

### Pretreatment by acid and alkaline solutions for Jerusalem artichoke residue

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The second generation bioethanol production from lignocellulosic biomass requires extensive pretreatment and saccharification. Pretreatment is an essential element in the bioconversion of lignocellulosic substrates. The pretreatment of lignocellulosic is primarily employed to increase the accessible surface area of cellulose to enhance the conversion of cellulose to glucose. The advantage of acid pretreatment is the solubilization of hemicellulose and by this, making the cellulose more easily accessible for the enzymes. The cellulose, hemicellulose and lignin of the selective separation are a necessary step in order for high yield production of fermentable sugars. Jerusalem artichoke is easy to cultivate for its strong adaptability to a wide range of soil types and pH levels. Unlike the grain crops, Jerusalem artichoke can grow well in non-fertile land and is resistant to plant diseases, not competing with grain crops for arable land. In this study, we had performed pretreatment process by acid and alkaline solutions and researched the characteristics of Jerusalem artichoke residue pretreatment by acid and alkaline solutions. Pretreatment of Jerusalem artichoke residue using the percolation process were usually performed at 150 ~ 200 °C.