polymers

MDPI

Supporting Information

Unidirectional all-cellulose composites from flax via controlled impregnation with ionic liquid

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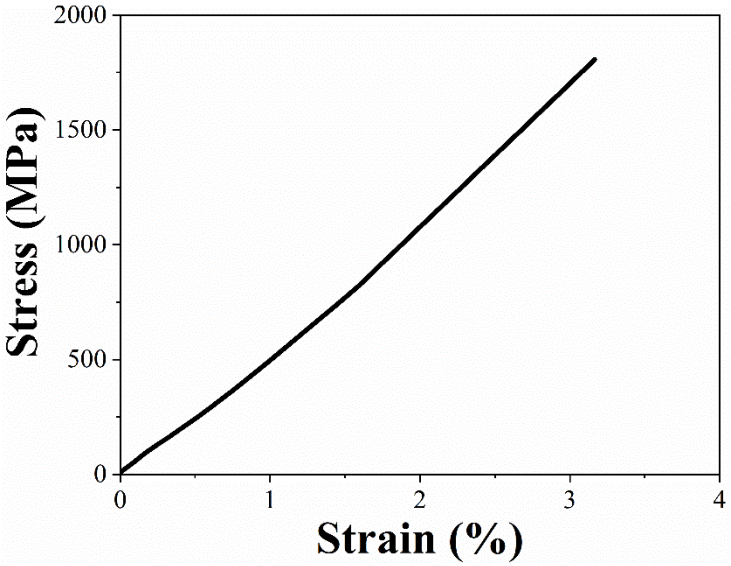

Figure S1. Representative stress-strain curve of a single flax fiber.

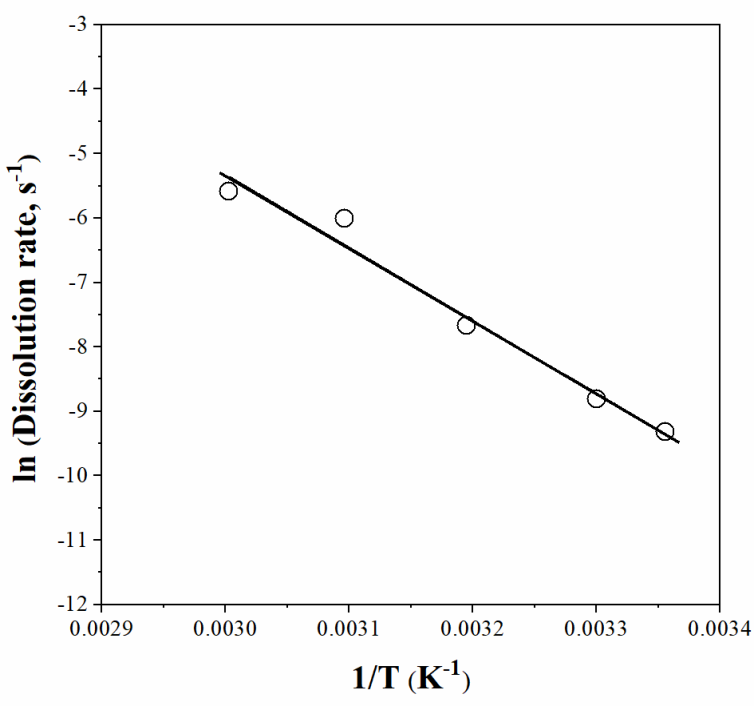

Figure S2. Arrhenius plot of dissolution rate as a function of inverse temperature.

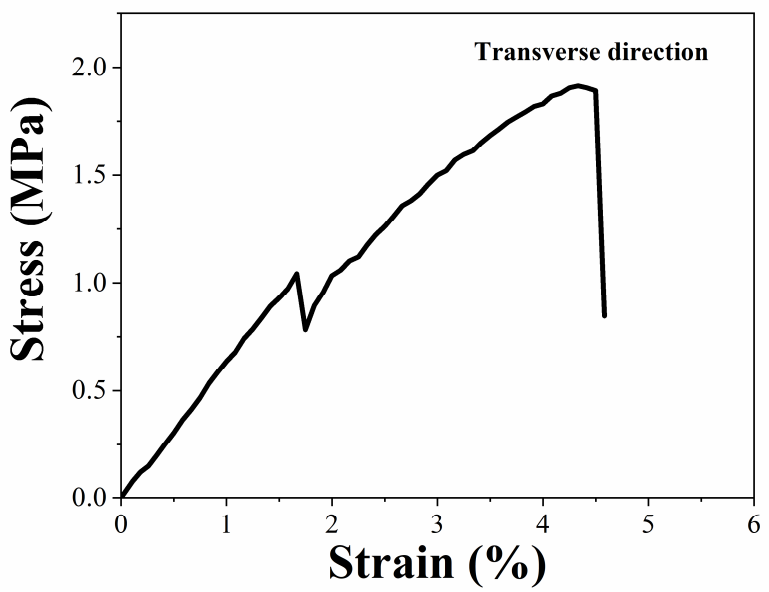

Figure S3. Representative stress-strain curve of flax-based ACCs after 45 min impregnation tested in transverse direction.

Table S1. Properties of flax based ACCs.

	15 min	30 min	45 min	60 min
Thickness (mm)	0.37 ± 0.03	0.30 ± 0.01	0.31 ± 0.02	0.30 ± 0.01
Density (g/cm^3)	0.69 ± 0.01	0.76 ± 0.02	0.81 ± 0.01	0.82 ± 0.03
Total crystallinity (%)	46	44.9	43.9	39.9
Volume fraction of Cell II (%)	0.05	0	20	28
Tensile Strength (MPa)	121.1 ± 7.9	134.9 ± 9.9	151.3 ± 9.5	117.9 ± 7
Young's modulus (GPa)	8.5 ± 0.1	8.8 ± 0.4	10.1 ± 0.4	8.4 ± 0.4
Strain at break (%)	3.0 ± 0.5	2.5 ± 0.3	2.7 ± 0.2	2.2 ± 0.1
Specific strength (MPa/g·cm^{-3})	172.6	177.5	186.4	144.4
Specific modulus (GPa/g·cm^{-3})	12.3	11.6	12.4	10.3