
A GREEN TECHNIQUE FOR NANO-CELLULOSE DERIVATIVES PREPARATION AND FUNCTIONALITY

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ABSTRACT

Using a ball mill is a low-cost, easy, and fast green solution that has a lot of promise for expansion. The manufacture and chemical manipulation of microcrystalline cellulose and nanofibers is amongst the most intriguing uses of these approaches in the area of cellulose. Ball milling is a method of reducing nanotubes to ultrafine particles by grinding them. While the ball milling process is in progress, the collision of small hard balls in a concealed jar results in the generation of localized high pressure. Ceramic, flint stones, and stainless steel are all often utilized in this process. When it comes to grinding (or mixing) materials, ball mills are cylindrical in form and are used for a variety of applications such as ore grinding (or mixing), chemicals grinding (or mixing), ceramic raw materials grinding (or mixing), and paint grinding. Ball mills are cylindrical devices that spin around a horizontal axis and are partially loaded with the material to be treated as well as with the grinding media. Despite the publication of a number of papers, the potential of this method in the area of cellulose nanoparticles has not yet been fully realized. Aiming to put current work into perspective, this analytical study emphasizes the significance and potential of this renewable, renewable approach for identifying areas for future development, as well as the challenges and opportunities it presents.

KEYWORDS: Amorphous, Ball milling, Cellulose, Nanocrystals, Nanocomposites.

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