



# Effect of Preservative Methods on Organoleptic Characteristics of Broiler Neck Meat

Lawal Wasiu Sesan <sup>a\*</sup>, Salam Modupe Olusola <sup>b</sup>,  
Gana Esther Owoidoho-okon <sup>b</sup>, Alege Rukaya omowumi <sup>c</sup>,  
Oyagbola Elizabeth Oyetayo <sup>b</sup>, Ahmed Tawakalitu <sup>b</sup>  
and Abdukadri-Harron Hajarat, Toyin <sup>b</sup>

<sup>a</sup> Department of Animal Production Technology, Kwara State Polytechnic. P.M.B 1375, Ilorin, Kwara State, Nigeria.

<sup>b</sup> Microbiology Unit, Department of Science, Laboratory Technology Kwara State Polytechnic, Nigeria.

<sup>c</sup> Department of Fishery Technology, Kwara State Polytechnic. P.M.B 1375, Ilorin, Kwara State, Nigeria.

## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

The effect of preservative methods on organoleptic characteristics of broiler chicken neck is investigated, forty pieces of broiler neck meat was purchased from ipata frozen meat shop, ten (10) pieces each of the meat part was fried using electronic deep frier in ground nut oil and another ten (10) was roasted with oven for 30minutes at 120°C and evaluation was carried out almost immediately after which ten (10) each was again fried and roasted, then keep at room temperature for two (2) weeks and at the end of the two weeks, sensory evaluation was again carried out, after

\*Corresponding author: Email: awsl2004@gmail.com;

each taste the questionnaire was filled, the nine point edonic scale was used as questionnaire, the panelist were ten (10) each for both boys and girls with their ages ranging from 18-22 years old, the experiment lasted three (3) weeks and it was conducted in Agricultural garden of the Department of Agricultural Technology. The data collected was then analyzed using Randomized combined block design (RCBD) statistic tool and at the end the panelist preferred the roasted meat ( $P < 0.05$ ), this may be as a result of the heat that actually killed the microorganisms that can cause spoilage while the oil that was used in frying may be the cause of spoilage (rancidity) in fried meat, It was therefore concluded that when meat is well roasted it lasted longer than when it is fried because the oil used in frying may be also be the cause of spoilage from rancidity.

*Keywords: Organoleptics characteristics; frozen; preservatives; edonic scale; statistic tool.*

## 1. INTRODUCTION

The continuous rise in human population all over the world with annual average of 7 billion has brought an increase in the demand for animal protein. Estimated current level of consumption of protein in the world is 7g per caput per day [1].

If we must continue to produce food at our present rate, then there will be food scarcity in Nigeria and in deed all over the world, there is that need to increase the rate of food production to match the continuous increase in food production to avoid food scarcity and have food security [1].

In Nigeria, the average daily consumption of 54g protein with 6.5g from animal source falls below the recommended daily protein of 86g and 8.4g of protein from animal source [2].

To alleviate this situation, it has been realized that broiler production is the fastest and easiest route [3,4,5]. since they are prolific, possess a high feed conversion ratio and are accepted by all, irrespective of religion.

Continuous production will at a point lead to excess and there will that need for storage or Preservation to support food security, various method of food preservation are available for commercial scale but those practiced by backyard farmers are to be considered in this study to avoid wastage from spoilage caused by microorganisms and this includes frying and roasting.

### 1.1 Justification

i-Continuous production of broiler birds lead to more of the meat.

ii-Easier way of preserving meat is the cooking methods, refrigerating might be expensive for most Nigerians.

### 1.2 Objectives of the Study

i-Purchase the needed birds part for experimental reason.

ii-Ten (10) broiler chicken neck each were then fried and roasted and store for 2 weeks.

iii- Freshly prepared broiler neck by roasting and frying were evaluated for organoleptic characteristics and this were compare to the taste given after two (2) weeks.

iv- Invite panelist for evaluation.

## 2. MATERIALS AND METHODS

Site of the experiments: The experiment was carried out in the Agricultural garden of Kwara State Polytechnic, Ilorin,

Meat sample: The fifty (40) pieces of sizeable broiler chicken neck was purchased from cold room and twenty (20) were use for evaluation immediately, ten (10) each was boiled, fried and roasted while the remaining twenty (20) was used by frying ten (10) and then roast then and keep for evaluation after two (2weeks).

Meat Preparation: The selected meat samples for frying were done using electronic deep frier system with ground nut oil for 30minutes, the roasting was also carried out by using oven for 30 minutes at 120°C. The boiling was just normal boiling without any spices as it is meant for sensory evaluation also for only 30minutes.

Panelist: Twenty panelist was invited with ten (10) males and ten (10) females with their ages ranging from 18-23years old. They were all briefed on how to fill the questionnaire before embarking on it, and immidiatly after each taste

the panelist has to rinse their mouth before tasting another sample,

Statistical analysis: All data collected was then collated and analysed using Randomised complete bloc design.

### 3. RESULTS AND DISCUSSION

#### 3.1 Results

Table 1 below shows the effect of cooking methods on broiler chicken neck, significant difference occurred in the colour of the meat ( $P < 0.05$ ), panelist preferred the roasted meat most and the least is fried one, this is the same result that was obtained with the meat when considering texture, though in this case the boiled meat is accepted least, the flavour, tenderness and juiciness is same with the fried meat being accepted most. It is good to state here that the boiled meat value is just used as the control.

**Table 1. Organoleptic characteristics of Broiler chicken neck cooked with different methods**

Cooking methods	Boil	Fry	Roast	SEM
Colour	12.00 <sup>b</sup>	21.36 <sup>c</sup>	20.1 <sup>a</sup>	1.4
Flavour	13.00 <sup>c</sup>	24.03 <sup>a</sup>	21.76 <sup>b</sup>	1.7
Tenderness	21.00 <sup>a</sup>	21.00 <sup>a</sup>	19.00 <sup>b</sup>	1.4
Juiciness	23.00 <sup>b</sup>	25.00 <sup>a</sup>	11.90 <sup>c</sup>	6.1
Texture	14.03 <sup>b</sup>	22.00 <sup>a</sup>	21.73 <sup>a</sup>	4.0

*a, b, c and d within the same column with different superscripts are significantly different at ( $P < 0.05$ )*

#### 3.2 Discussion

The roasted meat is most preferred meat based on the panelist after preservation for two (2) weeks, this may be as a result of the fact that the roasted meat really kill the micro-organism that can cause damage that are contacted during killing and dressing from the equipment used during slaughtering and dressing, the oil used in frying may be a reason for the that instigated the damage in the fry meat that causes the panelist to preferred the roasted meat.

### 4. CONCLUSION AND RECOMMENDATION

#### 4.1 Conclusion

i-Roasted meat is most preferred by the pernelist  
ii-This is then followed by the

#### 4.2 Recommendations

i-Meat can better be preserved by roasting

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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