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The Use of Nano-Crystalline Starch in Probiotic Yogurt and Its Effects on the Physicochemical and Biological Properties

Authors : Ali Seirafi

Abstract : The purpose of this study was to investigate the effect and application of starch nanocrystals on physicochemical and microbial properties in the industrial production of probiotic yogurt. In this study, probiotic yoghurt was manufactured by industrial method with the optimization and control of the technological factors affecting the probabilistic biomass, using probiotic bacteria Lactobacillus acidophilus and Bifidobacterium bifidum with commonly used yogurt primers. Afterwards, the effects of different levels of fat (1.3%, 2.5 and 4%), as well as the effects of various perbiotic compounds include starch nanocrystals (0.5%, 1 and 1.5%), galactolegalosaccharide (0.5% 1 and 1.5%) and fructooligosaccharide (0.5%, 1 and 1.5%) were evaluated. In addition, the effect of packaging (polyethylene and glass) was studied, while the effect of pH changes and final acidity were studied at each stage. In this research, all experiments were performed in 3 replications and the results were analyzed in a completely randomized design with SAS version 9.1 software. The results of this study showed that the addition of starch nanocrystal compounds as well as the use of glass packaging had the most positive effects on the survival of Lactobacillus acidophilus bacteria and the addition of nano-crystals and the increase in the cooling rate of the product, had the most positive effects on the survival of bacteria Bifidobacterium bifidum.

Keywords : Bifidobacterium bifidum, Lactobacillus acidophilus, prebiotics, probiotic yogurt
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