

PHOTOACCLIMATION RESPONSES BY ZOOXANTHELLAE OF GIANT CLAM *TRIDACNA SQUAMOSA*

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ABSTRACT

This study investigated the photoadaptation of zooxanthellae cells (the symbiotic alga) of *Tridacna squamosa* exposed to different light intensities at depths of 3 and 25 m respectively and monitored for 12 months. A reciprocal transplantation of the clams was then carried out, and observation was carried out for another 12 months. The number of zooxanthellae cells, their size and the chlorophyll *a* level were calculated from 10 animals at each depth. The density of zooxanthellae and chlorophyll *a* level increased when the light intensities decreased. However, the size of zooxanthellae decreased **with** depth. Similar results were obtained from the clams at lower light intensities after reciprocal transplant from the higher light intensities to lower light intensities. When those clams from the lower light intensity environment were exposed to higher light intensity in the reciprocal transplant, the density of zooxanthellae remained constant, while the chlorophyll *a* level decreased and size of zooxanthellae increased. There was no complete reversal on the effects of the photoacclimation responses of zooxanthellae in giant clams observed in the reciprocal transplant experiment.