



Mites of the genus *Stigmaeus* (Trombidiformes: Stigmaeidae) from East Azerbaijan Province of Iran with two new records and redescription of two species

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ABSTRACT

In a faunistic study on the family Stigmaeidae in East Azerbaijan Province of Iran, a total of 27 species of the genus *Stigmaeus* were collected and identified, of which two species — *Stigmaeus creber* Barilo, 1986 and *S. pseudoangustus* Stathakis, Kapaxidi & Papadoulis, 2019— were recorded for the first time from Iran. We also redescribed males and females of *S. glypticus* Summers, 1962 and *S. sinai* Swift, 1987, provided diagnosis for the rest of the species, and compiled an information table for all known species of *Stigmaeus* from Iran.

KEYWORDS

Male specimen, Maragheb, phytophagous mites, predatory mites, soil mites

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INTRODUCTION

Members of the family Stigmaeidae Oudemans (Acari: Trombidiformes) have worldwide distribution and can be found in a large range of habitats (Fan and Zhang 2005). Some species are predators, while others are most likely phytophagous, feeding on moss or lichen. A few species are found in association with sandflies (Fan and Zhang 2005; Walter *et al.* 2009; Fan *et al.* 2016; Khaustov 2019). This family contains more than 640 species in 33 valid genera where the genus *Stigmaeus* is the largest and most diverse genus in the family and currently comprises about 163 species (Beron 2020, 2022; Rostami and Mohammad-Doustaresharaf 2021; Bagheri and Mohammad-Doustaresharaf 2024). To date, 50 species of *Stigmaeus* have been recorded or described from Iran (Fan *et al.* 2016, 2019; Beron 2020, 2022; Mohammad-Doustaresharaf and Bagheri 2021; Ahmad-Hosseini and Jafari 2022; Mohammad-Doustaresharaf *et al.* 2023; Bagheri and Mohammad-Doustaresharaf 2024). During the present survey, a total of 27 species of *Stigmaeus* were identified; males and females of *S. glypticus* and *S. sinai* are redescribed, diagnoses are provided for the other 25 species, and a table (Table 1) summarizing the information on all known species of *Stigmaeus* from Iran is presented.

MATERIAL AND METHODS

Samples of soil, moss, ground litter, lichens and plants were collected by the senior author during 2024–2025 from East Azerbaijan Province of Iran. Mites from these samples were extracted using



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Berlese-Tullgren funnels, stored in 70% ethanol, cleared in Nesbitt's fluid and mounted in Hoyer's medium. Illustrations were made with the aid of a camera lucida attached to an Olympus BX41 microscope, then scanned and digitally cleaned up using Corel DRAW X7. Measurements were taken as follows: length of idiosoma from the base of chelicerae to the posterior margin of idiosoma, width of idiosoma at the broadest part and setae from the alveoli to the tips. For the legs, measurements were made from base of trochanter to the tarsal tips. All measurements are given in micrometers (μm).

Terminology – The terminology and abbreviations used in the redescrptions follow those of Grandjean (1939, 1944, 1946) and Kethley (1990).

Table 1. Diagnostic characters for identification of the genus *Stigmaeus* recorded from Iran.

Species/ Characters	<i>S.</i> <i>alvandis</i>	<i>S.</i> <i>angustus</i>	<i>S.</i> <i>bagherii</i>	<i>S.</i> <i>candidus</i>	<i>S.</i> <i>cariaae</i>	<i>S.</i> <i>corticeus</i>	<i>S.</i> <i>creber</i>	<i>S.</i> <i>delaramae</i>
Femora	4-4-3-1	6-4-3-2	4-4-3-2	6-5-3-2	4-4-3-2	6-5-3-2	6-4-3-2	6-5-3-2
Genua	5(1)-5-2-2	3(1)-3(1)-1-1	5(1)-2-0-2	5(1)-2-0-1	5(1)-2-0-1	3(1)-3(1)-1-1	3(1)-3(1)-1-1	3(1)-3(1)-1-1
Tarsi I-II	13(1)-9(1)	13(1)-9(1)	13(1)-8(1)	12(1)-8(1)	13(1)-8(1)	13(1)-9(1)	13(1)-9(1)	13(1)-9(1)
Prodorsal shield	Reticulate	Smooth	Reticulate	Reticulate	Reticulate	Reticulate	Smooth	Reticulate
Seta h_3	Present	Absent	Absent	Present	Present	Absent	Absent	Absent
Eyes	Absent	Present	Absent	Absent	Absent	Present	Present	Present
Suranal shield	Divided	Entire	Entire	Entire	Divided	Entire	Entire	Entire
No. of setae on M.H.S.*	2 pairs	2 pairs	0	No shield	2 pairs	2 pairs	3 pairs	3 pairs
No. of ag, g	4, 2	3, 1	3, 2	4, 3	4, 2	3, 1	3, 1	3, 1
References	Kanjani and Jeckermann (2002)	M.-D.** and Bagheri (2018)	Rostami and M.-D.** (2021)	Faraji and Ueckermann (2006)	Khanjani <i>et al.</i> (2012)	Silsepour <i>et al.</i> (2014)	This study	Khanjani <i>et al.</i> (2014)

Species / Characters	<i>S.</i> <i>diversus</i>	<i>S.</i> <i>dokeri</i>	<i>S.</i> <i>echinopus</i>	<i>S.</i> <i>elongatus</i>	<i>S.</i> <i>fissicomus</i>	<i>S.</i> <i>furcatus</i>	<i>S.</i> <i>glypticus</i>	<i>S.</i> <i>haddadi</i>
Femora	6-5-3-2	4-4-3-2	6-5-3-2	6-6-3-2	6-5-3-2	6-4-3-2	6-5-3-2	6-5-3-2
Genua	2(1)-2(1)-0-0	5(1)-5-2-2	3(1)-3(1)-1-1	5(1)-5-3-3	3(1)-3(1)-1-1	4(1)-4(1)-1-1	3(1)-3(1)-1-1	3(1)-3(1)-1-1
Tarsi I-II	13(1)-9(1)	13(1)-8(1)	13(1)-9(1)	13(1)-9(1)	13(1)-9(1)	13(1)-9(1)	13(1)-9(1)	13(1)-9(1)
Prodorsal shield	Reticulate	Reticulate	Reticulate	Reticulate	Reticulate	Reticulate	Reticulate	Reticulate
Seta h_3	Absent	Present	Absent	Present	Absent	Absent	Absent	Absent
Eyes	Present	Absent	Absent	Absent	Present	Absent	Absent	Present
Suranal shield	Entire	Entire	Entire	Entire	Entire	Entire	Entire	Entire
No. of setae on M.H.S.*	2 pairs	0	2 pairs	No shield	3 pairs	2 pairs	3 pairs	3 pairs
No. of ag, g	3, 1	4, 2	3, 1	5, 3	2, 1	5, 2	3, 1	3, 1
References	M.-D.** and Bagheri (2019)	M.-D.** and Bagheri (2023)	Ahaniazad <i>et al.</i> (2013)	Khanjani and Ueckermann (2002)	Kamali <i>et al.</i> (2001)	Majidi <i>et al.</i> (2019)	Hajizadeh <i>et al.</i> (2013)	Zarei and Bagheri (2012)

Species / Characters	<i>S.</i> <i>hashtardiensis</i>	<i>S.</i> <i>iranensis</i>	<i>S.</i> <i>isfahaniensis</i>	<i>S.</i> <i>jalili</i>	<i>S.</i> <i>kamili</i>	<i>S.</i> <i>kermaniensis</i>
Femora	4-4-3-2	4-4-3-2	4-4-3-2	4-4-3-2	6-5-3-2	6-5-3-2
Genua	5(1)-4-1-2	5(1)-4-0-2	5(1)-4-1-2	5(1)-5-2-2	3(1)-3(1)-1-1	5(1)-4-4-3
Tarsi I-II	13(1)-8(1)	13(1)-8(1)	13(1)-8(1)	13(1)-8(1)	13(1)-9(1)	13(1)-8(1)

* No. of setae on M.H.S. = Number of setae on Median Hysterosomal Shield; ** M.-D. = Mohammad-Doustaresharaf

Table 1. Continued.

Species / Characters	<i>S. hashtrudiensis</i>	<i>S. iranensis</i>	<i>S. isfahaniensis</i>	<i>S. jalili</i>	<i>S. kamili</i>	<i>S. kermaniensis</i>
Prodorsal shield	Reticulate	Smooth	Smooth	Reticulate	Reticulate	-
Seta <i>h</i> ₃	Present	Present	Present	Present	Absent	Present
Eyes	Absent	Absent	Absent	Absent	Absent	Absent
Suranal shield	Divided	Divided	Divided	Divided	Entire	Entire
No. of setae on M.H.S.*	2 pairs	2 pairs	2 pairs	2 pairs	3 pairs	No shield
N. of <i>ag, g</i>	4, 2	4, 2	4, 2	4, 1	4, 2	4, 3
References	Bagheri <i>et al.</i> (2014b)	Bagheri <i>et al.</i> (2012)	Bagheri <i>et al.</i> (2014a)	Fakhari <i>et al.</i> (2015)	Ahaniazad <i>et al.</i> (2014)	Changizi <i>et al.</i> (2012)

Species / Characters	<i>S. kermanshahiensis</i>	<i>S. kurdistaniensis</i>	<i>S. ladanae</i>	<i>S. longipilis</i>	<i>S. luxtoni</i>
Femora	4-4-3-2	6-5-3-2	4-4-3-2	6-5-3-2	6-5-3-2
Genua	5(1)-3-0-2	3(1)-3(1)-1-1	5(1)-5-2-2	3(1)-2-0-1	3(1)-3(1)-1-1
Tarsi I-II	13(1)-8(1)	13(1)-9(1)	13(1)-9(1)	13(1)-8(1)	13(1)-9(1)
Prodorsal shield	Reticulate	Reticulate	Reticulate	Smooth	Reticulate
Seta <i>h</i> ₃	Present	Absent	Present	Absent	Absent
Eyes	Absent	Absent	Absent	Present	Present
Suranal shield	Divided	Entire	Entire	Entire	Entire
No. of setae on M.H.S.*	2 pairs	2 pairs	2 pairs	3 pairs	2 pairs
No. of <i>ag, g</i>	4, 2	3, 1	4, 2	3, 1	3, 1
References	Khanjani <i>et al.</i> (2012)	Khanjani <i>et al.</i> (2015)	Nazari <i>et al.</i> (2012)	Pahlavan Yali <i>et al.</i> (2011)	Noei <i>et al.</i> (2007)

Species / Characters	<i>S. makouiensis</i>	<i>S. malekii</i>	<i>S. maraghehiensis</i>	<i>S. marandiensis</i>	<i>S. miandoabiensis</i>
Femora	4-4-3-2	6-4-3-2	4-4-3-2	4-4-3-2	4-4-3-2
Genua	5(1)-4-1-2	3(1)-3(1)-1-1	5(1)-5-2-2	5(1)-4-1-2	5(1)-3-0-1
Tarsi I-II	13(1)-8(1)	12(1)-9(1)	13(1)-8(1)	13(1)-8(1)	13(1)-8(1)
Prodorsal shield	Reticulate	Smooth	Reticulate	Smooth	Reticulate
Seta <i>h</i> ₃	Present	Absent	Present	Present	Present
Eyes	Absent	Present	Absent	Absent	Absent
Suranal shield	Divided	Entire	Entire	Divided	Divided
No. of setae on M.H.S.*	2 pairs	3 pairs	2 pairs	2 pairs	2 pairs
No. of <i>ag, g</i>	4, 2	3, 1	4, 2	4, 2	4, 2
References	Bagheri <i>et al.</i> (2013)	Haddad Irani-Nejad <i>et al.</i> (2006)	Bagheri <i>et al.</i> (2012b)	Bagheri <i>et al.</i> (2011a)	Bagheri and Zarei (2012)

Species / Characters	<i>S. mimus</i>	<i>S. nahavandicus</i>	<i>S. nasrinae</i>	<i>S. petrophilus</i>	<i>S. pilatus</i>
Femora	6-5-3-2	6-5-3-2	4-4-3-2	6-5-3-2	6-4-3-2
Genua	3(1)-3(1)-1-1	2(1)-2(1)-0-0	5-2-0-1	4-4-1-1	3(1)-3(1)-1-1
Tarsi I-II	13(1)-9(1)	13(1)-9(1)	13(1)-8(1)	13(1)-8(1)	13(1)-9(1)

* No. of setae on M.H.S. = Number of setae on Median Hysterosomal Shield.

Table 1. Continued.

Species / Characters	<i>S. mimus</i>	<i>S. nahavandicus</i>	<i>S. nasrinae</i>	<i>S. petrophilus</i>	<i>S. pilatus</i>		
Prodorsal shield	Reticulate	Reticulate	Reticulate	Reticulate	Smooth		
Seta <i>h</i> ₃	Absent	Absent	Present	Absent	Absent		
Eyes	Absent	Present	Absent	Absent	Present		
Suranal shield	Entire	Entire	Divided	Divided	Entire		
No. of setae on M.H.S.*	2 pairs	2 pairs	shield absent	2 pairs	2 pairs		
No. of <i>ag, g</i>	3, 1	3, 1	4, 2	3, 1	3, 1		
References	Noei <i>et al.</i> (2007)	Khanjani <i>et al.</i> (2017)	Nazari <i>et al.</i> (2012)	Hajizadeh <i>et al.</i> (2013)	Khanjani <i>et al.</i> (2010)		
Species / Characters	<i>S. planus</i>	<i>S. pseudoangustus</i>	<i>S. pulchellus</i>	<i>S. saboorii</i>	<i>S. shabestariensis</i>		
Femora	4-4-3-2	6-4-3-2	4-4-3-2	6-5-3-2	4-4-3-2		
Genua	5(1)-3-0-1	3(1)-3(1)-1-1	5(1)-5-2-2	5(1)-5-3-3	5(1)-5-2-2		
Tarsi I-II	13(1)-8(1)	13(1)-9(1)	13(1)-9(1)	13(1)-8(1)	13(1)-9(1)		
Prodorsal shield	Reticulate	Smooth	Reticulate	-	Reticulate		
Seta <i>h</i> ₃	Present	Absent	Present	Present	Present		
Eyes	Absent	Present	Absent	Absent	Absent		
Suranal shield	Divided	Entire	Divided	Entire	Entire		
No. of setae on M.H.S.*	2 pairs	2 pairs	2 pairs	shield absent	2 pairs		
No. of <i>ag, g</i>	4, 2	3, 1	4, 2	4, 3	4, 2		
References	Doğan <i>et al.</i> (2012)	This study	Bagheri <i>et al.</i> (2011b)	Bagheri <i>et al.</i> (2013)	Haddad Irani-Nejad <i>et al.</i> (2010a)		
Species / Characters	<i>S. shendabadiensis</i>	<i>S. siculus</i>	<i>S. sinai</i>	<i>S. sariensis</i>	<i>S. sphagnethi</i>		
Femora	4-4-3-2	6-5-3-2	6-4-3-2	4-4-3-2	6-5-3-2		
Genua	5(1)-2-0-1	4-3(1)-1-1	5(1)-4(1)-1-1	5(1)-5-2-2	4-4-1-1		
Tarsi I-II	13(1)-8(1)	13(1)-9(1)	13(1)-9(1)	13(1)-8(1)	13(1)-9(1)		
Prodorsal shield	Smooth	Reticulate	Reticulate	Reticulate	Reticulate		
Seta <i>h</i> ₃	Present	Absent	Absent	Present	Absent		
Eyes	Absent	Absent	Absent	Absent	Present		
Suranal shield	Divided	Entire	Entire	Entire	Entire		
No. of setae on M.H.S.*	shield absent	2 pairs	2 pairs	1 pair	3 pairs		
No. of <i>ag, g</i>	4, 2	3, 1	5, 2	4, 2	3, 1		
References	Haddad Irani-Nejad <i>et al.</i> (2010b)	Bagheri <i>et al.</i> (2011b)	Majidi <i>et al.</i> (2019)	Bagheri <i>et al.</i> (2014c)	Akbari <i>et al.</i> (2010)		
Species / Characters	<i>S. ueckermanni</i>	<i>S. unicus</i> ***	<i>S. youngi</i>	Species / Characters	<i>S. ueckermanni</i>	<i>S. unicus</i> ***	<i>S. youngi</i>
Femora	4-4-3-2	6-4-3-2	4-4-3-2	No. of setae on M.H.S.*	2? pairs	2 pairs	2 pairs
Genua	3(1)-3(1)-2-2	3(1)-3-0-0	5(1)-4(1)-0-2	No. of <i>ag, g</i>	4, 2	3?, 0	5, 2
Tarsi I-II	13(1)-8(1)	13(1)-9(1)	13(1)-8(1)	References	Pahlavan Yali <i>et al.</i> (2011)	Khanjani and Ueckermann (2002)	Haddad Irani-Nejad <i>et al.</i> (2006)
Prodorsal shield	Reticulate	Reticulate	Reticulate				
Seta <i>h</i> ₃	Present	Absent	Absent				
Eyes	Absent	Present	Absent				
Suranal shield	Entire	Entire	Entire				

* No. of setae on M.H.S. = Number of setae on Median Hysterosomal Shield; *** information based on redescribed by Khnjani and Ueckermann (2002) (probably based on nymphal stage).

RESULTS

TAXONOMY

Family Stigmaeidae Oudemans, 1931

Genus *Stigmaeus* Koch, 1836

Type species: *Stigmaeus cruentus* Koch, 1836, by subsequent designation.

***Stigmaeus alvandis* Khanjani & Ueckermann, 2002**

Stigmaeus alvandis Khanjani & Ueckermann, 2002: 331

Diagnosis

All dorsal shields with polygonal cell, eyes and postocular bodies absent, two pairs of setae on median opisthosomal shield present, median zonal shield divided, with large lateral zonal shields and suranal shields divided, setae f_2 present, ventral shields and legs reticulated, coxisternal and aggenital shields divided, with 2 genital and 4 aggenital setae, femora I–IV with 4-4-3-1, genua I–IV with 5(+ κ)-5-2-2, tarsi I–II with 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Three females from soil, Maragheh County, East Azerbaijan Province, Iran, 46° 16' 15.570" N, 37° 20' 6.439" E, 1462 m a.s.l., 09.05.2025.

Distribution – Iran (Khanjani and Ueckermann 2002; Fan *et al.* 2016; Beron 2020).

***Stigmaeus cariae* Khanjani, Pishehvar, Mirmoayedi & Khanjani, 2012**

Stigmaeus cariae Khanjani, Pishehvar, Mirmoayedi & Khanjani, 2012: 504.

Diagnosis

Prodorsal shield reticulated centrally, other dorsal shields smooth, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal, intercalary and suranal shields divided, dorsal setae smooth, ve three-times longer than vi , coxisternal shield separate, setae f_2 present, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-2-0-1, tarsi I–II 13(+ ω)-8(+ ω), palptibia with three setae, accessory claw spine-like, terminal eupathidium of palptarsi bifurcate.

Material examined – Five females, Ajabshir County, East Azerbaijan Province, Iran, 45° 59' 15.713" N, 37° 29' 42.264" E, 1365 m a.s.l., 15.08.2025.

Distribution – Iran (Khanjani *et al.* 2012; Fan *et al.* 2016; Beron 2020).

***Stigmaeus corticeus* Kuznetsov & Wainstein, 1977**

Stigmaeus corticeus Kuznetsov & Wainstein, 1977: 477.

Diagnosis

Dorsal shields reticulated, eyes present and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields divided, suranal shield entire, dorsal setae barbed distally, ventral shields reticulated, coxisternal shields separate, setae f_2 absent, genital setae one pair, aggenital setae three pairs, femora I–IV 6-5-3-2, genua I–IV 3(+ κ)-3(+ κ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Two females, Ajabshir County, East Azerbaijan Province, Iran, 45° 59' 15.713" N, 37° 29' 42.264" E, 1365 m a.s.l., 15.08.2025.

Distribution – Crimea, France, Iran, Poland, Russia (Tatarstan), Slovakia and Ukraine (Fan *et al.* 2016; Beron 2020).

Stigmaeus creber* Barilo, 1968Stigmaeus creber* Barilo, 1986: 25.*Diagnosis*

Dorsal shields smooth, eyes present and post-ocular bodies absent, apodemal marking on propodosomal shield present, median hysterosomal shield with three pairs of setae, intercalary shield divided, suranal shield entire, setae f_2 absent, dorsal setae very slightly serrate, ventral shields smooth, coxisternal shields divided, genital setae one pair, aggenital setae three pairs, femora I–IV 6-4-3-2, genua I–IV 3(+ κ)-3(+ κ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Two females. Bonab County, East Azerbaijan Province, Iran, 46° 08' 35.792" N, 37° 30' 14.056" E, 1840 m a.s.l., 12.07.2024.

Distribution – Greece, Türkiye, Uzbekistan (Fan *et al.* 2016; Beron 2020) and Iran (This study).

Remarks

This species was described from Uzbekistan (Barilo 1986). It was also recorded and redescribed from Türkiye (Uluçay 2015) and Greece (Stathakis *et al.* 2019). This is the first record of *S. creber* from Iran.

Stigmaeus dokeri* Mohammad-Doustaresharaf, Bagheri & Lotfollahi, 2023Stigmaeus dokeri* Mohammad-Doustaresharaf, Bagheri & Lotfollahi, 2023: 185.*Diagnosis*

Prodorsal shield with reticulation in central part, other shields smooth; eyes and postocular bodies absent, median hysterosomal shield without setae, setae c_1 and d_1 on integument, suranal shield entire, setae f_2 present, dorsal setae similar in shape, smooth and weakly blunt-tipped, ventral shields smooth, coxisternal shields smooth and divided, genital setae two pairs, aggenital setae three pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-5-2-2, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Two females and one male, Azarshahr County, East Azerbaijan Province, Iran, 45° 58' 5.451" N, 37° 44' 7.168" E, 1387 m a.s.l., 16.06.2025.

Distribution – Iran (Mohammad-Doustaresharaf *et al.* 2023).

Stigmaeus echinopus* Summers, 1962Stigmaeus echinopus* Summers, 1962: 508*Diagnosis*

Dorsal shields reticulated, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields separate, suranal shield entire, setae ve and c_2 longer than other dorsal setae and simple acicular, sharp tipped and with five or six faint barbs distributed on middle third of shafts, rest of setae each with a cluster of barbs distally, setae f_2 absent, ventral shields reticulated, coxisternal shields divided, genital setae one pair, aggenital setae three pairs, legs with reticulations, femora I–IV 6-5-3-2, genua I–IV 4-4-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Three females, Mianeh County, East Azerbaijan Province, Iran, 47° 39' 47.376" N, 37° 24' 58.332" E, 1155 m a.s.l., 17.08.2025.

Distribution – Iran, Ukraine and USA (Fan *et al.* 2016; Beron 2020).

***Stigmaeus elongatus* Berlese, 1886**

Stigmaeus elongatus Berlese, 1886: 7.

Stigmaeus luteus Summers, 1962: 516.

Diagnosis

Dorsum of idiosoma nude except for a small reticulated, prodorsal shield bearing setae *vi* and *ve*, eyes and post-ocular bodies absent, suranal shield entire, dorsal setae almost smooth or with a few little barbs, coxisternal shields smooth and divided, setae *f*₂ present, genital setae three pairs, aggenital setae five pairs, femora I–IV 6-6-3-2, genua I–IV 5(+ ω)-5-3-3, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw seta-like, terminal eupathidium of palptarsi trifid.

Material examined – Ten females, two males, two DN, two PN, Malekan County, East Azerbaijan Province, Iran, 46° 4' 39.086" N, 37° 7' 54.003" E, 1290 m a.s.l, 19.07.2025.

Distribution – Argentina, China, Crimea, Egypt, England, Greece, Iran, Italy, Philippines, Türkiye and USA (Fan *et al.* 2016; Beron 2020).

Stigmaeus glypticus Summers, 1962 (Figs 1–7)

Stigmaeus glypticus Summers, 1962: 505.

Redescription

FEMALE (n = 3)

Dorsum (Fig. 1A) – Body oval and robust; length of body (excluding gnathosoma) 620–625, width 435–450. Dorsal shields ornamented with polygonal reticulations and dimples. Dorsal setae stout, dissimilar (Figs 1A, B), setae *vi*, *ve*, *sce*, *e*₂ and *c*₂ sparsely barbed, gradually tapered to fine tips; setae *sci*, *c*₁, *d*₁, *e*₁, *d*₂, *h*₁, *h*₂ and *f*₁ with barbs more numerous, tips irregularly pointed and with some barbs terminally; setae *ve*, *sce* and *e*₂ very longer than other dorsal setae. Propodosoma with a shield bearing three pairs of setae *vi*, *ve*, *sci* and a pair of postocular bodies (*pob*) 59–67 in diameter; eyes absent; setae *sce* on auxiliary platelets. Hysterosoma with a central shield bearing three pairs of setae *c*₁, *d*₁ and *e*₁; humeral shields ventrally and bearing setae *c*₂; setae *d*₂ on marginal shields; setae *e*₂ on lateral zonal plates and setae *f*₁ on intercalary plates. Suranal shield entire, with two pairs of setae *h*₁ and *h*₂. Lengths and distances of dorsal setae as follows: *vi* 170–180, *ve* 260–285, *sci* 70–72, *sce* 235–245, *c*₁ 125–130, *c*₂ 160–165, *d*₁ 210–217, *d*₂ 147–155, *e*₁ 42 (41–44), *e*₂ 345–355, *f*₁ 120–125, *h*₁ 90–95, *h*₂ 91–96; *vi*–*vi* 25–30, *ve*–*ve* 95–100, *vi*–*ve* 53–55, *sci*–*sci* 160–170, *ve*–*sci* 70–75, *sce*–*sce* 275–280, *sci*–*sce* 45–47, *c*₁–*c*₁ 125–130, *d*₁–*d*₁ 125–130, *e*₁–*e*₁ 85–90, *c*₁–*d*₁ 105–110, *c*₁–*d*₂ 135–140, *d*₂–*d*₂ 350–360, *e*₂–*e*₂ 285–290, *d*₂–*e*₂ 120–125, *d*₁–*e*₁ 100–105, *d*₁–*e*₂ 130–135, *e*₁–*e*₁ 95–100, *f*₁–*f*₁ 150–155, *e*₁–*f*₁ 45–50, *e*₂–*f*₁ 60–65, *h*₁–*h*₁ 55–60, *h*₂–*h*₂ 155–160, *h*₁–*h*₂ 42–44.

Venter (Fig. 2) – Humeral shields oval, ornamented as dorsum, bearing setae *c*₂; endopodal shields of legs I–IV reticulated and divided; aggenital area, smooth and fused in midline with three pairs of smooth or sparsely barbed aggenital setae (*ag*_{1–3}) and one pair of genital setae (*g*₁); pseudanal shield with three pairs of setae (*ps*_{1–3}). *ps*₁ barbed same as dorsal setae, *ps*₂ and *ps*₃ pointed, smooth or with few fine barbs; lengths of ventral setae: *1a* 35–40, *3a* 37–40, *4a* 50–55, *ag*₁ 35–37, *ag*₂ 38–40, *ag*₃ 48–50, *g*₁ 27–30, *ps*₁ 50–53, *ps*₂ 45–47, *ps*₃ 30–32.

Gnathosoma – Subcapitulum reticulated (Fig. 2) with two pairs of subcapitular setae (*m* and *n*) and two pairs of adoral setae (*or*_{1–2}). Palp tibial claw large, about as long as palptarsus (Fig. 3). Setae *l'* on palptibia spine-like, dorsal setae on palp segments barbed. Number of setae on palpal segments: Tr 0, Fe 3 (*d*, *l'*, *v''*), Ge 2 (*d*, *l''*), Ti 3 (*d*, *l'*, *l''*), Ta 8(1 ω) (fused eupathidia *ul'*, *ul''*, *sul*, eupathidia *acm* and *va*, *ba*, *bp*, *lp*, and one solenidion ω). All subcapitular setae smooth and pointed. Lengths of subcapitular setae: *m* 14–15, *n* 15–16, *or*₁ 14–15, *or*₂ 15–16. Length of cheliceral stylets 110–115; length of palps 165–175.

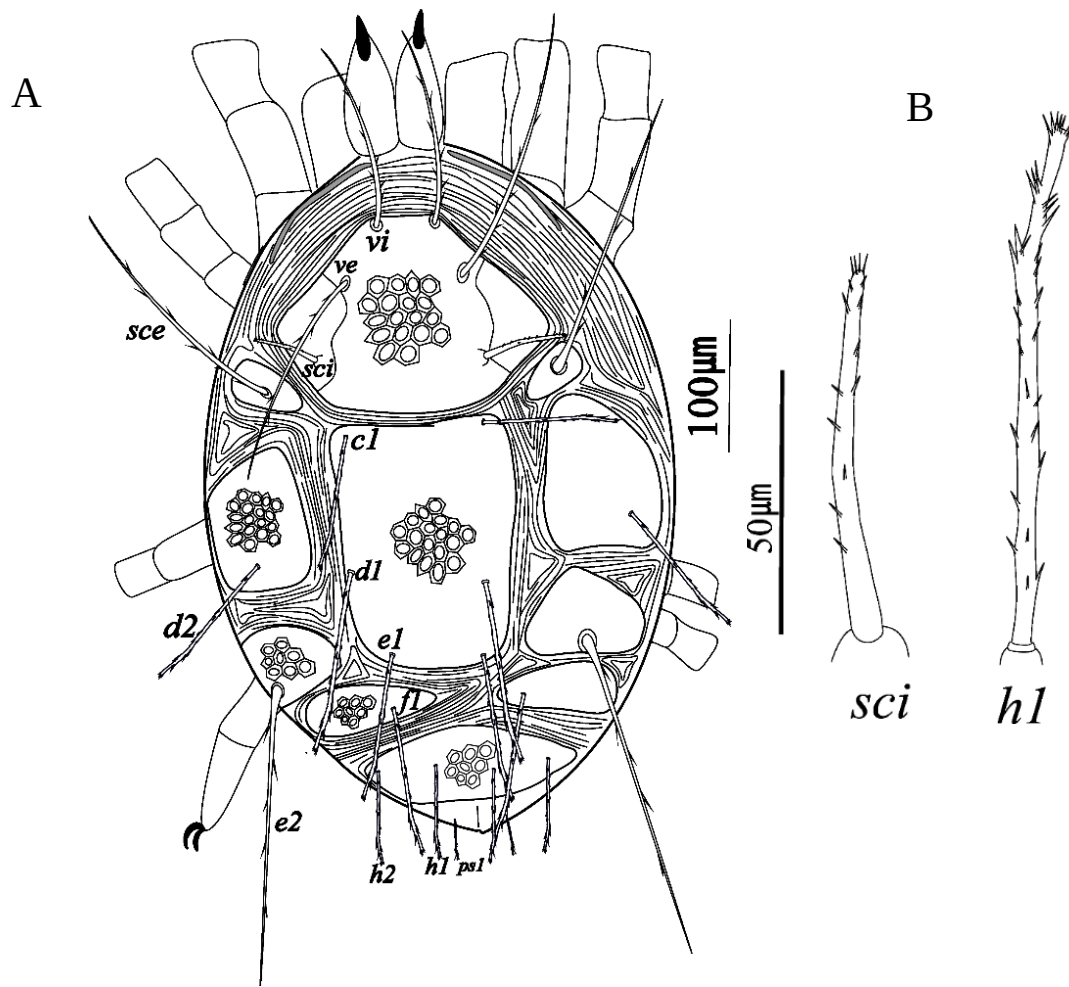


Figure 1. *Stigmaeus glypticus* (female) – A. Dorsum of idiosoma, B. Dorsal setae *sci* and *h1*.

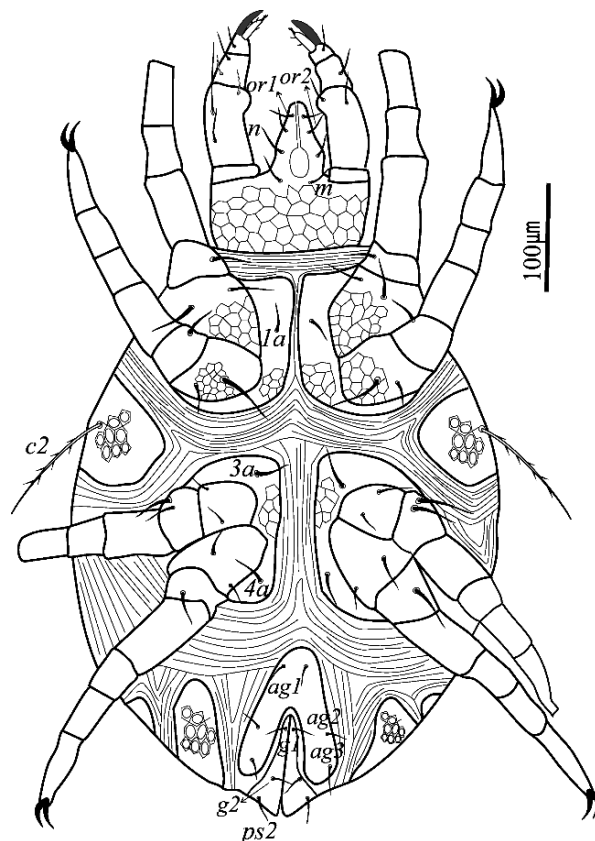


Figure 2. *Stigmaeus glypticus* (female) – Venter of idiosoma.

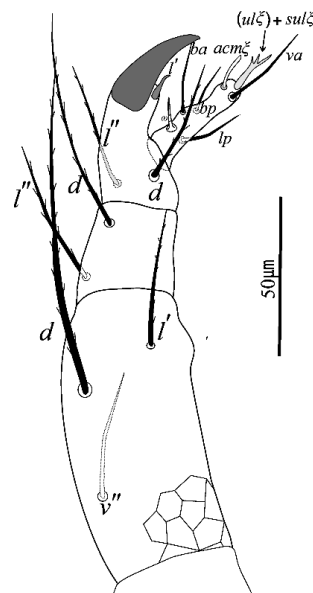


Figure 3. *Stigmaeus glypticus* (female) – Dorsal view of palp.

Legs (Figs 4A–D) – Most of leg segments reticulated; All legs with one pair of well-developed claws. Empodial raylets with distinctly widened tips. Lengths of legs: I 350–360, II 300–308, III 290–300, IV 320–325. Leg I (Fig. 4A). Leg setation: Tr 1 (v), Fe 6 ($d, l', l'', v', v'', bv''$), Ge 3(1) (d, l', l'', κ), Ti 5(2) ($d\xi, l', l'', v', v'', \varphi, \varphi\varphi$), Ta 13(1) ($p'\xi, p''\xi, tc'\xi, tc''\xi, ft'\xi, ft''\xi, u', u'', a', a'', pl', pl'', vs, \omega$). Solenidion ω 24–25 digitiform; solenidion φ 14–15 digitiform, $\varphi\varphi$ 24–26 attenuate, with pointed tip, κ 72–75 very long. Leg II (Fig. 4B). Leg setation: Tr 1 (v), Fe 5 (d, l', l'', v', bv''), Ge 3(1) (d, l', l'', κ), Ti 5(1) ($d\xi, l', l'', v', v'', \varphi$), Ta 9(1) ($p'\xi, tc'\xi, tc'', u', u'', a', a'', pl', vs, \omega$). Solenidion ω 19–20 digitiform; solenidion φ 21–22 attenuate, with pointed tip; κ 17–20. Leg III (Fig. 4C). Leg setation: Tr 2 (v', l'), Fe 3 (d, l', ev), Ge 1 (d), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(1) ($tc', tc'', u', u'', a', a'', vs, \omega$). Solenidion ω 12–13 digitiform; solenidion φ 11–12 attenuate, with pointed tip. Leg IV (Fig. 4D). Leg setation: Tr 1 (v), Fe 2 (d, ev), Ge 1 (d), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(1) ($tc', tc'', u', u'', a', a'', vs, \omega$). Solenidion ω 10–11 digitiform; Solenidion $\varphi\varphi$ 17–20, attenuate, with pointed tip. Seta d of tibia distinctly longer than all other leg setae.

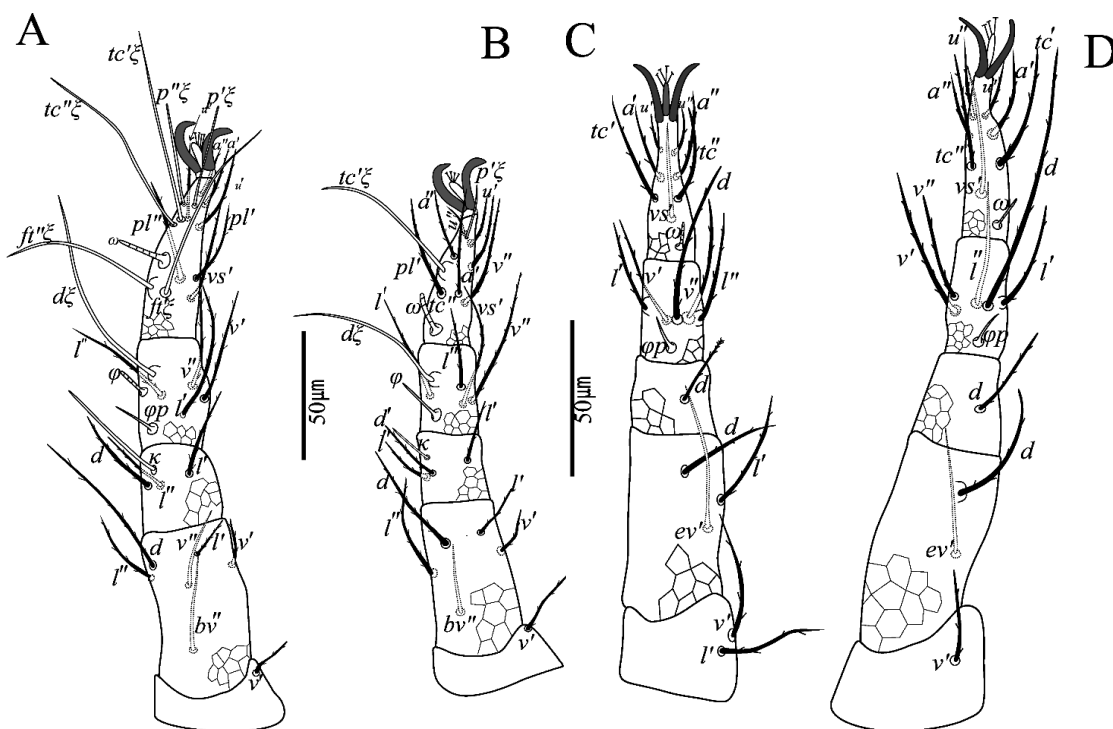


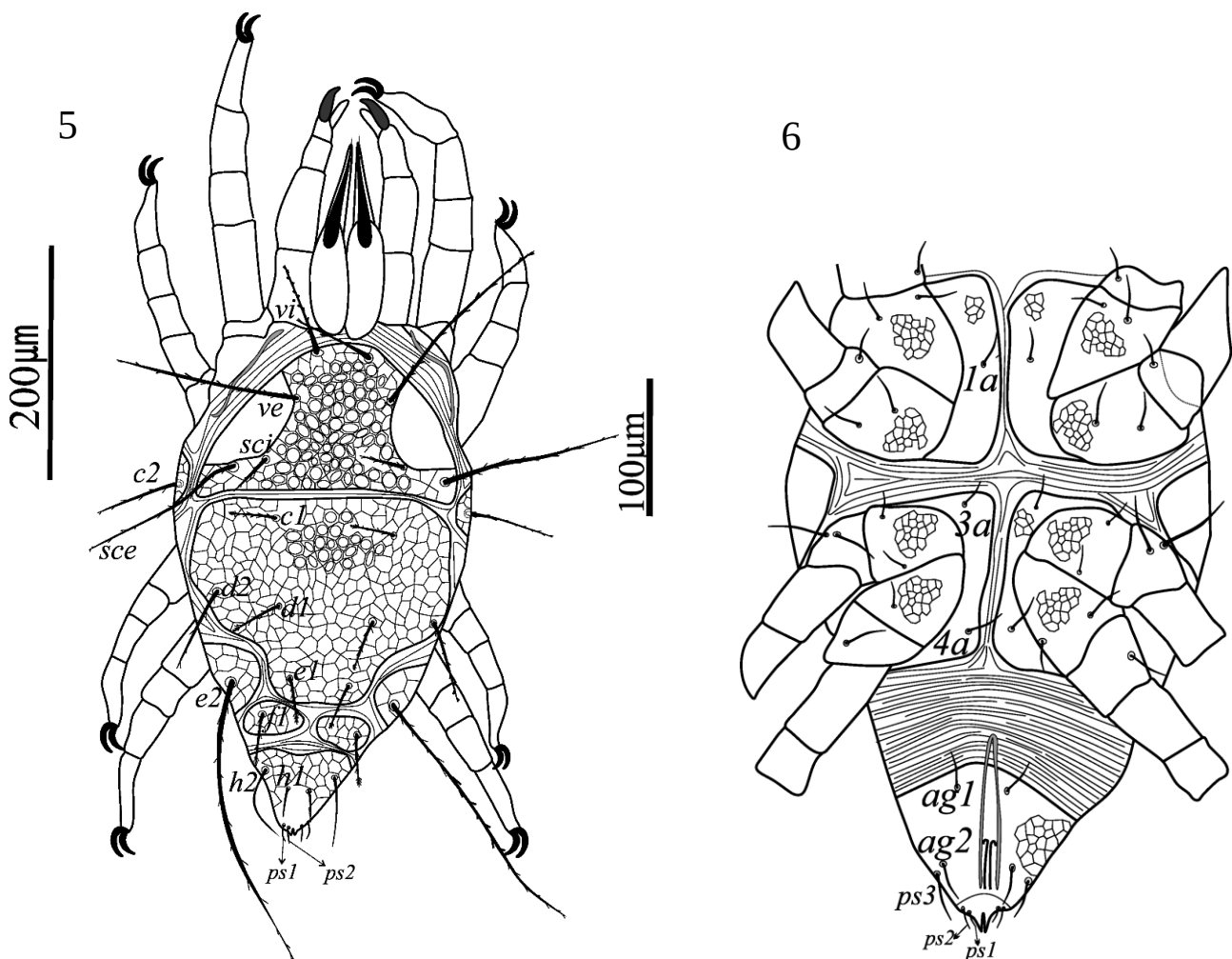
Figure 4. *Stigmaeus glypticus* (female) – A. Leg I; B. Left leg II; C. Leg III; D. Leg IV.

MALE ($n = 1$)

Dorsum (Fig. 5) – Body fusiform; length of body (excluding gnathosoma) 455, width 265, dorsal shields ornamented with polygonal reticulations. Dorsal setae stout, dissimilar; setae *ve*, *sce*, *d₁* and *e₂* very long, sparsely barbed, gradually tapered to fine tips; most of other dorsal setae specially in hysterosoma with barbs more numerous, tips irregularly pointed. Propodosoma with a triangular shield bearing four pairs of setae *vi*, *ve*, *sci*, *sce* and a pair of postocular bodies (*pob*) 59–67 in diameter; eyes absent; hysterosoma with a central shield bearing four pairs of setae *c₁*, *d₁*, *e₁* and *e₂*; humeral shields ventrally and bearing setae *c₂*; setae *e₂* very long and on lateral zonal plates and setae *f₁* on intercalary plates. Suranal shield triangular, entire and with two pairs of setae *h₁* and *h₂*. Lengths and distances of dorsal setae as follows: *vi* 110, *ve* 170, *sci* 40, *sce* 180, *c₁* 50, *c₂* 85, *d₁* 50, *d₂* 75, *e₁* 30, *e₂* 250, *f₁* 40, *h₁* 25, *h₂* 63; *vi*–*vi* 37, *ve*–*ve* 85, *vi*–*ve* 45, *sci*–*sci* 130, *ve*–*sci* 75, *turcica*, *sci*–*sce* 30, *c₁*–*c₁* 110, *d₁*–*d₁* 90, *e₁*–*e₁* 55, *c₁*–*d₁* 80, *c₁*–*d₂* 90, *d₂*–*d₂* 210, *e₂*–*e₂* 155, *d₂*–*e₂* 80, *d₁*–*e₁* 60, *d₁*–*e₂* 80, *e₁*–*e₁* 50, *f₁*–*f₁* 92, *e₁*–*f₁* 50, *e₂*–*f₁* 140, *h₁*–*h₁* 22, *h₂*–*h₂* 77, *h₁*–*h₂* 30.

Venter (Fig. 6) – Humeral shields oval, ornamented as dorsum, bearing setae *c₂*; endopodal shields of legs I–IV reticulated and divided; aggenital area, reticulated and fused in midline with two pairs of smooth aggenital setae (*ag_{1–3}*); pseudanal area with three pairs of setae (*ps_{1–3}*); Lengths of ventral setae: *1a* 25, *3a* 30, *4a* 40, *ag₁* 25, *ag₂* 30, *ag₃* 40, *ps₁* 15, *ps₂* 16, *ps₃* 13.

Gnathosoma – Subcapitulum reticulated with two pairs of subcapitular setae (*m* and *n*) and two pairs of adoral setae (*or_{1–2}*). Palp tibial claw large, about as long as palptarsus. Setae *l'* on palptibia spine-like, dorsal setae on palp segments barbed. Number of setae on palpal segments: Tr 0, Fe 3 (*d*, *l'*, *v'*), Ge 2 (*d*, *l'*), Ti 2 (*d*, *l'*), Ta 8(1 ω) (fused eupathidia *ul'*, *ul''*, *sul*, eupathidia *acm* and *va*, *ba*, *bp*, *lp*, and one solenidion ω). All subcapitular setae smooth and pointed. Lengths of subcapitular setae: *m* 35, *n* 35, *or₁* 27, *or₂* 30. Length of cheliceral stylets 100; length of palps 160.



Figures 5–6. *Stigmaeus glypticus* (male) – 5. Dorsum of idiosoma; 6. Venter of idiosoma.

Legs (Figs 7A–D) – Most of leg segments reticulated; All legs with one pair of well-developed claws. Empodial raylets with distinctly widened tips. Lengths of legs: I 160, II 141, III 140, IV 161. Leg I (Fig. 7A). Leg setation: Tr 1 (v), Fe 6 ($d, l', l'', v', v'', bv''$), Ge 3(1) (d, l', l'', κ), Ti 5(2) ($d\xi, l', l'', v', v'', \varphi, \varphi\varphi$), Ta 13(2) ($p'\xi, p''\xi, tc'\xi, tc''\xi, ft'\xi, ft''\xi, u', u'', a', a'', pl', pl'', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 25 digitiform; Solenidion $\omega 2$ 35 digitiform; solenidion φ 13 digitiform, $\varphi\varphi$ 23 attenuate, κ 50. Leg II (Fig. 7B). Leg setation: Tr 1 (v), Fe 5 (d, l', l'', v', bv''), Ge 3(1) (d, l', l'', κ), Ti 5(1) ($d\xi, l', l'', v', v'', \varphi$), Ta 9(2) ($p'\xi, tc''\xi, tc', u', u'', a', a'', pl', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 18 digitiform, Solenidion $\omega 2$ 30 digitiform; solenidion $\varphi\varphi$ 20 digitiform, with rounded tip, κ 10. Leg III (Fig. 7C). Leg setation: Tr 2 (v', l'), Fe 3 (d, l', ev'), Ge 1 (d), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(1) ($tc', tc'', u', u'', a', a'', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 12 digitiform, Solenidion $\omega 2$ 24 digitiform; solenidion $\varphi\varphi$ 12 digitiform, with pointed tip. Leg IV (Fig. 7D). Leg setation: Tr 1 (v), Fe 2 (d, ev'), Ge 1(d), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(2) ($tc', tc'', u', u'', a', a'', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 12 digitiform; solenidion $\omega 2$ 23 digitiform; solenidion $\varphi\varphi$ 15, attenuate, with pointed tip.

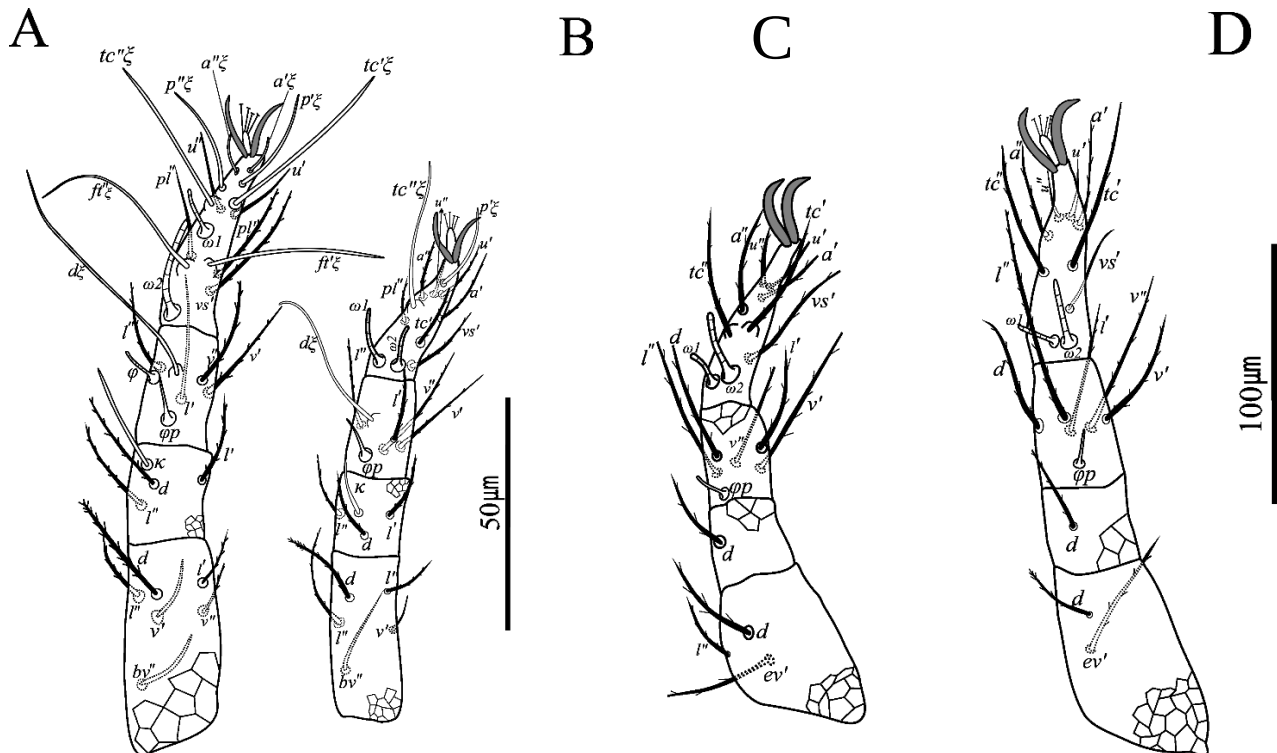


Figure 7. *Stigmaeus glypticus* (male) – **A.** Leg I; **B.** Left leg II; **C.** Leg III; **D.** Leg IV.

Material examined – Three females, one male, Hashtrud County, East Azerbaijan Province, Iran, 47° 2' 51.287" N, 37° 29' 8.382" E, 1661 m a.s.l., 25.08.2025.

Distribution – Canada, Crimea, Iran, Ukraine and USA (Fan *et al.* 2016; Beron 2020).

Remarks

Stigmaeus glypticus was first described by Summers (1962) from USA based on two female slides; he also had one poorly preserved and crushed male specimen. The original description only contained general information on the female and missing details of most characters as provided in modern species descriptions.

Stigmaeus haddadi Bagheri & Zarei, 2012

Stigmaeus haddadi Bagheri & Zarei, 2012 in: Zarei & Bagheri, 2012: 211.

Diagnosis

Dorsal shields with reticulum and dimples, auxiliary shields with setae *sce*; eyes present and post-ocular bodies absent, median hysterosomal shield with three pairs of setae, intercalary shields divided,

suranal shield entire, setae f_2 absent, all dorsal setae (except setae vi , ve and c_2) distinctly barbed near distal ends; setae ve and c_2 acute distally and slightly serrate or smooth, ventral shields reticulated, coxisternal shields smooth and divided, genital setae one pair, aggenital setae three pairs, femora I–IV 6-5-3-2, genua I–IV 3(+ κ)-3(+ κ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Five females, Kaleybar County, East Azerbaijan Province, Iran, 46° 59' 38.621" N, 38° 57' 20.897" E, 1048 m a.s.l., 21.05.2024.

Distribution – Iran (Zarei and Bagheri 2012; Fan *et al.* 2016; Beron 2020).

***Stigmaeus hashtrudiensis* Bagheri & Maleki, 2014**

Stigmaeus hashtrudiensis Bagheri & Maleki, 2014: 122.

Diagnosis

Prodorsal shield reticulated, other dorsal shields smooth, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal, intercalary and suranal shields divided, dorsal setae smooth, coxisternal shield divided, setae f_2 present, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-4-1-2, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw seta-like, terminal eupathidium of palptarsi bifurcate.

Material examined – Three females, Maragheh County, East Azerbaijan Province, Iran, 46° 9' 36.943" N, 37° 25' 29.590" E, 1525 m a.s.l., 05.05.2025.

Distribution – Iran and Türkiye (Fan *et al.* 2016; Beron 2020).

***Stigmaeus iranensis* Bagheri & Gheblealivand, 2012**

Stigmaeus iranensis Bagheri & Gheblealivand, 2012: 44.

Diagnosis

Dorsal shields smooth, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal, intercalary and suranal shields divided, dorsal setae smooth, setae scv and c_2 longer than other dorsal setae, setae f_2 present, ventral shields smooth, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-4-0-2, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw seta-like, terminal eupathidium of palptarsi trifold.

Material examined – Two females, Kaleybar County, East Azerbaijan Province, Iran, 47° 4' 27.759" N, 38° 54' 45.869" E, 1574 m a.s.l., 05.05.2025.

Distribution – Iran (Bagheri *et al.* 2012a; Fan *et al.* 2016; Beron 2020).

***Stigmaeus kamili* Doğan & Ayyıldız, 2003**

Stigmaeus kamili Doğan & Ayyıldız, 2003: 3.

Diagnosis

Dorsal shields with dimples and reticulations, eyes absent but post-ocular bodies present, median hysterosomal shield with three pairs of setae, intercalary shield divided, suranal shield entire, setae f_2 absent, dorsal setae with thin hyaline sheath and faintly spinulate, ventral shields reticulated, coxisternal shields reticulated and divided, genital setae two pairs, aggenital setae three pairs, femora I–IV 6-5-3-2, genua I–IV 3(+ κ)-3(+ κ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Two females, Kaleybar County, East Azerbaijan Province, Iran, 47° 3' 51.878" N, 38° 50' 31.251" E, 1523 m a.s.l., 05.06.2024.

Distribution – Iran and Türkiye (Fan *et al.* 2016; Beron 2020).

***Stigmaeus luxtoni* Wood, 1981**

Stigmaeus luxtoni Wood, 1981: 372.

Stigmaeus turcica Doğan, 2003: 383.

Diagnosis

Dorsal shields with reticulations, eyes present but post-ocular bodies absent, median hysterosomal shield with two pairs of setae, intercalary shield divided, suranal shield entire, setae f_2 absent, ventral shields reticulated, genital setae one pair, aggenital setae three pairs, femora I–IV 6-5-3-2, genua I–IV 3(+ λ)-3(+ λ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Three females, Kaleybar County, East Azerbaijan Province, Iran, 47° 2' 41.428" N, 38° 50' 22.586" E, 1311 m a.s.l., 05.06.2024.

Distribution – Iran, New Zealand and Türkiye (Fan *et al.* 2016; Beron 2020).

Stigmaeus malekii Haddad Irani-Nejad, Bagheri & Khanjani, 2006

Stigmaeus malekii Haddad Irani-Nejad, Bagheri & Khanjani, 2006: 58.

Stigmaeus boshroyehensis Khanjani, Izadi, Asali-Fayaz, Raisi, Rostami & Doğan, 2010: 36.

Diagnosis

Dorsal shields smooth, eyes present and post-ocular bodies absent, median hysterosomal shield with three pairs of setae, intercalary shield divided, suranal shield entire, setae f_2 absent, dorsal setae very slightly serrate, ventral shields smooth, coxisternal shields divided, genital setae one pair, aggenital setae three pairs, femora I–IV 6-4-3-2, genua I–IV 3(+ λ)-3-1-1, tarsi I–II 12(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Two females, Ajabshir County, East Azerbaijan Province, Iran, 45° 59' 2.904" N, 37° 29' 20.797" E, 1408 m a.s.l., 13.06.2025.

Distribution – Iran (Haddad Irani-Nejad *et al.* 2006; Khanjani *et al.* 2010; Fan *et al.* 2016; Beron 2020).

Stigmaeus maraghehiensis Bagheri & Ueckermann, 2012

Stigmaeus maraghehiensis Bagheri & Ueckermann, 2012: 36.

Diagnosis

Prodorsal shield reticulated but other dorsal shields smooth or with vague indication of reticulations, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields divided, suranal shield entire, setae f_2 present, dorsal setae smooth or with fine barbs, ventral shields smooth, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ λ)-5-2-2, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw setae-like, terminal eupathidium of palptarsi trifold.

Material examined – Five females, Hashtrud County, East Azerbaijan Province, Iran, 46° 55' 17.698" N, 37° 22' 29.080" E, 1609 m a.s.l., 14.05.2024.

Distribution – Crimea, Greece, Iran (Fan *et al.* 2016; Beron 2020).

Stigmaeus marandiensis Bagheri & Ueckermann, 2011

Stigmaeus marandiensis Bagheri & Ueckermann, 2011: 182.

Diagnosis

Dorsal shield smooth, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal, intercalary and suranal shields divided, setae f_2 present, dorsal setae with few fine barbs, ventral shields smooth, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ λ)-4-1-2, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, palptibia with two setae, accessory claw setae-like, terminal eupathidium of palptarsi bifurcate

Material examined – Five females, Kaleybar County, East Azerbaijan Province, Iran, 46° 52' 53.226" N, 38° 57' 28.586" E, 1435 m a.s.l., 21.05.2025.

Distribution – Iran (Bagheri *et al.* 2011a; Fan *et al.* 2016; Beron 2020).

***Stigmaeus miandoabensis* Bagheri & Zarei, 2012**

Stigmaeus miandoabensis Bagheri & Zarei, 2012: 442.

Diagnosis

Prodorsal shield reticulated centrally, hysterosomal shields smooth, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae; zonal, intercalary and suranal shields divided, setae f_2 present, dorsal setae smooth, ventral shields smooth, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-3-0-1, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw setae-like, terminal eupathidium of palptarsi bifurcate.

Material examined – Four females, Hashtrud County, East Azerbaijan Province, Iran, 46° 40' 44.491" N, 37° 22' 47.741" E, 1922 m a.s.l., 14.05.2024.

Distribution – Iran (Bagheri and Zarei 2012; Fan *et al.* 2016; Beron 2020).

***Stigmaeus pilatus* Kuznetsov, 1978**

Stigmaeus pilatus Kuznetsov, 1978: 690.

Diagnosis

Dorsal shields smooth, eyes and post-ocular bodies present, median hysterosomal shield with two pairs of setae; zonal and intercalary shields divided, suranal shield entire, dorsal setae smooth, setae ve the longest setae, setae f_2 absent, ventral shields smooth, coxisternal shields divided, genital setae one pair, aggenital setae three pairs, femora I–IV 6-4-3-2, genua I–IV 3(+ κ)-3(+ κ)-1-1, genua I–IV 3(+ κ)-3(+ κ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Seven female, Maragheh County, East Azerbaijan Province, Iran, 46°23'52.538"N37°20'32.511"E, 1645 m a.s.l., 09.05.2025.

Distribution – Azerbaijan, Greece, Iran, Latvia, Poland, Slovakia, Spain, Türkiye, Crimea and Ukraine (Fan *et al.* 2016; Beron 2020).

***Stigmaeus planus* Kuznetsov, 1978**

Stigmaeus planus Kuznetsov, 1978: 691.

Diagnosis

Prodorsal shield with reticulation centrally, other dorsal shields smooth, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields divided, suranal shield entire, dorsal setae smooth, setae f_2 present, ventral shields smooth, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-3-0-1, tarsi I–II 13(+ ω)-8(+ ω), terminal eupathidium of palptarsi trifold.

Material examined – Two females, Hashtrud County, East Azerbaijan Province, Iran, 46° 35' 36.138" N, 37° 28' 48.738" E, 1975 m a.s.l., 11.06.2025.

Distribution – Azerbaijan, Crimea, Iran, Poland, Slovakia, Spain, Türkiye and Ukraine (Fan *et al.* 2016; Beron 2020).

***Stigmaeus pseudoangustus* Stathakis, Kapaxidi & Papadoulis, 2019**

Stigmaeus pseudoangustus Stathakis, Kapaxidi & Papadoulis, 2019: 2056.

Diagnosis

Dorsal shields smooth, propodosomal shield with three pairs of setae, eyes and postocular bodies

(*pob*) present, dorsal setae simple, median hysterosomal shield with two pairs of setae. Suranal shield entire, with two pairs of setae, aggenital shield, entire, with three pairs of setae, genital valves with one pair of genital setae, femora I–IV 6-4-3-2; genua I–IV 3(+ χ)-3(+ χ)-1-1; tarsi I–II 13(+ ω)-9(+ ω). Terminal eupathidium of palptarsi trifid.

Material examined – Five females, Maragheh County, East Azerbaijan Province, Iran, 46° 19' 44.428" N, 37° 34' 6.028" E, 2232 m a.s.l., 12.06.2024.

Distribution – Greece (Fan *et al.* 2016; Stathakis *et al.* 2019; Beron 2020), Iran (This study).

Remarks – This species was described from Greece (Stathakis *et al.* 2019). This is the second record of it in the world.

***Stigmaeus pulchellus* Kuznetsov, 1978**

Stigmaeus pulchellus Kuznetsov, 1978: 691.

Diagnosis

Drodorsal shield with dimples and reticulations, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields divided, suranal shield entire or divided, setae f_2 present, dorsal setae smooth or with fine barbs, ventral shields reticulated, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ χ)-5-2-2, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifid.

Material examined – Six females, Kaleybar County, East Azerbaijan Province, Iran, 46° 44' 53.673" N, 38° 46' 34.205" E, 2003 m a.s.l., 14.05.2024.

Distribution – Crimea, Greece, Iran and Türkiye (Fan *et al.* 2016; Beron 2020).

***Stigmaeus shabestariensis* Haddad, Lotfollahi & Akbari, 2010**

Stigmaeus shabestariensis Haddad, Lotfollahi & Akbari, 2010 in Haddad Irani-Nejad *et al.* 2010a: 370.

Diagnosis

Drodorsal shield with dimples and reticulations, eyes and post-ocular bodies absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields divided, suranal shield entire, setae f_2 present, dorsal setae small and with fine barbs, a pair of auxiliary shields next to the propodosomal shield and a pair of no setae-bearing shields lateral to the intercalary shields, present; coxisternal shields smooth and divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ χ)-5-2-2, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifid.

Material examined – Four females and two males, Ajabshir County, East Azerbaijan Province, Iran, 46° 3' 5.790" N, 37° 30' 21.900" E, 1523 m a.s.l., 23.07.2024.

Distribution – Iran (Haddad Irani-Nejad *et al.* 2010a; Fan *et al.* 2016; Beron 2020).

***Stigmaeus shendabadiensis* Haddad, Akbari & Lotfollahi, 2010**

Stigmaeus shendabadiensis Haddad, Akbari & Lotfollahi 2010 in Haddad Irani-Nejad *et al.* 2010b: 119.

Diagnosis

Dorsal shields smooth, prodorsal shield with setae vi and ve , eyes and post-ocular bodies absent, median hysterosoma without shield, zonal, intercalary and suranal shields divided, setae f_2 present, dorsal setae smooth, ventral shields smooth, coxisternal shields divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ χ)-2-0-1, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw seta-like, terminal eupathidium of palptarsi trifid.

Material examined – Four females, Osku County, East Azerbaijan Province, Iran, 46° 6' 45.791" N, 37° 54' 17.377" E, 1547 m a.s.l., 09.06.2024.

Distribution – Iran (Haddad Irani-Nejad *et al.* 2010b; Fan *et al.* 2016; Beron 2020).

***Stigmaeus siculus* (Berlese, 1883)**

Caligonus siculus Berlese, 1883: 214.

Raphignathus siculus: Berlese, 1885: 22(3), Lombardini, 1936: 48.

Stigmaeus antrodes Berlese, 1910

Diagnosis

Dorsal shields with dimples and reticulations, eyes absent, median hysterosomal shield with two pairs of setae, zonal and intercalary shields divided, suranal shield entire, setae f_2 absent, dorsal setae (except setae ve and c_2) appreciably barbed near distal ends; setae ve and c_2 pointed distally and with so few fine barbs, ventral shield almost smooth but with some faintly subcutaneous reticulation, coxisternal shields divided, genital setae one pair, aggenital setae three pairs, femora I–IV 6-5-3-2, genua I–IV 4-3(+ κ)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold.

Material examined – Five females, Azarshahr County, East Azerbaijan Province, Iran, 46° 0' 16.502" N, 37° 44' 38.078" E, 1547 m a.s.l., 29.06. 2024.

Distribution – Argentina, Austria, Bosnia, Crimea, England, Germany, Greece, Greenland, Netherlands, Iran, Ireland, Italy, Switzerland, Türkiye and USA (Fan *et al.* 2016; Beron 2020).

***Stigmaeus sariensis* Bagheri, 2014**

Stigmaeus sariensis Bagheri, 2014: 286

Diagnosis

Dorsal shield reticulated, eyes and post-ocular bodies absent, median hysterosomal shield with one pair of setae, c_1 on integument, zonal and intercalary shields divided, suranal shield entire, setae f_2 present, dorsal setae with fine barbs, coxisternal shields with vague reticulations and divided, genital setae two pairs, aggenital setae four pairs, femora I–IV 4-4-3-2, genua I–IV 5(+ κ)-5-2-2, tarsi I–II 13(+ ω)-8(+ ω), palptibia with two setae, accessory claw setae-like, terminal eupathidium of palptarsi trifold.

Material examined – Eight females and two males, Maragheh County, East Azerbaijan Province, Iran, 46° 9' 40.033" N, 37° 26' 8.358" E, 1562 m a.s.l., 30.07.2025.

Distribution – Greece and Iran (Fan *et al.* 2016; Beron 2020).

***Stigmaeus sinai* Swift, 1987 (Figs 8–15)**

Stigmaeus sinai Swift, 1987: 239.

Redescription

FEMALE ($n = 2$)

Dorsum (Fig. 8A) – Body oval; length of body (excluding gnathosoma) 340–390, width 210–215. Dorsal shields ornamented with polygonal reticulations and dimples. Propodosoma with a triangular shield bearing three pairs of setae vi , ve and sci ; dimples in the propodosomal shield larger than other shields, median cells of reticulum form a rosette-like pattern; postocular bodies and eyes absent; setae sce on auxiliary plates. Hysterosoma with a rectangular central shield bearing two pairs of setae c_1 and d_1 ; humeral shields ventro-laterally and bearing setae c_2 ; setae d_2 on marginal shields; median zonal shield entire and with setae e_1 ; setae e_2 on lateral zonal plates and setae f_1 on intercalary plates. Suranal shield entire, with two pairs of setae h_1 and h_2 . 13 pairs of dorsal setae thickened, distal two-thirds barbed (Fig. 8B); vi and sci monoaxial, ve trifurcate, all others bifurcate. Lengths and distances of dorsal setae as follows: vi 30–31, ve 30–32, sci 35–36, sce 35–36, c_1 35–36, c_2 35–36, d_1 35–37, d_2 35–37, e_1 35–36, e_2 33–35, f_1 40–41, h_1 44–46, h_2 43–44; $vi-vi$ 32–35, $ve-ve$ 55–57, $vi-ve$ 25–27, $sci-sci$ 105–106, $ve-sci$ 45–47, $sce-sce$ 150–152, $sci-sce$ 25–26, c_1-c_1 80–82, d_1-d_1 75–77, e_1-e_1 65–66, c_1-d_1 70–72, d_1-d_2 73–75, d_2-d_2 195–197, e_2-

e2 135–136, *d2–e2* 75–77, *d1–e1* 53–55, *d1–e2* 62–64, *e1–e2* 43–45, *f1–f1* 86–88, *e1–f1* 35–37, *e2–f1* 51–53, *b1–b1* 35–37, *b2–b2* 107–110, *b1–b2* 35–37.

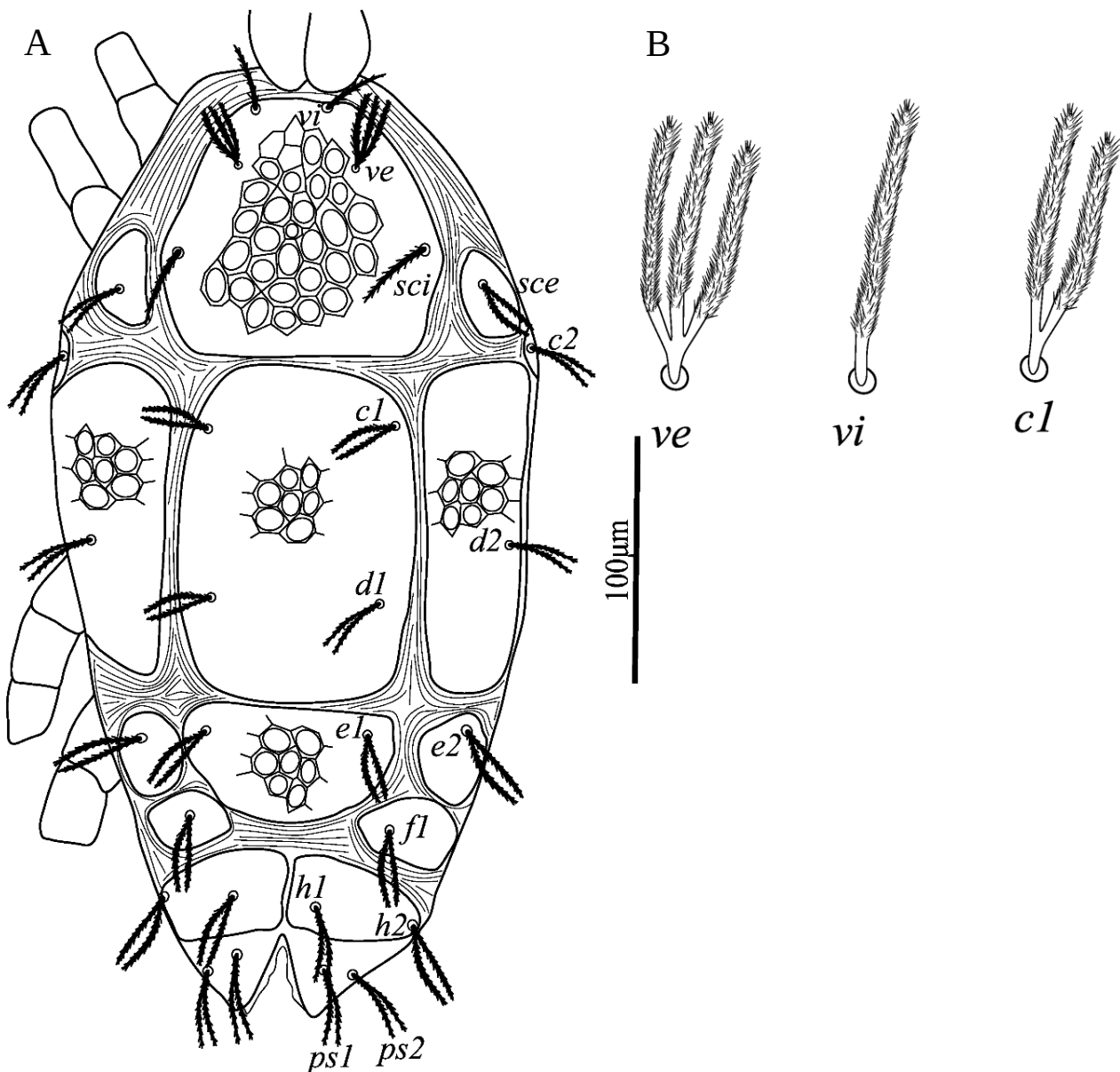
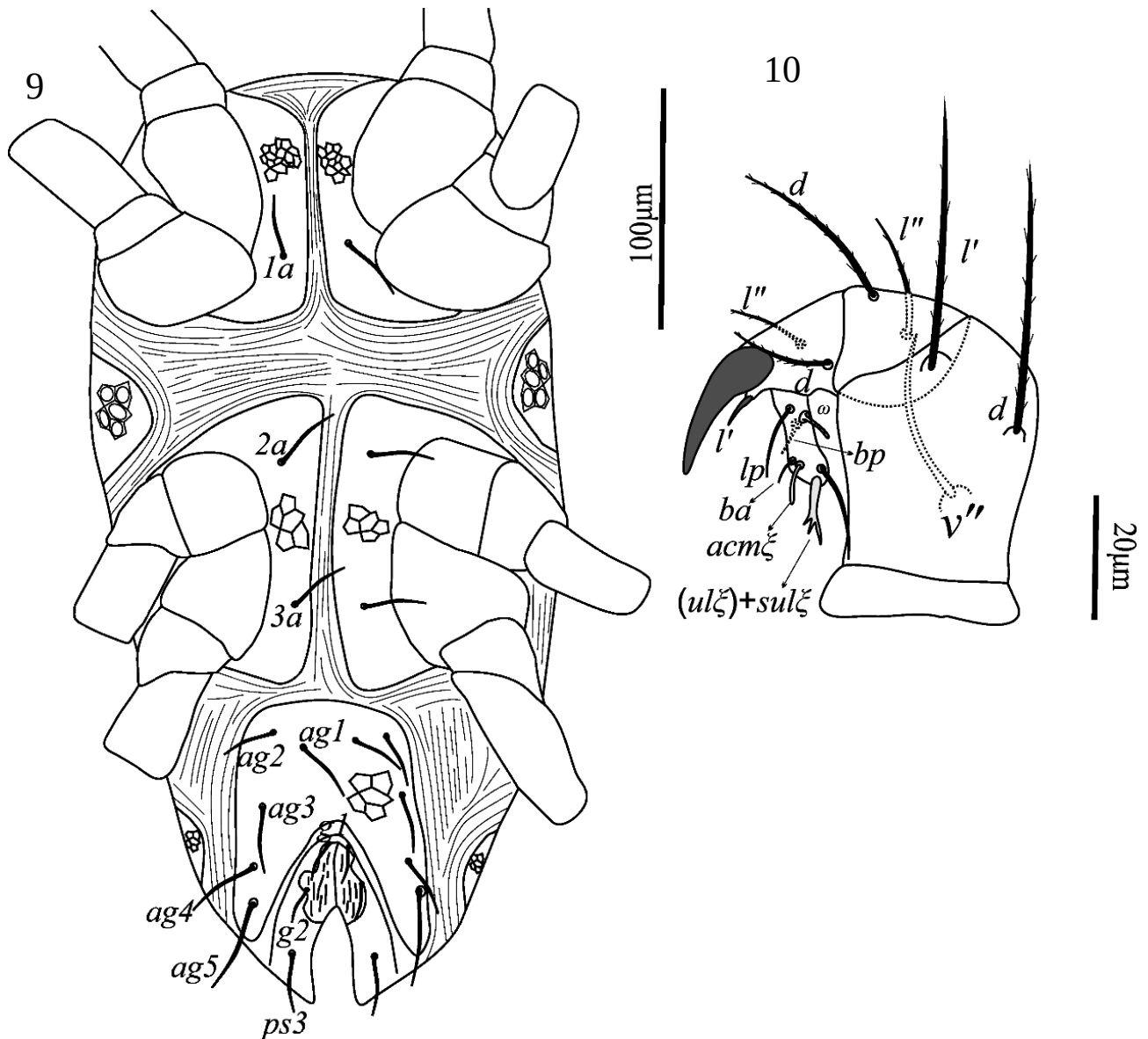


Figure 8. *Stigmaeus sinai* (female) – A. Dorsum of idiosoma; B. Dorsal setae *vi*, *ve* and *c1*.

Venter (Fig. 9) – Humeral shields oval and ventrolaterally, ornamented as dorsum, bearing setae *c3*; endopodal shields reticulated and divided; Setae *1a*, *3a*, *4a*, aciculate, finely barbed; aggenital shield faintly reticulated, bearing five pairs of aciculate, finely barbed setae (*ag1–5*); anogenital area with three pairs of pseudanal (*ps1–3*) and two pairs of genital (*g1–2*) setae; Lengths of ventral setae: *1a* 30–31, *3a* 30–30, *4a* 25–27, *ag1* 25–27, *ag2* 25–27, *ag3* 35–36, *ag4* 40–41, *ag5* 44–45, *g1* 20–21, *g2* 20–21, *ps1* 34–35, *ps2* 37–39, *ps3* 39–40.

Gnathosoma – Subcapitulum faintly reticulated with two pairs of subcapitular setae (*m* and *n*) and two pairs of adoral setae (*or1–2*). Palp tibial claw large, about as long as palptarsus (Fig. 10). Setae *l'* on palptibia seta-like, number of setae on palpal segments: Tr 0, Fe 3 (*d*, *l'*, *v''*), Ge 2 (*d*, *l'*), Ti 3 (*d*, *l'*, *l''*), Ta 8(1 ω) (fused eupathidia *ul'*, *ul''*, *sul*, eupathidia *acm* and *va*, *ba*, *bp*, *lp*, and one solenidion ω). All subcapitular setae smooth and pointed. Lengths of subcapitular setae: *m* 23–25, *n* 25–27, *or1* 11–12, *or2* 12–13. Length of cheliceral stylets 27–30; length of palps 120–125.



Figures 9–10. *Stigmaeus sinai* (female) – 9. Venter of idiosoma; 10. Dorsal view of palp.

Legs (Figs 11A–D) – Most of leg segments reticulated; all legs with one pair of well-developed claws. Empodial raylets with distinctly widened tips. Lengths of legs: I 160–166, II 141–146, III 140–146, IV 161–162. Leg I (Fig. 11A). Leg setation: Tr 1 (v), Fe 6 ($d, l', l'', v', v'', bv''$), Ge 5(1) (d, l', l'', κ), Ti 5(2) ($d, \xi, l', l'', v', v'', \varphi, \varphi\varphi$), Ta 13(1) ($p'\xi, p''\xi, tc'\xi, tc''\xi, ft''\xi, ft'\xi, u', u'', a', a'', pl', pl'', vs, \omega$). Solenidion ω 19–20 digitiform; solenidion φ 10–11 digitiform, $\varphi\varphi$ 17–18 attenuate, solenidion κ 10–11. Leg II (Fig. 11B). Leg setation: Tr 1 (v), Fe 4 (d, l', l'', v', bv''), Ge 4(1) (d, l', l'', κ), Ti 5(1) ($d, \xi, l', l'', v', v'', \varphi$), Ta 9(1) ($p'\xi, tc'\xi, tc''$, $u', u'', a', a'', pl', vs, \omega$). Solenidion ω 17–18 digitiform; solenidion $\varphi\varphi$ 13–14 digitiform, with rounded tip, solenidion κ 10–11. Leg III (Fig. 11C). Leg setation: Tr 2 (v', l'), Fe 3 (d, l', ev), Ge 1 (l'), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(1) ($tc', tc'', u', u'', a', a'', vs, \omega$). Solenidion ω 9–10 digitiform; solenidion φ 13–14 digitiform, with pointed tip. Leg IV (Fig. 11D). Leg setation: Tr 1 (v), Fe 2 (d, ev), Ge 1(d), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(1) ($tc', tc'', u', u'', a', a'', vs, \omega$). Solenidion ω 8–9 digitiform; Solenidion $\varphi\varphi$ 12–13, attenuate, with pointed tip. Seta d of tibia distinctly longer than all other leg setae. Femora I–IV with strong dorsal bifurcate seta; genu I and tibia IV with strong dorsal seta, bifurcate on distal one-third or one-fourth (bifurcate condition in some specimens not discernible).

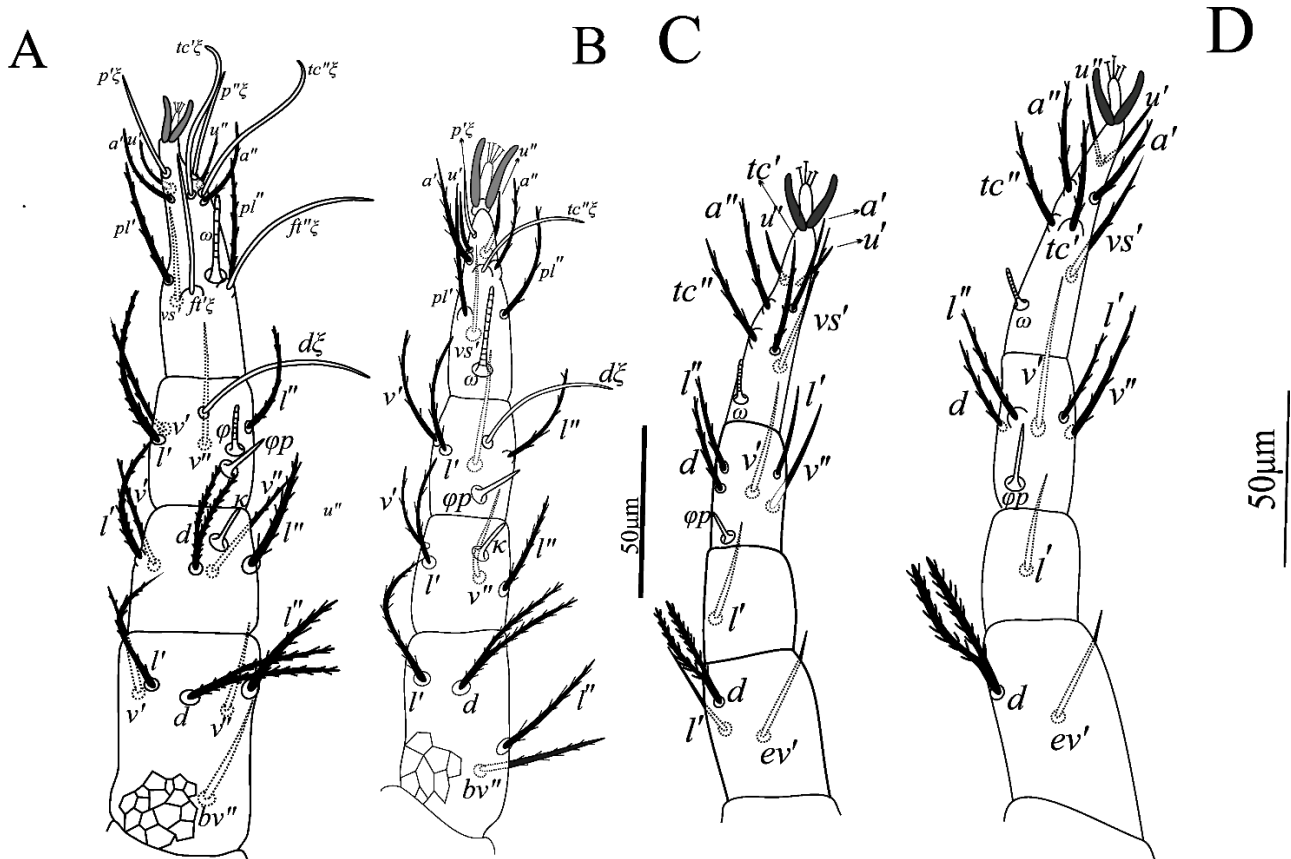


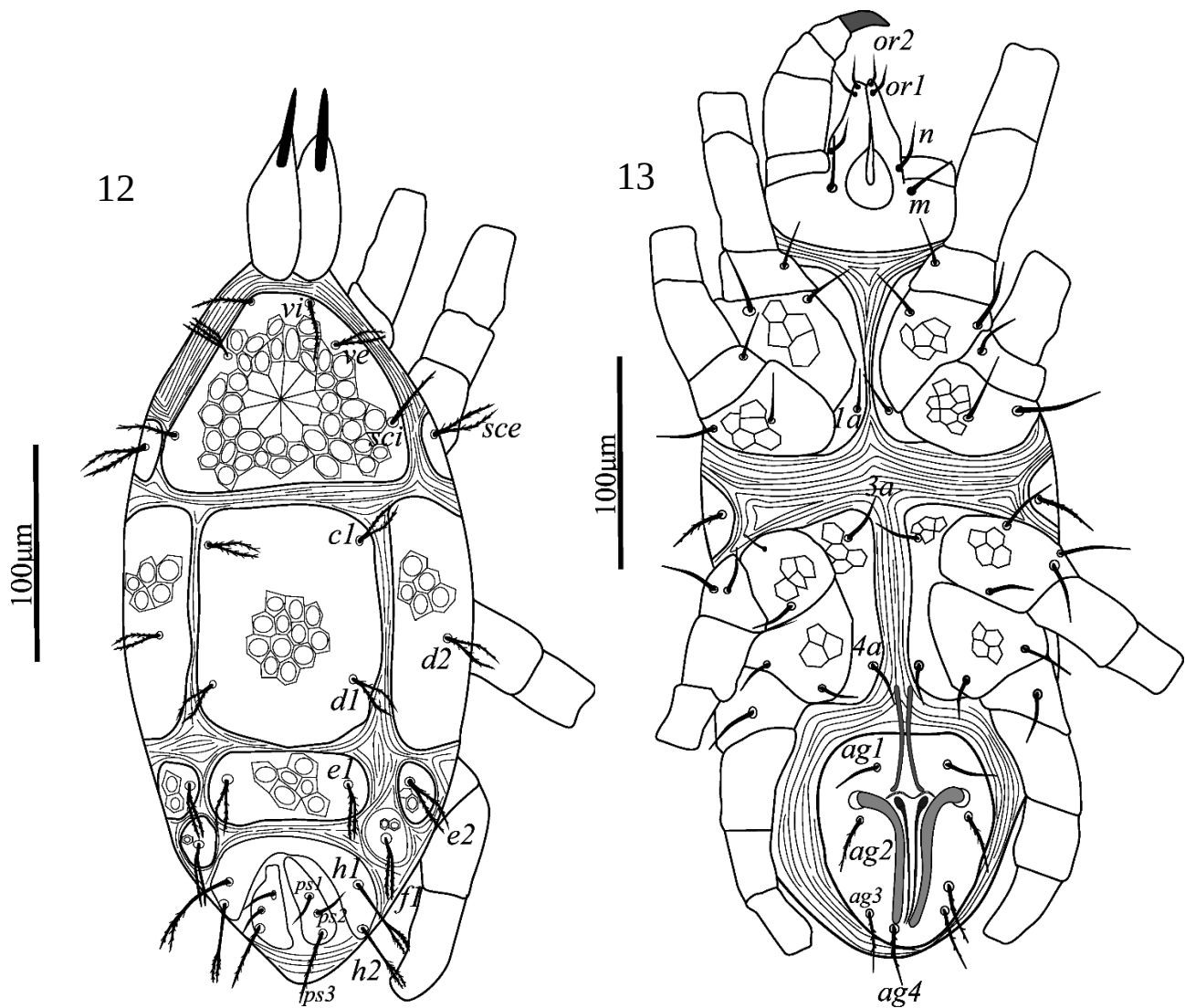
Figure 11. *Stigmaeus sinai* (female) – A. Leg I; B. Left leg II; C. Leg III; D. Leg IV.

MALE ($n = 1$)

Dorsum (Fig. 12) – Body fusiform; length of body (excluding gnathosoma) 430, width 145. Dorsal shields ornamented with polygonal reticulations and dimples. Propodosoma with a triangular shield bearing three pairs of setae *vi*, *ve* and *sci*; postocular bodies and eyes absent; median cells of reticulum form a rosette-like pattern; setae *sce* on auxiliary plates. Hysterosoma with a rectangular central shield bearing two pairs of setae *c1* and *d1*; humeral shields ventro-laterally and bearing setae *c2*; setae *d2* on marginal shields; median zonal shield entire and with setae *e1*; setae *e2* on lateral zonal plates and setae *f1* on intercalary plates. Suranal shield entire, with two pairs of setae *b1* and *b2*. Thirteen pairs of dorsal setae thickened, distal two-thirds barbed; *vi* and *sci* monoaxial, *ve* trifurcate, all others bifurcate. Lengths and distances of dorsal setae as follows: *vi* 24, *ve* 23, *sci* 30, *sce* 32, *c1* 25, *c2* 28, *d1* 26, *d2* 25, *e1* 25, *e2* 26, *f1* 30, *b1* 44, *b2* 44; *vi-vi* 28, *ve-ve* 50, *vi-ve* 22, *sci-sci* 97, *ve-sci* 40, *sce-sce* 125, *sci-sce* 15, *c1-c1* 65, *d1-d1* 60, *e1-e1* 50, *c1-d1* 65, *c1-d2* 55, *d2-d2* 125, *e2-e2* 95, *d2-e2* 65, *d1-e1* 45, *d1-e2* 48, *e1-e2* 25, *f1-f1* 80, *e1-f1* 35, *e2-f1* 27, *b1-b1* 55, *b2-b2* 70, *b1-b2* 15.

Venter (Fig. 13) – Humeral shields ventrolaterally, ornamented as dorsum, bearing setae *c2*; endopodal shields of legs I–IV faintly reticulated and divided; setae *1a*, *3a*, *4a*, aciculate, finely barbed; aggenital shield bearing four pairs of aciculate, finely barbed setae (*ag1-4*); anal area with three pairs of pseudanal (*ps1-3*); setae *ps1* and *ps2* almost smooth but *ps3* barbed; Lengths of ventral setae: *1a* 23, *3a* 25, *4a* 20, *ag1* 25, *ag2* 33, *ag3* 32, *ag4* 30, *ps1* 12, *ps2* 14, *ps3* 34.

Gnathosoma – Subcapitulum faintly reticulated with two pairs of subcapitular setae (*m* and *n*) and two pairs of adoral setae (*or1-2*) (Fig. 13). Palp tibial claw large and stout, about as long as palptarsus (Fig. 14). Setae *l'* on palptibia seta-like, number of setae on palpal segments: Tr 0, Fe 3 (*d*, *l'*, *v'*), Ge 2 (*d*, *l'*), Ti 3 (*d*, *l'*, *l''*), Ta 8 (1 ω) (fused eupathidia *ul'*, *ul''*, *sul*, eupathidia *acm* and *va*, *ba*, *bp*, *lp*, and one solenidion ω). All subcapitular setae smooth and pointed. Lengths of subcapitular setae: *m* 25, *n* 25, *or1* 11, *or2* 11. Length of cheliceral stylets 30; length of palps 100.



Figures 12–13. *Stigmaeus sinai* (male) – 12. Dorsum of idiosoma; 13. Venter of idiosoma.

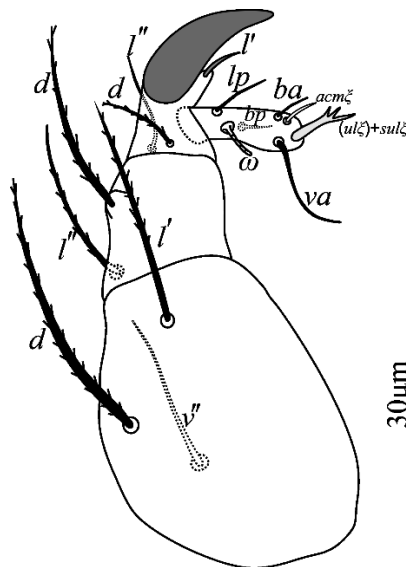


Figure 14. *Stigmaeus sinai* (male) – Dorsal view of palp.

Legs (Figs 15A–D) – Most of leg segments reticulated; All legs with one pair of well-developed claws. Empodial raylets with distinctly widened tips. Lengths of legs: I 220, II 175, III 165, IV 210. Leg

I (Fig. 15A). Leg setation: Tr 1 (v'), Fe 6 ($d, l', l'', v', v'', bv''$), Ge 5(1) ($d, l', l'', v', v'', \chi$), Ti 5(2) ($d, l', l'', v', v'', \varphi, \varphi\varphi$), Ta 13(2) ($p'\xi, p''\xi, tc'\xi, tc''\xi, ft'\xi, ft''\xi, u', u'', a', a'', pl', pl'', vs, \omega$). Solenidion ω 20 digitiform; solenidion $\omega 2$ 35 digitiform; solenidion φ 10 digitiform, $\varphi\varphi$ 15 attenuate, Solenidion χ 11. Leg II (Fig. 15B). Leg setation: Tr 1 (v'), Fe 4 (d, l', l'', bv''), Ge 4(1) (d, l', l'', v', χ), Ti 5(2) ($d\xi, l', l'', v', v'', \varphi$), Ta 9(1) ($p'\xi, tc'\xi, u', u'', a', a'', pl', pl'', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 19 digitiform; solenidion $\omega 2$ 33 digitiform; solenidion $\varphi\varphi$ 14 digitiform, with rounded tip, Solenidion χ 12. Leg III (Fig. 15C). Leg setation: Tr 2 (v', l'), Fe 3 (d, l', ev'), Ge 1 (l'), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(1) ($tc', tc'', u', u'', a', a'', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 9 digitiform; Solenidion $\omega 2$ 33 digitiform; solenidion $\varphi\varphi$ 14 digitiform, Leg IV (Fig. 15D). Leg setation: Tr 1 (v'), Fe 2 (d, ev'), Ge 1(d), Ti 5(1) ($d, l', l'', v', v'', \varphi\varphi$), Ta 7(2) ($tc', tc'', u', u'', a', a'', vs, \omega 1, \omega 2$). Solenidion $\omega 1$ 9 digitiform; solenidion $\omega 2$ 35 digitiform; Solenidion $\varphi\varphi$ 15 attenuate, with pointed tip. Femora I, II and IV with strong dorsal bifurcate seta.

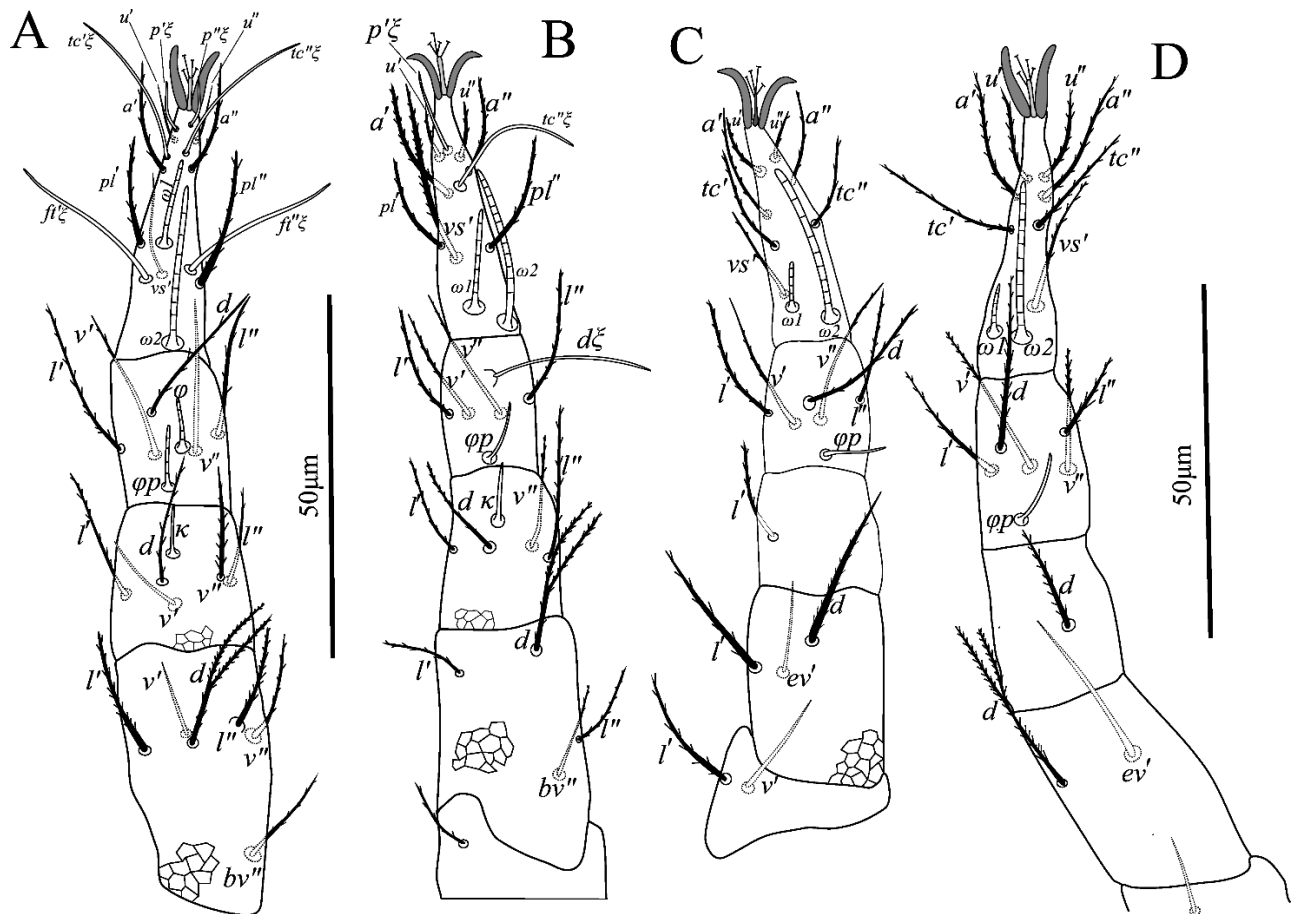


Figure 15. *Stigmaeus sinai* (male) – A. Leg I; B. Left leg II; C. Leg III; D. Leg IV.

Material examined – Two females and one male, Kaleybar County, East Azerbaijan Province, Iran, 46° 54' 42.145" N, 38° 50' 27.761" E, 485 m a.s.l., 10.06.2025.

Distribution – Egypt, India, Iran and Saudi Arabia (Fan *et al.* 2016; Beron 2020).

Remarks

Stigmaeus sinai was first described by Swift (1987) from Egypt using female specimens. Morphological features and measurements of the Egyptian specimens are very close to those in the redescription of female in our study. Herein, we redescribed the male of this species for the first time.

Stigmaeus sphagneti* (Hull, 1918)Raphignathus sphagneti* Hull, 1918: 30.*Diagnosis*

Dorsal shields reticulated with polygonal cells, eyes and post-ocular bodies present, median hysterosomal shield with three pairs of setae, intercalary shields divided, suranal shield entire, setae f_2 absent, dorsal setae barbed on anterior half, ventral shields reticulated, coxisternal shields divided, genital setae one pair, aggenital setae three pairs, femora I–IV 6-5-3-2, genua I–IV 3(+ α)-3(+ α)-1-1, tarsi I–II 13(+ ω)-9(+ ω), palptibia with two setae, accessory claw spine-like, terminal eupathidium of palptarsi trifold

Material examined – Two females and one male, Maragheh County, East Azerbaijan Province, Iran, 46° 9' 35.548" N, 37° 25' 0.556" E, 1513 m a.s.l., 30.05.2024.

Distribution – Baltic Region, Canada, England, Estonia, Greece, Iran, Latvia, Lithuania, Moldavia, Poland, Romania, Russia, Slovakia, Spain, Ukraine and USA (Fan *et al.* 2016; Beron 2020).

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Availability of data and materials: Data are available upon request from the authors.

Ethics approval and consent to participate: This study only included arthropod material, and all required ethical guidelines for the treatment and use of animals were strictly adhered to in accordance with international, national, and institutional regulations. No human participants were involved in any studies conducted by the authors for this article.

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Competing interests: The authors declare no conflict of interest.

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REFERENCES

- Ahaniazad, M., Bagheri, M., Gholamhosein, G. & Maleki, N. (2013) A new species of *Neophyllobius* from Iran, re-description of *Stigmaeus echinopus* Summers and a key to the Iranian species of *Neophyllobius* (Acari: Trombidiformes: Prostigmata). *International Journal of Acarology*, 39(4): 341–346.
<https://doi.org/10.1080/01647954.2013.777781>
- Ahaniazad, M., Bagheri, M. & Paktinat Saeed, S. (2014) Predatory mites of the family Stigmaeidae (Acari: Trombidiformes: Prostigmata) in Azarshahr and Ajabshir, Iran. *21st Iranian Plant Protection Congress*, August 23–26, Urmia, Iran, p. 986.
- Ahmad-Hosseini, M. & Jafari, S. (2022) *Stigmaeus lorestaniensis*, a new species of the genus *Stigmaeus* (Acari: Stigmaeidae) from Southwest of Iran. *Persian Journal of Acarology*, 11(2): 237–243.
<https://doi.org/10.22073/pja.v11i2.73266>
- Akbari, A., Haddad Irani-Nejad, K. & Bagheri, M. (2010) Stigmaeid soil mites of Shendabad area (East Azarbaijan Province) with one new record for Iran's fauna. *19th Iranian Plant Protection Congress*, 31 July–3 August, Hamedan, Iran, p. 344.
- Bagheri, M., Mohammad-Doustaresharaf, M. (2024) *Eustigmaeus pseudosetiferus* sp. nov. (Acari: Trombidiformes: Stigmaeidae) from Iran. *Persian Journal of Acarology*, 13(2): 233–241.

<https://doi.org/10.22073/pja.v13i2.84055>

- Bagheri, M. & Zarei, E. (2012) *Stigmaeus miandoabiensis* sp. nov. (Acari: Trombidiformes: Stigmaeidae), with redescription of *S. siculus* (Berlese, 1883) from Iran. *Systematic and Applied Acarology*, 17(4): 441–447. <https://doi.org/10.11158/saa.17.4.13>
- Bagheri, M., Gheblealivand, S.S. & Ghorbani, H. (2012a) *Stigmaeus iranensis*, a new species of the genus *Stigmaeus* Koch (Acari: Stigmaeidae) from Northwest Iran. *Acarina*, 20: 44–47.
- Bagheri, M., Ghorbani, H., Ueckermann, E.A., Navaei-Bonab, R., Saber, M. & Mehrvar, A. (2012b) *Stigmaeus maraghehiensis*, a new species of the genus *Stigmaeus* Koch (Acari: Stigmaeidae) from northwest Iran. *International Journal of Acarology*, 38(1): 35–39. <https://doi.org/10.1080/01647954.2011.583272>
- Bagheri, M., Jafari, S. & Saboori, A. (2014a) Two new species of the family Stigmaeidae (Acari: Trombidiformes) from Iran. *International Journal of Acarology*, 40(2): 152–159. <https://doi.org/10.1080/01647954.2014.887142>
- Bagheri, M., Maleki, N. & Paktinat-Saeed, S. (2013) Two new species of the genus *Stigmaeus* (Acari: Trombidiformes: Stigmaeidae) from Iran. *International Journal of Acarology*, 39(7): 551–557. <https://doi.org/10.1080/01647954.2013.841287>
- Bagheri, M., Navaei Bonab, R., Ueckermann, E.A., Ghorbani, H., Mehrvar, A. & Saber, M. (2011a) Description of a new species of the genus *Stigmaeus* Koch (Acari: Prostigmata: Stigmaeidae) from East Azerbaijan Province, Iran. *Systematic and Applied Acarology*, 16(2): 181–186. <https://doi.org/10.11158/saa.16.2.7>
- Bagheri, M., Rahimi, G., Maleki, N., Gharekhani, G. & Saber, M. (2014b) *Stigmaeus bashtrudiensis*, a new species of the genus *Stigmaeus* (Acari: Trombidiformes: Stigmaeidae) from Northwest Iran. *Persian Journal of Acarology*, 3(2): 121–128. <https://doi.org/10.22073/pja.v3i2.10142>
- Bagheri, M., Ranjbar-Varandi, F., Yazdanian, M. & Shirinbeik Mohajer, S. (2014c) A new species of the genus *Stigmaeus* (Acari: Trombidiformes: Stigmaeidae) from North of Iran. *Persian Journal of Acarology*, 3(4): 285–291.
- Bagheri, M., Zarei, E., Saber, M. & Navaei-Bonab, R. (2011b) Fauna of Stigmaeidae (Acari: Trombidiformes) mites in Miandoab, Iran. In: Kazemi, Sh. & Saboori, A. (Eds.), *1st Persian Congress of Acarology*; 22–23 December, Kerman, Iran, p.9.
- Barilo, A.B. (1986) New species of stigmaeid and cheyletid mites (Acariformes: Stigmaeidae, Cheyletidae). *Nauchnyye Doklady Vysshey Shkoly. Seriya Biologicheskoye Nauki*, 6: 25–29.
- Berlese, A. (1883) Acarifauna Sicula. *Bollettino della Societa Entomologica Italiana*, 15: 212–220.
- Berlese, A. (1885) Acarorum systematis specimen. *Bollettino della Societad Entomologica Italiana*, 17: 121–135.
- Berlese, A. (1886) Acari dannosi alle piante coltivati. *Padova, Sacchetto*, 31 pp., pls I–V.
- Berlese, A. (1910) Acari Nuovi -Manipulus V. *Redia*, 6: 199–214.
- Beron, P. (2020) *Acarorum catalogus VII: Trombidiformes, Prostigmata, Raphignathoidea* (Fam. Barbutiidae, Caligonellidae, Camerobiidae, Cryptognathidae, Dasythyreidae, Dytiscacaridae, Eupalopsellidae, Homocaligidae, Mecognathidae, Raphignathidae, Stigmaeidae, Xenocaligonellidae). Pensoft, National Museum of Natural History, Sofia, Bulgarian Academy of Sciences, Sofia, 306 pp.
- Beron, P. (2022) *Acarorum Catalogus X. Trombidiformes, Prostigmata, Superfamilia Labidostommatoidea* (Labidostommatoidea), Superfamilia Eupodoidea, (Eupodidae, Dendrochaetidae, Rhagidiidae, Eriophrynidae, Pentapalpidae, Penthalodidae, Penthaleidae, Proterorhagidae, Strandtmanniidae), Superfamilia Tydeoidea, Ereyetidae, Superfamily Paratydeoidea, Paratydeidae, Superfamilia Anystoidea, (Anystidae, Erythracaridae, Teneriffiidae, Pseudocheylidae, Stigmocheylidae), Superfamilia Caeculoidea (Caeculidae),

- Superfamilia Adamystoidea (Adamystidae), Superfamilia Pomerantzioidea (Pomerantziidae)*. Pensoft, National Museum of Natural History, Sofia, Bulgarian Academy of Sciences, Sofia, 424 pp.
<https://doi.org/10.3897/ab.e68612>
- Changizi, M., Bagheri, M. & Asadi, M. (2012) *Stigmaeus kermaniensis*, a new species of the genus *Stigmaeus* Koch (Acari: Stigmaeidae) from Iran. *Persian Journal of Acarology*, 1(2): 77–84.
- Doğan, S., Rahmdeli, A., Jalaeian, M., Dönel, G. & Sevsay, S. (2012) Three new records of raphignathoid mites (Acari: Prostigmata) from Iran. *Turkish Journal of Zoology*, 36(5): 719–720.
<https://doi.org/10.22073/pja.v1i2.9932>
- Fakhari, N., Khanjani, M., Rahmani, H. & Khanjani, M. (2015) *Stigmaeus jalili* sp. n. (Acari: Stigmaeidae) from Zanjan Province (Iran) and description of *S. haddadi* male. *Biologia*, 70(6): 782–787.
- Fan, Q.-H. & Zhang, Z.-Q. (2005) *Raphignathoidea (Acari: Prostigmata)*. Fauna of New Zealand, 52, 400 pp.
<https://doi.org/10.7931/J2/FNZ.52>
- Fan, Q.-H., Flechtman, C.H.W., De Moraes, G.J. (2016) Annotated catalogue of Stigmaeidae (Acari: Prostigmata), with a pictorial key to genera. *Zootaxa*. 4176: 001–199.
<https://doi.org/10.11646/zootaxa.4176.1.1>
- Fan, Q.-H., Flechtman, C.H.W., De Moraes, G.J. (2019) Emendations and updates to “Annotated catalogue of Stigmaeidae (Acari: Prostigmata), with a pictorial key to genera”. *Zootaxa*, 4647(1): 88–103. <https://doi.org/10.11646/zootaxa.4647.1.9>
- Faraji, F., Ueckermann, E.A. (2006) A new species of *Stigmaeus* Koch from Iran (Acari: Stigmaeidae). *Systematic and Applied Acarology*, 11(1): 69–72.
<https://doi.org/10.11158/saa.11.1.9>
- Grandjean, F. (1939) Les segments postlarvaires de l'hysterosoma chez les oribates (Acariens). *Bulletin de la Société Zoologique de France*, 64: 273–284.
- Grandjean, F. (1944) Observations sur les Acariens de la famille des Stigmaeidae. *Archives des Sciences Physiques et Naturelles*, 26: 103–131.
- Grandjean, F. (1946) Au sujet de l'organe de Claparède, des eupathides multiples et des taenidies mandibulaires chez les Acariens actinochitineux. *Archives des Sciences Physiques et Naturelles*, 28: 63–87.
- Haddad Irani-Nejad, K., Bagheri, M., Khanjani, M., Kamali, K. & Saboori, A. (2006) A new species of *Stigmaeus* Koch (Acari: Stigmaeidae) from Northwest of Iran. *Zootaxa*, 1354: 57–61.
<https://doi.org/10.11646/zootaxa.1354.1.4>
- Haddad Irani-Nejad, K., Lotfollahi, P., Akbari, A., Bagheri, M. & Ueckermann, E.A. (2010a) A new species of stigmaeid mites from east Azerbaijan, Iran (Acari: Prostigmata: Stigmaeidae). *Munis Entomology and Zoology*, 5: 369–373.
- Haddad Irani-Nejad, K., Lotfollahi, P., Akbari, A., Bagheri, M. & Ueckermann, E.A. (2010b) *Stigmaeus shendabadiensis* (Acari: Prostigmata: Stigmaeidae) n. sp. from Northwest of Iran. *Systematic and Applied Acarology*, 15(2): 118–122.
<https://doi.org/10.11158/saa.15.2.5>
- Hajizadeh, J., Khanjani, M., Faraji, F. & Ueckermann, E.A. (2013) Stigmaeid mites of Guilan Province of Iran with description of a new species and a checklist for Iranian stigmaeid mites (Prostigmata: Stigmaeidae). *International Journal of Acarology*, 39(7), 571–579
<https://doi.org/10.1080/01647954.2013.850533>
- Hull, J.E. (1918) Terrestrial Acari of Tyne Province. *Transactions of the Natural History Society of Northumberland*. (N.S.), 5(1): 13–88.
- Kamali, K., Ostovan, H., Atamehr, A. (2001) *A catalog of mites and ticks (Acari) of Iran*. Islamic Azad University Scientific Publication Center, Tehran, Iran, 192 pp.

- Kethley, J. (1990) Acarina: Prostigmata (Actinedida). In: Dindal, D.L. (Ed.), *Soil biology guide*. New York, John Wiley & Sons, pp. 667–756.
- Khanjani, M. & Ueckermann, E.A. (2002) The stigmatid mites of Iran (Acari: Stigmatidae). *International Journal of Acarology*, 28(4): 317–339.
<https://doi.org/10.1080/01647950208684309>
- Khanjani, M., Amini, F. & Khanjani, M. (2015) A new species of the genus *Stigmaeus* Koch (Acari: Stigmatidae) from Kurdistan Province, Iran and description of male of *Prostigmaeus kbanjanii* Bagheri and Ghorbani. *Acarologia*, 55(1): 49–60.
<https://doi.org/10.1051/acarologia/20152153>
- Khanjani, M., Izadi, H., Asali Fayaz, B., Raisi, H., Rostami, E., Doğan, S. (2010) *Stigmaeus boshroyehensis* sp. nov. (Acari: Stigmatidae) from eastern Iran, with redescription of *Stigmaeus pilatus* Kuznetzov. *Zootaxa*, 2727: 34–44.
<https://doi.org/10.11646/zootaxa.2727.1.3>
- Khanjani, M., Khanjani, M., Nadri, A., Mohammadi, L. & Nazari, A. (2017) A new species of the genus *Stigmaeus* Koch (Acari: Stigmatidae) and re-description of *Cheyllostigmaeus howellsi* Evans from Iran. *Systematic and Applied Acarology*, 22(6): 815–823. <https://doi.org/10.11158/saa.22.6.7>
- Khanjani, M., Nasrollahi, S., Zamani, A. S. & Azali Feyaz, B. (2014) *Cheyllostigmaeus tarae* sp. nov. and *Stigmaeus delaramae* sp. nov. (Acari: Stigmatidae) from Kurdistan, Iran. *Zootaxa*, 3841(3): 364–378.
<https://doi.org/10.11646/zootaxa.3841.3.3>
- Khanjani, M., Pishehvar, S., Mirmoayedi, A.N. & Khanjani, M. (2012) Two new eyeless mite species of the genus *Stigmaeus* Koch (Acari: Stigmatidae) from western Provinces of Iran and description of the male *Stigmaeus pilatus* Kuznetzov. *International Journal of Acarology*, 38(6): 504–513.
<https://doi.org/10.1080/01647954.2012.703690>
- Khaustov, A.A. (2019) Contribution to systematics of the genus *Eustigmaeus* (Acari: Stigmatidae) of Russia. *Acarologia*, 59(1): 152–173.
<https://doi.org/10.24349/acarologia/20194320>
- Kuznetsov, N.N. & Wainstein, B.A. (1977) New species of the family Stigmatidae (Acariformes) in the fauna of the USSR. *Zoological Zhurnal*, 56(3): 476–479 (In Russian with English abstract).
- Majidi, M., Hajiqaanbar, H. & Saboori, A. (2019) Parasitic stigmatid mites (Acari: Stigmatidae) of phlebotomine sandflies (Diptera: Psychodidae) in Fars Province, southern Iran. *International Journal of Acarology*, 45(1-2): 41–47.
<https://doi.org/10.1080/01647954.2018.1549098>
- Mohammad-Doustaresharaf, M. & Bagheri, M. (2018) Mite fauna of genera *Stigmaeus* and *Rhaphignathus* (Acari: Stigmatidae and Raphignathidae) from Arasbaran forest. *23rd Iranian Plant Protection Congress*, Gorgan, Iran, p. 1616.
- Mohammad Doustaresharaf, M. & Bagheri, M. (2019) First report of the *Stigmaeus diversus* (Acari: Stigmatidae) from Iran. *Persian Journal of Acarology*, 8(3): 277–279.
<https://doi.org/10.22073/pja.v8i3.55017>
- Mohammad Doustaresharaf, M. & Bagheri, M. (2021) Raphignathoid mites (Acariformes: Raphignathoidea) in parts of the Azerbaijan provinces of Iran. *Acarological Studies*, 3(2): 56–65.
<https://doi.org/10.47121/acarolstud.865260>
- Mohammad Doustaresharaf, M., Bagheri, M. & Lotfollahi, P. (2023) Description of a new species of *Stigmaeus* (Acari: Stigmatidae) with notes on species described from Northwest Iran. *Systematic and Applied Acarology*, 28(2): 185–194. <https://doi.org/10.11158/saa.28.2.3>
- Nazari, A., Khanjani, M. & Kamali, K. (2012) Two New eyeless mite species from the western Provinces of Iran: *Stigmaeus ladanae* n. sp. and *Stigmaeus nasrinae* n. sp. (Acari: Stigmatidae). *Acarologia*, 52(2):

- 173–181. <https://doi.org/10.1051/acarologia/20122047>
- Noei, J., Hajizadeh, J., Salehi, L., Ostovan, H. & Faraji, F. (2007) Stigmaeid mites associated with stored rice in northern Iran (Acari: Stigmaeidae). *International Journal of Acarology*, 33(2): 153–156. <https://doi.org/10.1080/01647950708684516>
- Pahlavan Yali, M., Khanjani, M. & Razmjou, J. (2011) A new stigmaeid mite species from Iran (Acari: Stigmaeidae) and redescription of *Stigmaeus longipilis* (Canestrini). *Zootaxa*, 3089: 60–68. <https://doi.org/10.11646/zootaxa.3089.1.3>
- Rostami, A. & Mohammad–Doustaresharaf, M. (2021) Description of *Stigmaeus bagherii* n. sp. (Acari: Stigmaeidae), with a key to the known species of *Stigmaeus* from Iran. *International Journal of Acarology*, 47(3): 222–232. <https://doi.org/10.1080/01647954.2021.1887933>
- Silsepour, N., Bagheri, M., Saber, M., Gharakhani, G. & Shirinbeike Mohajer, S. (2014) Predatory raphignathoid mites (Acari: Trombidiformes: Prostigmata) in Mameghan, East Azerbaijan Province, Iran. *21st Iranian Plant Protection Congress*, August 23–26, Urmia, Iran, p. 985.
- Stathakis, T., Kapaxidi, E.V. & Papadoulis, G.T. (2019) The genus *Stigmaeus* Koch (Acari: Stigmaeidae) from Greece. *Systematic and Applied Acarology*, 24(11): 2010–2093. <https://doi.org/10.11158/saa.24.11.4>
- Summers, F.M. (1962) The genus *Stigmaeus* (Acarina: Stigmaeidae). *Hilgardia*, 33(10): 491–537.
- Swift, S. F. (1987) A new species of *Stigmaeus* (Acari: Prostigmata: Stigmaeidae) parasitic on Phlebotomine flies (Diptera: Psychodidae). *International Journal of Acarology*, 13(4): 239–243.
- Uluçay, I. (2015) Two new records of the genus *Stigmaeus* (Acari: Trombidiformes: Stigmaeidae) from Türkiye. *Persian Journal of Acarology*, 4(2): 287–295.
- Walter, D.E. & Krantz, G.W. (2009) Collecting, rearing, and preparing specimens. In: Krantz, G.W. & Walter, D.E. (Eds.), *A manual of acarology*. 3rd ed. Texas Tech University Press, Lubbock, USA, pp. 83–94.
- Zarei, E. & Bagheri, M. (2012) A new species and new record of *Stigmaeus* Koch (Acari: Stigmaeidae) from northwest Iran. *Systematic and Applied Acarology*, 17(2): 210–216. <https://doi.org/10.11158/saa.17.2.7>

هرناهای جنس *Stigmaeus* (Trombidiformes: Stigmaeidae) استان آذربایجان شرقی ایران به همراه دو گزارش جدید و بازتوصیف دو گونه دیگر

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دریافت

۲۴ شهریور ۱۴۰۴

پذیرش

۱۰ دی ۱۴۰۴

انتشار

۲۵ دی ۱۴۰۴

دبیر تخصصی

ع. صبوری

چکیده

در مطالعه هرناهای خانواده Stigmaeidae در استان آذربایجان شرقی ایران، در مجموع ۲۷ گونه متعلق به جنس *Stigmaeus* جمع‌آوری و شناسایی شد که از بین آنها دو گونه *Stigmaeus creber* Barilo, 1986 و *S. pseudoangustus* Stathakis, Kapaxidi & Papadoulis, 2019 برای نخستین بار از ایران گزارش شدند. همچنین جنس‌های *S. ghypiticus* Summers, 1962 و *S. sinai* Swift, 1987 بازتوصیف، مشخصات شناسایی بقیه گونه‌های جمع‌آوری شده تهیه، و جدول اطلاعات گونه‌های جنس *Stigmaeus* شناسایی شده از ایران فراهم و تکمیل شد.

واژگان کلیدی: نمونه نر، مراغه، هرناهای گیاهخوار، هرناهای شکارگر، هرناهای خاکزی

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