Asymmetric total syntheses of naturally occurring α,β-enone-containing RALs, L-783290 and L-783277 through intramolecular base-mediated macrolactonization reaction

Joy Chakraborty,[1] Ankan Ghosh [1,2] and Samik Nanda*[1]

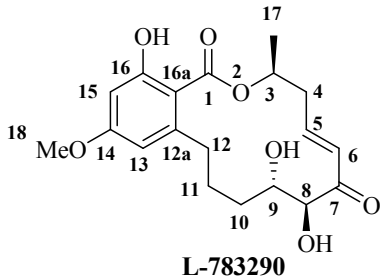
[1] Department of Chemistry, Indian Institute of Technology Kharagpur, Kharagpur.

[2] Department of Chemistry, University of Texas at Austin, Austin, TX, USA

Supporting Information

Contents	Page no
NMR data comparison table	2-3
^{1}H-NMR/^{13}C-NMR data	4-51

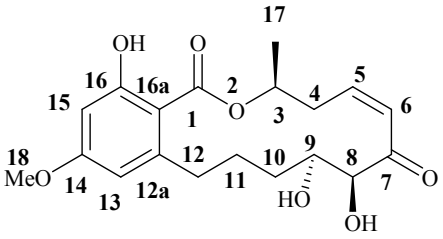
NMR comparison table of literature and synthetic L-783290 (in CD_2Cl_2):



L-783290

Position	Reported ^{1}H δ (ppm); J (Hz)	Observed ^{1}H δ (ppm); J (Hz)	Δδ (ppm)	Reported ^{13}C δ (ppm)	Observed ^{13}C δ (ppm)	Δδ (ppm)
1				171.4	171.3	0.1
3	5.6 (m)	5.6 (m)	0.0	73.3	73.3	0.0
4	2.54 (m), 3.09 (t, 12.8)	2.57 (m), 3.1 (ddd, 15.1,11.8,3.5)	0.03, 0.01	38.0	38.0	0.0
5	7.0 (m)	7.0 (dt, 7.4, 15.3)	0.0	143.8	143.7	0.1
6	6.37 (m)	6.37 (m)	0.00	131.5	131.5	0.0
7				199.3	199.3	0.0
8	4.68 (s)	4.69 (s)	0.01	77.4	77.3	0.1
9	3.96 (s)	3.96 (s)	0.00	71.3	71.3	0.0
10	1.3 (m), 1.62 (s)	1.3 (m), 1.65 (s)	0.0, 0.03	32.8	32.8	0.0
11	1.71 (br s), 1.71 (br s)	1.71 (m), 1.71 (m)	0.00, 0.00	26.9	26.9	0.0
12	2.54 (m), 2.84 (m)	2.57 (m), 2.85 (m)	0.03, 0.01	36.2	36.2	0.0
12a				147.7	147.7	0.0
13	6.37 (m)	6.37 (m)	0.00	109.5	109.5	0.0
14				164.7	164.7	0.0
15	6.37 (m)	6.37 (m)	0.00	99.3	99.3	0.0
16				166.3	166.2	0.1
16a				104.9	104.9	0.0
17	1.46 (d, 6.4)	1.49 (d, 6.5)	0.03	19.2	19.2	0.0
18	3.80 (s)	3.83 (s)	0.03	55.7	55.7	0.0
C16-OH	11.83 (s)	11.83 (s)	0.0			

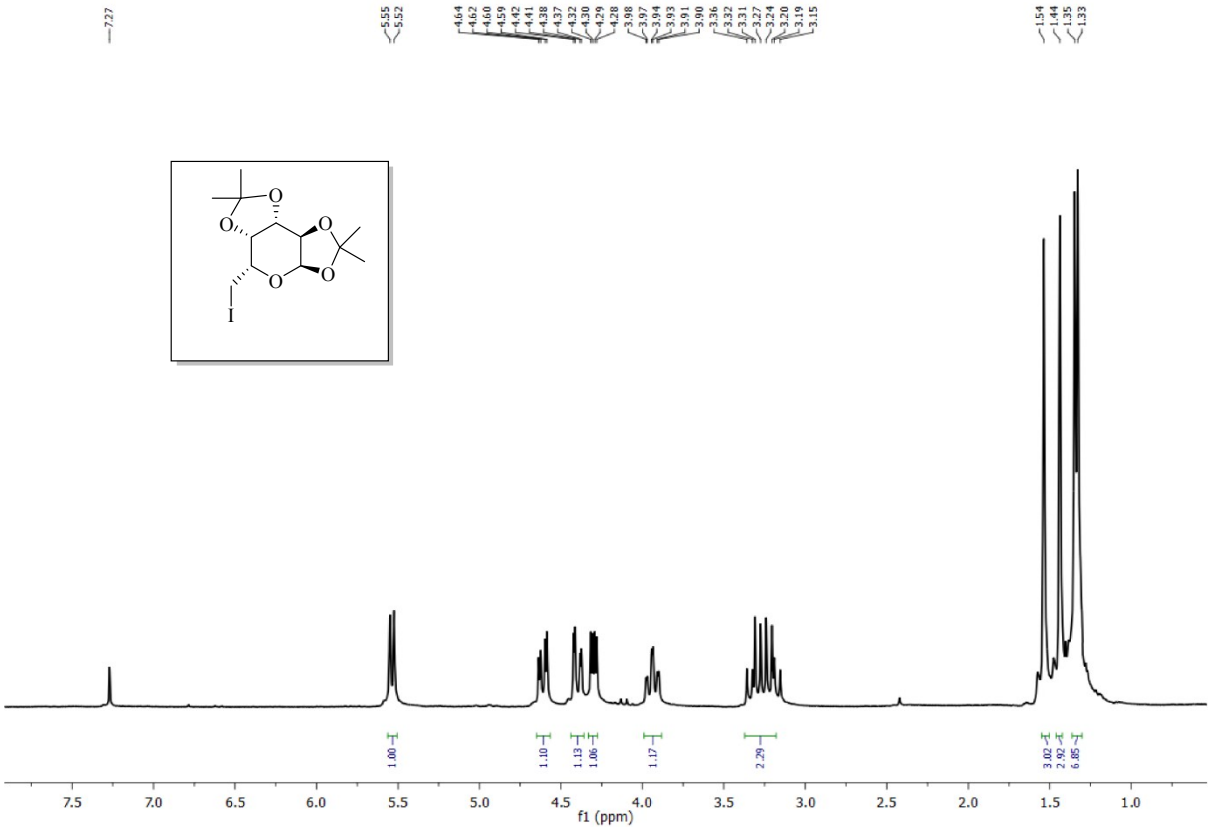
NMR comparison table of natural and synthetic L-783277 (in CD_2Cl_2):



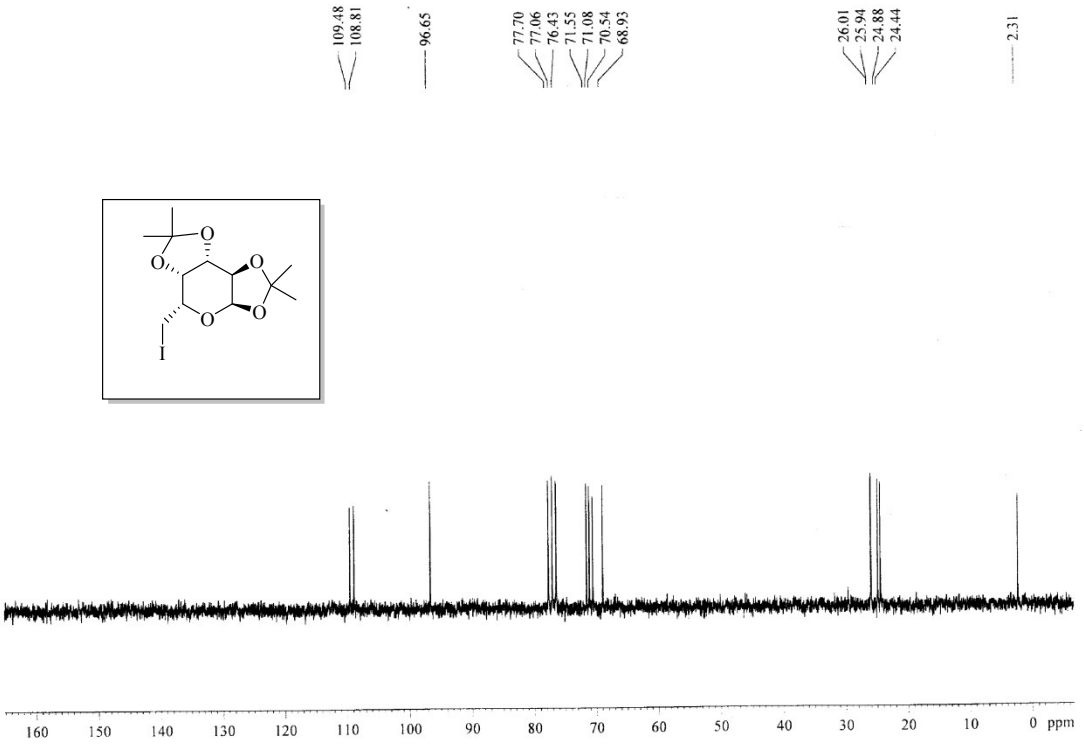
L-783277

Position	Reported ^{1}H δ (ppm); J (Hz)	Observed ^{1}H δ (ppm); J (Hz)	Δδ (ppm)	Reported ^{13}C δ (ppm)	Observed ^{13}C δ (ppm)	Δδ (ppm)
1				172.2	172.2	0.0
3	5.4 (m)	5.4 (m)	0.0	74.0	74.0	0.0
4	2.54 (ddt, 2.8, 17.2, 2.8), 3.32 (dt, 17.6, 11.2)	2.53 (m), 3.32 (dt, 17.3, 11.3)	0.02, 0.00	37.6	37.5	0.1
5	6.24 (dt, 2.4, 11.6)	6.24 (td, 2.5, 11.2)	0.00	146.7	146.6	0.1
6	6.37 (dd, 3.2, 11.6)	6.37 (dd, 3.1, 11.5)	0.00	126.7	126.6	0.1
7				200.3	200.3	0.0
8	4.6 (d, 2.4)	4.58 (d, 3.1)	0.02	81.5	81.5	0.0
9	3.78 (m)	3.79 (m)	0.01	73.6	73.5	0.1
10	1.1 (m), 1.48 (m)	1.1 (m), 1.46 (m)	0.0, 0.02	33.5	33.4	0.1
11	1.48 (m), 1.69 (m)	1.48 (m), 1.69 (m)	0.00, 0.00	29.4	29.4	0.0
12	2.4 (m), 2.94 (ddd, 3.2,11.2,14.8)	2.4 (m), 2,95 (ddd, 3.7,11.8, 15.3)	0.0, 0.01	37.0	37.0	0.0
12a				148.0	148.0	0.0
13	6.28 (d, 2.8)	6.28 (d, 2.5)	0.00	109.7	109.7	0.0
14				164.8	164.8	0.0
15	6.31 (d, 2.8)	6.31 (d, 2.5)	0.00	99.4	99.4	0.0
16				166.6	166.7	0.1
16a				105.0	105.0	0.0
17	1.40 (d, 6.4)	1.41 (d, 5.9)	0.01	21.2	21.1	0.1
18	3.78 (s)	3.79 (s)	0.01	55.9	55.8	0.1
C16-OH	12.4 (s)	12.22 (s)	0.18			

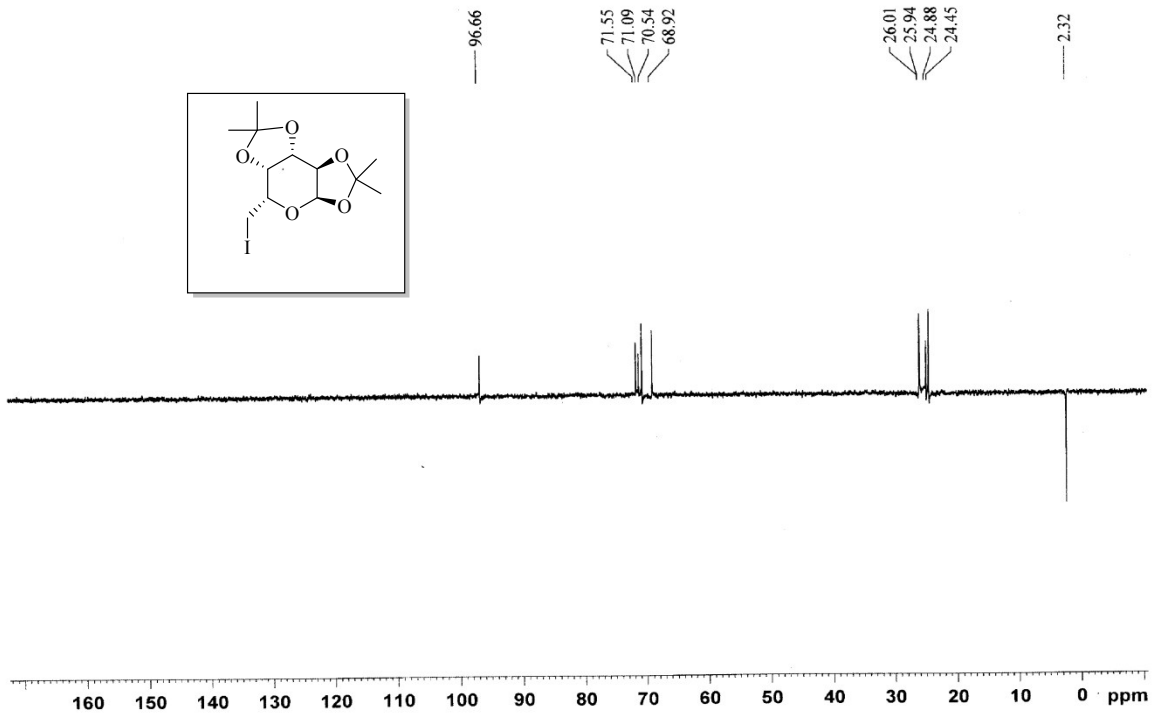
^{1}H NMR (200MHz) of compound 16 in $CDCl_3$



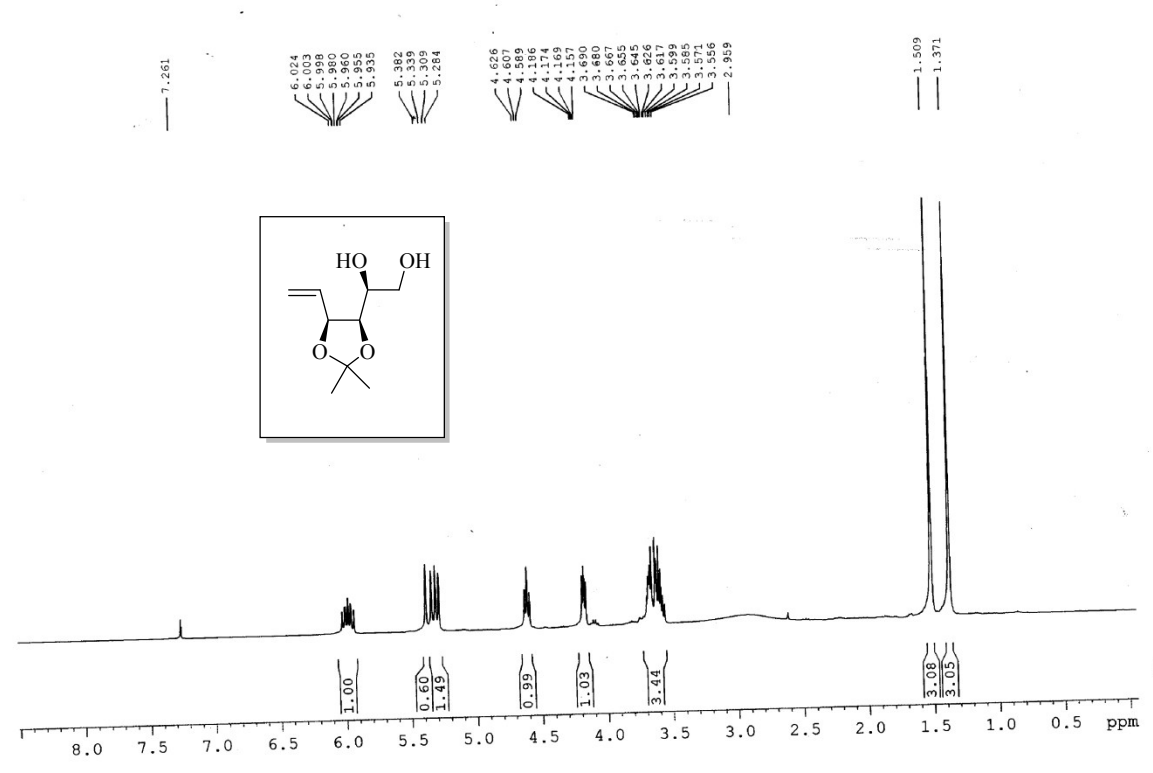
^{13}C NMR (50 MHz) of compound 16 in $CDCl_3$



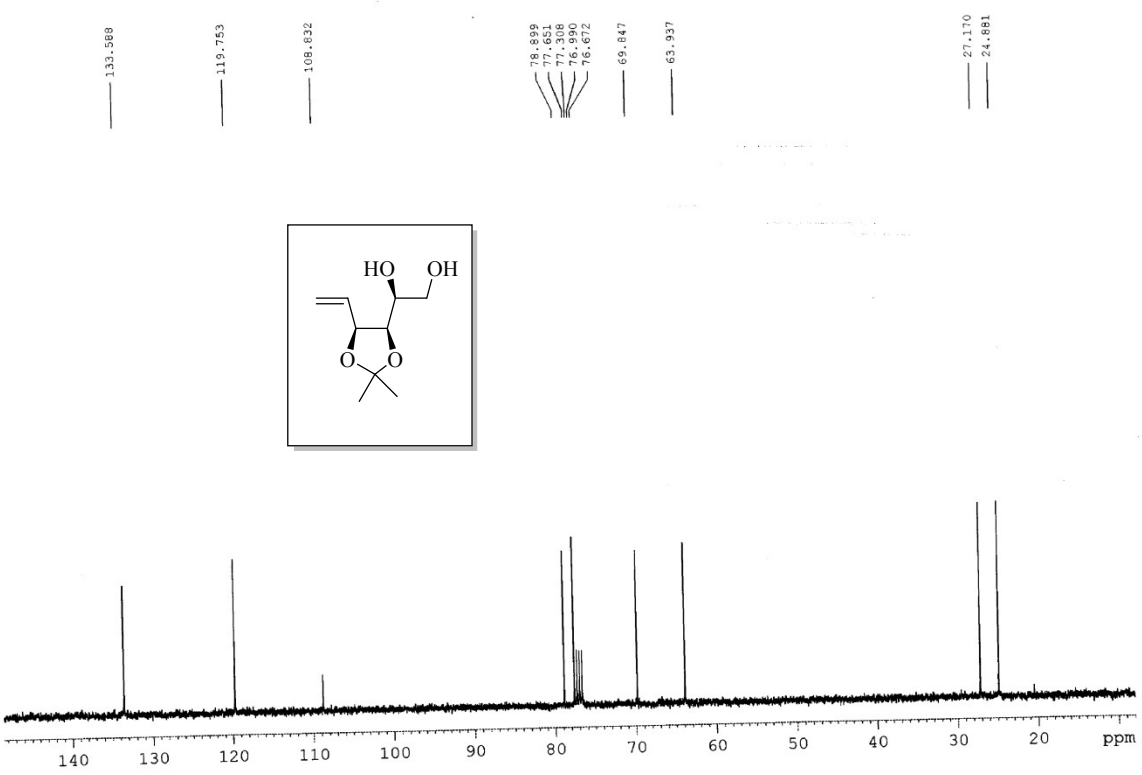
DEPT (50 MHz) NMR of compound 16 in $CDCl_3$



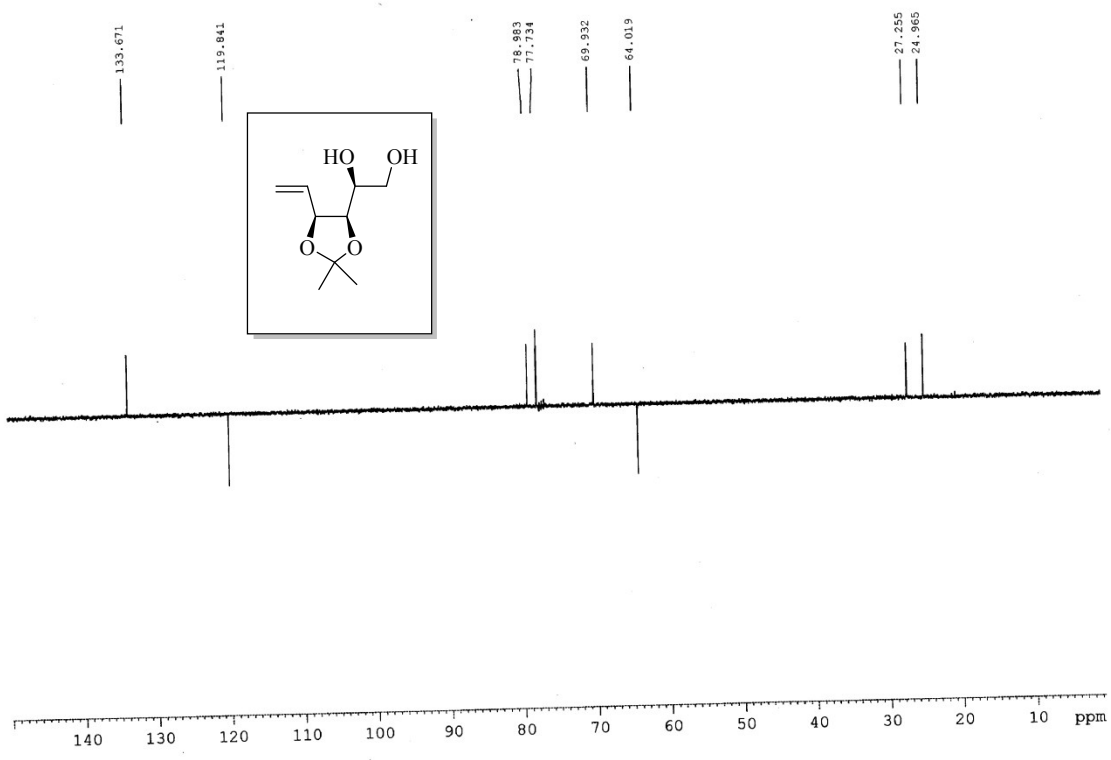
^{1}H NMR (200MHz) of compound 17 in $CDCl_3$



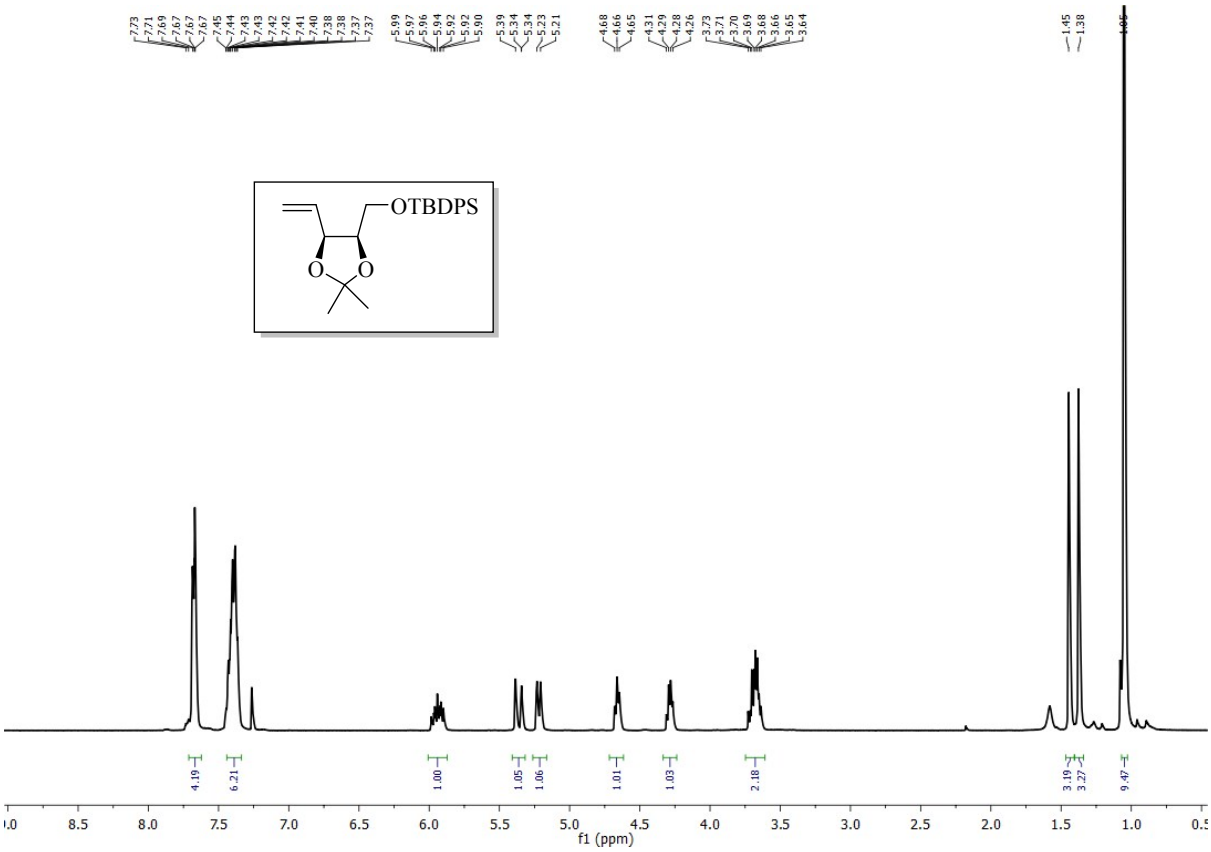
^{13}C NMR (50 MHz) of compound 17 in $CDCl_3$



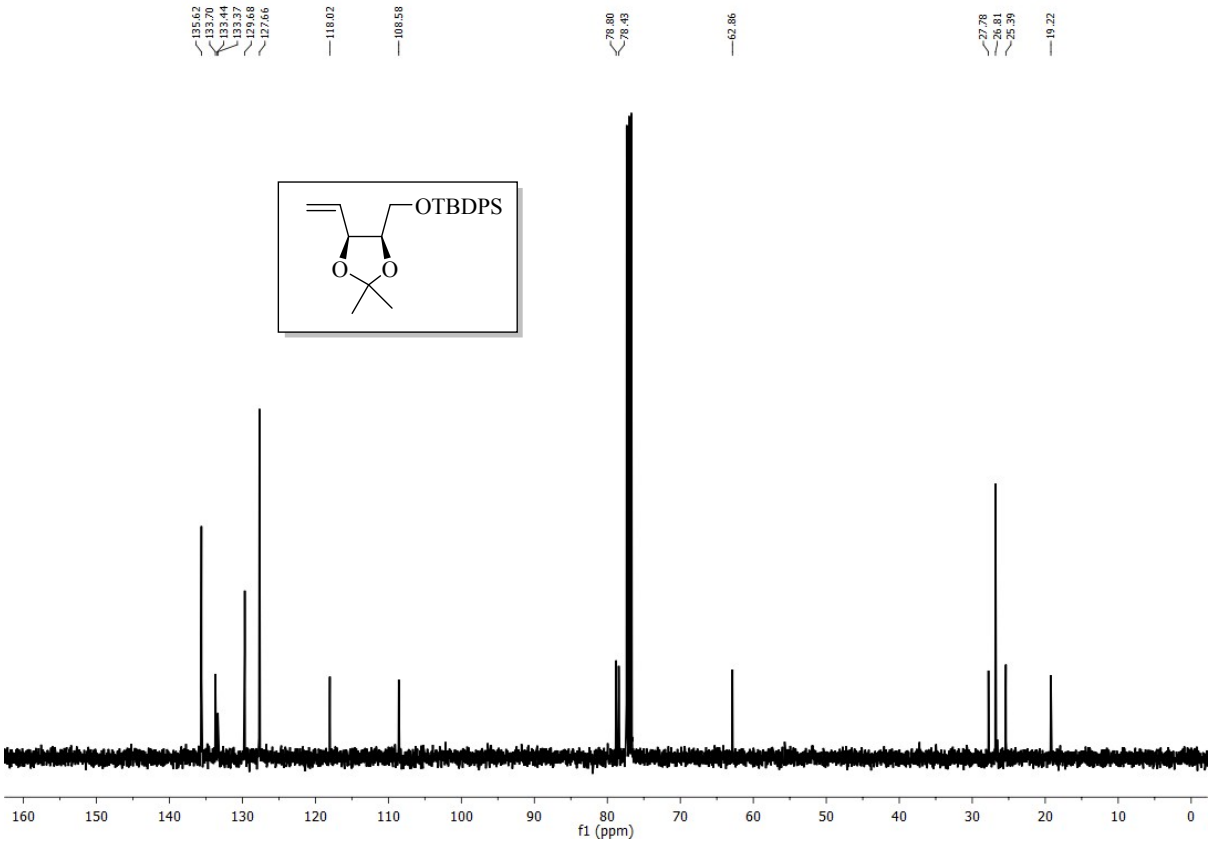
DEPT (50 MHz) NMR of compound 17 in $CDCl_3$



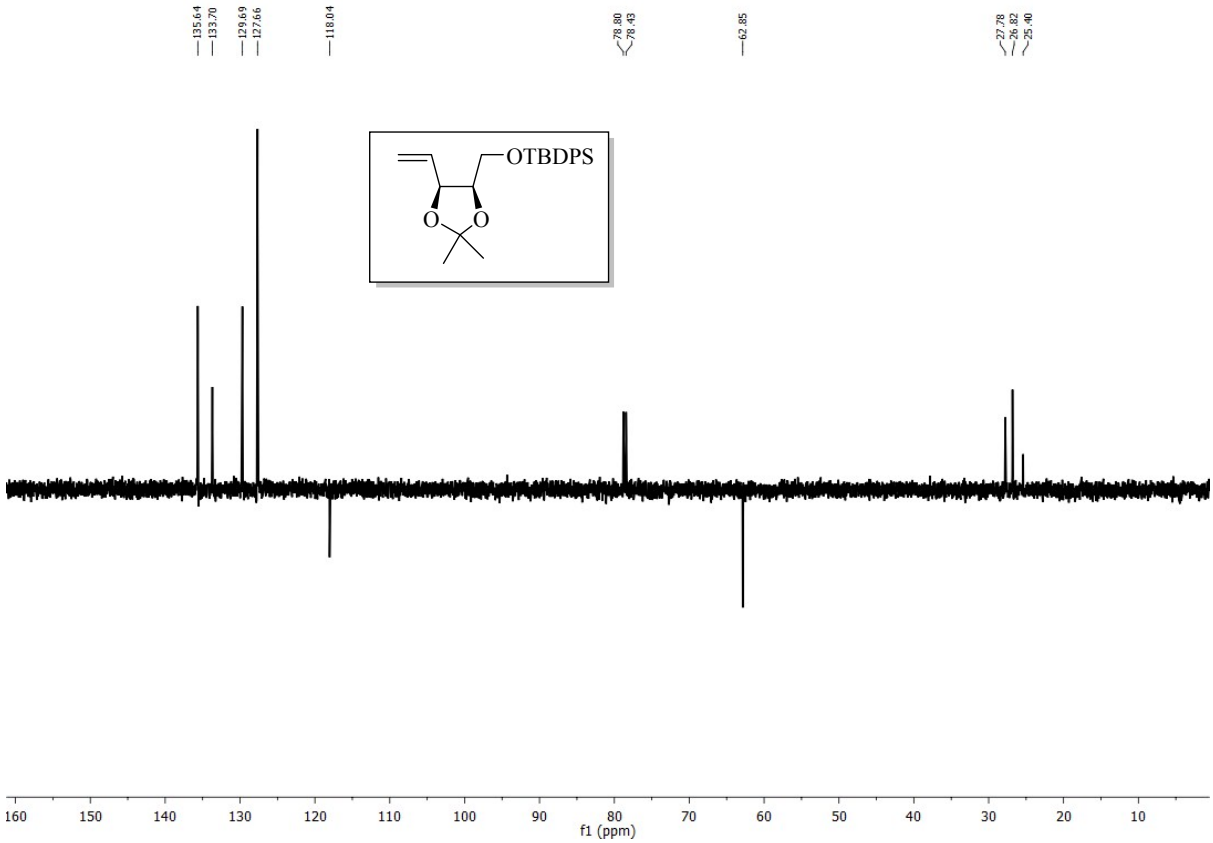
^{1}H NMR (400MHz) of compound **19** in $CDCl_3$



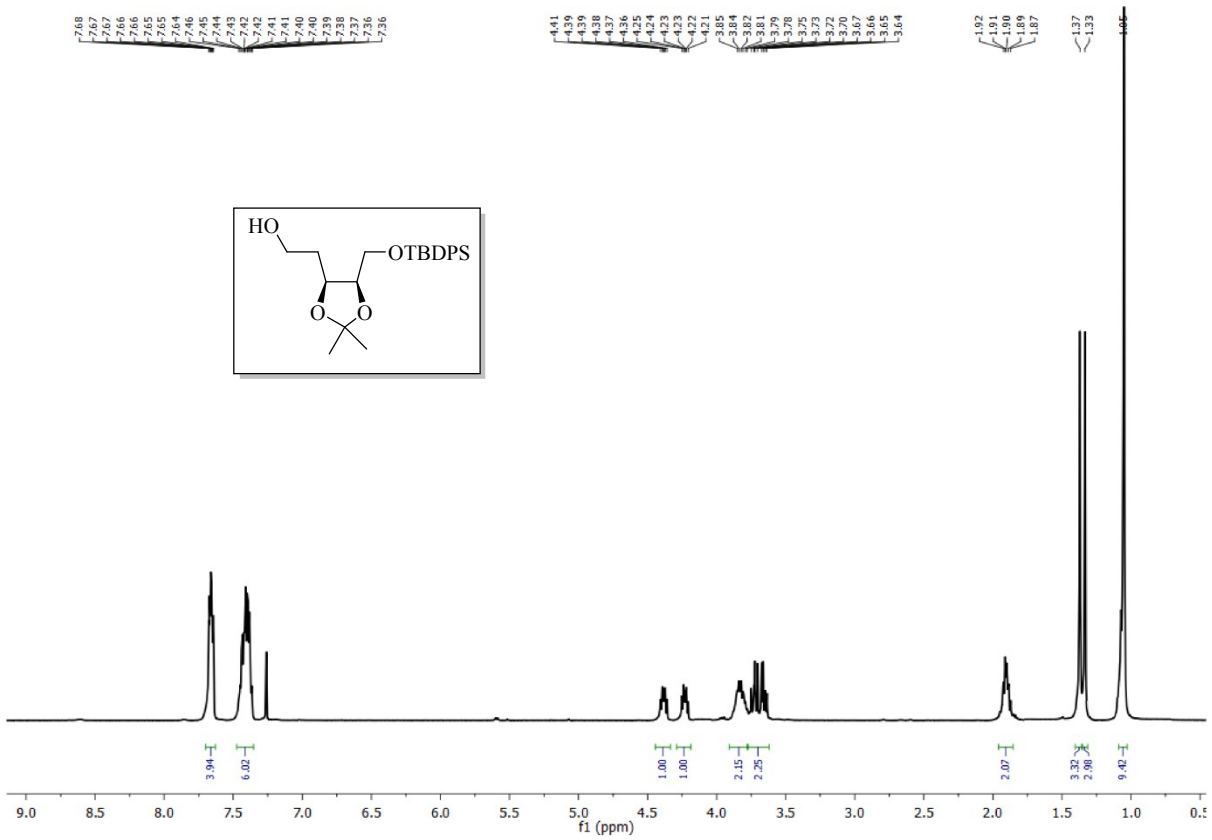
^{13}C NMR (100 MHz) of compound **19** in $CDCl_3$



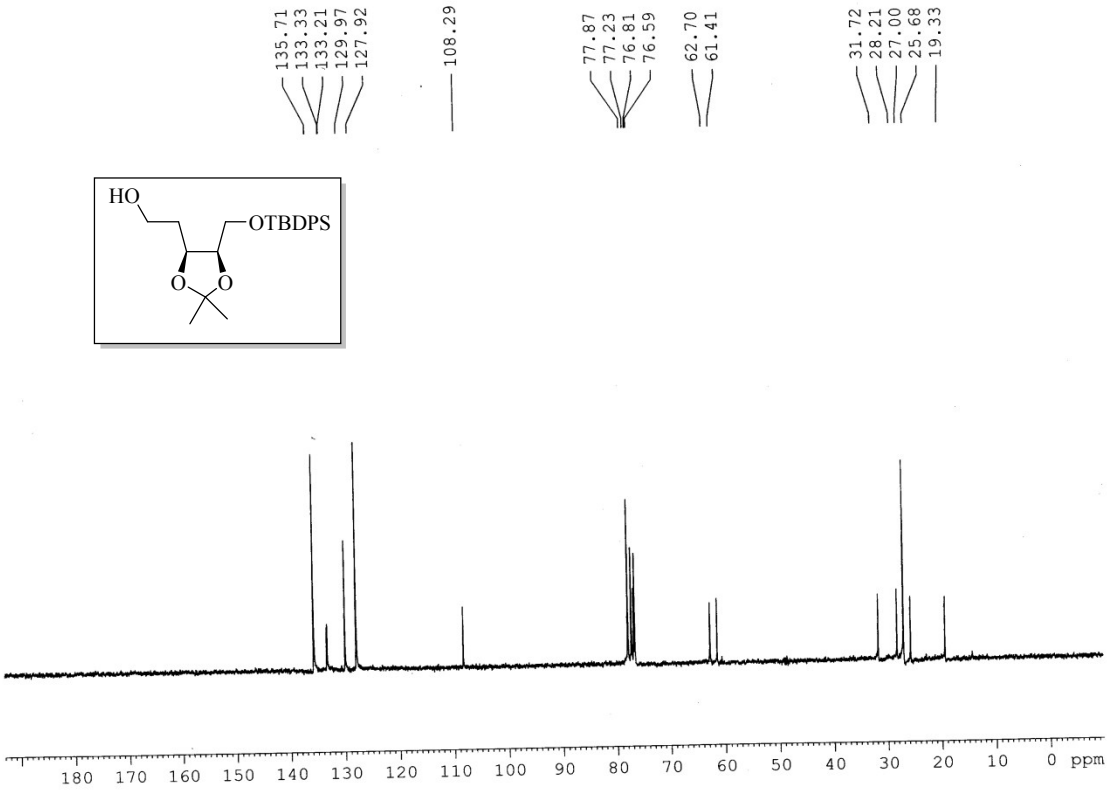
DEPT (100 MHz) NMR of compound 19 in $CDCl_3$



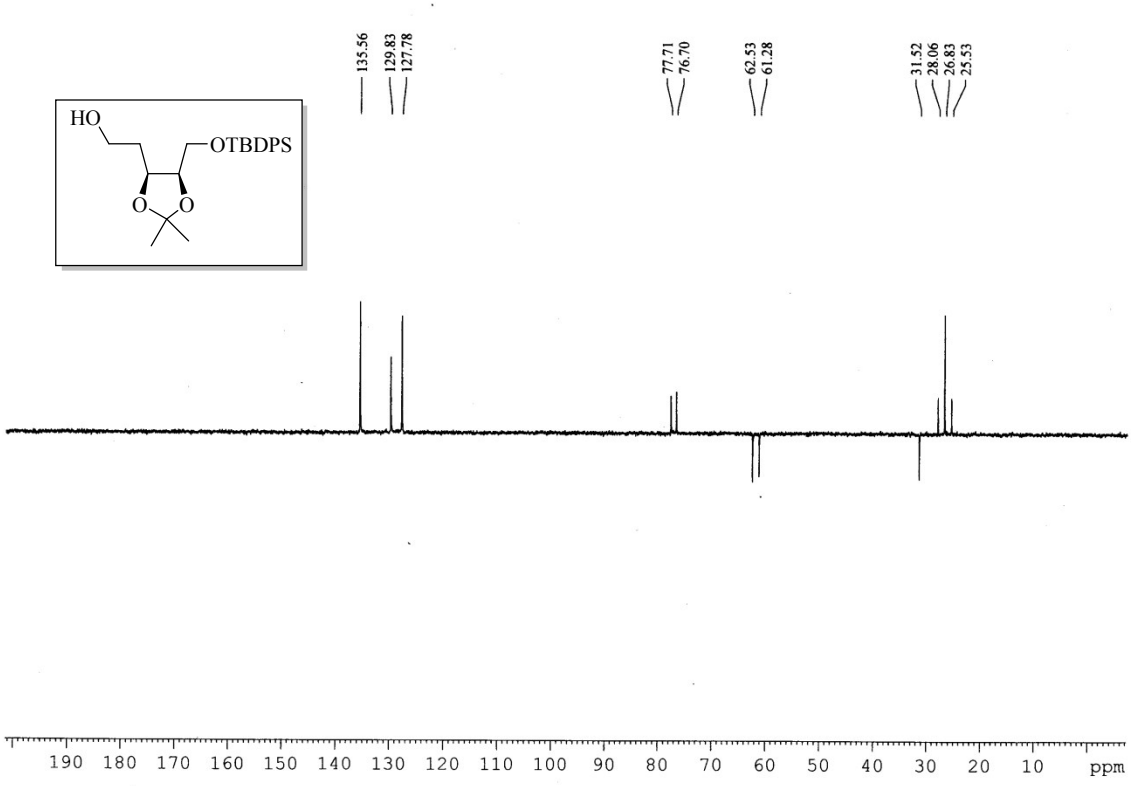
^{1}H NMR (400MHz) of compound 20 in $CDCl_3$



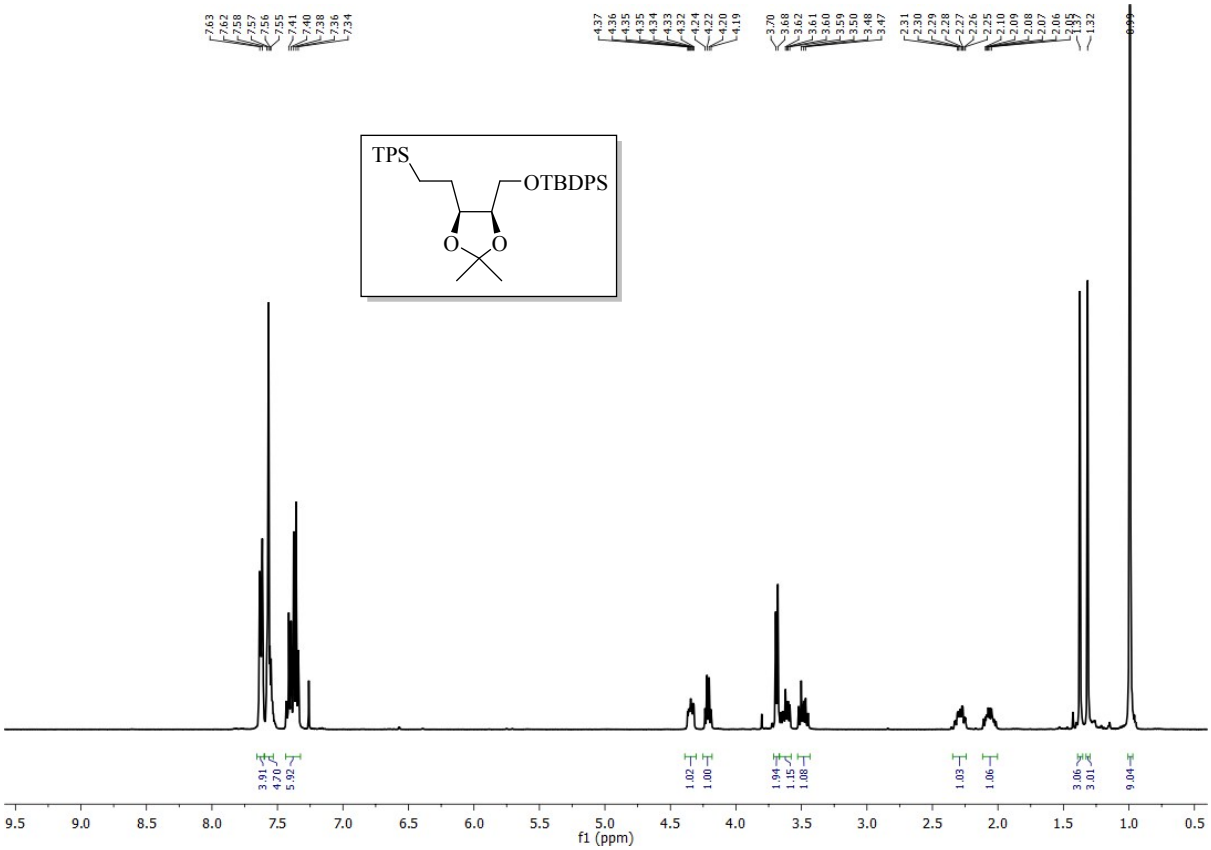
^{13}C NMR (50 MHz) of compound 20 in $CDCl_3$



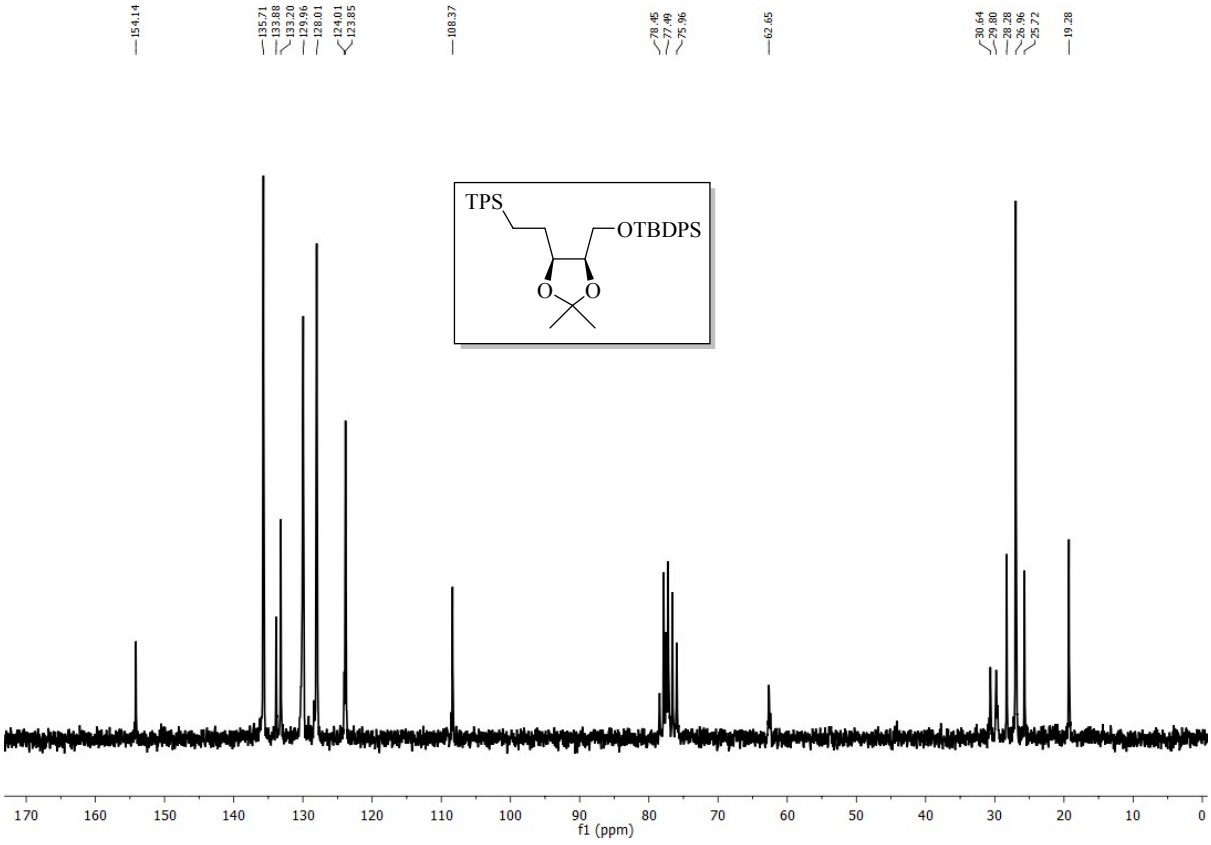
DEPT (50 MHz) NMR of compound 20 in $CDCl_3$



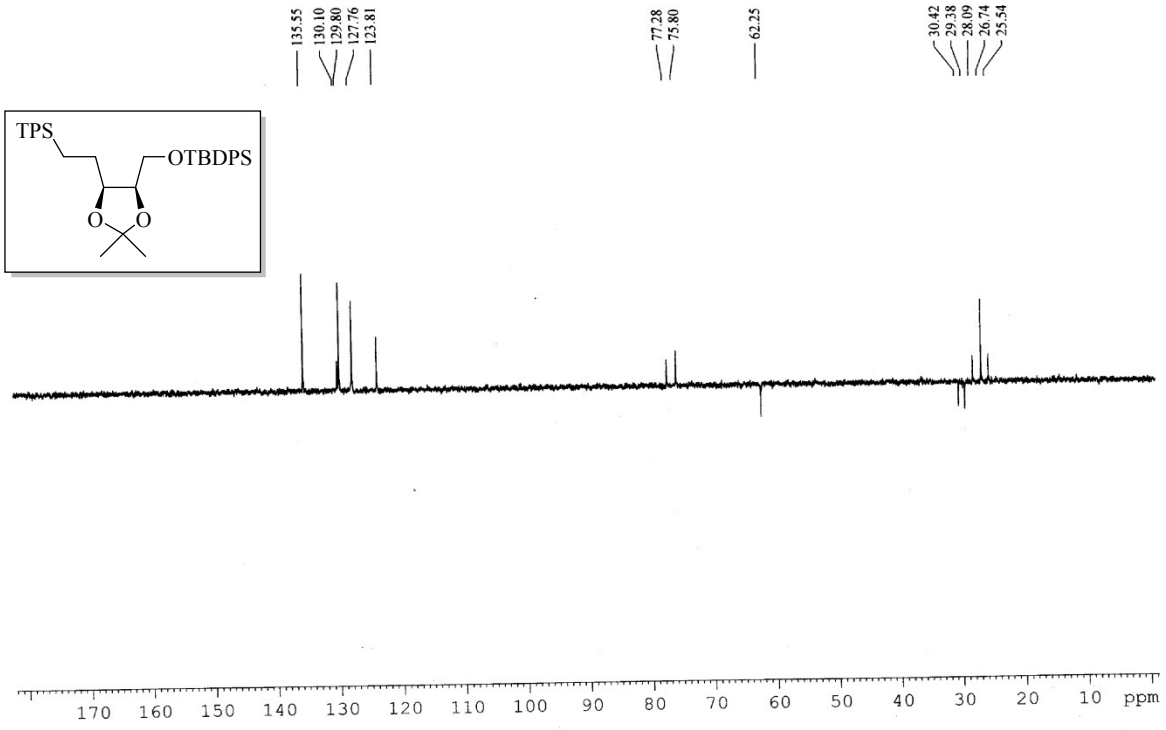
^{1}H NMR (400MHz) of compound 21 in $CDCl_3$



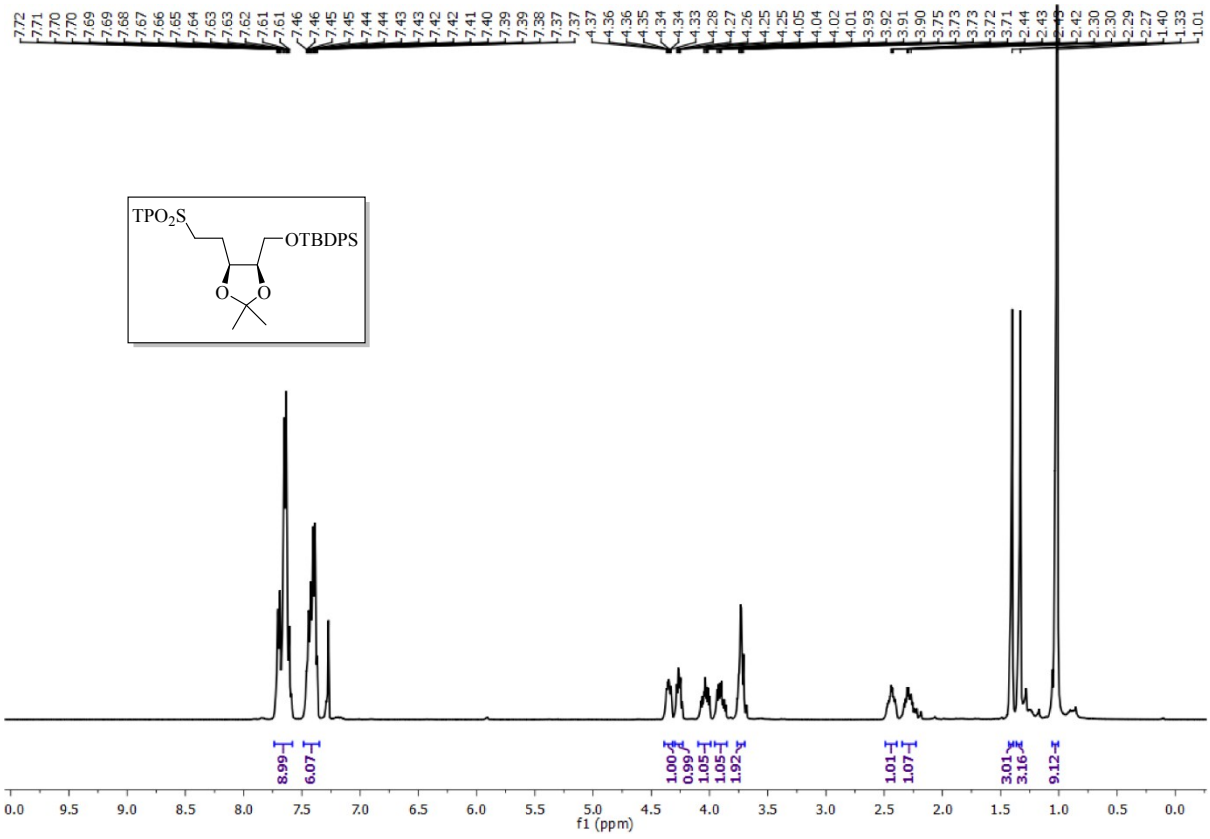
^{13}C NMR (50 MHz) of compound 21 in $CDCl_3$



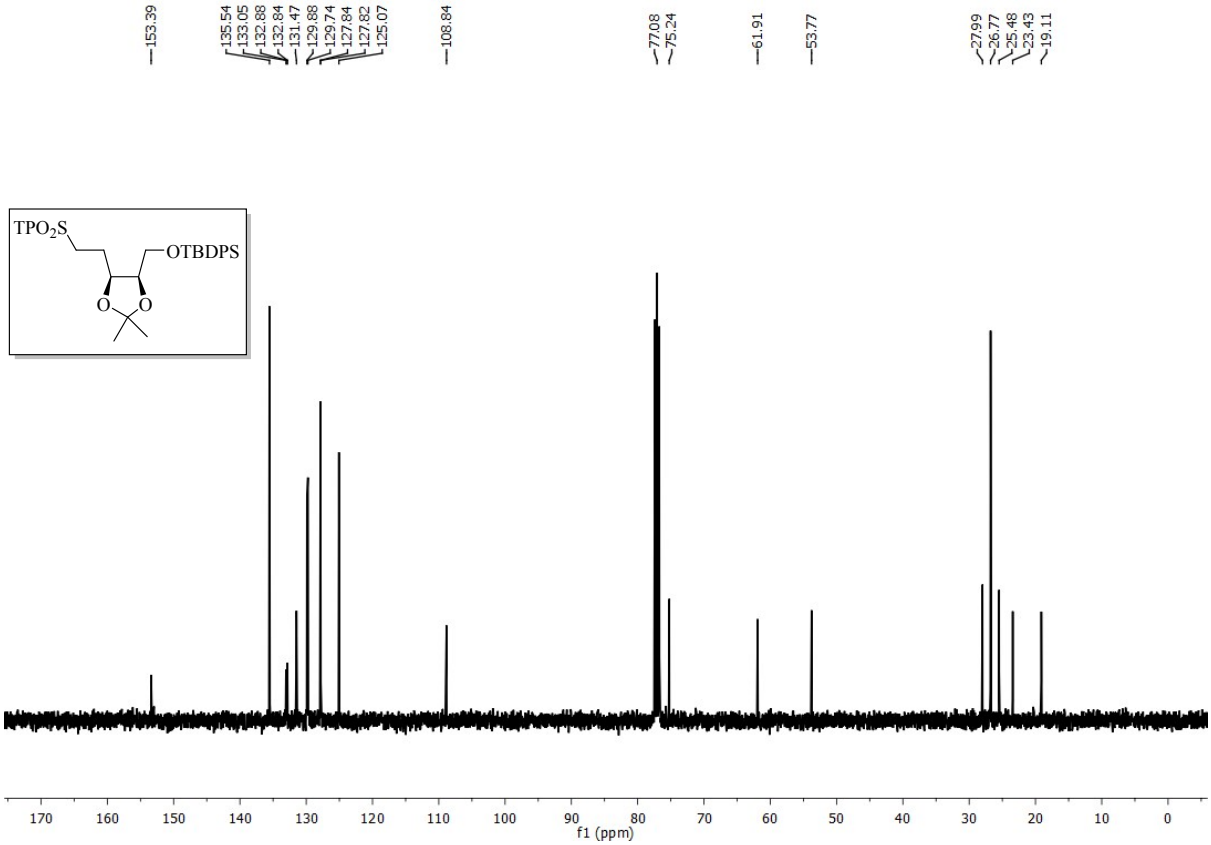
DEPT (50 MHz) NMR of compound 21 in $CDCl_3$



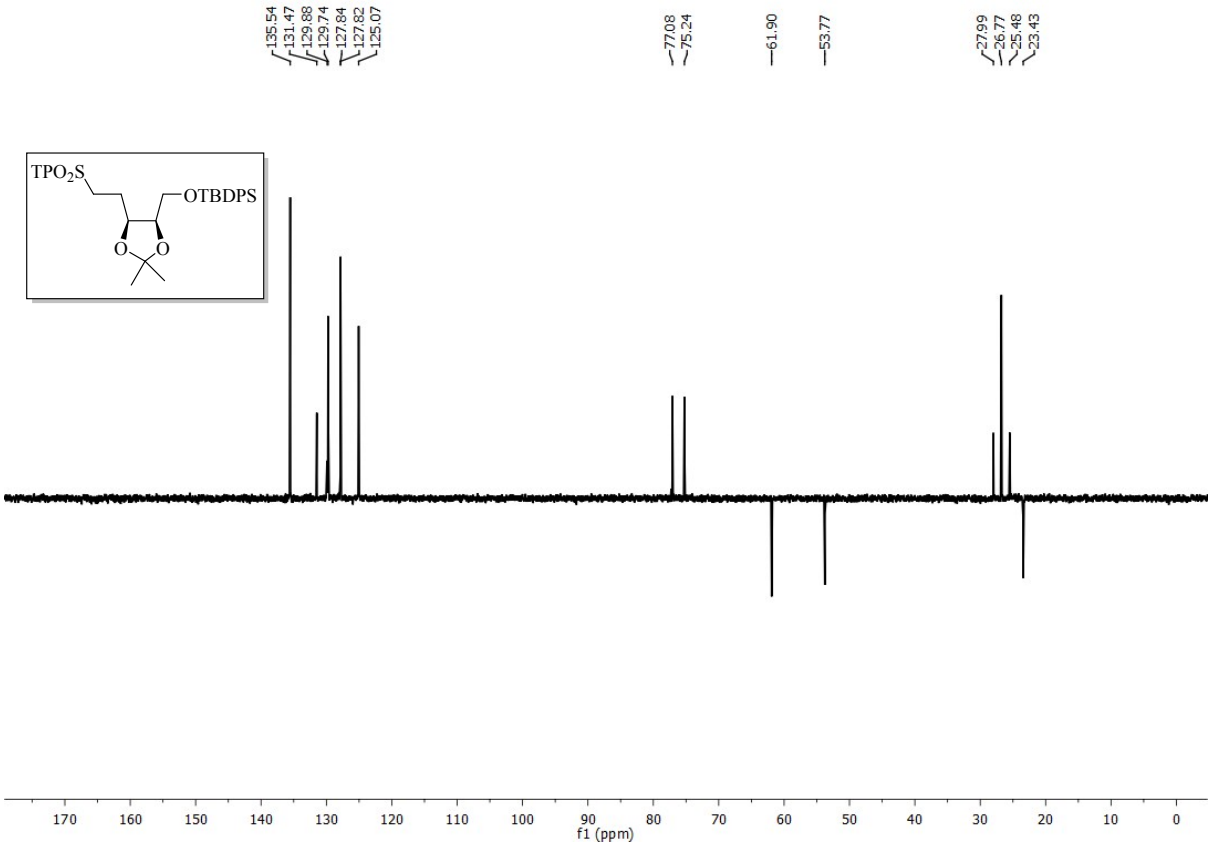
^{1}H NMR (400MHz) of compound 14 in $CDCl_3$



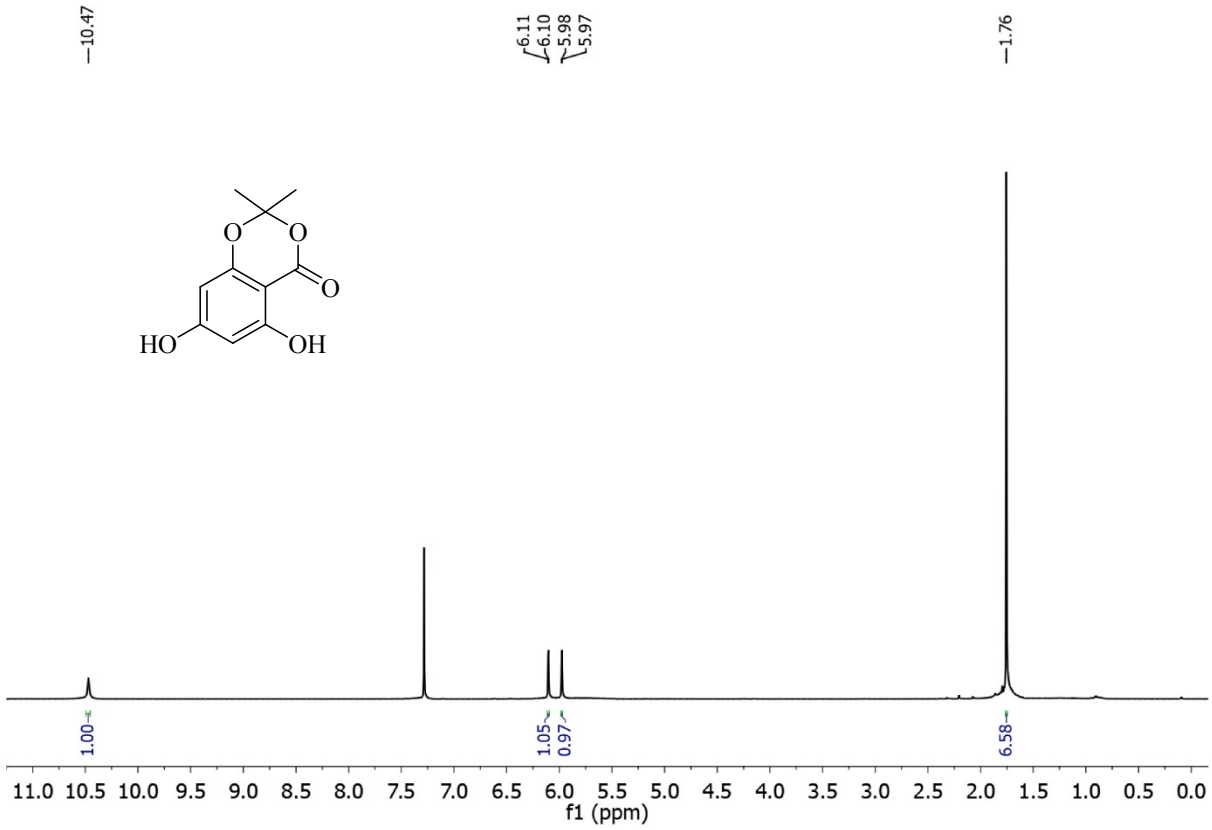
^{13}C NMR (100 MHz) of compound 14 in $CDCl_3$



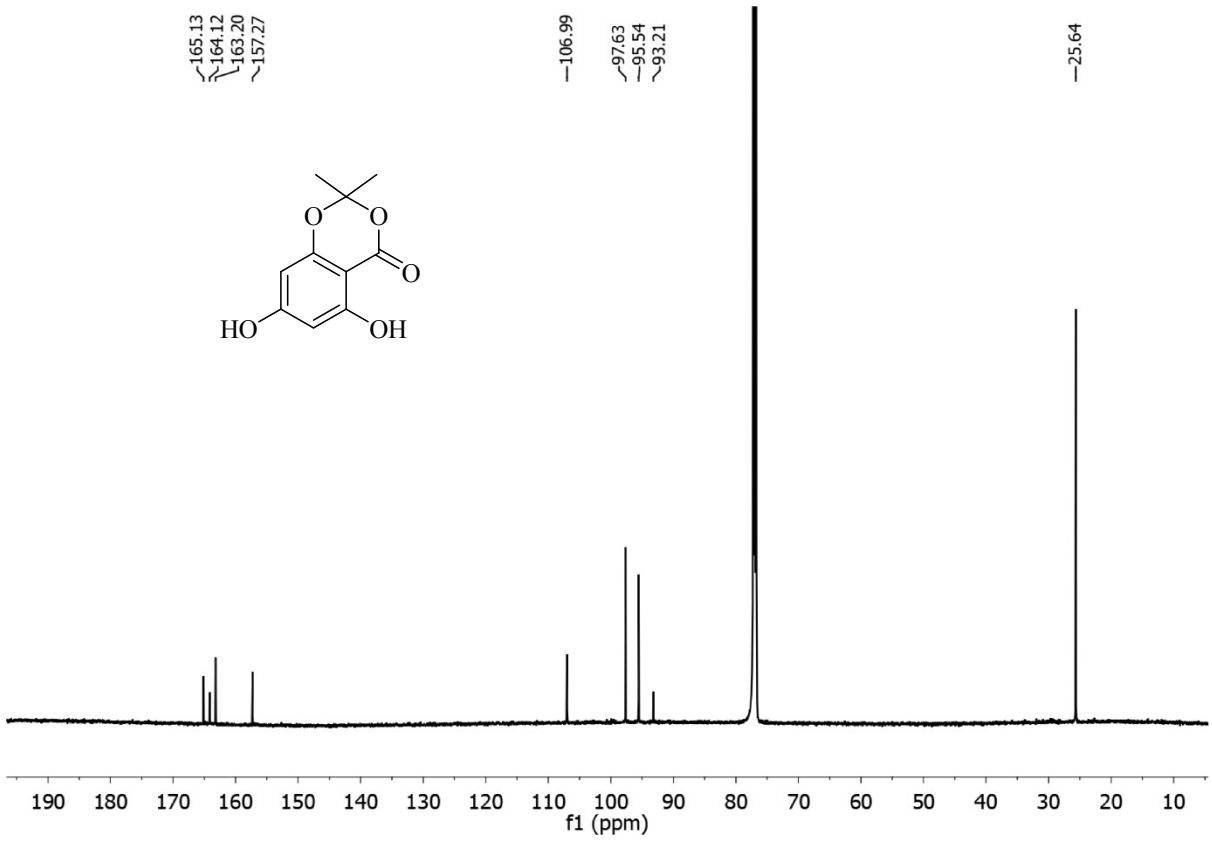
DEPT (100 MHz) NMR of compound 14 in $CDCl_3$



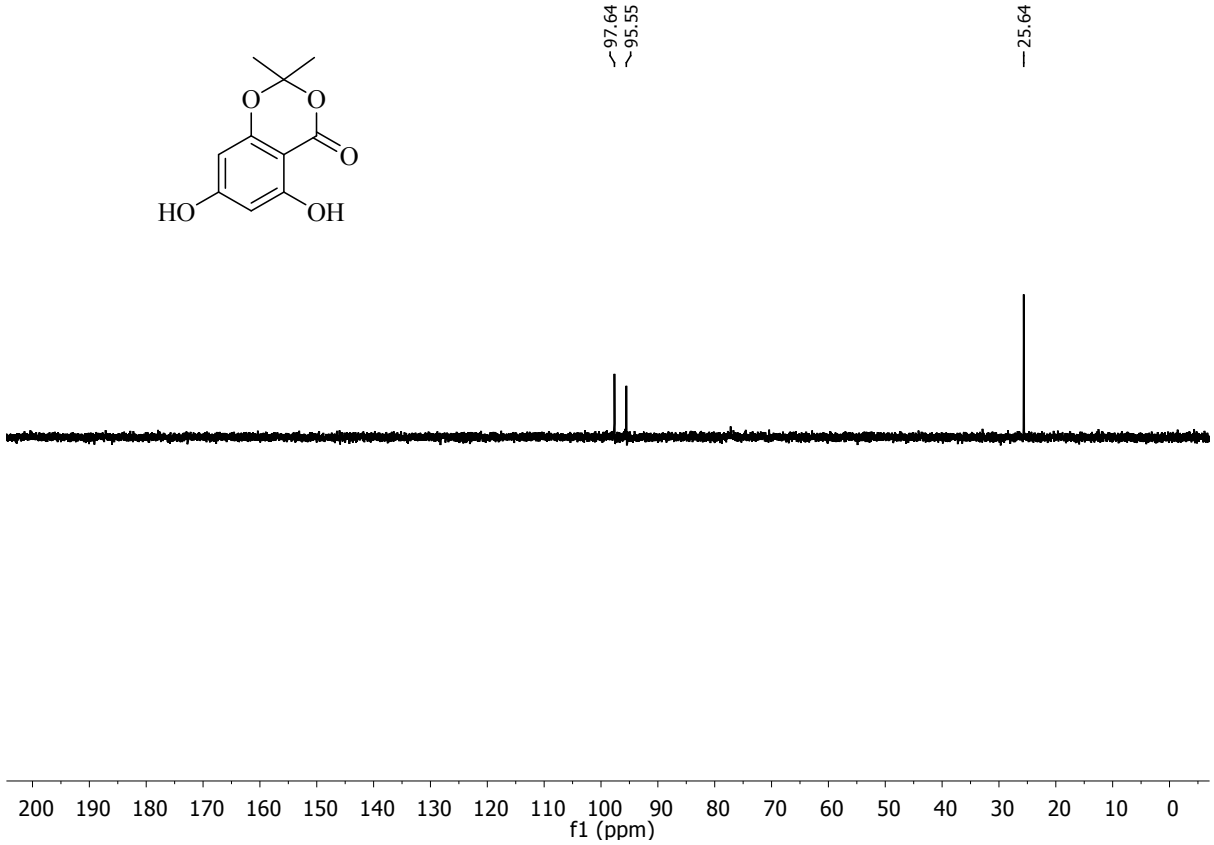
^{1}H NMR of compound 22 (600 MHz, $CDCl_3$)



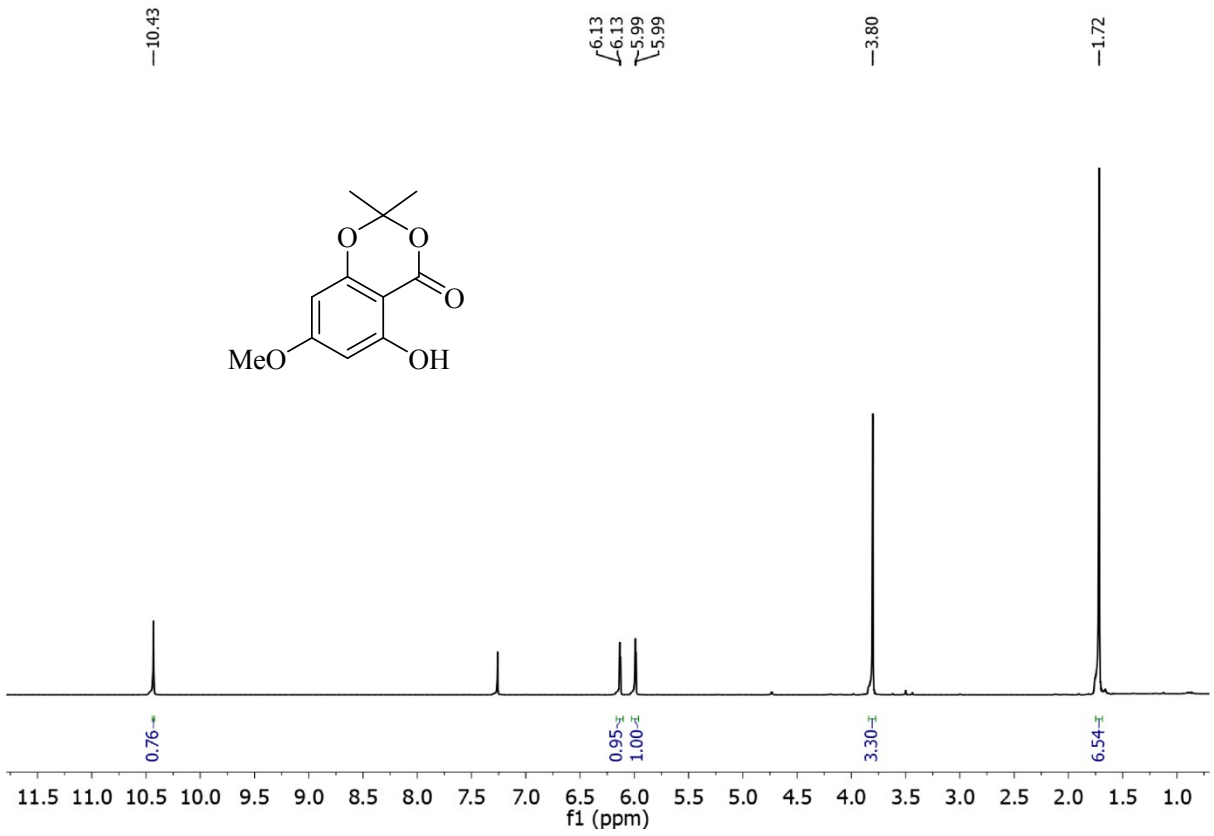
^{13}C NMR of compound 22 (150 MHz, $CDCl_3$)



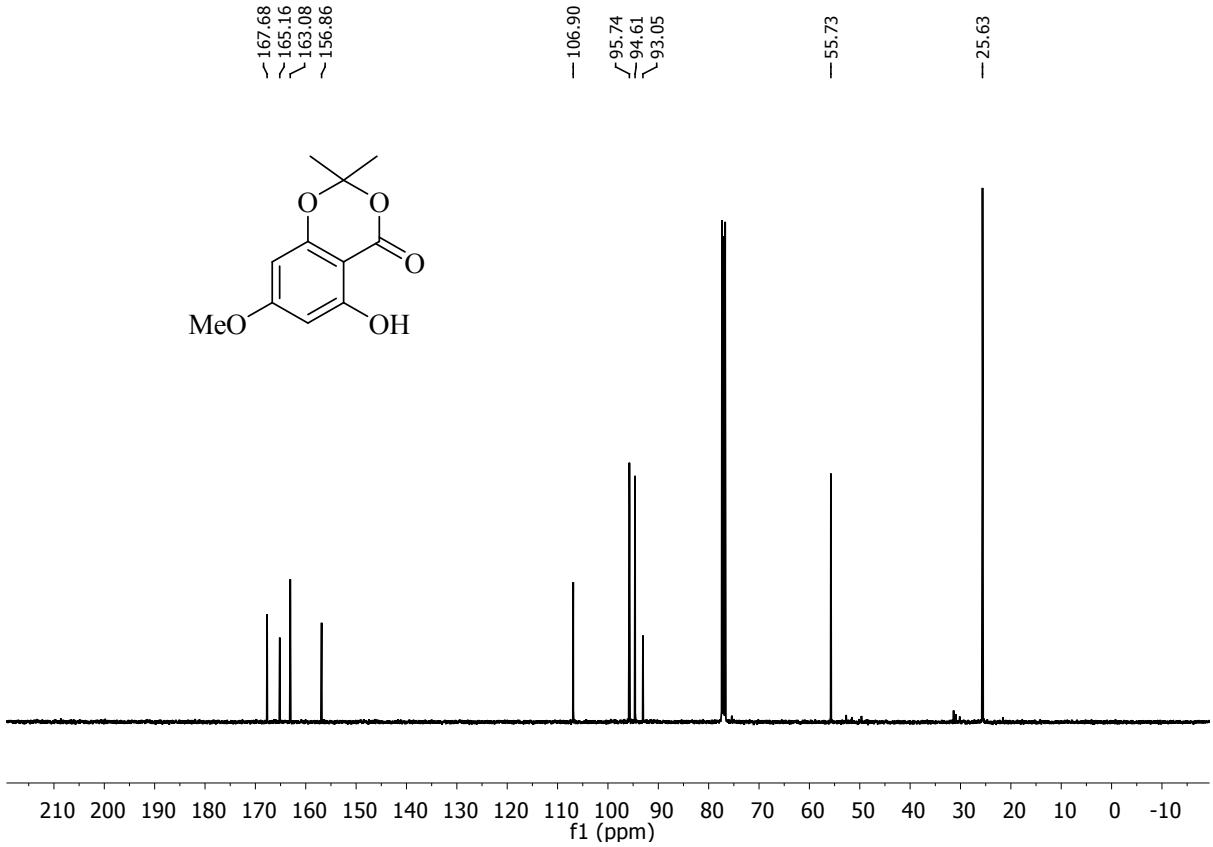
DEPT-135 of compound 22 (150 MHz, $CDCl_3$)



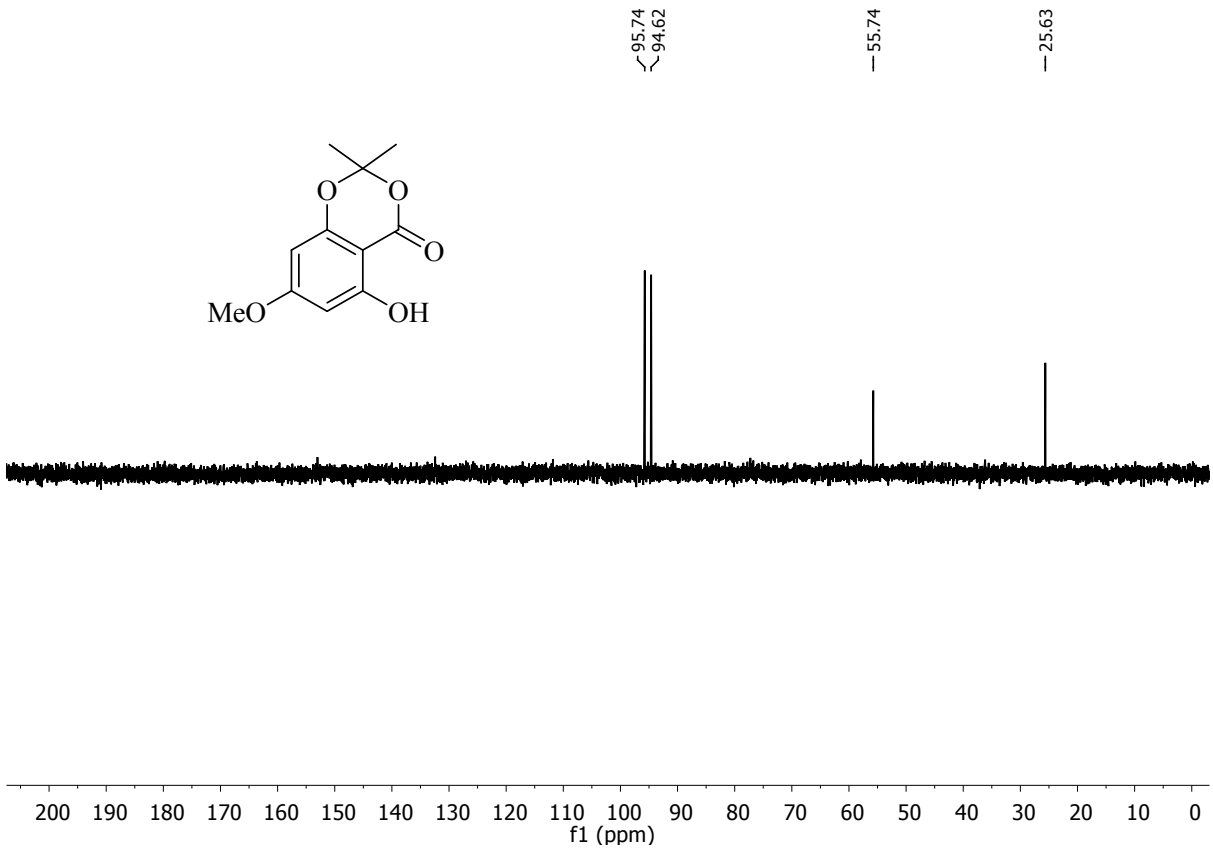
^{1}H NMR of compound 23 (400 MHz, $CDCl_3$)



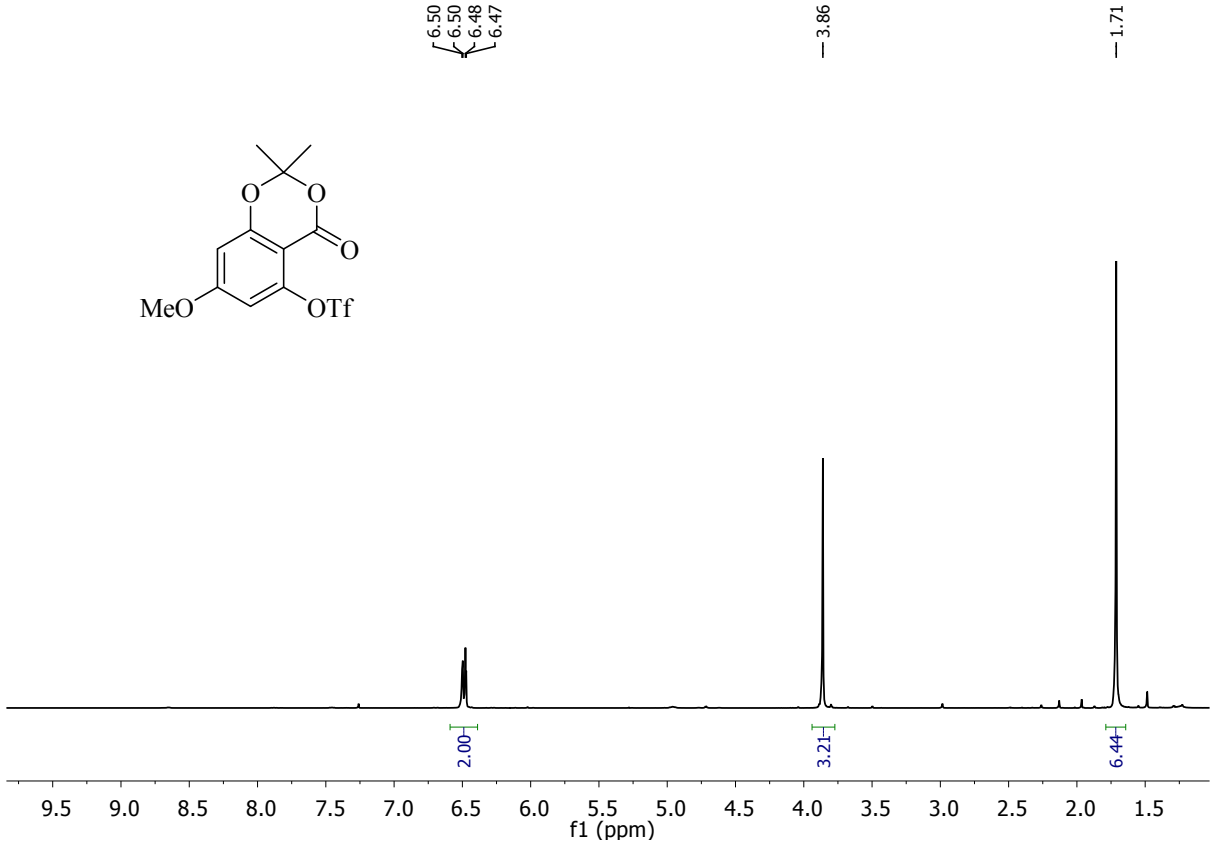
^{13}C NMR of compound 23 (100 MHz, $CDCl_3$)



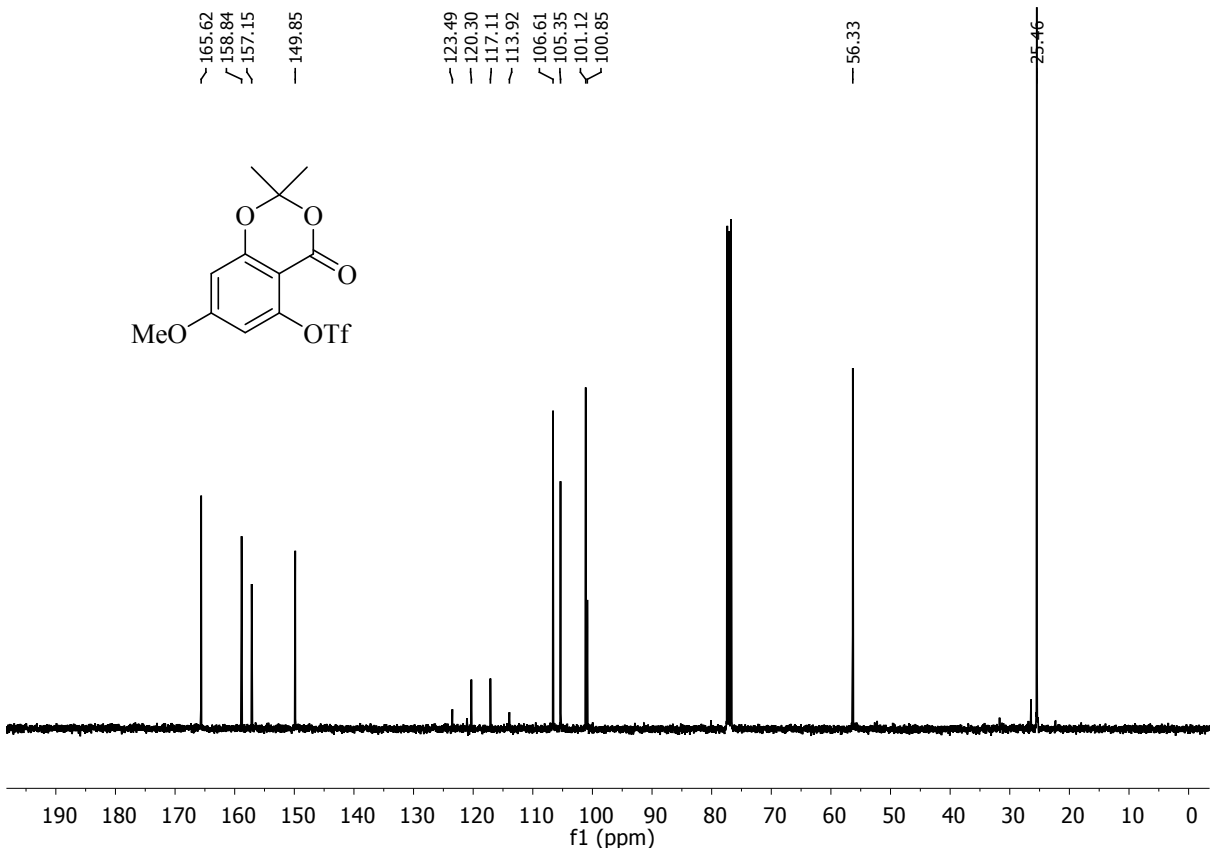
DEPT-135 of compound 23 (100 MHz, $CDCl_3$)



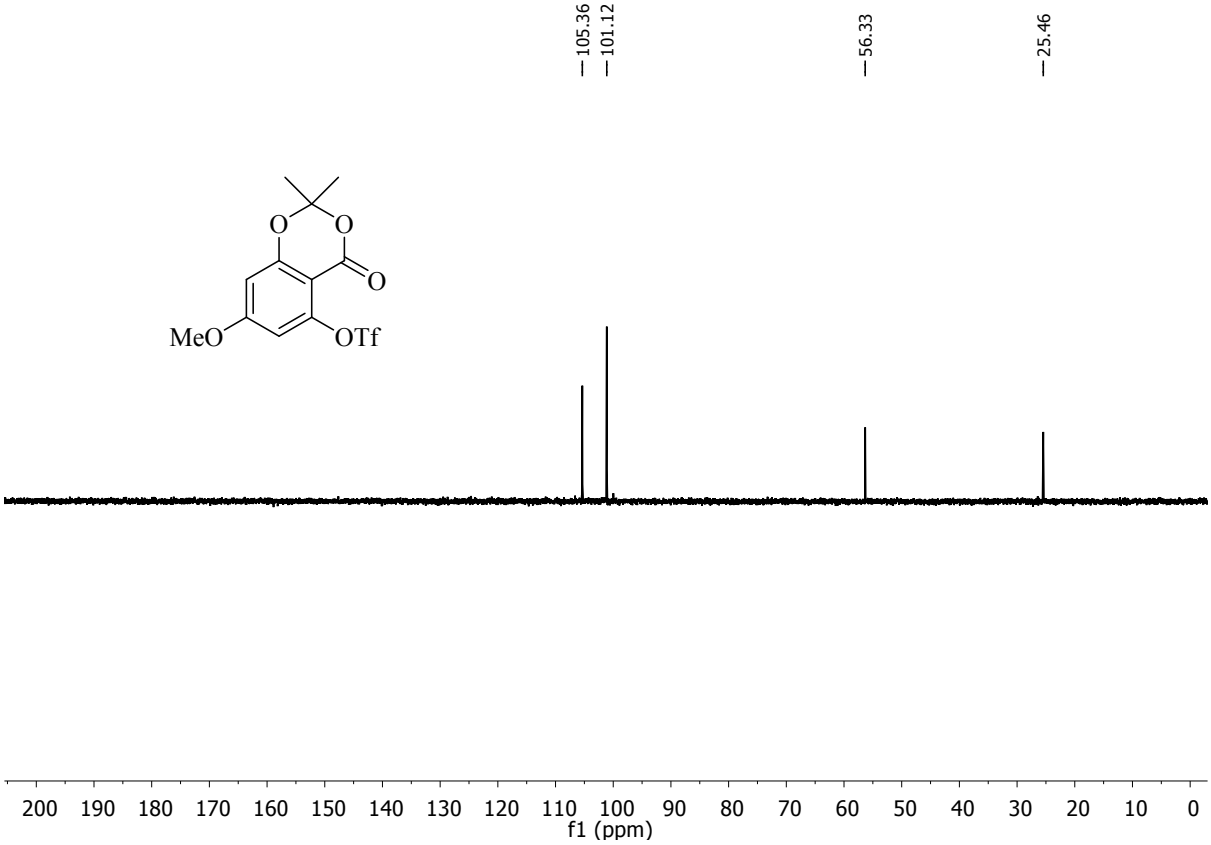
^{1}H NMR of compound 24 (400 MHz, $CDCl_3$)



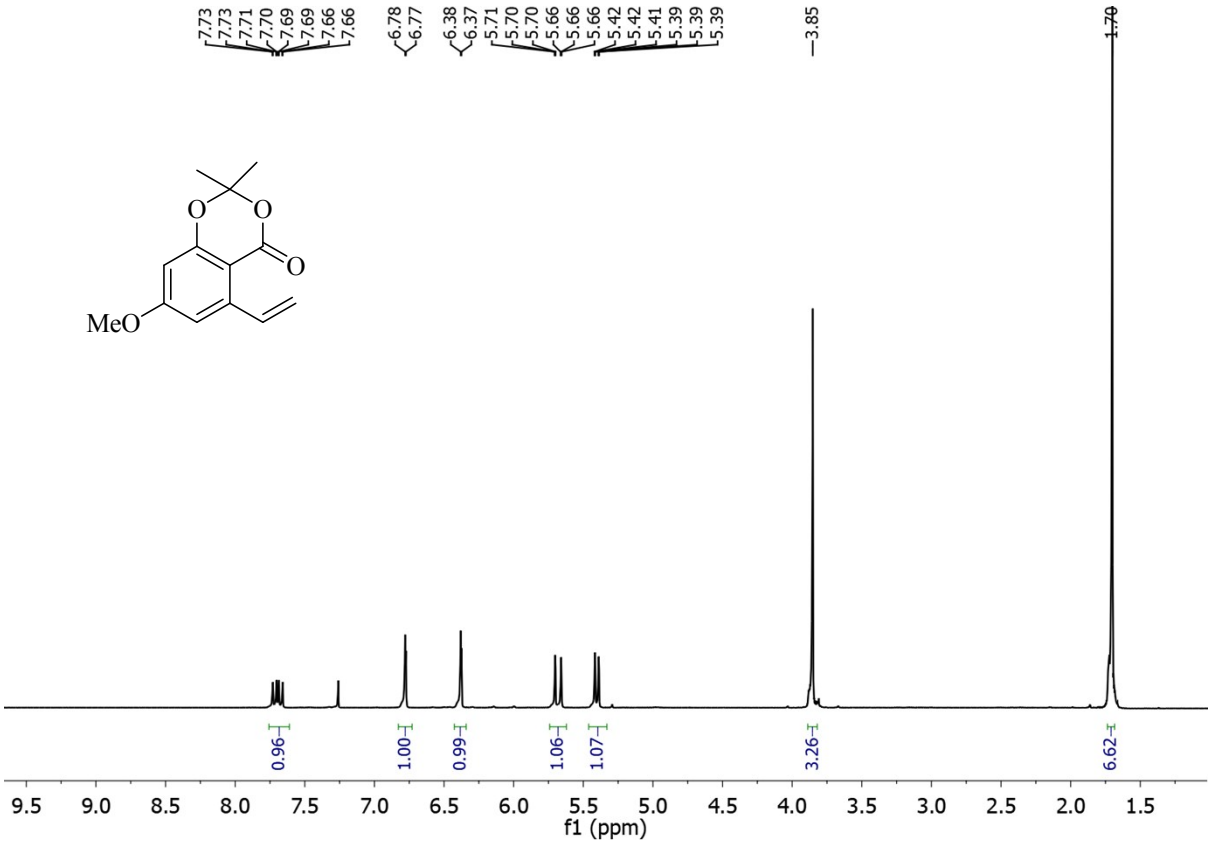
^{13}C NMR of compound 24 (100 MHz, $CDCl_3$)



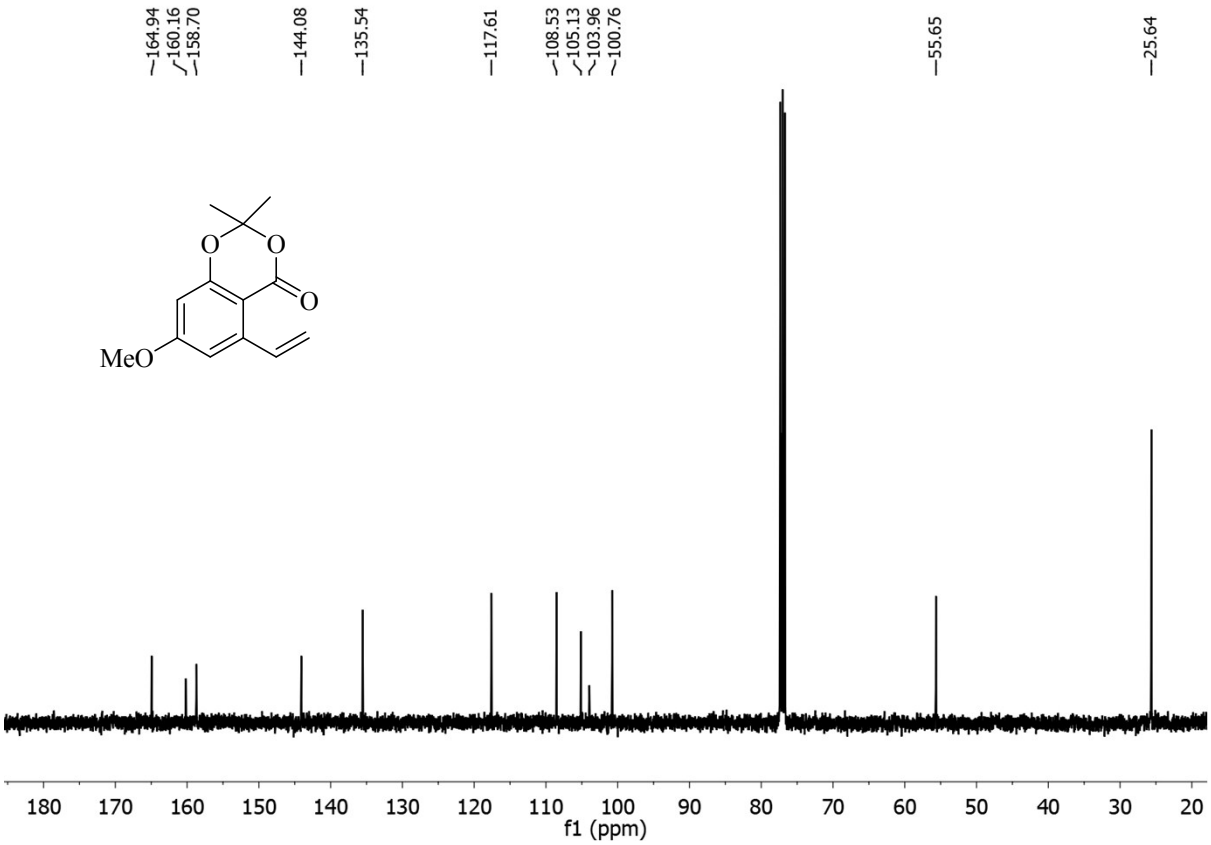
DEPT-135 of compound 24 (100 MHz, $CDCl_3$)



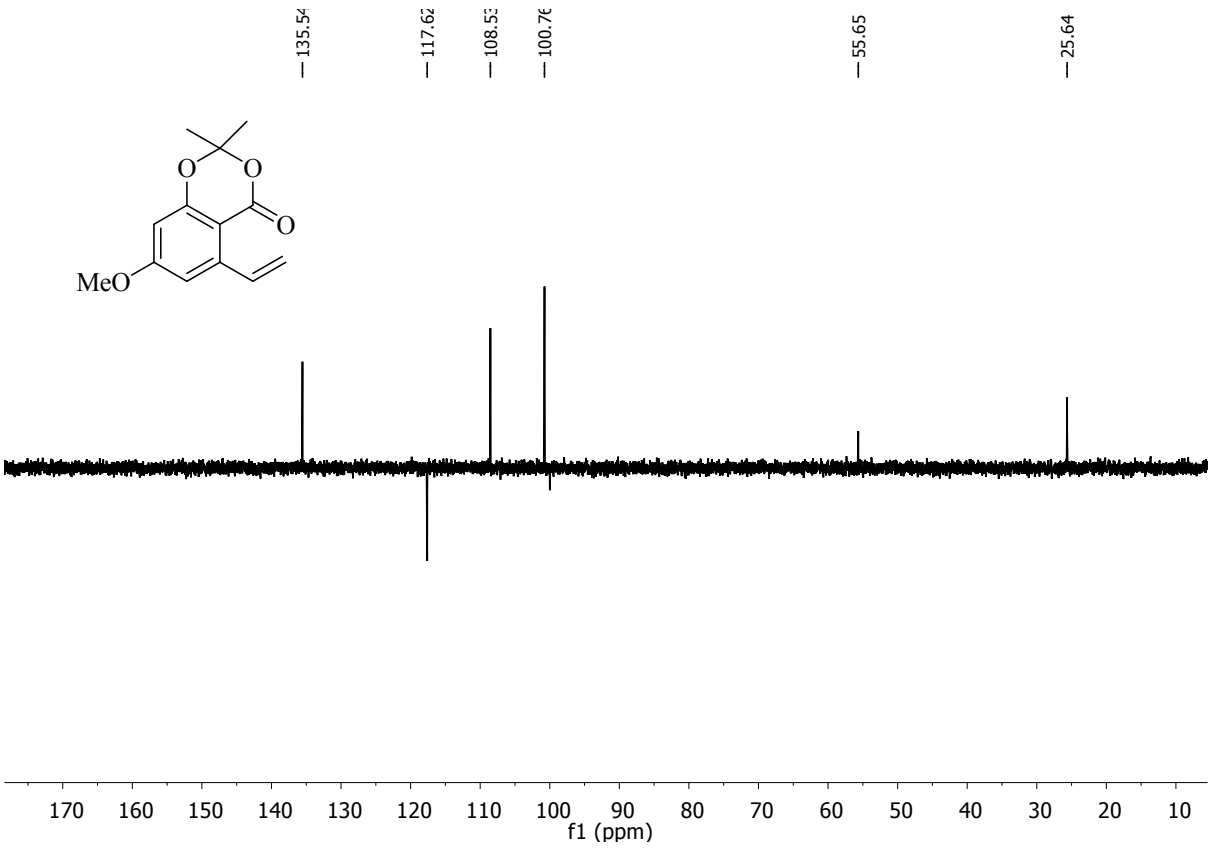
^{1}H NMR of compound 25 (400 MHz, $CDCl_3$)



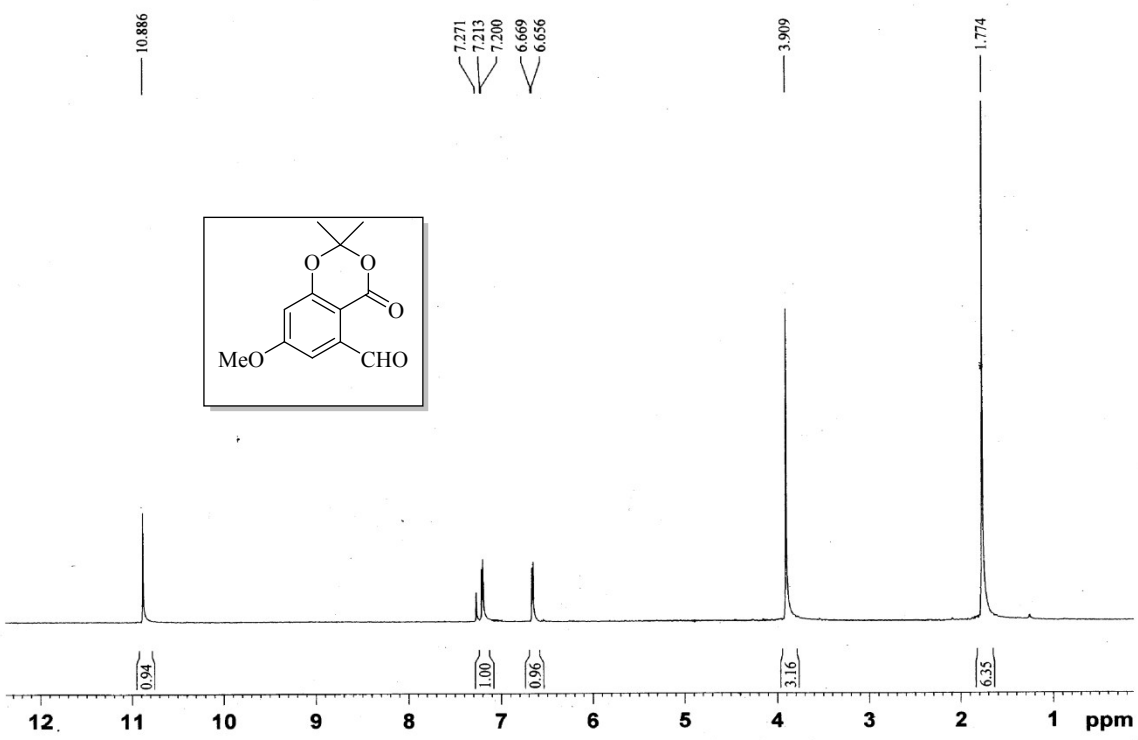
^{13}C NMR of compound 25 (100 MHz, $CDCl_3$)



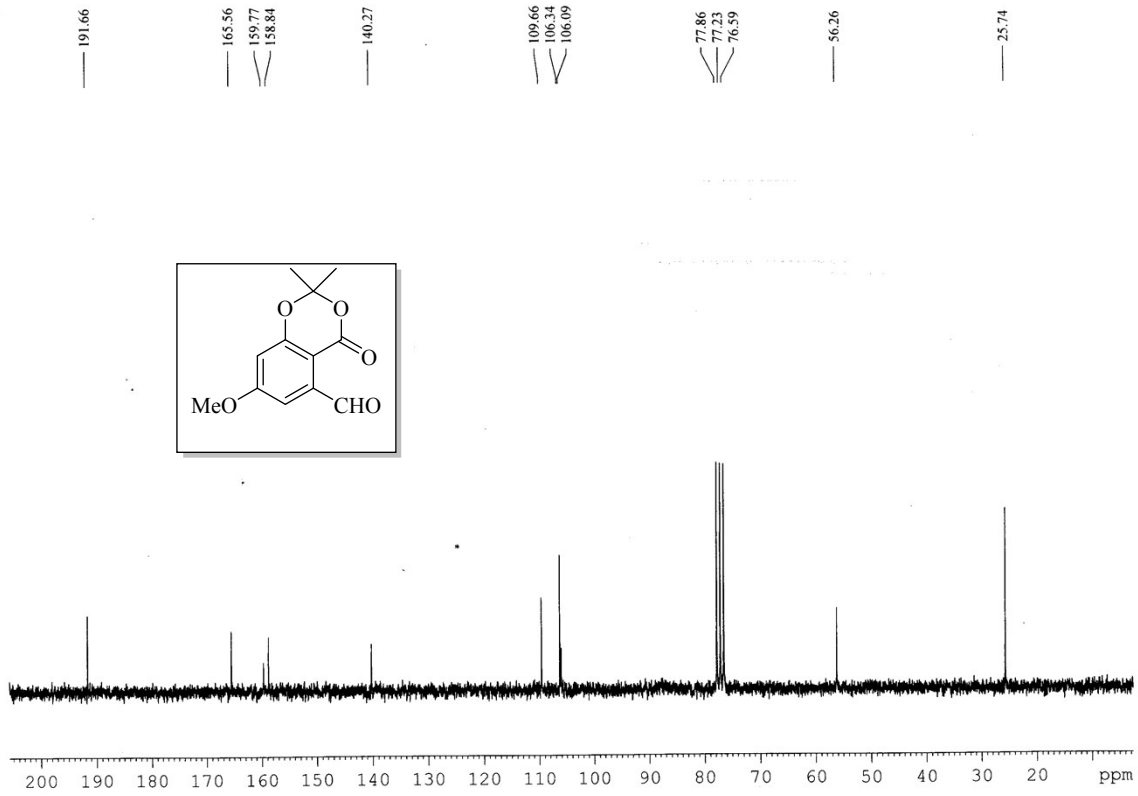
DEPT-135 of compound 25 (100 MHz, $CDCl_3$)



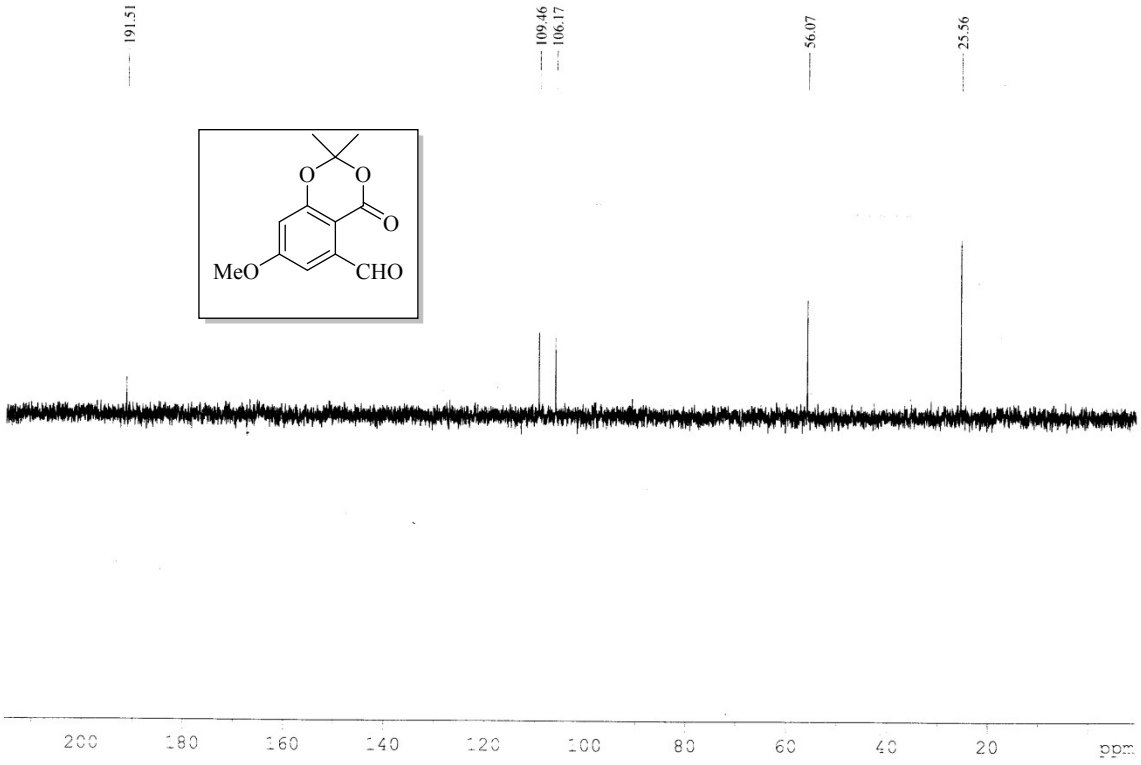
^{1}H NMR (200MHz) of compound 15 in $CDCl_3$



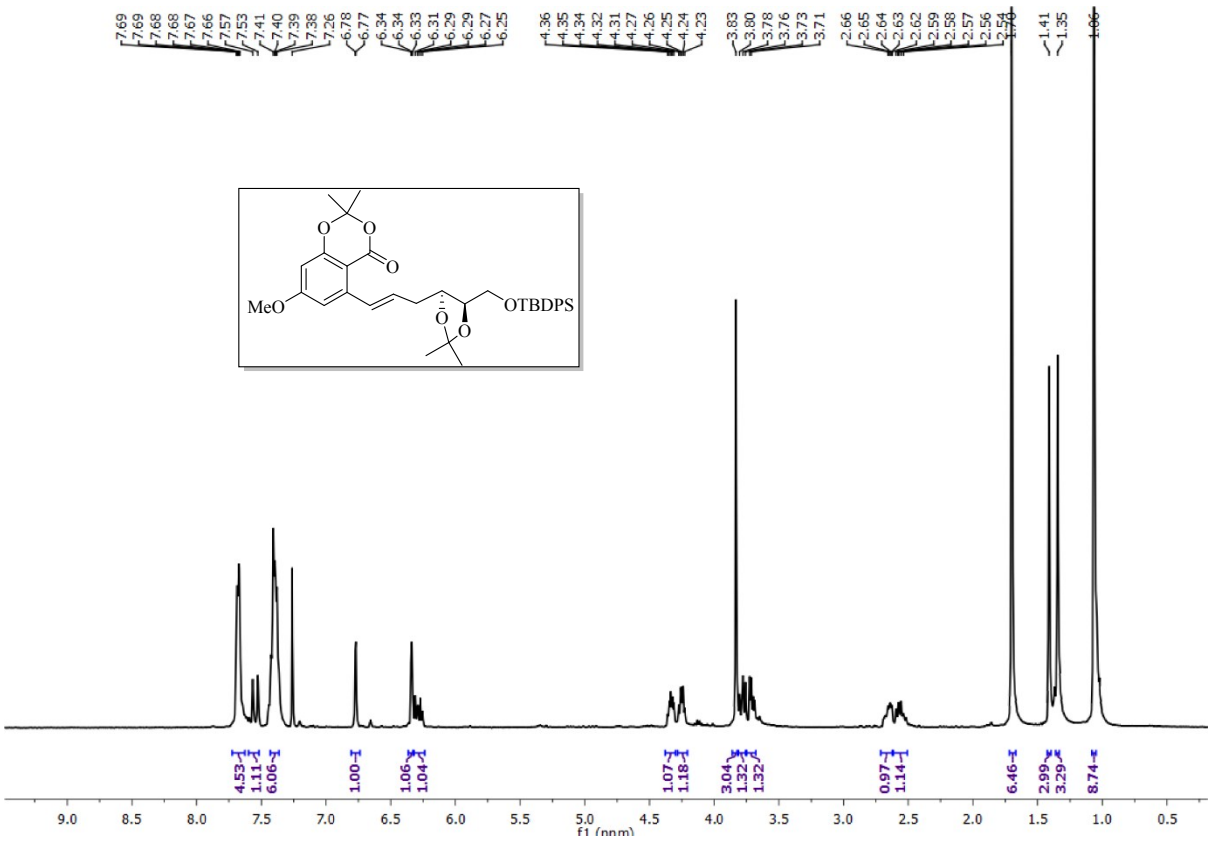
^{13}C NMR (50 MHz) of compound 15 in $CDCl_3$



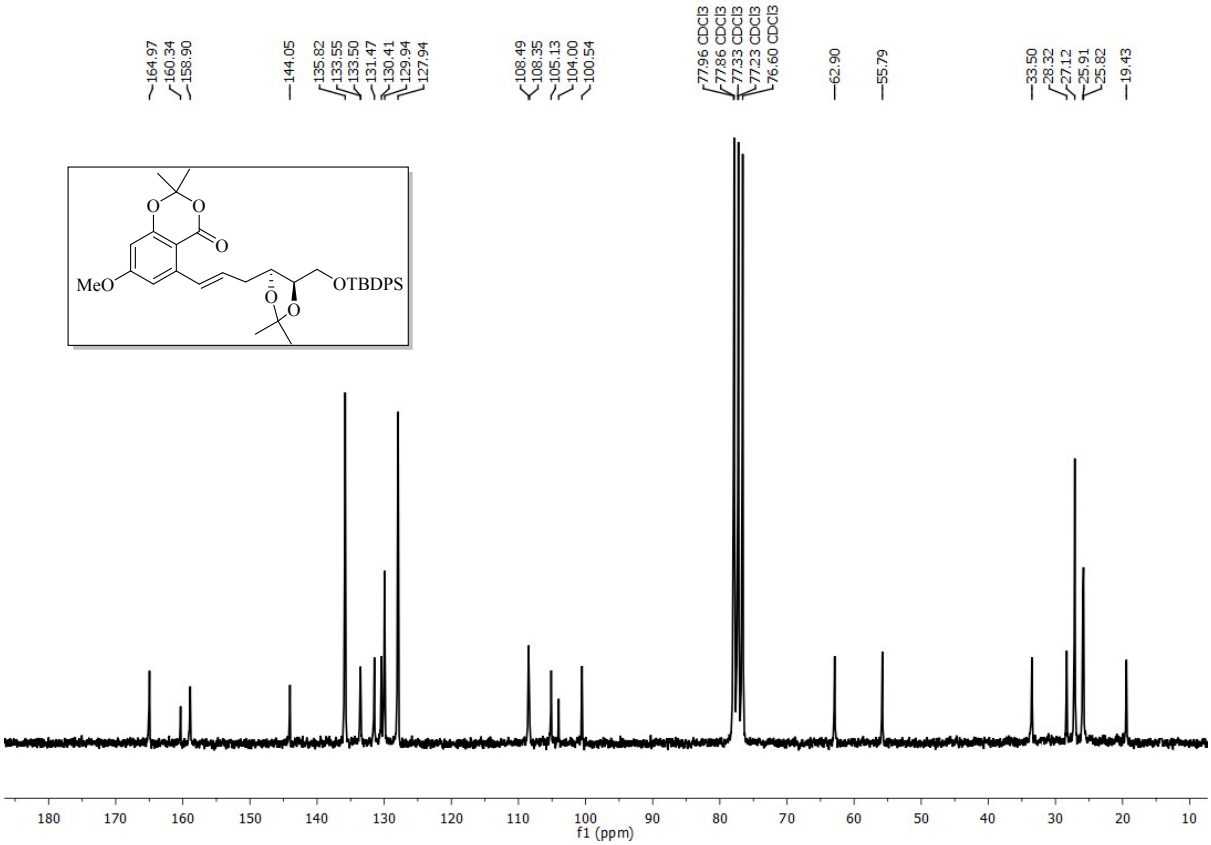
DEPT (50 MHz) NMR of compound 15 in $CDCl_3$



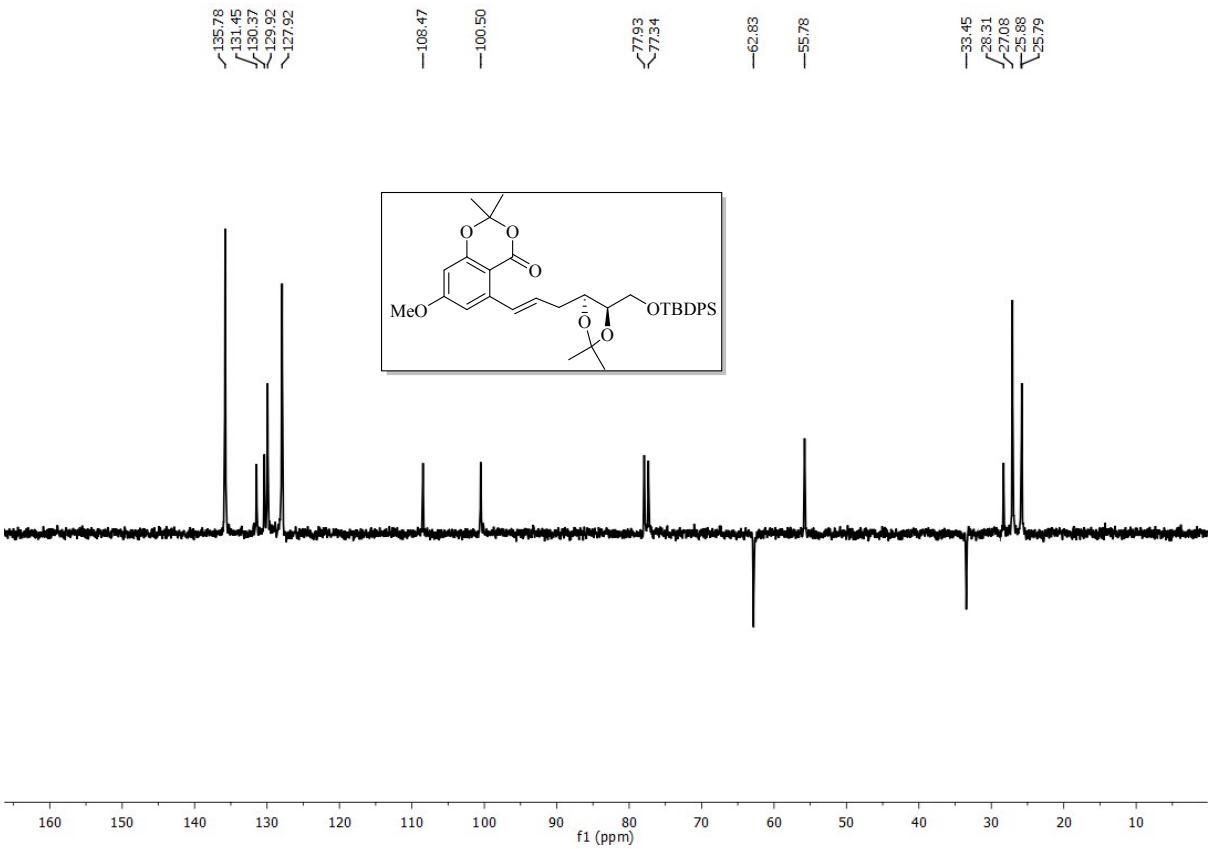
^{1}H NMR (400MHz) of compound 26 in $CDCl_3$



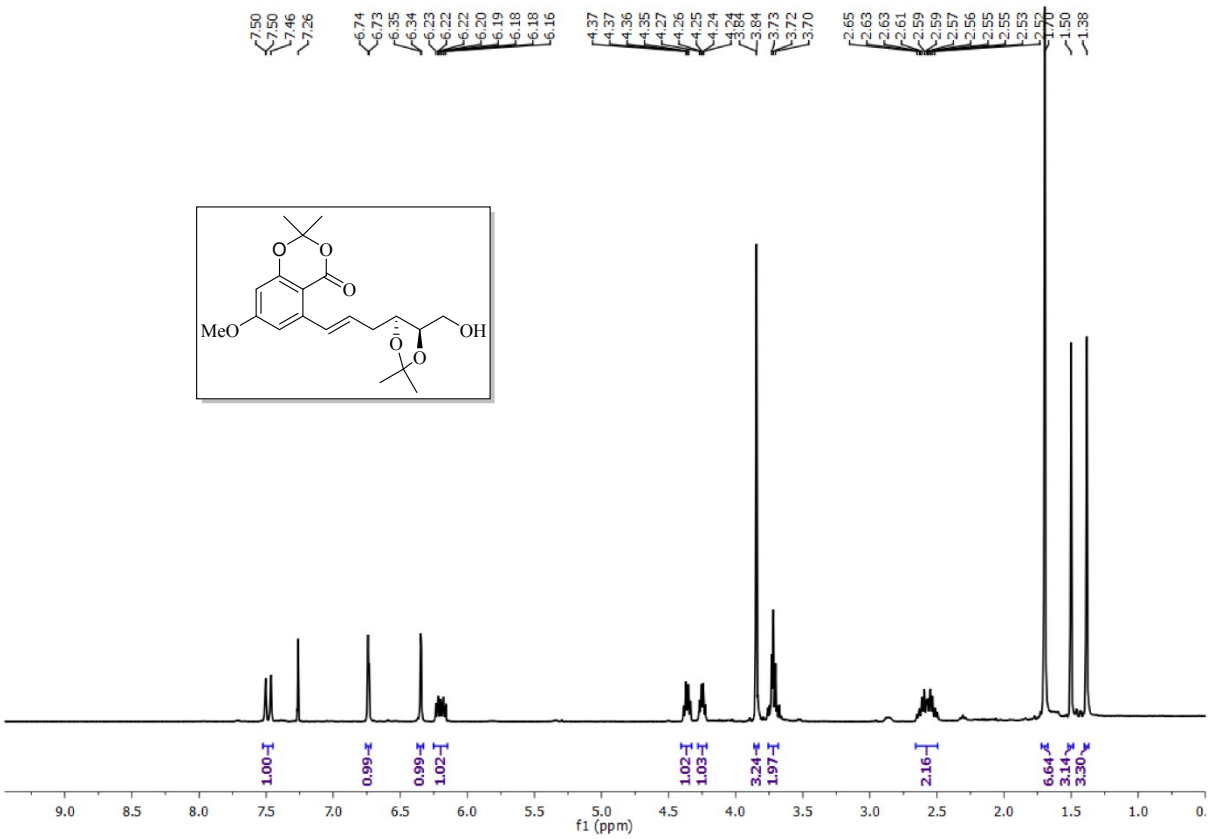
^{13}C NMR (50 MHz) of compound 26 in $CDCl_3$



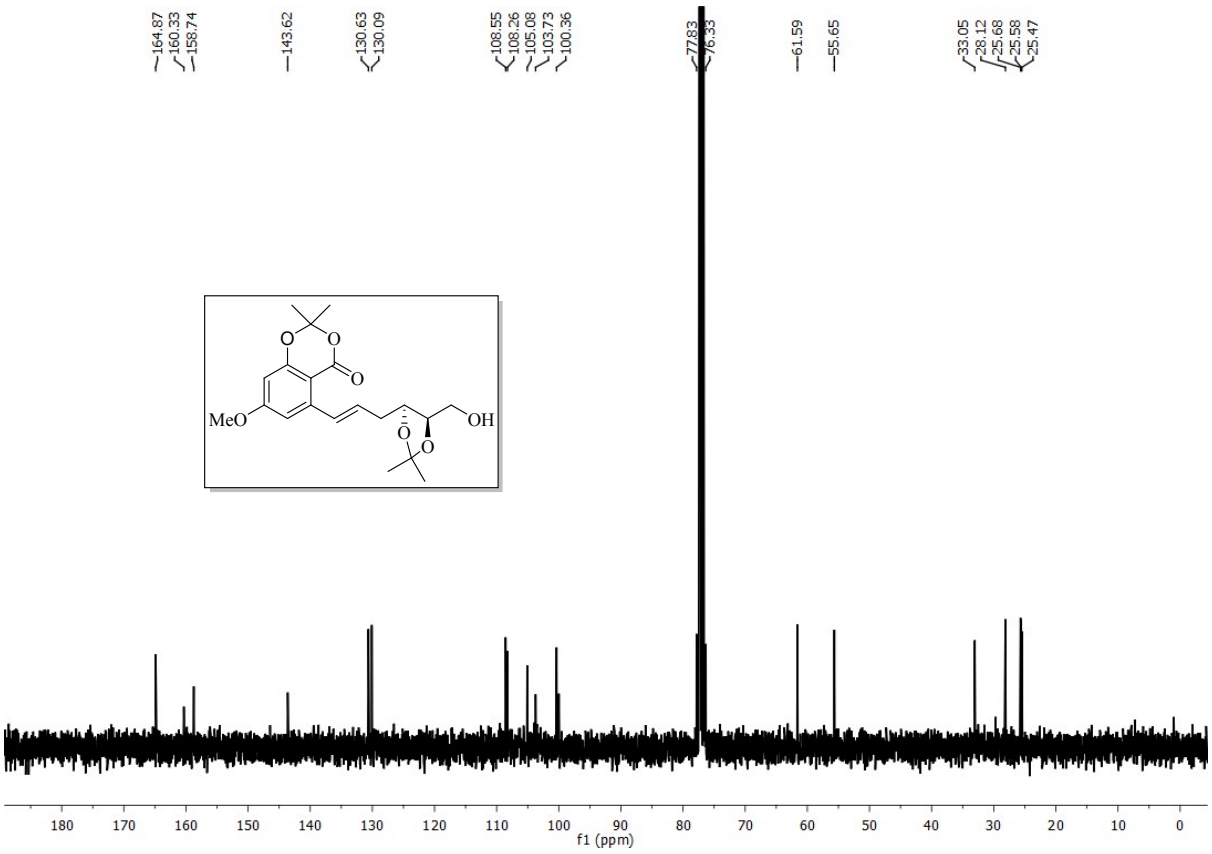
DEPT (50 MHz) NMR of compound 26 in $CDCl_3$



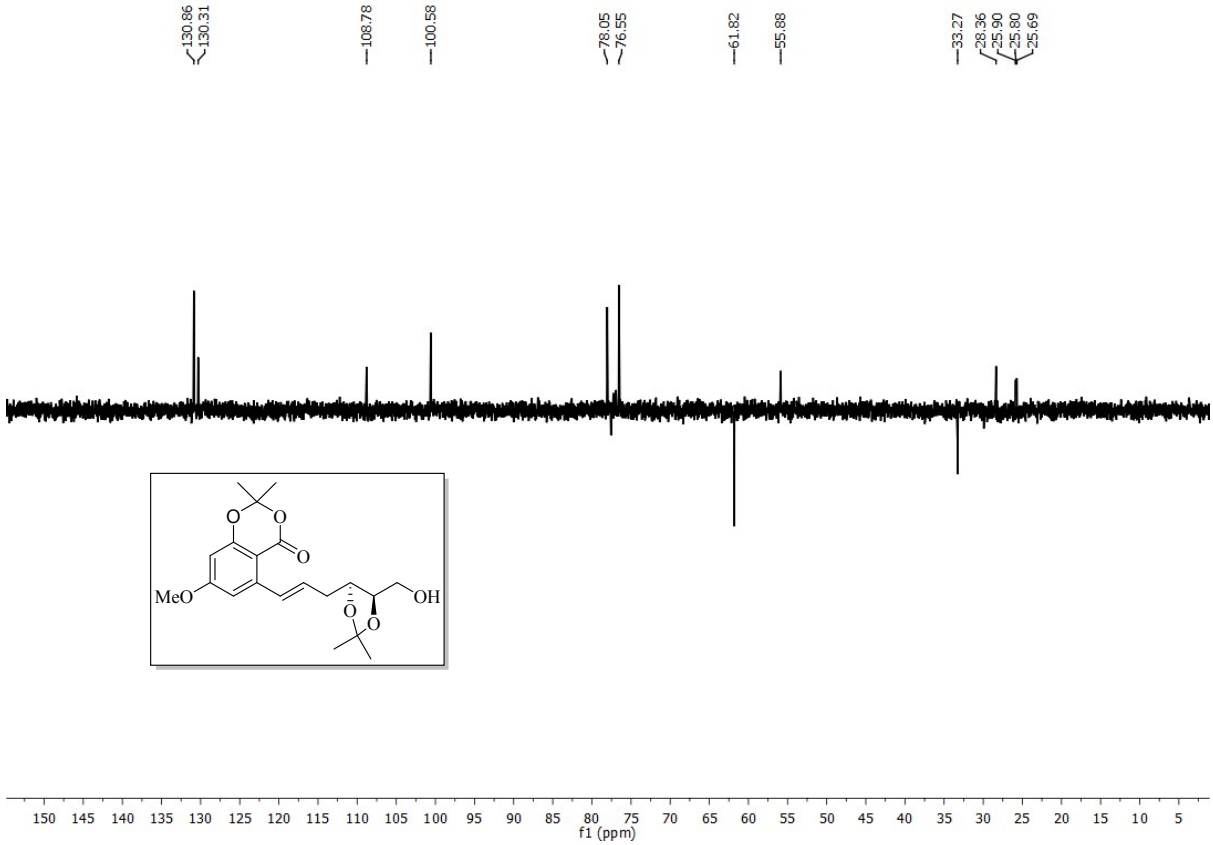
^{1}H NMR (400MHz) of compound 27 in $CDCl_3$



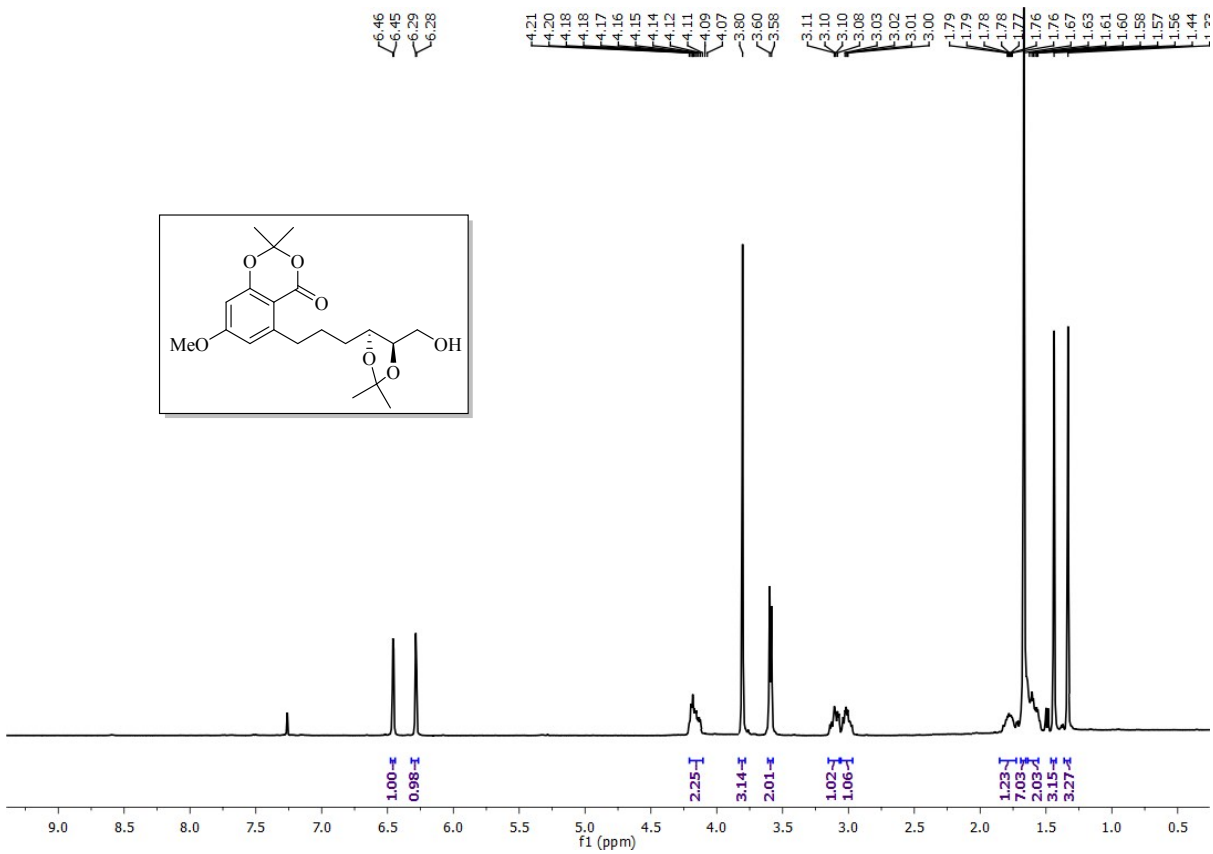
^{13}C NMR (100 MHz) of compound 27 in $CDCl_3$



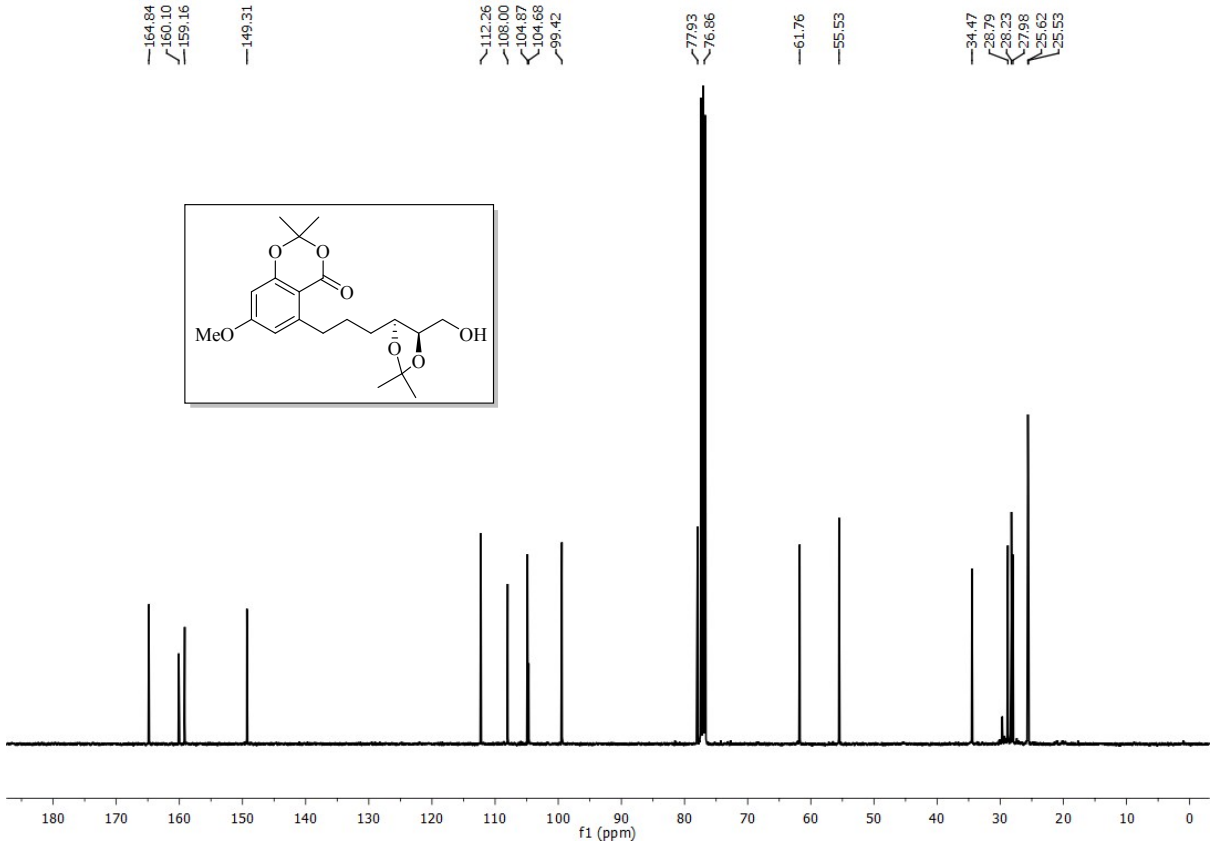
DEPT (100 MHz) NMR of compound 27 in $CDCl_3$



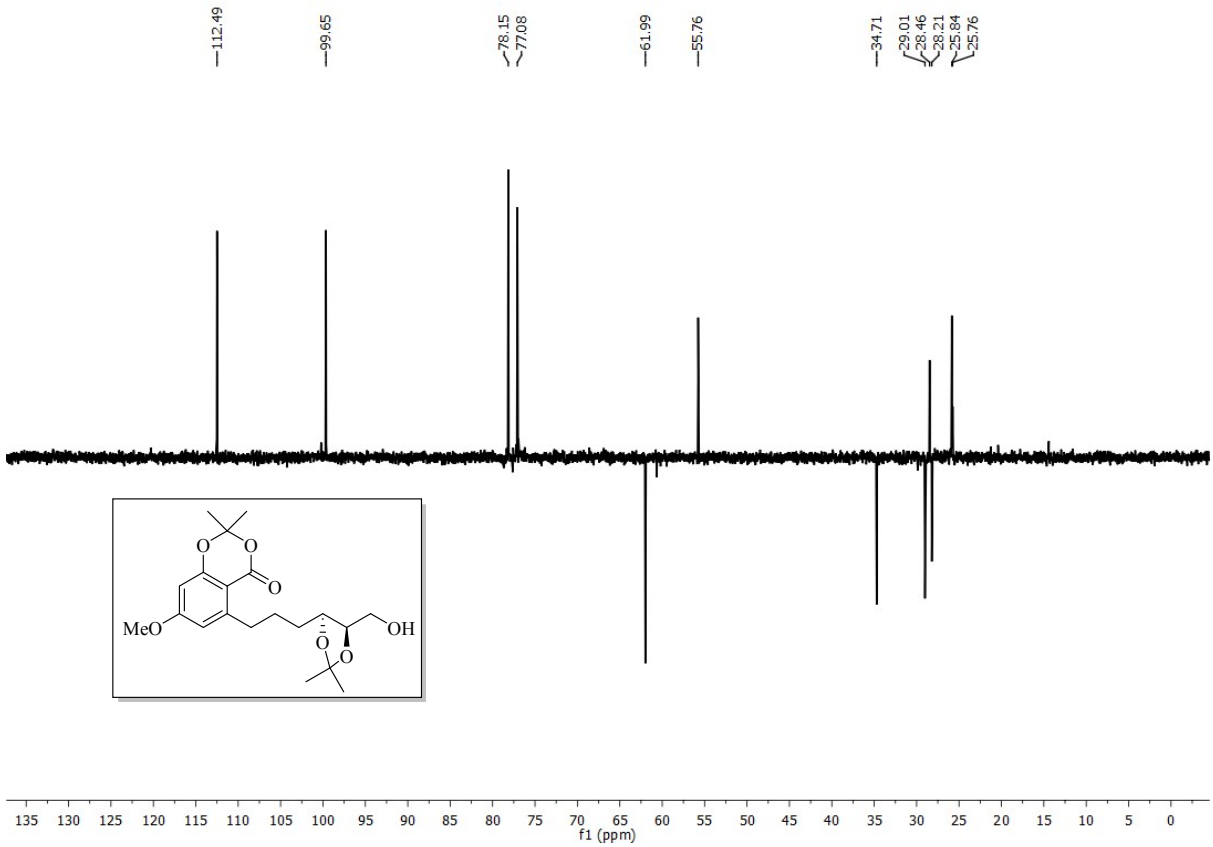
^{1}H NMR (400MHz) of compound 12 in $CDCl_3$



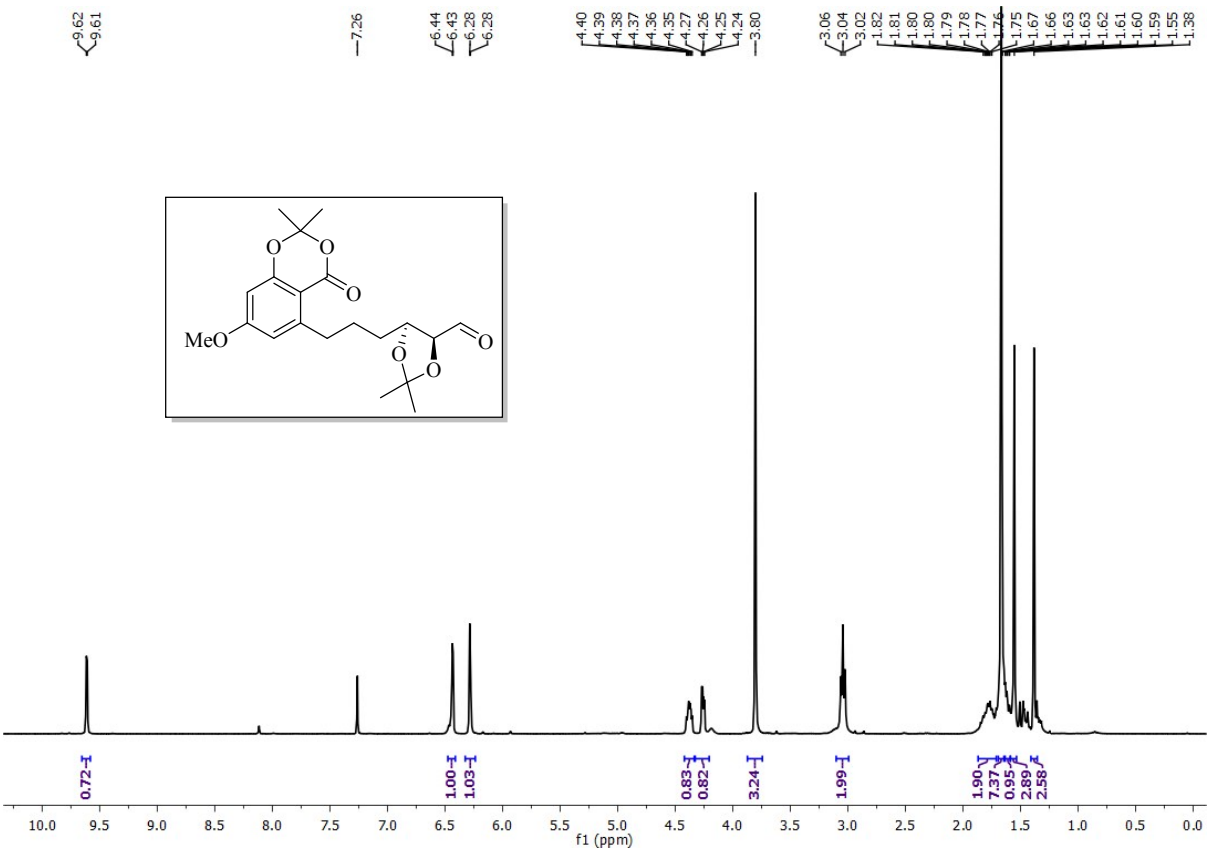
^{13}C NMR (100 MHz) of compound 12 in $CDCl_3$



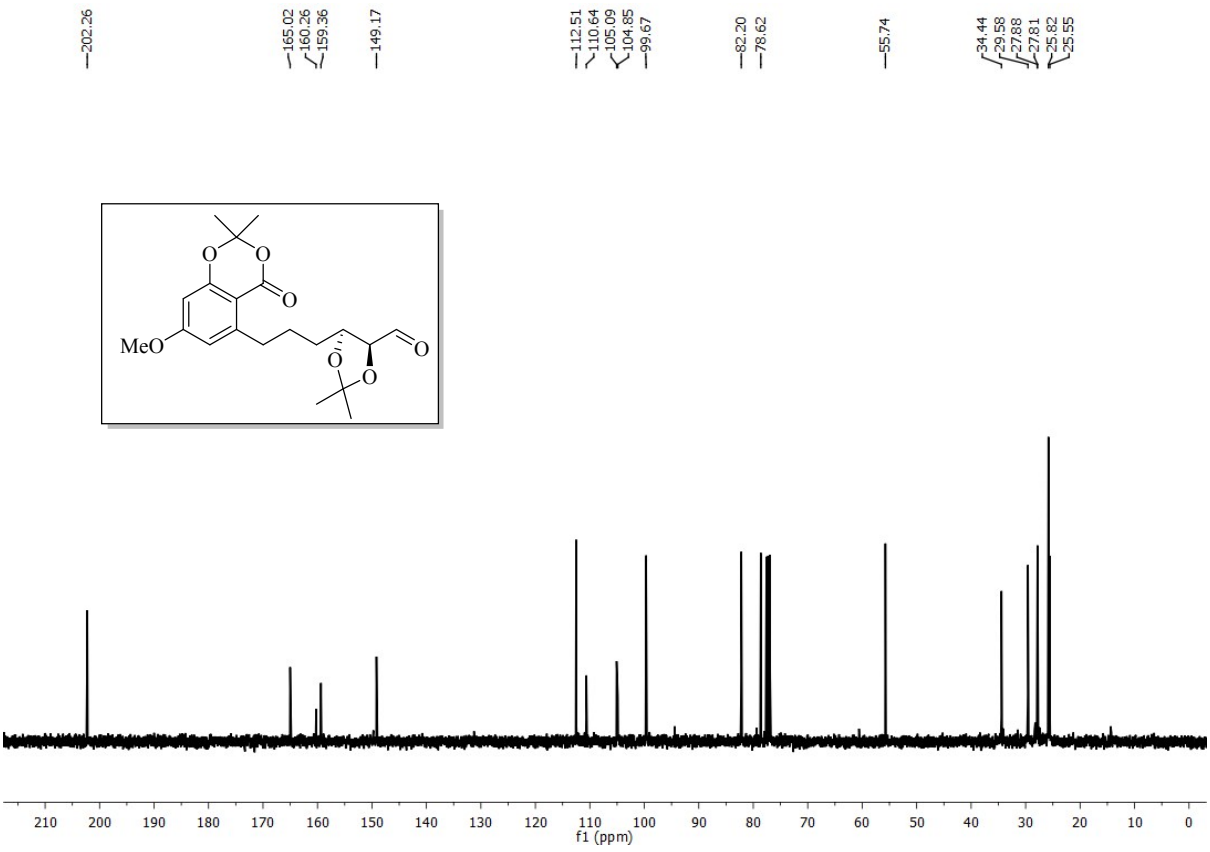
DEPT (100 MHz) NMR of compound 12 in $CDCl_3$



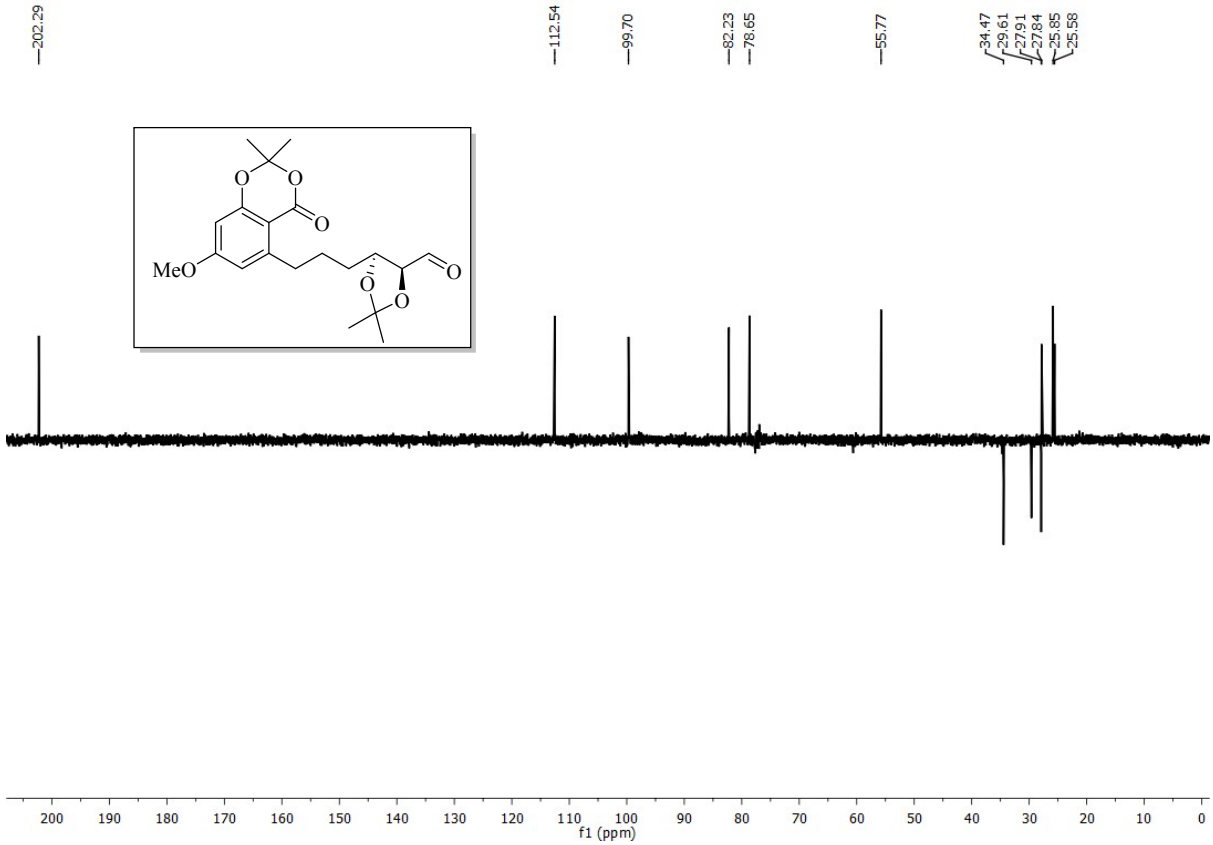
^{1}H NMR (400MHz) of compound 28 in $CDCl_3$



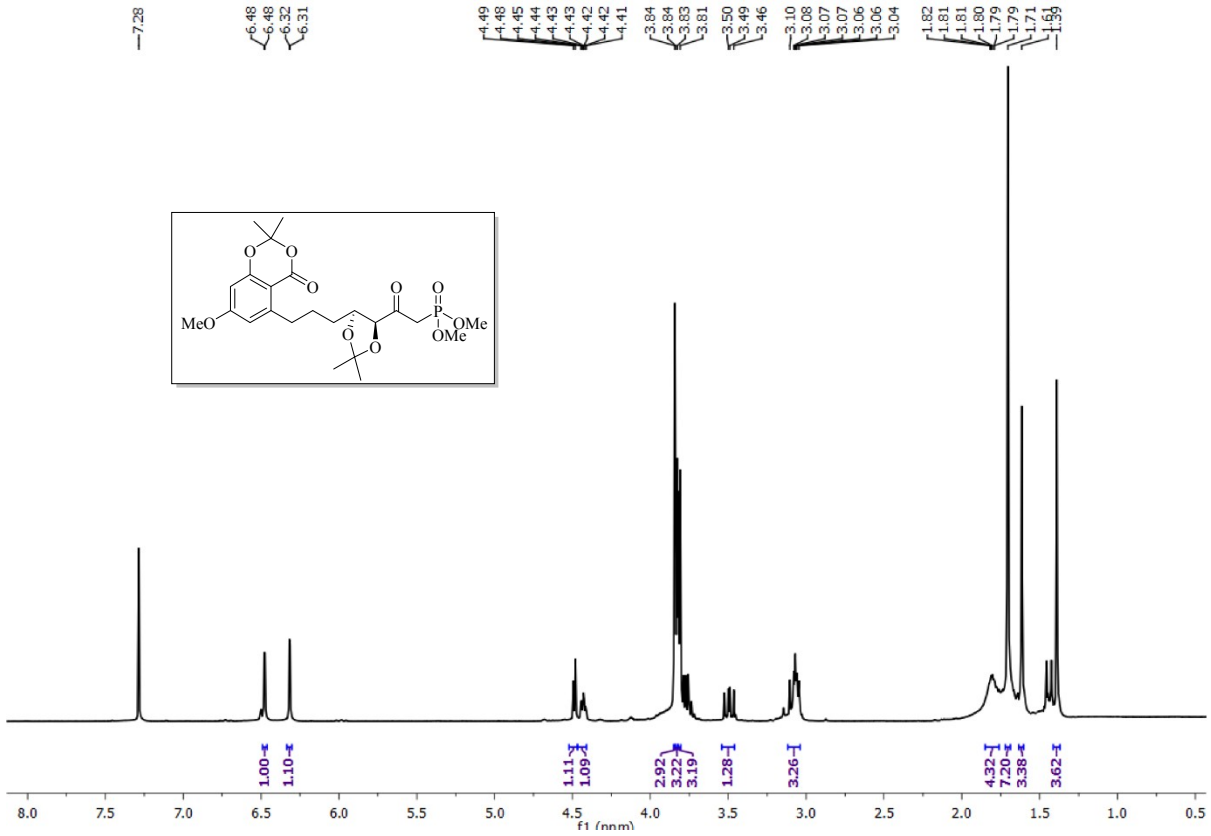
^{13}C NMR (100 MHz) of compound 28 in $CDCl_3$



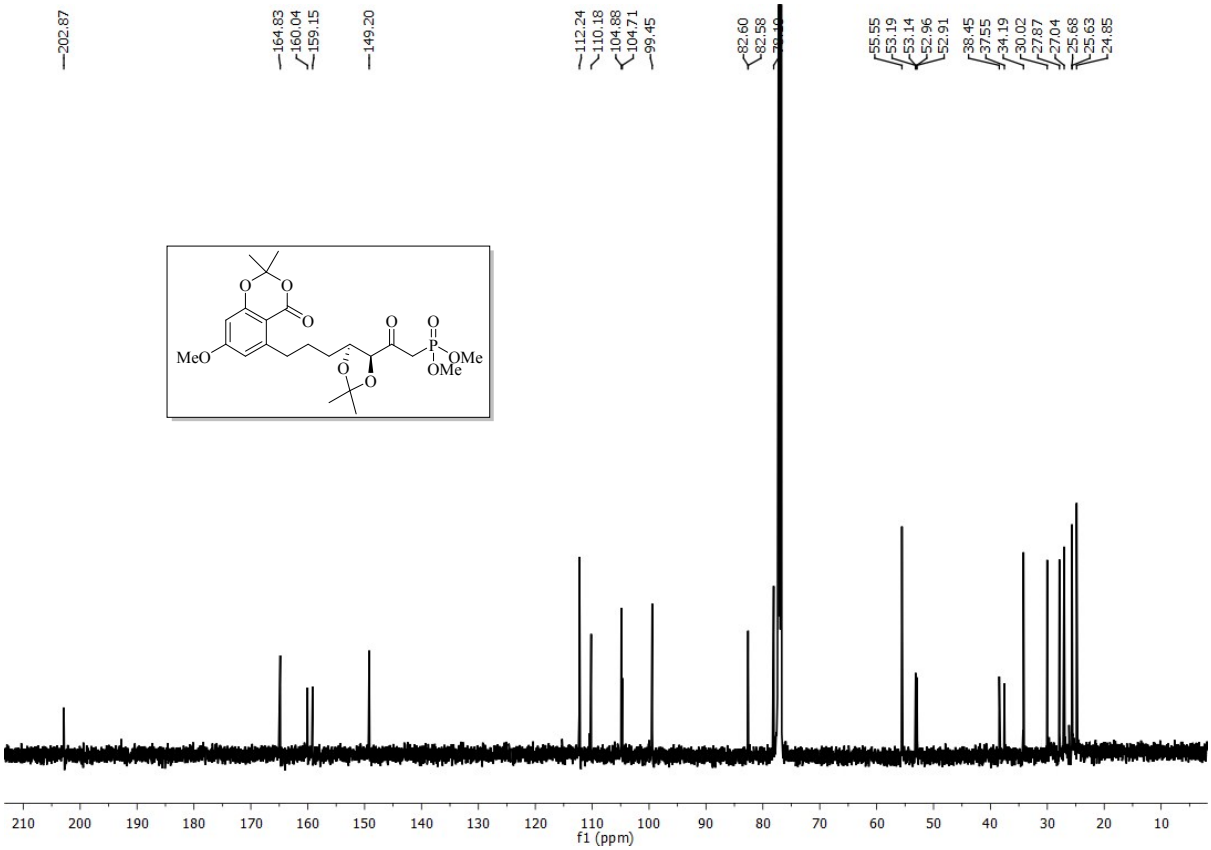
DEPT (100 MHz) NMR of compound 28 in $CDCl_3$



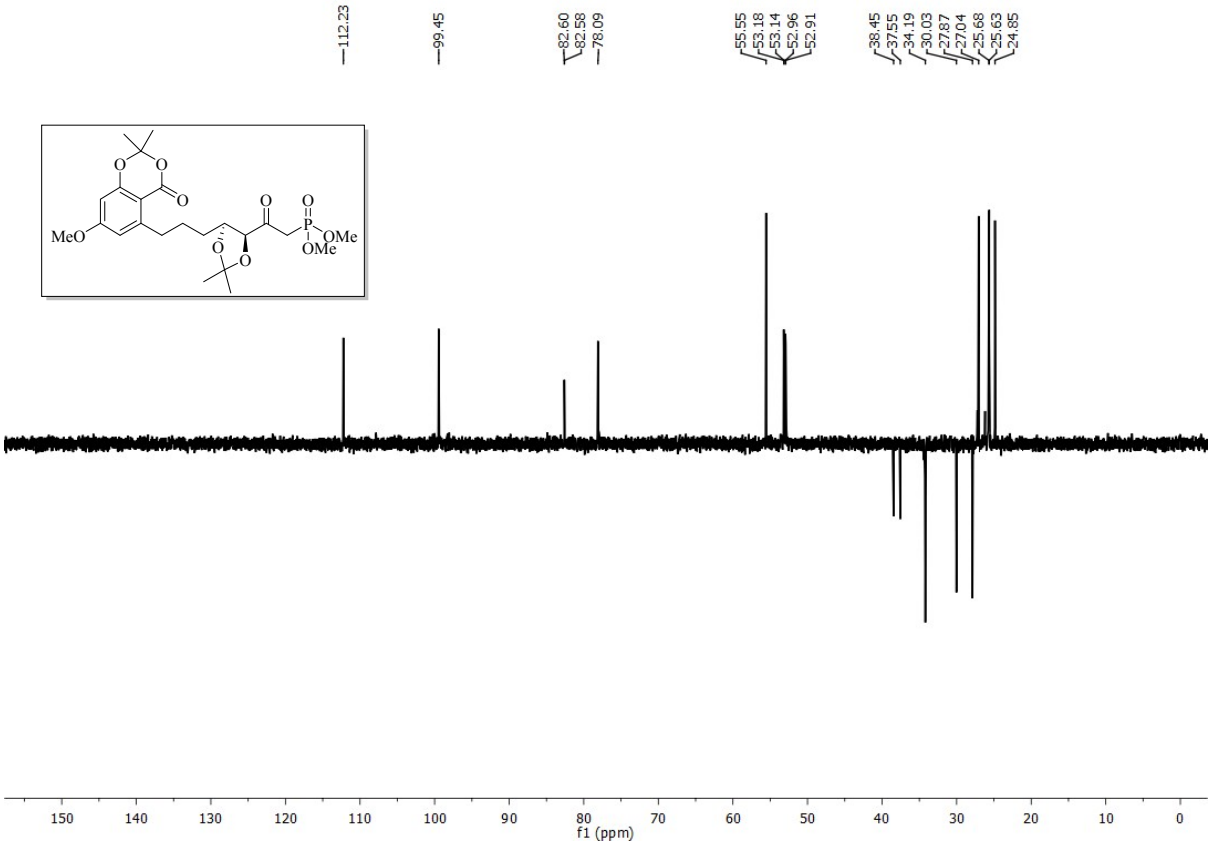
^{1}H NMR (600MHz) of compound 11 in $CDCl_3$



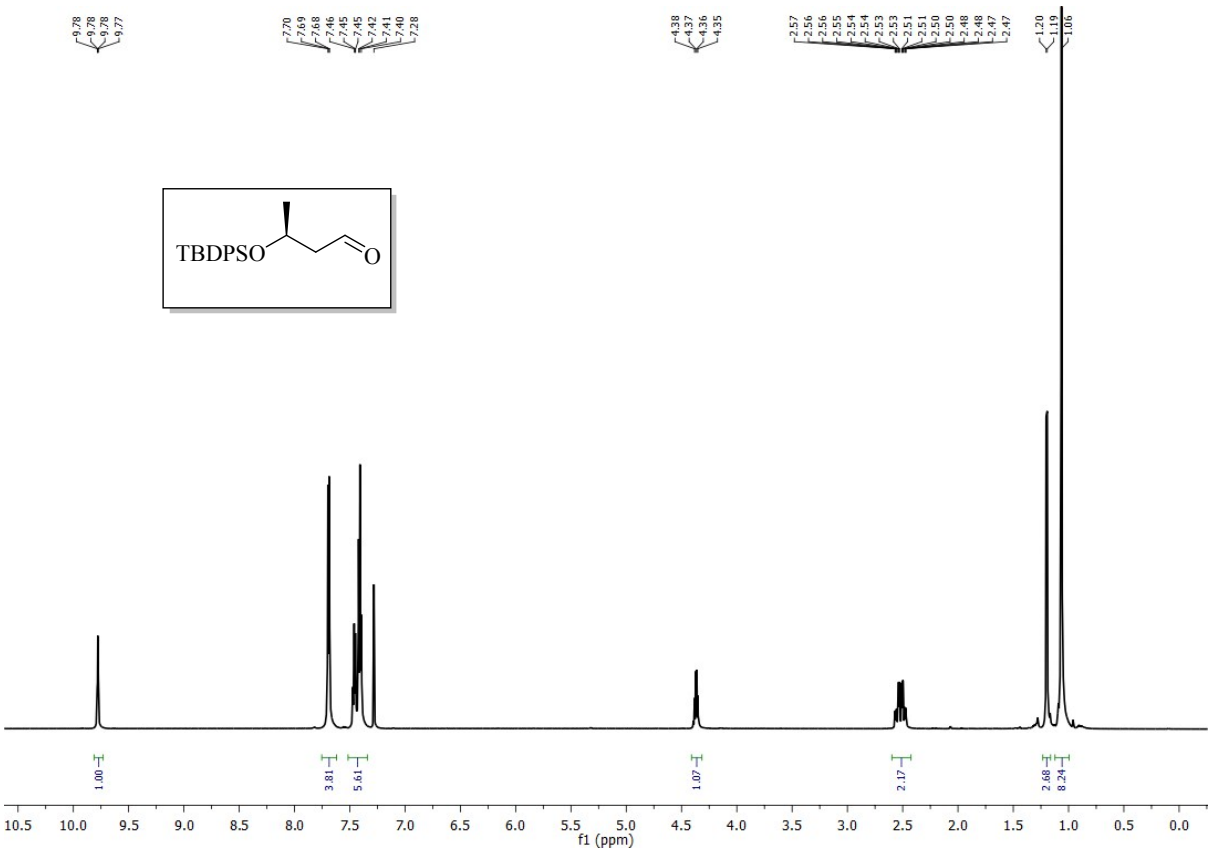
^{13}C NMR (150 MHz) of compound 11 in $CDCl_3$



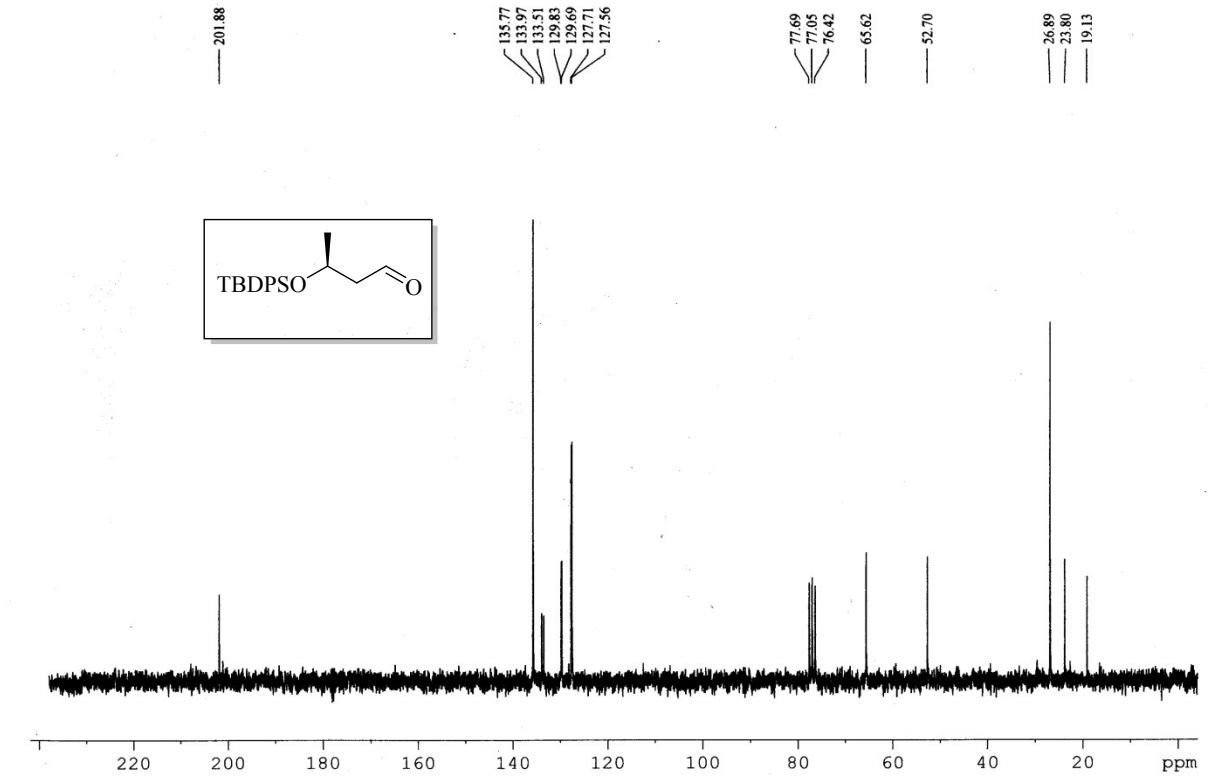
DEPT (150 MHz) NMR of compound 11 in $CDCl_3$



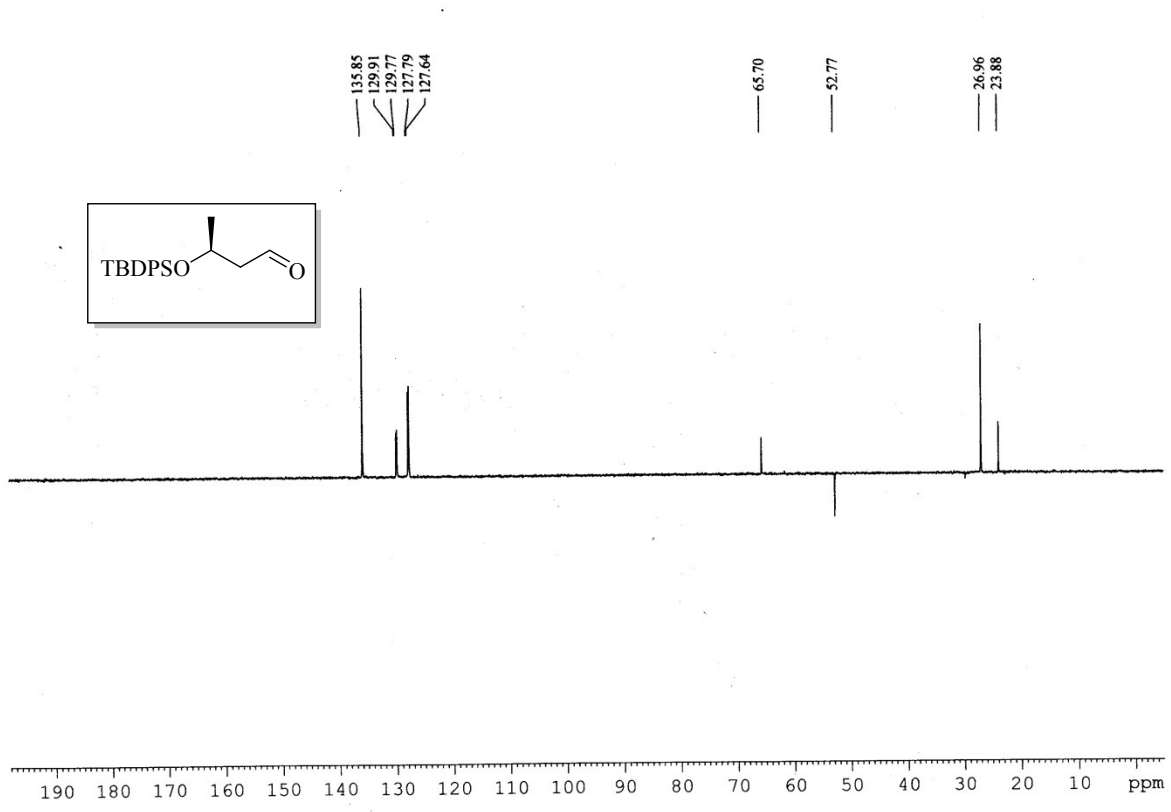
^{1}H NMR (600MHz) of compound 29 in $CDCl_3$



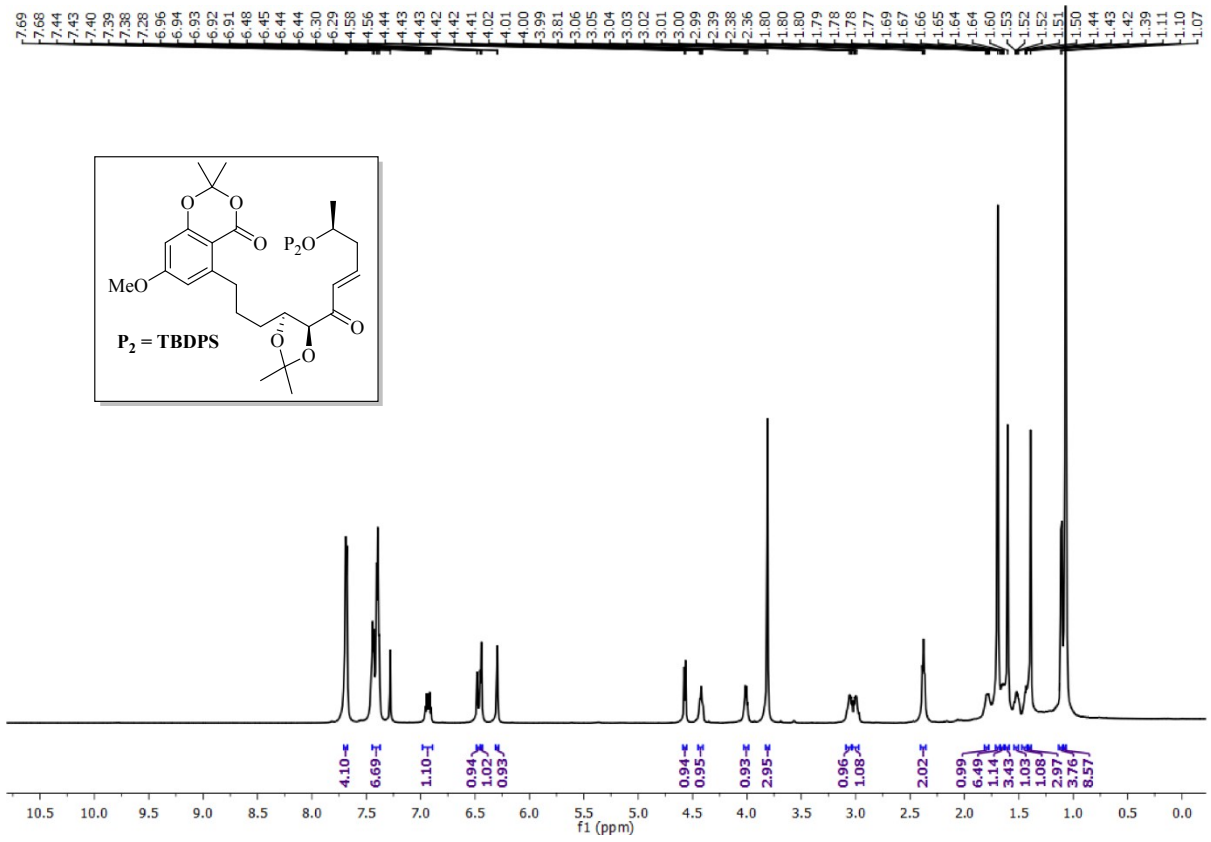
^{13}C NMR (100 MHz) of compound 29 in $CDCl_3$



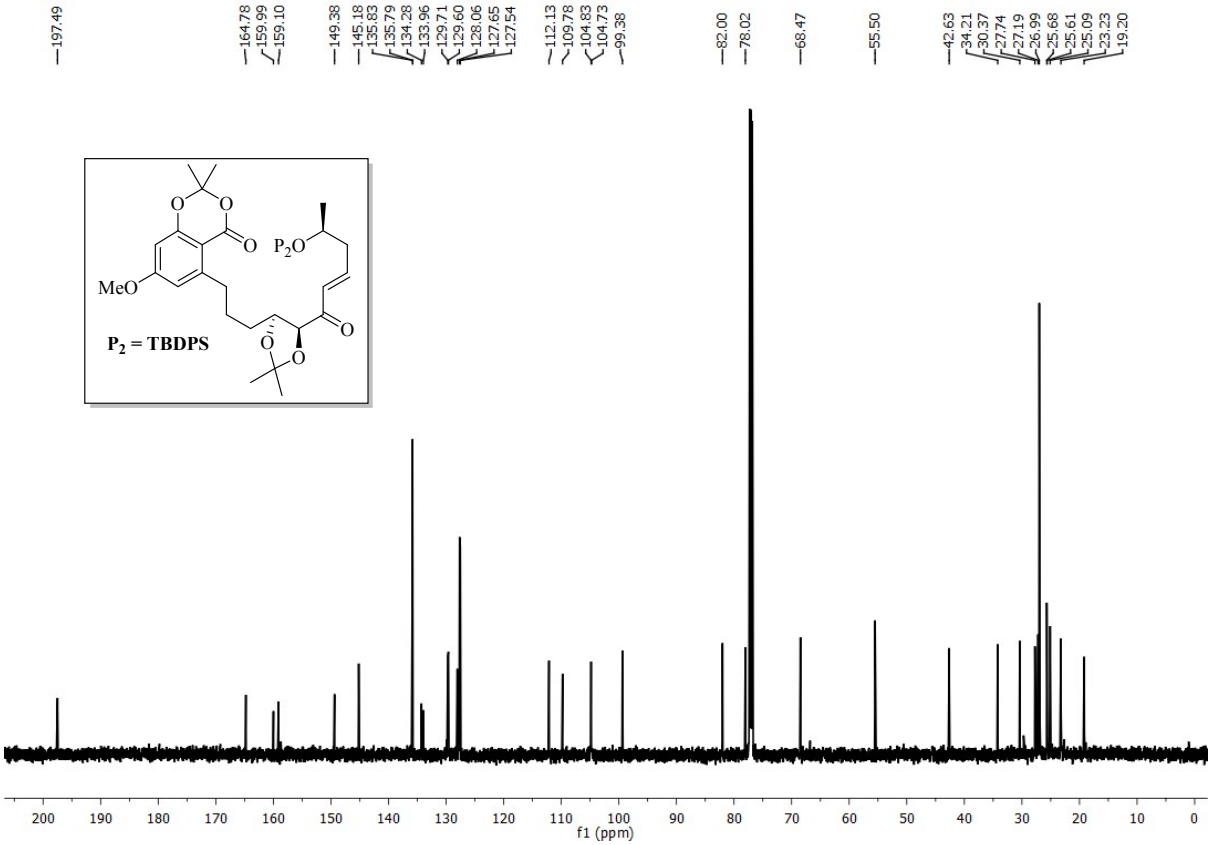
DEPT (100 MHz) NMR of compound 29 in $CDCl_3$



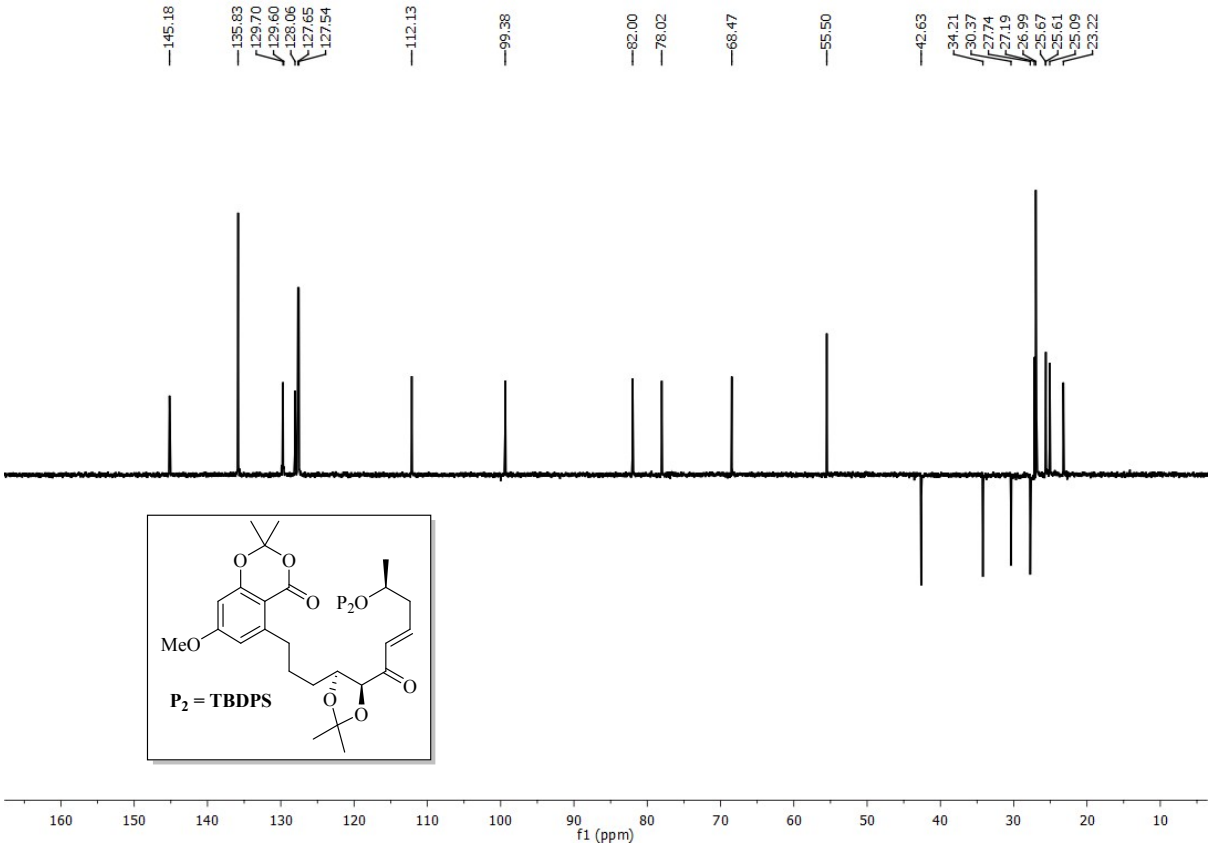
^{1}H NMR (600MHz) of compound 10 in $CDCl_3$



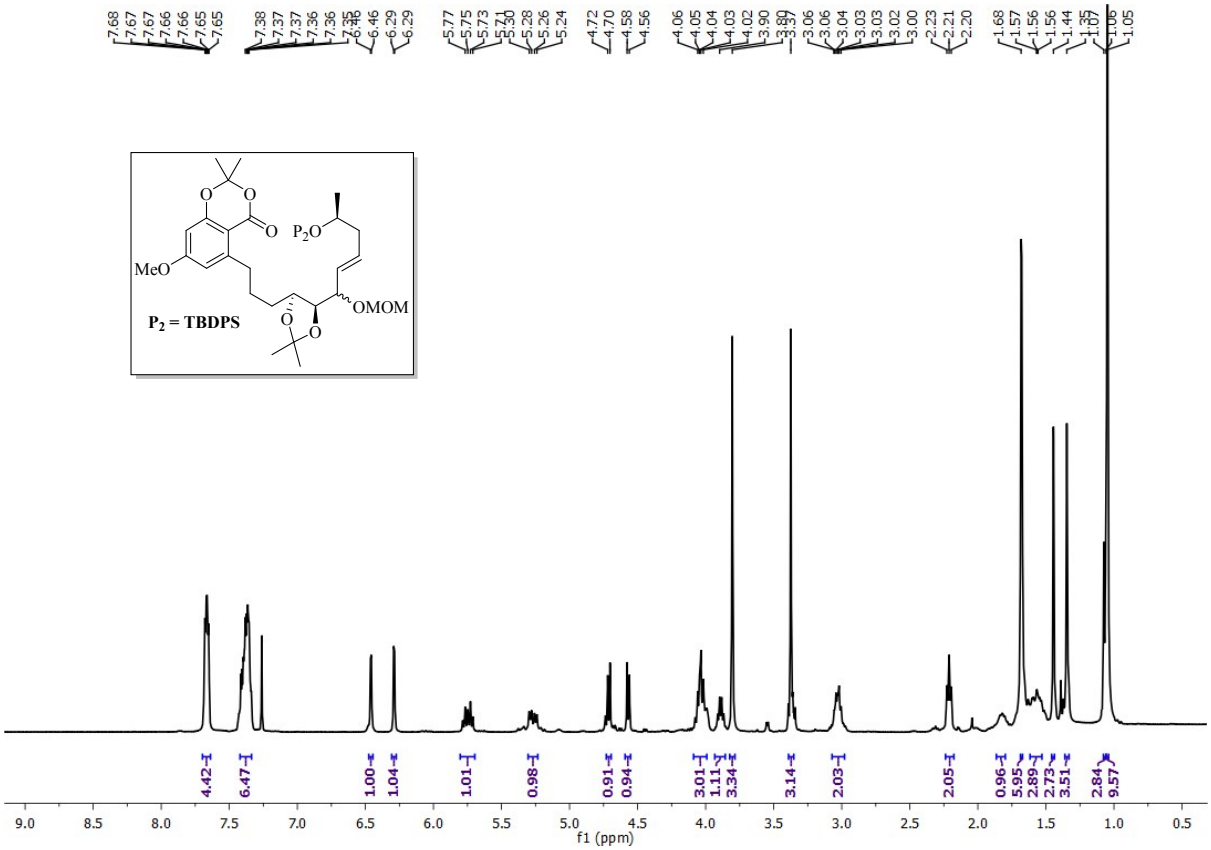
^{13}C NMR (150 MHz) of compound 10 in $CDCl_3$



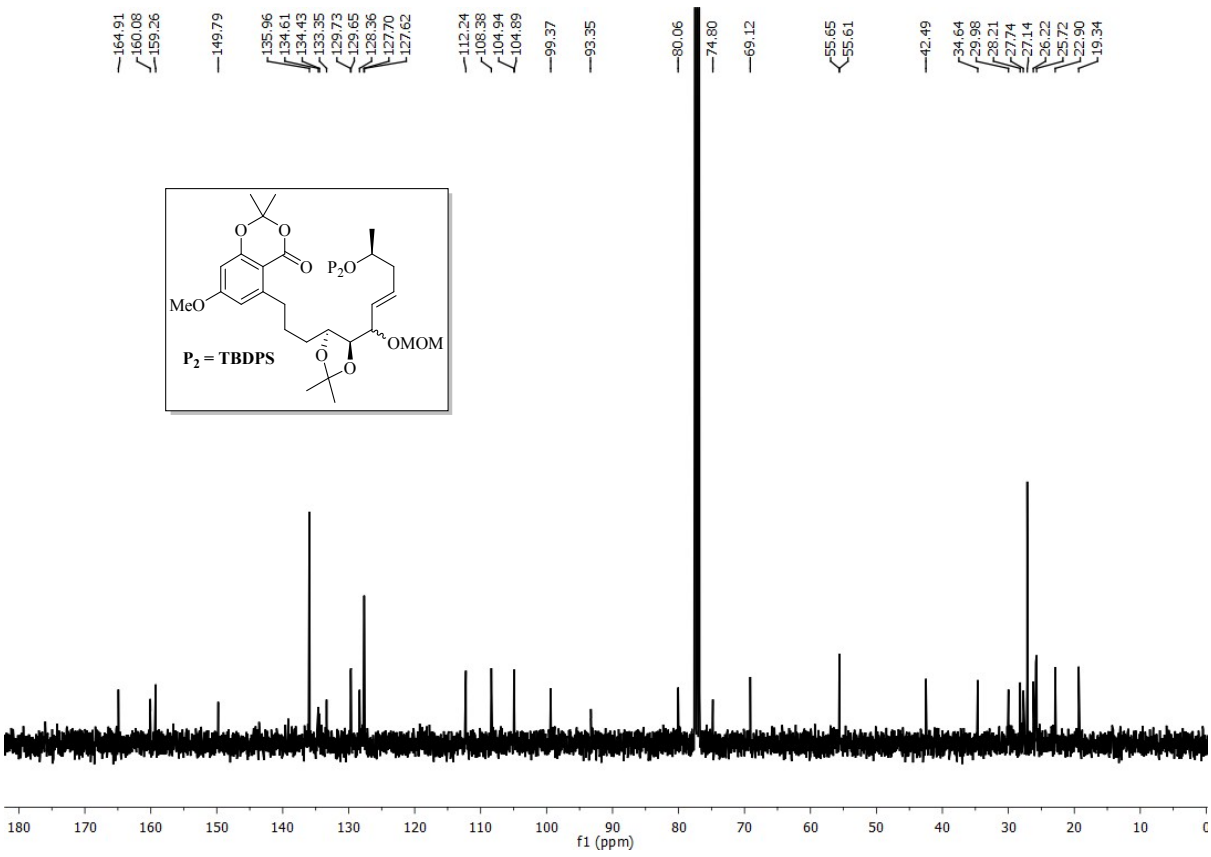
DEPT (150 MHz) NMR of compound 10 in $CDCl_3$



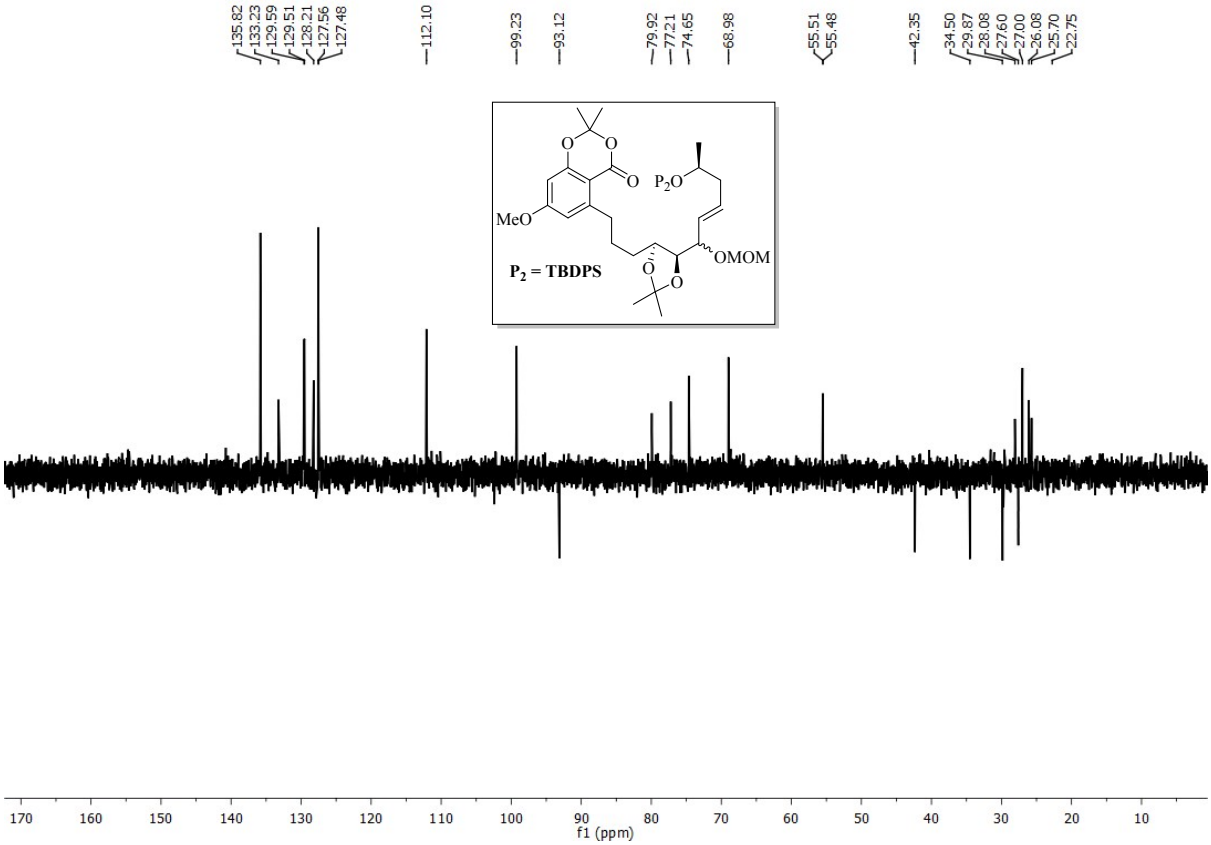
^{1}H NMR (400MHz) of compound 31 in $CDCl_3$



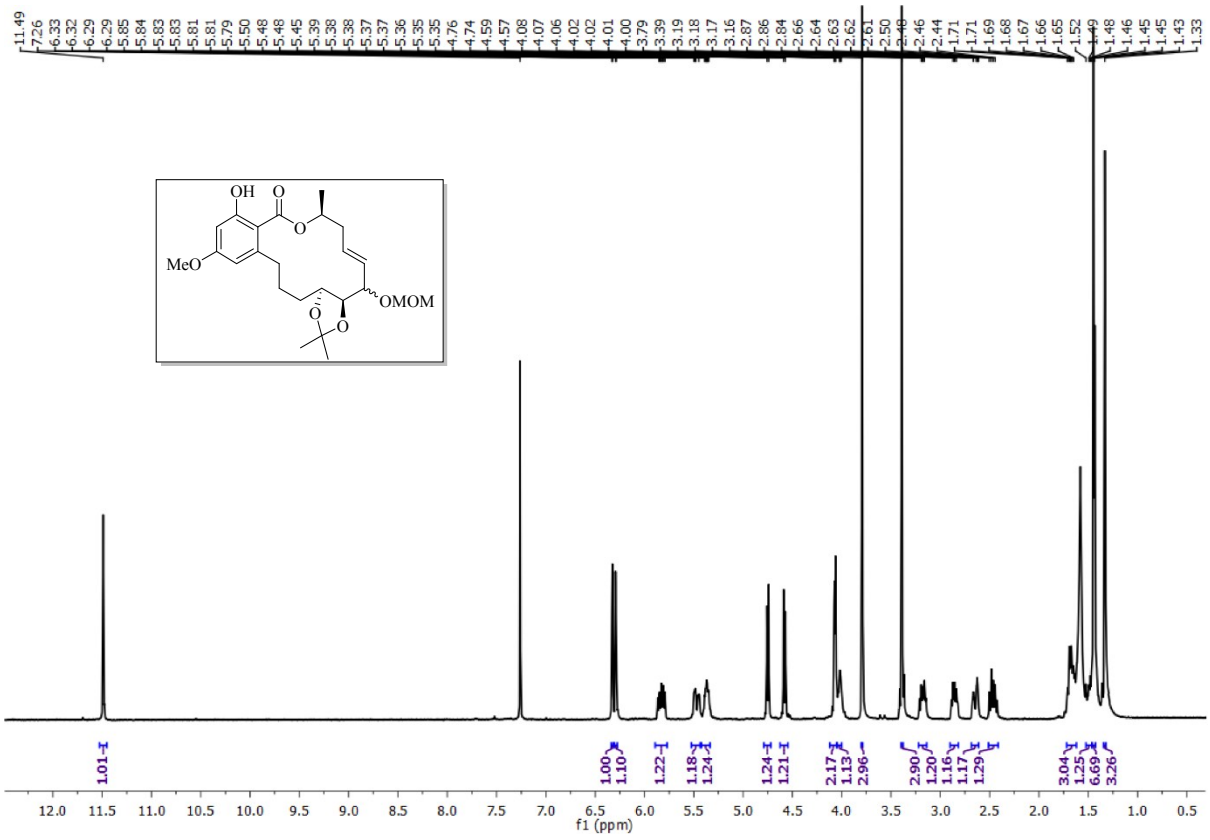
^{13}C NMR (100 MHz) of compound 31 in $CDCl_3$



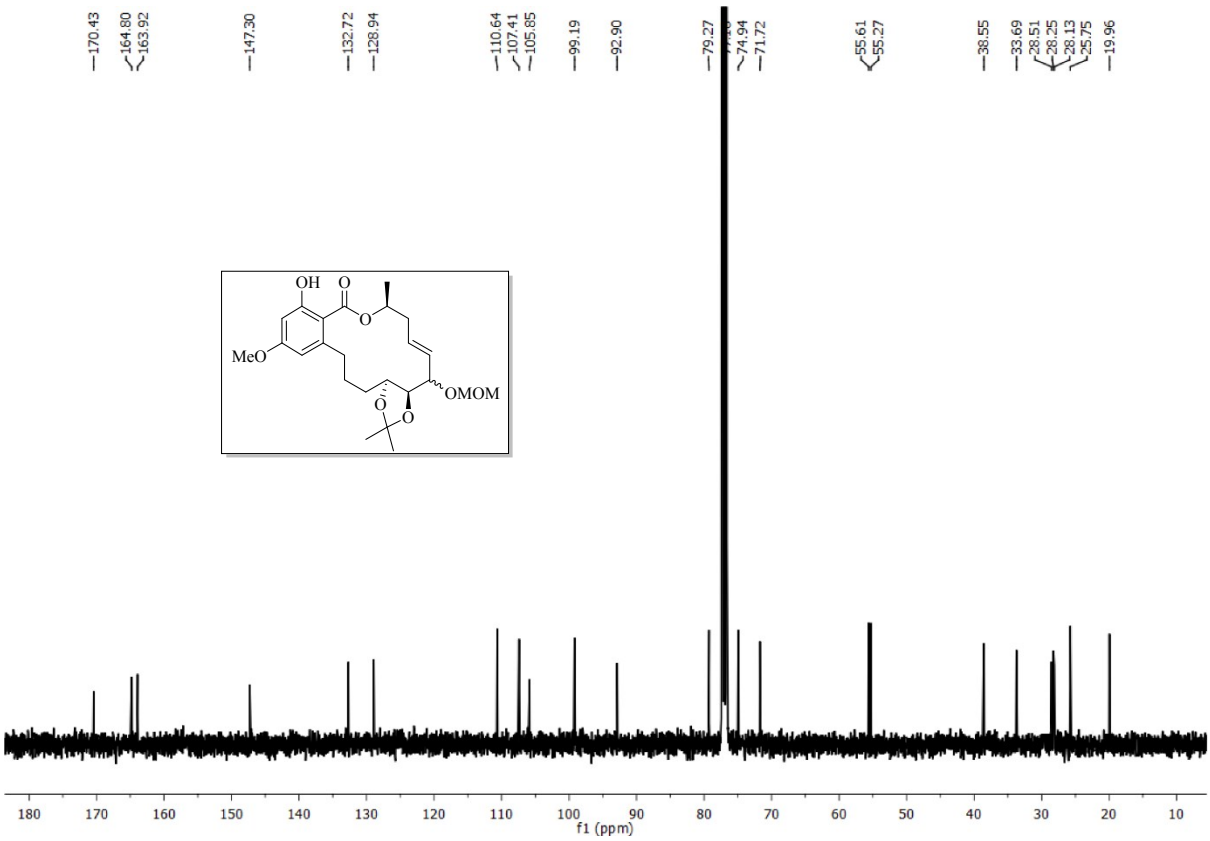
DEPT (100 MHz) NMR of compound 31 in $CDCl_3$



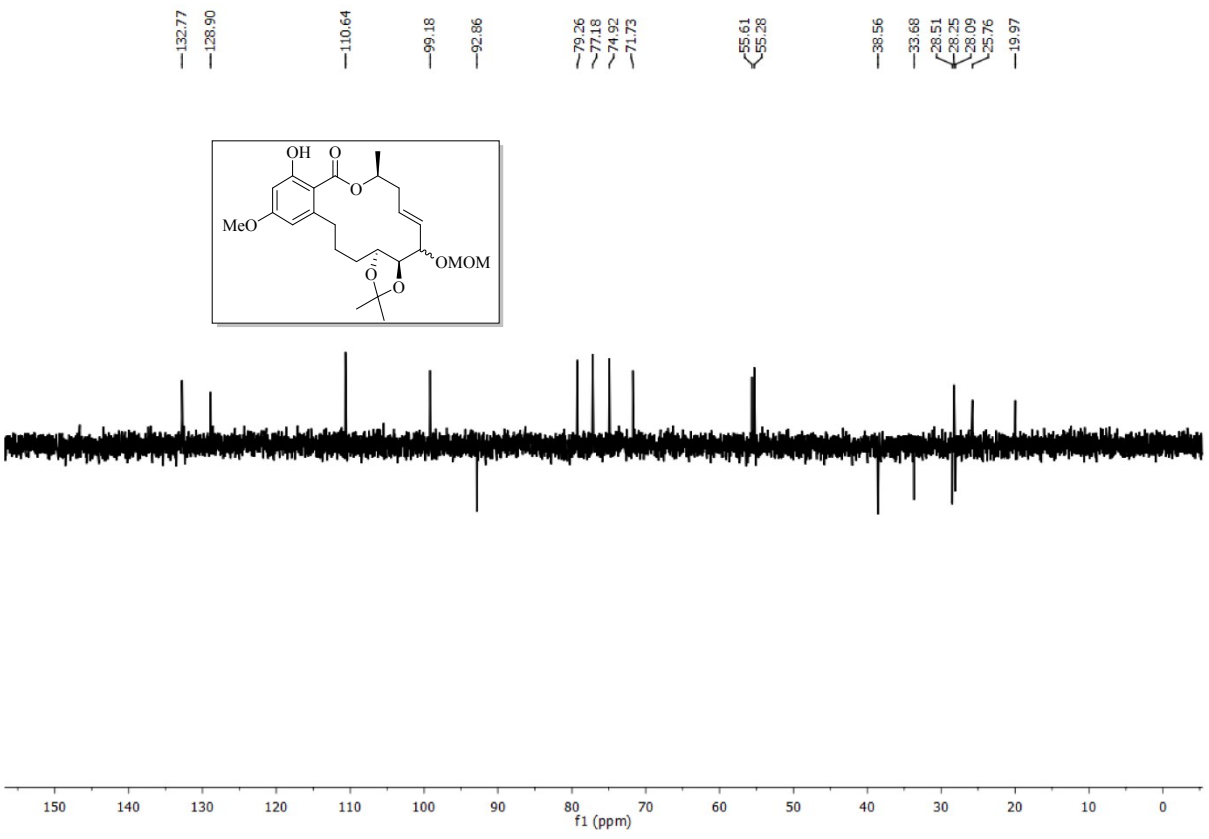
^{1}H NMR (400MHz) of compound 33 in $CDCl_3$



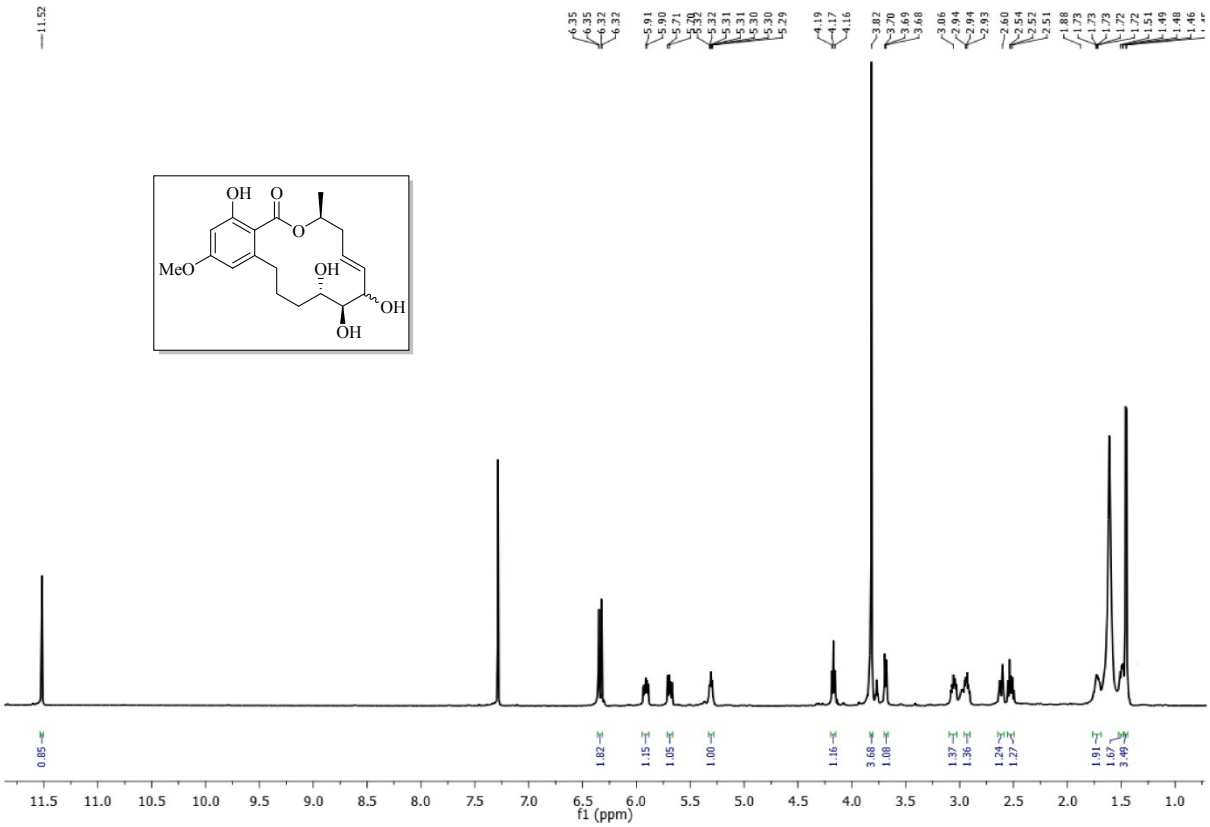
^{13}C NMR (100 MHz) of compound 33 in $CDCl_3$



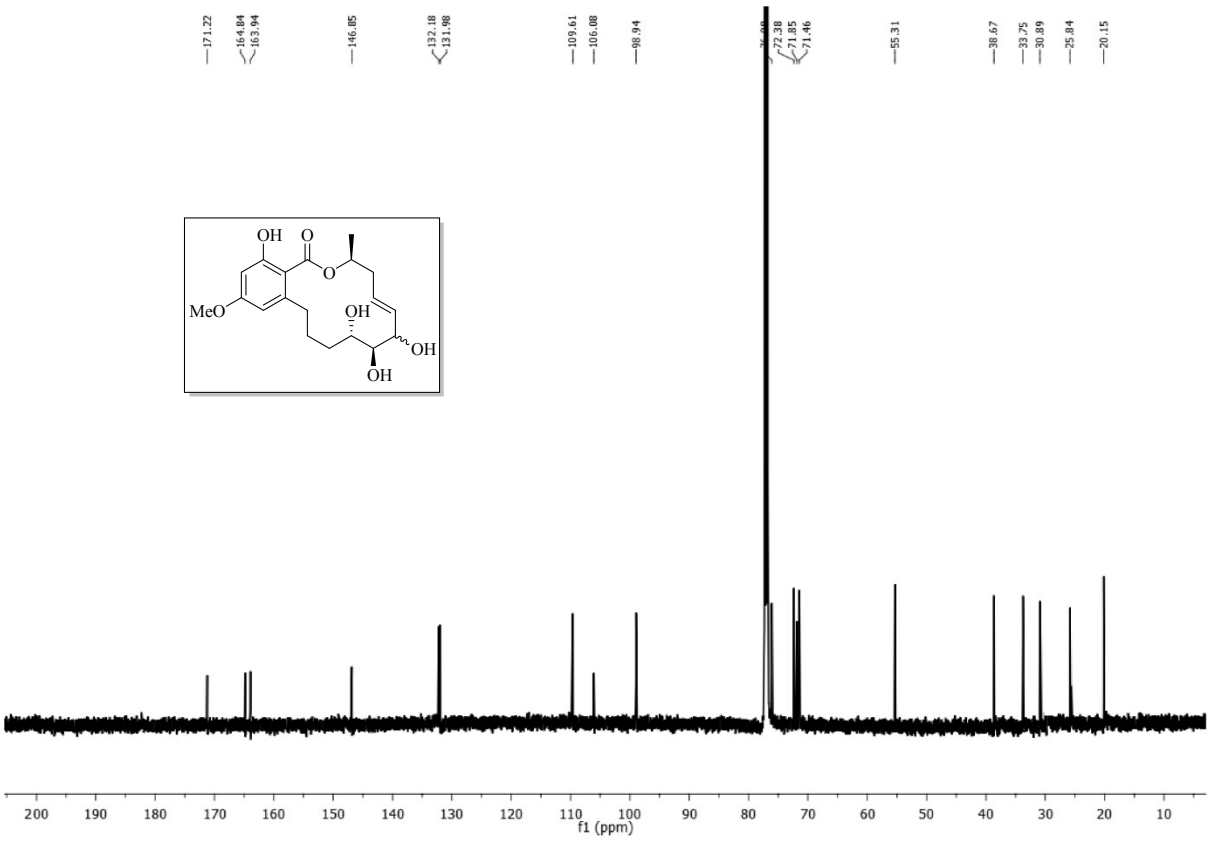
DEPT (100 MHz) NMR of compound 33 in $CDCl_3$



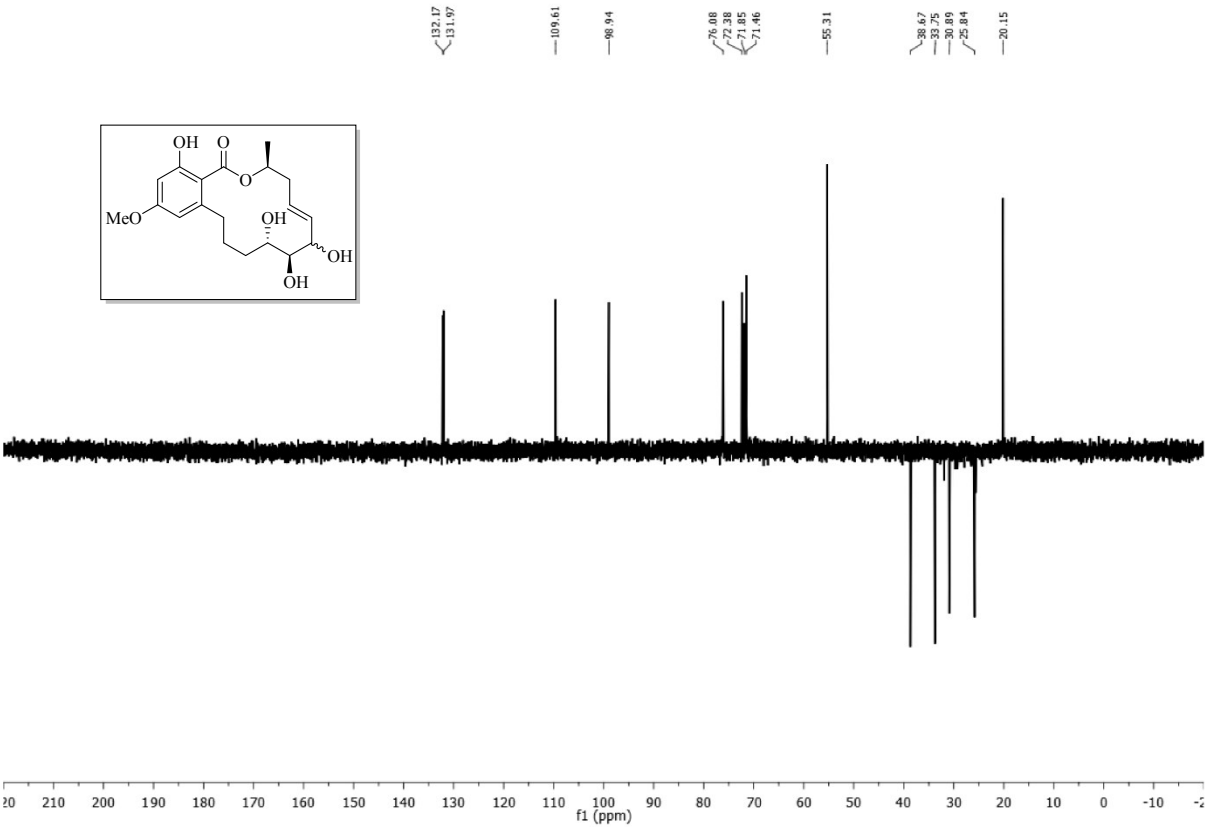
^{1}H NMR (600MHz) of compound 34 in $CDCl_3$



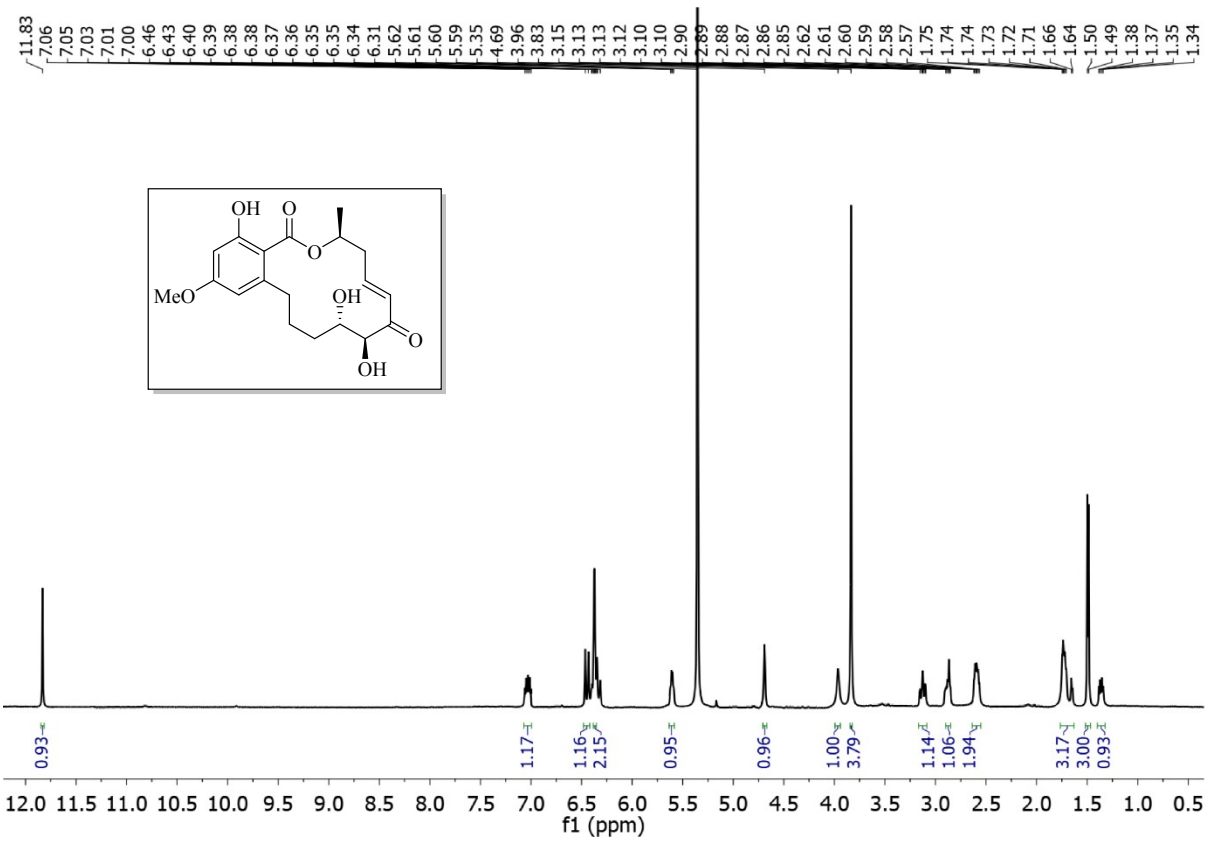
^{13}C NMR (150 MHz) of compound 34 in $CDCl_3$



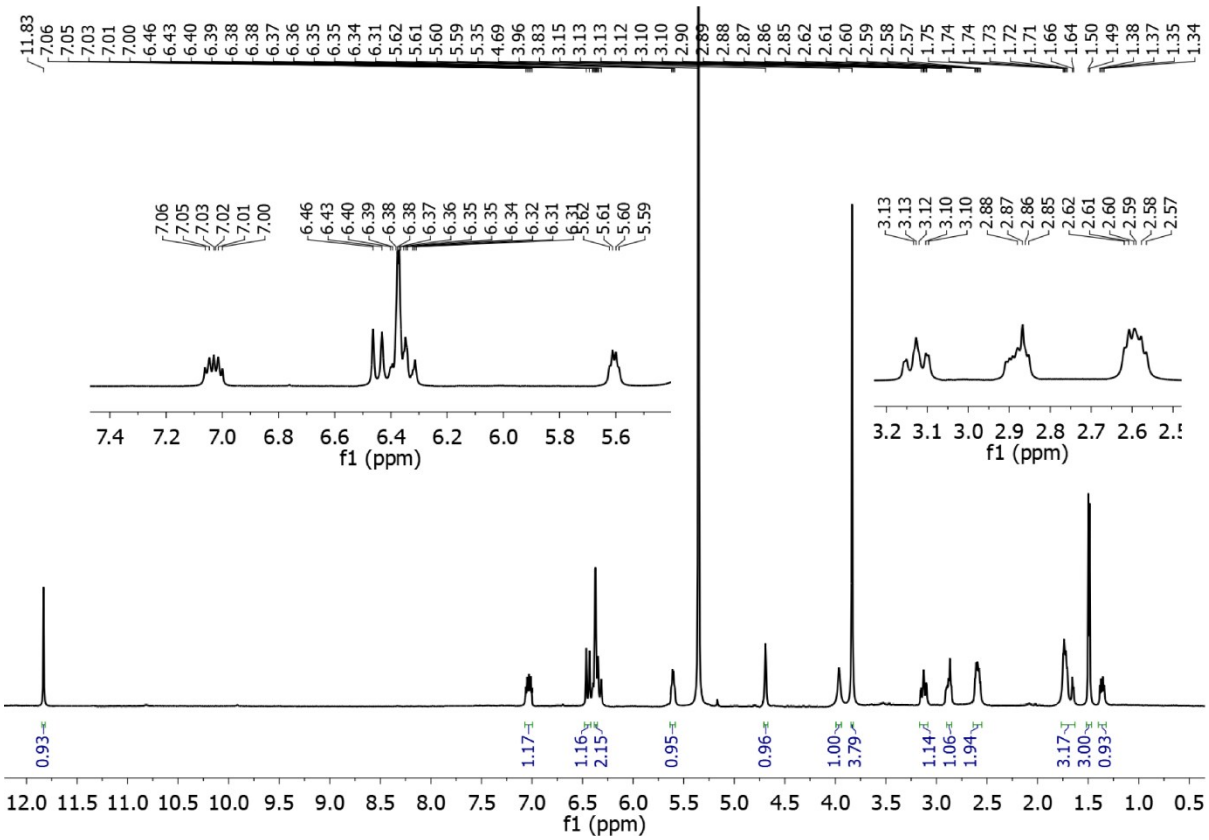
DEPT (150 MHz) NMR of compound 34 in $CDCl_3$



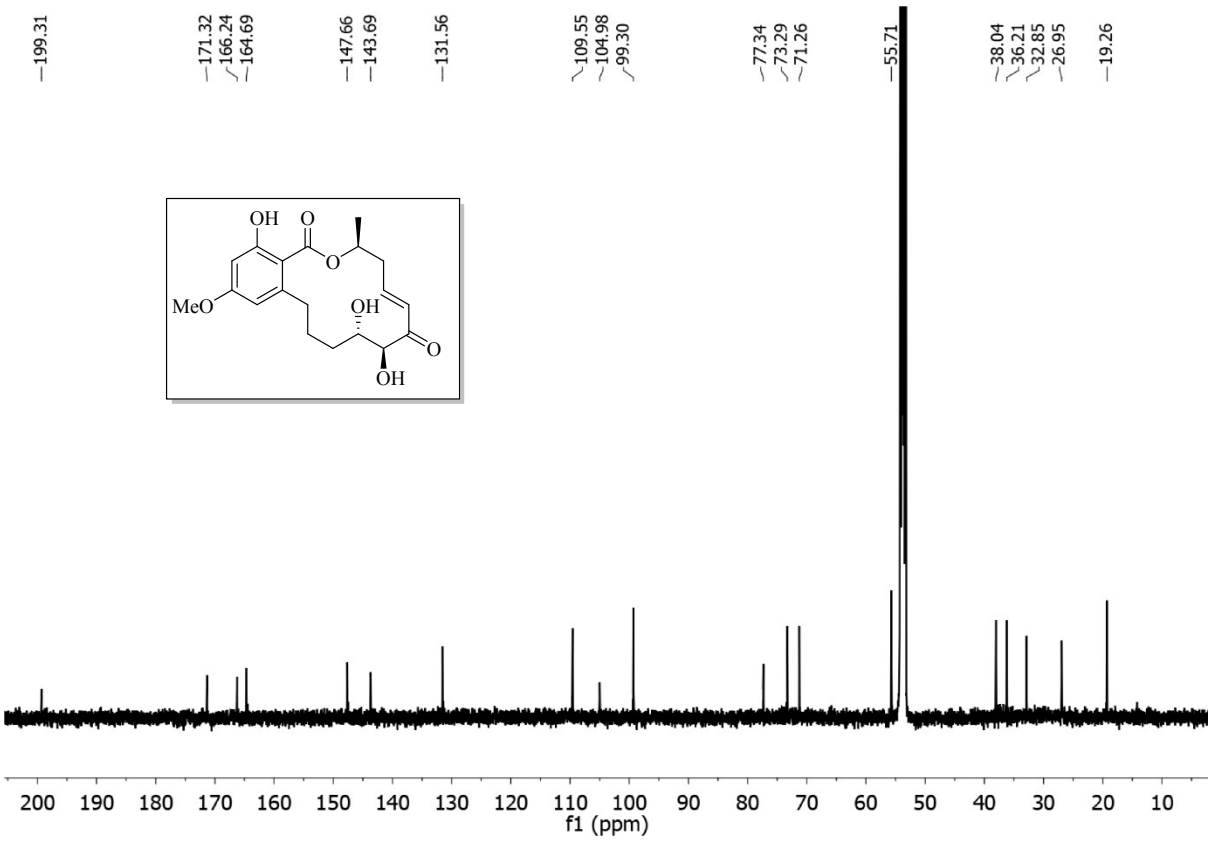
^{1}H NMR (500MHz) of L-783290 in CD_2Cl_2



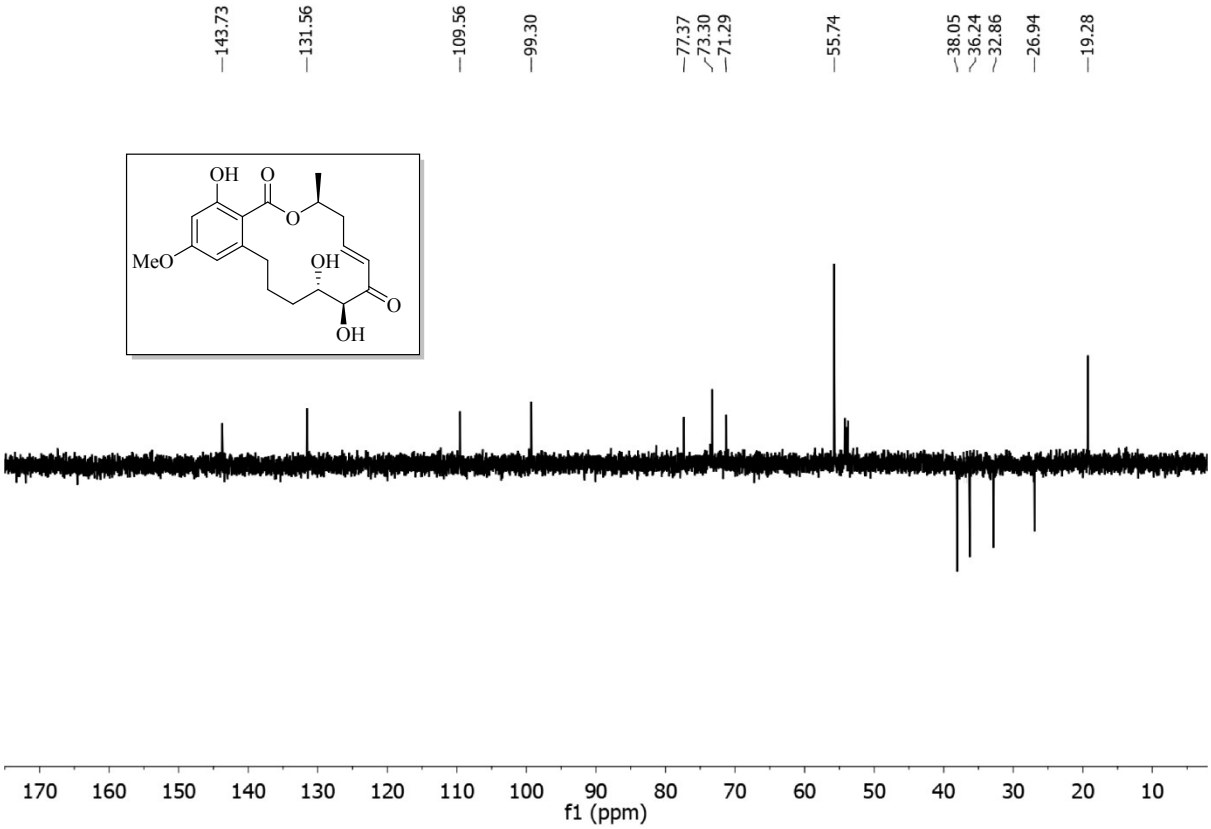
^{1}H NMR (500MHz) of L-783290 in CD_2Cl_2 (expanded)



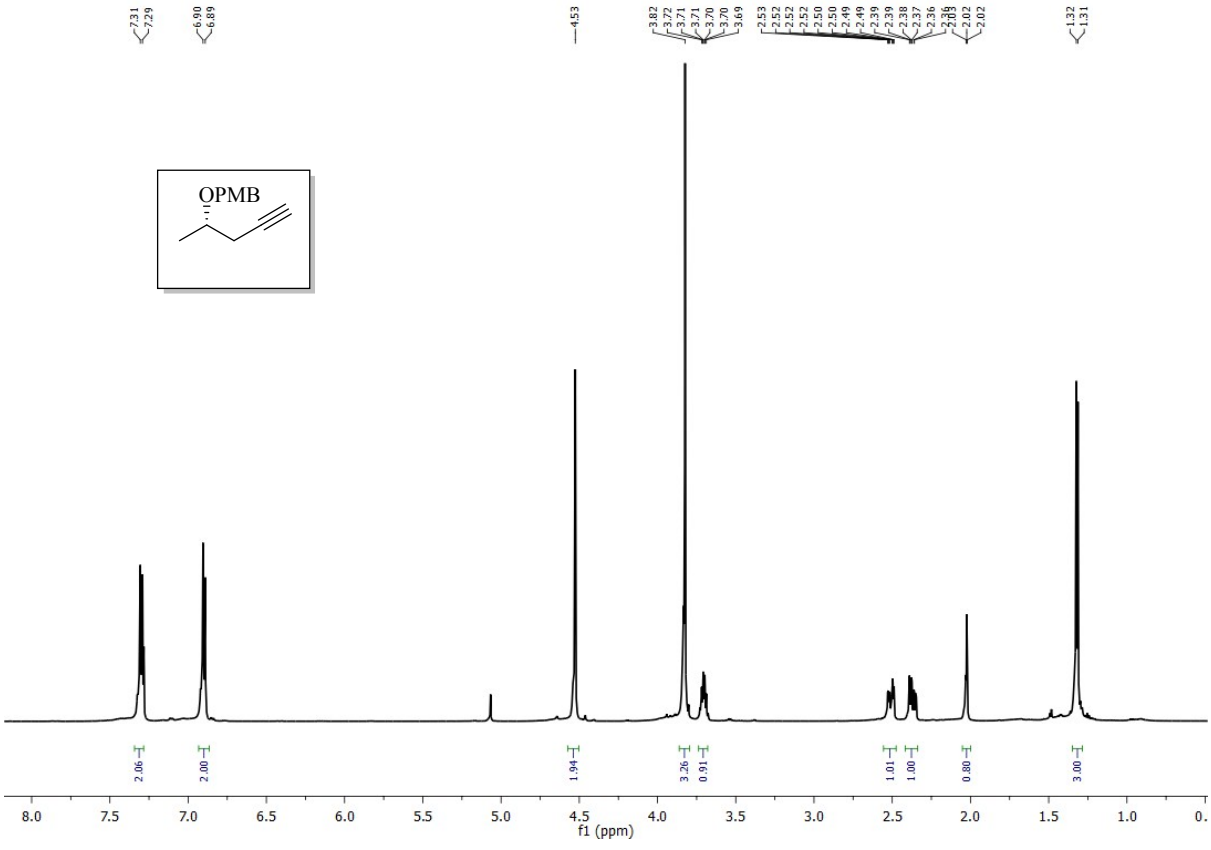
^{13}C NMR (125 MHz) of L-783290 in CD_2Cl_2



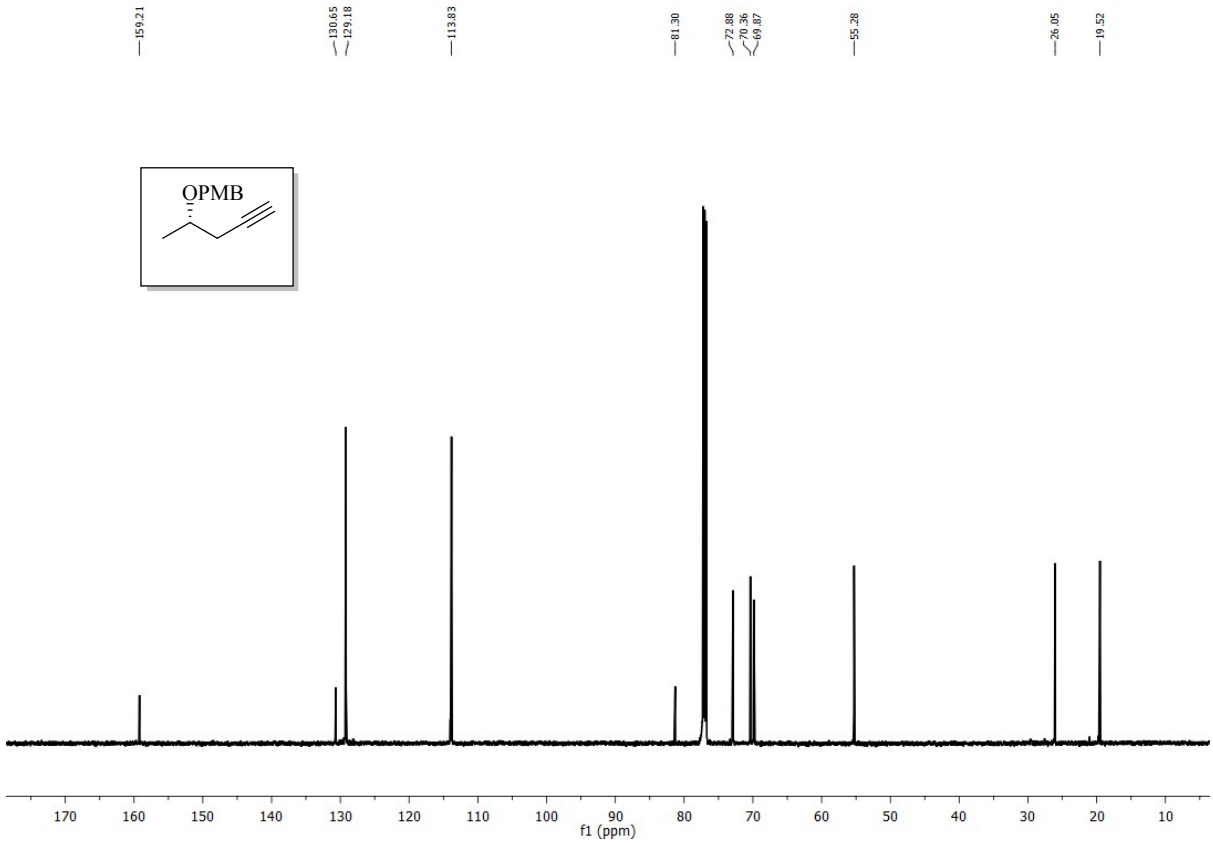
DEPT (125 MHz) NMR of L-783290 in CD_2Cl_2



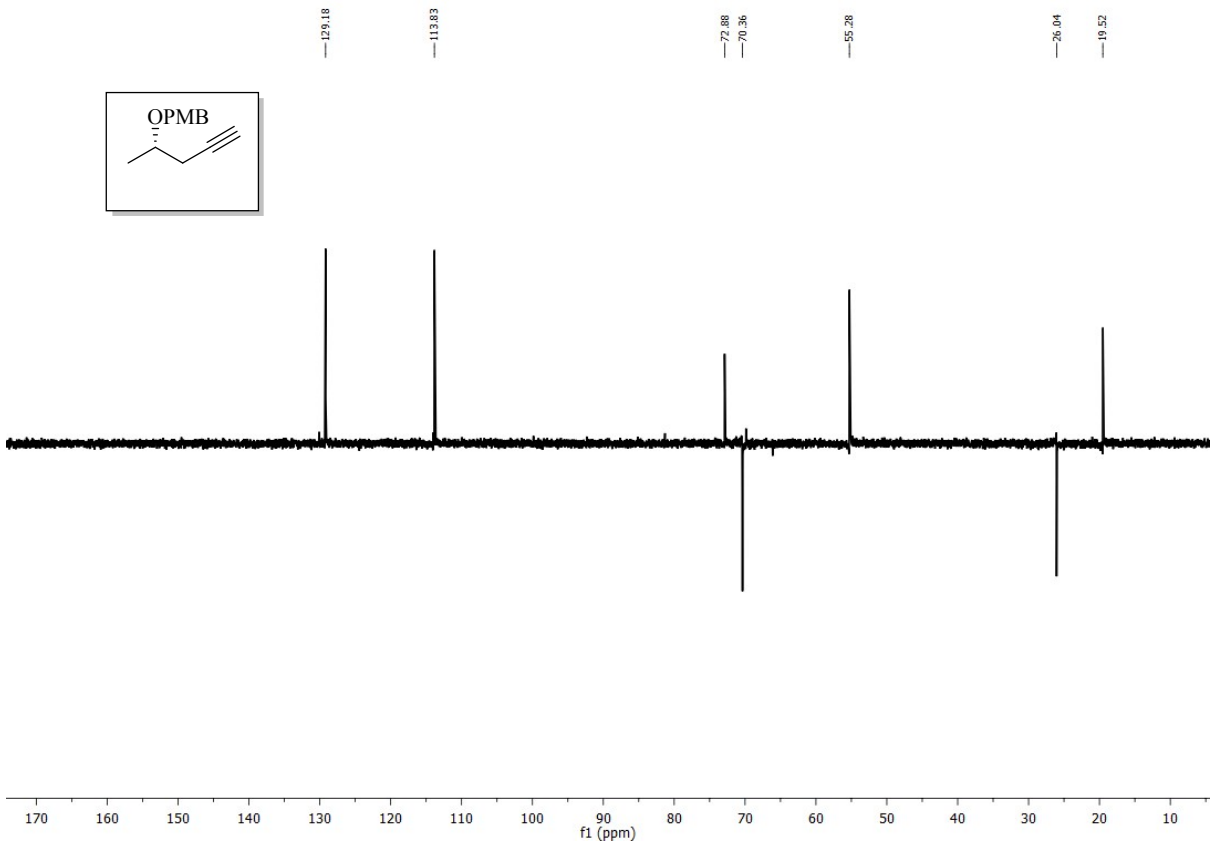
^{1}H NMR (600MHz) of compound 35 in $CDCl_3$



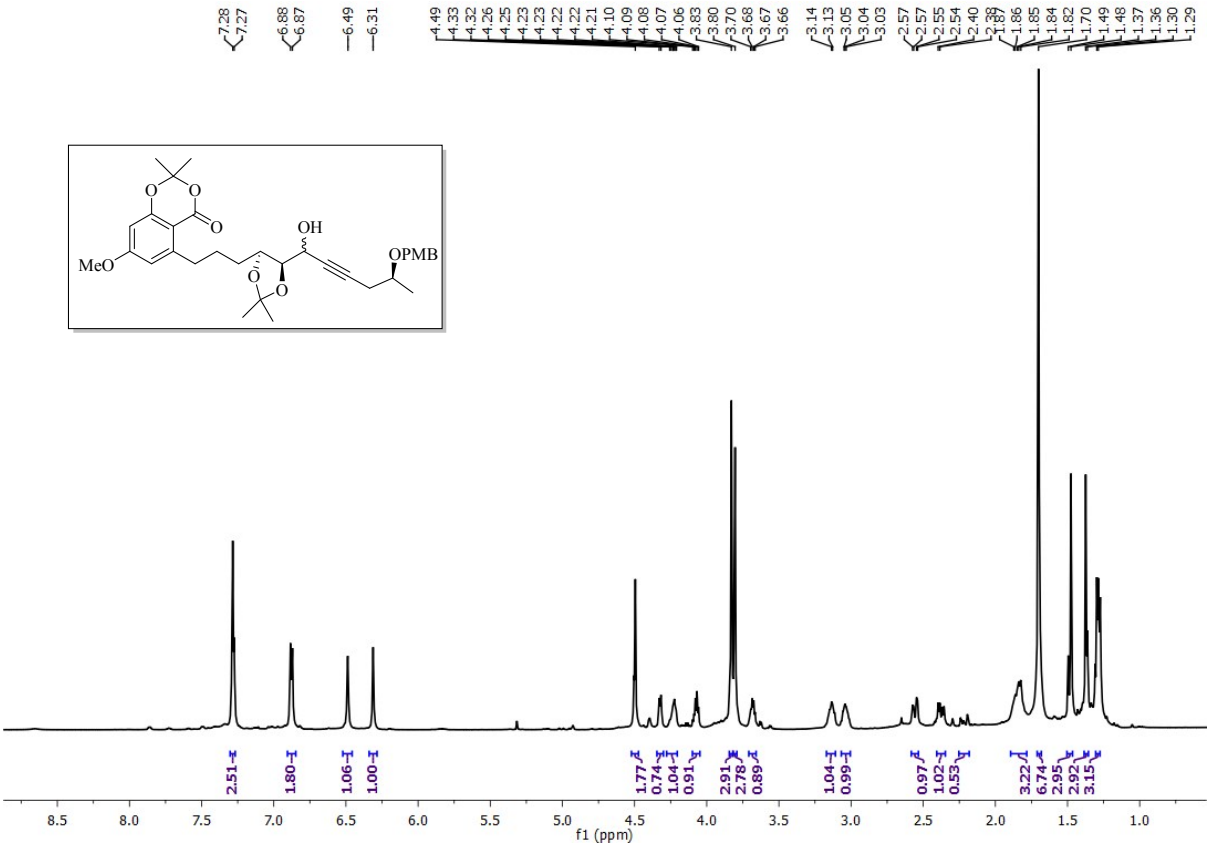
^{13}C NMR (150 MHz) of compound 35 in $CDCl_3$



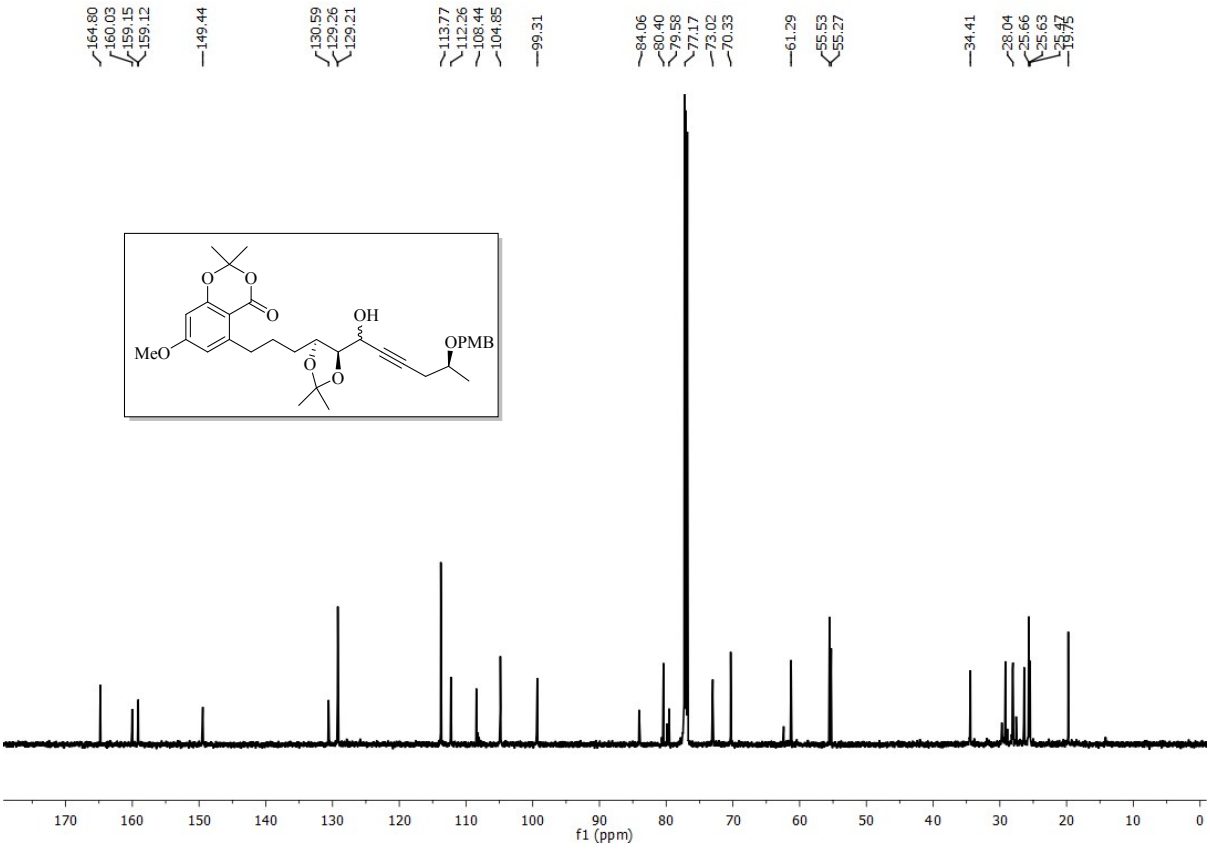
DEPT (150 MHz) NMR of compound 35 in $CDCl_3$



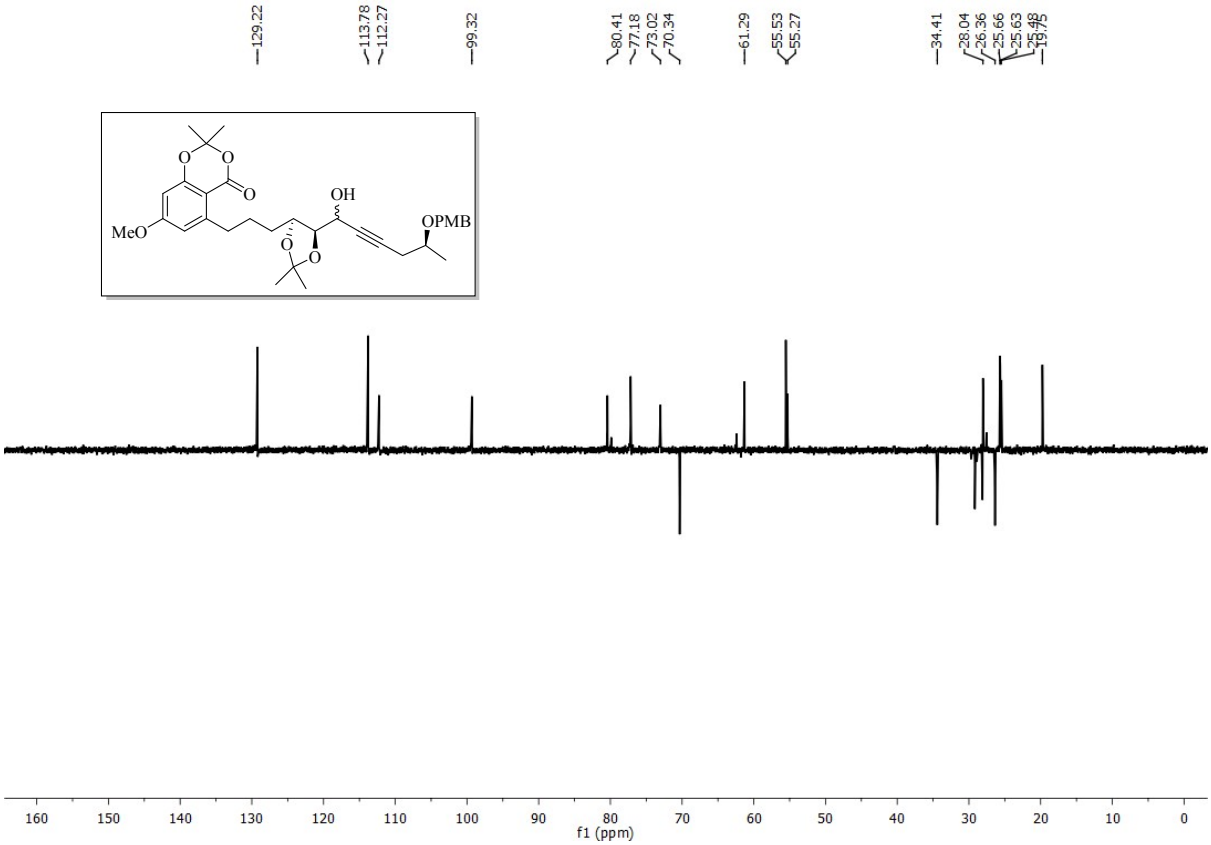
^{1}H NMR (600MHz) of compound 13 in $CDCl_3$



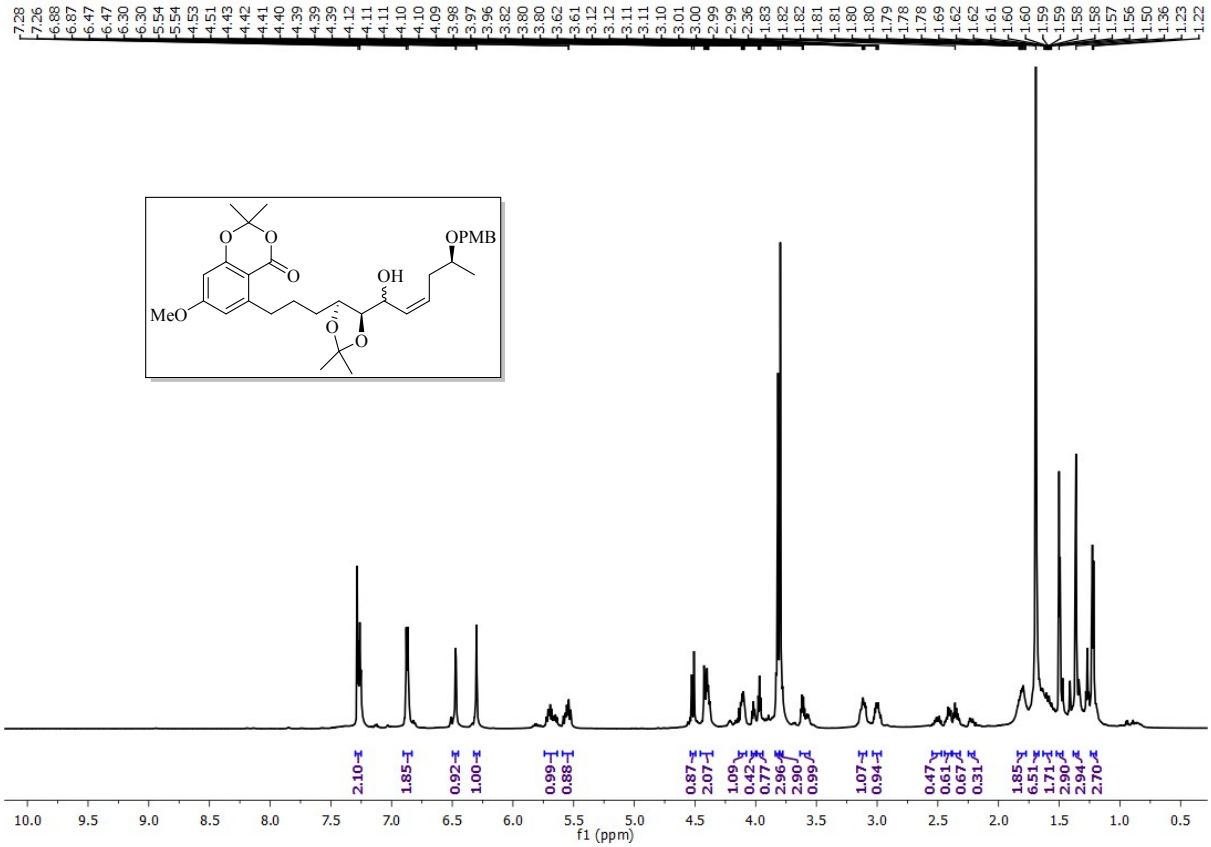
^{13}C NMR (150 MHz) of compound 13 in $CDCl_3$



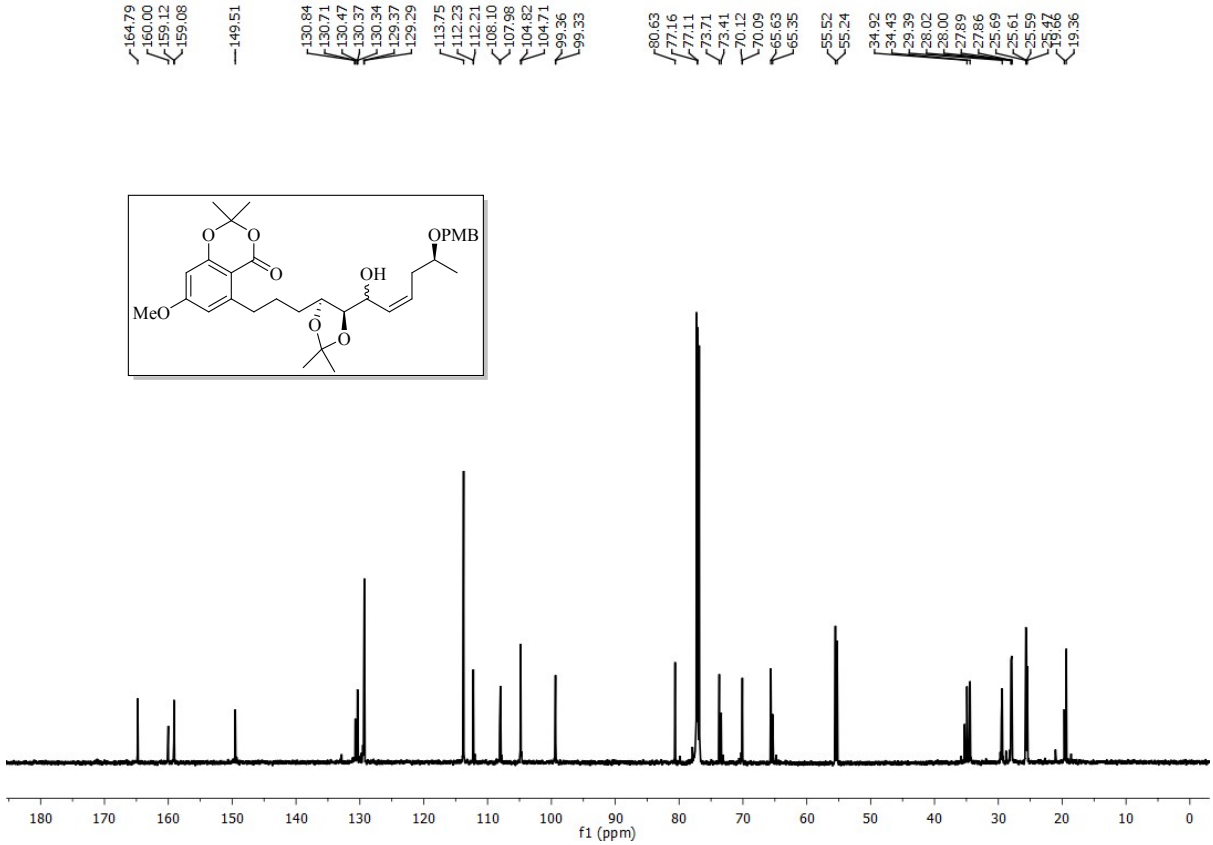
DEPT (150 MHz) NMR of compound 13 in $CDCl_3$



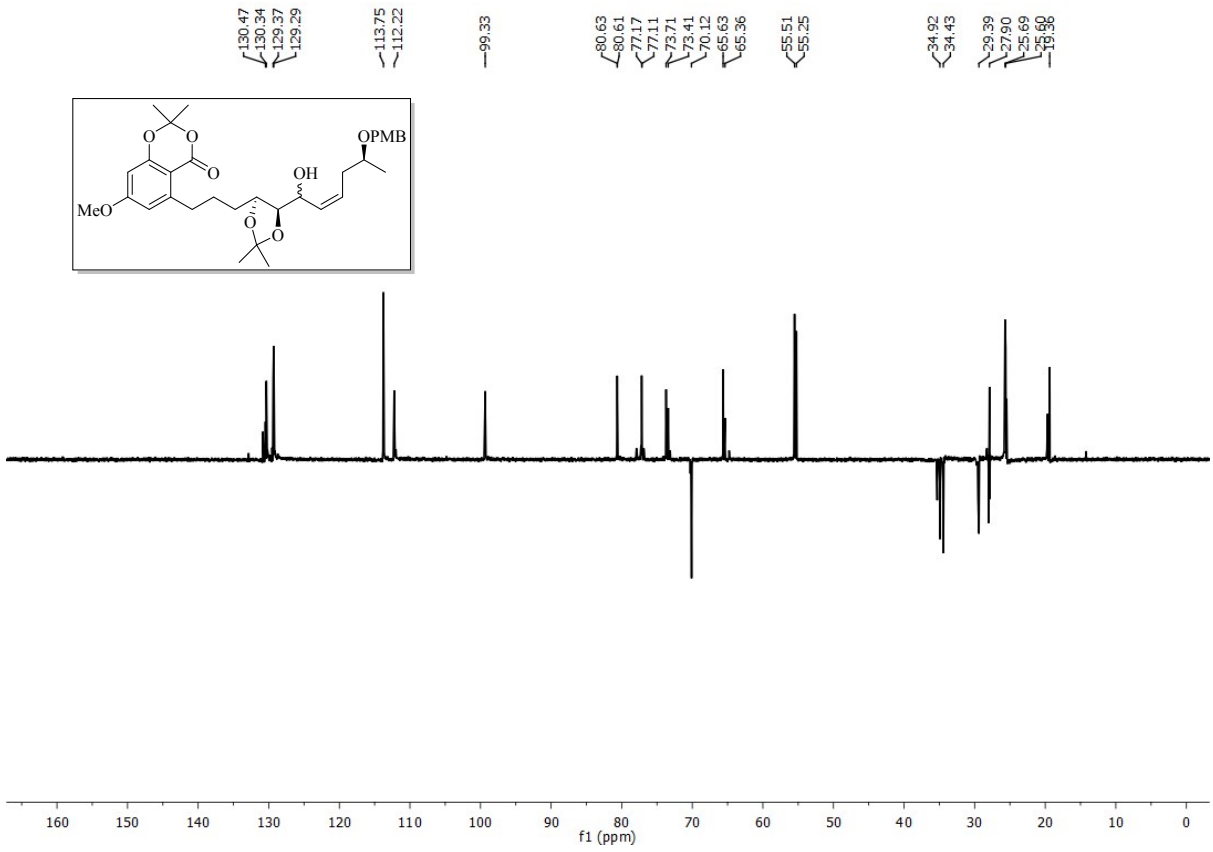
^{1}H NMR (600MHz) of compound 36 in $CDCl_3$



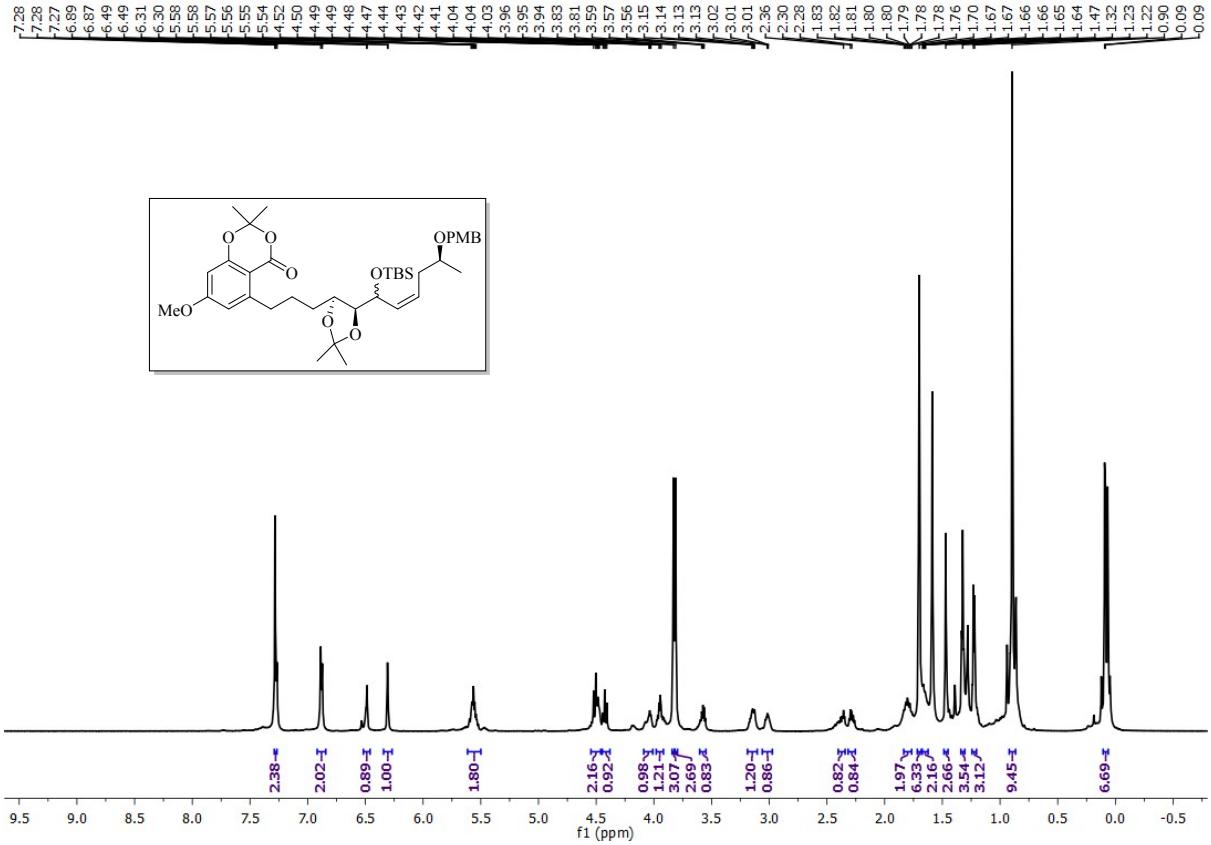
^{13}C NMR (150 MHz) of compound 36 in $CDCl_3$



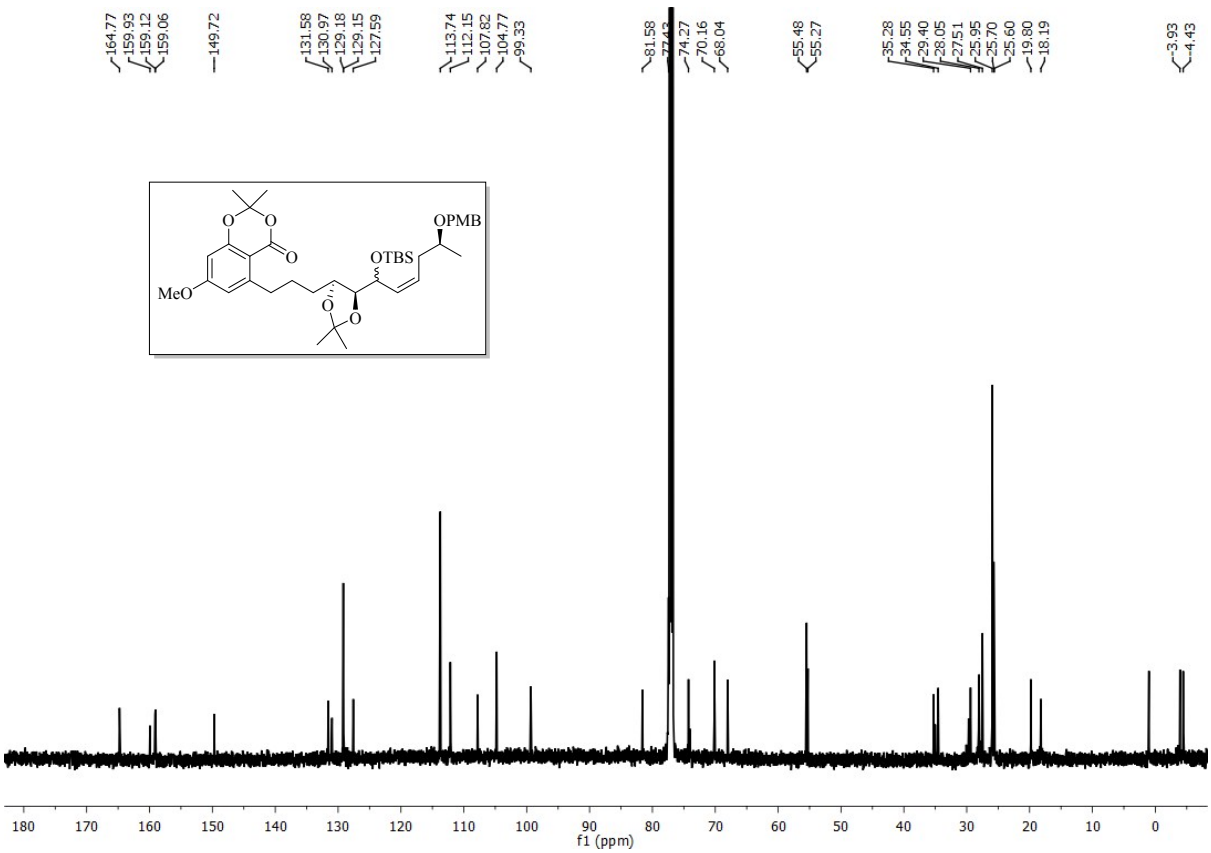
DEPT (150 MHz) NMR of compound 36 in $CDCl_3$



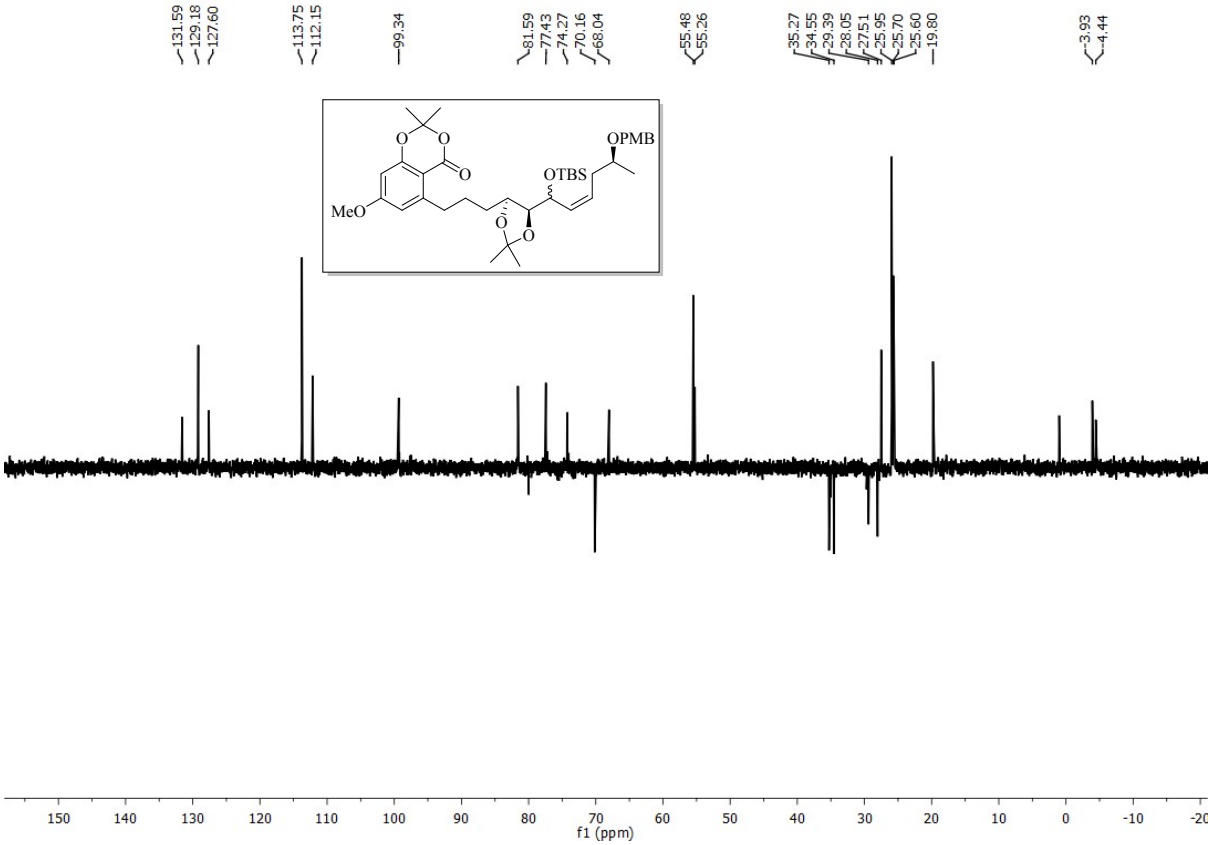
^{1}H NMR (600MHz) of compound 37 in $CDCl_3$



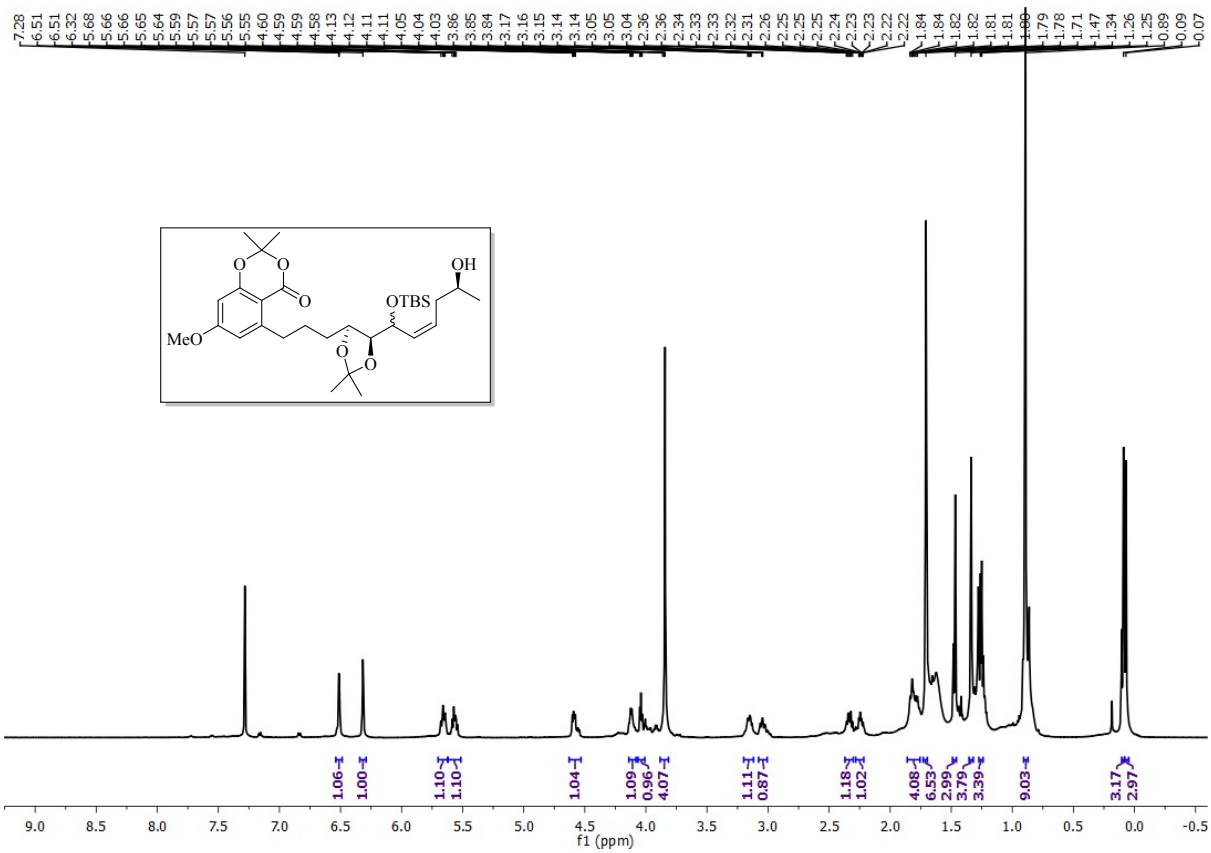
^{13}C NMR (150 MHz) of compound 37 in $CDCl_3$



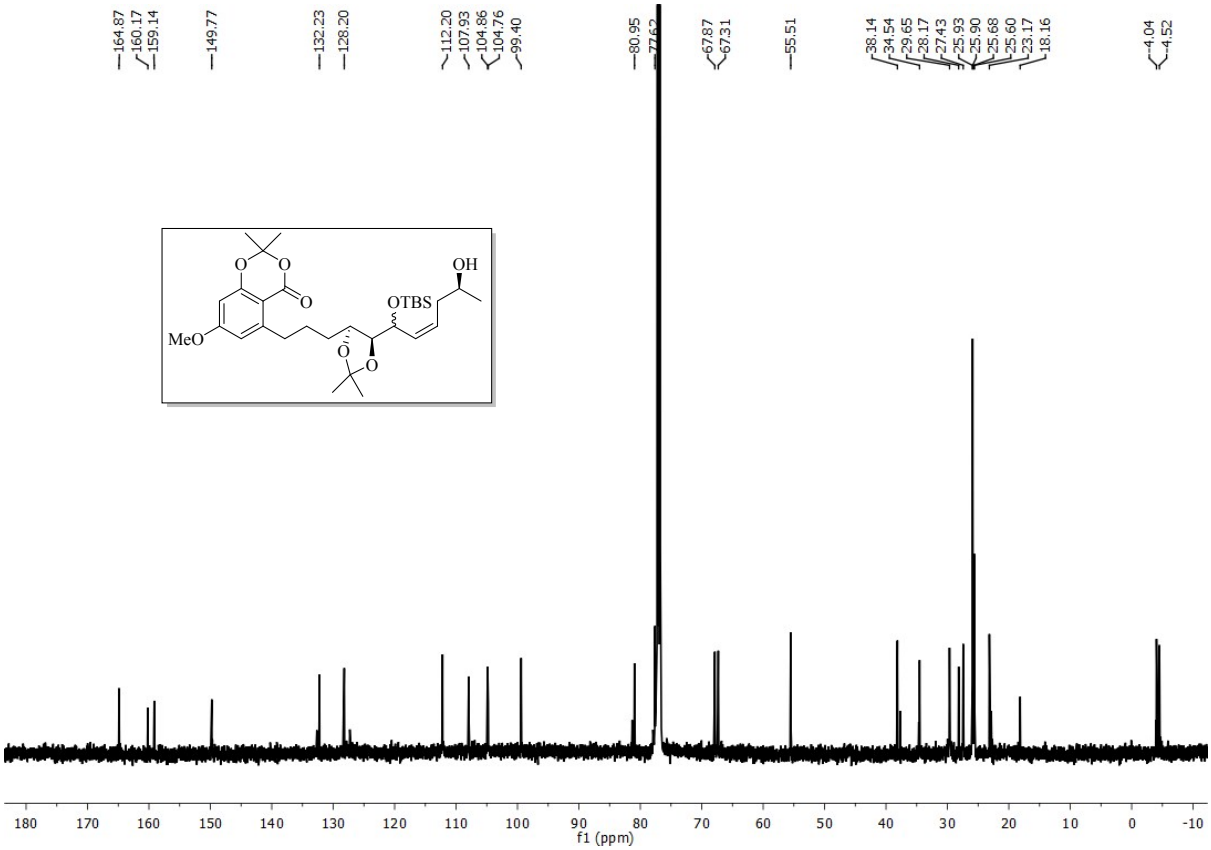
DEPT (150 MHz) NMR of compound 37 in $CDCl_3$



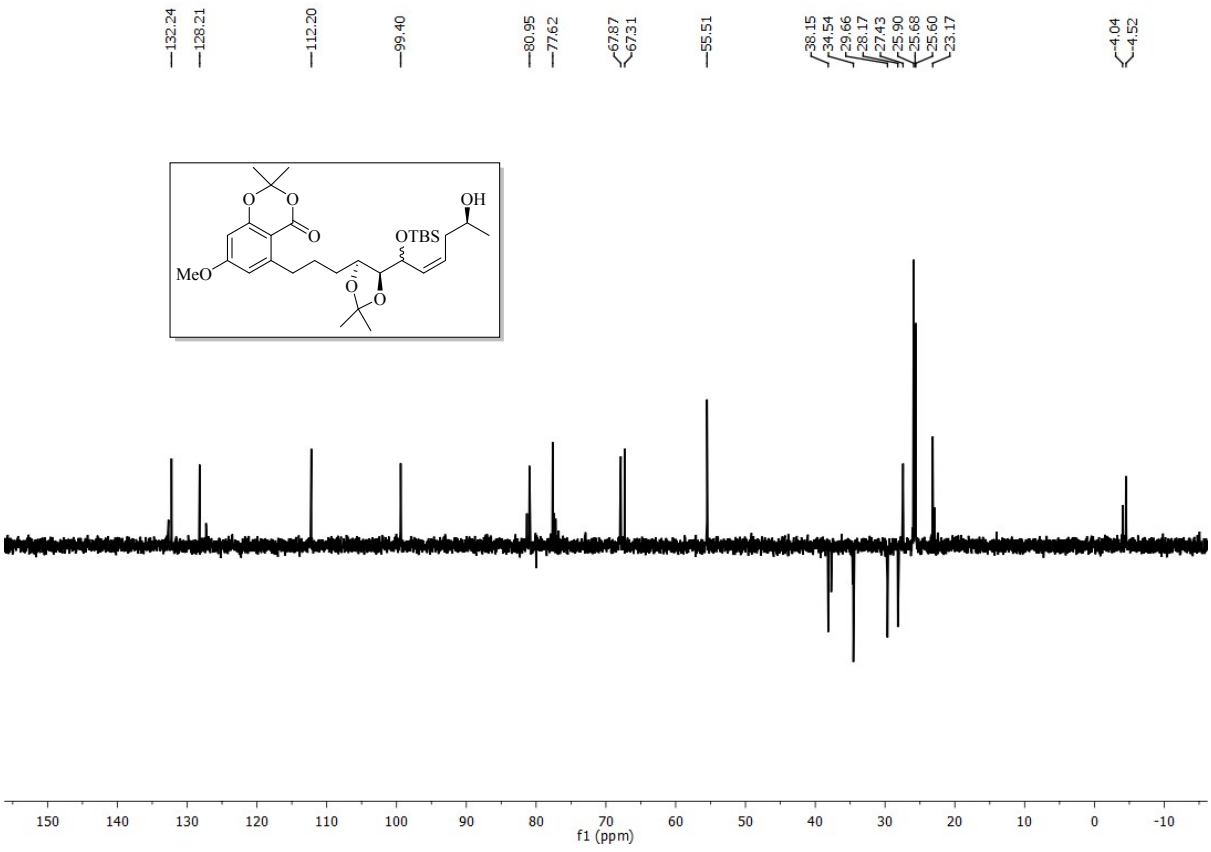
^{1}H NMR (600MHz) of compound 38 in $CDCl_3$



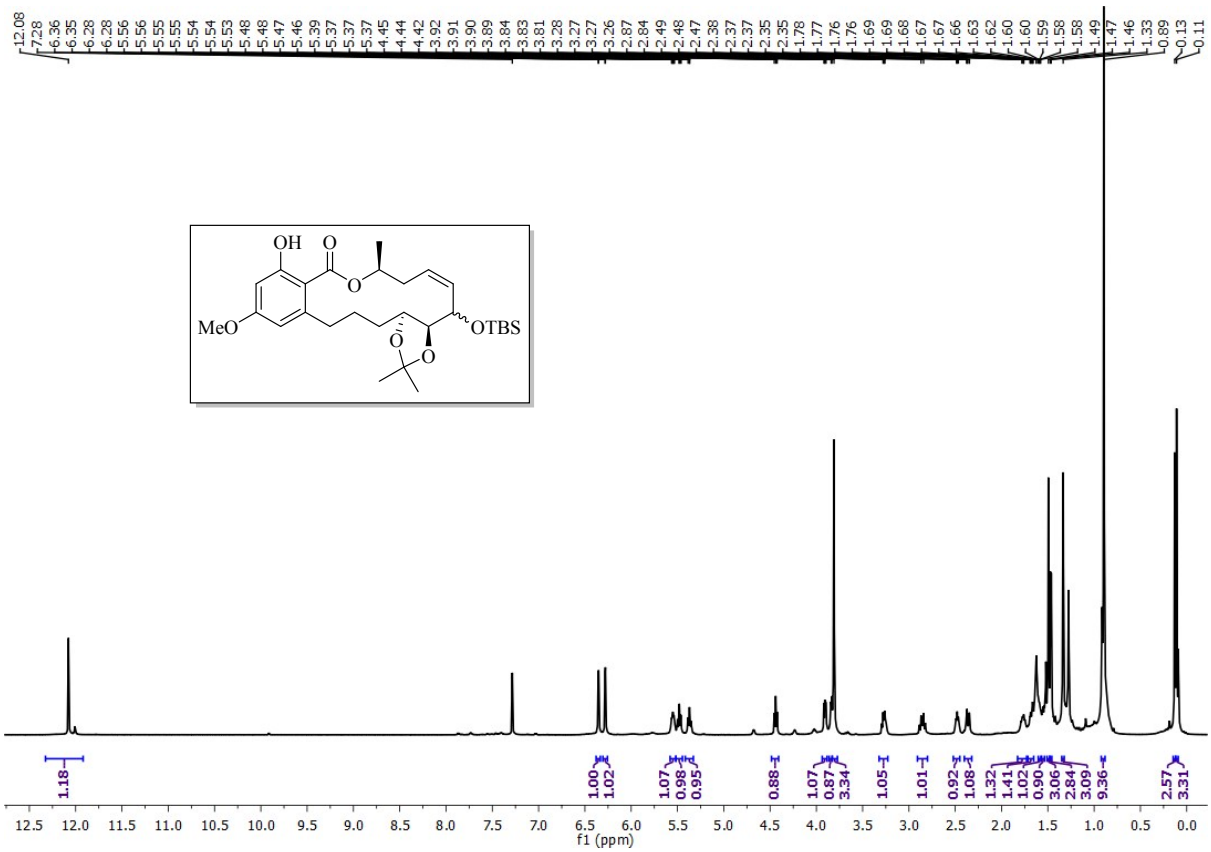
^{13}C NMR (150 MHz) of compound 38 in $CDCl_3$



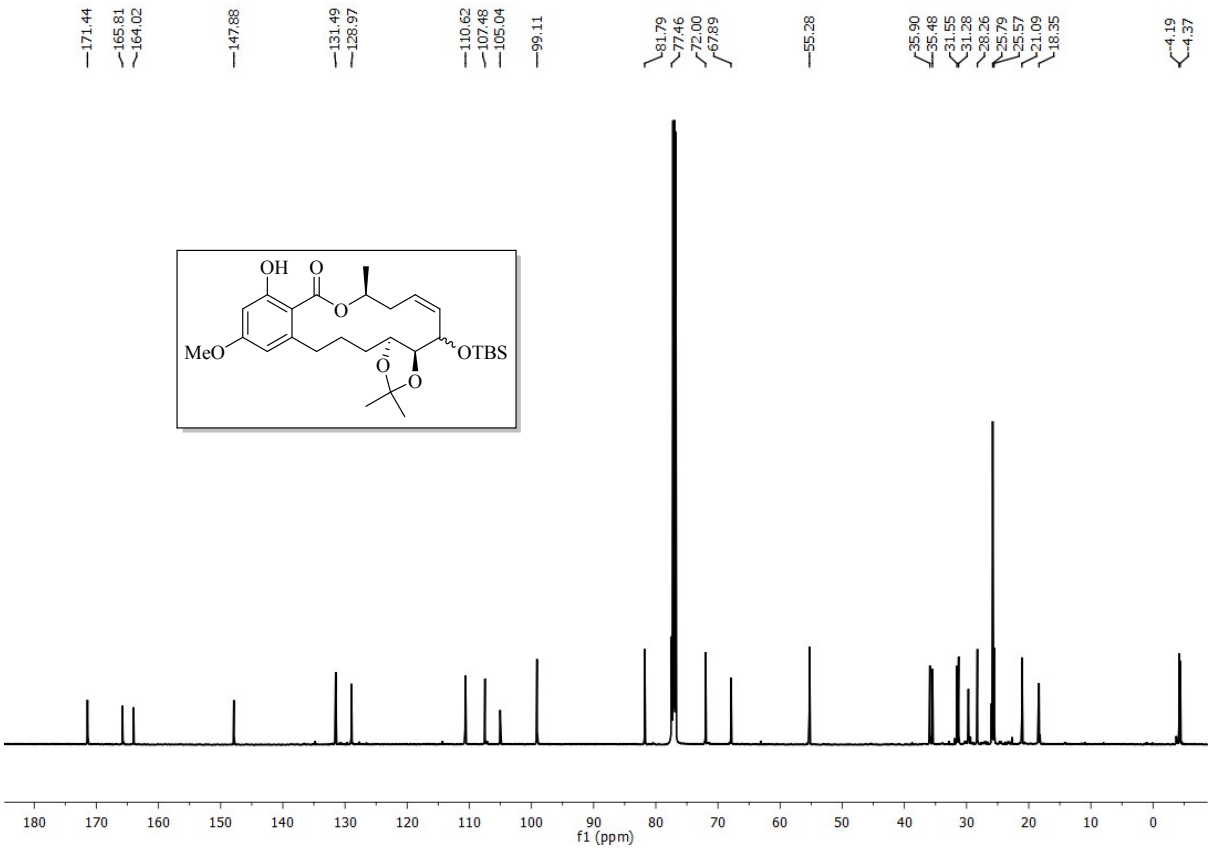
DEPT (150 MHz) NMR of compound 38 in $CDCl_3$



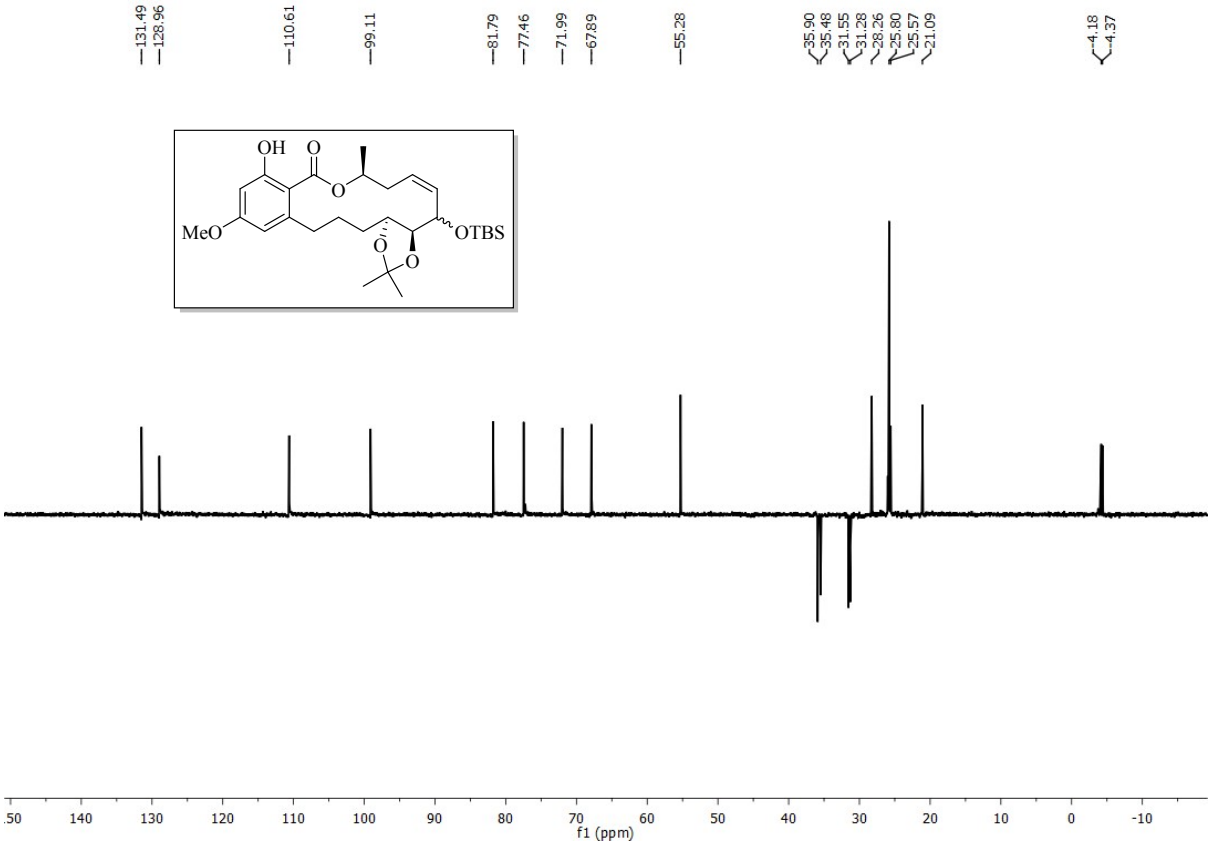
^{1}H NMR (600MHz) of compound 39 in $CDCl_3$



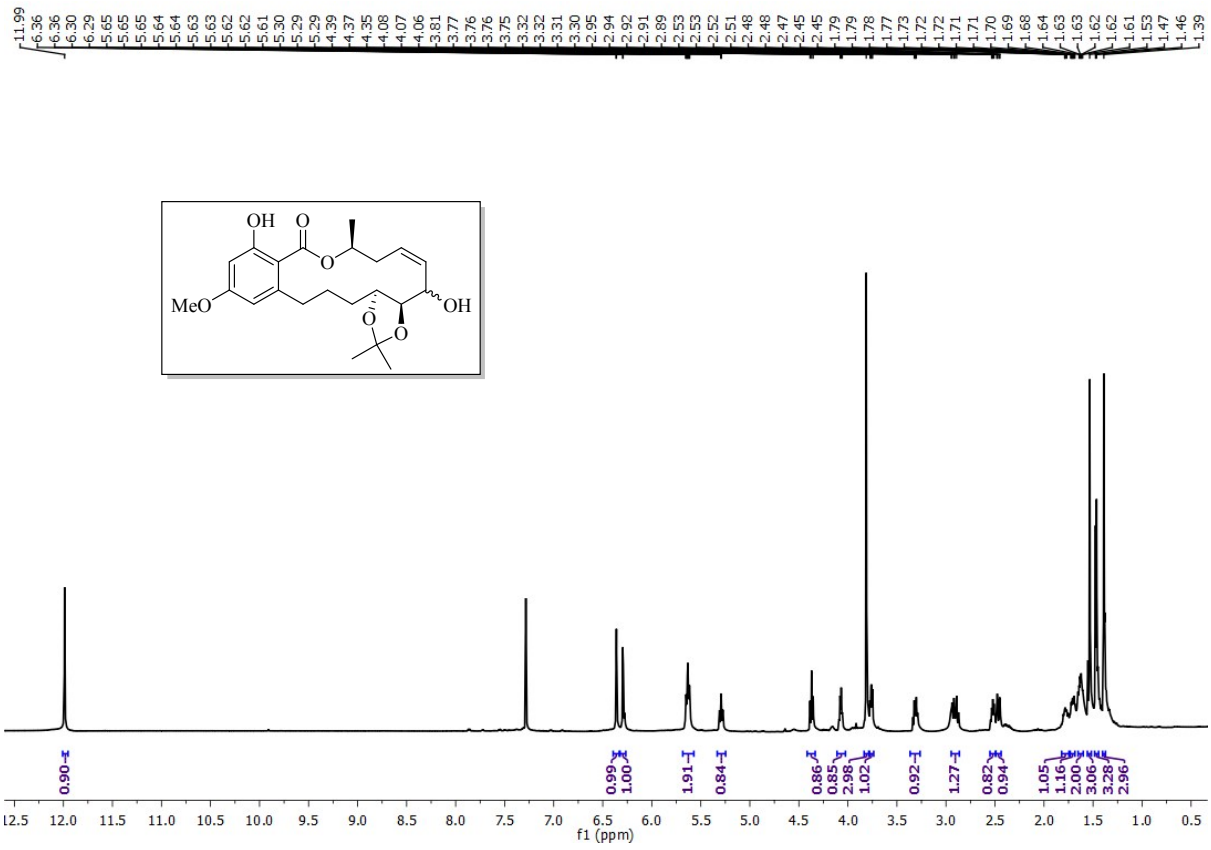
^{13}C NMR (150 MHz) of compound 39 in $CDCl_3$



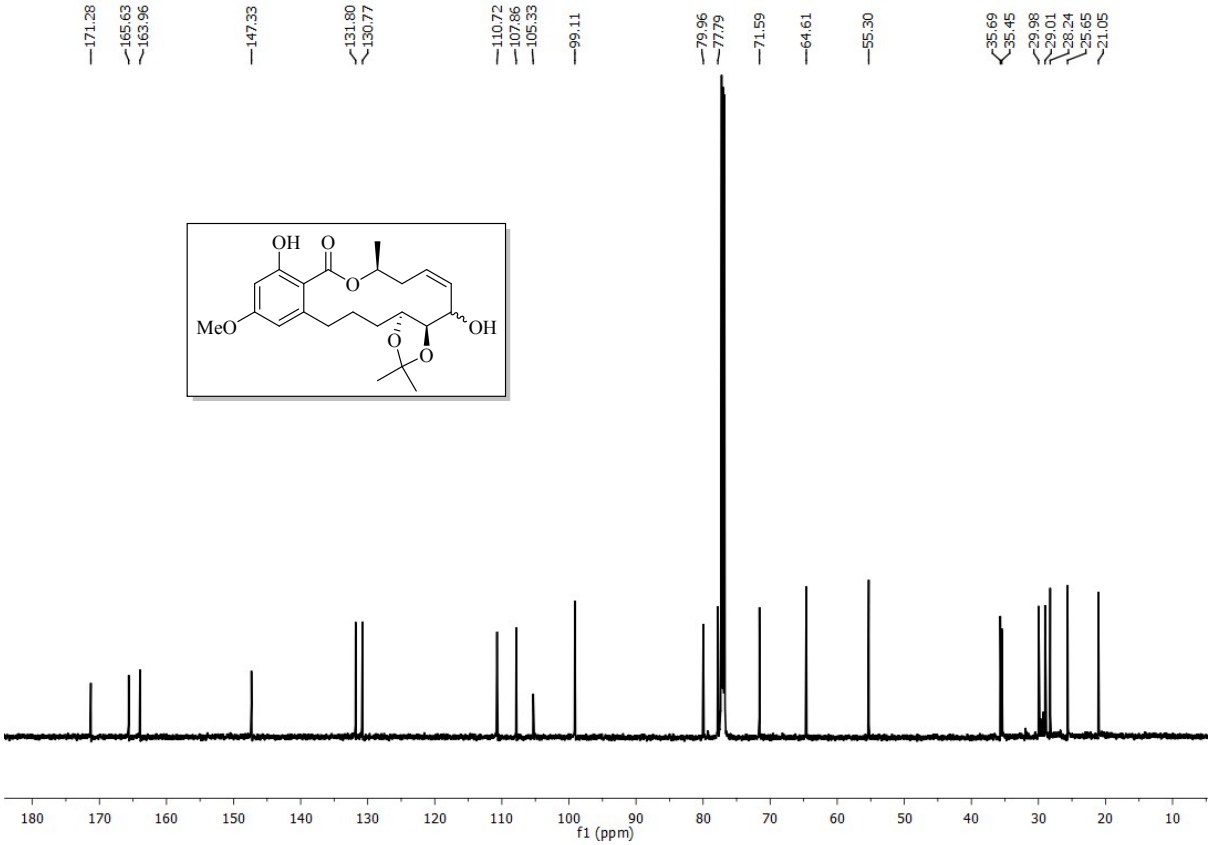
DEPT (150 MHz) NMR of compound 39 in $CDCl_3$



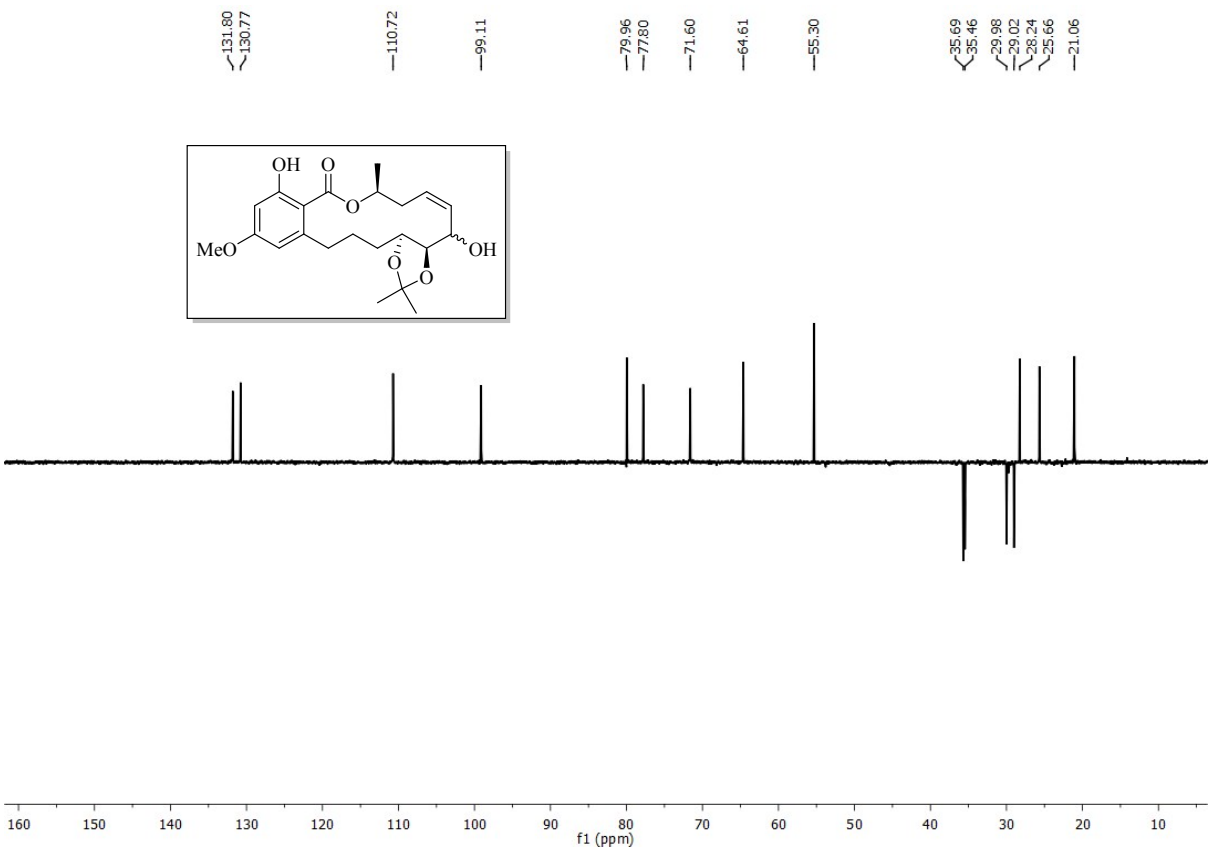
^{1}H NMR (600MHz) of compound 40 in $CDCl_3$



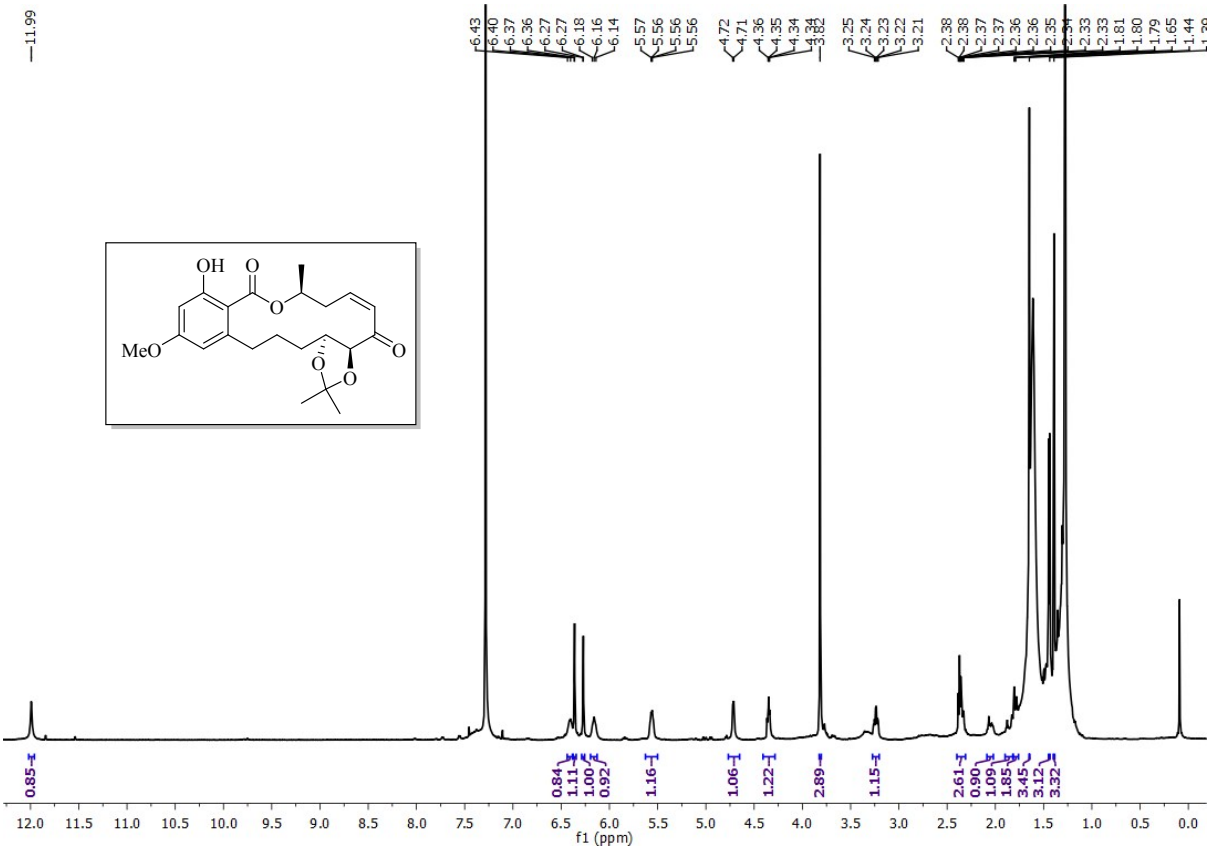
^{13}C NMR (150 MHz) of compound 40 in $CDCl_3$



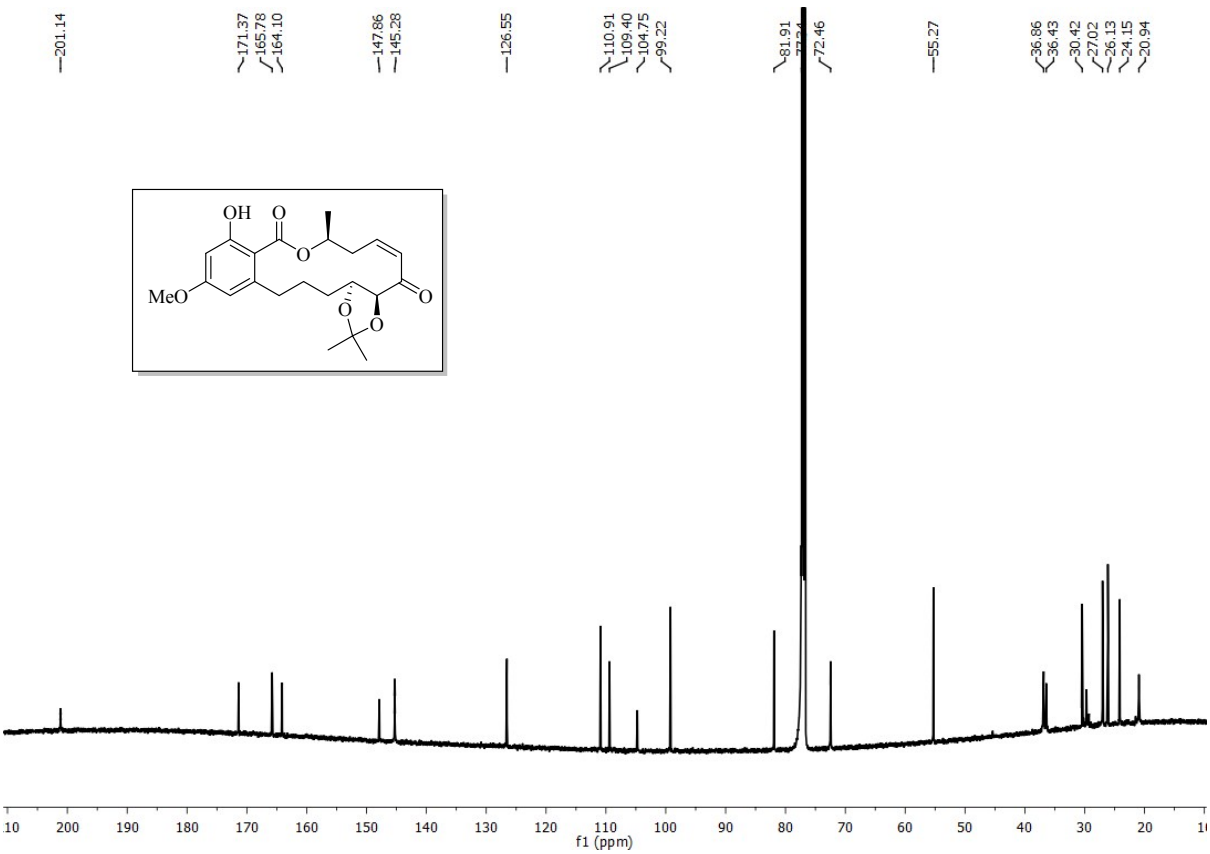
DEPT (150 MHz) NMR of compound 40 in $CDCl_3$



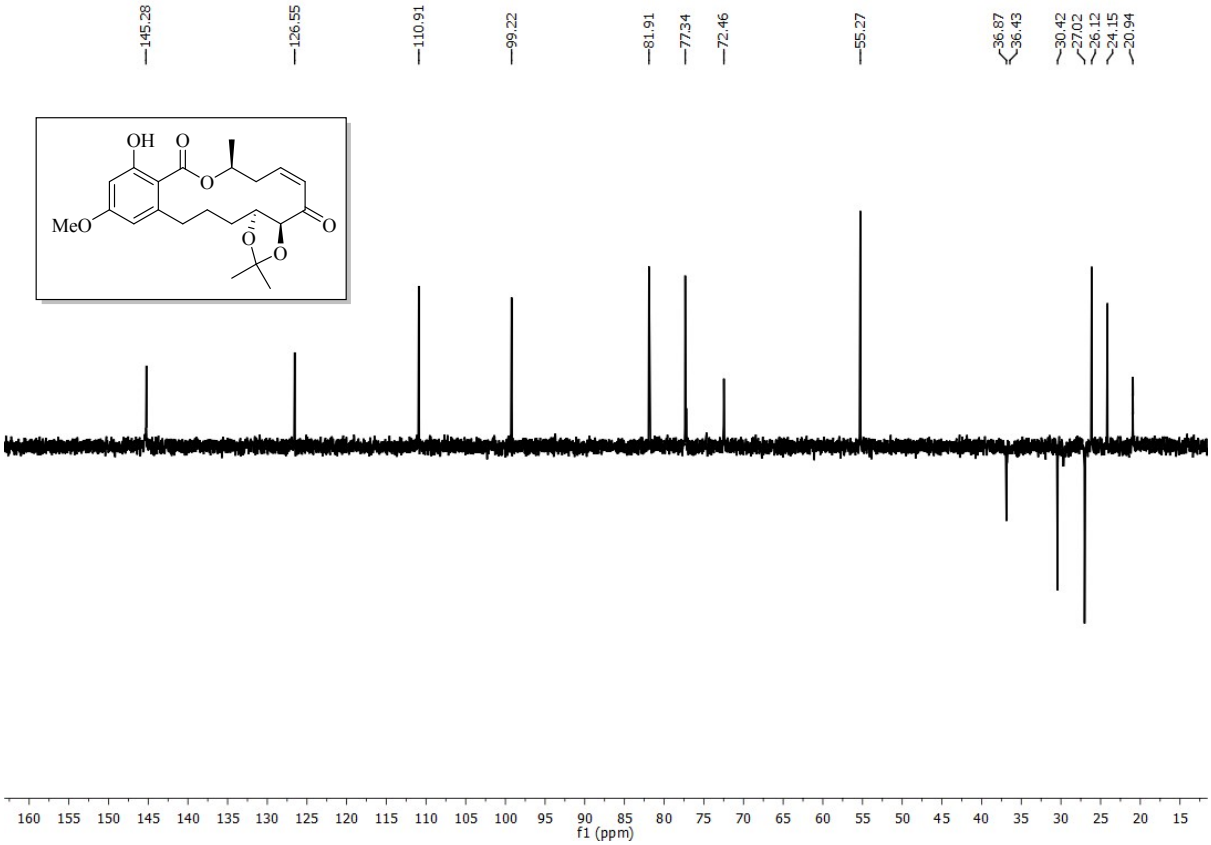
^{1}H NMR (600MHz) of compound 41 in $CDCl_3$



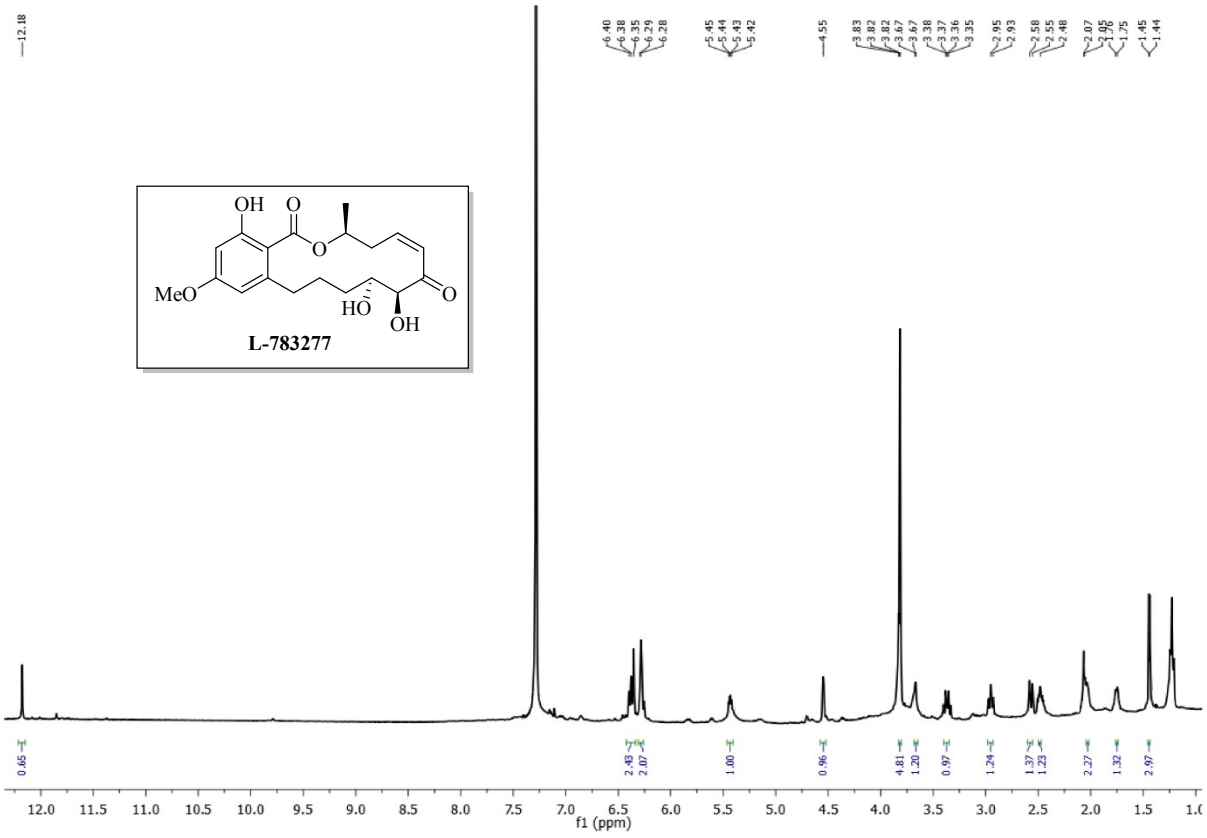
^{13}C NMR (150 MHz) of compound 41 in $CDCl_3$



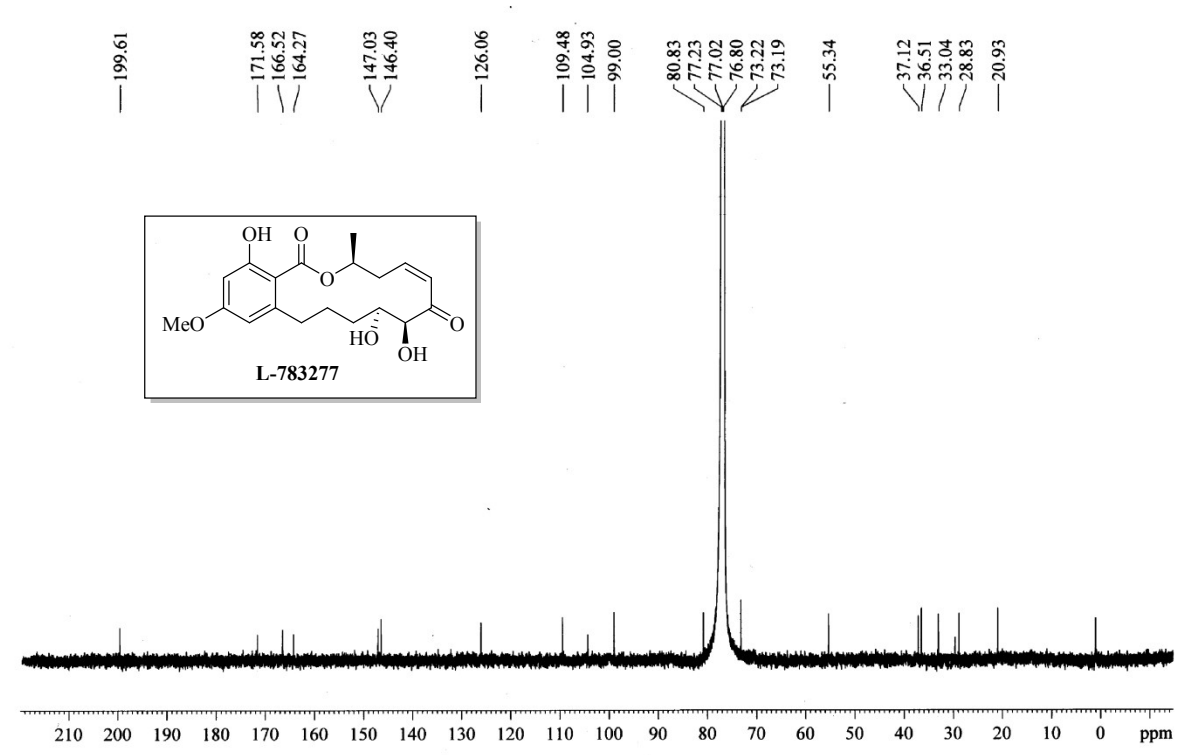
DEPT (150 MHz) NMR of compound 41 in $CDCl_3$



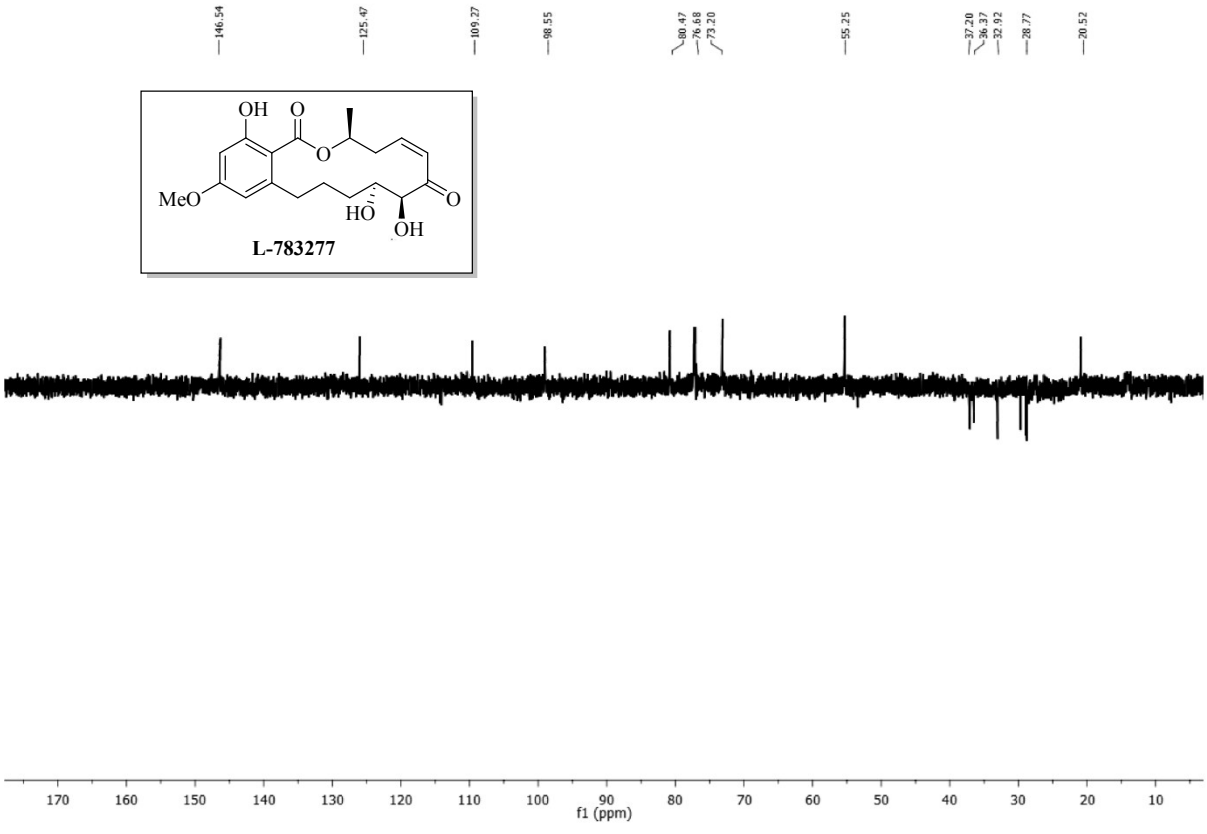
^{1}H NMR (600MHz) of L-783277 in $CDCl_3$



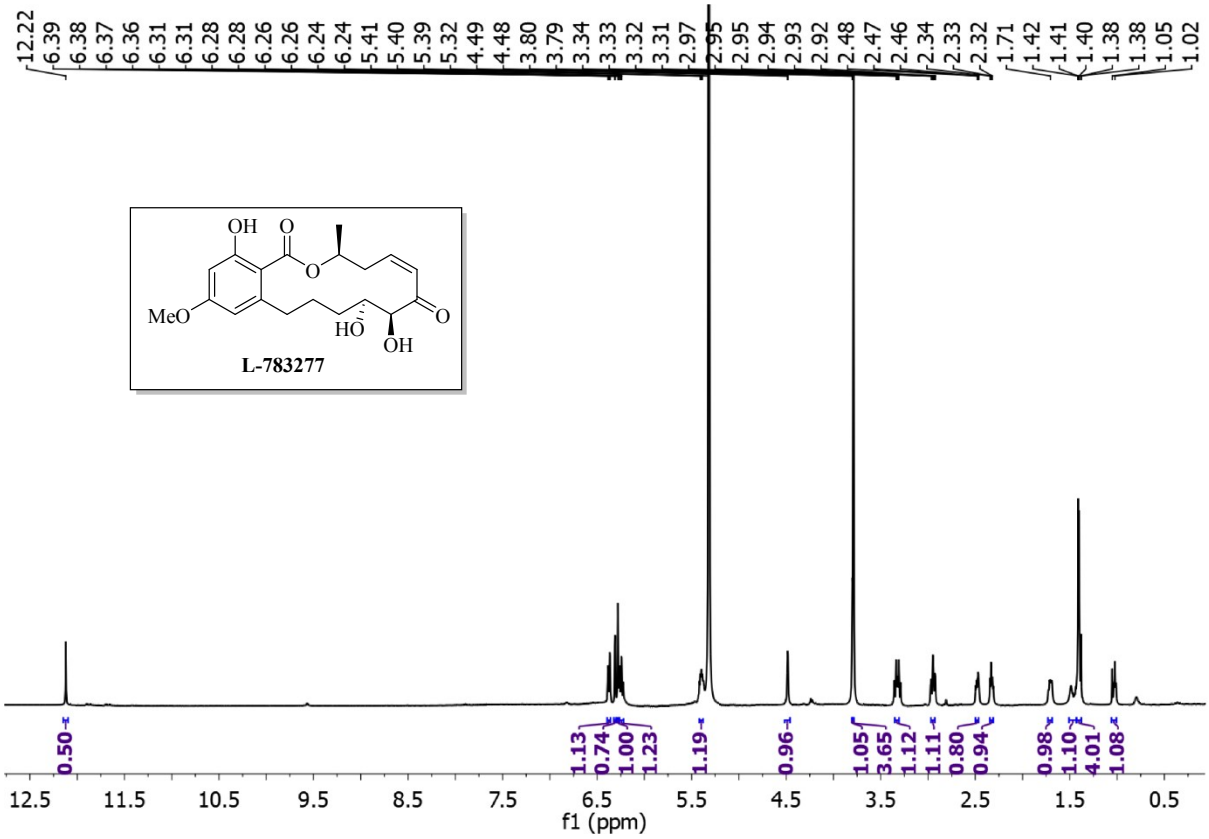
^{13}C NMR (150 MHz) of L-783277 in $CDCl_3$



DEPT (150 MHz) NMR of L-783277 in $CDCl_3$



^{1}H NMR (600MHz) of L-783277 in CD_2Cl_2



^{13}C NMR (150 MHz) of L-783277 in CD_2Cl_2