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COMPARATIVE ANTIMICROBIAL ACTIVITY OF SOME METABIOTICS SYNTHESIZED BY LACTIC ACID BACTERIA

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Abstract

This paper presents the comparative characteristics of the antimicrobial activity of selected lactic acid bacteria strains and antibiotics.

The metabiotics of probiotic lactic acid bacteria inhibited the growth of pathogenic, conditionally pathogenic bacteria, different etiology antibiotic resistant bacteria such as Salmonella sp., E. coli, Proteus mirabilis Pasteurella spp., Clostridium sp., Streptococcus sp., Staphylococcus aureus, Shigella sp., Yersinia enterocolitica, Bacillus cereus with different efficiency depending on pathogens isolation sources.

It was shown that bacteriocins of lactic acid bacteria in the same concentration did not affect growth of the commensal microbiota *strains, belonging to different genera and species. Lactobacillus and Enterococcus genera showed high sensitivity to investigated antibiotics (about 70%).*

Among all studied LAB strains of Enterococcus genus, some strains were shown to synthesize polysaccharides. The antimicrobial activity of isolated polysaccharides from Enterococcus faecium К Э-14, Enterococcus faecium К Э-5, Enterococcus lactic acid bacteria. Sp. К Э-9, Enterococcus lactic acid bacteria sp. К Э-6 strains was investigated. It was found that only polysaccharides isolated from Enterococcus faecium К Э-14 and Enterococcus faecium К Э-5 strains show an antimicrobial effect. The Enterococcus faecium КЭ-5 (MDC 9662) lactic acid bacteria strain was selected which produce protein-like substances and disaccharide polymers with antimicrobial activity, consist of glucose and galactose. The growth suppression of different Kl. pneumonia and St. pneumonia strains causing pneumonia by antimicrobial preparations of lactic acid bacteria was shown. The highest antimicrobial activity (100%) was observed when the antimicrobial preparations obtained after cultivation of lactic acid bacteria strains of the Enterococcus genus. The activity depends on the source of isolation of pathogens from a patient. The selected strains can be recommended for the creation of probiotic preparations with targeted purposes.

Keywords *LAB, exopolysaccharides, bacteriocins, antimicrobial activity, antibiotics.*

Introduction

The concept of foods that were developed specifically to promote health or reduce the risk of disease was introduced over the last decade. The concept of biofunctional foods is generally used when the desirable biological, medical, or physiological effect is exerted by microorganisms, in particular by lactic acid bacteria. The health benefits of microorganisms can be exerted either directly through the interactions of ingested live microorganisms with the host (probiotic effect), or

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