Exopolysaccharides Produced by Lactic Acid Bacteria of Kefir Grains

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A \textit{Lactobacillus delbrueckii} subsp. \textit{bulgaricus} HP1 strain with high exopolysaccharide activity was selected from among 40 strains of lactic acid bacteria, isolated from kefir grains. By associating the \textit{Lactobacillus delbrueckii} subsp. \textit{bulgaricus} HP1 strain with \textit{Streptococcus thermophilus} T15, \textit{Lactococcus lactis} subsp. \textit{lactis} C15, \textit{Lactobacillus helveticus} MP12, and \textit{Sacharomyces cerevisiae} A13, a kefir starter was formed. The associated cultivation of the lactobacteria and yeast had a positive effect on the exopolysaccharide activity of \textit{Lactobacillus delbrueckii} subsp. \textit{bulgaricus} HP1. The maximum exopolysaccharide concentration of the starter culture exceeded the one by the \textit{Lactobacillus delbrueckii} subsp. \textit{bulgaricus} HP1 monoculture by approximately 1.7 times, and the time needed to reach the maximum concentration (824.3 mg exopolysaccharides/l) was shortened by 6 h. The monomer composition of the exopolysaccharides from the kefir starter culture was represented by glucose and galactose in a 1.0:0.94 ratio, which proves that the polymer synthesized is kefiran.