

Preface

This thesis explores the perfect use of alkali treated-agro-waste in polyethylene/polypropylene matrix for green packaging application using cheap and efficient technique i.e. solvent casting method. In India alone, 910 metric tons of agro-waste generated every year that either go to landfill or incinerated. So the organic waste generation increases year by year cause's severe damage to the environment and human life. On the other hand, the production of non-biodegradable polymers has grown up to 322 million tons in 2015 and imbalanced the surrounding chains.

In order to utilize the abundantly available agro-waste to render the non-biodegradable polymers, biodegradable composite films may be formed. In the present work, we aimed at producing green packaging films involving polymers matrix and agro-waste. Response surface methodology technique was applied to get the optimized compositions of the composites.

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In present thesis, the work was done with polyethylene and polypropylene, frequently used as feedstocks in packaging industries and also incorporated alkali treated agro-waste i.e. wheat straw and hemp fiber in polymer matrix in order to attain the higher mechanical stability using response surface methodology technique.

So, it is hoped that this PhD work will help to reduce the contribution of non-biodegradable polymers for packaging application. For ease of understanding to the readers, this thesis has divided in five chapters.

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