

APPLICATION OF PALM FATTY ACID DISTILLATE AS COMPATIBILIZER ON THERMOPLASTICIZED CASSAVA FLOUR-LLDPE COMPOSITE FILM

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ABSTRACT

Composite plastic is plastic which made from synthetic polymer and biopolymer blends with the addition of some additives. The objective of this study was to produce composite plastic bag from linear low density polyethylene (LLDPE) resin and cassava flour blends with the addition of additives such as water and glycerol as plasticizer and palm fatty acid distillate (PFAD) as compatibilizer. The result showed that the best formulation to make plastic bag was LLDPE and cassava flour with ratio of 7:3, glycerol 30%, and PFAD 5%. This formulation made composite plastic which had specific gravity 0.916 and melt flow index 4.45 gr/10 min. Composite plastic film had thickness of 250 micron and the texture of its surface was relative smooth. Tensile strength and elongation value of composite plastic film at each orientation were 3.71 MPa and 396.18% for machine direction orientation, 3.06 MPa and 126.29% for transverse direction orientation, and 3.11 MPa and 137.06% for heat sealing orientation. The value of whiteness index, yellowness index and opacity of composite plastic film was 6.36, 16.28 and 18.13, respectively.

KEYWORDS: Plastic Bag, Composite, Cassava Flour, Glycerol, LLDPE, PFAD