



ORIGINAL RESEARCH PAPER

ZOOLOGY

FIRST REGISTRATION ON SHORE OF CALIPHYLLA MEDITERRANEA A. COSTA, 1867 (GASTROPODA: CALIPHYLLIDAE) IN PERNAMBUCO, BRAZIL.

KEY WORDS: Sacoglossa; Mollusca; Recife; Macroalgae; New Record.

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ABSTRACT The opisthobranchia group constitute a diverse group of molluscs, which are still poorly studied in most of the Brazilian coast. This paper presents a new record of *Caliphylla mediterranea* (A. Costa, 1867) species in Pernambuco, Brazilian coast. The specimens were collected in groups of macroalgae, in environments of coral reefs and shallow waters. They were taken to the laboratory, separated from the macroalgae and identified with microscopy aid. The first record of this species in Pernambuco State, northeastern Brazil, being an important record for studies of Mollusca in the South American continent, with increasing the geographic distribution of the species

<INTRODUCTION>

In the marine environment, the group of mollusks is one of the most diverse. The Sacoglossa order is formed by a group of small animals, up to 30 mm with about 300 described Opisthobranchia species (JENSEN, 1997). According to Williams and Walker (1999), those Sacoglossa mollusks are specialized in feeding on algae and seagrasses. Different morphological and physiological changes were necessary to allow several members sacoglossans could ingest intact chloroplasts and keep them in the digestive photosynthetically active cells in the intestine for different periods of time (RUMPHO et al. 2000). This unique supply strategy, according Grymbowski et al. (2007) that feed mode is reflected in the animal's morphology.

In *Caliphylla* genus, the individuals' strategy is to absorb the chloroplasts that are in seaweeds that are their food (YAMAMOTO et al., 2009), and like other animals, this genus of opisthobranch can live associated with seaweeds that serve as food, creating small ecosystems. The *Caliphylla* individuals have a greater affinity to join the macroalgae of the order Bryopsidales (WILLIAMS; WALKER, 1999), like the species *Caliphylla mediterranea* (A. Costa, 1867).

The *Caliphylla mediterranea* is usually found in tropical waters of the Ocean Western Atlantic and the Mediterranean Sea (PRUVOT-FOL, 1953; TRONCOSO, 2009), USA and Virgin Islands (JENSEN; CLARK, 1983), from Cape Canaveral to Cape Romano, Aruba, Bonaire, West Indies, Curaçao and the Caribbean Sea (GARCIA et al, 2006; PADULA et al, 2012.), Spain and Canary Islands (GALVÃO-FILHO et al, 2011A.), and Ascension Island (PADULA et al., 2014). In Brazil, the species can be found in the states of Alagoas (PADULA et al., 2012), Ceará (GALVÃO-FILHO et al., 2011B), Sao Paulo (Santos, São Sebastião Island, Cananéia region) (MARCUS, 1958 ; RIOS, 1994). In Pernambuco were found records on oceanic islands of Fernando de Noronha Archipelago (GARCIA

et al., 2002). The present study is the first record of the species from the coast of Pernambuco State.

<MATERIALS AND METHODS>

The study occurred place in two different beaches of the coast of Pernambuco, the first observation and collection occurred place in Boa Viagem beach, located on the southern coast to Pernambuco, in June 2012. The second observation and collection occurred in Forno da Cal beach located on the north coast of this State, in May 2014 (Figure 01). During low tide, some of the specimens could be seen through apnea dives, always associated with seaweed of the genus *Bryopsis*.



Figure 1. Geographic distribution of the *Caliphylla mediterranea* on the Brazilian coast, including new record in Pernambuco.

The material was collected in a manual way together with the seaweed with the macroalgae, which are surrounded by a plastic bag until its base and removed, from the substrate using a spatula; this process was used to avoid loss of material. Then, samples were

fixed with formalin saline, separated, properly identified, forwarded to the laboratory for screening and preliminary identification. After that, all the samples were sent to the Malacology Laboratory at the Museum of Zoology of the University of São Paulo, for verification and cataloging of species, others were cataloged and stored in the Zoology Laboratory of Faculty Frassinetti of Recife (FAFIRE).

<IDENTIFICATION>

The study occurred on the Boa Viagem beach (8°07'45.4"S/34°53'52.1"W), resulted in the collection of 06 individuals of the species. *C mediterranea*. The animals were identified with the specialized literature Help and through comparison with already cataloged individuals. The material was deposited in malacological collections of the Museum of Zoology of the University of São Paulo (MZUSP) and Laboratory of Zoology of Faculdade Frassinetti of Recife (FAFIRE). The study conducted on the Forno da Cal beach (7° 47'03.2"S/34°50'04.4" W), resulted in the collection of 03 individuals of the species, the material shall be deposited in the malacological collections of Laboratory of Zoology of Faculty Frassinetti of Recife (FAFIRE). The animals showed 0.5mm to 2.3mm in length (Table 1) and all were associated with branches of *Bryopsis*.

Table 1. List of found species and their sizes.

Specimens collected in Boa Viagem	
Registration Number	Size in mm
MZSP 117237	0.5 mm
FAFIRE - Fital 058-1	0.9 mm
FAFIRE - Fital 058-2	0.8 mm
FAFIRE - Fital 058-3	0.8 mm
FAFIRE - Fital 058-4	0.5 mm
FAFIRE - Fital 058-5	0.6 mm
Specimens collected in Forno da Cal	
Registration Number	Size in mm
FAFIRE - Fital 440-1	0.8 mm
FAFIRE - Fital 440-2	0.6 mm
FAFIRE - Fital 440-3	2.3 mm

<DISCUSSION>

The specimens found have white-translucent body, where you can see the branches of the digestive gland with a little greenish color, but Gascoigne (1979) states that the color could vary according to the degree of digestion. As described by Pruvot-Fol (1954), the body has a slender shape, at the lateral side. Dorsally, has a different view, they are more flattened and rounded. Has a forked rhinophores, with long, straight black eyes have at their ends (Figure 2).

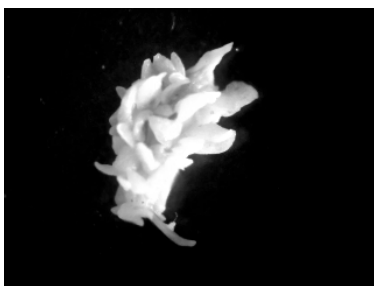


Figure 2. Specimen collected and stored in Zoology Laboratory of Faculty Frassinetti of Recife (FAFIRE).

Throughout the body, approximately 60-80 cerata can be observed, on the sides rows of small cerata fusiform, the other dorsal rows with leaf-like shapes, and larger over the dorsal part, reaching 7 mm (GASCOIGNE, 1979). However, they are flat and translucent, and have internally green branches with whitish granules, acting how defense glands (TRONCOSO et al. (2009).

Besides adding a new record to Pernambuco coast, this study helps

to know more about the distribution of this opisthobranch, this is important because of its relevance to the areas of ecology, biogeography and thus also to assist in the preservation of coastal urban areas with great influence anthropic, as the beaches of Boa Viagem and Forno da Cal.

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