Supporting Information.

Contents:

Experimental section

Compound 2d. Compound **1** (0.16 g, 0.6 mmol) was treated as above but with 2,2-diphenylacetic acid. Flash chromatography (pentane:Et_2O, 75:25) gave 0.13 g (46%) of **2d**. ^{1}H NMR ($CDCl_3$ 300 MHz) 7.5-7.2 (m, 10 H), 6.08 (dd, *J* = 9.9, 4.7 Hz, 1 H), 5.96 (ddd, *J* = 9.9, 5.4, 2.2 Hz), 5.43 (br s, 1 H), 5.20 (td, *J* = 5.5, 3.3 Hz, 1H), 5.38 (s, 1 H), 3.74 (s, 6H), 3.57 (m, 1 H), 3.37 (td, *J* = 11.0, 6.3 Hz, 1H), 2.29 (br pent, *J* =6.8 Hz, 1H), 1.55 (m, 2H), 1.10 (d, *J* = 6.7 Hz, 3H), 1.02 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR ($CDCl_3$ 75 MHz) 172.0, 170.3 (2C), 155.4, 138.7, 138.6, 131.7, 130.4, 128.8, 128.5, 128.4, 127.0, 125.3, 124.8, 118.6, 67.6, 65.9, 56.8, 52.5, 52.1, 45.0, 38.3, 27.8, 26.4, 21.2, 20.5 MS (EI): *m/z* = 167 (100), 157 (88).

Compound 2e. 1 (0.16 g, 0.6 mmol) was treated as above but with 2-chloroacetic acid. Flash chromatography (pentane:Et_2O, 75:25) gave 0.10 g (49%) of **2e**. ^{1}H NMR ($CDCl_3$ 300 MHz) 6.17 (dd, *J* = 9.9, 4.5 Hz, 1 H), 5.97 (ddd, *J* = 9.9, 5.3, 2.2 Hz, 1 H), 5.27 (br s, 1H), 5.20 (td, *J* = 5.5, 3.3 Hz, 1 H), 4.08 (s, 2H), 3.74 (s, 3H), 3.70 (s, 3H), 3.59 (m, 1 H), 3.42 (td, *J* = 11.3, 6.4 Hz, 1H), 2.30 (br pent, *J* = 6.9 Hz, 1H), 1.55 (m, 2H), 1.10 (d, *J* = 6.7 Hz 3H), 1.03 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR ($CDCl_3$ 100 MHz) 170.6 (2C), 167.2, 155.5, 132.7, 124.6, 119.0, 68.0, 67.6, 53.0, 52.6, 45.3, 41.4, 38.5, 28.1, 26.7, 21.6, 20.9 MS (EI): *m/z* = 212 (100), 157 (89).

Compound 2f. 1 (0.16 g, 0.6 mmol) was treated as above but with 3-butenoic acid. Flash chromatography (pentane:Et_2O, 75:25) gave 0.09 g (43%) of **2f**. ^{1}H NMR ($CDCl_3$ 300 MHz) 6.10 (dd, *J* = 10.3, 4.8 Hz, 1 H), 6.0-5.8 (m, 2 H), 5.44 (br s, 1H) 5.2-5.1 (m, 3H), 3.76 (s, 3H), 3.72 (s, 3H), 3.58 (m, 1 H), 3.43 (td, *J* = 10.9, 7.1 Hz, 1H), 3.10 (d, *J* = 7.1 Hz, 2H), 2.29 (br pent, *J* = 6.8 Hz, 1H), 1.55 (m, 2H), 1.10 (d, *J* = 6.7 Hz 3H), 1.02 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR ($CDCl_3$ 75 MHz) 171.2, 170.4, 155.4, 131.4, 128.8, 125.0, 118.6, 118.4, 65.4, 52.6, 52.2, 45.0, 44.4, 39.1, 38.3, 27.8, 26.5, 21.2, 20.5 MS (EI): *m/z* = 212 (100), 157 (84).

Compound 2g. 1 (0.13 g, 0.5 mmol) was treated as above but with sorbic acid. Flash chromatography (pentane:Et_2O, 75:25) gave 0.13 g (71%) of **2g**. ^{1}H NMR ($CDCl_3$ 400 MHz) 7.25 (m, 1H), 6.17 (m, 2H), 6.10 (dd, *J* = 10.1, 4.6 Hz), 1 H), 6.00 (ddd, *J* = 10.1, 5.5, 2.2 Hz, 1 H), 5.78 (d, *J* = 15.4 Hz, 1H), 5.44 (br s, 1H) 5.20 (dt, *J* = 5.3, 3.3 Hz, 1H), 3.74 (s, 3H), 3.70 (s, 3H), 3.59 (m, 1 H), 3.47 (td, *J* = 11.9, 5.8 Hz, 1H), 2.32 (br pent, *J* = 7.1, 1H), 1.85 (d, *J* = 5.2 Hz, 3H), 1.57 (br s, 2H), 1.11 (d, *J* = 6.9 Hz, 3H), 1.03 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR ($CDCl_3$ 100 MHz) 170.4 (2C), 166.2, 155.5, 145.0, 139.3, 131.2, 129.6, 125.4, 119.0, 118.5, 67.8, 64.7, 52.5, 52.2, 45.0, 38.4, 27.8, 26.6, 21.2, 20.5, 18.5. MS (EI): *m/z* = 212 (100), 157 (84).

Compound 2h. 1 (0.060 g, 0.22 mmol) was treated as above but with pentafluorophenol. Flash chromatography (pentane:Et_2O, 90:10) gave 0.044 g (44%) of **2h**. ^{1}H NMR ($CDCl_3$ 400 MHz) 6.19 (dd, J = 9.8, 3.7 Hz, 1H), 5.94 (dd, *J* = 9.8, 5.1 Hz, 1 H), 5.47 (br s, 1H), 4.54 (td, *J* = 5.1, 3.0 Hz, 1H), 3.8-3.6 (m including singlets at 3.72 and 3.70, 8H), 2.28 (br pent, *J* = 6.8 Hz, 1H), 1.8-1.4 (m, 2H), 1.11 (d, *J* = 6.8 Hz, 3H), 1.03 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR ($CDCl_3$ 100 MHz) 170.7, 170.5, (Aromatic carbons are not clearly detectable due to C-F coupling), 155.5, 133.4, 124.7, 119.2, 76.0 (broaden due to C-F coupling), 68.0, 52.9, 52.4, 45.6, 38.2, 28.2, 27.3, 21.6, 20.9.; MS (EI): *m/z* = 341 (10), 217 (48), 157 (100).

Compound 2i. To a solution of **1** (0.075 g, 0.27 mmol) in 3 mL of BnOH was added lithium carbonate (0.07 g, 1.0 mmol) and $Pd(dba)_2$ (0.008 g, 0.014 mmol). The reaction was stirred at room temperature for 24 h. H_2O was added and the aqueous layer extracted with Et_2O (3 x 30 mL). The combined organic layers were dried (Na_2SO_4), evaporation followed by flash chromatography (pentane:Et_2O, 1:1) bulb to bulb distillation and again flash chromatography (pentane:Et_2O, 1:1) gave 0.055 g (53%) of **2i**. ^{1}H NMR ($CDCl_3$ 300 MHz) 8.03 (d, *J* = 7.0 Hz, 2H), 7.51 (t, *J* = 7.0 Hz, 1H), 7.44 (t, *J* = 7.0 Hz, 2H), 6.12 (m, 2H), 5.48 (br s, 1 H), 5.38 (td, *J* = 5.0, 3.3 Hz, 1 H), 3.74 (s, 3H), 3.71 (s, 3H), 3.65 (m, 1 H), 3.55 (m, 1H), 2.35 (br pent, *J* = 6.8 Hz, 1H), 1.7-1.6 (m, 2H), 1.13 (d, *J* = 6.7 Hz, 3H), 1.05 (d, *J* = 6.9 Hz, 3H); MS (EI): *m/z* = 197 (17), 107 (40), 91 (100).

Compound 2j and 2j'. 1 (0.075 g, 0.27 mmol) was treated using the general procedure as for **2a**. Flash chromatography (pentane:Et_2O, 75:25) gave 0.082 g (78%) of a mixture of **2j** (55%) and **2j'** (45%) (unseparable on HPLC). ^{1}H NMR ($CDCl_3$ 400 MHz) 7.45 (m, 2H), 7.35 (m, 3H), 6.10 (dd, J = 9.8, 3.3 Hz, 0.5H), 5.98 (d, *J* = 3.0 Hz, 1H), 5.87 (dd, *J* = 9.8, 5.7, 2.1 Hz, 0.5H), 5.42 (br s, 1H), 3.9-3.4 (m, 8H, including singlets at 3.74, 3.70 and 3.57), 3.00 (br d, *J* = 16.6 Hz, 1 H), 2.80 (br d, *J* = 16.3 Hz, 1 H), 2.32 (br pent, *J* = 6.8 Hz, 1H), 1.70 (br s, 3H), 1.62 (br s, 3H), 1.6-1.4 (m, 2H), 1.11 (d, *J* = 6.7 Hz, 3H), 1.03 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR ($CDCl_3$ 100 MHz) 170.4, 156.6, 135.1, 132.9, 132.8, 131.4, 131.0, 128.8, 128.7, 128.3, 127.6, 127.2, 125.5, 124.8, 118.2, 67.8, 62.5, 52.6, 52.5, 52.1, 45.2, 43.4, 43.0, 41.0, 38.4, 37.9, 36.5, 29.5, 27.7, 26.6, 26.0, 22.0, 21.2, 21.0, 20.5. MS (EI): *m/z* = first peak: 386 (15), 277 (35), 217 (70), 157 (100), second peak: 386 (10), 277 (22), 258 (70), 217 (55), 157 (100).

Compound 3c. The reaction was carried out as above, using benzoic acid as nucleophile, to give **3c** in 50% yield. ^{1}H NMR ($CDCl_3$ 300 MHz) 8.05(dd, *J* =8.4, 1.4 Hz, 2H), 7.56 (m, 1H), 7.44 (m, 2H), 6.24 (ddd, *J* = 10.4, 4.0, 1.0 Hz, 1H), 5.97 (ddd, *J* = 10.2, 4.6, 2.5 Hz, 1H) 5.77 (d, *J* = 2.4 Hz, 1H) 5.36 (q, *J* = 4.5 Hz, 1H), 5.12 (bs, 1H), 5.10 (s, 1H), 3.84 (m, 1H), 3.76 (s, 3H), 3.74 (s, 3H), 3.65 (m, 1H) 1.98 (ddd, *J* = 13.9, 10.4, 4.4 Hz, 1H) 1.96 (s, 3H), 1.82 (dt, *J* = 13.8, 10.0, 5.0 Hz, 1H);

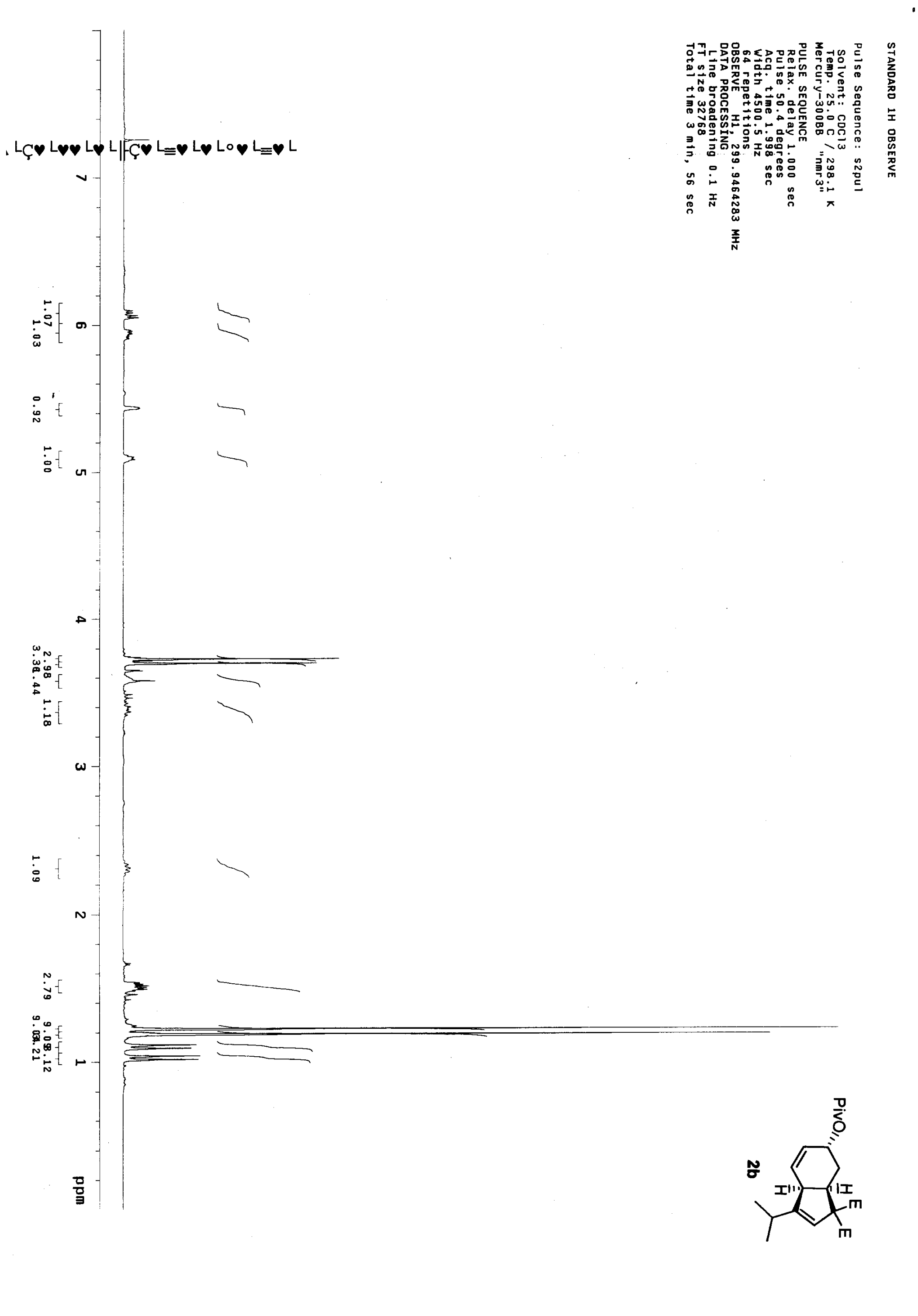
^{13}C NMR ($CDCl_3$ 75 MHz) 170.7, 170.3, 166.2, 149.0, 138.5, 133.1, 131.7, 130.6, 129.8, 128.5, 125.5, 124.2, 115.4, 68.2, 65.8, 53.0, 52.8, 44.2, 39.1, 27.4, 21.7. Anal. Calcd. for $C_{23}H_{24}O_6$: C, 69.68; H, 6.10. Found: C, 69.64; H, 6.20.

Compound 3d. The reaction was carried out as above, using propionic acid as nucleophile, to give **3d** in 42% yield. ^1H NMR ($CDCl_3$ 300MHz) 6.18 (ddd, *J* = 10.3, 3.9, 0.9 Hz, 1H), 5.83 (ddd, *J* = 10.2, 4.5, 2.5 Hz, 1H), 5.73 (d, *J* = 2.3 Hz, 1H) 5.10 (consealed q, *J* ~ 4.8 Hz, 1H), 5.09 (bs, 1H), 5.07 (bs, 1H) 3.77 (s, 3H) 3.75 (m, 1H) 3.72 (s, 3H), 3.55 (ddd, *J* = 15.3, 6.7, 5.1 Hz, 1H), 2.32 (q, *J* = 7.6 Hz, 2H), 1.93 (s, 3H), 1.87 (ddd, *J* = 14.6, 10.3, 4.61 Hz, 1H), 1.66 (m, 1H) 1.13 (t, *J* = 7.54 Hz, 3H). ^{13}C NMR ($CDCl_3$ 75 MHz): 174.2, 170.7, 170.3, 149.0, 138.5, 131.4, 125.6, 124.2, 115.4, 68.2, 65.0, 53.0, 52.8, 44.1, 39.0, 29.8, 27.9, 27.2, 21.6.

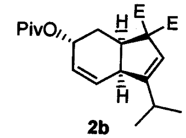
Compound 3e. The reaction was carried out as above, using 3-butenoic acid as nucleophile, to give **3e** in 19% yield. ^1H NMR ($CDCl_3$ 300 MHz): 6.19 (ddd, *J* = 10.2, 3.9, 1.0 Hz, 1H), 5.84 (ddd, *J* = 10.4, 4.6, 2.4 Hz, 1H), 5.74 (d, *J* = 2.4 Hz, 1H), 5.17 (m, 3H), 5.11 (br s, 1H), 5.07 (s, 1H), 3.75 (m, 7H), 3.55 (ddd, *J* = 10.0, 6.8, 5.2 Hz, 1H), 3.09 (dt *J* = 6.9, 1.5 Hz, 2H), 1.99 (s, 3H), 1.89 (m, 1H), 1.67 (dt, *J* = 14.0, 5.1 Hz, 1H). ^{13}C NMR ($CDCl_3$ 75 MHz): 171.4, 170.8, 170.4, 149.0, 138.5, 131.6, 130.5, 125.5, 124.3, 118.8, 115.5, 68.2, 65.6, 53.1, 52.9, 44.1, 39.5, 39.1, 27.3, 21.7.

Compound 3f. The reaction was carried out as above, using 2-methyl-propionic acid as nucleophile, to give **3f** in 15% yield. ^1H NMR ($CDCl_3$ 400 MHz): 6.17 (dd, *J* = 10.3, 3.9 Hz, 1H), 5.82 (ddd, *J* = 10.3, 4.4, 2.5 Hz, 1H) 5.74 (d, *J* = 2.3 Hz, 1H), 5.09 (m,3H), 3.78 (s, 3H), 3.76 (m, 1H), 3.73 (s, 3H), 3.54 (ddd, *J* = 11.9, 9.9, 6.9 Hz, 1H), 2.54 (hept, *J* = 7.0 Hz, 1H), 1.93 (s, 3H), 1.89 (ddd, *J* = 14.5, 9.9, 4.6 Hz, 1H) 1.65 (ddd, *J* = 13.9, 10.2, 4.9 Hz, 1H) 1.16 (d, *J* = 2.6 Hz, 3H) 1.15 (d, *J* = 2.6 Hz, 3H). ^{13}C NMR ($CDCl_3$ 400 MHz): 176.9, 170.8, 170.3, 149.0, 138.4, 131.3, 125.6, 124.2, 115.4, 68.1, 64.9, 53.0, 52.9, 44.0, 39.1, 34.1, 27.2, 21.6, 19.2, 19.1.

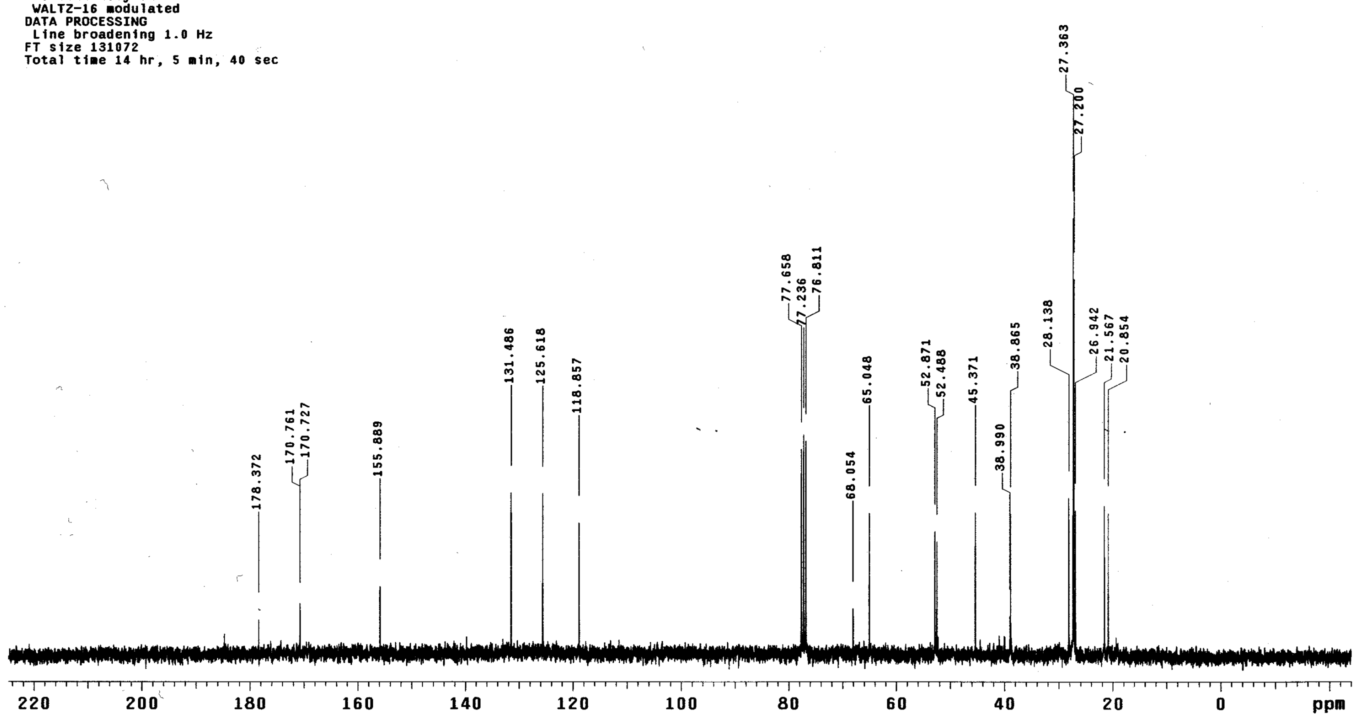
[1]H and [13]C NMR spectra.



Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 71.8 degrees
Acq. time 1.815 sec
Width 18761.7 Hz
352 repetitions
OBSERVE C13, 75.4215714 MHz
DECOUPLE H1, 299.9479604 MHz
Power 42 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 131072
Total time 14 hr, 5 min, 40 sec



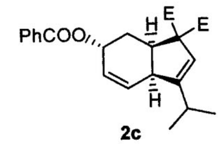
2b



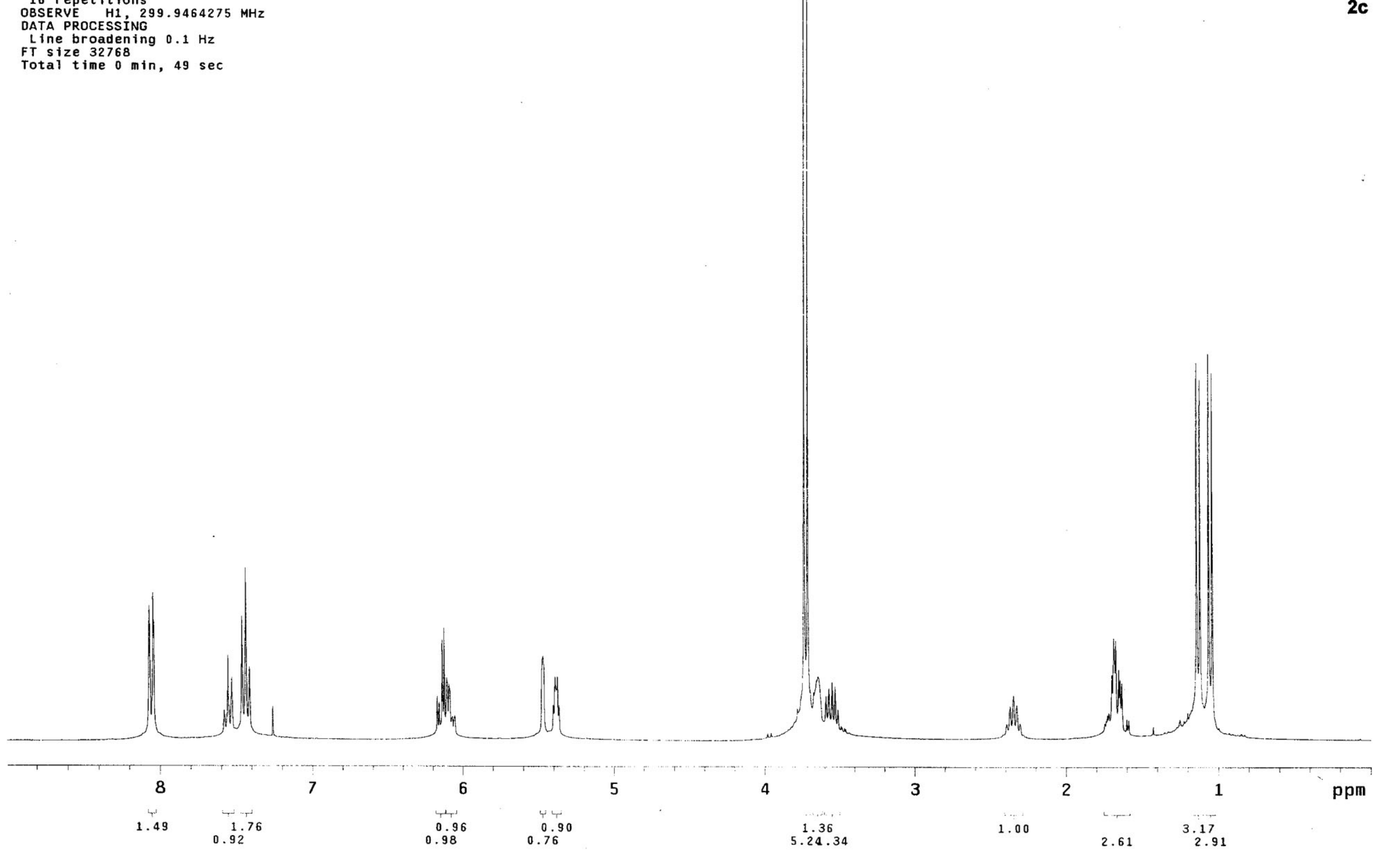
2c

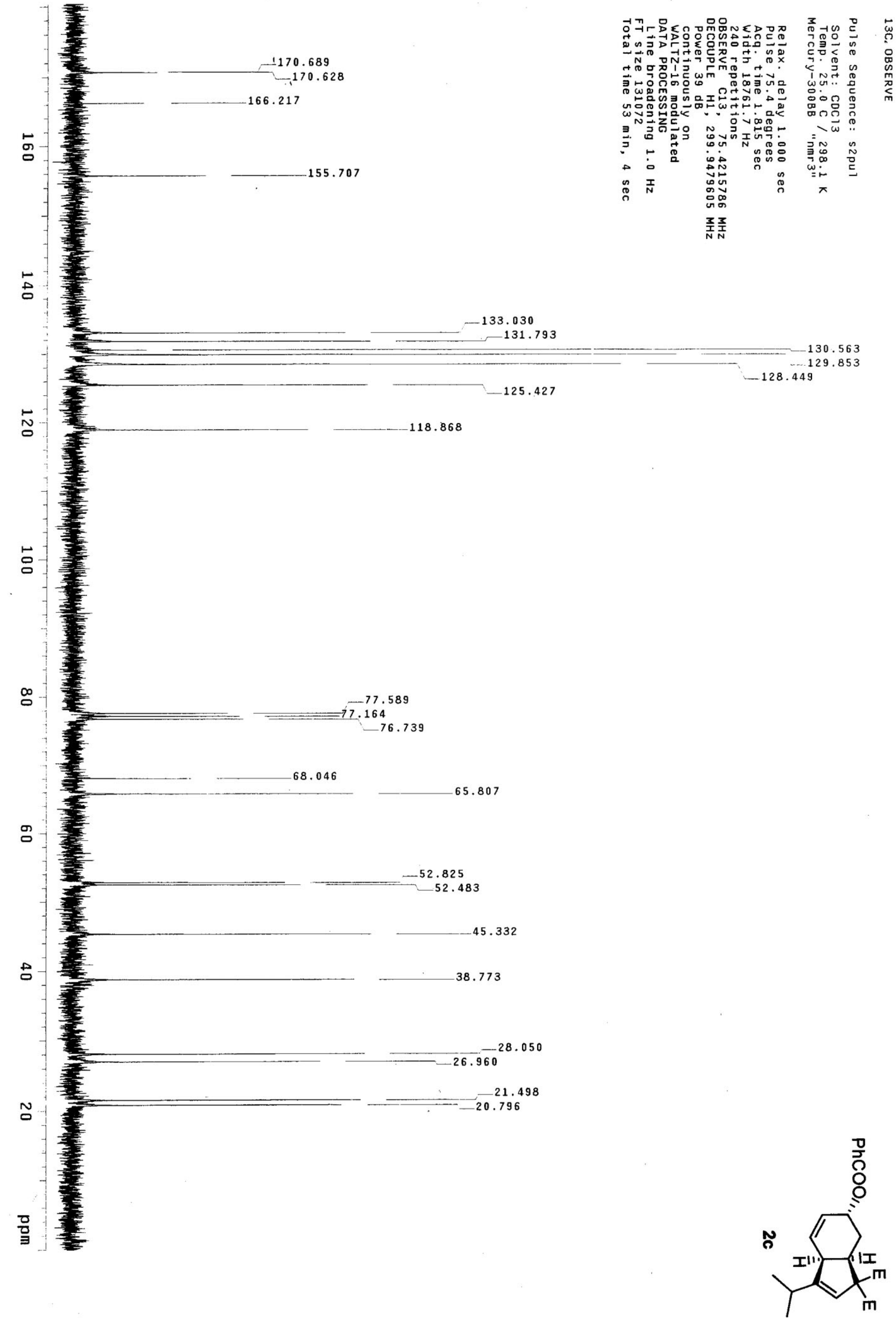
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"

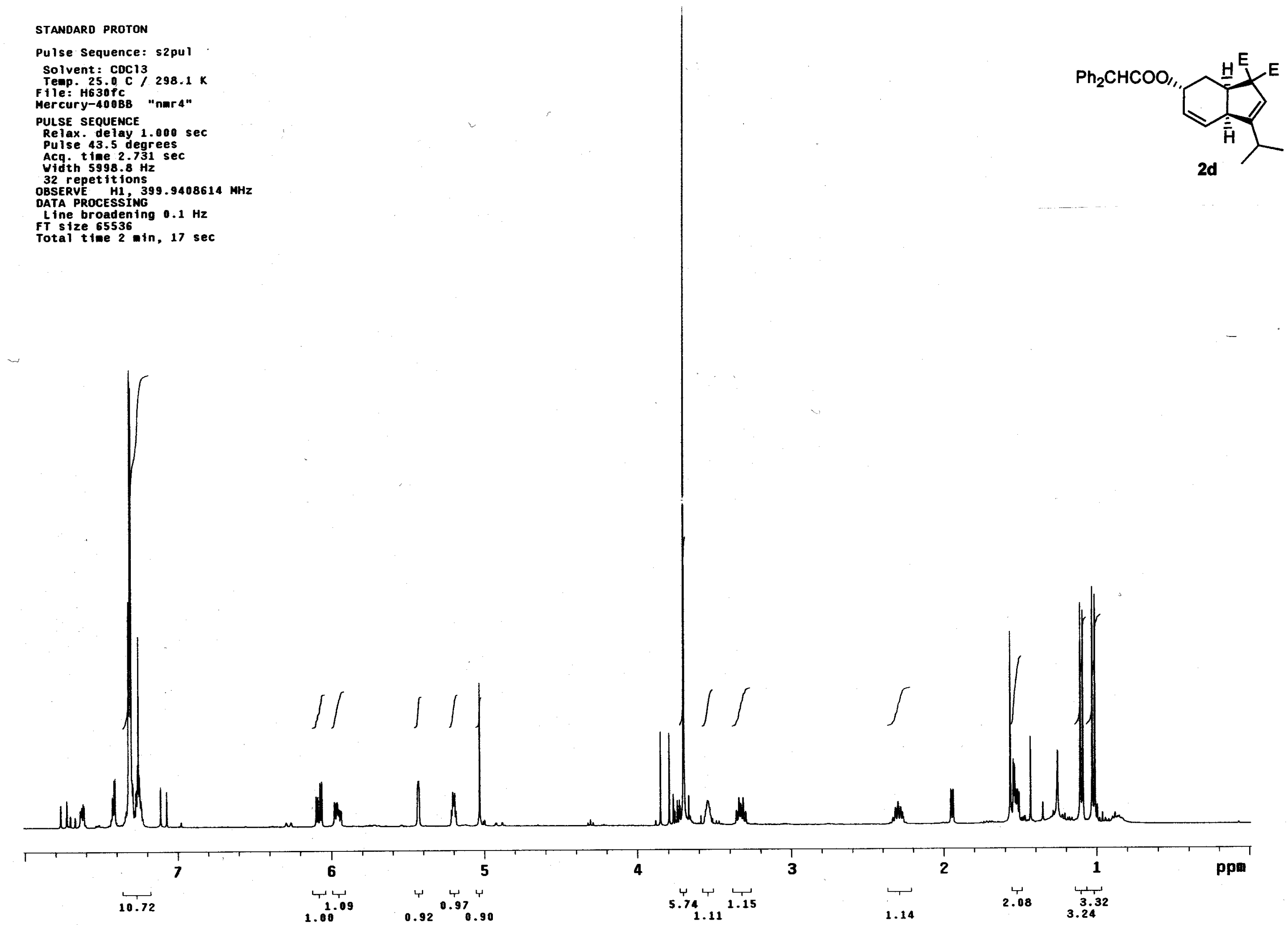
Relax. delay 1.000 sec
Pulse 57.3 degrees
Acq. time 1.998 sec
Width 4500.5 Hz
16 repetitions
OBSERVE H1, 299.9464275 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 32768
Total time 0 min, 49 sec

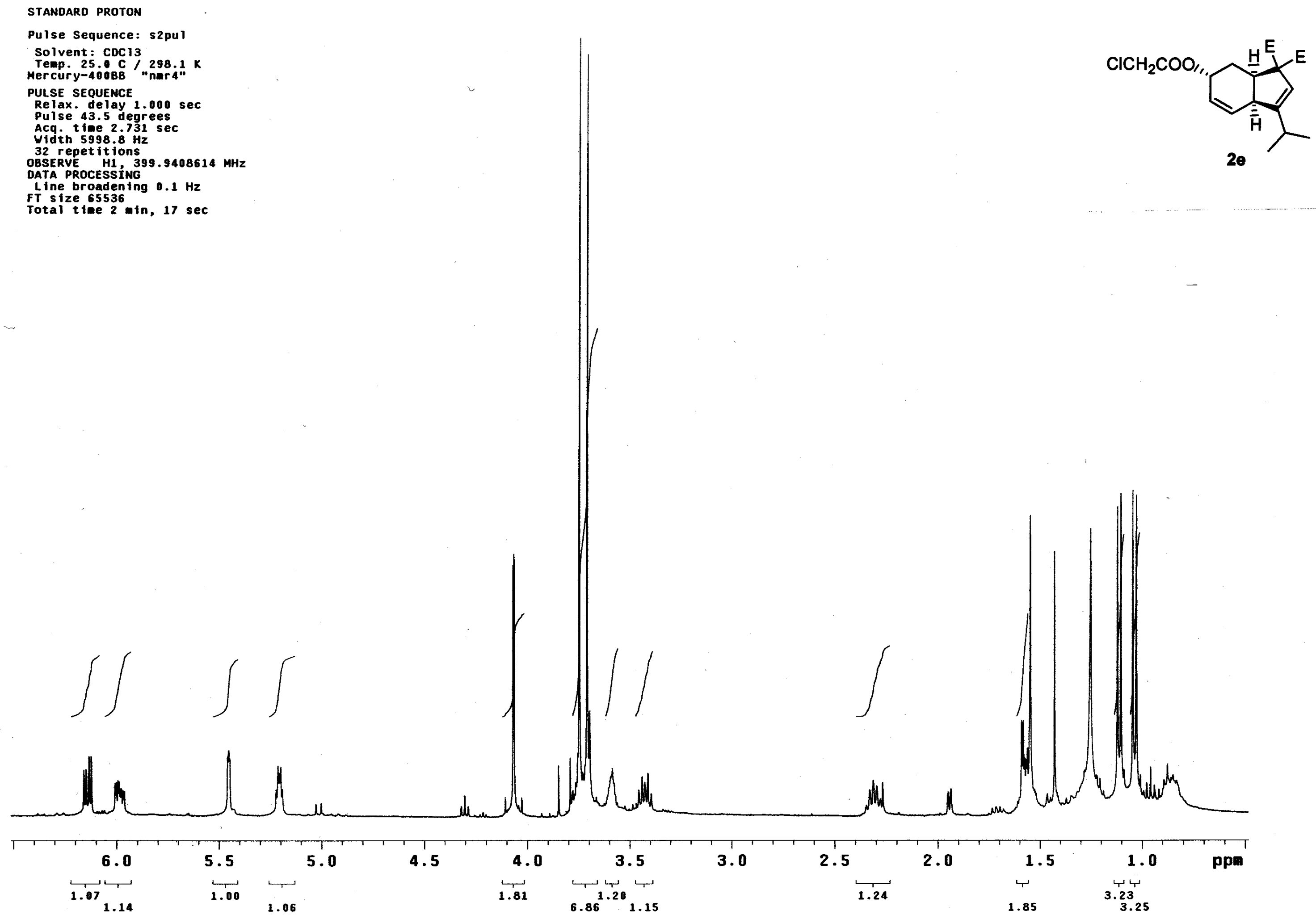


2c




13C OBSERVE
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"
Relax. delay 1.000 sec
Pulse 75.4 degrees
Acq. time 1.815 sec
Width 18761.7 Hz
240 repetitions
OBSERVE C13, 75.4215786 MHz
DECOUPLE H1, 299.9479605 MHz
Power 39 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 131072
Total time 53 min, 4 sec
170.689
170.628
166.217
155.707
133.030
131.793
130.563
129.853
128.449
125.427
118.868
77.589
77.164
76.739
68.046
65.807
52.825
52.483
45.332
38.773
28.050
26.960
21.498
20.796
160
140
120
100
80
60
40
20
ppm
PhCOO
H
E
E
H
2c


STANDARD PROTON
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: H630fc
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 43.5 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
32 repetitions
OBSERVE H1, 399.9408614 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 2 min, 17 sec
Ph2CHCOO
H
E
E
H
2d
7
6
5
4
3
2
1
ppm
10.72
1.00
1.09
0.92
0.97
0.90
5.74
1.11
1.15
1.14
2.08
3.24
3.32



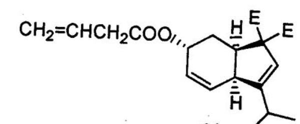
STANDARD PROTON
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 43.5 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
32 repetitions
OBSERVE H1, 399.9408614 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 2 min, 17 sec
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
ppm
1.07
1.14
1.00
1.06
1.81
6.86
1.20
1.15
1.24
1.85
3.23
3.25
ClCH2COO
H
E
E
H

2e

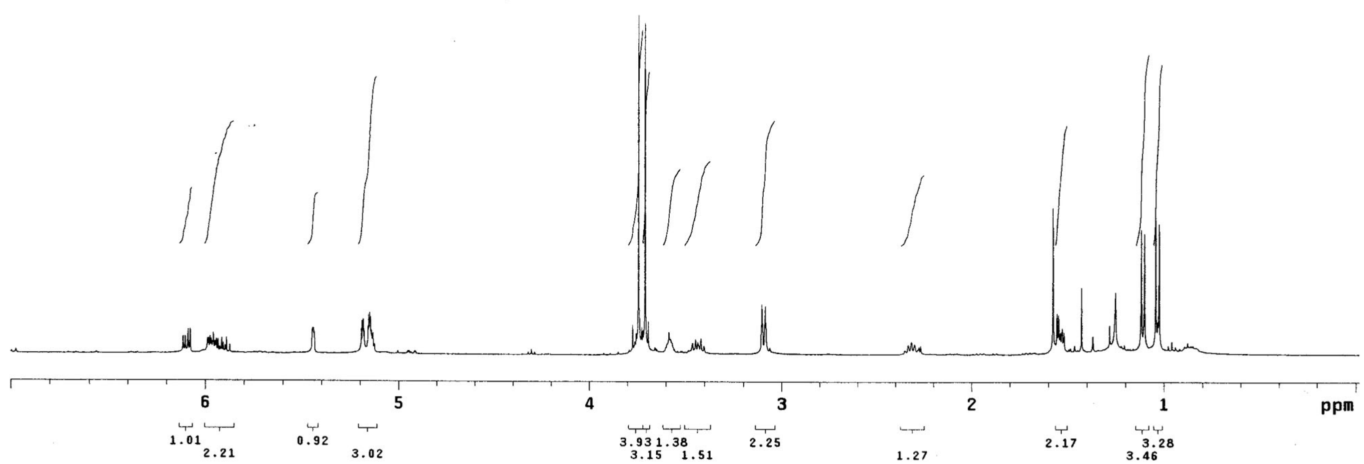
STANDARD PROTON

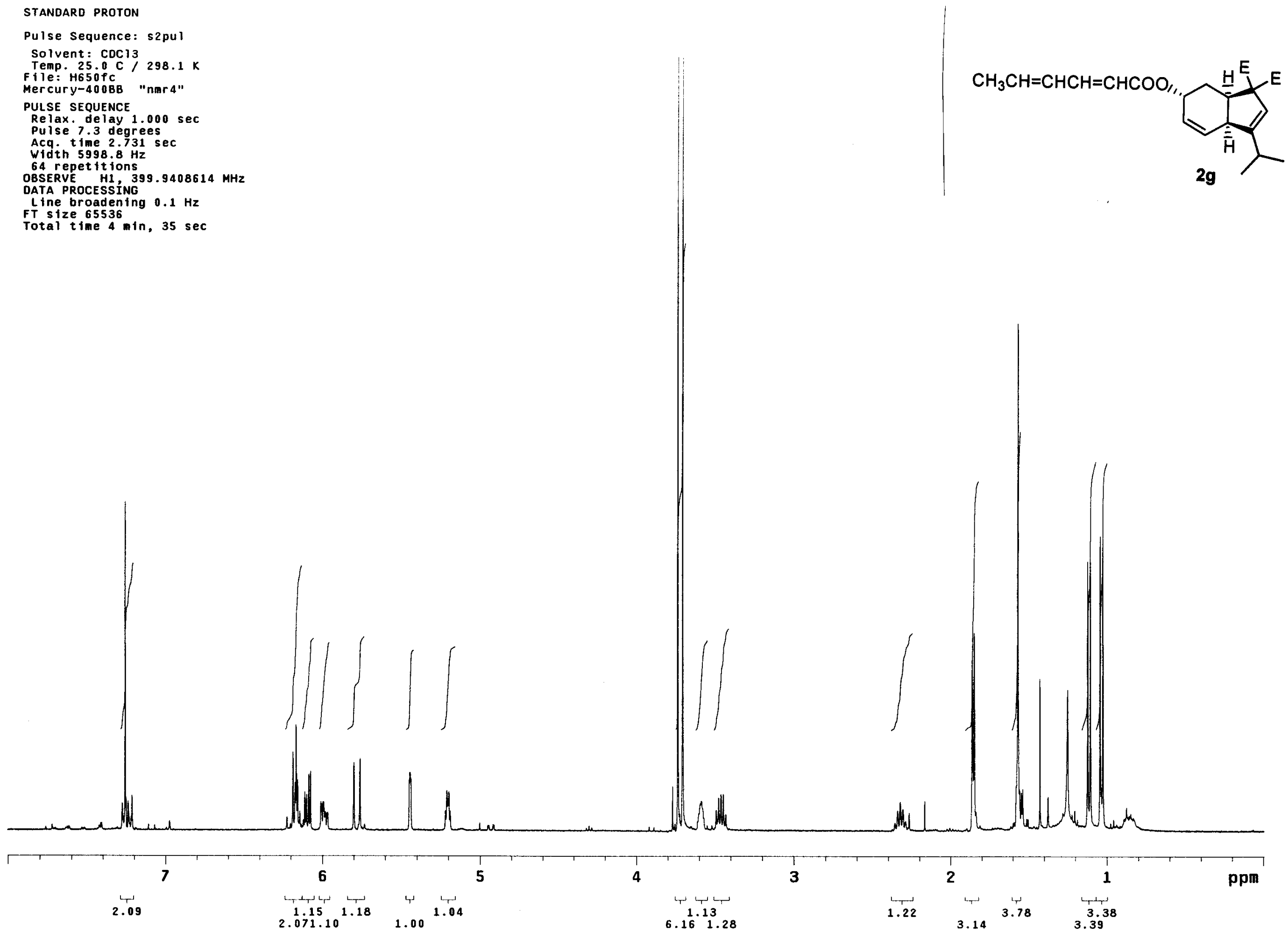
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: H629fc
Mercury-400BB "nmr4"

PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 21.8 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
32 repetitions
OBSERVE H1, 399.9408614 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 2 min, 17 sec



2f



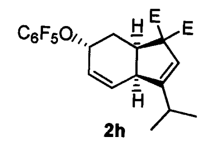

STANDARD PROTON
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: H650fc
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 7.3 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
64 repetitions
OBSERVE H1, 399.9408614 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 4 min, 35 sec
7
6
5
4
3
2
1
ppm
2.09
1.15
1.18
2.07
1.10
1.00
1.04
1.13
6.16
1.28
1.22
3.14
3.78
3.38
3.39
CH3CH=CHCH=CHCOO
H
E
E
H

2g

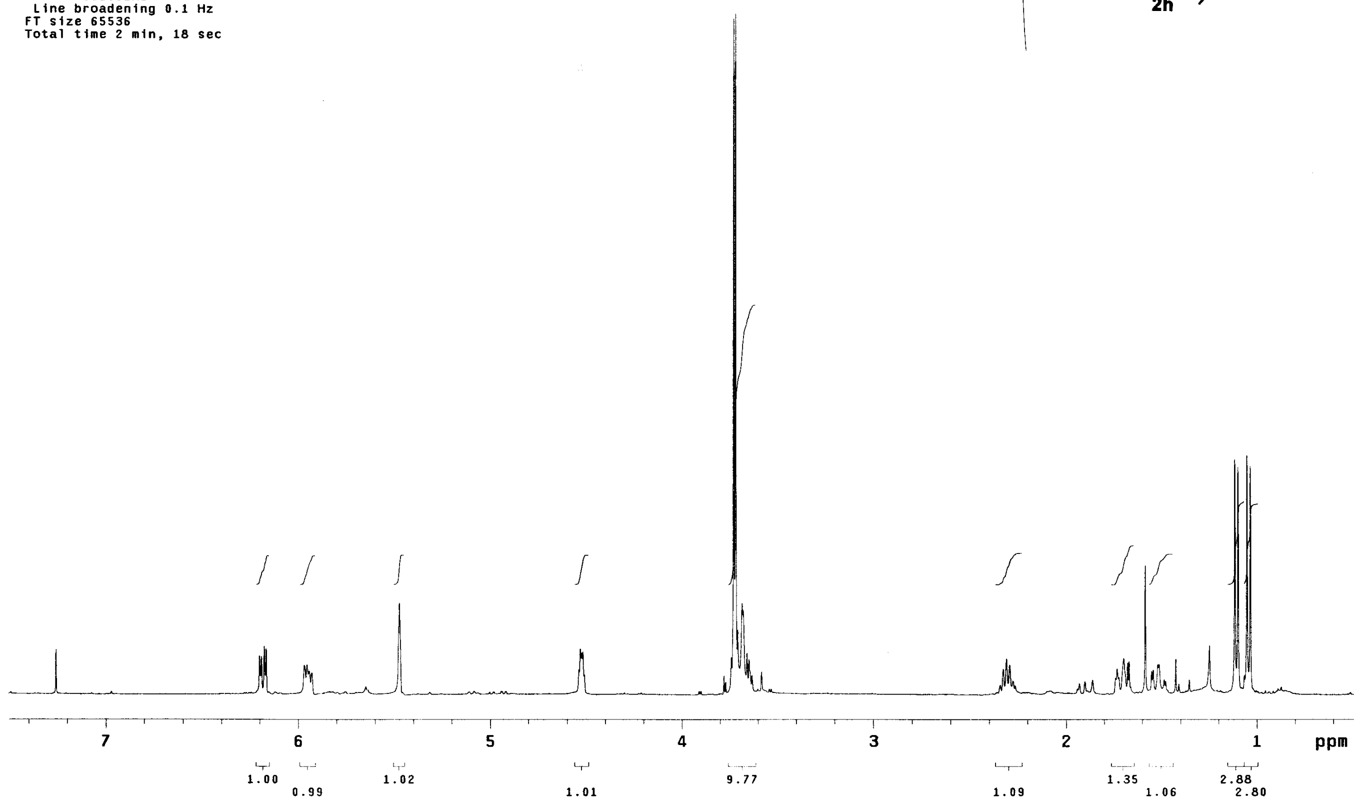
STANDARD PROTON

Pulse Sequence: s2pul

Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 44.3 degrees
Acq. time 2.731 sec
Width 2803.5 Hz
32 repetitions
OBSERVE H1, 399.9408614 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 2 min, 18 sec

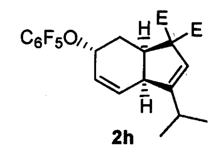


2h

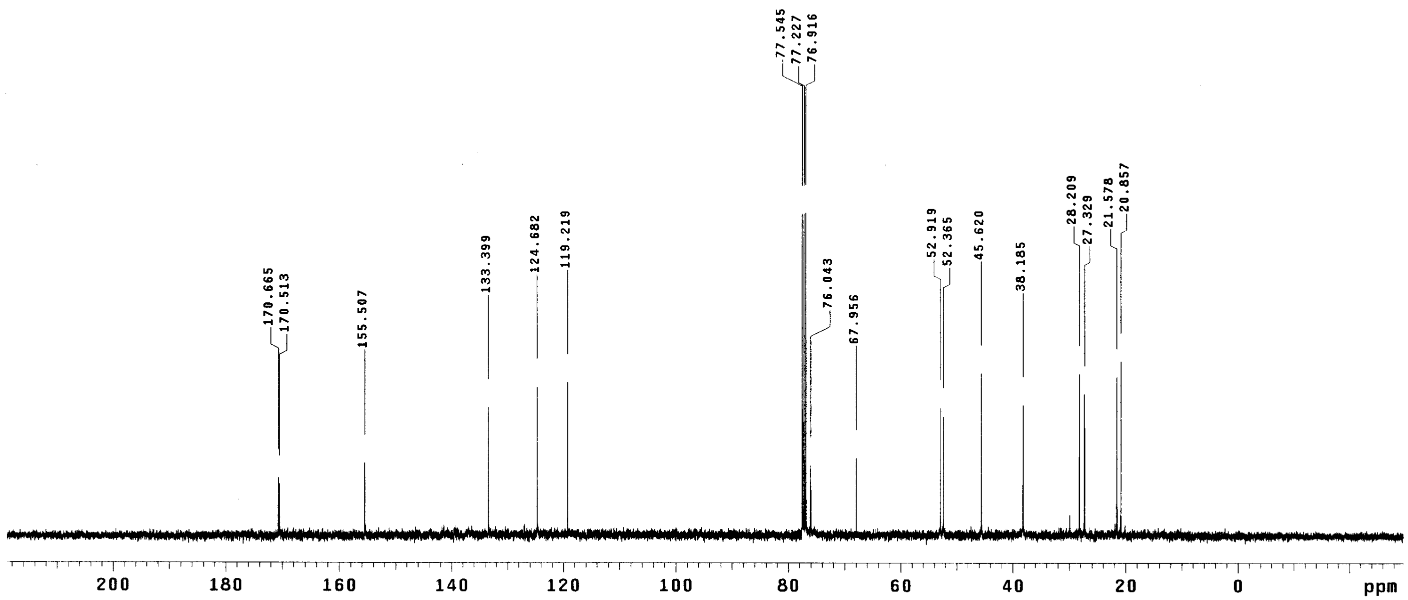


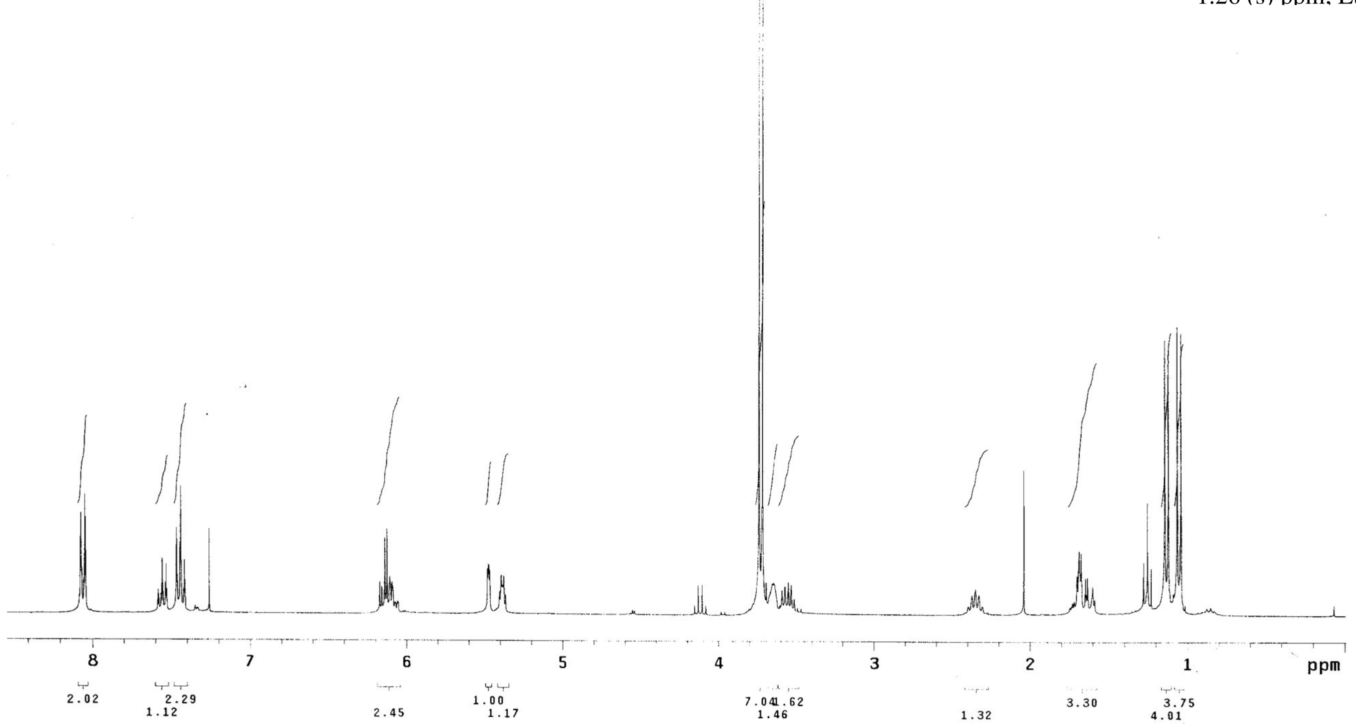
13C OBSERVE

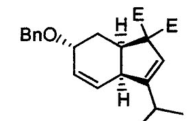
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 50.0 degrees
Acq. time 1.199 sec
Width 25000.0 Hz
592 repetitions
OBSERVE C13, 100.5651856 MHz
DECOUPLE H1, 399.9428336 MHz
Power 42 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 8 hr, 54 min, 25 sec



2h

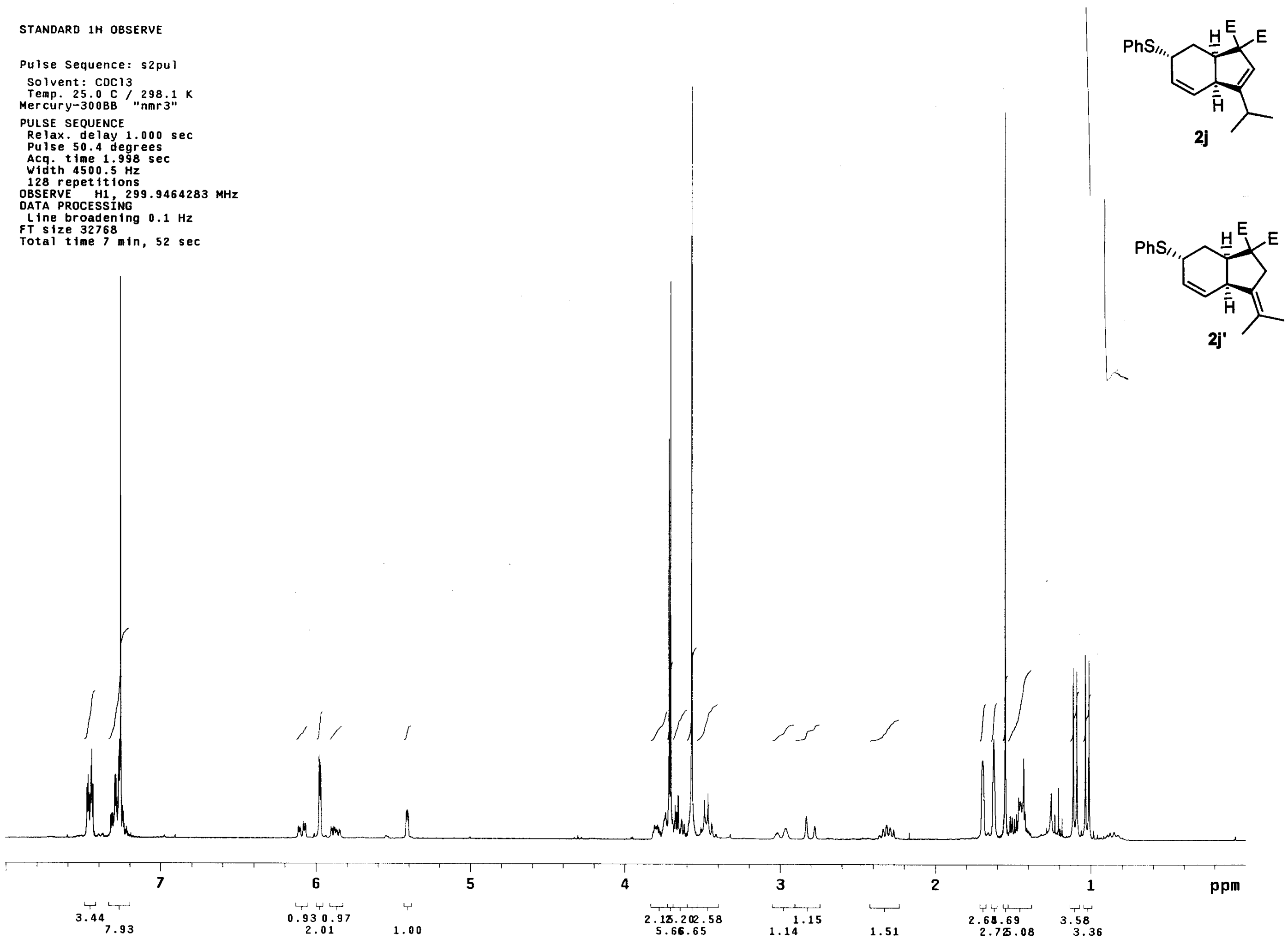






2i

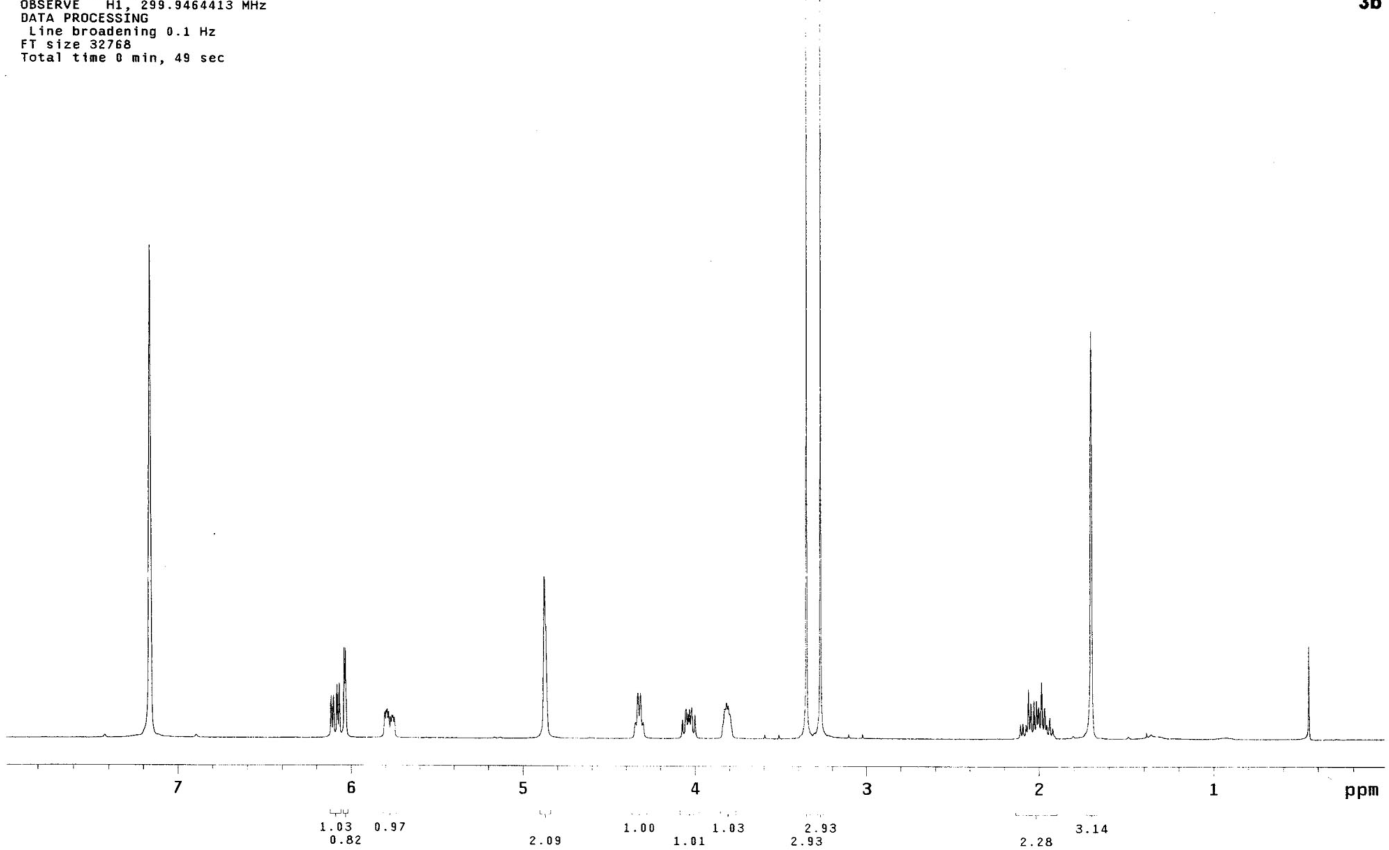
Peak 4.12 (q), 2.05 (t), 1.26 (s) ppm, EtOAc.

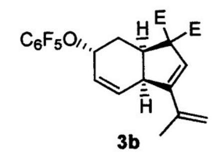

STANDARD 1H OBSERVE
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 50.4 degrees
Acq. time 1.998 sec
Width 4500.5 Hz
128 repetitions
OBSERVE H1, 299.9464283 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 32768
Total time 7 min, 52 sec
PhS
H
E
E
H
2j
PhS
H
E
E
H
2j'
7
6
5
4
3
2
1
ppm
3.44
7.93
0.93
2.01
0.97
1.00
1.14
1.15
1.51
3.58
3.36

3b .

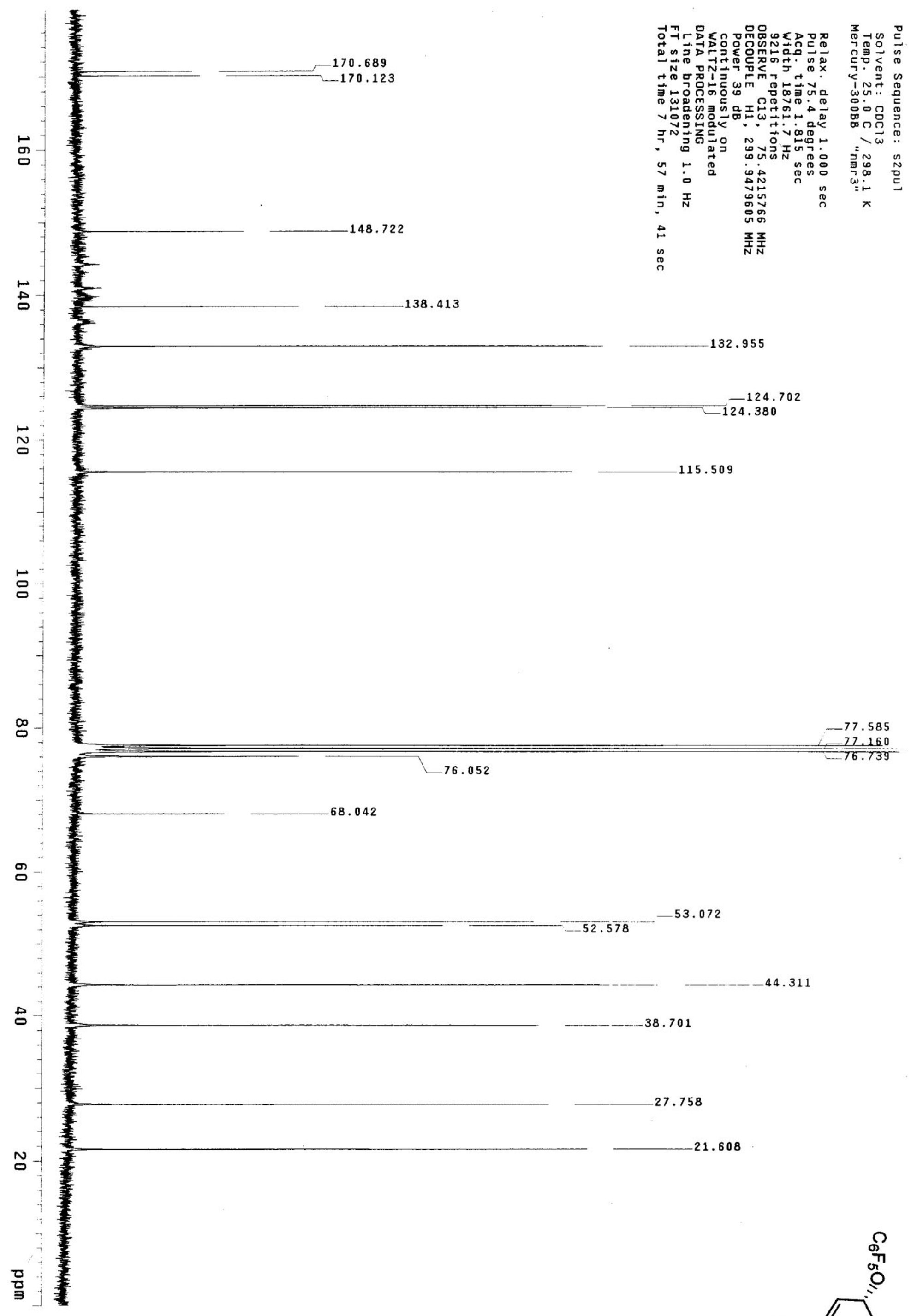
Pulse Sequence: s2pul
Solvent: Benzene
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"

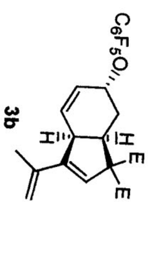
Relax. delay 1.000 sec
Pulse 57.3 degrees
Acq. time 1.998 sec
Width 4500.5 Hz
16 repetitions
OBSERVE H1, 299.9464413 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 32768
Total time 0 min, 49 sec





3b

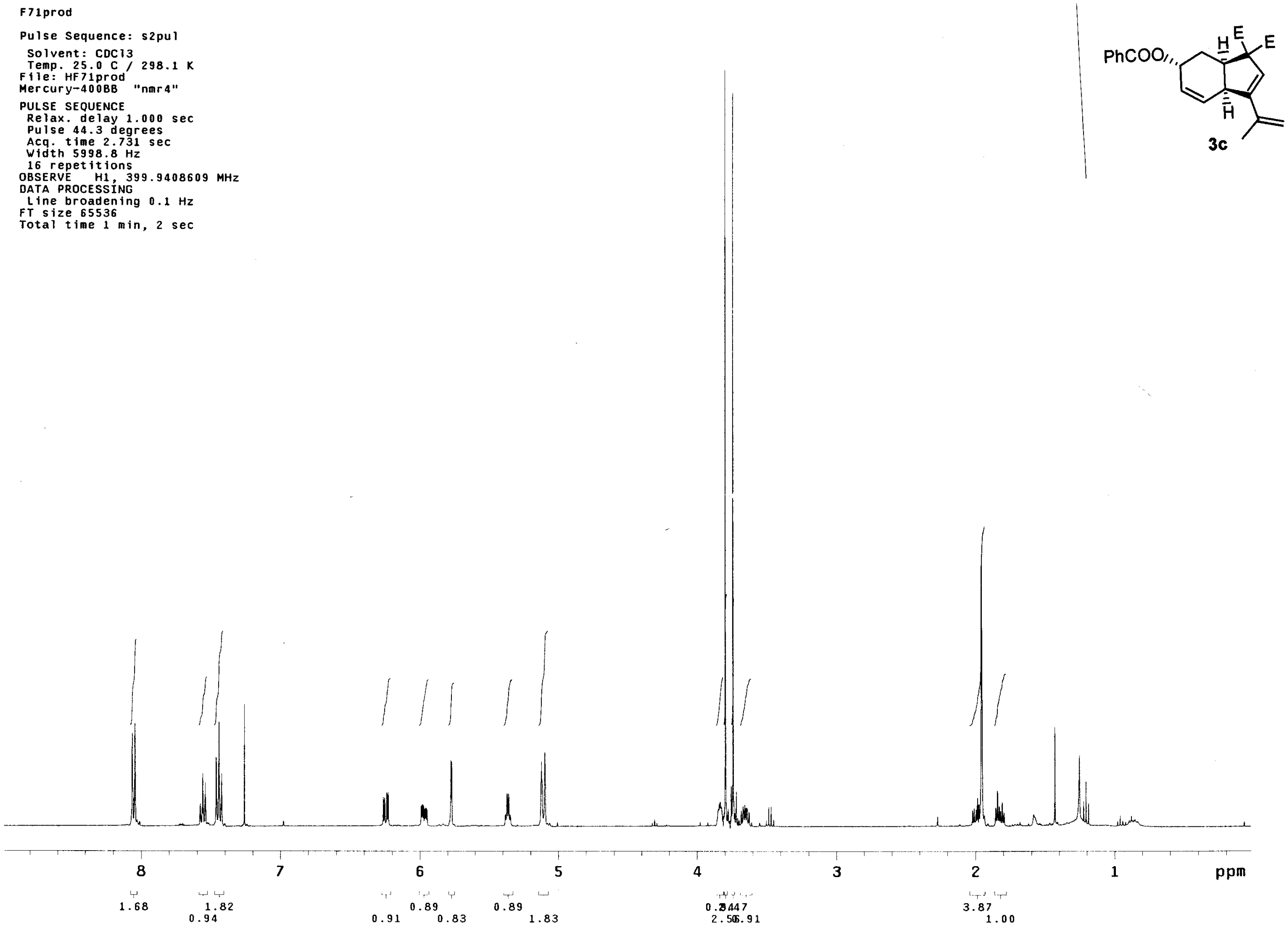

3b .
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"
Relax. delay 1.000 sec
Pulse 75.4 degrees
Acq. time 1.815 sec
Width 18761.7 Hz
9216 repetitions
OBSERVE C13, 75.4215766 MHz
DECOUPLE H1, 299.9479605 MHz
Power 39 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 131072
Total time 7 hr, 57 min, 41 sec
170.689
170.123
148.722
138.413
132.955
124.702
124.380
115.509
77.585
77.160
76.739
76.052
68.042
53.072
52.578
44.311
38.701
27.758
21.608
160
140
120
100
80
60
40
20
ppm


C6F5O
H
E
E
H

3b

F71prod

Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: HF71prod
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 44.3 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
16 repetitions
OBSERVE H1, 399.9408609 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 1 min, 2 sec

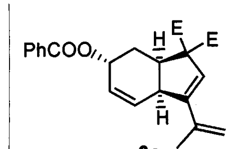


3c

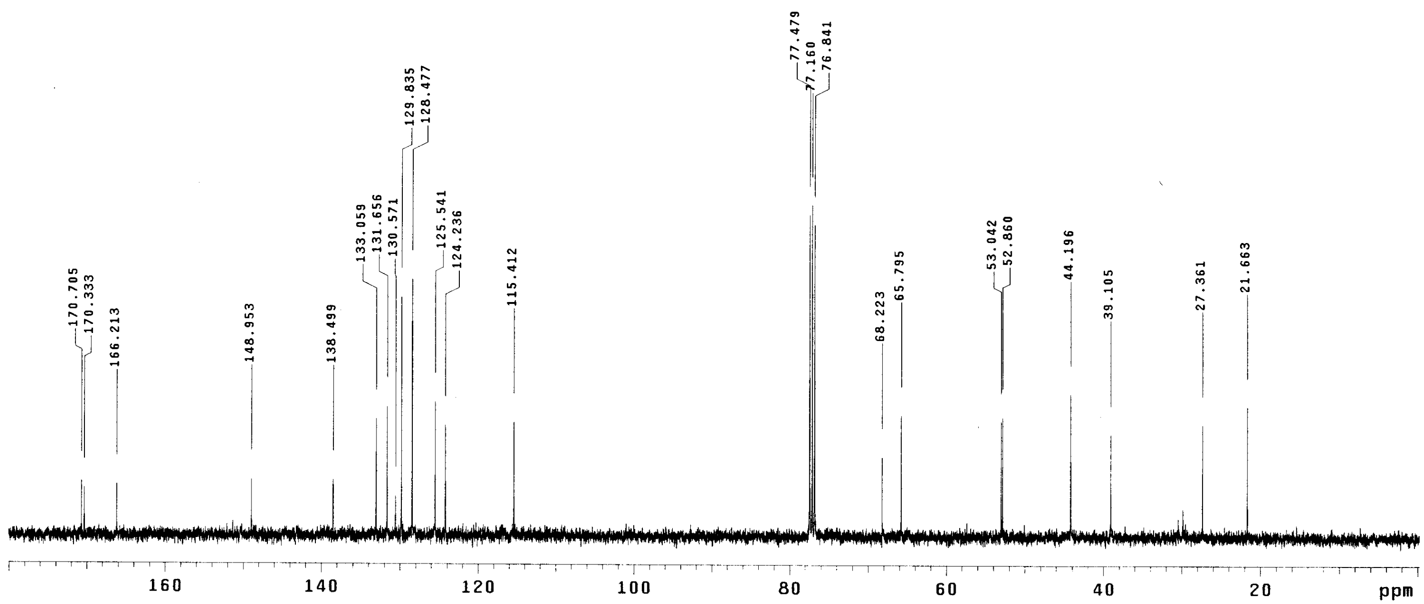
F71prod

Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: CF71prod
Mercury-400BB "nmr4"

PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 50.0 degrees
Acq. time 1.199 sec
Width 25000.0 Hz
304 repetitions
OBSERVE C13, 100.5651931 MHz
DECOUPLE H1, 399.9428336 MHz
Power 42 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 42 min, 5 sec



3c

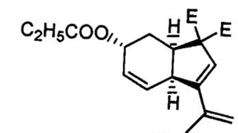


F124prod

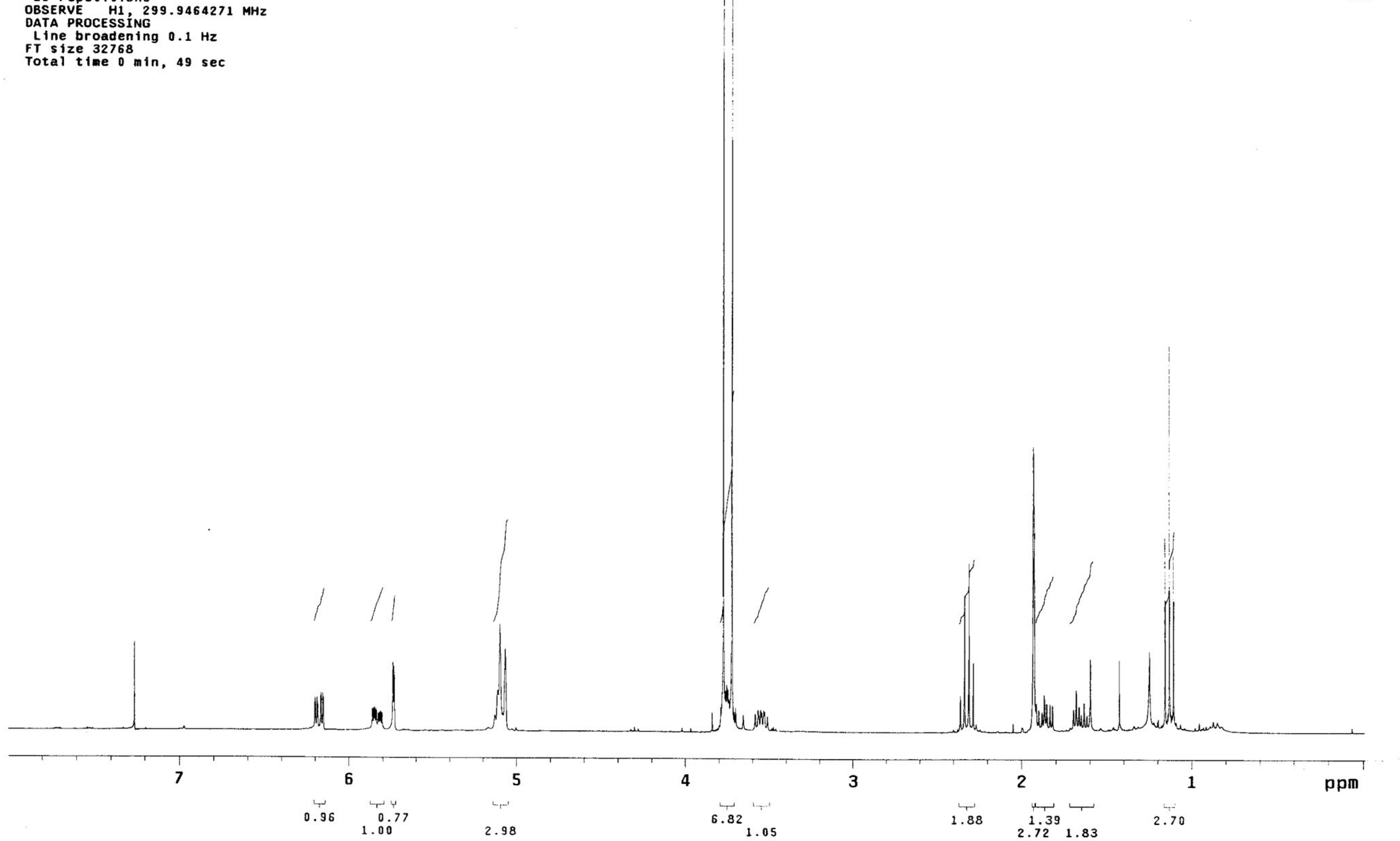
Pulse Sequence: s2pul

Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"

PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 57.3 degrees
Acq. time 1.998 sec
Width 4500.5 Hz
16 repetitions
OBSERVE H1, 299.9464271 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 32768
Total time 0 min, 49 sec



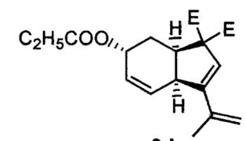
3d



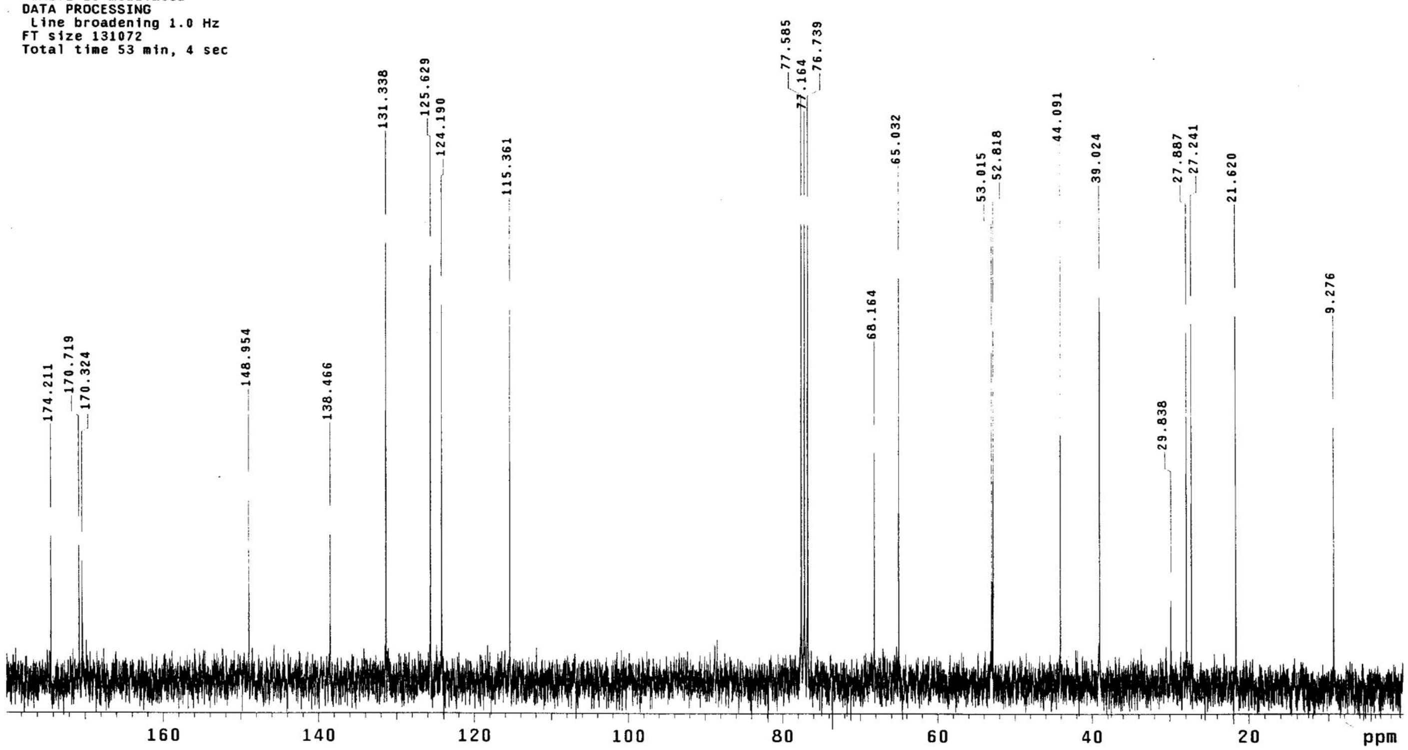
F124prod

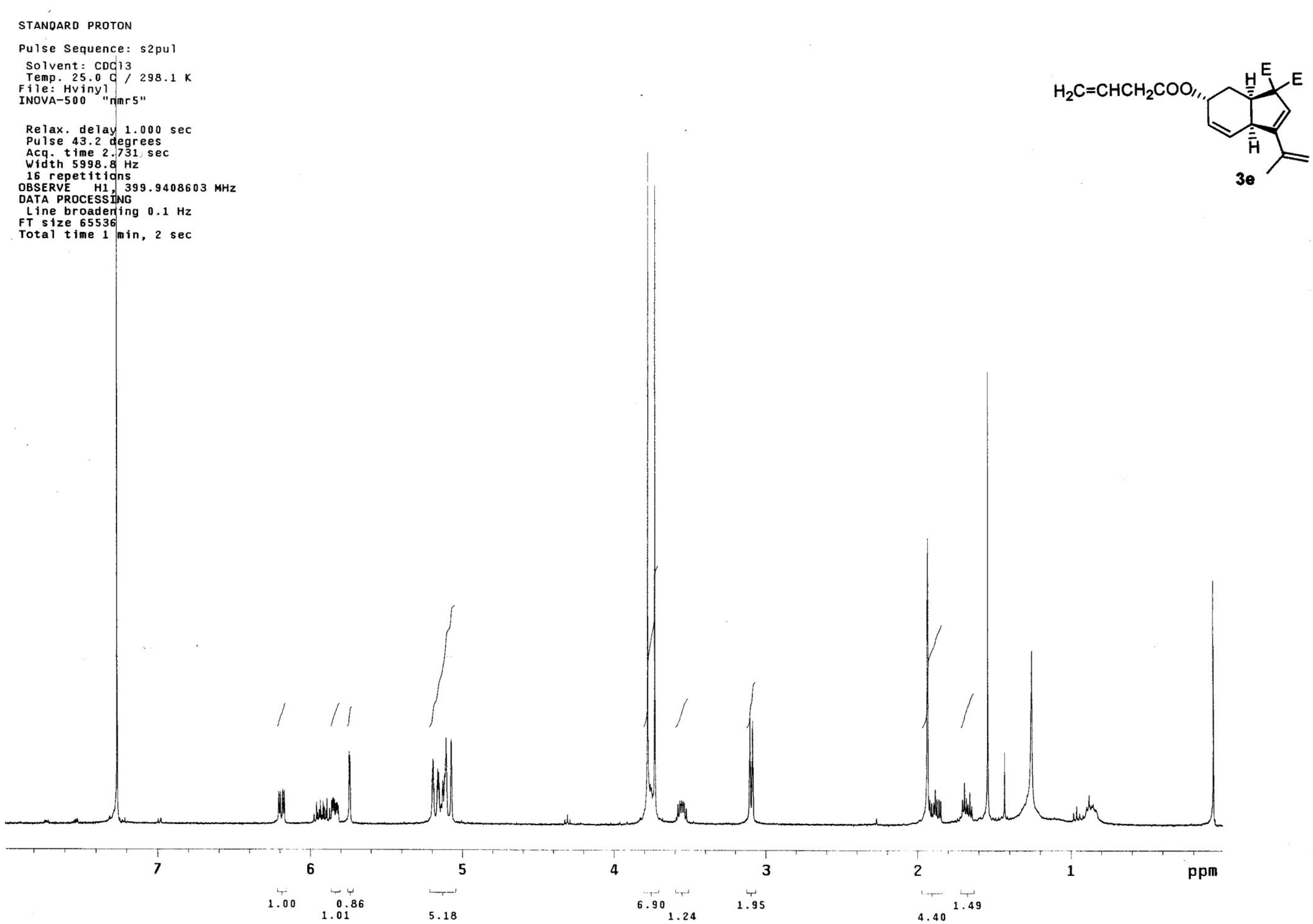
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-300BB "nmr3"

PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 75.4 degrees
Acq. time 1.815 sec
Width 18761.7 Hz
240 repetitions
OBSERVE C13, 75.4215771 MHz
DECOUPLE H1, 299.9479604 MHz
Power 39 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 131072
Total time 53 min, 4 sec



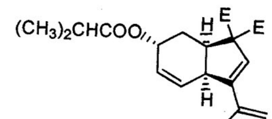
3d



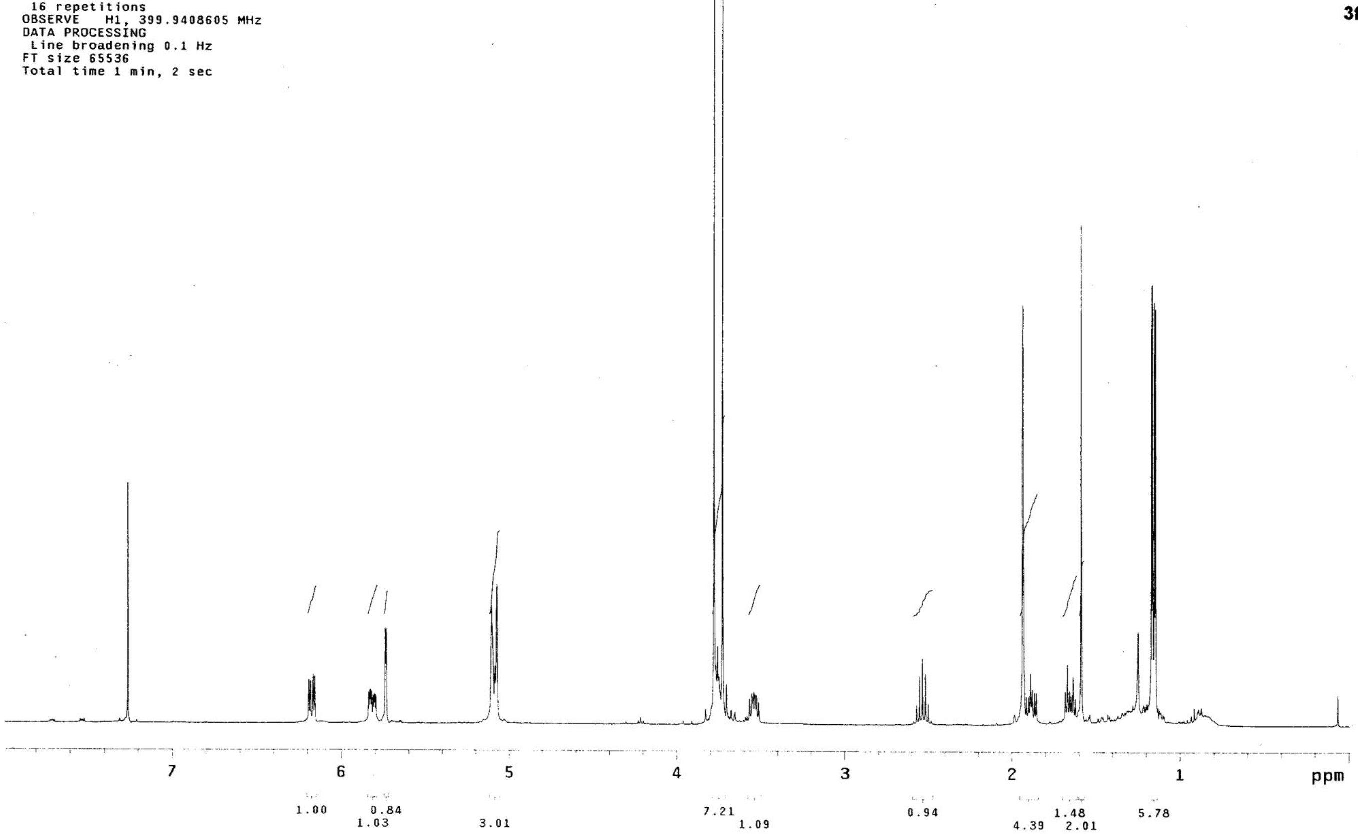

STANDARD PROTON
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: Hvinyl
INOVA-500 "nmr5"
Relax. delay 1.000 sec
Pulse 43.2 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
16 repetitions
OBSERVE H1, 399.9408603 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 1 min, 2 sec
H2C=CHCH2COO
H
E
E
H
3e
7
6
5
4
3
2
1
ppm
1.00
1.01
0.86
5.18
6.90
1.24
1.95
4.40
1.49

F127prod

Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: HF127prod
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 57.8 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
16 repetitions
OBSERVE H1, 399.9408605 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 1 min, 2 sec

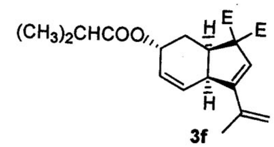


3f

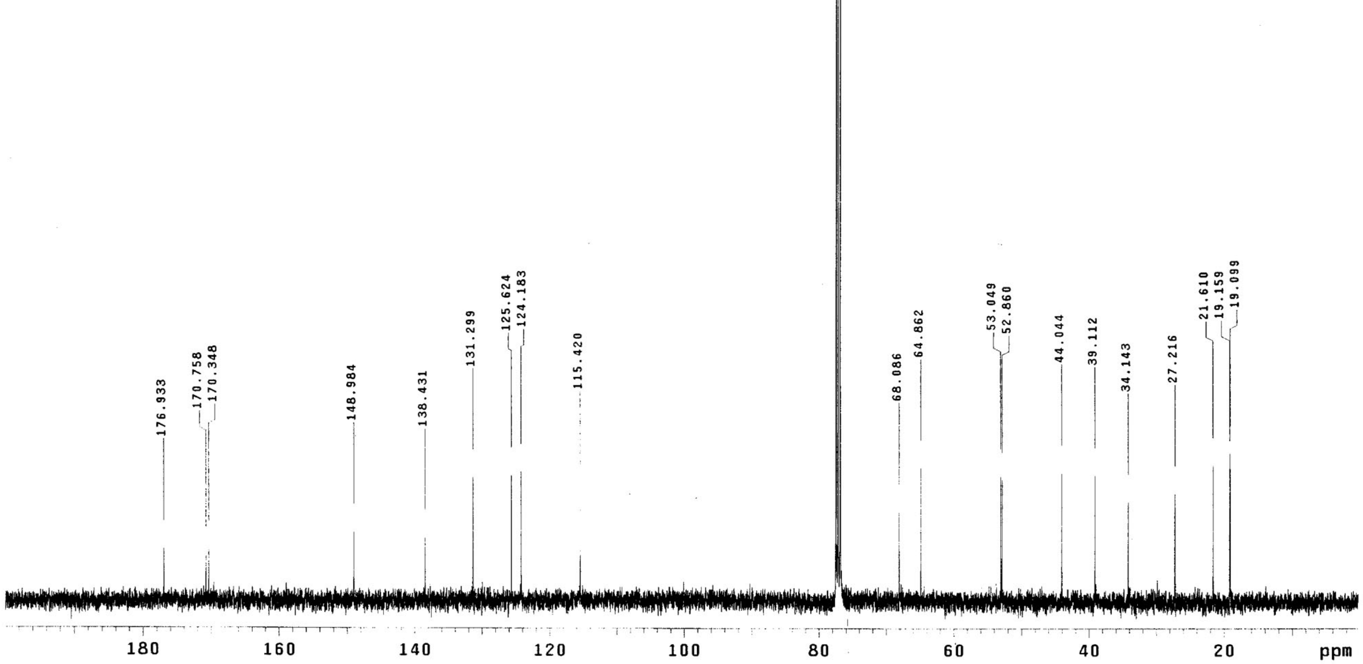


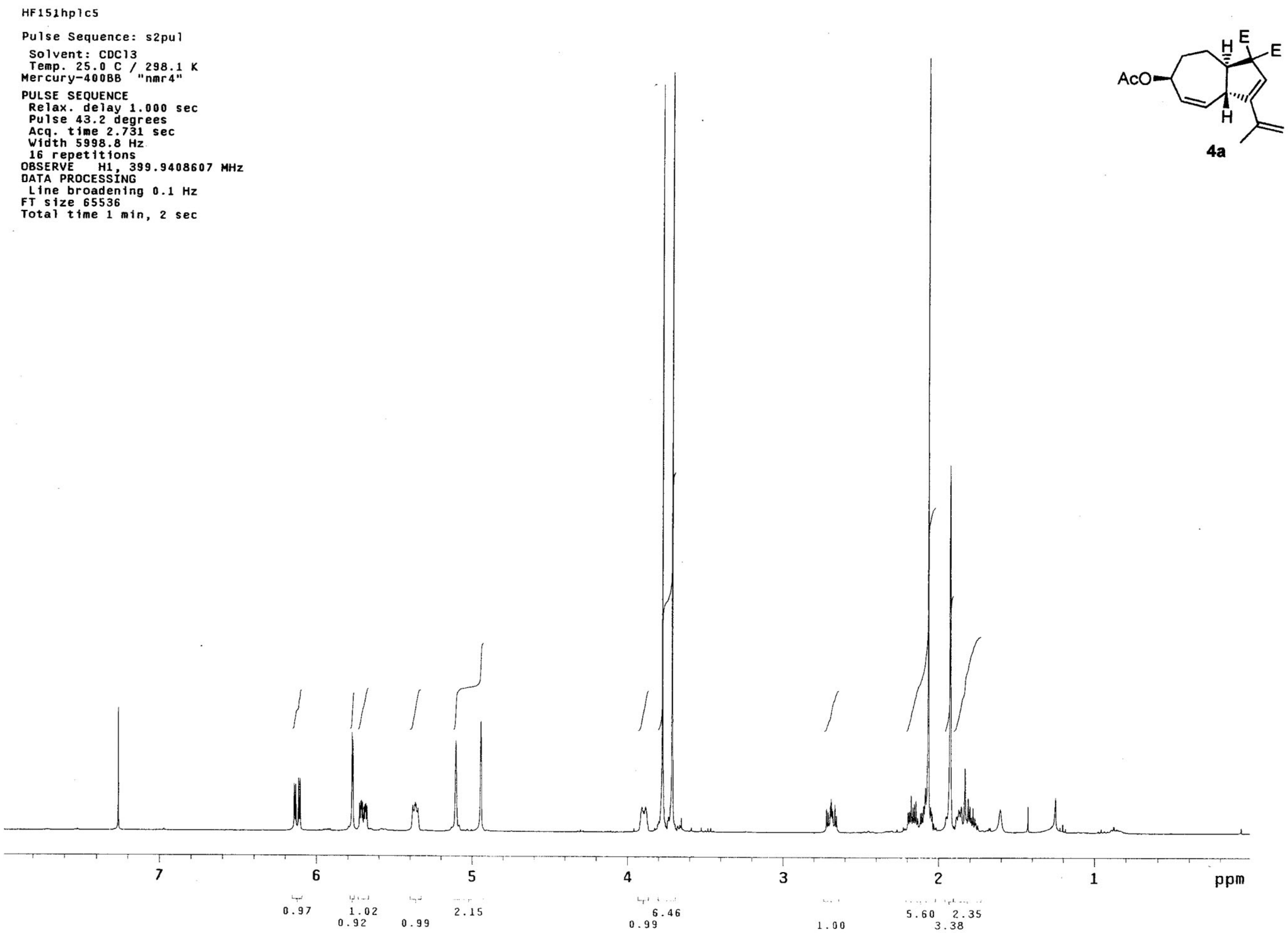
F127prod

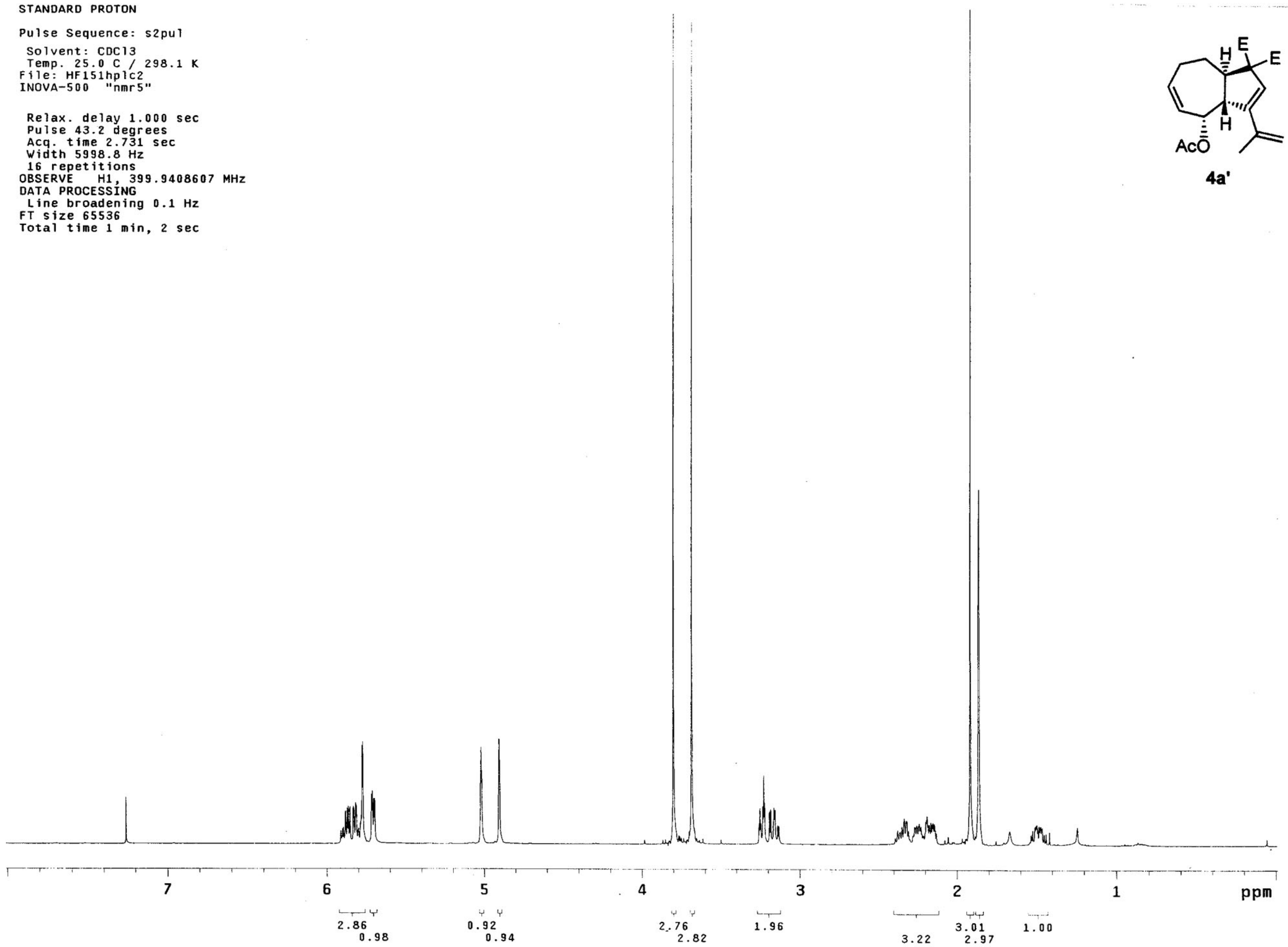
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 57.0 degrees
Acq. time 1.199 sec
Width 25000.0 Hz
1008 repetitions
OBSERVE C13, 100.5651946 MHz
DECOUPLE H1, 399.9428336 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 42 min, 5 sec



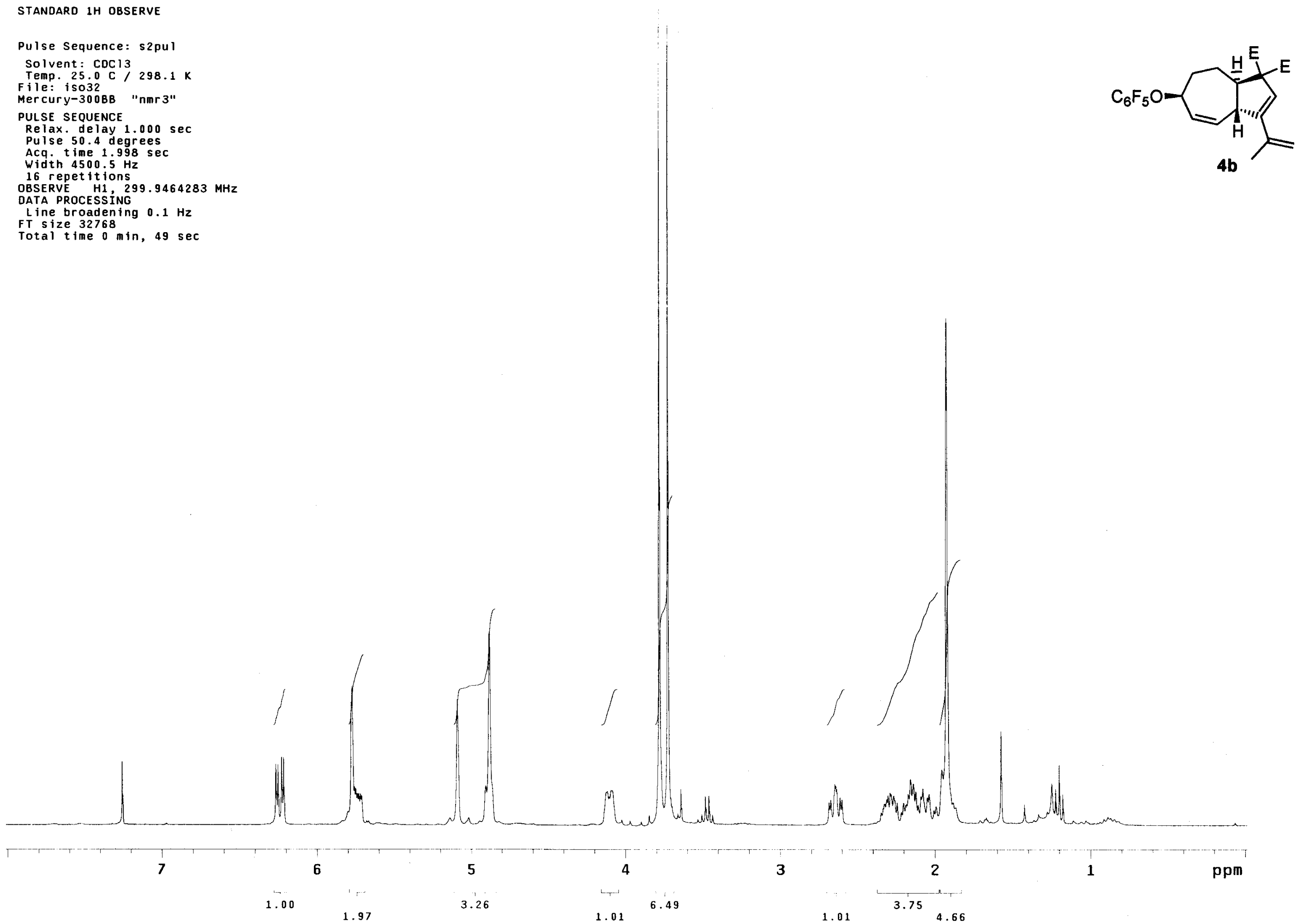
3f




HF151hplc5
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 43.2 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
16 repetitions
OBSERVE H1, 399.9408607 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 1 min, 2 sec
AcO
H
E
E
H
4a
7
6
5
4
3
2
1
ppm
0.97
1.02
0.92
0.99
2.15
6.46
0.99
1.00
5.60
2.35
3.38

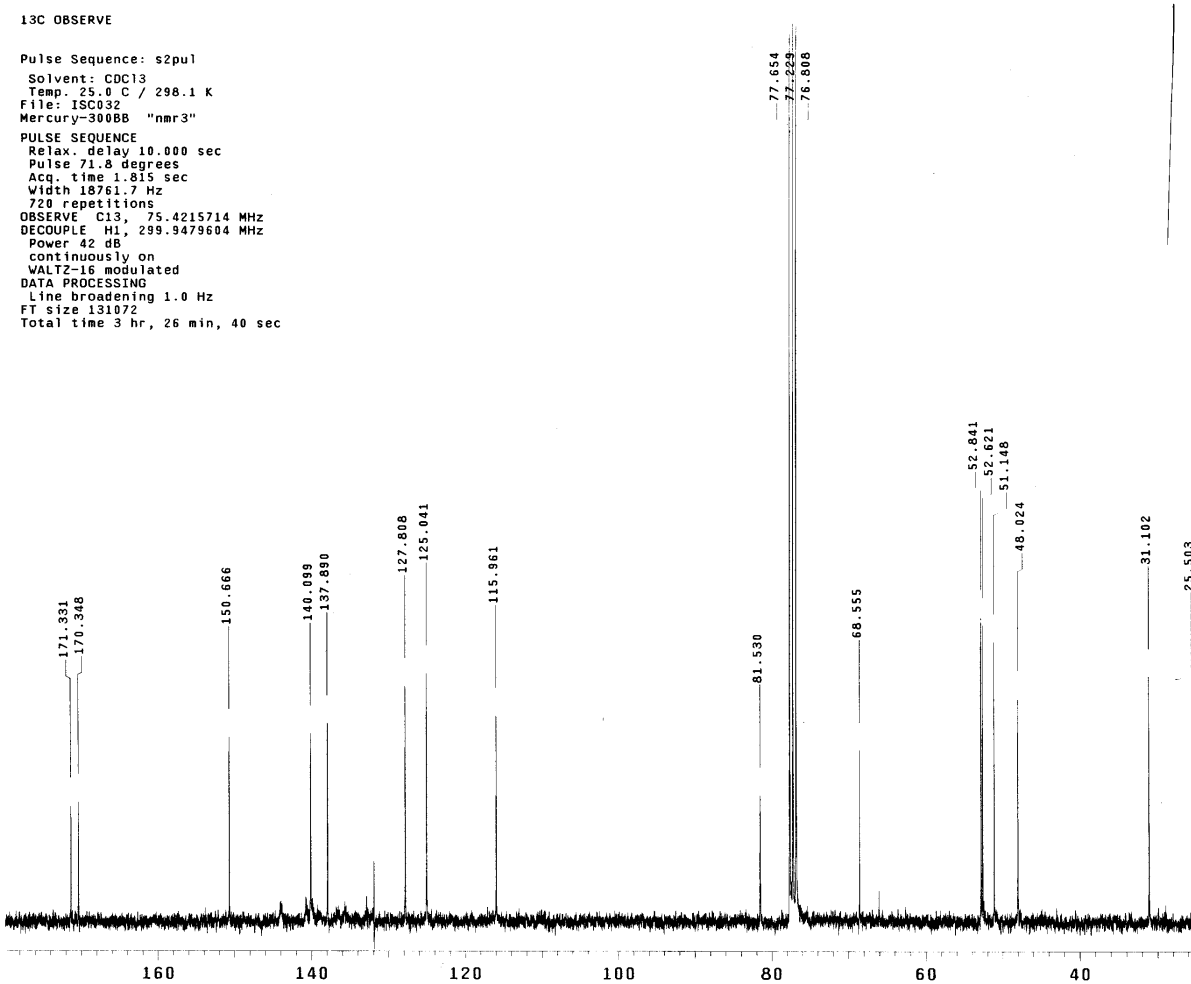

STANDARD PROTON
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: HF151hplc2
INOVA-500 "nmr5"
Relax. delay 1.000 sec
Pulse 43.2 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
16 repetitions
OBSERVE H1, 399.9408607 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 1 min, 2 sec
7
6
5
4
3
2
1
ppm
2.86
0.98
0.92
0.94
2.76
2.82
1.96
3.22
3.01
2.97
1.00
E
E
H
H
AcO

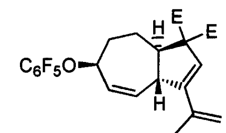
4a'



STANDARD 1H OBSERVE
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: iso32
Mercury-300BB "nmr3"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 50.4 degrees
Acq. time 1.998 sec
Width 4500.5 Hz
16 repetitions
OBSERVE H1, 299.9464283 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 32768
Total time 0 min, 49 sec
7
6
5
4
3
2
1
ppm
1.00
1.97
3.26
1.01
6.49
1.01
3.75
4.66

4b

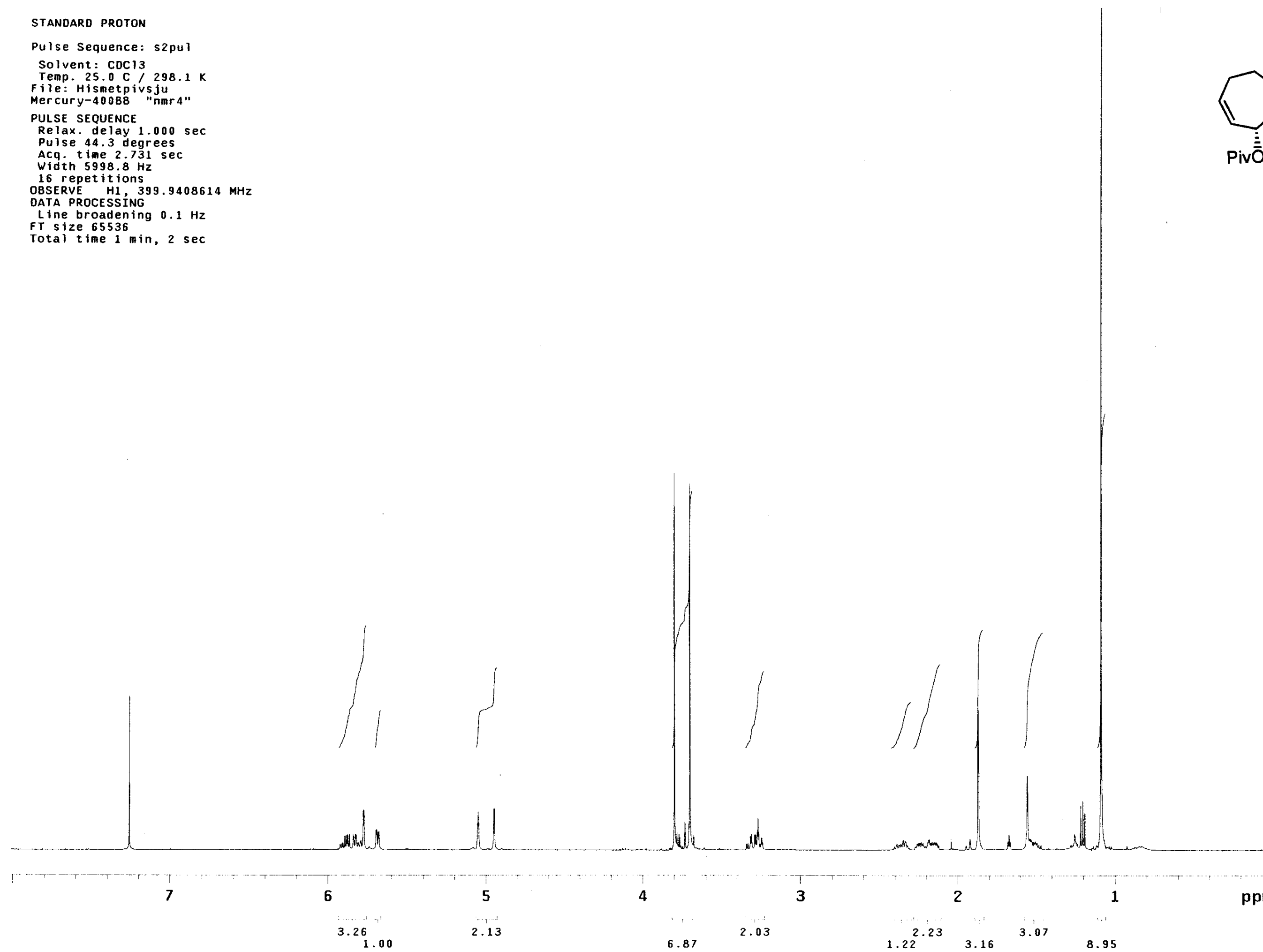

13C OBSERVE
Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: ISC032
Mercury-300BB "nmr3"
PULSE SEQUENCE
Relax. delay 10.000 sec
Pulse 71.8 degrees
Acq. time 1.815 sec
Width 18761.7 Hz
720 repetitions
OBSERVE C13, 75.4215714 MHz
DECOUPLE H1, 299.9479604 MHz
Power 42 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 1.0 Hz
FT size 131072
Total time 3 hr, 26 min, 40 sec
171.331
170.348
150.666
140.099
137.890
127.808
125.041
115.961
81.530
77.654
77.229
76.808
68.555
52.841
52.621
51.148
48.024
31.102
25.503
21.229
160
140
120
100
80
60
40
20
ppm

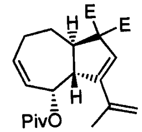

C6F5O
H
E
E
H

4b

STANDARD PROTON

Pulse Sequence: s2pul
Solvent: CDCl3
Temp. 25.0 C / 298.1 K
File: Hismetpivsju
Mercury-400BB "nmr4"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 44.3 degrees
Acq. time 2.731 sec
Width 5998.8 Hz
16 repetitions
OBSERVE H1, 399.9408614 MHz
DATA PROCESSING
Line broadening 0.1 Hz
FT size 65536
Total time 1 min, 2 sec





4c'