Abstract No: BO-19

Incorporation of pumpkin, *Cucurbita maxima* (Cucurbitaceae) peel as a feed additive for the growth and color enhancement of Guppy, *Poecilia reticulata* (Poeciliidae)

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Ornamental aquaculture relies greatly on the colors of fish and nutrient-rich feed is a major contributing factor. Carotenoid sources are the main ingredients that enhance fish color. Here, as a cost-effective alternative for commercial carotenoid sources we aimed to test the effect of *Cucurbita maxima* peel as a color enhancer for *Poecilia reticulata.* Three diets, incorporating 5% (T1), 10% (T2), 15% (T3) and 0% (control) *C. maxima* peel with respect to total feed weight were fed to fish in three replicate tanks arranged in a completely randomized design. Ten male *P. reticulata* fries with average weight and length of 0.019 ±0.00g and 0.7 ±0.0 cm, respectively, were stocked in each tank. Fish were fed experimental diets of 2% of body weight twice a day for 75 days. Fecal matter was collected semiweekly. DO and pH of water were measured weekly using a multimeter. Fish weight and length were measured fortnightly using an electronic balance and a measuring board. Water quality parameters weren't significantly different among treatments and control and remained within the optimum ranges (DO>6mg/L, pH 6.8-7.8) for *P. reticulata*. Incorporating *C. maxima* peel into the feed positively influenced the growth of *P. reticulata*. Among the treatments, the highest values for final weight (FW); 0.16 ±0.002g, body weight increase (BWI); 0.14 ±0.00g, percent body weight increase (%BWI); 88.12 ±0.15%, specific growth rate (SGR); 1.89 ±0.0, apparent digestibility coefficient (ADC); 59.97 and the lowest feed conversion ratio (FCR) of 1.42 ±0.02 were recorded in T3. In contrast, the minimum growth was recorded from T1 with the lowest FW (0.130 ±0.00g), BWI (0.11 ±0.00g), %BWI (85.38 ±0.11%), SGR (1.879 ±0.0), ADC (14.00), with the highest FCR; (1.80 ±0.02). Adding *C. maxima* peel increased the length parameters and survival rate (SR%) but showed no significant statistical difference with the control (P>0.05). T3 had the maximum SR% (76.67 ±5.77%), while the control had the minimum (70 ±0.00%). The maximum body length was recorded from T3 (3.0 ±0.2cm) while T1 (2.6±0.2cm) and control (2.7±0.3) had the minimum. According to the results, the maximum brightness and carotenoid contents were recorded in T3 (Gray value=50.99 ±4.02, carotenoids=4.05 ±0.27 µg/g wet weight) while lower brightness (and carotenoid levels were in T1 and the control. In conclusion, *C. maxima* can be used to enhance the coloration of *P. reticulata,* but it needs to be in higher concentrations. The incorporation of *C. maxima* exhibits a positive influence on fish growth. Changing the process of *C. maxima* powder or extracting carotenoids from peels is recommended for better results.

Keywords: *Cucurbita maxima*, Color enhancement, Gray value, Growth, *Poecilia reticulata*

Acknowledgment
This work was supported by the University of Kelaniya, Sri Lanka.