

Accepted Manuscript

Title: Natural And Bio Polymer Curative Films For Wound Dressing Medical Applications

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PII: S2213-9095(16)30047-7
DOI: <http://dx.doi.org/doi:10.1016/j.wndm.2017.07.002>
Reference: WNDM 105



To appear in:

Received date: 17-9-2016
Revised date: 6-3-2017
Accepted date: 6-7-2017

Please cite this article as: P.Ganesan, Natural And Bio Polymer Curative Films For Wound Dressing Medical Applications, Wound Medicine <http://dx.doi.org/10.1016/j.wndm.2017.07.002>

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NATURAL AND BIO POLYMER CURATIVE FILMS FOR WOUND DRESSING MEDICAL APPLICATIONS

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ABSTRACT

This work was initiated to develop a new form of curative film wound dressing, by the combination of silk fibroin, wool keratin, chitosan and honey act as a drug releasing agent on the wound surface for biodegradable wound dressings with desirable wound healing properties. The film formation was carried out using casting technique. The surface morphology of the films was carried out using Scanning Electron Microscope. The physical properties of film were assed as per standard methods. The bio evaluation characteristics like antimicrobial efficacy were measured both in terms of zone of inhibition of the film samples against on *Staphylococcus aureus* and *Escherichia coli*. In another hand microbial penetration test, drug release activity, cytotoxicity test, contact dermatitis test were analyzed as per the standards.

Keywords: Antimicrobial; Curative Film; Medical; Silk fibroin; Wool keratin; Wound dressing.

Introduction

Due to the advent of antibiotic resistant bacteria, wound care market is expanding year by year significantly. Hence, multidirectional research and development lead to the intensification of newer wound dressings with specific desirable properties according to the wound type [1]. Now the emergence of biomaterials paved new directions in the research on wound care and wound dressing materials [2]. Silk fibroin, wool keratin and chitosan, due to its biocompatibility, low cytotoxicity, excellent biodegradable properties and antimicrobial activity, is prominently used in wound care products [3].

The use of bio films to cover or treat wounds stretches back into antiquity. An important and growing part of textile industry is medical textiles. Textile materials and products that have been engineered to meet particular needs in medical application should have a combination of strength, flexibility, biocompatibility, biodegradability, non-toxic, anti-infection, oxygen

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