

Montagan Somboon 2009: Effects of Different *Bacillus* spp. for Controlling *Vibrio* spp. and Water Quality in Larval Rearing and Culture 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. 118 pages.

Pacific white shrimp (*Litopenaeus vannamei*) nauplii were stocked in 12 500-liter fiber glass tanks at the density of 160 nauplii/liter for larval rearing to postlarval 8 (PL8) in the salinity range of 25-30 ppt. Three treatment groups using three different *Bacillus* groups were used as follows: group 1, PondPlus consisted of 5 *Bacillus*; group 2, PondPlusE consisted of 7 *Bacillus* and group 3, PondSafe consisted of 5 *Bacillus*. Three replicates were used for each treatment. Three tanks without bacterial product were used as the control group. The bacterial products were used at a rate of 2 ppm from nauplii until metamorphosis to PL8, while no bacterial product was used in the control group. After rearing for 15 days, the average survival rates in control and PondPlus treated groups were 68.3% and 69.3% respectively which were significantly lower than those from PondPlusE and PondSafe treated groups ( $P<0.05$ ) of 74.5% and 78.2%, respectively. Total ammonia nitrogen in all treatment groups was significantly lower than in the control group after mysis 2 stage. However, most water quality parameters from all groups were similar and within the optimum range. Viable *Vibrio* spp. counts in all treatment groups were significantly lower than in the control group ( $P<0.05$ ), particularly in the PondSafe treated group which was the lowest, followed by PondPlusE and PondPlus, respectively.

The efficacy of PondPlus and PondPlusE for controlling *Vibrio* spp. and water quality in farm-reared *L. vannamei* was investigated. Nine earthen ponds with an area of 9,600 m<sup>2</sup> (6 rai) were divided into three groups (3 replicates for each group) as follows: group 1 using PondPlus, group 2 using PondPlusE and control group without bacterial product. Both bacterial products were applied 4 times at days 25-30, 55-60, 85-90 and 115-120 after stocking at a rate of 0.1 ppm. The results showed that the number of *Vibrio* spp. and the chlorophyll a concentration in all treatment ponds were significantly decreased ( $P<0.05$ ) from the control ponds on the third day after bacteria was added. These results indicated that using *Bacillus* spp. could reduce *Vibrio* spp. and the abundance of phytoplankton as indicated by chlorophyll a in pond-reared *L. vannamei*.

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