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## Effect of kenaf fibre on starch based biopolymer composite (Article)

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## Abstract

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The properties of a thermoplastic starch were enhanced with the reinforcement of kenaf fibre (*Hibiscus cannabinus*). The development of the starch-kenaf biopolymer composite was motivated to improve the polymer biocompatibility, biodegradability as well as to reduce the dependency of synthetic polymers within plastic materials. The investigated biocomposite was prepared through extrusion technique and later compression moulded at varying fibre content of 0, 5, 10, 20 and 30 wt. %, based on total dry weight. The thermoplastic sago starch mixture was fixed at glycerol/starch weight ratio of 30/70. The effect of the fibre incorporation was evaluated by tensile test, morphological analysis and moisture content. Tensile test resulted in an improved strength and modulus with the increase of fibre content until it reached an optimum at 20 wt. % of fibre loading. The evidence from morphological analysis showed the occurrence of good wetting between the polymer matrix and fibre which is one of the factors that provides tensile improvement. Reduction of moisture content was achieved with higher fibre content with the lowest rate measured of 13.8%. © 2014 AENSI Publisher All rights reserved.

## Author keywords

Composite   Kenaf Bast Fibre   Plasticizer   Reinforcement   Sago starch

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