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Efficacy of Maize Gluten Supplemented with Crystalline L-Lysine in the Diets for the African Clariid Catfish, Clarias Gariepinus (Burchell, 1822)

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Abstract

The efficacy of maize gluten meal supplemented with crystalline L-lysine as a potential source of protein to enhance productivity rate of the African clariid catfish, Clarias gariepinus in a partially substituted fish meal diets was investigated in a trial that lasted seven weeks. Six isonitogenous and isocaloric diets containing 36% crude protein and 13% oil were formulated. Diet 1 containing 100% high grade fish meal protein source (Norwegian, LT-94) served as the control. Maize gluten meal in diets 2 to 6, were improved upon incrementally with crystalline L-lysine supplementation at 0.6, 0.9, 1.2, 1.5 and 1.8% respectively in which fish meal inclusion in the diets were reduced by 75%. Hatchery bred C. gariepinus juveniles weighing 5.2±1.3g (weight) were randomly distributed into fiber glass tanks at 34 fish per tank in a triplicate treatments and fed twice daily in a well aerated recirculation system. Biological evaluation of the fish was based on growth performance and nutrient utilization efficiencies. The results showed that the productivity indexes, mean Body Weight Gain (BWG), Specific Growth Rate (SGR), Food Conversion Ratio (FCR), Protein Efficiency Ratio (PER) and Apparent Net Protein Utilization (ANPU) of the fish were good in all the diets with SGR values exceeding 3% day-1 and FCR below the value of 1 (for as fed basis). However, fish fed on fish meal based diets (control) had the best overall performance and significantly (p 0.05) different from other groups of fish fed maize gluten supplemented with L-lysine. There was, however, an improvement in the performance indexes of the fish with increasing levels of L-lysine supplementation in maize gluten based diets. However, growth performance and nutrient utilization efficiencies did not attain a plateau at 1.8% lysine supplementation of maize gluten in African catfish diets.

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