EFFECTS OF DIFFERENT PROCESSING METHODS ON THE PROXIMATE COMPOSITION OF GUNA FLOUR

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Introduction

'Guna' *(Cucurbita citrullus)* is a local name given to the cucurbita species. It is a leguminous plant with two varieties – wild and domesticated. The wild variety is relatively small with striated pods and black seeds enclosed in a thick hard pericarp. The domesticated variety has striated pods as well but, with smooth yellowish seeds known to have high oil yield[1]. In Nigeria, guna plant is cultivated in northern states such as Borno and Yobe. Other common English names for the plant are: bitter apple, bitter cucumber, vine of Sodom, cow-melon or dessert melon.

Dried pulps of unripe guna fruit is used medically as a purgative while the bran is used as animal feed. The dehulled seeds are roasted for oil extraction and the cake used for human and live stock consumption. The oil is used locally for cooking and in soap production[2].
This research work determined the effects of different processing methods (soaking, sprouting and fermentation) on the proximate composition of 'guna' flour.

Materials and Methods

'Guna' seeds were purchased from Gashuwa market in Yobe state of northern Nigeria. The hard pericarp was removed manually (except the fermented portion) and the seeds sorted, washed, and sun-dried. The dried seeds were divided into four portions: the first part was milled into flour (control); the second portion was soaked in hot water for 12 h, sundried and milled into flour; the third portion was fermented with over flow water of *akamu* as a source of latic acid bacteria for 24 h after which it was drained, sun dried and milled into flour while the fourth portion (with intact pericarp) was spread on the floor, covered with jute sack and sprinkled with water from time to time for about 5 days in a dark room. The germinated part was sun dried, worked between palms, winnowed to remove the germinated part (plumule) and milled into flour. All the samples were kept in air tight polyethelene bags prior to analysis. Samples were analyzed for moisture, ash, crude fats, crude fibre, crude protein,and carbohydrate using standard method described by AOAC[3] and data obtained were analysed statistically to esterblish significant differences.

Results and Discussion

The moisture content of all 'guna' samples were significantly ($P<0.05$) different except for sprouted and soaked samples(Table 1). The fermented 'guna' sample had the lowest moisture attributed to it usage by microoganisms for their activities and likely it will have a longer shelflife than others. Ash content ranged from 2.00-3.5% with fermented samples having the highest ash content. For crude fat and crude fibre all samples were significantly ($P<0.05$) different. Sample 1(control), had the highest fibre content while sample 4(soaked) had the lowest value. All the treatments were significantly different for crude protein and carbohydrate. Sample 4(soaked) had the highest protein(25.02%); while sample 3(sprouted) had the lowest value.

Table 1: Effect of soaking, sprouting and fermentation on the proximate composition of 'Guna' flour

Nutrients	Raw	Fermented	Sprouted	Soaked
Moisture content (%)	[illegible]	[illegible]	[illegible]	[illegible]
Ash (%)	[illegible]	[illegible]	[illegible]	[illegible]
Crude fat (%)	[illegible]	[illegible]	[illegible]	[illegible]
Crude fibre (%)	[illegible]	[illegible]	[illegible]	[illegible]
Crude protein (%)	[illegible]	[illegible]	[illegible]	[illegible]
Carbohydrate (%)	[illegible]	[illegible]	[illegible]	[illegible]

a,b,c: Values with different letters on the same rows were significantly different from each other (P<0.05)

References

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