BOOK OF PROCEEDINGS
ANIMAL SCIENCE ASSOCIATION OF NIGERIA (ASAN)

PROCEEDINGS OF THE 23RD ANNUAL CONFERENCE

Theme:
Development of a Resilient Livestock industry for National Economic Growth

Edited by

9th- 13th September, 2018 Ilorin.
Copy Right 2018: Animal Science Association of Nigeria

All right reserved No part of this publication may be reproduced, stored in retrieval system or transmitted in any form or by means, electronic, electrostatic, magnetic tape, mechanical, photocopy, recording or otherwise, without the permission in writing from the Animal Science Association of Nigeria (ASAN), or the Nigerian Institute of Animal Science (NIAS)

ISSN: 9783477722

Publication by

The Animal Science Association of Nigeria (ASAN)


Trustees and National Executive Council of the Animal Science Association of Nigeria (ASAN)

Board of Trustees
Alhaji Azeez Bello
Professor A. O. Osinowo
Professor I. I. Dafwang
Professor S. O. Alaku
# National Executive Council

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mr. Adeoye Taiwo Adetoyi</td>
<td>President</td>
</tr>
<tr>
<td>2.</td>
<td>Prof. G.N. Akpa</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Vice President</td>
</tr>
<tr>
<td>3.</td>
<td>Elder N. Lawan</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Vice President</td>
</tr>
<tr>
<td>4.</td>
<td>Dr. T.O. Ososanya</td>
<td>General Secretary</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. (Mrs.) Olumide Martha Dupe</td>
<td>Assistant General Secretary</td>
</tr>
<tr>
<td>6.</td>
<td>Prof. G.S. Bawa</td>
<td>Editor-in-Chief</td>
</tr>
<tr>
<td>7.</td>
<td>Dr. A.O. Ladokun</td>
<td>Deputy Editor-in-Chief</td>
</tr>
<tr>
<td>8.</td>
<td>Dr. S.M. Yashim</td>
<td>Financial Secretary</td>
</tr>
<tr>
<td>9.</td>
<td>Dr. A.O. Owosibo</td>
<td>Treasurer</td>
</tr>
<tr>
<td>10.</td>
<td>Mr. Isaac Loveday</td>
<td>Publicity Secretary</td>
</tr>
<tr>
<td>11.</td>
<td>Mrs. M.O. Omotoso</td>
<td>Ex-Officio</td>
</tr>
<tr>
<td>12.</td>
<td>Prof. F.A.S. Dario</td>
<td>Ex-Officio</td>
</tr>
<tr>
<td>13.</td>
<td>Mr. Julius Nyameh</td>
<td>Ex-Officio</td>
</tr>
<tr>
<td>14.</td>
<td>Dr. Haruna Duwa</td>
<td>North East Coordinator</td>
</tr>
<tr>
<td>15.</td>
<td>Dr. (Alh.) I.F. Ayanda</td>
<td>North Central Coordinator</td>
</tr>
<tr>
<td>16.</td>
<td>Mallam Mohammed Lawal</td>
<td>North West Coordinator</td>
</tr>
<tr>
<td>17.</td>
<td>Dr. T.K.O. Obi</td>
<td>South East Coordinator</td>
</tr>
<tr>
<td>18.</td>
<td>Prof. A.A. Odunsi</td>
<td>South West Coordinator</td>
</tr>
<tr>
<td>19.</td>
<td>Dr. (Mrs.) I.P. Solomon</td>
<td>South South Coordinator</td>
</tr>
</tbody>
</table>
Members of the Local Organizing Committee of the 7th ASAN-NIAS Joint Annual Meeting, Ilorin 2018, 9th-13th September, 2018

Local Organizing Committee

Professor M. A. Belewu
Professor D.F. Apata
Mr. M.A Umar
Dr. F. E. Sola-Ojo
Dr. O.I. Alli
Prof. Odunsi
Dr. (Mrs.) Bisi Akinfolarin

Chairman
Vice-Chairman
2nd Vice-Chairman
Secretary
Treasurer
Representative of ASAN
Representative of NIAS

LOC Secretariat

Dr F.E Sola-Ojo
Dr. I.O.Opowoye
Mr. Fatai Ismail Adewale
Mr. Ibiwoye Demilade
Mr K.P Ahmed
Mr M. Yiosese
Mr A. Olaoselu
Mr Y. Mohammed
Dr S. Olawoye
Dr Y. Alabi
Mr Ogundele
Mr Adams

Chairperson
Secretariat Assistant/Secretary
Member
Member
Member
Member
Member
Member
Member
Member
Member
Member
Member

Technical

Prof. J.O. Atteh
Dr. T.R. Fayeye
Prof Oyawoye
Prof. A.A Adeloye
Prof. D.F. Apata
Prof. M.A. Belewu
Dr A.A.Anmongu
Dr. Mrs. Alabi
Dr. Ogunbosoye
Dr. A.T. Yusuf
Mr Akanbi
Dr Adeyina
Dr. A. Toye

Chairperson
Secretary
Member
Member
Member
Member
Member
Member
Member
Member
Member
Member
Member

Dr. K. Adeyemi  Member

**Venue, ICT & Publicity**

Prof. S.A. Bolu  Chairperson
Dr. Ogunsola Fisayo  Member
Mr. Salako  Member
Dr. K. D Adeyemi  Member
Mr. Y. Mohammed  Member
Mrs Raji Majidato  Member
Miss Moyo Ibeun  Member
Dr. M. Adesina  Member
Mr. G. Oluwatosin  Member
Mr. S. Abdul  Member

**Socials & Excursion**

Dr. A.A. Badmos  Chairperson
Mrs. Obayemi  Member
Dr. Yahaya  Member
Mr. Oyebanji, S.S.  Member
Mr. S. Ajide  Member
Mr. G. Oluwatosin  Member
Dr. O. Ojo  Member

**Fund Raising & Exhibition**

Mr. S. Opowoye  Chairperson
Dr. O.I. Alli  Member
Dr. I.O. Opowoye  Member
Dr. T.A. Aderibigbe  Member
Dr. Alabi  Member
Mr. O.I. Jimoh  Member
Alh. Yusuf  Member
Mr. Lawale  Member
Mr. Gawatti  Member
Kenny Success  Member
Mr. B. Akorede  Member
Mr. Jimoh Aremu  Member
Dr. Adeyemo A.A.  Member
Dr. Ogunleye  Member

**Accommodation, Welfare and Logistics**

Alh. Dr. I.F. Ayanda  Chairperson
Dr. Sola-Ojo, F.E.  Member
Dr. T.A. Aderibigbe  Member
Dr. Alli  Member
Dr. Chimezie  Member
Mrs. M. Lawal  Member
Dr. A.T. Yusuf  Member
Oyeleke Mubo  Member
Dr. A.A. Badmos  Member
A.T. Tella  Member
Mr. Fatai Ismail A.  Member
Mr. Jimoh Aremu  Member
Ibiwoye Demilade  Member
Ibeun Moyosore  Member
Zainab Ph.D  Member

Programme
Prof. A.A. Adeloye  Chairman
Dr. A.A. Toye  Member
Dr. Ogunbosoye  Member
Mrs. K. Aliyu  Member
Mr. J. DeCampos  Member
Mr. Adeshina M.  Member

Security
Dr. A.A. Annongu  Chairman
Dr. T.H. Aliyu  Member
Mr. M. Adesina  Member
Mr. I.A. Ismail  Member
Mr. M. Abdulquadri  Member
Mr. Amaechi  Member
Mr. David Adeoye  Member

Proc. 7th Ann. ASAN-NIAS Joint Annual Meeting, 9-13, September, 2018, Ilorin

Reviewers
Professor J. O. Atteh
Professor A. A. Adeloye
Professor M. A. Belewu
Dr. A. A. Annongu
Dr. T. R. Fayeye
Dr. F. E. Sola-Ojo
Dr. Chimezie, V. O.
Dr. K. Okukpe
Dr. Mrs. Alabi
Dr. I. O. Alli
Dr. K. D. Adeyemi
Dr. A. T. Yusuff
pH of Beef Sausage as Affected by Time Postmortem on Yield and Keeping Quality of Sausage

Oshibanjo D. O.*,1, Adesope A. I.2 and Abegunde Lawerence2
Department of Animal Production, University of Jos, Jos Plateau1
Department of Animal science, University of Ibadan, Ibadan, Oyo2
*Corresponding author: oshibanjoo@unijos.edu.ng; +2348055438564

Abstract: Changes in pH affect storage and processing quality of meat and meat products such as sausage. Sausages are made from comminuted lean meat and fat mixed with salt, spices and other ingredients, then filled into a casing made of animal intestine or cellulose. Sausages are made from beef, veal, pork, lamb and poultry or from any combination of these meats. Without proper storage, the product quality reduced with time. There are needs therefore, to examine the effect of post-mortem time on spoilage of meat used in sausage production. The meat samples for sausage making were harvested and allotted to five groups viz; 0, 6, 12, 18, and 24 hours post-mortem, respectively. Each treatment group was replicated thrice in a factorial arrangement in completely randomized design. The sausage recipe used for all the treatment groups were Beef 65%, Lard 20%, Soybean binder 3.5% green spices 2.19%, dry spices 1.5%, ice water 4.5%, salt 2%, sugar 1%, Sodium nitrite 0.01% and phosphate 0.3%. The sausage was stored for 14 days at +4°C. Sausage prepared was subjected to pH and microbial count. Data were analysed using descriptive statistic and ANOVA at α<0.05. There were significant (P<0.05) differences observed in pH value among the treatments and storage days. Similar result was obtained for the microbial count. As the time post-mortem and storage day increases, there was an increased in values obtained. 0 and 6-hour time post-mortem were recommended from this experiment to harvest meat for best yield and keeping quality of sausage.

Keywords: pH, Beef Sausage, Microbial Count, Keeping Quality, Time Post-mortem

INTRODUCTION
Many qualities of meat depend on its pH. Higher pH of meat is important with respect to maintaining color, holding water, and improving tenderness (Oshibanjo 2010). Generally, meat in the pH range of 5.4 to 5.6 has the most desirable properties for table cuts. Offer (1991) inferred that reduction in pH by 1 unit increased the rate of denaturation by 12 times. pH values as high as 6.9 result in several defects; the most obvious being its colour, which becomes progressively darker as pH increases (Young et al., 2004). Acidic pH of meat is resulting into lower water holding capacity (WHC) with increased cooking and drip losses has also been reported to reduce the tenderness (Northcutt et al., 1994) and result in PSE meat. Changes in pH, WHC, and rheological properties are reported to affect storage and processing quality of the meat (Oshibanjo 2010). The microbiological stability of high pH meat is poor, tenderness is more variable, and cooked flavour is inferior (Simmons et al., 2000). This present study seeks to investigate the pH of freshly prepared and stored sausage as affected by time post-mortem.

MATERIALS AND METHODS

Location of the study: The experiment was carried out in the Meat Science Laboratory of Department of Animal Science, Faculty of Agriculture and Forestry, University of Ibadan.

Meat source: Semi-membranous muscle from matured (3 years old) bull was obtained immediately after slaughter before the onset of rigor mortis. The meat samples were allotted to five groups viz; 0, 6, 12, 18, and 24 hours post-mortem, respectively. Each treatment group was replicated thrice in a completely randomized design. Pig intestine and lard were purchased from Bodija abattoir. The meat samples, except for those of Zero (0) hour post-mortem were kept at 4°C until used at 6, 12, 18, 24 hours post-mortem, respectively.
Sausage making procedures: The sausages were prepared according to a standard commercial method, using the recipe as follows. Beef 65% Lard 20%, Soybean binder 3.5% green spices 2.19%, dry spices 1.5%, ice water 4.5%, salt 2% sugar 1%, Sodium nitrite 0.01% and phosphate 0.3%.

Parameter measured
pH: The pH was determined by using a digital pH meter model PHS- 25 Microfield instrument England according to the method described by AOAC (2000). The pH value of sausage samples was determined by weighing 10 grams of sample into a blender with 90ml of distilled water and homogenised until smooth slurry was formed. The digital pH meter was placed in a buffer solution in order to allow equilibrium for two minutes before placing it into prepared slurry. An average of three readings was taken, to determine the pH value.

Microbial Count: Microbial count was done using the pour plate water method (Harrigan and Macanee, 1976). A sterile pipette was used to measure 1ml out to the $10^{-3}$ and $10^{-5}$ dilution and this was pipette into sterile Petri dishes, molten agar at 45 °C was poured into it. It was swirled gently for even distribution. The plate was inverted and incubated in an incubator at 30 °C. The total plate count was carried out after 24 hours.

Statistical Analysis: Data obtained were subjected to analysis of variance using SAS (2010). The means were separated using Duncan’s Multiple Range Test of the same procedure.

RESULTS AND DISCUSSION

Table 1 shows the pH values of beef sausage as affected by time post-mortem. There were significant differences (P < 0.05) in pH values observed between treatments and storage days. For day 0, it was observed that as time post-mortem increase, there was a decrease in pH value with 6 hours post-mortem having the highest value, followed by 0 hours, 12 hours and 18 hours with 24 hours having the lowest pH value. A similar result was reported by Oshibanjo et al. (2013) that prerigor meat have higher pH value compared with sausage from post rigor meat which could be probably due to the fact that salting of pre-rigor meat reduces the rate of glycolysis. The salting of post rigor meat was not expected to affect the pH of meat since the ultimate pH had been reached before salting. But as the storage days increases, there was an increasing value in pH as the time post-mortem also increases. Similar result was reported by Deva and Narayah (1988), that increase in pH value could be due to increase in microbial load. Results of this present study are in agreement with the above result.

Microbial plate count values obtained was significantly (P<0.05) different. It was observed that, microbial load increases as the time post-mortem increased. Total plate count result obtained was in agreement with that of Agnihortri and Pal (2000) and Oshibanjo (2017). Higher values were reported by Dharmaveer et. al. (2007). It was observed that as time post-mortem increase, total plate count increased. The result obtained could be due to increase in pH as the time post-mortem increased. The differences observed can be attributed to some eventual contamination and growth of microorganism in the postrigor meat.

<table>
<thead>
<tr>
<th>Storage days</th>
<th>0</th>
<th>6</th>
<th>12</th>
<th>18</th>
<th>24</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6.35&lt;sup&gt;abj&lt;/sup&gt;</td>
<td>6.39&lt;sup&gt;aj&lt;/sup&gt;</td>
<td>6.37&lt;sup&gt;abk&lt;/sup&gt;</td>
<td>6.33&lt;sup&gt;abk&lt;/sup&gt;</td>
<td>6.29&lt;sup&gt;bk&lt;/sup&gt;</td>
<td>0.01</td>
</tr>
<tr>
<td>7</td>
<td>6.22&lt;sup&gt;ik&lt;/sup&gt;</td>
<td>6.34&lt;sup&gt;ck&lt;/sup&gt;</td>
<td>6.41&lt;sup&gt;bj&lt;/sup&gt;</td>
<td>6.44&lt;sup&gt;abj&lt;/sup&gt;</td>
<td>6.46&lt;sup&gt;ij&lt;/sup&gt;</td>
<td>0.02</td>
</tr>
<tr>
<td>14</td>
<td>6.54&lt;sup&gt;i&lt;/sup&gt;</td>
<td>6.58&lt;sup&gt;i&lt;/sup&gt;</td>
<td>6.55&lt;sup&gt;i&lt;/sup&gt;</td>
<td>6.61&lt;sup&gt;i&lt;/sup&gt;</td>
<td>6.67&lt;sup&gt;i&lt;/sup&gt;</td>
<td>0.01</td>
</tr>
<tr>
<td>SEM</td>
<td>0.05</td>
<td>0.04</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td></td>
</tr>
</tbody>
</table>

<sup>abcde</sup> means with the same superscript on the same row are not significantly (P > 0.05) different

<sup>ijk</sup> means with the same superscript on the same column are not significantly (P > 0.05) different
CONCLUSION
It is concluded from the results obtained in this study that the best time post-mortem to harvest meat for sausage making is between 0 and 6 hours to ensure its superior quality keeping and stability of shelf life.

REFERENCE
Young et al., 2004
Assessment of Consumers Preference for Different Types of Meat in Kuje Area Council of FCT, Nigeria

Mustapha, Y., Jimoh, A., Babandi B., Shehu, B.

Regulatory Affairs Department, Nigerian Institute of Animal Science, Abuja, Nigeria

*Correspondence: babanfati82@gmail.com; +2348069611492

Abstract: The study was conducted with the aim of identifying the most preferred meat (fresh and processed) by consumers in Kuje Area Council of Federal Capital Territory (FCT). Structured sample survey interview papers were administered to randomly selected 100 respondents (Males and Females). Data collected include consumer’s information, consumer’s choice for meat preference among beef, mutton, chicken, fish, bush meat, pork, grass cutter and others (such as snail, turkey, goose, duck e.t.c). The data were analysed using simple percentage. Results show that majority of the respondents were males (55%) and females (45%) with most of the respondents within the age bracket of 25-40 years. The educational back grounds of the respondents were mostly tertiary education (45%), secondary school (19%), post degree (11%), primary school (5%) and none (11%). The results of the study show that consumers’ preference is in the order beef (18%), chicken (18%), fish (17%), chevon (15%), mutton (14%), bush meat (7%), grass cutter (4%), rabbit (3%), pork (3%) and others (1%). The result also show that 24% of the respondents preferred each of suya/balangu and kilishi compared to stick meat/Tsire(20%), shredded meat/dambunnama (19%), and gas meat (11%). It is recommended that beef and chicken production and processing should be encouraged vis-avis the qualitative production of beef and chicken which will stimulate more customers and turn over.

Key words: Beef, kilishi, Tsire, mutton, Chevon and Danbunnama

INTRODUCTION

Animal production is very essential to food security and the development of any nation. Importance of animal production includes provision of foreign exchange, generation of employment for the citizens, source of protein which is essential for human nutrition and source of honour and prestige. Other reasons include source of income for the citizens (farmer), source of farm power (draught power) for farm operations and transportation, source of raw materials for the clothing and shoe industry and by-products can be used in various other industries such as the cosmetic industry (1). The major importance of Animal husbandry is to provide animal protein from the consumption of meat. Major meats demanded from agricultural farms and the meat market stations include chevon, mutton and beef produced from goats, sheep and cattle respectively (ruminants). According to (2) livestock production is growing rapidly, which is interpreted to be the result of the increasing demand for animal products. Since 1960, global meat production has more than trebled, milk production has nearly doubled and egg production has increased by nearly four times. This is attributed partly to the rise in population, as well as to the increase in affluence in many countries. Global production and consumption of meat will continue to rise, from 233 million metric tons (Mt) in the year 2000 to 300 million Mt in 2020, as well as that of milk, from 568 to 700 million Mt over the same period as reported by (3). Egg production will also increase further by 30%. Meat is one of the most valuable products obtained from livestock (4), it is a source of high quality protein (5). It is acceptable in most parts of Nigeria where it is either consumed after cooking or processed into other food like Tsire, Kilishi and Suya (6). Consumer’s preference for meat could be influenced by geography, race, ethnicity, social background, family composition and household income (7). Several studies on household meat demand have been carried out around the world but relatively few studies have been carried out on household demand in Nigeria (8, 9, 10 and 11). This study was conducted to assess the preference of consumers to different types of fresh and processed meat in Kuje Area Council, FCT.
MATERIALS AND METHODS
The study was conducted in Kuje Area Council, FCT. The coordinates of Kuje Area Council is located between longitude 8°53’47"N7°14’35" E.8.89639°N 7.24306°E. It lies wholly within the geo-political region referred to as the middle belt and it forms part of the Guinea Savannah ecological zone (12). The area has average annual rainfall of 1308mm with average temperature of 26.6°C. There are two major seasons in a year; rainy season which starts from April to October and dry season starts from November to March. The data were collected through sample survey using questionnaires administered to randomly selected 100 respondents (Males and Females). Data collected include consumer’s personal information, consumers choice for meat preference among beef, mutton, chicken, fish, bush meat, pork, grass cutter and others (such as snail, turkey, goose, duck, e.t.c) and consumer’s preference for processed meat (kilishi, Tsire, Suya/balangu, gas meat among others). The data obtained were then carefully collated and analyzed using simple percentage.

RESULTS
The results from personal data of the respondents were shown in Table 1. Results show that majority of the respondents were males with 55% and females were 45% and most of the respondents (61.36%) are within the age bracket of 25-40 years. The educational backgrounds of the respondents mostly were tertiary education (45%), secondary school (19%), post degree (11%), primary (5%) and none (11%).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex:</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
</tr>
<tr>
<td>Age:</td>
<td></td>
</tr>
<tr>
<td>Below 25 years</td>
<td>24</td>
</tr>
<tr>
<td>25-40 years</td>
<td>61.36</td>
</tr>
<tr>
<td>41-45</td>
<td>12.50</td>
</tr>
<tr>
<td>Over 55 years</td>
<td>2.3</td>
</tr>
<tr>
<td>Level of education:</td>
<td></td>
</tr>
<tr>
<td>Post degree</td>
<td>19</td>
</tr>
<tr>
<td>Tertiary</td>
<td>45</td>
</tr>
<tr>
<td>Secondary</td>
<td>19</td>
</tr>
<tr>
<td>Primary</td>
<td>5</td>
</tr>
<tr>
<td>None</td>
<td>11</td>
</tr>
</tbody>
</table>

The results of respondents on meat consumption are presented in Table 2. Result shows that 95% of the respondents consumed meat while the remaining 5% of the respondent were not consuming meat. This could be as a result of health (3%) and financial reasons (1.2%) from the respondents.

<table>
<thead>
<tr>
<th>Meat Consumption</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not consuming meat at all</td>
<td>5</td>
</tr>
<tr>
<td>Consumed meat</td>
<td>95</td>
</tr>
</tbody>
</table>
The result of respondents on most preferred type of meat is presented in Table 3. Result shows that preference for meat type by the respondents is in the order beef (18%), chicken (18%), fish (17%), chevon (15%), mutton (14%), bush meat (7%), grass cutter (4%), rabbit (3%), pork (3%) and others (1%).

Table 3: Distribution of Respondents Based on Type of Meat Consumed

<table>
<thead>
<tr>
<th>Meat type</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle (Beef)</td>
<td>18</td>
</tr>
<tr>
<td>Chicken</td>
<td>18</td>
</tr>
<tr>
<td>Fish</td>
<td>17</td>
</tr>
<tr>
<td>Goat (Chevon)</td>
<td>15</td>
</tr>
<tr>
<td>Sheep (Mutton)</td>
<td>14</td>
</tr>
<tr>
<td>Bush meat</td>
<td>7</td>
</tr>
<tr>
<td>Grass cutter</td>
<td>4</td>
</tr>
<tr>
<td>Rabbit</td>
<td>3</td>
</tr>
<tr>
<td>Pork</td>
<td>3</td>
</tr>
<tr>
<td>Others (Turkey, Duck, Goose e.t.c)</td>
<td>1</td>
</tr>
</tbody>
</table>

DISCUSSION
Preference for beef and chicken as observed in this study could be due to family composition, household income and cultural inclination with individual’s towards consumption of qualitative meat as reported by (13 and 7). This result is consistent with the findings of (14) who reported that occupation of the house hold head could be a determinant factor for beef preference in Maiduguri metropolitan, north eastern, Nigeria. Percentage of meat consumers in this study corroborates the findings of (5) who reported that meat is a source of high quality animal protein. Meat can give half of the protein needed per day and the amino acids profile of this protein is such that it compensates the deficiency in the protein of vegetable and other cereal products (15). Global consumption of meat will continue to rise from 233 million metric tons (Mt) in the year 2000 to 300 million Mt in 2020, as will that of milk, from 568 to 700 million Mt over the same period (3). Egg production will also increase further by 30% (3). The highest percentage of kilishi consumption in this study could be attributed to quality of the processed meat. Kilishi can be stored in room temperature for several months and has more ash and protein content with low moisture content compared to dried raw meat (6).

CONCLUSION
This study concludes that majority of the respondents preferred beef and chicken, this may be as the result of availability, health reason, affordability and quantity. Majority also preferred Suya/Balangu and Kilishi. In addition, farmers within the study area should be considering consumer’s preference in their production which will translate to improvement in their income as well as livelihood. Meat can also be processed into Suya/Balangu and Kilishi to increase shelf life and nutritional quality.

ACKNOWLEDGEMENT
The authors appreciate the efforts of the leadership of Islamic Academy Kuje and Mrs. Mustapha Mariya who assisted in administering the questionnaires.

REFERENCES


