Accepted Manuscript

Study on the morphological and biocompatible properties of chitosan grafted silk fibre reinforced PVA films for tissue engineering applications

Sareen Sheik, Sana Sheik, Rajesha Nairy, G.K. Nagaraja, Ashwini Prabhu, P.D. Rekha, Kalappa Prashantha

PII: S0141-8130(17)35235-2

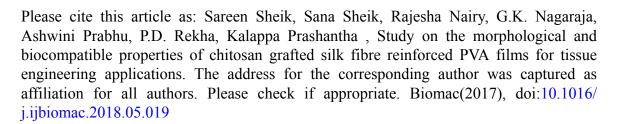
DOI: doi:10.1016/j.ijbiomac.2018.05.019

Reference: BIOMAC 9620

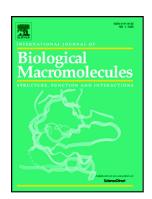
To appear in:

Received date: 29 December 2017

Revised date: 3 May 2018 Accepted date: 3 May 2018



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



ACCEPTED MANUSCRIPT

Study on the morphological and biocompatible properties of chitosan grafted silk fibre reinforced PVA films for tissue engineering applications Sareen Sheik, Sana Sheik, Rajesha Nairy, G.K. Nagaraja, Ashwini Prabhu, P.D.

Rekha^d and Kalappa Prashantha^{e,f}

^aDepartment of Post-Graduate Studies & Research in Chemistry, Mangalore University,

Mangalagangothri, 574199 (D.K.), Karnataka, India

^bDepartment of Applied Botany, Mangalore University, Mangalagangothri, 574199 (D.K.),

Karnataka, India

^cDepartment of Physics, P.A. College of Engineering, Mangalore, 574153(D.K.),

Karnataka, India

^dYenepoya Research Centre, Yenepoya University, University Road Deralakatte,

Mangalore, 575018 (D.K.), Karnataka, India

^eIMT Lille Douai, Institut Mines-Télécom, Polymers and Composites Technology &

Mechanical Engineering Department, 941 rue Charles Bourseul, 59508 Douai, France.

^fUniversité de Lille, 59000 Lille, France

*Corresponding author: nagarajagk@gmail.com

ABSTRACT

The current study delineates the preparation of novel chitosan grafted silk fibre reinforced Poly (vinyl alcohol) (PVA) composite films with desirable properties. Although silk fibroin has been extensively used for various biomedical applications, its properties could be further re-tailored for its suitability in the field of regenerative medicine. Chitosan was successfully grafted over silk, via acylation with succinic anhydride and thereby the fibres were incised and used for the preparation of the films. The grafted silk fibre reinforced PVA films were subjected to FTIR studies, microscopic analysis by Atomic Force Microscopy (AFM) and optical microscopy techniques, X-ray diffraction (XRD) analysis and further evaluated for *in vitro* biocompatibility studies. The composite films

Download English Version:

https://daneshyari.com/en/article/8326987

Download Persian Version:

https://daneshyari.com/article/8326987

<u>Daneshyari.com</u>