ORL-F&HN-14
Effect of Probiotics on Growth and Survival of Fry and Fingerlings of Gardi *Bangana dero*

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Despite the aquaculture potential of Gardi in Nepal, there is a problem on growth and survival of fry and fingerlings. In order to investigate effects of probiotics on growth and survival of Gardi fry and fingerlings, an experiment was conducted for 150 days at Fisheries Research Station (FRS), Begnas, Pokhara in hapas fixed in a cemented pond of 500 m^2. Altogether, there were four treatments i) diet without probiotics (T_1), ii) 1.5 g probiotics/kg of diet (T_2), iii) 2.0 g probiotics/kg of diet (T_3), and iv) 2.5 g probiotics/kg of diet (T_4) with three replicates in each treatment. The experiment was carried out in two phases using a completely randomized design. In Phase I, hatchlings were nursed to fry in 1 m^3 hapa at the stocking density of 150 hatchlings/m^3 for 30 days while in Phase II, fry were reared to fingerlings in 2 m^3 hapa at the stocking density of 60 fry/m^3 for 120 days. The stocking weight of hatchling was 11.6±0.7 mg/hatchling in Phase I while stocking weight of fry was 0.72±0.03 g/fry in Phase II, respectively. Hatchlings were fed with 40% CP diet four times a day while fry was fed with 32% CP diet 2 times a day. Diet was prepared by mixing prawn, soybean meal, boiled egg yolk, powder milk, minerals, vitamins and probiotics at three different proportions. The water quality parameters like temperature, transparency, DO and pH were recorded weekly in-situ in the morning 7 to 8 AM while total alkalinity, total hardness, PO_4, NO_2, NO_3, NH_3 and Chlorophyll-a were analyzed fortnightly at FRS lab.

The mean final weight, daily weight gain and total weight gain of both fry and fingerlings were significantly higher ($p<0.05$) in the treatment T_4 than rest treatments. However, there was no significant effect ($p>0.05$) of probiotics on survival of fry and fingerlings and also on water quality of pond. Gross margin was higher ($p<0.05$) in T_4 due to higher growth of fry and fingerlings. The gross margin of fry in T_4 was 11.6±1.1 Rs./m^3 which was significantly higher ($p<0.05$) than T_1 (4.0±1.2 NRs./m^3). Similarly, gross margin of fingerling in T_4 was 372.8±19.6 NRs./2 m^2 which was significantly higher ($p<0.05$) than T_1 (184.8±21.4 Rs./2 m^2).

Present study revealed that significantly higher growth of Gardi fry and fingerlings and gross margin can be obtained with the use of probiotics at the rate of 2.5 g probiotics/kg of diet.