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1,3-Propanediol production from crude glycerol by *Clostridium butyricum* DSP1 in repeated batch

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The production of biofuels from renewable energy is one of the most important issues of the industrial biotechnology of the 21st century. During production of biodiesel, crude glycerol, as a by-product, is synthesized. There are a number of well-known methods of the application of glycerol, e.g. microbial utilization to 1,3-propanediol (1,3-PD). The poster presents results of a study on the synthesis of 1,3-PD from glycerol by a repeated batch method with the use of *Clostridium butyricum* DSP1. After the substrate concentration inside the bioreactor fell below 15 g/L, 30% of the culture broth was removed from the bioreactor and replaced with an equal volume of fresh sterile nutrient medium with the same composition as that used for the start-up of batch bioreactor cultivation. Three cycles of fermentation medium replacement were carried out. The final concentration of 1,3-PD was 62 g/L and the maximum productivity, obtained during the second cycle, reached 1.51 g/L/h. Additionally, experiments conducted in parallel to the above involved using the entire quantity of the culture broth removed from the bioreactor to inoculate successive portions of fermentation media containing glycerol at concentrations of 80 g/L and 100 g/L. The parameter that increased significantly in comparison to what was observed during standard batch fermentations was productivity, which may indicate the adaptation capabilities of *C. butyricum* DSP 1.

Biography

Katarzyna Czaczyk, professor at Department of Biotechnology and Food Microbiology is a Specialist in food microbiology and biochemistry analysis and author of numerous thesis, papers and scientific books.

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