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## Two new species of Halichondrida (Demospongiae) and the first record of *Phycopsis* and *Ciocalapata* for Brazil

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### Abstract

Two new species of the genera *Phycopsis* and *Ciocalapata* are described from the shallow waters off the Brazilian coast. This is the first record of *Phycopsis* in South Atlantic, with *Phycopsis styloxeata* **sp. nov.** being the only species of the genus that presents three categories of spicules: two of styles and one of oxeas. *Ciocalapata*, here represented by *Ciocalapata minuspiculifera* **sp. nov.**, displays smaller oxeas and styles when compared to its congeneric *C. amorphosa* (Ridley & Dendy, 1886). The definition of this genus was modified and its geographical and bathymetric distributions now extend from the coast of Argentina to the northeastern coast of Brazil (state of Bahia) and from deep (1.097 m) to shallow (14–20 m) waters, respectively.

**Key words:** taxonomy, Porifera, South America, Axinellidae, Halichondriidae

### Introduction

The Order Halichondrida Gray, 1867 includes sessile, massive, lobed, digitiform, ramose, tubular or flabellate species, whose spicules are mainly oxeas and, more rarely, strongyles and styles, with a wide size range, and halichondroid, confused or plumo-reticulate skeleton (van Soest & Hooper 2002). With nearly 690 described species allocated into six families (van Soest & Hooper 2002; van Soest *et al* 2013; see Morrow *et al* 2012 for molecular status), the representatives of Halichondrida have a wide geographical distribution, with species found in many marine habitats ranging from the intertidal zone to the deeper regions (van Soest & Hooper 2002; Erpenbeck 2004).

Among the families that compose the order, Halichondriidae Gray, 1867 and Axinellidae Carter, 1875 are the most representative and diverse. Axinellidae comprises 12 genera, including the genus *Phycopsis* Carter, 1883, which has seven valid species (van Soest *et al* 2013): six in the Pacific Ocean and one in the North Atlantic. This genus is characterized by a skeleton with ascending multispicular bundles, radiating from the central axis and surface, and ending in processes and long filaments (Alvarez & Hooper 2002). Halichondriidae includes 15 genera (van Soest *et al* 2013), among them *Ciocalapata* de Laubenfels, 1936, with only a single valid species described so far, *C. amorphosa* (Ridley & Dendy, 1886) from the South Atlantic (Argentina). This genus is characterized by a detachable tangential ectosomal skeleton of intercrossing bundles of spicules and a trabecular choanosomal skeleton of thick spicule tracts, and oxeas (in two size categories in the type species) and styles (Erpenbeck & Van Soest 2002) as spicules.

New species discovered on the coral reefs of Camamu Bay and surrounding areas of the Northeastern Brazilian coast are the first time record of *Phycopsis* in the South Atlantic Ocean and of *Ciocalapata* for the Brazilian coast.

alveolate shape, spongy consistency and a dermal membranous surface seen in *C. amorphosa*. The bathymetric variation between the two species is also quite significant: *C. amorphosa* is found in deep waters, with depths equal to or exceeding 1000 meters, while the new species is found in shallow waters up to 20 m. deep.

## Conclusion

The low representativeness of order Halichondrida in the coast of Brazil can be due, among other factors, to the difficulty in identifying at the generic and specific levels which makes it remain unidentified and consequently unreported in the areas. Twenty six species are recorded for the Brazilian coast and this number is still lower for Bahia state, with just eight species described (Muricy *et al* 2011). The two new described species extend the representation of order Halichondrida and both genus, *Phycopsis* and *Ciocalapata* are recorded for the first time to the coast of Brazil. The genus *Ciocalapata* is now redefined in order to include the skeletal features observed in *Ciocalapata minuspiculifera* **sp. nov.**, which is also the second species described to the genus. The recent detection of these interesting genera in the study area corroborate the importance of the South region of the coast of Bahia State, particularly the surrounding areas of Camamu Bay as an environment with high potential for discovering new taxa corroborating previous findings of Fernandez *et al* (2011) and Menegola *et al* (2011).

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