

Patcharawadee Laohamongkolruk 2006: Application of Vitamin C as Immunostimulant in Black Tiger Shrimp (*Penaeus monodon* Fabricius). Master of Science (Aquaculture) Major Field : Aquaculture, Department of Aquaculture. Thesis Advisor: Assistant Professor Nontawith Areechon, Ph.D. 73 pages. ISBN 974-16-1577-9

The objectives of this study were to determine the optimum concentration and time of vitamin C application that could effectively enhance the immune system of black tiger shrimp (*Penaeus monodon* Fabricius). Shrimp with average weight of  $10.0 \pm 2.1$  gm were raised with feed containing four different concentrations of vitamin C (Na,Ca-ascorbyl-2-monophosphate) at 0, 1, 3 and 5 gm/kg of feed. They were fed four times a day for 14 days and immune parameters were statistically compared at  $p = 0.05$ . It was found that shrimp fed with 3 and 5 gm/kg vitamin C developed significantly higher level of total hemocyte count, phenoloxidase activity, bactericidal activity, phagocytic activity and phagocytic index than 1 gm/kg and the control ( $p < 0.05$ ). The optimum time for the application of vitamin C at 3 gm/kg was also conducted within the one-month period. There were significant differences amongst the immune parameters of the shrimps fed with vitamin C at 10, 20 and 30 days and the control ( $p < 0.05$ ) in which the 30-day application developed the highest level. After the application of vitamin C was stopped for 10 days, the immune levels of all treated shrimp declined drastically and were not significantly different from the control ( $p > 0.05$ ). Based on the result from this study, it may be necessary to use vitamin C daily to ensure the elevated level of immunity throughout the crop. To reduce the cost of the application, farmers may apply vitamin C only when disease outbreak is expected.

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