

Formulation of an effective stabilizer/ emulsifier system for ice cream.

The quality of ice cream depends heavily on stabilizers and emulsifiers used in their manufacture. Recent studies show that the use of a combination of several stabilizers and/ or emulsifiers can be more effective than each additive singly, in enhancing ice cream quality. Purpose of this study, therefore, was the determination a more effective stabilizer- emulsifier combination that can also minimize the cost of ice cream production. Studies were carried out with Carrageenan and Locust Bean gums as stabilizers and Distilled Monoglyceride as the emulsifier. Six different ice creams were prepared in a preliminary experiment in which the emulsifier and the two stabilizers constituted 0.33 % by weight of the ice cream. Emulsifier was 50 % in all cases and the both stabilizers were added in different proportions to constitute the remaining 50 %. Other ingredients were unchanged. Based on the preliminary test results, where overall quality appeared low, four more different ice creams were prepared, by reducing the emulsifier content to 25 % and increasing the stabilizers to 75 %. Both the experiments included a commercial product as control, which contained Mono and Diglycerides as the emulsifier, and Guar gum, Xanthan gum and Carrageenan as stabilizers to be compared with ice creams tested. All preparations were tested for percentage of titratable acidity, melting rate, percentage of overrun, and flow rate. A cost evaluation of each substitution level was additionally done. Ten trained individuals, independently in a sensory evaluation, assessed the product quality attributes such as taste, appearance, texture, aroma, color, and general acceptability. Kruskal - Wallis one-way ANOVA by ranks test, determined statistical significance at the level of 0.05 among the preparations under each attribute. According to the cost evaluation, all the stabilizer/ emulsifier combinations used in the present study had low cost than the 'Dricoid 200' which is imported at a cost of Rs. 800 per one kilogram. Among them that two ice creams, which included Carrageenan, Locust Bean gum and Distilled Monoglyceride at the percentages of 25: 38: 37 and 25: 42: 33, respectively were better according to sensory and physico-chemical analysis. However, these substitution levels can further be increased to improve the texture.