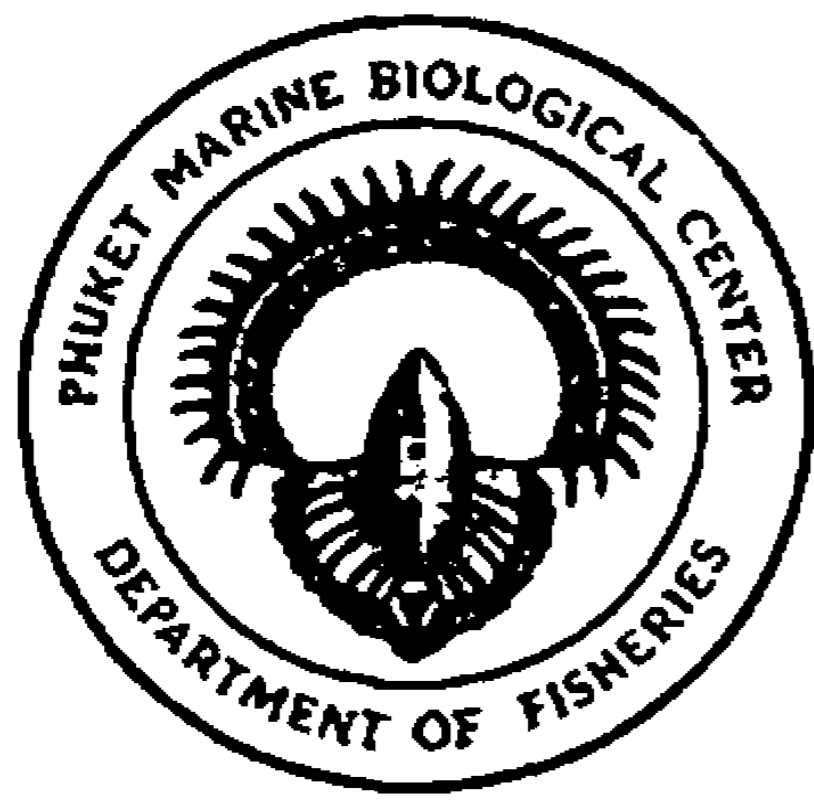


## Survival of giant clam larvae (*Tridacna squamosa*) fed zooxanthellae from three sources

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Zooxanthellae from giant clam *Tridacna squamosa*, coral (*Acropora* sp.) and sea anemone (*Stichodactyla gigantea*) were used as sources of dinoflagellate symbionts for larvae of *Tridacna squamosa*. There was a significant higher survival of larvae offered zooxanthellae from coral and giant clam compared to larvae offered zooxanthellae from sea anemone and controls without zooxanthellae.

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### INTRODUCTION

Symbiotic algae are commonly called zooxanthellae. They have been identified as the dinoflagellate *Symbiodium microadriticum*, which plays an important role in the growth and survival of Tridacnidae. The species has been isolated from many taxa of marine invertebrates (Blank & Trench 1985; Blank & Huss 1989), e.g., coelenterates (Taylor 1969).

The zooxanthellae live at high densities within the mantle and provide the clams sufficient nutrients for growth and respiration (Fisher *et al.* 1985; Klumpp *et al.* 1992 in Grice & Bell 1997).

Giant clam larvae are inoculated with zooxanthellae from the age of 8 to 15 days (Gervis *et al.* 1996 in Grice & Bell 1997). The major product transferred from zooxanthellae to host is glucose (Griffiths & Streamer 1988). The zooxanthellae are transferred from the stomach of the host clam to the mantle (Norton *et al.* 1992). Fitt (1985 in Fitt 1988) found that fast growing types of zooxanthellae contributed to a faster growth rate of the host clam. Rowan & Powers (1991 in Yelloweas *et al.* 1992) found that related algae could be found in

dissimilar hosts and that closely related hosts could harbour dissimilar algae. Fitt (1985 in Fitt, 1988) stated that provision of zooxanthellae before metamorphosis will increase the survival rate and growth of giant clam larvae in aquaculture.

Since all types of *Symbiodium* are capable of establishing symbiosis with tridacnids (Fitt 1985 in Fitt 1988) we have tested the response of giant clam larvae to 3 sources of zooxanthellae, using survival rate as criterion for the success.

### MATERIALS AND METHODS

Larvae produced at the Marine Station of Hasanuddin University were placed in aquaria, 30 x 30 x 40 cm, filled with 20 litres 1  $\mu$ m filtered sea water treated with 20 ppm chlorine and neutralized with 10 ppm thiosulphate before use. A salinity of 29 ‰, pH 7.6-7.9, and temperature of about 28 °C were maintained during experiment. Aeration was provided continuously. One-day old trochophore larvae were used at a density of 20.000 ind./aquarium (2 ind./ml). Two days after hatching the larvae were fed with instant