

UTILISATION OF SKIM MILK FILLED WITH COCONUT MILK FOR PREPARATION OF PANEER

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The high cost of milk fat has made dairy products luxury items and makes it out of the reach of common man. Its substitution with cheaper fats can substantially reduce the cost of the product. Coconut milk with its pleasant, sweet and agreeable flavour and fat which approximates the rich natural cream in nutritive properties make an ideal substitute for milk fat. An attempt has been made to utilise skim milk for developing coconut fat filled milk, which in turn was used for the preparation of paneer and to compare the chemical and organoleptic qualities of the product prepared from coconut fat filled milk with those prepared from whole cow milk.

Materials and Methods

The control samples of paneer were prepared using cow's milk standardised to four per cent fat, while filled milk prepared by mixing skim milk with coconut milk and standardised to four per cent fat was used for the preparation of experimental samples of paneer.

Matured coconut kernel was grated and coconut milk was extracted by pressing the coconut gratings in a screw press. The coconut milk so extracted was added to skim milk to prepare filled milk with four per cent fat. Control and experimental paneer were prepared as per the method suggested by Kundu and De (1972). Eight replications were done for each item and

average value were calculated. The values were statistically analysed using 't' test (Snedecor and Cochran, 1968) to arrive at a conclusion. The parameters mentioned were estimated as per the procedures given below:

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|----------------------------|---|------------------------|
| 1. Moisture | : | IS: 2785 (1964) |
| 2. Titratable acidity | : | IS: 10484 (1983) |
| 3. Fat | : | IS: 2785 (1964) |
| 4. Total solids | : | Kosisowski (1978) |
| 5. Organoleptic evaluation | : | Patil and Gupta (1986) |

Results and Discussion

The yield of control paneer was found to be significantly higher than the yield of experimental paneer (Table 1) which is in agreement with the findings of Babje *et al.* (1992). They reported that the yield of paneer decreased with increased levels of Soy milk in the Soy milk-skim milk blend used for preparation of filled milk. The lower yield of experimental paneer may be due to the loss of excess carbohydrates and minerals in the whey when filled milk were used for paneer preparation. Compared to cows milk, filled milk contains 0.9 per cent carbohydrate and 0.79 per cent minerals more which are also lost along with whey and thereby reducing the yield of experimental paneer prepared out of it. On statistical analysis the 't' value was found to be significant ($P < 0.05$).

The overall mean values of fat per cent in control and experimental paneer showed no significant difference (Table 1). This is in accordance with the findings of Vishweshwariah and Anantkrishnan (1986). The percentage of fat was found to be maintained almost equal in both the treatments because milk was standardised to four per cent fat for preparation of paneer. The control and experimental paneer were found to have a fat content of not less than 50 per cent of drymatter and thus meeting the PFA standards.

The control and experimental paneer on an average contained 54.22 ± 0.55 per cent and 53.96 ± 0.55 per cent moisture respectively (Table 1). Statistical analysis of the data showed no significant difference between the treatments. This is in concurrence of the earlier observations of Kanawjia *et al.* (1990).

The overall mean value of titratable acidity of control and experimental paneer was found to be similar (Table 1). This was found to be in agreement with the observations made by Chawla *et al.* (1987).

The mean protein content of control paneer was 16.08 ± 0.06 per cent and that of experimental paneer was 18.05 ± 0.45 per cent (Table 1). The protein content of experimental paneer was found to be significantly higher than that of control paneer. The trend of increase in the total protein content of vegetable fat filled paneer when compared to whole milk paneer is in agreement with the findings of Babje *et al.* (1992). The increase in protein content in the experimental paneer may be due to the increased protein content of the filled milk when coconut milk was used for fat substitution.

On sensory evaluation control paneer was graded as 'Excellent' and experimental paneer was graded as 'Good' (Table 2). The low score obtained for flavour of experimental paneer may

be due to the natural flavour of coconut fat which might have been marked as foreign flavour by the panel of judges.

Low score obtained for body and texture of experimental paneer may be due to the formation of weak or soft and pasty coagulum as opined by judges. The low melting point of coconut fat may result in its presence in liquid state at room temperature, which may explain the soft and pasty nature of filled milk paneer.

Table 1 Physico-chemical qualities of control and experimental paneer (n=8)

Attributes	Control	Experiment
1. Yield (%/wt) Kg	15.79	14.73
2. Fat (%.wt)	23.10	23.75
3. Moisture (%/wt)	54.22	53.96
4. Acidity (% lactic acid)	0.25	0.25
5. Total protein (% wt acid)	16.08	18.05

Table 2 Scores obtained for control and experimental paneer on sensory evaluations (n=8)

Attributes	Control	Experiment
1. Flavour	47.30	41.10
2. Body and Texture	38.90	37.60
3. Colour and appearance	10.00	10.00
4. Total	96.10	88.40

Summary

The control samples of paneer were prepared using cow's milk while experimental samples were prepared using skim milk filled with coconut milk. The milks were standardised to four per cent fat. The moisture, fat and acidity were found to be similar in control paneer and

experimental paneer. The control paneer was found to have higher yield but low protein content compared to experimental paneer. On sensory evaluation, control paneer was graded as of 'Excellent' while experimental paneer was graded as of 'Good' quality.

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