



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(1): 2040-2042
© 2023 TPI

www.thepharmajournal.com

Received: 28-10-2022

Accepted: 30-11-2022

SP Hoshing

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

SR Shegokar

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

RR Shelke

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

SS Kahandal

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

SD Chavan

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

PA Kahate

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

Corresponding Author:

SP Hoshing

Department of Animal
Husbandry & Dairy Science, Dr.
P.D.K.V., Akola, Maharashtra,
India

Studies on sensory qualities of Burfi prepared from cow milk Khoa and beetroot (*Beta vulgaris*) pulp

SP Hoshing, SR Shegokar, RR Shelke, SS Kahandal, SD Chavan and PA Kahate

Abstract

Present investigation Burfi was prepared with different combinations of cow milk khoa and beetroot pulp as 100:00 (T₁), 97:03 (T₂), 94:06 (T₃), 91:09 (T₄) and 88:12 (T₅) and the samples were subjected to sensory evaluation. These ingredient of Burfi i.e. khoa was prepared from cow milk and another hand beetroot pulp was prepared. The beetroot pulp was mixed with khoa at dough stage. Then at proportion cane sugar was added @ 30% and mixed properly. Final product was evaluated with 9 point hedonic scale by panel of judges for sensory evaluation. The results revealed that overall acceptability scores obtained were 7.30, 7.60, 7.80, 8.40 and 7.00 for the treatment (T₁), (T₂), (T₃), (T₄) and (T₅) respectively. The Burfi prepared from various combinations up to 91 percent cow milk khoa and 09 percent beetroot pulp was found overall acceptable.

Keywords: Cow milk khoa, Burfi, Beetroot pulp, Sensory evaluation

Introduction

Burfi is one of the most popular khoa based sweet, prepared from cow or buffalo milk. Burfi is prepared by heating the mixture of khoa and sugar to a near homogenous consistency followed by cooling and cutting it into small cuboids (Chetana *et al.* 2010)^[4]. Burfi sold commercially varies widely in colour, body, texture, sweetness and flavour characteristics (Sarkar *et al.* 2002)^[12]. Burfi has been flavoured as one of the most popular khoa based sweet *all over* India. Now-a-day local producers are using orange, mango, coconut, potato, etc. in preparation of Burfi (Kamble *et al.* 2010)^[6]. Beetroot (*Beta vulgaris*) consists of vitamin A, thiamine, riboflavin, niacin, vitamin C, folate, vitamin B₆ and pantothenic acid are also present in small amounts. It also constituents traces of beta carotene. Beet is known for being rich nutrients and low in calorie, having a calorific value of 43.0 per 100 gm. (Kapadia *et al.*,1996)^[7]. The hypothesis for present investigation is to fulfils the daily nutritional needs, milk, khoa and beetroot is suitable combination therefore the present study is proposed to used maximum possible amount of beetroot pulp in the preparation cow milk Burfi and evaluate its sensory quality for acceptance.

Material and Methods

Fresh, clean, cow milk was procured from Livestock Instructional Farm Department of Animal Husbandry and Dairy Science, Dr. PDKV, Akola. Milk was standardized at 4 per cent fat and 9 per cent SNF. Clean crystalline cane sugar was purchased from local market was used as sweetening agent @ 30% for the preparation of beetroot pulp Burfi. Fresh succulent and good quality beetroot was purchased from local market of Akola and used for the preparation of beetroot pulp Burfi. Burfi was prepared with slight modification in the procedure given by Aneja *et al.* (2002)^[11]. Burfi was prepared with different combinations of cow milk khoa and beetroot pulp as 100:00 (T₁), 97:03 (T₂), 94:06 (T₃), 91:09 (T₄) and 88:12 (T₅) with 04 replications and the samples were subjected to sensory evaluation. Sensory evaluation was performed by 9 point numeric score card as prescribed by Pal and Gupta (1985)^[10]. The data was tabulated and analyzed by employing Completely Randomized Design (CRD) using seven treatments with four replications as prescribed by Sheoran *et al.* (1998)^[13].

Results and Discussion

Sensory evaluation of beetroot pulp Burfi

The fresh sample product was subjected to sensory evaluation by well trained panel of 5 judges. The same judges evaluated the samples of each trial throughout the experiment to avoid the possibility of variation. The evaluation was performed for the parameters such as flavour, body and texture, colour and appearance, test and overall acceptability of Burfi by using "9 Point Hedonic Scale." The data pertaining to various attributes of sensory score in respect of different levels of beetroot pulp used in Burfi is presented in table 1

Table 1: Effect of different level of beetroot pulp on various attributes of sensory evaluation of Burfi (Max. score 9)

Treatments	Mean values of scores obtained for four replications ($p < 0.05$)			
	Colour and Appearance	Flavour	Body and texture	Overall acceptability
T ₁	7.20	7.05	7.02	7.30
T ₂	7.40	7.10	7.40	7.60
T ₃	7.60	7.50	7.60	7.80
T ₄	8.75	8.25	8.65	8.40
T ₅	6.90	7.30	7.05	7.00
'F' test	Sig	Sig	Sig	Sig
S.E(m) +/-	0.092	0.084	0.074	0.113
CD at 5%	0.279	0.254	0.225	0.340

Colour and appearance: It was observed from table 1 that, the score for colour and appearance for different treatments was 7.20(T₁), 7.40(T₂), 7.60(T₃), 8.75(T₄), and 6.90(T₅) respectively. The colour and appearance of Burfi was observed significant differences due to addition of beetroot pulp in different level. The highest score (8.75 out of 9) was obtained for Burfi prepared with addition of 09 per cent of beetroot pulp with 91 per cent khoa (T₄) as compared to other treatments. The finding results are in agreement with Chaudhari (2015) [3] observed that, as the level of carrot pulp increases, the colour and appearance of Burfi increases up to certain limit and thereafter it decreased score (18.55 to 15.18). Dhande *et al.* (2014) [5] observed that as the level of ash gourd pulp increases, resulted better colour and appearance of Burfi up to certain limit and there after it decreased. Awasare *et al.* (2020) [2] observed that as the level of Custard apple pulp increases (T₃), resulted better colour and appearance of Burfi. Kogde *et al.* (2020) [8] observed that as the level of Guava pulp increases resulted better colour and appearance of Burfi up to certain limit and there after it decreased.

Flavour

It is revealed from table 1 indicated that, the mean score for flavour was 7.05, 7.10, 7.50, 8.25 and 7.30 of Burfi in treatment (T₁), (T₂), (T₃), (T₄), and (T₅) respectively. Treatment (T₄) was found significantly highest score (8.25 out of 9) for Burfi prepared with 09 parts of beetroot pulp. The mild pleasant flavour was realized in the Burfi prepared with addition of 09 parts of beetroot pulp. Hence, result indicated that the Burfi prepared with 09 parts (8.25) of beetroot pulp was superior over 03, 06 and 12 parts levels. It showed that increased in level of beetroot pulp, increases the flavour score of Burfi up to certain limit (T₄) and thereafter it was decreased. These results are in line with Kamble *et al.* (2010) [6] who reported that, as increased in the level of pine-apple pulp, the flavour of Burfi also increases up to certain limit and thereafter decreased score. Kolwate (2019) [9] studied on use

of different level of shredded pumpkin in Burfi, Awasare *et al.* (2020) [2] studied on the level of custard apple pulp in Burfi and Kogde *et al.* (2020) [8] used different levels of guava pulp in Burfi and all reported that the score for flavour is increases up to certain limit and thereafter it decreased.

Body and texture: The table 1 indicated that, the mean score for body and texture was 7.02, 7.40, 7.60, 8.65 and 7.05 of Burfi prepared with different level beetroot pulp (T₁), (T₂), (T₃), (T₄) and (T₅), respectively. The score from body and texture score of Burfi in treatments (T₄) (8.65) was superior over rest of the treatment which had soft body and smooth grained texture of Burfi. The present results are in agreement with Chaudhari (2015) [3] reported that, as the level of carrot pulp increased, the score (33.24) for body and texture of Burfi also increases up to treatment of 15% carrot pulp. Dhande (2014) [5] reported that, as the level of ash gourd pulp increased, score of Burfi was highest (32) for body and texture of Burfi also increases up to (T₄, i.e. 20% ash gourd pulp) and later on decreased.

Overall acceptability: It is revealed from table 1 that, the overall acceptability of Burfi was significantly varies due to addition of beetroot pulp. Significantly highest score (8.40 out of 9) was recorded in Burfi prepared with 09 parts of beetroot pulp (T₄) as compared to other treatments. The treatment (T₄) was obtained peculiar flavour, smooth body and compact texture and good colour and appearance was observed by panel of judges. The results of the present study are in agreement with Chaudhari (2015) [3] reported that, as the level of carrot pulp increases, resulted better Overall acceptability of Burfi up to certain limit and thereafter reducing trend in like even after greater quantity of beetroot pulp in addition with Burfi score (95.26 to 84.29). Similarly, Tanuja *et al.* (2017) [14] evaluated the sensory and nutritional properties of Burfi prepared by incorporation of apple pomace in increasing level increased the overall acceptability of Burfi. Ramateke *et al.* (2018) [11] observed that as the level of potato flour increases (T₄), resulted better overall acceptability of Burfi up to certain limit and thereafter it decreased sensory quality.

Conclusions

The sensory quality of Burfi in respect of flavour, colour and appearance, body and texture with overall acceptability showed that, 9 per cent level of beetroot pulp in the manufacture of Burfi was acceptable by panel of judge.

References

1. Aneja RM, Mathur BN, Chandan RC, Banerjee AK. Desiccated milk based products In Technology of Indian Milk Products. A Dairy India publ. 2002, 122-125.
2. Awasare GB. Studies on utilization of custard apple (*Annona squamosq*) pulp in preparation of Burfi. (unpub) M.Sc. (Agri.) thesis submitted to Dr. P.D.K.V., Akola, 2020.
3. Chaudhari. Studies on preparation of Burfi blended with carrot pulp (M.Sc. Agri). Thesis (unpub.) submitted to Dr. P.D.K.V., Akola (M. S) India; c2015.
4. Chetana R, Ravi R, Yella Reddy S. Effect of processing variables on quality of milk burfi prepared with and without sugar. Journal of Food Science Technology. 2010;47(1):114-118.
5. Dhande SP. Burfi prepared from cow milk khoa blended

- with ash gourd (*Benincasa hispida*) pulp. M.Sc. (Agri.) thesis (pub.) submitted to Dr. P.D.K.V. Akola, 2014.
6. Kamble Kapila, Kahate PA, Chavan SD, Thakare VM. Effect of Pine-apple Pulp on Sensory and Chemical Properties of Burfi. *Vet. World.* 2010;3(7):329-331.
 7. Kapadia GJ, Tokuda H, Konoshima T, Bishomo H. chemoprevention of lung and skin cancer by (*Beta vulgaris*) beetroot extract. M.Sc. (Agri) thesis submitted to VNMKV, Parbhani, 1996.
 8. Kogde MR. Studies on utilization of Guava (*Psidium guajava*) pulp in preparation of Burfi. (unpub) M.Sc. (Agri.) thesis submitted to Dr. P.D.K.V., Akola, 2020.
 9. Kolwate R. Studies on utilization on utilization of shredded pumpkin (*Cucurbita pepo*) pulp in preparation of Burfi. M.Sc. (Agri.) thesis submitted to Dr. P.D.K.V., Akola, 2019.
 10. Pal GV, Gupta MS. Sensory evaluation of Burfi using 100 point hedonic scale, *Indian Dairyman.* 1985;45(8):422.
 11. Ramteke VM, Atkare VG, Khupse SM. Studies on Preparation, Sensory Evaluation and Cost Configuration of Potato (*Solanum tuberosum*) Flour Burfi. *Int. J Curr. Microbiol. App. Sci.* 2018;7(08):1610-1615.
 12. Sarkar K, Ray PR, Ghatak PK. Effect of sodium and potash meta bisulphites on the shelf life of cow milk Burfi. *Indian J Dairy Sci.* 2002;55:79-82.
 13. Sheoran OP, Tonk DS, Kaushik LS, Hasija RC, Pannu RS. Statistical Software package. CCS HAU, Hisar-139143, 1998.
 14. Tanuja V Pathak, Goswami M. Development and quality evaluation of apple pomace incorporated Burfi. *Indian J Dairy Sci.* 2017;70(2).