

## **Growth performance and colour development of common Goldfish (*Carassius auratus*) fed with formulated fish feed incorporated with *Artemia* biomass**

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*Artemia* nauplii are widely used as live feed in ornamental fish hatcheries globally. However, *Artemia* biomass, at present is an underutilized feed resource having high protein levels. They are discarded after the cyst collection. The present study was planned to investigate the importance of *Artemia* biomass as a feed ingredient on growth performance and colour development of common Goldfish *Carassius auratus*. *Artemia* biomass was collected from salterns of Lanka Salt Limited, Hambantota and dried using oven at 40 °C for 2 days and after being dried, *Artemia* biomass was grounded to make powder form to use as a feed ingredient. Formulated feed was prepared to incorporate 10% (Treatment 1), 20% (Treatment 2) and 30% (Treatment 3) of *Artemia* powder, and commercially available fish feed was used as the controller. Two-month-old 3 cm sized 12 individuals of goldfish fingerlings were stocked in each 2'×1'×1' size 12 glass tanks and fed with formulated feed four times per day according to 10% of fish body weight for 30 days. Weekly taken photographs were analysed using ImageJ software to determine Red, Green and Blue (RGB) colour intensities. Fish weight, and standard length of randomly collected 6 numbers of fish were measured once a week, and data were analysed using One-Way Analysis of Variance (ANOVA). All three-treatments that used the powdered *Artemia* biomass showed a significant difference in weight gain, length gain, and specific growth rate (SGR) ( $P < 0.05$ ) compared with the control feed. It was observed that the highest weight gain was  $5.06 \pm 0.18$ g and the highest SGR was  $3.75 \pm 0.07$  in Treatment 3. The highest length gain recorded in Treatment 2 was,  $1.32 \pm 0.14$ cm. After 30 days of culture period, a significant difference of colour intensity between the three treatments and the controller ( $P = 0$ ) was observed. The present study concluded that 30% *Artemia* biomass incorporated feed was the most suitable feed for the growth and colour development of goldfish indicating the suitability of *Artemia* biomass as a feed ingredient in the ornamental fish industry.

**Keywords:** *Artemia* biomass, *Carassius auratus*, colour development, growth performance, RGB values

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