



Development of Multi Purpose Mix

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ABSTRACT

Multipurpose mix was developed from germinated brown rice (GBR), sprouted ragi, sprouted green gram, ground nut, dehydrated carrot and skim milk powder in various formulations of three different samples A, B and C. The formulation for sample A was 50:0:30:10:5:5 respectively, for sample B was 45:10:20:10:5:10 respectively and for sample C was 35:23:13:9:5:15 respectively. Development of this mix is to improve protein, and calcium. Proximate and nutrient analysis for moisture, energy, carbohydrate, calcium, fat, protein, ash, iron, carotene was done to determine the nutritive composition of the mix. The mix was then subjected to sensory evaluation on 9-point hedonic scale. From the proximate analysis results and sensory evaluation of current study it is concluded that sample C is more nutritious than the other samples A and B.

Key words : Germinated brown rice, Ground nut, Multi-purpose mix, Sprouted green gram.

Children between ages 5 and 18 are vulnerable to number of nutrition problems. They have specific nutritional needs to maximize their health and well-being during childhood and subsequently as adults. Children need more energy for growth, but, this is surprisingly only a small portion of their total energy intake. Most of the energy intake of children simply provides the energy needed to be for child running, jumping, and learning to explore the world. The added energy intake also helps in providing sufficient micronutrients for growth and development of children (Cole TJ, 2000).

The objectives for good nutrition during childhood include providing sufficient nutrients and energy for appropriate growth - not too little (which leads to under nutrition or stunting) or too much (obesity). Good nutrition is essential to minimize illness as a child, including chronic disease, throughout adulthood and promote optimal health. Cognitive development in a child is influenced by a number of nutritional factors including iron, iodine and protein. In addition, children need sufficient energy to enable them to explore their environment, to respond to stimulation and hence to learn. Childhood is a time of learning and eating habits established during childhood will last a lifetime.

MATERIAL AND METHODS

Samples of different formulations of multipurpose mix (Table 1) were evaluated for the following parameters

1. Organoleptic evaluation (Peryam and Girardot, 1952).
2. Proximate analysis (AOAC, 1990)

RESULTS AND DISCUSSION

Product Evaluation

The multipurpose mixes were analysed for their organoleptic qualities, proximate and nutrient composition.

Organoleptic Characteristics of Multipurpose Mix

Method of preparation of multi-purpose mix was standardised and three samples were developed from germinated brown rice, sprouted green gram, sprouted ragi, dried carrot, ground nut, skim milk powder in different ratios and subjected to organoleptic evaluation. The sensory test used for this purpose was Hedonic rating. Hedonic rating relates to a pleasant and unpleasant status of a person and in hedonic rating effective rates of preferences of liking and disliking are measured (Table 2).

Preparation of Multipurpose Mix:

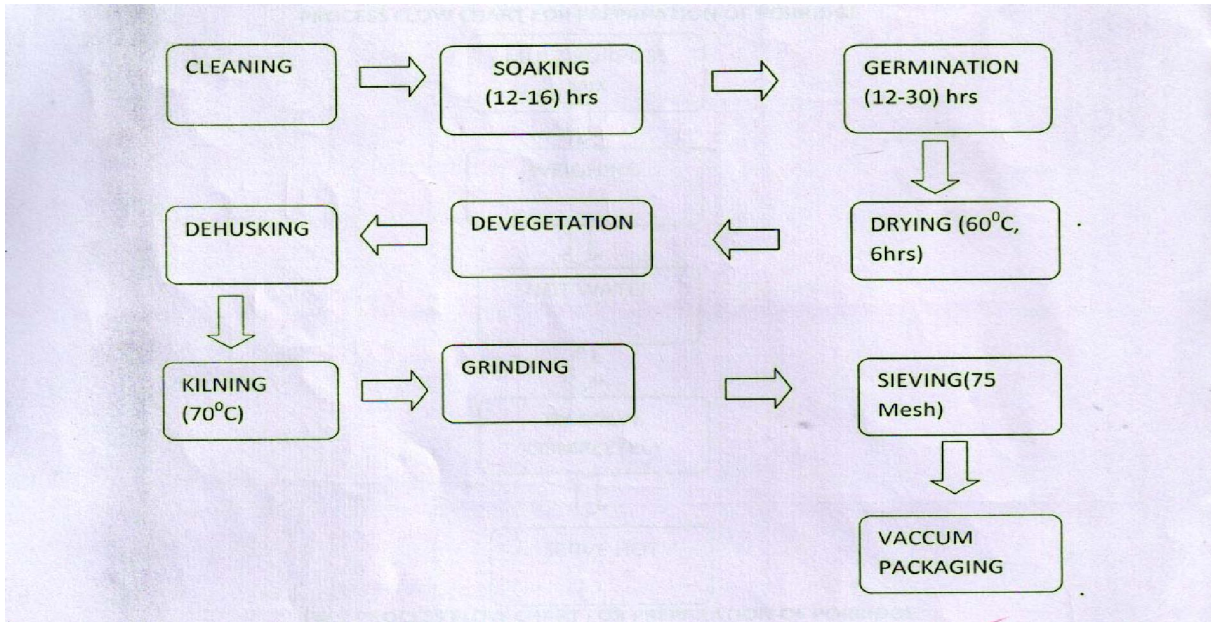


Fig.1 Process flow chart for preparation of multipurpose mix

Preparation of Porridge From Multipurpose mix

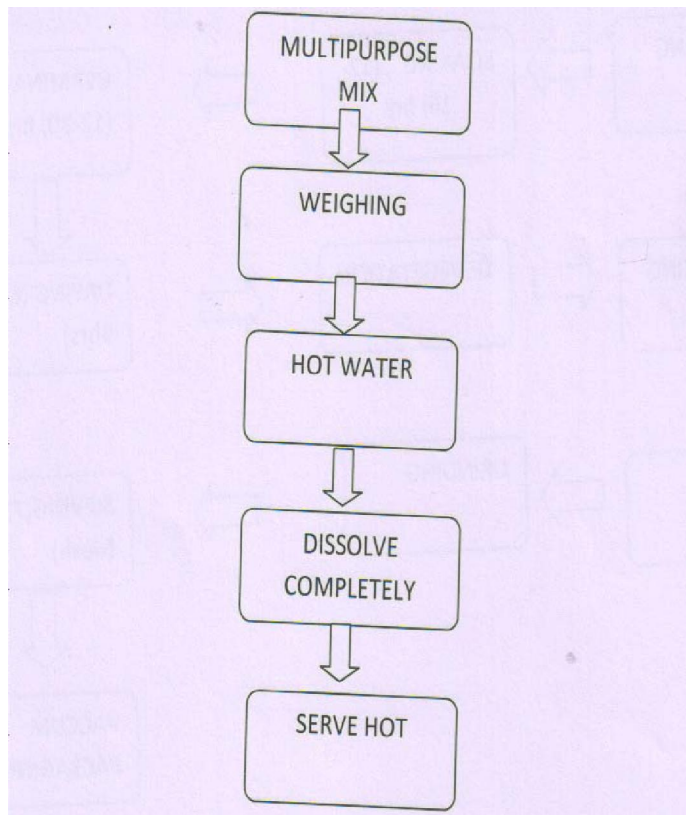


Fig.2 Process flow chart for preparation of porridge

Preparation of laddu from multipurpose mix

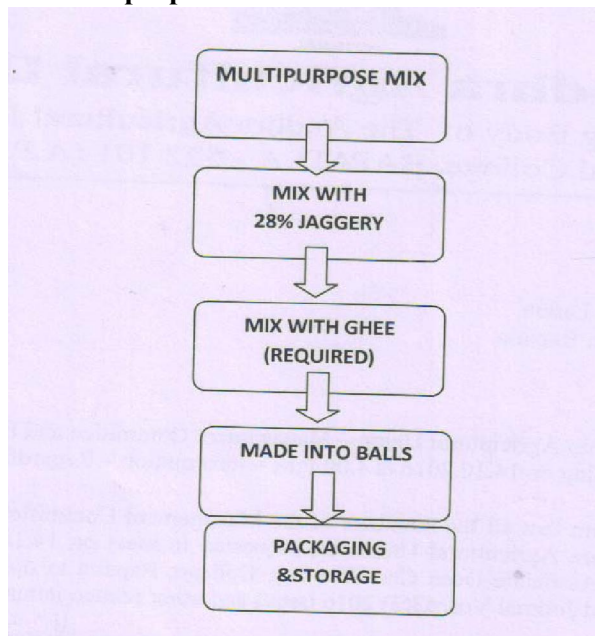


Fig .3 Process flow chart for preparation of laddu from multipurpose mix

Evaluation of formulated multipurpose mix

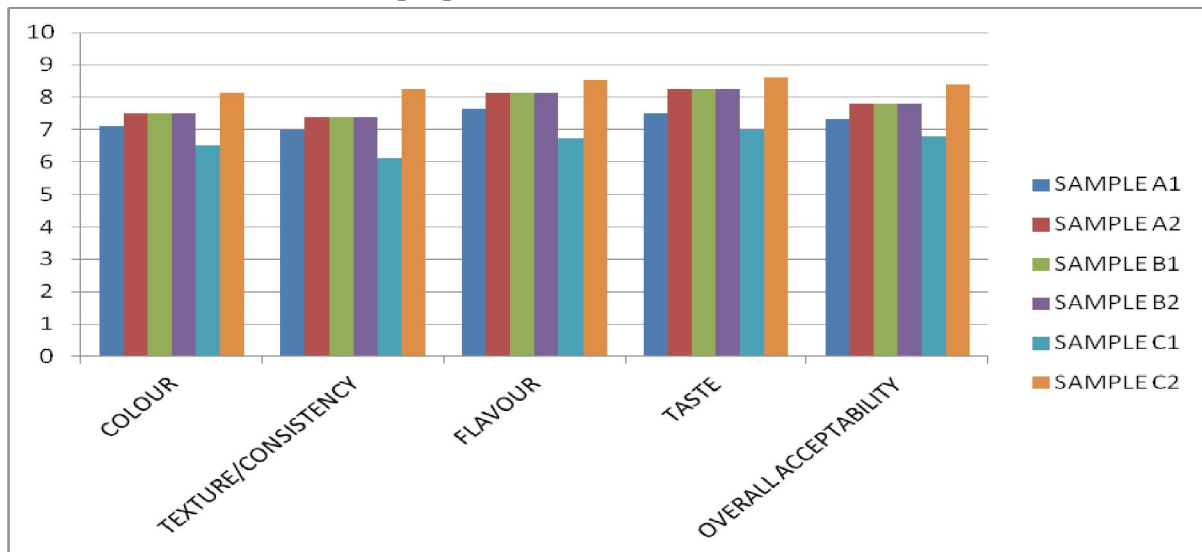


Fig.4 Organoleptic evaluation of multipurpose mix

Table 1. Ingredients and their proportions used in the formulation of multi-purpose mix.

INGREDIENTS	SAMPLE- A	SAMPLE- B	SAMPLE- C
GBR	50	45	35
Ragi	-	10	23
Green gram	30	20	13
Ground nut	10	10	9
Carrot	5	5	5
SMP	5	10	15

Table 2. Organoleptic evaluation of multi-purpose mix.

Attributes	Sample- A		Sample- B		Sample- C	
	A1	A2	B1	B2	C1	C2
Colour	7.125	7.5	7.6	7.875	6.5	8.125
Texture/Consistency	7	7.375	7.3125	8.125	6.125	8.25
Flavour	7.625	8.125	7.375	8.125	6.75	8.5
Taste	7.5	8.25	7.3125	8.25	7	8.625
Overall Acceptability	7.3125	7.8	7.4	8.09	6.8	8.375

Table 3. Proximate and nutrient composition for multipurpose mix.

Attribute	Sample A	Sample B	Sample C
Moisture (%)	2.67	3.02	2.43
Energy (kcal/100g)	346.85	353.2	345.85
Carbohydrate (%)	59	62.6	62.273
Calcium(mg/100g)	103	198.2	308.4
Fat (%)	4.2	4.32	4.12
Protein (%)	12.5	14.5	14.95
Ash (%)	2.1	2.9	3.8
Iron (mg/100g)	4.35	4.5	4.25
Carotene(μ g/100g)	108	107.5	204.9

Proximate and nutrient analysis of multipurpose mix

The results obtained after proximate analysis of different treatments of multipurpose mix or compiled in the Table 3 and it reveals that the three different samples have different attributable values. From the proximate analysis results of current study it can be concluded that sample C, is more nutritious than the othersamples A and B. It was also found to contain high levels of carbohydrates, protein, calcium, ash, carotene and also low in iron with a low level of moisture.

From the sensory evaluation results it can be concluded that all the three sample A, sample B and sample C have good acceptability when they are prepared as laddu. Hence, it can be concluded that the sample B and sample C are more nutritious and acceptable. This study

can be useful for providing nutritious food in the most preferred form to children and adolescents at low cost. This study can also be useful to parents of lower income groups for whom buying costly proprietary malt based foods available in market is a luxury.

LITERATURE CITED

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