Thrautochytrids: The Understudied Coral Symbionts

Warfel, George (School: Lancaster Country Day School)

Thraustochytrids are common marine protists that live throughout the ocean, but most notably in coral mucus. Because they produce high amounts of polyunsaturated fatty acids such as DHA, they have many potential applications in conservation biology and biological synthesis of drugs. By developing the best methods of isolating and culturing these organisms in the laboratory, more research can be done on their complex life cycles and optimization of lipid production. Currently, two popular isolation methods are the direct-plating method and pine-pollen-baiting method. In the first, samples of coral mucus are directly spread onto bacteriological marine agar plates, while the second method involves incubation of samples with pine pollen grains and then spreading those grains onto bacteriological marine agar plates. This study aimed to determine which of these methods is the most effective by measuring the amount of desirable colonies that grew, and the amount of contaminating colonies. It was observed that more colonies grew when the pine-pollen-baiting method was used, but the colonies displayed morphology different from those of thraustochytrids. The direct-plating trials had much less growth, with distinct, isolated colonies that were identical in yeast-like morphology across all trials. While thraustochytrids were observed in coral mucus incubated with pine pollen, neither method successfully isolated thraustochytrids, making the experiment inconclusive at this time. More experimentation is ongoing to determine which method is more effective at isolating and culturing these biologically and medically interesting marine protists.

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