

## Damage Micromechanisms of Coconut Fibers and Chopped Strand Mats of Coconut Fibers

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**Abstract :** The damage micromechanisms of chopped strand mats manufactured by compression of Brazilian coconut fiber and coconut fibers in different external conditions (chemical treatment) were used in this study. Mechanical analysis testing uniaxial traction were used with Digital Image Correlation (DIC). The images captured during the tensile test in the coconut fibers and coconut fiber mats showed an uncertainty of measurement in order centipixels. The initial modulus (modulus of elasticity) and tensile strength decreased with increasing diameter for the four conditions of coconut fibers. The DIC showed heterogeneous deformation fields for coconut fibers and mats and the displacement fields showed the rupture process of coconut fiber. The determination of poisson's ratio of the mat was performed through of transverse and longitudinal deformations found in the elastic region.

**Keywords :** coconut fiber, mechanical behavior, digital image correlation, micromechanism

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