



## SENSORY EVALUATION OF MEAT AND POULTRY TYPES USING DRY COOKERY METHOD

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### Abstract

The sensory evaluation of meat and poultry types using dry cookery method was carried out among students and staff of Hospitality Management as subject it is an empirical study whose data was based on primary source obtained in a cross-sectional survey of 25 panelists. The study employed usage of descriptive statistics to analyse the data generated through the sensory evaluation sheet. The performance of different meat and poultry types were carried out by evaluating the appearance, texture, colour, taste, flavour and overall acceptability. The samples were served to semi-trained panelists. For the dry baking experiment, chicken has the highest appearance score, In term of the texture, dry baking chicken has the highest texture score (mean=7.96). In term of the taste, dry baking chicken has the highest taste score (mean=7.80). As far as overall acceptability is concerned, dry baking chicken has the highest overall acceptability score (mean=8.56). For the grinding meat experiment, in term of the appearance, dry grinding chicken has the highest appearance score (mean=8.08), dry grinding beef has the highest texture score, dry grinding beef has the highest taste score (mean=7.88), as far as overall acceptability is concerned, dry grinding beef has the highest overall acceptability score (mean=8.12). The result indicated that in term of appearance, there was no significant difference between the samples of different baking meat. As far as the colour is concerned, there was also no significance difference between the five samples of the dry baking meat. However, in term of texture, a significant difference was observed between the goat meat, beef meat and chicken. In term of taste there was no significant difference between the samples of the meat. There was a significant difference between the flavour of mutton meat and that of beef and turkey. In terms of overall acceptability, there was a significant difference between the goat meat, beef meat, turkey meat and chicken. For the grinding meat, the result indicated that in term of colour, texture and taste, there was no significant difference between the samples of different grilling meat. Based on the findings it is concluded that baking system of cooking meat and poultry was the most preferred method of cooking, it is therefore recommended that baking system of cooking meat and poultry should be adopted.

**Keywords:** Baking, Beef, Cookery, Dry, Evaluation, Grilling, Poultry, Sensory

### Introduction

Meat is an excellent source of many important nutrients; however, it is subject to high rate of deterioration. It is also an ideal environment for bacterial to thrive due to its high protein and moisture contents (Bhaisare, Thyagarajan, Churchi & Punniamurthy, 2014). Microbial deterioration of meat begins soon after exsanguinations. The quantity of spoilage microorganism present in fresh meat at the time of processing has an impact on product's shelf life. Bacteria, mould and yeast are the three common microorganisms found in meat. The moulds and yeast growing on meat are aerobic whereas bacteria thriving in meat could be aerobic, anaerobic or facultative (Jay, Loessner & Golden, 2018). Some additional organisms of concern affiliated with meat in general are *Salmonella*, *Escherichia coli*, *Staphylococcus aureus* (Romans, Costello, Carlson, Greaser, & Jones, 2014). Therefore, meat processing methods such as refrigeration, canning and drying aim at limiting microbial growth at the least, making it possible to extend shelf life and also introduces variety of meat products. The process of freezing may decrease the number of microorganisms during storage. However, some species of bacteria found during refrigerated storage such as *Pseudomonas*, *Brochothrixthermosphacta* and lactic acid bacteria (LAB) (*Lactobacillus*, *Carnobacterium*, and *Leuconosto*) etc can survive this process and resume growth (Labadie, 2009; Ellis & Goodacre, 2011; Pin, Fernando, & Ordonez, 2012). On the other hand most traditional products have relied on salting and drying as a means of meat preservation.

Goat meat or goat's meat is the meat of the domestic goat (*Capra aegagrus hircus*). Goat meat is considered as the red meat produced by the domestic goat. It is also known as the chevon or mutton (adult goat meat). It is commonly and mostly consumed meat all over the world by the people because of its high protein, iron and low fat level. There are varieties of meat from different domestic animals and among are: Goat meat is loaded with the all the required healthy nutrients for the body in high amounts. It contains B group vitamins (B1, B2, B3, B9, B12), vitamin E, vitamin K, chlorine, protein, natural fats, betaine, cholesterol, amino acids, minerals (manganese, calcium, iron, zinc, copper, phosphorus, selenium), electrolytes (sodium, potassium), omega 3 Fatty Acids and omega 6 Fatty Acids. It is very nutritional food for the health. The meat of an adult sheep is mutton, a term only used for the meat, not the living animals (Doshi, 2017).

Chicken is the most common type of poultry in the world. Owing to the relative ease and low cost of raising them in comparison to animals such as cattle or hogs, chickens have become prevalent throughout the cuisine of cultures around the world, and their meat has been variously adapted to regional tastes.

Chicken can be prepared in a vast range of ways, including baking, grilling, barbecuing, frying, and boiling, among many others, depending on its purpose. Since the latter half of the 20th century, prepared chicken has become a staple of fast food. Chicken is sometimes cited as being more healthful than red meat, with lower concentrations of cholesterol and saturated fat (Eriksson, Larson, Gunnarsson, Bed'hom, Tixier-Boichard, 2018).

Turkey meat, commonly referred to as just turkey, is the meat from turkeys, typically domesticated turkeys. It is a popular poultry dish.

Different methods of preserving these products are:

Baking is a method of cooking food that uses prolonged dry heat, normally in an oven, but also in hot ashes, or on hot stones. The most common baked item is bread but many other types of foods are baked.

Baking can be combined with grilling to produce a hybrid barbecue variant by using both methods simultaneously, or one after the other (Simpson, 2016). Baking is related to barbecuing because the concept of the masonry oven is similar to that of a smoke pit.

Baking has traditionally been performed at home by women for day-to-day meals and by men in bakeries and restaurants for local consumption. When production was industrialized, baking was automated by machines in large factories. The art of baking remains a fundamental skill and is important for nutrition, (Beeton, 2011) as baked goods, especially breads, are a common and important food, both from an economic and cultural point of view.

Grilling is a form of cooking that involves dry heat applied to the surface of food, commonly from above or below (Schroder, 2013). Grilling usually involves a significant amount of direct, radiant heat, and tends to be used for cooking meat and vegetables quickly. Food to be grilled is cooked on a grill (an open wire grid such as a gridiron with a heat source above or below), a grill pan (similar to a frying pan, but with raised ridges to mimic the wires of an open grill), or griddle (a flat plate heated from below).

Heat transfer to the food when using a grill is primarily through thermal radiation. Heat transfer when using a grill pan or griddle is by direct conduction (Taylor, Phelan, Otanicar, Walker, Nguyen, Trimble & Prasher, 2011). When the heat source for grilling comes from above, grilling is called broiling. In this case, the pan that holds the food is called a broiler pan, and heat transfer is through thermal radiation.

Direct heat grilling can expose food to temperatures often in excess of 260 °C (500 °F). Grilled meat acquires a distinctive roast aroma and flavour from a chemical process called the Maillard reaction. The Maillard reaction only occurs when foods reach temperatures in excess of 155 °C (310 °F).

## **METHODOLOGY**

### **Materials and Method**



### List of equipment used

Cooking pot

Oven

Griller

Knives

Chopping board

Mixing bowl

Colander

Blender

Cooking spoon

Baking trays

Perforated spoon

Tongs

Basting brush

Toothpick

Disposable plates

Non stick pan

**Meats Samples:** Fresh beef, goat meat, mutton, turkey and chicken were obtained.

### Recipes and Method for Baked and Grilled Meat

#### Recipe for Goat Meat

- 6 large garlic cloves
- 1 medium onion, coarsely chopped
- 1/2 cup plus 2 tablespoons good tasting extra virgin olive oil
- Shredded zest of 2 large lemons
- Juice of 1 large lemon (about 6 tablespoons)
- 1/4 teaspoon each salt and freshly ground black pepper
- 8 to 9 1-inch thick small rib or loin goat chops

#### Procedure



1. I marinated the meat for 2 hours. In a food processor/blender combine the garlic, onion, 1/2 cup olive oil, the lemon zest, lemon juice, wine, oregano, salt, and pepper were processed to form a puree. I Pour the onion, rind, garlic and marinated meat into a heavy plastic bag or bowl, toss with the chops and refrigerate 1-1/2 to 2 hours

2. To cook, the chops was drained but not wiped because of the marinade. I heat the remaining 2 tablespoons of oil in a 12-inch straight-sided sauté pan over medium high heat, I Arrange the chops in the skillet so they barely touch and use 2 pans, Brown quickly on both sides. Then turn down the heat to medium-low and cook another 2 minutes a side, or until the chops are barely firm when pressed with your finger. it should be blushed with pink inside. Serve the chops hot.

### **Recipe for Mutton**

1/4 cup distilled white vinegar, 2 teaspoons salt, 1/2 teaspoon black pepper, 1 tablespoon minced garlic, 1 onion, thinly sliced, 2 tablespoons olive oil, 2 pounds lamb chops.

### **Method of Preparation**

1. I mix together the vinegar, salt, pepper, garlic, onion, and olive oil in a large resealable bag until the salt has dissolved. I added the lamb, and tossed until coated, and marinate in refrigerator for 2 hours.
2. I Preheated an outdoor grill for medium-high heat.
3. I removed the lamb from the marinade and leave any onions on that stick to the meat. I discarded the remaining marinade Wrap the exposed ends of the bones with aluminum foil to keep them from burning. The meat was Grilled to desired doneness, about 3 minutes per side for medium. The chops may also be broiled in the oven about 5 minutes per side for medium.

### **Recipe for Beef**

4 beef steaks, about 3/4 inch thick

1 teaspoon salt

1/4 teaspoon pepper

### **Method of Preparation**

1. I prepare the coals or a gas grill for direct heat. Heat to medium heat, which will take about 40 minutes for charcoal or about 10 minutes for a gas grill.
2. I Cut outer edge of fat on steaks (except tenderloin steaks) diagonally at 1-inch intervals with a sharp knife. Do not cut into the meat because it will allow the juices to cook out and the beef will become dry.
3. I Place the beef on the grill rack over medium heat. Cover the grill; cook 6 to 8 minutes for rib eye, 10 to 12 minutes for porterhouse and T-bone or 13 to 15 minutes for sirloin and tenderloin, turning beef once halfway through cooking, until an instant-read meat thermometer inserted in center of thickest part reads 145°F for medium-rare or 160°F for medium doneness. Sprinkle with salt and pepper.

### **Recipe for Turkey**

500g turkey

1 tablespoon vegetable oil

1 teaspoon Italian seasoning

Salt and pepper to taste



1. I prepare an outdoor grill for indirect medium-high heat.
2. I rinse turkey and pat dry. I Turn wings back to hold neck skin in place. Return legs to tucked position. Brush turkey with oil. Season inside and out with Italian seasonings, salt, and pepper.
3. I place turkey, breast side up, on a metal grate inside a large roasting pan. Arrange pan on the prepared grill. Grill 2 to 3 hours, to an internal thigh temperature of 180 degrees F (85 degrees C). Remove turkey from grill and let stand 15 minutes before carving.

### **Recipe for Chicken**

Chicken

Cayenne Pepper

Salt

Stock Cube

Thyme

Onion

1 tbs Margarine

### **Method of preparation**

1. I cut the whole chicken into desired places
2. I put the chicken pieces in a pot; add diced onions, thyme, salt and stock cubes.
3. I coat the chicken well with the seasoning. Leave or 25mins to marinate
4. I place them on the griller, place the rack as close to the grill.
5. When the top side becomes brown, I turn the pieces of chicken on the other side.

The chicken is well-grilled when both sides are brown.

### **Study Area**

This study was carried out at the hospitality management laboratory of federal polytechnic Ilaro, Ogun. The data were obtained from the selected staff of Hospitality management Dept and laboratory analyses was conducted in the Departmental Laboratory.

### **Target Population**

The population of this study consists of 25 panelists which comprises the students and staff of Hospitality Management Department, Federal Polytechnic Ilaro.

### **Study design**

The study was cross sectional and descriptive in nature and involved students and staff of Hospitality Management Department, Federal Polytechnic Ilaro.

### **Data Collection**

Data were obtained through the use of sensory evaluation sheet to gather necessary details about the dry cooking methods which can be used to prepare different types of meat types and poultry in the study area. 25 panelist were subjected to the sensory evaluation and their views was recorded on the sensory evaluations sheet that was provided by the researcher.

### Data Analysis

The method used in interpreting all the details obtained including tables and correlation analysis. Correlation analysis were used to analyze the primary and secondary data obtained which focused on the different dry cooking methods used in the preparation of different meat types.

### Results

**Table 1: Showing the scores for the Appearance for baked meat**

Measurements	SCALE									
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	Mean
Appearance A	5(20.0)	12(48.0)	6(24.0)	2(8.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.8000</b>
Appearance B	6(24.0)	6(24.0)	12(48.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.6800</b>
Appearance C	9(36.0)	10(40.0)	3(12.0)	0(0.0)	0(0.0)	3(12.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.7600</b>
Appearance D	8(32.0)	10(40.0)	4(16.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	3(12.0)	0(0.0)	<b>7.4400</b>
Appearance E	14(56.0)	7(28.0)	2(8.0)	1(4.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.2800</b>

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

The results of the analysis above showed the different scores obtained from a list of panels that were used for the experiment. The scores range from 9-1. In term of the appearance, majority of the panelists (48.%) extremely like the appearance of baked goat, 48.0% like moderately the appearance of baked mutton, about 40.0% like very much the appearance of baked beef and baked turkey respectively while 56.0% of the panelists extremely like the appearance of baked chicken. In all baked chicken has the highest appearance score, followed by baked goat meat, next to this is baked beef while baked turkey meat has the lowest appearance score.

**Table 2: Showing the scores for the texture for baked meat**

Measurements	SCALE									Mean
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	
<b>SAMPLE</b>										
<b>Texture A</b>	4(16.0)	7(28.0)	9(36.0)	2(8.0)	2(8.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.2400</b>
<b>Texture B</b>	6(24.0)	9(36.0)	5(20.0)	4(16.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.5600</b>
<b>Texture C</b>	4(16.0)	5(20.0)	9(36.0)	6(24.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.1600</b>
<b>Texture D</b>	7(28.0)	10(40.0)	4(16.0)	4(16.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.8000</b>
<b>Texture E</b>	9(36.0)	7(28.0)	8(32.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.9600</b>

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

In term of the texture, baked chicken has the highest texture score (mean=7.96), followed by baked turkey meat (mean =7.80), next to this is dry baked mutton (mean=7.56) followed by baked meat goat (mean=7.24) while baked beef has the lowest texture score (mean =7.16). This implies that baked chicken is the most preferred meat in term of texture.

**Table 3: Showing the scores for the taste for baked dry meat**

Measurements	SCALE									Mean
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	
<b>Taste A</b>	6(24.0)	11(44.0)	3(12.0)	5(20.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.7200</b>
<b>Taste B</b>	4(16.0)	9(36.0)	6(24.0)	5(20.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.3600</b>
<b>Taste C</b>	8(32.0)	7(28.0)	8(32.0)	1(4.0)	0(0.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	<b>7.7200</b>
<b>Taste D</b>	12(48.0)	4(16.0)	5(20.0)	1(4.0)	0(0.0)	0(0.0)	3(12.0)	0(0.0)	0(0.0)	<b>7.6000</b>



<b>Taste E</b>	9(36.0)	9(36.0)	3(12.0)	3(12.0)	0(0.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	<b>7.800</b>
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A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

In term of the taste, baked chicken has the highest taste score (mean=7.80), followed by baked goat meat and beef respectively (mean =7.72), next to this is baked turkey (mean=7.60) while baked mutton has the lowest taste score (mean =7.36). This implies that baked chicken is the most preferred meat in term of taste.

**Table 4: Showing the scores for the overall acceptability baked meat**

Measurements	SCALE									
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	Mean
<b>Overall A (A)</b>	5(20.0)	8(32.0)	8(32.0)	4(16.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.560</b>
<b>Overall A (B)</b>	7(28.0)	11(44.0)	6(24.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.920</b>
<b>Overall A (C)</b>	9(36.0)	10(40.0)	5(20.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.080</b>
<b>Overall A (D)</b>	13(52.0)	9(36.0)	3(12.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.400</b>
<b>Overall A (E)</b>	16(64.0)	7(28.0)	2(8.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.560</b>

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

As far as overall acceptability is concerned, baked chicken has the highest overall acceptability score (mean=8.56), followed by baked turkey (mean =8.40), next to this is baked beef (mean=8.08), this was followed by baked mutton (mean=7.92) while baked goat meat has the lowest overall acceptability score (mean =7.56). This implies that baked chicken is the most preferred meat in term of overall acceptability.



**Table 5: Showing the scores for the Appearance for grilled meat**

Measurements	SCALE									
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	Mean
<b>Appearance A</b>	4(16.0)	7(28.0)	9(36.0)	3(12.0)	2(8.0)		0(0.0)	0(0.0)	0(0.0)	<b>7.3200</b>
<b>Appearance B</b>	4(16.0)	10(40.0)	9(36.0)	1(4.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.5600</b>
<b>Appearance C</b>	5(20.0)	9(36.0)	3(12.0)	4(16.0)	0(0.0)	0(0.0)	4(16.0)	0(0.0)	0(0.0)	<b>6.9600</b>
<b>Appearance D</b>	5(20.0)	7(28.0)	8(32.0)	1(4.0)	1(4.0)	0(0.0)	0(0.0)	3(12.0)	0(0.0)	<b>6.9600</b>
<b>Appearance E</b>	13(52.0)	13(52.0)	2(8.0)	2(8.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.0800</b>

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

In term of the appearance, grilled chicken has the highest appearance score (mean=8.08), followed by grilled mutton (mean=7.56) next to this are grilled goat (mean= 7.32) turkey and beef respectively has the lowest appearance score (mean =6.96) respectively. This implies that grilled chicken is the most preferred meat in term of appearance.

**Table 6: Showing the scores for the texturefor grilled meat**

Measurements	SCALE									
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	Mean
<b>Texture (A)</b>	6(24.0)	5(20.0)	7(28.0)	5(20.0)	1(4.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.2800</b>
<b>Texture (B)</b>	2(8.0)	5(20.0)	11(44.0)	6(24.0)	1(4.0)		0(0.0)	0(0.0)	0(0.0)	<b>7.0400</b>
<b>Texture (C)</b>	5(20.0)	9(36.0)	8(32.0)	1(4.0)	0(0.0)	2(8.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.4800</b>
<b>Texture (D)</b>	4(16.0)	5(20.0)	12(48.0)	3(12.0)	0(0.0)		1(4.0)	0(0.0)	0(0.0)	<b>7.2400</b>

<b>Texture (E)</b>	0(0.0)	4(16.0)	6(24.0)	5(20.0)	0(0.0)	1(4.0)	1(4.0)	1(4.0)	0(0.0)	<b>7.0400</b>
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A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

In term of the texture, grilled beef has the highest texture score (mean=7.48), followed by grilled goat (mean=7.28) next to this is grilled turkey (mean= 7.24) mutton and chicken has the lowest texture score (mean=7.04) respectively. This implies that grilled beef is the most preferred meat in term of texture.

**Table 7: Showing the scores for the taste for grilled meat**

Measurements	SCALE									Mean
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	
<b>Taste (A)</b>	3(12.0)	9(36.0)	9(36.0)	1(4.0)	2(8.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.2800</b>
<b>Taste (B)</b>	5(20.0)	7(28.0)	6(24.0)	5(20.0)	1(4.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.2800</b>
<b>Taste (C)</b>	8(32.0)	9(36.0)	6(24.0)	1(4.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.8800</b>
<b>Taste (D)</b>	8(32.0)	6(24.0)	4(16.0)	2(8.0)	1(4.0)	1(4.0)	3(12.0)	0(0.0)	0(0.0)	<b>7.1200</b>
<b>Taste (E)</b>	5(20.0)	12(48.0)	2(8.0)	1(4.0)	4(16.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	<b>7.3600</b>

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

In term of the taste, grilled beef has the highest taste score (mean=7.88), followed by grilled chicken (mean =7.36), next to this is grilled goat and grilled mutton (mean=7.28) respectively while grilleturkey meat has the lowest taste score (mean =7.12. This implies that grilleturkey is the most preferred meat in term of taste.

**Table 8: Showing the scores for the overall acceptability grilled meat**

Measurements	SCALE									Mean
	Like extremely	Like very much	Like moderately	Like slightly	Neither like nor dislike	Dislike slightly	Dislike moderately	Dislike very much	Dislike extremely	
<b>Overall A (A)</b>	5(20.0)	10(40.0)	9(36.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.7200</b>
<b>Overall A (B)</b>	2(8.0)	11(44.0)	5(20.0)	6(24.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>7.2400</b>
<b>Overall A (C)</b>	11(44.0)	6(24.0)	8(32.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.1200</b>
<b>Overall A (D)</b>	9(36.0)	13(52.0)	1(4.0)	0(0.0)	1(4.0)	1(4.0)	0(0.0)	0(0.0)	0(0.0)	<b>8.0400</b>
<b>Overall A (E)</b>	10(40.0)	9(36.0)	2(8.0)	2(8.0)	1(4.0)	0(0.0)	1(4.0)	0(0.0)	0(0.0)	<b>7.8400</b>

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

As far as overall acceptability is concerned, grilleturkey has the highest overall acceptability score (mean=8.12), followed by grilleturkey (mean =8.40), next to this is grilleturkey (mean=8.04), this was followed by dry grinding goat (mean=7.72) while baked mutton has the lowest overall acceptability score (mean =7.24. This implies that grilleturkey is the most preferred meat in term of overall acceptability.

**Table 9: Showing the sensory evaluation of baked meat using different meat**

	Appearance	Colour	Texture	Taste	Flavour	Overall acceptability
Sample						
A	7.80 <sup>a</sup>	7.40 <sup>a</sup>	7.24 <sup>a</sup>	7.72 <sup>a</sup>	7.60	7.56 <sup>a</sup>
B	7.68 <sup>a</sup>	7.36 <sup>a</sup>	7.56	7.36 <sup>a</sup>	6.76a	7.92
C	7.76 <sup>a</sup>	7.00 <sup>a</sup>	7.16 <sup>a</sup>	7.72 <sup>a</sup>	7.76 <sup>b</sup>	8.08 <sup>b</sup>
D	7.44 <sup>a</sup>	7.84 <sup>a</sup>	7.80	7.60 <sup>a</sup>	7.76 <sup>b</sup>	8.40 <sup>b</sup>



E	8.28 <sup>a</sup>	7.24 <sup>a</sup>	7.96 <sup>b</sup>	7.80 <sup>a</sup>	7.04	8.56 <sup>c</sup>
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Mean scores in columns with same letters are not significantly different ( $p < 0.05$ ).

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

From the results of the sensory evaluation in table 9 above, the result indicated that in term of appearance, there was no significant difference between the samples of different baked meat. As far as the colour is concerned, there was also no significance difference between the five samples of the dry baked meat. However, in term of texture, a significant difference was observed between the goat meat, beef meat and chicken. In term of taste there was no significant difference between the samples of the meat. The result indicated a significant difference between the flavour of mutton meat and that of beef and turkey. In terms of overall acceptability, there was a significant difference between the goat meat, beef meat, turkey meat and chicken.

**Table 10: Showing the sensory evaluation of grilledmeat using different meat**

	Appearance	Colour	Texture	Taste	Flavour	Overall acceptability
Sample						
A	7.32	6.88 <sup>a</sup>	7.28 <sup>a</sup>	7.28 <sup>a</sup>	7.08	7.72
B	7.56	6.88 <sup>a</sup>	7.04 <sup>a</sup>	7.28 <sup>a</sup>	6.44 <sup>a</sup>	7.24 <sup>a</sup>
C	6.96 <sup>a</sup>	7.08 <sup>a</sup>	7.48 <sup>a</sup>	7.88 <sup>a</sup>	7.76 <sup>b</sup>	8.12 <sup>b</sup>
D	6.96 <sup>a</sup>	7.24 <sup>a</sup>	7.24 <sup>a</sup>	7.12 <sup>a</sup>	7.00	8.04
E	8.07 <sup>b</sup>	7.60 <sup>a</sup>	7.04 <sup>a</sup>	7.36 <sup>a</sup>	6.84	7.84

Mean scores in columns with same letters are not significantly different ( $p < 0.05$ ).

A = Goat Meat

B = Mutton Meat

C = Beef meat

D = Turkey meat

E= Chicken

From the results of the sensory evaluation in table 10 above, the result indicated that in term of colour, texture and taste there was no significant difference between the samples of different grilledmeat. However, in term of appearance, a significant difference was observed between the beef meat, turkey meat and chicken. In term of flavour there was significant difference between mutton and beef meat. In terms of overall acceptability, there was a significant difference between the mutton and beef.

## Discussion

## Conclusion and Recommendation

The results of the analysis of the two different cooking methods used in the experiment indicated that there was a significant in both the physical and sensory characteristics of the different samples of the meat used in the experiment. The baking system of meat cooking seems to be more acceptable when compare to the grilling system. The study therefore concluded that baking system of meat cooking was the most preferred method of cooking.

## Recommendation

The following is the recommendation from the study;

The study and the result showed that baking system was more preferable in term of the physical and sensory quality, it is therefore recommended that adoption of baking system of cooking meat should be adopted.

In terms of acceptability, chicken meat had the highest overall acceptability and as a result people in the study area should be encouraged in consuming chicken meat and these can be done through government assistance by providing enabling environment that favour the poultry business in the country.

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