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## Two new species of Hexactinellida (Porifera) from the South China Sea

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### Abstract

In this paper, two new sponge species, *Semperella jiaolongae* sp. nov. (Amphidiscosida, Pheronematidae) and *Saccocalyx microhexactin* sp. nov. (Lyssacinosida, Euplectellidae) are described based on materials from the South China Sea. *Semperella jiaolongae* sp. nov. is diagnosed mainly by the dermal areas present on both sides of the body, occurring together with atrial areas randomly distributed on one side, and the distinctive shape of micropentactins. *Saccocalyx microhexactin* sp. nov. is characterized by possession of two types of drepanocomes and one of microhexactins. An analysis based on partial sequence of the 16S rRNA gene was undertaken to show the congruence between morphological identification and phylogenetic classification of the two new species.

**Key words:** Porifera, Amphidiscosida, Lyssacinosida, Pheronematidae, Euplectellidae, *Saccocalyx*, *Semperella*, new species, South China Sea

### Introduction

The class Hexactinellida Schmidt, 1870 comprises sponges with a skeleton made of triaxonic siliceous spicules or derivations of that. The class includes two subclasses – Amphidiscophora Schulze, 1886 and Hexasterophora Schulze, 1886. The genus *Semperella* Gray, 1868 (Amphidiscophora, Amphidiscosida, Pheronematidae) lacks an atrial cavity, possesses a columnar body, and their several everted atrial areas constitute units separated from each other by dermal areas (Tabachnick & Menshenina, 2002). It contains ten reported species with different body forms: *S. schultzei* (Semper, 1868), *S. alba* Tabachnick, 1988, and *S. abyssalis* Tabachnick & Lévi, 2000 have several longitudinally directed atrial areas, which are also possibly present in *S. similis* Ijima, 1927, a likely synonym of *S. schultzei* (*sensu* Lévi & Lévi, 1982). *Semperella cucumis* Schulze, 1895 and *S. crosnieri* Tabachnick & Lévi, 2000 have the atrial surface consisting of numerous separated rounded atrial spots, *S. stomata* Ijima, 1896 and *S. spicifera* Schulze, 1904 have the rounded atrial spots bent inwards, *S. varioactina* Tabachnick & Lévi, 2000 has the general sponge surface divided into four longitudinal areas without sieve plates (Tabachnick & Lévi, 2000). *Semperella megaloxea* Vinod, George, Thomas & Manisseri, 2012 has a club-shaped body and is characterized by the presence of very long diactins in addition to pentactins (Vinod *et al.* 2012).

The genus *Saccocalyx* Schulze, 1896 (Hexasterophora, Lyssacinosida, Euplectellidae) is basiphytose, with a long peduncle, usually fixed to rigid substrate. Their atrialia and dermalia are usually hexactins. *Saccocalyx* species distributed widely in the North-central Atlantic, Mid-Atlantic Ridge, Indo-West Pacific, Antarctic Oceans and United States part of the North Pacific Ocean, from 607 m to 3835 m (Tabachnick, 2014; Reiswig, 1999).

### Material and methods

**Sample collection.** The specimens were collected from the South China Sea with “Jiaolong”, the Chinese manned submersible. The specimen of *Semperella jiaolongae* sp. nov. was collected from a muddy bottom at the depth of