Assessment of Dissolved CO_2 Levels on Growth, Succinic Acid Production, and Enzyme Activities of *Mannheimia succiniciproducens* MBEL55E

최 솔, 이정욱, 송효학, 이상엽*
한국과학기술원
(leesy@kaist.ac.kr*)

Mannheimia succiniciproducens MBEL55E produces succinic acid in high concentrations. we quantitatively investigated the response of Mannheimia succiniciproducens MBEL55E to different levels of dissolved CO2 ranging from 0 to 260 mM. Yields for biomass and succinic acid on glucose were 1.49 and 1.52 times higher at 141 mM CO2 than those obtained from 8.74 mM CO2, respectively. Comparing the fermentation results with the levels of key enzyme activities, we found that the efficient carboxylation of phosphoenolpyruvate (PEP) to oxaloacetate, in which CO2-fixation occurs by both PEP carboxykinase (PckA) and PEP carboxylase (Ppc), allows M. succiniciproducens to produce substantial amounts of succinic acid. In particular, the activity of PckA was more than 50 times higher than those of Ppc and malic enzyme (SfcA). [This work was supported by the Korea Science and Engineering Foundation (KOSEF) grant funded by the Korea government (MOST) (2005-01294). Further supports by the LG Chem Chair Professorship, IBM SUR program, Microsoft, and by the KOSEF through the Center for Ultramicrochemical Process Systems are appreciated]