Zootaxa 3617 (1): 001–061
www.mapress.com/zootaxa/

Monograph

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3617.1.1
http://zoobank.org/urn:lsid:zoobank.org:pub:4DCCD152-65DA-44A3-AB19-59811384E1E7

ZOOTAXA

3617

Sponges associated with octocorals in the Indo-Pacific, with the description of four new species

BARBARA CALCINAI[1,4], GIORGIO BAVESTRELLO[2], MARCO BERTOLINO[1], DANIELA PICA[1], DANIEL WAGNER[3] & CARLO CERRANO[1]

[1] *Dipartimento di Scienze della Vita e dell'Ambiente, Università Politecnica delle Marche, Via Brecce Bianche, 60131, Ancona, Italy. E-mail: b.calcinai@univpm.it; marco.bertolino75@libero.it; d.pica@univpm.it; c.cerrano@univpm.it*
[2] *Dipartimento per lo studio della Terra, dell'Ambiente e della Vita, Corso Europa, 26, 16132, Genova, Italy. E-mail: Giorgio.Bavestrello@unige.it*
[3] *Papahanaumokuakea Marine National Monument and UNESCO World Heritage, Honolulu, HI, USA. E-mail: Daniel.wagner@noaa.gov*
[4] *Corresponding author*

Magnolia Press
Auckland, New Zealand

Accepted by E. Hajdu: 19 Nov. 2012; published: 25 Feb. 2013

BARBARA CALCINAI, GIORGIO BAVESTRELLO, MARCO BERTOLINO, DANIELA PICA, DANIEL WAGNER & CARLO CERRANO

Sponges associated with octocorals in the Indo-Pacific, with the description of four new species

(*Zootaxa* 3617)

61 pp.; 30 cm.

25 Feb 2013

ISBN 978-1-77557-110-0 (paperback)

ISBN 978-1-77557-111-7 (Online edition)

FIRST PUBLISHED IN 2013 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

http://www.mapress.com/zootaxa/

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

Table of contents

Abstract

Sponges are characterised by high levels of phenotypic plasticity, thus allowing the same species to live in different habitats by taking different shapes. Here we describe 28 sponge species associated with the octocorals *Carijoa riisei*, *Paratelesto rosea* and *Alertigorgia hoeksemai* in Indonesia, Hawai'i and Vietnam, including four species that are new to science (*Chondropsis subtilis*, *Hymedesmia (Hymedesmia) spinata*, *Hymedesmia (Stylopus) perlucida*, *Mycale (Aegogropila) furcata*). Moreover, a large proportion of the described sponge species (21.4%) represent new records for the studied areas (Indonesia and Hawai'i). In total, we have studied 47 colonies of *C. riisei* associated with 24 sponge species, 5 colonies of *P. rosea* associated with 4 species and one colony of *A. hoeksemai* associated with one sponge species. Collectively, these examples of associations highlight the importance of epibiosis as a biodiversity enhancing process.

Key words: Porifera, Anthozoa, Epibiosis, Indonesia, Hawai'i, Vietnam

Introduction

In the marine environment, the availability of hard substrate is a typical limiting factor for sessile organisms (Jackson 1977; Connell 1978) and in tropical (Wulff 2006), temperate (Puce et al. 2008; Bavestrello et al. 2009) and polar waters (Cerrano et al. 2001; 2009; Gutt & Schickan 1998) epibiosis is a common strategy to overcome the problem. Epibiosis promotes biodiversity and increases spatial heterogeneity as well as biological interactions (Whal 2009). Branched octocorals are typically exploited as a living substrate by benthic filter feeders. Bayer (1961) reported several examples of commensal invertebrates associated with octocorals, such as hydroids, polychaetes, crustaceans and molluscs. Goh & Chou (1999) noted that half of the 31 octocoral species known from off Singapore are associated with sponges, hydroids, polychaetes, crustaceans, bryozoans and echinoderms. By growing on octocorals, filter feeders increase their filtration efficiency (Linskens 1963; Oswald & Seed 1986; Zea 1993) and can supplement their diet by consuming the organic matter and bacteria entrapped in the coral mucus (Goh & Chou 1999). On the other hand, octocorals might also benefit from hosting epibionts that may protect them from predators (Gerhart 1986; Calcinai et al. 2004; Scinto et al. 2008; Wagner et al. 2009). Although very common, associations between octocorals and other organisms are still poorly studied.

Sponges play a paramount ecological role, both functional and structural (Wulff 2001; Bell 2008), and share numerous relationships with many organisms. In this context, symbiotic associations may be considered not only as the result, but also as the source of biodiversity (Cerrano et al. 2006a).

Van Soest and Verseveldt (1987) reported the first case of an association between the octocoral *Tubipora musica* Linné, 1758 and the sponge *Mycale* sp., and Calcinai et al. (2004) described the epibiosis of the sponge *Desmapsamma anchorata* (Carter, 1882) on the octocoral *Carijoa riisei* (Duchassaing & Michelotti, 1864) in North Sulawesi (Indonesia). Other data derive from the Caribbean where 14 species of sponges where listed as epibionts of gorgonians in Puerto Rico, with *Desmapsamma anchorata* being the most common (Yoshioka & Yoshioka 1991; McLean & Yoshioka 2007). In the coralligenous assemblage of the Mediterranean Sea, the sponge *Pleraplysilla spinifera* (Schulze, 1879) is commonly associated with the purple gorgonian *Paramuricea clavata* (Risso, 1826) (Bavestrello et al. 1997). In this study we report numerous examples of epibiosis between sponges and three different species of octocorals from the Pacific Ocean (*Carijoa riisei*, *Paratelesto rosea* (Kinoshita, 1909) and *Alertigorgia hoeksemai* van Ofwegen & Alderslade, 2007), and describe four new sponge species that are involved in such associations.