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**Tensile Strength and Moisture Resistance Properties of  
Biocomposite Films Based on Polyvinyl Alcohol (PVA) with  
Cellulose as Reinforcement from Durian Peel Fibers**

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# Tensile Strength and Moisture Resistance Properties of Biocomposite Films Based on Polyvinyl Alcohol (PVA) with Cellulose as Reinforcement from Durian Peel Fibers

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## Abstract

Polyvinyl Alcohol (PVA) based biocomposite film with cellulose was successfully fabricated by the solution casting method. The cellulose fibers were obtained by extraction of durian peel using alkalization and bleaching treatments. These treated cellulose fibers were used for the fabrication of PVA-based biocomposites. The durian peel cellulose fibers were varied by 2%, 4%, 6%, and 8% in the PVA matrix. Tensile test and moisture resistance of biocomposites were evaluated. The 6% addition of cellulose fibers in biocomposites increases the tensile strength up to 54% (37 MPa) than pure PVA film (24 MPa). Conversely, it reduces the elongation at break of the biocomposite film. Meanwhile, the moisture resistance properties of the biocomposites increased with the addition of cellulose fibers. The tensile strength and moisture resistance of biocomposites have been increased due to the homogeneous dispersion of the cellulose fibers and PVA matrix. These biocomposites able to reduce the environmental impacts by utilizing residual lignocellulosic biomass.

**Key words:** Polyvinyl Alcohol (PVA) / Cellulose fiber / Durian peel fiber / Tensile strength / Moisture resistance

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## Tensile Strength and Moisture Resistance Properties of Biocomposite Films Based on Polyvinyl Alcohol (PVA) with Cellulose as Reinforcement from Durian Peel Fibers

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