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Quantitative requirements of dietary ascorbic acid supplementation in the diets of African catfish *Clarias gariepinus* (Burchell 1822) fingerlings.

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Abstract

This study was undertaken to evaluate the quantitative requirement of dietary ascorbic acid supplementation in the diet of African catfish, *Clarias gariepinus*, using growth performance and nutrient utilization. *C. gariepinus* fingerlings weighing 6.02 ± 0.4 g were randomly distributed into glass tanks of $60 \times 45 \times 45$ cm³ dimension at 10 fish per tank in a triplicate treatment. Five isonitrogenous and isocaloric diets containing 40% crude protein were formulated. Ascorbic acid (AA) was supplemented in the diets as ascorbyl-2-polyphosphate. Each treatment had varying levels of ascorbic acid (AA) supplementation, 0 (control), 50, 100, 150 and 200 mg AA/kg in treatments I, II, III, IV

and IV, respectively. Fish were fed practical diets twice daily at 09.00 and 16.00 h. Weekly weighing of fish was done, and the data collected were subjected to statistical analysis. Biological evaluation of the fish was based on growth performance and nutrient utilization efficiencies. At the end of week 4, the fish fed scorbutic diets (diets without AA supplementation) had significantly lower weight than fish fed AA-supplemented diets ($p < 0.05$). The results showed that the productivity indices, mean body weight gain (BWG), specific growth rate (SGR), feed conversion ratio (FCR), protein efficiency ratio (PER) and feed efficiency ratio (FER) in all the treatments were significantly different from each other ($p < 0.05$). The best feed conversion ratio (FCR) was recorded in treatment IV (0.94 ± 0.08), and the worst FCR was obtained in treatment I (Control) fed scorbutic diet (1.77 ± 1.20). Considering all the parameters, treatment IV fed 150 mg AA/kg gave the best growth performance and nutrient utilization efficiencies, whereas treatment III fed 100 mg AA/kg showed the minimum dietary AA supplementation that prevented growth reduction in this study.

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