

Engineering of *Klebsiella oxytoca* for improved xylose utilization using Adaptive Laboratory Evolution

차지원, Seung Hoon Jang, 정기준[†]
한국과학기술원
(kijeong@kaist.ac.kr[†])

Lignocellulosic biomass have attracted much attention as a promising renewable resource due to the issues of fossil energy. Lignocellulosic hydrolysates derived from the biomass contain diverse fermentable sugars. Xylose is the second most abundant fermentable pentose after glucose in the hydrolysates. Therefore, enhancement of a xylose fermentation efficiency of microorganisms is a prerequisite for increasing the economic value of producing high-value bio-products using lignocellulosic hydrolysate. Here, we engineered *Klebsiella oxytoca* for highly efficient production of 2,3-BDO from xylose. Through adaptive laboratory evolution in the media containing xylose, xylose-evolved cells were successfully isolated, which showed much faster cell growth. We concluded that engineered *K. oxytoca* has considerable potential to be a novel candidate for lignocellulose bioconversion to 2,3-BDO by applying to high concentration of xylose fermentation.