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Asteropontoides elephantinus N. SP., A NEW SIPHONOSTOMATOID (CRUSTACEA - COPEPODA) ASSOCIATED WITH A SPONGE FROM THE BRAZILIAN COAST

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ABSTRACT

Asteropontoides elephantinus n.sp. is a new species of the genus established by Stock in 1975. It is the first record of *Asteropontoides* from the Atlantic Ocean. The antennule of *Asteropontoides elephantinus* n.sp., which is 15-segmented due to two fusions, one in the basal portion and the other distally, is the most remarkable character of the new species.

Keywords: Copepoda, Siphonostomatoida, Asterocheridae, Taxonomy, Brazil

INTRODUCTION

The genus *Asteropontoides* was established by Stock (1975) to accommodate 2 species previously placed in *Asteropontius*. These two species had been collected on weed-washings and washings from dredged invertebrates in the Indian Ocean (fig. 1). Since then no other species of the genus have been recorded.

The purpose of this work is to describe a new species of *Asteropontoides* taken from sponges from the Brazilian Atlantic coast and to review the diagnostic characters of the genus.

Asteropontoides Stock, 1975

Antennule (female) 15 to 18-segmented, antenna with third endopodal segment armed with long setiform claw plus 1 seta. Further armature of this limb as in *Asteropontius*. Mandible with stylet bearing a minute cutting blade and 1-segmented palp, armed with 2 long apical setae. Genital double-somite longer than postgenital and anal somites together. Second exopodal segment of P1 laterally concave, thus, L-shaped. Leg 4 endopod longer than exopod; third exopodal segment bearing 7 elements (III-I-3), third endopodal segment with 4 elements (1-I-2). Basis without lateral seta. Fifth leg linear, elongate, more than five times longer than wide; bearing three setae. Urosome as in *Asteropontius* (emmended diagnosis).

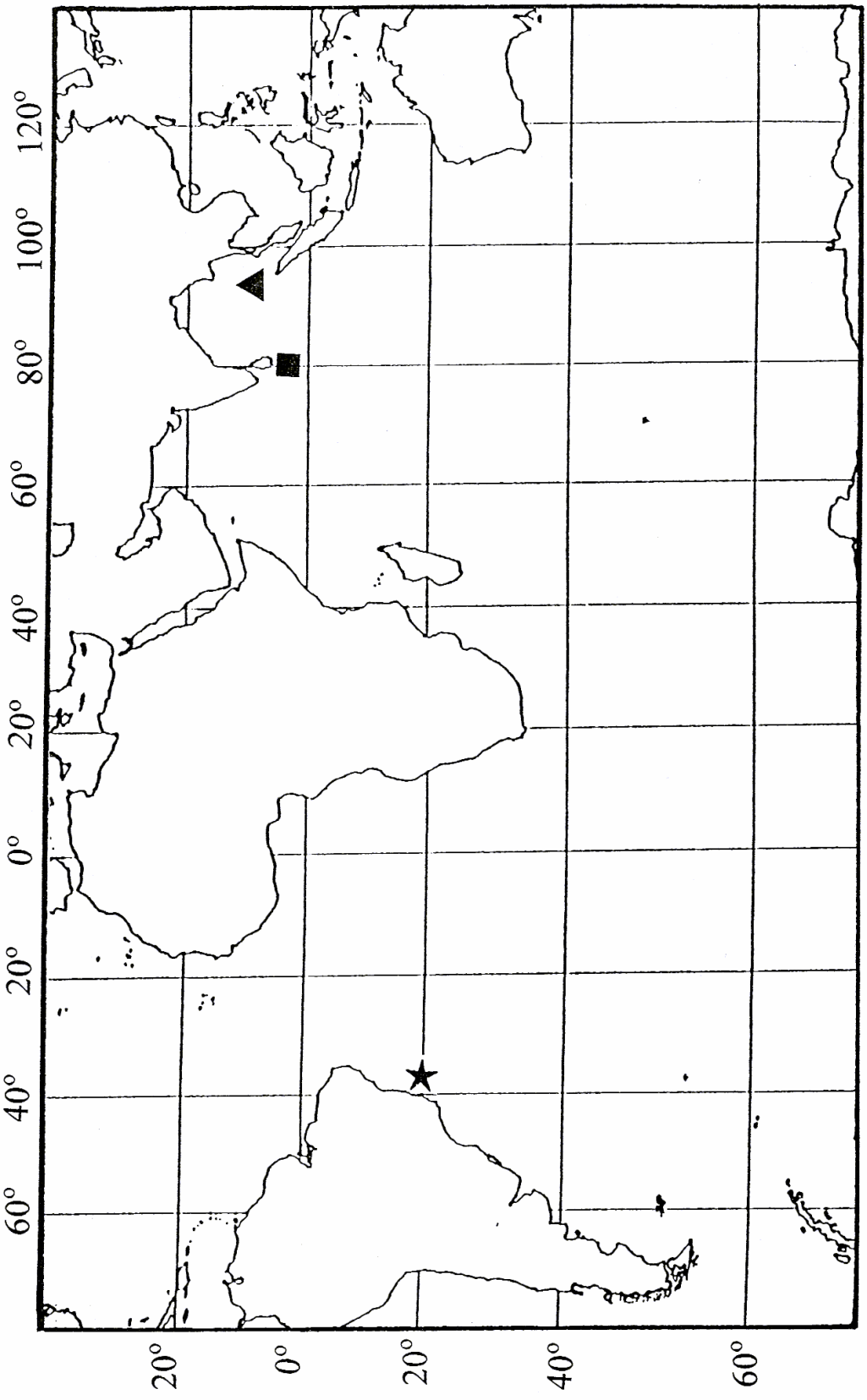

Fig. 1: World distribution of the species of *Asteropontoides*. square indicate *A. attenuatus* (Thompson & Scott, 1903), triangle indicate *A. nicobaricus* (Sewell, 1949) and star indicate *A. elephantinus* n. sp.

REMARKS

The diagnosis of the genus *Asteropontoides* was based on the descriptions and illustrations of Thompson & Scott (1903) and Sewell (1949). However it is possible to observe that Stock (1975) made a mistake on P1 because the second segment of P1 (Thompson and Scott, 1903 plate XVIII fig. 18; Sewell, 1949 page 59, text-figure 12E) which is L-shaped belongs to the exopod and not to the endopod as he stated.

In addition it is necessary to consider the antennule as 15 to 18-segmented, because *Asteropontoides elephantinus* n. sp. shows 2 fusions: the first, of segments III-IV, and the second of segments XV-XVII. The claw of the maxilla of *Asteropontoides attenuatus* (Thompson & Scott, 1903), as in *A. elephantinus* n. sp. has a marked geniculation at 1/3 of its total length. Sewell (1949) did not describe the maxilla of *A. nicobaricus*. This character may possibly be diagnostic for the genus.

Order Siphonostomatoida Thorell, 1859
Family Asterocheridae Gisbrecht, 1899
Genus *Asteropontoides* Stock, 1975

Asteropontoides elephantinus n. sp.

Material examined: Holotype, 1 female (MNRJ 7923) from Viçosa Reefs, Abrolhos, Bahia, Brazil. P.S.Young et al. col. 28/II/1994. Paratype 2 females and 1 male (MNRJ 8022) from the same locality.

Description: Female body (fig. 2a) with prosome moderately slender: length 0.916 mm (0.899 - 0.934 mm) and greatest width 0.34 mm (0.32 - 0.36 mm), based on 3 specimens. Leg 1 somite fused with cephalosome. Somites bearing legs 2-4 with rounded epimera, reducing gradually in length and width. Pedigerous somite 5 partially covered by preceding somite. Ratio of length to width of prosome 1.1 : 1. Ratio of length of prosome to that of urosome 1.6 : 1.

Somite bearing leg 5, 21 x 113 m. Genital double-somite (fig. 2b) elongate, 148 x 113 m in greatest dimensions, ratio 1.3 : 1. Side of somite with small lateral expansions and group of setulae posteriorly. Genital apertures located laterally in anterior half of somite. Postgenital somite 57 x 55 m, anal somite 28 x 58 m, almost twice as wide as long. Postgenital somite more than twice longer than anal somite; both with posterior corners pointed.

Caudal rami very short, 10 x 21 m, wider than long, ratio of length to width 0.5 : 1, bearing 6 setae. Egg sac not observed.

Antennule (fig. 2c) slender 346 m long, 15-segmented. Basal part 8-segmented, rather broad, distal part slender. Length of segments measured along posterior margin: 16 (34 m along anterior margin), 16, 29, 13, 12, 7, 16, 15, 6, 57, 21, 25, 28, 29 and 37 respectively. Seta formula and homologies as follows: I-1, II-1, III-IV-3, V-1, VI-1, VII-1, VIII-2, IX-XIII-5, XIV-1, XV-XVII-5, XVIII-1, XIX-1, XX-0, XXI-1+ae, XXII-XXVIII-9.

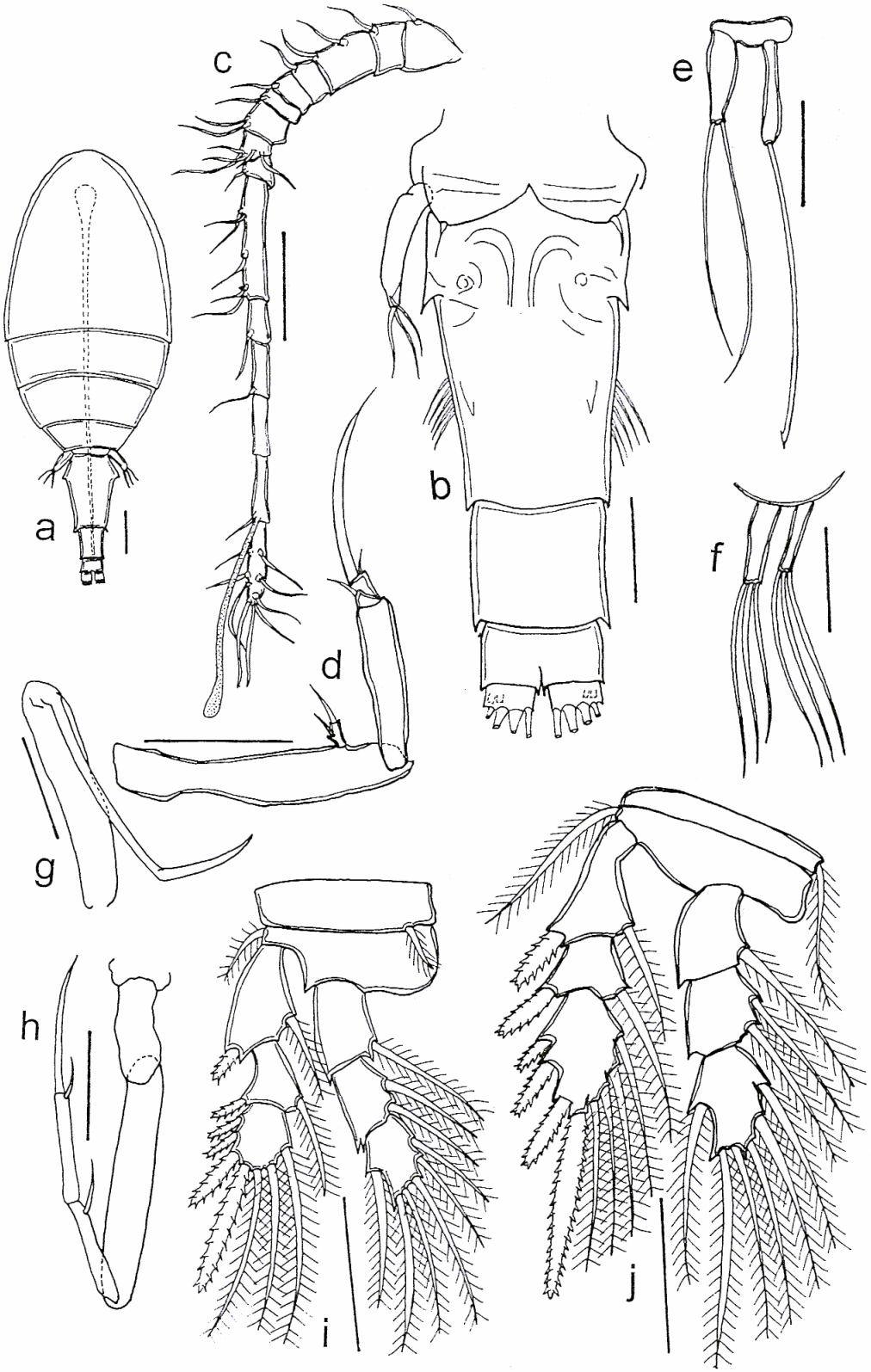

Fig. 2: *Asteropontoides elephantinus* n.sp. female holotype MNRJ 7923: a, dorsal view; b, urosome ventral; c, antennule; d, antenna; e, mandible; f, maxillule; g, maxilla; h, maxilliped; i, P1; j, P2. Scale bars equal 0.05 mm, except "a" which equals 0.1 mm.

Antenna (fig. 2d) 245 m long (including claw) with elongated basis, 96 m. Exopod 1-segmented, length 9 m with 2 setae, one on inner margin, one distal. Endopod 3-segmented, first segment 56 m long, second and third segments 6 and 9 m respectively, both armed with small seta distally. Terminal claw longer than all endopodal segments together, curved apically.

Oral cone (fig. 2a) produced into long siphon-like distal portion, 810 m reaching posterior half of postgenital somite. Mandible (fig. 2e) with stylet and 1-segmented palp, 44 m long bearing 2 long distal setae. Maxillule (fig. 2f) inner lobe 38 m and outer lobe 31 m long, both armed with 3 terminal setae. Maxilla (fig. 2g) with elongated syncoxa, 109 m and narrow claw, 149 m, forming geniculation distally at 1/3 of its total length.

Maxilliped (fig. 2h) with syncoxa and basis 50 and 112 m long respectively, both unarmed. Endopod 3-segmented. First segment 7 m; second segment 44 m armed with small seta laterally; third segment 51 m armed with small seta distally and curved claw 66 m long. Leg 1 to 4 (figs. 2i-j - 3a-b) birramous with 3-segmented rami. Setal formula as follows:

	coxa	basis	exopod	endopod
P1	0-1	1-0	I-1; I-1; III,I,3	0-1; 0-2; 1,2,3
P2	0-1	1-0	I-1; I-1; III,I,4	0-1; 0-2; 1,2,3
P3	0-1	1-0	I-1; I-1; III,I,4	0-1; 0-2; 1,2,3
P4	0-1	0-0	I-1; I-1; III,I,3	0-1; 0-2; 1,I,2

P5 with free exopodal segment 59 x 14 m armed with one seta on outer margin and 2 setae apically.

Diagnosis: Male: Body (fig. 3c) with prosome moderately slender. Length 0.54 mm and greatest width 0.25 mm, based in one specimen. Body similar to female but smaller. Leg 1 somite fused with cephalosome. Somites bearing legs 2-4 with rounded epimera, reducing gradually in length and width. Pedigerous somite 5 partially covered by preceding somite. Ratio of length to width of prosome 1.6 : 1, ratio of length of prosome to urosome 2.6 : 1.

Somite bearing leg 5 (fig. 3d), 13 x 68 m. Genital double-somite rectangular, 50 x 82 m, ratio 0.6 : 1. Posterior corners bearing 2 setae. First postgenital somite 27 x 54 m, second postgenital somite 19 x 46 m, anal somite 16 x 40 m more than twice as wide as than long; all three somites with pointed posterior corners. Caudal rami very short, 9 x 16 m, ratio of length to width 0.5 : 1, bearing 6 setae.

Antennule (fig. 3e), 284 m long, 15-segmented. Basal part 8-segmented, rather broad, distal part slender. Length of segments measured along posterior margin 10 m (27 m along anterior margin), 18, 24, 9, 18, 6, 7, 15, 10, 38, 13, 15, 38, 41 and 22 m respectively. setae formula and homologies as follows: I-1, II-1, III-IV-3, V-1, VI-2, VII-1, VIII-1, IX-XIII-6, XIV-1, XV-XVII-2, XVIII-1, XIX-1, XX-1, XXI-1+ae, XXII-XXVIII-9. Aesthetasc on segment XXI 66 m long. All setae smooth.

All other characteristics as in female.

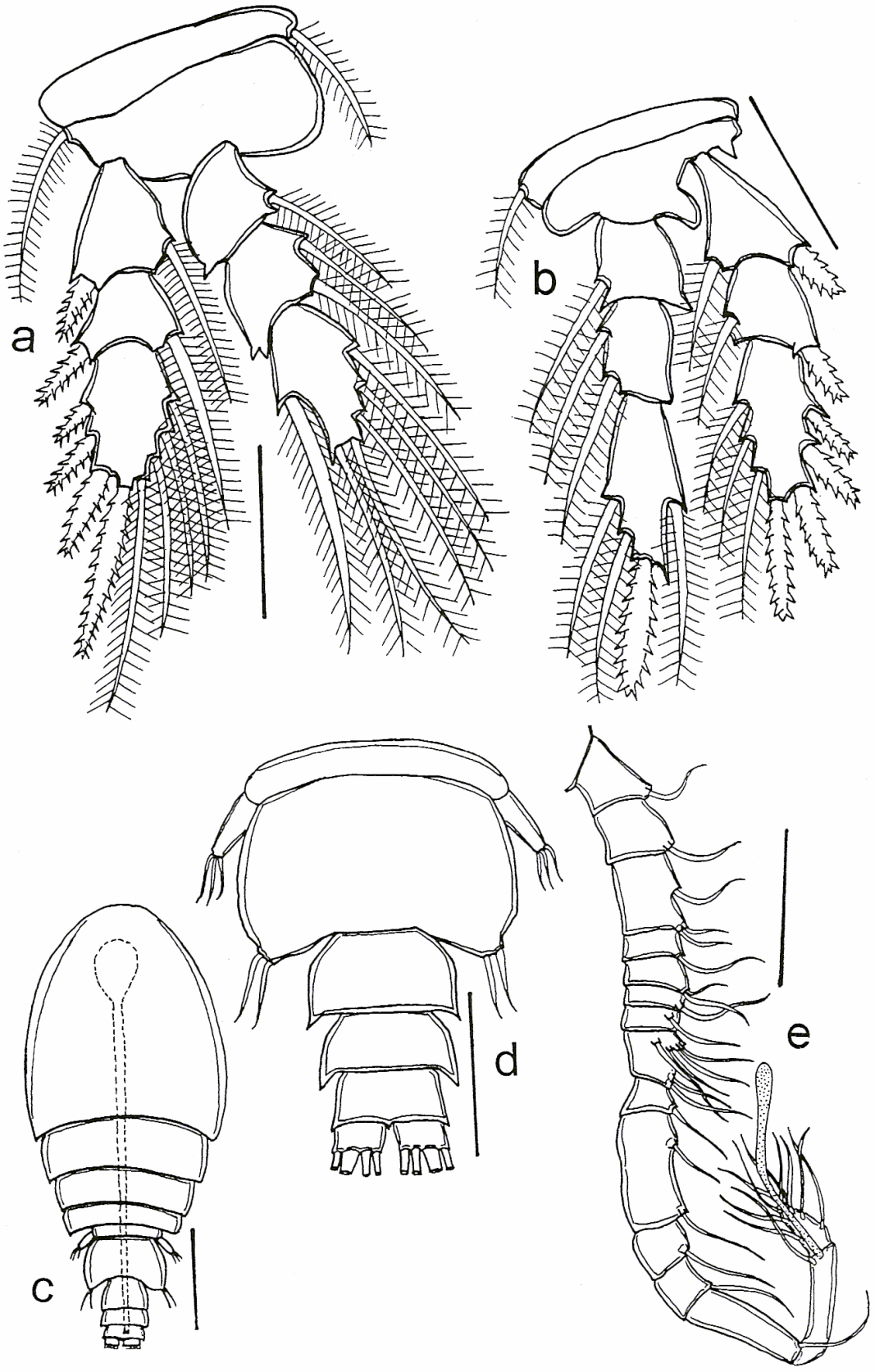

Fig. 3: *Asteropontoides elephantinus* n.sp. female holotype MNRJ 7923: a, P3; b, P4. Male paratype MNRJ 8022: c, dorsal view; d, urosome ventral; e, antennule. Scale bars equal 0.05 mm, except "c" which equals 0.1 mm.

Ethymology: From the latin "*elephantinus*", referring to the long siphon resembling to an "elephant's trunk".

REMARKS

There are many differences between the new species from the Atlantic and its congeners from the Indian Ocean. The first difference is the antennule (fig. 2c) which is 15-segmented in *A. elephantinus* n. sp. instead of 18-segmented as in *A. nicobaricus* (Sewell, 1949) and *A. attenuatus* (Thompson & Scott, 1903). In the new species there are fusions between segments III-IV and XV to XVII which are free in the other species. Secondly the caudal rami are remarkably different in the three species. In *A. attenuatus* they are 2.5 times longer than wide and as long as the anal somite, in *A. nicobaricus* they are slightly longer than wide and slightly shorter than the anal somite, whereas in *A. elephantinus* n. sp. the caudal rami are wider than long and much shorter than the anal somite (fig. 2b). Additionally *A. elephantinus* n. sp. also has 2 small lateral expansions on the genital double-somite near the genital apertures (fig. 2b); the fourth pedigerous somite covers most of P5 (fig. 2a); the P1 has a dentiform process between the two rami (fig. 2i) and the P4 has a dentiform process on the outer margin of the basis (fig. 3b). These characters are absent in the other species.

The oral siphon of *A. elephantinus* n. sp. reaches the posterior half of the postgenital somite (fig. 2a), in *A. nicobaricus* it just reaches P2 and in *A. attenuatus* it is not known. In *A. elephantinus* n. sp. P4 has a dentiform process between the exopod and the endopod (fig. 3b), this characteristic is also shared by *A. attenuatus*. The mandibular palp (fig. 2e) in *A. elephantinus* n. sp. bears two long setae while in *A. attenuatus* one of them is short. *A. attenuatus* has a small dentiform process between the apical setae of P5 which is absent in *A. elephantinus* n. sp.

Finally, the exopod of the antenna of *A. elephantinus* n. sp. is armed with 2 setae (fig. 2d) while in *A. attenuatus* there are three setae and in *A. nicobaricus* the exopod is absent, although Sewell (1949), wrongly, had stated that the endopod was missing and described the endopod as the exopod.

A. nicobaricus was collected at Nicobar Islands near Indonesia (fig. 1), associated with weeds and *A. attenuatus* was collected near Ceylon on invertebrates. *A. elephantinus* n. sp. is the first record of the genus, not only to Brazil, but also to the Altantic Ocean. This record confirms that *Asteropontoides* can live associated with sponges.

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