

## Effect of a commercially available probiotic on survival, growth and quality of hatchery produced *Penaeus monodon* post larvae

R.C.N.S. Ramachandra and M. Hettiarachchi

Department of Zoology, University of Kelaniya, Kelaniya, Sri Lanka

Broad spectrum antibiotics are used in shrimp hatcheries to control vibriosis which could cause environmental problems while allowing resistance development in pathogenic bacteria. Probiotics are eco-friendly. The present study investigated the effect of a locally produced, commercially available probiotic, containing a strain of *Bacillus subtilis* on hatchery produced post larvae of *Penaeus monodon*. The probiotic was added to six replicate larval rearing tanks (LRTs) at the concentration of  $1 \times 10^4$  CFU ml<sup>-1</sup> *B. subtilis* (experimental LRTs) while antibiotics were added to six replicates tanks (positive controls); six LRTs were arranged as negative controls. Each LRT was stocked with 200 nauplii of *P. monodon* per liter of water.

Survival at the end of larval rearing was recorded and resulted 5 day old post larvae in each group were stocked in separate out-door nursery tanks and reared up to 15 days (PL<sub>15</sub>) under the same treatments offered in LRTs. Survival and growth of larvae with pathogenic and non pathogenic *Vibrio* count in culture water in each replicate tank were recorded at regular intervals. Quality of post larvae at PL<sub>15</sub> was assessed.

There was no significant difference in time taken by shrimp larvae to complete larval stages ( $P > 0.05$ ) and in total body length achieved ( $P > 0.05$ ) under each treatment. Percentage survival of larvae and post larvae for probiotic treated and antibiotic treated groups (81%, 80% and 81%, 83% respectively) was significantly higher ( $P < 0.05$ ) than that of the negative control groups (63%, 68%). Significantly higher pathogenic *Vibrio* population was recorded in culture water that did not receive either probiotic or antibiotic treatments. Quality score received by the post larvae produced under the probiotic treatment was higher (92%) compared to the post larvae produced under antibiotic (90%) and no treatment (83%).