

Enzyme Saccharification Of Oil Palm Mesocarp Fiber (OPMF) Treated With Superheated Steam.

Abstract

The effectiveness of superheated steam pretreatment on the enzymatic saccharification of oil palm mesocarp fiber (OPMF) was investigated by varying the temperature (140 to 210 °C) and the retention time (20 to 90 minutes). The results showed that superheated steam pretreatment at 180 °C for 60 minutes is the optimum condition for enzymatic saccharification of OPMF. Scanning electron microscopy (SEM) images of the OPMF show that superheated steam pretreatment is able to remove silica bodies. Further characterization by FTIR and TG/DTG analysis of the raw and treated OPMF indicates that the solubilization and removal of hemicelluloses took place after the pretreatment. This suggested that superheated steam pretreatment is an effective method for the alteration of the OPMF structure and enhances the digestibility of the biomass, hence improving enzymatic saccharification.

Keyword: Saccharification; Oil palm mesocarp fibre