World Academy of Science, Engineering and Technology
International Journal of Materials and Textile Engineering
Vol:9, No:12, 2015

Electrospun TiO2/Nylon-6 Nanofiber Mat: Improved Hydrophilicity Properties

Authors : Roshank Haghighat, Laleh Maleknia

Abstract : In this study, electrospun TiO2/nylon-6 nanofiber mats were successfully prepared. The nanofiber mats were characterized by SEM, FE-SEM, TEM, XRD, WCA, and EDX analyses. The results revealed that fibers in different distinct sizes (nano and subnano scale) were obtained with the electrospinning parameters. The presence of a small amount of TiO2 in nylon-6 solution was found to improve the hydrophilicity (antifouling effect), mechanical strength, antimicrobial and UV protecting ability of electrospun mats. The resultant nylon-6/TiO2 antimicrobial spider-net like composite mat with antifouling effect may be a potential candidate for future water filter applications, and its improved UV blocking ability will also make it a potential candidate for protective clothing.

Keywords : electrospinning, hydrophilicity, antimicrobial, nanocomposite, nylon-6/TiO2
Conference Title : ICTE 2015 : International Conference on Textile Engineering
Conference Location : Sydney, Australia
Conference Dates : December 10-11, 2015