A new species of *Atlantoscia* Ferrara & Taiti, 1981 (Oniscidea: Philosciidae) from Rio Grande do Sul, Brazil

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Abstract

To date the genus *Atlantoscia* Ferrara and Taiti, 1981 includes two species, *A. floridana* (van Name, 1940) and *A. rubromarginata* Araujo and Leistikow, 1999. The species *Atlantoscia petronioi* sp.n. is described on the basis of material collected in a coastal dune forest area of the southern Rio Grande do Sul state, Brazil. This new species is characterized by antenna with accentuate setose *sulcus* from the peduncle to the distal article of the flagellum, outer endite of maxillula with slender seta among the outer group teeth and accessory tooth, one trifid tooth in the inner group, and male pleopod 1 endopod with distal part pointed and subapically not swollen.

Key words: Neotropical, restinga, terrestrial isopods.

Introduction

The genus *Atlantoscia* Ferrara and Taiti, 1981 presently includes two species, *A. floridana* (van Name, 1940), with a distribution in coastal regions of Florida, Brazil, Argentina, and Ascension and Saint Helena islands; and *A. rubromarginata* Araujo and Leistikow, 1999, with records in Sergipe, Brazil (Araujo and Leistikow, 1999; Schmalfuss, 2003). The phylogenetic relationships of *Atlantoscia* are still obscure. Leistikow (2001) proposed a phylogeny of South American Philosciidae in which *Atlantoscia* shares a polytomy with *Benthana* Budde-Lund, 1908 and Rhyscotidae, based on the character "maxilliped endite without setation, distal margin transverse".

The present contribution describes a new species of *Atlantoscia*, based on material collected in a restinga (coastal dune forest) area of the Ilha dos Marinheiros, in the municipality of Rio Grande, state of Rio Grande do Sul, Brazil.

Material and Methods

The material examined herein is deposited in the Museu de Zoologia (MZUSP), Universidade de São Paulo, São Paulo; the Museu Nacional Rio de Janeiro (MNRJ), Rio de Janeiro; and the Coleção de Crustáceos of the Departamento de Zoologia, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil.

Results and Discussion

Systematics

Philosciidae Kinahan, 1857
Atlantoscia Ferrara and Taiti, 1981

Diagnosis – see Ferrara and Taiti (1981), Araujo and Leistikow (1999) and Leistikow (2001).

Atlantoscia petronioi n. sp.
Figs. 1–5

Types – Holotype: male, Brazil, Rio Grande do Sul, Rio Grande, Ilha dos Marinheiros, 32°00'S 52°07'W, 11/X/2011, MZUSP 25289. Paratypes: same locality as holotype, 8 males, 5 females (25/X/2011, MZUSP 25290), 2 males, 1 female (11/X/2011, MZUSP 25291), 1 male, 12 females (6/I/2012, MZUSP 25292), 4 males, 3 females (6/XII/2011, MZUSP 25293), 3 males, 2 females (21/XII/2011, MZUSP 25294), 5 males, 2 females (25/X/2011, MNRJ 23313), 8 males, 6 females (25/X/2011, MNRJ 23314), 5 females (21/XII/2011, MNRJ 23315), 3 males, 2 females (25/X/2011, MNRJ 23316), 3 males, 4 females (6/XII/2011, UFRGS 5161), 3 males, 3 females (22/XI/2011, UFRGS 5163), 2 males, 7 females (6/XII/2011, UFRGS 5171).

Note: The material was collected by S.G. Contreira and E.R. Lopes-Leitzke.

Diagnosis: Eyes with 14–16 ommatidia, antennula with 14 aesthetascs, antenna with accentuate setose *sulcus* extending from peduncle to distal article of flagellum, outer endite of maxillula with slender seta and accessory tooth among the outergroup of teeth, one trifid tooth in the inner group; and male pleopod 1 endopod with distal part pointed, subapically not swollen.

Description: Maximum body length: male 6.3 mm, female 7 mm; cephalothorax width: male 1.5 mm, female 1.63mm. Body color variable from dark to light brown. Cephalothorax with irregular unpigmented spots. Antennae uniformly pigmented. Pereon with longitudinal unpigmented spots on central and median portions; pereonites 4–7 exhibiting central unpigmented, arrow-shaped spot. Pleonites 1–5 with two lateral unpigmented spots. Pleotelson with three equidistant unpigmented spots. Uropods uniformly pigmented (Figs. 1A–C). Body convex, smooth and shiny (Fig. 1A), and bearing sparse long piliform scale-setae. Cephalothorax with sinuous *linea supra-antennalis,* without lateral lobes, clypeus and labrum similar in length, eyes with 14–16 ommatidia arranged in four rows (Figs. 1B, C). Pleon narrower than pereon, convex, with neopleurae developed (Fig. 1A). Pleotelson triangular with lateral margins straight and apex acute (Fig. 5A). Coxal plates with glandular pores, *noduli laterales* and *sulcus marginalis*. *Noduli laterales* (Figs. 1E, F, 5D) with d/c coordinates reaching a maximum on pereonite 4.

Appendages: Antennule triarticulate, distal article longest, with 12 aesthetascs in six rows plus apical pair (Fig. 1G). Antenna when extended posteriorly reaching anterior margin of fifth pereonite, with accentuate setose *sulcus* along peduncle and flagellum (Hoese, 1981, see remarks); flagellum proximal and distal articles similar in length, middle article slightly shorter, free sensilla as long as cuticular sheath, inserted at one-quarter of length of apical organ (Figs. 1H, 5C).

Mandibles with at least five branches on *pars molaris*, *pars intermedia* with dense tuft of coniform setae, right mandible with two penicils on incisor process, and left mandible with three penicils (Figs. 2A, B). Medial endite of maxillula with two short penicils, inserted transversely, and distal portion rounded, outer endite with 4+6 teeth, outer group with slender seta and accessory tooth, inner set with five cleft teeth, one of them trifid (Fig. 2C). Lateral lobe of maxilla robust, twice as wide as median

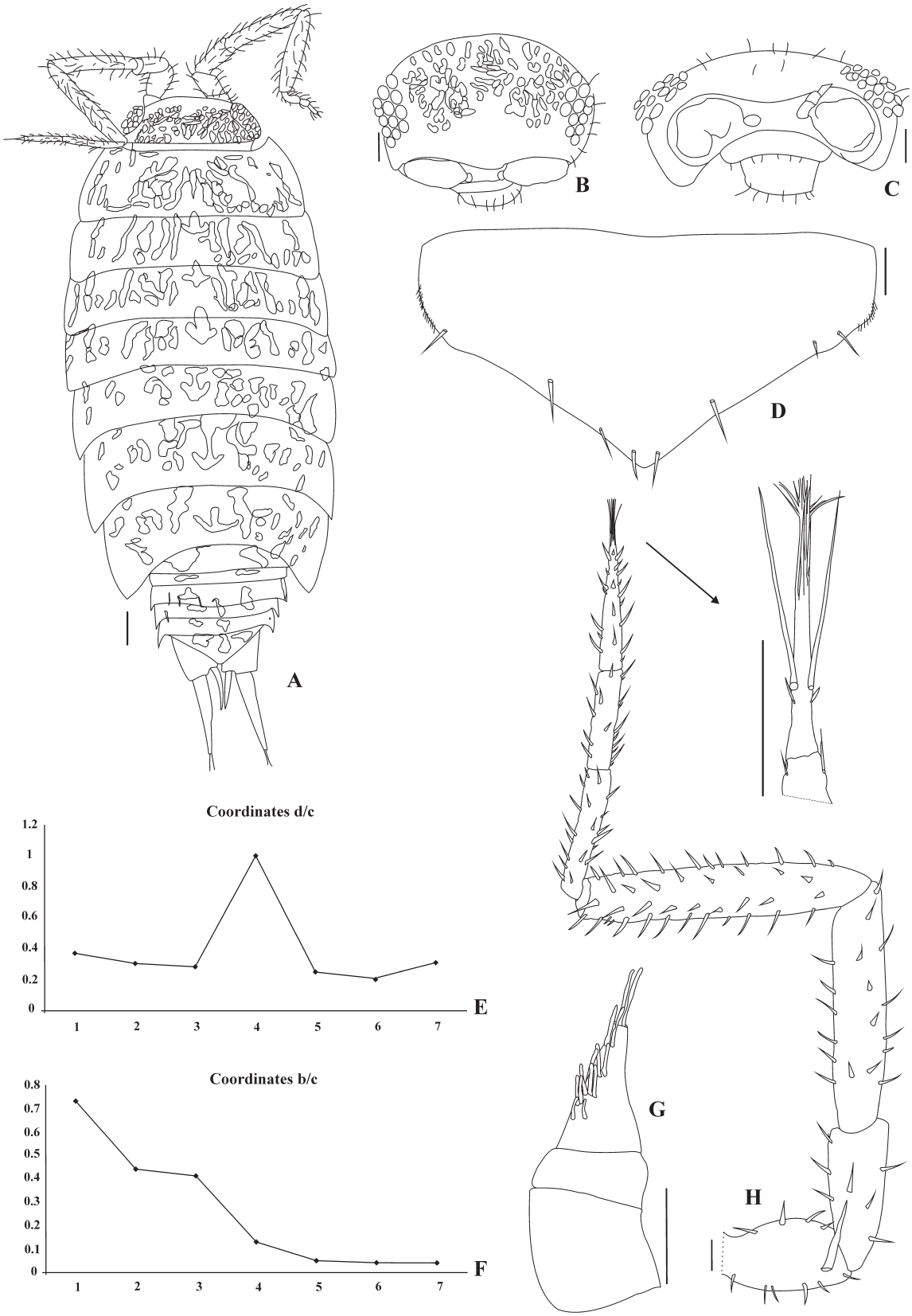

Figure 1. *Atlantoscia petronioi* sp. n., male paratype MZUSP 25290. (A) dorsal view; (B) cephalothorax, dorsal view; (C) cephalothorax, frontal view; (D) pleotelson, dorsal view; (E) *noduli laterales* coordinates d/c; (F) *noduli laterales* coordinates b/c; (G) antennule; (H) antenna. Scale bars: (A) 0.3 mm; (B, C) 0.16 mm; (D, G, H) 0.1 mm.

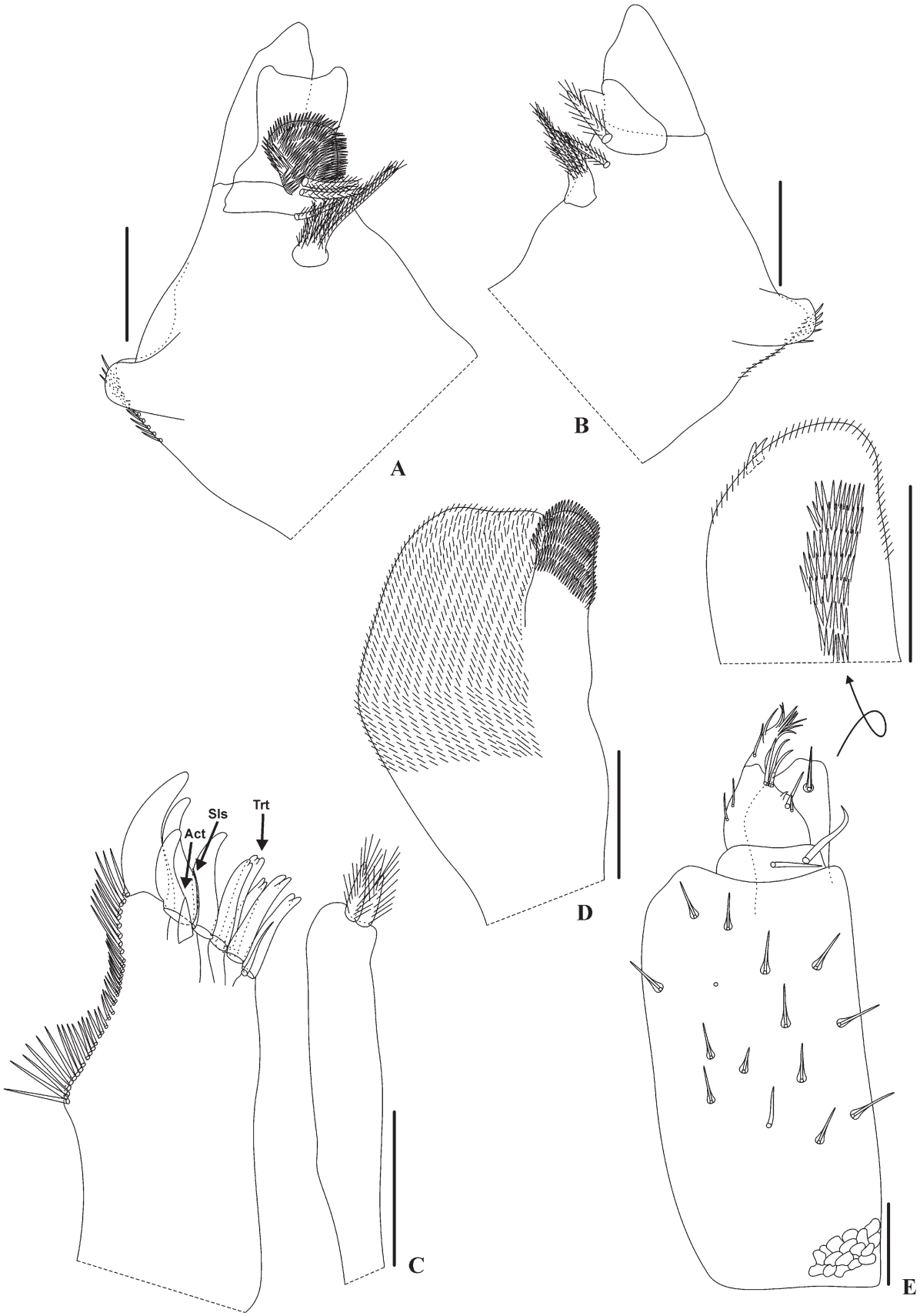

Figure 2. *Atlantoscia petronioi* sp. n., male paratype MZUSP 25290. (A) left mandible; (B) right mandible; (C) maxillula; (D) maxilla; (E) maxilliped. Legend: Act = accessory tooth; Sls = Slender seta; Trt = trifid tooth. Scale bars: 0.1 mm.

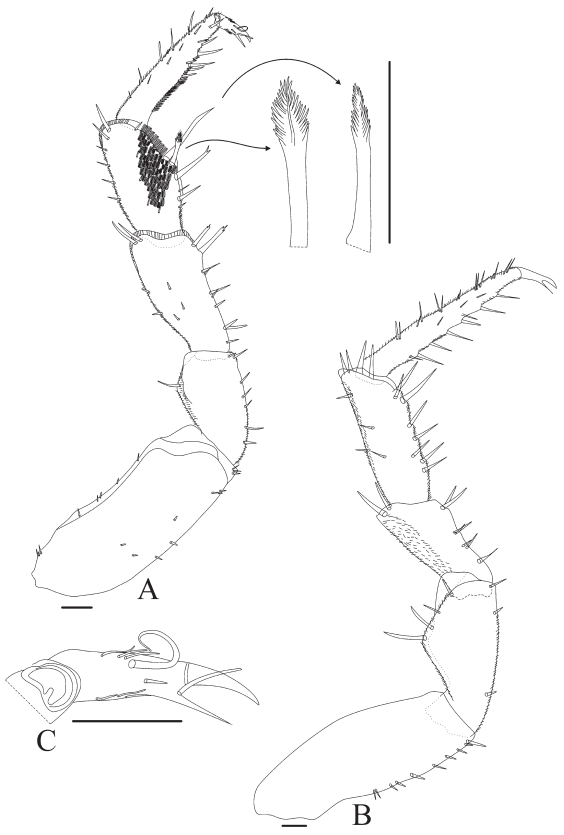

Figure 3. *Atlantoscia petronioi* sp. n., male paratype MZUSP 25290. (A) pereopod 1; (B) pereopod 7; Scale bars: 0.1 mm.

lobe, distal margin sinuous, and covered with trichiform setae; median lobe rounded, and covered with trichiform setae (Fig. 2D). Maxilliped with rectangular base, cuticle scaled proximally, sparse piliform scale-setae, and distal margin slightly prominent; endite rectangular, longitudinal ridge bearing dense setae in rostral view, distal margin curved, bearing two hooks, medial seta surpassing distal margin (Fig. 2E).

Pereopods similar in male and female, with piliform scale-setae on all articles, distal hyaline fringe of scales, sparse long sensory setae; carpus 1 with transverse antenna-grooming brush and sensory seta with double serrate apex; ischium 7 triangular, with five setae. Dactylus 1–7 with long inner claw, reaching distal margin of outer claw, dactylar organ long, knob-like apex, and interungual seta simple, not surpassing inner claw (Figs. 3A–C, 5D).

Pleopods with narrow respiratory areas (Figs. 4A, C, E–G).

Uropod with endopod and exopod inserted at different levels, with sparse long setae along inner and outer margins, exopod twice length of endopod, with five sensory setae on apex, and endopod with three sensory setae on apex (Fig. 4H).

Male: Genital papilla with ventral shield and two subapical orifices (Fig. 4G). Pleopod 1 exopod heart-shaped, without setae; endopod 1 robust, distal part pointed, subapically not swollen, with a crenulate plaque and some sparse minute setae (Figs. 4A, B); pleopod 2 exopod triangular, with three setae, endopod 2 slender, reaching pleopod 4, with acute apex (Figs. 4C); pleopods 3 and 4 exopods as in Figures 4D and 4E; pleopod 5 exopod rhomboid, distal part narrow and acute, with outer margin sinuous, bearing four setae (one at the tip) and transverse setose fringe (Fig. 4F).

Etymology: The species name honors the late Professor Petrônio Alves Coelho for his contributions to the knowledge of Crustacea.

Remarks: *Atlantoscia petronioi* sp. n. is characterized by the low number of ommatidia (14–16 vs. 20 in *A. floridana* and 23 in *A. rubromarginata*), number of aesthetascs on the antennule (12 + 2 vs. 8 + 2 in *A. floridana* and 3 + 1 in *A. rubromarginata*), presence of the accentuated setose *sulcus* on the antenna, accessory tooth and the slender seta on the outer endite of the maxillula, and the shape of the distal part of the male pleopod 1 endopod subapically not swollen.

Hoese (1981) described the setose *sulcus* of the antenna as part of a water conducting system of the terrestrial isopods, which can be well developed, from the antennal base to the tip, vestigial or absent. In relation to *Atlantoscia* representatives, we analyzed material of *A. floridana* and *A. rubromarginata* from the same collection used by Araujo and Leistikow (1999) and examined the type material of *A. floridana* described by Ferrara and Taiti (1981). We also examined, a large material of

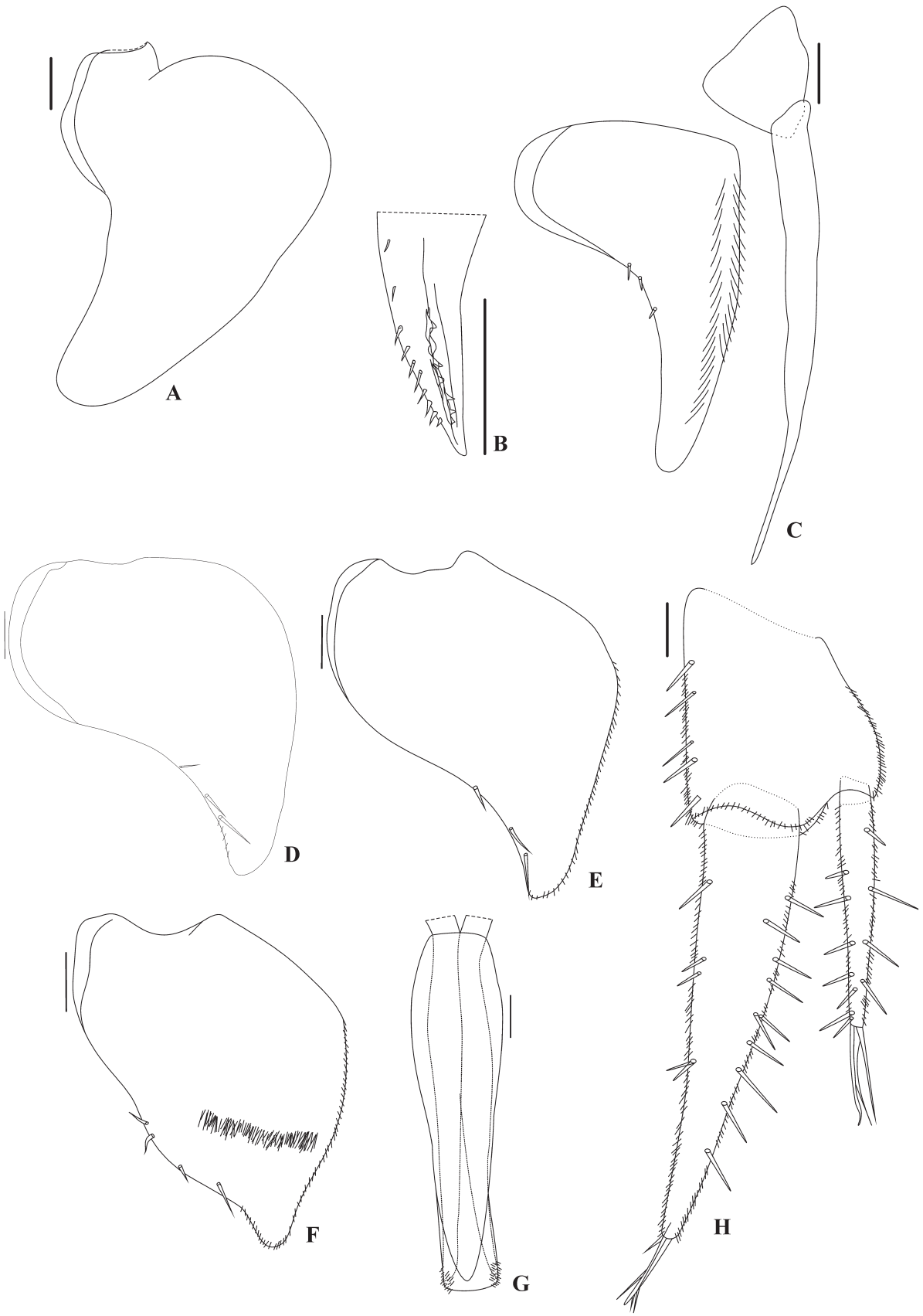

Figure 4. *Atlantoscia petronioi* sp. n., male paratype MZUSP 25290. (A) pleopod 1 exopod; (B) pleopod 1 endopod; (C) pleopod 2; (D) pleopod 3 exopod; (E) pleopod 4 exopod; (F) pleopod 5 exopod; (G) genital papilla; (H) uropod. Scale bars: 0.1 mm.

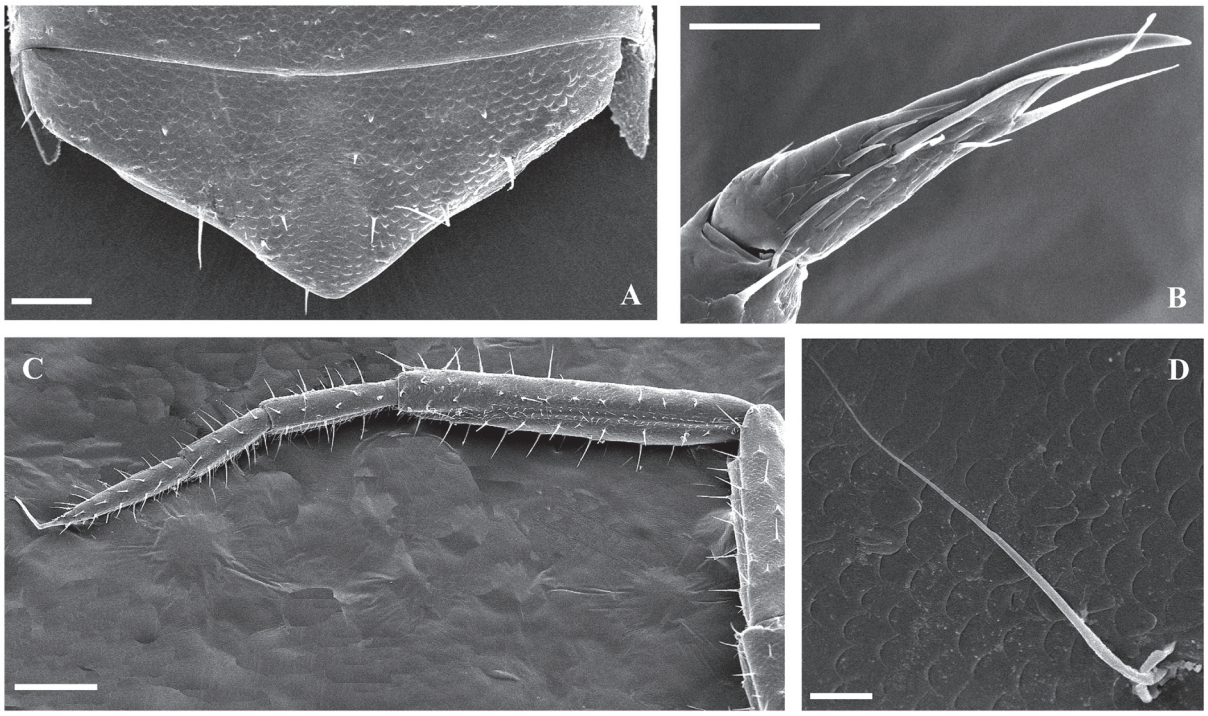

Figure 5. *Atlantoscia petronioi* sp. n. (A) pleotelson; (B) dactylus; (C) antenna; (D) *nodulus lateralis*. Scale bars: (A): 100 μm; (B): 50 μm; (C): 200 μm; (D): 20 μm.

A. floridana collected in the Brazilian states: Sergipe, Bahia, Espírito Santo, Minas Gerais, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul, and from Florida, USA, and *A. rubromarginata* from the Brazilian states: Alagoas, Bahia and Sergipe. We concluded that in *A. floridana* and *A. rubromarginata* the *sulcus* is vestigial, present only in the distal portion of the fifth article of antennal peduncle, while in *Atlantoscia petronioi* sp. n. it is deep and present from the base to the apex of the antenna.

Atlantoscia petronioi sp. n. also differs from *A. floridana* in the shape of male pleopod 1 endopod, which is missing the small lateral subapical protrusion typical of *A. floridana*. This difference is constant in all the numerous specimens (see below) examined belonging to the two species, and independent from the animals' size, including juveniles.

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