

Influences of symbiotic algae on skeletal mineral phases of scleractinian coral cultured with different Mg/Ca mol ratios

*Satoko Motai^{1,2}, Jun Kawano³, Saki Harii⁴, Tsuyoshi Watanabe³, Takaya Nagai³

1. The University of Tokyo, 2. JSPS Research Fellow (Kochi Core Center), 3. Faculty of Science, Hokkaido University, 4. Tropical Biosphere Research Center, University of the Ryukyus

Modern scleractinian corals live with symbiotic algae and construct their skeleton by calcium carbonate in aragonite form. For revealing the effects of symbiotic algae to coral skeletal mineralogy and coral calcification, aposymbiotic scleractinian corals, *Acropora tenuis* and *Acropora digitifera*, were cultured in treatment seawater with different Mg/Ca molar ratio. Their mineralogical features were characterized by using micro X-ray diffraction analysis. The coral skeletons were consisted of only calcite at Mg/Ca less than 1.0, indicating that aposymbiotic corals can survive by forming calcific skeleton under very low Mg/Ca molar ratio. The deposition of whole calcific skeleton at low Mg/Ca molar ratio is similar to experimental abiotic deposition from treatment seawater rather than coral skeleton growing with symbiotic algae. It suggests that the calcification of scleractinian coral is strongly affected by symbiotic algae and Mg/Ca molar ratio of ambient seawater.

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