

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

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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

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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

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