ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 5, Issue, 04, pp.1016-1017, April, 2013

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

SENSORY EVALUATION OF NATURAL IDENTICAL VANILLA FLAVOUR ICE CREAM

[1,*]Ayyavoo Preamnath Manoharan, [2]Ramasamy D. and [3]Jayachandran, S.

[1]Department of Livestock Production and Management, Veterinary College and Research Institute, Orathanadu
[2]Institute of Food and Dairy Technology, Koduvalli, Alamathi (Post), Chennai – 52, India
[3]Department of Physiology and Bio-Chemistry, Veterinary College and Research Institute, Orathanadu – 614 625

ARTICLE INFO

Article History:
Received 15th January, 2012
Received in revised form
24th February, 2013
Accepted 28th March, 2013
Published online 20th April, 2013

Key words:
Ice cream, Frozen desert,
Flavour, Natural identical flavor,
Vanilla, Sensory analysis.

ABSTRACT

The demand for ice cream production is increasing every year and vanilla is the second largest flavour wished in the world. Natural vanilla flavour being most expensive hence using natural identical flavour much advantage to meet the demand. Natural identical flavours are substances that are chemically identical to natural substances, but which are obtained by chemical processes or by chemical modification of other natural substances. An investigation was carried out to find the acceptable level of Natural identical vanilla flavour as a flavour the ice cream and assess the sensory scored of the resultant product. Natural identical vanilla flavour was incorporated at different level in ice cream and prepared ice cream was subjected to sensory analysis and found out the optimum level of inclusion of natural identical vanilla flavour in the ice cream preparation. Then sample were stored at -29°C and studied for their sensory scores at weekly intervals.

INTRODUCTION

Ice cream is one of the oldest fat rich delicious dairy products liked by all age groups of people throughout the world. Ice cream production is increasing every year tremendously. Although vanilla is the second most expensive spice, next to saffron, it is still the most widely used (Ranadive 2005). Vanilla has a very versatile flavor that is acceptable at almost any concentration (Korthou and Verpoorte 2007). Because vanilla is such a versatile and well accepted flavoring it is used readily in the food, beverage, cosmetic, and tobacco industries (Korthou and Verpoorte 2007). In the United States alone 1350 metric tons of cured vanilla beans are imported yearly and over 2100 metric tons are imported globally per year (Ranadive 2005). Natural identical flavoursare substances that are chemically identical to natural substances, but which are obtained by chemical processes or by chemical modification of other natural substances. An example is vanillin, which is identical to the vanillin in vanilla, but not obtained from vanilla pods (Robert L. Smith*et.al.* 2005).

MATERIALS AND METHODS

The present study was conducted at the modern dairy plant, Institute of Food and Dairy Technology, Koduvalli, Alamathi (post), Chennai. The raw materials used for the preparation of ice cream are as follows: Buffalo milk (5.0 per cent fat and 9.5 per cent MSNF) purchased from the nearby village; Butter (80 per cent fat) purchased from the Tamil Nadu Co-operative Milk Producers Federation Ltd., Aavin and was used to standardize the fat content of the ice cream. Skimmed milk powder (95 per cent MSNF) obtained from Tamil Nadu Co-operative Milk Producers Federation Ltd. Aavin was used to standardize the milk solids not fat (MSNF) content of ice cream. High quality stabilizers (gelatin) and emulsifiers (Glycein-mono-strate) were used for this research. Vanilla natural identical flavor was purchased from the Chemical Engineering Corporation Pvt. Ltd., Ponpadi, R.S and PO – 631 213, Tamil Nadu was used flavouring ice cream. High quality cane sugar (sucrose) was used. Ice cream mix was prepared to contain a final composition of, 10 per cent fat, 36 per cent total solids, 15 per cent sugar, 0.5 per cent stabilizer and emulsifier, as per ISI (IS: 2802, 1964) specification (Sukumar De, 1980). Natural color like curcumin was added for butterscotch flavor (0.3, 0.5, and 0.7 percent) just before freezing. Ice creams with the different levels of curcumin powder were subjected to sensory evaluation and compared with the control sample to assess its acceptable level. In each treatment, mix ingredients were homogenized as described by Arbuckle, (1977) and then heated to 80°C for 30 sec as suggested by Rothwell, (1976). Mixes were cooled to 5°C and aged over night at the same temperature. The freezing was done in a batch freezer. The sensory characteristics of the ice cream samples were assessed using the ADSA IC score card. The sensory panel belongs to staffs and students of Institute of Food and Dairy Technology, Koduvalli, Chennai.

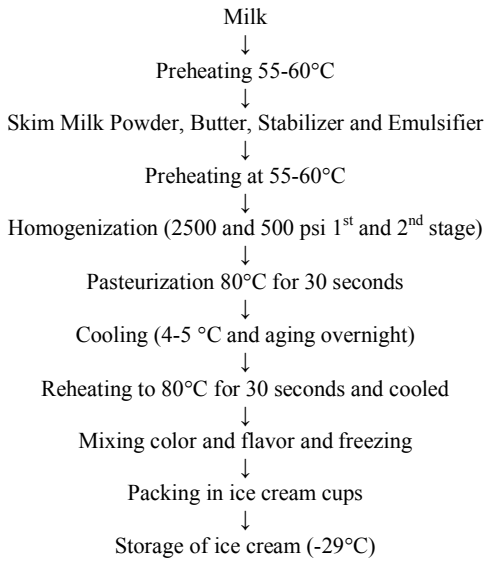
ADSA IC Score card

The data collected were analyzed by analysis of variance (one way ANOVA) as described by Snedecor and Cochran (1989). And Duncan's multiple range tests were used as post hoc technique to study the significant difference among the means.

Items	Perfect score	Score obtained
Flavor	45	
Body and Texture	30	
Color	5	
Melting quality	5	
Bacterial count	15	
Total score	100	

Corresponding author: premmano_vet@yahoo.co.in

Fig.1. Process flow chart for the preparation of ice cream samples



RESULT AND DISCUSSION

Table 1 shows the sensory score for different characters and the overall scores for natural identical vanilla flavour. Vanilla is the most preferred flavor in ice cream preparations throughout the world. In the present study, natural identical vanilla flavor was added in the ice cream samples at three different levels viz., 0.03, 0.05 and 0.07 per cent. From the table it may be noticed that the inclusion level of 0.05 per cent had the maximum overall score and was statistically similar to that of control samples for all the sensory characters. The inclusion of vanilla above 0.05 per cent level significantly altered the flavor even though it did not alter the colour and body and texture of the ice cream. At lower concentration (0.03 per cent) the quantity was not sufficient enough to produce the required flavor while at higher concentration (0.07 per cent) it produced bitter taste and hence the level of 0.05 per cent inclusion of vanilla was considered as optimum. The overall average scores for the control, 0.03, 0.05 and 0.07 inclusion of vanilla were 96.52, 89.86, 97.26 and 92.16, respectively. From the table it may be noticed that the inclusion level of 0.05 per cent had the maximum overall score and was statistically similar to that of control samples for all the sensory characters. The inclusion of vanilla above 0.05 per cent level significantly altered the flavour even though it did not alter the colour and body and texture of the ice cream and hence the level of 0.05 per cent inclusion of vanilla was considered as optimum. Ernst and Kris (1996) describes the using natural identical vanilla flavour instead of synthetic vanilla flavouring the effect of ice cream was not lost in low fat ice cream and the results were comparable.

Table 1. Sensory analysis score (Mean± SE)*for ice cream with natural identical flavour vanilla

Parameters	Control	Vanilla (natural identical flavour)		
		0.03%	0.05%	0.07%
Flavour	43.04.±0.266^{b}	38.97±0.115^{a}	43.51±0.212^{b}	39.28±0.073^{a}
Color	4.89±0.035^{a}	4.92±0.032^{a}	4.86±0.070^{a}	4.85±0.029^{a}
Body& Texture	28.68±0.205^{b}	26.73±0.227^{a}	29.01±0.228^{b}	28.51±0.235^{b}
Melting quality	4.87±0.033^{a}	4.27±0.034^{b}	4.81±0.043^{a}	4.78±0.056^{a}
Microbial	15.00±0.00^{a}	15.00±0.00^{a}	15.00±0.00^{a}	15.00±0.00^{a}
Overall score	96.52±0.306^{c}	89.86±0.312^{a}	97.26±0.313^{c}	92.16±0.257^{b}

Means bearing different superscript in a row differ significantly (P< 0.01)
* Average of 8 trails

Conclusion

The results of the present study revealed that the inclusion of natural identical flavour vanilla in the ice cream significantly altered the organoleptic scores of the ice cream samples. Among the different inclusion levels of natural identical flavour vanilla, 0.05 per cent had the maximum scores. Hence it was recommended that the natural identical flavour vanilla can be added to the ice cream of 0.05 per cent without affecting the sensory qualities of the vanilla flavourice cream.

REFERENCE

Arbuckle, W.S., 1977. Ice cream, 2nd Edn. The AVI Publishing Co., West port, Conn.

Indian Standard: 2802. 1964. Specification for ice cream. Bureau of Indian Standards, New Delhi.

Ranadive AS. 2005 Vanilla cultivation. In: Vanilla: The first international congress. Princeton: NJ: Allured, Carol Stream. p 25–32.

Korthou H, Verpoorte, R. 2007. Vanilla. In: Berger RG. Editor. Flavours and fragrances: chemistry, bio processing and sustainability. Berlin: Springer. p. 203–217.

Robert L. Smith , Samuel M. Cohen , John Doull , Victor J. Feron , Jay I. Goodman, Lawrence J. Marnett, Ian C. Munro, Philip S. Portoghese, William J. Waddell, Bernard M. Wagner, Timothy B. Adams. 2005. Criteria for the safety evaluation of flavoring substances The Expert Panel of the Flavor and Extract Manufacturers Association, *Food and Chemical Toxicology* 43 :1141–1177.

Rothwell, J., 1976. Ice cream, its present day manufacture and some problems. *J. Soc. Dairy Tech.,* 29: 161 – 165.

Snedecor, G .W and W. G. Cochran, 1989.Statistical methods. 9th Edn. The lowa State University Press, Ames, lowa.

Sukumar De, 2008.Outlines of dairy technology. Published by Oxford University Press, New Delhi.pp183 - 219.

****