

Controlled Release of Antibiotics from Air Jet Spun PCL Fibrous Scaffolds

CUI XIANZHU, 이동현[†]

중앙대학교

(dhlee@cau.ac.kr[†])

This study is aimed at the development of methods to control drug release profiles in different patterns using Air Jet Spinning. PCL was adopted as a basic material for fabricating the scaffolds, due to its low toxicity and biodegradability. Due to its slow degradation properties under physiological conditions, PCL has been considered as suitable candidate material for implantable biomaterials. We used Air Jet spinning method to create 3D scaffold which plays a critical role in drug release. Due to the fibrous nature of the structure, the interspaces of scaffolds can be adjusted for various sustained release patterns. Fibrous scaffolds were manufactured in different concentrations of PCL. We investigated fibrous scaffolds using Scanning Electron Microscope (SEM). Different scaffold interspaces were formed as the concentration of PCL changes; higher concentration of PCL makes narrow gaps. To evaluate the drug release properties, antibiotics were selected as a model drug. We tested bacterial concentration to attain the minimum inhibitory concentration.

Keyword: Air Jet Spinning, Fibrous scaffold, Drug release, Minimum inhibitory concentration.