

Remarks on the genus *Afrotrachytes* Kontschán, 2006 (Acari: Uropodina), with description of two new species

J. KONTSCHÁN¹

Abstract. In this paper two new species of the genus *Afrotrachytes* Kontschán, 2006 are presented: *Afrotrachytes bercziki* and *A. mirabilis* spp. nov. They represent the first records of the genus in South America (Ecuador) and West Africa (Cameroon), respectively.

The uropodine genus *Afrotrachytes* was established by Kontschán (2006 a) on the basis of a newly described species, *Afrotrachytes seticaudatus* Kontschán, 2006 collected in Angola. In the very same year, Kontschán (2006 b) described a further new species of this genus, *Afrotrachytes longicaudatus* Kontschán, 2006 from Tanzania.

Present paper contains the first South American and West African records of this genus with description of two new species. On the basis of these new fascinating occurrences, the endemic status of *Afrotrachytes* in Africa is reconsidered.

MATERIAL AND METHODS

Specimens were cleared in lactic acid and later stored in alcohol. Drawings were made with a drawing tube. Specimens examined are deposited in the Soil Zoology Collections of the Hungarian Natural History Museum, Budapest (Hungary) and the Arachnida Collection of the Natural History Museum, London (United Kingdom). Abbreviations used: h1-h4, hypostomal setae, St1-St5, sternal setae. All measurements are given in micrometres (µm).

DESCRIPTIONS

Afrotrachytes Kontschán, 2006

Afrotrachytes Kontschán, 2006a: p. 2.; Kontschán 2006b: p. 53.

Diagnosis. Color yellowish-brown. Idiosoma oval with long vertex. Legs as long as idiosoma. First legs without ambulacral claws. All legs bear wide dorsal and ventral processes and wide phylliform setae. Dorsal and marginal shields fused anteriorly, postdorsal shield present. Several (three pairs or more) long and phylliform caudal setae can be seen on ventral and dorsal idiosoma. One pair of horn-like anterior humps is found on dorsal idiosoma in the level of coxae II. Genital shield of female oval, without anterior process.

Type species. *Afrotrachytes seticaudatus* Kontschán, 2006 by original designation.

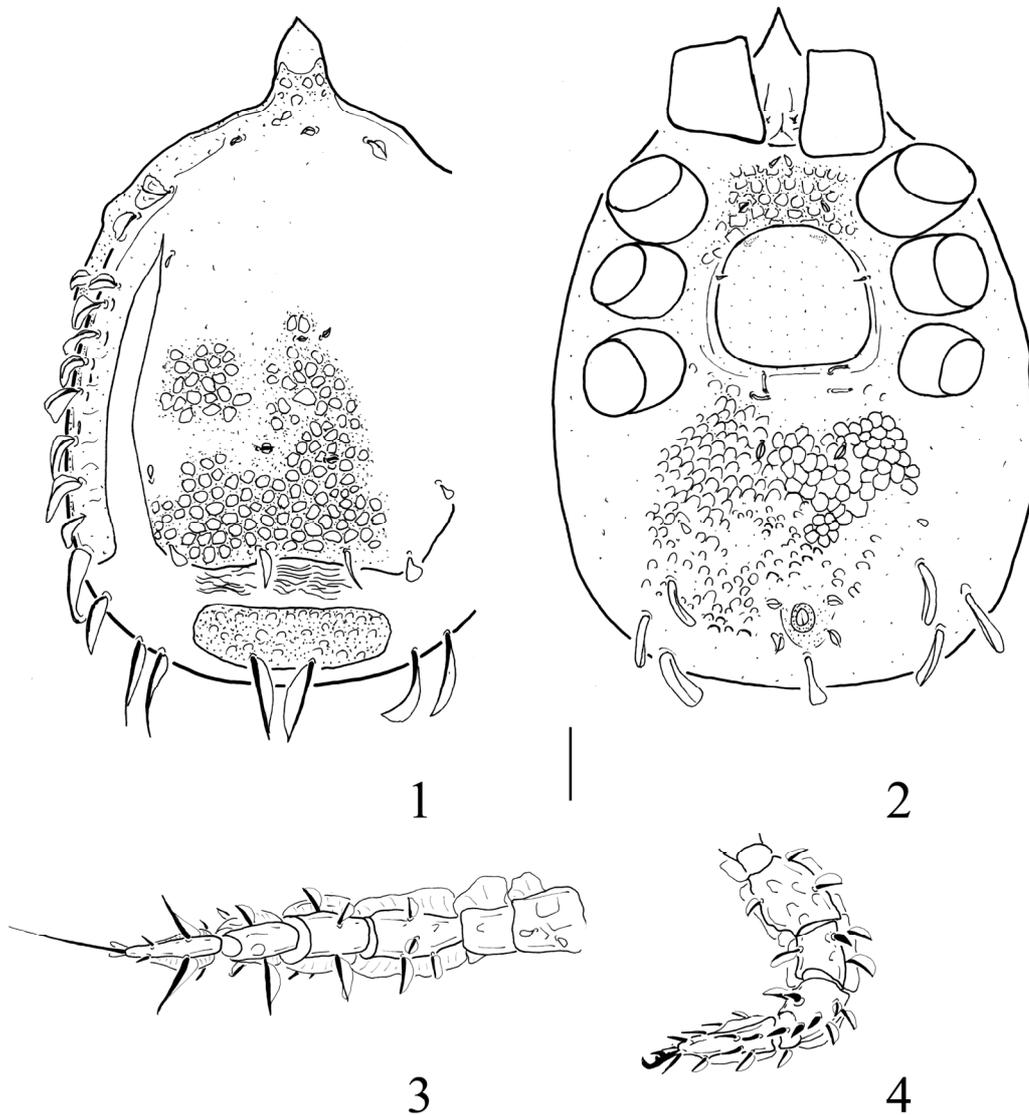
Known species. *A. seticaudatus* Kontschán, 2006 from Angola and *A. longicaudatus* Kontschán, 2006 from Tanzania.

Afrotrachytes bercziki sp. nov.

(Figs. 1–4)

Material examined. Holotype: female. Ecu. B. 65, Ecuador, Prov. Pichincha, Chiriboga, 1850 m a.s.l., 18. IV. 1989; secondary rain forest, from leaf litter and soil; collected by A. Zicsi and I. Loksa (Zicsi and Csuzdi, 2008). Paratype: one female. Locality and date same as that of the holotype. Holotype and paratype are deposited in the Soil Zoology Collections of the Hungarian Natural History Museum, Budapest.

¹Dr. Jenő Kontschán, MTA Zootaxonomiai Kutatócsoport és Magyar Természettudományi Múzeum (Systematic Zoology Research Group of the Hungarian Academy of Sciences, and Hungarian Natural History Museum), H-1088 Budapest, Baross u. 13, Hungary. E-mail: kontscha@zool.nhmus.hu



Figures 1–4. *Afrotrachytes bercziki* n. sp. (female). 1 = dorsal view, 2 = ventral view, 3 = leg I, 4 = leg IV. (Scale bar: 100 μ m)

Diagnosis. Dorsal, sternal and postdorsal shield covered by alveolar ornamentation, sculptural pattern of ventral shield squamous. Dorsal setae short and phylliform, marginal setae long, wide and phylliform. Adanal setae phylliform, postanal seta spatuliform. First and second sternal setae phylliform, St3 and St4 needle-like, St5 and V1 apically serrated.

Female. Length of idiosoma 950–960 μ m, diameter 630–650 μ m (n = 2). Shape oval, posterior margin rounded, vertex present.

Dorsal idiosoma (Fig. 1). Dorsal and marginal shields anteriorly fused. Dorsal setae short and phylliform, except two pairs near the posterior margin of dorsal shield, which two times longer

than the others. Marginal setae wide, long and phylliform. Postdorsal shield bears one pair of long phylliform seta. Three pairs of long phylliform setae placed on membranous cuticle near the caudal region. Dorsal and postdorsal shields covered by alveolar sculptural pattern.

Ventral idiosoma (Fig. 2). Basis of tritosternum wide, subtriangular, tritosternal laciniae not clearly visible. Sternal shield with alveolar ornamentation. All sternal setae short. St1 and St2 phylliform and placed between coxae II. St3 and St4 needle-like found near to the margins of genital shield in level of coxae III. St5 and V1 anteriorly serrated and placed near to the posterior margin of genital shield. Two pairs of short and phylliform setae and three pairs of long and leaf-like setae can be seen on the ventral shield. Two pairs of adanal setae short and phylliform, postanal seta three times longer than adanal setae and spatuliform. Ornamentation of ventral shield tile-like.

Genital shield oval, without ornamentation and process.

Legs (Figs 3–4). Leg I without ambulacral claws. Each leg bears phylliform setae and wide dorsal and ventral processes.

Gnathosoma. Only partly visible. Corniculi horn-like, h1 long and setiform, h2 short and anteriorly bifurcated. Epistome, palps and chelicerae not clearly visible.

Male, nymphs and larvae were not observed.

Etymology. The new species is dedicated to Prof. Dr. Árpád Berczik on his eightieth birthday.

***Afrotrachytes mirabilis* sp. nov.**

(Figs. 5–11)

Material examined. Holotype: female. Cameroon, SW Prov., Songo, forest at edge of rubber plantation, from leaf litter, 16. VIII. 1988. Leg. M. Judson. Paratype: three females and two males. Locality and date same as that of the holo-

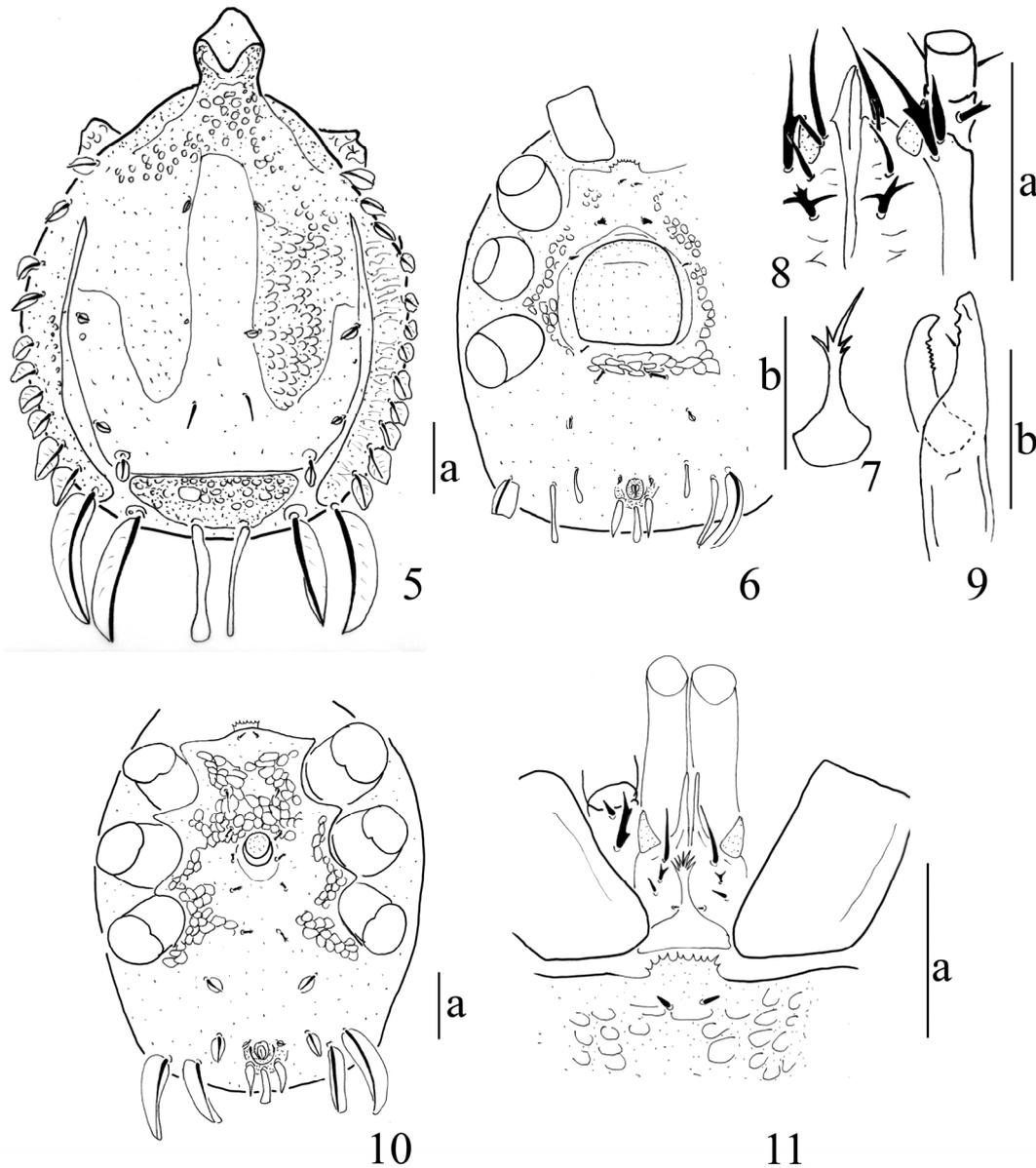
type. Holotype and paratypes are deposited in the Arachnida Collection of the Natural History Museum, London.

Diagnosis. Anterior part of dorsal-, sternal and postdorsal shield covered by alveolar ornamentation. Sculptural pattern of the lateral region of dorsal shield squamosus. Ventral shield without ornamentation. Dorsal setae short and phylliform, only one pair of setae needle-like, found on the central part. Marginal setae long, wide and phylliform. Adanal setae phylliform, the first pair four times shorter than the second pair, postanal seta spatuliform. First sternal setae needle-like, second sternal setae subtriangular and apically serrated, St3 needle-like, St5 and V1 apically serrated. Phylliform setae on caudal part of dorsum four times longer than the marginal setae. Setae on postdorsal shield long and spatuliform.

Female. Length of idiosoma 710–730 μm , width 510–540 μm ($n = 4$). Shape oval, posterior margin rounded, vertex present.

Dorsal idiosoma (Fig. 5). Dorsal and marginal shields anteriorly fused. Dorsal setae short and phylliform, only one pair of needle-like setae is found on the central region of dorsal shield. Marginal setae wide, long and phylliform. Postdorsal shield bears one pair of long spatuliform seta. Two pairs of very long (four times longer than the marginal setae) phylliform setae can be seen on caudal region, one of them placed on membranous cuticle and the other pair on the caudal part of the marginal shield. Anterior region of dorsal shield bears alveolar ornamentation. Lateral region with tile-like sculptural pattern, central and caudal regions smooth. Postdorsal shield covered by alveolar ornamentation.

Ventral idiosoma (Fig. 6). Basis of tritosternum wide, subtriangular, tritosternal laciniae subdivided in five branches (Fig. 7). Sternal shield with alveolar ornamentation. All of sternal setae short. St1 needle-like, St2 subtriangular, apically serrated and placed between coxae II. St3 needle-like found near the margins of genital shield, on the level of coxae III. St4 not clearly visible.



Figures 5–11. *Afrotrachytes mirabilis* n. sp. (female). 5 = dorsal view, 6 = ventral view, 7 = tritosternum, 8 = ventral view of gnathosma, 9 = chelicerae, 10 = ventral view of male, 11 = ventral view of male gnathosoma. (Scale bar a: 100 μ m, B: 20 μ m)

St5 and V1 anteriorly serrated and placed near of the posterior margin of genital shield. One pair of short and phylliform setae, two pairs of long and spatuliform setae and one pair of long phylliform setae can be seen on the ventral shield. First pair of adanal setae short and phylliform, second pair

also phylliform and four times longer than the first pair. Postanal seta spatuliform, as long as the second pair of adanal setae. Ventral shield mostly without ornamentation, but near the posterior margin of genital shield some tile-like sculptural pattern can be seen.

Genital shield oval, without ornamentation and process.

Legs. Leg I without ambulacral claws. All legs bear phylliform setae and wide dorsal and ventral processes.

Gnathosoma (Fig. 8). Corniculi horn-like, internal malae long and smooth. Hypostomal setae as follows: h1 long and setiform, h2 three times shorter than h1 and anteriorly bifurcated, h3 two times longer than h2, smooth and needle-like, h4 as long as h3 and antler-shaped. Setae on palp trochanter are depicted on Fig. 8. Chelicerae (Fig. 9) with several short teeth on movable digit, two big teeth and one spine on fixed digit. Nodus absent. Epistome not clearly visible.

Male. Length of idiosoma 640–710 μm , width 490–530 μm (n=2). Shape oval, posterior margin rounded, vertex present.

Dorsal idiosoma. Ornamentation and chaetotaxy same as in female.

Ventral idiosoma (Fig. 10). Basis of tritosternum wide, subtriangular, tritosternal laciniae subdivided in five branches (Fig. 11). Sternal shield with alveolar and tile-like ornamentation. All sternal setae short. St1 and St2 needle-like, St1 placed near the anterior margin of sternal shield, St2 between coxae II. St3, St4 and St5 anteriorly serrated, St3 can be found near the anterior margin of genital shield, St4 near the posterior margin of genital shield, St5 placed between coxae IV, on the level of anterior margin. V1 serrated anteriorly and placed near the level of posterior margin of coxae IV. Two pairs of short and two pairs of long phylliform setae can be found on the ventral shield. Adanal and postanal setae same as in female.

Genital shield rounded, placed between coxae III.

Gnathosoma (Fig. 11). Similar to that of the female.

Nymphs and larvae are unknown.

Etymology. The specific epithet refers to the attractive appearance of this species.

Key to the *Afrotrachytes* species

1. Ornamentation between the ventral setae present....2
– Ornamentation between the ventral setae absent.....3
2. Genital shield of female ornamented, V1 setae subtriangular*A. longicaudatus*
– Genital shield of female smooth, V1 setae phylliform*A. bercziki*
3. Two postanal setae present, ornamentation on ventral shield near the posterior margin of genital shield absent, St2 needle-like.....*A. seticaudatus*
– One postanal seta present, ornamentation on ventral shield near the posterior margin of genital shield present, St2 subtriangular and serrated apically*A. mirabilis*

DISCUSSION

Recently only four *Afrotrachytes* species are known world-wide. Three of them occur in tropical Africa: *A. seticaudatus* in Angola, *A. longicaudatus* in Tanzania and *A. mirabilis* in Cameroon, while the fourth species (*A. bercziki*) is reported from Ecuador, South America (Fig. 12).

When Kontschán (2006 a) described this genus he thought that it is endemic in Africa, hence named it *Afrotrachytes*. However, discovering a new species in Ecuador an interesting amphiatlantic distribution pattern of the group was revealed. This kind of distribution is not an unknown phenomenon among the soil meso- and macrofauna. Csuzdi (1993, 1994) mentioned this phenomenon for dichogastrid earthworms, and later Karg and Schorlemmer (2009) found the same kind of characteristic occurrences in the free living Gamasina mites.

Karg and Schorlemmer (2009) recording two African mite genera (*Africoseius* Krantz, 1962 and *Rykellus* Lee, 1970) in South America, supposed that these two groups must have been developed during a geological period when the African and South-American continents were still connected but separated from the other continents.

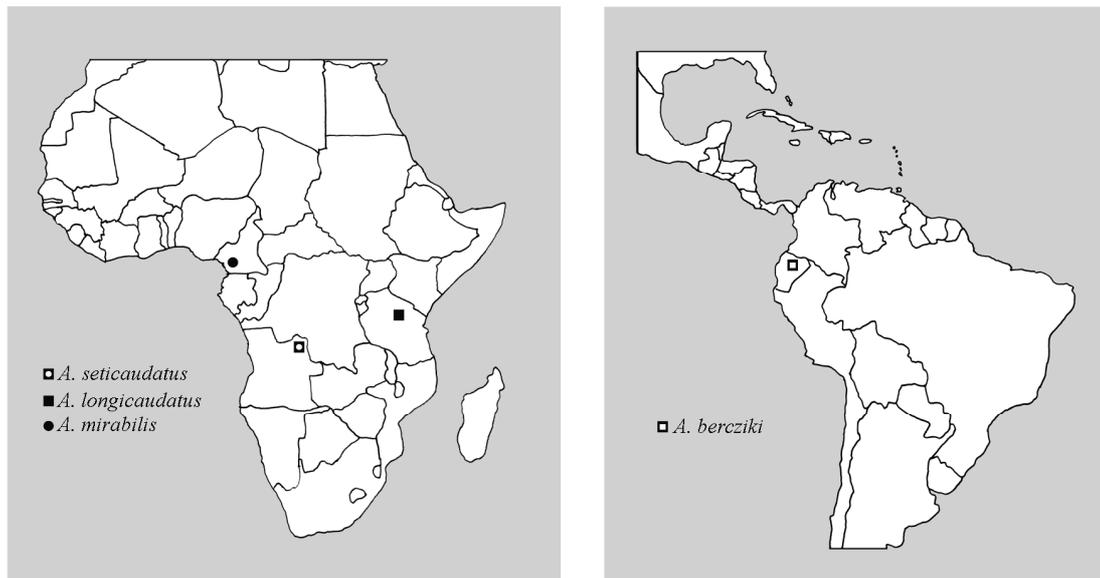


Figure 12. Distribution of the *Afrotrachytes* species

This connection lasted until the upper Cretaceous, ca. 80 million years ago. I suppose the genus *Afrotrachytes*, which shows a similar distribution to *Africoseius* and *Rykellus* also, originated in the upper Cretaceous.

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