# فرص ومخاطر تكنولوجيا النانو- والتغيرات التي تحدثها في بعض الخواص الرئيسيه المرتبطه بالشعور بالراحه في الخامات السليلوزيه

# Opportunities and risks of nanotechnology - changes in some of the main properties associated with comfortable in cellulose materials

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## Abstract:

**The aims** of this research are to identify the positive and negative aspects of nanotechnology on consumer health and the environment, As well as to identify the changes that can be caused by some treatments of this technique on some properties of the cloth, which directly affect the feeling of comfort. **The importance** of this research is that nanotechnology is one of the most promising technologies of the 21st century and a driving force behind a new industrial revolution is likely to provide great growth opportunities. A comprehensive risk assessment of this technology should be undertaken, reduced to the lowest level, and consumer awareness should be raised to take note of the potential environmental benefits and risks of nanomaterial. In this regard, we need further research on the risks related to nanotechnology, with independent funding for such research, the establishment of specialized research centers at the global level, and of course transparency on the results of research to manage the risks of successful nanotechnology.

The most important results of this study are:

1. The weight per square meter of all textile fabrics used in research after treatment with nanoparticles (rayon, bamboo, and cotton) increased by 29, 22.22%, respectively.
2. The water vapor permeability of Rayon, Bamboo and Cotton were reduced 6, 4 and 8% respectively after treatment.
3. There was a significant decrease in air permeability of fabrics for all samples, 85, 87 and 74% for Rayon, Bamboo and Cotton respectively after treatment.
4. 4. The thermal conductivity was significantly reduced after treatment with the Nano-materials at rates of 66, 59 and 56% for Rayon, Bamboo and Cotton respectively after treatment.

We conclude that nanomaterial, although they have added desirable properties of the cloth to suit the purpose of end use, on the other hand, they have negatively affected on the basic characteristics of comfort in the cloth, therefore, it is necessary to study the effect of each treatment separately before performing this treatment. It must identify the impact on the basic characteristics of the fabric, and take appropriate decision in accordance with the purpose of performance, at the same time preserving the original properties of the fabric, especially if it is related to comfort.

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