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**The effect of Arabic and Chicory gums on the viability of probiotic bacteria
(*Bifidobacterium lactis* and *Lactobacillus casei*), and physicochemical and sensory
properties of synbiotic vanilla ice cream**

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Abstract

The aim of this study was to investigate the effect of Arabic and Chicory gums on the survival of probiotic bacteria (*Bifidobacterium lactis* and *Lactobacillus caesi*) in vanilla probiotic ice cream, as well as on physicochemical and sensory properties of the product. In this research, physicochemical, probiotic bacterial counting and sensory evaluation of ice cream samples were investigated in eight treatments with a control treatment and three replications. The results of this study showed that by increasing the amounts of Arabic and Chicory gums the amount of dry matter, acidity, overrun and the population of bacteria were increased significantly. Accordingly, significant decreases were also observed in pH and melting speed. Adding Arabic and Chicory gums, regardless of their type and amount, resulted in an increase in the probiotic bacterial viability. With increasing storage time, the number of probiotic bacteria in ice cream samples was reduced. Sensory evaluation results of probiotic ice cream samples showed that all treatments containing Arabic gum were superior to chicory gum containing samples. In general, as the treatment containing 2% Arabic gum had the highest score in the sensory evaluation and the survival of the probiotic microbial population was higher than the recommended International Federation of Milk (10^6 cfu /ml). Therefore, this treatment was introduced as a superior treatment.

Keywords: synbiotic vanilla ice cream, Arabic gum, chicory gum, *Lactobacillus casei*,

Bifidobacterium lactis