

Influence of compounding methods on poly(vinyl) alcohol/sago pith waste biocomposites: mechanical and water absorption properties

Abstract

Several methods of incorporating sago pith waste (SPW) into polyvinyl alcohol (PVA) had been conducted: (i) dry blending (PVA/SPW/G), (ii) blending of SPW and pre-plasticized PVA (pPVA/SPW/G) and (iii) blending of pre-plasticized of both PVA and SPW (pPVA/pSPW). The effect of the compounding method on the mechanical and water absorption properties were investigated. The addition of SPW into PVA greatly reduced the tensile strength and elongation at break. The tensile strength and elongation at break of PVA/SPW composites with identical geometry during compounding stage (powder/ powder and pellet/pellet), which were PVA/SPW/G and pPVA/pSPW yielded the highest value. The percentage of water absorbed by PVA/SPW/G (without pre-plasticization) was the highest, followed by pPVA/pSPW and pPVA/SPW/G.