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 1, 2 and 3. The formulation for sample1 was 50:0:30:10:5:5 respectively, for sample2 was 45:22.5:12.5:10:10 respectively and for sample 3 was 35:23:13:9:5:15 respectively. Development of this mix is to improve protein, and calcium. It was made proximate analysis moisture, energy, carbohydrate, calcium, fat, protein, ash, iron, carotene to determine the nutritive composition of the mix. It was then subjected to sensory evaluation on 9-point hedonic scale. From the proximate analysis results of current study it is concluded that sample C is more nutritious than the other samples A and B. Sample B contains high proportions so it was also found to contain high levels of carbohydrates, protein, calcium, phosphorus and also small in iron with a low level of moisture.

Key words: *Multi-purpose mix, germinated brown rice, sprouted green gram, ground nut, carrot and 9-point hedonic scale*

1. Introduction: Children between ages 5 and 18 are not small adults. Children 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. Physiologically the specific nutrition requirements result in children having a longer small intestine than as adult. 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 a 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.

2. MATERIALS AND METHODS:

2.1 PREPARATION OF MULTIPURPOSE MIX:

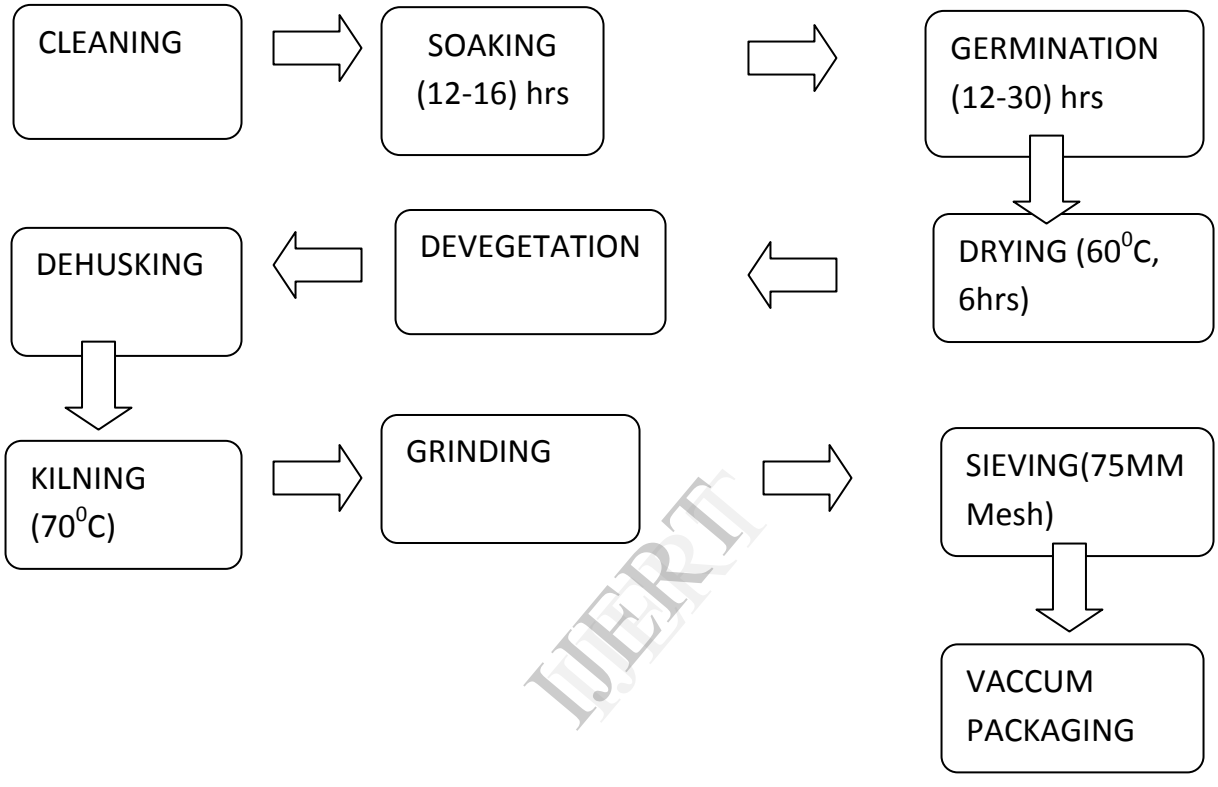

Fig. 1 Process flow chart for preparation of multipurpose mix

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

2.2 PREPARATION OF PORRIDGE FROM MULTIPUPOSEMIX

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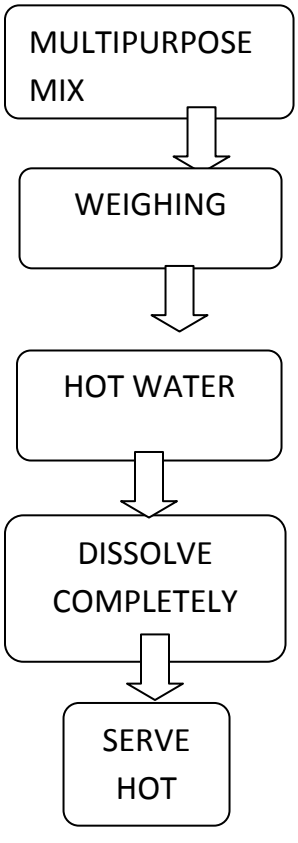

Fig.2 Process Flow Chart For Preparation of porridge

2.3 PREPARATION OF LADDU FROM MULTIPUPOSEMIX

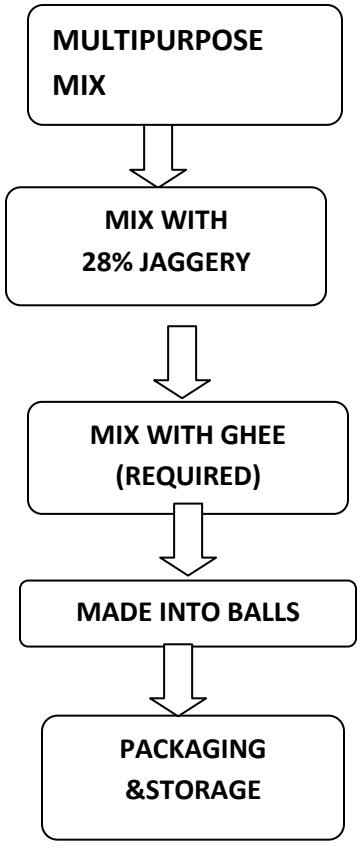

Fig .3 Process Flow Chart For Preparation of Laddu From Multipurpose mix

2.4. EVALUATION OF FORMULATED MULTIPURPOSE MIX

Samples of different formulations of multipurpose mix were evaluated for the following parameters

1. Organoleptic evaluation. (Peryac and Giradot 1952).
2. Proximate analysis (AOAC , 1990)
3. Microbiological analysis. (AOAC 1966)

3. RESULTS AND DISCUSSION

3.1 PRODUCT EVALUATION

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

3.1.1 ORGANOLEPTIC CHARACTERISTICS OF MULTI-PURPOSE 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 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 Organoleptic Evaluation of multi-purpose mix

ATTRIBUTES	Sample A		Sample B		Sample C	
	A1	A2	B1	B2	C1	C2
COLOUR	7.1	7.5	7.6	7.8	6.5	8.1
TEXTURE/ CONSISTENCY	7	7.3	7.3	8.1	6.1	8.2
FLAVOUR	7.6	8.1	7.3	8.1	6.7	8.5
TASTE	7.5	8.2	7.3	8.2	7	8.6
OVERALL ACCEPTABILITY	7.3	7.8	7.4	8.1	6.8	8.3

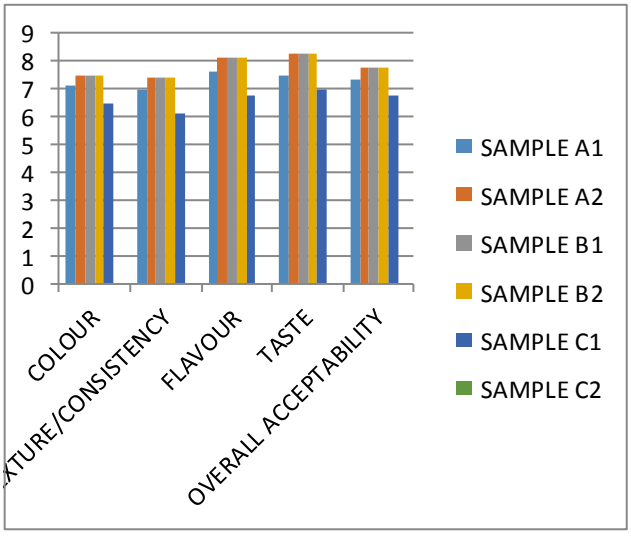

Fig. 4 Organoleptic evaluation of multipurpose mix

3.1.2 PROXIMATE ANALYSIS OF MULTIPURPOSE MIX

The results obtained after proximate analysis of different treatments of multipurpose mix is compiled in the Table

Table.3 Proximate principles 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(µg/100g)	108	107.5	204.9

The results obtained after proximate analysis of different treatments of multipurpose mix is compiled in the Table.3

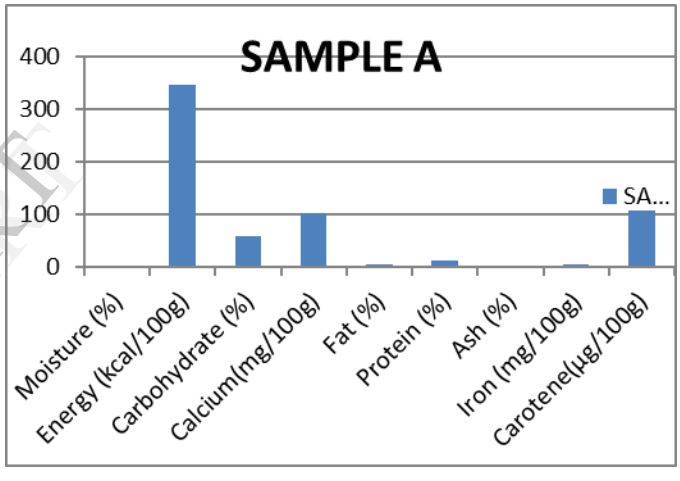

Fig.5 Proximate evaluation of multipurpose mix of sample A

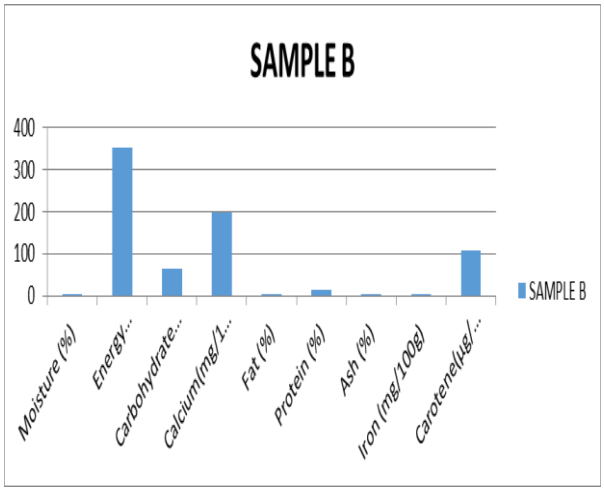

Fig.6 Organoleptic evaluation of multipurpose mix of sample B

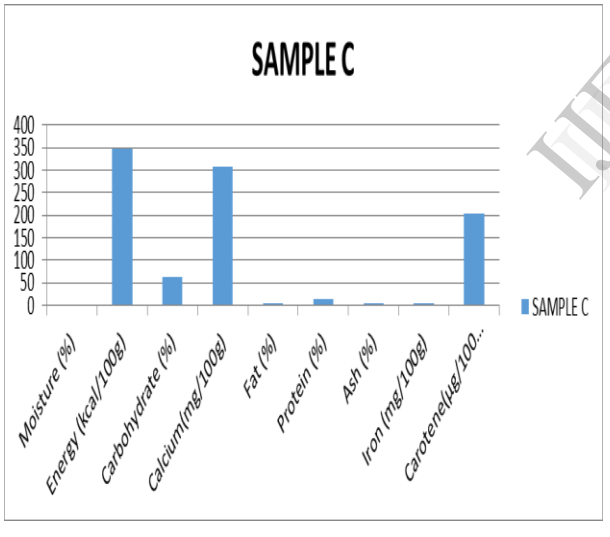

Fig.7 Organoleptic evaluation of multipurpose mix of sample C

4. Conclusion:

From the proximate analysis results of current study it can be concluded that sample C, is more nutritious than the other samples A and B. Sample B contains GBR, sprouted green gram Ground nut, carrot and SMP are in the proportion 45:22.5:12.5:10:10. It was also found to contain high levels of carbohydrates, protein, calcium, phosphorus and also small in iron with a low level of moisture.

From the sensory evaluation results it can be concluded that samples all the three sample A, sample B and sample C has 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 of 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.

5.References:

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