

EFFECT OF SLAUGHTER AGE ON SENSORY EVALUATION OF *BALANGU* MADE FROM GOAT MEAT (CHEVON)

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ABSTRACT

Effect of slaughter age of Red Sokoto Bucks on the quality properties of barbeque (*Balangu*) using three different ages of 6, 12 and 20 months were determined in this study. Meats from the experimental animals were sampled and roasted unspiced to determine their quality and sensory attributes which include: colour, flavour, texture, juiciness, tenderness, firmness fatness and overall acceptability. Semi-trained panelists were used to assess the meat samples using five-point hedonic scale and subjected to analysis of variance in a complete randomized design. Sensory panelists' scores indicated that meat from bucks slaughtered at 6 months and that at 12 months ranked ($P < 0.05$) highest in terms of all the general acceptability studied, which was followed by the one slaughtered at 20 months. Young age in this study has affected the quality of the meat over the old age. From the result of this study, it has shown that age has effect on the quality of chevon.

Key words: Slaughter Age, *Balangu*, chevon, Acceptability

INTRODUCTION

In developing countries like Nigeria, meat is widely processed into different forms according culture, availability to avoid associated spoilage thereby enhancing shelf life and increasing sensory properties, then consumed as a source of protein (Olaoye and Onilude, 2010). Other reasons for meat preference and consumption besides nutritional value or protein are socio cultural, income level, religion, age, sex, individual differences, enjoyment, affluence, prestige and sensory properties. Consumers mostly purchase meat on daily, weekly or monthly bases in small quantities of 1kg, 2kg, less or more in sufficient quantity (Okubanjo, 1990).

In the last years, the market has seen an increase in the demand of younger animals (30-65 days old and 6-11kg live weight as a delicacy. Many factors (genetic and environmental) such as specie, breed, sex, feed and age and weight affect the quantity and quality of meat (Webb *et al.*, 2005; Casey and Webb, 2010; and Sebsibe, 2014).

Balangu is a meat delicacy usually made from boneless flesh, offal and visceral organs of chevon, beef or mutton that is widely consumed across gender, religion and social status of the populace in northern Nigeria (Moshood, *et al.*, 2012)

Goat meat is a lean red meat with distinctive nutritional and sensory characteristics (Webb *et al.*, 2005). It has a coarser texture, though less juicy (due to lesser fat content) and characteristically different flavour and aroma compared with lamb or mutton (Schönfeldt *et al.*, 1993a,b; Casey *et al.*, 2003). Flavour and aroma are good quality sensory attributes of goat meat. They are affected by species, breed, age and weight, fatness, and anatomical location, sex, diet, pre and post slaughter handling. Consumers can easily assess the aroma and flavour of meat and can rate the acceptability of the sensory attributes in question. Shear force and tenderness ratings of goat meat are generally acceptable, especially from young animals (Babiker *et al.*, 1990 and Webb *et al.*, 2005). The objectives of this study is to determine the effect of slaughter age on the sensory and quality attributes of *balangu* made from goat meat

MATERIALS AND METHODS

Experimental site

The study was conducted in the Animal Products and Processing Laboratory of the Department of Animal Science Ahmadu Bello University Zaria.

Animal Management

The animals were three Red Sokoto Bucks of different ages, six, 12 and 20 months were fasted at lairage for about 10 hours then slaughtered and processed according to the Standard Halal method as described by (Abdullah *et al.*, 1998).

Sample Preparation

Raw chevon of about 1kg each was obtained from the rib eye each of the three bucks as the three treatments. The meat was trimmed of all visible bones. Then it was roasted by placing it on a wet brown paper on a wire mesh. Groundnut oil was added during roasting. There was no addition of any spices to ensure a better evaluation. The meat was continuously turned until it was well roasted as described by Farouk (1985).

Sensory Evaluation

A total of thirty (30) semi-trained panelists (males and females) ranked the meat samples using a 5-point hedonic scale. A blind coding and two equal order of presentation were used for the meat samples. During the evaluation, crackers biscuits and sachet clean water were provided for all the panelists in order to take in and rinse their mouth pallet for neutrality to mask the effect of taste of one sample from the other.

Statistical Analysis

The data collected was transformed and subjected to analysis using (SPSS) and treatment means that are significant were compared using Non-parametric mean of the SAS package. The following Model was used:

$$Y_{ij} = \mu + T_i + e_{ij}$$

Where: Y_{ij} = Any dependent variable, μ = Overall mean, T_i = Effect of slaughter age (6, 12 and 20 months) e_{ij} = Random error.

RESULTS

Table 1 shows the sensory properties of *balangu* obtained from red Sokoto bucks slaughtered at different ages. The sensory panelists scores indicated that *balangu* produced from bucks slaughtered at 12 months ranked ($P < 0.05$) highest in terms of juiciness, while tenderness and fatness were similar ($P > 0.05$). Bucks slaughtered at 12 months had firmer ($P < 0.05$) meat compared to those slaughtered at 6 and 12 months of age. The colour of the chevon is significantly ($P < 0.05$) affected by age. The chevon from the younger goat are lighter in colour, when compared with those of the older goats of 12-20 months of age. The aroma of the chevon has also shown a significant ($P < 0.05$) difference with age. The texture and general acceptability of the chevon is significantly ($P < 0.05$) higher in the chevon from the younger bucks (6 months), which is similar to those of 12 months of age. The least accepted was those of 20 months.

Table 1. Effect of age of slaughter on eating quality traits of chevon

Age/parameters	Jui.	Ten.	Fat.	Fir.	Col.	Aro.	Tex.	Acc.
6 months	2.17 ^b	2.03 ^a	2.53 ^a	1.93 ^c	1.93 ^b	2.21 ^c	2.00 ^a	1.92 ^a
12 months	3.40 ^a	2.17 ^a	2.00 ^a	2.30 ^b	2.00 ^b	2.27 ^b	2.20 ^a	1.80 ^a
20 months	2.31 ^b	2.28 ^a	2.10 ^a	2.70 ^a	2.30 ^a	2.31 ^a	1.62 ^b	1.68 ^b
SEM	0.06	0.26	0.29	0.19	0.05	0.02	0.16	0.06

^{abc} Means within column with different super script differed significantly ($P > 0.05$), Colour, Aroma, Texture, Acceptability

DISCUSSION

The high score of juiciness in *balangu* made from buck chevon reported in the study may be the reason for increase in the demand of younger animals as a delicacy as reported by Webb *et al.*, 2005. The non-significant ($P > 0.05$) difference observed in fatness as related to age of bucks may be attributed to the management practice. Animals that are well managed tend to have fat cover

compared to those managed poorly (Webb et al., 2005). Chevron from older goats had strong aroma, when compared to the chevon from the younger goat. The strong aroma in the older goat may be attributed to the development of the male sexual characteristic with age. It is reported that, carcasses from older animals that weigh more than 20 kg are more likely to be perceived as stringy, tough, and strongly flavoured (Casey and Webb, 2010).

CONCLUSION AND RECOMMENDATION

From the result of this study, it has shown that age has effect on the sensory quality of chevon. Younger animal at slaughter had better quality chevon over older animal. It is therefore recommend that, when raising animals (Red Sokoto Bucks) for meat, the animals should not exceed 12 months of age at slaughter.

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