Development and Characterization of PLGA and PVA Nanofibrous Scaffolds Loaded with Curcumin.

The aim of the present thesis was the development and characterization of polymeric biodegradable fibrous PLGA and PVA nanoplatforms that mimic the extracellular matrix and can be used as scaffolds in Tissue Engineering. The polymeric scaffolds were produced via Electrospinning. Afterwards the polymer fibers were loaded with Curcumin, which has anti-inflammatory and antioxidative effect, so that the produced scaffolds can be used as drug delivery platforms for different medical uses. The topography and morphology of the scaffolds were examined by Optical Microscopy, Atomic Force Microscopy (AFM) and Scanning Electron Microscopy (SEM). Also, degradation studies of all scaffolds and drug release kinetics of the drug loaded scaffolds were conducted along with time. Finally, Transmission Ellipsometry was used for the examination of the transmittance of all the scaffolds that were synthesized. To conclude, according to the findings of the present thesis, the fabricated fibrous nanoplatforms offer a suitable biomimicking environment to promote cell adhesion and proliferation and to produce therapeutic effect paving the way for their usage as efficient therapy systems for some complications of Diabetes.