

## Effect of *Bacillus subtilis* on the growth and survival rate of shrimp (*Litopenaeus vannamei*)

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**Abstract:** The effect of *Bacillus subtilis*, isolated from digestive tract of *Macrobrachium rosenbergii* was investigated on growth and survival rate of *Litopenaeus vannamei* during 60 days of culture. Sixteen aquaria with four replicates were used for treatments and controls. Treatment groups were consisted of i) shrimp fed diet with *B. subtilis* (T1), and ii) shrimp fed diet mixed with *B. subtilis* and commercial probiotic (T2). Control groups were consisted of i) shrimp fed diet with commercial probiotic as positive control, and ii) shrimp fed unaltered diet as negative control. Results showed that *B. subtilis* was proliferated in digestive tract of treated shrimps, and the number of *Vibrio* spp. was reduced in digestive tract during the cultural period. Survival rate,  $75.5 \pm 4.62$  %, and yields of shrimps,  $190.00 \pm 13.13$  g, treated with *B. subtilis* were significantly greater ( $P < 0.05$ ) than the other treated and control groups. Also population density of total viable bacteria and *B. subtilis* counted in digestive tract of shrimps treated with *B. subtilis* were significantly higher ( $P < 0.05$ ) than the other treated groups. Results of this study indicate that the addition of *B. subtilis* can improve shrimp (*L. vannamei*) survival rate and yield.

**Key words:** *Litopenaeus vannamei*, probiotic, *Bacillus subtilis*.