

Pariyada Jarukhom 2010: Effects of PROMUTASETM 200 on Growth, Survival and Non-Specific Immune Characteristics of Pacific White Shrimp (*Litopenaeus vannamei*). Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Chalor Limsuwan, Ph.D. 80 pages.

A study on the effects of PROMUTASETM 200 on growth and survival rate in Pacific white shrimp (*Litopenaeus vannamei*) was conducted under laboratory conditions. Postlarvae 12 (PL12) were stocked into 12 500-liter fiberglass tanks at the density of 50 PL/tank. Salinity during the 60-day rearing period was 25 ppt and temperature was maintained at 28±1°C. Tests were carried out in three treatments (with four replicates/treatment). Each replicate consisted of 50 shrimp in 500-liter tanks. Shrimp were fed four times daily at the satiation rate for 60 days with pelleted feed containing graded levels of PROMUTASETM 200 (0, 100 and 200 mg/kg of the feed). After 60 days of dietary administration, shrimp fed with PROMUTASETM 200 at 200 mg/kg had an average body weight (2.40 ± 0.13 g) significantly higher (P<0.05) than the control group (2.15±0.23 g). No statistical difference was found between the average body weight of shrimp in the group that fed with PROMUTASETM 200 at 100 mg/kg (2.29 ± 0.19 g). Percentage survival rate of shrimp fed with PROMUTASETM 200 at 200 mg/kg (92.00 ± 2.83 %) was significantly higher (P<0.05) than PROMUTASETM 200 at 100 mg/kg and the control groups (81.00 ± 2.58 and 76.50 ± 5.51%). After challenged with virulent strain of *Vibrio harveyi*, shrimp fed with PROMUTASETM 200 at 200 mg/kg had percentage survival rate (90.00±10.00 %) significantly higher (P<0.05) than the control group (50.00±10.00). No statistical difference was found between percentage survival of shrimp in the control group and the group that fed with PROMUTASETM 200 at 100 mg/kg (50.00±10.00 and 80.00±10.00 %). A study on the effects of PROMUTASETM 200 on growth, survival rate and immune response in Pacific white shrimp was conducted under laboratory conditions. Determination of the growth-promoting and immunostimulant effects of PROMUTASETM 200 administration in the diet, tests were carried out in three treatments (with seven replicates/treatment). Each replicate consisted of 30 shrimp (8-10 g) in 500-liter tanks. Shrimp were fed four times daily at 3% body weight per day for 50 days with pelleted feed containing graded levels of PROMUTASETM 200 at 0, 100 and 200 mg/kg of the feed. After 50 days of dietary administration, shrimp fed with PROMUTASETM 200 at 200 mg/kg had the highest survival rate (92.67±1.15%) and average body weight (19.67±0.50 g) significantly higher (P<0.05) than the control group (16.67±0.50 g) and 100 mg/kg group (17.56±0.88 g). The immune characteristics of Pacific white shrimp (with three replicates/treatment) in this study revealed that shrimp which fed on diets containing PROMUTASETM 200 at 200 mg/kg had significantly higher (P<0.05) total hemocyte (THC), percentage phagocytosis, bactericidal activity, superoxide dismutase activity and survival rate after injection with *V. harveyi* than PROMUTASETM 200 at 100 mg/kg and control groups. The present study indicated that oral administration of PROMUTASETM 200 at 200 mg/kg of feed at least 20 days could increase growth, survival rate and immune response of *L. vannamei*.

Student's signature

Thesis Advisor's signature