

Descriptions of two new species of *Caelatura* (Gastropoda, Rissoidea, Barleeidae) from Brazil.

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ABSTRACT. *Caelatura spirocordata*, new species, is found from off the northern coast of Rio de Janeiro to off southern Bahia State, Brazil. The new species is diagnosed by 5 or 6 strong spiral cords on the body whorl which show almost linear rows of very small pits on their upper surfaces. *Caelatura barcellosi*, new species, is found in oceanic island and seamounts from Northeastern Brazil. It is diagnosed by straight whorls, the presence of umbilicus, and 14-18 retractive axial ribs and sub and suprasutural cords forming blunt nodules at their intersections.

INTRODUCTION

Caelatura spirocordata new species, was collected on the northern continental shelf off Rio de Janeiro and off southern Espírito Santo State, during dredgings carried out by the oceanographic operation "Cabo Frio VII" (March to July 1983), as part of routine sampling by the Brazilian Navy to obtain basic oceanographic data on the coastal and oceanic regions off Brazil. Since 1966 malacological material from off the Brazilian coast has been obtained on a regular basis, by the bottom sampling operations of the Brazilian Navy (Absalão, 1986, 1989). The malacofauna found during the Cabo Frio VII operation is characterized by numerous small mollusks; the minute specimens (< 5 mm) had received almost no attention.

Caelatura barcellosi new species, was obtained by oceanologist Lauro Barcellos during MORG expeditions to Atol das Rocas (1977 and 1982) and by the research vessel "N.Oc. ALMIRANTE SALDANHA" (Brazilian Navy) in 1989 from off Bahia State.

Abbreviations

AMS = Australian Museum (Sydney South), Australia.

ZMA = Zoological Museum, Amsterdam, The Netherlands.

IBUFRJ = Instituto de Biologia da Universidade Federal do Rio de Janeiro, Brazil.

MNHN =Museum National d'Histoire Naturelle (Paris), France.

MNRJ = Museu Nacional do Rio de Janeiro, State of Rio de Janeiro, Brazil.

MORG = Museu Oceanográfico da Fundação Universidade de Rio Grande, Brazil.

MZUSP = Museu de Zoologia da Universidade de São Paulo, State of São Paulo, Brazil.

USNM = National Museum of Natural History, Smithsonian Institution, USA.

BMNH =Natural History Museum (London), England.

SYSTEMATICS

FAMILY BARLEEIDAE Gray, 1857

GENUS *Caelatura* Conrad, 1865

Type species: *Pasithea sulcata* Lea, 1833

Caelatura spirocordata new species Figures 1,2,3.

Microdryas sp.: Leal, 1989, p. 8, fig. 14.

Diagnosis: Teleoconch with strong spiral cords, 5 or 6 on the body whorl, upper surface with almost linear rows of small pits. Interspaces between cords with many irregular, wavy raised threads. Base with 4 spiral cords. Aperture with flaring outer lip.

Description: Shell minute. Length ranging from 0.95 to 1.93 mm and width from 0.67 to 0.97 mm. Shell golden brown immediately after death, light cream later on. Ovate, with rounded whorls. Suture impressed. Protoconch paucispiral with 2 1/2 whorls, first 1/2 whorl smooth, remainder with same ornamentation as teleoconch. Apical angle around 25°. Five or six spiral cords on body whorl. Spiral cords with approximately same width as spaces between. Top of cords show almost linear rows of small rounded pits, visible only under strong magnification. Interspaces between cords with many irregular wavy raised threads. Base rounded, with 4 spiral cords. Aperture moderately elongate-oval. Anterior part of outer lip flaring outward. No umbilicus.

Operculum and radula unknown.

Type locality: Off Atafona, northeastern Rio de Janeiro State, southeastern Brazil (21° 35'40" S, 40° 44'35" W), 16.8 m depth, Brazilian Naval Research Vessel "N. OC. ALMIRANTE SALDANHA", CABO FRIO VII operation, station 51, 27 August 1979.

Type material: Holotype IBUFRJ 5948, length 1.71 mm, width 0.94 mm. Paratype 1, MORG 30591 off Rio de Janeiro State, Brazil, length 1.89 mm, width 0.85 mm. Paratype 6, IBUFRJ 5949, length 0.95 mm, width 0.67 mm. Paratype 7, MZUSP 27916, length 1.69 mm, width 0.83 mm. Paratype 9, MORG 30592, length 1.51 mm, width 0.85 mm. Paratype 2, MNRJ 6983, off northeastern Rio de Janeiro State, Brazil (21°31'35" S, 40°19'00" W), depth 41 m, Brazilian Naval Research Vessel ALMIRANTE SALDANHA, August 28, 1979. Paratype 3, USNM 860308, off Rio de Janeiro State, Brazil (21°26'50" S, 40°44'35" W), depth 40 m, August 29, 1979. Paratype 4, MNHN off Rio de Janeiro State, Brazil (21°16'50" S, 40°02'40" W), depth 35 m, August 29, 1979. Paratype 5, BM(NH) 1993134 off Rio de Janeiro State, Brazil (21°16'50" S, 40°02'40" W), depth 23 m, August 29, 1979. Paratype 8, ZMA 395016 (ex IBUFRJ 5950) off Rio de Janeiro State, Brazil (21°47'40" S, 40°16'00" W), depth 54.9 m, August 29, 1979, length 1.93 mm, width 0.97 mm. Paratype 10, AMS C201101, off Rio de Janeiro State, Brazil (21°40'30" S, 40°01'55" W), depth 41.1 m, August 28, 1979, length 1.60 mm, width 0.86 mm. Paratype 11, Luiz Trinchão col., from Ribeira beach, Salvador, Bahia State, Brazil (13°00'00" S, 38°40'30" W), depth 1 m, July 30, 1994, length 1.59 mm, width 0.85 mm.

Etymology: The specific epithet *spirocordata* refers to the strong spiral cords of the shell.

Range: Coastal records of *C. spirocordata* are known only in the region between northern Rio de Janeiro State and southern Bahia State, Brazil. LEAL (1989) figured this species from Abrolhos Archipelago, and Mr. Luiz Trinchão showed us three specimens from Salvador, collected in beach drift, thus extending its range to northeastern Brazil.

Discussion. At first glance *C. spirocordata* looks like a species of *Alvania sensu* COAN, 1964 and PONDER, 1985 but differs from it in having a flaring aperture, strong spiral cords, with no trace of any axial sculpture, and almost linear series of pits on the upper part of the spiral cords. The new species bears a superficial resemblance to anabathrids, which have also punctate sculpture on the spiral cords and on the cordlets of the protoconch. However, *C. spirocordata* does not have a straight inner lip and D-shaped aperture as does the genus *Microdryas*. The new species has an oval aperture. *Microdryas* has a "dome-shaped, paucispiral protoconch with spiral rows of minute punctures" (PONDER, 1983), while *C. spirocordata* although has also a paucispiral protoconch but with spiral cords over most of its surface. Only the upper part of the spiral cords shows lines of small pits, while in *Microdryas* the protoconch is entirely covered by lines of small pits. It is more likely that the new species belongs in the genus *Caelatura sensu* PONDER (1983). The sculptural characters are compatible with those present in *Caelatura* and the protoconch in the new species is agreeable with those in that genus: "smooth or with spiral lines; microsculpture of very closely-packed, minute irregular pits" (PONDER, 1983). The only discrepancy is the microsculpture: in species of *Caelatura* previously described, it is irregular and equally spread over the entire shell surface, while in *C. spirocordata* it is almost linear and restricted to the upper part of the spiral cords. These shell differences might suggest that our new taxon may not be congeneric with *Caelatura*. However, because of the diversity in shell characters present in many rissoidean genera (based on soft parts), we tentatively allocated the new species to *Caelatura*, pending the study of at least the radula and operculum.

There is only one other named species of *Caelatura* occurring off the Brazilian coast (RIOS, 1994) originally described as *Rissoa (Cingula) pernambucensis* Watson, 1886. This

species occurs in deeper waters (640 m depth) than *Caelatura spirocordata* (1.0-54.9 m depth). *Caelatura pernambucensis* is also conchologically distinct from *C. spirocordata*, having axial ribs with no trace of spiral cords, while *C. spirocordata* bears only strong spiral and no trace of axial sculpture.

LEAL (1993, p.317, pl.11, figs. c,d,e,f and n) shows three unnamed *Caelatura* species (one of them described below); two out three share with *C. spirocordata* similar spiral cords and absence of any kind of axial sculpture. Besides that, *Caelatura sp.1* (LEAL figs. c,d,e) shows the same pattern of punctae on the upper part of spiral cords, but differs from it by less convex outline, fewer spiral cords per whorl, and by more regular (almost straight), raised threads from the interspaces. *Caelatura sp.3* (LEAL fig. n, p) although with the same general outline, has whorls that are less convex than *C. spirocordata*, and differs markedly in protoconch morphology. The protoconch in *Caelatura sp.3* is covered by numerous spiral threads crossed by axial ridges forming a cancellated pattern with deep squarish pits; while *C. spirocordata* has no trace of neither axial threads nor cancellate sculpture. *Caelatura spirocordata* has teleoconch ornamentation extending over almost all protoconch.

Caelatura barcellosi new species,
Figures 4,5,6,7.

LEAL, 1993, p. 317, pl.11, figs. i,j,k,l,m.

Diagnosis: Shell conic, whorls straight. Umbilicated. Protoconch paucispiral with apice hammered and remainder with 5 or 6 spiral cordlets. Teleoconch with 14-18 retractive axial ribs and sub- and suprasutural cords forming blunt nodules where they cross.

Description. Shell small, conic, white, whorls straight. Length ranging from 1.2 to 2.5 mm. Protoconch paucispiral, apex dome-shaped with hammered appearance, the remainder with 5 or 6 fine spiral cordlets. Suture impressed. Apical angle around 38°. Teleoconch with 14-18 retractive axial ribs extend over base fainting towards aperture. Sub- and suprasutural spiral cords present. Body whorl showing a third spiral cord on the lower third. Blunt nodules present where axial ribs and spiral cords crossed. Suprasutural nodules always larger than subsutural nodules. Teleoconch surface covered by microscopic spiral ridges of pits.

Base convex, aperture oval, holostomate. Small umbilicus present.

Operculum oval, solid, inner side bordered by a ridge, a strong longitudinal rib present. A long peg raises from nucleus and extends beyond inner edge.

Radula unknown.

Type locality: Off Bahia State, Northeastern Brazil, 50m depth, Brazilian Naval Research Vessel "N. Oc. ALMIRANTE SALDANHA", MONITOR VI operation.

Type material. Holotype MORG 30766, length 2.4 mm, width 1.3 mm. Paratype 3 USNM, length 2.3 mm, width 1.3 mm. Paratype 4 BM(NH), length 2.1 mm, width 1.2 mm. Paratype 5 ZMA 395015. Paratype 8 AMS, length 2.5 mm, width 1.3 mm. Paratype 9 IBUFRJ 6509, length 2.3 mm, width 1.3 mm. Paratype 1 IBUFRJ 6375 off Abrolhos, Bahia State, Brazil, Paulo Marcio col., 1990, length 1.6 mm, width 0.9 mm. Paratype 2 MZUSP 28108 Atol das Rocas, Bahia State, Brazil, 3 m depth, Lauro Barcellos col., February, 1982, length 1.7 mm, width 1.0 mm. Paratype 6 MNHN, length 1.7 mm, width 1.1 mm. Paratype 7 MNRJ 7159, length 1.6 mm, width 1.0 mm. Paratype 10 MORG 32882, length 1.7 mm, width 0.9 mm. Paratype 11 MORG 32883, length 1.7 mm, width 1.0 mm.

Etymology: This species is named in honour of Lauro Jesus Perello Barcellos who collected specimens of this species at Atol das Rocas.

Range: *Caelatura barcellosi* is known only from oceanic islands (Atol das Rocas and Abrolhos) from northeastern Brazil and Vitoria and Dogaressa Seamount off eastern Brazil (see LEAL, 1993).

Discussion. *Caelatura barcellosi* conforms to the generic shell description, exception made to the presence of umbilicus; according to PONDER (1983, p.244), *Caelatura* is non-umbilicate. Our specimens are umbilicate (Fig. 4) but those figured by LEAL (1993, p.317, pl.11, figs.i,h,j) are not. So, we believe that the presence of umbilicus is a variable character among populations of *Caelatura barcellosi*. Our specimens are from Atol das Rocas and Abrolhos (umbilicate populations), while Leal figures shows specimens from Vitoria and Dogaressa Seamounts (non-umbilicate populations). None of our specimens were collected alive, and opercular characters are based on LEAL (1991) figures (p.317, pl.11, figs. f,g,h and k).

The nodulose sculpture and straight whorls of *Caelatura barcellosi* clearly separates it from *C. pernambucensis* and from *C. spirocordata*. The former lacks nodulose sculpture and has fewer axial ribs than *Caelatura barcellosi*. *C. spirocordata* lacks both axial sculpture and nodules.

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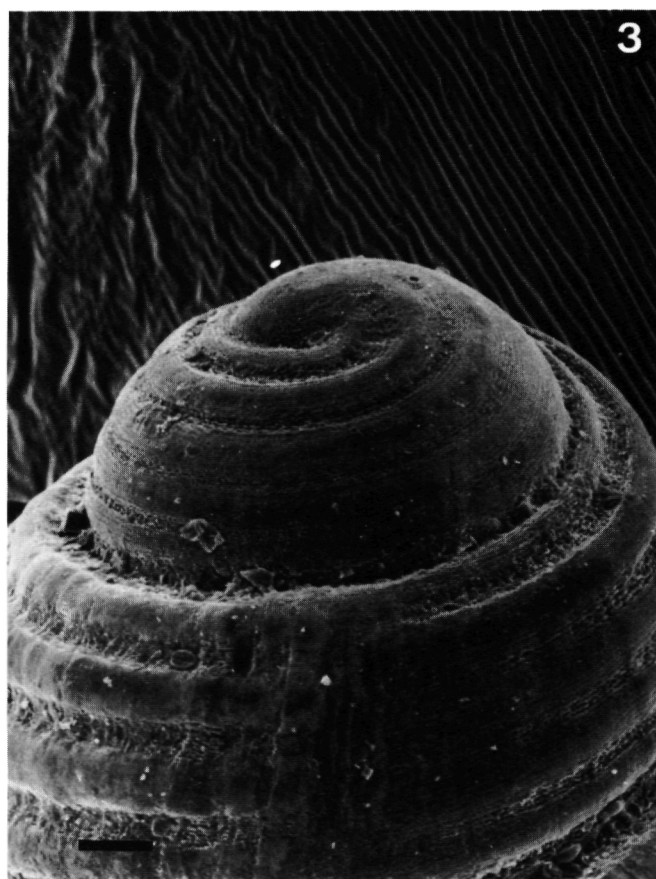
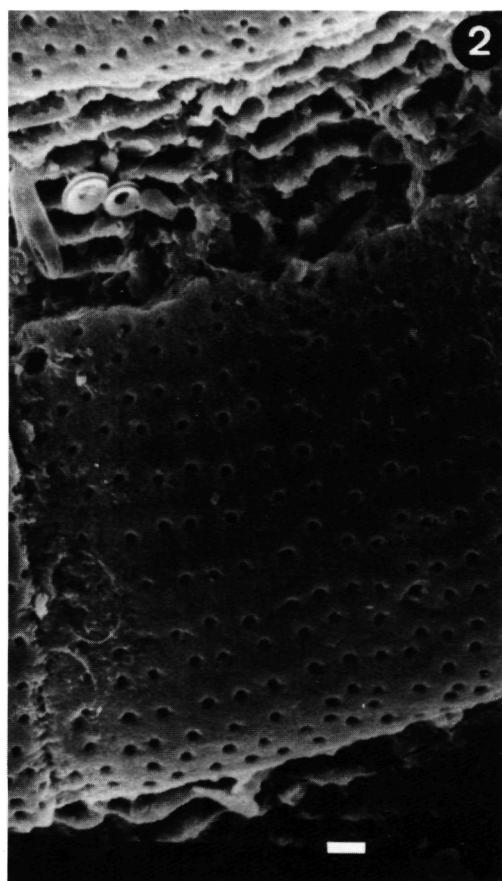
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Figures 1-3 (opposite).

Caelatura spirocordata new species.

- 1- Holotype, IBUFRJ 5948, scale bar = 1.0 mm.
- 2- Details of ornamentation, scale bar = 0.01 mm.
- 3- Protoconch, scale bar = 0.1 mm.



Figures 4-7 (opposite).*Caelarura barcellosi* new species.

4- Holotype, MORG 30766, scale bar = 0.5 mm. .

5- Protoconch, scale bar = 0.05 mm.

6- Details of protoconch and teleoconch ornamentation, scale bar = 0.02 mm.

7- Operculum, scale bar = 0.1 mm.

