

## Pretreatment of non-woody lignocellulosic biomass and bioethanol production by simultaneous saccharification and fermentation

김낙중, hui LI, 장호남\*  
KAIST 생명화학공학과  
(hnchang@kaist.ac.kr\*)

Lignocellulose is the most plentiful renewable biomass produced from photosynthesis and it has a yearly supply of nearly 200 billion metric tons worldwide. However, there is still a technical obstacle to hydrolyze lignocellulose to fermentable monosugars because the linear polymer has a strong crystalline and are usually surrounded by lignin which reduces the accessibility to hydrolytic enzymes. Recently, a novel method featuring modest reaction conditions (50°C and atmosphere pressure) was presented, which combines a nonvolatile cellulose solvent (phosphoric acid) and a second volatile organic solvent (acetone). Using this method, the non-woody lignocellulosic biomass, such as grass, reed, and rapeseed stover grown in Korea widely, was investigated to produce ethanol using the simultaneous saccharification and fermentation method. Our result shows that this pretreatment method can separate lignocellulose components, recycle both solvents easily, and give high yield more than 90% of theoretical maximum yield.