



The Temperature Tolerance of the Symbiotic Algae (Zooxanthellae) of Cauliflower Coral (Pocillopora Damicornis) and Staghorn Coral (Acropora sp.)

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Abstract

Investigating how corals react to rising temperatures due to global climate change is important in understanding the long-term preservation of coral reefs. It has been observed that an increase of water temperature leads to bleaching of corals, an event in which the symbiotic algae (zooxanthellae) are expelled from the coral, resulting in the coral turning white in color. The purpose of this project is to examine at which temperature the two coral species, *Pocillopora Damicornis* and *Acropora* sp., will start to change in color. In addition, we will also examine which species will expel their zooxanthellae first.

To conduct this experiment, we will collect 2-3 inch terminal branch samples of each of the two coral species. We will measure the temperature of the original location in order to establish a control group. The aquarium will contain several water pumps, a heater, and a thermometer that will be recording temperature as it changes. Cameras will also be set up around the aquarium to record any changes in the corals as the experiment progresses. We plan to set the maximum temperatures at 30° C, 32° C, and 34° C and change from ambient to the new temperatures in two days. When the corals start to show signs of bleaching, we will examine and compare the color pigmentation between the initial and terminal pictures.

By understanding how corals react to a stressful situation, we can contribute to future studies regarding the preservation of the steadily depleting number of coral reefs around the world.

Keywords

Zooxanthellae; Temperature change; Tolerance



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ABSTRACT

Investigating how corals react to rising temperatures due to global climate change is important in understanding the long-term preservation of coral reefs. It has been observed that an increase of water temperature leads to bleaching of corals, an event in which the symbiotic algae (zooxanthellae) are expelled from the coral, resulting in the coral turning white in color. The purpose of this project is to examine at which temperature the two coral species, *Pocillopora Damicornis* and *Acropora sp.*, will start to change in color. In addition, we will also examine which species will expel their zooxanthellae first.

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