Effects of the Type of Commercial Starter Culture Composition and Partial or Total Replacement of Cow's Milk with Soy Milk on Biochemical and Microbiological Characteristics of Probiotic Fruity Soy Yogurt

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Background & Objectives: The aim of this study was to evaluate the effect of proportion of cow's milk to soy milk (100:0, 75:25, 50:50, 75:25, 0:100) and type of mix starter culture (ABY-1 and ABY-2 that contains *Lactobacillus acidophilus* LA-5 and *Bifidobacterium Lactis* Bb-12 and traditional yoghurt starter culture; *Streptococcus thermopilus* and *Lactobacillus bulgaricus*) on biochemical and microbiological characteristics of probiotic Soy-based yoghurt.

Methods: In order to determine optimized treatment, the following items are measured: pH, titrable acidity and redox potential during fermentation as well as amounts of lactic and acetic acids and viability of probiotic bacteria at the end of fermentation. After determination of optimized treatment, the effect of type of flavored complex (kiwi, pear, strawberry and apricot) on biochemical properties, viability of probiotic bacteria and amounts of organic acids during 21-day period of cold storage in temperature of 5˚C was studied.

Results: Results indicate that viability of probiotic bacteria in starter culture ABY-1 in proportion of (50:50) had more viable counts than other treatments. Measurement of organic acids by HPLC showed that two variables of proportions and probiotic culture type are effective on amount and their ratio of lactic acid and acetic acid. The variable of cow's milk proportion to soymilk had more effect on amount of organic acids and the amounts of lactic and acetic acids decreased by increase of proportion of soymilk. The effect of flavored complexes on viability of *L. acidophilus* LA-5 and *B. lactis* Bb-12 in treatment of 50:50-ABY-1 was observed during cold storage period so that all flavored treatments included more than 108 cfu/ml probiotic bacteria at the end of 21-day period of cold storage.

Conclusion: Yoghurts produced with proportion of cow's milk to soy milk 50:50 and ABY-1 starter culture showed highest viability during fermentation and storage.

Keywords: Starter Culture; Cow's Milk; Soy Milk; Probiotic