

# MECHANICAL PROPERTIES OF RICE STRAW AND RICE STRAW GLASS FIBER REINFORCED EPOXY COMPOSITES

*Soliman S. Ali-Eldin*

## Abstract

Rice straw causes many environmental problems in different world countries. In Egypt, every year, rice straw causes severe environmental pollution in terms of black clouds caused by burning process. In this study, Egyptian rice straw was used as a reinforcement material in polymer composites. Rice-straw/epoxy [RS/E] and glass-fiber/rice straw hybrid [G/RS/E] composites were studied. Pure epoxy [E] and glass-fiber/epoxy [G/E] specimens were also studied for comparison purpose. Composite plates were fabricated by hand lay-up technique in a mold and cured under vacuum pressure for 24 hr, followed by curing at room temperature for 21 days. All composite plates were made with a weight of 960 grams and dimension of 400 x 400 mm with different thickness by varying the weight fraction of constituent materials. Tensile strength, tensile modulus, bending strength, bending modulus and compressive strength were determined experimentally. Failure modes of all specimens were investigated.