

Study on the implementation of different biofloc sedimentable solids in improving the water quality and survival rate of mud crab, *Scylla paramamosain* larvae culture

ABSTRACT

Microbial communities in biofloc technology (BFT) are responsible in minimize water exchange and producing microbial proteins that are beneficial as a supplementals diet for mud crab, *Scylla paramamosain* larvae culture. Therefore, a study was conducted to determine the effect of bacterial communities in different sedimentable solids in order to improve the water quality and survival rate of *S. paramamosain* larvae culture. The results successfully identified that the number of pathogenic bacteria, *Vibrio* spp. decreased when the heterotrophic bacteria thrived in treatment tank with 4 ml/L sedimentable solids. The group of heterotrophic bacteria were able to adapt in developing their population while effectively uptake the ammonium and nitrite components. The ammonium and nitrite level in treatment tank depleting at an early stage of the experiment, and constantly low until the end of experiments (ammonium <0.20 mg/L, nitrite <0.10 mg/L). The survival rates of *S. paramamosain* larvae in both control and treatment tanks were identified <2.0%, however, sedimentable solids of 2 ml/L was identified suitable to be applied in crab larvae culture as it can help to reach megalopa stages within 17 days of culture period. Overall, it can be concluded that bacteria communities in biofloc are able to regulate nutrients load and maintaining water quality and also help in increased survival rate and development performance in the low sedimentable solids of biofloc culture treatment. Therefore, sedimentable solids of 2 ml/L is suggested to be potentially applied in *S. paramamosain* larvae cultures from this research finding.