



Topic of the Speech:

Biofunctional Textiles for Hygiene and Medical Applications
Using Eco-friendly Methods

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Dr. Prabhuraj Venkatrman is a Textile Technologist and a Chartered Fellow of the Textile Institute (CText FTI), with a specific interest in Technical Textiles, focusing on designing and developing functional apparel and high-performance textiles.

His research falls in technical textiles for product development and evaluation. Some of the research includes developing biopolymers from renewable sources, environmentally friendly method of denim fading/patterning; development of antimicrobial textiles using herbal nano-emulsions; exploring the potential of Ugandan barkcloth as a sustainable fashion textile and its healthcare potential, evaluation of pressure measurement devices for classifying sports compression hosiery, and designing padded clothing for rugby sports using auxetic materials.

He recently led and completed a collaborative project supported by Global Challenges Research Fund [GCRF] which reported the development of environmentally friendly finishes using plant based antimicrobial agents. He is also the Research Degrees Coordinator for Manchester Fashion Institute, supporting postgraduate researchers and admissions.

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ABSTRACT (NO MORE THAN 500 WORDS:)

Textiles worn on the body have intimate contact with the skin and provide a range of protective and functional attributes. The recent global pandemic has raised awareness amongst many to improve hygiene, and there has been a surge in the development of advanced textile finishes with improved functional properties.

Bio-functional textiles have been developed with therapeutic or cosmetic compounds that effectively release or absorb from the skin. These bio-active textiles also serve as a 'reservoir' mainly to release active substances to the skin. In addition, several methods have been developed to modify the physical or chemical composition of textiles, including laser treatment, plasma, layer-by-layer deposition, electro-spinning, microencapsulation, and using nanoparticles. However, synthetic fibres, chemicals and processing could harm the environment and society. Recent developments highlight that naturally based materials could replace synthetic materials that have a low impact on the environment and are safe and widely available.

This research will discuss the development of textile surface finishes (mainly for medical and hygiene textiles) using environmentally friendly materials, methods, and processes. The study will specifically discuss the development of durable functional finishes that is safe, durable, and comfortable to use. The research will also outline the performance of these available finishes and recommend suitable applications.

Finally, the research will also highlight some of the critical markers for product design and development toward enhancing the functional properties of textiles. Implementing sustainable and environmentally friendly products and processes will positively impact human health and the environment.