

## THE ROLE OF SYMBIOTIC ZOOXANTHELLAE ON GIANT CLAM NUTRITION

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### ABSTRACT

*Zooxanthellae, Symbiodinium sp, are single cell dinoflagellate algae known to live in association with many marine invertebrates such as hermatypic corals, sea anemones, jellyfish and giant clams (family Tridacnidae). In giant clams, these photosynthetic algae are located in a tubular system (known as Z tube system) which occurs within the clams. Apart from filter feeding, the nutrition of the clams is provided by zooxanthellae. These algae are capable of translocating part of their photosynthetic products to the host. CZAR values are also discussed.*

**Keywords :** zooxanthellae, giant clams, nutrition, symbiosis.

### I. Introduction

Many invertebrates, such as hermatypic corals, anemones, jellyfish and giant clams, are known to live in association with endosymbiotic algae, usually referred to as zooxanthellae. There are several different species of zooxanthellae, such as *Amphidinium chattonii* which live in coelenterates, *Amphidinium klebsii* known to live in platyhelminthes and *Amphidinium sp.* in protozoans (Taylor, 1974). Furthermore, Trench and Blank (1987), reported three other species of zooxanthellae, ie. *Symbiodinium goereauii* which live in the Caribbean sea anemone *Ragactis lucida*; *S. kawagutii* isolated from Hawaiian stony coral

*Montipora verrucosa* and *S. pilosum* known to live in Caribbean zoanthid *Zoanthus sociatus*. The species of zooxanthellae in giant clams have been believed to be *Symbiodinium (Gymnodinium) microadriaticum*. However, lately scientists tend to refer these algae as *Symbiodinium sp* since no study (especially by using latest technique such as PCR or Polymerase Chain Reaction) has been done to investigate the possibility of the species of zooxanthellae from tridacnids being not as what people thought before.

It has been reported by many scientists that zooxanthellae play an important part on the nutrition requirement of their host which directly influence the