

The organosolv pretreatment of herbaceous biomass by flow-through process for enhancement of enzymatic hydrolysis

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For decades, various methods of pretreatment have been studied at many research institutes and laboratories. Among them, organosolv pretreatment was known as effective method for lignin extraction of lignocellulosic biomass. The organosolv pretreatment can extract lignin effectively and so it makes easy to enzymatic hydrolysis resulting from destroying structure. And for the lignin removal, flow-through type reactor is efficient, which separates continuously lignin and other hindrances from carbohydrates by liquid flow. Also the herbaceous biomass normally has a lower lignin content than woody biomass, so efficient of pretreatment can be improved without catalyst.

For these reasons, the organosolv pretreatment was performed without catalyst by flow-through reactor. In this pretreatment, three biomass(corn stover, wheat straw, miscanthus) was used as a substrate and 30~60 wt% ethanol was used as an organosolv. Each biomass was pretreated by flow-through reactor under 400~600 psig of backpressure at 190 °C during 20~40 min, also the pretreated biomass was evaluated by enzymatic hydrolysis.