

Supporting Information for:

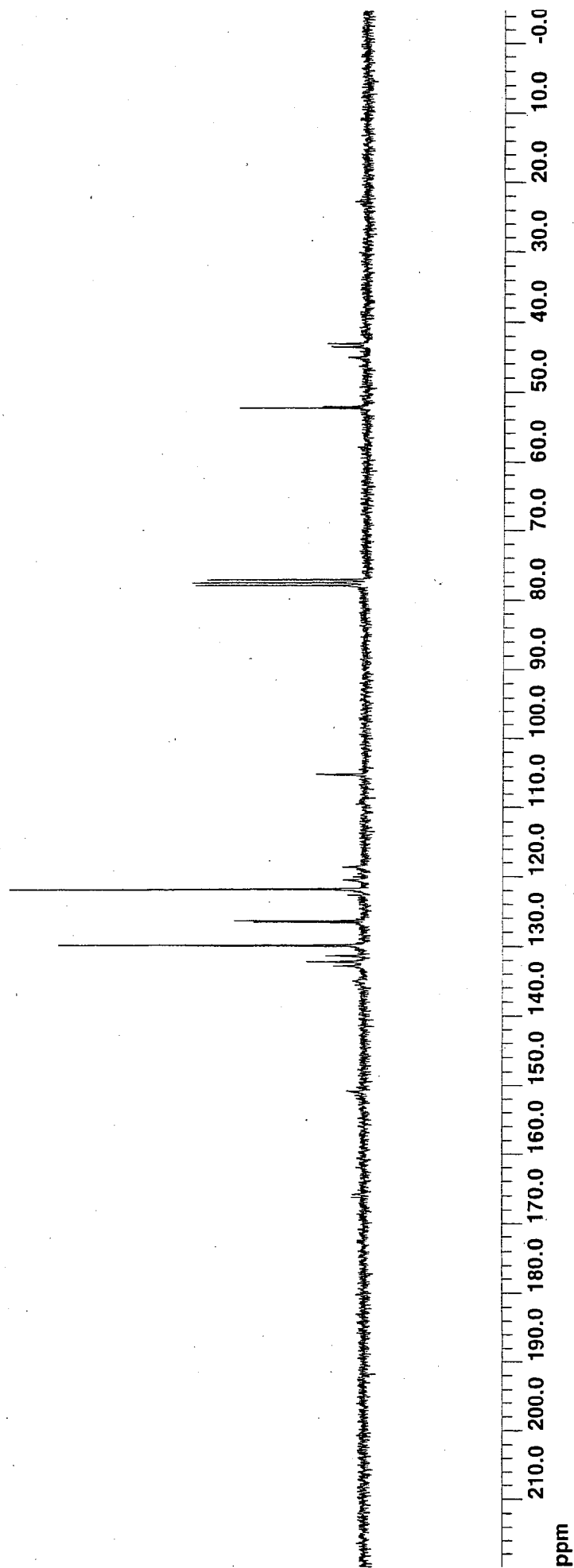
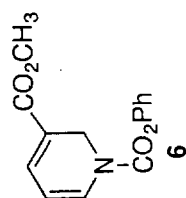
Selective Fowler reductions:

asymmetric total syntheses of isofagomine and other 1-azasugars from methyl nicotinate

Guohua Zhao, Urmila C. Deo, and Bruce Ganem*

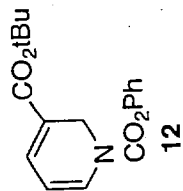
*Department of Chemistry and Chemical Biology,
Baker Laboratory, Cornell University,
Ithaca, NY 14853-1301*

bg18@cornell.edu



ppm
GHZ-II-191A-C13

File created:
Wednesday, May 20, 1998
5:42 PM

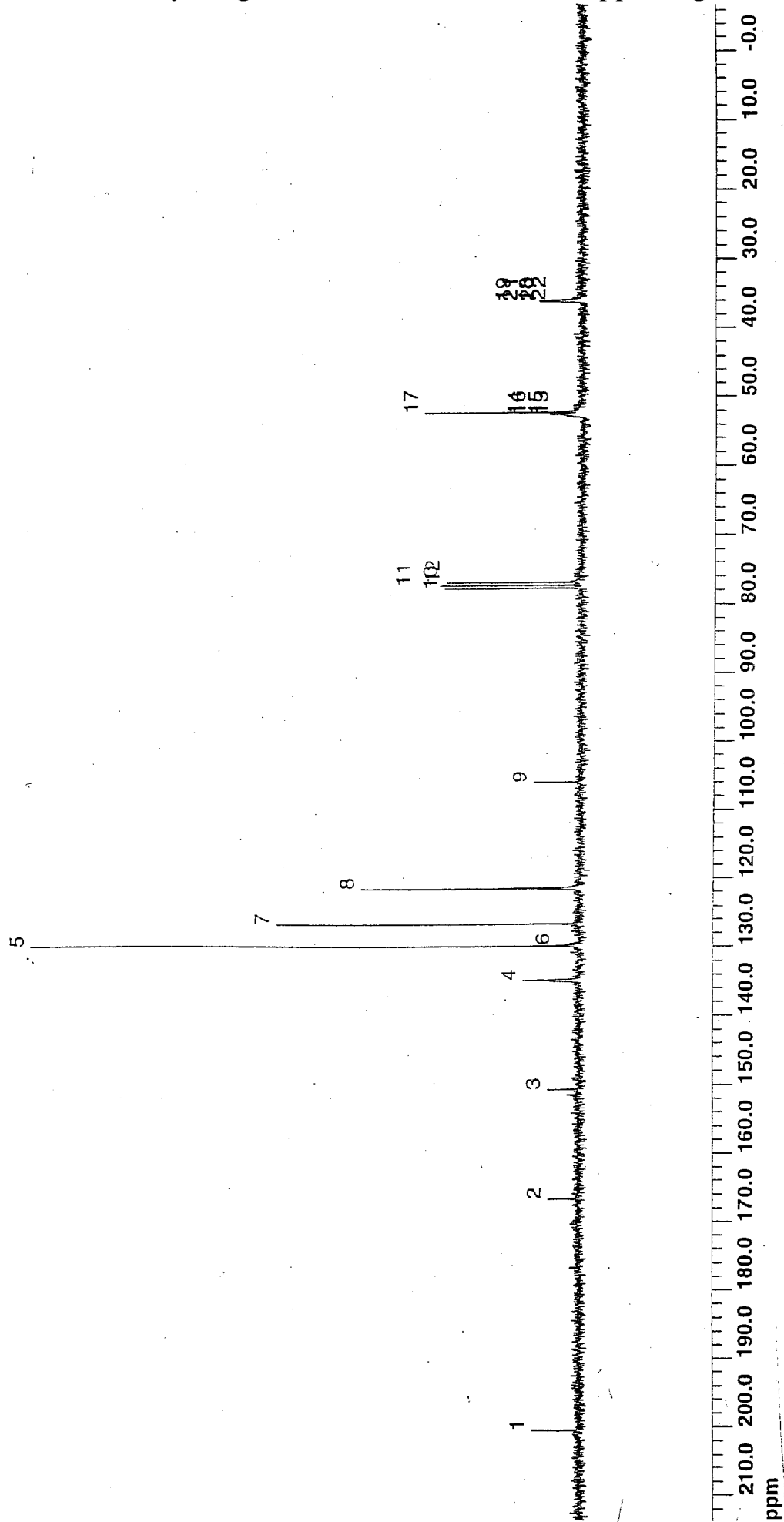
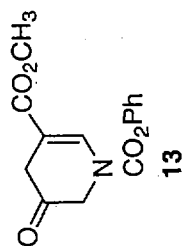


No. Points	16384	32 peaks found in ucd-II-121b-C13		
No. Scans	1000000000	peak	ppm	freq
Dummy Scans	0	1	164.863	12441.96
Scan Count	517	2	159.509	12037.91
SW +/-	10000.0	3	131.526	9926.09
Filter	10000	4	131.494	9923.65
Acq. Time	819.2m	5	130.992	9885.81
Dwell	50u	6	130.604	9856.51
Obs Freq	75.4775450	7	129.941	9806.46
Obs base	75.4700000	8	129.779	9794.25
O1 offset	7.5450 KHz	9	129.698	9788.15
dcplfreq	300.1348911	10	126.609	9555.00
O2 offset	4.8911 KHz	11	126.447	9542.79
RCVR gain	100	12	126.399	9539.13
DEC Mode	BB	13	126.285	9530.58
DEC Attn.	112	14	126.188	9523.26
		15	122.501	9244.94
				192931.66
				141901.58
				347614.69
				324237.31
				266743.69
				269601.38
				358551.94
				2137157.50
				3273532.25
				238211.61
				354478.50
				671591.50
				186594.75
				1344512.62
				178817.58

File created:
Wednesday, April 8, 1998
11:47 AM

ppm

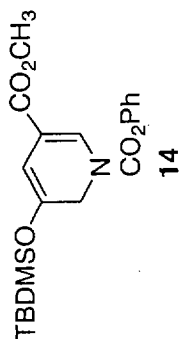
190.0 180.0 170.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0



File created:
Tuesday, July 15, 1997
2:29 PM

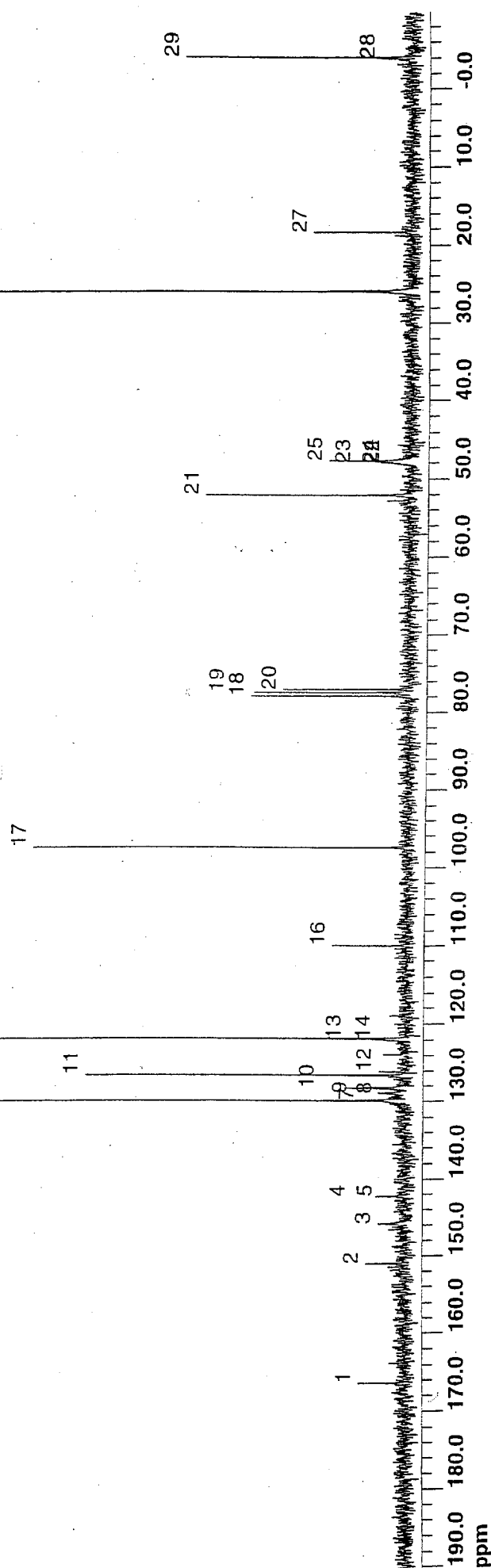
#32B

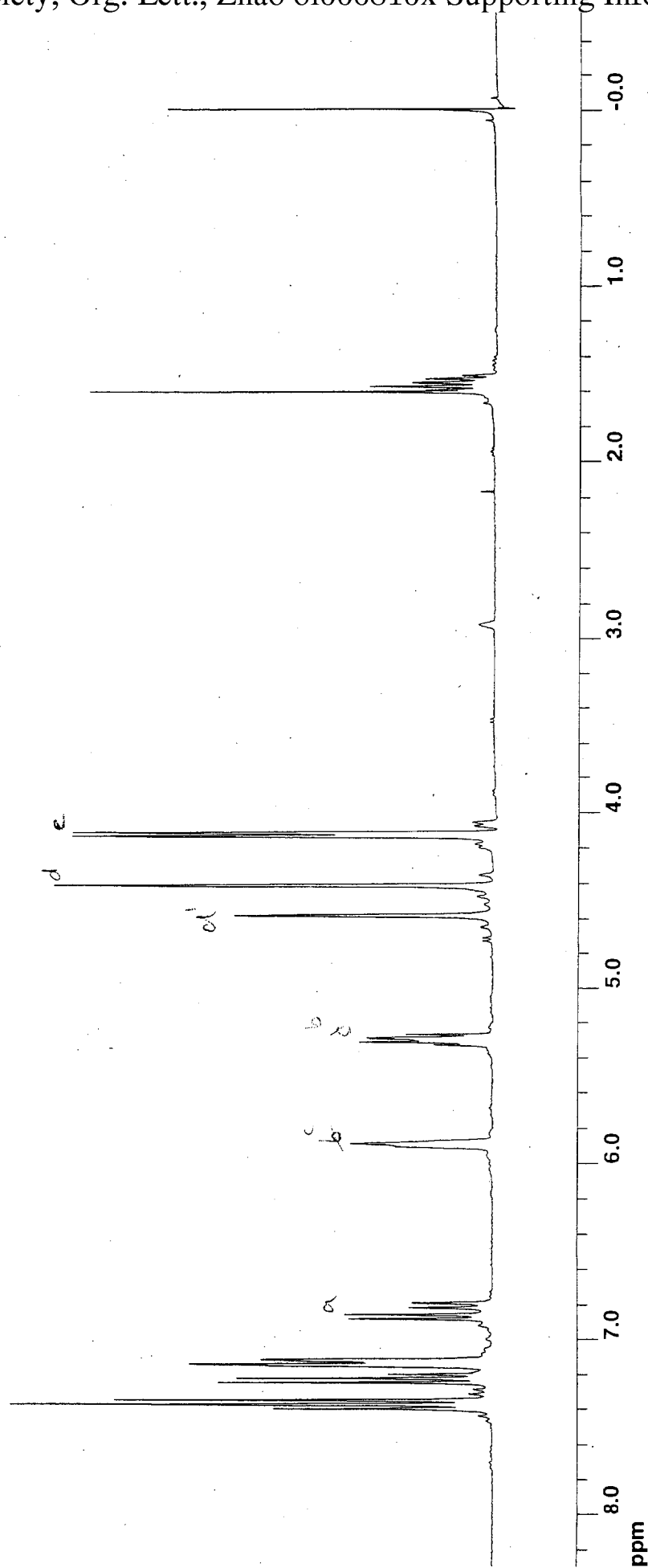
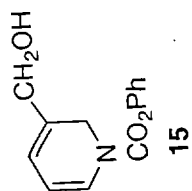
No. Points 16384
 No. Scans 1000000000
 Dummy Scans 0
 Scan Count 1572
 SW +/- 10000.0
 Filter 10000
 Acq. Time 819.2m
 Dwell 50u
 Obs Freq 75.4775450
 Obs base 75.4700000
 O1 offset 7.5450 KHz
 dcplfreq 300.1348911
 O2 offset 4.8911 KHz
 RCVR gain 100
 DEC Mode BB
 DEC Attn. 112



File created:
 Monday, September 14, 1998
 12:16 PM

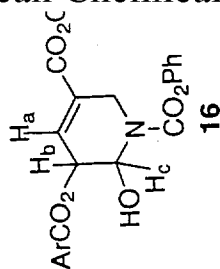
29 peaks found in ucd-11-280(c-13)	peak	ppm	freq	amp
1	166.351	12554.26	334649.88	
2	150.888	11387.27	277685.34	
3	145.712	10996.65	191243.64	
4	142.153	10728.09	210442.33	
5	142.105	10724.43	179528.30	
6	129.779	9794.25	4971755.50	
7	129.650	9784.49	320107.31	
8	128.841	9723.45	188238.06	
9	128.793	9719.79	197053.91	
10	128.162	9672.18	440179.56	
11	126.415	9540.35	2368671.75	
12	125.978	9507.39	190821.66	
13	121.837	9194.89	245013.06	
14	121.789	9191.23	196796.48	
15	121.676	9182.68	4142058.75	
16	109.835	8289.13	539402.19	
17	97.300	7343.08	2771366.00	
18	77.744	5867.25	1155173.00	
19	77.324	5835.51	1132546.50	
20	76.887	5802.56	916540.69	
21	51.929	3919.01	1504230.62	
22	47.901	3615.06	176564.56	
23	47.853	3611.39	215787.00	
24	47.821	3608.95	191761.41	
25	47.610	3593.08	592205.12	
26	25.774	1945.13	6891919.50	
27	18.253	1377.51	712794.94	
28	-4.150	-313.17	220122.45	
29	-4.279	-322.93	1665446.75	





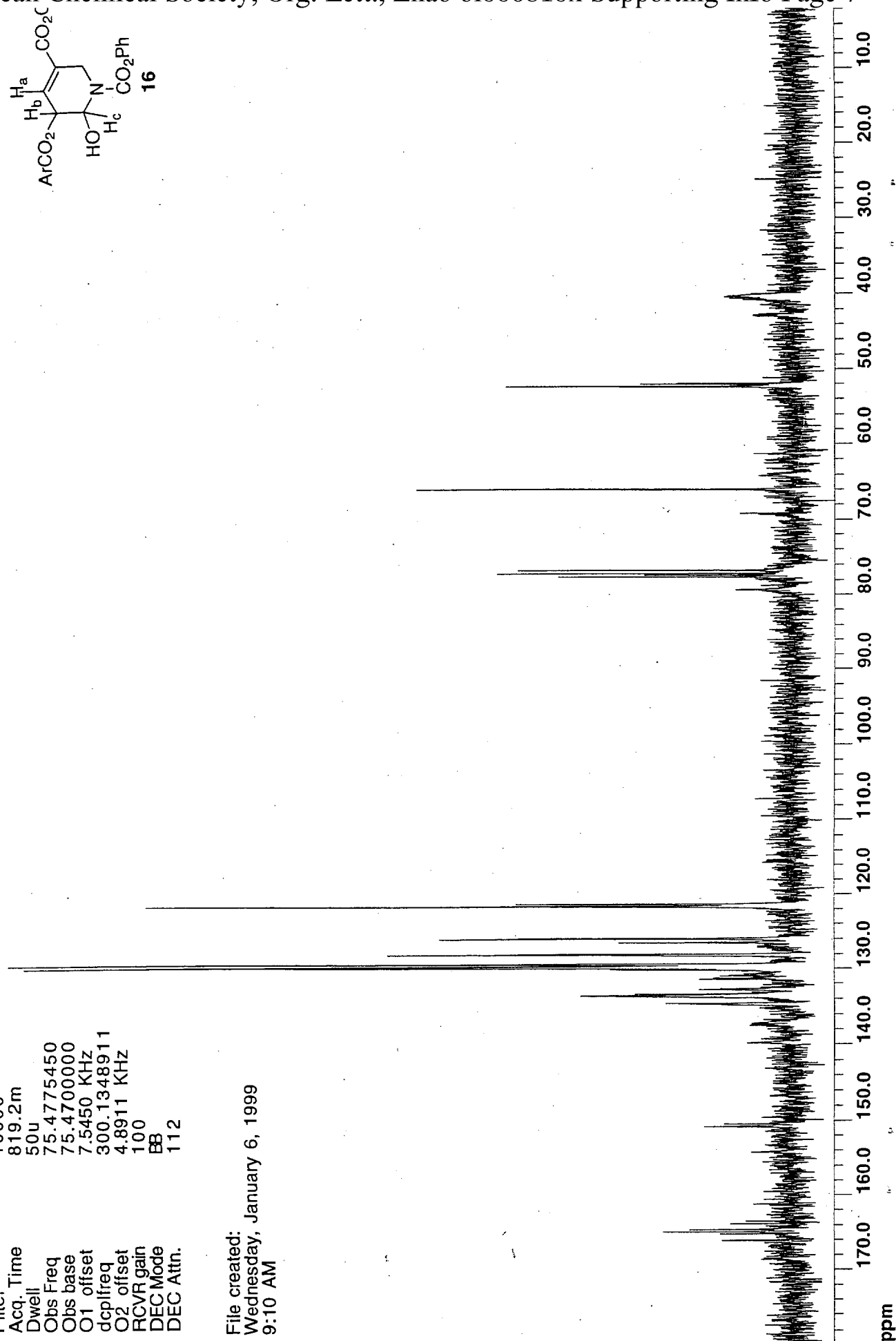
GHZ-II-157A

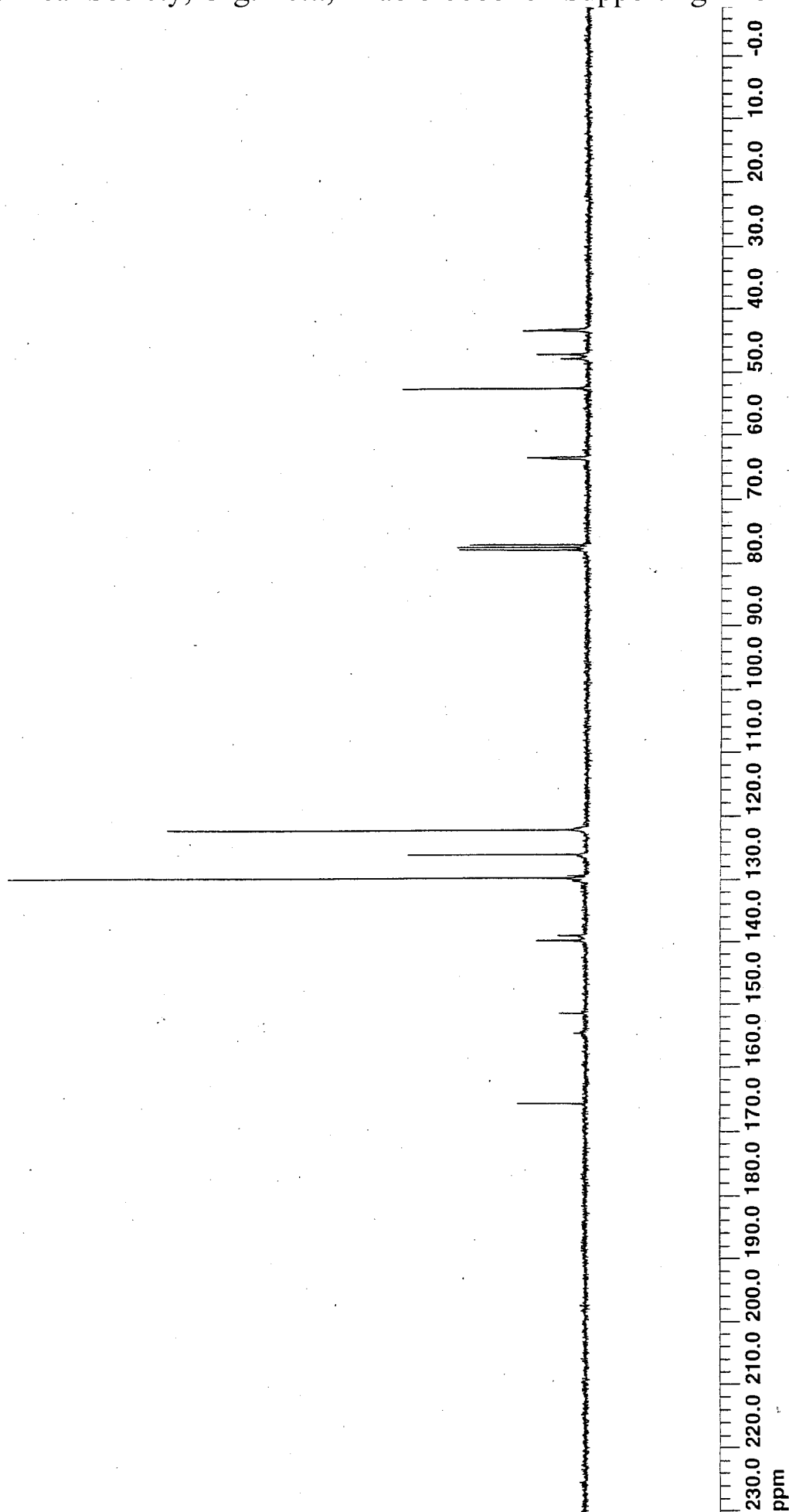
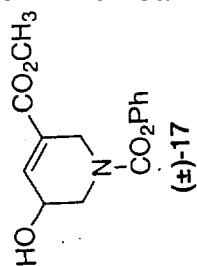
File created:
Thursday, February 5, 1998
4:39 PM



No. Points 16384
 No. Scans 1000000000
 Dummy Scans 0
 Scan Count 1351
 SW +/- 10000.0
 Filter 10000
 Acq. Time 819.2m
 Dwell 50u
 Obs Freq 75.4775450
 Obs base 75.4700000
 O1 offset 7.5450 KHz
 dcplfreq 300.1348911
 O2 offset 4.8911 KHz
 RCVR gain 100
 DEC Mode BB
 DEC Attn. 112

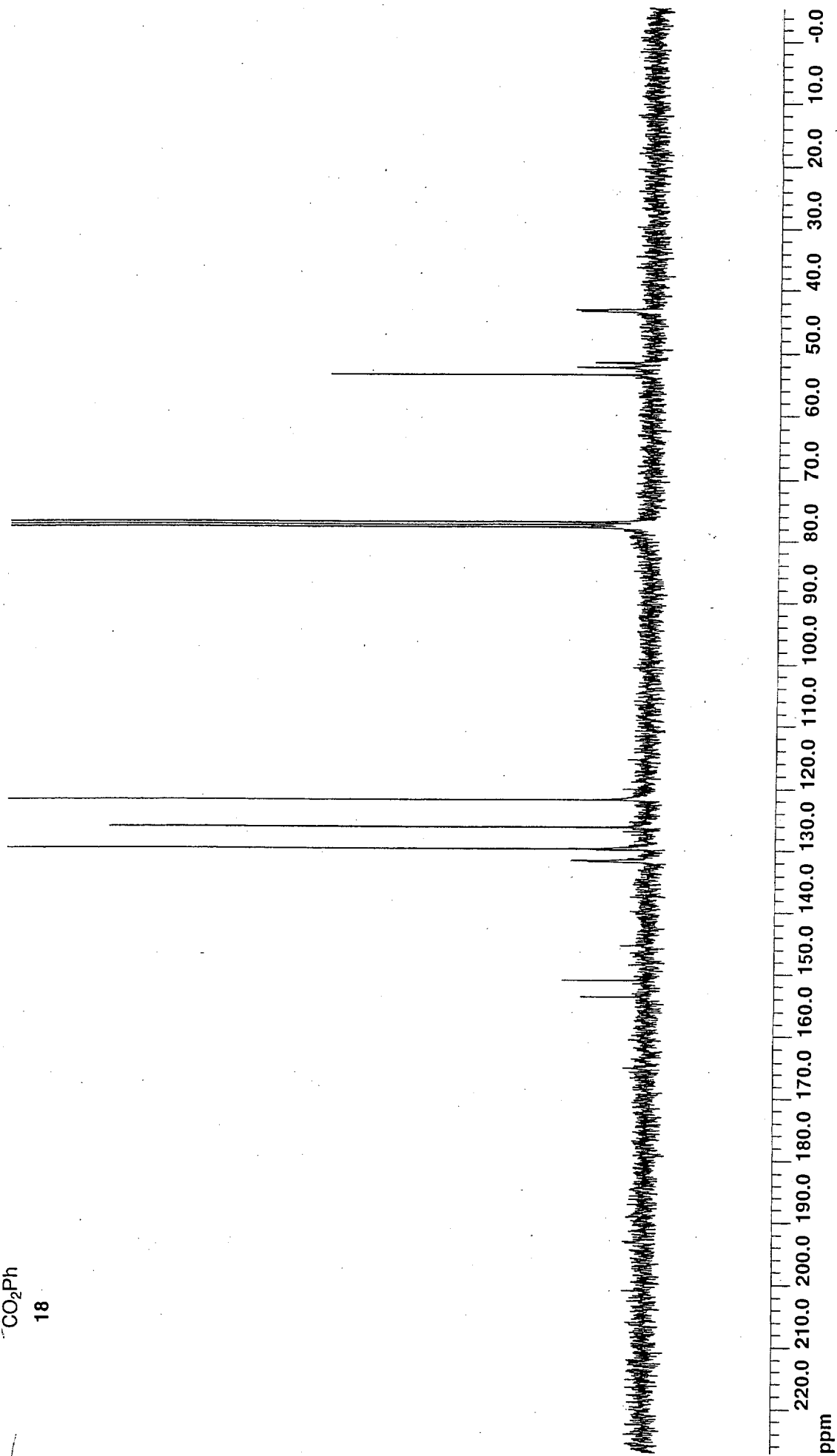
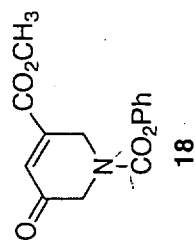
File created:
 Wednesday, January 6, 1999
 9:10 AM





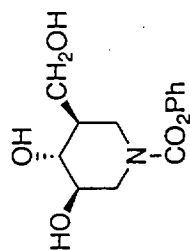
GHZ-II-213A-C13

File created:
Monday, June 22, 1998
5:10 PM

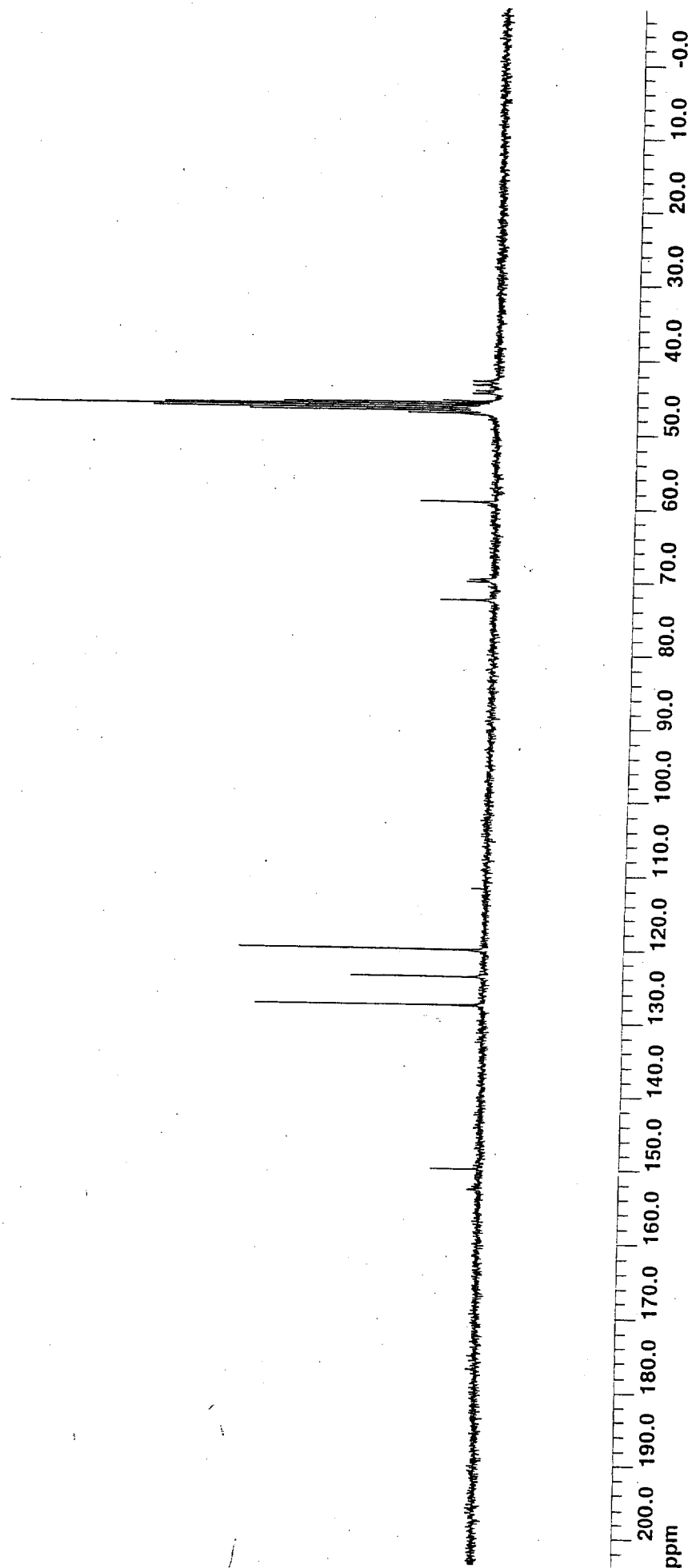


GHZ-II-209A-C13

File created:
Monday, June 15, 1998
8:19 PM

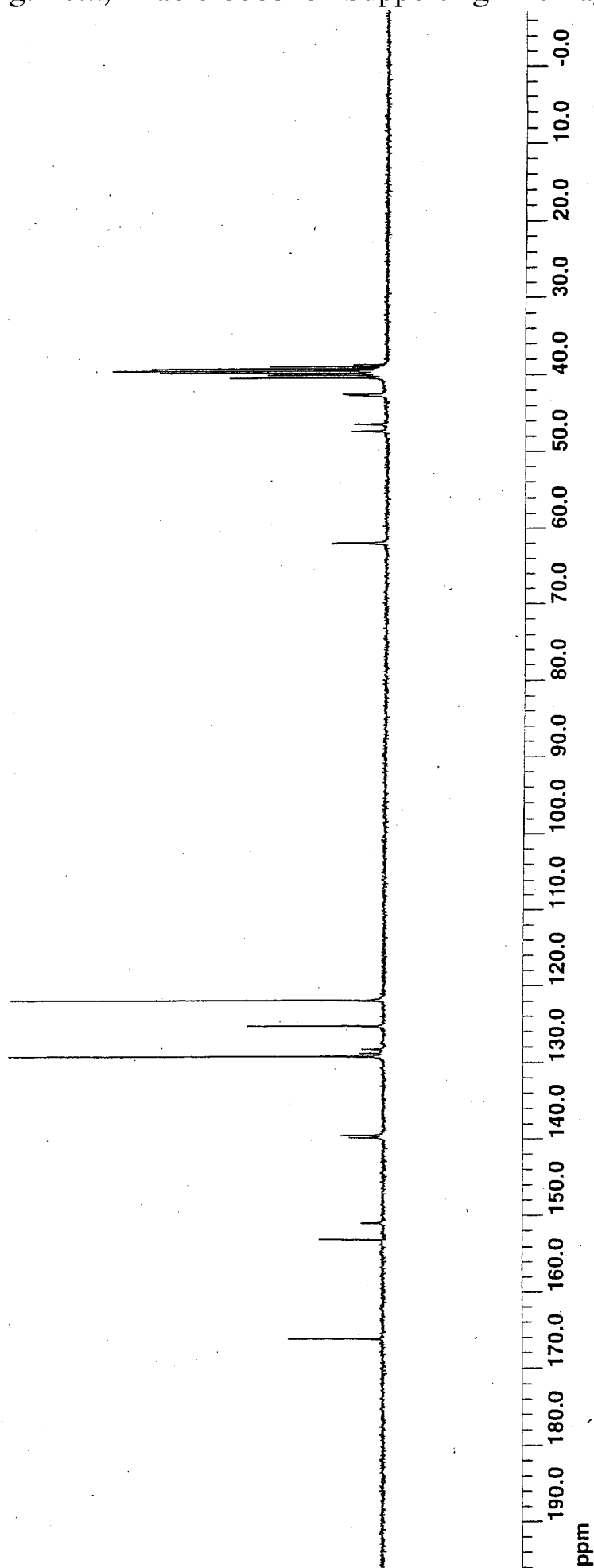
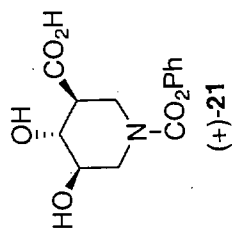


(+)-20



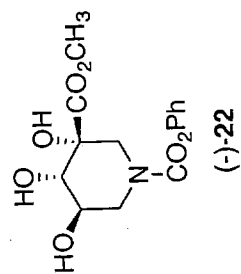
GHZ-II-237A-C13

File created:
Saturday, August 8, 1998
9:11 AM

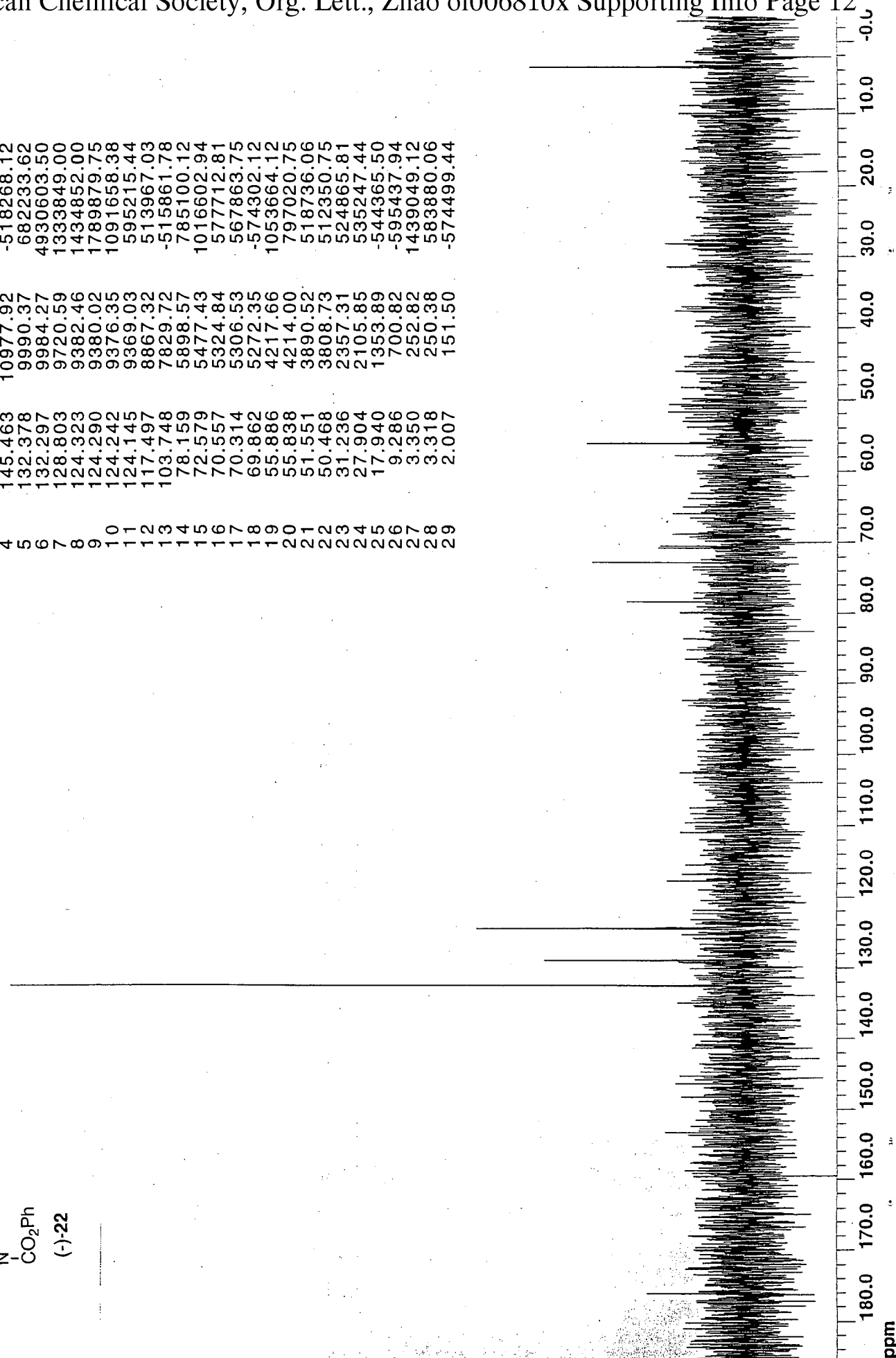


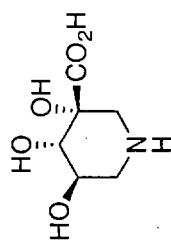
GHZ-II-173A1-C13

File created:
Thursday, March 26, 1998
5:14 PM



peak	ppm	freq	amp
1	175.953	13278.94	649166.50
2	159.342	12025.28	-613851.12
3	153.163	11558.97	527919.50
4	145.463	10977.92	-518268.12
5	132.378	9990.37	682233.62
6	132.297	9984.27	4930603.50
7	128.803	9720.59	1333849.00
8	124.323	9382.46	1434852.00
9	124.290	9380.02	1789879.75
10	124.242	9376.35	1091658.38
11	124.145	9369.03	595215.44
12	117.497	8867.32	513967.03
13	103.748	7829.72	-515861.78
14	78.159	5898.57	785100.12
15	72.579	5477.43	1016602.94
16	70.557	5324.84	577712.81
17	70.314	5306.53	567863.75
18	69.862	5272.35	-574302.12
19	55.886	4217.66	1053664.12
20	55.838	4214.00	797020.75
21	51.551	3890.52	518736.06
22	50.468	3808.73	512350.75
23	31.236	2357.31	524865.81
24	27.904	2105.85	535247.44
25	17.940	1353.89	-544365.50
26	9.286	700.82	-595437.94
27	3.350	252.82	1439049.12
28	3.318	250.38	583880.06
29	2.007	151.50	-574499.44

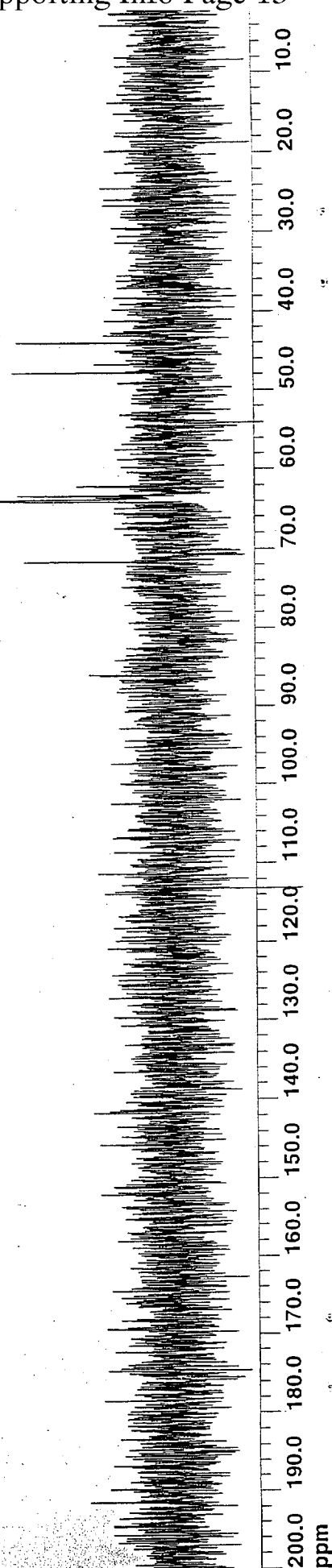




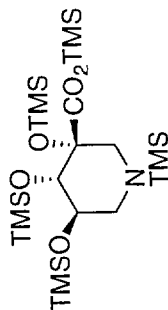
(-)-23

11 peaks found in ucd-iv-99e (13C)			
peak	ppm	freq	amp
1	191.269	14434.88	1438694.62
2	113.080	8534.00	-2169596.50
3	71.462	5393.13	2437665.75
4	63.811	4815.74	141304288.00
5	63.681	4805.98	2791748.75
6	63.617	4801.09	1479138.38
7	63.148	4765.69	2538064.25
8	61.918	4672.92	1557431.88
9	53.912	4068.67	-1405960.75
10	47.620	3593.82	2625572.75
11	43.851	3309.39	2549774.75

Nucleus	C13
No. Points	16384
No. Scans	1000000000
Dummy Scans	0
Scan Count	23188
SW +/-	10000.0
Filter	10000
Acq. Time	819.2m
Last Delay	1s
Obs Freq	75.4775450
Obs base	75.4700000
O1 offset	7.5450 KHz
dcplfreq	300.1355932
O2 offset	5.5932 KHz
RCVR gain	320
DEC Mode	BB

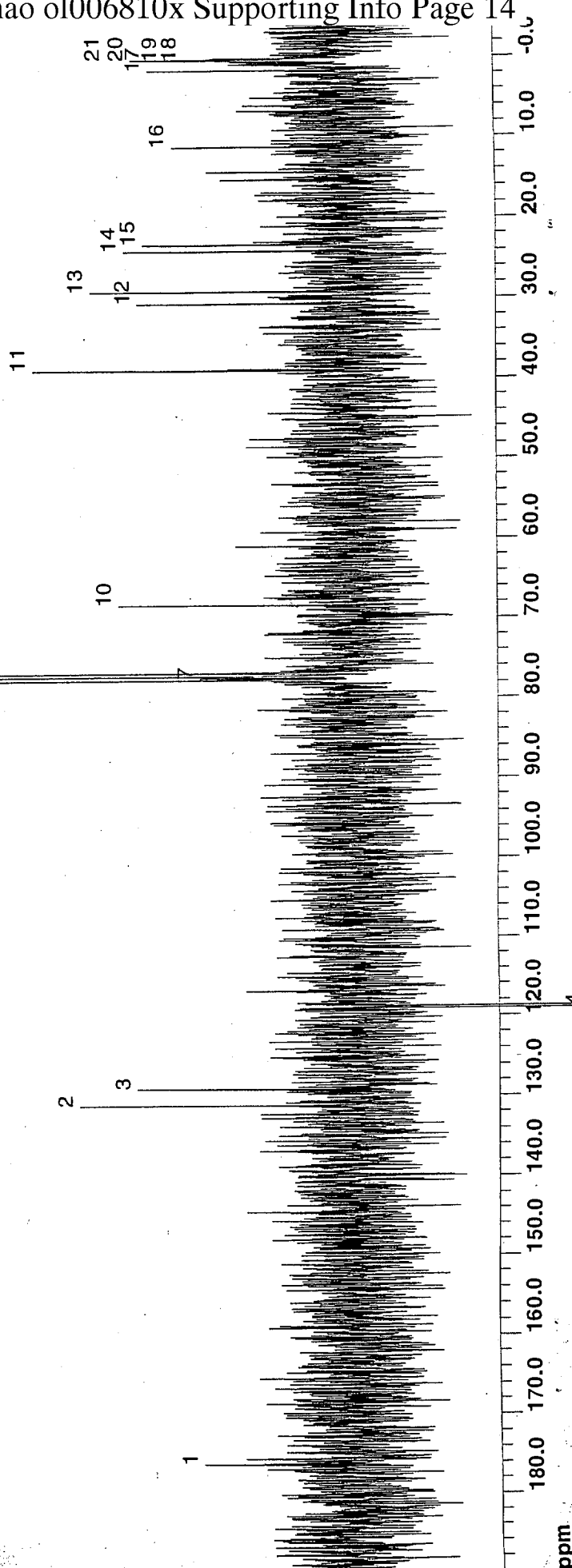


No. Points 16384
 No. Scans 1000000000
 Dummy Scans 0
 Scan Count 704
 SW +/- 10000.0
 Filter 10000
 Acq. Time 819.2m
 Dwell 50u
 Obs Freq 75.4775450
 Obs base 75.4700000
 O1 offset 7.5450 KHz
 dcplfreq 300.1348911
 O2 offset 4.8911 KHz
 RCVR gain 100
 DEC Mode BB
 DEC Attn. 112



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21 peaks found in Untitled2			
peak	ppm	freq	amp
1	176.218	13298.89	93861.55
2	131.138	9896.79	170144.06
3	129.051	9739.32	134088.17
4	118.861	8970.28	-142383.69
5	118.602	8950.75	-293527.81
6	77.712	5864.81	515640.28
7	77.502	5848.94	94229.24
8	77.291	5833.07	594938.44
9	76.871	5801.33	549285.19
10	68.411	5162.91	144743.97
11	38.973	2941.23	197417.94
12	30.610	2310.12	132283.16
13	29.171	2201.48	161329.88
14	23.995	1810.86	140368.05
15	23.235	1753.48	128486.03
16	11.217	846.50	109896.55
17	1.609	121.40	124741.55
18	0.347	26.19	101634.33
19	0.315	23.75	99578.68
20	0.250	18.86	135125.64
21	0.218	16.42	135235.41



400V-60
 in CDCl₃ 1H
 pyric