



## 9. Improvement in Mechanical Properties of *Ijuk* Fiber Composite by Using Silane Treatment

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### **Abstract**

The rising concern towards environmental issues besides the need for more versatile polymer-based materials has led to increased interest in studying polymer composites filled with natural-fibers, usually referred to as “green” composites. However, the bonds between polymeric materials are not strong enough by referring to mechanical properties and other additional properties due to incompatibility between the polymer matrix and natural fiber filler. This study tries to improve the mechanical properties of *Ijuk* (*Arenga pinnata*) fiber filled polypropylene composite by using silane treatment. Vinyltrimethoxy silane was used for this purpose. The *ijuk* fiber was immersed in the silane solution before mixing with polypropylene at 10wt%, 20wt%, and 30wt%. The samples were tensile tested and their water absorption behavior was tested as well. As the result, the treatment helps increasing the mechanical properties of the green composite material and decreases the percentage of water absorption.

**Keywords:** Green composite, *ijuk* fiber, silane treatment, mechanical properties