SUPLEMENTARY MATERIAL

Table 1. Experimental density data, ρ, of studied green solvents.

	ρ (g·cm^{-3})				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
278.15	1.176049	1.148718		1.027110	0.987873
280.65	1.173409	1.146433		1.024670	0.985629
283.15	1.170754	1.144134		1.022221	0.983384
285.65	1.168099	1.141830		1.019773	0.981141
288.15	1.165444	1.139525		1.017326	0.978898
290.65	1.162787	1.137215		1.014881	0.976656
293.15	1.160128	1.134904		1.012435	0.974416
295.65	1.157468	1.132589		1.009988	0.972175
298.15	1.154805	1.130269	1.136056	1.007542	0.969935
300.65	1.152142	1.127945	1.133904	1.005096	0.967697
303.15	1.149478	1.125616	1.131749	1.002649	0.965458
305.65	1.146812	1.123282	1.129599	1.000203	0.963220
308.15	1.144140	1.120942	1.127450	0.997755	0.960980
310.65	1.141470	1.118596	1.125302	0.995308	0.958741
313.15	1.138793	1.116244	1.123155	0.992859	0.956501
315.65	1.136116	1.113884	1.121008	0.990410	0.954260
318.15	1.133433	1.111518	1.118864	0.987957	0.952019
320.65	1.130749	1.109146	1.116721	0.985507	0.949778
323.15	1.128061	1.106765	1.114578	0.983053	0.947536
325.65	1.125369	1.104377	1.112433	0.980599	0.945294
328.15	1.122673	1.101981	1.110291	0.978142	0.943050
330.65	1.119975	1.099577	1.108154	0.975685	0.940805
333.15	1.117271	1.097164	1.106013	0.973224	0.938559
335.65	1.114563	1.094745	1.103874	0.970758	0.936311

338.15	1.111852	1.092317	1.101736	0.968297	0.934063

Table 2. Experimental data of refractive index, n_D, of studied green solvents.

	n_D				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
283.15	1.531332	1.492233		1.426073	1.432473
285.65	1.530039	1.491207		1.424990	1.431481
288.15	1.528750	1.490146		1.423934	1.430489
290.65	1.527440	1.489111		1.422862	1.429395
293.15	1.526168	1.488085		1.421790	1.428364
295.65	1.524858	1.487038		1.420719	1.427334
298.15	1.523577	1.486003	1.439701	1.419656	1.426295
300.65	1.522257	1.484940	1.438858	1.418586	1.425273
303.15	1.520969	1.483885	1.438000	1.417501	1.424249
305.65	1.519655	1.482848	1.437157	1.416454	1.423215
308.15	1.518355	1.481786	1.436300	1.415374	1.422179
310.65	1.517032	1.480713	1.435446	1.414430	1.421140
313.15	1.515740	1.479637	1.434591	1.413237	1.420102
315.65	1.514400	1.478566	1.433715	1.412166	1.419073
318.15	1.513114	1.477501	1.432869	1.411096	1.418027
320.65	1.511785	1.476437	1.432010	1.410032	1.416980
323.15	1.510486	1.475339	1.431148	1.408948	1.415963
325.65	1.509156	1.474255	1.430308	1.407874	1.414901
328.15	1.507845	1.473174	1.429388	1.406801	1.413873
330.65	1.506529	1.472093	1.428580	1.405749	1.412836
333.15	1.505203	1.470989	1.427784	1.404664	1.411794
335.65	1.503903	1.469922	1.426846	1.403574	1.410771
338.15	1.502568	1.468827	1.426027	1.402522	1.409724

Table 3. Calculated molar refraction, R_m for the studied solvents.

	R_m				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
283.15	25.289	24.7861		35.976	45.261
285.65	25.294	24.791		35.981	45.273
288.15	25.300	24.796		35.986	45.285
290.65	25.305	24.801		35.995	45.288
293.15	25.312	24.807		36.002	45.297
295.65	25.317	24.812		36.008	45.305
298.15	25.323	24.817	26.821	36.015	45.313
300.65	25.327	24.822	26.827	36.022	45.322
303.15	25.333	24.826	26.832	36.027	45.331
305.65	25.338	24.832	26.838	36.035	45.339
308.15	25.343	24.837	26.845	36.041	45.347
310.65	25.348	24.841	26.848	36.057	45.354
313.15	25.353	24.845	26.853	36.053	45.362
315.65	25.357	24.850	26.857	36.060	45.370
318.15	25.363	24.855	26.863	36.066	45.377
320.65	25.368	24.860	26.868	36.073	45.383
323.15	25.373	24.864	26.872	36.079	45.393
325.65	25.378	24.868	26.878	36.085	45.398
328.15	25.383	24.873	26.880	36.091	45.406
330.65	25.388	24.878	26.887	36.099	45.414
333.15	25.392	24.882	26.895	36.104	45.421
335.65	25.398	24.888	26.896	36.109	45.429
338.15	25.403	24.893	26.900	36.117	45.436

Table 4. Experimental speed of sound data, u, of studied green solvents.

	u (m·s^{-1})				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
278.15	1513.35	1515.45		1427.94	1414.34
280.65	1504.37	1507.24		1418.35	1405.21
283.15	1495.18	1498.95		1408.68	1395.98
285.65	1485.98	1490.67		1398.99	1386.76
288.15	1476.80	1482.48		1389.35	1377.65
290.65	1467.63	1474.26		1379.77	1368.50
293.15	1458.52	1466.11		1370.25	1359.45
295.65	1449.36	1457.94		1360.75	1350.38
298.15	1440.19	1449.80	1480.35	1351.22	1341.33
300.65	1431.11	1441.71	1472.33	1341.79	1332.35
303.15	1422.05	1433.65	1465.12	1332.39	1323.40
305.65	1412.98	1425.63	1457.52	1323.03	1314.49
308.15	1403.96	1417.62	1449.93	1313.71	1305.60
310.65	1394.97	1409.65	1442.36	1304.43	1296.79
313.15	1385.97	1401.71	1434.78	1295.20	1287.98
315.65	1377.01	1393.77	1427.21	1285.99	1279.20
318.15	1368.06	1385.85	1419.62	1276.84	1270.47
320.65	1359.11	1377.96	1412.08	1267.71	1261.76
323.15	1350.20	1370.05	1404.53	1258.63	1253.09
325.65	1341.29	1362.16	1396.99	1249.57	1244.45
328.15	1332.40	1354.28	1389.47	1240.54	1235.83
330.65	1323.54	1346.41	1382.03	1231.57	1227.24
333.15	1314.68	1338.54	1374.59	1222.57	1218.67
335.65	1305.85	1330.71	1367.20	1213.65	1210.19
338.15	1297.03	1322.85	1359.89	1204.74	1201.69

Table 5. Calculated isoentropic compressibilities, κ_s, for the studied solvents.

	κ_s (TPa^{-1})				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
278.15	371.28	379.06		477.49	506.05
280.65	375.72	383.20		483.97	513.81
283.15	380.35	387.45		490.63	521.82
285.65	385.08	391.76		497.46	529.99
288.15	389.88	396.10		504.38	538.25
290.65	394.77	400.53		511.41	546.72
293.15	399.71	405.00		518.54	555.30
295.65	404.78	409.55		525.81	564.08
298.15	409.95	414.16	401.67	533.25	573.04
300.65	415.17	418.82	406.83	540.77	582.14
303.15	420.48	423.55	411.63	548.43	591.40
305.65	425.90	428.32	416.72	556.22	600.84
308.15	431.39	433.18	421.90	564.14	610.47
310.65	436.96	438.09	427.15	572.19	620.24
313.15	442.66	443.07	432.50	580.38	630.23
315.65	448.44	448.13	437.94	588.72	640.41
318.15	454.32	453.27	443.48	597.19	650.77
320.65	460.33	458.47	449.09	605.82	661.34
323.15	466.42	463.78	454.81	614.59	672.11
325.65	472.64	469.17	460.62	623.54	683.09
328.15	478.97	474.65	466.51	632.65	694.30
330.65	485.40	480.21	472.46	641.90	705.73
333.15	491.97	485.87	478.51	651.38	717.41
335.65	498.64	491.61	484.64	660.99	729.24
338.15	505.45	497.47	490.81	670.81	741.38

Table 6. Experimental surface tension data, σ, of studied green solvents.

	σ (mN·m^{-1})				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate

278.15	45.72	40.97		34.84	32.74
280.65	45.38	40.67		34.54	32.50
283.15	45.06	40.51		34.24	32.28
285.65	44.76	40.27		33.97	32.07
288.15	44.36	40.06		33.74	31.82
290.65	43.99	39.74		33.44	31.61
293.15	43.61	39.60		33.25	31.37
295.65	43.34	39.24		33.00	31.14
298.15	43.01	39.06	42.53	32.70	30.95
300.65	42.71	38.83	42.25	32.42	30.75
303.15	42.33	38.57	42.03	32.19	30.43
305.65	42.06	38.34	41.74	31.97	30.25
308.15	41.73	38.09	41.52	31.67	30.01
310.65	41.38	37.81	41.23	31.38	29.79
313.15	41.15	37.57	41.07	31.14	29.56
315.65	40.72	37.31	40.80	30.85	29.34
318.15	40.45	37.03	40.57	30.65	29.11
320.65	40.04	36.76	40.37	30.30	28.89
323.15	39.82	36.51	40.10	30.03	28.64
325.65	39.44	36.24	39.81	29.84	28.42
328.15	39.03	35.97	39.58	29.53	28.25
330.65	38.72	35.71	39.23	29.30	28.04
333.15	38.48	35.53	38.97	29.12	27.77

Table 7. Enthalpy of surface formation, ΔH_σ, of studied green solvents.

	ΔH_σ, (mN·m^{-1})				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
278.15	9.03	13.18		5.77	7.64
280.65	8.37	12.63		5.21	7.17
283.15	7.72	12.22		4.65	6.73

285.65	7.09	11.73		4.11	6.29
288.15	6.36	11.27		3.62	5.81
290.65	5.66	10.70		3.06	5.38
293.15	4.95	10.31		2.61	4.91
295.65	4.35	9.70		2.10	4.46
298.15	3.69	9.27	12.95	1.54	4.04
300.65	3.06	8.80	12.43	1.00	3.62
303.15	2.35	8.29	11.96	0.50	3.07
305.65	1.75	7.81	11.42	0.02	2.67
308.15	1.09	7.31	10.95	-0.54	2.20
310.65	0.41	6.78	10.41	-1.09	1.75
313.15	-0.15	6.29	10.01	-1.59	1.30
315.65	-0.91	5.78	9.49	-2.14	0.85
318.15	-1.51	5.25	9.01	-2.60	0.40
320.65	-2.25	4.73	8.56	-3.21	-0.05
323.15	-2.80	4.23	8.04	-3.75	-0.52
325.65	-3.51	3.71	7.51	-4.20	-0.97
328.15	-4.25	3.19	7.03	-4.77	-1.37
330.65	-4.89	2.68	6.43	-5.26	-1.80
333.15	-5.46	2.25	5.92	-5.70	-2.30

Table 8. Experimental dynamic viscosity data, η, of studied green solvents.

	η (mPa·s)				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
278.15	2.1842	10.950		3.1004	4.2687
280.65	2.0707	9.8090		2.8983	3.9652
283.15	1.9646	8.8264		2.7176	3.6939
285.65	1.8672	7.9750		2.5566	3.4485
288.15	1.7778	7.2309		2.4061	3.2287
290.65	1.6943	6.5785		2.2709	3.0299

293.15	1.6177	6.0051		2.1458	2.8488
295.65	1.5471	5.4998		2.0342	2.6846
298.15	1.4818	5.0533	29.4429	1.9296	2.5350
300.65	1.4204	4.6542	25.9758	1.8340	2.3967
303.15	1.3639	4.2973	23.0030	1.7455	2.2707
305.65	1.3144	3.9802	20.4683	1.6673	2.1545
308.15	1.2621	3.6865	18.3161	1.5898	2.0472
310.65	1.2149	3.4307	16.4476	1.5262	1.9486
313.15	1.1711	3.1841	14.8235	1.4545	1.8572
315.65	1.1298	2.9741	13.4424	1.3925	1.7725
318.15	1.0910	2.7854	12.2335	1.3351	1.6945
320.65	1.0545	2.6232	11.1717	1.2815	1.6204
323.15	1.0200	2.4564	10.2315	1.2319	1.5523
325.65	0.9869	2.3144	9.4032	1.1855	1.4890
328.15	0.9564	2.1779	8.6758	1.1415	1.4299
330.65	0.9273	2.0671	8.0239	1.1003	1.3743
333.15	0.8999	1.9462	7.4377	1.0619	1.3245
335.65	0.8733	1.8432	6.9144	1.0251	1.2765
338.15	0.8479	1.7469	6.4319	0.9904	1.2314

Table 9. Experimental static permittivity data, ε, of studied green solvents.

	ε				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
278.15	47.142	19.396		13.890	11.097
280.65	46.605	19.194		13.758	11.023
283.15	45.929	18.875		13.645	10.923
285.65	45.207	18.591		13.519	10.830
288.15	44.495	18.34		13.399	10.720
290.65	43.814	18.075		13.258	10.620
293.15	43.144	17.673		13.126	10.526
295.65	42.479	17.357		12.979	10.435
298.15	41.799	17.035	19.081	12.852	10.344

300.65	41.198	16.736	18.984	12.690	10.240
303.15	40.545	16.415	18.889	12.550	10.164
305.65	39.866	15.989	18.786	12.416	10.083
308.15	39.198	15.664	18.690	12.255	9.998
310.65	38.535	15.339	18.580	12.117	9.885
313.15	37.861	15.019	18.458	11.996	9.776
315.65	37.237	14.715	18.335	11.853	9.681
318.15	36.641	14.423	18.226	11.738	9.581
320.65	35.972	14.143	18.123	11.586	9.522
323.15	35.306	13.878	18.022	11.437	9.419
325.65	34.644	13.599	17.908	11.319	9.325
328.15	34.083	13.342	17.806	11.187	9.235
330.65	33.461	13.055	17.677	11.032	9.102
333.15	32.756	12.711	17.582	10.901	9.042
335.65	32.052	12.333	17.474	10.768	8.940
338.15	31.348	12.027	17.366	10.670	8.848

Table 10. Experimental data of vapour pressure, *p*, of studied green solvents.

	p (kPa)				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
303.15	0.385				
308.15	0.540				
313.15	0.750				
318.15	1.015	0.390			
323.15	1.335	0.535			
328.15	1.765	0.760			
333.15	2.375	1.005			
338.15	3.005	1.380		0.385	
343.15	3.905	1.795		0.545	
348.15	4.900	2.410		0.735	
353.15	6.175	3.090		0.995	
358.15	7.730	3.995		1.300	0.380

363.15	9.575	5.200		1.750	0.520
368.15	11.785	6.670		2.250	0.675
373.15	14.625	8.450	0.355	2.855	0.900
378.15	17.470	10.640	0.460	3.700	1.145
383.15	21.560	13.280	0.605	4.690	1.465
388.15	25.230	16.405	0.765	5.915	1.895
393.15	30.065	20.465	1.005	7.355	2.380
398.15	35.615	24.585	1.270	9.060	2.930
403.15	41.960	30.570	1.575	10.985	3.715
408.15	50.040	37.210	1.955	13.415	4.480
413.15	58.220	44.250	2.465	16.550	5.480
418.15	66.640	53.135	3.060	19.705	6.660
423.15	78.220	63.650	3.805	23.930	8.050
428.15	88.900	75.920	4.645	28.505	9.805

Table 10. Continuation

	p (kPa)				
T(K)	2-Furfuraldehyde	Furfuryl alcohol	Levulinic acid	Ethyl levulinate	Butyl Levulinate
433.15		91.025	5.700	34.070	11.715
438.15			6.975	39.610	13.905
443.15			8.500	46.580	16.235
448.15			10.310	55.090	19.425
453.15			12.405		22.470