ELECTRONIC SUPPORTING INFORMATION (ESI)

Design and synthesis of colchicine derivatives with potent in vitro and in vivo anticancer activity and reduced p-glycoprotein induction liability

Baljinder Singh,[a,b] Ashok Kumar,[b,c] Prashant Joshi,[b,d] Santosh K. Guru,[c] Suresh Kumar,[b,c] Zahoor A. Wani,[c] Girish Mahajan,[c] Aashiq Hussain,[c] Asif Khurshid Qazi,[c] Ajay Kumar,[c] Sonali S. Bharate,[e] Bishan D. Gupta,[a] Parduman R. Sharma,[c] Abid Hamid,[b,c] Ajit K. Saxena,[b,c] Dilip M. Mondhe,[b,c] Shashi Bhushan,[b,c] Sandip B. Bharate[b,d,*] and Ram A. Vishwakarma[a,b,d,*]

[a]*Natural Product Chemistry Division, CSIR-Indian Institute of Integrative Medicine, Canal Road, Jammu-180001, India.*

[b]*Academy of Scientific & Innovative Research (AcSIR), CSIR-Indian Institute of Integrative Medicine, Canal Road, Jammu-180001, India.*

[c]*Cancer Pharmacology Division, CSIR-Indian Institute of Integrative Medicine, Canal Road, Jammu-180001, India*

[d]*Medicinal Chemistry Division, CSIR-Indian Institute of Integrative Medicine, Canal Road, Jammu-180001, India.*

[e]*Preformulation Laboratory, CSIR-Indian Institute of Integrative Medicine, Canal Road, Jammu-180001, India.*

**E-mail: ram@iiim.ac.in (R.A.V.); sbharate@iiim.ac.in (S.B.B.); Fax: +91-191- 2586333; Tel: +91-191- 2585006 (Extn. 345).*

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Fig. S1. ^{1}H NMR Spectrum of **3** in $CDCl_3$

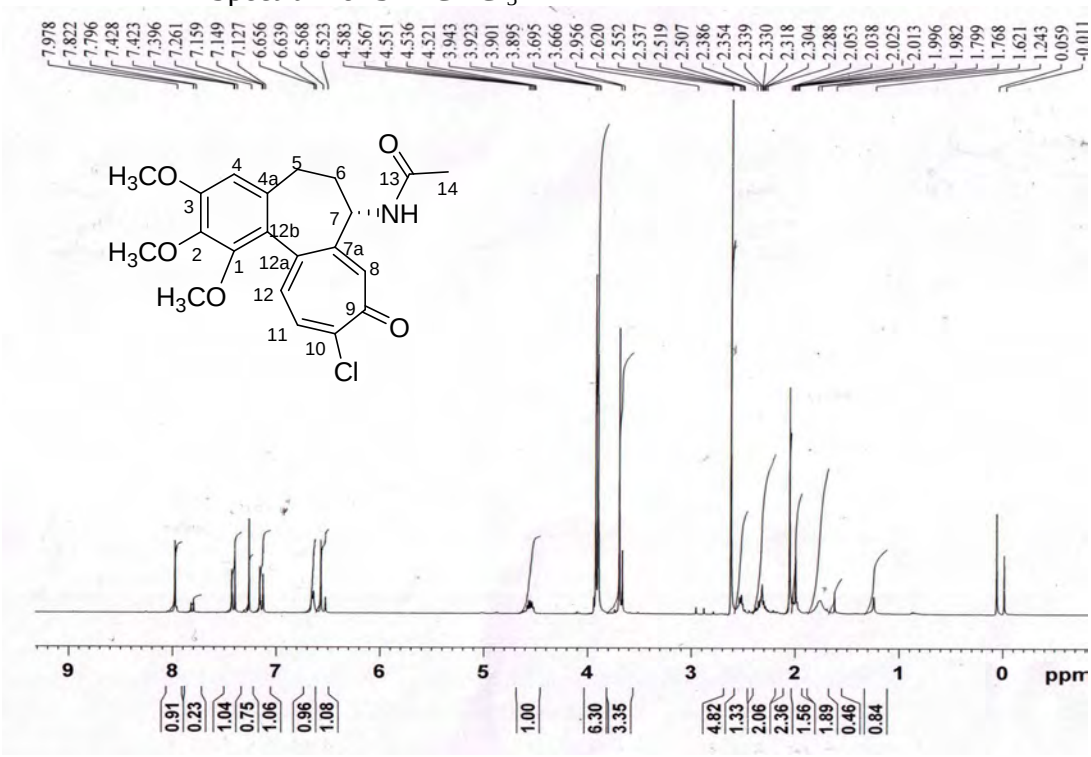


Fig. S2. ^{13}C NMR Spectrum of **3** in $CDCl_3$

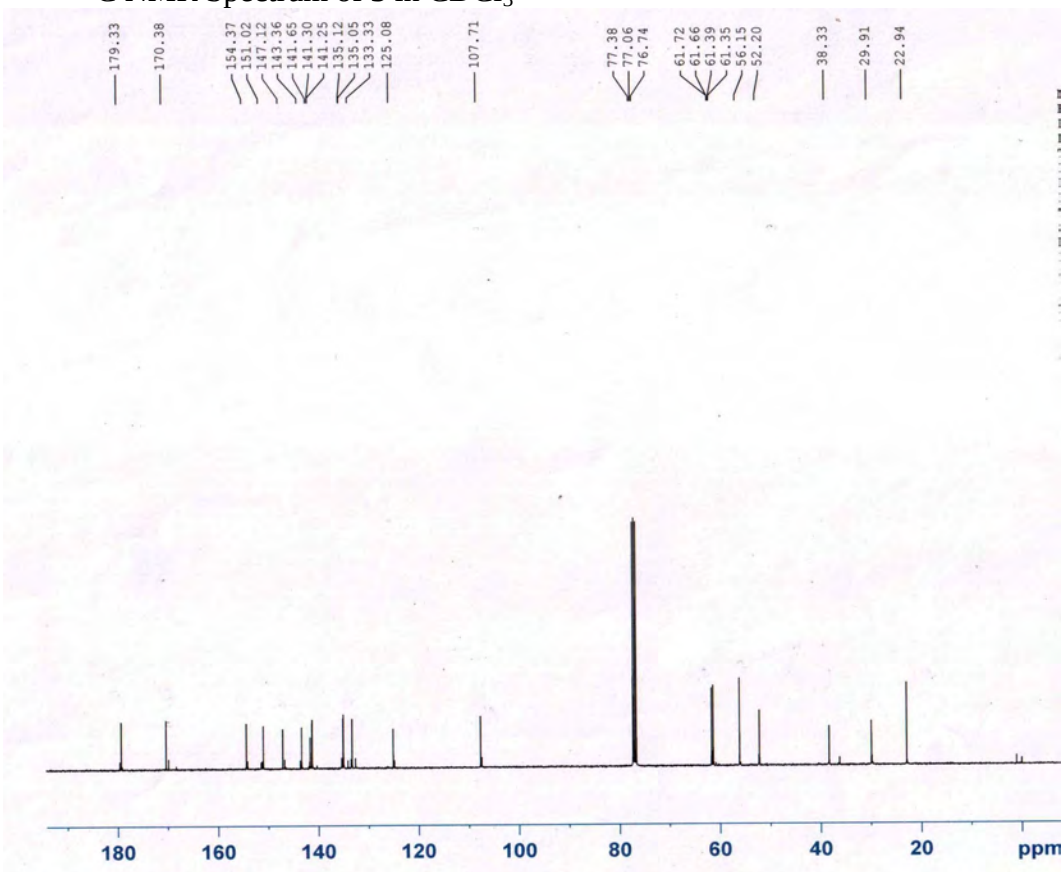


Fig. S3. DEPT-135 Spectrum of **3** in $CDCl_3$

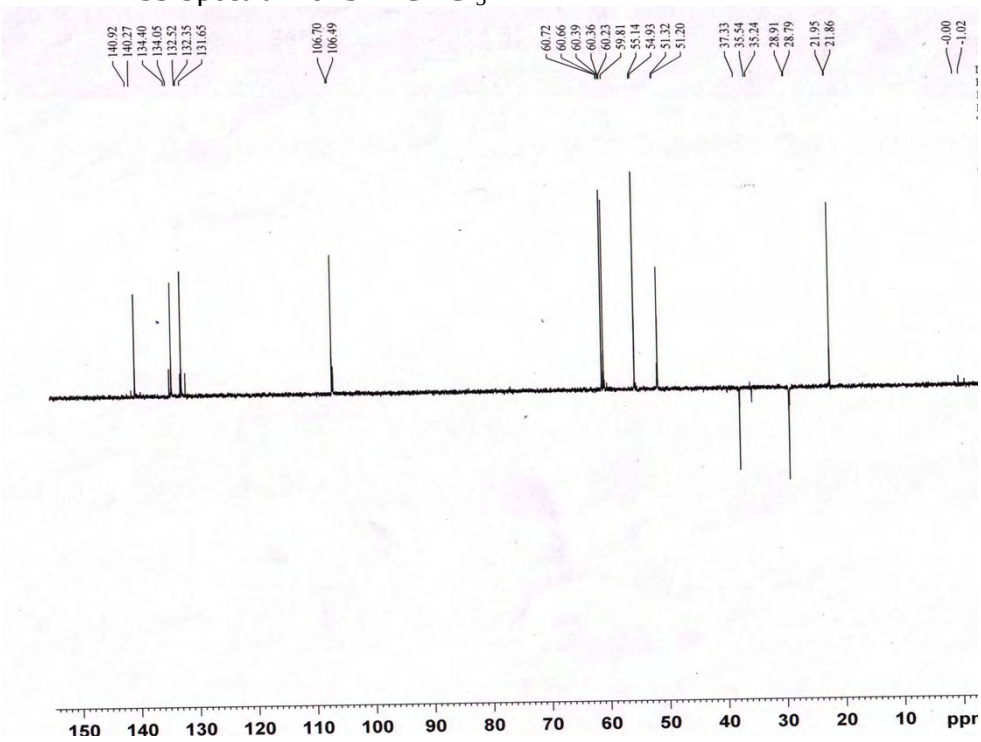


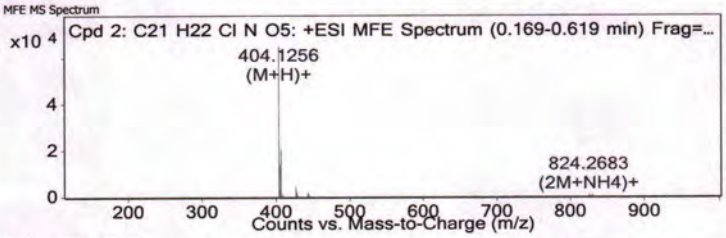
Fig. S4. HRMS Spectrum of **3**

Compound Table

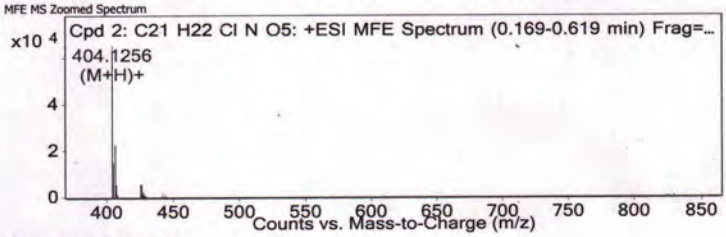
Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 2: C21 H22 Cl N O5	0.252	403.1183	C21 H22 Cl N O5	C21 H22 Cl N O5	0.92	C21 H22 Cl N O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 2: C21 H22 Cl N O5	404.1256	0.252	Find by Molecular Feature	403.1183

MFE MS Spectrum



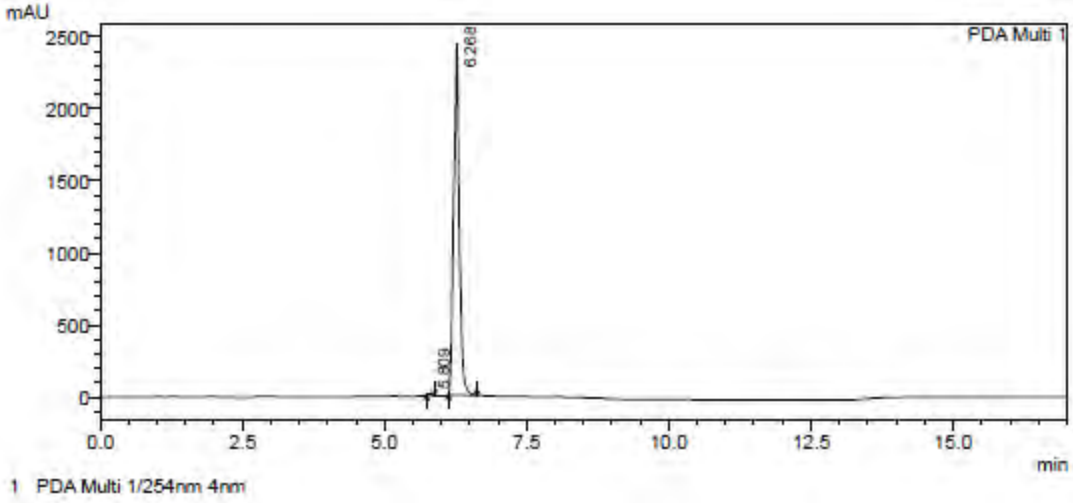
MFE MS Zoomed Spectrum



MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
404.1256	1	65238.2	C21 H23 Cl N O5	(M+H)+
405.1287	1	13786.6	C21 H23 Cl N O5	(M+H)+
406.1232	1	20927.6	C21 H23 Cl N O5	(M+H)+
407.1264	1	5240.9	C21 H23 Cl N O5	(M+H)+
408.1298	1	992.7	C21 H23 Cl N O5	(M+H)+
426.1072	1	4604.5	C21 H22 Cl N Na O5	(M+Na)+
427.1105	1	1078	C21 H22 Cl N Na O5	(M+Na)+
428.1046	1	2344	C21 H22 Cl N Na O5	(M+Na)+
442.0814	1	1693.5		(M+K)+
444.0786	1	1268.7		(M+K)+

Fig. S5. HPLC Chromatogram of **3**



PeakTable

Ch1 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %	Height %
1	5.809	53546	10387	0.321	0.424
2	6.268	16644380	2439255	99.679	99.576
Total		16697926	2449642	100.000	100.000

Fig. S6. ^{1}H NMR Spectrum of **4a** in $CDCl_3$

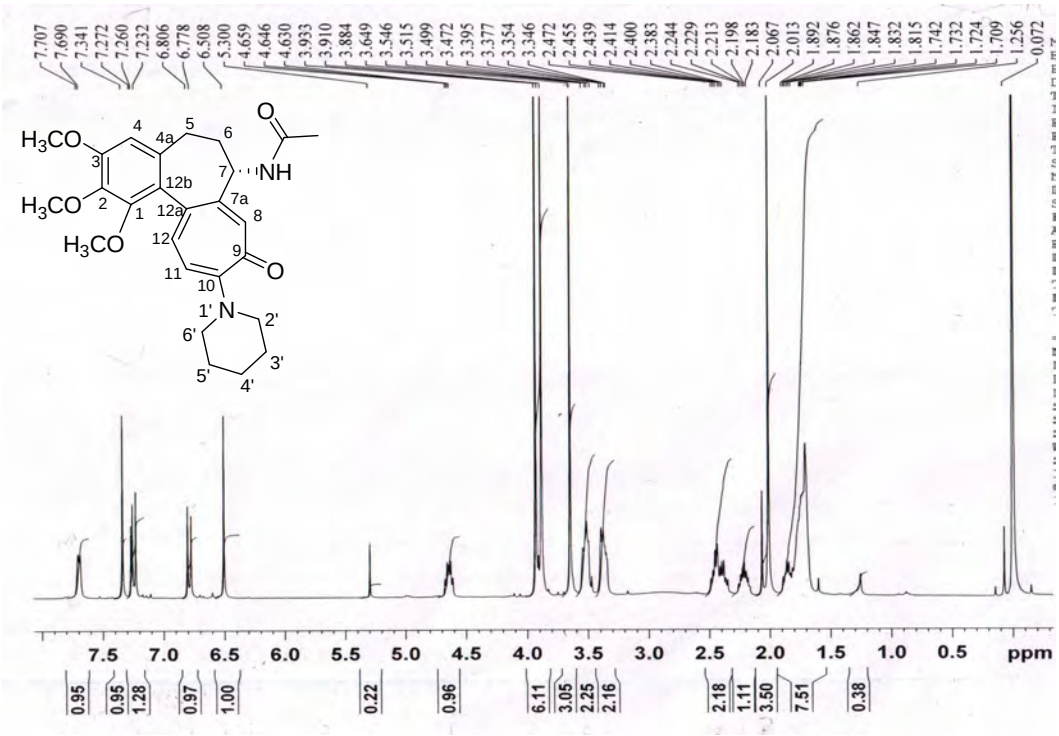


Fig. S7. ^{13}C NMR Spectrum of **4a** in $CDCl_3$

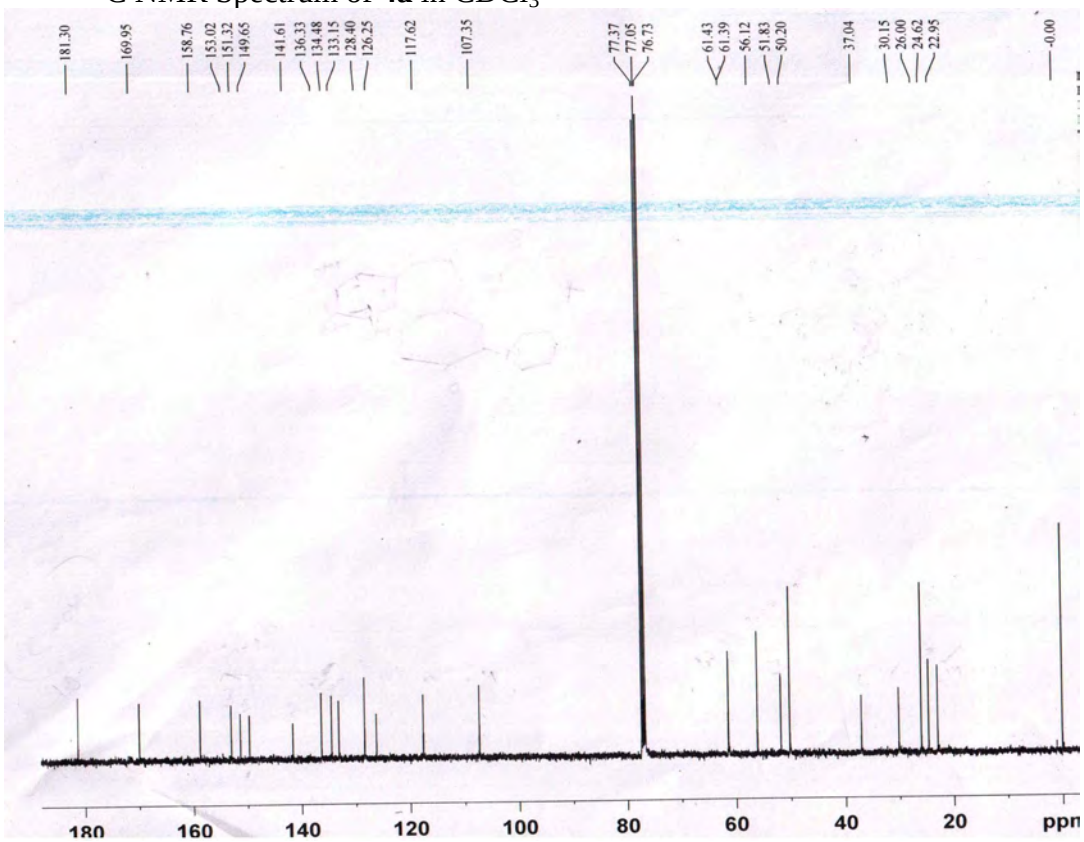


Fig. S8. DEPT-135 Spectrum of **4a** in $CDCl_3$

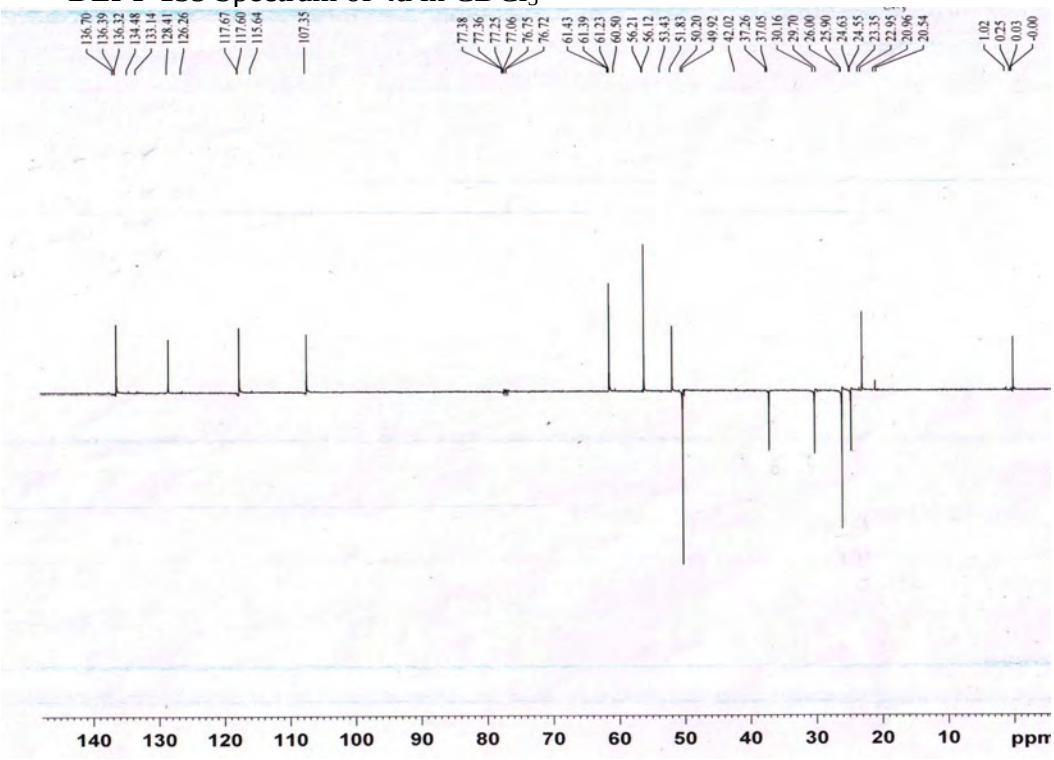


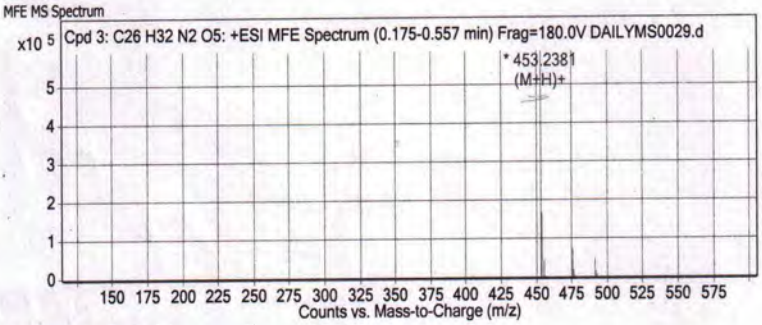
Fig. S9. HRMS Spectrum of **4a**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 3: C26 H32 N2 O5	0.244	452.2309	C26 H32 N2 O5	C26 H32 N2 O5	0.58	C26 H32 N2 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 3: C26 H32 N2 O5	453.2381	0.244	Find by Molecular Feature	452.2309

MFE MS Spectrum



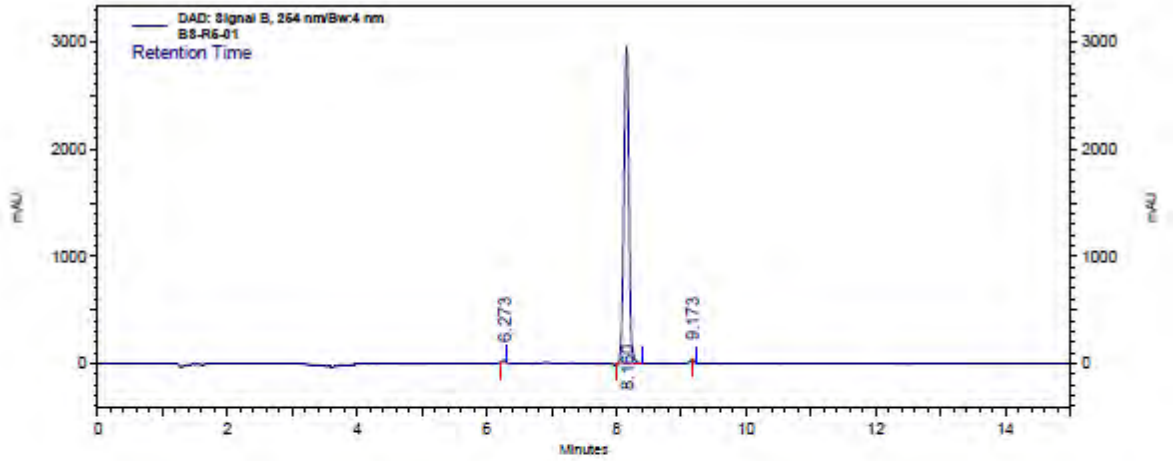
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
453.2381	1	586546.2	C26 H33 N2 O5	(M+H)+
454.2417	1	166622.8	C26 H33 N2 O5	(M+H)+
475.2203	1	71698.6	C26 H32 N2 Na O5	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	453.2381	453.2384	0.6	100	100	73.24	73.91
2	454.2417	454.2416	-0.23	28.41	29.42	20.8	21.74
3	455.2445	455.2444	-0.25	7.46	5.2	5.46	3.84
4	456.2465	456.2471	1.43	0.68	0.68	0.49	0.5

Fig. S10. HPLC Chromatogram of **4a**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.273	0.394	0.685	134270	42974
8.160	99.473	98.997	33883068	6210671
9.173	0.133	0.318	45152	19959
Totals	100.000	100.000	34062490	6273604

Fig. S11. ^{1}H NMR Spectrum of **4b** in $CDCl_3$

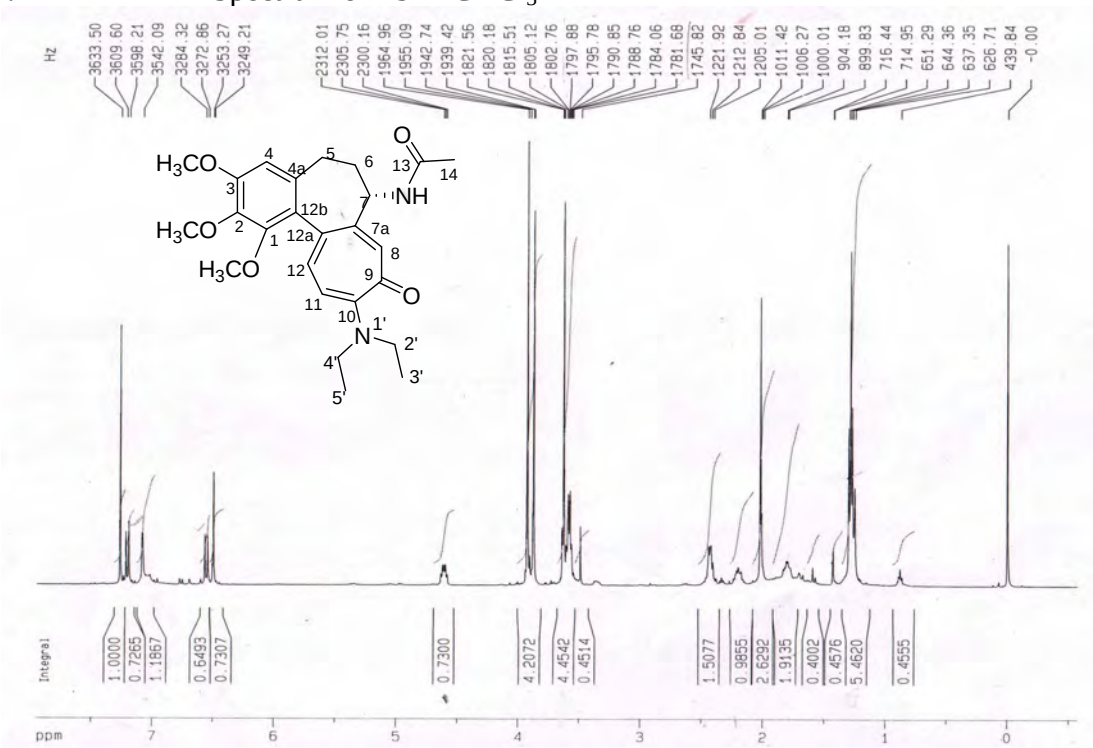


Fig. S12. ^{13}C NMR Spectrum of **4b** in $CDCl_3$

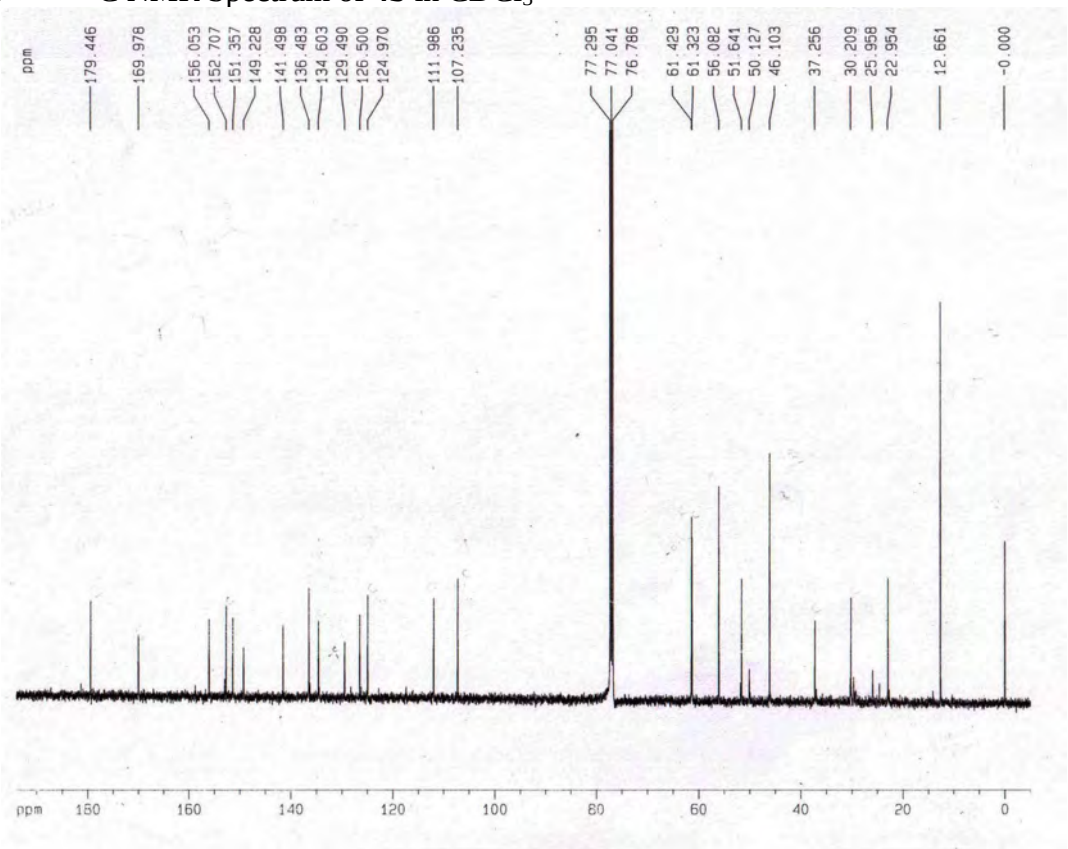


Fig. S13. DEPT-135 Spectrum of **4b** in $CDCl_3$

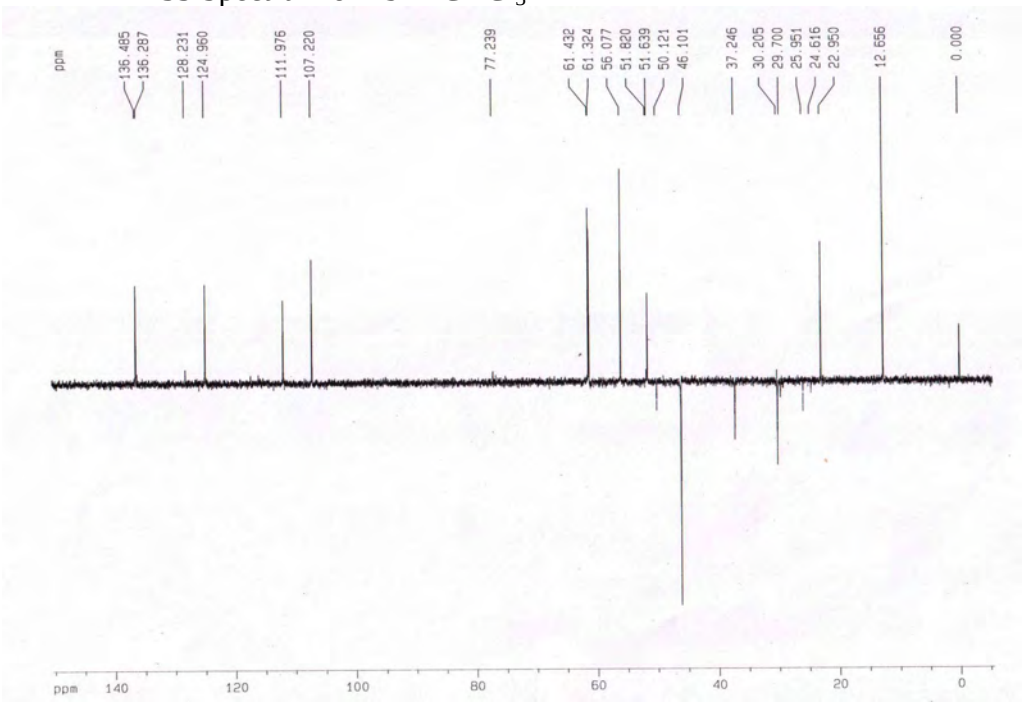


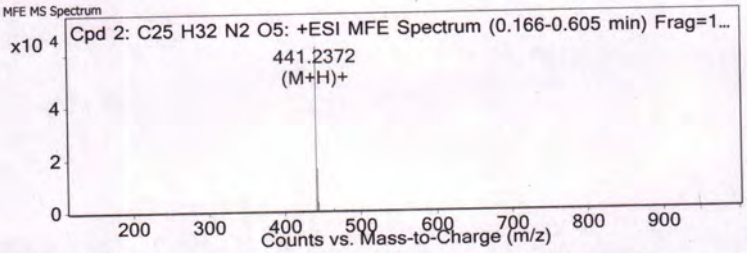
Fig. S14. HRMS Spectrum of **4b**

Compound Table

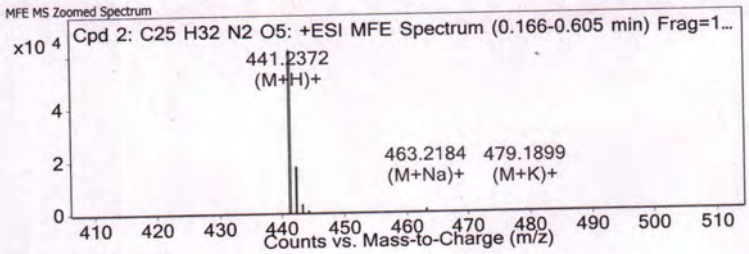
Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 2: C25 H32 N2 O5	0.25	440.2299	C25 H32 N2 O5	C25 H32 N2 O5	2.78	C25 H32 N2 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 2: C25 H32 N2 O5	441.2372	0.25	Find by Molecular Feature	440.2299

MFE MS Spectrum



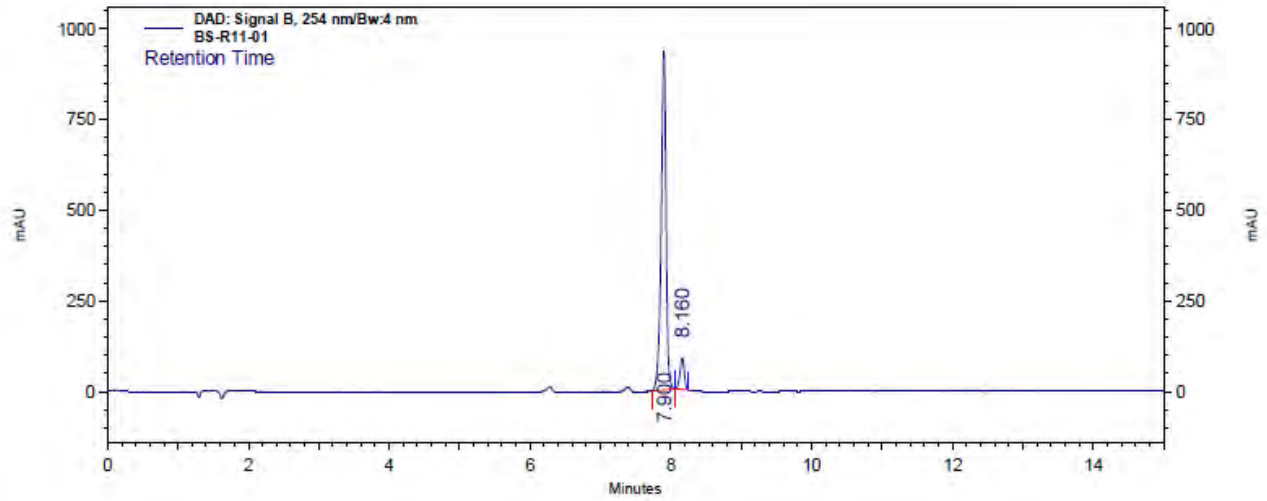
MFE MS Zoomed Spectrum



MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
441.2372	1	62354.3	C25 H33 N2 O5	(M+H)+
442.2401	1	15855.4	C25 H33 N2 O5	(M+H)+
443.2426	1	3321.8	C25 H33 N2 O5	(M+H)+
444.2454	1	674.3	C25 H33 N2 O5	(M+H)+
463.2184	1	815.8	C25 H32 N2 Na O5	(M+Na)+
479.1899	1	334.8		(M+K)+

Fig. S15. HPLC Chromatogram of **4b**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
7.900	97.256	95.261	7596533	1583452
8.160	2.744	4.739	214303	78775
Totals	100.000	100.000	7810836	1662227

Fig. S16. ^{1}H NMR Spectrum of **4c** in $CDCl_3$

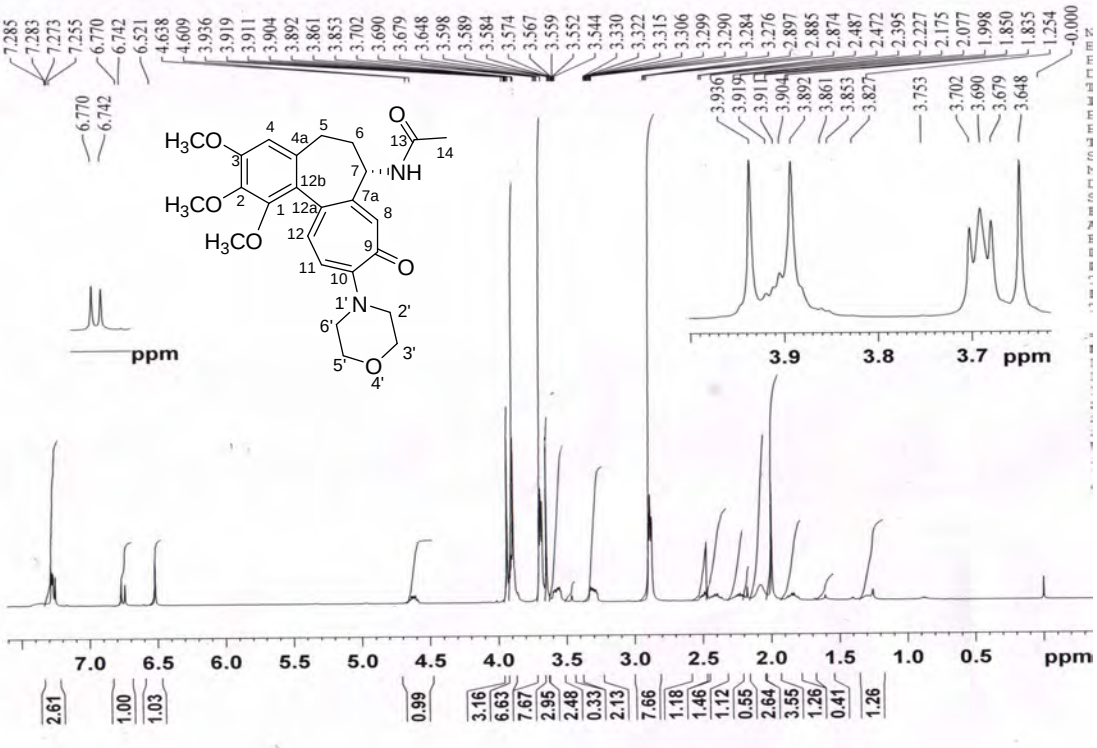


Fig. S17. ^{13}C NMR Spectrum of **4c** in $CDCl_3$

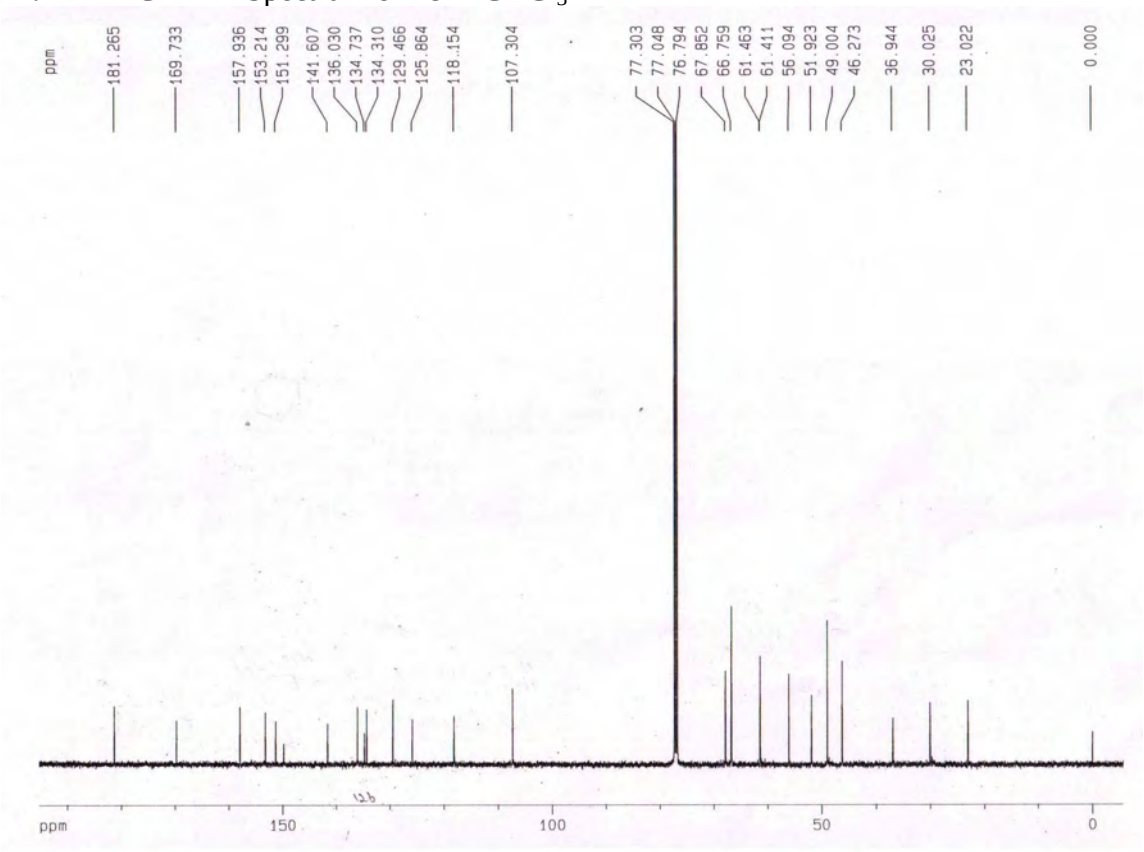


Fig. S18. DEPT-135 Spectrum of **4c** in $CDCl_3$

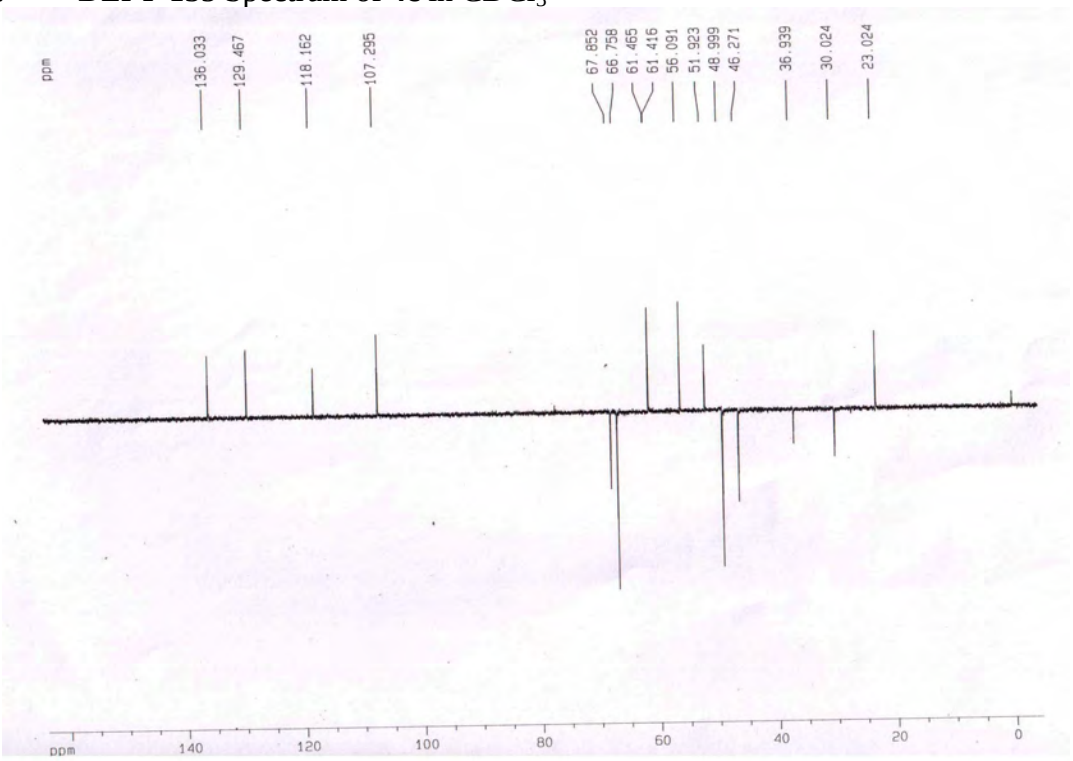
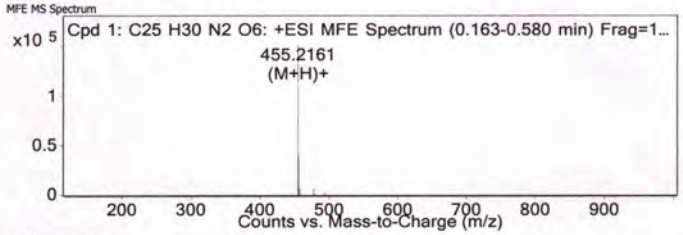


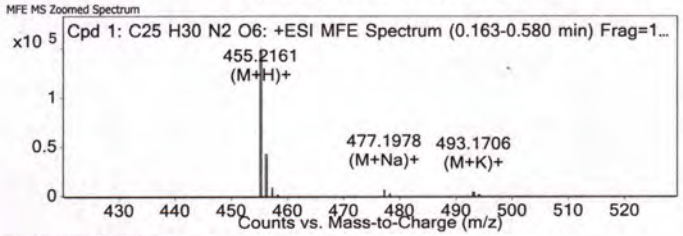
Fig. S19. HRMS Spectrum of **4c**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 1: C25 H30 N2 O6	0.247	454.2088	C25 H30 N2 O6	C25 H30 N2 O6	3.51	C25 H30 N2 O6

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 1: C25 H30 N2 O6	455.2161	0.247	Find by Molecular Feature	454.2088

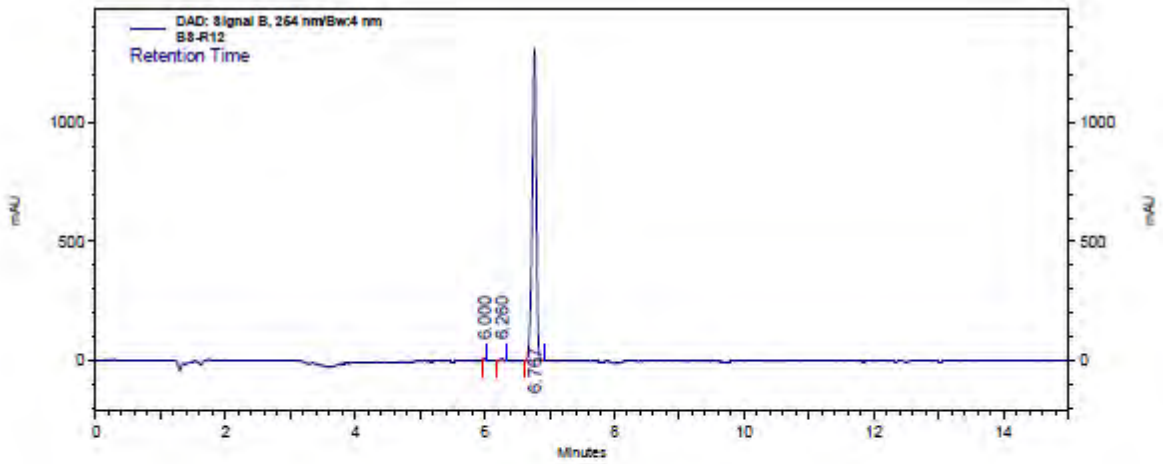




MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
455.2161	1	152004.3	C25 H31 N2 O6	(M+H)+
456.2191	1	39851.5	C25 H31 N2 O6	(M+H)+
457.2221	1	6951.5	C25 H31 N2 O6	(M+H)+
458.2241	1	1025.7	C25 H31 N2 O6	(M+H)+
477.1978	1	5674.9	C25 H30 N2 Na O6	(M+Na)+
478.2001	1	1506.8	C25 H30 N2 Na O6	(M+Na)+
479.2037	1	389.8	C25 H30 N2 Na O6	(M+Na)+
493.1706	1	2898.2	C25 H30 K N2 O6	(M+K)+
494.1753	1	1058.5	C25 H30 K N2 O6	(M+K)+

Fig. S20. HPLC Chromatogram of **4c**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.000	0.210	0.381	25605	10571
6.260	0.644	0.661	78489	18320
6.767	99.146	98.958	12087647	2743883
Totals	100.000	100.000	12191741	2772774

Fig. S21. ^{1}H NMR Spectrum of **4d** in $CDCl_3$

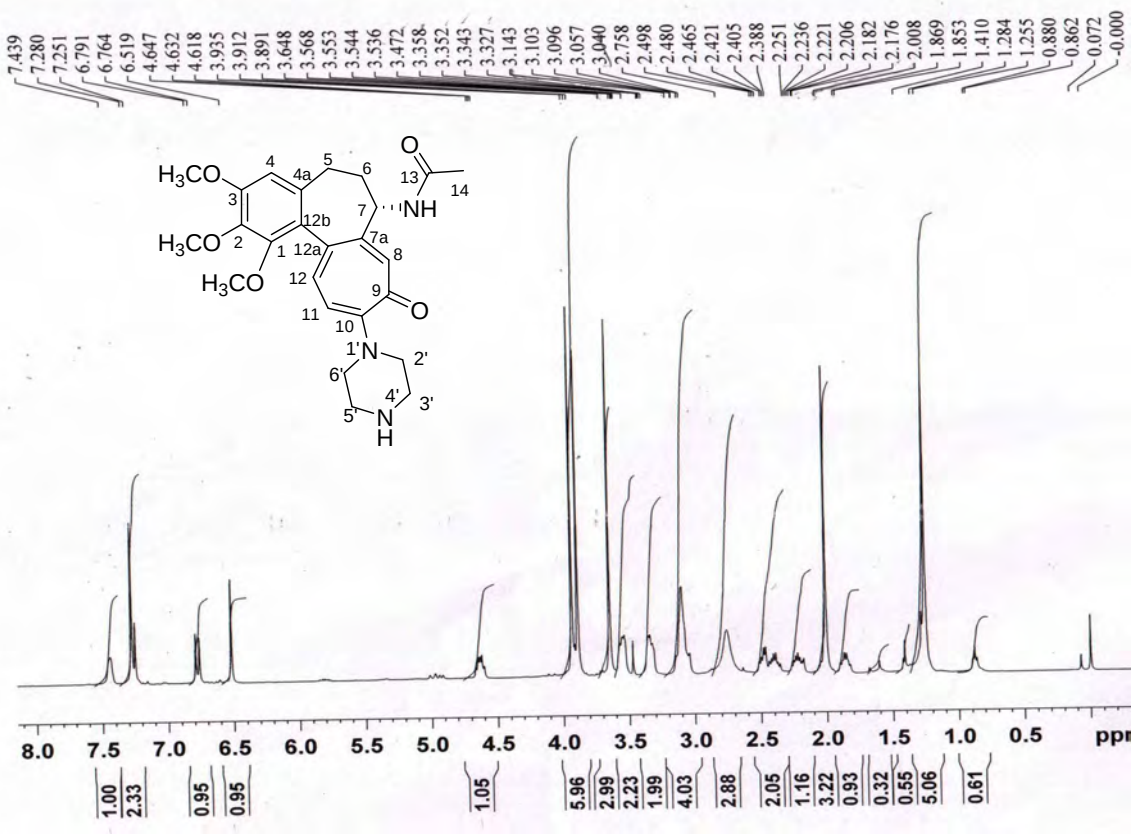


Fig. S22. ^{13}C NMR Spectrum of **4d** in $CDCl_3$

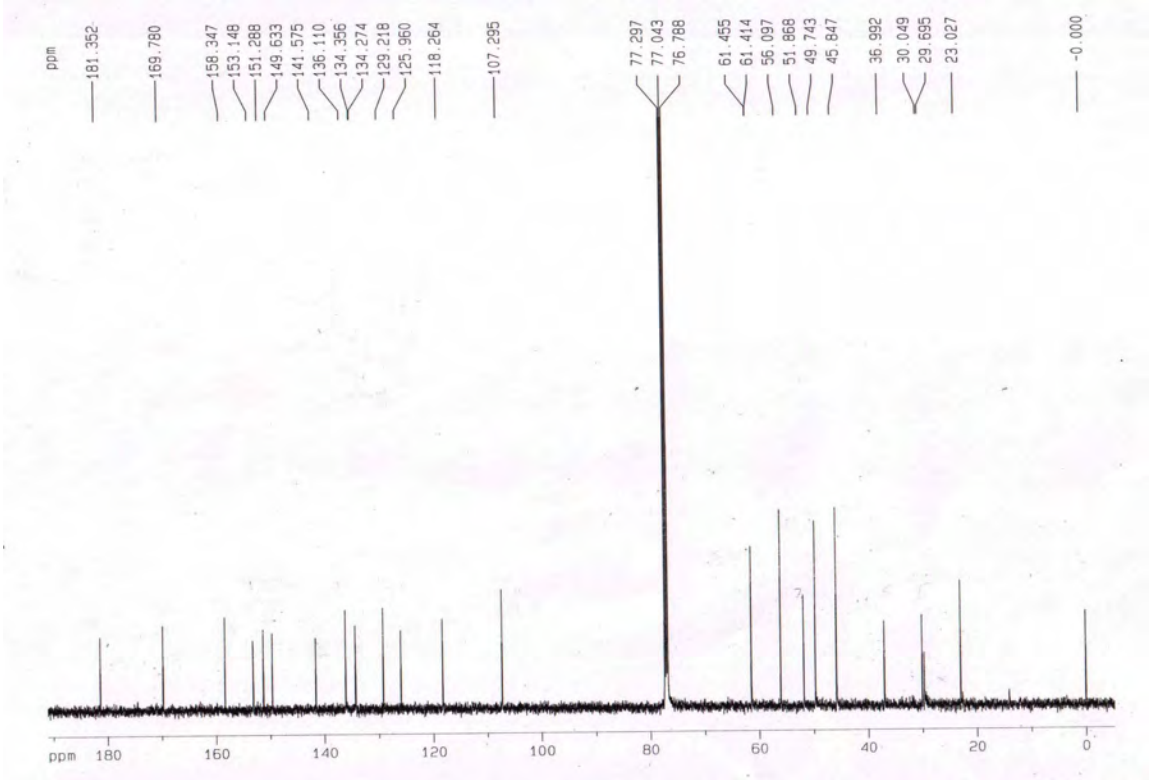


Fig. S23. DEPT-135 Spectrum of **4d** in $CDCl_3$

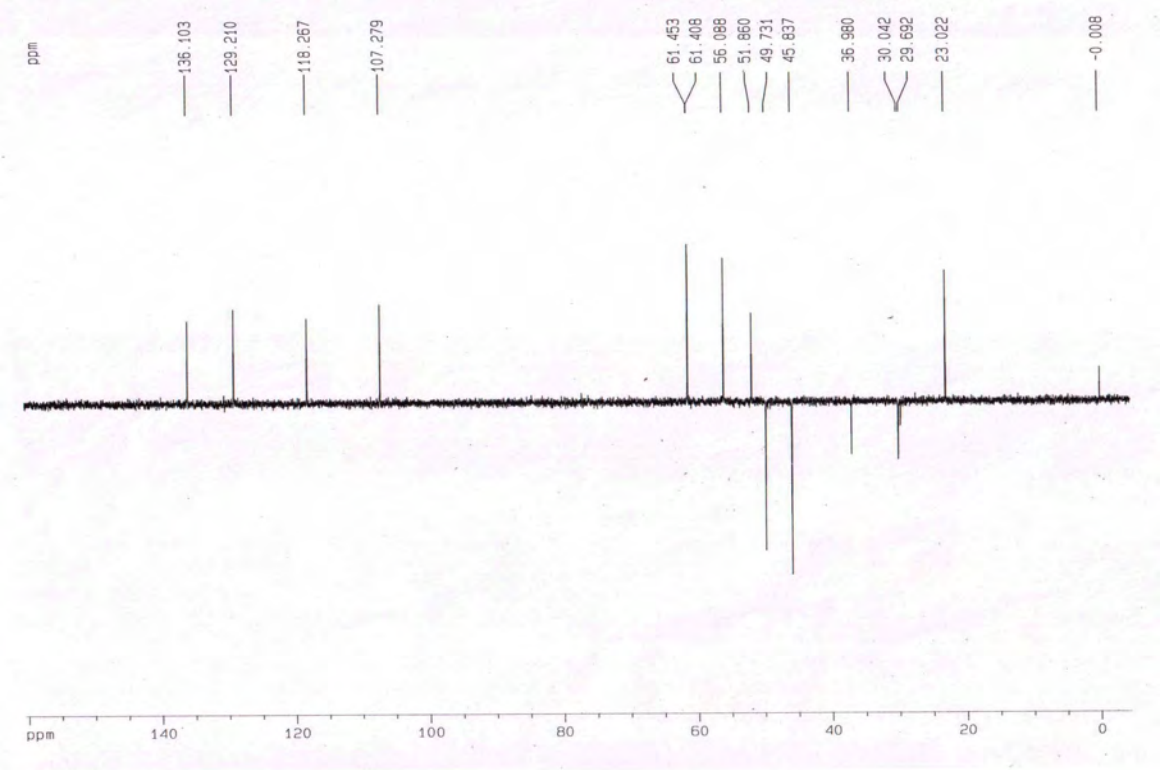


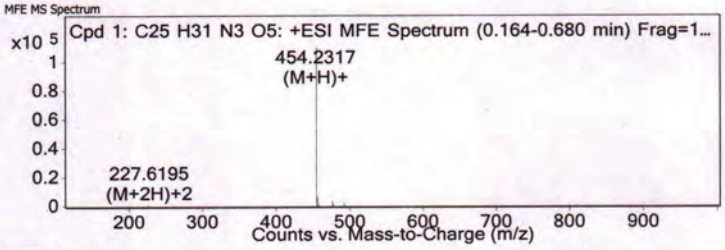
Fig. S24. HRMS Spectrum of **4d**

Compound Table

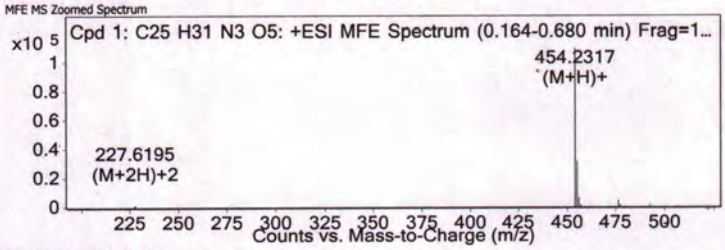
Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 1: C25 H31 N3 O5	0.249	453.2244	C25 H31 N3 O5	C25 H31 N3 O5	4.27	C25 H31 N3 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 1: C25 H31 N3 O5	454.2317	0.249	Find by Molecular Feature	453.2244

MFE MS Spectrum



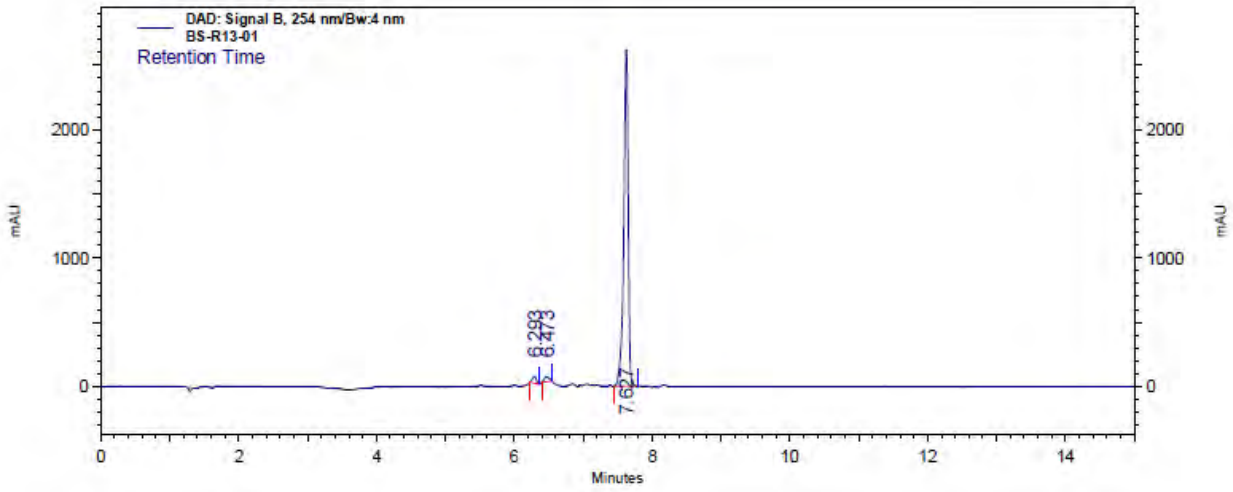
MFE MS Zoomed Spectrum



MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
227.6195	2	356.4	C25 H33 N3 O5	(M+2H)+2
454.2317	1	109938.1	C25 H32 N3 O5	(M+H)+
455.2346	1	30094.5	C25 H32 N3 O5	(M+H)+
456.2375	1	5976.2	C25 H32 N3 O5	(M+H)+
457.2398	1	955.3	C25 H32 N3 O5	(M+H)+
476.213	1	4041.9	C25 H31 N3 Na O5	(M+Na)+
477.2154	1	1316.1	C25 H31 N3 Na O5	(M+Na)+
492.1868	1	1837.1		(M+K)+
493.1889	1	859.9		(M+K)+

Fig. S25. HPLC Chromatogram of **4d**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.293	1.685	1.940	423699	110287
6.473	1.642	1.407	412992	79981
7.627	96.673	96.654	24314733	5495568
Totals	100.000	100.000	25151424	5685836

Fig. S26. ^{1}H NMR Spectrum of **4e** in $CDCl_3$

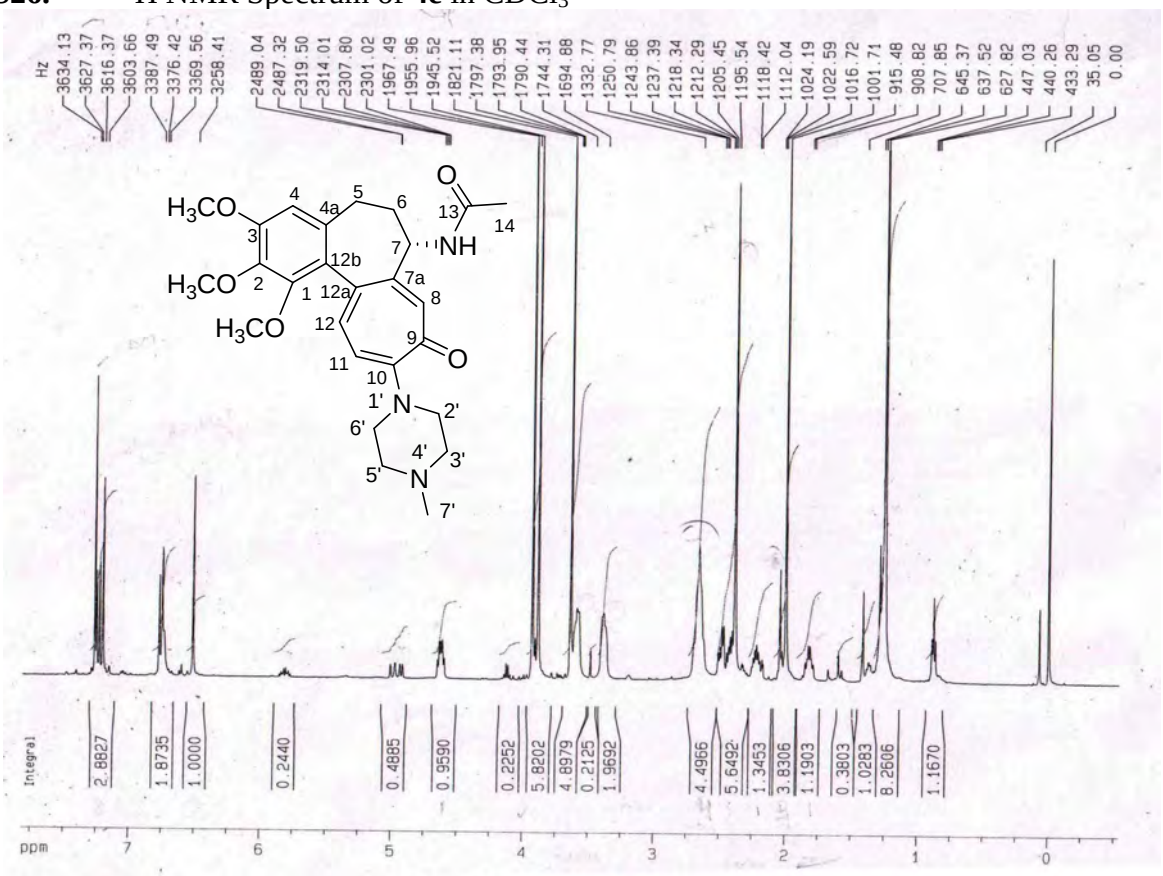


Fig. S27. ^{13}C NMR Spectrum of **4e** in $CDCl_3$

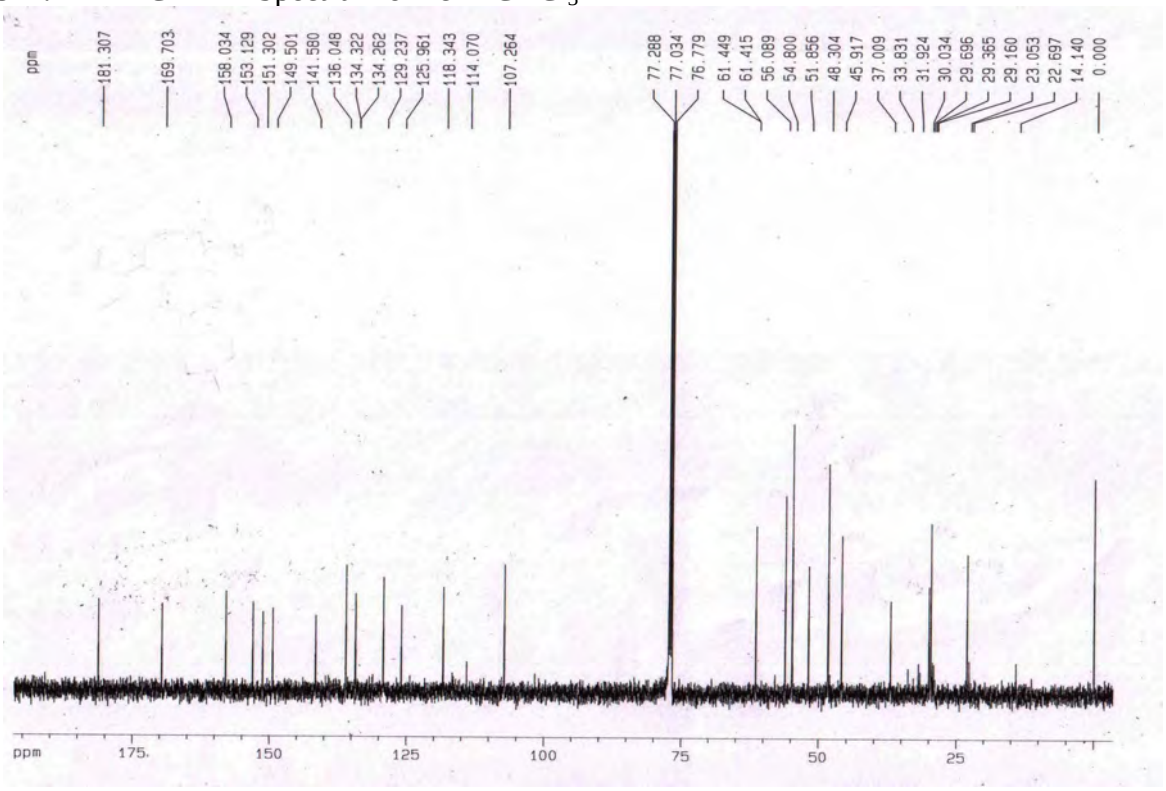


Fig. S28. DEPT-135 Spectrum of **4e** in $CDCl_3$

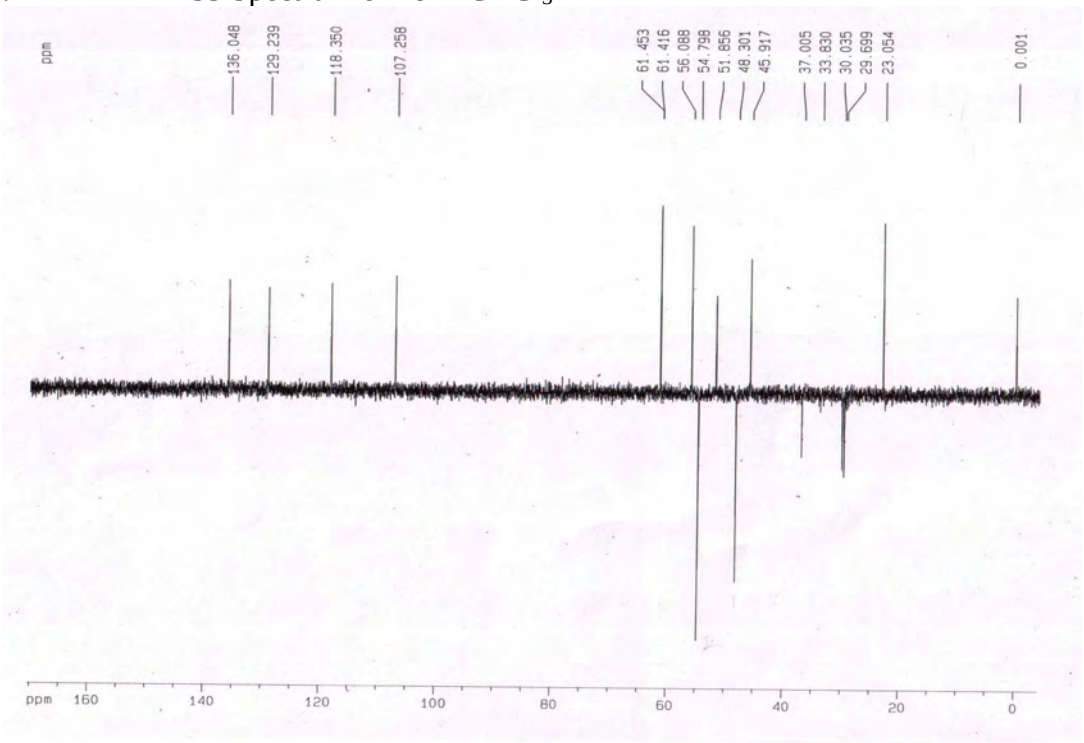


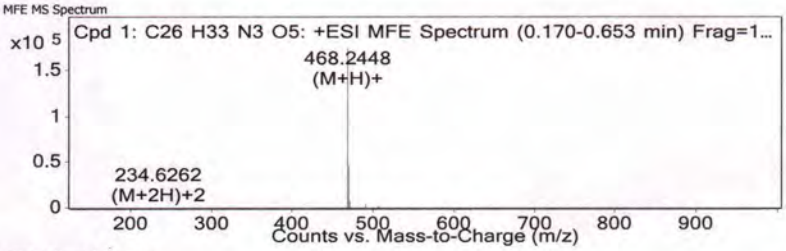
Fig. S29. HRMS Spectrum of **4e**

Compound Table

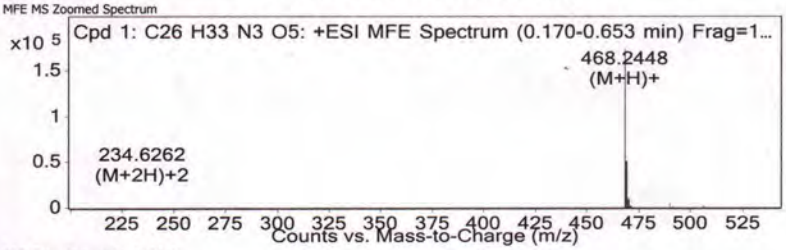
Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 1: C26 H33 N3 O5	0.248	467.2375	C26 H33 N3 O5	C26 H33 N3 O5	9.72	C26 H33 N3 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 1: C26 H33 N3 O5	468.2448	0.248	Find by Molecular Feature	467.2375

MFE MS Spectrum



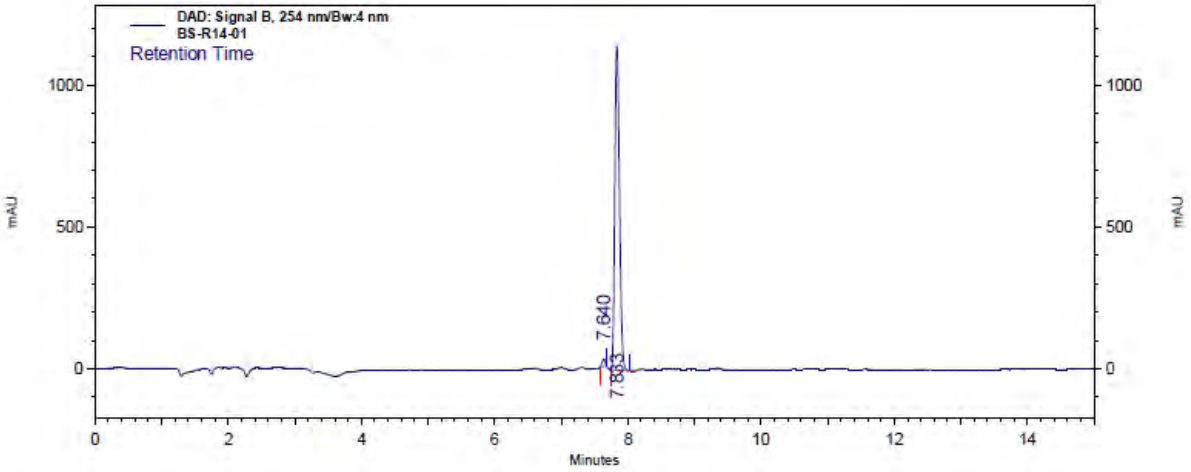
MFE MS Zoomed Spectrum



MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
234.6262	2	469.9		(M+2H)+2
468.2448	1	174007.6	C26 H34 N3 O5	(M+H)+
469.2477	1	45639.9	C26 H34 N3 O5	(M+H)+
470.2501	1	8127.3	C26 H34 N3 O5	(M+H)+
471.2517	1	1357	C26 H34 N3 O5	(M+H)+
490.226	1	5353.7		(M+Na)+
491.23	1	1353.8		(M+Na)+
492.2315	1	398.1		(M+Na)+
506.1995	1	2264.1		(M+K)+
507.203	1	560.9		(M+K)+

Fig. S30. HPLC Chromatogram of **4e**



DAD: Signal B, 254 nm/Bw:4 nm Results

Retention Time	Area Percent	Height Percent	Area	Height
7.640	1.493	2.262	176579	55404
7.833	98.507	97.738	11650428	2394059
Totals	100.000	100.000	11827007	2449463

Fig. S31. ^{1}H NMR Spectrum of **4f** in $CDCl_3$

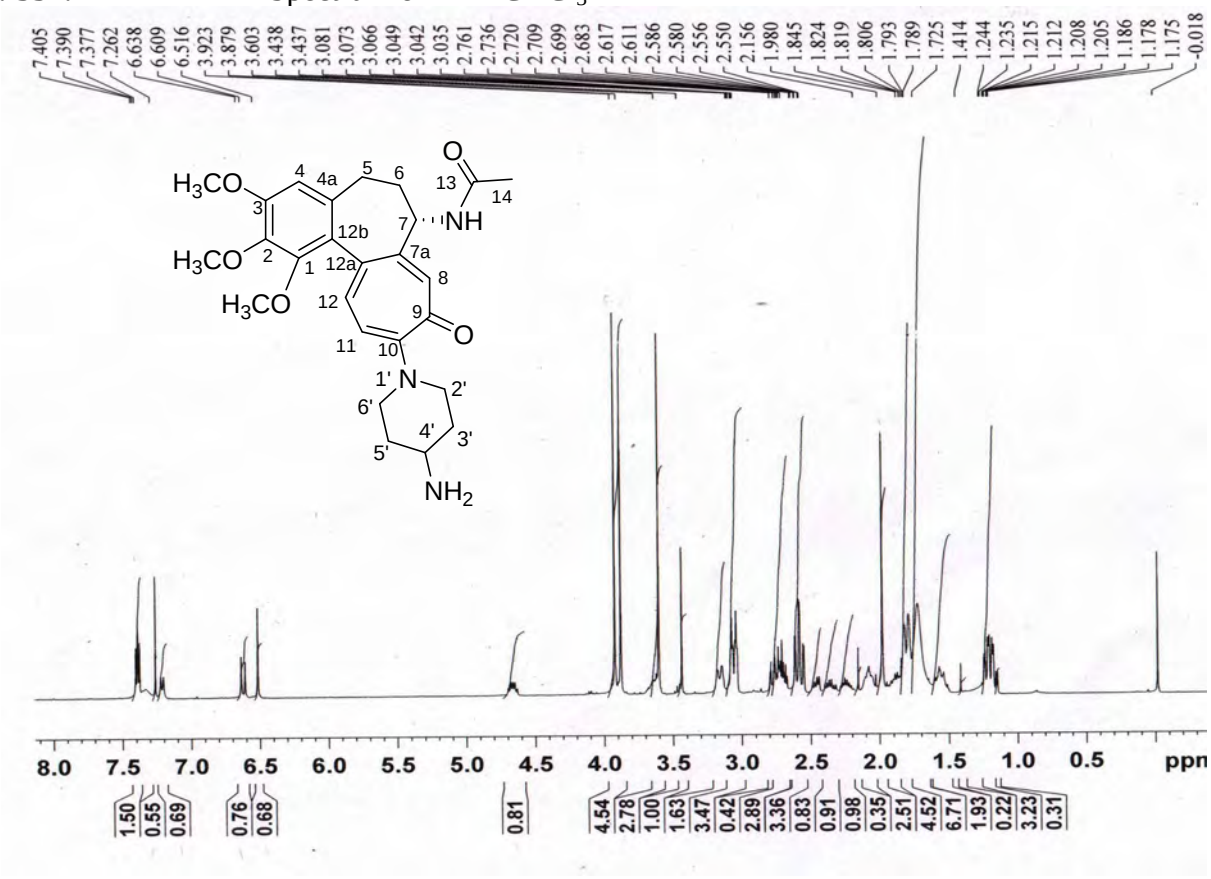


Fig. S32. ^{13}C NMR Spectrum of **4f** in $CDCl_3$

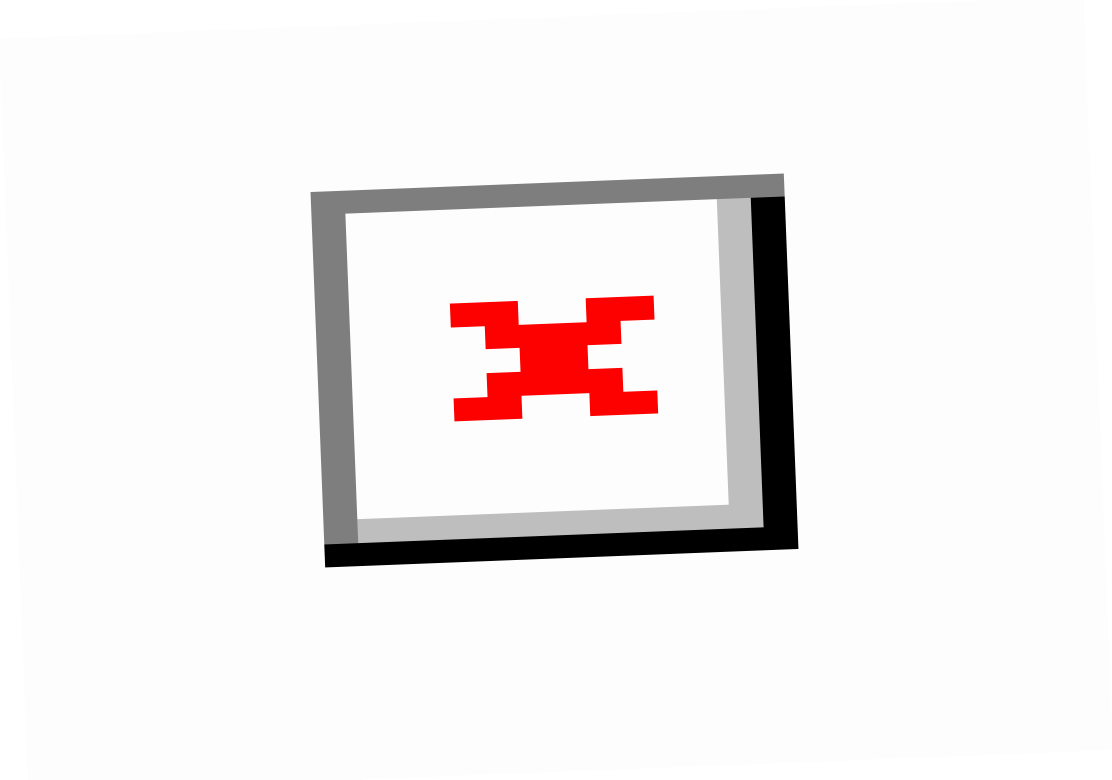


Fig. S33. DEPT-135 Spectrum of **4f** in $CDCl_3$

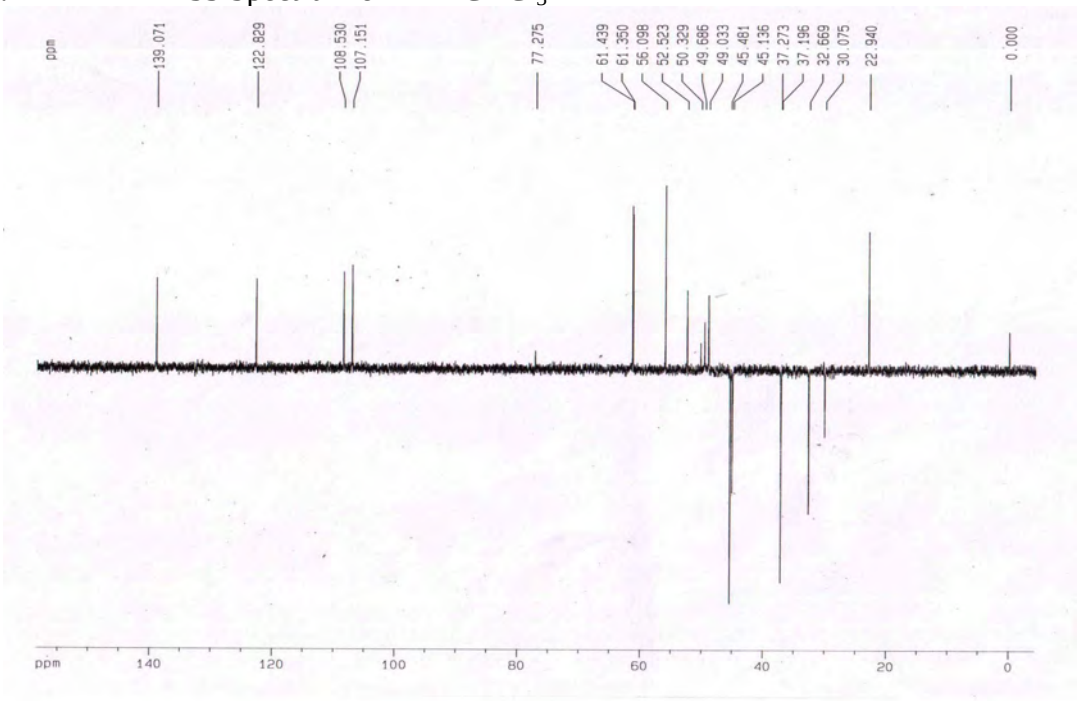


Fig. S34. HRMS Spectrum of **4f**

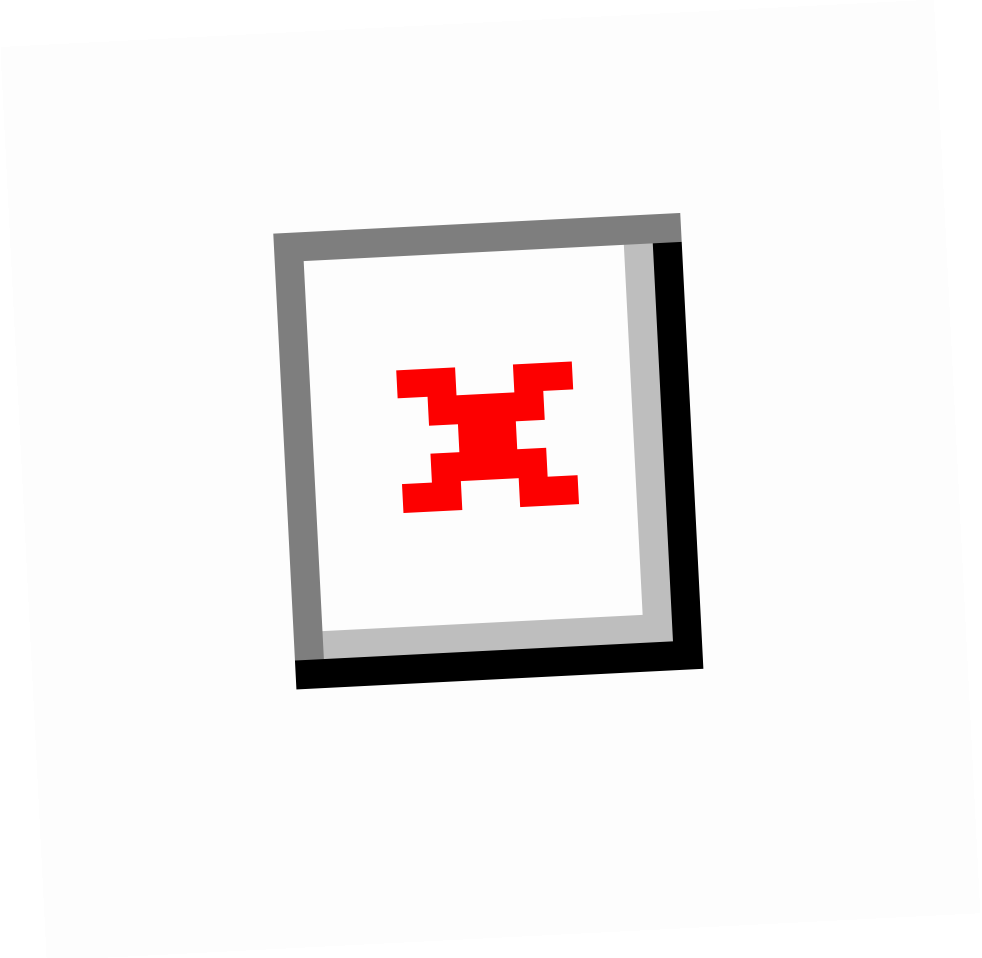
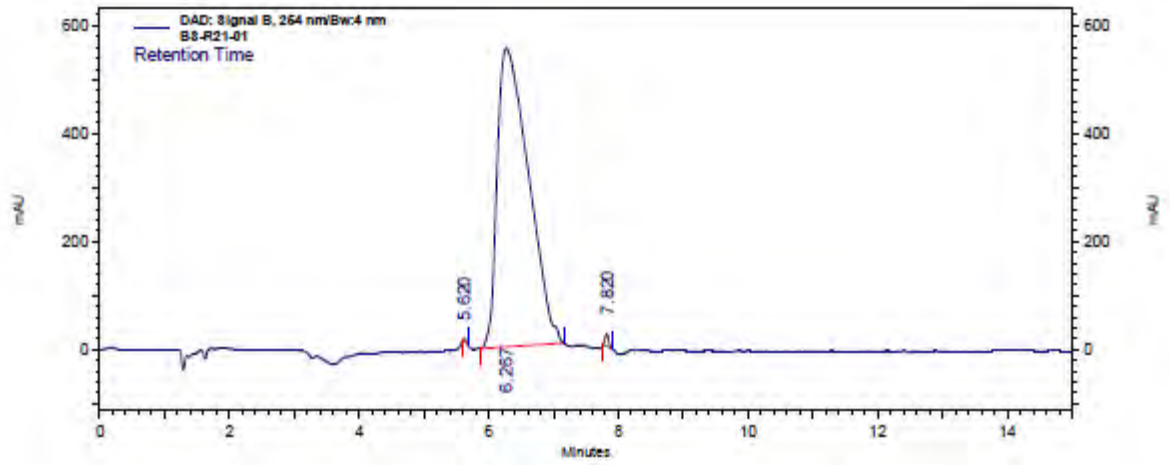


Fig. S35. HPLC Chromatogram of **4f**



DAD: Signal
B, 254
nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
5.620	0.077	0.797	29985	9723
6.267	99.465	95.038	38824402	1159159
7.820	0.458	4.165	178917	50801
Totals	100.000	100.000	39033304	1219683

Fig. S36. ^{1}H NMR Spectrum of **4g** in CD_3OD

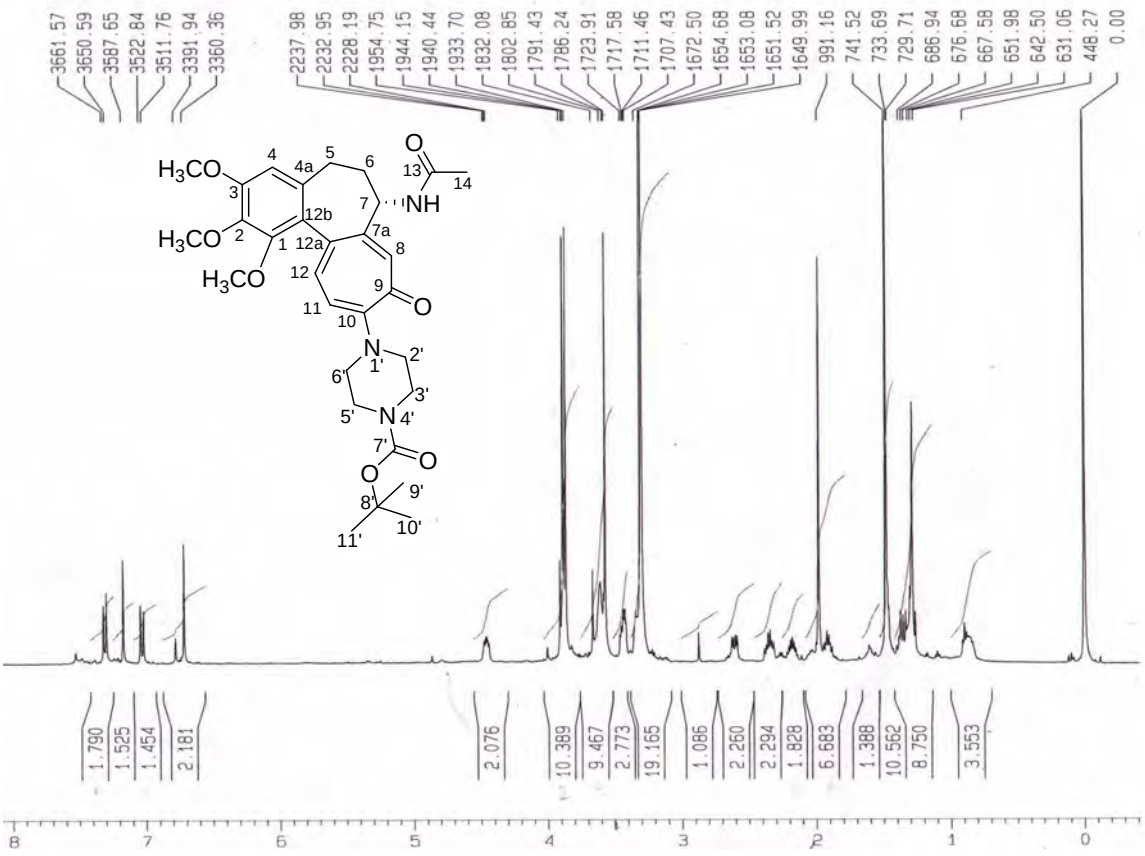


Fig. S37. ^{13}C NMR Spectrum of **4g** in $CDCl_3$

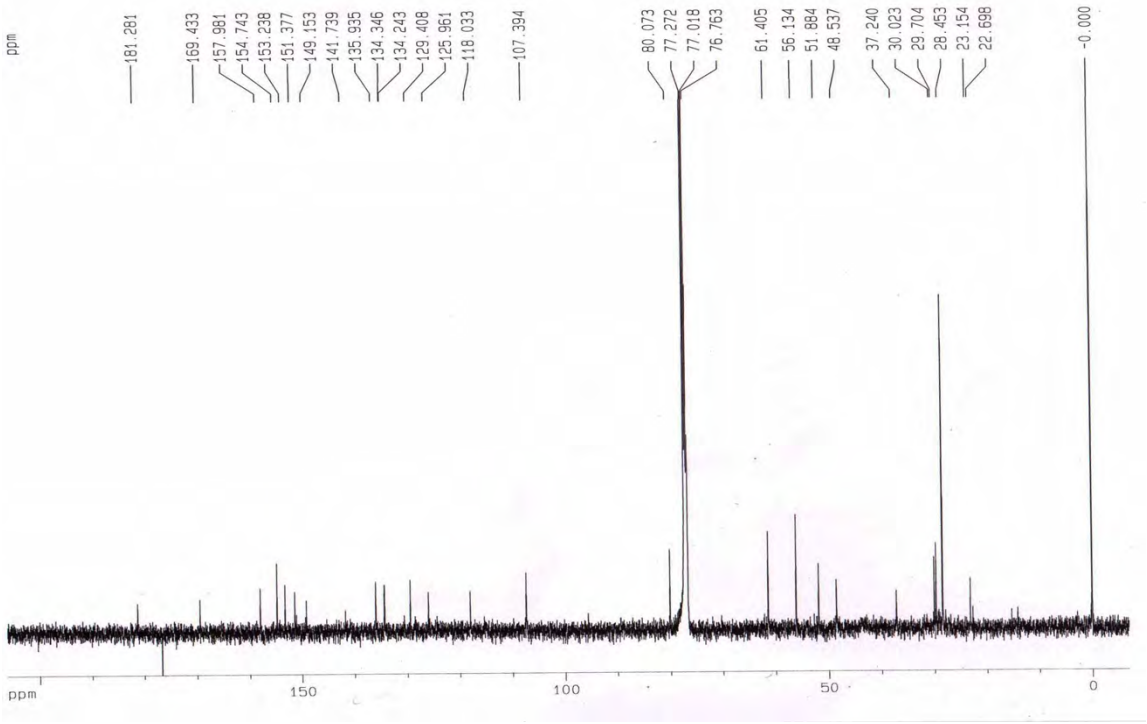


Fig. S38. DEPT-135 Spectrum of **4g** in $CDCl_3$

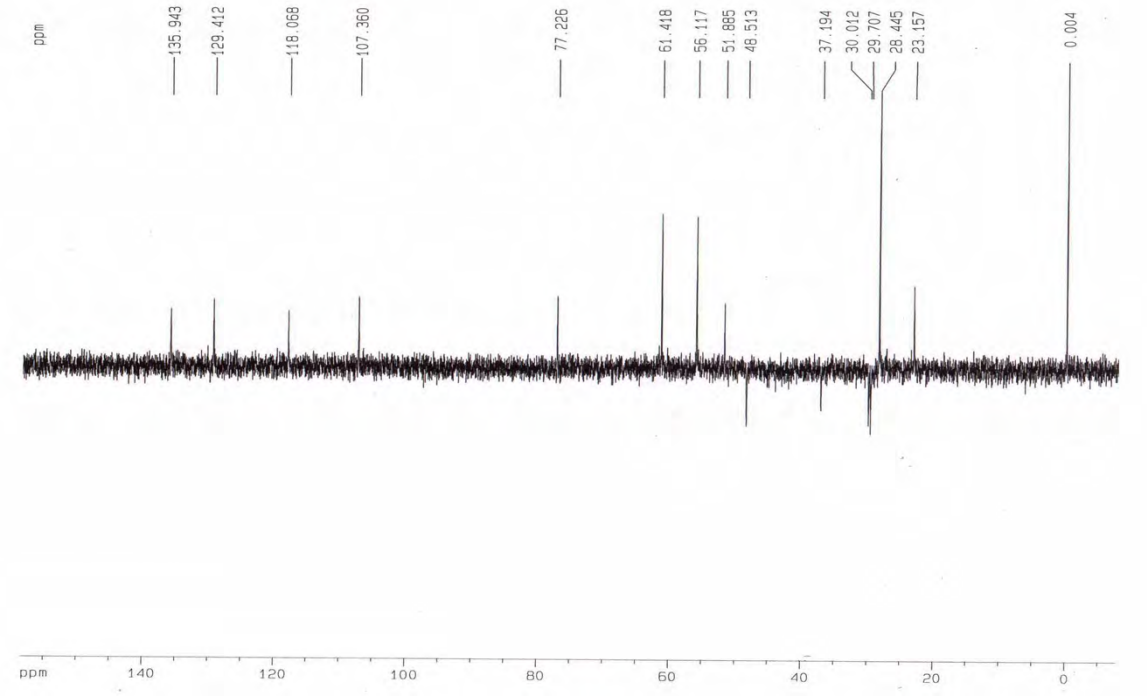
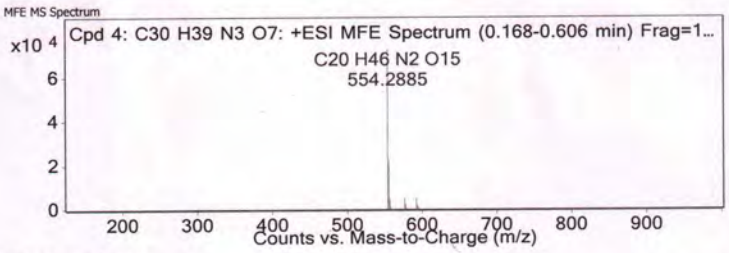


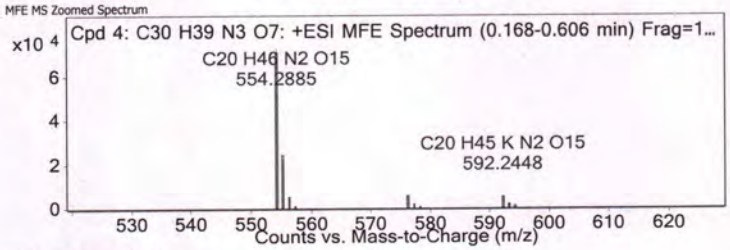
Fig. S39. HRMS Spectrum of **4g**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 4: C30 H39 N3 O7	0.25	553.2812	C30 H39 N3 O7	C30 H39 N3 O7	-4.33	C30 H39 N3 O7

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 4: C30 H39 N3 O7	554.2885	0.25	Find by Molecular Feature	553.2812

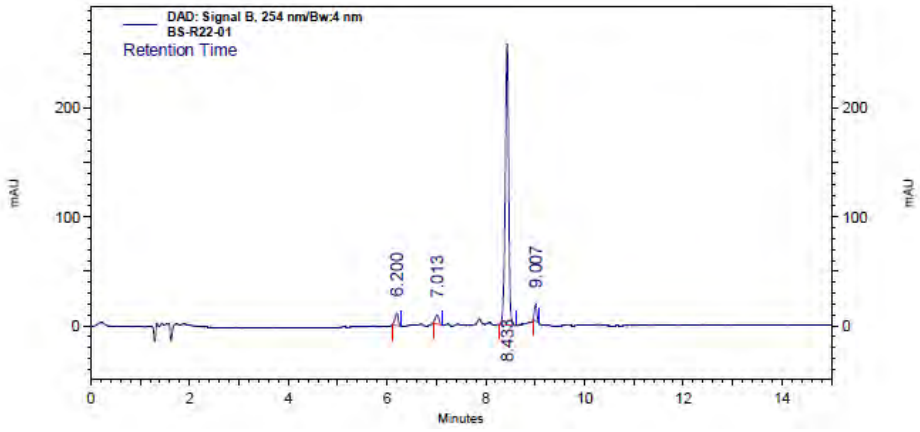




MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
554.2885	1	72917.8	C20 H46 N2 O15	(M+H)+
555.2914	1	22546.2	C20 H46 N2 O15	(M+H)+
556.294	1	4478	C20 H46 N2 O15	(M+H)+
557.2969	1	840.7	C20 H46 N2 O15	(M+H)+
576.2702	1	4982.7	C20 H45 N2 Na O15	(M+Na)+
577.2743	1	1942.1	C20 H45 N2 Na O15	(M+Na)+
578.2749	1	425.5	C20 H45 N2 Na O15	(M+Na)+
592.2448	1	5165.8	C20 H45 K N2 O15	(M+K)+
593.2477	1	1617.8	C20 H45 K N2 O15	(M+K)+
594.2455	1	910.1	C20 H45 K N2 O15	(M+K)+

Fig. S40. HPLC Chromatogram of **4g**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.200	0.914	1.785	24159	10073
7.013	0.697	1.167	18418	6585
8.433	97.726	96.073	2583503	542248
9.007	0.663	0.976	17531	5509
Totals	100.000	100.000	2643611	564415

Fig. S41. ^{1}H NMR Spectrum of **4h** in $CDCl_3$

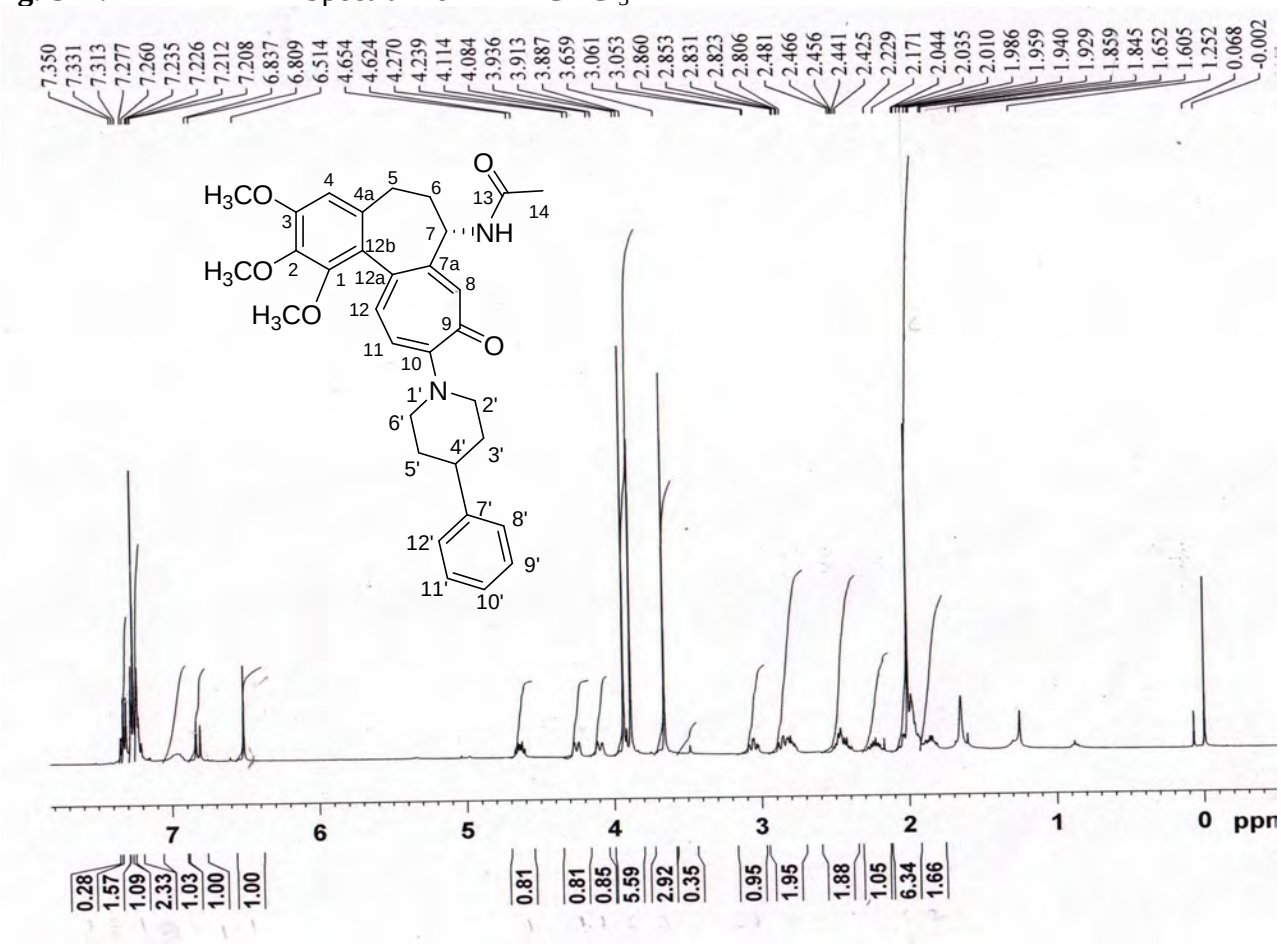


Fig. S42. ^{13}C NMR Spectrum of **4h** in $CDCl_3$

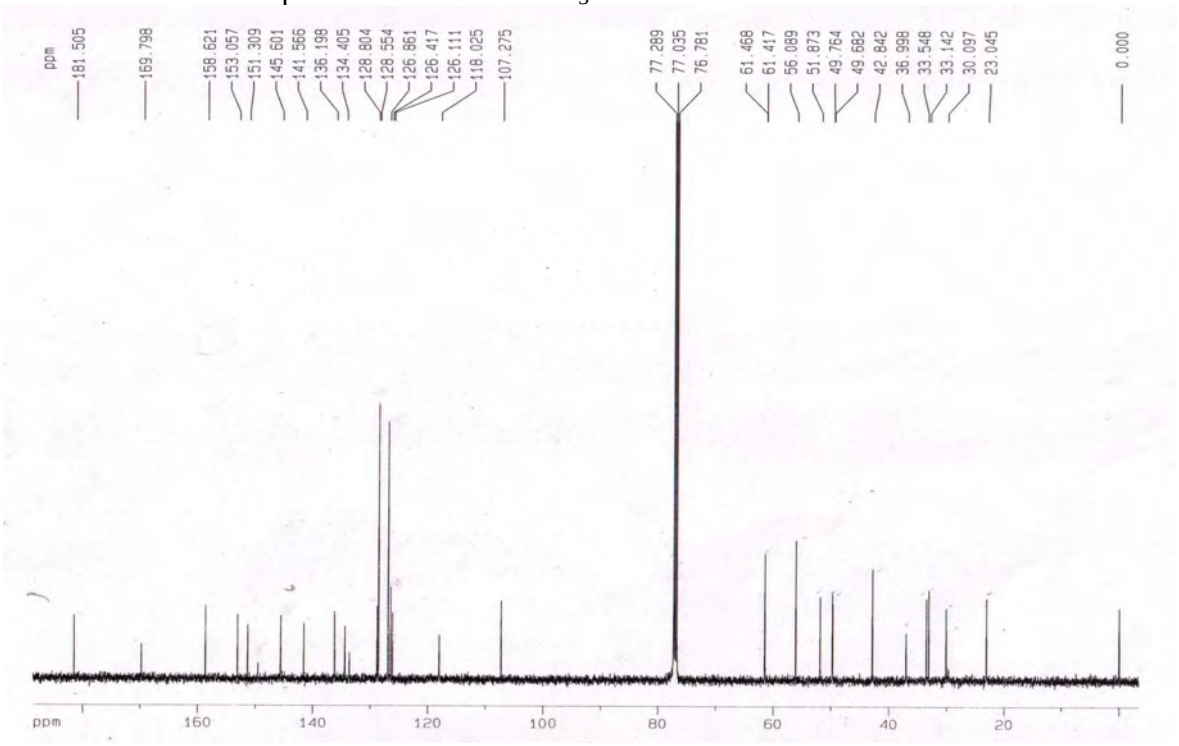


Fig. S43. DEPT-135 Spectrum of **4h** in $CDCl_3$

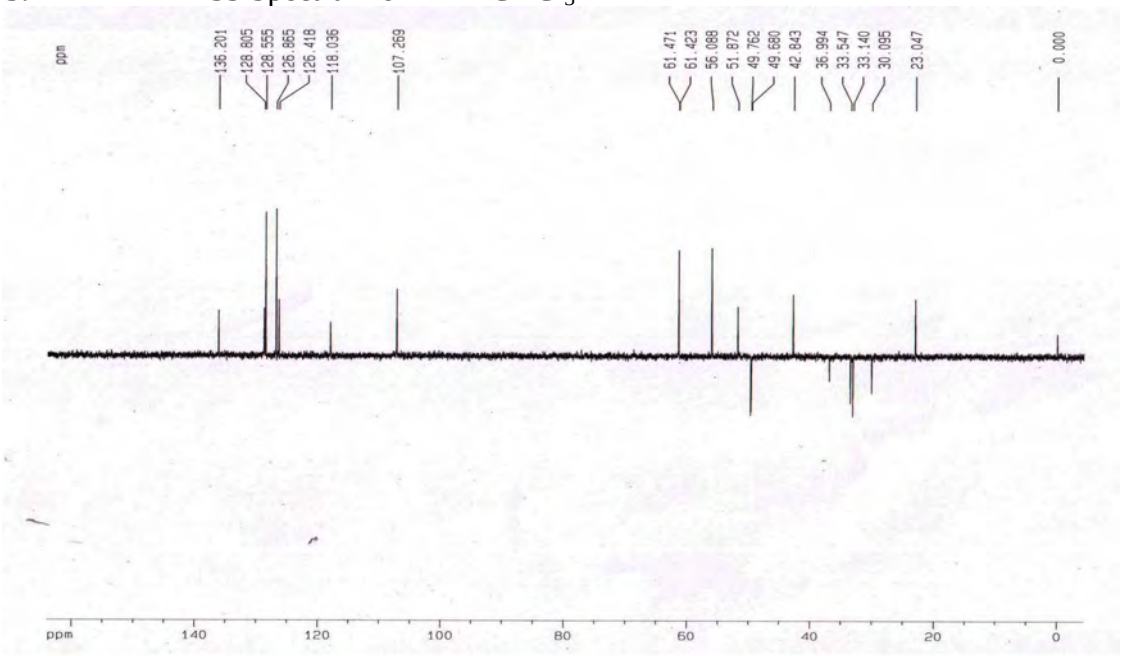


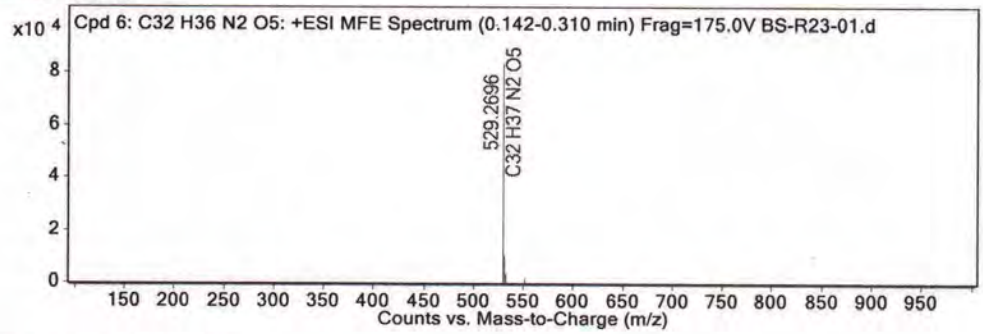
Fig. S44. HRMS Spectrum of **4h**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 6: C32 H36 N2 O5	0.186	528.2607	C32 H36 N2 O5	C32 H36 N2 O5	3.33	C32 H36 N2 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 6: C32 H36 N2 O5	529.2696	0.186	Find by Molecular Feature	528.2607

MFE MS Spectrum



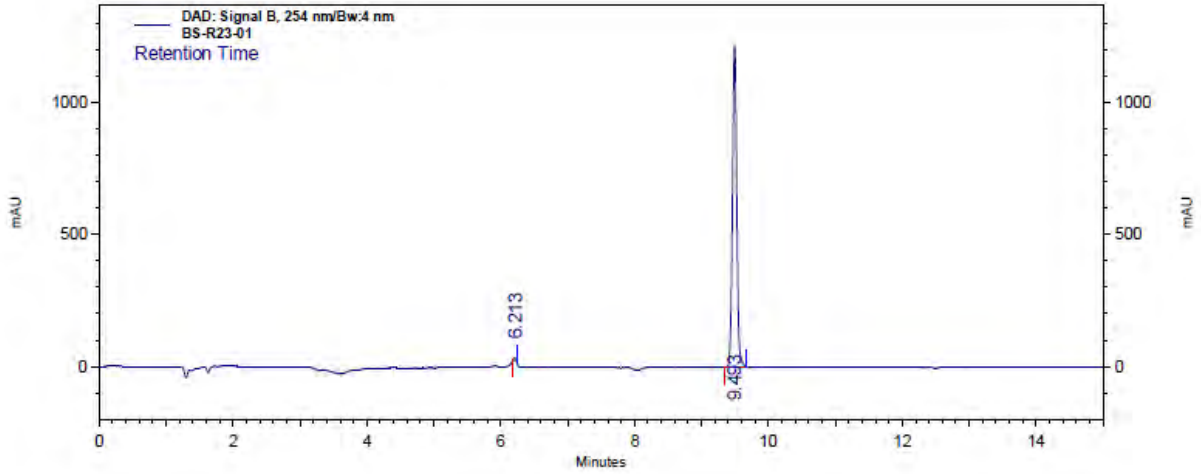
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
529.2696	1	83483.3	C32 H37 N2 O5	(M+H)+
530.2728	1	27944.3	C32 H37 N2 O5	(M+H)+
531.2572	1	10573.09	C32 H37 N2 O5	(M+H)+
532.2542	1	3412.24	C32 H37 N2 O5	(M+H)+
551.2528	1	1432.03	C32 H36 N2 Na O5	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	529.2696	529.2697	0.27	100	100	66.57	69.28
2	530.2728	530.273	0.32	33.47	35.96	22.28	24.91
3	531.2572	531.2759	35.28	12.66	7.3	8.43	5.06
4	532.2542	532.2787	46.09	4.09	1.08	2.72	0.75

Fig. S45. HPLC Chromatogram of **4h**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.213	0.439	0.974	50150	25061
9.493	99.561	99.026	11374140	2547766
Totals	100.000	100.000	11424290	2572827

Fig. S46. ^{1}H NMR Spectrum of **4i** in $CDCl_3$

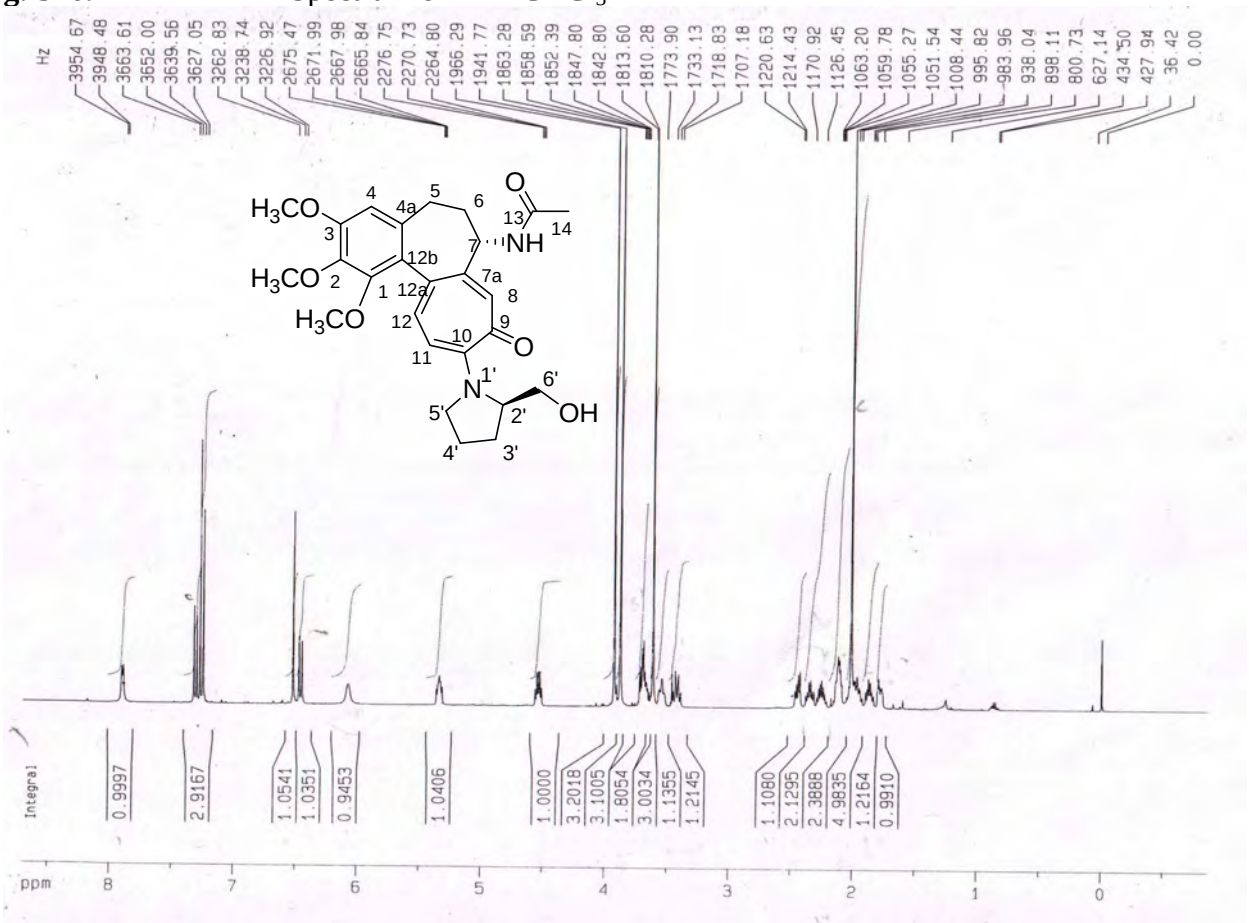


Fig. S47. ^{13}C NMR Spectrum of **4i** in $CDCl_3$

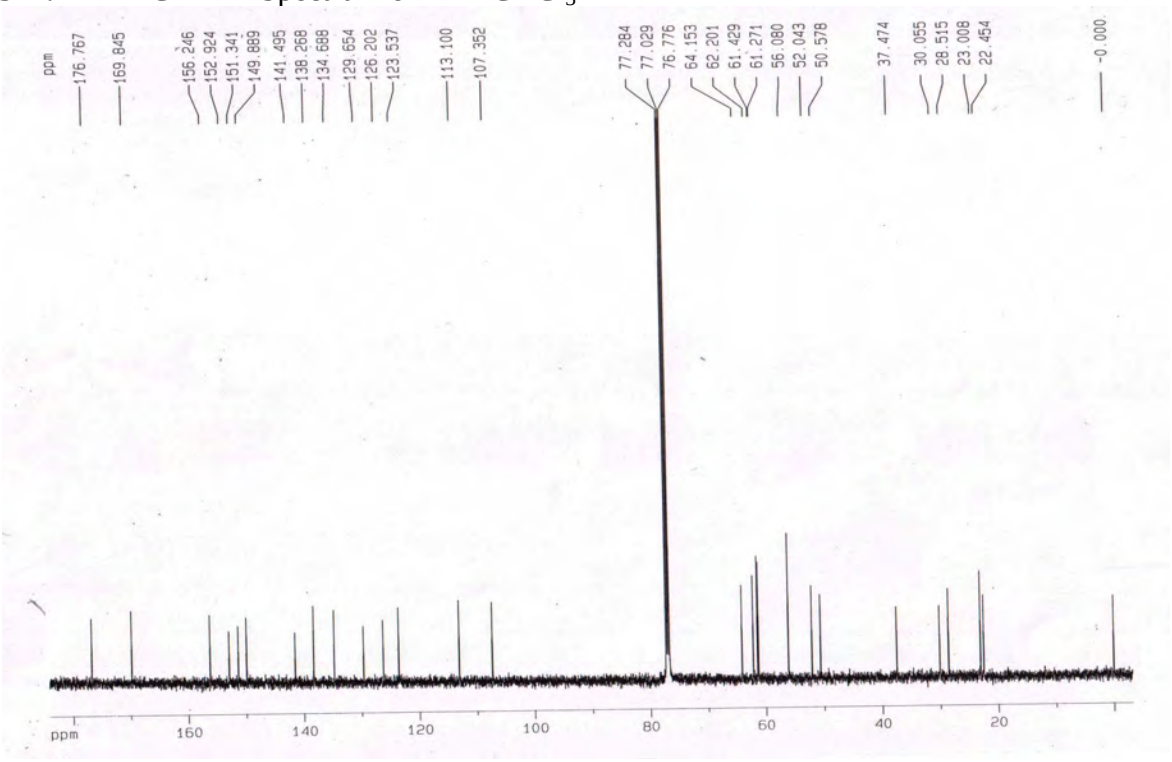


Fig. S48. DEPT-135 Spectrum of **4i** in $CDCl_3$

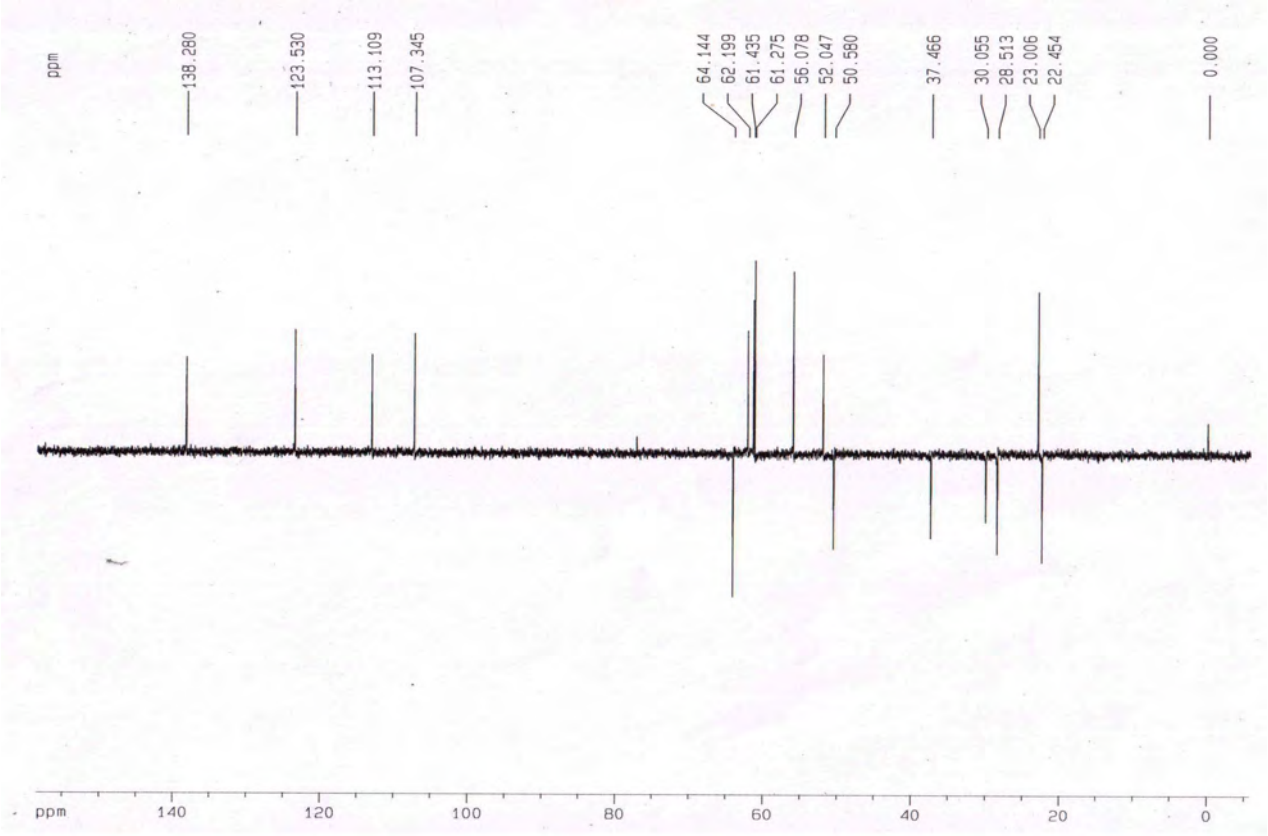


Fig. S49. HRMS Spectrum of **4i**

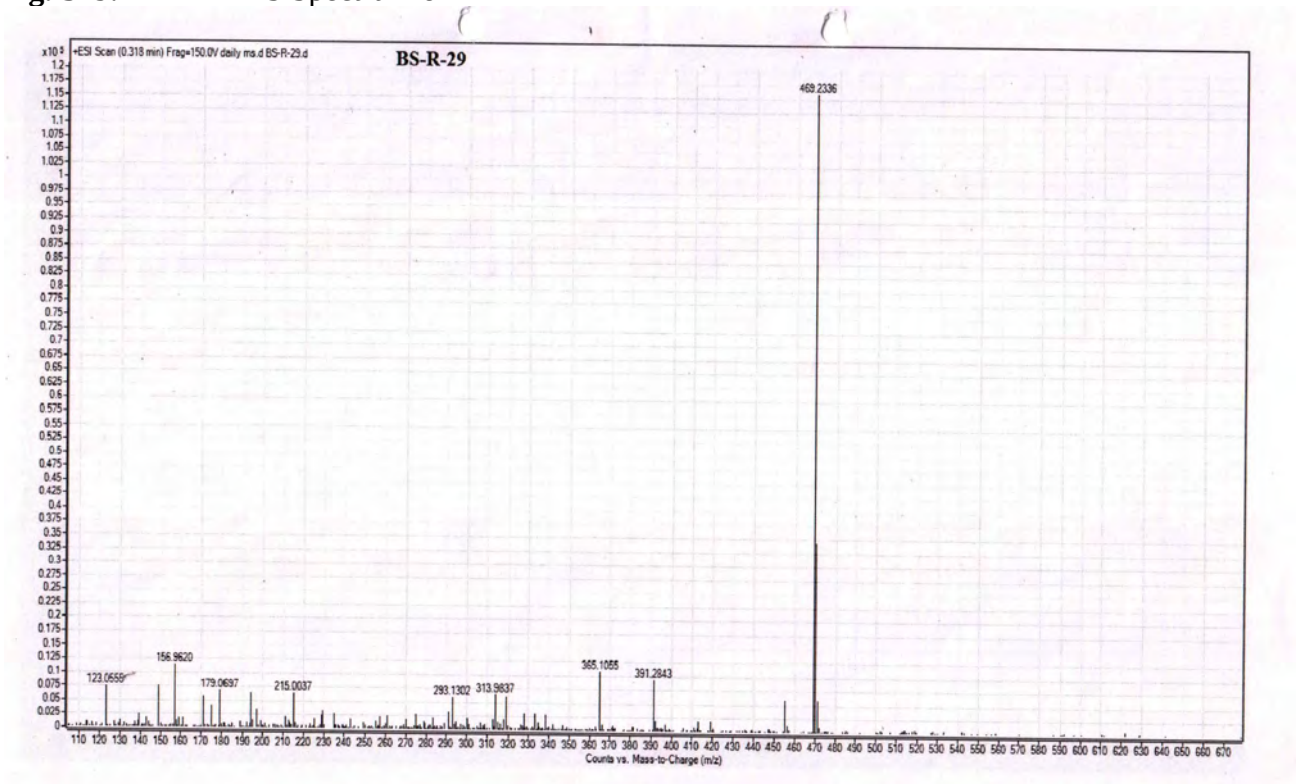
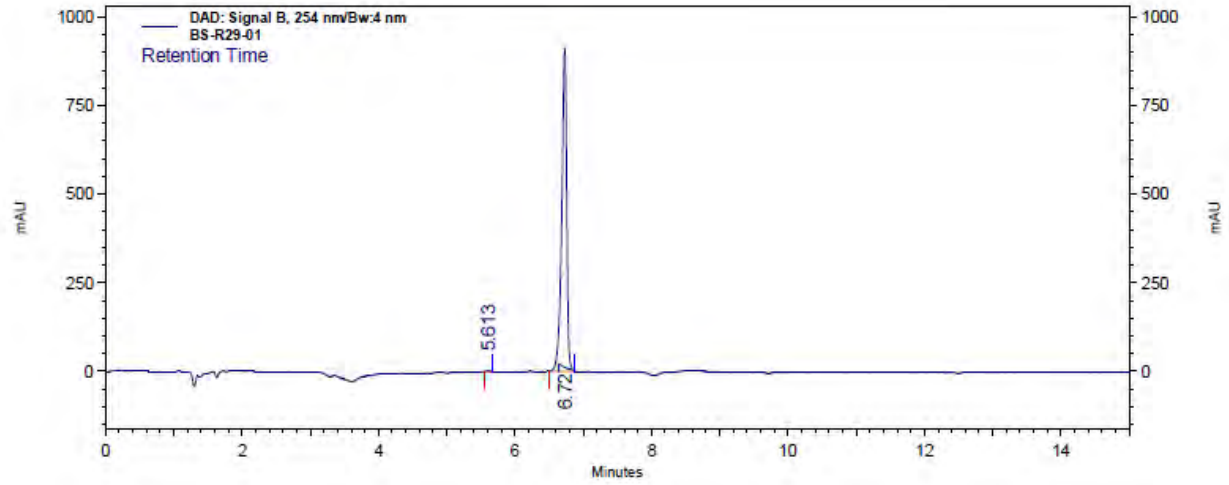


Fig. S50. HPLC Chromatogram of **4i**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
5.613	0.192	0.276	18748	5303
6.727	99.808	99.724	9720525	1914155
Totals	100.000	100.000	9739273	1919458

Fig. S51. ^{1}H NMR Spectrum of **4j** in $CDCl_3$

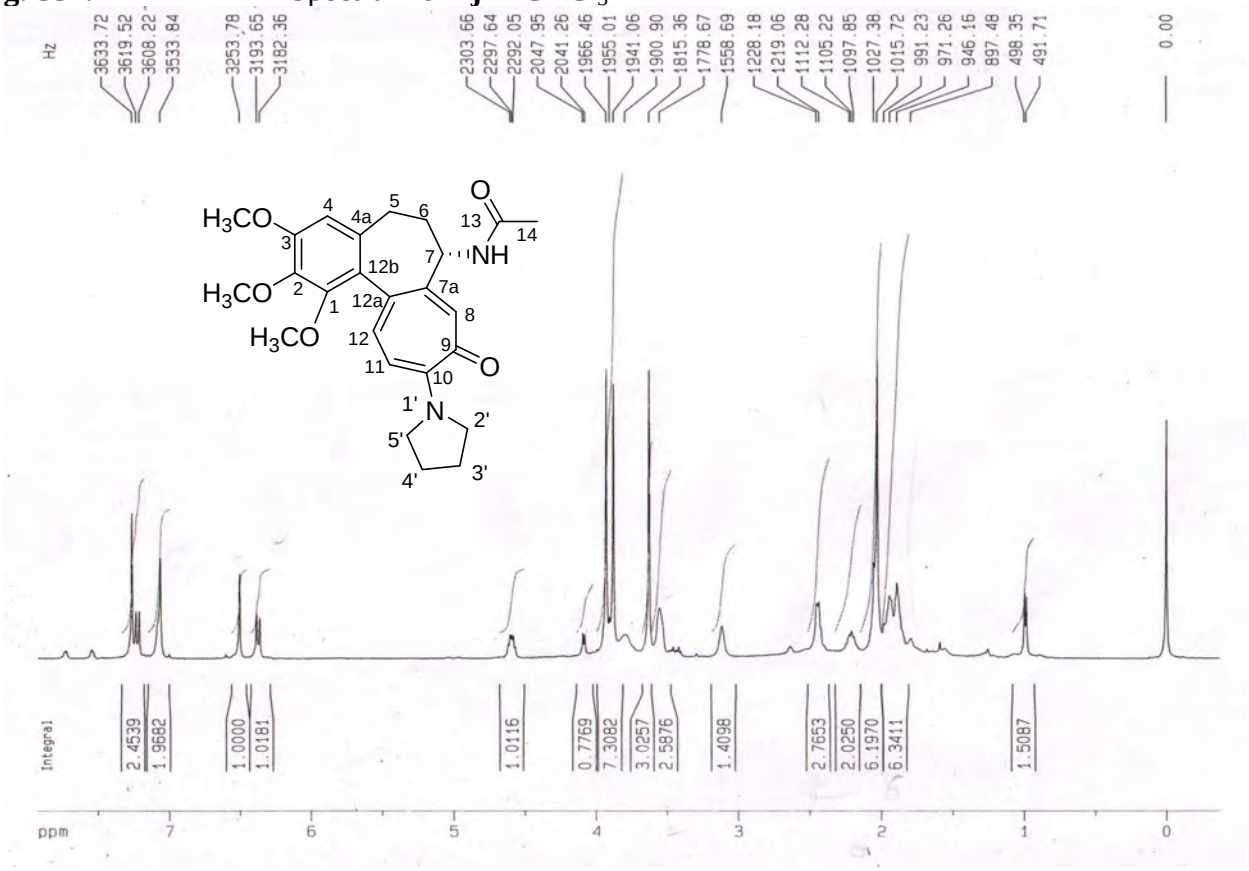


Fig. S52. ^{13}C NMR Spectrum of **4j** in $CDCl_3$

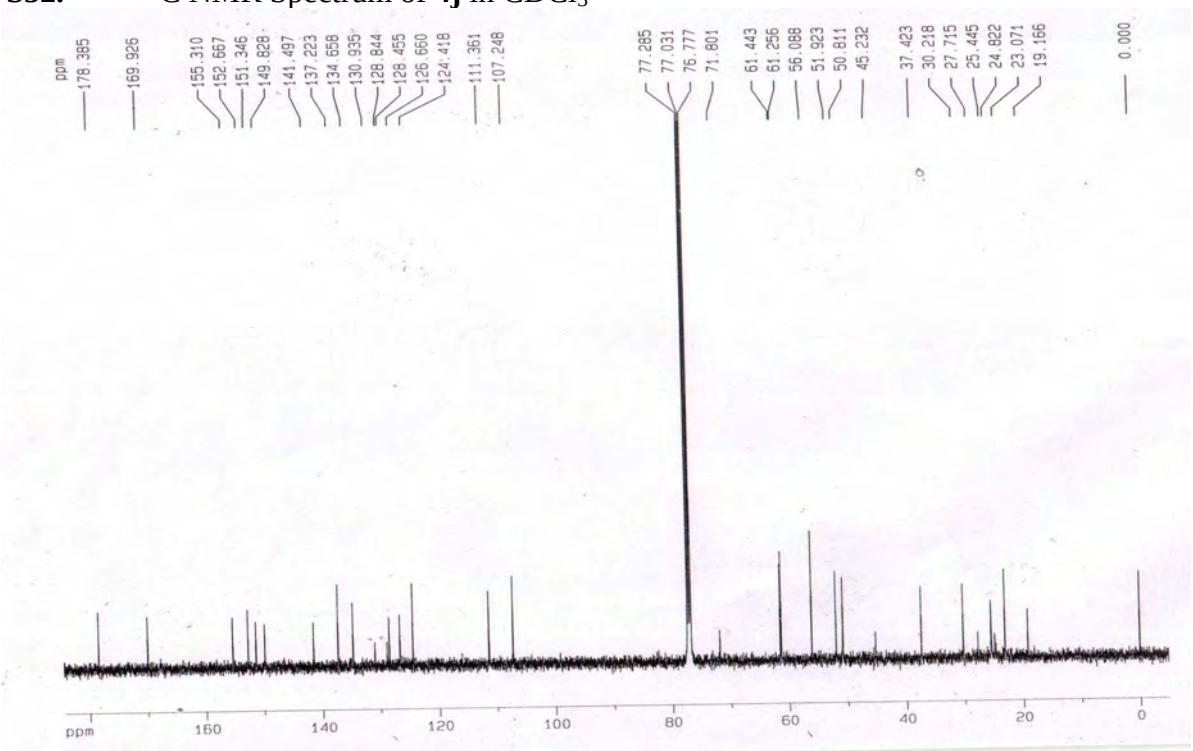


Fig. S53. DEPT-135 Spectrum of **4j** in $CDCl_3$

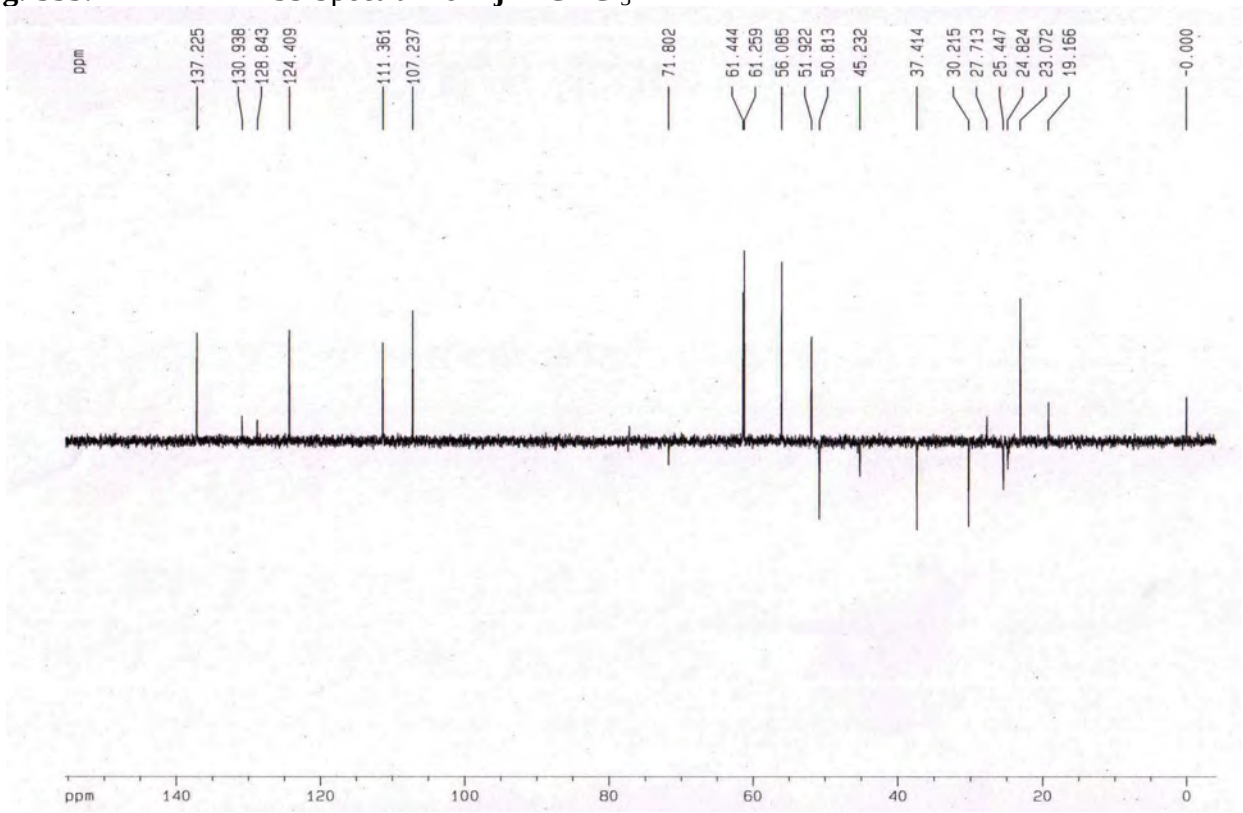


Fig. S54. HRMS Spectrum of **4j**

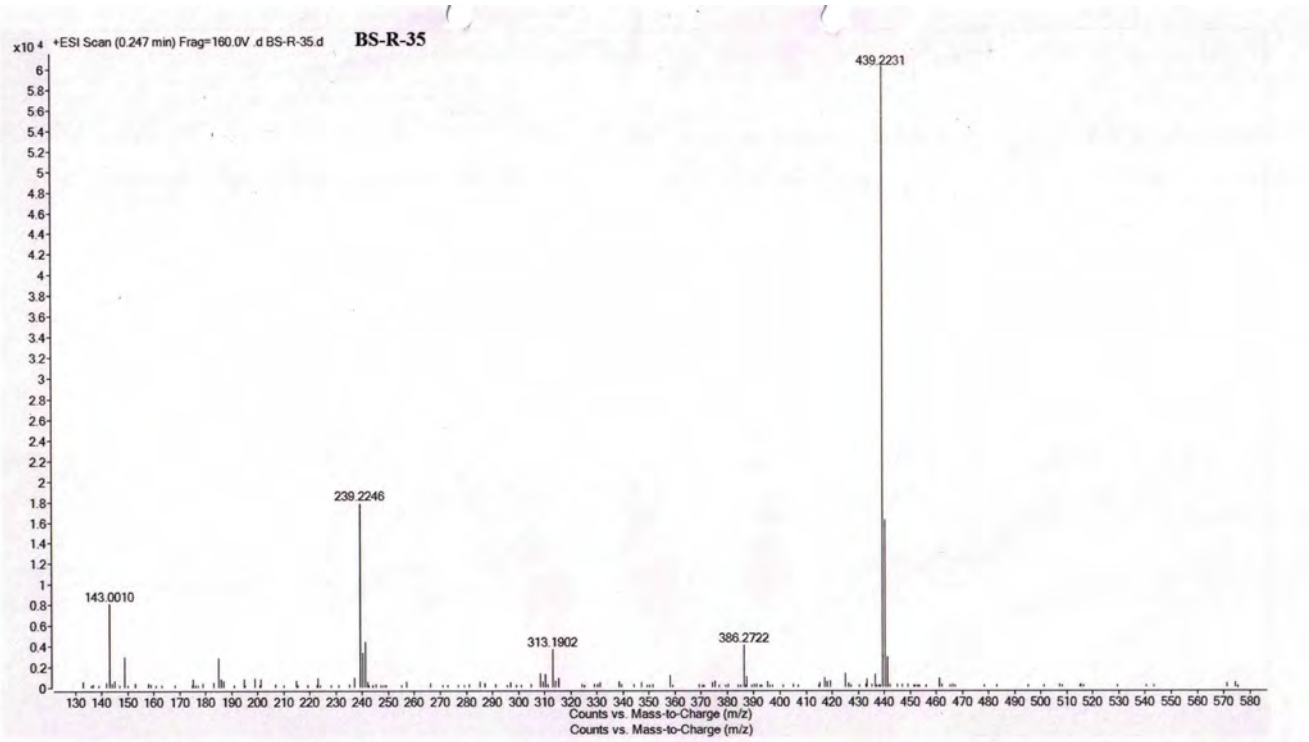
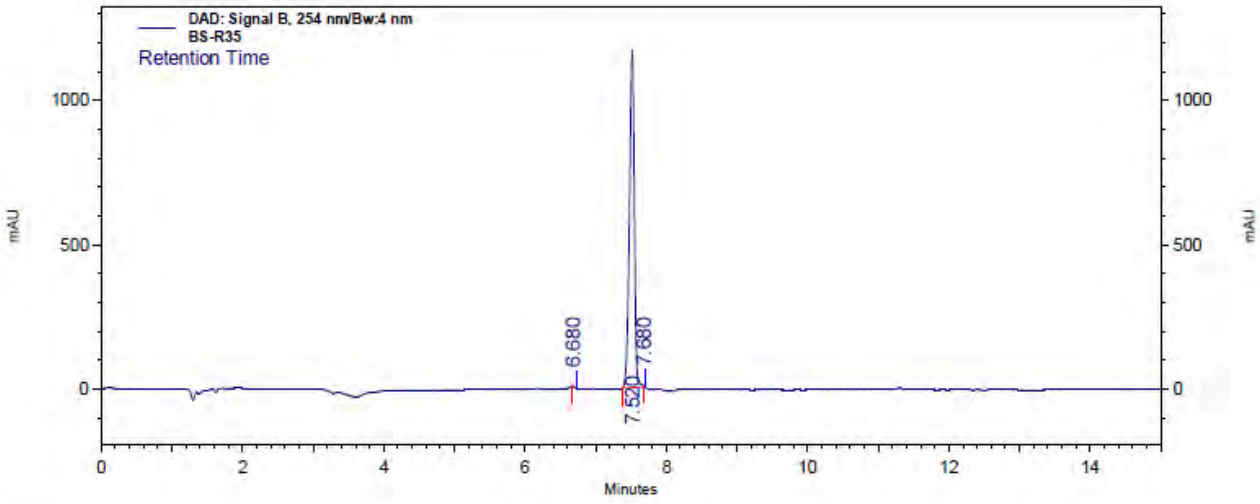


Fig. S55. HPLC Chromatogram of **4j**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.680	0.148	0.250	17448	6140
7.520	99.848	99.750	11800125	2453153
7.680	0.004	0.000	528	0
Totals				
	100.000	100.000	11818101	2459293

Fig. S56. ^{1}H NMR Spectrum of **4k** in $CDCl_3$

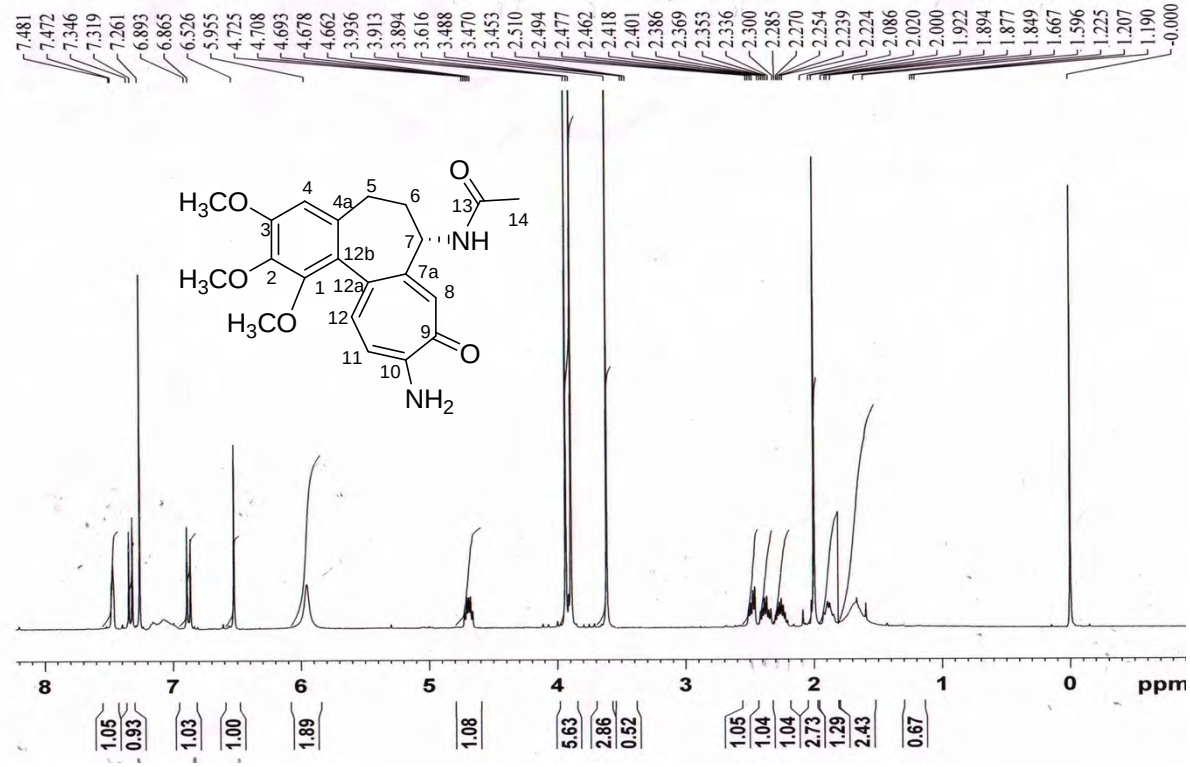


Fig. S57. ^{13}C NMR Spectrum of **4k** in $CDCl_3$

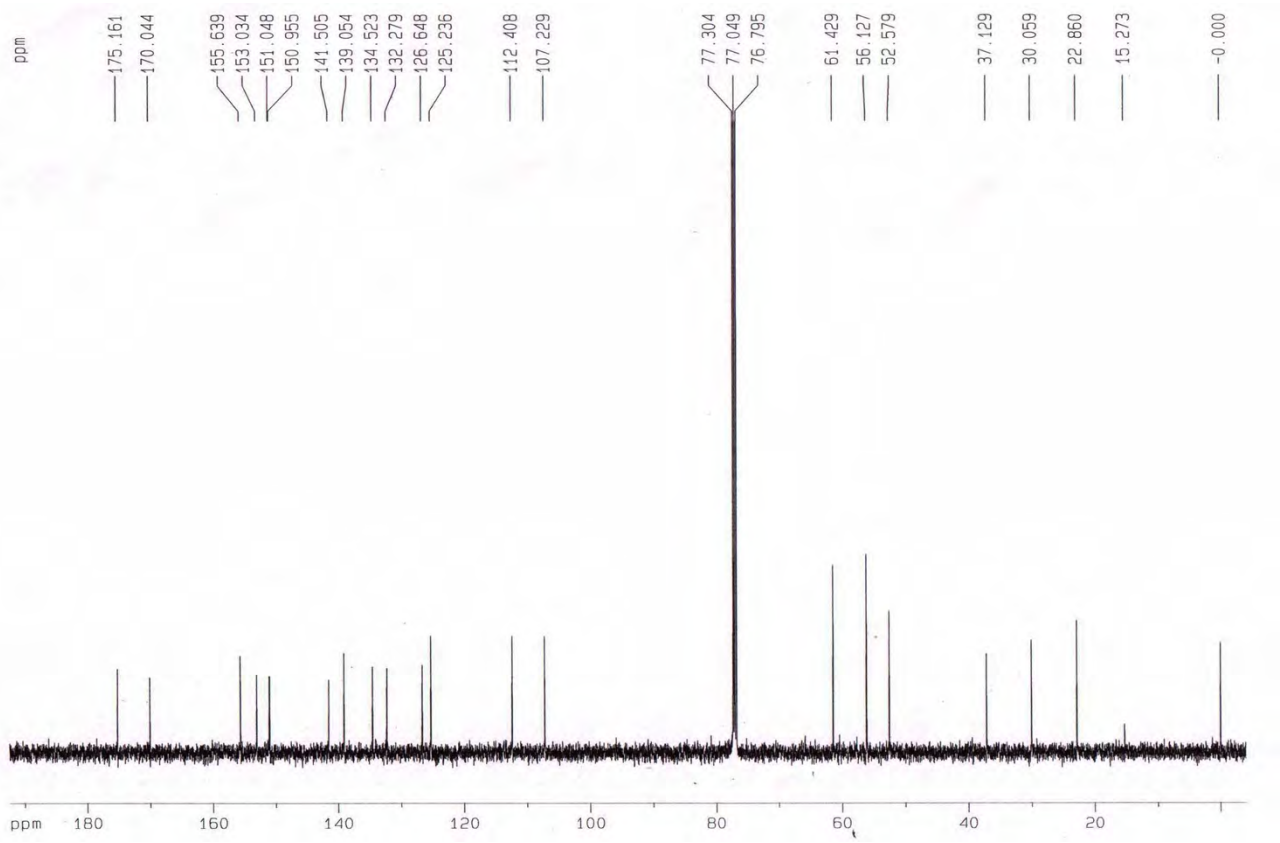


Fig. S58. DEPT-135 Spectrum of **4k** in $CDCl_3$

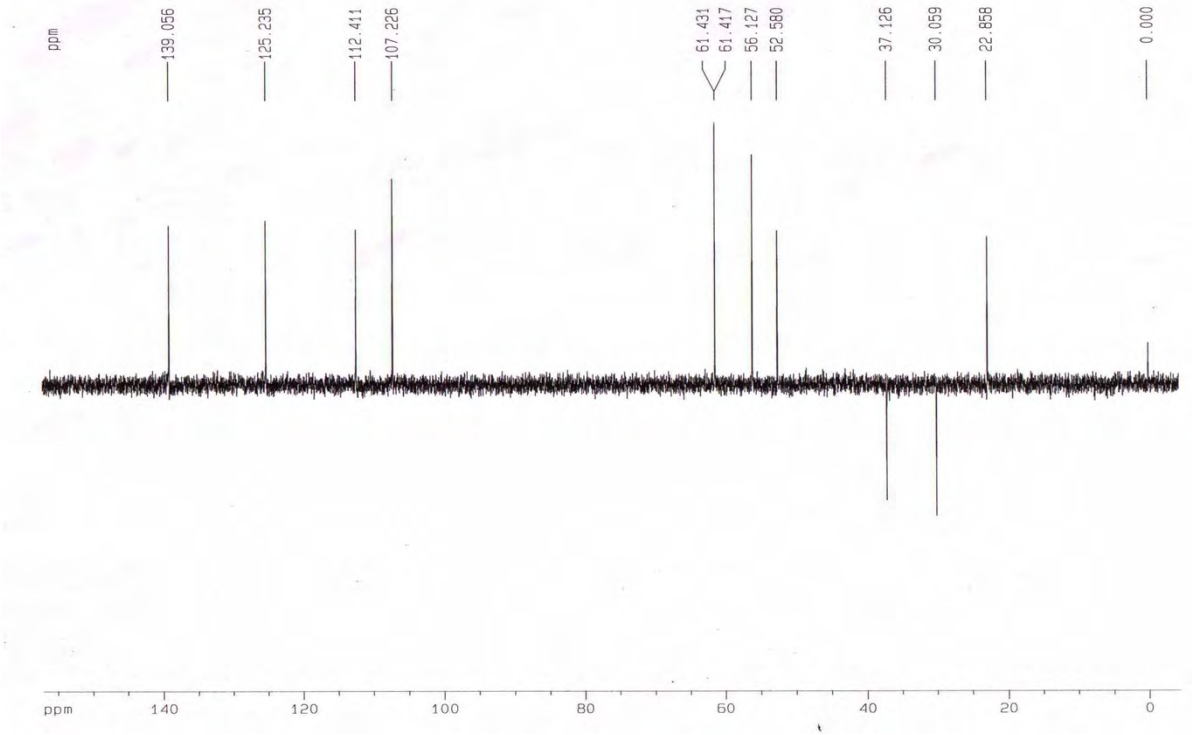


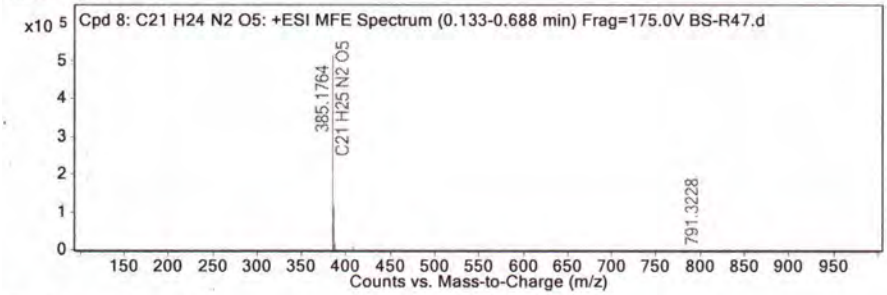
Fig. S59. HRMS Spectrum of **4k**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 8: C21 H24 N2 O5	0.187	384.1689	C21 H24 N2 O5	C21 H24 N2 O5	-1.01	C21 H24 N2 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 8: C21 H24 N2 O5	385.1764	0.187	Find by Molecular Feature	384.1689

MFE MS Spectrum



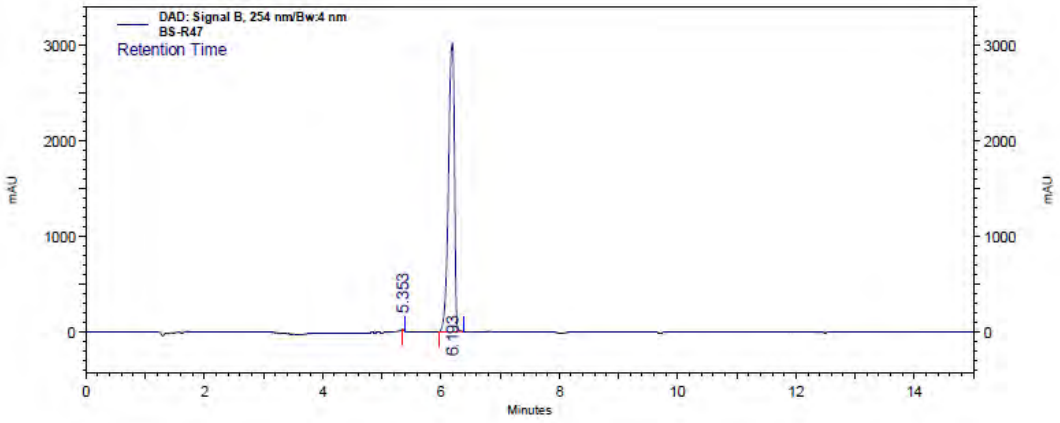
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
385.1764	1	512864.09	C21 H25 N2 O5	(M+H)+
386.1791	1	119542.05	C21 H25 N2 O5	(M+H)+
387.1798	1	17406.45	C21 H25 N2 O5	(M+H)+
388.1792	1	2804.19	C21 H25 N2 O5	(M+H)+
407.1576	1	12913.73	C21 H24 N2 Na O5	(M+Na)+
408.1613	1	3234.91	C21 H24 N2 Na O5	(M+Na)+
409.1611	1	685.47	C21 H24 N2 Na O5	(M+Na)+
791.3228	1	817.3		(2M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	385.1764	385.1758	-1.44	100	100	78.59	78.05
2	386.1791	386.179	-0.32	23.31	23.92	18.32	18.67
3	387.1798	387.1816	4.79	3.39	3.76	2.67	2.94
4	388.1792	388.1842	12.89	0.55	0.44	0.43	0.35

Fig. S60. HPLC Chromatogram of **4k**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
5.353	0.088	0.233	39338	14789
6.193	99.912	99.767	44564832	6337376
Totals	100.000	100.000	44604170	6352165

Fig. S61. ^{1}H NMR Spectrum of **4l** in CD_3OD

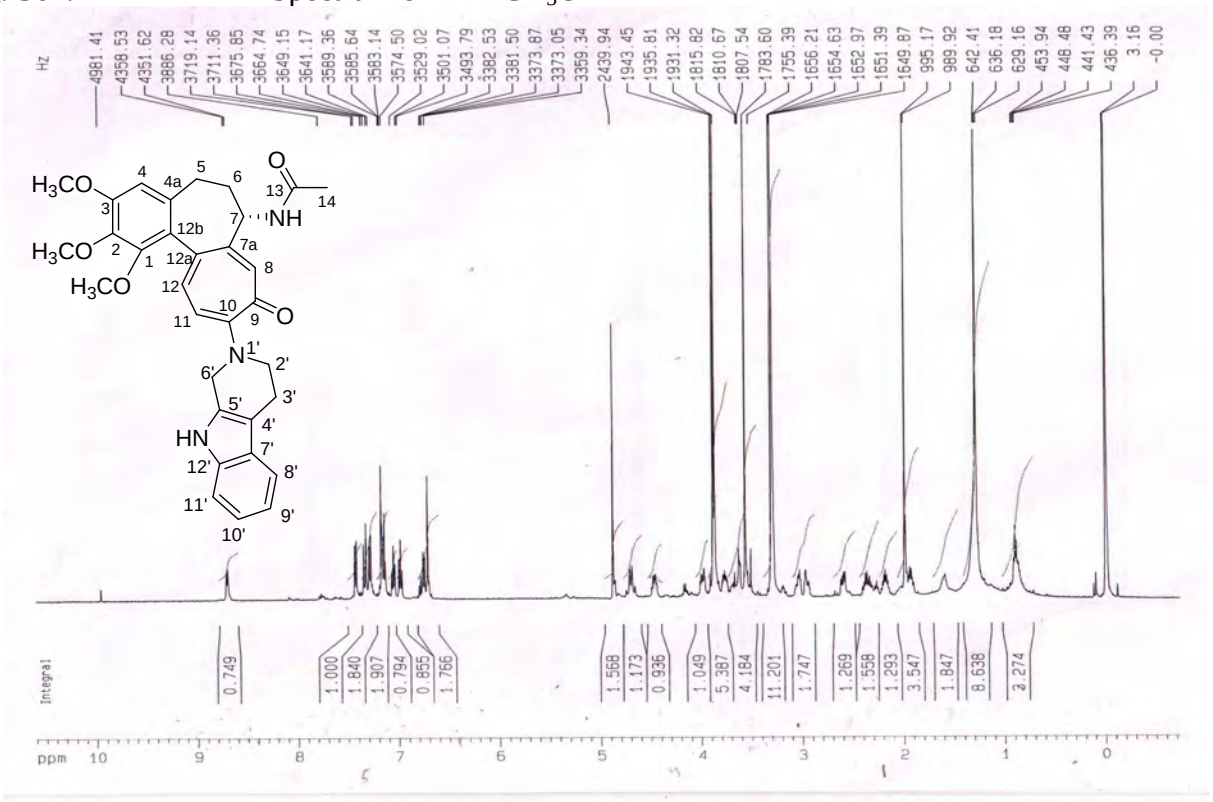


Fig. S62. ^{13}C NMR Spectrum of **4l** in CD_3OD

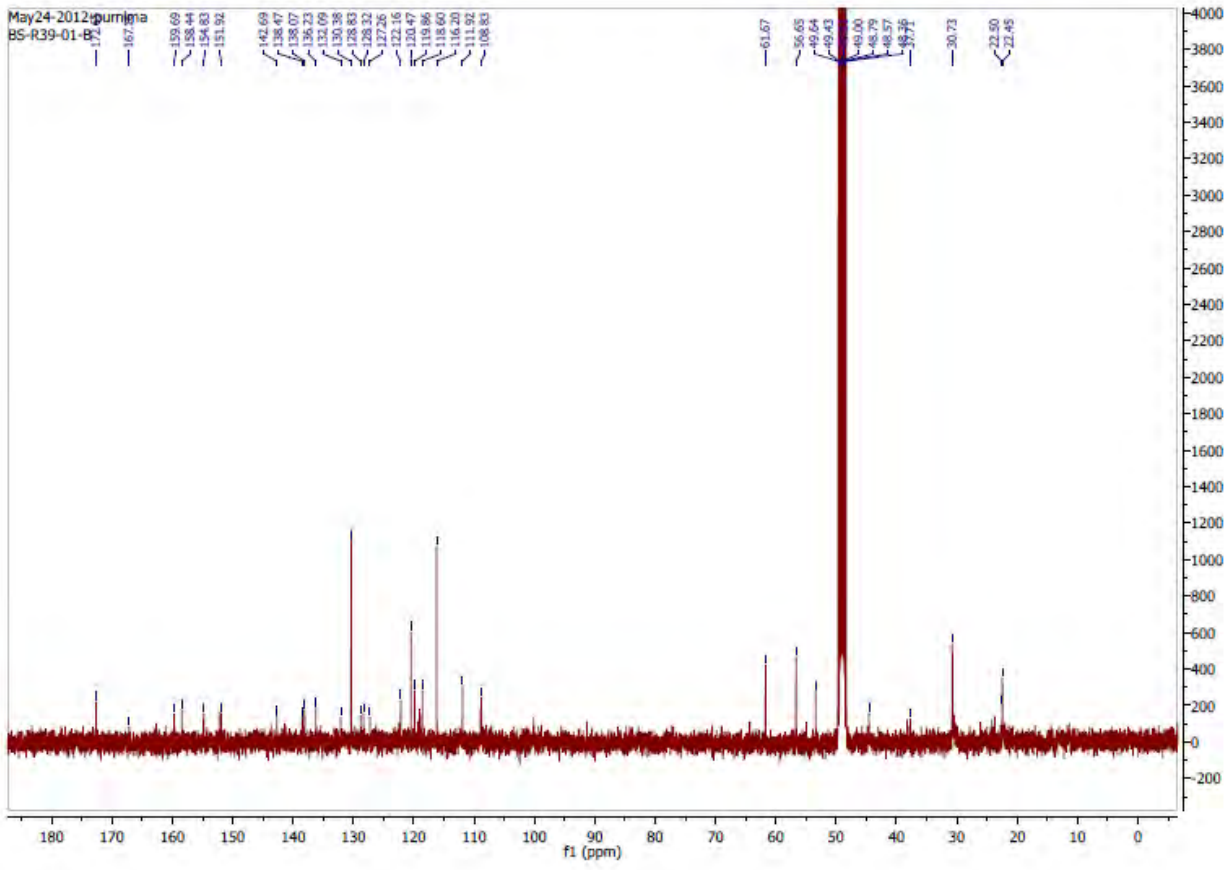


Fig. S63. DEPT-135 Spectrum of **4l** in CD_3OD

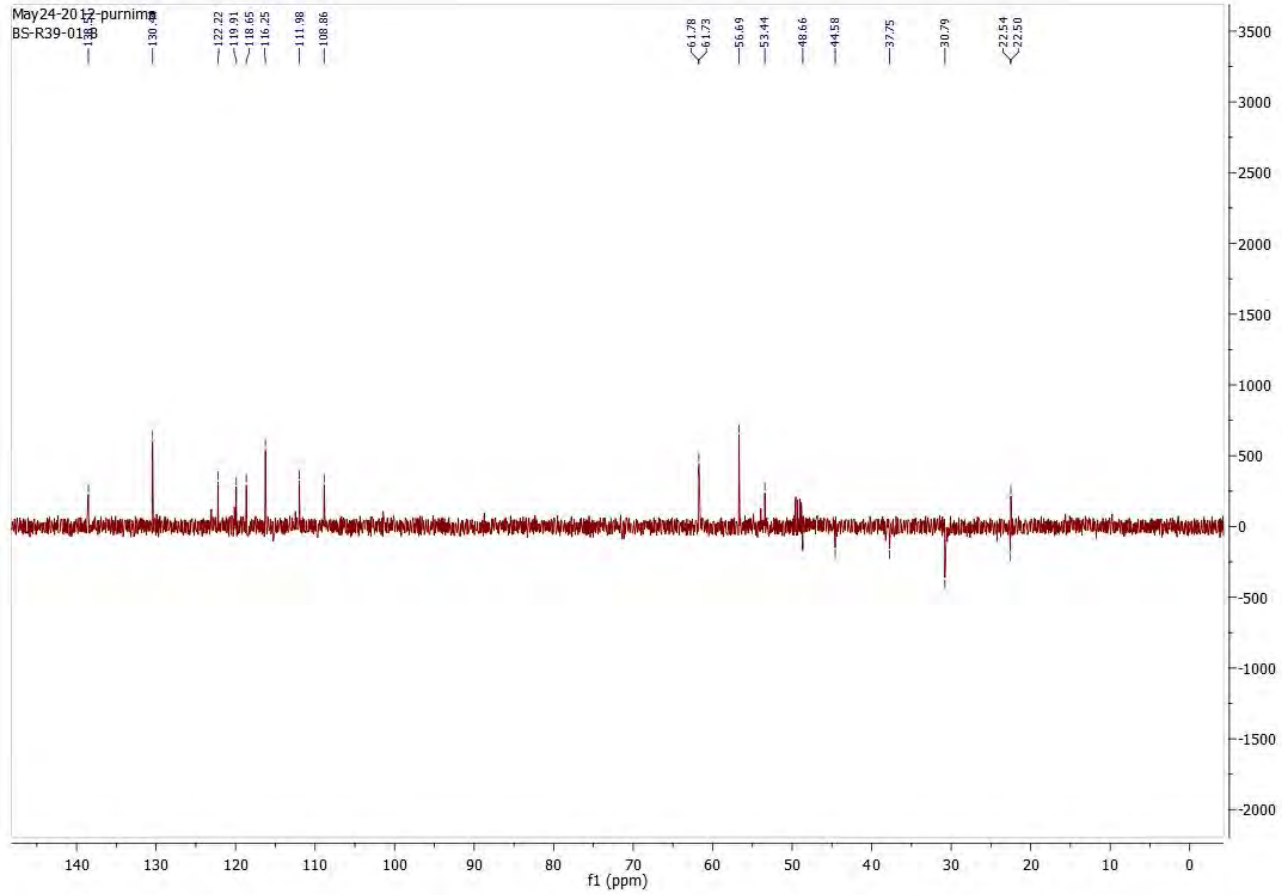


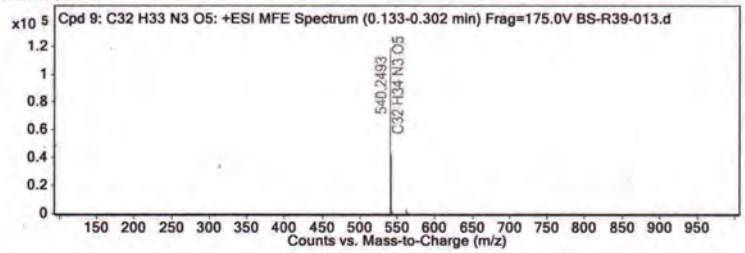
Fig. S64. HRMS Spectrum of **4l**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 9: C32 H33 N3 O5	0.187	539.2415	C32 H33 N3 O5	C32 H33 N3 O5	0.92	C32 H33 N3 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 9: C32 H33 N3 O5	540.2493	0.187	Find by Molecular Feature	539.2415

MFE MS Spectrum



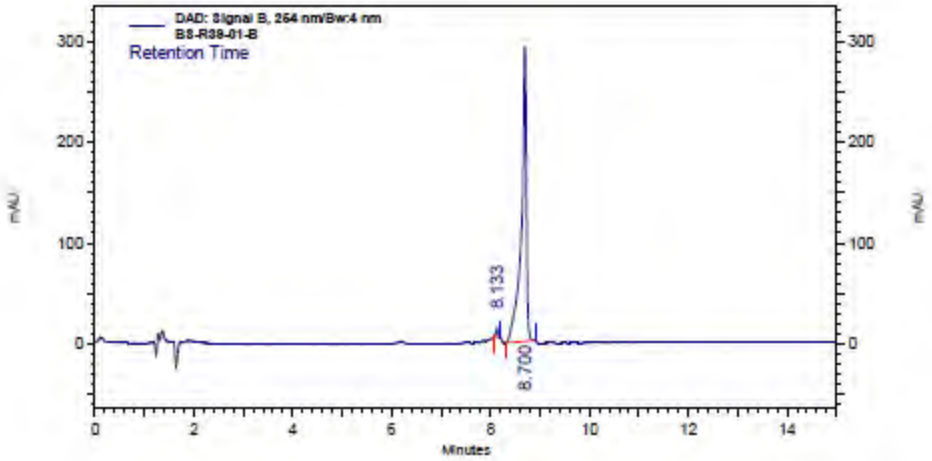
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
540.2493	1	118343.51	C32 H34 N3 O5	(M+H)+
541.2522	1	42547.06	C32 H34 N3 O5	(M+H)+
542.2485	1	10229.69	C32 H34 N3 O5	(M+H)+
543.2377	1	2302.26	C32 H34 N3 O5	(M+H)+
562.2315	1	2689.4	C32 H33 N3 Na O5	(M+Na)+
563.2323	1	1091.09	C32 H33 N3 Na O5	(M+Na)+
564.2378	1	361.16	C32 H33 N3 Na O5	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	540.2493	540.2493	0	100	100	68.24	69.06
2	541.2522	541.2525	0.63	35.95	36.29	24.53	25.06
3	542.2485	542.2554	12.72	8.64	7.42	5.9	5.13
4	543.2377	543.2582	37.74	1.95	1.1	1.33	0.76

Fig. S65. HPLC Chromatogram of **4l**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
8.133	1.316	2.899	57158	18295
8.700	98.684	97.101	4286257	612679
Totals	100.000	100.000	4343415	630974

Fig. S66. ^{1}H NMR Spectrum of **4m** in $CDCl_3$

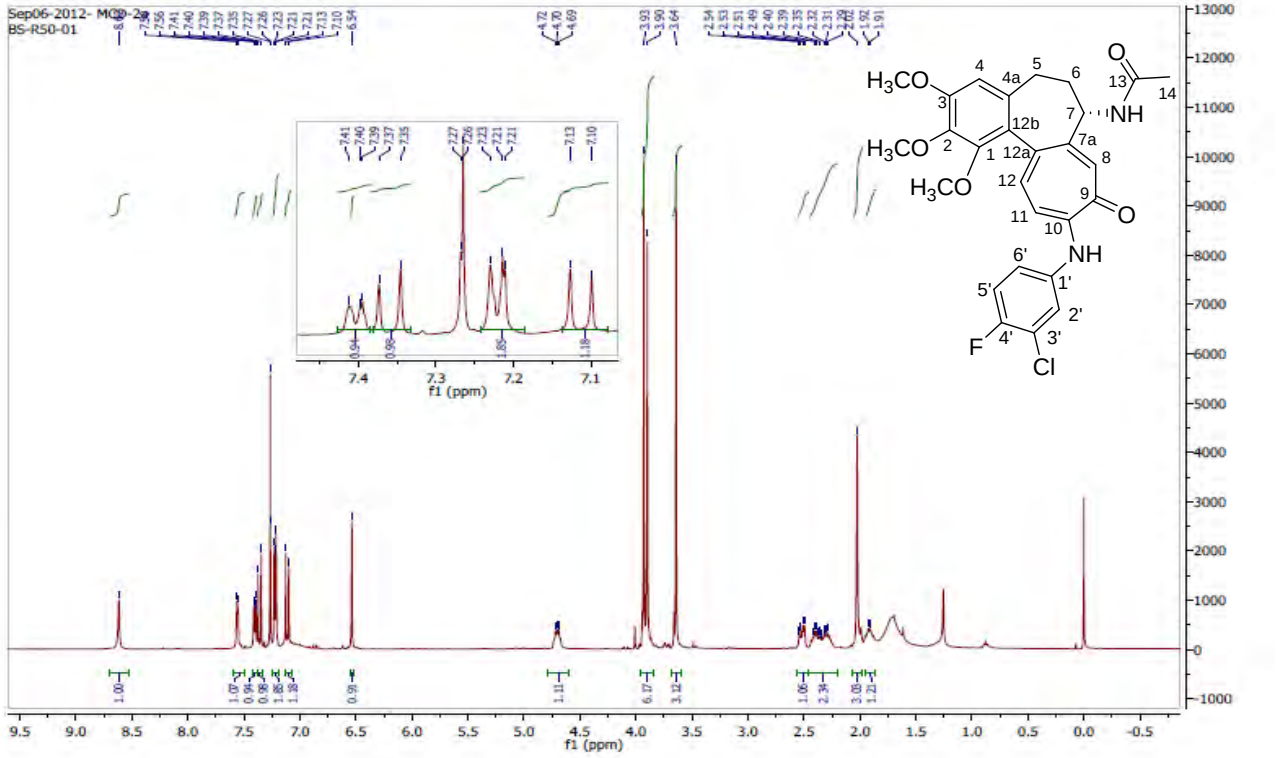


Fig. S67. ^{13}C NMR Spectrum of **4m** in $CDCl_3$

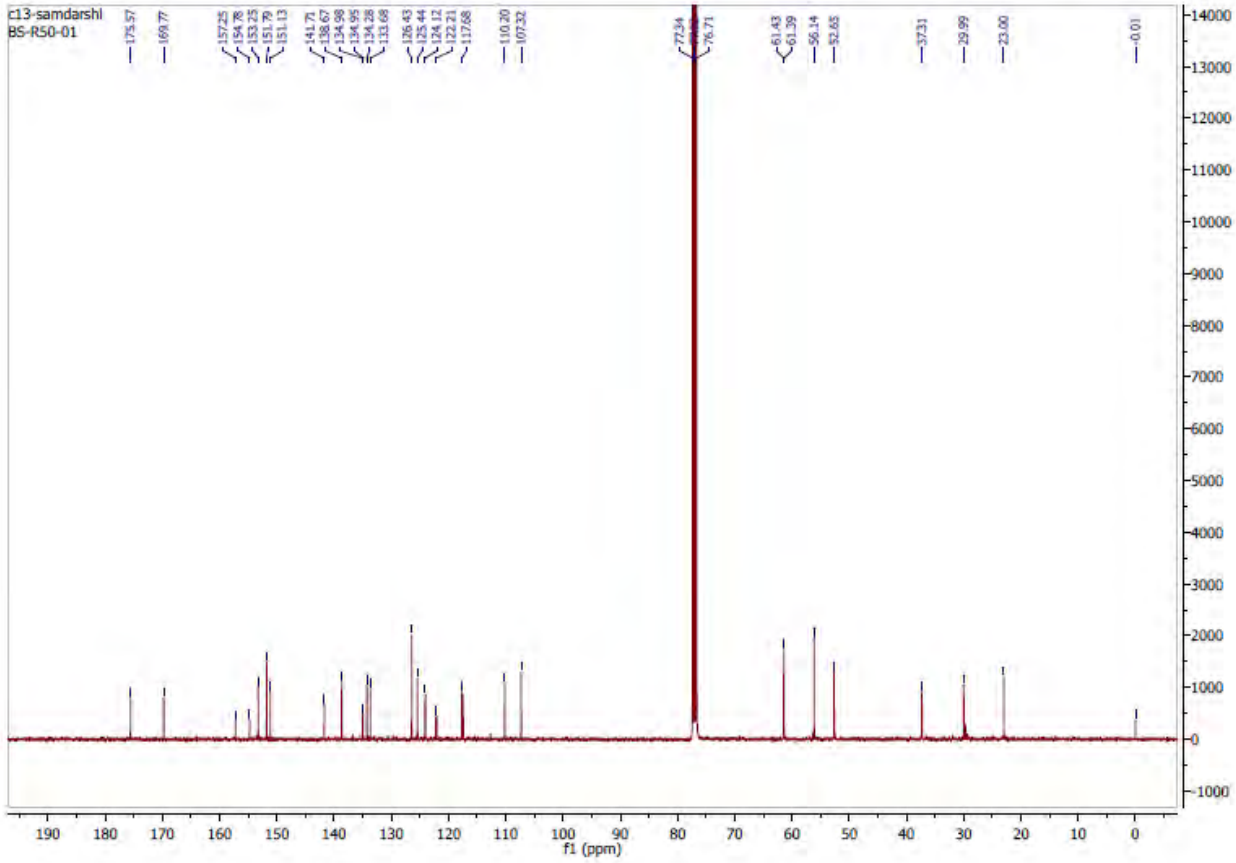


Fig. S68. DEPT-135 Spectrum of **4m** in $CDCl_3$

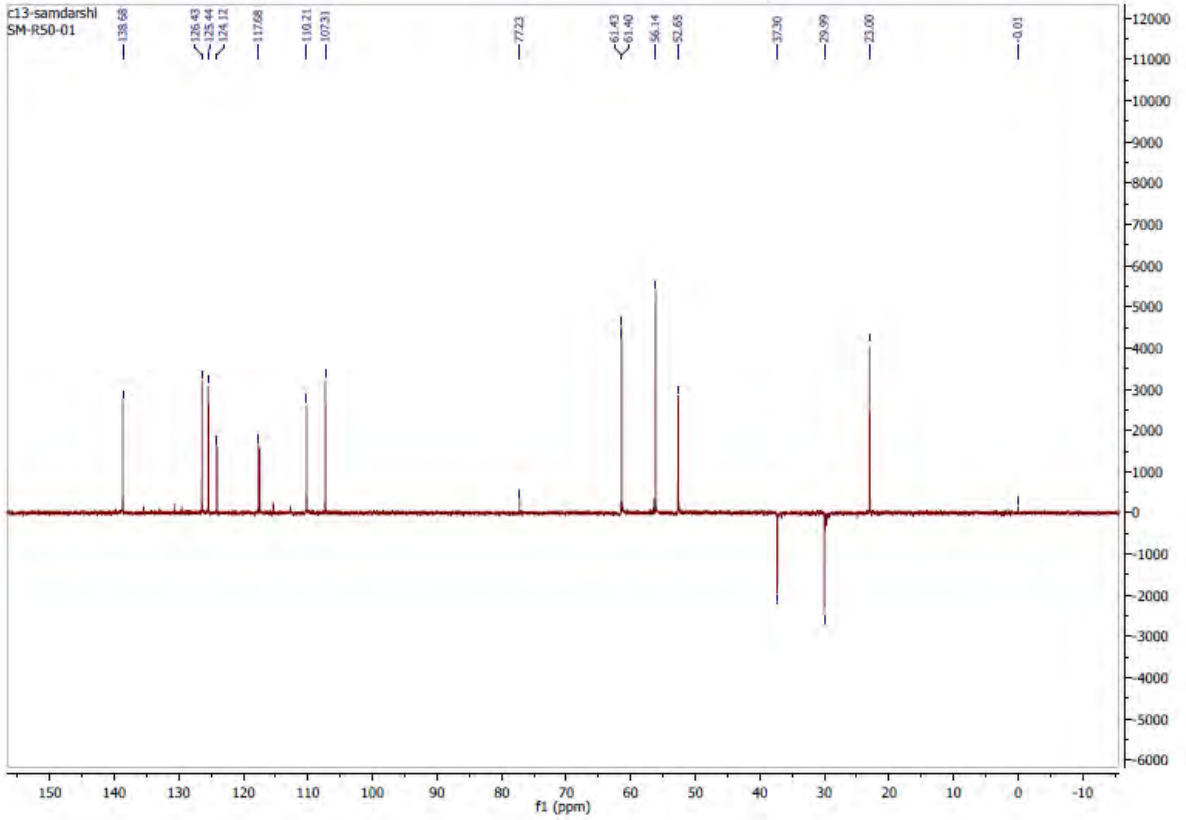


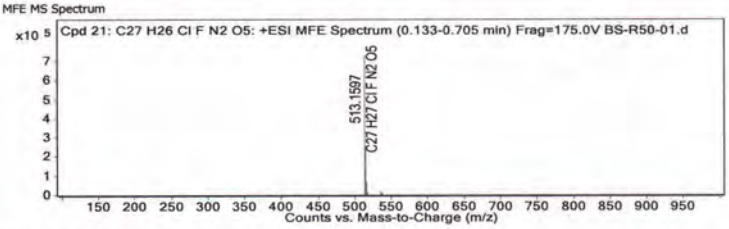
Fig. S69. HRMS Spectrum of **4m**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 21: C27 H26 Cl F N2 O5	0.187	512.1521	C27 H26 Cl F N2 O5	C27 H26 Cl F N2 O5	-1.4	C27 H26 Cl F N2 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 21: C27 H26 Cl F N2 O5	513.1597	0.187	Find by Molecular Feature	512.1521

MFE MS Spectrum



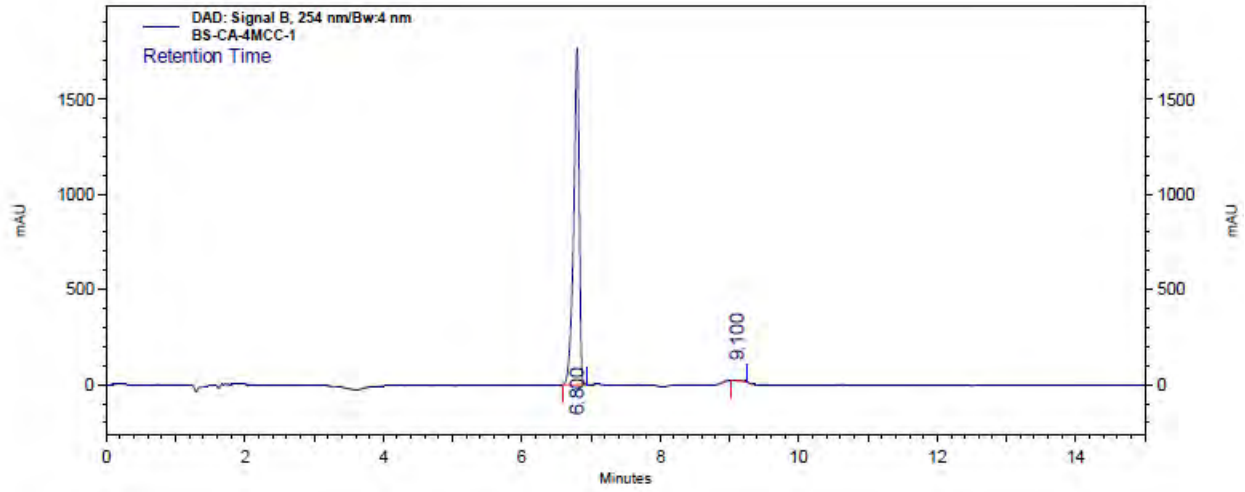
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
513.1597	1	728913.5	C27 H27 Cl F N2 O5	(M+H)+
514.1623	1	213144.28	C27 H27 Cl F N2 O5	(M+H)+
515.1576	1	258867.88	C27 H27 Cl F N2 O5	(M+H)+
516.1594	1	66273.51	C27 H27 Cl F N2 O5	(M+H)+
517.1618	1	10802.3	C27 H27 Cl F N2 O5	(M+H)+
518.1631	1	1827.9	C27 H27 Cl F N2 O5	(M+H)+
535.1406	1	21697.48	C27 H26 Cl F N2 Na O5	(M+Na)+
536.1449	1	7467.38	C27 H26 Cl F N2 Na O5	(M+Na)+
537.1381	1	8658.36	C27 H26 Cl F N2 Na O5	(M+Na)+
538.1396	1	2042.36	C27 H26 Cl F N2 Na O5	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	513.1597	513.1587	-1.99	100	100	56.91	55.4
2	514.1623	514.1619	-0.6	29.24	30.43	16.64	16.86
3	515.1576	515.1571	-0.96	35.51	37.5	20.21	20.77
4	516.1594	516.1596	0.41	9.09	10.47	5.17	5.8
5	517.1618	517.1622	0.62	1.48	1.84	0.84	1.02
6	518.1631	518.1648	3.22	0.25	0.24	0.14	0.13
7	519.1652	519.1673	4.08	0.13	0.03	0.07	0.01

Fig. S70. HPLC Chromatogram of **4m**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.800	99.593	99.799	20642851	3700153
9.100	0.407	0.201	84384	7466
Totals	100.000	100.000	20727235	3707619

Fig. S71. ^{1}H NMR Spectrum of **4n** in $CDCl_3$

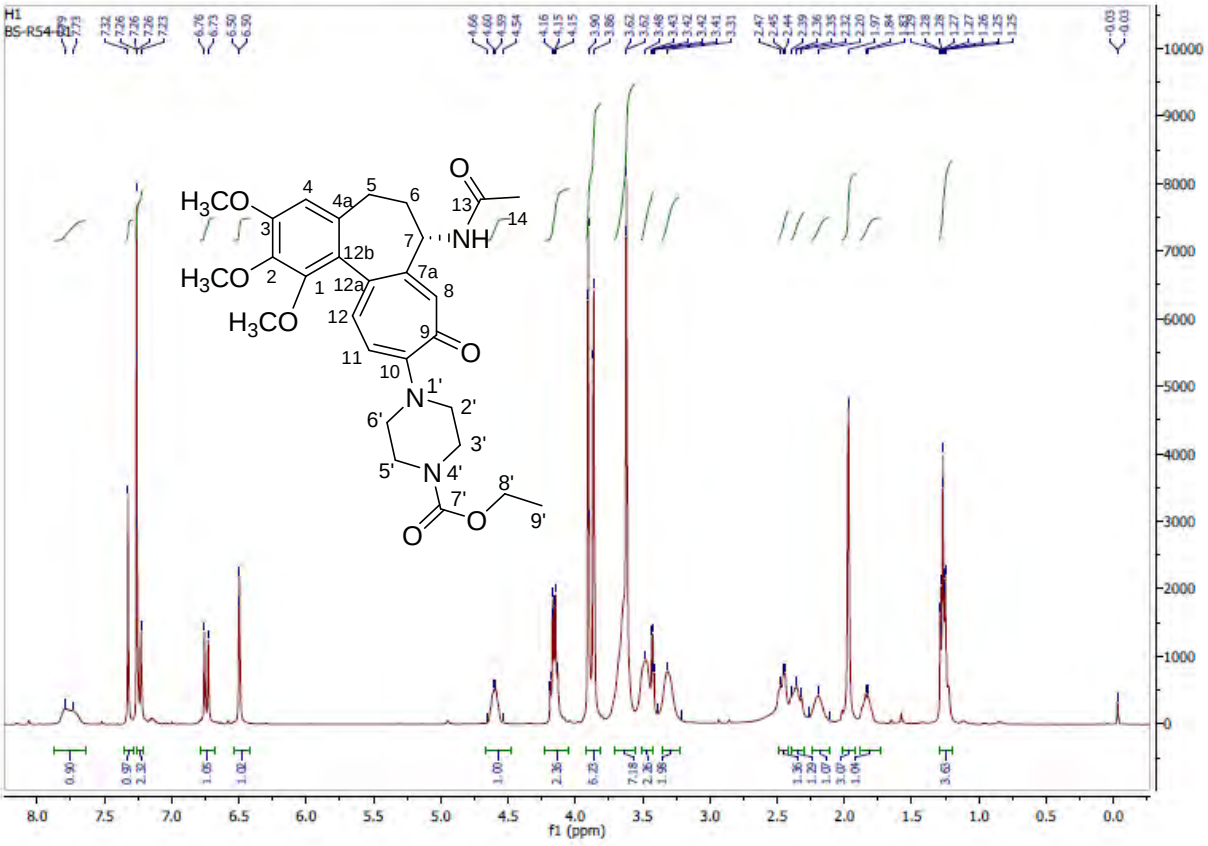


Fig. S72. ^{13}C NMR Spectrum of **4n** in $CDCl_3$

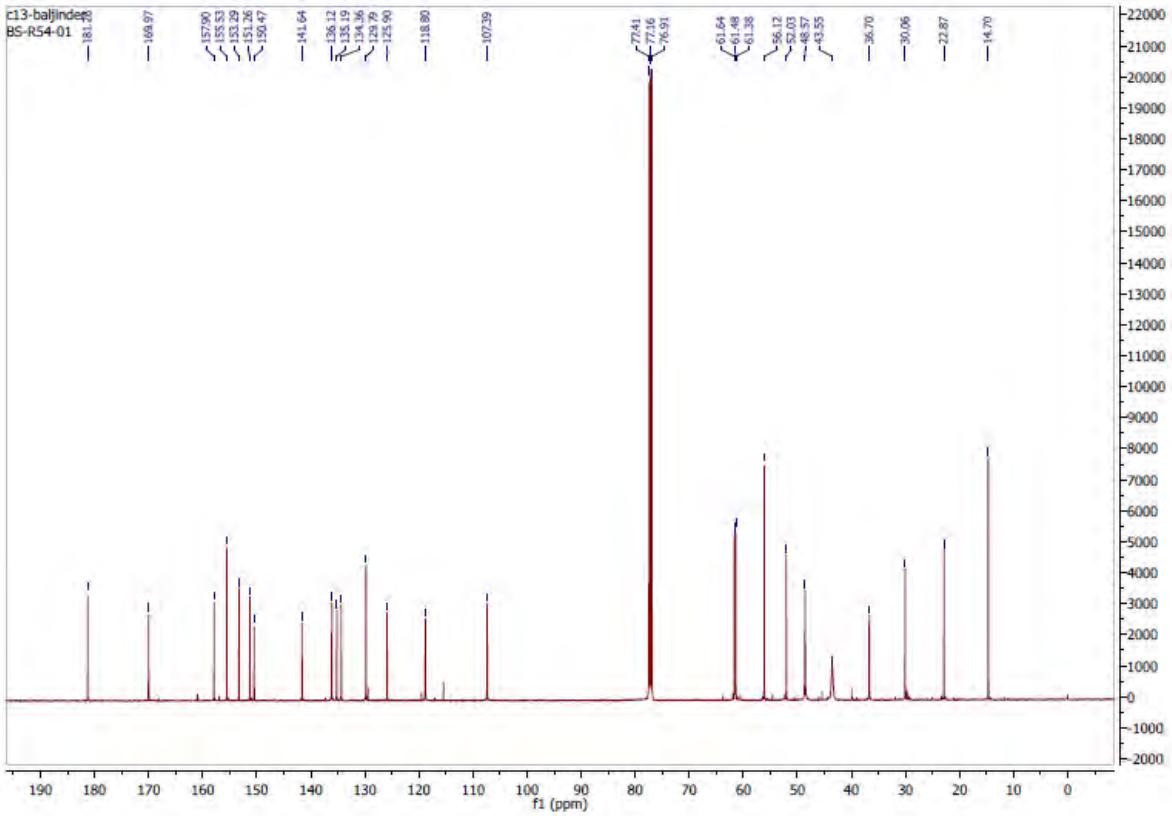


Fig. S73. DEPT-135 Spectrum of **4n** in $CDCl_3$

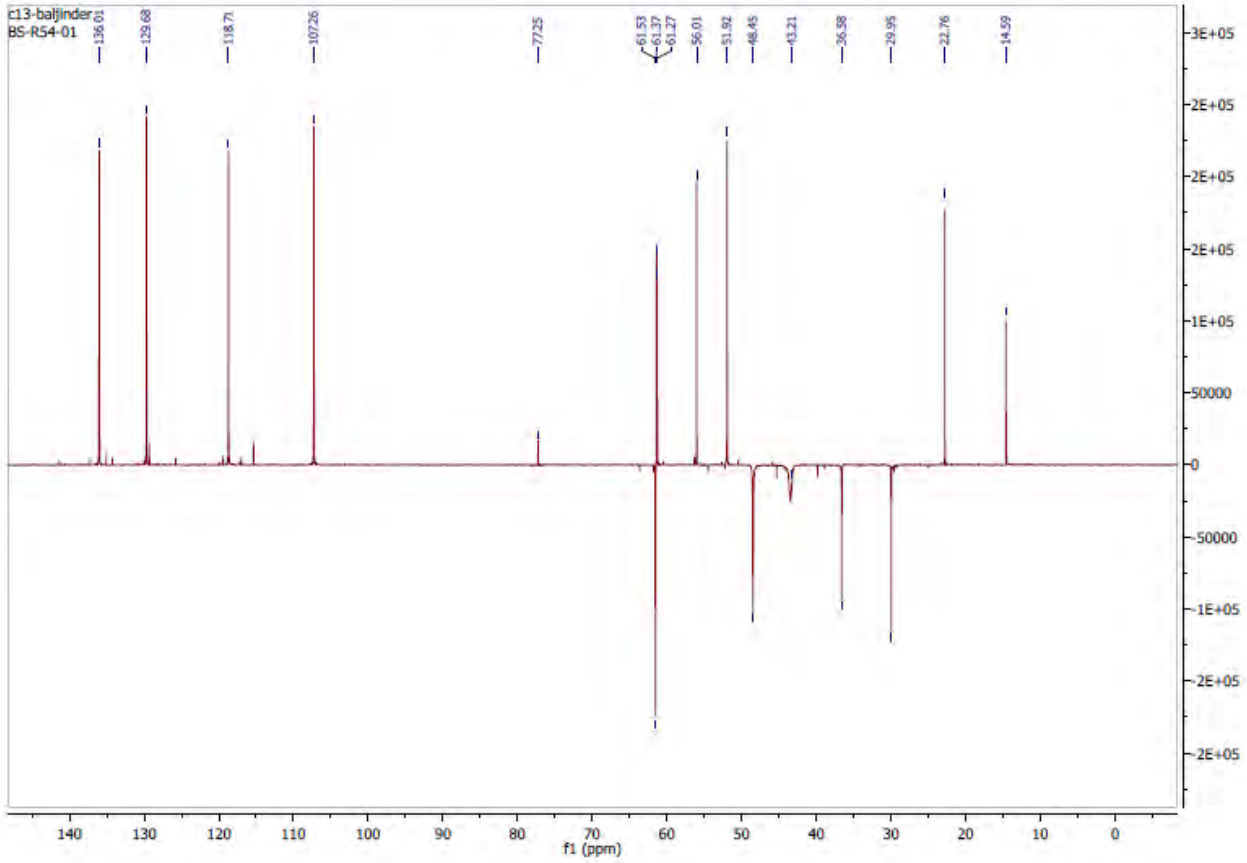


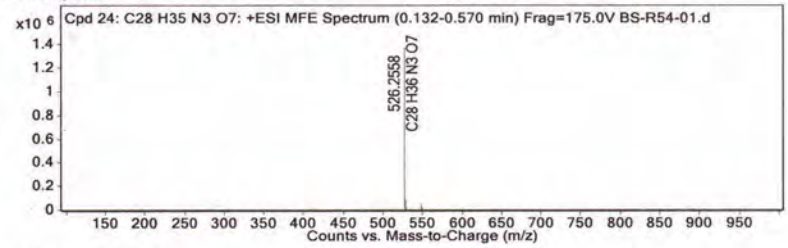
Fig. S74. HRMS Spectrum of **4n**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 24: C28 H35 N3 O7	0.187	525.2483	C28 H35 N3 O7	C28 H35 N3 O7	-1.52	C28 H35 N3 O7

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 24: C28 H35 N3 O7	526.2558	0.187	Find by Molecular Feature	525.2483

MFE MS Spectrum



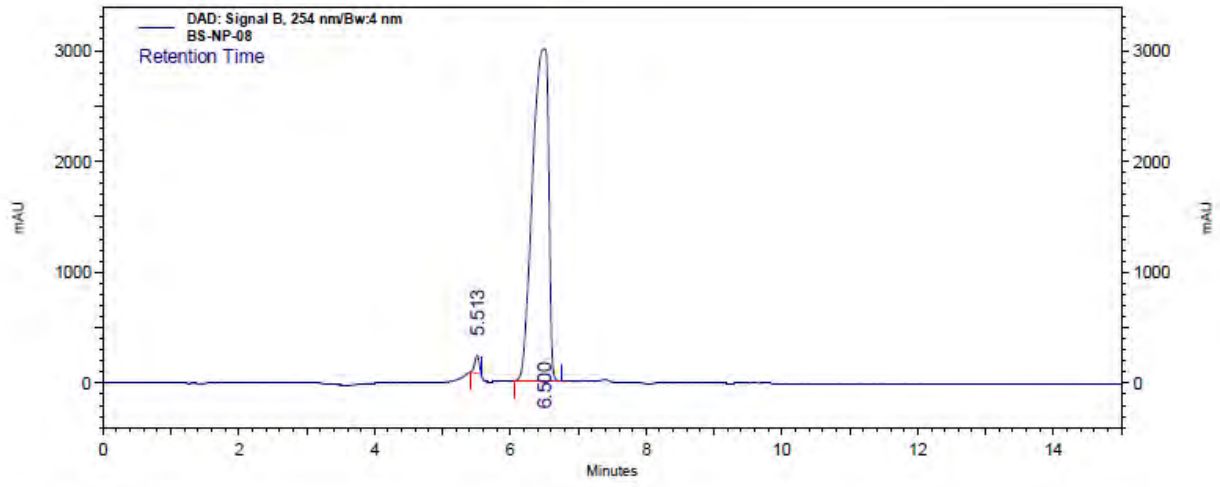
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
526.2558	1	1371149.5	C28 H36 N3 O7	(M+H)+
527.259	1	391625.94	C28 H36 N3 O7	(M+H)+
528.2581	1	79160.06	C28 H36 N3 O7	(M+H)+
529.2557	1	12319.35	C28 H36 N3 O7	(M+H)+
548.2365	1	45057.18	C28 H35 N3 Na O7	(M+Na)+
549.24	1	14991.48	C28 H35 N3 Na O7	(M+Na)+
550.2406	1	2860.31	C28 H35 N3 Na O7	(M+Na)+
551.2416	1	463.18	C28 H35 N3 Na O7	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	526.2558	526.2548	-1.89	100	100	73.95	71.72
2	527.259	527.258	-1.97	28.56	32.06	21.12	22.99
3	528.2581	528.2607	4.79	5.77	6.41	4.27	4.6
4	529.2557	529.2633	14.32	0.9	0.96	0.66	0.69

Fig. S75. HPLC Chromatogram of **4n**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
5.513	1.519	5.289	1598488	350986
6.500	98.481	94.711	103610711	6284649
Totals	100.000	100.000	105209199	6635635

Fig. S76. ^{1}H NMR Spectrum of **4o** in $CDCl_3$

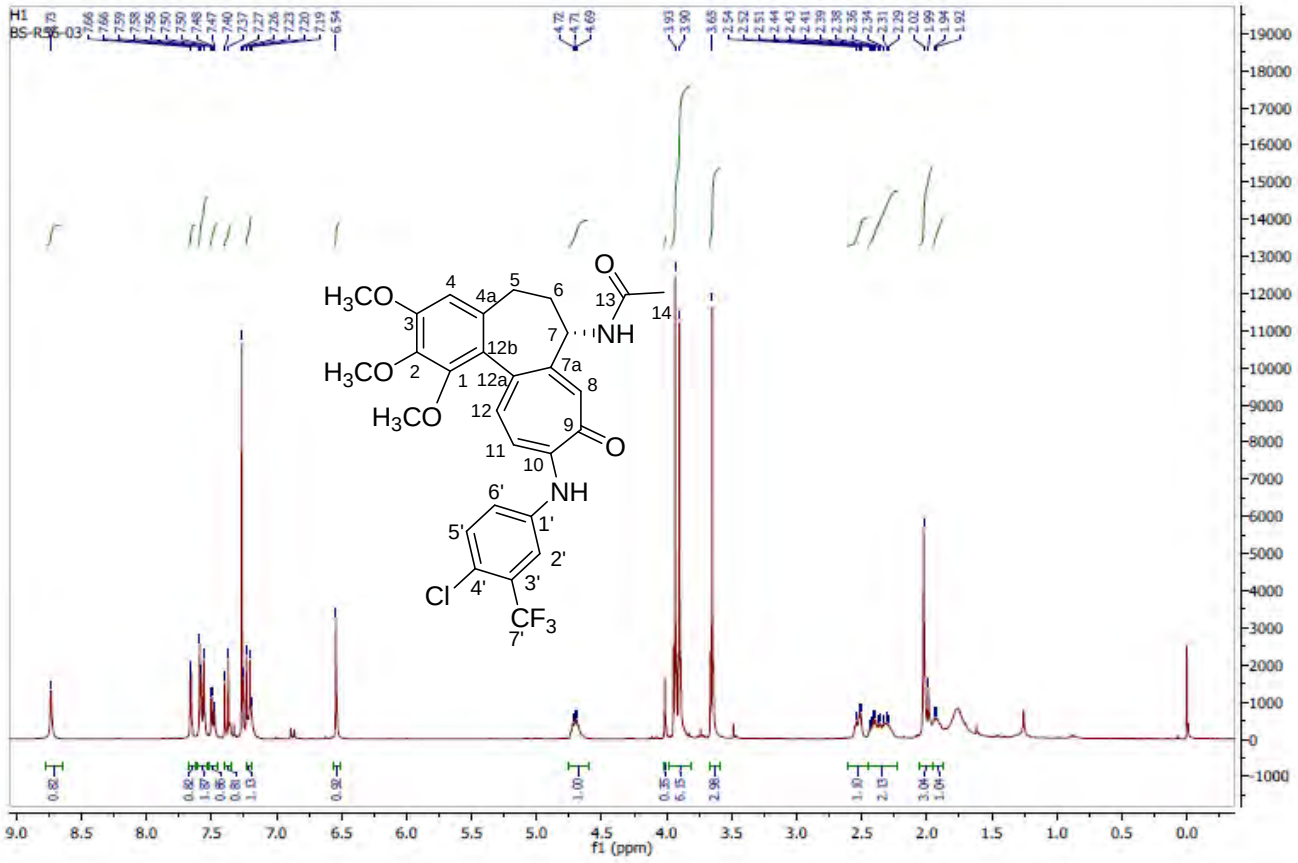


Fig. S77. ^{13}C NMR Spectrum of **4o** in $CDCl_3$

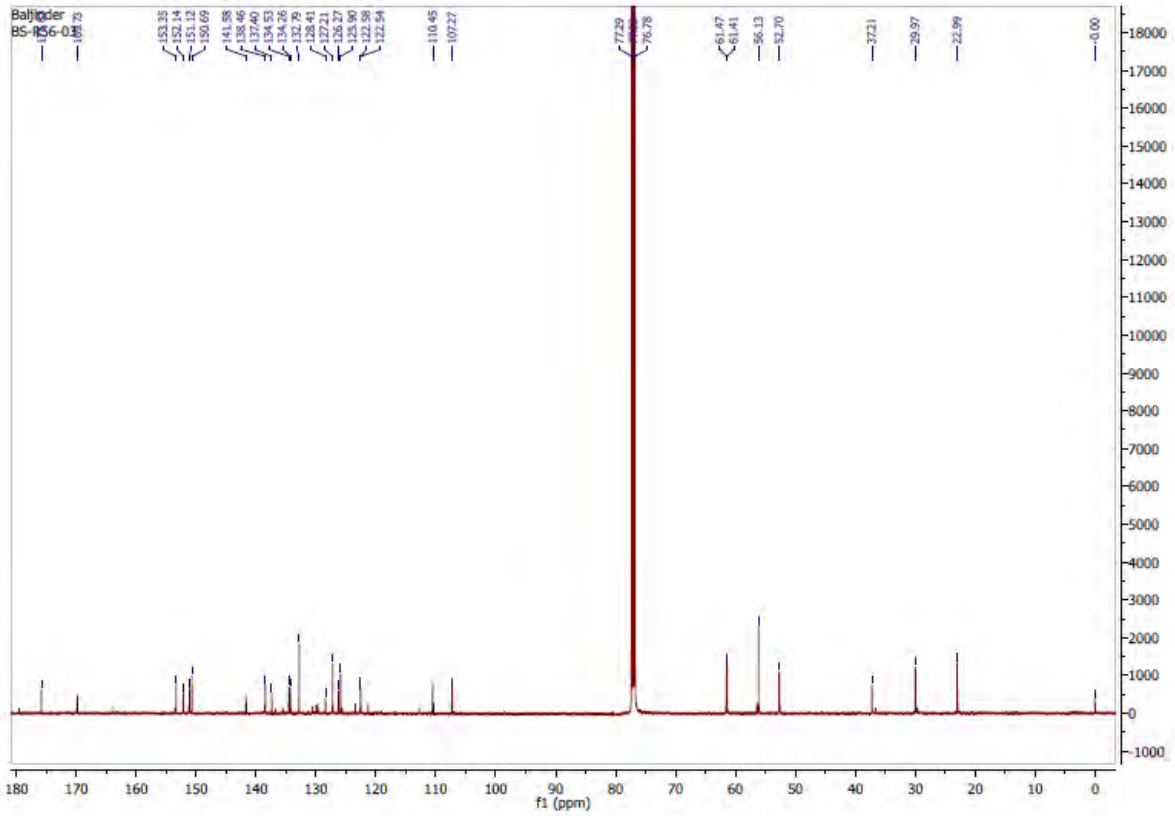


Fig. S78. DEPT-135 Spectrum of **4o** in $CDCl_3$

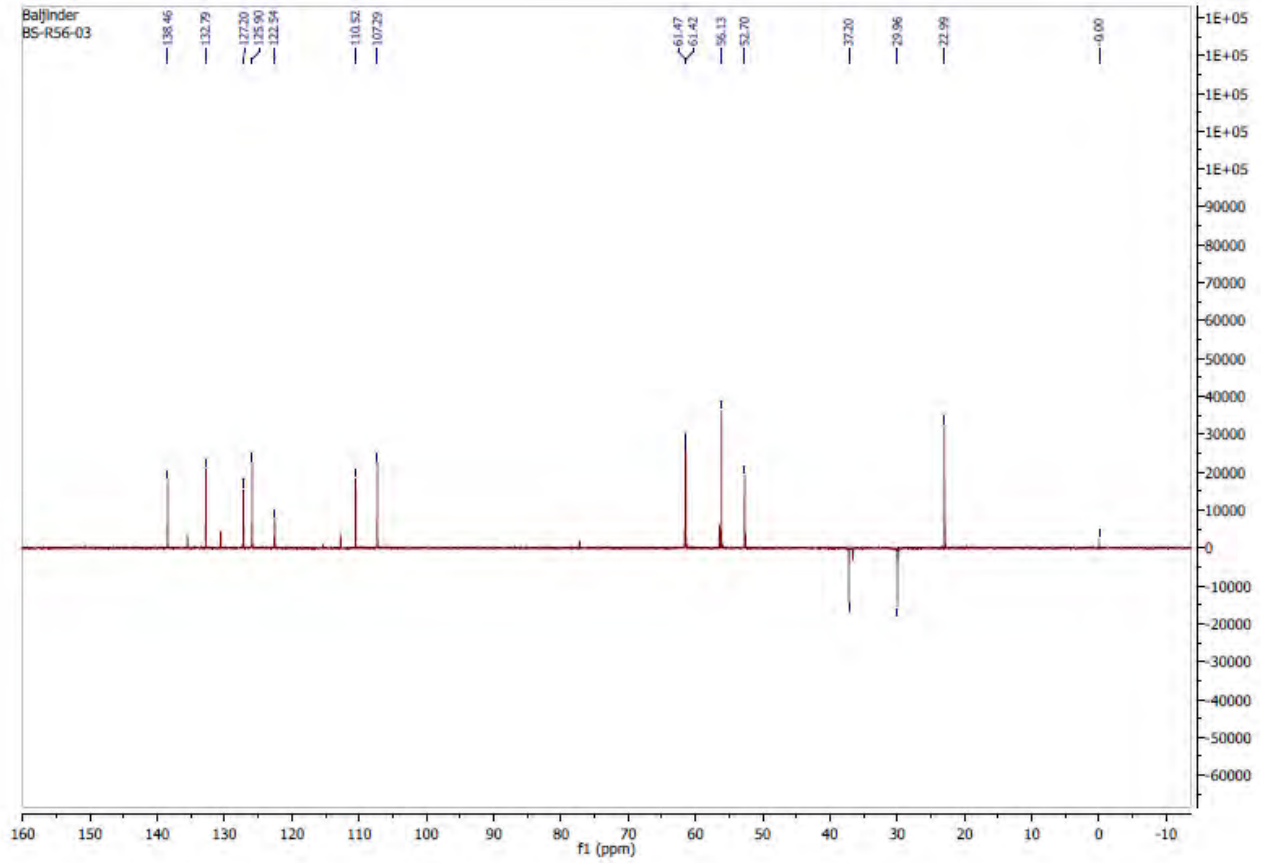


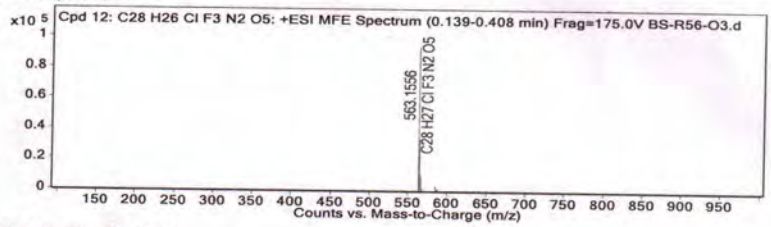
Fig. S79. HRMS Spectrum of **4o**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 12: C28 H26 Cl F3 N2 O5	0.187	562.1481	C28 H26 Cl F3 N2 O5	C28 H26 Cl F3 N2 O5	0.22	C28 H26 Cl F3 N2 O5

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 12: C28 H26 Cl F3 N2 O5	563.1556	0.187	Find by Molecular Feature	562.1481

MFE MS Spectrum



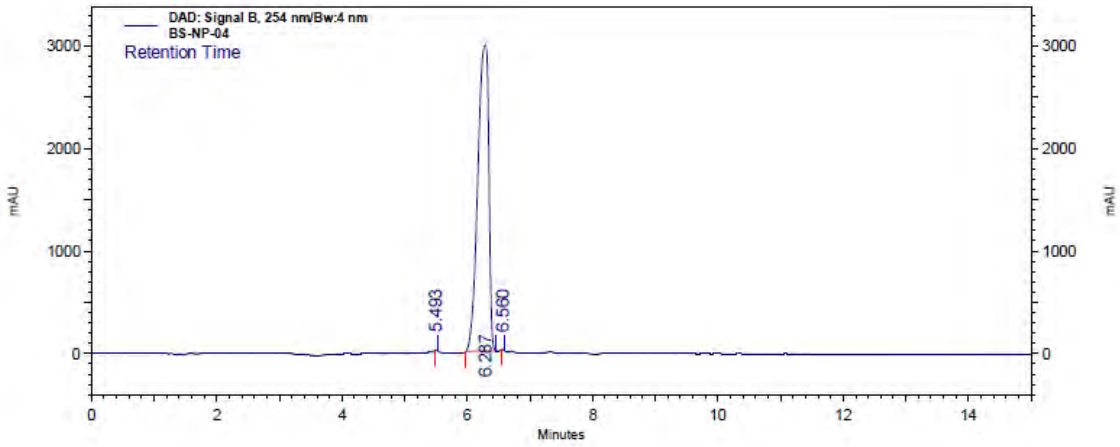
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
563.1556	1	94119.61	C28 H27 Cl F3 N2 O5	(M+H)+
564.1587	1	30011.89	C28 H27 Cl F3 N2 O5	(M+H)+
565.1535	1	33571.49	C28 H27 Cl F3 N2 O5	(M+H)+
566.1556	1	9642.51	C28 H27 Cl F3 N2 O5	(M+H)+
567.1581	1	1797.04	C28 H27 Cl F3 N2 O5	(M+H)+
585.1368	1	2507.2	C28 H26 Cl F3 N2 Na O5	(M+Na)+
586.1389	1	849.89	C28 H26 Cl F3 N2 Na O5	(M+Na)+
587.1366	1	1135.47	C28 H26 Cl F3 N2 Na O5	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	563.1556	563.1555	-0.09	100	100	55.65	54.89
2	564.1587	564.1588	0.08	31.89	31.52	17.74	17.3
3	565.1535	565.154	0.79	35.67	37.82	19.85	20.76
4	566.1556	566.1564	1.42	10.24	10.88	5.7	5.97
5	567.1581	567.159	1.67	1.91	1.95	1.06	1.07

Fig. S80. HPLC Chromatogram of **4o**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
5.493	0.037	0.214	28348	13434
6.287	99.916	99.510	76106742	6252184
6.560	0.047	0.276	35799	17372
Totals	100.000	100.000	76170889	6282990

Fig. S81. ^{1}H NMR Spectrum of **4p** in $CDCl_3$

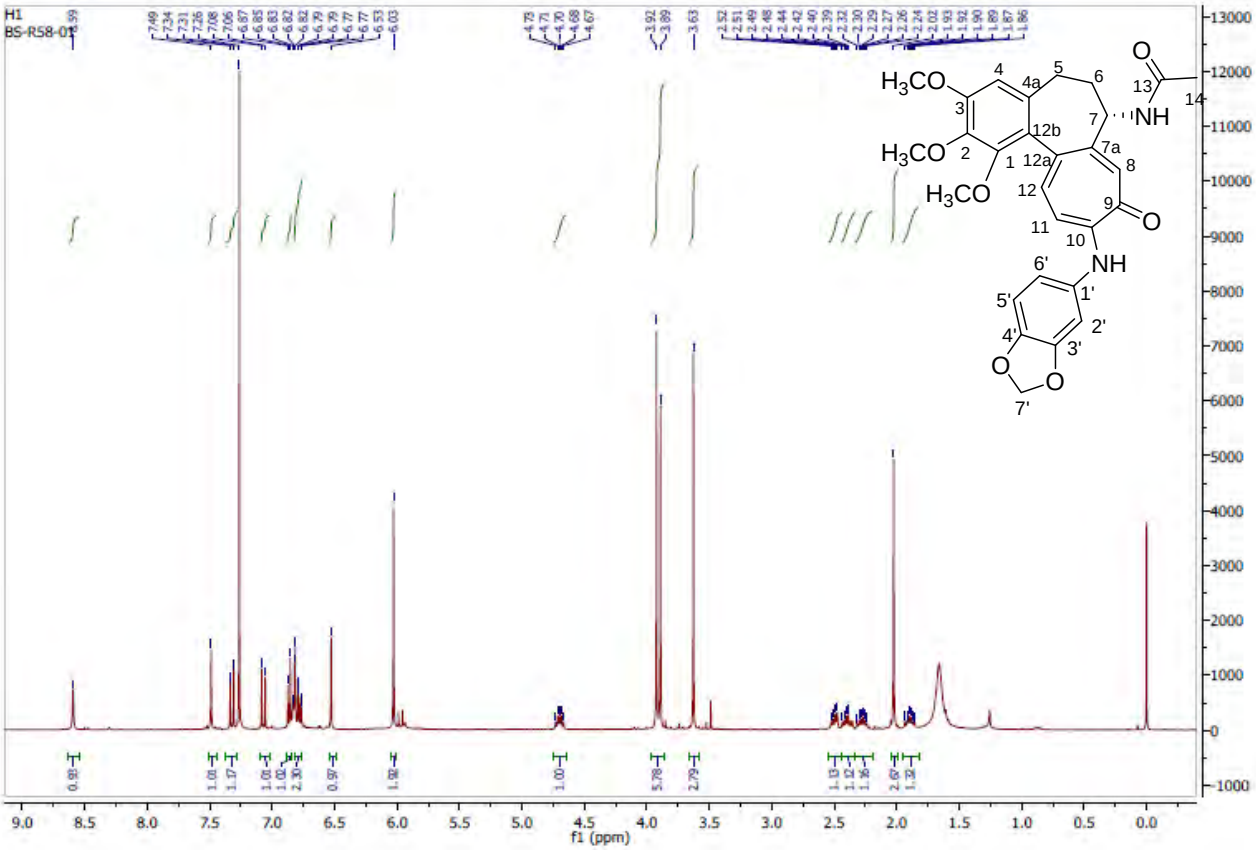


Fig. S82. ^{13}C NMR Spectrum of **4p** in $CDCl_3$

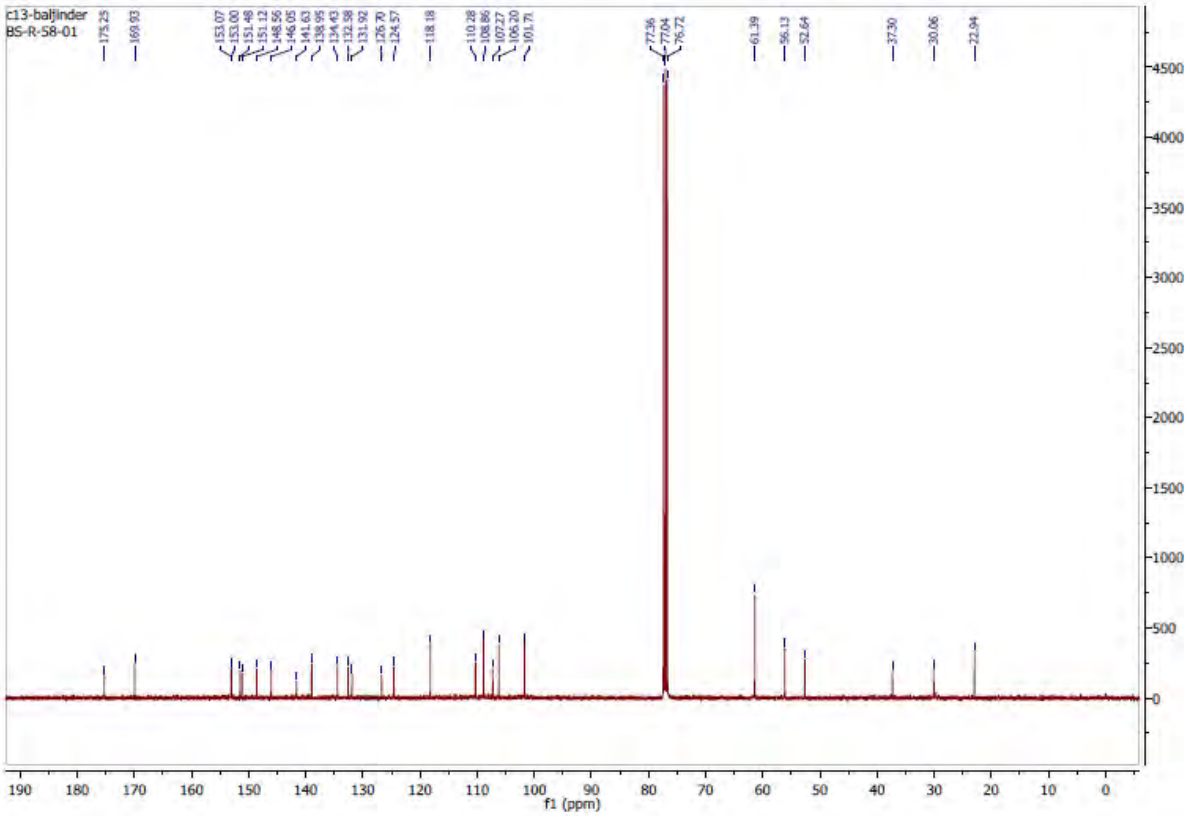


Fig. S83. DEPT-135 Spectrum of **4p** in $CDCl_3$

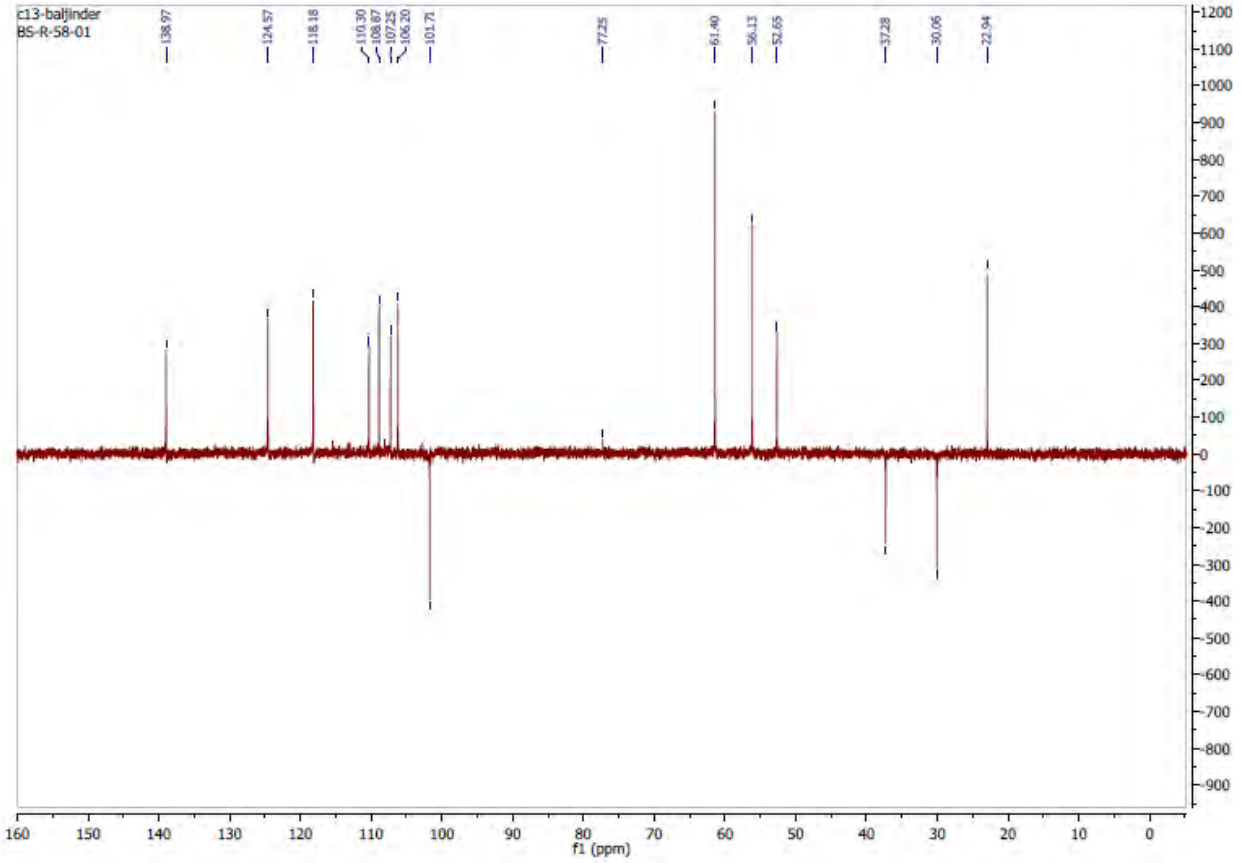


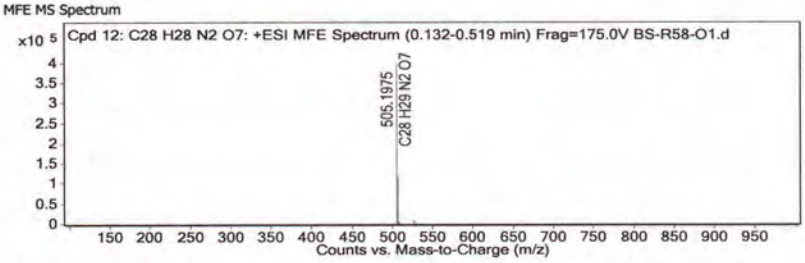
Fig. S84. HRMS Spectrum of **4p**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 12: C28 H28 N2 O7	0.186	504.19	C28 H28 N2 O7	C28 H28 N2 O7	-0.66	C28 H28 N2 O7

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 12: C28 H28 N2 O7	505.1975	0.186	Find by Molecular Feature	504.19

MFE MS Spectrum



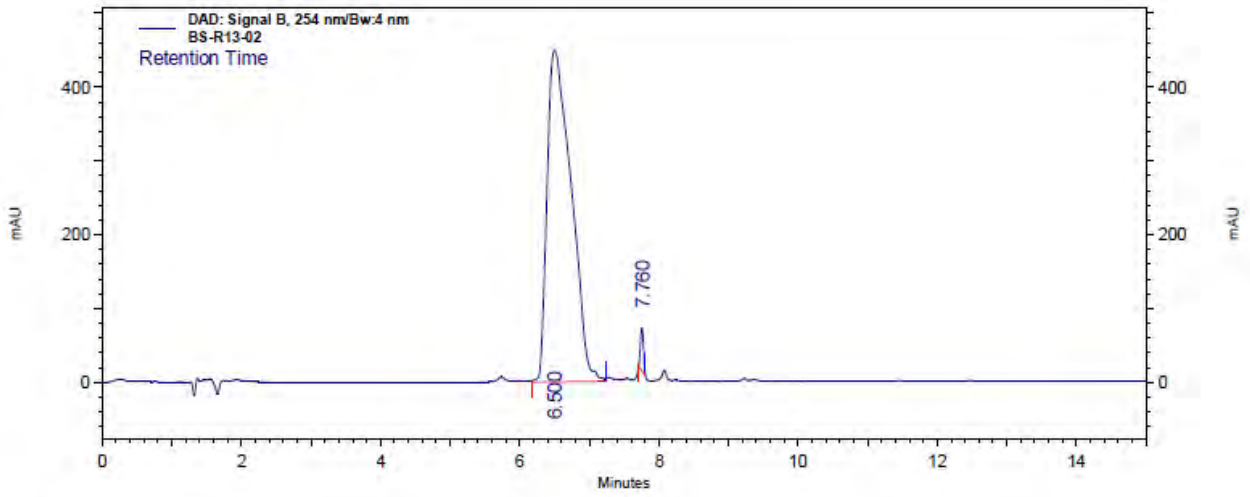
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
505.1975	1	396782.94	C28 H29 N2 O7	(M+H)+
506.2003	1	116367.56	C28 H29 N2 O7	(M+H)+
507.2015	1	24051.76	C28 H29 N2 O7	(M+H)+
508.2023	1	3505.35	C28 H29 N2 O7	(M+H)+
509.1978	1	448	C28 H29 N2 O7	(M+H)+
527.1789	1	9919.41	C28 H28 N2 Na O7	(M+Na)+
528.1823	1	2965.14	C28 H28 N2 Na O7	(M+Na)+
529.1844	1	1032.29	C28 H28 N2 Na O7	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	505.1975	505.1969	-1.09	100	100	73.32	71.98
2	506.2003	506.2002	-0.19	29.33	31.61	21.5	22.76
3	507.2015	507.2029	2.76	6.06	6.27	4.44	4.51
4	508.2023	508.2056	6.5	0.88	0.93	0.65	0.67
5	509.1978	509.2082	20.25	0.11	0.11	0.08	0.08

Fig. S85. HPLC Chromatogram of **4p**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
6.500	98.531	89.075	22246528	937351
7.760	1.469	10.925	331580	114964
Totals	100.000	100.000	22578108	1052315

Fig. S86. ^{1}H NMR Spectrum of **5a** in $CDCl_3$

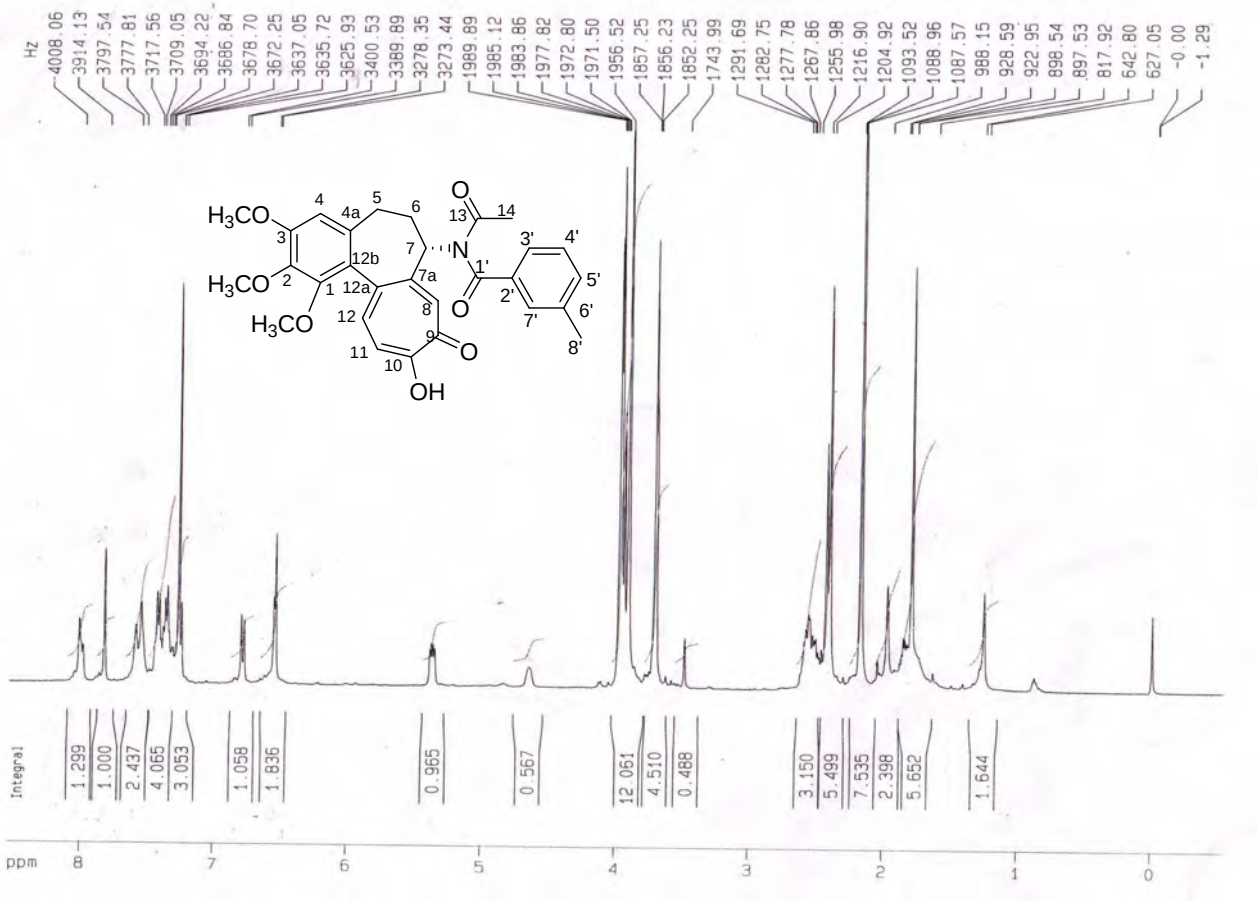


Fig. S87. ^{13}C NMR Spectrum of **5a** in $CDCl_3$

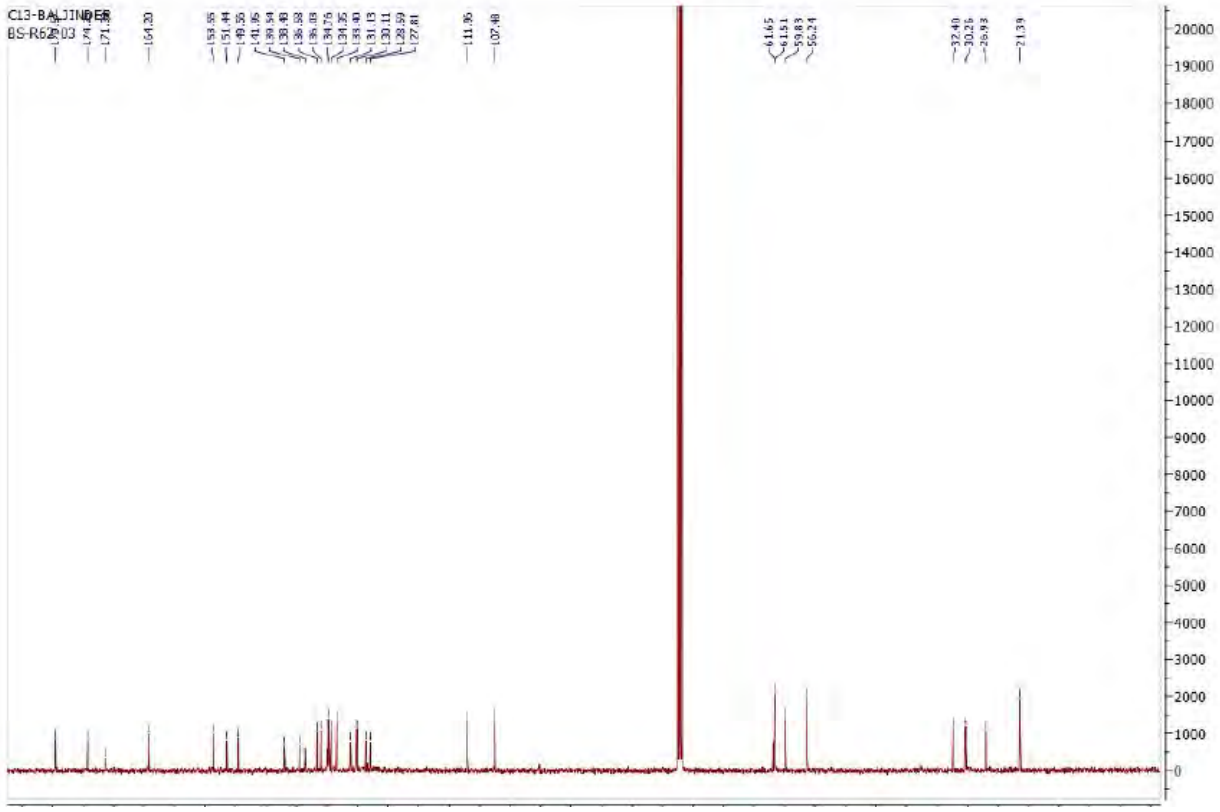


Fig. S88. DEPT-135 Spectrum of **5a** in $CDCl_3$

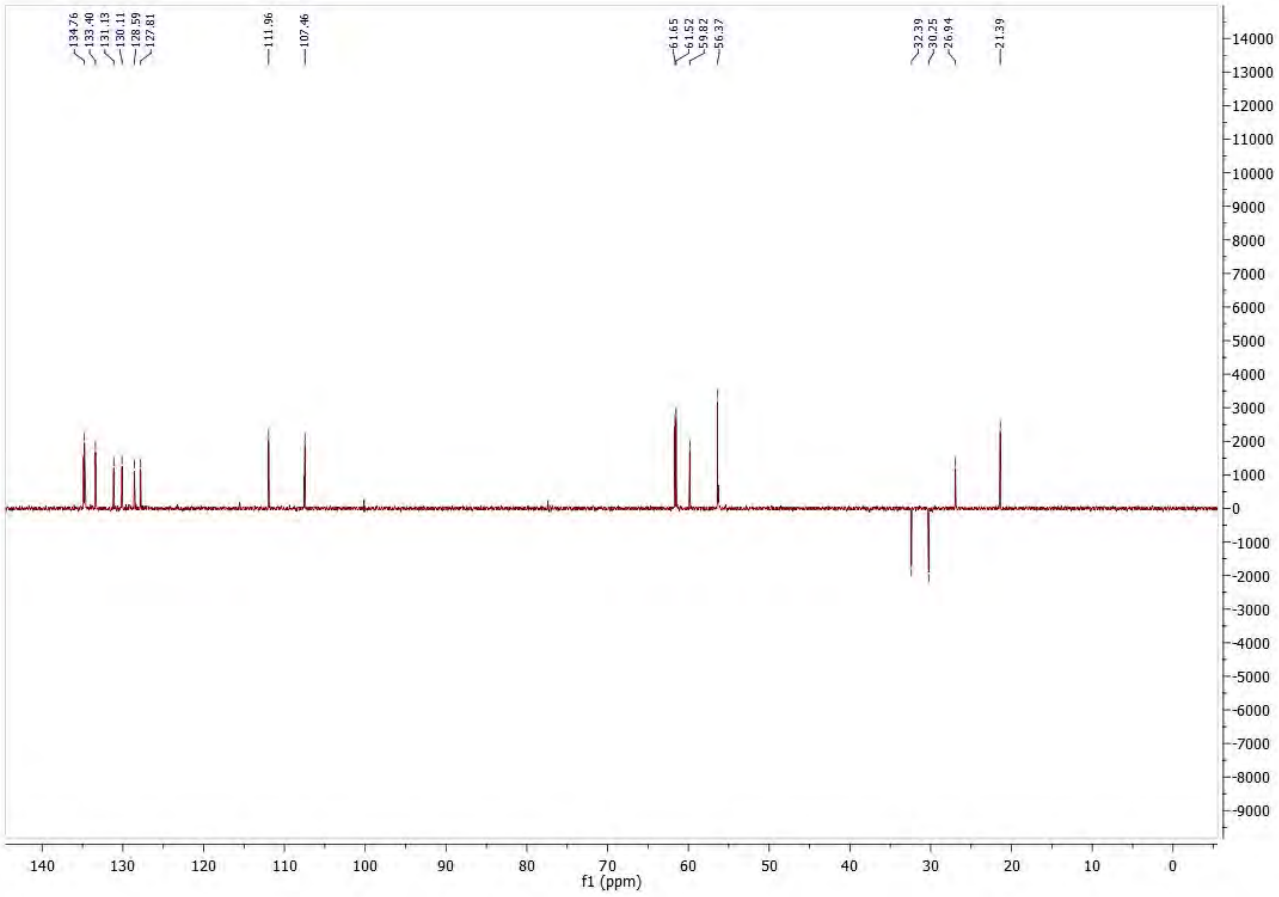


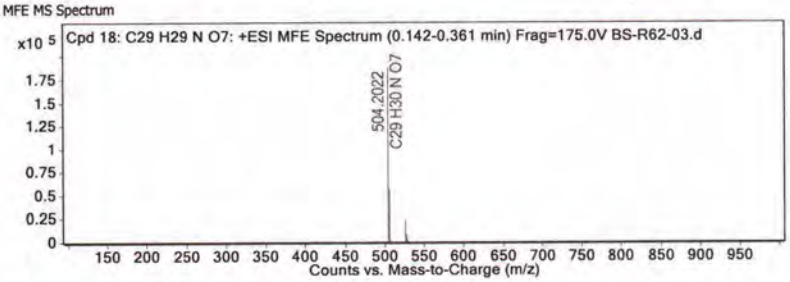
Fig. S89. HRMS Spectrum of **5a**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 18: C29 H29 N O7	0.187	503.1949	C29 H29 N O7	C29 H29 N O7	-0.9	C29 H29 N O7

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 18: C29 H29 N O7	504.2022	0.187	Find by Molecular Feature	503.1949

MFE MS Spectrum



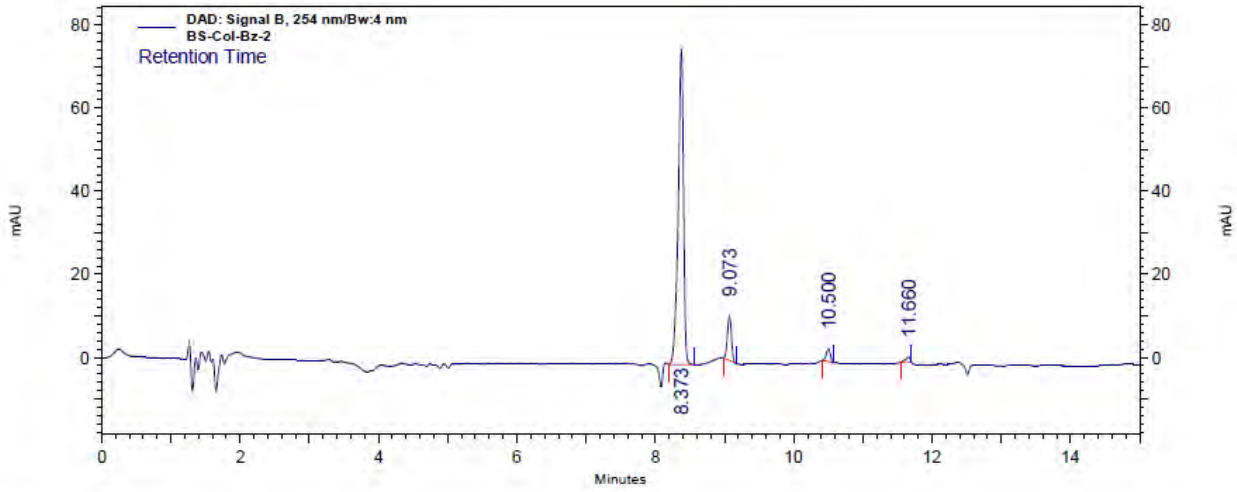
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
504.2022	1	187619.98	C29 H30 N O7	(M+H)+
505.205	1	55804.86	C29 H30 N O7	(M+H)+
506.2089	1	13506.46	C29 H30 N O7	(M+H)+
507.2102	1	2053.31	C29 H30 N O7	(M+H)+
526.1839	1	22808.55	C29 H29 N Na O7	(M+Na)+
527.1876	1	7065.53	C29 H29 N Na O7	(M+Na)+
528.1932	1	2206.06	C29 H29 N Na O7	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	504.2022	504.2017	-1.06	100	100	72.44	71.52
2	505.205	505.205	-0.06	29.74	32.34	21.55	23.13
3	506.2089	506.2078	-2.27	7.2	6.5	5.22	4.65
4	507.2102	507.2105	0.67	1.09	0.97	0.79	0.7

Fig. S90. HPLC Chromatogram of **5a**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
8.120	0.574	1.506	4864	2489
8.373	98.384	95.737	833214	158184
9.073	0.456	1.346	3865	2224
10.500	0.585	1.411	4954	2331
Totals	100.000	100.000	846897	165228

Fig. S91. ^{1}H NMR Spectrum of 5**b** in $CDCl_3$

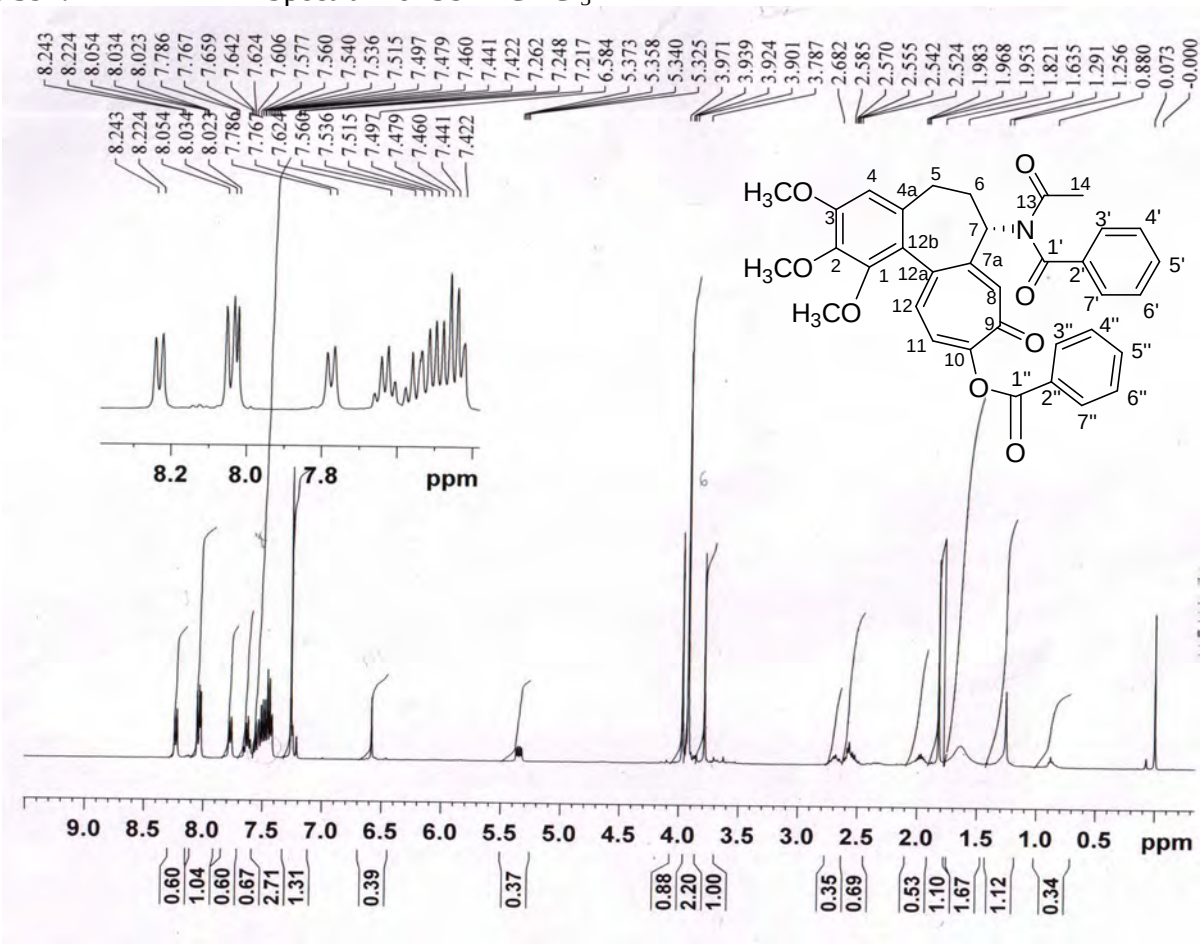


Fig. S92. ^{13}C NMR Spectrum of **5b** in $CDCl_3$

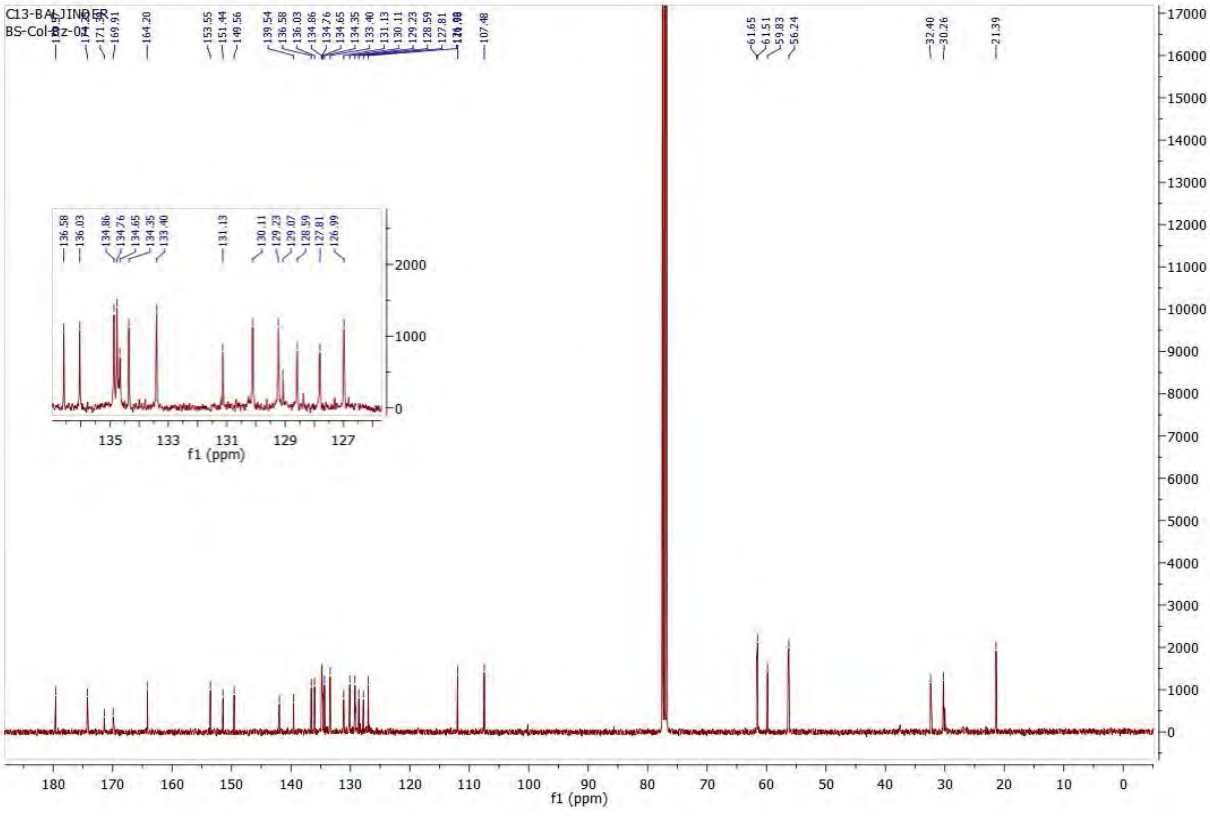


Fig. S93. DEPT-135 Spectrum of **5b** in $CDCl_3$

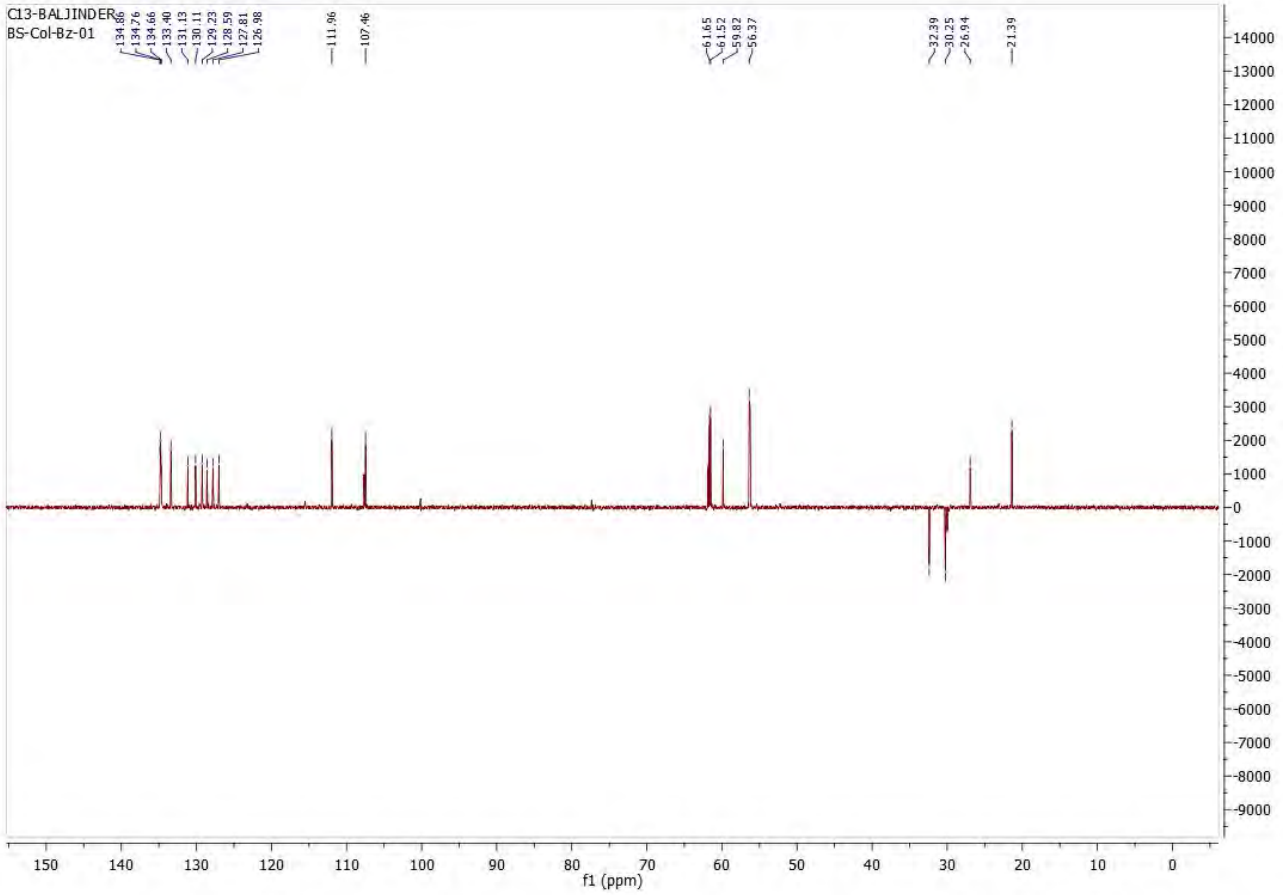


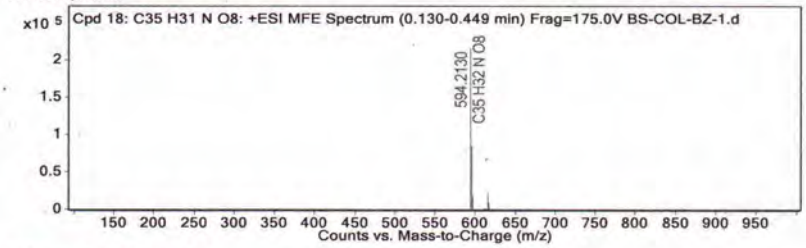
Fig. S94. HRMS Spectrum of **5b**

Compound Table

Compound Label	RT	Mass	Formula	MFG Formula	MFG Diff (ppm)	DB Formula
Cpd 18: C35 H31 N O8	0.189	593.2055	C35 H31 N O8	C35 H31 N O8	-0.93	C35 H31 N O8

Compound Label	*m/z*	RT	Algorithm	Mass
Cpd 18: C35 H31 N O8	594.213	0.189	Find by Molecular Feature	593.2055

MFE MS Spectrum



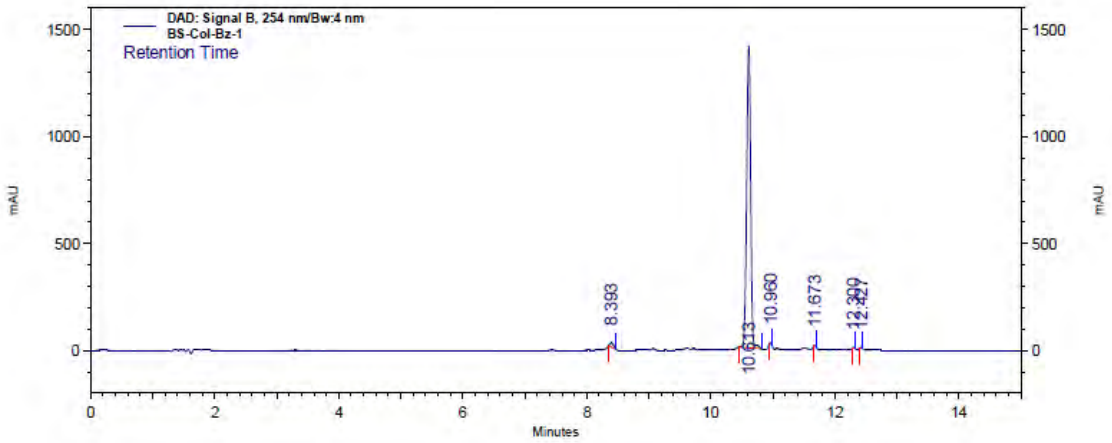
MS Spectrum Peak List

m/z	z	Abund	Formula	Ion
594.213	1	216043.7	C35 H32 N O8	(M+H)+
595.2157	1	83985.1	C35 H32 N O8	(M+H)+
596.2181	1	18756.63	C35 H32 N O8	(M+H)+
597.2224	1	2771.24	C35 H32 N O8	(M+H)+
611.2357	1	1345.39		(M+NH4)+
612.2381	1	855.78		(M+NH4)+
616.1941	1	21994.79	C35 H31 N Na O8	(M+Na)+
617.197	1	8032.43	C35 H31 N Na O8	(M+Na)+
618.2006	1	1568.6	C35 H31 N Na O8	(M+Na)+

Predicted Isotope Match Table

Isotope	*m/z*	Calc m/z	Diff (ppm)	Abund %	Calc Abund %	Abund Sum %	Calc Abund Sum %
1	594.213	594.2122	-1.3	100	100	67.19	66.92
2	595.2157	595.2156	-0.28	38.87	38.89	26.12	26.03
3	596.2181	596.2185	0.61	8.68	9	5.83	6.02
4	597.2224	597.2212	-1.95	1.28	1.54	0.86	1.03

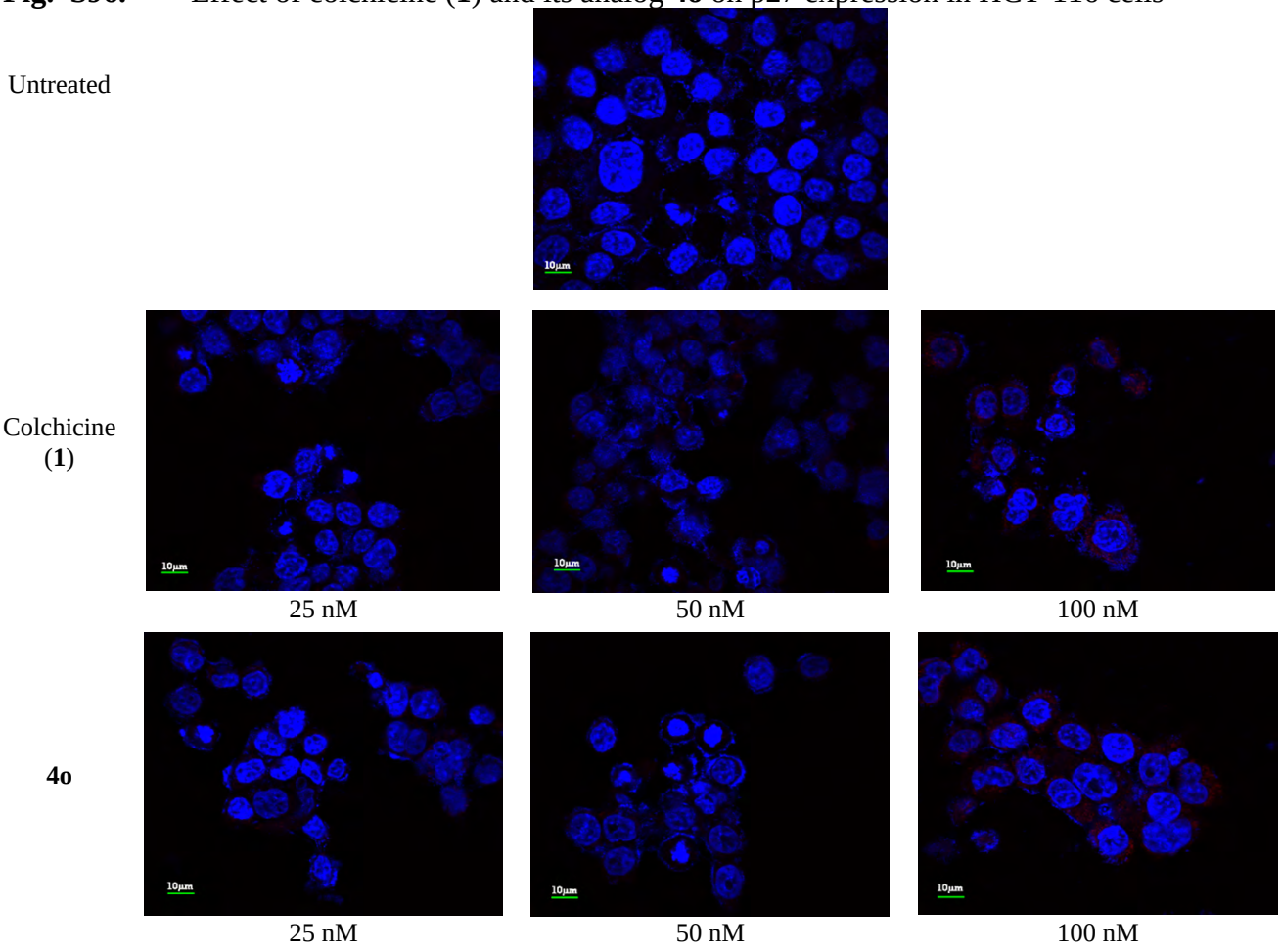
Fig. S95. HPLC Chromatogram of **5b**



DAD: Signal B, 254 nm/Bw:4 nm
Results

Retention Time	Area Percent	Height Percent	Area	Height
8.393	1.296	1.293	173961	39392
10.613	98.124	97.115	13169047	2958563
10.960	0.301	0.739	40442	22516
11.673	0.091	0.306	12178	9324
12.300	0.091	0.265	12192	8076
12.427	0.096	0.282	12940	8596
Totals	100.000	100.000	13420760	3046467

Fig. S96. Effect of colchicine (**1**) and its analog **4o** on p27 expression in HCT-116 cells



Effect of colchicine (**1**) and its analog **4o** on p27 expression in HCT-116 cells. Cells were cultured on coverslips. After 24 h, the cells were treated with different concentrations of the compound. Immunocytochemical staining was conducted using p27 antibody and Alexa Flour-488-labeled secondary antibody. Staining was done by using DAPI. The data are representative of three separate sets of experiments.

Figure S97. Proposed mechanism for formation of amino-linked products **4a-p** from colchicine (**1**)