The effect of surfactants on the pretreatment of woody biomass using hot compressed water

윤준호, 김대성, 이헌욱, Aye Aye Myint, 이윤우*
서울대학교
(ywlee@snu.ac.kr*)

Depletion of fossil fuel is one of the major problems of today. Thus alternative sources are demanded, and Biomass can be an alternative renewable source for the fossil fuel. However, complex structure and various components of the biomass hinder the enzymatic digestibility of cellulose. Thus the process in which the structure is simplified and components are separated is needed, and this process is called pretreatment process. In the pretreatment process, three major components of biomass (cellulose, hemicellulose, and lignin) should be fractionated to increase the yield of fermentable sugars and prohibit the undesired degradation of products that are strong fermentation inhibitors. In this work, hot compressed water (HCW) and batch-type reactors were used for the pretreatment of tulip tree. To increase the efficiency of pretreatment process, surfactants were used, and the effect of surfactant was investigated. HPLC, WAXRD, SEM, and FT-IR were used to assess the effect of surfactants on efficiency of pretreatment process.