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## Optimization of process and ingredients for the preparation of fig *burfi*

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### Abstract

Considering the demand of fig *burfi* and nutritional importance of fig, attempts have made to standardize value added *burfi* by addition of fig, which is available in local area. Addition of sugar and dry fig in chaffed rectangular at pat formation stage of *khoa* produced a better quality *burfi* from a sensory point of view. In the optimization of compositional variables, fig *burfi* samples were prepared by adopting optimized processing steps using three levels of fig viz. 3 (A<sub>1</sub>), 4 (A<sub>2</sub>), 5 (A<sub>3</sub>) per cent and two levels of sugar viz., 25 (B<sub>1</sub>), 30 (B<sub>2</sub>) per cent. Out of these six treatment combinations, the highest sensory score for overall acceptability was (score 8.10) obtained to the A<sub>2</sub>B<sub>2</sub> fig *burfi* (4% fig and 30% sugar). Moisture, fat, protein, reducing sugar, non-reducing sugar and total ash content ranged between 15.19-19.78, 19.20-21.20, 14.07-15.04, 19.34-21.24, 22.82-27.34 and 2.31-2.57 per cent, respectively, for the *burfi* samples from six treatment combinations. While, the free fat ranged between 68.24-71.41 per cent on total fat basis. The quality of *burfi* from the best combination of fig and sugar was further evaluated for suitable fat level in milk. The product made from buffalo milk containing 6 per cent fat significantly improved the body and texture and overall acceptability. The fig *burfi* thus developed had optimum sensory and chemical characteristics and was superior over market samples of fig *burfi*. Consumer as a whole liked the product 'very good' to 'excellent'.

**Keywords:** *Burfi*, fig, process selection, Physico-chemical properties, consumer study etc.

### Introduction

*Burfi* is one of the most popular *khoa* based sweets all over India (Patange *et al.*, 2018) [24]. *Burfi* is prepared by heating a mixture of concentrated milk solids (*Khoa*) and sugar to a near homogenous consistency followed by cooling and cutting into small cuboids. Beating and whipping operations prior to cooling are sometime practiced to obtain a product with smooth texture and closely-knit body (Chetana *et al.* 2010) [5]. It is prepared using *khoa*. Generally, *khoa*, a concentrated milk product prepared by evaporating milk to total solids of about 70% in a shallow pan vessel with little depth. Several varieties of *burfi* are being sold in the Indian market depending on additives, such as besan *burfi* (Sharma *et al.*, 1992) [32], Groundnut *burfi* (Khan *et al.*, 2008) [15], cashew nut *burfi* (Satyanarayanarao *et al.*, 1993) [31], coconut *burfi* (Gupta *et al.*, 2010) [9], moong dhal *burfi* (Sharma *et al.*, 2003) [33] and any fruit added *burfi*, the most common fruit added *burfi* includes ber (Pandey and Poonia, 2020) [23], papaya and sapota (Khedkar *et al.* 2007) [16] mango (Kadam *et al.*, 2009) [12], wood-apple (Sakte *et al.* 2004) [29] etc. These fruits enhance the acceptability of *burfi* to the masses as well as choosy classes.

The fig *burfi* is high valued variety of *burfi* and it is choice of the rich section of population. Figs are consumed fresh or dried, candied or canned. Fresh fig fruits are very delicious, wholesome, nutritious, and used as dessert or for making jam, jelly, milk shake, ice cream etc. (Kute *et al.*, 2000 and Dhumal *et al.*, 2003) [18, 7]. The proximate composition of dried fig is: protein 3.03 per cent, carbohydrates 58.02 per cent, calcium 174 mg/100g, iron 2.5 mg/100g, vitamin A 142.0 IU and vitamin C 3.6 mg/100g (Desai and Kotecha, 1995) [6]. Fig is a good source of calcium, iron and copper. It helps to maintain acid-alkaline balance of the body very effectively by neutralizing excess acid (Makeshwari and Bhuvaneshwari, 2019) [19]. The ripe fruits usually remain acceptable upto 2-3 days at ambient condition and consumption of fig as a table fruit is meager. Hence, it is used into value added products. It is a tradition amongst *halwais* to use fig in the manufacture of *burfi* for value addition. There are large variations in the practices followed for preparation and quality of the *burfi* and standard protocol is not available on the process for the preparation of fig *burfi* (Kamble *et al.*, 2015) [13]. Considering the demand for the fig *burfi* and nutritional importance of fig, the attempts have been made to optimize the process for preparation of value added fig *burfi*.

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## Material and Methods

### Materials

Good quality fig and cane sugar were procured from the local market whereas; buffalo milk was procured from Research Cum Development Project on Cattle, Mahatma Phule Krishi Vidyapeeth, Rahuri (MS) and standardized to 6 per cent fat. The fig was analyzed for reducing sugar and non-reducing sugar and the average values were 59.47 and 7.35 per cent, respectively.

### Methodology

Initially the plain *burfi* samples were prepared as per the method suggested by Aneja *et al.* (2002) [2] by receiving buffalo milk of 6.0% fat and 9.0% SNF added with 30% sugar of khoa. Further, the method for preparation of fig *burfi* developed by adopting the following steps and considering the practices followed by *halwais* as reported by Kamble *et al.* (2013).

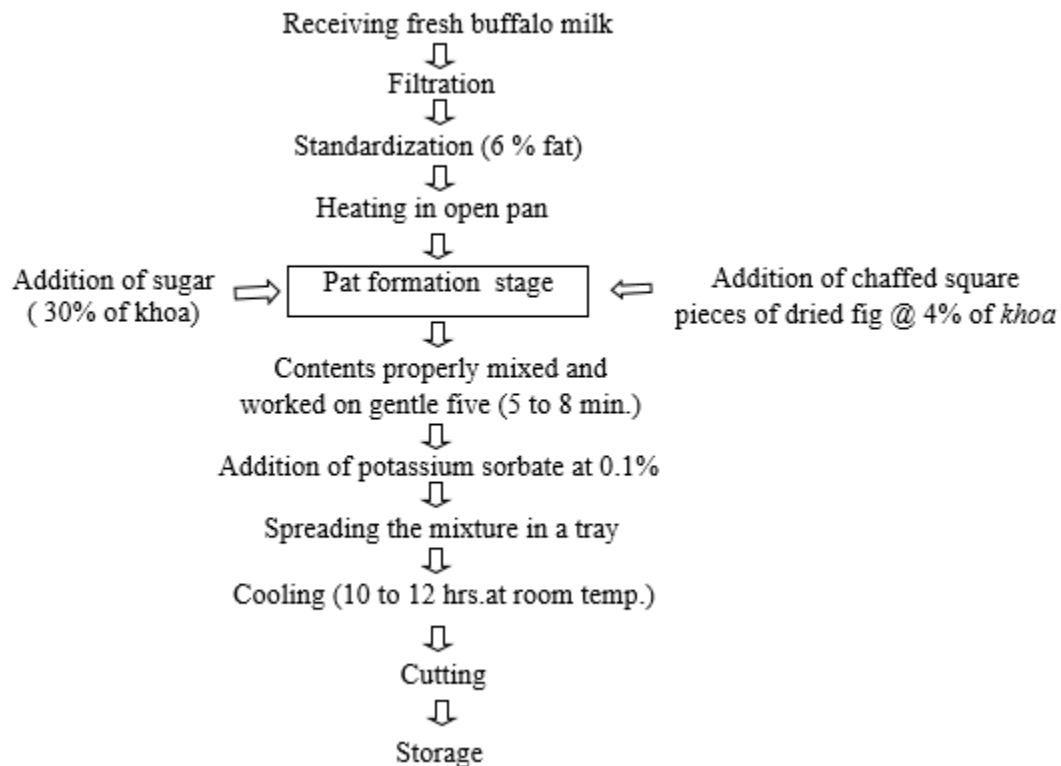
### Selection of type, form and stage of addition of fig

Fresh and dry type fig fruit of Dinkar variety was used in the *burfi* preparation, the fresh fruits ( $T_1$ ) were used in the form of

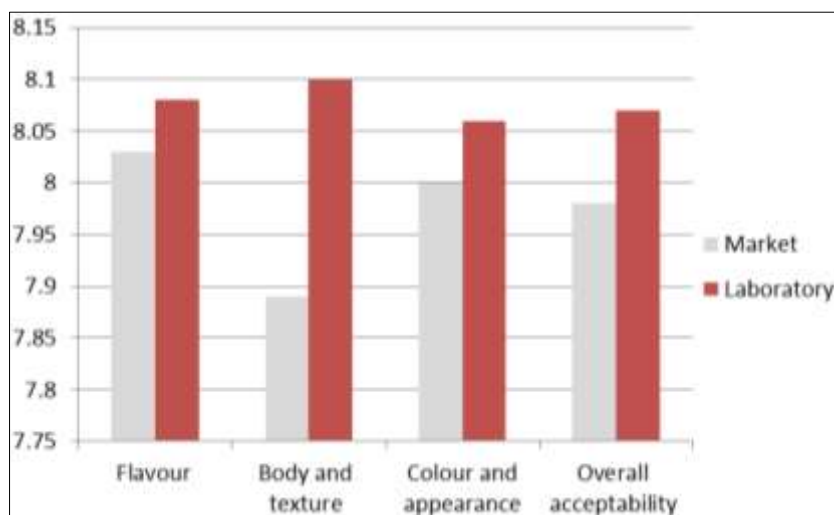
pulp and dry fruits ( $T_2$ ) in the form of fine pieces and added at pat formation stage of *khoa* making and one type of fig was selected. Further, the selected type of fig was added in chaffed and pulp form. Chaffed form was made by cutting fig in square pieces of 0.5 cm<sup>2</sup> size ( $F_1$ ) and strips of approximate size 1.50 x 0.5 cm<sup>2</sup> size ( $F_2$ ). Pulp was made by soaking of dry fig overnight period in water ( $F_3$ ) and milk ( $F_4$ ) separately at 1: 2 proportions, one of the forms of fig was selected on sensory basis of fig *burfi*. Further selected form of dry fig was added in milk at milk boiling ( $S_1$ ), rabri formation ( $S_2$ ) and pat formation stage of *khoa* making ( $S_3$ ) during preparation of *burfi* and one stage were optimized based on sensorial acceptance.

### Optimization of fig and sugar level

To optimize the level of fig (A) and sugar (B) in *burfi* preparation, the selected type and form of fig was added @ 3, 4 and 5 per cent, while sugar was added @ 25 and 30 per cent of the *khoa*. Thus in all six treatment combinations were  $A_1B_1$  (fig 3%, sugar 25%),  $A_1B_2$  (fig 3%, sugar 30%),  $A_2B_1$  (fig 4%, sugar 25%),  $A_2B_2$  (fig 4%, sugar 30%),  $A_3B_1$  (fig 5%, sugar 25%) and  $A_3B_2$  (fig 5%, sugar 30%).



**Fig:** Flow diagram for manufacture of fig *burfi*



**Fig 3:** Comparison of sensory quality of market and laboratory made fig burfi

### Analysis

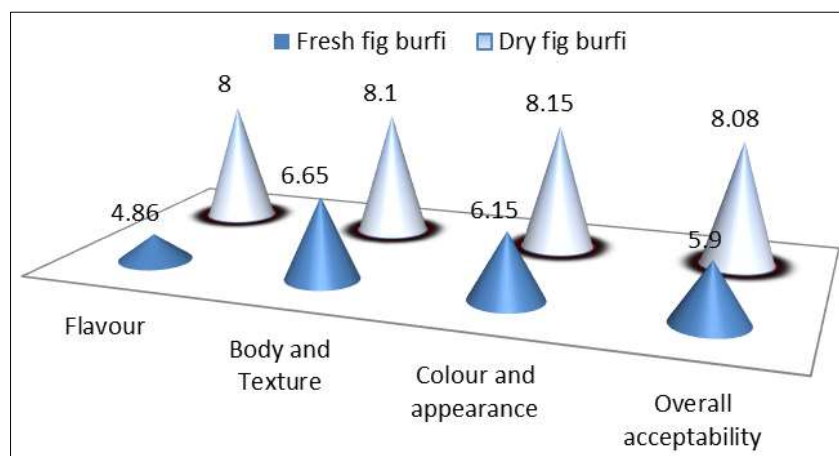
Sensory evaluation of fig burfi samples were carried out using 9-point Hedonic scale (Amerine *et al.*, 1965) [1] from the faculties of institute. Moisture, fat, protein, reducing sugar, ash and content of fig burfi were determined as per method of FSSAI (2015) [8]. Free fat content of the produced were determined by the method described in Hall and Hedric (1971) [10]. For analysis, the portion of burfi passed through a fine mesh of stainless still grittier and ground in a mortar and pestle. The ground product placed in a sample container with lid and used for chemical analysis.

**Statistical analysis:** Data obtained from various experiments was recorded as mean  $\pm$ SE and were statically analyzed using

one way analysis of variance followed by Tukey's comparison test to establish the significances of differences among the mean value at 5% level of significance ( $P < 0.05$ ) using SPSS on SYSTAT software.

### Consumer acceptance study

An attempt was made to assess acceptability of fig burfi by offering it to 200 consumers belonging to different classes in the society for seeking their opinion. To get the reliable result, fig burfi was prepared as per procedure given in fig 1. Then obtained burfi offered to consumers in the size of rectangular pieces with an average weight of 30 g and requested them to indicate their perceptions about the product on the pre designed proforma.



**Fig 1:** Effect of addition of type of fig on sensory qualities (score) of burfi

### Result and discussion

#### Selection of type of fig

From the figure 1, it is cleared that burfi prepared by addition of fig in dry form was highly acceptable and the mean sensory scores for it was  $8.00 \pm 0.03$ ,  $8.10 \pm 0.04$ ,  $8.15 \pm 0.03$  and  $8.08 \pm 0.02$  for flavour, body and texture, colour and appearance and overall acceptability respectively. The comments of the judges on the burfi made from fresh fig, was slightly bitter in taste, blackish in shade, weak body, uneven grainy texture, very low in flavour, non-appealing appearance. These attributes appeared might be due the fact that fresh figs contained biologically reactive components and latex, which may react with components of milk and added sugar in the

presence of heat. Hence, the addition of fig in dry form was used in further studies.

#### Optimization of form of addition of dry fig

Burfi containing dry chaffed fig in the form of rectangular pieces was highly acceptable ( $P < 0.05$ ) than paste form (Table 1), however, the overall acceptability scores between strip and rectangular pieces form of dry fig were at par each other. The recorded score for the burfi prepared from chaffed rectangular form of fig was  $8.10 \pm 0.03$ ,  $8.20 \pm 0.06$ ,  $8.12 \pm 0.03$  and  $8.16 \pm 0.02$  for flavour, body and texture, colour and appearance and overall acceptability, respectively. Addition of dry fig in form of paste resulted in a homogenous mixture of fig and

*khoa* which not providing the desired body and texture. Whereas, particularly mouth feel such as flakes and slight grittiness of fig seeds was experienced to the judges while eating fig *burfi* prepared by addition of dry chaffed fig in the

form of square pieces. Makeswari and Bhuvaneshwari (2019)<sup>[19]</sup> also tried dry fig in powder form in the preparation of *burfi*. Hence, further trials for *burfi* preparation were conducted by adding the dry chaffed fig in square form.

**Table 1:** Effect of addition of different forms of dry fig on sensory attributes (score)\* of *burfi*

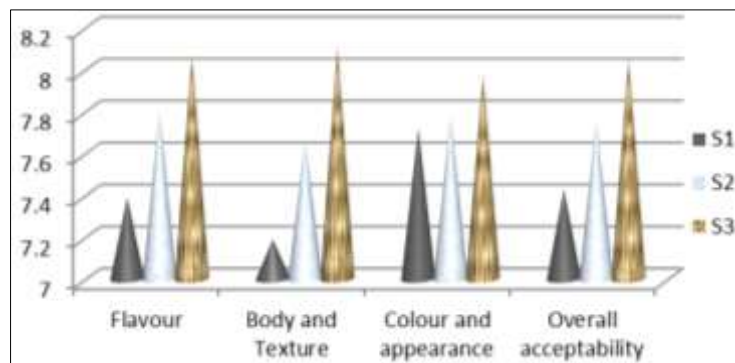
Forms of dry fig	Scores for sensory attributes			
	Flavour	Body and Texture	Colour and appearance	Overall acceptability
F <sub>1</sub>	8.10 ± 0.03 <sup>a</sup>	8.20 ± 0.06 <sup>a</sup>	8.12 ± 0.03	8.16 ± 0.02 <sup>a</sup>
F <sub>2</sub>	8.03 ± 0.04 <sup>a</sup>	7.86 ± 0.05 <sup>b</sup>	7.95 ± 0.03	7.95 ± 0.03 <sup>a</sup>
F <sub>3</sub>	7.47 ± 0.05 <sup>b</sup>	7.66 ± 0.03 <sup>b</sup>	7.97 ± 0.04	7.70 ± 0.02 <sup>b</sup>
F <sub>4</sub>	7.63 ± 0.03 <sup>b</sup>	7.28 ± 0.04 <sup>c</sup>	7.85 ± 0.03	7.59 ± 0.03 <sup>c</sup>
CD (P<0.05)	0.23	0.32	NS	0.14

\* Mean of three trials with different superscript within column indicate the values are differ significantly from each other.

### Optimization of stage of addition of dry fig

Addition of dry chaffed in square shaped fig at pat formation stage of *khoa* making was most acceptable and found significantly ( $p < 0.05$ ) superior in all sensory parameters over S<sub>1</sub> and S<sub>2</sub> stages of addition (Fig 2). The product (S<sub>1</sub>) recorded 8.08 ± 0.02, 8.12 ± 0.03, 7.98 ± 0.02 and 8.06 ± 0.01 score for flavour, body and texture, colour and appearance and overall acceptability, respectively. The results were in accordance

with the findings of Sakate *et al.*, (2004)<sup>[29]</sup> who reported that addition of fruit at pat formation stage was most acceptable in the preparation of wood apple *burfi*. Kotade (2001)<sup>[7]</sup> also reported that the addition of papaya and sapota pulp at pat formation stage enhanced the quality of fruit *burfi*. From the foregoing discussion, it is observed that the addition of dry chaffed fig at pat formation was most suitable and thus optimized for supplementary study.



**Fig 2:** Effect of stage of addition of dry fig on sensory qualities (score) of *burfi*

### Combined effect of fig and sugar level on sensory qualities of fig burfi

The combined effect of fig and sugar particularly on flavour score of the *burfi* was significantly ( $P < 0.05$ ) desirable when dry fig at 4 per cent and sugar at 30 per cent level were adjusted in the product. The level of 5 per cent fig in *burfi* was rated lowest flavour score and judges commented that the product had slightly unpleasant flavour whereas, use of 25 per cent of sugar level did not exert an expected effect and the product was not liked by the panelists. The development of a typical nutty flavour to the *burfi* is by means of presence of fat and release of flavoring components due to cooking of protein, their denaturation and subsequently release of amine. Also, the major flavour releasing component (ethyl acetate) of fig (Kadam and Salunkhe, 1995)<sup>[11]</sup> and sugar makes the product more acceptable.

The average scores for body and texture attribute of fig *burfi* prepared under treatment A<sub>1</sub>B<sub>2</sub> were lowest (score 7.58 ± 0.02) and highest in A<sub>2</sub>B<sub>1</sub> (8.20 ± 0.03). Thereafter, it was decreased with increase in sugar and fig level. It means that increasing the level of sugar and fig adversely affected the quality of *burfi* in terms of body and texture. The observed behavior of treatment could be explained in term that the judges liked the soft body of *burfi*. Body and texture was observed to be smooth and slightly sticky in *burfi* having 25 per cent sugar while, with 30 per cent sugar level *burfi* was cores. Reddy

(1985)<sup>[27]</sup> observed that addition of higher amount of sugar than 30 per cent resulted in slightly coarse texture probably due to decrease in fat and serum solid contents which cumulatively contribute to smooth texture in dairy products. The higher level of fig incorporation resulted in more chewiness, which was not appealing to the judges.

The colour and appearance of fig *burfi* is the combined effect of the inherent colour of fig and caramilization of sugar during the process of heating. The statistical effect between the levels of fig was significant on colour and appearance score. The data described in table 2 that, with increased or decreased level of fig the colour of finished product either became dark or dull brown that were not liked by the judges. Thus, both the extreme levels of fig were recorded less score. Similarly, the increased level of sugar resulted in dark brown colour to the *burfi*. Sakate *et al.*, (2004)<sup>[29]</sup> and Reddy *et al.*, (1983)<sup>[26]</sup>, noticed such trend with respect to addition of wood apple pulp and for sugar respectively in *burfi* preparation.

The average score for overall acceptability of the fig *burfi* varied from 7.30 ± 0.01 to 8.10 ± 0.02. The overall acceptability scores of all the samples were under the category "liked moderately to liked very much" on 9-point Hedonic scale. The effect of fig level on overall acceptability was significant ( $p < 0.05$ ). Sample A<sub>2</sub>B<sub>2</sub> had good blend of natural flavour of fig, sweetness of sugar and richness of milk solids. It had superior body, smooth texture, with limited

deleterious effect on colour and appearance, so it was judged as the best among all the treatments. The specific behavior of the treatment combinations with regard to this particular character could be understood with the fact that the overall acceptability is a sum of combination of colour and appearance, body and texture and flavour of the product. There seemed to have been a significant improvement in all the characters, which might have enhanced the judge's preference for overall acceptability of all the six treatment combinations of fig *burfi*. Moreover, it may be stressed that the treatment of A<sub>2</sub>B<sub>2</sub> appeared to match well to govern the sensory attributes to most desired optimum level. Any deviation from this particular combination produced a negative effect on the overall acceptability. Hence, it could be inferred that the addition of 4 per cent fig and 30 per cent sugar to *khoa* were most optimum to prepare the best quality of fig *burfi*.

Four per cent fig level found suitable in this study was at lower level as reported by Nikam (1996)<sup>[22]</sup> and Kadam *et al.* (2009)<sup>[12]</sup> at 20 and 15 per cent mango pulp based on *khoa* and milk for mango *burfi*, respectively. Similarly, Sakate *et al.*, (2004)<sup>[29]</sup> advocated 20 per cent wood apple pulp in *khoa* (w/w) for the preparation of wood apple *burfi*. The reviewed level was more than present study only because of difference between the form (dry or pulp basis) of fruit added in the *burfi*. Sugar level found in this study (30%) was same as recommended for plain *burfi* by Aneja *et al.*, (2002)<sup>[2]</sup>. The sugar level of 30 per cent (w/w) of *khoa* for preparation of *burfi* was also found most suitable by Bhatele and Balachandran (1983)<sup>[3]</sup>, however, it was lower than that reported by Nikam (1996)<sup>[22]</sup> and Khedkar *et al.*, (2007)<sup>[16]</sup> 40 and 45 per cent (w/w) sugar in *khoa* for preparation of fruit *burfi*, respectively.

**Table 2:** Combined effect of fig and sugar level on sensory quality \* of *burfi*

Sample Code	Scores for sensory attributes			
	Flavour	Body and Texture	Colour and appearance	Overall acceptability
A <sub>1</sub> B <sub>1</sub>	7.11 ±0.02	7.63 ±0.03	7.15 ±0.02	7.30 ±0.01
A <sub>1</sub> B <sub>2</sub>	7.35 ±0.02	7.58 ±0.02	7.36 ±0.02	7.43 ±0.02
A <sub>2</sub> B <sub>1</sub>	7.70 ±0.02	8.20 ±0.03	8.09 ±0.02	8.00 ±0.02
A <sub>2</sub> B <sub>2</sub>	8.09 ±0.07	8.10 ±0.01	8.12 ±0.01	8.10 ±0.02
A <sub>3</sub> B <sub>1</sub>	7.67 ±0.01	7.86 ±0.02	7.35 ±0.01	7.63 ±0.00
A <sub>3</sub> B <sub>2</sub>	7.48 ±0.02	7.69 ±0.02	6.98 ±0.04	7.38 ±0.03
CD ( <i>p</i> <0.05) Between fig level (A)	0.13	0.08	0.08	0.07
CD ( <i>p</i> <0.05) Between sugar level (B)	0.10	0.07	NS	NS
CD ( <i>p</i> <0.05) Interaction (AxB)	0.18	NS	0.11	0.09

\* Average of three trials

### Combined effect of fig and sugar level on chemical quality of fig *burfi*

#### Moisture

The values presented in Table 3 shown that the average moisture content of fig *burfi* varied from 15.19 ± 0.02 to 19.78 ± 0.05 per cent and it decreased significantly (*p*<0.05) with increase in fig and sugar. *Burfi* with 3 per cent fig and 25 per cent sugar level had maximum moisture while, *burfi* with 5 per cent fig and 30 per cent sugar had minimum moisture content. Narwade *et al.* (2007)<sup>[21]</sup> also reported that

increased level of sugar content resulted in decreased moisture content of *peda*. Findings of Sakate *et al.*, (2004)<sup>[29]</sup> were in the range of 15.59 to 19.70 per cent in wood apple *burfi*. Interestingly, Satyanarayanrao *et al.*, (1993)<sup>[31]</sup> recorded only 8.48 per cent moisture in cashewnut *burfi*, which is distinctly lower than the present finding. There was a wide range of moisture content (8.72 to 17.02%) in control and Aloe vera incorporated *burfi* was reported by Chaudhary *et al.* (2019)<sup>[4]</sup>.

**Table 3:** Combined effect of fig and sugar level on chemical quality \* of *burfi*

Sample Code	Chemical constituents (%)						
	Moisture	Fat	Protein	Reducing sugar	Non-reducing sugar	Total ash	Free fat (on total fat basis)
A <sub>1</sub> B <sub>1</sub>	19.78±0.05	21.20±0.08	14.35±0.02	19.51±0.04	22.82±0.12	2.34±0.02	71.41±0.06
A <sub>1</sub> B <sub>2</sub>	17.73±0.03	20.25±0.04	14.07±0.04	19.34±0.03	26.30±0.02	2.31±0.01	68.39±0.05
A <sub>2</sub> B <sub>1</sub>	18.58±0.03	21.00±0.03	14.88±0.03	20.11±0.06	22.99±0.04	2.44±0.01	71.32±0.08
A <sub>2</sub> B <sub>2</sub>	16.02±0.05	20.16±0.05	14.79±0.02	19.70±0.04	26.91±0.03	2.42±0.01	68.33±0.03
A <sub>3</sub> B <sub>1</sub>	17.18±0.03	20.89±0.04	15.04±0.04	21.24±0.04	23.08±0.04	2.57±0.01	71.26±0.06
A <sub>3</sub> B <sub>2</sub>	15.19±0.02	19.20±0.03	15.02±0.03	20.73±0.06	27.34±0.02	2.52±0.01	68.24±0.07
CD ( <i>p</i> <0.05) Between fig level (A)	0.12	0.18	0.11	0.17	0.08	0.04	NS
CD ( <i>p</i> <0.05) Between sugar level (B)	0.10	0.14	0.09	0.14	0.06	0.03	0.20
CD ( <i>p</i> <0.05) Interaction (AxB)	0.17	0.25	NS	NS	0.11	NS	NS

\* Average of three trials

#### Fat

The average fat content of fig *burfi* ranged from 19.20 ± 0.03 to 21.20 ± 0.08 per cent. The level of sugar had significantly (*p*<0.05) affected the fat percent of the *burfi*. The maximum fat content recorded in the *burfi* formulated with 3 per cent fig and 25 per cent sugar. Whereas, minimum noted in the *burfi* containing 5 per cent fig and 30 per cent sugar. These observations indicate that as sugar content increased, the fat

content in the final product were decreased. These finding are in accordance with the findings of Sakate *et al.*, (2004)<sup>[29]</sup>, Pandey, and Poonia (2020)<sup>[23]</sup> who reported fat in the range of present finding. However, Sharma *et al.*, (1992)<sup>[32]</sup> reported 26.28 per cent of fat in besan (*bengalgram* flour) *burfi*, which was considerably higher than present finding. On the other hand, Kathalkar (1995)<sup>[14]</sup> recorded slightly lower fat content (13.58 to 18.00%) in ber pulp *burfi*.

### Protein

The protein content in fig *burfi* is one of the important constituent, which exert direct as well as indirect influence on textural or rheological properties of *burfi*. It also contributes to provide valuable animal (casein, lactalbumin,  $\beta$ -lactoglobulin) and plant protein (Tyrosine, phenylalanine, lysine and cystin), hence it is important from nutritional point of view. The protein content (Table 3) was in the range of  $14.07 \pm 0.04$  to  $15.04 \pm 0.04$  per cent. Though the variation in the protein content was in narrow range but the effect of sugar was significant ( $p < 0.05$ ). However, the interaction effect of fig and sugar was not significant. Earlier Verma and De (1978) [34] have reported comparatively higher protein in chocsidu *burfi* with a range of 18.88 to 19.84 per cent, however, Satyanarayanrao *et al.*, (1993) [31] reported lower values of (8.70%) protein in cashewnut *burfi*.

### Sugar

The content of reducing sugar in the sample of fig *burfi* prepared under various treatment differed significantly ( $p < 0.05$ ) due to variable level of sugar. The reducing sugar content in fig *burfi* samples were inversely proportional to the level of sugar added. Statistically it was observed that the effect of fig had positive significant effect on increase in reducing sugar content of fig *burfi*. However, sugar also had significant effect on reducing sugar but in negative way, as a result, interaction effect was non-significant. The typical trend observed for reducing sugar content of various treatment combinations may be attributed to the fact that fig contains reducing sugar. Salem and Nour (1979) [30] narrated a sugar profile of dried fig and showed that it contains 34.30 per cent glucose and 31.20 per cent fructose. Pawar *et al.*, (1992) [25] reported that dried fig contain 40.52 to 42.58 per cent reducing sugar. These reports support the present trend of increase in reducing sugar content with increase in fig level. Non-reducing sugar content in the fig *burfi* samples ranged from  $22.82 \pm 0.12$  to  $27.34 \pm 0.02$  per cent. From the observed trend of non-reducing sugar, it is very clear that increase in sugar level resulted in increase in non-reducing sugar of fig *burfi*. The present findings are in accordance with the reports of Sakate *et al.*, (2004) [29].

### Total ash

Though *khoa* itself is the good source of ash in fig *burfi*, still it is worthwhile to mention that the ash content of the fig would have supplementary as well as complimentary nutritional benefits. The addition of fig could make the product with the better source of iron, calcium, magnesium, Vit-A and other vitamins could be positive attribute to the final product Sadhu (1985). Fig *burfi* could work very well to supply the minerals in proper proportion to the needy and nutritionally starvated children and adults as well. The recorded ash content in fig *burfi* is in accordance with the findings of fruit *burfi* developed by Sakate *et al.* (2004) [29], Matkar and Deshmukh (2007) [20] for wood apple *burfi* and fig *burfi*, respectively.

### Free fat

The content of free fat to a certain extent in *burfi* is desirable, because it imparts creamy/oily taste and prevents stickiness of the product. It is revealed that the average free fat content of fig *burfi* ranged from  $68.24 \pm 0.07$  to  $71.41 \pm 0.06$  per cent. These observations indicate that with an increase in fig and sugar content, the free fat content in the final product was decreased. The sugar had significant effect on the free fat of

*burfi*.

### Comparison of the laboratory fig *burfi* with market fig *burfi*

The fig *burfi* developed during the investigation was superior over the market fig (fig. 3) *burfi* in terms of flavour, body and texture, colour and appearance and overall acceptability. The received score indicated that *burfi* made in laboratory rated between liked very much to liked extremely and market fig *burfi* was between liked moderately to like very much when judged on 9-point Hedonic scale. Moisture content in the market sample (15.88%) fig *burfi* was comparatively lower than laboratory made sample (16.12%) may be because of improper storage condition. Interestingly market samples were higher in fat content (22.75%) over laboratory made samples (20.25%). The protein values of best market and laboratory made sample were 13.54 and 14.41 per cent, respectively. It was also observed that the reducing sugar of market sample was less than laboratory made sample. Pandey and Poonia, (2020) [23], also reported such type of variation in the market sample and laboratory made *burfi*.

### Consumer acceptance study

#### Profile of the consumer

In the present study, efforts were made to know the profile of consumers (N=200) in terms of their age, education, occupation and family income (Table 4).

**Table 4:** Profile of the consumer (N=200)

Profile	Particular	Frequency	Percentage
Age	a) Young (Up to 35 years)	92	46
	b) Middle (36 to 50 years)	82	41
	c) Old (Above 50 years)	26	13
Education	a) Illiterate	04	02
	b) Primary	17	8.5
	c) Secondary	42	21
	d) Higher Secondary	20	10
	e) Graduate	67	33.5
	f) Post graduate	50	25
Occupation	a) Agricultural labour	16	08
	b) Agriculture	78	39
	c) Student	30	15
	d) Service	76	38
Family Income	a) Up to Rs. 50,000/-	11	5.5
	b) Rs. 50,000/- to 1,00,000/-	32	16
	c) Rs. 1,00,000/- to 2,00,000/-	84	42
	d) Rs. 2,00,000/- and above	73	36.5

### Purchasing of fig *burfi*

The information collected for willingness of consumers to purchase fig *burfi* and presented in Table 5. From the table values, more than half of the consumers (54.00%) rarely purchase fig *burfi* and 25.50 per cent of the consumers purchase fig *burfi* monthly. Only 10.00 per cent of the consumers were purchasing fig *burfi* fortnightly and weekly and equal number never purchasing fig *burfi*.

**Table 5:** Distribution of consumers on the basis of frequency of purchasing fig *burfi* from market

Particular	No. of consumer	Percentage
Weekly	05	02.5
Fortnightly	15	07.5
Monthly	51	25.5
Rarely	108	54.0
Never	21	10.5

### Acceptance of fig burfi

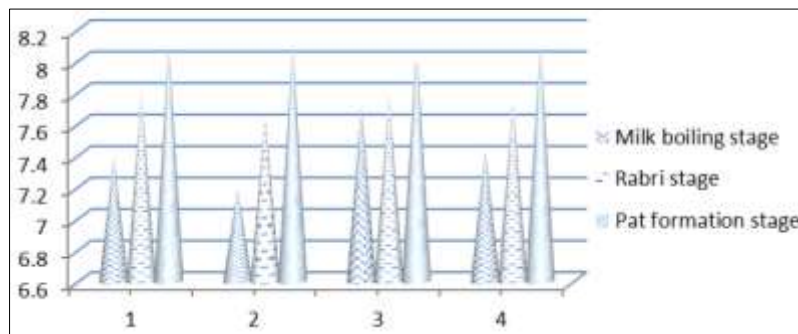
The frequency distribution of the consumer perception of the fig burfi is given in Table 6. Values found that 59.50 per cent of the consumers reported excellent quality of fig burfi and 26.00 per cent reported very good remark about quality of fig burfi. Further 8.50 and 6.00 per cent of the consumer expressed good and fair status of fig burfi, respectively.

In conclusion, the addition of chaffed dry fig in rectangular shape and sugar at pat formation stage of *khoa* found most superior suitable for preparation of fig burfi. Among different compositional variables tried, fig burfi prepared by 4 per cent of fig and 30 per cent of sugar was sensorial superior. In

addition to this, 6 per cent fat level standardized in buffalo milk found to be the most optimum for preparation of the same.

**Table 6:** Distribution of consumers on the basis of acceptance of fig burfi

Preference	Score	No. of respondent	Percentage
Excellent	04	119	59.5
Very good	03	52	26.0
Good	02	17	08.5
Fair	01	12	06.0



**Fig 4:** Distribution of consumers on the basis of acceptance of fig burfi

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