

A new species of *Tijucameria* from Brazil (Collembola: Neanuridae: Pseudachorutinae)

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Abstract

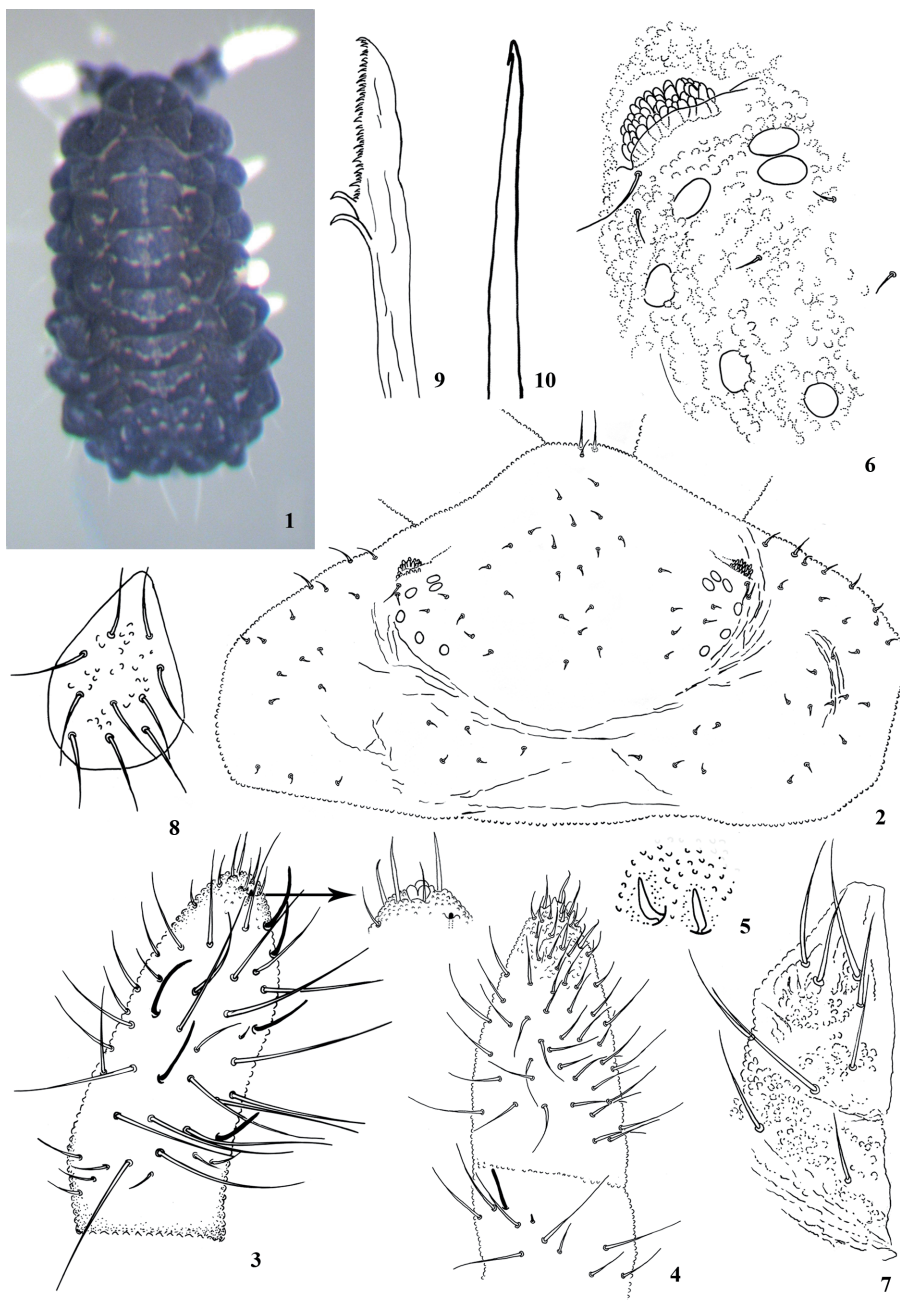
In the present paper we describe *Tijucameria gabrieli* n. sp., the second species of the genus *Tijucameria*, which, until today, is recorded only from Brazil. The new species is sympatric with *T. mame* Mendonça & Fernandes 2005. Both were found in the same locality, known as nook of 'Paulo and Virginia', about 650 m a.s.l. in the Tijuca Forest (Rio de Janeiro Municipality). Specimens of *T. gabrieli* n. sp. were also found in lowland Atlantic Rainforest (Magé Municipality, Rio de Janeiro State) about 40 km from Tijuca Forest. The new species differs from the other species by a singular set of characters represented by dark blue colouration, absence of mucro, size of sensilla and the number of dorsal microchaetae.

Keywords: Atlantic Rainforest, Pseudachorutini taxonomy, Brazil

1. Introduction

Tijucameria was proposed by Mendonça & Fernandes (2005) as a monospecific genus with the type species *Tijucameria mame*, collected in the National Park of Tijuca in Rio de Janeiro municipality. In that work the authors related the new genus to *Venezuelida* Díaz & Najt, 1994, described from Venezuela, based on the shared character of reduction of the number of eyes, the absence of a tenaculum and, especially, by strong reduction of the furca to two hemispheric structures. *Tijucameria* is characterized by dark pigment, ceratrimeriform body (type 3 sensu Massoud, 1967), 6+6 eyes, moruliform postantennal organ with vesicles apically rounded, elongated buccal cone, toothed mandible, styliiform maxilla, abdominal segment VI invisible in dorsal view, highly reduced furca, but with mucro present. This genus remained monotypic, until specimens from freshly collected material from two different localities of the Atlantic Rainforest now have revealed a different character pattern that allows to erect a second species, *Tijucameria gabrieli* n. sp., which in the following is described and illustrated.

Abbreviations: Ant = antennal segments, PAO = postantennal organ, Th = thoracic segments, Abd = abdominal segments



Figs 1–10 *Tijucameria gabrieli* n. sp. Habitus (1), head chaetotaxy (2), dorsal view of Ant III–IV (3), ventral view of Ant III–IV (4), sensillary organ of Ant III (5), ocellar field and PAO (6), labium (7), labrum (8), mandible (9), maxilla (10).

2. Material and Methods

The studied specimens were collected from litter and soil between roots on montane vegetation of the Atlantic Rainforest. The material was extracted with Berlese-Tullgren funnels, bleached, and mounted on glass slides with liquid of Arlé & Mendonça (glycerine, lactic acid and chloral hydrate). The type-material has been deposited in the Collembola Collection at Departamento de Entomologia, Museu Nacional/UFRJ, Rio de Janeiro-RJ, Brazil, under the acronym CM/MNRJ.

3. Results

Tijucameria gabrieli n. sp. (Figs 1–16, Tab. 1)

Type material: Holotype: female on slide (label 2386 CM/MNRJ). Southeast Brazil, State of Rio de Janeiro, Parque Nacional da Tijuca (22° 57' 13" S, 43° 17' 29" W), 28.VIII.2012, Mendonça leg. Paratypes: 1 female on slide (label 2386 CM/MNRJ). Southeast Brazil, State of Rio de Janeiro, Parque Nacional da Tijuca, 28.VIII.2012, Mendonça leg.; 1 female and 1 male on slides (label 2219 CM/MNRJ). 'Campo Escoteiro Geraldo Hugo Nunes' (22° 37' 32" S, 43° 04' 55" W) (Magé Municipality), 19.XI.2011, Xisto leg.

Description

Body length: 2.2–2.8 mm. General habitus enlarged, paratergites protruding and rounded. Integument with strong granulation. Colour of body deep dark blue, antennal segments III and IV, buccal cone, legs and ventral tube white (Fig. 1).

Head chaetotaxy as in Figure 2. Antennal length shorter than cephalic diagonal. Ant IV with trilobed apical bulb, five cylindrical and thin sensilla, one subapical organite, with chaeta i present, dorsolateral microsensillum absent and about 30 chaeta on dorsal side (Fig. 3); ventral side of Ant IV with nearly 50 chaetae, some of which have a curved apex (Fig. 4). Ant III with two prominent straight sensilla (10 µm) (Fig. 5), two guard sensilla (40 µm) and one lowered microsensillum. Ant II with 11 and Ant I with 10 chaetae. Postantennal organ moruliform (40 µm), composed of 43 apically rounded vesicles, of about twice the size of the proximal ocelli. Eyes 6+6 (diameter 20 µm each), arranged in a semicircle, with ocelli A and B close to each other and the others standing more separately (Fig. 6). Buccal cone elongated. Labial chaetae as in Figure 7. Labrum with 3/3,2,2 chaetae (Fig. 8). Mandible robust (50 µm), with 34 subequal teeth, the two basal teeth about four times as long as the others (Fig. 9). Maxilla styliform (60 µm), with one small apical hook (Fig. 10).

Dorsal chaetotaxy heterogeneous, consisting of microchaetae (5 µm) and conspicuous long sensilla (150 µm in length); ratio of microchaeta to sensillum = 1:30. Sensillar formula per tergal half: 022/111110 (Fig. 11).

Tibiotarsi I, II, III with 19, 19, 18 chaetae respectively; on tibiotarsus I one chaeta conspicuously longer than others (Fig. 12). Femora I, II, III with 11, 11, 10 chaetae respectively; trochanter with six chaetae each. Unguis 80 µm in length, with one tooth on inner edge. Ventral tube with 3+3 chaetae. Furca extremely reduced (Fig. 13), dens 20 µm in length, consisting of two hemispheres with 4+4 chaetae (one specimen with 3+4 and another with 4+5 chaetae). Mucro absent. Anal valves with 3+3 chaetae and three setulae ventrally on Abd VI (Fig. 14). Male and female genital plate as shown in Figs 15 and 16, respectively.

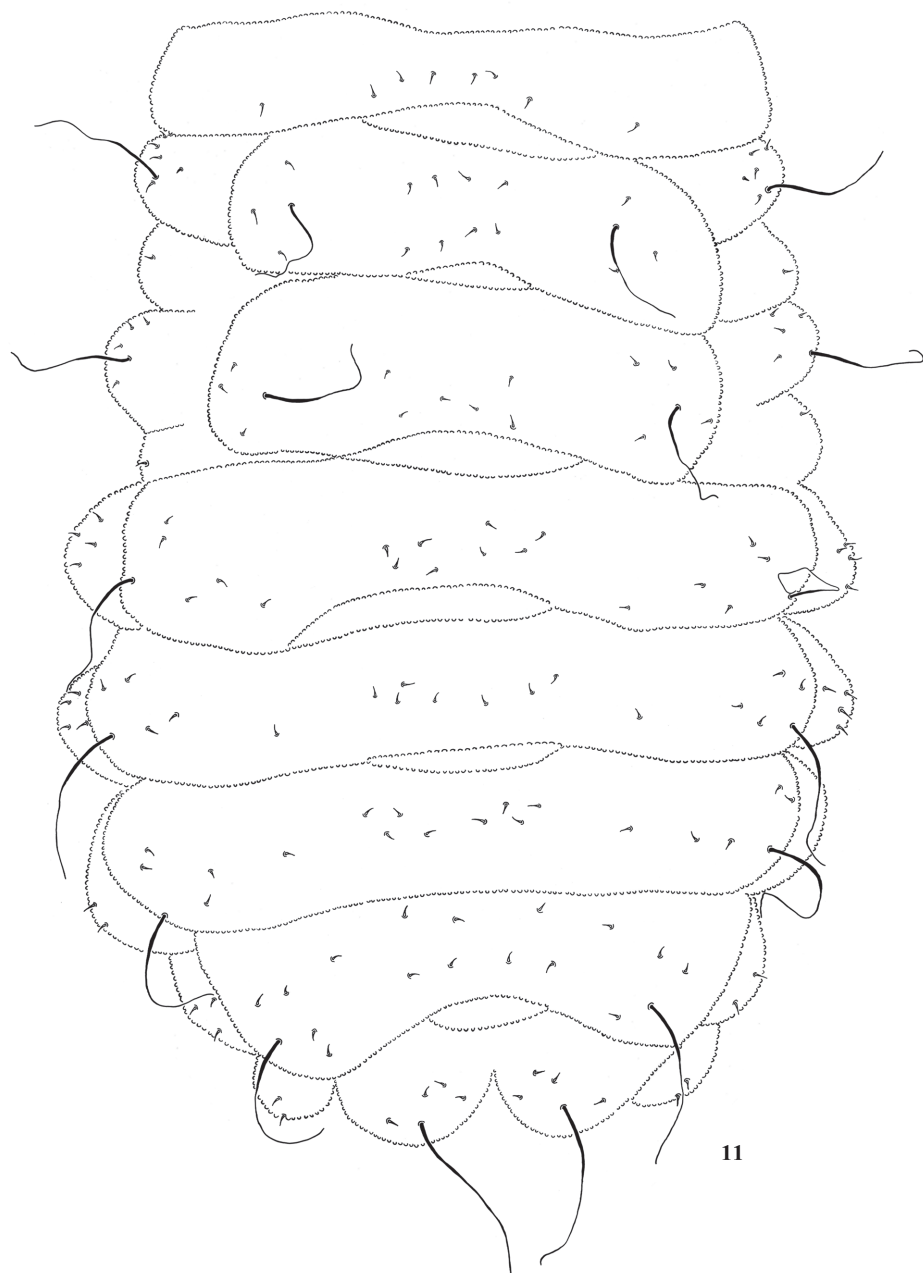
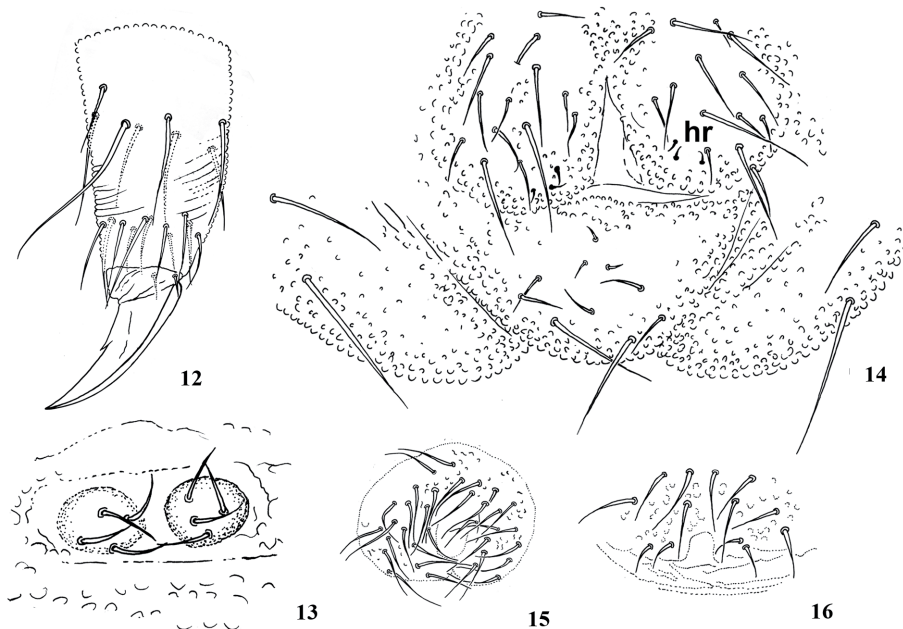


Fig. 11 *Tijucameria gabrieli* n. sp. Dorsal chaetotaxy from Th I to Abd V.

Discussion

Tijucameria gabrieli n. sp. is closely related to *T. mame* according to its ceratrimeriform shape, the densely pigmented body, 6+6 eyes, moruliform PAO, strongly reduced furca, labral chaetal pattern and morphology of mouth parts. However, the new species deviates from *T. mame* by differences summarized in table 1, amongst others its body colouration, chaetotaxy and, especially, the absence of a mucro. The chaetotaxy shows differences related to arrangement, number and size of chaetae: In *T. gabrieli* n. sp. the sensilla are very long, measuring about 30 times the size of the proximal chaetae, while in *T. mame* the size of sensilla is only seven times the size of ordinary chaetae. The colouration also shows to be a character suitable for discrimination, since *T. gabrieli* n. sp. has a strong bluish pigment while *T. mame* was described with dark grey pigment. The mandible is robust and its shape similar in both species, but in *T. gabrieli* n. sp. a greater number of teeth similar in size was observed. In *T. mame* the mandible shows some teeth of different sizes. Comparisons also revealed that both species bear the same number of ocelli, but in *T. mame* they are equally distributed and arranged in a semicircle, whereas in *T. gabrieli* n. sp. two eyes (A and B) are situated closer to each other and the four others are arranged more separate. The PAO in both species exhibits the same number of vesicles, but when compared to the size of the postantennal organ, in *T. mame* the PAO is subequal to the nearby ocelli, while in *T. gabrieli* n. sp. the PAO is twice as large as the proximal ocelli. Moreover, the beak-like mucro, present in *T. mame*, is absent in *T. gabrieli* n. sp. This character allows to expand the genus diagnosis in respect to the presence or absence of the mucro.



Figs 12–16 *Tijucameria gabrieli* n. sp. Tibiotarsus I and unguis (12), furca (13), Abd VI and anal valves (14), male genital plate (15), female genital plate (16).

Etymology: The species is cordially dedicated to our colleague, Gabriel Costa Queiroz, Doctorate student, for his preference and dedication to the study of the taxon Poduromorpha.

Tab. 1 Comparison of species of *Tijucameria* Mendonça & Fernandes, 2005.

Characters	<i>T. gabrieli</i> n. sp.	<i>T. mame</i> Mendonça & Fernandes, 2005
Pigment on body	dark bluish	dark greyish
Ratio ocelli/PAO	1:2	1:1
Arrangement of eyes	A and B situated close together, C–F separate	all separate
Ratio ordinary chaetae/sensilla	1:30	1:7
Th I chaetae	4+4	3+3
Th II chaetae	4+4	3+3
Abd I chaetae	4+4	3+3
Abd III chaetae	4+4	3+3
Abd V chaetae	3+3	2+2
Furca	Hemispheric, without mucro	Hemispheric, with mucro

4. Acknowledgements

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5. References

- Díaz, A. & J. Najt (1994): Collemboles (Insecta) des Andes vénézuéliennes. – Bulletin du Muséum National d'Histoire Naturelle, Paris **16** (2–4): 417–435.
- Massoud, Z. (1967): Monographie des Neanuridae, Collemboles Poduromorphes à pièces buccales modifiées. – Biologie de L'Amérique Australe **3**: 1–399.
- Mendonça, M. C. & L. H. Fernandes (2005): Novo gênero e nova espécie de Pseudachorutini do sudeste do Brasil (Collembola Neauridae, Pseudachorutinae). – Revista Brasileira de Zoologia **22** (3): 699–701.

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