

Organoleptic characteristics of Breakfast Cereals from Anambra Rice

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ABSTRACT

Breakfast cereals were produced from the composite flour blends of local rice and soya beans in the proportion as follows: 50:50, 100:0 while imported was used as control. The local rice were destoned using destoning machine, it was then washed, parboiled, rewashed and spray dry in a layer and solar dried for 60 c for 3days after which it was milled into flour. The soyabean was also cleaned, boiled for 45 minutes, dehulled, washed, dried and roast, then milled into flour. The sensory evaluation of the breakfast cereals was carried out using 10 panellists, on a nine point hedonic scale using the sensory attributes of colour, taste, flavour, mouth feel, consistency and general acceptability. The 100 % Compared favourably with imported one. The supplementation with soyabean improve the low nutritional quality of cereals.

Keywords: *Breakfast cereals, Sensory evaluation, Supplementation, Glycine max*

INTRODUCTION

Cereals grains are the most important source of world's total food. There are a number of reasons why cereals have been important in man's diet (Onwuka, 2014). They are good sources of essential minerals and vitamins especially the B. Vitamins (Okaka, 1997). In our country the staple cereals include wheat, corn, rice sorghum and millet. Most of the rice consumed in Nigeria is currently imported while the local varieties are under-utilized due to the presence of high level of extraneous materials or contaminants as a result of insufficient and high cost of processing equipment and technology. The importation rate of polished rice before is of high rate and it is really going down due to the fact that the country has turned to their local Rice production which Anambra State is one of the States that is improving in that. The use of our local rice in the production of industrial food products is not currently done in Nigeria while the breakfast cereals product that is imported cost much which is not at the reach of the ordinary Nigeria owing to the economic recession of the country. Eating breakfast is vital to our body and mind because after 8-12 hours without food, the brain and muscles will be short of caloric energy to function (Norman and Joseph, 2007). Thus Breakfast helps us kick off the day both mentally and physically sound. It is meant to break the fasting period between dinners, the night before and lunch the following day. Omission of breakfast or consumption of an inadequate breakfast is a factor contributing to poor school performance and dietary inadequacies that are rarely compensated for in other meals of the day (Nicklas *et al.*, 1998) .

Individuals who consume breakfast report higher morning subjective mood than those who do not (Smith *et al.*, 1999). It is possible that an inadequate breakfast contributes to making of poor food choices over the rest of the day and in long term to an increased risk of obesity (Onwuka, 2014 and Ortega *et al.*, 1998). The diet of an average Nigerian consists of food that are mostly carbohydrate based. There is therefore the need for strategic use of

inexpensive high protein sources that complement the amino acid profile of the staple diet in order to enhance nutritive value (Duncan, 1995).

This study is useful in the improvement of the nutritional quality of cereals by complementing their limiting amino acids with legume. This research seek to produce and evaluate a breakfast meal made from cereals and to improve the nutritional quality of these cereal foods, by fortifying with cheap plant sources such as Soya beans since animal protein sources are too expensive for an average Nigerian and also determines the acceptability of the product.

MATERIALS AND METHODS

Rice varieties were purchased from Max's rice mill Oba (Ofe Mmiri) in Anambra State. For the production of instant breakfast cereals. Other materials/ingredients like sugar, flavour, soyabeans etc. were also purchased. Rice sample that were sorted and cleaned from stones and chaffs was parboiled and dried. The dried sample was now milled in an apex mill and all other materials were added in predetermined proportion to give semi-instant and instant rice breakfast food.

The rice based breakfast cereal produced were rehydrated with 1:4 ratios, coded and presented to 10 member panel of judges who are familiar with the product for sensory evaluation. The attribute evaluated were colour/appearance, taste, flavour, mouth feel, consistency and overall acceptability.

Nine point hedonic scale was used to score the sample, where 9= represent extremely acceptable and 1=extremely unacceptable. The data obtained were analysed by analysis of Variance and Duncan (Duncan, D. B. 1995), multiple range test was used in separating the means.

Preparation of Soya Bean Flour

The Soya beans seeds were sorted and washed to remove dirt and contaminants. The seeds were then soaked in water for 8 hours then placed in a colander to drain off the water. The beans were boiled for 45 minutes to inactivate enzymes activity and also to facilitate dehulling. The beans were then dehulled and solar dried at a temperature of 60°C for about 3 days followed by roasting at 120°C.

Preparation of Cooked Rice Flour

Local rice grains (*Oryza japonica*) were destoned using destoning machine to remove chaffs and stones. It was then washed in clean water to remove dust from the rice grains. The washed rice was parboiled, rewashed and then spread on a tray in a thin layer and solar dried at the temperature of 60°C for 3 days after which the dried rice was milled and then properly package in an air tight container at room temperature till used.

Formulation of product

Composite flour containing soy to rice flour at ratio 50:50 was developed; sample of rice flour 100% were also formulated and then the imported one was used as control.

RESULTS AND DISCUSSION

The result of the sensory evaluation of the formulated rice breakfast cereals and imported

one that served as control is presented on Table 1. Rice breakfast cereal prepared with milk compared favourably well in all the sensory attributes evaluated with the imported brand. The rice breakfast cereal with blend of legume in it received lower score or rating in almost all the quality attribute analysed, this could probably due to the nature of the legume (soya bean) which might have mask some of the other ingredients added. However, this sample was still acceptable by the panellist despite the lower sensory score. The results corroborated with FAO, 1995, FOS, 2001, Norman and Joseph, 2007. However further studies on breakfast cereals different aspects are going on.

Table 1
Sensory means scores of Breakfast Cereal from Anambra Rice

Sample	Colour/ Appearance	Taste	Flavour	Mouth feel	Consistency	Overall acceptability
CPR	8.54a	8.85a	8.77a	8.23ab	8.39a	8.69a
BNC	8.45a	8.46ab	8.00ab	8.69a	8.08a	8.42ab
ALR	8.54a	7.95b	7.31b	7.38b	7.72a	7.81b

Means with the same subscripts in a column are not significantly different ($p < 0.05$)

CONCLUSION

This study has shown that nutritious breakfast cereal can be produced from blends of local products such as local rice. The low nutritional quality of cereals can be improved through supplementation with blend of Soyabeans flour. The results obtained shows that this product can be used by both adults and children alike.

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