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## Mechanical properties of natural fibre (Kenaf, oil palm empty fruit bunch) reinforced polymer composites (Article)

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### Abstract

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This paper is focused on the tensile and flexural properties of natural fibre reinforced polymer composites. Kenaf (KE) and palm empty fruit bunch fibre (EFB) with volume fraction,  $V_f$  of 20, 40 and 60% were used in this study to prepare composites comprise of polylactic acid (PLA), polystyrene (PS) and epoxy (EP) as the matrices. Both natural fiber reinforced PLA and PS were prepared via chemical dissolution with subsequent compression moulding. The thermoset EP composites were vacuum press moulded at room temperature. Synthetic E-glass (GLS) fibre reinforced PLA was also prepared for comparison purposes. The tensile strength and flexural strength increase with an increase in natural fibre  $V_f$ , up to an optimum value, these properties were found to fall back at higher fibre  $V_f$ . Scanning electronic microscope (SEM) micrographs revealed that the fibre particles were dispersed uniformly within the matrix and the tensile failure occurred through extensive fibre pull out and debonding. © 2014 AENSI Publisher All rights reserved.

### Author keywords

Composite Empty fruit bunch Epoxy Kenaf PLA Polystyrene

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