

Development of start-up strategy for Microbial Electrosynthesis using potential control

김중래<sup>†</sup>, 임채호, Ganapathiraman Munussami, 전병훈<sup>1</sup>  
부산대학교; <sup>1</sup>한양대학교  
(j.kim@pusan.ac.kr<sup>†</sup>)

Electrochemically active microorganism is bio-catalyst for useful chemical and biofuel production from CO<sub>2</sub> in bioelectrochemical system. Acetate is primary product of microbial electrosynthesis and further conversion into important intermediate chemicals. To start-up CO<sub>2</sub> reduction catalyzed by microbe, electro-active biofilm should be developed on electrode. In this study, we investigate effect of start-up potential for autotrophic electrosynthesis with three different conditions. Electrosynthesis for acetate production was confirmed through long-term operation. CO<sub>2</sub> was sole carbon source to produce acetate and other organic acids. This study provide a strategy to facilitate establishment of biofilm on biocathode and information for further application to produce useful chemical and biofuels in electrosynthetic pathway.