Electronic Supporting information

A Sensitive AIEE Probe for Amphiphilic Compounds

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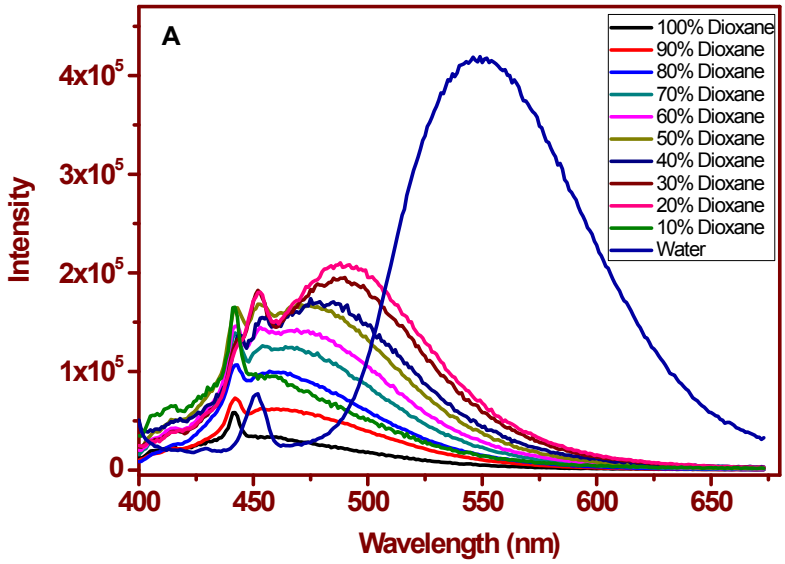


Figure S1. Aggregation induced enhanced emission of Stilbene-1 as examined using dioxane-water binary mixture. (This figure was earlier published from our group in New Journal of Chemistry 38 (2014) 5736-5746 and is included for reader benefit)

Table S1: Crystal data and structure refinement for stilbene **(1)**

Identification code	EXP2
Empirical formula	C17 H16 N2 O
Formula weight	264.32
Temperature	293(2) K
Wavelength	1.54184 Å
Crystal system	Orthorhombic
Space group	Pnma
Unit cell dimensions	a = 16.9790(10) Å,α= 90°.
	b = 10.3445(9) Å,β= 90°.
	c = 15.9847(10) Å,γ=90°.
Volume	2807.5(3) $Å^3$
Z	8
Density (calculated)	1.251 Mg/m^3
Absorption coefficient	0.624 mm^{-1}
F(000)	1120
Crystal size	0.5 x 0.2 x 0.3 mm^3
Theta range for data collection	3.798 to 65.970°.
Index ranges	-20<=h<=19, -12<=k<=8, -18<=l<=16
Reflections collected	6681
Independent reflections	3479 [R(int) = 0.0396]
Completeness to theta = 65.970°	99.0 %
Refinement method	Full-matrix least-squares on F^2
Data / restraints / parameters	3479 / 1 / 369
Goodness-of-fit on F^2	1.130
Final R indices [I>2sigma(I)]	R1 = 0.0566, wR2 = 0.1344
R indices (all data)	R1 = 0.0609, wR2 = 0.1407
Absolute structure parameter	-0.3(5)
Extinction coefficient	0.0052(6)
Largest diff. peak and hole	0.270 and -0.301 $e.Å^{-3}$
CCDC number	1031951

Intermolecular H-bonding interaction table:

Donor-Hydrogen...Acceptor	Don-Hyd [Å]	Hyd-Acc [Å]	Don-Acc [Å]	D-H…A [o]
O18-H18...N20A	0.82	2.04	2.836	163.4°

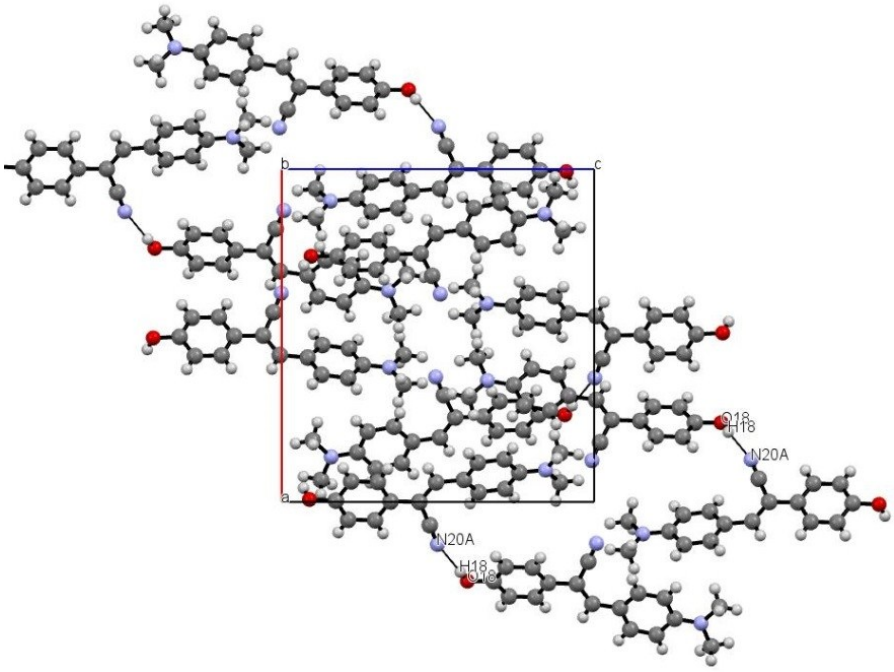


Figure S2. Packing diagram of stilbene (**1)** showing the crystallographic symmetry molecules with the glide plane and 2_1 screw axis along the symmetric equivalent positions a) 1/2+x,y,1/2-z "Glide plane perpendicular to [0, 0, 1] with glide component [1/2, 0, 0]"; b) 1/2-x,1/2+y,1/2+z "Glide plane perpendicular to [1, 0, 0] with glide component [0, 1/2, 1/2]"; c) -x,1/2+y,-z "2-fold screw axis with direction [0, 1, 0] at 0, y, 0 with screw component [0, 1/2, 0]". The dotted lines indicate intermolecular contacts.

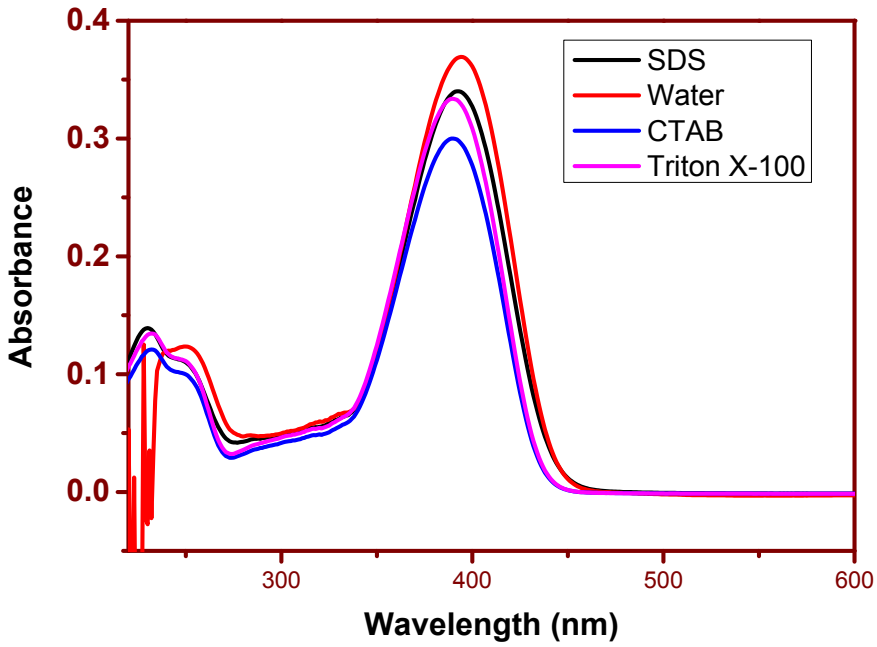


Figure S3: Absorption spectra of stilbene (**1)** in SDS (1 x 10^{-3}M); Triton X-100 (5 x10^{-5}M) and CTAB (2 x10^{-4}M)

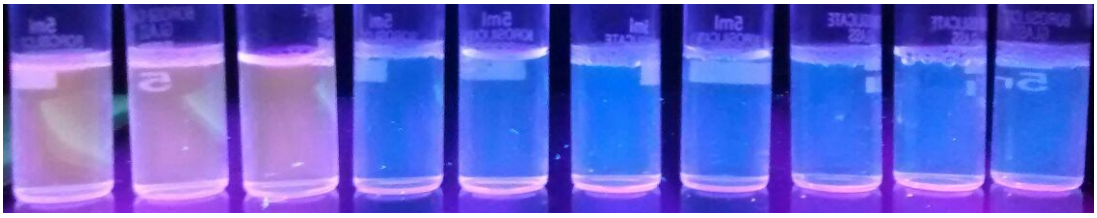


Figure S4: Color changes as observed using hand-held UV lamp. Clear demarcation is only seen when the micelles are formed. At above or below the CMC, the colours are uniform.

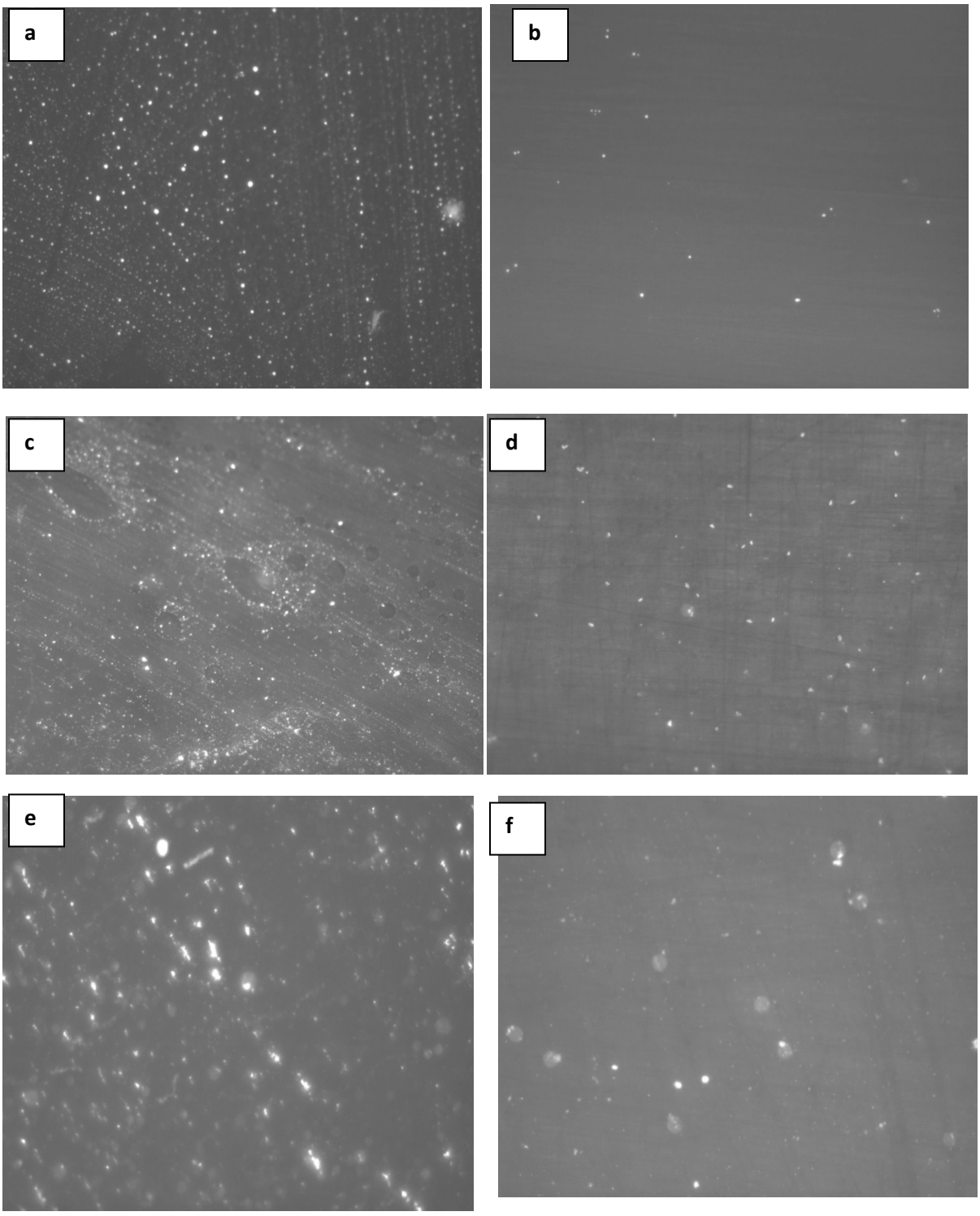
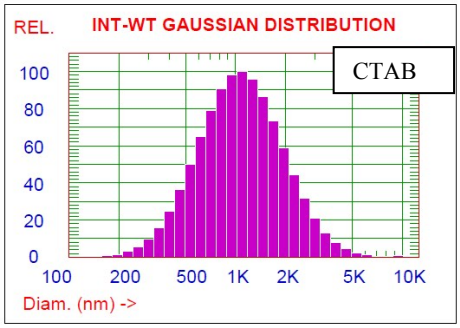
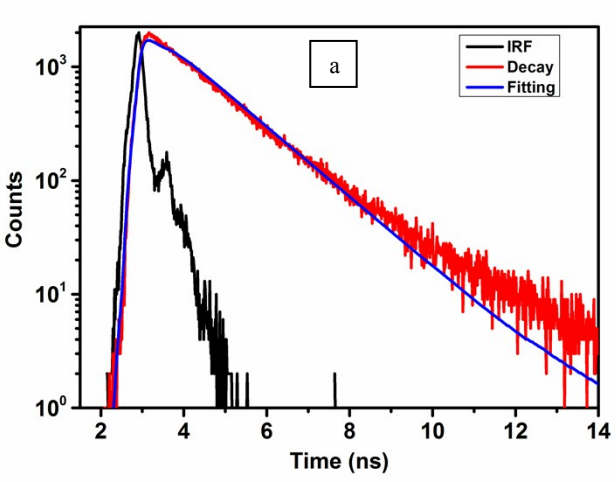


Figure S5. Fluorescence microscope images of stilbene (**1)** in SDS a) 1 x 10^{-3}M b) 15 x 10^{-3}M; Triton X-100 c) (5 x10^{-5}M) d) 7 x 10^{-4}M; CTAB e) 2 x10^{-4}f) 15 x $10^{-4.}$ The observed intensity changes are SDS (94 to 50), CTAB (73 to 60) and in Triton X-100 (93 to 46)].



Surfactant	Particle Size Below CMC (nm)	Particle Size Above CMC (nm)
SDS	354	35188.6
Triton X-100	274.3	1793.5
CTAB	1266.3	42558.8
In Distilled Water =2234.1nm		

Figure S6. Particle size distribution of stilbene (**1**) in surfactants at below CMC and in water below CMC.



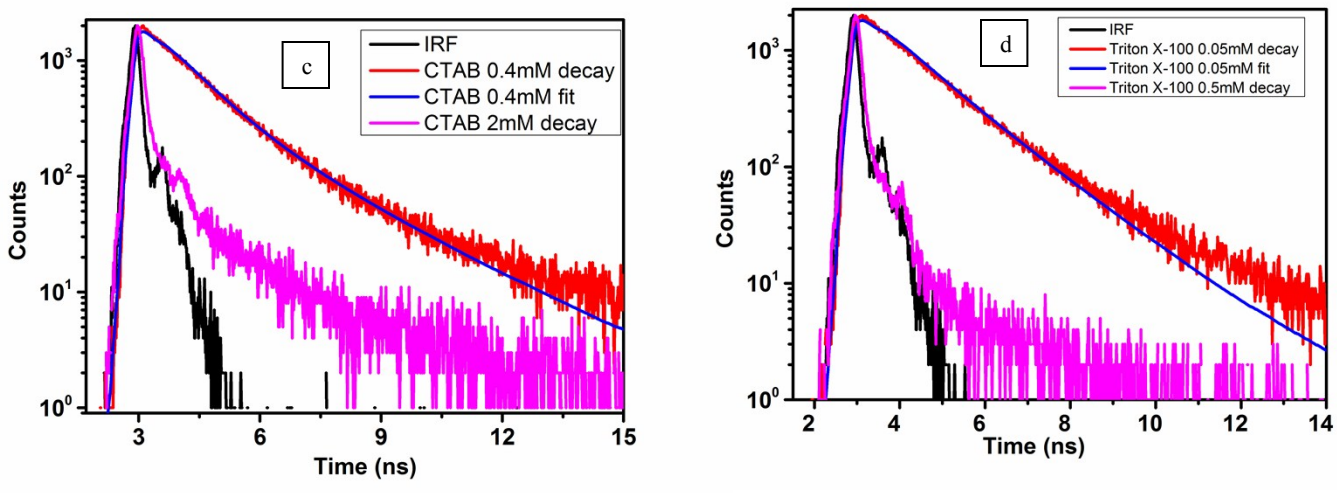


Figure S7. Decay profile of stilbene **(1) a)** in water, **b)** SDS, **c)** CTAB and **d)** Triton X-100

Table S2: Fluorescence lifetime data of stilbene in water and surfactant media

Media	**τ_1 (ns)**	**τ_2 (ns)**	**χ^2**
Water	1.40		1.075
SDS (2 mM)	0.95 (42.40%)	2.03 (57.60%)	1.013
CTAB (0.4 mM)	0.95 (58.87%)	2.40 (41.13%)	1.005
Triton X-100 (0.05 mM)	0.92 (32.15%)	1.65 (67.85%)	1.061