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THE ABILITY OF SURFACTANTS SYNTHESISED BY *ACINETOBACTER CALCOACETICUS* IMV B-7241 UNDER THE ACTION OF EUKARYOTIC INDUCTOR TO DESTROY YEAST BIOFILMS

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Biofilms formed on medical implants and devices are a serious problem in healthcare facilities, as they lead to serious infections in patients, particularly highly structured biofilms of the yeast Candida [1]. Urinary and central venous catheters, pacemakers, mechanical heart valves, joint prostheses, and dental implants require treatment with biocides to prevent biofilm formation on their surfaces [2]. One of the strategies to control biofilms is the usage of microbial surfactants, whose biological activity can be increased through co-cultivation of the surfactant producer with biological inductors. While inductors are typically live or inactivated bacterial cells, recent years have seen an increase in studies focusing on the use of eukaryotic inductors.

The aim of this study was to evaluate the ability of microbial surfactants synthesized by *Acinetobacter calcoaceticus* IMV B-7241, in the presence of *Saccharomyces cerevisiae* BTM-1, to degrade yeast biofilms.

Materials and Methods. The cultivation of *A. calcoaceticus* IMV B-7241 was conducted in a liquid medium containing purified glycerol and crude glycerol at concentrations of 3% and 5% (v/v), respectively. The biological inductors were live and inactivated cells of the yeast *S. cerevisiae* BTM-1, as well as the supernatant after cultivation of the BTM-1 strain. The degree of biofilm degradation was determined by spectrophotometric method.

It was found that an increase in the degradation of biofilms of the test cultures of yeasts *Candida tropicalis* PE-2 and *Candida albicans* D-6 by surfactants synthesized *A. calcoaceticus* IMV B-7241 in the presence of the biological inductor (live or inactivated *S. cerevisiae* BTM-1 cells or the corresponding supernatant) occurred only when crude glycerol was used as the substrate. The degree of biofilm degradation of *Candida tropicalis* PE-2 biofilms was almost unaffected by the type of physiological inductor (live or inactivated cells or the corresponding supernatant): their introduction into the culture medium of the producer was accompanied by the synthesis of surfactants, under the action of which a high biofilm degradation was observed (92-95 %), which is 1.5 times higher than the rates established for surfactants obtained in the medium without inductors. The degree of degradation of *Candida albicans* D-6 biofilm under the action of surfactants obtained in the presence of live inductor cells increased by 1.4 times compared to surfactants synthesized in the absence of an inductor. At the same time, the replacement of the substrate in the surfactant producer medium to purified glycerol had almost no effect on the degree of biofilm degradation of yeast test cultures with the introduction of all types of inductors.

Conclusions. The results of this study demonstrated that introducing *S. cerevisiae* BTM-1 into the cultivation medium of *A. calcoaceticus* IMV B-7241 allows to increase the ability of surfactants synthesized under such cultivation conditions to degrade yeast biofilms.

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