# The Performance of Cotton–Kapok Fabric–Polyester Composites

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**Abstract**

Cotton–kapok fabric, at a ratio of 2:3, has been incorporated with unsaturated polyester resin in various fibre volume fractions. The fabric was also treated with 5% sodium hydroxide with the aim of improving fibre–matrix adhesion. A simple manual lay up technique was used in fabricating the composites. A hand operated hydraulic electrically heated press was used and the composites were cured at 100°C for 60 min and post cured overnight in the oven at 80°C. Mechanical properties such as tensile strength, tensile modulus, impact strength, and flexural properties of composites not subjected to weathering conditions and weathered composites have been evaluated. Composites with untreated fibres had higher fibre volume fractions than composites prepared using treated fibres. The tensile strength of composites with untreated fibres was higher than that of composites prepared using treated fibres but had, on average, higher tensile modulus than composites manufactured using untreated fibres. The impact strength decreased with increase in fibre volume fractions for both composites, with or without alkali treated fibres. Reductions in flexural strength and moduli were observed with weathered composites. The specific strength of the composites was comparable to that of other vegetable fibre reinforced resins.