

Effect of Fortification of RAGI in Conventional GUR Para

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ABSTRACT

One of a person's essential necessities is food. It is necessary for a healthy growth and development as well as for the body parts to operate normally. BesanGagiGur Pare is free of gluten and high in protein while being low in saturated fat. The goal of this study is to examine and comprehend BesanRagiGur Pare as a whole. The purpose of the study is to provide a broad overview of BesanRagiGur Pare. The goal of the current study was to design the besanragigurpara made with finger millet flour, evaluate it for nutritional value and content, and establish a method for making it. A formula was developed for the production of the unique product besanragigurpara. Four samples (E100%) served as the control, while the remaining four samples (A20%, B40%, C60%, and D80%) were made using various ragi formulations in the besanragigurpara. After sensory inspection, sample (A), which has the following composition: moisture content 10.8%, protein 14.80%, carbohydrate 51.95%, fat 20%, and ash 2.45%, was deemed acceptable. The besanragigurpara has a great flavour, a great texture, and a lot of nutrition.

INTRODUCTION

One of the largest sectors of the processed food business in India is the bakery sector. The majority of baked goods, which include bread and biscuits, are classified as bakery products and account for more than 82 percent of all bakery items produced in the nation. Due to their excellent nutritional value and low price, bakery items are a widely consumed good. Bakery is a traditional activity and has a significant role in the food processing industry. In order to satisfy the growing appetite of the health-conscious Indian customer, the industry has started fortifying bakery products in response to consumer demand for newer possibilities (Varunet all 2019). When using composite flours that are fibre, protein, and gluten free in place of refined wheat flour entirely or in part, it can be difficult to attain the rheological properties of dough and sensory characteristics of the finished baked goods. Globally, the prevalence of obesity, diabetes, and other chronic diseases is rising, and there is a desire for diets high in fibre and protein with low carbohydrate content to battle these disorders. The usage of flours high in protein and fibre in the production of baked goods was the main focus of this review.

The nutritious content of bread goods is greatly increased by composite flour (Dr. Vijay Kumar 2019). The substance produced by concentrating the sweet juices of palm trees or sugarcane to a solid or semi-solid form is known as jaggery (Gur). It can be used to make any number of sweet meals that are well-known worldwide. For the production of some sweet dishes, people prefer it over white sugar because of its distinctive qualities. It has a sweet, wine-like aroma and flavour and is a natural sweetener. It tastes wonderful and has a flavour that falls halfway between molasses and brown sugar. Proteins, minerals, and vitamins are found in jaggery. Additionally, it contains more iron and copper than refined sugar and is a powerful source of iron. 2020 (Hirpara et al). chickpea flour or chickpea flour (besan) The chickpea (Cicerarietinum), a cheap source of legume protein that can be used in place of animal protein, is ranked as the fifth most valuable legume in terms of global economics (Pelletier, 1994. Ionescu et al 2009). On a dry basis, the chickpeas have crude fibre contents of 3.82%, a low fat content of 6.48%, a significant amount of accessible carbohydrates (50%) and relatively high protein (17–22%). (Salehet all 2006). In the Indian subcontinent, chickpeas are split into dhal and crushed into flour (besan), which is then used to make a variety of snacks (Hulse, 1991, Jukanti, 2012). Because of the superb balance of essential amino acids present in chickpea proteins, they are regarded as an acceptable source of dietary protein (Zhang et al 2007). In portions of India and eastern and central Africa, finger millet (Ragi, Eleusine Coracana) is a crucial staple food (Majumder et al 2006). Protein, iron, calcium, phosphorus, fibre, and vitamin content are all abundant in it. The iodine concentration is thought to be the greatest of all the food grains, while the calcium

content is higher than all cereals. In addition to having the highest quality protein, ragi also contains phosphorus, vitamin A, vitamin B, and vital amino acids (Gopalan et al 2004). The type of processing used to make shakkarpara is frying, which is also bad for the health because it increases the food's saturated fat content. The primary cause of weight gain and cholesterol elevation is deep-fried food. Additionally high in fat and calories, frying meals can produce potentially harmful substances like acrylamide.

MATERIAL AND METHOD

Preparation of besangur pare:

- The process for preparation of Besangurpara was formulated. The gram flour was the main ingredient of besangur pare. It was used as 100% gram flour and 40% of peanut oil and 35% of lukewarm water. Ingredients used to prepare Besangurpara is given in Table 3.1

Ingredients used to prepare besangur pare

<u>Ingredients</u>	<u>Quantity</u>
Gram flour (%)	100gm
Peanut oil (%)	40ml
Jaggery (Gur) (%)	50gm

All the raw ingredients of besangurpara (Gram flour, peanut oil and baking soda or baking powder, cardamon powder, jaggery) was weighed properly. The gram flour, baking soda and baking powder and cardamon powder was sieved gradually. After all that the dough was prepared by mixing all ingredients with lukewarm water. The dough was properly kneaded until the good consistency of dough was prepared. The prepared dough was flattened out with the help of wooden roller and cut in the shape of rectangle. Then, these rectangle besangur pare were baked in rational combination oven at 160°C temperature for 10 minutes. Besan Pare were cooled at room temperature for 15-20 minutes. Simultaneously jaggery was greated and melted the jaggery on sim flame in a pan for 5-7 minutes with few drops of water. Add the 5gm of cardamon powder in melted jaggery syrup. Then, dipped the baked besan pare singly in jaggery syrup and kept a side in a plate for 5-7 minutes at room temperature to cool down.

Formulation of the product

There are four sample (A, B, C and D) were prepared by different percentage of finger millet flour incorporation with gram flour. The control sample was made by (100%) gram flour, while four different variations were prepared by formulating (20%, 40%, 60%, 80%) gram flour with different ratio of finger millet flour. The gram flour formulations are shown in following image.

The formulation of besanragigurpara

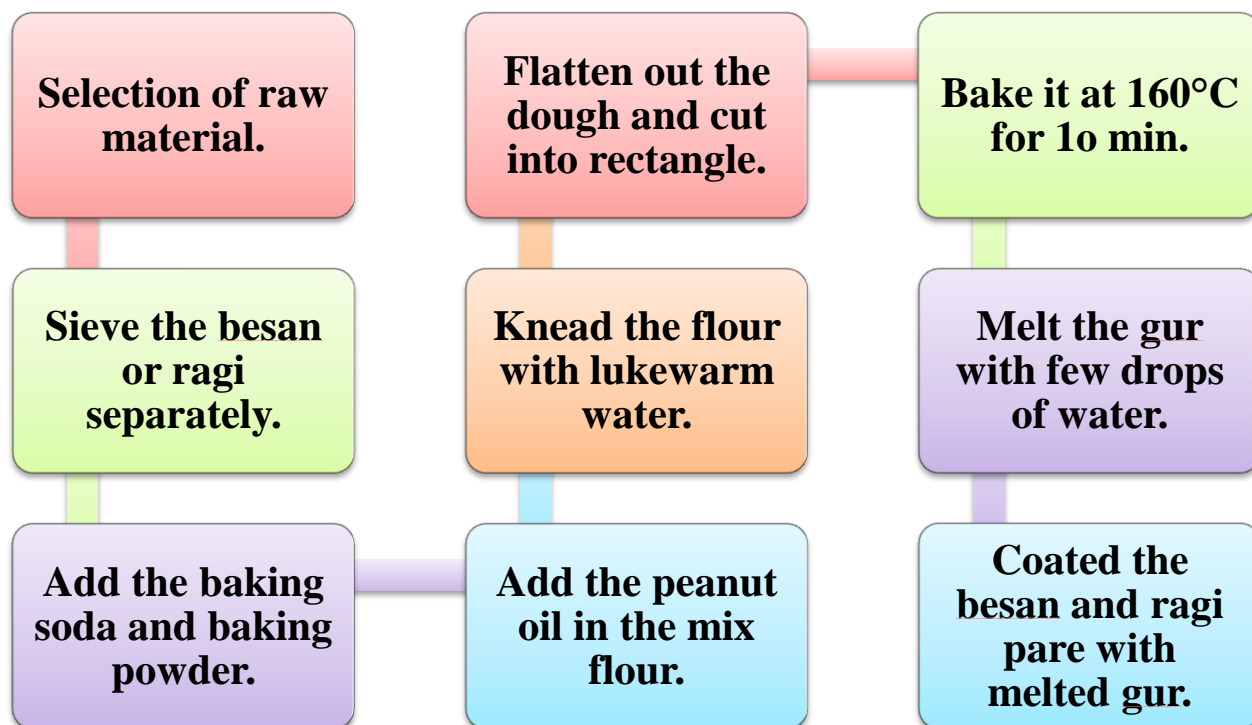
Ratio %	Amount				
	Gram flour (%)	Finger millet flour (%)	Peanut oil (%)	Jaggery (%)	Water (%)
20%	80	20	40	50	30
40%	60	40	40	50	30
60%	40	60	40	50	30
80%	80	80	40	50	30

Preparation of Besanragigur pare:

- The process followed for preparation of Besanragigurpara was formulated. The gram flour was (20%) replaced by finger millet flour. Also 40% of peanut oil and 35% of lukewarm water. Ingredients used to prepare Besanragigurpara is given in following table.

Ingredients used to prepare besanragigur pare

Ingredients	Quantity
Gram flour (%)	80gm
Finger millet flour (%)	20gm
Jaggery (Gur) (%)	50gm
Peanut oil (%)	40ml



All the raw ingredients of besanragigurpara (Gram flour, Finger millet flour, peanut oil and baking soda or baking powder, cardamon powder, jaggery) was weighed properly. The gram flour, finger millet flour, baking soda and baking powder was sieved gradually. After all that the dough was prepared by mixing all ingredients with lukewarm water. The dough was properly kneaded until the good consistency of dough was prepared. The prepared dough was flattened out with the help of wooden roller and cut in the shape of rectangle. Then, these rectangle besanragigur pare were baked in rational combination oven at 160°C temperature for 8 minutes. Besan and ragi pare were cooled at room temperature for 15-20 minutes. Simultaneously jaggery was greated and melted the jaggery on sim flame in a pan for 5-7 minutes with few drops of water. Add the 5gm of cardamon powder in melted jaggery syrup. Then, dipped the baked besanragi pare singly in jaggery syrup and kept a side in a plate for 5-7 minutes at room temperature to cool down.

Sensory evaluation:

TheBesanRagiGur Pare sample were evaluated for different sensory attributes viz color and appearance, texture, flavor, taste, overall acceptability, by panel of semi- trained judges using 9point hedonic scales.

Statistical Analysis

The data collected in triplicate values for all quality parameters was statistically analyzed. The data was analyzed by using one way ANOVA to test significant difference among different trials tried for development of besanragigur pare.

Data are presented as mean and compared by one-way analysis of variance (ANOVA). Means were compared to test for significant difference using the least significant difference statistics.

Sensory evaluation of BesanRagiGur Pare by 9-point hedonic scale

The effect of finger millet flour (ragi) on the mean sensory panel scores of BesanRagiGur Para is discussed in table 4.2. Mean sensory panel score the BesanRagiGur Para prepared by incorporation of finger millet flour (ragi) at different levels were evaluated by semi-trained panel of judges on 9-point hedonic scales.

Statistically significant variations were observed with regard to organoleptic quality parameters (appearance, texture, flavor, acceptability) of besanragigurpara. Control besangurpara (100%) gram flour had acceptable score (6.7). The variation of mean overall acceptability among all the different levels finger millet flour. Addition of finger millet flour at higher level affected the flavor and mouth feel of besanragigur pare. However, besanragigur pare was found to be highly acceptable at all levels. Overall acceptability for 7.11. For all level of besanragigurpara, appearance, flavor, and texture were mainly contributing factor.

The sensory evaluation of besanragigur pare

S. No.	Color and appearance	Texture	Taste	flavor	Overall acceptability
S1	7.26	6.62	6.54	6.38	6.7
S2	8.38	6.82	6.7	6.54	7.11
S3	7	6.8	7	6.74	6.885
S4	6.46	6.66	7.2	6.46	6.695
Control	6.42	6.34	6.88	6.28	6.48

CONCLUSION

The experiment concluded that BesanRagiGur Para are one of the novel food product, because of their convenience, ready-to-eat nature, long shelf-life. BesanGur Pare are good carrier medium for incorporation of finger millet flour(ragi). The level of finger millet flour(ragi) incorporation found to be acceptable up to 20% in gram flour. Finger millet flour and gram flour both are gluten free, and high in protein content and also rich in trace amount of minerals. Jaggery a natural sweetener that used to coat the besanragi pare that has a far complex properties than sugar. It digested slowly than sugar and releases energy slowly.

Besanragigur pare are good carrier to supply nutrition for health-conscious consumers. Bakery products (novel products) are becoming one of the most popular in current lifestyle because they are healthy, tasty and convenient for transportation.

Quality evaluation (sensory evaluation) was used as criteria to select the best level of (6.7, 7.11, 6.88, 6.69, 6.48). The selected levels of Besan RagiGurpara were assessed for various physicochemical characteristics such as crude protein, fat, ash and carbohydrates.

Therefore, fortified concept for nutritious Besan RagiGur Para is a newer direction for convenience and value addition. It will fit in the current consumption pattern of people who demand convenience, quality and nutrition from whole grains.

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