

## Formulation of Fry to Fingerling Feed for *Catla catla* using Sea Cucumber Gut Waste as Alternative Protein Source

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### **Abstract**

*Catla catla*, a popular freshwater fish in South Asia, confronts escalating feed costs, primarily from imported fishmeal. Local fishmeal, sourced from fish waste, presents a cheaper but inferior alternative. To tackle this issue, the study investigates utilizing gut wastes from sea cucumber processing in Sri Lanka as feed for *Catla catla* farming. Sea cucumber waste, rich in protein, offers a promising alternative while addressing environmental concerns related to waste disposal. This study attempted to replace the fish meal with dried powder prepared from *Holothuria scabra* gut waste in different ratios, such as fish meal: dried sea cucumber gut powder 1:0, 1:1 and 0:1. Fish feed was prepared using fishmeal and sea cucumber gut waste for feeding *Catla catla* fry to the fingerling stage over 45 days in triplicate experiments. Growth and survival rates were estimated at the end of the experiment. The proximate composition of ingredients and the feeds was analyzed. Differences in parameters were compared using ANOVA at a 5% significance level. The survival rate was 100% for all treatments. The growth parameters such as standard length, total length and body weight were significantly higher (ANOVA,  $p < 0.05$ ) in the feed prepared with fishmeal and sea cucumber gut waste powder at a 1:1 ratio and were selected as the best feed ration Fry to juvenile stage of *Catla catla*. This study demonstrated that unused intestinal wastes of sea cucumbers have added value as a fish feed ingredient and can subsequently help manage waste disposal during sea cucumber processing.

**Keywords:** *Catla catla*, Alternative feed, Sea cucumber gut powder, Fry to fingerling feed