

Nanocomposites coating of acrylic fabric for fabrication of smart textile with antimicrobial properties

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Abstract

Textile materials as they are flexible fibrous and highly porous with a large surface area and wearable in different shapes using either natural or synthetic fibers are of prime importance for the fabrication of new materials [1,2]. In this interest, hydrophobic synthetic fiber such as acrylic fabric has been coated with the dopamine layer as an adhesive layer for further coating with different nanoparticles. Furthermore, the coated layer has been crosslinked with different biopolymers and/or polyethyleneimine. Different nanoparticle formulations containing metal nanomaterials, oxide nanomaterials, carbon-based nanomaterials have been incorporated between the first and the second layer. On the other hand, the possibility of coating the dopamine layer with conductive polymer-based on aniline and/or pyrrole monomers have been investigated. SEM, ATR-FTIR, XRD, and TGA will characterize the coated textile fabrics. The antimicrobial activity of the coated fabrics, together with other functionality, have been investigated.

Faculty of Engineering and Design, Kyoto Institute of Technology in 1995.

Speaker Publications:

1. Karim N et al (2017) Scalable production of graphene based wearable E-Textiles. ACS Nano 11(12):12266–12275.
2. Jost K, Dion G, Gogotsi Y (2014) Textile energy storage in perspective. J Mater Chem A 2(28):10776–10787

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Biography:

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