Development of Brown Rice Burfi Enriched with Groundnut and Pistachios

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Abstract

Burfi is made from milk, jaggery, dry fruits and some unique ingredients like brown rice and peanuts. Brown rice is made from entire grains that have had their outer, inedible hulls removed. This variety of rice loses its outer husk or hull, but the bran and germ layer stay on the grain, giving it its brown colour or tan. Brown rice generally needs longer cooking times than white rice, unless it is broken. Brown rice contains bran layers that are usually removed from white rice. This indicates that brown rice has beneficial phytochemicals such as fibre, minerals, flavonoids, and vital amino acids. Burfi comes in a variety of forms, depending on the ingredients that are added to it. For example, besan burfi, made from gram flour, kaaju burfi, made from cashews, and pista burfi, made from pistachios. Incorporating nutritious ingredients like brown rice and peanuts into burfi can provide some physiological benefits as it helps in weight loss, Controls blood sugar, and cholesterol, supports digestion and prevents anaemia. Groundnuts and brown rice both offer nutritional qualities that are abundant in proteins and carbohydrates, which enhance health benefits.

Keywords Brown Rice, Groundnut, flavonoids

Introduction

The most milk popular sweet in India is burfi, which is made from khoa and has an odour of white to light cream. It has a firm body and smooth to granular texture and is made with khoa [1]. It has a colour range of white to light cream, a firm structure, and a smooth texture, with very fine grains. The addition of sugar or jaggery in different proportions and other ingredients is determined by the consumer's demand. Market samples of burfi exhibit a wide range of chemical composition, sensory, and rheological characteristics. The absence of legal standards is a cause of large variations in market samples. The chemical composition of burfi depends on the quality and composition of the milk, the

amount of sugar, jaggery and other ingredients, and the degree of dehydration [2]. Depending on the



additives present, different types of burfi are sold in the market, such as plain mawa, pista, nutty, chocolate, coconut, rawa burfi, etc., depending on the raw materials used to manufacture the product. (Figure 1)

Fig. 1: Varieties of burfi are sold in the market

The basis of all these types of burfi is khoa and sugarcane, blended in different proportions. It also contains other ingredients to give it a special taste. In some parts of the country, chhana is also used as a material to replace part of the khoa. Burfi has special significance in social celebrations and expressions of joy and happiness on various occasions. Traditional milk products are made from 50 to 55 percent of the milk produced in India. [3] High in fibre and rich in nutrients is brown rice. Brown rice still has the bran layers that are usually removed from white rice. This indicates that brown rice has beneficial phytochemicals such as fibre, minerals, flavonoids, and vital amino acids [4]. Burfi comes in a variety of forms, depending on the ingredients that are added to it. For example, besan burfi, made from gram flour, kaaju burfi, made from cashews, and pista burfi, made from pistachios. Other variations include mango burfi, coconut burfi, and cardamom burfi [5].



New product development is essential to the growth of the dairy and food industries. Many options are available to supplement milk with other nutrients and health-promoting factors, including fruits, vegetables, and grains such as brown rice, millet grains, and legumes. Milk is primarily fortified with non-dairy ingredients to enhance its sensory properties and enhance its health benefits [6]. Incorporating nutritious ingredients like brown rice and peanuts into burfi can provide some physiological benefits as it helps in weight loss., Controls blood sugar, cholesterol, supports digestion, prevents anaemia thanks to increased protein content, jaggery purifies the body.

Materials and methods

Materials

The present product development was carried out at MSc Food and Nutrition laboratory, Padmashree Institute of management and sciences, Banglore. Raw ingredients like Brown rice, Coconut grate, Water, Ghee, Cardamom powder, Salt, Jaggery Powder, Ground nut and Pistachios.

Methodology

Step 1 Soaking



Soak 1 cup brown rice for 2 hours in a clean stainless-steel vessel, after 2 h drains off the water (fig 2).

Fig 2: Soaking of brown rice

Step 2 Grinding



Then grind rice with I cup grated coconut, 1/4 teaspoon salt to a very fine paste by adding little water (fig 3).

Fig. 3: Grinding of rice with coconut

Step 3 Heating

In a large kadai take I cup sugar and 2 cup water, heat the content in an induction stir well until the jaggery dissolves completely (fig 4).



Now add coconut rice I cup paste, water (1: 3 proportion) and 1/4 teaspoon of cardamom powder and 20 g of ground nut powder, mix well.

Fig 4: Heating of brown rice along with jaggery

• Keep on low-medium flame and add 2 teaspoon ghee and stir the mixture continuously ensuring that no lumps are formed. After 15-20 min it starts leaving the sides of kadai.

Step 4 Spreading

Grease a plate with ghee and transfer this mixture to the plate spreading uniformly and decorate with pista (fig 5), leave it for 30 minutes.



Fig 5: Spreading the mixture on a plate Step 5 Freezing

Transfer it into refrigerator under freezing condition.



Step 6 Cutting

Cut into desired shape and decorate with cashew and serve (fig 6).



Fig 6: Cutting with desired shapes

Step 7 Packaging

Burfi packed in tins and stored at 30°C ±10°C was good for 150 days, packaging in polyethylene pouches enhanced the shelf life of burfi up to 90 days.

Nutritional benefits

- Brown rice is a good source of magnesium. It aids bone development, muscle contractions, nerve functioning, wound healing, and even blood sugar regulation. Furthermore, brown rice is a good source of riboflavin, iron, potassium, and folate.[7] Brown rice may also help improve blood sugar control by aiding weight loss. [8].
- Bioactive components like phenolic compounds, stilbenes, lignin's, and isoflavonoids in the composition of peanuts reduce oxidative stress and inflammation caused by free radicals in the body. Thus, peanut consumption effectively prevents chronic diseases like cardiovascular diseases, diabetes, and cancer. The dry roasting and oilmethods affect the peanuts' roasting phytosterol content similar extent. A study showed that the total phytosterol content of oil roasted and dry roasted peanuts are 137 mg/100g and 135 mg/100g, respectively [9].
- Jaggery is rich in minerals [10] [11] and contains high amount of phenol [12] It improves digestion, relieves constipation,

relives tension [13] boosts energy, purifies the blood [14] anti-toxic and anti-carcinogenic properties [15] treatment of bronchial or lung infections and pre-menstrual syndrome (PMS) [16] anti-oxidant activity [17]. Pistachios are one of the most vitamin B6-rich foods available. Vitamin B6 is important for several bodily functions, including blood sugar regulation and the formation of haemoglobin, a molecule that carries oxygen in red blood cells [18].

- The Cashew part contains fibre, carrying more fibre into the diet brings down the level of cholesterol and the danger of heart disease prominently, which is known as heart nibble. The fibre in the digestive tract lessens the from food assimilation of cholesterol consumption. Ordinary use of these nuts, as a feature of a low-soaked fat eating routine, can bring down the danger of coronary disease overall by advantageously influencing the cholesterol levels in blood and can reduce the risk of having a subsequent respiratory & cardiovascular failure [19]
- Dried coconut or coconut water used to make burfi is a rich source of water-soluble vitamins, including ascorbic acid (vitamin C), thiamine, riboflavin, niacin, pantothenic acid, pyridoxine and folic acid.[20]

Conclusions

Burfi is one of the indigenous dairy products and is a very nutritious product as it contains most of the milk solids in concentrated form, easily digestible carbohydrates and a variety of ingredients. It basically has a light caramel flavour. Its colour can vary from light creamy white to light brown. Burfi is characterized by a moderately sweet taste, a soft and slightly oily body, and a smooth texture with very fine particles. Burfi's nutritional value can be increased by adding ingredients such brown rice, milk, groundnuts, coconut, and pistachios, all of which have positive health effects. Analyses how the Indian sweet product business is evolving in light of the country's expanding variety of burfi products supply, globalisation, private sector's entry into the market,



and increased consumer demand for value-oriented goods.

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