

## A NEW GENUS AND THREE NEW SPECIES OF THE MITE FAMILY MICRODISPIDAE (ACARI: HETEROSTIGMATA) FROM CRIMEA

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ABSTRACT: A new genus, *Paramicrodispus* gen. nov. (Acari: Microdispidae), and three new species of the genera *Premicrodispus* Cross, 1965 and *Dolichodispus* Khaustov, 2006 are described from Crimea: *P. karadagensis* sp. n., *P. acutisetus* sp. n., and *Dolichodispus rarus* sp. n., *Paramicrodispus crenulatus* (Savulkina, 1978) comb. nov. is redescribed.

KEY WORDS: Heterostigmata, Microdispidae, systematics, *Paramicrodispus* gen. n., *Premicrodispus*, *Dolichodispus*, new species, Crimea

### INTRODUCTION

In my recent paper on microdispid mites of Crimea, a new genus, *Dolichodispus*, and seven new species of *Premicrodispus* were described (Khaustov 2006). In this paper I propose a new genus, *Paramicrodispus* gen. nov. (type species *Brennandania crenulata* Savulkina, 1978), redescribe *Paramicrodispus crenulatus* (Savulkina, 1978) comb. nov. and describe three new species: *Dolichodispus rarus* sp. nov., *Premicrodispus acutisetus* sp. nov., and *P. karadagensis* sp. nov.

### MATERIALS AND METHODS

In descriptions, the terminology follows Lindquist (1986). All measurements are given in micrometers ( $\mu\text{m}$ ) for holotype and, if available, for five paratypes (in parenthesis). In description of leg chaetotaxy, the number of solenidia is in parenthesis. Material was collected by me and A.L. Sergeenko from different Nature Reserves in Crimea.

Abbreviation of institutes: NBG — Nikita Botanical Gardens, Yalta, Ukraine; SIZ — Department of Acarology, Shmalgausen Institute of Zoology, Kiev, Ukraine.

### SYSTEMATICS

#### Family Microdispidae Cross, 1965

#### Genus *Paramicrodispus* Khaustov gen. nov.

Type species: *Brennandania crenulata* Savulkina, 1978

**Diagnosis. Female.** Body about 2 times longer than wide. Gnathosomal capsule about 2 times longer than its width, with 1 pair of dorsal setae ( $ch_2$ ). Palps short, with 2 pairs of setae,  $dFe$  and  $dGe$ . One pair of ventral subcapitular setae ( $su$ ). Pharynx weakly sclerotized. Second pharyngeal pump enlarged. Stigmae large, elongate. Vestiges of setae  $v_2$  present. Dorsal setae of idiosoma thin, smooth or weakly barbed. Anterior margin of tergite C without semicircular lobe. Ventral idiosomal setae short, smooth or barbed. Anterior

margin of posterior sternal plate concave. Posterior margin of posterior sternal plate entire, does not form lobus. Setae  $4a$  present. Three pairs of pseudanal setae present ( $ps_2$  vestigial). Legs I and II subequal in length. Tibiotarsus I without claw. Setation of legs I:  $Tr1-Fe3-Ge4-TiTa14(3)$  (setae  $ft'$ ,  $s$ , and solenidion  $\omega_2$  absent), legs II:  $Tr1-Fe3-Ge3-Ti4(1)-Ta6(1)$ , legs III:  $Tr1-Fe2-Ge2-Ti4(1)-Ta6$ , legs IV:  $Tr1-Fe2-Ge1-Ti4(1)-Ta6$ .

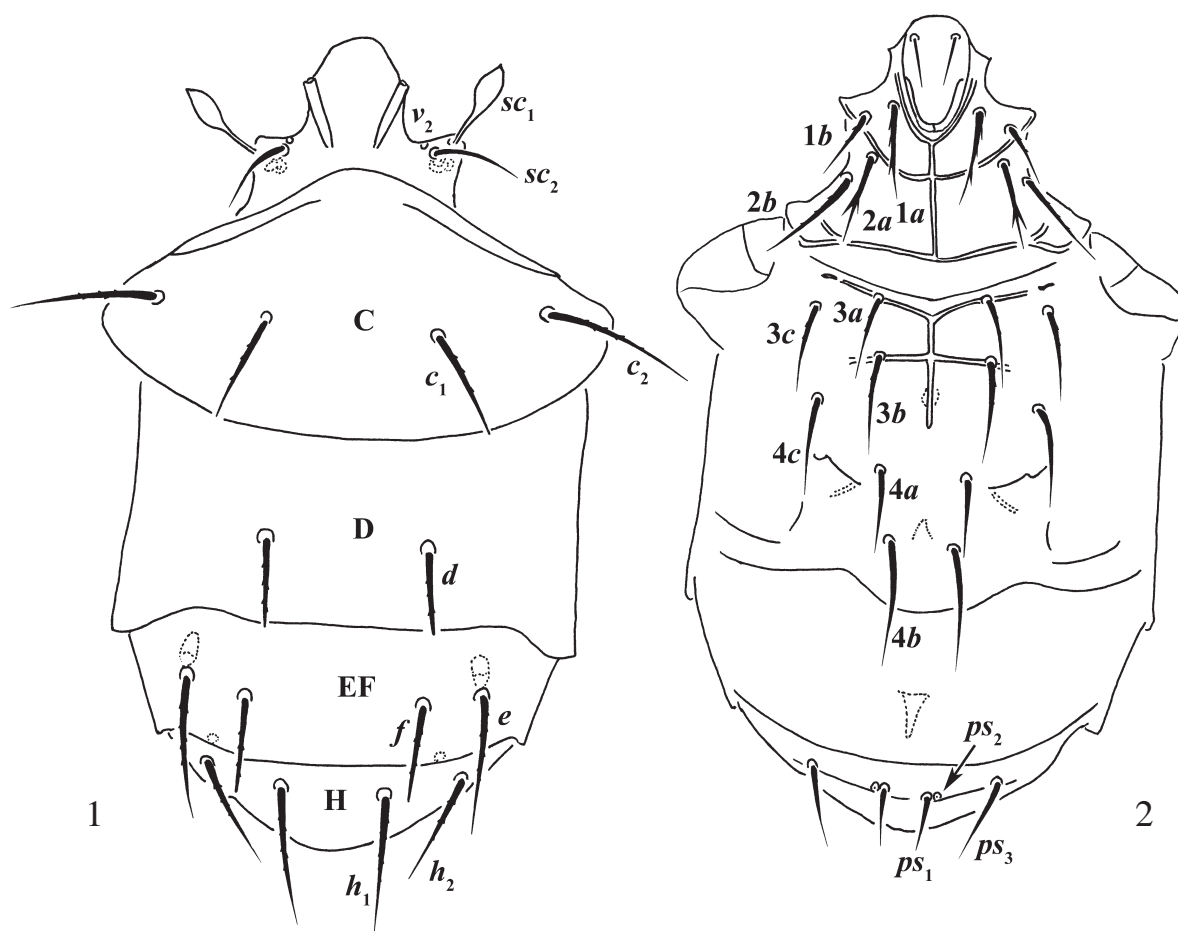
Species included: *Paramicrodispus crenulatus* (Savulkina, 1978) comb. nov. and *P. scolopendrae* (Rack, 1979), comb. nov.

**Distribution.** Species of the genus *Paramicrodispus* known from Bulgaria (Savulkina 1978) from the nest of a small mammal and from Côté d'Ivoire (Rack 1979) on *Scolopendra morsitans*.

**Differential diagnosis.** The new genus similar to *Premicrodispus* Cross, 1965 but differs by the entire posterior margin of the posterior sternal plate (tripartite in *Premicrodispus*) and by the absence of eupathidion  $ft'$  on tibiotarsus I (present in *Premicrodispus*). By the absence of eupathidium  $ft'$  and solenidion  $\omega_2$ , the new genus is also similar to the type species of the genus *Microdispus* Paoli, 1911, *M. obovatus* (Paoli, 1911), but eupathidium  $p''$  is absent in *M. obovatus* (present in *Paramicrodispus*).

#### *Paramicrodispus crenulatus* (Savulkina, 1978) comb. nov.

**Description. Female.** Idiosomal length 172–185, maximum width 100–110. Idiosomal dorsum (Fig. 1). Gnathosoma (Figs. 3, 4) about 2 times longer than its width. All tergites smooth. All dorsal setae indistinctly barbed. Setae  $d$  and  $f$  blunt-ended, other dorsal setae pointed. Length of dorsal setae:  $sc_2$  21–24,  $c_1$  21–23,  $c_2$  30–33,  $d$  17–19,  $e$  28–34,  $f$  20–22,  $h_1$  28–32,  $h_2$  24–28. Distances between dorsal setae:  $sc_2-sc_2$  28–31,  $c_1-c_1$  36–38,  $c_1-c_2$  21–23,  $d-d$  31–33,  $e-f$  13–14,  $f-f$  36–40,  $h_1-h_1$  20–22,  $h_1-h_2$  14–16. Idiosomal venter (Fig. 2). All ventral plates smooth. Setae  $1a$



Figs. 1–2. *Paramicrodispus crenulatus* (Savulkina, 1978), female: 1 — dorsum, 2 — venter. Scale bar 50  $\mu\text{m}$ .

and 2a with several large barbs, setae 1b, 2b, 3a, 3b, and 3c indistinctly barbed. Other ventral setae smooth. Apodemes 3 long, well sclerotized. Apodemes 4 reaching beyond bases of setae 3b. Apodemes 5 absent. Posterior margin of posterior sternal plate distinctly convex in middle. Setae  $ps_2$  vestigial. Length of ventral setae: 1a 18–20, 1b 14–16, 2a 18–22, 2b 23–25, 3a 19–21, 3b 18–21, 3c 18–20, 4a 18–21, 4b 27–32, 4c 22–25,  $ps_1$  12–14,  $ps_3$  17–23. Legs (Figs. 5–8). Leg I (Fig. 5). Solenidia  $\omega_1$   $12 > \varphi_1$   $7 < \varphi_2$  11. Solenidium  $\omega_1$  finger-shaped. Solenidium  $\varphi_1$  baculiform. Solenidium  $\varphi_2$  uniformly thin. Leg II as on Fig. 6. Solenidium  $\omega$  (7) finger-shaped. Setae  $pl''$  with several large barbs. Leg III as on fig 7. Leg IV as on fig. 8.

**Male and larva unknown.**

**Material examined.** 55 females, UKRAINE: Crimea, Yalta Mountain-Forest Nature Reserve, vicinity of Nikita, under elytra of *Pterostichus niger* (Schaller, 1783) (Coleoptera: Carabidae), 24 April 2004, coll. A.A. Khaustov; 17 females, UKRAINE: Crimea, Yalta Mountain-Forest Nature Reserve, vicinity of Nikita, in rotten log of *Fagus orientalis*, 13 October 2002, coll. A.A. Khaustov.

**Distribution.** Bulgaria (Savulkina 1978); Ukraine (first record).

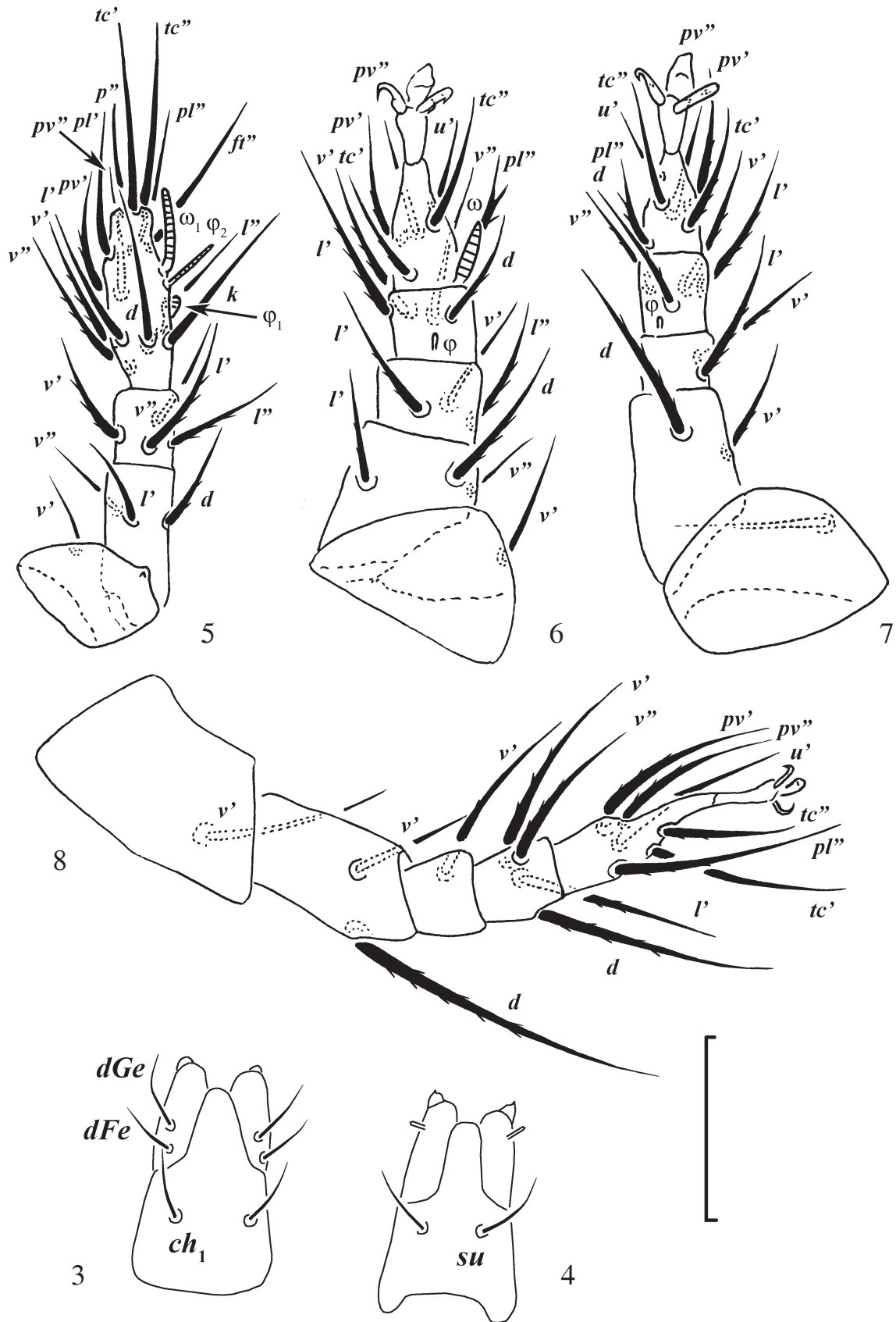
**Remarks.** I found *P. crenulatus* in large number under the elytra of the carabid beetle *Pterostichus niger*. Previously microdispid mites have never been found phoretic on carabid beetles.

### Genus *Dolichodispus* Khaustov, 2006.

#### *Dolichodispus rarus* sp. nov.

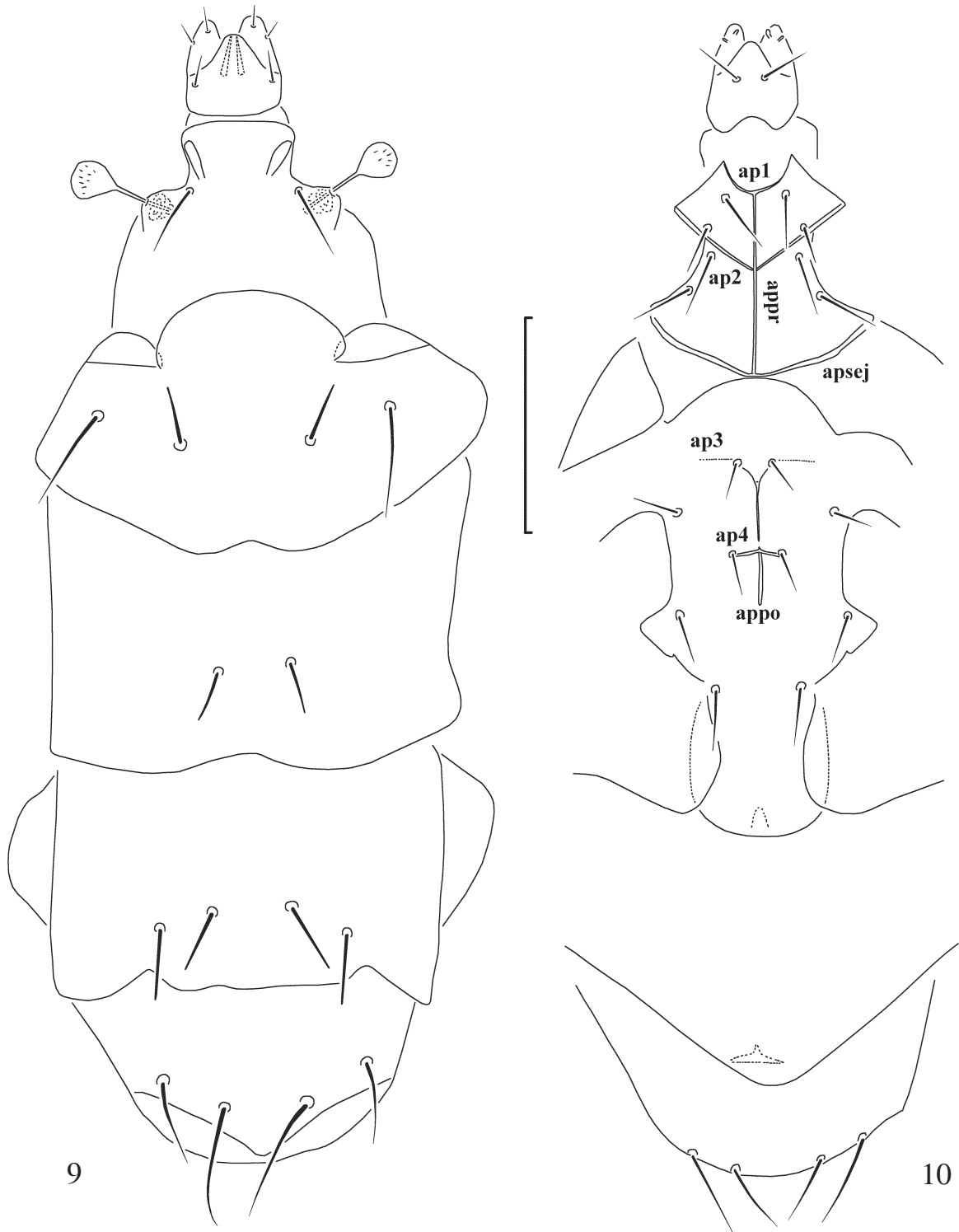
Figs. 9–14

**Description.** Female. Idiosomal length 239, maximum width 100. Idiosomal dorsum (Fig. 9). Gnathosoma dorsally with 1 pair of setae  $ch_2$ . Pharyngeal pump 2 well sclerotized and much larger than small pumps 1 and 3 (Fig. 11). Stigmata elongate, oval. All tergites and dorsal setae smooth. Setae  $c_1$ ,  $d$ ,  $e$ , and  $f$  blunt-ended, other dorsal setae pointed. Posterior margins of tergites C and D concave in middle part. Length of dorsal setae:  $sc_2$  18,  $c_1$  12,  $c_2$  24,  $d$  12,  $e$  14,  $f$  15,  $h_1$  35,  $h_2$  23. Distances between dorsal setae:  $sc_2$ – $sc_2$  24,  $c_1$ – $c_1$  31,  $c_1$ – $c_2$  18,  $d$ – $d$  17,  $e$ – $f$  13,  $f$ – $f$  19,  $h_1$ – $h_1$  19,  $h_1$ – $h_2$  15. Idiosomal venter (Fig. 10). All ventral setae thin, smooth. All ventral plates smooth. Apodemes 2



Figs. 3–8. *Paramicrodispus crenulatus* (Savulkina, 1978), female: 3–4 — dorsal and ventral side of gnathosoma, respectively, 5–8 — legs I–IV, respectively. Scale bar 20  $\mu$ .

well developed and joined with presternal apodeme. Sejugal apodeme well developed. Apodemes 3 weakly developed, diffuse. Apodemes 4 short, reaching level of setae 3b. Apodemes 5 ab-



Figs. 9–10. *Dolichodispus rarus* sp. n., female: 7 — dorsum, 8 — venter. Scale bar 50  $\mu$ m.

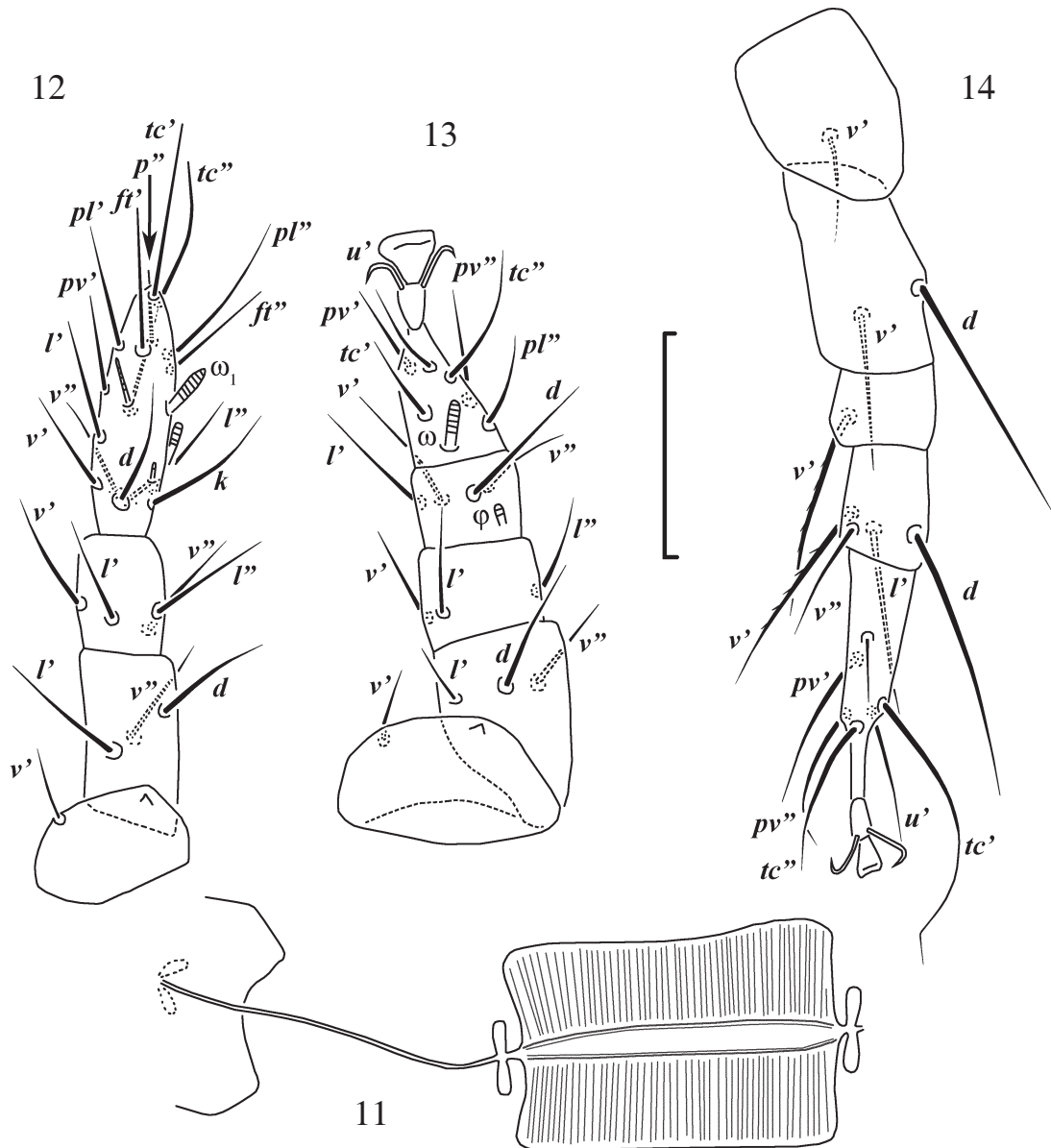
sent. Length of ventral setae: 1a 15, 1b 12, 2a 14, 2b 12, 3a 7, 3b 7, 3c 7, 4b 11, 4c 8,  $ps_1$  19,  $ps_3$  21.

Legs (Figs. 12–14). Leg I (Fig. 12). All setae smooth, thin. Solenidia  $\omega_1$  6 =  $\omega_2$  6 >  $\phi_1$  7 >  $\phi_2$  3. Solenidion  $\omega_1$  finger-shaped. Solenidion  $\phi_1$  baculiform. Solenidia  $\omega_2$  and  $\phi_2$  uniformly thin. Leg II (Fig. 13). All setae smooth, thin. Solenidion  $\omega$  (6) finger-shaped. Solenidia on tibiae II–III very

small, difficult to discern. Tarsi II–IV with simple claws. Leg IV (Fig. 14). Setae  $v'Ge$  and  $v'Ti$  weakly barbed, other setae smooth, setae  $tc'Ta$  whip-like.

**Male and larva unknown.**

**Type material.** Female holotype, slide No. AK30112002, UKRAINE: Crimea, “Cape Martyan” Nature Reserve, in soil under forest litter, 30 November 2002, coll. A.A. Khaustov.



Figs. 11–14. *Dolichodispus rarus* sp. n., female: 11 — pharynx, 12–14 — legs I, II, IV, respectively. Scale bar 20  $\mu$ .

**Etymology.** The new species named *rarus* because of its rareness.

**Differential diagnosis.** The new species is similar to *D. angustus* (Krczal, 1959) but differs by the presence of dorsal cheliceral setae  $ch_2$  (absent in *D. angustus*), the short and blunt-ended setae  $c_1$ ,  $d$ ,  $e$ , and  $f$  (long and pointed in *D. angustus*), and by the presence of apodemes 3 (absent in *D. angustus*).

**Genus *Premicrodispus* Cross, 1965**

***Premicrodispus karadagensis* Khaustov sp. nov.**

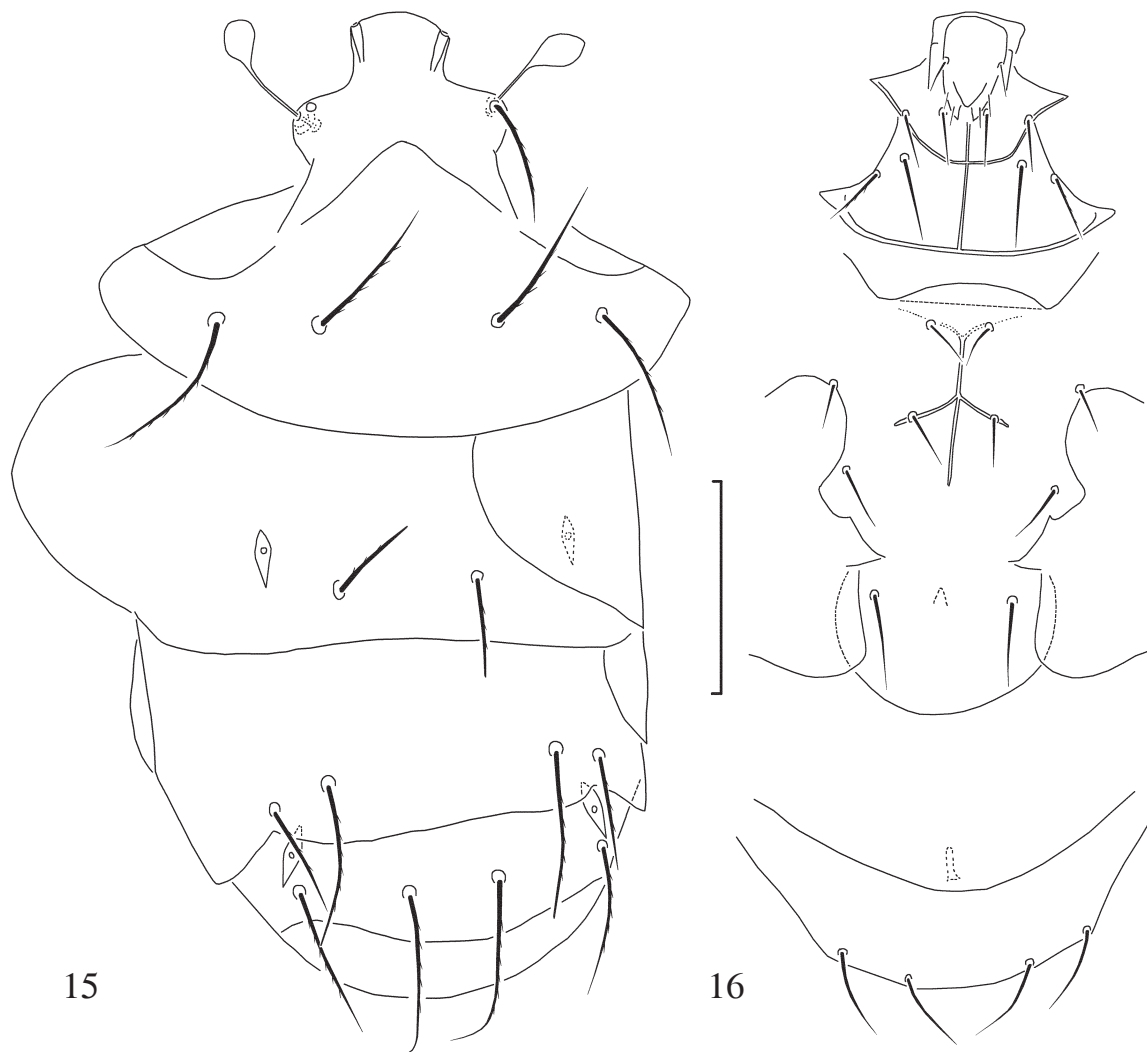
Figs. 15–20

**Description. Female.** Idiosomal length 222 (220–233), maximum width 128 (125–133).

Gnathosoma dorsally with 1 pair of setae. Idiosomal dorsum (Fig. 15). Pharyngeal pumps as

on fig. 17. All tergites smooth. All dorsal setae weakly barbed. Setae  $d$  and  $f$  blunt-ended, other dorsal setae pointed. Length of dorsal setae:  $sc_2$  30 (29–33),  $c_1$  39 (38–40),  $c_2$  39 (39–46),  $d$  24 (22–25),  $e$  27 (27–29),  $f$  38 (38–41),  $h_1$  42 (42–48),  $h_2$  37 (37–39). Distances between dorsal setae:  $sc_2$ – $sc_2$  40 (37–40),  $c_1$ – $c_1$  40 (38–43),  $c_1$ – $c_2$  22 (22–23),  $d$ – $d$  31 (30–33),  $e$ – $f$  11 (10–11),  $f$ – $f$  53 (53–57),  $h_1$ – $h_1$  21 (17–21),  $h_1$ – $h_2$  23 (23–27). Idiosomal venter (Fig. 16). All ventral plates smooth. All ventral setae smooth, except for weakly barbed 2b. Apodemes 3 weakly sclerotized, diffuse. Apodemes 4 short, reaching slightly beyond setae 3b. Apodemes 5 absent. Setae 4a absent. Setae  $ps_2$  absent. Anterior margin of posterior sternal plate distinctly convex in middle part. Length of ventral setae: 1a 12 (12–13), 1b 12 (12–13), 2a 16 (16–18),





Figs. 15–16. *Premicrodispus karadagensis* sp. n., female: 15 — dorsum, 16 — venter. Scale bar 50  $\mu\text{m}$ .

2b 13 (11–13), 3a 11 (11–12), 3b 13 (13–14), 3c 13 (13–14), 4b 20 (20–22), 4c 14 (13–14),  $ps_1$  21 (21–25),  $ps_3$  23 (23–24). Legs (Figs. 18–20). Leg I (Fig. 18). Solenidia  $\omega_1$  11 (10–12) >  $\omega_2$  5 (5) <  $\phi_1$  9 (8–9) >  $\phi_2$  4 (5). Solenidion  $\omega_1$  finger-shaped. Solenidion  $\phi_1$  baculiform. Solenidia  $\omega_2$  and  $\phi_2$  uniformly thin. Leg II as on Fig. 19. Solenidion  $\phi$  12 (10–12) finger-shaped. Solenidion  $\phi$  small, difficult to see Leg IV (Fig. 20). Seate  $dFe$  and  $dTi$  very long.

**Male and larva unknown.**

**Type material.** Female holotype, slide No. AS100608, UKRAINE: Crimea, Karadag Nature Reserve, in sod, 10 June 2008, coll. A.L. Sergeenko; 6 female paratypes, same data as holotype.

**Type depositories.** The holotype is deposited in SIZ, paratypes in NBG.

**Etymology.** The name of the new species refers to its geographical distribution (Karadag).

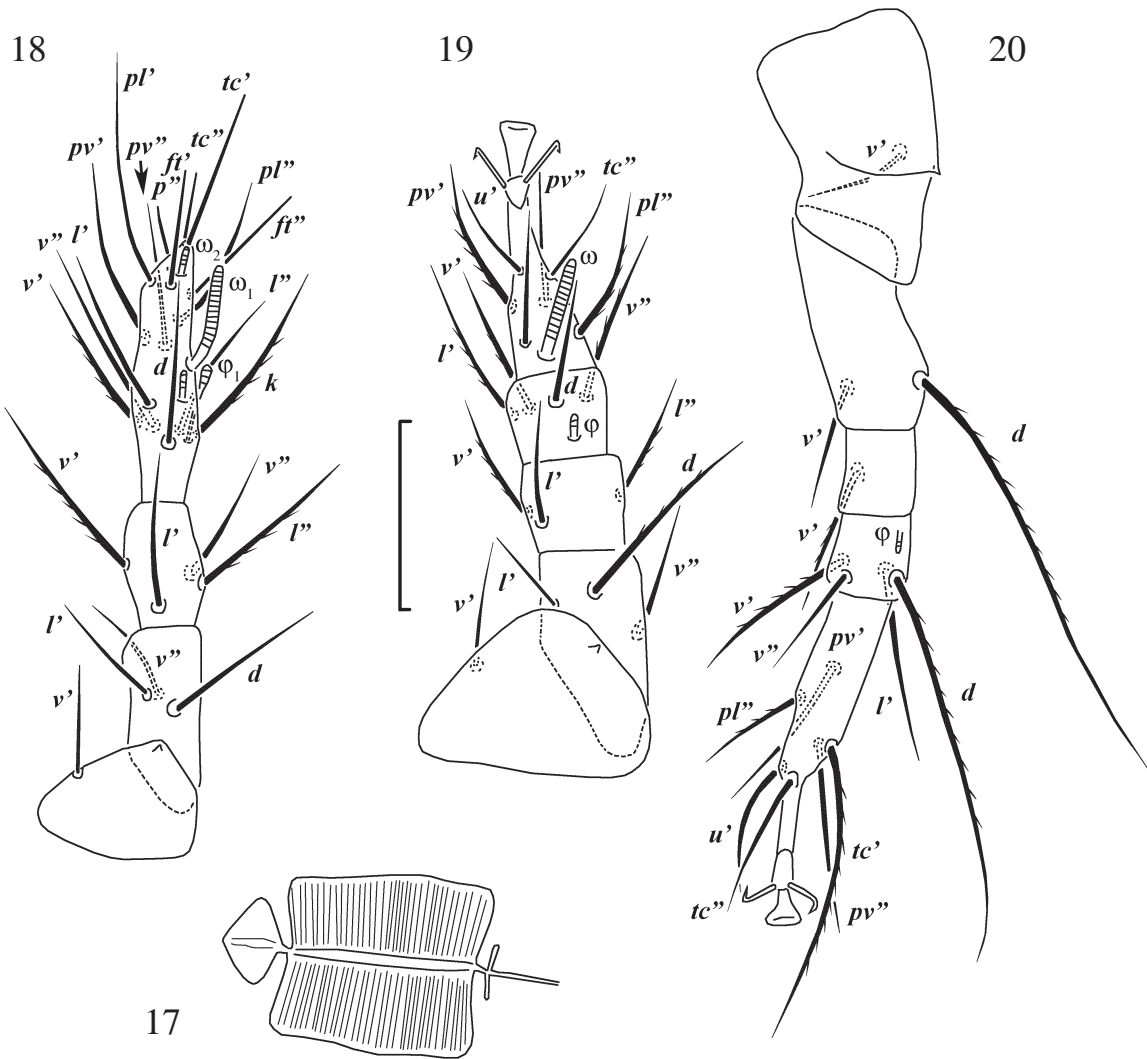
**Differential diagnosis.** The new species is similar to *P. montanus* Khaustov, 2006 but differs by much longer dorsal setae.

***Premicrodispus acutisetus* Khaustov sp. nov.**

Figs. 21–26

**Description. Female.** Idiosomal length 333 (205–225), maximum width 122 (110–125).

Gnathosoma dorsally with 1 pair of setae. Pharynx as on Fig. 23. Idiosomal dorsum (Fig. 21). All tergites smooth. All dorsal setae weakly barbed and pointed. Length of dorsal setae:  $sc_2$  30 (26–30),  $c_1$  30 (28–31),  $c_2$  35 (32–35),  $d$  23 (23–30),  $e$  24 (24–26),  $f$  30 (30–35),  $h_1$  30 (30–33),  $h_2$  27 (27–29). Distances between dorsal setae:  $sc_2$ – $sc_2$  36 (33–36),  $c_1$ – $c_1$  28 (26–29),  $c_1$ – $c_2$  24 (23–25),  $d$ – $d$  24 (23–25),  $e$ – $f$  10 (10–12),  $f$ – $f$  39 (37–40),  $h_1$ – $h_1$  13 (13–17),  $h_1$ – $h_2$  22 (20–22). Idiosomal venter (Fig. 22). All ventral plates smooth. Setae 1a, 2b, and 3a weakly barbed, other ventral setae smooth. Apodemes 3



Figs. 17–20. *Premicrodispus karadagensis* sp. n., 17 — pharynx, 18–20 — legs I, II, IV, respectively. Scale bar 20  $\mu$ .

absent. Apodemes 4 short, reaching slightly beyond setae 3b. Apodemes 5 absent. Setae 4a absent. Setae  $ps_2$  absent. Anterior margin of posterior sternal plate weakly convex. Length of ventral setae: 1a 19 (17–19), 1b 16 (15–17), 2a 18 (17–18), 2b 20 (20–22), 3a 18 (18–20), 3b 18 (15–18), 3c 16 (14–16), 4b 22 (20–24), 4c 19 (17–19),  $ps_1$  15 (15–20),  $ps_3$  18 (18–22). Legs (Figs. 24–26). Leg I (Fig. 24). Solenidia  $\omega_1$  10 (10) >  $\omega_2$  5 (4–5) <  $\phi_1$  8 (7–8) >  $\phi_2$  4 (3–4). Solenidium  $\omega_1$  finger-shaped. Solenidium  $\phi_1$  baculiform. Solenidia  $\omega_2$  and  $\phi_2$  uniformly thin. Leg II as on fig. 25. Solenidium  $\omega$  9 (8–9) finger-shaped. Leg IV as on fig 26.

**Male and larva unknown.**

**Type material.** Female holotype, slide No. AK050908 UKRAINE: Crimea, “Cape Martyan” Nature Reserve, in litter near small stream, 5 September 2008, coll. A.A. Khaustov; 9 female paratypes from same locality, 29 August 2008, coll. A.A. Khaustov.

**Type depositories.** The holotype is deposited in SIZ, paratypes in NBG.

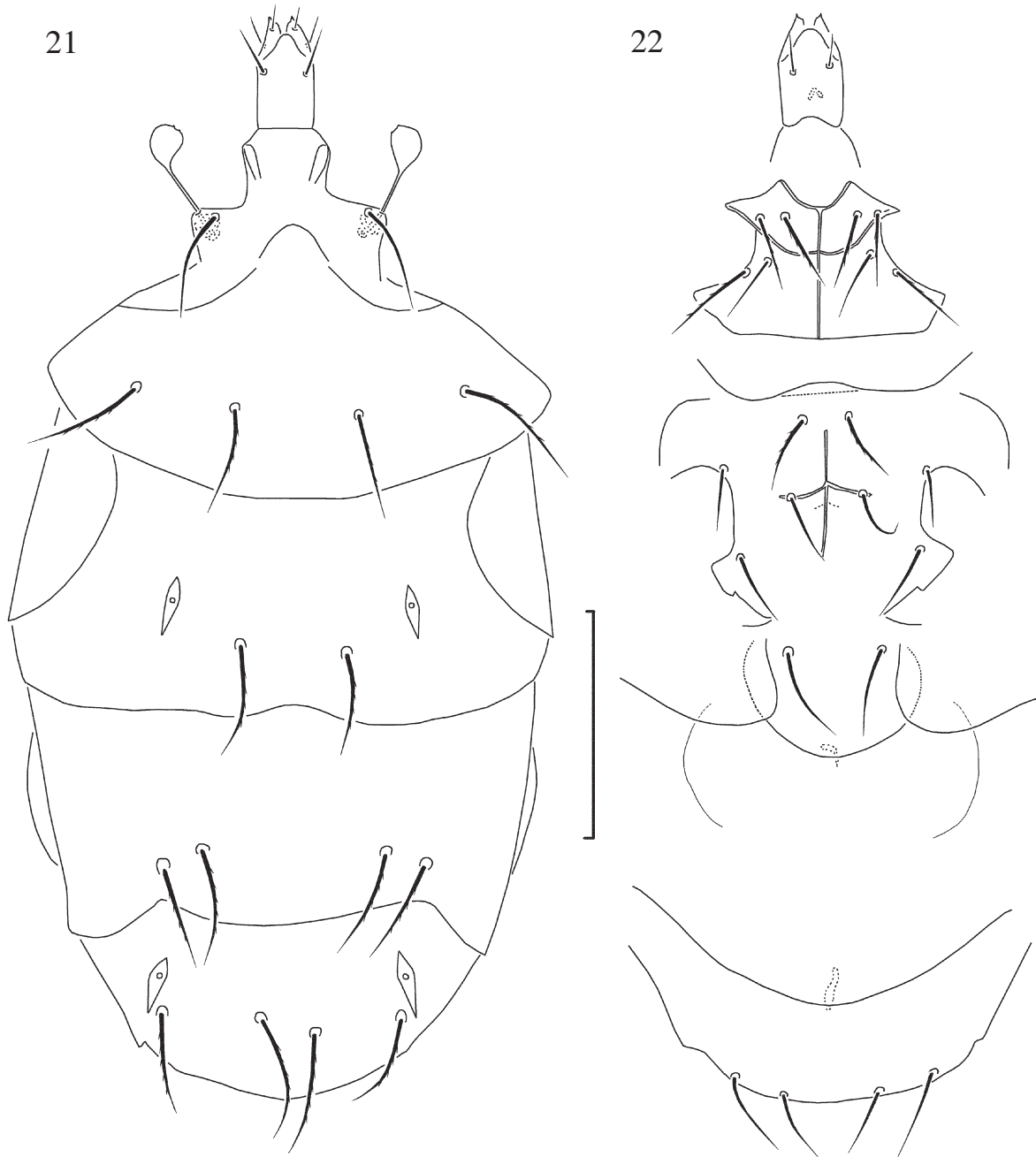
**Etymology.** The name of the new species refers to its pointed dorsal setae.

**Differential diagnosis.** By the pointed dorsal setae the new species is most similar to *P. longisetosus* (Mahunka, 1970) but differs from it by the shorter dorsal setae *f* which are distinctly not reaching the posterior margin of the body (in *P. longisetosus*, setae *f* are longer and protruding the posterior margin of the body).

#### ACKNOWLEDGEMENTS

I thank Dr. H.R. Hajiyanbar (Tarbiat Modares University, Tehran, Iran), for preparing of drawings of gnathosoma of *Paramicrodispus crenulatus*. I also thank Mr. A.L. Sergeenko (Nikita Botanical Gardens, Yalta, Ukraine) for help during preparation of the figures.

This work supported by grant 104.3-08 of State Fund of Fundamental Researches.

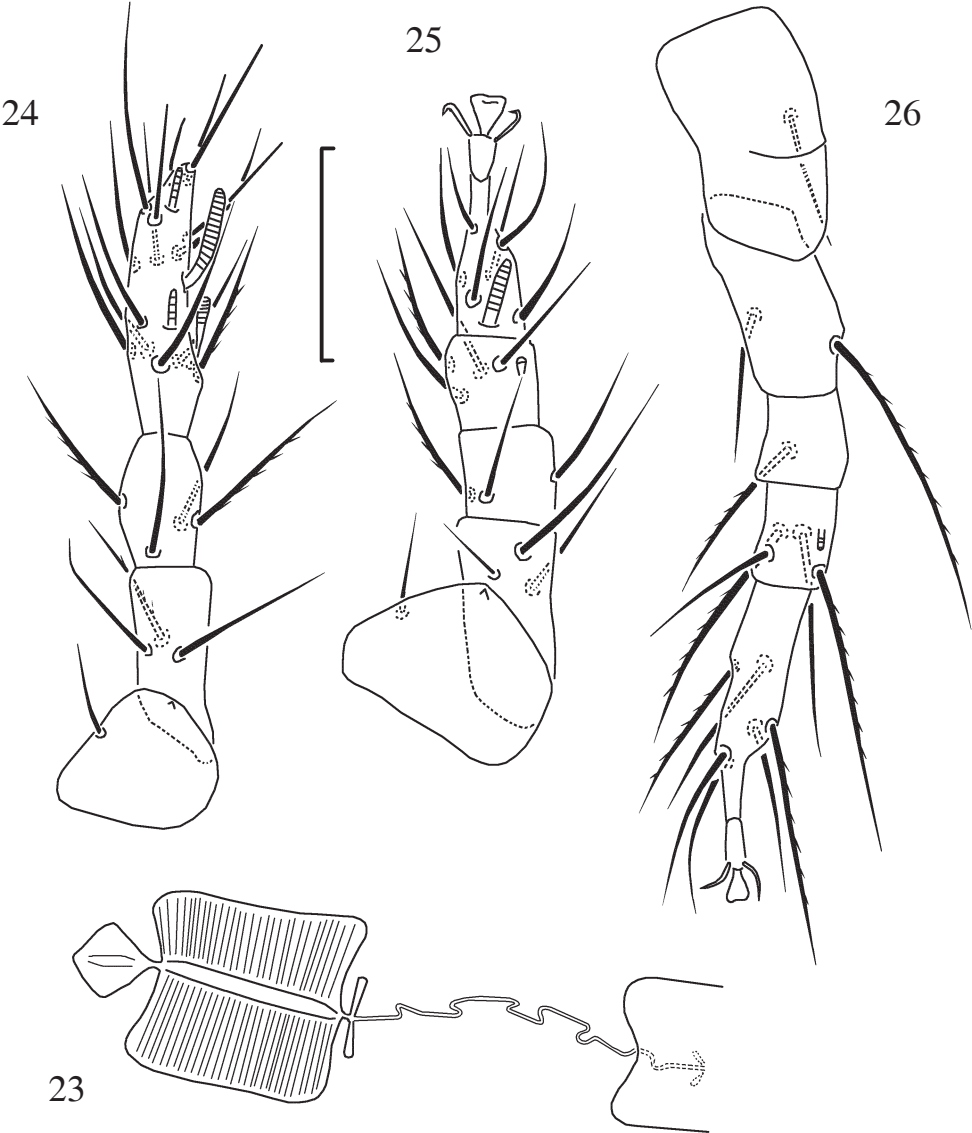


Figs. 21–22. *Premicrodispus acutisetus* sp. n., female: 21 — dorsum, 22 — venter. Scale bar 50  $\mu$ m.

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Figs. 23–26. *Premicrodispus acutisetus* sp. n., female: 23 — pharynx, 24–26 — legs I, II, and IV, respectively. Scale bar 20  $\mu$ .