

# **A REVIEW ON DURABILITY OF HIGH-PERFORMANCE CELLULOSE-BASED BIOCOMPOSITES**

## **Abstract**

Concerns about climate change have reignited enthusiasm for more sustainable applications of natural fibers in composite materials. Natural fiber composites (NFCs) are frequently marketed as an environmentally conscious item that may, in certain situations, provide appropriate levels of particular strength and stiffness while having a lower overall ecological impact. Nevertheless, concerns with their proclivity for deteriorating in a number of ways, including chemical, biological, thermal, mechanical, photochemical, and water-based degradation, continue to stymie the widespread utilization of these composites. It is established that hemicelluloses are accountable for biological dilapidation in addition to absorbing moisture, while lignin is accountable for ultraviolet radiation (UV) deterioration. The environmental degradation problems to be taken into account are those caused by environmental elements such as biological approach, temperature, UV light, and moisture, which might limit the usability of these composites. This review examines the latest researches into enhancing the performance characteristics of NFCs under the influence of these environmental elements so that they might be utilized more extensively. Also highlighted how chemical treatment affects fiber composition and fiber-matrix interfacial bonding characteristics. It concludes by examining possible future paths for the development of innovative natural fiber composites with a wider range of better uses.

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