



## Preparation and Characterization of Nanocellulose from Sugarcane bagasse

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Nanocellulose is steadily gaining attention since this material is a renewable alternative to reinforce polymers. Research and development of materials obtained from renewable natural sources have been the focus of attention in various engineering applications. The residues from different kinds of lignocellulosic materials has great potential for production of biocomposites, which are applied in optoelectronic devices, packaging, and building. The main object of this work was study of nanocellulose preparation from sugarcane bagasse and its characterization. The sugarcane bagasse was submitted to chemical treatment for separating of the cellulose from the lignocellulosic material, bleaching with hydrogen peroxide followed by sonication treatment for obtaining nanocellulose. Sonication treatment solution was prepared with a cellulosic material in water/DMF(dimethylformamide)/ethanol. Sonication treatment was done in a DES500 ultrasonic cell tip/horn sonicator with a 20 kHz ultrasonic frequency. The nanocellulose samples were characterized by FTIR, XRD, FE-SEM and TEM analysis. According to the results, the methodology used in this work presented a great potential to the obtaining of nanocellulose for applications in the development of new nanocomposite materials.

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