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Effect of Acylated Proteins on Textural Properties of Nonfat Low Calorie Set Yogurt and Lowfat Ice Cream

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Acylated κ-casein (kCN) and β-casein (βCN) were used (0.1% w/v) to improve textural and flavor properties of nonfat/low calorie yogurt and lowfat ice cream. Acylation was achieved by base-catalyzed ester exchange of *N*-hydroxysuccinimide esters of naturally occurring caprylic (C:8), lauric (C:12), and palmitic (C:16) acids. The degree of modification of the proteins was controlled by adjusting the ratio of fatty acid to protein (1:1 and 2:1). The hydrocarbon chain length was referred to as the "length." Products with the acylated proteins displayed significantly improved texture. Shorter length (C:8) had the best effect. In terms of flavor, longer length provided better improvement of flavor ratings. Stability as assessed by degree of syneresis and gel strength was markedly improved by all acylated proteins and this was particularly true when acylated βCN was used. The apparent viscosity of the product was better improved by acylated kCN. Data indicated that acylated proteins markedly improved product quality.

Keywords: acylated proteins, textural properties, β-casein, κ-casein, caprylic, lauric, palmitic

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