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Electrospun chitosan/polycaprolactone-hyaluronic acid bilayered scaffold for potential wound healing applications

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Abstract:

Fabrication of mechanically stable, biocompatible bilayered polymeric scaffold consisting of chitosan(CS)/polycaprolactone(PCL) and hyaluronic acid(HA) using less toxic solvent system is presented in this study. Electrospinning technique to make the scaffold was used followed by morphological, physiochemical and mechanical characterizations. Average fiber diameter of CS/PCL-HA bilayered scaffold was found 362.2 ± 236 nm which is in the range of collagen fiber found in the extracellular matrices. Enhanced swelling, degradation, hydrophilicity and water vapour transmission rate were found for the bilayered scaffold compared to that of the PCL and CS-PCL scaffolds. Antimicrobial property evaluation revealed reduction in bacterial adhesion on bilayered scaffolds. *In vitro* studies with vero cells [kidney epithelial cell, extracted from

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