

New and rare *Rotundabaloghia* species (Acari: Uropodina) from the tropics

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Abstract. Descriptions of eight new and seven known species of the uropodine genus *Rotundabaloghia* Hirschmann, 1975 are given from New Guinea, South Asia, South America and West Africa. Original descriptions and drawings as well as scanning micrographs are provided. With 76 figures.

The genus *Rotundabaloghia* Hirschmann, 1975 is one of the richest Uropodina genera in the tropical regions (Wiśniewski, 1993). Species of this genus occur in tropical soils, mosses and leaf litter, and they are members of the canopy fauna as well. Currently, the genus contains more than one hundred species from all around the world (Kontschán, 2007), however our knowledge on the *Rotundabaloghia* species of the tropical regions is highly unbalanced. For example, South-east Asia and Oceania are rather poorly known, only a few species were recorded from scattered localities including New Guinea from where the genus was first described by Hirschmann (1975a). In the same year, Hirschmann and Hiramatsu (1975) recorded several new *Rotundabaloghia* species from Japan, New Guinea, Philippines and Indonesia (Borneo). The last records for South-east Asia were presented by Hiramatsu (1983) who listed a number of new and rare species from Borneo.

Similarly to South-east Asia and Oceania, the *Rotundabaloghia* mites of West Africa have also scantily been investigated; hitherto only fourteen species were recorded for this vast continent; ten from Cameroon, three from Ghana and one from the Congo Republic (Hirschmann, 1992a).

Regarding the *Rotundabaloghia* mites, the best-known tropical region is South America. Hirschmann (1972) described the first species from here under the genus *Uroobovella* (*U. guttasetta* Hirschmann, 1972 and *U. unguiseta* Hirschmann, 1972). In the next year, Hirschmann (1973)

described another species, *U. rotunda* Hirschmann, 1973 from Brazil. All these species were subsequently placed in the newly erected genus *Rotundabaloghia* Hirschmann, 1975 in which further new species were also added (Hirschmann, 1981, 1984).

At the beginning of the 1990's in summarizing his investigation on the *Rotundabaloghia* species of South America Hirschmann described 28 new species from Colombia (Hirschmann, 1992b) and furthermore reported 41 species from Brazil, Ecuador, Colombia, Peru, Venezuela and Guatemala (Hirschmann, 1992c). Quite recently, Kontschán (2007) reported seven uropodid species from Venezuela including a new *Rotundabaloghia*.

The Hungarian Natural History Museum possesses a rich unsorted „Berlese” soil-sample material collected by the different soil zoology expeditions to Africa (Balogh *et al.*, 1965), South America (Zicsi and Csuzdi, 2008) and other tropical regions. In this rich material eight new and several known species were found from New Guinea, Colombia, Ecuador, Congo Republic, Vietnam and Indonesia which are herein presented.

MATERIAL AND METHODS

Specimens were cleared in lactic acid and later stored in alcohol. Drawings were made with the aid of a camera lucida. Scanning micrographs were taken in the Hungarian Natural History Museum with a HITACHI SN 2600 scanning electron microscope. The specimens examined are

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deposited in the Soil Zoology Collection of the Hungarian Natural History Museum, Budapest.

Abbreviations used: h1-h4, hypostomal setae, St1-St5, sternal setae. Nomenclature for the ventral idiosomal setae is according to Hirschmann (1975a): V2, V6, V7 and V8 are the ventral setae, except that I use the name “adanal setae” (*ad*) instead of V4. Measurements are given in micrometres (μm).

DESCRIPTIONS OF THE SPECIES

Rotundabaloghia Hirschmann, 1975

Rotundabaloghia Hirschmann, 1975a: 23.

Rotundabaloghia Kontschán 2008: 18.

Diagnosis. Idiosoma circular or rounded, dorsal part convex. Dorsal and marginal shields completely fused or fused along the anterior margin. Genital shield of female oblong, triangular, linguiform or shield-shaped. Genital shield of male circular, located between coxae 4. Number of ventral setae reduced, V2 inserted near basal part of genital shield, V7 and V8 near the metapodal lines. Only one pair of adanal setae is present, near the central part of the anal platelet. Setae V7 and V8 are smooth, pilose or bear short hairs or spines. Hypostomal setae h1 smooth, longer than the other hypostomal setae. Corniculi horn-like, laciniae short or long with short apical hairs. Chelicerae with nodus. All legs with a pair of ambulacral claws and with smooth simple setae.

Type species. *Rotundabaloghia baloghi* Hirschmann, 1975a by original designation.

Remarks. Hirschmann (1992b) divided the genus *Rotundabaloghia* to eleven species groups based on the ventral structures. The subdivision of this large genus into species groups can help in identification of species; however it does not refer to a subgeneric system, because the monophyly of the species groups is questionable. The most important characters and the distributions of Hirschmann's species groups are summarized in Kontschán (2008).

Rotundabaloghia baloghi Hirschmann, 1975

(Figs. 1–4 and 8–9)

Rotundabaloghia baloghi Hirschmann: 1975b, p. 29. Fig: p. 24.

Rotundabaloghia baloghi: Wiśniewski & Hirschmann 1993, p. 70, Wiśniewski 1993, p. 282.

Material examined. Five females and one male, 74-NG-Mc 6., New Guinea, McAdam-Park, primary rain forest, from canopy leaf litter, 11.VIII.1974. leg. J. Balogh.

Female. Length of idiosoma 300–320 μm , width 280–300 μm ($n = 5$). Shape circular, posterior margin rounded.

Dorsal side (Fig. 1). Marginal and dorsal shields fused. Most of dorsal setae long and pilose, three pairs in the central region short (five times shorter than the other dorsal setae) smooth and needle-like (Fig. 2). Dorsal shield with alveolate pattern.

Ventral side (Figs. 3 and 8). Sternal- and ventral shield with alveolar ornamentation. Three pairs of sternal setae (St1, St2 and St3) long and smooth, St4 ten times shorter than the other sternal setae. Distance between St1 and St2, same as between St2 and St3. St4 placed near the basis of St3. Ventral setae are as follows: V2 as long as V6, both smooth and setiform. V7 and V8 as long as V2 and V6, but V7 and V8 bear short spines on their margin. V7 is near of V8. Setae *ad* similar in shape to V7 and V8 but 1.5 times shorter (Fig. 9).

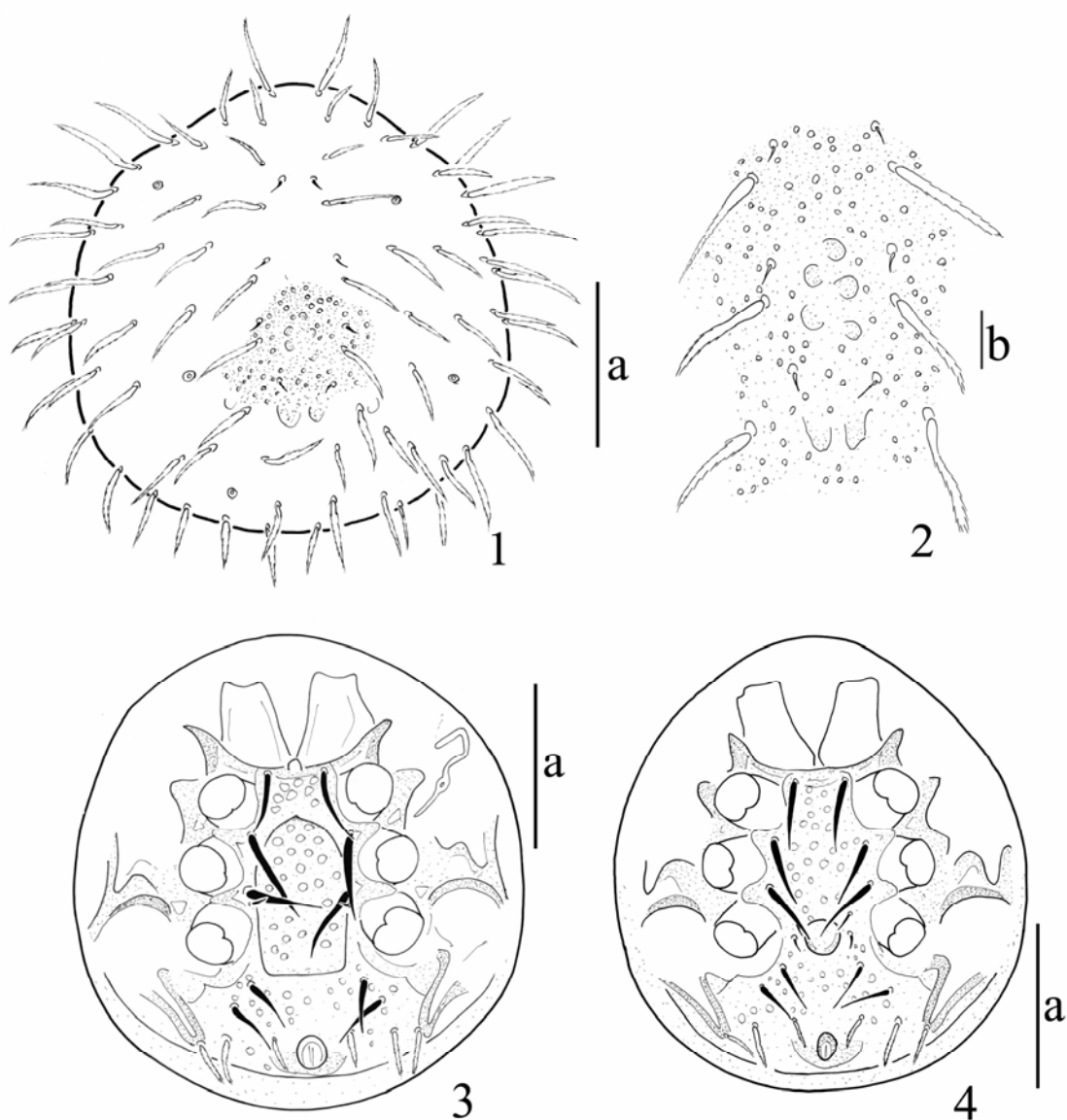
Genital shield linguiform, bears alveolar pattern and short spines on its apical margin. Stigmata situated near coxae 2. Peritreme hook-shaped.

Gnathosoma not clearly visible (covered by coxae 1)

Male. Length of idiosoma 300 μm , width 260 μm ($n = 1$). Shape circular, posterior margin rounded.

Dorsal side. Similar to the female.

Ventral side (Fig. 4). Sternal- and ventral shield with alveolar ornamentation. Three pairs of sternal setae (St1, St2 and St3) long and smooth, St4 four times St5 five times shorter than the other sternal setae. St1 placed near the anterior



Figures 1–4. *Rotundabaloghia baloghi* Hirschmann, 1975. 1 = dorsal view of female, 2 = dorsal setae on the central region of dorsal shield, 3 = ventral view of female, 4 = ventral view of male. (Scale bars: a: 100 μ m, b: 20 μ m)

margin of sternal shield, St2 near the anterior margin of coxae 3, St3 near the posterior margin of coxae 3. St5 is near to the central region of the genital shield. Ventral setae are as follows: V2 long, as long as V6, V2 and V6 smooth and setiform. V7 and V8 as long as V2 and V6, but V7 and V8 bear short spines on their margin. V7

is near of V8. Setae *ad* similar in shape to V7 and V8 but 1.5 times shorter

Genital shield alveolar and placed between coxae 4.

Gnathosoma. Not clearly visible (covered by coxae 1).

Distribution. New Guinea.

Rotundabaloghia mahunkai Hirschmann, 1975

(Figs. 5–7 and 10–11)

Rotundabaloghia mahunkai Hirschmann: 1975b, p. 33., Fig. p. 33.

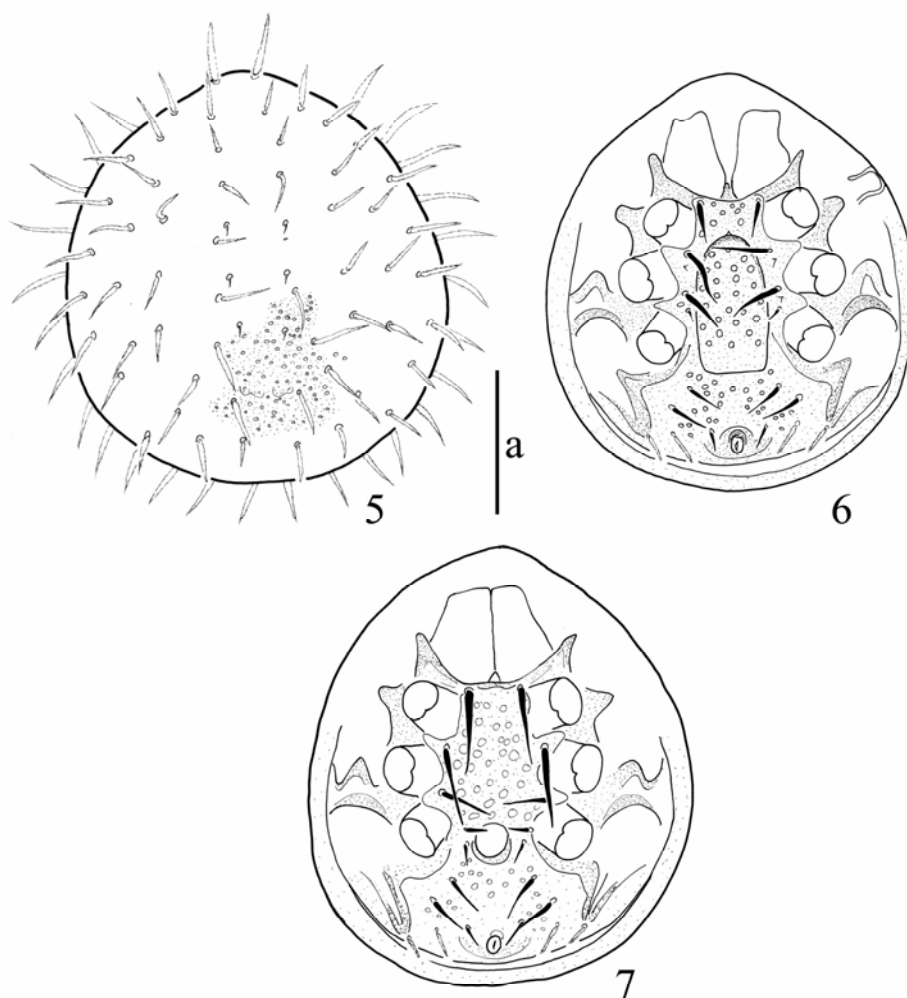
Rotundabaloghia mahunkai: Wiśniewski & Hirschmann 1993, p. 77., Wiśniewski 1993, p. 282.,

Material examined. Two females 74-NG-Mc 3 New Guinea, McAdam-Park, primary rain forest, from soil, 11.VIII.1974. leg. J. Balogh, four females and two males 74-NG-Mc 5 New Guinea, McAdam-Park, primary rain forest, from leaf litter, 11.VIII.1974. leg. J. Balogh, two females 74-NG-Mc 6 New Guinea McAdam-Park, primary rain forest, from canopy leaf litter, 11. VIII.1974. leg. J. Balogh, two females 71-NG-PO 27, New

Guinea, Popondetta, secondary rain forest, from leaf litter, 06.VI.1971. leg. J. Balogh, six females 71-NG-PO 24, New Guinea, Popondetta, secondary rain forest, from leaf litter of a big tree, 06.VI.1971. leg. J. Balogh.

Female. Length of idiosoma 300–320 μm , width 280–300 μm (n = 16). Shape circular, posterior margin rounded.

Dorsal side (Fig. 5). Marginal and dorsal shields fused. Most of the dorsal setae long and pilose, three pairs of them are in the central region, short (five times shorter than other dorsal setae) smooth and needle-like. Pattern of dorsal shield is alveolate.



Figures 5–7. *Rotundabaloghia mahunkai* Hirschmann, 1975. 5 = dorsal view of female, 6 = ventral view of female, 7 = ventral view of male. (Scale bar: 100 μm)

Ventral side (Figs. 6 and 10). Sternal and ventral shield with alveolar ornamentation. Three pairs of sternal setae (St1, St2 and St3) long and smooth, St4 ten times shorter than the other sternal setae. Distance between St1 and St2 same as between St2 and St3. St4 placed near the basis of St3. Ventral setae are as follows: V2 long, as long as V6, both smooth and setiform. V7 and V8 as long as V2 and V6, but V7 and V8 bear short spines on their margin. V7 located near V8. Setae *ad* smooth, needle-like and 1.5 times shorter than V7 and V8 (Fig. 11).

Genital shield linguliform, bear alveolar pattern and short spines on its apical margin. Stigmata situated near coxae 2. Peritreme hook-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1).

Male. Length of idiosoma 280 μm , width 250 μm (n=1). Shape circle, posterior margin rounded.

Dorsal side. Similar to that of the female.

Ventral side (Fig. 7). Sternal and ventral shield with alveolar ornamentation. Three pairs of sternal setae (St1, St2 and St3) long and smooth, St1 and St2 1.5 times longer than St3, St4 and St5 three times shorter than St3. St1 placed near the anterior margin of sternal shield, St2 near the anterior margin of coxae 3, St3 near the posterior margin of coxae 3. St5 located near the central region of the genital shield. Ventral setae are as follows: V2 long, as long as V6, V2 and V6 smooth and setiform. V7 and V8 as long as V2 and V6, but V7 and V8 bear short spines on their margin. V7 can be found near of V8. Setae *ad* smooth and needle-like and 1.5 times shorter than V7 and V8.

Genital shield alveolar and placed between coxae 4.

Gnathosoma. Not clearly visible (covered by coxae 1).

Distribution. New Guinea.

***Rotundabaloghia triangulata* n. sp.**

(Figs. 12–15)

Material examined. Holotype: female, Vietnam, As-647, Vietnam, Duc me (Maria stream),

15 km S of Bao Loc, sifted in a bamboo forest, 22.X.1988. leg. S. Mahunka & T. Vásárhelyi.

Diagnosis. Dorsal shield with alveolar ornamentation, dorsal setae needle-like with short hairs on their apical part. Ventral and sternal shields without ornamentation. Genital shield of female triangular, with long process and without pattern. St2 and St3 long, V2, V6 and *ad* smooth, short and needle-like. V7 and V8 smooth, needle-like and two times longer than the other ventral setae. Peritreme mushroom-shaped.

Female. Length of idiosoma 340 μm , width 290 μm (n = 1). Shape oval, posterior margin rounded.

Male, nymphs and larva are unknown.

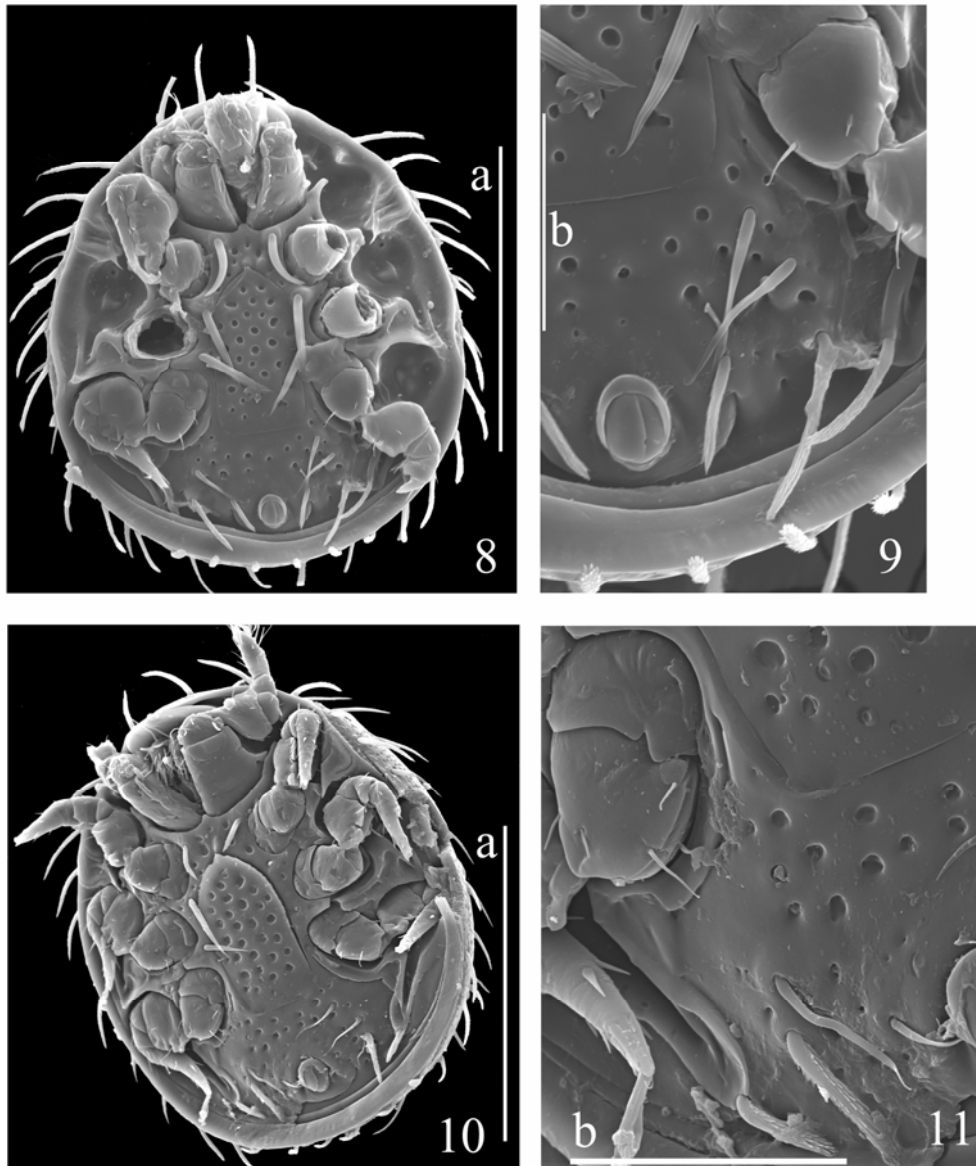
Dorsal side (Fig. 12). Marginal and dorsal shields fused. All dorsal setae short, needle-like and with short hairs on their apical part. Dorsal shield with alveolar ornamentation (Fig. 13).

Ventral side (Fig. 14). Sternal shield without ornamentation, all sternal setae not clearly visible, only St2 and St3 can be seen on the holotype. St2 and St3 smooth, long and needle-like. Their basis can be found near the central part of coxae 3. Pattern on ventral shield lacking, ventral setae are as follows: V2 and V6 short, smooth and needle-like, setae *ad* placed near the posterior margin of anal platelets and similar to V2 and V6 setae. V7 and V8 smooth, needle-like and two times longer than the other ventral setae.

Genital shield triangular, with long anterior process and without ornamentation. Stigmata situated between coxae 2 and 3. Peritreme mushroom-shaped.

Gnathosoma (Fig. 15). Corniculi horn-like, laciniae long and with some spines on their lateral margin. Hypostomal setae are as follows: h1 long, h2 three times and h3 two times shorter than h1. Setae h1, h2 and h3 smooth and needle-like, h4 as long as h2, and with serrated margins. Tritosternum, labrum and chelicera not clearly visible. Epistome with spines on its basal part and with short hairs on its apical margin. Spines and setae of basal part of palps are shown in Fig. 15.

Etymology. The name of the new species refers to the triangular genital shield.



Figures 8–11. Scanning micrograph of the New Guinean *Rotundabaloghia* species. 8 = *R. baloghi* Hirschmann, 1975, ventral view of female, 9 = ventral setae, 10 = *R. mahunkai* Hirschmann, 1975, ventral view of female, 11 = ventral setae. (Scale bars: a: 200 μ m, b: 50 μ m)

Remarks. The new species belongs to the *angulogynella* species group, which is characterized by the triangular genital shield of the females and the mushrooms-shaped peritreme. The long St2 and St3 setae can not be found in any other species of the *angulogynella* group.

***Rotundabaloghia vietnamensis* n. sp.**

(Figs. 16–24)

Material examined. Holotype: female Vietnam As-672, Paratypes: three males, locality and date same as that of the holotype, and one male Viet-

nam, Da Lat, Thac Datanla waterfall, 1200 m a.s.l. 07.XII.1994. leg. S. Mahunka.

Diagnosis. Dorsal shield with alveolar ornamentation, dorsal setae needle-like with short hairs on their apical part. Ventral shield without ornamentation, sternal shield with alveolar pattern. Genital shield of female triangular, with long process and without pattern. St2 and St4 short, St3 long and needle-like. V2, V6 and *ad* smooth, short and needle-like, V7 and V8 smooth, needle-like and two times longer than the other ventral setae. Peritreme mushroom-shaped.

Female. Length of idiosoma 350 μm , width 300 μm ($n = 1$). Shape oval, posterior margin rounded.

Dorsal side (Fig. 16-18). Marginal and dorsal shields fused. All dorsal setae short, needle-like and with short hairs on their apical part. Dorsal shield with alveolar ornamentation (Figs 22-23).

Ventral side (Figs 19 and 21). Sternal shield with alveolar ornamentation, two pairs of depressions can be seen near the anterior margin of genital shield. St1 absent, St2 and St4 smooth, short and needle-like, St3 similar to St2 and St4, but three times longer than St2 and St4. The basis of St2 placed near the anterior margin of coxae 3, St3 near the posterior margin of coxae 3 and the basis of St4 is found near of St3. Pattern of ventral shield lacking, ventral setae are as follows: V2 and V6 short, smooth and needle-like, *ad* absent. V7 and V8 smooth, needle-like and two times longer than the other ventral setae. Lyriform fissures can be found near the lateral margin of genital shield, near the lateral and posterior margins of posterior platelets.

Genital shield triangular, with long anterior process and without ornamentation. Stigmata situated between coxae 2 and 3. Peritreme mushroom-shaped.

Gnathosoma. Corniculi horn-shaped, laciniae long and with some spines on their lateral margin. Hypostomal setae are as follows: h1 long, h2 two times shorter than h1, h3 as long as h1. Setae h1, h2 and h3 smooth and needle-like, h4 not clearly visible. Tritosternum, labrum and epistome not clearly visible. Processus hyalinus can be seen on digitus fixus on the chelicera.

Male. Length of idiosoma 330–350 μm , width 270–300 μm ($n = 4$). Shape circle, posterior margin rounded.

Dorsal side. Similar to the female.

Ventral side (Figs 20 and 24). Sternal- and ventral shield with alveolar ornamentation. Four pairs of sternal setae (St1, St2, St3 and St4) short, smooth and needle-like. St1 and St2 placed near the anterior margin of coxae 3, St3 is found near the anterior margin of coxae 4. St4 located near the genital shield. Position and shape of ventral setae similar to that of the female, *ad* can be found near the anal platelets. Only one pair of lyriform fissures is seen, this placed near V4.

Genital shield circular and placed between coxae 4.

Gnathosoma. Not clearly visible (covered by coxae 1).

Etymology. The name of the new species refers to the country where it was collected.

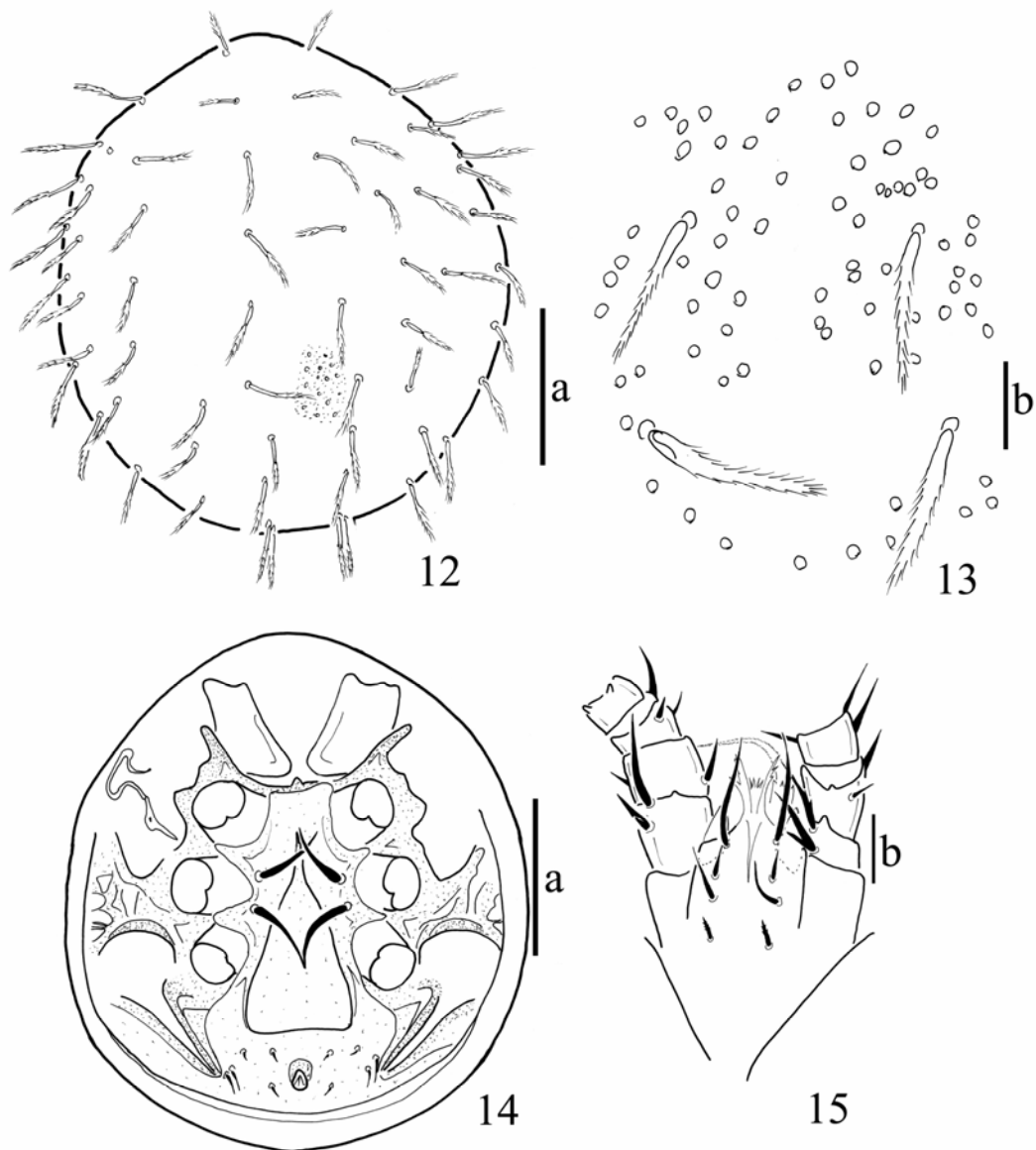
Remarks. This new species belongs to the *angulogynella*-species group, and is very similar to the other species found in Vietnam (*R. triangulata* n. sp.). However, *R. triangulata* lacks alveolar ornamentation on the sternal shield, and St2 setae are long, while *R. vietnamensis* has ornamented sternal shield and St2 setae are short.

***Rotundabaloghia danyii* n. sp.**

(Figs. 25–26)

Material examined. Holotype: female, As-838, Indonesia, Borneo, Gunung Palung National park, Cabang Panti Research Station, Dipterocarp rainforest, 31.XII.2002, leg. L. Dányi.

Diagnosis. Dorsal shield with alveolar ornamentation, dorsal setae needle-like with short hairs on their apical part. Ventral shield without ornamentation, sternal shield with alveolar pattern. Genital shield of female semicircle, with short anterior process and with alveolar pattern. St2 long, St3 and St4 short, smooth and needle-like. V2 and V6 absent, *ad* bulbiform, V7 and V8 smooth, needle-like and as long as St2. Peritreme mushroom-shaped.



Figures 12–15. *Rotundabaloghia triangulata* n. sp. 12 = dorsal view of female, 13 = ornamentation and setae of dorsal shield, 14 = ventral view of female, 15 = ventral view of gnathosoma. (Scale bars: a: 100 μm , b: μm)

Female. Length of idiosoma 370 μm , width 310 μm (n = 1). Shape oval, posterior margin rounded.

Male, nymphs and larva are unknown.

Dorsal side (Fig. 25). Marginal and dorsal shields fused. All dorsal setae short, needle-like and with short hairs on their apical part. Dorsal shield with alveolar ornamentation.

Ventral side (Fig. 26). Sternal shield with alveolar ornamentation, St1 absent, St2 long, smooth and needle-like. St3 and St4 similar to St2, but St3 and St4 two times shorter than St2. The basis of St2 can be found near the anterior part of coxae 3. St3 placed near the anterior margin of coxae 4, St4 localized near the posterior margin of coxae 4. Ornamentation of ventral shield lacking, ventral

setae are as follows: V2 and V6 absent, *ad* bulbiform and placed near the anal platelets. V7 and V8 smooth, needle-like, V7 as long as V8.

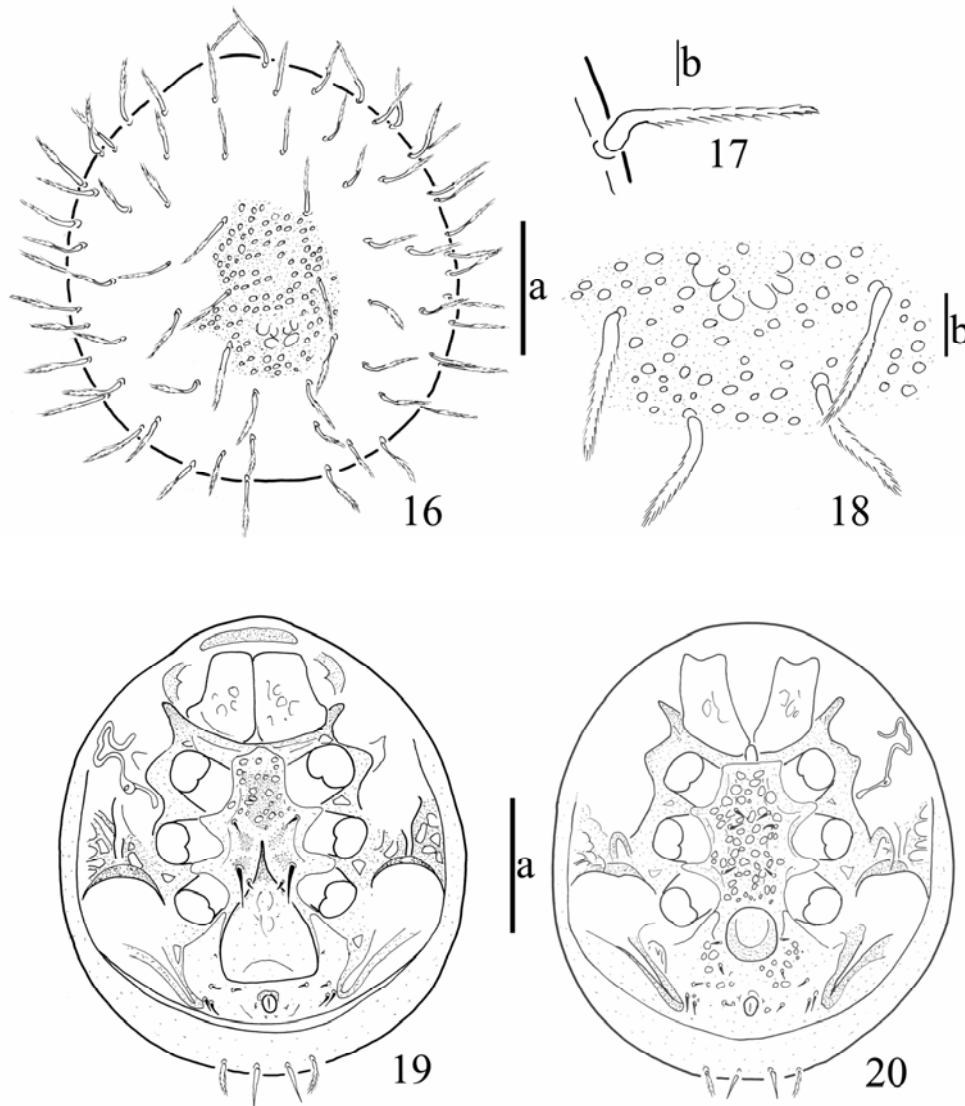
Genital shield semicircular, with short anterior process and with alveolar ornamentation. Stigmata not clearly visible. Peritreme mushroom-like.

Gnathosoma. Not clearly visible.

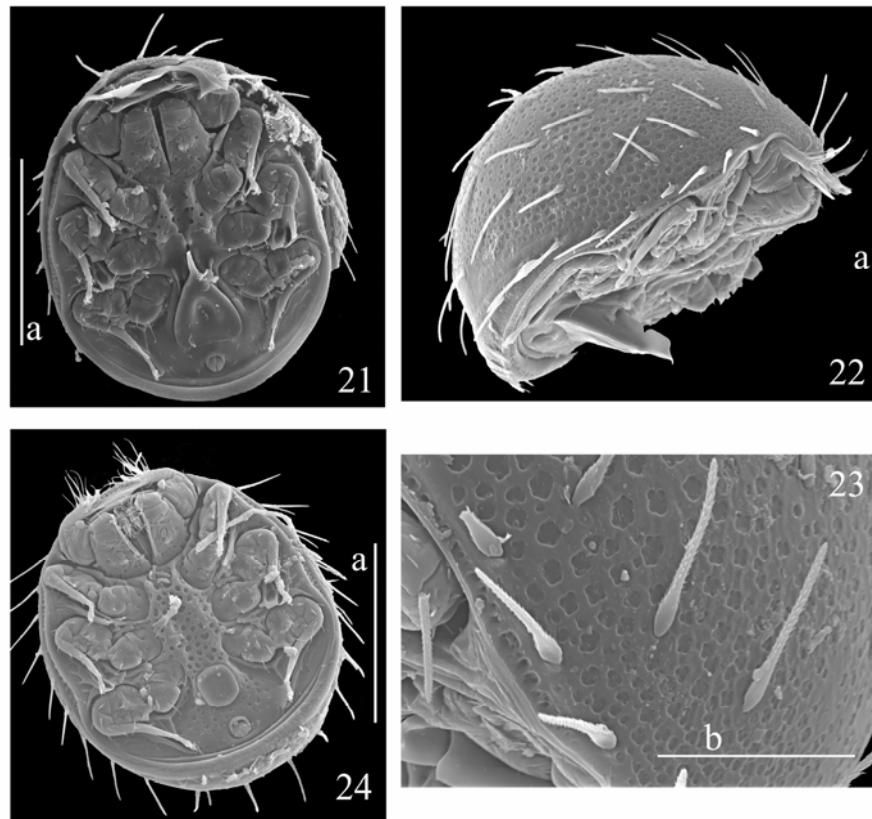
Etymology. The new species is dedicated to

my colleague and friend, László Dányi, who collected the specimen.

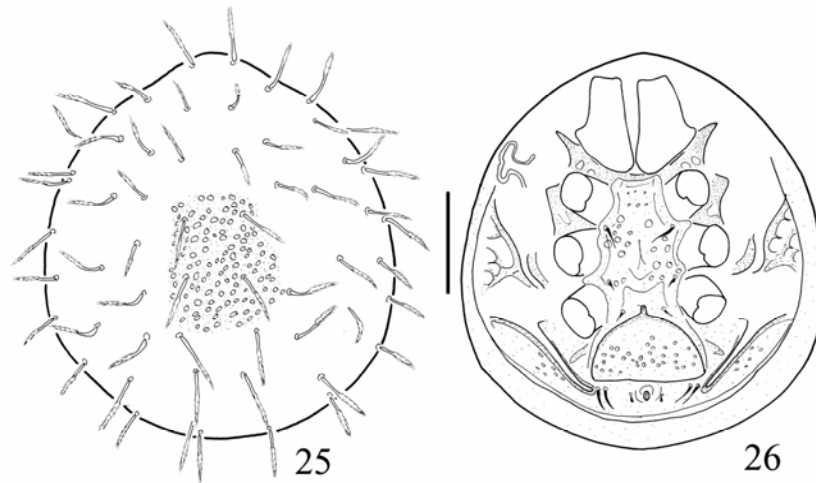
Remarks. The semicircular form of the genital shield in females is unique in the genus *Rotundabaloghia*, all other species are known to possess triangular, scutiform or linguliform genital shield. Hitherto this character was unknown in the *Rotundabaloghia* species.



Figures 16–20. *Rotundabaloghia vietnamensis* n. sp. 16 = dorsal view of female, 17 = dorsal setae from the marginal region, 18 = ornamentation and setae of dorsal shield, 19 = ventral view of female, 20 = ventral view of male. (Scale bars: a: 100 μ m, b: μ m)



Figures 21–24. Scanning micrograph of *Rotundabaloghia vietnamensis* n. sp. 21 = dorsal view of female, 22 = lateral view of female, 23 = ornamentation and setae of dorsal shield, 24 = ventral view of male. (Scale bars: a: 100 μm , b: μm)



Figures 25–26. *Rotundabaloghia danyii* n. sp. 25 = dorsal view of female, 26 = ventral view of female. (Scale bar: 100 μm)

***Rotundabaloghia soliformis* Hirschmann, 1992**

(Figs. 27–29 and 68)

Rotundabaloghia soliformis Hirschmann, 1992c, p. 82., Fig. p. 82.

Rotundabaloghia soliformis: Wiśniewski & Hirschmann, 1993 p. 72., Wiśniewski, 1993 p. 239.

Material examined. Four females and four males, Ecuador, Ecu. Berl. 151. Pichincha Aguagua volcano (Prov. Pichincha), 4600 m. 19. IV. 1987. 4000 m. Soil and litter from below bushes on a rock rim of a rock wall of S exposure. leg. I. Loksa & A. Zicsi. Two females and two males, Ecuador, Ecu. Berl. 152. Pichincha Aguagua volcano (Prov. Pichincha), 4600 m. 19. IV. 1987. Moss from ground below bushes. leg. I. Loksa & A. Zicsi. Five females and seven males, Ecuador, Ecu. Berl. 154. Pichincha Aguagua volcano (Prov. Pichincha), 4600 m. 19. IV. 1987. Soil and moss from the edge of the rock rim. leg. I. Loksa & A. Zicsi. Four females and four males, Ecuador, Ecu. Berl. 128. Antisana volcano, road leading W, downwards to Pintag, 3600 m. 17. IV. 1987. 3000 m. Soil and litter from below shrubs, about 50 m above stream level. leg. I. Loksa & A. Zicsi. One female and four males, Ecuador, Ecu. Berl. 188. 32 km from Otavalo, on the way to Selva Alegre, 3700 m. 22. IV. 1987. Debris and moss of decomposing tree trunk. leg. I. Loksa & A. Zicsi.

Female. Length of idiosoma 360–370 μm , width 310–320 μm ($n = 16$). Shape circular, posterior margin rounded.

Dorsal side (Fig. 27). Marginal and dorsal shields fused. All dorsal setae needle-like and smooth. Ornamentation of dorsal shield lacking.

Ventral side (Figs 28 and 68). Sternal and ventral shield without ornamentation. Sternal setae short smooth and needle-like. One pair of lyriform fissures can be seen near setae St1. Distances between St1 and St2, furthermore between St2 and St3 four times longer than distance between St3 and St4. Ventral setae are as follows: V2 short, as long as V6, V7 and V8 1.5 times longer than V2 and V6. V7 is near V8. Setae *ad* as long as V2. All of the ventral setae smooth and needle-like.

Genital shield long and narrow, linguliform, and without process or ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-form.

Gnathosoma: not clearly visible (covered by coxae 1)

Male. Length of idiosoma 400–410 μm , width 330–340 μm ($n = 21$). Shape circle, posterior margin rounded.

Dorsal side. Similar to that of the female. Marginal and dorsal shield fused. All dorsal setae needle-like and smooth. Dorsal shield without ornamentation.

Ventral side (Fig. 29). Sternal and ventral shield without ornamentation. Sternal setae short smooth and needle like. Distance between St1 and St2 two times longer than the distance between St3 and St4. Distance between St2 and St3 1.5 times longer than the distance between St3 and St4. One pair of lyriform fissures can be seen near of setae St5. Ventral setae are as follows: V2 short, as long as V6, V7 and V8 1.5 times longer than V2 and V6. V7 is near of V8. Setae *ad* as long as V2. All of the ventral setae smooth and needle-like.

Genital shield alveolar and placed between coxae 4. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1).

Distribution. Ecuador.

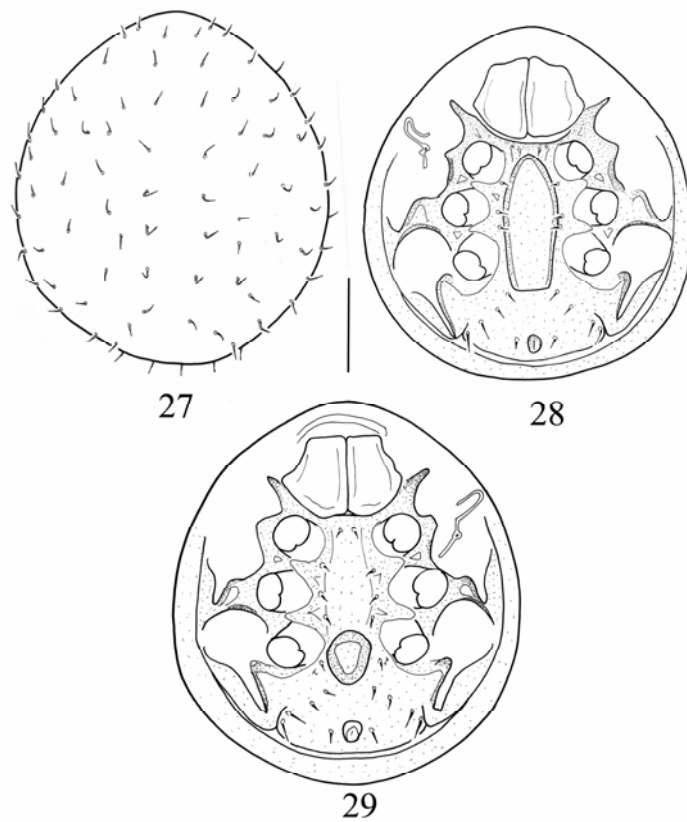
***Rotundabaloghia baczaensis* Hirschmann, 1992**

(Figs. 30–33)

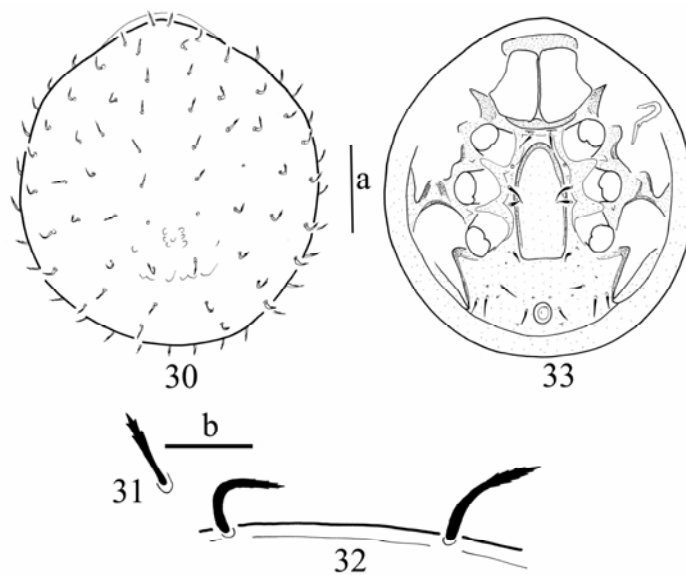
Rotundabaloghia baczaensis Hirschmann: 1992c, p. 85., Fig. p. 84.

Rotundabaloghia baczaensis: Wiśniewski & Hirschmann 1993 p. 71., Wiśniewski 1993 p. 239.

Material examined. One female, Ecuador, Ecu. Berl. 152. Pichincha Aguagua volcano (Prov. Pichincha), 4600 m. 19. IV. 1987. Moss from ground below bushes. leg. I. Loksa & A. Zicsi. Three females, Ecuador, Ecu. Berl. 127. Antisana volcano, road leading W, downwards to Pintag, 3600 m. 17. IV. 1987. 3600 m. Paramo; cushion-plants. leg. I. Loksa & A. Zicsi.



Figures 27–29. *Rotundabaloghia soliformis* Hirschmann, 1992. 27 = dorsal view of female, 28 = ventral view of female, 29 = ventral view of male. (Scale bar: 100 μ m)



Figures 30–33. *Rotundabaloghia baczaensis* Hirschmann, 1992. 30 = dorsal view of female, 31 = j1 seta, 32 = dorsal setae, 33 = ventral view of female. (Scale bars: a = 100 μ m, b = 20 μ m)

Female. Length of idiosoma 370–400 μm , width 340–350 μm ($n = 4$). Shape circle, posterior margin rounded.

Dorsal side (Fig. 30). Marginal and dorsal shields fused. All dorsal setae needle-like and their margin provided with some short spines (Figs 31–32). Pattern of dorsal shield is lacking.

Ventral side (Fig. 33). Sternal and ventral shield without ornamentation. Sternal setae long, smooth and needle like. One pair of lyriform fissures can be seen on the anterior margin of sternal shield near setae St1. St1 placed near the anterior margin of coxae 2, St2 near the posterior margin of coxae 2, St3 and St4 can be found near coxae 3. Distance between St3 and St4 shorter than the distance between St2 and St3. Ventral setae are as follows: V2 placed near the posterior margin of genital shield. V2 short and as long as V6, V7 and V8 1.5 times longer than V2 and V6. V7 can be found near V8. Setae *ad* as long as V2. All of ventral setae smooth and needle-like.

Genital shield linguliform, and without process and ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1)

Distribution. Ecuador.

***Rotundabaloghia ecuadorensis* Hirschmann, 1992**

(Figs. 34–41 and 69–70)

Rotundabaloghia ecuadorensis Hirschmann: 1992c, p. 91., Fig: p. 92.

Rotundabaloghia ecuadorensis: Wiśniewski & Hirschmann 1993 p. 96., Wiśniewski 1993 p. 239.

Material examined. One female and three males, Ecuador, E. 28. Prov Tungurahura 3 km before the Laguna Pisayambo 3800 m, swampy slope. 06. V. 1993. leg. A. Zicsi, Cs. Csuzdi & M. Florenzio. Seven females and five males, Ecuador, E. 18. Prov. Tungurahura. Leaving San Jose de Poalo, 3700 m. 05. V. 1993. leg. A. Zicsi, Cs. Csuzdi & M. Florenzio. Three females and one male, Ecuador, E. 34. Prov Tungurahura. Above the Pucara hydroelectric station, 3420 m. 07. V. 1993. leg. A. Zicsi, Cs. Csuzdi & M. Florenzio. One female and two males, Ecuador, Ecu. Berl. 128. Antisana volcano, road leading W, downwards to Pintag, 3600 m. 17. IV. 1987. 3000 m.

Soil and litter from below shrubs, about 50 m above stream level. leg. I. Loksa & A. Zicsi. One female, Ecuador, Ecu. Berl. 192. 30 km from Otavalo, on the way to Selva Alegre, 3900 m. 22. IV. 1987. Paramo vegetation; small plants from among tussocks. leg. I. Loksa & A. Zicsi. One female and two males, Ecuador, Ecu. Berl. 193. 30 km from Otavalo, on the way to Selva Alegre, 3900 m. 22. IV. 1987. Roots and detritus of tussocks. leg. I. Loksa & A. Zicsi.

Female. Length of idiosoma 370–380 μm , width 330–340 μm ($n = 7$). Shape circular, posterior margin rounded.

Dorsal side (Fig. 34). Marginal and dorsal shields fused. All dorsal setae needle-like and bear short hairs on their apical part (Figs. 35–37). Ornamentation of dorsal shield lacking, only on central part can be seen alveolar pattern (Fig 36).

Ventral side (Figs 38 and 69). Sternal- and ventral shield without ornamentation. Sternal setae short smooth and needle like. St1 placed near the anterior margin of sternal shield, St2 placed near the posterior margin of coxae 2, St3 near the central part of coxae 3, and St4 near the anterior margin of coxae 4. One pair of lyriform fissures can be seen near of setae St1 and on posterior part of coxae 4. Ventral setae are as follows: V2 short and placed near the basal part of genital shield. V6, V7 and V8 two times longer than V2. Setae *ad* as long as V2. All of ventral setae smooth and needle-like.

Genital shield scutiform, and without process and with alveolar ornamentation on the central region. Stigmata situated between coxae 2 and 3. Peritreme hook-like.

Gnathosoma (Fig. 39). Corniculi horn-like, laciniae smooth and long, apical part of labrum with hairs. Hypostomal setae: h1 long, smooth and needle-like, h2 twice shorter than h1 smooth and needle-like, h3 smooth and needle-like, as long as h4, h4 with serrated margin. Epistome and tritosternum not clearly visible. Chelicera with nodus and fixed digit with sensillus (Fig. 40).

Male. Length of idiosoma 360–370 μm , width 320–330 μm ($n = 5$). Shape circle, posterior margin rounded.

Dorsal side. Similar to the females. Marginal and dorsal shields fused. All dorsal setae needle-like and bear short hairs on their apical part.

Alveolar ornamentation can be found on central part of dorsal shield, the pattern on the other part of dorsal shield lacking.

Ventral side (Figs 41 and 70). Sternal- and ventral shield without ornamentation. Sternal setae smooth, needle like and with different size. St1 placed near the anterior margin of sternal shield, St2 placed near the posterior margin of coxae 2, St3 near the central part of coxae 3, and St4 near the anterior margin of coxae 4, St5 near the posterior margin of genital shield. One pair of lyriform fissures can be seen near setae St1 and St5. St1 short, three times shorter than St2, St2 as long as St5, St3 and St4 1.5 times longer than St2. Ventral setae are as follows: V2 short. V6, V7 and V8 two times longer than V2. Setae *ad* as long as V2. All of the ventral setae smooth and needle-like.

Genital shield alveolar and placed between coxae 4. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped.

Distribution. Ecuador.

***Rotundabaloghia zicsiana* n. sp.**

(Figs. 42–45)

Material examined. Holotype: female, Ecuador, E. 5. Prov. Cotopaxi. Toward Latacunga at the foot of Cotopaxi Volcano. 04. V. 1993. leg. A. Zicsi & Cs. Csuzdi & M. Florenzio. Paratype: one female locality and date same as the holotype.

Diagnosis. Dorsal shield without ornamentation, dorsal setae needle-like with short hairs on their apical part. Ventral and sternal shields without ornamentation. Genital shield of female linguliform, without process and pattern. V6 setae lacking. Peritreme hook-form.

Description. Female. Length of idiosoma 300–310 μm , width 250–260 μm ($n = 2$). Shape oval, posterior margin rounded.

Male, nymphs and larva are unknown.

Dorsal side (Fig. 42). Marginal and dorsal shields fused. All dorsal setae short, needle-like and with short hairs on their apical part (Fig. 43). Dorsal shield without ornamentation.

Ventral side (Fig. 44). Sternal shield without ornamentation, all sternal setae smooth and needle-like. St1 placed near the anterior margin of sternal shield, St2 near the posterior margin of coxae 2, St3 and St4 near the posterior margin of coxae 3. Pattern of ventral shield lacking, ventral setae (V7 and V8 present, V6 absent) smooth, setiform and as long as sternal setae. V2 placed near the posterior margin of genital shield. Setae *ad* as long as the ventral setae. Lyriform fissures can be found near V2 and between V7 and V8.

Genital shield linguliform, without process and ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-form.

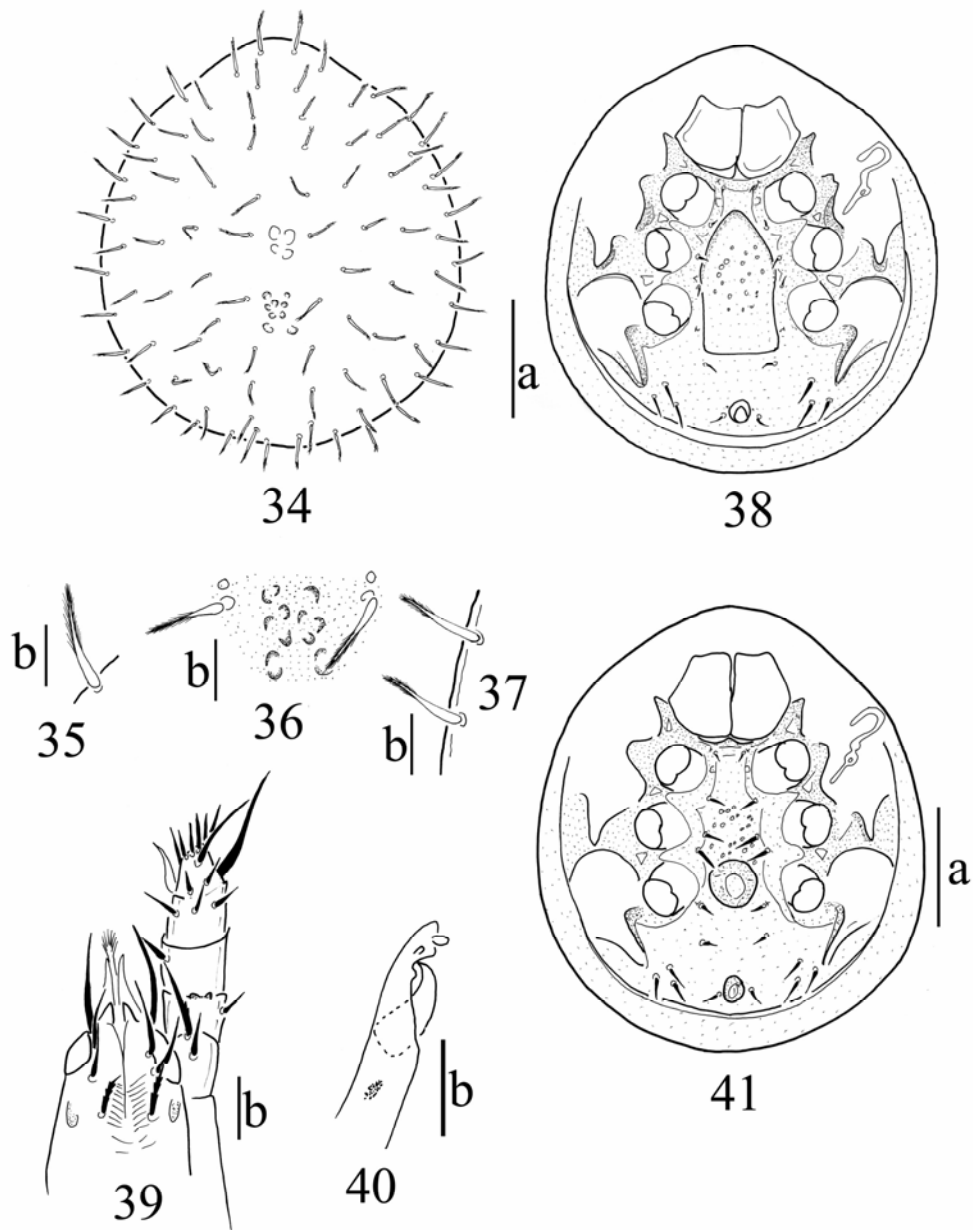
Gnathosoma (Fig. 45). Corniculi horn-like, laciniae long and smooth. Hypostomal setae are follow: h1 long, needle-like, basal part with serrated margin, h2 and h3 shorter than h1, smooth and needle-like, h4 shorter than h2, needle-like and smooth. Tritosternum with narrow basis, laciniae not clearly visible. Labrum and chelicera not clearly visible and apical part of epistome with short hairs and its basal part with spines.

Etymology. I dedicate the new species to Prof. András Zicsi, the renowned earthworm specialist, who collected soil samples in Ecuador.

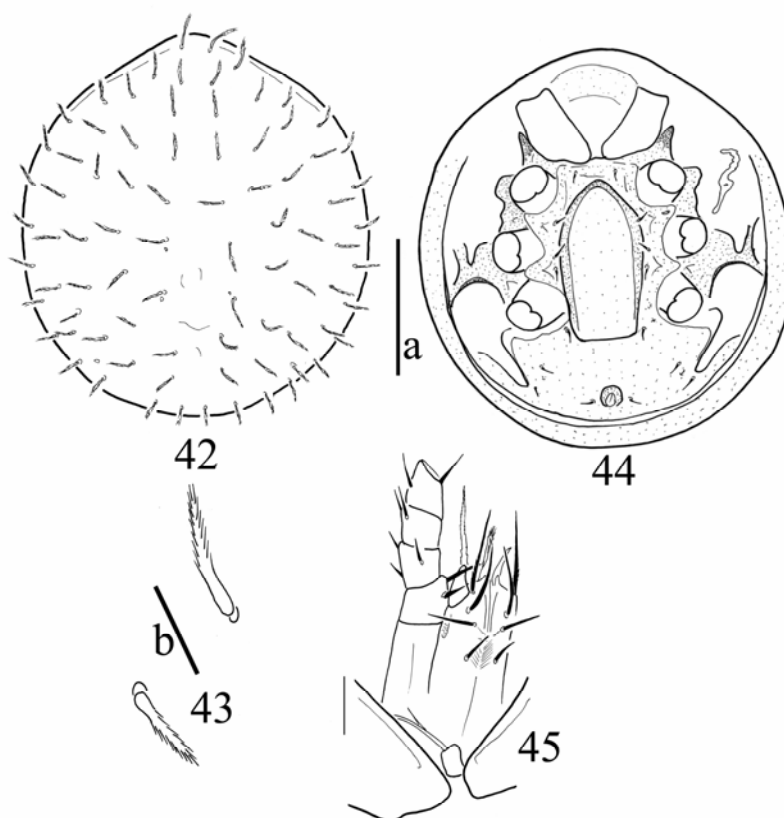
Remarks. The new species is similar to the species *Rotundabaloghia venezuelae* Hirschmann, 1992. The most important differences between the two species are shown in Table 1.

Table 1. Morphological differences between the species *R. venezuelae* and *R. zicsiana*

	<i>R. venezuelae</i>	<i>R. zicsiana</i>
Shape of genital shield	scutiform	linguliform
Place of St2	near the central part of coxae 2	near the posterior margin of coxae 2



Figures 34–41. *Rotundabaloghia ecuadorensis* Hirschmann, 1992. 34 = dorsal view of female, 35 = j1 seta, 36 = ornamentation on the dorsal shield, 37 = dorsal setae, 38 = ventral view of female, 39 = ventral view of gnathosoma, 40 = chelicera, 41 = ventral view of male. (Scale bars: a = 100 μ m, b = 20 μ m)



Figures 42–45. *Rotundabaloghia zicsiana* n. sp. 42 = dorsal view of female, 43 = dorsal setae, 44 = ventral view of female, 45 = ventral view of gnathosoma. (Scale bars: a = 100 μ m, b = 20 μ m)

***Rotundabaloghia reticuloides* n. sp.**

(Figs. 46–49)

Material examined. Holotype: female, Ecuador, Ecu. Berl. 191. 32 km from Otavalo, on the way to Selva Alegre, 3700 m. 22. IV. 1987. Wet soil and detritus of a ferny area along the creek (on creek level). leg. I. Loksa & A. Zicsi. Paratypes: one female and two males, locality and date same as holotype.

Diagnosis. Dorsal shield with fine alveolar ornamentation, dorsal setae needle-like with short hairs on their apical margin. Ventral and sternal shields of female without ornamentation, genital shield of female with reticulate pattern. Ventral shield smooth, sternal shield of male with reticulate ornamentation. All sternal setae smooth,

needle-like and shorter than ventral setae by both sexes. Peritreme hook-like.

Female. Length of idiosoma 460–470 μ m, width 400–420 μ m (n = 2). Shape oval, posterior margin rounded.

Nymphs and larva unknown.

Dorsal side (Fig. 46). Marginal and dorsal shield fused. All dorsal setae short, needle-like with short hairs on their apical margin. One pair of lyriform fissure can be seen on the central part of dorsal shield which bears fine alveolar ornamentation (Fig. 47)

Ventral side (Fig. 48). Sternal shield without ornamentation, all sternal setae smooth, short and needle-like. St1 placed near the anterior margin of coxae 2, St2 near the posterior margin of coxae 2, St3 near central region of coxae 3, St4 placed near

the anterior margin of coxae 4. Ornamentation of the ventral shield lacking, all ventral setae twice as long as the sternal setae furthermore smooth and needle-like. V2 placed near the posterior margin of genital shield. Setae *ad* as long as the ventral setae. V3 absent. Lyriform fissures can be found near V2.

Genital shield linguliform, without process and with reticulate ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-form.

Gnathosoma. Not clearly visible (covered by coxae 1).

Male. Length of idiosoma 440–460 μm , width 410–420 μm ($n = 2$). Shape circle, posterior margin rounded.

Dorsal side. Similar to the females. Marginal and dorsal shield fused. All dorsal setae short, needle-like with short hairs on their apical part. Dorsal shield with fine alveolar ornamentation.

Ventral side (Fig. 49). Sternal shield with reticulate ornamentation, all sternal setae short, smooth and needle-like. St1 placed near the anterior margin of coxae 2, St2 near the posterior margin of coxae 2, St3 near central region of coxae 3, St4 near the anterior margin of genital shield. Ornamentation of ventral shield lacking, all ventral setae twice as long as the sternal setae, smooth and needle-like. V2 placed near the posterior margin of genital shield. V3 present and as long as *ad*. Setae *ad* 1.5 times shorter than the other ventral setae (V6, V7 and V8). Lyriform fissures near V2.

Genital shield alveolar and placed between posterior margins of coxae 4. Stigmata situated between coxae 2 and 3. Peritreme hook-like.

Gnathosoma. Not clearly visible (covered by coxae 1).

Distribution. Ecuador.

Etymology. The name of the new species refers to the ornamentation of genital shield of female.

Remarks. The reticulate pattern on the genital shield of female and on the sternal shield of male is unique by species of this genus in Central- and South-America.

Rotundabaloghia ecuadorica n. sp.

(Figs. 50–53)

Material examined. Holotype: female, Ecuador, Ecu. Berl. 36. Chimborazo SW, Loma Yanausha, 4000 m. 3. IV. 1987. Cushion-plants from grazed area. leg. I. Loksa & A. Zicsi. Paratypes: two females and two males, locality and date same as holotype.

Diagnosis. Dorsal shield with fine alveolar ornamentation, dorsal setae needle-like. Sternal shield smooth, but the ventral shield bears alveolar ornamentation at the female and the sternal shield of male possesses alveolar pattern. Ornamentation of the ventral shield by both sexes alveolar. V7 and V8 setae bear hairs on their margins. Peritreme P-shaped.

Female. Length of idiosoma 340–370 μm , width 330–340 μm ($n = 3$). Shape oval, posterior margin rounded.

Nymphs and larva are unknown.

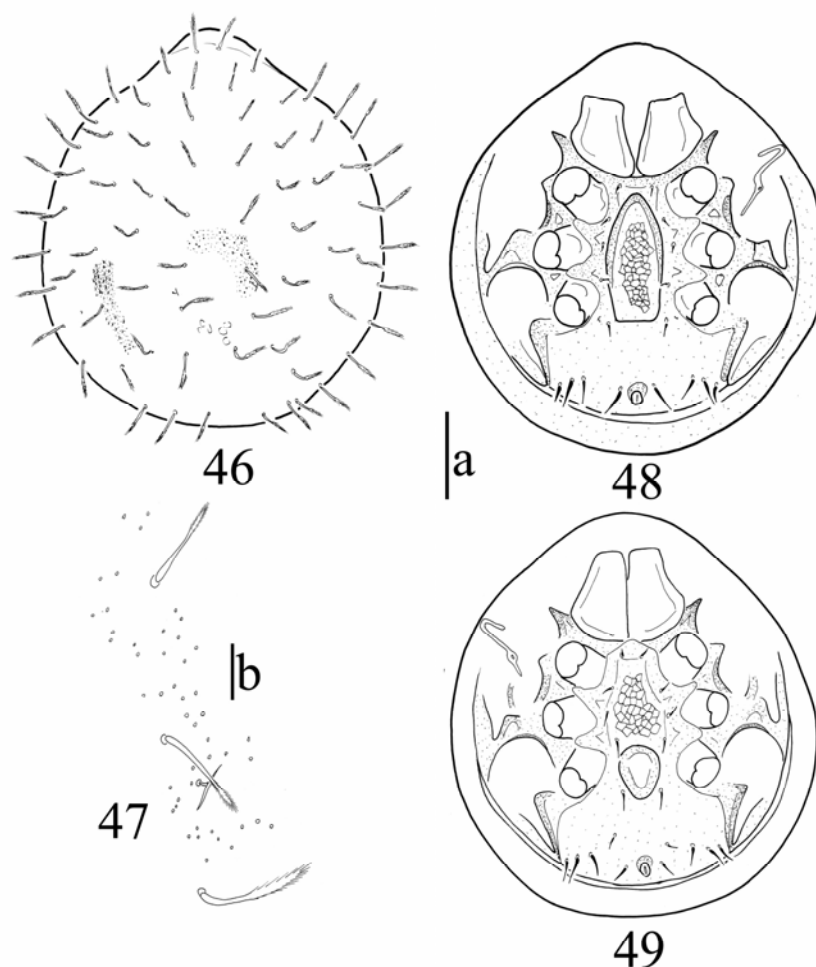
Dorsal side (Fig. 50). Marginal and dorsal shield fused. All dorsal setae short, smooth and needle-like. Fine alveolar ornamentation can be found on the dorsal shield.

Ventral side (Fig. 51). Sternal shield without ornamentation, all sternal setae smooth, short and needle-like. St1 placed near the anterior margin of coxae 2, St2 near the posterior margin of coxae 2, St3 near the central region of coxae 3, St4 is near the anterior margin of coxae 4. Alveolar ornamentation on the ventral shield present. V2, *ad* and V6 smooth and needle-like, V3 absent, V7 and V8 with hairs on their margins (Fig. 52). Lyriform fissures near V2 and between V6 and V7.

Genital shield linguliform, without process and with alveolar ornamentation. Stigmata situated between coxae 2 and 3. Peritreme characteristic P-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1).

Male. Length of idiosoma 440–460 μm , width 410–420 μm ($n = 2$). Shape circular, posterior margin rounded.



Figures 46–49. *Rotundabaloghia reticuloides* n. sp. 46 = dorsal view of female, 47 = dorsal setae and ornamentation, 48 = ventral view of female, 49 = ventral view of male. (Scale bars: a = 100 μ m, b = 20 μ m).

Dorsal side. Similar to that of the females. Marginal and dorsal shield fused. All dorsal setae short, smooth and needle-like. Dorsal shield with fine alveolar ornamentation.

Ventral side (Fig. 53). Sternal shield with alveolar ornamentation, all sternal setae short, smooth and needle-like. St1 placed near the anterior margin of coxae 2, St2 near the posterior margin of coxae 2, St3 near the central region of coxae 3, St4 placed near the anterior margin of genital shield. Ornamentation of the ventral shield alveolar, V2, V3, *ad* and V6 smooth and needle-like, V7 and V8 with hairs on their margins.

Genital shield alveolar and placed between posterior margins of coxae 4. Stigmata situated between coxae 2 and 3. Peritreme characteristic P-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1).

Distribution. Ecuador.

Etymology. The name of the new species refers to the country where the species was collected.

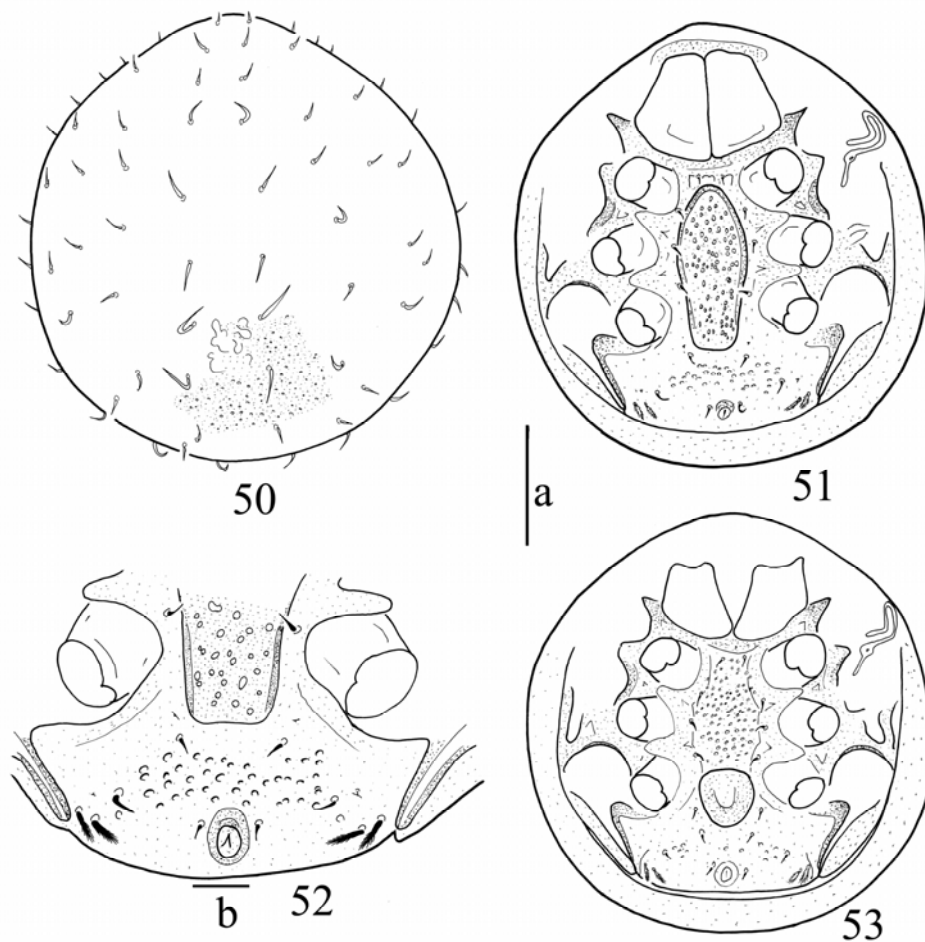
Remarks. The new species belongs to the *mahunkai*-species group (the common characters of

this group are the followings: ornamentation on genital- and ventral shields presents furthermore V7 and V8 bear hairs on their margin). Only one species is known from this species group from

Central and South America (*R. monserratis* Hirschmann, 1992). The new species differs from *R. monserratis* in the characters shown in Table 2.

Table 2. Morphological differences between *R. ecuadorica* and *R. monserratis*

	<i>R. ecuadorica</i>	<i>R. monserratis</i>
Length of sternal setae	short (St2 not reach to basis of St3)	long (St2 reach to basis of St3)
Length of ventral setae	short (V2 not reach to basis of V6)	long (V2 reach to basis V6)
Shape of peritreme	characteristic P-shaped	hook-shaped



Figures 50–53. *Rotundabaloghia ecuadorica* n. sp. 50 = dorsal view of female, 51 = ventral view of female, 52 = ventroanal region of female, 53 = ventral view of male. (Scale bars: a = 100 μ m, b = 20 μ m)

***Rotundabaloghia resiniae* Hirschmann, 1992**

(Figs. 54–57 and 71)

Rotundabaloghia resiniae Hirschmann: 1992b, p. 63., Fig: p. 62.

Rotundabaloghia resiniae: Wiśniewski & Hirschmann 1993 p. 79., Wiśniewski 1993 p. 235.

Material examined. One female and four males, from Colombia, near Rio Claro, from lichens and moss, 05.X.-15.XI.1984. leg. J. Balogh and six females and eight males, from Colombia, near Rio Claro, from leaf litter, 05.X.-15.XI.1984. leg. J. Balogh.

Female. Length of idiosoma 330–340 μm , width 300–310 μm ($n = 7$). Shape circle, posterior margin rounded.

Dorsal side (Fig. 54). Marginal and dorsal shield fused. All dorsal setae needle-like and bear short hairs on their apical part (Fig 55). Ornamentation of dorsal shield lacking.

Ventral side (Fig. 56). Sternal and ventral shield without ornamentation. Sternal setae short smooth and needle-like. St1 placed the anterior margin of genital shield, St2 placed near the posterior margin of coxae 2, St3 and St4 near coxae 3, St 5 can be seen near the posterior margin of genital shield. One pair of lyriform fissures can be seen near St5. Ventral setae are as follows: V2 short. V6, V7 and V8 two times longer than V2. Setae *ad* as long as V2. All ventral setae smooth and needle-like.

Genital shield long, apical part wider than the basal part, linguliform, and without process and ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped.

Gnathosoma. Not the entire gnathosoma is visible. Visible part is as follows: corniculi horn-like, laciniae smooth, apical part subdivided with two short branches. Hypostomal setae: h1 long, smooth and needle-like, h2 twice shorter than h1 smooth and needle-like, h3 as long as h2, their margin serrated. Epistome with serrated margin on its basal part and short hairs on its apical part. Tritosternum not clearly visible. Chelicera with nodus and fixed digit with sensillus.

Male. Length of idiosoma 340–350 μm , width 310–320 μm ($n = 12$). Shape circle, posterior margin rounded.

Dorsal side. Similar to the females. Marginal and dorsal shields fused. All dorsal setae needle-like and bear short hairs on their apical part. Dorsal shield without ornamentation.

Ventral side (Figs 57 and 71). Sternal and ventral shield without ornamentation. Sternal setae short smooth, needle like and arranged in two lines in the central region of the sternal shield. Distance between St1 and St2 two times longer than distances between St2 and St3, and St3 and St4. Ventral setae are as follows: V2 short. V6, V7 and V8 two times longer than V2. Setae *ad* as long as V2. All of the ventral setae smooth and needle-like.

Genital shield alveolar and placed between coxae 4. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1).

Distribution. Colombia.

***Rotundabaloghia coricoensiformis* n. sp.**

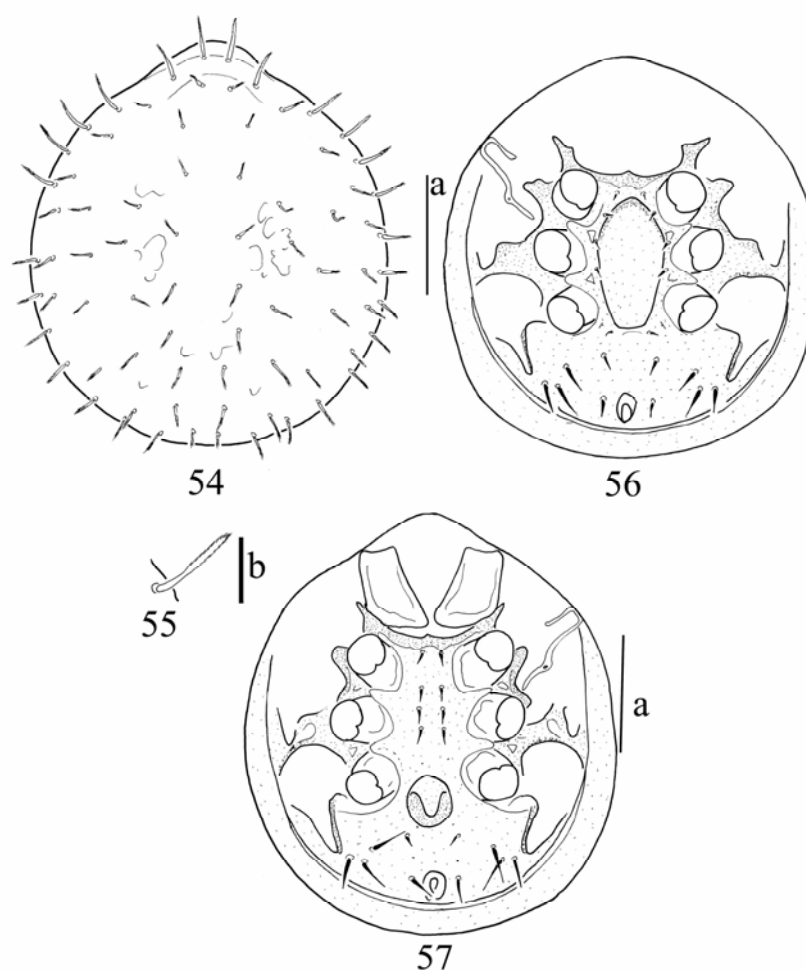
(Figs. 58–60)

Material examined. Holotype: female from Columbia, near Rio Claro, from leaf litter, 05.X.-15.XI.1984. leg. J. Balogh. Paratype: one female and one male from Colombia, near Rio Claro, from leaf litter, 05.X.-15.XI.1984. leg. J. Balogh, and one male from Colombia, near Rio Claro, from lichens and moss, 05.10.-15.11.1984. leg. J. Balogh.

Diagnosis. Dorsal shield ornamentation lacking, dorsal setae needle-like. Ventral and sternal shields without ornamentation. St3 of female three times longer than other sternal setae. Genital shield of female linguliform, without process and pattern. All ventral setae long, smooth and needle-like. Peritreme hook-shaped.

Female. Length of idiosoma 320–330 μm , width 290–300 μm ($n = 2$). Shape oval, posterior margin rounded.

Nymphs and larva are unknown.



Figures 54–57. *Rotundabaloghia resiniae* Hirschmann, 1992. 54 = dorsal view of female, 55 = dorsal seta, 56 = ventral view of female, 57 = ventral view of male. (Scale bars: a = 100 μ m, b = 20 μ m)

Dorsal side (Fig. 58). Marginal and dorsal shields fused. All dorsal setae short, needle-like. Dorsal shield without ornamentation.

Ventral side (Fig. 59). Sternal shield without ornamentation, all sternal setae smooth and needle-like. St1 short, placed near the anterior margin of sternal shield, St2 twice longer than St1 and located near of coxae 2, St3 placed near the anterior region of coxae 3 and three times longer than St1. St4 as long as St1, and can be seen near the anterior margin of coxae 4. Ornamentation of ventral shield lacking, all ventral setae long (as long as St3) smooth and needle-like. V2 placed near the posterior margin of genital shield. Setae *ad* as long as the ventral setae. Lyriform fissures

can be found near V2 and between V6 and V7.

Genital shield linguliform, without process and ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-form.

Gnathosoma. Not clearly visible (covered by coxae 1).

Male. Length of idiosoma 310–320 μ m, width 270–290 μ m (n = 2). Shape circle, posterior margin rounded.

Dorsal side. Similar to the females. Marginal and dorsal shields fused. All dorsal setae short, needle-like. Dorsal shield without ornamentation.

Ventral side (Fig. 60). Sternal shield without ornamentation, all sternal setae smooth and nee-

dle-like. Sternal setae arranged in lines. St1 short, placed near the anterior margin of sternal shield, St2, St3 and St4 three times longer than St1. Pattern of ventral shield lacking, all ventral setae long, smooth and needle-like. V2 placed near the posterior margin of genital shield, V2 as long as St1. Setae *ad* as long as the ventral setae. Ly-riform fissures can be found near V2, and between V6 and V7.

Genital shield alveolar and placed between posterior margins of coxae 4. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped.

Gnathosoma. Not clearly visible (covered by coxae 1).

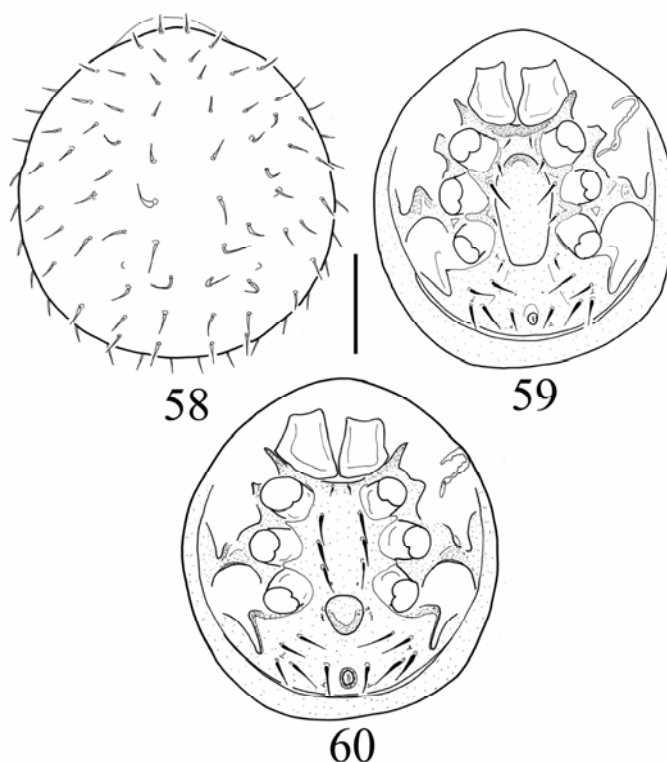
Distribution. Colombia.

Etymology. The new species is similar to the species *Rotundabaloghia coricoensis* Hirschmann, 1981, the name of the new species refers to the *R. coricoensis* and the similarity.

Remarks. The new species is similar to the species *Rotundabaloghia coricoensis* Hirschmann, 1992. The most important differences between the two species are shown in Table 3.

Table 3. Main differences between *R. coricoensis* and *R. coricoensiformis*

	<i>R. coricoensis</i>	<i>R. coricoensiformis</i>
	<i>Female</i>	<i>Female</i>
Place of St1	near the anterior margin of genital shield	near the anterior margin of sternal shield
Size of V2	long	short
	<i>Male</i>	<i>Male</i>
Size of V2	long	short



Figures 58–60. *Rotundabaloghia coricoensiformis* n. sp. 58 = dorsal view of female, 59 = ventral view of female, 60 = ventral view of male. (Scale bar: 100 µm)

***Rotundabaloghia extremica* n. sp.**

(Figs. 61–67)

Material examined. Holotype: female, Columbia, near Rio Claro, from leaf litter, 05.X.-15.XI. 1984. leg. J. Balogh. Paratypes: one female and one male, locality and date same as holotype.

Diagnosis. Dorsal shield with alveolar ornamentation, which forms a net structure. All dorsal setae needle-like, with hairs on their margin. Sternal shield smooth, but ventral shield bear alveolar ornamentation in the female and the sternal shield of male with alveolar pattern. St2 and St3 longer and wider than St1 and St4. St2 and St4 can be found in extreme position by the male. Ornamentation of ventral shield in the females and males is alveolar. Apical part of V8 setae bone-shaped. Peritreme hook-form.

Female. Length of idiosoma 270–280 μm , width 240–260 μm ($n = 2$). Shape oval, posterior margin rounded.

Nymphs and larva are unknown.

Dorsal side (Fig. 61). Marginal and dorsal shields fused. All dorsal setae with hairs on their margins (Figs 62–64). Dorsal shield bears alveolar ornamentation, which forms a net structure (Fig. 63).

Ventral side (Fig. 65). Sternal shield without ornamentation, all sternal setae smooth and needle-like. St1 short, placed near the anterior margin of coxae 2, St2 near the central region of coxae 2, wider and twice longer than St1, St3 near the anterior margin of coxae 3, similar to St2. St4 placed near the anterior margin of coxae 4 and three times shorter than St3. Pattern of ventral shield alveolar. V2 and V6 smooth and needle-like and two times shorter than St4. V3 absent. V7 and as long as *ad*, smooth and needle-like, but three times longer than V2 and V6. V8 as long as V7. The apical part of V8 bone-shaped. Lyriform fissures can be found near V2 and near V8.

Genital shield linguliform, without process and with alveolar ornamentation. Stigmata situated between coxae 2 and 3. Peritreme hook-form.

Gnathosoma (Fig. 66). Corniculi horn-like

laciniae twice longer than corniculi and smooth. Labrum with short spines on its apical part. Hypostomal setae are as follows: h1 smooth, long and needle-like, h2 similar to the h1, but twice shorter than h1, h3 smooth, needle-like and 1.5 longer than h2, h4 with serrated margin and as long as h2. Basal part of the epistome with serrated margin, apical part with short hairs. Chelicerae with nodus, and the fixed digit with sensillus. Setae of basal part of palp are shown in Fig. 66.

Male. Length of idiosoma 370 μm , width 310 μm ($n = 1$). Shape circle, posterior margin rounded.

Dorsal side. Marginal and dorsal shields fused. All dorsal setae with hairs on their margins. Dorsal shield bears alveolar ornamentation, which forms a net structure.

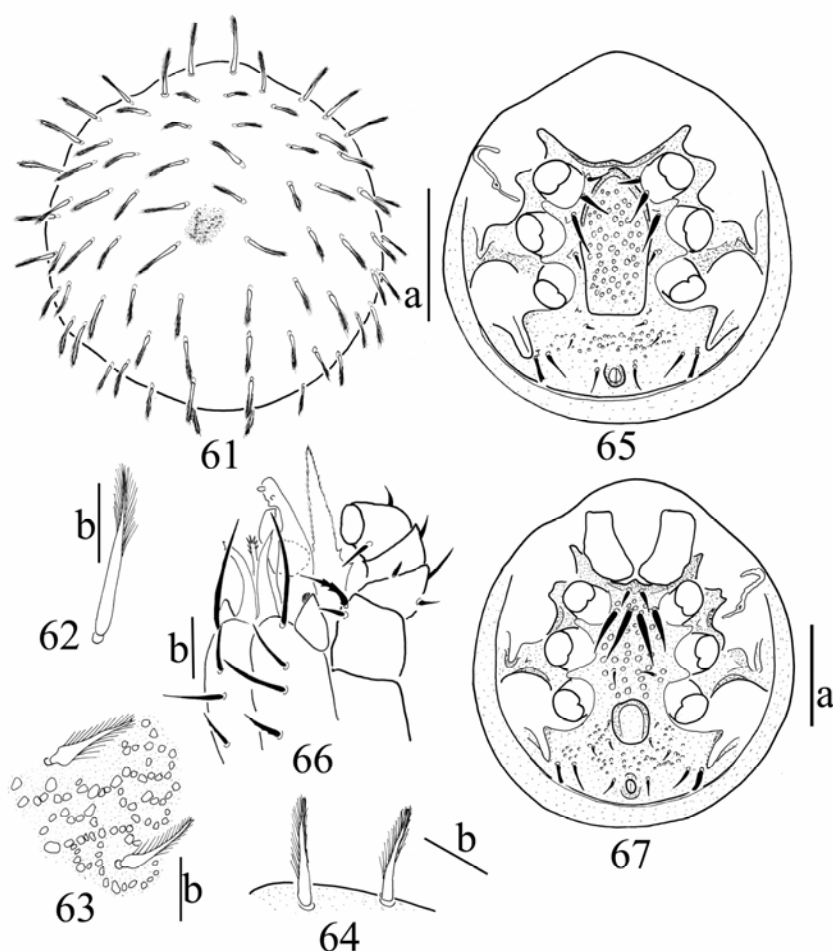
Ventral side (Fig. 67). Sternal shield with alveolar ornamentation, all sternal setae smooth. St1 short, placed near the anterior margin of sternal shield, St2 and St3 near the central region of coxae 2, wider and twice longer than St1, St4 placed near the anterior margin of coxae 4 and three times shorter than St3. Pattern of ventral shield alveolar. V2, V3 and V6 smooth and needle-like, and two times shorter than St4. V7 1.5 times longer than *ad*, V7 and *ad* smooth and needle-like. V8 as long as V7, and the apical part of V8 bone-shaped.

Genital shield alveolar and placed between posterior margins of coxae 4. Stigmata situated between coxae 2 and 3. Peritreme hook-shaped

Gnathosoma. Not clearly visible (covered by coxae 1).

Etymology. The name of the new species refers to the extreme position of St2 and St3 on the sternal shield of male.

Remarks. The new species is well distinguishable from the heretofore known *Rotundabaloghia* species by the position and shape of sternal setae. Setae St3 are placed in an unusual position in the new species; between setae St2. The shape of the setae V8 is bone-shaped, which is also an unknown feature in other *Rotundabaloghia* species.



Figures 61–67. *Rotundabaloghia extremica* n. sp. 61 = dorsal view of female, 62 = j1 seta, 63 = dorsal ornamentation, 64 = dorsal setae, 65 = ventral view of female, 66 = ventro-lateral view of gnathosoma, 67 = ventral view of male. (Scale bars: a = 100 μ m, b = 20 μ m)

***Rotundabaloghia congoensis* Hirschmann, 1992**

(Figs 72–76)

Rotundabaloghia congoensis Hirschmann: 1992a, p. 37., Fig: p. 39.

Rotundabaloghia congoensis: Wiśniewski & Hirschmann 1993 p. 73., Wiśniewski 1993 p. 244.

Material examined. Two females. Congo Republic, Sibiti, IRHO rain forest, Berlese sample, litter and humus. 24.XI.1963. leg. J. Balogh & A. Zicsi (No 233).

Female. Length of idiosoma μ m, width μ m (n = 3). Shape circle, posterior margin rounded.

Dorsal side (Fig. 72). Marginal and dorsal shields fused. All dorsal setae needle-like and

bear short hairs on their apical part (Fig. 73). Ornamentation of dorsal shield lacking.

Ventral side (Figs 74 and 76). Sternal and ventral shields without ornamentation. Sternal setae short smooth and needle like. St1 placed near anterior margin of sternal shield, St2 placed near the posterior margin of coxae 2, St3 and St4 near the posterior part of coxae 3. Ventral setae are as follows: V2 short and placed near the basal part of genital shield. V6, V7 and V8 two times longer than V2. Setae *ad* as long as V7. All ventral setae smooth and needle-like.

Genital shield scutiform, and without process and with small alveolar ornamentation on the

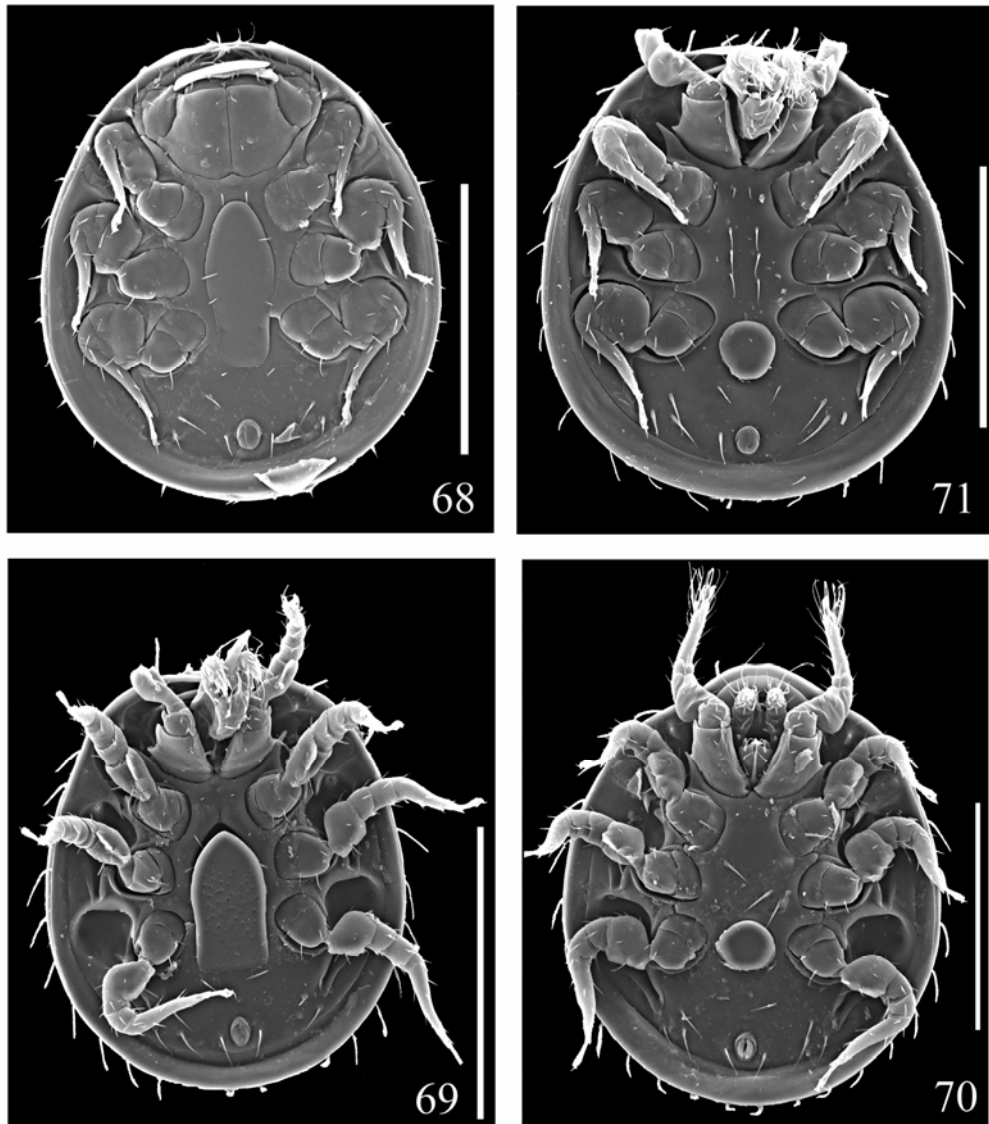
central region. Stigmata situated between coxae 2 and 3. Peritreme hook-like.

Gnathosoma (Fig. 75). Corniculi horn-like, laciniae smooth and long, apical part of labrum with hairs. Hypostomal setae: h1 long, smooth and needle-like, h2 three times shorter than h1, smooth and needle-like, h3 smooth and needle-like, shorter than h1, h4 twice shorter than h2 and

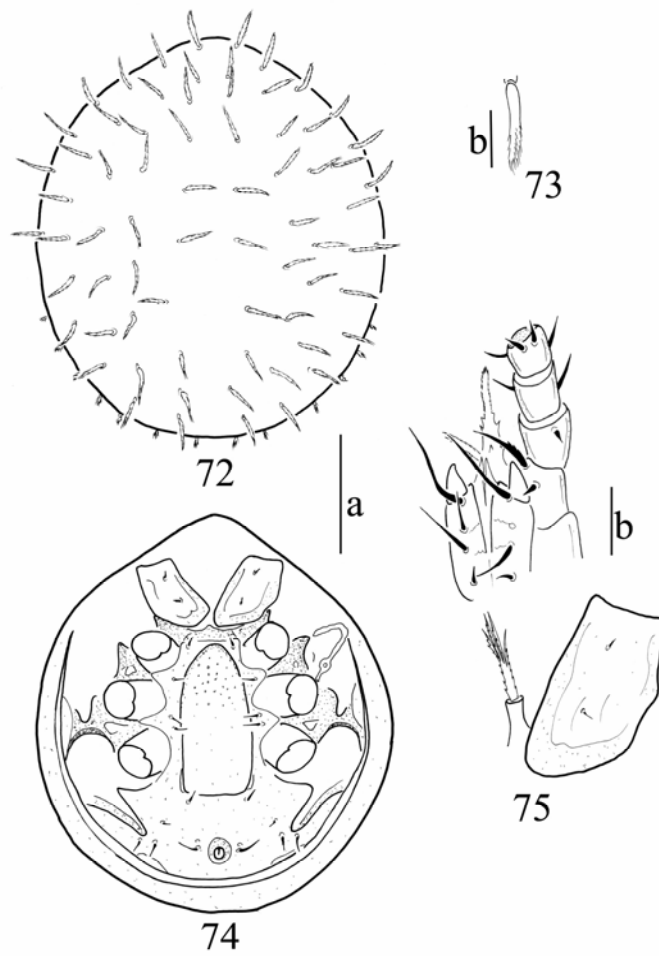
smooth. Epistome with serrated basis and apical part bear short hairs. Tritosternum with four branches, margin of branches serrated. Chelicerae not clearly visible.

Distribution. Congo Republic.

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Figures 68–71. Scanning micrograph of *Rotundabaloghia* species. 68 = dorsal view of *R. soliformis* Hirschmann, 1992 (female), 69 = dorsal view of *R. ecuadorensis* Hirschmann, 1992 (female), 70 = dorsal view of *R. ecuadorensis* Hirschmann, 1992 (male), 71 = dorsal view of *R. resinae* Hirschmann, 1992 (male). (Scale bar: 100 μ m)



Figures 72–75. *Rotundabaloghia congoensis* Hirschmann, 1992. 72 = dorsal view of female, 73 = dorsal setae, 74 = ventral view of female, 75 = ventral view of gnathosoma. (Scale bars: a = 100 μ m, b = 20 μ m)



Figure 76. Scanning micrograph of *Rotundabaloghia congoensis* Hirschmann, 1992. (Scale bar: 100 μ m)

REFERENCES

- BALOGH, J., ENDRÓDY-YOUNGA, S. & ZICSI, A. (1965): The scientific results of the Hungarian Soil Zoological Expedition to the Brazzaville-Congo. A report on the collectings. *Rovartani Közlemények (Folia Entomologica Hungarica)*, 18: 213-280.
- HIRSCHMANN, W. (1972): Gangsystematik der Parasitiformes. Teil 127. Teilgänge, Stadien von 19 neuen *Uroobovella*-Arten (Dinychini, Uropodinae). *Acarologie*, 18: 110-119.
- HIRSCHMANN, W. (1973): Gangsystematik der Parasitiformes. Teil 183. Stadien von 4 neuen *Uroobovella*-Arten (Dinychini, Uropodinae). *Acarologie*, 19: 166-168.
- HIRSCHMANN, W. (1975a): Die Gattung *Rotundabaloghia* nov. gen. Hirschmann, 1975 (Dinychini, Uropodinae). *Acarologie*, 21: 23-26.
- HIRSCHMANN, W. (1975b): Teilgänge, Stadien von 16 *Rotundabaloghia*-Arten (Dinychini, Uropodinae). *Acarologie*, 21: 28-34.
- HIRSCHMANN, W. (1975c): Gangsystematik der Parasitiformes. Teil 202. Adult Bestimmungstabelle von 20 *Rotundabaloghia*-Arten (Dinychini, Uropodinae). *Acarologie*, 21: 26-28.
- HIRSCHMANN, W. (1981): Stadien von 2 neuen *Rotundabaloghia*-Arten aus Bolivien und Brasilien (Dinychini, Uropodinae). *Acarologie*, 28: 121-122.
- HIRSCHMANN, W. (1984): Gang, Teilgänge, Stadien von 6 neuen *Rotundabaloghia*-Arten aus Rwanda, Kolumbien und Kamerun. *Acarologie*, 31: 25-31.
- HIRSCHMANN, W. (1992a): 26 *Rotundabaloghia*-Arten aus Afrika (Ghana, Kamerun, Kongo, Rwanda, Tanzania) (Dinychini, Uropodinae). *Acarologie*, 39: 25-45.
- HIRSCHMANN, W. (1992b): 28 *Rotundabaloghia*-Arten aus Südamerika (Kolumbien) (Dinychini, Uropodinae). *Acarologie*, 39: 45-68.
- HIRSCHMANN, W. (1992c): 41 *Rotundabaloghia*-Arten aus Südamerika (Venezuela, Ekuador, Peru, Bolivien, Brasilien) und Mittelamerika (Guatemala) (Dinychini, Uropodinae). *Acarologie*, 39: 69-95.
- HIRSCHMANN, W. & HIRAMATUS, N. (1975): 34 *Rotundabaloghia*-Arten aus Asien (Japan, Neuguinea, Philippinen, Borneo) (Dinychini, Uropodinae). *Acarologie*, 39: 9-25.
- HIRAMATSU, N. (1983): Neue und seltene Arten der Gattung *Rotundabaloghia* (Acarina, Mesostigmata, Uropodidae) aus Borneo. *Annotationes Zoologicae Japonenses*, 56 (2): 122-140.
- KONTSCHÁN, J. (2007): Uropodina mites (Acari: Mesostigmata) from Venezuela, with descriptions of four new species. *Acta Zoologica Academiae Scientiarum Hungaricae*, 53(4): 335-246.
- KONTSCHÁN, J. (2008): Four new species of *Rotundabaloghia* Hirschmann, 1975 from East Africa (Acari: Uropodidae). *Zootaxa*, 1853: 18-30.
- WIŚNIEWSKI, J. (1993): Die Uropodiden der Erde nach zoogeographischen Regionen und Subregionen geordnet. (Mit Angabe der Lande.) *Acarologie*, 40: 221-291.
- WIŚNIEWSKI, J. & HIRSCHMANN, W. (1993): Katalog der Ganggattungen, Untergattungen, Gruppen und Arten der Uropodiden der Erde. *Acarologie*, 40: 1-220.
- ZICSI, A. & CSUZDI, Cs. (2008): Report on the soil-zoological expeditions to Ecuador and Colombia between 1986–1993. I. List of localities and habitats of "Berlese" samples. *Opuscula Zoologica Budapestensis*, 37: 71-88.

