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New *Hamacantha* from Peru and resurrection of *Zygherpe* as subgenus (Demospongiae, Poecilosclerida, Hamacanthidae)

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Abstract

Two species of *Hamacantha* with tylostyles are reported here for the Peruvian coast, namely *H. desmacelloides* **sp.nov.** and *H. hyaloderma*. The former is the first species in the genus with apically microspined sigmas, similar to those known to occur in *Neofibularia*, and recently reported from genera *Biemna*, *Desmacella*, *Rhabderemia* and *Sigmaxinella*. *Hamacantha hyaloderma* was previously known from Mexico to Canada, and is here reported for the first time from the south east Pacific. The finding of a second species with tylostyles led us to reinstate subgenus *Hamacantha* (*Zygherpe*). The possible phylogenetic significance of apically microspined sigmas is discussed in view of recent findings on the basis of molecular data.

Key words: taxonomy, marine biodiversity, Porifera, southeastern Pacific, micromorphology, spicules

Introduction

The South East Pacific is a notoriously undersampled and understudied region as regards its sponges (Phylum Porifera; van Soest, 1994; Willenz *et al.*, 2009). Although several studies on the Chilean sponge fauna have been published in recent years (Hajdu *et al.*, 2006; Carvalho *et al.*, 2007, in press; Esteves *et al.*, 2007; Hajdu & Desqueyroux-Faúndez, 2008; Azevedo *et al.*, 2009; Willenz *et al.*, 2009), the rest of the South American coast has been relatively neglected. The few species recorded from Peru, mostly originated from deeper waters, with the consequence that shallow subtidal species, albeit more accessible, are less well known. With this perspective in mind, 2007 saw the launching of a concerted effort to extend the taxonomic inventory of South-eastern Pacific sponges into Peruvian waters. Nearly 900 samples were collected by SCUBA, snorkeling, wading at low tide, or even bought from beachfront artisans selling marine curios. Most samples were photographed *in situ* and studied using scanning electron microscopy (SEM), taxonomic descriptions of many have been started. Preliminary results of this concerted effort were published by Hooker (2008) and Aguirre *et al.* (2011).

In this article we describe a new species of *Hamacantha*, as well as redescribe and considerably extend the geographic range of *H. hyaloderma* de Laubenfels, 1932 along the coast of South America.

Material and methods

Eight specimens were collected by SCUBA diving on several localities along the Peruvian coast (Fig. 1). They were all photographed *in situ* and preserved in ethanol usually no longer than 2h after the end of the dive. Specimens were each split into four fragments, for deposition of similar materials at the Universidad Peruana

to the issue of whether terminally microspined sigmas are monophyletic or not. Morrow *et al.* (2013) proposed a new order, Biemnida Morrow, 2013, to accommodate the Biemnidae Hentschel, 1923 and Rhabderemiidae Topsent, 1928, at the base of the Tetractinellida Marshall, 1876. The terminally microspined sigmas known from *Biemna*, *Desmacella*, *Neofibularia*, *Sigmaxinella*, and recently reported from *Rhabderemia* (Cedro *et al.*, 2013), are argued here as being possibly homologous to the sigmaspires of Spirophorida Bergquist & Hogg, 1969, in a transformation series as previously proposed for sigmancistras, cyrtancistras/diancistras and clavidiscs (Hajdu, 1994). One would then expect *Hamacantha*, on account of its terminally microspined sigmas reported in this study, and by extrapolation, *Merlia*, to group in the Biemnida too. Thus far, this scenario has not been retrieved in phylogenetic analyses of any sort. For this reason, Hamacanthidae is here still treated within the Poecilosclerida.

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