COMPARATIVE ADVANTAGES OF SOME NIGERIAN DISHES

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Abstract

This study is to assess the proximate and mineral composition of traditional dishes commonly consumed in Nigeria. The dishes (Edikang-ikon soup, Semovita, Pounded yam and Egusi soup) were prepared following their traditional methods of preparation. Their proximate compositions were determined as well as their mineral element (Ca, Mg, Fe, Cu, Zn, Na and K) was also carried out according to standard methods. Results obtained in the study were presented as mean and standard deviation analyzed using SPSS. The Ash ranged between 0.92 and 6.90±0.01%, Crude protein 1.65±0.01 to 33.82±0.00% and CHO, 16.97±0.01 to 57.88.57±0.05%. Zinc content ranged from 1.88 to 5.38mg/100g, iron content ranged between 1.85 and 5.17mg/100g, and Calcium values ranged from 13.75±0.21 to 76.10±0.14mg/100g. The study shows that the combination of food item Edikang Ikong and Pounded yam is of high iron content. However, their consumption should be regulated due to the presence of some anti-nutritional substances in diverse form and quantity.

Keywords: Edikang-ikong soup, Semovita, Pounded yam and Egusi soup.

1. Introduction:

Traditional foods are foods of native populations which qualify for cultural cuisine (Lawal and Enujuigha, 2018). Traditional diets include more organic farming and seasonal foods according to food origins. Traditional foods vary with availability of local resources such as corn and beans in farming towns as well as with cultural and religious customs and taboos. In some cases the crops and domestic animal that characterize a traditional food have been replaced by modern high-yield crops and are no longer available. Traditional food resources of indigenous people provide a wealth of nutritional and cultural benefit to the people using them and an understanding of these food species and how they are prepared and used contributes to human knowledge (Ebuchi and Oyewole, 2011).

Provision of original data on nutrients content of soups and dishes will enrich the food composition table in Nigeria and provide useful information which will assist nutritionists and dietitians in accurate assessment of nutritional status of Nigerians, diet planning and counselling for different population group, particularly in the management of health and disease conditions and promote accurate food labeling. This information will also help to promote good health and reduce the occurrences of chronic diseases and micronutrient deficiency diseases that may arise from inappropriate consumption of Nigerian soups and dishes. This study therefore standardized and determined the mineral and proximate contents of selected Nigerian soups and dishes

2.0 Materials and methods

2.1 Materials

2.1.1 Sample collection and pre-processing

The samples for this analyses were collected from local market popularly known as Oja Oba, in Ado Ekiti, Ekiti State, South-west Nigeria.

2.1.2 Preparation of Melon Soup (Egusi Soup)

Melon seed was sorted and blended to a fine powder. Melon powder was then mixed with 100ml of water then set aside. Palm oil was heated in a pot then diced onions and roughly blended pepper was added and fried for 5 minutes. The melon paste was added to the mixture and allowed to fry for 5 minutes. The mixture was then stirred to prevent burning and about 50ml of water was added then allowed to cook for 3 minutes.

2.1.3 Preparation of Edikang-ikong Soup

The pumpkin leaves and water leaves were washed and shredded into tiny pieces. It was

then put into separate sieves to drain out all the water as much as possible. Palm oil was heated in a pot and diced onions and pepper was added then allowed to fry for 3 minutes.
Water leaves was added and left to cook for 3 minutes so the water leaves are not over-cooked. Pumpkin leaves was added and spices to taste. The contents was stirred properly to combine together. The heat was turned off. The pot was covered and allow to stand for about 5 minutes.

2.1.4 Preparation of Pounded Yam

The skin of the yam was peeled off and sliced into about ½ inch thickness. The yam was rinsed and placed in a pot and water was added to the level of the Yam. It was covered and cooked for about 30 minutes, checking every 10 minutes or thereabout until the yam were fork tender. The boiled yam was transferred into a mortar then pound with a pestle until it became smooth with a dough-like consistency.

2.1.5 Preparation of Semovita

About 500ml of water was poured into a clean pot and leave to boil on high heat. A cup of Semovita was poured into a separate bowl and cold water was added into the bowl. Wooden spatula was used to stir the water and Semovita continuously until a smooth consistency was achieved. After the water in the pot was boiled, the heat was reduced and then the mixed Semovita was poured into the boiling water and stirred for 1-2 minutes and then allowed to cook on low heat for about a minute. It was stirred again until the texture was consistent and the heat was turned off.

2.2. Proximate composition analysis

The proximate composition, moisture, ash, fat, fibre, carbohydrate and mineral contents were carried out according to AOAC, 2023. The statistical differences between different experimental parameters was established using One way ANOVA followed by Tukey's HSD multiple pairwise comparison test (SPSS software, PASW Statistics 17.0), and differences were considered significant at $P<0.05$.

RESULTS AND DISCUSSION

Table 1: Proximate composition (%)

SAMPLE	MOISTURE	ASH	FAT	FIBRE	PROTEIN	CHO
A	27.28±0.04b	1.61±0.00b	3.17±0.00b	8.52±0.01d	33.82±0.00c	25.61±0.02b
B	23.85±0.01a	6.90±0.01c	15.43±0.01c	5.31±0.00b	32.35±0.01c	16.97±0.01a
C	34.18±0.02c	0.92±0.00a	0.64±0.00a	4.16±0.01a	5.22±0.00b	54.88±0.02c
D	31.93±0.04c	1.21±0.00a	0.42±0.00a	6.91±0.01c	1.65±0.01a	57.88±0.05d

A=Edikang ikong B=Egusi C=Semo D=Pounded yam

1 Proximate composition of Local dishes and meal

Table 1 shows the proximate composition of some local soup with local meals. The analyzed parameters were evaluated in triplicates. The mean value was used as the representative value. Fat content ranges from 0.42% to 15.43% with Egusi (B) having the highest fat content while Semovita (C) with Pounded yam (D) having the lowest. All the samples had a low fat content. According to Ebuchi and Oyewole (2011), dietary fats functions in the increase of palatability of foods by absorbing and retaining flavor, the same authors posited that a diet having 1-2% calorific energy as fat is said to be sufficient for human beings since excess fat intake has been implicated in atherosclerosis, cancer and ageing. Crude protein ranges from 1.64-33.8%, moisture content ranges from 27.2-34.91% with Edikang-ikong (A) having the least moisture content and Semovita (C) the highest. All the analyzed samples had high ash value (0.91-6.08%), indicating that the samples might contain a moderate proportion of mineral elements (Ani *et al*., 2011). The crude fibre is also high, 4.61-8.52%, although Semovita (C) had low crude fibre. Crude Fiber offers a variety of health benefits and is essential in reducing the risk of chronic disease such as diabetes, obesity, cardiovascular disease and other related diseases.
When consumed Edikang-ikong and Pounded yam, provides high carbohydrate in the body. Carbohydrate provides the majority of energy in

the diet of most people. Carbohydrate-containing foods not only provide substrate for energy production, but also carry with them many important nutrients and phytochemicals. They are important in the maintenance of glycemic homeostasis and gastrointestinal integrity and function. High carbohydrate diets (55% or more of energy) are associated with reduced chronic disease, especially obesity and its co-morbid conditions.

And also combination of Edikang-ikong and Pounded yam provides high fibre to the body. scientific interest in dietary fibre in the 1970s, Since then, much scientific evidence has accumulated on the association of dietary fibre with body weight and overall metabolic function (including effects on glucose and lipid regulation and insulin sensitivity). Perhaps at least in part stemming from the known associations of dietary fibre intake with a healthy gut microbiome, favourable body weight and overall metabolic health, dietary fibre intake also associates with a reduced risk for the development of cardiovascular disease and mortality. There have also been descriptions of further health benefits of dietary fibre, including reduced risk of malignancy and improved colonic health. In this section, we provide a summary of the main health benefits of dietary fibre and the risks associated with a lack of dietary fibre, with a focus on abdominal adiposity and overall metabolic health. Consumption of Egusi soup with Semovita is very high in protein. the primary role of protein in the diet is to provide amino acids required for the synthesis of new proteins. We especially rely on dietary protein to provide the nine essential amino acids, which cannot be synthesized in the body. Protein intake greater than the dietary recommendations may prevent sarcopenia, help maintain energy balance, improve bone health and cardiovascular function, and aid in wound healing. In adult protein intake help to reduce the risk of chronic diseases such as obesity, cardiovascular disease, type 2 diabetes, osteoporosis, and sarcopenia (Alozie and Ene-Obong, 2016).

Constant protein intake throughout the duration of pregnancy, pregnancy may actually require an increase in protein intake throughout gestation to support adequate growth such as Maternal tissues, including breast, uterine, and adipose tissues, blood volume, and extracellular fluids, account for the largest amount of protein accretion during pregnancy (Ebuchi and Oyewole,2011).

Table 2: Mineral composition (ppm)
A=Edikang ikong B=Egusi C=Semo D=Pounded yam

Sample	Na	Ca	K	Fe	Mg	Mn	Zn
A	51.35±0.21c	76.10±0.14d	342.75±0.35c	3.17±0.00b	16.23±0.00c	0.84±0.00a	2.04±0.00a
B	112.75±0.07d	13.75±0.21a	250.55±0.21b	1.85±0.00a	13.61±0.00b	2.18±0.00b	1.88±0.00a
C	9.30±0.14a	19.55±0.07b	52.70±0.28a	2.10±0.01a	17.32±0.00c	3.24±0.00c	2.97±0.01b
D	17.45±0.21b	22.65±0.21c	715.85±0.07d	5.17±0.00c	10.55±0.00a	5.13±0.01d	5.38±0.01c

The mineral composition of the meal in table 2 was revealed. The analyzed parameters were evaluated in triplicates. The mean value was used as the representative value. A considerably high content of magnesium in Edikang-ikong (A) sample (16.23mg/100g) but low in Pounded yam (D) (10.5mg/100g), Iron ranges from (1.85-5.17mg/100g) indicating that the samples had considerable iron contents, iron deficiency reduces work capacity and productivity in adult, decreases the severity and incidence of infection, anaemia, maternal and prenatal mortality (Akere and Yousou, 2012). Zinc content ranged from 1.88-5.38mg/100g, Calcium content was 13.75-76.10mg/100g. high content of Calcium in (A) Edikang-ikong sample (76.10mg/100g) but low in Egusi (B) (13.75mg/100g), Calcium plays important roles in tissues and bones strengthening, additionally, Ca and P combine favourably to prevent rickets.

The samples had appreciable amounts of Sodium and potassium, high K/Na ratio in foods serves as maintenance of a correct osmotic pressure and fluid pH in the body, essential for the movement of metabolites.

Generally, the mineral content in some of the studied meals compared favourably and a bit higher than those reported for some other plants. These meals have a potential to supply sufficient amount of minerals for consumers and microbial media for microorganisms.

Consumption of combination of Edikang-ikong and Pounded yam is high in Calcium. Calcium is very essential in muscle contraction, oocyte activation, building strong bones and teeth, blood clotting, nerve impulse, transmission,

regulating heart beat and fluid balance within cells. The requirements are greatest during the period of growth such as childhood, during pregnancy, when breast feeding. Long term of calcium deficiency can lead to oestoporosis in which the bone deteriorates and there is an increased rise of fractures.

Edikang-ikong and Pounded yam is high in iron. Iron is a major component of hemoglobin, a type of protein in red blood cells that carries oxygen from your lungs to all parts of the body. Without enough iron, there aren't enough red blood cells to transport oxygen, which leads to fatigue. Iron helps improve focus and concentration level, reduces irritability, and enhances stamina. Proper iron intake is particularly important for individuals who lead an active lifestyle, as it boosts athletic performance.

Since iron produces red blood cells that contain hemoglobin, which transfers oxygen to the tissues, its deficiency may lead to poor performance during physical strain. During pregnancy, your blood volume and red blood cells production increase to make sure that the fetus gets all the necessary nutrients. Thus, the need for iron also increases.

Adequate iron intake lowers the risk of premature birth, low birth weight, low iron stores, and cognitive and behavioral deficits in infants. A pregnant woman who consumes iron in her daily diet is less likely to be attacked by a virus and suffer from infections.Iron plays a major role in strengthening your immune system. It is capable of preventing and treating various health conditions. The red blood cells that it produces are essential for repairing tissue and cell damage and thus, preventing any further issues. Hemoglobin in the red blood cells also boosts your immune system and ensures that it works at optimal levels.

Brain demands iron for functioning properly, as it requires oxygenated blood for improved cognitive functions. Iron promotes the blood flow in the brain, helps it create new neural pathways to prevent cognitive complications, such as dementia and Alzheimer's disease. Hence, a diet rich in iron is beneficial for quick cognitive functions and overall health of the brain. (Ani *et al.,* 2011).Egusi soup and Semovita is so much high in potassium. Potassium plays a critical role in human health. It is involved in maintaining blood pressure and reducing risk of stroke, preserving calcium stores in bone and helping the kidneys work efficiently. Dietary potassium is beneficial on its own and through its effects on the body's management of sodium. The benefits of potassium on hypertension and stroke.

Conclusion:

This study has shown that there is a growing interest in eating foods that are not only nutrients-rich, but also have health-promoting properties to reduce the incidence of various illnesses and diseases that continue to impact both young and old people. Indeed, Nigeria offers a wealth of locally produced, distinctive functional food resources that, if properly utilized, might represent a significant source of income for the population, who is now becoming more aware of their lifestyles and health. It is well known that functional meals can be used as a means of treating and preventing chronic illnesses as well as promoting healthy aging. Therefore, focus is now on appropriate regulations and legislation to make sure that, generally, functional foods' health claims are supported by solid scientific data or evidence.

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