Acarina 13 (2): 173–179

NEW SPECIES AND RECORDS OF THE GENUS *PETALOMIUM* (ACARI: HETEROSTIGMATA: PYGMEPHORIDAE) FROM CRIMEA (UKRAINE)

НОВЫЕ ВИДЫ И НАХОДКИ КЛЕЩЕЙ РОДА *PETALOMIUM* (ACARI: HETEROSTIGMATA: PYGMEPHORIDAE) ИЗ КРЫМА (УКРАИНА)

A. A. Khaustov
А. А. Хаустов

Nikita Botanical Gardens — National Scientific Center, Yalta, Crimea 98648, Ukraine
Никитский ботанический сад — Национальный научный центр, Ялта, АР Крым 98648, Украина

Key words: Pygmephoridae, *Petalomium*, new species, new records, Crimea
Ключевые слова: Pygmephoridae, *Petalomium*, новые виды, новые находки, Крым

ABSTRACT

Two new mite species of the genus *Petalomium*: *P. tauricum* sp. n., and *P. brevisetum* sp. n. are described from Crimea. *Petalomium tothi* Mahunka et Zaki, 1984, *P. tumidisetosum* (Willmann, 1951), *P. gottrauxi* Mahunka, 1977, *P. fimbrisetum* Ebermann et Rack, 1982, *P. aleinikovae* (Sevastianov, 1967), *P. formicarum* (Berlese, 1903), *P. carelitschense* (Sevastianov, 1967), *P. scyphicum* (Sevastianov, 1967), and *P. rarum* (Sevastianov, 1967) are recorded from Crimea for the first time. All mites were collected from different species of ants.

РЕЗЮМЕ

Приводится описание двух новых видов клещей рода *Petalomium*: *P. tauricum* sp. n. и *P. brevisetum* sp. n. из Крыма. *Petalomium tothi* Mahunka et Zaki, 1984, *P. tumidisetosum* (Willmann, 1951), *P. gottrauxi* Mahunka, 1977, *P. fimbrisetum* Ebermann et Rack, 1982, *P. aleinikovae* (Sevastianov, 1967), *P. formicarum* (Berlese, 1903), *P. carelitschense* (Sevastianov, 1967), *P. scyphicum* (Sevastianov, 1967), *P. rarum* (Sevastianov, 1967) указываются впервые для Крыма. Все клещи были собраны с различных видов муравьев.

The genus *Petalomium* Cross, 1965 (Acari: Pygmephoridae) includes about 30 species which are mainly phoretic on ants (Hymenoptera: Formicidae) [Kurosa, 1986]. During my survey of mites associated with ants in Crimea, two new and nine previously described species belonging to the genus *Petalomium* were collected.

In description, the terminology follows Lindquist [1986]. All measurements are given in micrometers (μm). Type material is deposited in the collection of the department of Acarology, Shmalgausen Institute of Zoology, Kiev, Ukraine.

Petalomium tauricum sp. nov.

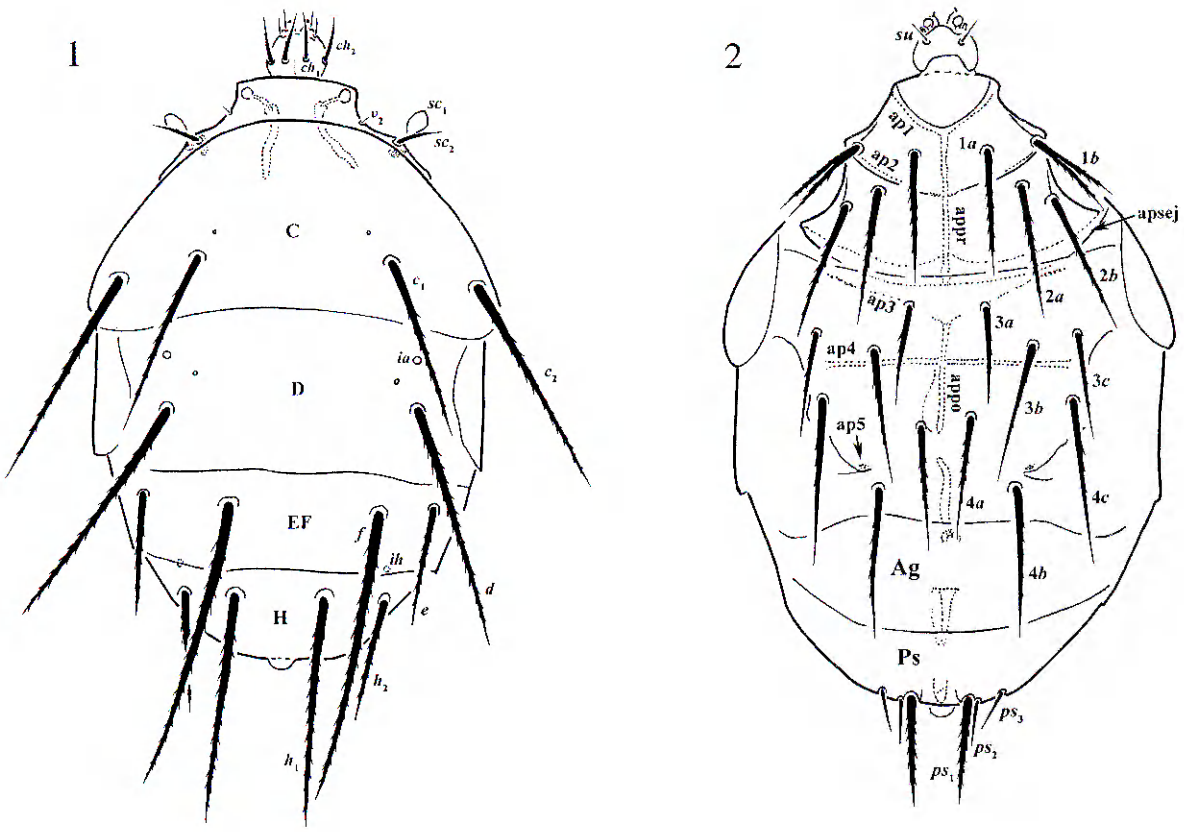
Figs. 1–5.

Female (holotype). Idiosoma 359 long (338–353 in 5 paratypes), 278 maximum wide (233–266).

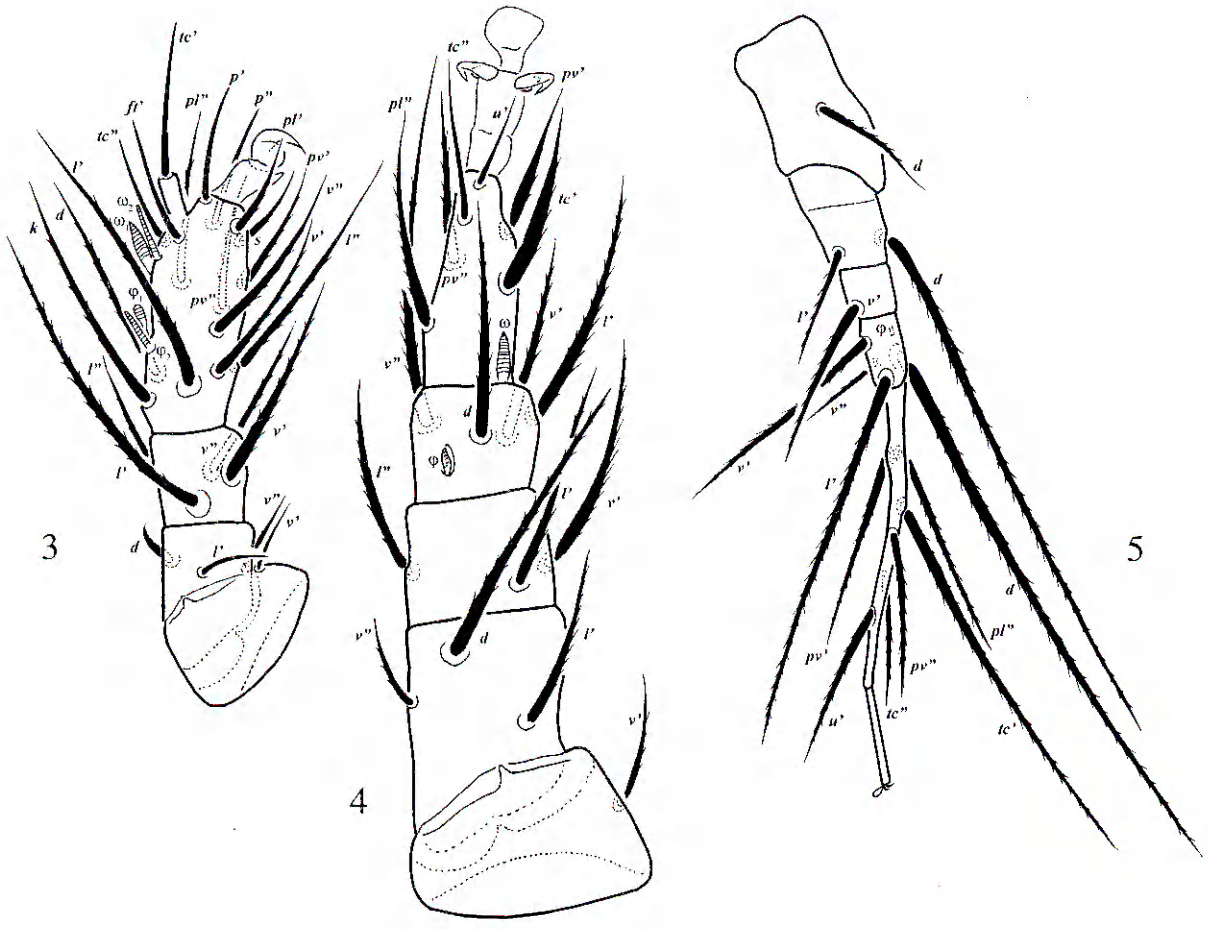
Gnathosoma (Figs. 1, 2). Dorsal side with 2 pairs of strong, weakly barbed subequal setae, ch_1 and ch_2. Ventral side 1 pair of smooth *su* setae. Palps with 2 pairs of simple setae, *d*Ge and *d*Fe; setae *d*Ge slightly longer than *d*Fe, with small solenidion and distinct mushroom-like accessory setigenous structure on ventral side. Dorsal medial apodeme weakly developed.

Idiosomal dorsum (Fig. 1). All tergites smooth. Tergite H with posterior well developed, tongue-like elongation. Setae v_2 short and smooth, other dorsal setae strongly barbed and pointed. Cupuli *ia* and *ih* small, rounded. Relative length of dorsal setae: $f>d=c_2>h_1>c_1>e=h_2>sc_2>v_2$, sometimes $h_2>e$. Length of dorsal setae: v_2 6(5–6), sc_2 28(27–28), c_1 115(113–119), c_2 150(139–145), *d* 155(140–152), *e* 87(72–81), *f* 183(170–183), h_1 144(133–141), h_2 75(68–94). Distances between dorsal setae: v_2–v_2 89(84–87), sc_2–sc_2 130(122–126), c_1–c_1 120(109–124), c_1–c_2 48(48–51), *d*–*d* 157(145–161), *e*–*f* 53(31–52), *f*–*f* 74(71–85), h_1–h_1 61(50–58), h_1–h_2 31(32–36).

Idiosomal venter (Fig. 2). Apodemes 1, 2 and sejugal apodeme distinctly developed and joined with presternal apodeme. All ventral plates smooth. All setae of anterior and posterior sternal plates thick and barbed. Setae 1*b* bifurcate. Posterior margin of posterior sternal plate convex in middle part. Setae ps_1 barbed, much thicker and longer than



Figs. 1–2. *Petalomium tauricum* sp. n., female: 1 — dorsum of idiosoma; 2 — venter of the body.



Figs. 3–5. *Petalomium tauricum* sp. n., female: 3 — leg I, 4 — leg II, 5 — leg IV.

smooth ps_2 and ps_3. Apodemes 3 weakly developed. Apodemes 4 long, reaching to level of setae 3*c*. Apodemes 5 vestigial. Posterior margin of aggenital plate rounded. Anterior and posterior genital sclerites long and narrow. Length of ventral setae: 1*a* 74(67–74), 1*b* 50(49–51), 2*a* 78(70–72), 2*b* 64(63–74), 3*a* 61(51–54), 3*b* 78(70–75), 3*c* 73(60–70), 4*a* 75(64–70), 4*b* 88(78–81), 4*c* 98(83–90), ps_1 62(56–60), ps_2 23(21–23), ps_3 20(18–20).

Legs (Figs. 3–5). Setation of legs I (number of solenidia in parenthesis): Tr1–Fe3–Ge4–TiTa16(4). Tibiotarsus with well developed claw. Solenidia ω_1 16(13–15) > ω_2 12(12–13) > φ_1 9(9–10) = φ_2 9(8–9). Solenidion ω_1 lanceolate. Solenidion φ_1 baculiform. Solenidia ω_2 and φ uniformly thin. Seta *d*FeI hook-like. Setae *tc*′ situated on long pinnaculum. Leg II (Fig. 4): Tr1–Fe3–Ge3–Ti4(1)–Ta6(1). Tarsus with sickle-like padded claws. Solenidion ω 11(9–11) lanceolate, sharpened distally. Solenidion φ depressed, indistinct. Leg III: Tr1–Fe2–Ge2–Ti4(1)–Ta6. Solenidion φ depressed, indistinct. Leg IV (Fig. 5): Tr1–Fe2–Ge1–Ti4(1)–Ta6. Tarsus long and narrow. Pretarsus rather long, with small claws and thin empodium distally.

Male and larva unknown.

Differential diagnosis. The new species is very similar to *P. podolicum* (Sevastianov, 1967) but differs by setae $ps_2 = ps_3$ ($ps_3 > ps_2$ in *P. podolicum*), and by relatively longer setae *d* which 1.6–2 times longer than h_2 (*d* 1.2 times longer than h_2 in *P. podolicum*).

Type material. Female holotype, slide #AK050101, from *Formica gagates* Latreille, 1798, UKRAINE: Crimea, vicinity of Yalta, 5 January 2001, coll. A.A. Khaustov; paratypes: 5 females with same data as holotype, 3 January 2001, coll. A.A. Khaustov.

Additional material. 3 females from *Lasius alienus* (Foerster, 1850), UKRAINE: vicinity of Yalta, 3 January 2001, coll. A.A. Khaustov.

Comparative material. Five female paratypes of *P. podolicum* from *Myrmica ruginodis* Nylander 1846, UKRAINE: Khmelnitsk Distr., settl. Chemerovtsy, 22 August 1960, coll. V.D. Sevastianov.

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

Petalomium brevisetum sp. nov.

Figs. 6–10.

Female (holotype). Idiosoma 283 long (313–322 in 5 paratypes), 189 (194–200) maximum width.

Gnathosoma (Fig. 6, 7). Dorsal side with 2 pairs of simple setae ch_1 and ch_2. Ventral side with 1 pair of smooth *su* setae. Palps with 2 pairs of simple setae *d*Ge and *d*Fe, setae *d*Ge slightly longer than *d*Fe, ventral side with small solenidion and mushroom-like accessory setigenous structure of medium size. Dorsal medial apodeme weakly developed.

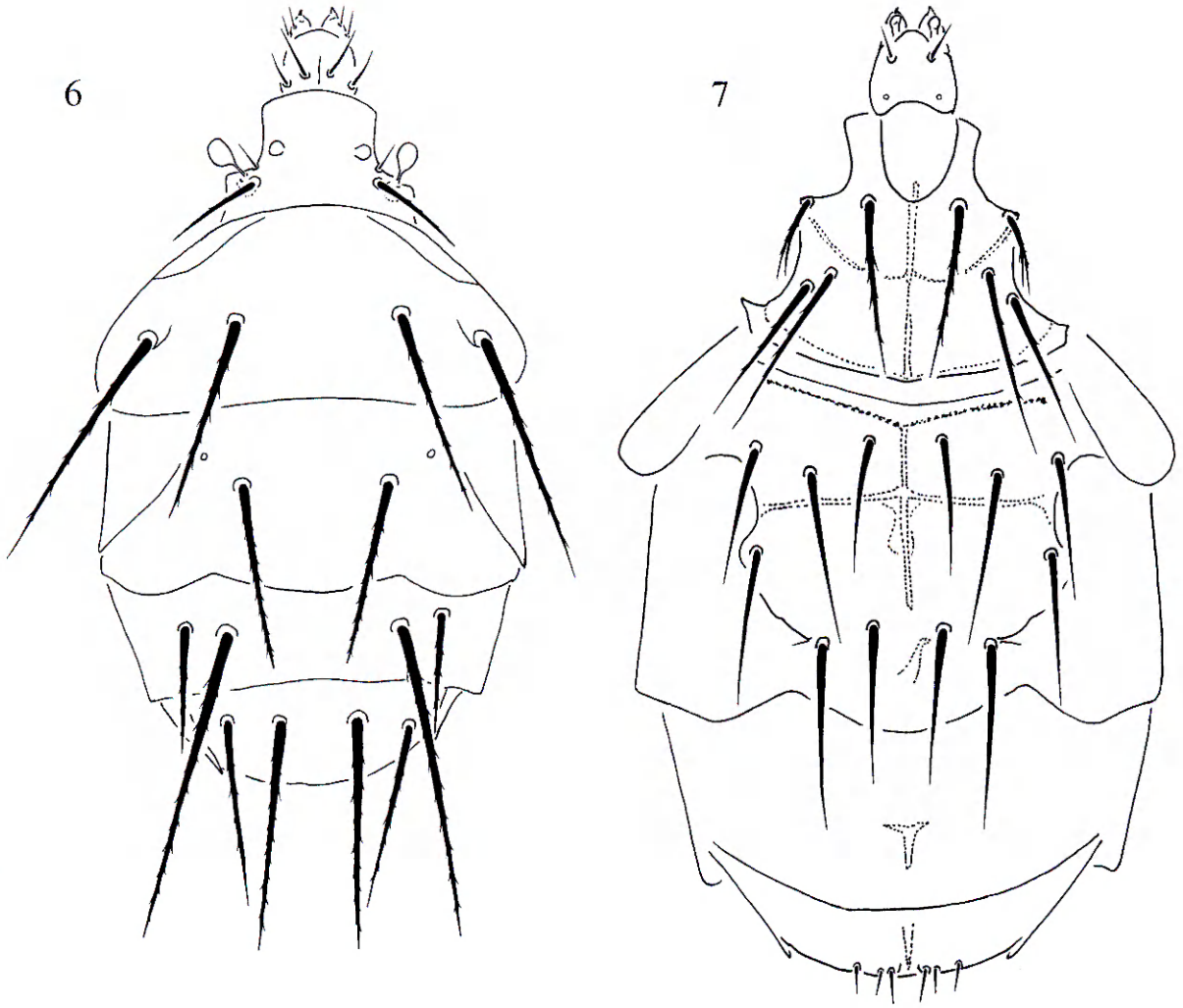
Idiosomal dorsum (Fig. 6). All tergites smooth. Setae v_2 short, smooth, other dorsal setae strongly barbed. Cupuli *ia* and *ih* small, rounded. Relative length of dorsal setae: $f > c_2 > h_1 > c_1 > d > h_2 > e > sc_2 > v_2$. Length of dorsal setae: v_2 9(9–10), sc_2 40(38–41), c_1 97(97), c_2 111(110–116), *d* 88(84–88), *e* 57(51–56), *f* 145(144), h_1 105(101–103), h_2 82(83–85). Distances between dorsal setae: v_2–v_2 56(53–56), sc_2–sc_2 61(55–60), c_1–c_1 74(71–72), c_1–c_2 38(40–44), *d*–*d* 67(62–64), *e*–*f* 17(20), *f*–*f* 75(73–75), h_1–h_1 34(33), h_1–h_2 22(23–24).

Idiosomal venter (Fig. 7). Apodemes 1, 2 and sejugal apodeme distinctly developed and joined with presternal apodeme. Apodemes 2 ω-shaped in outlines. All ventral plates smooth. Setae of anterior sternal plate barbed. Setae of posterior sternal plate smooth. Setae 1*b* bifurcate. Posterior margin of posterior sternal plate convex in middle part. Setae ps_1–ps_3 short, smooth. Apodemes 3 distinct. Apodemes 4 long, reaching to level of setae 3*c*. Apodemes 5 vestigial. Posterior margin of aggenital plate rounded. Posterior genital sclerite small, triangular. Length of ventral setae: 1*a* 51(53–59), 1*b* 30(29), 2*a* 67(69), 2*b* 62(57–60), 3*a* 47(48–49), 3*b* 56(58–61), 3*c* 52(50), 4*a* 59(57–58), 4*b* 60(62–64), 4*c* 52(50–53), ps_1 16(14–15), ps_2 9(8–10), ps_3 13(12–13).

Legs (Figs. 8–10). Setation of legs as in *P. tauricum*. Leg I (Fig. 8). Tibiotarsus with well developed claw. Solenidia ω_1 19(16–19) > ω_2 16(13–16) > φ_1 11(10–11) = φ_2 10(10–11). Solenidion ω_1 finger-shaped. Solenidion φ_1 baculiform. Solenidia ω_2 and φ_2 uniformly thin. Seta *d*FeI hook-like. Setae *tc*′ situated on pinnaculum which about equal length and width. Leg II (Fig. 9): solenidion ω 13(13–14) finger-shaped. Solenidion φ depressed, indistinct. Leg IV (Fig. 10): tarsus long and narrow. Pretarsus short, with small claws and thin empodium distally.

Male and larva unknown.

Differential diagnosis. The new species is very similar to *P. volgini* (Sevastianov, 1967) but differs by the position of setae 4*a* which are situated immediately posterior to the posterior end of the poststernal apodeme (in *P. volgini* setae 4*a* are



Figs. 6–7. *Petalomium brevisetum* sp. n., female: 6 — dorsum of idiosoma; 7 — venter of the body.

situated distinctly anterior to the posterior end of the poststernal apodeme).

Type material. Female holotype, slide #AK260300, from *Formica gagates* UKRAINE: Crimea, vicinity of Yalta, 26 March 2000, coll. A.A. Khaustov; paratypes: 1 female with same data as holotype; 1 female from *F. gagates*, UKRAINE: Crimea, Mount Ayudag, 2 May 2003, coll. A.A. Khaustov.

Etymology. The species name refers to the very short pseudanal setae of the new species.

Petalomium tothi Mahunka et Zaki, 1984

This species was described from moss on *Quercus robur* L. from Hungary [Mahunka, Zaki, 1984]. In Crimea, it was recorded phoretic on *Lasius flavus* (Fabricius, 1781). This is a new species for the Ukrainian fauna.

Material examined: 1 female from *Lasius flavus*, UKRAINE: Crimea, Nikita mountain pasture, 5 May 2002, coll. A.A. Khaustov.

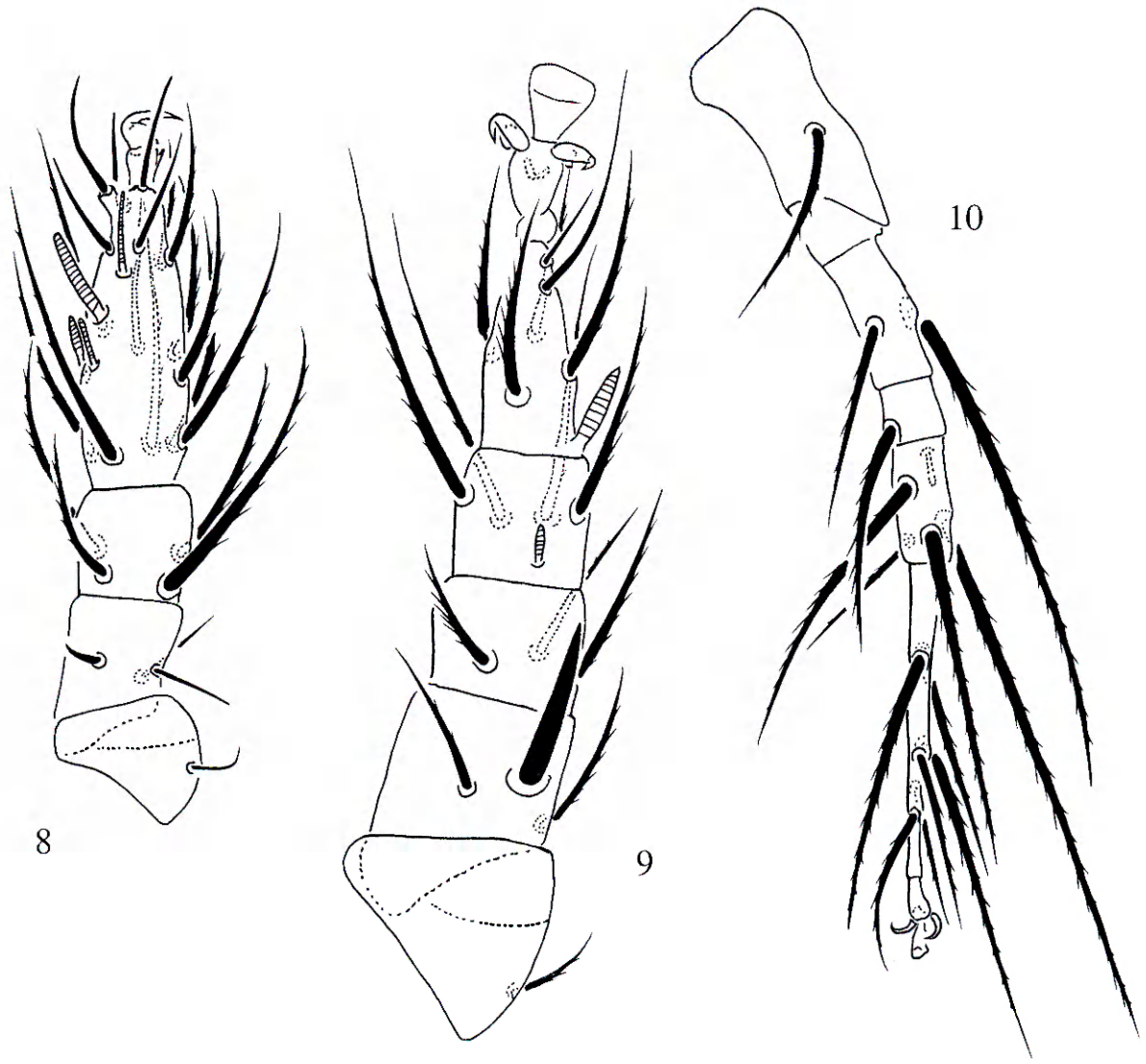
Petalomium tumidisetosum (Willmann, 1951) comb. nov.

(= *Petalomium genavensium* Mahunka, 1977 **new synonym**)

This species was described from Austria [Willmann, 1951] and redescribed by Rack [1977] as *Bakerdania tumidisetosa*. In Crimea it was found phoretic on the ants *Lasius niger* (Linnaeus, 1758) and *Tetramorium* sp. This is a new species for the Ukrainian fauna.

Material examined: 7 females from *Lasius niger*, UKRAINE: Crimea, Yalta, 14 April 2002, coll. A.A. Khaustov; 6 females with same data, 27 April 2003, coll. A.A. Khaustov; 3 females with same data, 31 January 2004, coll. A.A. Khaustov; 1 female from *Tetramorium* sp., with same data.

Remarks. Mahunka [1977] described *Petalomium genavensium* Mahunka, 1977 from Switzerland. According to this description, *P. genavensium* is not separable from *P. tumidisetosum* rede-



Figs. 8–10. *Petalomium brevisetum* sp. n., female: 8 — leg I, 9 — leg II, 10 — leg IV.

scribed by Rack [1977]. Both these species have characteristic triangular-like and thickened bases of setae 1*a*, 1*b*, and 2*a*, thickened bases of setae 3*a*, 3*b*, 3*c*, 4*a*, 4*c*, ps_2, c_1, and ch_1, and the same relative length of the dorsal and pseudanal setae. Therefore I consider *P. genavensium* as- a junior synonym of *P. tumidisetosum*.

Petalomium gottrauxi Mahunka, 1977

This species was described from Switzerland phoretic on the ant *Myrmica ruginodis* [Mahunka, 1977]. Later on it was recorded from Hungary [Mahunka, 1986]. In Crimea it was recorded phoretic on the ant *Camponotus aethiops* (Latreille, 1798). This is a new species for the Ukrainian fauna.

Material examined: 2 females from *Camponotus aethiops*, UKRAINE: Yalta, 23 March 2002, coll. A.A. Khaustov; 3 females with same data, 20 April 2003, coll. A.A. Khaustov; 1 female with same data, 12 January 2003, coll. A.A. Khaustov; 1 female with same data, 16 April 2000, coll. A.A. Khaustov; 5 females with same data, 14 January 2000, coll. A.A. Khaustov; 4 females with same data, 6 February 2000, coll. A.A. Khaustov; 2 females with same data, 22 April 2002, coll. A.A. Khaustov.

Petalomium fimbrisetum Ebermann, Rack, 1982

This species was described from Austria from *Lasius flavus* [Ebermann, Rack, 1982]. Later on it was recorded from Hungary [Mahunka, Zaki, 1984]. In Crimea, it was collected from *Lasius flavus*. This is a new species for the Ukrainian fauna.

Material examined: 3 females from *Lasius flavus*, UKRAINE: Crimea, Nikita mountain ridge, 13 April 2003, coll. A.A. Khaustov; 1 female from *L. flavus*, UKRAINE: Crimea, Ay-Petri mount., 17 September 2001, coll. A.A. Khaustov; 1 female

from *L. flavus* UKRAINE: Crimea, Yalta, mountain pasture, 27 April 2003, coll. A.A. Khaustov.

Petalomium aleinikovae (Sevastianov, 1967)

This species was described from Russia and Western Ukraine from *Lasius flavus* and *Myrmica ruginodis* [Sevastianov, 1967]. In Crimea it was collected phoretic on *Lasius flavus* and from its nests. This is a new species for the Crimean fauna.

Material examined: 4 females from nest of *Lasius flavus*, UKRAINE: Crimea, Nikita mountain ridge, 13 April 2003, coll. A.A. Khaustov; 6 females from *L. flavus* with same data.

Remarks. Examined specimens of *P. aleinikovae* are very similar to *P. myrmecophilum* (Mahunka, 1965) described from Hungary [Mahunka, 1965]. However, according to the original description, *P. myrmecophilum* has undivided setae 1*b* and subequal setae c_1 and *d*, while *P. aleinikovae* has bifurcate setae 1*b* and setae c_1 longer than *d*.

Petalomium formicarum (Berlese, 1903)

This species was described from an undetermined ant from Italy [Berlese, 1903]. Mahunka [1980] redescribed the type specimen and synonymized *P. ukrainicum* (Sevastianov, 1967) with *P. formicarum*. This species was recorded from Switzerland [Mahunka, 1977], Hungary [Mahunka, Zaki, 1984], Belarus, Ukraine [Sevastianov, 1978], and Japan [Kurosa, 1980]. In Crimea it was collected phoretic on *Formica gagates* and *F. cunicularia* Latreille, 1798. This is a new species for the Crimean fauna.

Material examined: 1 female from *Formica cunicularia*, UKRAINE: Crimea, Nikita mountain ridge, 23 April 2003, coll. A.A. Khaustov; 1 female from *F. cunicularia*, UKRAINE: Crimea, Yalta, 17 November 2002, coll. A.A. Khaustov; 1 female from *F. gagates*, UKRAINE: Crimea, Iograf mountain ridge, 29 April 2000, coll. A.A. Khaustov.

Petalomium carelitschense (Sevastianov, 1967)

This species was described from Belarus and Western Ukraine from *Lasius niger* and *Myrmica ruginodis* [Sevastianov, 1967]. Later on it was recorded from Switzerland [Mahunka, 1977], Hungary [Mahunka, 1981], Korea [Mahunka, 1971], and Japan [Kurosa, 1980]. In Crimea it was collected from *Lasius flavus* and *L. alienus*. This is a new species for the Crimean fauna.

Material examined: 2 females from *L. flavus*, UKRAINE: Crimea, Mount Ay-Petri, 27 April 2003, coll. A.A. Khaustov; 2 females with same data, 8 October 2001, coll. A.A. Khaustov; 4 females with same data, 17 November 2001, coll. A.A. Khaustov; 1 female from *L. flavus*, UKRAINE: Nikita mountain pasture, Crimea, 11 February 2001, coll. A.A. Khaustov; 1 female from *L. alienus*, UKRAINE, Crimea, Mount Chelebi Yaurn Beli, 31 February 2002, coll. A.A. Khaustov.

Comparative material: 4 female paratypes from *Myrmica ruginodis*, UKRAINE: Khmelnitsk Distr., settl. Chemerovtsy, 9 August 1964, coll. V.D. Sevastianov.

Petalomium scyphicum (Sevastianov, 1967)

This species was described from *Lasius niger* and *L. fuliginosus* Latr. From Western Ukraine [Sevastianov, 1967]. Later on it was recorded from Switzerland [Mahunka, 1977], Hungary [Mahunka, 1981, 1986; Mahunka, Zaki, 1984], Korea [Mahunka, 1971], and Japan [Kurosa, 1980]. In Crimea it was recorded phoretic on *Lasius alienus*. This is a new species for the Crimean fauna.

Material examined: 1 female from *L. alienus*, UKRAINE: Crimea, Mount Chelebi Yaurn Beli, 31 February 2002, coll. A.A. Khaustov; 2 females from *L. alienus*, UKRAINE: Crimea, Ay-Petri mountain pasture, 29 April 2000, coll. A.A. Khaustov; 1 female from *L. alienus*, UKRAINE: Crimea, Nikita mountain pasture, 1 May 2002, coll. A.A. Khaustov.

Comparative material: 1 female paratype from *Lasius niger*, UKRAINE: Khmelnitsk Distr., settl. Chemerovtsy, 2 July 1960, coll. V.D. Sevastianov.

Petalomium rarum (Sevastianov, 1967)

This species was described from Western Ukraine from *Lasius* sp. [Sevastianov, 1967]. Later on it was recorded from Hungary [Mahunka, 1986]. In Crimea it was collected phoretic on *Formica gagates*. This is a new species for the Crimean fauna.

Material examined: 12 females from *Formica gagates*, UKRAINE: Crimea, vicinity of Yalta, 5 January 2001, coll. A.A. Khaustov.

ACKNOWLEDGEMENTS

I thank Prof. V.D. Sevastianov (Odessa National University, Ukraine) who provided paratypes of *Petalomium podolicum*, *P. scyphicum*, and *P. carelitschense*.

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