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Conservation Breeding of *Mystus nanus*: Optimization of Hormonal Induction for Spawning Success

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Background: *Mystus nanus*, the striped dwarf catfish, is an endemic catfish species in Sri Lanka.

Objective: This study aims to evaluate the most suitable hormone for induced breeding to support captive breeding programs for conservation, without sacrificing any fish.

Methods: Brood stock was collected from the Kala Oya spill in the North Central Province, Sri Lanka (7°59'N 80°32'E) which included a total of 27 males with a pointed genital papilla (14.96 ± 4.08 g) and 13 females with a genital pore (24.93 ± 6.25 g). They were acclimatized separately in cement tanks for one month and fed with commercial feed (protein 42%) *ad libitum*. Induced breeding was conducted with a sex ratio of 2males: 1female using three hormone treatments at standardized dosages; Ovulin (0.5mL/kg sGnRH analogue + domperidone), LHRHa + domperidone (20µg/kg+ 0.5mg/kg), and HCG (400 IU/kg) and natural breeding as a control in the breeding hapas.

Results: Ovulin successfully induced spawning in all three replicates (100% success), while only one replicate each of LHRHa + domperidone and HCG resulted in spawning (33% success each). Natural spawning was not observed in any tanks. The fertilized eggs were whitish, demersal, and adhesive, with circular shape (1.018 ± 0.000 mm diameter) hatched within 25–32 hours (27–35 °C). The newly hatched larvae (0.293 ± 0.001 mm) remained inactive at the water surface and after the yolk sac was fully absorbed (3days), the larvae became active. Although one way ANOVA revealed no significant differences ($P>0.05$) among treatments in terms of total eggs spawned, relative realized fecundity, fertilization rate, hatchability, latency period and survival rate.

Conclusion: The overall success indicated that administering Ovulin hormone at a dose of 0.5 mL/kg in female *Mystus nanus* was more effective for induced breeding than the other hormones tested. This suggests its potential application in the conservation of this species.

Keywords: Hormone, Induced breeding, Ovulin