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Systematic survey of *Lithothamnion, Melobesia* and *Mesophyllum* species (Hapalidiaceae, Corallinales, Rhodophyta) recorded along the Atlantic coast of Mexico

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Abstract

Family Hapalidiaceae is represented in the Atlantic coast of Mexico by three genera and five species. *Lithothamnion sejunctum* is a new record for Mexico and represents the third record since it was first described and *L. crispatum* is recorded for the first time for North America Continent. *L. crispatum* and *L. occidentale* are developing as maerl in the subtidal zone to 50 m depth. *Melobesia membranacea* has the widest distribution interval in the study area. *Mesophyllum mesomorphum* is a species which it has few records in the study area. Detailed accounts are provided for each species along with information on synonymy, collections examined, distribution, and habitat. Qualitative characters associated with tetrasporangial / bisporangial conceptacle roof morphology and anatomy have provided a reliable basis for delimiting the Atlantic Mexican species of Hapalidiaceae.

Key words: description, morphology, *Lithothamnion, Melobesia, Mesophyllum*, new, records

Introduction

The biodiversity of Coralline red algae (Corallinales, Rhodophyta) along the Atlantic coast of Mexico is insufficiently known. These algae are characterized by cells walls impregnated with calcium carbonate, mainly calcite and aragonite which gives the thallus a hard, rigid texture (Chamberlain, 1983). *Lithothamnion* Heydrich, 1897: 412; *Melobesia* Lamouroux, 1812: 186 and *Mesophyllum* Lemoine, 1928: 251 are members of the subfamily Melobesioideae, Bizzozero, 1865: 109; Family Hapalidiaceae, Gray, 1864: 22. Although at least 46 species have been so far known as currently accepted taxonomically, no world monograph of this family exists and few detailed accounts of species have been produced (Woelkerling & Harvey 1992, Keats & Chamberlain 1994, Athanasiadis 1999, 2010, Harvey *et al*. 2003). Few records of these genera are reported from the Mexican coasts, they are uncommon species and habits mainly in subtidal settings. This paper presents the first detailed systematic account of corallines species belonging to the genera *Lithothamnion*, *Melobesia* and *Mesophyllum* (Hapalidiaceae, Rhodophyta) recorded from 2000 to 2013 along the Atlantic coast of Mexico.

Material and methods

Specimens of Hapalidiaceae were collected by reef-walking, snorkeling, SCUBA diving or dredged at Cabezo Sur (Veracruz); Isla Cozumel, Punta Pelicanos (Quintana Roo) and Sonda de Campeche (Campeche). Samples were preserved in 5% formalin/seawater. Preserved specimens were decalcified with 0.6M HNO_3 and dehydrated with ethyl alcohol. Small segments were embedded in paraffin and sectioned 9–12 µm thick with a manual microtome, fixed on slides with Riuter's adhesive (Martoja & Martoja-Pierson 1970), and stained with aniline blue and hematoxilin-eosine for anatomical observations and measurements.

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