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SENSORY ACCEPTABILITY OF SHRIKHAND PREPARED FROM DRAGON FRUIT PULP, SAPOTA PULP AND ROSE POWDER

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Abstract

The study investigates the sensory acceptability of shrikhand, a traditional Indian yogurt-based dessert, modified with the incorporation of dragon fruit pulp, sapota pulp, and rose powder. The objective was to explore the potential of these ingredients in enhancing the nutritional and sensory attributes of shrikhand. Dragon fruit, rich in antioxidants and vitamin C, and sapota, known for its natural sweetness and fiber content, were used to replace conventional flavoring agents, while rose powder was added for its aromatic appeal and color. Shrikhand samples were prepared by blending the strained yogurt with varying proportions of dragon fruit pulp, sapota pulp, and rose powder. Sensory evaluation was conducted using a 9-point hedonic scale to assess attributes such as color and appearance,Flavor,consistency and overall acceptability. The results revealed that the combination of 20% dragon fruit pulp, 20% sapota pulp, and 60% rose powder yielded the highest overall acceptability, scoring favorably in terms of flavor, sweetness, and comsistency. The study concluded that the incorporation of these novel ingredients into shrikhand not only enhances its sensory attributes but also provides a nutritious alternative to traditional preparations, potentially offering a unique product to the market. Further studies on its shelf life and nutritional content are recommended for commercialization.

Keywords: Sensory acceptability, Shrikhand, Dragon fruit pulp, Sapota pulp, Rose powder, Yogurt, Nutritional enhancement, Traditional dessert.

Introduction

India is the world's largest producer of milk, with 187.7 million tonnes produced in 2018–19. Many years ago, the techniques for transforming milk into a range of delicious milk products were developed. The Indian milk production system is being pulled based on the milk product market segmentation. Currently, 46% of the nation's milk production is consumed as fluid milk, with the other 54% being turned into different types of milk products. The sociocultural life of our country has always included indigenous milk sweets **(Anonymous, 2018–19).**

1.1 SHRIKHAND

Chakka, or skimmed milk chakka, is fermented and then mixed with milk fat to create srikhand. Shrikhand may contain sugar, saffron, cardamom, nuts, and fruits in addition to a variety of spices and condiments. The produced shrikhand shouldn't contain any extra colouring or artificial flavouring spices. According to **Sharma *et al.* (2017),** Shrikhand's PFA requirements are as follows: a minimum of 58.0 percent total solids, 8.5 percent milk fat, 9.0 percent milk protein, 1.4 percent titrable acidity (as lactic acid), 72.5% sugar, and 0.9 percent total ash.

1.2 DRAGON FRUIT

A popular tropical shrub that produces edible fruits is the Pitaya (Hylocereus spp.), which is also known locally as dragon fruit. Dragon fruit is widely grown in tropical countries like Malaysia, Thailand, Vietnam, and others. It belongs to the Cactaceae family. There are three types of pitaya found worldwide: the yellow-leathed white-fleshed pitaya (Selenicereus megalathus), the red-leathed white-fleshed pitaya (Hylocereus undatus), and the red-leathed pitaya (Hylocereus polyrhizus). The fruit of the tropical dragon contains rich reddish-purple flesh (H. polyrhizus) or white flesh (H. undatus), with tiny black seeds scattered throughout the peel. **(Ho and Latif, 2016).**

1.3 SAPOTA FRUIT

Sapota (Achras sapota L.) is considered a fruit with high energy content and nutritional value. It contains a higher percentage of vitamin C. It is rich in carbohydrates and has a good amount of proteins and minerals, including calcium, phosphorus, and iron. Sapota pulp is used to make halawas and other sweets. The fruits have tonic qualities, strengthen muscles, lower blood pressure, reduce vomiting, and increase blood quality. Packed with antioxidants, sapotas can accelerate ageing while delaying the onset of degenerative diseases like cancer, arthritis, heart disease, and cognitive dysfunction.

1.4 ROSE PETAL POWDER:

Roses (Rosa indica) are the most important flower crop in tropical and subtropical regions of the world. The "king of flowers" is one of the most important commercial flower harvests. The rose belongs to the rosaceae family. Rose oil is made from crushed rose petals and then steam-distilled. Rose essence contains flavanoids, tannins, antioxidants, and vitamins A, B, C, D, and E, which makes it beneficial for skin care. According to **Sowmya *et al.* (2017)** and **Hanan *et al.* (2012),** baladi rose petals oil has a number of medicinal properties, including antidepressant, antiphlogistic, antispasmodic, antiviral, aphrodisiac, astringent, choleretic,

cicatrisant, depurative, hepatic, laxative,a calming agent for the central nervous system, a stimulant for the stomach as well as a strengthening effect on the heart, liver, stomach and uterus **(Sowmya *et al.* 2017 and Hanan *et al.* 2012).**

2.MATERIAL AND METHODS

2.1 Raw Material:

All raw materials are collected in the local Prayagraj market. Drinking water is used to prepare for the product. The materials used are guaranteed to be contamination-free.

2.2 TREATMENT COMBINATIONS

The following processing combination was used to prepare shrikhand from a mixture of buffalo milk and pitahaya pulp, sapota pulp and rose petal powder.

Treatment	Chakka (%)	Dragon Fruit Pulp (%)	Sapota Fruit Pulp (%)
T_0	100	-	-
T_1	90	5	5
T_2	85	10	5
T_3	80	15	5
T_4	75	20	5
T_5	85	5	10
T_6	80	10	10
T_7	75	15	10
T_8	70	20	10
T_9	80	5	15
T_{10}	75	10	15
T_{11}	70	15	15
T_{12}	65	20	15
T_{13}	75	5	20
T_{14}	70	10	20
T_{15}	65	15	20
T_{16}	60	20	20

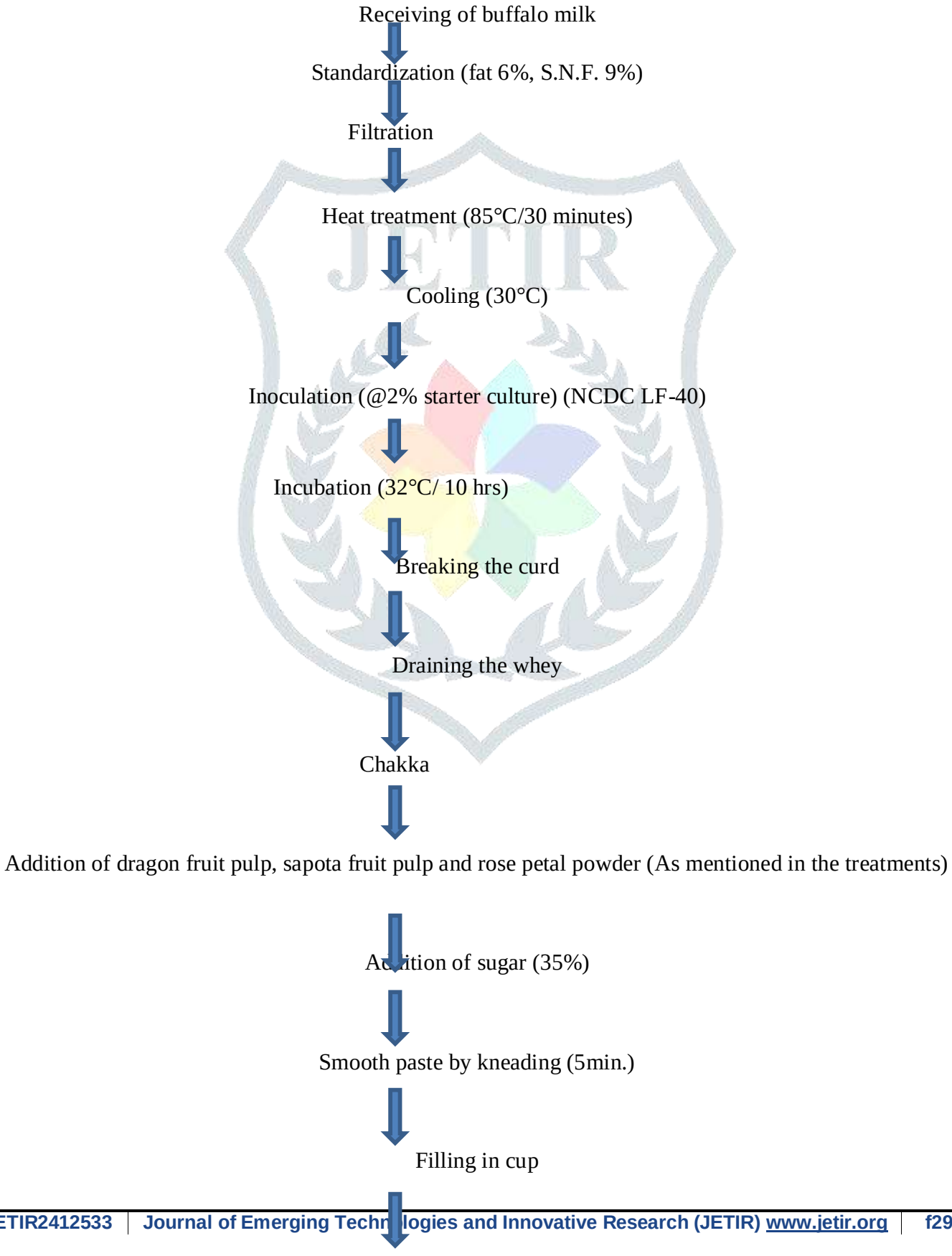
(*All treatments were mixed with Rose petal powder 2% and Sugar 35% at a constant rate.)

A. Number of Treatments: 16

B. Number of Replication: 5

C. Number of Trials: 80

2.3 Flow diagram of process preparation of Shrikhand



Shrikhand

↓

Storage (5-7ºC)

David, (2015)

2.4 Organoleptic evaluation of the developed Shrikhand.

Shrikhand samples were served to the panelists and they evaluated the product for color and appearance, flavor, consistency and the overall acceptability of the product on the basis of a 9 -point hedonic scale ranging from 1 (does not like extremely) to 9 (like extremely).

2.5 Statistical analysis

The experiments were conducted in triplicate and the data were analysed by MS Excel 2010.

3 Results and discussion

Effect of variation of dragon fruit pulp, sapota pulp and rose powder on sensory attributes of Shrikhand

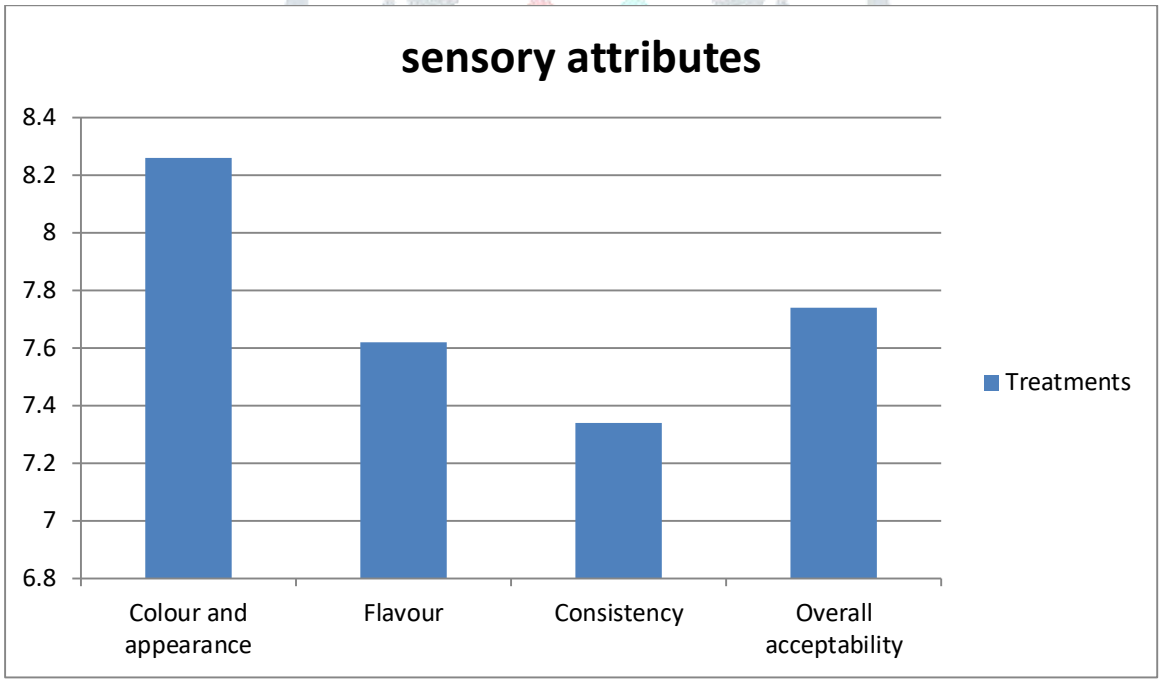


Fig 1

In this study, it was found that the colour and appearance of the shrikhand was perceived to be significantly different ($p<0.05$) from that of the control sample (fig 1). It was also noticed that shrikhand with higher content of dragon fruit pulp and sapota fruit pulp had a stronger appeal than those with considerably lesser amounts. Also, the sensory score of the treatments significantly varied ($p<0.05$) from the control sample. . The following sensory attributes, namely taste, colour, texture, appearance and overall acceptability were assessed on the cereal bar samples. A 9-point hedonic scale with 1= extremely dislike, 5 = moderately liked and 9 =

like extremely was used **A.Stone *et al.*, *(*1993).** Study for sensory evaluation reported that taste triumphs over health in case of products made for the target population. The taste is a more powerful determinant than health-promoting factors for product selection. The better the flavor, the more likely it is for the product to gain the acceptability of Population. It was observed in the study that treatments T16 had sensory scores of flavor at 7.62, color and appearance at 8.26, consistency at 7.34 and the overall acceptability at 7.74.

All samples received mean scores ranging from 'moderately liked' to 'extremely liked.' No treatments were categorized as dislike or neutral. Treatment T9 recorded the highest overall acceptability score of 9.0, which showed a significant difference ($p<0.05$) from the control sample.

Conclusion

Based on the findings of the conducted study, it can be concluded that Chakka, Dragon Fruit Pulp, and Sapota Fruit Pulp are suitable for making shrikhand. The sensory acceptability results indicated that T16 received the highest scores for color and appearance, flavor, consistency, and overall acceptability.

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