

### Enzymatic saccharification in the pretreatment of softwood with an ionic liquid

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Recently, ionic liquids have attracted much attention due to their good properties such as non-volatility and non-flammability, high electric conductivity, excellent catalytic activities, and phase separation performances. In this study, softwood pretreated by ionic liquid 1-butyl-3-methylimidazolium chloride under the wide range of reaction temperatures and times was applied for enzymatic hydrolysis. The increase in biomass dissolution and lignin removal was observed with increasing pretreatment temperature and time. As a result of characterization analysis, pretreated softwood showed significantly different change in surface morphology, crystalline structure and functional groups at critical points of pretreatment condition. In addition, enzymatic digestibility of pretreated softwood was strongly improved as compared to those of untreated sample.