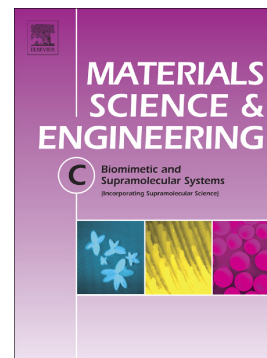


Accepted Manuscript

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Nargess Aghamohamadi, Naser Sharifi Sanjani, Reza Faridi Majidi, Saman Ahmad Nasrollahi



PII: S0928-4931(18)30224-8
DOI: doi:[10.1016/j.msec.2018.09.058](https://doi.org/10.1016/j.msec.2018.09.058)
Reference: MSC 8921
To appear in: *Materials Science & Engineering C*
Received date: 21 January 2018
Revised date: 4 August 2018
Accepted date: 21 September 2018

Please cite this article as: Nargess Aghamohamadi, Naser Sharifi Sanjani, Reza Faridi Majidi, Saman Ahmad Nasrollahi , Preparation and characterization of Aloe vera acetate and electrospinning fibers as promising antibacterial properties materials. Msc (2018), doi:[10.1016/j.msec.2018.09.058](https://doi.org/10.1016/j.msec.2018.09.058)

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Preparation and characterization of Aloe Vera acetate and electrospinning fibers as promising antibacterial properties materials.

*Nargess Aghamohamadi¹, Naser Sharifi Sanjani*¹, Reza Faridi Majidi², Saman Ahmad*

Nasrollahi³

1-School of chemistry, Alborz campus, University of Tehran, Tehran, Iran

2- Department of Medical Nanotechnology, school of Advanced Technologies in Medicine,

3- Center for Research & Training in skin Diseases and Leprosy (CRTSDL), Tehran University Medical of Science, P.O. Box 1416613675, Tehran, Iran

Abstract

In this work, the anti-bacterial effect of Aloe vera derivate fibers produced by the electrospinning method was reported. Aloe vera Polyvinylpyrrolidone (Av/PVP) and Aloe vera acetate-Polyvinylpyrrolidone (AvAc / PVP) electrospun fibers were prepared with different concentrations and their microstructure and mechanical properties were studied. Various methods such as Differential scanning calorimetry (DSC), Thermogravimetry analysis (TGA), Water contact angle (CA) tests, Fourier-Transform Nuclear Magnetic Resonance (FT-NMR), scanning electron microscope (SEM), X-ray diffraction (XRD), CHNSO and Fourier-Transform Infrared Spectroscopy (FT-IR) were used to characterize prepared samples. (Av/PVP) electrospun fibers were prepared with different concentrations (6-10 wt %) of PVP and 0.2 wt % Av blended and tested in medicinal herb for wound healing, antibacterial and anti-inflammatory properties. For further study, the effect of AvAc film on the properties of composite film was studied. AvAc increased the thermal stability and crystallite size percentage of samples. Antibacterial and antiviral test studies on the scaffold displayed no bacterial and viral growth. These results suggest that AvAc/PVP scaffolds could be promising candidates for wound healing applications.

Keywords: Acetylation, *Aloe barbadensis* Miller, Structural modifications, Electrospinning, Nano fibers, Wound healing.

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