Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.
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Electronic Supporting Information (ESI) for

Schiff base derivatives containing heterocycle with aggregation-induced emission and recognition ability

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Table S1 Spectroscopic Properties of **dye 1–3.**

Compounds	Solvents	$\lambda_{max}^{[a]}$	$\lambda_{max}^{[b]}$	$\Delta v^{[c]}$
dye 1	Benzene	376	428	3231
	Dichloromethane	376	430	3340
	THF	371	436	4018
	EE	369	434	4059
	Acetonitrile	371	434	3913
	DMF	373	435	3821
dye 2	Benzene	372	429	3572
	Dichloromethane	372	430	3626
	THF	376	437	3712
	EE	367	432	4100
	Acetonitrile	371	439	4175
	DMF	374	437	3855
dye 3	Benzene	377	424	2940
	Dichloromethane	376	425	3066
	THF	376	432	3448
	EE	372	427	3463
	Acetonitrile	371	445	4482
	DMF	375	447	4295

[a] Absorption peak position in nm (1.0×10^{-5}mol L^{-1}). [b] Peak position of SPEF in nm (1.0×10^{-5} mol L^{-1}), excited at the absorption maximum. [c] Stokes shift in cm^{-1}.

Table S2 Fluorescence quantum yield and fluorescence lifetime of **dye 1-3** in different water fractions.

	Water fraction (v%)	$\tau_1{}^a$(ns)	$A_1{}^b$	$\tau_2{}^a$(ns)	$A_2{}^b$	$\langle\tau\rangle^c$(ns)	χ^2	$\Phi_F{}^e$(%)
dye 1	0	1.53	0.88	3.13	0.12	1.73	1.18	<0.1

	60	2.50	0.84	4.58	0.16	2.84	1.13	39.03
	90	1.79	0.36	3.51	0.64	2.90	1.20	22.33
dye 2	0	1.55	0.88	3.04	0.12	1.73	1.07	<0.1
	70	2.49	0.90	4.99	0.10	2.75	0.80	47.53
	90	1.53	0.29	3.40	0.71	2.86	0.81	20.55
dye 3	0	1.49	0.88	3.94	0.12	1.78	1.39	<0.1
	80	2.62	0.84	5.12	0.16	3.02	1.15	42.2
	90	2.15	0.24	3.55	0.76	3.21	0.97	24.6

[a]Fluorescence lifetime. [b]Fractional contribution. [c]Weighted mean lifetime. [e]Fluorescence quantum yield measured by using an integrating sphere.

Table S3 Particle size distributions of **dye 1-3** in THF/water mixtures with different water fractions.

	dye 1-50%	**dye 1**-60%	**dye 1**-90%
Average particle size (nm)	211	249	391
Particle diameter (nm)	23～2148	189～314	70--1802
	dye 2-10%	**dye 2**-20%	**dye 2**-30%
Average particle size (nm)	-	-	1213
Particle diameter (nm)	-	-	29～3414
	dye 2-40%	**dye 2**-50%	**dye 2**-60%
Average particle size (nm)	627	499	383
Particle diameter (nm)	16～1874	22～1100	10～325
	dye 2-70%	**dye 2**-80%	**dye 2**-90%
Average particle size (nm)	193	289	659
Particle diameter (nm)	95～378	40～1325	26～1522
	dye 3-60%	**dye 3**-80%	**dye 3**-90%
Average particle size (nm)	268	216	261

Particle diameter (nm)	116～523	174～246	263～300

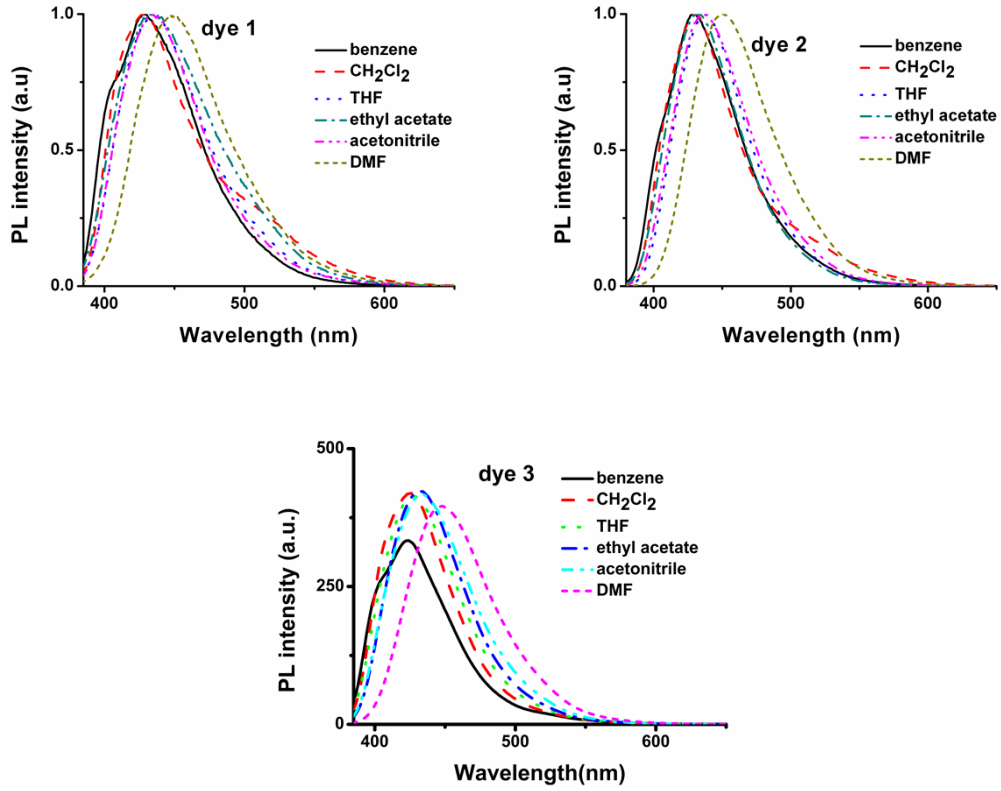

Fig. S1 PL spectra of **dye 1-3** (1.0×10^{-5} mol L^{-1}) in six organic solvents.

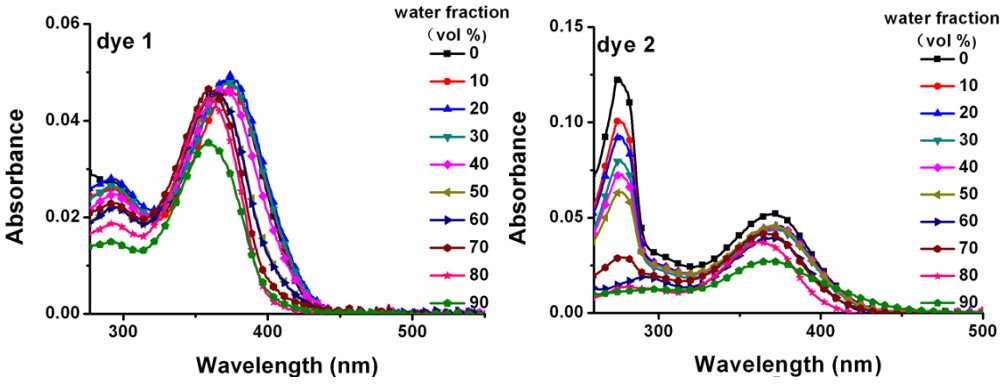

Fig. S2. UV absorption spectra changes of **dye 1-2** (1.0×10^{-5} mol L^{-1}) in THF/water mixtures with different water fractions (f_w).

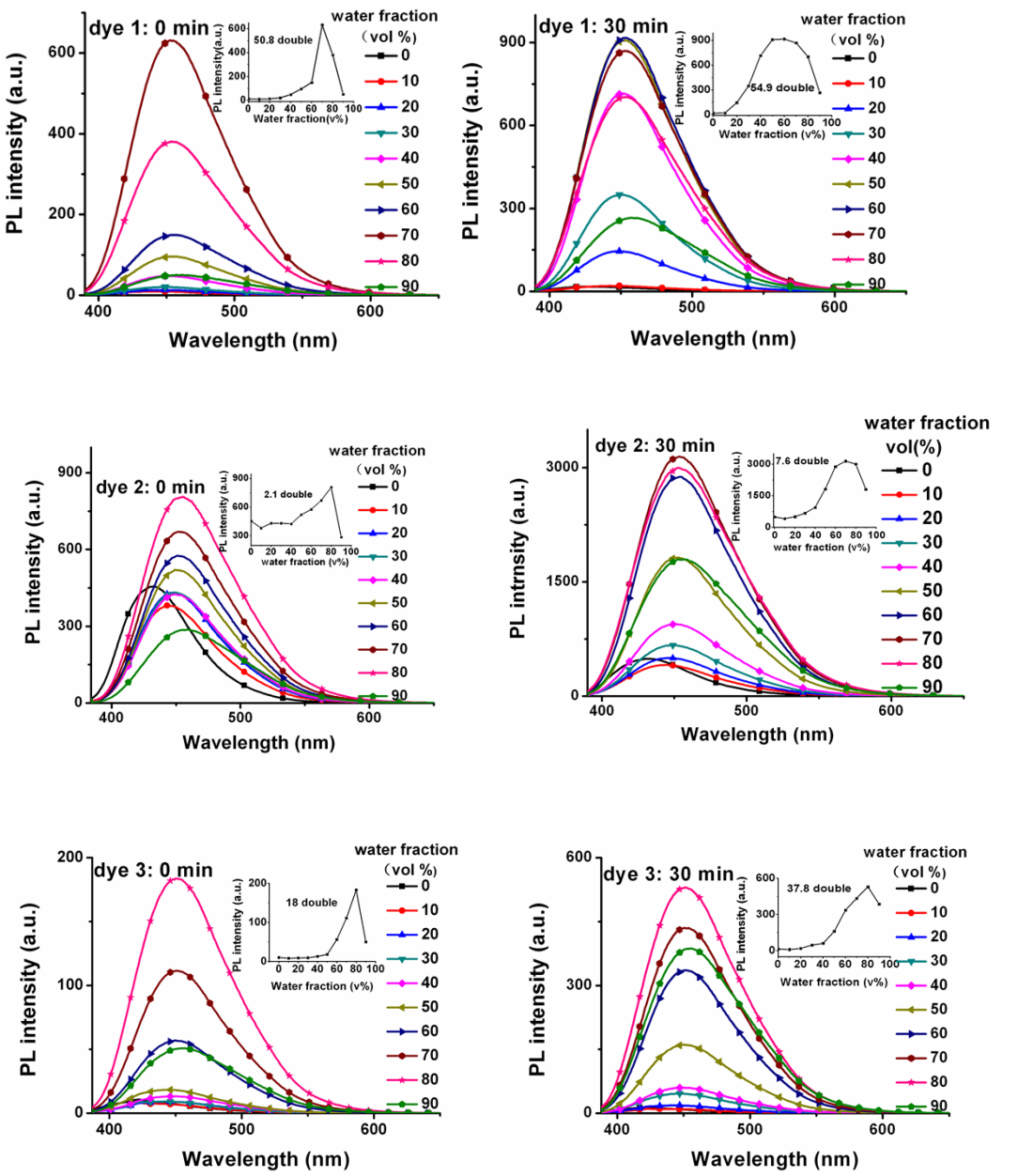

Fig. S3 PL spectra of **dye 1-3** in THF/water mixtures with different water fractions (f_w) and time.

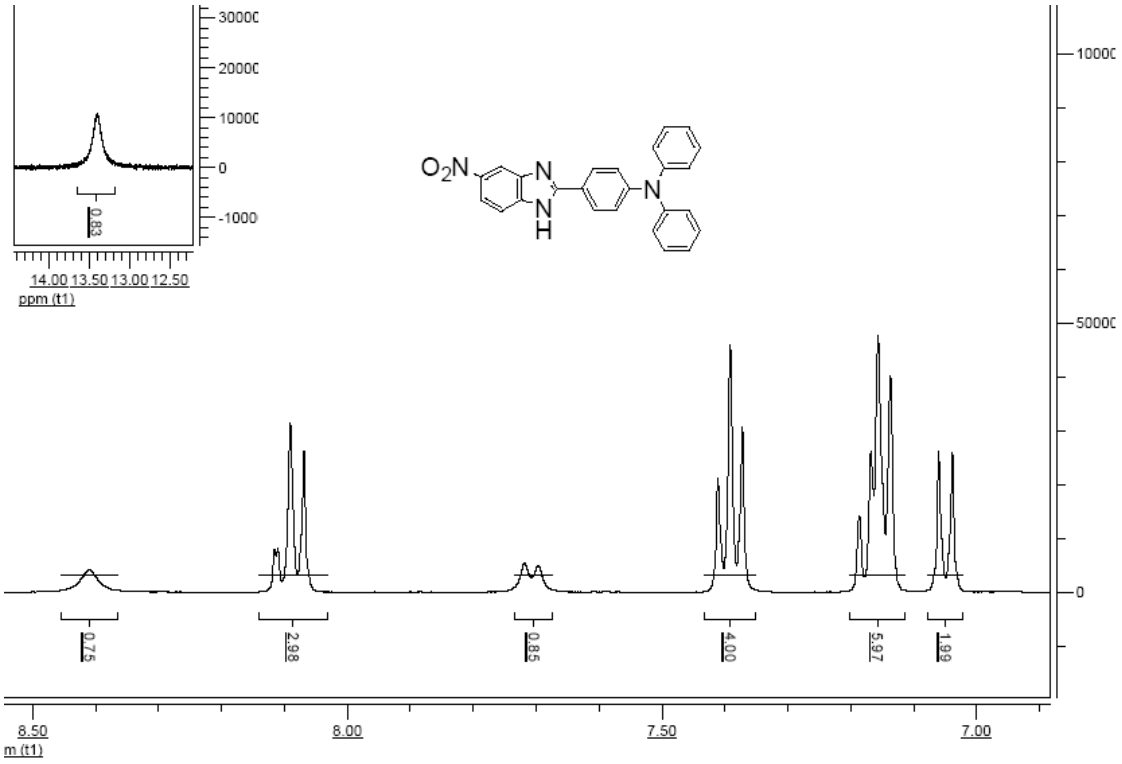

Fig. S4 ^{1}H NMR spectrum of 5-nitro-2-triphenylaminebenzimidazole.

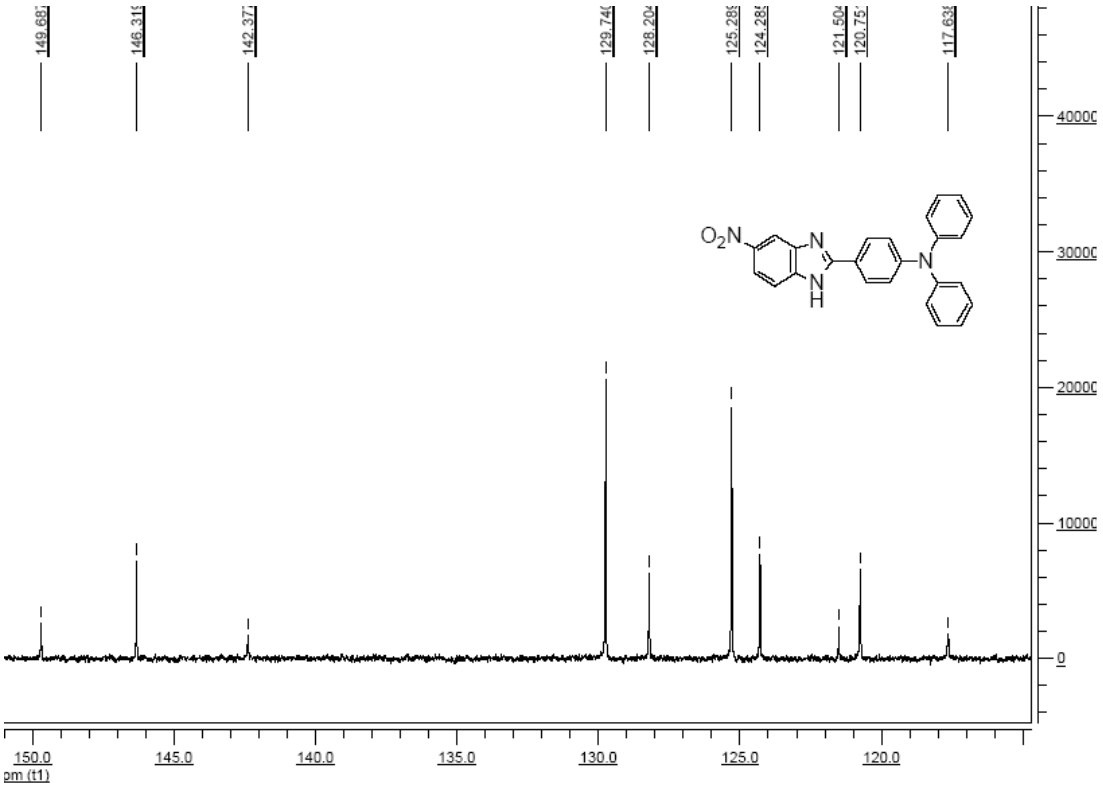

Fig. S5 ^{13}C NMR spectrum of 5-nitro-2-triphenylaminebenzimidazole.

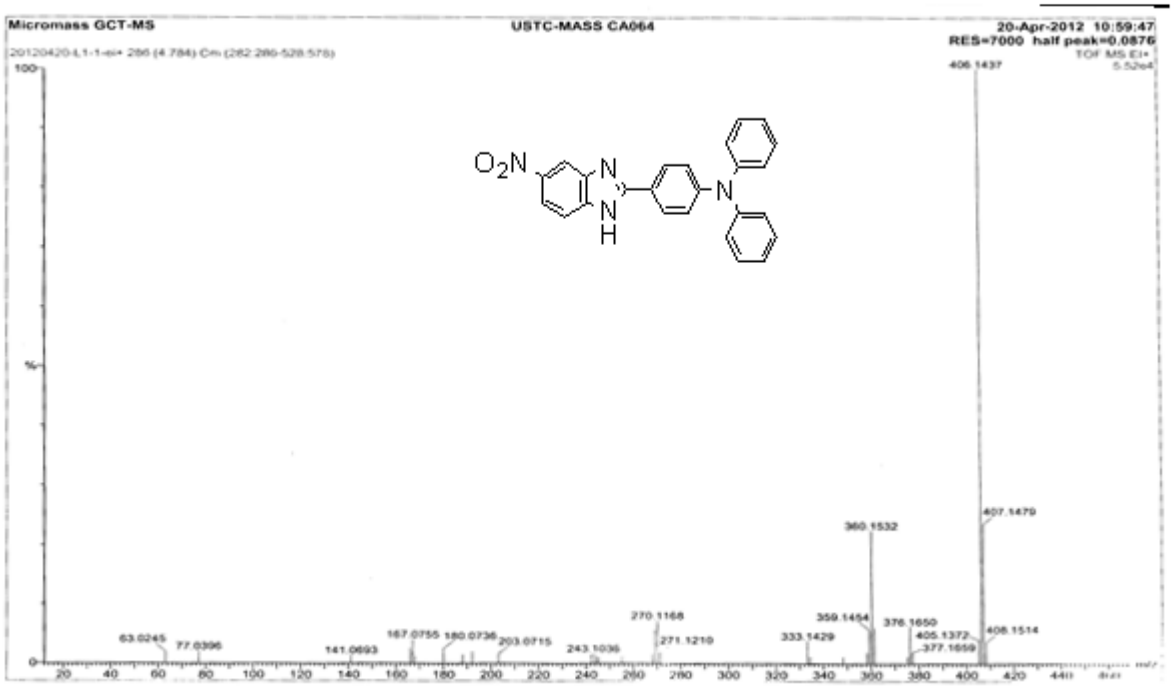

Fig. S6 MS spectrum of 5-nitro-2-triphenylaminebenzimidazole.

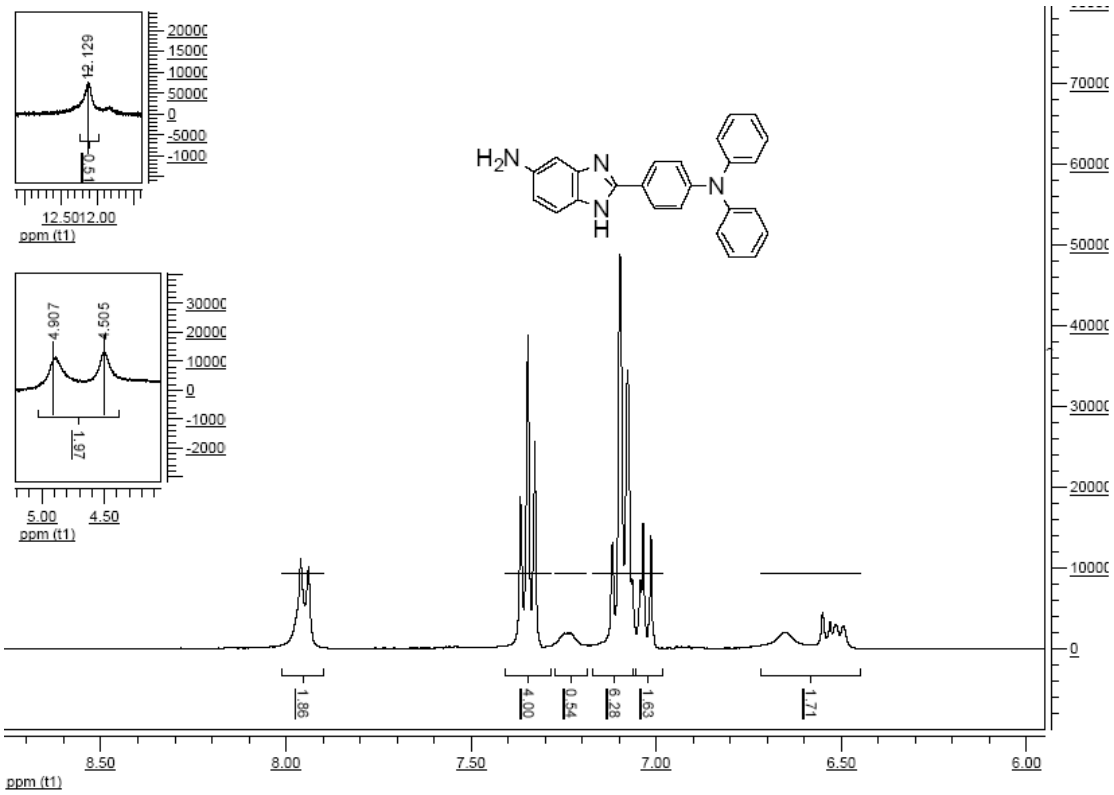

Fig. S7 ^{1}H NMR spectrum of 5-amino-2-triphenylaminebenzimidazole.

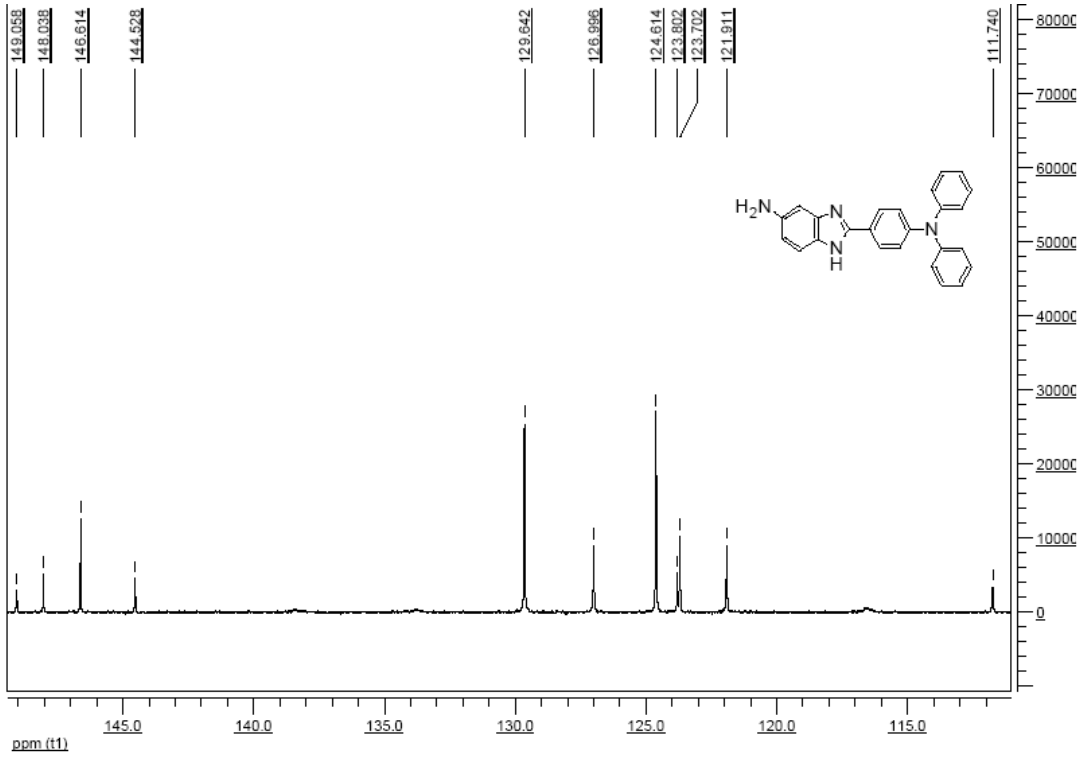

Fig. S8 ^{13}C NMR spectrum of 5-amino-2-triphenylaminebenzimidazole.

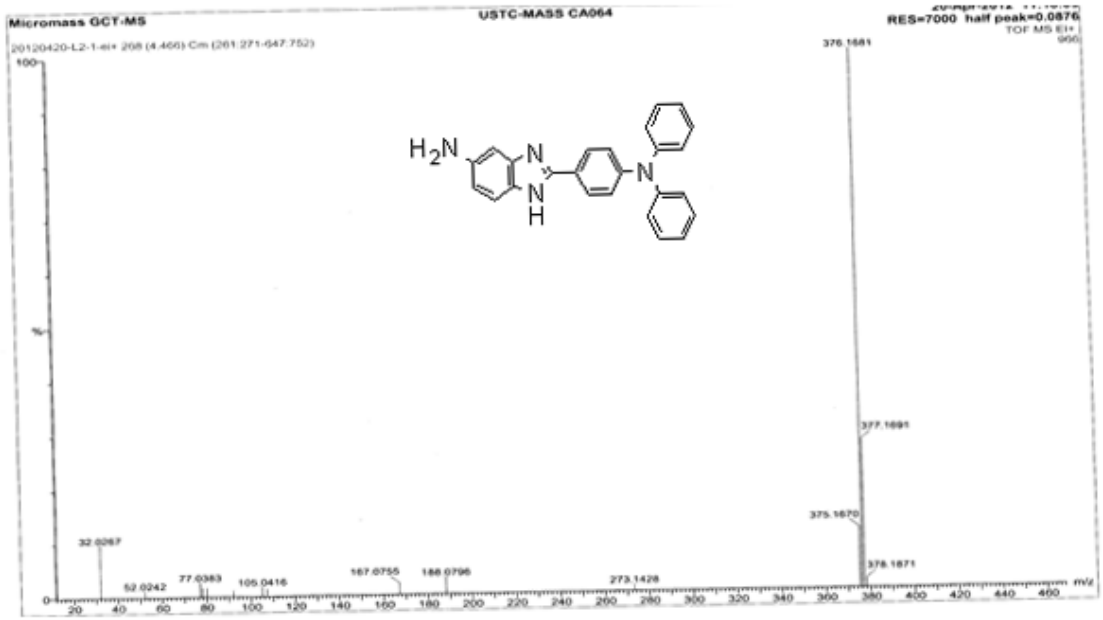

Fig. S9 MS spectrum of 5-amino-2-triphenylaminebenzimidazole.

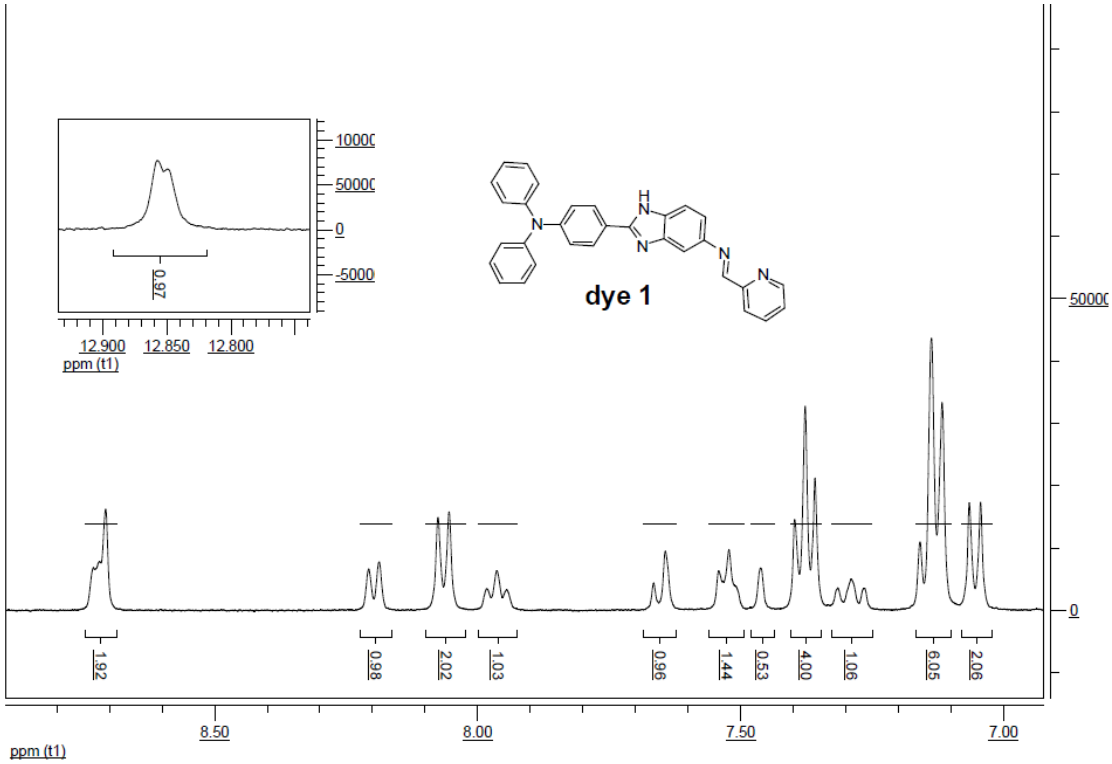

Fig. S10 ^{1}H NMR spectrum of **dye 1**.

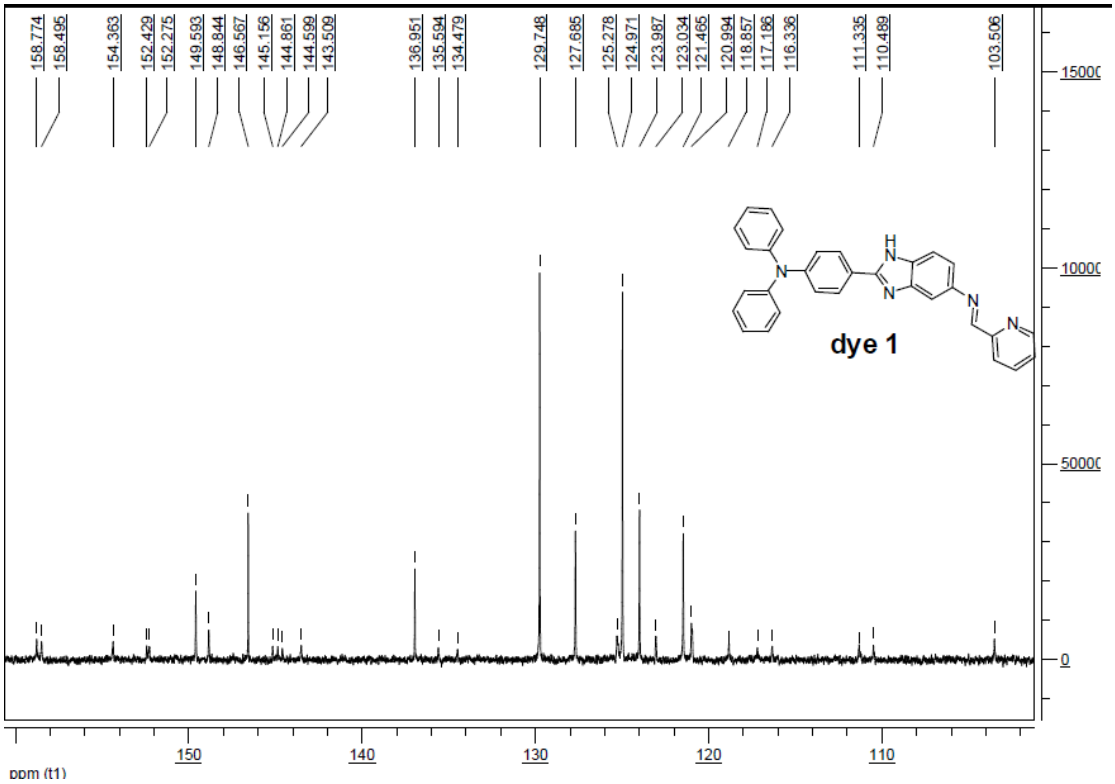

Fig. S11 ^{13}C NMR spectrum of **dye 1**.

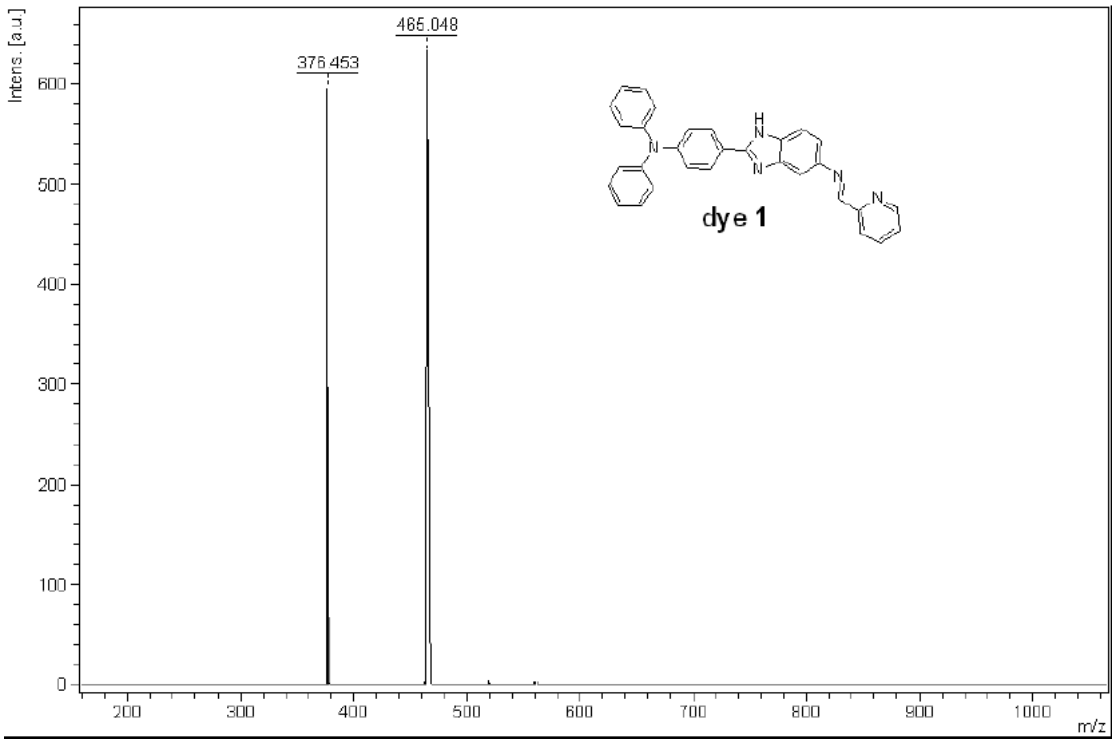

Fig. S12 MS spectrum of **dye 1**.

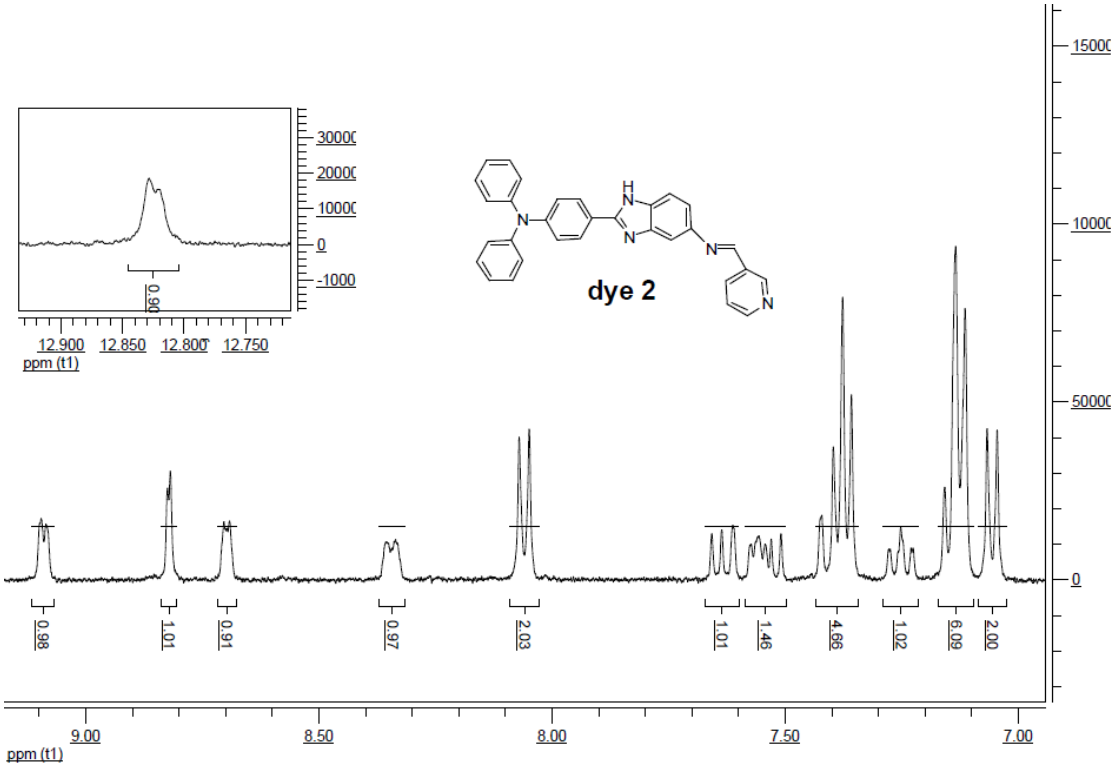

Fig. S13 1H NMR spectrum of **dye 2**.

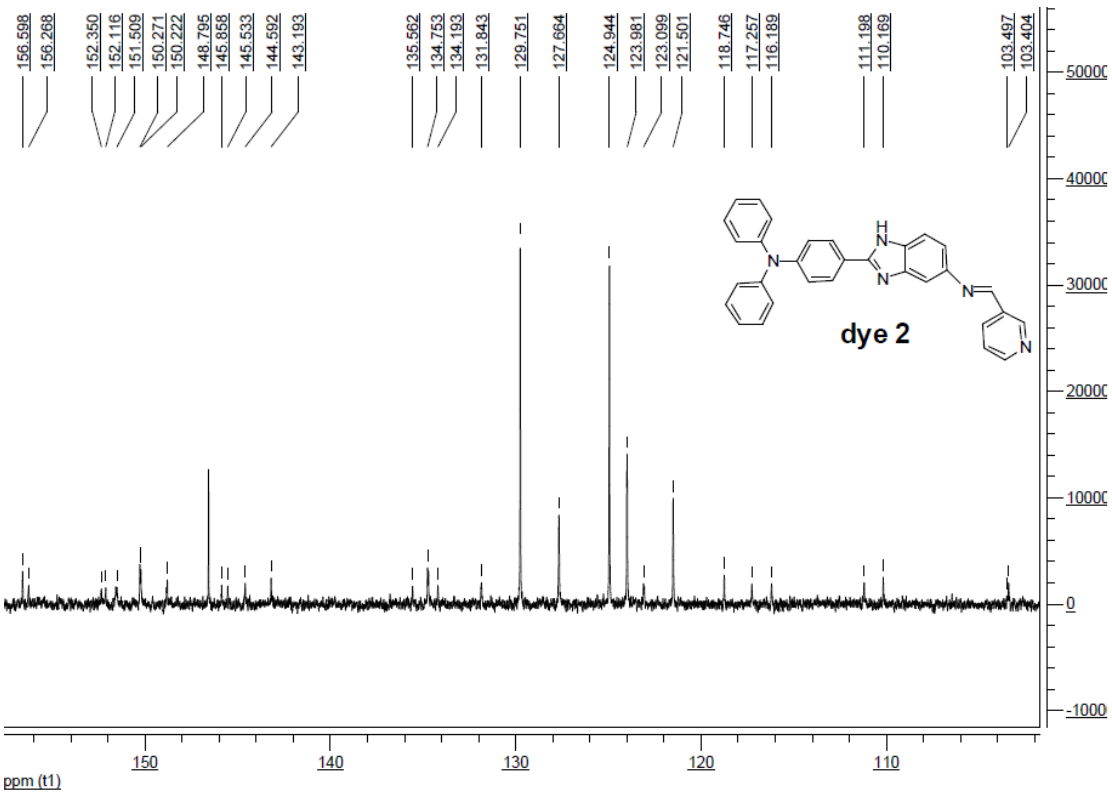

Fig. S14 13C NMR spectrum of **dye 2**.

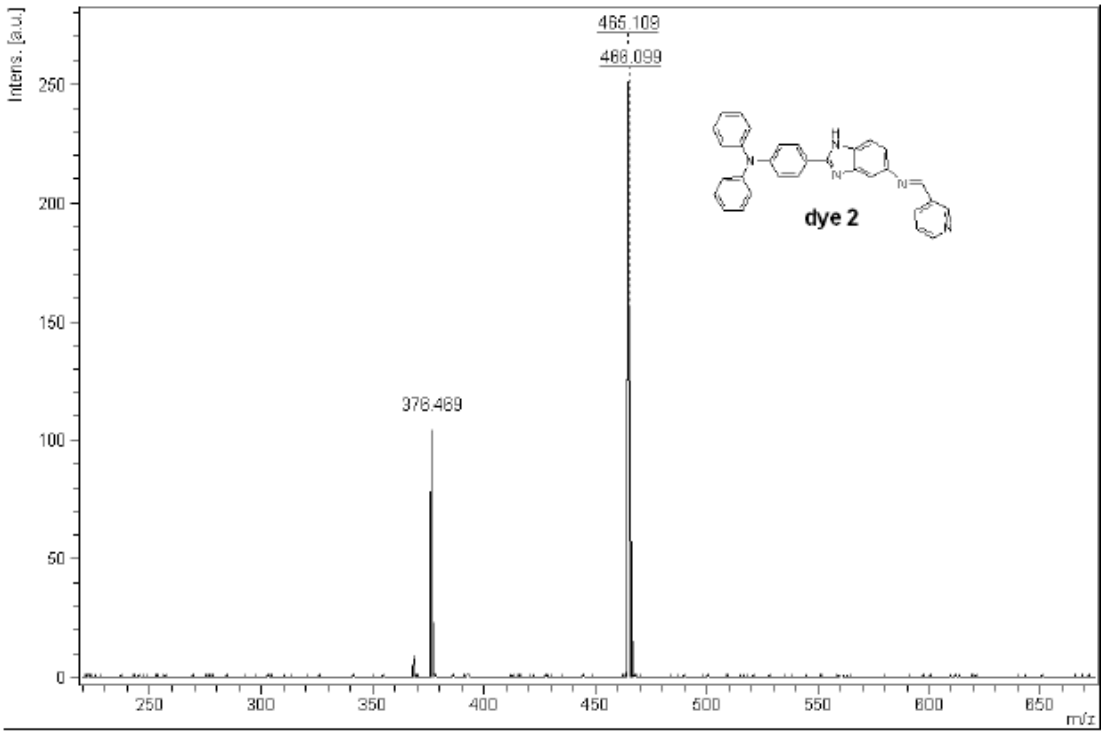

Fig. S15 MS spectrum of **dye 2.**

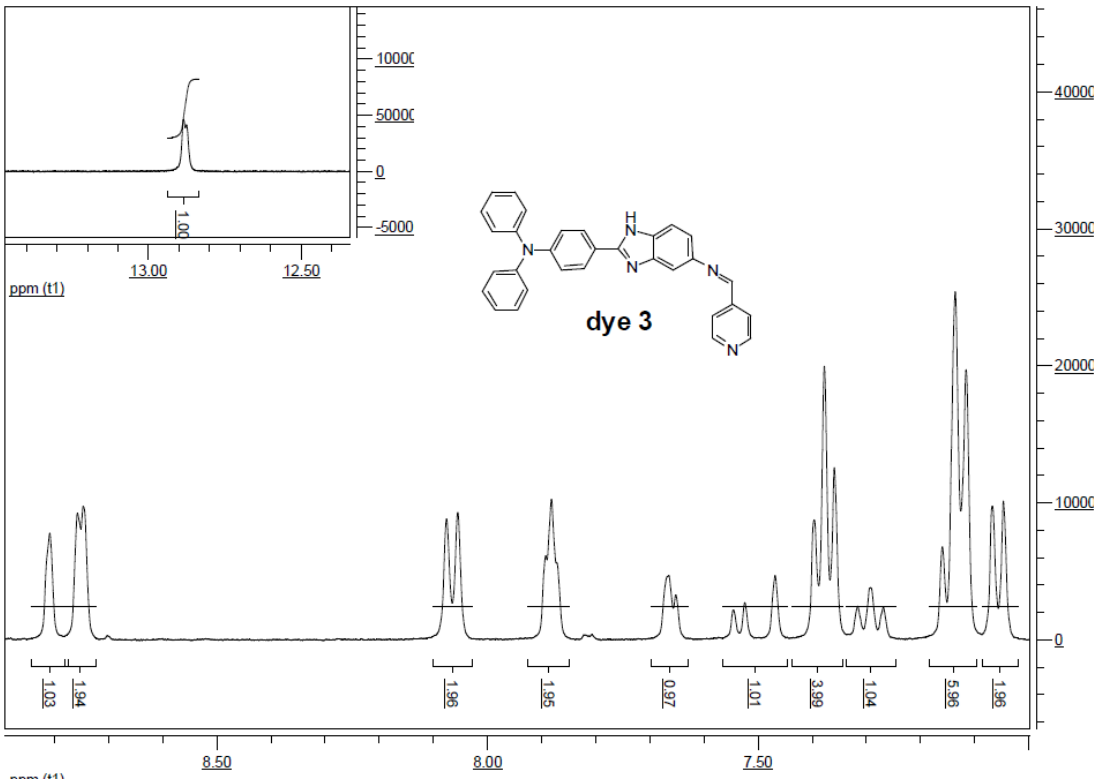

Fig. S16 ^{1}H NMR spectrum of **dye 3**.

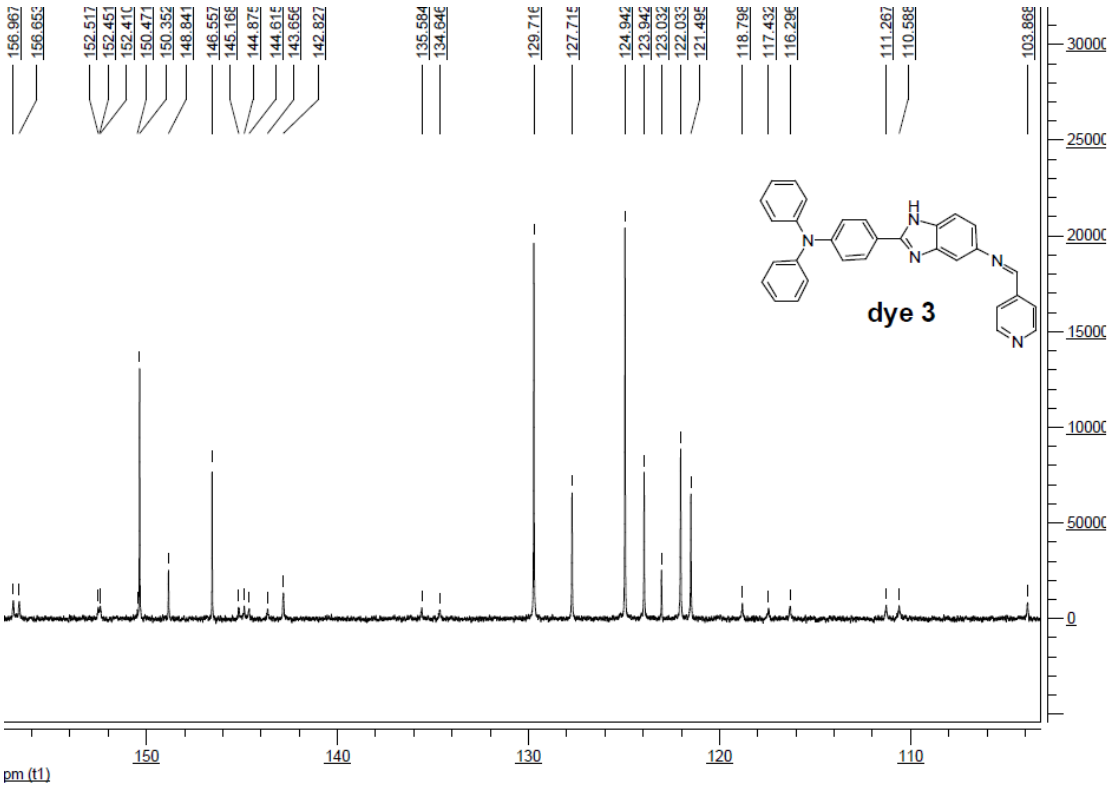

Fig. S17 ^{13}C NMR spectrum of **dye 3**.

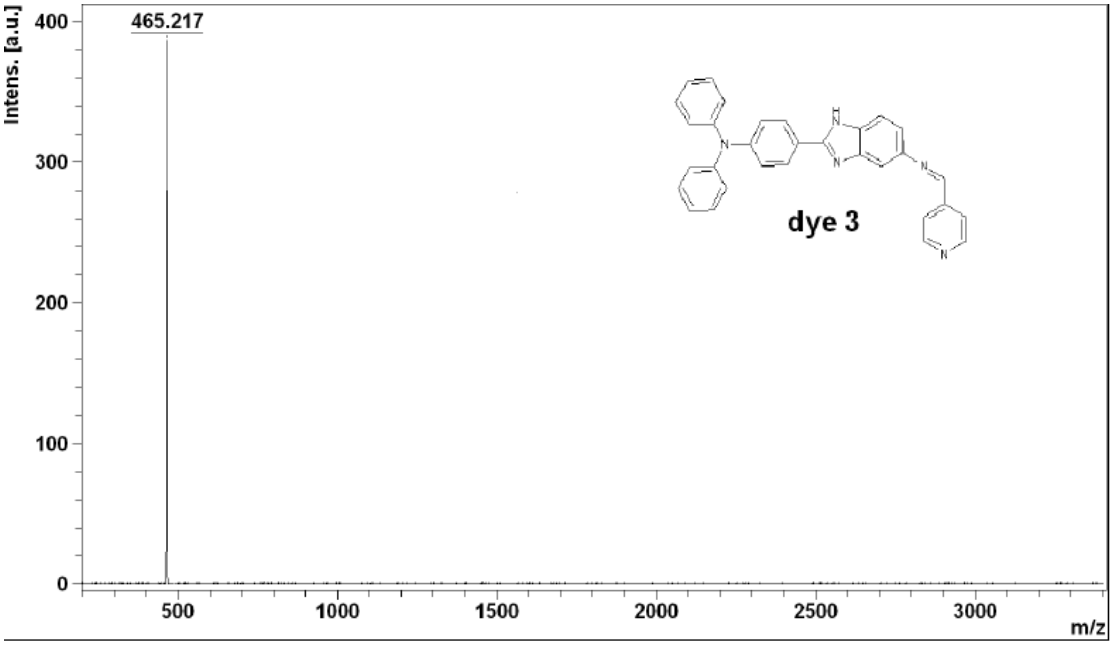

Fig. S18 MS spectrum of **dye 3**.