Chariya Sanitchon 2006: Effect of Betaine on Growth Performance, Digestive Enzymes Activity and Protein Synthesis of Juvenile Black Tiger Shrimp (*Penaeus monodon*, Fabricius). Master of Science (Aquaculture), Major Field: Aquaculture, Department of Aquaculture. Thesis Advisor: Assistant Professor Orapint Jintasataporn, Ph.D. 96 pages.
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An experiment was conducted to evaluate the effect of betaine on growth performance, digestive enzymes activity and protein synthesis in juvenile black tiger shrimp (*Penaeus monodon*). Three types of diets were prepared with betaine at 0.75% and 1.5% levels. Isonitrogeneous and isocaloric diet of proximate composition were 43±0.5% protein , 6% fat and 3,900±50 kcal/kg gross energy. After 45 days, the growth performances were not significantly different ($p>0.05$), weight gain was 0.24-0.25 g/shrimp, average daily growth was 0.01 ± 0.0002 g/shrimp/day, feed conversion rate was 1.27-1.47, survival rate was 79-86%, protein efficiency ratio was 1.61-1.82, net protein utilization was 0.18-0.21, energy efficiency ratio was 1.05-1.19 and net energy retention 0.16-0.18. In addition, digestive enzymes activity also was not significantly different ($p>0.05$), amylase activity was 0.0091-0.0115 µmol/mg protein/min. at pH 7-8, protease activity was 0.00026-0.00032 µmol/mg protein/min. at pH 3-4 and 0.00022-0.00032 µmol/mg protein/ min. at pH 7-10 and lipase activity 0.2588-0.4505 µmol/mg protein/min. at pH 7-8. RNA and protein synthesis ratio was 0.33-0.36 and phosphatidylcholine accumulation in body was 1.59-2.05 mg/g shrimp. These results were not significantly different ($p>0.05$) among treatment.

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