

Taxonomic study on the Polyplacophora
(Chitonida: Ischnochitonidae et Acanthochitonidae) collected by the *Marion Dufresne* (MD55)
expedition, with description of a new species

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COUVERTURE / COVER:

Habitus of *Stenoplax marcusi* (Righi, 1971); *Acanthochitona terezae* Guerra-Junior, 1983; *Acanthochitona ciroi* Righi, 1971; *Acanthochitona oxum* n. sp.

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Taxonomic study on the Polyplacophora (Chitonida: Ischnochitonidae et Acanthochitonidae) collected by the *Marion Dufresne* (MD55) expedition, with description of a new species

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ABSTRACT

The MD 55 cruise of the R/V *Marion Dufresne* was an important French-Brazilian expedition devoted to the exploration of the shallow offshore waters and benthos off the south-eastern coast of Brazil. Four polyplacophoran species belonging to the families Ischnochitonidae Dall, 1889 and Acanthochitonidae Pilsbry, 1893 were sampled during the cruise and are studied herein. We compare the material with the original descriptions and voucher material whenever possible. Range extensions are reported for *Stenoplax marcusii* (Righi, 1971), *Acanthochitona ciroi* Righi, 1971, and *A. terezae* Guerra-Junior, 1983. A new species of *Acanthochitona* Gray, 1821 is described, *Acanthochitona oxum* n. sp. It differs from other Western Atlantic congeners by the presence of round to oval tegmental pustules and the straight external margin of the insertion plate.

RÉSUMÉ

Étude taxonomique sur les Polyplacophora (Chitonida: Ischnochitonidae et Acanthochitonidae) collectés par l'expédition du Marion Dufresne (MD55), avec description d'une nouvelle espèce.

La campagne océanographique MD 55 du N.O. *Marion Dufresne* est une importante expédition franco-brésilienne consacrée à l'exploration du petit benthos hauturier et profond au large des côtes sud-est du Brésil. Quatre espèces de polyplacophores appartenant aux familles Ischnochitonidae Dall, 1889 et Acanthochitonidae Pilsbry, 1893 échantillonnées pendant la campagne sont étudiées ici. Nous comparons les spécimens aux descriptions originales et si possible à du matériel de référence. Des extensions de l'aire de répartition sont rapportées pour *Stenoplax marcusii* (Righi, 1971), *Acanthochitona ciroi* Righi, 1971 et *A. terezae* Guerra-Junior, 1983. Une nouvelle espèce d'*Acanthochitona* Gray, 1821 est décrite, *Acanthochitona oxum* n. sp. Elle diffère des autres congénères de l'Atlantique Ouest par la présence de pustules tegmentales rondes à ovales et par le bord externe de la plaque d'insertion, qui est droit.

KEY WORDS

Polyplacophora,
Chitonina,
Acanthochitonina,
Acanthochitona,
Stenoplax,
Atlantic Ocean,
Brazilian coast,
new distributions,
new species

MOTS CLÉS

Polyplacophora,
Chitonina,
Acanthochitonina,
Acanthochitona,
Stenoplax,
océan Atlantique,
côtes brésiliennes,
distributions nouvelles,
espèce nouvelle.

INTRODUCTION

The oceanographic expedition MD55 of the R/V *Marion Dufresne* (1987) was an important French-Brazilian project focused on acquiring samples from until 60 m deep off south-eastern Brazil. Several papers on the results of the expedition have been published in recent years (*e.g.* Simone & Cunha 2012, 2014; Cavallari *et al.* 2014, 2019; Salvador *et al.* 2014). The present paper, focused on polyplacophorans, is part of a continuous effort to study the mollusks collected by the MD55 expedition.

A total of 39 polyplacophoran species are known from the Brazilian coast, belonging to seven families: Leptochitonidae Dall, 1889; Hanleyidae Bergenhayn, 1955; Ischnochitonidae Dall, 1889; Callistoplacidae Pilsbry, 1893; Chaetopleuridae Plate, 1899; Callochitonidae Plate, 1901; and Acanthochitonidae Pilsbry, 1893.

The families Ischnochitonidae and Acanthochitonidae are the most diverse, with 10 species and seven species, respectively. The family Ischnochitonidae has a wider geographic range (North Carolina-USA to Santa Catarina-BRA) than the Acanthochitonidae (Florida-USA to Rio de Janeiro-BRA). The Acanthochitonidae are characterized by valves partially or completely covered by the mantle and the presence of spine tufts in the joint region of the valves. Ischnochitonidae can be recognized by the oval and elongated-oval body outline, perinotum and hyponotum covered by sacs, well-developed apophysis, multi-fissured insertion plates of valve viii, and non-pectinate teeth. In the present paper, we present a taxonomic synopsis of the Ischnochitonidae and Acanthochitonidae collected by *Marion Dufresne* MD55 Expedition with the description of a new species of *Acanthochitona* Gray, 1821, *Acanthochitona oxum* n. sp.

MATERIAL AND METHODS

Specimens studied herein are preserved dry and deposited in the collections of the Muséum national d'Histoire naturelle (MNHN) and Museu de Zoologia da Universidade de São Paulo (MZSP).

Specimens were photographed and measured using a Zeiss AxioCam MRc5 camera, and Zeiss AxioVision SE64 Rel 4.8 imaging software. The plates illustrate the right and left side of specimens, followed by views of valve i, v, and viii. SEM images were made to illustrate elements of radula, perinotum, and hyponotum.

Specimens were identified by using the following literature (Righi 1971; Lyons 1988; Kaas & Van Belle 1990; Jardim *et al.* 2017) and comparison with the types. The taxonomy follows the report by Sirenko (2006).

ABBREVIATIONS

MNHN Muséum national d'Histoire naturelle, Paris;
MZSP Museu de Zoologia da Universidade de São Paulo.

SYSTEMATICS

Family ISCHNOCHITONIDAE Dall, 1889

Genus *Stenoplax* Carpenter, 1879.

Stenoplax marcus (Righi, 1971)

(Fig. 1A-E)

Ischnochiton marcus Righi, 1971: 129-131, figs 19-31. — Rios 1994: 18, fig. 21. — Dornellas & Simone 2011: 26, fig. 7.

Ischnochiton (Ischnochiton) marcus – Kaas & Van Belle 1990: 102-104, figs 1-8.

Stenoplax (Stenoplax) marcus – Kaas & Van Belle 1994: 33.

MARION DUFRESNE MATERIAL. — **Brazil** • 2 specimens; Espírito Santo, off Vitória; 20°55'S, 34°01'W; 60 m; 1987; MD55, sta. DC15; Bouchet, Leal & Métivier leg., continental shelf; MNHN.

TYPE MATERIAL (EXAMINED OR NOT). — **Holotype. Brazil** • 1 disarticulated valve; Alagoas, off Maceió; 10°33'45"S, 36°12'00"W; 27 m; 2.IX.1965, "Akaroa" 104 leg; continental shelf; MZSP 36093; **Paratype. Brazil** • 1 specimen, 1.1 × 0.4 mm; Pernambuco, off Cabo de Santo Agostinho; 8°18'03"S, 34°50'07"W; 26.5 m; "Recife" 28; MZSP 25944 • 1 specimen, 1.2 × 0.4 mm; Pernambuco, off Cabo de Santo Agostinho; 8°16'09"S, 34°55'02"W; 11 m; "Recife" 34; MZSP 25943 • 1 specimen, 0.9 × 0.4 mm; Pernambuco, off Piedade; 8°13'06"S, 34°51'05"W; 23 m; 21.III.1967; "Recife" 07; MZSP 25945 • 1 specimen, 1.2 × 0.4 mm; Pernambuco, off Piedade; 8°15'03"S, 34°51'03"W; 26 m; "Recife" 18; MZSP 25946 • 1 specimen, 1.0 × 0.4 mm; Pernambuco, off Recife; 08°09'09"S, 34°45'08"W; 27 m; 17.V.1966; "Recife" 04, continental shelf; MZSP 36092 • 1 specimen, disarticulated valve viii; Pernambuco, off Recife, continental shelf; 08°07'01"S, 34°48'08"W; 19.5 m; "Recife" 59 leg.; MZSP 36094 • 1 specimen, 0.8 × 0.3 mm; Pernambuco, off Recife; 08°07'03"S, 34°48'01"W; 21.5 m; "Recife" 92, continental shelf; MZSP 36096.

OTHER MATERIAL EXAMINED. — **Brazil** • 1 specimen, 14.1 × 4.9 mm; Paraíba, off João Pessoa; 7°26'00"S, 29°40'48"W; 21.4 m; MZSP 134341 • 1 specimen, 10.0 × 3.9 mm; Paraíba, off João Pessoa; 7°26'S, 34°30'W; 51 m; MZSP 25935 • 1 disarticulated valve viii; Pernambuco, off Recife; 08°13'00"S, 34°48'01"W; 28 m; continental shelf; MZSP 36096 • 1 specimen, 11.1 × 4.0 mm; MZSP 87403 • 1 specimen, 12.2 × 4.6 mm; Maranhão, off Barreirinhas; 01°49'S, 042°55'W; 62-64 m; MZSP 94569 • 9 specimens, varying from 9.0 × 3.1 mm to 15.3 × 5.4 mm; Espírito Santo, Trindade Island; 20°30'10.3"S, 29°20'36.1"W; 12.1 m; MZSP 108544.

TYPE LOCALITY. — Brazil; Alagoas, Off Piaçabuçu; 10°33.45'S, 36°12.00'W.

DISTRIBUTION. — From Alagoas to São Paulo state (Righi 1971), Brazil.

DIAGNOSIS. — Animal small, elongate. Valves very elevated, with rounded posterior region, convex lateral slopes, non-beaked. Tegumentum sculptured by grooves following outline of valve in lateral and postmucronal areas, with grooves continuing in longitudinal direction in central and antemucronal areas; colour pink with randomly-distributed white spots. Valve viii with sloped antemucronal area; mucro slightly pointed; postmucronal area straight with slightly convex distal margin (Kaas & Van Belle 1990: 102).

REMARKS

The examined specimens were consistent with the original description (Righi 1971: 129-131, figs 21-31) and range

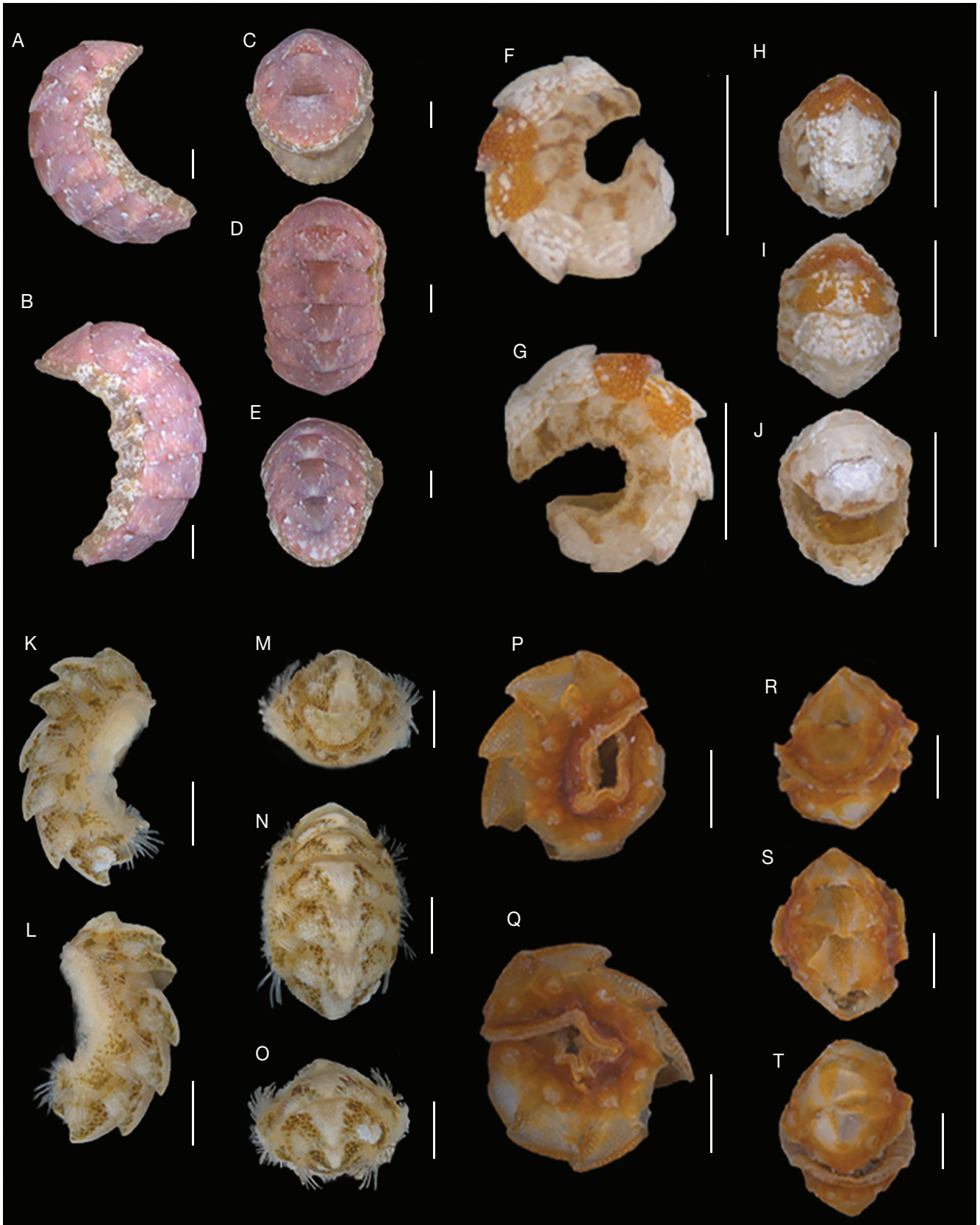


FIG. 1. — **A-E**, *Stenoplax marcusii* (Righi, 1971); **A, B**, lateral view; **C**, frontal view; **D**, dorsal view; **E**, posterior view; **F-J**, *Acanthochitona terezae* Guerra-Junior, 1983; **F, G**, lateral view; **H**, frontal view; **I**, dorsal view; **J**, posterior view; **K-O**, *Acanthochitona ciroi* Righi, 1971; **K, L**, lateral view; **M**, frontal view; **N**, dorsal view; **O**, posterior view; **P-T**, *Acanthochitona oxum* n. sp.; **P-Q**, lateral view; **R**, frontal view; **S**, dorsal view; **T**, posterior view. Scale bars: 1 mm.

in size from 4.0 × 2.5 mm to 15.3 × 5.4 mm. The shell was also coloured homogeneous pink, sometimes with randomly distributed white spots.

Stenoplax marcusii is much smaller than *S. kempfi* (Righi, 1971) (15.3 × 5.4 mm while *S. kempfi* is about 87 × 28 mm); In *S. marcusii*, the intermediate valves are moderately carinated, while in *S. kempfi* they are non-carinated; *S. marcusii* can present beaked intermediate valves, while the same valves in *S. kempfi* are never beaked. *Stenoplax marcusii* presents a slightly raised lateral area, and sculpture composed of regular and shallow longitudinal grooves in the central area, while in *S. kempfi* the lateral areas are raised, with sculpture composed of irregular and nodulose riblets and deep grooves. In *S. marcusii* the slit formula varies from 9-13/1/10-13, while in *S. kempfi* it is 16/2/10. Moreover, *S. marcusii* presents pink-coloured valves with sporadic white spots, while *S. kempfi* varies from brown to orange. Compared to *Stenoplax boogii* (Haddon, 1886), *S. marcusii* is quite smaller, with a maximum length of 15.3 mm, while *S. boogii* reaches 12-17 mm. The valves are also more elevated than *S. boogii*. In *S. marcusii*, the intermediate valves can be beaked, while the same valves in *S. boogii* are non-beaked. Finally, *S. marcusii* has a pink colouration with white spots, while in *S. boogii* colouration varies from milky white to reddish.

The range of *S. marcusii* is herein extended about 1130 km northwards, from Pernambuco to Maranhão, and about 1500 km southwards from Sergipe to Espírito Santo. The bathymetrical range is extended from 11 to 64 m in depth.

Family ACHANTOCHITONIDAE Pilsbry, 1893

Genus *Acanthochitona* Gray, 1821

TYPE SPECIES. — *Chiton fascicularis* Linnaeus, 1767.

Acanthochitona terezae Guerra-Junior, 1983 (Fig. 1F-J)

Acanthochitona terezae Guerra-Junior, 1983: 385-389, figs 1-9. — Jardim *et al.* 2017: 491-497.

MARION DUFRESNE MATERIAL. — **Brazil** • 1 specimen; Espírito Santo, off Vitória; 20°51'S, 33°45'W; 63 m; continental shelf; sta. DC 42; Bouchet, Leal & Métivier leg.; MNHN.

TYPE MATERIAL. — Probably lost (Pimenta *et al.* 2014: 91).

Neotype. Brazil • 1 specimen, 4.5 × 1.0 mm; Espírito Santo; 20°50.9'S, 33°44.6'W; continental shelf; MZSP 115203 (Jardim *et al.* 2017).

OTHER MATERIAL EXAMINED. — **Brazil** • 1 specimen, 4.0 × 1.1 mm; Espírito Santo, Trindade Island; 20°30'55.6"S, 29°20'21.7"W; intertidal zone; MZSP 108309 • 3 specimens, 4.0 × 1.3 mm, 4.2 × 1.4 mm, 4.1 × 1.1 mm; Bahia, off Pratigi; 13°30'13.0"S, 38°54'27.0"W; 0-1 m; MZSP 117509 • 1 specimen, 4.2 × 1.2 mm; Bahia, off Boipeba Island; 13°29'33"S, 38°54'18"W; 0-3 m; MZSP 117524 • 1 specimen, 6.1 × 2.3 mm; Espírito Santo, Trindade Island; 20°29'11.3"S, 29°20'15.8"W; 2.5 m; MZSP 131199 • 1 specimen,

3.1 × 0.9 mm; Pernambuco, Fernando de Noronha; 3°48'55"S, 32°23'31"W; intertidal zone; MZSP 131605 • 2 specimens, 4.8 × 1.5 mm, 3.0 × 1.0 mm; Pernambuco, Fernando de Noronha; 3°48'55"S, 32°23'31"W; 0-1 m; MZSP 131620 • 1 specimen, 5.0 × 1.9 mm; Espírito Santo, Trindade Island; 20°29'18.7"S, 29°20'18.3"W; 0-2 m; MZSP 134383.

TYPE LOCALITY. — Itapuá, Bahia, Brazil.

DISTRIBUTION. — Northeastern to southeastern Brazilian coast.

DIAGNOSIS. — Specimen size up to 4.0-4.5 × 1.0 mm. Intermediate valves of trapezoidal to oblong outline, subcarinate, slightly beaked. Jugum not well demarcated from pleurolateral areas. Tegmentum cream to beige, with white or green spots (Fig. 1F-J). Perinotum white, with some transverse orange bands (Fig. 1F-G). Tegmental pustules on pleurolateral areas round to oval, randomly arranged; pustules convex, bearing 4-7 pores on superior to median surface, lacking microaesthete pores. Tail valve with prominent, submedian mucro; postmucronal area concave. Perinotum covered with minute elongated spicules; spicule height about 8-9 times as long as wide (almost 90 µm in length), sculptured with longitudinal parallel fissures. Sutural tufts with elongated spicules, 350 to 450 µm long, with longitudinal fissures (Jardim *et al.* 2017).

REMARKS

This species was described by Guerra-Junior (1983), and a neotype was designated by Jardim *et al.* (2017). Since the present specimen was preserved dry in a curled position, we were only able to obtain information on the sculpture, morphology of valves, and coloration of the dorsal surface. The valves and radula were not removed to avoid irreversible damage due to the fragile condition of the specimen. It also seems to be in an advanced stage of development compared to the specimens on which the original description was based, given that the marginal spicules on the perinotum are more developed and the anterior and posterior portions of the girdle are three times longer than the lateral one. Unfortunately, we were not able to locate the type material of *A. terezae*. According to the original description, the specimens should have been deposited in the Museu Nacional da Universidade Federal do Rio de Janeiro (MNRJ). However, the MNRJ staff has officially stated that the material is missing, and was most probably never deposited at all (Pimenta *et al.* 2014). Therefore, comparisons were restricted to the information available in the original publications. The present records extend the distribution of *A. terezae* c. 1000 km southwards from the type locality, and the bathymetric range to a depth of 63 m.

Acanthochitona ciroi Righi, 1971 (Fig. 1K-O)

Acanthochitona ciroi Righi 1971: 1350-137, figs 42-44. — Rios 1994: 19, fig. 26. — Dornellas & Simone 2011: 10, figs 8-9.

MARION DUFRESNE MATERIAL. — **Brazil** • 3 specimens, 2.2 × 1.1 mm, 2.1 × 1.0 mm, 2.3 × 1.1 mm; Espírito Santo, off Vitória; 20°55'S, 34°01'W; 60 m; continental shelf; MD55, sta. DC 42, Bouchet, Leal & Métivier leg.; MNHN.

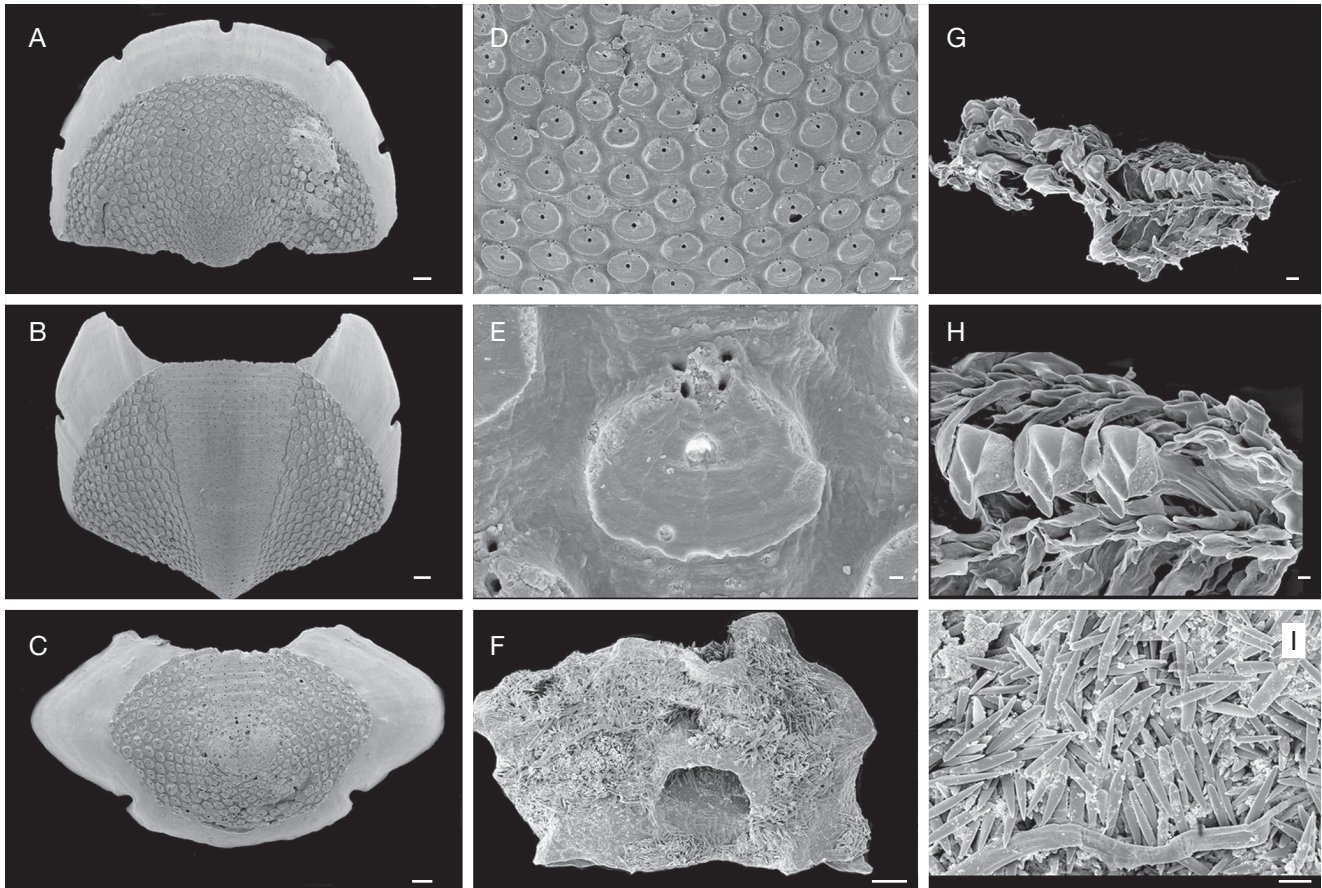


FIG. 2. — *Acanthochitona oxum* n. sp.; dorsal view; **A**, valve i; **B**, valve v; **C**, valve viii; **D**, **E**: details of the valve v, showing pustules with aesthetes (**D**) and detail of a pustule (**E**); **F**, details of the perinotum; **G**–**H**: detail of the radula, radula, panoramic (**G**) and dorsal (**H**) views; **I**, details of the hyponotum. Scale bars: A–C, 100 µm; D, I, 20 µm; E, 3 µm; F, 100 µm; G, 30 µm; H, 10 µm.

TYPE MATERIAL (EXAMINED OR NOT). — **Holotype. Brazil** • 1 specimen, 2.2 × 1.0 mm; Ceará, Off Fortaleza; 04°27'00"S, 37°04'00"W; 58 m; continental shelf; MZSP 25896.

Paratype. Brazil • 1 specimen, 3.7 × 2.0 mm; Ceará, off Fortaleza; 02°16'S, 39°44'W; 75 m; continental shelf; MZSP 25897.

OTHER MATERIAL EXAMINED. — **Brazil** • 1 specimen, 6.0 × 2.1 mm; Espírito Santo, off São Matheus; 20°30'20"S, 24°18'43"W; MZSP 134362.

TYPE LOCALITY. — Brazil; Ceará, Off Fortaleza; 4°27'00"S, 37°04'00"W.

DISTRIBUTION. — Northeastern and southeastern Brazilian coast.

DIAGNOSIS. — Shell covering about 40–45% of dorsal surface area. Valves slightly longer than wide; colour white with some valves orange, showing a white portion with random orange spots. Valve i sculptured by raised ridges on the upper quarter portion and small tegmental pustules on the apex, which increase in dimension toward the margin. Valves ii–vii sculptured as valve i, except for jugal areas, which are sculptured by similar-sized tegmental pustules on the entire surface (Fig. 1N). Valve viii elliptic, antemucronal area straight and sculptured as valves ii–vii; mucro median, postmucronal area straight, sculptured as valve i (Fig. 1O). Perinotum white with transversal orange stripes, with 16 spicule tufts; margins with hyaline spicules.

REMARK

The MD55 specimens match the description of *Acanthochitona ciroi* (Righi 1971: 135–137, figs 42–44) and are regarded conspecific. The species range is herein extended 2000 km southwards from Ceará to Rio de Janeiro state (off São João da Barra municipality).

Acanthochitona oxum n. sp. (Fig. 2A–I)

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TYPE MATERIAL. — **Holotype. Brazil** • 1 specimen, 2.3 × 1.6 mm; dry specimen; 1.VI.1987; MD55, sta. DC83, Bouchet, Leal & Métivier leg.; MZSP 112459.

OTHER MATERIAL EXAMINED. — **Brazil** • 1 specimen, 1.5 × 0.9 mm; Espírito Santo, Trindade Island; 20°30'55.6"S, 29°20'21.7"W; MZSP 134390 • 1 specimen, disarticulated valves; Espírito Santo, Trindade Island; 20°30'55.6"S, 29°20'21.7"W; MZSP 108298.

TYPE LOCALITY. — **Brazil** • Espírito Santo, off Guarapari, 18°50'S, 37°57'W, 60 m, continental shelf.

DISTRIBUTION. — Known only from type locality.

DIAGNOSIS. — Animal small (2.3 × 1.6 mm); valves occupying about 30-40% of dorsal surface; colour of tegmentum cream to beige; slit formula 5/1/2; single megalæsthete; presence of sutural laminae; tegmental pustules round to elliptic; mucro submedian; perinotum orange with orange sutural tufts; radula with rectangular central tooth and tricuspidate major lateral tooth.

ETYMOLOGY. — The specific name *Oxum*, a noun in apposition, refers to the Orixá Oxum, an Afro-Brazilian Candomblé and Umbanda deity known for wearing brightly-coloured yellow clothing.

DESCRIPTION

Animal small (from 1.5 × 0.9 mm to 2.3 × 1.6 mm); shell moderately elevated; tegmentum cream to beige coloured with white spots; slit formula 5/1/2. Valve i elliptic, front slope convex, posterior margin nearly straight, tegmentum sculptured by tegmental pustules (about 20-25 µm long, 20 µm wide – Figs 1R; 2A), tegmental pustules presenting megalæsthetes in central portion and micraesthetes on anterior portion of tegmental pustules. Valves ii-vii with convex front margin; hind margin concave near apex becoming straight on outer ends; beaked; pleurolateral areas with identical tegmental pustules to valve i; jugal area wide and smooth; jugal sinus varies from straight to slightly convex; apophysis triangular; insertion plates slightly convex. Valve viii triangular, mucro submedian; pleurolateral and jugal areas like intermediate valves on antemucronal area; postmucronal area concave, becoming straight near mucro. Perinotum covered by spicules (about 30-40 µm long), bearing sutural tufts with about 50 spicules (Fig. 2E), orange in colour. Hyponotum covered by spicules (about 10-20 µm long), cristaline, circular (Fig. 2H). Gills abanal, merobranchial, with 7-10 ctenidia on each side; radula with rectangular central tooth, major lateral tooth with tricuspidate head (Fig. 2F, G).

REMARKS

Acanthochitona oxum n. sp. differs from its Western Atlantic congeners by the presence of elliptic tegmental pustules forming ribs, in valve i, that extend divergently from the apex to the margin of the surface of the valves. It is similar to the pleurolateral area in intermediate valves, but its ribs are transversally arranged (Fig. 2). The head and intermediate valves are light brown, the pleurolateral and postmucronal areas are dark brown, and the perinotum is orange-coloured. Finally, the intermediate and tail valves have a conspicuous diagonal ridge (Fig. 2A, B).

The new species differs from *A. hemphilli* (Pilsbry, 1893) by the wider central area and more elevated valves; the shape and sculpture of the head valve; the colour of the pleural and jugal areas of the intermediate valves; the anterior portion of the jugal area being four to five times wider than the apex; by having a more elliptical head valve with a distinctive sculpture of ribs stretching from the apex to outer edge; pleural and jugal areas are distinguishable by colour; the posterior side of pleurolateral area straight; the tail valve with a prominent central mucro, with a barely visible diagonal ridge and the sculpture of the postmucronal area similar to the head valve. *Acanthochitona hemphilli* is also found in shallower waters.

From *Acanthochitona pygmaea* (Pilsbry, 1893), *A. oxum* n. sp. differs by being smaller (up to 2.3 mm long), by the

monochromatic orange-coloured perinotum and hyponotum; oval tegmental pustules presenting four micraesthete pores on narrower portion and submedian megalæsthetes; by having a circular valve i; valves ii-vii presenting a wider triangular apophysis and straight to slightly convex jugal sinus, smooth jugal area; valve viii diamond-like with slightly convex jugal sinus, and diamond-like apophysis.

Compared to *Acanthochitona rhodea* (Pilsbry, 1893), *A. oxum* n. sp. differs by having a more prominent apex and a straight-margined pleurolateral area surrounding valves ii-vii; usually slightly concave but sometimes convex jugal sinuses; the diagonal ridges on valves ii-vii barely visible; the postmucronal and jugal areas of valve viii sculptured similarly to valve i, although the jugal sinus is slightly concave.

Acanthochitona oxum differs from *A. ciroi* Righi, 1971 by its more elliptic valve i, the sculpture of which consists of rows that extend across the entire surface, not just the apex region, and have a smooth area between the rows (Fig. 2A), and by valves ii-vii, which have straight margins.

Compared to *Acanthochitona brunoi* Righi, 1971, the new species differs by having a head valve that is elliptic, without a prominent apex; intermediate valves with indistinguishable jugal and pleural areas, a straight margined pleurolateral area, and prominent apex; the tail valve with a subcentral mucro, an antemucronal area sculptured similarly to the other valves and a barely visible diagonal ridge; and a more concave postmucronal area. It also occurs at a greater depth than *A. brunoi*.

The new species differs from *Acanthochitona terezae* Guerra Junior, 1983 by having solid valves sculptured with rounded tegmental pustules; by having a slightly concave valve i; valves ii-vii with a more concave jugal sinus and valve viii with well-marked antemucronal and postmucronal areas, which are easily distinguishable by a diagonal ridge.

Compared to *Acanthochitona astrigera* (Reeve, 1847), *Acanthochitona oxum* n. sp. can be distinguished by its smaller size (2.3 mm); monochromatic orange coloured perinotum; oval tegmental pustules presenting four micraesthetes on narrower portions; valve i with shorter insertion plates; valve ii-vii presenting posterior margin of pleurolateral area angulated near the apex, apophysis with straight external margin as well as external edge of insertion plates; smooth anterior margin of jugal sinus; and valve viii presenting slightly prominent mucro and straight anterior edge of apophysis.

In comparison with *Acanthochitona lineata* Lyons, 1988, *A. oxum* n. sp. differs by its smaller size; orange-coloured monochromatic perinotum; oval tegmental pustules, presenting four micraesthetes on narrower portions; circular valve i; valve ii-vii with straight external edge of apophysis and external edge of insertion plates, straight to slightly convex jugal sinus; valve viii diamond-like, straight external edge, and slightly prominent mucro.

From *Acanthochitona worsfoldi* Lyons, 1988, *A. oxum* n. sp. differs by being smaller; by the monochromatic orange-coloured perinotum and hyponotum; oval tegmental pustules with four micraesthetes on narrower portions; circular valve i; valves ii-vii with apophysis straight with external edge, straight to slightly convex jugal sinus; and valve viii with straight anterior edge of apophysis.

DISCUSSION

Several range expansions have been reported in recent papers based on specimens collected by the MD55 expedition. This is also the case with the current specimens: the range of *Stenoplax marcusii*, is herein expanded from Recife to Rio de Janeiro (off Macaé) and the depth range is increased from 11 to 60 m; for *Acanthochitona ciroi*, the geographic distribution is expanded from Icapui – CE to the southeastern Brazilian coast (off São João da Barra, Rio de Janeiro State). Similarly, the distribution of *A. terezae* is expanded from Salvador – BA to the southeastern Brazilian coast (off São João da Barra, Rio de Janeiro), and the depth range from shallow subtidal to 63 m.

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