

RECIPE STANDARDISATION AND SENSORY PROPERTIES OF SELECTED INDIGENOUS DISHES OF ANAMBRA STATE, NIGERIA.

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ABSTRACT

Nigeria is richly blessed with diverse food and culture among numerous tribes and natives across her 932,768sq km landmass. It is however unfortunate that in domestic and industrial preparation of food, also in different ethnic cooking, and many food practitioners have failed to use standard recipe which will make the food to be acceptable globally especially the local ones. This study has been able to identity and prepare various indigenous dishes of Anambra State origin using local weights, but, which recipes were standardized in this research work. A convenience sampling method was used in the selection of 50 taste panelists who were the research respondents. the instrument for data collection was sensory evaluation form which was based on 9-Point hedonic scale rating. The data gathered were analyzed using Statistical Package for Social Science (SPSS) version 20.0 The result shows that appearance for IES (Igbo Egusi Soup) can be recommended for hotels and different ethnic groups. All the dishes except OS (Oha Soup) and BS (Bitterleaf Soup) were found to have the best texture while all the dishes prepared using standardized recipe except BS and OS were found to have very good aroma. In conclusion, it was ascertained that having standardized recipe will promote and enhance the preparation and acceptability of local dishes in homes, among different ethnic groups and in hospitality industry globally.

KEYWORDS: *Ethnic, Globally, Hotel, Practitioners, Recipe, Standardized.*

1.0 INTRODUCTION

Nigeria being one of the Anglophone countries and one of the most populous countries in the world which has a landmass of 910,768 square kilometres which is an area covered by land while 13,000 square kilometres is occupied by water totalling 923,768 square kilometer altogether. Nigeria is regarded as one of the most densely populated countries in Africa, with approximately 200 million people in an area of 920,000 km² (360,000sqmi)

(Akinyemi and Akanni, 2014) and is also the country with the largest population in Africa ("The World Factbook—Central Intelligence Agency" 2018) and the seventh largest population in the world (Central Intelligence Agency World Factbook, 2018). Nigeria is been referred to as "The Giant of Africa," due to the large population and distinct economic achievements in comparison to countries that surround this land. Nigeria is found in West Africa and borders Benin, Chad, Cameroon, and Niger. Nigeria is a fascinating country; in the 36 states and

Federal Capital Territory of Nigeria, there are over 500 ethnic groups and over 500 languages spoken! Exploring the three largest ethnic groups in Nigeria.

The Igbo people of Nigeria make up approximately 18% of the population. They have long been opposed to Sharia law in Nigeria, with most Igbo identifying as Christian. Igbo society, unlike the Hausa and Yoruba, is non-hierarchical and not reliant on a centralized society. The Igbo are an essential part of the oil trade in Nigeria's south-eastern region. In 1967, Igbo fought with the Nigerian government to achieve independence. This was a two and a half year battle in which Igbo people were subjected to brutal conditions, many starving to death during this time. Since this war, Igbo have been reintegrated into Nigerian society.

Nigeria is divided administratively into thirty-six states and the Federal Capital Territory of Abuja (CIA World Factbook, 2012). And the country is subdivided into six (6) sub geographical Zones. i.e Northeast, Northwest, South east, Southwest, South south, North Central, while in the South East, the occupants are nearly Igbos and they have about 40 million occupants (According to 2015 estimate The population of Igboland stated here is an accumulation of the 5 main states Abia, Anambra, Ebonyi, Enugu and Imo only) of which Anambra happens to be the core state. Many earthly groups in Nigeria have their dishes and the Igbo has their own dishes (Akinyemi & Akanni,2014)

In Anambra State where the researcher is beaming his search light has many traditional dishes which include OfeOnugbu (Bitter leaf soup), OfeEgusi (Egusi Soup), OfeOha (Oha soup), OfeOgbono (OgbonoSoup), OfeNsala (White soup) etc. Some of these dishes have their Nutritional values like Egusi;

Egusi soup does not just benefit the stomach, it is a healthy meal rich in iron, calcium, Vitamin A and C, sodium, potassium, protein and carbohydrate and low in fat, cholesterol, fiber, saturated fat, and sugar. Bitter leaf soup; Bitter leaf is one of the widely used cooking vegetables in Nigeria known as onugbuby the Igbo's and scientifically called "Vernonia amygdalina".

Apart from its culinary purposes, this herb is being adopted by few health professionals due to its therapeutic value and curative potency and thus has its benefit and nutritive value; It helps to regulate the blood sugar level; especially in diabetic patients and is used as a therapy to prevent high sugar level in the body. Body cells are under constant attack from oxidation, which increase the chance of precancerous cell formation. Studies show that the bitterness there are antioxidant properties found in bitter leaf when added to a diet offers disease fighting properties. When applied on the skin, it is used to cure skin ailments such as ring worm, eczema, etc. due to its antifungal and antibacterial properties Shelef (2019).

Oha Soup usually made with Oha leaf which is botanically known as *Pterocarpus mildraedil* is a common vegetable consumed mainly by the Igbos of Eastern Nigeria. It is used in preparing soups and other foods requiring vegetables. Many are fond of this vegetable because of its taste when used in soups, the uses of oha goes beyond taste. Oha leaves are known to contain hydrogen cyanide and oxalate but in low levels which are not harmful to humans. Oha leaves contain minerals like, magnesium, calcium, potassium, copper, iron, zinc and manganese. It is a source of vitamins A, B, and C source of amino acids like lysine, glutamic acid cysteine while still maintaining its low sodium status. The vegetable are also rich in fibre which helps in constipation Allaby (2012).

1.1 Statement of the Problem

Anambra State is blessed with numerous varieties of dishes but many of the ingredients used in preparing the dishes are not properly and adequately quantified and standardized during their preparation. When correct and exact quantity of ingredients are not used in preparing many of the dishes this will lead to ingredients being combined together wrongly and in an incorrect proportion which will cause inconsistency in the preparation of the dishes. Hence, the need to standardize the recipe or ingredients used. When these dishes are standardized, they can be prepared all over the world with same result and yield.

1.2 Objective of the Study

The objective of this study is to prepare/produce six(6) different varieties of meals/dishes from Anambra State, Nigeria using correct and standardised recipe, carry out sensory evaluation on the dishes, compare the regular way of preparing/cooking the different dishes and one prepared using standard recipe and evaluate the health benefits of the dishes/meals prepared

2.0 LITERATURE REVIEW

Igbo cuisine is the various foods of the Igbo people of Southeastern, Nigeria. Their cuisine includes the dishes, recipes and types of vegetables, meats and fruits that have shaped their food culture. Igbo food, as in the case of all cultures, has been considerably affected by their environment and history. Igbo is considered to be one of the three major tribes in Nigeria. It has its unique customs, traditions, music but it's necessary to concentrate on food that is presented in Igbo culture. In Igbo culture, women are

usually considered to be the masters of the kitchen. The Key traditional foods for the Igbo people are found to be vegetables, legumes, maize, cocoyam, cassava, and yam.

Cereals are also to be considered one of the most important nutrients for Igbo. A lot of dishes are connected with the major foods of Igbo people, like NniOka, NniAkpu, Nni Ji, Onugbu, Okazi, Achi, Oha. Yam has always been defined as man's crop. A man who owns a certain number of Yam can be called "Diji". Yam is a very important part of Igbo food. New Yam Festival is one of the major Igbo culture food events that are presented there. There are also various types of Yam that are produced in the largest quantity. White Yam is usually planted from January to March. At the same time, Yellow Yam can be planted only in December. Harvesting is also very intensive labor where the whole community may partake (Murdock, 2012).

Cassava is another important product for Igbo cuisine. It's a major high energy product that provides over70% of daily energy in daily meals of Igbo. It can also be described as "Man Power," "Six to Six," "Number One" and soon. The harvesting of Cassava also occurs after 6-18 months after planting. There are different types served in Nigeria that can be considered as food of Igbo culture. It includes different soups, salads and other types of dishes.

2.1 Yam served with fish pepper soup

It can be called as Yam soup or Ji in the Igbo language. Each year, Yam is celebrated by Igbo people. It's known as *IriIji*. For Igbo People, this yam can be celebrated as one of the best foods on the land. Yam with Fish Pepper Soup can be used as a meal for starters in the culture of Igbo food. Due to

the peppery nature of this product, it's not recommended for breakfasts. Yam served with fish pepper soup is one of the greatest sources of calories.

It's rich in the complex of carbs, omega-3 fatty acid, vitamins B6 and B1. The procedure of cooking for this soup is quite simple, you just need to take into consideration the following products Yam, Tomatoes, Carrots, Onion, Oil, and seasoning. You prepare the ingredients in the way like you are going to prepare the soup. After that, you will need to add precooked fish and pepper. Do not forget that your fish should be well prepared for this soup.

2.2 Nkwobi

Nkwobi is one of the Nigerians most popular meals. It's usually considered to be an evening meal and was originally made of just bush meat. This meat included rabbits, antelopes, grass cutters and even squirrels. It's a delicacy made of several types of meat. The main ingredients include meat (different types of meat are preferred), cubes of Knorr, edible potash, palm oil, onions, salt, pepper, utazi leaves. Meat is the main component in this dish. That's why you should choose it wisely.

2.3 Abacha (African Salad)

There are many dishes that are common to the Igbos in particular, but one that cuts across Igbos in the South-East and South-South is Abacha also popularly known as the African Salad. Abacha is a popular cassava dish native to the Igbos and served throughout Igbo land in eastern Nigeria. It is made using dried shredded cassava, palm oil, potash, chopped onions, salt, dry pepper, ground crayfish, sliced utazi, stock cubes and Ugba. Abacha can be eaten as a snack or a full meal served with dry fish or ponmo.

2.4 Seasoning

Seasoning is the process of adding salts, herbs, or spices to food to enhance the flavour. Seasonings include herbs and spices, which are themselves frequently referred to as "seasonings". However, Larousse Gastronomique states that "to season and to flavor are not the same thing", insisting that seasoning includes a large or small amount of salt being added to a preparation (Larousse,2019) Salt may be used to draw out water, or to magnify a natural flavor of a food making it richer or more delicate, depending on the dish. This type of procedure is key to curing. For instance, sea salt (a coarser-grained salt) is rubbed in to chicken, lamb, and beef to tenderize the meat and improve flavor. Other seasonings like black pepper and basil transfer some of their flavor to the food. A well designed dish may combine seasonings that complement each other.

In addition to the choice of herbs and seasoning, the timing of when flavours are added will affect the food that is being cooked. In some cultures, meat may be seasoned by pouring seasoning sauce over the dish at the table. A variety of seasoning techniques exist in various cultures (Stuart, 2012).

2.5 Importance of Vegetables in Diet

Eating vegetables provides health benefits; people who eat more vegetables and fruits as part of an overall healthy diet are likely to have a reduced risk of some chronic diseases. Vegetables provide nutrients vital for health and maintenance of the body

.Most vegetables are naturally low in fat and calories. None have cholesterol. (Sauces or

seasonings may add fat, calories, and/or cholesterol. Vegetables are important sources of many nutrients, including potassium, dietary fiber, folate (folic acid), vitamin A, and vitamin C. Diets rich in potassium may help to maintain healthy blood pressure. Vegetable sources of potassium include sweet potatoes, white potatoes, white beans, tomato products (paste, sauce, and juice), beet greens, soybeans, lima beans, spinach, lentils, and kidney beans (USDA, 2012).

Dietary fiber from vegetables, as part of an overall healthy diet, helps reduce blood cholesterol levels and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and diverticulitis. Fiber-containing foods such as vegetables help provide a feeling of fullness with fewer calories. Folate (folic acid) helps the body form red blood cells. Women of child bearing age who may become pregnant should consume adequate folate from foods, and in addition 400mcg of synthetic folic acid from fortified foods or supplements. This reduces the risk of neural tube defects, spin bifida, and anencephaly during fetal development. Vitamin A keeps eyes and skin healthy and helps to protect against infections. Vitamin C helps heal cuts and wounds and keeps teeth and gums healthy. Vitamin C aids in iron absorption (Windward, 2013).

2.6 Health Benefits of Vegetables

As part of an overall healthy diet, eating foods such as vegetables that are lower in calories per cup instead of some other higher-calorie food may be useful in helping to lower calorie intake. Eating a diet rich in vegetables and fruits as part of an overall healthy diet may reduce risk for heart disease, including heart attack and stroke. Eating a diet rich

in some vegetables and fruits as part of an overall healthy diet may protect against certain types of cancers. Adding vegetables can help increase intake of fiber and potassium, which are important nutrients that many Americans do not get enough of in their diet (Njnfals, et al., 2017).

3.0 METHODOLOGY

3.1 Study Area

The Federal Polytechnic, Ilaro was established by Decree No.33 of July 25, 1979. It was opened to students on November 15, 1979 on a temporary site provided by its host community, the ancient town of Ilaro, Ogun State. The first site of the Polytechnic was the premises of the Anglican Grammar School, Ilaro about half a kilometer from Ilaro township junction. The Polytechnic was on this temporary site till 1983 when it moved to its permanent site along Ilaro/Oja-Odan Road, about three kilometers from Ilaro township. It is also about 60 kilometers from Idiroko, a Nigerian Border town with Benin Republic. Ilaro town itself is an ancient town, land locked between Lagos and Abeokuta, the capital of Ogun State. The Polytechnic occupies a total of 898.116 hectares land area on its permanent site.

Access to Ilaro and indeed the Polytechnic can be gained from Abeokuta through Abeokuta Lagos Road via Papalanto [22km] or through Abeokuta-Owode road via Ibese [10km], from Lagos through Sango-Ota-Idiroko Road via Owode[15km] and from Sagamu through Sagamu-Obele Road via Papalanto. The location of the Federal Polytechnic, Ilaro makes for easy access of road traffic. The master plan of the Polytechnic depicts two distinct campuses for the institution). i.e. East and West campuses.

3.2 Source of Materials

The materials that will be used will be gotten from Iyanoba Market, Ojo Lagos and most of them which will be sourced domestically such as frying pan,

cooking gas, pots, stirring spoon, napkins, sieve, spatula, plates, knife, toothpick etc. While the ingredients that will be used will be gotten from the local market, Sayedero and Orita in Ilaro.

METHOD

IGBO EGUSI SOUP

RECIPE:

ITEM	Local weight	Converted weight/volume
Egusi(Melon)	4 cups	500g
Stock fish	2 medium size	100g
Beef	1kg	1kg
Crayfish (grounded)	½ cup	100g
Vegetable (pumpkin)	2 bunches	1kg
Maggi seasoning	3 cubes	3 cubes
Palm oil	1 bottle	25cl
Salt	1 teaspoon	5mg
Pepper	1 teaspoon	5mg
Beef stock	1 cup	40cl
Onions	2 bulbs	100g
Water	½ cup	20cl

Important Cooking Equipment

Spice Grinder for grinding Egusi (melon) seeds

BEFORE COOKING THE EGUSI SOUP

I Soaked the dry fish, I debonrd and broke them into sizeable chunks. I ground the egusi, crayfish and dry pepper with a dry mill.

I washed the vegetable to be used and cut into tiny pieces

Method of Preparation

This method produces a healthier egusi soup as there is no frying involved. It requires less oil too.

Flow Chart of Preparation

Boil the shaki, stockfish and dry fish in water with the stock cube still they are well done.



Wash the beef to be used for the soup and add it to the pot and cook on low heat till it is done.



As soon as the shaki, fish and meat are done, add crayfish and pepper, stir and remove all the meat from the stock (water used in cooking the meat and fish) and place in a different pot or plate



Add the ground egusi to the stock and stir. If the stock from cooking your meat and fish is not enough to give you a medium consistency, add some water to get the consistency or a bit thicker



Cover and cook till the egusi cakes. Stir and add a little bit more water. watch it closely so that it does not burn.



After about 25 minutes, you will notice the clear egusi oil coming to the surface of the soup.



Add the palm oil and bitter leaves (if it is your choice of vegetable), pepper and salt to taste and keep cooking until when the palm oil and egusi forms a good blend of light yellow colour.



Add the cooked meat and fish. If using pumpkin leaves or any other soft vegetable, add it at this time and stir the soup.



Add salt to your taste, stir and leave to simmer for 2 minutes maximum.



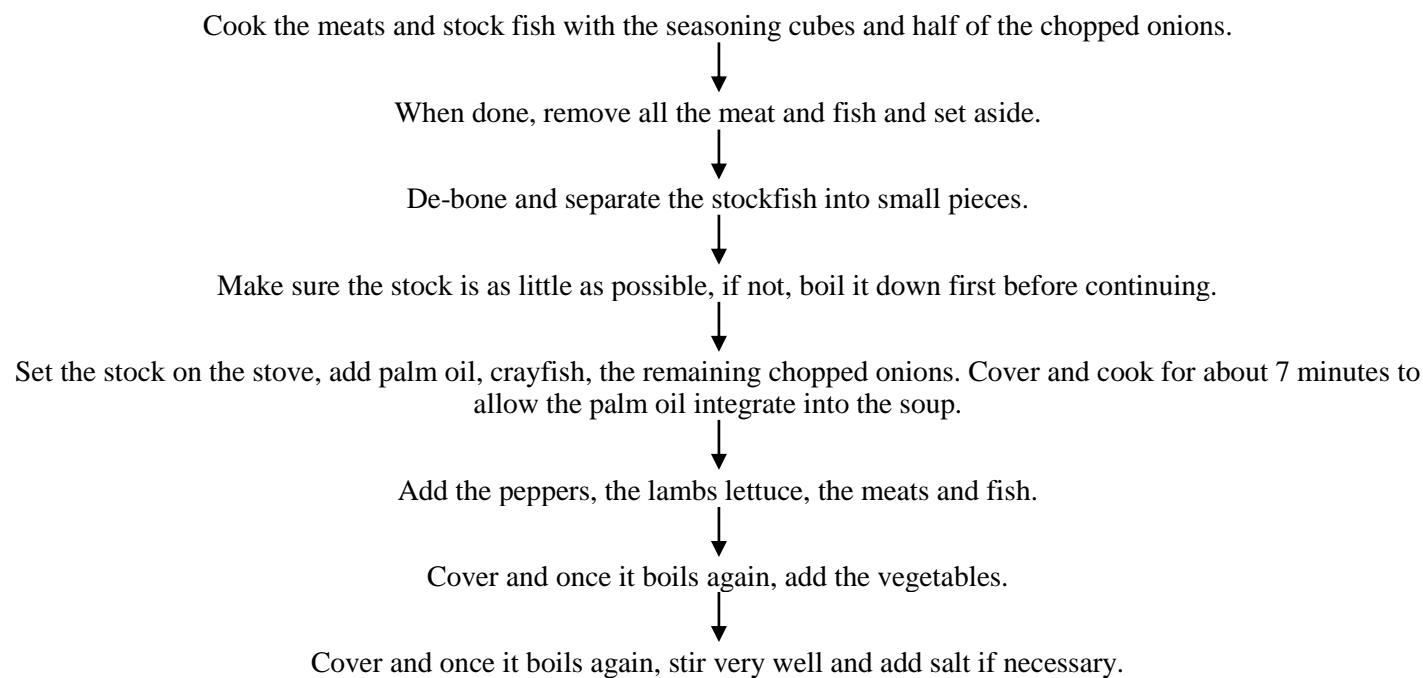
Turn off the heat. Leave to stand for about 5 minutes before serving.

IGBO VEGETABLE SOUP

RECIPE:

ITEM	Local weight	Converted weight/volume
Waterleaves	1 bunch	1kg
Vegetables	2 bunches	2kg
Goat meat	1kg	1kg
Crayfish	½ cup	100g
Pepper	1 teaspoon	5mg
Palm oil	1 bottle	25cl
Maggi seasoning	3 cubes	3 cubes
Salt	1 teaspoons	5mg
Onions	2 bulbs	100g
Water	1 cup	40cl

Flow Chart for Preparing the Vegetable Soup



BITTERLEAF SOUP (OFE ONUGBU)

Bitter leaf soup is one of the most traditional soups in Nigeria. It is native to the Igbos of Eastern Nigeria and most Igbo's will tell you that this is their favouritesoup in the world.

RECIPE:

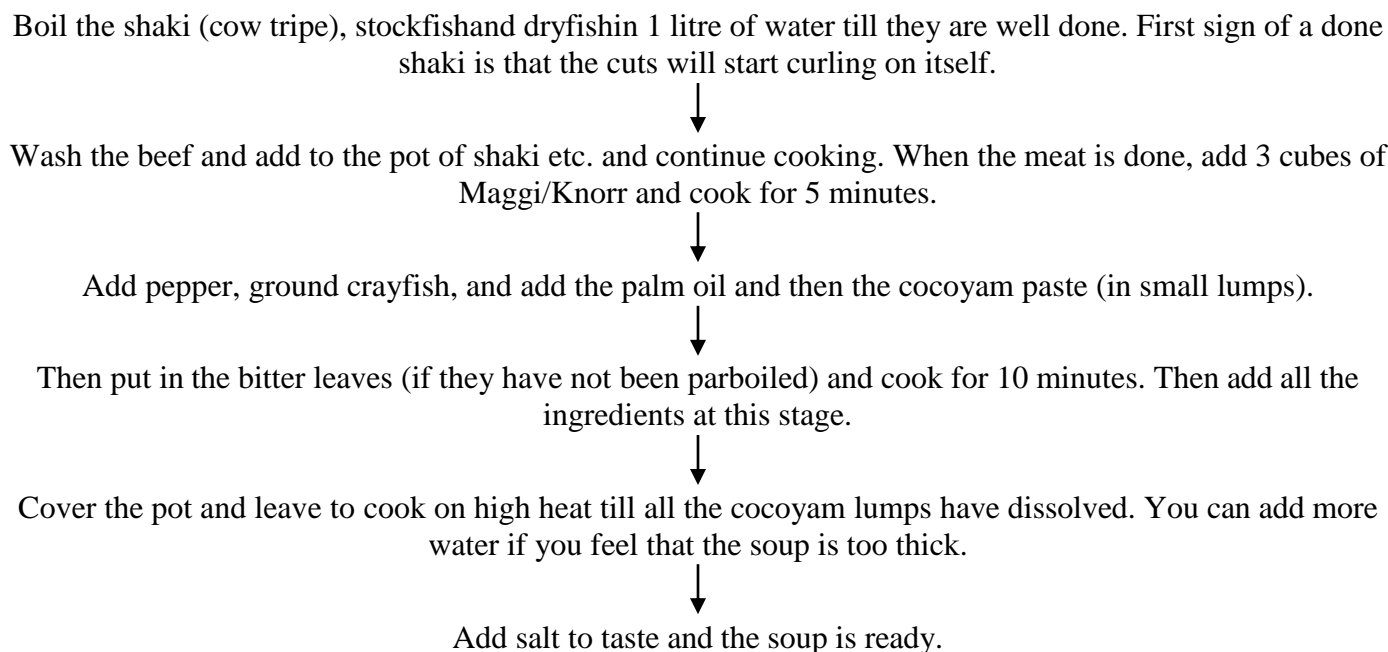
ITEM	Local weight	Converted weight/volume
Dry fish	2 medium sizes	250g
Beef	1kg	1kg
Stockfish	2 medium sizes	1kg
Pepper	1 teaspoon	5mg
Palm Oil	1 bottle	25cl
Salt	1 teaspoon	5mg
Maggi seasoning	3 cubes	3 cubes
Cocoyam	10 medium sizes	500g
Bitter leaf	1kg	1kg
Crayfish	½ cup	100g
Onions	2 bulbs	100g
Beef stock	1 cup	40cl
Water	½ cup	20cl

Before Cooking the Bitter Leaf Soup

I ensured that the bitter leaves were well washed, such that there was no trace of bitterness left. If not, washed and squeezed,the bitterness cannot be completely washed off (which is usually the case with most washed bitter leaves sold in the market), I boiled it for about 15 minutes and washed in cold water.

I washed and cooked the cocoyam till soft. Removed the peels and used a mortar and pestle to pound the corms to a smooth paste.

Flow Chart Showing Method of Preparation



OHA SOUP

RECIPE:

ITEM	Local weight	Converted weight/volume
Cocoyam	10 medium sizes	500g
Oha leaf	1 bunch	1kg
Dry fish	2 medium sizes	250g
Maggi Seasoning	4 cubes	4 cubes
Crayfish (grounded)	½ cup	100g
Stockfish	1kg	1kg
Palm Oil	1 bottle	25cl
Ogiri (local ingredients) optional	1 wrap	50g
Salt	1 teaspoon	5mg

Pepper	1 teaspoon	5mg
Onions	2 bulbs	100g
Beef	1kg	1kg
Beef stock	1 cup	40cl
Water	½ cup	20cl

Before Cooking The Oha Soup

I Ground the crayfish and pepper and set aside,I washed and boiled the cocoyam corms till sof.t. I renovedthe peels and used a mortar and pestle to pound the corms to a smooth paste.

I used my fingers to cut the Oha leaves into tiny pieces. This technique is to prevent the vegetable from becoming darker in colour. This happens when the vegetable is cut (i.e. Ohaleaves) with a knife.

Flow Chart Showing Method of Preparation

Boil the shaki (cow tripe), stock fish and dryfishin1 litre of water till they are well done. First sign of a done shakiis that the cuts will start curling on itself.



Wash the beef and add to the pot of shaki etc. and continue cooking. When the meat is done, add 2 stock cubes and cook for 5 minutes.



Add the pepper, ogiriIgbo and ground crayfish and cook for 10 minutes. Add the cocoyam paste in small lumps and then the palm oil.



Cover the pot and leave to cook on high heat till all the cocoyam lumps have dissolved. You can add more water if you feel that the soup is too thick.



Add the Ohaleaves and leave to cook for about 5 minutes.



Add salt to taste, stir and the soup is ready!

OKRO SOUP

RECIPE:

ITEM	Local weight	Converted weight/volume
Okro (Sliced)	500g	500g
Vegetables (pumpkin)	2 bunches	1kg
Stock Fish	2 medium size	100g
Meat (Beef)	1kg	1kg
Maggi Seasoning	3 cubes	3 cubes
Salt	1 teaspoon	5mg
Pepper	1 teaspoon	5mg
Palm Oil	1 bottle	25cl
Crayfish (grounded)	½ cup	100g
Onions	2 bulbs	100g
Beef Stock	1 cup	40cl
Water	½ cup	20cl

PLEASE ARRANGE THE ITEMS ABOVE INSIDE A TABLE

Before Cooking The Okro Soup

About two hours before preparing the soup, I boiled the stock fish for 20 minutes and left in the pot with the hot water to soak.

I cut the okra fingers into tiny pieces. The tinier the okra is cut, the more it will draw. To achieve this, I made a few vertical cuts followed by horizontal cuts on the okra fingers.

I ground the crayfish and the dry pepper.

I washed the vegetable leaves and cut into tiny pieces.

Flow Chart Showing Method of Preparation

Wash and boil the shaki(cow tripe) for the soup till it is done. Add water sparingly because this soup needs to be thick. Add the soaked stockfish and dry fish to the cooked shaki. The length of time it will take to cook shaki depends on the cooking appliance utilized. You can take a bite to confirm this.



When you feel that the shaki and stockfish are well-done, add the beef, onions and seasoning cubes and cook till done. Then add the iced fish and cook till done.



Pour red palm oil in another pot and heat the pot to dissolve the oil if it is congealed. Add the diced okra and start frying to kick-start the drawing process, add some meat stock from time to time till you notice the okra start to draw. This process should take a maximum of 5 mins to avoid over-cooking the okro.



Now add the vegetable and stir well. Add all the meat and fish, crayfish, pepper and salt to taste. Then stir well.

well.



Cover the cooking pot and leave to simmer and it is ready to be served.

OGBONO SOUP

RECIPE:

ITEM	Local weight	Converted weight/volume
Ogbono (grounded)	2 milk cups	340g
Stockfish	2 medium sizes	100g
Dry fish	1 medium size	50g
Vegetable (pumpkin)	2 bunches	1kg
Beef	1kg	1kg
Crayfish (grounded)	½ cup	100g
Maggi seasoning	3 cubes	3 cubes
Salt	1 teaspoon	5mg
Pepper	1 teaspoon	5mg

Onions	2 bulbs	100g
Beef Stock	1 cup	40cl
Water	½ cup	20cl

Flow Chart Showing Method of Preparation

Boil the stockfish, dry fish and beef in 1litre of water with all the necessary ingredients (2 Maggi cubes, a teaspoon of salt, sliced onions and in most cases beef spices).



When all meat and stockfish are well done, you add palm oil and grounded crayfish, then stir and cover to cook for 10 minutes.



Add salt and pepper to taste and allow to boil a little longer. Then further add the grounded Ogbono, stir very well and cook for another 7 minutes not allowing it to get burnt.



Check for soup thickness if you feel the soup is so thick, you add some water and check for taste.



Add the vegetables, stir and allow to simmer for 5 minutes, then turn off the heat.

3.3 Research Population

The selected population of the study were mainly the academic staff of Federal Polytechnic, Ilaro, Ogun State and they cut across different ethnic groups within Nigeria.

3.4 Sampling Techniques

A convenient sampling technique was used to select 50 taste panelists that tasted the food.

3.5 Instrument for Data Collection

All data was collected through sensory evaluation sheets which were administered to the taste panelists who were the respondents. A 9-point hedonic scale rating sensory evaluation form ranging in a

descending order was used i.e. (9,8,7,6,5,4,3,2,1) by the taste panelist to evaluate some of the sensory attributes of the meals prepared using standard recipes. And the attributes include appearance, color, taste, texture, aroma, flavor, and overall acceptability with the 9 points hedonic scale.

3.6 Data Collection Process

In sourcing data for this study both primary and secondary source will be used. Primary source are those that is obtained through the use of sensory evaluation sheet to gather necessary information about meals using standard recipes. The secondary sources are those that are obtained from textbooks, journals, websites, newspaper, cook books etc.

3.7 Data Analysis Techniques

The data collected was analyzed using one way analysis of Variance ANOVA with the aids of statistical package for social science called SPSS version 20.0. Analysis of variances was employed in order to determine the significant differences in treatment means and least significant differences (LSD) analysis ($P < 0.05$) to separate means.

4.0 RESULTS AND DISCUSSION

4.1 Results

The table below shows the different scores obtained from different samples and the list of panelist that was used for the research study. The score ranges from 9-1. In term of appearance, sample IES has the highest value with mean (8.56) followed by sample OS with mean (8.40), then sample IOS with mean (8.38), then sample VS with mean (8.36) then sample OSE with mean (8.26) and sample BS with mean (8.18). Sample IES, IOS, OS, OSE, and VS are liked very much while sample BS is liked moderately. There is no significant difference in the appearance of the samples.

In terms of the colour, samples VS has the highest value with mean (8.32) followed by sample IES with mean (8.30) then sample OSE with mean (8.18) then sample IOS with mean (8.14) then sample BS with mean (8.10) and then sample OS with mean (7.98). This shows that sample VS, IES, OSE, IOS, and sample BS are liked very much while sample OS is liked moderately. There is no significant difference in the colour of the samples.

In terms of the texture, sample IOS has the highest value with mean (8.28) followed by sample IES with mean (8.22) then sample VS with mean (8.14) then

sample OSE with mean (8.12) are liked very much while sample OS with mean (7.94) and sample BS which has the lowest value with mean (7.78) is liked moderately. There is significant difference in the texture of the samples.

In terms of the taste, sample IES has the highest value with mean (8.46) followed by sample VS with mean (8.28) then sample OSE with mean (8.24) then sample IOS with mean (8.20) then sample OS with mean (8.04) are liked very much while sample BS which has the lowest value with mean (7.98) is liked moderately. There is no significant difference in the taste of the samples.

In terms of aroma, sample IOS has the highest value with mean (8.28) followed by sample IES with mean (8.26) then sample OSE with mean (8.16) then sample VS with mean (8.06) are liked very much while sample OS with mean (7.96) and sample BS which has the lowest value with mean (7.84) is liked moderately. There is a significant difference in the aroma of the samples.

In terms of the flavour, sample OSE has the highest value with mean (8.28) followed by sample IES with mean (8.26) then sample IOS with mean (8.20) then sample OS with mean (8.12) then sample VS with mean (8.02) is liked very much while sample BS which is the lowest value with mean (7.92) is liked moderately. There is no significant difference in the flavour of the samples

In terms of Overall acceptably, sample IES has the highest value with mean (8.68) followed by sample OSE with mean (8.46) then sample OS and VS with mean (8.42) then sample IOS with mean (8.38) then sample BS with mean (8.36) are liked very much. There is no significant difference in the overall acceptable of the samples.

Table 4.1: Showing the Result from the Sensory Evaluation Form

Sample	Appearance	Colour	Texture	Taste	Aroma	Flavour	Overall acceptability
BS	8.18 ±.941 ^b	8.10 ±1.11 ^a	7.78 ±1.360 ^a	7.98 ±1.348 ^a	7.84±.904 ^a	7.92±1.510 ^a	8.36±.802 ^b
IES	8.56 ±.501 ^a	8.30 ±.578 ^b	8.22 ±.648 ^{ab}	8.46 ±.838 ^a	8.26±.777 ^a	8.26±.664 ^a	8.68±.471 ^a
IOS	8.38 ±.667 ^{ab}	8.14 ±.700 ^a	8.28 ±.671 ^a	8.20 ±.904 ^{ab}	8.28±.730 ^a	8.20±.904 ^a	8.38±.635 ^b
OS	8.40 ±.535 ^{ab}	7.98 ±.865 ^b	7.94 ±1.476 ^{ab}	8.04 ±1.195 ^{ab}	7.96±1.212 ^a	8.12±1.003 ^a	8.42±.609 ^{ab}
OSE	8.26 ±.828 ^{ab}	8.18 ±.919 ^a	8.12 ±.872 ^{ab}	8.24 ±1.021 ^{ab}	8.16±.912 ^a	8.28±.970 ^a	8.46±.613 ^{ab}
VS	8.36 ±.598 ^{ab}	8.32 ±.621 ^a	8.14 ±.783 ^{ab}	8.28 ±.757 ^{ab}	8.06±.740 ^a	8.02±.979 ^a	8.42±.702 ^{ab}
TOTAL	8.36 ±.701	8.17 ±.835	8.20 ±1.028 ^a	8.20 ±1.035 ^{ab}	8.09±1.040	8.13±1.036	8.45±.650

Source: Author’s Field Survey, 2021.

Values are means of triplicate ± standard deviation

Mean value is in the same column with the standard deviation and with different superscripts are significantly different from each other at $p \leq 0.05$

Sample BS: Bitterleaf Soup

Sample IES: Igbo Egusi Soup

Sample IOS: Igbo Okoro Soup

Sample OS: Oha Soup

Sample OSE: Ogbono Soup

Sample VS: Vegetable Soup

4.2 Discussion

From the result obtained, it was observed that there was a significant difference within the samples. The appearance and colour of the samples ranges between (8.56 to 8.18) with sample IES having the highest value (8.56) and sample BS having the least value (8.18). While the colour of the samples ranges between (8.32 to 7.98) with sample VS having the highest value (8.32) sample IES having (8.30) sample OSE having (8.18) sample IOS having (8.14)

sample BS having (8.10) while sample OS having the lowest value (7.98). Appearance is the first characteristics perceived by human senses and plays an important role in the identification and final selection of foods. Many individual factors contribute to the total perception of the appearance of food product. The total perception is built up from all the visual sensations experienced when a product (food) is viewed on a shelf as it is being prepared and when it is presented on the plate. (Hutchings,

2007). Also the texture of the samples shows that sample IOS has the highest value (8.28) while sample BS and OS has the lowest value (7.78 and 7.94) which could be as a result from the inclusion of the cocoyam. Also the aroma of the samples shows that sample IOS has the highest value (8.28) while sample OS and BS has the lowest value (7.96 and 7.84) which could also result from the inclusion of the ogiri (local ingredient). The result further revealed that samples IES has the highest taste value (8.46) while sample BS has the lowest (7.98). Also there was an increase in the flavour and overall acceptability of sample OSE and sample IES (8.28 and 8.68) compare to other samples. The result also shows that there was no significant difference in appearance, colour, taste, flavour, and overall acceptability of all the samples while sample OS and BS were significantly different from all samples in terms of texture and sample OS and BS were significantly different in terms of aroma respectively.

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The Igbos were shown to have knowledge of an extensive and diverse food system that contains all the necessary nutrients for human nutrition. This research has provided the opportunity for understanding the food system, and its nutritional potential, as well as the cultural definitions to make more high-quality foods available, accessible and acceptable. With concerted effort, food security can be improved by empowerment of the local community members to take best advantage of what they have in their local environment.

This study confirm USSD (2010) benefit of standardization which include consistent food quality, predictable yields, appropriate food cost, and measurement control, elimination of guess cooking procedures, decrease chance of producing poor food product among others.

The standardization study also addressed important areas such as food preparation and cooking procedure. The assessment of level of acceptability of the dishes by local and international tourists patronizing the hospitality and tourism industry.

5.2 Recommendation

In view of the crucial roles that Nigeria indigenous dishes have to play now and in future of Tourism growth and development, the following areas in food standardization and research need to be addressed

- (i) All food commodities to be used in preparing and cooking the indigenous food should be procured fresh and wholesome to ensure maximum portion yield, acceptable colour, taste and aroma.
- (ii) Sustenance and promotion of traditional food culture should be encouraged and adhered to.
- (iii) Nigeria hoteliers should give indigenous dishes more prominence through promotion of Nigeria cuisine and strengthen our culinary heritage by serving more of the local produce than foreign dishes often served as sign of class status.
- (iv) Nigeria should emulate a number of developing countries that have carried out survey on traditional foods and dishes, maintained database on type available, nutrient composition, recipes, predictable yields etc.

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