

## A new *Calliostoma* (Mollusca, Calliostomatidae) from the Cape Verde Archipelago

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**Key words:** *Calliostoma*, Cape Verde Archipelago, West Africa, new taxon.

**Abstract:** A new species of *Calliostoma* collected in deep water of Cape Verde Archipelago is described. The new species is compared with other taxa from West Africa and Atlantic deep water.

**Introduction:** The genus *Calliostoma* is widely represented by 7 species (Sabelli et al, 1990) in the waters of the Mediterranean; along the coasts of Europe there are 11 species according to Poppe & Goto (1991) or 19 according to CLEMAM, which includes the Atlantic islands and northern Africa. The descriptions and figures for Atlantic deep water species can be found in Locard (1898), Dautzenberg & Fischer (1896) and Dautzenberg (1927). In West Africa, about the same number of species is to be found, if one takes into account the species found in Morocco and in the Atlantic islands, 19 according to Ardovini & Cossignani (2004); the number is much smaller if strictly restricted to the continental shores: 4 in Morocco according to Pasteur Humbert (1962), 6 in the Canary Islands according to Hernández-Otero & Hernández García (2004), 1 in the Cape Verde Islands according to Rolán (2005), none in São Tomé according to Fernandes & Rolán (1993), 1 in Gabon according to Bernard (1984) and 4 in Angola according to Rolán & Ryall (1999).

For the Cape Verde archipelago, only one species of *Calliostoma* had been mentioned (von Cosel, 1982; Rolán, 2005), only known through juvenile specimens. A species that presents a rather similar shell morphology is *Callumbonella gorgonarum* (P. Fischer, 1882) a synonym of *C. suturale* (Philippi, 1836) according to CLEMAM, but the latter is separated from *Calliostoma* on account of radular morphology.

Among the material taken by fishermen off the island of Boavista in lobster traps set between 100 and 150 fathoms, there were several specimens of a previously unknown *Calliostoma* that were collected and preserved by the well-known collector César Fernandes. The present paper presents the conclusions reached, with the description and denomination of the species.

***Calliostoma fernandesii* sp. nov.**

(Figs. 1-6)

**Type Material:** Holotype (Fig. 1) in the Museo Nacional de Ciencias Naturales, Madrid (MNCN 15.05/ 47001).

Paratypes in the Muséum National d'Histoire Naturelle, Paris (MNHN) (1), Museo de Historia Natural de Santiago de Compostela (MHNS) (1), The Natural History Museum of London (BMNH) (1) and the collection of César Fernandes, Cascais (CCF) (1) (Figs. 2, 3, 6).

**Type Locality:** Cape Verde archipelago, around Boavista Islands, between 100 and 150 fathoms.

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

**Description:** Conic, solid shell (Figs. 1-3), pearly-white with an iridescent shine, not umbilicated, spire relatively high, straight profile, higher iridescence in the interior.

Protoconch about 350  $\mu$ m in diameter, white, with less than one whorl.

Teleoconch with almost 8½ flat whorls, with a slightly marked suture; the first whorl presents two nodulose cords; the second whorl has two such cords in the beginning, three at the end. The third whorl has five cords, the uppermost ones nodulose, the others smooth. In the following whorls the cords diminish, only the first one being nodulose until it almost disappears like the others, which are extremely flat and almost

invisible, especially in the upper portion of the whorls. On the last whorl the cords are quite subdued but about 22 may be counted until the periphery, crossed by strongly prosocline growth lines. The last whorl forms a very marked angle in the periphery. The base also shows very subdued, almost invisible cords.

In the umbilical zone there is a small callus that covers the umbilicus. The aperture is subcircular, the peristome is thin, but there is a strong callus inside the aperture (Fig. 6), in mature shells only; the columella is fairly straight and prosocline.

**Dimensions:** The holotype measures 30.2 mm; the largest paratype is 31.6 mm (CF) high, the smallest one 22.2 mm.

The operculum (Fig. 5) is yellow, multispiral, slightly transparent and uniformly concave externally.

Only one of the specimens studied had the whitish soft parts preserved inside the shells, but no anatomical details could be examined because it was slightly decomposed.

**Radula** (Figs. 7-12) large, with 90-100 rows of denticles; the central field is reduced, almost covered by the marginal teeth, with the rachidian and lateral teeth narrow, elongate, highly flexible, with fine, serrate cusps; the marginal field is very wide, with numerous, pointed and very small teeth, all similar, curved, very narrow and with numerous cusps, which are elongate near the extreme, but present along the entire tooth. Jaws (Fig. 7) are well developed, with elongate-quadrangular plates (Fig. 8) in microsculpture.

**Comparison:** The new species must be compared with other pearly-white deep water species:

The closest species is *Calliostoma hironellei* Dautzenberg & Fischer, 1896, collected at a depth of about 600 m, near Terceira Island, Azores, but it differs in having slightly concave whorls, two smooth embryonary whorls, six spiral cords on the last two whorls, all of the same size, the two closer to the suture being slightly granulose, the last whorl slightly inflated and from the periphery of the last whorl to the base it has eleven to thirteen fine concentric, well-defined cords.

*C. occidentale* (Mighels, 1842) has a smaller and comparatively lower shell, with light spiral cords numbering 4 on the penultimate whorl; it has a wide range in the northern Atlantic.

*C. obesulum* (Locard, 1898) is smaller, wider and depressed and has marked granulose spiral cords.

*C. oppansum* (Locard, 1898) has a smaller shell with somewhat more convex whorls, fine cords that are present on every whorl but disappearing on the base, the umbilical area only presenting a callus; this species is mentioned for an area "640 m west of Sudan" (which possibly means that "Sudan" referred to some zone in West Africa, not the present northeast African country).

*C. milneedwardsi* (Locard, 1898) and *C. triporcatus* (P. Fischer, 1883) have shells the same size as the new species or even larger, but the whorls have several well-marked nodulose cords, whereas towards the base these cords are numerous and thin.

*C. laqueatus* (Locard, 1898) has a smaller shell, with numerous spiral cords, which are quite obvious and even slightly raised near the suture; it is known from an area 670 m West of Sahara.

*C. cleopatra* (P. Fischer, 1883) has a smaller shell, with slightly convex whorls bearing very noticeable nodulose cords.

*C. heugtni* Vilvens & Swinnen, 2003 has a much smaller white shell with well marked spiral nodulose cords.

*C. caroli* Dautzenberg, 1927 presents a very marked shoulder in every whorl.

**Etymology:** The new species is named after the Portuguese malacologist César Fernandes, who collected the type material.

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## Plate 1 :

### 1-6 *Calliostoma fernandesi* sp. nov.

1: holotype, 30.2 mm (MNCN).

2-3: paratype, 31.6 mm (CCF).

4: apex view of the holotype.

5: operculum.

6: detail of the aperture, paratype of figure 2.

## Plate 2:

### 7-12 *Calliostoma fernandesi*

7: jaws.

8: microsculpture.

9, 11: radula, from paratype (MHNS).

10: detail of the rachidian and lateral fields.

12: detail of marginal teeth.



