Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary Information

Probing interactions of structurally similar but chemically distinguishable organic solutes with 1-ethyl-3-methylimidazolium alkylsulfate(alkyl = ethyl, hexyl and octyl) ionic liquids through fluorescence, NMR and Fluorescence Correlation Spectroscopy (FCS) study

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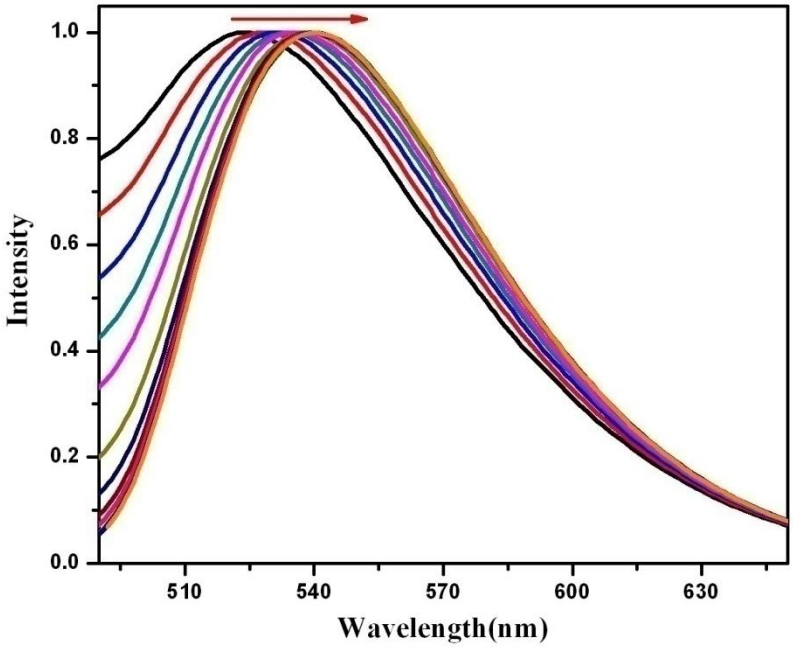

Fig. S1. Normalized excitation wavelength dependent Emission Spectra of HNBD λexc = 390-490 nm in EMIM-ES.

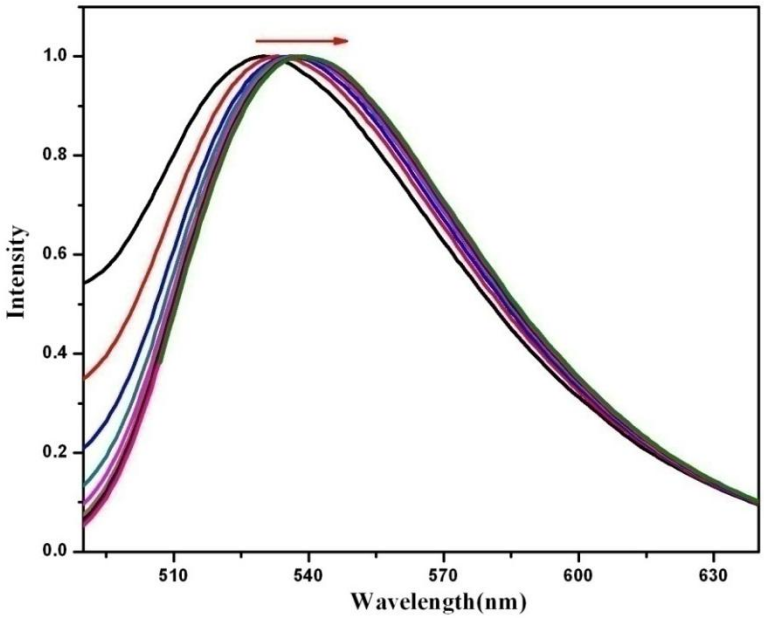

Fig. S2. Normalized excitation dependent Emission Spectra of HNBD λexc = 390-490 nm in EMIM-OS.

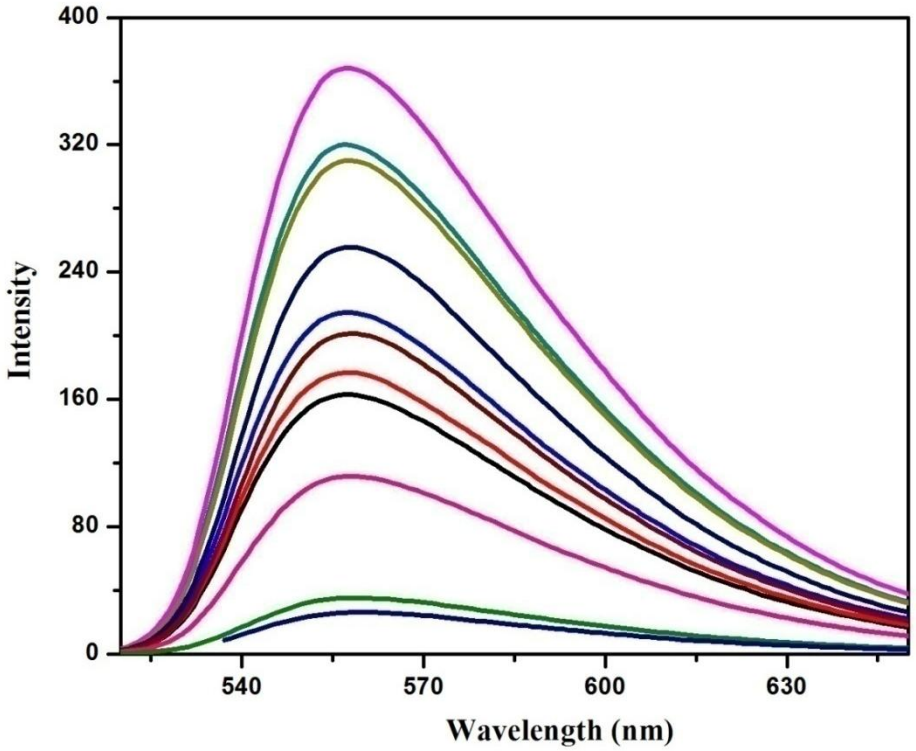

Fig. S3. Excitation wavelength dependent Emission Spectra of AND λexc = 390-490 nm in EMIM-ES.

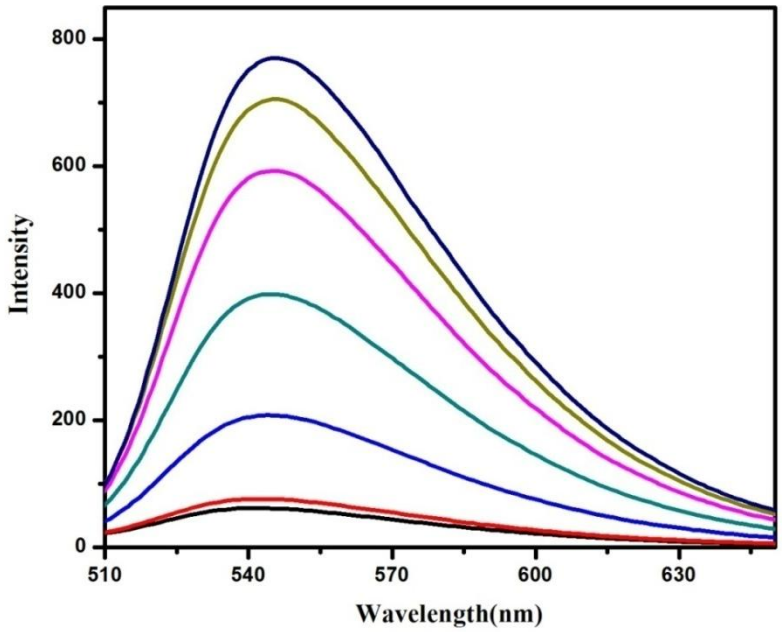

Fig. S4. Excitation wavelength dependent Emission Spectra of ANBD λexc = 390-490 nm in EMIM-OS.

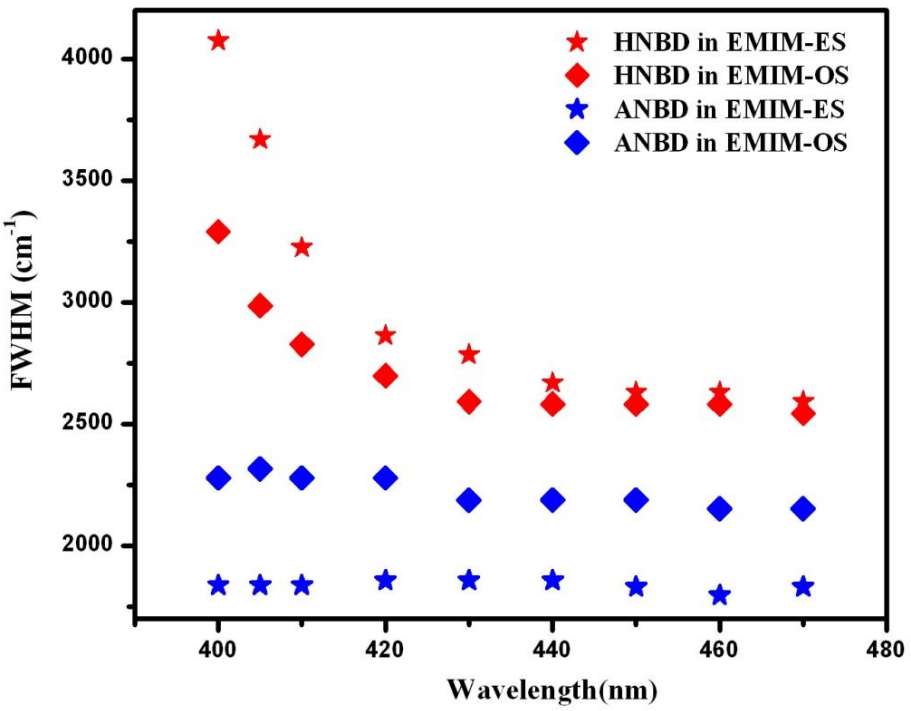

Fig. S5. Change of FWHM values of the excitation wavelength dependent emission spectra of HNBD and ANBD in EMM-ES and EMIM-OS.

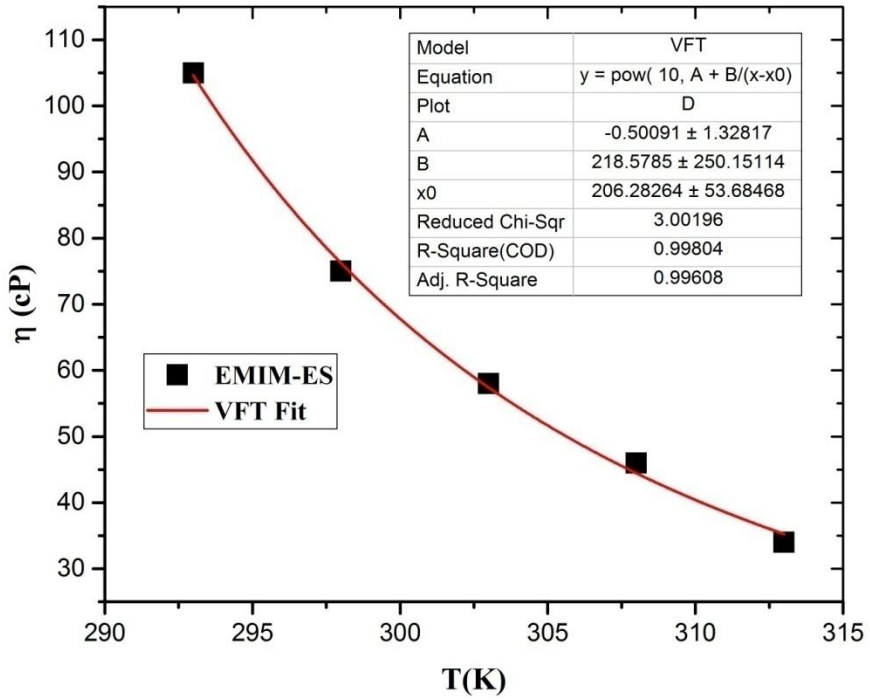

Fig. S6. Variation of the bulk viscosity of neat EMIM-ES with temperatures and fitting with VFT equation.

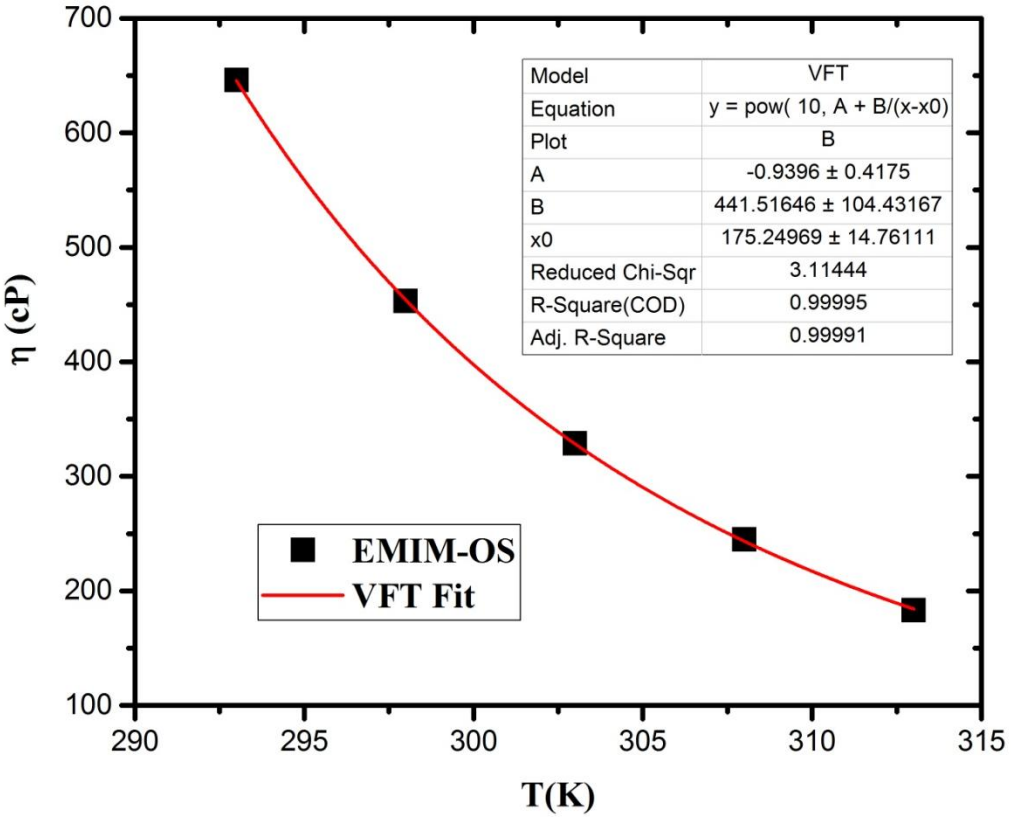

Fig. S7. Variation of the bulk viscosity of neat EMIM-OS with temperatures and fitting with VFT equation.

Table S1. Reorientation times (τ_r) of ANBD in BIMIMFAP and HIMIMFAP at different temperatures (λ_{exc} = 405).

Systems	Temp (K)	Bulk viscosity (cP)	τ_r(ns)	$C_{rot} = \tau_r^{exp}/\tau_r^{stk}$
BIMIMFAP	293	93.4±1.86	3.75±0.18	0.72
	298	72.3±1.44	3.08±0.15	0.78
	303	57.4±1.14	2.51±0.12	0.82
HIMIMFAP	293	112.7±2.25	4.48±0.22	0.71
	298	86.7±1.73	3.70±0.18	0.78
	303	67.9±1.35	2.90±0.14	0.80

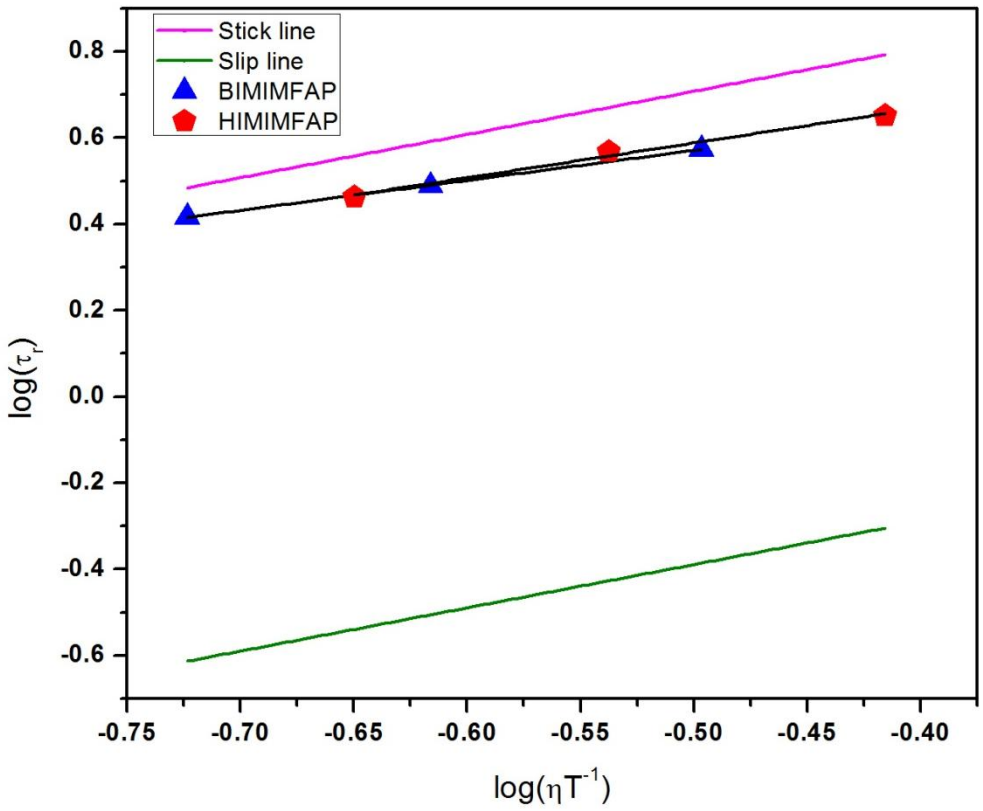

Fig. S8. log(τ_r) vs log(η/T) plot of ANBD in BIMIM with stick and slip boundary condition limit. The black line indicates the fitting parameters to the data point.

Table S2. Reorientation times (τ_r) of HNBD in BIMIMFAP and HIMIMFAP at different temperatures (λ_{exc} = 405).

Systems	Temp (K)	Bulk viscosity (cP)	τ_r(ns)	$C_{rot}= \tau_r^{exp}/\tau_r^{stk}$
BIMIMFAP	293	93.4±1.86	3.88±0.19	1.20
	298	72.3±1.44	3.24±0.16	1.32
	303	57.4±1.14	2.65±0.13	1.38
HIMIMFAP	293	112.7±2.25	3.44±0.17	0.88
	298	86.7±1.73	2.78±0.13	0.94
	303	67.9±1.35	2.36±0.11	1.02

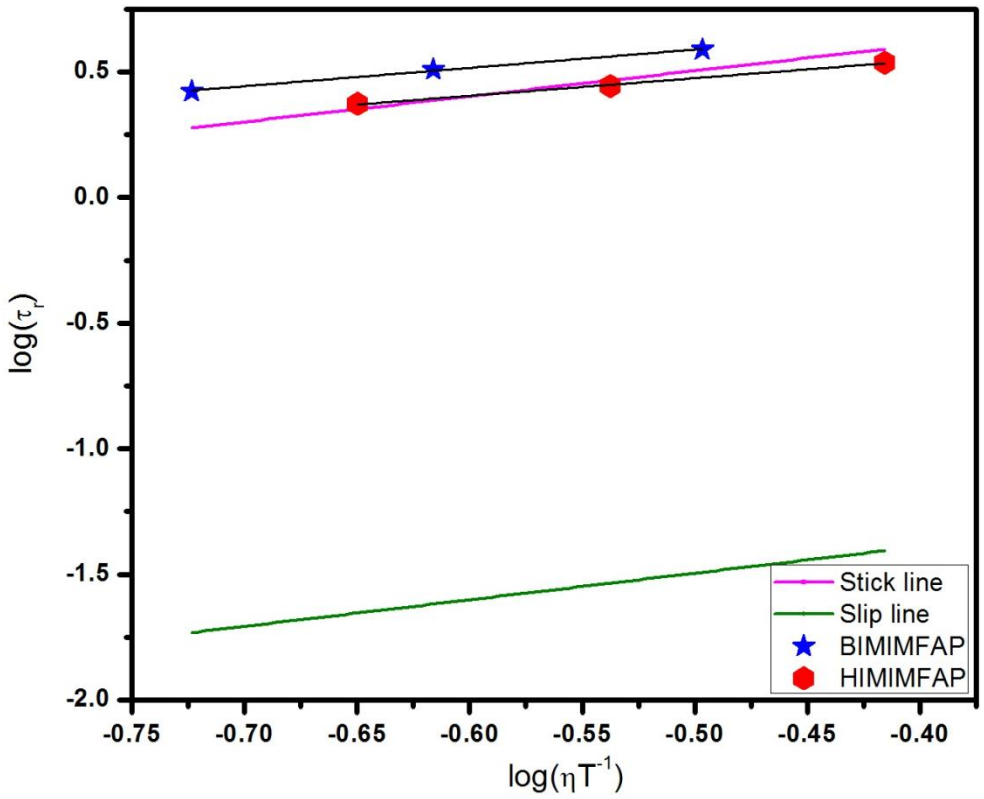

Fig. S9. log(τ_r) vs log(η/T) plot of ANBD in BIMIM with stick and slip boundary condition limit. The black line indicates the fitting parameters to the data point.

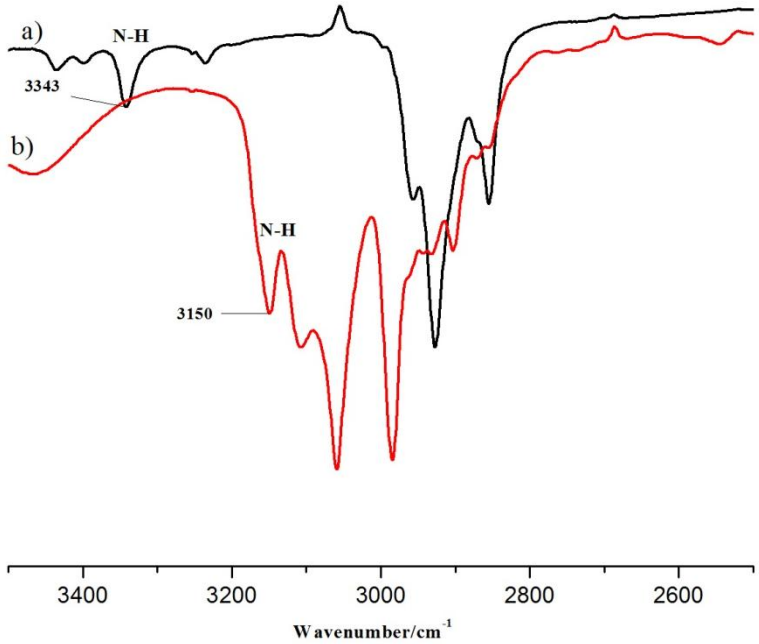

Fig. S10. Zoomed in IR spectrum of HNBD (a) HNBD (b) HNBD in presence of EMIM-ES.