

STANDARDISATION AND EVALUATION OF OAT BURFI

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ABSTRACT

The goal of the current study, "Standardisation and evaluation of oat burfi," was to standardise the technique for creating these foods and to assess them for sensory and proximate analyses. For the making of burfi, malted wheat and oat grits were mixed in a variety of ratios, including 100:0, 75:25, 50:50, 25:75, and 0:100. With the highest overall acceptance scores of 8.80 among all the varieties, the wheat:oat (75:25) burfi was adjudged to be the best. The burfi's fat, protein, and fibre levels increased with the addition of malted oat. Because malted oat has a beneficial impact on burfi's acceptance and nutritional content, it can be a healthier choice for attracting more customers.

Keywords: Oat; Burfi; Proximate Analysis; Sensory Analysis; Nutritive Value.

I. INTRODUCTION

Oats are a low-input, nutrient-dense cereal crop that can thrive in temperate, humid climates. They are primarily farmed in northern, western, and central India. Oats are a distinctive and valuable health food due to their composition. It is the only cereal that contains avenalins, a legume-like protein that serves as the primary storage protein, along with significant amounts of unsaturated fatty acids, soluble and insoluble dietary fibres, protein, and carbohydrate. The primary component of soluble fibre in oats, -glucan, functions as a biological defence modulator by lowering total and low density lipoprotein cholesterol, managing blood sugar levels, and preventing constipation. Oats have anti-inflammatory, antioxidant, and anti-diabetic properties and are therapeutically effective against a number of disorders [9].

Malting, or the controlled germination of grains, has been used for centuries to soften the structure of the kernel, boost nutrient absorption, and give new flavours to the finished product [5]. Steeping causes grain to soften and creates ideal germination conditions. Oats can be improved nutritionally by germination, which increases phytase activity, which breaks down phytates and increases availability of micronutrients, particularly minerals, along with lysine and tryptophan content but results in a minor drop in prolamine content. Depending on the type of malt, kilning of grains is necessary to stop the germination process at 80°C or above. It stops biochemical processes and makes sure dried goods are microbiologically stable. Oat products can have their sensory qualities improved by malting, but this practise is still quite uncommon [6].

Malted oat is a functional food ingredient that can be added to milk and used in goods including porridge, oatmeal, breakfast cereals, flakes, muesli, granola, bread, biscuits, cookies, burfi, infant meals, oat milk, and probiotic drinks made from oats. Burfi is a well-known traditional Indian sweet made most often from heat-desiccated, partially dehydrated whole milk with the addition of sugar. The heat desiccated category of the accessible Indian milk-based sweets offers a more enticing and healthy selection of goods than the others. The most difficult aspects of creating new components and products from malted oats are coming up with creative ways to combine various processing techniques and creating final product concepts that appeal to a wide range of consumers. The goal of the current study was to examine the sensory and chemical characteristics of burfi made from malted oats while standardising the process parameters.

II. MATERIAL AND METHODOLOGY

The current study was conducted in CFST, CCS Haryana Agricultural University, Hisar, Haryana, India.

RAW MATERIAL

The CCS Haryana Agricultural University's Department of Genetics and Plant Breeding in Hisar provided the oat variety (OS-6) and wheat variety (C-306) . The local market was used to buy the milk (Amul full cream), Vita desi ghee, sugar, and other ingredients.

METHOD

The following methods are used for the standardisation and evaluation of oat burfi.

Malting and milling

Winnowing and sieving were used to remove all of the lighter foreign matter from the grains, and any weeds and stones that remained had to be hand-picked. Oats and wheat grains were properly cleaned before being treated with 2% sodium hypochlorite solution for 10-15 minutes. Oats were then steeped for 24 hours while wheat was steeped for 7-8 hours. The grains had been drained and were equally distributed on trays. For wheat, hydrated grains were left in the dark at ambient temperature for 24 hours, and for oats, they were kept at 15°C for 72 hours to achieve more than 90% germination. To cease the enzyme activity, germinated wheat and oat were dried in a tray dryer at 60°C for 10–14 hours and then kilned at 80°C for 3–4 hours. The kilned grains were cooled, given a quick hand-scrub, and then screened to get the rootlets out. Malted wheat and oat grains were processed through a 1.0 mm sieve after being ground in a lab-scale grain mill (Parnami Super).

Standardisation of burfi

Standardization is crucial for improving customer acceptability of food products as well as their physical, chemical, and microbiological quality. Malted wheat and oat grits were combined in a number of different ratios, including 100:0, 75:25, 50:50, 25:75, and 0:100, and were then used to make burfi, which is 60g of the mixture mixed with 110g of sugar in 1kg of milk. A blend of oat and wheat was added to boiling milk. The sugar was added, stirred, and cooked after the 0.5% citric acid solution was added for coagulation. The mixture was then sheeted in a greased tray, allowed to cool overnight, and then cut into the necessary pieces. After that, the samples went through sensory analysis. Physical and chemical tests were next performed on the last-chosen burfi and control combination.

Sensory evaluation

A panel of 10 semi-trained judges used the Hedonic Scale's nine points to rate the sensory evaluation of the colour, appearance, scent, taste, texture, and overall acceptability of the Burfi samples (as shown in Table 1). The panellists' scores were averaged to come up with the final score.

Table 1. Sensory evaluation score

Score	Acceptability
9	Like Extremely
8	Like ver much
7	Like moderately
6	Like slightly
5	Neither like or dislike
4	Dislike slightly
3	Dislike moderately
2	Dislike very much
1	Dislike extremely

Proximate analysis

The ideal selection of burfi samples, together with control burfi samples, were subjected to proximate analysis, which included measuring moisture, fat, protein, fibre, and ash content in accordance with AOAC guidelines (2005).

Statistical analysis

The data collected for this study were analysed using the three-factorial totally randomised design and the analysis of variance (ANOVA) approach (CRD). For comparisons, the crucial difference value at the P = 5% level was employed. To compare the means for the chemical properties of burfi, the t-test and standard deviation (SD) were calculated.

III. RESULT AND DISCUSSION

Sensory evaluation

Malted wheat and oat grits were mixed in various ratios to create wheat:oatburfi variations, including 100:0, 75:25, 50:50, 25:75, and 0:100. The variations with the highest colour and appearance scores (8.75 and 8.78) were 75:25 and 50:50 wheat:oatburfi. The shine, surface polish, and look are all a result of fat [10]. The wheat:oat (75:25) burfi scored the highest in terms of texture, taste, and flavour (8.80, 8.90, and 8.75, respectively). Due to the excellent textural quality, outstanding taste, and slightly nice caramelised flavour of the oat, the wheat:oat (75:25) burfi was determined to be the best among all the varieties with an overall acceptability score of 8.80. The non-enzymatic reaction between sugar and cereal ingredients in the presence of heat may result in light caramelization [3]. Oats were roasted and fired in a kiln to improve the burfi's sensory qualities.

Proximate analysis

Proximate analysis of the optimum combination (75:25, wheat:oat) and control (100:0) revealed that moisture content (14.84%) was highest in the 0:100 burfi, followed by 75:25 burfi (13.87%), which may be related to the higher oat content. The current study is consistent with reference [7], which shows that an increase in pineapple concentration led to a rise in burfi's moisture content. According to reference [2], burfi's low moisture level causes it to be hard, dry, challenging to chew, and undesirable.

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Wheat:oat (100:0) burfi had the highest crude fibre content, followed by wheat:oat (75:25) and wheat:oat (0:100) burfi, with crude fibre contents of 3.78, 3.22, and 2.58%, respectively. Oats are added to burfi to improve its fibre content, which offers significant health advantages. Wheat:oat (0:100) burfi had the highest ash concentration (1.87%), while wheat:oat (75:25) and wheat:oat (100:0) burfi showed no discernible difference. The sample's inorganic composition, from which the mineral content might be derived, is shown by the ash percentage. Ash-rich samples contain high concentrations of numerous mineral components, which should hasten metabolic processes and enhance growth and development [4]. The results for the ash and fibre contents are consistent with the research described in the source[8].

IV. CONCLUSION

We can draw the conclusion that malted oat can be successfully combined with wheat to make a filling and wildly popular burfi. The sensory panellist preferred the 75:25 (wheat:oat) mixture the best. Oat burfi would be a tasty and healthy substitute for the standard burfi sold in stores because it has high protein, fat, and fibre levels along with a pleasing flavour.

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