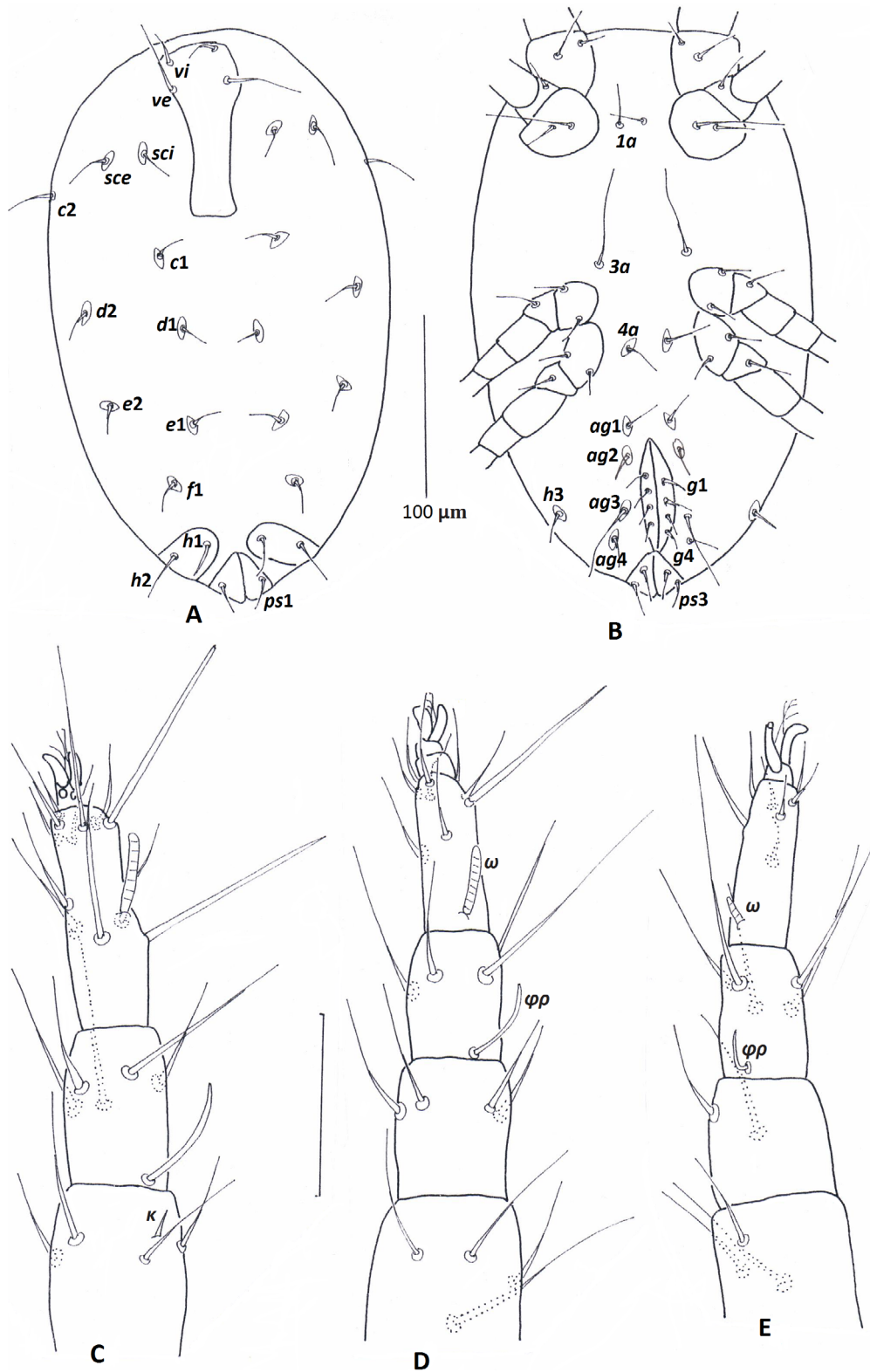


Figure 1. *Storchia mehrvari* female: A) dorsal view, B) ventral view, C) leg I, D) leg II, E) leg III.

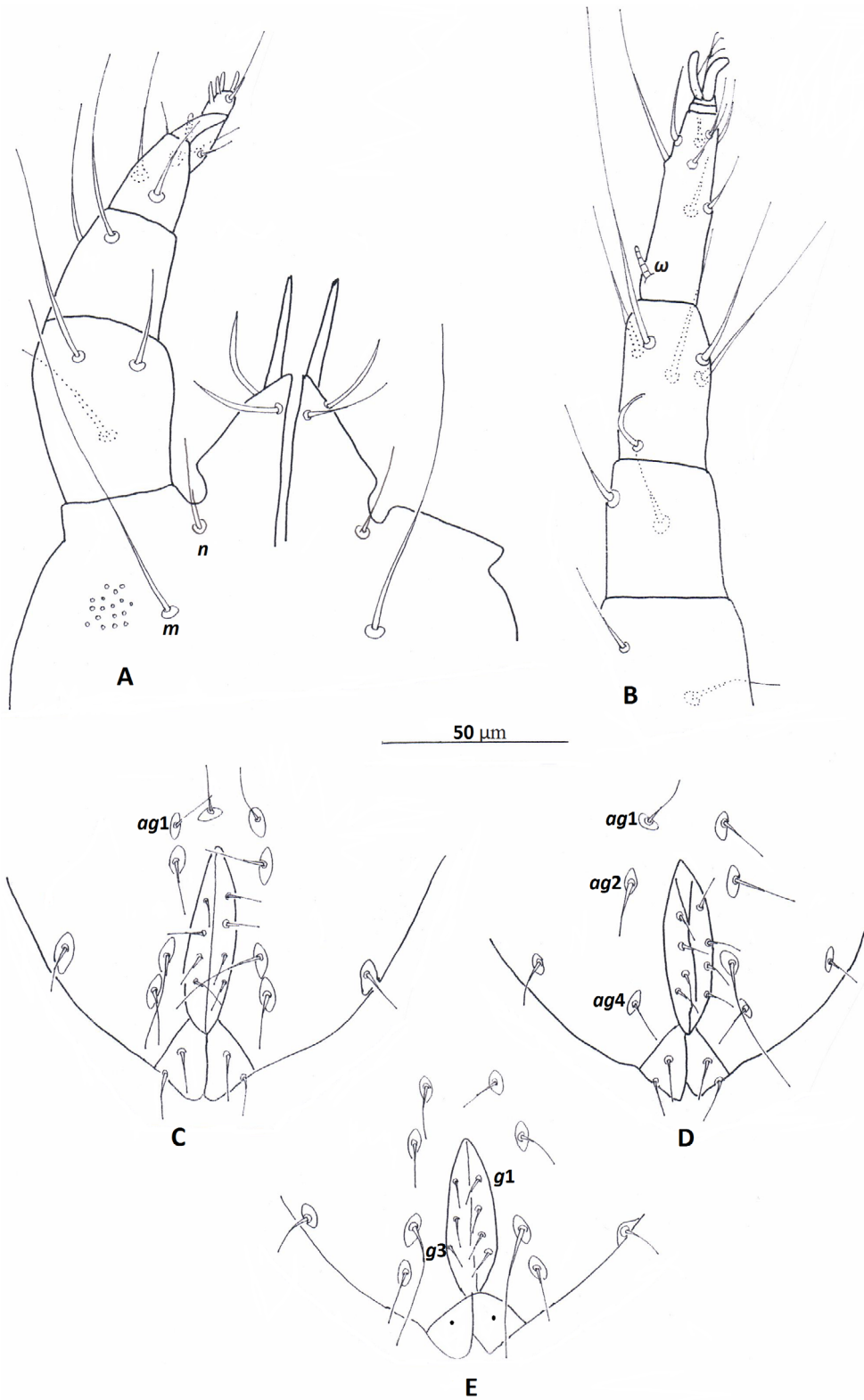


Figure 2. *Storchia mehrvari* female: A) gnathosoma and palp, B) leg IV, C) additional *ag1* seta, D) absent *ag3* seta, E) right genital cover with 3 setae and left genital cover with setae.

(47–55); *sci-sci* 108 (104–117); *sci-sce* 32 (31–34); *sce-sce* 173 (169–177); c_1-c_1 104 (96–112); c_1-d_1 81 (73–86); d_1-d_1 74 (65–78); d_2-d_2 238 (237–239); d_1-e_1 83 (78–88); d_1-e_2 92 (88–96); d_2-e_2 89 (83–96); e_1-e_1 75 (68–81); e_1-e_2 71 (65–75); e_1-f_1 52 (52); e_2-f_1 88 (83–94); f_1-f_1 103 (94–107); f_1-h_1 60 (49–65); f_1-h_2 58 (44–75); h_1-h_1 43 (42–44); h_1-h_2 30 (23–34); h_2-h_2 107 (104–109); *sce-c₂* 58 (52–65); c_1-c_2 103 (99–107); c_1-d_2 75 (73–78); d_1-d_2 88 (83–94); d_1-e_2 92 (88–96); e_1-e_2 71 (65–75); ratios: $vi/vi-vi$ 0.72; c_1/c_1-c_1 0.26; d_1/d_1-d_1 0.35; e_1/e_1-e_1 0.33; f_1/f_1-f_1 0.28; h_1/h_1-h_1 0.74; h_2/h_2-h_2 0.35; $c_1-c_1:d_1-d_1:e_1-e_1:f_1-f_1$ 1.0:0.71:0.72:1.0.

Venter: Coxisternal shields absent; bearing *1a*, *3a*, and *4a*. Aggenital setae four pairs (ag_1-ag_4), ag_3 and ag_4 on separate shield; genital covers bearing four pairs of setae (g_1-g_4) and anal covers with three pairs of pseudanal (ps_1-ps_3) setae; length of setae: *1a* 29 (26–31); *3a* 85 (78–91); *4a* 28 (26–31); ag_1 30 (26–34); ag_2 32 (31–34); ag_3 73 (70–78); ag_4 27 (26–31); g_1 18 (16–21); g_2 18 (18); g_3 18 (18); g_4 18 (18); ps_1 24 (23–26); ps_2 25 (23–26); ps_3 25 (23–26); ratio: *1a:3a:4a* 1.0:3.0:1.0 on separate shields.

Legs: Length of legs (from base of femora to tip of tarsal claws): leg I 196 (192–200), leg II 161 (159–164), leg III 161 (159–164), leg IV 186 (182–195). Chaetotaxy of leg segments as follows: coxae (excluding *1a*, *3a*, and *4a*) 2–2–2–2, trochanters 1–1–1–1, femora 4–4–3–2, genua 4+1κ–4–2–2, tibiae 5+1φρ–5+1φ–5+1φρ–5+1φ, tarsi 13+1ω–9+1ω–7+1ω–8+1ω.

Abnormalities:

Nine abnormal females were collected.

Abnormal-1:

Three females have the left genital valve with 3 genital setae.

Four females have the right genital valve with 3 genital setae.

Abnormal-2:

In one female left ag_3 seta is absent.

In one female left ag_1 seta is a duplex.

Male and immature stages: Unknown.

Material examined: One normal, one abnormal-1 and one abnormal-2 female, Gölmarmara, between Beyler-Taşkuyucak villages, soil and litter under *Pinus* sp., 485 m, 38°43'36"N, 28°01'08"E, 12.09.2013; one normal and 3 abnormal-1 females, Beyler village, soil and litter under *Styrax officinalis*, 129 m, 38°42'35"N, 27°59'00"E, 12.09.2013; one normal and one abnormal-2 female, plateau of Deynekler village, moss, 380 m, 38°41'91"N, 27°50'37"E, 19.12.2013; one abnormal-1 female, Gordes

Dam, litter under *Platanus* sp., 269 m, 38°45'614"N, 28°03'255"E, 12.09.2013; one abnormal-1 female, between Taşkuyucak and Çamköy villages, soil and litter under *Pistacia* sp., 370 m, 38°43'179"N, 28°02'829"E, 12.09.2013; one abnormal-1 female, Deynekler village, soil and litter under *Vitex* sp. 380 m, 38°41'912"N, 27°50'354"E, 19.12.2013.

Distribution: Iran (Bagheri et al., 2012) and Turkey (in this paper).

Storchia mehrvari was described by Bagheri et al. (2012) in Northwest Iran. The holotype was originally found in the soil of apple orchards and three paratypes were collected from soil in sugar beet fields (Bagheri et al., 2012). Our specimens were collected from the soil and litter under *Pinus* sp. and *Styrax officinalis* and from moss. The length and width of the body of the holotype and paratypes (brackets) are: 470 (450–470)/263 (225–255) (Bagheri et al., 2012), but these are 586 (582–593)/288 (281–291) in the Turkish specimens. The Turkish specimens differ by the following features from the Iranian specimens: 1) length of setae *ve* in the Turkish specimens 70 (65–78) versus 82 (80–90) in the type specimens; 2) ratio $c_1-c_1:d_1-d_1:e_1-e_1:f_1-f_1$ 1.0:0.7:0.7:1.0 in the Turkish specimens versus 1.8:1.2:1.3:1.0 in the type specimens; 3) ratio *ve:sci* 2.5 in the Turkish specimens versus *ve:sci* 3.75 in the type specimens; 4) ag_3 and ag_4 located on separate shields in the Turkish specimens versus the same shield in type specimens. The Turkish specimens closely resemble the type specimens in all other features.

Akyol (2011) observed variations in the number of anogenital setae in females of *Storchia ardabiliensis*. He found 20 abnormal specimens. Fifteen specimens had right genital cover with 3 genital setae; four specimens with 5 aggenital setae on one side. In nine Turkish specimens of *S. mehrvari* examined, seven females have 3 genital setae, one female has 5 aggenital setae present, and one female has left ag_3 setae absent. These variations only occur on one side; this may be considered only as a bilateral asymmetric anomaly.

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