STUDIES ON BIOACTIVE NANOCOMPOSITE SERICIN/PVA BLEND FILMS

A Major Project Dissertation submitted in partial fulfilment of the requirement for degree of

Master of Technology
In
Polymer Technology

Submitted by

Subha Sharma
(2K11/PTE/13)

Under the Guidance of
Dr. Roli Purwar

Department of Applied Chemistry and Polymer Technology
DELHI TECHNOLOGICAL UNIVERSITY
(Formerly Delhi College of Engineering)

DELHI TECHNOLOGICAL UNIVERSITY
(FORMERLY DELHI COLLEGE OF ENGINEERING)
DEPARTMENT OF APPLIED CHEMISTRY AND POLYMER TECHNOLOGY

CERTIFICATE

This is certify that this is a bonafide record of project work based on topic **Studies on Bioactive Nanocomposite Sericin/PVA blend films** by **Subha Sharma M.TECH (2K11/PTE/13)** This project was carried under my supervision in year 2012-2013 and being submitted in partial fulfilment for the award of degree of Master of Technology, as major project in Delhi Technology University

Dr. D Kumar
Head of the Department

Dr. Roli Purwar
Supervisor

ABSTRACT

The present study focuses on the preparation and characterization of bioactive nanocomposite sericin/ polyvinyl alcohol (PVA) blend films. Films were prepared by blending sericin and PVA by solvent casting method. Different blends were created by varying the concentrations of glutraldehyde (GA), glycerol as plasticizer, closite 30B as bioactive nanoclay and silver nitrate as antimicrobial bioactive material. Films were characterised for mechanical, structural, morphological, thermal, biodegradable and antimicrobial properties. Fourier Transform Infrared Spectroscopy (FTIR) of films revealed that GA chemically cross linked with sericin and PVA. Scanning electron microscopic (SEM) revealed that no phase separation in prepared films. These films show the antimicrobial activity against gram negative bacteria Neisseria. Such biodegradable blended films can be used for smart food packaging material.

Keyword: sericin, glycerol, closite 30 B, silver nitrate, PVA

ACKNOWLEDGEMENTS

I would like to gratefully thank and give appreciation to my supervisor, **Dr. Roli Purwar** for her invaluable guidance, encouragement, constructive criticism and support in the period of this study and preparation of the report.

I wish to express my gratitude and indebtedness to **Professor D. Kumar (**Head of Department) for allowing me to use resources during my project work and support in the period of this study.

I am very thankful to Miss Sarita and Mr Chandra Mohan (Research Scholar of the Department) for their support to carry out my research work.

I am grateful to Mr.Aman, Mr.Javed, Mr.Sandeep Mishra and Mrs.Mohini (Technical Staff of Department) for their invaluable support during work.

Subha Sharma

Roll no. : 2K11/PTE/13

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