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Impact Modified Oil Palm Empty Fruit Bunch Fiber/Poly(Lactic) Acid Composite

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Abstract : In this study, composites were fabricated from oil palm empty fruit bunch fiber and poly(lactic) acid by extrusion followed by injection moulding. Surface of the fiber was pre-treated by ultrasound in an alkali medium and treatment efficiency was investigated by scanning electron microscopy (SEM) analysis and Fourier transforms infrared spectrometer (FTIR). Effect of fiber treatment on composite was characterized by tensile strength (TS), tensile modulus (TM) and impact strength (IS). Furthermore, biostrong impact modifier was incorporated into the treated fiber composite to improve its impact properties. Mechanical testing showed an improvement of up to 23.5% and 33.6% respectively for TS and TM of treated fiber composite above untreated fiber composite. On the other hand incorporation of impact modifier led to enhancement of about 20% above the initial IS of the treated fiber composite.

Keywords : fiber treatment, impact modifier, natural fibers, ultrasound
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