Effect of molasses concentrations, Bacillus spp. and Vibrio spp. on water quality and survival rate of vannnamei shrimp larvae (Penaeus vannamei Boone, 1931)

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Abstract

This study assessed the survival rate of vannnamei shrimp (Penaeus vannamei Boone, 1931) post larvae (PL6) at a density of 30 pieces per liter in the presence of Bacillus spp. and Vibrio spp. at $10^3$ CFU/ml. Three different molasses concentrations were added into the water including: 0 (control) 0.05 and 0.10 % (w/w) respectively. The shrimps were cultured in 10 liter tanks equipped with recirculating water system with aeration and fed on commercial pelleted feed for seven days. Results showed that the average survival rates of the larvae in treatment 1, 2 and 3 were 78.33±11.15 80.11±12.23 and 57.11±7.99% respectively. The survival rate of the shrimp larvae in treatment 3 was significantly (P<0.05) lower than those of the control and treatment 2. Results also showed that high concentration of molasses resulted in the increase in total nitrogen (TN) and total organic carbon (TOC), but decrease in pH of the rearing water. At the end of the experiment, dissolved oxygen, nitrite and TN of the control were significantly (P<0.05) higher than those of the treatment 2 and 3. Total bacterial load of the water was also correlated to the molasses concentration that the numbers of bacillus and yellow colonies of vibrio on TCBS agar were increased, while the green vibrio colonies were decreased when the concentration of molasses was increased. From the results, it may be concluded that 0.05% (w/w) molasses can be applied in the rearing water of vannnamei shrimp larvae.

Key words: Vannnamei shrimp larvae (Penaeus vannamei Boone, 1931), Bacillus, Vibrio, molasses

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