



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.03

TPI 2020; 9(12): 367-369

© 2020 TPI

www.thepharmajournal.com

Received: 04-09-2020

Accepted: 12-10-2020

Phalguni N Khadse

P.G. Student, Animal Husbandry and Dairy Science, College of Agriculture, Nagpur, Maharashtra, India

AS Ingole

Professor, Animal Husbandry and Dairy Science, College of Agriculture, Nagpur, Maharashtra, India

KR Kadu

Senior Research Assistant, Animal Husbandry and Dairy Science, College of Agriculture, Nagpur, Maharashtra, India

BR Wankhade

Assistant Professor, Animal Husbandry and Dairy Science, College of Agriculture, Nagpur, Maharashtra, India

Studies on sensory evaluation and cost configuration of curd prepared by using different utensils

Phalguni N Khadse, AS Ingole, KR Kadu and BR Wankhade

Abstract

The present investigation entitled "Studies on sensory evaluation and cost configuration of curd prepared by using different utensils" was carried out in Animal Husbandry and Dairy Science Section, College of Agriculture, Nagpur during the year 2019-2020. The purpose of present investigation was to find out which utensils gives better results for preparation of curd on the basis of physico-chemical properties, sensory and organoleptic evaluation of curd. The curd was prepared by using earthen (T1), stainless steel (T2), aluminum (T3), plastic (T4) and china clay (T5) utensils with five treatments and four replications. The data were statistically analyzed by completely randomized design (CRD). The curd prepared in earthen container (T1) had highest score for flavour (8.83 out of 9), body and texture (8.67 out of 9), colour and appearance (8.70 out of 9) and overall acceptability (8.78 out of 9) by 9 point hedonic scale and ranked as the most acceptable treatment. The cost of curd prepared in earthen container (T1) was Rs. 60.87 per kg which was less when compared with treatment T2, T3, T4, T5. Hence, it is concluded that good quality of curd is made in earthen container (T1).

Keywords: Milk, curd, sensory attributes, container, cost structure

Introduction

Milk is considered as a nature's almost perfect food. It is rich source of almost all essential nutrients in proper proportion which require for growth and development of human being. Starter culture used for bio preservation of the product resulting in prolonged shelf life and enhance safety, improvement of rheological and sensory properties multifunctional positive effect to human health and bacteriocins production as container rental food preservatives (Tamime, 2006 and Bhullar *et al.* 2002) ^[11, 1].

Curd the indigenous fermented milk, is now ubiquitous in our menu and is on top of list of our dietary items. The Indian medical treatise "Sushruta Samhita" describes "curd" as a food promoting appetite and strength. (Phegade 1999) ^[7].

In the family of fermented milks curd is one of the most important products. About 45 per cent of the total quantity of milk used curd making in eastern Nepal. It has better nutritive value than milk. Gandhi and Natrajan (2010) ^[2] proved that digestibility of curd is more than that of milk even though there is no increase in fat or protein content of milk during fermentation.

Research work on studies on sensory quality of curd prepared by using different utensils was undertaken with a view to find out response of different container viz. earthen container, stainless steel, aluminium, plastic and china clay container on quality of curd preparation.

Material and Methods

The preparation of curd by using different utensils was undertaken in the section of Animal Husbandry and Dairy science, College of Agriculture Nagpur, during 2019-20. Curd prepared from cow milk was standardized at 3.5% fat. Added freeze dried pure culture of *Lactococcus lactis* (*Streptococcus lactis*) and *Lactobacillus bulgaricus* obtained from National Dairy Research Institute, Karnal (Haryana) to this milk to different container like earthen (T1), steel (T2), aluminium (T3), plastic (T4) and china clay (T5) with four replication and incubate the curd overnight. The fat, total solids, acidity, protein, ash, pH, moisture and curd tension of curd were determined. The process flow chart for preparation of curd is given in flow chart 1.

Corresponding Author:

Phalguni N Khadse

P.G. Student, Animal Husbandry and Dairy Science, College of Agriculture, Nagpur, Maharashtra, India

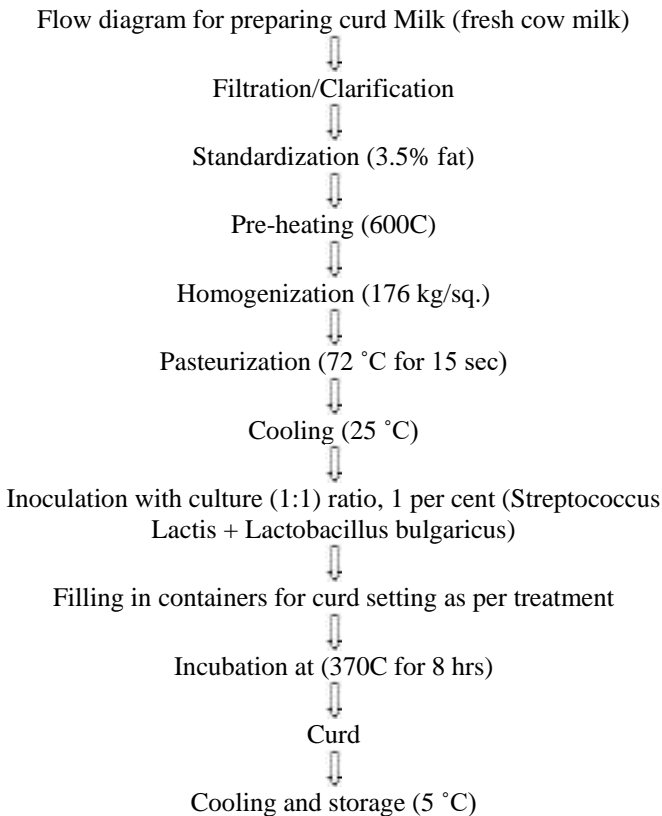


Chart 1: Preparation of curd is given in flow

The observations were recorded for flavour, body and texture, colour and appearance and overall acceptability by using 9 point hedonic scale (Nelson and Trout, 1964) ^[5]. Statistical analysis was done as per method suggested by Snedecor and Cochran (1994) ^[9].

Results and Discussion

Sensory evaluation of curd

Sensory evaluation has been defined as a scientific method used to evoke, measure, analyze and interpret those responses to products as perceived through the senses of sight, smell, touch, taste, and hearing (Stone and Sidel, 1993) ^[10].

The samples of fresh product were subjected to sensory evaluation by panel of 5 judges on the basis of their ability. The same judges evaluated the samples of each trial throughout the experiment to avoid the possibility of variation. The evaluation was done on the basis of the sensory attributes such as colour and appearance, flavour, body and texture and overall acceptability by using a 9 point Hedonic scale and the data so obtained were analyzed by using completely randomized block design (CRBD). The scores given by judges for different parameters were recorded and subsequently discussed in the foregoing tables and paragraphs.

Flavour

Highest score was obtained by curd prepared in earthen utensils (T1) the score is (8.83). These container gives earthy flavor to the product. Whereas lowest score was obtained by curd prepared in plastic container (T4) i.e. 7.65.

Patlani and Goyal (2003) they stated that curd prepared in earthen container gets higher score for aroma and flavor than other container.

Body and texture

The highest score was observed in curd prepared in earthen container (T1) which is 8.67 whereas lowest score was obtained by curd prepared in plastic container (T4) i.e. 6.92. Ghosh and Rajorhia (1990) reported that the process of fermentation of mishti doi is usually carried out in earthen container which imparts a characteristic earthy flavor to the product and also absorbs the extra whey and increased the body and texture.

Colour and appearance

The highest score was observed in curd prepared in earthen container (T1) which is 8.70 as compared to other treatment. Raju and Pal (2009) ^[8] reported that the fermented milk product mishti doi prepared in earthen container had yellowish or creamish colour with firm consistency, smooth texture and pleasant aroma.

Overall acceptability

The highest score was observed in curd prepared in earthen container (T1) which is 8.78 as compared to other treatment. Hence it is indicated that curd prepared in earthen container resulted as a better overall acceptability.

Table 1: Overall average score of curd prepared by using different utensils

Treatments	Flavour	Body and Texture	Colour and Appearance	Overall Acceptability
T ₁	8.83a	8.67a	8.70a	8.78a
T ₂	8.14c	7.54c	7.37c	8.15c
T ₃	7.93d	7.24d	7.11d	7.93d
T ₄	7.65e	6.92e	6.91e	7.53e
T ₅	8.58b	8.34b	8.45b	8.54b
S.E. ±	0.020	0.026	0.020	0.018
C.D @ 5%	0.060	0.079	0.061	0.056
Results	Sig.	Sig.	Sig.	Sig.

Cost of production

The cost of production of 1 kg curd under various treatments was calculated by taking into consideration the prevailing retail market prices for the various items i.e. cow milk, starter culture while the other charges such as labour, fuel, electricity charges etc. are work out on the basis of actual hours of work performed for the preparation of 1 kg curd.

The data presented in Table indicated that cost of production of 1 kg curd prepared as per treatment T1 (earthen container), T2 (stainless steel), T3 (aluminium container) T4 (plastic container) and T5 (china clay) were 60.87, 61.00, 61.17, 60.23 and 60.93 Rs. respectively.

Kute (2012) ^[4] observed that the cost of dahi samples (for one kg) collected from four region of Nagpur city i.e. east, west, north, and south were Rs. 48.00, 65.00, 50.00 and 55.00 per kg, respectively. The highest rate of dahi sample were observed in west region dahi sample, where as lowest rate was noticed in north region of Nagpur city.

Table 2: Cost of production of 1 kg curd prepared by using different utensils (Rs.)

Particulars	Treatments									
	T1		T2		T3		T4		T5	
	(Earthen Container)		(Steel Container)		(Aluminum Container)		(Plastic container)		(China clay container)	
	Qty.	Value (Rs.)	Qty.	Value (Rs.)	Qty.	Value (Rs.)	Qty.	Value (Rs.)	Qty.	Value (Rs.)
Cow milk (gm) @ Rs 40/lit	1000	40	1000	40	1000	40	1000	40	1000	40
Culture (g)	10	5	10	5	10	5	10	5	10	5
Gas used for heating in (g) @ Rs. 758.50/14.2 kg Cylinder	30	1.60	30	1.60	30	1.60	30	1.60	30	1.60
Electricity charges @ Rs. 3/Unit	0.40	1.20	0.40	1.20	0.40	1.20	0.40	1.20	0.40	1.20
Labour charges (min) @ Rs231/day	13 min	5.77	13min	5.77	13 min	5.77	13min	5.77	13 min	5.77
Weight of curd obtained (gm)	880		878.12		875.75		874.84		879.15	
Cost of curd (Rs)	-	53.57		53.57		53.57		53.57		53.57
Total cost of curd/kg (Rs)		60.87		61.00		61.17		61.23		60.93

References

- Bhullar YS, Uddin MA, Shah NP. Effect of ingredients supplementation on textural characteristics and microstructure of yoghurt. *Milchwissenschaft* 2002;57(6):329-332.
- Gandhi DN, Natrajan AM. Preparation of a good quality dahi (curd) and probiotic milk products 2010, 1-31.
- Ghosh J, Rajorhia GS. Technology for production of misti dahi: A traditional fermented milk product. *Indian J Dairy Sci* 1987;43:239-246.
- Kute SR. Study of Physico- chemical properties of dahi sold in Nagpur city. M.Sc. (Agri) Thesis (Unpub) Dr. P.D.K.V. Akola 2012.
- Nelson JA, Trout GM. Judging Dairy products, IV Edition Olson publ. Co. Milwaukee 1964, 302-306.
- Paltani IP, Goyal GK. Container rental of bio based packaging. *Dairy Industry, Packaging India* 2003;35(5):39-48.
- Phegade AP. Studies on effect of concentration of cow milk on quality of dahi. M.Sc. (Agri.) Thesis (unpub.) Dr. P.D.K.V. Akola 1999.
- Raju NP, Pal D. The Physico-chemical, Sensory and Textural Properties of Misti Dahi Prepared from Reduced Fat Buffalo Milk. *Food Bioprocess Technol* 2009;2:101-108.
- Snedecor GW, Cochran WG. Statistical method, 8th edition Oxford and BIS publishing company, Culcutta, 1994.
- Stone H, Sidel JL. Sensory evaluations practices, California: Academic Press 1993.
- Tamime AY, Skriver A, Nilsson LE. Starter Culture. In *Fermented Milks*, ed. A. Tamime, Blackwell Science, Ayr, UK 2006, 262.