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Haematological Effect of Using Jackbean (*Canavalia ensiformis*) Seed Meal as an Alternative Protein Source for *Clarias gariepinus*

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Abstract

Aquaculture grew in global terms at an average rate of 11 % per year between 1984 and 1998. This trend is attributed largely to widespread availability and utilization of aquafeeds. The fishmeal component of aquafeeds however, contribute substantially to its high cost. Many feed ingredient alternatives to fishmeal at varying levels are now being sought. This will enhance a more economically sustainable aquaculture in the current millennium. Research interest has been directed on the evaluation and use of unconventional protein sources. Jackbean (*Canavalia ensiformis* (L.) DC.) is a fast growing legume widely available in the tropics. The seed has crude protein and amino acid profile that recommend it for use as a substitute for fishmeal in fish feed. It however, has some antinutritional factors some of which can be reduced to a large extend by processing. The study was carried out to evaluate the effect of Jackbean Seed Meal (JBSM) on the haematology of *Clarias gariepinus* when used to replace fishmeal in practical diets of the species. Thirteen isonitrogenous (CP 30) and isocaloric (ME 2900 kcal/kg) diets were formulated by substituting fishmeal in a control diet with raw and 60 minute-boiled JBSM at 10 %, 20 %, 40 %, 60 %, 80 % and 100 %. The test diets were assigned randomly using completely randomised design (CRD) to duplicate groups of 20 fish of average total length 18 cm in 20 litre plastic aquaria. The fish were fed once daily for 8 weeks at 3 % body weight. The static water used in rearing was replaced every 3 days. Blood samples were collected from fish tranquilized with MS222 at the commencement and subsequently bi-weekly for determination of some haematological parameters. Results obtained showed that the haematocrit (PCV), red blood cell count, white blood cell count and haemoglobin concentration decreased significantly ($p < 0.05$) with increasing dietary levels of JBSM. Though boiling JBSM significantly ($p < 0.05$) improved the haematological values of fish fed such diets, the values were still significantly lower than those fed the control diet. The haematological values of fish fed diets with JBSM however, remained within the normal range for *C. gariepinus* Burchell, 1822.

Keywords: *Canavalia ensiformis*, *Clarias gariepinus*, haematology

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