

Evaluation of Induced Breeding Potential of *Labeo heladiva*

Bandara RBMGN¹, Sundarabarathy TV¹, Mudalige AR²

¹Department of Biological Sciences, Faculty of Applied Sciences, Rajarata University of Sri Lanka, Mihintale

²National Aquaculture development Authority of Sri Lanka No. 41 / 1, New Parliament Rd, Pelawatte, Battaramulla

Background: *Labeo heladiva* (Teleostei: Cyprinidae) is an endemic minor cyprinid species in Sri Lanka, occasionally harvested from wild populations for consumption. However, it remains underutilized and has not yet been incorporated into aquaculture practices. Despite this, species holds considerable potential as a sustainable, locally available source of nutrition to help combat malnutrition in Sri Lanka.

Objective: This study aimed to assess the feasibility of inducing spawning in *L. heladiva*, a subject for which no previous research or documentation exists.

Methods: Broodstock were collected from Janaranjana Wewa in Kantale, Eastern Province of Sri Lanka (8°16'03.3"N, 81°09'13.0"E), and were not sacrificed during the study. Following one-month acclimatization period, female brooders (969.4±43.2 kg) were injected with the synthetic hormone Ovulin® (sGnRH α + Domperidone) at three dosage levels: 0.5, 0.4, and 0.3 mL/kg of body weight, while males (450.0±10.3 kg) received a uniform dose of 0.25 mL/kg in a ratio of 1male: 1female and each treatment was conducted in triplicate. Embryonic and larval development stages were monitored up to 75 hours of post-egg release.

Results: All hormone treatments successfully induced spawning within a latency period of 9–10 hours. The highest mean egg count (120,825 ±3521) was obtained at the 0.5 mL/kg dosage, while the lowest (59,070 ±2148) at 0.3 mL/kg (P=0.001). Embryonic development of *L. heladiva* was completed within 25 hours, with hatching occurring at 28 hours, producing larvae measuring 5.01±0.41 mm in length. Yolk-sac absorption was observed at 75 hours mean water temperature of 26.5±0.03°C. Hatchability rates across treatments were 92.39%, 86.96%, 80.41%, while survival rates of post larvae were 69.26%, 73.01%, 80.16% respectively.

Conclusion: In conclusion, *L. heladiva* can be successfully induced to spawn using Ovulin®, with the 0.5 mL/kg dosage proving most effective in enhancing egg production. These findings highlight the potential of this species for aquaculture development and its role in supporting conservation initiatives in Sri Lanka.

Keywords: Induced spawning, Hatchery jars, Hatchability