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Production of antibacterial compounds from fermented dairy products using kefir grain microflora

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Abstract: The aim of the study was to evaluate antibacterial properties of active compounds released during the fermentation of goat milk and whey form goat milk by selected bacterial strains form kefir grain microflora (*Lactiplantibacillus plantarum, Limosilactobacillus fermentum, Lacticaseibacillus rhamnosus, Lactobacillus acidophilus)*. Two milk sources were used *i.e.*, goat milk and whey from goat milk from the Organic Farm in Poland. Antibacterial activity was exanimated by the evaluation of the reduction of indicator microorganisms (*E. coli*, *Salmonella*, *Micorcoccus luteus* and *Proteus mirabilis*) checking by:

- plating on the selective medium (VRBG medium, nutrient agar),

- impedance changes measured by BacTrac 4100 Automatic Microorganism Growth Analyzer,

- optical density changes analysed by Bioscreen C.

Based on the experiments, it was found that during the fermentation of whey and goat's milk, bioactive substances are released, which inhibit the growth of indicator microorganisms by up to 6 logarithmic cycles. Impedance and optical density changes observed correlated with a decrease in the number of cells of indicator microorganisms, which confirms the antibacterial properties of milk and whey fermented by selected strains from kefir grain microflora.

Keywords: goat milk; whey protein; antimicrobial activity; kefir fermentation

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