Mechanical Properties of Chemically Extracted Bagasse Fiber

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Abstract

Natural fiber composites are expected to be in high demand in the coming years as consumer awareness grows about the importance of reducing waste and pollution. The primary goals of this work to know the mechanical properties of chemically extracted bagasse fibers. Bagasse fibers are manually extracted following different extraction processes from the sugarcane residue collected from the sugarcane juice producing vendors. Collected bagasse residue are first washed in the clean water then dried under the sun for 72 hours. Extracted fibers are treated with alkali (1% NaOH) solution to improve the mechanical properties of the fibers. Four different types of duration (11 hours,12 hours,14 hours,15 hours) fiber were exerted using combing operation.

The fibers were tested under a universal tensile testing machine and the diameter of the fibers was calculated using images obtained in an optical microscope. Chemically extracted fibers showed better mechanical properties than manually extracted fiber. It's speculated that, diameter variation among fibers and within fibers will be less and this could improve fiber mechanical properties.

Keywords
Bagasse Fiber, Mechanical Properties and Scanning Electron Microscopy.

Biographies

Md. Nasif Ul Hossain is an Undergraduate Mechanical Engineering student at Ahsanullah University of Science and Technology (AUST). Beside study he has knowledge of 3D CAD design. Besides all these he has also experience to work with couple of remarkable projects.

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