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**Preliminary Evaluation of Jackbean (*Canavalia ensiformis* L. DC)
Seed Meal as a Substitute for Fishmeal in Diets for *Clarias
gariiepinus* (Burchell, 1822)**

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Abstract

Jackbean (*Canavalia ensiformis*) is an underutilised novel legume with crude protein content and amino acid profile that make it a potential candidate as substitute for fish meal in fish diets in the tropics. This study is aimed at assessing the potentials of Jackbean seed meal (JSM) for partial replacement of fish meal in diets of *Clarias gariiepinus*. Ten fingerlings of *C. gariiepinus* (average weight 1.87 g) were introduced into 26 plastic tanks containing twenty liters of freshwater respectively. Thirteen isonitrogenous (30 % protein) and isocaloric (ME 12,2 kcal/kg) diets were formulated for the trials. Fishmeal in the control diet was replaced progressively (10 %, 20 %, 40 % and 60 %) by raw JSM as well as JSM that was bioled for 30- and 60-minutes. Test fish in each tank were fed 3 % of their biomass twice daily for 56 days. At the end of the experiment, weight measurements of fish from the feeding groups were taken. Fish carcasses collected at the end of the study as well as samples frozen at the beginning were homogenized and subjected to proximate analysis. Fish fed control diets had the best SGR (1.61) and feed efficiencies (FCR 1.88, PER 1.74). SGR and PER of fish groups fed test diets were inversely related to the dietary levels of JSM. The same trend applied to protein and fat contents of the fish carcass. FCR however had the reverse trend. Fish fed diets with up to 20 % fishmeal substituted by 60 minute boiled JSM had a protein content similar to those fed the control diets ($p < 0.05$). Fish fed diets with fishmeal substituted by 10 % raw JSM, up to 20 % JSM boiled for 30 and 60 minutes, had similar fat levels in the fish muscular tissue as those fed the controlled diets ($p < 0.05$). The poor performance observed in fish fed diets containing increasing levels of boiled JSM suggests the probable presence of thermostable antinutritional factors in processed JSM as well as an imbalance in the nutrient profile which may be corrected by supplementation. However, the study shows that 20 % of fish meal in the diet can be replaced with JSM previously boiled for 60 minutes without any adverse effect on the growth performance.

Keywords: *Clarias gariiepinus*, fishmeal substitute, Jackbeans