

Butanol production from hydrolyzates of wood powder prepared with a modified supercritical water treatment

이지은*, 서은종, 이수민¹, 조현양
성균관대학교; ¹국립산림과학원
(jieunlee@skku.edu*)

As a result of increasing oil prices, biofuel production such as ethanol/butanol fermentation using biomass has been paid more attention and has been studied widely. Among biomass, lignocellulosic materials containing cellulose, hemicellulose and lignin are most abundant and renewable resources with great potential as fermentation substrates for biofuel production. Upon hydrolysis, cellulose and hemicellulose present in lignocellulosic materials liberate fermentable sugars such as glucose, xylose and mannose. Meanwhile, hydrolysis of lignocellulosic materials also produce furan, weak acids, and phenolic compounds that inhibit fermentation of hydrolyzates of lignocellulosic materials for biofuel production. However, preparation of hydrolyzates from lignocellulosic material still remains a challenge. In this study, the modified supercritical water treatment (SCW) method is employed to hydrolyze a lignocellulosic material, wood powder of *Populus alba x glandulosa* at 375 °C, 217.6 atm, for 1 min. The hydrolyzate was filtered, concentrated and added with P2 solution for further ABE fermentation using a solventogenic clostridium, *Clostridium beijerinckii* NCIMB 8052.