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Growth Performance, Economic Value and Carcass Characteristics of Rabbits Fed Lablab Seed as Major Protein Source in Diet

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Abstract

A study was conducted to determine the growth performance, Economic assessment and carcass characteristics of rabbits fed lablab seed. The Highworth variety was processed by decortication, toasting and boiling, mill and respectively incorporated into diets T2, T3, T4 and T5 to provide 75% of protein provided by full fat soyabean (FFSB) in the control diet (T1). Thirty, 5-weeks old mixed bred rabbits weighing between 350-358g were used in a completely randomized design. Rabbits fed heat treated seed diets grew faster than those fed raw or decorticated seed diets. Growth parameters were similar for rabbits fed T1, T4 and T5 diets. The dressing percentage of the rabbits fed control and heat treated lablab seed diets were similar (55.35-59.13%) and higher than that of rabbits fed the raw (45.15%) or decorticated (45.75%) seed diets. Less cost was incurred on rabbits live weight gain using the control diet than the lablab seed diets. It cost N119.65 using boiled lablab seed diet for rabbits to gain 1kg live weight and ₦128.91 was spent for the rabbits to gain same weight within the same period using toasted lablab seed diets. Heat processed lablab seed diets were however, more cost effective than raw or decorticated lablab seed diets and more cost was incurred using decorticated than raw lablab seeds. Feeding of raw or decorticated Lablab purpureus seed in diets resulted in poor growth and subsequent death of rabbits. Lablab purpureus must be processed before use in monogastric diets. Heat processed Lablab purpureus seed meal can be used to replace FFSB in diet to provide 75% of FFSB protein.

Keywords: Rabbit, ‘protein sources’, ‘lablab seed’ ‘economics and carcass value’

1. Introduction

Rabbits have remarkable ability for sustainable production of animal protein for human consumption and could be promoted as a nourishing natural meat. The meat is high in protein and low in fats, cholesterol and sodium compare to the meat of other animals. The high cost of conventional sources of protein and energy is largely responsible for the present high price of livestock feed. Expansion of any livestock industry depends largely on availability of good quality feeds in sufficient quantity and at affordable price. The potential and inclusion rate of nonconventional feed materials in diets depends on their nutritive value, safety to animal health and availability to farmers.

Developing countries are still confronted with the problem of proper feeding of livestock species, majorly because of the rivalry between man and animals for the conventional protein and energy feed stuffs. Soyabean which is the major protein source in livestock feed is also a significant source of food for man and raw material for the industries. In the struggle to apprehend the escalating feed cost, to reduce livestock production cost and to produce more livestock, there is need to evaluate nonconventional feed material, which has no direct human food and industrial value. Most nonconventional feed materials are considered wastes and nuisance to the environment. The nutritional value of some of these materials to livestock has been extensively studied with encouraging results, (Tuleun. 2008; Kaankuka et al., 2000; Shaahu et al., 2014), but the full knowledge has not been completely exploited, especially when processed. This experiment is therefore aimed to determine nutritive value of raw or processed lablab seed to rabbits.

2. Materials and Methods

The study was conducted at the University of Agriculture, Makurdi Livestock Teaching and Research Farm to investigate the effect of feeding raw and processed lablab seed in diets on the economic value, growth performance, carcass characteristics and organ weights of rabbits. Four equal quantities of the raw lablab (Highworth) seed samples were subjected to different processing procedures. One of the samples was decorticated; the raw lablab seed was cracked in a milling machine to separate the cortex from the seed. The second lablab seed sample was toasted; the seeds was poured directly in a hot toasting pot and agitated (to prevent the seeds from getting burnt) till the seed cortex flaked, producing the characteristics aroma of toasted seed. The Third sample was boiled; water was brought to a boiling point and the seed were added to it, after both the water and the seed begins to boil, it was timed to 40 minutes; water was drained off, the wet seeds were spread thinly on concrete surface, and sun-dried. The Fourth lablab seed sample was left raw. The raw and the processed lablab seed were then milled, and included in the test diets.

Experimental animals and management

Thirty weaned mixed breed (California, New Zealand, American Chinchilla and Dutch) rabbits aged 5 weeks were used for the feeding trial which lasted 11 weeks. At the commencement of the experiment (1st week), all the rabbits were dewormed with ivomectin®. Three weeks later the rabbits were given coccidiostat against coccidiosis. The rabbits were individually weighed, grouped into five in such a way to ensure uniformity of initial body weights in all the groups and allotted to different treatments in agreement with the design of the study. The average weight per group ranged between 350-358g and the animals were individually housed in wood and wire cages measuring 2x2x2 feet (WxLxH). The cages were raised 2 feet above the ground to facilitate cleaning. The cages were equipped with drinkers and feeding troughs suitable to ensure that feed and water were available ad-libitum and wastage of both feed and water are minimized

Experimental diets

Five diets were formulated incorporating toasted full fat soyabean (FFSB) in the control diet (T1) as the main protein source, subsequently the full-fat soyabean was replaced by raw lablab seed, (second diet; T2), decorticated lablab seed, (third diet; T3) toasted lablab seed (fourth diet; T4) and cooked lablab seed (fifth diet; T5), to provide 75% of the dietary protein (CP) contributed by FFSB in the control diet respectively. The quantity of maize in the diet was adjusted to make a 100% diet (Table 1).

Experimental design:

Thirty weaned mixed breed (California, New Zealand, American Chinchilla and Dutch) rabbits were randomly assigned to the five dietary treatments in a Completely Randomised Design (CRD), with 6 rabbits per treatment, constituting 6 replicates. The rabbits were individually fed, and each rabbit represents an experimental unit. The feeding trial lasted for 98 days when the rabbits were about 19 weeks (133days) old except for the rabbits fed T2 and T3.

Carcass evaluation

At the end of the 11th week of the feeding trial two rabbits from each treatment groups were slaughtered and the carcasses evaluated. Prior to slaughter, the rabbits to be slaughtered were deprived of feed for 12 hours as recommended by Joseph et al., (1994) but provided water ad-libitum. According to them, deprivation of feed for 12hrs before slaughter reduces the volume of gut content and hence bacteria, and therefore reduces the risk of contamination of the carcass during dressing without adversely affecting the meat yield and quality. The rabbits were weighed and slaughter was done by severing the jugular vein, carotid arteries, trachea and the oesophagus (at the neck region), the rabbits were suspended head down and allowed to bleed completely. The bled carcasses were eviscerated by opening along the median line of the belly and the eviscerated carcasses were then singed and weighed. The dressed carcass was the portion of the animal remaining after the hair and the visceral organs including the kidney were removed. The head, feet and the skin were included as part of the dressed carcass.

Statistical analysis

The data obtained from the above measurements was subjected to analysis of variance (ANOVA) and where differences exist among treatment means, they were separated by means of Duncan Multiple Range Test, using computer software identified as Statistical Package for Social Sciences, Tenth Version (SPSS 15)

Economic of production

The cost/kg diet of each diet was calculated as the summation of the cost/kg of each ingredient multiply by the level of inclusion: Cost/kg diet = ∑(Cost/kg ingredient X kg inclusion in diet). Cost of feeding was computed as a product of the cost of the diet and the amount of it consumed during the period of study: Cost of feeding= (Cost/diet diet X total feed intake)/1000. Feed cost/kg weight gain was calculated as cost of feeding divide by the total weight gain multiply by 1000: Feed cost/kg weight gain = (cost of feeding/ total weight gain) X 1000.

3. Results

Growth performance of rabbits fed raw or processed lablab seed in diets

Growth performance of rabbits fed raw or processed lablab seed in diets showed that the total weight gain and average daily weight gain of the rabbits fed the control diet were significantly better ($p<0.05$) than those fed the lablab seed meal diets (Table 2). The rabbits fed the heat processed lablab seed diets had better ($P<0.05$) weight gains than those fed raw lablab seed diets. Growth performance of the rabbits fed each of the treatment diets decreased at the 6th week of feeding (Figure 1).

Table 1: Ingredient Composition of Experimental Diets (%)

Ingredients	Control (T1)	TR (T2)	TD (T3)	TT (T4)	TC (T5)
Maize	37.28	35.36	32.27	34.69	31.85
FFSB	24.00	6.00	6.00	6.00	6.00
Lablab seed	-	19.92	23.01	20.59	23.43
Rice husk	26.00	26.00	26.00	26.00	26.00
BDG	9.72	9.72	9.72	9.72	9.72
Bone ash	2.50	2.50	2.50	2.50	2.50
Salt	0.50	0.50	0.50	0.50	0.50
Premix *	+	+	+	+	+
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

TR=Raw lablab seed diet; TD=decorticated lablab seed diet; TT=toasted lablab seed diet; TC=cooked lablab seed diet; BDG=brewers dried grain; FFSB=full-fat soyabean.
*0.25 of Premix (Agrimix Broiler Starter) manufactured by AGRITED NIG. LTD,

The mean daily feed intake of rabbits fed the control diet and those fed the heat processed lablab diets were similar (P>0.05) and significantly (P<0.05) higher than those fed raw and raw decorticated lablab seed diets.

Rabbits fed T1, T4 and T5 had similar (P>0.05) feed to gain ratios and were significantly (P<0.05) better than those fed T2 and T3 diets. Rabbits fed T2 diet, had significantly better (P<0.05) feed to gain ratio than those fed T3 (which had the highest numerical value of feed to gain ratio).

Economic evaluation of rabbits fed raw or processed lablab seed diets

Rabbits fed T2 and T3 diets respectively consumed feed worth N48.77 and N49.99 only while those fed T1, T4 and T5 consumed feed worth N77.85, N68.00 and N64.71 respectively to reach the final weight. The feed value (N128.91 and N119.65 respectively) for rabbits fed T4 and T5 diets to gain 1kg live weight was worth higher than N178.42 and N281.63 required by rabbits fed T2 and T3 but higher than N104.03 needed by rabbits fed the control diet. It required the highest cost to feed rabbits the decorticated diets and the least cost, the control diet to gain a unit weight. Rabbits fed toasted diets incurred less cost to gain unit weight than rabbits fed boiled lablab seed diet. During the feeding period, there was 50% mortality recorded each from T2 and T3 rabbits.

Carcass characteristics of rabbits fed raw or processed lablab seed diets

Meat yield of rabbits fed raw or processed lablab seed meal diets are presented in Tables 4. The average slaughter weights of rabbits fed T1, T4, and T5 were similar (P>0.05), and were higher (P<0.05) than those fed T2 and T3. The mean slaughter weight of rabbits fed T5 was similar (P>0.05) to those fed T2. The differences obtained between the slaughter weights of rabbits fed T2 and T3 were not significant (P>0.05). Dressed weights of rabbits fed T1, T4 and T5 did not differ (P>0.05) and were higher than those fed T2 and T3; dressed weight of rabbits fed cooked lablab seed diet were similar to those of rabbits fed the raw and raw decorticated lablab seed diets. The differences from the dressed weights were also observed even when expressed as percent of the slaughter weight (dressing percentage).

Table: 2. Proximate Chemical Composition of

	Experimental Diets				
Nutrients	Control (T1)	TR (T2)	TD (T3)	TT (T4)	TC (T5)
Dry matter (%)	94.58	97.02	94.24	94.31	93.11
Crude protein (%)	15.38	15.00	15.25	14.38	13.44
Crude fiber (%)	11.43	11.02	10.62	11.21	11.89
Ether extract (%)	2.09	2.10	3.11	2.87	3.77
Ash (%)	8.21	3.49	4.81	5.62	4.38
*NFE (%)	62.89	68.39	66.21	65.92	67.52
GE (kcal/kg)	3455	3444	3452	3562	3571

-Proximate values are on as fed basis
TR= raw lablab seed diet TD= decorticated lablab seed diet
TT= Toasted lablab seed diet TC= cooked lablab seed diet
*NFE= Nitrogen free extract

Organ weights of the rabbits were expressed as percent of their dressed weight (Table 4). There were significant ($P<0.05$) differences among treatment groups on the relative weights of the lungs/trachea, GIT, stomach, small intestine and caecum of experimental rabbits.

The average weights of the liver, kidney, heart spleen and large intestine did not differ significantly ($P>0.05$) among treatments.

Rabbits fed T3 and T4 had similar ($P>0.05$) but lower ($P<0.05$) weights of lung/trachea when compared to those on T2, but same with those of T1 and T5. The lung/trachea of rabbits fed T1 and T5 diets also did not differ ($P>0.05$) from those fed T2 diet. Rabbits fed T3 diet had heavier ($P<0.05$) GIT weight than those fed T1 and T4 diets but similar to those fed T2 and T5 diets.

Rabbits fed T1 diet had lighter ($P<0.05$) GIT weight compared to those fed T2 and T3 but did not differ significantly ($P>0.05$) from T4 and T5 respectively. The relative stomach weights of rabbits fed T2, T3 and T5 were comparable ($P>0.05$) to each other but differed significantly ($P<0.05$) from T1 and T4 which were also similar ($P<0.05$) to each other. The average weights of the small intestine of the rabbits fed T3 diet was significantly ($P<0.05$) heavier than those of the other treatments but similar to those fed T2 diet. Rabbits fed T2 were also similar in their weight of small intestine to those of T3 rabbits. Rabbits fed T1 and T4 diets have similar small intestine weight to those fed T5 but significantly ($P<0.05$) differ from those of T2 and T3 rabbits. The caecum of the rabbits fed the treatment diets were all alike in weight except that rabbits fed T3 had statistically ($P<0.05$) heavier caecum weight than those fed T1 diets. Even though there were no significant ($P>0.05$) differences between any treatment groups in respect to kidney, heart, liver and large intestine, the rabbits fed the raw lablab diets tended to have heavier weights of these organs than those on the processed lablab and control diets respectively.

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Table 3. ECONOMIC AND GROWTH PERFORMANCE OF RABBITS FED RAW AND PROCESSED *Lablab purpureus* SEED MEAL DIETS

	Control (T1)	TR (T2)	TD (T3)	TT (T4)	TC (T5)	SEM
Initial weight (g)	351.67	358.33	366.67	350.00	354.17	
Final weight (g)	1100^{a}	631.67^{b}	577.50^{b}	877.50^{a}	895.00^{a}	45.57
Total weight gain (g)	748.33^{a}	273.33^{c}	177.50^{c}	527.50^{b}	540.83^{b}	43.05
Daily weight gain (g)	9.72^{a}	3.55^{c}	2.31^{c}	6.85^{b}	7.02^{b}	0.56
Daily feed intake (g)	25.89^{a}	18.01^{b}	18.71^{b}	25.24^{a}	24.26^{a}	0.86
Feed/gain ratio	2.67^{a}	5.10^{b}	8.73^{c}	3.73^{a}	3.53^{a}	0.38
Cost/kg diet (₦)	39.05	35.17	34.70	34.99	34.64	
Cost of feeding to final weight (₦)	77.85	48.77	49.99	68.00	64.71	
Feed cost/kg live weight gain (₦)	104.03	178.42	281.63	128.91	119.65	
Mortality (%)	0.00	50.00	50.00	0.00	0.00	

$^{a\,b\,c}$ - Mean values within a row with same or without superscript do not differ ($p>0.05$)
SEM - Standard Error of Mean
TR= raw lablab seed diet TD= decorticated lablab seed diet
TT= Toasted lablab seed diet TC= cooked lablab seed diet

4. Discussion

Growth performance of rabbits fed raw or processed lablab seed diets

The performance of the rabbits fed the experimental diets from 0-11 weeks showed a similar trend as that from 0-5 weeks (Shaahu et al., 2014). The final weights of the rabbits fed the toasted and cooked lablab seed diets were similar to those fed the control diet. Unlike the numerical difference in the final weight of rabbits fed the toasted seed diet and the raw lablab seed diet within the 0-5 weeks feeding reported by Shaahu et al. (2014), the toasted lablab seed diets were significantly superior to the raw lablab seed diets. This could be an indication that the cumulative levels of the anti-nutritional factors in the raw and the decorticated lablab seed diets for 11 weeks of feeding in the present study has influenced the feed palatability and feed intake which has resulted in the reduced performance of rabbits fed these diets. Similar feed intake by rabbits fed the toasted FFSB (control) diet and cooked and toasted lablab seed diets is an indication that the palatability of lablab and soyabean are both influenced by the respective heat processes employed, and has affirmed that there was an improvement in the palatability of the heat treated lablab seeds diets as the anti-nutritional factors were reduced or removed.

Similar feed intake between birds fed control and those fed toasted lablab seed diets for 7 weeks has been reported (Rasha and Khadiga, 2007). They suggested that this may be related to palatability of control diet compared with lablab seed diets. The superior performance of rabbits fed control diet and the heat treated lablab seed diets in the present study may be ascribed to nutrient composition of the diet, the form in which the nutrients exist and how effectively these nutrients are utilized by the animal receiving the diets.

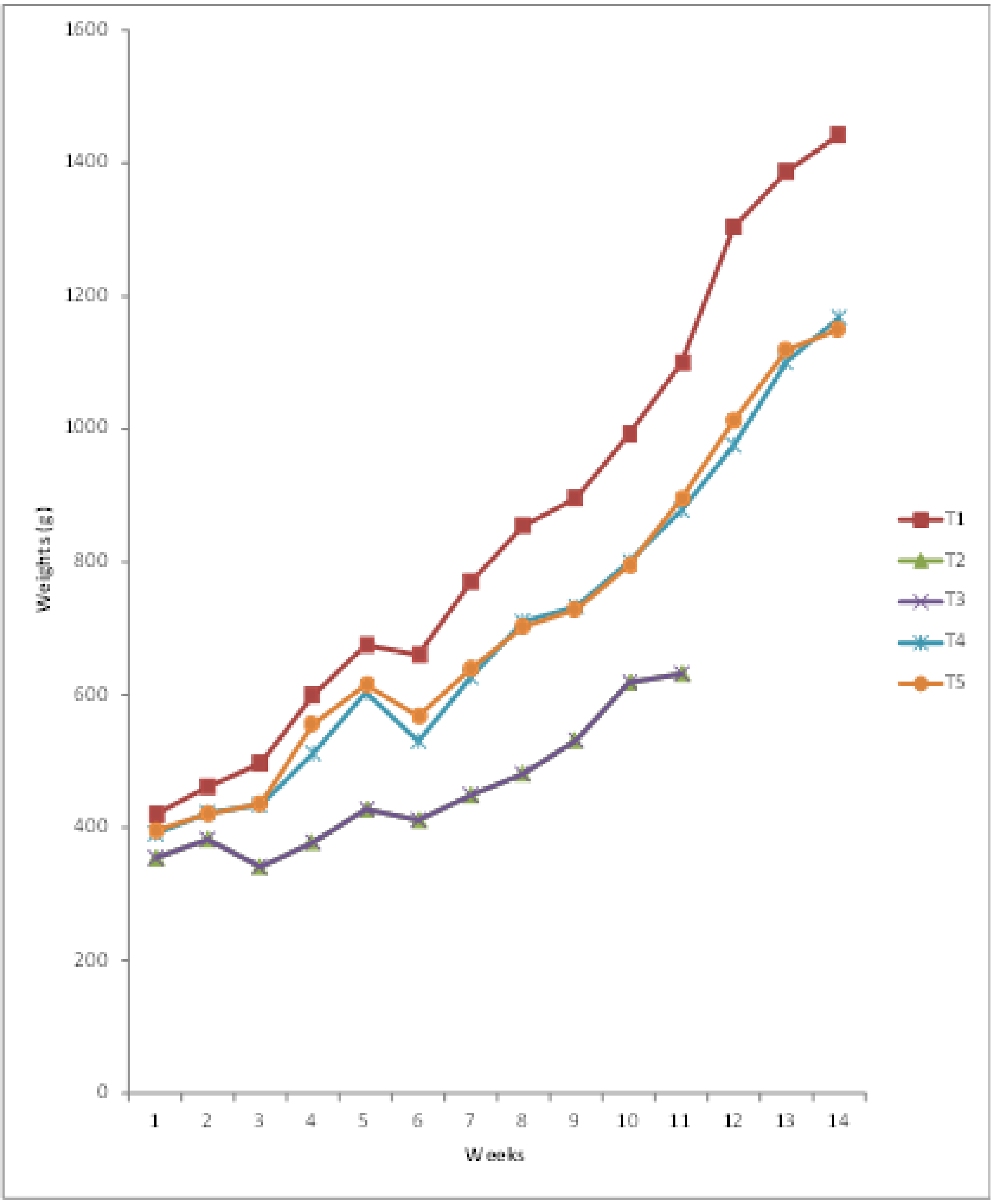

Figure 1: Weekly performance of rabbits fed experimental diets

T1= control diet T2= raw lablab seed diet
T3= decorticated lablab seed diet T4= toasted lablab seed diet T5= boiled lablab seed diet

Nutrient available for the rabbits fed raw and decorticated lablab seed diets were limited so they were required to consume more of these feeds to gain a unit weight without which weight gains were slow. This cannot be easily explained using the crude form of these nutrients as presented by proximate analysis results.

Economic evaluation of rabbits fed raw or processed lablab seed diets

The feed consumption by rabbits fed T1, T4 and T5 diets respectively were statistically similar, but the high cost of the control diet caused the average cost (N77.85) of feeding the rabbits to be higher than that (N68.00 and N64.71) fed T4 and T5 diets respectively. The rabbits fed T2 and T3 diets respectively did not consume much of their feed due to reduced palatability caused by the present of anti-nutritional factors present in the raw seeds of lablab. This low feed intake resulted to low cost of feeding the raw and decorticated lablab seed diets compare to the control, toasted and boiled lablab seed diets respectively. Less of the control diet was required by the rabbits to gain a unit weight than the other diets. This is an indication of efficient nutrient utilization of the diet by these rabbits which gave the diet economic advantage over the rest of the diets.

As it was in the 5th week of feeding, the boiled lablab seed diet again was economically better utilized than the toasted lablab seed diets. The decorticated lablab seed diets also remained economically less efficient than the raw lablab seed diet.

Feeding the experimental diets for 11 weeks offered these rabbits' cumulative levels of the anti-nutritional factors from the raw and decorticated lablab seed diets than at 5 weeks of feeding reported by Shaahu et al. (2014). These cumulative levels of the ANF due to long consumption period reduced drastically the tolerance of the rabbits fed the raw or decorticated lablab seed diets and this resulted in 50% mortality from each of these treatments by the 11th week of feeding.

Carcass characteristics of rabbits fed lablab seed diets

The existence of the rabbits fed T2 and T3 diets for a longer period was threatening; therefore, the remaining rabbits were slaughtered at the 11th week of the study to determine their meat yield. The slaughter (final) weights of the rabbits were generally low for their age (16 weeks) but rabbits fed T1, T4 and T5 were heavier than those fed T2 and T3 diets. Slaughter weights of 2kg for rabbits are attained in 6 months in the tropics (Owen, 1981). The slaughter weights of T2 and T3 are however lower due to the slow rate of growth which was ascribed to the consumption of ANF in the raw and decorticated lablab seed diets.

The rabbits fed T2 and T3 diets were inferior to those fed T1 and T4 but similar to those fed T5 in their dressed weights and dressing percentage. This indicates that the consumption of cooked lablab seed in diet by rabbits resulted to heavier organs (offal).

The dressing percentage range (55.35-59.13%) for rabbits fed T1, T4 and T5 diets in this study agrees with the 56.0% reported by USDA (1973), and 56.30% by Templeton (1968). It is however, higher than the 45.83 -51.58% reported by Onifade and Tewe, (1982) as well as 50.90-52.90% range reported by Abu and Ekpenyong (1993).

The dressing percentage (45.15 and 45.72%) for rabbits fed T2 and T3 obtained in this study corresponds with the values reported by Onifade and Tewe (1982). The higher dressing percentage among the rabbits fed the control and the heat processed lablab seed diets in this study may be due to better utilization of nutrient by this group of rabbits arising from the removal of anti nutritional factors due to processing.

The observed differences in dressing percentage in the present study compared with those of other researchers may be due in part to differences in weight of rabbits at the time of slaughter. Garcia et al. (1993) observed that rabbits slaughtered at 2kg and 2.5kg live weight gave a dressing percentage of 58% and 60% respectively. Similarly, Olupona et al. (1998) obtained dressing percentage of 40.30% and 48.40% in rabbits weighing 1.10kg and 1.21 kg respectively. Igwebuike (2001) also reported a dressing percentage of 48.21 to 52% from rabbits weighing between 1200g to 1532g. Variation in dressing percentage among researchers may also emanate from differences in their definition of carcass. In Europe, the head and feet are part of the carcass, so the rabbit dressing percentage obtained (60-62%) is higher than that in the United States (50%) where head and feet are removed. In Nigeria, the head, skin and feet contribute about 10%, 11% and 3% respectively to skinned rabbit carcasses (Aduku et al., 1986).

Table 4: CARCASS CHARACTERISTICS AND ORGAN WEIGHTS OF RABBITS FED RAW AND PROCESSED *Lablab purpureus* SEED DIETS

Parameters	Control (T1)	TR (T2)	TD (T3)	TT (T4)	TC (T5)	SEM
Slaughter weight (g)	880.00^{a}	637.50^{bc}	577.50^{c}	795.00^{a}	750.00^{ab}	38.17
Dressed weight (g)	505.00^{a}	287.50^{b}	265.00^{b}	470.00^{a}	415.00^{ab}	35.26
Dressing percentage	57.05^{a}	45.15^{b}	45.72^{b}	59.13^{a}	55.35^{ab}	1.3
Organ weights as percent of dressed weight (%)						
Liver	4.07	5.98	5.38	3.92	4.25	0.48
Paired kidney	1.11	1.79	2.08	1.13	1.23	0.39
Lungs/ trachea	1.18^{ab}	1.91^{a}	0.95^{b}	0.91^{b}	1.16^{ab}	0.34
Heart	0.39	0.58	0.66	0.45	0.51	0.17
Spleen	0.04	0.09	0.12	0.08	0.06	0.12
GIT	12.15^{c}	21.45^{ab}	23.80^{a}	14.24^{bc}	15.78^{abc}	1.26
Stomach	2.60^{b}	4.16^{a}	4.24^{a}	2,78^{b}	2.93^{b}	0.42
Small intestine	3.72^{c}	7.53^{ab}	9.03^{a}	3,93^{c}	4.52^{bc}	0.94
Large intestine	3.44	5.53	5.17	3.86	4.46	0.53
Caecum	2.39^{b}	4.24^{ab}	5.33^{a}	3.68^{ab}	3.87^{ab}	0.55

$^{a\,b\,c}$ - Mean values within a row with same or without superscript do not differ (p>0.05)
SEM - Standard Error of Mean
TR= raw lablab seed diet TD= decorticated lablab seed diet
TT= Toasted lablab seed diet TC= cooked lablab seed diet

The similarity (P>0.05) in the relative weight of the heart, liver, and kidney among the treatment groups in the present study can be explained by the observations of Wallace (1949), Palson and Verges (1952) and Hight and Baston, (1965) that in goats, the heart being a vital organ, attains most of its mature weight during development of the foetus therefore experimental diets do not significantly (p>0.05) change heart weights in the later stages of growth.
The weight of the lungs of rabbits fed T2 diet was only significantly (P<0.05) heavier than of those fed T3 and T4 diets but this did not show clearly the implication of the effect of anti-nutritional factor in diet. The rabbits fed the raw lablab diets had similar lungs weight with those of the cooked lablab diet and those of the control diet.
The stomach of rabbits fed the raw and decorticated lablab seed diets were heavier than those of the other treatment groups in the present study and this may be in part due to the involvement of the stomach in the metabolism of the diets. For similar reason, the small intestine of the rabbits fed T2 and T3 in the present study were significantly (P<0.05) heavier than those fed the control diet. There is an indication by Yen et al. (1989) that differences in the weight of visceral organs are highly related to differences in their energy expenditure in line with the function performed. According to Anugwa et al. (1989) increased energy expenditure of the visceral organs is caused by the repartitioning of nutrients from edible parts to the visceral organs. In all cases where significant differences exist among the rabbits in their organ weights, organ of rabbits fed raw or decorticated lablab seed diets are heavier in the present study. The heavier relative weights of the organs of the rabbits fed the raw lablab seed diets in the present study is an indication of their task in the utilization of diets containing heavier load of anti nutritional factors.

5. Conclusion

About 20% of raw or decorticated lablab seed in diets gave poor growth and subsequent death of growing rabbits weaned at 5 weeks of age. Growth performance of rabbits fed heat treated seed diets was better than those of the raw or decorticated seed diets but less than that of the control diet. Meat yield of the rabbits fed control and heat treated seed diets were higher than those of the raw or decorticated seed diets. Lablab seed could serve as an alternative to FFSB in rabbit diet therefore, reducing competition with human over protein sources like soyabeans and ground nuts. Based on the finding of this study it is suggested that, rabbits could be fed heat processed lablab seed in diets to replace 75% of full fat soyabean without adverse effect. However, raw and only decorticated lablab seed diets should not be fed to growing rabbits. Production of lablab seed should also be encouraged in order to boast availability of seed for livestock nutrition.

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