

HAEMATOLOGICAL INDICES OF WEANED RABBIT FED VARYING INCLUSION LEVEL OF ACID SOAKED AFRICAN YAM BEAN BASE DIET

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ABSTRACT

A total of thirty two weaner rabbits were randomly allocated to four dietary treatments and fed for 56 days on diets containing acid soaked African yam bean to investigate the haematological indices of weaned rabbits fed diets containing African yam bean soaked in acidic medium at 0 (control), 5, 10, 15% level of inclusion. There was significant ($P>0.05$) difference in all the parameters measured. Rabbits on T4 had the highest value of PCV (28.5%) and haemoglobin (9.15) with statistical similarities existing in PCV value of rabbits on T1 and T2. Rabbits on T1 had the highest value of RBC (4.66), lymphocyte (70.5%) and platelets with similarities existing in RBC value of rabbits on T2 and T3. Rabbits on T3 had the highest value of Heterophil (32.5%) and eosinophil (2.50%). WBC value of rabbits on T2 was the highest (8725) with rabbits on T4 having the lowest WBC value (5725). It can be concluded that African yam bean soaked in acidic medium can be fed to rabbits up to 15 % level of inclusion without having any negative effects on the haematological indices of the rabbits.

Keywords: Rabbits, African yam bean, *ogi* liquor.

INTRODUCTION

The increase in human population has led to increase demand for food. This led to a food crisis leaving us with a malnourished population especially in most developing African countries (Ademosun, 1976). The high cost of feeding which can be attributed to high price of feed ingredients used in formulating feed most especially those of plant protein source has led to the search for alternative which can replace them. One of such alternative capable of substitution them is African yam bean. However, presence of anti-nutritional factors such as tannins, trypsin inhibitors, hydrogen cyanide, saponins and phytic acid limits its use in feed formulation (Ekanayake *et al.*, 2003). Processing methods such as heating, soaking or fermenting, boiling, autoclaving had been used to decrease anti-nutritional factor and improved the nutritional value of AYB products and its by – product (Ahamaefule, 2006)

MATERIALS AND METHODS

Location of the experiments

The experiment was carried out at the Rabbitary unit, Teaching and Research Farm, Oyo State College of Agriculture and Technology, Igboora, Oyo State Nigeria

Collection of sample

African yam bean was purchased in a large quantity from Bodija market in Ibadan north local government, Ibadan, Oyo state, Nigeria.

Pre-treatment of seed

Raw African yam bean seeds were soaked at the rate of 1kg/3litres of water for 12 hours after which the water was decanted

Treatment of sample

The soaked African yam bean seeds were again soaked at the rate of 1kg/3litres of pap water filtrate for 24 hours, initial and final pH was taken.

Experimental design and Animal management

Thirty two weaner rabbits was weighed and randomly assigned on the basis of body weight into four dietary treatments of rabbits each in a completely randomized design experiment. Rabbits in each experimental animal group were allowed access to one of the five diet treatments. Rabbits on T1 received the control diet, T2 received 5% acid soaked African yam bean, T3 received 10% acid soaked African yam bean, T4 received 15% acid soaked African yam bean

Parameters determined include: Packed cell volume, haemoglobin, white blood cells, red blood cells, platelets, heterophil, eosinophil, lymphocyte and monocyte.

Statistical analysis

Data collected were subjected to statistical analysis of variance (ANOVA) using SPSS 2003 version and means separated by Duncan Multiple Range Test.

RESULTS AND DISCUSSION

Table showed the haematological indices of weaner rabbits fed African yam bean soaked in acidic medium. There was significant ($P > 0.05$) difference in all the parameters measured. Rabbits on T4 had the highest value of PCV (28.5%) and haemoglobin (9.15) with statistical similarities existing in PCV value of rabbits on T1 and T2. Rabbits on T1 had the highest value of RBC (4.66), lymphocyte (70.5%) and platelets with similarities existing in RBC value of rabbits on T2 and T3. Rabbits on T3 had the highest value of Heterophil (32.5%) and eosinophil (2.5). WBC value of rabbits on T2 was the highest (8725) with rabbits on T4 having the lowest WBC value (5725).

DISCUSSION

The highest WBC (8725) value observed for Rabbits on diet 2 suggested that there was microbial infection or the presence of foreign body or antigen in the circulatory system. PCV

value of (28.00%) for rabbit fed diet 5 could be viewed as coefficient of efficiency of processing methods in reducing the Anti-Nutritional Factors (ANF). This implies that African Yam bean (DAYB) soaked in acidic medium fed at 5% compare favourably with the control. The low level of haemoglobin for rabbits fed diet 5 implies that dietary proteins were not of high quality due to traces of ANFs in the tested diets. This agrees with the observation (Akinmutimi, 2004) that processing methods reduces but do not completely eliminate all traces of ANFs in feed. The high neutrophil value recorded for rabbits on T3 was in a bid to fight against foreign bodies.

CONCLUSION

In conclusion, AYB soaked in acidic medium can be fed to rabbits at 15% level of inclusion without any negative effect on the haematological indices of rabbits

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Table 1: pH changes of African Yam bean soaked in *ogi* maize liquor.

pH range	DAYBSO
Initial pH	3.3
Final pH	4.7

DAYBSO- Dehulled African yam bean soaked in *ogi* liquor

Table 2: Gross composition of experimental diet

	0%	5%	10%	15%
Ingredients	T1	T2	T3	T4
Maize	40	39.82	39.74	39.29
SBM	5.05	4.81	4.54	4.05
Wheat Offal	4.11	4.11	4.11	4.11
P.K.C	9.50	9.50	9.50	9.50
Rice Bran	30.19	30.19	30.19	30.19
A.Y.B	-	0.42	0.86	1.71
Bone Meal	5.50	5.50	5.50	5.50
Limestone	4.65	4.65	4.65	4.65
Salt	0.50	0.50	0.50	0.50
Growers Premix	0.50	0.50	0.50	0.50
M.E	2190.8	2191.85	2196.2	2195.11
C.P	10.05	10.04	10.02	9.99
C.F	13.70	13.66	13.65	13.63

Table 3. Haematological indices of weaner rabbits fed African yam bean soaked in acidic medium.

Parameters	T1	T2	T3	T4	SEM [†]
PCV (%)	28 ^{ab}	28 ^{ab}	28.5 ^a	28.5 ^a	0.13
HB (g/100ml)	7.6 ^c	8.6 ^{bc}	8.9 ^b	9.15 ^a	0.29
RBC (10 ⁶ /mm ³)	4.66 ^a	4.18 ^{bc}	4.24 ^{ab}	4.22 ^b	0.097
WBC (×10 ³ /mm ³)	6025 ^c	8725 ^a	6575 ^b	5725 ^d	586.67
Platelets	209000 ^a	86000 ^b	83000 ^d	84000 ^c	26996.53
Lymphocyte (%)	70.5 ^a	66.5 ^b	63 ^{bc}	69.5 ^{ab}	1.46
Heterophil (%)	24.5 ^{bc}	30.5 ^{ab}	32.5 ^a	26.5 ^b	1.58
Monocyte (%)	2 ^a	1.5 ^b	2 ^a	2 ^a	0.108
Eosinophil (%)	2 ^b	1.5 ^c	2.5 ^a	2 ^b	0.17

Key- PCV- packed cell volume, HB- haemoglobin, RBC- red blood cell, WBC- white blood cells