



## RESEARCH NOTE

### **Caecidae (Gastropoda) collected by the research vessel Marion-Dufresne in southeastern Brazil**

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## INTRODUCTION

Caecidae is a family of marine microgastropods that typically inhabit a multitude of shallow water ecosystems (TUNNELL *et al.* 2010; REDFERN 2013), feeding mainly on organic detritus (PIZZINI & NOFRONI 2001). Caecids collected from the continental slope are generally studied based only on worn shells (FOLIN 1880; MOORE 1972; PIZZINI & NOFRONI 2001; present study), which supports the hypothesis that the group is uncommon (DI GERONIMO *et al.* 1995) and probably allochthonous in deep waters (MOORE 1972), as observed in the Atlantic Ocean.

This paper addresses specimens of Caecidae collected by the research vessel *Marion-Dufresne* on the continental shelf and seamount off the state of Espírito Santo (southeastern Brazil) during “Marion-Dufresne Campaign” MD55 operated by TAAF (Terres Australes et Antarctiques Françaises). This was a joint project between the Muséum National d’Histoire Naturelle (MNHN; Paris, France) and Universidade Santa Úrsula (USU; Rio de Janeiro, Brazil). The malacologists on board were Philippe Bouchet, José H. Leal and Bernard Métivier.

The examination of four specimens led us to the recognition of three caecid species previously known for the Atlantic coast of South America. Shells of *Caecum floridanum* Stimpson, 1851, *C. metamorphosicum* Lima, Santos & Absalão, 2013 and *Meioceras cornucopiae* Carpenter, 1859 were dredged up on 27/May/1987 in Southeastern Brazil by the research vessel *Marion-Dufresne* between 15 to 682 meters depth (Table 1). All specimens studied are deposited in the MNHN and MZSP (Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil) (Table 1).

*Caecum floridanum* (Figs. 1–3) is an important component of benthic communities in the tropical western Atlantic and is referenced throughout much of the region (VOKES & VOKES 1983; JONG & COOMANS 1988; LIGHTFOOT 1992; DIAZ & PUYANA 1994; LEE 2009; TUNNELL *et al.* 2010; REDFERN

**Table 1.** Localities sampled as part of the “Marion-Dufresne Campaign” containing caecid specimens.

Caecid species	Material	Locality	Station	Coordinates	Depth
<i>C. floridanum</i>	MNHN (1 shell), MZSP 116546 (1 shell)	Espirito Santo, Vitória-Trindade Seamounts	MD55(DC43)	20°50.9'S 33°44.6'W	63 m
<i>C. metamorphosicum</i>	MNHN (1 shell)	Espirito Santo, off Itaúnas	MD55(SY 74)	18°58'S 37°48'W	682 m
<i>M. cornucopiae</i>	MNHN (1 shell)	Espirito Santo, off Regência, close to Rio Doce mouth	MD55 (DC87)	19°34.9'S 39°42.1'W	15 m

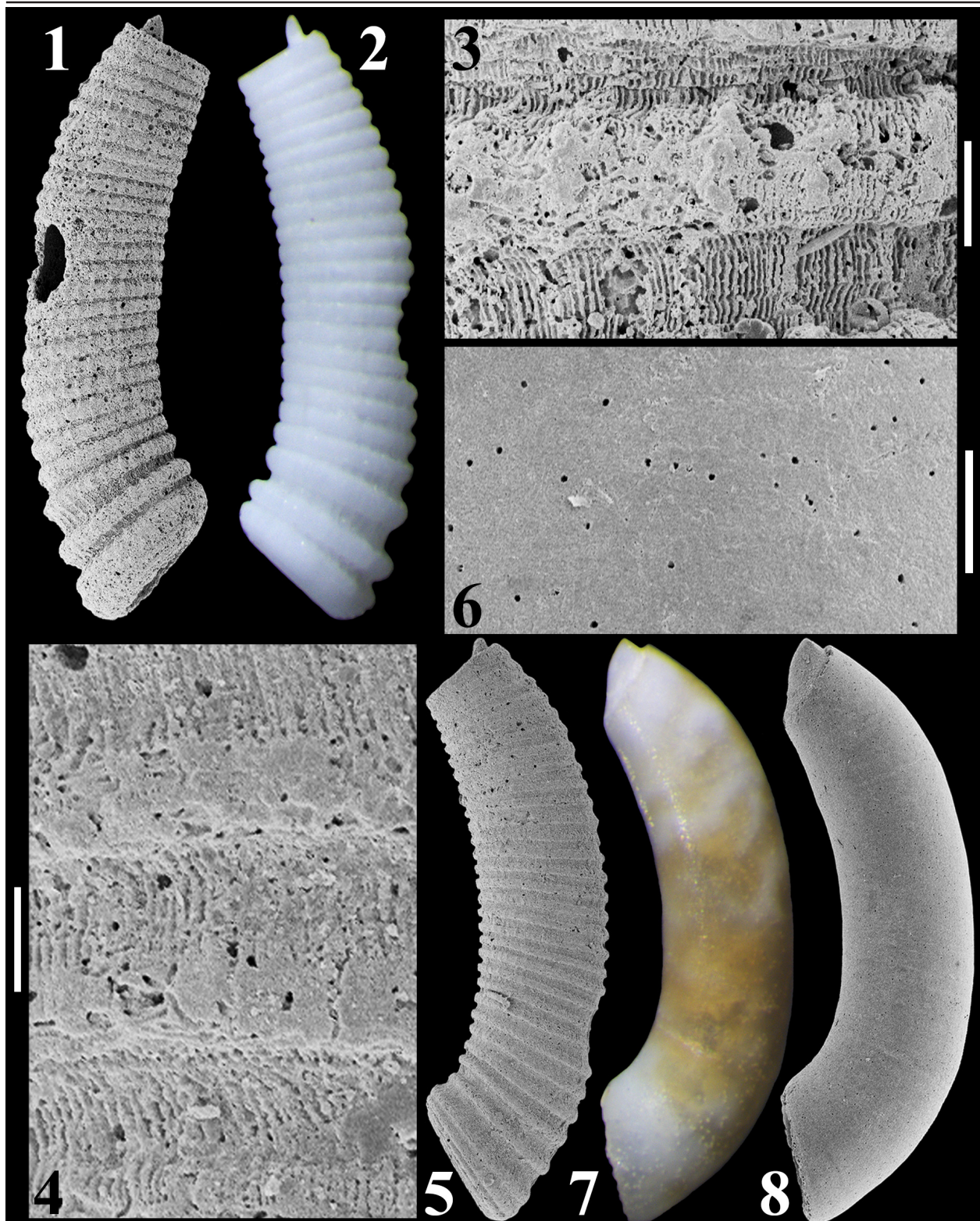
2013). It is a detritivore and is found in the diet of carnivorous gastropods, based on the observation of perforated shells. This species and several congeners have also been recovered from batfish digestive tracts in northeast Florida, USA (LEE 2009). Although the specimens studied herein were worn and perforated, Leal (1991) identified shells in good condition from the Vitória-Trindade and Dogaressa Seamounts, suggesting that living specimens of *C. floridanum* can be found in these remote regions of the Brazilian coast.

*Caecum metamorphosicum* (Figs. 4–5) is herein represented by a specimen collected from deep waters, perforated on the dorsal region and with the axial ribs eroded. The state of preservation of this specimen is indicative of transportation from the continental shelf to the continental slope. To the best of our knowledge, this caecid certainly does not live in deep waters. *Caecum metamorphosicum* specimens in very good condition have been collected on the continental shelf off the state of Espírito Santo between depths of 20 and 27 meters (LIMA *et al.* 2013).

*Meioceras cornucopiae* (Figs. 6–8) specimens are rather variable in the length and curvature of the teleoconch (LIGHTFOOT 1992) and the projection of the micro (DIAZ & PUYANA 1994; TUNNELL *et al.* 2010). Specimens may also exhibit a slight swelling on the anterior region, similar to *M. cubitatum* (Folin, 1868) (REDFERN 2013). The teleoconch examined herein is more elongated and arched in comparison to specimens illustrated in some studies (DIAZ & PUYANA 1994: fig. 492; REDFERN 2013: fig. 209), but similar to others (LIGHTFOOT 1992: fig. 34; TUNNELL *et al.* 2010: 146). The specimen examined herein has micro-pits dispersed along the teleoconch surface, the function of which is unknown and open to future research. We could not find information on pits on the shell of caecids. Rios (2009) did not report *M. cornucopiae* for the Brazilian coast while Lightfoot (1992: 30) and Diaz & Puyana (1994: 142) report that the species has a general distribution in the southern region. *Meioceras cornucopiae* inhabits tropical stenohaline environments (MOORE 1972; TUNNELL *et al.* 2010). Thus, habitats with the input of fresh water on the coast (*e.g.*, estuarine regions and river mouths) and the cooler waters further south in Brazil may constitute barriers for its dispersal. Therefore, the authors prefer to restrict its distribution to southeastern region until further studies are available.

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**Figures 1–8:** Caecidae shells collected by the R/V *Marion-Dufresne* in Southeastern Brazil. **1–3:** *Caecum floridanum*. **1:** left lateral view, SEM (MNHN; shell length = 2.8 mm). **2:** right lateral view (MZSP116546; shell length = 2.8 mm). **3:** SEM detail of sculpture on anterior region (MNHN; scale bar = 60  $\mu$ m). **4–5:** *Caecum metamorphosicum*. **4:** SEM detail of sculpture on anterior region (MNHN; scale bar = 30  $\mu$ m). **5:** right lateral view, SEM (MNHN; shell length = 2.0 mm). **6–8:** *Meioceras cornucopiae*. **6:** SEM detail of sculpture on anterior region (MNHN; scale bar = 60  $\mu$ m). **7:** right lateral view (MNHN; shell length = 2.0 mm). **8:** same, SEM.



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