Ceiba Speciosa Nanocellulose Obtained from a Sustainable Method as a Potential Reinforcement for Polymeric Composites

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Abstract : Due to the need to reduce the consumption of materials produced from non-renewable sources, the search for new raw materials of natural origin is growing. In this regard, lignocellulosic fibers have great potential. Ceiba sp fibers are found in the fruit of the tree of the same name and have characteristics that differ from other natural fibers. Ceiba fibers are very light, have a high cellulose content, and are hydrophobic due to the presence of waxes on their surface. In this study, Ceiba fiber was used as raw material to obtain cellulose nanofibers (CNF), with the potential to be used in polymeric matrices. Due to the characteristics of this fiber, no chemical pretreatment was necessary before the mechanical defibrilation process in a colloidal mill, obtaining sustainable nanocellulose. The CNFs were characterized by Fourier infrared (FTIR), differential scanning calorimetry (DSC), analysis of the rmogravimetic (TGA), scanning electron microscopy (SEM), transmission electron microscopy, and X-ray photoelectron spectroscopy (XPS).

Keywords : cellulose nanofibers, nanocellulose, fibers, Brazilian fIbers, lignocellulosic, characterization
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