

## **Effect of Markets on Chemical quality of Plane burfi marketed in Agra City**

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### **Abstract**

*A study was conducted during the session 2012-13 at dept. of A.H & Dairying, R.B.S. College, Bichpuri, Agra to investigate the effect of markets on chemical quality of plane burfi marketed in Agra city. The four markets (Bodla, Khandari, Sikandara and Delhigate) were tested. Findings revealed that chemical quality of the products varied from market to market. The Acidity ( $0.32 \pm 0.04\%$ ), Fat ( $11.50 \pm 1.2\%$ ), Protein ( $12.30 \pm 0.90\%$ ), Lactase ( $14.10 \pm 0.90\%$ ) and Ash ( $2.70 \pm 0.40\%$ ) content were found lowest in Bodla market, whereas highest acidity ( $0.37 \pm 0.03\%$ ), Fat ( $15.20 \pm 1.10\%$ ), Protein ( $14.00 \pm 0.70\%$ ), Lactase ( $15.00 \pm 0.80\%$ ) and Ash ( $3.00 \pm 0.10\%$ ) were found in Delhi gate market samples. The control sample of Burfi contain Acidity ( $0.30 \pm 0.01\%$ ), Fat ( $18.20 \pm 2.40\%$ ), Protein ( $16.20 \pm 1.20\%$ ), Lactase ( $16.10 \pm 0.90\%$ ) and Ash ( $2.60 \pm 0.70\%$ ). The fat, protein, lactase and ash content were decrease with the increase in sucrose level. All the sample of plane burfi purchased from different markets contain significantly lower quality as compare with control samples. The quality of plane burfi was significantly affected by different markets. It is also observed that good quality burfi can be prepared using good quality milk, taking care during its preparation and maintaining hygienic conditions during its sale.*

Key words - Markets, Chemical quality, plane Burfi

### **Introduction**

Milk contain fat, protein, carbohydrates, minerals, vitamins and water which are necessary for growth and maintenance of human body, have been used all over the world as an important item of diet and as the rearrest approach to a perfect and complete food and no other single food is known that can be used as a substitute of milk. For conserving its quality enhancing its market value and keeping quality, milk is usually converted into the milk products as dahi, butter, ghee, chhena, cheese, ice-cream, Rabri, Khoa and Khoa based sweets like burfi, peda, gulabjamun, kalakand, milk cake etc.

Burfi is a khoa based sweets and very popular in India. Several varieties of burfi are sold in market depending on additives present viz; plain or mava burfi, fruit and nut burfi, chocolate burfi, saffron burfi and rava burfi. Buffaloes milk is usually preferred over cows milk for burfi production, since former gives greater yield and more desirable body and texture. Good quality, burfi is however, characterized by moderately sweet taste, soft and slightly greasy body and smooth texture with fine grains. Colour of burfi should be white to slightly yellowish.

The chemical composition of burfi depends on quality and composition of milk, amount of sugar and other ingredients added and the extent of heating. The market samples varied widely in composition, the range being : moisture (30 to 31.4%), fat (4.10 to 27.0%), Sucrose (16.7 to 59.7%), Protein (1.40 to 20.5%), Lactose (5.60 to 21.06%) and ash (1.52 to 3.29%) (Rajoria, 1991).

The present study was carried out in the dept. of A.H & Dairying, R.B.S. College, Bichpuri, Agra during session 2012-13 to assess the chemical quality of plain burfi marketed in Agra city.

### **Materials and Methods**

The sample of plain burfi collected from Bodla, Khandari, Sikandra and Delhi gate markets of Agra city were collected in clean and sterilized wide mouthed glass stoppard previously labeled bottle in 100gm. quantity. After collection, the sample were brought to the laboratory, dept. of A.H. & Dairying, R.B.S. College, Bichpuri, Agra and subjected to analysis. For the preparation of control sample of burfi in the laboratory, the buffaloes milk was collected from near villages in clean and sterilized stainless steel containers contain about 6% fat and having 0.12 to 0.14 acidity. The sugar was added @ 30% into Khoa.

The chemical analysis of burfi samples was done in terms of Acidity, Fat, Protein, Lactose, Ash, Total

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solide, Moisture and sucrose by the methods cited by Srivastava (2010) and described in Hand book of Food analysis, part XIth, Dairy products, BIS New Delhi. Investigation was replicated forth times and the data thus obtained were subjected to statistical analysis and tested at 5% and 1% level of significance.

### Results and Discussion

The chemical quality of products varied from market to market. The reason was traced to the use of milk from various sources and practices experienced during its manufacture. The fat content of burfi collected from Bodla, Khandari, Sikandra and Delhi gate markets were  $11.50 \pm 1.20$ ,  $13.20 \pm 1.40$ ,  $13.00 \pm 1.30$  and  $15.20 \pm 1.10$  percent respectively.

It is evident from Table 1a and 1b that the acidity content in different market burfi viz. Bodla, Khandari, Sikandra and Delhi gate was found to be  $0.32 \pm 0.04$ ,  $0.34 \pm 0.02$ ,  $0.33 \pm 0.03$  and  $0.37 \pm 0.03$  percent, respectively. In case of control sample it was  $0.30 \pm 0.01$  percent. The difference in acidity percent was insignificant in all markets control sample.

The chemical quality of burfi of these markets in respect to fat, Protein, Lactose, Ash and T.S was also determined. It was found that the fat percentage of burfi in Bodla, Khandari, Sikandra and Delhi gate

markets was  $11.50 \pm 1.20$ ,  $13.20 \pm 1.40$ ,  $13.00 \pm 0.90$  and  $15.20 \pm 1.10$  percent, respectively. The control sample contain  $18.20 \pm 1.40$  percent fat. The statistical analysis revealed that fat content was significantly ( $p = 0.05\%$ ) lower in all markets burfi than control samples. It is also observed that Bodla market burfi contain lowest fat% whereas Delhi gate market burfi contain highest fat%. The protein, lactose and ash content was  $12.30 \pm 0.90$ ,  $14.10 \pm 0.60$  and  $2.70 \pm 0.40$  percent fat in Bodla market,  $13.10 \pm 0.90$ ,  $14.60 \pm 0.90$  and  $2.80 \pm 0.20$  in Khandari market,  $13.60 \pm 0.80$ ,  $14.60 \pm 1.00$  and  $2.60 \pm 0.30$  in Sikandra and  $14.00 \pm 0.70$ ,  $15.00 \pm 0.80$  and  $3.00 \pm 0.10$  percent in Delhi gate markets respectively. The control sample contain  $16.20 \pm 1.20$ ,  $16.10 \pm 0.90$  and  $2.60 \pm 0.70$  percent, protein, lactose and ash, respectively. The Bodla market sample of Burfi contain lowest protein, lactose and ash percent than other markets as well as control samples. The difference in these contents were significant at 5% level of significance. These results are similar with the findings of Garg and Mondokh et.al (1984) and S.M. Shole et.al (2012).

The total solids in over all markets samples was lower in Bodla markets and higher in Delhi gate market samples. Lower T.S. percent in all market samples

Table 1a: Chemical Composition of Plane Burfi marketed in Agra city

S. No.	Markets	Acidity			Fat			Protein			Lactose		
		Min	Max.	Av.	Min	Max.	Av.	Min	Max.	Av.	Min	Max.	Av.
1	Bodla	0.26	0.40	$0.32 \pm 0.04$	10.10	13.50	$11.50 \pm 1.20$	10.80	13.20	$12.30 \pm 0.90$	13.70	15.50	$14.10 \pm 0.60$
2	Khandari	0.28	0.40	$0.34 \pm 0.04$	11.60	16.20	$13.20 \pm 1.40$	11.00	14.10	$13.10 \pm 0.90$	13.40	16.20	$14.60 \pm 0.90$
3	Sikandara	0.26	0.40	$0.33 \pm 0.06$	10.60	14.60	$13.00 \pm 1.30$	12.70	15.00	$13.60 \pm 0.80$	13.80	15.70	$14.60 \pm 1.00$
4	Delhi gate	0.32	0.40	$0.37 \pm 0.03$	13.40	16.80	$13.20 \pm 1.10$	13.00	14.60	$14.00 \pm 0.70$	13.70	16.00	$15.00 \pm 0.80$
5	Control	0.28	0.32	$0.30 \pm 0.04$	17.20	19.10	$18.20 \pm 1.02$	15.40	16.60	$16.20 \pm 0.88$	15.60	17.70	$16.10 \pm 0.90$
Calculated F Value				$1.76^{NS}$			3.82			3.55			2.84
CD at 5%				0.11			0.62			0.21			0.21

Table 1b: Chemical Composition of Plane Burfi marketed in Agra city

S. No.	Markets	Ash			TS			Sucrose			Moisture		
		Min	Max.	Av.	Min	Max.	Av.	Min	Max.	Av.	Min	Max.	Av.
1	Bodla	2.10	3.20	$2.70 \pm 0.40$	72.70	87.60	$79.70 \pm 3.10$	36.60	42.20	$39.30 \pm 2.26$	12.40	27.3	20.30
2	Khandari	2.70	3.20	$2.80 \pm 0.20$	71.70	89.10	$80.30 \pm 2.30$	33.10	39.40	$36.60 \pm 2.60$	10.90	28.3	19.70
3	Sikandara	2.60	3.40	$2.60 \pm 0.30$	73.90	89.50	$80.90 \pm 2.60$	34.20	40.70	$37.10 \pm 2.50$	10.50	26.10	19.10
4	Delhi gate	2.80	3.10	$3.10 \pm 0.10$	75.50	89.30	$82.30 \pm 2.40$	32.90	38.80	$35.10 \pm 1.98$	10.70	24.50	17.70
5	Control	2.40	2.80	$2.60 \pm 0.09$	81.20	87.10	$83.60 \pm 1.60$	30.00	30.00	$30.00 \pm 0.20$	12.90	19.80	16.40
Calculated F Value				2.81			2.96			13.66			2.73
CD at 5%				0.02			0.64			0.64			0.28

were found as compared to control samples which prepared and analysed in the department laboratory significantly at 5% level of significance. It is due to the use of partially skimmed milk and less concentration of milk solids.

The sucrose content of burfi collected from Bodla, Khandari, Sikandara and Delhi gate market were found to be  $39.10 \pm 2.10$ ,  $36.00 \pm 2.60$ ,  $37.10 \pm 2.50$  and  $35.10 \pm 2.00$  percent, respectively. All market samples contain much higher sucrose content than control sample ( $30.00 \pm 0.34$  percent). Highest sucrose % was found in Bodla market sample whereas lowest in Delhi gate market. All these samples collected from different market differ significantly at  $p < 0.01$ .

It is evident that the samples of plane burfi collected from Delhi gate market was superior in all respect to other market sample. The samples of Khandari and Sikandara market was good as compared to that obtained from Bodla market. All the sample of burfi collected from different market contain lower quality as compared with control samples. Our

observations are fully related with the findings of Sharma and Gupta (1983). The effect of markets was also observed significantly.

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