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NEW SPECIES OF MITES OF THE FAMILY SCUTACARIDAE (ACARI: HETEROSTIGMATA) ASSOCIATED WITH ANTS (HYMENOPTERA, FORMICIDAE) FROM TURKMENISTAN

НОВЫЕ ВИДЫ КЛЕЩЕЙ СЕМЕЙСТВА SCUTACARIDAE (ACARI: HETEROSTIGMATA), СВЯЗАННЫЕ С МУРАВЬЯМИ (HYMENOPTERA, FORMICIDAE) ИЗ ТУРКМЕНИСТАНА

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Ключевые слова: *Imparipes*, *Scutacarus*, новые виды, Scutacaridae, муравьи, Formicidae, Туркменистан

ABSTRACT

Seven new species of mites of the family Scutacaridae (Acari: Heterostigmata), *Imparipes kugitangensis* sp.n., *I. kataglyphi* sp.n., *I. ignotus* sp.n., *I. placidus* sp.n., *Scutacarus sabinaesimilis* sp.n., *S. rotundulus* sp.n., and *S. subquadratus* sp.n., are described from ant nests from Turkmenistan.

РЕЗЮМЕ

Описываются 7 новых видов клещей семейства Scutacaridae (Acari: Heterostigmata): *Imparipes kugitangensis* sp.n., *I. kataglyphi* sp.n., *I. ignotus* sp.n., *I. placidus* sp.n., *Scutacarus sabinaesimilis* sp.n., *S. rotundus* sp.n. и *S. subquadratus* sp.n. из муравейников Туркменистана.

To date 14 species of mites of the family Scutacaridae (Acari: Heterostigmata) have been recorded from Turkmenistan: *Heterodispus elongatus* Trägårdh, 1904, *Imparipes parthianensis* Sevastianov et Chydyrov, 1992, *I. turkmeniensis* Sevastianov et Chydyrov, 1992, *I. mongolicus* Mahunka, 1967, *Scutacarus serotinus* Sevastianov et Chydyrov, 1992, *S. pilosiusculus* Sevastianov et Chydyrov, 1992, *S. argillaceus* Sevastianov et Chydyrov, 1992, *S. diversisetus* Sevastianov et Chydyrov, 1992, *S. sabinae* Chydyrov, 1996, *S. berdyevi* Chydyrov, 2000, *S. monstrificus* Chydyrov, 2000, *S. quadrangularis* Paoli, 1911, *S. sphaeroideus* Karafiat, 1959, *Pygmodispus paraequestris* Khaustov et Chydyrov, 2003 [Chydyrov, 1996, 1999, 2000; Khaustov, Chydyrov, 2003, Sevastianov, Chydyrov, 1992]. Most of them were found in agroecosystems. Samples from ant nests collected by the junior author revealed many previously unknown species. The purpose of this paper is to describe seven new species of Scutacaridae from ant nests from Turkmenistan.

The terminology follows that of Lindquist [1986]. All measurements are given in micrometers (μm) for holotype and, if available, for 5 paratypes (in parenthesis). Type material is deposited in the collection of the department of Acarology, Shmalgausen Institute of Zoology, Kiev, Ukraine.

DESCRIPTIONS OF SPECIES

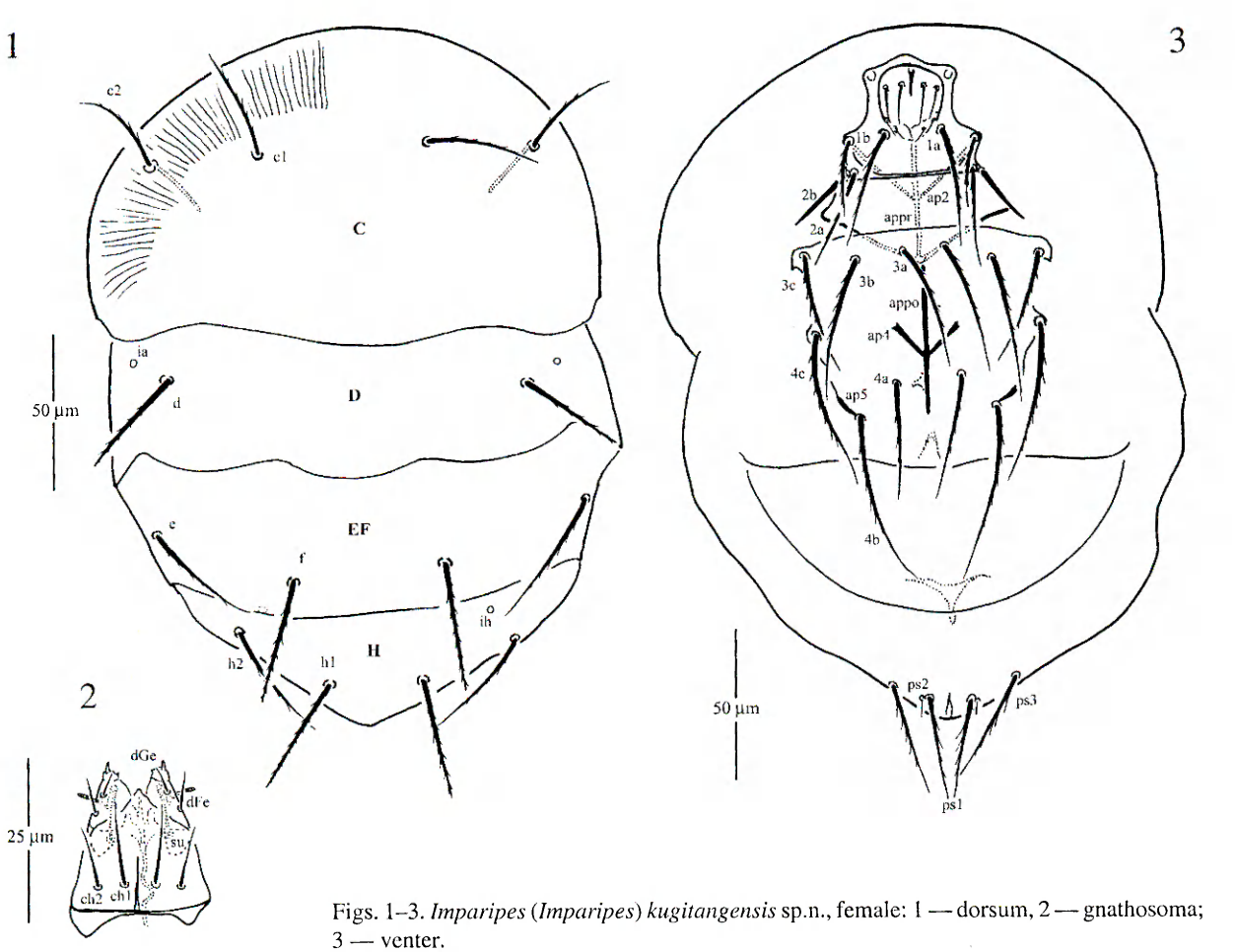
Imparipes (*Imparipes*) *kugitangensis* sp.n.

Figs. 1–19.

Female. Idiosomal length 208(207–235), maximum width 149(160–182).

Gnathosoma (Fig. 2). Length of gnathosoma 30, width 24. There are 2 pairs of dorsal setae, ch_1 (13) and ch_2 (9) situated on same level. There is 1 pair of setae *su* (8). Palps with two pairs of setae *d*Ge and *d*Fe, small ventral solenidion (3), and accessory setigenous structure. Dorsal medial apodeme well developed.

Idiosomal dorsum (Fig. 1). Free margin of tergite C has distinct stripes. Setae c_2 with distinct alveolar canal. Cupuli *ih* small, round, *ia* of same shape as *ih*. Tergites C, D, EF smooth. All dorsal setae strongly barbed. Length of dorsal setae: c_1 34(31–37), c_2 28(33–36), *d* 34(32–39), *e* 38(34–43), *f* 38(37–42), h_1 37(33–42), h_2 34(30–38). Dis-



Figs. 1–3. *Imparipes* (*Imparipes*) *kugitangensis* sp.n., female: 1 — dorsum, 2 — gnathosoma; 3 — venter.

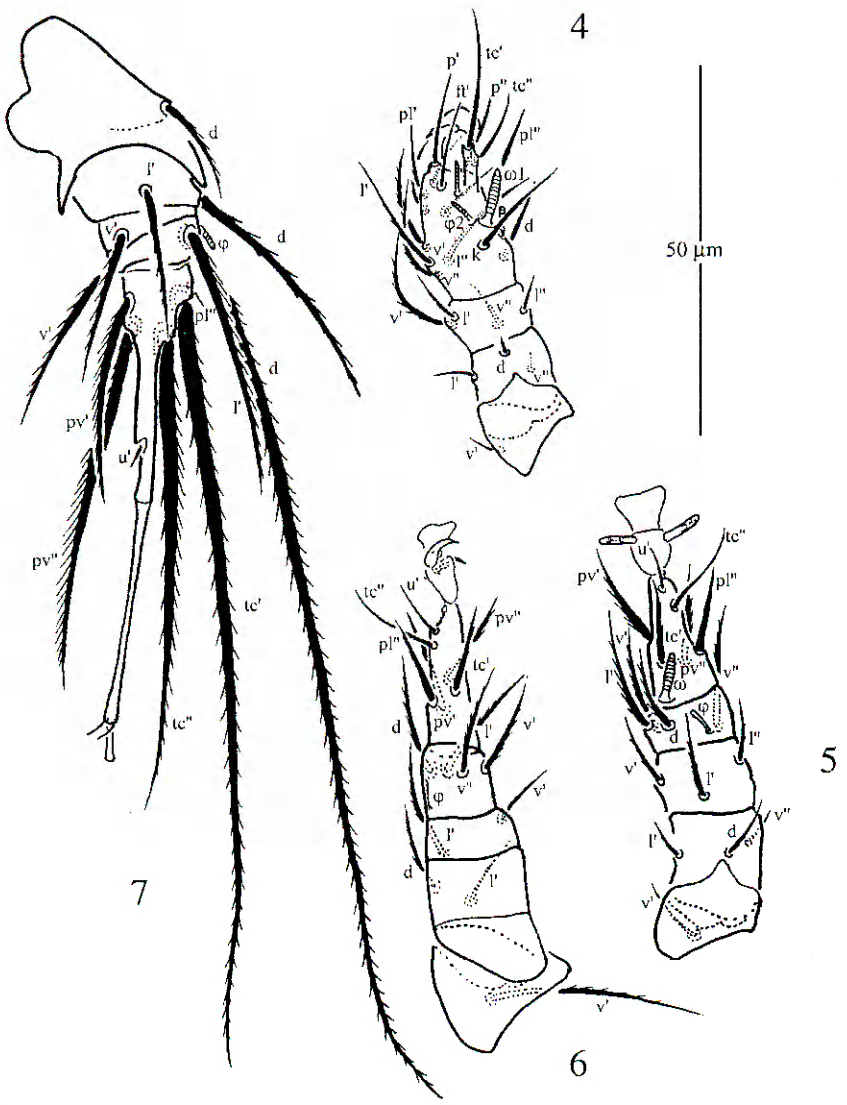
tances between dorsal setae: c_1–c_1 51(46–54), c_1–c_2 32(26–37), *d*–*d* 102(91–111), *e*–*f* 42(40–44), *f*–*f* 44(47–51), h_1–h_1 28(23–32), h_1–h_2 31(29–33). Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

Idiosomal venter (Fig. 3). Apodemes 1 (ap1), 2 (ap2) and sejugal apodeme (apsej) well developed and joined with presternal apodeme (appr). Sejugal apodeme v-shaped. Setae 2*b* smooth, saber-like. Other setae of ventral propodosomal and metapodosomal plates filiform, strongly barbed. Posterior margin of ventral metapodosomal plate slightly convex at middle portion. Setae ps_1 and ps_3 strongly barbed, setae ps_2 short and smooth. Apodemes 3 (ap3) weakly developed. Apodemes 4 (ap4) rather short and joined with poststernal apodeme (appo). Apodemes 5 (ap5) well sclerotized and situated between setae 4*b* and base of trochanter IV. Setae 4*b* distinctly longer than 4*a*. Posterior margin of aggenital plate round. Length of ventral setae: 1*a* 36(33–39), 1*b* 22(22–26), 2*a* 33(30–37), 2*b* 22(20–23), 3*a* 41(39–42), 3*b* 46(42–49), 3*c* 40(35–48), 4*a* 39(40–50), 4*b* 55(50–60), 4*c* 52(48–60), ps_1 34(33–40), ps_2 6(6–7), ps_3 34(32–40).

Legs (Figs. 4–7). Leg I (Fig. 4): setal formula: Tr1–Fe3–Ge4–TiTa16(4) (number of solenidia in parenthesis). Tibiotarsus with well developed claw. Solenidia ω_1 8(8–9) > ω_2 7(6–7) > φ_1 6(6–7) = φ_2 6(6). Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II (Fig. 5): Tr1–Fe3–Ge3–Ti4(1)–Ta6(1). Tarsus with sickle-like padded claws. Solenidion ω 8(7–8) finger-shaped. Solenidion φ depressed, hardly visible. Leg III (Fig. 6): Tr1–Fe2–Ge2–Ti4(1)–Ta6. Claws of same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV (Fig. 7): Tr1–Fe2–Ge1–Ti3(1)–Ta6. Trochanter with ventrodistal spine-like process. Tarsus with long pretarsus and two small seta-like claws, with thin distal empodium. Solenidion φ 5(5) uniformly thin. Seta *u*′ needle-like 6(5–6).

Male. Idiosomal length 142–159, maximum width 89–102.

Gnathosoma (Fig. 8–9) strongly reduced. Length: 6–7, width 3. Without dorsal setae. One pair of ventral setae, *su* (4–5). One pair of well developed distal solenidia (8–9).

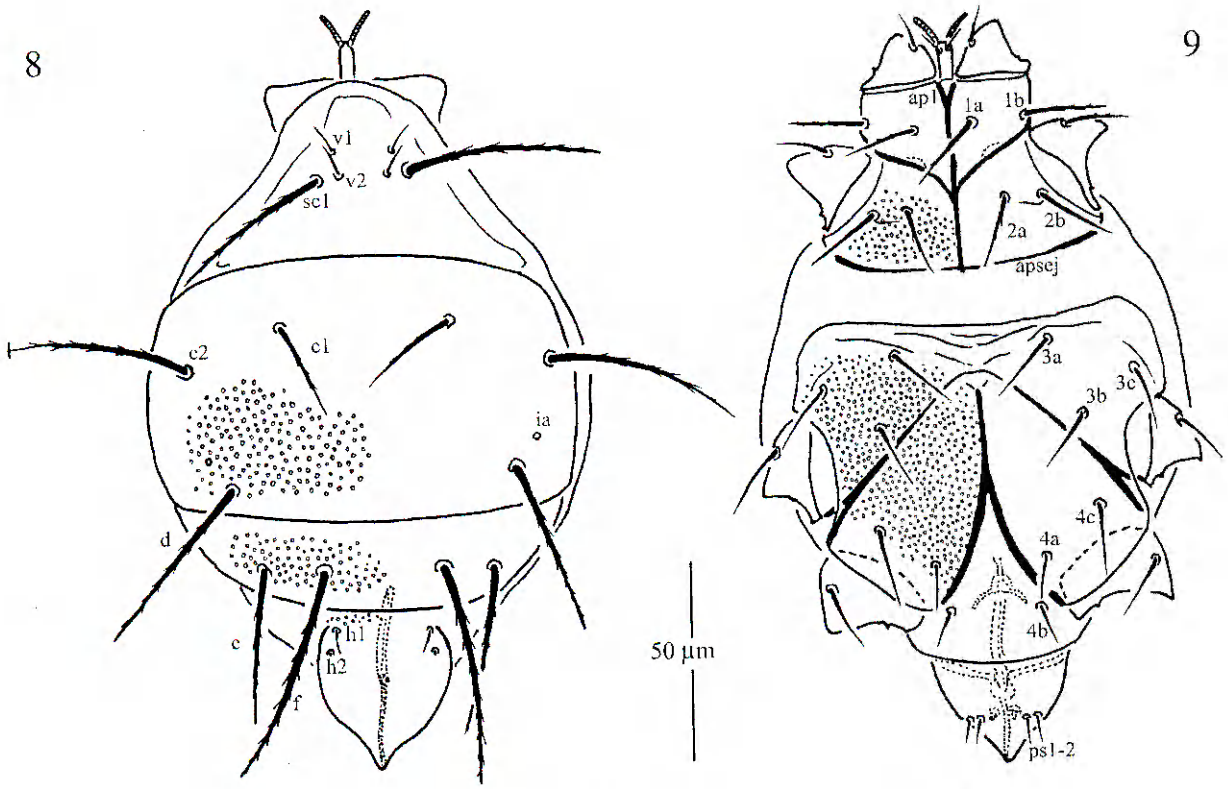


Figs. 4–7. *Imparipes* (*Imparipes*) *kugitangensis* sp.n., female: 4–7 — legs I–IV, respectively.

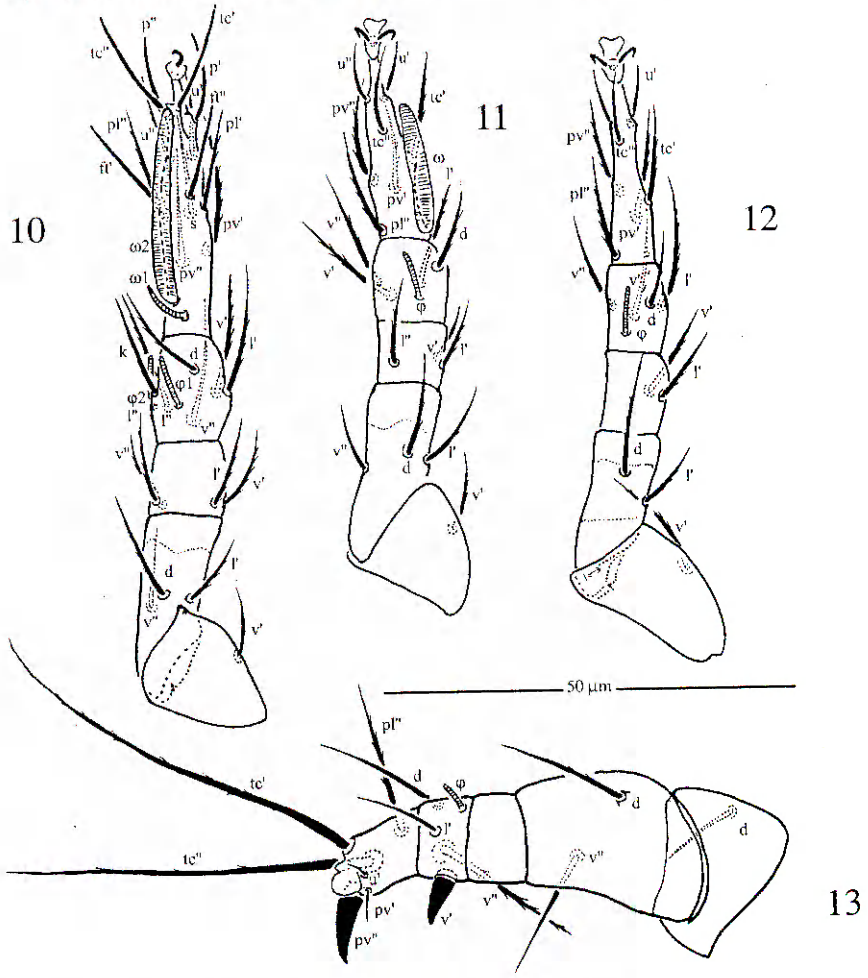
Idiosomal dorsum (Fig. 8). Propodosomal shield smooth. Tergites CD and EF with large dimples in posterior half. Cupuli *ia* small, round. All dorsal setae strongly barbed, except for short and slightly barbed setae v_1, v_2, and h_1. Setae h_2 vestigial. Seatae sc_1, *d*, *e* and *f* blunt-ended. Genital capsule massive, smooth. Aedeagus long, well developed. Length of genital capsule 31–32, width 24–28. Length of dorsal setae: v_1 7–10, v_2 8–10, sc_1 30–38, c_1 22–26, c_2 42–38, *d* 40–44, *e* 27–36, *f* 44–52, h_1 6–7. Distances between dorsal setae: v_1–v_1 13–14, v_2–v_2 11, sc_1–sc_1 16–21, c_1–c_1 38–40, c_1–c_2 20–22, *d*–*d* 57–67, *e*–*f* 8–11, *f*–*f* 26–28, h_1–h_1 17, h_2–h_2 17–18.

Idiosomal venter (Fig. 9). Ap1, ap2 and apsej well developed and joined with appr. Sejugal apodeme straight. Epimeres II–IV with well developed dimples, but smaller than on tergites. Setae 1*a*, 1b, and 2*a* barbed. Other setae of ventral propodosomal and metapodosomal plates smooth. Ap3 weakly developed. Ap4 and ap5 well developed and joined with appo. Length of ventral setae: 1*a* 16–19, 1*b* 14–18, 2*a* 16–18, 2*b* 18–22, 3*a* 14–17, 3*b* 12–13, 3*c* 15–18, 4*a* 10–11, 4*b* 8–9, 4*c* 15–17, ps_1 6, ps_2 7–8.

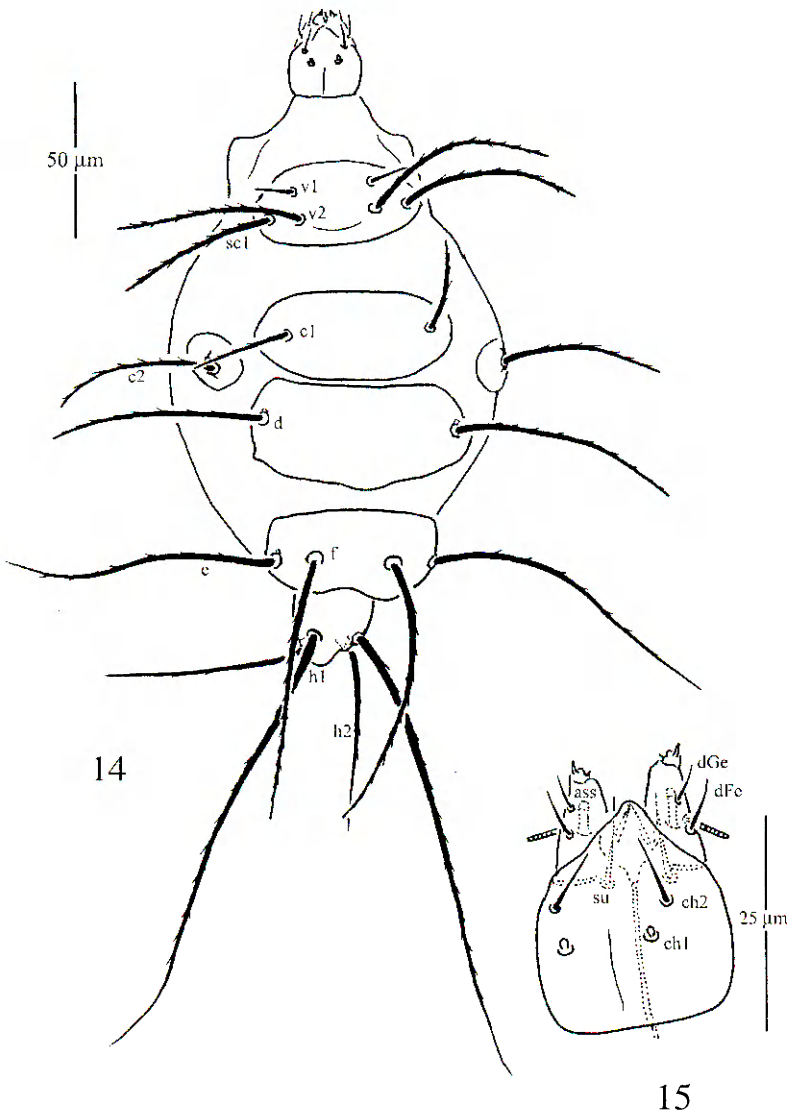
Legs (Figs. 10–13). Leg I (Fig. 10): Tr1–Fe3–Ge4–Ti6(2)–Ta13(2). Tarsus with small claw. Solenidia ω_1 6–8 uniformly thin, ω_2 27–29 massive, cylindrical. Solenidion φ_1 7 = φ_2 7, both uniformly thin. Leg II (Fig. 11): Tr1–Fe3–Ge3–Ti4(1)–Ta7(1). Tarsus with sickle-like non-padded claws. Solenidion ω 20–21 cylindrical. Solenidion φ 5–7 uniformly thin. Leg III (Fig. 12): Tr1–Fe2–Ge2–Ti4(1)–Ta7. Claws of same shape as on tarsus II. Solenidion φ 5–6 uniformly thin. Leg IV massive (Fig. 13): Tr1–Fe2–Ge0–Ti4(1)–Ta6. Tibia with setae *v'* spine-like. Solenidion φ 5–6 uniformly thin. Tarsus without claws and empodium. Setae *pv"*(?) spine-



Figs. 8–9. *Imparipes* (*Imparipes*) *kugitangensis* sp.n., male: 8–9 — dorsum and venter, respectively.



Figs. 10–13. *Imparipes* (*Imparipes*) *kugitangensis* sp.n., male: 10–13 — legs I–IV, respectively.



Figs. 14–15. *Imparipes* (*Imparipes*) *kugitangensis* sp.n., larva: 14 — dorsum, 15 — gnathosoma.

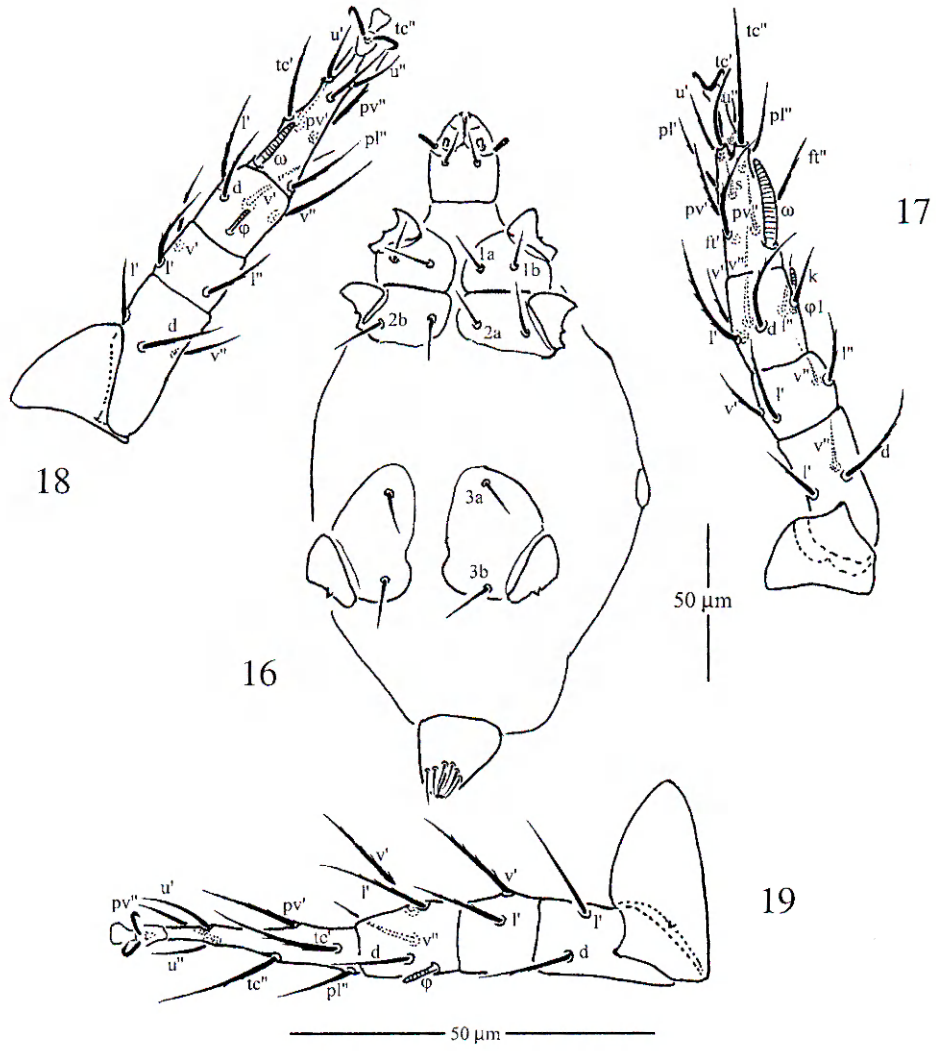
like. Setae *tc′* and *tc″* much longer than other setae of leg IV.

Larva. Gnathosoma (Fig. 15). With same set of structures as in female. Gnathosomal length 28–31, width 23. Setae ch_1 short and oval. Setae ch_2 9–11 distinctly anterior to ch_1. Length of su 7–8, palpal solenidion 5–6.

Idiosomal dorsum (Fig. 14). All dorsal shields smooth. Dorsal setae v_1, v_2, sc_1, c_1, c_2, *d*, and *f* blunt-ended, barbed; other setae sharp pointed, barbed. Setae c_2 situated on small protuberances. Setae h_2 situated on rather big outgrowths. Length of dorsal setae: v_1 10–12, v_2 53–56, sc_1 50–56, c_1 29–30, c_2 49–53, *d* 71–73, *e* 92–94, *f* 83–95, h_1 150–161, h_2 63–64. Distances between dorsal setae: v_1–v_1 28–29, v_2–v_2 28–29, sc_1–sc_1 44–46, c_1–c_1 50–53, *d*–*d* 62–64, *e*–*f* 11–14, *f*–*f* 26, h_1–h_1 13–16, h_1–h_2 5.

Idiosomal venter (Fig. 16). Propodosomal plate divided into 2 parts which formed by joined epimeres I and II. Epimeres I and II with 2 pairs of simple setae each and separated by well developed ap2. Epimeres III separated, and each bear 2 pairs of simple setae. Medial margin of epimeres III with distinct depression. Length of ventral setae: 1*a* 15–16, 1*b* 13, 2*a* 15–16, 2*b* 18–22, 3*a* 15–16, 3*b* 17–19, ps_1 8–9, ps_2 8–11, ps_3 9–11.

Legs (Figs. 17–19). Leg I (Fig. 17): Tr0–Fe3–Ge4–Ti6(1)–Ta11(1). Proral setae (*p′* and *p″*) absent. Tarsus with pair of small claws, without empodium. Solenidion ω_1 12 finger-shaped. Solenidion φ_1 6–7 distally widened. Leg II (Fig. 18): Tr0–Fe3–Ge3–Ti4(1)–Ta7(1). Tarsus with pair of sickle-like non-padded claws. Solenidion ω 8–9 finger-shaped. Solenidion φ 4 uniformly thin. Leg



Figs. 16–19. *Imparipes* (*Imparipes*) *kugitangensis* sp.n., larva: 16 — venter, 17–19 — legs I–III, respectively.

III (Fig. 19): Tr0–Fe2–Ge2–Ti4(1)–Ta7. Claws of same shape as on tarsus II. Solenidion φ 4 uniformly thin.

Differential diagnosis. The female of the new species is most similar to *Imparipes lenticulatus* Mahunka, 1981, but differs by different shape of tergite C, much longer pretarsus IV, and much shorter setae *u'* on tarsus IV.

Type material. Holotype: female, Turkmenistan, Kugitang Mountain, Khodzhapil-Ata gorge, nest of *Pheidole pallidula* Nylander, 1848, 29.04. 1991 (coll. Chydyrov). Paratypes: 9 females, 3 males, 2 larvae with same data as holotype.

Etymology. The specific epithet *kugitangensis* is derived from the name of the Kugitang Mountain, the type locality of the new species.

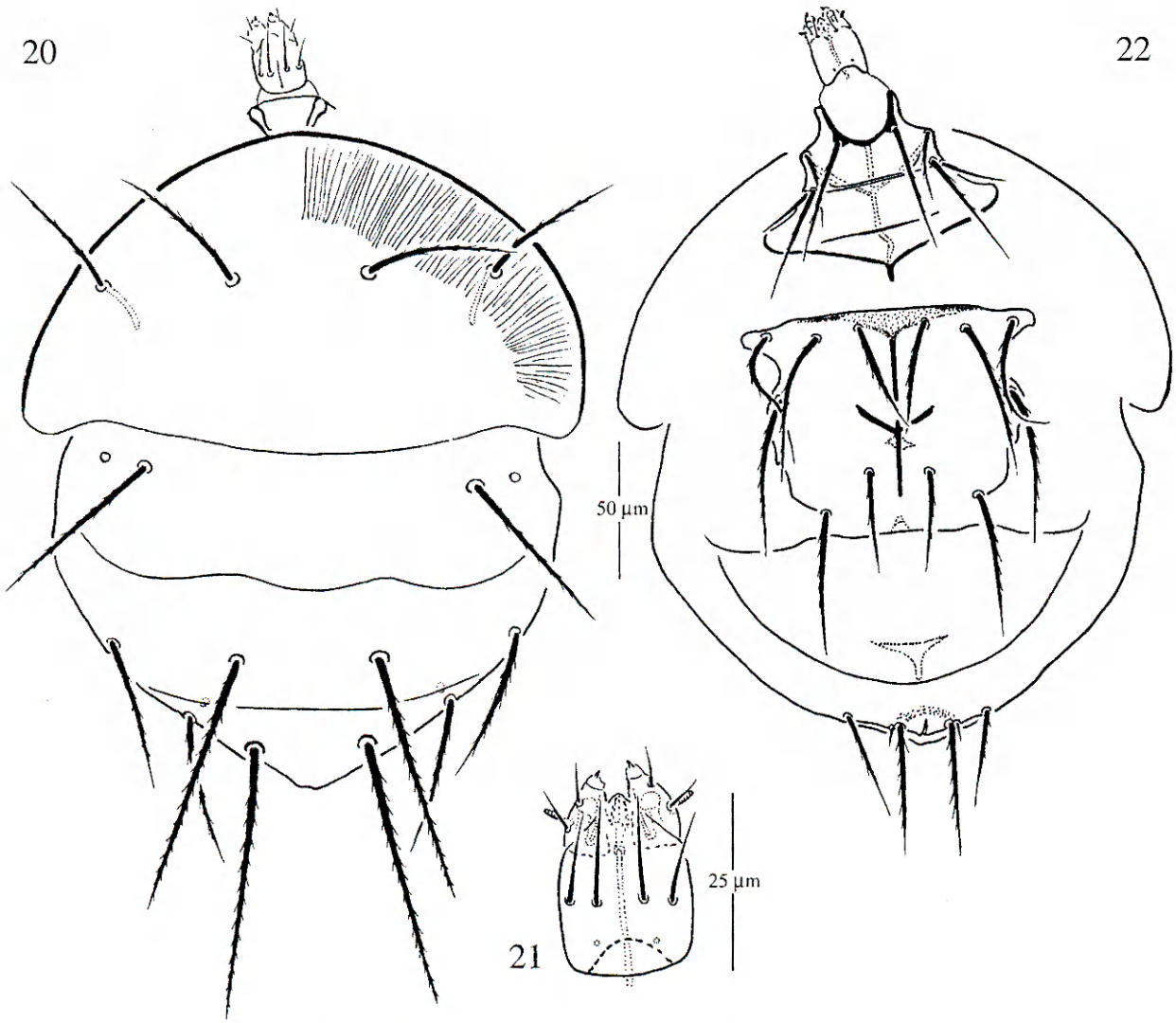
Imparipes (*Imparipes*) *kataglyphi* sp.n.

Figs. 20–32.

Female. Idiosomal length 230(216–242), maximum width 199(190–202).

Gnathosoma (Fig. 21). As in previous species, but more quadrangular. Length 28(27–29), width 18(17–18). Setae ch_1 15(13–15), ch_2 11(9–11), ch_1 and ch_2 situated on same level. Setae *su* 8(7–9). Palpal solenidion 3(3). Dorsal medial apodeme well developed.

Idiosomal dorsum (Fig. 20). Free margin of tergite C has distinct stripes. Setae c_2 with distinct alveolar canal. Cupuli *ih* small, round, *ia* of same shape as *ih*. Tergites C, D, EF smooth. All dorsal setae strongly barbed. Length of dorsal setae: c_1 57(52–59), c_2 57(51–58), *d* 70(67–72), *e* 57(49–56), *f* 90(83–99), h_1 99(93–103), h_2 56(48–53). Distances between dorsal setae: c_1–c_1 48(45–48),



Figs. 20–22. *Imparipes* (*Imparipes*) *kataglyphi* sp.n., female: 20 — dorsum, 21 — gnathosoma, 22 — venter.

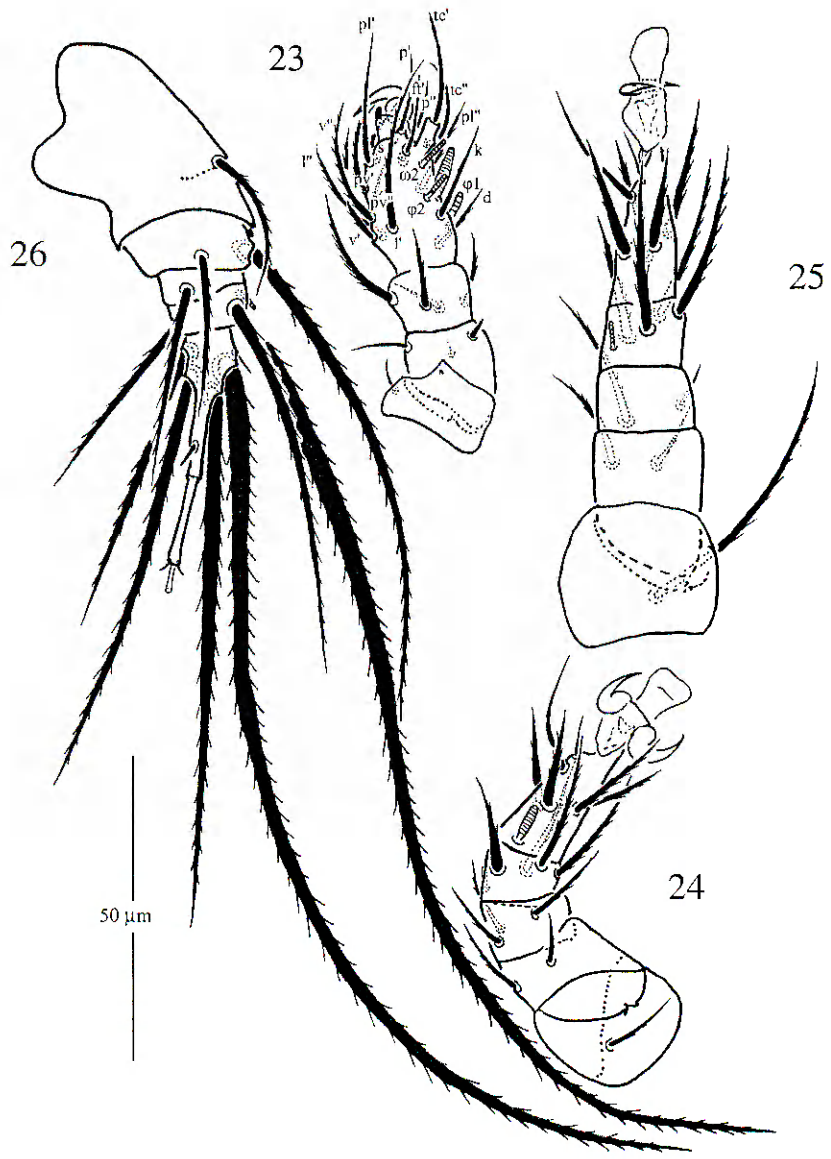
c_1–c_2 46(44–50), *d*–*d* 113(107–119), *e*–*f* 48(44–53), *f*–*f* 50(48–51), h_1–h_1 38(34–40), h_1–h_2 31(29–33). Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

Idiosomal venter (Fig. 22). Ap1, ap2 and apsej well developed and joined with appr. Sejugal apodeme v-shaped. Setae 2*b* smooth, saber-like. Other setae of ventral propodosomal and metapodosomal plates filiform, strongly barbed. Posterior margin of ventral metapodosomal plate slightly convex at middle part. Setae ps_1 and ps_3 strongly barbed, setae ps_2 short and smooth. Ap3 weakly developed, ap4 rather short, joined with appo. Ap5 weakly sclerotized, situated between setae 4*b* and base of trochanter IV. Posterior margin of aggenital plate round. Length of ventral setae: 1*a* 44(41–47), 1*b* 23(22–25), 2*a* 41(40–44), 2*b* 21(18–21), 3*a* 44(43–50), 3*b* 58(53–60), 3*c* 49(48–57), 4*a* 36(36–41), 4*b* 56(52–59), 4*c* 61(60–67), ps_1 50(47–52), ps_2 10(10–12), ps_3 37(33–38).

Legs (Figs. 23–26). Leg chaetotaxy as in previous species. Leg I (Fig. 23): Tibiotarsus with well developed claw. Solenidia ω_1 9(8–10) > ω_2 6(6–7) < φ_1 7(7–8) > φ_2 6(6–7). Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II (Fig. 4. Tarsus with sickle-like, padded claws. Solenidion ω 8(7–8) finger-shaped. Solenidion φ depressed, hardly visible. Leg III (Fig. 25). Claws of same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV (Fig. 26). Trochanter with small ventrodistal spine-like process. Tarsus with rather short pretarsus and two small seta-like claws, distally with thin empodium. Solenidion φ 5(5) uniformly thin. Seta *u*′ needle-like 4(4–6).

Male. Idiosomal length 189, maximum width 122.

Gnathosoma (Fig. 27–28) strongly reduced. Length of gnathosoma 8, width 4. Dorsally with



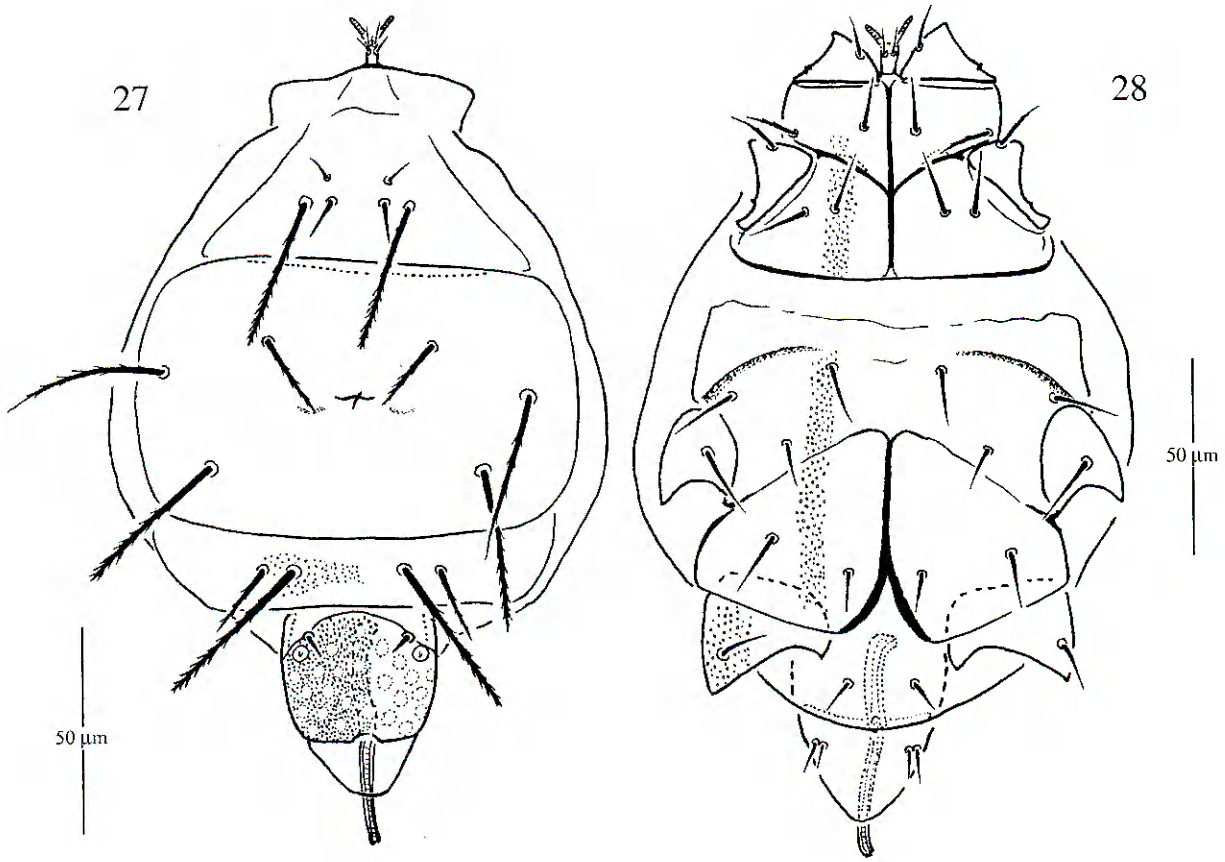
Figs. 23–26. *Imparipes* (*Imparipes*) *kataglyphi* sp.n., female: 23–26 — legs I–IV, respectively.

minute setae ch_1 and ch_2 5. Ventrally with 1 pair of setae *su* (5). Distally with pair of well developed solenidia (9).

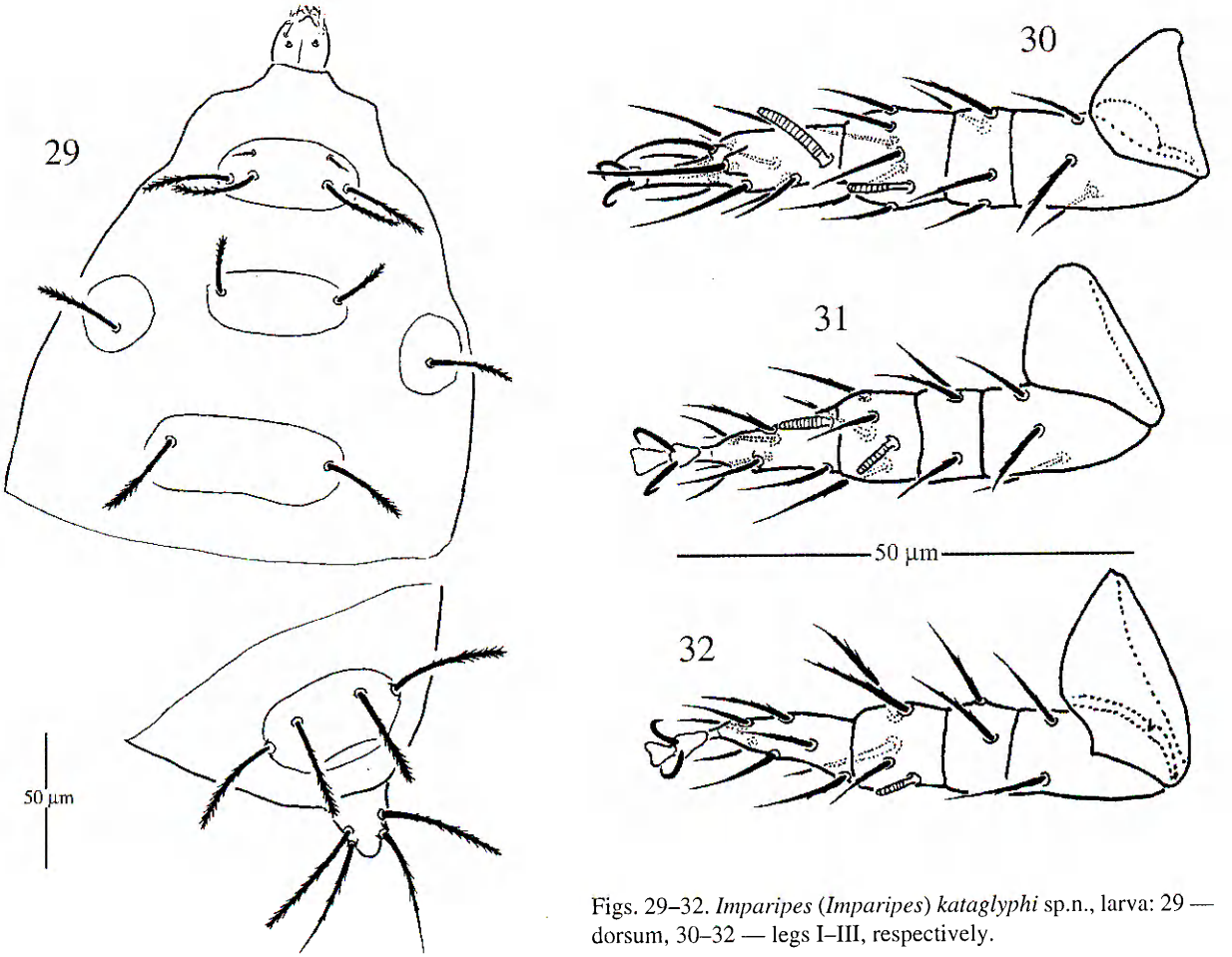
Idiosomal dorsum (Fig. 27). Propodosomal shield smooth. Tergite EF with small dimples in posterior half. All dorsal setae strongly barbed, except short and smooth setae v_1, v_2 and h_1. Setae h_2 vestigial. Seatae v_2, sc_1, c_1, *d*, *e*, and *f* blunt-ended. Genital capsule massive, strongly punctuated and bears many oval nonpunctated areas. Aedeagus long, well developed. Length of dorsal setae: v_1 8, v_2 11, sc_1 41, c_1 20, c_2 45, *d* 44, *e* 16, *f* 44, h_1 8. Distances between dorsal setae: v_1–v_1 15, v_2–v_2 13, sc_1–sc_1 26, c_1–c_1 42, c_1–c_2 27, *d*–*d* 70, *e*–*f* 9, *f*–*f* 29, h_1–h_1 29, h_2–h_2 31.

Idiosomal venter (Fig. 28). Ap1, ap2 and apsej well developed and joined with appr. Apsej straight. Epimeres II–IV with well developed dimples. Epimeres I with small dimples visible in posterior part. Setae 2*a* barbed. Other setae of ventral propodosomal and metapodosomal plates smooth. Ap3 well developed. Ap4 weakly developed. Ap5 well developed and joined with appo. Length of ventral setae: 1*a* 15, 1*b* 13, 2*a* 16, 2*b* 16, 3*a* 19, 3*b* 14, 3*c* 16, 4*a* 10, 4*b* 9, 4*c* 15, ps_1 6, ps_2 10.

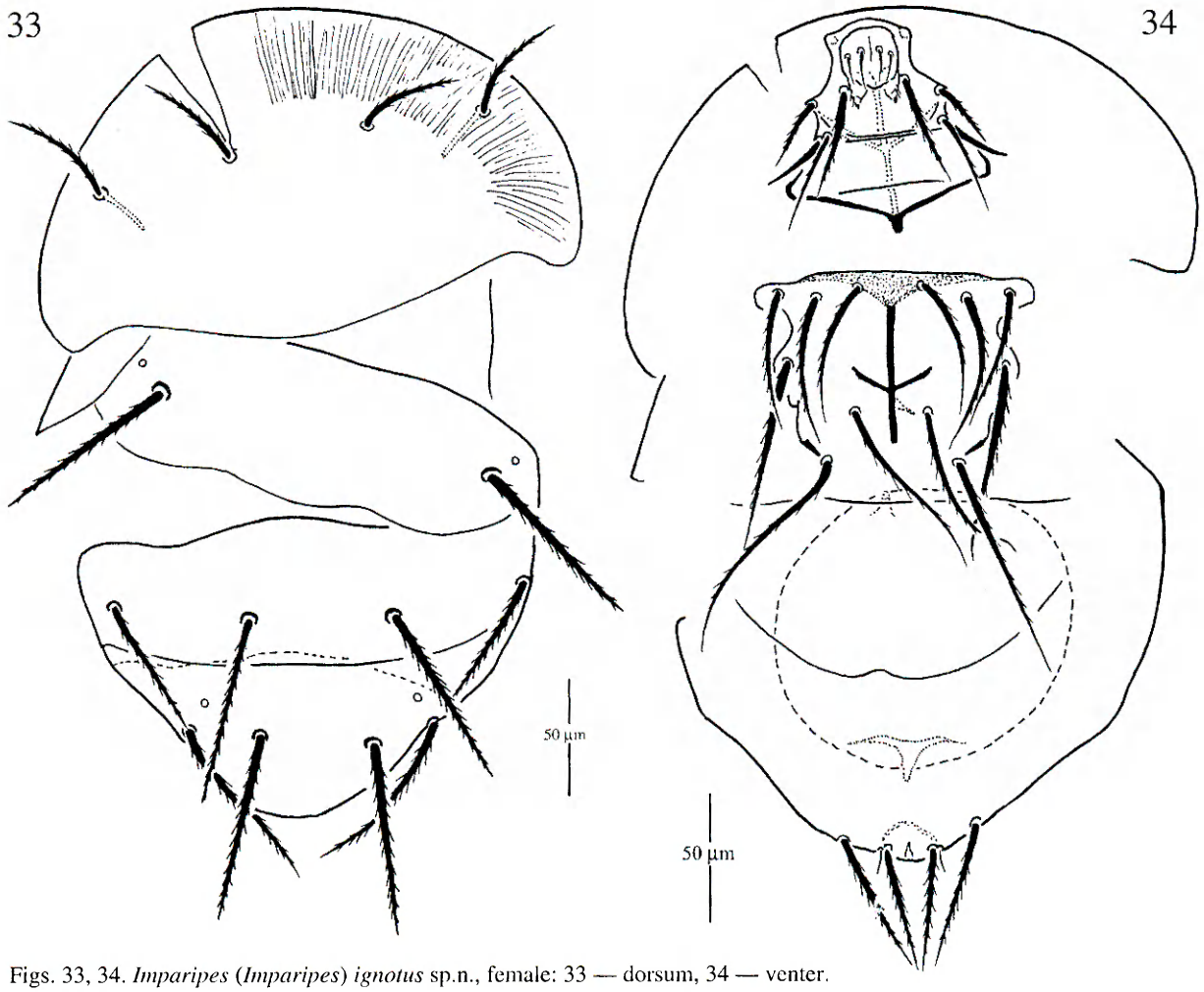
Legs. As in previous species. Leg I. Tarsus with small claw. Solenidia ω_1 7 uniformly thin, ω_2 23 massive, cylindrical. Solenidion φ_1 6 = φ_2 6, both uniformly thin. Leg II. Tarsus with sickle-like, non-padded claws. Solenidion ω 13 cylindrical. Solenidion φ 6 uniformly thin. Leg III. Claws of same shape as on tarsus II. Solenidion φ 6 uniformly thin. Leg IV massive. Tibia with setae *v*′ spine-like. Solenidion φ 11 uniformly thin. Tarsus without claws and empo-



Figs. 27, 28. *Imparipes* (*Imparipes*) *kataglyphi* sp.n., male: 27 — dorsum, 28 — venter.



Figs. 29–32. *Imparipes* (*Imparipes*) *kataglyphi* sp.n., larva: 29 — dorsum, 30–32 — legs I–III, respectively.



Figs. 33, 34. *Imparipes* (*Imparipes*) *ignotus* sp.n., female: 33 — dorsum, 34 — venter.

dium. Setae *pv*″(?) spine-like. Setae *tc*′ and *tc*″ much longer than other setae of leg IV.

Larva. Gnathosoma (Fig. 29). As in previous species. Length 27, width 20. Setae ch_1 short and oval. Setae ch_2 7 distinctly anterior to setae ch_1. Length of *su* 8, palpal solenidion 5.

Idiosomal dorsum (Fig. 29). All dorsal shields smooth. Dorsal setae blunt-ended, strongly barbed, except for h_2 which sharp pointed and barbed. Setae h_2 situated on rather big outgrowths. Length of dorsal setae: v_1 8–10, v_2 24–33, sc_1 24–33, c_1 16–22, c_2 24–31, *d* 27–38, *e* 36–44, *f* 31–39, h_1 37–47, h_2 39–48. Distances between dorsal setae: v_1–v_1 26–28, v_2–v_2 22–27, sc_1–sc_1 38–44, c_1–c_1 38–44, *d*–*d* 50–60, *e*–*f* 11–13, *f*–*f* 24, h_1–h_1 15, h_1–h_2 5.

Idiosomal venter. As in previous species. Length of ventral setae: 1*a* 10–13, 1*b* 8–10, 2*a* 11–14, 2*b* 12–14, 3*a* 11–14, 3*b* 11–14, ps_1 7–9, ps_2 9–11, ps_3 7–9.

Legs (Figs. 30–32). Chaetotaxy as in previous species. Leg I (Fig. 30). Tarsus with pair of small claw, without empodium. Solenidion ω_1 8–9 finger-shaped. Solenidion φ_1 6–7 widened distally. Leg II (Fig. 31). Tarsus with pair of sickle-like, non-padded claws. Solenidion ω 7–8 finger-shaped. Solenidion φ 4–5 uniformly thin. Leg III (Fig. 32). Claws of same shape as on tarsus II. Solenidion φ 4–5 uniformly thin.

Differential diagnosis. Belongs to the group of species with shortened pretarsus IV in female. Most similar to *Imparipes I. lenticulatus* but differs by much longer dorsal idiosomal setae and much shorter setae *u*′ on tarsus IV.

Type material. Holotype: female, Turkmenistan, Kugitang Mount., Daraydere gorge, nest of *Cataglyphus emery* (Karawajev, 1909), 29.04.1996 (coll. Chydyrov). Paratypes: 17 females, 1 male, 6 larvae with same data as holotype.

Etymology. The specific epithet *kataglyphi* is derived from the generic name of the host.

Imparipes (*Imparipes*) *ignotus* sp.n.

Figs. 33–35.

Female. Idiosomal width 216. The body of holotype is damaged and correct measurement of idiosonal length is impossible.

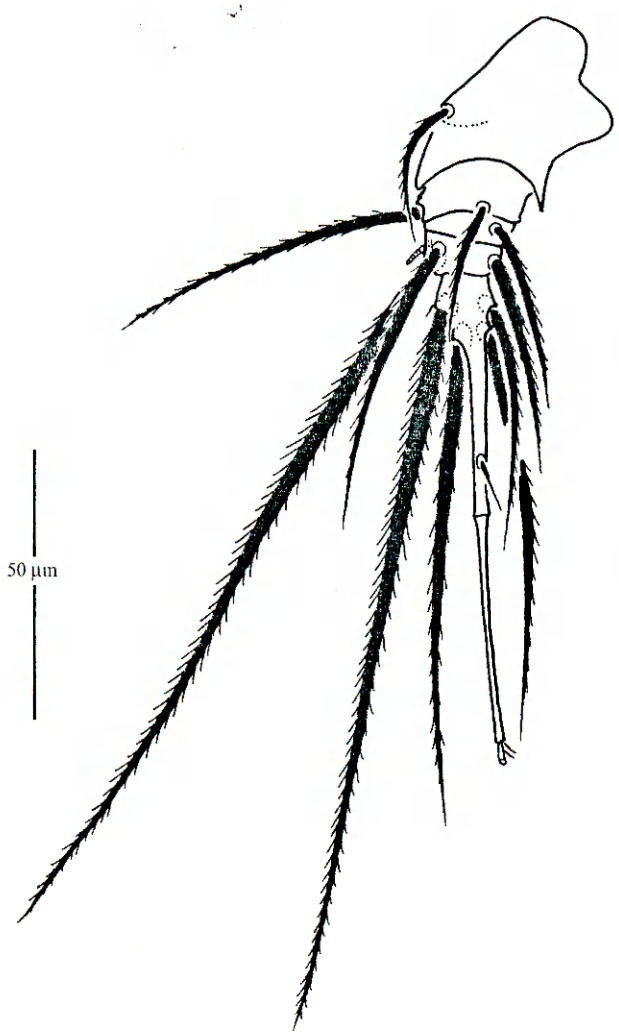


Fig. 35. *Imparipes* (*Imparipes*) *ignotus* sp.n., female: leg IV.

Gnathosoma (Fig.34). As in previous species.

Idiosomal dorsum (Fig. 33). Free margin of tergite C has distinct stripes. Setae c_2 with distinct alveolar canal. Cupuli *ih* small, round, *ia* of same shape as *ih*. Tergites C, D, and EF smooth. All dorsal setae very strongly barbed. Length of dorsal setae: c_1 48, c_2 51, *d* 79, *e* 60, *f* 82, h_1 82, h_2 73. Distances between dorsal setae: c_1–c_1 56, c_1–c_2 50, *d*–*d* 139, *e*–*f* 56, *f*–*f* 59, h_1–h_1 47, h_1–h_2 33. Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

Idiosomal venter (Fig. 34). Ap1, ap2, and apsej well developed and joined with appr. Sejugal apodeme v-shaped. Setae 2*b* smooth saber-like. Other setae of ventral propodosomal and metapodosomal plates filiform, strongly barbed. Posterior margin of ventral metapodosomal plate slightly convex at middle part. Setae ps_1 and ps_3 strongly barbed, setae ps_2 short and smooth. Ap3 weakly developed, ap4 rather short and joined with appo. Ap5 well sclerotized and situated between setae 4*b* and base of trochanter IV. Posterior margin of aggenital plate concave. Length of ventral setae: 1*a* 42, 1*b* 27, 2*a* 41, 2*b* 31, 3*a* 52, 3*b* 57, 3*c* 54, 4*a* 72, 4*b* 88, 4*c* 75, ps_1 50, ps_2 10, ps_3 59.

Legs (Figs. 35). Leg chaetotaxy as in previous species. Leg I: Tibiotarsus with well developed claw. Solenidia ω_1 10 > ω_2 8 < φ_1 9 > φ_2 8. Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II. Tarsus with sickle-like padded claws. Solenidion ω 10 finger shaped. Solenidion φ depressed, hardly visible. Leg III. Claws of the same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV (Fig. 35). Trochanter with ventrodistal spine-like process. Tarsus with long pretarsus and two small seta-like claws, distally with thin empodium. Solenidion φ 7 uniformly thin. Seta *u'* seta-like 12.

Differential diagnosis. The new species most similar to *I. hystricinus* Berlese, 1903, but differs by setae ps_3>ps_1 (ps_3<ps_1 in *I. hystricinus*) and by relatively shorter setae c_1 and c_2.

Type material. Holotype: female, Turkmenistan, Dashoguz distr., Kone-Urgench reg., in the nest of *Messor* sp., 18.04.1996 (coll. Chydyrov).

Etymology. The specific epithet *ignotus* means unknown.

Imparipes (*Imparipes*) *placidus* sp.n.

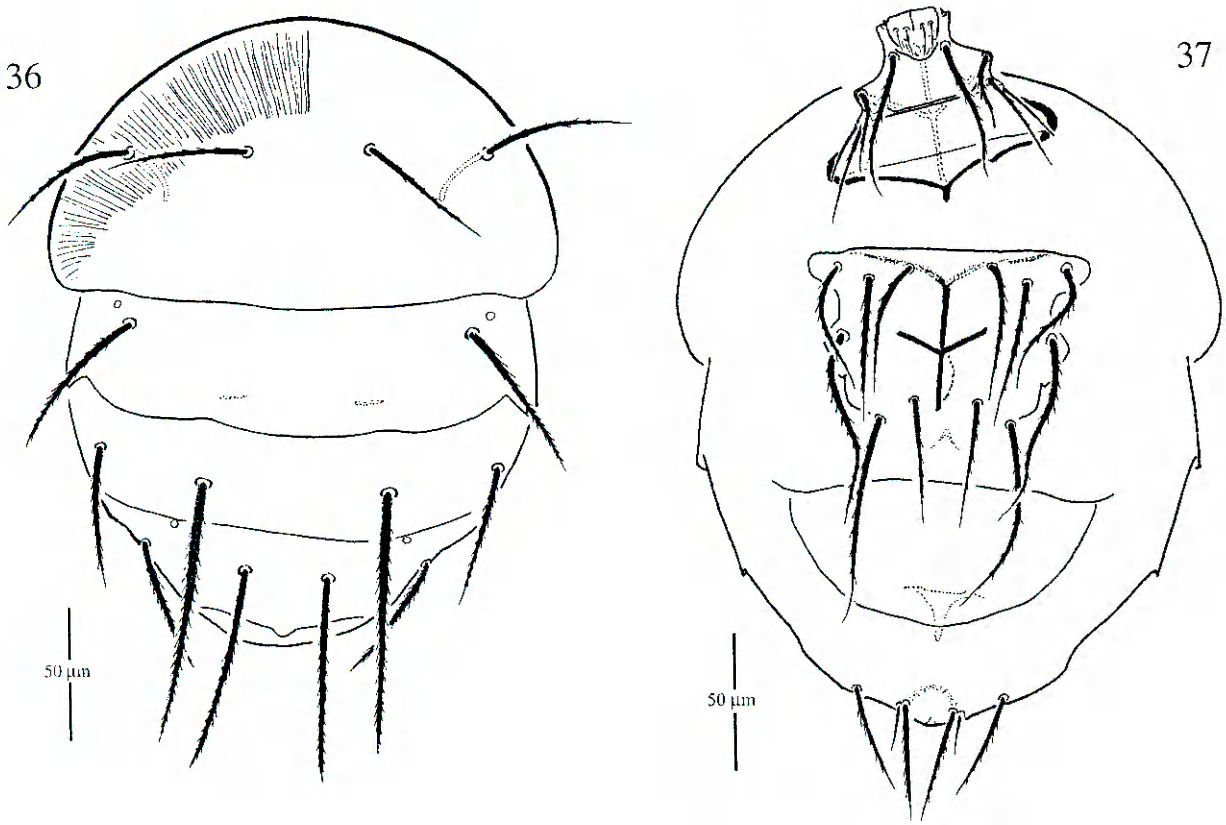
Figs. 36–41.

Female. Idiosomal length 239(233–260), width 190(189–195).

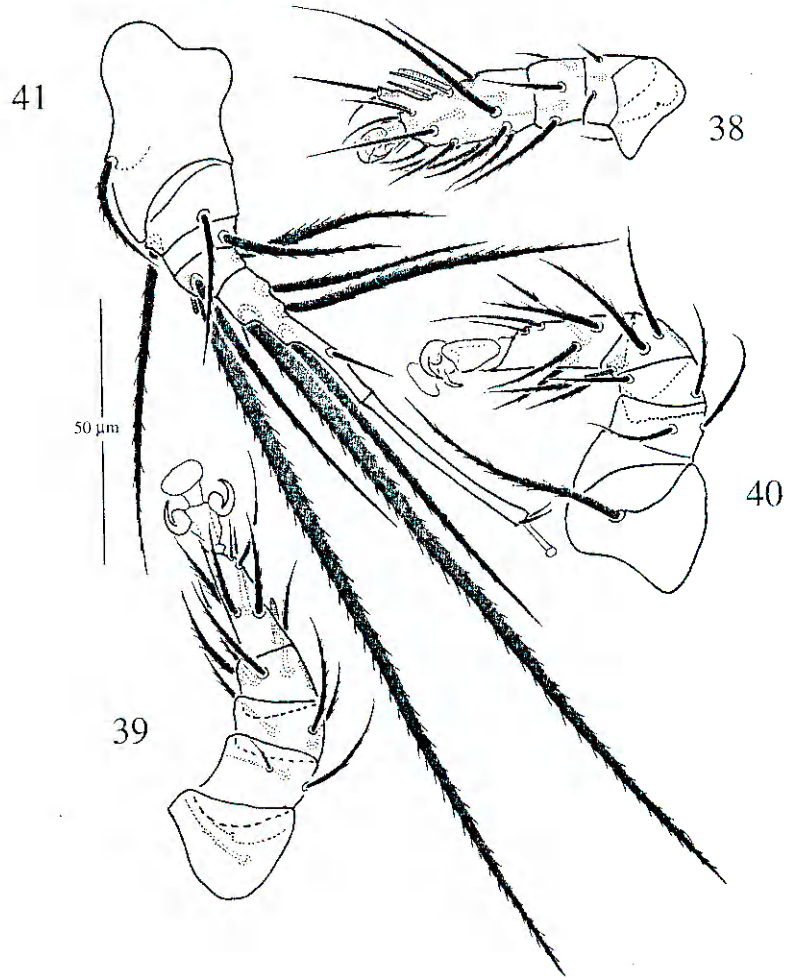
Gnathosoma (Fig.37). As in previous species.

Idiosomal dorsum (Fig. 36). Free margin of tergite C has distinct stripes. Setae c_2 with distinct alveolar canal. Cupuli *ia* and *ih* small, round. Tergites C, D, and EF smooth. All dorsal setae strongly barbed. Length of dorsal setae: c_1 52(51–54), c_2 58(56–59), *d* 69(67–71), *e* 56(55–58), *f* 100(98–103), h_1 77(75–82), h_2 55(54–57). Distances between dorsal setae: c_1–c_1 47(46–49), c_1–c_2 43(43–44), *d*–*d* 125(123–129), *e*–*f* 41(40–46), *f*–*f* 71(70–72), h_1–h_1 33(31–35), h_1–h_2 39(38–44). Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

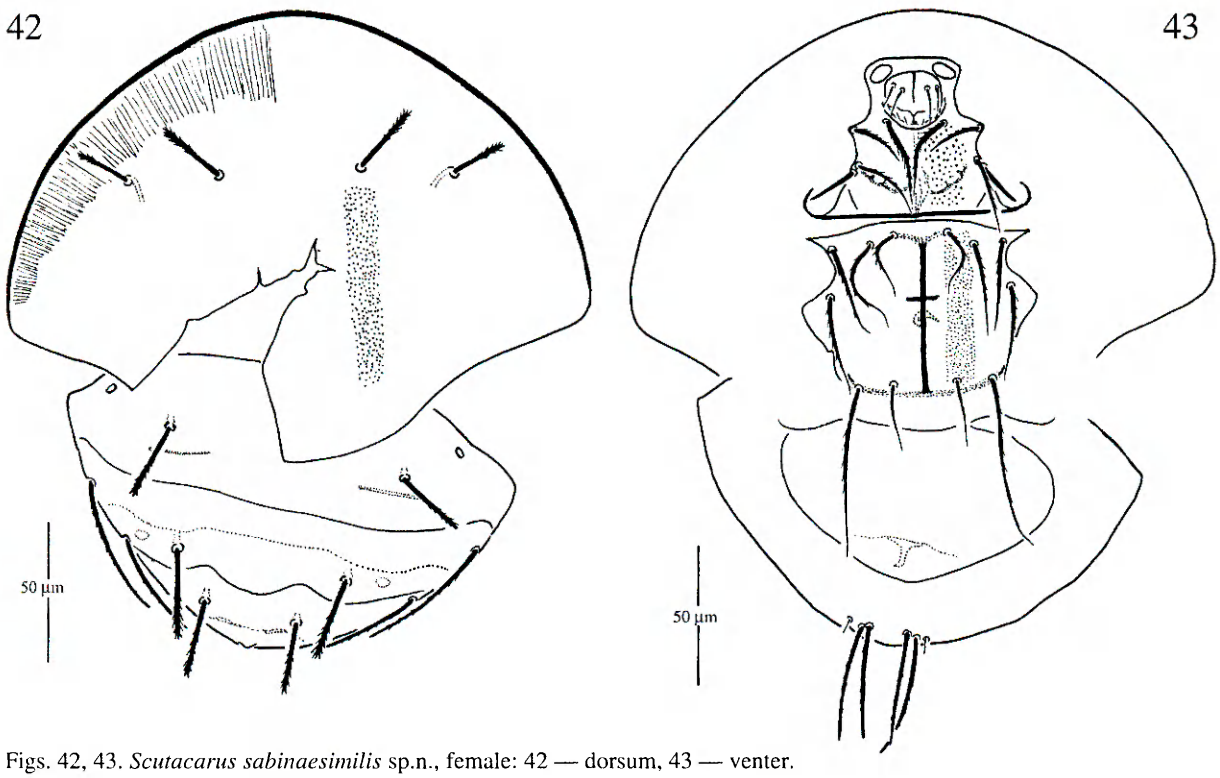
Idiosomal venter (Fig. 37). Ap1, ap2 and apsej well developed and joined with appr. Sejugal apodeme v-shaped. Setae 2*b* smooth saber-like. Other setae of ventral propodosomal and metapodosomal plates filiform, strongly barbed. Posterior margin of ventral metapodosomal plate straight at middle part. Setae ps_1 and ps_3 strongly barbed, setae ps_2



Figs. 36, 37. *Imparipes* (*Imparipes*) *placidus* sp.n., female: 36 — dorsum, 37 — venter.



Figs. 38–41. *Imparipes* (*Imparipes*) *placidus* sp.n., female: 38–41 — legs I–IV., respectively.



Figs. 42, 43. *Scutacarus sabinaesimilis* sp.n., female: 42 — dorsum, 43 — venter.

short and smooth. Ap3 weakly developed, ap4 rather short and joined with appo. Ap5 weakly sclerotized and situated between setae 4b and base of trochanter IV. Posterior margin of aggenital plate round. Length of ventral setae: 1*a* 50(49–53), 1*b* 38(36–42), 2*a* 41(41–44), 2*b* 28(27–29), 3*a* 46(45–50), 3*b* 53(52–56), 3*c* 49(48–52), 4*a* 47(47–50), 4*b* 70(68–71), 4*c* 72(71–74), ps_1 42(38–43), ps_2 14(13–15), ps_3 37(34–39).

Legs (Figs. 38–41). Leg chaetotaxy as in previous species. Leg I (Fig. 38): Tibiotarsus with well developed claw. Solenidia ω_1 10(11) > ω_2 8(9) < φ_1 10(11) > φ_2 8(9). Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II (Fig. 39). Tarsus with sickle-like, padded claws. Solenidion ω 10(11) finger-shaped. Solenidion φ depressed, hardly visible. Leg III (Fig. 40). Claws of same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV (Fig. 41). Trochanter without ventrodistal spine-like process. Tarsus with long pretarsus and two small seta-like claws, and thin distal empodium. Solenidion φ 7(8) uniformly thin. Seta *u'* seta-like 11(10).

Differential diagnosis. The new species most similar to *I. hystricinus*, but differs by setae *f* which is much longer than h_1 (*f* as long as h_1 in *I. hystricinus*).

Type material. Holotype: female, Turkmenistan, central Kopet-Dag, Bakharly reg., cave Kov-Ata, nest of *Messor excursionis* Ruszky, 1905, 12.04.1996 (coll. Chydyrov).

Etymology. The specific epithet *placidus* means quiet.

Scutacarus sabinaesimilis sp. n.

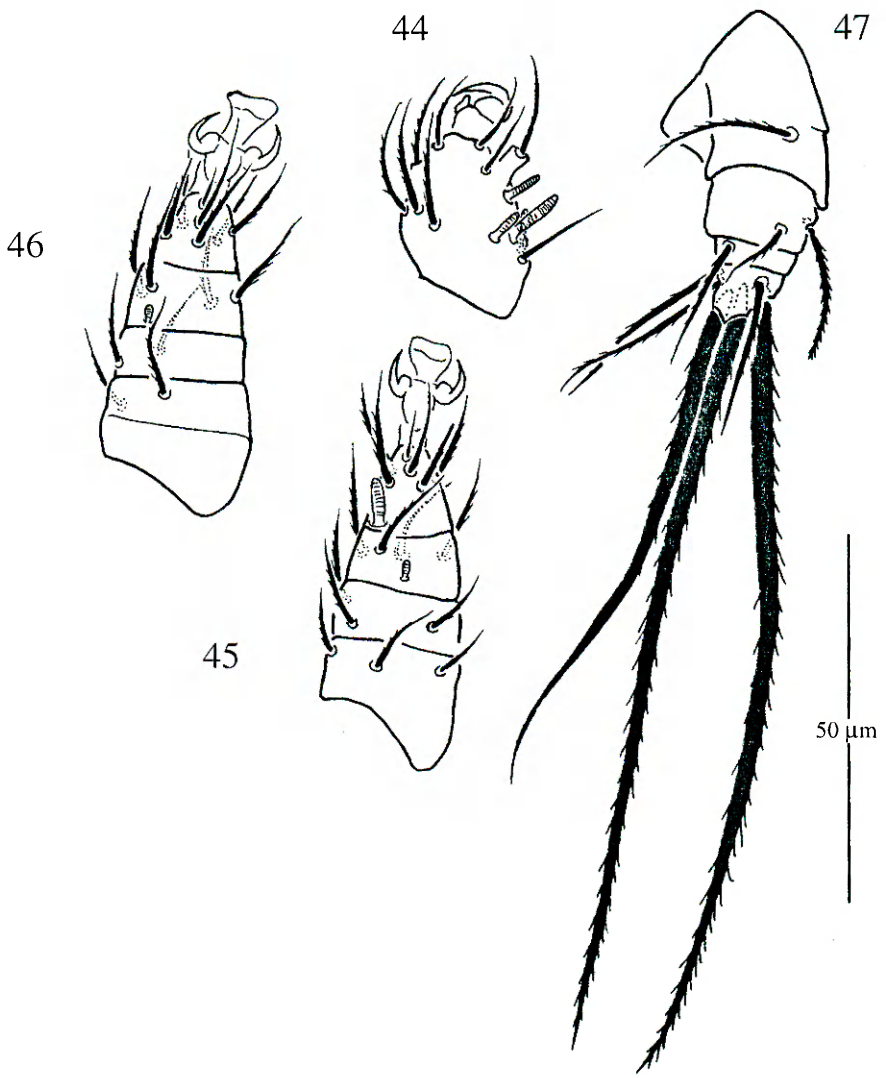
Figs. 42–47.

Female. All specimens are broken and correct measurements of length and width of idiosoma are impossible.

Gnathosoma (Fig.43). As in previous species.

Idiosomal dorsum (Fig. 42). Free margin of tergite C has distinct stripes. Setae c_2 with short alveolar canal. Cupuli *ia* and *ih* small, oval. The surface of tergite C with small dimples. Tergites D, EF and H are almost smooth. Dorsal setae are blunt-ended and strongly barbed, except for setae *e* and h_2, which slightly serrated. Length of dorsal setae: c_1 27(27–28), c_2 22(20–22), *d* 29(29–32), *e* 59(50–59), *f* 30(30–34), h_1 29(29–31), h_2 45(41–47). Distances between dorsal setae: c_1–c_1 44(42–51), c_1–c_2 31(31–34), *d*–*d* 75(72–85), *e*–*f* 47(39–48), *f*–*f* 55(53–61), h_1–h_1 33(33–34), h_1–h_2 44(40–46). Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

Idiosomal venter (Fig. 43). Ventral propodosomal and metapodosomal plates with small dimples. Ap1 and apsej well developed and joined with appr. Ap2 weakly developed. Sejugal apodeme almost straight. Setae 2*b* smooth saber-like, 4*a*



Figs. 44–47. *Scutacarus sabinaesimilis* sp.n., female: 44 — tibiotarsus I, 45–47 — legs II–IV, respectively.

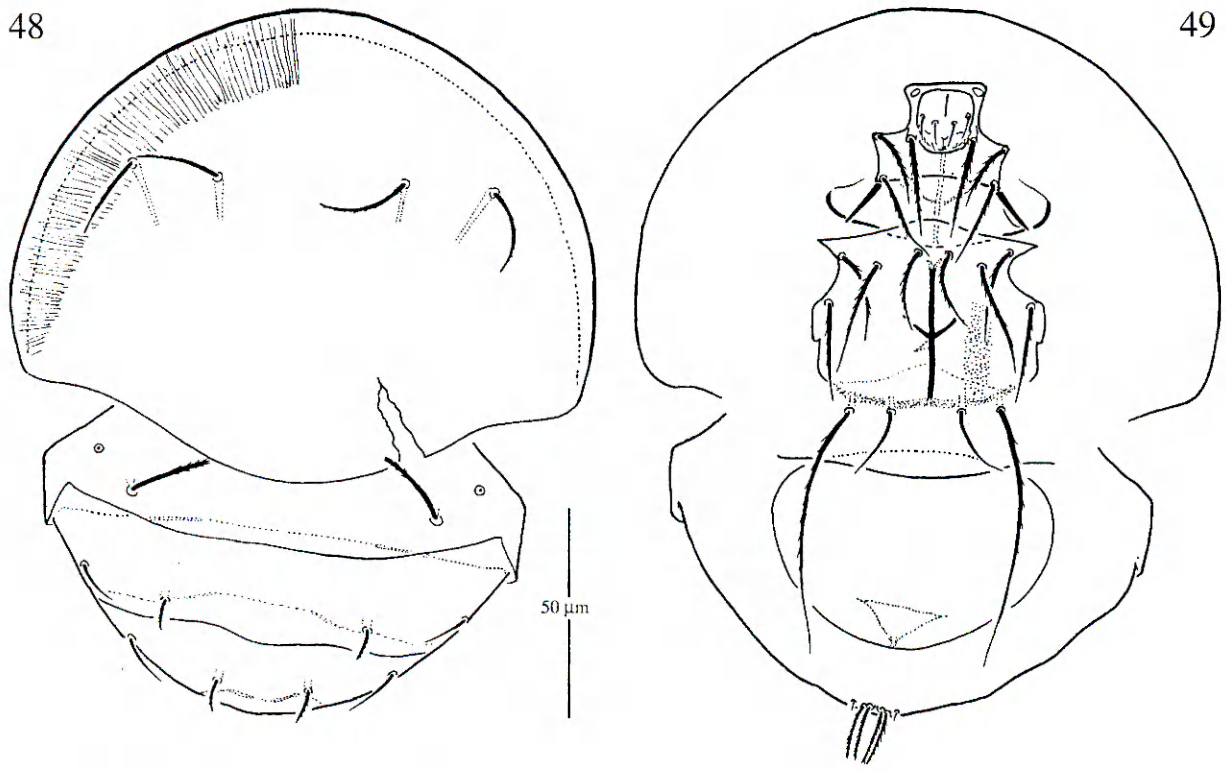
smooth, filiform. Other setae of ventral propodosomal and metapodosomal plates barbed. Anterior and posterior margins of ventral metapodosomal plate convex. Setae ps_1 and ps_2 strong, blunt-ended and serrated, setae ps_3 short and smooth. Ap3 weakly developed, ap4 short and joined with appo. Ap5 weakly sclerotized and joined with appo. Posterior margin of aggenital plate round. Length of ventral setae: 1*a* 28(28–29), 1*b* 20(19–22), 2*a* 29(28–30), 2*b* 20(20–21), 3*a* 28(26–30), 3*b* 33(32–35), 3*c* 34(33–36), 4*a* 26(22–27), 4*b* 63(62–65), 4*c* 38(36–39), ps_1 42(40–43), ps_2 42(40–44), ps_3 6(6–8).

Legs (Figs. 44–47). Chaetotaxy of legs I–III as in previous species. Leg I (Fig. 44): Tibiotarsus robust, with well developed claw. Solenidia ω_1 8(8) > ω_2 6(6) = φ_1 6(6) = φ_2 6(6). Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II (Fig. 45). Tarsus with sickle-like, padded claws. Solenidion ω 8(9) finger shaped. Solenidion φ depressed, hardly visible. Leg III (Fig. 46). Claws of same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV (Fig. 47): Tr1–Fe2–Ge1–TiTa6. Trochanter without ventrodistal spine-like process. Setae *d*Fe blunt-ended.

Differential diagnosis. The new species similar to *Scutacarus sabinae* Chydyrov, 1996, but differs by setae c_1 which are longer than c_2 (as long as c_2 in *S. sabinae*) and by setae *e* which are longer than *f* (shorter in *S. sabinae*).

Type material. Holotype: female, Turkmenistan, Kugitang Mount., Khodzhalil-Ata gorge, nest of *Tapinoma simrothy* Emery, 1925, 29.04.1996 (coll. Chydyrov). Paratypes: 6 females with same data as holotype.

Etymology. The specific epithet *sabinaesimilis* refers to the similarity of the new species with the related species *Scutacarus sabinae*.



Figs. 48, 49. *Scutacarus rotundulus* sp.n., female: 48 — dorsum of idiosoma, 49 — venter.

Scutacarus rotundulus sp. n.

Figs. 48–52.

Female. Idiosomal length 170, width 139.

Gnathosoma (Fig.49). As in previous species.

Idiosomal dorsum (Fig. 48). Free margin of tergite C has distinct stripes. Setae c_1 and c_2 with alveolar canals. Cupuli *ia* and *ih* small, round. Tergites smooth. Dorsal setae are blunt-ended and barbed, except for setae *e* and h_2, which sharp-pointed and smooth. Length of dorsal setae: c_1 22, c_2 23, *d* 20, *e* 14, *f* 9, h_1 9, h_2 17. Distances between dorsal setae: c_1–c_1 41, c_1–c_2 22, *d*–*d* 74, *e*–*f* 24, *f*–*f* 46, h_1–h_1 22, h_1–h_2 22. Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

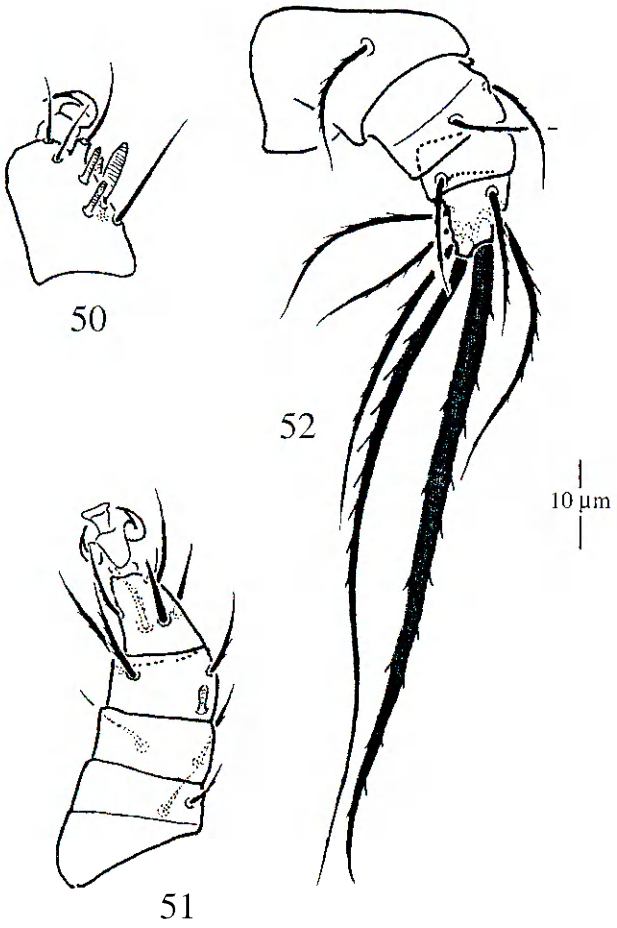
Idiosomal venter (Fig. 49). Ventral metapodosomal plate with small dimples. Ap1, ap2 and apsej well developed and joined with appr. Setae 2*b* smooth saber-like; 4*a* smooth, filiform. Other setae of ventral propodosomal and metapodosomal plates barbed. Anterior and posterior margins of ventral metapodosomal plate convex. Setae ps_1 and ps_2 strong, blunt-ended and barbed, setae ps_3 short and smooth. Ap3 weakly developed, ap4 short and joined with appo. Ap5 weakly sclerotized and joined with appo. Posterior margin of aggenital plate round. Length of ventral setae: 1*a* 22, 1*b* 16, 2*a* 21, 2*b* 12, 3*a* 20, 3*b* 28, 3*c* 25, 4*a* 20, 4*b* 72, 4*c* 24, ps_1 18, ps_2 18, ps_3 3.

Legs (Figs. 50–52). Chaetotaxy of legs I–III as in previous species. Leg I (Fig. 50): Tibiotarsus robust, with well developed claw. Solenidia ω_1 8 > ω_2 5 < φ_1 8 > φ_2 5. Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II. Tarsus with sickle-like, padded claws. Solenidion ω 7 finger-shaped. Solenidion φ depressed, hardly visible. Leg III (Fig. 51). Claws of same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV (Fig. 52): Tr1–Fe2–Ge1–TiTa7. Trochanter without ventrodistal spine-like process. Setae *d*Fe pointed.

Differential diagnosis. The new species similar to *Scutacarus sellnicki* Mahunka, 1964, but differs by setae *e* and h_2, which about 2 times shorter than setae *f* and h_1, respectively (*e* and h_2 at least 3 times longer than *f* and h_1, respectively in *S. sellnicki*).

Type material. Holotype: female, Turkmenistan, Kugitang Mount., Kyrkgys gorge, nest of *Camponotus fedtschenkoi* Mayr, 1877, 29.04.1996 (coll. Chydyrov). Paratype: one female with same data as holotype.

Etymology. The specific epithet *rotundulus* means spherical.



Figs. 50–52. *Scutacarus rotundulus* sp.n., female: 50 — tibiotarsus I, 51–52 — legs III–IV, respectively.

Idiosomal venter (Fig. 54). Ventral propodosomal, metapodosomal and aggenital plates smooth. Ap1, ap2, and apsej well developed and joined with appr. Setae 2*b* smooth and filiform; 4*a* smooth, filiform; 4*b* smooth and blunt-ended. Other setae of ventral propodosomal and metapodosomal plates filiform, barbed. Anterior margin of ventral metapodosomal plate convex, posterior margin almost straight. Setae ps_1 and ps_2 strong, blunt-ended and barbed; setae ps_3 short and smooth. Ap3 weakly developed, ap4 relatively long and joined with appo. Ap5 weakly sclerotized and joined with appo. Posterior margin of aggenital plate round. Length of ventral setae: 1*a* 31(30–35), 1*b* 24(22–26), 2*a* 29(26–34), 2*b* 20(19–22), 3*a* 28(26–32), 3*b* 35(34–39), 3*c* 38(36–41), 4*a* 13(12–15), 4*b* 54(53–56), 4*c* 41(38–43), ps_1 27(26–33), ps_2 25(24–31), ps_3 4(4–5).

Legs (Figs. 55–58). Chaetotaxy of legs as in *S. sabinaesimilis*. Leg I (Fig. 55): Tibiotarsus robust, with well developed claw. Solenidia ω_1 9(9–10) > ω_2 4(4–5) < φ_1 9(9–10) > φ_2 4(4–5). Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d* of femur I spine-like. Leg II (Fig. 56). Tarsus with sickle-like padded claws. Solenidion ω 9(9–10) finger-shaped. Solenidion φ depressed, hardly visible. Leg III (Fig. 57). Claws of same shape as on tarsus II. Solenidion φ depressed, hardly visible. Leg IV

Scutacarus subquadratus sp. n.

Figs. 53–58.

Female. Idiosomal length 213(210–223), width 168(165–194).

Gnathosoma (Fig.54). As in previous species.

Idiosomal dorsum (Fig. 53). Free margin of tergite C has pronounced stripes. Setae c_1 and c_2 with alveolar canals. Cupuli *ia* and *ih* small, round. Tergites smooth. Posterior margin of tergites C undulate. Posterior margin of tergite EF distinctly concave. Dorsal setae *d*, *f*, and h_1 blunt-ended and barbed, setae c_1, c_2, *e* and h_2 pointed and barbed. Length of dorsal setae: c_1 50(48–54), c_2 47(45–49), *d* 36(34–40), *e* 19(18–20), *f* 29(28–32), h_1 33(32–37), h_2 21(20–25). Distances between dorsal setae: c_1–c_1 59(56–67), c_1–c_2 36(35–40), *d*–*d* 93(90–101), *e*–*f* 30(28–36), *f*–*f* 84(83–93), h_1–h_1 39(37–43), h_1–h2 40(38–43). Propodosomal setae v_1 longer than v_2. Trichobothrium with thin stem, distally spherical.

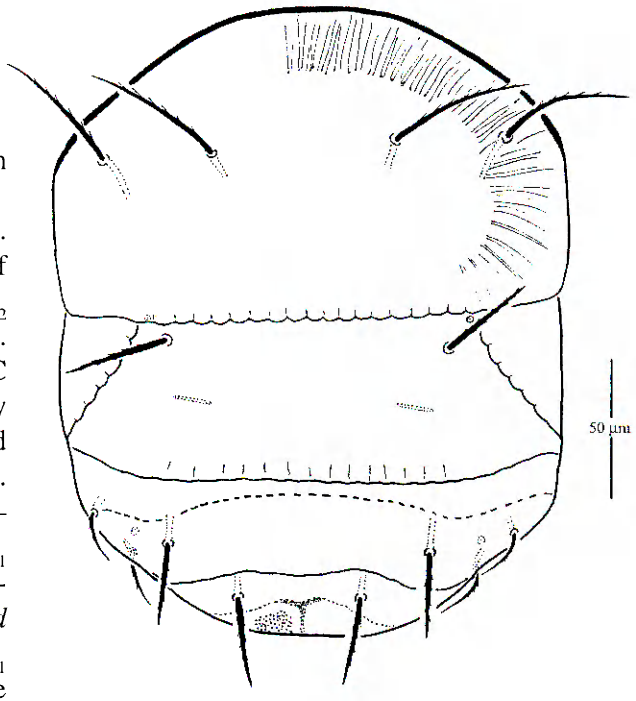
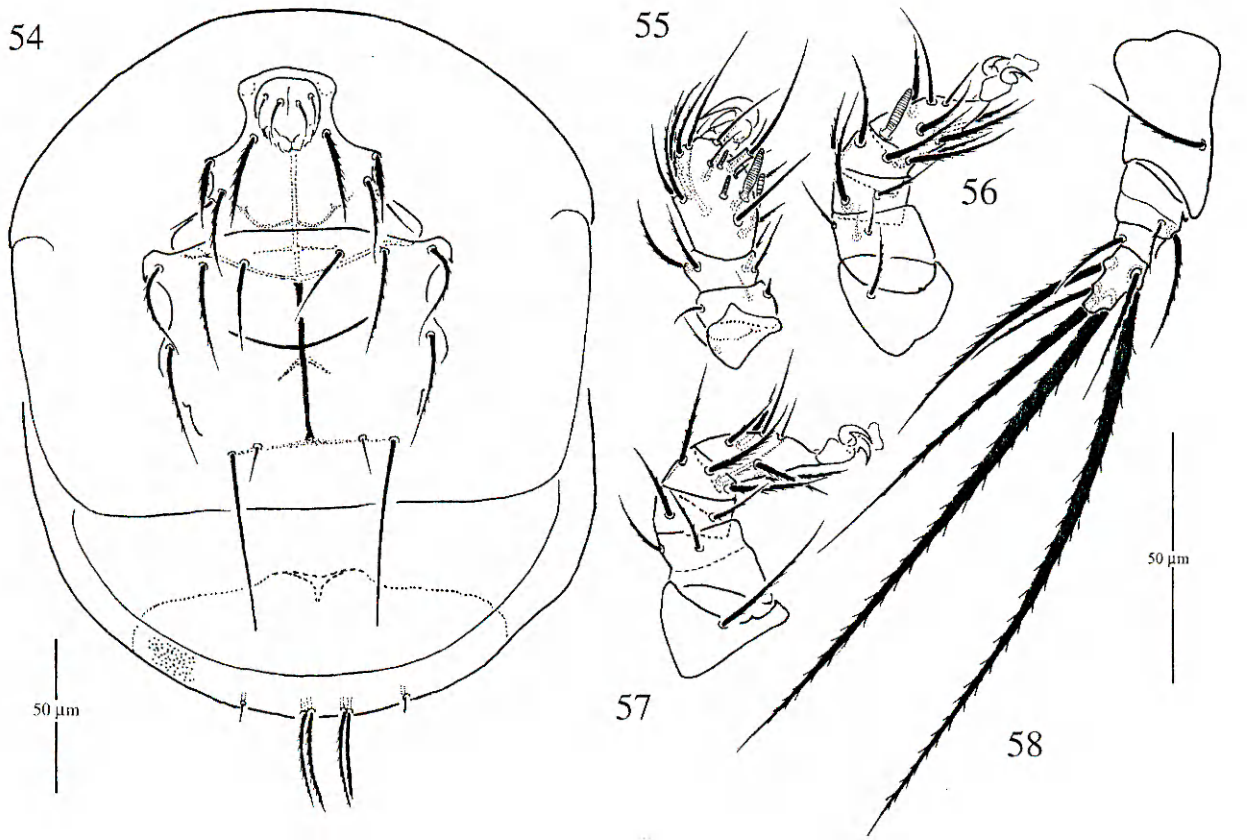


Fig. 53. *Scutacarus subquadratus* sp.n., female: 53 — dorsum.



Figs. 54–58. *Scutacarus subquadratus* sp.n., female: 54 — venter, 55–58 — legs I–IV, respectively.

(Fig. 58). Trochanter without ventrodistal spine-like process. Setae *d*Fe pointed.

Differential diagnosis. The new species is most similar to *Scutacarus bugacensis* Mahunka, 1986, but differs by the absence of spine-like setae on tarsi II and III, by the position of setae c_1 and c_2 on the same horizontal level (c_1 distinctly anteror c_2 in *S. bugacensis*), and by the subquadrangular shape of the body (oval in *S. bugacensis*).

Type material. Holotype: female, Turkmenistan, Western Kopet-Dag., Ay-Dere gorge, nest of *Tetramorium schneideri* Emery, 1898, 9.04.1996 (coll. Chydyrov). Paratypes: 43 females, same data as holotype.

Etymology. The specific epithet *subquadratus* means almost quadrangular.

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