

## On the family Micreremidae Grandjean, 1954 (Acari, Oribatei)

By

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**Abstract.** A short review of the family Micreremidae (Acari) is presented, and a new genus, *Mexiceremus* gen. n. is suggested. Identification keys to four genera and eleven known species of the family are given. Oribatid mites have traditionally been regarded as inhabitants of the soil, ground litter or moss, but recently they are recognized as an important components of the acarine fauna of forest canopies as well. The species of Micreremidae obviously belong to this latter group.

The family Micreremidae was erected by Grandjean (1954). The type and sole genus was in that time *Micreremus* Berlese, 1908 with the type-species *Eremaeus brevipes* Michael, 1888. The present paper gives a short description of the family and the four genera, and lists the species. An identification key to the generic and specific taxa is added.

### Micreremidae Grandjean, 1954

Notogaster with three pairs of areae porosa and 14 pairs of notogastral setae. Notogaster distending bilaterally to ventral side. Dorsosejugal suture present. Sensillus short with small stalk and globular head. Genital plates with four pairs of setae. Aggenital setae usually absent (with one exception). Adanal setae  $ad_3$  and fissurae  $iad$  preanal in position. Adanal setae  $ad_1$  and  $ad_2$  behind one after the other (with two exceptions). Legs tridactyle. Mostly arboreal animals. – Four genera:

### *Micreremus* Berlese, 1908

Aggenital setae absent. Adanal setae  $ad_1$  and  $ad_2$  postanal, behind one after the other. Adanal setae  $ad_3$  and fissurae  $iad$  in preanal position. All notogastral and prodorsal setae short, setiform. Interlamellar region with a distinct lath-structure:

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an arched transverse ridge issuing from bothridium, arched across interlamellar setae and deriving several short ridges between interlamellar setae. Notogaster consisting of either strong, polygonal pattern or large, shallow depressions without sharp borders. – Seven species:

- M. africanus* Balogh, 1963
- M. brevipes* (Michael, 1888) – Type species.
- M. faviger* Mahunka, 1983
- M. florens* Mahunka, 1983
- M. longisetosus* Mahunka, 1986
- M. macrofissura* Hammer, 1979
- M. subglaber* Ito, 1982

#### *Fenichelia* Balogh, 1970

Aggenital setae absent. Adanal setae  $ad_1$  and  $ad_2$  postanal, behind one after the other. Notogaster dorsally with 12 pairs of phylliform, densely aciculate setae, ventrally with two pairs of fine setiform setae (setae  $p_2$  and  $p_3$ ). Interlamellar and lamellar setae slightly phylliform, densely aciculate. Notogaster with strong web-structure. – Two species:

- F. biroi* Balogh, 1970 – Type species.
- F. latipilosa* Mahunka, 1983

#### *Porofenichelia* Mahunka, 1985

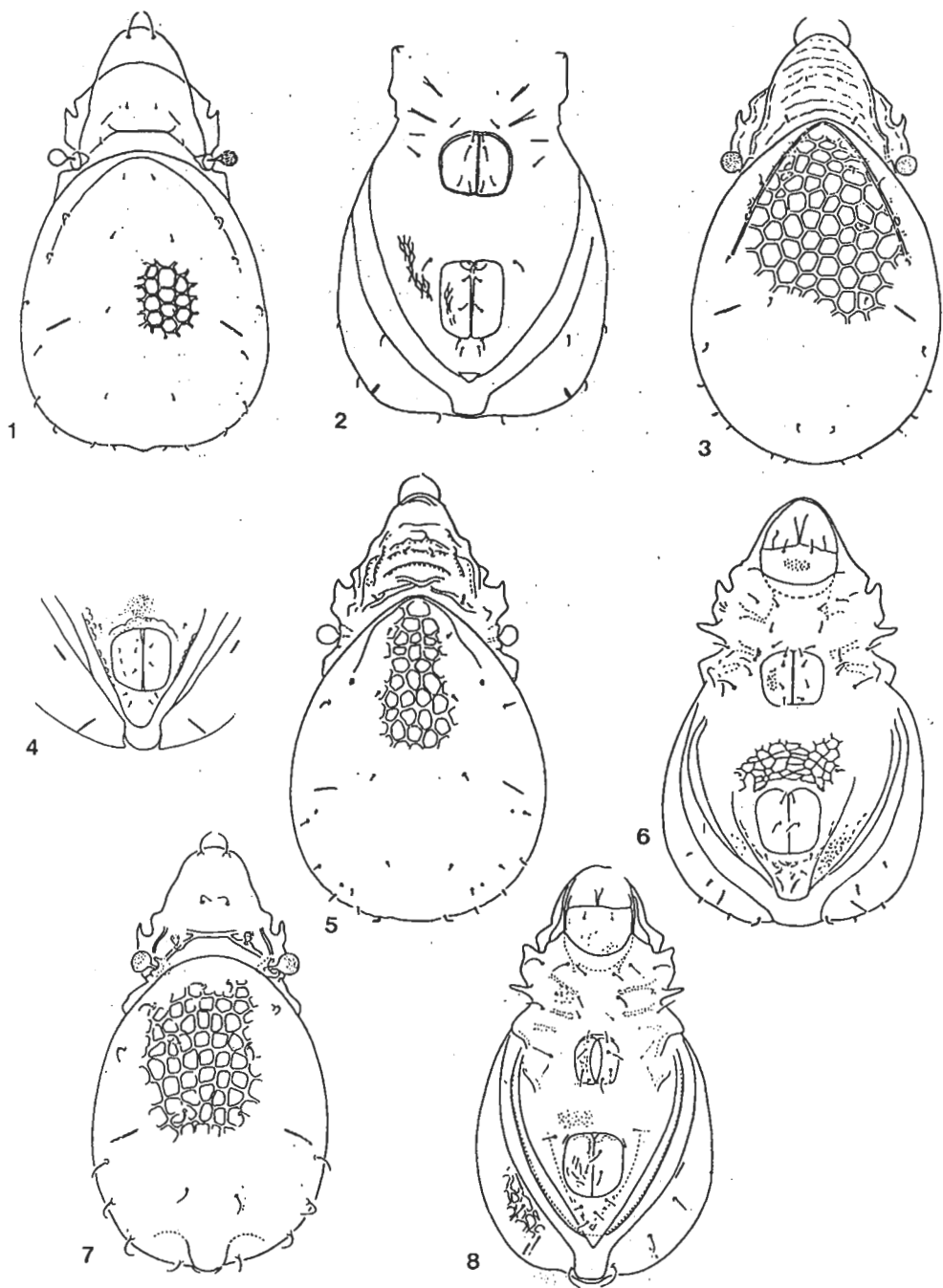
Aggenital setae absent. Adanal setae  $ad_1$  in postanal,  $ad_2$  in adanal,  $ad_3$  in preanal position. Notogastral setae  $c_1$  close to each other: distance  $c_1-c_1$  much shorter than  $c_2-c_2$ . Notogastral setae phylliform, small. Notogaster with large foveolae. – One species:

- P. porosa* Mahunka, 1985 – Type species.

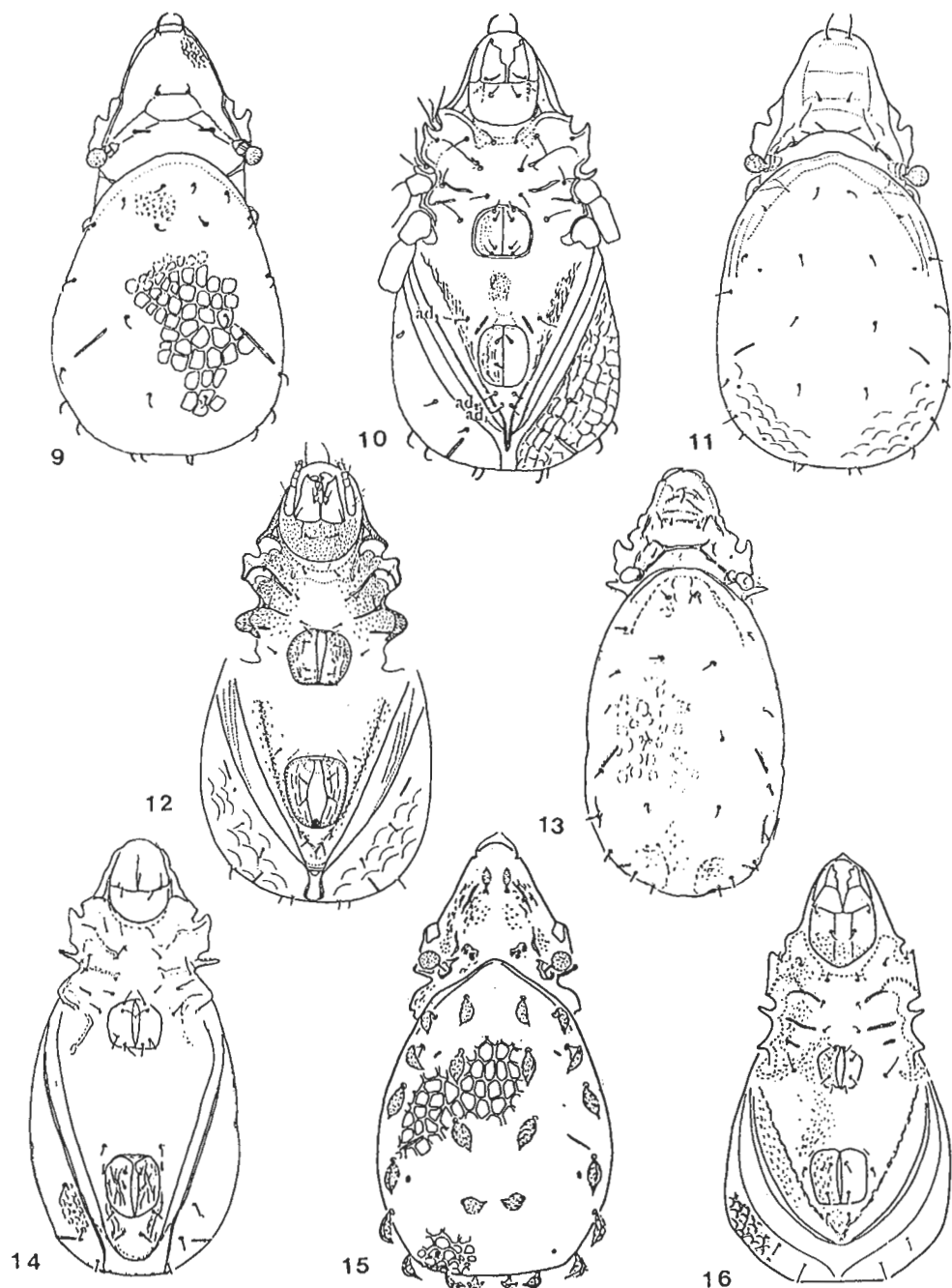
#### *Mexiceremus* gen. n.

Aggenital setae present. Adanal setae  $ad_1$  in postanal,  $ad_2$  in adanal,  $ad_3$  in preanal position. Distance  $c_1-c_1$  equal to distance  $c_2-c_2$ . Notogastral setae densely setulose. Interlamellar setae and lamellar setae densely setulose like notogastral setae. Notogastral setae  $p_2$  and  $p_3$  only sparsely setulose. – One species:

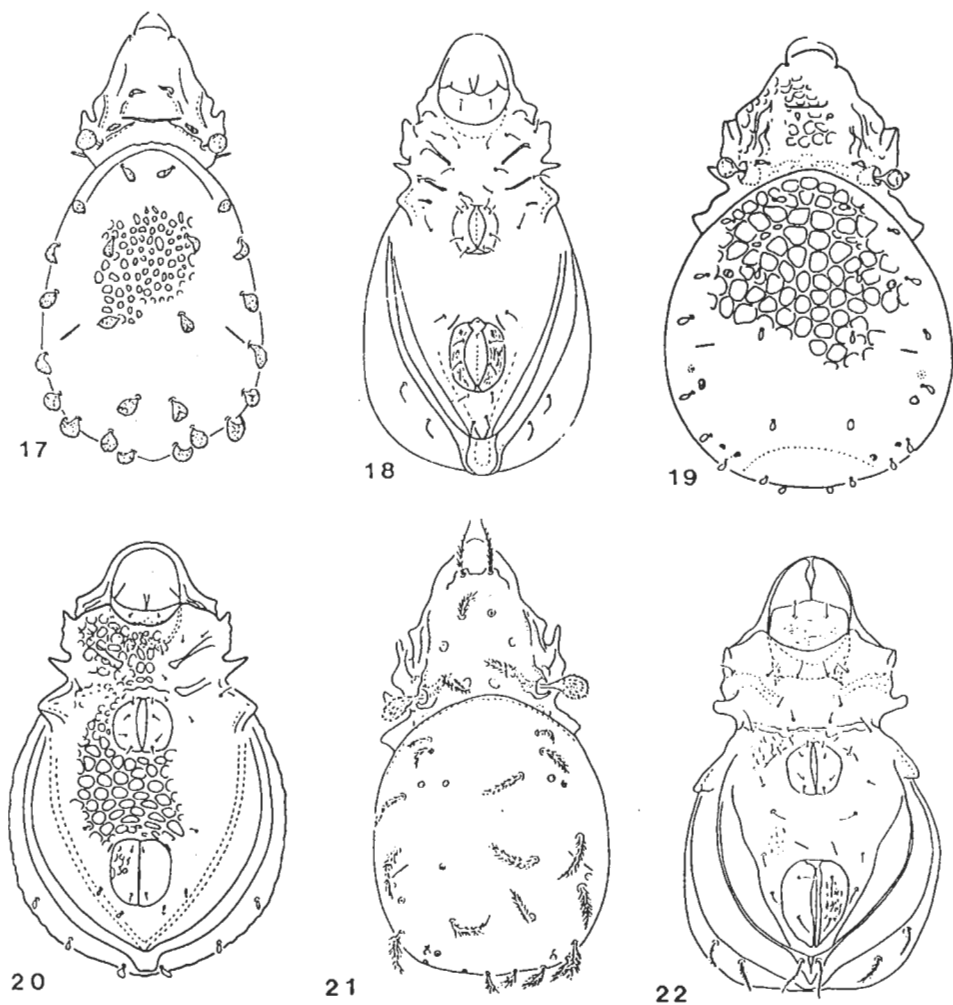
- M. rafaelinus* (Mahunka & Palacios-Vargas, 1995) comb. n. – Type species.



Figs. 1-8. 1-2: *Micreremus brevipes* (Michael, 1988) (after Mahunka, 1963). - 3-4: *Micreremus africanus* Balogh, 1963 (after Balogh, 1963 and Mahunka, 1983). - 5-6: *Micreremus faviger* Mahunka, 1983 (after Mahunka, 1983). - 7-8: *Micreremus longisetus* Mahunka, 1986 (after Mahunka, 1986)



Figs. 9-16. 9-10: *Micreremus macrofissura* Hammer, 1979 (after Hammer, 1979). - 11-12: *Micreremus subglaber* Ito, 1982 (after Ito, 1982). - 13-14: *Micreremus florens* Mahunka, 1983 (after Mahunka, 1983).  
 - 15-16: *Micreremus biroi* Balogh, 1970 (after Balogh, 1970)



Figs. 17-22. 17-18: *Fenichelia latipilosa* Mahunka, 1982 (after Mahunka, 1982). -19-20: *Porofenichelia porosa* Mahunka, 1985 (after Mahunka, 1985). - 21-22: *Mexiceremus rafaelius* Mahunka & Palcios-Vargas, 1995 (after Mahunka and Palcios-Vargas, 1995)

## Identification key to the species of Micreremidae

- 1 (2) Aggenital setae present; adanal setae  $ad_1$  in postanal,  $ad_2$  in adanal,  $ad_3$  in preanal position; notogastral setae  $c_1$  far from each other: distance  $c_1-c_1$  equal to  $c_2-c_2$ ; notogastral setae, like interlamellar and lamellar setae, setiform, densely setulose. L: 230  $\mu\text{m}$ . – Mexico.

*Mexiceremus rafaelinus* (Mahunka & Placios-Vargas, 1995)

- 2 (1) Aggenital setae absent; notogastral setae  $c_1$  close to each other: distance  $c_1-c_1$  much shorter than  $c_2-c_2$ .

- 3 (4) Adanal setae  $ad_1$  in postanal,  $ad_2$  in adanal,  $ad_3$  in preanal position; notogastral setae phylliform, small, smooth. Notogaster ornamented with large foveolae. L: 324  $\mu\text{m}$ . – South Africa.

*Porofenichelia porosa* Mahunka, 1985

- 4 (3) Adanal setae  $ad_1$  and  $ad_2$  postanal, behind one after the other; notogastral setae either setiform and smooth, or phylliform and densely aciculate.

- 5 (8) Notogastral setae (except small, setiform setae  $p_2$  and  $p_3$  on ventral side) phylliform and densely aciculate.

- 6 (7) Prodorsum without transversal lath in interlamellar region. L: 304  $\mu\text{m}$ . – Papua New Guinea.

*Fenichelia biroi* Balogh, 1970

- 7 (6) Prodorsum with well developed transversal lath in interlamellar region. L: 322  $\mu\text{m}$ . – Ethiopia.

*Fenichelia latipilosa* Mahunka, 1983

- 8 (5) All notogastral setae setiform, short and smooth.

- 9 (12) Notogaster without strong polygonal structure, only with shallow depressions (by optical microscope they are very difficult to see, only in the lateral and posterior inclined parts are conspicuous in dorsal aspect).

- 10(11) Notogaster elongate, twice as long as wide; notogastral setae straight, almost spiniform. L: 240  $\mu\text{m}$ . – Ethiopia.

*Micreremus florens* Mahunka, 1983

- 11(10) Notogaster less elongate, ratio L:W = 72:50. L: 260–300  $\mu\text{m}$ . – Japan.

*Micreremus subglaber* Ito, 1982

- 12 (9) Notogaster with strong, polygonal structure.

- 13(14) Interlamellar setae broadly phylliform, densely aciculate; posterior part of notogaster near its margin with a large rounded tubercle. L: 280  $\mu\text{m}$ . – South Africa.

*Micreremus longisetosus* Mahunka, 1986

- 14(13) Interlamellar setae bacilliform or setiform, never phylliformly dilated; posterior margin of notogaster without large tubercle.

15(16) Fissure *im* on notogaster abnormally long: as long as or longer than half a distance of setae *dm-lp*. L: 270  $\mu\text{m}$ . - Java.

*Micreremus macrofissura* Hammer, 1979

16(15) Fissure *im* on notogaster normal, shorter than half a distance of setae *dm-lp*.

17(18) Anal and ventral plate with polygonal web-like structure. L: 302  $\mu\text{m}$ . - Ethiopia.

*Micreremus faviger* Mahunka, 1983

18(17) Anal and ventral plate without polygonal web-structure.

19(20) Interlamellar setae stick-shaped; dorsosejugal suture parabolic. L: 290  $\mu\text{m}$ . - Equatorial Africa.

*Micreremus africanus* Balogh, 1963

20(19) Interlamellar setae setiform or spiniform. L: 300-315  $\mu\text{m}$ . - Palearctic.

*Micreremus brevipes* (Michael, 1988)

#### REFERENCES

1. BALOGH, J. (1961): Identification keys of world oribatid (Acari) families and genera. - Acta Zool. Acad. Sci. Hung., 7: 243-344.
2. BALOGH, J. (1963): Oribates (Acari) nouveaux d'Angola et du Congo (3<sup>ème</sup> serie). - Publ. Cult. Co. Diam. Angola, 20: 67.
3. BALOGH, J. (1965): A synopsis of the world oribatid (Acari) genera. - Acta Zool. Acad. Sci. Hung., 11: 5-99.
4. BALOGH, J. (1970): New oribatids (Acari) from Ceylon. Scientific results of the Hungarian soil zoological expeditions. - Opusc. Zool. Budapest, 10: 33-67.
5. BALOGH, J. & BALOGH, P. (1988): Oribatid mites of the Neotropical Region, I-II. - In: The soil mites of the world 2. Series Editor J. Balogh, Budapest, pp. 322+335.
6. BALOGH, J. & BALOGH, P. (1992): The oribatid mites genera of the world. Vol. 1-2. - Nat.-Hist. Mus. Budapest, pp. 263+375.
7. HAMMER, M. (1979): Investigations on the oribatid fauna of Java. - Det Kong. Danske Vidensk. Selskab Biol. Skrifter, 202: 9.
8. ITO, M. (1982): A new species of the genus *Micreremus* (Acarina, Oribatida) from Japan. - Annotat. Zool. Japon., 55.
9. MAHUNKA, S. (1982): Oribatids from the eastern part of the Ethiopian Region (Acari), I. - Acta Zool. Acad. Sci. Hung., 28: 293-336.
10. MAHUNKA, S. (1983): Oribatids from the eastern part of the Ethiopian region (Acari), II. - Acta Zool. Acad. Sci. Hung., 29: 151-180.
11. MAHUNKA, S. (1983): Oribatids from the eastern part of the Ethiopian region (Acari), III. - Acta Zool. Acad. Sci. Hung., 29: 397-440.
12. MAHUNKA, S. (1985): Oribatids from Africa (Acari: Oribatidae), II. - Folia Entomol. Hung., 46: 73-113.
13. MAHUNKA, S. & PALACIOS-VARGAS, J. G. (1995). Two new oribatid (Acari: Oribatida) species from the canopy of tropical dry forest in Mexico. - Acta Zool. Acad. Sci. Hung., 41: 295-300.