



Manufacturing of low cost soy paneer by blending tone milk and soy milk

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ABSTRACT: A study was undertaken by blending different levels of toned milk and soymilk i.e. T₁ (80:20), T₂ (70:30), T₃ (60:40), respectively. Blended milk was coagulated with 1% citric acid and calcium sulphate. After draining of whey the coagulum was set as soy paneer. The product was analyzed for organoleptic attributes (colour and appearance, body and texture, taste and flavour) by trained panelist using 9 point hedonic scale. The Soy paneer obtained from 70:30 (T₂) ratio was the best product among all treatments. Thus, as far as product acceptability judged by organoleptic evaluation, the treatment can be rated as T₂>T₀ > T₁>T₃.

KEY WORDS : Blending, Tone milk, Soymilk, Soy paneer

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INTRODUCTION

Paneer is an important indigenous nutritious and wholesome dairy product. However the cost of paneer has become a great hurdle in the popularization of paneer. Soy paneer prepared from soymilk and toned milk is a rich source of high quality proteins and vitamins, Jain(1992). It also gives relatively cheaper and nutritious product which can find popularity in the mass market. Isoflavones in soymilk have many health benefits including reduction of cholesterol, easing of menopause symptoms, prevention of osteoporosis and reduction of risk for certain cancers (Prostate and breast cancer) Since paneer is mostly used for cooking, the relatively low level of fat will not reduce its palatability. In this study an effort has been made to prepare good quality paneer by blending tone milk with soymilk using the technique of manufacture as recommended by Babje (1989).

MATERIAL AND METHODS

First of all, clean healthy soybeans seeds soaked in 1% sodium bicarbonate for 8-10 hours. After draining and washing the seeds were cooked at 112°C for 4 minutes. Then it was ground with water (1:10 w/v). After filtration soymilk was ready. Tone milk then blended with soymilk in T₁ (80:20), T₂ (70:30) and T₃ (60:40) ratio. The blended milk was heated at 85 °C for 5

minutes and cooled at 80 °C for 3 minutes. It was then coagulated with 1% CaSO₄ and citric acid. Coagulum was collected after draining of whey and sent for pressing at 2-5kg/cm² for 45 minutes. Removed from the pressure and dipped in chilled water (4 °C) for 30 minutes. Thus soy paneer was ready. The samples were analyzed for Physicochemical, microbial and organoleptic qualities as per the procedure laid down by ICAR manual in Dairy Chemistry and microbiology (1972).

RESULTS AND DISCUSSION

The data obtained on different aspects as per plan were tabulated and statistically analyzed as per Chandel (1991).

Physicochemical properties:

The highest mean value for moisture percentage in soy paneer was found in T₀=64.45, followed by T₁(59.57), T₂(57.74) and T₃(56.69). There were significant differences found among the treatments. The highest mean value for fat percentage was found in T₀=14.64, followed by T₁(13.66), T₂(12.62), and T₃(11.62). There were significant differences found among the treatments. The highest mean value for protein percentage was found in T₃=30.58, followed by T₂(28.38), T₁ (26.17) and T₀ (20.25). There were significant differences found among all the treatments. The highest mean value for total solids was found in T₃=43.41, followed by T₂(42.26), T₁(40.43) and T₀(35.55). The differences among the treatments were significant. Thus, it showed the soymilk blending has a great impact on the quality of blended paneer.

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Table 2 showed the highest mean value for SPC Count in Soy paneer was found in T₀=45.2, followed by T₁ (36.4), T₃ (36.4) and T₂ (35.2). There were no significant differences found among the treatments. The highest mean value for Yeast and mould count was found in T₁=14.8, followed by T₃(14.0), T₂(10.4) and T₀ (13.2). The treatments differed significantly. There was no coliform found in all the treatments, thus indicated proper hygiene was followed.

Table-3 showed that the highest mean value for colour and appearance in soy paneer was found in T₀=8.30, T₃(8.00), T₁(7.80) and T₂(7.80). There were significant differences found among the treatments. The highest mean value for body and texture were found in T₀=8.10, T₃(7.82), T₂(7.58) and T₁(7.30). There was significant difference found among the treatment values. The highest mean value for flavour and taste was found in T₂=8.04, followed by T₀(7.88), T₁(7.62) and T₃(7.58). There was significant difference found among the treatments.

Overall acceptability of the product:

Table-4 and Fig. 1 showed the highest mean value for overall acceptability of the product was found in T₀=8.45, followed by T₁(8.06), T₂(7.80) and T₃(7.73). The data differed significantly among the treatments, thus showed the

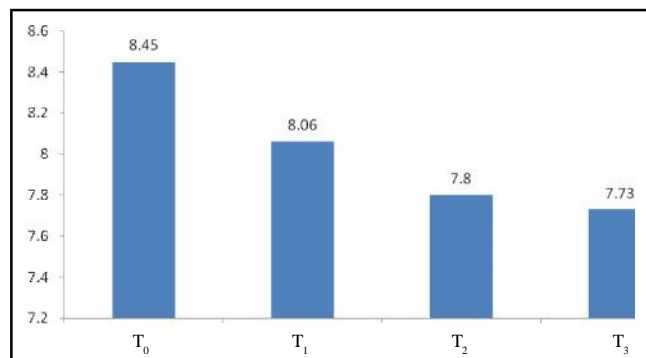


Fig. 1 : Overall acceptability of the product

Table 1 : Average of different physicochemical parameters

Parameters (%)	Treatments			
	T ₀	T ₁	T ₂	T ₃
Moisture	64.45	59.57	57.74	56.69
Fat	14.64	13.66	12.62	11.62
Protein	20.25	26.17	28.38	30.58
Total solids	35.55	40.43	42.26	43.31

Table 2 : Microbial parameters

Parameters	Treatments			
	T ₀	T ₁	T ₂	T ₃
Standard Plate count (10 ³)cfu/gm	45.2	36.4	35.2	36.4
Yeast and mould count (10 ²)cfu/gm	13.2	14.8	10.4	14.0
Coliform count (10 ¹)cfu/gm	Nil	Nil	Nil	Nil

Table 3 : Organoleptic parameters

Parameters	Treatments			
	T ₀	T ₁	T ₂	T ₃
Colour and appearance	8.30	7.80	7.80	8.00
Body and texture	8.10	7.30	7.58	7.82
Flavour and taste	7.88	7.62	8.04	7.58

Table 4 : Overall acceptability of the product

Replication	Treatments			
	T ₀	T ₁	T ₂	T ₃
R ₁	8.99	7.40	7.79	7.73
R ₂	7.93	7.73	8.16	7.56
R ₃	9.79	7.90	8.06	7.86
R ₄	7.93	7.76	8.16	7.73
R ₅	8.93	8.13	8.13	7.79
Mean	8.45	8.06	7.80	7.73

acceptability of the Soya blended toned milk paneer.

The results obtained from the statistical analysis revealed that the toned milk and soymilk can be satisfactorily blended to prepare paneer. T₂(70:30) treatment was found to be the best among all the treatments.

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