SENSORY PROPERTIES OF FRIED FILLED MILK PANEER

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ABSTRACT

Filled milk based paneer was prepared by using vegetable oil (saffola) and milk fat in the proportion of 4:1, 3:2, 2:3 and 1:4 and replicated 6 times. The SNF level to 8.5% was maintained in each lot. T₀ without addition of vegetable oil served as control. Filled milk paneer prepared from milk having a milk fat and vegetable fat in a ratio of 1:4 had the highest yield at 60°C coagulation temperature and the flavour score of fried paneer was also comparable to the conventional paneer. However, the flavour score of fried filled paneer prepared from milk having milk fat and vegetable fat in a ratio 4:1 at 70°C coagulation temperature was more close to the standardized buffalo milk paneer.

Key words: Vegetable fat, Filled milk, Paneer, Organoleptic quality.

INTRODUCTION

Paneer is an important indigenous, nutritious and whole-some dairy product. It is a rich source of high quality proteins, fat, minerals and vitamins. Paneer is used as a base for the preparation of a large number of culinary dishes (curries, pakoras etc.). About 4-5 per cent of the total milk produced in India is converted into paneer (Agarwal and Das 2000). The possibility of reducing the price of milk products is to replace the expensive milk fat partially or completely by cheaper and functional edible fats from non-milk origin. Milk fat is considered as a more saturated fat as compared with vegetable oils containing higher contents of polyunsaturated fatty acids.

Excessive intake of saturated for is a major causative factor in obesity, high blood pressure, coronary heart disease and linked to a number of other disorders. Reports revealed that high dietary fat intake shortens clotting time of blood. Many nutritionists believe that if fat intake is reduced to provide less than 30 percent of the calories through fats and oil, dietary fat would not be a risk factor at all in heart disease (Kanawjia 2001).

Roy and Singh (1999) prepared filled milk paneer from different vegetable oils. The present study was focused to assess the feasibility of paneer prepared from filled milk and to study the organoleptic quality of filled milk paneer.

MATERIALS AND METHODS

Collection of ingredients: Whole milk and skim milk were collected from Warner School of Food and Dairy Technology, SHIATS, Allahabad and other ingredients were purchased from local market of Allahabad.

PREPARATION OF FILLED MILK

\[\text{Milk} \downarrow \text{Heating to 60-65°C} \downarrow \text{Pre-calculated amount of vegetable oil (saffola) heated 65°C} \downarrow \text{Blending of vegetable oil (saffola) with milk} \downarrow \text{Mixing/Stabilizing the vegetable oil at 65°C by using mixture and grinder (Mixy)} \downarrow \text{Pasteurization} \downarrow \text{Filled milk}\]

Sampling of milk: Sampling of milk was carried out as per the procedure laid down in I.S. 1479 (Part-I), 1960.
Determination of fat percentage: The milk was tested for fat percentage as per the procedure laid down in IS: 1224 (Part-I), 1977.

Determination of SNF percentage of milk: The SNF percent of milk was determined as per the procedure given in Manual of Dairy Chemistry ICAR, 1972.

Standardization of whole milk for preparing paneer: The whole milk was standardized to 5 per cent fat and 8.5 per cent SNF before preparing paneer. Paneer thus prepared was represented as T0, and served as control for filled milk paneer. The SNF percentage of milk was maintained by addition of skimmed milk powder.

Preparation of paneer: Paneer in this study was prepared according to the method given by Bhattacharya et al. (1971) with slight modification in coagulation temperature.

Preparation of filled milk paneer: Four different lots of filled milk having milk fat and vegetable fat (saffola) in the proportion of 4:1, 3:2, 2:3 and 1:4 were prepared. The SNF level to 8.5% was maintained in each lot. The filled milk paneer was prepared adopting the same procedure as used for preparing control paneer was prepared. Control and each treatments were replicated five times. The different treatment combinations used are given in Table 1.

Analysis of paneer
Frying and cooking of paneer: Paneer was deep fried in vegetable oil, and cooked in subj masala powder.

Organoleptic evaluation: Sensory evaluation of paneer was done by a panel of five judges by using 9 point hedonic score card. The samples were placed before the judges after coding by random number.

Statistical analysis: The data obtained were statistically analysed for validity by using analysis of variance (ANOVA) and critical difference (C.D.) technique.

RESULTS AND DISCUSSION

Flavour score of fried paneer: It can be observed from the date in Table 2 that the average flavour score of fried paneer sample ToCo, was higher than other samples. Data for average flavour score of fried paneer were statistically analysed to find out superiority of treatments with regard to the flavour score. The calculated value of F (1.567) was less

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Control (70°C)</th>
<th>Coagulation temperature (Treatments)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C0(T0°C)</td>
<td>C1(65°C)</td>
</tr>
<tr>
<td>Sorghum percentage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk fat percentage</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Vegetable fat percentage</td>
<td>–</td>
<td>1</td>
</tr>
</tbody>
</table>

TABLE 1. Details of control and treatments.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>T0C0</th>
<th>T1C0</th>
<th>T2C0</th>
<th>T3C0</th>
<th>T4C0</th>
<th>T1C1</th>
<th>T2C1</th>
<th>T3C1</th>
<th>T4C1</th>
<th>T1C2</th>
<th>T2C2</th>
<th>T3C2</th>
<th>T4C2</th>
<th>T1C3</th>
<th>T2C3</th>
<th>T3C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flavour score</td>
<td>7.20</td>
<td>7.12</td>
<td>7.04</td>
<td>6.82</td>
<td>7.18</td>
<td>6.94</td>
<td>6.91</td>
<td>7.24</td>
<td>6.61</td>
<td>6.70</td>
<td>7.0</td>
<td>6.74</td>
<td>6.54</td>
<td>6.11</td>
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<tr>
<td>Body score</td>
<td>±</td>
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<td>±</td>
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<td>±</td>
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<td>±</td>
<td>±</td>
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<td></td>
</tr>
<tr>
<td>Texture score</td>
<td>0.39</td>
<td>0.25</td>
<td>0.51</td>
<td>0.26</td>
<td>0.42</td>
<td>0.5</td>
<td>0.21</td>
<td>0.76</td>
<td>0.99</td>
<td>0.32</td>
<td>0.11</td>
<td>0.29</td>
<td>0.5</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour and appearance score</td>
<td>±</td>
<td>±</td>
<td>±</td>
<td>±</td>
<td>±</td>
<td>±</td>
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<tr>
<td>Flavour score</td>
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TABLE 2. Sensory qualities of fried filled paneer.
than table value of F (1.92) at 5% probability level. This indicated that there was no significant difference in the flavour score of fried paneer in different treatment combinations.

**Texture score of fried paneer:** The average texture score of fried paneer sample ToCo, was higher than other samples. Data for average texture score of fried paneer were statistically analysed to find out superiority of treatments with regard to the texture score of fried paneer samples. This indicated that there was significant difference in the texture score of fried paneer in different treatment combinations. The difference in texture score between control and filled milk fried paneer was probably because of difference in the physical properties of milk fat and vegetable fat used in experiments.

**Colour and appearance score of fried paneer:** The average colour and appearance score of fried sample ToCo, was higher than other samples. Data for average colour and appearance score of fried paneer were statistically analysed and found that there was no significant difference in the colour and appearance score of fried paneer in different treatment combinations.

**CONCLUSION**

It is concluded that milk fat can partially be substituted in paneer by vegetable oil/fat successfully. The quality of filled milk paneer was comparable to paneer prepared from standardized buffalo milk. Paneer prepared from milk having a milk fat and vegetable fat in a ratio of 2:3 at 60°C coagulation temperature had the highest score of body and texture and flavour after frying.

**REFERENCES**


