STUDY OF PROTEIN ENRICHER EFFECT ON LACTIC ACID BACTERIA BIOCHEMICAL ACTIVITY AND FERMENTATION PRODUCTS COMPOSITION

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Abstract

Fermented dairy products have valuable dietary and heath promoting properties. They contain all constituent parts of milk, but in a more digestible form in comparison with milk. Prospective direction of functional food development is the creation of combined dairy products enriched with biologically active substances of natural origin. The purpose of this research is to study carbohydrate and cation composition of fermented dairy product with addition of dry protein concentrate "MOBILUX-lite".

Targets of research were reconstituted dry skim milk, starter culture of lactic acid bacteria "Yoghurt", concentrate "MOBILUX-lite". Research was carried out in the food science laboratory of Free University of Bolzano from Italy, and laboratory food biotechnology of North Caucasus Federal University from Russia. The effect of the "MOBILUX-lite" concentrate dosage (3, 5 and 7 per cent) on the lactic acid fermentation products profile compared to control samples without the addition of protein concentrate was studied by high performance liquid chromatography. Also cations composition of experimental and control samples of fermented dairy products was tested by capillary electrophoresis method. Based on the results of skim milk lactic acid fermentation, characteristic curves of the content of lactose, galactose and lactic acid in the product were obtained. The effect of "MOBILUX-lite" concentrate (3, 5 and 7 per cent) various doses on the macronutrient composition of fermented dairy product in comparison with raw milk was studied.

The results of the experiments allow establishing that the most efficient lactic acid fermentation of skim milk is provided at a dosage of "MOBILUX-LITE" 7 per cent. Concentrate "MOBILUX-lite" make positive impact on fermentation of skim milk. It was determined that variation of the "MOBILUX-lite" concentration in the interval from 3 to 7 per cent, the content of calcium increases from 869,7 mg per L to 1395 mg per L, but concentrations of potassium, sodium and magnesium cations changes insignificantly.

The study results proved that the concentrate "MOBILUX-lite" is relevant for application as an ingredient of functional fermented dairy products enriched with protein and calcium.

Key words: *Skim milk, Concentrate "MOBILUX-lite", Lactic acid fermentation products, HPLC, Capillary electrophoresis.*