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The genus *Clathria* from the Gulf of Mexico and Mexican Caribbean, with redescription and resurrection of *Clathria carteri* (Poecilosclerida: Microcionidae)

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Abstract

The present study deals with the morphologic variability of eight *Clathria* species from the southern Gulf of Mexico and Mexican Caribbean. *Clathria* (*Clathria*) *foliacea*, *C.* (*C.*) *carteri*, *C.* (*Microciona*) *calla*, *C.* (*M.*) *echinata*, *C.* (*M.*) *spinosa, C.* (*Thalysias.*) *venosa*, and *C.* (*T.*) *virgultosa* were collected by scuba diving and dredging from the southern Gulf of Mexico (Veracruz, Campeche Bank, Yucatan) to the Caribbean coast (Quintana Roo) from shoreline to 120 m depth. The population of *Clathria* seems to be neither abundant nor diverse in the studied area. However, the seven species considered here are presumed to have a slight morphologic variability, and the interspecific relationships had not been fully resolved. The present study focuses on their differentiation through comparison of external morphology, skeletal architecture, spiculation and measurements of characters as well as scanning electronic microscopy.

Comparisons were made among intra- and interspecific material and with the available type material. In particular, *C. carteri* Topsent (1889), previously synonymized with *C. foliacea*, is resurrected by establishing a neotype from material from the type locality, Campeche Bank; this has not been studied since its original description and is here redescribed for the first time. Another neotype is assigned for *C. foliacea* from Campeche also, since the original material is no longer available, and this species is redescribed also. Significant differences in spiculation between *C. foliacea* and *C. carteri* were found by one-way ANOVA. Although *C.* (*T.*) *venosa* resembles *C.* (*T.*) *raraechelae* in spiculation, these two species differ in measurements and skeletal organization. *C.* (*T.*) *virgultosa* is typified by a peculiar acanthostyle that is markedly spined on distal parts of the shaft, and by two types of tiny microscleres. This study has extended the known geographic distribution of each of these *Clathria* spp. within the lower Gulf of Mexico.

Key words: Porifera, sponge biodiversity, *Clathria*, Microcionidae, resurrection of taxon, taxonomy, West Indies

Introduction

The knowledge of marine sponge fauna in the lower Gulf of Mexico and the Mexican Caribbean has been of great interest due to the disturbance of environments within various sites of importance. Tourism and other anthropogenic influences, together with hurricanes and other climatic factors, have affected the coral reefs off the Harbor of Veracruz, the barrier reef along the touristic coast of Quintana Roo, and oil rigs around Campeche Bank. The most studied sites had been the coral reefs off the Harbor of Veracruz (Green 1977; Green *et al*. 1986; Gómez 2007), the Yucatan Peninsula (Gómez 2006), the Alacranes, and Sisal reefs (in process), and the coral barrier reef in Quintana Roo (Gómez & Green 1984; Gómez 2002; Maas-Vargas 2004).

Within the Indo–Australian region microcionids are particularly abundant, among which there are 98 *Clathria* species (Hooper 1996); in contrast, only about 28 *Clathria* species have been recorded in the West Indian region (van Soest 1984, plus those single species in Schmidt 1870; Hechtel 1965; Alcolado 1980, 1984; Pulitzer-Finali 1986; Hooper 1996 and others). Although it is likely that many more species are still not described for this region, since many sites have not been widely sampled, the *Clathria* population seems to be neither abundant nor diverse in this area. However, the seven species discussed herein are presumed to have a slight morphologic variability, which has not been fully resolved in terms of interspecific relationships; the present study focuses on the differences in internal characters in an attempt to solve or eliminate uncertainties.

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calla, lectotype *Esperiopsis obliqua*, paratype *M. microchela*, and dry material and photograph of *Thalyseurypon foliacea* from Tortugas Fla.; Pedro Alcolado for the underwater images for comparison; Yolanda Hornelas for the SEM work; Diana Ugalde and Pablo Hernández-Alcantara on the statistical analysis of spiculae; Felipe Vázquez-Gutiérrez† for providing some of the samples and who, together with Vanesa Peña-Cabrera and Itzel M. López-Durán, made possible the LM photographs; Hector Alexander for the map drawing; Fermín S. Castillo-Sandoval for technical support; Diana Ugalde for the plates; and Juan Manuel Vargas for the underwater image of *C. venosa*. To John Hooper and referees for their valuable comments on the manuscript. This work was supported by the Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, and in part by the grant project CONACyT-SEMARNAT No. 108285, DGAPA-PAPIME PE207210.

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