Bioplastic-based Nanocomposites: Process–Structure–Property Relationships

Introduction:
Due to an increased awareness of environmental concerns, bioplastic materials have increasingly drawn attention in academia and industry. In the past decades, many researchers have attempted researching and developing not only their physical and mechanical properties but also innovative process technologies. Polymer blending is one of the effective approaches for improving the material properties by combining two or more polymers with the desired properties and creating a new material. As one of the most interesting eco-friendly polymer blends, blending poly(lactic acid) (PLA) (high modulus and strength) with poly(butylene adipate-co-terephthalate) (PBAT) (high toughness) is studied. Moreover, the incorporation of nanofillers is introduced for balancing the stiffness and toughness, as well as stabilizing the phase morphology in the blend system. The aim of this work is to study the relationships of process–structure–property of the PLA/PBAT-based nanocomposites containing nano-scale fillers.

Objectives:
- Literature review
- Planning and performing of experiments (i.e., polymer processing and testing, etc.)
- Review and discussion of results
- Report (and presentation)

This topic has to be worked on and documented as a scientific thesis.

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