

A Short Review of Nano-Cellulose Preparation from Textile Spinning Waste Cotton

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ABSTRACT

Cotton fiber is the most used natural fiber among all other fibers as its application is not bound to the restriction. Cotton cellulose is a linear biopolymer and cotton is the most abundant as well as the most popular natural fiber for preparing natural human apparel that directly produces from nature. In the process of apparel manufacturing, each year huge amount of cotton fiber turns into waste. This paper aims to evaluate the preparation of nano-cellulose or nanocrystal cellulose from this waste cotton. Therefore, the waste cotton scenario of the spinning industry, statistics of waste cotton, and nanofiber in the spinning industry studied elaborately. Besides, this review describes the nano-cellulose materials preparation techniques, cotton waste source, nano-cellulose physical structure. Nanocellulose is prepared using a variety of methods, including biological, mechanical, organic mechanical, bacterial, and enzyme processes, as well as a variety of chemicals. Nano-cellulose preparation processes with a high proportion aspect and strong thermal efficiency in this phase pave the way for alternative cotton reuse. Nano-cellulose has become commercially popular, but it cannot be used across the market at a high price, but waste cotton is the solution for the cheap end price for food supply, drug supply, army dress, and textiles. Due to the availability of waste cotton in very cheap in market and conversion to valuable product it will be a value added product.

KEYWORDS

Industries; Natural fibers; Raw materials; Nanoscale devices; Nanostructures; Cotton; Nanobioscience

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