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Standardization And Proximate Composition Of Some Indigenous Foods For The Elderly In Ondo State, Nigeria

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Abstract

Many studies confirmed that modernization has led to the current quest for easy to prepare fast foods with a progressive loss of important components of our food and indigenous condiments and spices. The elderly are not quick in adapting to the modern cuisine, hence many suffered inadequate diets which may progress to malnutrition due to unavailability of familiar food stuffs in local markets and farms. Five indigenous dishes were selected from Ondo state and standardized, they were; "eeru" with pounded yam, (b) "oshikiri" with "agidi" (c) "obe isapa elegusi" with pounded yam (d) "marugbo" with "pupuru" and (e) "obe ogolonfo" and pounded cocoyam. The dishes were chemically evaluated using standard methods. The dishes appeared to be good sources of protein, carbohydrate, iron and zinc. "Obe iru" with pounded cocoyam had the highest protein value; (24.85g/100g)(44.4%RDA). "Morugbo" with "pupuru" had the highest carbohydrate and zinc values; (41.19g/100g) (31.7&RDA) (31.0mg/100g) (77.5%RDA) respectively. These indigenous dishes valuable food nutrient potentials could alleviate food insecurity and poverty among the elderly.

Keywords: Standardization, indigenous dishes, elderly.

Introduction

Indigenous foods are foods that are native or belonging to a place or a particular tribe. Every recognized indigenous food has its own image which will only be partially related to nutritional or sensory qualities[5]. Food plants were identified as one major tool for alleviating food insecurity and poverty. In Kenya, 850 species of plants are used for food. In Africa, close to 4,000 species of plants need to be exploited and used to alleviate poverty. These include foods such as fruits, cereals, legumes leafy, tuber and many non foods such as gums and additives [5] and [6].

Many studies confirmed that modernization has led to changes in culture, cooking skill, taste, indigenous condiments and spices of commonly consumed meals. It was observed that quite a significant number of Africa children today cannot survive without bread and rice. Even the modern generations of parents are ignorant of large variety of local foods available including the methods of preparation and cooking. On the other hand, many elderly are still used to the old dishes. They are not quick in adapting to the modern cuisine. Till date, many of them still search for the ingredients and prepare the old favorite meals on special occasions like new yam festivals, weddings, deity worshipping and when they receive elderly guests for community meetings [3] and [10].

Nigeria has a large number of indigenous food crops peculiar to each tribe and well suited to local conditions and to the soil but have been largely ignored in agriculture development activities [9]. Aging and senescence are both inseparable outcomes in all living organisms. The aging process, however, is greatly influenced by what and how they eat. As such, the way people eat, select food rather than chemicals that pass on the lips may well be predictors of good health. Regularly, balanced

diet adds life to the years of one's age [4]. Thus indigenous foods could prove invaluable in alleviating food insecurity and poverty among the elderly.

The study was designed to standardize the selected indigenous dishes from Ondo state and also carry out nutritional evaluation of the standardized dishes in the study area.

Materials And Methods

The procedure for the standardization of the indigenous dishes was carried out as adapted from earlier studies [8] and [11]. This involves identification and collection of varieties of indigenous recipes through the use of questionnaires from households in five towns randomly selected in Ondo State, namely Igbotu Community, Ondo town, Akure, Owo and Ikare towns. These three hundred (300) respondents were chosen from these towns such that they constituted housewives from the five studied area. All the completed questionnaire were then numbered randomly and three recipes for each dish were collected from each Zone. One recipe for each dish was also extracted from a cooking text book to obtain a total of ten (10) recipes for each dish. Thereafter, the mean of the ten recipes for each dish were calculated to obtain the quantity ingredient used for the standardized recipe. Five dishes were thus standardized.

Ingredients were purchased from Akure, Owo and Ikare local markets and were measured, recorded before preparation and cooked in accordance with indigene method obtained earlier in the exercise. When the dishes were ready, twelve indigenes were recruited for organoleptic evaluation for the cooked dishes. Necessary adjustments and corrections were effected as pointed out by the native panelists. Records of ingredients weight/volumes, preparation methods, cooking time, temperatures etc. were noted.

After the consumer acceptability tests, each meal was cooled to room temperature, homogenized using electric blender and oven dried (105^{0}C) for 3 hours. The dried meals were cooled in a desiccators and the mass determined. Moisture and ash were determined as described by standard (AOAC,1990) Crude protein was determined with Kjeidahl method of nitrogen /protein determination according to standard (AOAC, 1990). Fat content was determined by Soxhlet extraction method (AOAC, 1990). Crude fibre was obtained by ashing in a muffle furnace at 600°C for 6hrs, cooled in a dessicator and weighed. Loss in weight during incineration is equivalent to amount of crude fibre (AOAC, 1990). Carbohydrate contents were calculated by difference, subtracting the total percentage (sum of all other components) from 100% (A.O.A.C, 1990). Sodium was determined using flame photometer (Galenkam 1980). Iron and zinc were determined spectro photometrically by using Buck zoo atomic absorption spectrophotometer (Buck scientific, Norwalk).

Dishes And Preparation Procedures

a) **"EERU"** (herbal seeds) (*Caltis Austrails Spp*) with pounded yam (4portions)
Ingredients: eeru flower, 300g yam (*Dioscorea Spp*) 500g, pepper (dry) 5g, smoked fish 1.5kg onion 200g, shrimps 5g, palm oil 300mls and bullion cubes (3cubes).benne seeds 100g.

Preparation procedure

"Eeru" seeds were cleaned and dried, then grounded into powdery form. The pepper, onion melons seeds were washed, ground with water separately using a blender. Palm oil (200mls) was put into cooking pot, allowed to heat lightly, shredded onions and melons were added. It was fried until lightly brown. Ground pepper, onion and shrimps were added, the eeru powder was diluted with 100mls, then added to the ingredients on fire and steamed for about 10minutes, at temp (80-100oC). Boiled beef and washed dry fish were added. Then water (100mls) was added to correct the

consistency. Salt was added to taste. It was served with pounded yam.

Pounded Yam Preparation (4 Portions)
Ingredient: yam 3kg, water (1½ liters) (for cooking).

Method of preparation:
The tuber of yam was peeled and cut into small pieces and rinsed in cold water (approximately 2 liters) in a deep bowl. The yam pieces were put to boil in a deep pot and boiled with kerosene stove at temperature 75-80oC for 40-45 minutes to soften the texture. Mortar and pestle were washed clean, and the cooked yams were put inside the mortal gradually, while being pound to dough texture. Water (300mls) was added to soften the molded texture. The soft mould were portioned into washed serving plate wares, and served with "eeru" soup (10).

b) "OSHIKIRI" (beans based) with "Agidi" (maize based)
Ingredients Beans (Phaseolus Vulgaris spp) 1kg. Fresh pepper 5g, onion 400g, palm oil 200mls, shrimps (dry) 5g, bouillon cubes, salt (to taste) water 300mls, wrapping leaves 30pieces.

Preparation procedures The beans were soaked with water (3 litres) for about 30 minutes and then washed to pill the skin. The beans were wet milled with pepper and onion by using blender to a smooth texture. The mixture was turned into a bowl, and stir slightly to incorporate other prepared ingredients i.e. shrimps, palm oil and bouillon cubes. Water and salt were added and then stirred. The mixture was portioned into each washed leaves and then wrapped neatly so that the mixture does not flow out. Each wrap was placed inside a thick bottomed pot, and was steamed with 1 liter water for 35-40 minutes with consistent temperature of 80-90^{0}C Oshikiri was served with "agidi".

c) "OBE OGOLONFON" (*Xantosome Muffata spp*) with pounded cocoyam (*Colocasia Esculenta spp*)
Ingredients Ogolonfon(cocoyam flower) 350g. Pepper (dry) beans 5g. onion 200kg, smoked fish 500g, shrimps 5g, lean beef 1.5kg, palm oil 400mls, benne seeds 100g, bullion cubes (3) salt to taste and potash (a pinch).

Preparation Procedure The "Ogolonfon" were washed and finely cut and boiled with water (200 mls.) and potash for about 10minutes. The melon, dry pepper, onion and shrimps were ground together. The palm oil was poured into the cooking pot and allowed to heat and the sliced onion and pepper added and allowed to fry lightly. The wet milled melon was poured into the hot palm oil- fried to a dry texture for 5 6 minutes. The grounded pepper, onion and shrimps were added to the oil and fried for 5minutes. The washed "Ogolonfon" flower were added and made to simmer for 5 minutes. Salt and water (100 mls.) were added and the soup served with pounded cocoyam.

Pounded Cocoyam Preparation (4 Portion)
Ingredient: Cocoyam 3 kg, water (1½ liters) (for cooking).

Method of preparation:
The tubers of cocoyam were peeled and cut into small pieces and rinsed in cold water (approximately 2 liters) in a deep bowl. The cocoyam pieces were put to boil in a deep pot and boiled with kerosene stove at temperature 75-80°C for 40-45 minutes to soften the texture. Mortar and pestle were washed clean, and the cooked cocoyams were put inside the mortal gradually, while

being pound to dough texture.Water (300 mls.) were added to soften the moulded texture. The soft mould were portioned into washed serving plate wares and served with "Ogolonfon" soup.

d) "MARUGBO" (herbal leaves) (*Musa Paradisiacal Spp*) with "Pupuru" (cassava base) (*Manihot Esculent Spp*)

Ingredients: - Melon 100g, garlic 5g, ginger 10g, pepper (fresh) 100g, "arikoko" 5g (spicy seeds) fish (fresh) 1kg, beef 1.5kg, palm oil 200mls, bouillon cubes 3, water 200mls salt (to taste)

Preparation Procedure: All the ingredient for the "marugbo" were blended together namely; "marugbo" leaves, garlic, ginger, "arikoko" and pepper with blender. Fish was portioned to small sizes, washed and salted. The beef was boiled to soft texture with salt and onion. The "marugbo" ingredients were put in pot and cooked for 15 minutes. The boiled beef and washed fish were added to the boiling ingredient and stirred. Bouillon cubes and salt were added to taste, and the consistency was corrected with water (180 mls.)[10].

"PUPURU" PREPARATION

Ingredients; cassava, (2kg) water (6liters) for processing.

Preparation Method

Cassava tubers were peeled, cut into small pieces and soaked in cold water for 4 days to ferment. It was later wet milled and drained with sack to release the water absorbed during soaking. The mixture were then, moulded into medium rounded shapes and then put on top of prepared wire mesh placed on charcoal fire to smoke the mould to brownish colour.

The mould were later placed inside a thick bottom pot with water (300mls) to steam at 60-70°C) until well cooked and soft. They were then poured inside washed mortal and pound with pestle to smooth texture. Water (50mls) w as added to soften the texture. The mould were portioned into serving plates and served with marugbo soup.

d) "OBE ISAPA" (Hibiscus *Sabdriffa spp*) with pounded yam

Ingredients: "Isapa leaves", 300g, pepper (fresh) 100g, melon 500g, onion 300g, benne seeds 50g, palm oil 300mls, smoked fish 1kg, stewing beef 1kg, crayfish (5g) bouillon cubes (3) cubes and salt, potash 1g.

Preparation procedure

The beef was washed, seasoned with salt and bullion cubes and boiled till tender, then kept aside. The "isapa" leaves were washed and boiled with potash for about 30minutes until it is tender in texture, then kept in a bowl aside. The pepper, onion, melon and crayfish were ground separately with blending machine. Palm oil was put into a thick bottom pot and heated up with kerosene stove to temperature of about 5 oC. The ground melon was fried to slightly brownish colour, then other ground ingredients were added and steamed at temperature 60oC for about 10minutes.

The boiled beef, "Isapa" leaves and smoked fish were added. About 200mls water was added and stirred. Salt was added to taste. The entire soup mixture inside the pot was covered and steamed for about 10minutes. (temp 50-60oC). The ready soup was served with pounded yam.

Note; (the pounded yam used here was prepared with the same ingredients and preparation method as dish number (a) (10)

RESULTS AND DISCUSSION

Table 1 indicated the proximate compositions and the equivalent percentage of Recommended Dietary Allowance(RDA) of the dishes. "Eeru" with pounded yam had the highest crude protein score of 24.85g/100g (44.4%) while "ogolonfon" with pounded cocoyam followed with 23.85g/100g. (40.6% RDA the higher protein contents in "eeru" and "ogolonfon" dishes could be attributed to the incorporation of high quantity benne seeds (200g) and crayfish (100g) into the recipe of the dishes. Benne seeds according to study (2),that confirmed it as a tropical oil seed with relatively high protein content of about 23% in the raw farm. When processed, that is, defatted the protein increases to 25.8%. Considering the iron contents of the dishes, "osikiri" with "agidi" had the highest iron score of 15.77g/100g (35.04%) RDA. This is a trace mineral that is very valuable for the elderly. It is required for the synthesis of myelin and of the neurotransmitters scrotonin and dopamine in the brain (2). The study revealed that among the dishes being studied, "Marugbo" with "pupuru" had the highest zinc nutrient value of 31.0g/100g, (77.5%) RDA followed by "obe isapa" with pounded cocoyam 24.31g/100g, 60.8% RDA. Dietary zinc is essential for the growth and tissue repair as it is involved in the synthesis of DNA and RNA. It is also associated with insulin and constitute a component of protein involved in taste acuity. (2).

CONCLUSION

The result obtained from this study showed that many Nigerian indigenous dishes have valuable food nutrient potentials. This seems to contradict some beliefs that typical African foods are poor sources of protein (9). The study also posits that the valuable food nutrients obtained from the studied dishes have valuable food nutrients that could provide some nutritional needs of the elderly.

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