Some aspects of nutritive quality of some maize-based traditional convenience foods*

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Abstract

Seventeen traditional convenience foods (Langbe, Guguru, Tanfirin, Aadun, Tuwo massara, Nni Oka, Ukpo Oka, Kokoro, Kunu massara, Kunu-da-nono, Abari (Ekuru), Kango, Abodo, Akamu (Ogi), Agidi (Eko), Agidi-jollof, and Kanjika) well known and cherished by the inhabitants of cosmopolitan cities of Nigeria were prepared and evaluated for proximate composition and gross food energy values. Variability in the nutrient composition results (4.16-15.97% crude protein, 8.54-45.78% fat, 0.34-7.33% crude fibre, 0.18-3.54% ash, and 54.52-83.62% carbohydrate) and energy values (402.76-585.26 Kcal/100g) indicated significant (P>0.05) processing effect on the nutrient composition and energy value of the cereal grain. Also, variability in the nutrient densities of the foods resulted in nutritional imbalance in the percentage contribution of nutrients to total calorie supplied by the foods. Implication of the imbalance on the nutritional status of consumers and the remedy were discussed.

Introduction

Remarkable contribution of convenience foods to food intake of inhabitants of urban cities of Nigeria necessitates nutritive quality evaluation of such foods in order to ascertain the nutritional status of the affected people. The paper provides information on the nutrient composition and energy values of some convenience foods prepared

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from maize. The cereal was chosen because of its great potentials for production of convenience foods, which are widely accepted across the cities in the country[1].

Materials and Methods

A total of 17 convenience foods namely: Langbe, Guguru, Tanfirin, Aadun, Tuwo massara, Nni Oka, Ukpo Oka, Kokoro, Kunu massara, Kunu-da-nono, Abari (Ekuru), Kango, Abodo, Akamu (Ogi), Agidi (Eko), Agidi-jollof, and Kanjika were prepared from maize bought from a local market following the procedure described elsewhere[1]. Proximate analysis of the food samples was carried out[2], and total energy values were estimated by multiplying protein, fat, and carbohydrate by 4, 9, and 4, respectively. Statistical analysis of results was done in accordance with the procedure of Steel and Torrie[3].

Results and Discussion

The convenience foods vary considerably in their nutrient composition i.e. crude protein (4.16-15.97%), fat (8.54-45.78%), crude fibre (0.34-7.33%), ash (0.18-3.54%), and carbohydrate (54.52-83.62%) (Table 1) and thus indicated and confirmed the remarkable influence of processing on the composition of maize[4]. Consequently, total energy derivable from the maize and the convenience foods vary significantly (i.e. 402.76-585.26 Kcal/100g). Furthermore, the variability in the nutrient densities of the foods resulted in nutritional imbalance in the percentage contribution of nutrients to total calorie supplied by the foods[5]. Percentage contributions by carbohydrate, protein, and fat contents of the convenience foods are 25.65-80.16%, 3.22-13.17%, and 9.84-70.40%, respectively as against the recommendation of dietary energy contribution of between 50 and 60% from carbohydrate, not more than 12% from protein, and not more than 35% from fat[5]. The shortcomings of the convenience foods in the proportion of energy contributed by the nutrients they contain and the consequent nutritional problem that may arise from consumption of such foods needs attention. This is because in addition to contributing to the total calorie intake, the nutrients are expected to perform other specific functions in the body. The imbalance can be corrected if the convenience foods are eaten along with other foods capable of supplementing nutrients, which are deficient in the convenience foods.

References

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Table 1. Proximate composition and energy contents of maize and different convenience foods

Convenience food	Crude protein (%)	Fat (%)	Crude fibre (%)	Ash (%)	Carbohydrate (%)	Energy (Kcal/100g)	Percentage energy from:		
							Carbohydrate	Protein	Fat
Yellow maize	10.07cde*	4.40f	3.72b	1.09c	80.72ab	402.76	80.16	10.00	9.84
Langbe	10.72cd	9.56de	3.39bc	1.14c	75.19abc	429.68	70.00	9.98	20.02
Guguru	13.57ab	10.66d	3.93b	2.09b	69.77cd	429.12	65.04	12.65	22.31
Tanfirin	7.44fg	10.00de	7.33a	2.84b	72.39bc	409.32	70.74	7.27	21.99
Aadun	5.91gh	45.78a	7.27a	3.64a	37.40f	585.26	25.56	4.04	70.40
Tuwo mascara	12.04bc	12.02d	1.36ef	1.22c	73.36ab	449.78	65.24	10.71	24.05
Nni Oka	8.53ef	9.70de	0.95f	1.06c	79.76ab	440.45	72.43	7.75	19.82
Ukpo Oka	15.97a	21.80c	3.58b	3.54a	55.11e	479.80	45.94	13.17	40.89
Kokoro	10.07cde	29.49b	3.15bcd	2.77b	54.52e	523.77	41.64	7.69	50.67
Kunu mascara	11.16cd	8.54e	2.10de	0.88cd	77.32abc	430.78	71.80	10.36	17.84
Kunu-da-nono	9.85cde	9.56de	0.48fg	1.19c	78.92abc	441.12	71.56	8.94	19.50
Abari (Ekuru)	8.54def	22.54bc	0.48b	3.62a	61.22de	481.90	50.82	7.08	42.10
Kango	4.16h	27.74b	1.41ef	3.83a	62.86de	517.74	48.56	3.22	48.22
Abodo	8.32ef	11.10d	2.44cde	0.84cd	77.30abc	442.38	69.89	7.53	22.58
Ogi (Akamu)	6.13gh	9.68de	0.34g	0.23e	83.62a	446.12	74.98	5.49	19.53
Agidi (Eko)	7.44fg	11.75d	0.36g	0.18e	80.27ab	456.59	70.32	6.52	23.16
Agidi jollof	11.82bc	10.43d	0.68f	0.61d	76.46abc	446.99	68.42	10.58	21.00
Kanjika	5.91gh	12.02d	3.85b	0.18e	78.04abc	443.98	70.31	5.32	24.37
±SEM^{+}	0.705	2.424	0.509	0.307	2.846	10.586	3.375	0.656	3.607

*Mean values in a column bearing different subscripts differ significantly at P>0.05

$^{+}$Standard error of the mean