

Using Nanotechnology to Improve the Healthcare Clothing Performance

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Abstract:

The study aims to benefit from nanotechnology in improving the functional performance of therapeutic clothing, and the study was conducted using the graphene to improve the conductivity and the antimicrobial effect of therapeutic garments to be more suitable for muscle activation. The nanoprometric carbon molecules were prepared using the modified manure method of producing graphite oxide and then thermoreduction to convert the graphene oxide into a graphene and carry out tests. Then test the graphenes by Raman, XRD, TEM, and FTIR.

Subsequently, the graphenes were applied to the fabric using string dyes and printing in color and all experiments were conducted on a mixture of dark-colored tissue (50% / 50% cotton / polyester) and 100% white spinning, using different concentrations of graphenes. The printing technology of the Acelite dough is installed in all samples using the hot air dryer.

Then carry out the laboratory tests of: Square meter weight, fabric breathability of water, air flow, electrical conduction, antimicrobial resistance of these types of bacteria such as GRAM Positive (s.aureus, B.subtilis) and gram negative (E. coli and protein) - friction resistance, For a change in the properties of treated fabric and to determine the best concentration of nanoprometric graphenes, the garment is suitable for muscle stimulation, and for the surgeon to perform the required muscle stimulation performance the Arduino Nano has been used to cause the desired quantum vibrations to be adequately treated.

Keyword

Nanotechnology, Nanometer graphene, healthcare