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Study of some effective parameters on characterization of gelatin nanofiber prepared from gelatin-acetic acid solution

Kooshina Koosha
Islamic Azad University, Tehran, Iran

Electrospinnig is a simple, versatile and widely accepted technique to produce ultra-fine fibers ranging from nanometer to micron. Recently there has been great interest in developing this technique to produce nanofibers with novel properties and functionalities. Most of the works reported on electrospinning evolve on the synthetic biodegradable polymer for dozens of applications in medicine, energy, transportation and electronic devices. In biomedical applications, synthetic biodegradable polymers such as polyester regularly associated with poor biocompatibility and systemic or local reaction resulted from the acidic degradation products. Therefore, naturally occurring polymers such gelatin has been widely explored due to its biocompatibility , biodegradability, hydrophilic in nature and commercial availability at low cost. Gelatin is a natural biopolymer derived from collagens and has almost identical compositions and biological properties as those of collagens. Accordingly, this natural biopolymer could be useful for dozens of biomedical applications. In order to expand the range of applications and to produce uniform and very fine nanofibers, choosing a non-toxic solvent, which will not degrade the gelatin structure and investigation of electrospinning parameters, play an important role. In the present work, gelatin was prepared by acetic acid which has a less affection to degradation and is of low toxicity. The morphology of electrospun gelatin nanofibers was characterized using scanning electron microscope (SEM). FTIR measurements were performed in FTIR spectrometer to verify the composition of fibers for functional groups and determining whether acid has affected the gelatin structure or not.

Biography

Kooshina Koosha has completed her BS in Textile Engineering/Textile Chemistry Major in 2013 and her MSc in Nanofibrous Structure in 2015 from Islamic Azad University, Yadegar Imam, Shar-e-Rey Branch. She has submitted papers in conferences; some of which are: 1st Conference on Textile Engineering with latest Methods in Related Industry at Islamic Azad University Tehran Branch-Iran, 4th National Conference on Textile Engineering, Polymer at Islamic Azad University Yazd Branch-Iran and so on.

koosha.ksh@gmail.com

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