

Effect of Hot Water Pretreatment on Empty Fruit Bunch(EFB) for Bioethanol Production

최원일, 최선아, 정민지, 이준표, 박지연, 이진석*
한국에너지기술연구원
(bmjslee@kier.re.kr*)

Recently, biomass resources are receiving much attention because of their carbon neutral characteristics. Biomass consists of three major components such as hemicellulose, cellulose, and lignin which have quite different reactivities. Processing of lignocellulosic substrates to ethanol consists of a four-step operation. There are pretreatment, hydrolysis, fermentation and product separation/purification. In an enzymatic hydrolysis-based process, pretreatment is a key factor underlying whole process efficiency, since it disrupts cell wall physical barriers and renders cellulose more accessible to large cellulase structures. Pretreatment has been shown to have a great impact on overall process cost, accounting for up to 33% of the total, according to a base case designed by the National Renewable Energy Laboratory.

As a source of both edible and industrial oils, oil palm is one of the most important tree species in Southeast Asian countries like Malaysia. However, woody fibrous residues, which remain after oil is extracted, have not been effectively utilized so far. In this poster section, the effect of hot water pretreatment at bioethanol production for using woody fibrous residues which called empty fruit bunch(EFB) was investigated.