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Effect of Sappanwood Extract and Saffron on Physico Chemical, Microbial and Organoleptic Properties of Shrikhand

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Introduction

The importance of milk and milk products in India has recognized since Vedic times and variety of ways in which milk is used for preparation of indigenous products. Milk is recognized as nature's perfect food on realizing its nutritive value (Barlowska et al., 2011). Indian milk sweet has played a significant role in the economic, social, religious and nutritional well being of our people. India rank first in world in milk production which is 187.7 million tons by 2018-2019(Anonymous, 2019).It estimated that about 50-55% of milk isconverted into traditional dairy products such as heat and acid coagulation, heatdesiccation, fermentation etc.

Fermented milk products, besides their nutritive values, it has been reported for the therapeutic properties (Khetra *et al.*, 2011). A scientific studies on this line carried out at Nebraska University in USA proved the consumption of yoghurt has define inhibitory action against certain types of cancer cells (Gandhi and Jain, 1977).

In recent market studies showed that the purchasing behaviour drastically shifted to natural preservatives added products instead of synthetic additives.There is more interest in searching new natural preservatives such as plant products. Its natural antimicrobial properties notably have emphasis for a possible application in food production inorder to prevent microbial growth. The dairy industry can use them effectively in products to replace synthetic preservatives. These products are becoming famous in market as they have nutritional attributes as well as health benefits viz., anticholesteromic,antihypersensitive, anticarcinogenic, antimutagenic and immunomodulating (Dharmananda, 2005).

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Therefore, in the present investigation, efforts have been made to check the scope for the addition of natural colour and flavour viz., saffron and sappan wood with the following objectives.

1. To standardise the technology of manufacture of *shrikhand* with natural colour and flavour.
2. To evaluate the sensory attributes of naturally coloured and flavoured *shrikhand*.
3. To evaluate chemical and microbial quality of *shrikhand*.
4. To check the antioxidant activity of sappan wood in *shrikhand*.

Methodology

The range of addition of sugar and sappan wood was fixed by conducting pretrails in traditional method of shrikhand production. According to the results obtained sensory evaluation the ranges were fed to the RSM design experts. Proximate and microbiological analyses were carried out for both control and newly developed product as per the procedures prescribed by FSSAI. The sensory analysis was done by using 9 Point Hedonic scale and antioxidant activity checked by DPPH method.

Results and Discussions

The natural colour and flavour added shrikhand with 54.246% sugar and 15.67% sappan wood was scored high sensory score. The product found most acceptable with pleasant flavour, smooth texture and glossy surface appearance without any free wheying off.

Sensory Analysis

The sensory attributes such as colour and appearance, Flavour, Body and Texture, Sweetness and over all acceptability were considered. The colour and appearance scores maxof 6-8.5.The flavour score ranged from5.5-8.6.The body and texture scoresincreases from 5.5 to 8.2. Maximum scores achieved in medium level of sugar and sappan wood extract. The sweetness maximum scores 6-8. The overall acceptability scores ranges from 6 to 8.6. The sensory score at 80% is too low and high at 60- 65% of sugar level and level of sappan wood 14- 16%.

Chemical Analysis

The optimized product subjected to the proximate analysis and the composition of the product is given in below in the table:

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Constituents	Value of shrikhand enriched with saffron and sappanwood	Value of control shrikhand
Moisture	49.6	48.2
Protein	2.396	2.390
Fat	3	3
Ash	0.61	0.56
Sucrose	42.75	42.72
pH	3.7	3.6
Titratable acidity	0.62	0.13

It has been found that all values except titratable acidity comply with the control product. The titratable acidity is bit higher side but the sensory analysis shows that the sourness is masked by the sappan wood extract and natural saffron.

Antioxidant Activity

The optimised product subjected to DPPH method for checking whether the sappan wood extract impart any antioxidant activity. The values obtained showed that a slight increase in antioxidant activity.

Shrikhand blended with sappan wood and saffron	0.137
Control shrikhand	0.100

Microbiological evaluation

Shrikhand blended with saffron and sappan wood was subjected to yeast and mould analysis and staphylococcus. Both were absent in value added shrikhand.

Conclusion

The study concluded that addition of 15.67 per cent sappanwood extract and 54.246 per cent sugar with standard saffron could be recommended for preparation of Shrikhand. The proximate analysis and microbial analysis comply with the fssai standards. The sappan wood extract gave natural yellowish colour to the product as well as significantly added the anti microbial activity to the product.

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References

BIS-XI. 1981. Handbook of food analysis XI Dairy Product. SP-18 Bureau of Indian Standards, New Delhi.

Boghra, V.R. and Mathur, O. N. 2000. Physico-Chemical status of major constituents and minerals at various stages of Shrikhand preparation. *J. Food Sci. Tech.* 37(***2***) : 111- 115.

Desai, H.K. Vyas, S.H. and Upadhyay. K.G. 1984 Influence of homogenization of milk on the quality of chakka and Shrikhand. *Indian J. Dairy Sci.* 38(***2***) : 102.

Ganguli S. Boman J.J. Dastur, N.N. and Vaccho, S.M. 1959. The Chemical composition of Chakka preparation. *Indian J. Dairy Sci.* **12**:121.

Ganguli, N.P. 1978. Chemistry of cow and buffalo milk *NDRI publication* No. 143.

Gupta, S.K. 1976. Sensory evaluation in Food Industry. *Indian Dairyman*. **28** : 293-295.

IS : 5403, 1969. Method for yeast and mould count of food stuff. Indian Standard Institute, New Delhi.

IS : 9532, 1980. Specifications for Chakka and Shrikhand. Indian Standards Institute, Manak Bhavan, New Delhi.