QUALITY OF DIFFERENT TYPES OF BURFI SOLD IN AHMEDNAGAR MARKET

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ABSTRACT

The organoleptic, chemical and microbial quality of different types of burfi sold in Ahmednagar market (Maharashtra) were studied. The Fig burfi was liked very much by the panel of judges while Mango burfi liked least. Market burfi samples were found to carry moisture 17.10 to 25.87 per cent, total solids 74.13 to 82.90 per cent, fat 10.05 to 18.02 per cent, protein 7.94 to 16.01 per cent, total sugar 48.05 to 55.25 per cent, free fatty acids 0.21 to 0.23 per cent and ash 1.70 to 2.93 per cent, Plain burfi had higher standard plate count and coliform count plain burfi. Yeast and mould count were higher in sample The burfi samples showed considerable variation in sensory, chemical and microbial qualities.

Key words: Burfi, Plain, Mango, Fig, Sensory quality, Chemical quality, Microbial quality.

INTRODUCTION

Out of total milk production 46 per cent of milk is consumed in liquid form and 47 per cent is converted into indigenous milk products like butter, ghee, paneer, khoa, peda, burfi, curd etc. (Banerjee, 1997). 7 per cent of milk goes to the production of Western milk products like milk powder, processed butter and cheese. It has been estimated that 6.5 per cent of total milk produced in India is converted into khoa and condensed milk products. Burfi is a popular khoa based indigenous product prepared from cow milk or buffalo milk or combination thereof. Burfi is indisputable product having economic importance specially in rural part of India as it provides good means for converting surplus milk into value added products. A number of ingredients such as nuts, chocolate, fruits, saffron, pulses, etc. may be incorporated in burfi during the manufacturing process. The nature of additives affects the flavour, body and texture and shelf-life of burfi.

The present study deals with the chemical, microbial and sensory analysis of plain burfi, mango burfi and fig burfi sold in Ahmednagar market.

MATERIALS AND METHODS

On the basis of preliminary survey, the three types of burfi (i.e. Plain, Mango and Fig) from eleven shops were collected. Samples were brought to the laboratory as and when required for complete quality analysis. A 9 points hedonic scale was used for sensory evaluation by six judges as per procedure described in IS:6273 (Part-II), 1971., chemical and microbiological quality of burfi was determined as per manual of Dairy Bacteriology ICAR, (1982). The samples were stored at 5°C temperature in the laboratory before analysis. For each type of burfi eleven different shops were selected for replication. Completely Randomize Design (CRD) was used for analysis of data (Panse and Sukhatme, 1985).

RESULTS AND DISCUSSION

Sensory evaluation of burfi: The sensory quality of market samples of burfi was evaluated for different attributes discussed hereafter.

Colour and appearance: The average scores obtained for colour and appearance attribute of market samples of burfi differed significantly (P < 0.05). (Table 1) Sample T_3 (7.27) was significantly superior and at par with sample T_2 (7.09). Sample T_1 (5.45) was observed to be inferior compared with other samples. The variation in the colour of burfi might be due to difference in the intensity of heating.

Body and texture: The average scores obtained for body and texture attribute of market samples of
burfi differed significantly \((P < 0.05)\). Sample \(T_3\) (7.55) was significantly superior which was close with sample \(T_1\) (7.09). It appeared that the body and texture was not uniform within the samples.

**Flavour:** The average scores obtained for flavour attribute of market burfi samples were significantly different \((P < 0.05)\), Sample \(T_3\) (7.27) was significantly superior to other samples. The variation in the flavour may be due to the use of different levels of ingredients particularly sugar and fruit pulp.

**Chemical quality:** The market samples of burfi were analyzed for moisture, total solids, fat, protein, total sugar, free fatty acids and ash.

**Moisture:** The average values of moisture content in samples (Table 2), showed significant \((P < 0.05)\) variation. The maximum moisture (25.87 %) was observed in sample \(T_1\) which was inferior to others while minimum moisture (17.10 %) was observed in \(T_3\) sample which was superior to others. The variation in moisture content of burfi samples could be largely attributed to the difference in chemical composition of milk or khoa used, percentage of sugar added, added fruit pulp and undefined heat treatment applied to the product (Khaskheli et al., 2008). Further, the temperature and time of storage also reflected in the variation of moisture content of the samples. The values of moisture content obtained in present study are almost similar to the values reported by Rastogi *et al.* (1966), Sharma and Gupta (1982), Garg and Mandokhot (1984) and Anon (2002).

**Fat:** Values in the Table 2 are statistically significant \((P < 0.05)\) in respect of fat content. Sample \(T_3\) (18.02 %) was superior to other samples, while sample \(T_1\) carried minimum (10.05 %) fat. The values of fat content obtained in present study are in the range of values obtained by Sachdeva (1980). The variations in fat content of market samples of burfi are due to differences in the chemical composition of milk or khoa used.

**Protein:** Statistically significant \((P < 0.05)\) variations were observed in protein values (Table 2). The maximum protein content (16.01%) was observed in \(T_2\) sample, which was superior to other samples while sample \(T_1\) carried minimum (7.94 %) protein content. Milk protein particularly casein, display a distinctive structure as well as physical, biological and nutritional properties. The range of protein content observed in present study is in close proximation with the values reported by Rastogi *et al.* (1966), Hemavathy *et al.* (1974) and Sachdeva and Rajorlta (1980) in the market samples of burfi.

**Total sugar:** Observed values (Table 2) are statistically significant \((P < 0.05)\). Sample \(T_1\) was with maximum (55.25 %) total sugar while sample \(T_2\) was containing minimum (48.05 %), total sugar which was at par with sample \(T_2\) (49.08 %). In burfi generally sucrose is added at 30 per cent of khoa either in crystalline or syrup form. The Indian Standards Institute has fixed a maximum standard of 43 per cent sucrose in burfi. Sucrose sells at lower price than milk solids, and increased sucrose content leads to high profit. The retail price of burfi was generally influenced by its sucrose content. The relationship of sucrose content of burfi with its retail

<table>
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<tr>
<th>Treatment</th>
<th>Sensory attributes</th>
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<tbody>
<tr>
<td>Colour &amp; appearance</td>
<td>Body &amp; texture</td>
</tr>
<tr>
<td>(T_1)</td>
<td>5.45</td>
</tr>
<tr>
<td>(T_2)</td>
<td>7.09</td>
</tr>
<tr>
<td>(T_3)</td>
<td>7.27</td>
</tr>
</tbody>
</table>

| Standard Error | 0.16 | 0.24 | 0.18 | 0.19 |
| C.D. at 5 % | 0.47 | 0.50 | 0.53 | 0.54 |
| Result | Sig. | Sig. | Sig. | Sig. |

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Chemical parameters (%)</th>
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</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>TS</td>
</tr>
<tr>
<td>(T_1)</td>
<td>25.87</td>
</tr>
<tr>
<td>(T_2)</td>
<td>19.08</td>
</tr>
<tr>
<td>(T_3)</td>
<td>17.10</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.25</td>
</tr>
<tr>
<td>C.D. at 5 %</td>
<td>0.73</td>
</tr>
<tr>
<td>Result</td>
<td>Sig.</td>
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price was studied in detail by Sachdeva and Rejortna (1980). The results presented in this study of total sugars (reducing sugar + non reducing sugar) are in accordance with Sharma and Gupta (1982) and Rajorhia and Sen (1987).

**Free fatty acid:** The observed values are statistically significant (P < 0.05). Sample T_1 contained maximum (0.23 %) free fatty acids while sample T_3 had minimum (0.21 %) free fatty acids (Table 2). Free fatty acid content of *burfi* is related with the lipolytic changes and extent of heating. These results also match with the results of Kamble (2010).

**Standard plate count (SPC):** All market samples of *burfi* showed presence of microorganisms in it (Table 3). Sample T_1 contained higher count which is microbiologically inferior while sample T_2 showed least count which is microbiologically better than other samples. The variability in the total count may be attributed to the varying conditions under which these products were prepared and marketed. Also uncleaned utensils, improper handling and storage conditions contribute to it. Misra and Kuila (1988) showed the presence of SPC in market samples of *burfi* in the range of $5.0 \times 10^2$-$4.4 \times 10^5$ c.f.u./g.

**Yeast and mould count (YMC):** Yeast and mould are responsible for spoilage of dairy products. All market samples showed presence of yeast and mould (Table 3). Reported results are also in provimation with the results of Reddy (1985).

**Coli form count (CC):** The presence of coli form in milk and milk products is suggestive of unhygienic conditions during production, processing, handling and storage. Sample T_1 showed coli form count $(1.00 \times 10^2$ c.f.u./g) while other samples were free from coli form count (Table 3). Sample T_2 and T_3 are safe for consumption. Coli form count was absent in two samples; it might be due to extra care and hygienic conditions. Presence of coli form in market samples of *burfi* was reported by Misra and Kuila (1988) and Kakar and Udipi (1997).

**CONCLUSION**

The samples of Fig *burfi* were liked very much by the panel of judges and there was variation in respect of moisture, fat, protein, total sugars, free fatty acids and ash content in all the *burfi* samples. The low microbial count might be due to good quality of raw material used and maintenance of hygienic conditions during and after preparation contamination.

**REFERENCES**