

New and little known oribatid mites from Madagascar (Acari: Oribatida), IV

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Abstract: Continuously studied and newly identified oribatids from Madagascar (Malagasy Republic) are given. Altogether 14 species are listed and discussed originating from several sites of the island. Nine species of them are new to science and some other were known only from other territories. Four species are recorded from Madagascar for the first time. With 11 figures.

Keywords: Moss mites, taxonomy, new species, new distributions, Repoblikan'i Madagasikara.

INTRODUCTION

Present contribution is a continuation of our earlier endeavours (Mahunka 2009a, 2009b, 2009c, 2010, 2011, or much earlier Mahunka 1994) to elaborate the oribatid fauna of Madagascar. Our main aim and final goal are to compile a monograph on this very rich and peculiar fauna. The richness of this fauna is so high that requires much more investigation than planned beforehand. To achieve this goal, it is important to examine even more not yet completely studied soil samples, or samples, that haven't been studied yet.

For this reason we continue the examination of some interesting soil samples which were collected in different parts of Madagascar by first of all Dr. T. Pócs, the Hungarian bryologist and by collectors of the Musée d'Histoire naturelle de Genève (mainly Dr. B. Hauser) and recently also by the Hungarian collector Dr. Cs. Csuzdi. This part comprises mainly the species that were collected in Antsiranana and Tomasine Province by Dr. T. Pócs, in Ambohitra Region by Dr. Cs. Csuzdi and Nosy Be or Tamateve Province by Dr. B. Hauser.

In this most recent work we give a list of 14 species belonging to different oribatid families, with the exception of Oppiidoidea superfamily,

which will be published later. Of them, ten species are new to science: *Cosmochthonius margaritatus*, *Hermanniella vohimana*, *Austrocarabodes planisetus*, *Carabodes afrominusculus*, *Pseudotocepheus subtilis*, *Microlamellarea coetzeae*, *Africoribates nasalis*, *Peloribates pocsi*, *Heteroleius flagellifer* and *Tuberemaes puruczkyi* spp. nov. and four, viz. *Cosmochthonius semiareolatus* Hammer, 1966, *Nodocepheus baloghi* Mahunka, 1983, *Tectocepheus minor* (Berlese, 1903) and *Licneremaes polygonatus* Hammer, 1971, are recorded for the first time in Madagascar.

As in our earlier papers, we follow the system of Norton & Behan-Pelletier (2009) and Subías (2004, 2011), and besides we also use some work, which was mentioned in our works on this theme (Mahunka. 2010, 2011). Similarly to our previous publications in the descriptions the morphological terminology follows the already mentioned publication of Norton and Behan-Pelletier (2009), Weigmann (2006), Woas (2002) and Mahunka and Zombori (1985).

The material examined is deposited in the Hungarian Natural History Museum, Budapest (HNHM), and some paratypes and voucher specimens in the Musée d'Histoire naturelle de Genève (MHNG).

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LOCALITIES

Afr – 857: Madagascar, Central Plateau: Ambohitantely Forest Reserve, E of Manonkazo village (Ankaszabz town). Relic xerophyllous (dry evergreen) plateau forest at 1500–1530 m alt. Leg. T. Pócs. 5–6 Sept. 1994 (No. 9444).

Afr – 859: Madagascar, Nosy Mangabe Island in Antongil Bay S of Maroantsetra town. Mesic lowland rainforest on the W-slope at 100–300 m alt. 13. September, 1994. Leg. T. Pócs (No. 9450).

Afr – 917: Madagascar, Antsiranana Province, Nosy Komba Island. Submontane rainforest remnants in the NW valley of Antaninaomby summit with tree ferns and with *Mariatta fraxinea*, at 570–580 m alt. 29. July, 1998. Leg. T. Pócs. (no. 9862).

Afr – 921: Madagascar, Toamasina Province, Mananara Nord Biosphere Reserve and National Park. Lowland rainforest on the E slopes of Mahavofo Hill (very wet types along Manahovo River, with many tree ferns, palms and *Pandanus* spp., less humid on slopes) at 220–300 m alt. 16°27'S, 49°46.9–47.5'E. Date: 14–15. August 1998. Leg. T. Pócs. (No. 9878).

Afr – 923: Madagascar, Toamasina Province. Maromizaha forest. Mossy montane rainforest with bamboo (*Nastus* sp.) undergrowth on the summit ridge of Mt. Maromizaha, south of the Andasibe Nat. Park and the Antananarivo Toamasina road, 2 km W of Anevoka village, at 1080–1214 m alt. 18°57.8'S, 48°27.5'E. Date: 26. August 1998. Leg. T. Pócs (No. 9890).

Afr - 996: Madagascar, Vohimana Reserve, primary forest. 17. April 2008. Leg. Cs. Csuzdi.

Mad-89/3: Madagascar, Tamatave Moramanga: Analamazotra special reserve (Perinet) before Andasibe, primary forest with dominating *Ravensara* sp. (Lauraceae). 1020 m. 21. November 1989. Leg. B. Hauser.

LIST OF THE NEWLY IDENTIFIED SPECIES

COSMOCHTHONIIDAE Grandjean, 1947

Cosmochthonius margaritatus sp. nov.

Cosmochthonius semiareolatus Hammer, 1966
Locality: Afr – 921.

HERMANNIELLIDAE Grandjean, 1934

Hermanniella vohimana sp. nov.

NODOCEPHEIDAE Piffel, 1972

Nodocepheus baloghi Mahunka, 1983
Locality: Afr – 859, first record for Madagascar.

CARABODIDAE C. L. Koch, 1835

Austrocarabodes planisetus sp. nov.

Carabodes afrominusculus sp. nov.

OTOCEPHEIDAE Balogh, 1961

Pseudotocepheus subtilis sp. nov.

TECTOCEPHEIDAE Grandjean, 1954

Tectocepheus minor (Berlese, 1903)

Locality: Afr – 996. First record for Madagascar.

LAMELLAREIDAE Balogh, 1972

Microlamellarea coetzeeae sp. nov.

HUMEROBATIDAE Grandjean, 1970

Africoribates nasalis sp. nov.

LICNEREMAEIDAE Grandjean, 1931

Licneremaeus polygonatus Hammer, 1971

Locality: Afr. 917. First record for Madagascar.

HAPLOZETIDAE Grandjean, 1936

Peloribates pocsii sp. nov.

SCHELORIBATIDAE Grandjean, 1953

Heteroleius flagellifer sp. nov.

Tuberemaeus puruczkyi sp. nov.

DESCRIPTIONS

Cosmochthonius margaritatus sp. nov.

(Figures 1a–1f)

Diagnosis. Body surface covered by irregular cerotegument. Rostral apex conical, rostral fenestration with longitudinal position, mostly narrow foveolae ordered in two rows. Prodorsal surface with polygonal sculpture consists of small tubercles, like pearl lines. Rostral setae comparatively bent inwards. Sensillus typical for the genus, narrow. Posterior margin of prodorsum characteristically undulate. Notogastral surface partly with polygonal pattern, partly irregularly punctate. Sixteen pairs of notogastral setae, among

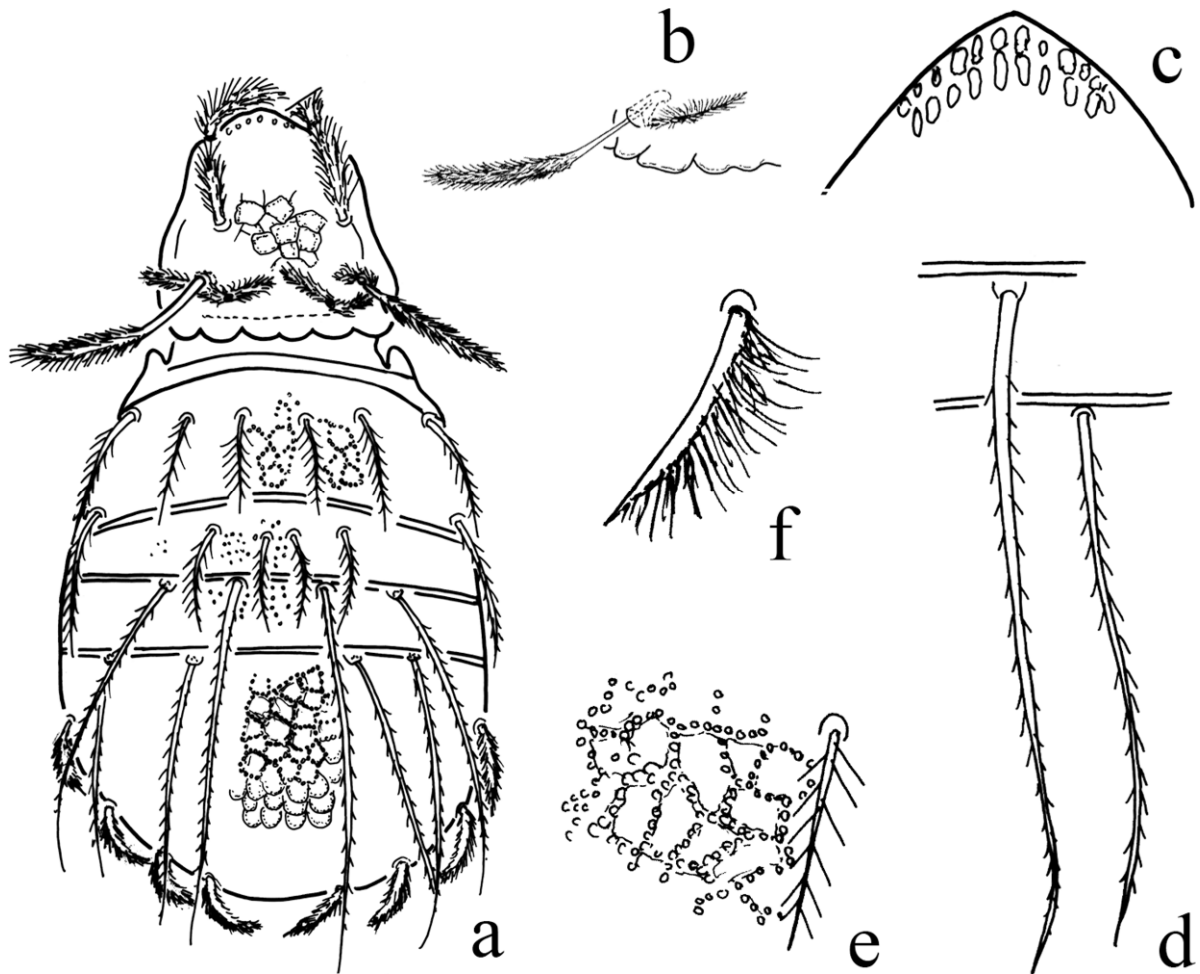


Figure 1. *Cosmochthonius margaritatus* sp. n. a = body in dorsal view, b = basal part of prodorsum, c = rostrum
d = notogastral setae, e = aculpture of notogaster, f = pygidial setae

them anterior setae (*c* and *d*) with long bristles, setae *e* and *f* with shorter ones. Setae *d* located far from the scissure. Epimeral setal formula: 3 – 2 – 3 – 3. Genitoanal setal formula: 10 – 4 – 4. Claws number of legs I – IV: 2 – 3 – 3 – 3.

Material examined. Holotype: Republic of Madagascar, Toamasina Province. Maromizaha forest. 26. August 1998. Leg. T. Pócs (9890) (Afr-923). Holotype (1831-HO-11) deposited in the HHM.

Measurements. Length of body: 297 µm, width of body: 157 µm.

Prodorsum. Rostrum wide in dorsal view, conical in anterior view. Rostral fenestration well developed, mostly with elongated alveoli, located

in two rows. Rostral cerotegument with irregular pattern anteriorly, some angular formation basally. Rostral setae bent inwards, comparatively long. Lamellar setae conspicuously wide, paint-brush-shape. Sensillus long, without dilate distal part. Posterior margin of prodorsum with characteristic, undulate margin.

Notogaster. Sixteen pairs of notogastral setae, setae *c* and *d* with long bristles. Setae of segments *NM*₂ and *PY* bearing long setae, they reaching well over the posterior margin. Setae of segment *e* and *f* bearing shorter bristles than the anterior segments.

Ventral parts. Epimeral setae conspicuously long, curved irregularly, bearing long cilia. Geni-

toanal setation is typical for the genus, 6 pairs of genital setae arising along the inner margin of genital plates. Anal and adanal setae with conspicuously long cilia.

Legs. Number of claws: 2 – 3 – 3 – 3.

Remarks. On the basis of the characteristically undulate “collar” margin of prodorsum the new species is closest to *Cosmochthonius foliatus* Subias, 1982. However, the pattern of the notogaster consists of angular and smaller alveoli in the new species (smaller and round in *foliatus*), and they are absent from segments NM₁ and NM₂, (present in *foliatus*). The setae *d*₁ and *d*₂ are located far from the scissure (very near in *foliatus*). The pattern of this species on the segment PY much rather similar to *C. reticulatus* Grandjean, 1947 than the *foliatus* (see Penttinen & Gordeeva 2005), however the undulate posterior margin of prodorsum is absent in *reticulatus* and present in *foliatus* and in the new species..

Etymology. The species name refers to the sculpture consisting of different size of alveoli on the body surface.

***Cosmochthonius semiareolatus* Hammer, 1966**

(Figures 2a–d)

Diagnosis. Body surface covered by thin cerotegument. Rostral apex conical in dorsal view, with well developed rostral fenestration, consists of large foveolae ordered in one row. Prodorsal surface ornamented with large rounded alveoli, between the distances smaller than the diameter of alveoli. Rostral setae wide, paint-brush-shape, other setae much thinner. Sensillus typical for the genus, its head slightly dilate. Posterior margin of prodorsum simply convex. Alveoli of segment Na hardly observable and weaker than alveoli of prodorsum, alveoli in segment Py also smaller and their distance similar to their distance. Sixteen pairs of notogastral setae, among them setae *e* and *f* bearing conspicuously short bristles or cilia.

Measurements. Length of body: 259 µm, width of body: 162 µm.

Remarks This specimens from Madagascar well identifiable with the Hammer’s species and belongs to the “*semiareolatus*” species group. Some characteristic features, like the large prodorsal and smaller pygidial alveoli, the great difference in size of setae *d* and the shape of sensillus well outline/define? this species group. I suppose that some other species are very closely related or synonymous to this group, like *Cosmochthonius ponticus* Gordeeva, 1980, or *C. semifoveolatus* Subias, 1982.

***Hermanniella vohimana* sp. nov.**

(Figures 3a–e)

Diagnosis. Hermannielloid habitus, whole body surface covered with cerotegument layer, consisting of granules. Rostrum widely rounded, prodorsum convex. Bothridia far from each other, sensillus very long slightly dilated distally. Rostral setae awl-shaped, lamellar and interlamellar setae setiform, distinctly barbed. Notogastral surface ornamented by minute dots, they longer than wide. Notogastral setae varying in length and shape, all finely barbed, setae *p*₁ and *h*₁ thinner than the others. All epimeral setae slightly dilated, spiniform, finely roughened. Epimeral setal formula: 3 – 1 – 2 – 3. Seven pairs of genital setae present, 5 of them in a single row, 2 pairs removed from the inner margin and 1 pair much longer than the others. Lyrifissures *iad* in preanal position, located transversally. Setae *ad*₁ much longer than the anal and adanal setae.

Material examined. Holotype: Republic of Madagascar, Vohimana Reserve, primary forest. 17. April 2008. Leg. Cs. Csuzdi (Afr – 996). 3 paratypes from the same sample. Holotype (1832-HO-11) and 2 paratypes (1832-PO-11) deposited in HMHM, 1 paratype in MHNG.

Measurements. Length of body: 571–598 µm, width of body: 340–367 µm.

Prodorsum. Rostrum rounded, rostral setae arising laterally, sharply pointed, smooth distally, finely roughened basally. Bothridia located far from each other, strongly protruding from prodorsal surface. Sensillus setiform slightly dilated distally, distinctly barbed. Lamellar and interla-

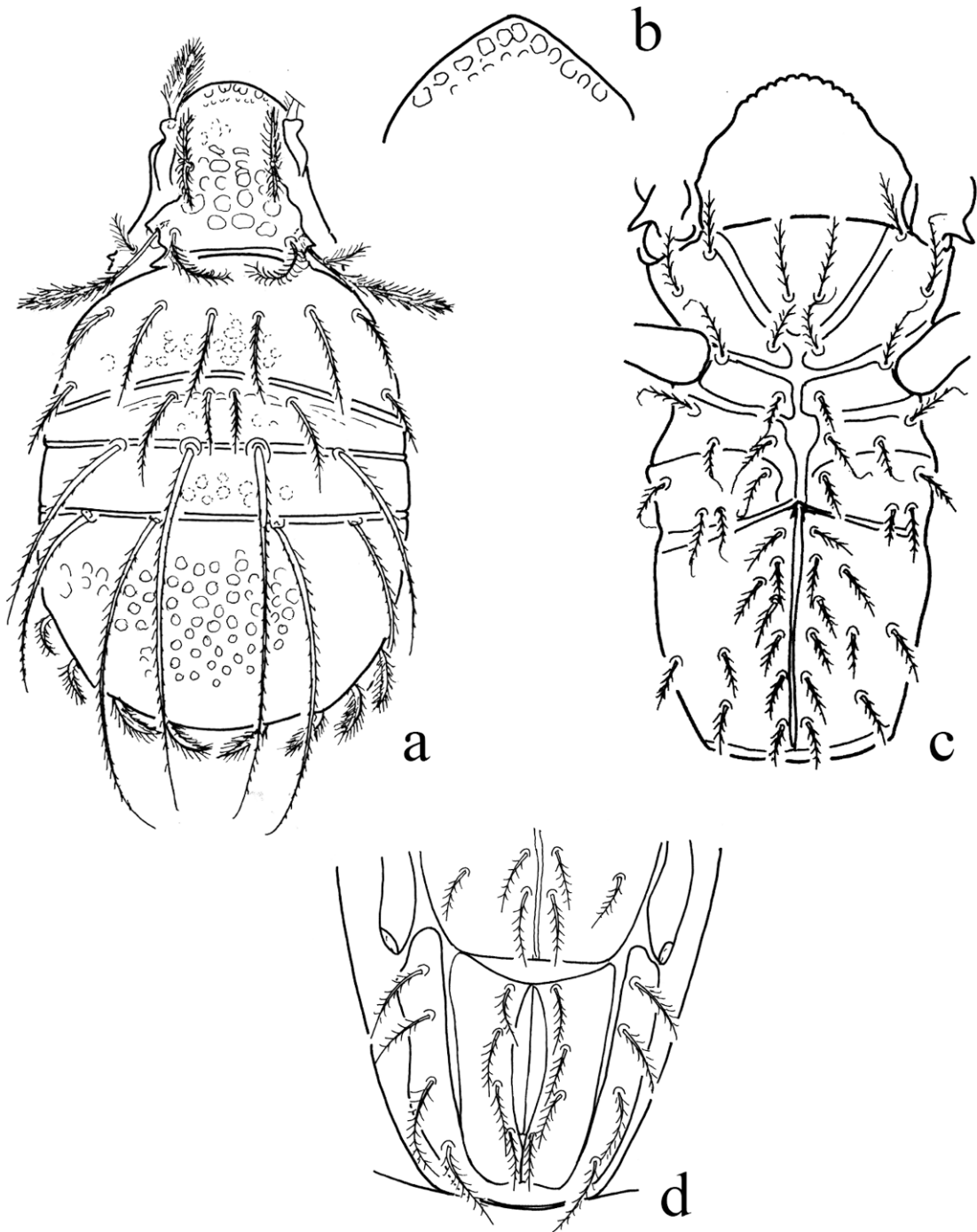


Figure 2. *Cosmochthonius semiareolatus* Hammer, 1966. a = body in dorsal view, b = rostrum, c = epimeral and genital region, d = anal region

mellar setae setiform, also barbed, slightly shorter than sensillus. Exobothridial setae minute, arising at the basis of bothridium.

Lateral part of podosoma. Prodorsum distinctly convex, with anterior transversal depression.

Notogaster. Distinct, but partly ragged cerotegument layer present. Surface with very small characteristic, elongate dots. Notogastral tubes well developed, narrow. Sixteen pairs of notogastral setae present, they well variable in length and thickness. All setae distinctly barbed, setiform or bacilliform, setae p_1 and h_1 conspicuously thinner than the others

Ventral parts. Apodemes comparatively short, epimeral surface covered by cerotegument granules. Epimeral setae mostly spiniform, epimeral setal formula: 3 – 1 – 3 – 3. Seven pairs of spiniform genital setae, 5 pairs arising nearer to inner margin than others. One pair among the latter 2 pairs much larger than the inner pairs. Adanal setae of different lengths, ad_1 being the longest, ad_3 the shortest. Lyrifissures *iad* located transversally, in front of the anal opening.

Remarks. Owing to the shape of the notogastral setae, especially the setae p_1 and h_1 , it may be distinguished from all the heretofore known other *Hermanniella* species.

Etymology. The species name refers to the sculpture consisting of different foveolae on the body surface.

***Austrocarabodes planisetus* sp. nov.**

(Figures 4a–e)

Diagnosis. Rostrum convex. Lamellae and translamella well developed, lamella with distinct apex, translamella wide. Rostral setae conspicuously long and narrow, lamellar setae with serrated dorsal margin, interlamellar setae narrow, similar to rostral setae. Lamellar surface smooth, interlamellar surface with round pustules. Sensillus short, with dilate and recurved distal end. Humeral process small. Notogastral surface covered by pustules, ordered in irregular rows. Fourteen pairs of small, slightly phylliform, comparatively short, mostly blunt notogastral setae present, all nearly equal in length and well barbed with median rib. Apodemes and borders well visible, sejugal one with a characteristic median formation medially. Epimeral surface smooth.

Epimeral setae partly long (e. g. *1b*, *3b*, *4b*, *4c*); partly minute (e.g. *1a*, *2a*, *3a*). Epimeral setal formula 3 – 1 – 2 – 3. All setae - except adanal setae simple setiform.

Measurements. Length of body: 421–540 μm , width of body: 254–346 μm .

Material examined. Holotype: Republic of Madagascar, Antsiranana Provincie, Nosy Komba Island. 29. July 1998. Leg. T. Pócs. (9862) (Afr-917). 5 paratypes from the same sample. Holotype (1833-HO-11) and 3 paratypes (1833-P0-11) deposited in HNHM, 2 paratypes in MHNG.

Prodorsum. Rostrum rounded, convex. Lamellae and translamella well developed, their surface smooth. Lamellar cusp short, its basal part narrowed, inner margin concave. Lamellar setae short, with serrated outer margin. Lamellar and interlamellar setae much longer than the other dorsal setae, conspicuously narrow, slightly dilated anteriorly. Their surface with minute bristles, basal surface roughened. Sensillus short, with dilate, slightly curved backward, densely barbed.

Lateral part of podosoma. Tutorium bifurcate anteriorly.

Notogaster. Anterior margin slightly convex. Humeral apophysis small, with straight lateral margin. Surface covered by granules or pustules located in irregular order, sometimes they compose an irregular polygonal pattern. Fourteen pairs of narrow, slightly bent, bacilliform notogastral setae, all nearly equal in size and barbed. All setae with median ribs. They distal end blunt at tip.

Ventral parts. Epimeral region with well developed structure, but apodemes and epimeral borders not compose a connected network. Sternal apodemes reduced anteriorly, and widen out in sejugal region to apodemes 4. In this part with a median quadrangular formation observable. Length of epimeral setae differs. Genital, aggenital and anal setae simple, thin, comparatively long. Adanal setae slightly dilate, similar to notogastral setae.

Remarks: The new species is well characterised by the narrow and long rostral and interlamellar setae, by the notogastral sculpture

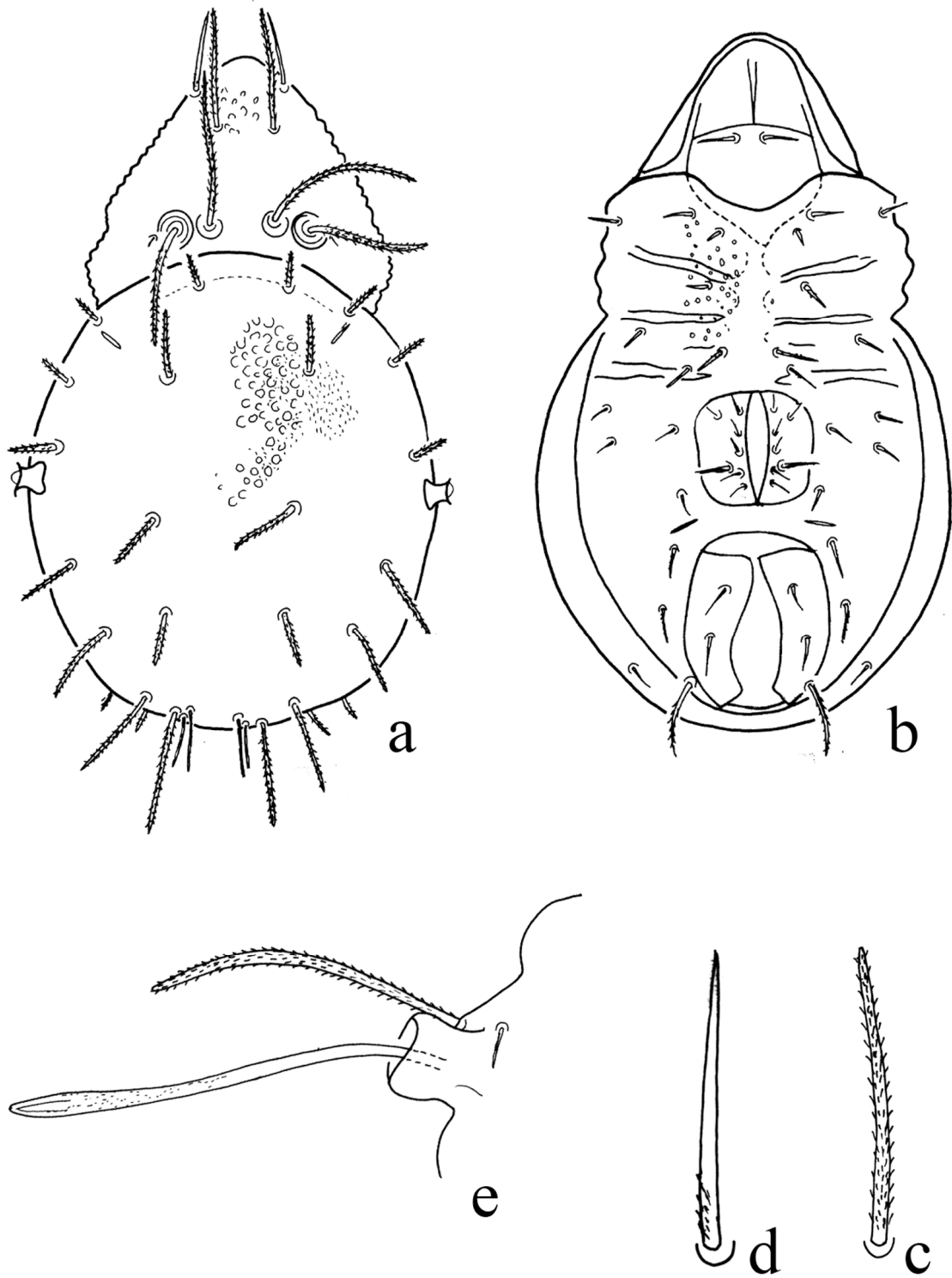


Figure 3. *Hermanniella vohimana* sp. n. a = body in dorsal view, b = body in ventral view, c = lamellar setae
d = rostral setae, e = trichobothrium

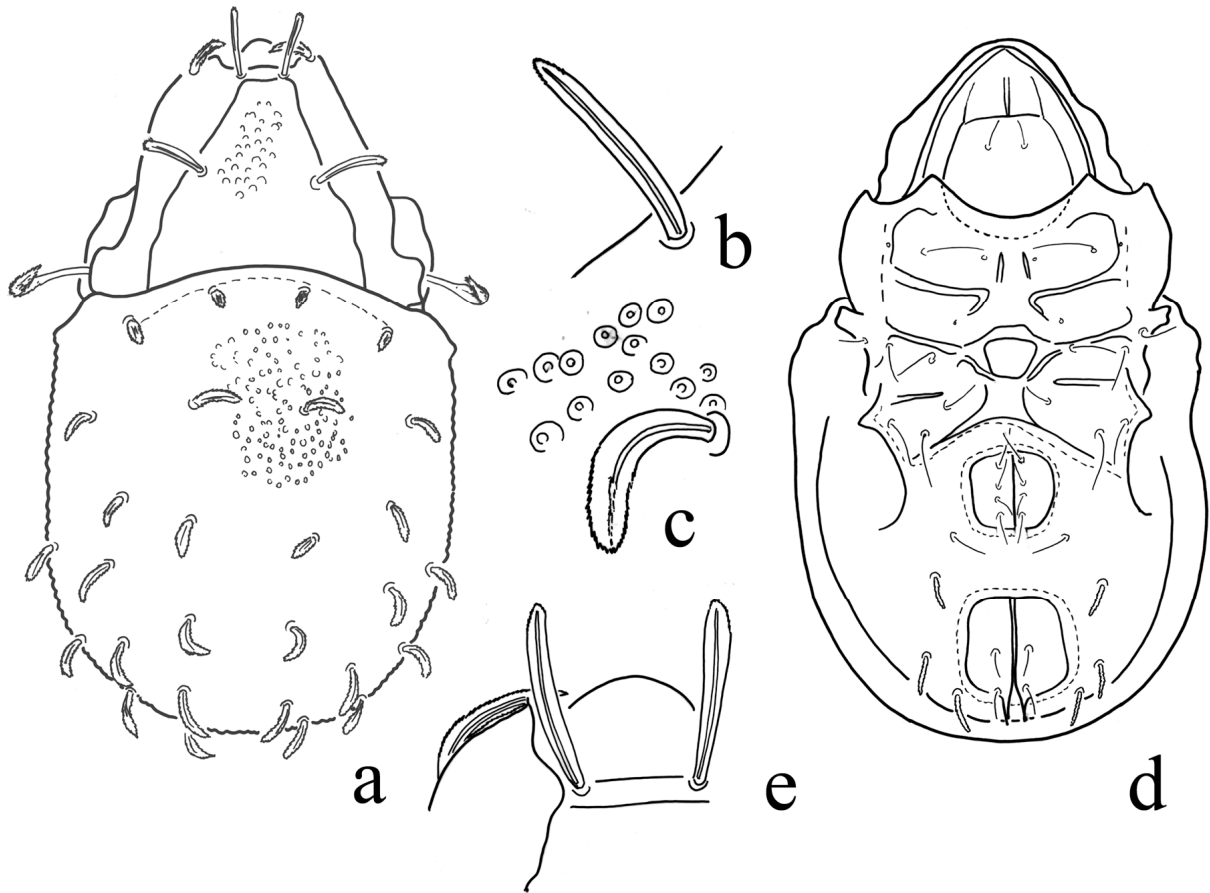


Figure 4. *Austrocarabodes planisetus* sp. n. a = body in dorsal view, b = interlamellar seta, c = notogastral setae, d = body in ventral view, e = rostral part of prodorsum

and the characteristic median formation in the sejugal region. Its notogastral sculpture resembles to *A. parapustulatus* Mahunka, 2009 species, however the other characters are quite different.

Etymology. The species name refers to the shape of the rostral and interlamellar setae.

***Carabodes afrominusculus* sp. nov.**

(Figures 5a–c)

Diagnosis. Rostral apex widely rounded. Lamellae narrow simple, their surface smooth. Interlamellar region ornamented by large foveolae. Lamellar setae slightly thicker and longer than the rostral setae, interlamellar setae minute, arising on the interlamellar surface. Sensillus dilate medially, curves backwards. Anterior margin of the

notogaster with a row consists of pustules like the surface of notogaster. Pustules are distinctly smaller than the prodorsal pustules. Ten pairs of minute notogastral setae. Epimeral region ornamented by foveolae in different size, ventral plates with larger pustules. Genitoanal setal formula: 4 – 1 – 2 – 3. Genital plates with some longitudinal lines, anal plates punctuate. All ventral setae minute.

Material examined. Holotype: Republic of Madagascar, Plateau: Ambohitantely Forest Reserve, E of Manonkazo village (Ankasabz town). Leg. T. Pócs. 5–6 Sept. 1994 (No. 9444). Holotype (1834-PO-11) deposited in HNHM.

Measurements. Length of body: 296–304 μm , width of body: 162–168 μm .

Prodorsum. Gradually narrowed anteriorly. Rostral part widely rounded, rostral and interlamellar surface ornamented with large foveolae. Lamellae narrow, with small apices, smooth. No essential difference among prodorsal setae, only lamellar setae slightly thicker and longer than the rostral ones. Interlamellar setae shortest of all, arising near to lamellae on interlamellar surface. Sensillus curved backwards and upwards, distal part thicker than basal part, all part well ciliate.

Lateral part of podosoma. Tutorium weakly developed, this part distinctly foveolate.

Notogaster. Anterior A small humeral apophysis present. Anterior margin slightly convex, covered by distinct pustules, like the whole surface. Pustules located very near to each other, or touching. Ten pairs hardly visible, minute notogastral setae, setae *c* slightly longer than others.

Ventral parts. Subcapitulum punctate, epimeral surface ornamented by different size of small or larger foveolae. Epimeral region weakly sclerotised. Sternal apodema hardly observable, *ap. 4* strongest of all, with long part run longitudinally, directed backwards. Epimeral setae minute, hardly visible, no essential difference among them. Setae of the genitoanal region also short, minute, their setal formula 4 – 1 – 2 – 3. Some setae only as insertion point observable.

Remarks. The herein described species, on the basis of the main characters belongs to the “*minusculus*” species group. On the basis of prodorsal and notogastral sculpture stands very close to *C. pulcher* Bernini, 1976, however, differs from it and from the other species of this group by the extremely short interlamellar and notogastral setae.

Etymology. The species name refers to its relationship, which was unknown from the Ethiopian Region.

***Pseudotocepheus subtilis* sp. nov.**

(Figures 6a–d)

Diagnosis. Body surface ornamented mostly with very fine, diversified large and shape foveolae. Rostral part wide, rounded. Lamellae arched medially, convergent. Rostral, lamellar and interlamellar setae setiform, exobothridial setae mi-

nute, hardly observable. Rostral setae longest, interlamellar setae shortest of all. Sensillus long, its head narrow, fusiform, ending in a short, curved setiform hook. Median prodorsal condyle present, connected by a transversal crest. Dorsosejugal margin of notogaster nearly straight, lateral condyle well visible. Ten (11 on other side) notogastral setae present, setae *c* curved, all others straight. Excepting spiniform, short setae *h*₁, all others nearly equal in length. Epimeral region weakly sclerotised, *ap. 2* and *ap. sej*. Stronger than the others. Genitoanal setal formula 3 – 1 – 3 – 3, genital plates with a pair of longitudinal crest. Adanal setae *ad*₃ located far anteriorly, lyrifissures *iad* in preanal position.

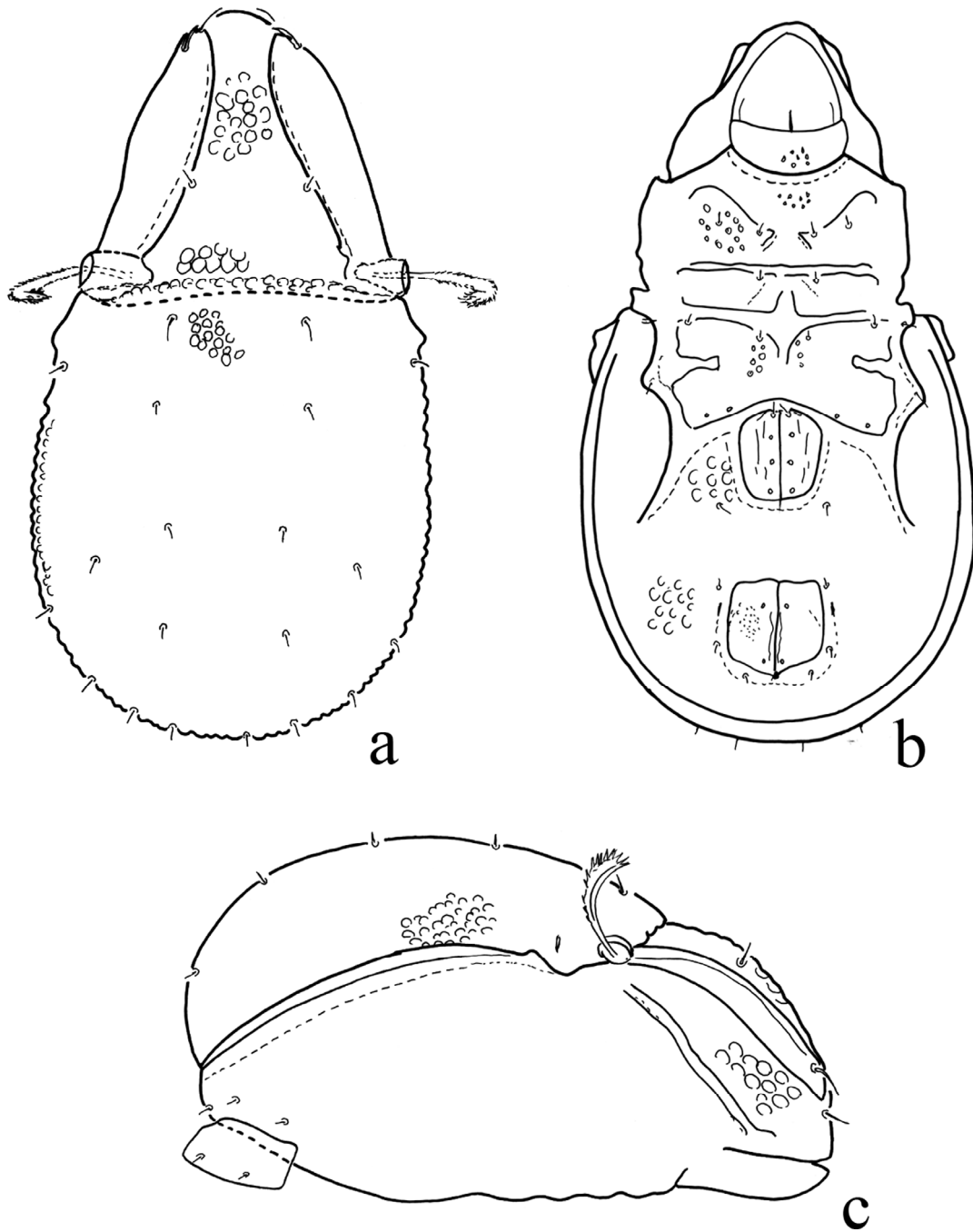
Measurements. Length of body: 570 µm, width of body: 340 µm.

Material examined. Holotype: Republic of Madagascar, Antsiranana Provincia, Nosy Komba Island. 29. July 1998. Leg. T. Pócs. (no. 9862). (Afr-917). Holotype (1835-HO-11) deposited in the HHNM.

Prodorsum. Rostral apex rounded. Lamellae comparatively long, bent inwards, strongly converging anteriorly. Rostral setae arising laterally, interlamellar, lamellar and rostral setae setiform, nearly smooth or slightly roughened, ratio of their length: ro > le > in. Prodorsum with median and lateral condyles, both pairs comparatively small, hardly observable. Sensillus well developed, its head elongate, lanceolate, bearing a characteristic, hook-shaped, setiform distal part. Bothridium opening laterally.

Lateral part of podosoma. Pedotecta I small, acetabulum of leg I partly free. Tutorium weakly developed.

Notogaster. Wide, well rounded in dorsal view. Anterior margin of notogaster slightly concave or straight. Lateral notogastral condyles (humeral projection) well observable, located far from each other. Notogastral surface covered by large foveolae, or irregular spots. Except curved setae *c*, all other notogastral setae straight, only small difference exist among them. Setae *h*₁ much shorter than others, however, well spiniform. Setal number in the two half part differs from each other (10 pairs or 11 pairs).



5. Figure *Carabodes afrominusculus* sp. n. a = body in dorsal view, b = body in ventral view, c = prodorsum in lateral view

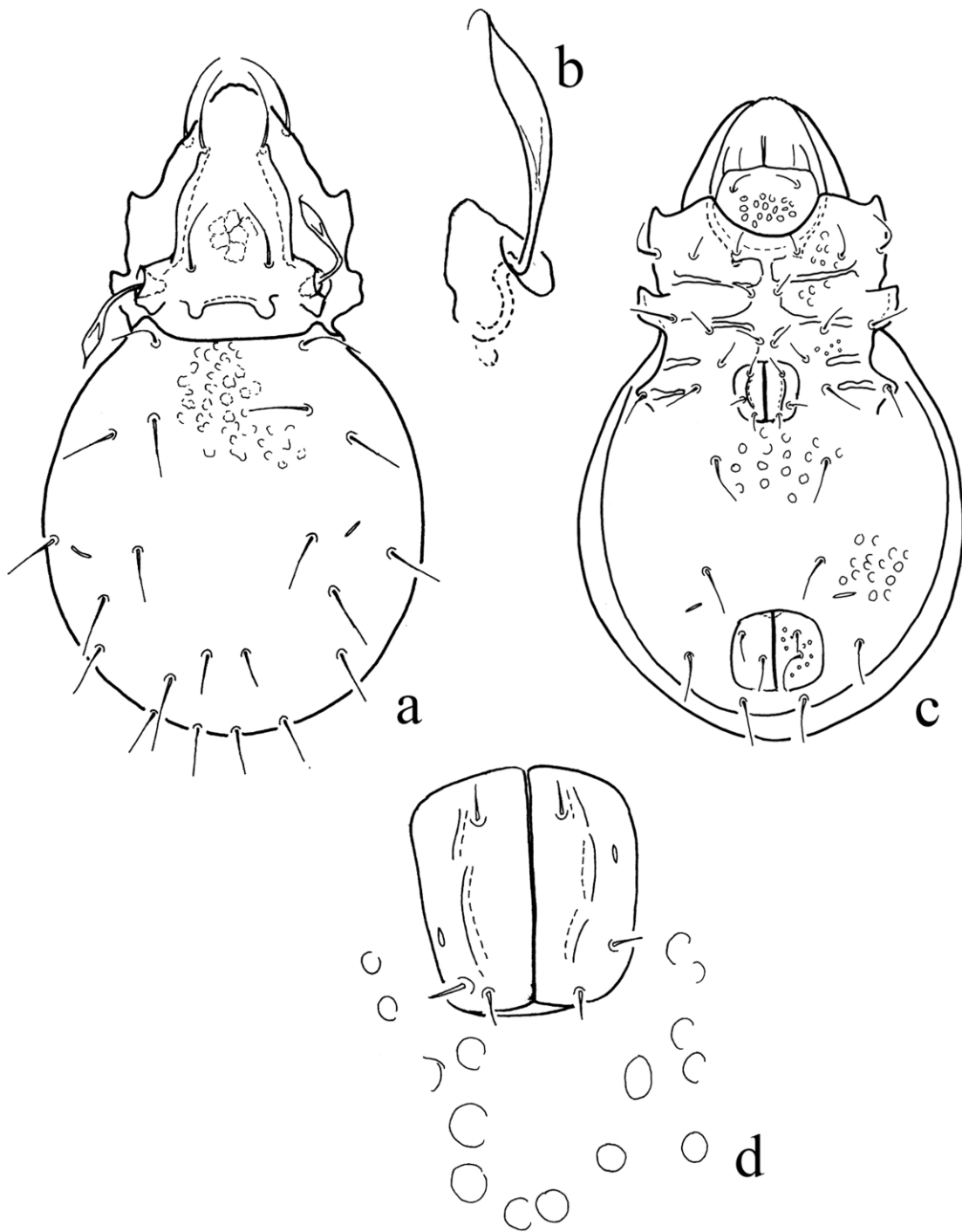


Figure 6. *Pseudotocepheus subtilis* sp. n. a = body in dorsal view, b = sensillus, c = body in ventral view, d = genital region

Ventral parts. Surface of mentum well foveolate. Apodemes and epimeral borders weakly developed, straight. *Ap. 2* and *ap. sej.* much longer than the others. All epimeral setae setiform, well observable, comparatively strong. Epimeral setal formula: 3 – 1 – 3 – 3. Epimeral surface also foveolate, foveolae on this part smaller, than the other parts, e.g. on ventral plate. Genitoanal setal formula: 3 – 1 – 2 – 3. Genital plate with well developed longitudinal crest, anal plates ornamented by small foveolae. Aggenital, anal and adanal setae much longer than the genital ones, among the adanal setae *ad*₁ in postanal, *ad*₃ in preanal position. Lyrifissures *iad* located far from each other, observable in praeanal position

Legs. All leg monodactylous, claws comparatively large and thin. Setae *u* on all legs setiform.

Remarks. The new species belongs to the *Pseudotocepheus medius* (Balogh & Mahunka, 1966) species group, which is well characterised by the absence of median notogastral condyles, the position of lyrifissures *iad* and adanal setae *ad*₃. The new species is closely related to *P. granulatus* (Mahunka, 1985) and *P. sturmi* (P. Balogh, 1984), however, the shape of the sensillus and the sculpture of the body in both species are different from that of the new species.

Etymology. The species name refers to the sculpture consisting of different, finely framed foveolae on the body surface.

***Microlamellarea coetzeeae* sp. nov.**

(Figures 7a–b)

Diagnosis. Rostral part triangular, rostral apex sharply pointed. Lamella with two apices, with deep incisure between them. Outer apex blunt at tip, bearing lamellar setae, inner apex pointed. Rostral setae characteristically curved inwards, interlamellar setae extremely long, extending beyond rostrum. Sensillus widely club-shaped. Two pairs of porose area and nine pairs of short notogastral setae present. Epimeral and ventral plates well framed, ventral plates V-shaped. Genitoanal setae formula: 5 – 1 – 2 – 3. All legs monodactylous.

Material examined. Holotype: Republic of Madagascar, Nosy Mangabe Island in Antongil Bay S of Maroantsetra town. Mesic. 13. September 1994. Leg. T. Pócs (No. 9450.) (Afr-859). 10 paratypes from the same sample. Holotype (1836-HO-11) and 7 paratypes (1836-PO-11) deposited in HNHM, 3 paratypes in MHNG.

Measurements. Length of body: 180–192 µm, width of body: 111–118 µm.

Prodorsum. Anterior part of prodorsum widely triangular, its apex sharply pointed. Rostral setae arising near to the apex, and near to each other. Lamellae characteristically bifurcate, inner cusp slightly curved inwards, outer cusp straight, bearing long lamellar seta. Interlamellar setae extremely long, reaching far over the rostrum, arising on interlamellar surface. Bothridium deeply excavate, well protruding laterally. Sensillus large, its head club-shaped, longer than peduncle.

Lateral part of podosoma. Apex sharply pointed, narrow. Well observable in dorsal, ventral and lateral view

Notogaster. Dorsosejugal scissure distinctly straight. A small humeral apophysis sharp, behind it a part of margin slightly concave. Median part of posterolateral margin with small projection. Two pairs of well observable porose areas and 9 pairs of short simple and straight setae observable on the notogaster.

Ventral parts. Expecting epimeres 3 and *ep. 4* distinctly separated from one another, apodemes included sternal ones well sclerotised, sometimes partly widened, becoming thick. All epimeral setae minute or only their insertion observable. Ventral plate V-shaped and distinctly framed. Genital and anal plates large encircled by a fine margin touching medially. Five pairs of genital setae present, one pair of anal and three pairs of aggenital setae represented by their alveoli only. Lyrifissures *iad* short, hardly observable. Among the adanal setae some indistinct, but its position observable.

Remarks. This is the second species of the genus, which was described from South Africa. It is well distinguishable from the type species (*Microlamellarea engelbrechti* Coetzee, 1987) by the bifurcate lamellae and the distance of them (much greater between them in *engelbrechti*).

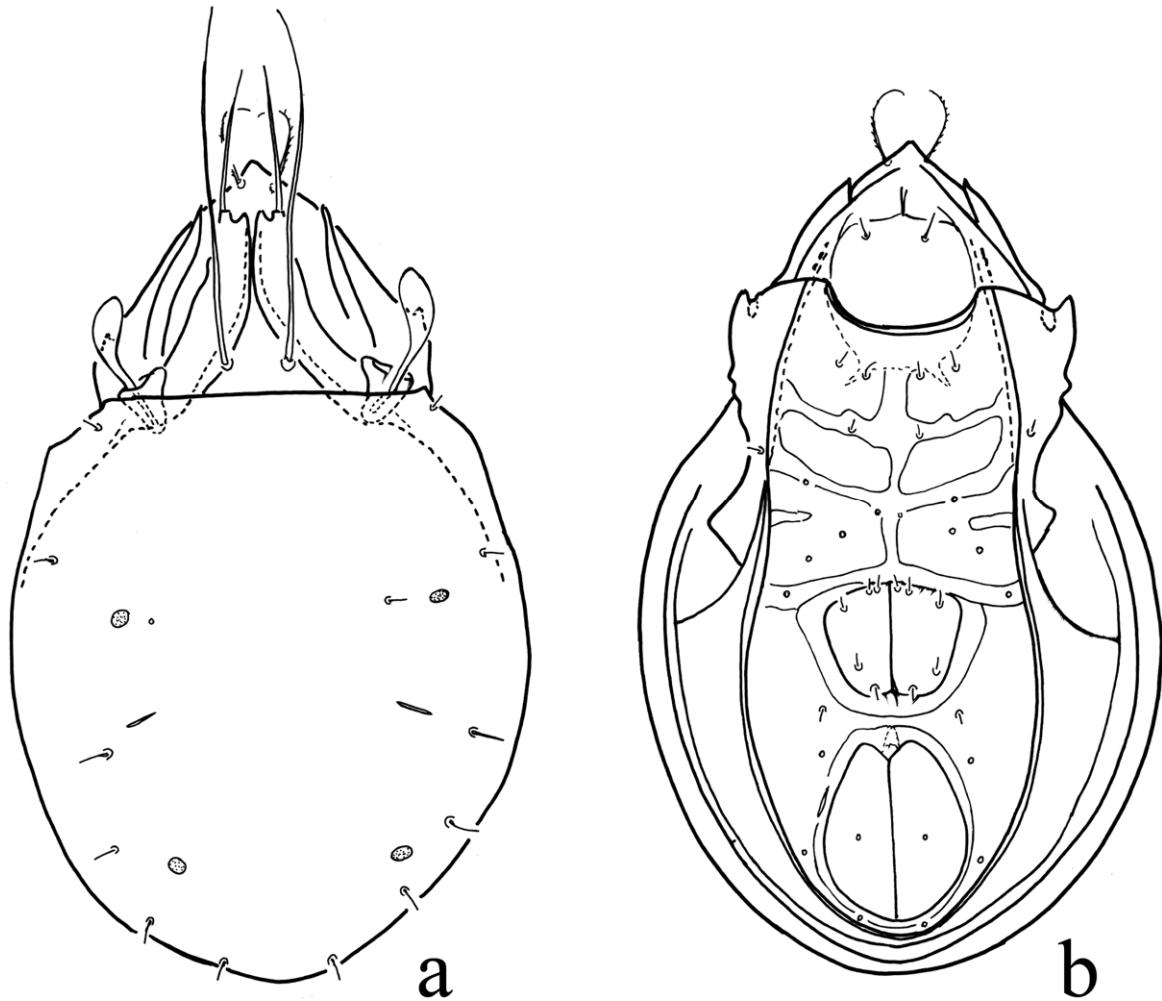


Figure 7. *Microlamellarea coetzeeae* sp. nov. a = body in dorsal view, b = body in ventral view

Etymology. This fine species is dedicated to the author of the genus.

***Africoribates nasalis* sp. nov.**

(Figures 8a–c)

Diagnosis. Rostrum wide, rostral apex slightly nasiform, separated by a small incision. Lamellae well developed, connected by thinner translamella. Lamellar apex very small, lamellar setae arising from the lamellae. Interlamellar setae minute or mostly absent. Peduncle of sensillus long, its head fusiform. Tutorium well developed, with sharply pointed distal end. Anterior margin of notogaster convex, pteromorphae large, tongue-shaped. Ten pairs of notogastral setal alveoli and

4 pairs rounded porose areas present. Coxisternal region weakly sclerotised, epimeral setae minute, mostly represent only heir alveoli. Discidium triangular, custodium with sharply pointed distal apex. Genitoanal setal formula: 6 – 1 – 2 – 3. Genital setae minute, all other setae in the ventral and anal plate like to epimeral setae. Postanal area porose minute. All legs tri and heterodactylous.

Material examined. Holotype: Republic of Madagascar, Antsiranana Provincia, Nosy Komba Island. 29. July, 1998. Leg. T. Pócs. (no. 9862). (Afr – 917). 2 paratypes from the same sample. 1 paratype: Vohimana reserve, primary forest. 17. 04. 2008. Leg. Cs. Csuzdi (Afr – 996). Holotype (1837-HO-11) and 2 paratypes (1837-PO-11) deposited in the HNHM, 1 paratype in MHNG.

Measurements. Length of body: 378–400 µm, width of body: 265–297 µm.

Prodorsum. Rostral apex slightly protruding anteriorly, it separated from the lateral part of prodorsum by short and small u-shaped incisure. They observable clearly in lateral view. Lamellae short, convergent, translamella between them narrower than lamellae. Lamellar cusp very small, hardly observable. Rostral setae unilaterally pilose, lamellar setae longer than rostral ones. Interlamellar setae minute, very thin or completely absent, only their alveoli observable. Peduncle of sensillus conspicuously long, waved, its head fusiform, distinctly barbed.

Lateral part of podosoma. Tutorium well developed, large and long, its distal end triangular, sharply pointed. Rostral setae arising on the prodorsal surface. Pedotectum I large.

Notogaster. Anterior margin of notogaster convex, well observable. Pleurophragma large triangular, dorsophragma small, rounded. Pteromorpha large, its surface with some lines. All notogastral setae reduced, only ten pairs of setal alveoli visible. Four pairs of prose areas present, no larger difference among them.

Ventral parts. Anterior margin of mentum convex. Coxisternal region weakly sclerotised, only very short part of apodemes and thin epimeral borders visible. All epimeral setae represent by their alveoli only, alveoli of setae 2a minute, hardly or obscurely visible. Discidium and custodium present well developed, circumpedal carina thin, short, ending far from the lateral margin of ventral plate. Genital setae short, 2 pairs arising along the anterior margin of plates. Anal and adanal setae also reduced, all three pairs of adanal setae arising behind the lyrifissures, in post- and paraanal position. A minute postanal porose area present, hardly visible.

Legs. All legs tridactylous, median claws large, lateral ones smaller and much thinner, than the median claw. Anterior part of genu I and II with large, triangular apophysis.

Remarks. On the basis of the development of interlamellar setae and the notogastral sculpture the genus *Africoribates* Evans, 1953 is divided into two species groups. One of them has reduced

or absent interlamellar setae with a well distinct sculpture, the other has a well developed interlamellar setae and/or a well developed pattern of notogaster. The new species belongs to the first group, its interlamellar setae minute or absent, and the notogastral surface completely smooth. Other characteristic is the length of notogastral or ventral setae. On this basis the new species stands nearest to *Africoribates luteus* (Hammer, 1967), however, the species described from New Zealand is smaller, and its translamella thinner and no has a nasiform rostral apex.

Etymology. The species epithet refers to the form of nasiform rostral apex.

***Peloribates pocsi* sp. nov.**

(Figures 9a–c)

Diagnosis. Rostral part very wide, its apex rounded. Lamellae simple, straight. Bothridium well protruding, sensillus setiform, very long, distinctly pilose. All prodorsal setae rarely pilose. Anterior margin of notogaster convex, pteromorpha ear-shaped, partly separated by a distinct incisure. Thirteen pairs of very long, setiform and thin notogastral setae and 4 pairs of long sacculi present. All notogastral setae with fine pilose. Apodemes and epimeral borders typical for this genus, all epimeral setae very short. Discidium normal, custodium with very short, distinct distal apex. Circumpedal carina well developed. Genitoanal setal formula 5 – 1 – 2 – 3. All minute or represent their alveoli only. All legs tridactylous.

Material examined. Holotype: Republic of Madagascar, Plateau: Ambohitantely Forest Reserve, E of Manonkazo village (Ankasabz town). Leg. T. Pócs. 5–6 September 1994 (No. 9444). (Afr -859). Holotype (1838-HO-11) deposited in the HNHM.

Measurements. Length of body: 422 µm, width of body: 366 µm.

Prodorsum. Very wide, its apex rounded. Surface smooth, lamellae normal, run distinctly laterally. All setae on the prodorsum very long

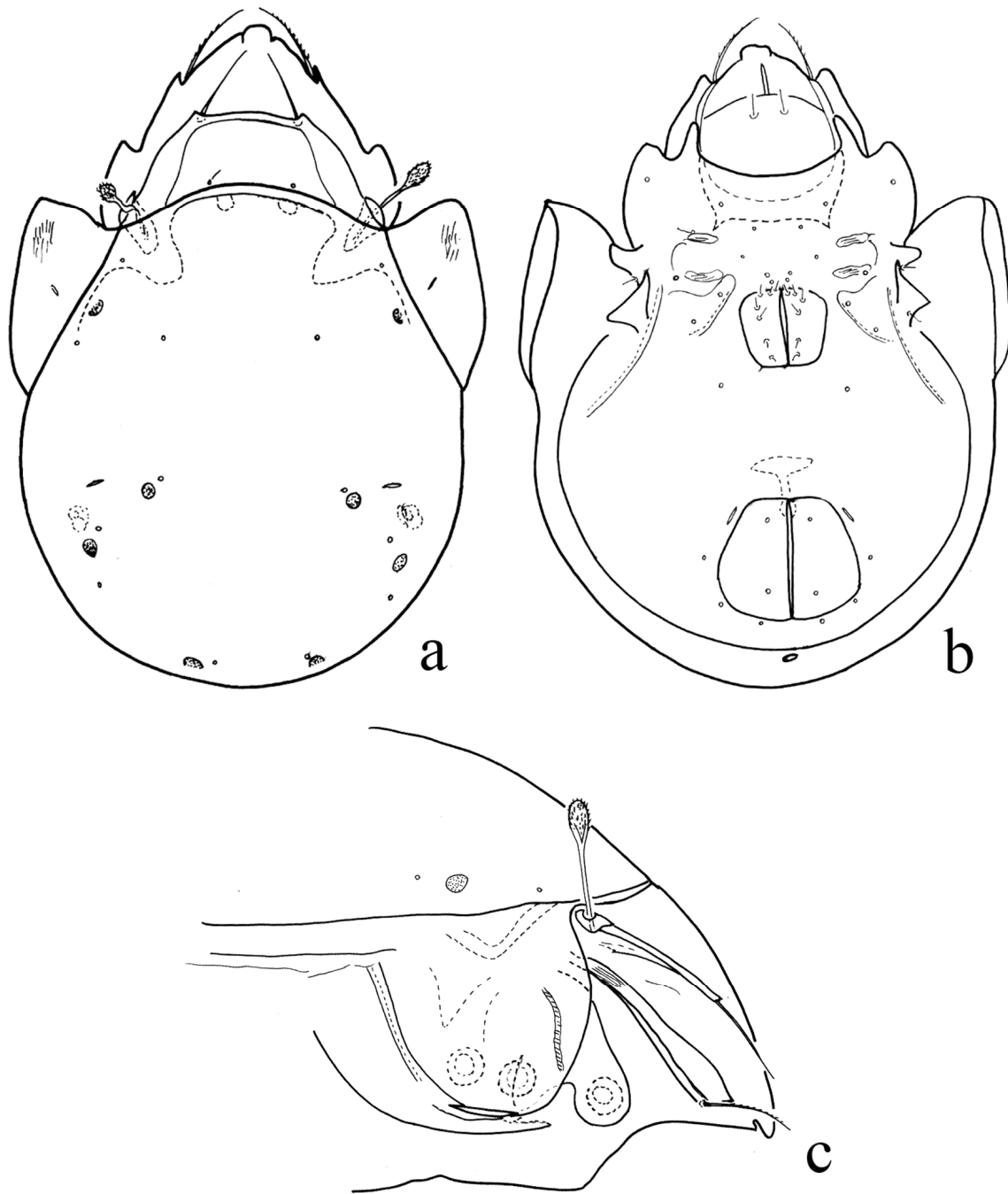


Figure 8. *Africoribates nasalis* sp. nov. a = body in dorsal view, b = body in ventral view, c = prodorsum in lateral view

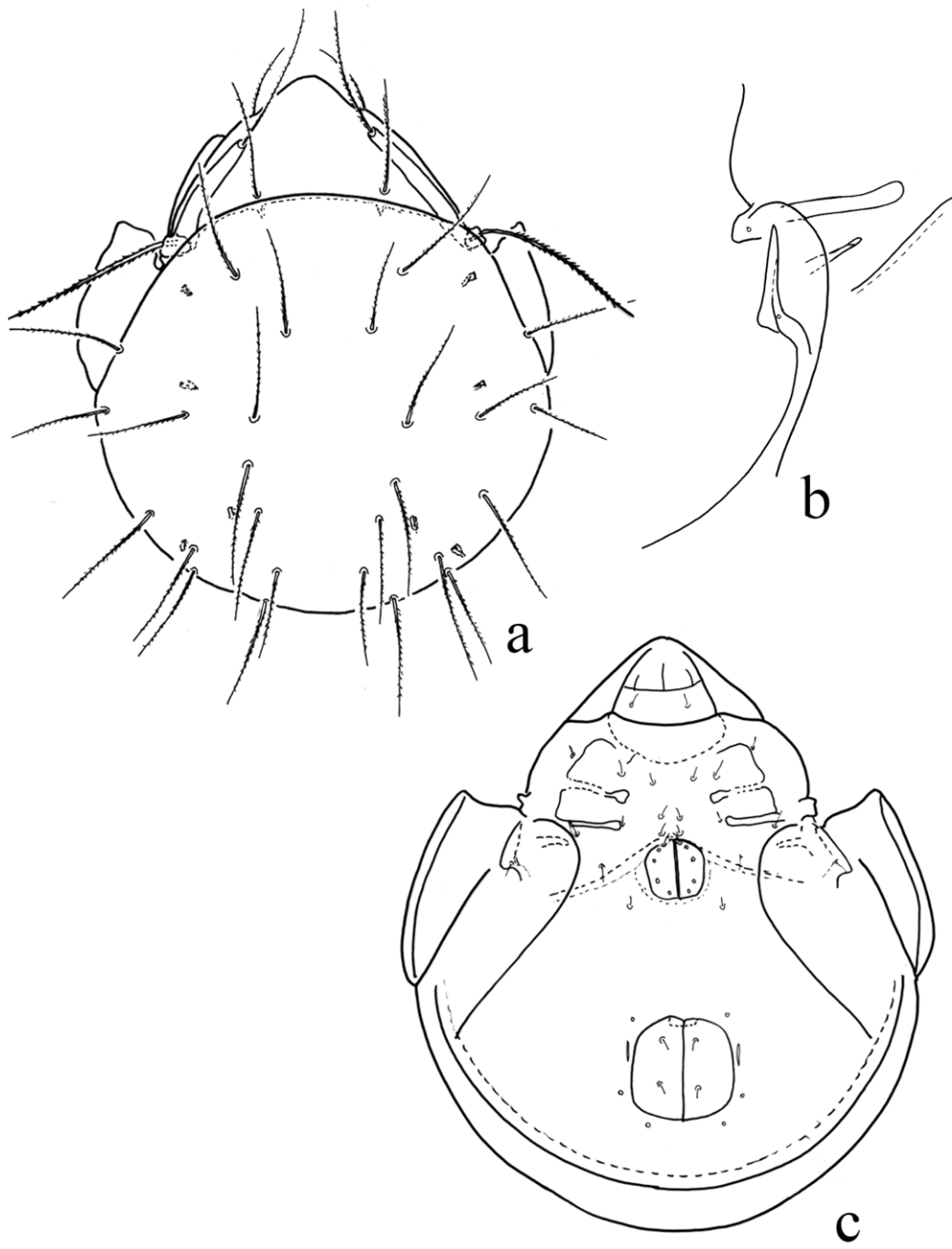


Figure 9. *Peloribates pocsi* sp. nov. a = body in dorsal view, b = custodium c = body in ventral view

and thin, rostral setae much shorter than lamellar setae bent backwards. Lamellar setae longer than interlamellar ones, all three pairs with long cilia, in sparsely position. Sensillus characteristically long, setiform, distinctly barbed.

Lateral part of podosoma. Rostrum beak-shaped in lateral view. Prolamella absent, a very weak, short sublamella observable. Tutorium well developed, without sharp distal apex.

Notogaster. Dorsosejugal scissure complete, convex, well observable. Notogastral surface smooth. Dorsophragma and pleurophragma small. Hardly or only partly observable, narrow. Thirteen pairs of nearly equal in length, mostly straight, conspicuously thin notogastral setae present, all with comparatively long, cilia in sparsely position. Four pairs of small, simple sacculi also present.

Ventral parts. Whole surface smooth. Apodemes and epimeral borders weakly developed, only sejugal apodemes distinct and *ap.* 2 well visible. Apodemes 3 present, however, much weaker than the preceding ones. All epimeral setae minute. Discidium with transversal plate, custodium strong, straight, with sharply pointed apex. Circumpedal carina long, well curved to the lateral margin of the ventral plate. Genitoanal setal formula 5 – 1 – 2 – 3. Genital setae hardly observable, only their insertion observable. Among the adanal setae *ad*₁ in postanal, setae *ad*₃ in preanal position.

Legs. All legs tridactylous.

Remarks. The new species is well characterised by the very thin and long prodorsal and notogastral setae, the smooth surface and by the long, setiform, distinctly barbed sensillus. On this basis it is close to *Acutozetes bornemisszai* J. Balogh et P. Balogh, 1986, however, the legs of *borne-misszai* monodactylous.

Etymology. We dedicate this species to our friend, Tamás Pócs, who collected it.

***Heteroleius flagellifer* sp. nov.**

(Figures 10a–c)

Diagnosis. Prodorsum wide, wider than long. Rostral apex small, rounded. Rostral setae arising

near to each other, on apical surface. Lamellae long, convergent, with broad distinct cusps bearing lamellar setae. Interlamellar setae longer than other setae of body. Sensillus size very characteristic, its head asymmetrically fusiform, knee-shaped, and directed backwards. Dorsosejugal scissure distinct. Pteromorph small, slightly angular. Notogastral surface rarely foveolate, 12 pairs of very fine, often flagellate notogastral setae and 4 pairs of small, rounded sacculi present. Apodemes and epimeral borders – excepting with posterior one – well developed, compose a connected network. Discidium broad, custodium with short and small cusp. Epimeral setae short, setae *3a* minute, arising very near to each other. Genitoanal setal formula: 3 – 1 – 2 – 3. Genital and aggenital setae minute or very short, setae *ad*₁ and *ad*₂ longer than other ventral setae. All legs tridactylous.

Material examined. Holotype: Republic of Madagascar, Prov. Tamatave; 3. November 1989; leg. B. Hauser (Mad-89/3), 5 paratypes from the same sample. 2 paratypes: Antsiranana Province, Nosy Komba Island. 29. July 1998. Leg. T. Pócs. (no. 9862), Afr – 917). Holotype and 4 paratypes deposited in MHNG, 3 paratypes (1839-PO-11) in HNHM.

Measurements. Length of body: 346–378 µm, width of body: 225–254 µm.

Prodorsum. Prodorsum wide, gradually narrowed anteriorly. Rostral part small, widely rounded, bearing rostral setae. Lamellae well developed, a little narrow anteriorly. Lamella cusp comparatively wide bearing lamellar setae. In front of their cusp a very fine transversal line observable. Interlamellar setae longest of all prodorsal setae, rarely ciliate. Sensillus characteristic, knee-shaped, its peduncle short, head fusiform with some minute bristles.

Lateral part of podosoma. Rostral part of prodorsum nasiform, long in lateral view. Prelamella thinner than lamella, sublamella very fine and short. Area porosa *Al* well observable.

Notogaster. Dorsosejugal scissure distinct, well projecting anteriorly. Pteromorph small, scarcely rise from humeral arch, sometimes angu

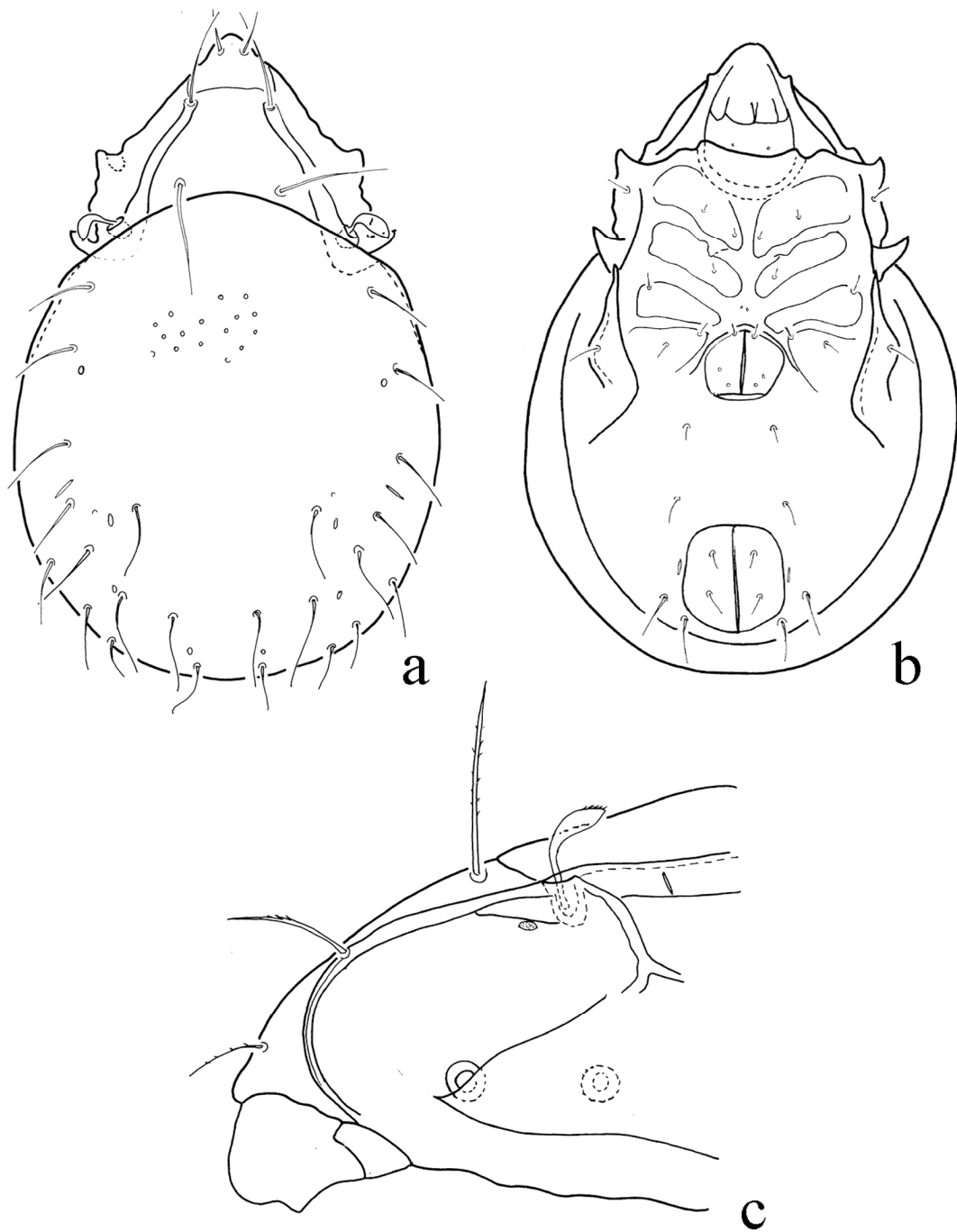


Figure 10. *Heteroleius flagellifer* sp. nov. a = body in dorsal view, b = body in ventral view, c = prodorsum in lateral view

lar in dorsal view. Notogastral surface covered by thin cerotegument, surface ornamented by small foveolae in irregular position. Twelve (?) pairs of very fine, comparatively long, mostly curved or flagelliform notogastral setae. Four pairs of small sacculi present, all rounded, hardly observable.

Ventral parts. Apodemes and borders of the anterior coxisternum well developed, sternal apodemes wide, they and *ap.3* directed to the genital aperture. Epimeral border 4 reduced, not reaching to the circumpedal carina. Epimeral setae short, simple, *4c* longest of all, setae *3a* minute originate medially, very near to each other. Discidium well developed, custodium with a very short cusp, or absent. Circumpedal carina short and indistinct, not reaching to the lateral margin of the ventral plate. Genital and aggenital setae very short or represent only by their insertion. Anal and adanal setae much longer, anal setae and setae *ad*₃ shorter and thinner than the other posterior pairs adanal setae.

Legs. All legs tri- and heterodactylous.

Remarks. The ranging of this species is very problematic. On the basis of the number of genital setae it could be put into the genus *Heteroleius* Balogh et Mahunka, 1966 however, the other features are very different from those in this group. Therefore we put *flagellifer* into this genus provisionally only. The species is well distinguishable from all congeners by the shape of notogastral setation.

Etymology. The species name refers to the size of the notogastral setae.

***Tuberemaeus puruczkyi* sp. nov.**

(Figures 11a–c)

Diagnosis. Rostral part of prodorsum conical. Prodorsal surface ornamented by small, rounded foveolae. Lamellae well developed, prelamella and narrower sublamella present. Rostral setae comparatively long, setiform, lamellar setae also setiform, slightly shorter than preceding ones, interlamellar setae bacilliform, straight, not reaching to the insertion of lamellar setae. Peduncle of

sensillus very short, its head its head asymmetrically dilate, with short bristles its outer margin. Notogaster without pteromorphae, humeral part slightly angular. Surface with different sculpture, anterior part with small, rounded, lateral part larger rounded, posterior part with elongate foveolae. Foveolae on posterior part located much nearer to each other, than them on anterior or median part. Ten pair of short, setiform notogastral setae present, sacculi not clearly observable. Epimeral region well sclerotised, however, apodemes 4 reduced. Sculpture of mentum and epimeres I–III consist of short lines. Setation of ventral plate typical for the genus. Surface of genital plates smooth, anal plates ornamented by elongate foveolae.

Material examined. Holotype: Republic of Madagascar, Toamasina Province. Maromizaha forest. 26. August 1998. Leg. T. Pócs (9878) (Afr-921). Holotype (1840-HO-11) deposited in HNHM.

Measurements. Length of body: 265 µm, width of body: 140 µm.

Prodorsum. Prodorsum narrow, its rostral part conical in dorsal view. Lamellae long, prelamella arched, not thinner than the lamellae. Sublamella weakly developed. Rostral and lamellar setae setiform, interlamellar setae bacilliform. Later setae slightly bunt at tip, thicker than the preceding ones, not reaching to the insertion of lamellar setae. Interlamellar region punctate, or ornamented with small foveolae. Lateral part of prodorsum with larger foveolae. Sensillus very short, its peduncle as long as its head. Sensillus directed laterally, its head asymmetrically spiculate or bristly. End spine slightly longer than bristles of dorsal surface.

Lateral part of prodorsoma. Pedotecta 1 narrow, pedotecta 2 small.

Notogaster. Anterior margin of notogaster well protruding between the bothridium. A small humeral squama observable in lateral view, slightly angular in dorsal aspect. Ten pairs of short and simple setiform notogastral setae present. Notogastral surface ornamented by foveolae, which

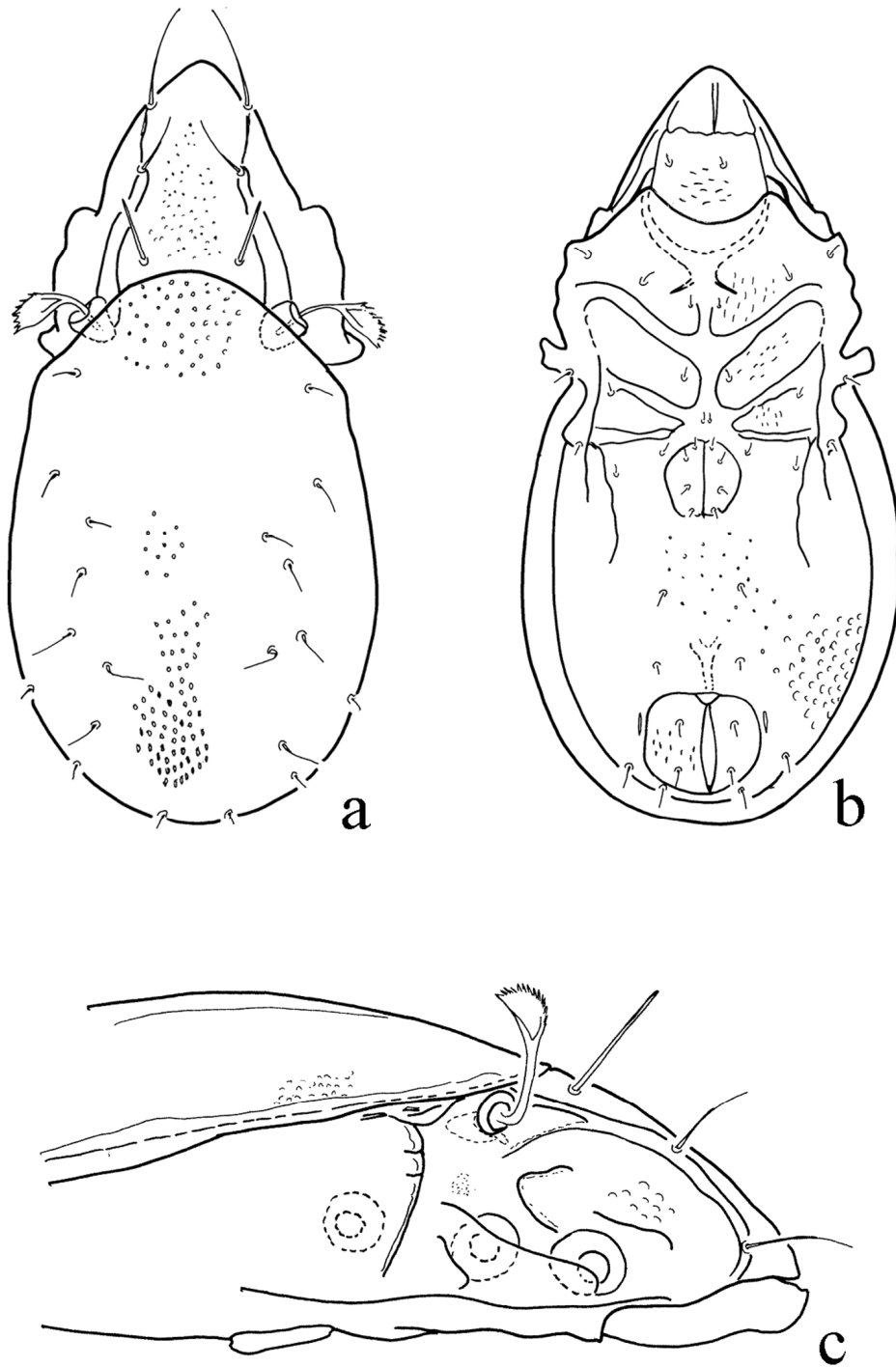


Figure 11. *Tuberemaeus puruczkyi* sp. nov. a = body in dorsal view, b = body in ventral view, c = prodorsum in lateral view

small and round anteriorly, on the posterior surface resembling narrow slits.

Ventral parts. Mentum ornamented by short lines or slits, mostly in transversal position. On epimeral surface observable similar formation, however mostly in longitudinal position. Ventral plate foveolate, with smaller foveolae medially around the aggenital setae and much larger ones in posterolateral position. Surface of ventral plate smooth, and foveolate of anal plates. All epimeral setae small and simple, genital and aggenital similar to them, two posterior adanal setae longer than anterior one (ad_3).

Legs. All legs monodactylous.

Remarks. On the basis of the form of prodorsal setae, sensillus and the sculpture of notogaster the new species belongs to the relationship of *T. nagaii* Mahunka 1988. However the sculpture of the epimeral region is characteristically different from this and from the other related species.

Etymology. We dedicate this species to our friend Mr. Zoltán Puruczky (Budapest), who helped us in several collecting trips in Africa.

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