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Nano Fabrics: Smart Wound Healing Bandages with Antimicrobial Properties

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The fabrics are sophisticated in usage owing to their amazing features. The fabrics are an incredibly excellent medium for the growth of microbial pathogens. The nanoparticles encompass assorted benefits in the field of biomedical use field drug hauler and as antimicrobial potential. The existing research was intended to synthesize the plant: *Curcuma longa* root aqueous extract mediated silver nanoparticles (AgNPs) and assess their potential of antimicrobial and wound healing of nano fabrics. The synthesized AgNPs were analysed via the UV-visible spectroscopy and found the maximum absorbance peak is 340 nm. The Synthesized AgNPs (30 μ g) has revealed the maximum sensitivity against the *Pseudomonas aeruginosa* (21mm) and *Staphylococcus aureus* (20mm). The synthesized nano fabrics exhibited the maximum zone sensitivity (25 mm) on *P.aeruginosa* pursued by *S.aureus* (23 mm). The synthesized AgNPs were characterized by High-resolution transmission electron microscopy (HR-TEM) and Fourier Transform Infrared Spectroscopy (FT-IR) examinations. The HR-TEM analysis revealed the size of the nanoparticles was 15 nm to 30 nm. The formulated nano fabrics were used to investigate their competence alongside the pathogenic microbes. The subsistence of AgNPs in the fabrics was affirmed through the Scanning electron microscope (SEM) with EDX analysis. The antimicrobial potential of nano fabrics was tested beside the pathogens. The wound healing potential was analyzed in the L929 cells. The HR-TEM investigation evidenced the subsistence of AgNPs in a spherical shape. In the antimicrobial potential, the nano fabrics were showed a significant diminishing in the growth of microbial pathogens. The nano fabrics were showed effective wound healing action in the fibroblast (L929) cells. Subsequently, it was concluded that the *C.longa* extract coated nano fabrics may be utilized for a range of applications in hospital patients and even medical workers to prevent microbial infection.

Keywords: Antimicrobial Nano Fabrics; Skin Infection; *C. Longa* Root; Wound Healing

Biography:

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