Supporting Information

Nanocavity Effect On Photophysical Properties Of Colchicine: A proof by Circular Dichromism study and Picosecond Time resolved analysis in various reverse micellar assemblies

Chiranjib Ghatak, Vishal Govind Rao, Rajib Pramanik, Souravi Sarkar, and Nilmoni Sarkar*

Department of Chemistry, Indian Institute of Technology,Kharagpur 721302, WB, INDIA

E-mail**:** nilmoni@chem.iitkgp.ernet.in; Fax: 91-3222-255303

``Reverse Micelle	r_0 (W_0=0.0)	r_0 (W_0=0.5)	r_0 (W_0=1.0)	r_0 (W_0=1.5)	r_0 (W=2.0)
AOT-Water	0.098	0.093	0.091	0.087	0.083
AOT-MeOH	0.098	0.090	0.088	0.085	0.083
AOT-Glycol	0.098	0.096	0.093	0.091	0.087
AOT- Dmf	0.098	0.095	0.094	0.090	0.086

Table 1: Steady State anisotropy (r_0) isocolchicine at different reverse micellar condition

Table 2: Time resolved results of isocolchicine inside various reverse micelles

Reverse Micelle	<τ> (ps) W_0 =0.0	<τ> (ps) W_0 =0.5	<τ> (ps) W_0 =1.0	<τ> (ps) W_0 =1.5	<τ> (ps) W_0 =2.0
Only nheptane	—	—	—	—	—
AOT-Water	262	259	259	260	258
AOT-MeOH	262	256	260	262	254
AOT-Glycol	262	262	264	258	261
AOT- Dmf	262	255	256	258	258

Table 3: Circular dichromism results of colcemid inside various reverse micelles

Reverse Micelle	Core Solvent	Concentration (M)	$(\frac{\theta_{285nm}}{\theta_{345nm}})$ mdeg
n-heptane	–	8×10^{-6}	0.0
AOT with no core solvent	–	4×10^{-5}	3.28
AOT	Water	4×10^{-5}	12.69
AOT	Methanol	4×10^{-5}	5.96
AOT	Ethylene Glycol	4×10^{-5}	9.64
AOT	DMF	4×10^{-5}	4.51

Table 4: Circular dichromism results of Isocolchicine inside various reverse micelles

Reverse Micelle	Core Solvent	Concentration (M)	$(\frac{\theta_{280nm}}{\theta_{345nm}})$ mdeg
n-heptane	–	8×10^{-6}	0.0
AOT with no core solvent	–	4×10^{-5}	1.01
AOT	Water	4×10^{-5}	2.88
AOT	Methanol	4×10^{-5}	4.07
AOT	Ethylene Glycol	4×10^{-5}	0.83
AOT	DMF	4×10^{-5}	1.66

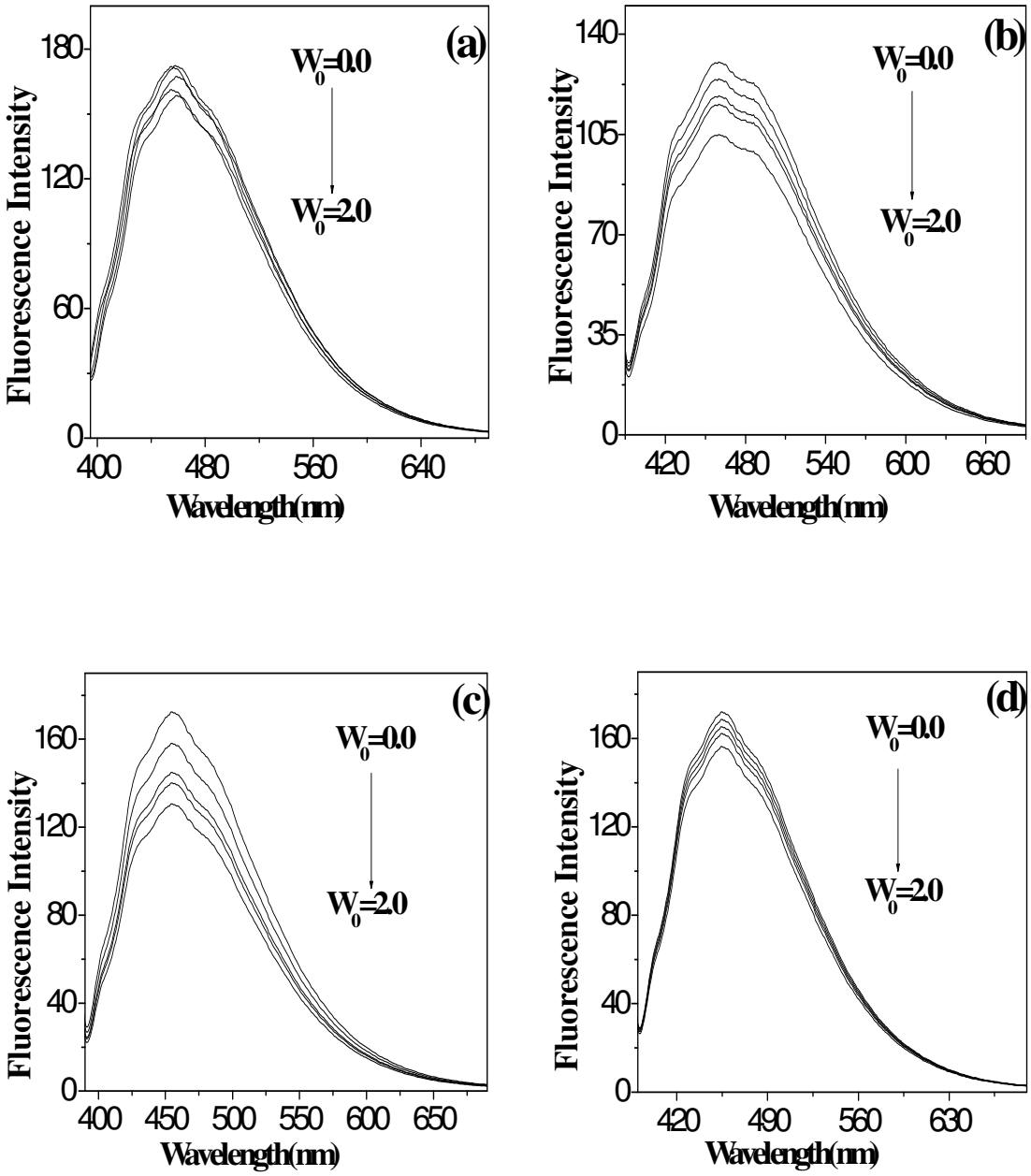


Figure 1 : Plot of fluorescence emission spectra of isocolchicine at W_0= 0.0, 0.5, 1.0, 1.5, 2.0 {gradually decreasing}where (a) ethylyne glycol-AOT reverse micelle, (b) Water-AOT reverse micelle, (c) Methanol-AOT reverse micelle and (d) DMF – AOT reverse micelle.

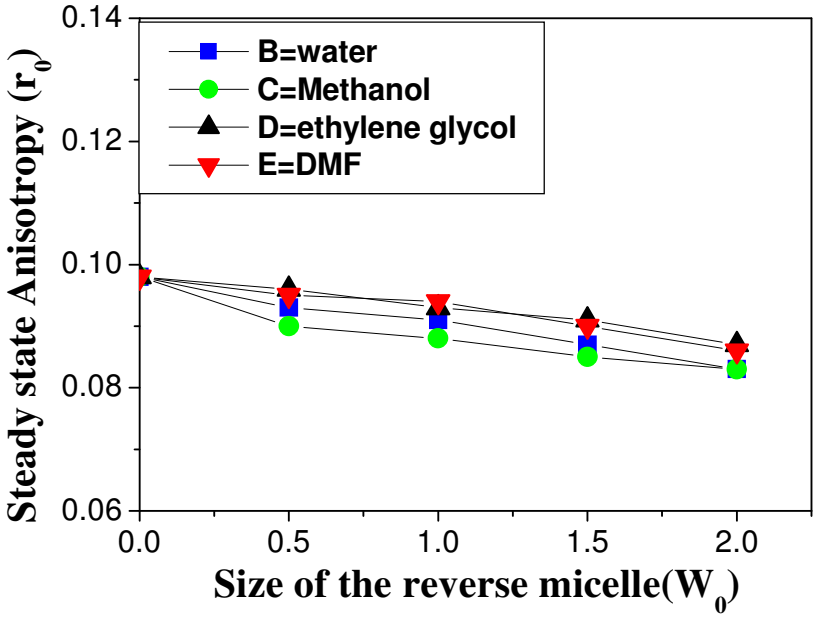


Figure 2: Plot of Steady state anisotropy of isocolchicine vs different W_0 values

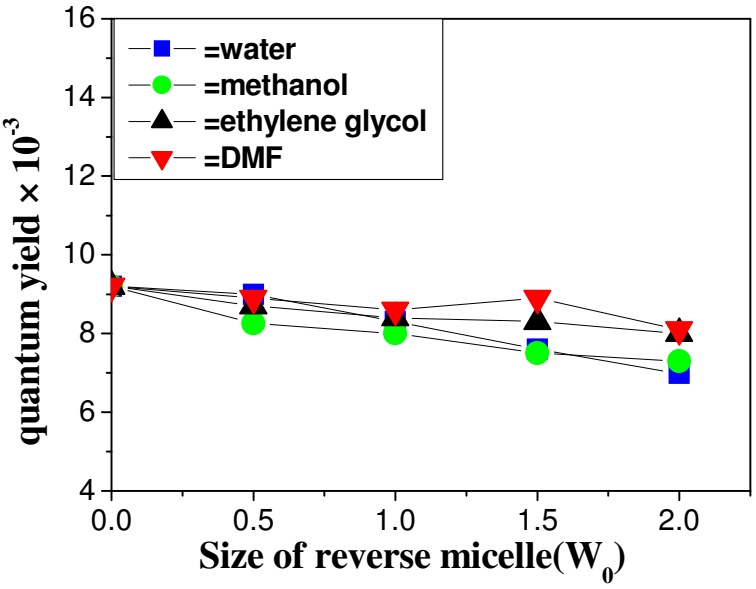


Figure 3: Plot of quantum yield of isocolchicine vs. W_0 different W_0 values.

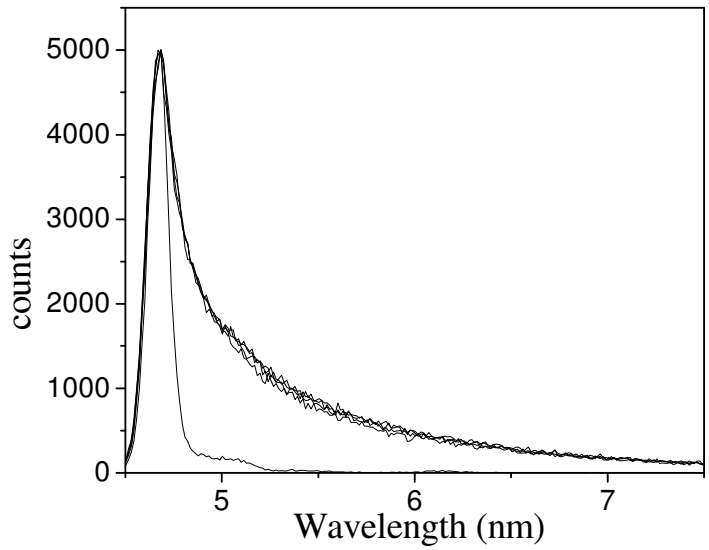


Figure 4: Lifetime quenching plot of isocolchicine at W_0 = 1.0 and 2.0 for water reverse micelle of AOT.

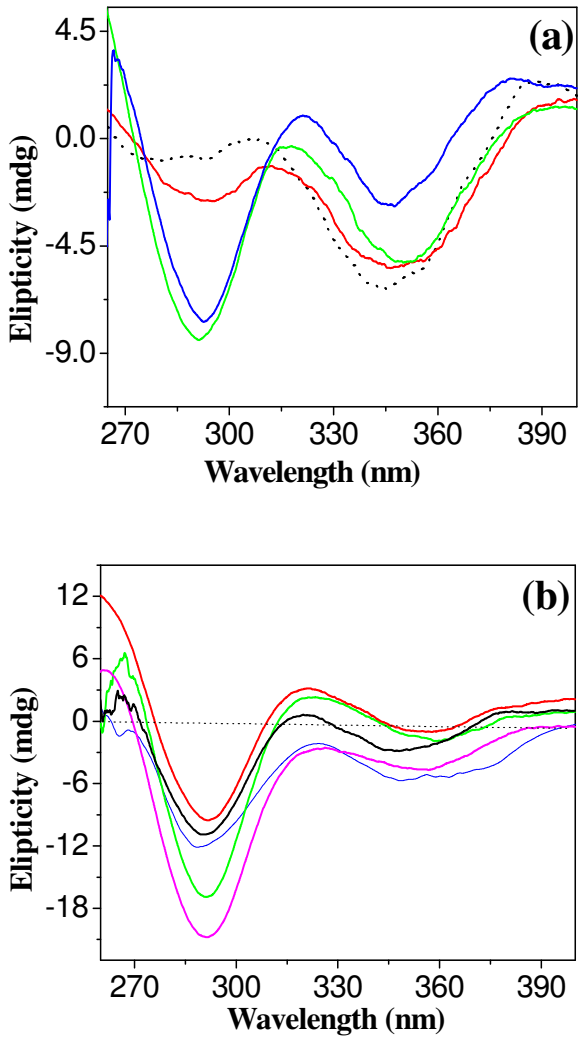
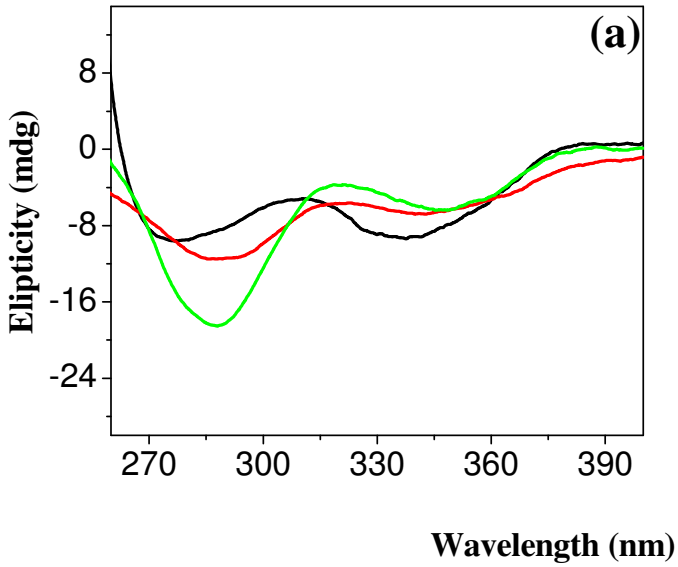


Figure 5a: Cirular dichromism spectra of colcemid in water (black dashed) in methanol (green line) and in ethylene glycol (red line) in DMF (blue line).

Figure 5b: Cirular dichromism spectra of colcemid in water reverse micelle (green line) in methanol (pinl line) and in ethylene glycol (red line) in DMF (black line) and at W_0=0.0 (blue line)



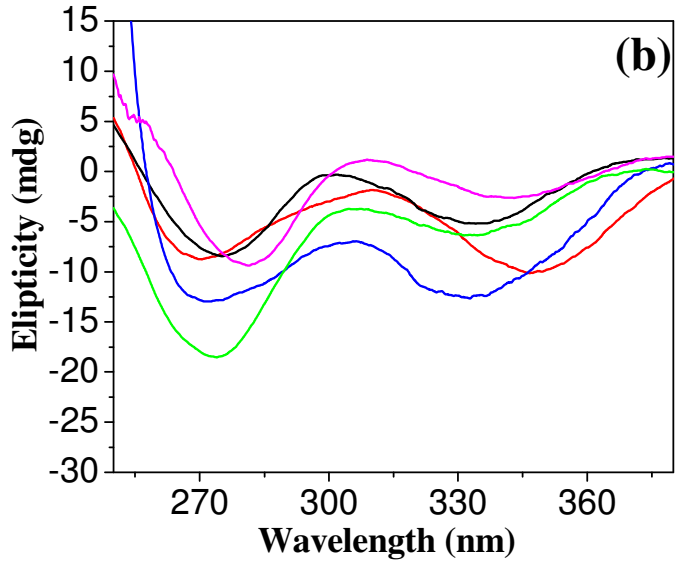


Figure 6a: Cirular dichromism spectra of isocolchicine in water (black dashed) in methanol (green line) and in ethylene glycol (red line) in DMF (blue line).

Figure 6b: Cirular dichromism spectra of isocolcchicine in water reverse micelle (green line) in methanol (pinl line) and in ethylene glycol (red line) in DMF (black line) and at W_0=0.0 (blue line)