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## Effect of eco-degradant on properties of low density polyethylene/corn stalk eco-composites (Article)

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### Abstract

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The eco-composites were prepared from corn stalk (CS) and low density polyethylene (LDPE) using Brabender internal mixer. An eco-degradant was used as degradable additive in LDPE/CS eco-composites. This study was focused on the effect of filler loading and eco-degradant on tensile, thermal, morphological and water absorption properties of LDPE/CS eco-composites. The incorporation of CS deteriorated the tensile strength and elongation at break of LDPE/CS eco-composites, but increased the Young's modulus of eco-composites. The water absorption of LDPE/CS eco-composites also increased with increases of CS content. However, the addition of CS has contributed to increase of the crystallinity of LDPE matrix which due to nucleating effect of filler. The addition of eco-degradant has increased the tensile strength and elongation at break in average of 17.4% and 78.6%, respectively. However, the Young's modulus was decreased. The present of eco-degradant also improved the water resistivity and crystallinity of eco-composites. The increase of crystallinity in LDPE/CS eco-composites causes the increase in melting temperature. The filler dispersion and filler-matrix adhesion of LDPE/CS eco-composites were improved due to addition of eco-degradant which evidenced by scanning electron microscope. © School of Engineering, Taylor's University.

### Author keywords

Corn stalk Eco-composites Eco-degradant Low density polyethylene

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