

**Bacterial Degradability Of The Organic Matter Released From  
Symbiotic Coral Colonies**

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The organic matter released from corals is well known to be utilized by bacteria and stimulate the bacterial growth. However, degradability of the organic matter has not been investigated in a long-term perspective and therefore it is still not understood what % of the released organic matter can actually be mineralized by bacteria. To investigate the long-term degradability, the reef-building corals *Acropora pulchra* and *Porites cylindrica* were first incubated in a normal submerged condition or a stressful condition (air exposure), and released organic matter to the ambient seawater. After taking out of the corals, the incubation seawater containing organic matter was put under dark over 1 year to follow bacterial decomposition of dissolved and particulate organic matter (DOM and POM). The results showed that the concentrations of DOM and POM rapidly decreased within the first 1 week and the remaining organic matter was gradually decomposed much more slowly, suggesting that the coral-derived organic matter had two different fractions in bacterial degradability. The labile organic matter (L-OM) had turnover time of 3.2-9.1 d (average 6.2 d) for DOM and 5.6-9.1 d (average 7.4 d) for POM. The L-OM could be easily mineralized within or around the reef ecosystem. The stressful condition increased the ratio of degradable to bulk organic matter. On the other hand, a part of the coral-derived organic matter was not mineralized even after 1 year, suggesting that it was very recalcitrant to bacterial decomposition. The

corals might routinely release such refractory organic matter to the ambient seawater for defense against pathogens.