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Comparative analyze of the kefir fermentation process and microbiota, using milk and cheese whey as substrates

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Abstract

Kefir, a mixed culture that ferments lactose, is known for the production of a refreshing fermented beverage popular in Eastern-European countries by inoculating milk with kefir grains. Kefir grains are gelatinous white or cream-coloured, water insoluble, irregular granules with diameter ranging 0,3–3,5 cm. They are composed mostly of proteins and polysaccharides in which the complex microbiota is enclosed. The beverage consists of a microbial diversity that includes lactic acid bacteria, yeasts and their metabolites. The aim of this work was to compare the fermentation and the microbiota of kefir, using milk and cheese whey as substrates. The grains were added in the proportion of 5% in 250ml of each substrate. Assays were performed at 25 °C for 48h. The concentrations of lactose, ethanol, lactic acid and acetic acid were quantified by HPLC. To determinate the composition of microbiota in Kefir of fermentation, PCR-DGGE analysis was used. The fermentation of milk and cheese whey by kefir grains are observed in this study. It can be observed that the lactose concentration at the end of the milk fermentation was lower in comparison with that obtained at 48 h for cheese whey fermentation. Despite the higher lactose consumption during the fermentation of milk by kefir grains, the concentrations of ethanol, acetic acid and lactic acid did not show significant differences with those obtained during the cheese whey fermentation. No changes in the DGGE profiles in all fermentations were observed to fungal and bacterial communities. It was thus concluded that lactose from cheese whey is converted to products with higher yields than lactose from milk, in addition to showing the same group of microorganisms for both fermentation process.

Paraskevopoulou, A., Athanasiadis, I., Kanellaki, M., Bekatorou, A., Blekas, G., Kiosseoglou, V. Food Research International, (2003) 36, 431-438.

Beshkova, D. M., Simova, E. D., Frengova, G. I., Simov, Z. I., Dimitrov, Z. H. P., International Dairy Journal, (2003) 13, 529-535.