Composition of the Daily Food Ration in Ivory Coast

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 ABSTRACT: Food products such as yam, cassava, plantain, rice and maize are an important part of food in Ivory Coast. These products are high in carbohydrates and their consumption only covers the energy needs of the population. It is therefore important to provide other foods rich in proteins, lipids and minerals in the daily diet to meet the food needs of this population.

KEYWORDS: Food products, *Carbohydrates, Proteins, Minerals, Daily diet, Population*

1. INTRODUCTION

In Ivory Coast, the farmer traditionally produced for own consumption, and it is the surplus of production that is marketed to meet certain expenses or acquire some material goods [**1**]**.** Food products are at the top of all agricultural outputs and, for some of them, have strong annual growth rates **[1].** However, food needs are often not met for a variety of reasons: post-harvest losses due to the lack of adequate means of storage, storage and processing, failing collection and distribution channels, population growth, sociocultural convictions etc. **[2].** The basis of food in the Ivory Coast is made up of rice, maize, yam, plantain, millet, taro, etc. **[3],** hence the interest of knowing the nutritive value of these products. The purpose of our study is to analyze some of these products, to know their composition in nutrients (proteins, carbohydrates, lipids) and to compare them. The aim is to demonstrate the need to compensate for the imbalance in the daily food intake of the population that appears to be linked to poor nutritional habits.

2. MATERIAL AND METHODS

2.1. Vegetable material

The analyzes included samples of maize meal, rice, yam, taro, cassava and plantain (**Tableau : 1**) purchased from the Abidjan market The samples are then dried, reduced to flour and then stored in glass jars in the refrigerator. These samples are representative of two food groups:
- starchy foods (yams, bananas, cassava),
- cereals (rice, maize).

Table 1 : Some food products consumed in Ivory Coast

Foto 1 : Cassava roots [4]

Foto 2 : Ears of Rice [5]

Foto 3 : Plantain [6]

Foto 4 : Yam Tuber [7]

Foto 5 : Ears of Maize [8]

Foto 6 : Taro Tuber [9]

2.2. Chemical Analysis

The following analyzes were performed: water content determined by drying A105 ° C to constant weight **[10].**; protein content determined by the Kjeldahl method of 6.25 as a conversion factor[**10].**; The lipid content determined by Soxhlet extraction with ether; the ash content determined by incineration at 650 ° C in a muffle furnace **[11].**; total carbohydrate content determined by difference; the energy value calculated by (4 x protein content) + (9.75 x lipid content) + (4.03 x carb cotent) **[12]**; the total sugar content is determined by the method of Gabriel Bertrand (1910) **[13]** after reversal of non-reducing sugars by acid hydrolysis (HCl 12N) for 20 min at 76 ° C in a water bath.

3. RESULTS

The results of the analyzes, reported in the Table 2, are given relative to 100 g of dry matter. Total carbohydrate levels are high for different products. They range from 78.90% in maize to 82.39% in plantain. The total sugar content is between 1.59% in rice and 15.20% in yam, the value is remarkable in yam (15.20%). Protein levels vary. They range from 2.58% in plantain to 10.50% in maize. The value is low in plantain (2.58%) and relatively high in maize (10.50%), yam and rice have intermediate values (5.8%, 6.80%). The lipid levels are low in all products. They range from 0.31% in plantain to 2.67% in corn. The water content in the

various flours ranges from 7% in maize to 11% in plantain. The dry matter content is between 89% in plantain and 93% in maize. The ash content is between 0.93% in maize and 5.94% in yam. The energy value is between 342.67 calories in plantain and 381.63 calories in corn

. 4. DISCUSSION

The results of this study show that amylaceous products consumed in Ivory Coast all contain high amounts of carbohydrates. High carbohydrate levels confirm the energy properties of these foods [14] [3].The yam and plantain contain very little fat while levels are slightly significant in rice and maize [15]. The protein contents of these products are very small for the plantain and relatively low in the yam, rice and maize [16].The deficiency in lipids and proteins of some of these foods remains an unfavorable nutritional factor. However, the increasing consumption of these products, which only cover energy needs, suggests that the Ivorian should be provided with other food sources rich in protein for a balanced diet.

5. CONCLUSION

The amylaceous products constitute 90% of the food intake of the Ivorian populations. They do not fully meet the dietary needs, especially protein. To fill this gap, and ensure a good and balanced diet, daily diet should be supplemented by contributions from other protein-rich foods such as eggs, meat, fish and legumes. An analysis of the results shows that corn and rice have a nutritive value slightly above that of plantain and yam.

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Table 2 : **Composition of somme Foods Crops consumed in Ivory Coast.**

Products	Moisture % f.p	Proteins % d.m	Lipids % d.m	Total Carbohydrates % d.m	Sugars % d.m	Ashes % d.m	Energy cal/100g d.m
Plantain	11.00 ±1.50	2.58 ± 0.13	0.31 ± 0.09	82.39 ± 1.64	2.61 ± 0.11	3.72 ± 0.31	342.67 ± 37.59
Yam	8.00 ±0 .80	5.81 ±0.02	0.40 ± 0.07	79.85 ± 2.34	15.20 ±0.14	5.94 ± 0.14	346.24 ±23.22
Rice	10.00 ±0.50	6.80 ±0.12	2.59 ± 0.10	79.66 ± 2.04	1.59 ±0.16	0.95 ± 0.21	369.15 ±20.22
Maize	7,00 ±0 ,20	10,50 ±0,09	2,67 ± 0,05	78,89 ± 1,94	2,80 ±0,11	0,93 ± 0,20	381,63 ±18,22
Cassava	7.88 ±0.09	1.,21 ±0.09	0.85 ±0.09	9.550 ±0.09	1.05 ±0.09	2.44 ±0.09	395.81 ±0.09

Each value in the table is the average of three determinations (n = 3)