

Variations of environmental proxies in a skeletal tumor of *Porites* sp. coral

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Coral diseases have been reported from coral reefs worldwide, yet only few pathogens causing the diseases have been identified so far. Some corals produce tumors which are characterized by fewer numbers of polyps in a unit surface area and rapid growth than normal. In addition, emergence of skeletal tumors in the massive coral tends to be common in older colonies, which are useful for reconstruction of marine environment. In this study, we investigate variations of well established proxies (d18O, d13C, Sr/Ca and Mg/Ca) in both tumorous and normal parts of a coral (*Porites* sp.) specimen collected from Okinawa, Japan. Microsampling for chemical analysis of the tumorous colony was conducted along the major growth axis. The carbonate samples for d18O and d13C determinations were processed by an automated carbonate device (Micromass Multiprep) attached to a mass spectrometer (Micromass Optima). Trace element concentrations were measured with an inductively coupled plasma mass spectrometer (ICP-MS, Hewlett Packard HP-4500). The data obtained showed that the range of d18O and d13C values as well as Sr/Ca and Mg/Ca ratios in the tumorous part of the coral skeleton was comparable with those in the normal healthy part. However, the fluctuation patterns of these parameters in the tumorous part of the coral skeleton seemed not to reflect the usual environmental signatures, such as sea surface temperature and radiation. Therefore, the use of massive corals with tumors should be avoided for the purpose of reconstructing marine environment.