An Organic White Light-Emitting Fluorophore

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Compounds 4 and 5. 1,6-Dimethoxynaphthalene (5 g) was lithiated according to a known procedure[1] in a 100 ml three-neck round bottom flask. The lithiated 1,6-dimethoxynaphthalene was cooled to -78 ºC. Methyl benzoate (1.7 g) in 20 mL THF was added dropwise over 20 min. The mixture was allowed to warm to rt over 6 h. The reaction mixture was quenched with deionized water and neutralized with 2 N HCl. THF was removed *in vacuo*. The resulting mixture was extracted with CH_2Cl_2 (3 × 50 mL). The combined extracts were dried over $MgSO_4$ and filtered, and evaporated to dryness. The residue was purified via flash chromatography (silica gel; EtOAc:hexane, 20:80) to afford 4.5 g (71%) of **4** and 0.77 g (11%) of **5**. Data for compound **4**: ^{1}H NMR ($CDCl_3$, 250 MHz) δ (ppm): 8.06 (s, 2H), 7.32-7.40 (m, 7H), 7.22 – 7.17 (m, 4H), 6.68 (dd, *J* = 6.3, 2.3 Hz, 2H), 5.38 (s, 1H), 3.88 (s, 6H), 3.69 (s, 3H). ^{13}C NMR ($CDCl_3$, 75 MHz) δ (ppm): 156.8, 156.0, 146.7, 135.3, 134.0, 127.9, 126.6, 126.4, 123.3, 120.2, 118.4, 106.8, 102.1, 81.4, 55.4, 55.3. ESI $[M\text{-}OH]^+$ calcd 463.1904, found 463.3515. Data for compound **5**: ^{1}H NMR ($CDCl_3$, 300 MHz) δ (ppm): 8.30 (d, *J* = 9.2 Hz, 1H), 7.94 (d, *J* = 9.2 Hz, 1H), 7.49 (s, 2H), 7.34 – 7.28 (m, 7H), 7.14 – 7.06 (m, 4H), 6.61 (dd, *J* = 7.8, 2.9 Hz, 2H), 5.38 (s, 1H), 3.97 (s, 3H), 3.76 (s, 3H), 3.68 (s, 3H), 3.14 (s, 3H). ^{13}C NMR ($CDCl_3$, 75MHz) δ (ppm): 156.7, 155.8, 155.4, 155.2, 146.4, 138.5, 134.3, 127.7, 126.7, 126.3, 124.9, 123.7, 122.7, 121.4, 121.1, 120.2, 118.3, 113.9, 105.4, 101.3, 101.3, 81.7, 56.5, 55.4, 55.3, 55.2. ESI $[M\text{-}OH]^+$ calcd 463.1904, found 463.1664.

Compound 6. The preparation procedure is practically the same as for compounds **4** and **5** with the exception that phthalic anhydride (1.96 g) is used instead of methyl benzoate. After the reaction is quenched with distilled water, THF is removed by steam distillation. The resulting precipitate is collected by suction filtration. The resulting residue is washed with cold EtOH (20 × 3 mL) to afford 3.7 g (55%) of **6**. Data for compound **6**: ^{1}H NMR ($CDCl_3$, 250 MHz) δ (ppm): 7.97 (s, 2H), 7.93 (d, *J* = 7.5 Hz, 1H), 7.83 – 7.74 (m, 2H), 7.64 (td, *J* = 13.9, 1.9 Hz), 7.39 (d, *J* = 2.38 Hz,

[1] Johansson, A. M.; Mellin, C.; Hacksell, U. *J. Org. Chem.* **1986**, *51*, 5252.

2H), 7.36 (d, *J* = 3.7 Hz, 4H), 6.80 (dd, *J* = 5.5, 3.2 Hz, 2H), 3.83 (s, 3H), 3.53 (s, 3H). ^{13}C NMR ($CDCl_3$, 75 MHz) δ (ppm): 169.5, 155.6, 155.0, 152.6, 135.3, 134.4, 129.6, 128.6, 127.5, 125.2, 124.3, 120.4, 119.1, 118.5, 107.3, 102.9, 90.0, 55.5. ESI $[M+H]^+$ calcd 507.1802, found 507.1638.

Compounds 7, 8 and 9. The preparation procedure is the same as for compounds **4** and **5** except that 2, 4-dimethoxybenzophenone is used instead of methyl benzoate. The crude product is purified via flash chromatography (silica gel; EtOAc:hexane, 20:80) to afford 0.52 g (11%) of **7,** 3.43 g (71%) of **8** and 27 mg (<1%) of **9**. Data for compound **7**: ^{1}H NMR ($CDCl_3$, 300 MHz) δ (ppm): 8.31 (d, *J* = 9.3 Hz, 1H), 7.92 (d, *J* =8.9 Hz, 1H), 7.45-7.09 (m, 7H), 6.63 (d, *J* = 7.6 Hz, 1H), 6.52 (d, *J* = 2.4 Hz, 1H), 6.46 (d, *J* = 8.6 Hz, 1H), 6.33 (dd, *J* = 8.6, 2.4 Hz, 1H), 5.38 (s, 1H), 3.97 (s, 3H), 3.81 (s, 3H), 3.56 (s, 3H), 3.28 (s, 3H). ^{13}C NMR ($CDCl_3$, 75 MHz) δ (ppm): 159.5, 158.0, 155.2, 147.3, 130.4, 129.3, 128.2, 127.6, 126.6, 124.8, 123.7, 122.6, 121.0, 114.3, 103.4, 101.4, 99.4, 81.4, 56.7, 55.4, 55.3. ESI $[M-OH]^+$ calcd 413.1753, found 413.1223. Data for compound **8**: ^{1}H NMR ($CDCl_3$, 300 MHz) δ (ppm): 8.06 (s, 1H), 7.27-7.38 (m, 7H), 7.14 (s, 1H), 6.84 (d, *J* = 8.6 Hz, 1H), 6.68 (d, *J* = 5.1 Hz, 1H), 6.55 (d, *J* = 2.0 Hz, 1H), 6.40 (dd, *J* = 8.6, 2.0 Hz, 1H), 5.29 (s, 1H), 3.88 (s, 3H), 3.82 (s, 3H), 3.63 (s, 3H), 3.56 (s, 3H). ^{13}C NMR ($CDCl_3$, 75 MHz) δ (ppm): 160.1, 158.6, 156.7, 156.0, 146.9, 135.2, 134.3, 130.5, 127.8, 127.1, 126.7, 126.6, 126.4, 122.9, 120.1, 118.4, 106.8, 103.6, 102.2, 100.0, 81.0, 55.6, 55.3, 55.2. ESI $[M-OH]^+$ calcd 413.1753, found 413.1549. Data for compound **9**: ^{1}H NMR ($CDCl_3$, 300 MHz) δ (ppm): 9.04 (s, 1H), 7.33 – 7.22 (m, 8H), 6.68 (d, *J* = 5 Hz, 1H), 6.55 (s, 1H), 6.27 (s, 1H), 6.10 (s, 1H), 3.83 (s, 3H), 3.81 (s, 3H), 3.80 (s, 3H). ^{13}C NMR ($CDCl_3$, 75 MHz) δ (ppm): 160.6, 157.6, 156.0, 155.8, 144.7, 135.3, 132.3, 130.0, 127.8, 127.6, 127.4, 123.9, 121.8, 118.4, 107.2, 104.8, 102.9, 102.5, 84.5, 55.4, 55.2, 55.2. ESI $[M-OH]^+$ calcd 399.1591, found 399.1506.

Compound 10. To a stirred solution of **4** (0.200 g) in 30 mL anhydrous CH_2Cl_2 at -78 ºC, BBr_3 (1.5 mL) is added dropwise. The mixture is warmed to rt slowly before quenching with 20 mL

distilled H_2O. After stirring for 20 min and filtration, a red precipitate is collected. The red precipitate is washed and transferred into a round bottom flask with acetone and dried *in vacuo*. The resulting red powder is purified by flash chromatography (silica gel, Hexane: EtOAc 6:4) to give 107 mg (61%) of compound **10**. ^{1}H NMR (DMSO-d_6, 300 MHz) δ (ppm): 10.24 (s, 2H), 8.07 (s, 2H), 7.70 (s, 2H), 7.36 – 7.12 (m, 10 H), 6.72 (d, J = 7 Hz, 2H). ^{13}C NMR ($CDCl_3$, 62.9 MHz) δ (ppm): 154.1, 150.7, 150.4, 149.6, 135.9, 135.5, 130.8, 129.1, 128.9, 128.3, 127.5, 126.2, 125.9, 124.4, 124.3, 122.6, 119.2, 118.2, 112.0, 111.7, 107.3 77.2. MALDI-TOF $[M\text{-}OMe]^+$ calcd 339.117, found 338.982.

Compound 12 was prepared with the same method as compound **10** except that 500 mg of compound **7** are used and the temperature is raised to 50 ºC before adding BBr_3 affording 390 mg (99%) of **12**. ^{1}H NMR (DMSO-d_6, 300 MHz) δ (ppm): 9.97 (s, 1H), 8.17 (d, J = 9.2 Hz), 7.77 (d, J = 9.0 Hz), 7.36 – 7.25 (m, 5H), 7.19 (t, J = 7.5 Hz, 2H), 7.04 (t, J = 6.6 Hz, 2H), 6.98 (d, J = 8.5 Hz, 1H), 6.70 (d, J = 2.1 Hz, 1H), 6.63 (dd, J = 7.0, 3.4 Hz, 2H), 3.75 (s, 3H). HRMS $[M+H]^+$ calcd 353.1172, found 353.1171.

Compound 13. To a stirred solution of **8** (0.500 g) in 30 mL anhydrous CH_2Cl_2 at -78 ºC, BBr_3 (4.65 g) is added dropwise. The mixture is warmed to rt slowly before quenching with 20 mL distilled H_2O. After stirring for 20 min and filtration, a red precipitate is collected. The red precipitate is washed with acetone, transferred into a round bottom flask and dried *in vacuo*. The resulting red powder is purified by flash chromatography (silica gel, EtOAc-MeOH 9:1) to give 60 mg (15%) of compound **13**. ^{1}H NMR (DMSO-d_6, 300 MHz) δ (ppm): 10.68 (bs, 1H), 7.99 (s, 1H), 7.91 (s, 1H), 7.69-7.40 (m, 7H), 7.03 (d, J = 9.8 Hz, 1H), 6.82 (d, J = 6.6 Hz, 1H), 6.43 (d, J = 9.6 Hz, 1H). ^{13}C NMR ($CDCl_3$, 75 MHz) δ (ppm): 195.7, 158.9, 155.1, 149.5, 149.3, 137.4, 133.5, 132.4, 131.5, 130.5, 130.2, 129.7, 125.5, 122.5, 120.5, 120.4, 118.2, 112.4, 108.3, 106.5. HRMS $[M+H]^+$ calcd 339.1021, found 339.1016.

SNAFR-1 was prepared in the same manner as compound **13** except that 25 mg of compound **7** are used and the temperature is raised to 50 ºC before the addition of BBr_3 affording 16 mg (56%) of **SNAFR-1**. Both tautomers (see text) are present. ^{1}H NMR (DMSO-d_6, 300 MHz) δ (ppm): 8.57 (d, *J* = 9.7 Hz), 8.50 (d, *J* = 9.1 Hz), 7.67-7.60 (m), 7.57 (s), 7.53-7.43 (m), 7.3 (dd, *J* = 9.1, 2.3 Hz), 7.22 (d, *J* = 2.3 Hz), 7.07 (d, *J* = 9.3 Hz), 7.02 (d, *J* = 8.7 Hz), 6.83 (d, *J* = 7.9 Hz), 6.53-6.47 (m), 6.46 (d, *J* = 8.26), 6.30 (d, *J* = 2.0 Hz). HRMS $[M+H]^+$ calcd 339.1021, found 339.1036.

Compound 16 is observed when MeOH is added into a solution of compound **12** in DMSO. ^{1}H NMR (DMSO-d_6, 300 MHz) δ (ppm):10.09 (s, 1H), 8.23 (d, *J* = 9.2 Hz, 2H), 7.67 (d, *J* = 8.5 Hz, 1H), 7.37 – 7.31 (m, 4H), 7.25 – 7.17 (m, 4H), 7.09 - 6.96 (m, 3H), 6.78 (d, *J* = 2.5 Hz, 1H), 6.70 (t, *J* = 6.5 Hz, 2H), 3.80 (s, 3H), 2.84 (s, 3H).

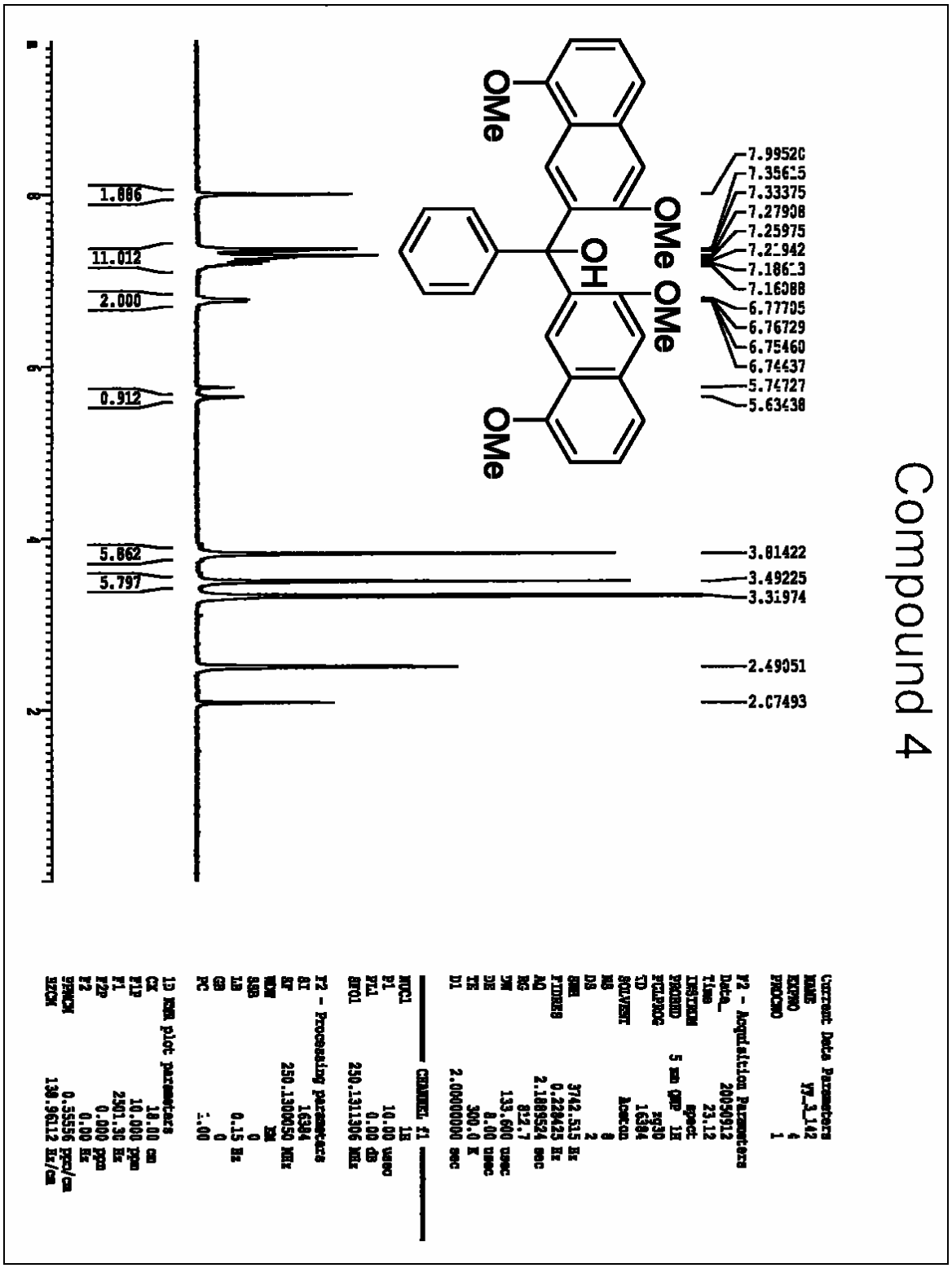

Figure S1. ^{1}H NMR of compound **4**

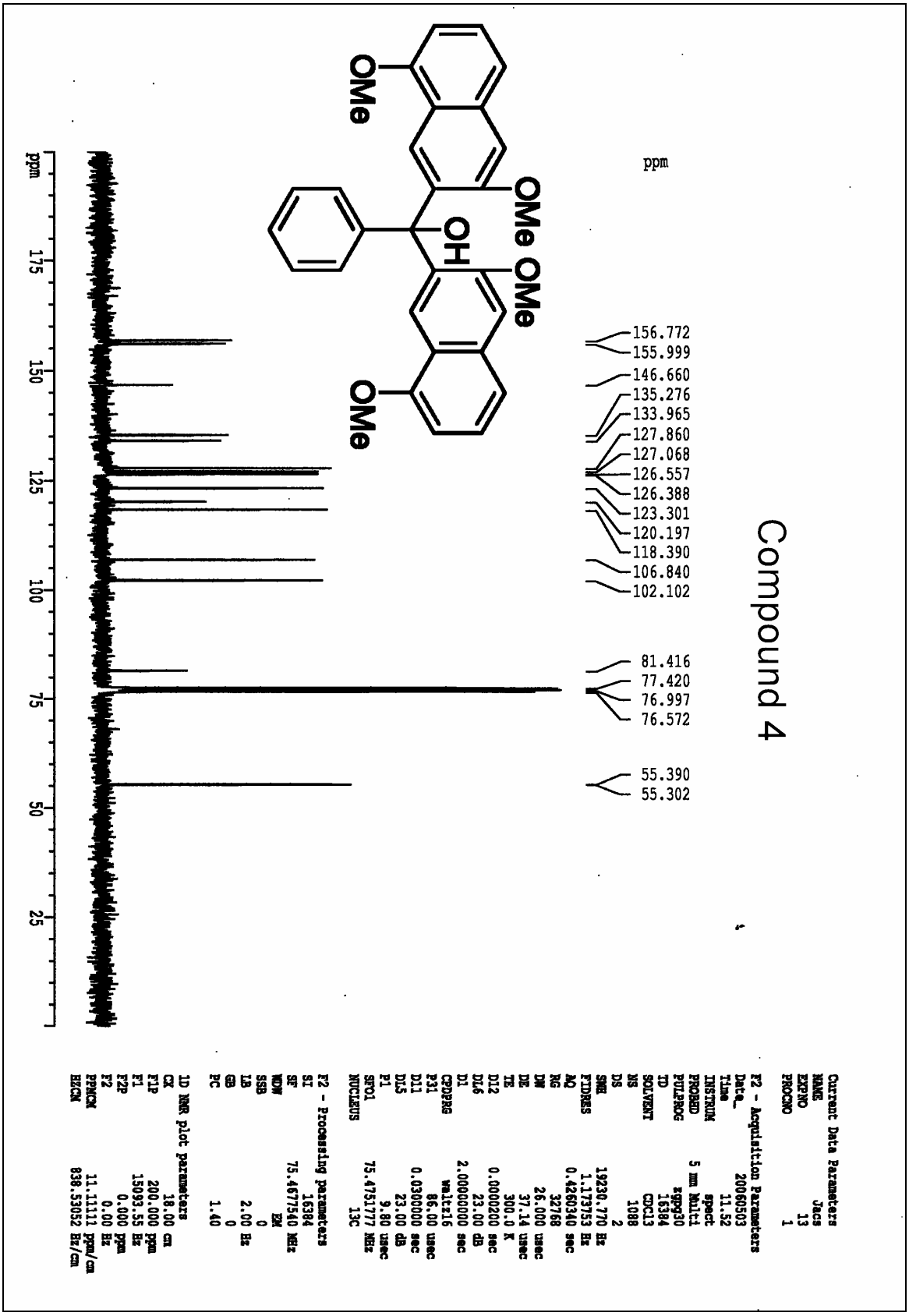

Figure S2. ^{13}C NMR of **4**.

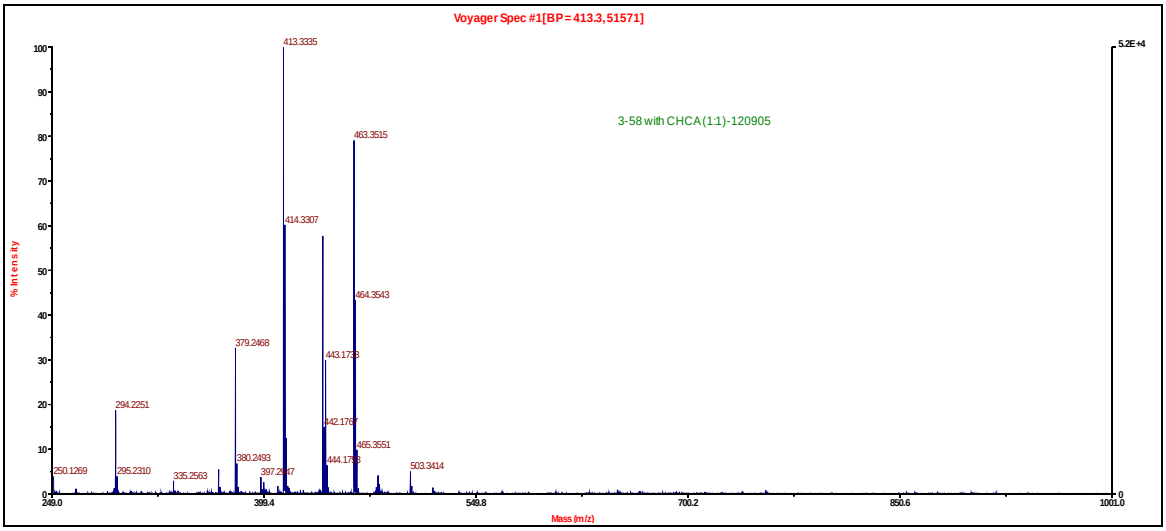

Figure S3. ESI MS of **4**.

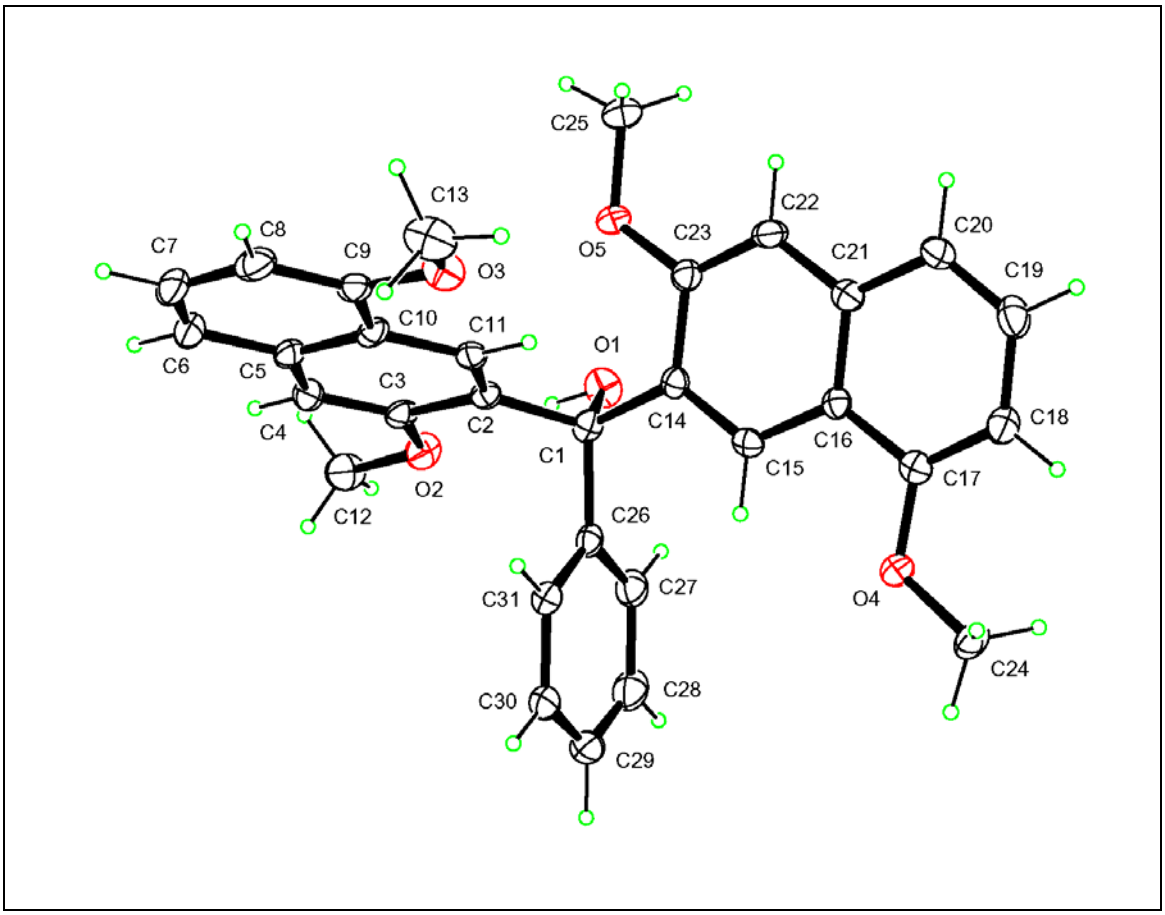

Figure S4. Ortep drawing for **4**.

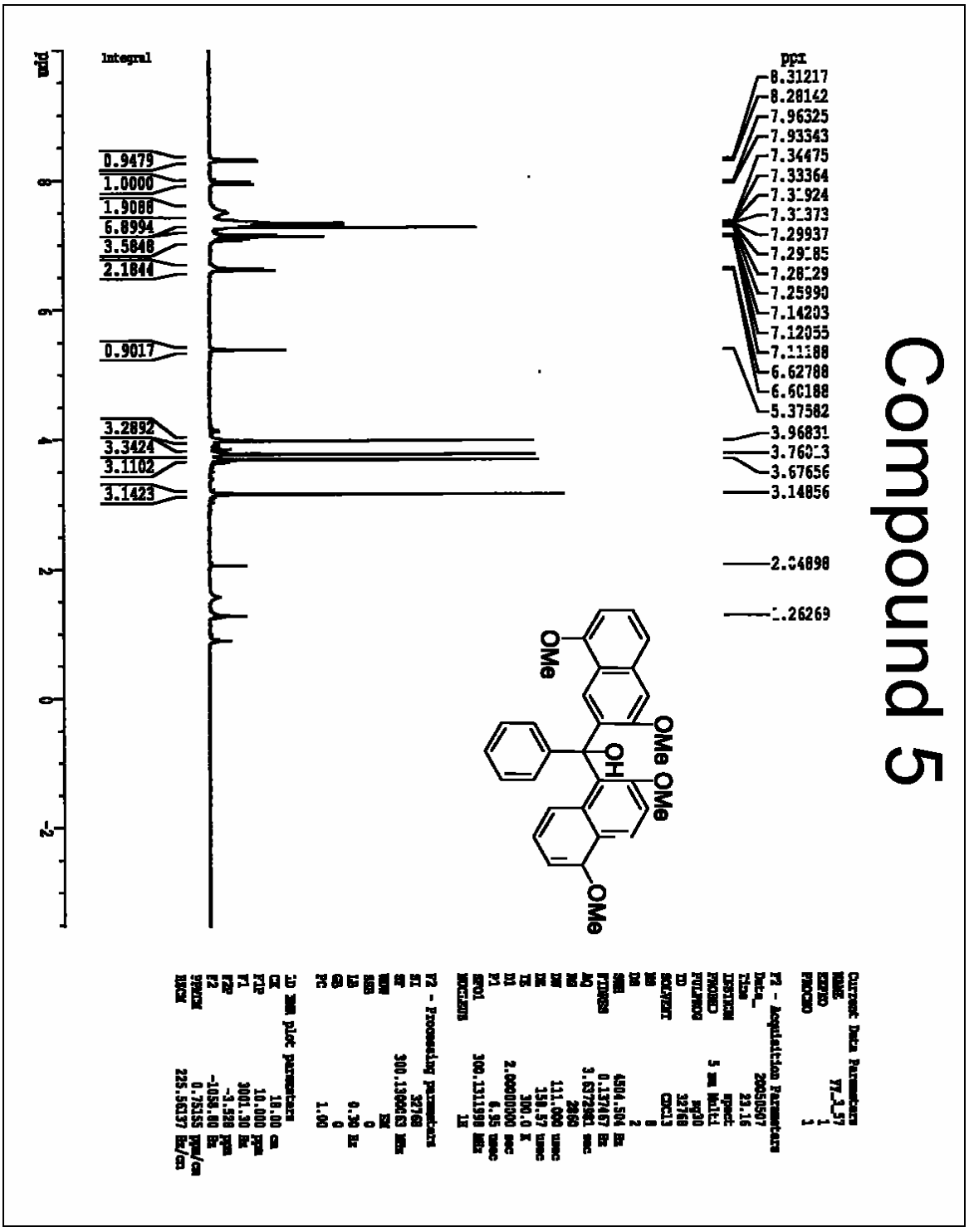

Figure S5. ^{1}H NMR of **5**.

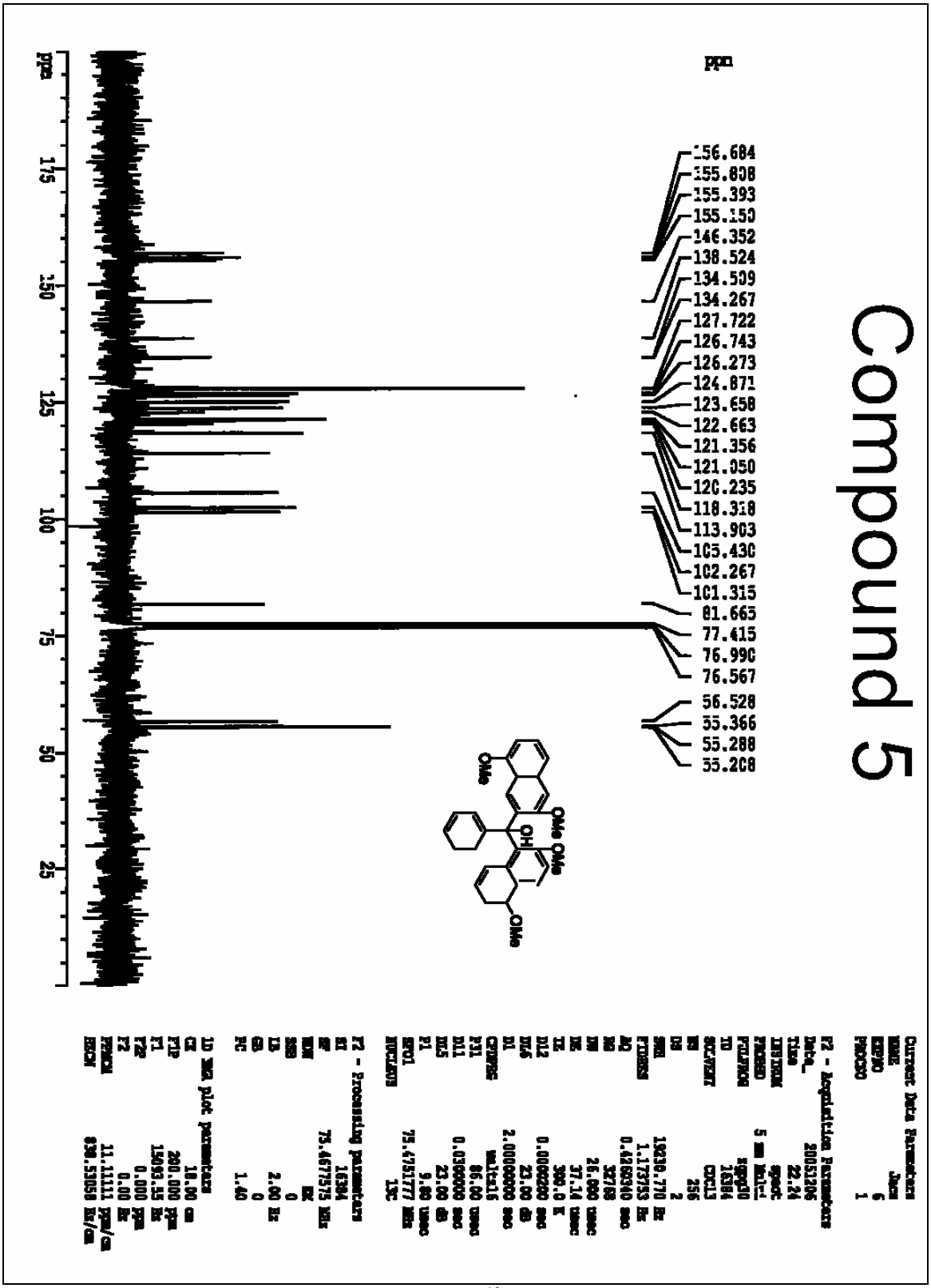

Figure S6. ^{13}C NMR of **5**.

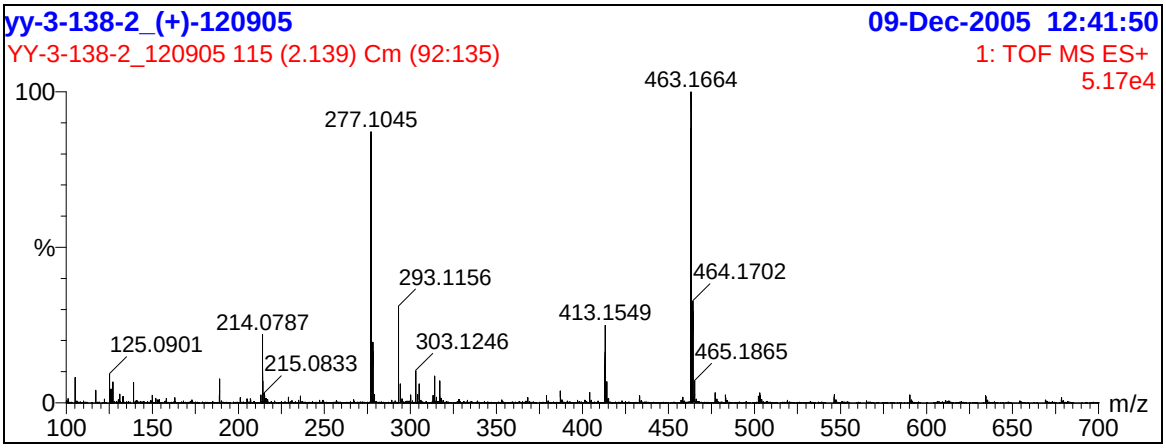

Figure S7. ESI MS of **5**.

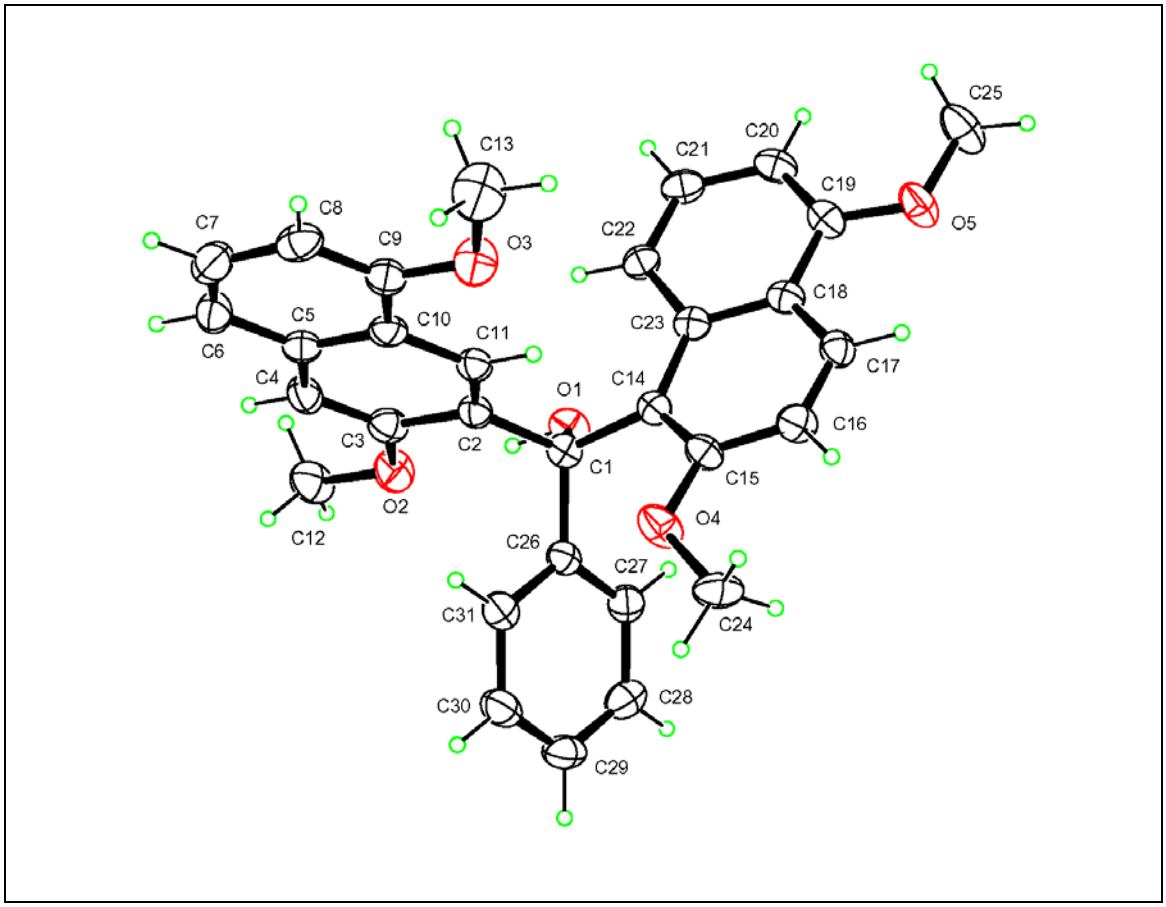

Figure S8. Ortep drawing for **5**.

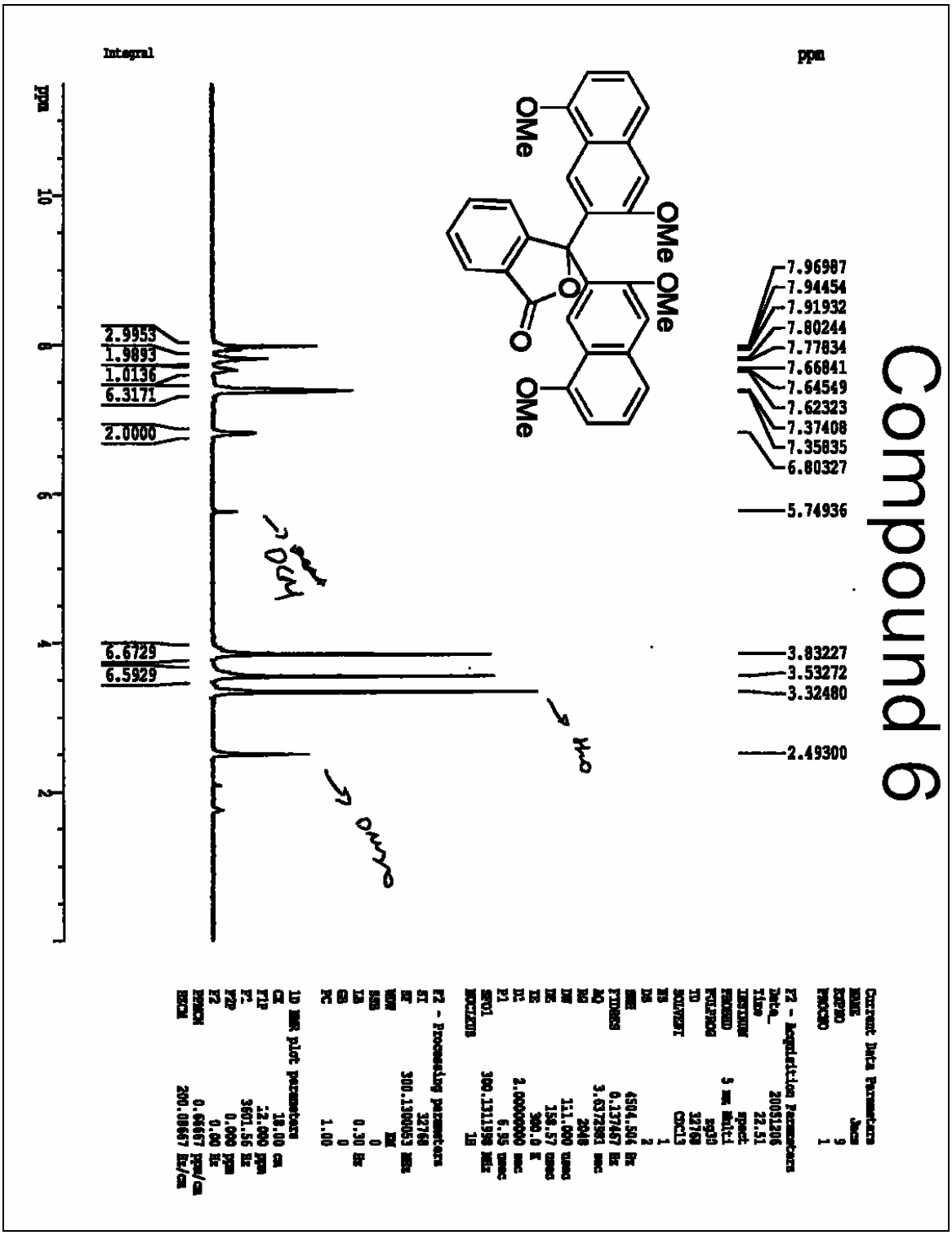

Figure S9. ^{1}H NMR of **6**.

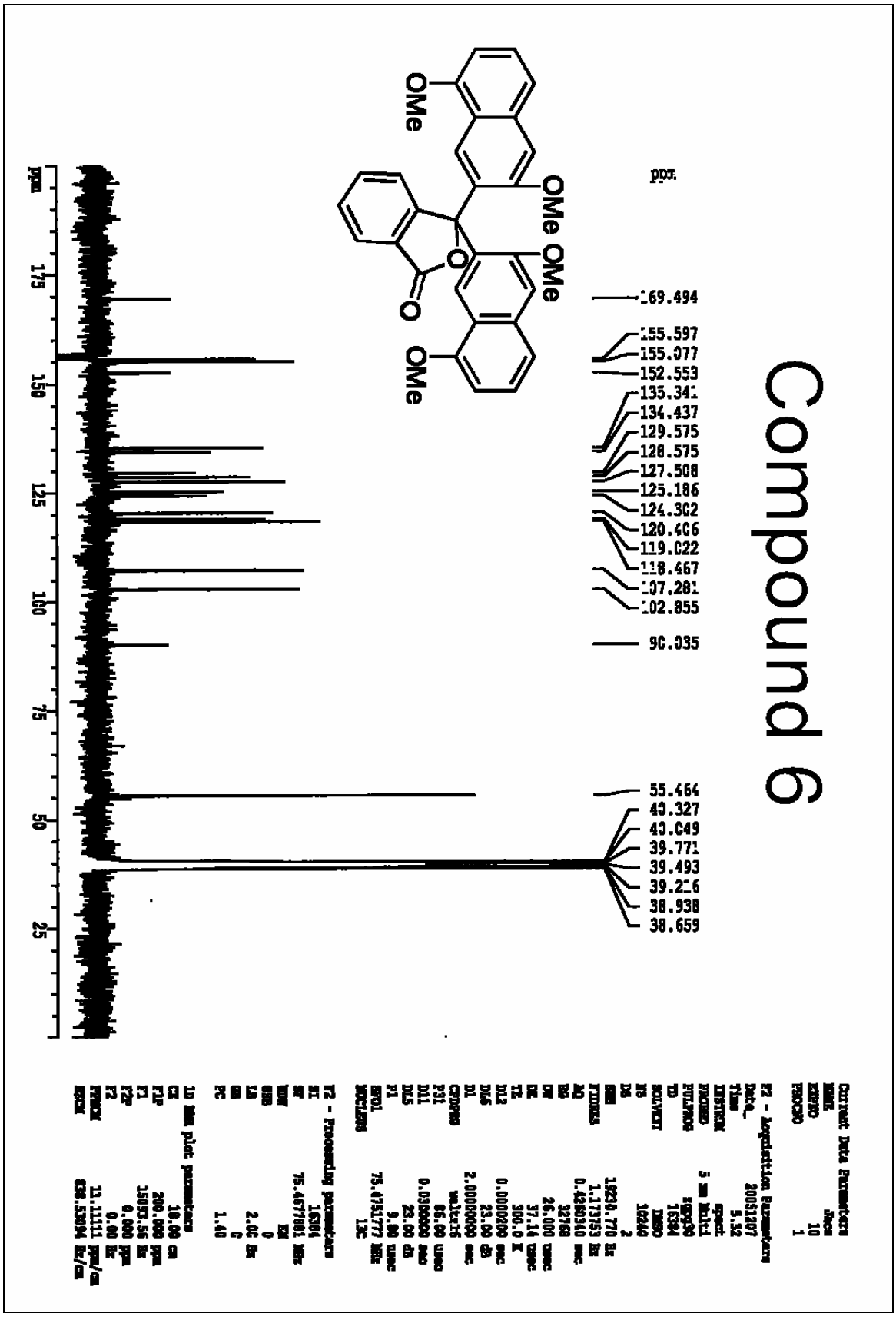

Figure S10. ^{13}C NMR of **6**.

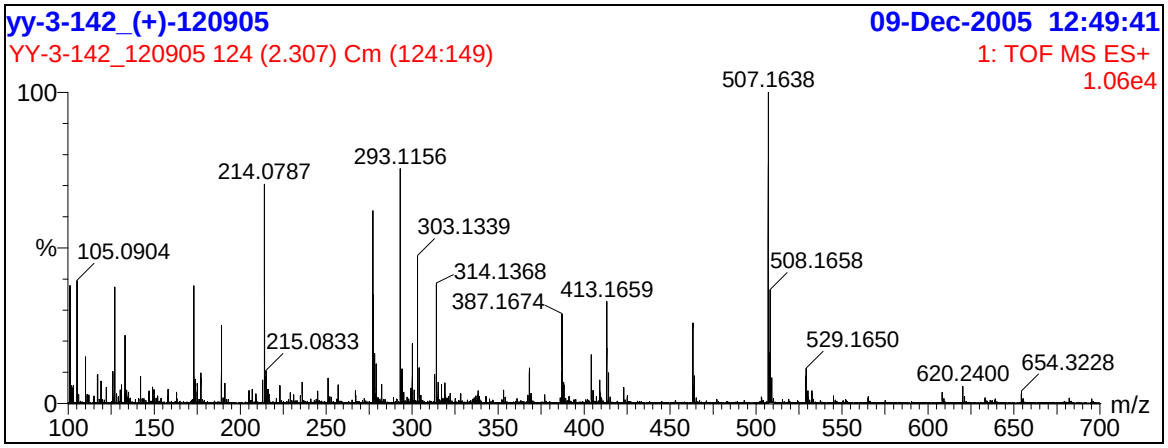

Figure S11. ESI MS of **6**.

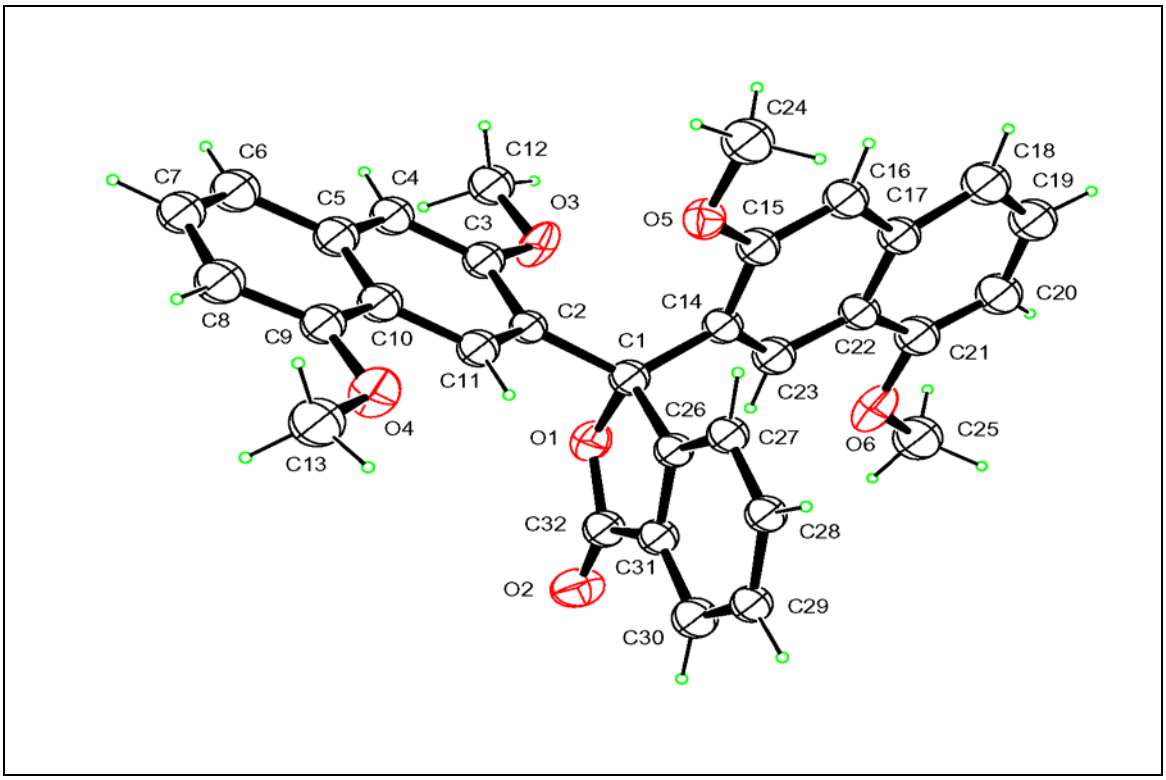

Figure S12. Ortep drawing of **6**.

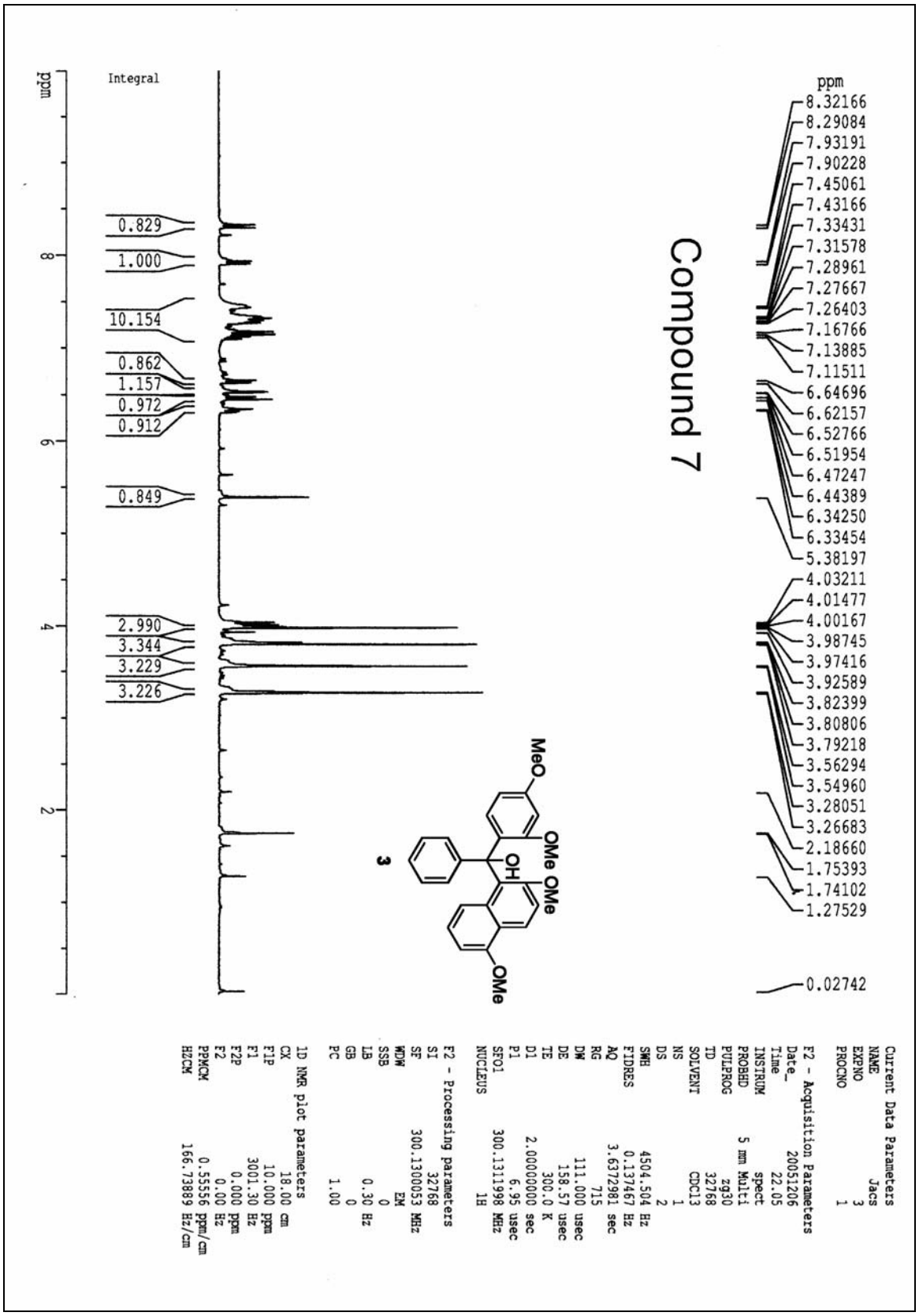

Figure S13. ^{1}H NMR of **7**.

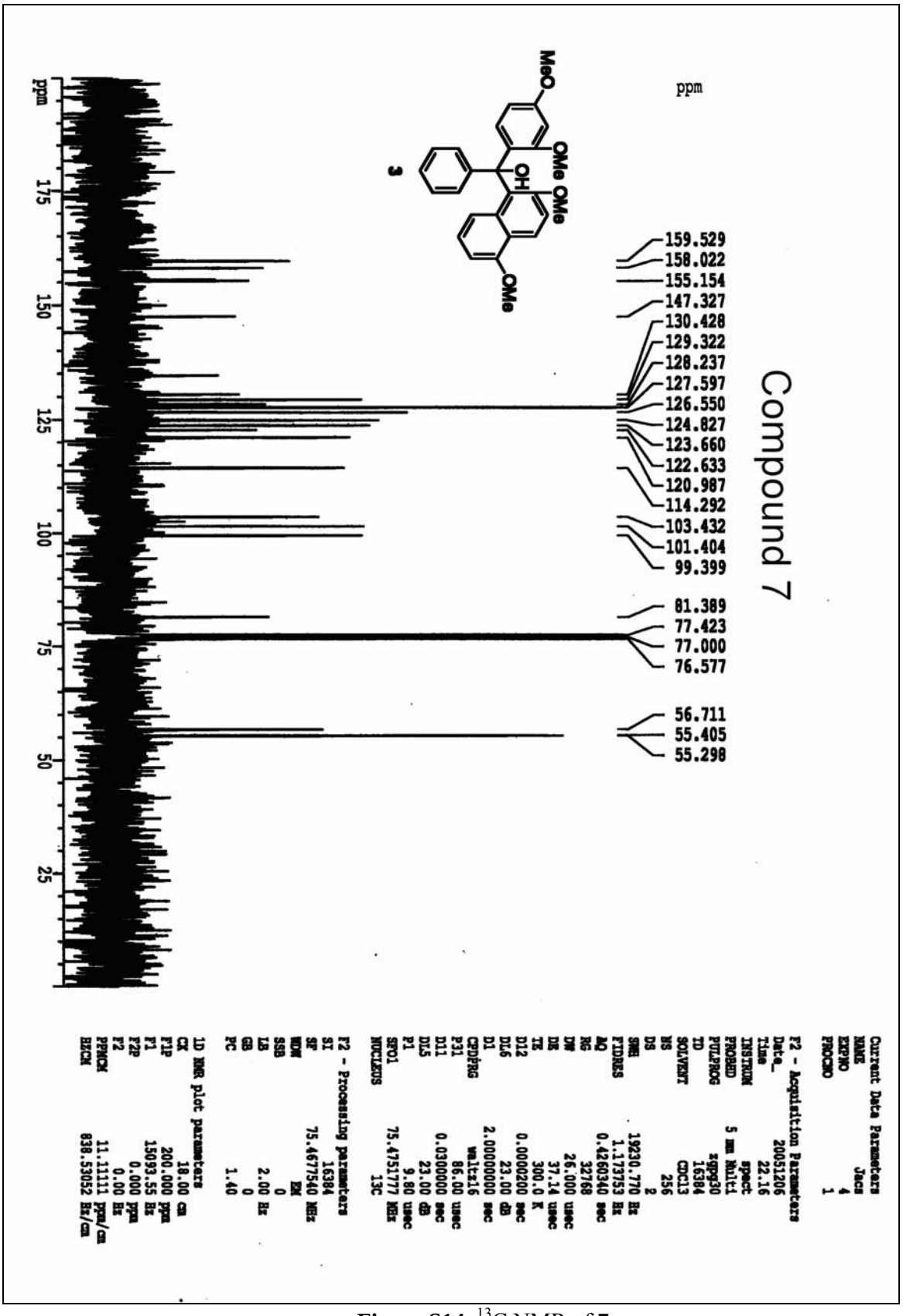

Figure S14. ^{13}C NMR of **7**.

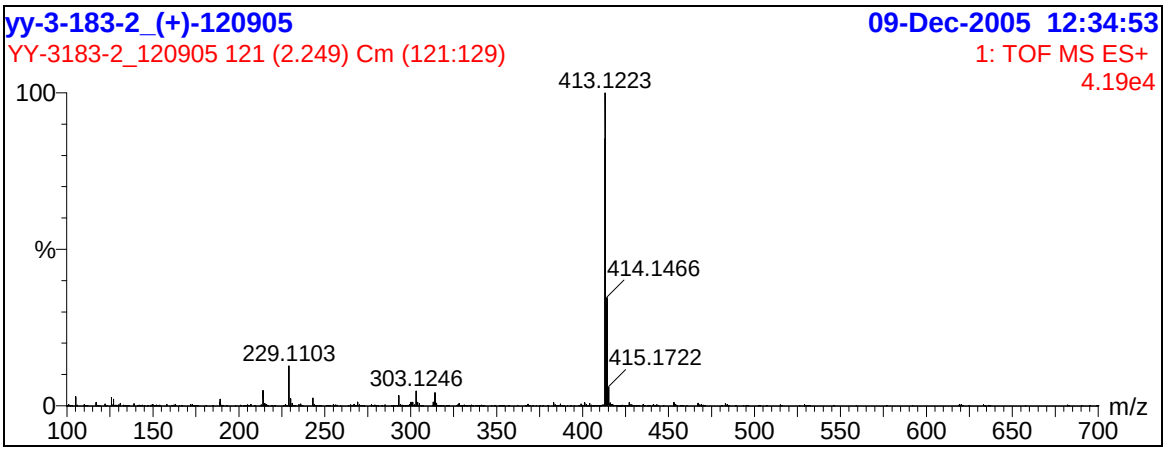

Figure S15. ESI MS of **7**.

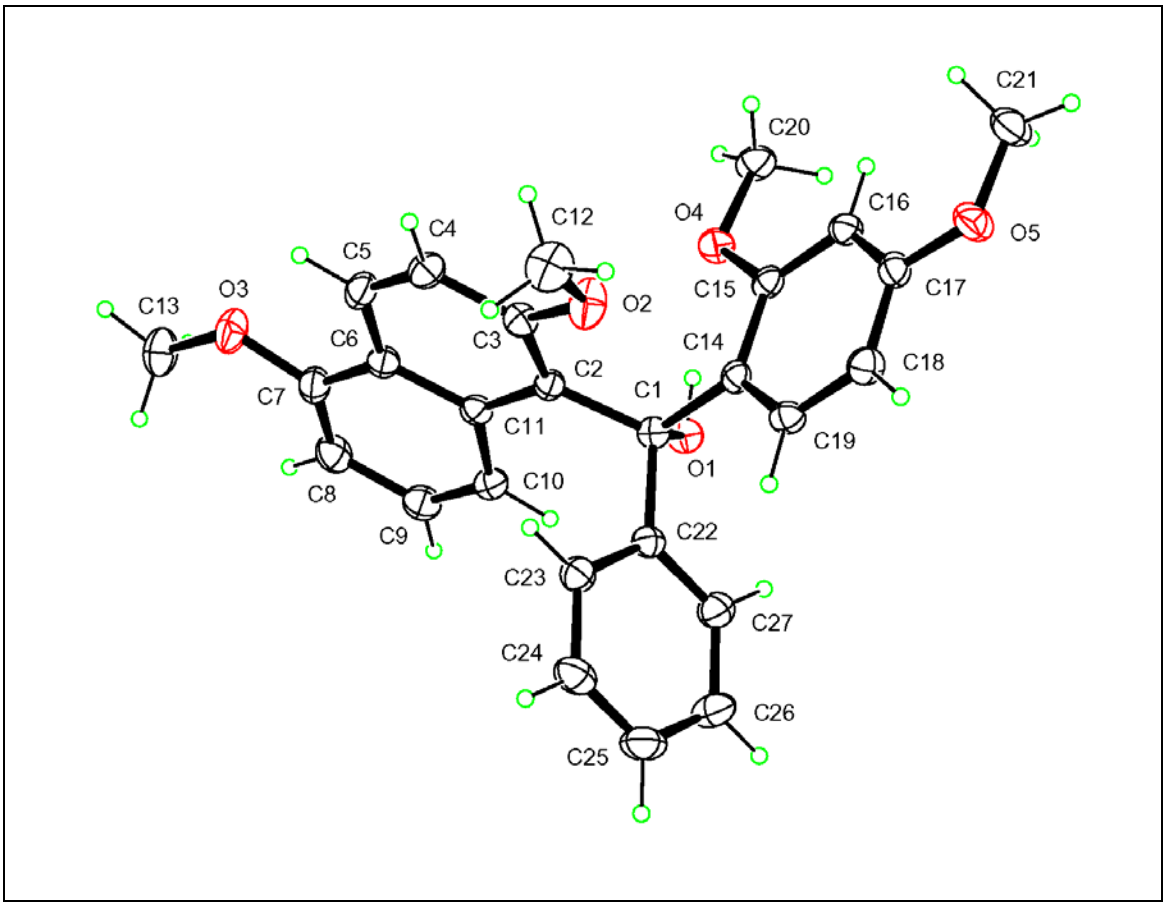

Figure S16. Ortep Drawing of **7**.

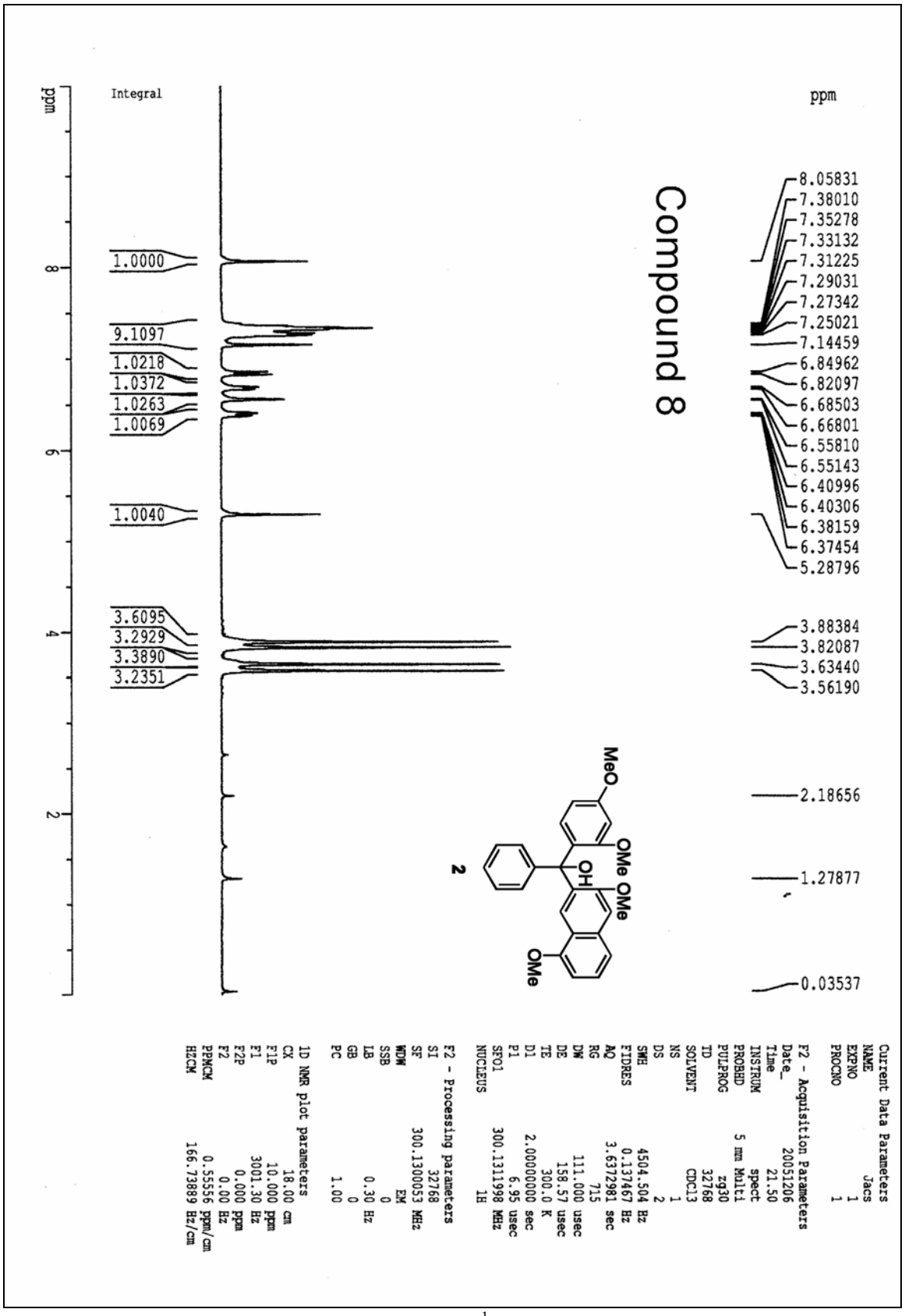

Figure S17. ^{1}H NMR of **8**.

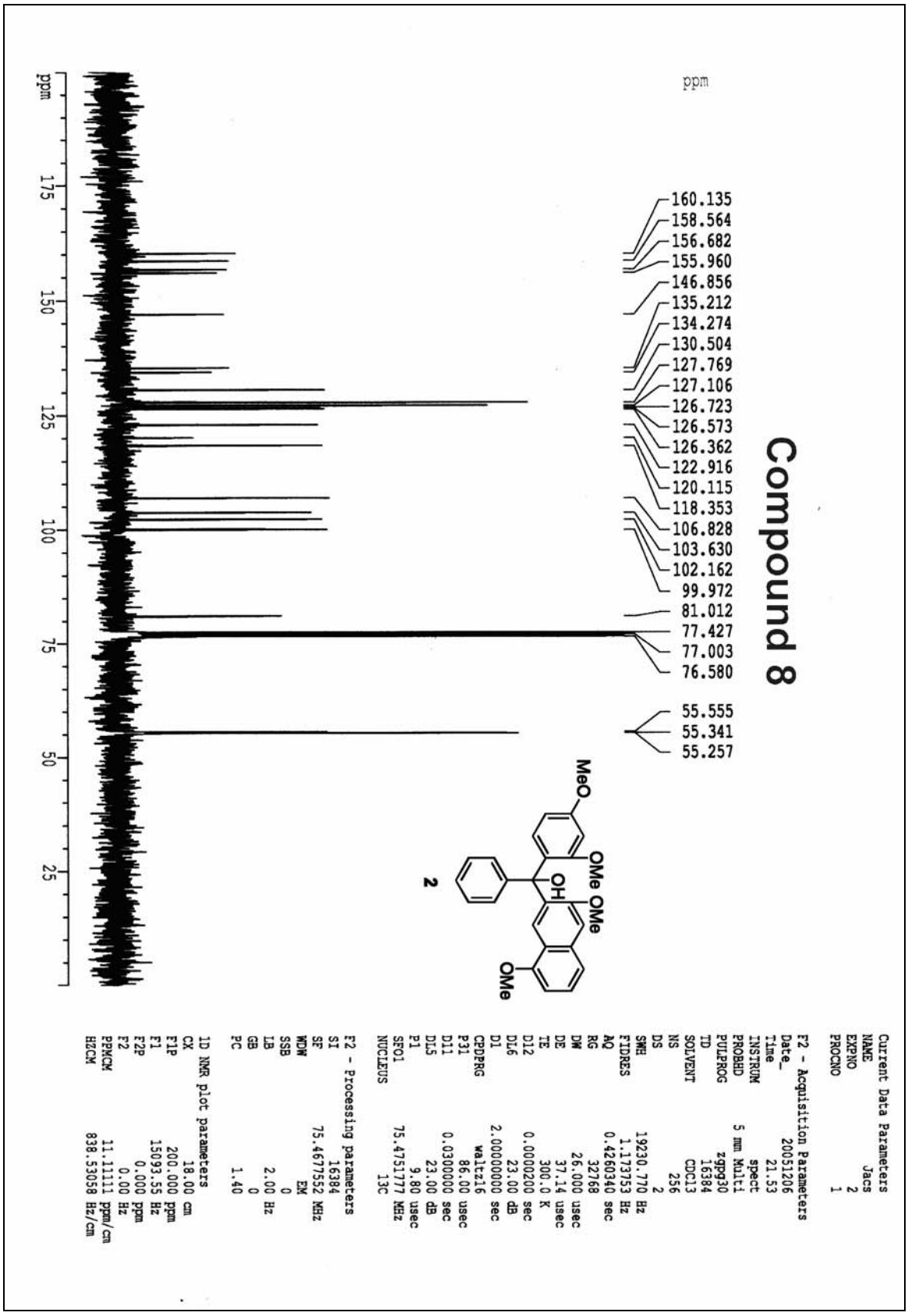

Figure S18. ^{13}C NMR of **8**.

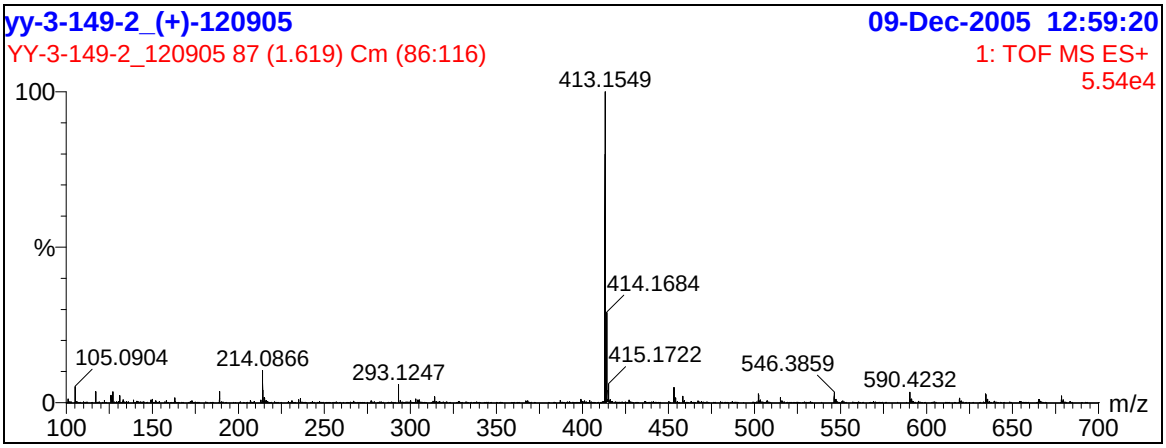

Figure S19. ES MS of **8**

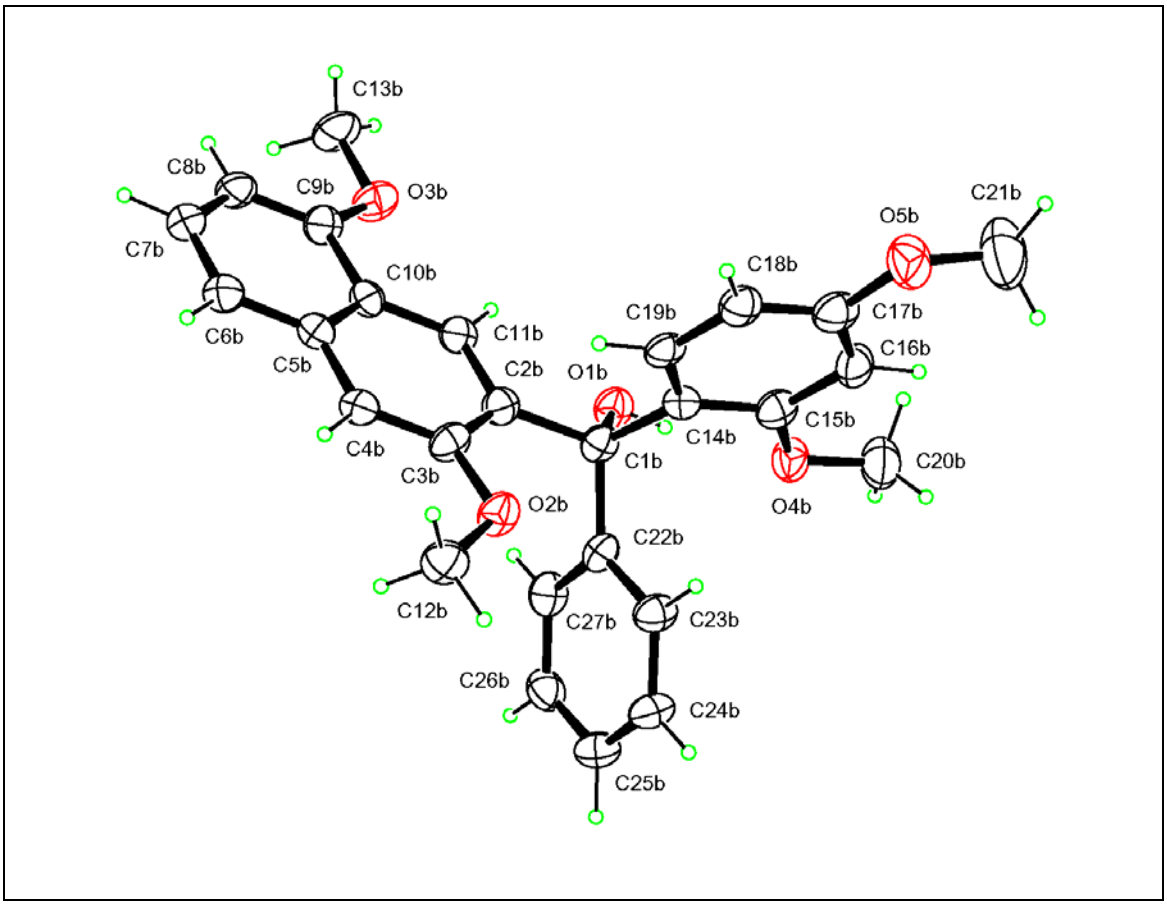

Figure S20. Ortep drawing of **8**.

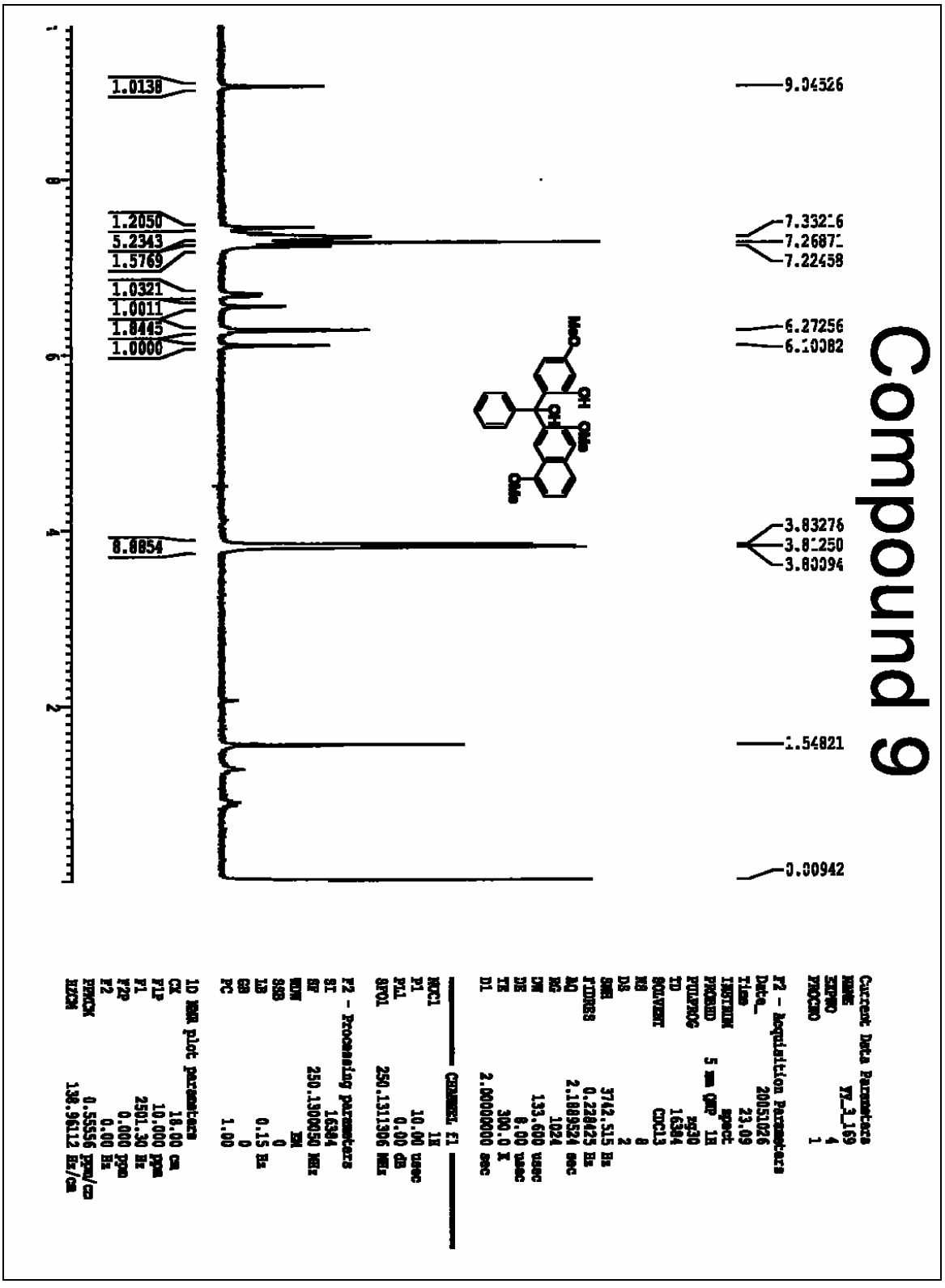

Figure S21. ^{1}H NMR of **9**.

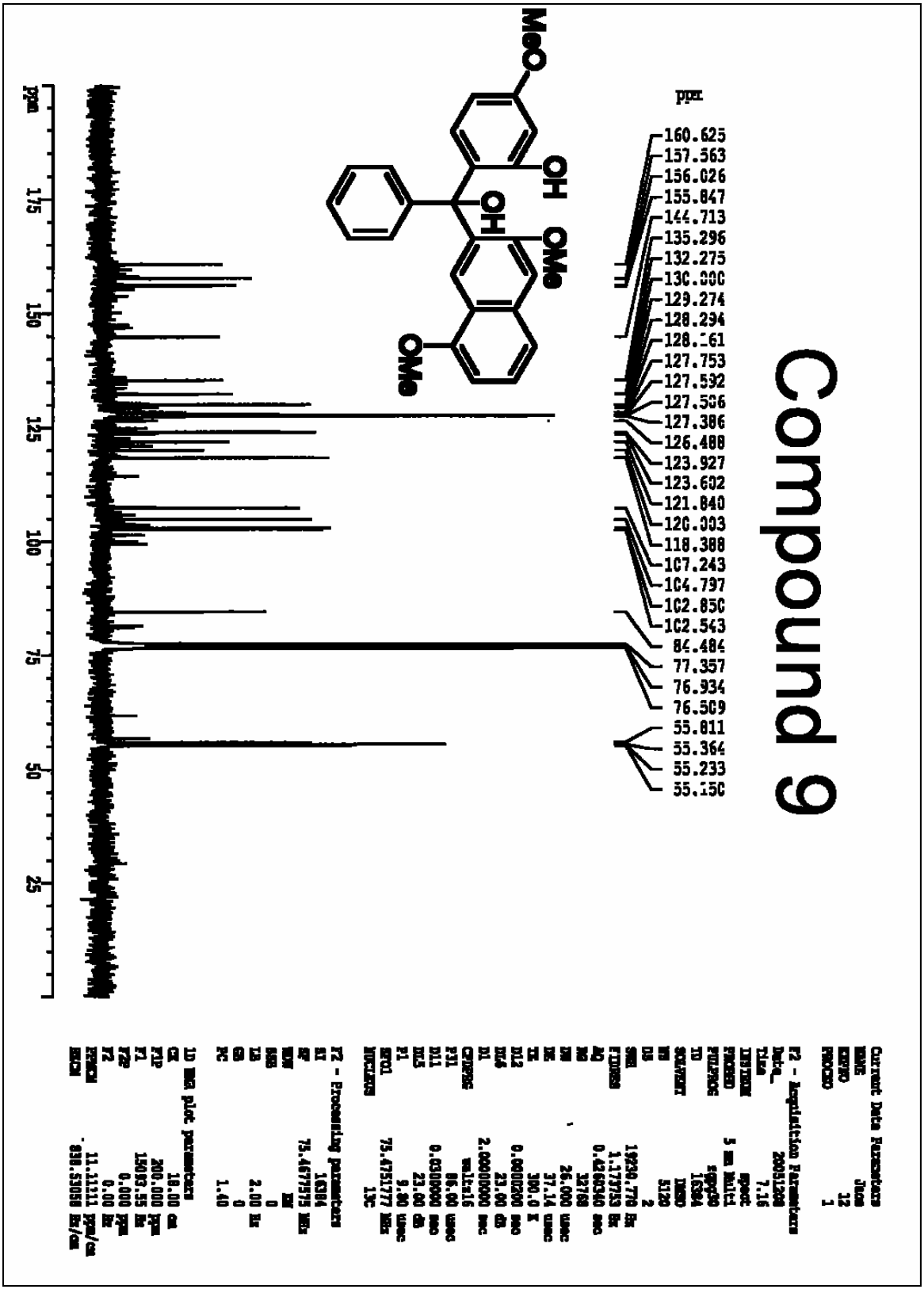

Figure S22. ^{13}C NMR of **9**.

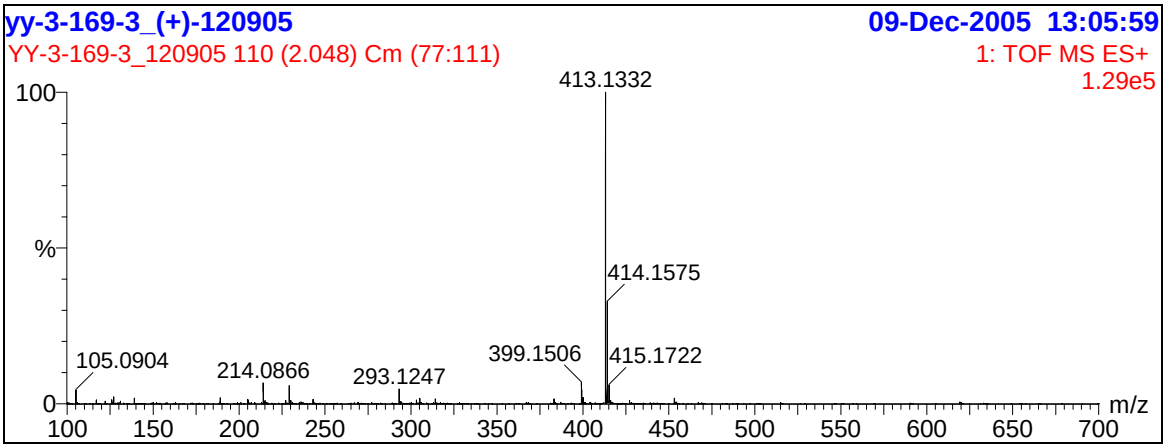

Figure S23. ES MS of **9**

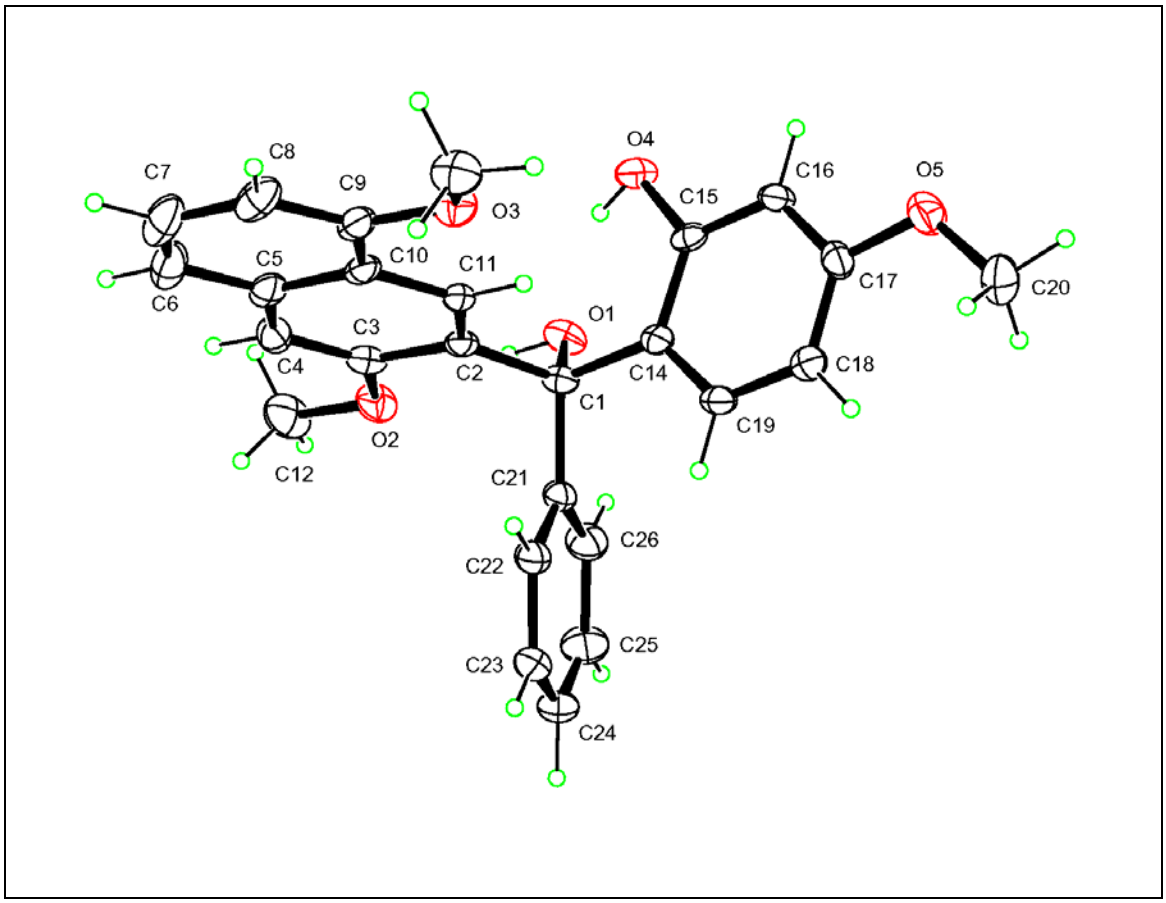

Figure S24. Ortep drawing of **9**.

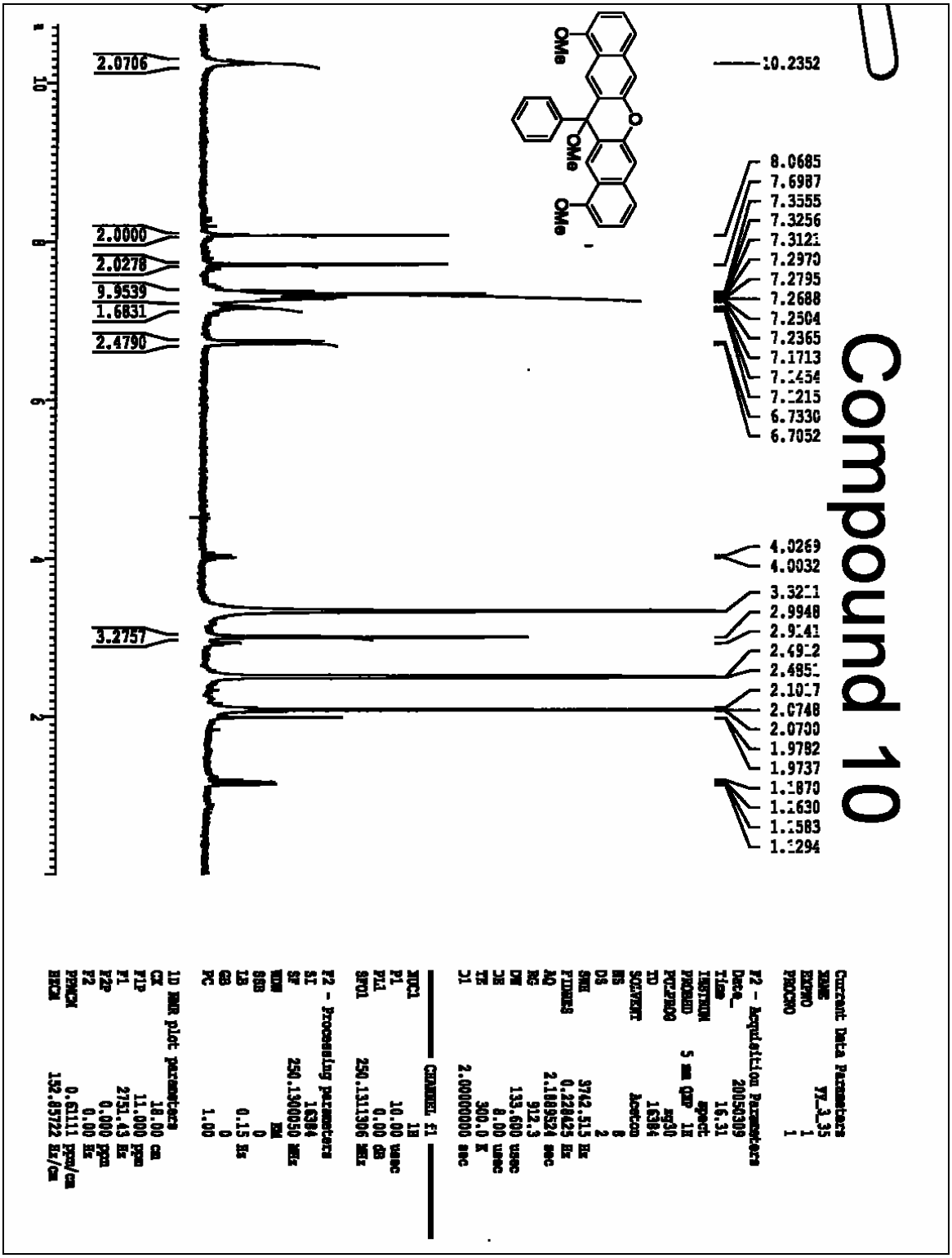

Figure S25. ^{1}H NMR of **10**.

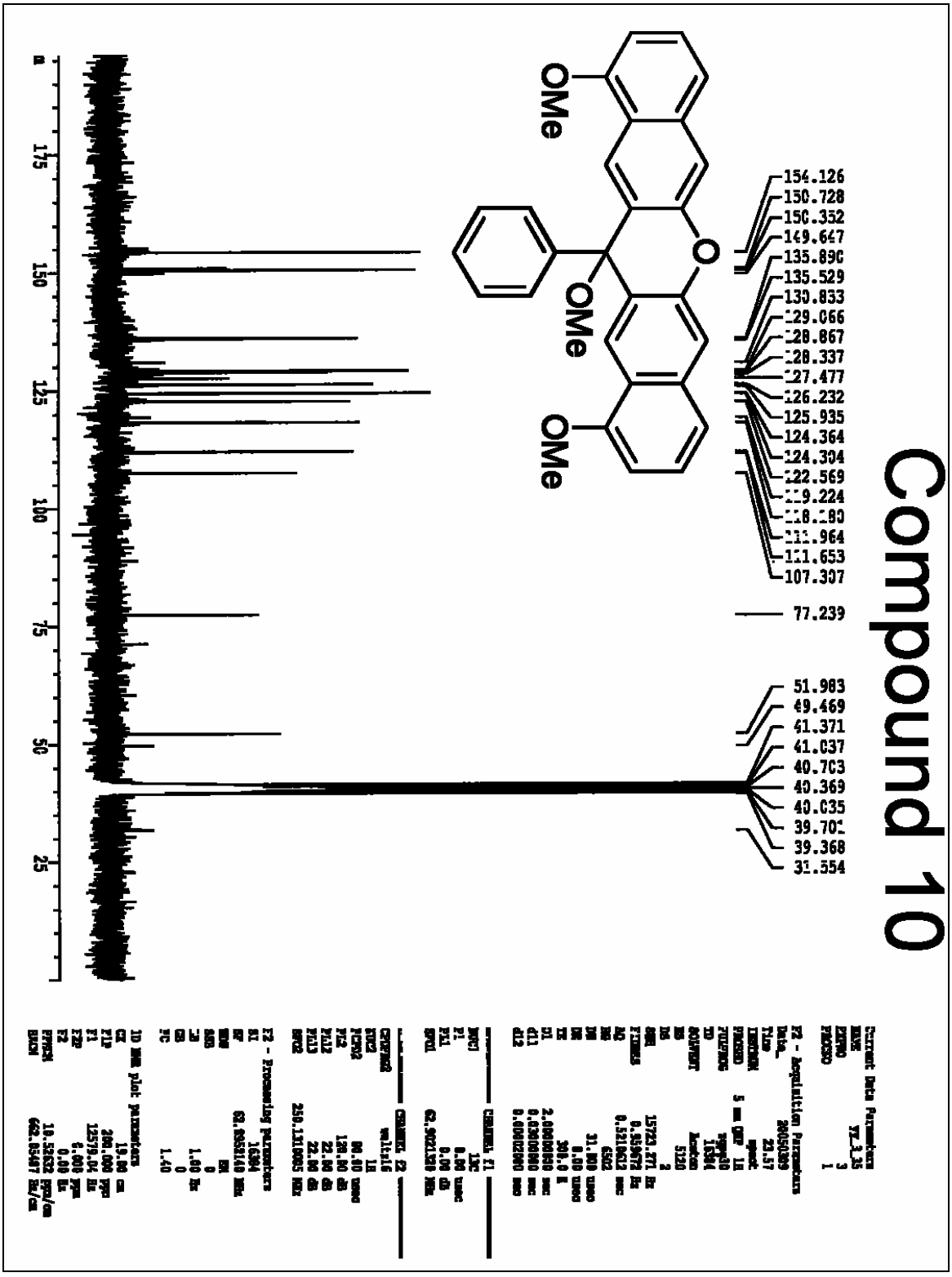

Figure S26. ^{13}C NMR of **10**.

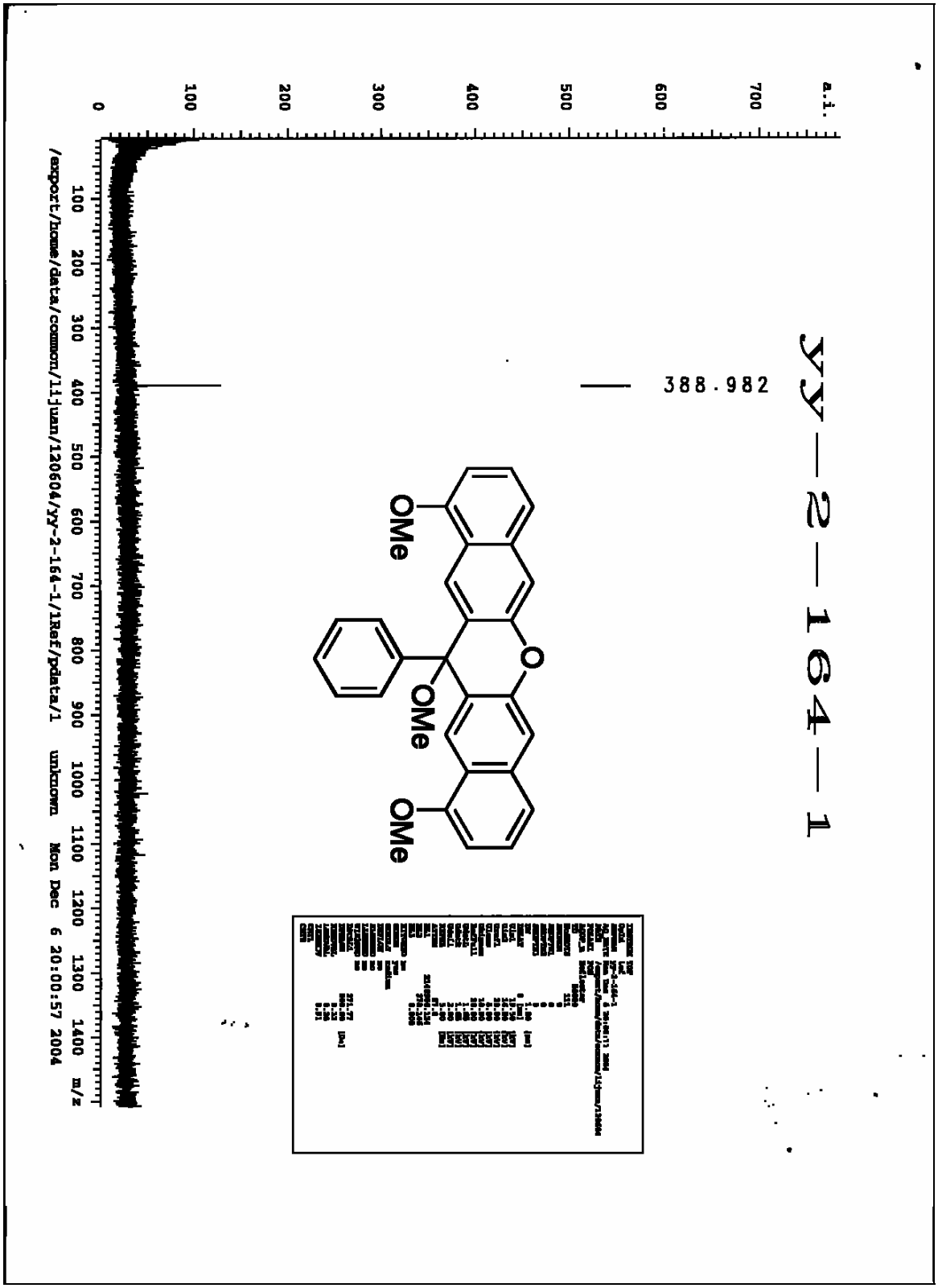

Figure S27. MALDI TOF of **10**.

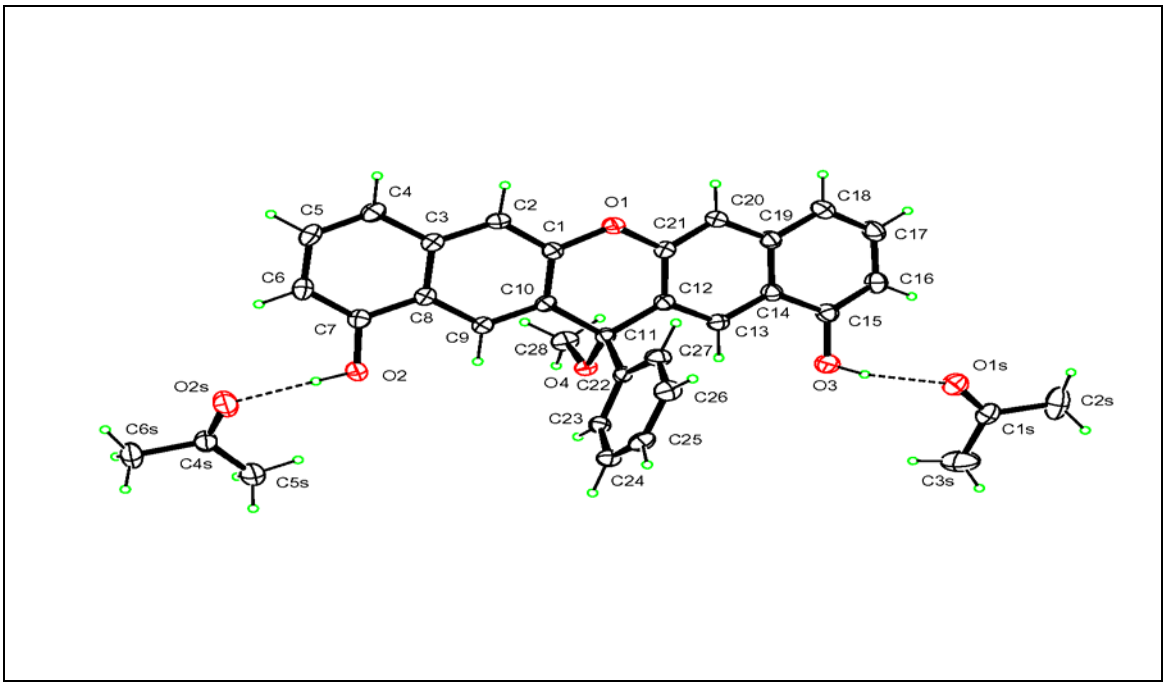

Figure S28. Ortep drawing of **10** with two acetone solvates.

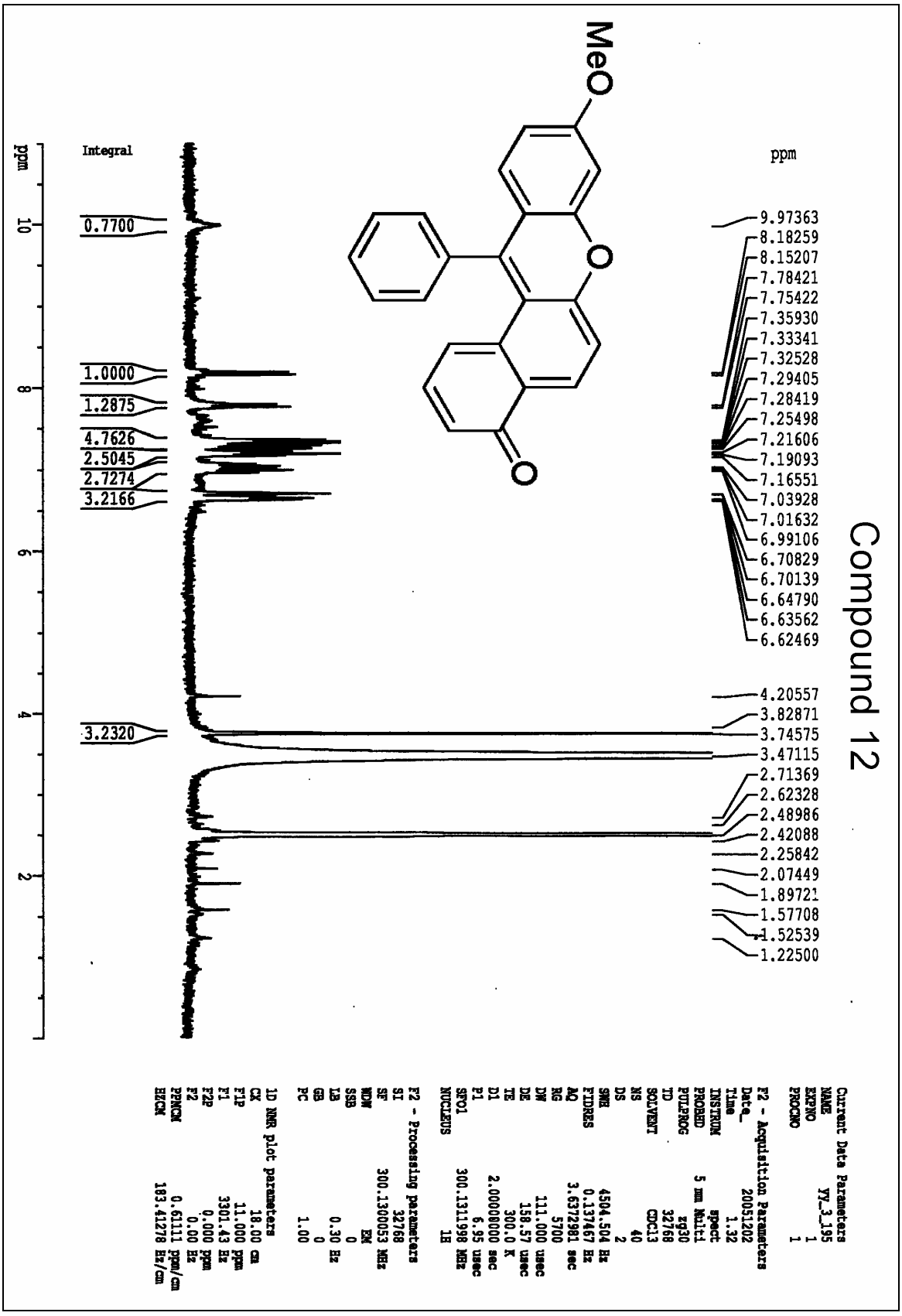

Figure S29. ^{1}H NMR of **12**.

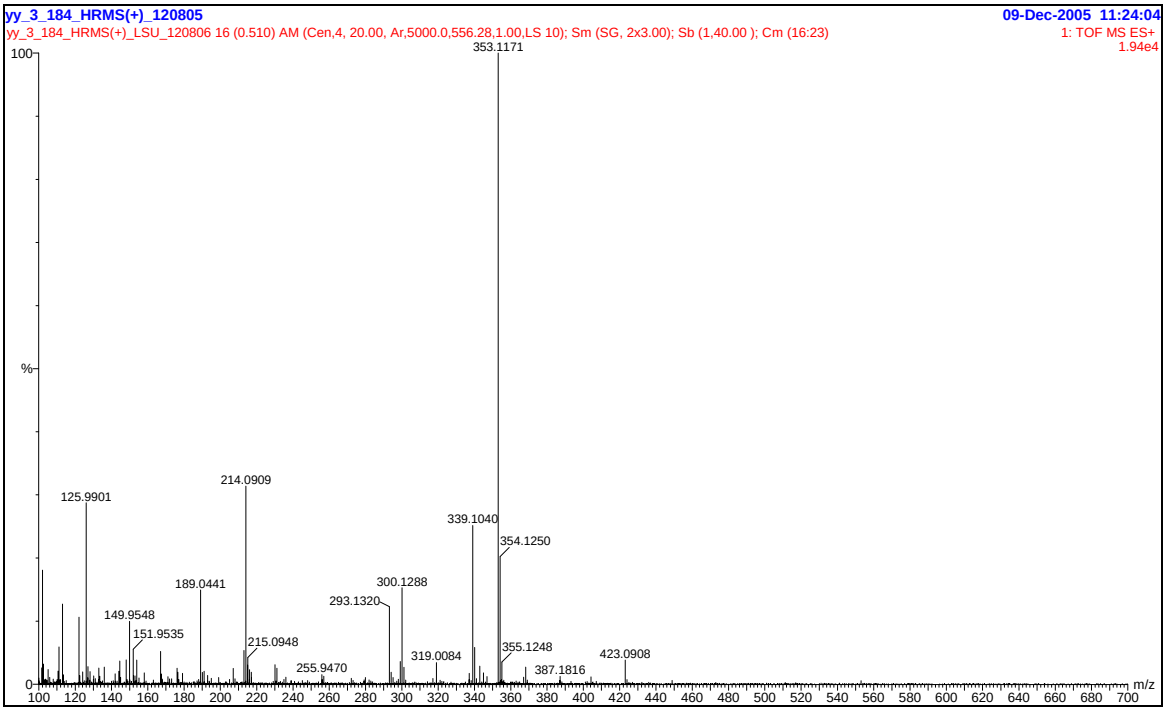

Figure S30. HRMS of **12**.

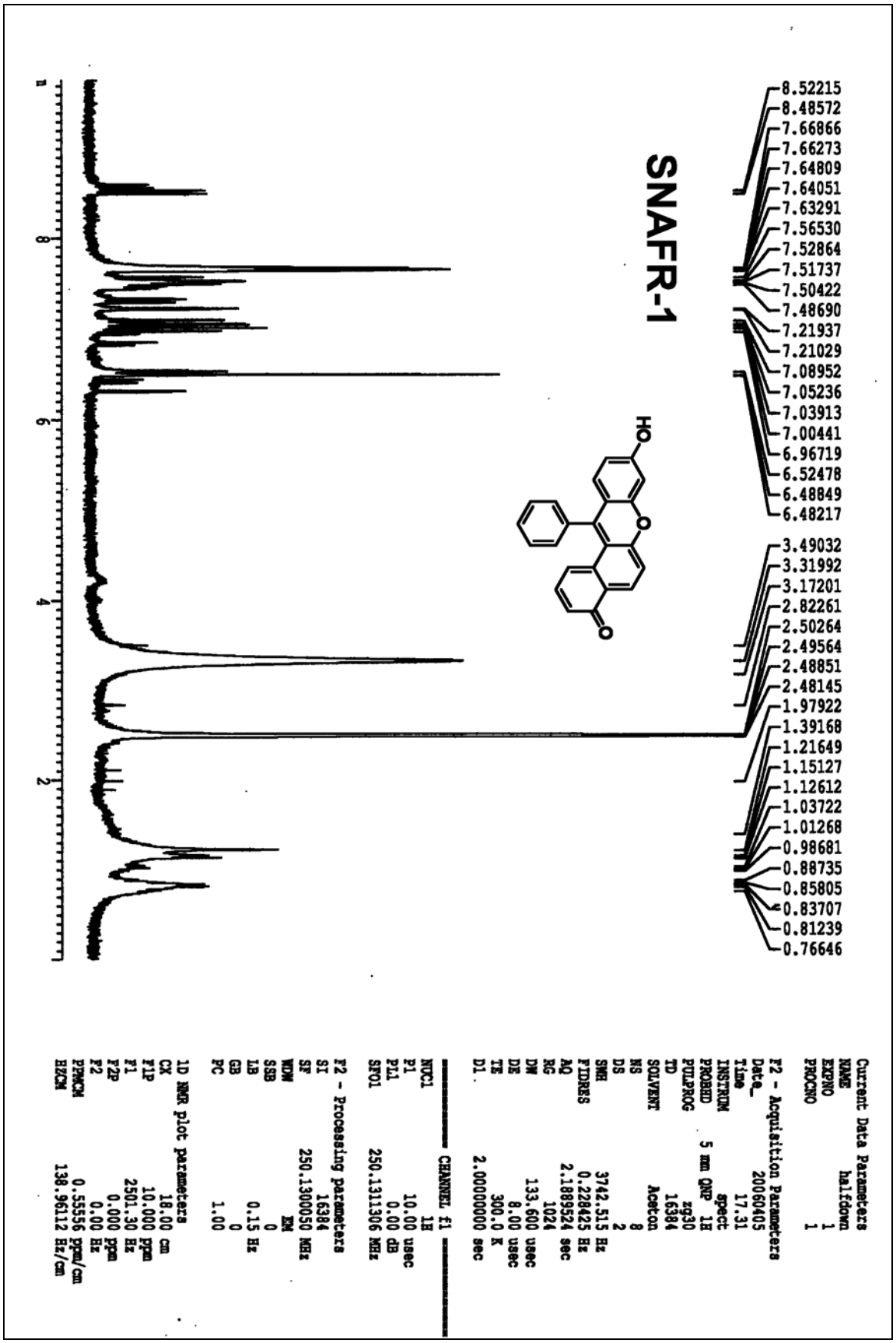

Figure S31. ^{1}H NMR of **SNAFR-1**.

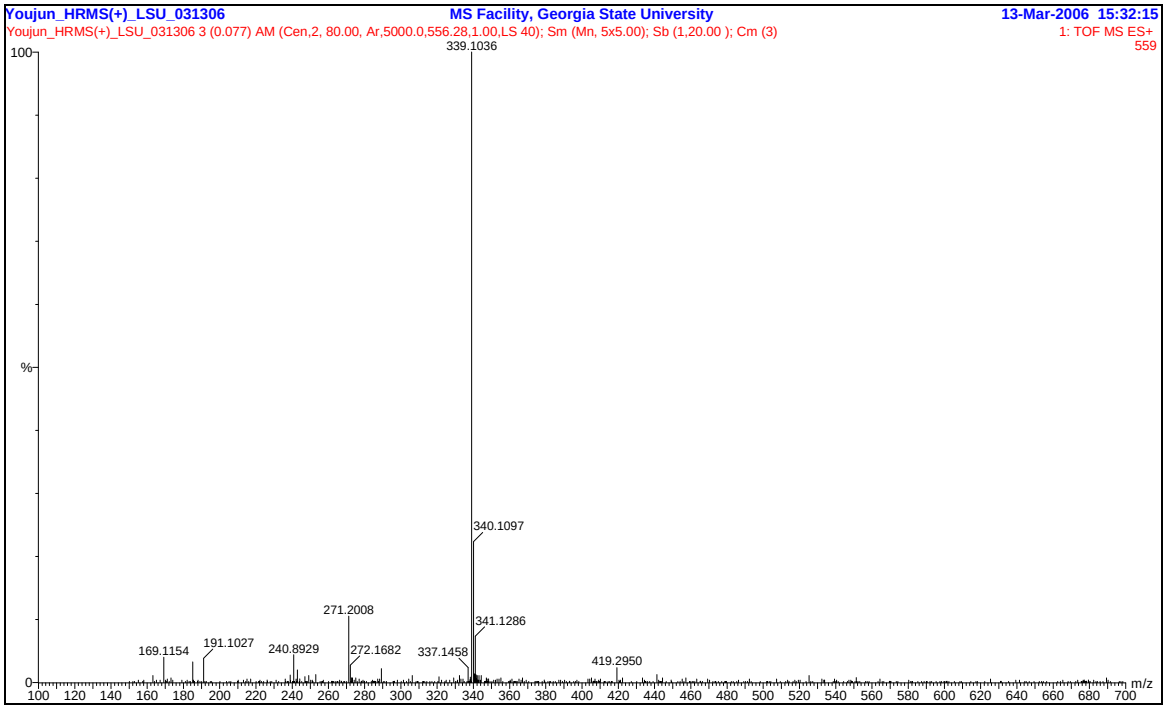

Figure S32. HRMS of **SNAFR-1**.

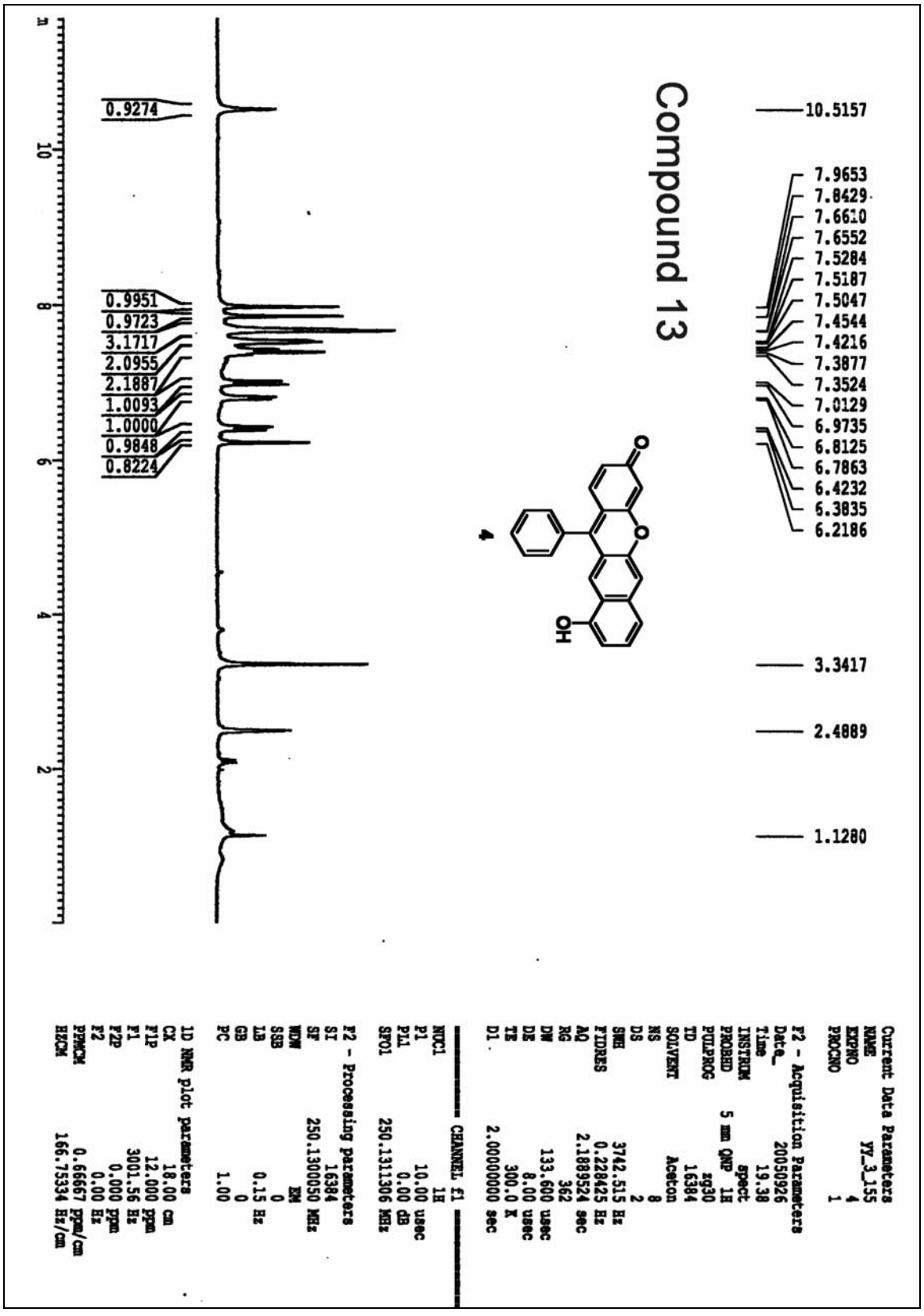

Figure S33. ^{1}H NMR of **13**.

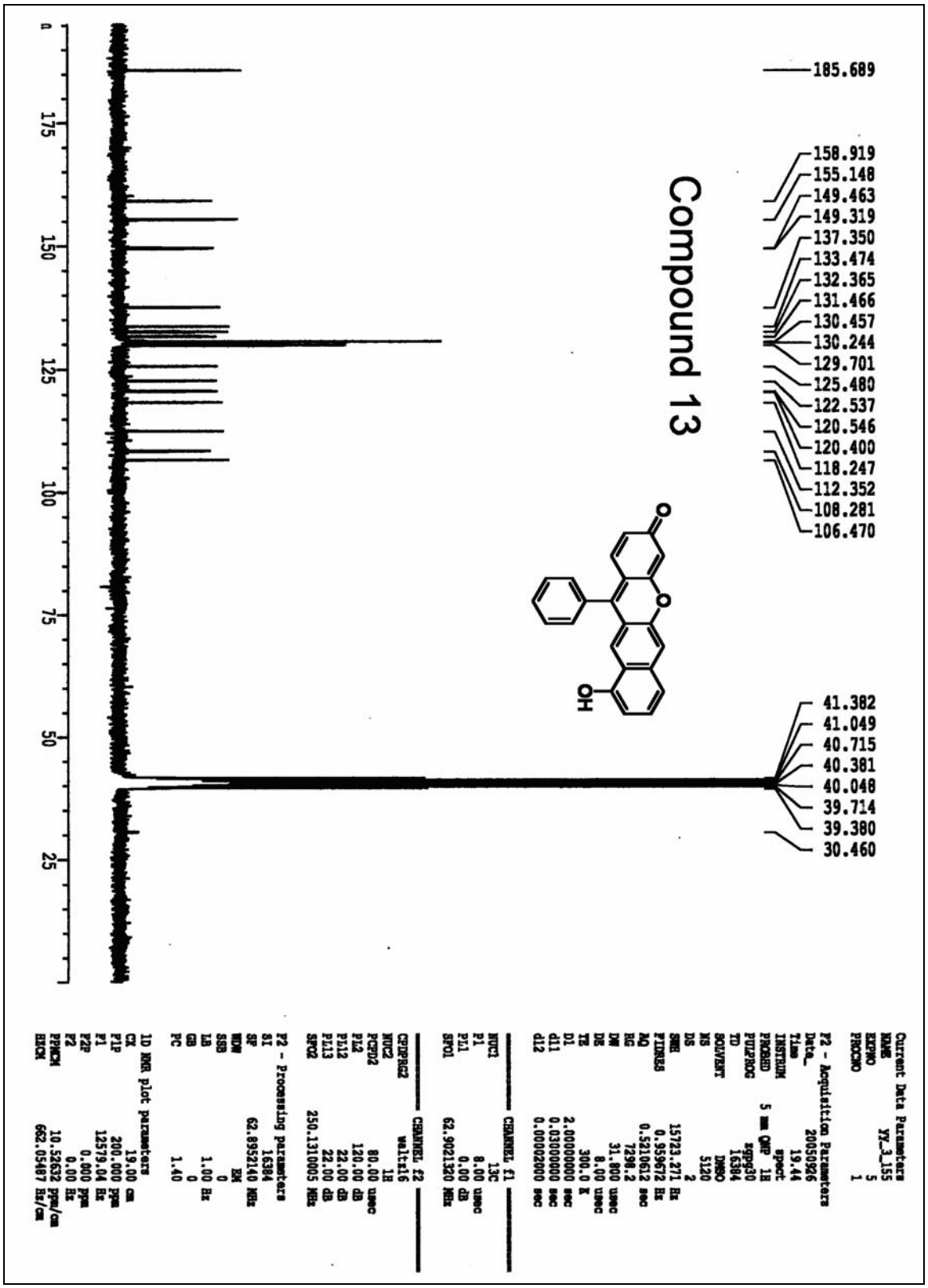

Figure S34. ^{13}C NMR of **13**.

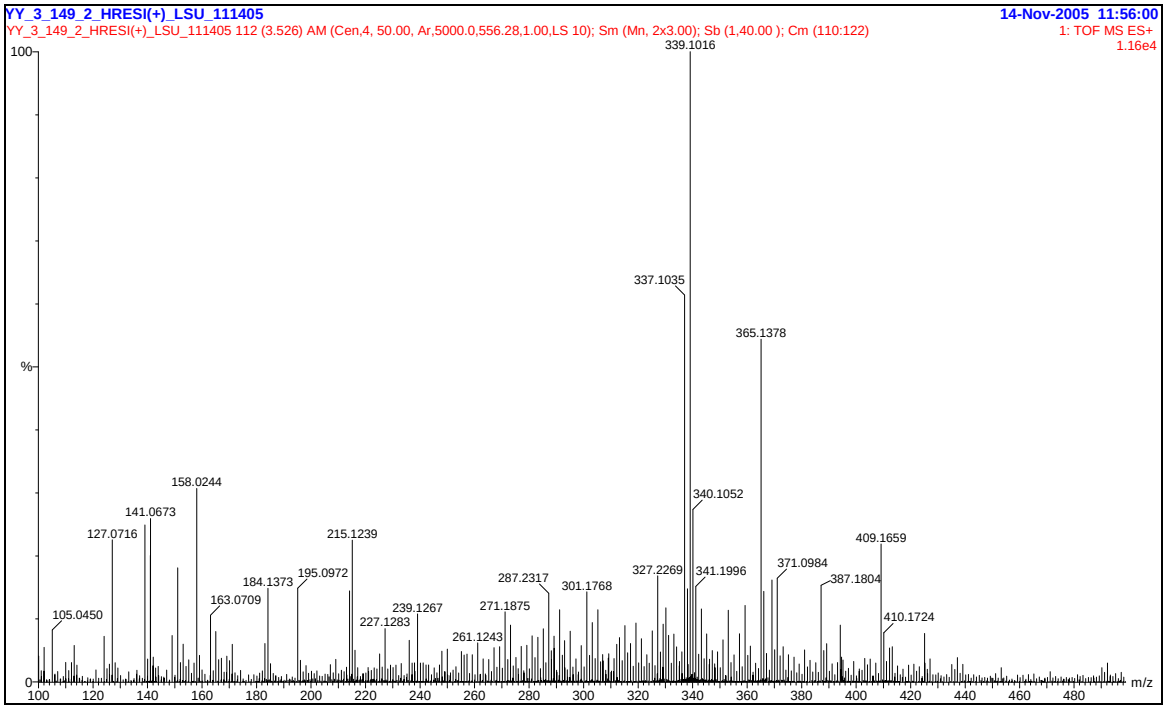

Figure S35. HRMS of **13**.

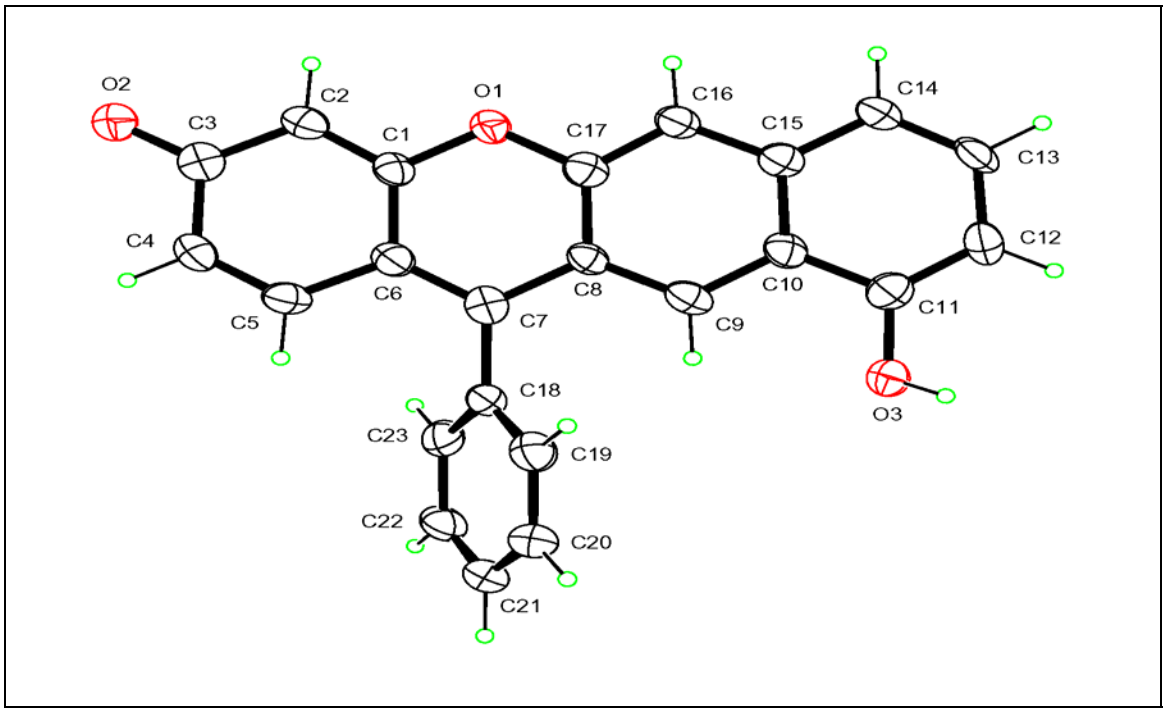

Figure S36. Ortep drawing of **13**.

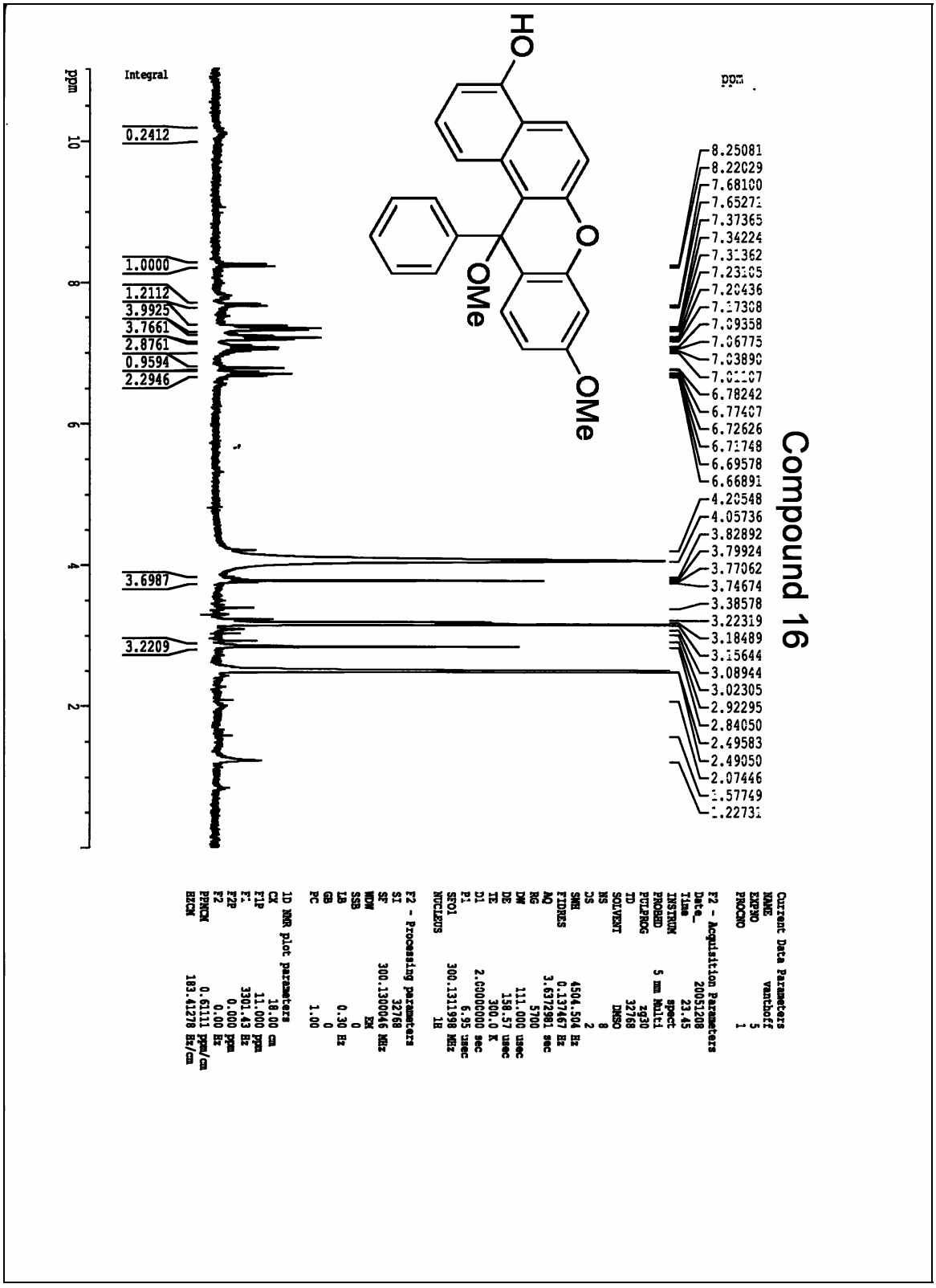

Figure S37. ^{1}H NMR of **16**.

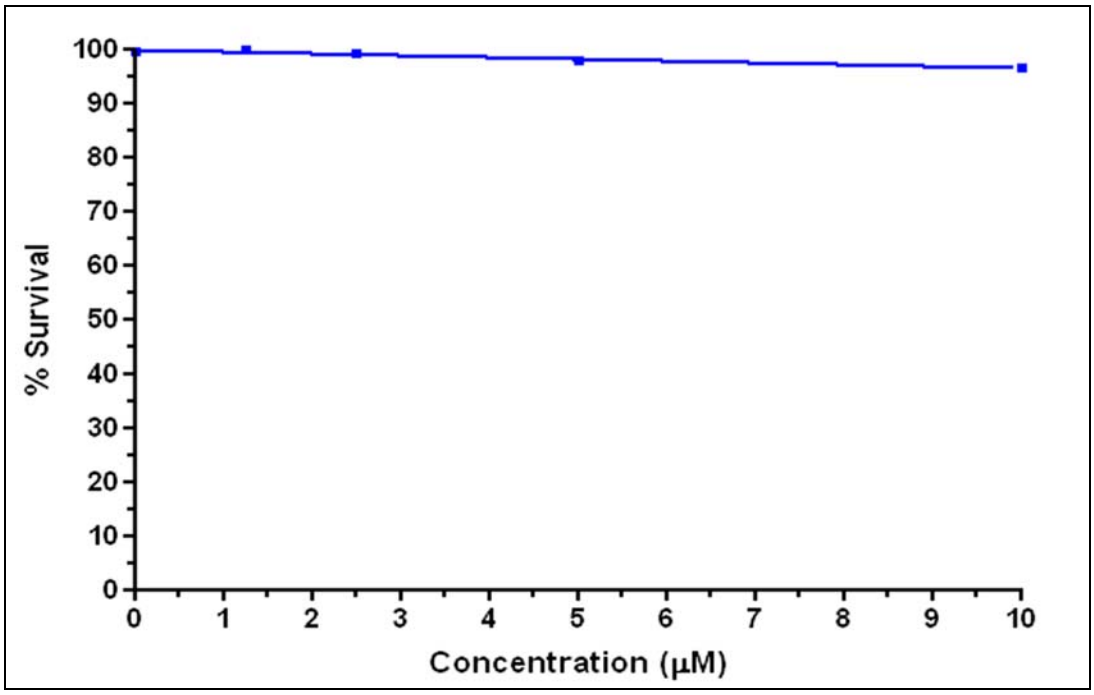

Figure S38. Cytotoxicity Study of **SNAFR-1**. Cells were loaded overnight at the concentrations indicated. Negative control (100% kill) was achieved by adding Saponin to 0.1% and 0 uM was used as 100% Viable for standardization purposes. Triplicates of each concentration were run. Error bars are not visible at the scale of the graph. Viability was measured using the CellTiter Blue Cell Viability Kit from Promega.

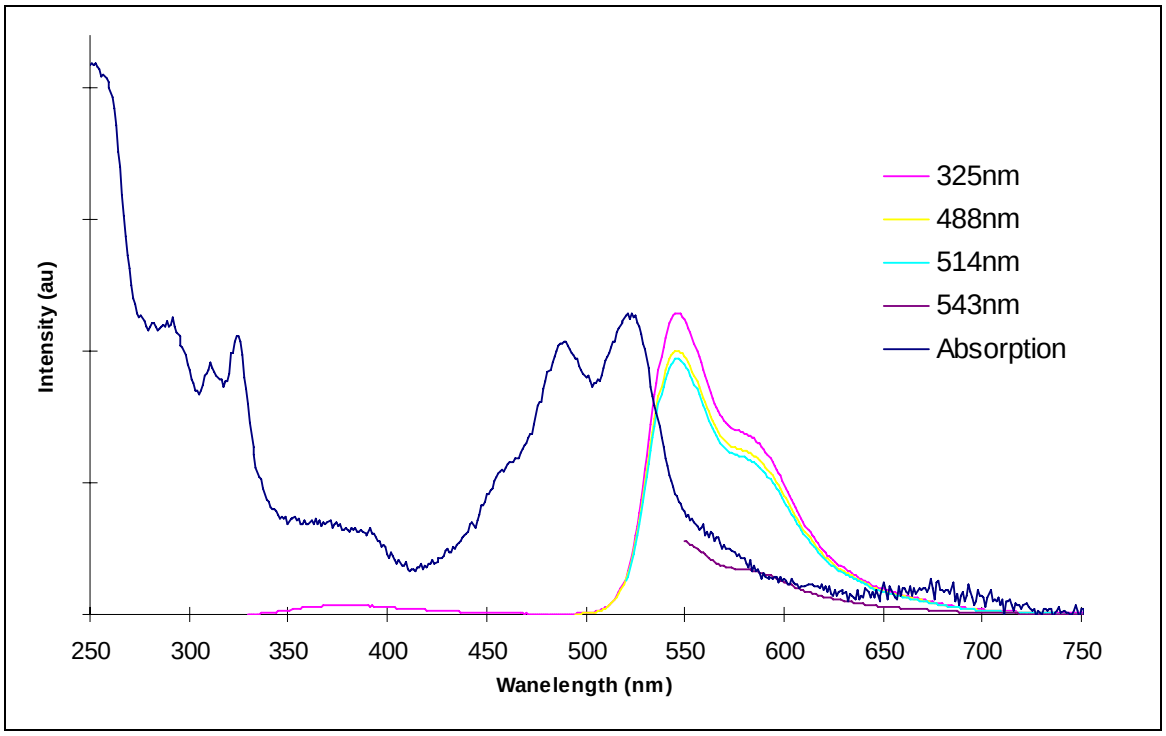

Figure S39. Absorption spectrum of 30 µM **SNAFR-1** in MeOH and emission spectra excited at wavelengths corresponding to common laser lines. UV-Vis absorption spectrum normalized to emission spectra.

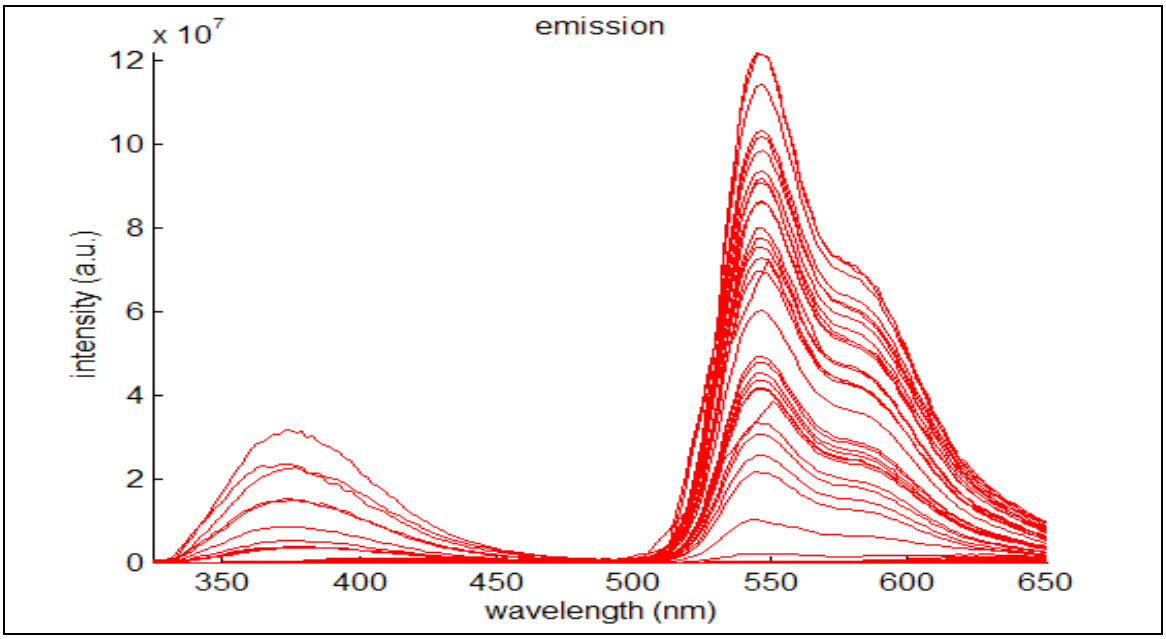

Figure S40. Emission of 30 μM **SNAFR-1** as a function of excitation in MeOH.

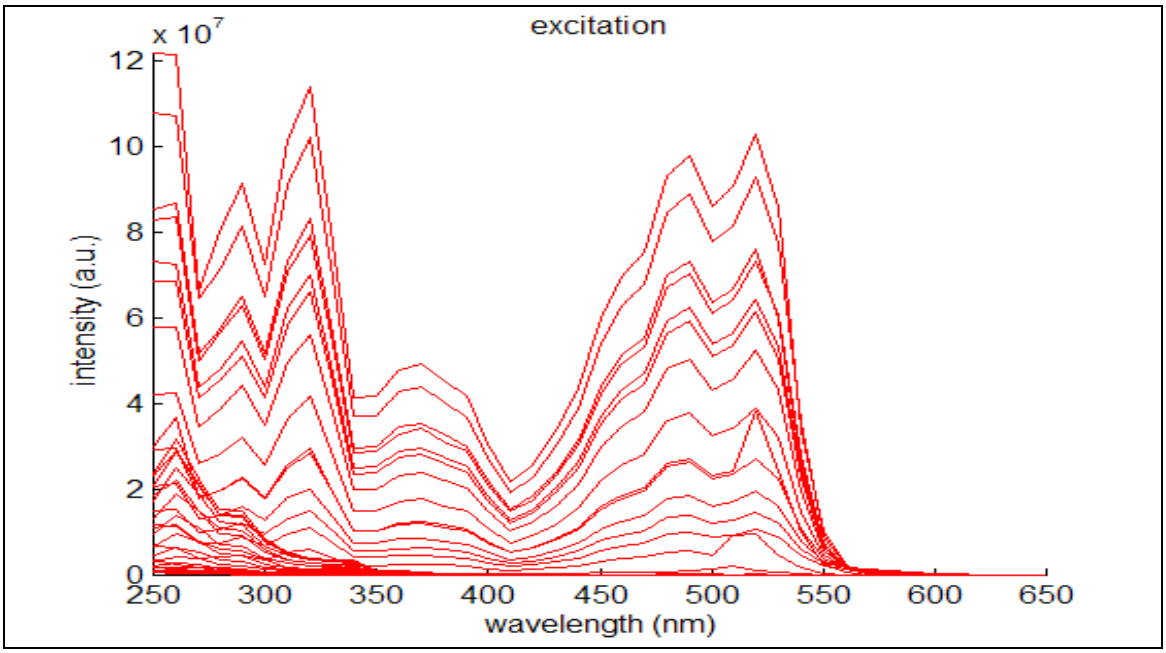

Figure S41. Excitations of 30 μM **SNAFR-1** as a function of emission in MeOH.

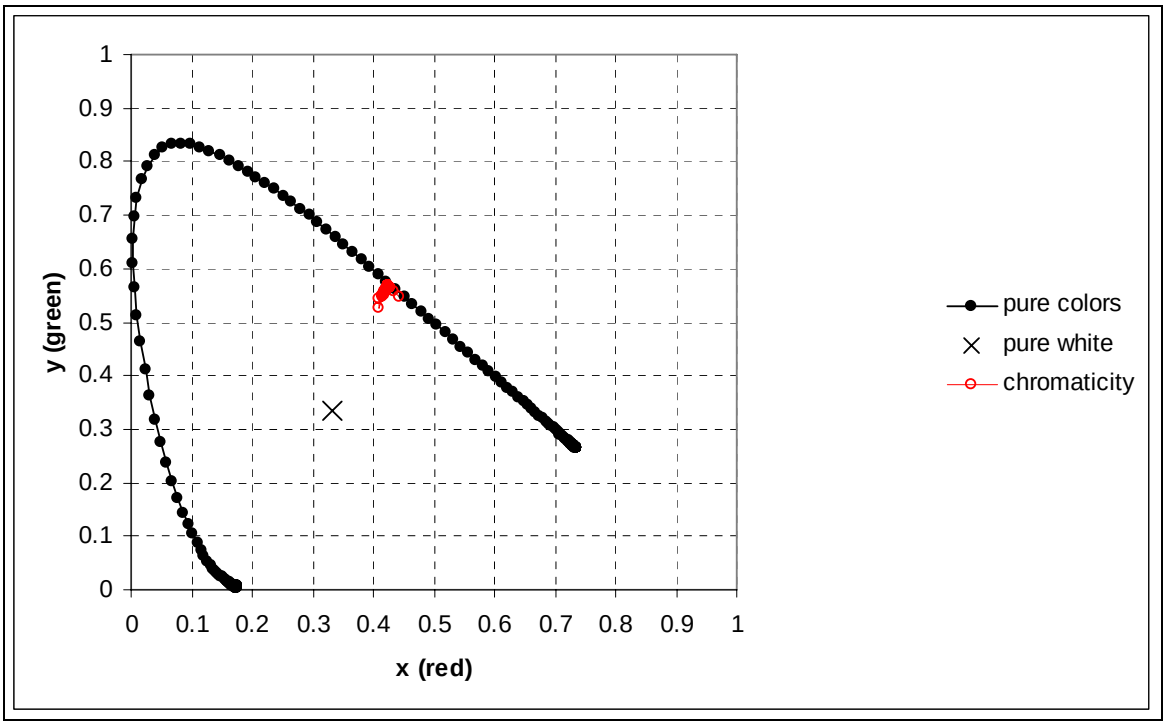

Figure S42. Chromaticity diagram of 30 μM **SNAFR-1** in MeOH with excitation wavelength between 260 nm and 550 nm plotted in a 1931 CIE diagram.

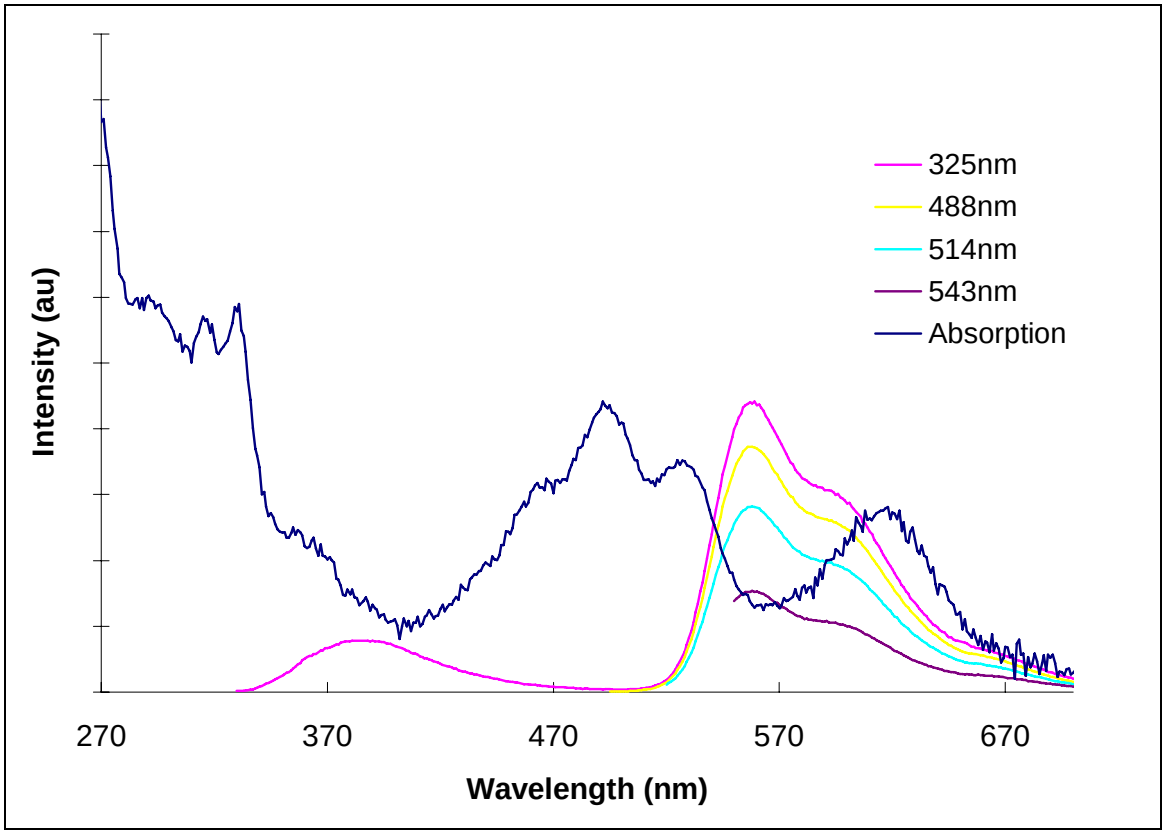

Figure S43. Absorption spectrum of 30 μM **SNAFR-1** in DMSO and emission spectra excited at wavelengths corresponding to common laser lines. UV-Vis absorption spectrum normalized to emission spectra.

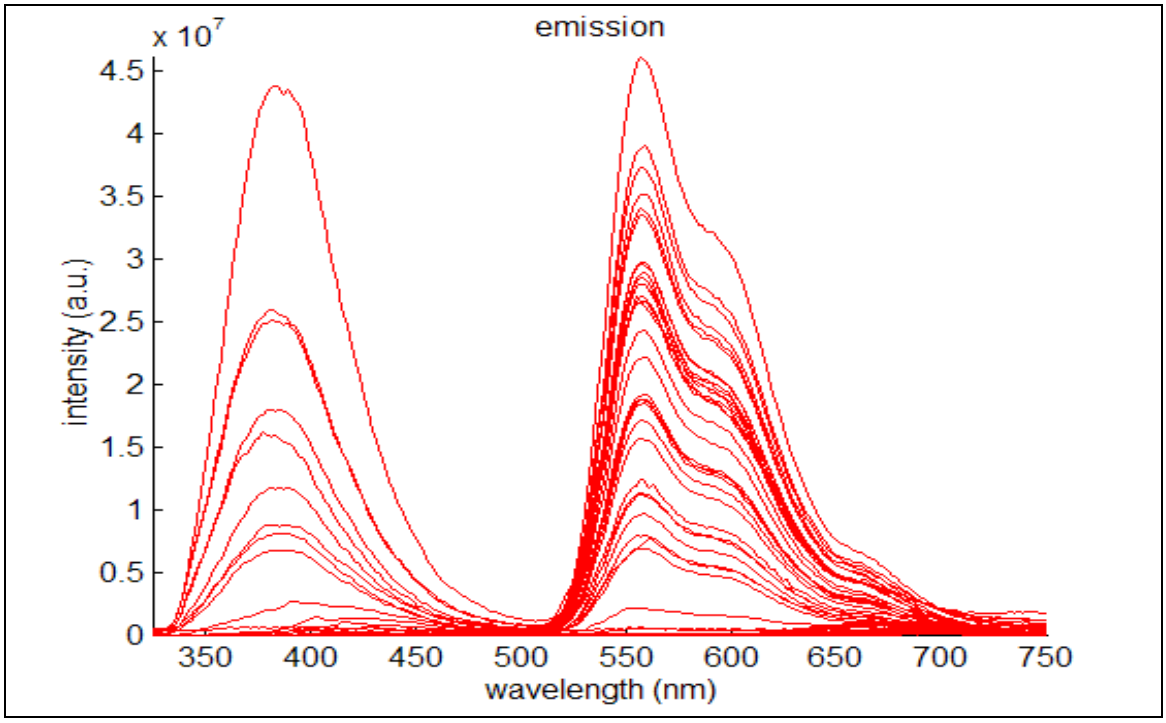

Figure S44. Emission of 30 μM **SNAFR-1** as a function of excitation in DMSO.

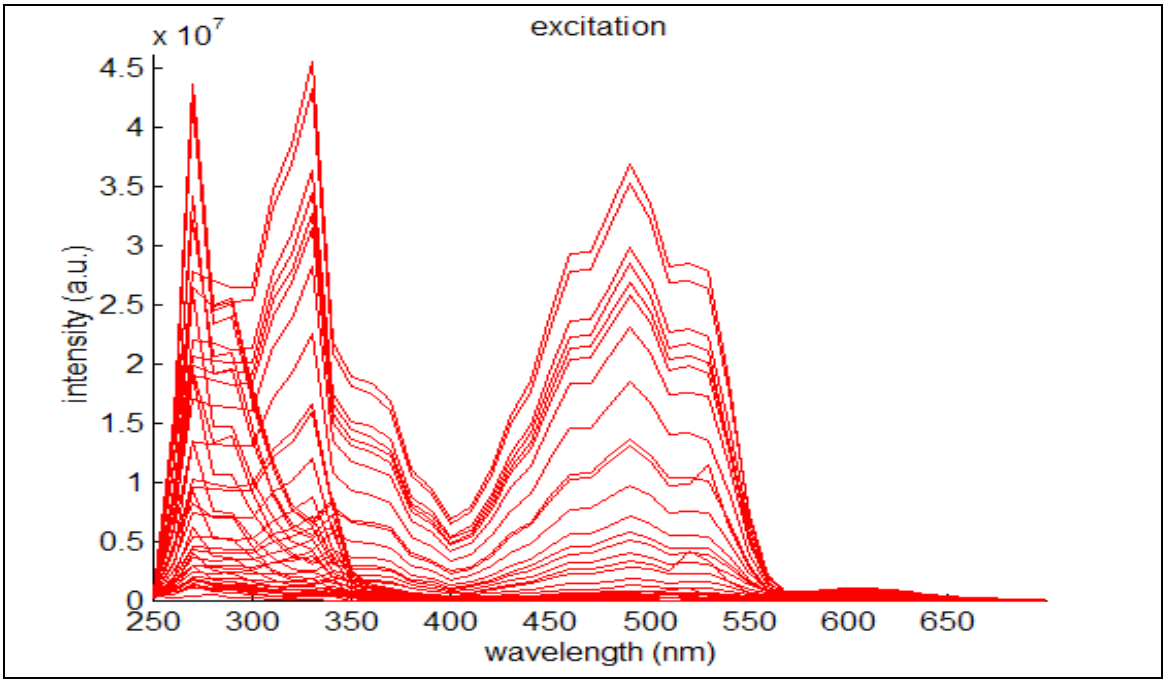

Figure S45. Excitation of 30 μM **SNAFR-1** as a function of emission in DMSO.

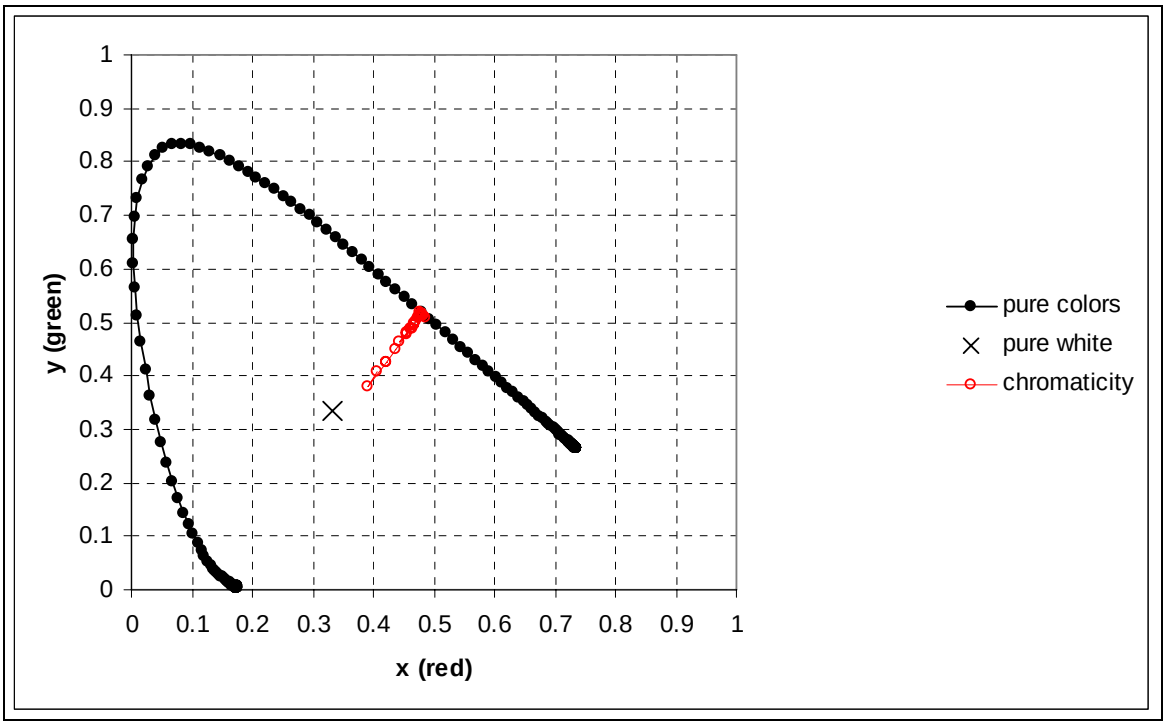

Figure S46. Chromaticity diagram of 30 μM **SNAFR-1** in DMSO with excitation wavelength between 260 nm and 550 nm plotted in a 1931 CIE diagram.

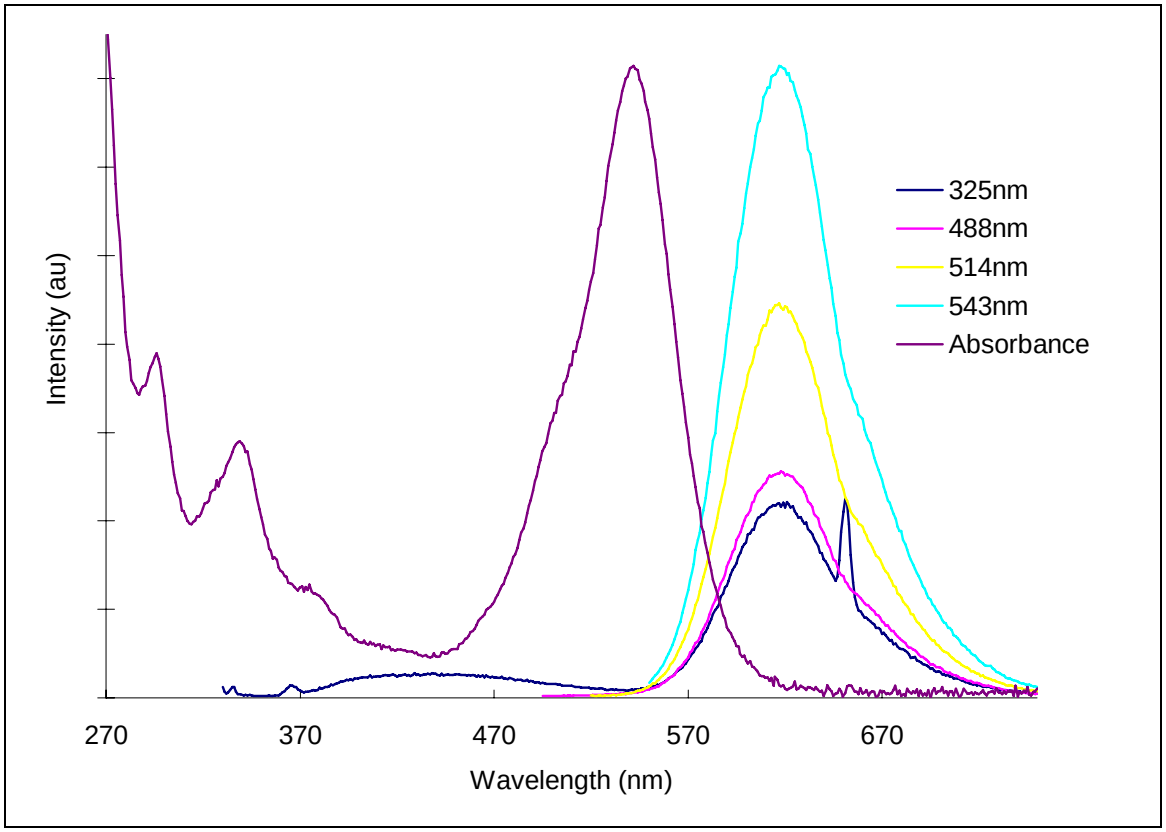

Figure S47. Absorption spectrum of 30 μM **SNAFR-1** in 0.1M NaOH and emission spectra excited at wavelengths corresponding to common laser lines. UV-Vis absorption spectrum normalized to emission spectra.

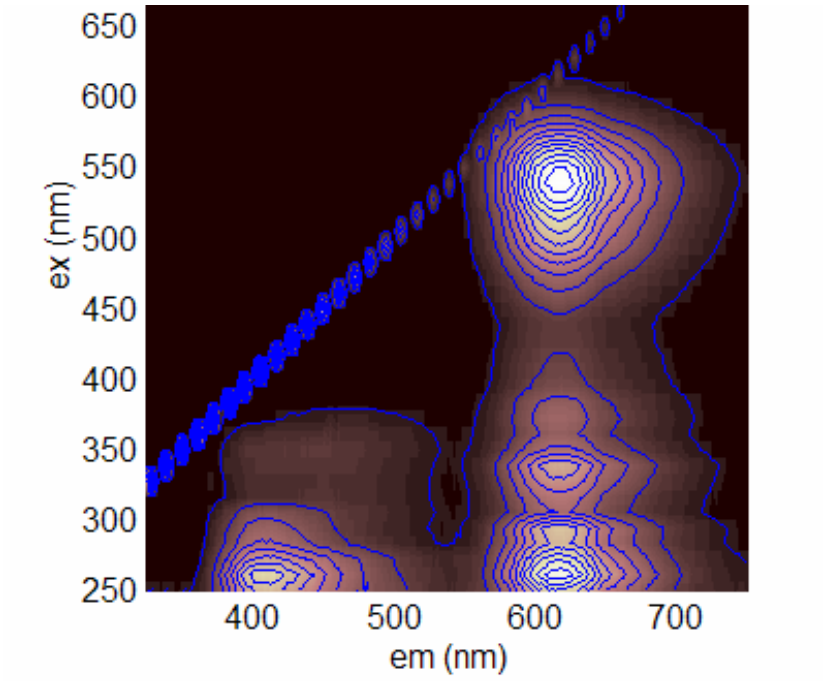

Figure S48. EEM of 30 μM **SNAFR-1** in 0.1 M NaOH.

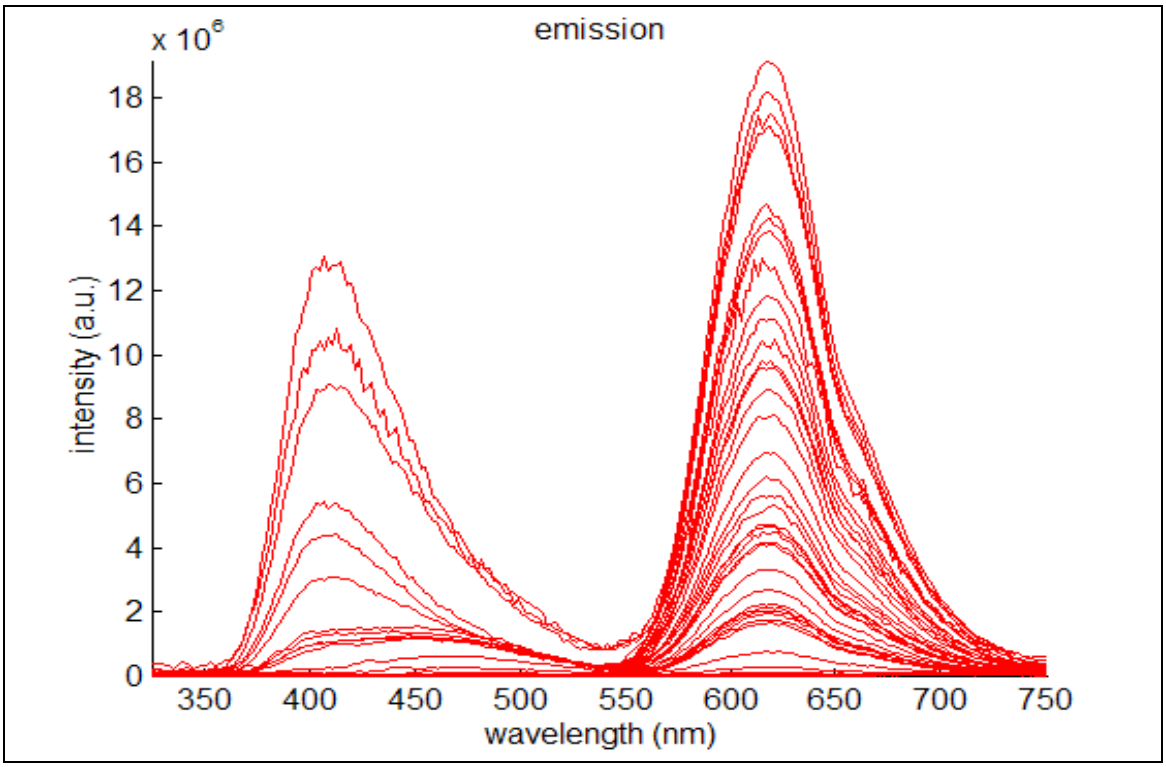

Figure S49. Emission of 30 μM **SNAFR-1** as a function of excitation in 0.1 M NaOH.

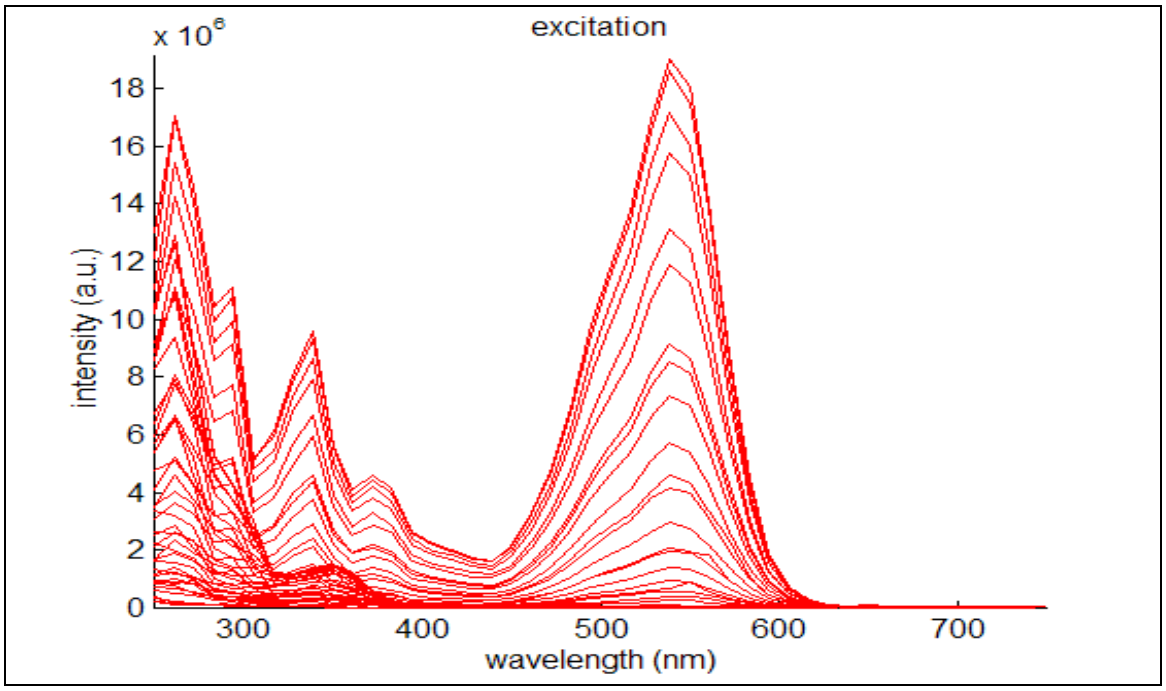

Figure S50. Excitation of 30 μM **SNAFR-1** as a function of emission in 0.1 M NaOH.

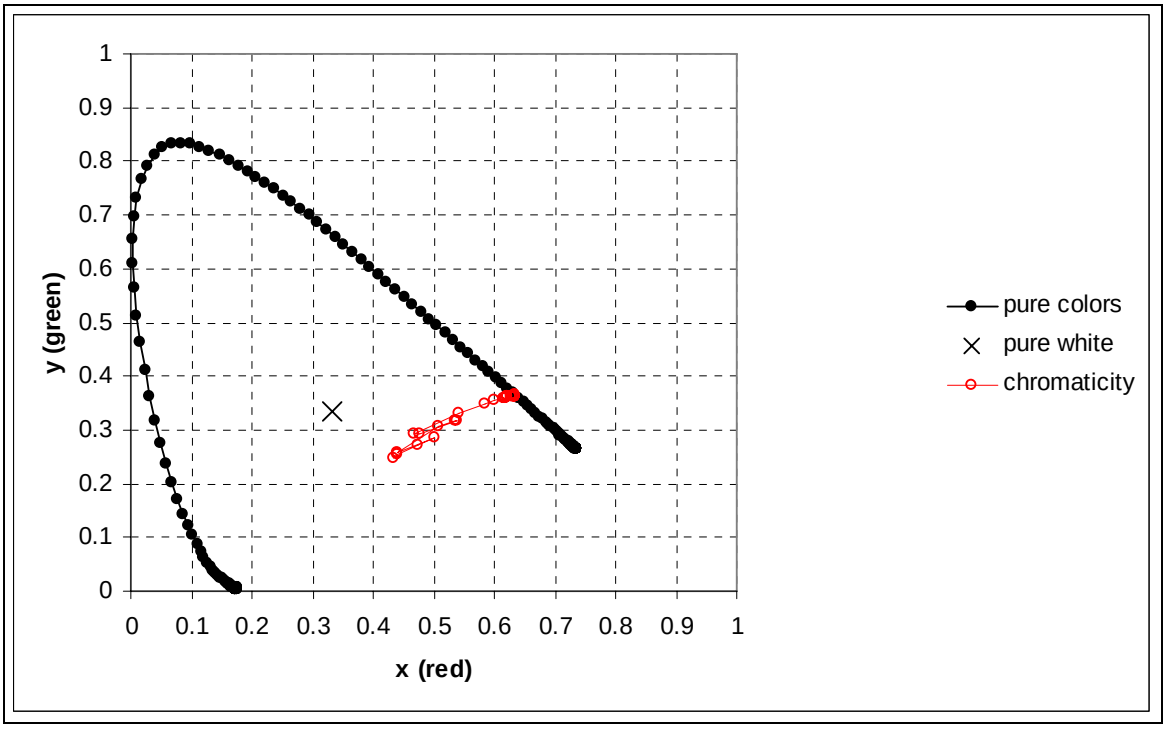

Figure S51. Chromaticity diagram of 30 μM **SNAFR-1** in 0.1 M NaOH with excitation wavelength between 260 nm and 600 nm plotted in a 1931 CIE diagram.

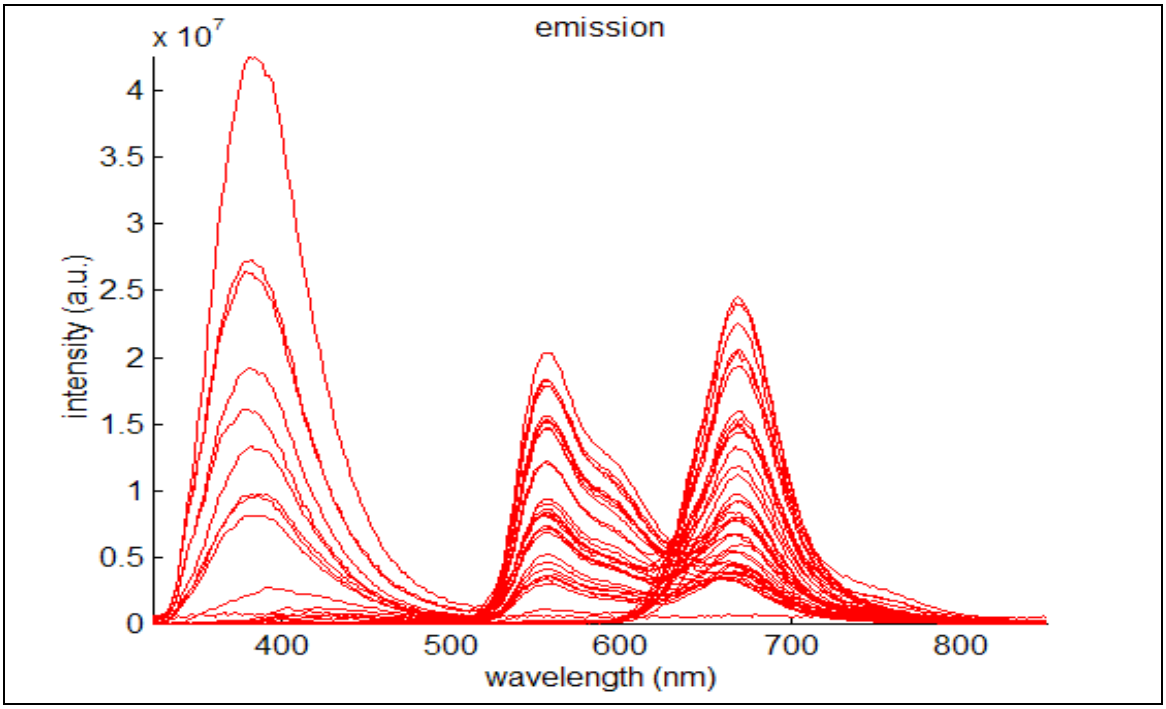

Figure S52. Emission of 30 μM **SNAFR-1** as a function of excitation in DMSO with 0.25% phosphate buffer pH 7.

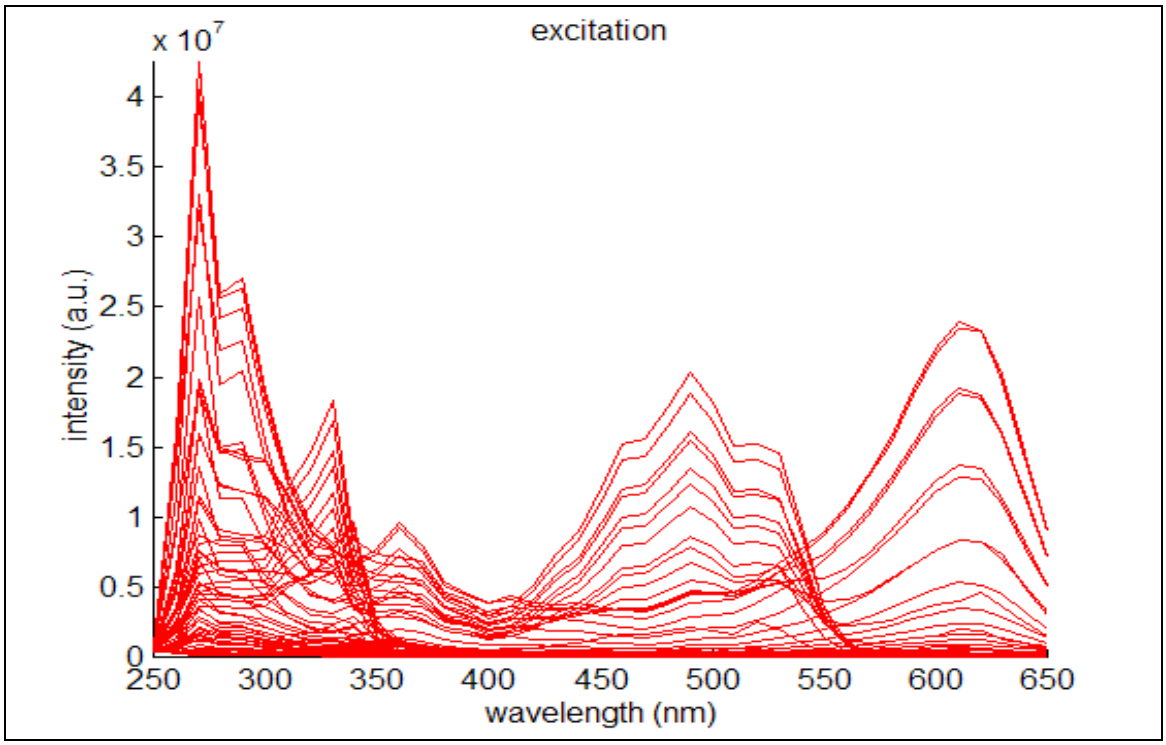

Figure S53. Excitation of 30 μM **SNAFR-1** as a function of Emission in DMSO with 0.25% phosphate buffer pH 7.

Table S1. Apparent pK_a values calculated for **SNAFR-1** in DMSO with 0.25% phosphate buffer (50mM).

Method	λ_{ex}	λ_1/λ_2	R_{max}	R_{min}	pK_a
Em	325	670/656	1.22	0.91	5.93
Em	325	592/656	2.87	0.53	5.92
Em	325	559/656	4.31	0.96	5.97
Em	514	678/660	1.01	0.75	5.93
Em	514	592/660	2.89	0.53	5.92
Em	514	559/660	4.27	0.94	5.97
Em	543	674/637	2.75	1.13	5.99
Em	543	592/637	1.60	0.24	5.91
Em	543	558/637	2.33	0.43	5.96
Abs		614/538	3.95	1.14	5.94
Abs		520/538	1.14	0.69	5.96
Abs		493/538	1.48	0.56	5.93
Abs		467/538	1.05	0.40	5.96
Abs		520/427	2.39	1.53	6.09
Abs		493/427	3.09	1.25	5.99
Abs		466/427	2.19	0.89	6.02
Abs		411/427	1.13	0.70	5.96
Abs		362/427	2.11	1.60	6.03
Abs		362/345	1.14	0.84	6.10
Abs		330/345	2.23	1.34	5.96
Abs		330/311	1.10	0.64	5.99
Abs		296/311	1.37	1.13	6.05

Table S2. Chromaticity coordinates of 30 μM **SNAFR-1** in DMSO with 0.25% phosphate buffer (50 mM) as a function of excitation wavelength and added buffer pH.

	pH 4		pH 5		pH 6		pH 7		pH 8	
λ_{ex}	x	y	x	y	x	y	x	y	x	y
270	0.37	0.34	0.36	0.32	0.33	0.27	0.36	0.30	0.30	0.18
280	0.40	0.39	0.39	0.38	0.37	0.33	0.36	0.30	0.33	0.23
290	0.40	0.39	0.39	0.38	0.37	0.33	0.39	0.34	0.33	0.22
300	0.42	0.42	0.41	0.41	0.40	0.36	0.41	0.40	0.36	0.25
310	0.44	0.46	0.44	0.45	0.42	0.42	0.43	0.44	0.38	0.31
320	0.45	0.48	0.45	0.47	0.43	0.45	0.43	0.46	0.39	0.36
330	0.46	0.49	0.45	0.48	0.44	0.47	0.40	0.38	0.39	0.38
340	0.43	0.44	0.42	0.43	0.40	0.40	0.44	0.43	0.35	0.28
350	0.45	0.47	0.45	0.46	0.44	0.44	0.46	0.44	0.42	0.33
360	0.46	0.48	0.46	0.47	0.46	0.45	0.46	0.46	0.46	0.36
370	0.47	0.49	0.47	0.48	0.46	0.46	0.46	0.46	0.47	0.38
380	0.47	0.49	0.47	0.48	0.46	0.46	0.47	0.47	0.47	0.37
390	0.47	0.49	0.47	0.49	0.47	0.47	0.48	0.47	0.47	0.39
400	0.47	0.50	0.48	0.49	0.48	0.48	0.48	0.48	0.49	0.39
410	0.48	0.50	0.48	0.50	0.48	0.49	0.48	0.50	0.50	0.41
420	0.48	0.51	0.48	0.51	0.48	0.50	0.47	0.51	0.49	0.44
430	0.48	0.51	0.48	0.51	0.48	0.51	0.47	0.52	0.48	0.47
440	0.48	0.52	0.48	0.52	0.48	0.52	0.47	0.52	0.48	0.49
450	0.48	0.52	0.48	0.52	0.47	0.52	0.47	0.52	0.47	0.51
460	0.48	0.52	0.48	0.52	0.47	0.52	0.47	0.52	0.46	0.53
470	0.48	0.52	0.48	0.52	0.47	0.52	0.47	0.52	0.46	0.53
480	0.48	0.52	0.48	0.52	0.47	0.52	0.47	0.52	0.46	0.53
490	0.48	0.52	0.48	0.52	0.47	0.52	0.47	0.52	0.47	0.53
500	0.48	0.52	0.48	0.52	0.48	0.52	0.47	0.52	0.47	0.52
510	0.48	0.52	0.48	0.52	0.48	0.52	0.47	0.52	0.48	0.51
520	0.48	0.52	0.48	0.52	0.48	0.52	0.48	0.52	0.49	0.50
530	0.48	0.52	0.48	0.52	0.48	0.52	0.49	0.50	0.50	0.49
540	0.49	0.51	0.49	0.51	0.49	0.50	0.53	0.46	0.55	0.44
550	0.51	0.49	0.51	0.48	0.53	0.46	0.60	0.38	0.62	0.36
560	0.55	0.43	0.57	0.42	0.60	0.39	0.67	0.32	0.68	0.31
570	0.62	0.35	0.65	0.34	0.66	0.32	0.69	0.29	0.70	0.29
580	0.67	0.31	0.69	0.30	0.69	0.30	0.70	0.29	0.70	0.29
590	0.68	0.29	0.70	0.29	0.70	0.29	0.70	0.29	0.70	0.29
600	0.69	0.29	0.70	0.29	0.70	0.29	0.70	0.29	0.71	0.29
610	0.69	0.29	0.70	0.29	0.70	0.29	0.70	0.29	0.71	0.29
620	0.69	0.29	0.70	0.29	0.70	0.29	0.70	0.29	0.71	0.29
630	0.68	0.29	0.70	0.29	0.70	0.29	0.69	0.29	0.70	0.29
640	0.67	0.29	0.69	0.29	0.69	0.29	0.66	0.29	0.70	0.29
650	0.63	0.30	0.67	0.29	0.67	0.29	0.66	0.29	0.68	0.29

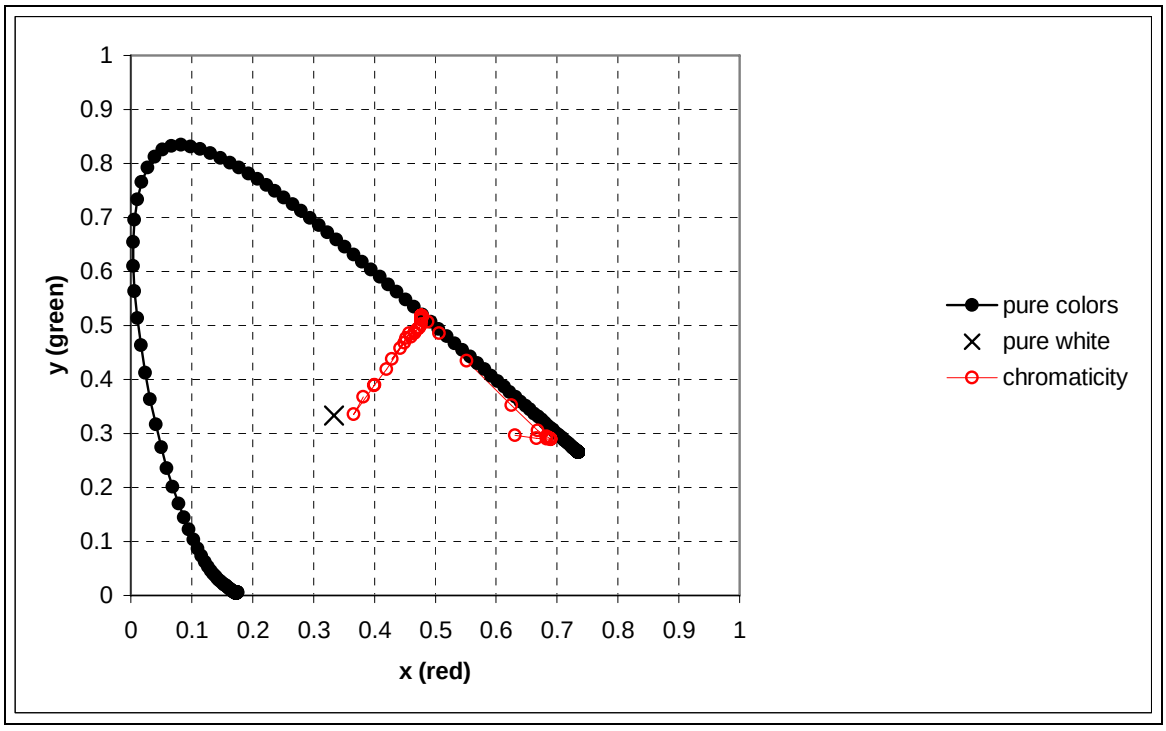

Figure S54. Chromaticity coordinates for emissions collected with excitation wavelength between 270 nm and 650 nm plotted in a 1931 CIE diagram for 30 μM **SNAFR-1** in DMSO with 0.25% phosphate buffer (50 mM, pH 4).

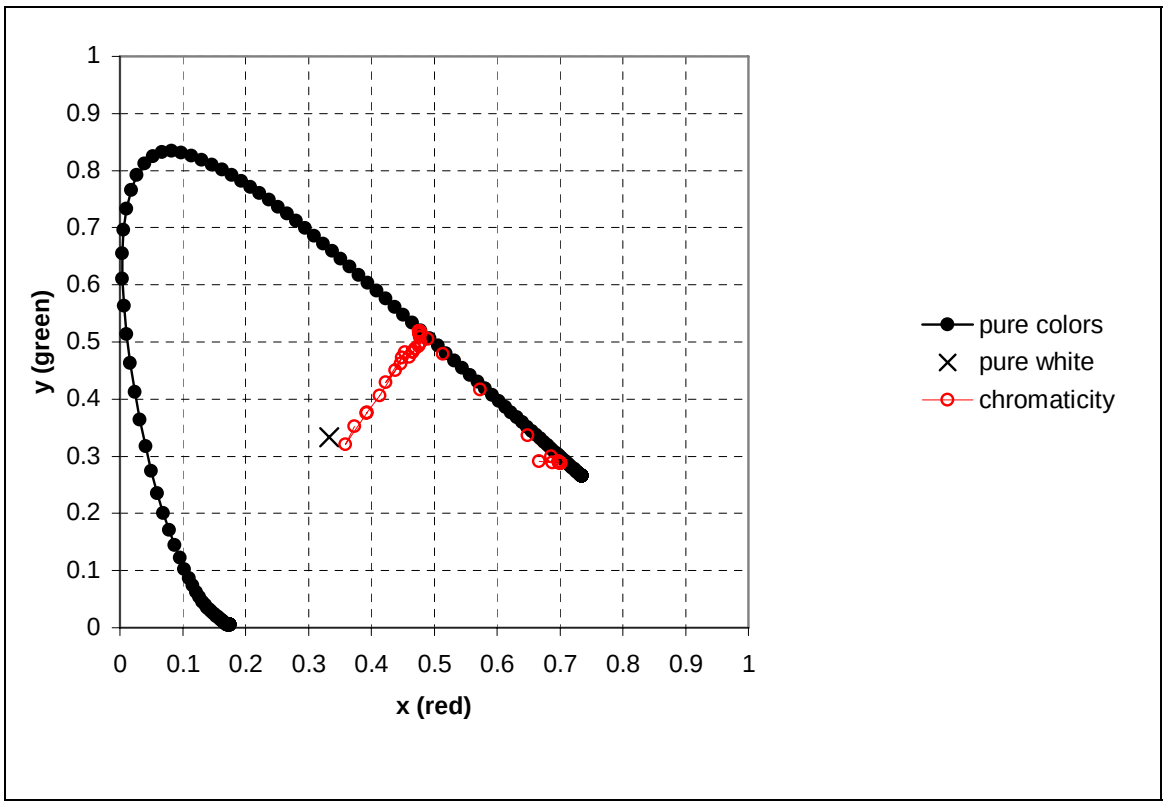

Figure S55. Chromaticity coordinates for emissions collected with excitation wavelength between 270 nm and 650 nm plotted in a 1931 CIE diagram for 30 μM **SNAFR-1** in DMSO with 0.25% phosphate buffer (50 mM, pH 5).

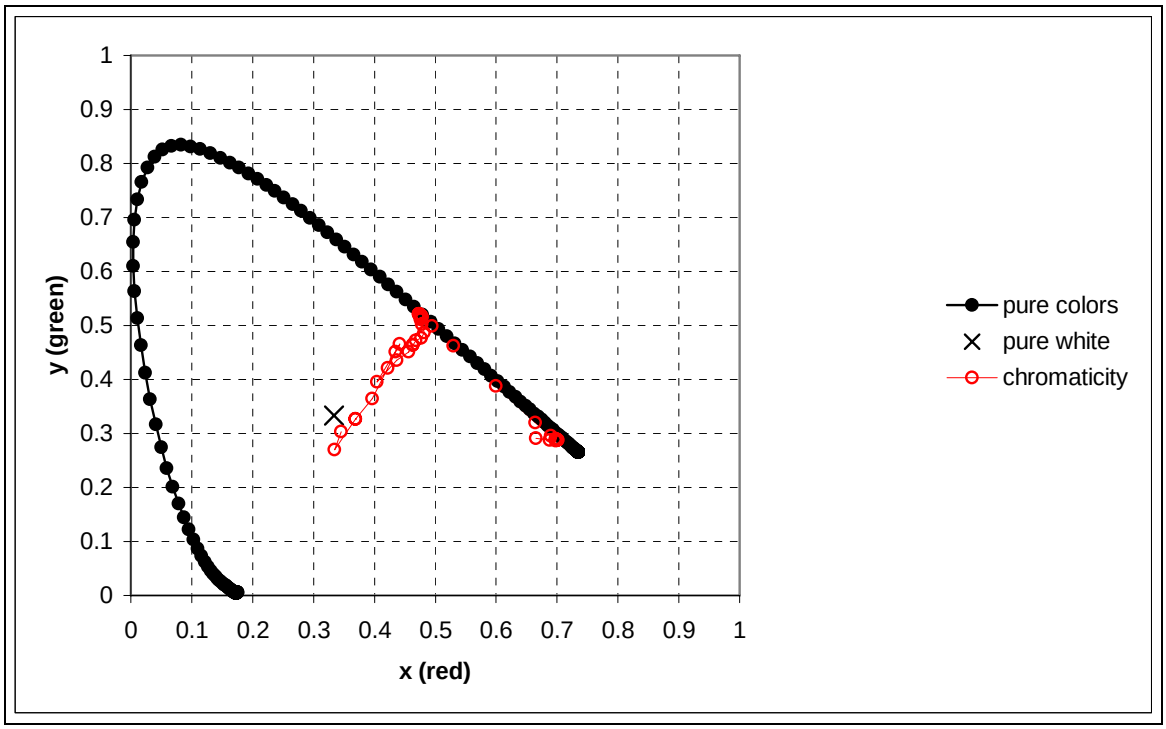

Figure S56. Chromaticity coordinates for emission spectra collected with excitation wavelength between 270 nm and 650 nm plotted in a 1931 CIE diagram for a solution of 30 μM **SNAFR-1** in DMSO with 0.25% phosphate buffer (50 mM, pH 6).

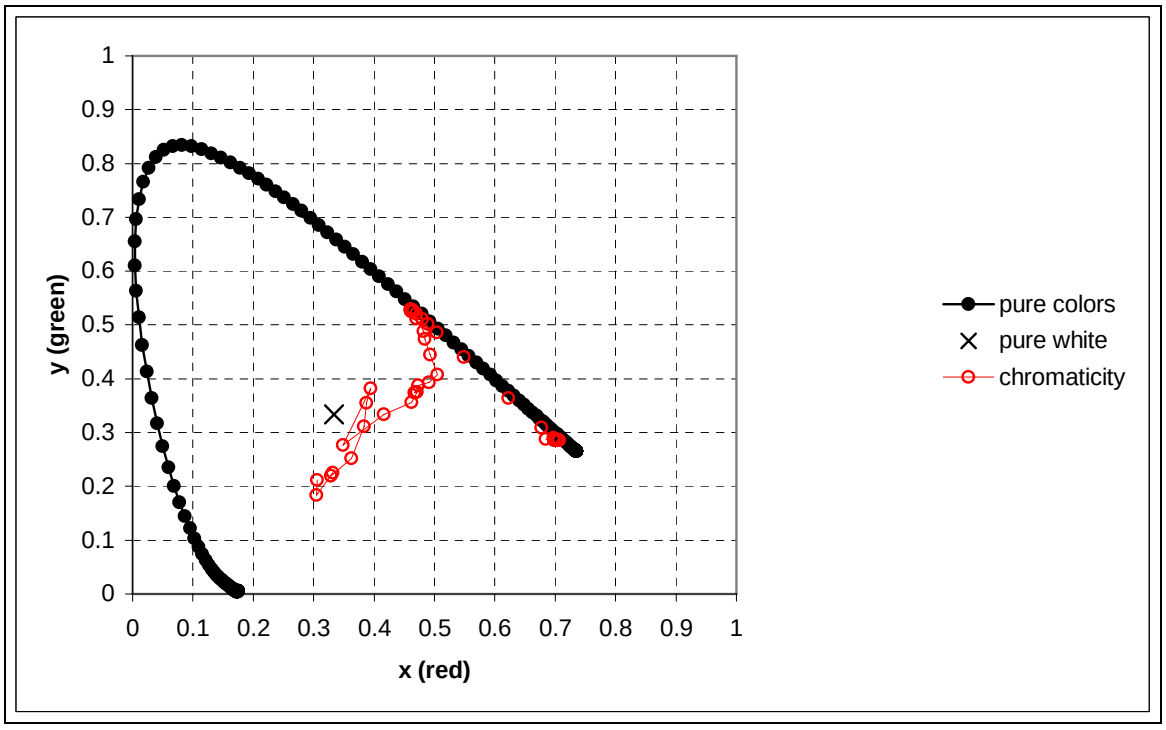

Figure S57. Chromaticity coordinates for emission spectra collected with excitation wavelength between 270 nm and 650 nm plotted in a 1931 CIE diagram for a solution of 30 μM **SNAFR-1** in DMSO with 0.25% phosphate buffer (50 mM, pH 8).

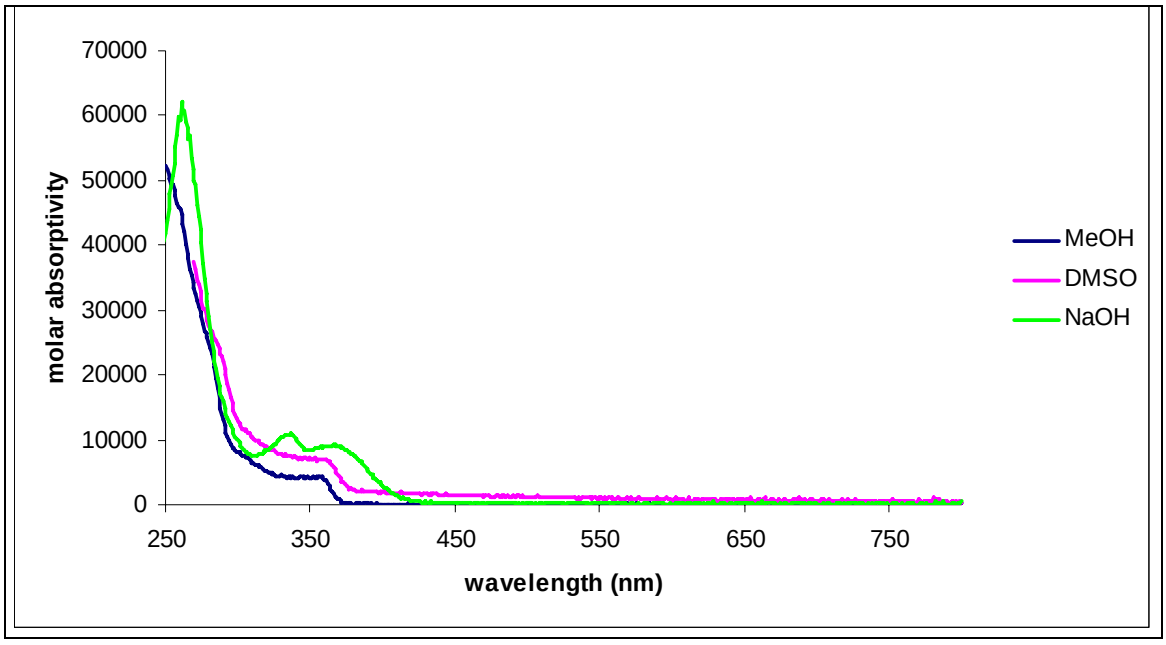

Figure S58. Absorption spectra of **10** in MeOH, DMSO and 0.1 M NaOH.

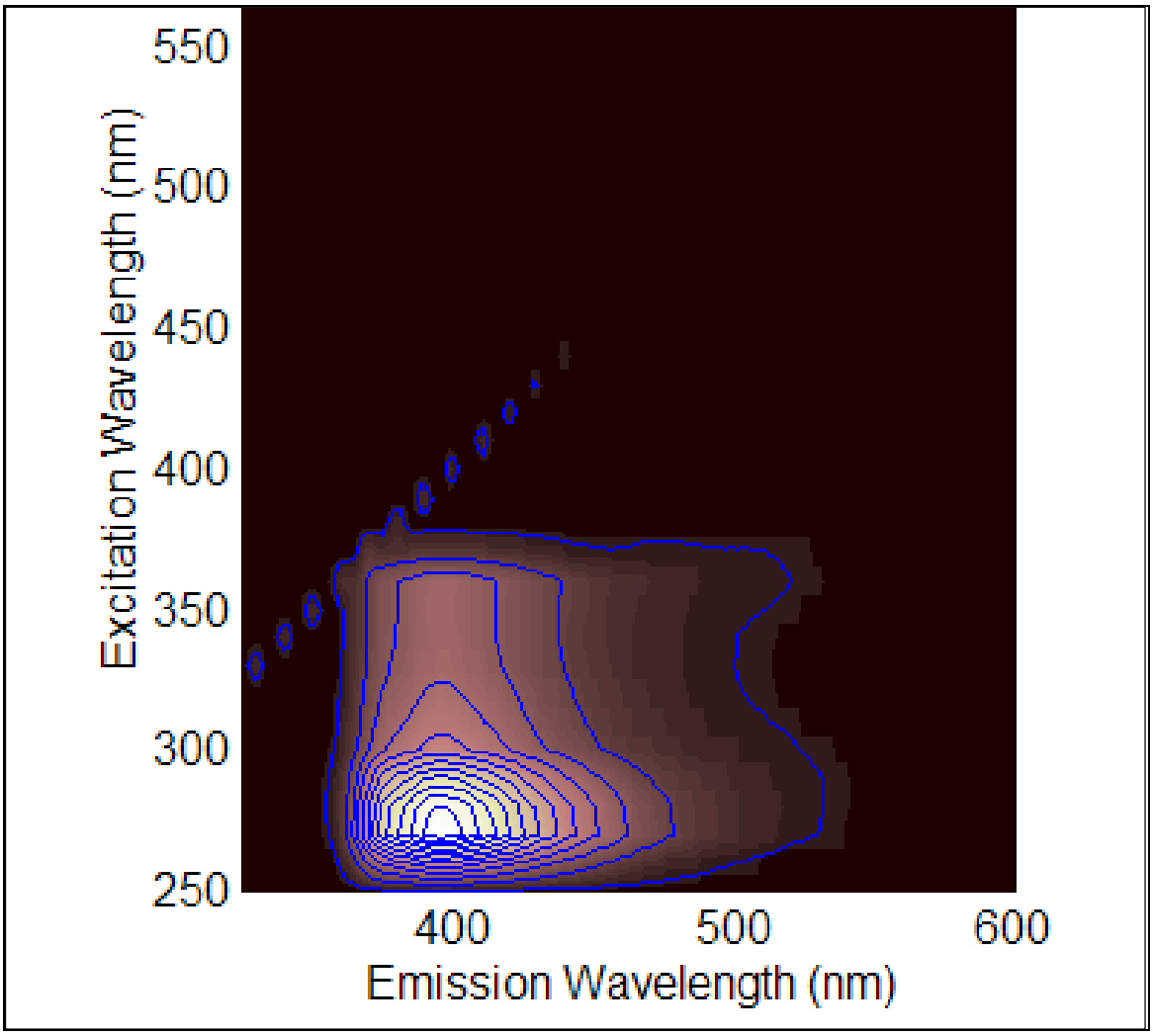

Figure S59. EEM of 10 μM **10** in DMSO.

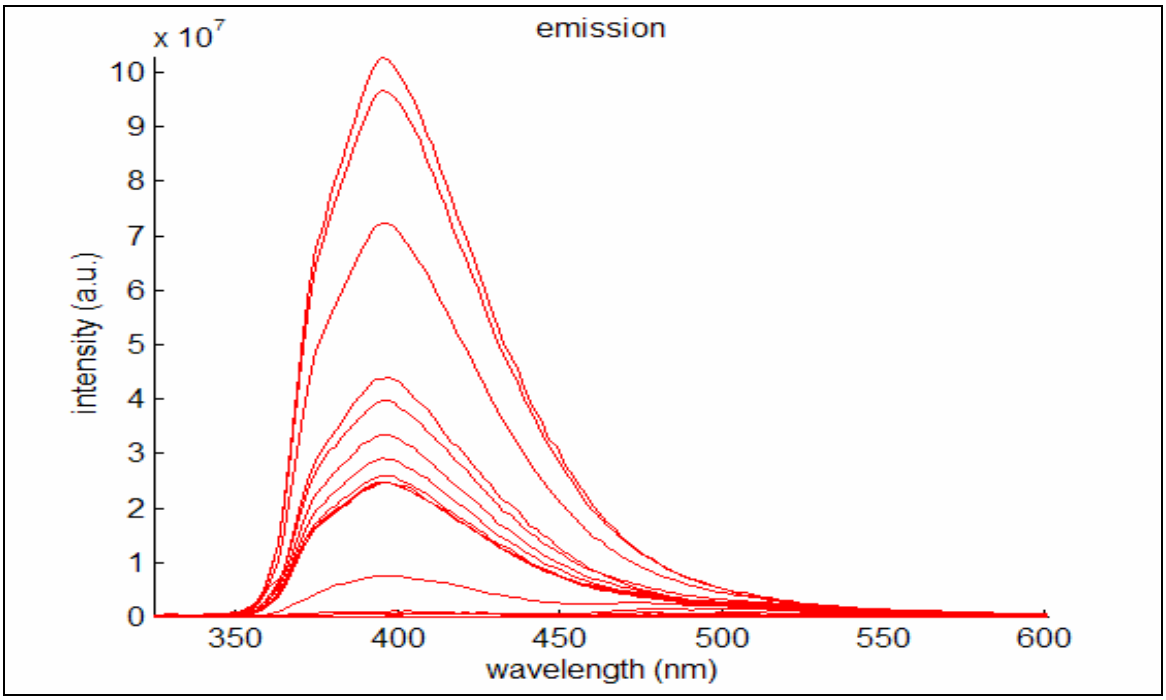

Figure S60. Emission of 10 μM **10** as a function of excitation in DMSO.

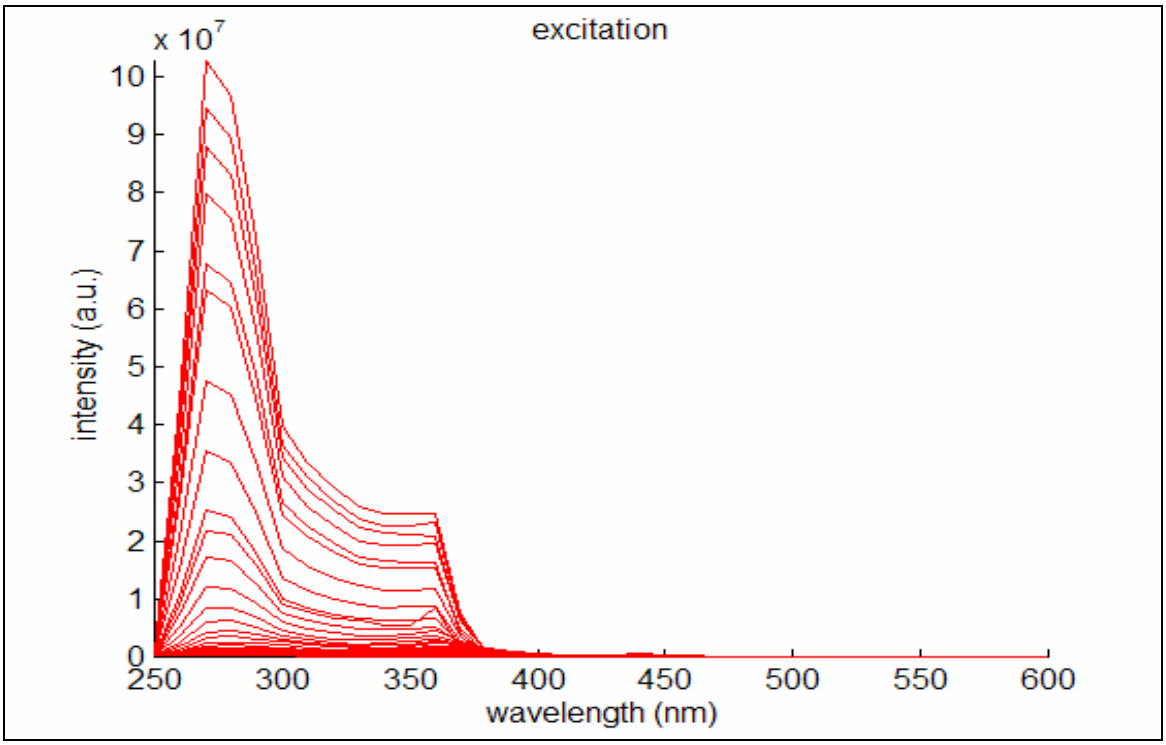

Figure S61. Excitation of 10 μM **10** as a function of emission in DMSO.

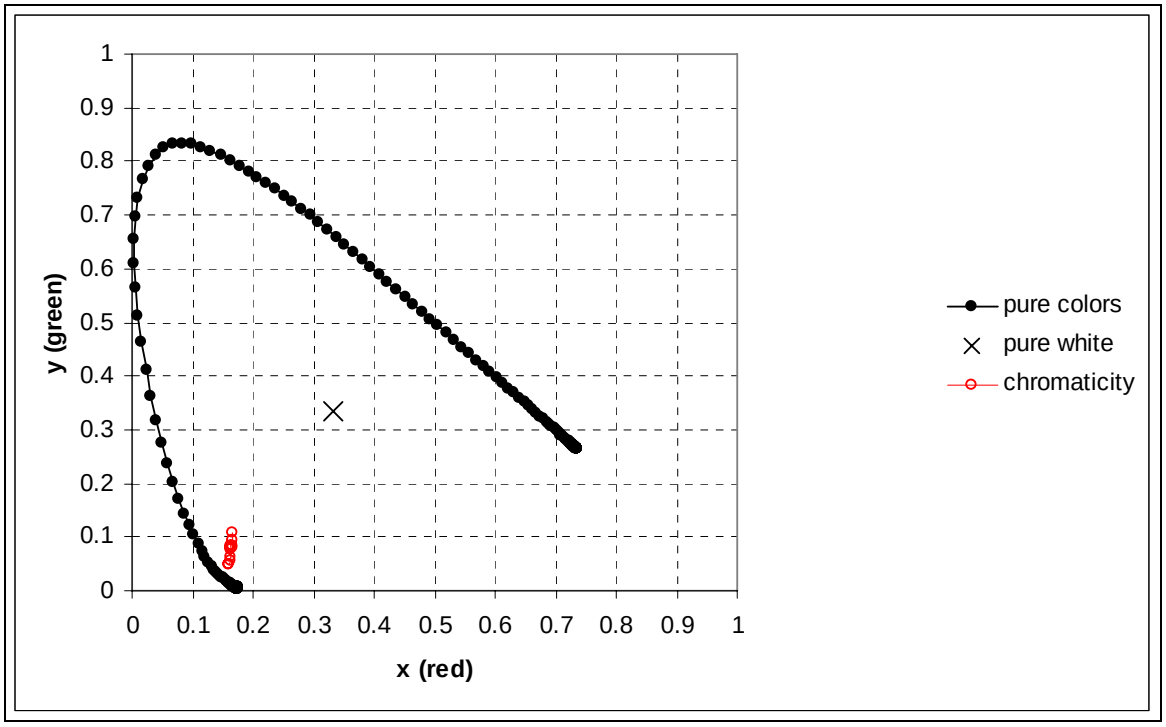

Figure S62. Chromaticity diagram of 10 μM **10** in DMSO between 270 nm and 370 nm plotted in a 1931 CIE diagram.

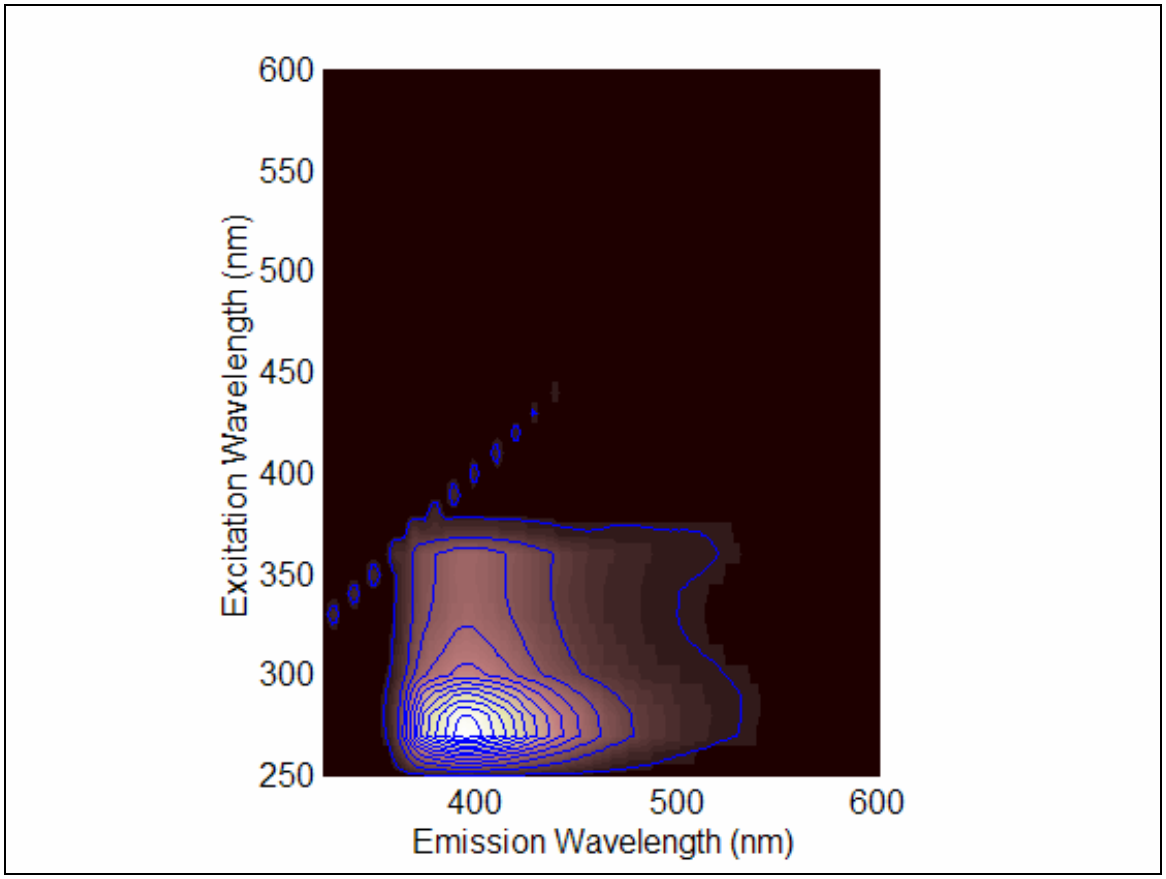

Figure S63. EEM of 10 μM **10** in MeOH.

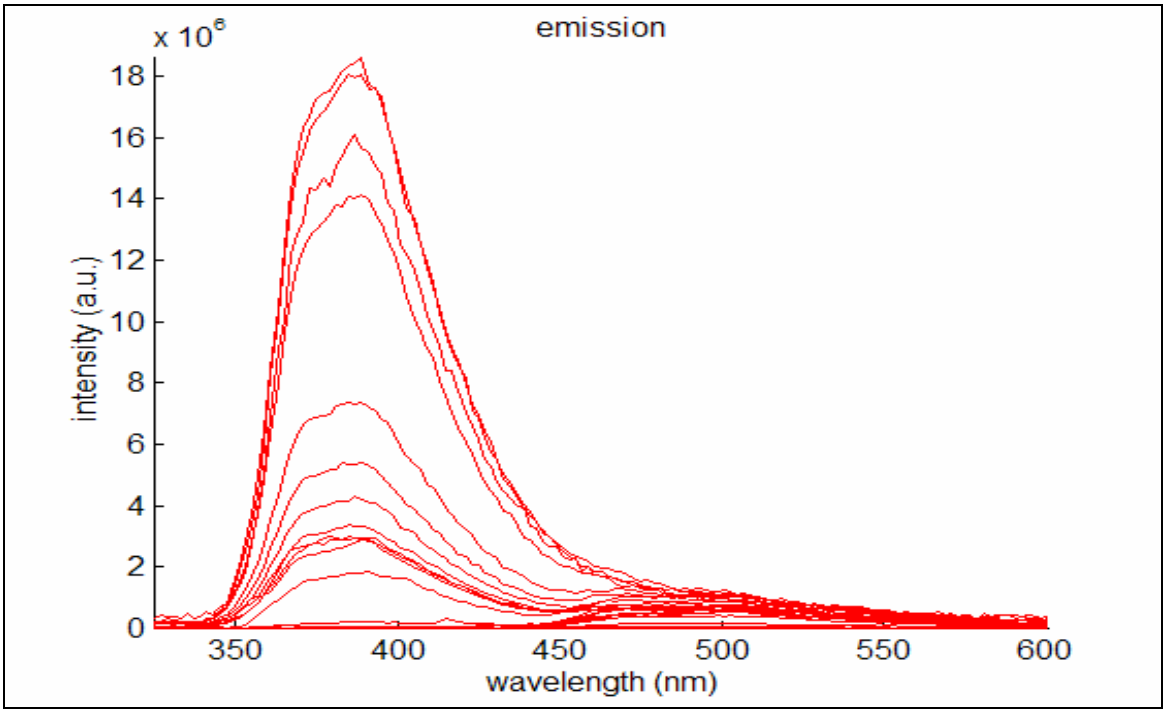

Figure S64. Emission of 10 μM **10** as a function of excitation in MeOH.

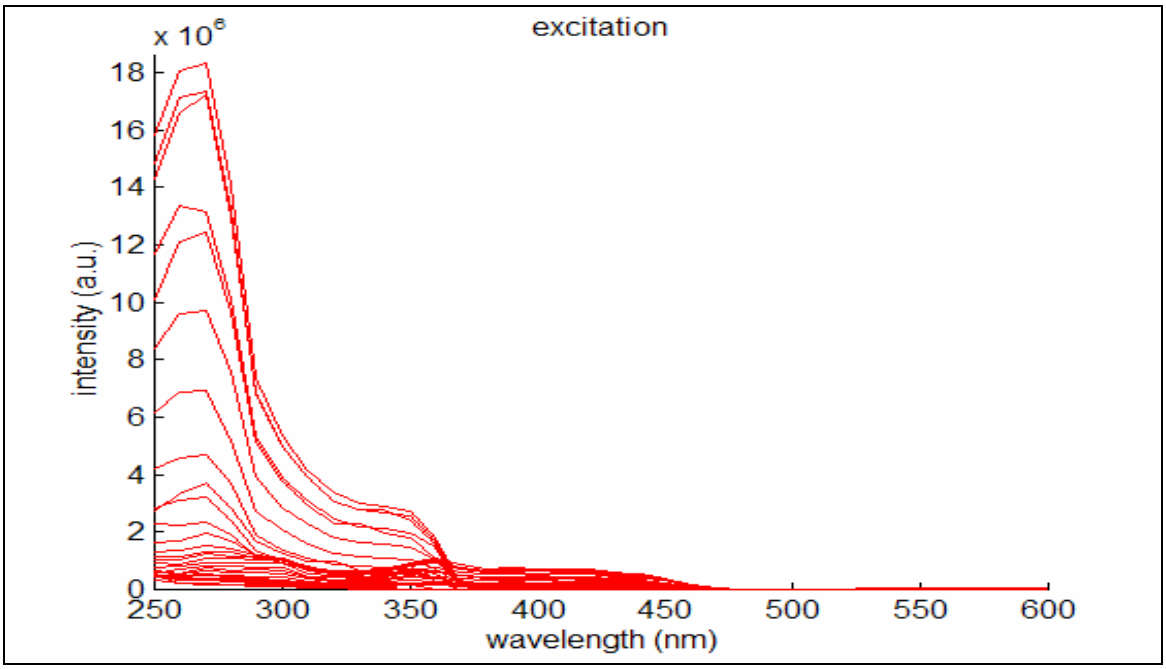

Figure S65. Excitation of 10 μM **10** as a function of emission in MeOH.

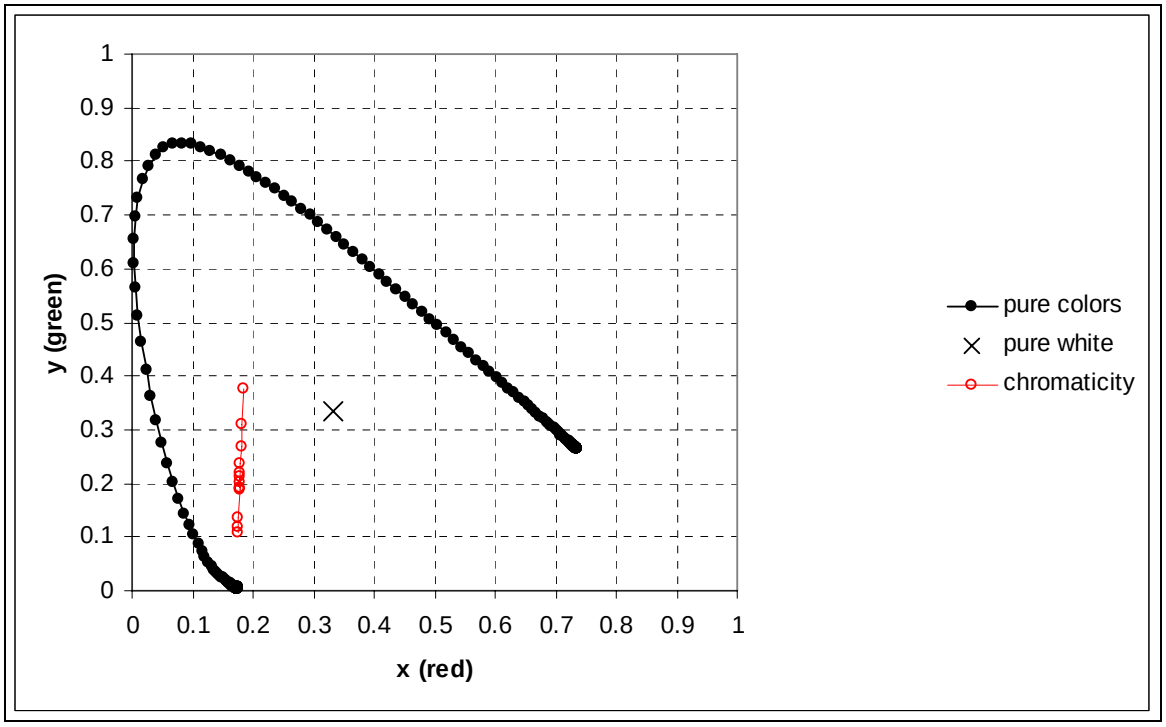

Figure S66. Chromaticity diagram of 10 μM **10** in MeOH between 270 nm and 370 nm plotted in a 1931 CIE diagram.

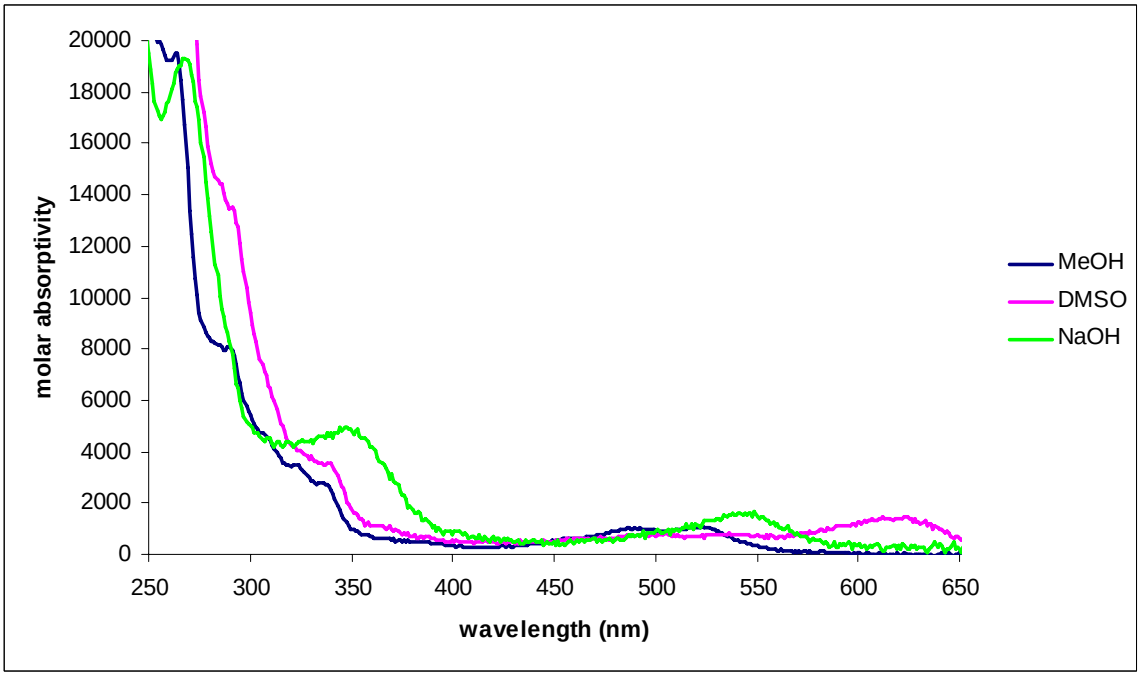

Figure S67. Absorption spectra of **12** in MeOH, DMSO and 0.1 M NaOH.

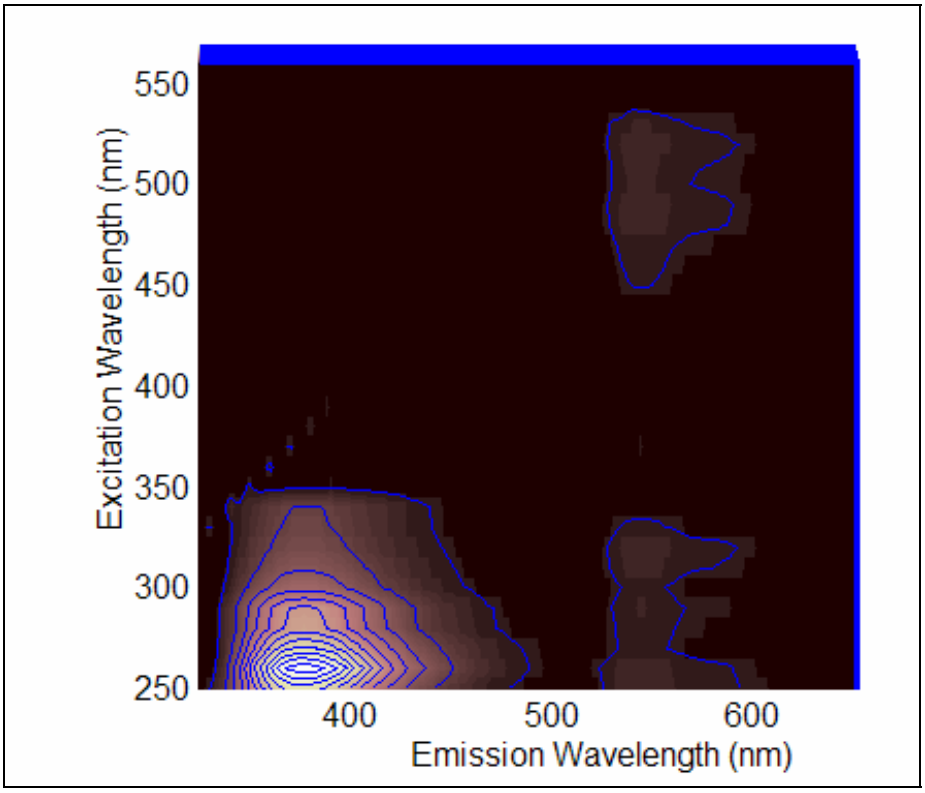

Figure S68. EEM of 10 μM **12** in MeOH.

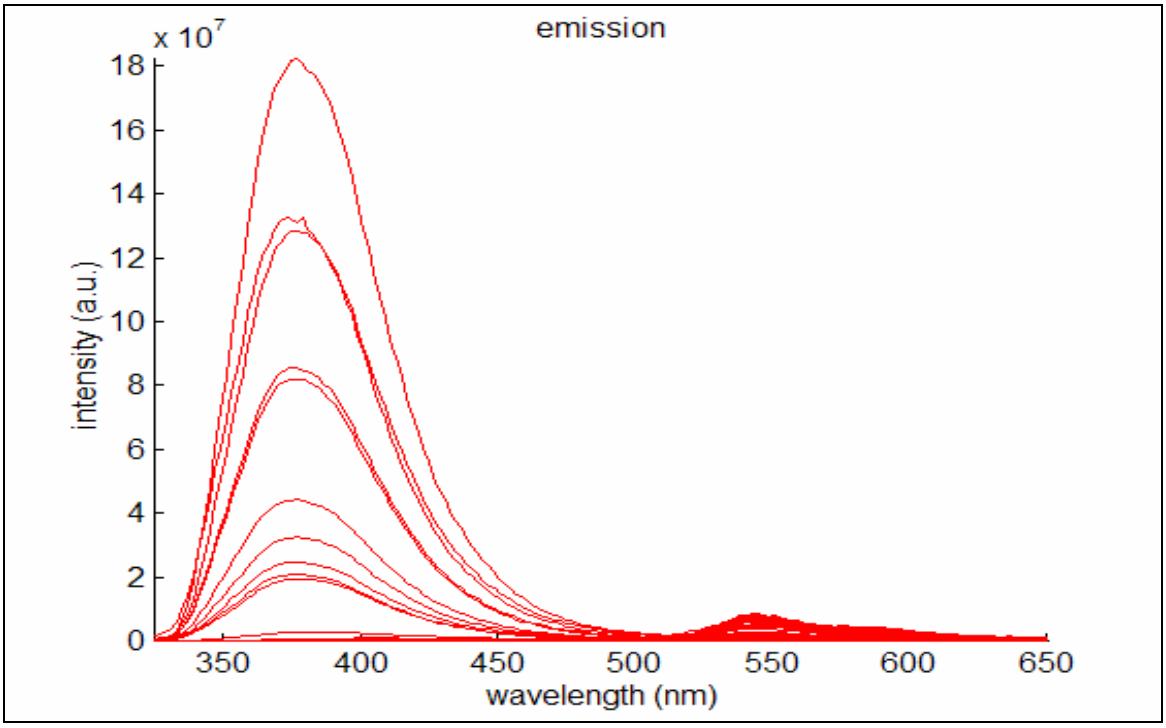

Figure S69. Emission of 10 μM **12** as a function of excitation in MeOH.

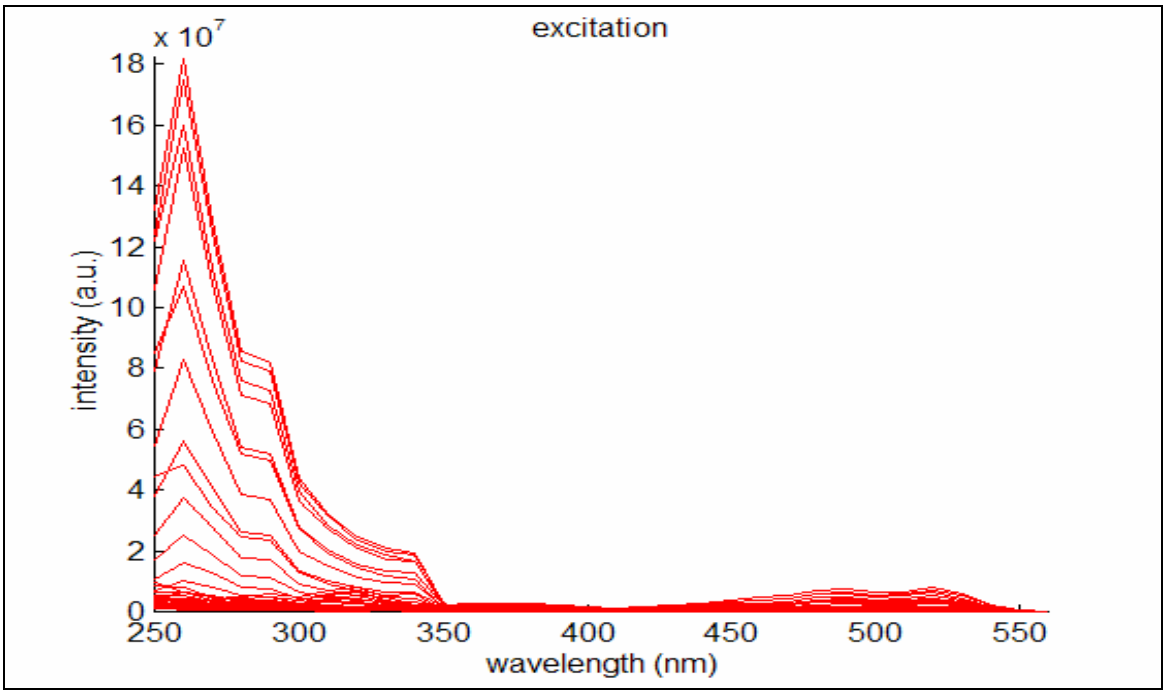

Figure S70. Excitation of 10 μM **12** as a function of emission in MeOH.

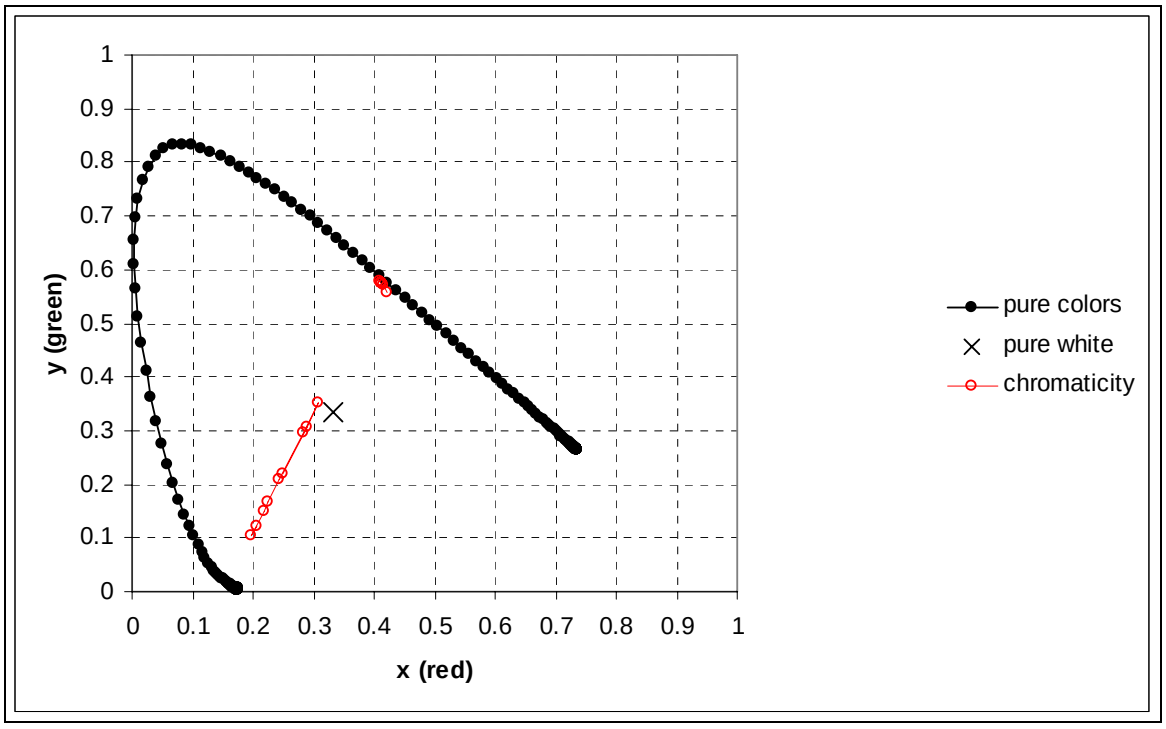

Figure S71. Chromaticity diagram of 10 μM **12** in MeOH from 260 nm to 340 nm and from 440 nm to 540 nm plotted in a 1931 CIE diagram.

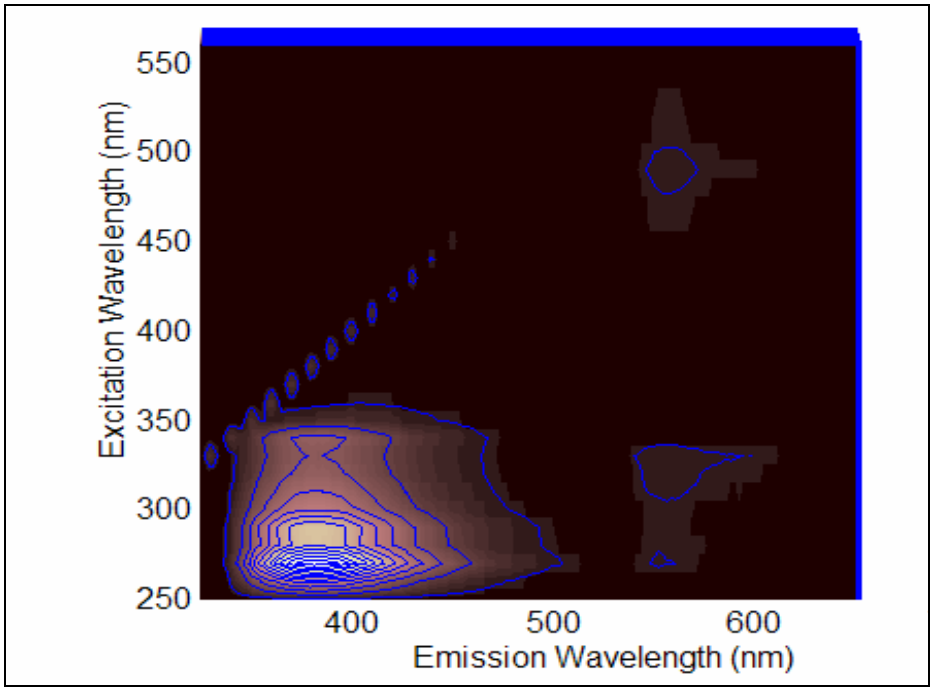

Figure S72. EEM of 10 μM **12** in DMSO.

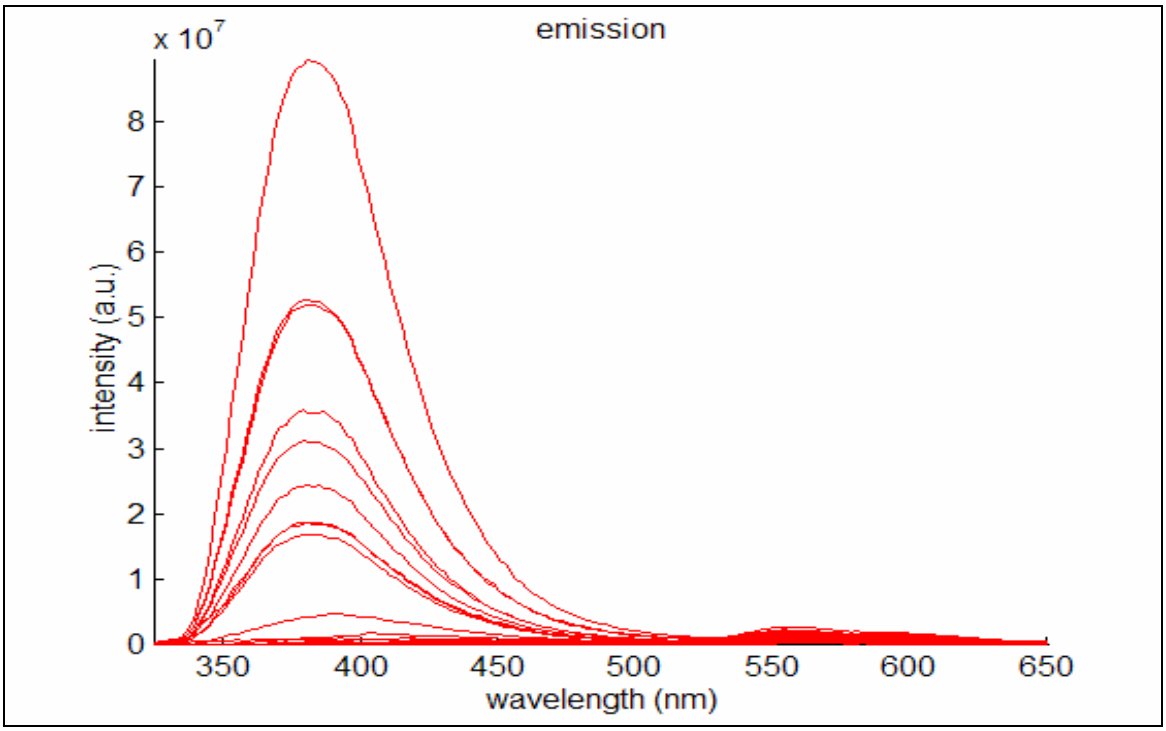

Figure S73. Emission of 10 μM **12** as a function of excitation in DMSO.

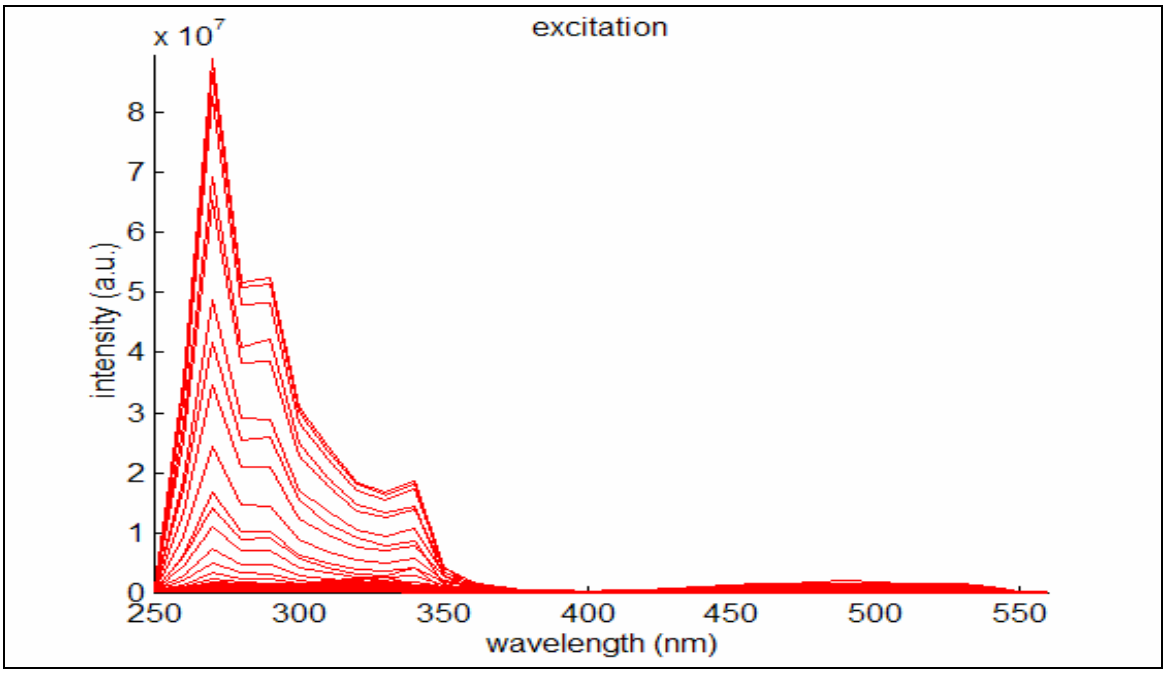

Figure S74. Excitation of 10 μM **12** as a function of emission in DMSO.

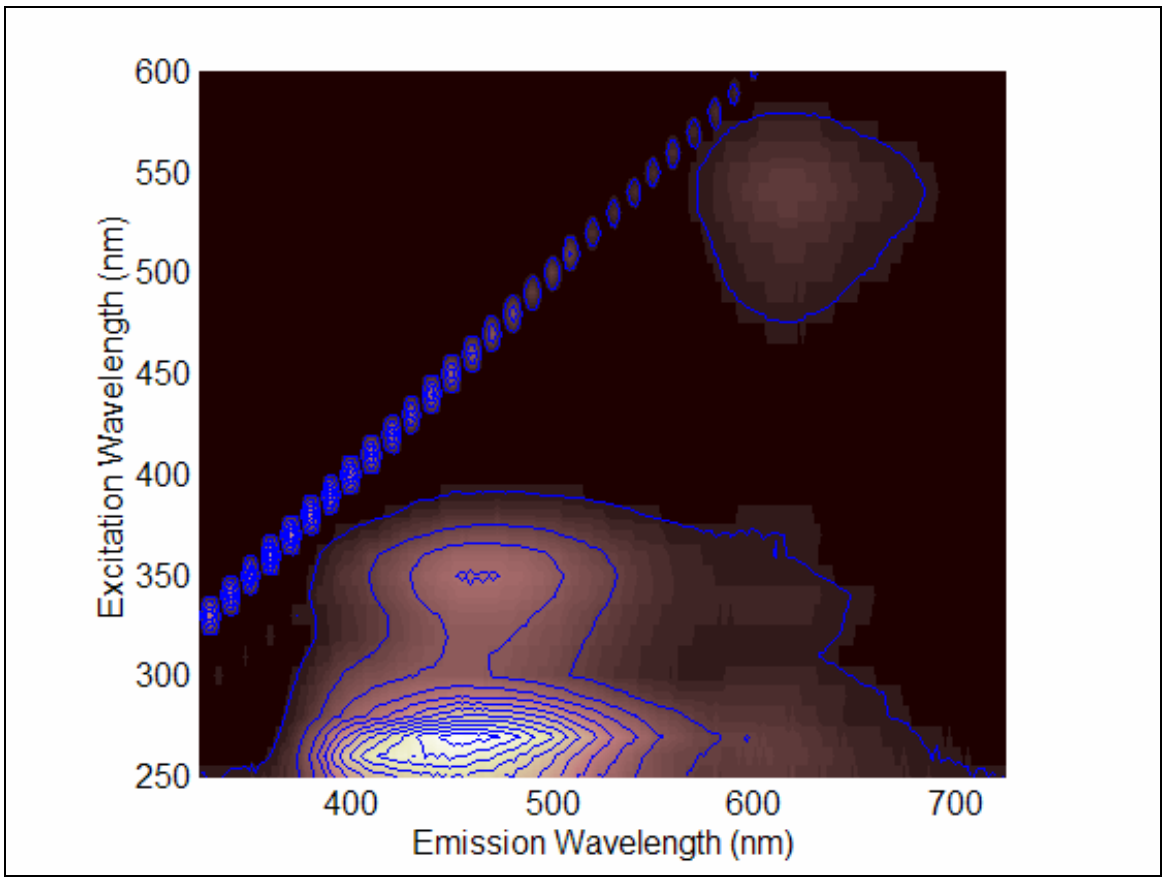

Figure S75. EEM of 10 μM **12** in 0.1 M NaOH.

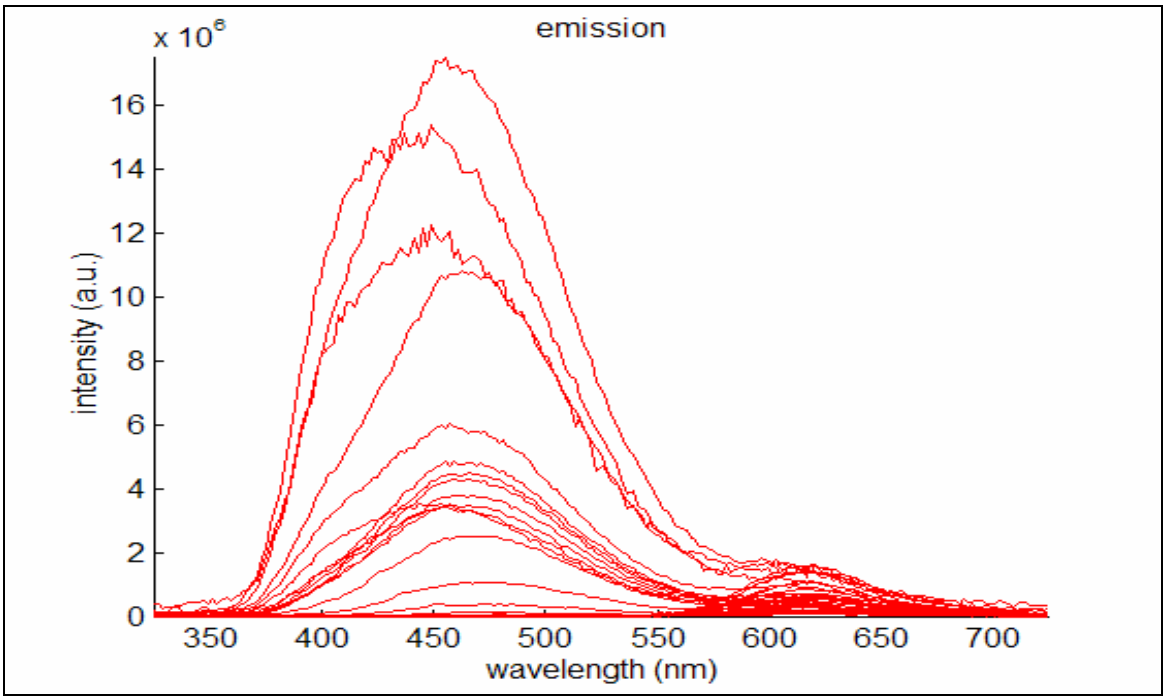

Figure S76. Emission of 10 μM **12** as a function of excitation in 0.1 M NaOH.

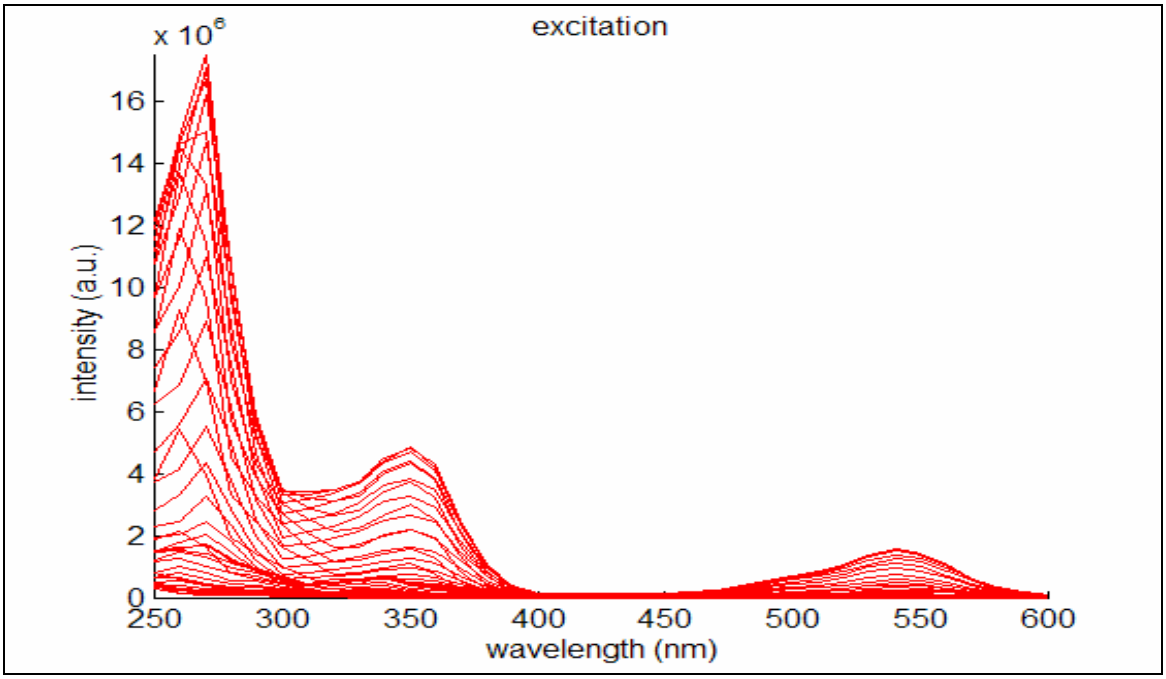

Figure S77. Excitation of 10 μM **12** as a function of emission in 0.1 M NaOH.

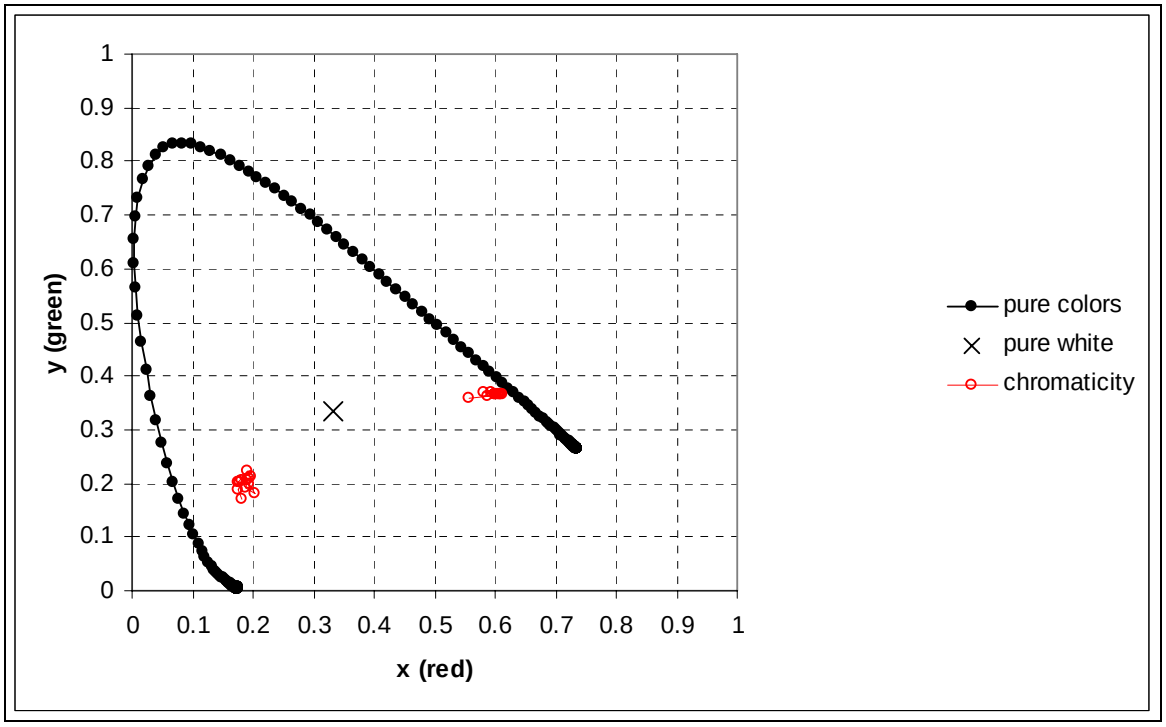

Figure S78. Chromaticity diagram of 10 μM **12** in 0.1 M NaOH from 260 nm to 370 nm and from 480 nm to 580 nm plotted in a 1931 CIE diagram.

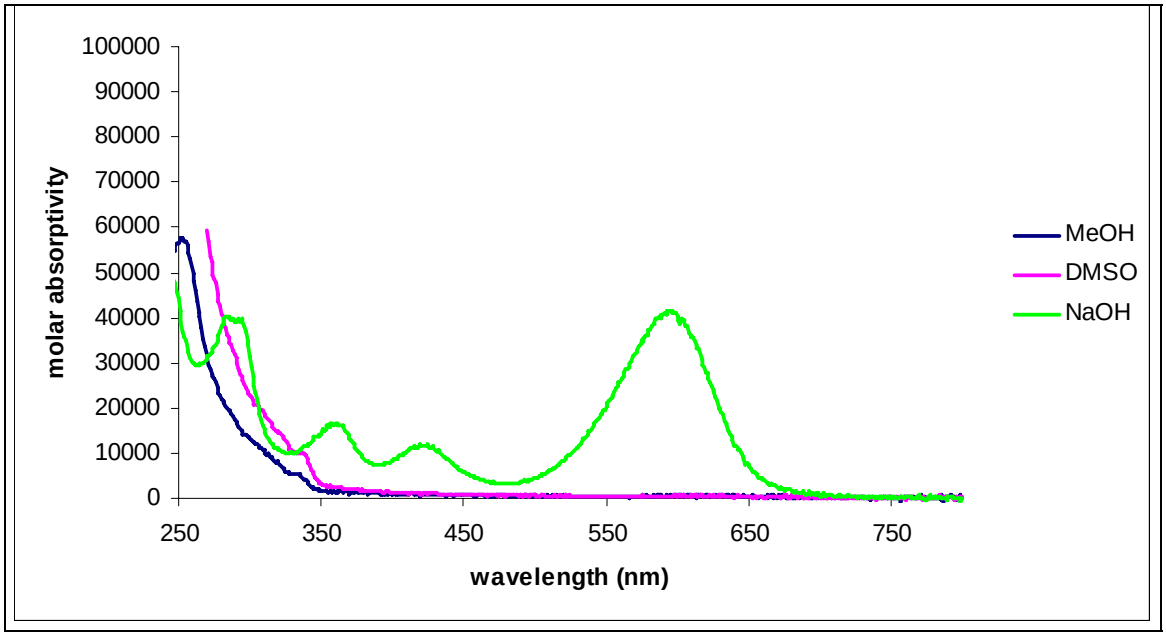

Figure S79. Absorption spectra of **14** in MeOH, DMSO and 0.1 M NaOH.

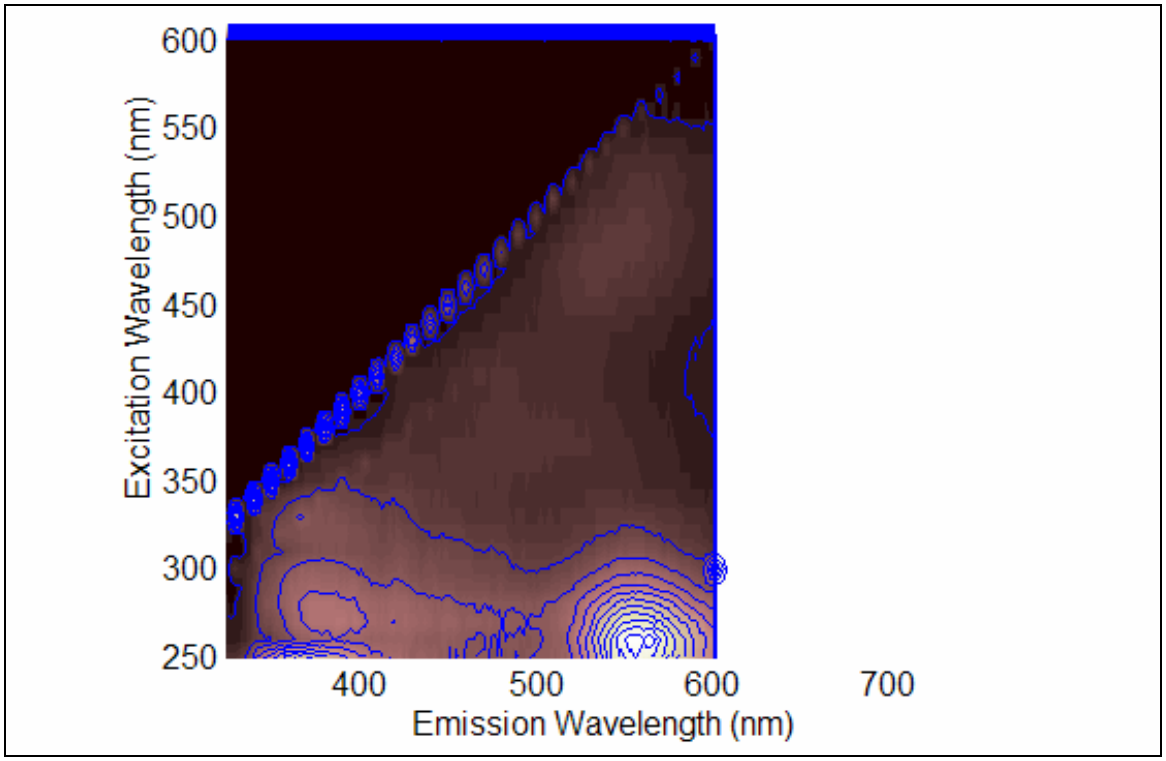

Figure S80. EEM of 10 μM **14** in MeOH.

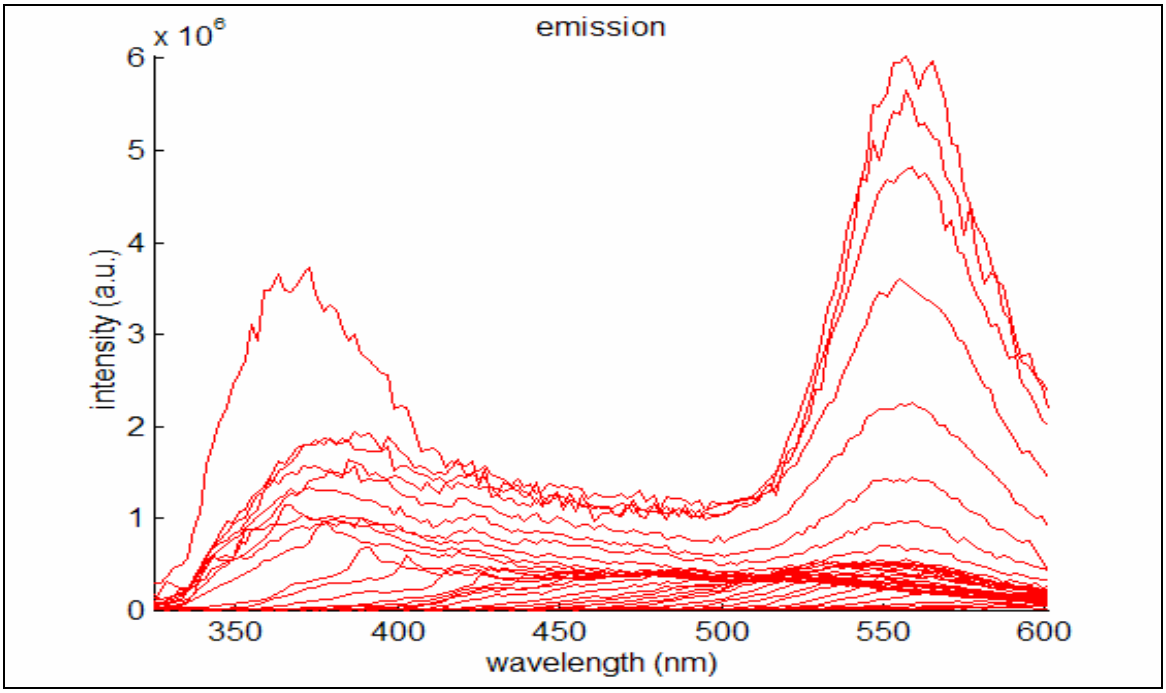

Figure S81. Emission of 10 μM **14** as a function of excitation in MeOH.

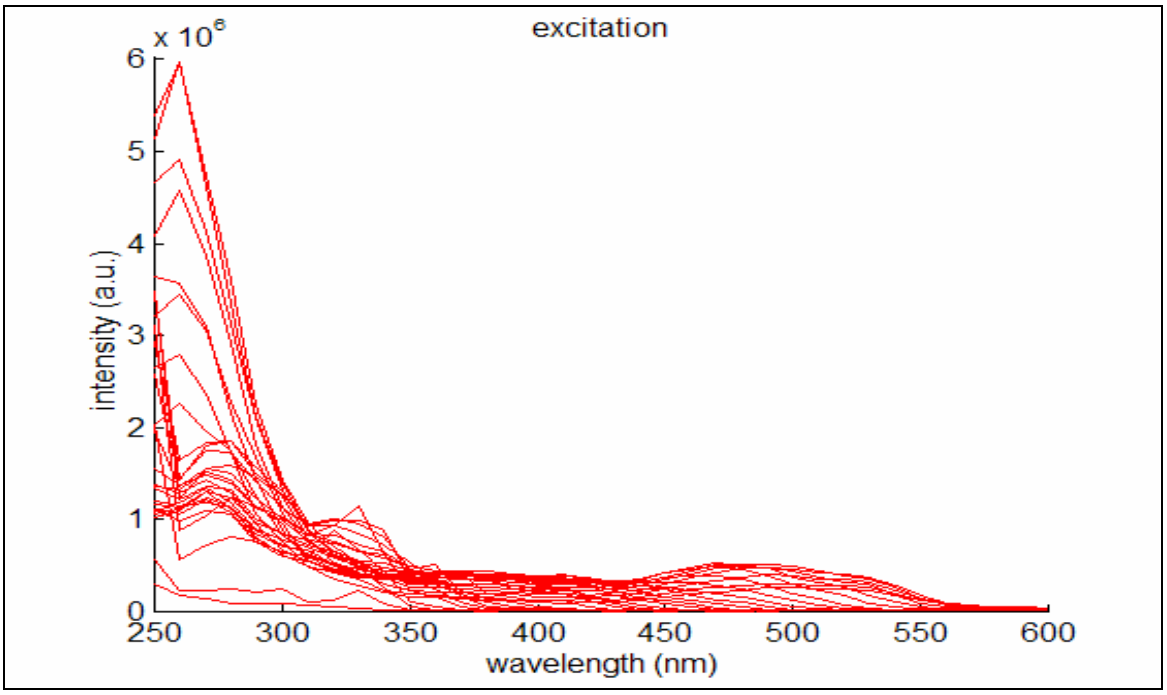

Figure S82. Excitation of 10 μM **14** as a function of emission in MeOH.

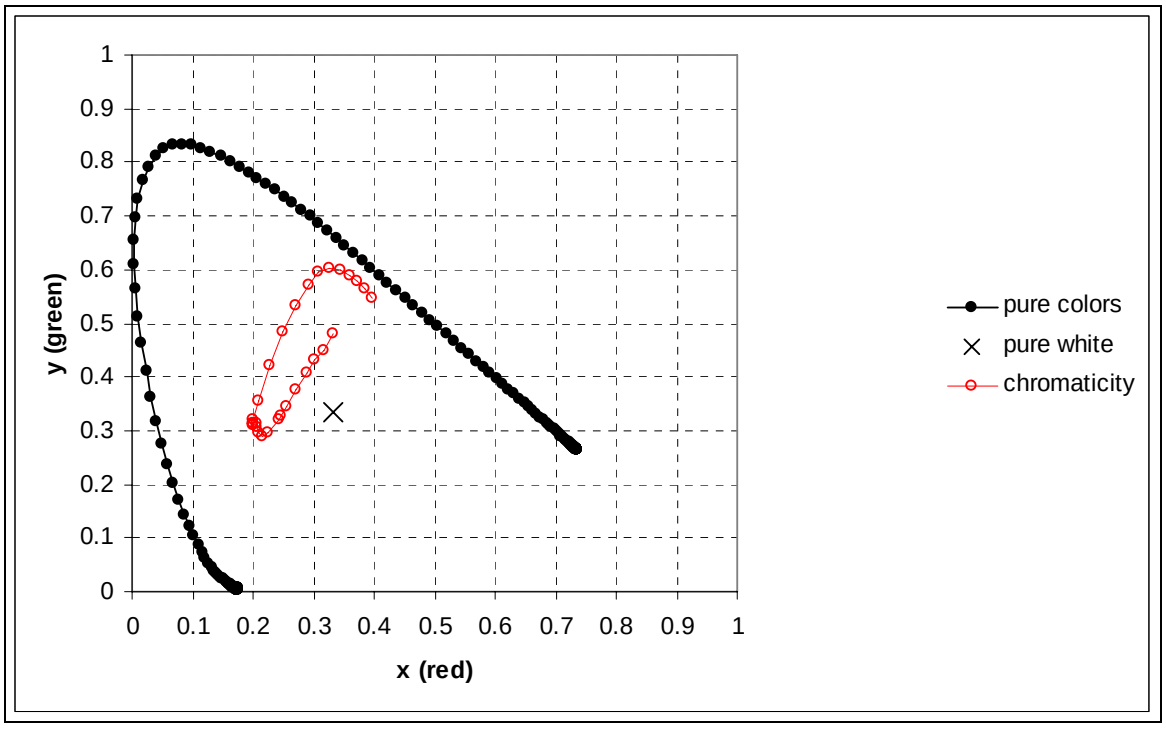

Figure S83. Chromaticity diagram of 10 μM **14** in MeOH between 260 nm and 540 nm plotted in a 1931 CIE diagram.

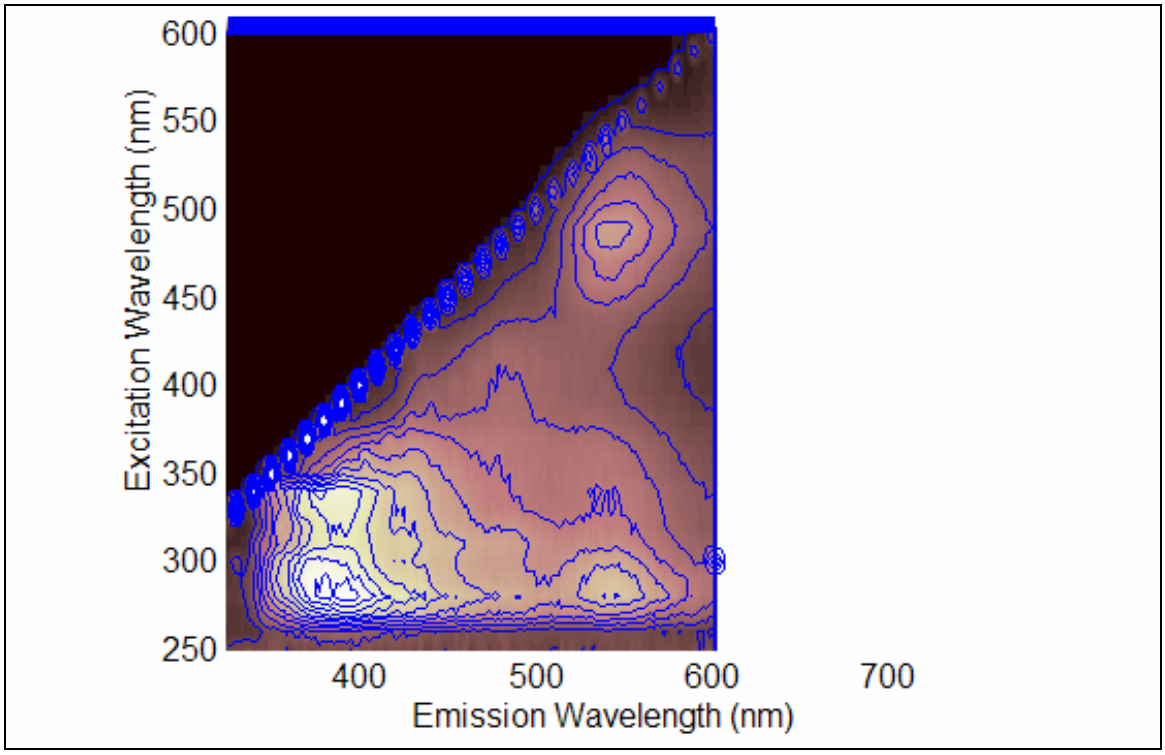

Figure S84. EEM of 10 μM **14** in DMSO.

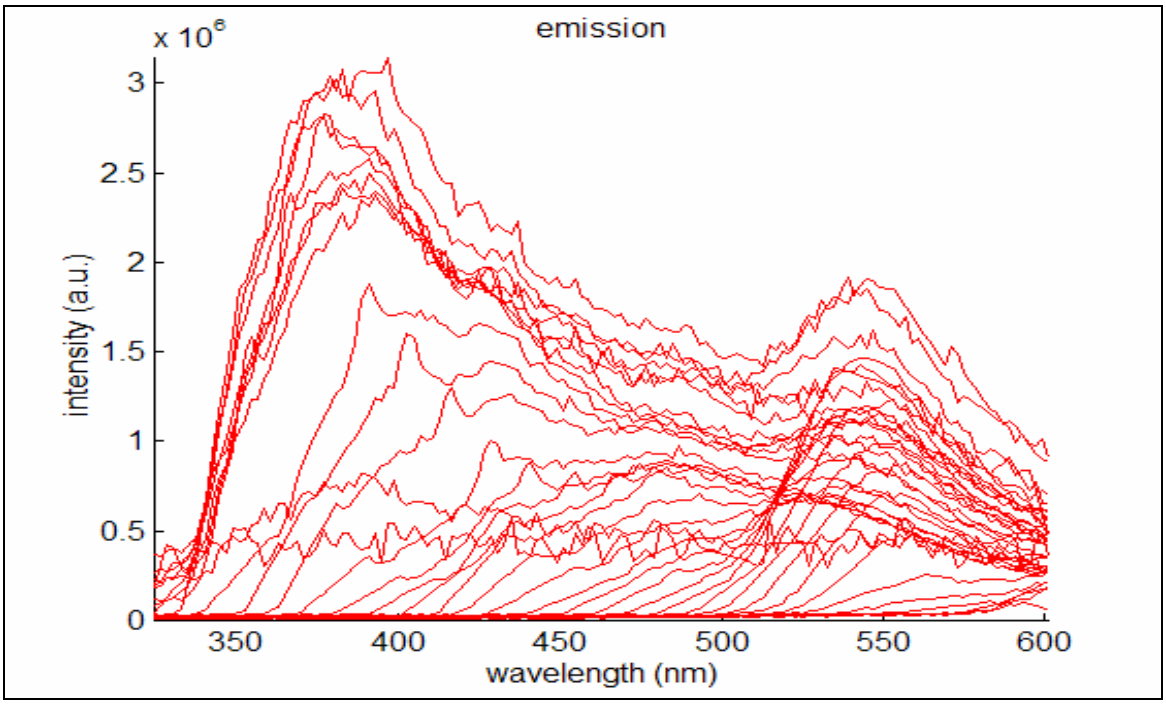

Figure S85. Emission of 10 μM **14** as a function of excitation in DMSO.

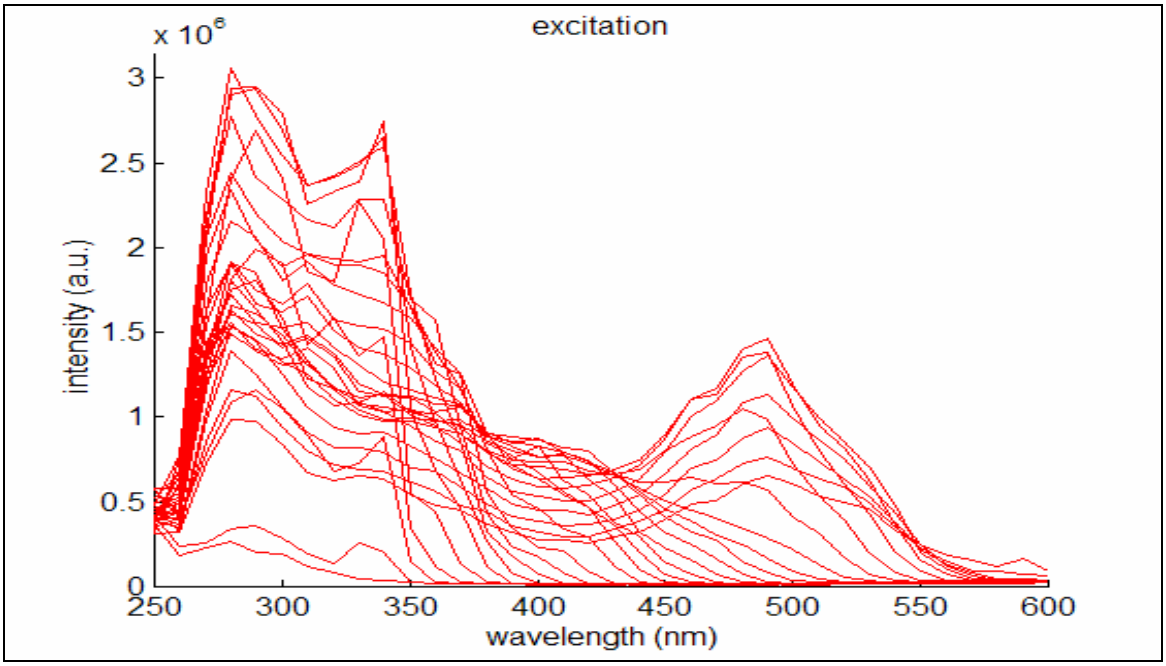

Figure S86. Excitation of 10 μM **14** as a function of emission in DMSO.

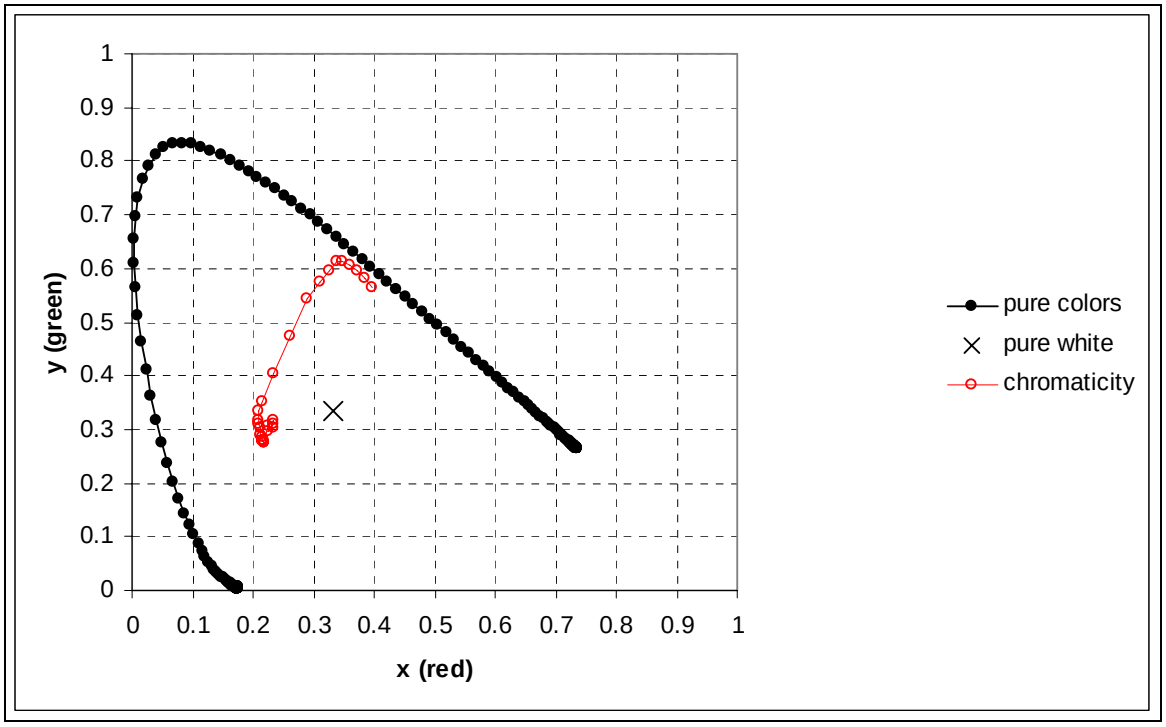

Figure S87. Chromaticity diagram of 10 μM **14** in DMSO between 260 nm and 540 nm plotted in a 1931 CIE diagram.

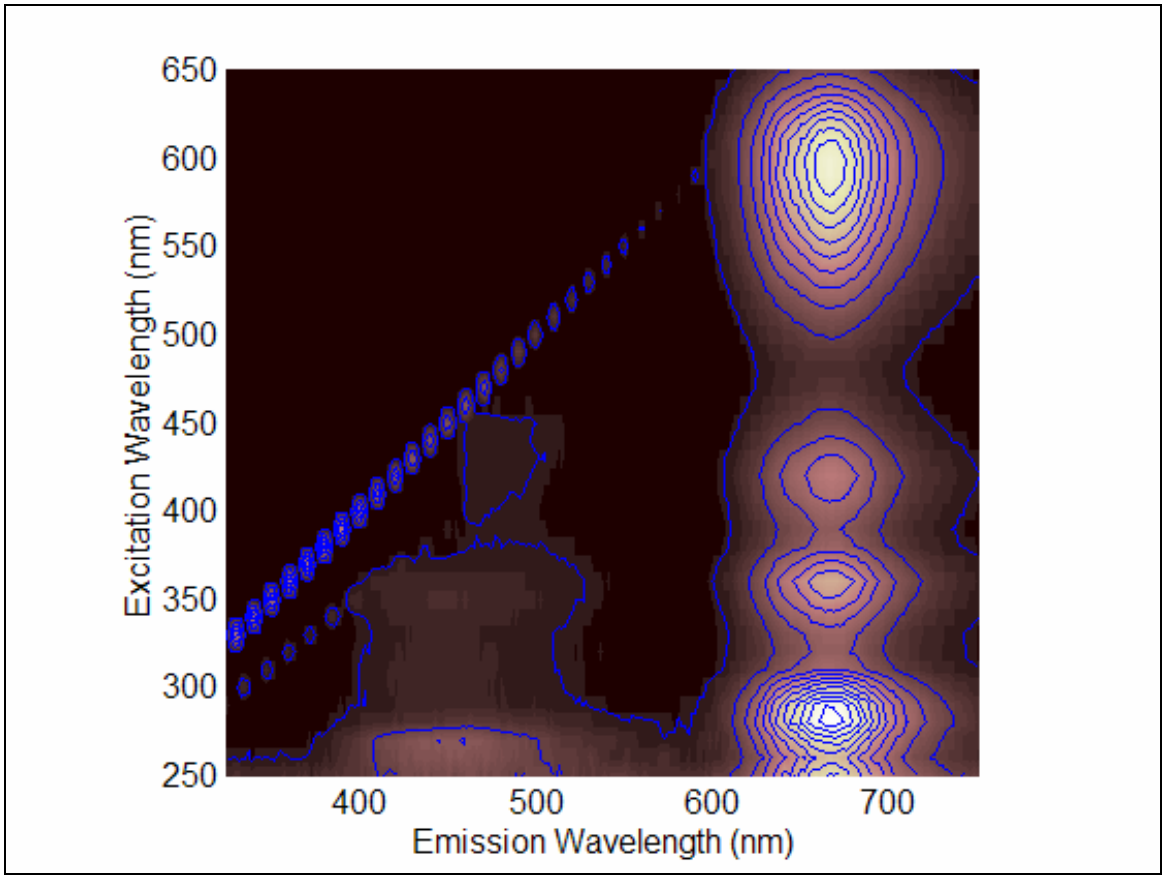

Figure S88. EEM of 10 μM **14** in 0.1 M NaOH.

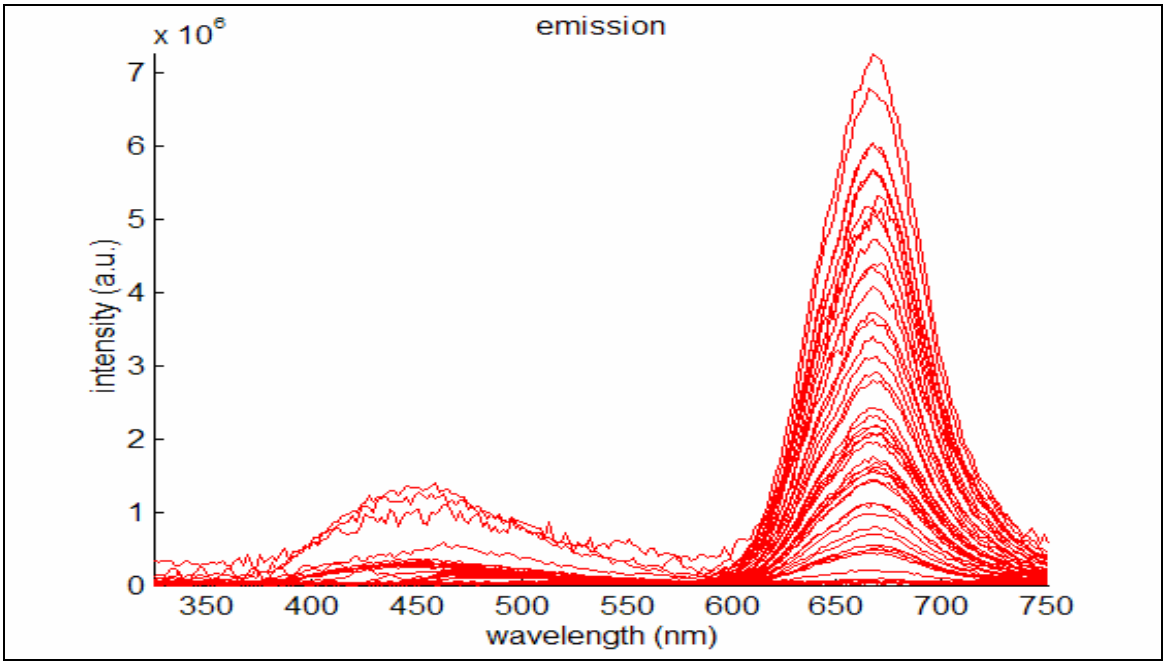

Figure S89. Emission of 10 μM **14** as a function of excitation in 0.1 M NaOH.

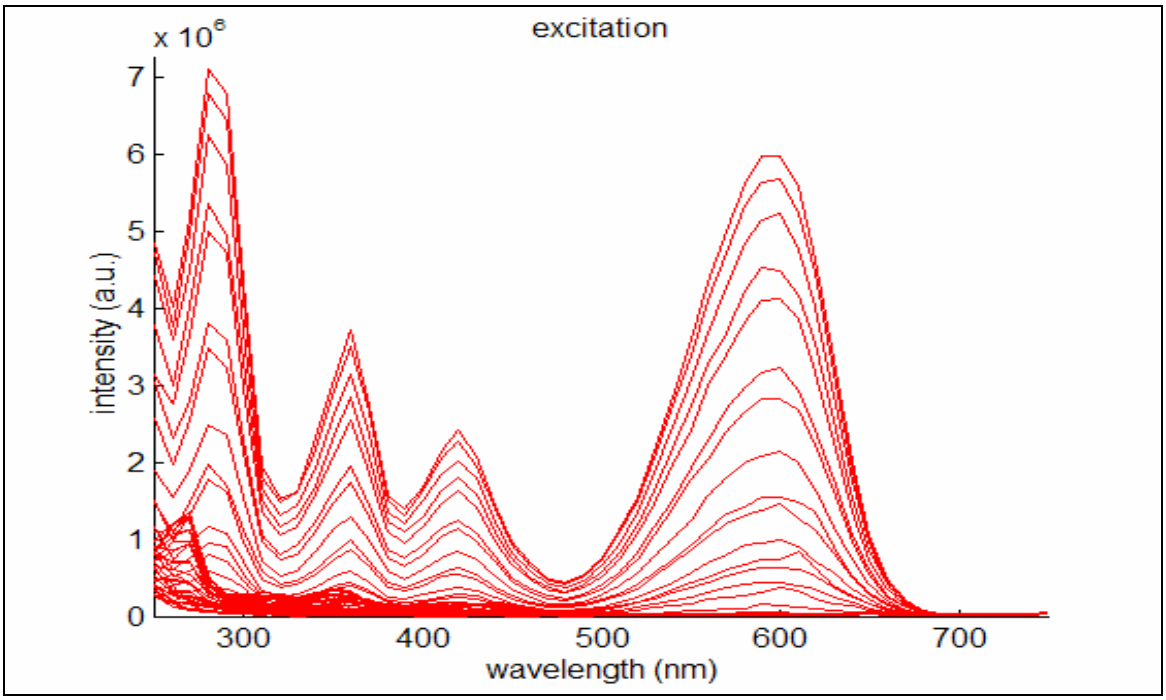

Figure S90. Excitation of 10 μM **14** as a function of emission in 0.1 M NaOH.

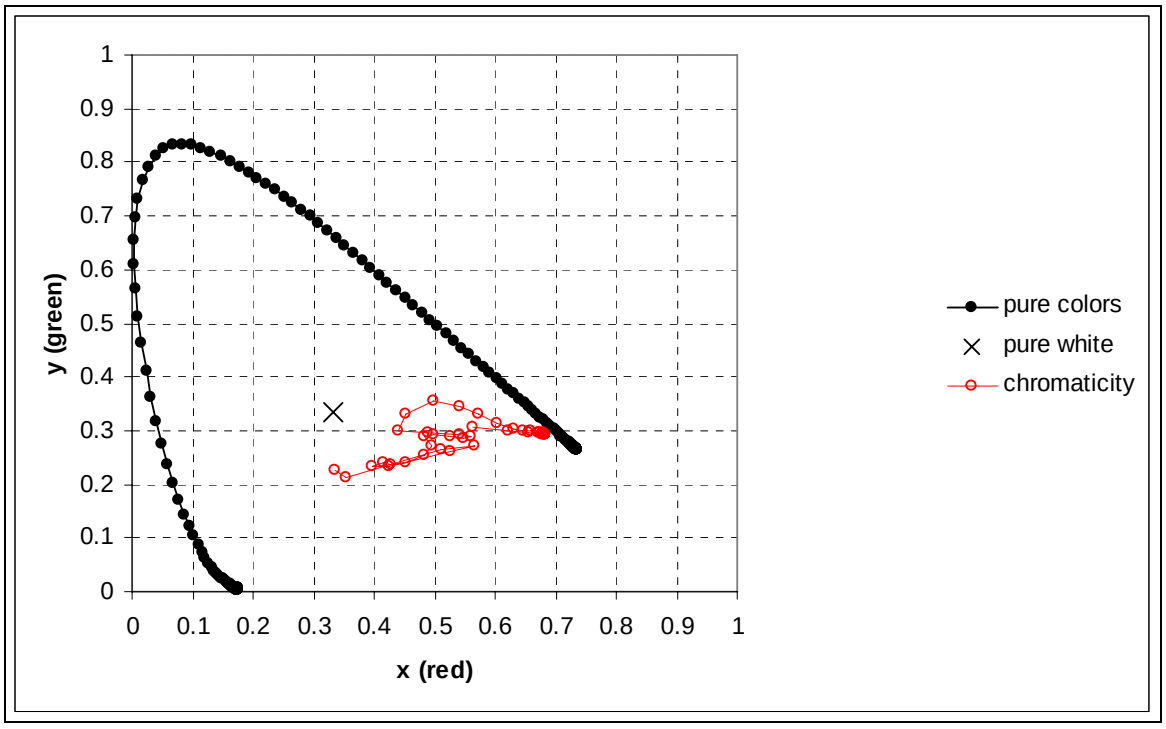

Figure S91. Chromaticity diagram of 10 μM **14** in 0.1 M NaOH between 260 nm and 650 nm plotted in a 1931 CIE diagram.