"Garden City
2013"

NIGERIAN SOCIETY FOR ANIMAL PRODUCTION (NSAP)

Proceedings of

38TH ANNUAL CONFERENCE & 40TH Anniversary

P.6

THEME

ANIMAL AGRICULTURE: A TOOL FOR SUSTAINABLE ECONOMIC TRANSFORMATION

DATE: 17TH - 20TH MARCH, 2013

ISBN: 1596-5570

HELD AT:

DEPARTMENT OF ANIMAL SCIENCE
FACULTY OF AGRICULTURE
RIVERS STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY,
PORT HARCOURT.

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...g. Soc. Anim. Prod. 17-20 March, 2013, Rivers State University of Sci. & Tech., Port Harcourt.

THE GROWTH PERFORMANCE AND SLAUGHTER CHARACTERISTICS OF GUINEAFOWLS (*Numidea meleagris galeata*) FED MALTED NEGRO COFFEE (*Senna occidentalis*) SEED MEAL

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ABSTRACT

The study was carried out to determine the growth and carcass characteristics of wild guinea fowl (Numida meleagris galeata) fed graded levels of malted Negro coffee (Senna occidentalis) seed meal. One hundred and ninety day old guinea fowl keets were randomly allotted to four different dietary treatment groups of 45 birds each. Each treatment group was further replicated three times with 15 birds per replicate. The treatments were designed as T1, T2, T3, and T4 representing 0, 6.5, 13.50 and 19.5 % Malted *Senna occidentalis* Meal *(MSOM) at the starter phase (0-10 weeks) and 0, 5.5, 11.0 and 16.5 % at the finisher phase (11-20 weeks) respectively. At the end of the 20th weeks, two birds each from each replicate were slaughtered to measure their slaughter characteristics. The results of the experiment revealed that only the final live weight, showed a significant difference ($p<0.05$) between treatment groups. No significant difference ($p>0.05$) was observed in the slaughter weight, de-feathered weight, eviscerated weight and the dressed weight. Therefore, MSOM can be included up to 11.0 % level in the diet of guinea fowl without any detrimental effect on the growth and slaughter characteristics.*

INTRODUCTION

The ever increasing demand for animal protein for the present and future population of people living in the developing countries has been an issue of concern to governments, nutritionists, and individuals in recent years. The protein consumption level in Nigeria is about 27 g less than the minimum requirement of 35g recommended by the National Research Council of the United States of America (NRC, 1998). Going by the current Nigerian population of over 140 million (NPC, 2006), to meet the recommended 35 g of animal protein- per person per day, an average meat supply of 4.9 million Kilograms per day will be required. Lack of adequate ingredients and high cost of poultry birds has created the need for research into alternative feed ingredients that have high nutritive value and are readily available. However, most plant legumes such as Negro coffee (*Senna occidentalis*), contain antinutritional factors (ANF) like trypsin inhibitors, cyanides, phytic acids and tannins that limit their use in monogastric diets. Presently, negro coffee is not in use as a source of protein in poultry production. (Kudu *et al.*, 2010). The guinea fowl is widely distributed in the tropical guinea savanna area of Africa. In Nigeria, millions of eggs of this indigenous bird are wasted away during the annual bush burning. It is my considered opinion that these eggs can be collected from the wild, hatched and turned into a useful source of protein as well as income for the local farmers.

MATERIALS AND METHODS

The eggs were collected from the wild , and incubated according to the method adopted by Kudu *et al.* (2010). The malting of the seeds were done using the method of Kakati *et al.* (2010). After malting ,the seeds were sun dried and milled into Senna occidentalis seed Meal (MSOM).Some of the malted seeds were analyzed to determine the levels of anti-nutritional factors still present using the method of Latta and Eskin (1980) to analyze for phytic levels, while a modified method of AOAC (2000) adopted by Onwuka (2005) to analyze for tannin, trypsin inhibitors and saponin was used (Table 1).The proximate analysis of the feed was done using AOAC (2000) analytical methods (Table 3). Eight diets were formulated during the starter phase and the finisher phase. In the starter phase, diet 1 (T_1) was designed as the control with 0% MSOM (Malted *Senna occidentalis* Meal), diet 2 (T_2) contained 6.5% MSOM, diet 3 (T_3) contained 13.0% MSOM and diet 4 (T_4) contained 19.5% MSOM respectively. While in the finisher phase, diet 1 (T_1) contained 0% MSOM, diet 2 (T_2) contained 5.5% MSOM, diet 3 (T_3) contained 11.0% and diet 4 (T_4) contained 16.5% respectively. The dietary composition of the experimental diets for both the starter and the finisher phases are shown in Table 2.

RESULTS AND DISCUSSION

Table 1 shows the effect of malting on some of the anti-nutritional factors present in the malted seed, with tannin and trypsin inhibitors having the highest level of reduction, Similar results was obtained by Yakubu (2008). Table 2 shows the composition of experimental diets of guinea fowl containing malted *Senna occidentalis* meal at starter and grower phases respectively. Table 3 shows the initial weight, final live weight, slaughtered weight, de-feathered weight, eviscerated weight and dressed weight. It was observed that there was significant difference ($p<0.05$) in the final live weight with T_2 having the highest value and T_4 having the lowest value but there were no significant difference ($p>0.05$) in the other parameters measured. The average eviscerated weight which was 71.90% and the average dressed weight which was 66.84% was in agreement with (Ayeni, 1983) who stated that Guinea fowl on slaughtering has an eviscerated yield of over 80% and a yield of edible carcass of between 50-80%. Similar results have been reported by Kudu (1998). The result of the final live weight showed a significant difference ($p<0.05$) between treatment groups, while the result of other parameters such as: the slaughtered weight, de-feathered weight, eviscerated weight, and dressed weight were not significantly different ($p>0.05$) between the dietary treatment.

CONCLUSION

Based on the results obtained from the experiments, it was observed that the guinea fowls showed no significant ($P>0.05$) response to most of the parameters at different levels of dietary inclusion of Malted *Senna occidentalis* meal (MSOM) except for the final live weight where significant difference ($P<0.05$) was observed.

REFRENCES

Ayeni, J.S.O. (1983). State of Knowledge on the Status, Biology and Management of Grey Breasted Guinea Fowl (*Numida meleagris galeata Pallas)* in Nigeria. (Ed) J.S.O. Ayeni, T.A. Aire, Olomu, J.M. *Published by Kainji Lake Research Institute Press, New Bussa, Nigeria.* Pp. 10-13.

Kakaki,p.,Deka.,S.C.,Kototi,D. and Saikia,S.(2010)Effects of traditional methods of processing on the nutrients contents and some antinutritional factors in newly developed cultivars of green gram(*Vigna radiate*) (L)and black gram(*Vigna mungo*)(L)of Assam India.*International Food Reaearch Journal* 17:337-384

Kudu, Y.S. (1998) Effect of different levels of protein on the performance of indigenous guinea fowls *(Numida meleagris galeata* Pallas). M.Tech.Thesis submitted to the Postgraduate school, Federal University of Technology, Minna ,1998.

Kudu, Y.S., Ayanwale,B.A., Shiawoya,E.L. A.Aremu, A., Jiya,E.Z. and Masodami, V. (2010). Growth performance of wild indigenous guinea fowls (*Numidea meleagris galeata*) fed graded levels roasted negro coffee(*Senna occidentalis)* seed meal. Proceeding of the 35th Annual Conference of the Society for Animal Production. (NSAP.) University of Ibadan, Nigeria. 14th -17th March, 2010. Pp:315-318.

Latta,M. and Eskin,M.(1980).A simple calometric method of phytate determination*Journal of agriculture and Food Chemistry.* Pp2291-2295

Onwuka,G.I. (2005) Food analysis and instrumentation ,theory and practice ,Printed by Napthali Prints,A division of Hg support Nigerian Limited Surulere Lagos , Nigeria pp140-153

National Research Council (1998). Nutrient requirements of poultry. 10th ed. National . Academy Press. Washington D.C.

Yakubu, S. (2008). Proximate analysis and antinutritional properties of two common weeds *Senna ostusifolis* (Sickle pod) and *Senna occidentalis* (Coffee Senna) leaves in relation to leaf position. B.Sc project report, Department of Biological Sciences, Faculty of Science, Ahmadu Bello University Zaria. Pp: 42

Table 1: Anti-nutritional factors of raw and malted *Senna occidentalis* seeds

Anti-Nutritional Factor	Raw	Malted	%Reduction
Phytic acid (mg/100g)	503.10	289.43	42.47
Tannin (g/kg)	25.64	40.50	84.20
Cyanide (mg/100g)	18.07	8.84	48.99
Trypsin inhibitor (g/kg)	36.85	9.39	74.51

Table 2: Composition of experimental diets of guinea fowl containing malted *Senna occidentalis* meal at starter and finisher phases.

	Level of malted *Senna occidentalis* meal (%)							
	Starter phase				Finisher phase			
Ingredients	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4
Maize	44.70	40.31	36.11	31.93	55.13	52.02	48.47	44.46
GNC	41.70	39.64	37.33	35.02	31.30	28.88	26.93	25.44
MSOM	0.00	6.50	13.00	19.50	0.00	5.50	11.00	16.50
Maize bran	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Premix	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Fish meal	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Bone meal	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Palm oil	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Lysine	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Methionine	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Calculated analyses								
Energy (Kcal/Kg)	2995	2945	2968	2972	3010	3039	3060	3075
Crude protein (%)	26.01	26.00	26.00	26.00	22.16	21.99	21.99	22.18

MSOM= Malted *Senna occidentalis* Meal; **GNC**= Groundnut Cake; T_1= 0%MSOM inclusion at starter and finisher phases; T_2= 6.5% & 5.5%MSOM inclusion at starter and finisher phases; T_3=13.0% & 11.0%MSOM inclusion at starter and finisher phases; T_4= 19.5% & 16.5%MSOM inclusion at starter and finisher phases.

Table 3: Performance and carcass characteristics of guinea fowls fed graded levels of malted *Senna occidentalis* meal (finisher phase)

Parameters	T1	T2	T3	T4	SEM
Initial body weight (g)	33.03	33.02	33.01	33.03	0.01
Final live weight (Kg)	1.12^b	1.22^a	1.20^a	1.10^b	20.59
Slaughtered weight (%)	91.10	89.75	89.58	86.36	0.89
De-feathered weight (%)	84.59	84.28	84.49	80.91	1.57
Eviscerated weight (%)	73.36	71.25	72.33	70.68	1.38
Dressed weight (%)	68.21	65.86	67.51	65.80	1.34

a,b : Means denoted by different superscript along the same row are significantly different(P>.05) .