Effects of Impregnation Pressure on Physical and Tensile Properties of Impregnated Sugar Palm (Arenga pinnata) Fibres

ABSTRACT

The aim of this study is to investigate the effect of impregnation pressure on physical and tensile properties of sugar palm (Arenga pinnata) fibres. The fibre was impregnated with phenol formaldehyde (PF) and unsaturated polyester (UP) with different impregnation pressures (1000, 900, 800, 700, 600 and 500 mmHg) at constant impregnation time of 5 min. Significant improvement in physical properties was observed due to reduction of moisture content (MC) and water absorption (WA) after being impregnated from 1000 to 500 mmHg while PF-impregnated fibre was showing more superior. Improvement in mechanical properties was also observed after being impregnated where much better tensile properties and toughness were found at UP-impregnated fibres while PF-impregnated fibres were found to be very much lower in toughness. This study concluded that in order to obtain a high toughness and better physical properties of sugar palm fibre, the fibre should be impregnated with UP resin with impregnation pressure of 600 mmHg.

Keyword: Sugar palm fibre; Vacuum resin impregnation; Impregnation pressure; Arenga pinnata