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Deep eutectic solvent regenerated cellulose for the preparation of hydrogels with self-reinforced mechanical properties

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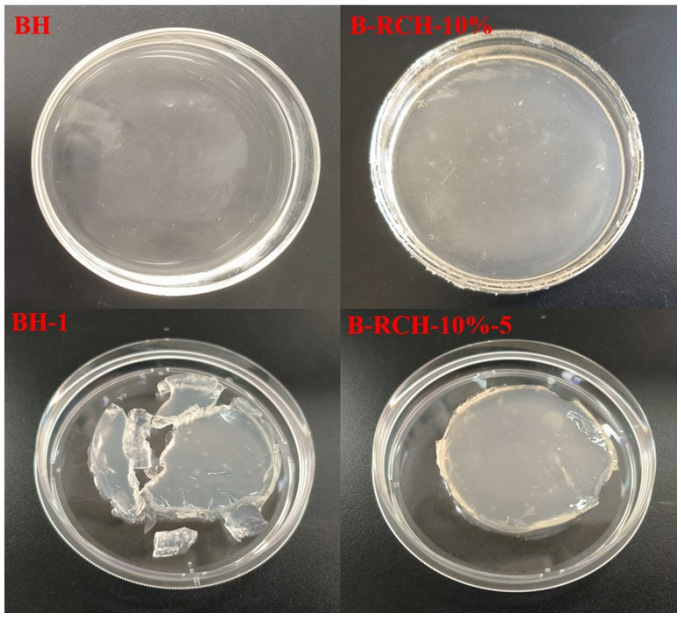

Figure S1. Initial morphology of BH, B-RCH-10%, and morphology after compression (numbers 1, 2, 3, 4, and 5 represent the number of cycles of compression).

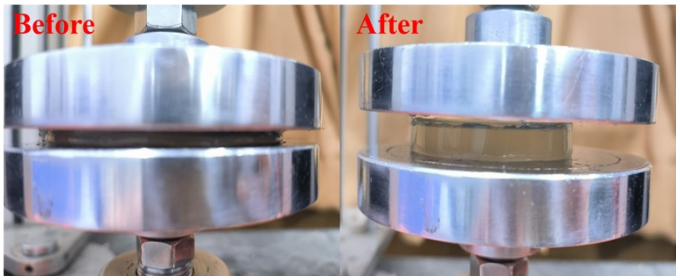

Figure S2. Morphological recovery of B-RCH-10% after compression.

Table S1. Integration data for BH and B-RCH-10% compressive stress-strain curves.

	Strain Integration Range%	Integral results
BH	(0,45)	35.64444
B-RCH-5%	(0,45)	34.42056
B-RCH-10%-1	(0,45)	38.59333
B-RCH-10%-2	(0,45)	39.27556
B-RCH-10%-3	(0,45)	37.55889
B-RCH-15%-1	(0,45)	37.71333
B-RCH-15%-2	(0,45)	37.84444
B-RCH-15%-3	(0,45)	34.11817
B-RCH-20%-1	(0,45)	36.67889
B-RCH-20%-2	(0,45)	37.19506

Experimental

Initially, 100 mg of the cellulose samples were suspended in 100 mL deionized water. After 30 min of stirring, the water was removed using vacuum filtration while thoroughly washing with dimethyl sulfoxide (DMSO), and the obtained sample was dried at ambient temperature. Then the dried sample was resuspended in 4 mL of DMSO and stirred overnight to activate cellulose. Afterwards, DMSO was removed by vacuum filtration, and the obtained samples were suspended in 4 mL of N, N-Dimethylacetamide (DMAc) and stirred overnight to perform a solvent exchange. Same steps as before, DMAc was removed by vacuum filtration, and the sample was dried at ambient temperature. Subsequently, the dried samples were dissolved with 2 mL of 9 % (*w*/*v*) DMAc/Lithium chloride (LiCl) solution and stirred overnight. Before the measurement, the required sample concentration (1–5 g/L) was adjusted by diluting the sample with pure DMAc. Lastly, before injection into the GPC, the sample was filtered with 0.45 μm PTFE filters to eliminate unsolved cellulose fractions.