

## CHAPTER 54

### TECHNOLOGY APPLIED CHEMISTRY & POLYMER TECHNOLOGY

#### Doctoral Theses

617. SHARMA (Manjari)  
**Synthesis and Characterization of Polysaccharides Based Biodegradable Polymers.**  
Supervisor : Dr. A. P. Gupta  
Th 16906

#### *Abstract*

The present work aims at preparing a biodegradable polymer which is cost effective, meeting the desired properties requirement, and naturally bio-degradable. A practical approach has been adapted and one natural and one synthetic polymer system has been prepared. Natural polymer starch (up to 30%), chemically treated with glycerol, synthetic polymer low density polyethylene grafted with maleic anhydride and LDPE in 1:1 ratio have been used. Prepared system have been characterised through Fourier Transform Infra Red Spectroscopy, Differential Calorimetry, Thermal Gravimetric analysis, X-ray Diffractometry, Morphological study and mechanical Property analysis.

#### *Contents*

1. Introduction. 2. Literature review. 3. Material and experimental. 4. Characterization techniques. 5. Characterization of system-I. 6. Optimization of system (LDPE/LDPE Grafted with maleic anhydride (1:1) with starch compounds). 7. Characterization of systems-II. 8. Biodegradation study. 9. Summary. 10. References and list of research publications.