

**ORIGINAL RESEARCH ARTICLE****Consumers' preference and perception of the different types of chicken meat among staff and students of University of Ibadan, Ibadan, Nigeria*****Ogunwole, O. A., Omojola, T. O and B. S. Adedeji***Department of Animal Science, University of Ibadan, Ibadan, Nigeria***Corresponding author: E-mail: droaogunwole@gmail.com***ABSTRACT**

An investigation of the preference and perception of the different chicken meat types among staff and students of University of Ibadan was undertaken. Structured questionnaire was administered to 360 randomly selected respondents and the sensory score and the proximate determination of the chicken meat types were undertaken using standard procedures. Respondents belonged to different categories within the university system ranging from the Non Academic Staff Union 22 (6.1%), Senior Staff Association of Nigerian Universities 21 (5.8%), Academic Staff Union of Universities 107 (29.7%), National Association of Academic Technologists 30 (8.3%), Undergraduates 114 (31.7%) and Postgraduates 66 (18.3%). Results showed that most of the respondents (47.8%) were aged between, 26-40 years; most of them (51.1%) were females and married (53.3%). Also, most of the respondents had Higher National Diploma (HND), (40.0%). All the respondents ate chicken meat; (93.3%) consumed all types of chicken meat though meat from broiler chicken (62.8%) was most consumed. Broiler meat was preferred to other types of chicken meat and this was adduced to its taste by most of respondents (52.2%). Respondents opined that broiler meat was tastiest, most palatable, nutritious and convenient to access. There were significant differences in the consumption pattern ($\chi^2 = 149.26$) and preference ($\chi^2 = 137.91$) for chicken meat. Sensory assessments revealed significant differences ($P < 0.05$) in the colour but similar ($P > 0.05$) taste, texture, flavour, juiciness and overall acceptability. However, there were no significant variations ($P < 0.05$) in proximate composition of the different chicken meat types. Broiler meat was the most consumed and most preferred chicken meat type among staff and students of the University of Ibadan, Nigeria.

Keywords: Staff and Students, Organoleptic assessment, Consumption pattern, Overall acceptability.

INTRODUCTION

Meat is one of the most valuable products from livestock and for many serves as their first choice of animal protein (Tsegary, 2012). Eyo (1995) indicated that meat is clearly preferred to fish because of consumers' perception that it is richer in protein, more appetising, nutritious and enjoyed more by children. Preferential consumption exists in spite of the importance of meat as a source of protein (Akinwunmi *et al.*, 2011). Consumption of poultry meat has grown faster than that of any other meat. In the 90s, demand growth slowed for other meats, including fish while demand for poultry meat accelerated and since then poultry continued to lead the expansion of meat trade (World Poultry, 2003). The preference and consumption of chicken meat can be considered as a universal phenomenon and chicken meat is greatly accepted by consumers worldwide compared to the consumption of other meats.

Nestle (1999) indicated that meat consumption is viewed as a reflection of favourable economic

conditions. Earlier reports (Koppert and Hladik, 1990; Burton and Young, 1992) classified factors that affect the consumption of meat as economic, social and cultural. Ojewola and Onwuka (2001) specifically highlighted religion, age, sex, socio-economic factors, individual variation and income as major factors in Nigeria. Consumers give priority to food taste as part of the quality (Min and Min, 2011). Glanz *et al.* (1998) indicated that taste is the most important influencing factor in food choices, followed by price. In the context of chicken meat, it is preferred over mutton or beef because of its great taste. Consumers look for important quality aspects of meat such as the good and tender taste, juicy, fresh, lean, healthy and nutritious (Grunert, 1997). Report on consumers' preference for the different types of chicken meat in Nigeria is very scanty. Earlier endeavour (Ogunwole *et al.*, 2009) on consumer perception and preference for the different meats of chicken in the University of Ibadan requires updating for the fact that the survey was carried out a while ago. Thus, the present study was aimed at assessing the consumers' preference and perception of

Table 1: Socioeconomic characteristic of the respondents

| S/N | Characteristics | Frequency | Percentage | |
|-----|--------------------|-----------------|------------|------|
| 1. | Sex | Male | 176 | 48.9 |
| | | Female | 184 | 51.1 |
| 2. | Age (years) | 15-25 | 60 | 16.7 |
| | | 26-40 | 172 | 47.8 |
| | | 41-59 | 118 | 32.8 |
| | | 60 and above | 10 | 2.8 |
| 3. | Marital status | Single | 156 | 43.3 |
| | | Married | 192 | 53.3 |
| | | Divorced | 12 | 3.3 |
| 4. | Level of education | *M.Sc | 113 | 31.4 |
| | | *Ph.D | 68 | 18.9 |
| | | *B. Degree | 144 | 40 |
| | | *SSCE | 12 | 3.3 |
| | | *HND | 23 | 6.4 |
| 5. | Category | *NASU | 22 | 6.1 |
| | | *SSANU | 21 | 5.8 |
| | | *ASUU | 107 | 29.7 |
| | | *NAAT | 30 | 8.3 |
| | | Undergraduate | 114 | 31.7 |
| | | Postgraduate | 66 | 18.3 |
| 6. | Religion | Christian | 266 | 73.9 |
| | | Islam | 94 | 26.1 |
| 7. | Average income (N) | <20,000 | | 35.0 |
| | | 20-40,000 | | 15.3 |
| | | 40-60,000 | | 10.6 |
| | | 60-80,000 | | 0.8 |
| | | 80-100,000 | | 6.1 |
| | | 100,000 & above | | 32.2 |

*M.Sc: Master of Science degree, Ph.D: Doctorate degree, B. degree: Bachelor's degree, SSCE: Senior School Certificate Examination, HND: Higher National Diploma, NASU: Non Academic Staff Union, SSANU: Senior Staff Association of Nigerian Universities, ASUU: Academic Staff Union of Universities, NAAT: National Association of Academic Technologist

the different types of chicken meat among staff and students of the University of Ibadan, Ibadan, Nigeria

MATERIALS AND METHODS

The study was carried out at the University of Ibadan, Ibadan, Oyo state, Nigeria. The University is located in Ibadan in the tropical rain forest zone within a latitude of 7° 26' north and longitude of 3° 54' east, with a mean altitude of 277 meters above sea level. The University has a population of well over 50,000 residents comprising about 18,000 postgraduates, 13,000 undergraduate students, about 5,000 staff strength and over 5,000 dependants (UI Report, 2012). The study was conducted in two phases. A well-structured questionnaire was prepared for the first study and administered to 360 randomly sampled respondents among staff and students (ILCA, 1990). Data collected include Personal profile of the respondents, Chicken meat preferences (spent layers, broilers, cocks). Also, Meat consumption level of the consumers, Relative importance of meat to the respondents, Limitation of chicken meat consumption, and factors influencing consumers' choice of chicken meat were collected.

Also, chicken meat samples were analysed for their proximate composition (AOAC, 2002). The sensory evaluation of the chicken meats was on a nine point hedonic scale by a 10-member trained panel (AMSA, 1995).

Statistical Analysis

Data on questionnaire were analysed using descriptive statistic tools (SPSS, 2006) and Chi-square. Data on sensory and proximate determinations were subjected to one-way analysis of variance (SAS 1999). The treatment means were separated by Duncan Multiple Range test.

Table 2: Importance of meat to respondents

| | Yes | No |
|--------------------------------|-----|-----|
| Eat meat | 370 | --- |
| Eat chicken meat | 370 | --- |
| Buy chicken meat | 307 | 53 |
| Consume all chicken meat types | 336 | 24 |

Table 3: Frequency of chicken meat consumption

| | Frequency | Percentage |
|----------------|-----------|------------|
| Weekly | 104 | 28.9 |
| Monthly | 187 | 51.9 |
| Festive period | 69 | 19.2 |

RESULTS AND DISCUSSION

The personal profile of the respondents is shown in Table 1. It was observed there were more female respondents (51.1%) involved in the survey than males (48.9%). In earlier study by Dietz *et al.* (2006), it was revealed that more female participants were identified in the market segment for beef. Eyo (2007) however reported more male participants as against female participants in the Niger-Delta region of Nigeria in similar report on market segment for beef. A greater percentage of the respondents (47.8%) were between the age bracket of 26-40 years while few respondents (2.8%) fell within the age bracket of 60 years and above. About 43.3% of the respondents were single, 53.3% married and 3.3% divorced; 73.9% Christians and 26.1% were Muslims; 6.1% were members of the Non Academic Staff Union (NASU), 5.8% were Senior staff association of Nigerian Universities (SSANU), 29.7% were Academic Staff Union of Universities, (ASUU), 8.3% were National Association of Academic Technologists (NAAT), 31.7% were undergraduate and 18.3% postgraduate. Also, 35% of the respondents had an average income of <N20, 000 while 32.2% were on average income of N100, 000 and above.

Table 4: Reason for chicken meat preference

| | Frequency | Percentage |
|--------|-----------|------------|
| Tender | 133 | 36.9 |
| Tough | 102 | 28.3 |
| Juicy | 125 | 34.7 |

Table 5: Preferred chicken part for consumption

| | Frequency | Percentage |
|------------|-----------|------------|
| Thigh | 143 | 39.7 |
| Breast | 73 | 20.3 |
| Wings | 33 | 9.2 |
| Drum stick | 100 | 27.8 |
| Back | 11 | 3.1 |

Importance of chicken meat to respondents

The importance of meat cannot be under-emphasized as all respondents (100%) eat meat and 100 percent of the respondents consumed chicken meat (Table 2). This is not strange as there is no known taboo associated with the consumption of chicken meat. With respect to the

frequency of chicken meat consumption as shown in Table 3, 104 (28.9%) eat chicken meat weekly, 187 (51.9%) monthly and 69 (19.2%) during festivals. However, not all the respondents buy chicken meat as 307 (85.3%) of the respondents buys it and 53 (14.7%) does not. It is possible that the percentage that do not buy but consumes chicken meat had other means of access such as from personal farms, gifts or from backyard subsistent production. A higher number 122 (33.9%), of the respondents obtained their chicken meat from meat shops, 116 (32.2%) from poultry farms, 66 (18.3%) from market place, 21 (5.8%) from meat vendors and 35 (9.7%) from personal/ backyard farms (Figure 2). The quest for convenience and the fact that consumers are becoming more health conscious reflected in the number of individuals that patronised meat shops and poultry farms. This was also corroborated by Akinwumi *et al.* (2011) that better standard of living and changing lifestyles has led to the shift towards more convenience in getting meat for food preparation.

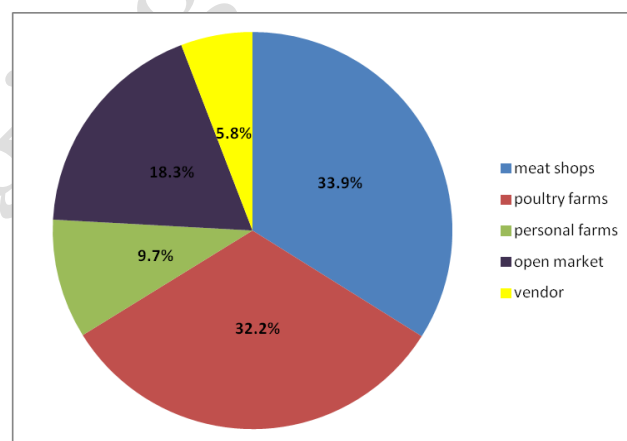


Figure 1: Source of chicken meat consumed by staff and students of University of Ibadan

Consumption and preference for chicken meat

Few respondents 24 (6.7%) do not consume all the three types of chicken meat however; most of them do 336 (93.3%) as shown in Table 2. With respect to consumption of chicken meat, the most consumed type is broiler 226 (62.8%) (Figure 3), while a quarter of the respondents (90) consumed spent layers and 44 (12.2%) cock meat. A higher percentage of the respondents 226 (62.8%) also preferred broiler meat to other chickens meat type (Figure 2) while 70 (19.4%) and 65 (18.1%) preferred cock and spent layers respectively to the other chicken meat types. This observation however was in line with earlier report (Ogunwale *et al.*, 2009) that broiler meat was the most preferred chicken meat among University of Ibadan employees.

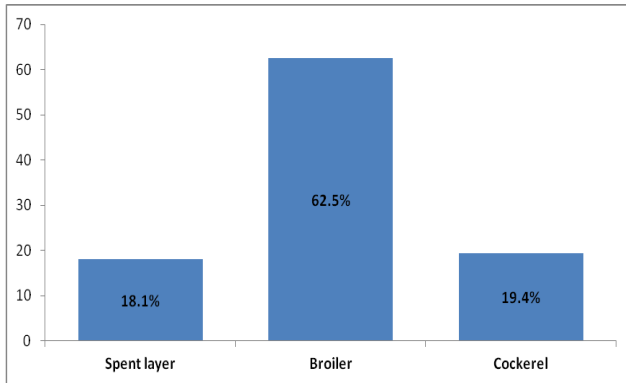


Figure 2: Consumption of chicken meat among staff and students of University of Ibadan

Considering the chicken primal cuts, most of the respondents (39.7%) preferred thigh meat, (20.3%) preferred breast meat, (9.2%) preferred wings, while (27.8%) and (3.1%) preferred drum stick and back respectively (Table 5). When respondents were asked if they had any bias for chicken meat, 315 (87.5%) were not biased with the consumption of chicken meat while 45 (12.5%) were biased with its consumption. Among issues raised with respect to consumption of chicken meat were fat content (8.6%) and cholesterol (1.9%).

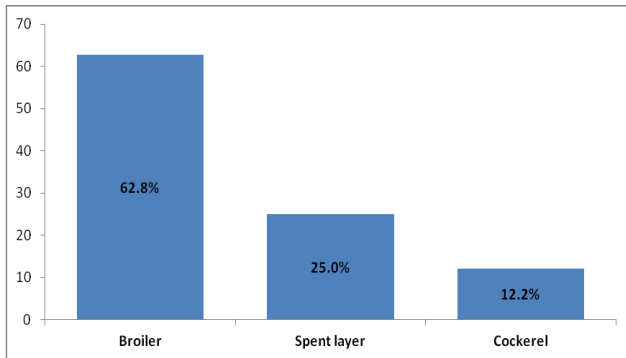


Figure 3: Preference for chicken meat among staff and students of University of Ibadan

About 36.9% preferred their choice of chicken meat due to its tenderness; 34.7% because of juiciness and 28.3% because of its toughness (Table 4). As shown in Figure 4, 84.2% of the respondents preferred to purchase their chicken meat fresh while 15.8% preferred it frozen. Also a high number (68.1%) of the respondents preferred consuming their meat fried while less proportion preferred it barbecued (Figure 5). Also, 92 (28.6%) liked chicken meat because of its nutrient content, 27 (8.4%) because of its availability, 168 (52.2%) because of its taste and 35 (10.9%) because of its aroma (Figure 8). Adetunji and Rauf (2012) in their study reported that respondents' preference for meat was influenced by their taste and income.

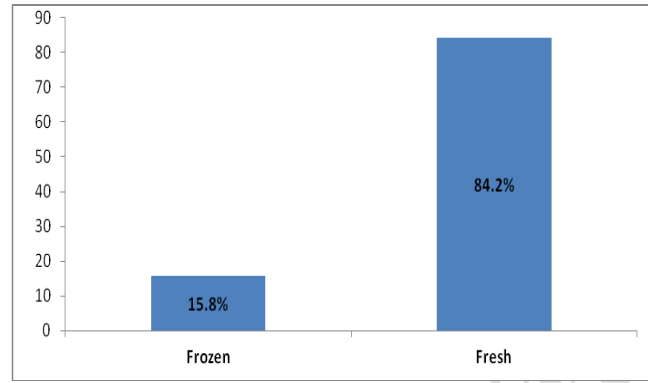


Figure: 4 Forms of chicken meat purchase among staff and students of university of Ibadan

With respect to increased income and reduced chicken meat price (Fig 6 and 7), 63.1% of the respondents would eat more broiler meat if income increases and 60.3% would consume more broiler meat if price reduces, as increased price will reduce demand for meat in line with the earlier report (Adetunji and Rauf, 2012).

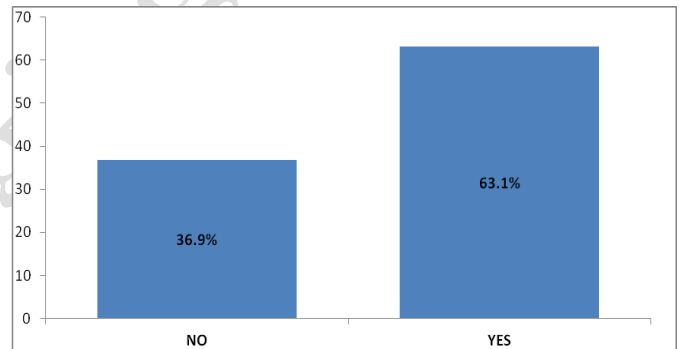


Figure 6: Consumption of chicken meat with respect to increased income by staff and students of the University of Ibadan

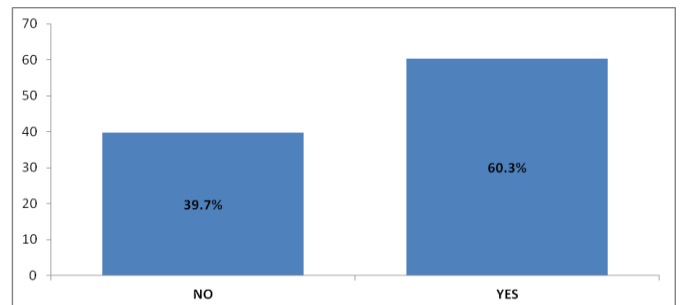


Figure7: Consumption of chicken meat with respect to reduced price by staff and students of the University of Ibadan

For indoor consumption, 34.2% preferred their meat boiled, 61.4% fried and 4.4% barbecued (Table 6). For outdoor consumption, 4.4% preferred it boiled, 38.6% preferred it fried and 56.9% preferred it barbecued.

Consumers' preference for chicken meat

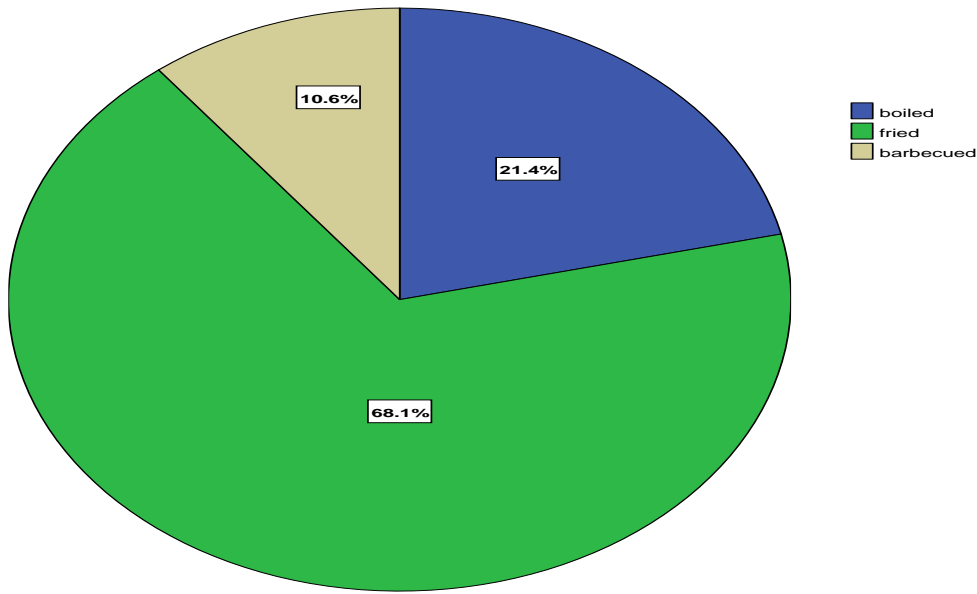


Figure 5: Preferred forms of chicken meat consumption by staff and students of University of Ibadan

Factors they claimed influenced or limit their consumption of chicken meat include, power outage 10.6%, lack of storage facilities 9.2%, religious belief 1.1%, family decision, 43.1%, income 32.2% and availability 3.9% (Table 7).

Table 7: Factor influencing chickens meat consumption

| | Frequency | Percentage |
|------------------------|-----------|------------|
| Power outage | 38 | 10.6 |
| Lack of proper storage | 33 | 9.2 |
| Religious belief | 4 | 1.1 |
| Family decision | 155 | 43.1 |
| Income | 116 | 32.2 |
| Availability | 14 | 3.7 |

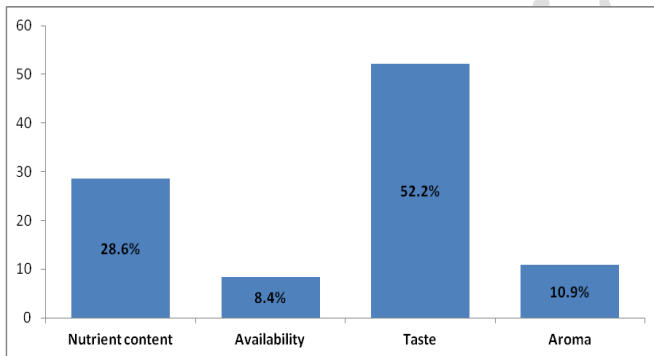


Fig 8: Factors influencing respondents' choice of chicken meat consumption

Table 6: Form of chicken meat consumption

| | Indoor | |
|-----------|---------|------|
| Boiled | 123 | 34.2 |
| Fried | 221 | 61.4 |
| Barbecued | 16 | 4.4 |
| | Outdoor | |
| Boiled | 16 | 4.4 |
| Fried | 139 | 38.6 |
| Barbecued | 205 | 56.9 |

Perception of chicken meat types by respondents

Respondents opined that broiler meat (65.6%) is the tastiest followed by spent layer and cockerel (19.4% and 15.0%) respectively (Table 8). In terms of affordability, spent layers ranked highest with 59.7% followed by broiler (28.6%) and cockerel (11.7%). Broiler was believed to be most nutritious (63.1%), followed by spent layer (19.4%) and cockerel (17.5%). The most convenient for respondents was broiler (53.9%), spent layers (32.2%) and cockerel (13.9%), while 61.9% of the respondents ranked broiler as most palatable followed by spent layer (19.7%) and cockerel (18.3%). It was expected that the different chicken meat types were consumed and preferred equally. On the contrary, chi-square result in Table 9 revealed that consumption $\chi^2 = 149.26$ and preference for the 3 types of chicken meat $\chi^2 = 137.91$ were significantly different ($P < 0.05$) from each other. It could be deduced therefore that the observation from the survey for the different chicken meat types consumed was different from the

Table 8: Perception of the various chicken meat types (%)

| | Broiler | Spent layer | Cockerel |
|---------------------------|---------|-------------|----------|
| Tastiest | 65.6 | 19.4 | 15.0 |
| Most affordable | 28.6 | 59.7 | 11.7 |
| Most nutritious | 63.1 | 19.4 | 17.5 |
| Most convenient to access | 53.9 | 32.2 | 13.9 |
| Most palatable | 61.9 | 19.7 | 18.3 |

expectation likewise in the preference for the three chicken meat types. The proximate composition as shown in Table 10 revealed there were no significant variations ($P > 0.05$) in the values for the different chicken meat types.

Sensory properties (i.e. the way products look or taste) were noted to be the most important motivations for purchase and preference of a meat product (Price and Schweigert, 1971). Colour was the most influential criterion in consumer's selection and decision to purchase meat (Kropf, 1980 and Hedrick *et al.*, 1994). Table 11 showed that there were significant differences ($P < 0.05$) in the colour of the different chicken meats as perceived by the panelists. Broiler meat (T1) was light in colour, spent layer meat was slightly dark to intermediate and cockerel meat was intermediate to slightly light in colour. Lighter colours are known to be appealing to the sight than darker colours (Nilgrun *et al.*, 2004). This observation could be linked with the result of the first phase of this study in which broiler meat was consumed and preferred most. In terms of taste attributes of chicken meat, panelists declared that T1 (broiler meat) tasted better than other chicken meats. Statistical analysis however revealed there was no the significant difference ($P > 0.05$) in the taste property of

chicken meats. Flavour is a complex composite of aroma and taste as perceived by organs of taste and smell (Omojola, 2012). There was no significant difference ($P > 0.05$) among the treatments though, panelist rated meat from broiler (T1) higher ($P > 0.05$) than that of cockerel (T2) and spent layer (T3). This finding was contrary to the determined ether extract content in this study (Table 11). Earlier documents (Mottram and Edwards, 1983; Ogunwole *et al.*, 2013a, b) implicated ether extract content of meat in taste, juiciness and flavour development.

Table 9: Result of chi-square analysis

| | Degree of freedom | Chi-square |
|-----------------------------|-------------------|---------------------|
| Consumption of chicken meat | 2 | 149.26 ^a |
| Preference for chicken meat | 2 | 137.91 ^b |

*Mean values with different superscripts are significantly different ($P < 0.05$)

CONCLUSION

This study revealed that broiler meat was the most consumed chicken meat followed by meats from cockerel and spent layer.

Table 10: Proximate composition of meat

| Parameters | T1 | T2 | T3 | T4 |
|------------------|-------|-------|-------|------|
| Crude protein | 21.56 | 19.37 | 21.85 | 0.14 |
| Ether extract | 4.34 | 3.71 | 3.91 | 0.03 |
| Moisture content | 75.76 | 78.67 | 75.81 | 0.31 |
| Ash | 0.9 | 0.68 | 0.95 | 0.02 |

*Mean values with different superscripts are significantly different ($P < 0.05$)

T1 = Broiler, T2 = Cockerel, T3 = Spent layer

Table 11: Sensory evaluation of chicken meat

| Parameters | T1 | T2 | T3 | SEM |
|-----------------------|-------------------|-------------------|-------------------|------|
| Colour | 8.33 ^a | 4.83 ^c | 5.90 ^b | 0.24 |
| Taste | 6.13 | 5.56 | 5.76 | 0.31 |
| Flavour | 4.83 | 4.26 | 4.66 | 0.28 |
| Juiciness | 5.50 | 6.03 | 5.73 | 0.35 |
| Texture | 5.20 | 5.56 | 4.83 | 0.27 |
| Overall acceptability | 6.26 | 6.20 | 5.56 | 0.30 |

*Mean values with different superscripts are significantly different ($P < 0.05$)

T1 = Broiler, T2 = Cockerel, T3 = Spent layer

In addition to being the most consumed, broiler meat was also the most tasty, nutritious, palatable and convenient to access as well as the most preferred by the respondents in the study area. Sensory evaluation also revealed that panelists preferred broiler meat to meats from cockerel and spent layer. This suggests that broiler meat production should be stepped up in order to ensure the desire of the teeming consumers in the study area.

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