MECHANICAL BEHAVIOR OF PHENOLIC COMPOSITES:
COMPARISON OF SISAL AND GLASS REINFORCEMENTS

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Summary. The use of natural fibers as reinforcement in polymeric composites for technical applications has been a research subject of scientists. Nowadays, there is a great interest in the application of sisal fiber as substitutes for glass fibers, motivated by potential advantages of weight saving, lower raw material price, and ecological advantages of using green resources which are renewable and biodegradable. As reinforce woven sisal fiber and woven glass fiber were used in separate, and the composites of phenolic resin were processed by compression molding. Sisal fibers were used untreated and thermal treated at 60ºC for 72h. The present work study tensile and flexural behavior in three composites: dry sisal/phenolic, humid sisal/phenolic, glass/phenolic resin. The moisture content influences of sisal fibers on the mechanical behaviors were analyzed. Experimental results showed a higher tensile strength for the glass/phenolic composite followed by phenolic/sisal (dry or humid) and a higher stiffness for the glass/phenolic composite followed by phenolic/sisal (dry or humid), respectively. In this research, composites were also characterized by scanning electron microscopy.