

## **Biosynthesized Nano-finished Fabric for Surgical Environments**

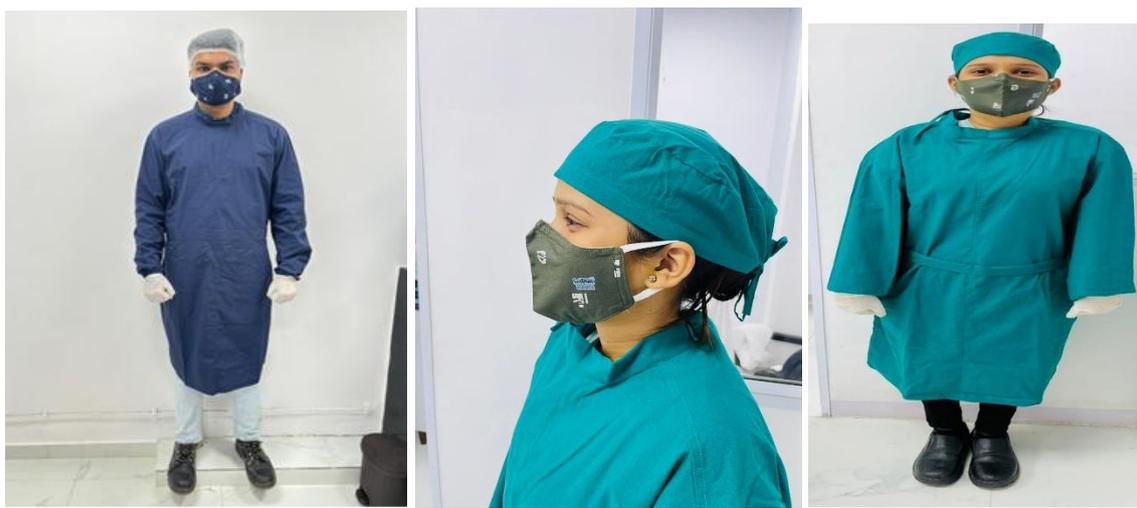
**Abstract:** Nanotechnology has emerged as a transformative tool in textile finishing, enabling the development of multifunctional fabrics with enhanced antimicrobial, antiviral, and UV-protective properties. Among various nanomaterials, silver nanoparticles (AgNPs) and copper nanoparticles (CuNPs) have attracted particular interest due to their potent antimicrobial activity, cost-effectiveness, and UV-absorbing properties. However, traditional synthesis methods often employ hazardous chemicals, raising environmental and safety concerns. This project addresses these challenges by developing an eco-friendly, green synthesis route for AgNPs and CuNPs using plant extracts as natural bio-reducing and stabilizing agents. This sustainable approach eliminates the need for toxic reagents and aligns with global initiatives promoting green chemistry and circular economy principles.

### **Salient Features:**

- Posses > 99% antibacterial and antiviral properties, Good biocompatibility, UV protection
- Wash durable up to 50 soap washes, 5 autoclave washes, and reusable
- Ideal for surgical environments, hospitals, clinics, etc.

**Equipment Needed:** The pad-dry-cure application technique for finishing nanoparticles on cotton fabric is a well-established method in textile processing. Therefore, the procedure can be readily integrated into current manufacturing systems without requiring significant modifications to equipment or workflow.

### **Products:**



**Reusable and washable Cotton Surgical Gown kit, including face mask and cap**

**Estimated cost for synthesizing bio-finished surgical gown: Rs. 620/- per gown**

**Contact Details:**

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