

C726916 : MAJOR BIOTECHNOLOGY

KEY WORD:

Bacillus spp. / *Penaeus monodon* / CULTURING SHRIMP / SURVIVAL / WATER QUALITY

NIPA TACHODAMRONGSIN : USE OF *Bacillus* spp. TO ENHANCE BLACK TIGER PRAWN

(*Penaeus monodon*) PRODUCTION. THESIS ADVISOR : ASSIST. PROF. SIRIRAT RENGPIPAT, Ph.D.

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Expecting for yield increase of black tiger prawn (*Penaeus monodon*), five strains of *Bacillus* spp. (B.mixed) (*B. subtilis* (P1), *B. megaterium* (P3), *B. firmus* (P4), *B. lentus* (S22) and *B. marinus* (S25)) were added directly into water for culturing shrimps. Survival rates of shrimps (PL8) after 15 days the higher number in the treated groups of S25, P1, B.mixed, P3, P4 and S22 were 41.52%, 38.33%, 33.75%, 33.33%, 32.91% and 32.91%, respectively; as compared to 27.08% of control group. Meanwhile, after 25 days the reduction of shrimp survivals were observed as following : 17.5%, 16.67%, 16.25%, 15.83%, 15.0% and 14.16%, in treated groups of B.mixed, P4, P1, S25, S22 and P1, respectively, and 14.16% of control group. Obviously, following *Bacillus* spp. their number decreased as the time increased within 5 days (from $1.6-2.8 \times 10^4$ to $0.32-3.2 \times 10^2$ cfu/ml). Addition of two doses of *Bacillus* spp. at 10^2 and 10^4 cfu/ml into the water for feeding PL15, no difference of survival rate in both treated groups were found. However, their higher number of average weight (gm) of 0.0329, 0.0150 in treated groups with B.mixed 10^4 , 10^2 cfu/ml, respectively; as compared to 0.0132 of control group were detected. Furthermore, addition of B.mixed into the water and feed for culturing shrimp PL30, after 56 days the higher weight was found in the former groups (5.09 gm) than the latter one (4.66 gm), as compared to the weight of 4.61 gm in the control.

In term of water quality, during culturing shrimp with addition of B.mixed no reduction of organic substances were clearly observed. When culturing on PL8 with water change of 30% by volume high value of nitrite, nitrate and orthophosphate in water were higher than those of control group ; but no difference of ammonia and orthophosphate among all trials when culturing on PL15 and PL30 without water change for 56 days were found. But the highest value of nitrite in control group was detected. Moreover, in shrimp culturing with B.mixed added feed, B.mixed could be detected in Gastrointestinal tract but not in feces; meanwhile, the lesser number of *Vibrio* sp. were found if compared to the other trials.

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