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THE EFFECTIVENESS OF AN ORGANIC IMMUNE ENHANCER AND VITAMIN C IN ZERO WATER EXCHANGE *PENAEUS MONODON* CULTURE PONDS

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In addition to several microbial products, enzyme preparations, plant and yeast extracts are commercially available to be used in shrimp culture. This study investigates the effectiveness of a commercial immune enhancer containing Beta Glucans, Krill powder and some enzymes in improving health condition of shrimp, which claimed to be contained a mixture of specially selected natural organic material and the effectiveness of vitamin C in zero water exchange *Penaeus monodon* culture ponds in the North western province of Sri Lanka. Surface area of selected ponds were between 0.38 - 0.54 ha. Ponds were stocked with 20 - 30 pls ha⁻¹. Shrimp were fed with a crude protein level of 38 - 42%. The immune enhancer and vitamin C were mixed with the feed applied to three ponds at a rate of 0.1% each and applied 1 - 4 times a week according to the manufacturer's instructions and another three ponds served as the control.

Salinity, pH, temperature, transparency, dissolved oxygen (DO), total ammonia, nitrite, nitrate and total phosphorus contents of pond water were measured once a week. Survival rates, feed conversion ratio (FCR), external appearance and behavior of shrimp, pre-harvest mortality and occurrence of diseases were used as indicators of health condition of the shrimp. Weekly average weight of shrimp and total production at harvest also were recorded.

There were no significant differences ($p > 0.05$) in Do, pH, temperature, transparency and total phosphorus contents between treatment and control ponds. There were significant differences ($p < 0.05$) in salinity, total ammonia, nitrite and nitrate contents of pond water between the treatment and control. External fouling and brown gills of shrimp were detected after 6 - 9 weeks in treated ponds and 10 - 12 weeks in control ponds. Shrimp mortalities were detected after 7 - 11 weeks in treated ponds and 10 - 12 weeks in control ponds. Because of occurrence of white spot disease and increased mortality both treated and control ponds were harvested after 8 - 16 weeks of culture. Weekly average weight of shrimp was higher in treated ponds than that recorded in control ponds. The mean \pm SD values for survival rate, FCR, and final production at harvest recorded for treated ponds were 48.96 ± 27.01 , 1.4 ± 0.27 and 1811.43 ± 1273.66 Kg ha⁻¹ respectively while the respective values recorded for control ponds were 60.23 ± 20.46 , 1.5 ± 0.04 and 3035 ± 1034.83 Kg ha⁻¹. The results of this study suggests that commercial organic immune enhancer and vitamin C used for this study did not improve the health condition of *P. monodon* culture in zero water exchange ponds.