

Preparation of low fat tulsi flavoured yoghurt

K. KUMARI, A. VERMA AND NEERUBALA

ABSTRACT

The present research work was conducted with the objectives, to find out the feasibility of different herbs in the preparation of herbal yoghurt, to study the effect of tulsi on sensory quality and microbial quality of prepared herbal yoghurt. Yoghurt was prepared from standardized low fat milk and 12% S.N.F with herb tulsi at 0.2, 0.3 and 0.4 percentage and served as T₁, T₂ and T₃, respectively. Product was evaluated for sensory quality, microbial quality, pH and acidity using standard procedure. Sensory evaluation of the prepared yoghurt was carried out using nine point hedonic scales. The data obtained were statistically analyzed using analysis of variance and critical difference techniques. Addition of tulsi with 0.3 percentage resulted in better compactness of the body and closely smooth texture of the yoghurt as compared to the other treatments. It can be concluded from the results obtained that the addition of tulsi paste at 0.2 per cent, 0.3 per cent, 0.4 per cent level improved the taste and flavour, colour and appearance, body and texture and also overall acceptability of herbal yoghurt. There was less number of yeast and mould and no number of coliform counts because of proper maintenance of sanitary condition. It is also due to the anti microbial and anti bacterial properties of herbal paste (tulsi) added in low fat herbal yoghurt.

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Key Words : Yoghurt, S.N.F., Skimmed milk powder, pH, Acidity, Yeast and mould count, Coliform count, Tulsi

INTRODUCTION

Yoghurt is a dairy product obtained by bacterial fermentation of milk. Fermentation of lactose produces lactic acid. Yoghurt is believed to promote good gum health, possibly because of the probiotic effect of lactic acid present in yoghurt (Wikipedia, 2009) It is nutritionally rich in protein, calcium, riboflavin, vitamin B₆, B₁₂, and phosphorus (Moore, 2007). Yoghurt is rich in protein and minerals and it can be drunk by people who are suffering from lactose intolerance. (Peggy, 2008). Yoghurt is a fermented milk product; it is produced by adding a "starter" of active yoghurt containing a mixed culture of *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. (Fankhauser, 2008) The therapeutic significance of tulsi in the management of various air carcinogenic cells. Tulsi protects from nearly all sorts of infections from viruses, bacteria, fungi and protozoa. Recent studies show that it is also helpful in inhibiting growth of HIV and carcinogenic cells. Eugenol and Cineole present in the essential oils of tulsi, can cure the infections. They also can cure congestion of the lungs. Tulsi helps to cure tuberculosis due to its anti biotic properties. (Healths benefits of basil 2011).

METHODOLOGY

The experimental work was carried out in the research laboratory of Warner School of Food and Dairy Technology, Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad.

Collection of materials:

Milk was procured from Students Training Dairy, SHIATS, Allahabad. Skimmed milk powder was purchased from the local market of Allahabad. Freeze dried culture of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* were obtained from the Dairy Microbiology Division of N.D.R.I. Karnal (Haryana). Fresh tulsi was purchased from the local market of Allahabad. Plastic cups of 100 ml capacity also purchased from the local market of Allahabad.

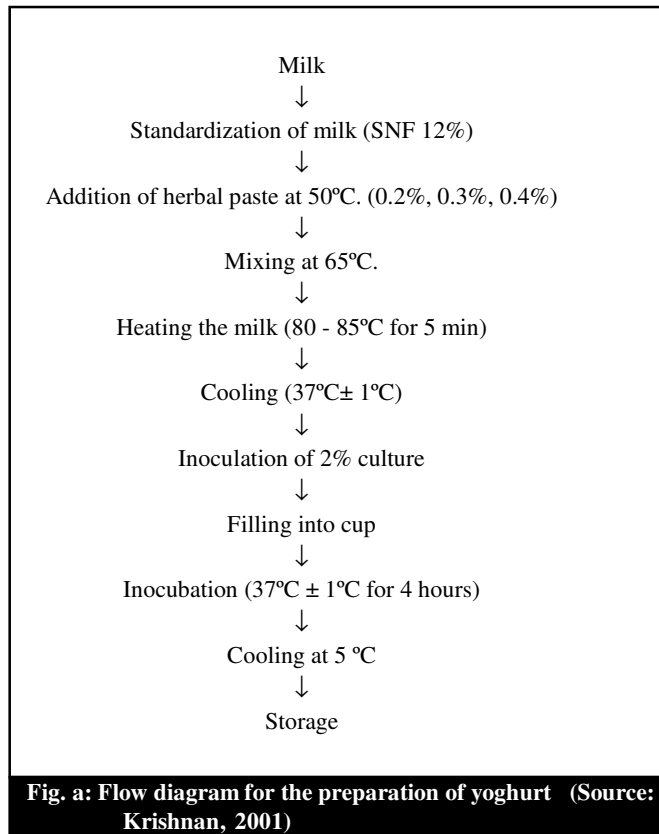
Analysis of milk:

- Fat percentage of milk was determined as per procedure given in I.S.I 1224 part I (1977).
- The SNF content of milk was determined as per the procedure laid down by Indian Standard 2311(1973) Hand Book of Food Analysis

- .SNF: Milk SNF 12 per cent was standardized by using skimmed milk powder.

Details of experimental yoghurt:

(T₁): Preparation of yoghurt from standardized milk, and SNF 12 per cent and with 0.2 per cent paste of tulsi, (T₂): Preparation of yoghurt from standardized milk, and SNF 12 per cent and with 0.3 per cent paste of tulsi, (T₃): Preparation of yoghurt from standardized milk, and SNF 12 per cent and with 0.4 per cent paste of tulsi.



Chemical analysis of yoghurt:

- The pH content was determined through digital pH meter.
- The titrable acidity of yoghurt sample (expressed as per cent lactic acid) was determined as per the procedure laid in I.S 1479. Part I (1960).

Microbial analysis of yoghurt:

- Yeast and mold count in yoghurt were determined as per the procedure laid down in I.S.I 1479, part III (1962) and Manual in Dairy Bacteriology, I.C.A.R. publication.
- The presumption coliform test was determined as per the procedure laid in I.S 1479, part III (1962) and Manual in Dairy Bacteriology I.C.A.R publication.

Sensory evolution:

The herbal yoghurt sample was evaluated for the sensory attributes of colour and appearance, body and texture, flavour and taste and over all acceptability by a panel of 5 judges selected from the Helina School of Home Science and Warner School of Food and Dairy Technology. 9 point Hedonic scale score card was used for the purpose (Srilakshmi 2003).

Statistical analysis:

The data obtained for different parameters were analysed statistically using analysis of variance and critical difference technique (Imran and Coover, 1983).

OBSERVATIONS AND ASSESSMENT

The results obtained from the present investigation are presented below :

Coliform test :

No coliform found in all of herbal yoghurt and all three treatments.

Tulsi :

The average score of taste and flavour of tulsi yoghurt T₁, T₂ and T₃ were 8.57, 7.71, and 7.57, respectively. There was found significant difference in score for taste and flavour of low fat herbal yoghurt between (T₁T₂), (T₁T₃) and (T₂T₃). The average score of colour and appearance of tulsi yoghurt T₁, T₂ and T₃ were (7.54), (7.71), and (8.71), respectively. There was significant difference in score for colour and appearance of low fat herbal yoghurt between (T₁T₃) and (T₂T₃) but (T₁T₂) was found non significant. The average score of body and texture of tulsi yoghurt T₁, T₂ and T₃ were 7.85, 8.14, and 8.57, respectively. There was significant difference in score for body and texture of low fat herbal yoghurt between (T₁T₃) and (T₂T₃) but (T₁T₂) was found non significant. The average score of overall acceptability of tulsi yoghurt T₁, T₂ and T₃ were 7.37, 7.54, and 8.73, respectively. There was significant difference in score for overall acceptability of low fat herbal yoghurt between (T₁T₃) and (T₂T₃) but (T₁T₂) was found non-significant (Table 1).

Table 1 : Average sensory score of herbal yoghurt with tulsi paste

Parameters	T ₁	T ₂	T ₃	Result
Taste and flavour	8.57	7.71	7.57	S
Body and texture	7.85	8.14	8.57	S
Colour and appearance	7.54	7.71	8.71	S
Over all acceptability	7.37	7.54	8.73	S

Average pH of herbal yoghurt with tulsi paste:

The average pH of tulsi yoghurt T₁, T₂ and T₃ were 4.42, 4.53 and 4.70, respectively. There was found significant difference in pH of low fat herbal yoghurt between (T₁T₂), (T₁T₃) and (T₂T₃) were found significant (Table 2).

Table 2 : Average score of pH for herbal yoghurt

Parameters	T ₁	T ₂	T ₃	Result
Tulsi	4.42	4.53	4.70	S

Average acidity of herbal yoghurt with tulsi paste:

The average score of acidity of tulsi yoghurt T₁, T₂ and T₃ were 0.19, 0.23, and 0.24, respectively. There was found significant difference in score for acidity of low fat herbal yoghurt between (T₁T₂), (T₁T₃) and (T₂T₃) were found non-significant (Table 3).

Table 3 : Average score of acidity for herbal yoghurt

Parameters	T ₁	T ₂	T ₃	Result
Tulsi	0.19	0.23	0.24	S

Yeast and mould count:

The average yeast and mould count was high in T₁ and T₃ (7.2). The experimental yoghurt samples have lowest yeast and mould count. It is due to anti-microbial properties of herbal paste (tulsi) added in low fat herbal yoghurt (Table 4).

Table 4 : Average score of yeast and mould count for herbal yoghurt

Parameters	T ₁	T ₂	T ₃
Tulsi	7.20	6.20	7.00

Coliform test :

No coliform was found in all of herbal yoghurt and in all three treatments.

Conclusion:

It can be concluded from the results obtained in the present investigation that the addition of herbal paste of tulsi at the rate of 0.2 per cent, 0.3 per cent, 0.4 per cent. improved the taste and flavour, colour and appearance, body and texture and also overall acceptability of herbal yoghurt. There was less number of yeast and mould and

no number of coliform, which was due to the anti microbial and anti bacterial properties of herbal paste (tulsi) added in low fat herbal yoghurt.

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