

Identification of Efficient Bioprocessing of Banana Fibers for Sustainable Fibers and Textiles †

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Abstract: Sustainable natural fibers create a whole-life approach for fiber production, sustainable textiles with positive impacts of lower energy requirements and recycling. Modernization and urbanization impulse the thirst for sustainable and biodegradable fibers for textile applications. The thirst for natural fibers could be grunted by practicing Banana fibers in textile industries. The Pseudostem linchpin of Banana fibers is renowned for incredible durability, biodegradability, spinning quality, fineness, and tensile strength. The implementation of banana fiber in textile industries can increase the market share value of plant fibers in textile industries which is only 5%. Textile processing of Banana fiber necessitates the removal of the hemicellulosic substance. Neglecting hemicellulosic substances is usually done by chemical degumming, which is hazardous. The major concern of the research is the degumming of Banana fibers by an eco-friendly method. In our investigation, we have investigated the degumming of Banana fibers by hemicellulose degrading enzymes such as Pectinases, Xylanases, and Laccases to understand the practical difficulties of Biological degumming technology. Our research infers that bio-degumming possesses positive feedback compared to conventional degumming technology. The degummed Banana fiber has remarkable applications in the fabrication, cutlery application, and textile industries.

Keywords: Bioprocessing; sustainable fibers; textiles; natural fibers.

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Conflicts of Interest

The authors declare no conflict of interest.