

UDC 595.4(477.75)

FOUR NEW SPECIES OF MITES OF THE GENUS *BAKERDANIA* (ACARI, HETEROSTIGMATA, PYGMEPHOROIDEA) FROM CRIMEA

A. A. Khaustov

Nikita Botanical Gardens – National Scientific Center, Yalta, Crimea, 98648 Ukraine

Accepted 1 March 2007

Four New Species of Mites of the Genus *Bakerdania* (Acari, Heterostigmata, Pygmephoroidae) from Crimea. Khaustov A. A. – Four new species of mites of the genus *Bakerdania* Sasa, 1961: *B. cavernicola* Khaustov, sp. n., *B. taurica* Khaustov, sp. n., *B. brevicaudata* Khaustov, sp. n., and *B. yaltaensis* Khaustov, sp. n. are described from soils in Crimea.

Key words: Pygmephoroidae, *Bakerdania*, new species, Crimea.

Четыре новых вида клещей рода *Bakerdania* (Acari, Heterostigmata, Pygmephoroidae) из Крыма. Хаустов А. А. – Приведено описание 4 новых видов клещей рода *Bakerdania* Sasa, 1961: *B. cavernicola* Khaustov, sp. n., *B. taurica* Khaustov, sp. n., *B. brevicaudata* Khaustov, sp. n. и *B. yaltaensis* Khaustov, sp. n. из почв Крыма.

Ключевые слова: Pygmephoroidae, *Bakerdania*, новый вид, Крым.

Introduction

The genus *Bakerdania* Sasa, 1961 (Acari, Pygmephoroidae) includes about 100 species (Khaustov, Makarova, 2005; Kurosa, 1999). In this paper I describe four new species of this genus collected from soils in Crimea.

Material and Methods

In the description, the terminology follows Lindquist (1986). All measurements are given in micrometers (μm) for holotype and for 5 paratypes (in parenthesis). Type materials are deposited at the collection of the Department of Acarology, Shmalgausen Institute of Zoology, Kyiv, Ukraine.

Bakerdania cavernicola Khaustov, sp. n. (fig. 1–5)

Material. Female holotype, and 6 female paratypes, Ukraine, Crimea, Chatyr-Dag mount., in cave “Korallovaya”, 25.05.03 (Khaustov).

Female. Idiosomal length 294 (283–333), maximum width 144 (139–150).

Gnathosoma (fig. 1, 2). Dorsally with 2 pairs of simple subequal setae ch_1 and ch_2 . Dorsal medial apodeme well developed. Idiosomal dorsum (fig. 1). All tergites with small numerous dimples. Setae v_2 short, smooth, other dorsal setae strong, barbed. Tips of setae c_2 pointed, other dorsal setae blunt-ended. Length of dorsal setae: v_2 7 (6–8), sc_2 45 (41–45), c_1 44 (43–47), c_2 60 (54–63), d 40 (38–42), e 36 (33–42), f 45 (44–46), h_1 48 (44–53), h_2 42 (37–47). Distances between dorsal setae: v_2 - v_2 36 (33–38), sc_2 - sc_2 30 (29–32), c_1 - c_1 48 (47–58), c_1 - c_2 31 (29–34), d - d 29 (29–33), e - f 10 (9–10), f - f 91 (82–100), h_1 - h_1 33 (33–40), h_1 - h_2 17 (15–21). Idiosomal venter (fig. 2). Apodemes 1, 2 and sejugal apodeme well developed and joined with presternal apodeme. Secondary transverse apodeme (sta) weakly developed and not joined with

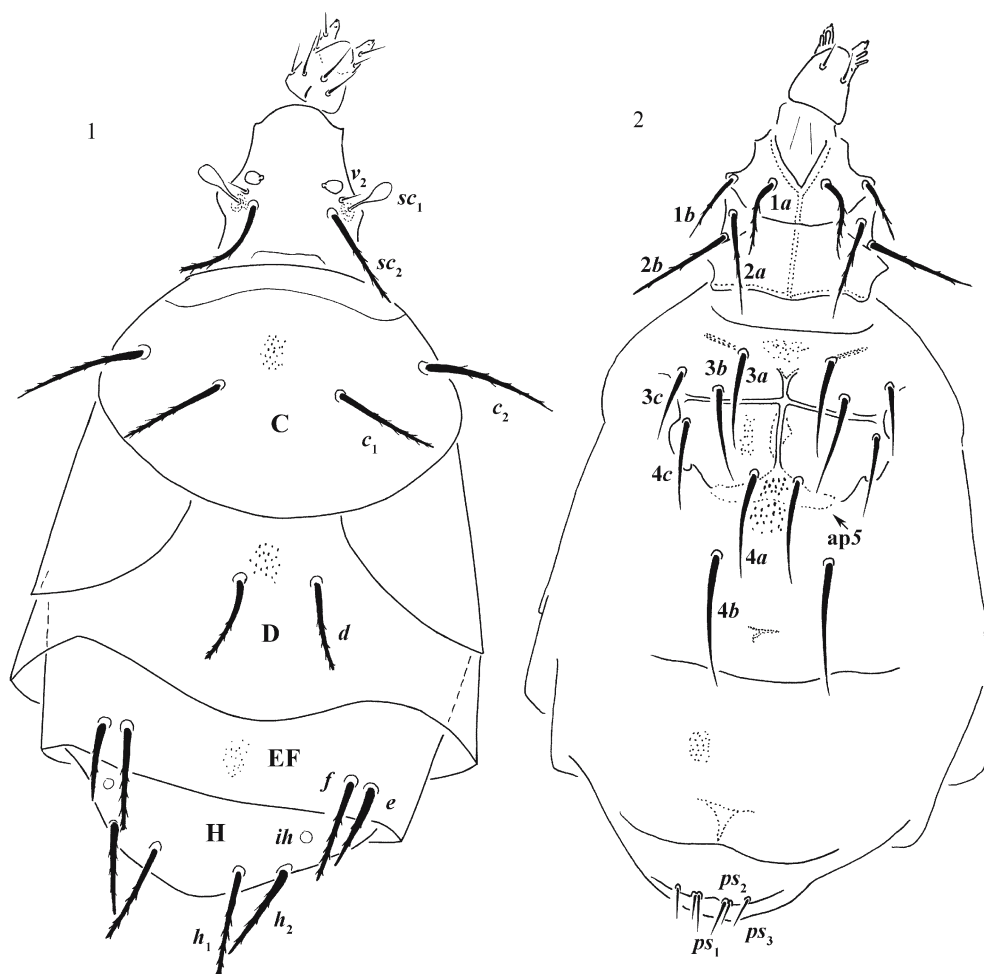


Fig. 1, 2. *Bakerdania cavernicola*, ♀: 1 – dorsum, 2 – venter.

Рис. 1, 2. *Bakerdania cavernicola*, ♀: 1 – дорсальная сторона, 2 – ventральная сторона.

apodemes 2. All ventral plates with numerous small dimples. Setae of anterior sternal plate distinctly barbed. Setae of posterior sternal plate smooth or weakly barbed. Posterior margin of posterior sternal plate convex in middle part. All pseudanal setae short, smooth, setae ps_1 and ps_3 subequal and longer than ps_2 . Apodemes 3 weakly developed. Apodemes 4 long, reaching level of setae 3c. Apodemes 5 large, diffuse but distinct. Posterior margin of aggenital plate weakly concave. Legs (fig. 3–5). Setation of legs I (number of solenidia in parenthesis): Tr1–Fe3–Ge4–TiTa16(4). Tibiotarsus with well developed claw, situated on long pretarsus. Solenidia ω_1 22 (18–22) > ω_2 17 (15–18) > ϕ_1 11 (10–11) < ϕ_2 14 (13–15). Solenidion ω_1 finger-shaped. Solenidion ϕ_1 baculiform. Solenidia ω_2 and ϕ_2 uniformly thin. Seta $dFeI$ hook-like. Leg II: Tr1–Fe3–Ge3–Ti4(1)–Ta6(1). Tarsus with sickle-like padded claws. Solenidion ϕ 21 (18–21) finger-shaped. Solenidion ϕ small, difficult to see. Leg III: Tr1–Fe2–Ge2–Ti4(1)–Ta6. Solenidion ϕ depressed, indistinct. Leg IV: Tr1–Fe2–Ge1–Ti4(1)–Ta6. Tarsus rather short. Pretarsus short, with large simple claws and thin empodium distally.

Male and larva unknown.

Differential diagnosis. The new species is very similar to *B. graciloides* Sevastianov, 1974 by the presence of well developed apodemes 5, but differs by distinct-



Fig. 3–5. *Bakerdania cavernicola*, ♀: 3–5 – legs I, II, and IV respectively.

Рис. 3–5. *Bakerdania cavernicola*, ♀: 3–5 – ноги I, II и IV соответственно.

ly blunt-ended setae h_2 (pointed in *B. graciloides*) and by much stronger and thicker dorsal setae.

Etymology. The species name refers to the distribution of new species in caves.

***Bakerdania taurica* Khaustov, sp. n. (fig. 6–10)**

Material. Female holotype, and 6 female paratypes, Ukraine, Crimea, vicinity of Yalta, in soil, 11.12.05 (Khaustov).

Female. Idiosomal length 271 (250–294), maximum width 130 (115–145).

Gnathosoma (fig. 6, 7). Similar with that of *B. cavernicola* sp. n. Idiosomal dorsum (fig. 6). All tergites smooth. Setae v_2 short, smooth, other dorsal setae barbed, sometimes setae c_1 and d smooth. Tips of setae c_2 , f , h_1 , and h_2 pointed, other dorsal setae blunt-ended. Length of dorsal setae: v_2 11 (10–12), sc_2 34 (32–35), c_1 40 (35–40), c_2 56 (50–58), d 43 (34–44), e 28 (28–33), f 63 (61–67), h_1 69 (66–69), h_2 53 (51–54). Distances between dorsal setae: v_2 - v_2 38 (35–38), sc_2 - sc_2 38 (36–38), c_1 - c_1 47 (47–50), c_1 - c_2 33 (28–33), d - d 30 (30–39), e - f 8 (6–9), f - f 71 (70–75), h_1 -

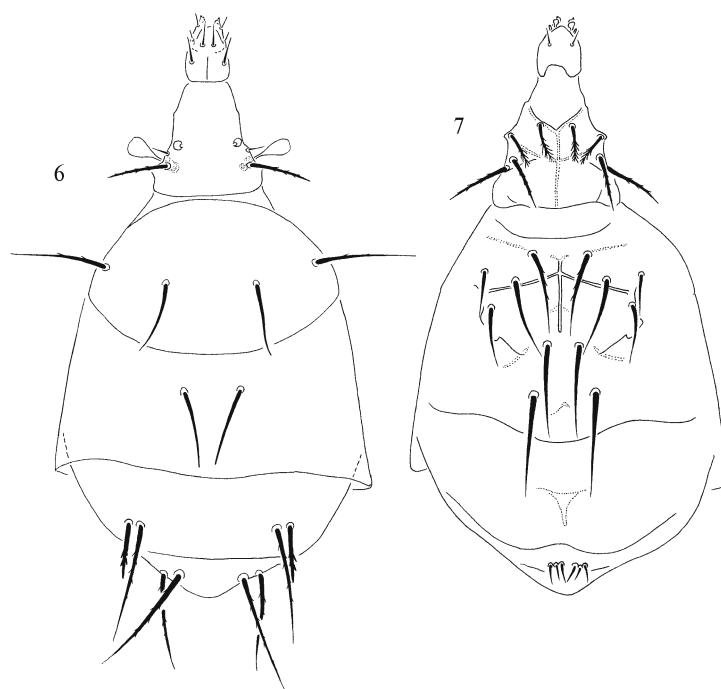


Fig. 6, 7. *Bakerdania taurica*, ♀: 6 – dorsum, 7 – venter.

Рис. 6, 7. *Bakerdania taurica*, ♀: 6 – дорсальная сторона, 7 – вентральная сторона.

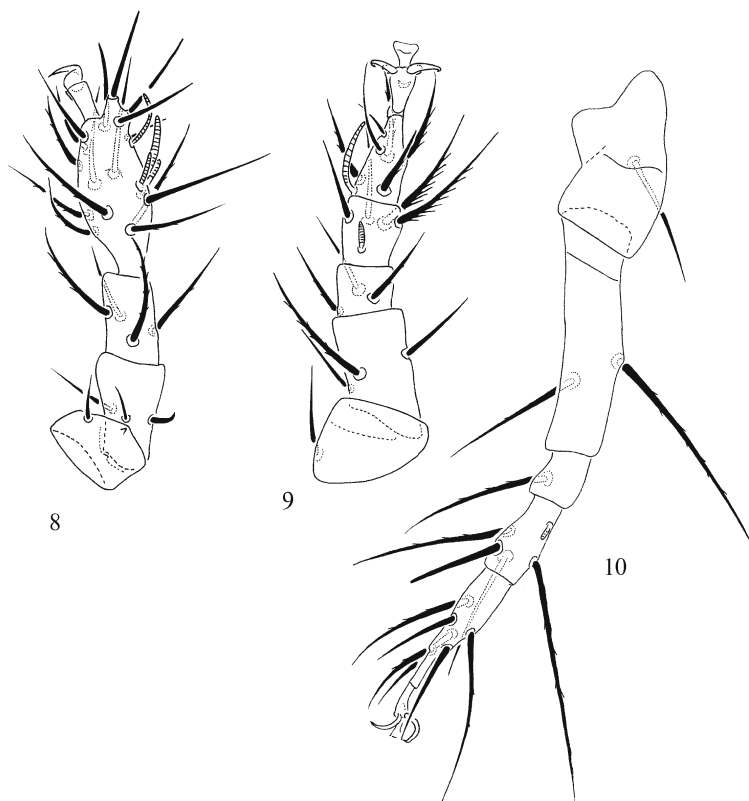


Fig. 8–10. *Bakerdania taurica*, ♀: 8–10 – legs I, II, and IV respectively.

Рис. 8–10. *Bakerdania taurica*, ♀: 8–10 – ноги I, II и IV соответственно.

h_1 32 (29–36), h_1-h_2 9 (9–10). Idiosomal venter (fig. 7). Apodemes 1, 2 and sejugal apodeme well developed and joined with presternal apodeme. Secondary transverse apodeme weakly developed and not joined with apodemes 2. All ventral plates smooth. Setae of anterior sternal plate distinctly barbed. Setae of posterior sternal plate smooth or weakly barbed. Posterior margin of posterior sternal plate convex in middle part. All pseudanal setae short, smooth, subequal in length. Bases of setae ps_2 and ps_3 joined. Apodemes 3 weakly developed. Apodemes 4 long, reaching level of setae 3c. Apodemes 5 vestigial. Posterior margin of aggenital plate weakly concave. Legs (fig. 8–10). Setation as in *B. cavernicola* sp. n. Leg I (fig. 8). Tibiotarsus with well developed claw, situated on long pretarsus. Solenidia ω_1 15 (13–17) = ω_2 15 (13–16) > ϕ_1 11 (10–11) > ϕ_2 10 (9–10). Solenidium ω_1 finger-shaped. Solenidium ϕ_1 baculiform. Solenidia ω_2 and ϕ_2 uniformly thin. Seta $dFe1$ hook-like. Leg II (fig. 9). Tarsus with sickle-like padded claws. Solenidium ω 14 (13–18) finger-shaped. Solenidium ϕ small, difficult to see. Leg IV (fig. 10). Tarsus rather short. Pretarsus short, with large simple claws and thin empodium distally.

Male and larva unknown.

Differential diagnosis. The new species is similar to *B. janetscheki* (Mahunka, 1970) by the long setae f and h_1 but differs by setae $f = h_1$ ($f > h_1$ in *B. janetscheki*), by position of setae ps_3 close to ps_2 (there is a distinct space between ps_2 and ps_3 in *B. janetscheki*), by distinctly barbed setae e (smooth in *B. janetscheki*), and by relatively shorter distance between setae d .

Etymology. The species name refers to the geographical distribution of the new species.

***Bakerdania brevicauda* Khaustov, sp. n.** (fig. 11–15)

Material. Female holotype, and 1 female paratypes, Ukraine, Crimea, vicinity of Yalta, in soil, 14.05.00 (Khaustov).

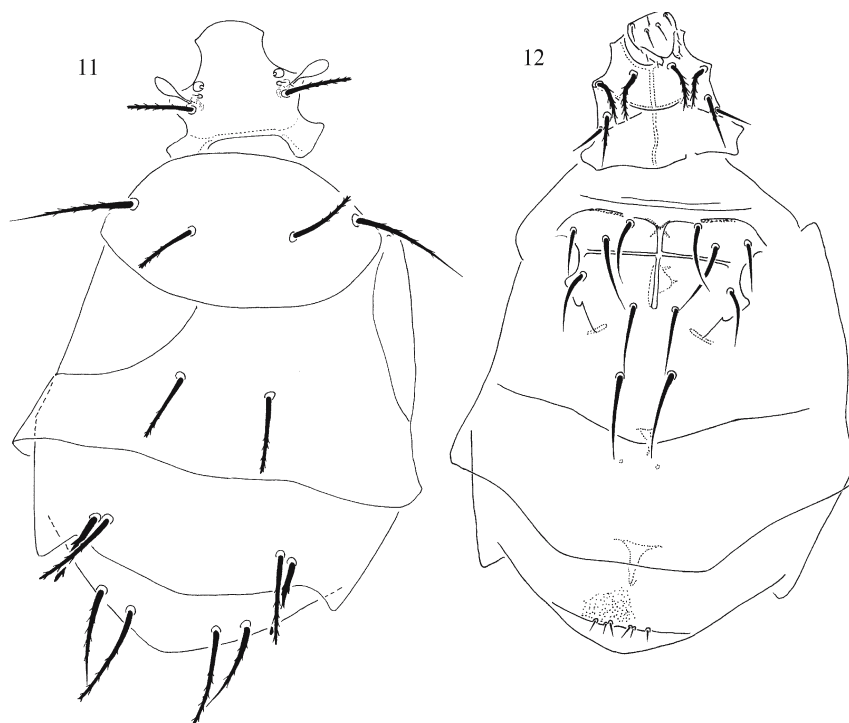


Fig. 11, 12. *Bakerdania brevicauda*, ♀: 11 – dorsum, 12 – venter.

Рис. 11, 12. *Bakerdania brevicauda*, ♀: 11 – дорсальная сторона, 12 – вентральная сторона.

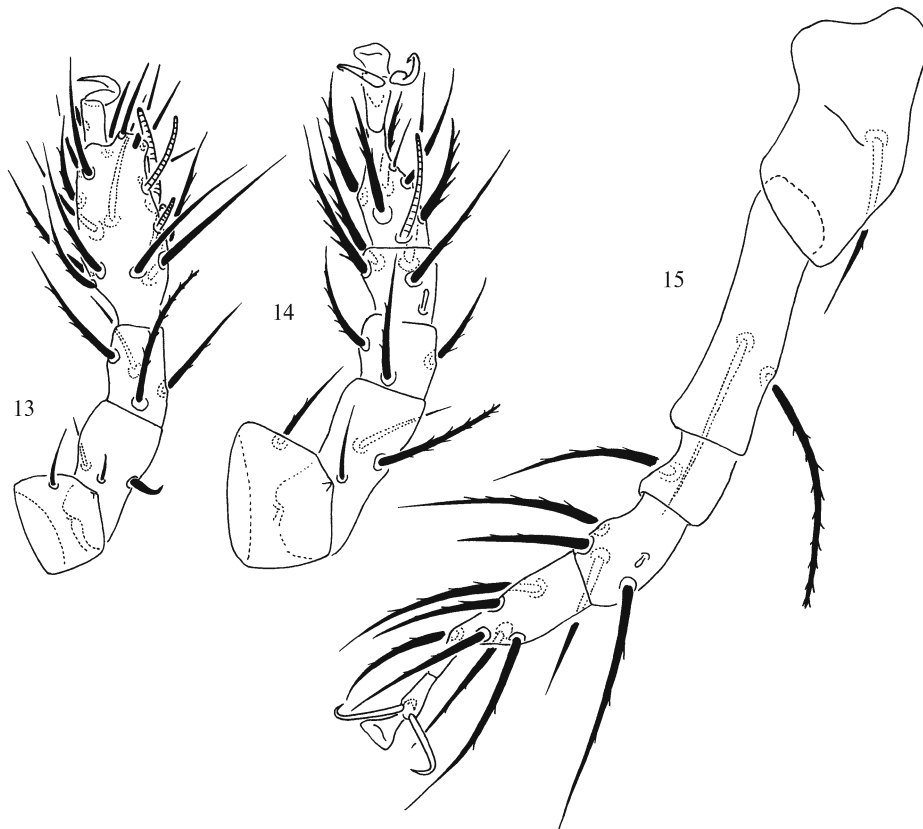


Fig. 13–15. *Bakerdania brevicauda*: 13–15 – legs I, II, and IV respectively.

Рис. 13–15. *Bakerdania brevicauda*: 13–15 – ноги I, II и IV соответственно.

Female. Idiosomal length 327, maximum width 133.

Gnathosoma (fig. 12). Similar with that of *B. cavernicola* sp. n. Idiosomal dorsum (fig. 11). All tergites with very small dimples. Setae v_2 short, smooth, other dorsal setae strongly barbed. Tips of setae c_2 and h_2 pointed, other dorsal setae distinctly blunt-ended. Length of dorsal setae: v_2 10, sc_2 36, c_1 37, c_2 68, d 41, e 39, f 51, h_1 55, h_2 55. Distances between dorsal setae: v_2 - v_2 42, sc_2 - sc_2 44, c_1 - c_1 52, c_1 - c_2 33, d - d 47, e - f 8, f - f 91, h_1 - h_1 45, h_1 - h_2 19. Idiosomal venter (fig. 12). Apodemes 1, 2 and sejugal apodeme well developed and joined with presternal apodeme. Secondary transverse apodeme well developed and joined with apodemes 2. All ventral plates weakly punctated. Setae of anterior sternal plate distinctly barbed. Setae of posterior sternal plate smooth or weakly barbed. Posterior margin of posterior sternal plate convex in middle part. All pseudanal setae very short, smooth, subequal in length. Bases of setae ps_2 and ps_3 not joined. Apodemes 3 weakly developed. Apodemes 4 long, reaching level of setae $3c$. Apodemes 5 vestigial. Posterior margin of aggenital plate straight. Legs (fig. 13–15). Setation as in *B. cavernicola* sp. n. Leg I (fig. 13). Tibiotarsus with well developed claw, situated on long pretarsus. Solenidia ω_1 22 > ω_2 17 > ϕ_1 12 > ϕ_2 11. Solenidion ω_1 finger-shaped. Solenidion ϕ_1 baculiform. Solenidia ω_2 and ϕ_2 uniformly thin. Seta $dFeI$ hook-like. Leg II (fig. 14). Tarsus with sickle-like padded claws. Solenidion ω (22) finger-shaped. Solenidion ϕ small, difficult to see. Leg IV (fig. 15). Tarsus rather short. Pretarsus short, with large simple claws and thin empodium distally.

Male and larva unknown.

Differential diagnosis. The new species is similar to *B. heisseli* Mahunka, 1970 by very short pseudanal setae, but differs by position of setae ps_3 on distinct distance from ps_2 (ps_2 and ps_3 close together in *B. heisseli*), by subequal setae h_1 and h_2 ($h_1 > h_2$ in *B. heisseli*), and by stronger dorsal setae.

Etymology. The species name refers to very short pseudanal (caudal) setae of new species.

***Bakerdania yaltaensis* Khaustov, sp. n. (fig. 16–20)**

Material. Female holotype, and 10 female paratypes, Ukraine, Crimea, vicinity of Yalta, in moss on soil, 9.06.01 (Khaustov).

Female. Idiosomal length 310 (305–334), maximum width 144 (141–148).

Gnathosoma (fig. 16, 17). Similar with that of *B. cavernicola* sp. n. Idiosomal dorsum (fig. 16). All tergites with numerous small dimples. Setae v_2 short, smooth, other dorsal setae barbed. Tips of setae c_2 and h_2 pointed, other dorsal setae blunt-ended. Length of dorsal setae: v_2 9 (8–10), sc_2 41 (37–45), c_1 42 (38–45), c_2 56 (50–61), d 38 (31–38), e 33 (29–36), f 44 (40–47), h_1 58 (52–60), h_2 40 (34–44). Distances between dorsal setae: v_2 - v_2 41 (40–42), sc_2 - sc_2 40 (39–42), c_1 - c_1 52 (51–52), c_1 - c_2 35 (32–36), d - d 51 (40–51), e - f 7 (6–7), f - f 94 (82–95), h_1 - h_1 52 (37–56), h_1 - h_2 13 (12–14). Idiosomal venter (fig. 17). Apodemes 1, 2 and sejugal apodeme well developed and joined with presternal apodeme. Secondary transverse apodeme well developed and joined with apodemes 2. All ventral plates punctated. Setae of anterior sternal plate distinctly barbed. Setae of posterior sternal plate weakly barbed. Posterior margin of posterior sternal plate convex in middle part. All pseudanal setae short, smooth, setae ps_1 slightly longer than ps_2 and ps_3 . Bases of setae ps_2 and ps_3 joined. Apodemes 3 well developed. Apodemes 4 long, reaching level of setae $3c$. Apodemes 5 vestigial. Posterior margin of aggenital plate weakly concave. Legs (fig. 18–20).

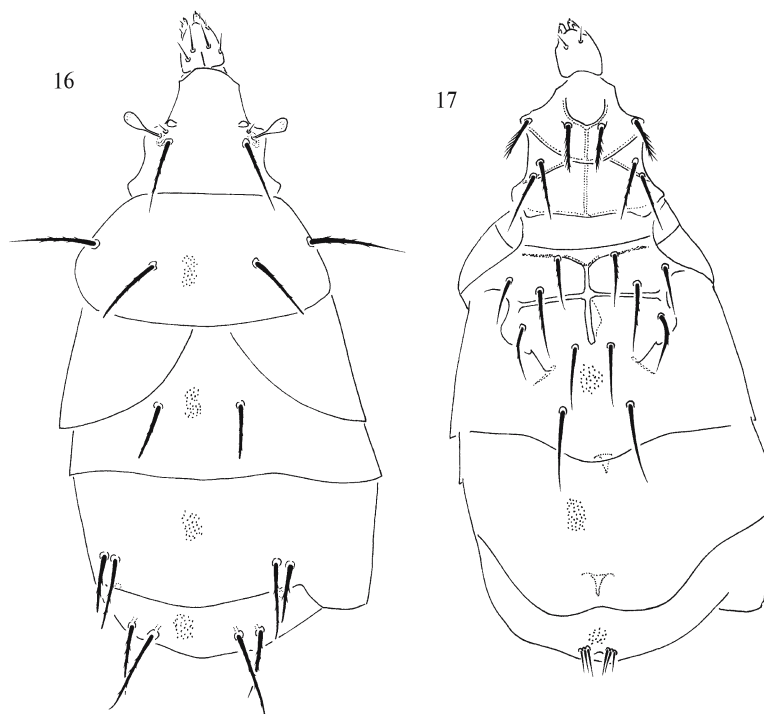


Fig. 16–17. *Bakerdania yaltaensis*, ♀: 16 – dorsum, 17 – venter.

Рис. 16–17. *Bakerdania yaltaensis*, ♀: 16 – дорсальная сторона, 17 – ventральная сторона.

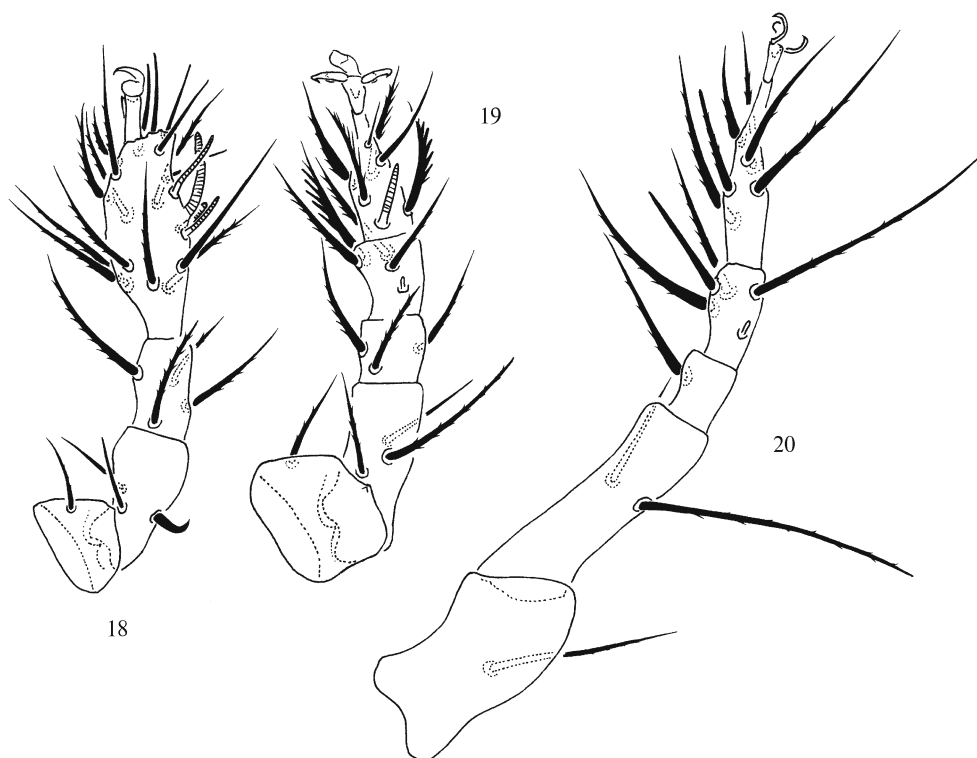


Fig. 18–20. *Bakerdania yaltaensis*, ♀: 18–20 – legs I, II, and IV respectively.

Рис. 18–20. *Bakerdania yaltaensis*, ♀: 18–20 – I, II и IV соответственно.

Setation as in *B. cavernicola* sp. n. Leg I (fig. 18). Tibiotarsus with well developed claw, situated on long pretarsus. Solenidia ω_1 19 (18–19) > ω_2 16 (15–19) > ϕ_1 14 (13–14) > ϕ_2 12 (12–13). Solenidion ω_1 finger-shaped. Solenidion ω_1 baculiform. Solenidia ϕ_2 and ϕ_2 uniformly thin. Seta *dFeI* hook-like. Leg II (fig. 19). Tarsus with sickle-like padded claws. Solenidion ω 15 (15–17) finger-shaped. Solenidion ϕ small, difficult to see. Leg IV (fig. 20). Tarsus rather short. Pretarsus short, with large simple claws and thin empodium distally. Setae *pl*'' on tarsus IV distinctly blunt-ended.

Male and larva unknown.

Differential diagnosis. The new species is very similar to *B. heisseli* Mahunka, 1970 but differs by shorter setae of posterior sternal plate, by relatively longer pseudanal setae, and by distinctly blunt-ended setae *pl*'' on tarsus IV (pointed in *B. heisseli*).

Etymology. The species name refers to the geographical distribution of the new species in Yalta (Crimea).

I thank Dr V. D. Sevastianov (Odessa National University, Ukraine) for comparative material of *Bakerdania graciloides*.

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