Supporting Information

Asymmetric Total Synthesis of Naturally Occurring Spirocyclic Tetranorsesquiterpenoid Lanceolactone A

Ranjan Kumar Acharyya and Samik Nanda*

Department of Chemistry, Indian Institute of Technology Kharagpur, Kharagpur, 721302, India

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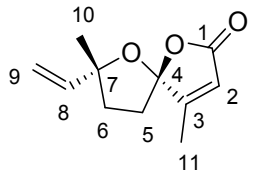
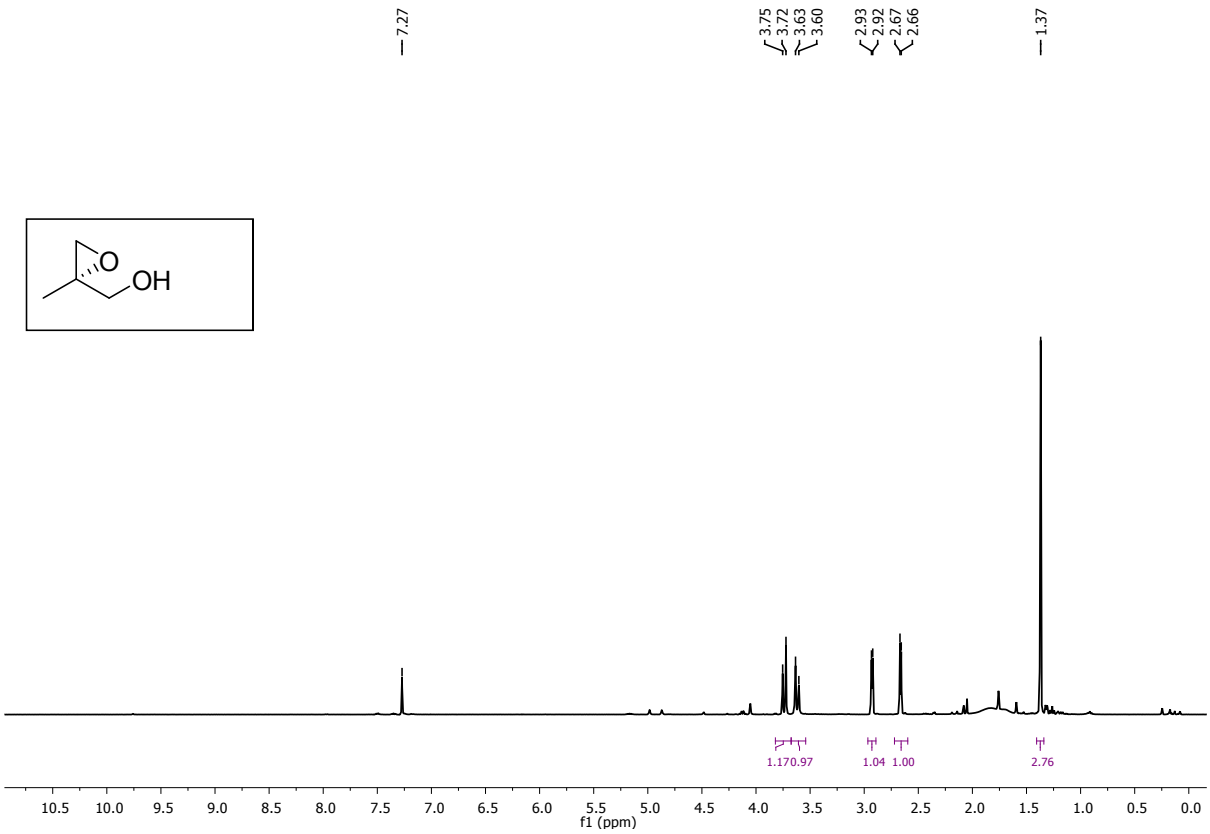
Table SI-1: NMR comparison table of natural and synthetic Lanceolactone A

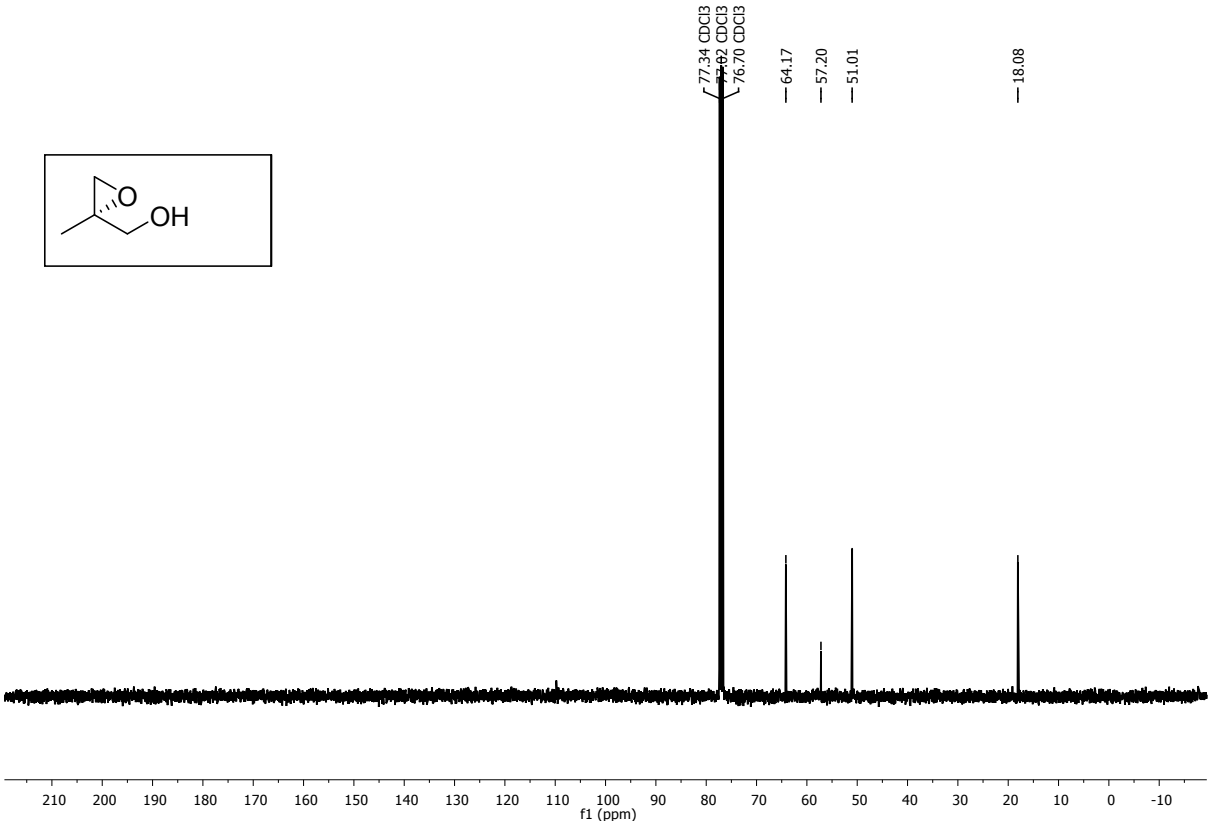


Position	Reported ^{1}H δ (ppm); *J* (Hz)	Observed ^{1}H δ (ppm); *J* (Hz)	Δδ (ppm)	Reported ^{13}C δ (ppm)	Observed ^{13}C δ (ppm)	Δδ (ppm)
1				170.0	169.9	0.1
2	5.86, q, (1.4)	5.87, q, (1.6)	0.01	119.4	119.4	0.0
3				163.9	163.8	0.1
4				115.2	115.1	0.1
5	2.08, m; 2.21, m	2.09, m; 2.22, m		34.3	34.3	0.0
6	2.18, m; 2.25, m	2.18, m; 2.24, m		36.1	36.0	0.1
7				87.5	87.4	0.1
8	5.92, dd, (10.7, 1.1)	5.93, dd, (10.8, 1.2)	0.01	142.2	142.2	0.0
9	5.06, dd, (10.7, 1.1) 5.27, dd, (17.3, 1.2)	5.09, dd, (10.8, 1.2), 5.27, dd, (17.3, 1.2)		112.2	112.2	0.0
10	1.52, s	1.54, s	0.02	27.7	27.7	0.0
11	2.05, d, (1.4)	2.07, d, (1.6)	0.02	12.6	12.5	0.1

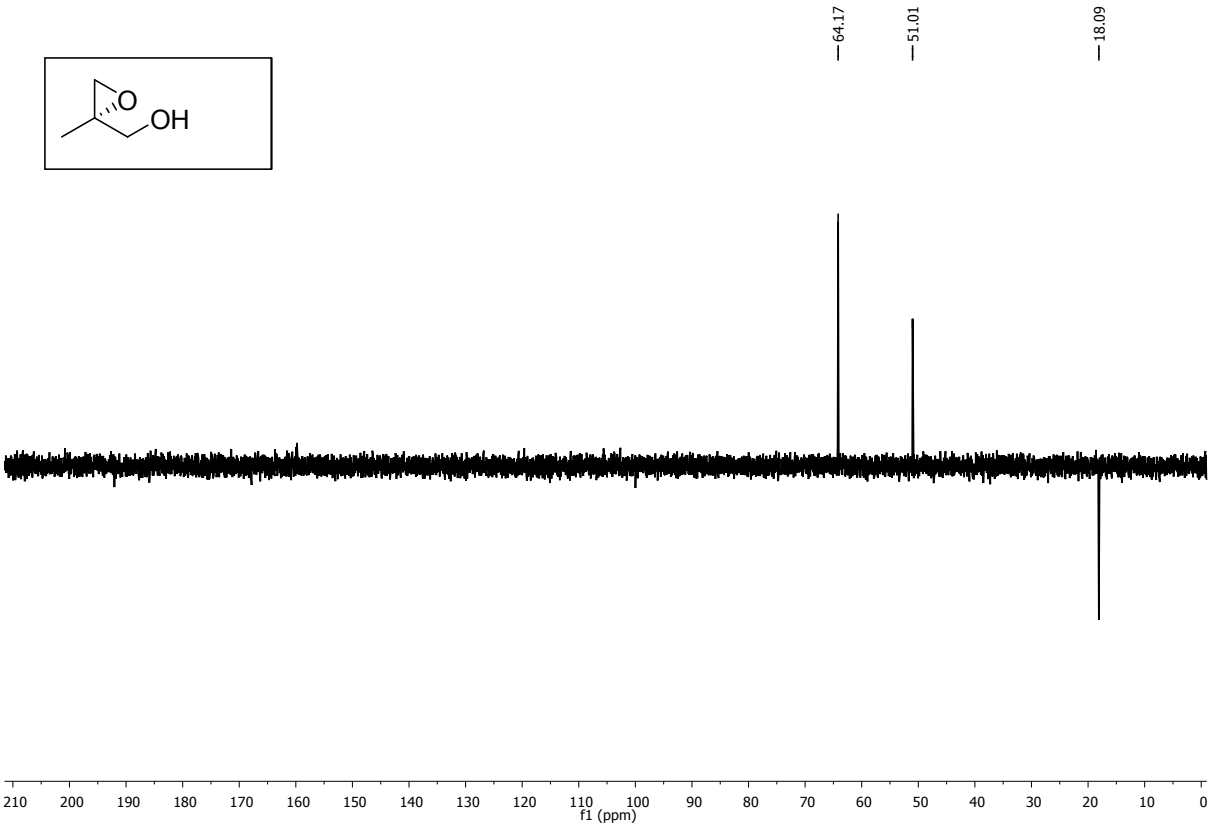
^{1}H NMR of compound 6 (400 MHz, $CDCl_3$)



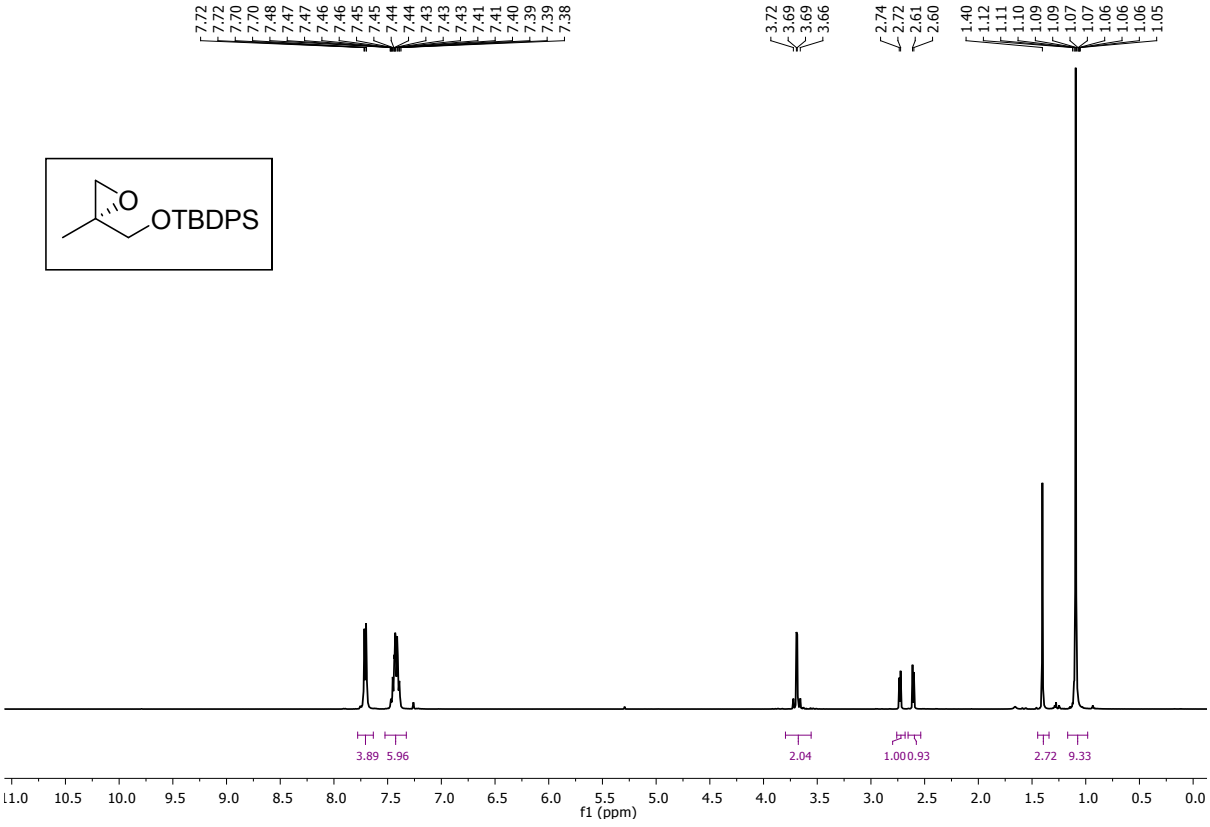
^{13}C NMR of compound 6 (101 MHz, $CDCl_3$)



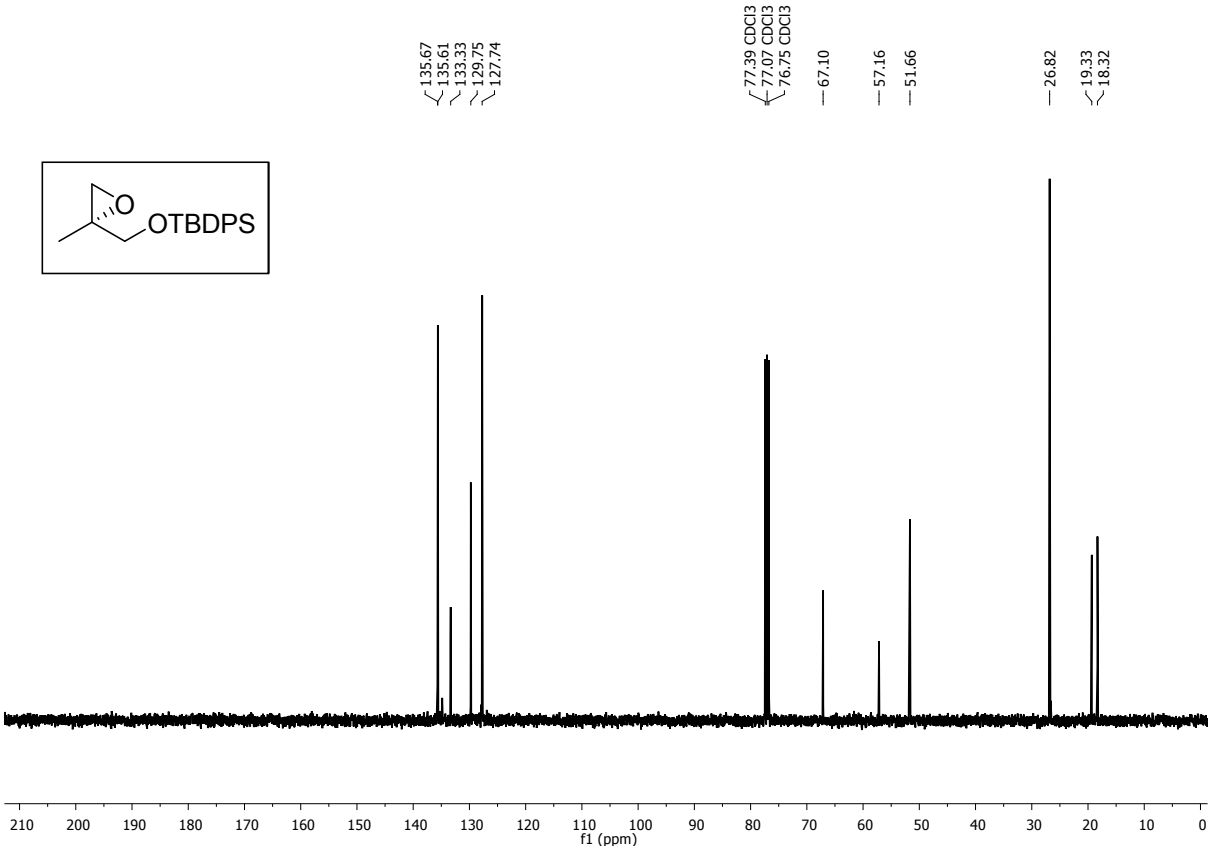
DEPT-135- NMR of compound 6 (101 MHz, $CDCl_3$)



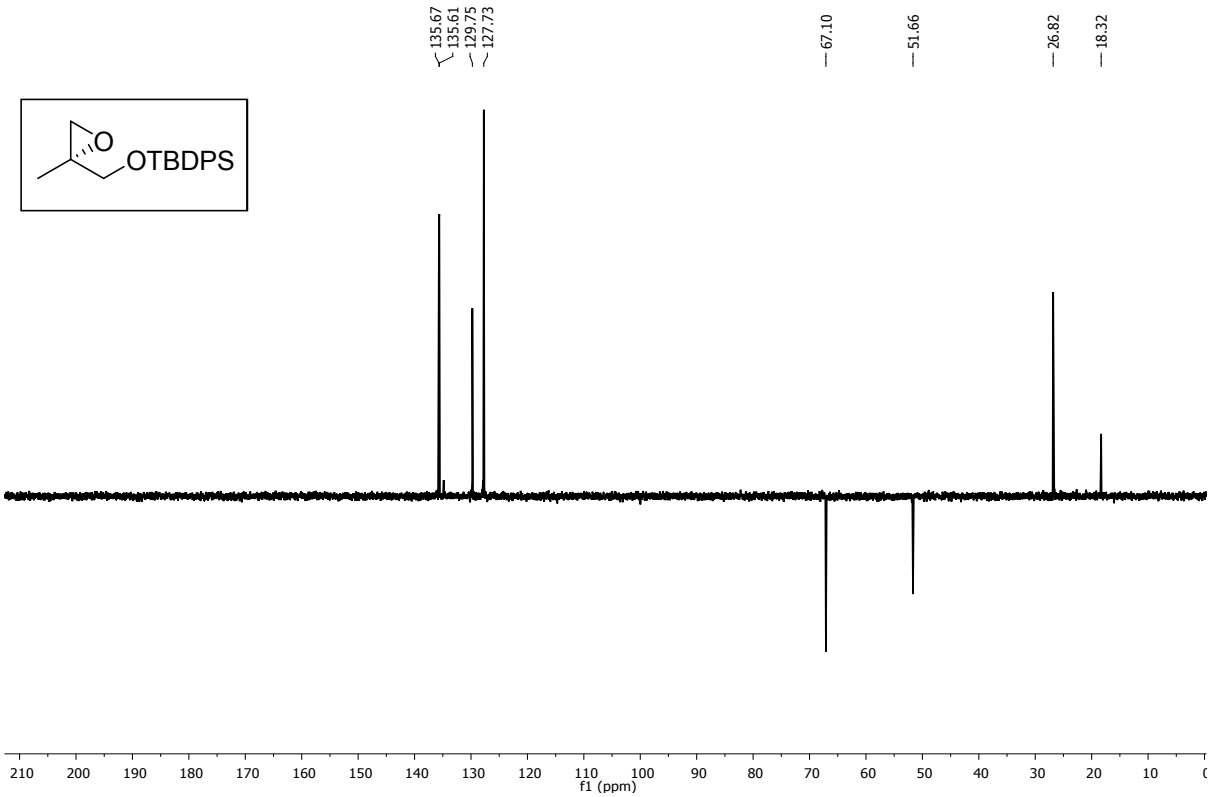
^{1}H NMR of compound 7 (400 MHz, $CDCl_3$)



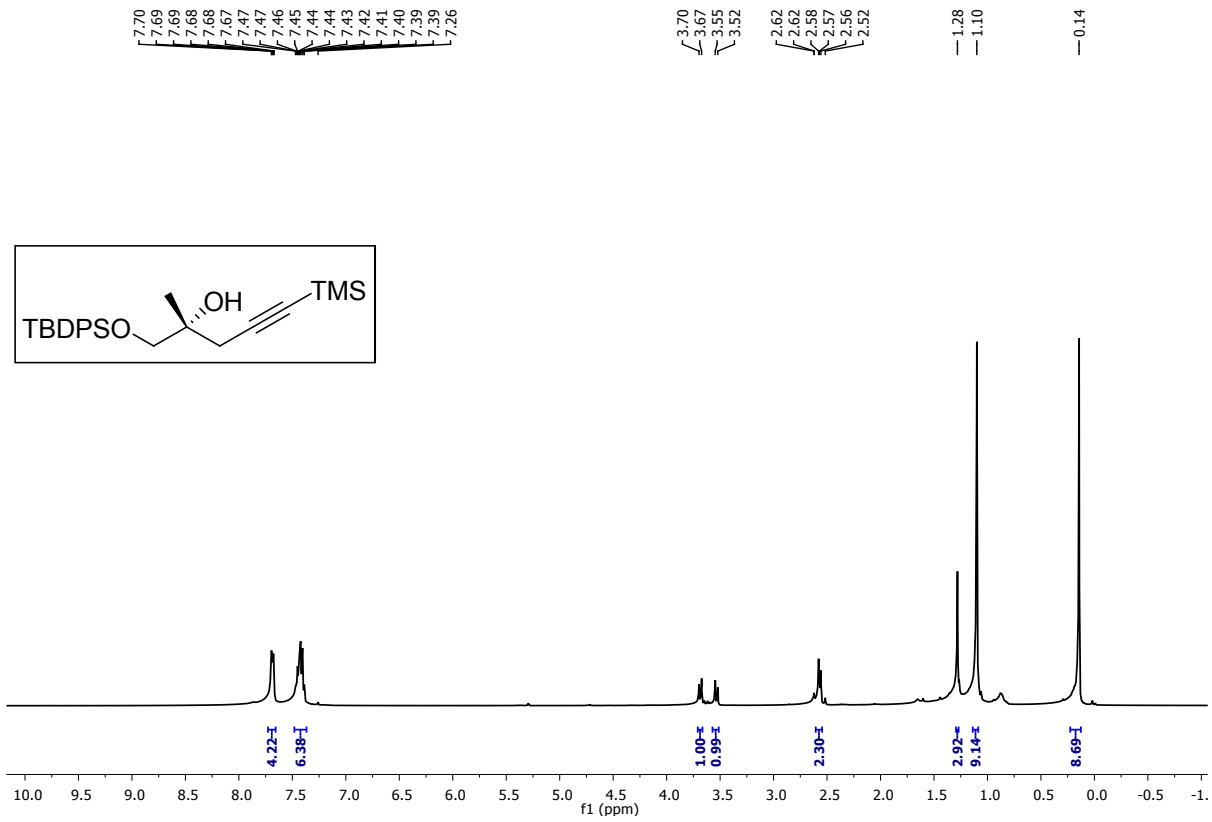
^{13}C NMR of compound 7 (101 MHz, $CDCl_3$)



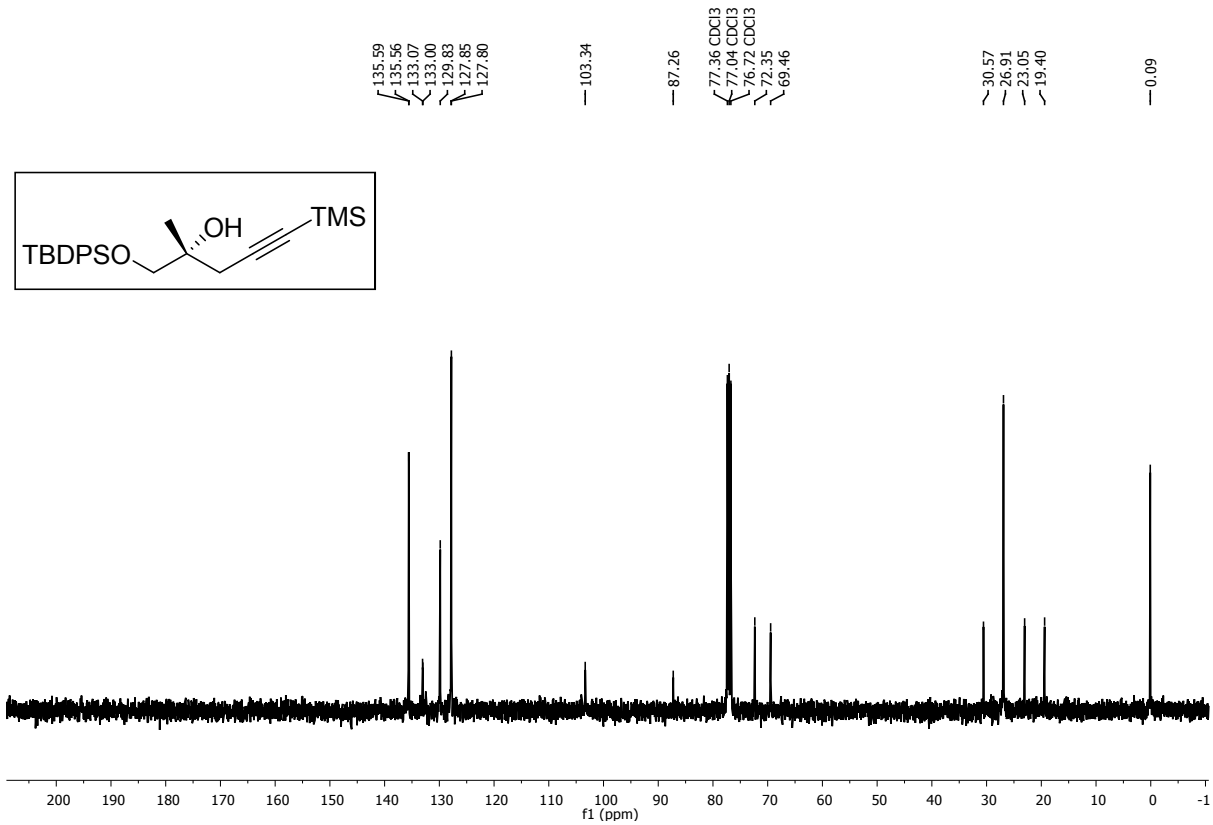
DEPT-135- NMR of compound 7 (101 MHz, $CDCl_3$)



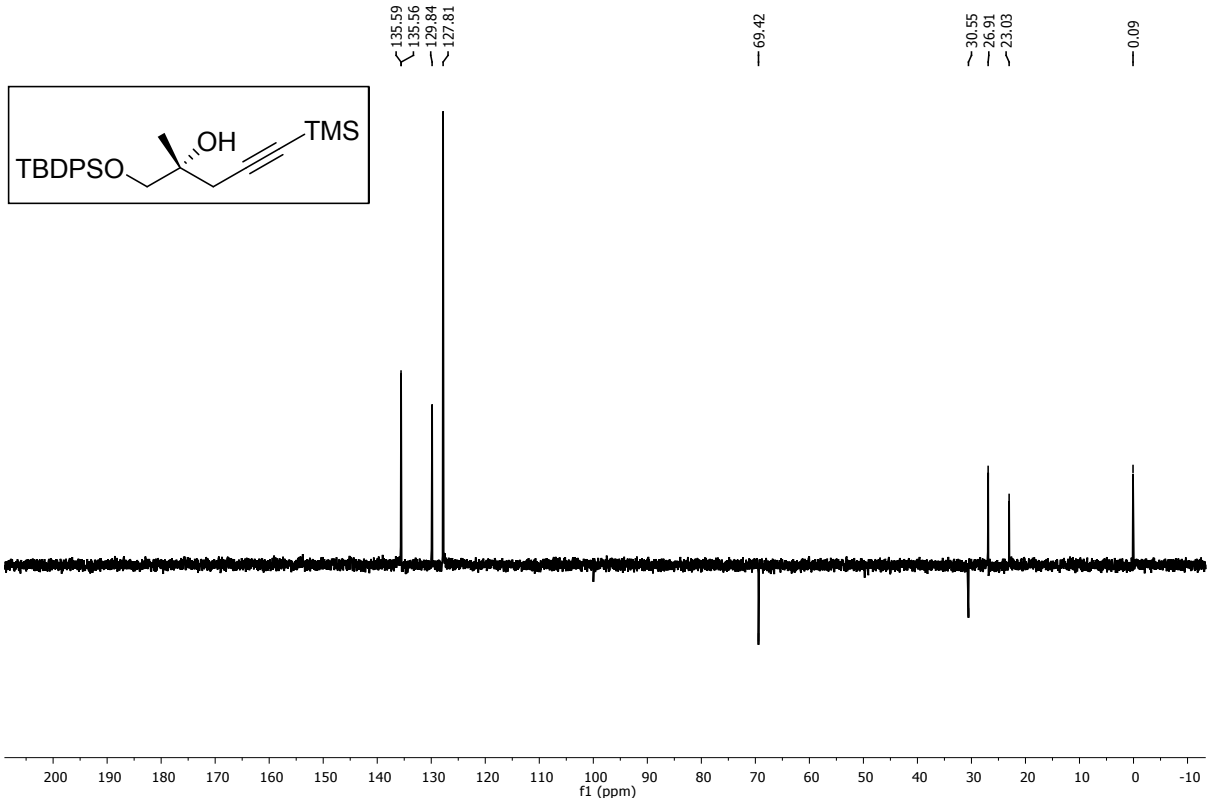
^{1}H NMR of compound 8 (400 MHz, $CDCl_3$)



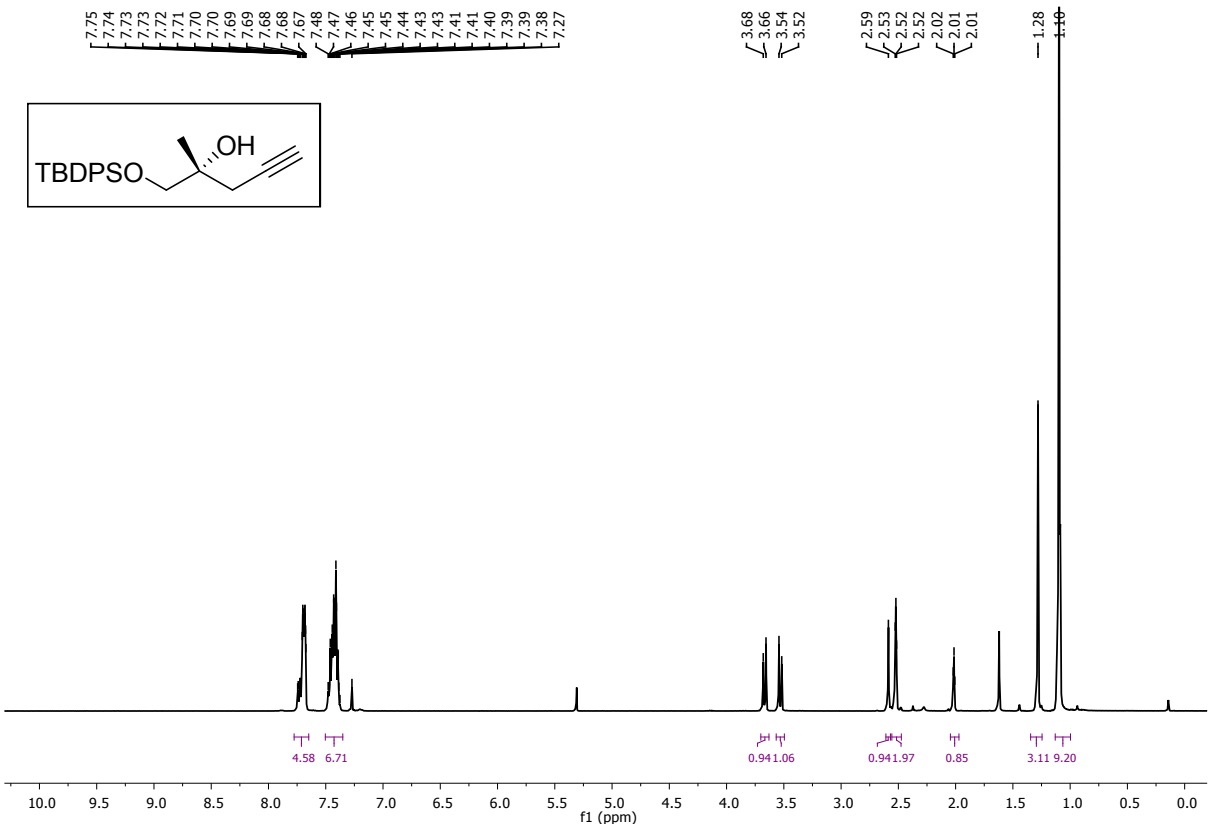
^{13}C NMR of compound 8 (101 MHz, $CDCl_3$)



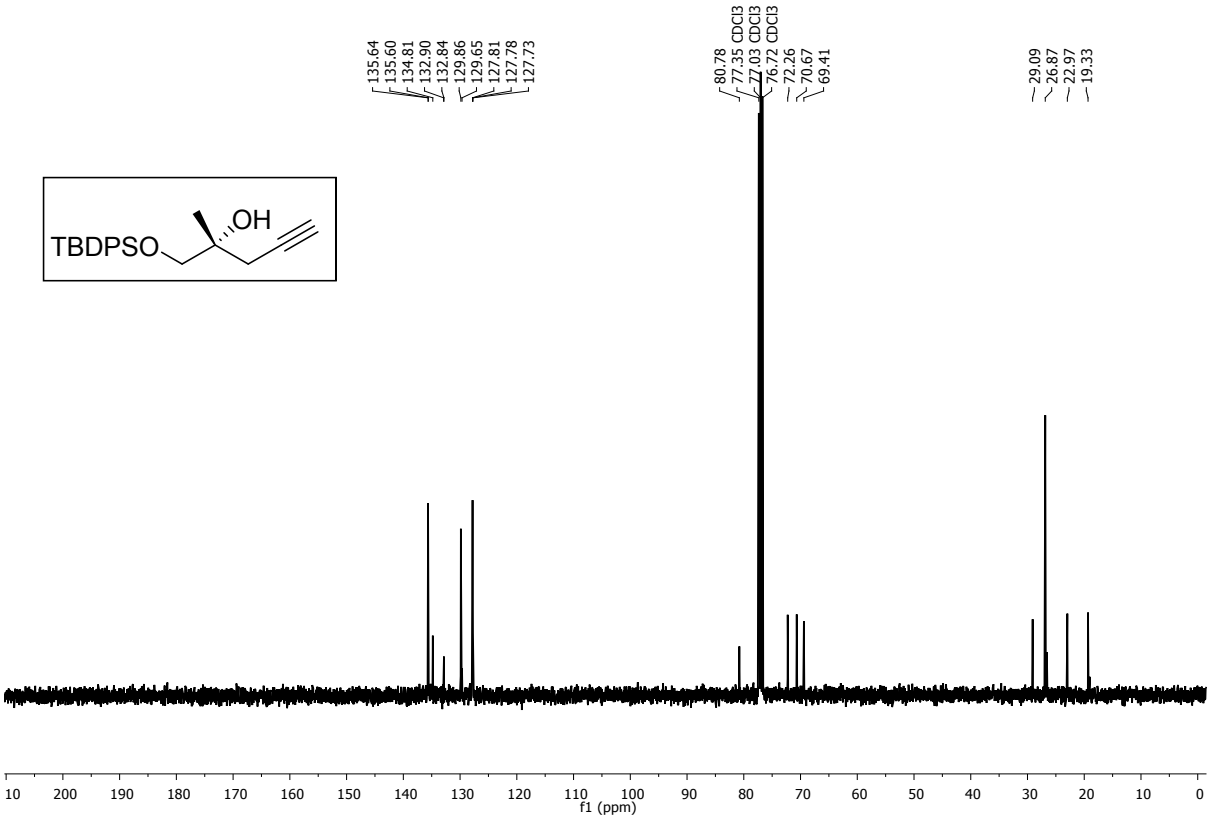
DEPT-135- NMR of compound 8 (101 MHz, $CDCl_3$)



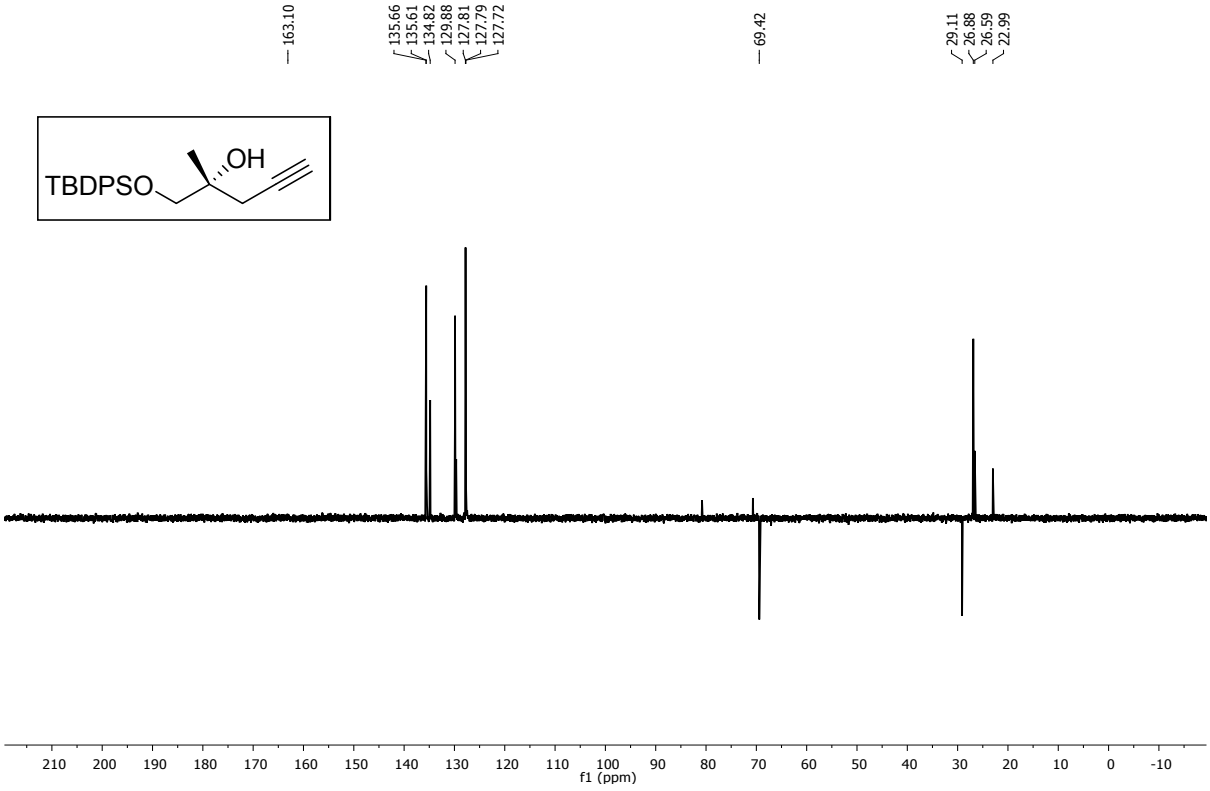
^{1}H NMR of compound 4 (400 MHz, $CDCl_3$)



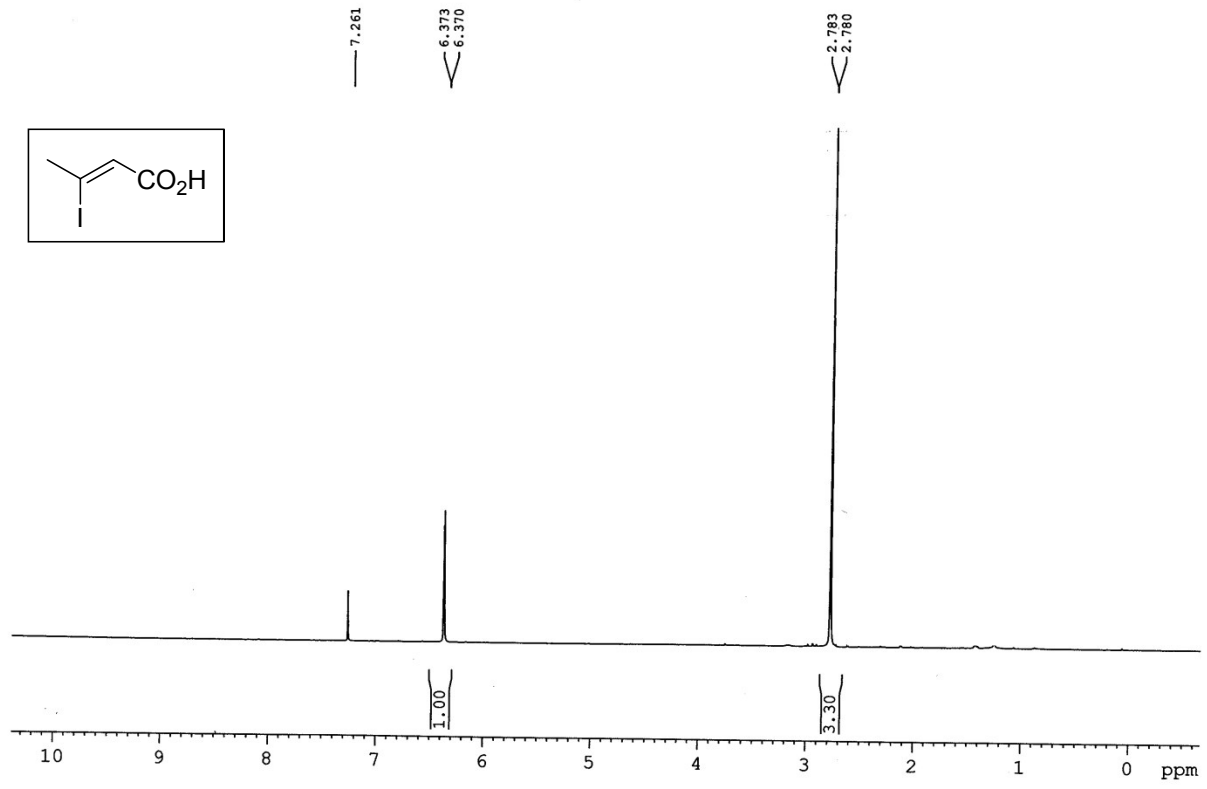
^{13}C NMR of compound 4 (101 MHz, $CDCl_3$)



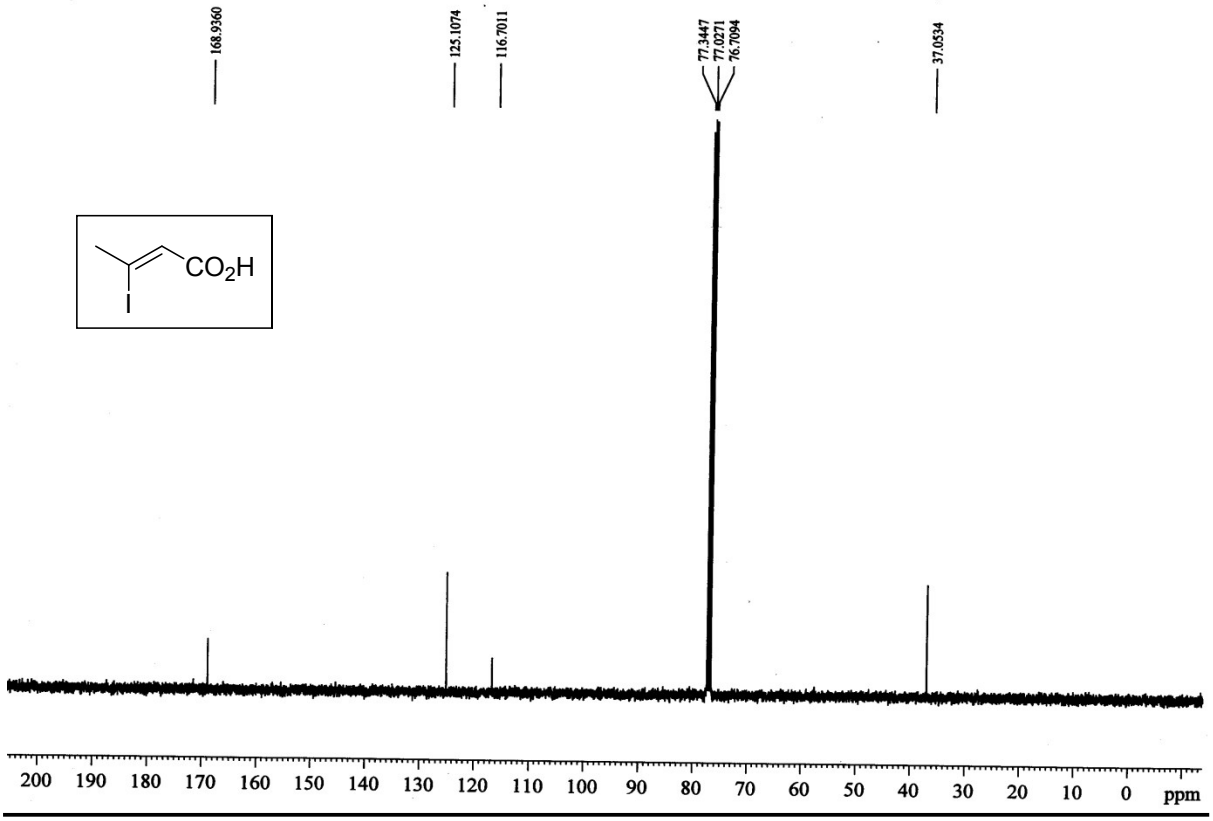
DEPT-135- NMR of compound 4 (101 MHz, $CDCl_3$)



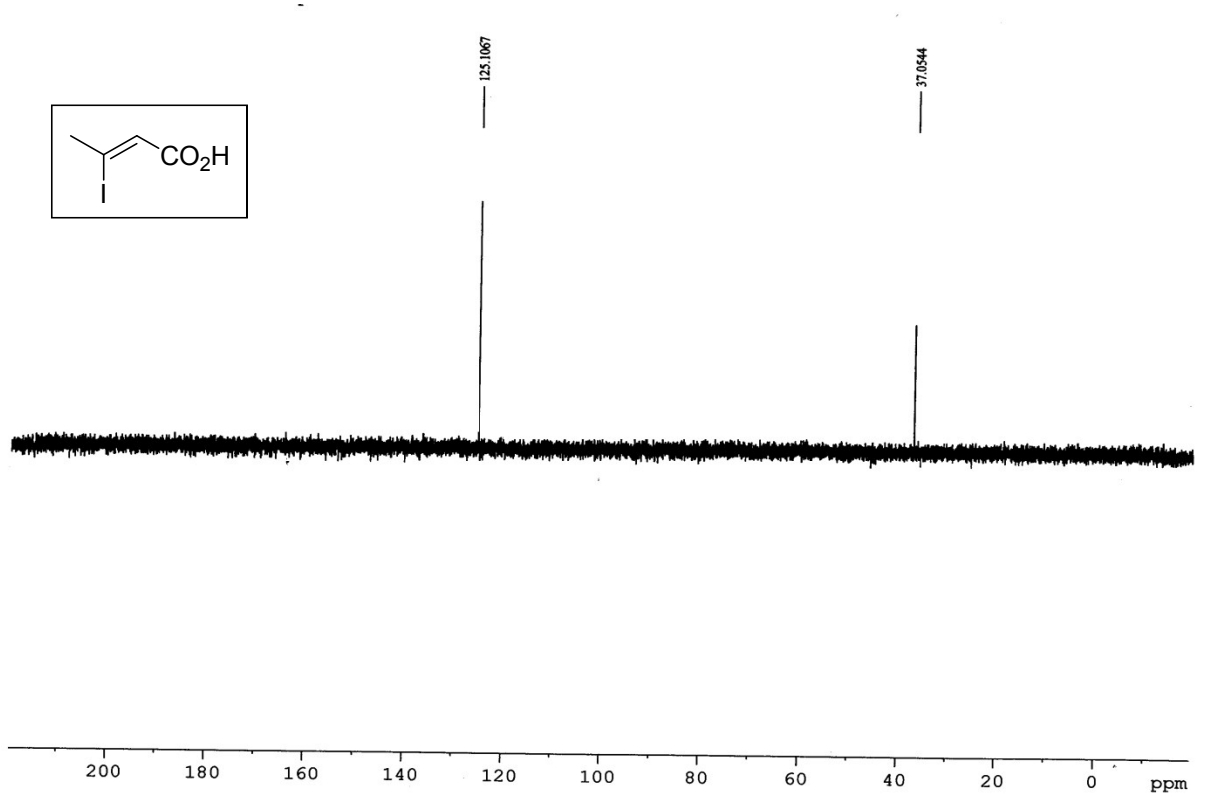
^{1}H NMR of compound 5 (400 MHz, $CDCl_3$)



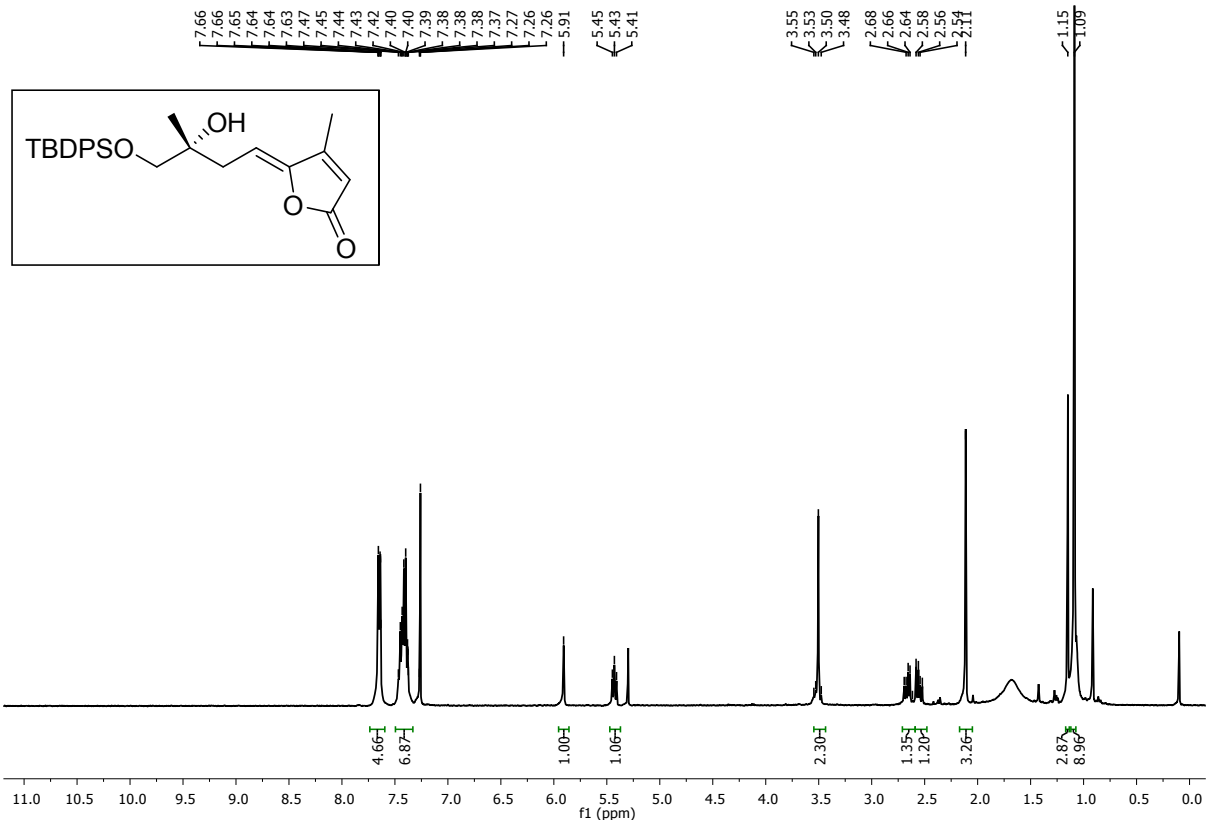
^{13}C NMR of compound 5 (101 MHz, $CDCl_3$)



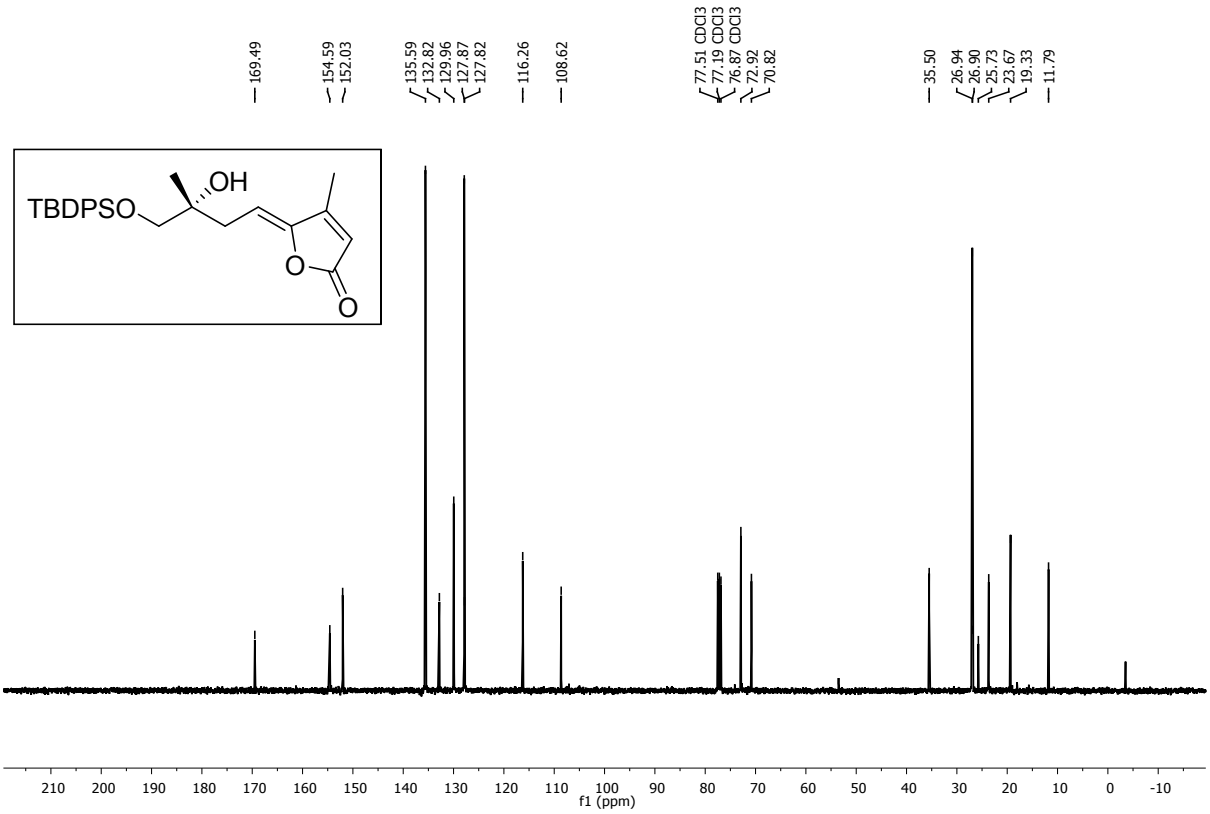
DEPT-135- NMR of compound 5 (101 MHz, $CDCl_3$)



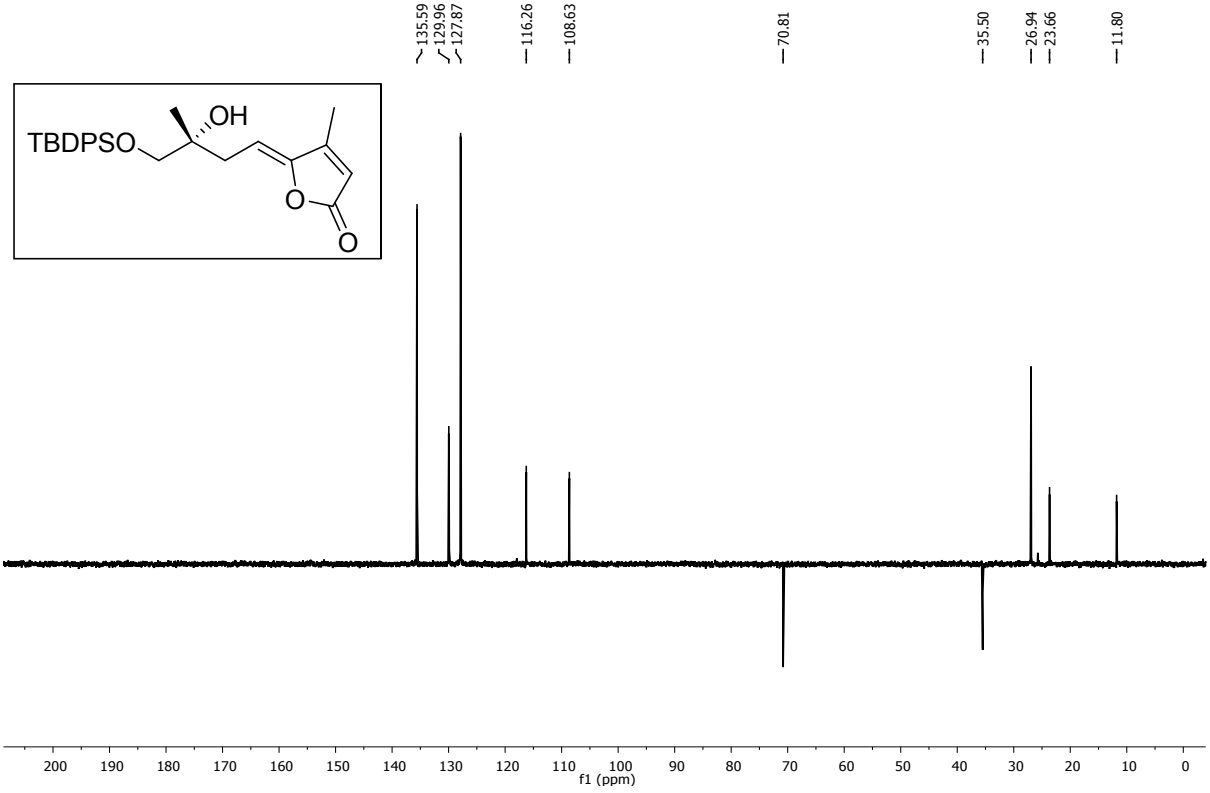
^{1}H NMR of compound 3 (400 MHz, $CDCl_3$)



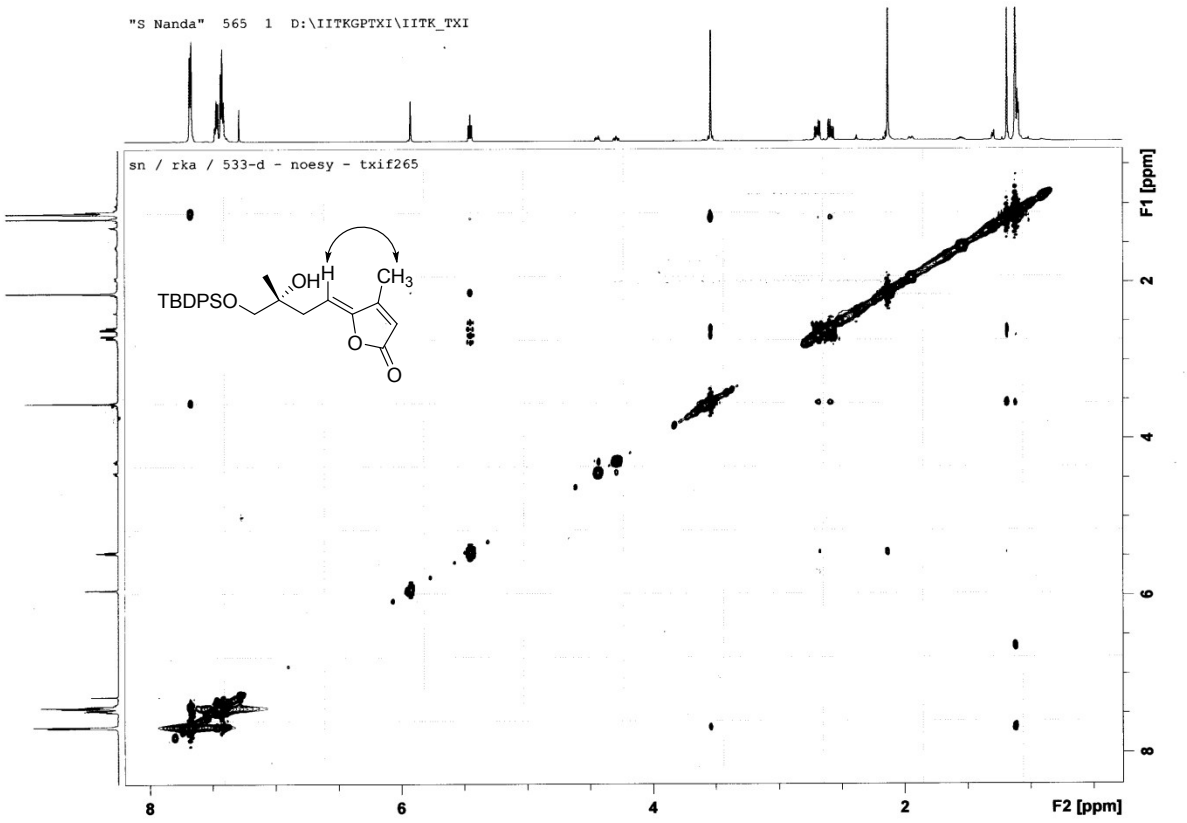
^{13}C NMR of compound 3 (101 MHz, $CDCl_3$)



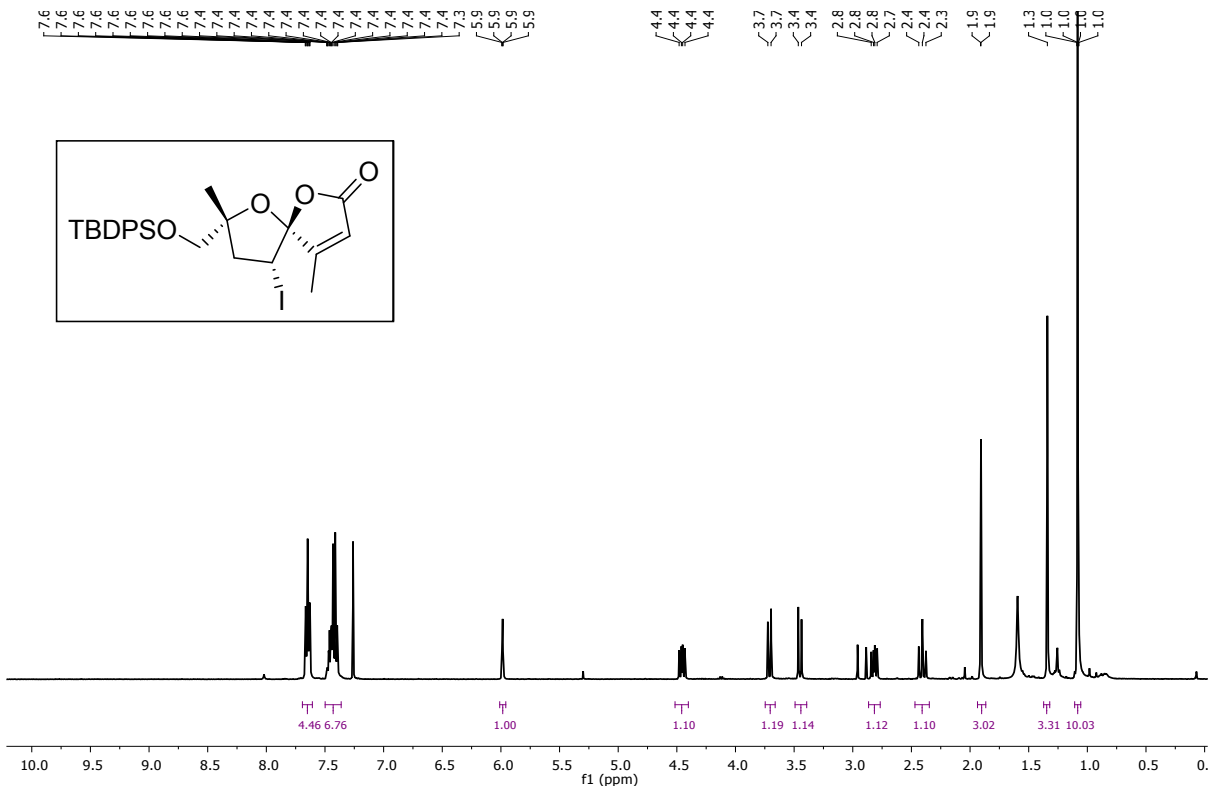
DEPT-135- NMR of compound 3 (101 MHz, $CDCl_3$)



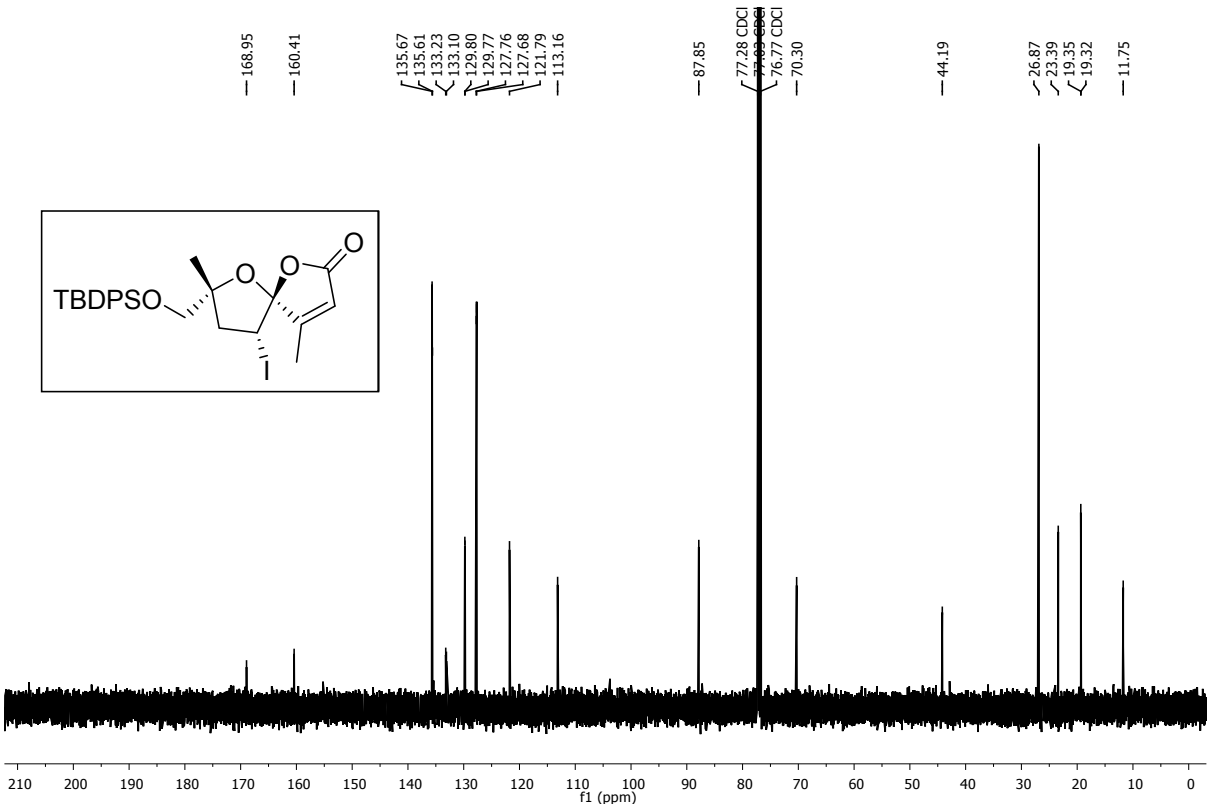
NOESY Spectrum of compound 3 (600 MHz, $CDCl_3$)



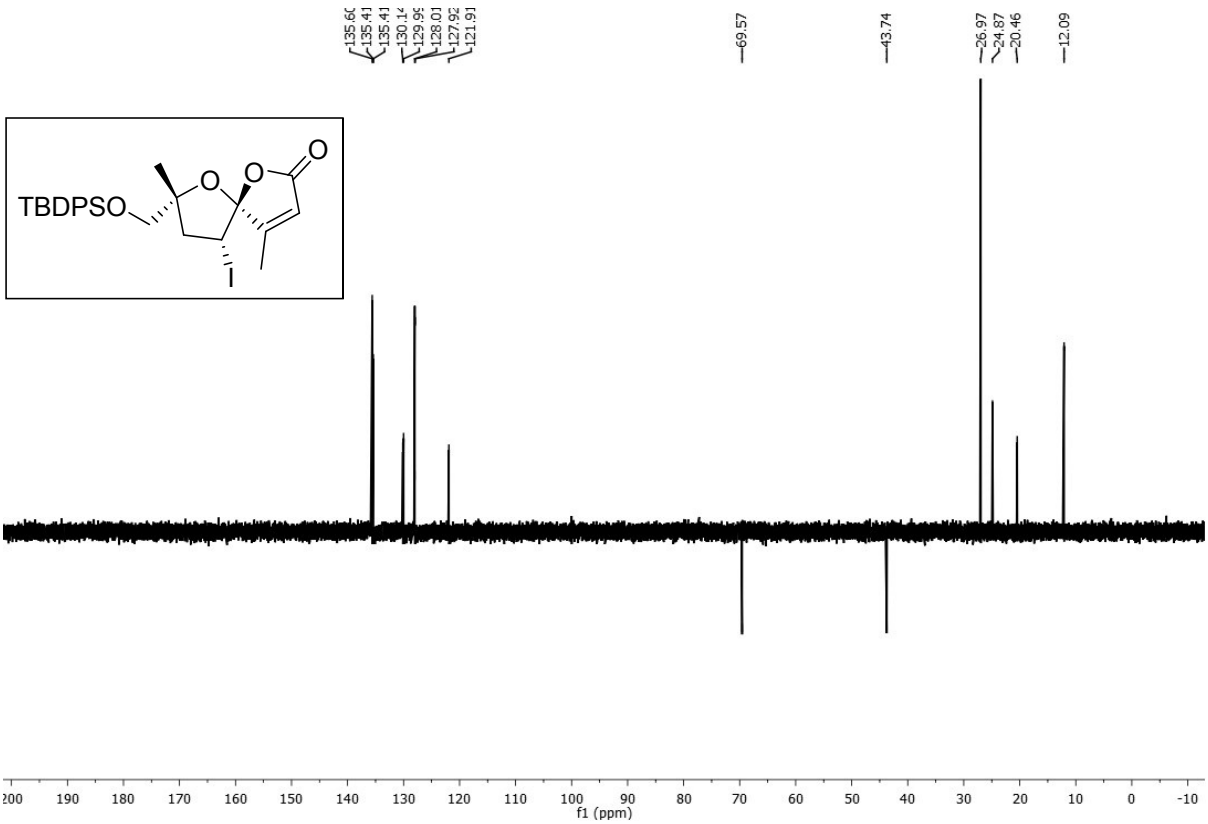
^{1}H NMR of compound 9 (400 MHz, $CDCl_3$)



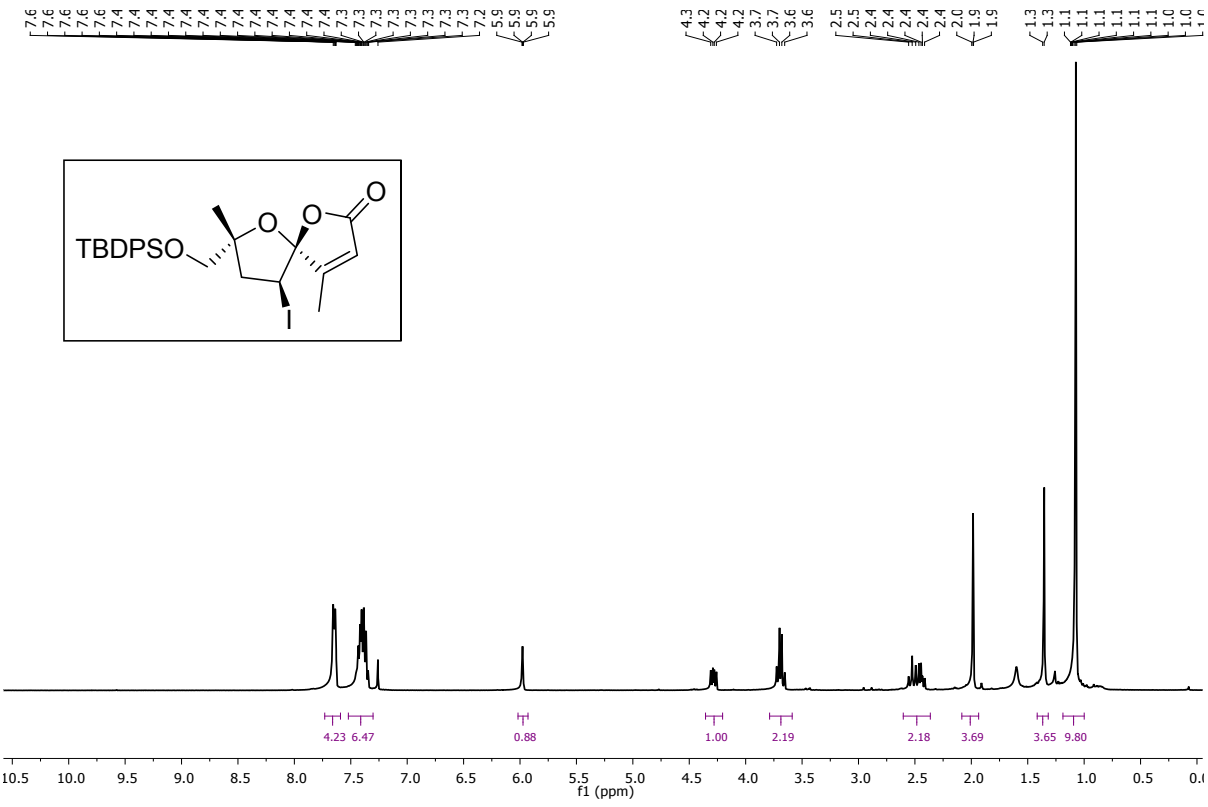
^{13}C NMR of compound 9 (126 MHz, $CDCl_3$)



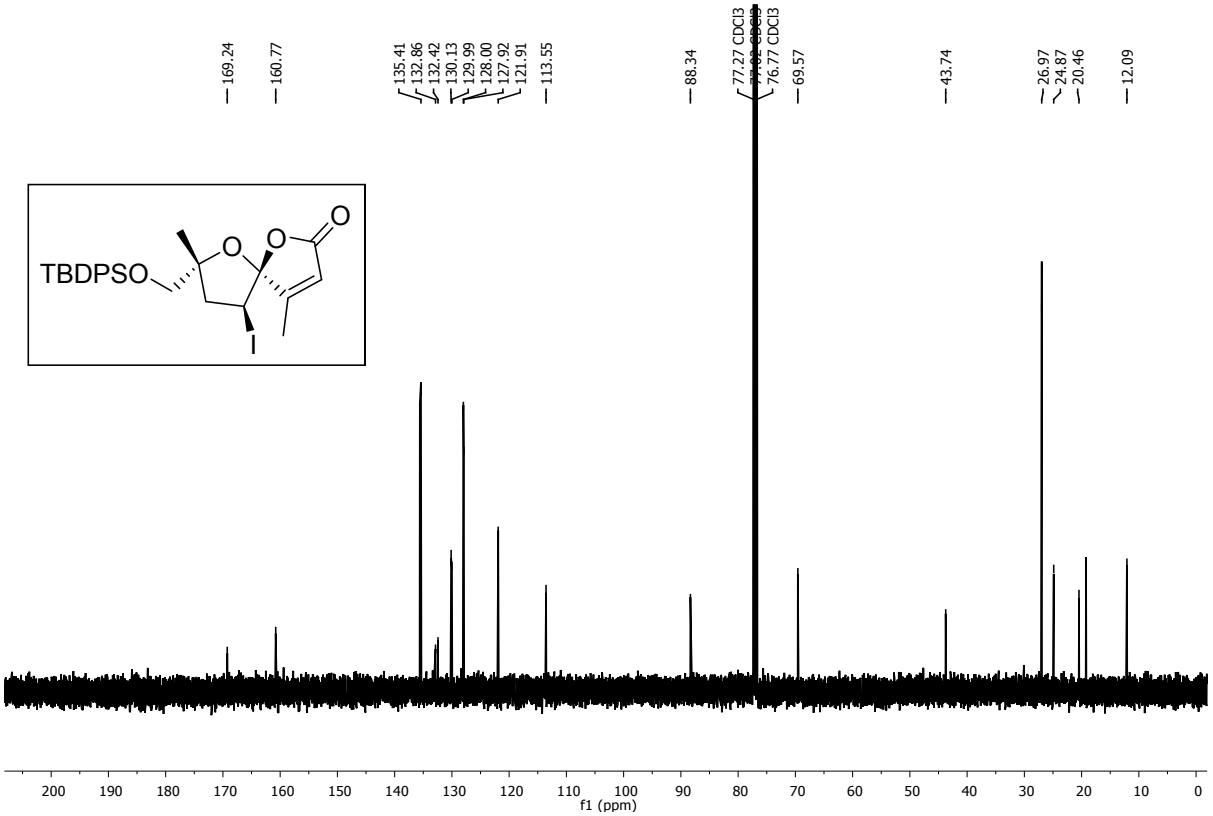
DEPT-135- NMR of compound 9 (126 MHz, $CDCl_3$)



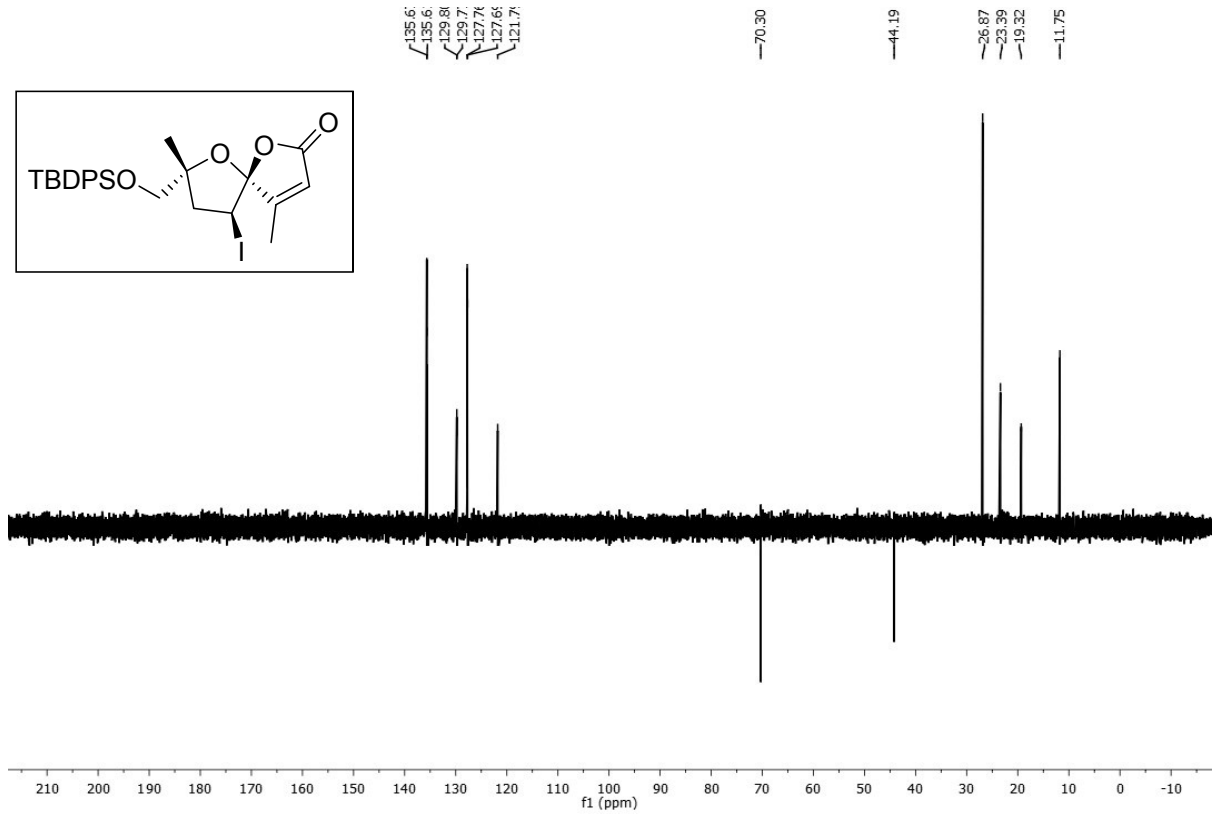
^{1}H NMR of compound 10 (400 MHz, $CDCl_3$)



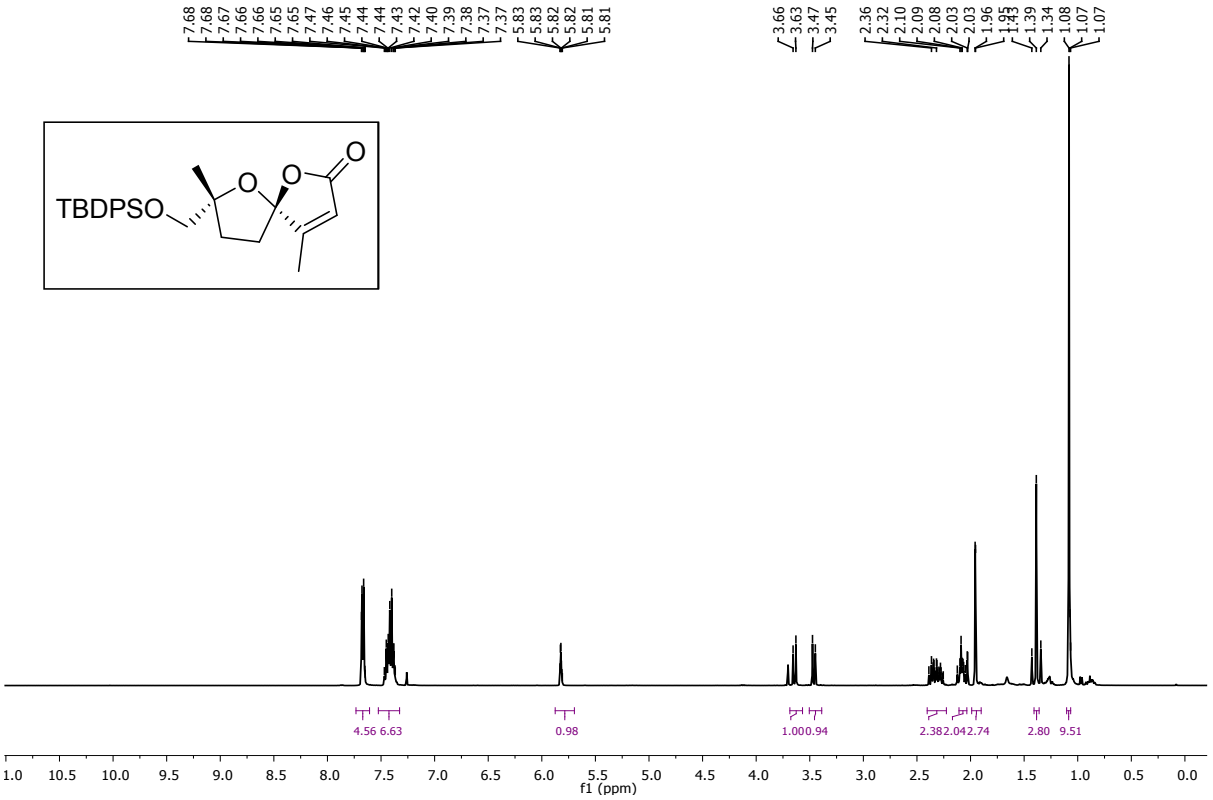
^{13}C NMR of compound 10 (126 MHz, $CDCl_3$)



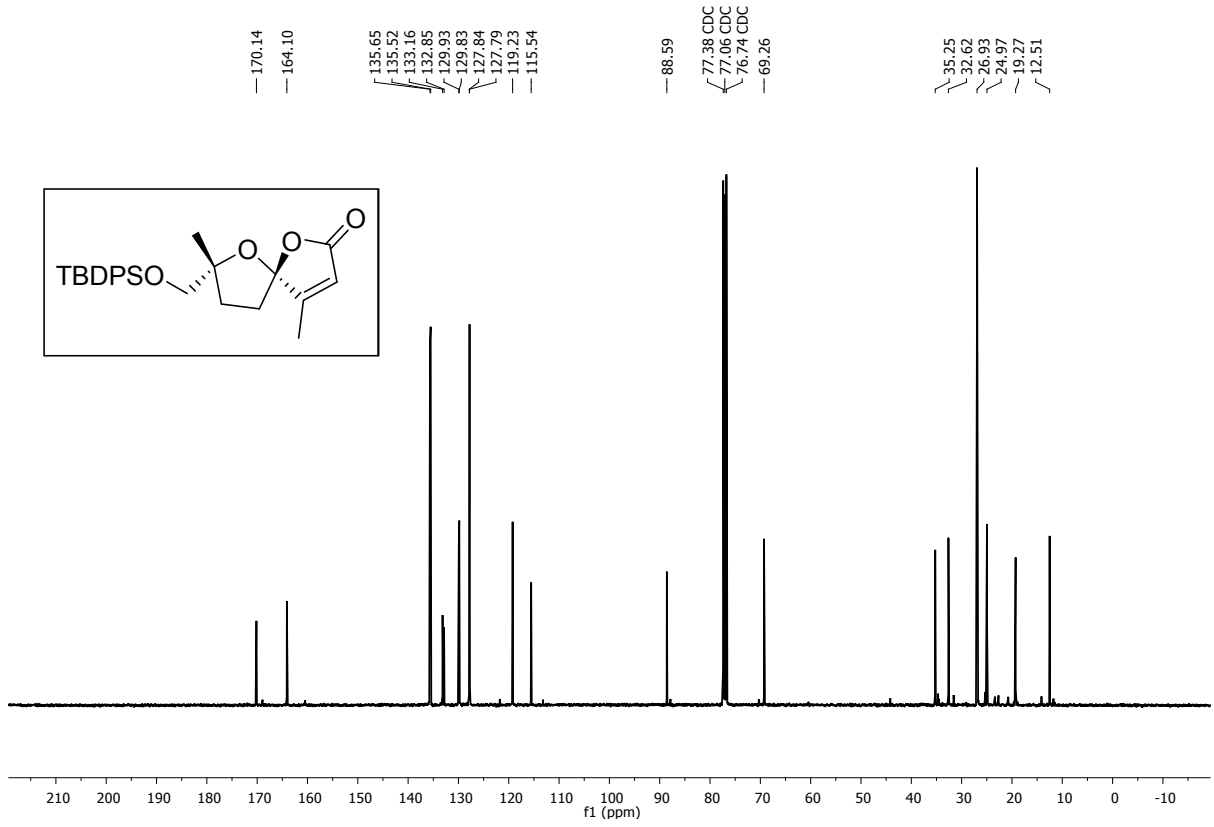
DEPT-135- NMR of compound 10 (126 MHz, $CDCl_3$)



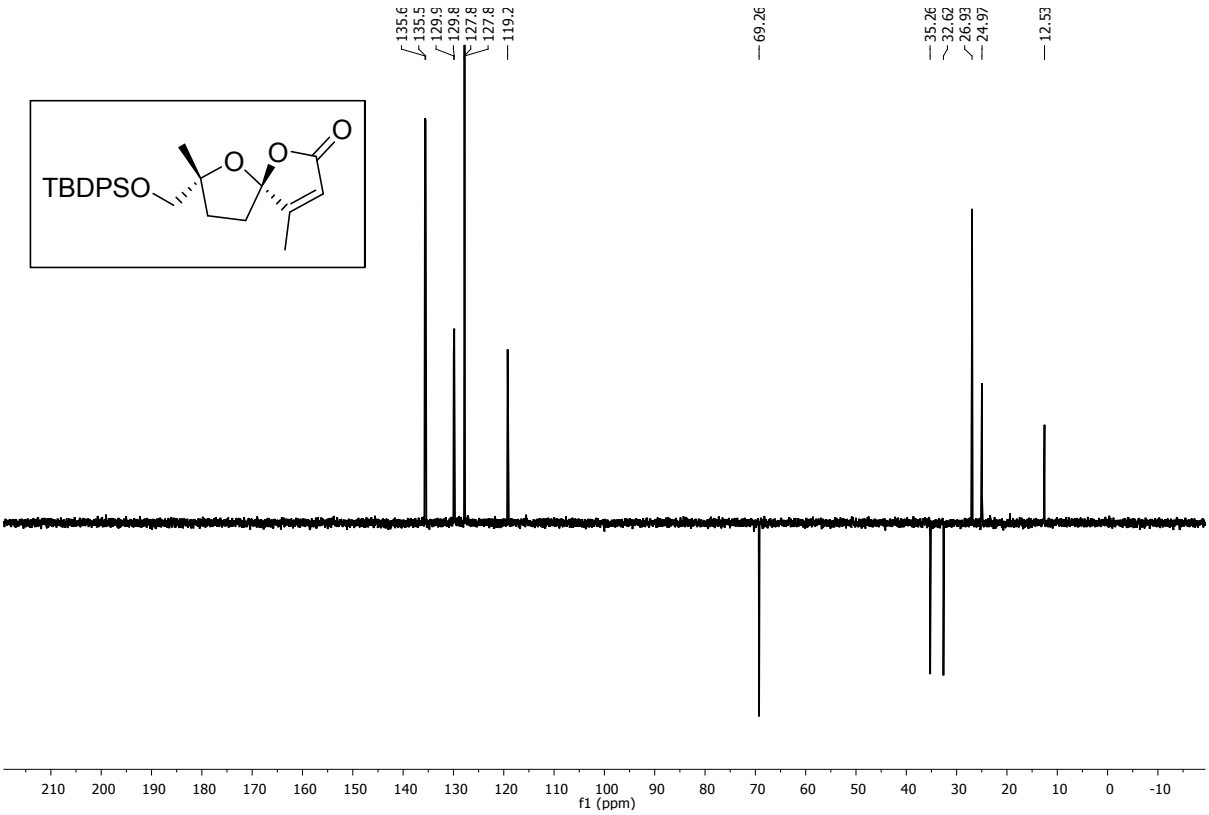
^{1}H NMR of compound 2 (400 MHz, $CDCl_3$)



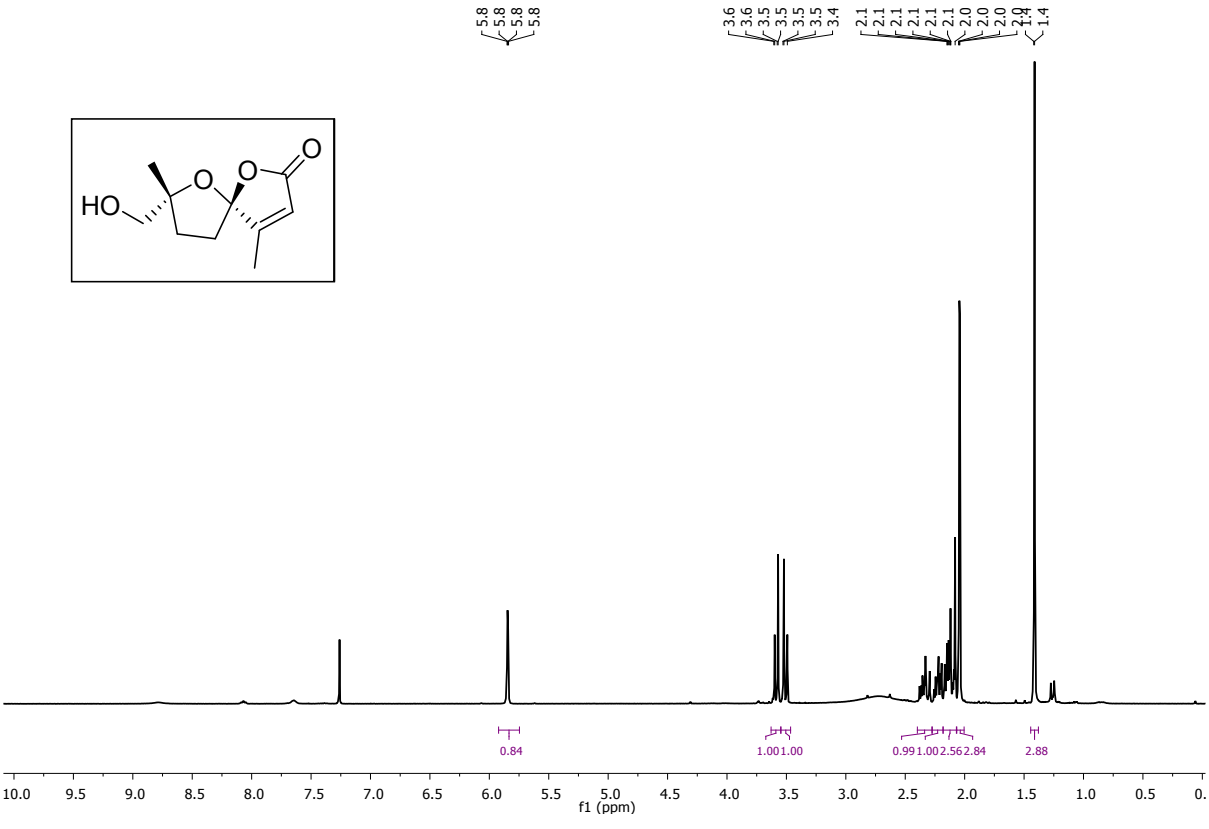
^{13}C NMR of compound 2 (126 MHz, $CDCl_3$)



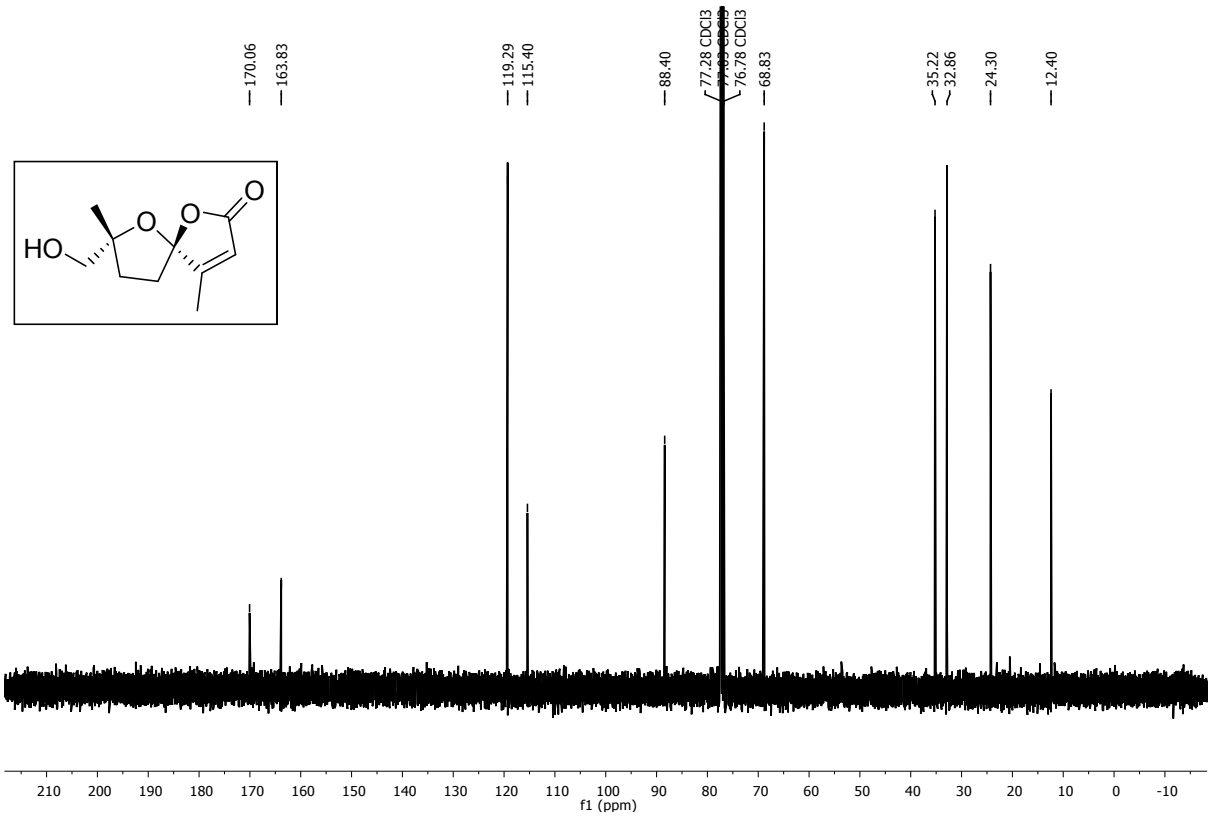
DEPT-135- NMR of compound 2 (126 MHz, $CDCl_3$)



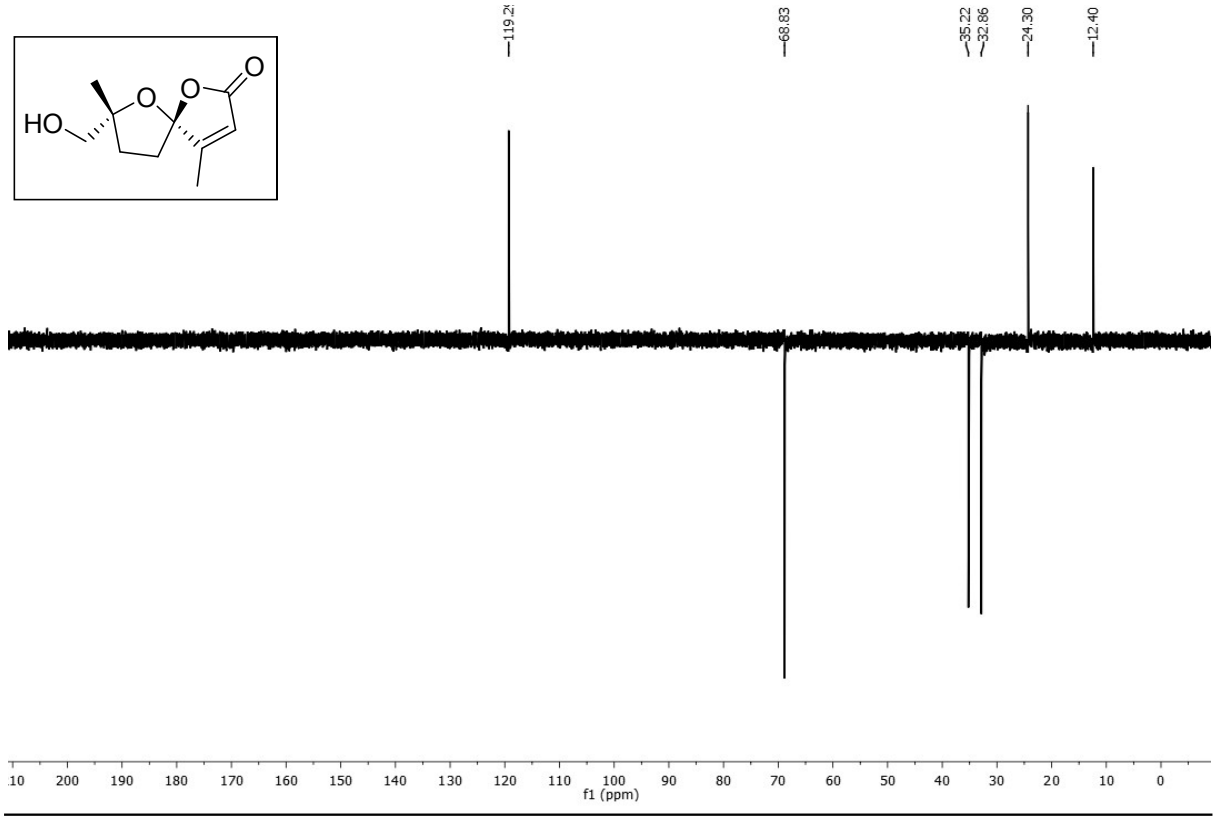
^{1}H NMR of compound 11 (400 MHz, $CDCl_3$)



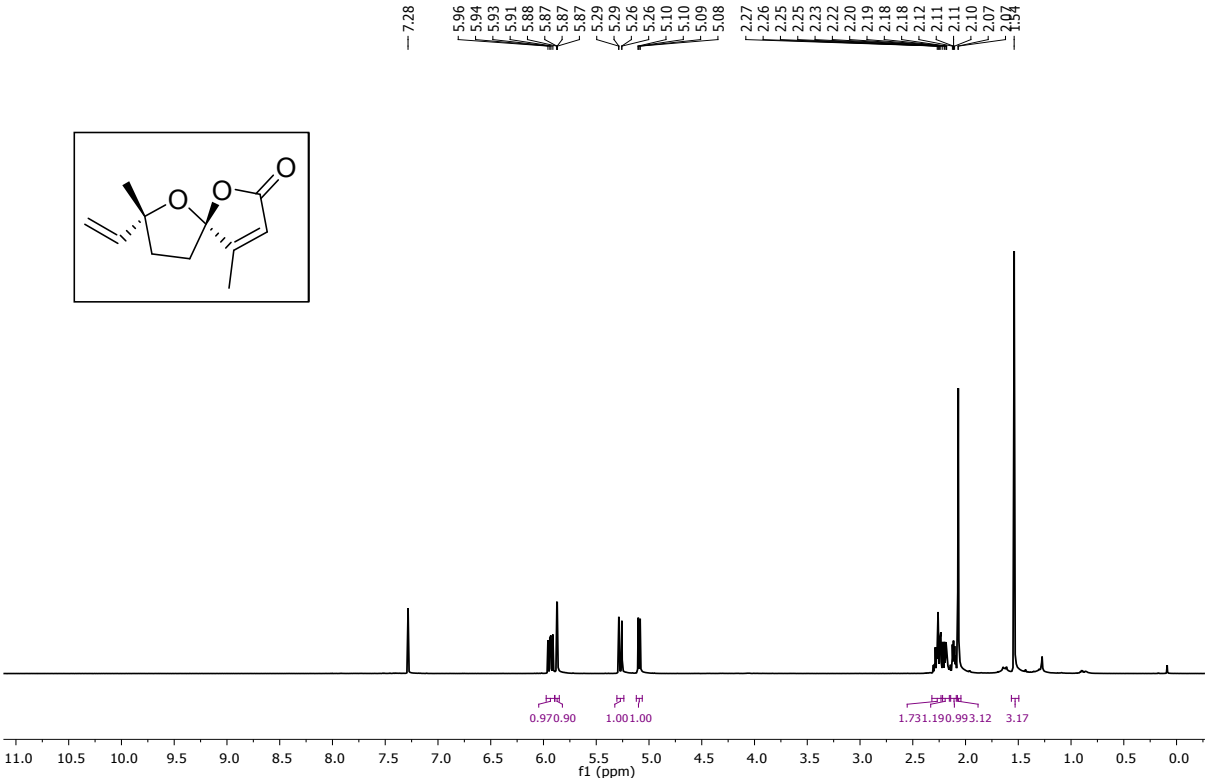
^{13}C NMR of compound 11 (151 MHz, $CDCl_3$)



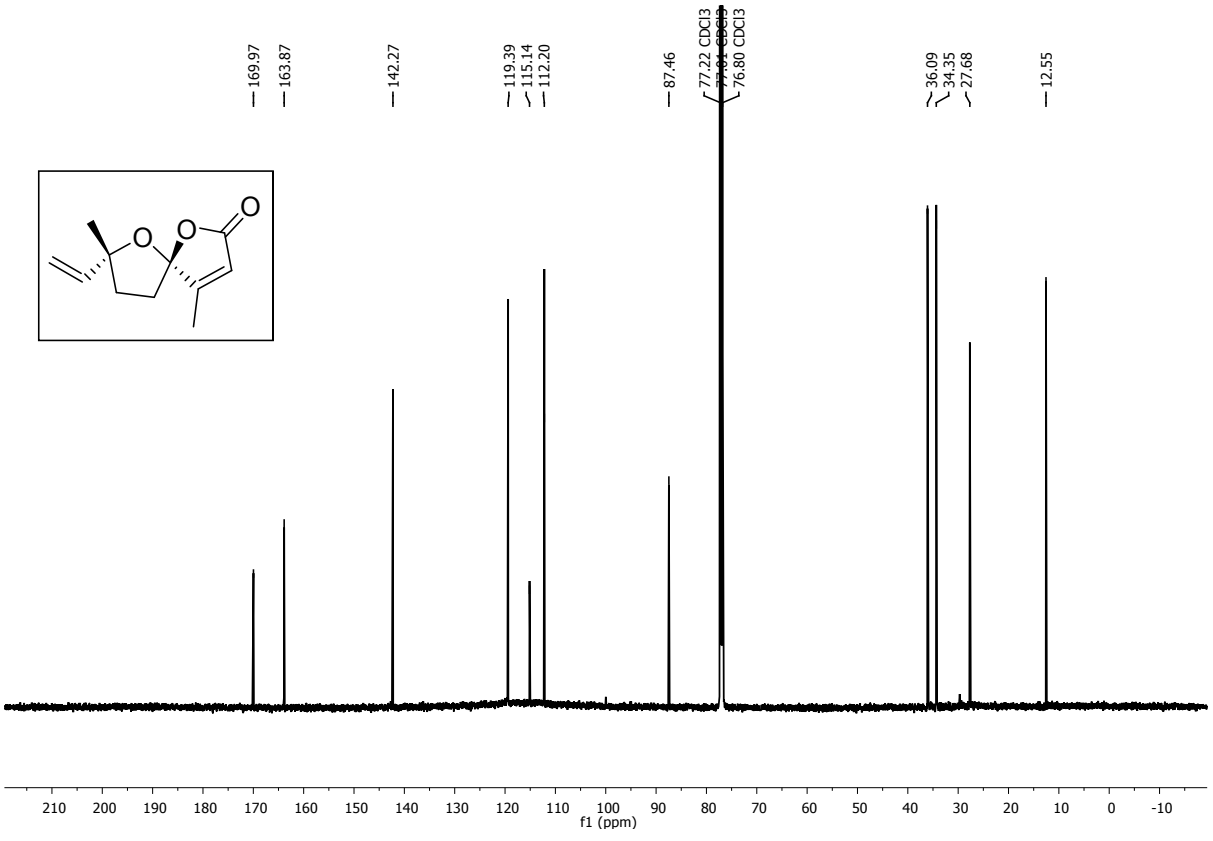
DEPT-135- NMR of compound 11 (151 MHz, $CDCl_3$)



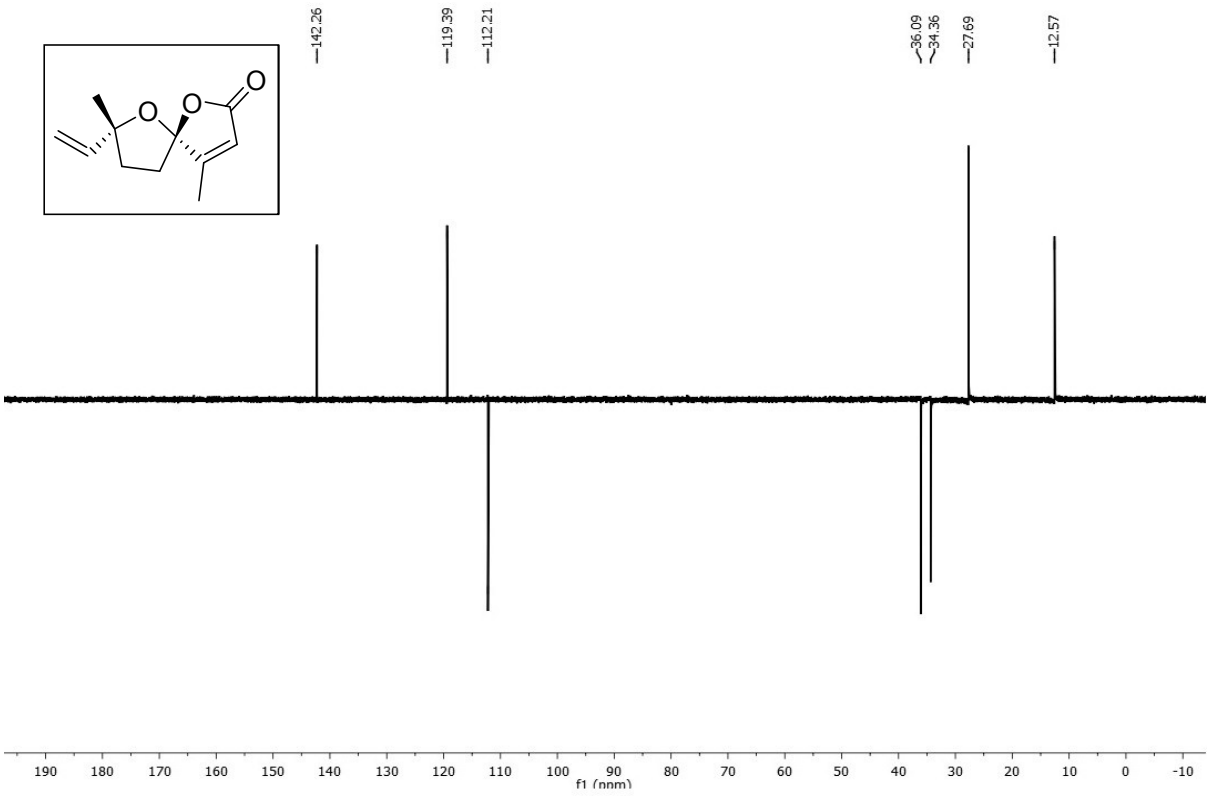
^{1}H NMR of compound 1; Lanceolactone A (600 MHz, $CDCl_3$)



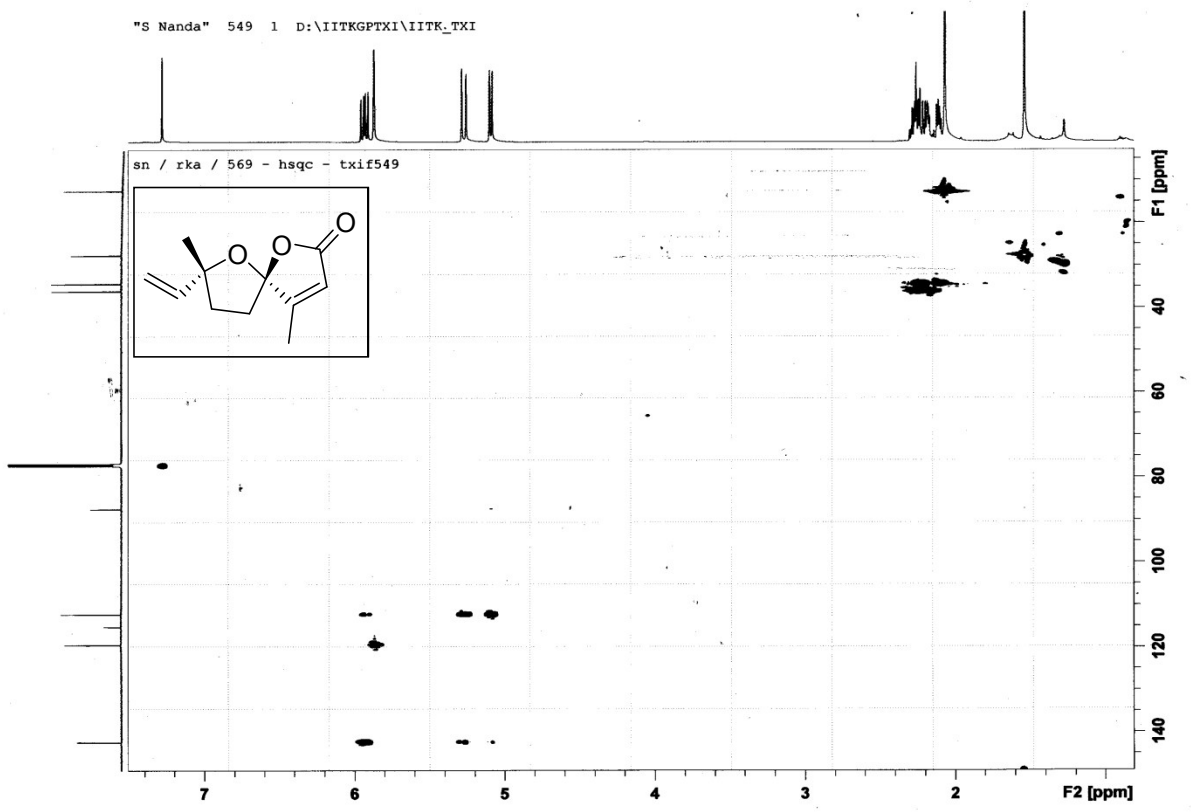
^{13}C NMR of compound 1; Lanceolactone A (151 MHz, $CDCl_3$)



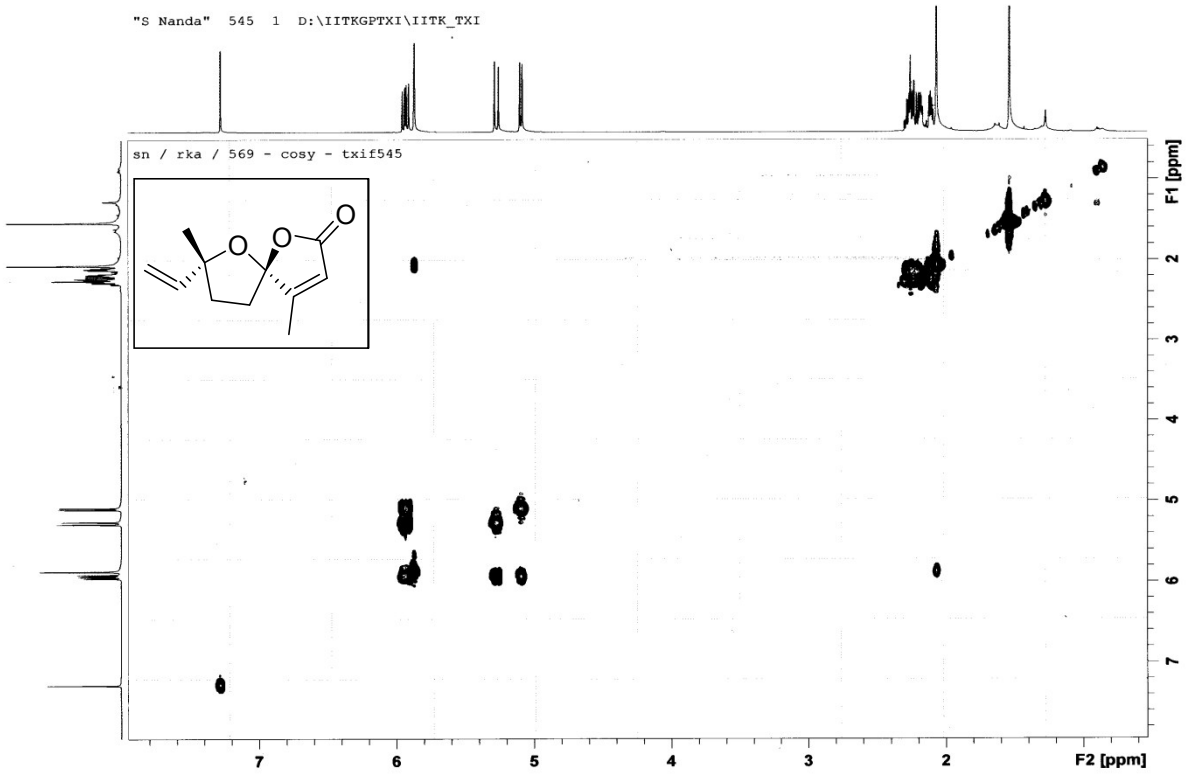
DEPT-135- NMR of compound 1; Lanceolactone A (151 MHz, $CDCl_3$)



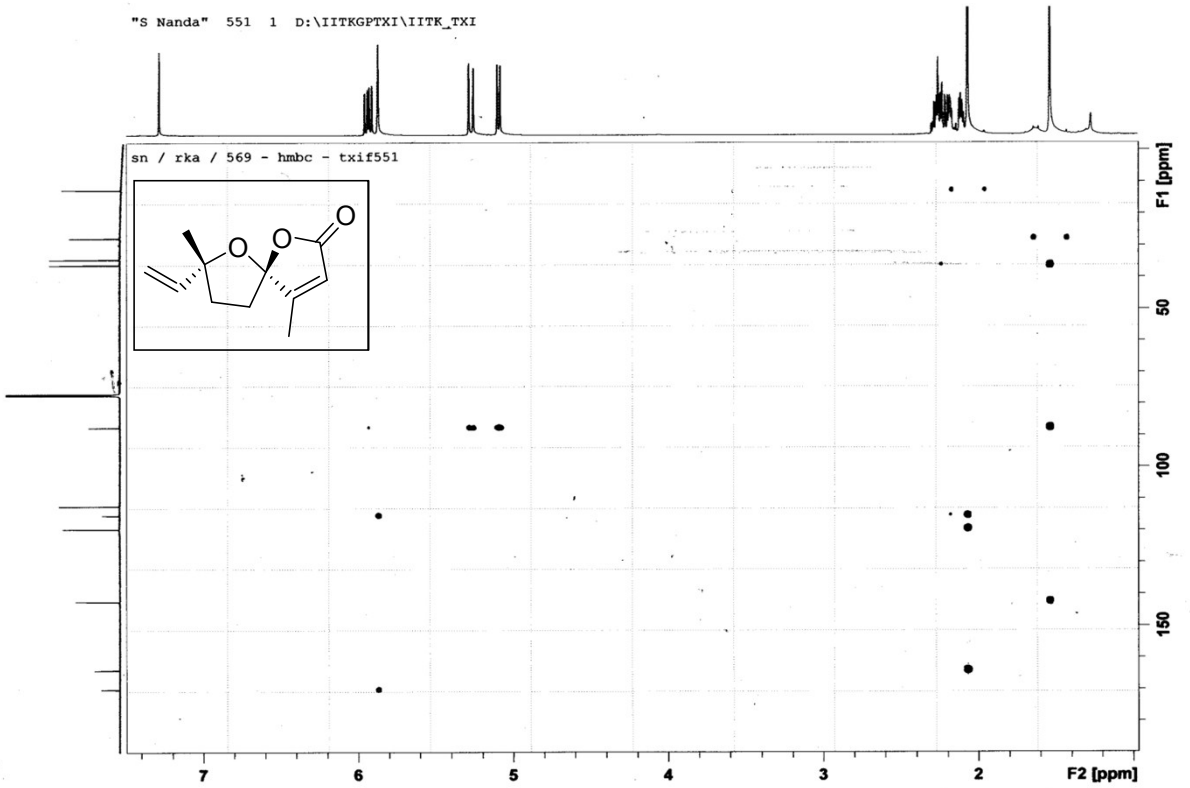
HSQC spectrum of compound 1; Lanceolactone A (600 MHz, $CDCl_3$)



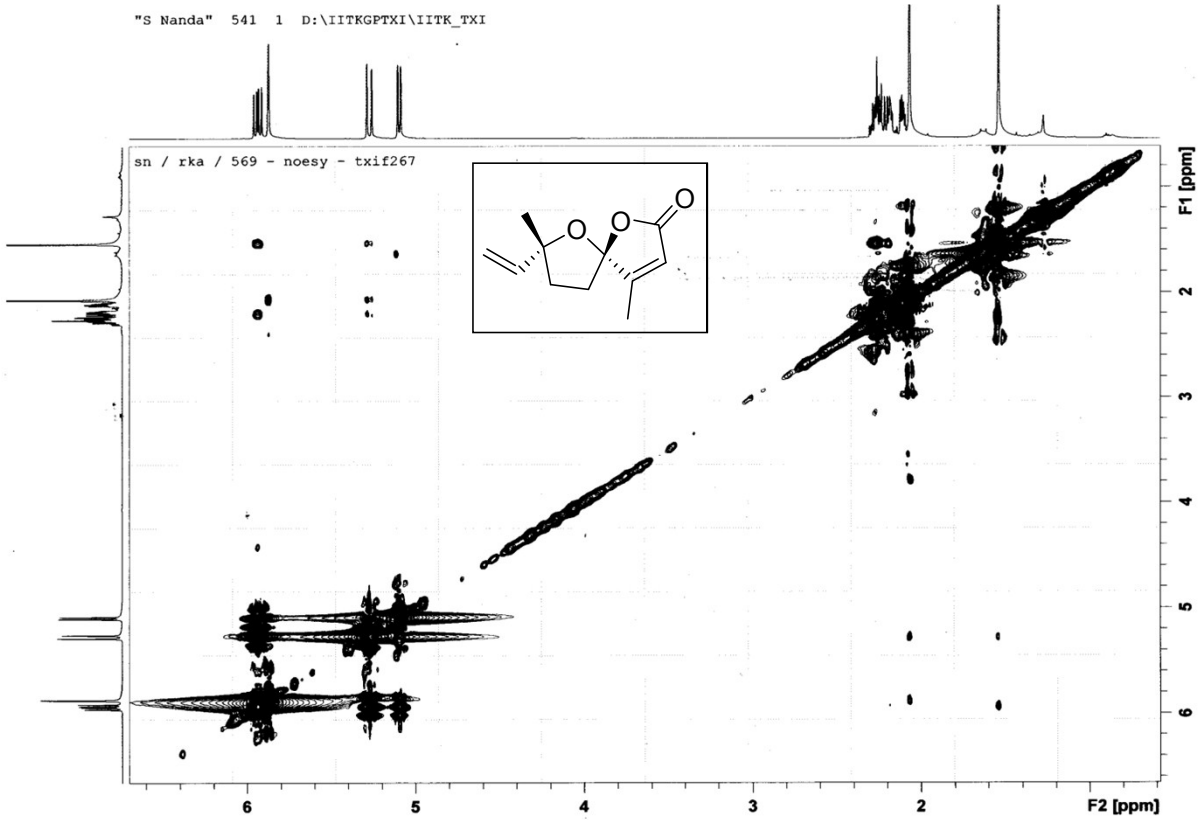
COSY Spectrum of compound 1; Lanceolactone A (600 MHz, $CDCl_3$)



HMBC Spectrum of compound 1; Lanceolactone A (600 MHz, $CDCl_3$)

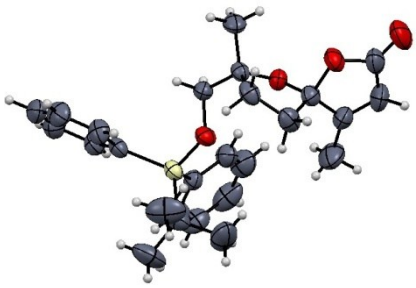


NOESY Spectrum of compound 1; Lanceolactone A (600 MHz, $CDCl_3$)



Crystal data and structure refinement for compound 2

X-ray crystal data of compound **2** (the following crystal has been deposited at the Cambridge Crystallographic Data Centre and has the deposition number CCDC NO: 1834617



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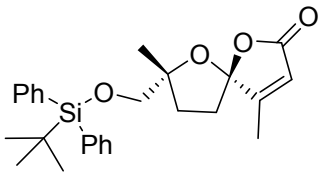

CCDC NO: 1834617

ORTEP presentation (drawn at 50% probability)

Bond precision: C-C = 0.0050 A Wavelength=0.71073

Cell: a=11.660(14) b=12.070(9) c=18.027(13)
alpha=90 beta=100.58(7) gamma=90
Temperature: 290 K

	Calculated	Reported
Volume	2494(4)	2494(4)
Space group	P 21/c	P 21/c
Hall group	-P 2ybc	-P 2ybc
Moiety formula	C26 H32 O4 Si	?
Sum formula	C26 H32 O4 Si	C26 H32 O4 Si
Mr	436.61	436.60
Dx,g cm-3	1.163	1.163
Z	4	4
Mu (mm-1)	0.122	0.122
F000	936.0	936.0
F000'	936.73	
h,k,lmax	13,14,21	13,14,21
Nref	4325	4284
Tmin,Tmax	0.978,0.984	
Tmin'	0.978	

Correction method= Not given

Data completeness= 0.991 Theta(max)= 24.860

R(reflections)= 0.0499(2513) wR2(reflections)= 0.1623(4284)

S = 0.894 Npar= 285