



Development of peanut paneer from the admixture of peanut milk and skimmed milk

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ABSTRACT : An investigation was carried out with an attempt to develop Peanut Paneer by partial addition of Peanut milk and skim milk. For control, (T_0) Peanut milk was standardized to 6 per cent fat and 9 per cent SNF and treatment (T_1) was standardized to a ratio of 50:50 (PM:SM), T_2 60:40 (PM:SM) and T_3 (70:30) (PM:SM). The peanut paneer samples of different treatments were analyzed for physico-chemical properties (moisture, protein, fat, carbohydrate and ash), its nutritional content and organoleptic characteristics (colour and appearance, body and texture, flavour and taste) by trained panelist using 9 point hedonic scale. Microbiological analysis was carried out to assess the shelf-life of the best treatments by SPC and coliform test. Analysis revealed that the product conform to the legal standard as per PFA. Thus, as far as product acceptability judged by organoleptic evaluation and therapeutic value, the treatment can be rated as $T_2 > T_1 > T_0 > T_3$.

KEY WORDS : Peanut milk, Skimmed milk, Peanut Paneer

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INTRODUCTION

Peanut or groundnut is a species in the legumes family. It is a major source of edible oil and protein and therefore considered to be highly valuable in human and animal nutrition (Talcot and Passeretti, 2005). Peanut is also a good source of antioxidant, such as p-conmaric acid, that may be contributing factors to potential health benefits of the consumers (Sunny *et al.*, 2004). Peanut and Peanut milk products have nutritional benefits because of their extreme richness in protein, minerals and essential fatty acids such as linoleic and oleic acids, which are considered to be highly valuable in human nutrition (Bensmira and Jiang, 2012). It is extensively used in India and other developing countries by the vegetarians and more recently by children allergic to cow milk proteins (Kouane *et al.*, 2006). Being free in cholesterol and lactose, Peanut milk is also a suitable food for lactose intolerant consumers, vegetarians and milk allergy patients. Peanut milk may be produced by soaking and grinding full fat raw peanuts with water to get a slurry, subject to filtration. Many ways of

producing peanut milk have been done by various researchers (Benchat and Nail, 2006). The variation in peanut to water ratio used for peanut milk extraction affects the peanut milk composition. However, in all cases thin low cost milk has high protein content (Isanga and Zhang, 2009). Skim milk is also labeled as fat free milk. One cup of skim milk holds 90 calories, while whole milk over half of this fat is saturated. Skim milk is packed with nutrients and does not have the calorie and fat of whole milk. Skim milk has several benefits, such as building strong calcium enriched bones and maintaining healthy weight (Sangwan, 2008). Keeping in mind the above properties of peanut milk an attempt has been made to explore the use of peanut milk for manufacturing paneer as per procedure laid down by (De, 1980).

MATERIAL AND METHODS

First of all, peanut milk is prepared by soaking the grains in water for 6-8 hours. Then the water is drained and the outer layer (husk) is removed. The seed was further washed and grinded. Obtained slurry was cooked at 100-110°C for 10 minutes. Then it is filtered and thus peanut milk is obtained. The control (T_0) Paneer was prepared from buffalo milk having 6% fat and 9% SNF as per the standard procedure. Experimental

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treatment (T_1) was prepared by admixture of Peanut milk and skim milk of (50:50 ratio), T_2 was 60:40 ratio and T_3 was 70:30 ratio. It was then heated at 80 °C and coagulated by 1% citric acid. The coagulum was strained through muslin cloth and coagulum was collected and pressed for 30 minutes. It was then steeped in chilled water for 30 minutes. The samples were tested for physicochemical parameters (Moisture, fat, protein, ash and carbohydrates) and microbial parameters (SPC, coliform) as per procedure given in (ICAR, 1972 a and b) and organoleptic quality were judged by trained panelist using 9 point hedonic scale. The data collected on different aspects as per plan were tabulated and statistically analyzed as per (Chandel, 1991).

RESULTS AND DISCUSSION

Table 1 shows different parameters studied.

Physicochemical properties :

There were significant differences found in the average

moisture percentage of different treatments. The highest moisture percentage was found in T_3 (61.83), followed by T_2 (61.78), T_1 (61.72) and T_0 (52.62). The fat percentage of different treatments differed significantly. The highest fat percentage was found in T_0 (26.73), followed by T_3 (18.88), T_2 (18.83) and T_1 (18.80). There were significant differences found in protein percentage. The highest protein was found in T_0 (16.74) followed by T_3 (15.34), T_2 (15.23) and T_1 (15.19). There were no significant differences found in different treatments for carbohydrate percentage. The highest carbohydrate percentage was found in T_1 (2.37), followed by T_2 (2.32), T_3 (2.10) and T_0 (2.06). The ash percentage of different treatments did not differ significantly. The highest ash percentage was found in T_0 (1.85), followed by T_1 (1.85), T_3 (1.85) and T_2 (1.84) (Table 1).

Microbial parameters :

There were no significant differences found in various treatments for SPC. The highest score was found in T_1 (16.80), followed by T_2 (11.60), T_3 (11.00) and T_0 (3.40). All the treatments

Table 1 : Physio-chemical parameters

Parameters(%)	Treatments			
	T_0	T_1	T_2	T_3
Moisture	52.62	61.72	61.78	61.83
Fat	26.73	18.80	18.83	18.88
Protein	16.74	15.19	15.23	15.34
Carbohydrate	2.06	2.37	2.32	2.10
Ash	1.85	1.85	1.84	1.85

Table 2 : Microbial parameters

Parameters	Treatments			
	T_0	T_1	T_2	T_3
SPC	3.40	16.80	11.60	11.00
Coliform count	0.00	0.00	0.00	0.00

Table 3 : Organoleptic parameters

Parameters	Treatments			
	T_0	T_1	T_2	T_3
Colour and appearance	8.05	8.05	8.25	7.90
Body and texture	8.00	7.70	8.00	7.65
Flavour and taste	8.10	7.75	8.00	7.90

Table 4 : Overall acceptability of the product

Replication	Treatments			
	T_0	T_1	T_2	T_3
1	7.75	7.49	7.58	7.75
2	8.00	7.50	8.00	7.66
3	8.16	8.00	8.25	7.91
4	8.08	8.085	8.16	8.08
5	8.25	8.08	8.33	7.83
Mean	8.05	7.83	8.07	7.85

did not show any coliform (Table 2).

Organoleptic attributes :

There were significant differences found for colour and appearance score in different treatments. The highest score was found in T₂(8.25), followed by T₁(8.05), T₂(8.05) and T₃(7.9). There were no significant difference found in body and texture score of various treatments. The highest score was found in T₀(8.00), followed by T₂(8.00), T₁(7.70) and T₃(7.65). The flavour and taste score of different treatments did not differ significantly. The highest score was found in T₀(8.10), followed by T₂(8.00), T₃(7.90) and T₁(7.75) (Table 3).

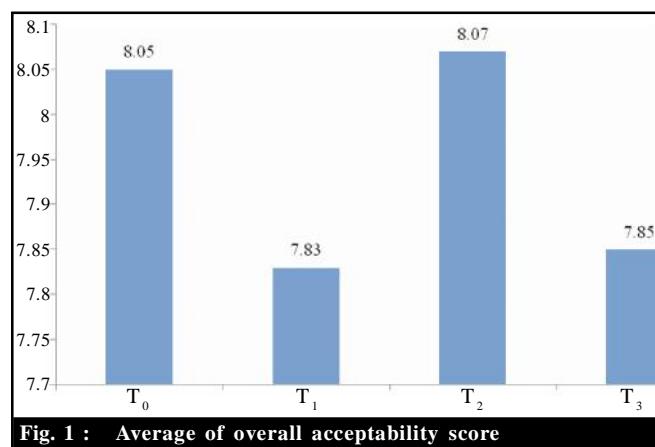


Fig. 1 : Average of overall acceptability score

Overall acceptability score for control and experimental peanut paneer:

There were significant differences found among all the treatments for overall acceptability score. The highest score was T₂(8.07), followed by T₀(8.05), T₃(7.85) and T₁(7.83) (Table 4 and Fig. 1).

From the present investigation, it can be concluded that an acceptable low cost paneer can be prepared by using peanut milk and skim milk blend. The cost of production of peanut

paneer was comparatively lower than the control paneer. Therefore it will have a good market potential particularly for the vulnerable section of the society. The peanut paneer prepared from the blending of skim milk, which is easily available and cheap will open new opportunity in marketing.

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