

EFFECT OF A COMMERCIALY AVAILABLE PROBIOTIC ON GROWTH AND SURVIVAL OF AN ORNAMENTAL FISH, GUPPY, *Poecilia reticulata*

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Over stocking and inadequate farm management lead to stressful conditions in fry rearing tanks in commercial guppy farms in Sri Lanka and guppy fry are often susceptible to bacterial diseases resulting in economic losses. Frequently, broad spectrum antibiotics and different chemicals are used indiscriminately which could cause environmental impairments. Use of probiotics is accepted as an eco-friendly way of health management and the present study was carried out to investigate the effect of a commercially available probiotic, which is claimed to contain a *Bacillus* sp on growth and survival of guppy fry.

Bacteria in the probiotic was identified to species level and colony forming units per gram of probiotic was determined. Five-day old guppy fry were stocked in glass aquaria maintaining the stocking density similar to that of commercial guppy farms. The probiotic was added to the water in aquaria at an initial concentration of 10^3 cfu/ml where the first group of experimental fry were reared. It was offered to a second group of experimental fry with feed at a concentration of 10^6 cfu/g of feed. The third group of experimental guppy fry were treated with the probiotic both through water and feed simultaneously with an initial concentration of bacteria in water at 10^3 cfu/ml and in feed at 10^6 cfu/g of feed. Each experiment had three replicates and three controls where the fry were not treated with the probiotic. Health status of fry were observed, daily mortality was recorded and random samples of fry were used to measure total length and body weight on every 5th day; the study was continued for three weeks.

The *Bacillus* sp that had been incorporated to the probiotic was *Bacillus subtilis* and the concentration was found to be 1.01×10^7 cfu/g of probiotic at the time of use, contradictory to the concentration claimed by the manufacturer, 1×10^9 cfu/g. At the end of 3 weeks, the specific growth rates of guppy fry treated with probiotic varied from 1.76 to 1.9 which were significantly higher ($P < 0.05$) than those of fry in control groups. Guppy fry in probiotic treated groups seem to be more healthier with significantly higher percentage survival (ranging from 88 % to 91 %; $P < 0.05$) compared to the survival recorded for the fry in control groups (between 75 % to 76.5 %). There was no significant difference in specific growth rate or percentage survival ($P > 0.05$) recorded for guppy fry maintained under three different treatments of probiotic. Percentage survival and growth rate of guppy fry could be increased by offering the tested probiotic to the fry through water or feed.