

Supporting Information for:

**Total Synthesis of Both Methyl 4a-carba-D-arabinofuranosides**

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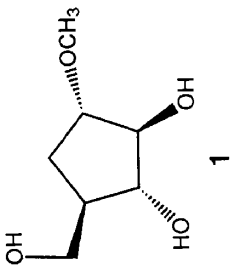
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 EXPNO 31  
 PROCNO 1

F2 - Acquisition Parameters:  
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 Time 20 05  
 INSTRUM spect  
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 PULPROG zg30  
 TD 65536  
 SOLVENT D2O  
 NS 40  
 DS 2  
 SMH 10330.578 Hz  
 FIDRES 0.157532 Hz  
 AQ 3.1719923 sec  
 RG 297.4  
 OH 48.400 usi  
 DE 6.00 usi  
 TE 300.0 K  
 D1 1.0000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 13.70 usi  
 PL1 -1.00 dB  
 SF01 500.1330885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300000 MHz  
 MDW EN 0  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

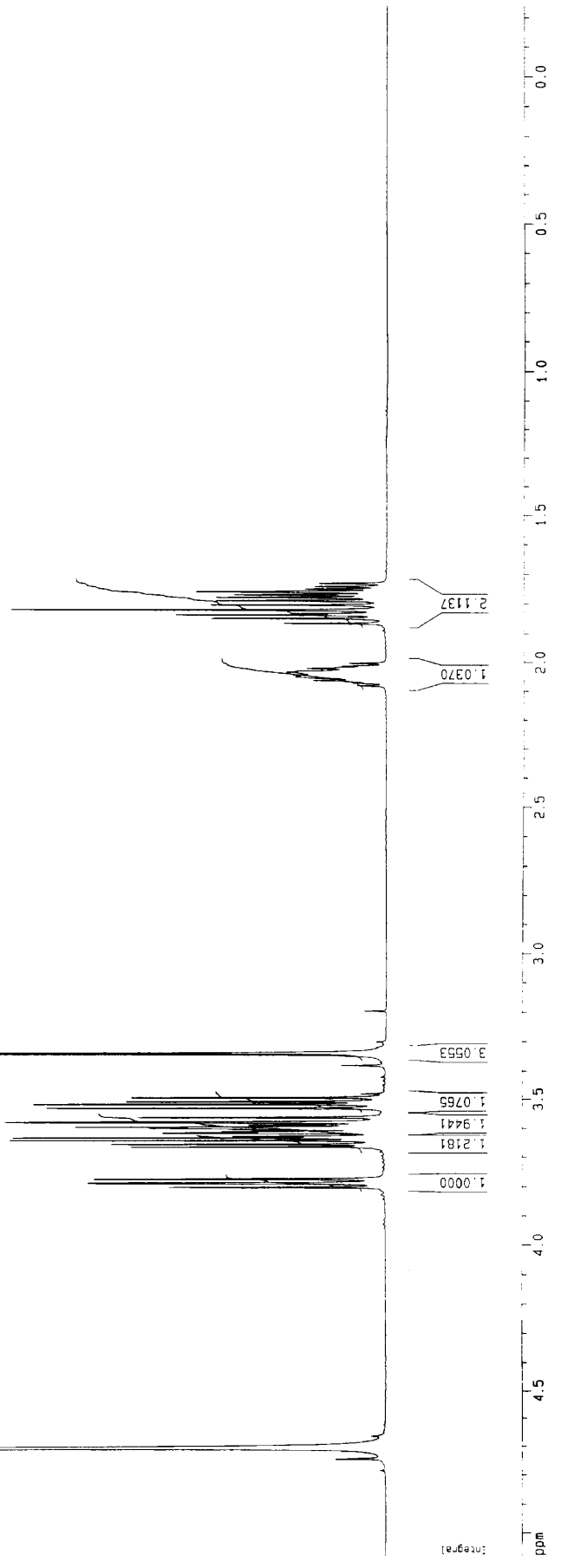
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 CX 34.00 cm  
 FIP 5.078 ppm  
 F1 2539.73 Hz  
 F2 -0.298 ppm  
 F2 -119.29 Hz  
 PFNCH 0.15637 ppm  
 HZCH 78.20649 Hz



2.06417  
2.05164  
2.04550  
2.03222  
2.02259  
2.02259  
1.86758  
1.85104  
1.83928  
1.83447  
1.82271  
1.80609  
1.79157  
1.78072  
1.77200  
1.76167  
1.75241  
1.74373  
1.73283

3.60219  
3.78862  
3.78750  
3.77383  
3.66498  
3.65566  
3.64267  
3.63332  
3.62796  
3.61612  
3.61148  
3.59948  
3.59541  
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3.51702  
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3.38139  
3.34148

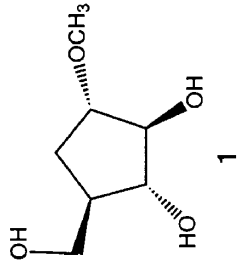
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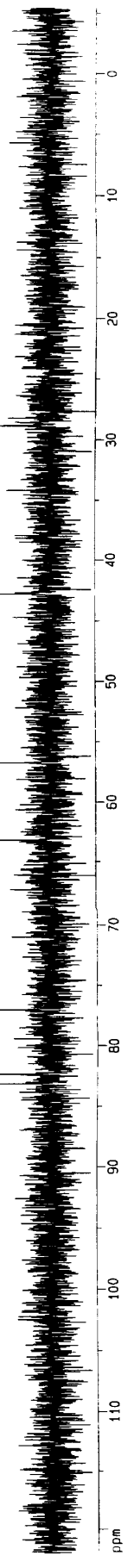
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NAME TargetA
EXPNO 32
PROCNO 1
F2 - Acquisition Parameters
Date_ 991118
Time 20.13
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PROBHD 5 BBO BB-P
PULPROG zgpg30
TO 7999.30
SOLVENT D2O
NS 202
DS 4
SWH 31446.541 Hz
FIDRES 0.479836 Hz
AQ 1.0420724 sec
RG 8192
DH 15.900 usec
DE 0.00 usec
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
D12 0.00000000 sec
***** CHANNEL f1 *****
NUC1 13C
P1 8.40 usec
PL1 3.00 dB
SF01 125.7715719 MHz
***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
P2 100.00 usec
PL2 -1.00 dB
PL12 16.80 dB
PL13 16.80 dB
SF02 500.1320005 MHz
F2 - Processing parameters
SI 32768
SF 125.7577350 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
1D NMR plot parameters
CX 34.00 cm
F1P 121.910 ppm
F1 15331.14 Hz
F2P -5.446 ppm
F2 -684.90 Hz
PPMCH 3.74577 ppm/Hz
HZCM 471.05988 Hz/Hz

```



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 63.2097  
 77.0241  
 82.3494  
 83.1367

ppm

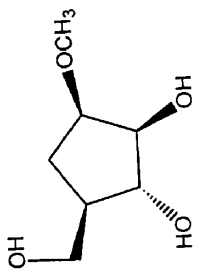


Current Data Parameters  
 NAME Target1  
 EXPNO 9  
 PROCNO 1  
 F2 - Acquisition Parameters  
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 Time 20.58  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zg30  
 TO 65536  
 SOLVENT CDCl3  
 NS 129  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.1719923 sec  
 RG 362  
 CW 48.400 usec  
 DE 6.00 usec  
 TE 300.0 K  
 O1 1.0000000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 13.70 usec  
 PL1 -1.00 dB  
 SF01 500.1300885 MHz

F2 - Processing parameters  
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 SF 500.1300000 MHz  
 NQM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

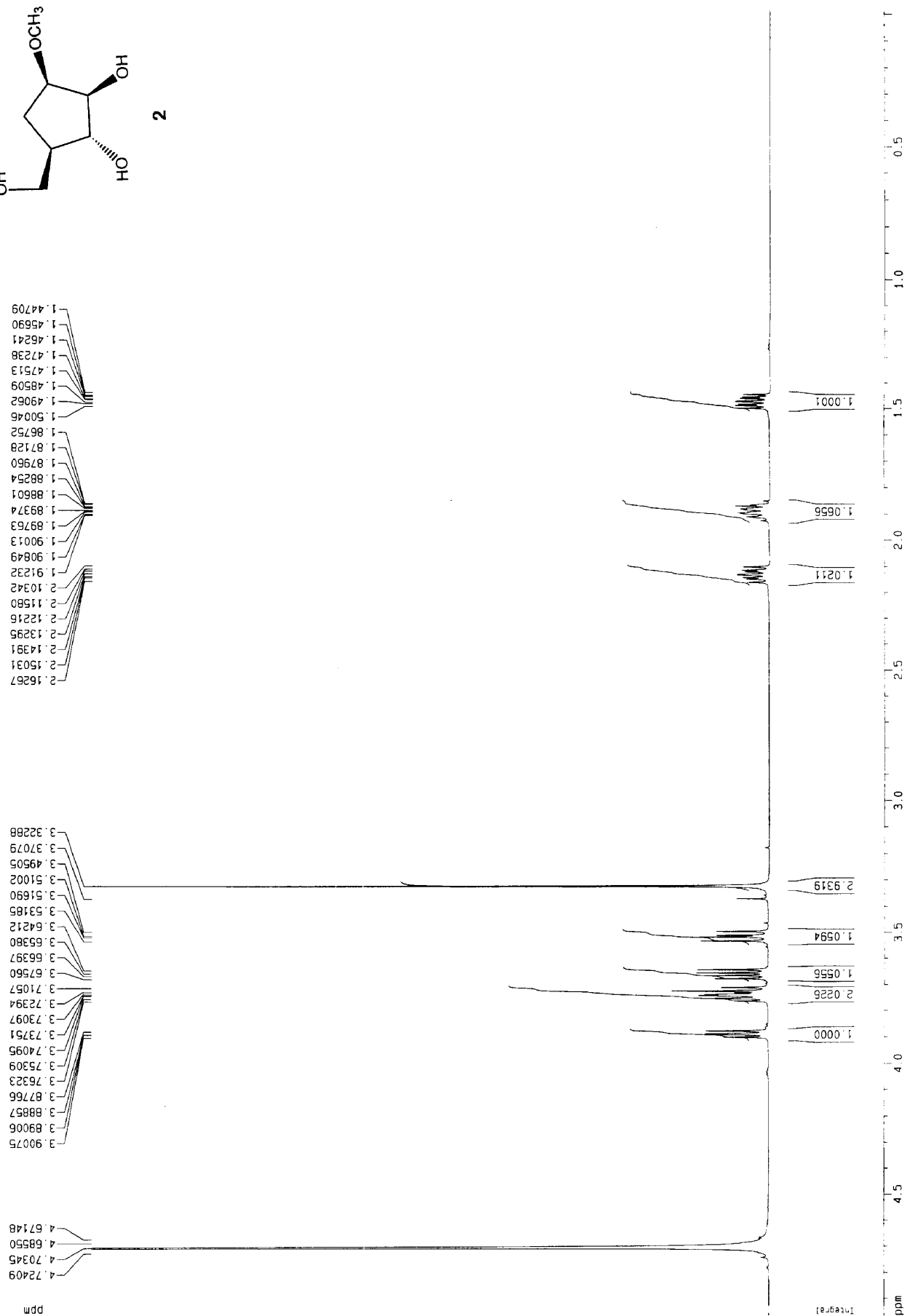
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 F1 2482.96 Hz  
 F2P -0.015 ppm  
 F2 -7.39 Hz  
 PPMCM 0.14645 ppm  
 HZCM 73.24667 Hz/1



1.44709  
 1.45690  
 1.46241  
 1.47238  
 1.47513  
 1.47513  
 1.48509  
 1.49062  
 1.50046  
 1.86752  
 1.87128  
 1.87960  
 1.88254  
 1.88601  
 1.89374  
 1.89763  
 1.90013  
 1.90849  
 1.91232  
 2.10342  
 2.11580  
 2.12216  
 2.13295  
 2.14391  
 2.15031  
 2.16267

3.32288  
 3.37079  
 3.49505  
 3.51002  
 3.51690  
 3.53185  
 3.64212  
 3.65380  
 3.66397  
 3.67560  
 3.71057  
 3.72394  
 3.73097  
 3.73751  
 3.74095  
 3.75309  
 3.76323  
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 3.88857  
 3.89006  
 3.90075

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 4.68550  
 4.67148



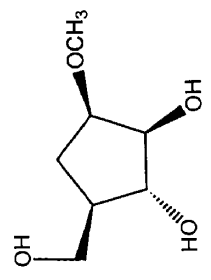
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 PROCNO 1

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 INSTRUM spect  
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 PULPROG zgpg30  
 TO 65536  
 SOLVENT D2O  
 NS 301  
 DS 4  
 SMH 31446.501 Hz  
 FIDRES 0.479036 Hz  
 AQ 1.0420724 sec  
 RG 16384  
 DW 15.300 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 D12 0.0000200 sec

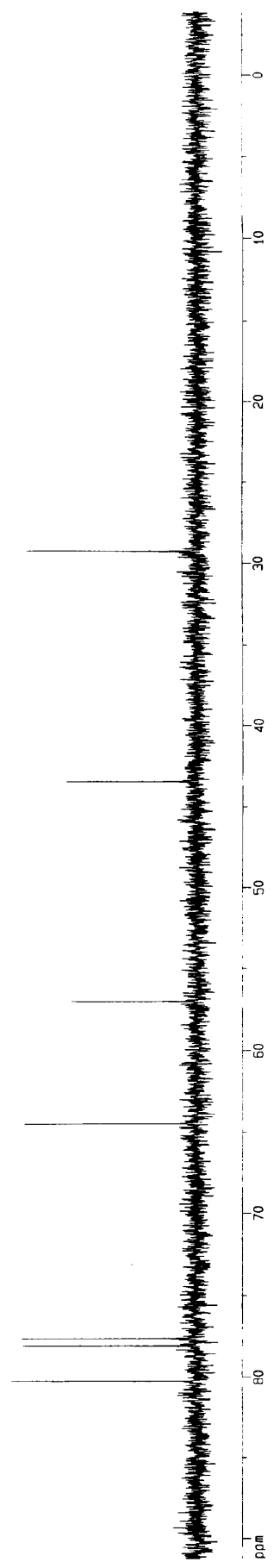
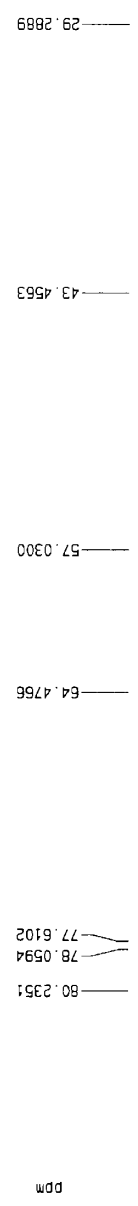
\*\*\*\*\* CHANNEL F1 \*\*\*\*\*  
 NUC1 13C  
 P1 8.40 usec  
 PL1 3.00 dB  
 SF01 125.7715785 MHz  
 \*\*\*\*\* CHANNEL F2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 100.00 usec  
 PL2 -1.00 dB  
 PL12 10.00 dB  
 PL13 10.00 dB  
 SF02 500.132005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7577350 MHz  
 NDM 0  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.00

1D NMR1 plot parameters  
 CX 34.00 e3  
 FIP 91.235 ppm  
 F1 11473.51 Hz  
 F2 -478.24 Hz  
 PPM0M 2.75523 ppm  
 HZ0M 351.52269 Hz/



2



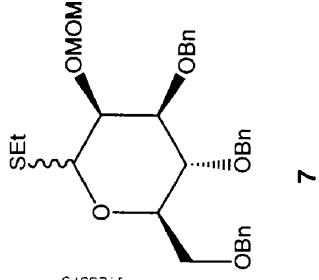
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 EXPNO 20  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 991103  
 Time 17.01  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 100  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.171923 sec  
 RG 64  
 DM 48.400 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 1.0000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 13.70 usec  
 PL1 -1.00 dB  
 SF01 500.1300885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300355 MHz  
 EM  
 NDM 0  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

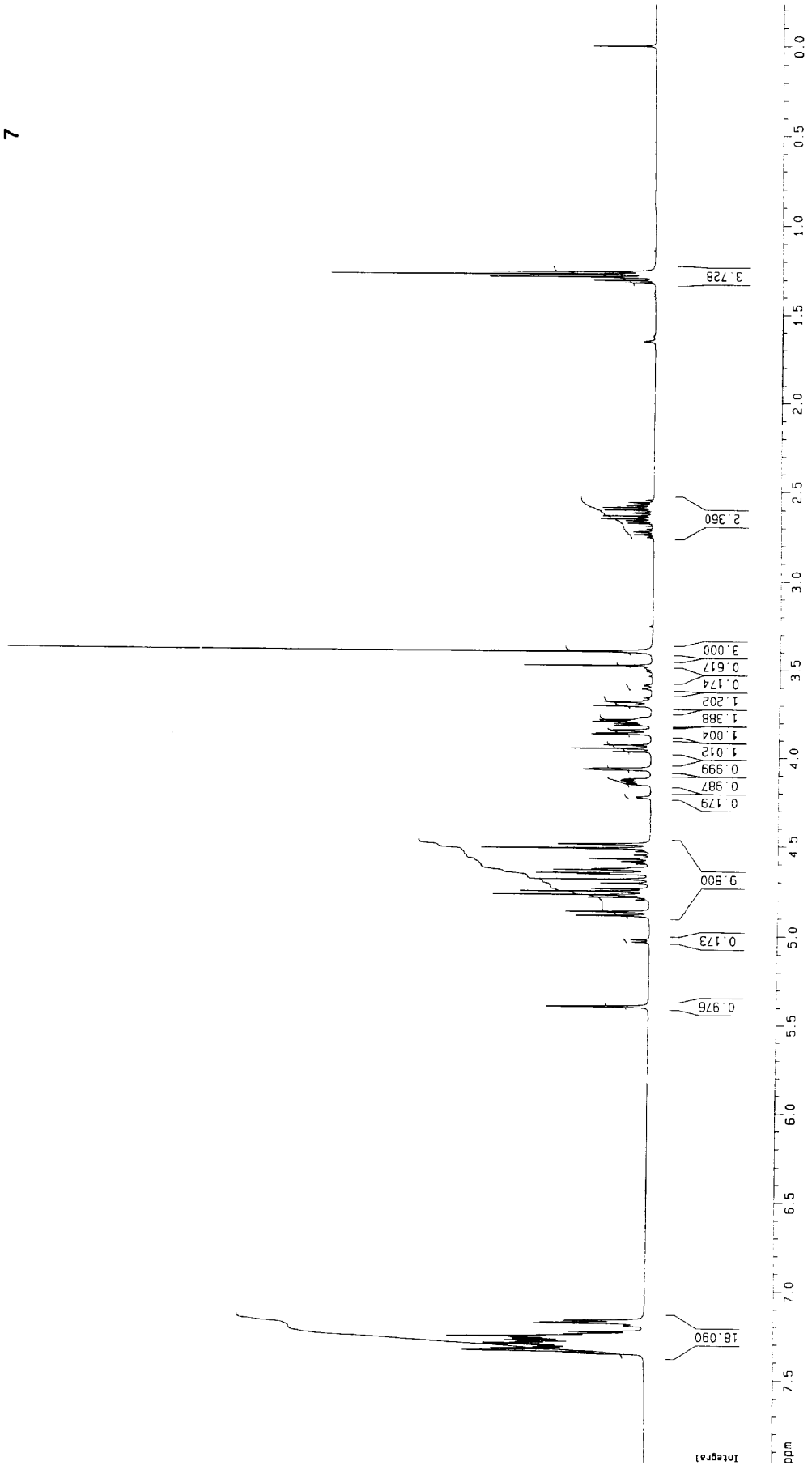
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 CX 34.00 cm  
 F1P 7.965 ppm  
 F1 3983.55 Hz  
 F2P -0.235 ppm  
 F2 -117.46 Hz  
 FREQM 0.24117 ppm/  
 NZCM 120.61847 Hz/c



1.32012  
1.30529  
1.29028  
1.28533  
1.27041  
1.25573

2.56190  
2.57675  
2.58772  
2.60260  
2.62043  
2.63528  
2.65007  
2.66108  
2.67587  
3.39932  
3.39932  
3.47913  
3.68228  
3.70374  
3.70728  
3.78518  
3.79488  
3.86123  
3.86739  
3.94960  
4.06273  
4.06594  
4.06827  
4.07174  
4.49235  
4.51462  
4.53433  
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4.63464  
4.65221  
4.65883  
4.68661  
4.70981  
4.74126  
4.75513  
4.77447  
4.78829  
4.86781  
4.88945  
5.02217  
5.39674  
5.39900

7.18497  
7.25422  
7.26097  
7.26739  
7.27449  
7.28261  
7.29204  
7.29480  
7.29849  
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7.32043  
7.32988  
7.34048



Current Data Parameters  
 NAME Final  
 EXPNO 21  
 PROCNO 1

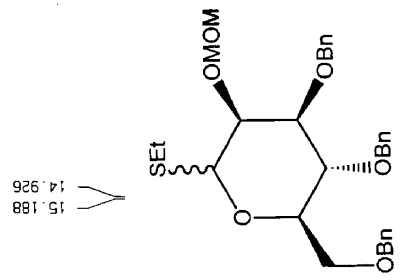
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 Date\_ 991103  
 Time 17.16  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zgpg30  
 TO 655.96  
 SOLVENT CCl3  
 NS 207  
 DS 4  
 SWH 31446.543 Hz  
 FIDRES 0.475936 Hz  
 AQ 1.0420724 sec  
 RG 4096  
 OW 15.900 Use  
 OE 6.00 Use  
 TE 300.0 K  
 D11 0.00000000 sec  
 D12 0.00000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*  
 NUC1 13C  
 P1 8.40 Use  
 PL1 3.00 dB  
 SF01 125.7715719 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*  
 CPDPRG2 hltz16  
 NUC2 1H  
 PCPD2 100.00 Use  
 PL2 -1.00 dB  
 PL12 18.00 dB  
 PL13 18.00 dB  
 SF02 500.1320005 MHz

F2 - Processing Parameters  
 SI 32768  
 SF 125.7578013 MHz  
 NDM EN  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

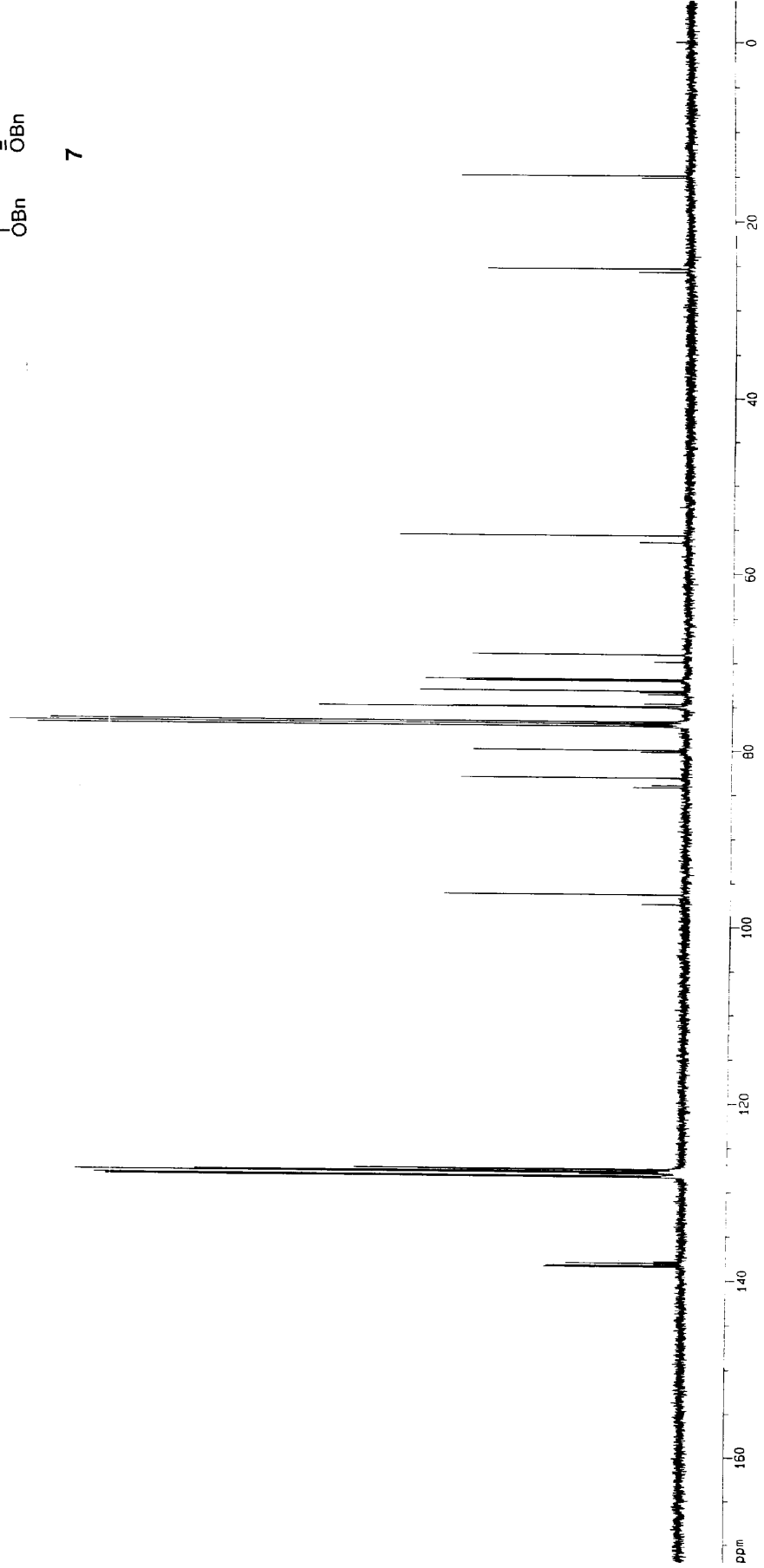
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 CX 34.00 cm  
 F1F 171.948 DDr  
 F1 24623.75 Hz  
 F2P -4.737 DDr  
 F2 -505.76 Hz  
 PRACH 5.19662 DDr  
 PZCN 653.51495 Hz/



7

97.421  
96.307  
84.219  
83.995  
83.129  
80.222  
79.989  
77.253  
77.000  
76.746  
75.147  
75.074  
74.995  
74.709  
73.645  
73.420  
73.261  
72.111  
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71.895  
69.929  
69.102  
56.511  
55.725

138.468  
138.415  
138.323  
138.165  
138.039  
137.874  
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128.357  
128.293  
128.251  
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127.426



ppm

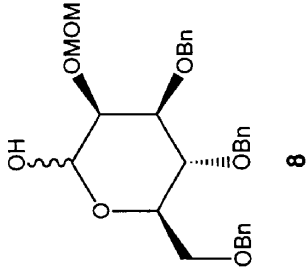
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 NAME Final  
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 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 33  
 DS 2  
 US 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AD 3.1719923 sec  
 RG 181  
 DM 48.400 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 1.0000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 13.70 usec  
 PL1 -1.00 dB  
 SFO1 500.1330085 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1330000 MHz  
 MDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

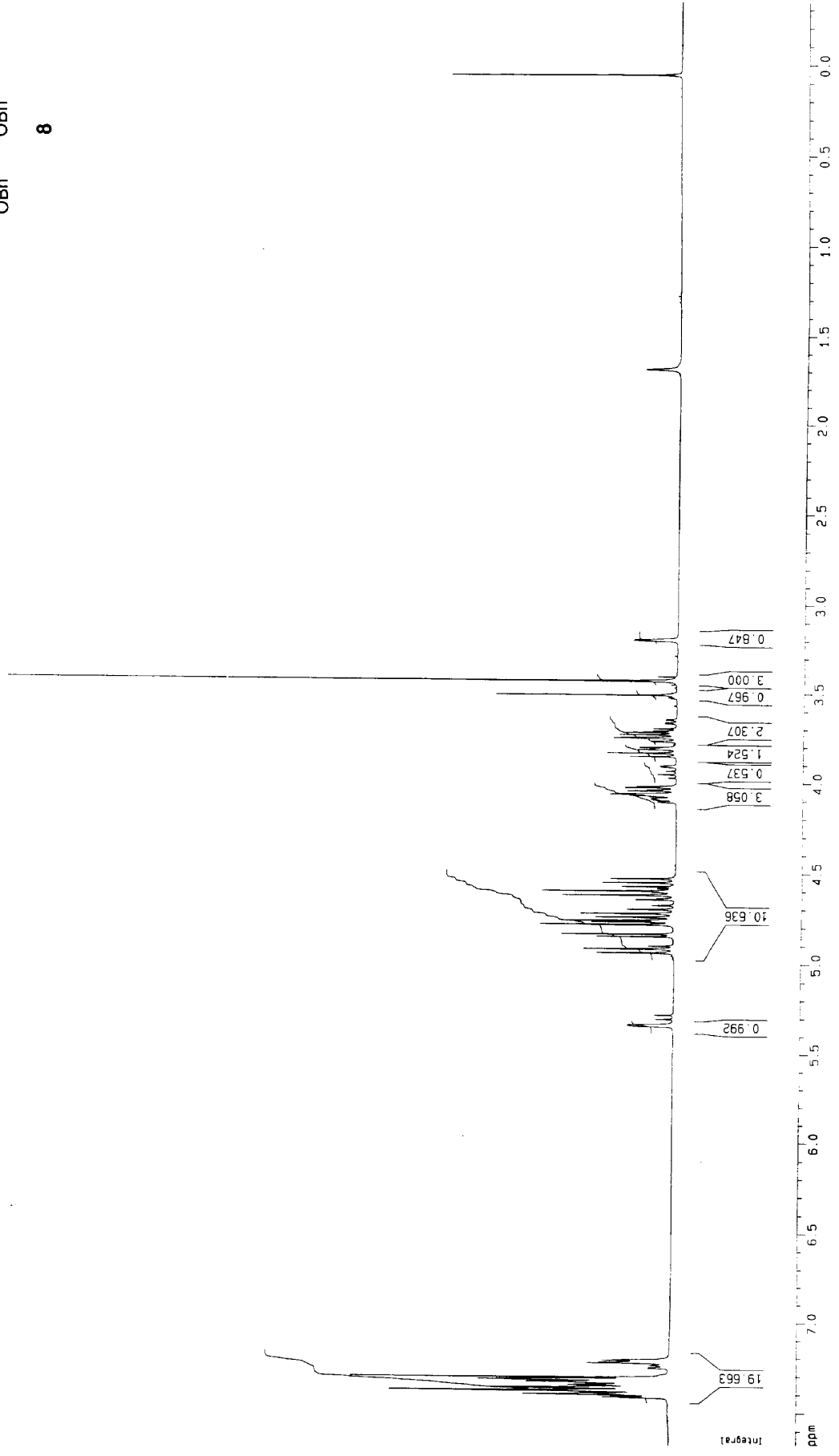
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 CA 34.00 cm  
 F1P 7.679 ppm  
 F1 3840.73 Hz  
 F2P -0.342 ppm  
 F2 -171.14 Hz  
 PPHCM 0.23593 ppm/  
 HZCM 117.99633 Hz/c



1.68958

3.19332  
 3.19993  
 3.43036  
 3.50972  
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 5.34632

7.22804  
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Current Data Parameters  
 NAME Final  
 EXPNO 11  
 PROCNO 1

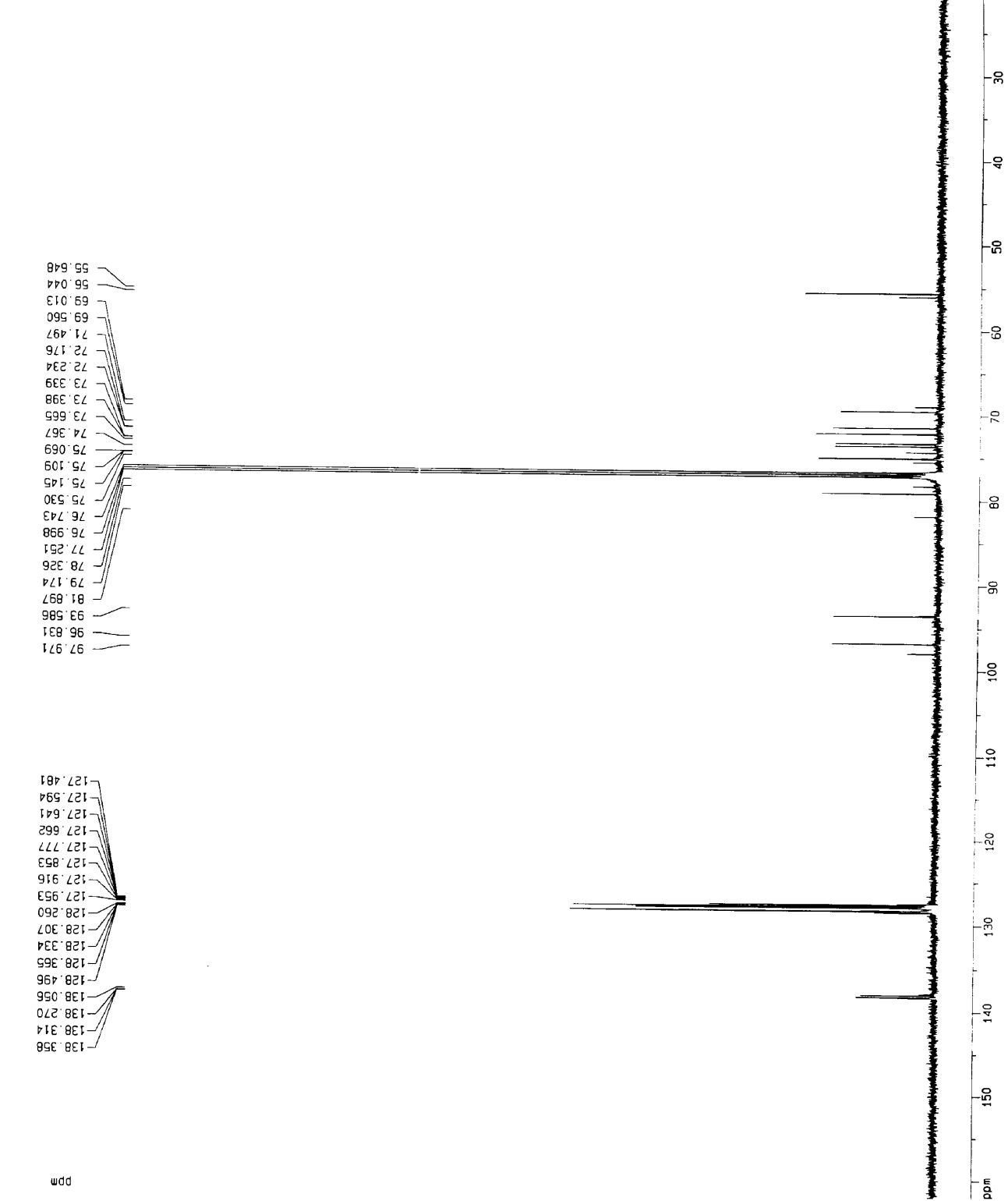
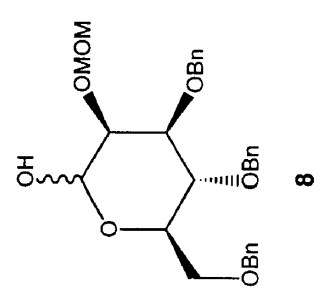
F2 - Acquisition Parameters  
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 Time 16.17  
 INSTRUM spect  
 PROBHD 5 mm BBD BB-1  
 PULPROG zgpg30  
 TO 65536  
 SOLVENT COCl3  
 NS 744  
 DS 4  
 SWH 31446.541 Hz  
 FIDRES 0.479836 Hz  
 AQ 1.0420724 sec  
 RG 4096  
 DW 15.900 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 D12 0.00002000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 8.40 usec  
 PL1 3.00 dB  
 SF01 125.771519 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 100.00 usec  
 PL2 -1.00 dB  
 PL12 18.80 dB  
 PL13 18.80 dB  
 SF02 500.1320005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7577955 MHz  
 EM  
 HDW 0  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

10 NMR plot parameters  
 CX 34.00 cm  
 F1P 162.013 ppm  
 F1 20374.35 Hz  
 F2P -2.803 ppm  
 F2 -352.54 Hz  
 PPHCM 4.84753 ppm/  
 HZCM 609.61469 Hz/c



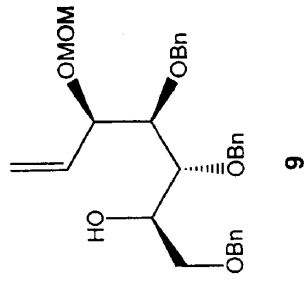
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 EXPMO 30  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 991111  
 Time 17:22  
 INSTRUM spect  
 PROBD 5 mm BBO BB-1  
 PULPROG zg30  
 TO 65536  
 SOLVENT CDCl3  
 NS 96  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.171993 sec  
 RG 143.7  
 DM 48.400 usct  
 DE 6.00 usct  
 TE 300.0 K  
 D1 1.0000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 13.70 usct  
 PL1 -1.00 dB  
 SF01 500.1330885 MHz

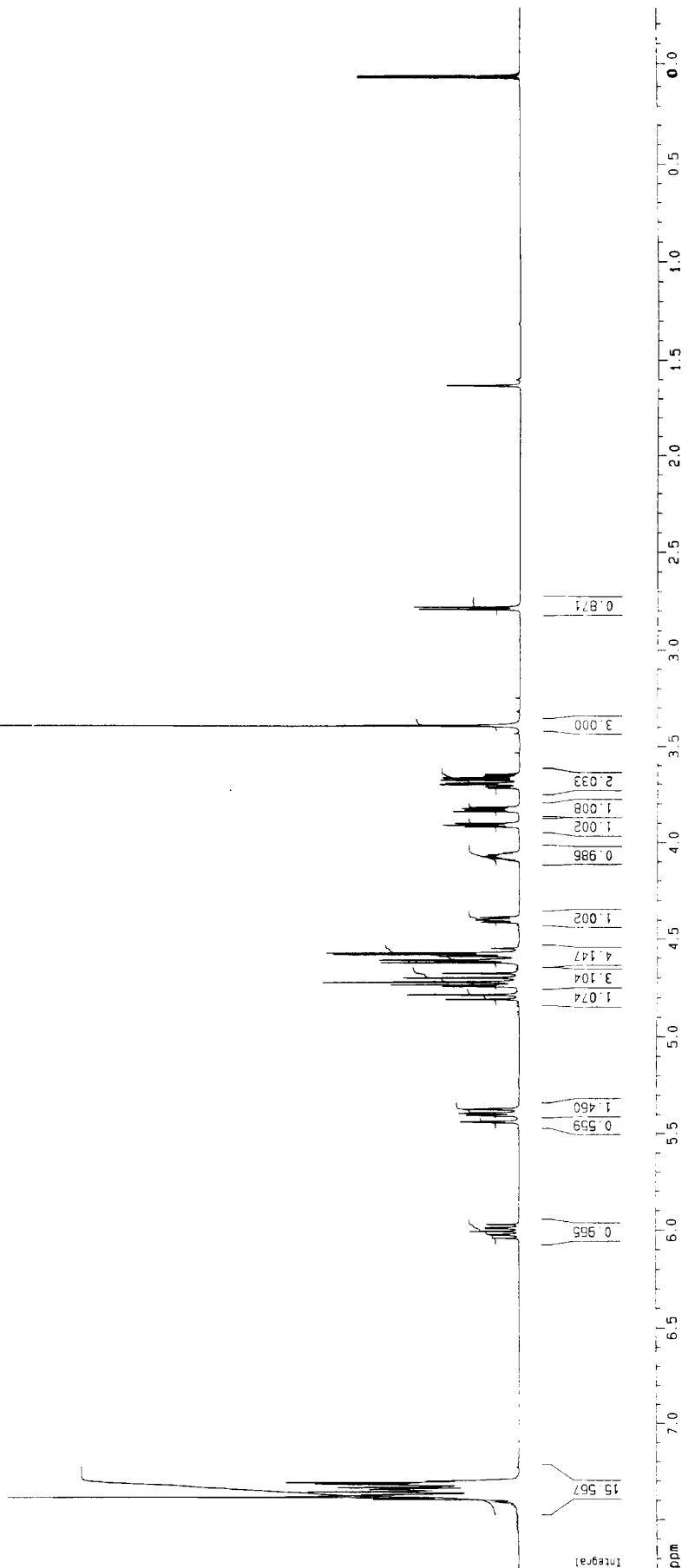
F2 - Processing parameters  
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 SF 500.1300000 MHz  
 MDH EN  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

1D NMR plot parameters  
 CX 34.00 cm  
 F1P 7.748 ppm  
 F1 3874.50 Hz  
 F2P -0.284 ppm  
 F2 -141.92 Hz  
 FREQM 0.28522 ppm  
 NUCM 118.14172 MHz/



1.63214

2.78162  
 2.79255  
 3.39423  
 3.66716  
 3.67811  
 3.69493  
 3.70192  
 3.81851  
 3.82635  
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 3.84115  
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 4.61018  
 4.61326  
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 7.34277  
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 7.36856  
 7.37041  
 7.37446  
 7.38124  
 7.38609  
 7.39404



Current Data Parameters  
 NAME F1NAL1  
 EXPNO 32  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 991111  
 Time 17.39  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT COCl3  
 NS 275  
 DS 4

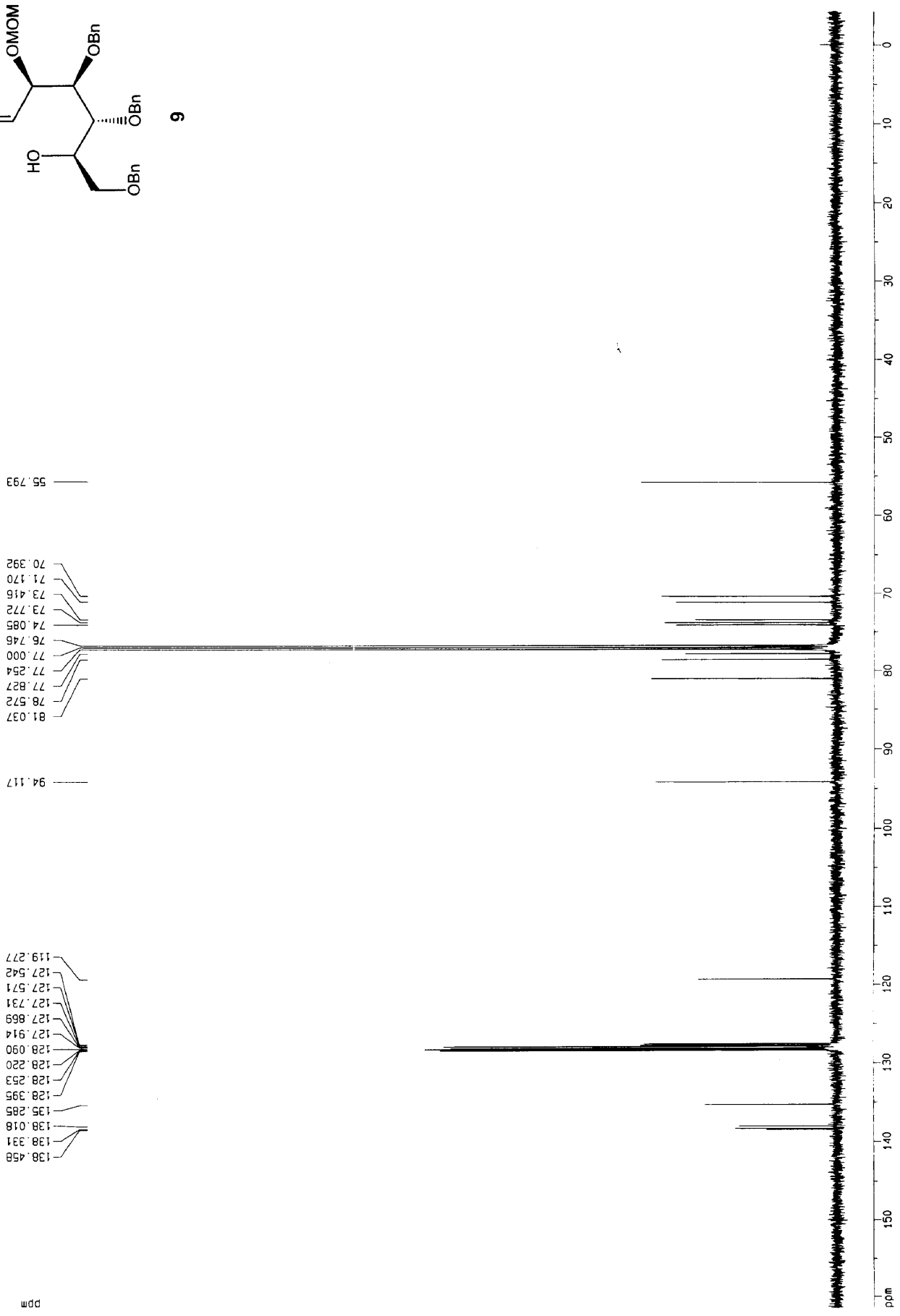
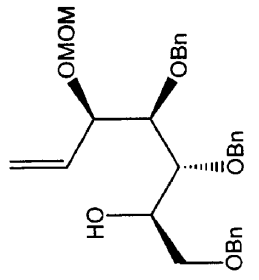
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 FIDRES 0.479836 Hz  
 AQ 1.0430734 sec  
 RG 8192  
 DM 15.900 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 D11 0.03600000 sec  
 D12 0.00002000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 8.40 usec  
 PL1 3.00 dB  
 SF01 125.7715719 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 P2 100.00 usec  
 PL2 -1.00 dB  
 PL12 18.80 dB  
 PL13 18.80 dB  
 SF02 500.1320005 MHz

F2 - Processing parameters  
 S1 32768  
 SF 125.7577955 MHz  
 MVM EM  
 SSB 0  
 LB 1.00 MHz  
 GB 0  
 PC 1.40

1D NMR plot parameters  
 CX 34.00 cm  
 F1P 161.448 ppm  
 F1 20303.32 Hz  
 F2P -4.252 ppm  
 F2 -534.75 Hz  
 PPMCH 4.87353 ppm/  
 HZCM 612.88440 Hz/1



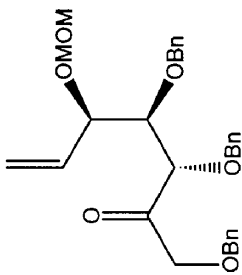
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 File: F:\data\1  
 NAME: 40  
 EXPNO: 1  
 PROCNO: 1

F2 - Acquisition Parameters  
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 INSTRUM: spect  
 PROBHD: 5 mm BBO BB-1  
 PULPROG: zg30  
 TO: 65536  
 SOLVENT: CDCl3  
 NS: 32  
 DS: 2  
 SWH: 10330.578 Hz  
 FIDRES: 0.157632 Hz  
 AQ: 3.171923 sec  
 RG: 50.8  
 DW: 48.400 usec  
 DE: 6.00 usec  
 TE: 300.0 K  
 D1: 1.0000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1: 1H  
 P1: 13.70 usec  
 PL1: -1.00 dB  
 SF01: 500.1300885 MHz

F2 - Processing parameters  
 SI: 32768  
 SF: 500.1300349 MHz  
 WDW: EM  
 SSB: 0  
 LB: 0.30 Hz  
 GB: 0  
 PC: 1.00

10 NMR plot parameters  
 CX: 34.00 cm  
 F1P: B.434 ppm  
 F1: 4218.21 Hz  
 F2P: -0.323 ppm  
 F2: -161.42 Hz  
 PPMCM: 0.25756 ppm  
 HZCM: 128.81267 Hz/

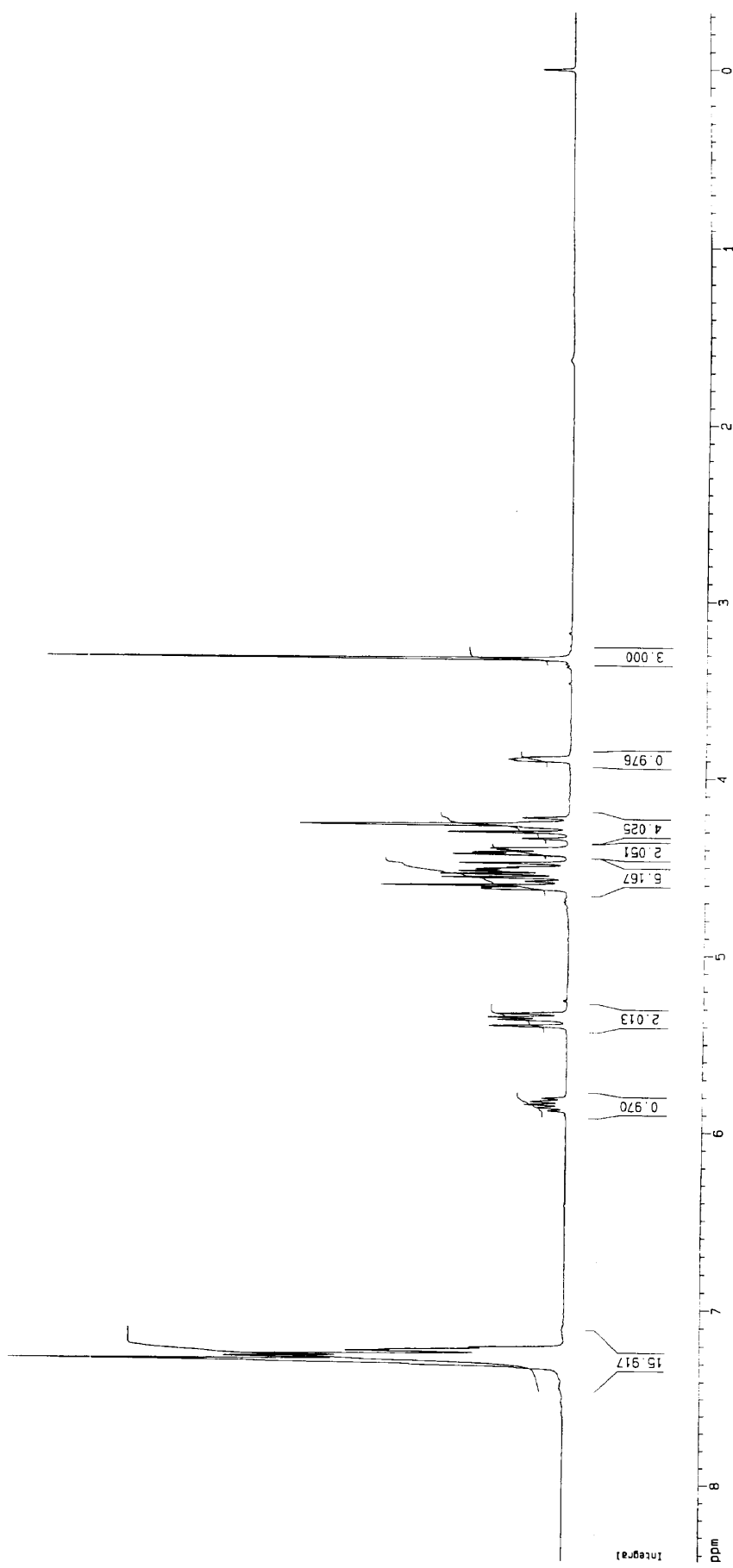


10

3.32397  
 3.89517  
 3.90267  
 4.22520  
 4.26323  
 4.27843  
 4.30507  
 4.34160  
 4.39653  
 4.40461  
 4.41806  
 4.42889  
 4.47865  
 4.50269  
 4.51313  
 4.52458  
 4.54031  
 4.55986  
 4.60488  
 4.61789  
 4.62555  
 5.32924  
 5.34995  
 5.36394  
 5.39865  
 5.82707  
 5.84338  
 5.86131

7.21363  
 7.22783  
 7.23458  
 7.25522  
 7.26994  
 7.28882

ppm



Current Data Parameters  
 Name F101  
 EXPNO 41  
 PROCNO 1

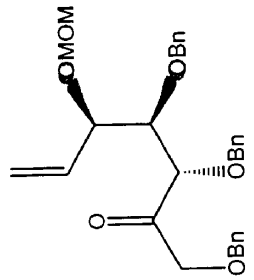
F2 - Acquisition Parameters  
 Date\_ 991103  
 Time 17.53  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 104  
 DS 4  
 SWH 31445.541 Hz  
 FIDRES 0.479836 Hz  
 AQ 1.0420724 sec  
 RG 8192  
 DM 15.900 use  
 DE 6.00 use  
 TE 300.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 D12 0.00002000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*  
 NUC1 13C  
 P1 8.40 use  
 PL1 3.00 dB  
 SFO1 125.7715719 MHz

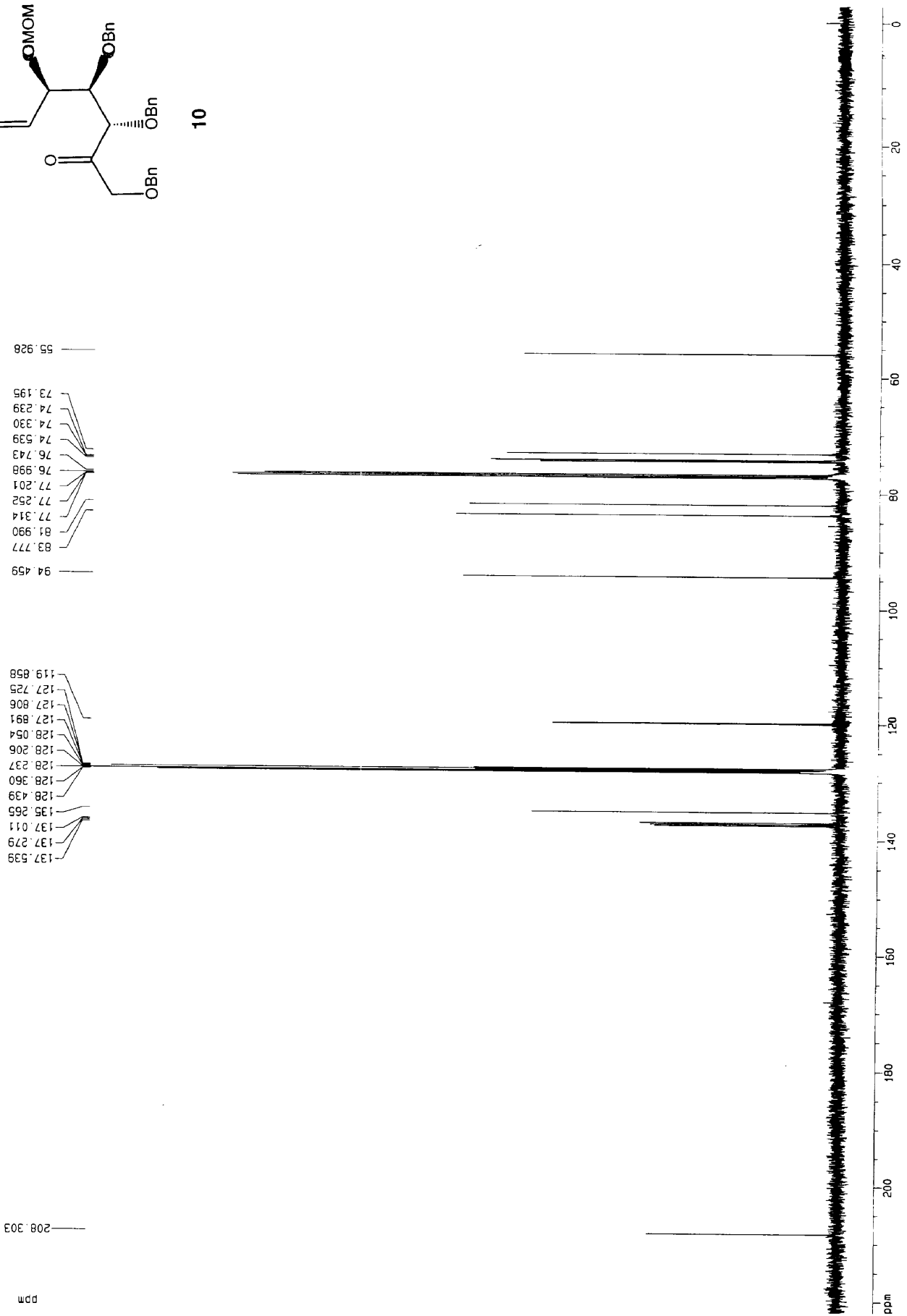
\*\*\*\*\* CHANNEL f2 \*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 100.00 use  
 PL2 -1.00 dB  
 PL12 18.80 dB  
 PL13 18.80 dB  
 SF02 500.1320005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7578042 MHz  
 MD 0  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

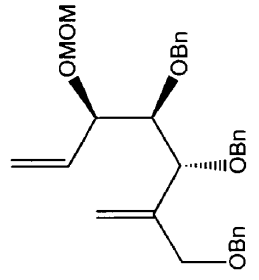
10 NMR plot parameters  
 CX 34.00 cm  
 F1P 221.828 ppm  
 F1 27896.61 Hz  
 F2P -2.872 ppm  
 F2 -361.18 Hz  
 PPM0H 6.60883 ppm  
 HZ0H 831.1139 Hz,



10



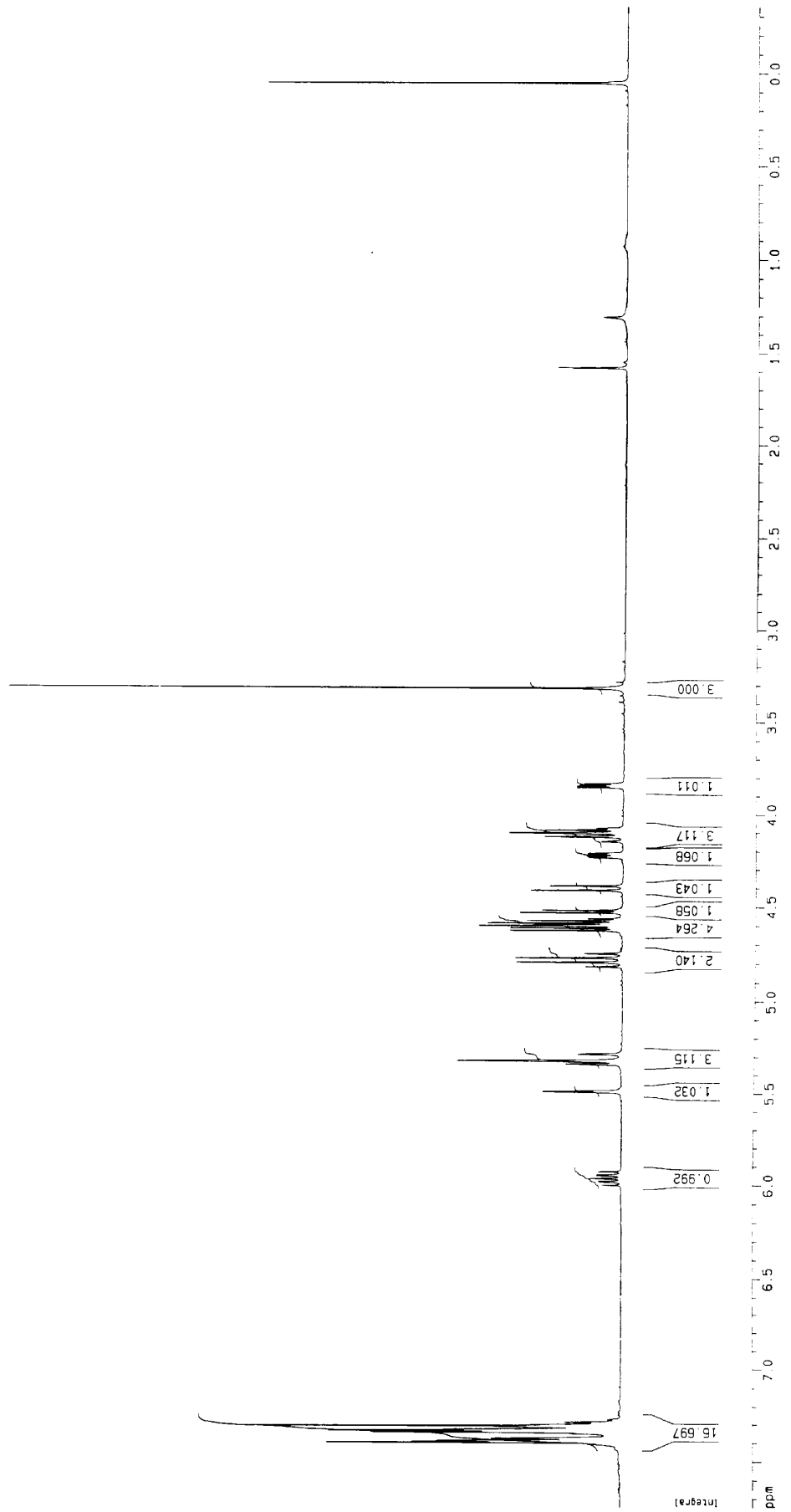
Current Data Parameters  
 NAME FINAL11  
 EXPNO 10  
 PROCNO 1  
 F2 - Acquisition Parameters  
 Date\_ 991116  
 Time 10.05  
 INSTRUM Spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zg30  
 TO 65536  
 SOLVENT CDCl3  
 NS 33  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.1719933 sec  
 RG 327.5  
 DW 48.400 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 1.0000000 sec  
 ----- CHANNEL f1 -----  
 NUC1 1H  
 P1 13.70 usec  
 PL1 -1.00 dB  
 SFO1 500.1330895 MHz  
 F2 - Processing parameters  
 SI 32768  
 SF 500.1300000 MHz  
 NM 0  
 EN 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00  
 10 MHz plot parameters  
 CX 34.00 cm  
 FIP 7.748 ppm  
 F1 3874.90 Hz  
 F2 -0.362 ppm  
 -175.87 Hz  
 PRPCH 0.23822 ppm  
 MECH 119.14010 MHz



11

1.30798  
 1.58000  
 1.58286

3.31565  
 3.83325  
 3.84075  
 3.84694  
 3.85443  
 4.08601  
 4.10056  
 4.12185  
 4.21260  
 4.21995  
 4.22849  
 4.38975  
 4.41287  
 4.51894  
 4.53206  
 4.57472  
 4.58768  
 4.59805  
 4.60186  
 4.61404  
 4.62685  
 4.74965  
 4.77214  
 4.79503  
 4.81752  
 5.28405  
 5.28608  
 5.28743  
 5.32219  
 5.33902  
 5.34248  
 5.48970  
 5.49223  
 5.94497  
 5.94982  
 5.95527  
 5.97957  
 7.30625  
 7.31117  
 7.31556  
 7.32705  
 7.33248  
 7.34052  
 7.37520  
 7.37604  
 7.38624  
 7.39214  
 7.39744



Current Data Parameters  
 NAME FINAL  
 EXPNO 51  
 PROCNO 1

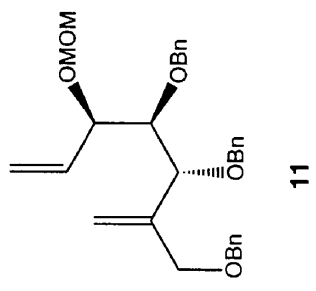
F2 - Acquisition Parameters  
 Date\_ 991106  
 Time 15.17  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 500  
 DS 4  
 SWH 31446.541 Hz  
 FIDRES 0.476636 Hz  
 AQ 1.0420724 sec  
 RG 9195.2  
 DM 15.900 use  
 DE 6.00 use  
 TE 300.0 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 D12 0.0000200 sec

\*\*\*\*\* CHANNEL f1 \*\*\*  
 NUC1 13C  
 P1 8.40 use  
 PL1 3.00 dB  
 SF01 125.7715719 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 100.00 use  
 PL2 -1.00 dB  
 PL12 18.80 dB  
 PL13 18.80 dB  
 SF02 500.1320005 MHz

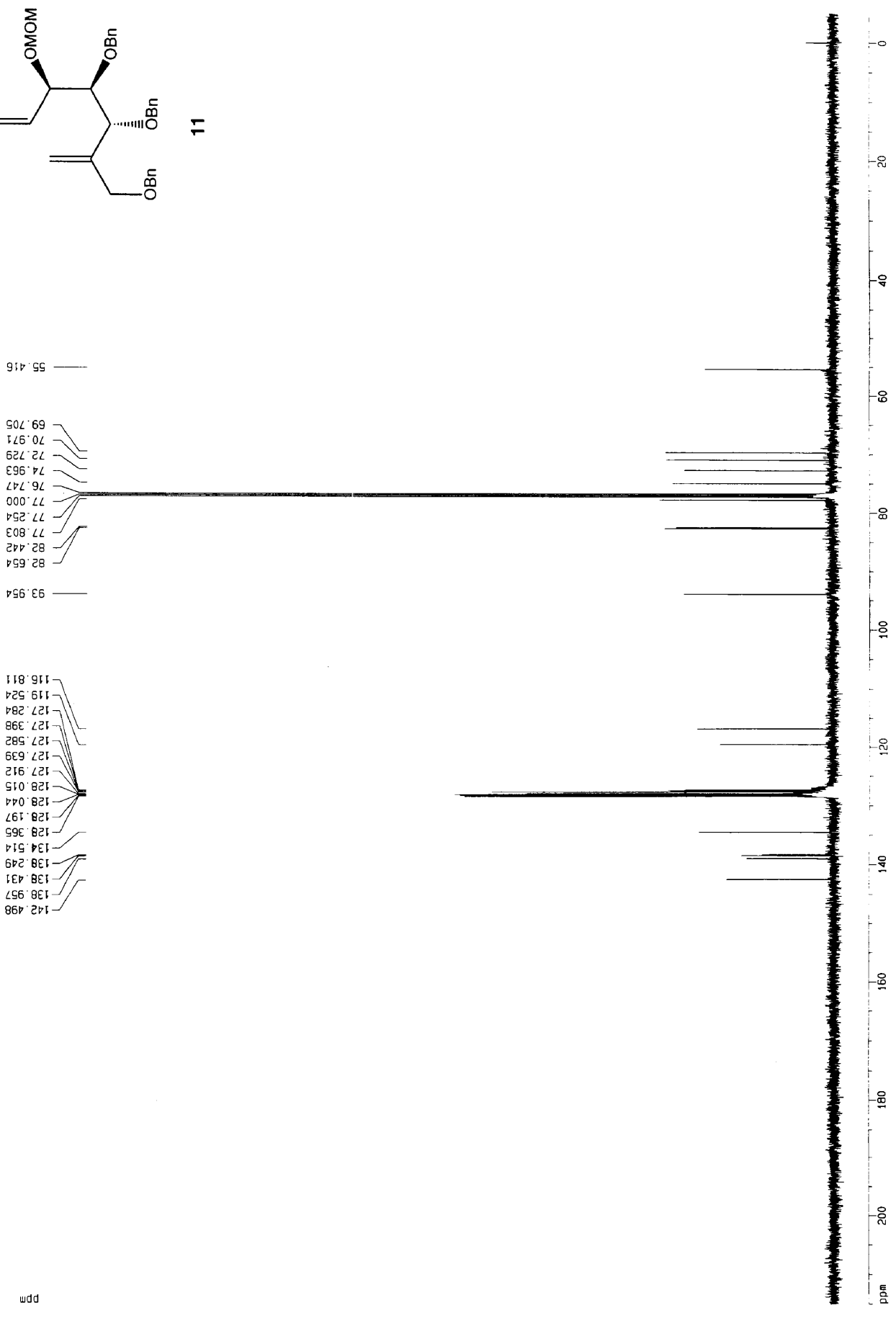
F2 - Processing parameters  
 SI 32768  
 SF 125.7577955 MHz  
 MDW EN  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

1D NMR plot parameters  
 CX 34.00 cm  
 F1P 215.000 ppf  
 F1 27037.93 Hz  
 F2P -5.000 ppf  
 F2 -628.79 Hz  
 PPMCM 6.47059 ppf  
 HZCM 813.72693 Hz



93.954  
 82.654  
 82.442  
 77.803  
 77.254  
 77.000  
 76.747  
 74.963  
 72.729  
 70.971  
 69.705  
 55.416

142.498  
 138.957  
 138.431  
 138.249  
 134.514  
 129.365  
 128.197  
 128.044  
 128.015  
 127.912  
 127.639  
 127.582  
 127.398  
 127.284  
 119.524  
 116.811



ppm

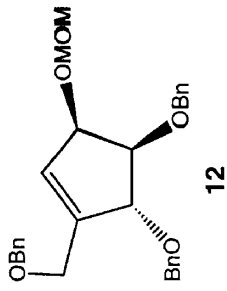
Current Data Parameters  
 NAME FINAL1  
 EXPNO 50  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 991111  
 Time 18.05  
 INSTRUM spect  
 PROBHD 5 mm BB0 BB-1  
 PULPROG zg30  
 TO 65536  
 SOLVENT CDCl3  
 NS 73  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.1719923 sec  
 RG 362  
 DW 48.400 usec  
 DE 8.00 usec  
 TE 300.0 K  
 D1 1.0000000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 13.70 usec  
 PL1 -1.00 dB  
 SFO1 500.1300885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300000 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

10 NMR plot parameters  
 CX 34.00 cm  
 F1P 8.019 ppm  
 F1 4010.68 Hz  
 F2P -0.239 ppm  
 F2 -119.29 Hz  
 PPM0M 0.24288 ppm/  
 HZ0M 121.46864 Hz/c

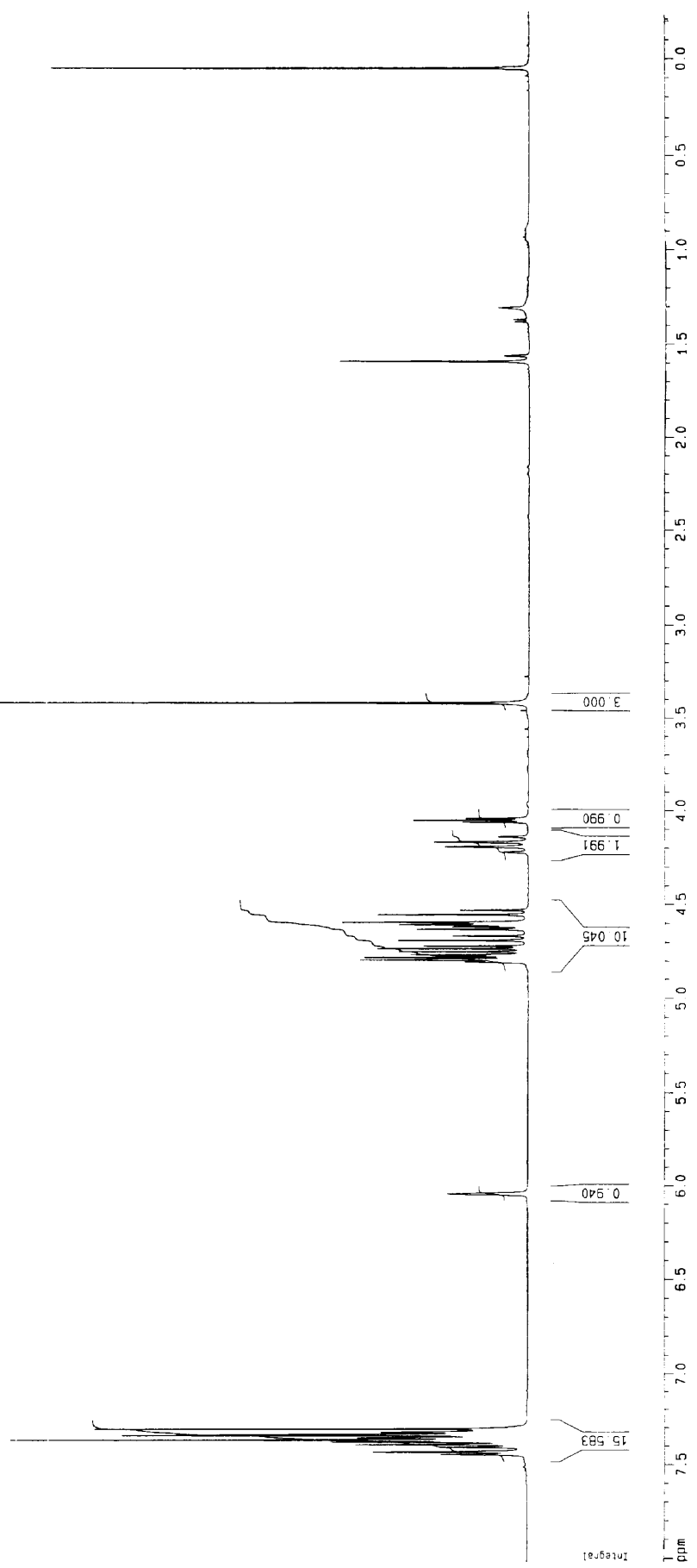


1.5934  
 1.5643  
 1.3076

4.80583  
 4.79524  
 4.79103  
 4.78161  
 4.77394  
 4.76709  
 4.75047  
 4.73416  
 4.72054  
 4.69061  
 4.6715  
 4.63254  
 4.61975  
 4.60885  
 4.59605  
 4.5664  
 4.53284  
 4.49314  
 4.46877  
 4.05349  
 4.05283  
 4.04204  
 3.42131

6.04522  
 6.04307

7.44518  
 7.43115  
 7.40548  
 7.39163  
 7.37674  
 7.37046  
 7.36528  
 7.35493  
 7.34681  
 7.34073  
 7.33639  
 7.32445  
 7.30649





Current Data Parameters  
 NAME FINAL  
 EXPNO 74  
 PROCNO 1

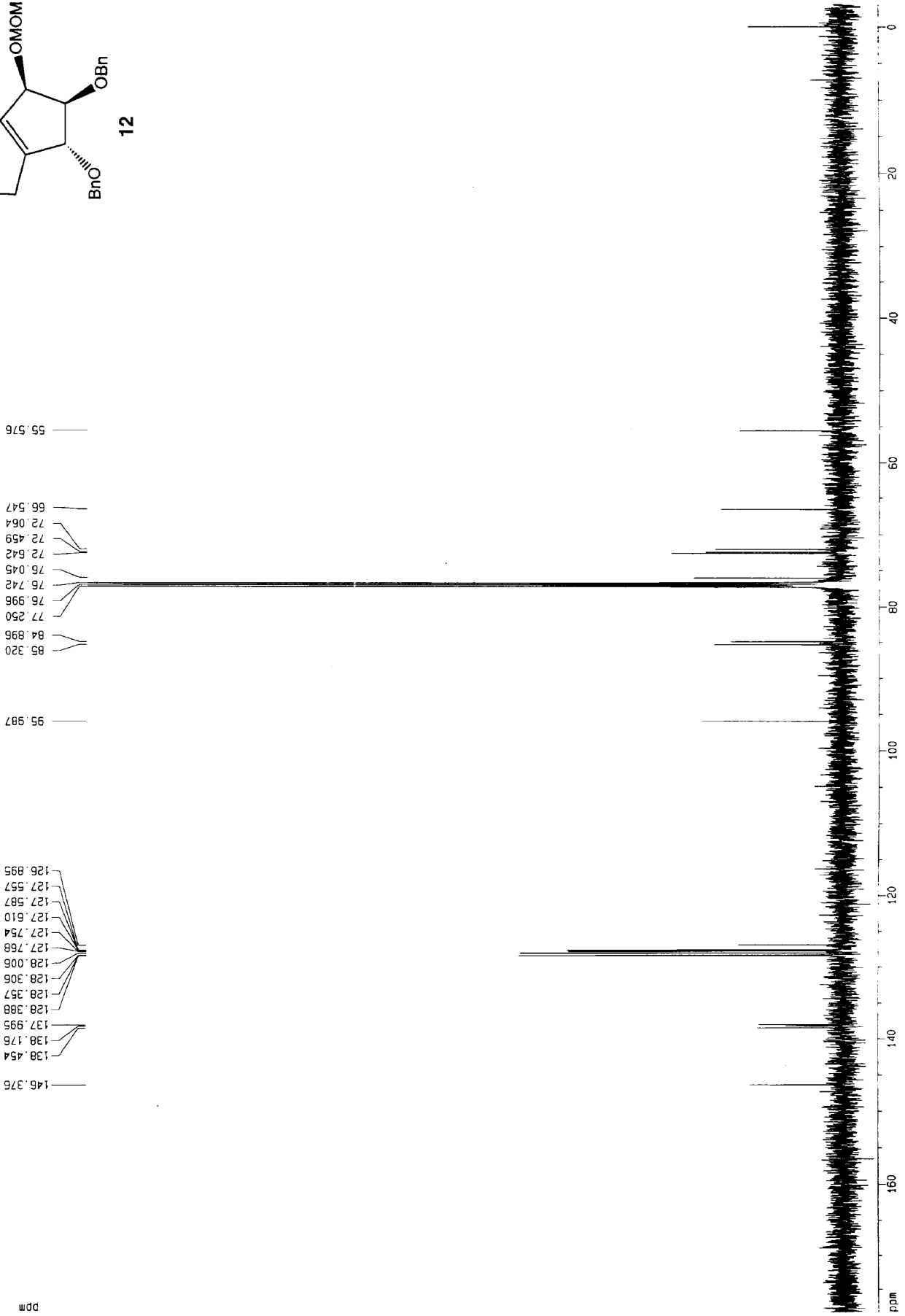
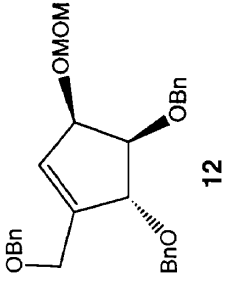
F2 - Acquisition Parameters  
 Date\_ 991110  
 Time 18.28  
 INSTRUM Spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zgpg30  
 TO 65536  
 SOLVENT CDCl3  
 NS 556  
 DS 4  
 SMH 31446.541 Hz  
 FIDRES 0.429836 Hz  
 AQ 1.0420724 sec  
 RG 9196.2  
 DM 15.900 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 D12 0.00020000 sec

==== CHANNEL f1 ===  
 NUC1 13C  
 P1 8.40 usec  
 PL1 3.00 dB  
 SF01 125.7715719 MHz

==== CHANNEL f2 ===  
 CPDPRG2 waltz16  
 NUC2 1H  
 P2 100.00 usec  
 PL2 -1.00 dB  
 PL12 18.00 dB  
 PL13 18.00 dB  
 SF02 500.1320005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7577836 MHz  
 MVM 0  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

1D NMR plot parameters  
 CX 34.00 cm  
 F1P 178.170 ppr  
 F1 22406.27 Hz  
 F2P -3.141 ppr  
 F2 -395.05 Hz  
 PRMCM 5.33268 ppr  
 HZCM 670.62720 Hz



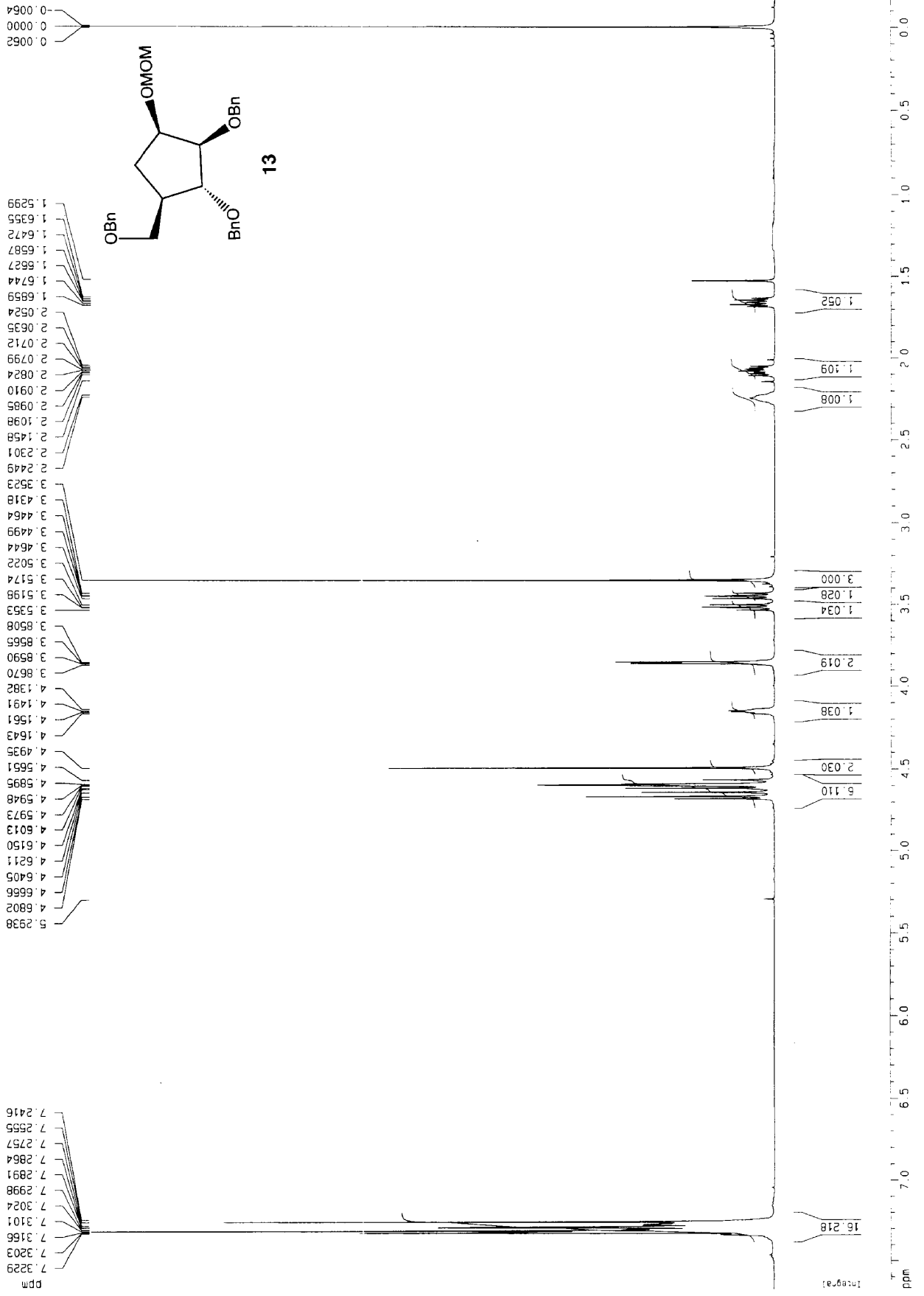
Current Data Parameters  
 NAME FINAL11  
 EXPNO 50  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 991117  
 Time 20.16  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 33  
 DS 2  
 SNH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.1719923 sec  
 RG 512  
 DM 48.000 use  
 DE 8.000 use  
 TE 300.0 K  
 D1 1.00000000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 13.70 use  
 PL1 -1.00 dB  
 SF01 500.1330885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1300264 MHz  
 NM 0  
 KM EN  
 SSB 0.30 Hz  
 LB 0  
 GB 0  
 PC 1.00

10 NMR plot parameters  
 CX 34.00 cm  
 FIP 7.674 ppr  
 F1 3838.18 Hz  
 F2 -0.357 ppr  
 -178.64 Hz  
 PPMCH 0.23622 ppr  
 HZCM 118.14172 Hz



Current Data Parameters

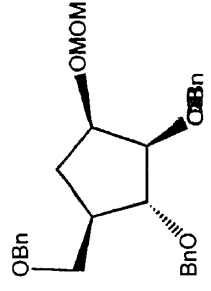
NAME FINAL1  
EXPNO 111  
PROCNO 1  
F2 - Acquisition Parameters  
Date\_ 991115  
Time 15:37  
INSTRUM spect  
PROBHD 5 mm BBO BB-1  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 601  
DS 4  
SWH 31446.541 Hz  
FIDRES 0.479636 Hz  
AQ 1.0420724 sec  
RG 8192  
DM 15.900 usec.  
DE 8.00 usec.  
TE 300.0 K  
D1 2.0000000 sec  
D11 0.3000000 sec  
D12 0.0002000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*  
NUC1 13C  
P1 8.40 usec.  
PL1 3.00 dB  
SFO1 125.7715719 MHz

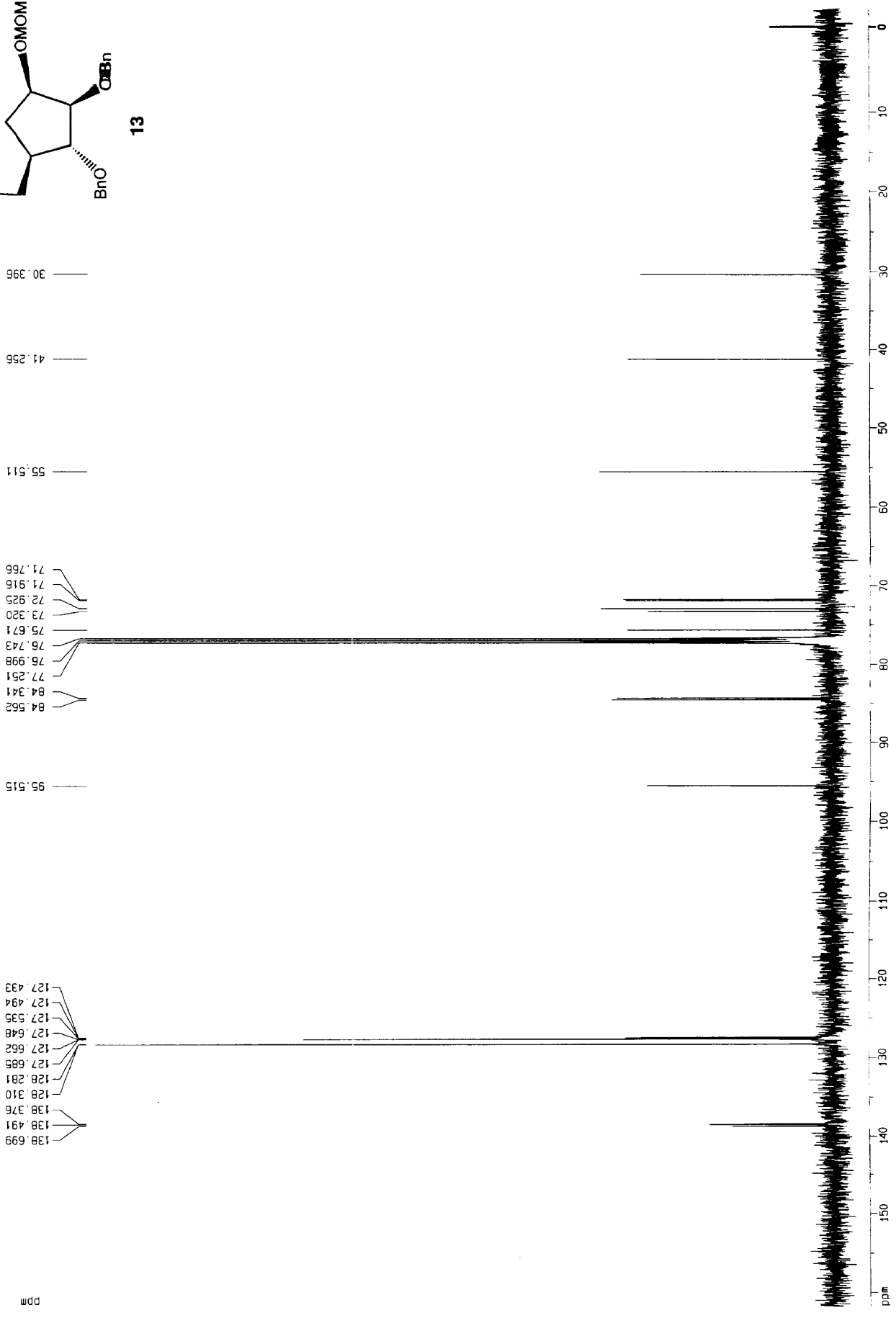
\*\*\*\*\* CHANNEL f2 \*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 100.00 usec.  
PL2 -1.00 dB  
PL12 18.60 dB  
PL13 18.60 dB  
SFO2 500.1320005 MHz

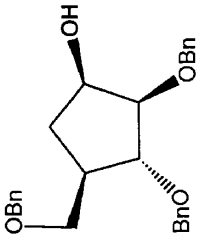
F2 - Processing parameters  
SI 32768  
SF 125.7577946 MHz  
WOM EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

1D NMR plot parameters  
CX 34.00 cm  
F1P 161.729 ppp  
F1 20338.72 Hz  
F2P -2.327 ppp  
F2 -292.69 Hz  
PPMCM 4.82520 ppp  
HZCM 606.80621 Hz/



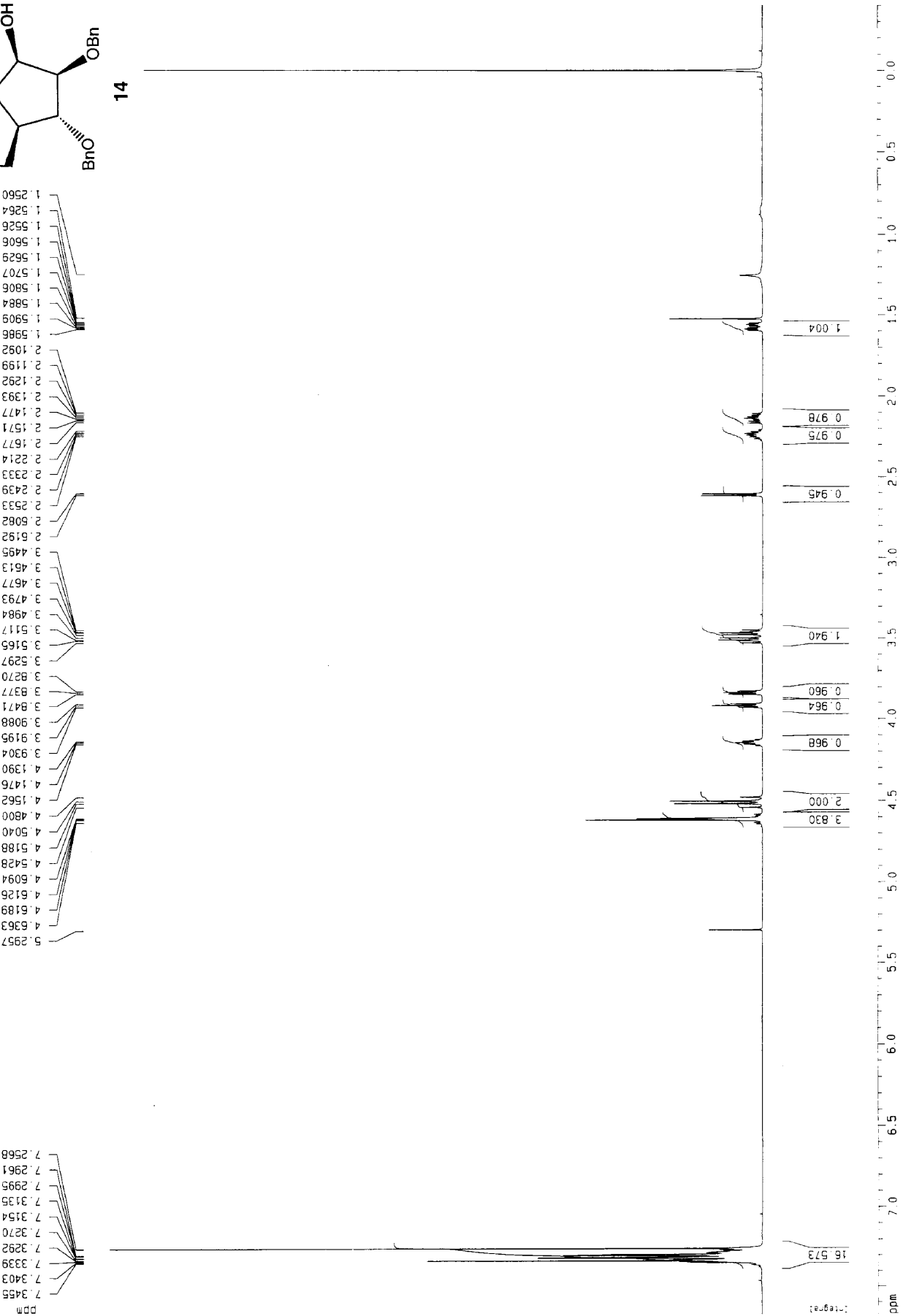
13

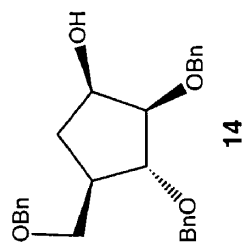




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Current Data Parameters  
 NAME FINAL11  
 EXPNO 40  
 PROCNO 1  
 Date\_ 991117  
 F2 - Acquisition Parameters  
 Time 20.09  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 33  
 DS 2  
 SWH 10230.578 Hz  
 FIDRES 0.157633 Hz  
 AQ 3.1719923 sec  
 RG 912.3  
 DW 48.400 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 1.30000000 sec  
 \*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 1H  
 P1 13.70 usec  
 PL1 -1.00 dB  
 SF01 500.1330885 MHz  
 F2 - Processing parameters  
 SI 32768  
 SF 500.1300248 MHz  
 MDW EA  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00  
 1D NMR plot parameters  
 CX 34.00 cm  
 F1P 7.676 ppm  
 F1 3838.82 Hz  
 F2P -0.401 ppm  
 F2 -200.63 Hz  
 FREQCH 23795.000 ppm  
 HZCH 158.80731 Hz/1





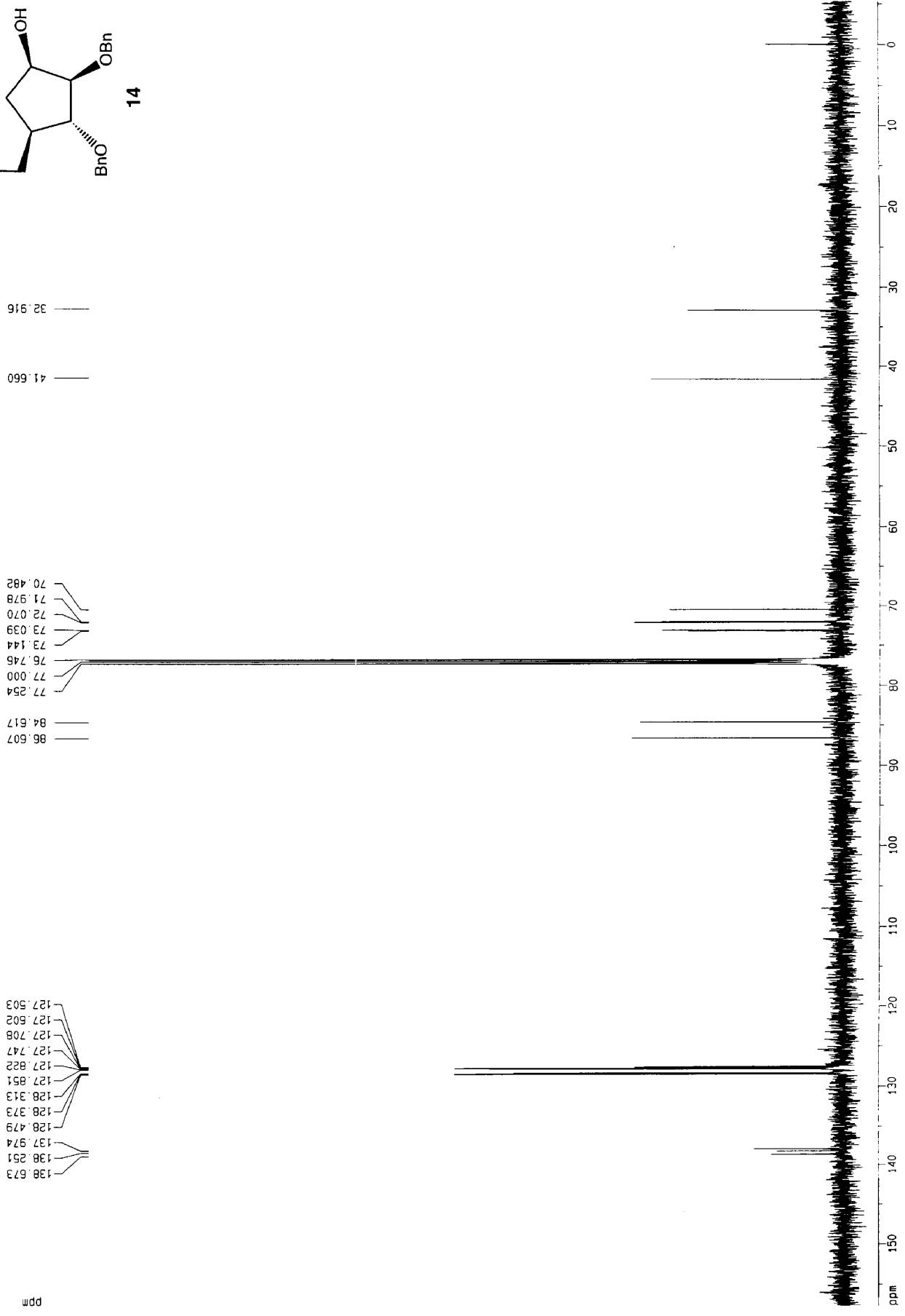
Current Data Parameters  
 NAME FINAL11  
 EXPNO 31  
 PROCNO 1  
 F2 - Acquisition Parameters  
 Date\_ 991116  
 Time 10.28  
 INSTRUM spect  
 PROBRD 5 BBO BB-1  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT COC13  
 NS 601  
 DS 4  
 SWH 31446.541 Hz  
 FIDRES 0.476936 Hz  
 AQ 1.0420724 sec  
 RG 10321.3  
 DW 13.900 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 2.0000000 sec  
 D11 0.3000000 sec  
 D12 0.0000200 sec

\*\*\*\*\* CHANNEL f1 \*\*\*  
 NUC1 13C  
 P1 8.40 usec  
 PL1 3.00 dB  
 SF01 125.7715719 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*  
 CDPOR2 WALTZ16  
 NUC2 1H  
 PCPD2 100.00 usec  
 PL2 -1.00 dB  
 PL12 18.00 dB  
 PL13 18.00 dB  
 SF02 500.1320005 MHz

F2 - Process parameters  
 SI 32768  
 SF 125.7577926 MHz  
 MDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

1D NMR plot parameters  
 CX 34.00 cm  
 F1P 157.636 ppm  
 F1 19823.99 Hz  
 F2P -5.325 ppm  
 F2 -669.64 Hz  
 PPMCH 4.79298 ppm  
 HZCM 8602.75403 Hz/



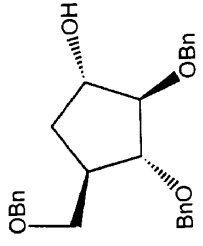
Current Data Parameters  
 NAME FINAL11  
 EXPNO 60  
 PROCNO 1

F2 - Acquisition Parameters:  
 Date\_ 991117  
 Time 20.23  
 INSTRUM spect  
 PROBD 5 mm BBO BB-1  
 PULPROG zg30  
 TO 65536  
 SOLVENT CDCl3  
 NS 83  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.171923 sec  
 RG 256  
 DM 48.400 us  
 DE 6.00 us  
 TE 300.0 K  
 D1 1.0000000 sec

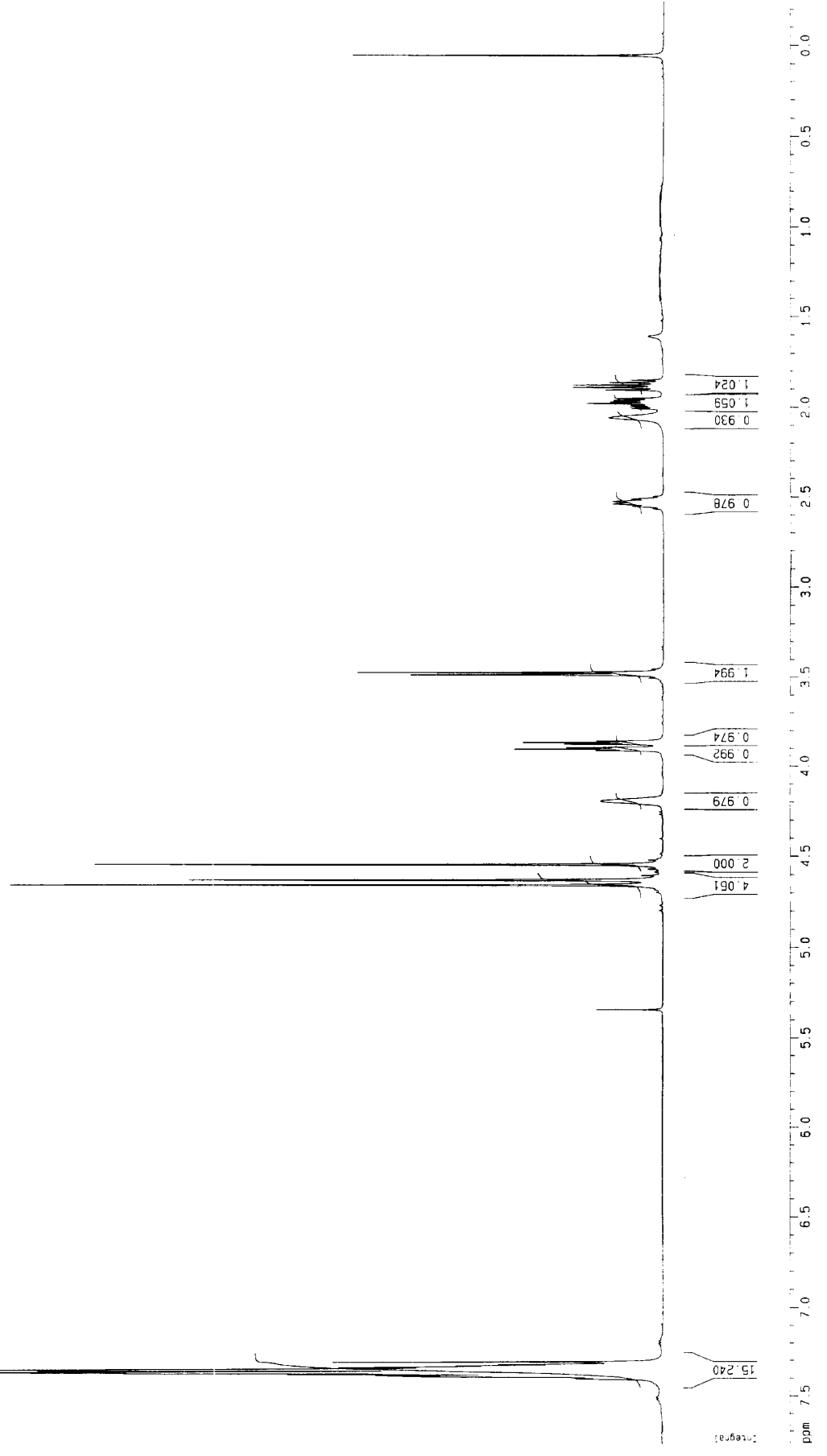
\*\*\*\*\* CHANNEL f1 \*\*  
 NUC1 1H  
 P1 13.70 us  
 PL1 -1.00 dB  
 SF01 500.1330885 MHz

F2 - Processing parameters  
 SI 32768  
 SF 500.1330000 MHz  
 WDM EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

10 NMR plot parameters  
 CX 34.00 cr  
 F1P 7.770 pc  
 F1 3886.21 Hz  
 F2P -0.239 pc  
 F2 -119.29 Hz  
 PPMCH 0.23556 pc  
 HZCM 117.80892 Hz



- 1.85289
- 1.86673
- 1.88025
- 1.89413
- 1.90765
- 1.95495
- 1.96444
- 1.97273
- 1.98220
- 1.99171
- 2.00003
- 2.00946
- 2.05979
- 2.51331
- 2.52725
- 2.54065
- 2.55458
- 3.4736
- 3.48761
- 3.85981
- 3.86853
- 3.87778
- 3.89775
- 3.90589
- 3.91404
- 4.1954
- 4.54611
- 4.63061
- 4.65836
- 5.34378
- 7.30617
- 7.33570
- 7.34614
- 7.35173
- 7.36101
- 7.36662
- 7.36850
- 7.37463
- 7.38033
- 7.38503
- 7.38853



Current Data Parameters  
 NAME FINAL11  
 EXPNO 61  
 PROCNO 1

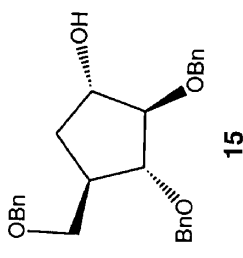
F2 - Acquisition Parameters  
 Date\_ 991117  
 Time 20.41  
 INSTRUM spect  
 PROBHD 5 mm BBO BB-1  
 PULPROG zgpg30  
 TO 65936  
 SOLVENT CDCl3  
 NS 240  
 DS 4  
 SWH 31.446.541 Hz  
 FIDRES 0.479936 Hz  
 AQ 1.0420724 sec  
 RG 8192  
 DM 15.900 usec  
 DE 6.00 usec  
 TE 300.0 K  
 O1 2.0000000 sec  
 O11 0.0300000 sec  
 O12 0.0000200 sec

\*\*\*\*\* CHANNEL f1 \*\*\*  
 NUC1 13C  
 P1 8.40 usec  
 PL1 3.00 dB  
 SFO1 125.7715719 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 100.00 usec  
 PL2 -1.00 dB  
 PL12 18.80 dB  
 PL13 18.80 dB  
 SFO2 500.1320005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 125.7577946 MHz  
 WDM 0  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

10 NMR plot parameters  
 CX 34.00 cm  
 F1P 147.213 ppm  
 F1 18513.24 Hz  
 F2P -3.971 ppm  
 F2 -499.35 Hz  
 PPRGM 4.4689 ppm  
 HZCW 599.19373 Hz



34.228  
 41.905

71.734  
 71.940  
 72.101  
 73.017  
 74.985  
 76.746  
 77.000  
 77.253  
 84.901  
 89.994

127.534  
 127.579  
 127.681  
 127.701  
 127.793  
 128.335  
 128.419  
 138.325  
 138.430

