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Preparation of multifunctional medical reusable gowns using TiO₂ nanosol gel /β-CD/triclosan for improvement of self-cleaning and antibacterial properties

Rakia Refai, Ahmed T.El Aref, S.Sharaf*, A.Higazy

Department of Preparation and Finishing of Cellulosic based textile ,National Research Centre, Textile Division,Textile Chemistry and Technology,33EL BohouthstDokki-Giza, Cairo,P.O. Box 12622, Giza, Egypt

Abstract : To realize the development of medical reusable gowns for bedridden patients using nano-sol-gel coating, a plenty of experiments have been carried out to prepare TiO₂ nano sol-gel for self cleaning cotton treated fabric. On the other hand triclosan,β cyclodextrin and glyoxal were the main modifying agents for cotton fabrics throughout this study under different condition for bearing antibacterial and self cleaning properties. The products are characterized by SEM micrographs,TEM , XRD and EDS analysis. A study of fabric performance and antibacterial properties of treated cotton fabrics and its durability to washing were evaluated .Results revealed that finished cotton fabrics reserved most of their performance including properties in addition to enhanced water permeability, abrasion resistance ,UV protection and stain release (OSR).Finished cotton fabrics treated under these conditions ,exhibited a durable antibacterial characteristic and thus can be categorized as multipurpose medical textiles used in production of reusable gowns required for bedridden patients.

Key words : reusable gowns-bedridden patients-β cyclodextrin-triclosan-sol-gel coating.

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