



A pathogen of reef-building coralline algae discovered in the South Pacific

Coralline lethal orange disease consuming the reef-building coralline alga *Porolithon* (*Hydrolithon*?) *onkodes* on Aitutaki Atoll, Cook Islands during June 1993. This undescribed bacterial pathogen (perhaps better characterized as a predator) is also broadly distributed and abundant in Rarotonga and rapidly appeared during 1993 throughout the Great Astrolabe Reef, Fiji (M.M. Littler and D.S. Littler, unpublished work). Reef-building coralline algae, particularly *P. onkodes* in the Pacific, are the principal cementing agents that maintain the reef crest (Tracey et al. 1948; Dawson 1961; Littler and Doty 1975). The intertidal wave-resistant reef crest is a critical component of many reefs because of the protection it affords, which permits the development of other shallow-water reef communities, as well as absorbing wave forces that could erode emergent land masses (Nunn 1993). There are no previously known diseases that cause significant mortality to coralline algae.

Due to the importance of coralline algae in reef ecology and carbonate accretion, pathogens that result in their mortality should be cause for considerable concern. For example, when hermatypic corals undergo large-scale mortality (due to disease, environmental stress, severe storms, anthropogenic influences or predation), reef-building coralline algae may increase in relative dominance (Littler et al. 1991), thereby compensating for potential reductions in primary productivity and carbonate accretion. Because of the critical role played by coralline algae on Indo-Pacific reefs, coralline lethal orange disease represents the first case of a widespread algal pathogen having the potential to influence tropical reef ecology and reef-building processes.

References

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Reef sites

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