NUTRITIONAL EVALUATION OF YOGHURT PREPARED BY LACTOBACILLI ISOLATED FROM *APIS MELLIFERA* L. GUTS AND ALPINE ANTHILL

Georgi Beev[1], Svilen Lazarov[2], Toncho Dinev[1], Nikolina Naydenova[3*]

[1]Department of Biochemistry, Microbiology and Physics, Faculty of Agriculture, Trakia University, 6000 Stara Zagora, Bulgaria
[2]Department of Animal husbandry - Non Ruminants and other Animals, Faculty of Agriculture, Trakia University, 6000 Stara Zagora, Bulgaria
[3]Department of Dairy Science, Faculty of Agriculture, Trakia University, 6000 Stara Zagora, Bulgaria

[*]e-mail: n_naidenowa@abv.bg

Abstract

The use of different lactic acid bacteria with desired technological and probiotic characteristics requires their isolation from different sources. The aim of this study was to determine the influence of newly isolated lactobacilli from promising natural sources (bees and ants) on the quality of buffalo yogurt.

A total amount of 7 strains, isolated from bee guts (6) and alpine anthill (1), were tested as a starter culture for yoghurt preparation. Yogurt was produced with the addition of 10% starter culture from the isolated strains. The titratable acidity (°T), coagulation time (min), macro- and microelement composition (by atomic absorption spectrometry), fat- and amino-acid composition (by gas chromatography), and the organoleptic properties of the yoghurt were studied.

The titratable acidity of the experimental yoghurt - 110 ^{0}T for *Lactobacillus casei* B4 (isolated from bee gut) and 116 ^{0}T for *L. casei* A1 (isolated from alpine anthill) was lower than the control value (139 ^{0}T). The coagulation time was the shortest in the control (168 minutes), followed by yoghurt with strains A1 (198 minutes) and B4 (240 minutes). The content of P, Zn and Cu was higher in the milk produced by the newly isolated strains A1 and B4. The atherogenic index ranged from 2.72 for raw milk to 2.47 for yogurt produced by B4, 2.28 for yoghurt with A1, and 2.27 for control value. The same trend is observed in the thrombogenic index - from 1.74 for raw milk it decreases to 1.51 for B4, 1.42 for control and 1.04 for A1. The three types of yogurt were characterized by a firm, tight coagulum with a granular structure and a pleasant lactic acid aroma.

In conclusion, from the 6 tested strains of *L. casei* and 1 of *Lacobacillus rhamnosus*, only A1 and B4 are suitable for production of high quality yoghurt, which in terms of beneficial effects on consumers' health should be not inferior to conventional yoghurt.

Key words: *Yogurt quality, Lactobacilli, Apis mellifera L., Alpine anthill.*