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Voriconazole loaded electrospun nanofibers as topical drug carriers

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Electrospun nanofibers are nanometer scale novel drug delivery systems with ultrafine structure, a large ratio of surface area to volume ratio and a high porosity with a small pore size. In this study voriconazole, which is an antifungal drug was loaded into nanofibers produced by electrospinning of blends of natural and synthetic polymers. The morphology and size of nanofibers were visualized by scanning electron microscopy (SEM) and Attenuated Total Reflectance (ATR)-FTIR studies were performed. The drug content in nanofibers was determined by HPLC. Mechanical strength of the nanofibers was measured using dynamic mechanical analysis (DMA). After characterization and optimization of nanofibers, *in vitro* skin penetration of an antifungal drug, voriconazole from optimized nanofiber formulations was examined. Cytotoxicity of the nanofibers was assessed by MTT test using mouse embryonic fibroblast cell line. This study suggests the potential application of voriconazole loaded nanofibers as novel topical drug carriers.

Biography

Meryem Sedef Erdal has received her PhD degree in 2005 from Istanbul University, Turkey. Her main expertise is the biophysical aspects of the skin barrier and the delivery of drugs into and across the skin *in vitro* as well as *in vivo*. She is mainly interested in colloidal drug carriers, polymer based drug delivery systems and dermal applications of nanofibers.

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