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Phorbas topsenti and *Phorbas tailliezi* (Demospongiae, Poecilosclerida), new names for the Mediterranean '*Phorbas paupertas*' and '*Phorbas coriaceus*'

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Abstract

A common Mediterranean species of *Phorbas* has been frequently identified under the specific name *paupertas*, referring to the sponge described as *Hymeniacidon paupertas* by Bowerbank 1866 from the north coasts of Europe. It is actually different from this species, and a new name, *Phorbas topsenti* sp.nov., is proposed. A description of the morphology, spicule complement and cytology is given. Another Mediterranean species of *Phorbas*, *Phorbas tailliezi* **sp. nov.** is described.

Key words: Taxonomy, Porifera, Hymedesmiidae, Mediterranean, *Phorbas topsenti*, new species

Introduction

A common, remarkable Mediterranean sponge has been frequently identified under the specific name *paupertas* in the genera *Anchinoe*, *Hymedesmia* or *Phorbas* after Topsent (1934, 1936). As pointed out by van Soest et al. (2000), this thickly encrusting sponge, of a vivid red color, is actually different from the species described as *Hymeniacidon paupertas* by Bowerbank (1866: 223), at present classified in *Hymedesmia*. Here we re-describe the morphology of the Mediterranean specimens and erect a separate new species to harbor them. We also illustrate the ultrastructure of its cell types and of its bacterial symbionts, which could be useful for species distinction, and the differences with *Phorbas fictitius* (Bowerbank, 1866) and *Hamigera hamigera* (Schmidt, 1862), which are very similar by field characters. Additionally, we describe a new species of *Phorbas*, *P. tailliezi* **sp. nov.** and comment on its possible identity with the Mediterranean sponges hitherto identified as *Phorbas coriaceus* (Fristedt, 1887).

Material & methods

The specimens were collected by SCUBA diving in the Mediterranean in the Marseille area, in Port-Cros National Park, in Tunisia, in Lebanon and near Ceuta. They were preserved in alcohol or in formalin. Skeletal structures were observed on free hand thick sections. Dissociated spicules for scanning electron microscopy (SEM) were prepared on slides (Vacelet 2006), and observed under a Hitachi S 570 microscope. For transmission electron microscopy (TEM), the specimens were fixed in glutaraldehyde 2.5 % in a buffer composed of 0.4 M sodium cacodylate/sea water (1/1), postfixed in 2% osmium tetroxide in seawater, desilicified in 5% hydrofluoric acid for 30 min, and embedded in Araldite ®. Semithin sections were stained with toluidine blue. Thin sections, contrasted with uranyl acetate and lead citrate, were observed under a Zeiss EM 912 electron

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