

Metamorphosis Induction of the Dog Conch *Strombus canarium* (Gastropoda: Strombidae) Using Cues Associated with Conch Nursery Habitat

ABSTRACT

Strombus canarium is a commercially important gastropod that has great potential for advancement into aquaculture. In this study, the metamorphosis response of *Strombus canarium* larvae to various metamorphosis cues associated with conch nursery habitat and to KCl and GABA, were tested. Bioassays were run as static, no choice experiment and adopting a continuous exposure approach. *Strombus canarium* larvae showed strong metamorphosis responses when sediment (i.e., conch nursery habitat sediment/SD-NU) and detrital substrata (i.e., *Thalassia detritus* leachate/T-LC) from their nursery habitat were used ($p < 0.05$). There was no metamorphosis in treatments using sterilized conch nursery habitat sediment (SD-ST) and sediment taken from outside conch nursery habitat (SD-OT). Experiments using fresh macrophyte blades of *Enhalus acoroides* (EA), *Thalassia hemprichii* (TH), *Halophila ovalis* (HA) and *Ulva* (UL) and adult conditioned seawater (SD-SW) also showed negative response. Conch larvae demonstrate active habitat selection during metamorphosis and no spontaneous metamorphosis was observed. Settlement in *S. canarium* is associative in nature where epibionts associated with conch nursery habitat could be the cue for the metamorphosis. However, the specific epibionts/inducers and mechanisms underlining the process were not studied and therefore are subjected to more detailed investigation. The use of KCl was comparable with treatments using natural inducers (SD-NU and T-LC), thus was suggested for application in hatchery spat production of the species.

Keyword: Dog conch, gastropod, metamorphosis, settlement cues, veliger