BIODEGRADABLE POLYMER BLENDS REINFORCED WITH BIO-HYDROXYAPATITE NANOPARTICLE - PREPARATION AND CHARACTERIZATION

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Abstract

Nowadays significant advances have been made in the development of biodegradable polymeric materials for biomedical applications. The purpose of this study was to preparation and characterization of biodegradable polymer blend reinforced with bio-hydroxyapatite nanoparticle from eggshell by sonochemical method. Biodegradable polymer blends based on PLA (Poly(lactic acid)) and the PBAT (butylene adipate-co-terepthalate)) reinforced with 1-5 wt. % of bio-hydroxyapatite were prepared by melt extrusion, using a twin screw extruder and injection molding machine to obtain specimen test. The effects of the bio-hydroxyapatite addition on properties of PLA/PBAT biodegradable blend were investigated by tensile tests, XRD, DSC, TG and SEM-FEG analysis and the correlation between the results was discussed.

Key Words: bio-hydroxyapatite nanoparticle, biodegradable polymer blend, mechanical properties.