

AQUACULTURE POTENTIAL OF *Labeo heladiva*: BREEDING, EMBRYOGENESIS AND LARVAL MANAGEMENT

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Labeo heladiva (Teleostei: Cyprinidae) is slow-growing, endemic minor cyprinid species in Sri Lanka with potential as a sustainable nutrient option to combat malnutrition within the country. This study aimed to investigate its feasibility of induced breeding, document the stages of embryonic development, and assess the growth and survival of postlarvae reared under different captive conditions as there is no existing literature regarding these aspects. Broodstock of *L. heladiva* were collected from Janaranjana Wewa, Kantale, Eastern province of Sri Lanka. Induced breeding was conducted using synthetic hormone, Ovulin® (sGnRH α + Dompeidone). Female brooders were administered three hormone doses viz., 0.5, 0.4, 0.3 mL/kg while male received 0.25 mL/kg. A 1:1 male to female ratio was used for the breeding trials, each conducted in triplicate. Embryonic and larval development stages were observed and recorded up to 75 hours of post-egg release at average water temperature of 26.5°C. Postlarvae were reared under three different conditions at a stocking density of 12 larvae/10L: jars (E1), hapa in a mud pond (E2), and a combined method where larvae were first reared in jars for one week and then transferred to hapa for two weeks (E3). Each treatment was replicated three times and conducted for period of three weeks. All hormone dosages resulted in successful spawning within a latency period of 9–10 hours. The highest average egg count (120,825 $\pm$ 2875.20) was recorded with the 0.5 mL/kg dosage, while the lowest (59,070 $\pm$ 1753.80) was observed with the 0.3 mL/kg dosage. The eggs of *L. heladiva* hatched at 28 hours, while the embryogenesis is completed by 25 hours. The hatchlings fully absorbed the yolk sac by 75 hours. A negative allometric growth pattern was observed among postlarvae in all experiments. The highest mean weight gain, relative growth rate (RGR-W), and specific growth rate (SGR-W) were observed in the hapa-reared larvae (E2), whereas the lowest was found in jar-reared larvae (E1) ($P < 0.05$). However, the growth parameters for larvae from combined method (E3) were not significantly different from either E1 or E2 ($P > 0.05$). The highest survival rate was recorded in jar (E1) and combined method (E3), which were significantly differ ($P < 0.05$) from those in hapa (E2). In conclusion, the successful captive breeding of *L. heladiva* can be achieved with 0.5, 0.4, 0.3 mL/kg doses using Ovulin®. The use of 0.5 mL/kg Ovulin® for breeding, together with the combined (E3) larval rearing method, ensures optimal growth and survival in *L. heladiva*, supporting its viability for aquaculture expansion.

Keywords: Induced spawning, Hatchery jars, Hatchability, Cages, Growth performance, Survival rate