Effect of cell density on production of butanol by batch-fermentation of *Clostridium acetobutylicum*

장유신[1], 이진영[1], 김지만[1], 이상엽[1,2,*]

[1]Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical & Biomolecular Engineering and BioProcess Engineering Research Center, KAIST; [2]Department of BioSystems and Bioinformatics Research Center, KAIST

(leesy@kaist.ac.kr*)

Cell density of Clostridium acetobutylicum could relate to several factors including, nutrients, substrate inhibition, and limited heat dissipation, etc. To improve cell density, it was necessary; to design a balanced nutrient medium that contains all the necessary components for supporting cell growth, while avoiding inhibition. The maximum cell density at 600 nm (MaxOD600) was measured in order to determine the nutrient balance of each component. The cells were cultured at 37 C in the test tube containing varying concentration of component, anaerobically. From the results, the highest MaxOD600, 12.5, which was 1.8 times higher than that obtained at clostridial growth media (CGM), was obtained from the modified medium, designated C. acetobutylicum media 1 (CAM1). Moreover, several batch-fermentation experiments in CAM1 will be described in detail. [This work was supported by the Ministry of Knowledge Economy grant funded by the Korea government (10030795). Further supports by the GS-Caltex and the BioFuelChem].