PROXIMATE COMPOSITION OF COMPLEMENTARY FOODS PREPARED FROM MALTED WHEAT AND SOYABEAN FLOUR BLENDS

Daniel, E.U; Anuonye, J.C. and Yakubu, C. M.
Department of Food Science and Nutrition,
Federal University of Technology Minna, Nigeria
georgelizzy2011@yahoo.com

Introduction

Complementary foods are semi-solid or solid foods that are introduced to the diet of a bre
or formula-fed infant during the transition to an adult diet. The traditional homem
complementary foods of developing Countries are based on starchy staples usually ce
such as sorghum and maize. The nutritional problems associated with the use of these st
staples in complementary food preparations include: high bulk density and viscosity,
energy, protein and micronutrient contents [1]. A good quality complementary diet must
high nutrient density, low bulk density, viscosity and appropriate texture [2]. Se
approaches have been suggested to improve the nutritional quality of complementary fo
including fortifying the locally produced cereal-based foods with specific nutrients a
blending them with other nutrient – rich foods to form nutritious composite mixture [3].
Wheat flour contains 11.8% of protein, 1.9% fat, 0.7% ash, 1.0% fiber, 77.6% carbohy
. Soybean contains 40.0 % protein, 20.0 % fat, 35.0 % carbohydrate and 5.0 % as
source of iron, calcium, phosphorus and some B-vitamins [4].
Malting involves germination of grains until the food-store (endosperm) which is ava
to support the development of the germ of the grain, undergo some degradation
enzymes. During malting, the germination of the grains facilitates the production rele
enzymes which helps to modify the grains (especially starch). Malting has been repo
improve the chemical, functional and pasting properties of flour.
The proximate composition of food products is important in pr
formulation/development and utilization. Therefore, the objective of the research
determine the proximate composition of complementary food prepared from malted
and soybean flour blends.

Materials and Methods

Wheat was obtained from Minna Mobil market Minna while soybean seeds was pu
from National Cereal Research Institute Badeggi, Bida(NCRI) Niger State. The whe
and soybean seeds were separately cleaned and sorted by winnowing and float
remove broken grains and extraneous materials .The seeds were soaked in tap wate
hours at ambient temperature .The steeped seeds were spread evenly in a raised plat
a period of 72 hours and sprinkled with water four times daily. The germinated see
thoroughly washed. This was followed by steaming for 10 minutes to pre cook th
The germinated grains and seeds were then dried in hot air oven at 120 °C for 12 hou
drying, the germinated grains and seeds were dehulled, milled to flours sieved and p
Malted wheat and soybeans flours were mixed at different proportions (100:0; 75:2
25:75, 0:100), where 100% malted wheat flour was used as standard. The flour ble
subjected to proximate analysis [4]. Proximate results obtained were subjected to a
variance [5].

Results and Discussion

The proximate composition of malted wheat and soybean flour blends is presente
1. There was significant ($p \leq 0.05$) difference in moisture, protein, ash and ca
contents between control sample and the composite blends. The variation i

content may be attributed to variations in drying kinetics between wheat and soybean. Variations in protein and ash contents could be attributed to high protein and ash content in malted soybean than wheat flour. However, the crude fiber content increased with increase in soybean flour addition but there was no significant difference in crude fiber content between the control sample and the 75:25 (wheat: soybean) blend. The results of the proximate composition of complementary foods prepared from malted wheat and soybean flour revealed that the formulated blends will provide high nutrient density.

References

1. Mosha, T.C.E and Vincent, M. M. (2005). Nutritional quality, storage stability and acceptability of home-processed ready-to-eat composite foods for rehabilitating undernourished preschool children in low-income countries. Journal of Food Processing and Preservation, 29: 331-356.
2. Badifu, G.I.O, Chinma, C.E, Ajayi, Y.I. and Ogori, A.F. (2005). Influence of mesocarp flour supplementation to micronutrient, physical and organoleptic qualities of wheat-based bread. Nigerian Food Journal. 23:59 – 67.
3. Iwe, M.O. (2003). *The Science and Technology of Soybeans. Chemistry, Nutrition, Processing and Utilization*, 1st Ed., Rojoint Communication Services Ltd., Enugu, Nigeria.
4. AOAC (1995) 'Official methods of Analysis'. Association of official analytical chemist. 16th edition. Washington DC.
5. Steel, R.D G and Torrie J.H (1980). *Principles and Procedures of Statistics, A Biometrical Approach*. 2nd edn. McGraw Hill Co. New York p 623.

Table 1: Proximate composition of malted wheat and soybean flour blends

Malted wheat: soybeans	Moisture (%)	Protein (%)	Fiber (%)	Ash (%)	Fat (%)	Carbohydrate (%)
100:0	7.81^{a}±0.19	9.61^{e}±0.61	1.69^{c}±0.35	2.71^{c}±0.29	4.43^{ab}±0.27	81.57^{a}±0.4
75:25	7.16^{b}±0.04	14.75^{c}±0.2	1.76^{c}±0.02	3.06^{bc}±0.06	4.07^{b}±.07	70.25^{b}±0.3
50:50	6.00^{c}±0.20	18.75^{b}±0.2	2.72^{b}±0.615	3.75^{b}±0.25	4.38^{ab}±0.16	70.42^{b}±0.3
25:75	5.80^{d}±0.20	19.31^{b}±1.1	3.17^{b} ±0.16	3.25^{b}±0.25	4.38^{ab}±0.27	69.93^{b}±0.3
0:100	5.99^{c}±0.09	23.41^{a}±2.2	4.60^{a}±0.07	6.95^{a}±0.05	4.93^{a}±0.06	81.57^{a}±0.4

Mean value of triplicate determinations.

Mean value with different superscript in a column are significantly ($p \leq 0.05$) different from each other.