

Original article (Orijinal araştırma)

A newly recorded mite species of the genus *Storchia* Oudemans (Acari: Stigmaeidae) from Turkey: *Storchia hendersonae* Fan and Zhang

Türkiye'den *Storchia* Oudemans (Acari: Stigmaeidae) cinsine ait yeni bir akar türü kaydı: *Storchia hendersonae* Fan and Zhang

**Sibel DİLKARAOĞLU*^{1 2} Salih DOĞAN¹ Orhan ERMAN²
Sevgi SEVSAY¹ Sezai ADİL¹**

Summary

Storchia hendersonae, only known from the type locality, New Zealand was herein described and figured based on specimens collected from litter, moss and lichen in Harşit Valley (Turkey). This species is a new record for the mite fauna of Turkey.

Key words: Mite, Raphignathoidea, *Storchia*, new record, Turkey

Özet

Sadece tip yeri olan Yeni Zelenda'da bilinen *Storchia hendersonae*'nin Harşit Vadisi'nden alınan döküntü, yosun ve likenden toplanan örnekleri üzerinden tanımı gözden geçirildi ve şekilleri çizildi. Bu tür, Türkiye akar faunası için yeni kayıttır.

Anahtar sözcükler: Akar, Raphignathoidea, *Storchia*, yeni kayıt, Türkiye

¹ Erzincan Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü, Erzincan, Türkiye

² Fırat Üniversitesi, Fen Fakültesi, Biyoloji Bölümü, Elazığ, Türkiye

* Sorumlu yazar (Corresponding author) e-mail: sdilkara@erzincan.edu.tr

Alınış (Received): 25.05.2015

Kabul edilmiş (Accepted): 11.09.2015

Introduction

The family Stigmaeidae (Acari) is the most abundant in the superfamily Raphignathoidea, and it consists of 32 valid genera (Doğan et al., 2015). The genus *Storchia* Oudemans is one of the smallest genera of Stigmaeidae (Fan & Zhang, 2005). Members of this genus live in/on soil, litter, moss, under tree bark, house dust and stored products (Doğan & Ayyıldız, 2003; Akyol, 2011; Hassanzadeh et al., 2013). This genus comprises eleven species in the world, and to date three species were reported from Turkey: *S. robustus* (Berlese, 1885), *S. hakkariensis* Uluçay, 2014 and *S. ardabiliensis* Safasadati, Khanjani, Razmjou and Doğan, 2010 (Doğan, 2007; Safasadati et al., 2010; Akyol, 2011; Uluçay, 2014). An additional species, *S. hendersonae* has been given from Turkey with this study.

Material and Methods

The mite specimens were extracted in the lichen, moss and litter collected from Harşit Valley using Berlese funnels, cleared in 60% lactic acid and mounted on microscopic slides in Hoyer's medium under stereo microscope. Drawings were made with the aid of a Leica DM 4000 B phase-contrast light microscope. Body size and measurements of various structures of the body were taken in micrometers (μm) with the aid of The Leica Application Suite (LAS) Software Version 3.8. Dorsal idiosomal and leg setal designations follow Kethley (1990) and Grandjean (1944), respectively. Measurements of the drawing specimen were given first and those of other specimen were given parenthetically. Specimens examined were deposited in Acarology Laboratory of Erzincan University, Erzincan, Turkey.

Family: Stigmaeidae Oudemans

Genus: *Storchia* Oudemans

Type species: *Caligonus robustus* Berlese

Diagnosis

Females of the genus *Storchia* can be distinguished by the following characters: Subcapitulum bearing two pairs of subcapitular setae (m , n) and two pairs of adoral setae (or_1 , or_2). Propodosomal shield smooth or reticulated, with two pairs of setae (vi , ve). Eyes and post-ocular bodies absent. Dorsum with 13 or 14 pairs of setae. Suranal shield divided and bearing 2 or 3 pairs of setae (h_1 and h_2 , h_3 present or absent). Humeral shields vestigial or absent. Coxisternal shields absent. Ventral opisthosoma with 4 pairs of aggenital setae and 3 pairs of pseudanal setae, genital valves with 2 to 4 pairs of genital setae (Doğan & Ayyıldız, 2003; Fan & Zhang, 2005; Safasadati et al., 2010; Dönel & Doğan, 2011; Bagheri et al., 2012; Hassanzadeh et al., 2013).

***Storchia hendersonae* Fan and Zhang, 2005**

Female (n=2) (Figures 1, 2)

Idiosoma oval. Length of body 474 (450), width 232 (220).

Gnathosoma. 71 (64), chelicerae 106 (102) long. Subcapitulum with two pairs of adoral setae ($or_{1,2}$) and two pairs of subcapitular setae (m , n). Dimensions and distance between subcapitular setae, m 22 (19), n 76 (71), $m-m$ 29 (28), $n-n$ 33 (32), $m-n$ 13 (11).

Dorsum. Propodosomal shield with reticulations and two pairs of setae (vi , ve). Apodemal marking, eyes and post-ocular bodies absent. *sci* and *sce* on the minute platelets. Dorsal setae c_1 , c_2 , d_1 , d_2 , e_1 , e_2 , f_1 located on striated integument. Humeral shield absent. Suranal shield divided and bearing two pairs of setae (h_1 , h_2). h_3 situated ventrolaterally. All dorsal setae simple. Lengths and distances of dorsal idiosomal setae as follows: vi 20 (19), ve 75 (73), *sci* 21 (20), *sce* 27 (22), c_1 23 (18), c_2 51 (47), d_1 20 (17), d_2 29 (17), e_1 23 (17), e_2 31 (19), f_1 30 (19), h_1 30 (20), h_2 39 (25), h_3 26 (16), $vi-vi$ 27 (26), $ve-ve$ 46

(41), *vi-ve* 19 (10), *sci-sci* 92 (80), *ve-sci* 43 (38), *sce-sce* 146 (144), *sci-sce* 29 (23), *c₁-c₁* 90 (70), *d₂-d₂* 207 (174), *c₁-d₁* 66 (53), *c₁-d₂* 69 (58), *d₁-d₁* 71 (52), *d₂-d₁* 74 (60), *e₂-e₂* 172 (148), *d₂-e₂* 81 (66), *d₁-e₁* 68 (66), *d₁-e₂* 68 (59), *e₁-e₁* 71 (60), *e₂-e₁* 50 (47), *f₁-f₁* 111 (83), *e₁-f₁* 45 (37), *e₂-f₁* 73 (65), *f₁-h₁* 88 (50), *f₁-h₂* 100 (55), *h₁-h₁* 51 (35), *h₂-h₂* 96 (85), *h₁-h₂* 27 (24), *h₃-h₃* 115 (108).

Venter. The coxisternal and aggenital shields absent, three pairs of setae (*1a*, *3a*, *4a*) located on the ventral striated integument. Lengths and distance of these setae: *1a* 40 (17), *3a* 64 (62), *4a* 42 (21), *1a-1a* 17 (16), *3a-3a* 65 (56), *4a-4a* 29 (25). Four pairs of aggenital setae (*ag₁₋₄*) located on the ventral striated integument, around genital shield. Genital covers bearing two pairs of setae (*g_{1, 2}*). Pseudanal covers bearing three pairs of setae (*ps₁₋₃*). Lengths of these setae as follows: *g₁* 19 (15) *g₂* 20 (17), *ag₁* 32 (16), *ag₂* 43 (17), *ag₃* 72 (37), *ag₄* 28 (17), *ps₁* 25 (18), *ps₂* 19 (14), *ps₃* 18 (15).

Legs. Leg I 167 (162), leg II 133 (129), leg III 145 (137), leg IV 161 (158) long. 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(+1κ)-4-2-2, tibiae: 5(+1φρ)-5(+1φρ)-5(+1φρ)-5(+1φρ), tarsi: 13(+1ω)-9(+1ω)-7(+1ω)-7(+1ω). All tarsi with solenidia. Lengths of solenidia: Iω 13 (12), IIω 11 (10), IIIω 5 (5), IVω 5 (4).

Male and immature stages: Unknown.

Material examined: Two females from Harşit Valley, Turkey, 40° 44' 50"N, 39° 01' 40"E, 734 m, lichen and moss under *Rhododendron* sp., 13 October 2013; 40° 22' 22"N, 39° 49' 20"E, 1804 m, moss and litter under *Quercus* sp., 15 September 2014.

Distribution: New Zealand (Fan and Zhang, 2005) and Turkey (this paper).

Remarks: This species is only given before from the type locality, New Zealand by Fan & Zhang (2005). This is the second report of *S. hendersonae* Fan and Zhang for now. This species can easily be distinguished by two pairs of genital setae, lacking solenidion (φ) on tibia I and presence setae 4(+1κ) on genu I.

The Turkish specimens are similar the type specimen in general appearance. Type specimen is 392 in length, 217 in width. *c₂* is about 1.5 times longer than *c₁* (*c₁* 28, *c₂* 43), and the length of *ve* is about twice as long as *vi* (*vi* 24, *ve* 56) in the type specimen (Fan and Zhang, 2005). The Turkish specimens are 474 (450) in length and 232 (220) in width. It is understood that the Turkish specimens are bigger than type specimen. Measurements of the setae *c₁* 23 (18), *c₂* 51 (47), *vi* 20 (19), *ve* 75 (73) in the Turkish specimens, *c₂* is about 2.3 times longer than *c₁* and *ve* is about 3.7 times longer than *vi*.

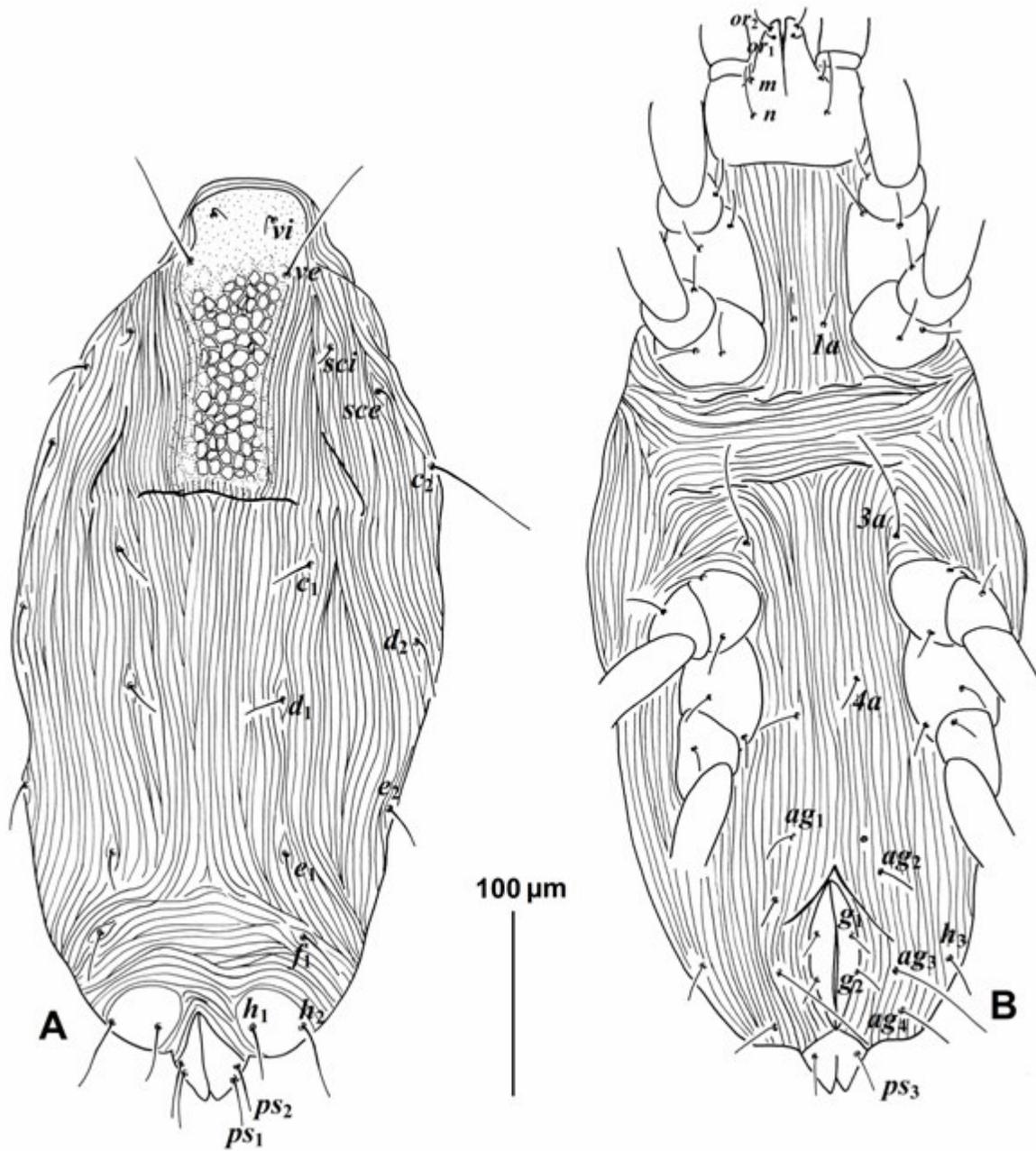


Figure 1. *Storchia hendersonae* (Female). A. Dorsum of body, B. Venter of body.

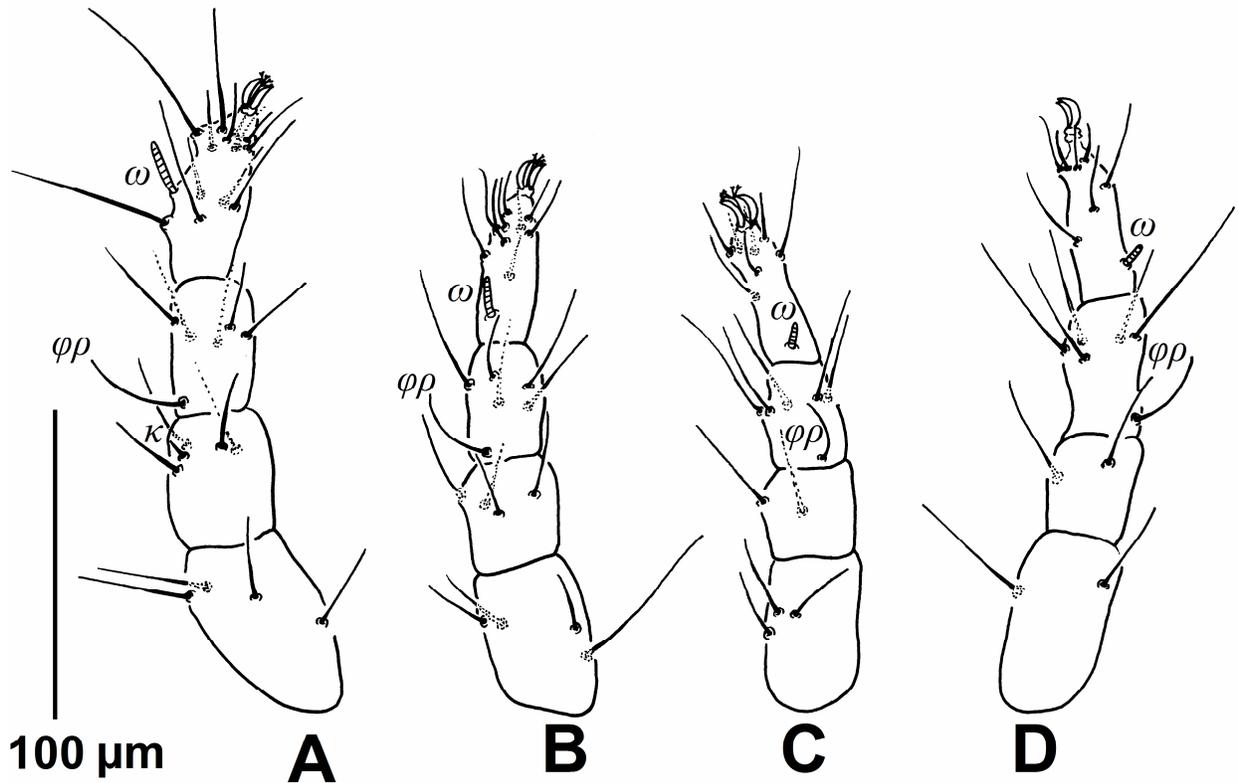


Figure 2. *Storchia hendersonae* (Female). A. Leg I, B. Leg II, C. Leg III, D. Leg IV.

Acknowledgement

This study was financially supported by the Scientific and Technological Research Council of Turkey (TÜBİTAK), research project number 113Z094. This study is a part of the first author's PhD thesis and its most part was presented as a short summary at 1st International Congress on Engineering and Natural Sciences (ICENS 2015) was held from May 15 to 19, 2015 in Skopje, Macedonia.

References

- Akyol, M., 2011. A new record of *Storchia ardebiliensis* and variations in the number of genital, aggenital and external clunal setae in two *Storchia* species (Acari: Stigmaeidae) from the Aegean Coast Turkey. *Systematic and Applied Acarology*, 16: 59-66
- Bagheri, M., S.S. Gheblealivand & E. Zarei, 2012. *Storchia mehrvari*, a new species of the genus *Storchia* Oudemans, 1923 (Acari: Stigmaeidae) from Northwest Iran. *International Journal of Acarology*, 38: 497-503.
- Doğan, S., 2007. Checklist of raphignathoid mites (Acari: Raphignathoidea) of Turkey. *Zootaxa*, 1454: 1-26.
- Doğan, S. & N. Ayyıldız, 2003. *Stigmaeus kamili*, a new species of the genus *Stigmaeus* (Acari: Stigmaeidae) from Turkey with new data of other stigmaeid mites. *Archives des Sciences*, 56: 1-10.
- Doğan, S., M. Bingül, S. Dilkaraoğlu & Q.-H. Fan, 2015. Description of a new species of the genus *Stigmaeus* Koch (Acari: Stigmaeidae) from Turkey, with a list of described species in the world. *International Journal of Acarology*, 41: 290-299.
- Dönel, G. & S. Doğan, 2011. The stigmaeid mites (Acari: Stigmaeidae) of Kelkit Valley (Turkey). *Zootaxa*, 2942: 1-56.
- Fan, Q.-H. & Z.-Q. Zhang, 2005. Raphignathoidea (Acari: Prostigmata). *Fauna of New Zealand* 52. Manaaki Whenua Press, Lincoln, 400 pp.

- Grandjean, F., 1944. Observations sur les acariens de la famille des Stigmaeidae. Archives des Sciences Physiques et Naturelles, 26: 103-131.
- Hassanzadeh, M., M. Khanjani, M.H. Safaralizadeh & S. Mirfakhraie, 2013. A new species of the genus *Storchia* Oudemans (Acari: Stigmaeidae) from northwest Iran. Systematic and Applied Acarology, 18: 351-356.
- Kethley, J., 1990. "Acarina: Prostigmata (Actinedida), 667-756". In: Soil Biology Guide (Ed: Dindal, D.L.). John Wiley & Sons, New York, 1376 pp.
- Safasadati, V.S., M. Khanjani, J. Razmjou & S. Doğan, 2010. A new species of the genus *Storchia* Oudemans (Acari: Stigmaeidae) from northwest Iran. Systematic and Applied Acarology, 15: 129-134.
- Uluçay, İ., 2014. *Storchia hakkariensis*, a new species of the genus *Storchia* Oudemans, 1923 (Acari: Stigmaeidae) from eastern Turkey. International Journal of Acarology, 40: 220-224.