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Investigation studies the effect of Microwave pretreatment for enhancing biobleaching techniques

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Abstract: The aim of this study is to improve the effect of xylanase activity on unbleached bagasse pulp. By comparing pulp treated with different temperatures of microwaves 200,300,400W for 3 minutes before treatment with xylanase enzyme &pulp treated directly by xylanase enzyme. By looking at four contagious strains *Aspergillus niger* by utilizing the same fungi *Aspergillus niger* was the superior to the next three strains delivering the high measure of xylanase enzyme. The Kappa number decreased from (39.6 to 26.5) i.e enhanced by 33% after treated by xylanase enzyme only This occurred since the xylanase my break down the lignin-carbohydrate bonds improving the extractability of solubilized lignin. Also, It was clear Kappa number decreased from 39.6 to 15,45 i.e enhanced by 60.98%and the brightness % increased from 42 to 49.3 %, from the pulp treated by microwave irradiation and xylanase enzyme. Enhanced the xylanase production Raising of temperature degree of the microwave irradiation during exposure of pulp has no effect on the Kappa number and brightness breaking length increased from 2230 to 2420.6 m, after exposure the pulp to microwave irradiation at 200W for 3minute. FTIR spectra, scanning electron microscopy helped elucidate changes in the fiber composition and morphology.

Keywords: unbleached bagasse, microwave irradiation, Strength properties; Optical properties, Kappa no. infrared and electro-microscope.

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