



Revised description of a poorly known Mediterranean Dictyoceratid bath sponge, *Spongia (Spongia) zimocca* (Schmidt, 1862) (Porifera: Demospongiae: Dictyoceratida)

JEANNE CASTRITSI-CATHARIOS^{1,4}, ROB W. M. VAN SOEST²,
EFTHIMIOS KEFALAS¹ & JEAN VACELET³

¹Department of Zoology-Marine Biology, Faculty of Biology, National and Kapodistrian University of Athens, Panepistimiopolis, Athens 157 84, Greece. E-mail: cathario@biol.uoa.gr

²Zoological Museum of the University of Amsterdam, P.O. Box 94766, 1090 GT Amsterdam, The Netherlands. E-mail: R.W.M.vanSoest@uva.nl

³Centre d'Océanologie de Marseille, Aix-Marseille Université, CNRS UMR 6540 DIMAR, Station Marine d'Endoume, Rue de la Batterie des Lions, 13007 Marseille, France. E-mail: jean.vacelet@univmed.fr

⁴Corresponding author. E-mail: cathario@biol.uoa.gr

Abstract

Spongia (Spongia) zimocca (Schmidt, 1862) is a real problem for taxonomists. This is due to the fact that it exhibits a wide diversity of forms as well as similarities with other species of the genus. Nevertheless, professional sponge fishermen are able to recognize this species easily based on their own empirical criteria. The lack of easily recognized taxonomic characters in conjunction with the ambiguity concerning the original description makes necessary an updated description of the species. We tried to solve the uncertainty existing among the taxonomists who have been involved with the description of this Mediterranean sponge, basing our description on the Schmidt type specimen and on material deposited in the Amsterdam Museum. In this paper we have summoned up not only the known morphological characters used for the identification of other species belonging to this genus (color, size, shape, skeleton structure, size of the fibers) but also additional morphological characters, used for a first time, aiming to obtain a clearer picture. These new characteristics are: tensile strength, skeletal density, morphology of the conules and the organic content of the fiber mass.

Key words: Demospongiae, Dictyoceratida, Leather sponge, identification, lectotype, polymorphism, commercial value, biogeography

Introduction

Representatives of the Order Dictyoceratida Minchin (1900), Class Demospongiae, are lacking the mineral skeletal element, which is substituted by spongin fibers, resulting in enhanced fine structure and flexibility. To this order belongs the family Spongiidae Gray (1867), the skeleton of which consists exclusively of unstratified collagen fibers, composed of spongin B, (Gross *et al.* 1956; Garrone *et al.* 1973). All species of the genus *Spongia* Linnaeus (1759), which are widely known in the Mediterranean as bath sponges since ancient times (Voultsiadou 2007), still “hold secrets” to this day regarding their taxonomy. The overall quality of a bath sponge is determined by several factors, including tensile strength, elasticity, absorbency, water retention, quantity of foreign particles included in the spongin fibers (Moore 1908; Castritsi-Catharios *et al.* 2007; Louden *et al.* 2007). Quantities of foreign particles differ from one species to another but such differences can also be found within the same species in individuals of different quality and/or from different habitat.

The commercial sponges harvested in the Mediterranean include the “Tsimoucha” (Greek) or “Chimousse” (French), or “Leather sponge” (English), or “Zimoukha” (Arabic/Tunisian) i.e. *Spongia (Spongia) zimocca* which still raises a real problem for taxonomists (Pronzato & Manconi 2008). This species is poorly studied, notwithstanding its substantial share of the total production of the sponge fishery, about 7% of the Mediterranean produc-