

CARCASS CHARACTERISTICS OF WEANER RABBITS FED GRADED LEVELS OF ROASTED *VIGNA SUBTERRANEA* MEAL

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ABSTRACT

A five-week feeding trial was carried out to determine the dietary effect of varying levels of roasted *Vigna subterranea* (bambara) meal on the carcass characteristics of weaner rabbits. Forty male and female New Zealand White x California rabbits with an average initial weight of 700g and between 5 and 7 weeks old were allocated to four dietary treatments with five replications in a completely randomized design (CRD). The *Vigna subterranea* seeds were roasted and milled to produce the *Vigna subterranea* meal (VSM) which was included in the experimental diets at 0 (which served as the control), 10, 20 and 30% VSM. The carcass weight was in the range of 548.50 - 688.50g and the dressing percentage 49.14 - 51.42%, both were not significantly influenced by dietary treatments. Likewise, the relative organ weights expressed as a percentage of live weight showed no significant variation among dietary treatments. At the end of the five-week feeding trial, four out of ten rabbits were randomly selected for carcass and organ measurements. The following range of values were observed: large intestine, 1.31 - 1.51%; caecum, 5.20 - 5.96%; stomach, 3.38 - 5.52%; kidney, 0.59 - 0.72%; heart, 0.19 - 0.26%; pelt, 7.02 - 7.97% and head 8.54 - 9.04%. It was concluded from this research that roasted *Vigna subterranea* meal can be included up to 30 percent in the diets of weaner rabbits without negatively affecting carcass characteristics.

Keywords: Rabbits, *Vigna subterranea*, carcass characteristics

INTRODUCTION

There exist numerous legume grains in Nigeria, however, only soybean, cotton seed cake and groundnut cake are mainly used for feeding livestock. Quite a lot of other locally available species that exhibit remarkable adaptation to tropical conditions still exist and one of such is bambara groundnut (*Vigna subterranea* (L.) Verdcourt) which is considered to have been under-utilized and under-exploited for livestock feeding. *Vigna subterranea* is a legume plant that is drought tolerant and easy to cultivate, it is an important source of protein and energy with medicinal value (Udeh *et al.*, 2020). *Vigna subterranea* is indigenous to Africa and it possesses great potential for inclusion in livestock diets (Bbebe, 2020). This group of legumes is often classified as minor legumes, resulting from a lack of adequate information on their nutritional qualities, uses and cultivations. The need arises for the exploitation of the full potential of these relatively neglected legumes for livestock feeding (Apata and Ologhobo, 1994).

MATERIAL AND METHODS

The experimental rabbits were obtained from the National Veterinary Research Institute (NVRI) Vom, Plateau State. The experiment was conducted at the Rabbit Research House of the Abubakar Tafawa Balewa University, Bauchi. Bauchi town is located at latitude 13° 30'N and longitude 11° 50'E. Bauchi State is located in the Northern Guinea and Sudan Savanna zones of Nigeria. The wet season is usually about five months (May to September) and seven months of dry season (October to April).

Forty New Zealand White x California male and female rabbits with an average initial weight of 700g and between 5 and 7 weeks old were allocated to four dietary treatments with each treatment having five replicates in a completely randomized design (CRD). The *Vigna subterranea* seeds were roasted and milled to produce the *Vigna subterranea* meal (VSM) which was incorporated in the experimental diets at 0 (control), 10, 20 and 30% VSM.

Feed and water were provided *ad libitum* to the rabbits. At the end of the five-week feeding trial, four out of ten rabbits were randomly selected for carcass and organ measurements. Data obtained from the carcass and organ measurements were subjected to the analysis of variance (Steel and Torrie, 1980).

RESULTS AND DISCUSSION

Carcass characteristics of rabbits fed graded levels of roasted VSM are shown in Table 1. Organ weights were expressed as a percentage of live weight and they all showed no significant variation ($P>0.05$) among dietary treatments. Carcass weights ranged from 548.50 to 688.50g for rabbits on the 30 and 10% VSM based diets respectively.

The dressing percentage did not significantly differ ($P>0.05$) among treatments and ranged from 49.14% for rabbits on 20% dietary level of VSM to 51.42% for those on 10% dietary level of VSM. Percent live weights for small intestine values were 4.19, 4.41, 5.02 and 5.38% and values for the liver were 2.42, 2.45, 2.65 and 2.68% for rabbits on 0, 10, 20 and 30% dietary levels of VSM respectively. The values for the small intestine and the liver showed slight increases with an increase in dietary levels of VSM although the effects were not statistically significant ($P>0.05$). For the other organs, however, no consistent trend was observed. The following range of values were observed: large intestine, 1.31 - 1.51%; caecum, 5.20 - 5.96%; stomach, 3.38 - 5.52%; kidney, 0.59 - 0.72%; heart, 0.19 - 0.26%; head, 8.54 - 9.04% and pelt, 7.02 - 7.97%.

Carcass weights obtained in this study also did not show any significant effect of dietary treatments. Carcass weights were within the range of 548.50 to 688.50g and dressing percent ranged from 49.14 to 51.42%. These values were higher than the values reported by Joseph *et al.* (2000) who obtained carcass weights in the range of 288.70 - 501.60g and dressing percentage in the range of 35.30 - 48.20%. Organ weights (expressed as a percentage of live weight) were also not significantly influenced by dietary treatments. These results agree with the findings of Ehebha *et al.* (2008). Amaefule *et al.* (2011) reported no significant difference in carcass and organ characteristics of rabbits fed raw *Vigna subterranea* offal. However, Usman *et al.* (2019) fed rabbits with cooked *Vigna subterranea*, had a slightly different observation from their study, in that all the carcass parameters measured showed no significant difference among the treatments, except the dressed weight and dressing percentage.

Table 1: Effect of graded dietary levels of roasted *Vigna subterranea* meal on carcass characteristics of rabbits

Parameters	Dietary levels of <i>Vigna subterranea</i> meal (%)				SEM
	0	10	20	30	
Carcass weight (g)	602.67	688.50	646.33	548.50	44.65 ^{NS}
Dressing %	49.79	51.42	49.14	49.76	1.06 ^{NS}
Organ weights (% LW)					
Large intestine	1.50	1.31	1.38	1.51	0.12 ^{NS}
Small intestine	4.19	4.41	5.02	5.38	0.25 ^{NS}
Caecum	5.96	5.52	5.82	5.20	0.47 ^{NS}
Liver	2.42	2.45	2.65	2.68	0.18 ^{NS}
Stomach	5.15	3.38	4.25	5.52	0.52 ^{NS}
Kidney	0.69	0.59	0.63	0.72	0.04 ^{NS}
Heart	0.25	0.26	0.19	0.21	0.02 ^{NS}
Pelt	7.79	7.07	7.50	7.02	0.27 ^{NS}
Head	9.04	9.01	8.54	8.70	0.11 ^{NS}

SEM = Standard error of mean

NS = Not significant

LW = Live weight

CONCLUSION AND RECOMMENDATION

Vigna subterranea a nonconventional feed resource could replace part of maize and soybean in the diets of rabbits without compromising the dressing percentage, carcass and organ weights of the animals. In conclusion, since there was no statistical significant difference ($P>0.05$) among dietary treatments in this study, it is suggested that roasted *Vigna subterranea* meal can be included up to 30 percent in the diets of weaner rabbits without negative effect on their carcass characteristics.

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