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Effect of Sugar Levels on the Quality of Shrikhand

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Abstract

Shrikhand is a fermented indigenous milk product obtained by the removal of whey from curd and mixed with the sugar. Buffalo milk standardized at 4.5 per cent fat and 9.0 per cent SNF was used to prepare chakka which was adjusted with four sugar levels viz., 40%, 50%, 60% and 70% on its weight. The data were statistically analyzed by using CRD and tested the results at 5% level of significance. The yield of Shrikhand was significantly increased as sugar levels raised. The increasing sugar levels significantly decreased fat, protein, lactose, ash and titratable acidity. However, total solids content of shrikhand was increased at higher sugar levels. The Sensory score of the product was the highest at 50 percent sugar level. Since sensory quality of this product at 40% and 50% sugar levels was statistically similar. So both these sugar levels are being recommended for Shrikhand preparation.

Key words: *SNF, total solids, chakka, sensory quality*

Introduction

Shrikhand is an Indian Quarge belonging to the family of fermented dairy product, and mostly popular to Maharashtra, Gujrat, Karnataka and some parts of south India. The name shrikhand is probably derived from the Sanskrit word, "Shrikharini" meaning a curd preparation with addition of sugar, flavouring materials and dry fruits.

It is a semi soft, sweetish sour, whole milk product prepared from lactic acid fermented curd. The curd is partially strained through a cloth to remove the whey and thus produce a solid mass called Chakka. This chakka is mixed with the required amount of sugar, flavour, colour etc. to produce shrikhand. It is palatable, digestible and good nursing food having protein, fat and calorific value. It has refreshing taste, pleasing aroma, smooth homogenous texture and firm consistency.

The quality of each and every sweetened product is influenced greatly by the level of sugar used in it. Hence, the present study has been planned with the main objective to know the best level of sugar for shrikhand making.

Materials and methods

Buffalo milk standardized at 4.5% fat and 9.0 % SNF was used for the purpose. The product was prepared by the procedure suggested by Aneja et. al., (2002). Four sugar levels viz. 40%, 50%, 60% and 70% were used on Chakka basis by weight. The samples prepared were stored at refrigeration temperature overnight. The product was then subjected for sensory evaluation using 100 point scale by a panel of judges. The chemical analysis of samples was done in terms of total solids, fat, protein, lactose, ash and titratable acidity, according to methods described in SP:18 (1981). The yield of shrikhand samples was also reported. Investigation was replicated thrice. The data thus obtained were subjected for statistical analysis and tested at 5% level of significance.

Results and discussion

The yield of shrikhand was calculated on milk basis. The amount of sugar added significantly affected the yield of shrikhand. The yield of shrikhand was the lowest (52.65%) at 40% sugar level whereas it was the highest (63.94%) at 70% sugar level. The higher yield was only due to use of greater amount of sugar added. Sharma and Kumar (2002) reported slightly higher yield in buffalo milk shrikhand at 40 % and 50% sugar levels.

Table Effect of sugar levels on yield (%), sensory score and constituents (%) of shrikhand

S. No.	Sugar Levels	Sensory score	Yield	Fat	Protein	Lactose	Ash	Acidity	T.S
1.	40	94.24	52.65	6.77	6.55	2.99	1.08	1.07	47.02
2.	50	97.72	56.42	6.33	6.10	2.79	1.00	1.00	50.55
3.	60	77.92	60.19	5.93	5.72	2.62	0.95	0.94	53.64
4.	70	68.47	63.94	5.57	5.39	2.46	0.88	0.87	56.37
5.	All	83.34	58.30	6.15	5.94	2.71	0.98	0.97	51.90
F value	--	22.20*	18.21*	22.89*	24.13*	22.14*	14.43*	0.97*	23.27*
CD(5%)	--	8.54	5.16	0.35	0.33	0.15	0.07	0.06	2.72

*** Significant at 5 % level**

The sensory quality of shrikhand was significantly affected by the sugar levels. The overall acceptability score was increased up to 50 percent sugar level although 40% sugar level was statistically at par with 50 % with respect to overall sensory quality of product It was 97.72 at 50 % and 68.47 and 70% sugar level. It was recommended that 41 percent sugar for production of shrikhand at the industial scale is acceptable[1].

Sugar level had a significant effect on the fat content of shrikhand. The highest fat content (6.77%) in shrikhand prepared by adding 40 percent sugar whereas the lowest fat content (5.57%) with 70 percent sugar level. So, it is evident that fat content in the product decreased with the increase in sugar level. The lower fat content at higher sugar level was due to the increased concentration of sugar. The average protein content in shrikhand was 6.55, and 5.39 percent at 40 and 70 percent sugar levels, respectively. So, it was also significantly decreased with the increase in sugar level in the product.

The lactose as well as ash content in shrikhand samples decreased significantly with the increase in sugar level. The highest lactose and ash content (2.99 and 1.08 percent) was observed in samples prepared with 40 percent sugar level whereas the lowest (2.46 and 0.88 percent) at 70 percent sugar. The acid content of shrikhand was also significantly affected in the similar way. The highest acid content (1.07 percent) was reported in the samples prepared with

40 percent sugar and the lowest (0.87 %) at 70 percent sugar level.

The total solids content in shrikhand significantly increased with the increase in sugar level. The highest total solids (56.37%) was observed in the samples prepared with 70 percent sugar whereas the lowest (47.02%) in the samples contained 40 percent sugar. Slightly higher total solids at the corresponding level of sugar, in the same product was reported earlier also[2].

Conclusion

The yield of shrikhand was significantly increased with the sugar levels. On the other hand, the values for total solids, fat, protein, lactose, ash and titratable acidity were reduced with the increase in the sugar levels of shrikhand. The sensory score of shrikhand was improved up to 50 percent sugar followed by a significant decrease in it at the higher sugar levels. Since the sensory quality of product at 40% and 50% sugar levels was statistically similar and better than others, so both these sugar levels are being recommended for shrikhand making considering the preference of consumers of locality.

References

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