

Preparation and characterization of Polyhydroxybutyrate (PHB) based biocomposites

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ABSTRACT

In modern decades, an increase in environmental awareness has attracted the keen interest of researchers to investigate eco-sustainable, recyclable materials to minimize reliance on petroleum-based polymeric compounds. PHAs are attractive substitutes over conventional petrochemical plastics to avoid the pollution problems that have similar properties like of other thermoplastics. Poly (3-hydroxybutyrate) is an amorphous, linear and biodegradable bacterial polyesters that belong to polyhydroxyalkanoates family that have enormous applications in many fields. Besides these, they are biocompatible, hydrophobic, and have relatively low oxygen permeability, making it suitable for packaging application. However, the naïve PHB have instable thermomechanical properties that can be improved by copolymerization with other synthetic and biopolymer materials. The present study is to understand the concept of biocomposites prepared from polyhydroxybutyrate (PHB). The PHB reinforced biocomposites was prepared by solvent casting where various parameters were studied. Hence, considering the potentials of PHB reinforced biocomposites, they may be used as better alternative for various hazardous and non-biodegradable materials.

Keywords: Polyhydroxybutyrate, biocomposites, biodegradable, solvent casting, thermomechanical properties

