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Preliminary Observations on some Haematological Parameters of Juvenile *Heterobranchus longifilis* Fed Different Dietary Levels of Raw and Boiled Jackbean (*Canavalia ensiformis*) Seed Meal

Donald I Osuigwe[1], C. Nwosu[2], Johnny Onyema Ogunji[3]

[1] *Federal University of Technology, Department of Biotechnology, Nigeria*
[2] *National Veterinary Research Institute (VOM), Nigeria*
[3] *Ebonyi State University Nigeria, Department of Animal Production and Fisheries Management, Nigeria*

Abstract

Given the unavailability and high cost of fishmeal particularly in developing countries, an aggressive search ensued for cheap and quality alternatives to fishmeal. Neglected novel legumes which abound in the tropics have been evaluated. Jackbean (*Canavalia ensiformis*) is one of such legumes with a crude protein and ammo acid profile that recommend it for use as alternative protein source. It is readily available and hardly consumed by man. It however, has some anti-nutritional factors some of which can be reduced to a very large extent by processing. This work is designed to study the effect of feeding raw and processed jackbean seed meal (JBSM) at different dietary levels on some haematological parameters of *Heterobranchus longifilis* bearing in mind that haematology can be employed to assess fish health. Two types of JBSM were obtained by milling the raw seed with hammer mill and subjecting a portion of the milled bean to boiling for 60min. Thirteen isonitrogenous (CP 30 %) and isocaloric (ME 2900 kcal kg^{-1}) diets were formulated. Diet 1 without JBSM served as control. Diets 2, 3, 4, 5, 6 and 7 had the fishmeal component replaced progressively by raw JBSM at 10 %, 20 %, 40 %, 60 %, 80 %, and 100 % respectively. In diets 8, 9, 10, 11, 12 and 13 60min. boiled JBSM replaced fishmeal at 10 %, 20 % 40 %, 60 %, 80 % and 100 % respectively. Test diets were assigned randomly to duplicate groups of 20 fish (average total length 18 cm) in 20 litre plastic aquaria. Juvenile *H. longifilis* were fed raw and 60 min. boiled JBSM at different dietary levels for 56 days. Evaluation of some of the haematological parameters showed that haematocrit (PCV), red blood cell (RBC) count, white blood cell (WBC) count, haemoglobin (Hb) concentration and lymphocytes decreased significantly ($p < 0.05$) with increasing dietary level of JBSM. Boiling JBSM for 60mim slightly improved the quality such that fish fed diets with 10 % fishmeal substitution had similar PCV and WBC count to those fed the control diet. Other measures to improve the quality of boiled JBSM protein are suggested to enable its use in place of fishmeal at moderate dietary levels in fish production.

Keywords: African catfish, *Heterobranchus longifilis*, alternative protein source, fishmeal, haematology, Jackbean, *Canavalia ensiformis*

Contact Address: Donald I Osuigwe, Federal University of Technology, Department of Biotechnology, P.M.B 1526 Owerri, Nigeria, e-mail: diosuk@yahoo.co.uk