



## A new species of *Chrystella* (Caenogastropoda: Pickworthiidae) from northwestern Brazil

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### Abstract

A new pickworthiid species, *Chrystella multistriata* n. sp., is described from off the coast of Sergipe, northwestern Brazil. It was collected at a depth 128 meters. This new species differs from congeneric species by having numerous spiral grooves on the teleoconch, straight whorls, and absence of axial sculpture. In South America, the genus *Chrystella*, is present exclusively on the continental slope off the Brazilian coast.

Key words: *Chrystella*, Rissoacea, Pickworthiidae, deep-sea, Brazil, new species.

### Resumo

Uma nova espécie de Pickworthiidae, *Chrystella multistriata* n. sp., é descrita para a costa de Sergipe, nordeste do Brasil. Ela foi coletada em uma profundidade de 128 metros. Essa nova espécie difere de espécies cogenéricas pelo número de sulcos espirais na teleoconcha, voltas de contorno reto e ausência de escultura axial. Na América do Sul o gênero *Chrystella*, está exclusivamente presente no talude continental da costa do Brasil no Oceano Atlântico Sul.

Palavras-chave: *Chrystella*, Rissoacea, Pickworthiidae, águas-profundas, Brasil, nova espécie.

### Introduction

In spite of recent efforts by several South American malacologists, knowledge of the marine malacofauna of eastern South America is still far from complete. With regard to deep-sea molluscs, regional investigators historically have had limited access to abyssal depths. In the last decade, the Brazilian federal government established a program of biological surveys covering the entire Brazilian outer continental shelf and slope. This program is in accordance with recommendations contained in the "United Nations Convention on the Law of the Sea" and is aimed at securing data on a 200-mile exclusive economic zone for the entire country. Recently, Petrobras (Brazilian petroleum company) intensified its marine survey activities, especially in the deep sea off the coasts of the state of Sergipe (Sergipe Basin Deepsea Project – Petrobras). In response to requirements of public

agencies maintaining environmental control, Petrobras is developing a broad program of environmental assessment for both present or potential petroleum production areas. With the supply boat "R/V Astro Garoupa", Petrobras samples were taken in May 2002. This samples, taken jointly by Petrobras and by the Brazilian government, resulted in the collection of some unknown molluscs from deep-water off Brazil. Among these unknown molluscs were found specimens of a new species belonging to the genus *Chrystella* Laseron, 1956. A portion of this material is the subject of this study.

Abbreviations of institutions: **DOUFPE**: Departamento de Oceanografia, Universidade Federal de Pernambuco, Brazil; **IBUFRJ**: Instituto de Biologia, Universidade Federal do Rio de Janeiro, Brazil; and **PETROBRAS** – Petróleo Brasileiro S/A, Brazil (Brazilian petroleum company).

## Systematics

Family Pickworthiidae

Genus *Chrystella* Laseron, 1956.

(Type species by original designation: *Chrystella islandica* Laseron, 1956)

***Chrystella multistriata*** new species  
(Figs. 1-4)

**Types:** **Holotype:** IBUFRJ 17541. **Paratype:** IBUFRJ 17542, BRAZIL. Sergipe (36°59'46"W, 11°14'54"S) 23/v/2002, 128 m.

**Type locality:** BRAZIL. Sergipe, 36°59'46"W, 11°14'54"S 128 m depth, mud-sands.

**Diagnosis:** Shell conical. Protoconch with levels I and II, with four nodulous spiral keels on the lower half, first protoconch whorl smooth. Teleoconch with strong spiral keel on the lower half and spiral cord below this keel, spire with whorls straight. Distinctive microsculpture of the grooves found in all teleoconch whorls. Axial sculpture lacking. Base with five spiral cords. Aperture ovoid, outer lip thickened. Inner lip thin.

## Description

**Shell:** Conical, moderately solid, and about 1.64 mm long. Protoconch with 200µm height and 260µm width, protoconch I with 1.5 whorls and protoconch II with 2.0 whorls, with four nodulous spiral keels on the lower half, first protoconch whorl smooth, changing ornamentation pattern to 4-5 spiral cordlets. From the upper keel about 34 irregular riblets rise toward the bottom keel, not touching it or blending with the very weak riblets that issue from it. The same sculpture occurs between the bottom keel and the suture. The protoconch profile is pagoda-shaped. Teleoconch with about 4.5 whorls, spire with whorls straight, strong spiral keel on the lower half, and a spiral cord below this keel. Microsculpture of the grooves in all teleoconch whorls. Axial sculpture lacking. Base with five spiral cords rounded with same expression in the same way. Aperture ovoid, strongly opisthocline, outer lip thickened. Inner lip thin. A small chink-like umbilicus is present. Operculum, radula, and soft parts unknown.

**Measurements:** Holotype - Length 1.88 mm, width 0.82 mm.

**Distribution:** Only known from the type locality.

**Habitat:** From 128 m depth, mud-sands.

**Material examined:** Only types.

**Etymology:** From Latin *multi* = many; *striae* = threads, referring to the many spiral striae present in this *taxon*.

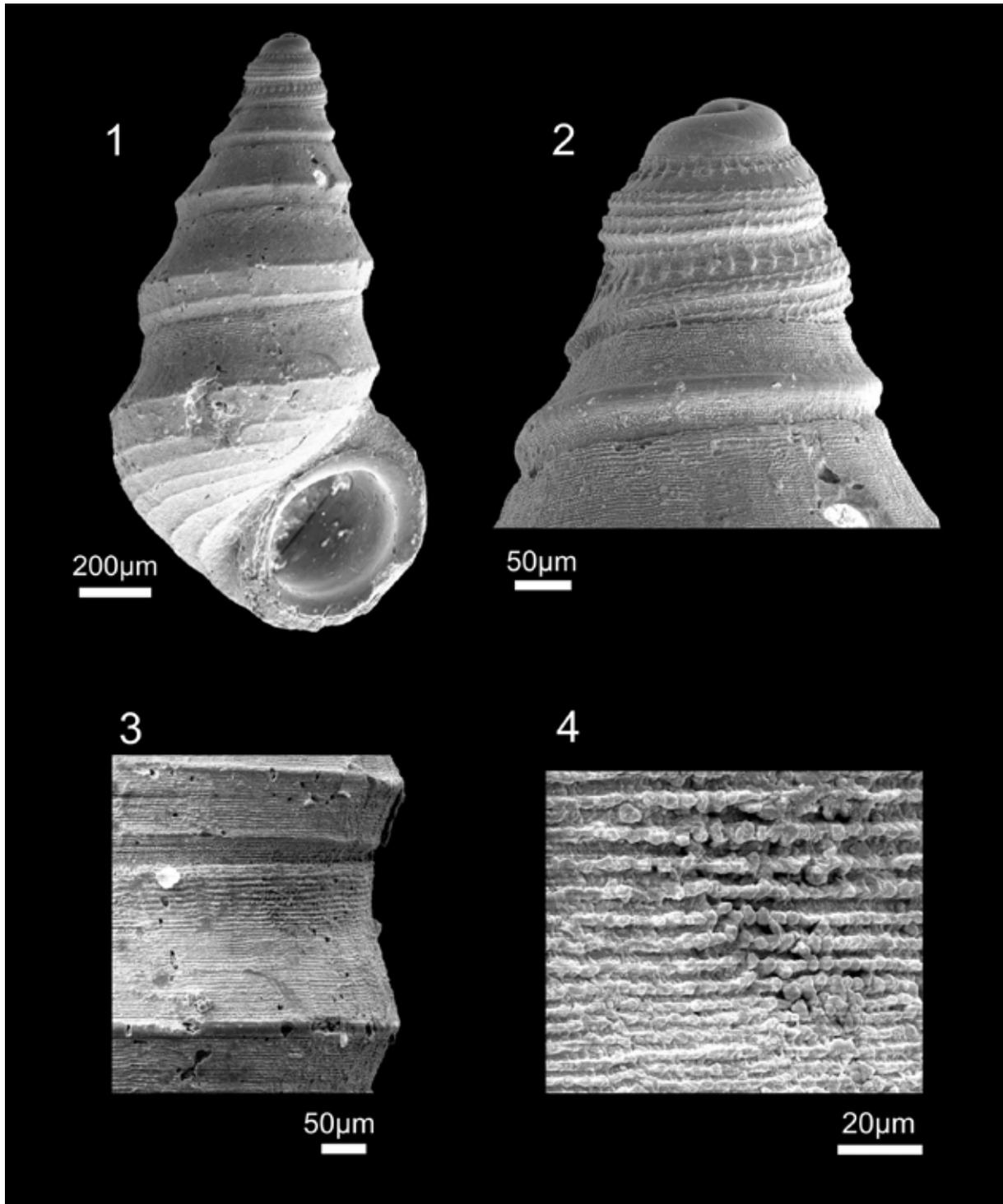
## Discussion

Species of the family Pickworthiidae are not abundant in the Atlantic Ocean. Furthermore, all are known from the mid to northern Atlantic Ocean. So far, eight species have been described from this region. Only one of them belongs to the genus *Chrystella* [see Le Renard & Bouchet (2003), Rolán, Espinosa & Fernández-Garcés (1990), Rolán, & Fernández-Garcés (1993), and Watson (1886)].

The genus *Chrystella* was established in 1956 by Laseron, to describe *Chrystella islandica* from the Indian Ocean. In the western Atlantic Ocean, this genus is only represented by *Chrystella katyae* Rolán, Espinosa & Fernández-Garcés, 1990 from Cuba. It resembles *Chrystella multistriata* n. sp. in some aspects of the sculpture of the shell. *C. multistriata* n. sp. is a species found in a region rarely studied in the northeast of Brazil. It differs from *C. katyae* in the dimensions of its protoconch, with about 179µm in second whorl and 246µm in the final whorl of the protoconch. The species described from Cuba (*C. katyae*) is about 230 in the second whorl and 365µm in the final whorl of the protoconch, *C. multistriata* n. sp. also differs by the presence of ¼ more of whorl in total, in teleoconch sculpture (the central spiral keel is more distant from half of whorl), and the ovoid shape of the aperture, while in *C. katyae* it is circular. The microsculpture of *C. multistriata* is also stronger.

*Chrystella multistriata* is placed in the genus by having spiral rib sculpture, a strong peripheral keel, an ovoid aperture, and a thick reflected lip. These features are observed only in genus *Chrystella* within the Pickworthiidae.

Currently, in the southeast Atlantic the genus *Chrystella* is restricted to the continental slope of the Brazilian coast. This genus may also occur in shallow waters in the southern Atlantic because *C. katyae* occurs in shallow water in the northwest Atlantic.



Figs 1-4. Shell of *Chrystellia multistriata* n. sp., Holotype IBUFRJ 17541: 1, Ventral view; 2, protoconch; 3-4, detail of teleoconch and microsculpture - .

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## References

- LASERON, C.F., 1956. The families Rissoinae and Rissoidae from the Solanderian Zoogeographical provinces, Australian Journal of Marine and Freshwater Research 7: 384-484.
- LE RENARD, J. & P. BOUCHET. 2003. New species and genera of the family Pickworthiidae (Mollusca: Caenogastropoda). Zoosystema 25:569-591.
- MOOLENBEEK, R. G. & M. J. FABER, 1984. A new gastropod genus and species from Bonaire, Netherlands Antilles. Studies on the Fauna of Curaçao and other Caribbean Islands 206: 98-103.
- ROLÁN, E., J. Espinosa & R. Fernández-Garcés. 1990. Los generos *Sansonía* y *Mareleptopoma* en la Isla de Cuba (Mollusca, Gastropoda). Thalassas, 8: 85-91.
- WATSON, R. B., 1885-1886. Report on the Scaphopoda and Gasteropoda collected by H.M.S. Challenger during the years 1873-1876. Report on the Scientific Results of the Voyage of H.M.S. Challenger. Her Majesty's Government, London, Zoology, 15(42): 1-756., 53 pls. [p. 1-609

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