Pretreatment process of Oakwood biomass using THF solvent

이승민, 한석준, 전원표, 김태현[1], 김준석†
경기대학교; [1]한양대학교
(jskim84@kgu.ac.kr†)

Woody biomass is essential to pretreatment because of having rigid structures and a lot of lignin. Among methods of pretreatment, using organic solvents has the advantage of being easy to reuse.
THF(Tetrahydrofuran) is a promising green solvent that is inexpensive and can relatively miscible with water over a wide range of reaction conditions. The miscible mixture of THF with water has been demonstrated to preferentially solvate lignin, thus, allowing for its facile removal from cellulose and preventing lignin self aggregation and redeposition. Thus, THF/water was used as pretreatment solvent for fractionation of lignin by destroying the ether bond to amend for hydrolysis and expand the surface area of cellulose and hemicellulose.
In this experiment, the THF/water system was conducted for delignification in various ratios at the temperature of 40℃ to 160℃ during 1 to 2 hours.
The main purpose of this study was to evaluate for characteristics to delignification and feasibility to hydrolysis of oakwood biomass at the optimal pretreatment conditions.
Keywords: Oakwood, THF, Delignification, hydrolysis