Understanding the Role of Coral Pigmentation in Response to Coral Bleaching

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Coral reefs are essential to Guam because they protect the island from storms and aggressive waves. However, coral reefs have to encounter a problem known as coral bleaching; warm water temperatures cause this event, and the coral's color shifts to a pale tone and becomes utterly white. This event will raise numerous problems for wildlife and people, such as income and protection. Furthermore, the coral's color can influence its response to stress, such as bleaching. Therefore, examining the coral's pigment will help our planning and development of coral restoration. This research contrasts the reaction difference between bleaching and regular growing coral. I experimented with several Porites lobata fragments (purples and browns) to identify the influence of their color on bleaching susceptibility. In order to examine this, half of the coral fragments were heated for a month while the other half were kept at ambient temperature throughout the experiment. The analysis shows purple Porites lobata corals were less sensitive to thermal stress. As a result, the purple fragments gradually regain their color and growth after the heating process. However, the brown corals reacted poorly to the heating process and took longer to regrow and recover their color. The experiment shows that a coral's pigmentation can influence its susceptibility to heat stress; a light coral is more susceptible to bleaching than darker corals. We can use this information to examine the influence of coral pigmentation in surviving stressful events and planning better restoration projects.

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