

Public Abstract

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Title:The Effect of Dietary Fiber on the Physio-Chemical and Sensorial Properties of Frozen Yogurt

Dietary fiber is currently added to a wide range of commercial food products including dairy, baked goods, and some frozen desserts. Different types of dietary fiber have different properties and functions when used in food. The most basic categories of dietary fiber are soluble and insoluble. Our objective was to determine if an acceptable frozen yogurt product supplemented with dietary fiber could be produced. Three different types of dietary fiber were used: Frutafit TEX! (inulin), Glucagel® (betaglucan), and Vitacel SMOOV 240 (cellulose). These three were used at the 3%, 5% and 7% levels in the frozen yogurt. Frozen yogurt base was manufactured using nonfat milk, heavy cream, sugar, corn syrup solids, nonfat dry milk, stabilizer, water, and vanilla. The base was mixed with yogurt (ratio of 80 : 20) that had been cultured from nonfat milk, and a yogurt culture containing *Streptococcus salivarius* subsp. *thermophilus*, *Lactobacillus delbrueckii* subsp. *bulgaricus*, and *Lactobacillus acidophilus*. Fiber was weighed and blended with the base before the yogurt was added. Vanilla flavoring was added, and the treatments were frozen using a batch ice cream freezer. Microbiological enumeration was conducted on the treatments before being frozen. Titratable acidity and pH were also measured on the treatments before and after being frozen. A descriptive sensory analysis, hedonic sensory study, viscosity, texture analysis, and melt rate test were conducted during storage. Lactic acid bacteria counts were found to be around  $7.9 \times 10^7$  CFU/ml. Titratable acidity and pH did not change when measured before and after freezing, and did not show a difference between types, or levels of fiber. The types and levels of fiber used had a significant effect on the flavor and texture of the frozen yogurt products, as well the overall liking. The results suggest that a frozen yogurt product could be successfully manufactured when fortified with 7% Frutafit TEX!.