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Scientific note

Siderastrea stellata Verrill, 1868 as a new host for the corallivore snail *Coralliophila caribaea* Abbott, 1958 and some biological aspects of their association

(Mollusca, Gastropoda, Muricidae; Anthozoa, Siderastreidae)

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Coralliophiline snails, belonging to the family Muricidae Rafinesque, 1815, are well-known for their corallivore habit. However, data on the snail-coral relationship have been largely based on *Coralliophila abbreviata*, currently accepted as *Coralliophila erosa* (Röding, 1798) (Rotjan & Lewis 2008). In Brazil, despite the remarkable diversity of reef-building corals along the northeastern coast, records of coral-coralliophiline associations are rare, and biological data on *Coralliophila* species are quite limited (Rios 1994). Here, we report *Siderastrea stellata* Verrill, 1868 as a new host for *Coralliophila caribaea* Abbott, 1958, which is also the first record of predation on this coral species. Additionally, we describe some behavioural and feeding aspects of this unprecedented association and discuss the feeding strategy of *C. caribaea*.

Ten colonies of *S. stellata* were collected in the littoral of Salvador city (12°59'59"S, 38°31'05"W), Northeastern Brazil, and a single snail was found associated with one coral colony. All corals were taken to the laboratory and maintained in a 50 L aquarium for seven days, during which the snail's behaviour and feeding activity were monitored. Based on image series, the coral consumed area (CA) was estimated by decreasing the final consumed area (Af) by the initial area (Ai) (CA = Af - Ai). *Coralliophila caribaea* (Fig. 1A–C) – positioned below the colony margin – remained stationary most time, only adjusting its position to a proper feeding posture (Fig. 1D,E), without moving to other colonies. It fed on *S. stellata* by sucking coral tissue through its long proboscis inserted into the polyp aperture (Fig. 1D–G). The initial consumed area (0.0753 cm²) increased 1.77-fold (0.1336 cm²) after seven days

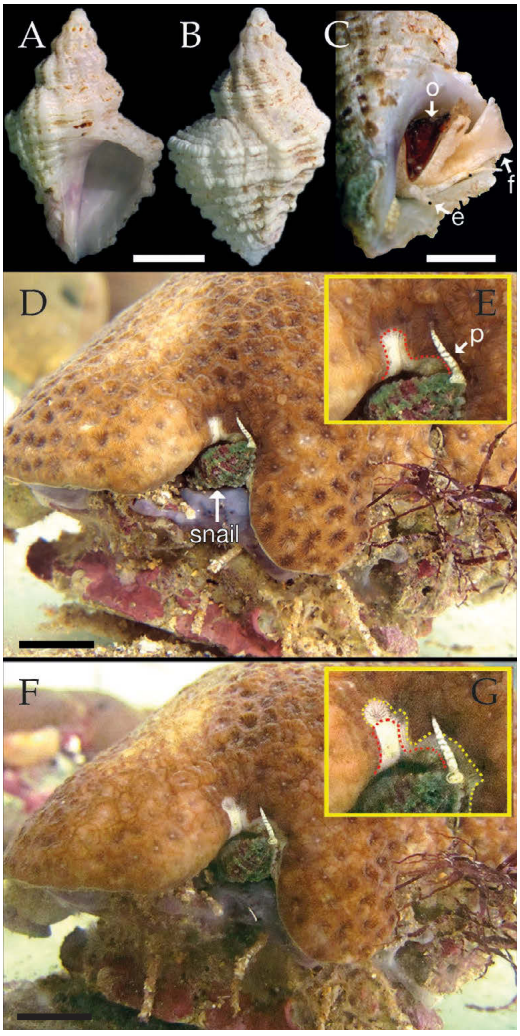

Fig. 1. *Coraliophilla caribaea* morphology and feeding on *Siderastrea stellata*. **A.** and **B.** Apertural and dorsal view of the shell of *C caribaea*; **C.** soft parts in apertural view of *C. caribaea*; **D.** and **F.** snail attached to the coral in the first and last day of observation, respectively; **E.** and **G.** consumed area in the first (red dashed line) and last (yellow dashed line) days, respectively. Abbreviations: e, eye; f, foot; o, opercule; p, proboscis. Scales: A and B = 3.5 mm; C = 2.5 mm; D and F = 1 cm.

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(Fig. 1E,G), an equivalent consumption of 0.00833 cm^2/day. Two main feeding strategies may be observed in coralliophiline snails: (1) agile and voracious, when coral tissues are rapidly consumed and the snail moves on the colony (e.g. *C. erosa* – Brawley & Adey 1982); or (2) sessile and prudent, when the snail remains sedentary and explores coral energy reserves, preserving the coral's polyp for long-term exploitation [e.g. *Coralliophila violacea* (Kiener, 1836) – Oren et al. 1998]. Despite the limited number of *C. caribaea*, it is noteworthy that its consumption rate was considerably lower than that reported for *C. erosa* in laboratory (7–16 cm^2/individual/day), or even in situ (0.15–3.70 cm^2/individual/day), where the snail's predators seem to reduce the feeding rate of *C. erosa* (Brawley & Adey 1982). A previous in situ study of *C. caribaea* preying on another scleractinian coral – *Acropora palmata* (Lamarck, 1816) – showed that the injured area caused by the snail did not increase over the time of 6 months (Mónaco et al. 2011).

Considering that previous study and the data presented here, it is possible that in natural conditions the predation rate of *C. caribaea* on scleractinian corals is negligible. However, more studies are required to confirm this assumption. The sedentary behaviour, and apparently low consumption rate of *C. caribaea*, would maximize the energy exploitation while minimizing host impairment, characterizing a prudent corallivore strategy. *Coralliophila caribaea* was already found on many cnidarian species along the Caribbean region (Miller 1981). However, information on its hosts in the Southwestern Atlantic seems to be restricted to "living under the madreporaria *Favia*", as reported by Rios (1994). Similarly, predators of *Siderastrea* in the same region are poorly known, and only fishes have hitherto been reported preying on *Siderastrea* sp. (Francini-Filho et al. 2008). Thus, in addition to reporting a new prey to *C. caribaea*, and describing relevant aspects on its behaviour and feeding strategy, this study adds to the knowledge on Brazilian coral predators.

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