

Lemon flavor improves sensory characteristics and consumer acceptability in omega-3 polyunsaturated fatty acids fortified ice cream

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Consumption of fish oils and their specific omega-3 long chain polyunsaturated fatty acids (LCPUFAs), such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), have been found useful in reducing risk of a variety of diseases including hypertension, cardiovascular disease, atherosclerosis, inflammatory and autoimmune disorders. Fortification of food products with omega-3 LCPUFAs has become an attractive option. The selection of the host food product and the influence on the sensory perception of "fishy" or off flavor in the final product is a challenge to food industry. Ice cream is very popular product among consumers. However, the fishy flavor of the fortified products limits consumer acceptability of ice cream. There is a need to develop a practical solution to improve consumer acceptability of ice cream fortified with omega-3 LCPUFAs. Therefore, the objective of this work was to determine the impact of lemon flavor on the sensory characteristics and consumer acceptability of omega-3 LCPUFAs fortified ice cream. Three batches of vanilla ice cream were prepared: (1) omega-3 only, (2) lemon flavored plus omega-3, and (3) control (without omega-3 and lemon flavor). A consumer panel recruited from the university campus (n= 40) rated the appearance, color, texture, off flavor, aroma, overall liking using a 9 point hedonic scale. Our results showed that most panel members liked the ice cream with lemon flavor and omega-3 ($p < 0.05$). Panel members were unable to detect the presence of omega-3 LCPUFAs added into lemon flavor ice cream. In addition, panelists also noted the improved texture in the sample with omega-3 LCPUFAs rather than without. The results showed that lemon flavoring successfully mask the omega-3 LCPUFAs undesired characteristics and lemon flavor ice cream with omega-3 LCPUFAs had better consumer acceptability.

KEYWORDS

omega-3 long chain polyunsaturated fatty acids, ice cream, lemon flavor.

