Supporting Information

Manuscript title: Effect of Ionic Liquid 1-Butyl-3-Methylimidazolium Tetrafluoroborate on the Properties of Water + Triton X-100 + Hexanol + Cyclohexane Microemulsions

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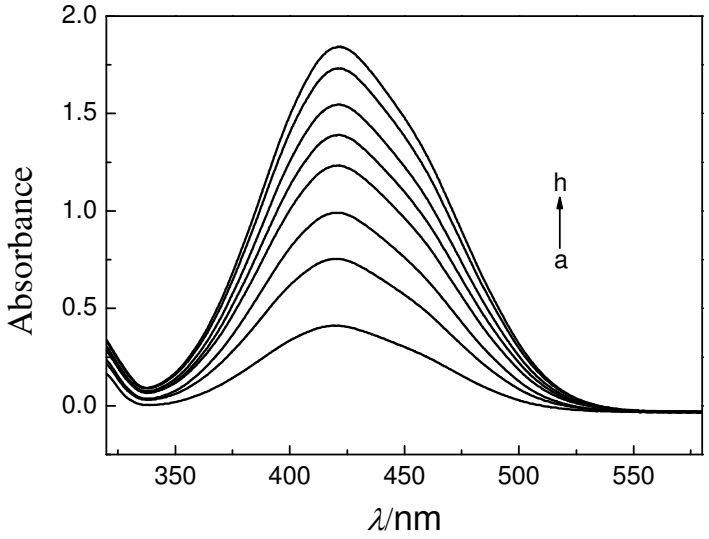

Figure S1. Absorption spectra of MO in H_2O + TX-100 + hexanol + cyclohexane microemulsions as a function of water content (W_0) at $R = 0.33$; W_0: (a) 3, (b) 4, (c) 6, (d) 8, (e) 10, (f) 15, (g) 20, (h) 25. Probe concentrations from a to h: 1.78×10^{-5}, 2.67×10^{-5}, 3.48×10^{-5}, 4.37×10^{-5}, 5.11×10^{-5}, 5.74×10^{-5}, 6.47×10^{-5}, and 6.96×10^{-5} M, respectively.

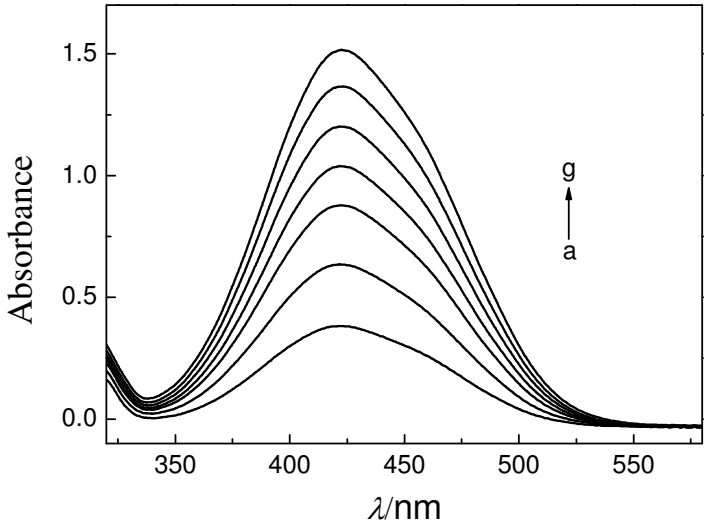

Figure S2. Absorption spectra of MO in H_2O + TX-100 + hexanol + cyclohexane microemulsions as a function of water content (W_0) at R = 0.66; W_0: (a) 4, (b) 6, (c) 8, (d) 10, (e) 15, (f) 20, (g) 25. Probe concentrations from a to g: 1.57×10^{-5}, 2.38×10^{-5}, 3.15×10^{-5}, 3.82×10^{-5}, 4.47×10^{-5}, 5.09×10^{-5}, and 5.72×10^{-5} M, respectively.

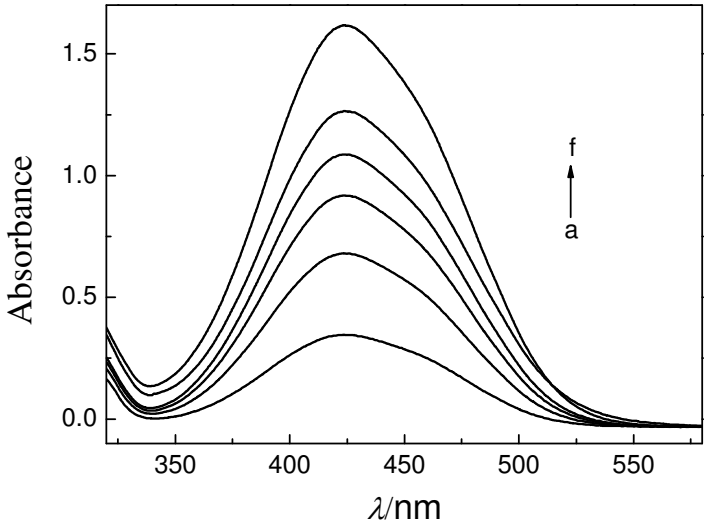

Figure S3. Absorption spectra of MO in H_2O + TX-100 + hexanol + cyclohexane microemulsions as a function of water content (W_0) at R = 0.98; W_0: (a) 5, (b) 7, (c) 10, (d) 15, (e) 20, (f) 25. Probe concentrations from a to f: 1.26×10^{-5}, 2.50×10^{-5}, 3.28×10^{-5}, 3.99×10^{-5}, 4.64×10^{-5}, and 5.98×10^{-5} M, respectively.

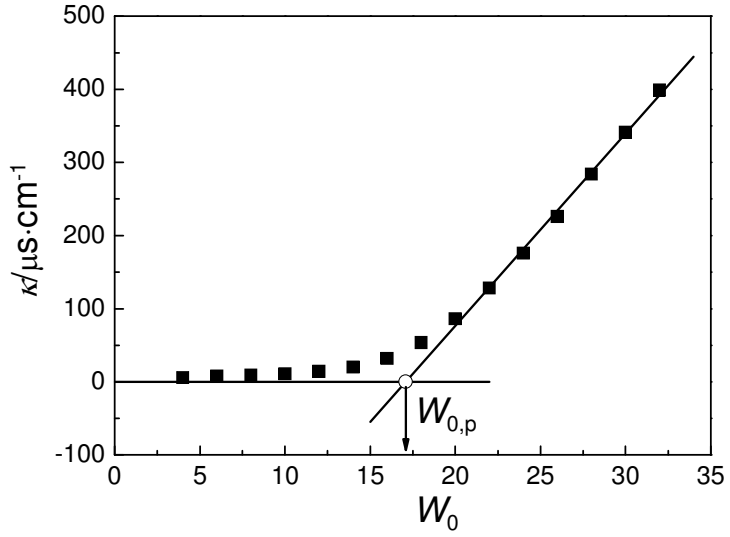

Figure S4. Determination of the electrical conductivity (κ) percolation threshold of microemulsions (use R = 0.33 as an example).

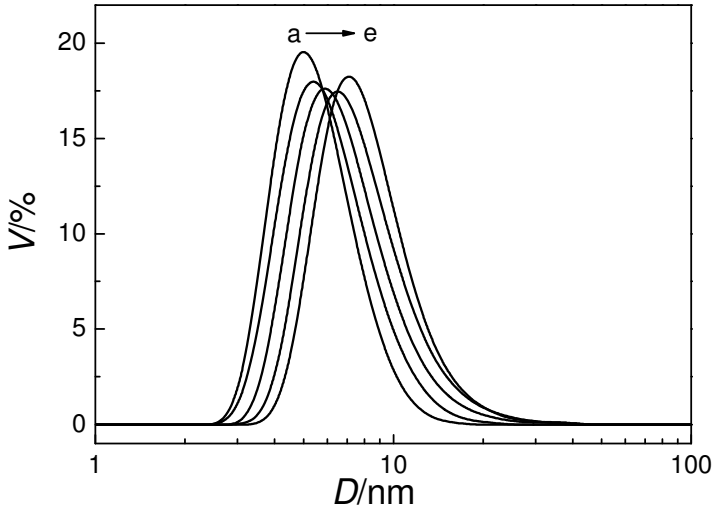

Figure S5. Variation of the size (diameter, *D*) and size distribution of the microemulsions by volume (*V*) with IL content (*R*) at W_0 = 15; *R*: (a) 0, (b) 0.15, (c) 0.37, (d) 0.61, (e) 0.92.

Table S1. Specific Conductivity (κ) of H_2O + TX-100 + Hexanol + Cyclohexane Microemulsions with the Mass Ratio of TX-100/Hexanol/Cyclohexane = 3:2:7 with Water Content (W_0) at Different Amount of IL bmimBF_4.

W_0	κ/μs·cm^{-1}	W_0	κ/μs·cm^{-1}	W_0	κ/μs·cm^{-1}	W_0	κ/μs·cm^{-1}
			$R = 0$				
4	0.087 ± 0.001	14	0.216 ± 0.002	24	0.348 ± 0.003	34	1.269 ± 0.008
6	0.163 ± 0.001	16	0.222 ± 0.001	26	0.440 ± 0.002	36	1.58 ± 0.02
8	0.194 ± 0.001	18	0.231 ± 0.002	28	0.572 ± 0.001	38	1.87 ± 0.02
10	0.207 ± 0.002	20	0.251 ± 0.002	30	0.772 ± 0.002	40	2.17 ± 0.03
12	0.212 ± 0.002	22	0.287 ± 0.002	32	0.985 ± 0.002	42	2.45 ± 0.04
			$R = 0.33$				
4	5.80 ± 0.03	12	13.96 ± 0.2	20	86.4 ± 0.9	28	284 ± 3
6	7.84 ± 0.02	14	19.9 ± 0.3	22	128.2 ± 1.8	30	341 ± 4
8	9.29 ± 0.04	16	31.9 ± 0.3	24	175.9 ± 1.9	32	399 ± 4
10	10.95 ± 0.11	18	53.7 ± 0.2	26	226 ± 3		
			$R = 0.63$				
4	12.76 ± 0.05	12	93.5 ± 1.6	20	349 ± 3	28	720 ± 2
6	23.8 ± 0.2	14	140 ± 1	22	432 ± 2	30	821 ± 3
8	38.5 ± 0.3	16	199 ± 3	24	525 ± 3	32	924 ± 5
10	60.5 ± 0.6	18	270 ± 2	26	621 ± 3		
			$R = 0.94$				
4	26.7 ± 0.2	12	245 ± 2	20	669 ± 2	28	1212 ± 4
6	59.4 ± 0.6	14	337 ± 4	22	797 ± 2	30	1350 ± 5
8	105.0 ± 0.4	16	439 ± 3	24	928 ± 2		
10	166.2 ± 0.8	18	550 ± 3	26	1068 ± 3		