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A new species of the genus *Stigmaeus* koch (Acari: Stigmaeidae) from Kurdistan province, Iran and description of male of *Prostigmaeus khanjanii* Bagheri and Ghorbani

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**ABSTRACT** — A new species of the genus *Stigmaeus*, *S. kurdistaniensis* n. sp. is described and illustrated based on females collected from soil under apple trees, Ghorveh city, Kurdistan province, Iran. In addition, the male of *Prostigmaeus khanjanii* Bagheri and Ghorbani, 2010 is described. A key to all known Iranian species of the genus *Stigmaeus* is provided.

**KEYWORDS** — Arthropods; soil; predatory mite; ectoparasites; apple tree

**INTRODUCTION**

Stigmaeidae is the largest family within Raphignathoidea, which was established by Oudemans (1931). Members of this family are predators and feed on arthropods, ectoparasites of dipterans and pollen feeders (Summers 1966; Ueckermann and Smith Meyer 1987; Fan and Zhang 2005). This family currently contains 32 genera, of which 12 genera are recorded from Iran (Bayzavi et al. 2013). The genus *Stigmaeus* Koch occurs all over the world but the genus *Prostigmaeus* Kuznetsov has only been recorded from palaeartic and afrotropical regions (Fan and Zhang, 2005). To date, 4 species of the genus *Prostigmaeus* and 33 species of *Stigmaeus* have been recorded and described from Iran (Khanjani et al. 2014; Bagheri et al. 2014; Bagheri et al. 2010), namely: *Prostigmaeus khanjanii* Bagheri and Ghorbani, 2010; *P. molaviae* Khanjani et al., 2012; *P. tauricus* Kuznetsov, 1984; *P. vrystatensis* Ueckermann and Meyer, 1978 and *Stigmaeus alvandis* Khanjani and Ueckermann, 2002; *S. boshroyehensis* Khanjani et al., 2010; *S. candidus* Fan and Li, 1993 (=*S. mazandaranicus* Faraji and Ueckermann, 2006); *S. cariae* Khanjani et al., 2012; *S. delaramae* Khanjani et al., 2014; *S. echinopus* Summers, 1962 (Ahaniazad et al. 2013); *S. elongatus* Berlese, 1886; *S. fassicomus* Ueckermann and Mayer, 1987 (Kamali et al. 2001); *S. glypticus* Summers, 1962 (Hajizadeh et al. 2013); *S. isfahanensis* Bagheri et al., 2014; *S. haddadi* Zarei and Bagheri, 2012; *S. iranensis* Bagheri et al., 2012a; *S. kermanshiensis* Changizi et al., 2012; *S. kermanshahiensis* Khanjani et al., 2012; *S. ladanae* Nazari et al., 2012; *S. longipilis* Canestrini, 1889 (Pahlevan Yali et al. 2011); *S. malekii* Haddad Irani-Nejad et al., 2006; *S. maraghehiensis* Bagheri et al., 2012b; *S. marandiensis* Bagheri et al., 2011b; *S. miandoabiensis* Bagheri and Zarei, 2012; *S. nasrinae* Nazari et al., 2012; *S. petrophilus* Kuznetsov and Petrova, 1979 (Hajizadeh et al. 2012).
Mites were collected from soil under apple and fig trees in Kurdistan and Hamedan provinces and mounted directly in Hoyer’s medium. The specimens were measured, identified and drawn by means of an Olympus BX51 differential interference contrast microscope under 1000X magnification and equipped with a drawing tube. Body length measurements represent the distance between base of gnathosoma and end of idiosoma; width was measured above coxae III. Setae were measured from the setal base to the tip of the seta; distances between setae were measured between setal bases. Legs measurements are from trochanter to tip pre-tarsus.

The terminology and abbreviations used in the description of the new species follows that of Kethley (1990). Leg chaetotaxy is adapted from Fan and Zhang (2005). All measurements are given in micrometers and the measurements of the paratype are given in parentheses.

RESULTS

FAMILY STIGMAEIDAE OUDEMANS, 1931

Genus: Stigmaeus Koch, 1836: 4, 9.

Type species: Stigmaeus cruentus Koch, 1836 (unknown), by original designation.

Diagnosis — (Based on Fan and Zhang, 2005).

Stigmaeus kurdistaniensis n. sp.  
(Figs. 1-2)

Diagnosis — Prodorsum with large, reticulated shield; eyes absent and post-ocular bodies present; median hysterosomal shield with 2 pairs of setae; suranal shield entire, with 2 pairs of setae (h3 absent). All dorsal shields reticulated. Endopodal shields and coxal areas reticulated; dorsal setae long.
FIGURE 1: Stigmaeus kurdistaniensis n. sp. (female): A – Dorsal view; B – Ventral view; C – Palp; D – Leg I; E – Leg II; F – Leg III; G – Leg IV.
FiguRE 2: Stigmeus kurdistaniensis n. sp. (male): A – Dorsal view; B – Ventral view; C – Palp; D – Chelicera; E – Leg I; F – Leg II; G – Leg III; H – Leg IV.
and serrate. Aggenital plate reticulated and with 3 pairs of setae (ag1-ag3) and genital shield with 1 pair of setae (g). Palp tarsus with one tridentae eupathidium and palp genu with 2 setae. Femora I-II with 6, 5 setae respectively; genua I-IV 3+(κ)+3+(κ)+
- 1-1. Palp and leg’s segments with reticulations.

Type materials — Holotype female and 3 paratype females collected from soil under apple trees, Malus domestica Borkh. (Rosaceae), Iran: Kurdistan Province, Ghvorveh city (35°10’ N, 47°48’ E, 1906 m a.s.l.) 4 September 2013, coll. F. Amini. The holotype female and 1 paratype female will be deposited in the National Collection of Arachnida, Plant Protection Research, Pretoria, South Africa.

Description

Female (n = 4) — Colour in life red. Idiosoma oval. Measurements of holotype with measurements of paratypes in parentheses: Length of body (excluding gnathosoma) 600 (559 – 618), (including gnathosoma) 761 (700 – 753); width 420 (313 – 415).

Dorsum (Figure 1A) — All dorsal shields reticulated; prodorsum with large shield medially; bearing three pairs of setae (vi, ve, sci), postocular bod- ies (pob) present and eyes absent, setae sce located on small plates laterally; hysterosomal area C-E with a large shield medially and 4 pairs of small plates, median hysterosomal shield with two setae (c1, d1), setae d1 located on large, lateral, hysterosomal shields; ventro-lateral, humeral plate with setae c2; intercalary shields (F) with setae f1; suranal shield (H) entire, bearing 2 pairs of setae (h1, h2). All dorsal setae long and with a cluster of barbs distally except setae c2 sparsely serrate; setae c2 longer than the others. Lengths of dorsal setae: vi 95 (93 – 97), ve 125 (114 – 123), sci 73 (67 – 75), sce 93 (93 – 98), c1 86 (82 – 90), c2 136 (130 – 137), d1 88 (82 – 90), d2 91 (86 – 94), e1 90 (82 – 92), e2 98 (87 – 99), f1 96 (87 – 99), h1 90 (90 – 92), h2 85 (84 – 86). Distances between dor- sal setae: vi-vi 35 (39 – 40), ve-ve 100 (89 – 103), sci-sci 175 (154 – 180), sce-sce 235 (232 – 251), c1-c1 89 (77 – 94), c2-c2 420 (312 – 417), d1-d1 92 (73 – 95), d2-d2 291 (257 – 293), e1-e1 83 (73 – 82), e2-e2 292 (243 – 289),

f1-f1 165 (145 – 167), h1-h1 68 (56 – 65), h2-h2 141 (134 – 142), vi-ve 125 (62 – 125), ve-sci 58 (57 – 67), sci-sce 50 (37 – 47), c1-c2 95 (99 – 157), d1-d2 108 (92 – 106), e1-e2 101 (82 – 94), h1-h2 45 (37 – 45), c1-d1 100 (93 – 105), d1-e1 100 (81 – 102), e1-f1 79 (75 – 83), f1-h1 91 (72 – 89); ratio: vi/vi-ve 2.71 (2.38), c1/c1-c1 0.95 (0.95 – 1.06), d1/d1-d1 0.96 (0.99 – 1.17), e1/e1-e1 1.08 (1.12 – 1.13), f1/f1-f1 0.58 (0.59 – 0.6), h1/h1-h1 1.32 (1.61 – 1.42), c1-c1: d1-d1: e1-e1: f1-f1 : 0.53 (0.53 – 0.56): 0.55 (0.50 – 0.56): 0.50 (0.49 – 0.50): 1.0 (1.0).

Venter (Figure 1B) — Ventral cuticle striated cox- isternal regions I-II and III-IV with reticulations (Figure 1B). Lengths of setae v1 36 (35 – 40), h1 38 (31 – 40), 1c 70 (65 – 72), 2b 63 (59 – 67), 2c 42 (39 – 43), 3a 38 (38 – 42), 3b 43 (38 – 45), 3c 45 (31 – 40), 4a 41 (36 – 43), 4b 37 (37 – 41), 4c 37 (33 – 38), a2 34 (33 – 37), a3 39 (37 – 40), a4 49 (47 – 50), g 27 (25 – 30), ps1 65 (66 – 73), ps2 37 (37 – 45), ps3 40 (39 – 44). Aggenital area reticulated, with 3 setae (ag1, a2, a3) longer than ag1, a2; genital shield with 1 pair of setae (g); anal plate with 3 pairs of setae (ps1-3), pseudanal setae ps1 distally serrated and almost two times longer than setae ps2-3.

Gnathosoma (Figure 1C) — Ventral infracapitul- um with two pairs of infracapitular setae, m 43 (40 – 43) and n 34 (29 – 36), two pairs of adoral setae, or1 29 (30 – 32), or2 38 (37 – 39) (Figure 1C). Che- licerae free 95 (95 – 100), movable digit 127 (126 – 132) (Figure 1A). Palp five segmented, palp tar- sus with 4 simple setae + one simple eupathidium + one solenidion (ω) + one tridentae eupathidium, palp tibia with two setae + one well developed claw + one accessory claw seta-like, palp genu with one seta and palp femur with three setae (Figure 1C).

Legs (Figures 1D-G) — Length of leg I 253 (243 – 273); leg II 221 (208 – 238); leg III 230 (223 – 243), leg IV 251 (253 – 270). Setal formulae of leg seg- ments (solenidia in parentheses and not included in setal counts) as follows: coxae 2-2-2-2; trochanters 1-1-2-2; femora 6-5-3-2, genua 3+(κ)+3+(κ)+1-1; tibia- iae 5+(φ)+, 5+(φ)+-5+(φ)+-5+(φ)+; tarsi 13+(ω)+-9+(ω)+-7+(ω)+-7+(ω). Length of solenidia: I ω 25 (20 – 30), II ω 25 (26 – 28), III ω 15 (14 – 20), IV ω 15 (14 – 18); I φ 39 (37 – 39), I φ 16 (12 – 18), II φ 32 (32 – 35), III φ 24 (24 – 29), IV φ 28 (27 – 29); I κ 72 (72 – 77), II κ 12 (10 – 11).
Male (n = 1) — Idiosoma oval. Length of body (excluding gnathosoma) 587, (including gnathosoma) 655; width 275.

Dorsum (Figure 2A) — Dorsal shields completely reticulated; prodorsal shield bearing four pairs of setae (vi, ve, sci, sce); post ocular bodies (pob) present; eyes absent; hysterosomal area C-F almost covered by large median and 3 plates laterally (Figure 2A); median and lateral hysterosomal shields fused, with setae c1, d1, d2, e1, intercalary shield divided with setae f1; suranal shield entire, with two pairs of setae (h1, h2). All dorsal setae barbed. Lengths of dorsal setae: vi 92, ve 107, sci 70, sce 100, c1 50, c2 95, d1 45, d2 55, e1 30, e2 107, f1 80, h1 52, h2 70. Distances between dorsal setae: vi-ve 65, ve-ve 85, sci-sci 67, sce-sce 232, c1-c1 57, c2-c2 275, d1-d1 57, d2-d2 182, e1-e1 42, e2-e2 150, f1-f1 92, h1-h1 37, h2-h2 80, ve-ve 55, ve-sci 62, sci-sci 45, c1-c2 50, d1-d2 65, e1-e2 60, h1-h2 25, c1-d1 67, d1-e1 60, e1-f1 42, f1-h1 52. Ratio: vi/ve-ve 2.48, c1/c1-c1 0.87, d1/d1-d1 0.78, e1/e1-e1 0.71, f1/f1-f1 0.86, h1/h1-h1 1.4, h2/h2-h2 0.87, h1/h2 0.74, c1-c1: d1-d1: e1-e1: f1-f1 : 0.62: 0.62: 0.45: 1.0.

Venter (Figure 2B) — Endopodal shields I-II and III-IV with reticulations. Lengths of setae Ia 22, Ib 35, Ic 35, Ie 35, 2b 35, 2c 27, 3a 2, 3b 22, 3c 17, 4a 27, 4b 25 and 4c 20, ag1 26, ag2 30, ag3 38, ps1 27, g1 2, g2 2. Aggenital plate smooth with three setae (ag1-3).

Gnathosoma (Figures 2C-D) — Ventral infracapitulum reticulated and with two pairs of infracapitular setae, m 30 and n 22, two pairs of adoral setae, orl 22, orr 32 (Figure 2B). Chelicerae free 132, movable digit 65 (Figure 2D). Palp five segmented, palp tarsus with 4 simple setae + one simple eupathidium + one solenidium (ω) + one tridentate eupathidium, palp tibia with 2 setae + one well developed claw + one spine-like accessory claw, palp genu with two setae and palp femur with three setae (Figure 2C).

Legs (Figures 2E-H) — Length of leg I 224, leg II 195; leg III 185, leg IV 205. Setation same as female except tarsi I-IV with two solenidia and solenidia longer. Length of solenidia: I w1 43, I w2 25, II w1 38, II w2 22, III w1 32, III w2 12, IV w1 26, IV w2 12; I ϕp 35, I ϕ 15, II ϕp 31, III ϕp 20, IV ϕp 23; I κ 55; II κ 8.

Remarks — The new species Stigmaeus kurdistaniensis n. sp. resembles S. siculus (Berlese, 1883) in that dorsal shields are reticulated, median hysterosomal shield with two setae, pob present, eyes and h3 absent. However, it differs from the latter in: all dorsal and ventral setae longer than that of S. siculus; ventral infracapitulum and all leg and palp segments with reticulations in E. kurdistaniensis instead of smooth in S. siculus and pob small, between setae ve-sci in the new species instead of large in S. siculus.

The new species also resembles S. echinopus Summers, 1962, in having all leg and palp segments with reticulations, suranal shield entire and reticulated, pob present and median hysterosomal shield with two setae. However, S. kurdistaniensis differs from the latter in: aggenital shield reticulated instead of smooth in S. echinopus, all dorsal and ventral setae longer than those of S. echinopus and genual setae κ short in S. kurdistaniensis in contrast to long in S. echinopus.

Immature stages — Unknown.

Etymology — The species is named after the locality where it was collected, namely Kurdistan province.

Genus: Prostigmaeus Kuznetsov, 1984

Type species: Prostigmaeus tauricus Kuznetsov, 1984

Diagnosis — (Based on Ueckermann and Meyer, 1987 and Fan and Zhang, 2005).

Female — Idiosoma elongate and somewhat spindle-shaped; prodorsum with a large shield medi ally, bearing 3 pairs of setae namely vi, ve and sci; setae see lateral to sci on integument; pob and eyes absent; humeral shields ventro-laterally, with setae c2; opisthosoma with a relatively long median shield carrying setae c1 and d1; setae e1 placed on 2 small shields posterior to median shield; intercalary shields (F) divided along midline, with a pair of setae (f1); suranal shield (H) entire or divided, bearing 3 pairs of setae (h1, h2). Chelicerae separate. Palptibial claw subequal to or slightly shorter than palp tarsus; accessory claw seta-like or spined like; terminal eupathidia on palp tarsus separate, counts of setae and solenidia from palptrochanter to palp tarsus: 0,
3, 2, 2 + 1 claw + 1 accessory claw, 4 + 1ω + 2 subterminal spine-like eupathidia + 2 unfused eupathidia; endopodal shields I-II and III-IV present; anogenital area with 4 pairs of aggenital setae (ag₁-₄), 3 pairs of genital setae (g₁,3) and 3 pairs of pseudanal setae (ps₁,₃).

Male — Solenidia on tarsi I-IV: 2, 2, 2, 2.

Prostigmaeus khanjani Bagheri and Ghorbani, 2010 (Fig. 3)

Diagnosis — Prodorsum with large, reticulated shield medially with 3 setae (vi, ve, sci); opisthosomal shield reticulated, with 2 pairs of setae (c₁, d₁), suranal shield entire, bearing 3 pairs of setae (h₁-3). Endopodal shields I-II and III-IV present; aggenital shield with 4 pairs of setae (ag₃,₄); genital plate with 3 pairs of setae (g₃). Palp genu with 2 setae; terminal eupathidia on palptarsus separate.

Leg segments’ setal formulae as follows: coxae 2-2-2-2; trochanters 1-1-2-1; femora 6-4-3-2, genua 5+(κ)-5+(κ)-2-2; tibiae 5+(ϕρ, ω)+5+(ϕρ)-5+(ϕρ)-5+(ϕρ) + 5+(ϕρ); tarsi 13+(ω)-9+(ω)-7+(ω)-7+(ω).

Male. As in female but: shields of hysterosomal area E-F fused; Tarsi I-IV with two solenidia.

Description

Male (n = 3) — Idiosoma elongate. Length of body (excluding gnathosoma) 377 – 417, (including gnathosoma) 433 – 470; width 197.

Material examined — Three males collected from soil under fig trees, Ficus carica L. (Moraceae), Iran: Hamedan Province, Heydareh village (34°48′27″ N, 48°28′0.85″ E, 1873 m a.s.l.), 6 November 2013, coll. F. Amini. Deposited as slide-mounted specimens in the Collection of the Acarology Laboratory, University of Bu-Ali Sina, Hamadan, Iran.

Dorsum (Figure 3A) — Prodorsum with rather large reticulations, large shield bearing 3 pairs of setae (vi, ve, sci); post ocular bodies (pob) and eyes absent; hysterosoma with an elongate, large median shield, with 2 setae (c₁, d₁); zonal and intercalary shields fused, bearing 2 pairs of setae (e₁, f₁); suranal shield entire and with 2 pairs of setae (h₁, h₂). All hysterosomal shields reticulated. Lengths of dorsal setae: vi 19 – 23, ve 19 – 24, sci 24 – 25, sce 21 – 22, c₁ 11 – 13, c₂ 23 – 27, d₁ 8 – 11, d₂ 14 – 17, e₁ 11 – 16, e₂ 10 – 15, f₁ 9 – 11, h₁ 21 – 26, h₂ 21 – 24, h₃ 20 – 23. Distances between dorsal setae: vi-ve 23 – 26, ve-ve 43 – 46, ve-sci 54 – 57, sce-sce 120 – 127, c₁-c₂ 35 – 41, c₁-c₃ 212 – 220, d₁-d₃ 28 – 30, d₂-d₃ 320 – 325, e₁-e₃ 92 – 95, e₂-e₃ 118 – 123, f₁-f₃ 57 – 63, h₁-h₂ 42 – 43, h₂-h₃ 59 – 63, h₃-h₄ 27 – 37, vi-ve 41 – 45, ve-sci 46 – 49, sci-sce 35 – 43, c₁-c₂ 84 – 91, d₁-d₃ 63 – 71, e₁-e₂ 46 – 53, h₁-h₂ 11 – 14, c₁-d₁ 61 – 63, d₁-e₁ 62 – 66, e₁-f₁ 30 – 32, f₁-h₁ 48 – 49. Ratio: vi/ve 0.83 – 0.88, c₁/c₂ 0.30 – 0.31, d₁/d₂ 0.28 – 0.36, e₁/e₂ 0.10 – 0.16, f₁/f₂ 0.15 – 0.17, h₁/h₂ 0.05 – 0.06, h₂/h₁ 0.35 – 0.45, h₁-h₂ 0.35 – 0.38, c₁-c₂: d₁-d₃: e₁-e₂: f₁-f₂: 0.61 – 0.65: 0.47 – 0.49: 1.50 – 1.61: 1.0.

Venter (Figures 3B-C) — Ventral cuticle with striae; endopodal shields II-III and III-IV present and smooth (Figure 17). Lengths of setae ia 17 – 21, ib 22 – 25, ic 24 – 30, 2b 32 – 37, 2c 31 – 32, 3a 26 – 31, 3b 20 – 24, 3c 15 – 18, 4a 21 – 26, 4b 14 – 17 and 4c 17 – 18, ag₁ 18 – 24, ag₂ 19 – 21, g₁ 2 – 3, g₂ 2 – 5, ps₁ 15 – 17. Aggenital plate with striae and two setae (ag₂,₃). Genital plate indicated in figure 18.

Gnathosoma (Figure 3D) — Ventral infracapitulum with two pairs of subcapitular setae, m₁ 15 – 18 and n₁ 16 – 17, two pairs of adoral setae, or₁ 7 – 10, or₂ 5 – 6 (Figure 3B). Chelicerae free 58 – 63, movable digit 29 – 34 (Figure 3A). Palp five segmented, palp tarsus with 4 simple setae + one solenidion (ω) + 2 subterminal spine-like eupathidia + 2 separate eupathidia, palp tibia with two setae + one well developed claw + one spine-like accessory claw, palp genu with two seta and palp femur with three setae (Figure 3D).

Legs (Figures 3E-H) — Length of leg I 163 – 167; leg II 123 – 125; leg III 124 – 128, leg IV 150 – 155. Setal formulae of leg segments (solenidia in parentheses and not included in setal counts) as follows: coxae 2-2-2-2; trochanters 1-1-2-1; femora 6-4-3-2, genua 5+(κ)-5+(κ)-2-2; tibiae 5+(ϕ, ω)+5+(ϕρ)-5+(ϕρ)-5+(ϕρ)-5+(ϕρ); tarsi 13+(ω, ω₁) + 9+(ω, ω₂) – 7+(ω, ω₃) – 7+(ω, ω₄). Length of solenidia: I ω₁ 29 – 35, I ω₂ 17 – 19, II ω₁ 28 – 29, II ω₂ 13 – 14, III ω₁ 25 – 29, III ω₂ 4 – 6, IV ω₁ 23 – 26, IV ω₂ 6 – 7, I ω₃ 19 – 24, I ω₄ 6 – 9, II ω₅ 15 – 18, III ω₆ 11 – 15, IV ω₇ 14 – 16, I ω₈ 3 – 5; II ω₉ 4 – 7.

Remarks — Males of this species exhibit all fea-
FIGURE 3: Prostigmaeus khanajnii Bagheri and Ghorbani (male): A – Dorsal view; B – Ventral view; C – Genital plate; D – Palp; E – Leg I; F – Leg II; G – Leg III; H – Leg IV.
tures of the female descriptions, except that the male tarsi I-IV are with two solenidia instead of one solenidion in female, zonal and intercalary shields fused, bearing 2 pairs of setae \((e_1, f_1)\) whereas completely separate in the female.

**Key to the Iranian species of genus *Stigmaeus* (Female)**

1. Median propodosomal shield absent .......... 2
   — Median propodosomal shield present .......... 3

2. Genua II-III with 5-3 setae ............ *S. saboorii*
   — Genua II-III with 4-4 setae ............ *S. kermanshahiensis*

3. Hysterosoma without median shield .......... 4
   — Hysterosoma with median shield .......... 7

4. Genua II-IV with 2-0-1 setae ............ *S. elongatus*
   — Genua III-IV with 5-3-3 setae ............ *S. candidus*

5. Femora I-II with 4-4 setae, suranal shield divided .................. 6
   — Femora I-II with 6-5 setae, suranal shield entire .................. *S. shendabadiensis*

6. Prodorsal shield smooth, aggenital setae \(a_{g1,2}\) inserted on soft cuticle, genu I with one solenidion .................. *S. nasrinae*
   — Prodorsal shield in center region reticulated, aggenital setae \(a_{g1,2}\) inserted on entire shield, genu I without solenidion .................. *S. isfahaniensis*

7. Median hysterosomal shield with 2 pairs of setae .................. 8
   — Median hysterosomal shield with 3 pairs of setae .................. *S. cariae*

8. Femur I with 4 setae .......................... 9
   — Femur I with 6 setae .................. 21

9. Femur IV with 1 seta .................. *S. alcandis*
   — Femur IV with 2 setae .................. *S. shabestariensis*

10. Genu I with 3 (1) setae .................. *S. veckermannii*
    — Genu I with 5 (1) setae .................. 11

11. Genu III without seta .................. 12
    — Genu III with 1 or 2 setae .................. 15

12. Genu IV with 1 seta .................. 13
    — Genu IV with 2 setae .................. 14

13. Genu II with 2 setae .................. *S. cariae*
    — Genu II with 3 setae .................. *S. miandoabensis*

14. Genu II with 3 setae; seta \(h_3\) present; prodorsal shield reticulated .................. *S. kermanshahiensis*
    — Genu II with 4 setae; seta \(h_3\) absent; prodorsal shield smooth .................. *S. iranensis*

15. Genua II-III with 4-1 setae .................. 16
    — Genua II-III with 5-2 setae .................. 17

16. Prodorsal, median, lateral and median zonal shields reticulated .................. *S. shahbaziensis*
    — Prodorsal, median, lateral and median zonal shields smooth .................. *S. ladanae*

17. Palp tarsus with one bifurcate eupathidium .................. *S. isfahaniensis*
    — Palp tarsus with one tridentate eupathidium .................. *S. marandiensis*

18. Suranal shield entire .................. 19
    — Suranal shield divided .................. *S. pulchellus*

19. Dorsal shields heavily ornamented with polygonal cells; tarsi II with 9 (1) setae .................. 20
    — Dorsal shields reticulated, tarsi II with 8 (1) setae .................. *S. maraghehiensis*

20. Coxisternal, ano-genital shields, hypostome and legs reticulated .................. *S. ladanae*
    — Coxisternal, ano-genital shields and legs smooth and hypostome punctuated .................. *S. shabestariensis*
21. Femur II with 4 setae ........................................22
— Femur II with 5 setae ........................................24
22. Genua III-IV without setae ............... S. unicus
— Genua III-IV with 1 setae ............................23
23. Prodorsal shield smooth, eyes present, 3 pairs
aggenital setae ........................................... S. pilatus
— Prodorsal shield polygonal reticulated, eyes absent,
5 pairs aggenital setae ................................ S. sinai
24. Genital region with 3 pairs of aggenital (ag1-3)
and 1 pair of genital setae (g1), tarsi I-II with 13(1)-
9(1) setae ........................................ 25
— Genital region with 4 pairs of aggenital (ag1-4)
and 2 pairs of genital setae (g1-2), tarsi I-II with 13(1)-
9(1) setae ........................................ S. petrophilus
25. Genu II with 3 (+κ) setae, aggenital region
with polygonal reticulations ..........................26
— Genu II with 4 setae, aggenital region
smooth ........................................ S. echinipus
26. Leg segments with reticulation, dorsal setae long, setae
vi 93-95, ve 125-122 ...................... S. kurdistaniensis n. sp.
— Leg segments smooth, dorsal setae shorter, setae
vi 40-45, ve 75-86 ............................ S. siculus
27. Femur II with 4 setae .............................28
— Femur II with 5 setae ...............................29
28. Eyes present; tarsi II with 9 (1) setae ................. S. boshroyensis
— Eyes absent; tarsi II with 7 (1) setae ....... S. maleki
29. Genua III with 1 smooth seta, prodorsal shield
reticulated .......................................... S. longipilis
— Genua III with 1 barbed, prodorsal shield
smooth ........................................ S. longipilis
30. Tarsi I with 13 (1) setae ..........................31
— Tarsi I with 12 (1) setae ........................... S. glypticus
31. Aggenital region with 3 pairs of setae (ag1-3) 32
— Aggenital region with 2 pairs of setae
(ag1-2) .................................................. S. fissicomus
32. Coxisternal and legs reticulated .................33
— Coxisternal and legs smooth .............. S. haddadi
33. Ratio setae d/v” on tibia IV 0.9; setae d on tibia
IV 35 long ........................................ S. sphangti
— Ratio setae d/v” on tibia IV 1.4; setae d on tibia
IV 60 long ........................................ S. delaramae

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