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ANALYSIS OF BIO-BASED ANTIMICROBIAL TEXTILES: A REVIEW

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Abstract

In the pursuit of environmental preservation and sustainable progress, the demand for textiles capable of biodegradation and the development of non-polluting finishing products has become imperative. This paper endeavors to consolidate insights derived from existing literature concerning antimicrobial biotextiles and the application of antimicrobial plant treatments to such textiles. The foundation of this exploration rests on empirical data sourced from scientific literature, encompassing books, articles, theses, and dissertations within the specified domain. These resources have been drawn from repositories like Science Direct, ResearchGate, Google Scholar, as well as contributions from the Mechanics Laboratory of the Doctoral School of Engineering Sciences at the University of Douala, which investigates into the realm of antimicrobial bio-textiles.

The comprehensive review underscores the dichotomy of microbes into resident or incipient and transient categories. Notably, certain textile fibers inherently exhibit antimicrobial properties, necessitating no additional treatment. Conversely, other fibers necessitate specific treatment protocols to imbue them with antimicrobial attributes. While the literature has a presence of antifungal and antibacterial textiles, a dearth of knowledge pertains to antiviral textiles, indicating an area that remains largely unexplored. It is worth noting that despite the prevalence of literature addressing microbes, there is a conspicuous absence of focus on skin microbes in particular, presenting an avenue for further research and inquiry.

In summary, this review amalgamates existing insights to underscore the multifaceted landscape of antimicrobial biotextiles, highlighting the diversity in microbial types, the varying requirements for antimicrobial efficacy, and the noticeable gaps in the understanding of antiviral textiles and skin microbes.

Key words: antifungal textile, antiviral textile, antifungal plant textile, antiviral plant textile

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