



# Studies on quality of lassi prepared from skimmed milk blended with coconut milk

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**ABSTRACT :** The present investigation was made with an attempt to develop a good quality beverage using coconut milk and skimmed milk. The beverage was prepared by blending of coconut milk at three different concentrations. The ratio of skimmed milk and standardized coconut milk were T<sub>1</sub>(70:30), T<sub>2</sub>(60:40) and T<sub>3</sub>(50:50). The data collected on different aspects were tabulated and analyzed statistically using the methods of analysis of variance and critical difference. Control Lassi was made from skimmed milk having 0.5 per cent fat and 8.7 per cent SNF. Physico-chemical analysis was carried to ascertain the extent of variation in fat, protein, total solids, moisture and ash content. Organoleptic characteristics (flavour and taste, body and texture, colour and appearance) were done by using 9 point hedonic scale. According to the analysis treatment, T<sub>2</sub> was found to be the best among the treatments.

**KEY WORDS :** Lassi, Skimmed milk, Coconut milk

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## INTRODUCTION

Lassi is a ready to serve popular and traditional fermented milk beverage of the Indian subcontinent. Good quality Lassi should have creamy consistency, smooth texture, glossy sheen and white colour with yellowish tinge. Milk acidic flavour and sweetish taste of Lassi make it a refreshing soft drink. It is flavoured either with salt or sugar and other condiments or spices like ginger, coriander and mint depending on regional preferences (Aneja *et al.*, 2002). Coconut milk and fat is an excellent source for preparation of filled milk, infant formulae and margarine. It is popular for its characteristic nutty flavour and nutritional content (George *et al.*, 2010). Lassi can have good potential market in India, by making the product more palatable, by reducing the production cost and by encouraging people to make Lassi adjunct. Considering the important aspects and therapeutic value of Lassi, an effort was made in this study to use different levels of coconut milk blended with skimmed milk using the technique of manufacture as recommended by De (1982).

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## MATERIAL AND METHODS

First of all control lassi (T<sub>0</sub>) was prepared from skimmed milk having 0.5 per cent fat and 8.7 per cent SNF. For experimental Lassi, skimmed milk was blended with standardized coconut milk at a ratio of T<sub>1</sub>(70:30), T<sub>2</sub>(60:40) and T<sub>3</sub>(50:50). It was then heated at 90°C for 5 minutes and cooled to 30°C. 1 per cent starter culture was inoculated and the blended milk was incubated at 30°C for 12 hours. Formed curd now broken and stirred with 12 per cent sugar. Now, Lassi was filled in to the vessels and stored at 5°C. The samples were analyzed for physico-chemical, microbial and organoleptic qualities as per procedure laid down by ICAR manual in dairy chemistry (1972) and Indian Standard (1980).

## RESULTS AND DISCUSSION

The data collected on different aspects as per plan were tabulated and statistically analyzed as per Chandel (1991). Table 1 shows the average data on different parameters.

### Physico-chemical properties :

Data of Table 1 indicate that the highest mean for protein percentage in Lassi from blending of skimmed milk and coconut

milk was as  $T_3=3.40$ ,  $T_2(3.30)$ ,  $T_1(3.16)$  and  $T_0(3.05)$ . The differences between the treatments were significant. The highest mean for fat percentage was in  $T_3=0.70$  followed by  $T_2(0.59)$ ,  $T_1(0.44)$  and  $T_0(0.34)$ . The differences between the treatments were significant. The highest mean for ash content was in  $T_2=0.73$  followed by  $T_3(0.72)$ ,  $T_1(0.72)$  and  $T_0(0.69)$ . The differences between the treatments were non-significant. The highest mean for total solids percentage was in  $T_3=20.80$ , followed by  $T_2(20.76)$ ,  $T_1(20.51)$  and  $T_0(20.15)$ . The differences between the treatments were non significant. The highest mean for moisture content was in  $T_0=79.97$  followed by  $T_1(79.84)$ ,  $T_2(79.48)$  and  $T_3(79.23)$ . The differences were nonsignificant. The highest mean for acidity percentage was in  $T_0=0.61$  followed by  $T_1(0.59)$ ,  $T_2(0.57)$  and  $T_3(0.56)$ . The differences were non-significant. Thus, the data showed the experimental product was a good as control.

**Table 1: Average of different physicochemical parameters**

Parameters (%)	Treatments			
	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Protein	3.05	3.16	3.30	3.40
Fat	0.34	0.44	0.59	0.70
Ash	0.69	0.72	0.73	0.72
Total solids	20.15	20.51	20.76	20.80
Moisture	79.97	79.84	79.48	79.23
Acidity	0.61	0.59	0.57	0.56

Table 2 shows the mean value for yeast and mold count. It was found highest in  $T_2=3.70$  followed by  $T_3(3.50)$ ,  $T_0(2.70)$  and  $T_1(2.50)$ . There was significant difference between the treatments. No coliform count was found in all the treatments, thus it indicated the proper hygiene as followed during manufacturing.

**Table 2: Microbial parameters**

Parameters	Treatments			
	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Yeast and mold count ( $10^2$ ) cfu/g	2.70	2.50	3.70	3.50
Coliform count ( $10^1$ ) cfu/g	Nil	Nil	Nil	Nil

Table 3 shows that the highest mean value for colour and appearance was found in  $T_0=8.20$  followed by  $T_2(7.76)$ ,  $T_3(7.68)$  and  $T_1(7.40)$ . The treatments differed significantly. The highest mean value for flavour and taste was found in  $T_2=7.92$  followed by  $T_0(7.88)$ ,  $T_1(7.80)$  and  $T_3(7.48)$ . There was significant difference between the treatments. The highest mean value for consistency was found in  $T_2=7.72$  followed by  $T_0(7.64)$ ,  $T_1(7.56)$  and  $T_3(7.52)$ . The treatments did not differ significantly.

#### Overall acceptability of the product:

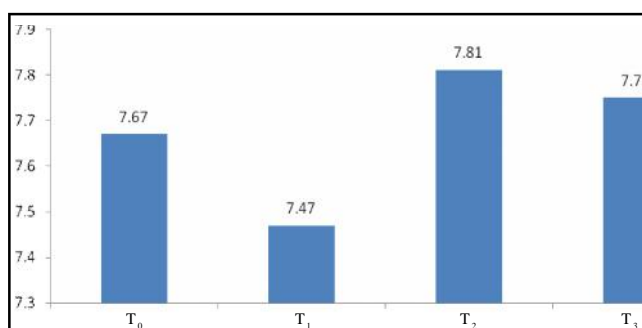
Table 4 and Fig. 1 show that the highest mean value for

**Table 3: Organoleptic parameters**

Parameters	Treatments			
	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
Colour and appearance	8.20	7.40	7.76	7.68
Flavour and taste	7.88	7.80	7.92	7.48
Consistency	7.64	7.56	7.72	7.52

**Table 4: Overall acceptability of the product**

Replication	Treatments			
	T <sub>0</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
R <sub>1</sub>	7.86	7.73	7.99	7.73
R <sub>2</sub>	7.46	7.19	7.79	7.33
R <sub>3</sub>	7.66	7.73	7.93	7.26
R <sub>4</sub>	7.66	7.53	7.66	7.59
R <sub>5</sub>	7.73	7.19	7.68	7.86
Mean	7.67	7.47	7.81	7.75



**Fig. 1: Overall acceptability of the product**

overall acceptability of the product was found in  $T_2=7.81$  followed by  $T_3(7.75)$ ,  $T_0(7.67)$  and  $T_1(7.47)$ . The treatments differed significantly, thus showed the popularity of the product.

The results from statistical analysis revealed that the skimmed milk and coconut milk can be satisfactorily blended to prepare Lassi.  $T_2(60:40)$  treatment was found to be best among all the treatments.

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