Nanocelluloses Production, Characterization and Market

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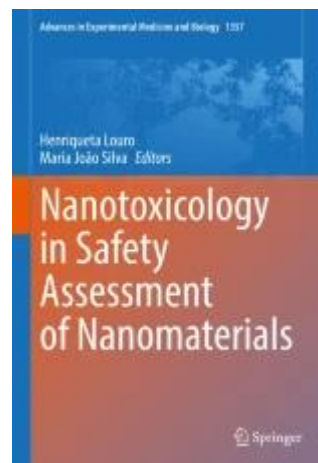
Abstract

Nanocelluloses are a very promising material that has been widely explored for the most diverse applications. The pursuit for sustainable and environmentally friendly materials is in line with the nature of nanocelluloses and therefore they have emerged as the perfect candidate for plastics substitution, food additive, rheology controller, 3D printing of diverse structures, among many other possibilities. This derives from their interesting characteristics, such as reduced size and high specific surface area, high tensile strength, crystallinity and transparency, and from the fact that, such as cellulose, they are obtained from renewable sources, with relative ease for functionalization in order to obtain desired specificities. Thus, the industry is trying to react and effectively respond to the exponential growth of published research in the last years, and therefore new facilities (not only lab and pilot plants but already industrial sites) have been producing nanocelluloses. This new fibrous materials can be obtained from different raw-materials by different methodologies, leading to different types of nanocelluloses with, obviously, different characteristics. Nonetheless, technical and economical constraints have been addressed, such as the high energy demand or the clogging of homogenizers/microfluidizers.

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