.

Study of thermal and mechanical behavior of bionanocomposites films based on PLA and PHVB

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Abstract. This research reveals the development of poly (lactic acid) (PLA) and poly-(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV) reinforced with TiO_2 nanoparticles. The PLA/PHBV/nanoparticles bionanocomposites films were produced by melting extrusion method. The effect of the addition of TiO_2 on thermique, mechanical and antimicrobial properties of bionanocomposites was investigated. The results revealed that the developed bionanocomposites films showed improved mechanical , antimicrobial properties. Therefore, the developed bio-based composite incorporated with inorganic nanoparticles TiO_2 exhibits better properties as compared to the polymer blend PLA/PHBV.

Keywords: PLA, PHBV, TiO_2 nanoparticles , thermial , mechanical properties