

Effect of hybridization composition and glycerin content on novel corn starch/*nata de coco* plastic film: Thermal, mechanical, and degradation study

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ABSTRACT

The objective of this work was to develop a plastic film from food sources with excellent thermal, mechanical, and degradability performance. Corn starch (CS)/*nata de coco* (NDC) were hybridized with addition of glycerin as plasticizer at different weight ratio and weight percent, respectively. Sample analysis found that the hybridization of CS with NDC improved the film forming properties, mechanical and thermal, degradation properties, as well as hydrophobicity and solubility of the film up to 0.5:0.5 wt hybrid ratio. The properties of the films were highly affected by the homogeneity of the sample during hybridization, with high NDC amount (0.3:0.7 wt CS:NDC) showing poor hydrophobicity, and mechanical and thermal properties. The glycerin content, however, did not significantly affect the hydrophobicity, water solubility, and degradability properties of CS/NDC film. Hybridization of 0.5:0.5 wt CS/NDC with 2 phr glycerin provided the optimum Young's modulus (15.67 MPa) and tensile strength (1.67 MPa) properties.

KEYWORDS

Degradable plastic; Bioplastic; Food; Corn starch; *Nata de coco*; Glycerin; Biofilm

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