

## عنوان مقاله:

Comparison of Ultraviolet Protection Factor of Pure Cotton and Cotton Coated with Titanium Dioxide Nanoparticles using the Electrospinning Method with Two Ultraviolet-C Generators

## محل انتشار:

مجله فیزیک پزشکی ایران, دوره 17, شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 6

## نویسندگان:

Jaffar Jaffar Fatahi-asl - Assistant Professor of Medical Physics Department, Faculty of Paramedicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Mohammad Eskandari - Department of medical physics, Faculty of medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Abdol-Hossein Bigdeli - Department of Medical Physics, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Fatemeh Jahangirimehr - Department of public health, Faculty of health science, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

## خلاصه مقاله:

Introduction: Protection against harmful effects of ultraviolet radiation (UV) is measured under Ultraviolet Protection Factor (UPF) scale. The utilization of protective clothing is the best way to deal with the damage caused by ultraviolet radiation. The purpose of this study was to compare the ultraviolet ray protective factor of pure cotton and cotton coated with titanium dioxide (TiO<sub>2</sub>) nanoparticles using the electrospinning method with two natural and artificial generators. Material and Methods: This is an analytical-descriptive study in which, a pure cotton fabric and a cotton fabric coated with nanoparticles of dioxiditenium were coated for 10, 20 and 40 minutes, as an example, with the titanium dioxide with two types of sunlight and artificial light (widespread and dotted) beams. UV radiation divided into three spectra A, B and C that we use UV-C to measurement. Finally, the comparison of the average UV-c radiation penetration from different fabrics were conducted. We use SPSS Ver.22 to analyze data and p-value<0.05. Results: The highest and the lowest amount of penetration were for pure and coated cotton fibers for 40 min of UV-C radiation, respectively. As the beam decreases, the UPF rises. In nano-coated fabrics, the amount of beam penetration is lower and absorption is higher giving higher UPF. Conclusion: Due to the very low UPF, cotton fabrics are not suitable for utilization in areas with UV radiation. Therefore, in order to protect against UV radiation, fabrics coated with TiO<sub>2</sub> nanoparticles can be used in the domain of health care

## کلمات کلیدی:

Cotton Fabric Electrospinning Nanoparticle, Ultraviolet-C Beam Ultraviolet Protection Factor

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1032357>



