RESEARCH PAPER

Research Journal of Animal Husbandry and Dairy Science
Volume 5 | Issue 1 | June, 2014 | 14-16 | e ISSN-2231-6442 | Open Access - *www.researchjournal.co.in*

Sensory quality of *Basundi* prepared by using cardamom and saffron

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ABSTRACT : *Basundi* is very popular traditional sweet in Maharashtra and some neighbouring countries and is a rich source of energy and protein. The *Basundi* is prepared from buffalo or cow milk. Efforts have been made to enhance the quality of *Basundi* prepared by using cardamom and saffron. Use of 0.4 per cent cardamom level (C_2) was selected for further study, which was organoleptically most acceptable in respect to all sensory attributes. Moreover, the levels of saffron, 0.015 per cent level (S_2) most acceptable in respect to sensory attributes such as flavour, body and texture, colour and appearance and overall acceptability, respectively. In conclusion the incorporation of saffron and cardamom improved the sensory quality of *Basundi*.

KEY WORDS : Cardamom, Saffron, *Basundi*

HOW TO CITE THIS PAPER : Chougule, V.M., Pawar, B.K. and Choudhari, D.M. (2014). Sensory quality of *Basundi* prepared by using cardamom and saffron. *Res. J. Animal Hus. & Dairy Sci.,* **5**(1) : 14-16.

INTRODUCTION

Basundi is one of the heat desiccated indigenous products popular in Western part of India, mostly Maharashtra and Gujarat. It can be classified in the condensed milk group along with *rabri, khoa, mithai* and *kheer* and can be considered similar to sweetened condensed whole milk (Raghvan, 1960). *Basundi* has special importance in various festivals and celebration. Mostly, it is prepared by people at home than buying it from market and hence, the quality is maintained. It is an important indigenous desiccated whole milk product prepared by partial dehydration of the milk with sugar. The dehydration of milk is done in a karahi on direct fire. The original volume of milk is reduced to about 40 to 50 per cent. In Maharashtra, *Basundi* is mostly served-on ceremonial occasions such as feasts and festivals. The market value of product depends upon a relative thick creamy consistency, white to light brown colour, sweetish caramel aroma and soft textured flakes uniformly distributed throughout the product mass (Aneja *et al.,* 2002). Different types of dry fruits like almond, charoli, pistachio, cashew nut are added in the *Basundi* at the time of preparation as food additives. The present investigation, efforts have been made to improve the sensory quality of *Basundi* using saffron and cardamom.

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MATERIAL AND METHODS

Trials were conducted to determine the role of addition of sugar to prepared *Basundi*. As per the available literatures, initially 3 levels of sugar were used for judging sensorily *i.e.* 5, 6 and 7 per cent. On the basis of sensory records, it was decided that 5 per cent sugar added to *Basundi* during the experiment.

Addition of saffron and cardamom:

Following 4 treatments of cardamom and saffron were used for judging sensorily *i.e.* 0 (C_0, Control), 0.2 (C_1), 0.4 (C_2) and 0.6 (C_3) per cent for cardamom and 0 (S_0, Control) 0.01 (S_1), 0.015 (S_2) and 0.02 (S_3) per cent for saffron was finalized for experiment.

Preparation of *Basundi*:

Basundi was prepared by the procedure described by

Gaikwad and Hembade (2010) with slight modification. Receiving of milk → heating of milk while stirring cum scrapping → addition of cane sugar (5%) → addition of saffron and cardamom (as per finally decided levels) → occasionally stirring cum scrapping → concentration → cooling → *Basundi.*

Sensory evaluation:

The fresh sample of *Basundi* were subjected to sensory evaluation by panel of 6 judges for sensory attributes like colour and appearance, body and texture and flavour and taste using 9 points Hedonic scales as per the procedure described in IS : 6273 (Part-II), 1971. Completely Randomized Block Design were used with five replications.

RESULTS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Sensory quality of cardamom added *basundi:*

Flavour:

The results from Table 1 showed that, the level of cardamom significantly affected the flavour score of *Basundi*, which ranged from 7.2 to 8.4. All sample scored well above 7. It was observed that up to 0.4 per cent level of cardamom (C_2), the mean flavour score was increased and later on it was decreased in treatment C_3. This might be due to higher concentration of cardamom flavour, which was disliked by the judges. Treatment C_2 secured highest flavour score (8.4) as compared to other treatments. Narwade (2003) also noticed that, 0.5 per cent level of cardamom was suitable for good quality of pedha and Gaikwad and Hembade (2011) selected 0.1 per cent level of cardamom for their research.

Body and texture:

Body and texture of the product is an important sensory attribute next to the flavour while examing organoleptic quality of most of the products. The values pertaining to body and texture score of *Basundi* as affected by cardamom have been presented in Table 1 the results indicated that, the average score for body and textural characteristics of *Basundi* samples ranged between 7.0 to 8.4 which showed that, level of cardamom affect body and texture of *Basundi*. Treatments C_2 secured highest flavour score (8.4) and the C_3 sample with high concentration of cardamom (0.6 %) scored very low 7 points as rest of other treatments.

Colour and appearance of Basundi:

The mean score for colour and appearance ranged between 7.4 to 8.6. The C_2 sample (0.4 %) was superior (score 8.6) among all the treatments. In case of this the presence of small brown to black coloured particles at optimum level was liked by judges than other.The treatments C_0, C_1 and C_3 were at par and their mean score were 7.4, 7.8 and 7.6. Gaikwad and Hembade (2011) were observed similar result in case of Ujani *Basundi* treated with cardamom.

Overall acceptability:

The results from Table 1 showed that, level of cardamom significantly affected the overall acceptability score of *Basundi*, which ranged from 7.4 to 8.8. It was observed that,

Table 1: Effect of various levels of cardamom on the sensory quality of *Basundi*

Treatments	Sensory score			
	Flavour	Body and texture	Colour and appearance	Overall acceptability
C_0	7.6ab	7.8b	7.4a	7.4[a]
C_1	7.6ab	7.4ab	7.8ab	7.8ab
C_2	8.4c	8.4c	8.6c	8.8c
C_3	7.2[a]	7.0a	7.6ab	7.6ab
S.E.±	0.23	0.19	0.23	0.22
C.D. (P=0.05)	0.70	0.59	0.70	0.67

Table 2: Effect of various levels of saffron on the sensory quality of *Basundi*

Treatments	Sensory score			
	Flavour	Body and texture	Colour and appearance	Overall acceptability
S_0	7.2a	7.61	7.4a	7.4a
S_1	7.6ab	7.8ab	7.8ab	7.8ab
S_2	8.6c	8.8c	8.6c	8.8c
S_3	7.6ab	7.8ab	7.8ab	7.8ab
S.E.±	0.23	0.21	0.22	0.21
C.D. (P=0.05)	0.70	0.63	0.67	0.63

the sample (C_2) with 0.4 per cent cardamom level was accepted mostly and secured highest score (8.8) among all. Narwade (2003) found same results.

Sensory quality of saffron added *basundi:*

Flavour:

From the data presented in Table 2, it is observed that, the level of saffron significantly affected the flavour score of *Basundi*. The mean score ranged from 7.2 to 8.6. Highest flavour score was observed in Treatments S_2 (8.6) as compared over rest of the treatments. Result indicated that, the flavour score increased as level of saffron increased up to 0.015 per cent (S_2) and there after declined. This might be due to strong and intense flavour of saffron, which was disliked by judges. Similar results were reported by Sachdeva and Rajhoria (1982) in case of 0.015 per cent level of saffron in burfi. Aqueous extracts of saffron at the rate of 0.005, 0.01, 0.015 and 0.02 per cent by weight of burfi were added during its last stages of manufacture. Though 0.02 per cent saffron showed the best results, but on the basis of sensory evaluation a mild dose of 0.015 per cent of saffron by weight of burfi observed satisfactory. Also similar observation was noticed by Sen and Rajhoria (1996) in case of different levels of saffron with chhana in the manufacture of sandesh. Ahire (2007) also found similar results in his studies.

Body and texture:

The data in the Table 2 showed that, the average mean score for body and texture characteristics of *Basundi* samples ranged from 7.6 to 8.8 which showed significant effect of different levels of saffron on body and textural characteristics of *Basundi*. The treatments S_2 (8.8) secured the highest score among the all treatments. Sen and Rajorhia (1994) reported that, 0.015 per cent level of saffron showed good results in case of body and texture of sandesh. Sachdeva and Rajorhia (1982) also reported that, 0.015 per cent level of saffron gives good results regarding bodyand texture score of burfi.

Colour and appearance:

The mean score of colour and appearance of saffron treated *Basundi* samples ranged between 7.4 to 8.6. The treatments S_2 showed highest score 8.8 followed by S_1, S_3 and S_0 having average score 7.8, 7.8 and 7.4, respectively. The colour and appearance improved up to S_2 level and later on decreased. This might be due to strong and intense colour of saffron above S_2 level, which was disliked by judges. Similar results were noted by Sen and Rajorhia (1994). They observed that, the saffron at 0.015 per cent level gave more attractive colour and appearance to the sandesh and similar type of observations were noticed by Sachdeva and Rajorhia (1982) in case of technology and shelf-life of burfi (Therefore, 0.015 per cent level of saffron (S_2) was selected for further studies).

Overall acceptability:

From the Table 2 it is observed that, the mean score of overall acceptability of saffron treated *Basundi* sample ranged between 7.4 to 8.8. The treatments S_2 (0.015 %) showed highest score 8.8. Hence, the treatments S_2 overall accepted than other treatments. Similar results observed by Sen and Rajorhia (1994) in case of sandesh. Ahire (2007) also found same results in case of pedha samples.

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Received : *20.01.2014;* ***Revised:*** *10.05.2014;* ***Accepted :*** *22.05.2014*