

Flexural properties of alkaline treated sugar palm fibre reinforced epoxy composites

ABSTRACT

A study of the effect of alkaline treatment on the flexural properties of sugar palm fibre reinforced epoxy composites is presented in this paper. The composites were reinforced with 10% weight fraction of the fibres. The fibres were treated using sodium hydroxide (NaOH) with 0.25 M and 0.5 M concentration solution for 1 hour, 4 hours and 8 hours soaking time. The purpose of treating fibres with alkali was to enhance the interfacial bonding between matrix and fibre surfaces. The maximum flexural strength occurred at 0.25 M NaOH solution with 1 hour of soaking time, i.e 96.71 MPa, improving by 24.41% from untreated fibre composite. But, the maximum flexural modulus took place at 0.5 M NaOH solution with 4 hours soaking time, i.e. 6948 MPa, improving by 148% from untreated composite.

Keyword: Arenga pinnata; Flexural property; Interfacial bonding; Alkaline treatment