# CHEMICAL COMPOSITION OF *UKPO OGEDE* (STEAMED PLANTAIN CAKE) SUPPLEMENTED WITH FULL FAT SOYMEAL FLOUR.

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## ABSTRACT

The proximate compositions of the plantain and soybean flours as well as their blends were determined.*Ukpo Ogede* (steamed plantain cake) was prepared from the flour blends containing the different ratios of plantain pulp or flour and the Soybean Flour respectively. The proximate composition of the products (*Ukpo Ogedes)* was determined .The result of the proximate analysis shows that plantain flour is high in ash, carbohydrate and energy. It is low in fat and protein (4%). Soybean flour on the other hand is a good source of protein, fat, ash and energy. The carbohydrate content is low when compared with the plantain flour. Addition of soybean flour to the plantain flour increased the protein level to 7.81%, 11.55% and 15.23% for blends containing 10%, 20% and 30% soy flours respectively. Similar increases were reported for the energy content of the blends. There were also increases in the fat content of the blends but the carbohydrate content decreased as the soy flour levels increased. The dry matter contents of the *Ukpo Ogede* were lower than that of the flour blends but the proteins and the fats were much higher.

**Keywords: Plantain, soybean, proximate**

## INTRODUCTION

*Ukpo Ogede* (steamed plantain cake) is a meal prominent in Delta state and some western states of the country. *Ukpo* is prepared like steamed cowpea "(moin-moin), but it is in this study supplemented with soymeal, which is rich in protein. Due to its high rate of consumption, it is necessary to supplement *Ukpo Ogede* in order to upgrade its nutritional quality. Animal proteins may be used, but is often not used because it is too expensive and not readily available for rural dwellers, as such, legumes or oil seeds e.g. soybean is used alternatively.

Plantain belongs to the monocotyledonous genera *Musa* and specie *Paradisiaca.* It is a tropical humid lowland plant, grown subsistently and extensively in Nigeria. In Africa, they are grown for home consumption, not for export. Plantain is an important staple starchy food in Nigeria, with short shelf-life under the prevailing temperature and humidity conditions.

Due to the low level of protein and some essential vitamins in plantain, there is the need for an improvement using a high protein-containing meal. Of all legume species, soybean is the richest in protein content, about 40% and 20% fat. (Ene-Obong and Carnovale, 1992). It is also a good source of calcium and iron, with its contents being higher than those of meat, fish and eggs. The nutritional quality of soybeans adequately

supplements that of plantain, hence, its use in this study. Plantain's deficiency in protein and oil is made up for by soybean, which has high levels of both.

## MATERIALS AND METHODS

*Ukpo Ogede* was prepared using peeled overripe plantain crushed in a mortar to a smooth paste. Ingredients like oil, salt, pepper, crayfish were added and some warm water was gradually added also to obtain a thick but soft mix, as for all steamed mixtures. It was then wrapped in plantain leaves to make neat parcels and then allowed to steam for 30 to 45 minutes. It was unwrapped and ready for consumption. Fairly ripe plantain was also used to obtain plantain flour that was used in the production of *Ukpo* also. Full fat soy flour was supplemented into the plantain pulp and flour at 0, 10, 20 and 30 percentages. Moisture, crude protein, crude fat and ash contents of the products were determined according to standard methods of the Association of Official Agricultural chemists (AOAC 1990)

## RESULT AND DISCUSSION

Tables 1and 2 shows results of the chemical composition of *ukpo ogede* (steamed plantain cake) supplemented with full fat soybean flour at different percentages. The moisture content of *ukpo ogede* made from plantain pulp is higher than that from plantain flour. *Ukpo* is high in essential nutrients and it is a good source of energy, when the plantain was supplemented with full fat soybean flour. Ash, fat, protein and carbohydrate values were 4.8%, 14.0%, 40.8% and 40.8% respectively for the highest level of supplementation of soybean flour in plantain pulp. In plantain flour supplementation, ash, fat, protein and carbohydrate contents were 0.7%, 11.6%, 46.9% and 40.8% respectively. With every percentage increase in soybean flour, there was an increase in energy value by about 2.0kcal.

Aribisala,(1980) reported that soyabean is credited with high quality protein because of its 8 essential amino acids, indispensable to good feeding. Its all dietetic value makes soybean a very important food item. Carbohydrate in soybean adds to total calorific contribution, although not all utilizable in human system.

**TABLE 1: PROXIMATE COMPOSITION OF *UKPO OGEDE* (STEAMED PLANTAIN CAKE) FROM PLANTAIN PULP AND SOYBEAN FLOUR BLENDS**

| | SAMPLES | | | |
|---|---|---|---|---|
| | A(100:0) | B(90:10) | C(80:20) | D(70:30)* |
| Dry Matter | 79.98 | 78.01 | 75.55 | 74.83 |
| Ash | 2.75 | 3.50 | 4.24 | 4.81 |
| Fat | 4.21 | 6.47 | 10.93 | 14.00 |
| Protein | 5.05 | 16.43 | 27.29 | 40.80 |
| Carbohydrate | 87.99 | 73.61 | 57.55 | 40.80 |
| Energy(Kcal) | 304.41 | 318.13 | 319.54 | 325.36 |

* Ratio of Plantain pulp to soy flour

**TABLE 2: PROXIMATE COMPOSITION OF *UKPO OGEDE* (STEAMED PLANTAIN CAKE) FROM PLANTAIN FLOUR AND SOYBEAN FLOUR BLENDS**

| | SAMPLES | | | |
|---|---|---|---|---|
| | A(100:0) | B(90:10) | C(80:20) | D(70:30)* |
| Dry Matter | 80.15 | 79.62 | 78.68 | 76.70 |
| Ash | 2.56 | 2.20 | 1.86 | 0.72 |
| Fat | 4.12 | 6.36 | 9.99 | 11.67 |
| Protein | 36.23 | 37.83 | 38.61 | 46.86 |
| Carbohydrate | 57.09 | 53.62 | 49.54 | 40.76 |
| Energy(Kcal) | 323.58 | 326.58 | 336.54 | 338.23 |

* Ratio of Plantain flour to soy flour

## CONC LUSION

The results show that with subsequent increase in soybean flour there was considerable increase in fat and protein values. One significant aspect of this study is the fact that supplementation of plantain with soybean flour in preparing *ukpo ogede* provides additional sources of good quality protein less expensive than animal protein sources. These are very important considerations in times of severe economic crunch, food scarcity and high cost of animal protein.

## REFERENCE


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