

## List of Abbreviations and Symbols:

Aggregation number	$N_{agg}$
Alkyl chain length	$m$
Apparent dielectric constant	$\epsilon_a$
Apparent solubility of organic compound at the cmc	$S_{CMC}$
Apparent solubility of organic compounds at the particular surfactant concentration	$S_a$
Area per molecule at the interface	$A_{min}$
Avogadro's number	$N_A$
Butane-1,4-diyl bis(N,N-dimethyl-N-hexadecyl-ammonium) dibromide	16-4-16
Butanediyl-1,4-bis(N,N-dimethyl-N-dodecyl-ammonium) dibromide	12-4-12
Butanediyl-1,4-bis(N,N-dimethyl-N-tetradecyl-ammonium) dibromide	14-4-14
Chemical shift value in NMR	$\delta$
Chloroform	$CHCl_3$
Compensation temperature (solute-solute and solute-solvent interaction)	$T_c$
Correlation coefficient	$R$
Concentration	[ ]
Critical aggregation concentration	$cac$
Critical micelle concentration	cmc
cmc minimum	$cmc_m$
cmc expressed in mole fraction unit	$X_{cmc}$
Degree of counter-ion binding	$\beta$
Degree of micellar ionization	$\alpha$
Deuterium oxide	$D_2O$
Dichloromethane	DCM
D-isosorbate-1,4-diyl bis(N,N-dimethyl-N-dodecyl-ammonium acetoxy) dichloride	12-Isb-12
D-isosorbate-1,4-diyl bis(N,N-dimethyl-N-hexadecyl-ammonium acetoxy) dichloride	16-Isb-16
D-isosorbate-1,4-diyl bis(N,N-dimethyl-N-tetradecyl-ammonium acetoxy) dichloride	14-Isb-14
Dodecyltrimethylammonium bromide	DTAB
Electron spray ionization mass spectroscopy	ESI-MS
Ethane-1,2-diyl bis(N,N-dimethyl-N-dodecyl-ammonium acetoamide) dichloride	12-Eda-12
Ethane-1,2-diyl bis(N,N-dimethyl-N-dodecyl-ammonium acetoxy) dichloride	12-Eg-12
Ethane-1,2-diyl bis(N,N-dimethyl-N-hexadecyl-ammonium acetoamide) dichloride	16-Eda-16

Ethane-1,2-diyl bis(N,N-dimethyl-N-hexadecyl-ammonium acetoxo) dichloride	16-Eg-16
Ethane-1,2-diyl bis(N,N-dimethyl-N-tetradecyl-ammonium acetoamide) dichloride	14-Eda-14
Ethane-1,2-diyl bis(N,N-dimethyl-N-tetradecyl-ammonium acetoxo) dichloride	14-Eg-14
Fluorescence intensities of pyrene in the absence ( $I_0$ ) and presence ( $I_Q$ ) of the quencher	$I_0/I_Q$
Fourier transform infrared spectroscopy	FT-IR
Half maximal inhibitory concentration value	$IC_{50}$
Hexadecyltrimethylammonium bromide	CTAB
Human cloned enhanced green fluorescence plasmid DNA	pEGFP-N1
Human lung cancer cell	A549
Human lung normal cell	L132
Hydrodynamic diameter	$D_h$
Ideal gas constant	$R$
Intercept (solute-solute and solute-solvent interaction)	$\Delta H^*_{mic}$
Krafft temperature	$T_k$
Mass fraction of ethylene glycol	$\phi_{EG}$
Maximum surface excess concentration	$\Gamma_{max}$
Micelle to vesicle transition	MVT
Micelle-water partition coefficient	$K_m$
Molar concentration of the quencher	$C_q$
Molar concentrations of the micellar concentration	$C_m$
Molar concentrations of the total surfactant concentration	$C_s$
Molar extinction coefficient	$\epsilon$
Molar solubilization ratio	MSR
Molar volume of water	$V_m$
Mole fraction of sodium chloride	$X_{NaCl}$
Mole fraction of sodium salicylate	$X_{NaSal}$
Nitrogen	$N_2$
Non-negatively constrained least-squares	NNLS
Nuclear Magnetic Resonance	NMR
Onset degradation temperature	$T_{onset}$
Phosphoric acid, $P,P'$ -1,4-butanediyl $P,P'$ -ditetradecyl ester, disodium salt	12-4-12-A
Polarized optical microscope	POM
Polycyclic aromatic hydrocarbon	PAH
Polydispersity index	PDI
Potassium chloride	KCl
Ratio of first and third vibrational peak of fluorescence spectra of pyrene	$I_1/I_3$
ratio of the fluorescence intensity of the excimer to the monomer	$I_E/I_M$
Retention time	$R_T$

Size distribution	SD
Sodium Salicylate	NaSal
Spacer	<i>s</i>
Specific conductance	$\kappa$
Specific optical rotation	$[\alpha]_{30}^D$
Standard enthalpy of micellization	$\Delta H_{mic}^0$
Standard entropy of micellization	$\Delta S_{mic}^0$
Standard Gibbs free energy of micellization	$\Delta G_{mic}^0$
Standard Gibbs free energy of solubilization	$\Delta G_s^0$
Start to onset degradation temperature ratio	$T_{s/o}$
Starting degradation temperature	$T_{start}$
Stern-Volmer constant	$K_{sv}$
Surface pressure at the cmc	$\pi_{cmc}$
Surface tension at cmc	$\gamma_{cmc}$
Surface tension of water	$\gamma_0$
Surfactant concentration required to reduce the surface tension of water 20 mN/m	$C_{20}$
Temperature	$T$
Temperature minimum at $cmc_m$	$T_m$
Tetradecyltrimethylammonium bromide	TTAB
Thermal gravimetric analyzer	TGA
Transition electron microscope	TEM
Two dimensional nuclear over-hauser enhancement	2D NOESY
Intensity	$I_F$
Vesicle to micelle transition	VMT
Wavelength of maximum absorbance	$\lambda_{max}$
Zeta-potential	$\zeta$
3-(4, 5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide	MTT