

This article presents the development and the characterization of composite material (laminate) containing natural jute fiber reinforcement. Thermal characterization of jute fiber reinforcement shows the influence of the temperature on the mechanical behavior of fiber. At 180 C the jute fabric loses 50% of its mechanical characteristics. The laminate obtained by a process known as infusion is polymerized at a temperature lower than that which affects the mechanical properties of dry fabric. The digital image correlation carried out on laminated jute/epoxy (warp and weft direction) under tensile test shows the presence of a considerable gradient of deformation. This gradient is explained by the variability related to the local voluminal change of jute fibers of one place to the other and the nature of the weaving of the jute fiber. The three-point bending tests show a significant dispersion of rupture stress. The thermomechanical tests carried out on samples in the two principal directions, show that the thermal coefficient of expansion in warp direction is 48% larger compared to the weft direction. The thermogravimetric test shows that this laminate absorbs up to 4% water mass after 8 h in a climatic chamber with 70% moisture content