



Tropentag, October 11-13, 2006, Bonn

“Prosperity and Poverty in a Globalised World—
Challenges for Agricultural Research”

Utilisation of Velvet Bean (*Mucuna pruriens*) for Broiler Production in Nigeria

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Abstract

Velvet beans (*Mucuna pruriens*) is currently being promoted as food for man and feed for animals in Nigeria. Its implication and potential as alternative plant protein was studied with one hundred and eight 1-d-old broiler Anak chicks. Raw and heated *mucuna* bean meal (RMBM & HMBM, respectively) were used to replace soybean meal (SBM) and to assess the effect on performance and organs relative weights in the birds at both the starter and finisher phases. Three diets were formulated. Diet 1 was the basal diet and contained 120g kg⁻¹ SBM while diets 2 and 3 contained 120 g kg⁻¹ RMBM and HMBM, respectively in place of SBM. Each diet had 3 groups of 12 birds each. Feed intake, FCR and weight gain in birds on the RMBM and HMBM diets were significantly ($p < 0.05$) depressed compared to birds on the SBM diet at the starter phase but not at the finisher phase. The relative weights of liver, spleen, kidney, heart and brain were significantly ($p < 0.05$) reduced in the birds on the RMBM diet compared to those on the basal and HMBM diets. The packed cell volume (PCV), haemoglobin (Hb), red blood cell count (RBC) and white blood cells (WBC) were significantly ($p < 0.05$) reduced in the RMBM diets compared to the other 2 diets. Histopathological results showed that birds on the RMBM diet showed severe and widespread vacuolar degeneration and necrosis of the hepatocytes, interstitial congestion, tubular degenerations and necrosis in the kidneys. The hearts in birds on the RMBM diet had degeneration and fragmentation of their myofibrils and lymphoid depopulation in the spleen. These results suggest the possibility of utilising *mucuna* bean meal to replace soybean meal in broiler feeding at both starter and finisher phases. However, in spite of its present promotion as food for man and feed for animals in the country, the bean should be subjected to appropriate processing like dry heating to overcome its depressive effects on feed intake, growth and degenerative syndromes in organs.

Keywords: Broilers, mucuna bean, Nigeria, production