



Effect of different levels of goat milk and banana pulp on quality of fruit yoghurt

J. DAVID

ABSTRACT : A study was undertaken by using different levels of Goat milk and Banana pulp *i.e.* T₁(90:10), T₂(85:15), T₃(80:20) respectively. Experimental fruit yoghurt mix was standardized to 4.0 per cent fat, 11.5 per cent solids not fat, 10 % sugar and 2% culture adjusted to 25.2% total solids. Yoghurt samples for different treatments were analyzed for organoleptic attributes (colour and appearance, body and texture, taste and flavour) by trained panelist using 9 point hedonic scale. The fruit yoghurt obtained from (80:20) (T₃) ratio was the best product among all treatments. Thus, as far as product acceptability judged by organoleptic evaluation, the treatment can be rated as T₃> T₀> T₂> T₁.

KEY WORDS : Goat milk, Banana pulp, Fruit yoghurt

HOW TO CITE THIS PAPER : David, J. (2013). Effect of different levels of goat milk and banana pulp on quality of fruit yoghurt, *Res. J. Animal Hus. & Dairy Sci.*, 4(2) : 85-86.

INTRODUCTION

Yoghurt is a famous fermented dairy product which plays an important role in preventing gastrointestinal infections which causes diarrhea. It also reduces the chances of cancer and lowers the blood cholesterol (Gilliland, 1979). Yoghurt prepared from goat milk has been widely accepted for infants and convalescents because of its easy digestibility. Goat milk yoghurt did not show any whey off but preferred for its smooth body and texture and sharp flavour. By the addition of fruit pulps in yoghurt its nutritional content *viz.*, proteins and vitamins enhanced without compromising its palatability. This filler will also give nutritious product at an economic rate, which will make the product further popular in domestic and international market. In this study effort has been made to prepare good quality yoghurt from goat milk and banana pulp using the technique of manufacture as recommended by Balasubramanyam, *et al.* (1991).

MATERIAL AND METHODS

First of all fresh goat milk was collected and standardized

for 4 per cent fat and 11.5 per cent SNF using spray dried skim milk powder. Then the milk was heated at 85°C for 5 minutes. Sugar was added @ of 10 per cent of milk. It was then cooled at 42°C. Milk was then inoculated with 2 per cent culture. At this stage banana pulp was added @ 10, 15 and 20 per cent. The mix was then sent for incubation at 42°C. After that yoghurt was filled in the cups and sent for storage under refrigeration. Thus the yoghurt was ready. The samples were analyzed for physicochemical, microbial and organoleptic qualities as per 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 carbohydrate percentage in fruit yoghurt from banana pulps was found in T₃=17.35, followed by T₂(16.84), T₁(16.19) and T₀(15.16). There were significant differences among the treatments. The highest mean value for protein percentage was found in T₂=3.50 followed by T₀(3.49), T₁(3.43) and T₃(3.35). There were significant differences found among the treatments. The highest mean value for fat

ADDRESS FOR CORRESPONDENCE

J. David, Department of Dairy Technology, Sam Higginbottom Institute of Agriculture, Technology and Sciences, ALLAHABAD (U.P.) INDIA
Email : profjohndavid06@gmail.com

percentage was found in $T_0=3.62$ followed by $T_1(3.34)$, $T_2(3.08)$ and $T_3(2.92)$. There were significant differences found among the treatments. The highest mean value for ash percentage was found in $T_0=0.71$ followed by $T_1(0.68)$, $T_2(0.67)$ and $T_3(0.64)$. There were significant differences found among the treatments. The highest mean value for acidity percentage was found in $T_3=0.82$ followed by $T_2(0.78)$, $T_1(0.75)$ and $T_0(0.72)$. There were significant differences found among the treatments. The highest mean value for total solids percentage was found in $T_3=25.10$ followed by $T_2(24.82)$, $T_1(24.40)$ and $T_0(24.16)$. There were significant differences found among the treatments. Thus, it showed that different levels of goat milk and banana pulp have a great impact on the quality of fruit yoghurt.

Table 1: Average of different physicochemical parameters

Parameters (%)	Treatments			
	T_0	T_1	T_2	T_3
Carbohydrate	15.61	16.19	16.84	17.35
Protein	3.49	3.43	3.50	3.35
Fat	3.62	3.34	3.08	2.92
Ash	0.71	0.68	0.67	0.64
Acidity	0.72	0.75	0.78	0.82
Total solids	24.10	24.40	24.82	25.10

Table 2 showed the highest mean value for yeast and mold count in fruit yoghurt was found in $T_1=8.4$, followed by $T_2(7.6)$, $T_3(7.2)$ and $T_0(7.0)$. There were significant differences found among the treatments. There were no coliform found in all the treatments, thus indicated proper hygiene was followed during the trials.

Table 2 : Microbial parameters

Parameters	Treatments			
	T_0	T_1	T_2	T_3
Yeast and mold count (10^2) cfu/g	7.0	8.4	7.6	7.2
Coliform count (10^1) cfu/g	Nil	Nil	Nil	Nil

Table 3 showed that the highest mean value for colour and appearance in fruit yoghurt was found in $T_0=8.30$, followed by $T_1(8.02)$, $T_2(7.70)$ and $T_3(7.78)$. There were significant differences found among the treatments. The highest mean value for body and texture were found in $T_3=8.34$, followed by $T_0(8.24)$, $T_2(7.98)$ and $T_1(7.68)$. There were significant differences found among the treatments. The highest mean value for flavour and taste was found in $T_3=8.16$, followed by $T_0(8.04)$, $T_2(7.94)$ and $T_1(7.92)$. There were significant differences 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 $T_0=8.3$, followed by

Table 3 : Organoleptic parameters

Parameters	Treatments			
	T_0	T_1	T_2	T_3
Colour and appearance	8.30	8.02	7.70	7.78
Body and texture	8.24	7.68	7.98	8.34
Flavour and taste	8.04	7.92	7.94	8.16

Table 4 : Overall acceptability of the product

Replication	Treatments			
	T_0	T_1	T_2	T_3
R ₁	8.7	7.9	7.8	8.0
R ₂	8.5	7.8	8.3	7.9
R ₃	8.2	7.7	8.2	7.8
R ₄	8.06	7.6	8.0	7.7
R ₅	8.04	7.5	8.1	7.6
Mean	8.3	7.70	8.28	7.80

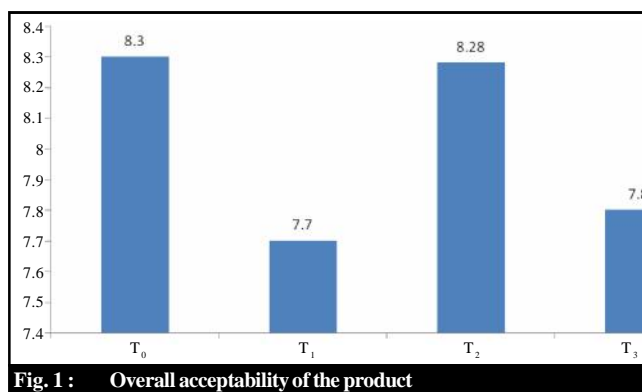


Fig. 1 : Overall acceptability of the product

$T_2(8.28)$, $T_3(7.80)$ and $T_1(7.70)$. The data differed significantly among the treatments, thus showed the acceptability of the fruit yoghurt from goat milk and banana pulp.

The results obtained from the statistical analysis revealed that the goat milk and banana pulp can be satisfactorily used to manufacture fruit yoghurt. Fruit yoghurt contain 20% banana pulp (T_3) found to be best among all the treatments.

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Received : 16.11.2013; Accepted : 30.11.2013