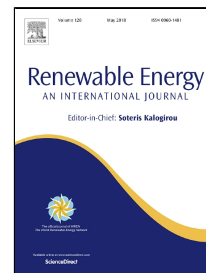


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**Microwave irradiation with dilute acid hydrolysis applied to enhance the
Saccharification rate of water hyacinth (*Eichhornia crassipes*)**

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Abstract

Sugar generated from aquatic plant biomass with high cellulose and hemicellulose content is considered as a dynamic progression towards the advancement in bio products. Hence, this study investigated the possibility of enhancing the saccharification rate of sugar from water hyacinth (*Eichhornia crassipes*) by microwave heating system. The method of full factorial experimental design was adopted to explore different parameters that influence the conversion rates of fibers into fermentable sugar. The structural changes of the fibers after microwave treatment with dilute sulfuric acid was observed on the residue by using X-ray Diffractometer (XRD), Fourier Transform Infrared Spectrometry (FTIR) and Environmental Scanning Electron Micrograph (ESEM) analysis. The results obtained illustrates that hydrolysis time reduces to approximately 40% and effectively improve the rate of saccharification to 13.94 % with optimal sugar concentration of 4650 mg/L.

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