

Tensile strength of untreated napier grass fibre reinforced unsaturated polyester composites

Abstract

This paper describes the experimental investigation of the tensile strength of untreated Napier grass fibre reinforced polyester composites. Napier grass fibres were extracted through conventional water retting process and used as reinforcing materials in the polyester composite laminates. Tensile tests were then conducted for the composite specimens from the laminates at 25% fibre loading using the electronic extensometer setup to obtain the tensile properties. The results show significant differences in tensile strength between random short fibres laminates and random long fibre laminates with the long fibres yield almost 45 % higher in the strength. The laminates also show higher maximum strength compared to other commonly available natural fibre composites with over 70 % increase in the maximum strength compared to the short kenaf fibre reinforced composites.

Keywords — Napier grass fibre, tensile strength, long fibre, short fibre, natural composites