



Probiotic Viability in A Synbiotic Yoghurt Incorporating Lactulose

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Abstract

The food system has seen a radical development and improvement over the last few years, leading to an evolving urban market and significant dietary changes. Yoghurt is a fermented dairy product whose consumption aids in the prevention of some non-communicable diseases, owing to its importance as a probiotic food. In order to confer therapeutic and health benefits to the consumer, a probiotic food must be able to retain and sustain the viability of the beneficial probiotic organisms, during shelf life and until the point of consumption. The addition of prebiotics has been considered an attractive way for enhancing probiotic viability in functional yoghurt. This study sought to investigate the potential of lactulose as a prebiotic for the enhancement of viability of probiotic organisms *Bifidobacterium bifidum* and *Lactobacillus rhamnosus* in a synbiotic yoghurt. Samples of skim milk supplemented with lactulose at concentrations of 0%, 0.5%, and 1.0% were fermented with cultures that comprised of the yoghurt starter (*L. bulgaricus* and *S. thermophilus*) as well as the probiotic cultures (*Bifidobacterium bifidum* and *Lactobacillus rhamnosus*). The fermentation was carried out at 37°C until the pH reached 4.6 after which the yoghurt samples were cooled to and stored at 5°C for 28 days. The effect of lactulose on the physicochemical, rheological, and sensorial quality of the yoghurt was determined by measuring the pH, total titratable acidity, viscosity, syneresis, colour, water holding capacity, and texture over the storage period. The effect on the viability of the probiotic bacteria and the starter cultures was monitored by plating every 7 days over the storage period. During the poster presentation, the authors will be reporting on the significant bifidogenic and lactogenic effects of lactulose, illustrating its importance as an ingredient in the production of synbiotic yoghurt. This is particularly important because of its natural association with processed milk.

Keywords: probiotic; prebiotic; synbiotic yoghurt; lactulose.

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Ursula Thomashoff completed her BSc Food Science degree in 2020 and is currently studying towards her BScHons at the University of Pretoria.