Abstract Title

EFFECT OF STOCKING DENSITY ON GROWTH AND SURVIVAL OF CRITICALLY ENDANGERED FRESH WATER FISH Labeo lankae. Deraniyagala, 1952 (SRI LANKAN ORANGE-FIN LABEO) LARVAE UNDER CAPTIVITY

Abstract Body

Labeo lankae is a critically endangered freshwater fish, captive bred recently for conservation purposes and larval rearing protocols are being optimized for maximum survival. It is believed that stocking density has an impact on the growth rate and survival of fish. This study examined the impact of stocking density on growth indices and survival of Labeo lankae post-larvae during 42 days in captivity. A total of 21600 post-larvae were collected, weighed, and stocked in 16 tanks (each 10 ft. X 5 ft. X 1.5 ft.) sizes). Each experimental tank was filled with an equal amount of water (900 L) and post larvae were stocked at four stocking densities i.e. 0.75 PL/L(T1), 1.25 PL/L(T2), 1.75 PL/L (T3), 2.25 PL/L(T4). Each treatment consisted of with four replicates. Seven Days old initially stocked larvae were fed using chicken egg mixture and artemia . After one week of stocking, 14 days old post larvae were fed with formulated powdered feed (Crude protein: 49%, Gross energy: 3500 kcal) 4 times a day at an initial rate of 10% of their body weight for another four weeks. The water quality parameters were measured and found to be within a range that is suitable for freshwater aquaculture. Significant differences (P<0.05) between the treatment groups were observed at the end of the experimental period, with T1 exhibiting the best performance for all the parameters studied, including final body weights, final body length, daily weight gain (DWG), and specific growth rate% (SGR%). The average final body weights (±S.D.) of the larvae stocked at densities of 0.75 PL/L(T1), 1.25 PL/L(T2), 1.75 PL/L (T3), 2.25 PL/L(T4) reached 2.99 ±0.0415, 1.82±0.0532, 2.36±0.0297 and 2.074±0.0467 g, respectively while the mean daily weight gain (DWG) values were, 0.0711, 0.0433, 0.0561, and 0.0493 (g day-1), respectively. The corresponding SGR% values were 2.60%, 1.42%, 2.04%, and 1.73% on day-1, respectively. The highest survival rate (60%) was in T1 compared to all other treatments. The results revealed larvae held at the lowest density of 0.75 PL/L exhibited the highest growth rate and the highest survival rates. Hence, 0.75 PL/L can be used as the best stocking density for rearing post-larvae of Labeo lankae in captivity.