

Hot Liquid Water (HLW) Pretreatment of Empty fruit bunch for Improvement of enzymatic digestibility

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As One of the pretreatment methods, the HLW(Hot liquid water) pretreatment enhances enzymatic digestibility of the biomass by dissolving hemicellulose fraction of the biomass as soluble oligo- and mono- saccharides, while degradation of monomeric sugar products, such as HMF (5-hydroxymethyl furfural) and furfural, which are known to inhibit bacteria or yeast in the ethanol fermentation process. The HLW pretreatment does not require addition of other chemicals, which would have to be either recovered or neutralized before further processing of pretreated solids. Due to these advantages, economics of the HLW process is excellent. We investigated the effect of hot liquid water (HLW) pretreatment for Empty fruit bunch(EFB) over various reaction conditions using percolation process. For the improvement of enzymatic digestibility, we used two stage heating process and The wet pretreated residue and liquid using pretreatment were conducted with enzymatic hydrolysis. Thus, glucose yield of 70.05% and xylose yield of 26.8% (initial sugar basis) were obtained from enzymatic hydrolysis.