Effect of dietary protein and protein energy ratio on the growth performance of lemon fin barb hybrid (Hypsibarbus wetmorei X Puntius gonionotus) larvae

ABSTRACT

A series of two experiments was conducted to study the optimum dietary protein level and protein to energy ratio of lemon fin barb hybrid larvae. In Experiment 1, five isocaloric diets (4700 kcal per kg) ranging from 40 to 60% protein in 5% increments were fed to triplicate groups of lemon fin barb hybrid larvae (initial weight: 0.10 ± 0.01 mg per fish) for 21 days. Weight gain of fish was proportional to the protein content of the diet up to an incorporation rate of 50%. Among formulated diets, the diet with 50% protein produced the highest weight gain (4.26 ± 0.03 mg). The dietary protein level that yielded maximum growth was 52.1% based on a broken-line model estimation of weight gain. Based on these results, two dietary protein levels (50% and 55%) were used along with three energy levels (4500, 4700 and 4900 kcal per kg diet) at each protein level in Experiment 2. The survival of fish fed diets containing 55% protein was significantly lower ($p<0.05$) than that of fish fed diets containing 50% protein regardless of the energy level. Weight gain of fish was significantly ($p<0.05$) different at all dietary protein and energy levels. The best growth was observed in larvae fed diet 3 containing 50% protein with 4900 kcal/kg energy with the highest weight gain (3.12 ± 0.00 mg), feed conversion ratio (0.87 ± 0.02) and protein energy ratio (97.35 mg/kcal).

Keyword: Protein; Energy; Lemon fin barb hybrid; Larvae