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Dissolution and Transesterification of Cellulose in γ-valerolactone Promoted by Ionic Liquids

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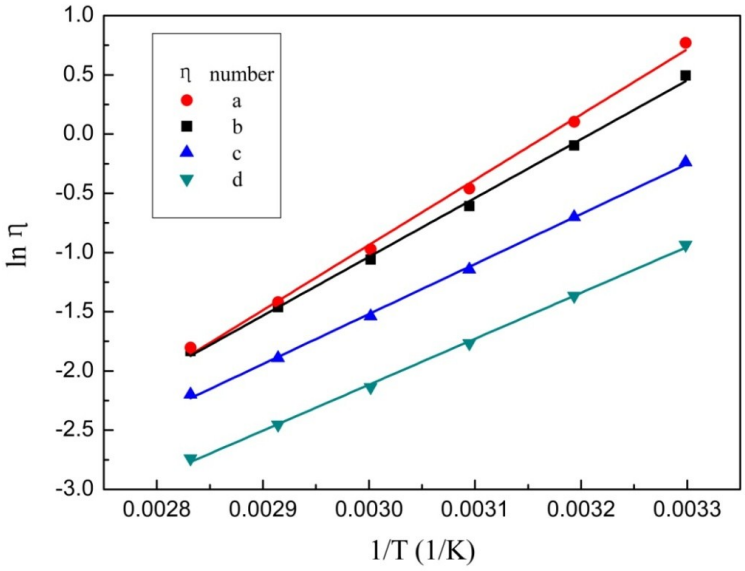

Fig.S1 Arrhenius equation plots for different X_{ILs} in the OESs: a (X_{ILs} = 1.0), b (X_{ILs} = 0.8), c (X_{ILs} = 0.6), d (X_{ILs} = 0.4), respectively, at 4 wt% cellulose concentration. Solid lines are fit lines（$R^2 \geq 99.6\%$）.

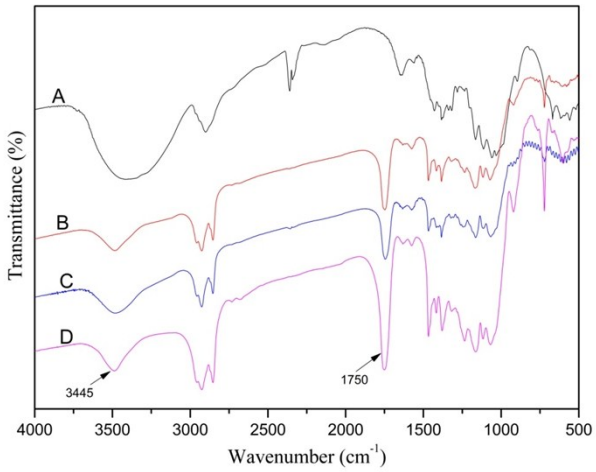

Fig.S2 FT-IR spectra of α-cellulose (spectrum A) and α-cellulose ester CE-2, (spectrum B); CE-1, (spectrum C); CE-3, (spectrum D, DS = 3.00).

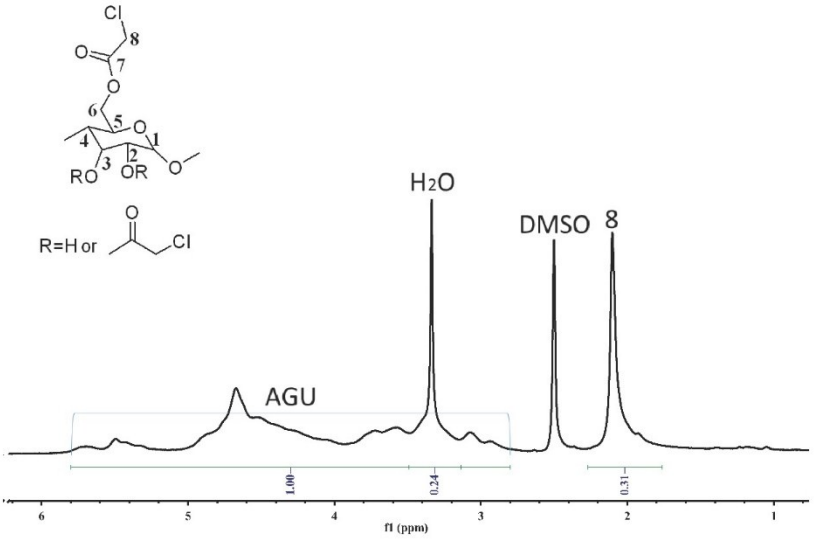

Fig.S3 ^{1}H-NMR spectrum of α-cellulose chloroacetate sample CE-4 (DS = 1.43) in DMSO-d_6. Reaction conditions: 10 wt% α-cellulose solution, vinyl chloroacetate /AGU = 3:1, 80℃, 4h.

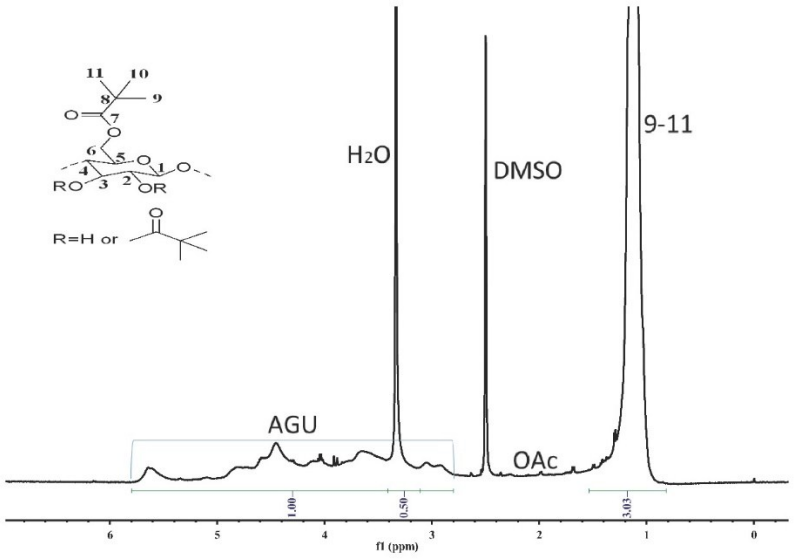

Fig.S4 ^{1}H-NMR spectrum of α-cellulose pivalate sample CE-5 (DS = 3.00) in DMSO-d_6. Reaction conditions: 10 wt% cellulose solution, vinyl pivalate/AGU = 3:1, 80℃, 4h. The "OAc" marked peak belongs to the α-carbon of additional bounded acetate esters.