

Adaptive response of *Pichia stipitis* to lignocellulosic hydrolysates during ethanol fermentation

배양원, 조대행, 김용환, 박철환*
광운대학교
(chpark@ac.kw*)

We compared the growth and ethanol production performance of *Pichia stipitis* KCCM 12009 in the presence of acetate, furans and phenolics in complex medium. We measured the adaptive response of *P. stipitis* to lignocellulosic hydrolysates. In the case of acetate, acetate 1 g/L showed the highest cell growth and ethanol production whereas the lowest level of cell growth and ethanol production were obtained for acetate 10 g/L. Furfural and 5-HMF were converted into furfuryl alcohol and HMF alcohol, respectively. These inhibitory compounds of furans did not significantly affect the final ethanol yield. Addition of 1 g/L of phenolics led to strong damage in the *P. stipitis* comparison to growth conditions in same concentration of acetate and furans. For all model compounds tested, the case of furfural 5 g/L and phenolics concentration over 3 g/L, *P. stipitis* did not grow up and it caused no ethanol production. Lignocellulosic hydrolysates from construction and demolition wood wastes (C&D) were also fermented and average value of ethanol yield (48 hr) was about 0.44.