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Abstract

Controlled release of Nano liposome-encapsulated metformin-HCL loaded in PCL-Chi- tosan/ PVA core-shell nanofibers for wound healing applications

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Abstract:

Liposomes and nanofibers are widely used as nanocarriers for controlled drug delivery systems due to their favorable features. These nanostructures' ability to encapsulate large amounts of drugs, minimize unwanted side effects, high efficacy, biodegradable nature, and low toxicity have attracted researchers' interest. In this work, Metformin-HCl were incorporated into the liposome nanoparticles, and the following were loaded into the PCL-Chitosan / PVA core-shell electrospun nanofibers for controlled release of metformin-HCl over the required time for the wound healing process. The nanocarrier's physicochemical and mechanical properties, including degradation rate, water uptake, drug loading efficiency, in vitro release profile, and mechanical characteristics, have been investigated. The biological tests, such as MTT assay, the scaffold's biocompatibility, cell adhesion, and antibacterial behavior, were conducted. Given the scaffold's architecture and engineering, it could be used as a suitable scaffold for skin tissue engineering. The results confirmed that liposomal-metformin HCL loaded in PCL-Chitosan / PVA core-shell nanofibers are potential nanocarrier candidates for sustained drug delivery in wound healing applications

Biography:

Faraz Chogan is an experienced Researcher with a demonstrat- ed history of working in the nanotechnology industry. Skilled in Bioinformatics, and Biotechnology. Strong research profes- sional with a Doctor of Philosophy (Ph.D.) focused in Pharmaceutical Nanotechnology from University of Tehran.

Recent Publications:

1. Design, fabrication, and optimization of a dual function three-layer scaffold for controlled release of metformin hydrochloride to alleviate fibrosis and accelerate wound healing.
2. Synthesis of PLGA/chitosan/zeolites and PLGA/chi- tosan/metal organic frameworks nanofibers for targeted delivery of Paclitaxel toward prostate cancer cells death.
3. Graphene oxide-l-arginine nanogel: A pH-sensitive fluoro- uracil nanocarrier.

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