

## **Mechanical properties of pineapple leaf fibre reinforced polypropylene composites**

### **ABSTRACT**

Pineapple leaf fibre, which is rich in cellulose, relative inexpensive and abundantly available has the potential for polymer-reinforced composite. The present study investigates the tensile and flexural behaviours of pineapple leaf fibre/polypropylene composites as a function of volume fraction. The tensile modulus and tensile strength of the composites were found to be increasing with fibre content in accordance with the rule of mixtures. The tensile modulus and tensile strength with a volume fraction 10.8% are 687.02 and 37.28 MPa, respectively. The flexural modulus gives higher value at 2.7% volume fraction. The flexural strength of the composites containing 5.4% volume fraction was found to be higher than that of pure polypropylene resin by 5.1%. Scanning electron microscopic studies were carried out to understand the fibre/matrix adhesion and fibre breakage.

**Keyword:** Pineapple leaf fibre composites; Polypropylene based composites; Tensile and flexural properties