COMPARATIVE ANALYSIS OF NUTRITIONAL COMPOSITION OF MEAT OF DOMESTICATED AND WILD GRASSCUTTER (*Thryonomys swinderianus*)

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ABSTRACT
This study was conducted to compare the proximate composition of meat of domesticated Grasscutters and those obtained from the wild. A total of sixteen grasscutters of weight 3.5-5kg were purchased for the experiment: eight domesticated (four matured males and four matured females) from the Forestry Research Institute of Nigeria (FRIN), Jericho Ibadan and the remaining eight (four matured males and four matured females) captured from the wild. The animals were allotted into two dietary treatments with four replicates and two animals per replicate in a Complete Randomized Design (CRD). Results from the experiment showed that domestication had no significant effect ($P<0.05$) on the crude protein, fat, ash, moisture and crude fibre. Values for crude protein 18.35% were numerically higher in the wild, while the cholesterol content 0.079% was higher for the domesticated ones. Grasscutter from the wild was significantly richer in calcium 6.68% ($P<0.05$) and also numerically higher in iron 4.36% and magnesium 0.75% but had less zinc 1.14%. From this study it can be deduced that domestication has lesser effect on nutritional composition of grasscutter meat compared to those from the wild therefore, people who live in urban and rural areas can consume both domesticated and wild grasscutter without any adverse effect on their health.
Keywords: Grasscutter *(Thryonomys swinderianus)*, proximate composition, concentrate, protein, cholesterol, iron, domestication.

INTRODUCTION
Grass cutter is a wild animal which is socially and traditionally accepted in rural and urban settings and in Africa as a whole. It serves as a good source of revenue, these days. It is domesticated by farmers and individual who chose to domesticate it for easy food access of desired meat or for commercial purpose. Grass cutter is characterized according to its use. It belongs to the *Thryonomy* family, containing a single genus, which multiplies into five or six genus. Its habitat are usually mashes, swamps, boarder of lakes and streams but occasionally live in bushes among rocks of higher grounds. In the West Africa where grass provides its main food and habitat, it is commonly known as grasscutter or pidgin name cutting grass while in South Africa where it is closely associated with cane field, it is called Cane rat, other local names are used within the major tribal group of Nigeria. Igbo-Nchi, Yoruba-Oya, Hausa-Jebji.

Grasscutter is an animal which can easily be domesticated as reported by (Asibey, 1974). Wildlife has provided food generally for rural and urban dwellers as source of protein, people in local habitats still look strenuously for Grasscutter's meat as source of protein to supplement their mono-starchy food, The food and Agriculture Organization (FAO, 1989) has recommended that a minimum of 70g of protein per day is consistent with a balance diet, provided 50% is from animal protein. Grasscutter farming in Nigeria has gained a lot of popularity because of it low capital input. In Ghana, it has been reported that Grasscutter *(Thronomy swinderianus)* acceptance among ethnic group of West Africa makes its rearing interesting. Ajayi (1974) earlier reported that the meat of Grasscutter is acceptable to all social classes of both rural and urban areas. The meats are particularly favoured among other wild animals because of its good taste, low fat and

highly dressing percentages, its nutritive value is high and if compares with beef and mutton and porks which are available on the Ghananian market (Afolayan, 1987).

Grasscutter is an herbivore and feeds on sweet potato and make good use of roughages. Grasscuter also adapts to grasses like elephant grass, *(Pennisetum puirpureum)* and sugar cane *(Succharium officinarium)* and tubers (Fayenuwo *et al.*, 2003).

MATERIALS AND METHOD

Experimental Animal

A total of sixteen grasscutter *(Thryonomys swinderianus)* four matured male and four matured female was purchased from Forestry Research Institute of Nigeria (FRIN) Jericho Ibadan Farm and the same number of animals with the same weight were captured from the wild through the help of local hunters and they were of average weight of 3.5-5kg and one per replicate were slaughtered and samples collected for analysis. The animals were allotted into two dietary treatments with four replicate and two animals per replicate T1and T2 in a completely randomized design (CRD).

RESULTS AND DISCUSSION

Table 1.1 and 1.2 shows the gross composition of the concentrate feed and the calculated composition of the concentrate supplement. From the table above, it shows that the concentrate supplement has crude protein of 14.76%, Crude fiber of 70.1%, Ether Extract of 4.40% and Metabolizable Energy of 2422.98 Kcal/kg. Table 1.3 above shows the proximate composition and meat cholesterol of wild and domesticated grasscutter. The results shows that the crude protein of T_1 (domesticated) is 17.83% and the crude protein in T_2 (Wild) is 18.35%, The Fat of T_1 (Domesticated) is 2.48%, and T_2 (Wild) is 2.94%. The ash of T_1 (Domesticated) is 1.03% and T_2 (Wild) is 1.10%. The moisture content of T_1 (Domesticated) is 55.10% and T_2 (Wild) 55.25% and the cholesterol of T_1 (Domesticated) is 0.079% and T_2 (Wild) is 0.78.The crude protein reported in the study is lower than the 24.7% reported by Asiley (1974). The crude protein in the wild (T_2) is numerically higher but there is no significant difference between them. The moisture and ash in wild is also higher than that of the domesticated. The cholesterol of wild is numerically lower than the domesticated but there is no significant difference when observed. Result from table 4 shows that calcium content of farm grasscutter domesticated (5.75mg/kg) is significantly ($P<0.05$) lower than calcium content of the wild (6.68mg/100g), the zinc content (1.15mg/g) of domesticated grasscutter is higher numerically than zinc content (1.14mg/100g) of wild ($P>0.05$). The Calcium content obtained in this study is higher than 3.9mg/100g and 3.0mg/100g reported for beef and pork respectively (Asibey, 1974). The iron content of the wild and domesticated grasscutter is also higher than that of mutton (3.1mg/100g) and pork (3.1/100g.)

CONCLUSION

Both, meat of wild and domesticated grasscuters were low in cholesterol, low in fat and high in protein. Numerically, the wild was higher but there was no significant difference in the value obtained from both meats. In conclusion, domestication does not have significant effect on the quality of meat. However, natural feed should be used more to feed grasscutter in domestication to maintain the quality of meat.

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Table 1.0 Gross composition of concentrate supplement as a basal diet (%)

Ingredient	Percentage (%)
Maize	34.10
Wheat Bran	18.00
Soya Bean Meal	3.00
Bone Meal	5.90
Salt	0.24
Palm Kernel Cake	38.30
Methionine	0.10
Lysine	0.10
Grower Premix	0.20
Total	**100**

Source: FRIN

Table 1.2: Calculated Composition of the Concentrate

Parameter (%)	Percentage (%)
Crude Protein	14.76
Crude Fiber	70.1
Ether Extract	4.40
Metabolizable Energy (Kcal/Kg)	2422.98
Energy Protein	164.16

Source: FRIN

Table 1.3: Proximate Composition and Meat Cholesterol of Wild and Domesticated grasscutter

Parameter %	T_1 (Domesticated)	T_2 (Wild)	S. E. M
CP	17.83	18.35	0.0650
Fat	2.48	2.94	0.001
CF	-	-	-
Ash	1.03	1.10	0.005
Moisture	55.10	55.25	0.005
Cholesterol	0.079	0.078	$2.5x^{10-6}$

Table 1.4: Mineral composition of domesticated grasscutters and wild grasscutters

Parameters	T1 (Domesticated)	T2 (wild)	S.E.M
Ca	5.75^a	6.68^b	0.0215
Mg	0.515	0.75	0.013
Fe	3.75	4.36	0.090