

Public Abstract

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Title: Sensory analysis of low fat strawberry ice creams prepared with different flavor chemicals and fat mimetics

The objective of this study was to investigate the release behavior of five strawberry flavor compounds in ice creams with Simplese[®], Litesse[®] and Litesse[®]/ Simplese[®] mixes and to reformulate an artificial strawberry flavor added to lower-fat ice creams with a special fat mimetic as well as to determine the consumer acceptance of the reformulated low-fat ice creams. A mixed-ANOVA analysis found that fat content, fat mimetics and flavor formulation had a significant influence on the perception of furaneol[™], α -ionone and γ -undecalactone. Furaneol[™] was perceived more strongly in full-fat ice cream, while ethyl-3-methyl-3-phenylglycidate, *cis*-3-hexen-1-ol, γ -undecalactone and α -ionone, were perceived more strongly in low-fat ice cream. Ice creams with Simplese[®] and full-fat ice cream had similar sensory characteristics. Cooked sugar flavor, sweetness and their aftertastes in ice cream with Simplese were determinants for the degree of taste similarity with full-fat ice cream. The reformulated product, which was the closest in sensory characteristics to full-fat ice cream, was either the one in which the concentration of γ -undecalactone was decreased individually by 25% or the product, in which γ -undecalactone and *cis*-hexen-1-ol were decreased by 25%. There were no significant differences for consumer acceptance between 10% ice cream and these reformulated products in which the concentration of γ -undecalactone was decreased individually by 25% or in combination with a 50% decrease of α -ionone. Some consumers would like milky flavor aftertaste and weak peach flavor, while another group would like more pink color, sweetness, strawberry flavor, milky flavor, violet flavor, condensed milk, thickness and mouth coating.