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Article

The first occurrence of the subgenus *Premicrodispus* (*Premicrodispulus*) (Acari: Heterostigmata: Microdispidae) from Russia, with description of a new species

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ABSTRACT

Female of *Premicrodispus* (*Premicrodispulus*) *kurganiensis* **sp. nov.** (Acari: Heterostigmata: Microdispidae) is described from the salty soil sample collected from vicinity of the salt lake Medvezh'ye in Kurgan Region of Russia. This is the first record of the subgenus *P.* (*Premicrodispulus*) in Russia. A key to the species of *P.* (*Premicrodispulus*) is also provided.

KEYWORDS: Key, Kurgan Region, morphology, Pygmephoroida, systematics, Western Siberia.

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INTRODUCTION

The family Microdispidae Cross, 1965 is the least diverse family of pygmephoroid mites, and comprises 28 genera and about 130 described species (Khaustov and Trach 2022). Most microdispid mites are fungivorous, however, some species from the genera *Perperipes* Cross, 1965, *Glyphodomastax* Cross, 1965 and *Peponocara* Cross, 1965 are probably parasitoids of insects (Kaliszewski *et al.* 1995), and the recently described monotypic genus *Sidorchukdispus* Khaustov *et al.*, 2019 most likely includes external parasites of termites (Khaustov *et al.* 2019). Khaustov (2018) provided the key to the genera of Microdispidae. The microdispid mites of kurgan region are poorly studied. Previously only one species, *Unguidispus contematosus* Sevastianov, 1981 associated with ant *Lasius umbratus*, has been recorded from this region (Khaustov 2016)

The genus *Premicrodispus* Cross, 1965, the largest in the family Microdispidae, currently includes three subgenera and 36 described species (Silva *et al.* 2021; Khaustov and Trach 2022). Silva *et al.* (2021) provided the key to subgenera and species of *Premicrodispus*. The subgenus *Premicrodispulus* includes only two species, *P.* (*Premicrodispulus*) *reductus* Khaustov and Chydyrov, 2010 described from Turkmenistan and later reported from Ukraine, and *P.* (*P.*) *secundus* Khaustov and Minor, 2020 described from New Zealand (Khaustov and Minor 2020; Khaustov and Trach 2022).

Here we describe female of *P.* (*Premicrodispulus*) *kurganiensis* **sp. nov.** from the salty soil sample near the salt lake Medvezh'ye in Kurgan Region of Russia. This is the first occurrence of the

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subgenus *P. (Premicrodispulus)* in Russia.

MATERIAL AND METHODS

Mites were extracted from the soil samples, taken from the salt marsh near the salt lake Medvezh'ye, Kurgan Region, using Tullgren-Berlese funnels. All specimens were cleared in lactic acid and mounted on slides in Hoyer's medium. The terminology of the idiosoma and legs follows that of Lindquist (1986); the nomenclature of subcapitular setae and the designation of cheliceral setae follow those of Grandjean (1944, 1947), respectively. The systematics of Pygmephoroida follows that of Khaustov (2004, 2008). All measurements are given in micrometers (μm) for the holotype and paratypes (in parentheses). For leg chaetotaxy, the number of solenidia is given in parentheses. Mite morphology was studied using a Carl Zeiss AxioImager A2 compound microscope with phase contrast and differential-interference contrast (DIC) illumination. Photomicrographs were taken with a digital camera AxioCam ICc5 (Carl Zeiss, Germany).

Abbreviations – Ap1-5 – apodemes 1-5; appr – prosternal apodeme; apsej – sejugal apodeme; appo – poststernal apodeme; sta – secondary transverse apodeme; ags, pgs – anterior and posterior genital sclerites; ZIRAS—Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia, TSUM Z—Tyumen State University, Museum of Zoology, Tyumen, Russia

Family Microdispidae Cross, 1965

Genus *Premicrodispus* Cross, 1965

Subgenus *Premicrodispulus* Khaustov and Chydyrov, 2010

Type species: *Premicrodispus (Premicrodispulus) reductus* Khaustov and Chydyrov, 2010, by original designation

Premicrodispus (Premicrodispulus) kurganiensis sp. nov. (Figs. 1–3)

<http://zoobank.org/urn:lsid:zoobank.org:act:A7F6E478-5D29-45F9-8404-AFD18E7E49B3>

Description

FEMALE – Length of idiosoma 165 (160–175), width of tergite C 80 (75–85).

Idiosomal dorsum (Figs. 1A, 3A) – Only posterior part of prodorsum partly covered by anterior elongation of tergite C. All dorsal sclerites with very small, hardly visible puncta (Fig. 3A). Trichobothria with long stem, clavate, weakly barbed, with rounded apex. Setae *v2* smooth, other dorsal setae weakly barbed; setae *v2*, *c1*, *d*, *e*, and *f* blunt-tipped, other dorsal setae pointed. Cupules *ia* on tergite D and *ih* on tergite H large, rhombic. Tergite D with a pair of round porous areas. Lengths of dorsal setae: *v2* 2 (2), *sc2* 24 (24), *c1* 13 (13–14), *c2* 28 (28–30), *d* 13 (12–13), *e* 11 (10–11), *f* 16 (16–17), *h1* 20 (20–22), *h2* 12 (12–14). Distances between setae: *v2*–*v2* 24 (24–25), *sc2*–*sc2* 26 (26–27), *c1*–*c1* 25 (23–24), *c1*–*c2* 18 (18–21), *d*–*d* 28 (24–28), *e*–*f* 8 (8–9), *f*–*f* 33 (33–34), *h1*–*h1* 17 (17), *h1*–*h2* 13 (13–14).

Idiosomal venter (Figs. 1B, 3B) – All ventral plates with very small, hardly visible puncta (Fig. 3B). Ap1 well developed and joined with appr; ap2 well developed, joined with appr; apsej well developed and joined with appr; sta absent; ap3 well developed, straight, joined with appo; ap4 reaching slightly beyond bases of setae *3b*; appo poorly developed in anterior half; apodemes 5 absent. All ventral setae pointed; all setae of anterior sternal plate, *ps1* and *ps3* weakly barbed, other ventral setae smooth. Setae *4a* absent; setae *ps2* absent. Anterior margin of posterior sternal plate with short and wide lobe. Ags bell-like, pgs small, elongate-oval. Lengths of ventral setae: *1a* 11 (11–12), *1b* 13 (12–13), *2a* 11 (11–13), *2b* 13 (13–14), *3a* 8 (7–8), *3b* 8 (7–8), *3c* 8 (8–9), *4b* 12 (11–12), *4c* 8 (8–11), *ps1* 14 (14–15), *ps3* 17 (17–18).

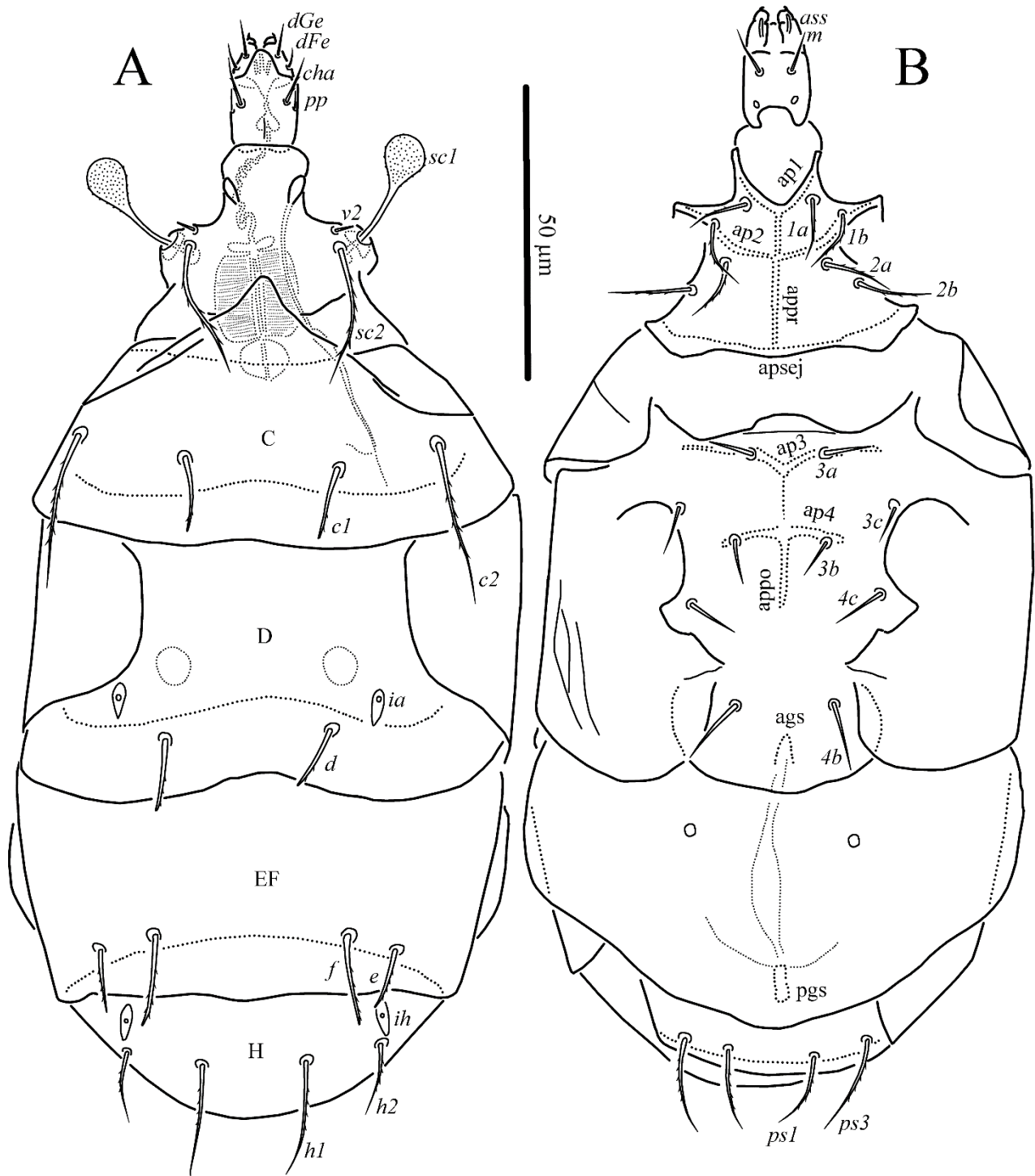


Figure 1. *Premicrodispus (Premicrodispulus) kurganiensis* sp. nov. (female) – **A.** Dorsum of body; **B.** Venter of body. Legs omitted.

Gnathosoma – Length of gnathosoma 16 (16–17), width 12 (11–12). Gnathosomal capsule with poorly developed dorsal median apodeme. Setae *cha* 9 (9–10) sparsely barbed and pointed; postpalpal setae needle-like; other gnathosomal setae smooth and pointed; setae *dFe* 4 (4), *dGe* 6 (6), *m* 8 (9); palpal solenidion absent, accessory setigenous structure (*ass*) short, tube-like. Subcapitulum with a pair of round alveolar pits in posterior half. Pharyngeal pumps typical for the genus, tripartite, joined together and situated on long twisted oesophagus.

Legs (Fig. 2) – Leg I (Fig. 2A). Leg setation: Tr 1 (v'), Fe 3 (d, l', v''), Ge 3 (l', v', v''), TiTa 15(4) ($d, l', l'', v', v'', k, tc', tc'', ft', ft'', p'', pl', pl'', pv', pv'', \omega 1, \omega 2, \phi 1, \phi 2$). Lengths of solenidia $\omega 1$ 6 (6), $\omega 2$ 2 (2), $\phi 1$ 6 (6–7), $\phi 2$ 2 (2); $\omega 1$ digitiform, $\phi 1$ weakly clavate; $\phi 2$ and $\omega 2$ baculiform. Setae k and eupathidia $ft', ft'', tc', tc'', p''$ blunt-tipped and smooth, other leg setae pointed and barbed. Leg II (Fig. 2B). Leg setation: Tr 1 (v'), Fe 3 (d, l', v''), Ge 2 (l', v'), Ti 4(1) (d, l', v', v'', ϕ), Ta 6(1) ($pl'', tc', tc'', pv', pv'', u', \omega$). Solenidion ω 6 (6) digitiform, solenidion ϕ 2 (2) peg-like. Setae l' of femur and u' of tarsus smooth, other leg setae weakly barbed; seta l' of femur blunt-tipped, other leg setae pointed. Leg III (Fig. 2C). Leg setation: Tr 1 (v'), Fe 2 (d, v'), Ge 2 (l', v'), Ti 4(1) (d, l', v', v'', ϕ), Ta 6 ($pl'', tc', tc'', pv', pv'', u'$). Solenidion ϕ hardly visible, located in depression. All leg setae pointed; seta u' of tarsus smooth, other setae barbed. Femur divided into basi- and telofemur. Leg IV (Fig. 2D). Leg setation: Tr 1 (v'), Fe 2 (d, v'), Ge 1 (v'), Ti 4(1) (d, l', v', v'', ϕ), Ta 6 ($pl'', tc', tc'', u', pv', pv''$). Solenidion ϕ hardly visible, located in depression. All leg setae pointed and barbed. Femur divided into basi- and telofemur.

MALE and LARVA – unknown.

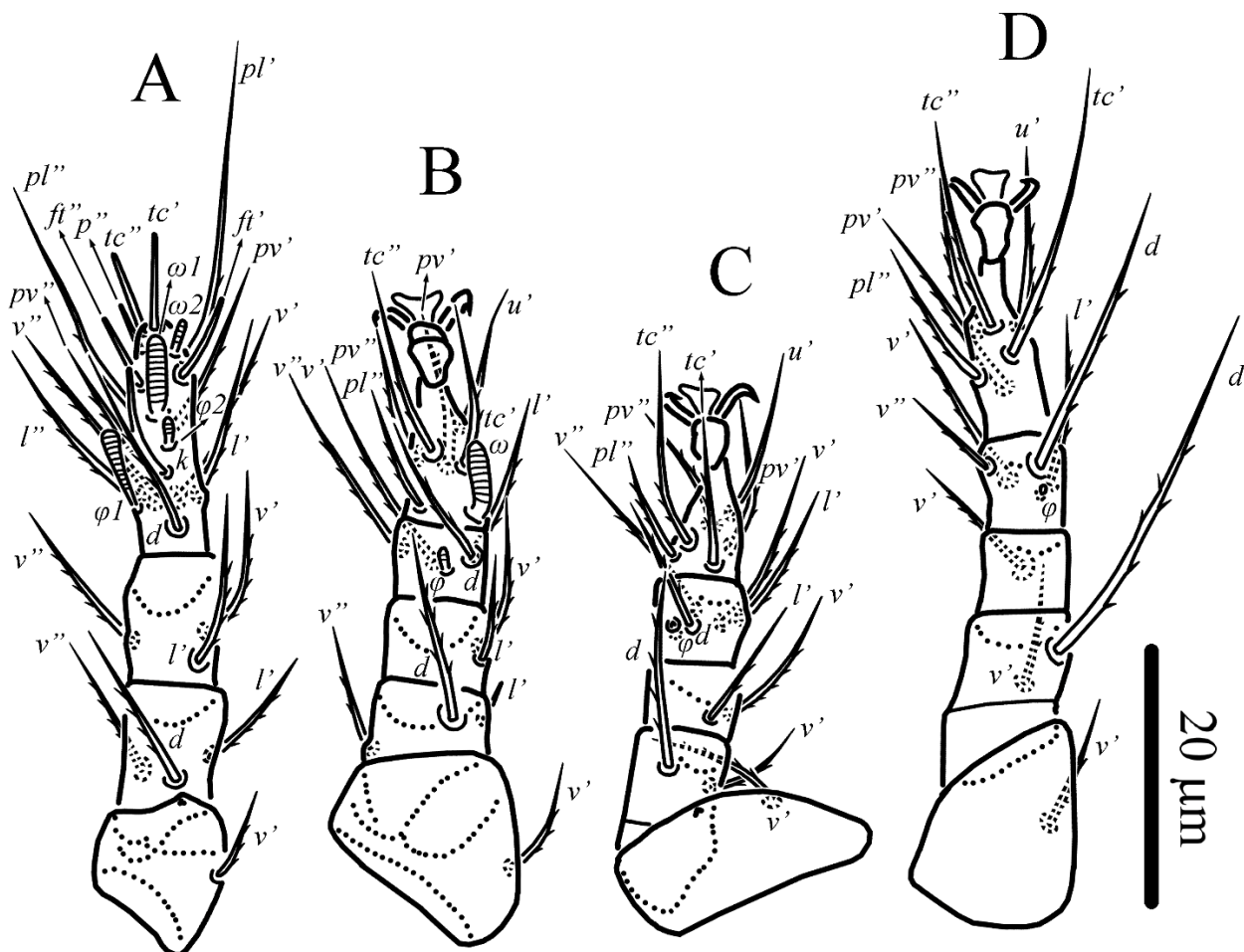


Figure 2. *Premicrodispus (Premicrodispulus) kurganiensis* sp. nov. (female) – A–D. Left legs I–IV, respectively, dorsal aspect.

Type material

Holotype female, slide ISP T-Mcd-3, Russia, Kurgan Region, Petuknovsky District, vicinity of lake Medvezh'ye, 14 October 2022, salty soil near the lake, 55° 15' 07.7" N, 67° 58' 55.8" E, coll. A.A. Khaustov and V.A. Khaustov; paratypes: 4 females, same data.



Figure 3. DIC micrographs of *Premicrodispus (Premicrodispulus) kurganiensis* **sp. nov.** (female) – **A.** Dorsum of body; **B.** Venter of body.

Type deposition

The holotype female is deposited in the collection of ZIRAS; paratypes are deposited in the collection of the TSUM Z.

Differential diagnosis

The new species is most similar to *P. (Premicrodispulus) reductus* in having setae *c1*, *d* and *f* blunt-tipped. The new species differs from *P. reductus* in having setae *e* blunt-tipped and clearly shorter than *f* (setae *e* pointed and subequal with *f* in *P. reductus*) and in having two setae on genu II (one seta on genu II in *P. reductus*).

Etymology

The name of the new species *kurganiensis* refers to its geographical distribution in Kurgan Region.

Key to species of subgenus *P. (Premicrodispulus)* (females)

1. Setae *c1*, *d* and *f* blunt-tipped 2

- Setae *c1*, *d* and *f* pointed *P. secundus*
- 2. Setae *e* pointed, subequal with *f*; genu II with one seta *P. reductus*
- Setae *e* blunt-tipped, shorter than *f*; genu II with two setae *P. kurganiensis* **sp. nov.**

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نخستین گزارش زیرجنس (*Premicrodispus* (*Premicrodispulus*) (Acari:** *Heterostigmata: Microdispidae*) از روسیه، همراه با توصیف گونه‌ای جدید**

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چکیده

ماده *Premicrodispus* (*Premicrodispulus*) *kurganiensis* **sp. nov.** (Acari: Heterostigmata: Microdispidae) از نمونه خاک شور جمع‌آوری شده از مجاورت دریاچه نمک Medvezh'ye در منطقه کورگان روسیه توصیف شده است. این نخستین گزارش از زیرجنس *Premicrodispus* (*Premicrodispulus*) در روسیه است. کلیدی برای گونه‌های زیرجنس *Premicrodispus* (*Premicrodispulus*) نیز ارائه شده است.

واژگان کلیدی: کلید شناسایی، منطقه کورگان، ریخت‌شناسی، Pygmephoroida، رده‌بندی، سیبری غربی.

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