Electronic Supplementary Material (ESI) for RSC Advances.

Photo-isomerization and light-modulated aggregation behavior of azobenzene-based ionic liquids in aqueous solutions

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^{1}H NMR spectrum of the azobenzene-based ionic liquids

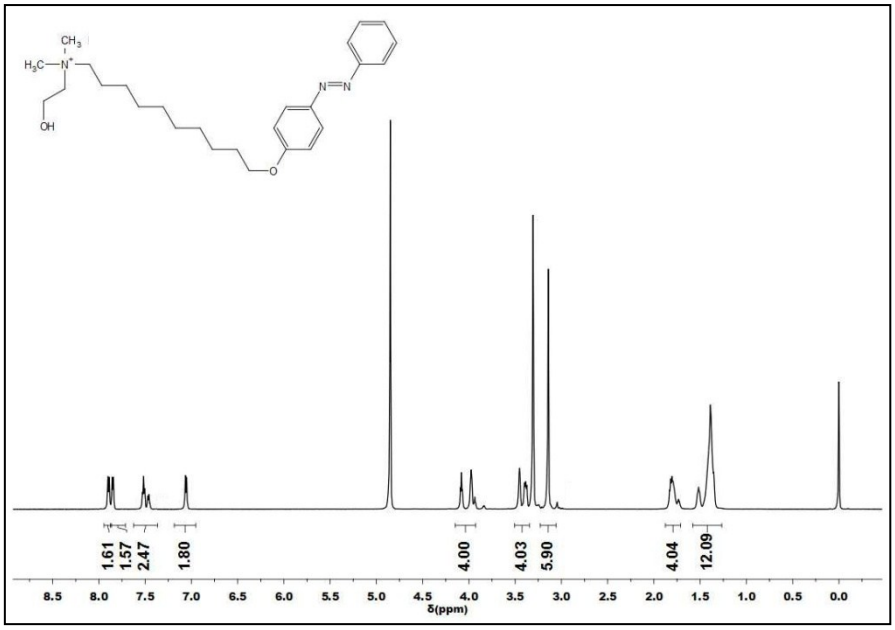

Figure S1. ^{1}H NMR spectrum of ChoC$_{10}$Azo

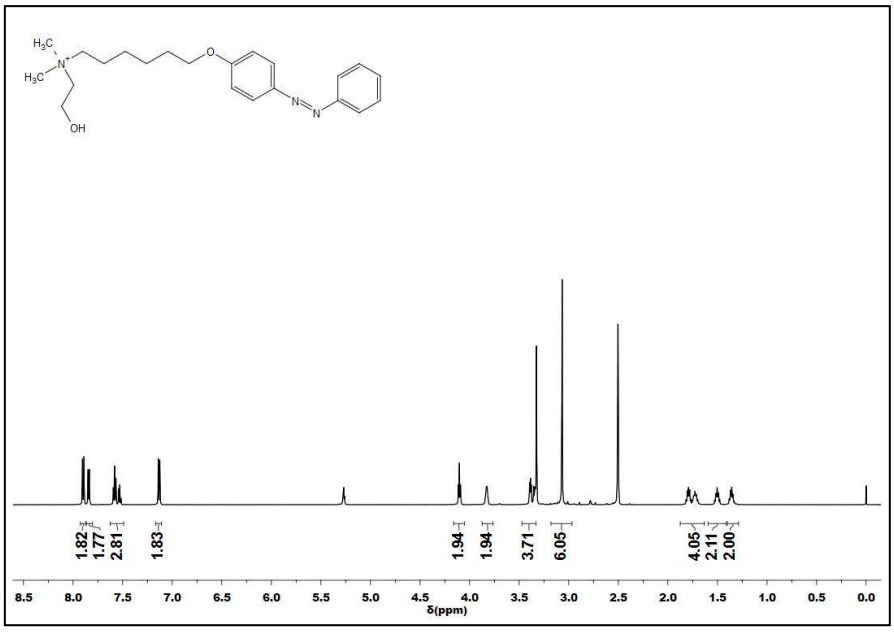

Figure S2. ^{1}H NMR spectrum of ChoC_6Azo

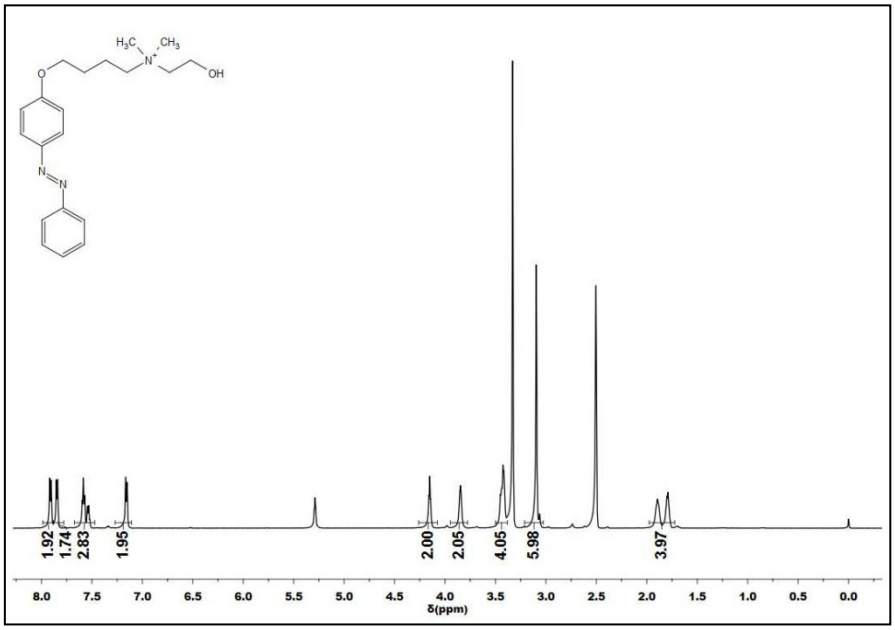

Figure S3. ^{1}H NMR spectrum of ChoC_4Azo

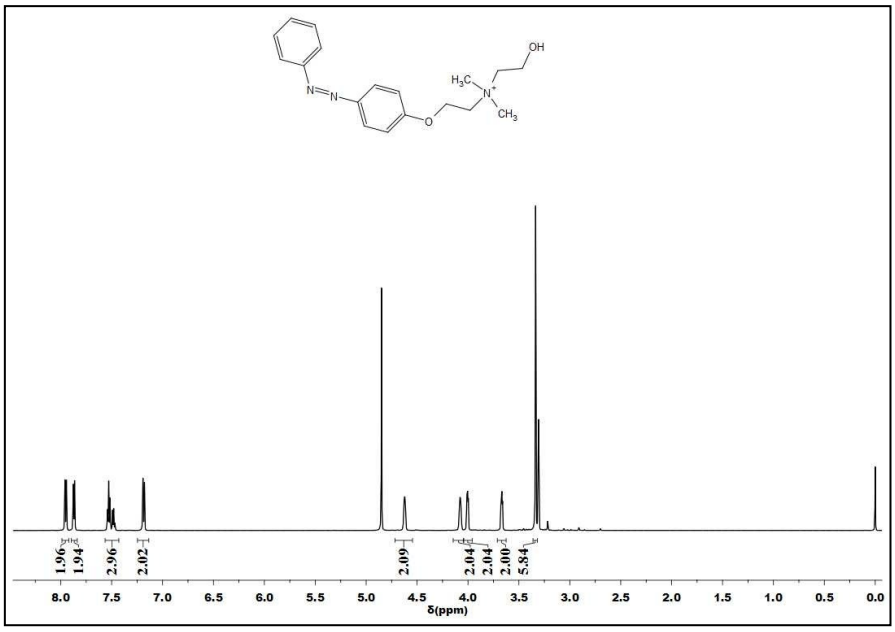

Figure S4. ^{1}H NMR spectrum of ChoC_2Azo

^{1}H NMR data of the azobenzene-based ionic liquids

1. ChoC_{10}Azo, ^{1}H NMR (400MHz, CD_3OD): δ = 8.04 (d, 2H), 7.87 (d, 2H), 7.65 (m, 3H), 7.15 (d, 2H), 4.17 (m, 4H), 3.54 (m, 4H), 3.23 (s, 6H), 1.89 (m, 4H), 1.61 (m, 12H) ppm.

2. ChoC_6Azo, ^{1}H NMR (400MHz, DMSO-d_6): δ = 7.93 (d, 2H), 7.87 (d, 2H), 7.62 (m, 3H), 7.17 (d, 2H), 4.16 (t, 2H), 3.87 (s, 2H), 3.41(m, 4H), 3.18 (s, 6H), 1.88 (m, 4H), 1.59 (m, 2H), 1.40 (m, 2H) ppm.

3. ChoC_4Azo, ^{1}H NMR (400MHz, DMSO-d_6): δ = 7.98 (d, 2H), 7.88 (d, 2H), 7.67 (m, 3H), 7.27 (d, 2H), 4.26 (t, 2H), 3.95 (s, 2H), 3.50(m, 4H), 3.21 (s, 6H), 1.98 (m, 4H) ppm.

4. ChoC_2Azo, ^{1}H NMR (400MHz, CD_3OD): δ = 7.99 (d, 2H), 7.90 (d, 2H), 7.56 (m, 3H), 7.25 (d, 2H), 4.72 (t, 2H), 4.15 (t, 2H), 4.05 (t, 2H), 3.71 (t, 2H), 3.36(s, 6H) ppm.

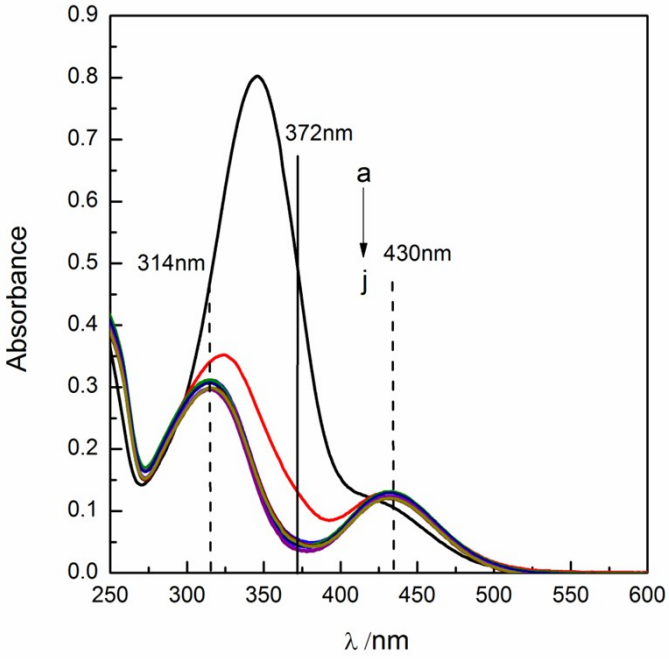

Figure S5. UV-vis spectra of aqueous solution of 0.055mM $ChoC_6Azo$ after different UV irradiation time at 25.0°C: a, initial state; b, 1s; c, 2s; d, 5s; e, 10s; f, 30s; g, 60s; h, 300s; i, 600s; j, 1800s.

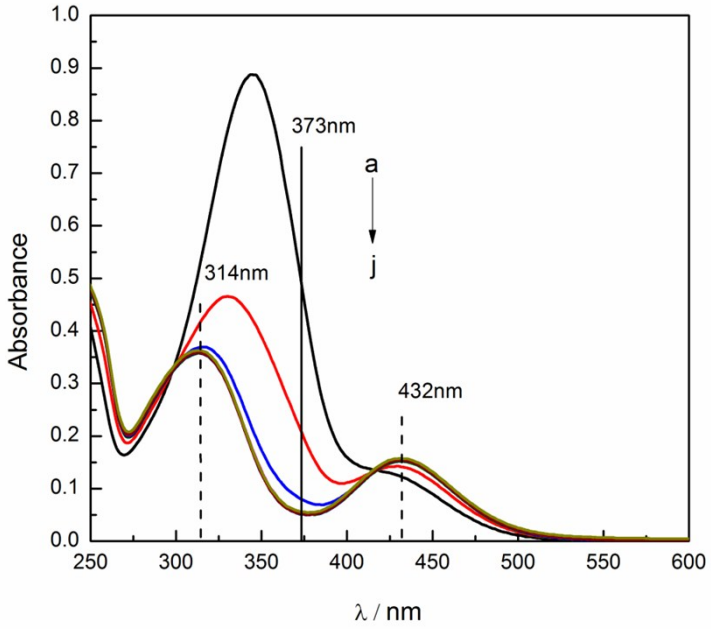

Figure S6. UV-vis spectra of aqueous solution of 0.055mM $ChoC_4Azo$ after different UV irradiation time at 25.0°C: a, initial state; b, 1s; c, 2s; d, 5s; e, 10s; f, 30s; g, 60s; h, 300s; i, 600s; j, 1800s.

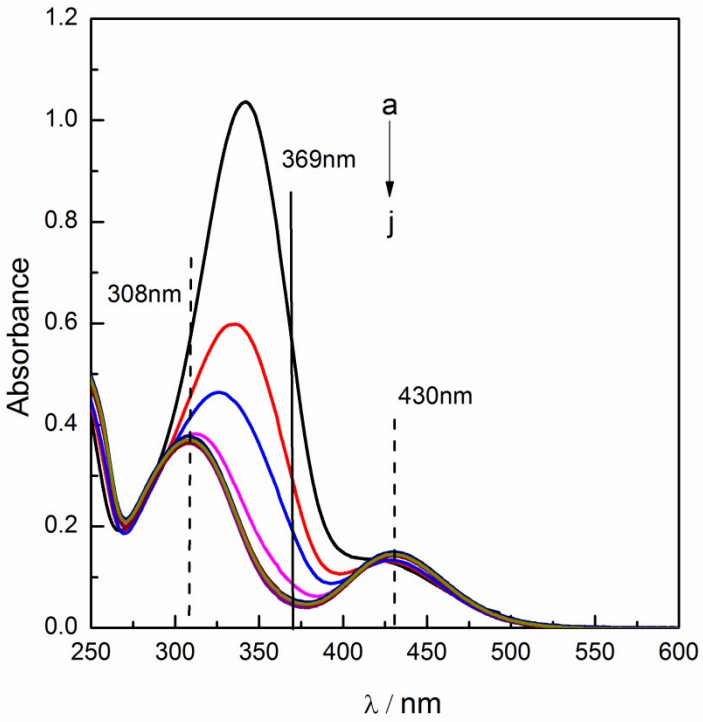

Figure S7. UV-vis spectra of aqueous solution of 0.055mM $ChoC_2Azo$ after different UV irradiation time at 25.0°C: a, initial state; b, 1s; c, 2s; d, 5s; e, 10s; f, 30s; g, 60s; h, 300s; i, 600s; j, 1800s.

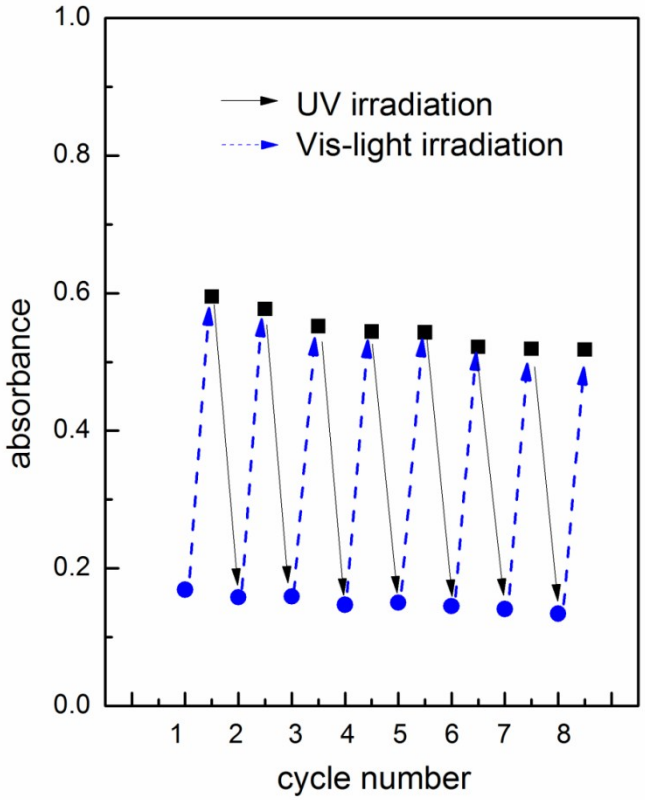

Figure S8. Changes of absorbance values at 344 nm for 8 cycles at 25.0°C.