

Metabolic engineering of *Corynebacterium glutamicum* that produces succinate from levoglucosan

우한민[†], 김은미, 엄영순, 최준원¹
한국과학기술연구원; ¹서울대학교
(hmwoo@kist.re.kr[†])

Development of economically feasible technologies for biomass-derived sugars is still a challenge. The pyrolysis can be used to convert biomass into an energy-rich liquid (bio-oil). Pyrolysis of untreated biomass can produce bio-oil that contains up to 12% levoglucosan (1,6-Anhydro-beta-glucopyranose). In this work, we aim to engineer *Corynebacterium glutamicum*, a widely-known industrial bacterium for productions of amino acid and varieties of biochemical, to utilize levoglucosan as a sole carbon source. We selected several levoglucosan kinases (LGK) and cloned into a CoryneBrick vector for *C. glutamicum*. The strain harboring LGK from *Lipomyces starkeyi* can grow by utilization of levoglucosan as sole carbon. For the production of succinate, recombinant LGK was expressed in *C. glutamicum* BL1 strain, which is an engineered strain for succinate production. Comparable production has been achieved compare to the production from glucose. This work will broaden the possibility of utilization of biooil as potential feedstocks. This work was supported by the R&D Convergence Program of NST (National Research Council of Science &Technology).