

Pretreatment of Jerusalem artichoke residue by percolation process using aqueous ammonia and sulfuric acid

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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 ~ 190 °C. The glucose concentration and conversion rate were each 2.4 g/L and 14.2 at the enzymatic saccharification of untreated Jerusalem artichoke residue. Glucose conversion rate showed minimum 60% at the enzymatic saccharification of pretreated Jerusalem artichoke residue by aqueous ammonia. At this time, glucose concentration was 15.6 g/L. It was an increase in value of 6 times than untreated biomass. In addition, glucose concentration and conversion rate were respectively 21.2 g/L and 86.3% for pretreated biomass by 20wt% aqueous ammonia at 190 °C.