Journal of Applied Biosciences 94:8801 – 8808

ISSN 1997–5902

Development and bioefficacy study of plant-based proteins diets for juvenile African catfish

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Original submitted in on 19th June 2015. Published online at www.m.elewa.org on 31st October 2015

http://dx.doi.org/10.4314/jab.v94i1.2

ABSTRACT

Objectives: The aim of this study is to improve the growth performance of the juvenile catfish (*Clarias gariepinus*) by using feed formula derived from local feed ingredients.

Methodology and results: Three diets with formulas differing in the feed ingredients and biological process were tested. These were: diet 1 (Soybean meal, Fish meal, *Moringa* leaf meal, Roasted corn meal), diet 2 (Soybean meal, Fish meal, *Moringa* leaf meal, Roasted corn meal, Corn malt meal) and diet 3 (Soybean meal, Fish meal, *Moringa* leaf meal, Roasted corn meal, Corn malt meal, Kpètè-kpètè (traditional starter of opaque African beer). Coppens® is an imported efficient feed that was used as control. The fish were fed twice daily for a rearing period of 35 days in a randomized tree blocks. Results of the study showed an overall good survival rate and growth performance of the fish. All the parameters assessed showed significant better values in fish fed with control diet than formulated diets. However, there was no significant difference between values survival rate, weight gain, specific growth rate (SGR), feed conversion ratio (FCR) and protein efficiency ratio (PER) of the formulated diets.

Conclusions and application of results: Results indicated that all the three diets can be used as a fishmeal but their efficiency still needs to be improved. Though with low crude protein ratio ($p<0.05$), diet 3 exhibits the same results as the other diets probably because it is fermented and incorporated with malted corn grain. Incorporation of malted cereal flour in fish feeds can improve their efficiency.

Keywords: *Clarias gariepinus*, lactic acids fermentation, malting, plant protein