

Evaluation of indigenous marine periphytic *Amphora*, *Navicula* and *Cymbella* grown on substrate as feed supplement in *Penaeus monodon* postlarval hatchery system

ABSTRACT

Three isolated marine diatoms (*Amphora*, *Navicula* and *Cymbella*) grown on substrate were evaluated as feed supplement for *Penaeus monodon* postlarvae (PL) in hatchery system for a period of 19 days without changing water. Specific growth rate (day⁻¹) (0.27 ± 0.0) and survival (%) (56.3 ± 1.8) of PLs were significantly higher ($P < 0.05$) in treatment tanks when compared with the control (0.20 ± 0.0 ; 36.0 ± 1.5 , respectively). Shrimp PLs reared in substrate-based tanks had significantly higher ($P < 0.05$) levels of protein, lipid (521.0 ± 7.0 ; 304.0 ± 2 g kg⁻¹ dry weight, respectively), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (189.0 ± 2.0 ; 176.0 ± 2 g kg⁻¹ of total fatty acid, respectively) than the control (435.0 ± 22.0 ; 258.0 ± 22 g kg⁻¹ dry weight; 172.0 ± 5.0 ; 152 ± 2 g kg⁻¹ total fatty acid, respectively). The periphytic diatoms contained protein and lipid (430–490; 230–260 g kg⁻¹ dry weight, respectively), EPA (30–150 g kg⁻¹ of total fatty acids), DHA (20–30 g kg⁻¹ of total fatty acids) and nine essential amino acids. The results showed that isolated marine periphytic diatoms grown on substrate could be used as feed supplement in enhancing the growth and survival of *P. monodon* postlarvae.

Keyword: feed supplement, *Penaeus monodon*, periphytic diatoms, substrate