Ethanol Production by *Saccharomyces cerevisiae* in the Presence of Lignocellulosic Inhibitory Compounds

이하원, 조대행, 김용환, 이진원[1], 이종호[2], 김승욱[2], 박철환*
광운대학교 화학공학과; [1]서강대학교 화공생명공학과;
[2]고려대학교 화공생명공학과
(chpark@kw.ac.kr*)

Bioethanol has been regarded as the alternative energy for resolving the global warming and energy depletion. The use of edible crops such as a sugarcane, maize, wheat, and potato for ethanol production has caused the increase of food prices and food shortages, so the technology for bioethanol production based on lignocellulosic biomass has been developing. Especially, various toxic compounds are formed that can inhibit fermentation of the released sugars to ethanol during pretreatment of lignocellulosic substrates. In this study, the tolerance of *Saccharomyces cerevisiae* to individual inhibitory compound was investigated. In the case of acetic acid, the cell growth decreased with an increase in the concentration of acetic acid but in all concentrations experimented of acetic acid, ethanol of about 45 g/L was produced. In the case of furans (furfural and 5-HMF), cell growth and ethanol production also decreased with an increase in the concentration of furans (especially over 3 g/L). The cell growth and ethanol production of both syringaldehyde and coumaric acid were similar to those of furans.