Supplementary Information

Cleaning Phenolic Compounds Present in Water Using Salting-Out Effect with DCA-Based Ionic Liquids

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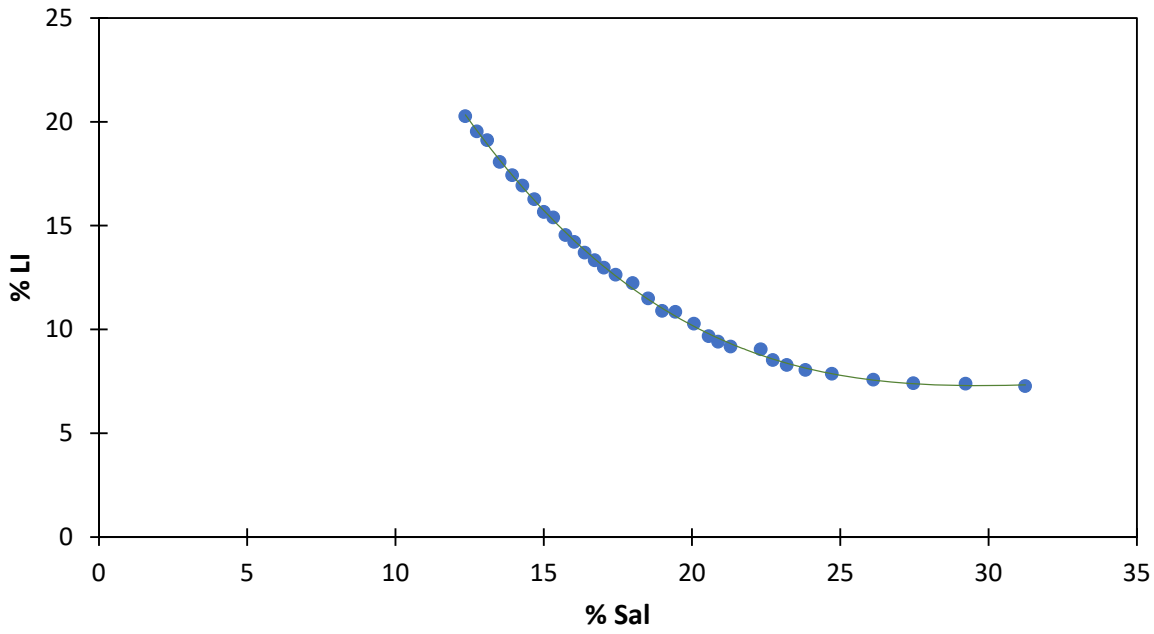


Figure S1. Binodal curve obtained for [EMim][DCA] + K_3PO_4 system.

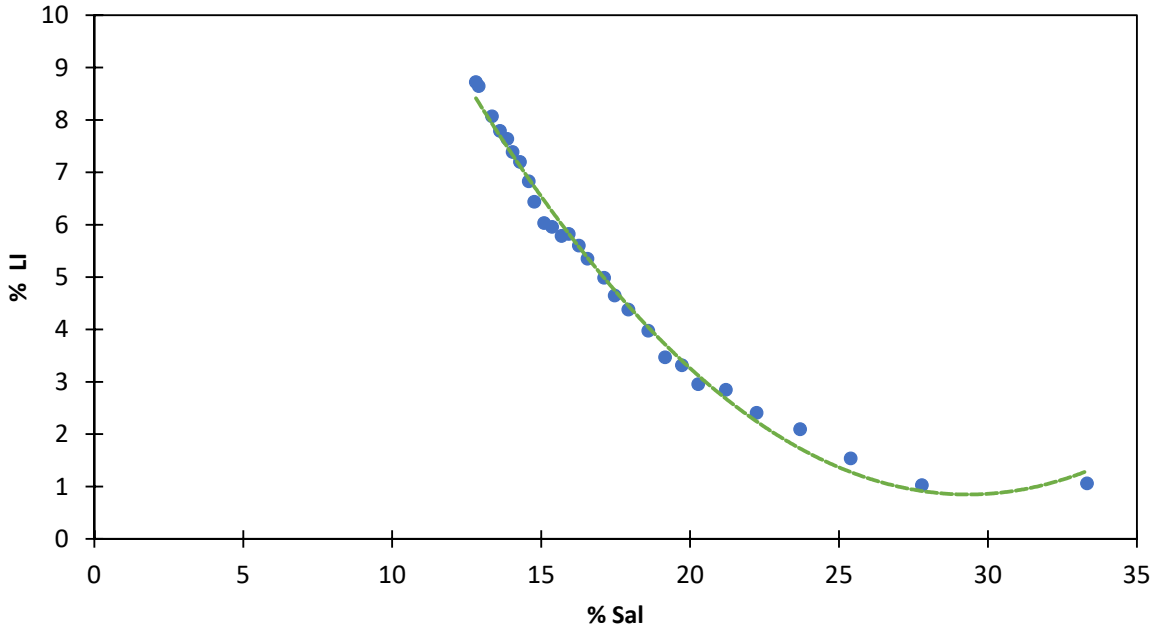
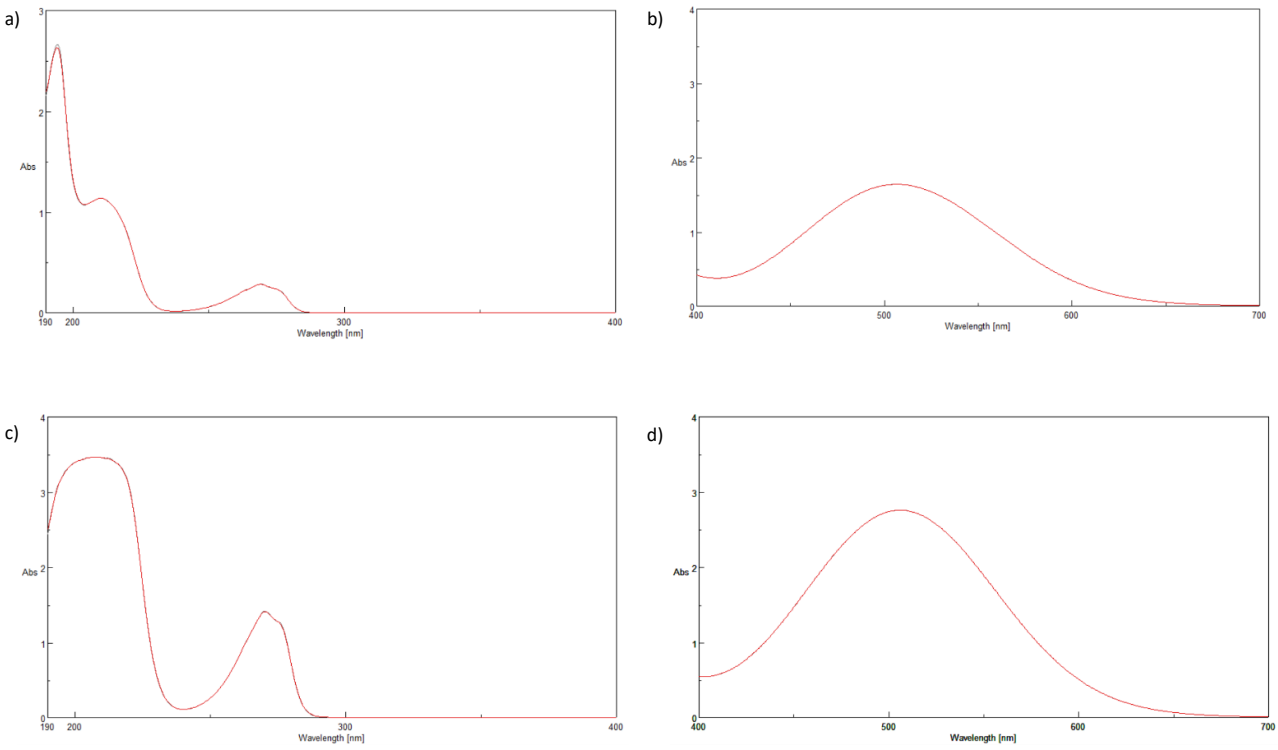


Figure S2. Binodal curve obtained for [BMim][DCA] + K_3PO_4 system



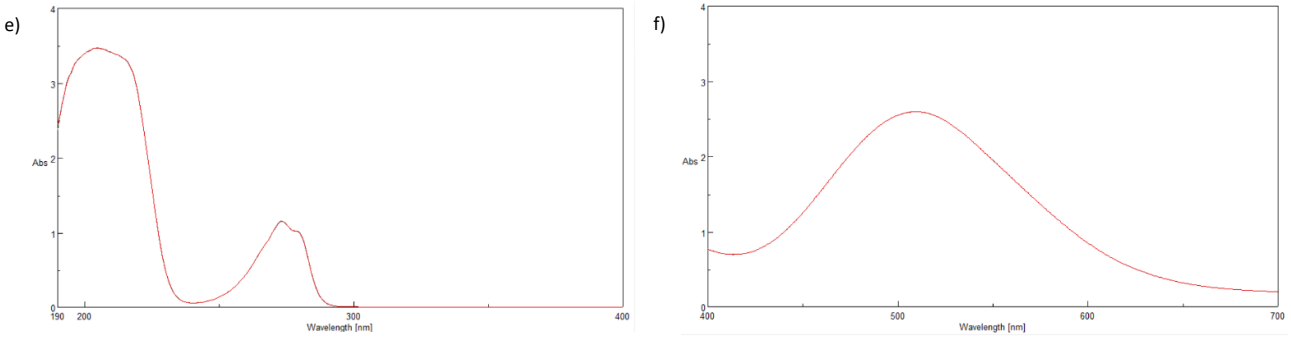


Figure S3. UV-Vis spectra obtained for the three studied phenolic compounds: a) phenol before the 4AAT reaction; b) phenol after 4 AAT reaction; c) o-cresol before 4AAT reaction; d) o-cresol after 4AAT reaction; e) 2-chlorophenol before 4AAT reaction; f) 2-chlorophenol after 4AAT reaction.

Table S1. Initial concentration C_i (mg·L^{-1}) vs final concentration C_f (mg·L^{-1}) of phenol, o-cresol, 2-chlorophenol and a mixture of phenolic compounds (PCM) after extraction process using [EMim][DCA] and [BMim][DCA] and 20%, 30% and 40% (w/v) of K_3PO_4 at 298.15 K and P=101.3 kPa

	C_f (mg·L^{-1})			
C_i (mg·L^{-1})	**Phenol**	**o-cresol**	**2-chlorophenol**	**PCM**
[EMim][DCA] + 20% K_3PO_4 (w/v)				
3	0.1849	0.1794	0.0192	0.0388
50	0.2289	0.8516	0.1212	0.0973
100	0.3855	0.2212	0.1266	0.1626
500	0.7115	2.689	0.2691	0.8498
1000	1.827	4.491	0.8520	2.912
2000	7.247	7.907	1.256	7.672
5000	15.37	26.27	2.363	17.43
10000	43.19	33.89	4.644	52.47
15000	98.04	77.13	12.80	102.8
[EMim][DCA] + 30% K_3PO_4 (w/v)				
3	0.1820	0.0420	0.0253	0.0078
50	0.1642	0.0322	0.0546	0.0050
100	0.2340	0.1363	0.2508	0.0669
500	0.3938	0.2104	0.1871	0.2002
1000	0.7607	1.226	0.0146	0.6001
2000	1.655	0.578	0.2539	1.871
5000	3.926	3.158	0.5437	3.564
10000	5.225	7.492	0.8806	5.934
15000	11.40	9.532	2.158	18.36
[EMim][DCA] + 40% K_3PO_4 (w/v)				
3	0.1045	0.1781	0.0383	0.0050
50	0.1346	0.1819	0.0422	0.0050
100	0.1154	0.1883	0.0029	0.0237

500	0.1164	0.3410	0.0509	0.0775
1000	0.1882	0.5266	0.0958	0.1901
2000	0.7013	0.8205	0.0958	0.1826
5000	0.3059	2.091	0.2724	0.2091
10000	4.110	5.385	0.7385	1.463
15000	8.123	9.397	1.658	2.149
[BMim][DCA] + 20% K_3PO_4 (w/v)				
3	0.1198	0.2057	0.0533	0.0029
50	0.4073	0.4599	0.1204	0.0885
100	0.5921	0.0800	0.0912	0.1503
500	1.785	1.808	0.1209	0.9220
1000	7.416	5.280	0.6374	4.343
2000	12.07	9.271	1.265	7.074
5000	21.24	29.89	4.799	20.07
10000	62.13	58.75	13.67	174.9
15000	219.8	144.9	184.5	393.7
[BMim][DCA] + 30% K_3PO_4 (w/v)				
3	0.0568	0.6565	0.0721	0.0139
50	0.0666	0.1384	0.0649	0.0314
100	0.0563	0.1630	0.0435	0.0482
500	0.2544	0.6099	0.0734	0.1648
1000	0.9132	1.162	0.1538	0.5117
2000	4.226	2.959	0.1612	1.725
5000	10.68	10.02	0.7869	6.927
10000	23.27	21.23	1.507	68.08
15000	84.01	46.10	19.22	98.67
[BMim][DCA] + 40% K_3PO_4 (w/v)				
3	0.1271	0.0582	0.0096	0.0910
50	0.1123	0.0551	0.0096	0.0530
100	0.1567	0.1232	0.0960	0.1095
500	0.2527	0.2382	0.0960	0.1277
1000	0.7196	0.4868	0.2379	0.3144
2000	1.350	0.8766	0.2379	0.1709
5000	4.941	2.823	0.4812	1.011
10000	57.74	9.858	0.7298	17.77
15000	95.68	22.44	1.7944	48.59

Table S2. Initial concentration C_i ($mg \cdot L^{-1}$) vs extraction efficiency (E%) of phenol, o-cresol, 2-chlorophenol and a mixture of phenolic compounds (PCM) after extraction process using [EMim][DCA] and [BMim][DCA] at 298.15 K and P=101.3 kPa

Extraction Efficiency (E%)				
C_i ($mg \cdot L^{-1}$)	**Phenol**	**o-cresol**	**2-chlorophenol**	**PCM**
[EMim][DCA] + 20% K_3PO_4 (w/v)				
0.003	93.84	94.02	99.36	98.71
0.05	99.54	98.30	99.76	99.81
0.1	99.61	99.78	99.87	99.84
0.5	99.86	99.46	99.95	99.83
1	99.82	99.55	99.91	99.71
2	99.64	99.60	99.94	99.62

5	99.69	99.47	99.95	99.65
10	99.57	99.66	99.95	99.48
15	99.35	99.49	99.91	99.31
[EMim][DCA] + 30% K_3PO_4 (w/v)				
0.003	93.93	98.60	99.16	99.74
0.05	99.67	99.94	99.89	99.99
0.1	99.77	99.86	99.75	99.93
0.5	99.92	99.96	99.96	99.96
1	99.92	99.88	99.99	99.94
2	99.92	99.97	99.99	99.91
5	99.92	99.94	99.99	99.93
10	99.95	99.93	99.99	99.94
15	99.92	99.94	99.99	99.88
[EMim][DCA] + 40% K_3PO_4 (w/v)				
0.003	96.52	94.06	98.72	99.83
0.05	99.73	99.64	99.92	99.99
0.1	99.88	99.81	99.99	99.98
0.5	99.98	99.93	99.99	99.98
1	99.98	99.95	99.99	99.98
2	99.96	99.96	99.99	99.99
5	99.99	99.96	99.99	99.99
10	99.96	99.95	99.99	99.99
15	99.95	99.94	99.99	99.99
[BMim][DCA] + 20% K_3PO_4 (w/v)				
0.003	96.01	93.14	98.22	99.90
0.05	99.19	99.08	99.76	99.82
0.1	99.41	99.92	99.91	99.85
0.5	99.64	99.64	99.98	99.82
1	99.26	99.47	99.94	99.57
2	99.40	99.54	99.94	99.65
5	99.58	99.40	99.90	99.60
10	99.38	99.41	99.86	98.25
15	98.53	99.03	98.77	97.38
[BMim][DCA] + 30% K_3PO_4 (w/v)				
0.003	98.11	78.12	97.60	99.54
0.05	99.87	99.72	99.87	99.94
0.1	99.94	99.84	99.96	99.95
0.5	99.95	99.88	99.99	99.97
1	99.91	99.88	99.98	99.95
2	99.79	99.85	99.99	99.91
5	99.79	99.80	99.98	99.86
10	99.77	99.79	99.98	99.32
15	99.44	99.69	99.87	99.34
[BMim][DCA] + 40% K_3PO_4 (w/v)				
0.003	95.76	98.06	99.68	96.97
0.05	99.78	99.89	99.98	99.89
0.1	99.84	99.88	99.90	99.89
0.5	99.95	99.95	99.98	99.97
1	99.93	99.95	99.98	99.97
2	99.93	99.96	99.99	99.99
5	99.90	99.94	99.99	99.98

10	99.42	99.90	99.99	99.82
15	99.36	99.85	99.99	99.68