

PROIZVODNJA FUNKCIONALNIH NAPITAKA OD KOZJE SURUTKE

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Najveći deo kozjeg mleka koristi se u proizvodnji različitih vrsta sireva, gde kao sporedni proizvod ostaje surutka koja je bogata proteinima, aminokiselinama, vitaminima i mineralima neophodnim za pravilan razvoj i funkcionisanje organizma. Kako trenutno, na domaćem tržištu, u dovoljnoj meri nisu zastupljeni fermentisani napici od kozje surutke, cilj ovog rada bio je da se ocene karakteristike devet različitih starter kultura formiranih od odabranih sojeva bakterija mlečne kiseline i bifidobakterija. Pre formiranja starter kultura testirana je aktivnost devet odabranih sojeva u kozjoj surutki, merenjem pH i titracijske kiselosti (⁰SH), nakon 6 i 24h fermentacije. Tehnološke karakteristike ovih starter kultura su upoređene sa aktivnošću komercijalne liofilizirane starter kulture Lactoferm ABY-6 u čiji sastav ulaze: *Streptococcus salivarius* ssp. *thermophilus* 80%, *Lactobacillus acidophilus* 13%, *Bifidobacterium bifidum* 6% and *Lactobacillus delbrueckii* ssp. *bulgaricus* 1%. Kozja surutka se pokazala kao dobar supstrat za rast svih ispitivanih vrsta bakterija mlečne kiseline i *Bifidobacterium bifidum* NRRL B-41410. Tokom fermentacije kod ispitivanih starter kultura uočeno je da postoji simbioza između odgovarajućih vrsta roda *Lactobacillus* i vrste *Streptococcus salivarius* ssp. *thermophilus*, jer je postignuto vreme fermentacije skraćeno, u poređenju sa rezultatima dobijenim za njihovu pojedinačnu aktivnost. Najkraće vreme fermentacije potrebno da se postigne pH 4,6, postignuto je sa mešanom starter kulturom koja sadrži vrste *Bifidobacterium bifidum* i *Streptococcus salivarius* ssp. *thermophilus* i monokomponentnom starter kulturom sa *Bifidobacterium bifidum* (2,25 i 3h.). Svi fermentisani napici sadržali su broj živih ćelija veći od 10⁶ cfu/ml, što je neophodan preduslov da bi jedan fermentisani napitak ispoljio probiotski efekat. Napici su imali zadovoljavajuće organoleptičke karakteristike, a tokom fermentacije umanjen je specifičan ukus i miris kozjeg mleka, što je od posebne važnosti za potrošače koji nisu ljubitelji proizvoda od ove vrste mleka.

PRODUCTION OF FUNCTIONAL BEVERAGES FROM GOAT'S WHEY

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The largest part of the goat's milk is used in the manufacture of various type of cheeses, where after production remain whey which is rich source of proteins, amino acids, vitamins and minerals required for proper development and functioning of body. Currently fermented beverages made from goat's whey are not enough present in the market and the aim of this study was to evaluate characteristics of nine different starter cultures formed from selected strains of lactic acid bacteria and bifidobacteria. Before construction of starter cultures, activity of nine selected strains was tested in goat's whey measurement pH and titratable acidity (⁰SH) after 6 and 24h of fermentation. Technological characteristics of these starter cultures were compared with activity of commercial freeze dried starter culture (Lactoferm ABY-6) containing: *Streptococcus salivarius* ssp. *thermophilus* 80%, *Lactobacillus acidophilus* 13%, *Bifidobacterium bifidum* 6% and *Lactobacillus delbrueckii* ssp. *bulgaricus* 1%. Goat's whey has proven to be a good substrate for the growth of all tested species of lactic acid bacteria and *Bifidobacterium bifidum* NRRL B-41410. During fermentation, in a constructed starter cultures some degree of symbiotic relationship between the corresponding species of the genus *Lactobacillus* and *Streptococcus salivarius* ssp. *thermophilus* was noticed, as fermentation time has been significantly reduced, in comparison with individual strains. Shortest fermentation time to reach pH 4,60, was achieved with mixed starter culture containing species *Bifidobacterium bifidum* and *Streptococcus salivarius* ssp. *thermophilus* and single starter culture containing *Bifidobacterium bifidum*, 2.25 hours and 3 hours, respectively. All the obtained fermented beverages had total number of viable cells greater than 10⁶ cfu/ml, which is a necessary prerequisite for fermented beverage to exert probiotic effects. Fermented goat's whey beverages had satisfactory organoleptic characteristics, and during fermentation specific goat smell and taste are alleviated which is a especially important for consumers who don't prefer products from this type of milk.