

Supporting Information

Photophysics of Lumichrome in Anionic and Cationic Micellar Media

Media

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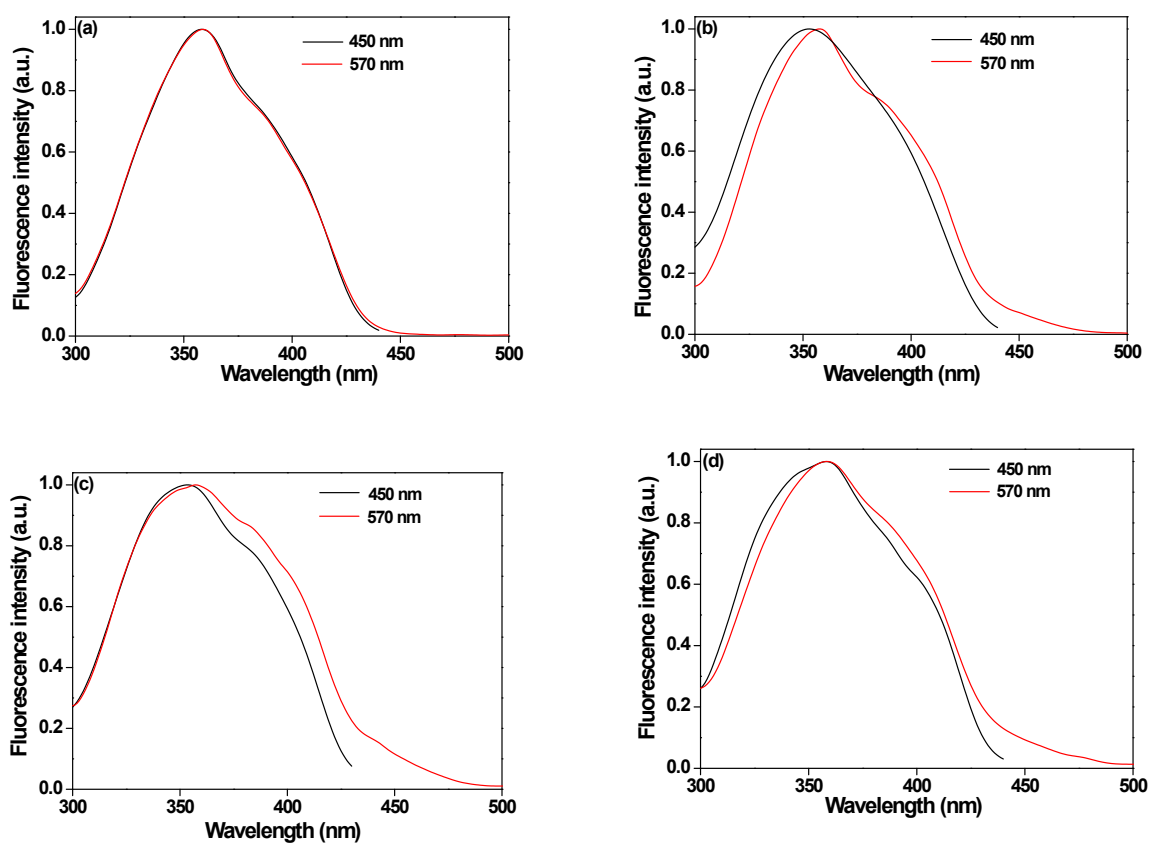


Fig. S1. The fluorescence excitation spectra of LCM in (a) pure water, (b) SDS, (c) DTAB and (d) MTAB micelles. The observation wavelengths were at 450 nm (black) and 570 nm (red).

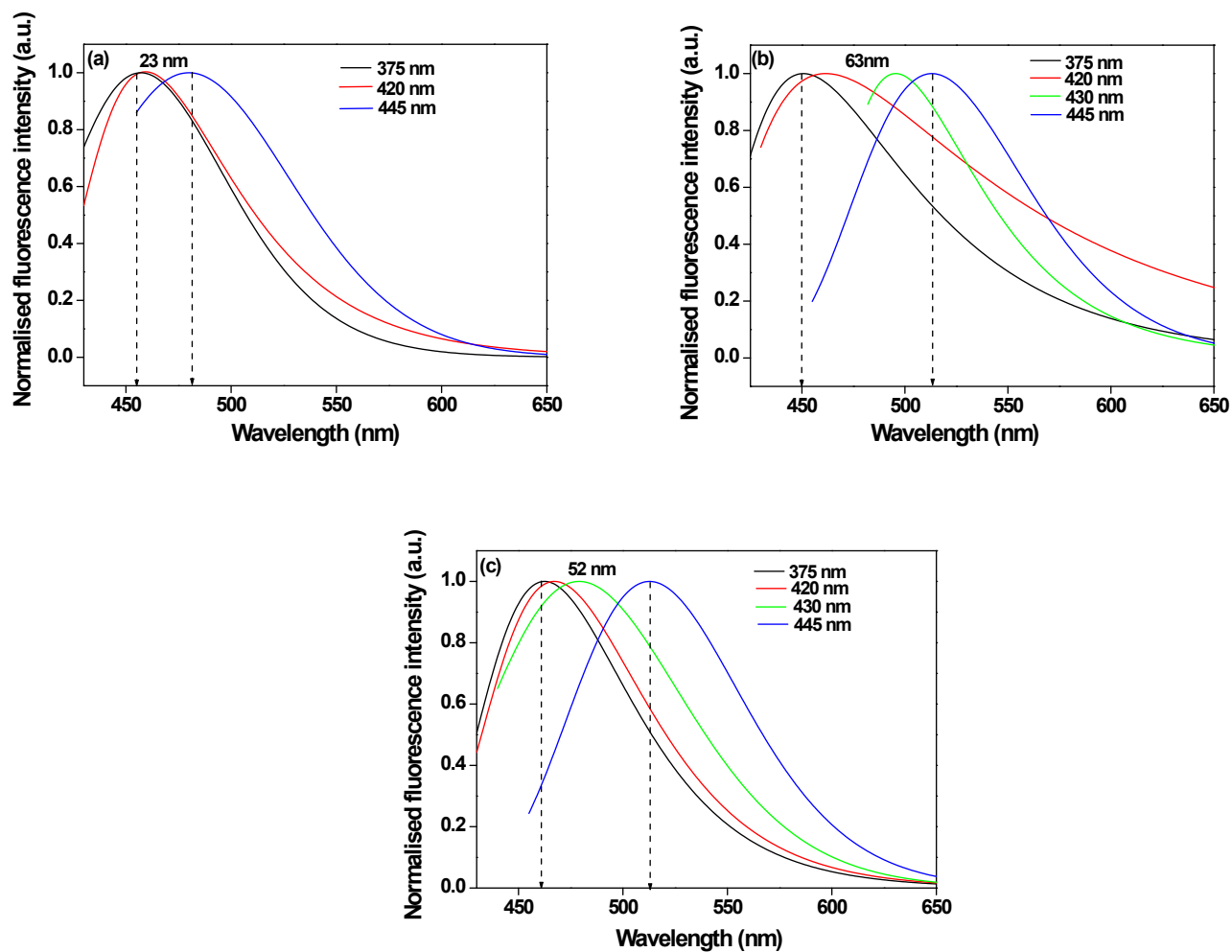


Fig. S2. The excitation wavelength dependent emission shift of LCM in the presence of (a) SDS, (b) DTAB and (c) MTAB micelles ($\lambda_{\text{exi}} = 375$ to 445 nm).

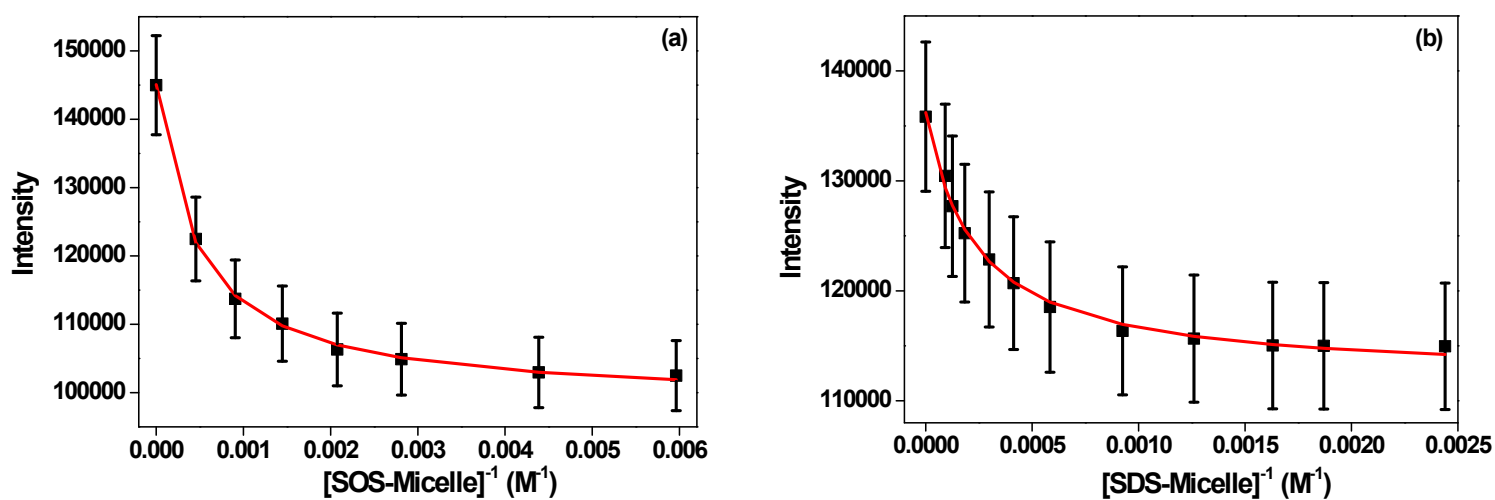


Fig. S3. The plot of fluorescence intensity against [Micelle] in (a) SOS and (b) SDS micelles.

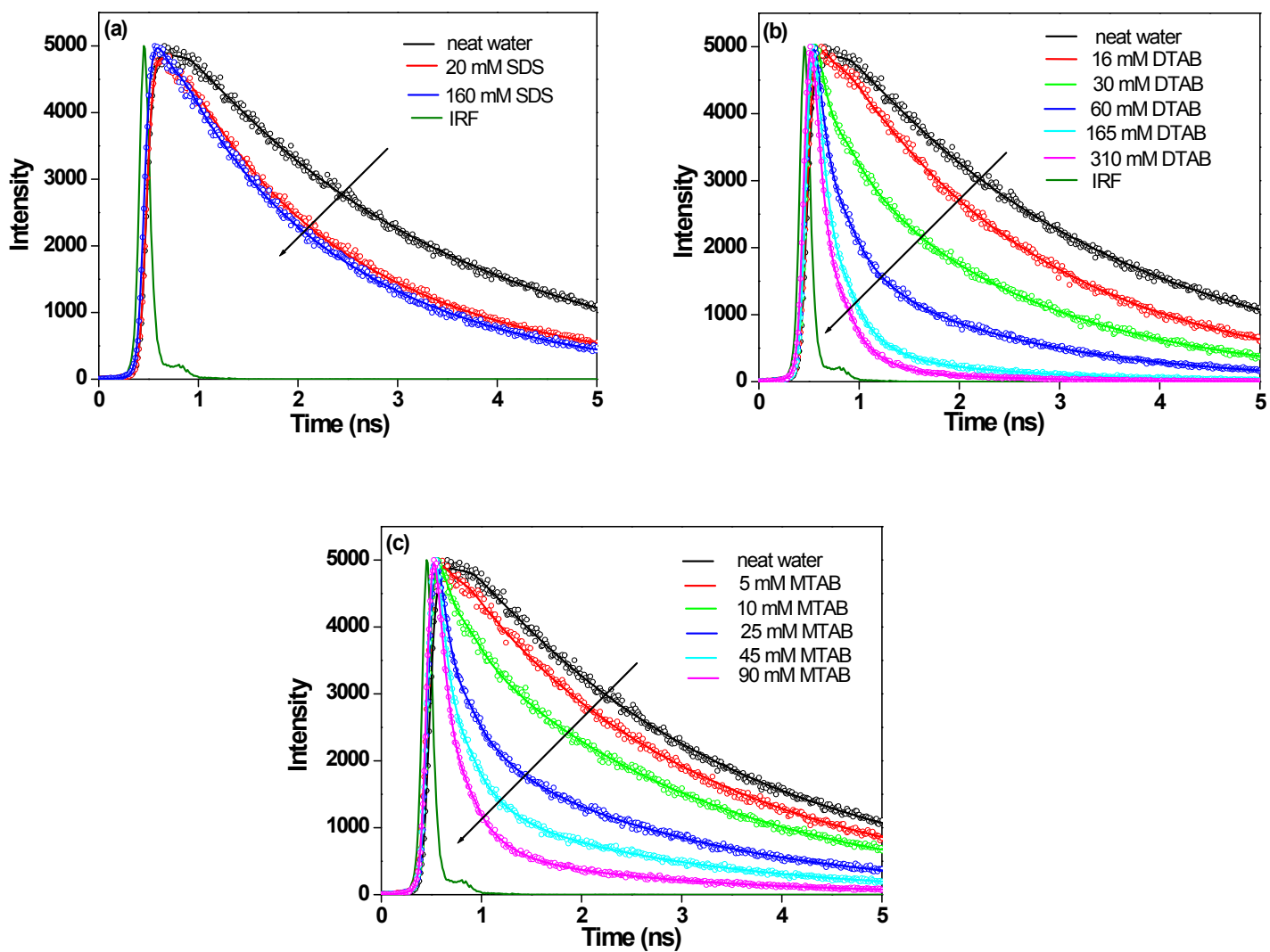


Fig. S4. The time resolved fluorescence emission decays of LCM with gradual addition of (a) SDS, (b) DTAB and (c) MTAB micelles, beyond their respective CMC values ($\lambda_{\text{exi}} = 375$ nm).

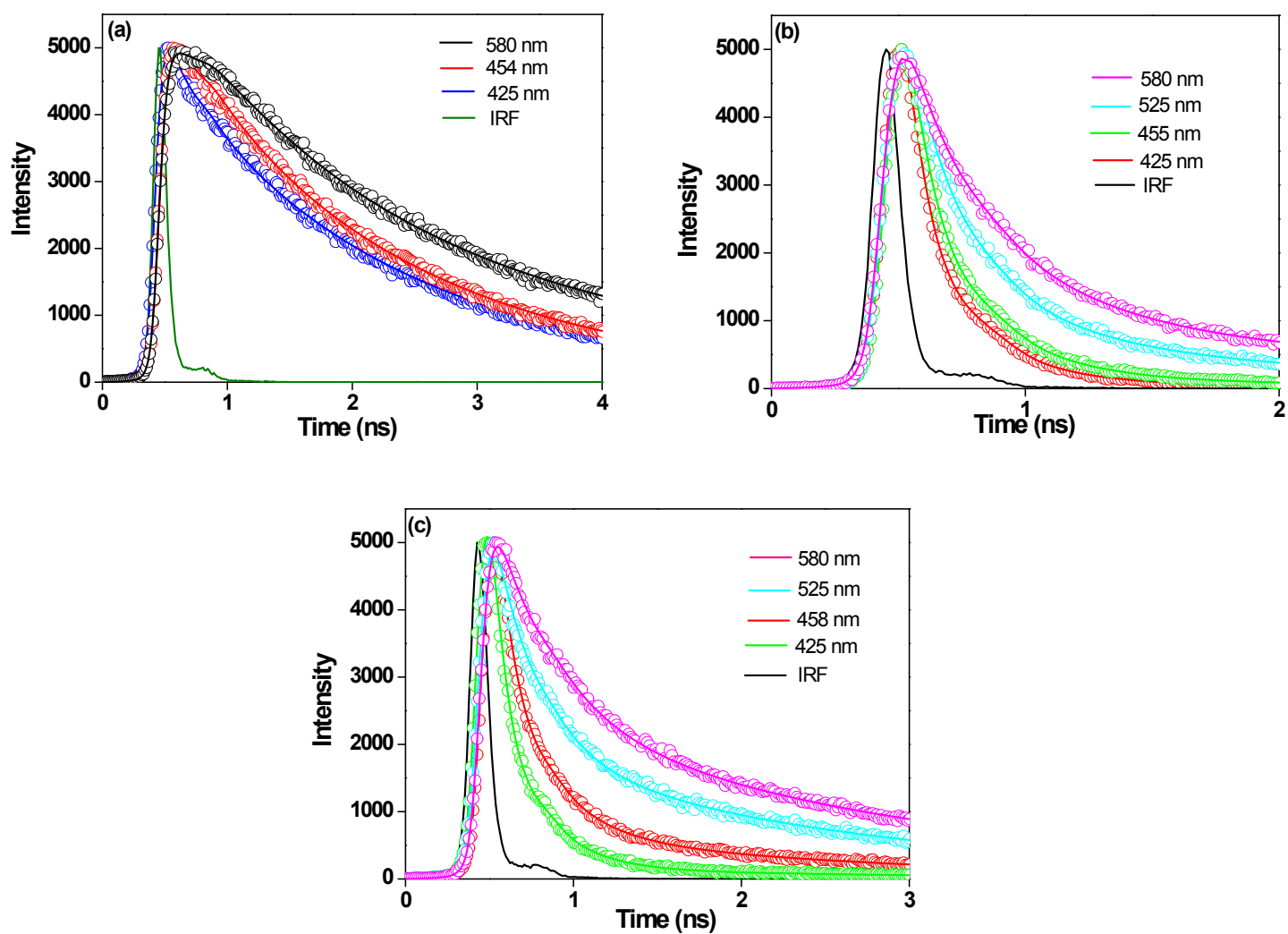


Fig. S5. The emission wavelength dependent fluorescence emission decays of LCM in (a) SDS, (b) DTAB and (c) MTAB micelles.

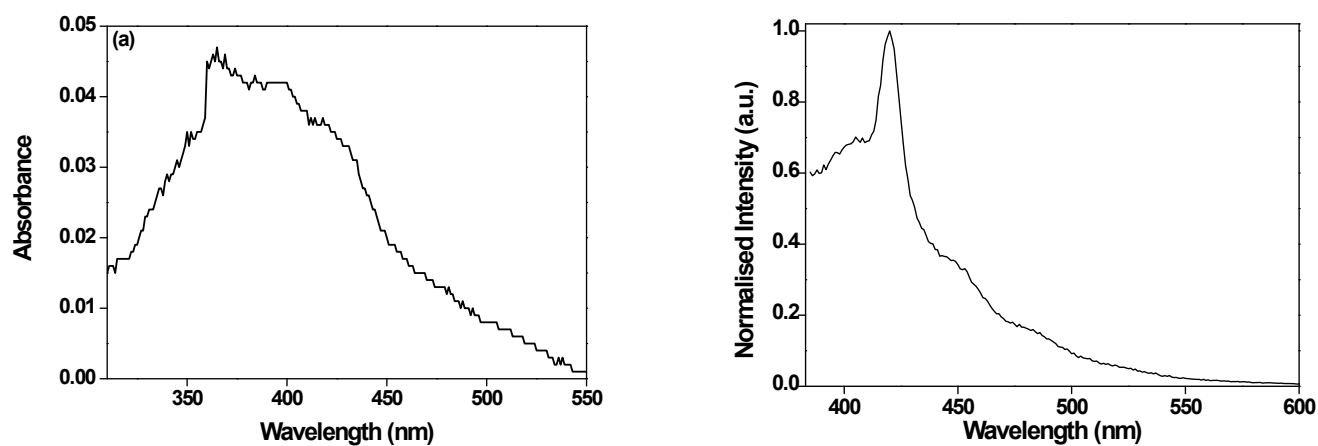


Fig. S6. (a) The absorption and (b) emission spectra of LCM in isooctane.

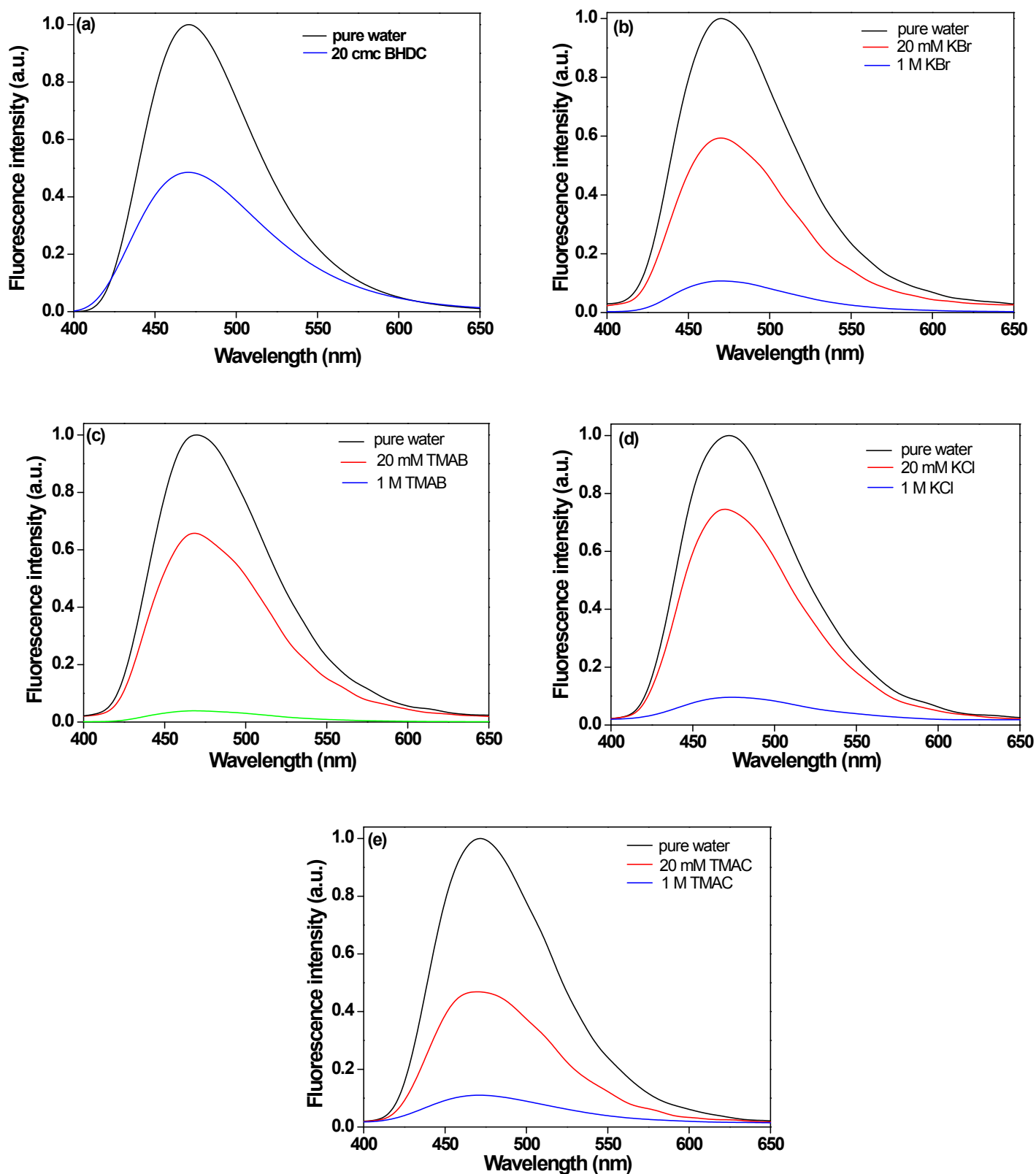


Fig. S7. The emission spectral profile of LCM ($\lambda_{\text{exi}} = 375$ nm) in (a) BHDC micelles and in presence of (b) KBr, (c) TMAB, (d) KCl and (e) TMAC salts.

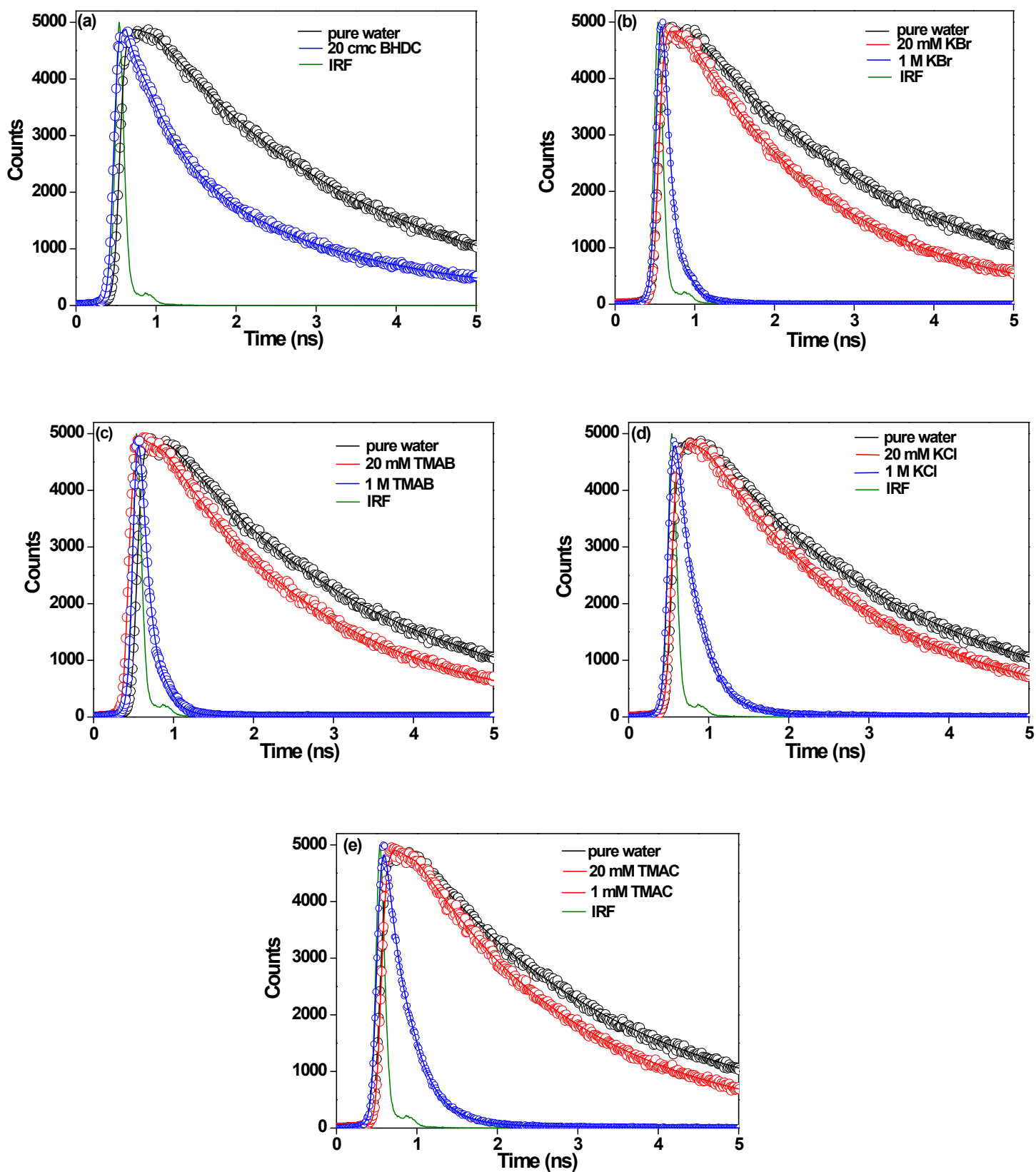


Fig. S8. The time resolved fluorescence emission decays of LCM in (a) BHDC micelles and in presence of (b) KBr, (c) TMAB, (d) KCl and (e) TMAC salts.

Table S1 The fluorescence lifetime components of LCM in presence of BHDC micelles and in different salts ($\lambda_{\text{exi}} = 375 \text{ nm}$, $\lambda_{\text{emi}} = 470 \text{ nm}$).

Medium	τ_1 (ns)	a_1	τ_2 (ns)	a_2	τ_3 (ns)	a_3	$\langle \tau_f \rangle$ (ns)	χ^2
LCM in pure water					2.700	1.000	2.700	1.084
LCM in BHDC micelles ^{a,b} (20 CMC)	0.200	0.340	0.670	0.350	2.630	0.310	1.110	1.030
LCM in 20 mM KBr					1.900	1.000	1.900	1.050
LCM in 1M KBr	0.090	0.990			0.470	0.010	0.090	1.040
LCM in 20 mM TMAB					2.050	1.000	2.050	1.100
LCM in 1M TMAB	0.110	0.990			0.710	0.001	0.116	1.286
LCM in 20 mM KCl					2.13	1.00	2.130	0.99
LCM in 1M KCl	0.220	0.985			1.47	0.015	0.240	1.097
LCM in 20 mM TMAC					2.06	1.00	2.06	1.00
LCM in 1M TMAC	0.260	0.984			1.47	0.016	0.280	1.080

^aCMC of BHDC = 0.49 mM^b

^bZ. Grenoble and S. Baldelli, *J. Phys. Chem. B* 2013, **117**, 259.