Enhanced Acetone-Butanol-Ethanol fermentation by continuous fermentation in the membrane cell-recycle bioreactor

문현기, 장유신, 이상엽*
KAIST
(leesy@kaist.ac.kr*)

Acetone-Butanol-Ethanol (ABE) fermentation is representative bio-based solvent production which is considered as alternative of petroleum-based chemicals. Among those solvents, butanol has great potential to be next generation fuel and the genus *Clostridium* naturally produces butanol by ABE fermentation utilizing various carbon sources. *C. acetobutylicum* BKM19 mutant strain and *C. pasteurianum* MBEL_GLY2 mutant strain showed hyper-ABE production by continuous fermentation with high cell density in the membrane cell-recycle bioreactor. The maximum ABE productivities of BKM19 strain and MBEL_GLY2 strain are 21.1 g/l/h and 8.3 g/l/h under the optimal condition, respectively. [This work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries from the Ministry of Science, ICT and Future Planning (MSIP) through the National Research Foundation (NRF) of Korea (NRF-2012-C1AAA001-2012M1A2A2026556); and the Advanced Biomass R&D Center of Korea (NRF-2010-0029799) through the Global Frontier Research Program of the MSIP.]