Supporting Information

Fabrication and mechanical performance of non-crimped unidirectional jute yarn preform based composites

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Supporting Information 1

Different linear density of yarns has been used in this study. In these three types of yarn based on their linear density (20,25 and 30 lbs/spyndle) were used. Digital images of the three yarn packages from left to right can be seen in Figure S1.

Figure S1. Digital images of jute yarns used in this study where the yarn liner densities from left are 30, 25 and 20 pound/spyndle.

Supporting Information 2

Tensile and flexural properties novel UD jute yarn composites are reported in Table S1. A significant different in the tensile properties is observed in this study among three different qualities of yarn-based jute/polyester composites. Stiffness of the UD jute composites has almost 4 times higher than the traditional woven composites. Similar trend is also observed in the bending properties. In this study we found that yarn with 25 lbs/spyndle offer highest mechanical properties than the other composites made from 20 and 30 lb/spyndle (see Table S1).

Table S1. Tensile and flexural properties of natural jute yarn composites made from UD and woven architecture.

Composite type	Tensile Strength (MPa)	Tensile Modulus (GPa)	Flexural Strength (MPa)	Flexural Modulus (GPa)
W20	54 (±5)	2.5 (±0.2)	70 (±7)	2.7 (±0.25)
UD20	93.57 (±11)	5.66 (±0.74)	172.18 (±9)	5.06 (±0.3)
UD25	132.79(±12)	8.31 (±1)	171.56 (±13	6.44 (±0.13)
UD30	125.60(±7)	7.80 (±0.57)	178.34 (±6)	5.83 (±0.24)