

Kenaf Nanofiber/Polylactic Acid (PLA) Nanocomposite.

ABSTRACT

Kenaf fiber was treated with alkaline to reduce lignin content and tested under Fourier transform infrared spectroscopy (FTIR). FTIR result showed that peak at 1146 cm⁻¹ which is acetyl group of lignin was reduced in treated fiber while disappearing of carbonyl group in treated kenaf fiber at 1750cm⁻¹ was significantly shown compared to untreated kenaf fiber. Treated fiber undergoes mechanical size decrement process by high pressure homogenizer with 500bar pressure and 60 passes. Transmission Electron microscopy (TEM) was used to determine size and distribution of fiber. Moreover, morphology of nanofiber was observed under scanning electron microscope (SEM). Nanofiber (3%, 5%, 8% and 10%) was mixed with PLA using internal mixer and then compressed with hot pressed to produce specimen for tensile test. Tensile strength and tensile modulus of nanocomposite with 10% of nanofiber increased by 30% and 85% respectively compared to pure PLA.

Keyword: Kenaf; PLA; Nanocomposite.