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***Desmacella* Schmidt, 1870 from Brazil: Description of two new species and a review of records (Desmacellida: Demospongiae: Porifera)**

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Abstract

Three species of *Desmacella* Schmidt, 1870 are described from the Brazilian coast: *Desmacella microsigmata* **sp. nov.**, *Desmacella tylovariabilis* **sp. nov.** and *Desmacella annexa* Schmidt, 1870. The new species were compared with *Desmacella* species from the Atlantic Ocean, which differ by the size of their spicules and by the presence of microspined sigmas. *Desmacella annexa* was found to have microspined toxiform microxeas and sigmas. *Desmacella* now contains 31 species distributed worldwide.

Key words: Porifera, taxonomy, marine biodiversity, deep waters, Atlantic Ocean

Introduction

The genus *Desmacella* has 29 species worldwide, and includes sponges with an hispid surface, reticulate, plumo-reticulate and vaguely halichondrioid choanosomal skeleton, megascleres tylostyles or styles and microscleres sigmas and raphides (Hajdu & van Soest 2002). The Atlantic Ocean has 17 known species of *Desmacella* (van Soest *et al.* 2015). Nine species occur in the Western Atlantic: *D. annexa* Schmidt, 1870, *D. jania* Verrill, 1907, *D. meliorata* Wiedenmayer, 1977, *D. polysigmata* van Soest, 1984, *D. pumilio* Schmidt, 1870, *D. suberitoides* (Burton, 1932), *D. vagabunda* Schmidt, 1870, *D. vestibularis* (Wilson, 1904), and *D. vicina* Schmidt, 1870.

Up until the present there have been one description of *Desmacella* species from Brazil, as *Desmacella* aff. *pumilio* (Cosme & Hajdu 2010), but only *Desmacella annexa* has been mentioned in the literature and identified to species level (Hajdu *et al.* 2004, from Southeast Brazil). Furthermore, specimens of the genus have been recorded six times between the Bahia and Rio Grande do Sul States (see Muricy *et al.* 2011), although not identified to species level. Here, we review records of *Desmacella* from Brazil, and describe two new species.

Material and methods

The specimen of *Desmacella microsigmata* **sp. nov.** was collected from trawl site by PETROBRAS (Petróleo do Brasil S/A) in 2011, as part of the Project ‘Campanha de Monitoramento Ambiental do Projeto de Caracterização Ambiental do Talude Continental na Bacia Potiguar/ Rio Grande do Norte/ BR’ (BPot). It was preserved in 80% ethanol and deposited in the Coleção de Porifera of Universidade Federal de Pernambuco (UFPEPOR). The specimen of *Desmacella tylovariabilis* **sp. nov.** was collected from dragging by PETROBRAS in 2003, as part of the Project ‘Caracterização Ambiental de Águas Profundas da Bacia de Campos’ (CENPES). The specimens of *Desmacella annexa* was collected from trawl site by REVIZEE Project, in 1998 (Hajdu *et al.* 2004). The specimens of *Desmacella tylovariabilis* **sp. nov.** and *Desmacella annexa* are deposited at Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ) and it was preserved in 80% ethanol. Dissociated spicules mounts, SEM preparations and skeletal sections were made using classical procedures for Demospongiae (Hajdu *et al.* 2011).