

Nanoparticles in medical textiles: Opportunities and Challenges'

Syed A. M. Tofail, Materials and Surface Science Institute, University of Limerick

Abstract

The US and European market size in 2001-2002 for medical textiles was estimated at over \$7 b. In 2002, the sales in this market only met one third of the North American and European market potential thus leaving a huge market potential for medical textiles. The use of nanoparticles of silver, zinc oxide or anatase has been seen as a viable solution to stop infectious diseases due to the antimicrobial properties of these nanoparticles. The marriage between nanotechnology and its medicinal use goes beyond antimicrobial applications and is estimated to develop in to a potential market of \$10 billion in 2010. To limit this enthusiasm, the use of nanoparticles, however, has increasingly been seen as a potential threat to health and environment and the possibility of restrictive regulations can not be overruled. The reason that any restrictive legislation has not come yet is the lack of enough data. In addition, there are technical limitations such as the agglomeration and scaling up of the production of nanoparticles. This presentation will discuss some of these market opportunities and associated technical, occupational and environmental challenges that may require proper attention for a successful commercialization of nanoparticle-loaded medical textiles.