



IJCRR

Vol 05 issue 17

Section: Healthcare

Category: Research

Received on: 24/06/13

Revised on: 21/07/13

Accepted on: 18/08/13

ORGANOLEPTIC QUALITY OF LOW FAT DIETETIC FERMENTED DAIRY DRINK AT LOW PRICE

Kirti Srivastava, Ramesh Chandra

Department of Food Science and Technology, Warner School of Food and Dairy Technology, SHIATS, Allahabad, India

E-mail of Corresponding Author: kirtisrivastava01@gmail.com

ABSTRACT

The present study was undertaken with the objectives to develop suitable technology for preparation of low fat dietetic fermented dairy drink, to evaluate the organoleptic quality of dietetic fermented dairy drink as well as cost of the product. Three different percentage of milk fat 0.5%, 1.5%, and 3% indicated as F₁, F₂, and F₃ respectively and four different levels of cornflakes powder 4%, 6%, 8% and 10% indicated as C₁, C₂, C₃, and C₄ respectively compared to each other. The sensory evaluation of the prepared dairy drink was carried out by using the nine point hedonic scale. Cost of the product was also worked out for different treatment combinations. The data obtained during investigation was statistically analyzed by using factorial design and critical difference between combinations. Amongst the different treatment combinations of dietetic fermented dairy drink, F₃C₃ having 3 percent milk fat and using 8 percent level of cornflakes powder was found to be superior in terms of flavour and taste, colour and appearance, consistency as well as overall acceptability over the other treatment combinations. The cost wise, dietetic fermented dairy drink prepared was also more economical as compared to the dairy drink available in present day market.

Keywords: cornflakes powder, milk fat, dairy drink, skim milk.

INTRODUCTION

Cultured buttermilk is economical, delicious and healthful. It is also an ideal beverage for weight watchers. It is so easy to digest that people with poor appetite can readily assimilate it. Cultured buttermilk has a high nutritive and therapeutic value. It is a good source of protein, riboflavin and calcium. Those with digestive problem are often advised to drink buttermilk rather than milk as it is more quickly digested. Many bakers use cultured buttermilk in biscuits, pancakes and other similar product because of the tangy flavour it imparts. Consumers need to be careful with cultured buttermilk because it is a soured product. Although harmful bacteria should not be able to thrive in it, if the flavour is slightly off, it is better to dispose of the buttermilk than to experience

minor gastrointestinal distress as the result of bacteria or molds (Sinha and Sinha, 2000)

Maize (*Zea mays* L.) is an important coarse grain cereal crop holding third position in world production next to wheat and paddy. The pre-eminence of corn is due to its wide diversity of uses and highly useful products into which it can easily be transformed. Maize was domesticated in Central America 6,000 to 10, 0000 years ago. It spread to the rest of the world in the 16th to 18th centuries (FAO 1992 and CIMMYT, 1997). Maize crop has a special place in Indian agriculture and is staple food of people of Uttar Pradesh, Punjab, Rajasthan, especially for low socio economic group (Deosthale and Pant, 1971; Reddy et. al. 1991). Maize is consumed mainly in the form of roti, sattu, dalia, phullae, etc. in India.

It is used also as an important industrial ingredient for the manufacture of starch, glucose – syrup, dextrose, high fructose syrup, industrial alcohol, beer and whisky (Bhat and Puri, 1971). Maize

flour is also used for the manufacture of cereal products, snack foods, cornflakes, instant foods, biscuits, wafers, crackers supplementary foods etc (Kent, 1976).

MATERIALS AND METHOD

The experiment was carried out in the Research Laboratory of Warner School of Food and Dairy Technology, Sam Higginbottom Institute of Agriculture, Technology and Sciences (Deemed-to-be-University), Allahabad. U.P. Skim milk was collated from student's training Dairy Sam Higginbottom Institute of Agriculture, Technology and Sciences (Deemed-to-be-University), Allahabad. Corn flakes, Salt and other spices were purchased from the local market of Allahabad.

Dietetic fermented dairy drink was prepared by the method adopted for preparation of set curd, with the slight modifications. Quantity of variables such as skim milk, milk fat and stabilizer were optimized converted into curd. Which later was churned fifty percent water, salt and spices were added to it. For flavour enhancement, cornflakes powder was added to it. Dietetic fermented dairy drink composition made according to the method of the invention exhibit good organoleptic characteristics.

Sensory evaluation of low fat dietetic fermented dairy drink was done by a panel of five judges. The evaluation of the product was carried out by using hedonic score card based on "9 point Hedonic scale" allotted for various parameters. (Srilakshmi, 2002) The cost of the prepared product was calculated at the prevailing prices of raw materials purchased from the local market of Allahabad. The data obtained for various parameters was statistically analyzed for its validity by using factorial design and critical difference (C.D.) technique (Imran and Coover, 1983).

RESULTS AND DISCUSSION

Three different ratio of milk fat and four different levels of cereal i.e. cornflakes powder was used in the present experimental work. Dietetic fermented dairy drink prepared from different treatment combinations were compared with each other. The data collected on different aspect as per the methodology have been tabulated and analysis is presented and discussed in the following sequence.

Flavour and taste

Highest flavour and taste score of dietetic fermented dairy drink sample 8.68 was recorded in F_3C_3 . The difference was found to be significant in most of the treatment combinations. Difference in flavour and taste of dietetic fermented dairy drink was probably due to the typical flavour of corn flakes powder added in dietetic fermented dairy drink.

On comparison, the mean values of fat level against the critical difference value, the average value of F_3 (8.17) was highest and it differs significantly from all other fat levels. So it can be regarded as the best and on comparison, the mean values of cornflakes ratio against the critical difference value, the average value of C_3 (8.52) was highest and it differs significantly from all other cornflakes ratio. So it can be regarded as the best.

Consistency

Highest consistency score of dietetic fermented dairy drink 8.48 was recorded in F_3C_3 . The difference was found to be significant in most of the treatment combinations. The difference in the consistency noted in different treatment combinations was due to variation of cornflakes powder in dairy drink.

On comparison, the mean values of fat level against the critical difference value, the average

value of F_3 (8.16) was highest and it differs significantly from all other fat levels. So it can be regarded as the best and on comparison of the mean values of cornflakes ratio against the critical difference value, the average value of C_3 (8.41) was highest and it differs significantly from all other cornflakes ratio. So it can be regarded as the best.

Colour and appearance

Highest colour and appearance score of dietetic fermented dairy drink samples 8.52 was recorded in F_3C_3 . There was significant difference in most of the treatment combinations. The difference in the colour and appearance noted in different treatment combinations was due to variation of cornflakes powder and spices in dairy drink.

On comparison, the mean values of cornflakes ratio against the critical difference value, the average value of C_3 (8.41) was highest and it differs significantly from all other cornflakes ratio. So it can be regarded as the best.

Overall acceptability

Highest overall acceptability score of dietetic fermented dairy drink samples 8.52 was recorded in F_3C_3 Overall acceptability score of dietetic

fermented dairy drink differed significantly in most of the treatment combinations.

On comparison the mean values of fat level against the critical difference value, the average value of F_3 (8.11) was highest and it differs significantly from all other fat levels. So it can be regarded as the best and on comparison, the mean values of cornflakes ratio against the critical difference value, the average value of C_3 (8.42) was highest and it differs significantly from all other cornflakes ratio. So it can be regarded as the best.

Cost of the product

The average cost of production, one kg of dietetic fermented dairy drink samples i.e. F_1C_1 , F_1C_2 , F_1C_3 , F_1C_4 , F_2C_1 , F_2C_2 , F_2C_3 , F_2C_4 , F_3C_1 , F_3C_2 , F_3C_3 , and F_3C_4 , were Rs.30.05, Rs.35.29, Rs.40.34, Rs.45.21, Rs.31.36, Rs.36.57, Rs.41.60, Rs.46.45, Rs.32.67, Rs.37.86, Rs.42.86 and Rs.47.69 respectively. The cost of production of dietetic fermented dairy drink sample F_1C_1 (30.05) was much less than the other samples

Table: Average of data obtained on different parameters in dietetic fermented dairy dink

Parameters	F_1C_1	F_1C_2	F_1C_3	F_1C_4	F_2C_1	F_2C_2	F_2C_3	F_2C_4	F_3C_1	F_3C_2	F_3C_3	F_3C_4
Flavour and Taste Score	7.28	7.92	8.44	8.04	7.48	7.96	8.44	8.08	7.64	8.08	8.68	8.28
Consistency score	7.56	8	8.36	8.04	7.72	7.96	8.4	8.12	7.76	8.16	8.48	8.24
Colour and Appearance score	7.64	7.96	8.28	8.16	7.76	8.04	8.44	8.12	7.72	7.92	8.52	8.24
Overall acceptability score	7.44	7.92	8.32	8.04	7.6	7.94	8.4	8.1	7.68	8.02	8.52	8.24
Cost of the Product (Rs/kg)	30.05	35.29	40.34	45.21	31.36	36.57	41.60	46.45	32.67	37.86	42.86	47.69

CONCLUSION

From the findings of this study, it was concluded that among the different treatment combinations of fermented dairy drink, F_3C_3 having 3 percent milk fat and using 8 percent cornflakes powder level was found to be superior in terms of overall acceptability over the other treatment combinations. Therefore, it is concluded that for overall

improvement in consistency, flavour, and taste in a level of 8 percent could easily be incorporated to produce good quality dairy drink. The cost wise dietetic fermented dairy drink treatment combinations were also more economical as compared to the dairy drink available in present day market. It is thus anticipated that dietetic fermented dairy drink will in future provide additional benefits

to consumers with respect to convenience, price and

REFERENCES

1. Bhat, C.M. and Puri, B.(1971): Nutritive value of maize as affected by home processing. *Ind. J. Nutr. Dietet*, 9:244 – 248.
2. CIMMYT. (1997): Science of sustain people and environment. Mexico, D.F: CIMMYT.ISSN: 0188-M9214.PP.38-39.
3. Deosthale, Y.G. and Pant, k.c. (1971): Nutrient composition and amino acid pattern of some high yielding maize varieties. *Ind. J. Nutr. Dietet*. 8: 244 – 248.
4. FAO Agro stat. (1992): Food Balance Sheets, FAO, Rome, Italy.
5. FAO, (2009): Food and Agriculture Organization of the United Nations. Statistical Division. Maize, rice and wheat: area harvested, production quantity, yield
6. Imran, R.L and Coover< W.B. (1983): A health. modern approach to statistics. New york: John willy and sons inc, 497.
7. Kent, N.L. (1976): Technology of cereals, Pergamon Press, England, p.210.
8. Reddy, N.S.; Kamble, R.M. and Khan, T.N.I. (1991): Evaluation of nutritional quality of maize and maize products. *The. Ind. J. Nutr. Dietet*. 28: 90 – 94.
9. Sinha, P.R. and Sinha, R.N. (2000): Importance of good quality dahi in food. *Indian Dairyman*, 52: 45-47.
10. Srilakshmi,B. (2002): Food Science, 4th Edition, New Age International Publishers. New Delhi pp – 247 – 251.