

## **Nanocellulose: From biosources to nanofiber and their applications**

### **Abstract**

Nanocellulose is a product of cellulose, a sustainable and plentiful resource. Its distinctive nanoscale structure makes it a versatile, green and interesting material for a variety of applications. This article describes in detail the biosources of nanocellulose, the types and characteristics of nanocellulose, and the techniques used to produce nanocellulose fibers. The mechanical properties and morphologies of nanocellulose fibers are addressed in depth, along with their prospective applications in sectors, including paper packaging, building materials, composites, biomedicine, energy storage and filtration. In addition, the current state of nanocellulose research, including the opportunities in the field, as well as the future prospects of nanocellulose as a viable and sustainable material for a vast array of applications, are discussed. © 2023 Walter de Gruyter GmbH, Berlin/Boston. All rights reserved.

### **Keywords**

Biosources; Composite; Nano-fiber; Nanocellulose; Natural fiber.