

EFFECT OF FEEDING VARYING INCLUSION LEVELS OF ASH SOAKED LABLAB PURPUREUS SEED ON INTERNAL ORGANS OF BROILER FINISHER

AMUSA, H. O¹., OGUNGBENRO, S. D¹., ADEOTI, T. M² OSENI, T. A¹., ADEBISI, I. A¹.,

¹Department of Animal Health and Production Technology, Faculty of Animal and Fisheries Technology, Oyo State College of Agriculture and Technology, Igboora Oyo State, Nigeria

²Department of Animal Health and Production Technology, School of Science, Oke-Ogun Polytechnic Saki, Oyo State, Nigeria

Corresponding Authors E- Mail: ammed4dtop@yahoo.com, 08054146259

Abstract

A total of ninety day old broiler were used for the study to determine the organ weight changes of broiler finisher fed graded levels of lablab seed soaked in 0.5% of wood ash. Raw lablab seeds were first soaked at the rate of 1kg/3L of water for 12 hours, after which the soaked seed were soaked at the rate of 1kg/3L of 0.5% wood ash for 24 hours, initial and final pH were taken, samples was sundried for 3days, milled and the included in the diet accordingly. Birds were randomly assigned into 3 dietary treatments of 30 birds consisting of 3 replicate of (10) birds per replicate in a completely randomized design experiment. Birds on T1 received the control diet, T2 received 5% level of lablab, while T3 received 10% level of lablab. The experiment lasted for eight (8) weeks. At the end of the 8weeks two (2) birds were slaughtered and the internal organs were assessed. Results showed there were significant ($P<0.05$) differences in the values recorded for internal organs. The highest value of heart (0.41) was observed for birds fed (T3) while the lowest value (0.31) was observed for birds on (T1). Birds on T1 had the highest value (0.52) of proventriculus while birds in treatment T2 had the lowest value (0.43). However, there were statistical similarities in GIT weight value for birds in Treatment T2 and T3. Also, statistical similarities ($P<0.05$) existed in Gizzard value for birds on T3 and treatment T1. It can be concluded that ash soaked *lablab purpureus* can be include in the diet of birds at 10% level of inclusion without having any negative effects on internal organs of broiler birds. Keywords: Broiler, Internal organs, lablab *purpureus*, Ash, treatment, Replicate.

Introduction

One of the major problems of poultry producers is the high cost of feed, which arises mainly from the competition between man and poultry for conventional feedstuffs like maize, groundnut cake, soya bean meal and fish meal (Amaefule and Obioha, 2005). Hence there is need to search for alternative which can replace them. One of such alternative plant protein source capable of substitution expensive ones is *lablab purpureus*

Lablab purpureun is a tropical leguminous plant with high seeds and foliage yield. The legume is potentially suitable for feeding with a protein content ranging between 25 and 26% was reported (Eneche, 2003). It is a perennial climbing bush 1 – 3m high generally grown annually, its leaves are trifoliate with oval leaf lets (2.7 to 13cm long and 0.2 to 5.5cm broad). However, the nutritive value of *lablab* is masked by the occurrence of anti-nutritional factors such as tannins, trypsin inhibitors hydrogen cyanide, saponins and phytic acid (Akinmutinet *et al.*, 2006) These ANFs inhibit the activities of digestive enzymes thereby causing digestive losses (Igene and Ekundayo, 2010) which exact a negative impact on the nutritional quality of the protein that could decrease the performance of poultry fed these ingredients (Olomu, 1995). Processing methods such as heating, soaking or fermentation can be used to reduce the anti-nutritional factors and improve the nutritional value and its by –products (Onyeike *et al.*, 1995). Boiling, toasting and soaking are some of the processing methods which had been used (Ahamefule, 2000) to inactivate these anti-nutritional factors.

Materials and methods

Experimental site

The experiment was carried out at the Teaching and Research farm, Oyo State College of Agriculture, Igboora in the derived Savannah zone of Nigeria. The college is located on 7°15'N and 303°E of the equator with average annual rain fall 1278mm and average temperature of 270C

Collection of sample: Lablab seed was purchased from Bodija market in Ibadan.

Pre-treatment of seed: Raw lablab seeds were soaked at the rate of 1kg/3L of water for 12 hours.

Treatment of sample

The soaked seeds were soaked at the rate of 0.5% wood ash for 24 hours, initial and final pH was taken. The samples was sundried for 3days, milled and then included in the diet accordingly

Experimental diets

A total of ninety birds were used for the study, they were randomly assigned into 3 dietary treatments of 30 birds consisting of 3 replicate often (10) birds per replicates in a completely randomized design experiment. Birds on T1 received the control diets; T2 received 5% level of lablab, while T3 received 10% level of lablab. The experiment lasted for eight weeks

Table 1: Gross composition of experimental animal diets

INGREDIENT	T ₁ (0%)	T ₂ (5%)	T ₃ (10%)
Maize	58.00	56.24	54.50
SBM	27.00	25.64	24.29
Lablab	0.00	3.12	6.21
Bone meal	2.00	2.00	2.00
Lime stone	2.00	2.00	2.00
Lysine	0.25	0.25	0.25
Methionine	0.25	0.25	0.25
Salt	0.25	0.25	0.25
Broiler premix	0.25	0.25	0.25
TOTAL	100.00	100.00	100.00
Metabolizableenergy (Kcal/kg)	2908.22	2904.50	2901.95
Crude protein (%)	19.65	19.47	19.29

Sample collection: At the end of the experiment, two birds per treatment were selected and slaughtered. The internal organs were harvested and expressed as percentage of live weight.

Statistical analysis: Following the experimental design, all data collected were subjected to statistical analysis of variance (ANOVA) using SPSS 2003 version and means separated by Duncan Multiple Range Test.

Result and discussion

Result

Table 2 showed the Results of feeding graded levels of ash soaked lablab seed on organ weight changes of broiler finisher, Result showed there were significant ($P < 0.05$) difference in the values recorded for internal organs. The highest value of heart (0.41) was observed for birds fed (T3) while the lowest value (0.31) was observed for birds on (T1) . Birds on T1 had the highest value (0.52) of proventriculus while birds in treatment T2 had the lowest value (0.43). However, there were statistical similarities in GIT weight value for birds in Treatment T2 and T3. Also, statistical similarities ($P < 0.05$) existed in Gizzard value for birds on T3 and treatment

Table 2: Effect of feeding varying inclusion levels of Ash soaked lablab purpureus seed on organ weight changes of broiler finisher.

Parameters	T1(0%)	T2(5%)	T3(10%)	SEM+/-
Spleen	0.00	0.00	0.00	0.00
Heart	0.31 ^c	0.38 ^b	0.41 ^a	0.02
Kidney	0.26 ^b	0.26 ^b	0.28 ^a	0.01
GIT weight	4.02 ^b	4.27 ^{ab}	4.35 ^a	0.08
GIT length	239 ^a	209.50 ^c	218.50 ^b	7.13
Proventriculus	0.52 ^a	0.43 ^c	0.46 ^b	0.02
Bile	0.11 ^{ab}	0.13 ^a	0.05 ^c	0.02

Gizzard	2.38 ^{ab}	1.76 ^c	2.47 ^a	0.18
Liver	1.70 ^a	1.53 ^c	1.63 ^b	0.04
Lung	0.46 ^c	0.66 ^a	0.56 ^b	0.05

Abc-means on the same rows having superscripts are significantly different (P<0.05)

SEM +/-: Standard Error of Mean

Discussion

It was observed that birds on T1 had the highest value of liver. The high value of liver compared with the control could be as a result of the increase metabolic activities of the liver trying to get rid of any toxic material in the feed. The result of the study negate the findings of Oluokun and Olaolu (1999) who reported that increase in heart weight of rabbit fed 10% cashew nut meal residue based diet was indirectly due to the increased metabolic activities of liver. It was observed from the result of this study that the value recorded for the kidney was high for birds on T3, whereas the kidney value for birds on T1 and T 2 are the same across the dietary treatments. However, birds on control diets and birds T2 had a lower kidney value to those on T3. This can be attributed to the fact that the diet 3 was toxic as anti-nutritional factor were present in the test ingredients. It could be concluded that lablab seed soaked in ash can be fed to birds at 10% level of inclusion without any negative effects on internal organ of broiler finisher fed the diet.

Conclusion and recommendation

Conclusion

It could be concluded that lablab soaked in ash can be fed to birds at 10% level of inclusion without any negative effect on the organ weight of broiler fed experimental diet.

Recommendation

Feeding up to 10% level of inclusion showed good results, further experiment can be conducted and the level of inclusion can be increased to 20

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