

Abstract

This study examined the microbiota associated with the marine azooxanthellate octocorals *Leptogorgia minimata*, *Swiftia exertia*, and *Iciligorgia schrammi* collected from moderate depths (45 m). Traditional aerobic plate culture, fluorescence in situ hybridization (FISH), and molecular identification of the 16S rDNA region were used for this purpose. In general, cultures were found to be selective for Gammaproteobacteria, Alphaproteobacteria, and Firmicutes. Interestingly, FISH counts for Firmicutes in the whole coral (holobiont) were near the detection limit of this assay, representing less than 6% of the total detectable microbiota in all counts. Proteobacteria, especially Alpha- and Gammaproteobacteria, made up the majority of the total microbiota in the holobionts. In addition, the absence of zooxanthellae in these three corals was confirmed by the use of polymerase chain reaction (PCR) and dinoflagellate-specific primers, and spectrophotometric chlorophyll pigment measurements. No evidence of zooxanthellae could be found in any of the corals by either of these techniques. This is the first study examining the microbiota marine octocorals, which grow at moderate depth (40 to 100 m) in the absence of direct sunlight.