ANTIMICROBIAL ACTIVITY OF SURFACTANTS OF MICROBIAL ORIGIN

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Abstract

The recent literature data about the antibacterial and antifungal activity of microbial surfactants (lipopeptides synthesized by representatives of genera Bacillus, Paenibacillus, Pseudomonas, Brevibacillus, rhamnolipids of bacteria Pseudomonas, Burkholderia, Lysinibacillus sp., sophorolipids of yeasts Candida (Starmerella) and Rhodotorula), and our own experiments data concerning antimicrobial activity of surfactants synthesized by Acinetobacter calcoaceticus IMB B-7241, Rhodococcus erythropolis IMB Ac-5017 and Nocardia vaccini IMV B-7405 were presented.

The analysis showed that lipopeptides were more effective antimicrobial agents compared to glycolipids. Thus, the minimum inhibitory concentrations (MIC) of lipopeptides, rhamnolipids and sophorolipids are on average (μg/ml): 1–32, 50–500, and 10–200, respectively. The MIC of surfactants synthesized by the IMV B-7241, IMV Ac-5017 and IMV B-7405 strains are comparable to those of the known microbial lipopeptides and glycolipids. The advantages of glycolipids as antimicrobial agents compared with lipopeptides were the possibility of their synthesis on industrial waste and the high concentration of synthesized surfactants. The literature data and our own results indicate the need to study the influence of microbes’ cultivation conditions on the
antimicrobial activity of the final product.