

Effect on Acceptability and Cost of Burfi Prepared From Cow Milk Blended with Skim Milk Powder

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ABSTRACT: The present investigation was carried out in the Department of Animal Husbandry and Dairy Science, Dr PDKV Akola (Maharashtra) during the year 2020-21. With a view to utilize skim milk powder in burfi preparation, burfi was prepared with different combinations of cow milk and skim milk powder as 100:00, 80:20, 70:30, 60:40 and 50:50 in treatment T₁, T₂, T₃, T₄ and T₅. The samples of fresh burfi were subjected to sensory evaluation by panel of judges. Low fat cow milk burfi was prepared from cow milk blended with skim milk powder as 80% cow milk and 20% skim milk powder (T₂) scored highest for overall acceptability (8.62) during sensory evaluation. The cost of production of acceptable burfi (T₂) i.e. 80% cow milk blended with 20 % skim milk powder was Rs 269.45 per kg.

Keyword: Skim milk powder, burfi, cow milk, overall acceptability, economics.

INTRODUCTION

India ranks first in global milk production with milk production of 187.7 MT (NCAER, 2019), at growth rate of 6.62 per cent per year. The per capita availability of milk in India during 2019 was 394 g/day and by 2023-24, it is estimated to increase to 592 g/day (NDDB, 2019). Out of the total milk produced in India, about 46.00 per cent is consumed as liquid milk and 54.00 per cent is utilized for conversion into different products (Aneja *et al.*, 2002). Traditional dairy products and sweets have great social, religious, cultural, medicinal and economic importance have been developed over a long period with the culinary skills of homemakers and halwais. There is scope for expanding and improving the indigenous confections by introducing a variety of products by adopting improved methods and technology considering the demand of indigenous milk products in market, burfi is one of the major indigenous milk products (Shete *et al.*, 2012). It has special importance in various social celebrations and traditional occasions. Burfi is mostly served on the ceremonial occasions as puja, wedding, inaugural functions etc. Good quality burfi is characterized by moderately sweet taste, soft and slightly greasy body and smooth texture with very fine grains. Skim milk powder and cow milk contain low level of fat and useful for preparation of low fat burfi. Skim milk powder and cow milk contains 1.2-1.5% and 3 to 4% fat. The changing lifestyle and present day's cardiovascular diseases have become major health problems. It's the need of hour to create the low-fat

food and dairy products (Praveen, 2018). The addition of SMP for fortification purposes appears to be by far the most common practice in yogurt industry (Damin *et al.*, 2009; Peng *et al.*, 2009). At present rates of milk products are at very high level and not easily affordable to the medium economy peoples. Majority of consumers are health conscious considering same the present investigation was undertaken to reduce the cost and fat content of burfi by using skim milk powder in burfi to produce low fat burfi with main objectives to find out its overall acceptability and calculate cost of production.

MATERIAL AND METHODS

The present investigation was conducted in the Department of Animal Husbandry and Dairy Science, Dr. PDKV, Akola during 2020-21. The treatment details as T₁ – Burfi prepared from 100 % cow milk (control), T₂ – Burfi prepared from 80 % cow milk + 20 % skim milk powder, T₃ – Burfi prepared from 70 % cow milk + 30 % skim milk powder, T₄ – Burfi prepared from 60 % cow milk + 40 % skim milk powder and T₅ – Burfi prepared from 50 % cow milk + 50 % skim milk powder. Ranganadhan *et al.*, (2016) Stated the procedure for burfi preparation as Skim milk powder mixed with cow milk and was boiled continuously with constant stirring and scraping so as to avoid burning of solids on the surface of kettle. When a semisolid consistency is attained, heating is discontinued. Cane sugar was added at the rate 30% on the basis of khoa and blended thoroughly. The heating continued with greater control here after and the speed of stirring-cum-

scrapping increased till the viscous mass reaches a semi-solid/pasty consistency. The final product ready when it showed signs of leaving the bottom and the sides of the kettle. The process line was followed with certain modifications for burfi preparation as prescribed by De, (2008). Good quality branded skim milk powder was purchased from local market and used for the experimental purpose as per treatment. Uniform quality and brand was maintained for all replications. The calculated amount of skim milk powder added according to treatments.

The quality of burfi sample was evaluated by offering the panel of judges with the help of by 9 point hedonic scale prescribed by Gupta, (1976) and data generated with statistical process and results was obtained. The cost of production of per kg burfi under various treatments was calculated by considering the prevailing retail market price for various materials i.e. milk, skim milk powder, sugar, fuel, labour charges and electricity charges.

RESULT AND DISCUSSION

Sensory Evaluation of Burfi:

Table 1: Sensory quality of low fat cow milk burfi blended with skim milk powder.

Treatments	Parameters			
	Flavour	Body and Texture	Colour and appearance	Overall acceptability
T ₁	7.72	7.20	7.55	7.20
T ₂	8.42	8.42	8.75	8.62
T ₃	8.00	7.85	7.77	7.77
T ₄	6.95	6.80	7.25	6.90
T ₅	6.32	5.90	6.80	6.17
S.E. (m) ±	0.215	0.187	0.236	0.125
C.D. at 5%	0.660	0.581	0.716	0.388

Flavour: The study conducted pertaining the effect of different levels of skim milk powder on the sensory quality of burfi found that, as the levels of skim milk powder increased the score for flavour increase in the burfi up to certain limit and thereafter, it decreased. Burfi prepared by using 20 per cent of skim milk powder (T₂) recorded highest score (8.42 out of 9) whereas lowest score (6.32 out of 9) obtained for the burfi prepared by 50 percent of skim milk powder. It was clearly indicated that treatment (T₂) i.e. 20 per cent skim milk powder was superior among all the treatments, which showed mild pleasant flavour. The results are agreement with Suryawanshi *et al.*, (2015) reported that as increases the level of skim milk powder, the flavour also increases up to certain limit and thereafter, found decreased score of peda prepared from skim milk powder blended with cow milk. Kumar *et al.*, (2016) reported that the addition of 10 per cent pineapple pulp in burfi preparation was found to be best in terms of flavour. Vijaykumar *et al.*, (2020) reported that, the level of skim milk and whey protein powder increases, resulted better flavour of khoa up to certain limit and thereafter it decreased the score in low fat khoa preparation.

Body and texture: Table 1 showed mean score for body and texture of burfi ranged from 5.90 to 8.42. The treatment T₂ scored significantly highest followed by T₁, T₃, T₄ and T₅. Similarly, the score for body and texture of burfi increased up to certain limit and thereafter, it was decreased. Burfi prepared by 20 per cent skim milk powder (T₂) scored the highest (8.42 out of 9) while the lowest score (5.90 out of 9) recorded for the burfi prepared with 50 per cent of skim milk powder. Kumar *et al.*, (2016) reported that the addition of 10 per cent pineapple pulp in burfi preparation was found to be best in terms of taste and acceptability. Vijaykumar *et al.*, (2020) revealed that, the level of skim milk and whey protein powder increases, the better body and texture was increases of khoa up to certain limit and thereafter it decreased in score in low fat khoa.

Colour and appearance: The study was undertaken to evaluate the effect of different levels of skim milk powder on colour and appearance of burfi and found that, as the levels of skim milk powder increased, simultaneously increases in the colour and appearance score of burfi up to some extent and thereafter, it was decreased. Burfi prepared using with 20 per cent skim milk powder (T₂) recorded highest score (8.75 out of 9) wherever lowest score (6.80 out of 9) obtained for the burfi prepared with 50 per cent of skim milk powder. The results are in agreement with Suryawanshi *et al.*, (2015) observed that as the level of skim milk powder increased the colour and appearance score of peda increases up to certain limit and thereafter decreased score. Vijaykumar *et al.*, (2020) observed that, the level of skim milk and whey protein powder increases, resulted better colour and appearance of khoa increases up to certain limit and thereafter it decreased in score in low fat khoa.

Overall acceptability: The score for overall acceptability of burfi obtained highest score (8.62 out of 9) that was evaluated by panel of judges for 20 per cent of skim milk powder (T₂), while the lowest score (6.17 out of 9) was rated to burfi prepared with 50 per cent of skim milk powder (T₅) level. This indicated that, on the basis of sensory evaluation the quality of burfi gained highest score for treatment (T₂) which included 20 per cent skim milk powder compared to rest of treatments. The results are in agreement with Suryawanshi *et al.*, (2015) observed that as the level of skim milk powder increased the overall acceptability of peda increases up to certain limit and thereafter it was decreased score 18.91 to 15.00. Kumar *et al.*, (2016) reported that the addition of 10 per cent pineapple pulp in burfi preparation was found to be best in terms overall acceptability. Vijaykumar *et al.*, (2020) observed that, the level of skim milk and whey protein powder increases, resulted better overall acceptability of khoa increases up to certain limit and thereafter it was decreased in score in low fat khoa. Patel, (2011) reported that, SMP-fortified yogurts fresh buttermilk

powder was used up to 50% as a replacement in yogurt produced an acceptable soft and smooth textured yogurt.

Cost of production: Results obtained during the present study, the cost of production of (T₁) Rs. 295, (T₂) Rs. 269.45, (T₃) Rs.263.00, (T₄) Rs.257.20 and (T₅) Rs.253.10. It was concluded that good quality burfi could be prepared from cow milk blended with 20 per cent of skim milk powder with cost of production of Rs.

269.45. The cost of burfi decreased from T₁ by 8.66 per cent in T₂. The present results are agreement with the results of Suchita, (2017) reported that, increased in the level of bottle gourd pulp in burfi preparation was decreases the cost of production. Patil, (2017) reported that, the cost of wood apple burfi per kg was decreased proportionately with increases the level of wood apple pulp in burfi preparation.

Table 2: Cost of production for 1 kg burfi.

Sr. No.	Particulars	Treatments				
		T ₁	T ₂	T ₃	T ₄	T ₅
1.	Quantity of cow milk used in lit.	1.0	0.800	0.700	0.600	0.500
2.	Cost of milk required as per treatment cost of milk (Rs. 40/lit.)	40	32	28	24	20
3.	Skim milk powder used (gm)	0	0.200	0.300	0.400	0.500
4.	Cost of Skim milk powder (Rs. 300/kg)	0	60	90	120	150
5.	Khoa obtained per treatment (kg)	0.170	0.330	0.410	0.495	0.580
5.	Sugar required as per treatment (gm)	72	140	175	212	250
6.	Cost of sugar (Rs. 40/kg)	2.90	5.60	7.00	8.48	10.00
7.	Other production cost (labour, fuel, electricity)	25	25	25	25	25
8.	Total quantity of burfi obtained (gm)	230	455	570	690	810
9.	Cost of burfi (Rs)	67.90	122.60	150.0	177.48	205.0
10.	Cost of burfi (Rs/kg)	295	269.45	263.00	257.20	253.10

CONCLUSION

Sensory quality of burfi in respect of flavour, colour and appearance, body and texture and overall acceptability showed that, 20 per cent level of skim milk powder in the manufacture of burfi was acceptable. The cost of burfi was decreased with the increased in the level of skim milk powder. The cost of most acceptable burfi prepared with 20 per cent skim milk powder was Rs. 269.45 per kg.

FUTURE SCOPE

Such type of research studies will help to prepare low fat milk products because the customers are aware about health conscious. Also, to utilize the milk protein through skim milk powder.

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Conflict of Interest. To produce value added, good quality low fat milk product.

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