

Chatchawal Intramontree 2009: Hemolymph Metabolic Variables and Immune Response of Black Tiger Shrimp Broodstock (*Penaeus monodon* Fabricius) Cultured in Indoor Semi-Closed System. Master of Science (Marine Science), Major Field: Marine Science, Department of Marine Science. Thesis Advisor: Associate Professor Suriyan Tunkijjanukij, Dr.Scient. 106 pages.

To study on the variable of some haemolymph metabolic, immune response and water quality of black tiger shrimp (*Penaeus monodon*) juvenile, those were reared to be broodstock in concrete tanks under indoor semi-closed system. The study was started from *P. monodon* at an average weight of  $15.67 \pm 0.42$  g, which were cultured in a earthen pond for 4 months. Those were selected to culture in concrete tanks at the density of 6 shrimps/m<sup>2</sup>. All of those were fed with fresh food such as blood worm (*Glycera dibrandriata*), green mussel (*Perna viridis*) and squid (*Loligo oplescens*). The parameters of metabolic, immune, water quality and growth rate were evaluated at 30 days interval for 8 months. Results showed that under indoor semi-closed system, water quality could be controlled to the appropriated level, namely, temperature 25-28°C, salinity 13-14 ppt, pH 7.4-8.3, alkalinity 52-199 mg/l, dissolved oxygen 5.3-10.6 mg/l, total ammonia-N 0.003-0.090 mg/l and nitrite-N 0.006-0.483 mg/l, for culturing shrimp for at least 8 month. During 138-173 day-old, it could be expected that the shrimp were exposed to stress status from acclimation, those observed from higher concentrations of glucose and total protein, lower concentration of total hemocytes count in hemolymph and high mortality rate at 12.5%. During 201-381 day-old, where they were familiar to the new habitat and able to adjust to the culture system within concrete tanks. Therefore the glucose, triglyceride, cholesterol, total proteins, total hemocyte count and phenol oxidase activity were stable. There could also observe in normally growth. Moreover it can be addressed that the accumulation of energy sources for maturation (triglyceride and cholesterol) are increasing as time increased. At the end of this study, average weights of male and female shrimps were 64.13g and 73.82 g, respectively, where those trend to grow to maturation size.

---

Student's signature

---

Thesis Advisor's signature