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Investigation of Antibacterial Property of Bamboo In-Terms of Percentage on Comparing with ZnO Treated Cotton Fabric

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Abstract : The study includes selection of 100 % bamboo fabric and cotton fabric for the study. The 100% bamboo fabrics were of 127 g/m², and 112 g/m² and 100% cotton grey fabric were of 104 g/m². The cotton fabric was desized, scoured, bleached and then treated with ZnO (as antimicrobial agent) with 1%, 2% and 3% using pad-dry cure method, whereas the bamboo fabrics were only desized. The antimicrobial activity of bamboo and ZnO treated cotton fabrics were evaluated and compared against E. coli and S. aureus as per the standard AATCC - 147. Moisture management properties of selected fabrics were also analyzed. Further, the selected fabric samples were tested for comfort properties like bending length, tearing strength, drape-ability, and specific handle force and air permeability. It was observed that bamboo fabrics show significant antibacterial activity and the same was shown by 3% ZnO treated cotton fabric. Both cotton and bamboo fabrics show improved moisture management properties than the cotton fabric. The comfort properties of bamboo fabrics are found to be superior to cotton fabrics making it more suitable for applications in place of cotton.

Keywords : antimicrobial activity, bamboo, cotton, comfort properties, moisture management, zinc oxide
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