

# Description of two new species of *Ampelisca* (Crustacea, Amphipoda, Ampeliscidae) from Southwestern Atlantic, with a key for Brazilian species of the genus

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## Abstract

*Ampelisca* species are inhabitant of soft bottom benthic communities of tropical to cold-temperate zones. Two new species, *A. subtropicalis* and *A. rodriguesi*, are herein described. The specimens were collected between latitudes 22° 48'S and 33° 42'S with depths varying from 30 to 150 m. *Ampelisca subtropicalis* sp. nov. is characterized by dactyls of pereopods 3 and 4 elongate and longer than carpus and propodus together; pereopod 4 merus stout about 2.5X as long as broad; pereopod 7 carpus with a notch on anterior margin, propodus not inflated; rami of uropod 3 moderately slender and with sparse plumose setae on inner margins; and telson without setae on dorsal surface. The diagnostic features of *A. rodriguesi* sp. nov. are pereopod 4 merus 3X as long as broad; pereopod 7 propodus slightly longer than carpus and weakly tumid; uropod 3 inner ramus slightly longer than outer ramus, outer ramus with a notch at the tip; and telson with 2 robust setae on dorsal surface. A key to the ampeliscid of the Brazilian coastline is presented.

**Key words:** Amphipoda, Ampeliscidae, *Ampelisca*, Brazil, new species.

## Introduction

Ampeliscids are tubicolous and inhabit soft bottom benthic communities from intertidal to abyssal depths of the world. Usually, most of the species live on the continental shelf, where the highest abundance is observed (Dauvin and Bellan-Santini, 1988). *Ampelisca* comprises more than 150 species, and is one of the most diverse marine amphipod group found worldwide (Barnard and Karaman, 1991). Because of its abundance, ampeliscids are known as an important food resource for demersal fishes in Southeastern Brazil (Wakabara *et al.*, 1982; Muto *et al.*, 2001). Currently, nine species of *Ampelisca* are recorded from the Brazilian coast: *A. brevisimulata* Barnard 1954; *A. cristata* Holmes 1908; *A. cucullata* Barnard, 1954; *A. indentata* Barnard 1954; *A. aff. lobata*, *A. parva* Barnard and Agard, 1986, *A. pugetica* Stimpson 1864, *A. romigi* Barnard, 1954, and *A. soleata* Oliveira, 1954 (Wakabara *et al.*, 1991; Wakabara and Serejo, 1998; Serejo *et al.* 2000; Valério-Berardo *et al.* 2000). A re-examination of the specimens recorded as *A. panamensis* in the cited papers convinced us that the identification was erroneous, indeed it is here described as *A. rodriguesi* sp. nov.

In this study, two new species of *Ampelisca*, *A. subtropicalis* and *A. rodriguesi* are herein described and compared with related species. Samples were dredged from the continental shelf of the Brazilian coast between the latitudes 22°48'S and 33°42'S. A key for the species occurring on the Brazilian coast is provided. The type material is lodged in the Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ) and Museu de Zoologia, Universidade de São

Paulo (MZUSP). The crustacean setae classification proposed by Watling (1989) is herein adopted. Abbreviations used in the figures are as follows: HA habitus; LL, lower lip; Md, mandible; Mxl, maxilla; Mxlp, maxilliped; P, pereopod; Gnt, gnathopod; Urs, urosomite; U, uropod; T, telson.

### Systematics

Family Ampeliscidae Costa 1857

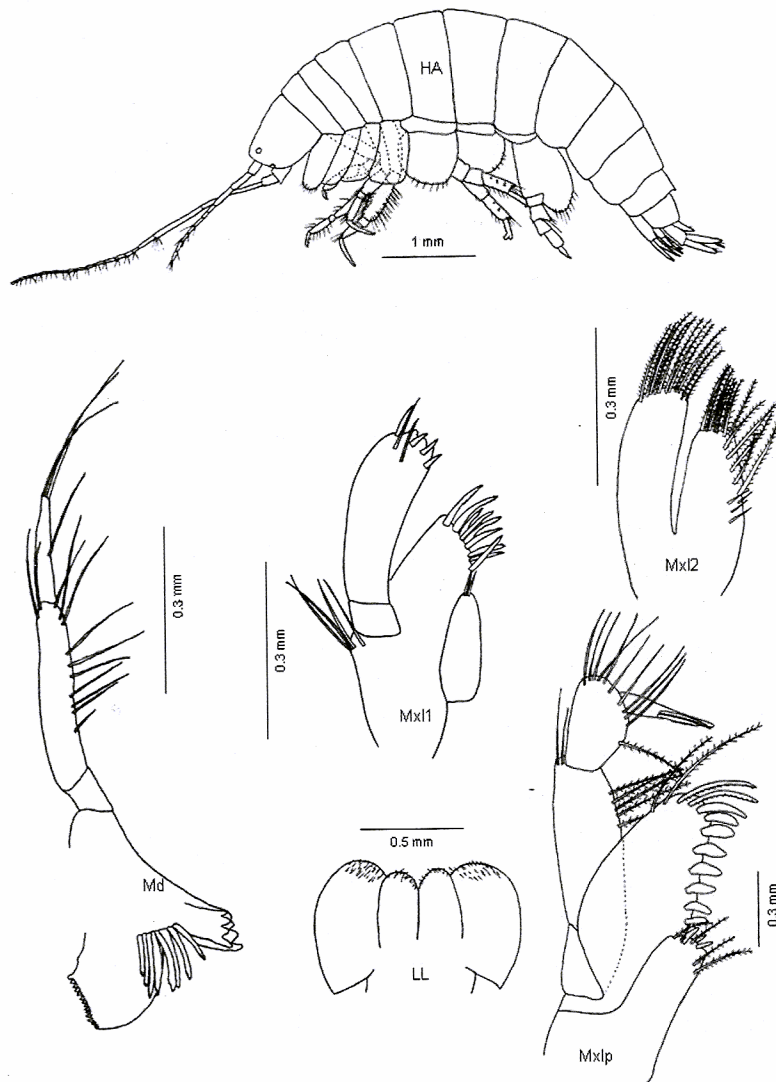
Genus *Ampelisca* Kroyer, 1842

*Ampelisca rodriguessi* sp. nov.

(Figs. 1-3)

*Ampelisca panamensis* Wakabara and Serejo, 1998: 563; Valério-Berardo et al. 2000a: 63-65.

*Ampelisca* sp. Valério-Berardo et al. 2000b: 535-538; Valério-Berardo et al. 2000c: 122.



Nauplius

Figure 1.: *Ampelisca rodriguessi* sp. nov., holotype, female, 9 mm, MZUSP 16328.

Material examined: Holotype, female, 9 mm, 23°36'S - 44°46'W, 48 m, R/V W. Besnard col., 16/12/85, MZUSP 16328. Paratypes, 2 females: 23°36'S - 44°46'W, 48 m, R/V W. Besnard col., 16/12/85, MZUSP 16330; 23°05'S - 44°20'W, 31 m, L. R. Tommasi col. 19/03/69, 1 specimen, MNRJ 19529; 23°39'S - 43°09'W, 128 m, R/V W. Besnard col., 12/05/70, 1 specimen, MNRJ 19530.

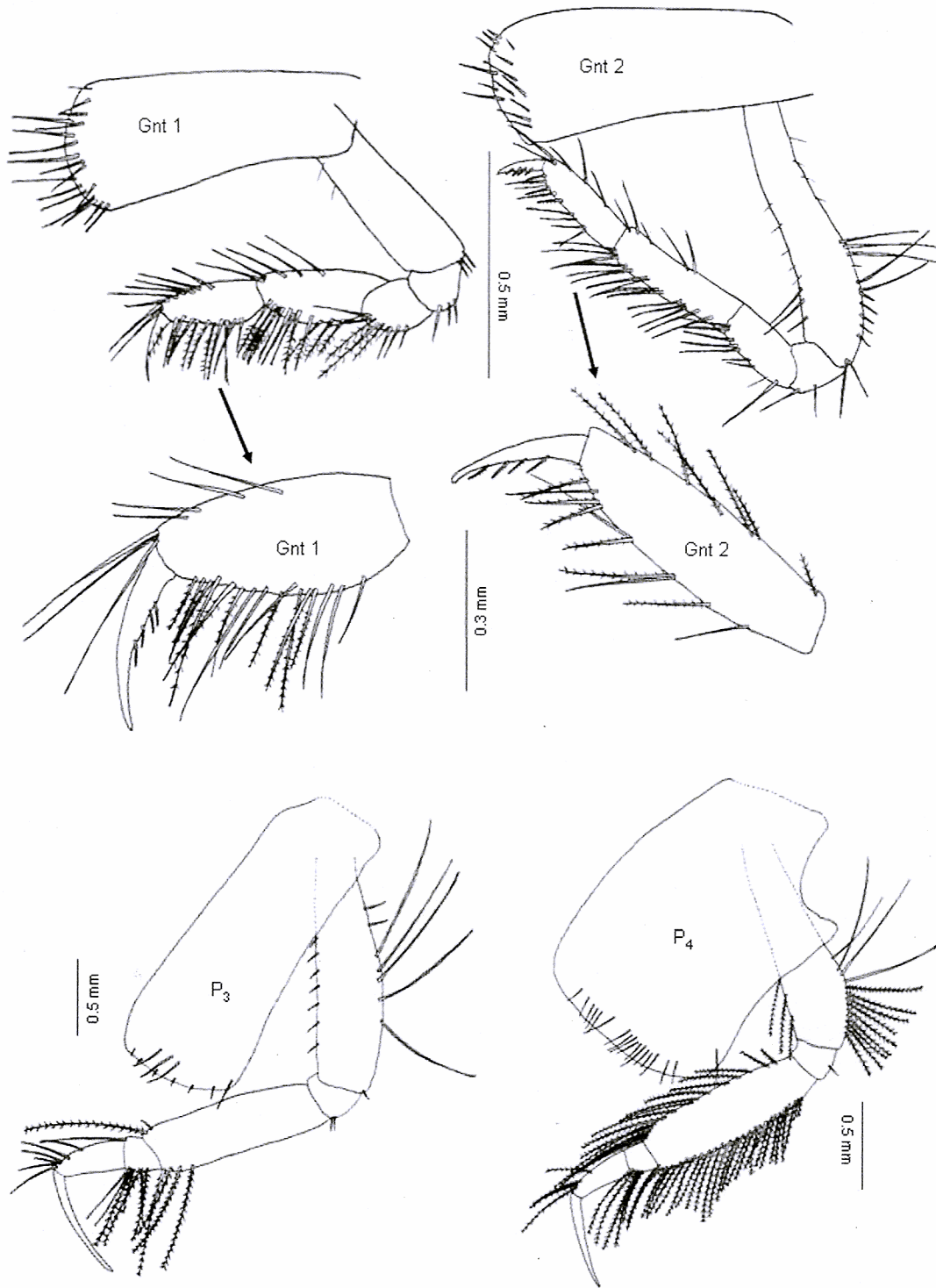


Figure 2: *Ampelisca rodriguezi* sp. nov., holotype, female, 9 mm, MZUSP 16328.

Etymology: This species is named in tribute to the Brazilian carcinologist Sérgio de Almeida Rodrigues (Universidade de São Paulo) for his great contributions to the Brazilian crustacean studies.

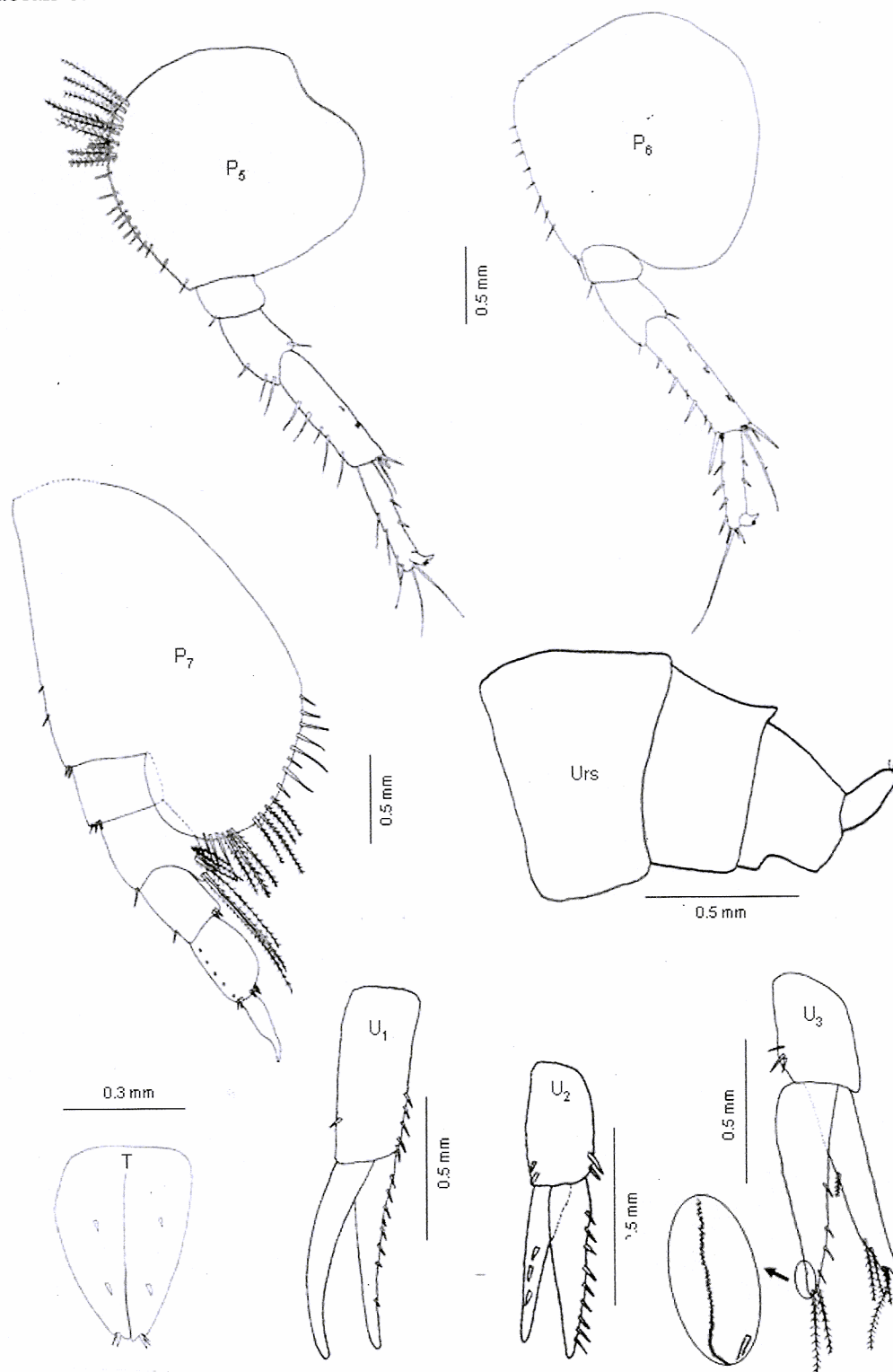


Figure 3: *Ampelisca rodriguesi* sp. nov., holotype, female, 9 mm, MZUSP 16328.

*Nauplius*

Diagnosis: Specimens examined ranging from 7.0 to 10.0 mm. Head with antero-ventral margin oblique. Antenna 1 subequal to peduncle of antenna 2. Antenna 2 subequal to body length. Pereopod 4 merus 3X as long as broad. Pereopod 7 basis lobe obliquely rounded reaching  $\frac{1}{2}$  of merus; merus longer than ischium and weakly produced at postero-distal apex; propodus slightly longer than carpus and poorly inflated. Epimeron 3 postero-ventral corner quadrate

and without spine. Uropod 1 reaching end of uropod 2 and both reaching end of uropod 3 peduncle. Uropod 1 outer ramus lacking robust setae. Uropod 3 inner ramus slightly longer than outer ramus; outer ramus notched at tip. Telson cleft, each lobe notched distally and bearing 1 robust seta and 1–2 slender setae, dorsal surface with 2 robust setae.

Description: Holotype, female 9.0 mm. Head with antero-ventral front margin oblique, equal in length to first three body segments combined. Antenna 1 subequal to peduncle of antenna 2, peduncular article 2 slightly longer than article 1 and without setae on ventral margin, flagellum with 6-9 articles. Antenna 2 subequal to body length. Mandible palp article 2 elongate, not inflated, with long setae in the inner margin, article 3  $\frac{1}{2}$  length of article 2, with one medial simple setae and 3 apical simple setae. Maxilla 1, inner plate with two apical setae, outer plate with 9 terminal setal-teeth; palp article 2 provided with 3 distal sharp cusps accompanied by 4 robust setae and 2 facial setae. Maxilliped inner lobe with 2 subapical and 3 apical plumose setae and 3 apical spines; outer lobe not reaching end of palp article 2 and with 8 chisel-shaped robust setae along medial margin, 2 terminal unipectinate setae and 2 plumose setae. Upper lip, lower lip and maxilla 2 with basic characters for the genus.

Coxae 1-4 much longer than broad, without notch on postero-ventral corner. Gnathopod 1 shorter than gnathopod 2. Gnathopod 1 basis with 2 setae on anterior margin; carpus 1.2X propodus length, both posterior margins with plumose setae; dactylus slightly curved bearing 4 setules along inferior margin. Gnathopod 2 basis with short and long setae on both margins; carpus elongate, about 1.4X propodus length, both articles with long setae on posterior margin; dactylus like that of gnathopod 1. Pereopod 3 slightly smaller than pereopod 4, both similar in shape, with dactylus as long as propodus and carpus combined. Pereopod 3 merus with plumose setae along  $\frac{1}{4}$  of posterior margin. Pereopod 4 more setose than pereopod 3, merus about 3X as long as broad; basis and merus both margins with long plumose setae. Pereopod 5 basis sub-ovoid, anterior margin with one row of plumose and short simple setae; carpus posterior margin with 2 sets of comb robust setae; dactylus trifurcate. Pereopod 6 basis subquadrate, anterior margin with short simple setae; carpus posterior margin with 3 sets of comb robust setae, dactylus trifurcate. Pereopod 7, basis lobe obliquely rounded and reaching middle of merus, with setae on ventral margin, ischium short, merus longer than ischium and weakly produced at postero-distal apex bearing two long plumose setae; propodus not inflated, longer than carpus, with 4 robust setae on distal margin; dactylus slender and distally pointed and shorter than propodus.

Epimera 1-3 postero-ventral corner broadly quadrate and without spine. Urosomite 1 dorsally produced and pointed. Uropod 1 reaching end of uropod 2, both reaching end of peduncle of uropod 3. Uropod 1 rami and peduncle equal in length, peduncle inner margin with 5 robust setae, inner ramus with 6-8 robust setae; outer ramus unarmed. Uropod 2 peduncle slightly shorter than inner ramus and with 2 robust setae on inner and outer margins; outer ramus smaller than inner, inner ramus with 9 marginal robust setae. Uropod 3, peduncle stout, short; inner ramus slightly longer than outer ramus and with 4 robust setae on outer margin, 2 plumose setae at apex, inner margin slightly serrate; outer ramus notched at tip and with 4 plumose setae at apex. Telson cleft more than  $\frac{4}{5}$  its length, each lobe notched at apex, and bearing 1 robust seta and 1-2 slender setae; dorsal surface with 2 robust setae.

Male: unknown.

Remarks: *Ampelisca rodriguessi* sp. nov. is part of the complex of species presenting the following characteristics: 1) mandibular palp article 2 slender; 2) 2-3 sets of comb robust setae on posterior margin of carpus of pereopods 5 and 6; 3) basal lobe of pereopod 7 extending beyond ischium; 4) pereopod 7 ischium shorter than merus in length; 5) epimera 3 without spine; 6) urosomite 1 not produced into a carina; 7) uropod 1 rami subequal to peduncle; 8) rami of uropod 3 long and not inflated, outer ramus notched at tip. This complex of species

includes: *A. fageri* Dickinson, 1982; *A. schellenbergi* Shoemaker, 1933; *A. burkei* Barnard and Thomas, 1989 and *A. hawaiiensis* Goeke, 1985. *Ampelisca rodriguessi* sp. nov. can be distinguished from *A. fageri*, *A. hawaiiensis*, and *A. schellenbergi* by pereopod 7 carpus anterior margin not notched and uropod 3 inner ramus slightly serrate instead of dentate inner ramus. It also can be differed from *A. burkei* in the ornamentation of uropod 3 inner ramus.

*Ampelisca rodriguessi* is also closed related to *A. panamensis* J L Barnard, 1954 but can be distinguished by merus of pereopod 5 not notched on anterior margin and the inner ramus of uropod 3 slightly serrate.

Distribution: Southeastern coast of Brazil - 22°48'S- 24°07'S.

*Ampelisca subtropicalis* sp. nov.

(Figs. 4-6)

Material examined: Holotype, female, 19 mm, 25°17'S- 46°21'W, 81 m R/V W. Besnard col., 12/97, MZUSP16327. Paratypes: 33°42'S - 52°02'W, 46 m, R/V Atlântico Sul col., 03/12/1992, 4 specimens, MNRJ 14050; 27°32'S - 51°30'W, 45 m, R/V Atlântico Sul col., 04/12/1992, 5 specimens, MNRJ 14077; 33°23'S- 51°33'W, 64 m, R/V Atlântico Sul col., 03/12/1992, 2 specimens, MNRJ 13865; 33°12'S - 51°22'W, 62 m, R/V Atlântico Sul, 2/12/1992, 1 specimen, MNRJ 13864.

Etymology: The species is named in reference to the latitudinal region where the specimens are distributed.

Diagnosis: Specimens examined ranging from 8.0 to 20.0 mm. Head with antero-ventral margin oblique. Antenna 1 shorter than peduncle of antenna 2. Antenna 2 as long as body length. Dactyls of pereopod 3 and 4 longer than carpus and propodus together. Pereopod 4 merus stout, about 2.5X as long as broad. Pereopod 7 basal lobe deep, postero-ventral margin obliquely rounded, basis with numerous plumose setae on inner surface; ischium subequal to merus in length; carpus with a notch on anterior margin; propodus not inflated. Epimeron 3 with postero-ventral corner rounded and without spine. Uropod 1 inner ramus armed with 3 robust setae, outer ramus unarmed. Uropod 2 outer ramus bearing a distal long robust setae. Rami of uropod 3 moderately slender and with sparse plumose setae on inner margin. Telson notched distally, each notch bearing 1- 2 setae, dorsal surface naked.

Description: Holotype, female 19.0 mm. Head as long as the three first thoracic segments; antero-ventral margin of the head convex and oblique to half of the head length. Two pairs of eyes, each one with a cuticular lenses, the second pair on antero-ventral corner of the head. Antenna 1 reaching end of article 4 of antenna 2, peduncular article 2 longer than article 1, flagellum of 8-10 articles. Antenna 2 as long as body length. Mandibular palp article 2 not inflated, article 3 about 0.7 length of article 2. Maxilla 1 inner plate with 2 apical setae; outer plate with 8 terminal setal-teeth, palp article 2 with 5 facial setae and 5 apical robust setae. Maxilliped inner lobe with 1 distal robust seta intermixed with several plumose setae; outer lobe reaching apex of palp article 2, bearing row of chisel-shaped robust setae along medial margin and 2 apical setae. Upper lip, lower lip and maxilla 2 with basic characters for the genus.

Coxae 2 and 3 without notch on postero-ventral corner. Coxa 1 with a weak notch on postero-ventral corner. Gnathopod 1 basis posterior margin with several long plumose setae; carpus scarcely longer than propodus, both posterior margins with plumose setae; dactylus bearing 4 setules along inferior margin. Gnathopod 2 basis posterior margin with several long plumose setae; carpus slender, 2X propodus length; propodus elongate and with plumose setae on posterior margin; dactylus like that of gnathopod 1. Pereopods 3 and 4 similar in shape, but fourth slightly stouter and heavily setose than third pereopod, both with elongate dactyls about 2X carpus and propodus length together. Pereopod 3 merus with plumose setae along  $\frac{3}{4}$  of posterior margin. Pereopod 4 merus stout about 2.5X as long as broad; posterior margins of

ischium, merus, and carpus densely setose. Pereopod 5 basis quadrate, anterior margin with plumose setae; carpus elongate, scarcely produced postero-distally and bearing 9 robust setae on apex, posterior margin with 3 sets of comb robust setae; dactylus bifurcate. Pereopod 6 basis subquadrate, anterior margin with plumose setae; carpus posterior margin with 2 sets of comb robust setae, dactylus trifurcate. Pereopod 7 basis lobe obliquely rounded and reaching middle of merus, with numerous plumose setae on inner surface and distal margin or without setae; ischium length subequal to merus; carpus shorter in length than ischium and merus together, with a notch on anterior margin, distal margin with robust setae, posterior margin not lobed; propodus not inflated 2X longer than wide; dactylus slender and subequal to propodus in length.

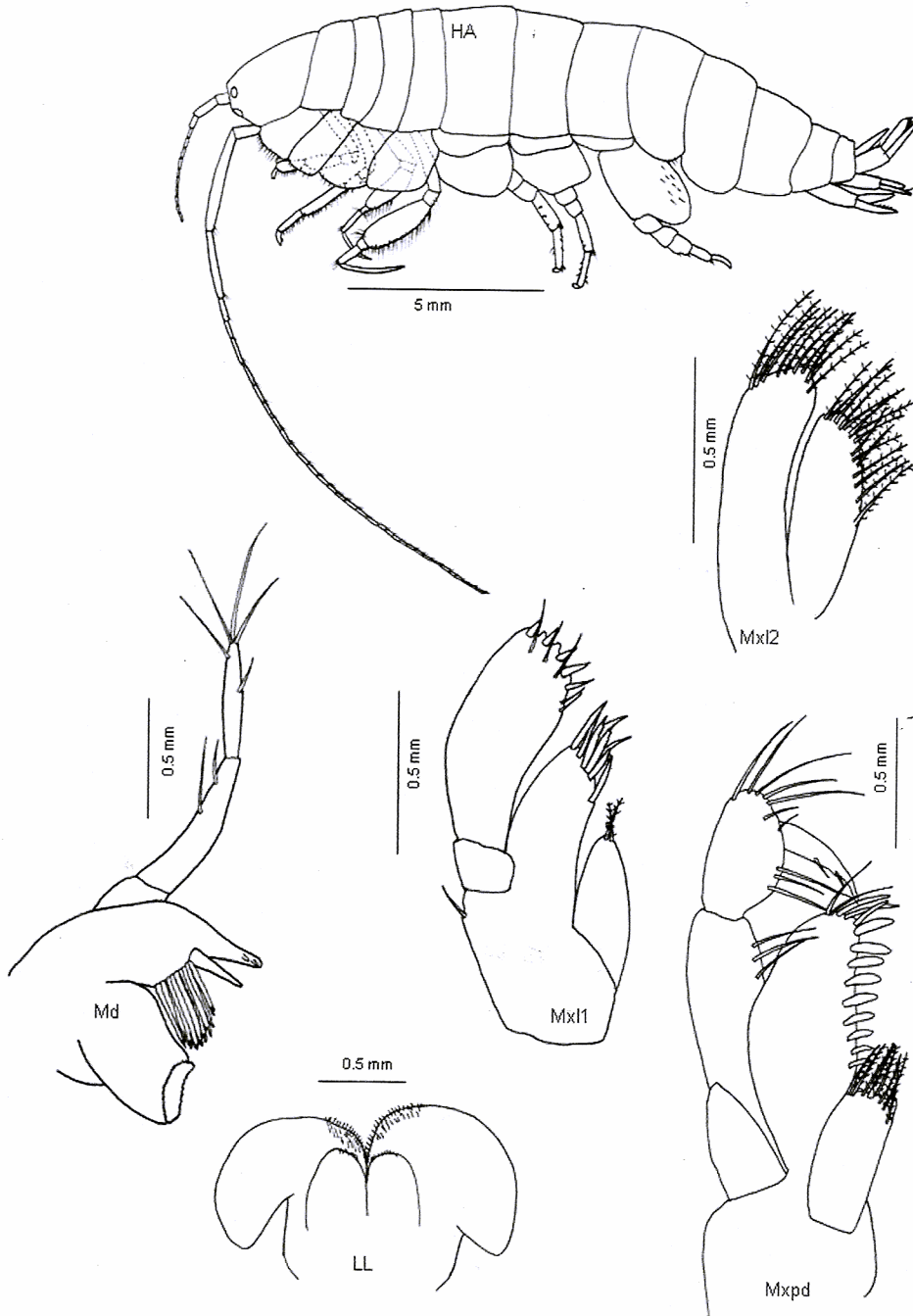
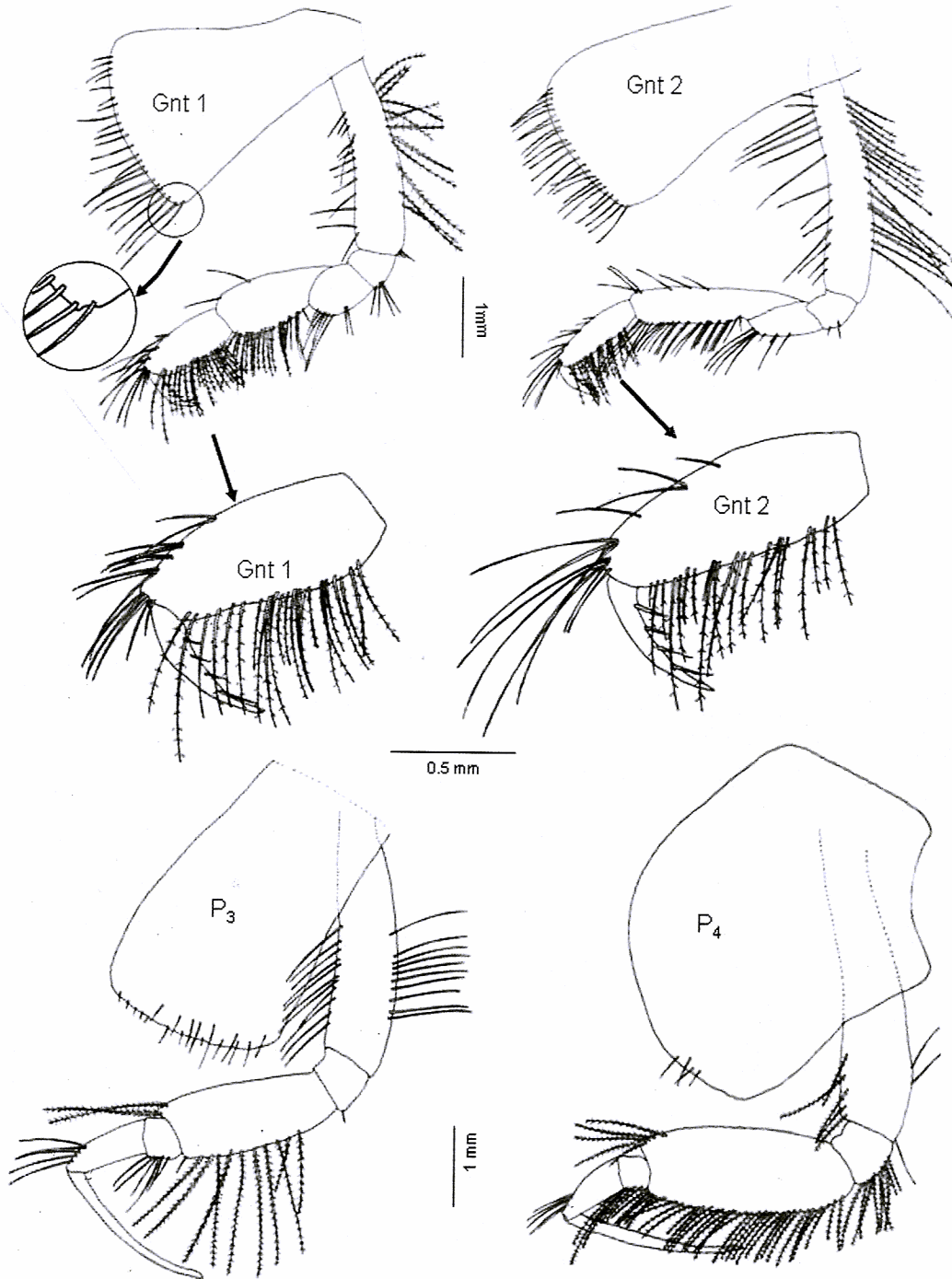


Figure 4: *Ampelisca subtropicalis* sp. nov., holotype, female, 19 mm, MZUSP 16327.

Epimera 1 – 3 with broadly rounded postero-ventral corner. Urosomite 1 dorsally rounded. Uropod 1 extending to end of uropod 2 peduncle, rami and peduncle subequal in length, peduncle with a robust seta on distal margin; inner ramus with 3 robust setae; outer ramus unarmed. Uropod 2 peduncle longer than rami; inner ramus slightly shorter than outer ramus, both margins of rami with robust setae; outer ramus with 2 subdistal and 1 long distal robust setae. Uropod 3 rami flattened, slender; inner ramus slightly broader than outer ramus, both rami with sparse plumose setae on inner margins. Telson lobes notched at apex, each notch bearing 1–2 setae, dorsal surface naked.



*Nauplius*

Figure 5: *Ampelisca subtropicalis* sp. nov., holotype, female, 19 mm, MZUSP 16327.



Male: unknown

Variations: Most variations are attributed to stage of development. Antenna 1 varies in relation to the peduncular articles of antenna 2. Larger specimens (more than 15.0 mm) have antenna 1 reaching just beyond peduncular article 4 of antenna 2, while in smaller specimens (8.0 – 9.0 mm) antenna 1 do not exceed the peduncular article 4 of antenna 2. Another variation is the relative length of antenna 2 and body. Juvenile and subadult specimens presented antenna 2 as long as the body length or longer, whereas in adult forms antenna 2 do not exceed the total body length. According to Goeke and Heard (1983; 1984) this variation is common among juvenile ampeliscids where the antennae often are longer than those of the adult. Also, the pattern of plumose setae on the inner surface of pereopod 7 basis can vary. Some specimens have 10-12 plumose setae and others have no setae, but no relationship was noticed with the maturity of individuals.

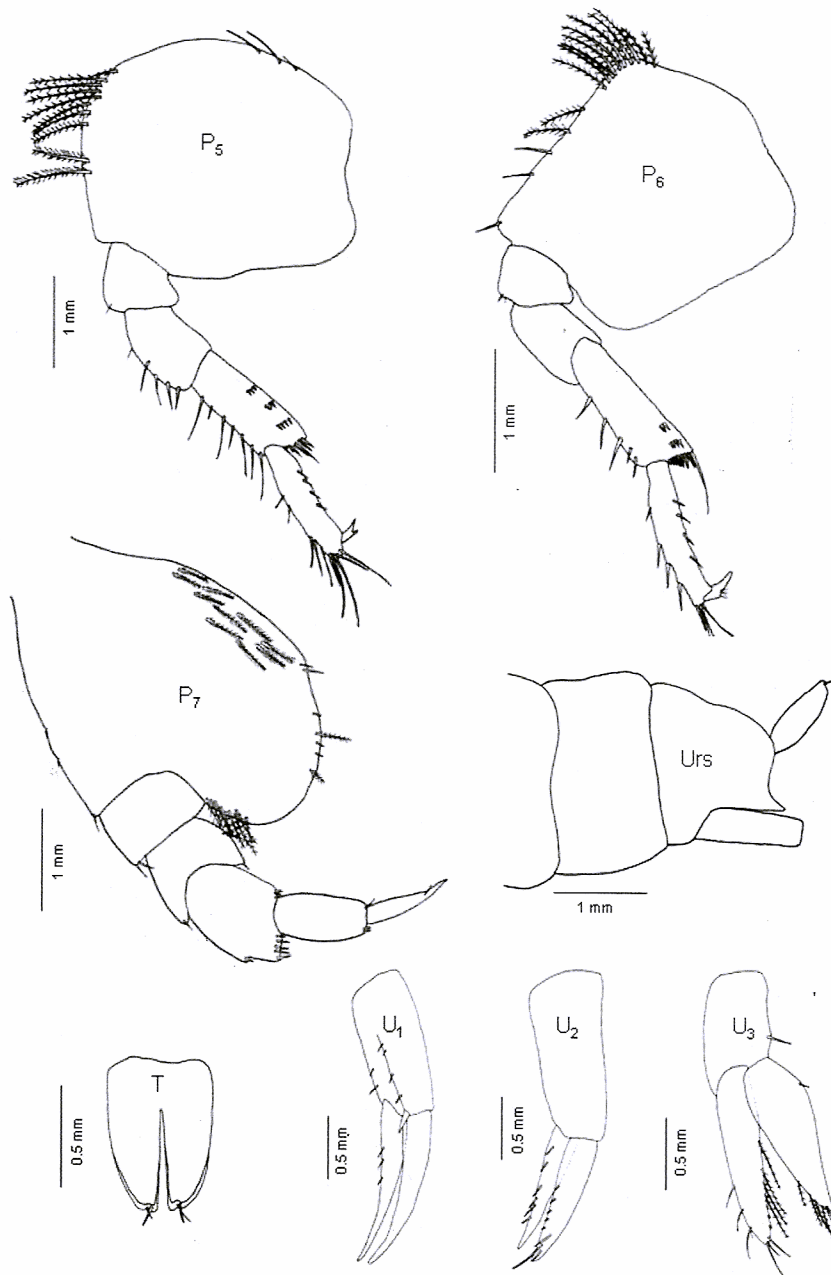


Figure 6: *Ampelisca subtropicalis* sp. nov., holotype, female, 19 mm, MZUSP 16327.

Remarks: *Ampelisca subtropicalis* sp. nov. is part of the group of species bearing antenna 1 shorter than peduncle of antenna 2, anterior margin of article 5 of pereopod 7 with notch, and lower posterior corner of epimeron 3 without spine. The species with these characteristics are: *A. brachycladus* Roney, 1980; *A. schellenbergi* Shoemaker, 1933, and *A. venetiensis* Shoemaker, 1916. *Ampelisca subtropicalis* sp. nov. can be distinguished from *A. brachycladus* by pereopod 7 merus posterior margin not lobed; urosomite 1 dorsally rounded instead of dorsally pointed; and uropod 1 rami subequal in length (versus 1/2 length of outer ramus). *Ampelisca subtropicalis* sp. nov. differs from *A. venetiensis* by pereopod 7 merus margin not lobed; urosomite 1 dorsally rounded (not saddle shaped); and uropod 3 rami slender with sparse plumose setae (versus strongly setose). *Ampelisca subtropicalis* sp. nov. differs from *A. schellenbergi* on the slender dactylus of pereopod 7 (not stout), and uropod 3 outer margin of inner ramus smooth (not dentate).

*Ampelisca subtropicalis* sp. nov. is also closely related to *A. richardsoni* Karaman, 1975 from the Antarctic region. Both species have head with antero-ventral margin convex and oblique; pereopod 7 basis with numerous plumose setae on inner surface; carpus with one notch on anterior margin; uropod 3 has outer ramus narrower than inner one, both rami with plumose setae on the inner margins. *Ampelisca subtropicalis* sp. nov. differs from *A. richardsoni* by the following characters: 1) antenna 1 shorter than peduncle of antenna 2 (not slightly longer); 2) propodus of gnathopod 1 slender and elongate (not ovoid); 3) disto-posterior corner of epimeron 3 rounded (not sharply pointed); 4) telson dorsal surface lacking setae (not with 2 to 4 dorsal short robust setae).

Distribution: Southeastern coast of Brazil – 27°32' to 33°42'S.

### General comments

*Ampelisca* is a relatively diverse genus and the discovery of two new species in the Brazilian waters attests that. The occurrence of twin species within *Ampelisca* was pointed before (Serejo et al. 2000) and sometimes the difficulty in separating these taxa morphologically can lead us to use molecular studies as an additional tool. Three species previously recorded from the Brazilian waters, *A. cuculatta*, *A. indentata* and *A. soleata* were not found recently. The first two were material of ecological studies (Forneris 1969 and Valerio-Berardo, 1992), and they were, unfortunately, disregarded some years ago, and not lodged at any Museum. *A. soleata* on the other hand, originally described from Guanabara Bay, Rio de Janeiro by Oliveira (1954) has the type material lost. The validity and the exact identity of these species might be confirmed when more specimens will be available in further investigations.

Key to the species of *Ampelisca* from the Brazilian coast (modified from Serejo et al. 2000).

- 1a. Head with a long rostrum reaching the end of peduncle article 1 of antenna 1 ..... *A. paria*  
 1b. Head lacking a defined rostrum ..... 2
- 2a. Head strongly narrow anteriorly, ventral edge concave and sub-parallel to dorsal margin; uropod 1 peduncle upper margin with a hump ..... 3
- 2b. Head slightly narrow anteriorly, ventral edge oblique; uropod 1 peduncle lacking hump ..... 4
- 3a. Pereopod 7, ventral margin of basis nearly transverse (in larger specimens can be rounded); urosomite 1 produced into a rounded process; posterior margin of epimeron 3 not bisinuate; telson lobes with 2–4 facial setae in a row ..... *A. cristata*

- 3b. Pereopod 7, ventral margin of basis rounded; urosomite 1 produced into an acute process; posterior margin of epimeron 3 bisinuate; telson lobes with 9–11 scattered facial setae ..... *A. brevisimulata*
- 4a. Carpus of pereopod 7 with a notch on anterior margin ..... 5  
 4b. Carpus of pereopod 7 without a notch on anterior margin ..... 7
- 5a. Pereopod 7 merus posterior margin lobed, extending to the end of carpus; urosomite 1 with a saddle shaped margin ..... *A. pugetica*  
 5b. Pereopod 7 merus posterior margin slightly lobed until the 1/2 of carpus length; urosomite 1 without a saddle shaped margin ..... 6
- 6a. Antenna 1 reaching middle of peduncular article 4 of antenna 2 in adult specimens; urosomite 1 postero-dorsal edge raised into a lens-shaped process; uropod 2 outer ramus without a long distal robust seta; telson apices blunt..... *A. romigi*  
 6b. Antenna 1 reaching end of peduncular article 4 of antenna 2 in adult specimens; urosomite 1 with rounded carina without lens-shaped process; uropod 2 outer ramus with a long distal robust seta; telson apices notched..... *A. subtropicalis* sp. nov.
- 7a. Antenna 1 much shorter than peduncle of antenna 2 (reaching end of peduncular article 4 of antenna 2); uropod 3 inner ramus with stout robust setae on outer margin, outer ramus not notched ..... *A. aff. lobata*  
 7b. Antenna 1 subequal to peduncle of antenna 2; uropod 3 inner ramus outer margin nacked, outer ramus apically notched ..... *A. rodriguesi* sp. nov.

## Acknowledgements

The first author thanks the Fundo Mackenzie de Pesquisa (MACKPESQUISA) for financial support.

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