Zootaxa 3925 (4): 536–550
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3925.4.3
http://zoobank.org/urn:lsid:zoobank.org:pub:F02FAC72-AD74-496D-9811-B8B4313A783E

A new species of *Haliclona* (Demospongiae: Haplosclerida: Chalinidae) from southeastern Brazil and the first record of *Haliclona vansoesti* from the Brazilian coast

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Abstract

In this paper we describe two species of the cosmopolitan sponge genus *Haliclona* from Rio de Janeiro State, SE Brazil, one of which is new to science and the other a new record to Brazil. *Haliclona* (*Rhizoniera*) *fugidia* **sp. nov.** is brownish-pink, salmon or cream, thickly encrusting, without oscular tubes and tangential ectosomal reticulation. Choanosomal skeleton is a mostly unispicular ladder-like reticulation of oxeas, very organized near the sponge surface and denser and more disorganized in the interior of the sponge. *Haliclona* (*Halichoclona*) *vansoesti* de Weerdt *et al.*, 1999 was originally described from the Caribbean. It has a very loose connection between ectosome and choanosome, a whitish translucent ectosome combined with a purplish choanosome, a cavernous structure and a friable or crispy consistency. The conspecificity of SE Brazilian and Caribbean populations of *H.* (*Halich.*) *vansoesti* was verified through phylogenetic analysis of small subunit 18S rRNA (18S) and mitochondrial cytochrome oxidase subunit I (COI) gene sequences. A maximum likelihood phylogenetic tree constructed with 18S sequences indicates that specimens of *H.* (*Halich.*) *vansoesti* from Rio de Janeiro were phylogenetically closer to the same species from the Caribbean than to other species of *Haliclona.* Although not available for *H.* (*Halich.*) *vansoesti* from the Caribbean, COI sequences of our specimens were also quite distinct from those of other *Haliclona* species. Molecular identification based on DNA sequences is a useful complement to traditional morphology-based taxonomy, especially in highly plastic sponges such as *Haliclona* spp. and other haplosclerids.

Key words: taxonomy, Haploscleromorpha, molecular systematics, COI, 18S rRNA, southwestern Atlantic

Introduction

Haplosclerida is one of the main orders of Demospongiae, rivalling with Poecilosclerida in number of species. This diversity, however, is often hidden by the paucity of useful morphological characters for the taxonomy of the order, which, for the taxonomist, is one of the most challenging among the Porifera (de Weerdt, 2002). The genus *Haliclona* Grant, 1836 (family Chalinidae) is the most diverse of the phylum Porifera, with over 420 currently accepted species (van Soest *et al.*, 2014). *Haliclona*, together with other haplosclerids, may represent one of the richest taxonomic groups of Porifera in Brazil, particularly in the shallow reefs, rocky shores and tropical bays in the northeast (*e.g.* Hajdu *et al.*, 2011) and southeast Brazilian coast (Muricy & Ribeiro, 1999). In spite of this high diversity, only 13 species of *Haliclona* are known to occur in Brazil (Hajdu *et al.*, 2011; Muricy *et al.*, 2011; Bispo *et al.*, 2014; Sandes *et al.*, 2014).

Taxonomic studies on Brazilian *Haliclona* focused mainly on the description of new species by Mothes & Lerner (1994), Muricy & Ribeiro (1999), Campos *et al.* (2005), Bispo *et al.* (2014) and Sandes *et al.* (2014). Other

 Accepted by J. Hooper: 29 Jan. 2015; published: 3 Mar. 2015

2014; *H.* (*Soest.*) *peixinhoae* Bispo *et al.*, 2014; and *H.* (*Soest.*) *brassica* Sandes *et al.*, 2014. The remaining six species are also found in the Caribbean: *H.* (*Halich.*) *vansoesti*; *H.* (*Ren.*) *implexiformis* (Hechtel, 1965); *H.* (*Ren.*) *manglaris* Alcolado, 1984; *H.* (*Ren.*) *tubifera* (George & Wilson, 1919); *H.* (*Soest.*) *caerulea* (Hechtel, 1965); and *H.* (*Soest.*) *melana* Muricy & Ribeiro, 1999. However, these numbers are significantly underestimated, as many new records and new species of *Haliclona* have been described from Brazil in the last few years (Muricy & Ribeiro, 1999; Hajdu *et al.*, 2011; Bispo *et al.*, 2014; Sandes *et al.*, 2014) and there are still many undescribed and unidentified records of the genus along the Brazilian coast (Muricy *et al.*, 2011). Further investigations on the Brazilian *Haliclona* species are needed to elucidate the real patterns of diversity and distribution of the genus in the Tropical Western Atlantic.

Acknowledgements

We thank Jessica Pinho, Eduardo Vilanova and Báslavi Condor-Lújan for help with collections and Angélica Vasques for help with spicule preparations and measurements. We thank ICMBio (Instituto Chico Mendes de Conservação da Biodiversidade) and INEA (Instituto Estadual do Ambiente) for authorizing collections in the Marine Protected Areas studied ("Monumento Natural das Ilhas Cagarras" and “Parque Estadual da Ilha Grande”, respectively). We also thank the “Centro de Microscopia Eletrônica” of Museu Nacional/UFRJ for help with SEM. The results of this study are part of "Projeto Ilhas do Rio", sponsored by Petrobras through the Program Petrobras Ambiental. This study was supported by fellowships and grants from CNPq, FAPERJ and Petrobras. The advice of two anonymous reviewers greatly improved the manuscript.

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