SENSORY EVALUATION OF SHREDDED MEAT (DAMBU) FROM DIFFERENT SPECIES OF POULTRY

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Abstract
The study was designed to assess the carcass yield and sensory evaluation of different species of poultry, comprising of broiler, spent layer, duck, guinea fowl and local chicken. Four birds from each species were slaughtered and dressed. Primal parts like the thigh, drum stick, breast, back, wing and neck were processed in to dambu. The result showed that broilers had a significantly (P<0.05), higher live weight (1.65kg) while the least value was in local chicken. Similarly the weight of primal cuts like the breast, thigh, drum stick and neck of broilers were also significantly (P<0.05) heavier than other species of poultry. The sensory evaluation showed that broilers dambu had the highest (P<0.01) rating for colour (8.20) and guinea fowl was superior for tenderness (7.85) and palatability (7.85), while local chicken had the highest acceptability score (8.15). It was concluded that local chicken and guinea fowl were the most preferred poultry product when processed into dambu, however broilers had higher yield of the meat.

Key words: Carcass yield, primal cuts, sensory evaluation, dambu, poultry species.

Introduction

Nigeria is richly endowed with a wide variety of animal protein sources, but the total production is insufficient to meet the requirement of Nigerians (Ibe, 2000). FAO (2007 and 2009) report showed that industrialized nations consume about 88.2kg/capita of meat while Nigeria has a per capita meat consumption of 8.8kg in 2009. A publication of NIAS showed that Nigeria is among the top 12 poorest countries in animal protein consumption. Poultry production however remains one of the potential avenues to achieve sustainable and rapid production of high quality protein to meet the demand for animal protein (Akpata and Ojo, 2000). Poultry meat has some advantages as a source of animal protein over red meat because of its low percentage of fat which is associated with the prevention of hardening of arteries (Alam and Shaik, 2007). Nutritional habits regarding poultry meat and meal products have recently undergone some major changes (Vukasovic, 2014). He also observed that by 2022 poultry will be the only meat to record positive development both in share and quantity consumed while beef, pig and sheep meat would record decline both in consumption and share. This are all an indication of consumers increasingly interest in functional foods as an alternative to increase their health and well-being (Andrews, 2011). Poultry meat is one of the most favourite meat types, it is tasty, it responds to the requirements of modern and balanced nutrition, it is quick and easy to prepare, healthy, safe, nourishing and is versatile in terms of marinating (Vukasovic, 2014).

Poultry species such as broilers, layers, duck, local chicks and guinea fowl are some of the available and important dietary animal proteins sources for humans. Young *et al.* (2001) reported that strain, sex, age, health and nutrition affect yield of parts, dressing percentage and organ characteristics of birds. This work was therefore designed to study the carcass characteristics and sensory evaluation of different poultry species when processed in to dambu. Dambu nama (shredded meat is a local delicacy produced in Northern Nigeria to add value to meat and improve it shelf life. The product if properly prepared can store for a whole year without undergoing spoilage.

Materials and Methods

Carcass evaluation: was conducted at the Abubakar Tafawa Balewa University, Bauchi. Four (4) birds from each species of the poultry which included, broilers, spent layers, local chickens' ducks and guinea fowls were purchased from Muda Lawal Market in Bauchi metropolis. The birds were fasted overnight and slaughtered, bled before dipping into hot water for defeathering and eviscerated. Dambu (shredded meat) processing: for each bird type meat from the drumstick, thigh, breast, back, wing and neck were washed, mixed with spices and boiled. The mixture were boiled until tender, pound to shreds and fried using shallow frying method and thereafter allowed to cool down as shown in figure 1.

Raw cut parts

Washed with portable water

Mixed with spices

Boil for about 90mins

Pound to shreds

Fry shred meat and cooled

Dambu nama

Figure 1: Unit production of dambu meat.

Sensory evaluation: A structured questionnaire was administered to a team of 20 taste panelist using empirical procedure of taste and tells". The panelist were served the different dambu meat coded as A,B,C,D and E for broilers, spent layer, duck, guinea fowl and local chicken respectively. A bottle of water and cracker biscuit each to rinse their mouth after tasting each product. A 9-point hedonic scale corresponding to extremely dislike (1) and extremely liked (9) were used to rate the colour, flavour, juiceness, tenderness, palatability and general acceptability of the processed products.

Statistical analysis

The data collected were subjected to Analysis of variance technique using SPSS (2006) package.

Results and Discussion

The sensory evaluation of dambu (shredded meat) from the different species of poultry is presented in Table 1. According to Ihekoronye and Ngoddy (1985) flavour, texture and appearance (colour) are the most important characteristics of food because they are the attributes the consumer can readily assess. The mean panel rating for colour in all the poultry species showed a generally high score (7.35-8.20) which is an indication that all the poultry species have meat of good quality in terms of colour. James (1993) stated that colour has a powerful influence on consumer acceptance for food product especially meat product and serves as a visual indication of meat quality. In addition the colours of dambu are always enhanced by the use of the sweat red pepper.

According to Ihekoronye and Ngoddy (1985) flavour determines the acceptance or rejection of food by consumers even though appearance evokes the initial response. They define flavour as a complex sensation that is deriving from food including particularly the sensation of taste and smell. There was no significant difference ($P>0.05$) in the flavour of dambu from the different species of poultry even though the highest score was recorded in local chicken (8.05) and the least score in broilers (7.55). The palatability of dambu from the different species showed a highly significant ($P<0.001$) difference. The most acceptable was local chicken followed by guinea fowl, layers, broiler and the lowest acceptability score was found in duck dambu.. The result of this study has shown that the local chicken is the most acceptable to consumers. There is need for further works on the yield, economic returns, microbial loads and shelf life of dambu from the different species of poultry.

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Table 2 Sensory Evaluation of shredded meat (Dambu) from different species of poultry

Parameters	BRL	LAY	DUCK	GFL	LCK	SEM	LOS
Colour	8.20^{a}	7.55^{abc}	6.40^{abc}	8.00^{ab}	7.35^{abc}	0.56	***
Flavour	7.70	7.55	7.60	7.75	8.05	0.54	NS
Juiciness	7.70	6.90	6.75	7.35	7.20	0.57	NS
Tenderness	7.60^{ab}	7.45^{ab}	6.45^{bc}	7.85^{a}	7.60^{ab}	0.59	**
Palatability	7.75	7.70	7.35	7.85	7.65	0.59	NS
Acceptance	7.95^{ab}	7.85^{ab}	6.85^{bc}	8.05^{ab}	8.15^{a}	0.49	***

^{abc}means in a row with different superscript differ significantly (**P<0.001, ***p< 0.001)
NS Not significant (P>0.05)