



Impact of Toasted African Locust Bean (*Parkia Biglobosa*) Meal (Tabm) on the Growth Performance, Nutrient Digestibility, Blood Profile and Carcass Characteristics of Grower Rabbits

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Abstract

A 56 day feeding trial was carried out to evaluate the impact of feeding toasted African locust bean meal (TABM) to grower rabbits. Five experimental diets were compounded where TABM replaced full fat soyabean at 0(T1, control), 25(T2), 50(T3), 75(T4) and 100% (T5). Thirty grower cross bred rabbits (New Zealand white × Chinchilla) were randomly divided into 5 treatment groups replicated three times in a Completely Randomized Design (CRD). Feed and water were offered ad-libitum. Data collected during the feeding trial were growth parameters, nutrient digestibility, carcass characteristics, haematological and serum biochemical variables. The results of the growth parameter showed there was no significant variation in all the parameters evaluated. Feed cost (₦/kg) decreased as the levels of TABM increased in the diet. Rabbits fed 0% TABM had the highest feed cost (₦/kg) (₦396.20/kg), while rabbit fed 100% TABM had the least (₦240.09/kg). However, the haematological and biochemical indices measured were similar ($P>0.05$) across the dietary treatments. The result of carcass characteristics and internal organs weights were not significantly influenced. Nutrient digestibility was significantly ($P<0.05$) affected by the level of replacement. Dry matter digestibility was significantly influenced ($P<0.05$) by inclusion of TABM in the diets. Rabbits fed diets T2 (78.32%), T3 (79.55%) and T5 (88.67%) had higher dry matter digestibility than those fed T1 (59.72%) diet but similar to T4 (64.18%). Rabbits fed diet T2 and T5 diets recorded significant higher ($P<0.05$) crude fibre digestibility (75.11% and 78.39%) and NFE (78.25 and 79.01%) respectively. However, rabbits fed diets T2 (75.16), T3 (79.23%), T4 (85.44%) and T5 (83.72%) recorded higher significant ($P<0.05$) ash digestibility while rabbits fed T1 (64.61%) lower ash digestibility. It was concluded from the study that TABM can replace up to 100% full fat soybean meal in diet of grower rabbits without adverse effect on growth performance, nutrient digestibility, blood profile, carcass characteristics and internal organ weights.

Keywords: Blood, Carcass, Performance, Rabbits, toasted locust bean

Introduction

In most developing countries like Nigeria, there is insufficient intake of animal protein due to low animal productivity. This has necessitated the need to intensify the production of fast maturing animal like rabbits. Rabbit has been identified as an economic livestock that can adequately meet the animal protein requirement of Nigerians due to its ability to convert feeds that are not directly utilized by man, it has short

generation interval and rapid growth rate (Kalio *et al.*, 2008; Alu, 2018; Wafar *et al.*, 2018). According to Kehinde *et al.* (2006) feed is the most important input in a profitable livestock production; it account for 70-80% of the total cost of production. High cost of feeding has continued to remain a major impeding factor in intensive animal production. Therefore, it is imperative to exploit the use of non-conventional feedstuffs that are cheap and

readily available (Yakubu and Wafar, 2014). Studies have shown that non-convention feedstuffs offer least cost of feeding in livestock production when included in the diet (Dafwang *et al.*, 2001; Ani, 2008; Shaahu *et al.*, 2017; Wafar *et al.*, 2018). One of these non-conventional feedstuffs considered in this study is African locust bean. The African locust bean tree is a leguminous plant which produces seed grain that is often cheap and readily available in northern Nigeria. It grows across Sudan and Guinea savannah ecological zones (Kemi, 2015). The seed is rich in protein and is used as a flavour intensifier for soups and stew (Dike and Odunfa, 2003). The crude protein content of the seed on a dry matter basis ranged from 25 and 38% and has the potential to be utilized in livestock feeding (Olomu, 2011). However, its utilization is limited due to presences of anti-nutritional factors such as enzymes inhibitors, phytate, oxalates, saponin and polyphenol compounds, which limit their utilization (Vijayakumari *et al.*, 1997).

Recently there has been remarkable improvement in processing legume seeds using various methods such as cooking, toasting, soaking, fermenting (Dike and Odunfa, 2003). This study therefore employed the use of toasting as a method of processing African locust bean (*Parkia biglobosa*) seed meal with the aim of studying its effects on growth performance, nutrient digestibility, blood profile and carcass characteristics of grower rabbits.

Materials and Methods

The study was conducted at the Rabbit Unit of Teaching and Research Farm of the Department of Animal Production and Health, Federal University Wukari, Taraba State. Wukari is located at Longitude 9°47'0"E and Latitude 7°51'0" N. The vegetation of the area is predominantly characteristics of savannah zone and with major climatic seasons of wet or rainy seasons, which starts in March or April, and

ends in October and the dry season which starts in November and ends in March or April. The average annual temperature is 26.8°C, relative humidity 65% and average annual rainfall 1053mm (Taraba state diary, 2008)

Source and processing of African locust

African locust beans was purchased at the Wukari market. It was toasted in an open pan using firewood as source of heat for 30 minutes. The seeds were stirred constantly to ensure that the seeds were uniformly toasted.

Chemical analysis

Proximate analysis of African locust beans was carried out at Animal Science and Range Management Laboratory of the School of Agriculture, Modibbo Adama University of Technology, Yola Adamawa State, using the standard procedure of AOAC (2000).

Management of the experimental animals

Thirty cross-bred rabbits of 5-6 weeks old were obtained from local farmers within Wukari Local Government Area of Taraba State. Experimental diets and drinking water were offered *ad-libitum* throughout the experimental period. The animals were administered anti-stress at the recommended dosage after the randomization before the commencement of the experiment. Other management practices used were as earlier described by Yakubu and Wafar (2014).

Experimental diets for growing rabbits

Five diets were compounded to contain toasted African locust bean meal (TABM) replacing full fat soyabean meal at 0, 25, 50, 75 and 100% designated as treatment T1, T2, T3, T4 and T5, respectively as shown in Table 1.

Experiment design

A total number of 30 weaner rabbits were randomly allotted to five dietary treatment groups which were replicated 3 times in a Completely Randomized Design.

Table 1: Ingredients Composition of Experimental diets for Growing rabbits

Ingredients	Replacement levels of toasted African locust bean meal				
	T1 (0%)	T2 (25%)	T3 (50%)	T4 (75%)	T5 (100%)
Maize	48.00	48.00	48.00	48.00	48.00
Soyabean full-fat	22.00	16.50	11.00	5.50	0.00
*TABM	0.00	5.50	11.00	16.50	22.00
Kapok seed meal	9.00	9.00	9.00	9.00	9.00
Groundnut haulms	5.00	5.00	5.00	5.00	5.00
Maize offal	10.00	10.00	10.00	10.00	10.00
Fish meal	2.00	2.00	2.00	2.00	2.00
Bone meal	3.00	3.00	3.00	3.00	3.00
Methionine	0.25	0.25	0.25	0.25	0.25
Lysine	0.25	0.25	0.25	0.25	0.25
Salt	0.25	0.25	0.25	0.25	0.25
**Premix	0.25	0.25	0.25	0.25	0.25
Total	100	100	100	100	100
Determined analysis					
Dry matter	90.45	91.67	90.32	90.34	91.47
Crude protein	18.10	18.08	18.12	18.09	18.10
Crude fibre	5.78	5.67	5.68	5.70	5.89
Ether extracts	3.00	3.04	3.03	3.04	3.05
Ash	9.45	9.32	9.34	9.29	9.48
Nitrogen free extracts	54.12	53.58	54.15	54.22	54.95
***ME kcal/kg	2833.96	2828.29	2838.20	2840.38	2867.48

*TABM = Toasted African locust bean meal

**Vitamin/Mineral premix from Bio-organics supplied per kg: Vit. A, 10,000 iu; Vit. B, 2,000 iu; Vit. E, 13,000 iu; Vit. K, 1,500mg; Vit. B12, 10mg; Riboflavin, 5,000mg; Pyridoxine, 1,300mg; Thiamine, 1,300mg; Panthothenic Acid, 8,000mg; Nicotinic Acid, 28,000mg; Folic Acid, 500mg; Biotin, 40mg; Copper, 7,000mg; Manganese, 48,000mg; Iron, 58,000mg; Zinc, 58,000mg; Selenium, 120mg; Iodine, 60mg; Cobalt, 300mg; Choline, 275,000mg.

*** Metabolizable Energy (ME) kcal/kg = 37 x % Crude protein + 81 x % Ether extracts + 35.5 x % Nitrogen free extracts was calculated according to the formula of Pauzenga (1985)

Data collection

Growth parameters

The rabbits were weighed individually, initial body weight was taken at the commencement of the research and final body weight was taken at the termination of the experiment individually. The body weight gain per rabbit was the difference between the final weight and the initial weight of the rabbit while feed intake was recorded daily and their corresponding left over weighed. Feed conversion ratio was calculated as the rate of feed intake to live weight gain. Mortality record was kept

throughout the experimental period and was calculated as

$$\text{Percentage mortality} = \frac{\text{Number of dead rabbits in a treatment}}{\text{Total number of rabbits in a treatment}} \times 100$$

Haematological and serum biochemical evaluation

On the last day of the experiment, 5mls blood sample was collected from a rabbit per replicate using 5mls sterile disposable needles. The blood was collected from the ear vein of the rabbits and emptied into sample bottles containing ethylene diamine tetra acetic acid

(EDTA) as anti-coagulant, to prevent clotting of the blood. The haematological indices evaluated were red blood cells (RBC), white blood cells (WBC), haemoglobin (Hb) concentration, packed cell volume (PCV) and leucocytes differentials. The PCV was analysed using Microhaematocrit method, the haemocytometer method was used to obtain total erythrocyte and total leucocytes count as described by Schalm *et al.* (1975). Haemoglobin concentration, differential leucocytes count, mean corpuscular volume (MVC), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC) were determined using the methods described by Schalm *et al.* (1975).

For serum biochemical analyses (Serum protein, globulin, urea and uric acid), 5mls of blood samples were also collected in separate bottles without anti-coagulant and analysed using the methods described by Ajagnona *et al.* (1999) and Uko *et al.* (2002)

Carcass measurement

At the end of the experiment (8 weeks), one rabbits per replicate was randomly selected according to average group weight from each replicate, starved for 12hours to reduce gut content and the risk of carcass contamination during dressing without affecting meat quality, slaughtered and evaluated according to the procedure outlined by Wafar and Tarimbuka (2016). Weights of internal organs were measured and expressed as percentage live weight.

Digestibility trial

During the last 7days of the feeding trial, 3 rabbits from each treatment were used for digestibility studies. The faecal samples were collected from each replicate per day, sundried, bulked, ground and thoroughly mixed to obtain a homogenous mixture. Samples were analyzed for proximate composition according to standard methods (AOAC, 2000) and the

results obtained were used to calculate nutrient digestibility thus:

$$\text{Nutrient digestibility} = \frac{\text{Nutrient intake} - \text{nutrient in faeces}}{\text{Nutrient intake}} + 100$$

Feed cost (₦/kg)

The feed cost (₦/kg) of experimental diet was determined by using the prevailing market price of feed ingredients in Wukari during the period of study and multiplied by the level of inclusion. The cost of feeding the rabbits on each experimental diet for the period of study was also calculated by multiplying the cost/kg of the diet by the total amount of feed consumed.

Statistical analysis

All data collected were subjected to analysis of variance (ANOVA) according to the procedure of statistical package for social science, (SPSS 23, 2015). Means were separated using the Duncan multiple range test option of the same software.

Results and Discussion

Proximate Composition and Anti-nutritional Factors of Raw and Toasted African locust bean Meal

The proximate compositions of the raw and toasted seed African locust bean are presented in Table 2. The results showed higher values of crude Protein (CP), ash and lower values of crude fibre, ether extracts and metabolizable energy on the toasted African locust bean meal (TABM). Nitrogen free extracts (NFE) was not affected by the processing methods. The CP values of both raw and toasted African locust bean meal are slightly higher than 24.31 % and 26.62% reported by Shu'aibu, (2014). Differences in the nutrient composition could be as a result of climatic and edaphic factors, laboratory analysis and processing methods. The higher Crude Protein (CP) level of the toasted African bean meal agrees with the findings of Balogun (2001) who reported that

heating improves the nutritional value of legume grain and also destroys all the heat liable anti-nutrients such as trypsin inhibitors. The crude fibre (CF) and ether extracts (EE) values ranged from 10.30 – 14.32% and 2.17-4.76%, respectively. Nitrogen free extract for raw and toasted African locust bean meal were 48.61 and 48.14% respectively. This indicates that the bean has a good nutritional property

that can be as an alternative source of plant protein in feeding livestock. All the values for anti-nutritional factors (ANFs) determined decreased as a result of the toasting. This result agreed with the findings of John *et al.* (2010), Wafar, (2013) and Tarimbuka *et al.* (2017) who reported reduction in anti-nutritional factors when they subjected sorrel seed and sickle seed to toasting.

Table 2 Proximate and anti-nutritional composition of raw and toasted African locust bean meal

Parameters (%)	Raw	Toasted
Dry matter	96.18	95.60
Crude protein	24.37	26.67
Crude fibre	14.32	10.30
Ether extracts	4.76	2.17
Ash	4.12	8.32
NFE	48.61	48.14
*ME Kcal/g	3012.91	2989.53
Anti-nutritional factors (mg/100g)		
Phytate	0.78	0.20
Tannin	1.00	0.13
Saponin	2.13	0.67
Oxalate	1.93	0.42
Trypsin inhibitors	1.28	0.11

*Metabolizable Energy (ME) kcal/kg = 37 x % Crude protein + 81 x % Ether extracts + 35.5 x % Nitrogen free extracts was calculated according to the formula of Pauzenga (1985)

NFE= Nitrogen free extracts

Growth performance of grower rabbits fed toasted African locust bean meal

Table 3 shows the effect of feeding TABM on growth parameter of grower rabbits. There was no significant ($P>0.05$) influence on all the growth parameters evaluated. Feed cost/kg was highest (₦396.20/kg) in diet T1 and reduces as the levels of TABM increase in the diets. The non-significant ($P>0.05$) influence observed in growth parameters evaluated showed that the processing method employed satisfactorily reduced the anti-nutritional factors to level which brought an efficient utilization of the dietary TABM by the rabbits. The result from

this study however, agreed with earlier findings of Kemi, (2008) and Tarimbuka *et al.* (2017) who reported non-significant differences on growth performance of weaner rabbits fed roasted pigeon pea and sickle seed meals respectively. The reduction in the feed cost/kg as the level of TABM increased in the diets was attributed to the low cost of the TABM as compared to the conventional soybean. The result agreed with findings of Ani (2008), Shaahu *et al.* (2017) and Wafar *et al.* (2018) who reported that the use of non-conventional feeds increases profitability and reduces production cost in livestock feeding.

Table 3 Growth performance of grower rabbits fed toasted African locust bean meal.

Parameters	Replacement levels of toasted African locust bean meal					SEM	P-value
	T1 (0%)	T2 (25%)	T3 (50%)	T4 (75%)	T5 (100%)		
Initial body wt. (g)	560.07	561.00	565.15	559.29	565.14	10.78	0.93
Final body wt. (g)	1125.30	1076.35	1095.80	1114.35	1110.00	15.71	0.50
TBWG (g)	565.24	515.35	530.69	555.10	544.86	13.42	0.32
ADWG (g)	11.53	9.20	10.83	9.91	11.12	0.27	0.31
Total feed intake (g)	2500.00	2510.30	2665.00	2535.65	2395.00	27.35	0.86
ADFI (g)	51.02	44.82	54.38	45.27	48.87	7.08	0.86
FCR	4.40	4.87	5.01	4.56	4.41	0.58	0.72
Mortality (%)	0	0	0	0	0	0	-
Feed cost (₦/kg)	396.20	350.11	290.20	260.09	240.09	-	-

SEM = Standard Error of Mean TBWG= Total body weight gain, ADWG= Average daily weight gain, ADFI= Average daily feed intake, FCR= Feed conversion ratio

Nutrient digestibility of grower rabbits fed toasted African locust bean meal

Table 4 presents the result of the effect of feeding TABM on nutrient digestibility by grower rabbits. Dry matter digestibility was significantly influenced ($P<0.05$) by inclusion of TABM in the diets. Rabbits fed diets T2 (78.32%), T3 (79.55%) and T5 (88.67%) had higher dry matter digestibility than those fed T1 (59.72%) diet but similar to T4 (64.18%). Rabbits fed diet T2 and T5 diets recorded significant higher ($P<0.05$) crude fibre digestibility (75.11% and 78.39%) and NFE (78.25 and 79.01%) respectively. However, rabbits fed diets T2 (75.16), T3 (79.23%), T4 (85.44%) and T5 (83.72%) recorded higher significant ($P<0.05$) ash digestibility while rabbits fed T1 (64.61%) lower ash digestibility. The improved ($P<0.05$) dry matter, crude fibre,

ash and NFE digestibility obtained could be attributed to the heat treatment (heat effect) which is generally known to have positive influence on digestibility of seeds. The finding confirmed earlier assertions of Alu (2018) who attributed improved dry matter, crude fibre and NFE digestibility of weaner rabbits fed toasted kidney bean to positive effect of heat treatment on seed meal. However, the non-significant variation observed on crude protein and ether extract may be probably due to absence of the inhibitory activities of anti-nutritional factors from the test ingredients such as tannins. Studies have showed that tannin inhibits the absorption and utilization of crude protein as well as the activities of lipase, α -amylase and digestion of lipids (Longstaff and McNab, 1991; Obun and Wafar, 2016).

Table 4 Nutrient Digestibility of Grower Rabbits Fed Toasted African Locust Bean Meal.

Ingredients	Replace levels of toasted African locust bean meal					SEM	P-value
	T1 (0%)	T2 (25%)	T3 (50%)	T4 (75%)	T5 (100%)		
Dry matter	59.72 ^b	78.32 ^a	79.55 ^a	63.13 ^{ab}	88.67 ^a	2.95	0.04
Crude protein	78.22	79.12	79.06	86.03	86.01	4.96	0.54
Crude fibre	62.13 ^b	75.11 ^a	69.00 ^b	60.42 ^b	78.39 ^a	4.20	0.02
Ether extracts	70.89	70.13	76.39	74.77	75.56	6.35	0.78
Ash	64.61 ^b	75.16 ^a	79.23 ^a	85.44 ^a	83.72 ^a	4.20	0.03
NFE	65.45 ^b	78.25 ^a	71.25 ^{ab}	70.25 ^{ab}	79.01 ^a	3.45	0.05

Means on the same row carrying different superscripts differ significantly ($P<0.05$) SEM=Standard Error of Mean, NFE=Nitrogen free extracts

Carcass characteristics and internal organ measurements of grower rabbits fed TABM

The result of carcass characteristics and internal organ measurements of grower rabbits fed toasted African locust bean meal is on Table 5. The result for carcass cuts and organ were similar among the treatments. Pelt weight was however, influenced by TABM. Rabbits fed T3 (84.58g), T4 (83.34g) and T5 (84.36g) had significant ($P<0.01$) higher pelt weight compared to those on where T1 (73.25g) and T2 (76.16g) which were significantly ($P<0.05$) lower. Variation in the pelt weight of rabbits could be due to different levels of subcutaneous fat deposition attributable to the dietary treatments (Olafadehan, 2011). According to

Salami *et al.* (2004) dressing percentage and dressed weight of rabbit are very important parameters in assessing the quality of rabbit meat. The non-significant variation in carcass parameters evaluated could be due to the nutritional adequacy of the diets which produced uniform sizes of the animal. The internal organs measurements were also similar across dietary treatments indicating the effect of toasting in reducing the anti-nutritive factors in African locust bean meal. Studies have shown that if there is any major effect of anti-nutritive factors in diet, organs such as kidney, liver would be affected by increase in weight since they are the major organs of detoxification (Carew *et al.*, 2003; Uchewa *et al.*, 2014).

Table 5: Carcass characteristics and internal organ weights of Grower Rabbits Fed Toasted African Locust Bean Meal

Parameter	Replacement levels of toasted African locust bean meal					SEM	P-value
	T1 (0%)	T2 (25%)	T3 (50%)	T4 (75%)	T5 (100%)		
Live weight (g)	1150.00	1019.35	1125.00	1115.00	1115.00	35.35	0.85
Pelt weight (g)	73.25 ^b	76.16 ^b	84.58 ^a	83.34 ^a	84.36 ^a	9.75	0.01
Dressed weight (g)	775.00	701.01	710.00	750.11	700.00	43.68	0.43
Dressing %	67.39	68.77	63.11	67.27	62.78	0.89	0.16
Head (g)	103.05	103.00	106.10	105.22	108.36	1.78	0.25
Forelegs (g)	8.63	8.01	8.46	8.00	8.42	0.78	0.97
Hind legs (g)	25.08	24.25	24.78	25.11	25.37	0.63	0.81
Internal organ weights(% live weight)							
Lungs	0.73	0.69	0.70	0.70	0.76	0.05	0.90
Heart	0.33	0.30	0.32	0.30	0.38	0.03	0.52
Liver	1.03	1.05	1.03	1.04	1.06	0.02	0.24
Kidney	0.86	0.88	0.91	0.94	0.90	0.05	0.78
Small intestine (cm)	243.67	248.11	244.95	241.11	243.00	6.21	0.62
Small intestine weight (g)	46.22	43.13	44.83	44.22	42.89	1.45	0.31
Large intestine (cm)	98.00	90.32	94.00	93.33	98.11	0.81	0.08
Large intestine weight (g)	84.11	89.32	92.03	90.13	89.47	2.90	0.57

Means within the same row having different superscripts are significantly different ($p<0.05$) SEM=Standard Error of Mean

Haematological and biochemical indices of grower rabbits fed toasted African locust bean meal

Table 6 shows the effect of toasted African locust bean meal on the haematological and biochemical indices of grower rabbits. There

was no significant variation across the treatment groups for all the parameters evaluated. The state of the haematological parameters of animals defines, to a large extent, the health and well-being of the animal (Doyle, 2006). The mean values of each parameter

evaluated were within the normal physiological range as reported by Jenkins (1993), Hillyer (1994) and David *et al.* (2002) for grower rabbits. The non-significant difference recorded in the present study suggests that all the dietary treatment, irrespective of the level of toasted African locust bean meal inclusion, met the nutritionally requirement for growth and development. It also suggests that, the processing method employed was efficient in alleviating the presence of anti-nutritional factors that could be toxic to the health of the

experimental animals. Similarly, the non-significant variation in biochemical indices such as total protein, albumin, globulin, cholesterol and urea across the dietary treatments showed the adequacy of nutrients in the diets as reported by Eggum (1986) and Wafar *et al.* (2018). Similarity of the serum albumin content of rabbits also indicates the presence of a healthy and functioning liver as well as a proper protein: energy balance in the diets and absence of parasitic infections (Cheesbrough, 1999).

Table 6: Haematological and Biochemical indices of grower rabbits fed toasted African locust bean meal

Parameter	Replacement levels of toasted African locust bean meal					SEM	P-value
	T1(0)	T2 (25%)	T3 (50%)	T4 (75%)	T5 (100%)		
Packed cell volume (%)	41.86	42.67	43.71	42.56	41.72	1.65	0.23
Haemoglobin (g/dl)	12.11	12.67	11.40	12.89	11.74	0.11	0.67
RBC ($\times 10^6/\text{mm}^3$)	7.64	7.67	7.15	7.45	7.52	0.69	0.20
WBC (%)	8.22	8.45	8.15	8.12	8.05	0.06	0.10
MCV (%)	28.96	28.09	24.99	26.89	28.83	0.77	0.24
MCH (%)	18.23	17.78	16.18	17.45	16.90	1.70	0.89
MCHC (%)	48.61	47.23	45.34	43.89	47.17	1.51	0.69
<i>Biochemical indices</i>							
Cholesterol (mg/dl)	77.71	79.78	72.71	71.56	62.83	1.67	0.89
Total protein (g/dl)	5.56	5.78	5.66	5.23	5.55	0.22	0.56
Albumin (g/dl)	3.11	3.56	3.09	3.11	3.20	0.07	0.78
Urea (g/dl)	35.19	35.78	36.03	36.89	36.56	0.26	0.72
Glucose (g/dl)	82.22	81.78	81.54	83.78	82.67	1.25	0.71
Globulin (g/dl)	2.45	2.68	2.57	2.54	2.23	0.23	0.96

SEM= Standard error mean, PCV= Packed cell volume RBC=Red blood cell, MCH= Mean corpuscular haemoglobin WBC= While blood cell MCHC= Mean corpuscular haemoglobin concentration. MCV = Mean corpuscular volume

Conclusion

The result of the study showed that feeding grower rabbit with toasted African locust bean meal has no detrimental effect on growth performance, nutrient digestibility, blood profile and carcass characteristics. It could be concluded from the study that TABM can replace up to 100% full fat soybean (22.00%) meal in the diet of grower rabbits. This shows that rabbit farmers and feed milling industries can effectively utilize toasted African locust bean meal in compounding rabbit feed.

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