Electronic Supplementary Information

Antimicrobial and Antioxidant Supramolecular Ionic Liquid Gels from Biopolymer Mixtures

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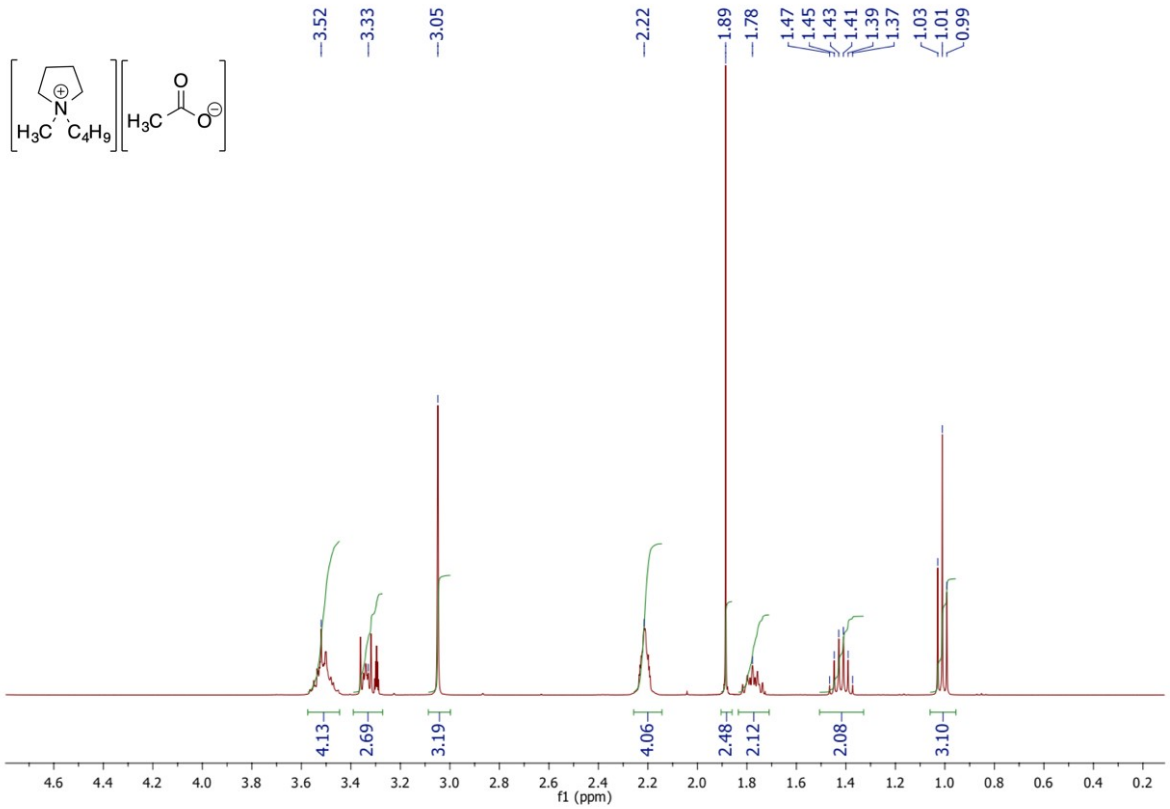
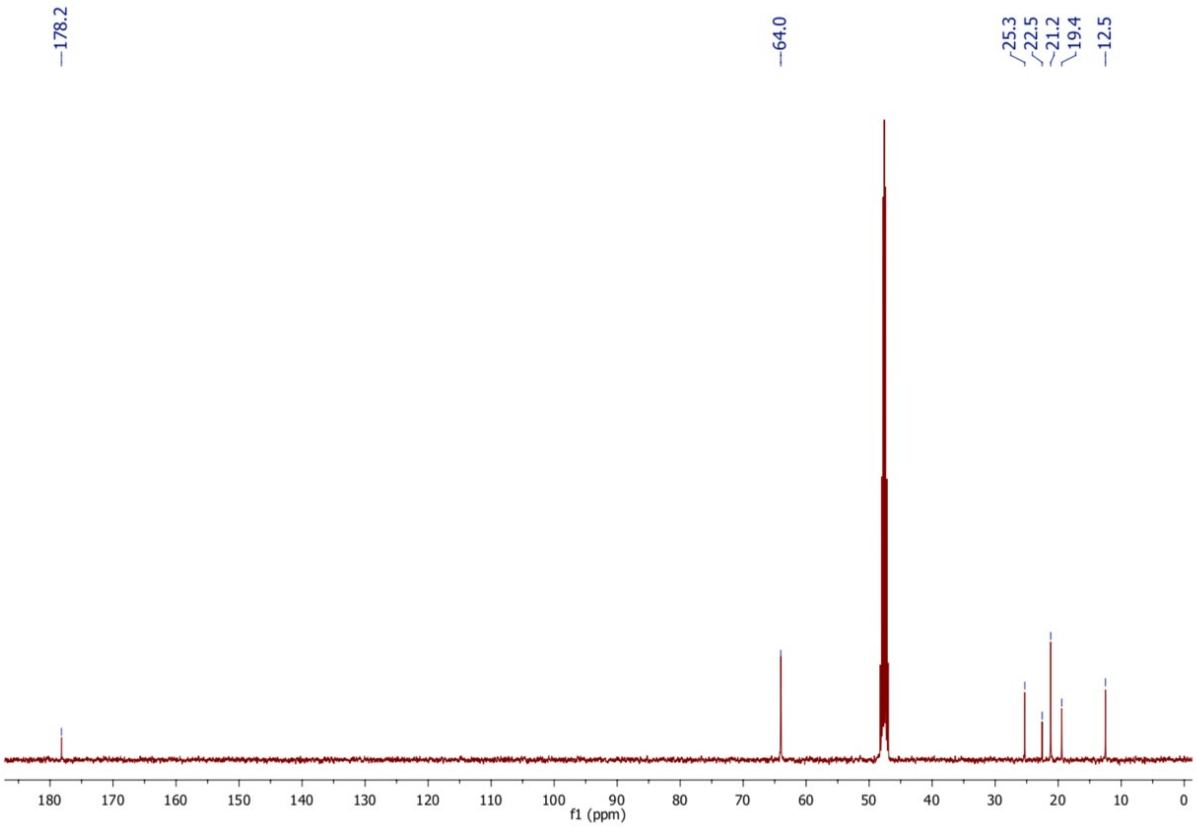
Table S1. Protocols for the formation of biopolymer-based ionic liquid gels.

Heating at 100 °C for 1h, under stirring. Cooled at room temperature.	**Sonication 5 min, followed by heating at 100 °C for 1h. Cooled ad room temperature.**
CS:CT/[bmim][OAc]	CS:LG/[bmim][OAc]
CS:CT/[bmpyrr][OAc]	CS:LG/[bmpyrr][OAc]
CS:CT/[bmim][Cl]	CS:LG/[bmim][Cl]
CT:CE/[bmim][Cl]	CS:CE/[bmpyrr][Cl]


3.52
3.33
3.05
2.22
1.89
1.78
1.47
1.45
1.43
1.41
1.39
1.37
1.03
1.01
0.99
4.13
2.69
3.19
4.06
2.48
2.12
2.08
3.10
f1 (ppm)


178.2
64.0
25.3
22.5
21.2
19.4
12.5
f1 (ppm)

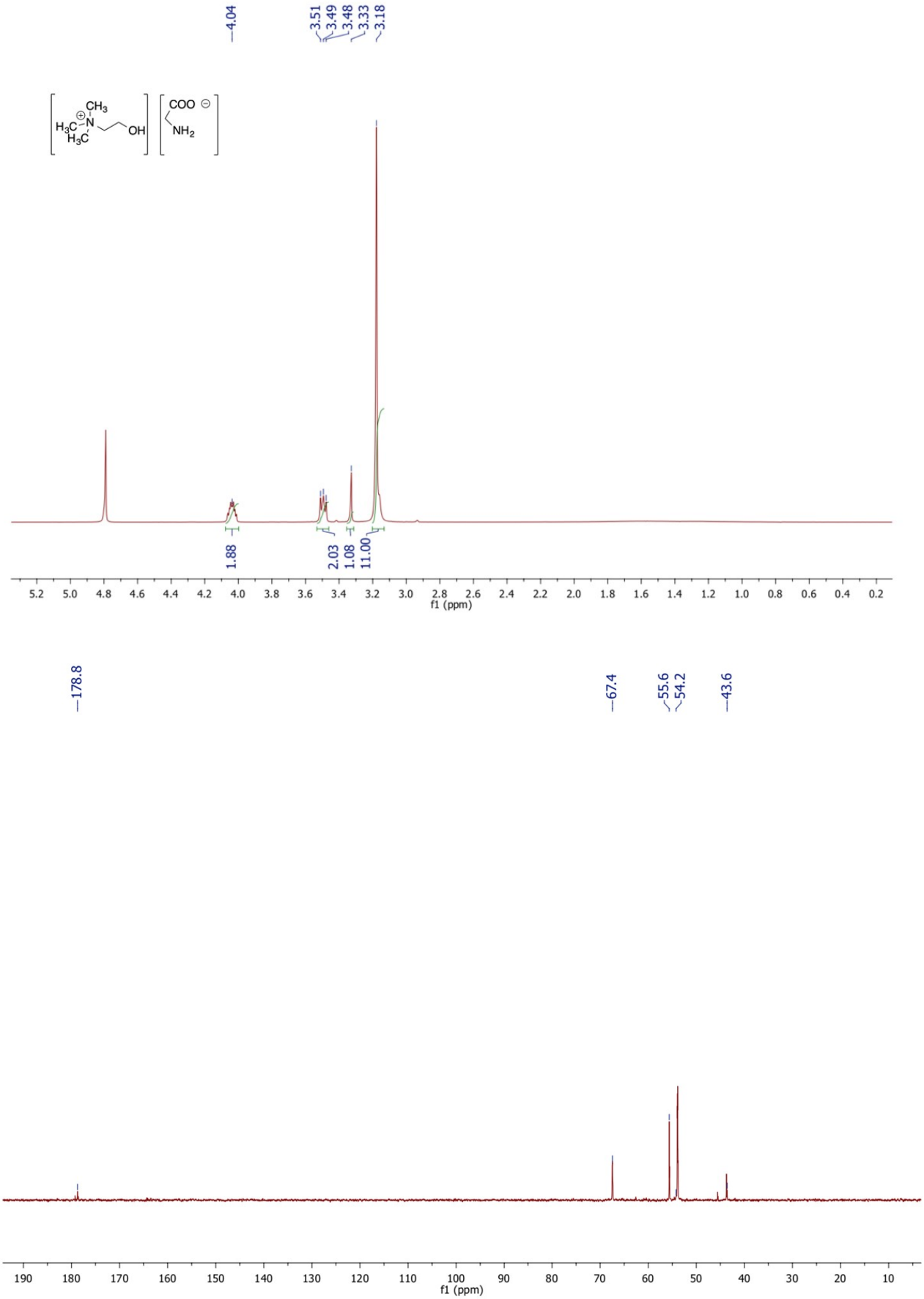


Figure S1. ^{1}H NMR and ^{13}C NMR spectra of [bmpyrr][OAc] and [Ch][Gly].

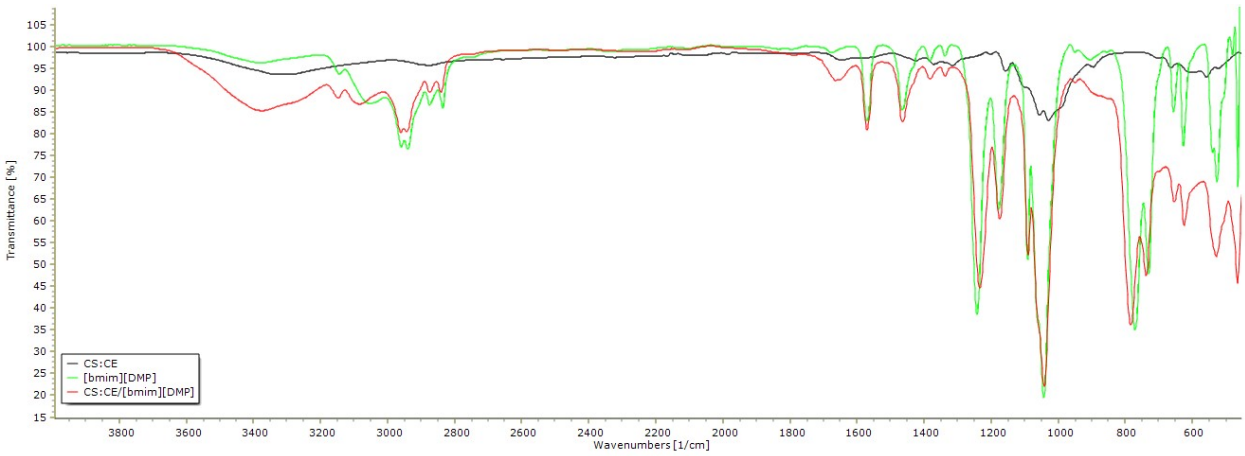
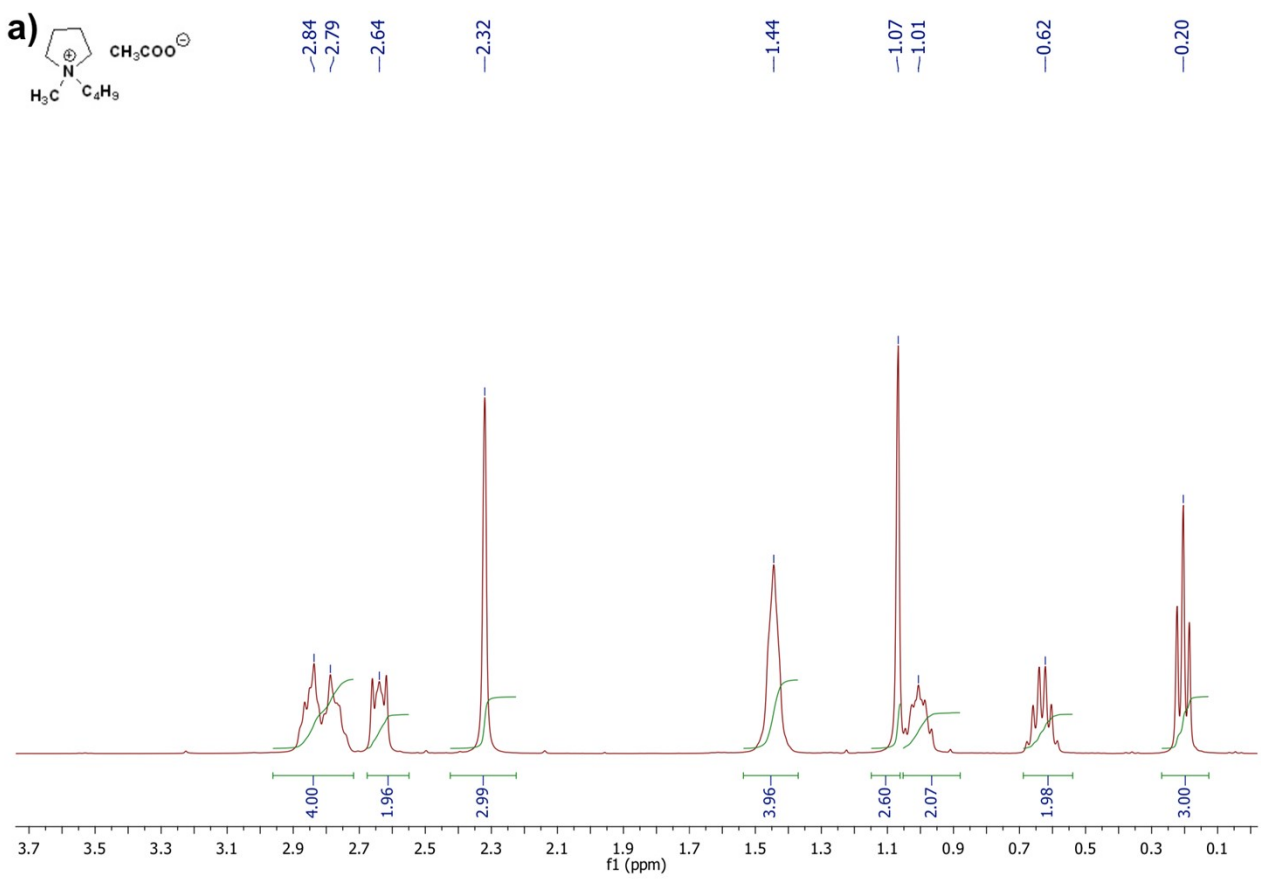


Figure S2. FTIR-ATR spectra of polymers, ILs and gels. Spectra were plotted with Spectragryph.[1]



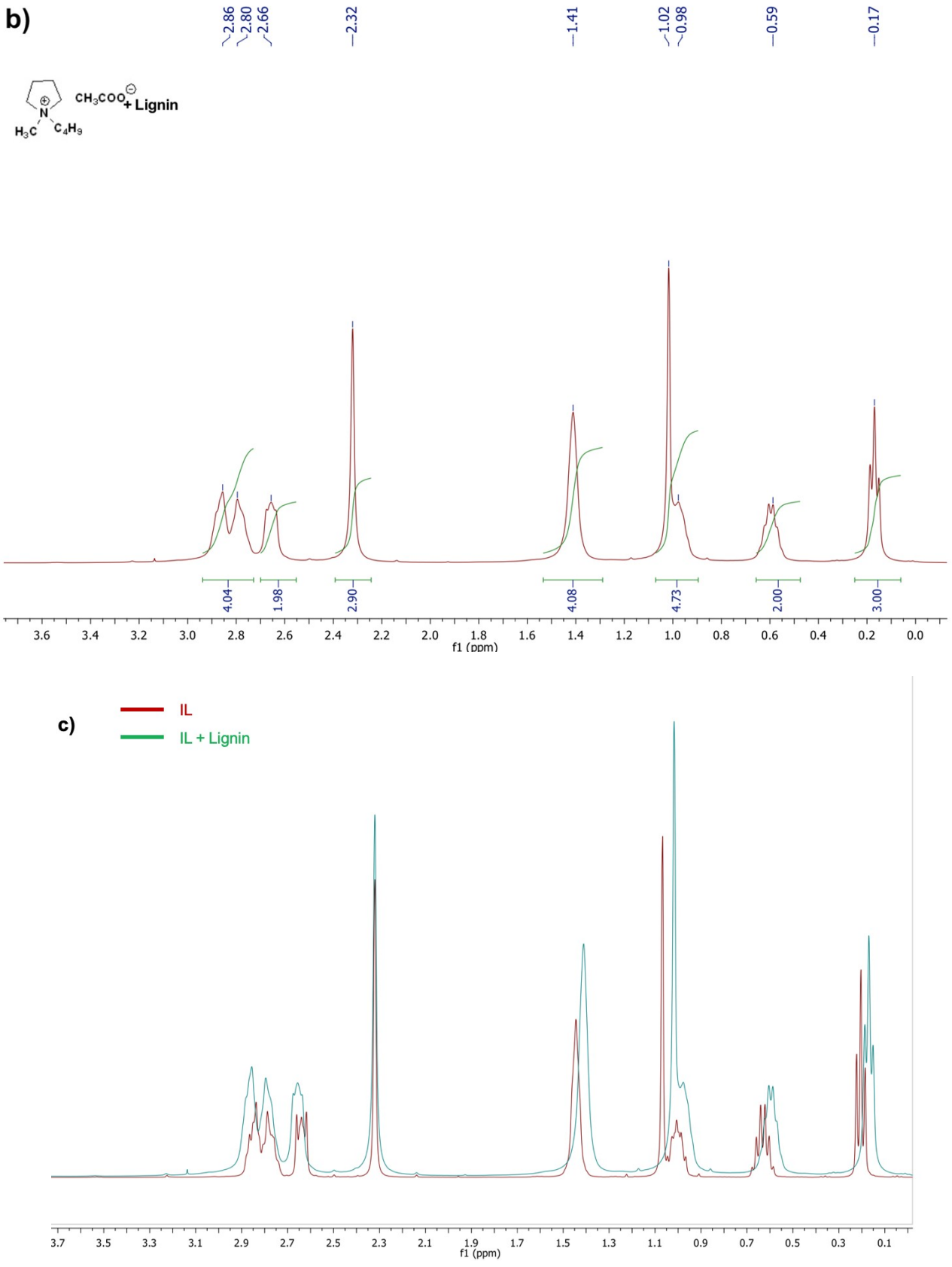


Figure S3. ^{1}H NMR spectra of a) [bmpyrr][OAc], b) [bmpyrr][OAc] in the presence of lignin and c) superimposed spectra.

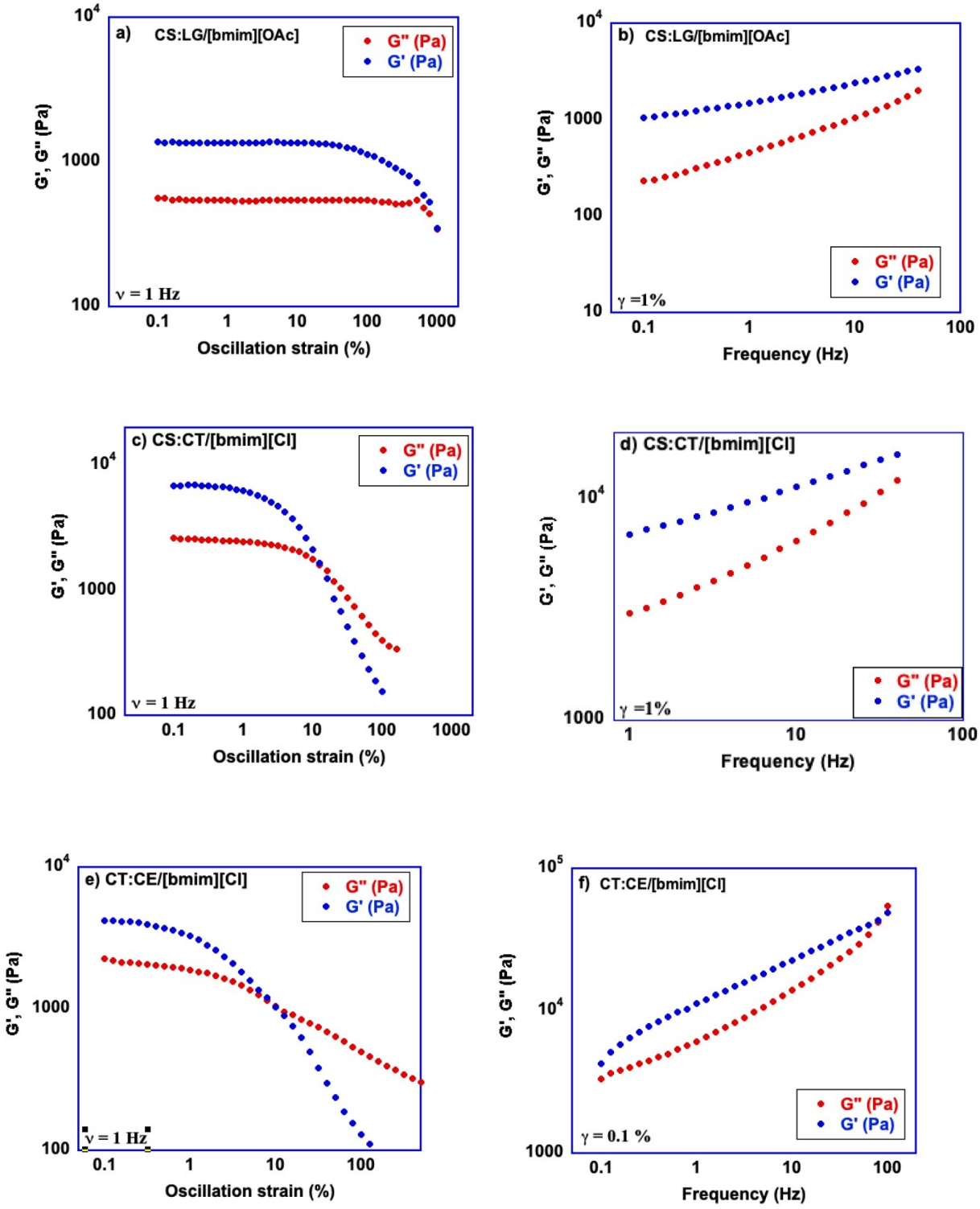


Figure S4. Plots of strain and frequency sweeps measurements for biopolymer-based ionic liquid gels.

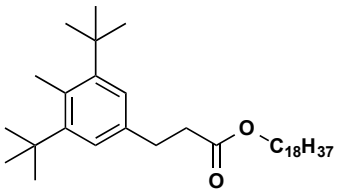


Figure S5. Structure of octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate.

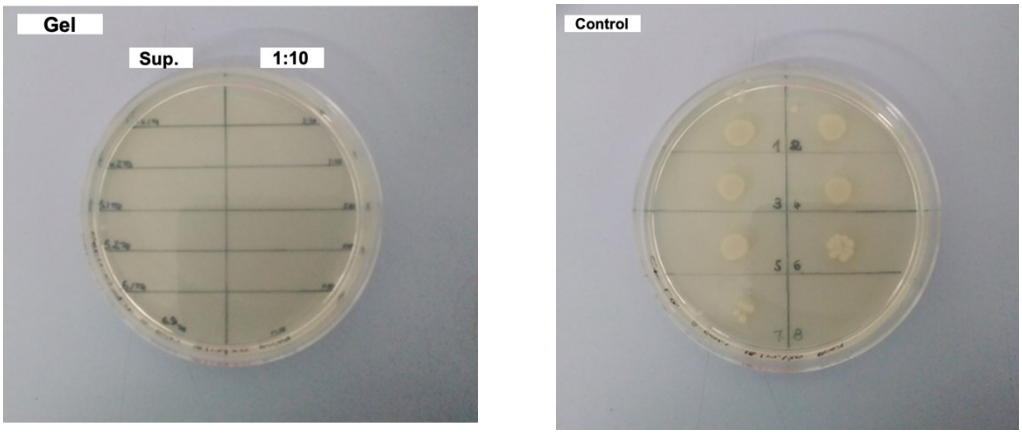
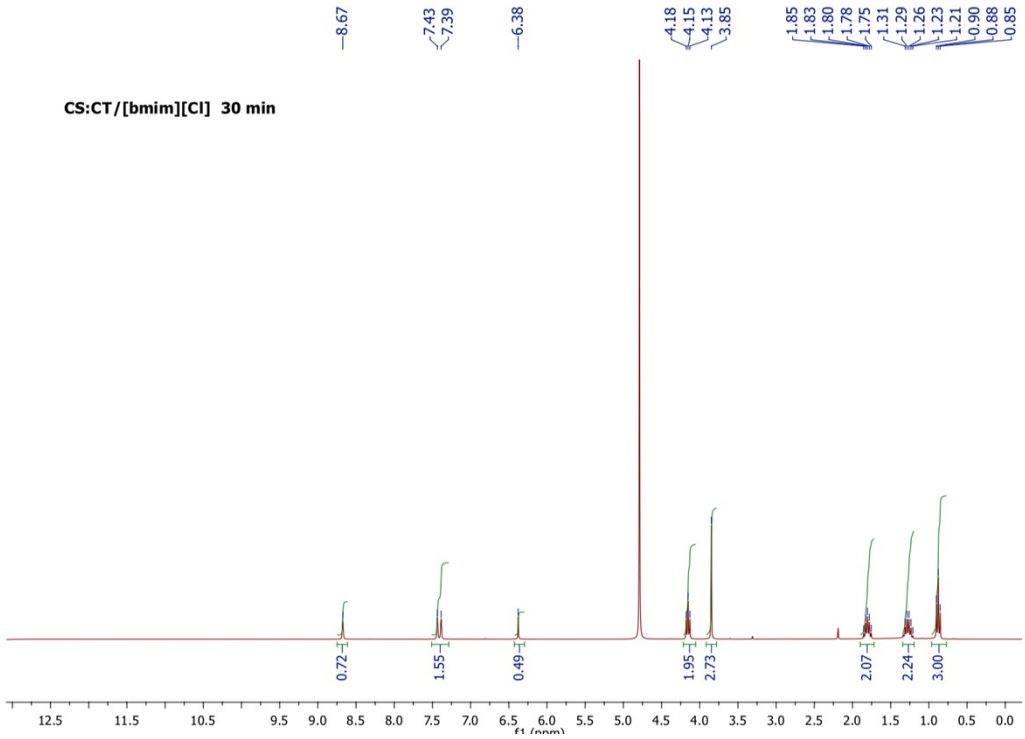
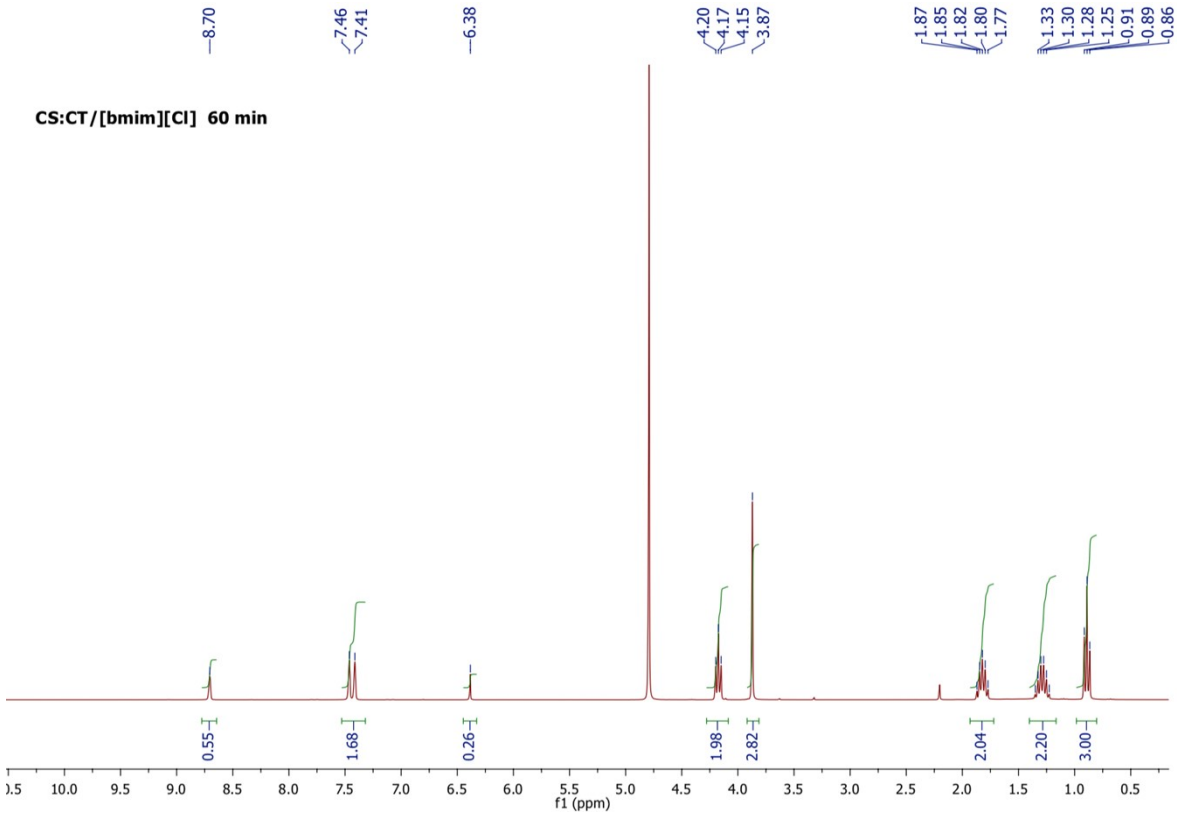
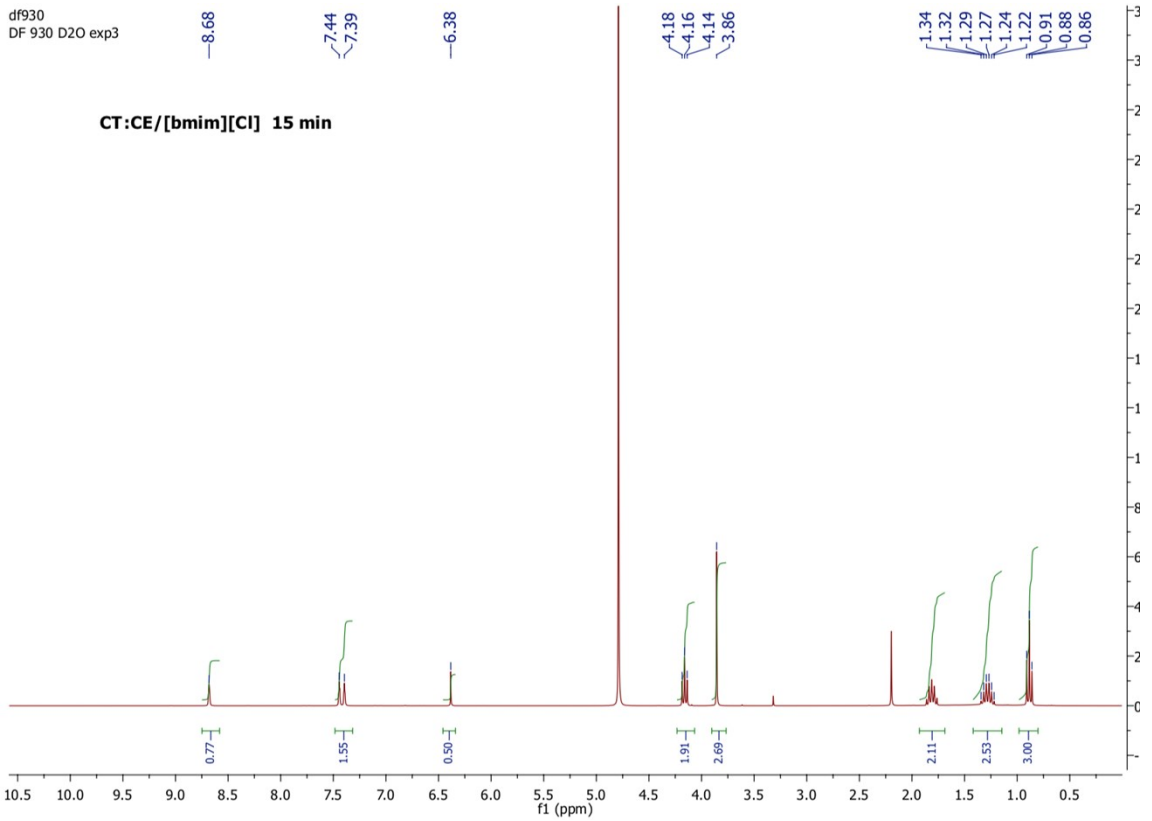
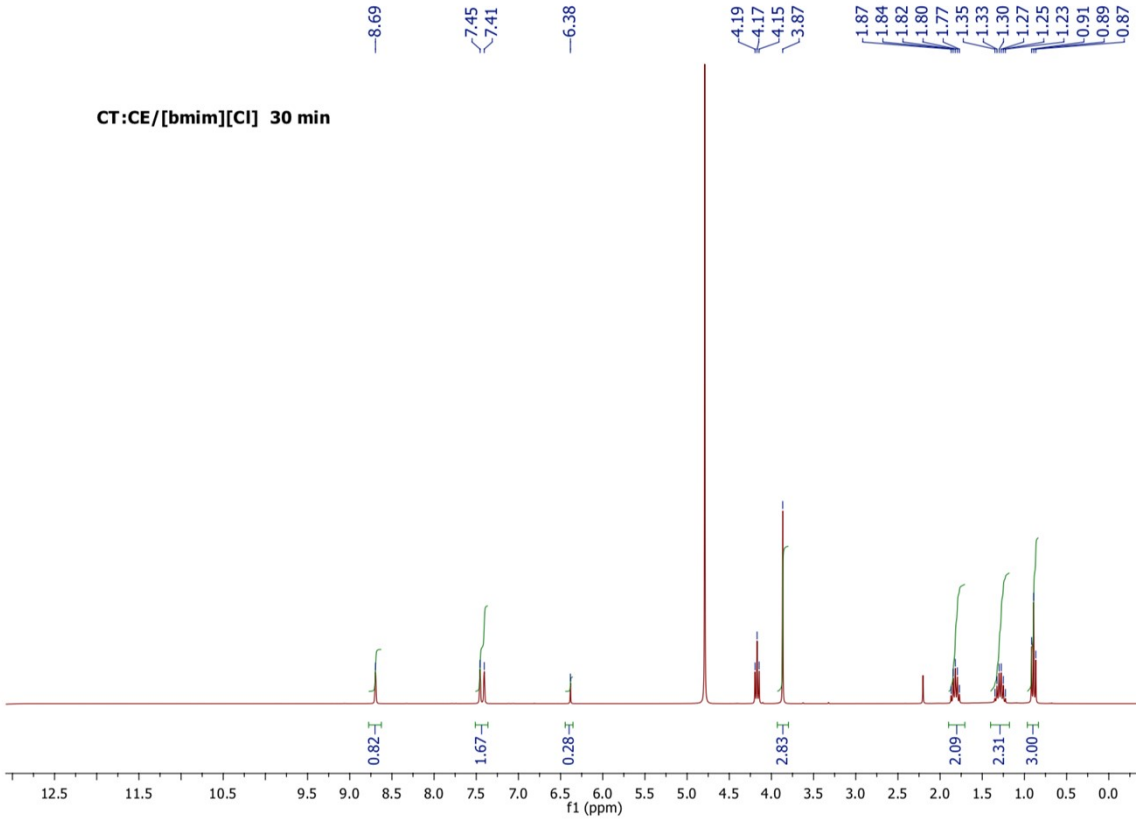


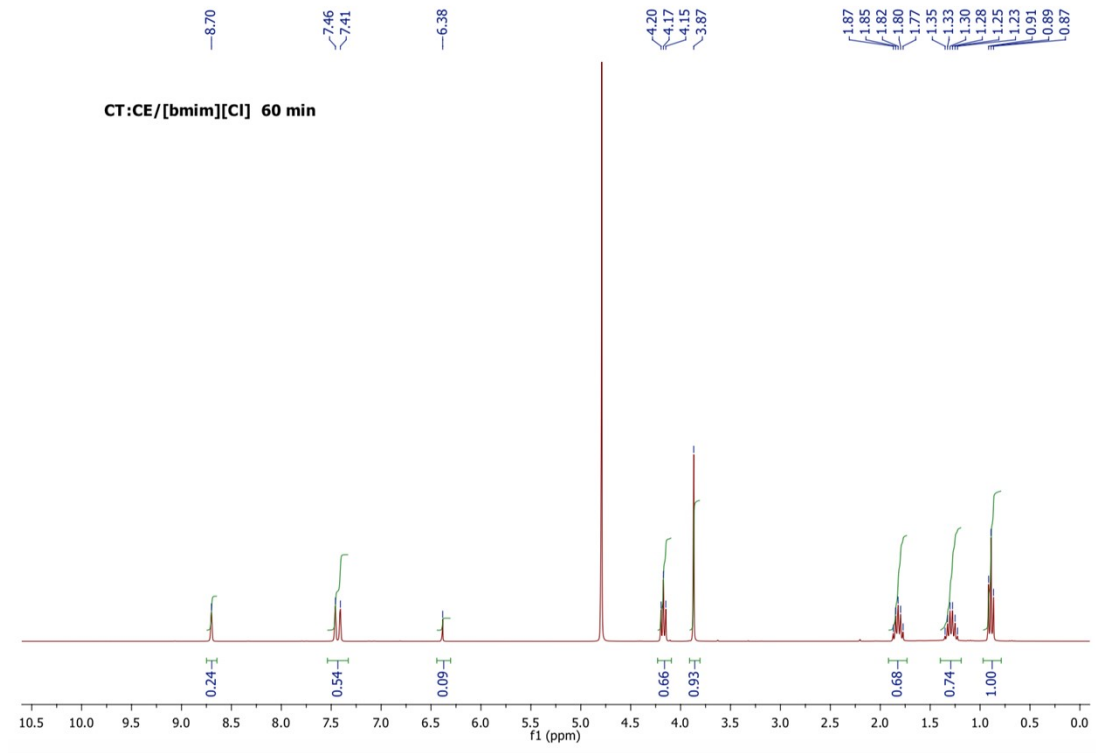
Figure S6. Pictures of supernatant solution treated with culture medium (left) and control sample (right).

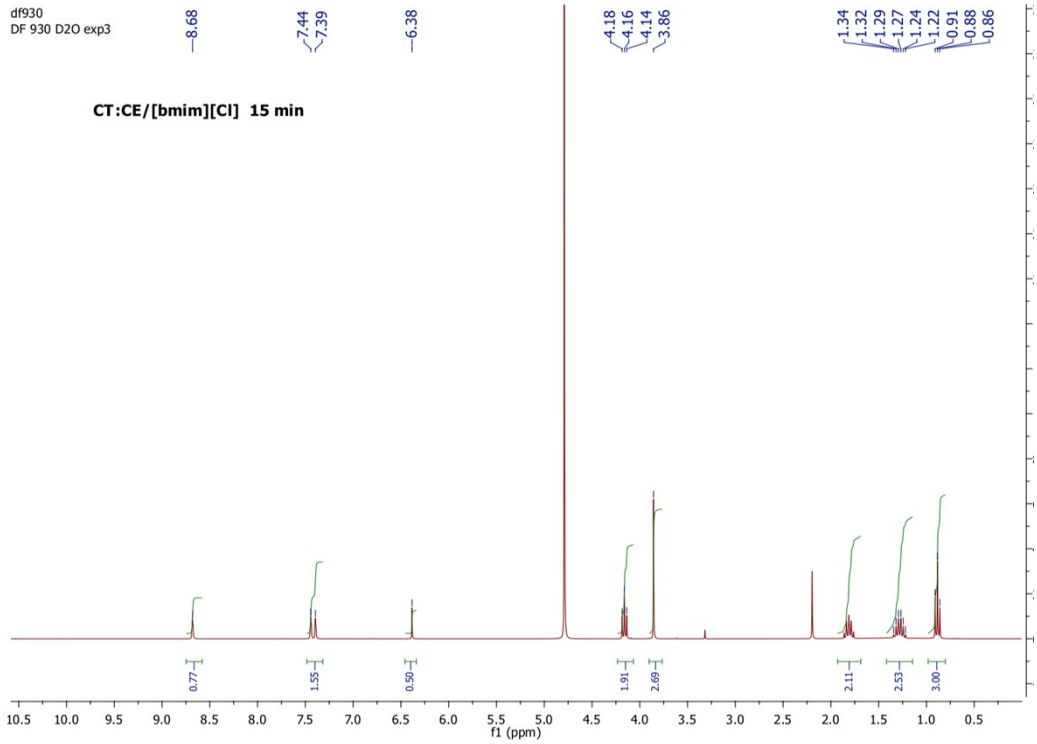


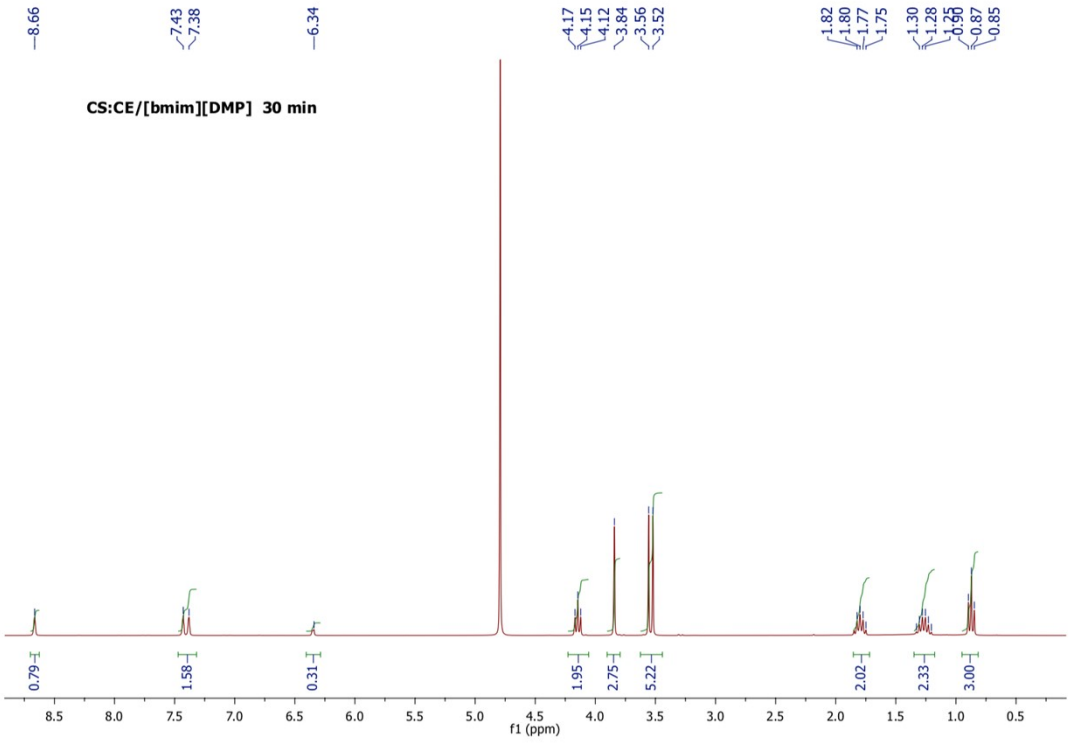

8.70
7.46
7.41
6.38
4.20
4.17
4.15
3.87
1.87
1.85
1.82
1.80
1.77
1.33
1.30
1.28
1.25
0.91
0.89
0.86
CS:CT/[bmim][Cl] 60 min
0.55
1.68
0.26
1.98
2.82
2.04
2.20
3.00
f1 (ppm)


df930
DF 930 D2O exp3
8.68
7.44
7.39
6.38
4.18
4.16
4.14
3.86
1.34
1.32
1.29
1.27
1.24
1.22
0.91
0.88
0.86
CT:CE/[bmim][Cl] 15 min
0.77
1.55
0.50
1.91
2.69
2.11
2.53
3.00
f1 (ppm)


CT:CE/[bmim][Cl] 30 min
8.69
7.45
7.41
6.38
4.19
4.17
4.15
3.87
1.87
1.84
1.82
1.80
1.77
1.35
1.33
1.30
1.27
1.25
1.23
0.91
0.89
0.87
0.82
1.67
0.28
2.83
2.09
2.31
3.00
f1 (ppm)


CT:CE/[bmim][Cl] 60 min
8.70
7.46
7.41
6.38
4.20
4.17
4.15
3.87
1.87
1.85
1.82
1.80
1.77
1.35
1.33
1.30
1.28
1.25
1.23
0.91
0.89
0.87
0.24
0.54
0.09
0.66
0.93
0.68
0.74
1.00
f1 (ppm)


df930
DF 930 D2O exp3
8.68
7.44
7.39
6.38
4.18
4.16
4.14
3.86
1.34
1.32
1.29
1.27
1.24
1.22
0.91
0.88
0.86
CT:CE/[bmim][Cl] 15 min
0.77
1.55
0.50
1.91
2.69
2.11
2.53
3.00
f1 (ppm)


8.66
7.43
7.38
6.34
4.17
4.15
4.12
3.84
3.56
3.52
1.82
1.80
1.77
1.75
1.30
1.28
0.87
0.85
CS:CE/[bmim][DMP] 30 min
0.79
1.58
0.31
1.95
2.75
5.22
2.02
2.33
3.00
f1 (ppm)

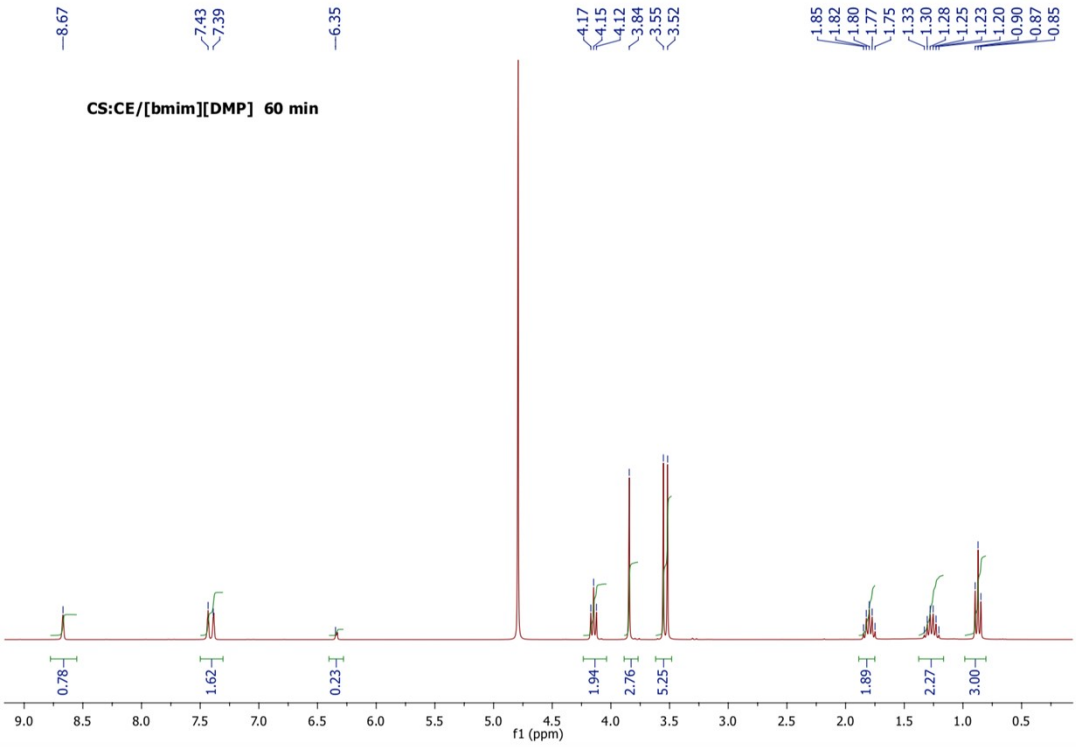


Figure S7. ^{1}H NMR spectra obtained upon contact of ionic liquid gels at variable times with D_2O.

1 F. Menges, *Spectragryph- optical spectroscopy software -Version 1.2.15*