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 respond. 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 underlying 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