

USE OF AQUATIC PLANTS (*Ipomea aquatica* and *Hydrilla verticillata*) IN ARTIFICIAL FEED OF INDIAN CARP (*Catla catla*) FRY

A.M.A.N. Adikari¹, T.V. Sundarabharathy², W.A.D. Nayananjali¹, and H M.U.K.P.B. Herath³

¹ Department of Agricultural Systems, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

² Department of Biological Sciences, Faculty of Applied Science, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

³ National Aquaculture Development Authority, Colombo 9, Sri Lanka.

Feeding fish has become one of the critical management practices of today, as it occupies 50-60% from the total cost of production. Therefore, formulation of low cost aqua feed is a very important aspect in aquaculture to achieve a high profit. In Sri Lanka, there is no recommended low cost feed for the fry to fingerling stage of Indian carps. Of the feed ingredients, protein source is the expensive ingredient in the formulated feed. This has necessitated the search of alternative sources available locally in the country. Hence, this study was focused to investigate the possibilities of utilization of aquatic plants *Ipomea aquatica* and *Hydrilla verticillata* in the feed of *Catla catla* fry to cut down the feed cost.

Three experimental feeds T1, T2, T3 and a commercial feed as the control were used in this experiment. Locally available ingredients including discarded dried fish meal as the protein source were used to formulate the feed T3. Of these ingredients, 50% of discarded dried fish meal was replaced by dried *Hydrilla verticillata* in feed T1 and by *Ipomea aquatica* in feed T2. Twelve mud pond units with a size of 20 x 10.5 x 2 m³ were used (3 replicates for each treatment) in this experiment. *Catla catla* fry with an average length of 2.5 cm and average weight of 0.1 g were stocked at a density of 75 fry/m² in each pond unit. Feeds were dispensed using feeding trays (1 m x 1 m) at a rate of 5% of the body weight for three times per day, for 4 weeks.

All the feeds were accepted by fish and palatability was the same. *Hydrilla verticillata* incorporated feed was moderately stable in water whereas, T2, T3 and commercial feeds were comparatively stable in water. Total body length, wet body weight and specific growth rate were significantly different ($p < 0.05$) among the treatments (feeds). The highest wet weight (5 g \pm 0.50) and the highest total length (7 cm \pm 0.21) were recorded in T3 feed, whereas lowest values for weight (3 g \pm 0.50) and length (6 cm \pm 0.21) were recorded with the feed T1. Fish showed isometric growth against all the feeds. The highest FCR (0.98) was recorded the feed with *Hydrilla verticillata* and the lowest by feed T3. Survival rate and water quality parameters were not significantly different among the treatments ($p > 0.05$). The lowest feed production costs were recorded with T1 and T2 (Rs. 43.96) and it was less than 50% of the cost of commercial feed (Rs. 140.00).

The study indicated that the feeds with locally available ingredients (T3) were the best feed and two aquatic plants incorporated feeds (T1 and T2) are also considerably better. It can be concluded that there is a potential in using discarded dried fishmeal, *Ipomea aquatica* and *Hydrilla verticillata* in aqua feeds for fry stage of *Catla catla*.

Key words: *Ipomea aquatica*, *Hydrilla verticillata*, *Catla catla*, Discarded dried fishmeal, FCR