

# Four new *Cerithiopsis* from the Caribbean (Gastropoda, Cerithiopsidae)

EMILIO ROLÁN

Museo de Historia Natural, Campus Universitario Sur, E-15782 Santiago de Compostela, Spain

RAÚL FERNÁNDEZ-GARCÉS

Centro de Estudios Ambientales de Cienfuegos (CEAC), División de Gestión Ambiental, calle 17, esquina Ave. 46, Cienfuegos, Cuba

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Four new species of the genus *Cerithiopsis* (s.l.) are described from Cuba and Yucatán. The new species are compared with morphologically close congeneric species.

Key words: Cerithiopsidae, *Cerithiopsis*, taxonomy, Cuba, Yucatan.

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## INTRODUCTION

Since 1992 a number of studies on Caribbean Cerithiopsidae, including descriptions of new species, have been published, viz. Rolán & Espinosa (1992a, 1992b, 1996), Rolán, Espinosa & Fernández-Garcés (2007), and Rolán & Fernández-Garcés (2007, 2008). In these works most of the *Cerithiopsis* species of the Caribbean are figured. Nevertheless, the study of sedimentary material from numerous expeditions has brought to light some shells which apparently belong to unknown species. These taxa are described below.

Until a study of the soft parts of the cerithiopsids is carried out, we use the generic name *Cerithiopsis*, admitting that it most probably encompasses several genera.

Abbreviations used: BMNH, The Natural History Museum,

London; CFG, colln R. Fernández-Garcés, Cienfuegos, Cuba; IES, Instituto de Ecología y sistmática, La Habana; MNHN, Museum national d'Histoire naturele, Paris, France; MHNS, Museo de Historia Natural, Santiago de Compostela, Spain; MNCN, Museo Nacional de Ciencias Naturales, Madrid, Spain; j, juvenile; s, shell (adult); SEM, Scanning electron micrograph.

## SYSTEMATIC PART

Cerithiopsidae H. & A. Adams, 1853

*Cerithiopsis* H. & A. Adams, 1853

### *Cerithiopsis morelosensis* spec. nov. (Fig. 1A-F)

Type series. – Mexico, Yucatan, Nichupté Lagoon, Puerto Morelos, at 5-10 m (MNCN 15.05/53583/holotype [Fig. 1A]; paratypes: MHNS/6, [Fig. 1B-D], BMNH/1, MNHN 1, CFG/1).

Other material examined. – Mexico: 5 s and j from the type locality (MHNS).

Etymology. – The specific name refers to the locality where the shells were collected.

Description. – Shell (Fig. 1A-D) conically elongate, rather

solid, uniformly light brown. Light brown protoconch (Fig. 1E-F) with 2 smooth whorls, a diameter of about 340  $\mu\text{m}$  and a nucleus of about 100  $\mu\text{m}$  in width. Teleoconch of about seven nearly straight-sided whorls, separated by a clear suture; sculpture comprised of axial ribs and similarly sized spiral cords, which form a kind of reticulation with small nodules at the crossing points. Ribs and cords narrower than their interspaces; with 20-25 axial ribs on the early whorls and 25-32 on the last one. Three cords are present from the beginning of the teleoconch, the upper one being slightly smaller and less prominent on the initial three whorls; on

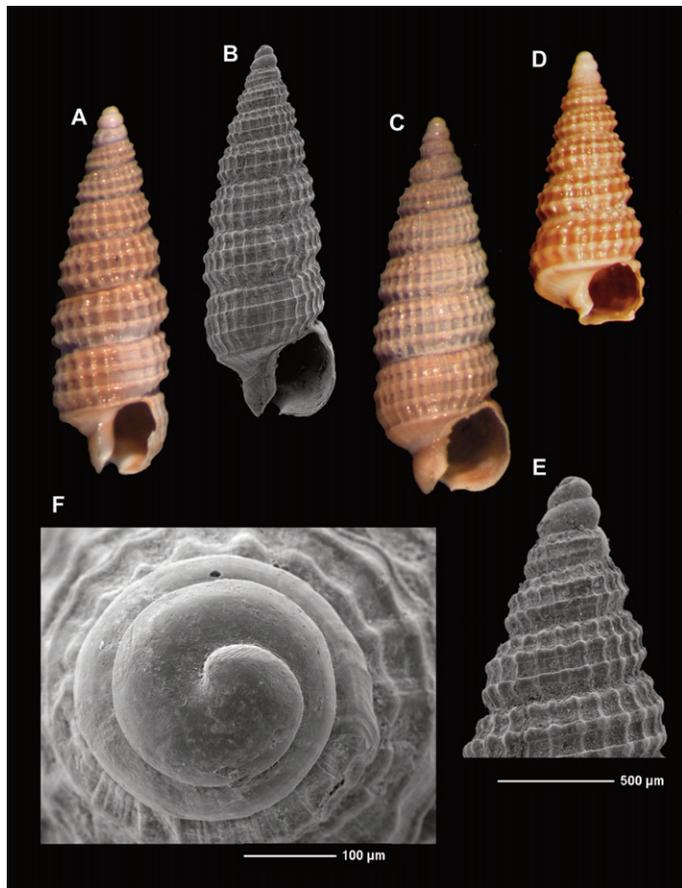


Fig. 1. *Cerithiopsis morelosensis* spec. nov. A, holotype, 3.8 mm (MNCN); B-C, paratype, 3.8 mm (MHNS); D, paratype, 2.3 mm (MHNS); E-F, protoconch.

the body whorl an additional cord appears below, and the axial ribs fade towards the base, resulting in a depressed area without cords close to the base. Aperture ovoid, outer lip narrow, columella with a fine callus and slightly curved. Siphonal canal short and open.

The holotype is 3.8 mm long; the six paratypes have a similar size.

Distribution. – Known only from the type locality. Maybe endemic to this area.

Remarks. – This new species has a shell very similar to that of *Cerithiopsis flava* (C. B. Adams, 1850), but the protoconch of the latter species (see Rolán et al., 2007) is very acute, with more than 5 whorls, brown at the apex; in *C. morelosensis* spec. nov. the protoconch is blunt, shorter and white. The present species may have a sistergroup relationship with *C. flava*. For a comparison with *C. satisnodosa* spec. nov. and *C. gordaensis* spec. nov., see below.

#### *Cerithiopsis satisnodosa* spec. nov. (Fig. 2A-E)

Type series. – Mexico, Yucatan, Puerto Morelos, 15-30 m (MNCN 15.05/53582)/holotype [Fig. 2A-B]; paratypes: BMNH/1, [Fig. 2D]; MNHN/1; MHNS/11; IES/1; CFG/1).

Etymology. – The specific name is formed by two Latin words: *satis* “enough” and *nodosus* *-a* *-um* “formed by knots, knotty”.

Description. – Shell (Fig. 2A-D) conically elongate, a little lanceolate, rather solid. Protoconch (Fig. 2E-F) white, with almost  $1\frac{3}{4}$  smooth whorls, a diameter of about 280  $\mu\text{m}$ , and a nucleus of about 100  $\mu\text{m}$  in diameter. Teleoconch of about five almost straight whorls, separated by a faintly marked suture; sculpture formed by axial ribs and spiral cords, which form large nodules, which almost cover ribs and cords on the regularly disposed crossing points; with 15-18 axial ribs per whorl. There are three spiral cords from the beginning of the teleoconch on, but the upper one is less prominent on the initial whorls. On the body whorl, the third spiral cord has more elongate nodules; an additional cord appears below, this one without nodules; towards the base, there is one more depressed cord near the siphonal wall. The colour is uniform light brown. The holotype is

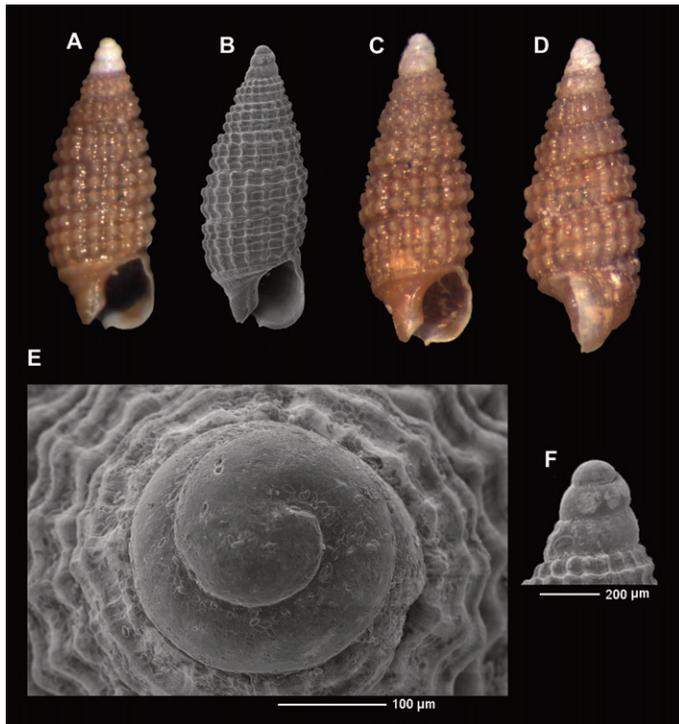


Fig. 2. *Cerithiopsis satsinudosa* spec. nov. A-B, holotype, 2.3 mm (MNCN); C-D, paratypes, 2.6, 2.6 mm (MHNS) protoconch; E-F, Protoconch.

2.3 mm long, similar to most of the paratypes.

Distribution. – Known only from the type locality.

Remarks. – *Cerithiopsis satsinudosa* spec. nov. is easily separated from *C. portoi* Rolán & Espinosa, 1996, because the latter is totally dark brown and smaller. *Cerithiopsis pseudomovilla* Rolán & Espinosa, 1996, also has an entirely dark brown shell. *Cerithiopsis parvada* Rolán, Espinosa & Fernández-Garcés, 2007, has a wider protoconch, with sutural ribs and more numerous whorls. *Cerithiopsis morelosensis* spec. nov. has larger shells (3.8 versus 2.3 mm), its protoconch is light brown instead of white and has 2 whorls instead of  $1\frac{3}{4}$ , whereas the sculpture is formed by rectangles with very small nodules at the crossing points of cords and ribs. Below the fourth cord at the last whorl there is a depression, whereas in *C. satsinudosa* there is a new spiral cord. For a comparison with *C. ceac* spec. nov., see below.

### *Cerithiopsis ceac* spec. nov. (Fig. 3A-H)

Type series. – Cuba, Sancti Spiritus, Yaguajay, Cayo Cueva (MNCN 15.05/53584/holotype [Fig. 3A-B]; paratypes: MNHN/1 (Fig. 3C); MHNS/3 (Fig. 3E); BMNH/1 (Fig. 3D); IES/1; CFG/1 (Fig. 3F).

Etymology. – The specific name is the acronym of the Centro de Estudios Ambientales de Cienfuegos, Cuba (CEAC).

Description. – Shell (Fig. 3A-F) conically elongate, a little lanceolate, rather solid. Cream coloured protoconch (Fig. 3G-H) with 2 smooth whorls, nucleus about 100 μm in diameter and a total diameter of 300-320 μm. Teleoconch of about six almost straight-sided whorls, separated by a weakly indicated suture; sculpture of axial ribs and spiral cords, which are almost obscured by the formation of large nodules at the crossing points; with 20-30 axial ribs per whorl. Three spiral cords are present from the beginning of the teleoconch on, the upper one being scarcely smaller than the other two on the two initial whorls. On the body whorl the spirals have similar nodules; more towards the shell base there is an additional cord without nodules; still lower there is a concave area before the siphonal wall. The colour is light brown in the holotype and cream to white in the other shells, the protoconch is cream or lighter. In the holotype, the nodules of the last whorls are lighter, while the base is darker. The other shells are uniformly white. Aperture ovoid, columella curved; with a fine and undulating external lip. The holotype is 3.8 mm long; some paratypes are smaller and narrower but similar in the other characters.

Distribution. – Known only from the type locality.

Remarks. – *Cerithiopsis ceac* spec. nov. is easily separated from *C. portoi* Rolán & Espinosa, 1996, because the latter is totally dark brown and smaller. *Cerithiopsis pseudomovilla* Rolán & Espinosa, 1996, also has a totally dark brown shell. *Cerithiopsis parvada* Rolán, Espinosa & Fernández-Garcés, 2007, has a wider protoconch, with sutural ribs and more numerous whorls. *Cerithiopsis satsinudosa* spec. nov. is most similar, but can still be distinguished by being smaller, more uniformly light brown, with smaller and less numerous nodules, a lighter shell base, and a protoconch with less than 2 whorls, which is smaller in diameter (see Fig. 2E).

*Cerithiopsis gordaensis* spec. nov. (Fig. 3I-J)

Type series. – Cuba, west coast, María la Gorda, at 5 m (MNCN [15.05/53589])/holotype [Fig. 3I]; paratypes: MNHN/1; MHNS/10; BMNH/1; IES/1; CFG/1).

Etymology. – The specific name refers to the area where the shells were collected.

Description. – Shell (Fig. 3I) conically elongate, acute, fragile, whitish. Protoconch (Fig. 3J-K) whitish with 2 ½ -3

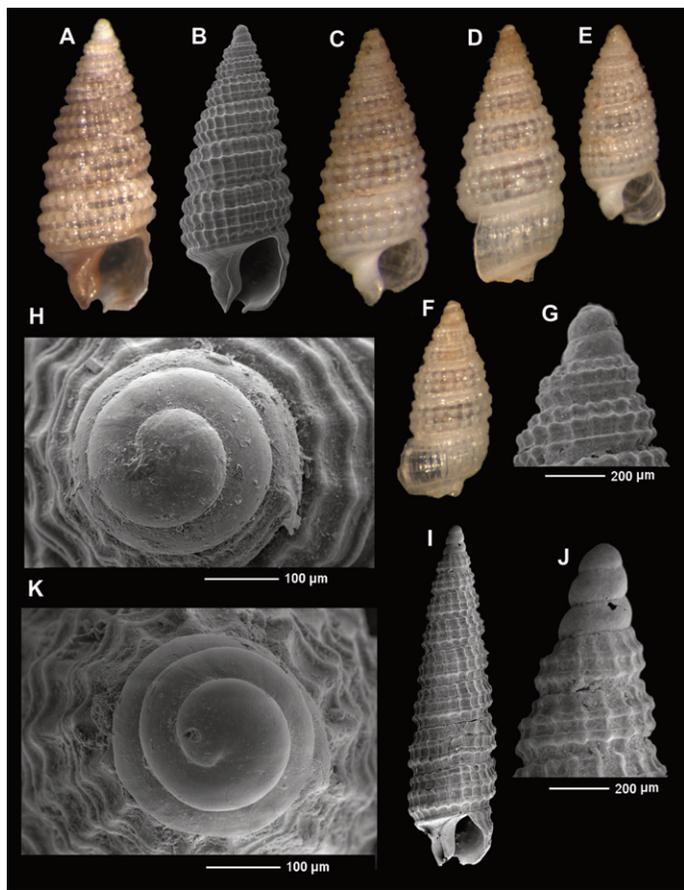


Fig. 3. *Cerithiopsis ceac* spec. nov. A-B, holotype, 3.8 mm (MNCN); C-F, paratypes: 3.4 mm (MNHN), 3.2 mm (BMNH), 2.6 mm (MHNS), 2.2 mm (CFG); G, apex; H, protoconch; I-K, *Cerithiopsis gordaensis* spec. nov.; I, holotype, 4.5 mm (MNCN); J, apex; K, protoconch.

smooth whorls, nucleus very small, with a diameter of about 80 µm; total diameter of about 300 µm. Teleoconch of about 8 almost straight-sided whorls, separated by a poorly marked suture; sculpture formed by orthocline axial ribs, crossed by narrower spiral cords, forming a rectangular surface. With 16-17 axial ribs on the initial whorls and 23-25 on the body whorl. There are three spiral cords from the beginning of the teleoconch on, the upper one being scarcely smaller than the other two on the 3-4 first whorls; the crossing points form small nodules. On the last whorl there is an additional, almost smooth spiral cord and closer to the shell base a concave area with another cord. The colour is uniformly dirty white. Aperture ovoid; columella curved, with a strong columellar callus. Fine and undulating external lip. Short and open siphonal canal.

The holotype is 4.5 mm long, with 8 teleoconch whorls; some paratypes are 3.5-4 mm.

Distribution. – Only known from the type locality.

Remarks. – *Cerithiopsis gordaensis* spec. nov. has to be compared with several other *Cerithiopsis* species. *Cerithiopsis flava* (C. B. Adams, 1850) has a very acute protoconch (see Rolán et al., 2007), with more than 5 whorls. *Cerithiopsis ceac* spec. nov. has a less elongated form, larger nodules on the crossing points of ribs and cords, more numerous axial ribs, and a protoconch with a similar diameter but more whorls. *Cerithiopsis morelosensis* spec. nov. has a brown shell, which is slightly smaller and wider, with a protoconch with a larger diameter but only two whorls. *Cerithiopsis satisnodosa* spec. nov. is smaller, darker, with larger nodules, and a protoconch of a similar diameter but with fewer whorls. *Cerithiopsis gemmulosum* (C. B. Adams, 1850) and *C. pseudomovilla* Rolán & Espinosa, 1996, always have a completely dark brown and wider shell. *Cerithiopsis parvada* Rolán, Espinosa & Fernández-Garcés, 2007, has a wider protoconch with sutural ribs and more whorls. Other conchologically similar *Cerithiopsis* species mentioned for the Caribbean by Rolán, Espinosa & Fernández-Garcés (2007) have brown shells with protoconchs with more whorls.

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