Phanwalai Jantarapan 2008: Growth, Survival and Immune Characteristics of Pacific White Shrimp (*Litopenaeus vannamei*) Fed with Aquanin plus (Beta-Cyclodextrin Cysteamine Hydrochloride). Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Chalor Limsuwan, Ph.D. 95 pages.

A study of the effects of Aquanin plus (beta-cyclodextrin cysteamine hydrochloride) on the growth, survival and immune response in Pacific white shrimp (*Litopenaeus vannamei*) was conducted under laboratory conditions. For the determination of the growth-promoting and immunostimulant effects of Aquanin plus administration in the diet, tests were carried out in three treatments (with six replicates per treatment). Each replicate consisted of 25 shrimp (11-12 g) in 500-liter tanks. Shrimp were fed three times daily at 3% body weight per day for 60 days with pelleted feed containing graded levels of Aquanin plus (0%, 0.05% and 0.1% of the feed). After 40 days of dietary administration, shrimp fed with 0.1% Aquanin plus had an average body weight (16.76±1.33 g) significantly higher ($P<0.05$) than that of 0.05% Aquanin plus (15.84±0.99 g) and control groups (15.40±1.19 g). There was no significant difference in survival between the two Aquanin plus-treated groups (97.18-97.60%) but their survival rates were significantly higher ($P<0.05$) than those of the control group (83.20%). The shrimp immune responses were measured by total hemocyte count (THC), percentage phagocytosis, phenoloxidase activity and bactericidal activity. The results showed that shrimp which consumed diets containing 0.1% Aquanin plus had significantly higher ($P<0.05$) THC, percentage phagocytosis and phenoloxidase activity than those of the 0.05% Aquanin plus and control groups. Shrimp fed with 0.05% and 0.1% Aquanin plus had bactericidal activity at the serum dilution of 1:16 while the control group was 1:8. After 60 days of feeding experiment, Shrimp from all treatment groups were injected with *Vibrio harveyi* at a dose of 7.4×10^8 CFU/ml (96-hour LD 50). After 96 hours, no mortality was observed from both 0.05 and 0.1 % Aquanin plus groups while the survival rate in the control group was 55.67% and recorded the survival rates. Shrimp from Aquanin plus and control groups were also fed with infected white spot syndrome virus shrimp and recorded survival rates. The control group had 50% survival at day 3 while the 0.05 and 0.1% Aqaunin plus groups had 50% survival rate at day 4 and 5 respectively. In conclusion, the present study indicated that oral administration of 0.1% Aquanin plus for 40 days could increase the growth, survival and immune response of *L. vannamei*.

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27 / May / 2008