



Full Length Research Article

STUDIES ON SENSORY EVALUATION OF PEANUT PANEER FROM THE ADMIXTURE OF PEANUT (*ARACHIS HYPOGAEA* L.) 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, (T₀) Peanut milk was standardized to 6% fat and 9% SNF and treatment (T₁) was standardized to a ratio of 50:50 (PM:SM), T₂ 60:40 (PM:SM) and T₃ (70:30) (PM:SM). The Peanut Paneer samples of different treatments were analyzed for physicochemical properties (moisture, protein, fat, carbohydrate and ash), its nutritional content and organoleptic characteristics (colour & appearance, body & texture, flavour & 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 T₂ > T₁ > T₀ > T₃.

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INTRODUCTION

Peanut or groundnut (*Arachis hypogaea* L.) 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-Roberts *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.*, 2005). 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). Paneer is popular indigenous variety of soft cheese (David, 2009).

Paneer is highly popular traditional Indian Dairy product is obtained by acid and heat coagulation of milk. Good quality paneer is characterized by a white colour, sweetish mildly acidic and nutty flavour, spongy body and a close knit structure. Paneer is highly nutritious since it remains about 90% fat and protein, 50% minerals and 10% lactose of the original milk. About 5% of the total milk produced in India is converted to paneer (Mathur, 1995). 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, Sukumar, 1980).

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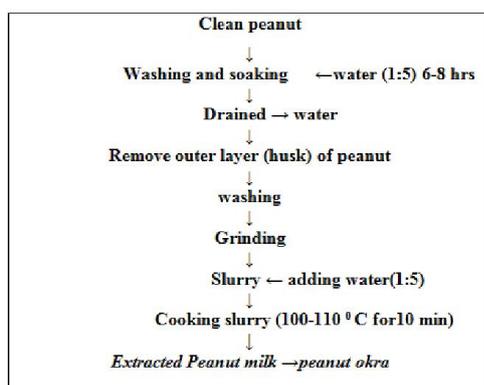


Figure 1. Flow chart for preparation of Peanut milk

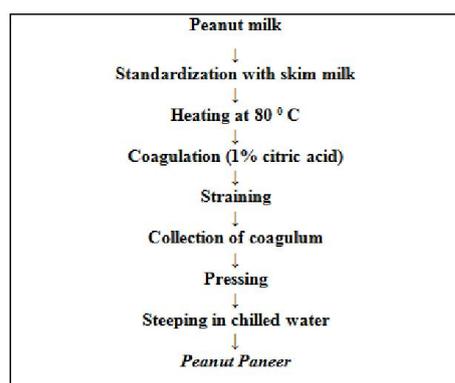


Figure 2. Flow chart for preparation of Peanut Paneer

Table 1. Details of different treatments using peanut milk for preparation of Peanut Paneer

Materials%	Different treatments for Peanut Paneer			
	T ₀	T ₁	T ₂	T ₃
Peanut milk	-	50	60	70
Skim milk	100	50	40	30

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 (T₀) Paneer was prepared from buffalo milk having 6% fat and 9% SNF as per the standard procedure. Experimental treatment (T₁) was prepared by admixture of Peanut milk and skim milk of (50:50 ratio), T₂ was 60:40 ratios and T₃ was 70:30 ratios. 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) and (ICAR, 1972) 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).

RESULT AND DISCUSSION

Table -2 show different parameters studied.

Average of Sensory Properties score control and Peanut Paneer

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 differences 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).

Overall acceptability scores 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)

Average of different Microbial Parameters of the Control and Peanut Paneer

Table 2 showed the highest mean value for yeast and mold count in Peanut Paneer found in T₁(8.4), followed by T₂(7.6), T₃(7.2) and T₀(7.0).

Table 2. Average of Sensory Properties score control and Peanut Paneer

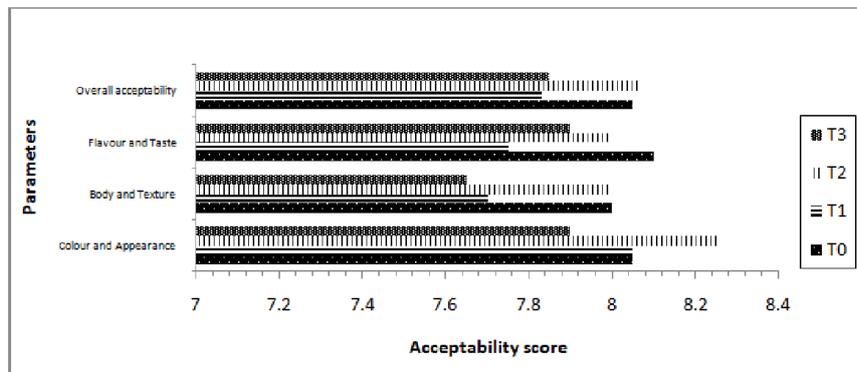
Parameters	Control and Peanut Paneer				F Value	CD
	T ₀	T ₁	T ₂	T ₃		
Colour and Appearance	8.05	8.05	8.25	7.90	4.60*	0.20
Body and Texture	8.00	7.70	8.00	7.65	3.10**	-
Flavour and Taste	8.10	7.75	8.00	7.90	2.05**	-

Table 4. Overall acceptability of the product

Replication	Control and Peanut Paneer				F Value	CD
	T ₀	T ₁	T ₂	T ₃		
1	7.75	7.49	7.58	7.75	4.35*	0.19
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		

Table 2. Average of different Microbial Parameters of the Control and Peanut Paneer

Parameters	Control and Peanut Paneer				F Value	CD
	T ₀	T ₁	T ₂	T ₃		
Yeast and mold count (10 ³)cfu/g	7.0	8.4	7.6	7.2	2.56**	-
Coliform count (10 ¹)cfu/g	Nil	Nil	Nil	Nil	Nil	Nil

**Figure 2. Average of Sensory Properties and overall acceptability score control and Peanut Paneer**

There were no significant differences found among the treatments. There were no coliform found in all the treatments, thus indicated proper hygiene was followed during the trials. 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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