

FAUNISTIC AND TAXONOMIC DATA ON ORIBATID MITES (ACARI, ORIBATIDA) FROM CENTRAL ETHIOPIA

Sergey G. Ermilov^{1*} and Leonid B. Rybalov²

¹X-BIO Institute, Tyumen State University, Tyumen, Russia

²Laboratory of Soil Zoology and General Entomology, Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow, Russia

*corresponding author; e-mail: ermilovacari@yandex.ru

ABSTRACT: Faunistic data on oribatid mites (Oribatida) from the vicinities of the towns of Debre Sina, Ginchi and Sebeta (Central Ethiopia) are presented; a list of 58 species, belonging to 40 genera and 28 families, is provided. One new species—*Metabelba (Pateribelba) ginchiensis* Ermilov sp. n. (Damaeidae)—is described.

KEY WORDS: fauna, new record, taxonomy, *Metabelba*, morphology, Afrotropical region

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INTRODUCTION

The present study is based on oribatid mite (Acari, Oribatida) materials collected during the Joint Russian-Ethiopian Biological Expedition from seven locations in the vicinities of the towns of Debre Sina, Ginchi and Sebeta (Central Ethiopia). The main goals of our paper are: to present a list of the identified taxa (including new records) and to describe a new species belonging to *Metabelba (Pateribelba)* Mourek, Miko and Bernini, 2011 (family Damaeidae).

The subgenus *Metabelba (Pateribelba)* was proposed by Mourek *et al.* (2011) with *Metabelba sphagni* Strenzke, 1950 as type species. It comprises 15 species distributed in the Palaearctic and the Afrotropical regions. The main generic traits were summarized by Mourek *et al.* (2011).

Presently, three species of *Metabelba* (all from the subgenus *Pateribelba*) have been registered in Ethiopia (Mahunka 1982; Miko *et al.* 2014; Subías *et al.* 2021): *M. (P.) centurion* Miko, Mourek and Ermilov, 2014, *M. (P.) glabriseta* Mahunka, 1982 and *M. (P.) sphagni* Strenzke, 1950.

MATERIALS AND METHODS

Specimens. Substrate samples containing oribatid mites were collected using a stainless-steel frame (50×50 cm) with a sieve (mesh size 2×2 cm) from the following locations (Figs. 1–4):

1. Central Ethiopia, Amhara Region, 1.5 km W of Debre Sina, 10°17'38.7"N, 039°54'03.2"E, 2,890 m a.s.l., sifted tree mosses (five samples) from a *Juniperus procera* forest on the slope of a mountain, 13 October 2022 (L.B. Rybalov).

2. Central Ethiopia, Oromia Region, 5 km NNE of Ginchi, 9°04'14"N, 38°09'29"E, 2,441–2,584 m a.s.l., Chilimo forest, sifted tree mosses (three

samples) in a mixed deciduous forest, 15 October 2022 (A. V. Tanasevitch).

3. Central Ethiopia, Oromia Region, 5 km NNE of Ginchi, 9°04'14"N, 38°09'29"E, 2,441–2,584 m a.s.l., Chilimo forest, sifted litter (three samples) from a mixed deciduous forest in a creek valley, 15 October 2022 (A. V. Tanasevitch).

16. Central Ethiopia, Oromia Region, 18 km NNW of Sebeta, 8°57'53"N, 38°32'42"E, 2,478 m a.s.l., Menagesha Suba State Forest, sifted wet mosses (four samples) from a *Podocarpus* tree in a *Juniperus procera*, *Podocarpus falcatus* forest with Oleaceae, 11 November 2022 (L.B. Rybalov).

17. Central Ethiopia, Oromia Region, 18 km NNW of Sebeta, 8°57'53"N, 38°32'42"E, 2,478 m a.s.l., Menagesha Suba State Forest, sifted dry mosses (two samples) on a *Podocarpus* tree in a *Juniperus procera*, *Podocarpus falcatus* forest with Oleaceae, 11 November 2022 (L.B. Rybalov).

18. Central Ethiopia, Oromia Region, 18 km NNW of Sebeta, 8°57'54"N, 38°32'43"E, 2,476 m a.s.l., Menagesha Suba State Forest, sifted litter and mosses from soil (five samples) in a *Juniperus procera*, *Podocarpus falcatus* forest with Oleaceae, 11 November 2022 (L.B. Rybalov).

19. Central Ethiopia, Oromia region, 18 km NNW of Sebeta, 8°57'54"N, 38°32'43"E, 2,468 m a.s.l., Menagesha Suba State Forest, sifted orchids (four samples) from Oleaceae trees in a *Juniperus procera*, *Podocarpus falcatus* forest with Oleaceae, 11 November 2022 (L.B. Rybalov).

Mites were extracted into 75% ethanol using Berlese's funnels with electric lamps in laboratory conditions.

Observation and documentation. For measurement and illustration, specimens were mounted



Figs. 1–4. Photos of the locations and habitats of oribatid mites from Central Ethiopia: 1—Debre Sina; 2, 3—Ginchi; 4—Sebeta.

in lactic acid on temporary cavity slides. All body measurements are presented in micrometers (μm); body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the notogaster; body width refers to the maximum width of the notogaster in dorsal view; the lengths of body setae were measured in lateral aspect. Formulas for leg setation are given in parentheses according to the sequence trochanter–femur–genu–tibia–tarsus (femulus included); formulas for leg solenidia are given in square brackets, according to the sequence genu–tibia–tarsus. Drawings were made with a camera lucida using a Leica DM 2500 light microscope; images were obtained with an AxioCam ICc3 camera using a Carl Zeiss transmission light

microscope Axio Lab.A; image stacks were combined using the Helicon Focus Pro (v. 5.0) suite.

Terminology. Morphological terminology used in this paper mostly follows that used in the papers on *Metabelba* (e.g., Mourek *et al.* 2011). For leg setal nomenclature we used Norton (1977), and for overview—Norton and Behan-Pelletier (2009) and Norton and Ermilov (2021).

Abbreviations. *Prodorsum*: *ro*, *le*, *in*, *bs*, *ex*—rostral, lamellar, interlamellar, bothridial and exobothridial setae, respectively; *exv*—alveolar vestige of second exobothridial seta; *Da*, *Dp*, *Ba*—prodorsobasal tubercles. *Notogaster*: *c*, *la*, *lm*, *lp*, *h*, *p*—notogastral setae; *ia*, *im*, *ip*, *ih*, *ips*—lyrifissures; *gla*—opisthonotal gland opening. *Gnatho-*

soma: *a*, *m*, *h*—anterior, middle seta of gena and hypostomal seta of mentum, respectively. *Epimeral and lateral podosomal regions*: *1a*, *1b*, *1c*, *2a*, *3a*, *3b*, *3c*, *4a*, *4b*, *4c*, *4d*—setae; *Sa*, *Sp*—parastigmatic tubercles; *dis*—discidium. *Anogenital region*: *g*, *ag*, *an*, *ad*—genital, aggenital, anal and adanal setae, respectively; *iad*—adanal lyrifissure; *po*—preanal organ. *Legs*: *Tr*, *Fe*, *Ge*, *Ti*, *Ta*—leg trochanter, femur, genu, tibia and tarsus, respectively; *pa*—porose area; ω , ϕ , σ —solenidia; ϵ —famulus; *d*, *l*, *v*, *bv*, *ev*, *ft*, *tc*, *it*, *p*, *u*, *a*, *s*, *pv*, *pl*—setae.

Notes. References to the original descriptions of taxa are not included in the *References* section.

LIST OF IDENTIFIED TAXA

Distribution: mostly from Subías (2022, online v. 2024).

Crotoniidae

Camisia hamulifera Hammer, 1961: locations 1 (2 ex.), 16 (1 ex.). Distribution: Neotropical, Afrotropical, Sub-Antarctic, Taiwan.

Heminothrus glaber Mahunka, 1984: locations 3 (1 ex.), 18 (4 ex.). Distribution: Afrotropical, Costa Rica.

Nanhermanniidae

Nanhermannia quadridentata Balogh, 1958: location 3 (2 ex.). Distribution: Afrotropical.

Nothriidae

Nothrus crassisetus Mahunka, 1982: locations 17 (1 ex.), 18 (1 ex.). Distribution: Afrotropical.

Hermanniellidae

Hermanniella congoensis Balogh, 1958: locations 1 (1 ex.), 3 (14 ex.), 18 (1 ex.). Distribution: Afrotropical.

Hermanniella spiniseta Mahunka and Mahunka-Papp, 2007: location 3 (8 ex.). Distribution: Afrotropical.

Plasmobatidae

Plasmobates foveolatus Ermilov, Sidorchuk and Rybalov, 2010: locations 3 (19 ex.), 18 (2 ex.). Distribution: Afrotropical.

Aleurodamaeidae

Aleurodamaeus recensesevpi Ermilov and Rybalov, 2012: locations 3 (3 ex.), 18 (12 ex.). Distribution: Ethiopia.

Licnodamaeidae

Pedrocortesella africana Pletzen, 1963: locations 17 (7 ex.), 18 (1 ex.), 19 (4 ex.). Distribution: Afrotropical.

Pedrocortesella inaequalis (Balogh and Mahunka, 1965): location 19 (2 ex.). Distribution: Palaearctic. New record of the species in the Afrotropical region.

Damaeidae

Metabelba (Pateribelba) ginchiensis Ermilov sp.n.: location 2 (3 ex.). Distribution: Ethiopia.

Metabelba (Pateribelba) glabriseta Mahunka, 1982: locations 3 (11 ex.), 18 (24 ex.). Distribution: Afrotropical.

Metabelbella sp.: 3 (1 ex.).

Cepheusidae

Sadocepheus dhatiwalalensis Ermilov, 2019: location 3 (4 ex.). Distribution: Ethiopia.

Gustaviidae

Gustavia aethiopica Mahunka, 1982: locations 3 (10 ex.), 18 (7 ex.). Distribution: Afrotropical.

Liacaridae

Liacarus paratanzicus Ermilov, Rybalov and Kemal, 2011: location 3 (1 ex.). Distribution: Ethiopia.

Eremobelbidae

Eremobelba tuberculata Mahunka, 1982: locations 3 (2 ex.), 18 (14 ex.). Distribution: Ethiopia.

Heterobelbidae

Heterobelba spumosa Mahunka, 1983: locations 3 (9 ex.), 18 (9 ex.). Distribution: Afrotropical.

Basilobelbidae

Basilobelba gigantea Ermilov, Sidorchuk and Rybalov, 2011: location 3 (11 ex.). Distribution: Ethiopia.

Oppiidae

Afropia brevipila (Mahunka, 1982): locations 3 (11 ex.), 16 (9 ex.). Distribution: Ethiopia.

Arcoppia arborea Ermilov, Sidorchuk and Rybalov, 2010: locations 3 (9 ex.), 18 (12 ex.). Distribution: Ethiopia.

Arcoppia rugosa (Mahunka, 1974): locations 3 (8 ex.), 18 (11 ex.). Distribution: Afrotropical, Hawaii.

Neoamerioppia africana (Kok, 1967): locations 1 (1 ex.), 3 (13 ex.). Distribution: Afrotropical, Sub-Antarctic.

Neoamerioppia extrusa (Mahunka, 1983): location 1 (2 ex.). Distribution: Afrotropical.

Neoamerioppia polygonata (Mahunka, 1982): locations 2 (1 ex.), 3 (24 ex.), 18 (7 ex.). Distribution: Afrotropical.

Paroppia breviseta (Balogh, 1962): location 18 (2 ex.). Distribution: Afrotropical.

Dampfiellidae

Beckiella opposita Mahunka, 1982: locations 3 (1 ex.), 18 (1 ex.), 19 (1 ex.). Distribution: Ethiopia.

Carabodidae

Austrocarabodes (Austrocarabodes) heterosetosus Ermilov, Sidorchuk and Rybalov, 2010: location 3 (7 ex.). Distribution: Afrotropical.

Austrocarabodes (Uluguroides) arboreus Ermilov, Sidorchuk and Rybalov, 2010: locations 3 (29 ex.), 16 (1 ex.), 18 (14 ex.). Distribution: Ethiopia.

Carabodes (Klapperiches) dilatatus Ermilov, Sidorchuk and Rybalov, 2010: locations 3 (2 ex.), 18 (2 ex.). Distribution: Ethiopia.

Carabodes (Klapperiches) pocsi Mahunka, 1983: location 17 (1 ex.). Distribution: Tanzania. New record of the species in Ethiopia.

Tectocephidae

Tectocephus sarekensis Trägårdh, 1910: locations 1 (1 ex.), 3 (1 ex.), 18 (1 ex.). Distribution: Cosmopolitan.

Micreremidae

Micreremus sp.: location 1 (2 ex.). Remarks. The specimens are similar to *Micreremus africanus* Balogh, 1963 but has no transverse “lines” on the prodorsum (vs. with lines).

Phenopelopidae

Eupelops acromios (Hermann, 1804): location 18 (1 ex.). Distribution: Semicosmopolitan.

Eupelops pocsi Mahunka, 1983: location 19 (1 ex.). Distribution: Afrotropical.

Eupelops torulosus (Koch, 1839): location 3 (6 ex.). Distribution: Palaearctic, Ethiopia.

Ceratozetidae

Melanozetes paramollicomus Bayartogtokh, Ermilov, Shtanchaeva and Subías, 2021: location 1 (10 ex.). Distribution: Ethiopia.

Humerobatidae

Humerobates africanus (Mahunka, 1984): location 3 (1 ex.). Distribution: Afrotropical.

Caloppiidae

Zetorchella arsiensis Ermilov, 2023: location 3 (1 ex.). Distribution: Ethiopia.

Zetorchella rugosa (Mahunka, 1992): location 17 (1 ex.). Distribution: Senegal. New record of the species in Ethiopia.

Scheloribatidae

Muliercula bilineata Mahunka, 1986: location 2 (1 ex.). Distribution: Afrotropical.

Scheloribates discifer Balogh, 1959: location 17 (1 ex.). Distribution: Afrotropical.

Scheloribates fimbriatus Thor, 1930: location 3 (4 ex.). Distribution: Pantropical, Subtropical.

Scheloribates maximus Balogh, 1962: locations 1 (1 ex.), 3 (10 ex.). Distribution: Afrotropical.

Scheloribates cf. *pallidulus* (Koch, 1841): locations 1 (3 ex.), 3 (6 ex.), 16 (2 ex.), 17 (2 ex.), 19 (5 ex.). Distribution: Cosmopolitan.

Scheloribates (Bischeloribates) lizelhugoe Ermilov and Rybalov, 2013: location 1 (1 ex.). Distribution: Afrotropical.

Scheloribates (Perscheloribates) crassisetosus (Ermilov, Rybalov and Franke, 2011): location 3 (18 ex.). Distribution: Ethiopia.

Similobates demetorum Mahunka, 1982: locations 3 (16 ex.), 18 (6 ex.). Distribution: Ethiopia.

Tuberemaeus sp.: location 1 (2 ex.). Remarks. The specimens are similar to *Tuberemaeus tridactylus* (Balogh, 1959) but have one claw (vs. three claws) on all legs.

Haplozetidae

Protoribates aethiopicus Ermilov and Rybalov, 2013: location 3 (1 ex.). Distribution: Afrotropical.

Vilhenabates giganteus Ermilov and Rybalov, 2012: location 3 (1 ex.). Distribution: Ethiopia.

Zygoribatula josefstaryi Ermilov and Rybalov, 2013: location 1 (1 ex.). Distribution: Ethiopia.

Galumnidae

Allogalumna machadoi (Balogh, 1960): location 19 (1 ex.). Distribution: Paleotropical.

Galumna alata (Hermann, 1804): location 19 (1 ex.). Distribution: Semicosmopolitan.

Galumna incisa Mahunka, 1982: locations 1 (1 ex.), 3 (1 ex.), 18 (8 ex.). Distribution: Afrotropical.

Galumna lanceosensilla Ermilov, Sidorchuk and Rybalov, 2011: locations 1 (1 ex.), 3 (1 ex.). Distribution: Afrotropical.

Taeniogalumna behanae Ermilov, Sidorchuk and Rybalov, 2010: location 1 (1 ex.). Distribution: Ethiopia.

Galumnellidae

Galumnella apiculata Mahunka, 1992: location 3 (1 ex.). Distribution: Afrotropical.

The list includes 58 species belonging to 40 genera and 28 families. One new species (*Pedrocortesella inaequalis*) is reported from the Afrotropical region for the first time; two species—*Carabodes (Klapperiches) pocsi* and *Zetorchella rugosa*—are reported from Ethiopia for the first

time. Of the 55 identified species, 19 species are known only from Ethiopia, 25 are Afrotropical, 1 is Palearctic, 10 are known from more than one geographical region (including 4 Cosmopolitan/Semicosmopolitan species).

TAXONOMY

Metabelba (Pateribelba) ginchiensis Ermilov sp.n.
(Figs. 5–18)

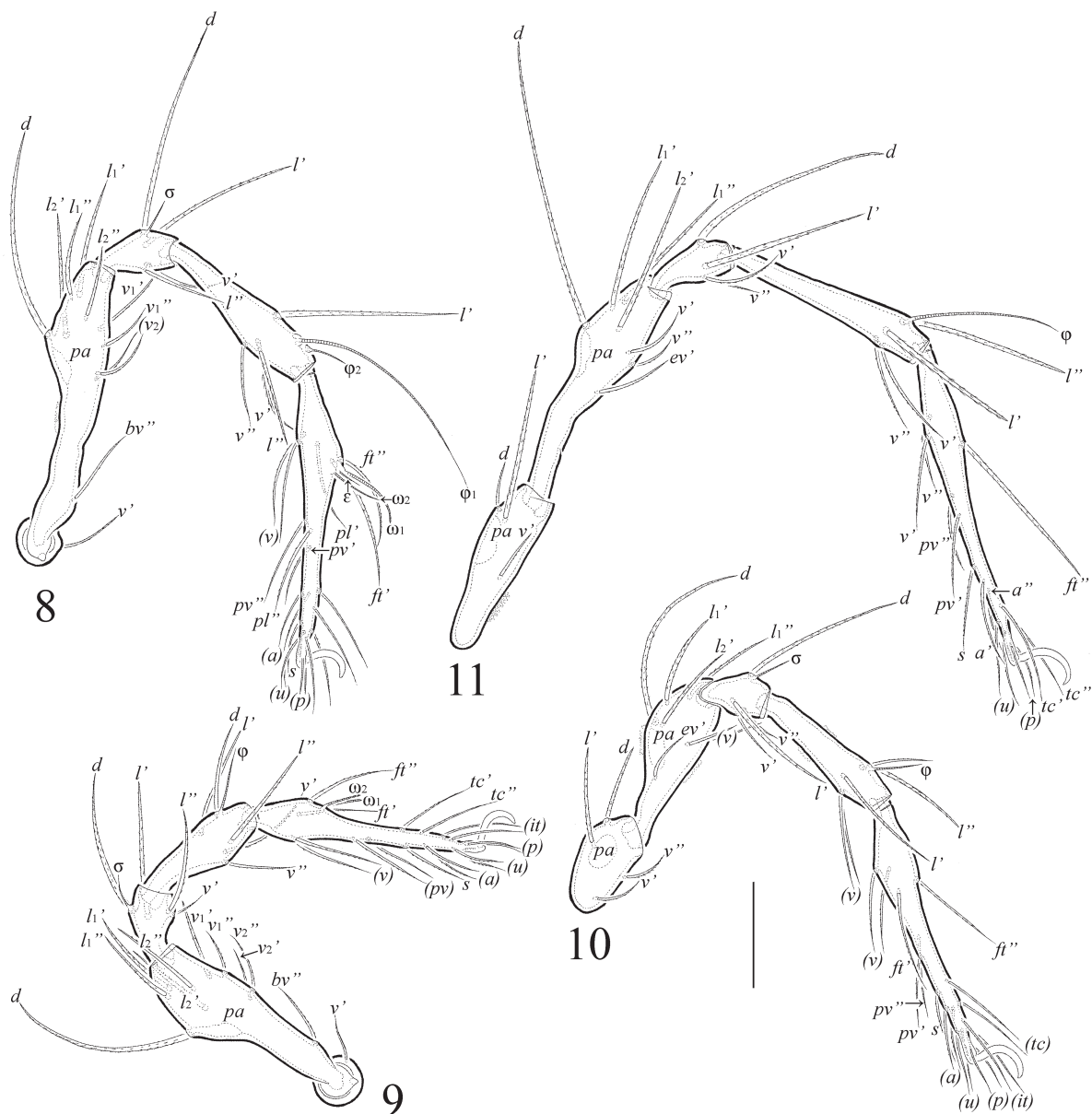
Type material. Holotype (male) and two paratypes (two females): Central Ethiopia, Oromia Region, 5 km NNE of Ginchi, 9°04'14"N, 38°09'

29"E, 2,441–2,584 m a. s. l., Chilimo forest, sifted tree mosses (three samples) in a mixed deciduous forest, 15 October 2022 (A. V. Tanasevitch). The holotype is deposited in the collection of the Senckenberg Museum of Natural History, Görlitz, Germany; two paratypes are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia. All specimens are preserved in 70% solution of ethanol with a drop of glycerol.

Diagnosis. *Adult.* Body length: 780–840. Body cerotegument represented by bacilliform structures. Propodolateral apophysis and laterosejugal enan-



Figs. 5–7. *Metabelba (Pateribelba) ginchiensis* Ermilov sp.n., adult (legs omitted): 5—dorsal view; 6—ventral view; 7—right lateral view. Scale bar—200 μm.



Figs. 8–11. *Metabelba (Pateribelba) ginchiensis* Ermilov sp.n., adult: 8—leg I, right, antiaxial view; 9—leg II, right, antiaxial view; 10—leg III, left, antiaxial view; 11—leg IV, left, antiaxial view. Scale bar—100 μ m.

tiophysis absent; prodorsobasal enantiophysis represented by simple tubercles *Da* and *Dp*; postbothridial enantiophysis represented by simple tubercle *Ba*. Rostral seta long, setiform, roughened; lamellar seta long, slightly thickened, acuminate, barbed; interlamellar seta long, rod-like, barbed; bothridial seta medium-sized, narrowly lanceolate barbed. Twelve pairs of notogastral setae developed (c_3 present); setae c_3 , p_2 and p_3 comparatively short, setiform, roughened; other setae long, narrowly thorn-like, barbed. Ventral enantiophyses *E2*, *V* and *M* absent; parastigmatic tubercles large, *Sa* broadly tubercle-like, *Sp* quadrangular. Discidium trian-

gular. Leg II shorter than body length; legs I, III and IV longer than body length. Formulas of leg segments (I–IV): femur 10–10–7[or 8]–7[or 8]; genu 4–4–4–4; tibia 4–5–5–4; and tarsus 20–17–17–14.

Description of adult. Measurements. Body length: 780 (holotype, male), 795, 840 (two female paratypes); notogastral width: 540 (holotype), 525, 585 (two female paratypes).

Integument. Color medium brown in preserved mature adults. Cerotegument conspicuous on body and legs, represented by dense bacilliform structures; setae usually without cerotegument. Procucticle indistinctly microtuberculate.



Figs. 12–18. *Metabelba (Pateribelba) ginchiensis* Ermilov sp.n., adult, microscope images: 12—dorsal view; 13—right lateral view; 14—coupling seta *d* and solenidion on leg genu I; 15—coupling seta *d* and solenidion on leg tibia I and genu I; 16—coupling seta *d* and solenidion on leg tibia III; 17—coupling seta *d* and solenidion on leg genu III; 18—free solenidion on leg tibia IV.

Prodorsum. Rostrum broadly rounded. Propodolateral apophysis absent. Prodorsobasal enantiophysis *D* present, tubercles *Da* and *Dp* simple; postbothridial enantiophysis represented by simple tubercle *Ba*, tubercle *Bp* absent but indistinct thickenings present instead it; laterosejugal enantiophysis (*L*) absent. Rostral seta (105–120) setiform, roughened; lamellar seta (120–135) slightly thickened, acuminate, barbed; interlamellar seta (124–142) rod-like, barbed; bothridial seta (94–110) narrowly lanceolate, slightly barbed; exobothridial seta (52–64) setiform, roughened; alveolar vestige of second exobothridial seta poorly observable behind insertion of exobothridial seta.

Notogaster. Exuvial scalps absent. In dorsal aspect, notogaster nearly circular; in lateral aspect, notogaster uniformly hemispherical, with maximum height in the middle. Twelve pairs of noto-

gastral setae developed (c_3 present); setae c_3 (52–82), p_2 and p_3 (52–67) setiform, roughened; other setae (p_1 : 82–90; others: 142–161) narrowly thorn-like, barbed; distance c_1 – c_1 shorter than c_1 – c_2 ; dorsal notogastral setae (c_2 , *l*- and *h*-series) directed in two parallel rows (not inserted in uniformly curving, semicircular row). Opisthonotal gland opening and all notogastral lyrifissures distinct in transmitted light.

Gnathosoma. Typical for Damaeidae (e.g., Ermilov *et al.* 2024). Subcapitulum size: 180–195×116–131; subcapitular setae (*a*, *h*: 56–64; *m*: 60–71) setiform, roughened; both adoral seta (22–26) setiform, smooth. Palp length: 142–150; formula: 0–2–1–3–9(+ ω); solenidion appressed to surface; postpalpal seta (9) spiniform, roughened. Chelicera length: 180–195; seta *cha* (56–60) setiform, barbed; *chb* (41–45) unilaterally shortly ciliate in mediodistal part.

Epimeral and lateral podosomal regions. Epimeral enantiophysis *E2*, ventrosejugal enantiophysis *V* and mediosejugal enantiophysis *M* absent. Parastigmatic tubercle *Sa* large, broadly tubercle-like; *Sp* large, quadrangular. Epimeral setal formula: 3–1–3–4; setae (*1a*, *1c*, *2a*, *3a*: 41–49; others: 52–64) setiform, roughened. Discidium triangular.

Anogenital region. Anogenital setal formula: 6–1–2–3; genital (52–64), aggenital (52–64), anal (41–64) and adanal (52–64) setae setiform roughened. Adanal lyrifissure oblique, distinct.

Legs. Leg II shorter than body length; legs I, III and IV longer than body length; approximate length of leg segments shown in Table 1. Claw of each tarsus smooth. Porose area on femora I–IV and on trochanters III and IV distinctly visible. Formulas of leg setation and solenidia: I (1–10–4–4–20) [1–2–2], II (1–10–4–5–17) [1–1–2], III (4–7[or 8]–4–5–17) [1–1–0], IV (3–7[or 8]–4–4–14) [0–1–0]; homology of setae and solenidia indicated in Table 2; famulus emergent; some setae on all tibiae, genua and femora long, thick.

Etymology. The species name *ginchiensis* refers to the place of origin—the vicinities of the town of Ginchi.

Remarks. The new species differs from the other species of the subgenus in having lanceolate bothridial (vs. flagellate or setiform) seta and a well developed (vs. not developed) notogastral seta c_3 .

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REFERENCES

- Mahunka, S. 1982. Oribatids from the Eastern Part of the Ethiopian Region (Acari) I. *Acta Zoologica Academiae Scientiarum Hungaricae*, 28(3–4): 293–336.
- Miko, L., Mourek, J. and Ermilov, S.G. 2014. Taxonomy of African Damaeidae I. *Metabelba (Pateribelba) centurion* sp. nov. from Ethiopia and redescription of *Metabelba (Pateribelba) glabriseta*. *International Journal of Acarology*, 40(7): 519–534. <https://doi.org/10.1080/01647954.2014.951686>
- Mourek, J., Miko, L. and Bernini, F. 2011. Taxonomy of European Damaeidae (Acari: Oribatida) IV. Partial revision of *Metabelba* Grandjean, 1936 with proposal of one new subgenus, one new species and redescription of two known species. *Zootaxa*, 3099(1): 1–42. <https://doi.org/10.11646/zootaxa.3099.1.1>
- Norton, R.A. 1977. A review of F. Grandjean's system of leg chaetotaxy in the Oribatei (Acari) and its application to the family Damaeidae. In: D.L. Dindal (Ed.). *Biology of Oribatid Mites*. SUNY College of Environmental Science and Forestry, Syracuse, pp. 33–61.
- Norton, R.A. and Behan-Pelletier, V.M. 2009. Suborder Oribatida. Chapter 15. In: G.W. Krantz and D.E. Walter (Eds.). *A Manual of Acarology*. Texas Tech University Press, Lubbock, pp. 430–564.
- Norton, R.A. and Ermilov, S.G. 2021. Redescriptions of North American *Epidamaeus* (Acari, Oribatida, Damaeidae) species proposed by N. Banks, H.E. Ewing, A.P. Jacot and J.W. Wilson. *Zootaxa*, 5021(1): 1–65. <https://doi.org/10.11646/zootaxa.5021.1.1>
- Subías, L.S. 2022. Listado sistemático, sinonímico y biogeográfico de los ácaros oribátidos (Acari-formes: Oribatida) del mundo (excepto fósiles). *Monografías Electrónicas S.E.A.*, 12: 1–538.
- Subías, L.S. 2024. Listado sistemático, sinonímico y biogeográfico de los ácaros oribátidos (Acariformes: Oribatida) del mundo (excepto fósiles), 19^a actualización: 1–545. Retrived Jan. 2024, from http://bba.bioucm.es/cont/docs/RO_1.pdf
- Subías, L.S., Ermilov, S.G., Shtanchaeva, U.Ya. and Rybalov, L.B. 2021. Additions to the oribatid mite fauna (Acari, Oribatida) of Ethiopia, with remarks on some species of Galumnidae. *Acarina*, 29(1): 11–16. <https://doi.org/10.21684/0132-8077-2021-29-1-11-16>

Oribatid mites of Ethiopia

Table 1. Leg mean lengths (micrometers) and their ratio to body mean length of one paratype (with length 795) *Metabelba (Pateribelba) ginchiensis* Ermilov sp.n.

Leg	<i>Tr</i>	<i>Fe</i>	<i>Ge</i>	<i>Ti</i>	<i>Ta</i>	<i>All</i>	Leg : body length
I	30	292	71	176	281	850	1.07
II	30	217	71	142	210	670	0.84
III	142	187	71	146	292	838	1.05
IV	187	217	71	187	330	992	1.24

Note: The portion inserted in more proximal segment is not included.

Table 2. Development of leg setation of adult *Metabelba (Pateribelba) ginchiensis* Ermilov sp.n.

Leg	<i>Tr</i>	<i>Fe</i>	<i>Ge</i>	<i>Ti</i>	<i>Ta</i>
I	v'	$d, (l_1), (l_2), bv'', (v_1), (v_2)$	$(l), v', d\sigma$	$(l), (v), \varphi_1, \varphi_2$	$(ft), (tc), (it), (p), (u), (a), s, (pv), (pl), (v), \varepsilon, \omega_1, \omega_2$
II	v'	$d, (l_1), (l_2), bv'', (v_1), (v_2)$	$(l), v', d\sigma$	$(l), (v), d\varphi$	$(ft), (tc), (it), (p), (u), (a), s, (pv), (v), \omega_1, \omega_2$
III	$d, l', (v)$	$d, (l_1), l_2', l_2''^*, ev', (v)$	$l', (v), d\sigma$	$(l), (v), d\varphi$	$(ft), (tc), (it), (p), (u), (a), s, (pv), (v)$
IV	d, l', v'	$d, (l_1), l_2', l_2''^*, ev', (v)$	$d, l, (v)$	$(l), (v), \varphi$	$ft'', (tc), (p), (u), (a), s, (pv), (v)$

Note: Roman letters refer to normal seta; Greek letters refer to solenidia (except ε —famulus); single quotation mark (') designates setae on the anterior, and double quotation (")—setae on the posterior side of a given leg segment; parentheses indicate addition of both members of a pseudosymmetrical pair; juxtaposition of seta d with solenidion indicates coupling; *seta l_2'' on trochanters III and IV absent or present.