THE EFFECT OF *Terminalia catappa* L. LEAVES EXTRACT ON THE WATER QUALITIES, PERFORMANCE AND BLOOD PROFILE OF ORNAMENTAL FISH KOI CARP (*Cyprinus carpio haematopterus*) CULTURED

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ABSTRACT

Ornamental fish industry is one of the rapidly growing sector in Sri Lanka. Fish farmers face lot of problems with the water quality maintaining and disease management in ornamental fish culture. Nowadays, there is a need of environment friendly, inexpensive and alternative water media.Therefore, this research aimed to determine the effects of *Terminalia catappa* L. leaves extract (TCL) on water quality properties, survival, blood profile and growth performance of ornamental fish Koi carp (*Cyprinus carpio haematopterus)* cultured. Hence, this experiment was conducted to study the suitability of replacing normal water with TCL.

The experiment was conducted at the Laboratory of the Department of Animal Science, Faculty of Agriculture, Eastern University, Sri Lanka, for a period of 45 days. *T catappa* dry and brown leaves were collected from the Eastern University, Sri Lanka. One hundred and sixty two fish were randomly assigned into the six triplicate groups and reared in various concentrations (T_0 = normal water, T_1 = 100 mg/l of TCL added, T_2 = 200 mg/l of TCL added, T_3 = 300 mg/l, T_4 = 400 mg/l of TCL added and T_5 = 500 mg/l of TCL added) with Completely Randomized Design (CRD). Data were collected for water quality parameters, feed intake, length and weight of *Cyprinus carpio haematopterus* fingerlings, starting from 74 days up to 119 days of growth. Weight were recorded at weekly interval and length were recorded once in two weeks. After 45 days, survival and blood profile were analyzed.

The present study showed that, there was a significance ($p<0.05$) difference in pH, DO, temperature, EC, turbidity, TDS with treatments throughout the experiment. The lowest pH value was observed in 500 mg/l of TCL added treatment. The DO values were decreased with the increasing concentration. The temperature was ranged between (29.53-27.50 °C). Electrical Conductivity values were increasing with the

TCL with concentration. Turbidity values were decreased with a decreasing concentration of TCL. Total Dissolved Solids values were increased with increasing concentration of (*Cyprinus carpio haematopterus*) culture. The Salinity was showed 1.006 ppt throughout the experiment. However, the present study was showed an accepted range of main water quality parameters such as pH, temperature and DO.

There were no significant differences ($p>0.05$) observed in the survival rate of (*Cyprinus carpio haematopterus*) during experimental time period. However, adding TCL above 300 mg/l showed high mean survival rate. Based on the current results it was found that groups of fish Koi carps *Cyprinus carpio haematopterus* treated with 400 mg/l of TCL have been recorded the lower RBC level and higher WBC, Hb, lymphocyte, monocyte, neutrophil, eosinophil and platelet count than in any other treatments whereas the lowest lymphocyte resulted in control treatment. Standard length gains and body weight gain, SGR, and FCR were significantly ($p>0.05$) differed between the treatments and best results exhibited in the treatment where 400 mg/l of TCL added. It could be concluded that, addition of 400 mg/l TCL enhanced the water quality parameters, survival rate, blood profile and growth performance of ornamental fish Koi carp (*Cyprinus carpio haematopterus)* cultured and that could be used as an alternative way to reduce diseases and problems related to water quality in ornamental fish culture.

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