STUDIES ON PREPARATION OF SATORI - A TRADITIONAL KHOA BASED SWEET

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ABSTRACT

A traditional khoa based wheat flour confection viz. satori was prepared using three types of wheat flour fractions viz. whole wheat flour (WWF), semolina (S) and white flour (WF) for outer layer while khoa (K), semolina (S) and sugar (SR) were used at different proportion as inner material. The overall acceptability of the satori for the combination 10:40:50 (WWF:S:WF) was rated highest being at 7.4 on 9 point hedonic scale. As regarding the score of inner content of Satori, the combination 25:25:50 (K:S:SR) rated highest being at 7.8 on 9 point hedonic scale. The chemical composition of the best treatment combination of Satori were as 19.12, 10.02, 14.02, 55.52 and 1.32 per cent for moisture, protein, fat, carbohydrate and ash respectively.

INTRODUCTION

Indian dairy industry has been insatiated to western dairy products and their readily available products for commercial manufacture. It is only recently that the industry has been waking up to the needs to promote indigenous milk products and developing industrial processes. The flavour of new millennium might be India’s ethnic milk based sweets, deserts and puddings. Each product has its distinctive wisdom as it was evolved through the ages, continuing to surprise the gourmet even today. Milk and milk products are highly valued in Indian society as a source of nutrition. Therefore an effort was made to standardize the method of preparation of satori. Satori is prepared by the proper combination of khoa, semolina and sugar. These ingredients are lightly warmed on the non-stick pan and then a ball of nearly 60 g. is made from these ingredients which is covered by thin puree or chapatti of wheat flour dough and then subject to shallow frying with smearing little ghee on non-stick pan till it attains a reddish brown colour.

MATERIAL AND METHODS

The present investigation was conducted to standardize the method of preparation of Satori. The research was conducted at Dairy Science Laboratory, College of Agriculture, Marathwada Agricultural University, Parbhani (M. S.).

Experimental details

<table>
<thead>
<tr>
<th>Outer layer</th>
<th>Whole wheat flour (WWF) (%)</th>
<th>Semolina (S)(%)</th>
<th>White flour (WF)(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₁</td>
<td>10</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>O₂</td>
<td>15</td>
<td>45</td>
<td>40</td>
</tr>
<tr>
<td>O₃</td>
<td>20</td>
<td>50</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inner mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatments</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>I₁</td>
</tr>
<tr>
<td>I₂</td>
</tr>
<tr>
<td>I₃</td>
</tr>
<tr>
<td>I₄</td>
</tr>
</tbody>
</table>

There were three different combinations of whole wheat flour, semolina and white flour of outer layer and four different combinations of khoa, semolina and sugar which formed the inner material of.

Thus, there were 12 different treatments with varying levels of outer layer ingredients and inner mixture material.

Preparation of Satori

Dough preparation - Different types of wheat flour fractions (whole wheat flour, white flour and semolina) were taken in the proportion as per the treatment formulations and mixed thoroughly. It was added with 0.5 per cent common salt. Then little quantity of potable water was added to it followed by kneading. If needed, little more potable water was added and kneaded to form semisolid, soft, stretchable unique mass suitable for puries.
Diagram – 1: Flow chart for *Satori* preparation

Laboratory made *khoa*  
Warming on low fire  
(50-60°C temperature)  
(Add sugar and roasted semolina)  
Preparation of balls (60 g)  
Fixing the ball in a cone of *puri*  
And cover the open surface of ball  
Pressing in between two palms  
Roll out or flattened into round shape  
(10-11 cm)  
Frying on non-stick pan  
with smearing of *ghee*  
Turn twice or thrice till reddish brown colour  
*Satori*  

Meanwhile, semolina was warmed on low fire by the addition of little *ghee* and it was stirred constantly followed by addition of *khoa* and sugar powder as per the treatment combination. These materials were mixed and shallow fried on non-stick pan on low fire for few minutes. A 60 g of this material was used for each piece of *satori*.

Thin *puries* of 12-15 cm diameter were rolled out from 15 g of dough and put on a palm in such a manner that the *puries* should form a hollow cone like structure. Then 60 g of above prepared material was put in this cone and the margins were collected together to form a solid ball like structure and then it was pressed in between the two palms so that inner material should evenly spread and then rolled lightly. Care was taken that no inner material should come out during frying and should not be torn.
Then it was fried on non-stick pan by smearing a little ghee. During frying it was altered twice or thrice till it turned light reddish brown colour.

Sensory evaluation of Satori was carried out following 9-point Hedonic scale as described by Amerine et al. (1965). Overall acceptability was calculated as the mean of other sensory attribute i.e. colour and appearance, body and texture, flavour and taste.

Proximate analysis – Proximate analysis was done as per the standard procedure as described below.

Moisture content of the sample was determined as per the method described in IS: 1485 (1976), protein content was estimated by Kjeldahl’s method as principled under AOAC (1975). Crude fat by AACC (1976) Total carbohydrates were calculated by difference.

Statistical analysis - The scores given by different judges were tabulated. The data was analysed by factorial design as per Panse and Sukhatme (1967).

RESULT AND DISCUSSION

Overall acceptability of Satori:-

It may be observed from Table 1 that the combination O1 was significantly superior with a value of 7.4 with reference to the outer layer combinations. This was followed by O2 at 6.7 whereas the O3 was arrived at the value of 5.8.

The overall acceptability of the product may be looked upon as a comprehensive exhibition of the respective characters of colour and appearance, flavour, body and texture and finally the taste of the product. It is worthwhile to mention that the outer coverings of O1 contained the three wheat flour fractions as WWF, semolina and white flour (WF) at 10, 40 and 50 parts respectively. The highest liking was shown for this particular combination whereas the resultant combination of O3 with each of these three at 20, 50 and 30 parts of WWF, semolina and WF respectively was rated to be the lowest. It may be added therefore that the outer covering Satori needed to be formulated as was done in the combination of O1. The particular richness of white flour in association with semolina did contribute their share with the additive effect of WWF with regards to each of the parameters cited earlier. It is worthwhile to mention that a drop in the acceptability of the product was experienced due to the enhancement in the levels of WWF and also that of semolina. Therefore, it could be commented that the white flour particularly the base material with its gelatinization of the starch and subsequent hardening to form a homogenous matrix in association with semolina and that of the WWF could have added to the colour and appearance, flavour, body and texture and taste character which ultimately resulted in score of overall-acceptability of the Satori.

**TABLE 1 : Overall acceptability of Satori**

<table>
<thead>
<tr>
<th>Treatments</th>
<th>I1</th>
<th>I2</th>
<th>I3</th>
<th>I4</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>6.8</td>
<td>7.4</td>
<td>7.8</td>
<td>7.5</td>
<td>7.4*</td>
</tr>
<tr>
<td>O2</td>
<td>6.5</td>
<td>6.7</td>
<td>7.0</td>
<td>6.5</td>
<td>6.7*</td>
</tr>
<tr>
<td>O3</td>
<td>5.6</td>
<td>6.0</td>
<td>6.0</td>
<td>5.9</td>
<td>5.9*</td>
</tr>
<tr>
<td>Mean</td>
<td>6.3*</td>
<td>6.7*</td>
<td>7.0*</td>
<td>6.6*</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Different superscripts in the column and rows differ significantly.
It may be noticed from the same Table that the inner combinations behaved in the manner as experienced earlier in case of other parameters. The highest value of 7.0 was recorded for the combination of I3 i.e. 25, 25, 50 parts of khoa, semolina and sugar respectively. This was followed by the combination I2 valued at 6.7. In general, it may be noticed that the judges expressed a similarity of liking for the respective combinations of I2 and I4 which were at par with each other, the value for I4 being at 6.6. It may be added further that the combination I1 was recorded the lowest rating valued at 6.3.

Here again it is encouraging to note that the levels of milk base of khoa were the deciding factors for the overall acceptability of satori. The lowest score for I1 clearly indicated that the combination without khoa were shown with least overall acceptability by the panel of the judges and whatever the scores offered might have been due to the crunchiness of the inner matrix due to the contents of semolina and sugar at respective levels of 50:50.

It is interesting to note from the observations recorded that the interaction effect for overall acceptability of satori was of statistically significant nature. The combinations of O1I3 resulted in the highest score at 7.8 followed by O1I4 being at 7.5. The combinations under O2 were of second in order. The combination O1I1 being valued at 7.80. The interaction O1I1 was the lowest at 5.6 and that of O2I3 was at 5.9. The typical trend observed for interaction could be agreed in the light of the discussion cited under earlier para. It is observed that the outer coverings and inner mixture components interacted in a significant manner to govern the overall acceptability of the final product of satori. The highest value of interaction of O1I3 could be substantiated with the comment that the respective combination of WWF, semolina, white flour respectively at the levels of 10, 40 and 50 in association with the inner contents of khoa, semolina and sugar at 25, 25, 50 parts were sufficient enough to bring about the desired colour, flavour body and texture and taste characters of the final product. It may be worthwhile to mention further that these two coverings along with the mixture of O1I3 were adjudged to be the best due to their cumulative contribution to the overall acceptability of satori.

Proximate Analysis of Satori

It is apparent from Table 2 that the values of moisture content of satori did not differ significantly. Highest moisture content (19.80%) was recorded in the treatment combination T3 which was due to higher level of khoa i.e. 30 part-of khoa was incorporated in T3 treatment. While lowest moisture content was recorded in T0 treatment in which khoa was not used at all. Protein content of satori differed significantly within the treatments. Highest protein content was recorded in the treatment T3. It is revealed that as the proportion of khoa was increased, the protein content of the satori was also increased. Similar trend was also observed regarding the fat content of satori. Pant et al (2002) recorded 10.9 and
10.00 per cent protein in paneer parantha and paneer kachauri respectively. Fat content of satori differed significantly within the treatments. Highest fat content was recorded in the T3 treatment (15.96%) which was due to higher level of fat rich product i.e. khoa. Significant differences were also observed as regarding the carbohydrate content of satori. Ghosh et al. (1998) reported 21-23 per cent fat in chhana poda. Significantly highest values of carbohydrate was recorded in the T0 treatment in which khoa was not used at all. It was observed that as the levels of khoa were increased, the carbohydrate content of satori was decreased. Saxena et al (1996) recorded 31.97 per cent total sugars in pinni - a traditional khoa based Indian sweets. Ash content of satori also showed significant differences.

Cost of Production
The cost of production per kg worked out as Rs. 39.50, 49.50, 51.50 and 53.50 and per piece was Rs. 3.10, 3.90, 4.00 and 4.10. The cost production was calculated by considering the local market rates of provision materials, electricity charges, fuel charges and depreciation of equipments etc.

REFERENCES