A new species of *Speocarcinus* Stimpson, 1859 from the southwestern Atlantic (Decapoda: Brachyura: Xanthidae)

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Abstract

Speocarcinus amazonicus n. sp. is described from the Southwestern Atlantic. The new species can be easily separated from its congeners by a suite of carapace and appendages characters.

Key words: biodiversity, taxonomy, new species, carcinology, Crustacea, western Atlantic.

Introduction

Traditionally, Brazilian specimens belonging to the genus *Speocarcinus* Stimpson, 1859, have been identified either as *S. carolinensis* Stimpson, 1859 or as *S. meloi* D'Incao and Silva, 1992 (Bertini *et al.,* 2004; Fausto-Filho and Sampaio Neto, 1976; Melo, 1996; 1998; D'Incao and Silva, 1992). Comparison of specimens previously attributed to *S. carolinensis* with material of all known species in the genus *Speocarcinus,* showed that the southwestern Atlantic specimens belong to an undescribed species. This new species is named herein, *Speocarcinus amazonicus* n. sp. The geographical distribution of *Speocarcinus carolinensis* is restricted to North Carolina through the Gulf of Mexico, and the West Indies. The record of *S. carolinensis* from Suriname by Holthuis (1959) should be regarded with caution. A note on the lectotype designation of Rathbun (1918: 40) for *Speocarcinus granulimanus* Rathbun, 1894 is included.

Abbreviations used: DOUFPE (Department of Oceanography, Federal University of Pernambuco); MNHN (Muséum national d'Histoire naturelle, Paris); MZUSP (Museum of Zoology of the University of São Paulo); USNM (National Museum of Natural History, Smithsonian Institution, Washington, D.C.); carapace length (cl), taken from the front to the posterior margin of the carapace; carapace width (cw), taken at the level of the fifth anterolateral tooth of the carapace; P1 cheliped; P2-P5, pereiopods 2 to 5; WA, western Atlantic Ocean; EP; eastern Pacific Ocean.

Systematic Account

Family Xanthidae MacLeay, 1838

Speocarcinus Stimpson, 1859

Speocarcinus Stimpson, 1859. Type species: *Speocarcinus carolinensis* Stimpson, 1859, by monotypy. Gender masculine. [Opinion 35, Direction 37]

Species included: The American genus *Speocarcinus* includes seven extant and one fossil species: *Speocarcinus amazonicus* n. sp. (WA), *S. carolinensis* Stimpson, 1859 (WA); *S. granulimanus* Rathbun, 1894 (EP); *S. lobatus* Guinot, 1969 (WA); *S. meloi* D'Incao and Silva, 1992 (WA); *S. monotuberculatus* Felder and Rabalais, 1986 (WA); *S. spinicarpus* Guinot, 1969 (EP); and *S. berglundi* Tucker, Feldmann and Powell, 1994 (from the Late Miocene-Late Pliocene of Southern California).

Speocarcinus amazonicus n. sp. (Figures 1A, C, E; 2A)

Type material: Martinique: "IGMAR 2", St. BI-197, 14°49.661'N-60°59.830'W, fluid mud: 1 female paratype (MZUSP 17333). Brasil, Amapá, Caciporé Cape, "Calypso", St. 1787, 60 m: 1 female paratype (MZUSP 8527). Caciporé Cape, "Almirante Saldanha", St. 1793 BII, 04°13'5"S-50°26'0"W, 18.xi.1967, sand-mud bottom, 75 m: 1 male and 1 female paratypes (DOUFPE 6101), 1 male and 2 female paratypes (MZUSP 23655).

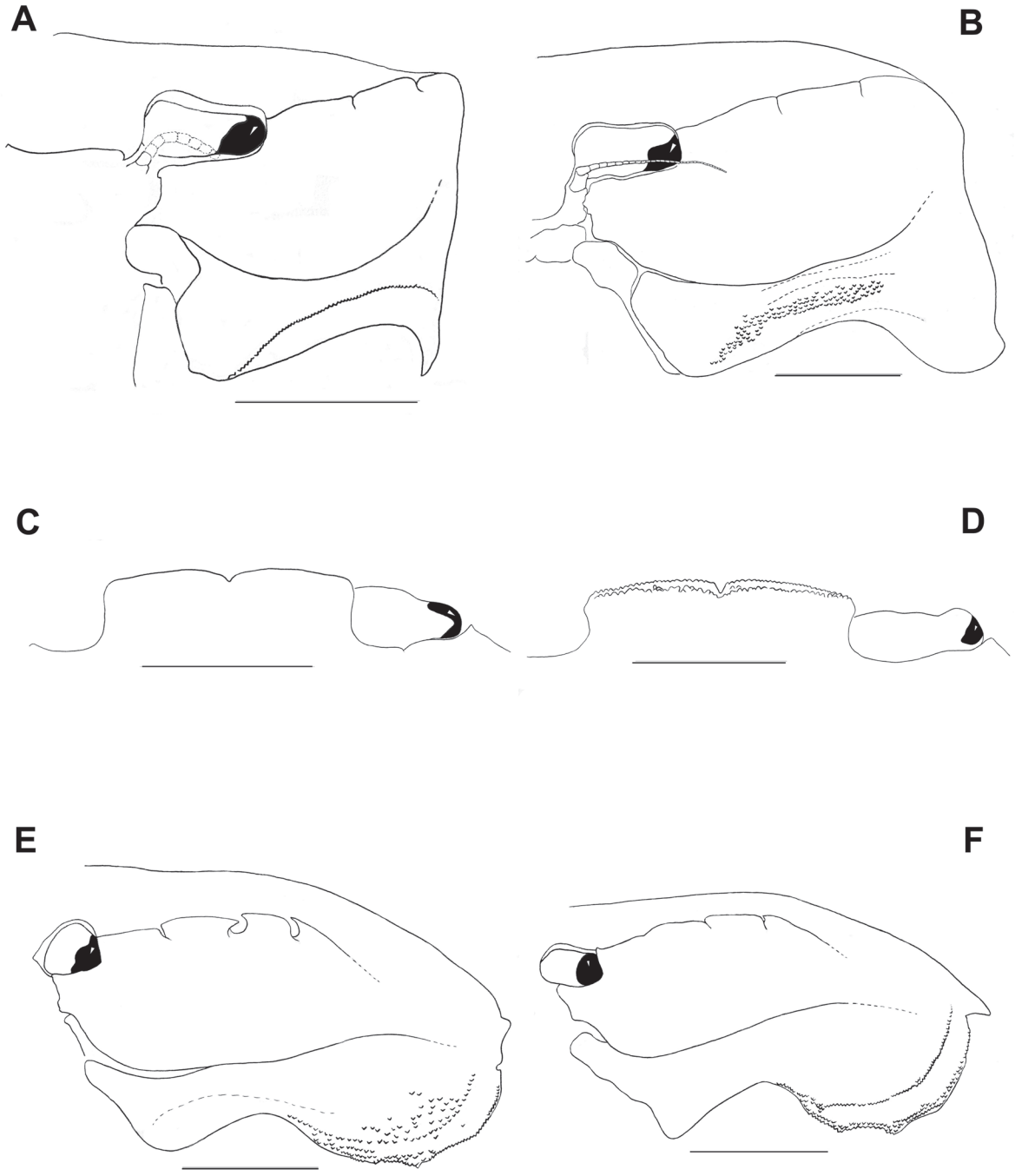

Figure 1. A-B, carapace inhalant channel. C-D, frontal area just behind frontal margin of carapace. E-F, carapace branchiostegite. A, C, E, *Speocarcinus amazonicus* n. sp., male holotype, cl 8 mm, cw 11 mm (MZUSP 23654). B, *Speocarcinus meloi* D'Incao and Silva, 1992, male holotype, cl 12 mm, cw 15.6 mm (MZUSP 9577). D, *Speocarcinus carolinensis* Stimpson, 1859, male, cl 10 mm, cw 14 mm (USNM 180101). F, *Speocarcinus lobatus* Guinot, 1969, male, cl 7.2 mm, cw 10.8 mm (USNM 187191). Scale bars: A-F, 2.5 mm.

Caciporé Cape, "Almirante Saldanha", St. 1787 A, 03°31.5'S-50°11.0'W, 17.xi.1967, mud bottom, 75 m: 2 male paratypes (DOUFPE 6104). Pará, Amazon River, "Almirante Saldanha", St. 1993 II, 02°10'N-48°07'W, 23.xi.1968, mud bottom, 49 m: 1 male holotype cl 8 mm, cw 11 mm (MZUSP 23654) and 1 male paratype (DOUFPE 6107). São Francisco River mouth, "Akaroa", St. 175, 10°40'06"S-36°23'35"W, 3.xii.1965, 50 m: 1 female paratype (DOUFPE 6106). Alagoas, São Francisco River mouth, "Akaroa", St. 170, 10°33'42"S-36°16'30"W, 3.xii.1965, mud bottom, 50 m: 1 male paratype (MZUSP 23686). Alagoas, São Francisco River mouth, "Akaroa", St. 181, 10°38'09"S-36°16'00"W, 4.xii.1965, sand-mud bottom, 130 m: 1 male and 1 female paratypes (DOUFPE 6109). Sergipe, São Francisco River mouth, "Akaroa", St. 177, 10°37'56"S-36°19'30"W, 4.xii.1965, mud bottom, 108 m: 1 male (DOUFPE 6111). Rio de Janeiro, Casimiro de Abreu, 22°38'22.1"S-41°54'10.3"W, 1.iii.2008: 14 male and 29 female paratypes (MZUSP 18478), 1 male and 1 female paratypes (DOUFPE), and 1 male and 1 female paratypes (MNHN-B 32601). Rio de Janeiro, Ilha Grande, "Emília", St. 23, 9.vii.1966, 23 m: 1 female paratype (MZUSP 3458). Ilha Grande, "Emília", St. 30F, 1.vi.1967, 19.5 m: 1 female paratype (MZUSP 9032). Santa Catarina, Porto Belo, shrimp trawler coll., 12.iii.2010, 30 m: 1 male and 1 female paratypes (MZUSP 22789). Rio Grande do Sul, "W. Besnard", St. 413, 33°37'S-51°41'W, 3.x.1968, 78 m: 5 males (MZUSP 9027). Rio Grande do Sul, Torres, "Almirante Saldanha", St. 2234, 30°37'S-49°59.6'W, 18.x.1969, sand-mud bottom, 71 m: 1 male (MZUSP 23656) and 1 male paratype (DOUFPE 6112).

Comparative material: Speocarcinus carolinensis Stimpson, 1859: North Atlantic Ocean, United States, Florida, near Crescent Beach, 29°45'30"N-81°14'25"W, P. Webster coll., 26.v.1991, 7 m, A. W. Williams det.: 1 male cl 2.9 mm, cw 3.9 mm (USNM 251311). North Carolina, "Eastward", St. E2-77-259, 35°02'24"S-75°W, vi.1977, G. Herbst det.: 1 male cl 10 mm, cw 14 mm (USNM 180101); St E5-77-13, 34°34'54"S-75°10'30"W,

Figure 2. A-D, habitus, dorsal view. A, *Speocarcinus amazonicus* n. sp., male holotype, cl 8 mm, cw 11 mm (MZUSP 23654). Note smooth surfaces of right P1 propodus. B, *Speocarcinus carolinensis* Stimpson, 1859, male, cl 2.9 mm, cw 3.9 mm (USNM 251311). C, *Speocarcinus carolinensis* Stimpson, 1859, male, cl 10 mm, cw 14 mm (USNM 180101). D, *Speocarcinus lobatus* Guinot, 1969, male holotype, cl 16 mm, cw 12 mm (USNM 101081). Scale bars: A-D, 10 mm.

4.viii.1977, 34 m, G. Herbst det.: 1 female cl 8 mm cw 10.5 mm (USNM 180099); St. E2-77-253, 35°02'18"S-75°W, vi.1977, G. Herbst det.: 1 female cl 8 mm, cw 10.8 mm (USNM 180100). *Speocarcinus granulimanus* Rathbun, 1894: Gulf of California, off Point San Fermin, "Albatross", St. 3035, 30°21'00"N-114°25'15"W, gray mud, 54.86 m: male lectotype cl 17.5 mm, cl 21.0 mm (USNM 17461). *Speocarcinus lobatus* Guinot, 1969: Texas, Sabine Pass, W. G. Hewat coll., vi.1956: male holotype cl 16 mm, cw 12 mm (USNM 101081); Gulf of Mexico, Louisiana, Eugene Island, Lease area, 2000 miles north of platform, 28°41'51"N-91°37'21"W, 27 m: 1 male cl 7.2 mm, cw 10.8 mm (USNM 187191). *Speocarcinus meloi* D'Incao and Silva, 1992: Brazil, Rio Grande do Sul, 32°17'S-50°48'W, 14.xii.1984, 82 m: male holotype cl 12 mm, cw 15.6 mm (MZUSP 9577). *Speocarcinus monotuberculatus* Felder and Rabalais, 1986: Texas, Gulf of Mexico, Southern Bank, 76 m: female holotype cl 6 mm, cw 7.8 mm (USNM 228459). *Speocarcinus spinicarpus* Guinot, 1969: North Pacific Ocean, Gulf of California, Mexico, Walker C., coll., ii.1949, 9.14-18.28 m: male holotype cl 16 mm, cw 19 mm (USNM 231701).

Type locality: Pará, Amazon River delta (02°10'N-48°07'W), 49 meters depth.

Etymology: The epithet is a noun in apposition and an allusion to the type locality, the delta of the Amazon River.

Description of the holotype: Carapace wider than long, maximal width at fifth anterolateral tooth, granulate, coarsest granulation near margins; cardiac and mesogastric regions laterally defined by weak grooves; mesogastric region defined by pair of weak, parallel grooves joining anteriorly to form median groove of front. Fronto-orbital width much more than half of maximal width of carapace; margin convex, divided by distinct U-shaped median notch; frontal margin dense, finely granulate; frontal area just behind margin smooth. Supraorbital margin interrupted by 2 notches and lined with distinct granules, granulation coarsest in

Figure 3. A-D, habitus, dorsal view. A, *Speocarcinus granulimanus* Rathbun, 1894, male lectotype cl 17.5 mm, cw 21.0 mm (USNM 17461). Note strongly granulated surfaces of right P1 propodus. B, *Speocarcinus meloi* D'Incao and Silva, 1992, male holotype, cl 12 mm, cw 15.6 mm (MZUSP 9577). C, *Speocarcinus monotuberculatus* Felder and Rabalais, 1986, female holotype, cl 6 mm, cw 7.8 mm (USNM 228459). D, *Speocarcinus spinicarpus* Guinot, 1969, male holotype, cl 16 mm, cw 19 mm (USNM 231701). Scale bars: A-D, 10 mm.

lateral half, continued to outer orbital (first anterolateral) tooth; suborbital margin lined with coarse granules, mesially with broad, rounded lobe, laterally with abrupt bend. Anterolateral margin strongly convex, projecting in 5 distinctly granulate teeth; first tooth (outer orbital) small, broadly triangular; second tooth apparent as broad lobe, coalescent with first tooth; teeth 3-5 well distinct from each other, broadly triangular, directed anteriorly with arched lateral margins, decreasing successively in size, becoming successively more acute posteriorly. Posterolateral margins weakly defined, weakly concave behind last anterolateral tooth. Limit between epistome and endostome well defined, forming pronounced, sinuous lip, interrupted by 3 notches, one at each side of mesial notch.

Ocular peduncle finely granular, freely movable, thick, fully retractable into orbital cavity; cornea unpigmented, ommatidia well recognizable. Antennules prominent; basal article thickest laterally, with 2 lines of granules, longer line transverse, shorter line near lateral border, parallel to peduncle of adjacent antenna; second article elongate, subcylindrical, articulated to basal article at mesial end of antennular fossa; third article nearly equal in length to second, swollen distally and tapered to proximal articulation with second article, terminally with long marginal setae at either side of dorsal flagellum on dorsal side. Antennal article 2+3 immovable, filling orbital gap; articles 4 and 5 freely movable, subcylindrical.

Thoracic sternum smooth, punctate, pits more pronounced anteriorly; sterno-abdominal cavity coarsely granulated anteriorly, lateral margins lined with strong granules. Abdominal locking system functional, thoracic sternal button placed next to thoracic sternal suture 5/6. Third maxillipeds wide apart from each other; ischium with marked longitudinal furrow; merus distinctly smaller than ischium, granulation more evident near margins. Chelipeds unequal, heterochely distinct but not very pronounced. Merus of major P1 trigonal, dorsal margin with ridge of strong granules, ventral surface smooth. Carpus with 1 strong, blunt tooth on inner margin, mesial margin granular, surface smooth with scattered punctations. Propodus stout, surfaces smooth with scattered punctations, dorsal margin markedly longer than fingers. Fingers gaping proximally; cutting edges bluntly dentate; fingers whitish throughout length. Ambulatory legs (P2-P5) long, slender, relative lengths P4>P3>P2>P5, P4 longest. Meri of P2-P5 with row of distally directed spinules or sharpened granules. Carpi and propodi of P2-P4 with rows of long setae, smooth. Dactyls of P2-P5 slightly depressed each with corneous tip and 4 longitudinal rows of long setae.

Abdomen of 4 segments and telson; segments 3-5 fused together; abdominal suture 3/4 absent, suture 4/5 inconspicuous; segment 1 much broader than segment 2 (female abdomen of 6 segments and telson).

Remarks: Speocarcinus amazonicus n. sp. resembles *S. meloi* in the dorsal aspect of the carapace but can be easily separated by: (i) carapace inhalant channel (in apposition to P1) with one transverse row of coarse granules just above its anterior margin (Figure 1A) (with several poorly defined transverse rows of granules in *S. meloi,* Figure 1B); (ii) frontal margin finely granulate (frontal margin smooth in *S. meloi*); (iii) thoracic sternum slightly punctuate (microscopically granulated in *S. meloi*); (iv) anterior margin of the sterno-abdominal cavity densely granulated (less densely granulated in *S. meloi*). *Speocarcinus amazonicus* n. sp. can be distinguished from *S. carolinensis, S. lobatus,* and *S. monotuberculatus* by the absence of granulation in frontal area just behind the frontal margin (Figure 1C) (frontal area just behind the frontal margin with several, poorly defined, transversal lines of granules in *S. carolinensis, S. lobatus,* and *S. monotuberculatus,* Figure 1D). Both, the generally granulated carapace branchiostege (Figure 1E) and the absence of one median tubercle on both male and female second abdominal segments in *Speocarcinus amazonicus* n. sp. further differentiate it from *S. lobatus* (branchiostegite with two longitudinal rows of granules, Figure 1F) and *S. monotuberculatus* (with one median tubercle on both male and female second abdominal segments). *Speocarcinus amazonicus* n. sp. can be separated from *S. granulimanus* by the P1 propodus with smooth surfaces, scattered punctations (Figure 2A) (P1 propodus with external surface strongly granulated in *S. granulimanus,* Figure 3A). *Speocarcinus amazonicus* n. sp. differs from *S. spinicarpus* by the short, blunt tooth on inner margin of the P1 carpus is spiniform (Figure 2A) (the tooth on the inner margin of the P1 carpus spiniform in *S. spinicarpus,* Figure 3D).

Distribution: Presently known from Martinique and Brazil (Amapá, Pará, Alagoas, Sergipe, Rio de Janeiro, Santa Catarina, and Rio Grande do Sul) on sand-muddy bottoms, between 23 and 130 m depth.

Note on the lectotype designation for *Speocarcinus granulimanus* Rathbun, 1894

Remarks: It is clear from the original description of *Speocarcinus granulimanus* Rathbun, 1894 that it was based on more than one specimen: "First segment of the male very short… and the abdomen of the female, are thickly fringed with hair." (Rathbun, 1894: 243; see also unnumbered table). Because no holotype was designated in the original description, both specimens should be regarded as syntypes (the female USNM 17460 and the male USNM 17461). Subsequently, Rathbun (1918: 40) referred to the male USNM 17461 as the holotype. Although this is an incorrect use of that term, she was clearly selecting the male to serve as the name-bearing type. According to the ICZN (1999: Art. 74.5). Rathbun's procedure constitutes a valid lectotype designation.

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