

Supplementary Information-2

Copies of $^1\text{H-NMR}$, $^{13}\text{C-NMR}$ spectra and chiral HPLC chromatograms

Stereoselective Synthesis of 4-Substituted-Cyclic Sulfamidate-5-Carboxylates By Asymmetric Transfer Hydrogenation Accompanying Dynamic Kinetic Resolution and Its Use in Concise Stereoselective Synthesis of (-)-*epi*-Cytosazone and Taxotere Side-Chain.

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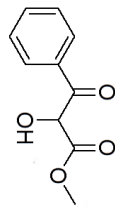
e-mail: leehk@kriict.re.kr

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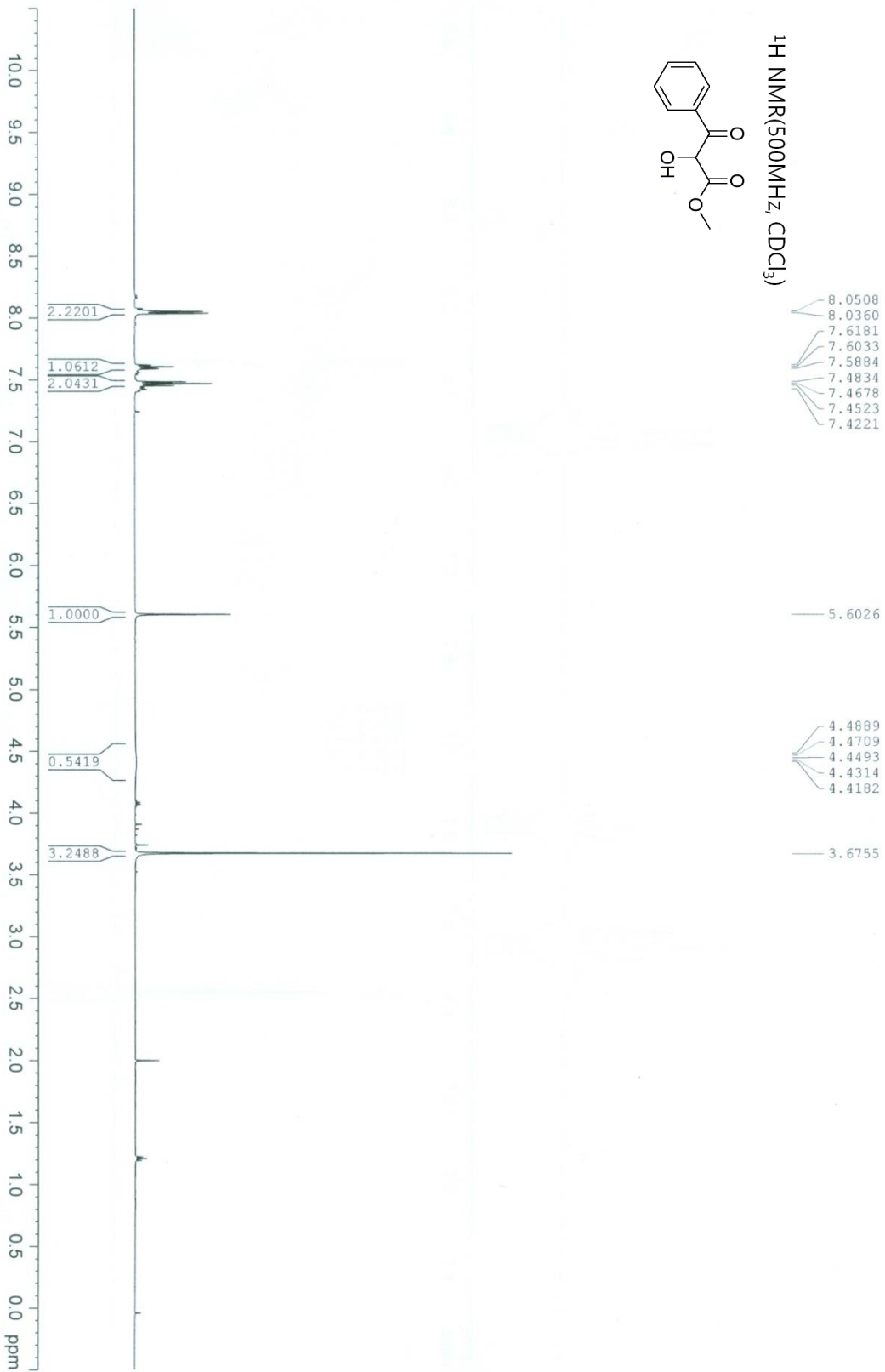
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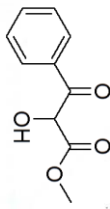
^1H -NMR and ^{13}C -NMR spectra

KJA-Ph-carbo-OH

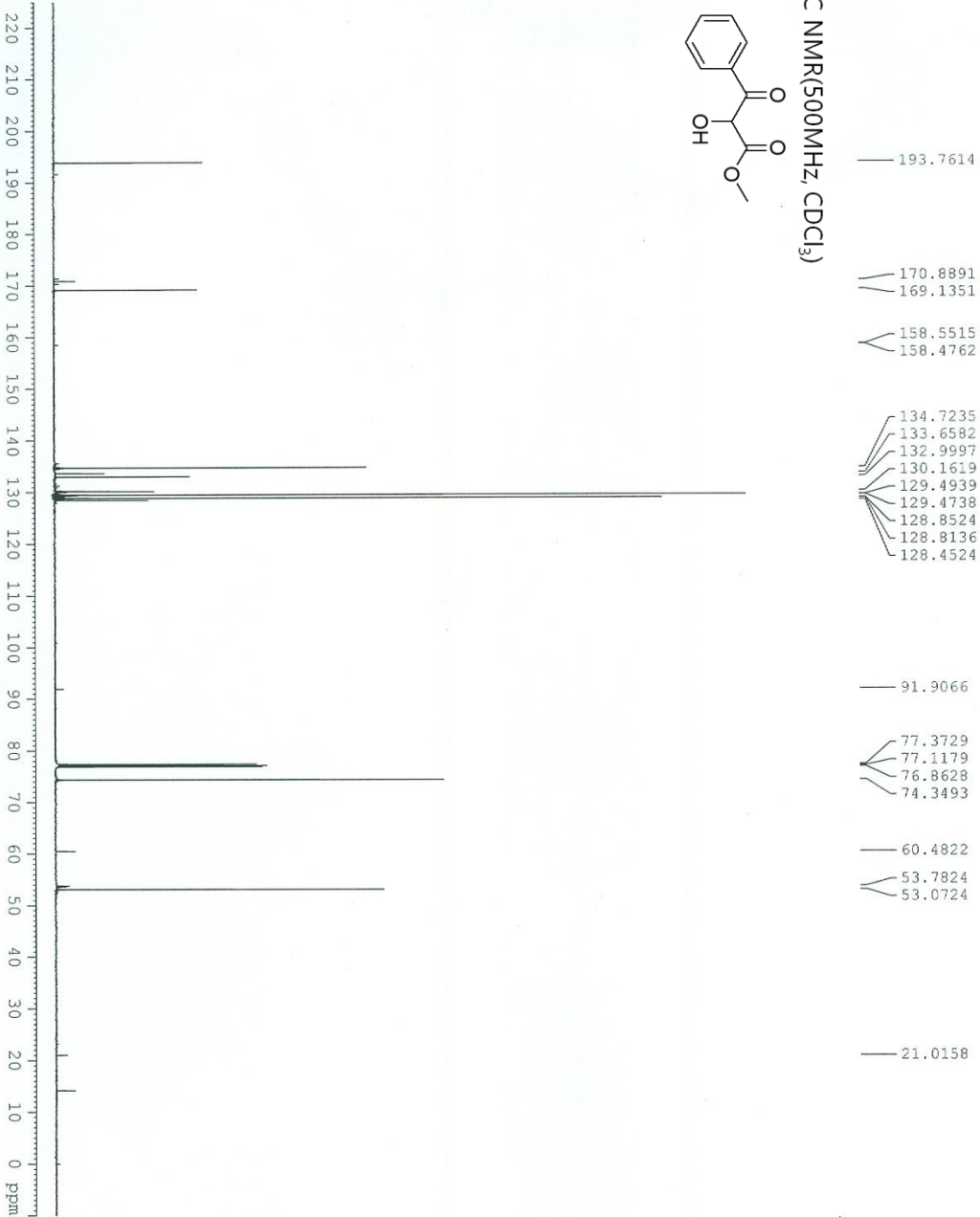


^1H NMR(500MHz, CDCl_3)





¹³C NMR(500MHz, CDCl₃)



KJA_ph_carbo_OH

- 193.7614
- 170.8891
- 169.1351
- 158.5515
- 158.4762
- 134.7235
- 133.6582
- 132.9997
- 130.1619
- 129.4939
- 129.4738
- 128.8524
- 128.8136
- 128.4524
- 91.9066
- 77.3729
- 77.1179
- 76.8628
- 74.3493
- 60.4822
- 53.7824
- 53.0724
- 21.0158

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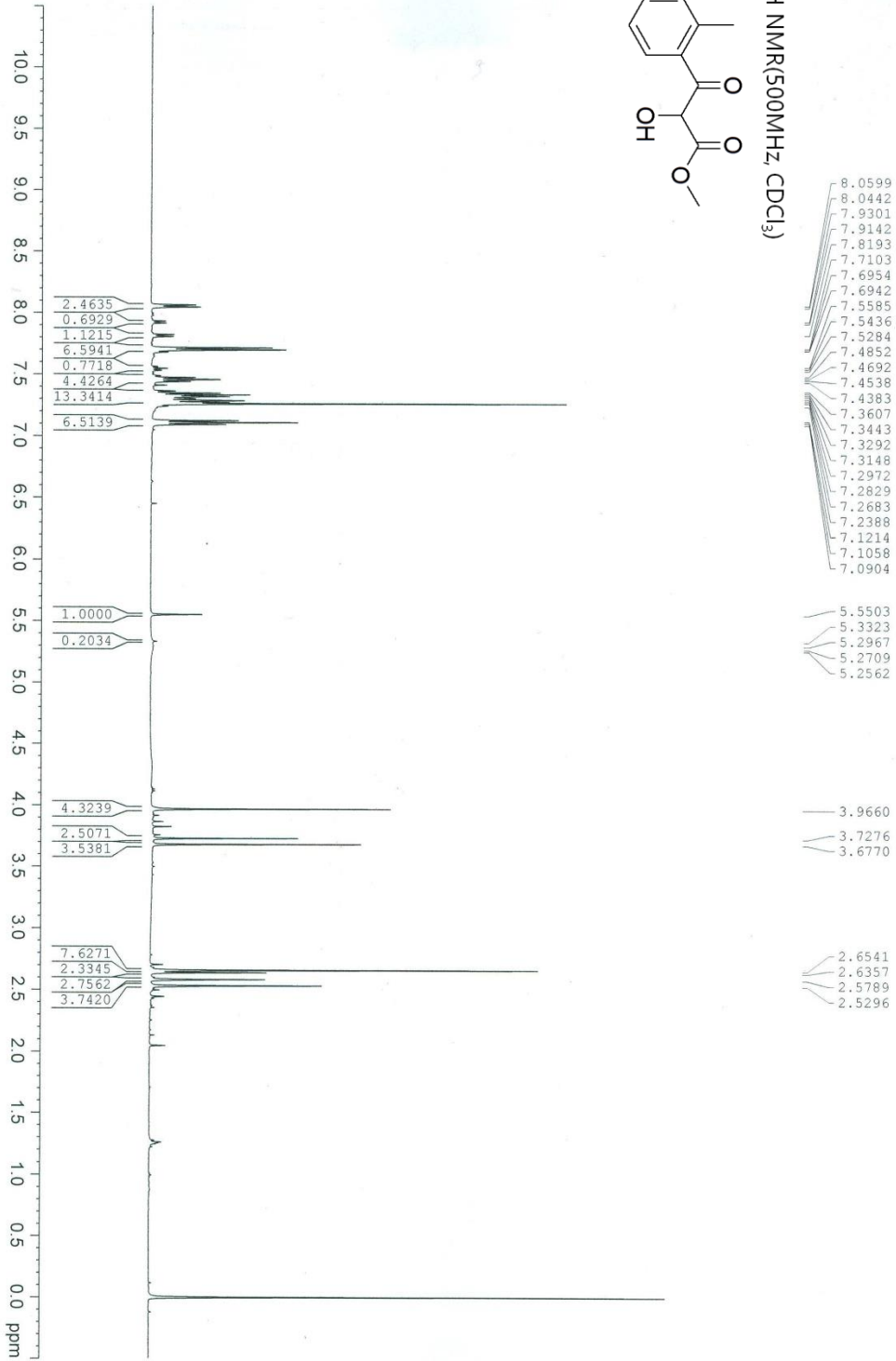
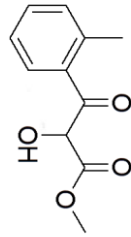
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SOLVENT       CDCl3
NS            1000
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FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            512
DM            14.200 usec
DE            6.00 usec
TE            297.1 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL F1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL F2 =====
CPDPRG2      waltz16
NUC2          1H
RGPD2        100.00 usec
PL2          -1.80 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2          500.1320005 MHz
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WDW           EM
SSB           0
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GB           0
PC           1.40
  
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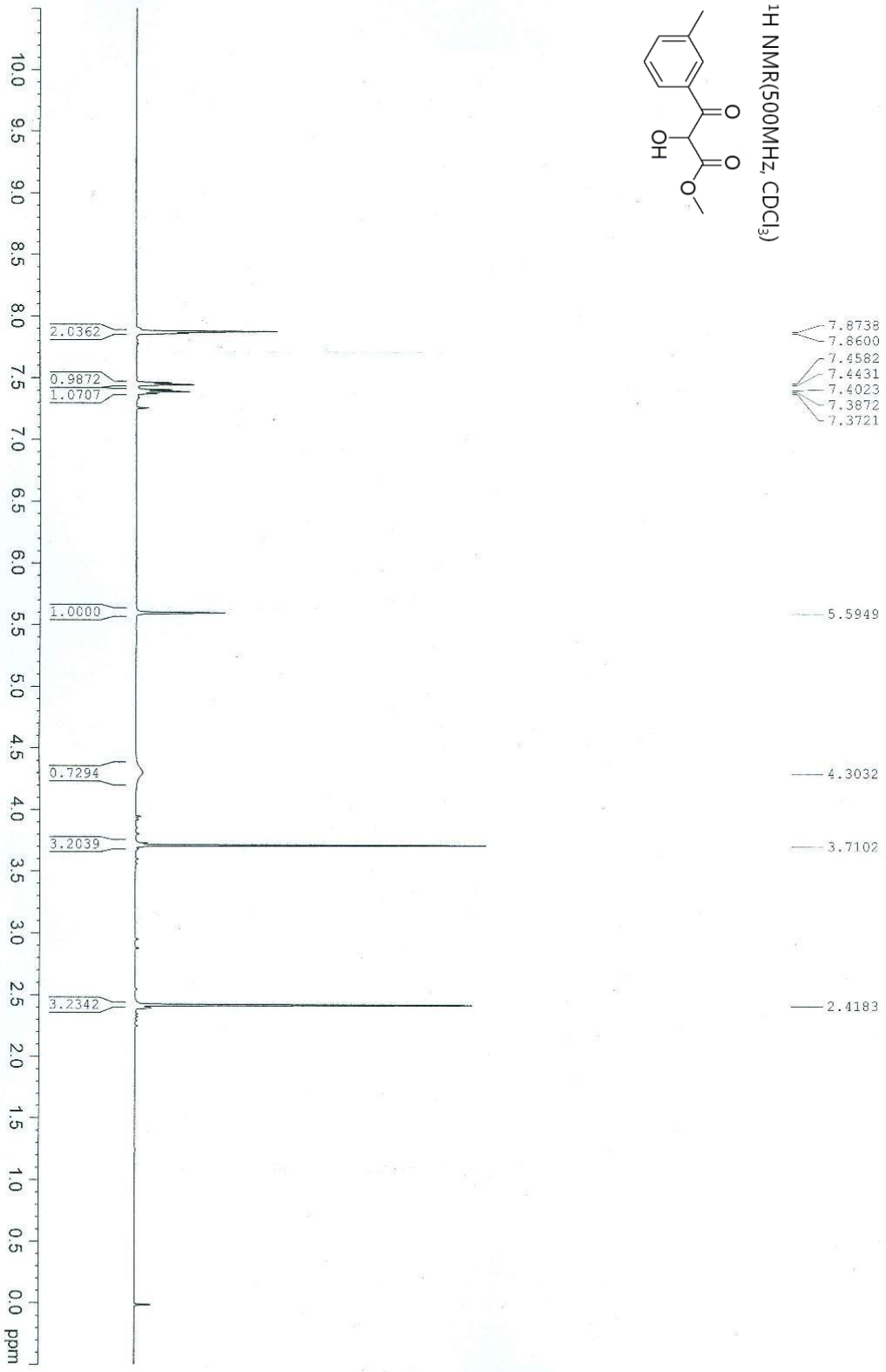
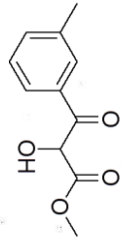
KJA-2Me-OH-0428

¹H NMR(500MHz, CDCl₃)

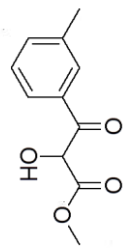


KJA-3-Me-carbo-OH-1119-1

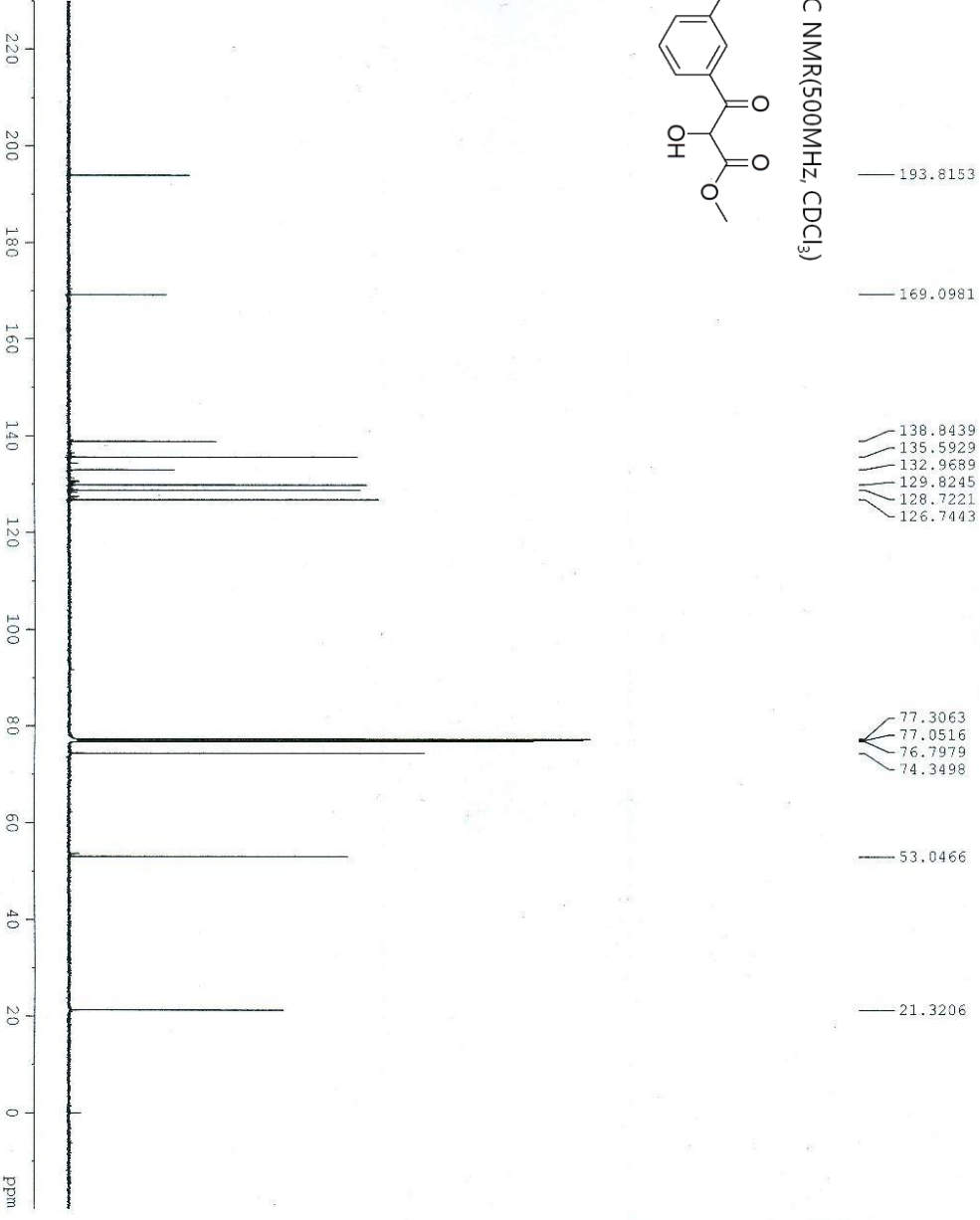
¹H NMR(500MHz, CDCl₃)



KJA_3_Me_carbo_OH_1119_1



¹³C NMR(500MHz, CDCl₃)



- 193.8153
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- 138.8439
- 135.5929
- 132.9689
- 129.8245
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- 77.3063
- 77.0516
- 76.7979
- 74.3498
- 53.0466
- 21.3206

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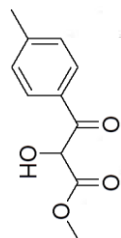
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TD           32768
SOLVENT      CDCl3
NS           1000
DS           2
SWH          35211.270 Hz
FIDRES       1.074563 Hz
AQ           0.4653699 sec
RG           512
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DE           6.00 usec
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D1           2.00000000 sec
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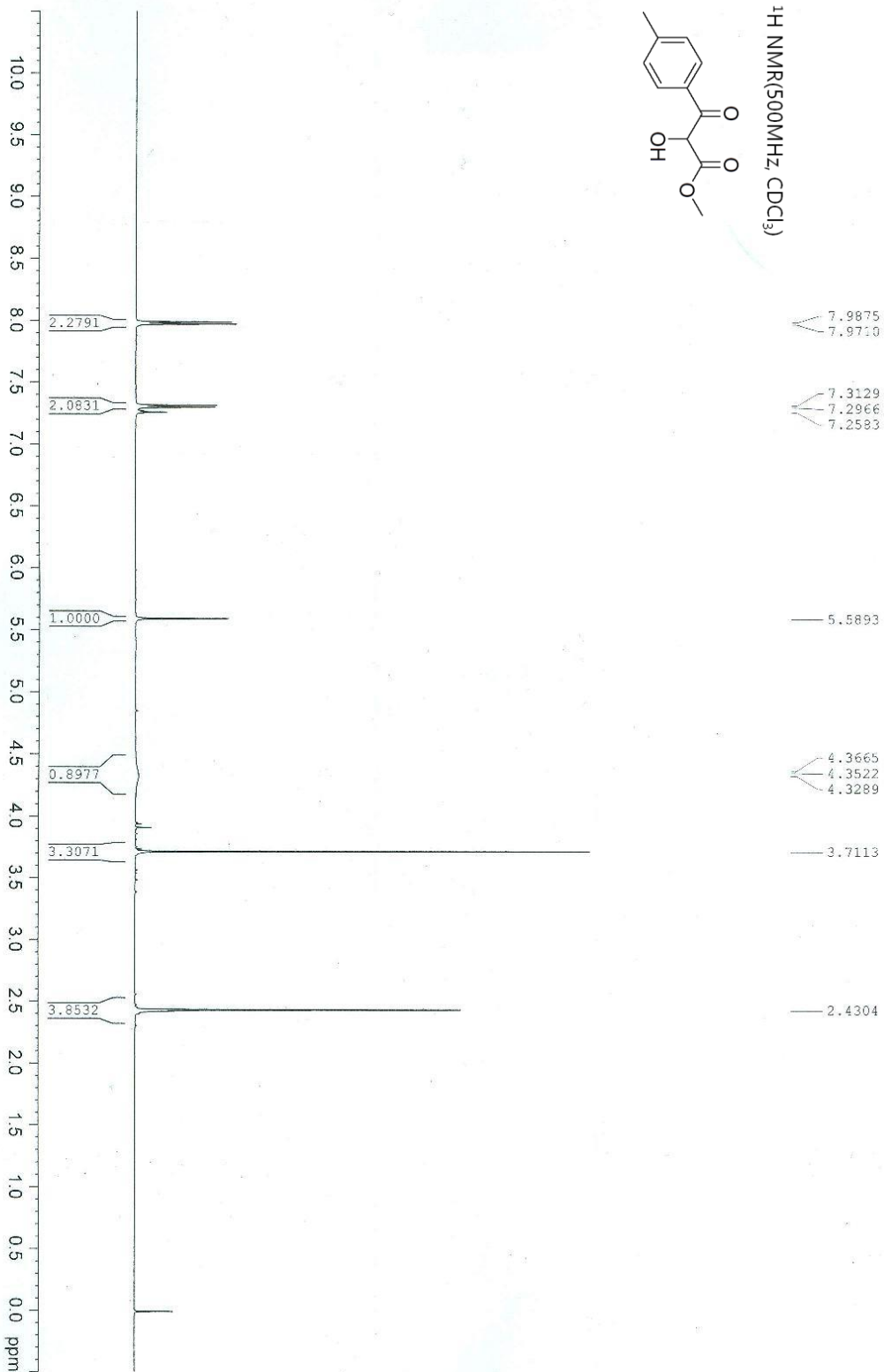
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PL1         1.40 dB
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CDEPRG2     waltz16
NUC2         1H
PCPD2       100.00 usec
P12         -1.90 dB
PL12        16.00 dB
PL13        19.00 dB
PL2W        27.23316002 W
P12W        0.44167015 W
PL13W       0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SE           125.7577890 MHz
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KJA-4-Me-OH-carboxylate

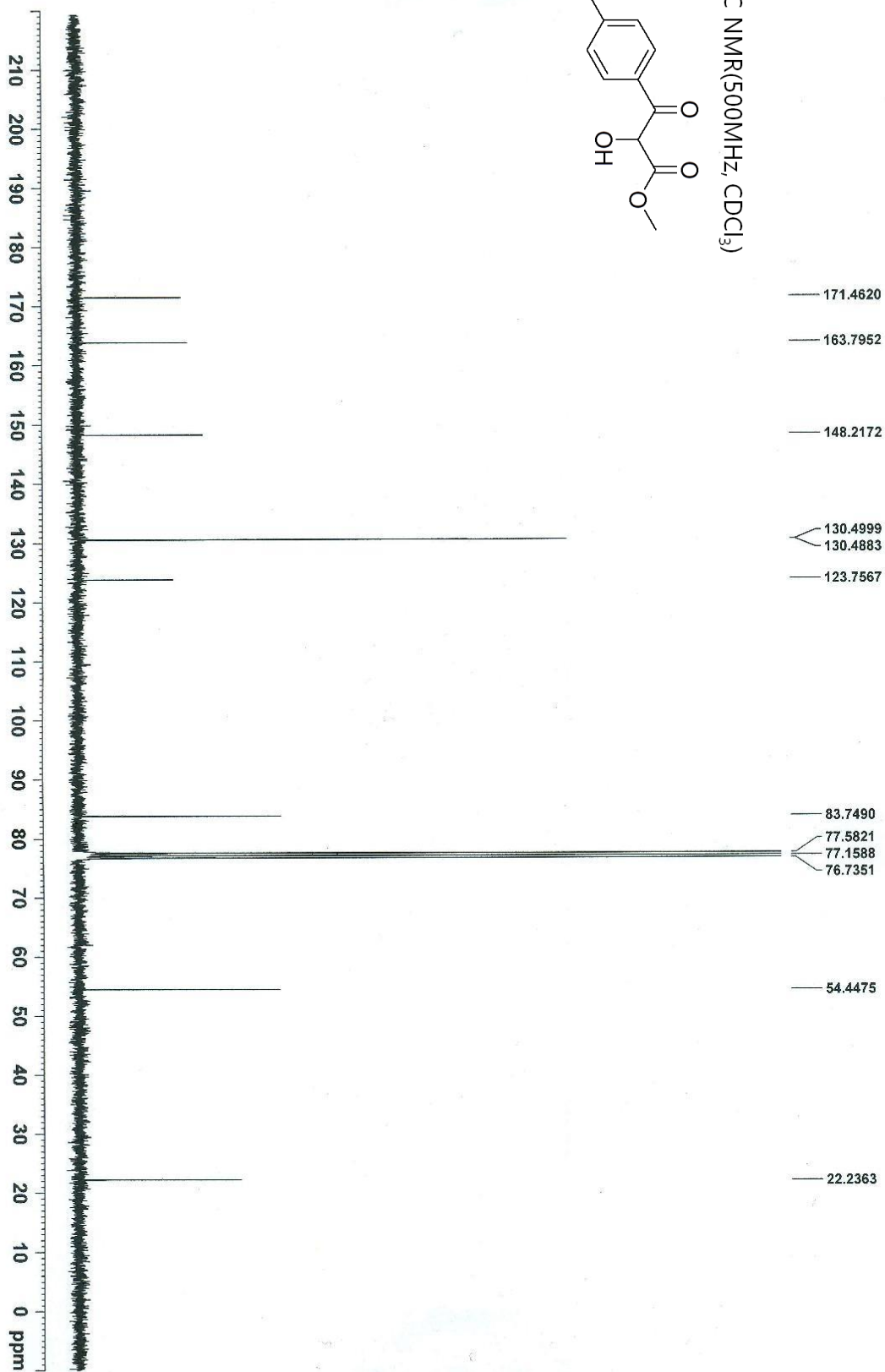
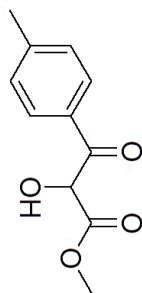


¹H NMR(500MHz, CDCl₃)

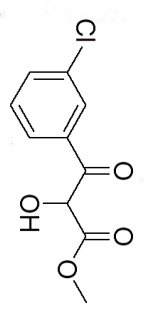


KSY_120611_4Me_1

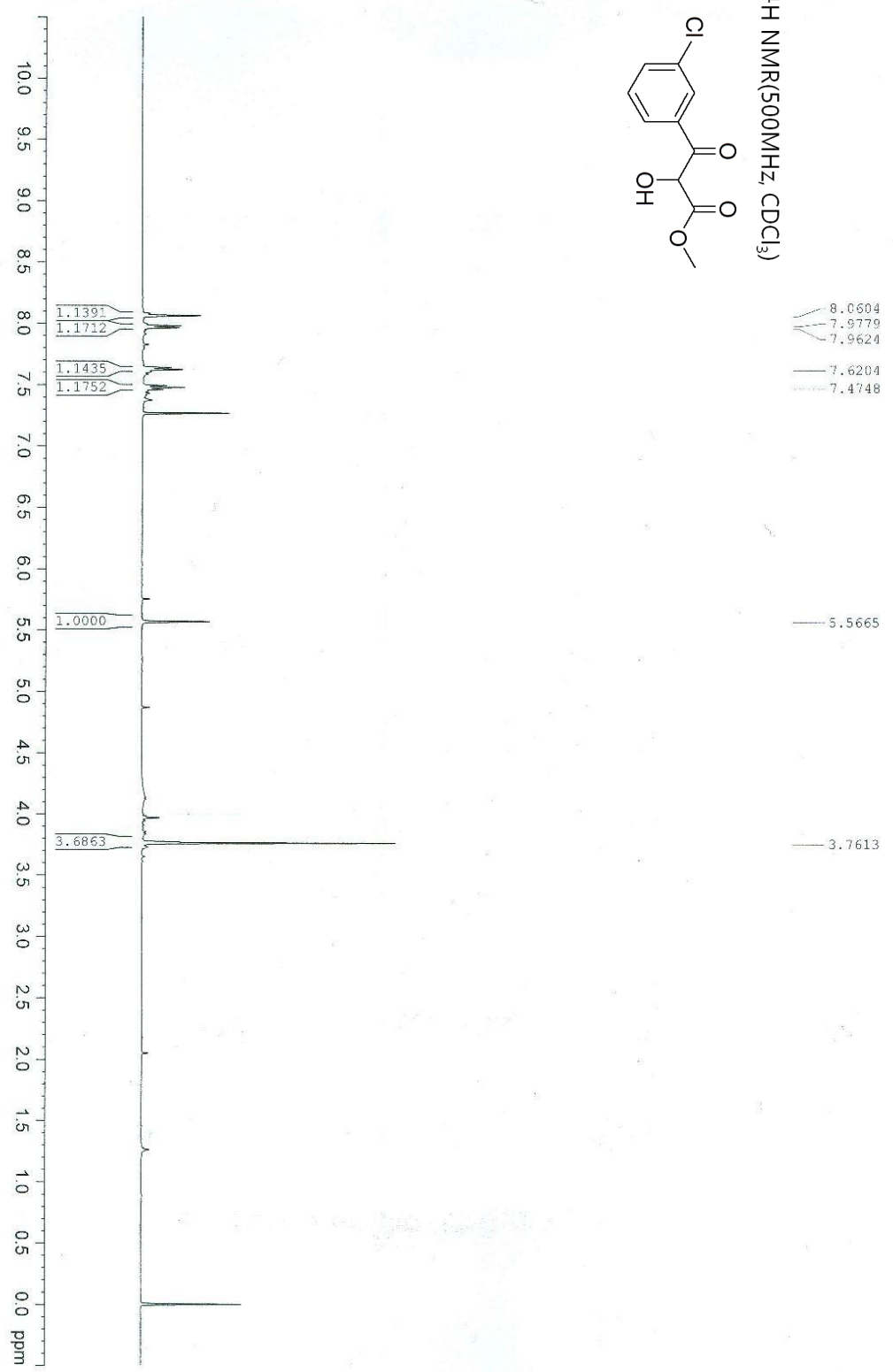
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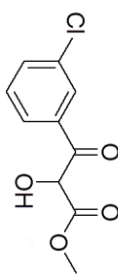
KJA-3-Cl-carbo-OH



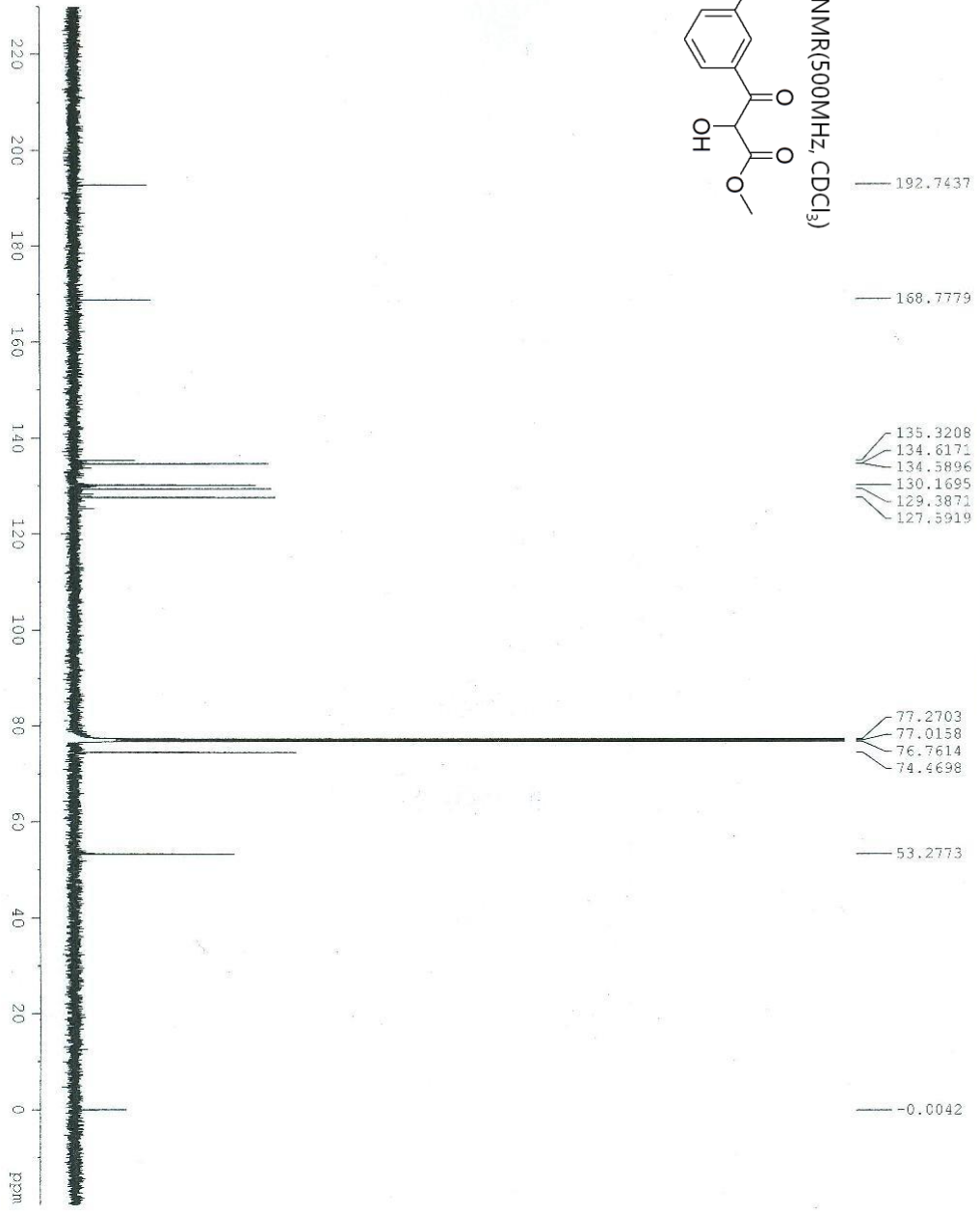
¹H NMR(500MHz, CDCl₃)



KJA_3_Cl_carbo_OH



¹³C NMR(500MHz, CDCl₃)



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PROCNO       1
Date_        20131121
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TD           32768
SOLVENT      CDCl3
NS           2000
DS           2
SWH          35211.270 Hz
FIDRES       1.074563 Hz
AQ           0.4653698 sec
RG           512
DM           14.200 usec
DE           6.00 usec
TE           298.3 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0          1

===== CHANNEL F1 =====
NUC1         13C
P1           8.00 usec
PI1          1.40 dB
PL1W        70.60438301 W
SFO1        125.7728799 MHz

===== CHANNEL F2 =====
CPDPRG2     waltz16
NUC2         1H
PCPD2       100.00 usec
PI2         -1.90 dB
PLI2        16.00 dB
PLI3        19.00 dB
PLI2W       27.23316002 W
PLI3W       0.44167015 W
SFO2        500.1320005 MHz
SI          32768
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KSY_120509_Cl_1

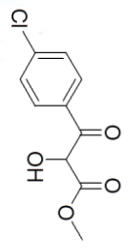
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7.7171
7.7029
7.6485
7.5334
7.5188
7.2599

6.1540

3.8375

1.5566

¹H NMR(500MHz, CDCl₃)



1.0191
1.0502
1.0600
1.0754
0.6066

1.0000

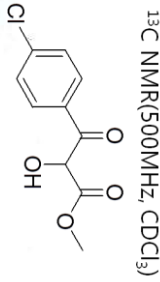
3.1127

1.3381

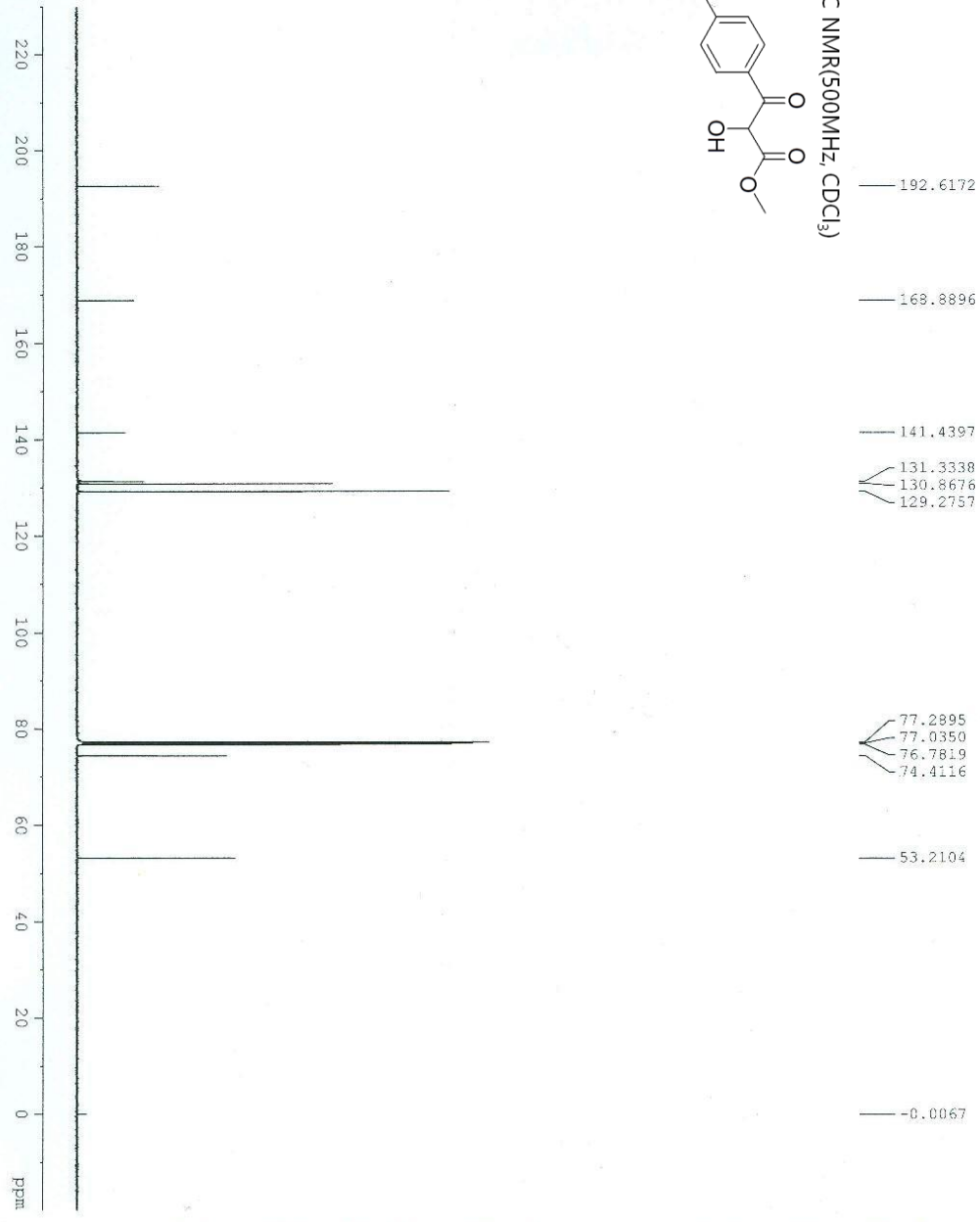
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DS         2
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FIDRES    0.114555 Hz
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RG         574.7
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TE         300.2 K
D1         1.00000000 sec
TD0        1

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NUC1      1H
P1         9.80 usec
PL1        1.90 dB
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SFO1      500.1332508 MHz
SI         32768
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KJA_4_Cl_carbo_OH



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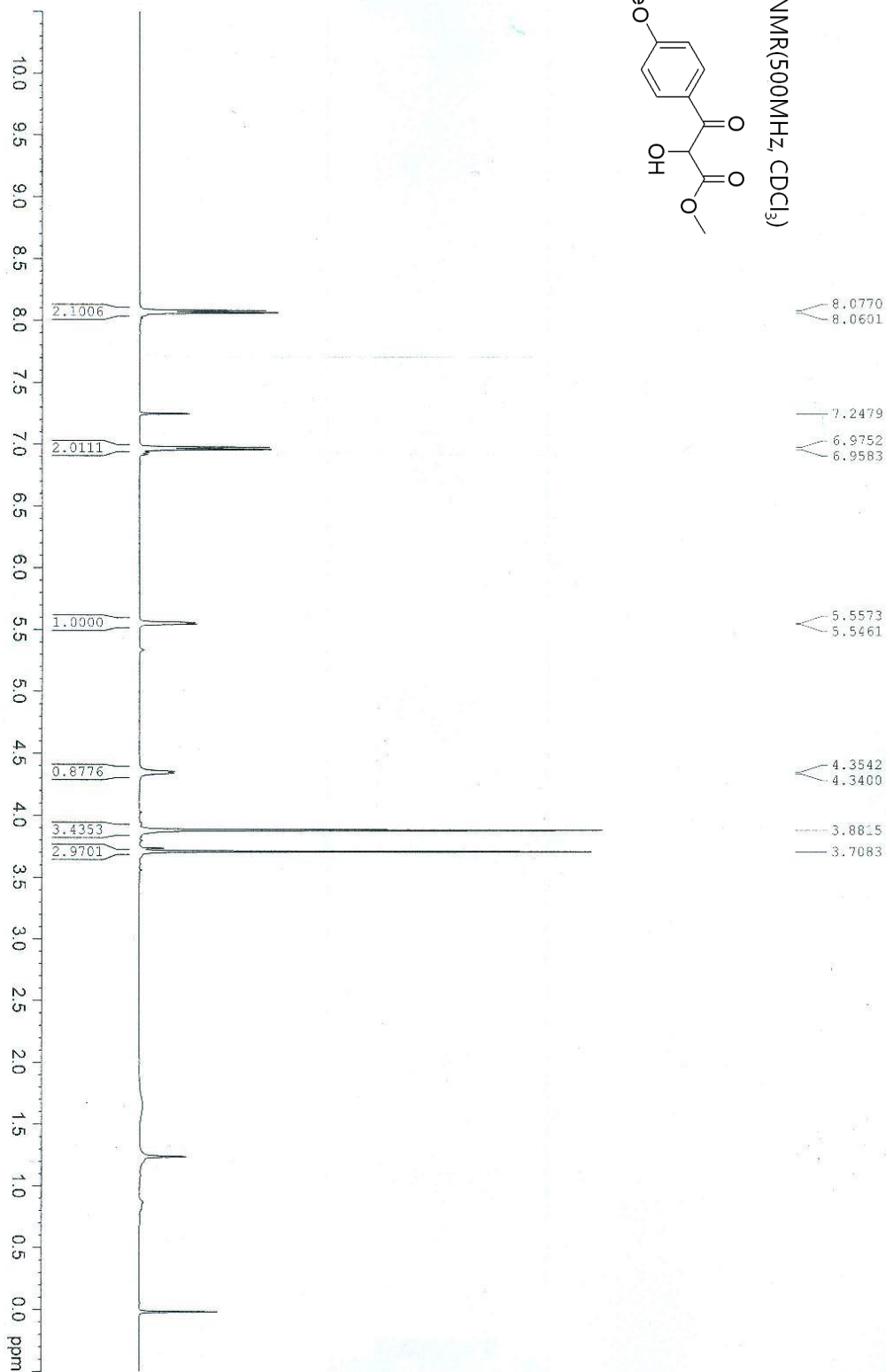
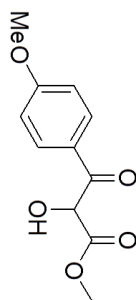
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TD            65536
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DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DM            14.200 usec
DE            6.00 usec
TE            298.7 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

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SFO1         125.7728799 MHz

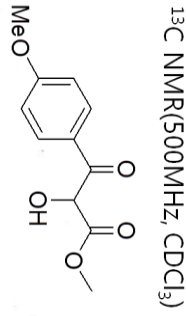
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NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL12W        0.44167013 W
PL13W        0.22135843 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
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SSB           0
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GB           0
PC           1.40
  
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KJA-4-OMe-car-OH-1023

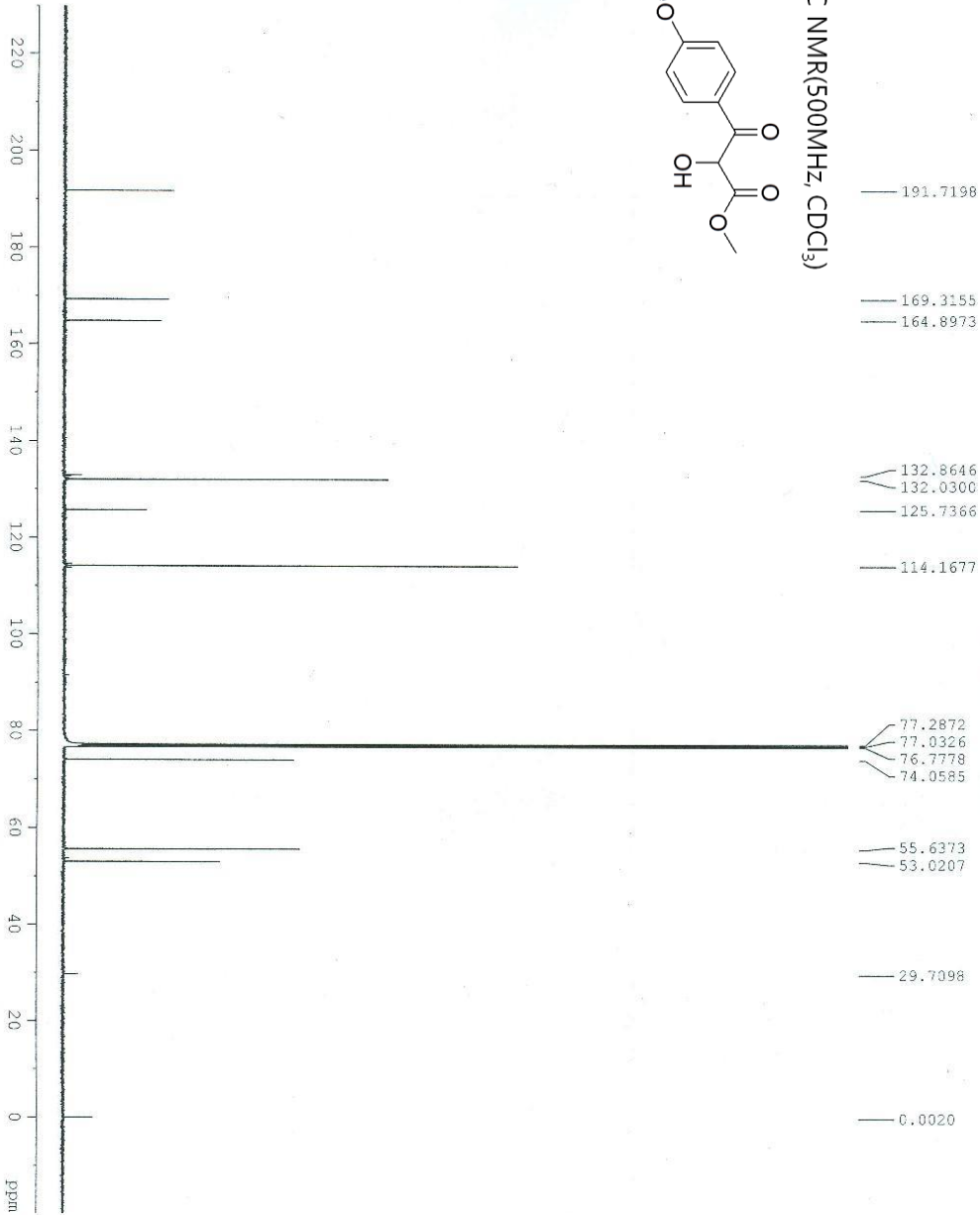
¹H NMR(500MHz, CDCl₃)



KJA_4_OMe_car_OH_1023



¹³C NMR(500MHz, CDCl₃)



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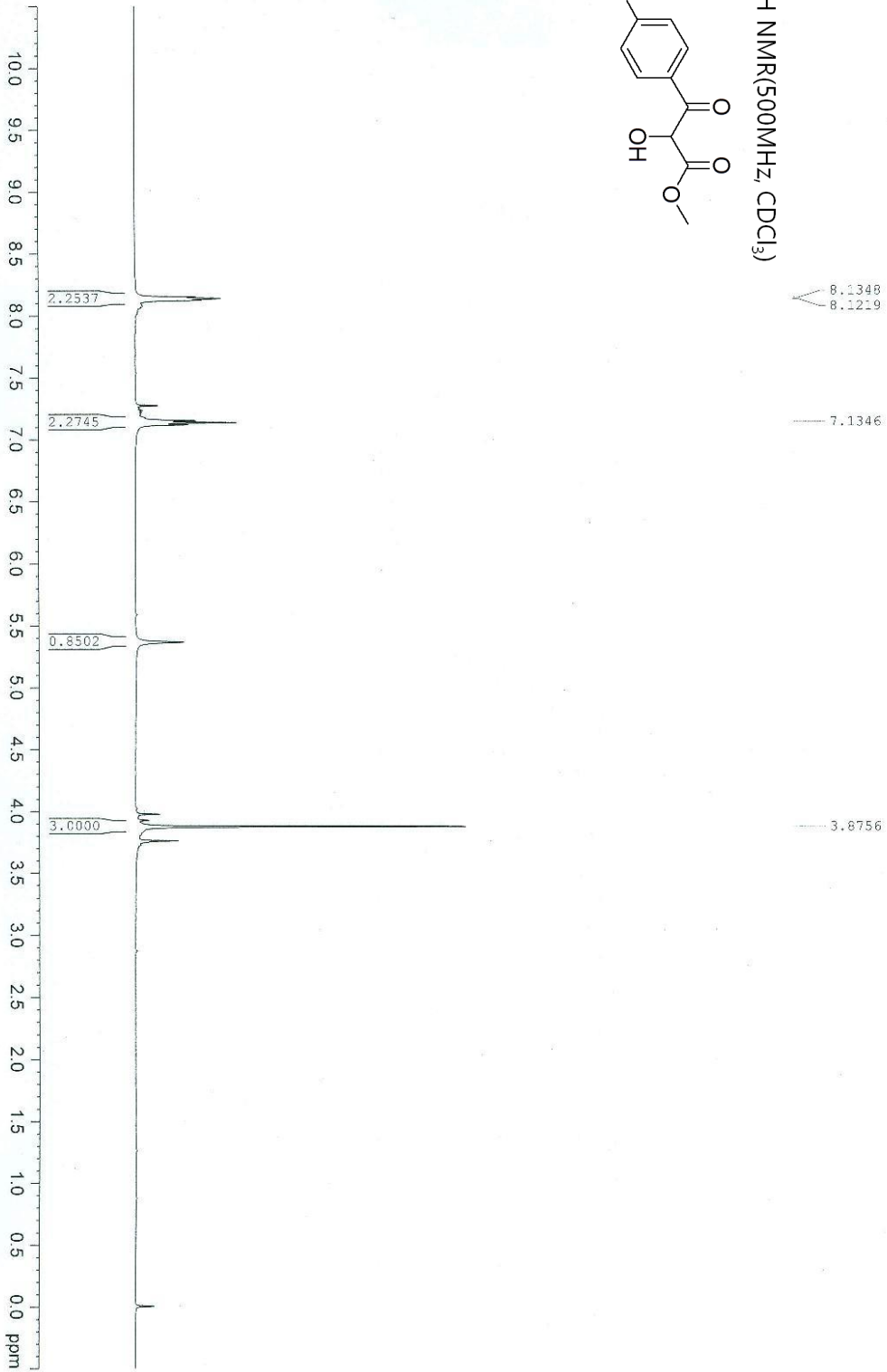
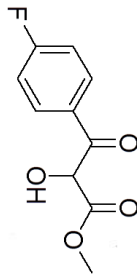
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FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DM            14.200 usec
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TE            296.6 K
D1            2.0000000 sec
D11           0.03000000 sec
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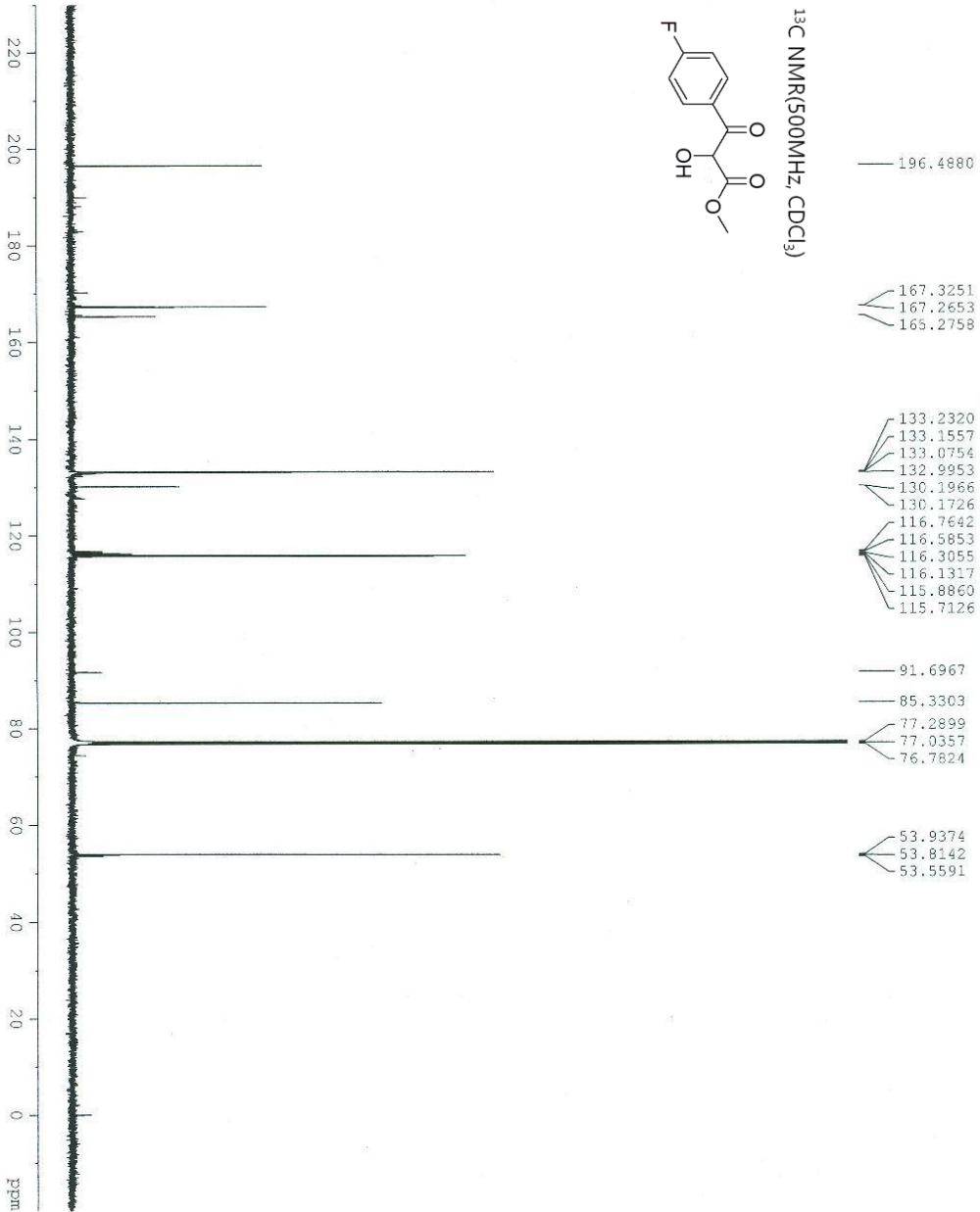
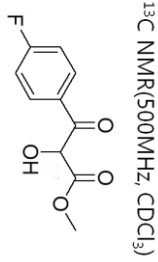
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PL2          -1.90 dB
ELI2         16.00 dB
ELI3         19.00 dB
ELI4         27.23316002 W
ELI5         0.44167015 W
ELI6         0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SE           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

KJA-4-F-carbo-OH-0103

¹H NMR(500MHz, CDCl₃)



KJA_4_F_carbo_0103



- 196.4880
- 167.3251
- 167.2653
- 165.2758
- 133.2320
- 133.1557
- 133.0754
- 132.9953
- 130.1966
- 130.1726
- 116.7642
- 116.5853
- 116.3055
- 116.1317
- 115.8860
- 115.7126
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- 53.9374
- 53.8142
- 53.5591

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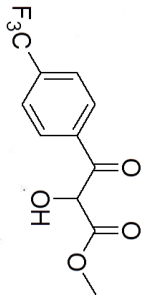
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TD            32768
SOLVENT       CDCl3
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DS            2
SMH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            128
DM            14.200 usec
DE            6.00 usec
TE            297.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL F1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728779 MHz

===== CHANNEL F2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167013 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
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PC           1.40
  
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KJA-4-CF3-car-OH

¹H NMR(500MHz, CDCl₃)

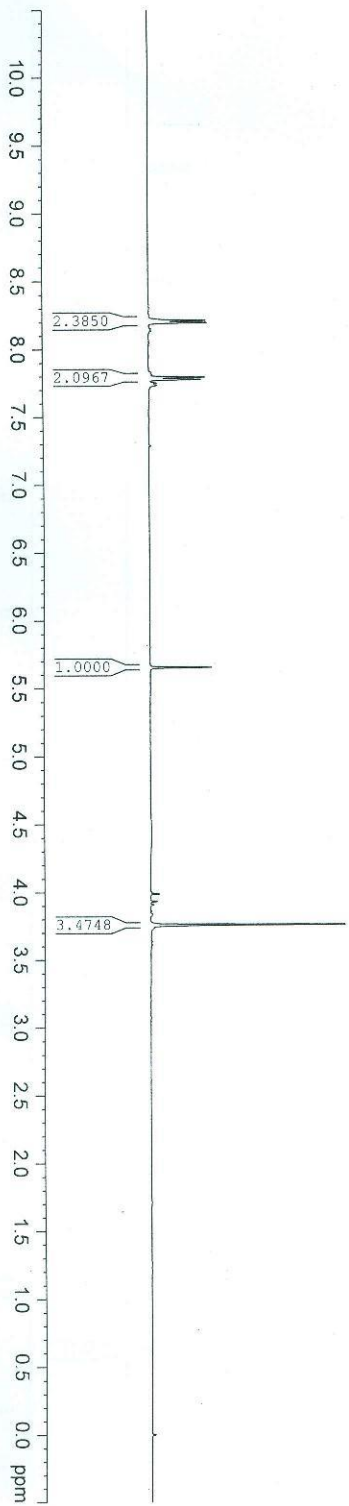


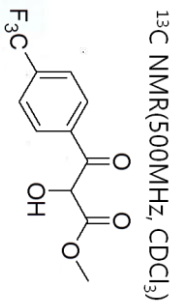
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7.7760

5.6540

4.4346

3.7602





KJA_4_CF3_carbo_OH

- 193.2060
- 190.9759
- 169.8450
- 168.8522
- 168.8294
- 136.0120
- 135.8708
- 135.7515
- 135.4888
- 135.2282
- 134.1608
- 130.5400
- 130.3764
- 129.9563
- 129.9059
- 129.8883
- 129.8384
- 129.8171
- 129.7974
- 129.7795
- 126.5861
- 126.1667
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- 125.8259
- 125.7980
- 125.7724
- 125.4982
- 125.4696
- 124.4156
- 122.2456
- 120.0757
- 92.1301
- 77.2967
- 77.0418
- 76.7870
- 74.6828
- 74.6416
- 53.8895
- 53.7643
- 53.6299
- 53.3118
- 53.2757
- 53.2365



```

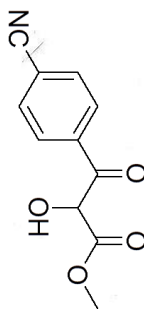
NAME          KJA_4_CF3_carbo_OH
EXPNO         1
PROCNO        1
Date_         20131120
Time_         23.10
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653638 sec
RG            512
DE            14.200 usec
TE            298.6 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL F1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1         125.7728799 MHz

===== CHANNEL F2 =====
CPDPRG2      waltz16
NUC2         1H
PCPD2        100.00 usec
PL2          -1.50 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
GB           0
PC           1.40
  
```


KJA-4-CN-OH-up-solid

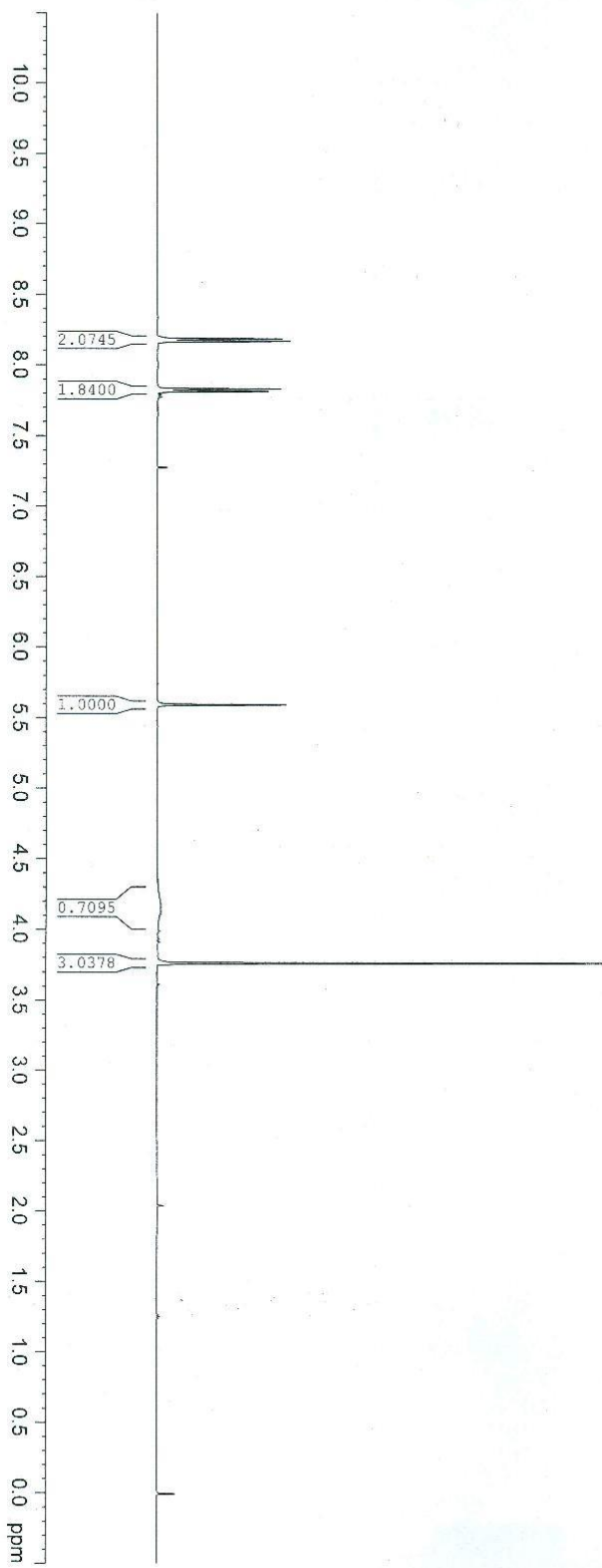
¹H NMR(500MHz, CDCl₃)

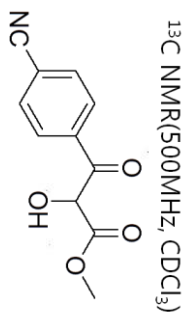


8.1823
8.1664
7.8278
7.8118

5.5907

4.1668
4.1353
4.1206
4.1061
4.0925
3.9840
3.7602





- 192.9496
- 168.6754
- 136.2366
- 132.5915
- 129.8500
- 117.6965
- 117.5560
- 77.3122
- 77.0578
- 76.8031
- 74.7013
- 53.3934

KJA_4_CN_carbo_OH



```

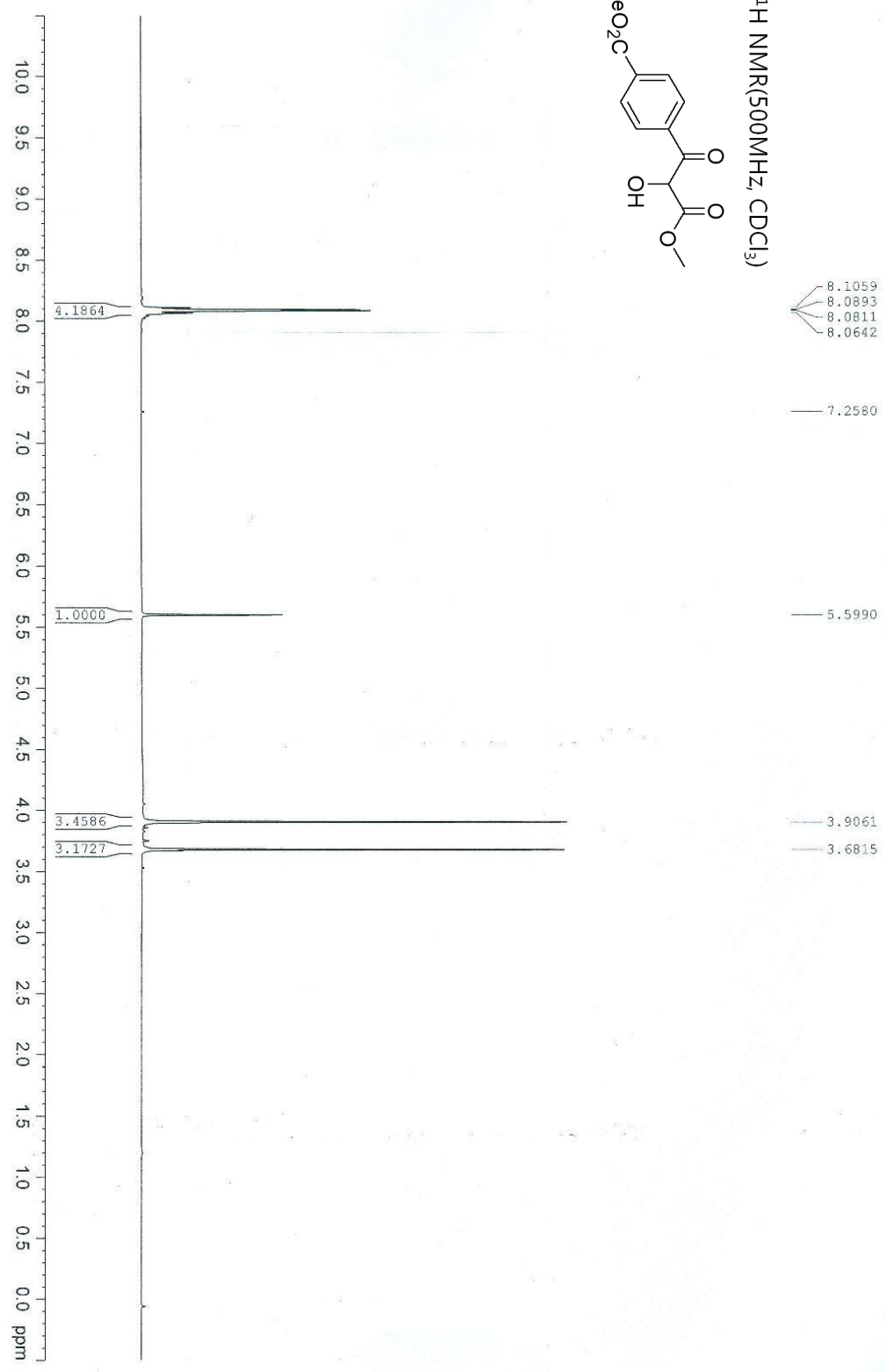
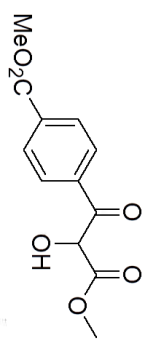
NAME          KJA_4_CN_carbo_OH
EXPNO         1
PROCNO        1
Date_         20130725
Time_         20.51
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            65536
FIDRES        0.553636
AQ            0.9306794
RG            512
DW            14.200
DE            6.00
TE            300.4
D1            2.00000000
D11           0.03000000
TD0           1

===== CHANNEL F1 =====
NUC1          13C
P1            8.00
PL1           1.40
P1A1W        70.60435301
SFO1         125.7728799

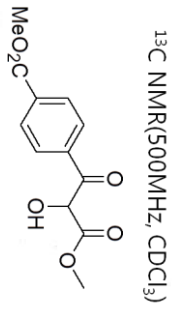
===== CHANNEL F2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00
P12          -1.90
PL12         16.00
P112W       19.00
P113         27.23316002
P112W       0.44167015
P113W       0.22135943
SFO2         500.1330005
SI           32768
SR           125.7577890
WDM          EM
SS9          0
LB           1.00
GB           0
PC           1.40
  
```

KJA-4-CO2Me-carbo-OH

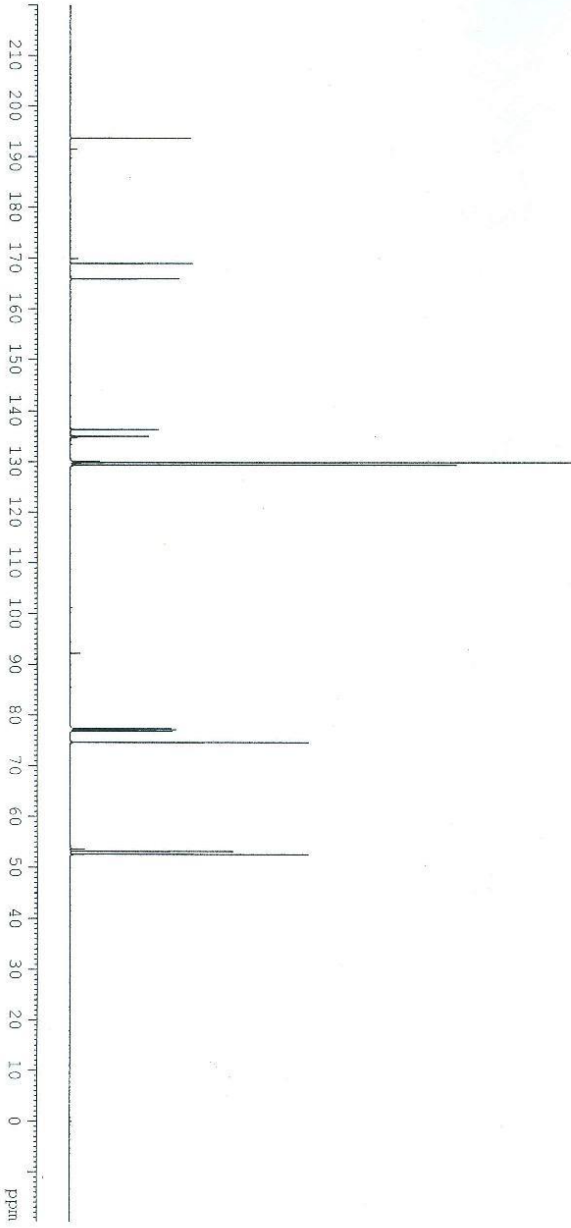
¹H NMR(500MHz, CDCl₃)



KJA_4_CO2Me_carbo_OH



- 193.6079
- 191.4374
- 169.8630
- 168.8601
- 165.9065
- 136.3516
- 135.0399
- 134.9676
- 134.6841
- 130.1221
- 130.0596
- 129.9641
- 129.8562
- 129.7789
- 129.6941
- 129.3367
- 92.1887
- 77.3648
- 77.1095
- 76.8542
- 74.6231
- 53.5935
- 53.1561
- 52.5864



```

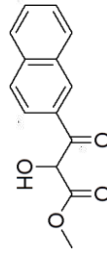
NAME          KJA_4_CO2Me_carbo_OH
EXPNO         1
PROCNO        1
Date_         20130704
Time          4.29
INSTRUM       5 mm DUL 13C-1
PROBHD        zgpg30
PULPROG       zgpg30
TD             65536
SOLVENT       CDCl3
NS            1000
DS             2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DE            14.200 usec
TE            299.3 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
PULP1        70.60436301 W
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
NAME         waltz16
INSTRUM      waltz16
PCPDZ        100.00 usec
P12          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW           EM
SSB           0
LB           1.00 Hz
GB           0
PC           1.40
  
```

KJA-naph-OH-1118

¹H NMR(500MHz, CDCl₃)

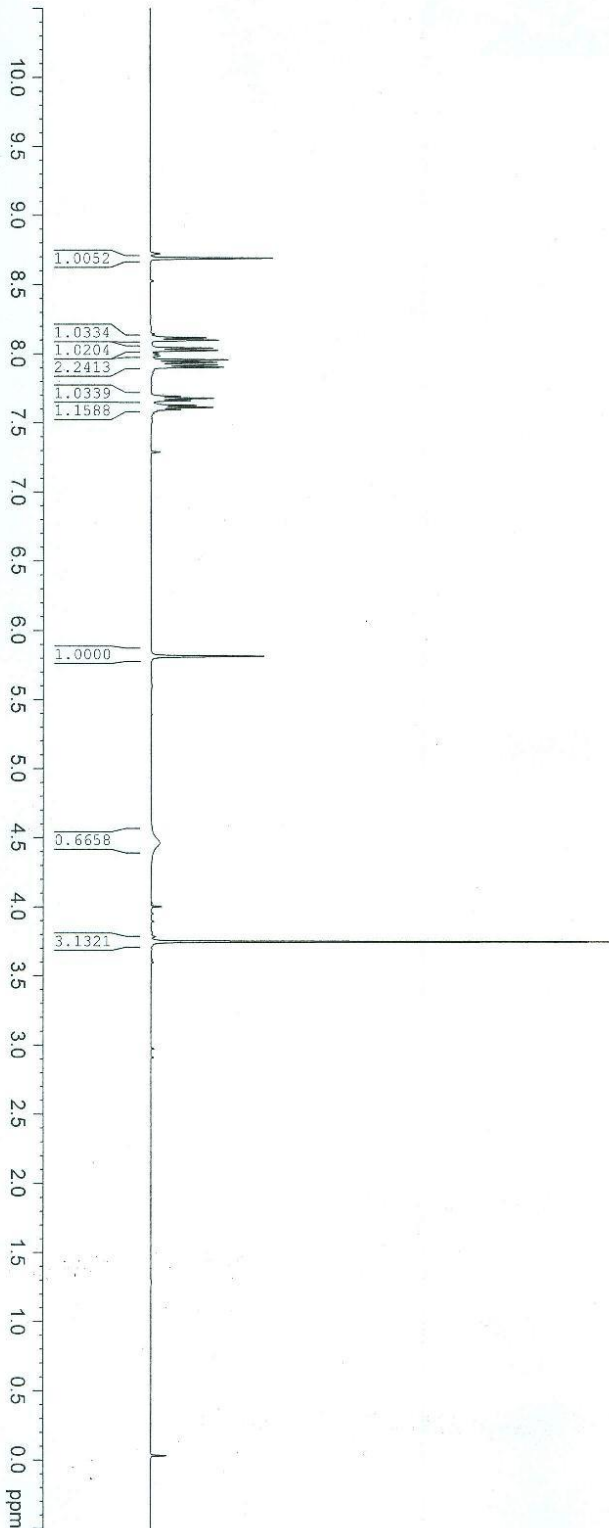


- 8.6841
- 8.1140
- 8.0968
- 8.0386
- 8.0223
- 7.9536
- 7.9362
- 7.9174
- 7.9012
- 7.6885
- 7.6743
- 7.6589
- 7.6235
- 7.6087
- 7.5940

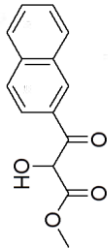
5.8120

4.4635

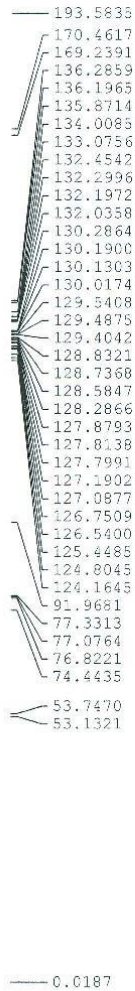
3.7469



KJA_naph_OH_1118



¹³C NMR(500MHz, CDCl₃)

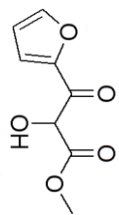


```

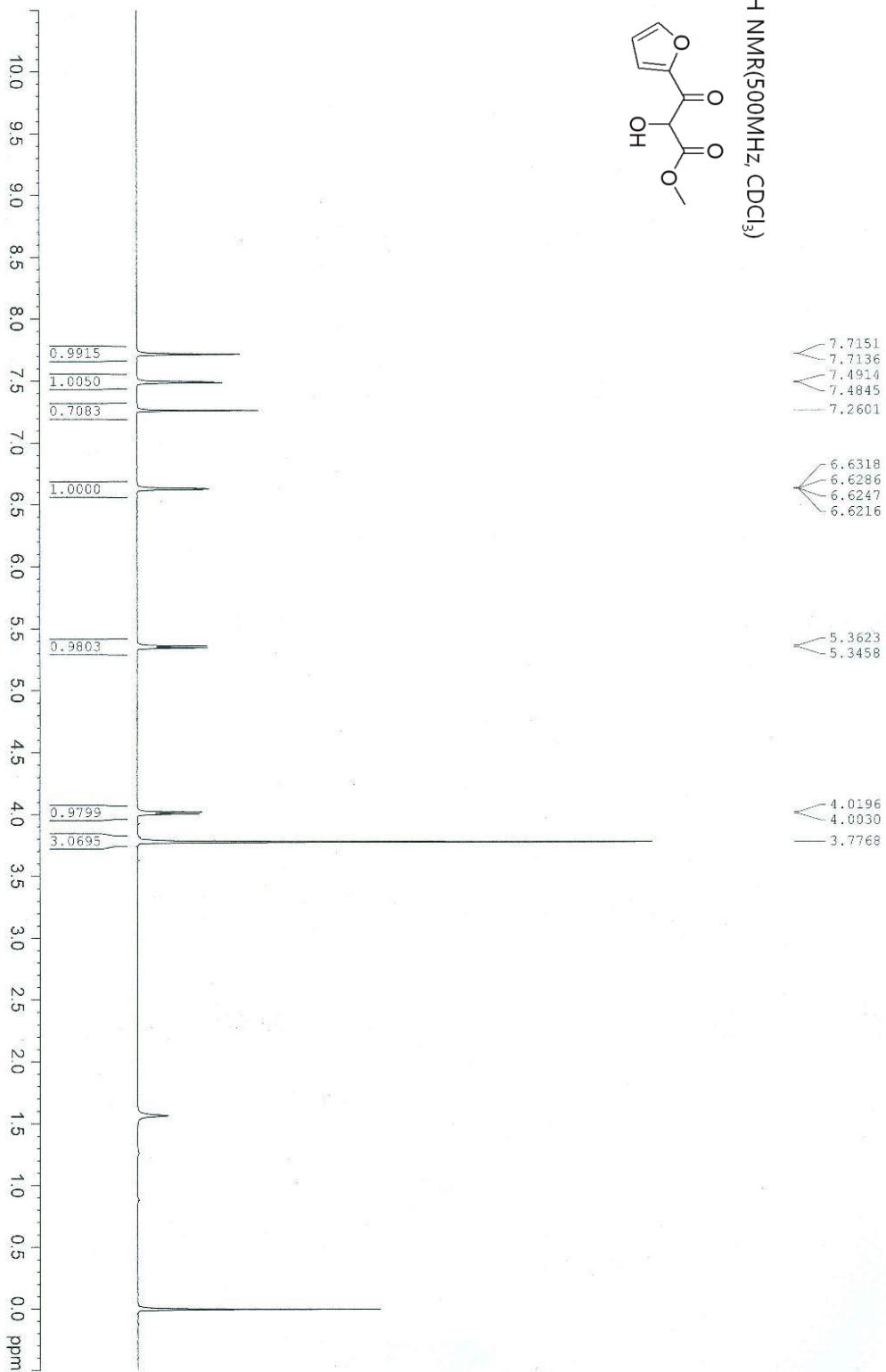
NAME          KJA_naph_OH_1118
EXPNO         1
PROCNO        1
Date_         20131118
Time_        19:20
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DE            14.200 usec
TE            297.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1Z         27.23316002 W
PL1ZW        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW           EM
SSB           0
LB           1.00 Hz
GB           0
PC           1.40
  
```



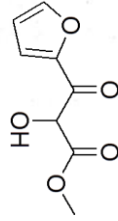
¹H NMR(500MHz, CDCl₃)



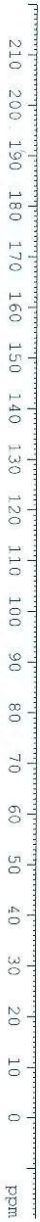
KSY_120626_Fu_OH

KSY_120626_Fu_OH

¹³C NMR(500MHz, CDCl₃)



- 181.8468
- 169.1191
- 149.7677
- 148.5320
- 121.4083
- 113.0626
- 77.4147
- 77.1609
- 76.9075
- 74.3074
- 53.3471
- 0.1382

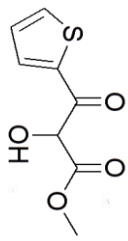


```

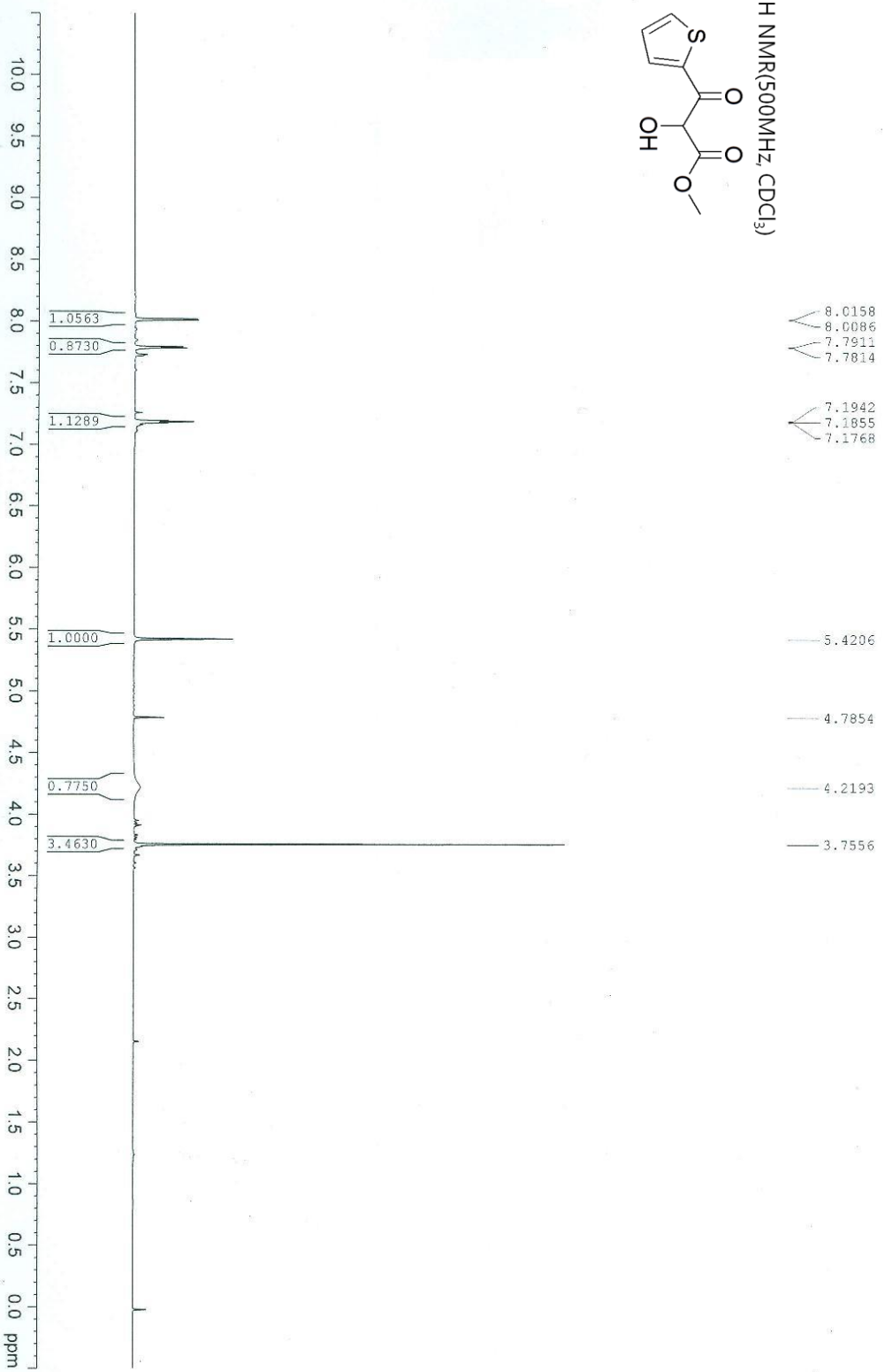
NAME          KSY_120626_Fu_OH
EXPNO         1
PROCNO        1
Date_         20120627
Time          10.01
INSTRUM       5 mm DUL 13C-1
PROBHD        spect
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1024
DS            2
SMH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9506754 sec
RG            5792.6
DM            14.200 usec
DE            6.00 usec
TE            300.3 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1           13C
P1             8.00 usec
PL1            1.40 dB
PL1W           70.60439301 W
SFO1           125.7728799 MHz

===== CHANNEL f2 =====
CPRPRG2       waltz16
NUC2           1H
PCPD2         100.00 usec
PD2           -1.90 dB
PD12          16.00 dB
PD13          19.00 dB
PUL2W         27.23316002 W
PUL12W        0.44167015 W
PUL13W        0.22135943 W
SFO2           500.1320005 MHz
SI            32768
SR            125.7577701 MHz
WDW           RM
SSB           0
GB            0
PC            1.40
  
```

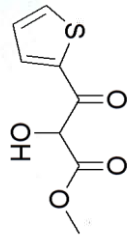



¹H NMR(500MHz, CDCl₃)



KJA-2-Thio-carbo-OH

KJA_2_Thio_carbo_OH



¹³C NMR(500MHz, CDCl₃)

- 191.2672
- 186.0971
- 186.0786
- 186.0582
- 186.0399
- 169.1861
- 169.1635
- 139.3893
- 136.3785
- 135.2982
- 134.5529
- 132.1109
- 128.6593
- 128.4295
- 92.2015
- 77.3325
- 77.0779
- 76.8242
- 75.0935
- 75.0755
- 75.0346
- 65.4243
- 53.9104
- 53.8849
- 53.3039
- 53.2866
- 53.2502
- 53.2301
- 53.2107
- 53.1933



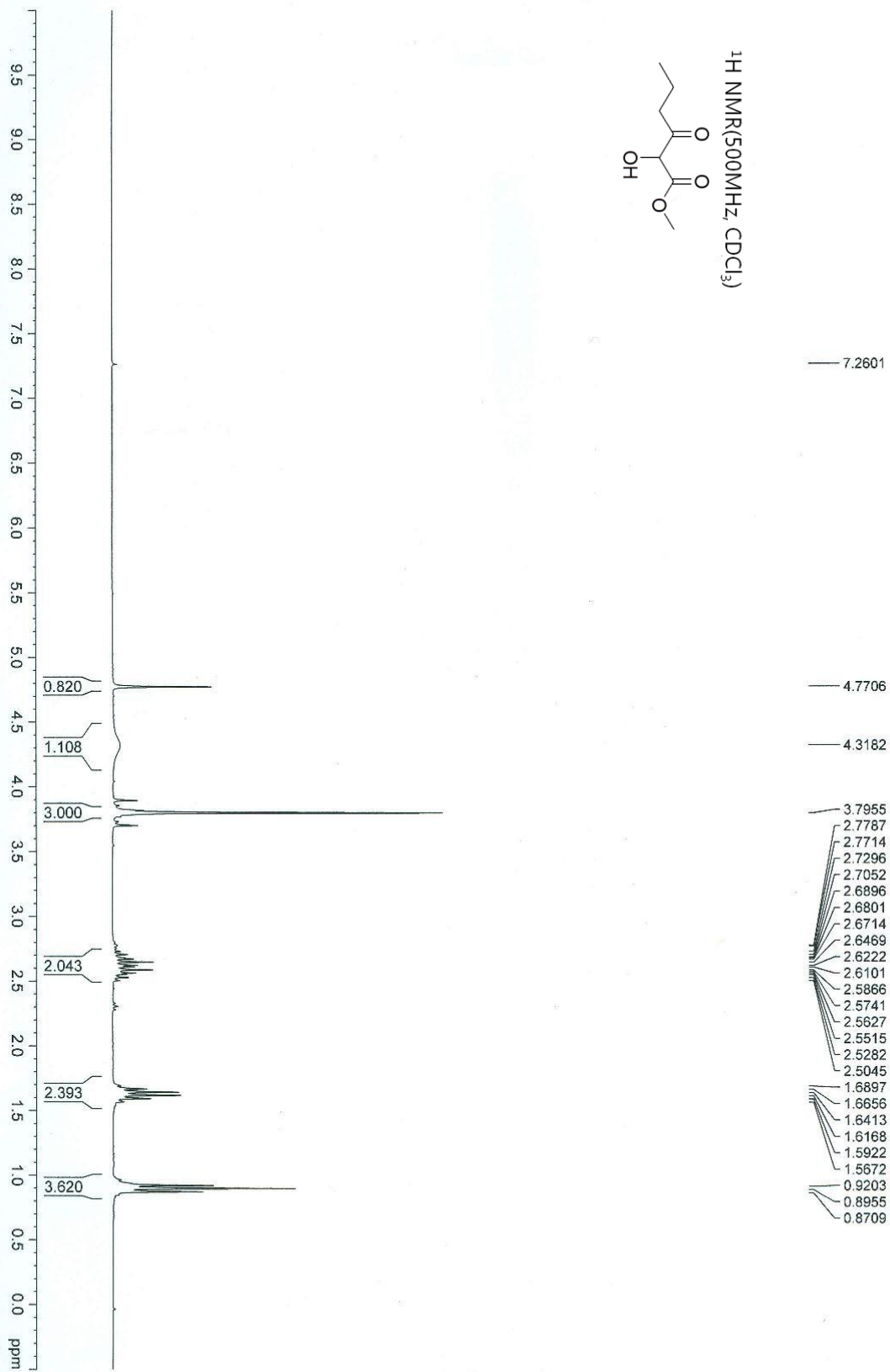
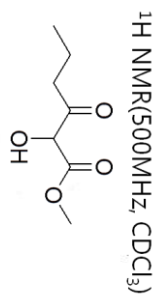
```

NAME          KJA_2_Thio_carbo_OH
EXPNO         1
PROCNO        1
Date_         20131129
Time          23:04
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            512
DE            14.200 usec
TE            298.6 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL F1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60433301 W
SFO1         125.7728799 MHz

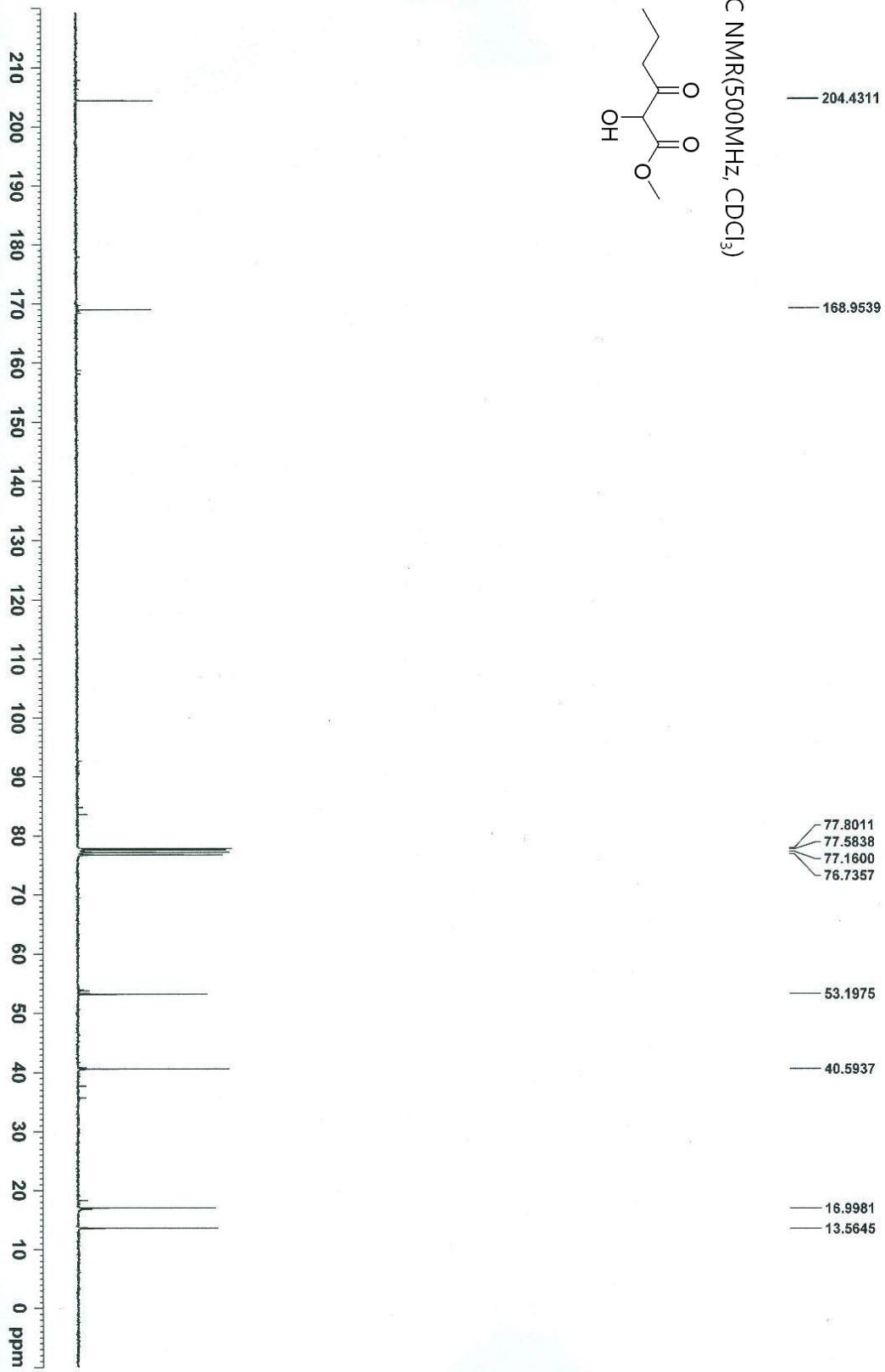
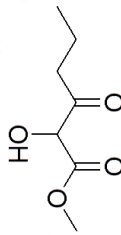
===== CHANNEL F2 =====
CPDPRG2      waltz16
NUC2          1H
PCPBP2       100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL2W         0.44167015 W
PL3W         0.22135943 W
SFO2         500.1320005 MHz
SI           SI
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

KSY_prop_OH

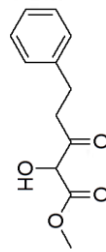


KSY_prop_OH

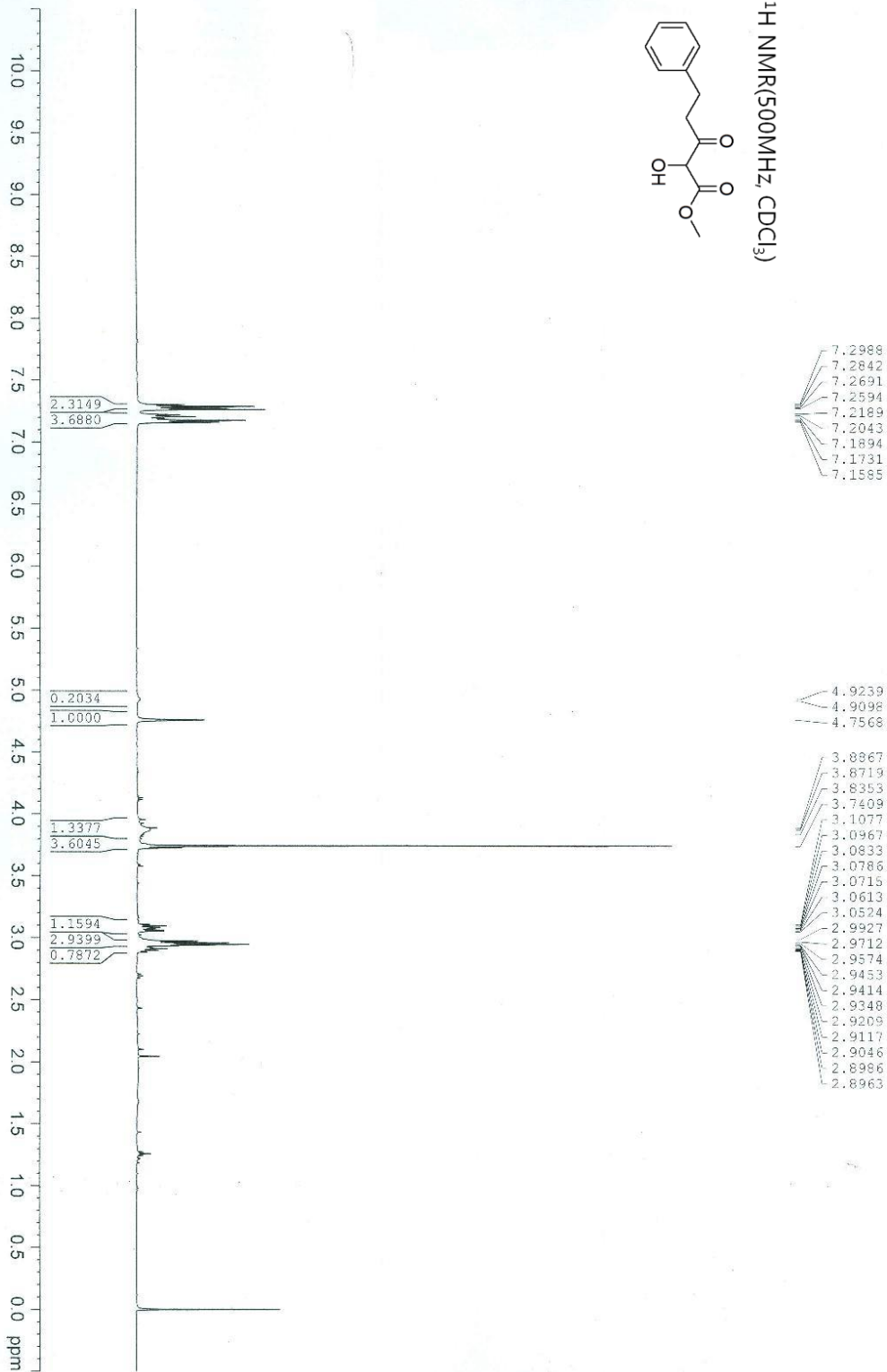
^{13}C NMR(500MHz, CDCl_3)



KJA-Phenethyl-OH-0428-cr1

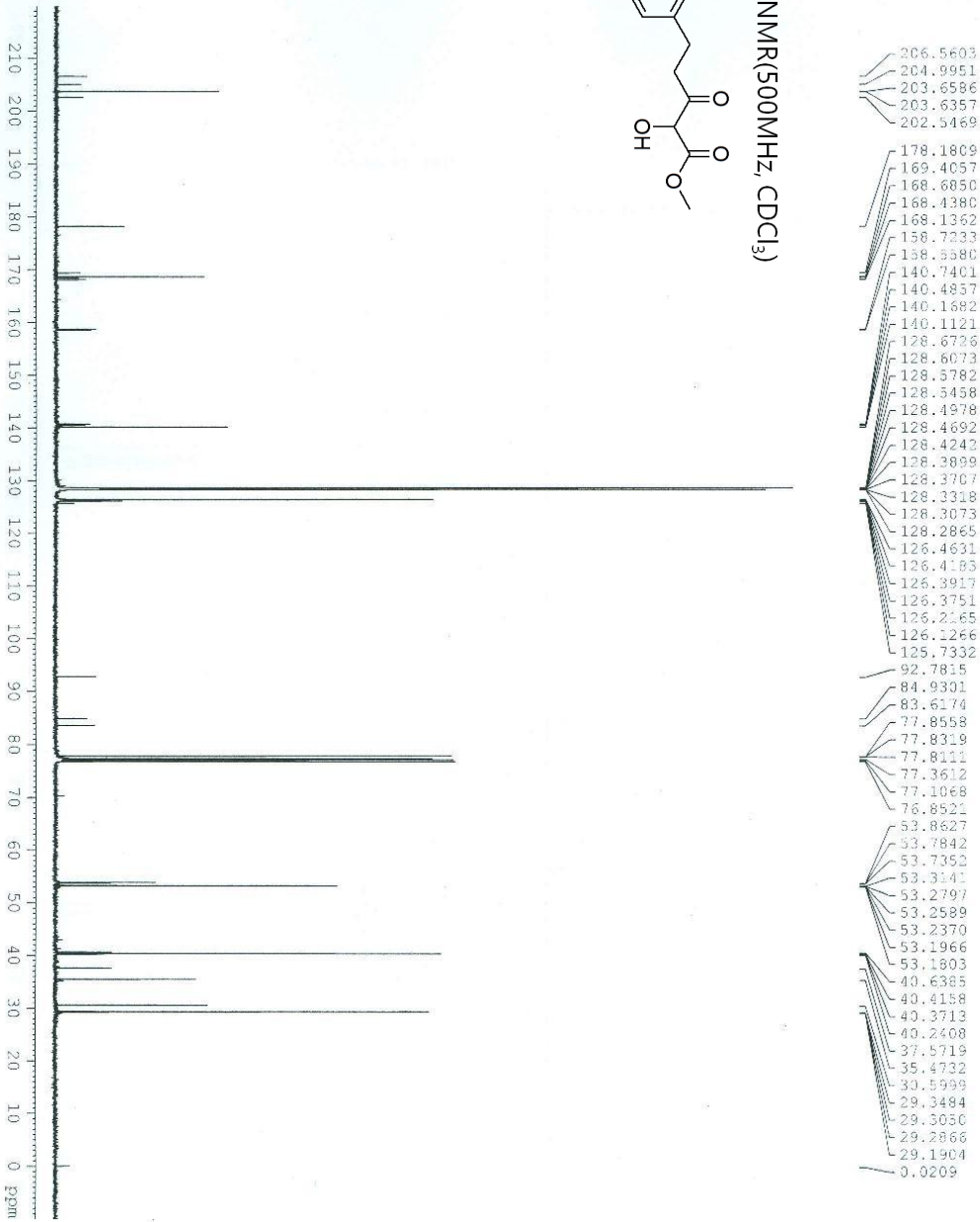
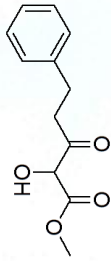


¹H NMR(500MHz, CDCl₃)



KJA_phene_car_OH_0516

¹³C NMR(500MHz, CDCl₃)



- 206.5603
- 204.9951
- 203.6586
- 203.6357
- 202.5469
- 178.1809
- 169.4057
- 168.6850
- 168.4380
- 168.1362
- 158.7233
- 158.5580
- 140.7401
- 140.4857
- 140.1692
- 140.1121
- 128.6726
- 128.6073
- 128.5782
- 128.5458
- 128.4978
- 128.4692
- 128.4242
- 128.3899
- 128.3707
- 128.3318
- 128.3073
- 128.2865
- 126.4631
- 126.4183
- 126.3917
- 126.3751
- 126.2165
- 126.1266
- 125.7332
- 92.7815
- 84.9301
- 83.6174
- 77.8558
- 77.8319
- 77.8111
- 77.3612
- 77.1068
- 76.8521
- 53.8627
- 53.7842
- 53.7352
- 53.3141
- 53.2797
- 53.2589
- 53.2370
- 53.1966
- 53.1803
- 40.6385
- 40.4158
- 40.3713
- 40.2408
- 37.5719
- 35.4732
- 30.5999
- 29.3484
- 29.3050
- 29.2866
- 29.1904
- 0.0209

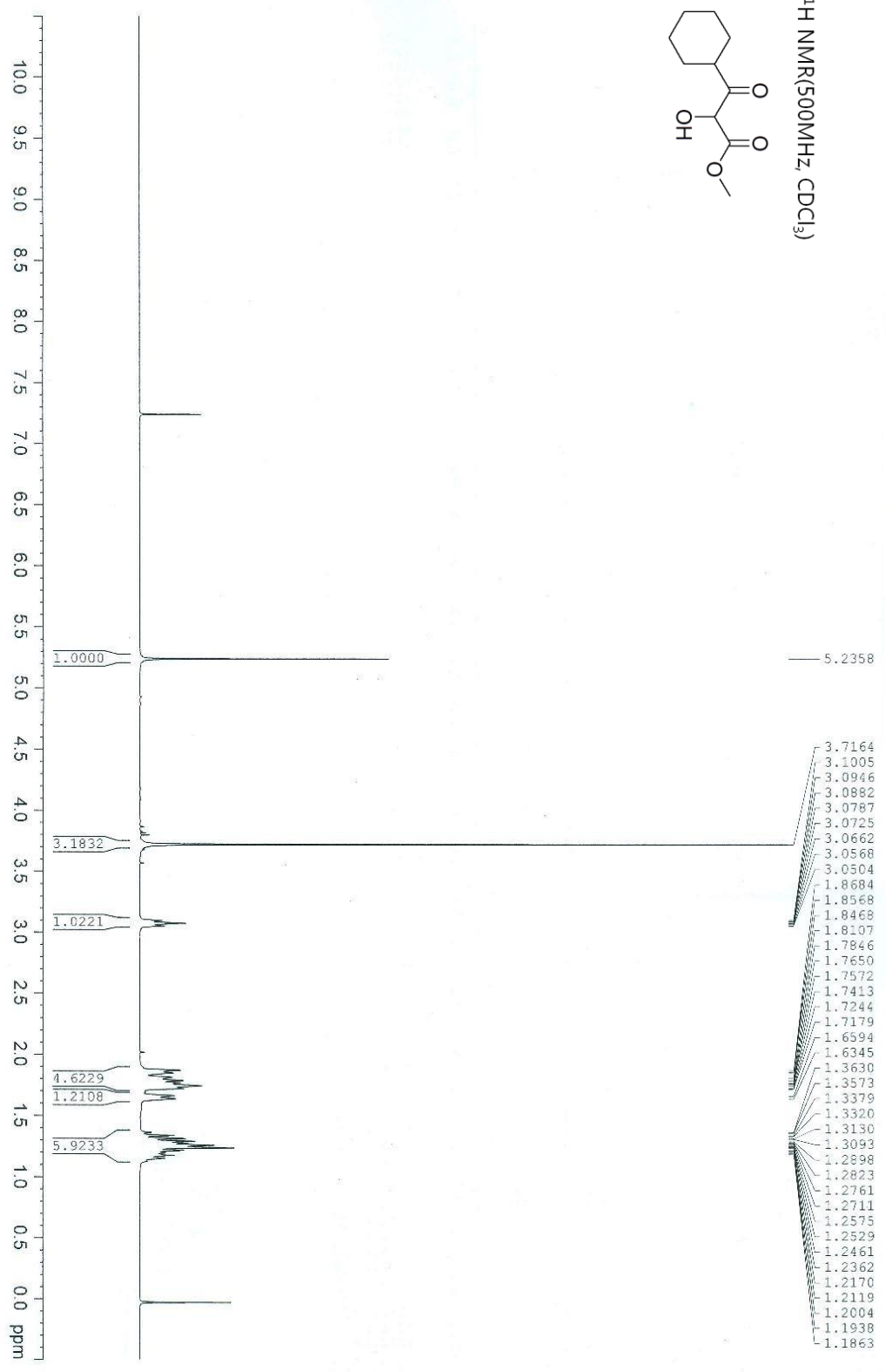
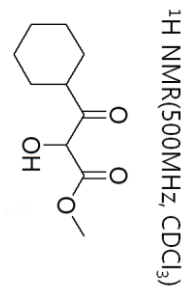
```

NAME          KJA_phene_car_OH_0516
EXPNO         1
PROCNO       20140519
Date_         2.49
Time          2.49
INSTRUM      spect
PROBHD       5 mm DD1 13C-1
PULPROG      zgpg30
TD           32768
SOLVENT      CDCl3
NS           1000
DS           2
SWH          37593.984 Hz
FIDRES       1.147277 Hz
AQ           0.4358777 sec
RG           3251
EG           13.300 usec
DM           6.00 usec
DE           29.78 Ksec
TE           29.78
D1           2.00000000 sec
D11          0.05000000 sec
ID0          1

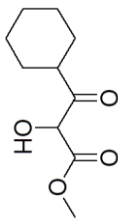
===== CHANNEL f1 =====
NUC1          13C
P1           0.00 usec
PL1          1.80 dB
F1LW         70.60439391 MHz
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CEPRG2       waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL14         19.00 dB
PL15         19.00 dB
PL16         19.00 dB
PL17         19.00 dB
PL18         19.00 dB
PL19         19.00 dB
PL20         19.00 dB
PL21         19.00 dB
PL22         19.00 dB
PL23         19.00 dB
PL24         19.00 dB
PL25         19.00 dB
PL26         19.00 dB
PL27         19.00 dB
PL28         19.00 dB
PL29         19.00 dB
PL30         19.00 dB
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

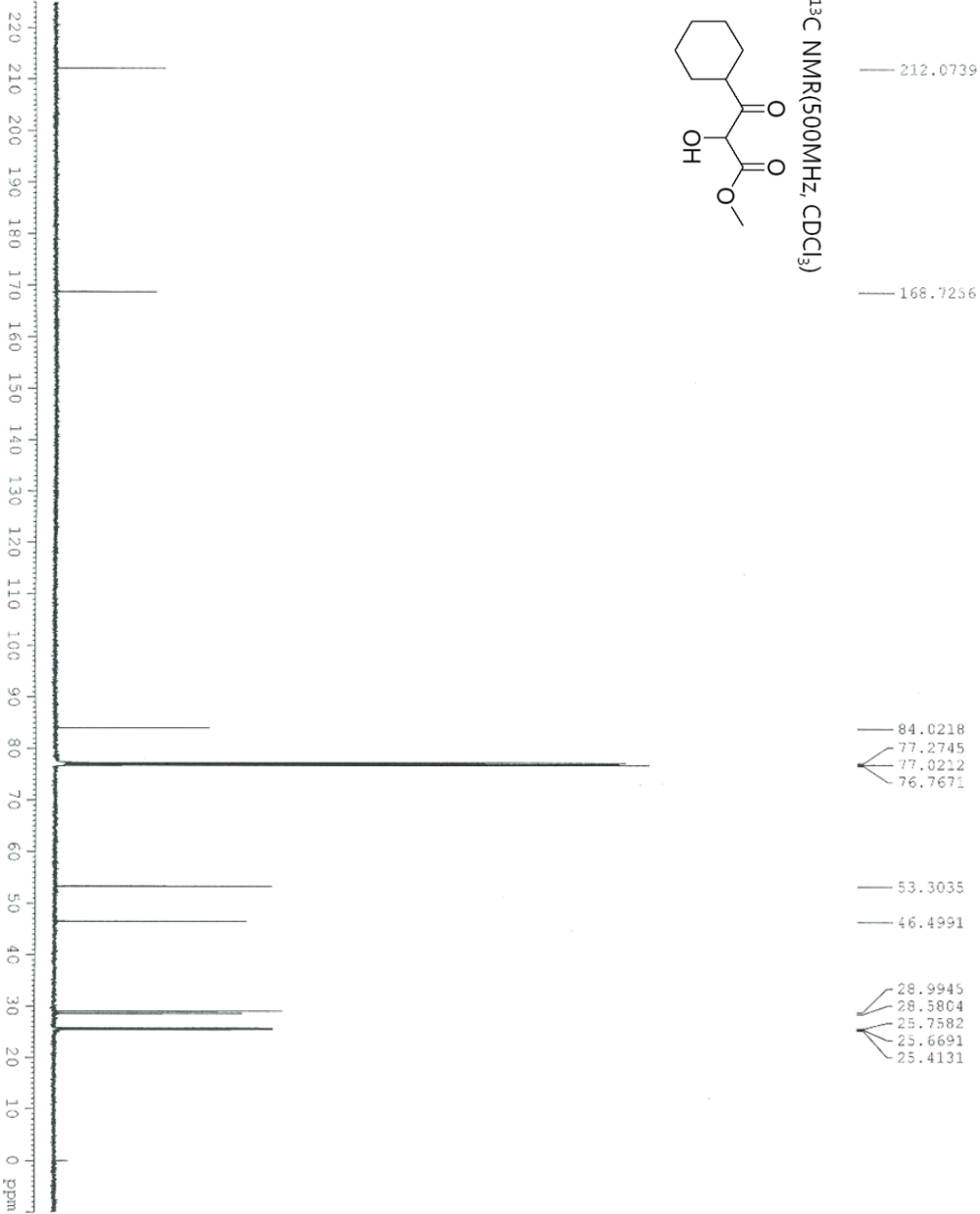
KJA-cyclo-OH-Wsolid



KJA_cyclo_OH_w_solid



¹³C NMR(500MHz, CDCl₃)



212.0739
168.7256
84.0218
77.2745
77.0212
76.7671
53.3035
46.4991
28.9945
28.5804
25.7582
25.0705
24.6691
24.4131

```

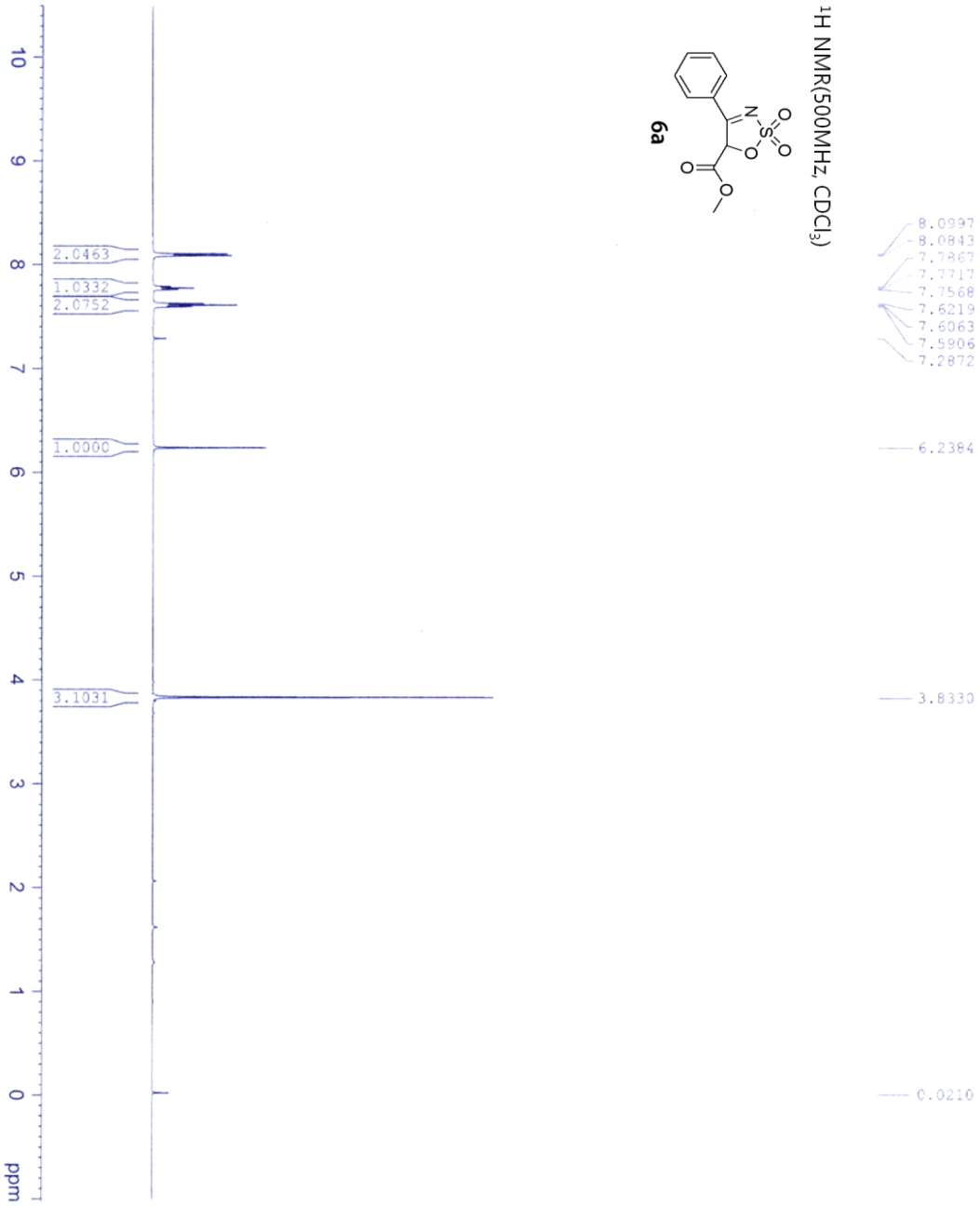
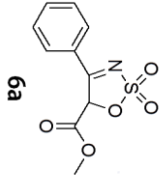
NAME          KJA_cyclo_OH_w_solid
EXPNO         1
PROCNO        1
Date_         20140218
Time_         6.31
INSTRUM       spect
PROBHD        5 mm DUL-13C-1
PULPROG       zgpg30
TD            499930
SOLVENT       CDCl3
NS            32768
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653658 sec
RG            5792.6
DW            14.200 usec
DE            6.00 usec
TE            298.1 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2         100.00 usec
PL2           -1.90 dB
PL12          16.00 dB
PL13          19.00 dB
PL12W        27.23316002 W
PL13W        0.44167013 W
SFO2          500.1320005 MHz
SI            32768
SF           125.7577890 MHz
WDW           EM
SSB           0
IR           1.00 Hz
GB            0
PC            1.40
    
```


HJA_OME_imine

¹H NMR(500MHz, CDCl₃)

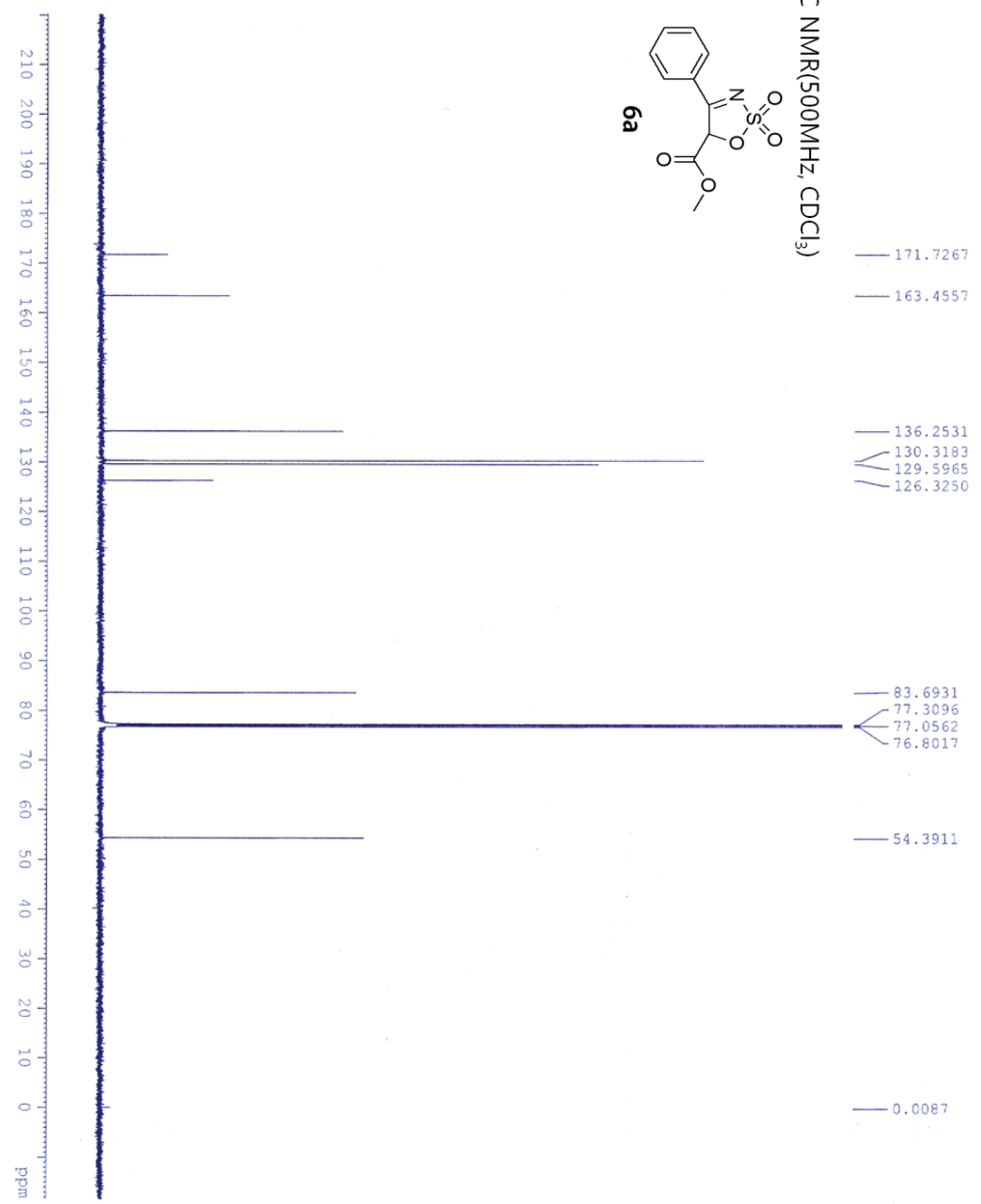
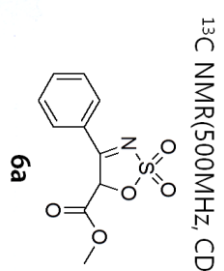


```

NAME      HJA_OME_imine_1
EXPNO     1
PROCNO    1
Date_     20110209
Time      15:28
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         8
SWH        7507.507 Hz
FIDRES     0.114555 Hz
AQ         4.3648143 sec
RG         128
DW         66.600 usec
DE         6.00 usec
TE         296.1 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         9.80 usec
PL1        -1.90 dB
PLTW       27.23316002 W
SFO1       500.1332508 MHz
SI         32768
SF         500.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
    
```

HJA_OMe_imine



```

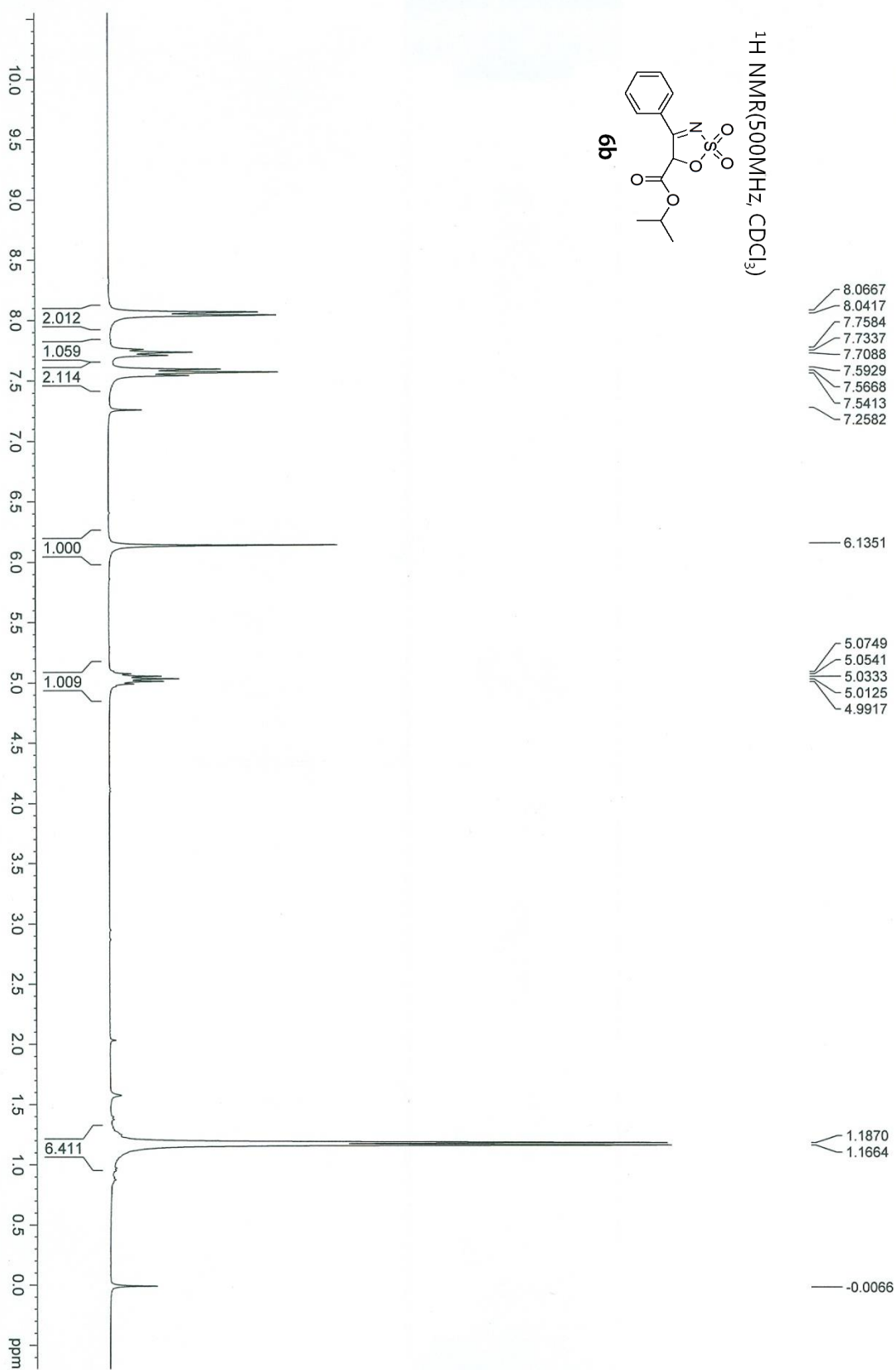
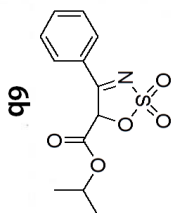
NAME          HJA_OMe_imine
EXPNO         1
PROCNO        1
Date_         20110209
Time_        14.46
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
ID            65536
SOLVENT       CDCl3
NS            512
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DE            14.200 usec
TE            296.6 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

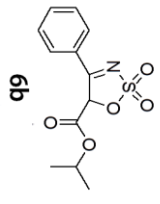
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PI2          -1.90 dB
PI12         16.00 dB
PI13         19.00 dB
PI14         19.00 dB
E12W        27.23316002 W
E112W        0.44167015 W
E113W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

HJA_iPr_imine

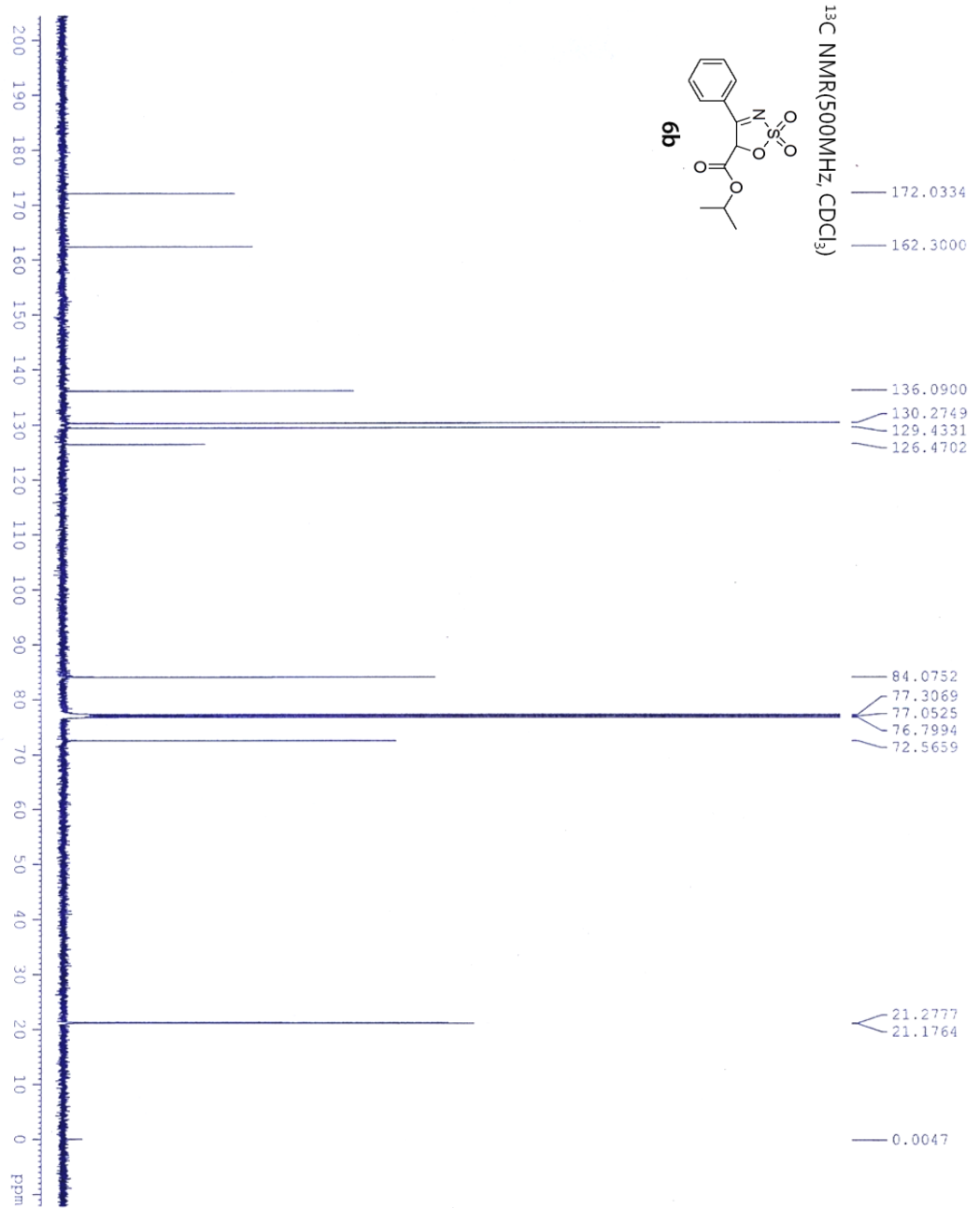
¹H NMR(500MHz, CDCl₃)



HJA_ipr_imine



¹³C NMR(500MHz, CDCl₃)



```

NAME          HJA_ipr_imine
EXPNO         1
PROCNO       1
Date_         20110211
Time_        14.55
INSTRUM      spect
PROBHD       5 mm DUL-13C-1
PULPROG      zgpg30
TD           65536
SOLVENT      CDCl3
NS           512
DS           2
SWH          35211.270 Hz
FIDRES       0.537281 Hz
AQ           0.9306754 sec
RG           512
DW           14.200 usec
DE           6.00 usec
TE           296.7 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0          1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL2W         0.44167015 W
PL13W        0.22135943 W
SFO2          500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

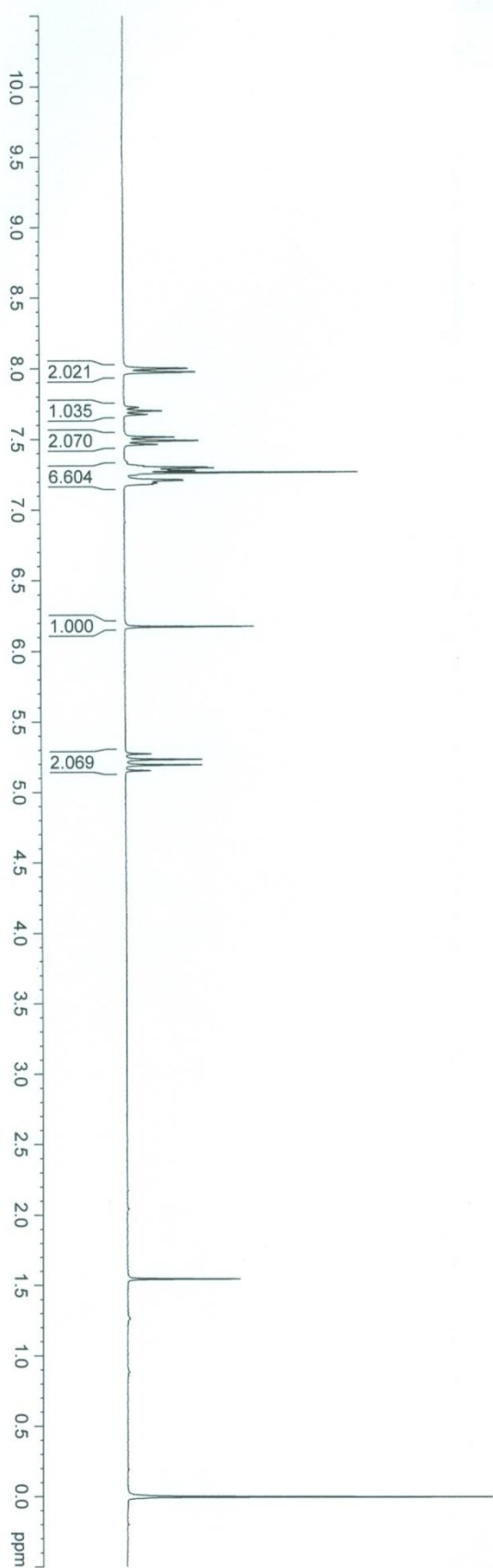
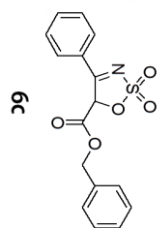
HJA_OBn_cinnamate_imine

- 7.9976
- 7.9729
- 7.7229
- 7.6980
- 7.6728
- 7.5137
- 7.4877
- 7.4614
- 7.3093
- 7.2995
- 7.2940
- 7.2849
- 7.2756
- 7.2602
- 7.2117
- 7.2065
- 7.1886
- 7.1806
- 6.1725
- 5.2717
- 5.2314
- 5.1928
- 5.1525

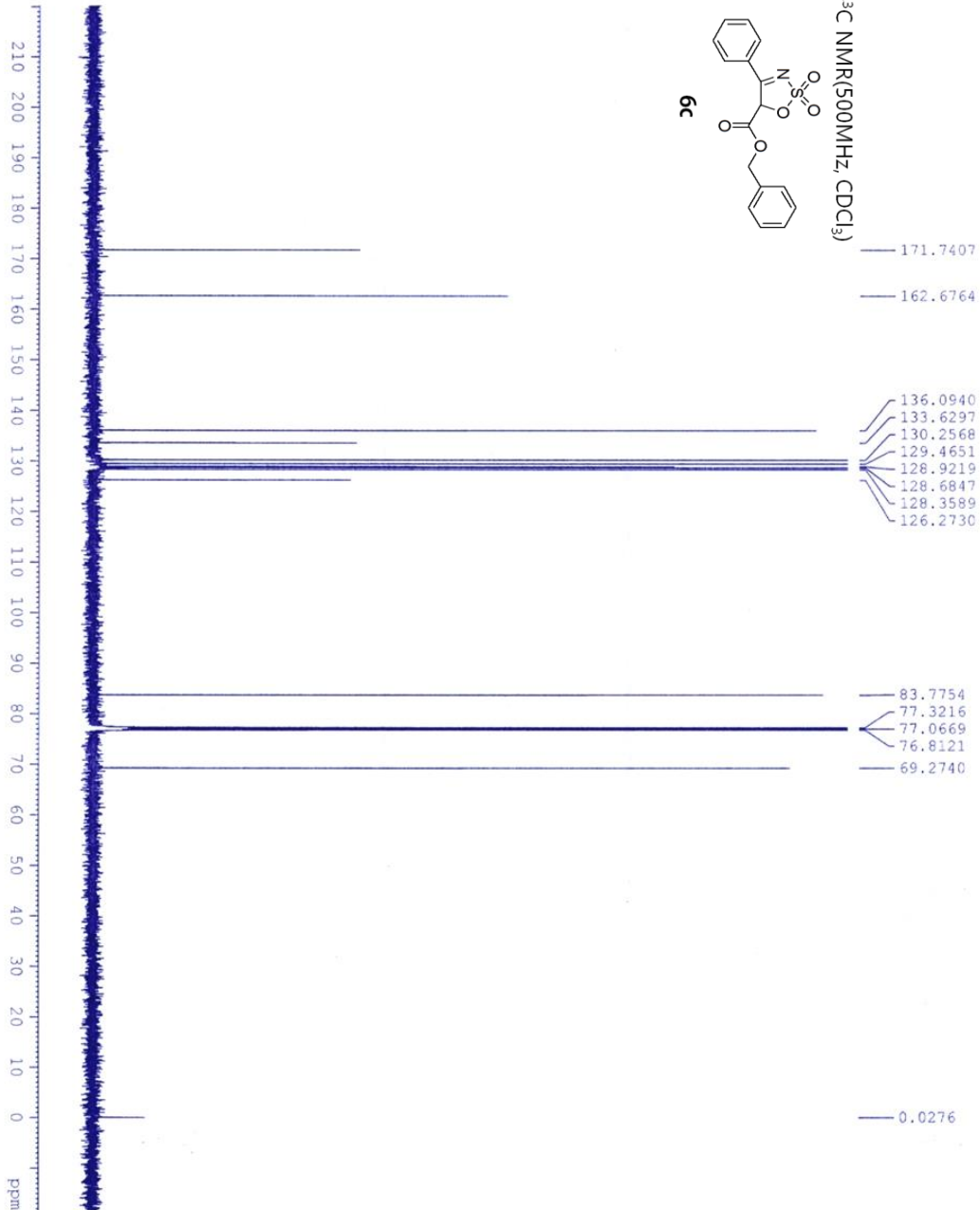
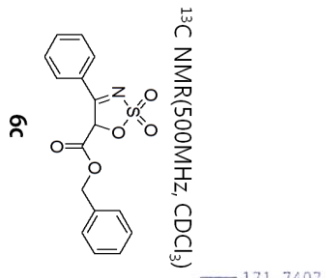
1.5453

-0.0002

¹H NMR(500MHz, CDCl₃)



HJA_OBn_imine



```

NAME          HJA_OBn_imine
EXPNO         2
PROCNO        1
Date_         20110208
Time         15.16
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            512
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306794 sec
RG            1290.2
DW            14.200 usec
DE            6.00 usec
TE            295.8 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
PL1W          70.60439301 W
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

H1A_tBu_imine

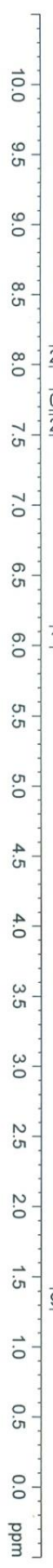
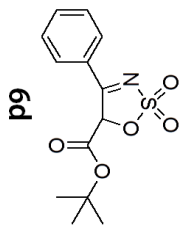
- 8.0673
- 8.0424
- 7.7591
- 7.7341
- 7.7094
- 7.5936
- 7.5674
- 7.5419
- 7.2566

6.0589

1.3560

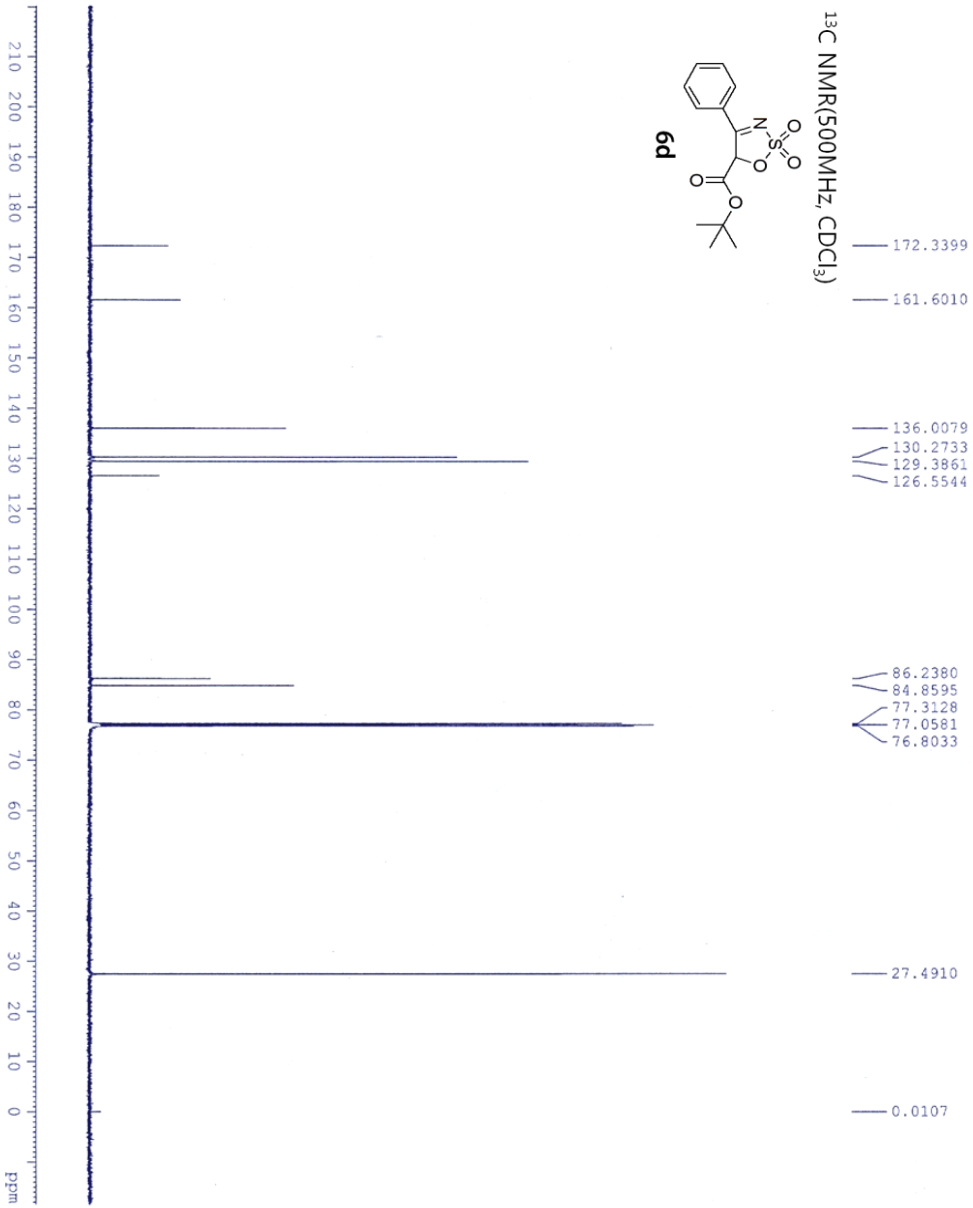
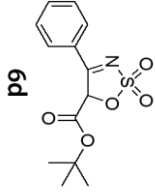
-0.0116

¹H NMR(500MHz, CDCl₃)



HJA_TBU

¹³C NMR(500MHz, CDCl₃)



```

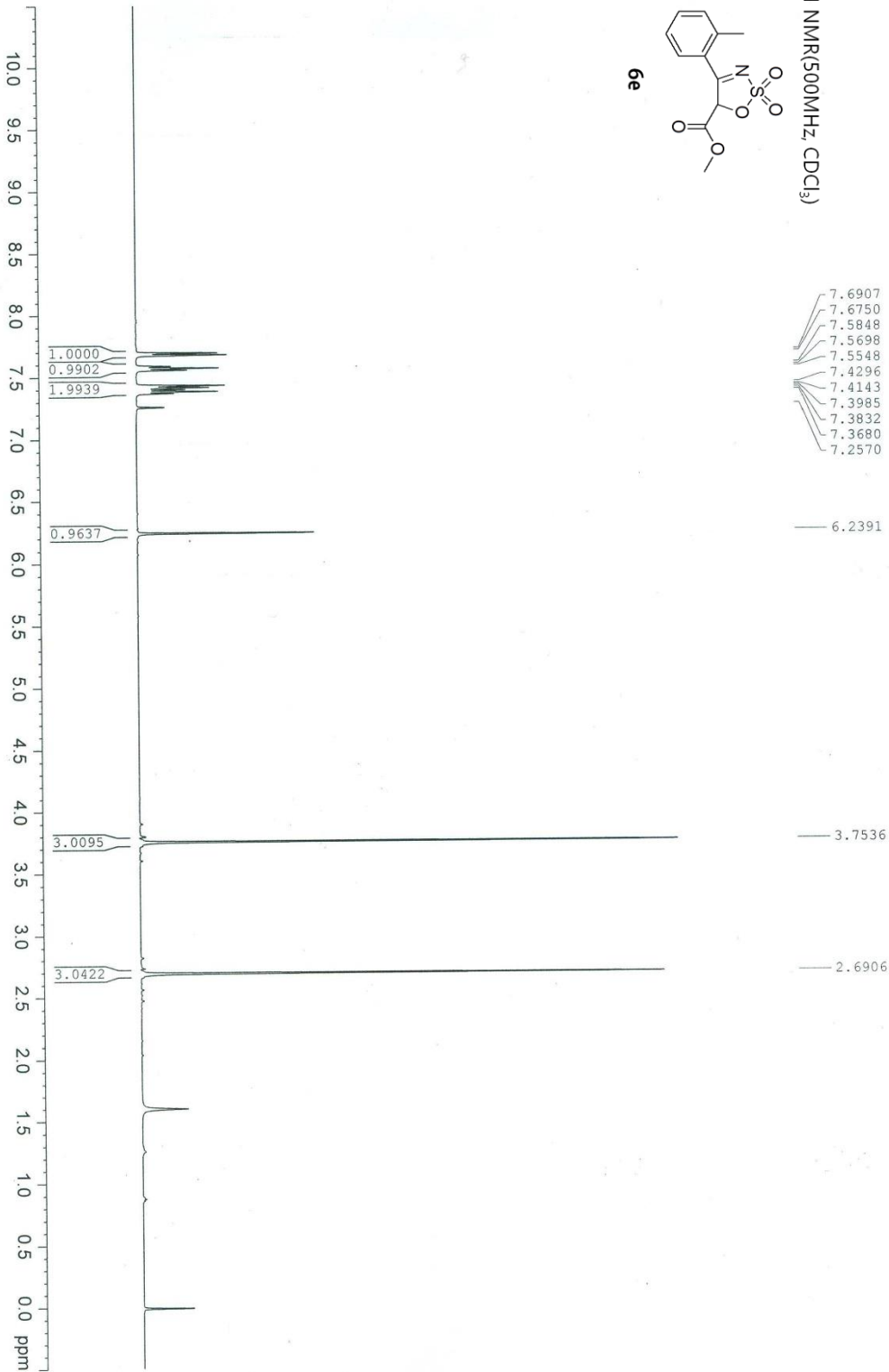
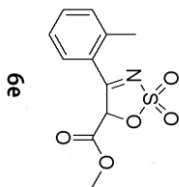
NAME          HJA_TBU
EXPNO         1
PROCNO        1
Date_         20110208
Time          14.30
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            512
DS            2
SMH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            114
DE            14.200 usec
TE            295.7 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
PL1W         70.60439301 W
SFO1         125.7728799 MHz

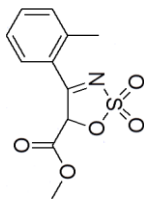
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
GB           0
PC           1.40
    
```


KJA-2-Me-carbo-Imine

¹H NMR(500MHz, CDCl₃)



KJA_2_Me_carbo_Imine



6e

¹³C NMR(500MHz, CDCl₃)

- 171.7252
- 163.4027
- 142.7674
- 134.7924
- 133.1306
- 130.8871
- 126.5314
- 125.1652
- 84.5772
- 77.3028
- 77.0488
- 76.7939
- 54.2237
- 22.9167
- 0.0021



```

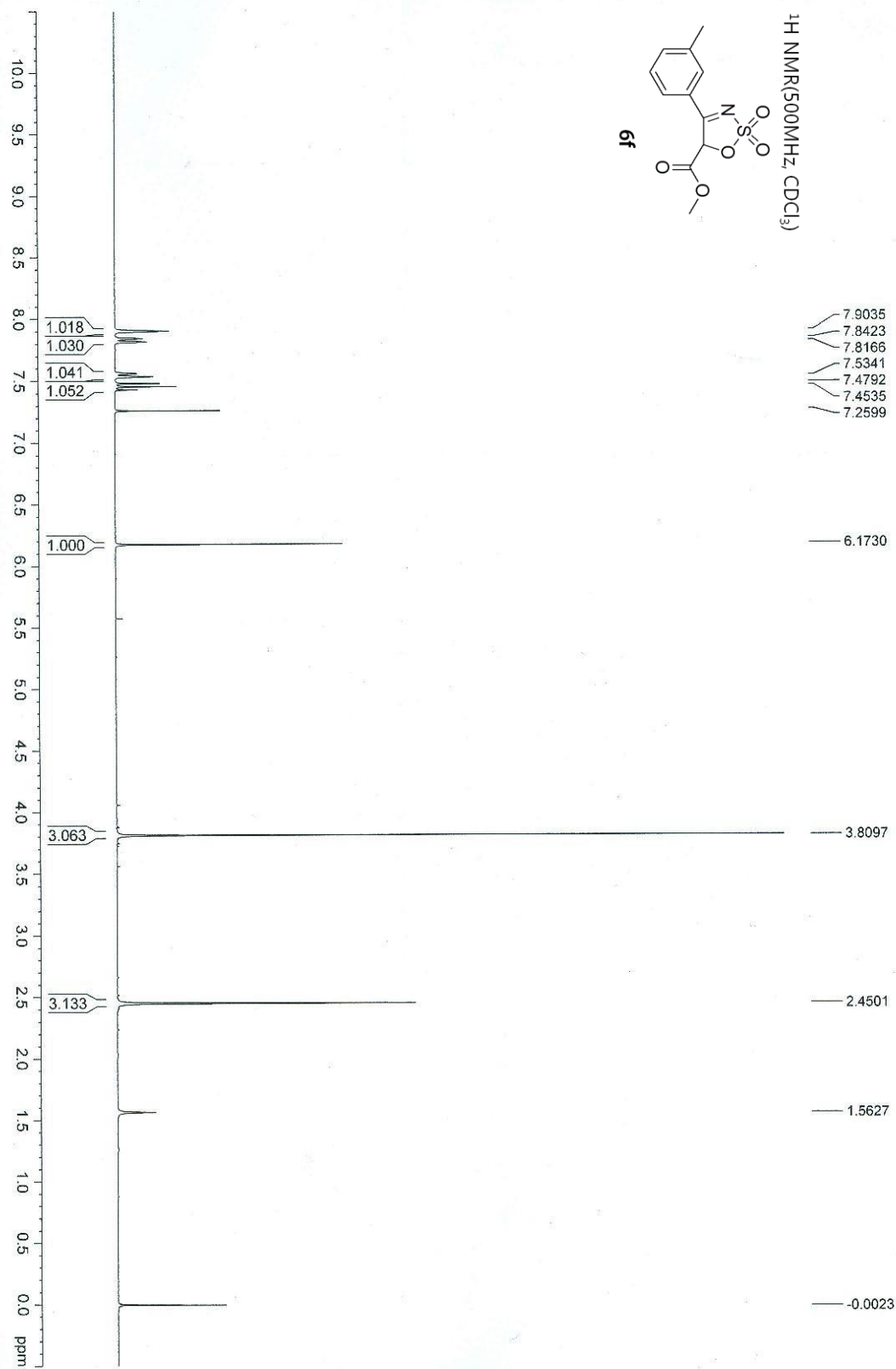
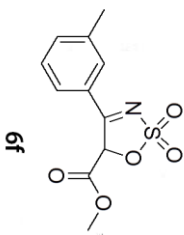
NAME          KJA_2_Me_carbo_Imine
EXPNO         1
PROCNO        1
Date_         20130926
Time_         1.01
INSTRUM       spect
PROBHD        5 mm DUL-13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            812.7
DE            14.200 usec
TE            297.2 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SF01          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2           1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1Z         27.23316002 W
PL1ZW        0.44167015 W
PL13W        0.22135943 W
SF02          500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB           0
LB           1.00 Hz
GB           0
PC           1.40
  
```

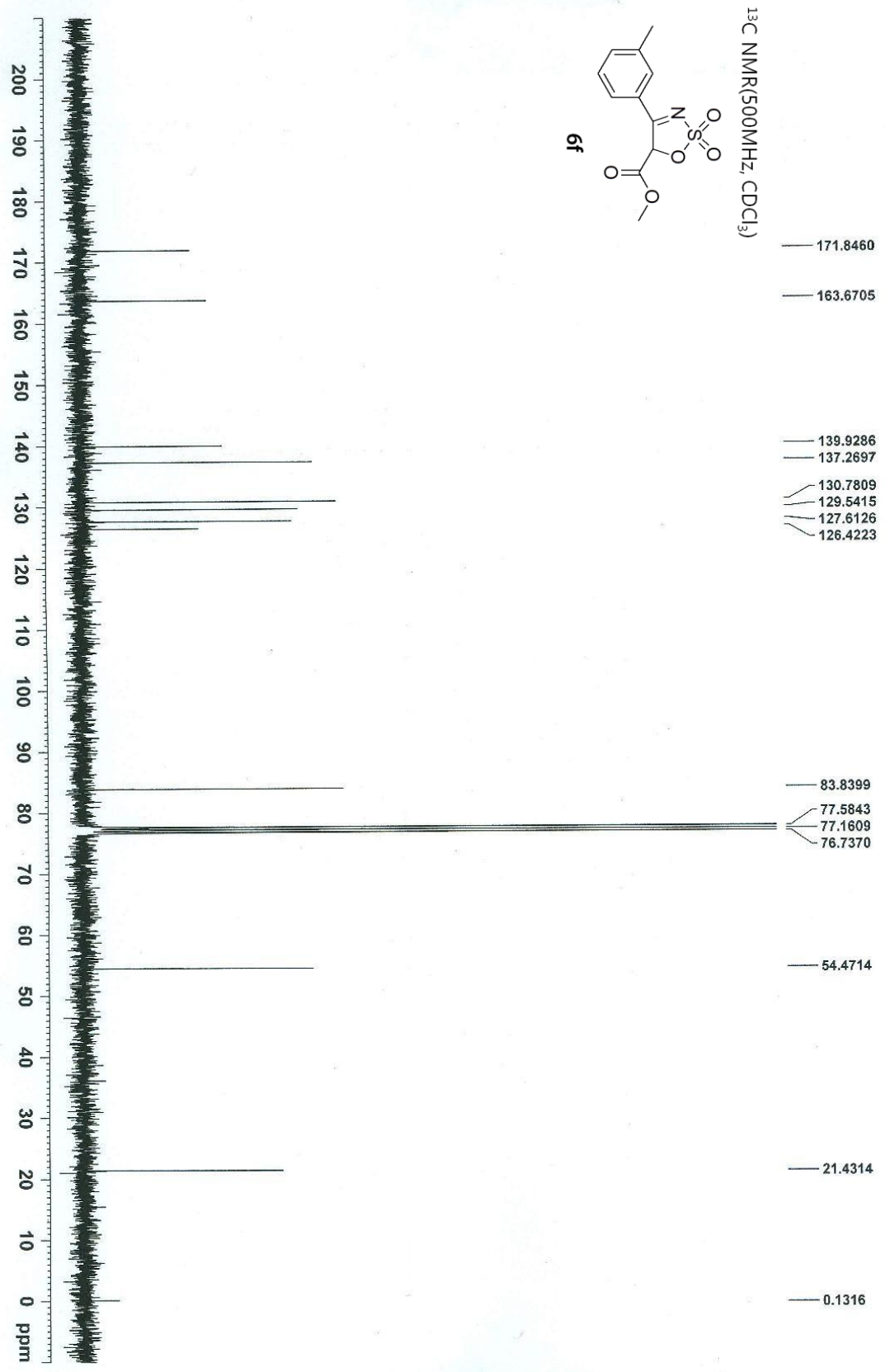
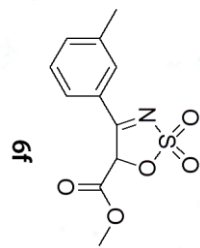
KSY_120508_3Me_1

¹H NMR(500MHz, CDCl₃)

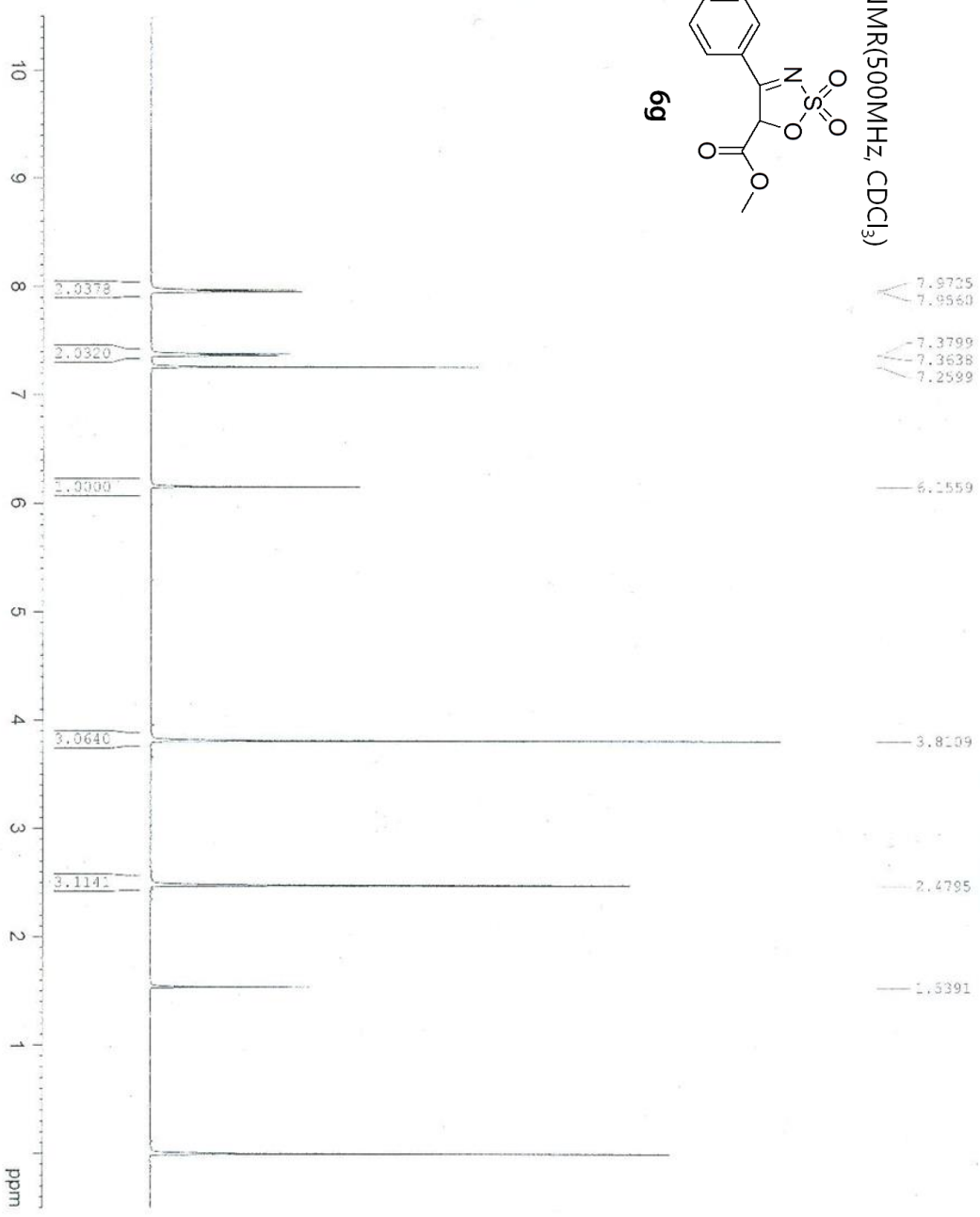
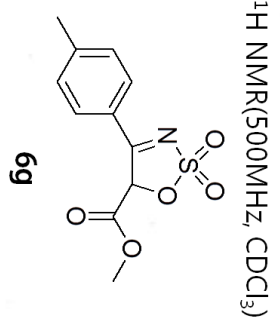


KSY_120509_3Me_1

¹³C NMR(500MHz, CDCl₃)



LHK_120305_4Me_imine



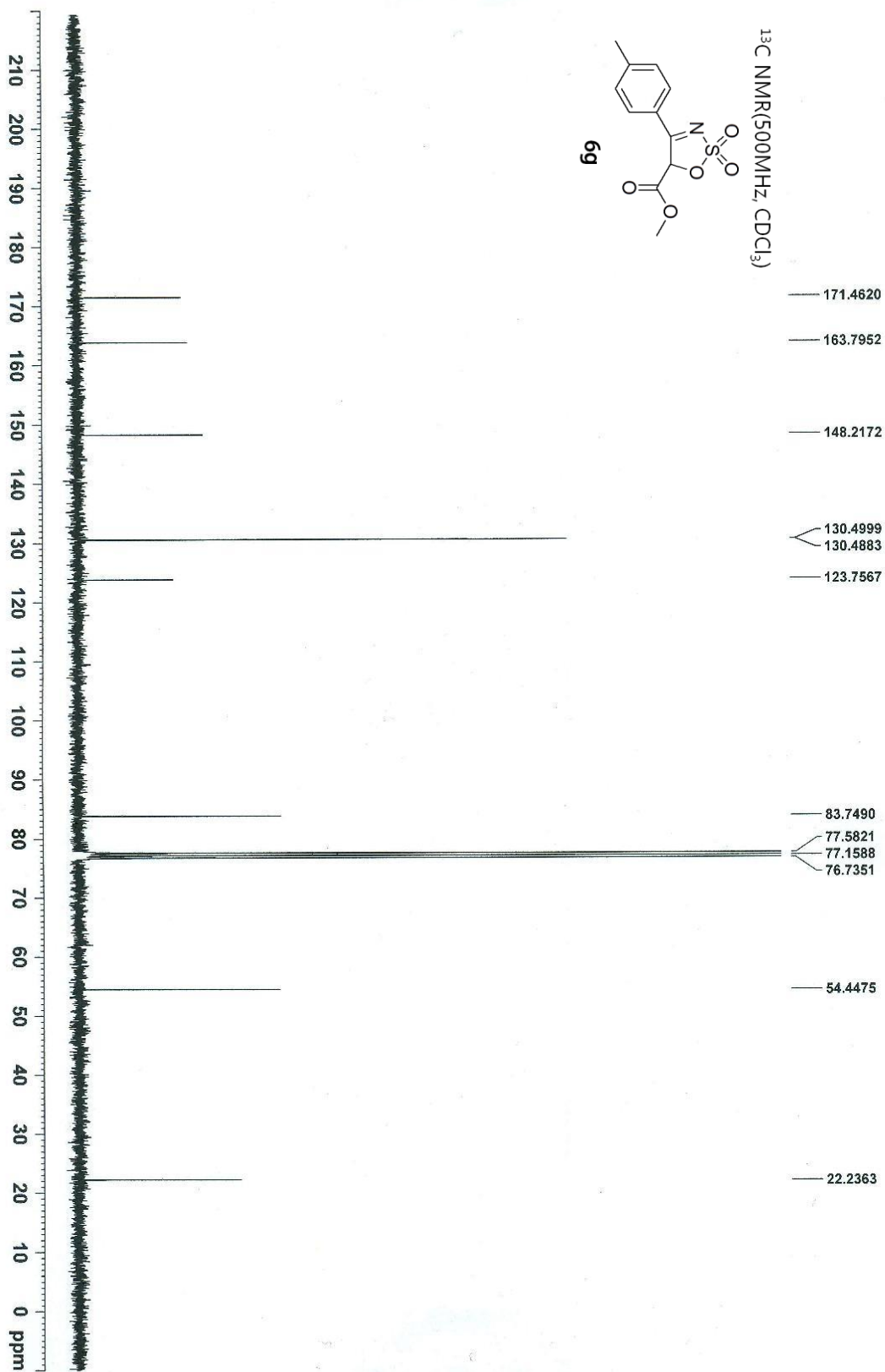
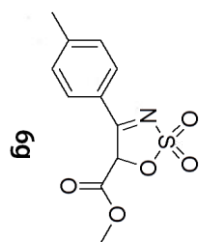
```

NAME LHK_120305_4Me_imine
EXPNO 1
PROCNO 1
Date_ 20120305
Time 15:53
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 4
DS 2
SWH 7507.507 Hz
FIDRES 0.114555 Hz
AQ 4.3648143 sec
RG 574.7
DW 66.600 usec
DE 6.00 usec
TE 298.8 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 9.80 usec
PL1 -1.90 dB
SFO1 500.1332508 MHz
SI 32768
SF 500.1300135 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
  
```

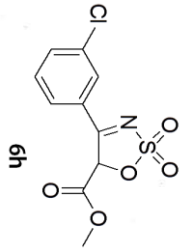
KSY_120611_4Me_1

¹³C NMR(500MHz, CDCl₃)

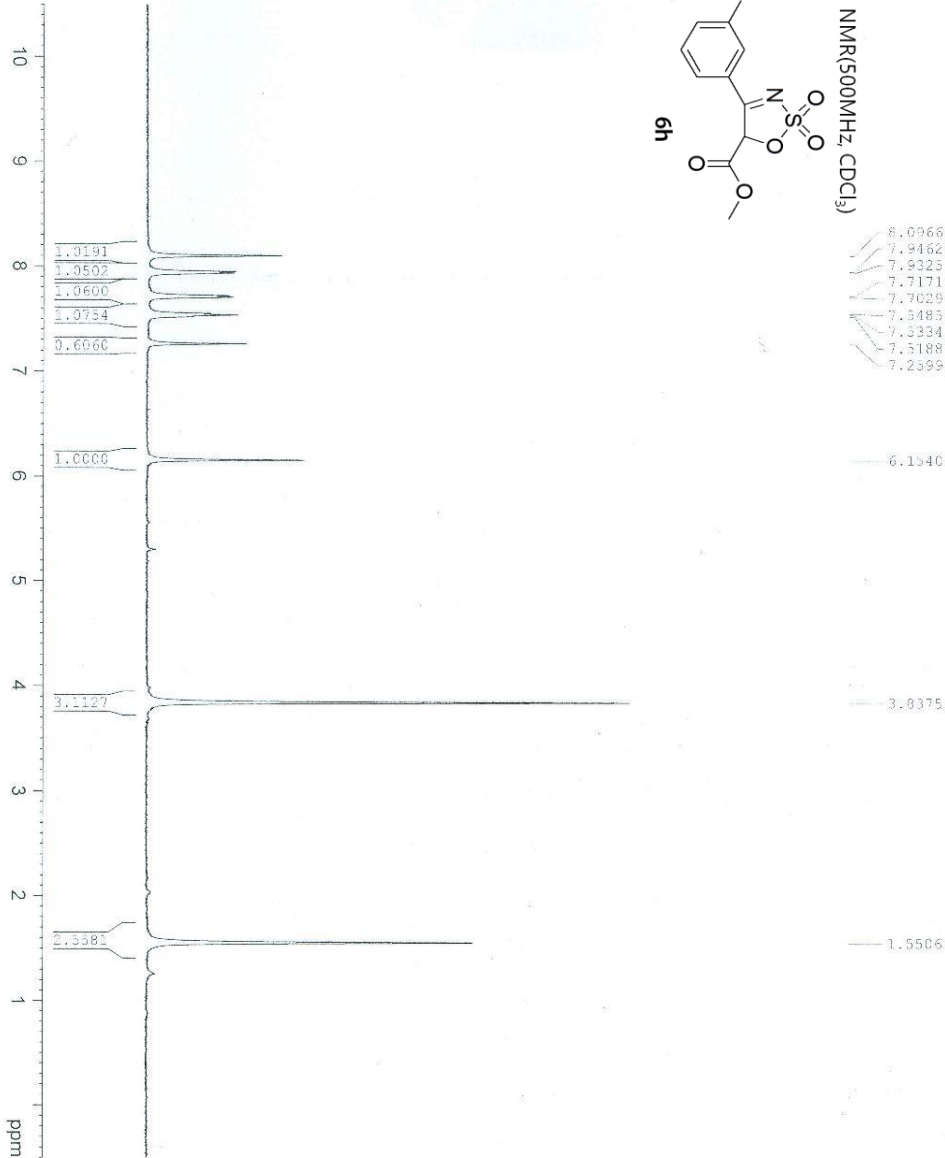


KSX_120509_C1_1

¹H NMR(500MHz, CDCl₃)



- 8.0966
- 7.9462
- 7.9325
- 7.7171
- 7.7029
- 7.5485
- 7.3334
- 7.5188
- 7.2999

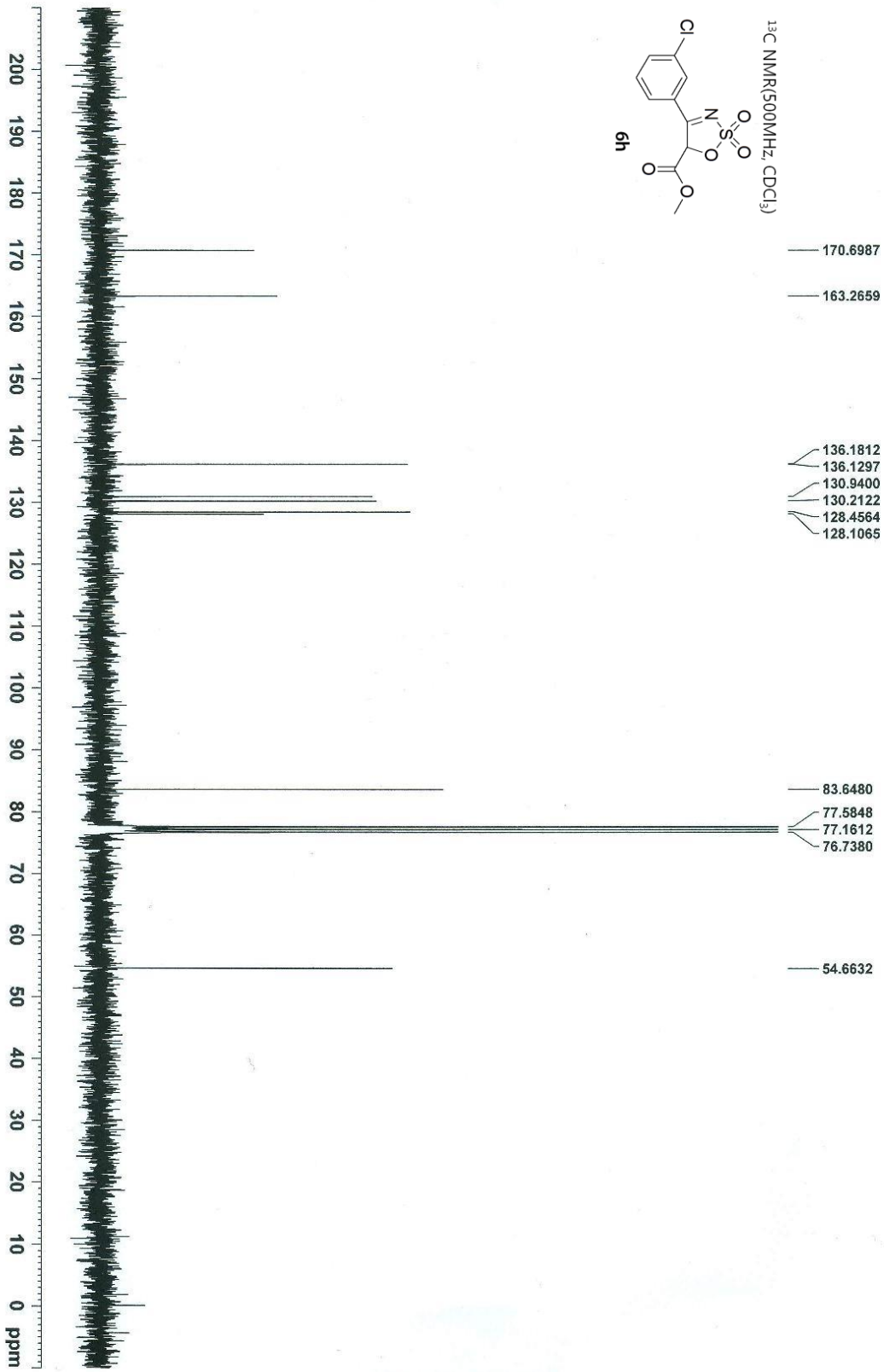
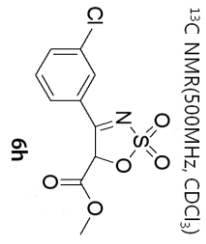


```

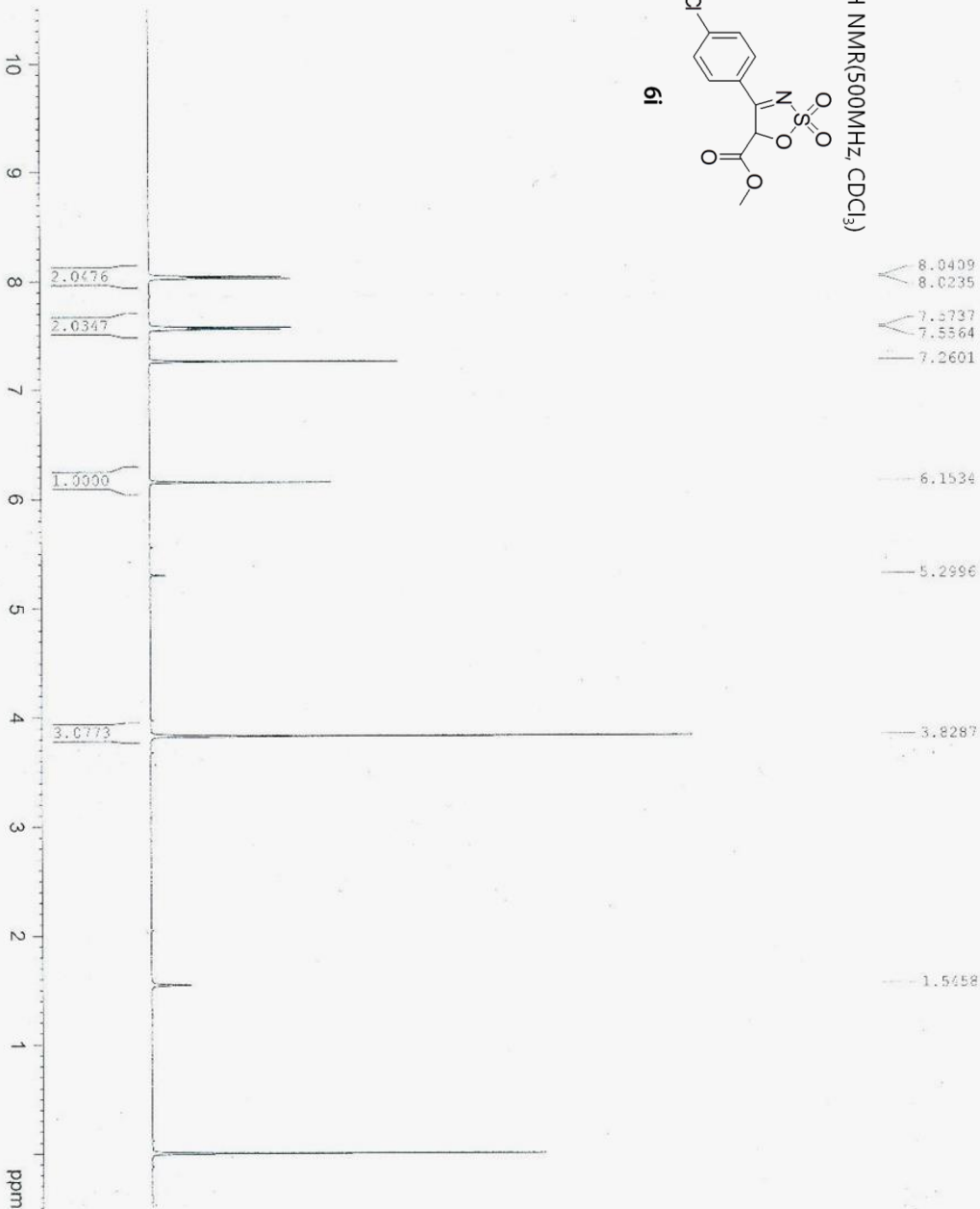
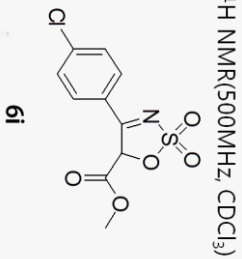
NAME      KSX_120509_C1_1
EXPNO     1
PROCNO    1
Date_     20120509
Time      16.28
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         2
SWH        7507.507 Hz
FIDRES     0.114555 Hz
AQ         4.3648143 sec
RG         574.7
DW         66.600 usec
DE         6.00 usec
TE         300.2 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         9.80 usec
PL1        -1.90 dB
PL1W       27.23316002 W
SFO1       500.1332508 MHz
SI         32768
SF         500.1300136 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
    
```

KSY_3Cl_im



LHK_120305_4Cl_imine



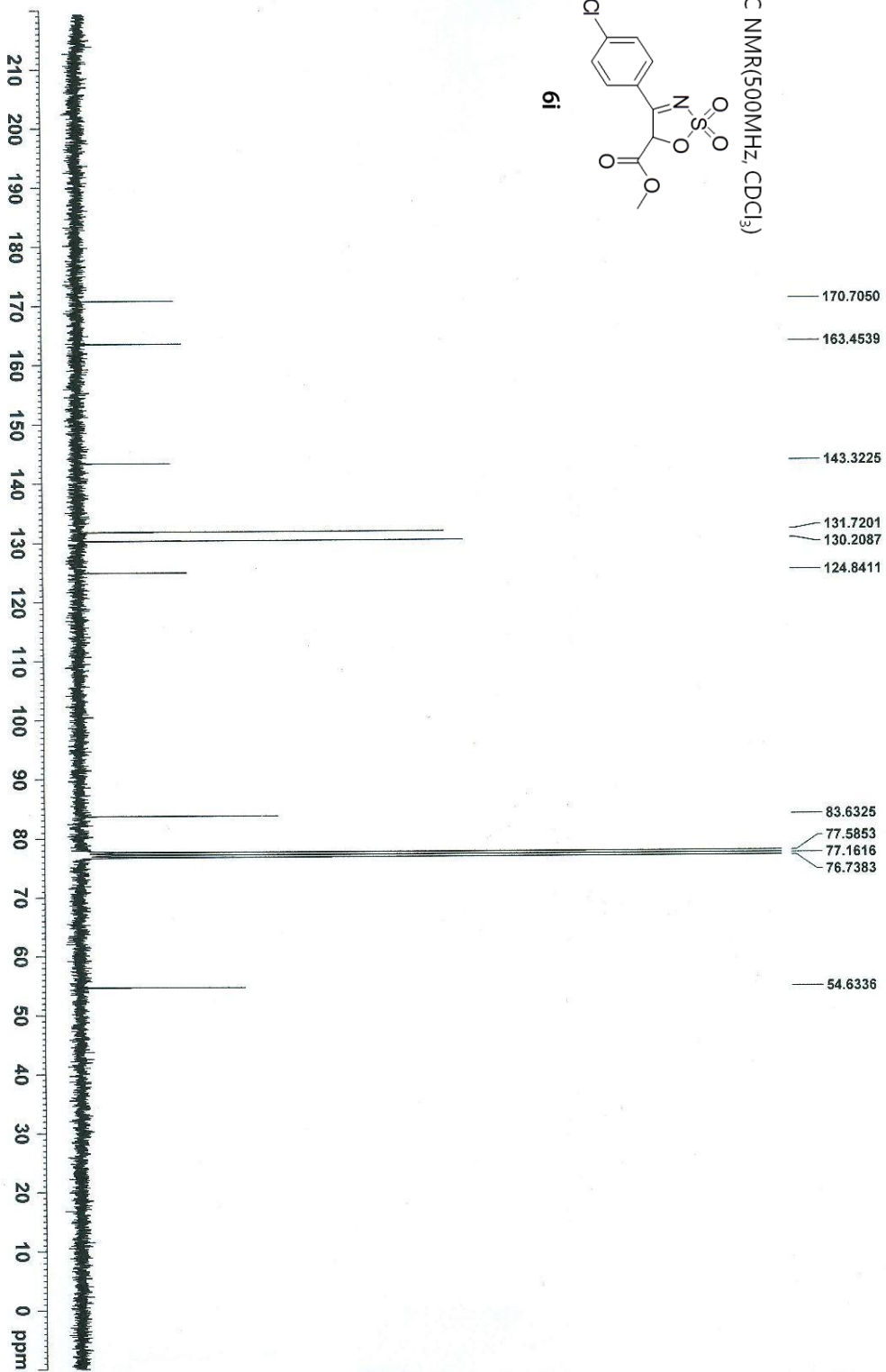
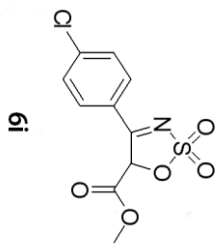
```

NAME LHK_120305_4Cl_imine
EXPNO 1
PROCNO 1
Date_ 20120305
Time 15:48
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 4
DS 2
SWH 7507.507 Hz
FIDRES 0.114555 Hz
AQ 4.3648143 sec
RG 574.7
DW 66.600 usec
DE 6.00 usec
TE 298.8 K
D1 1.000000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 9.80 usec
PL1 -1.90 dB
PL1W 27.23316002 W
SFO1 500.1332508 MHz
SI 32768
SF 500.1300136 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
    
```

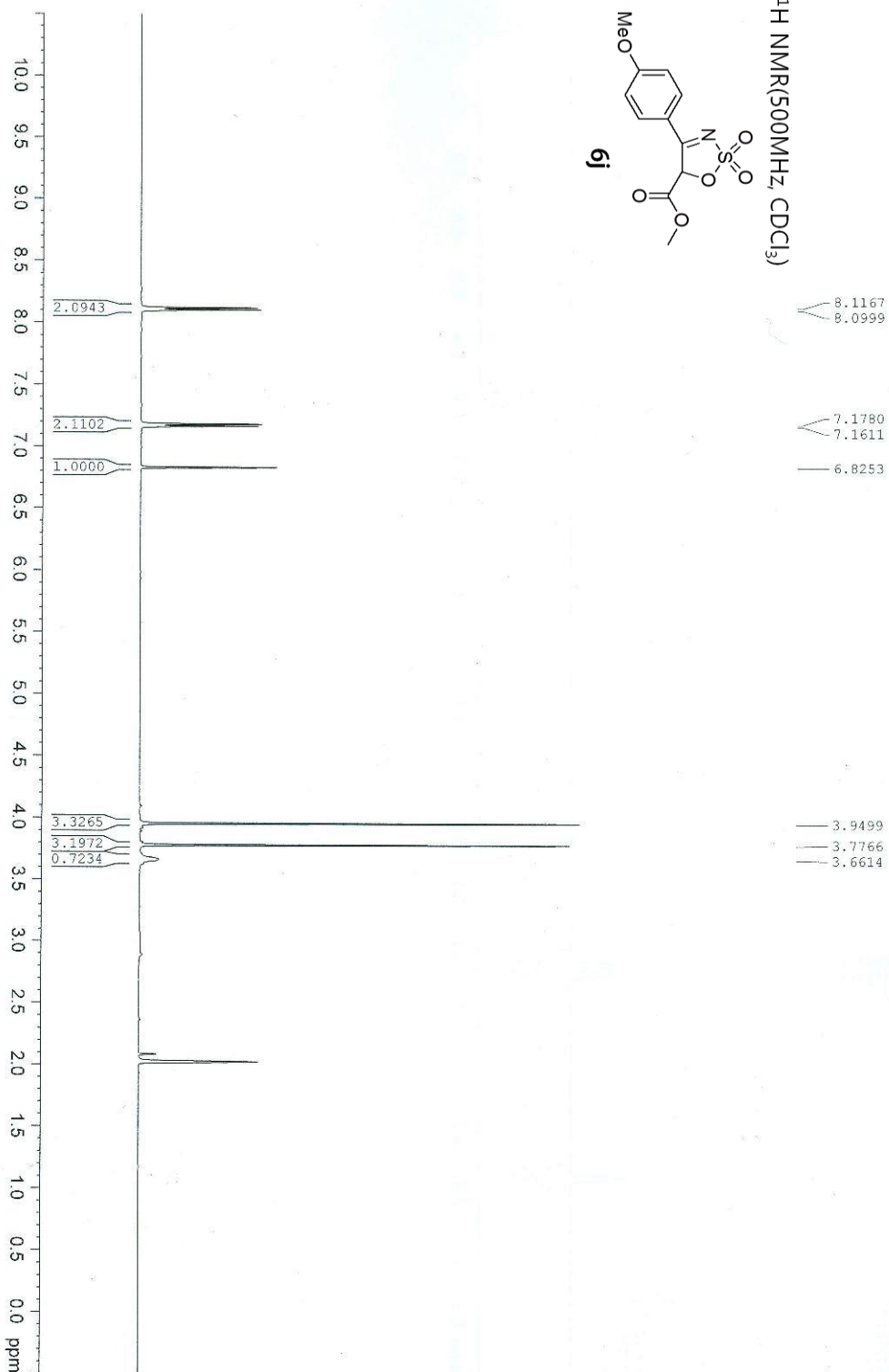
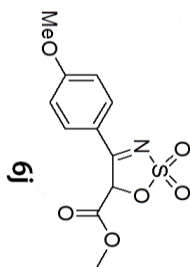
KSY_120611_4Cl_1

^{13}C NMR(500MHz, CDCl_3)

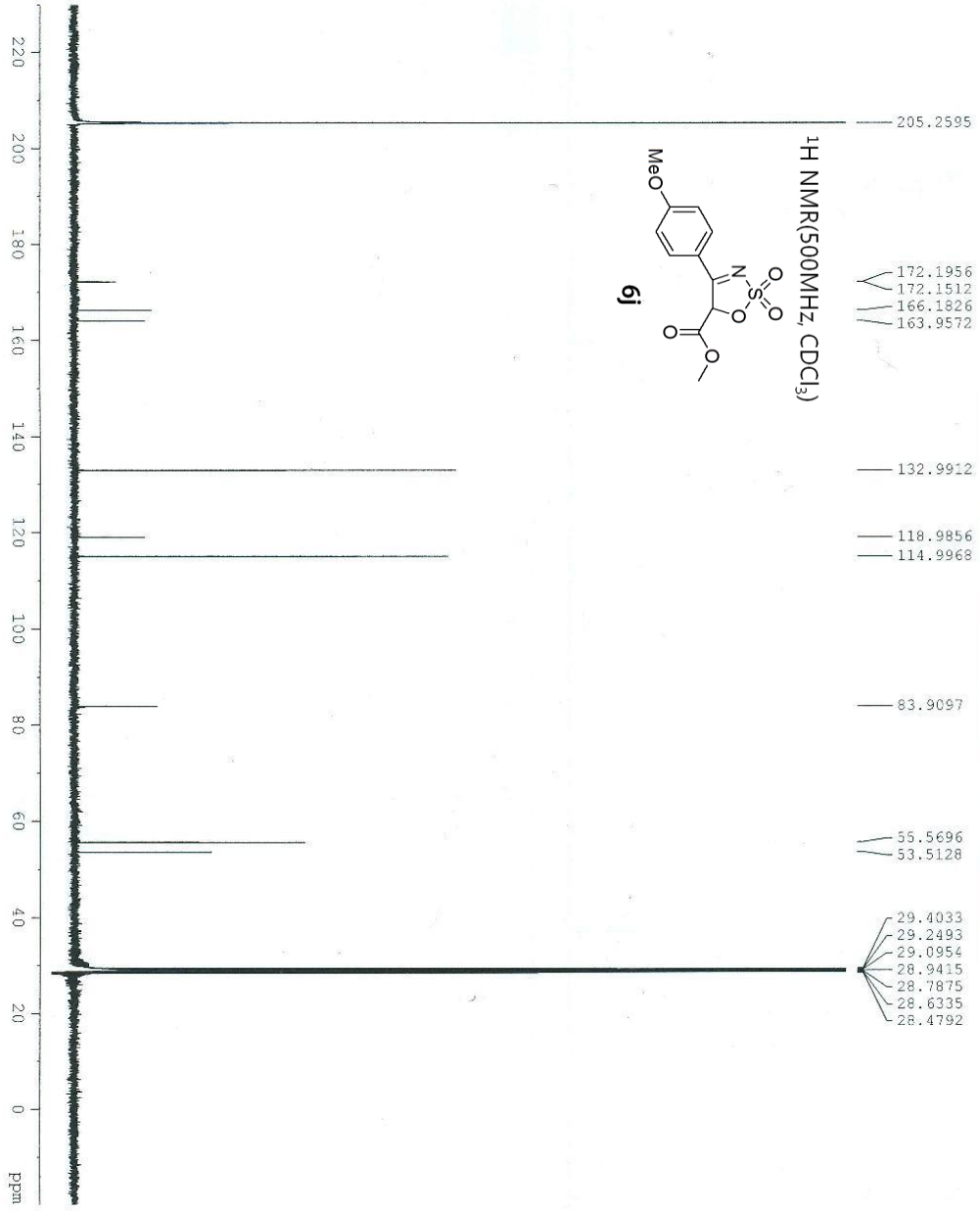
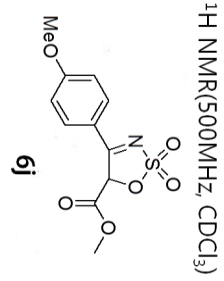


KJA-4-OMe-car-1m

¹H NMR(500MHz, CDCl₃)



KJA_4_OMe_car_im



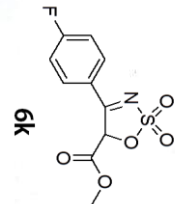
```

NAME          KJA_4_OMe_car_im
EXPNO         1
PROCNO        1
Date_         20131210
Time_         1.15
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENTNS     Acetone
SOLVENTP      1000
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            1149.4
DM            14.200 ussec
DE            6.00 ussec
TE            298.9 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

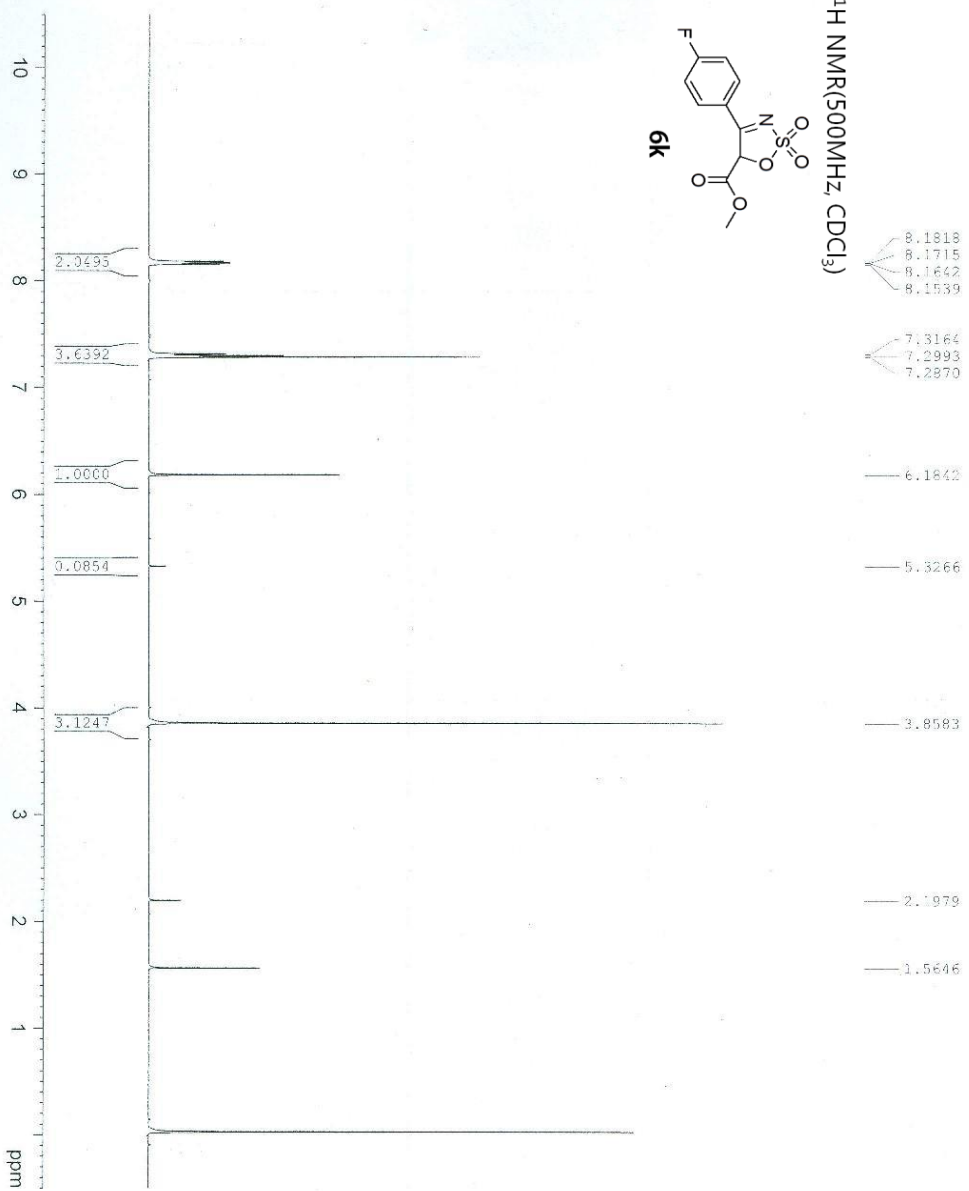
===== CHANNEL F1 =====
NUC1          13C
P1            8.00 ussec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL F2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 ussec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL12W        27.23316002 W
PL13W        0.44167015 W
FL12W        0.42155943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW           EM
SSB           0
LB           1.00 Hz
GB           0
PC           1.40
  
```

LHK_120221_4-F imine



¹H NMR(500MHz, CDCl₃)

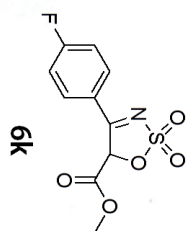


```

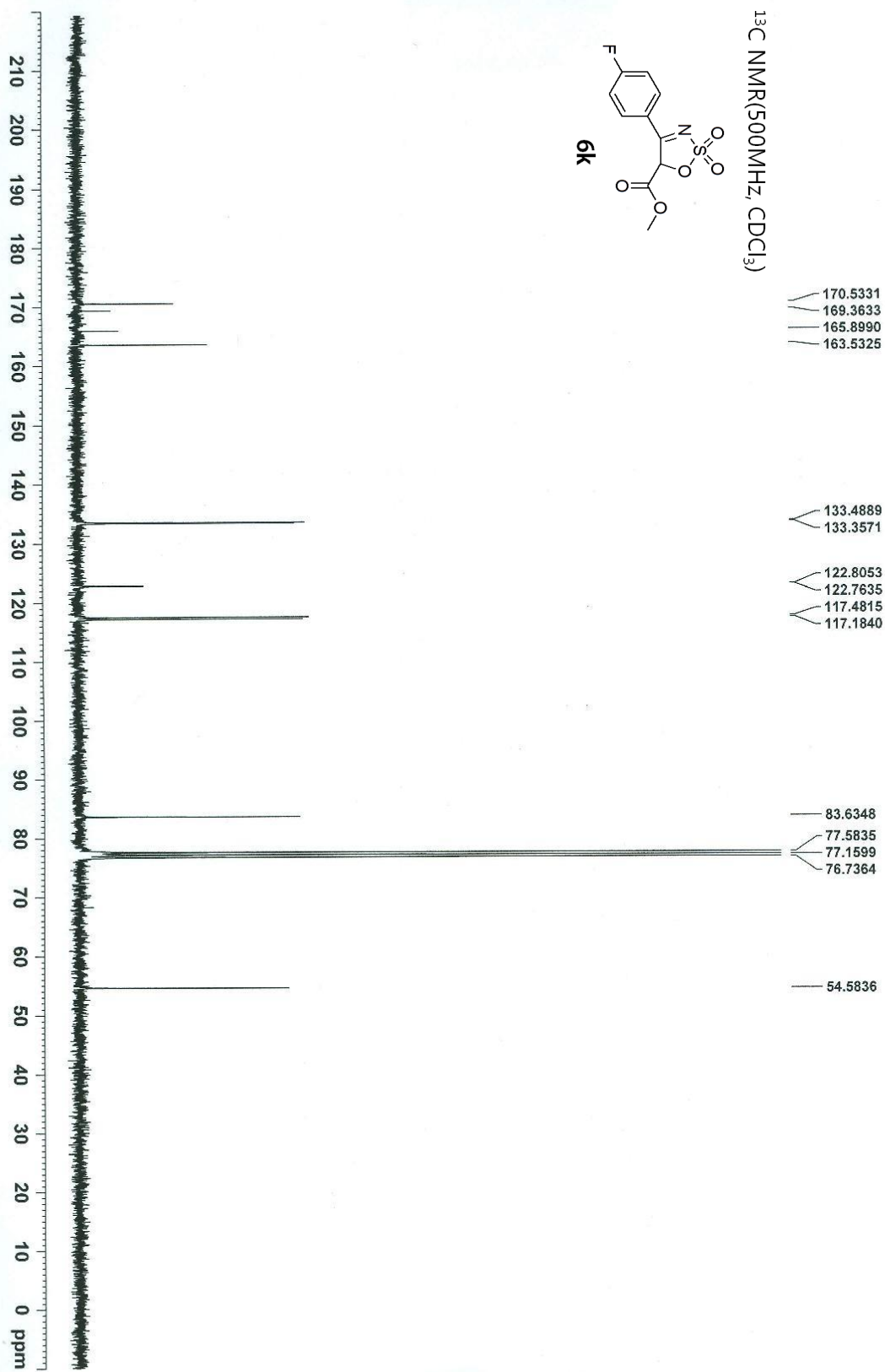
NAME LHK_120221_4-F imine
EXPNO 1
PROCNO 1
Date_ 20120222
Time 14:20
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 4
DS 2
SWH 7507.507 Hz
FIDRES 0.114555 Hz
AQ 4.3648143 sec
RG 574.7
DW 66.600 usec
DE 6.00 usec
TE 298.7 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 9.80 usec
PL1 -1.90 dB
PL1W 27.23316002 W
SF01 500.1332508 MHz
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
    
```

LHK_4_F imine

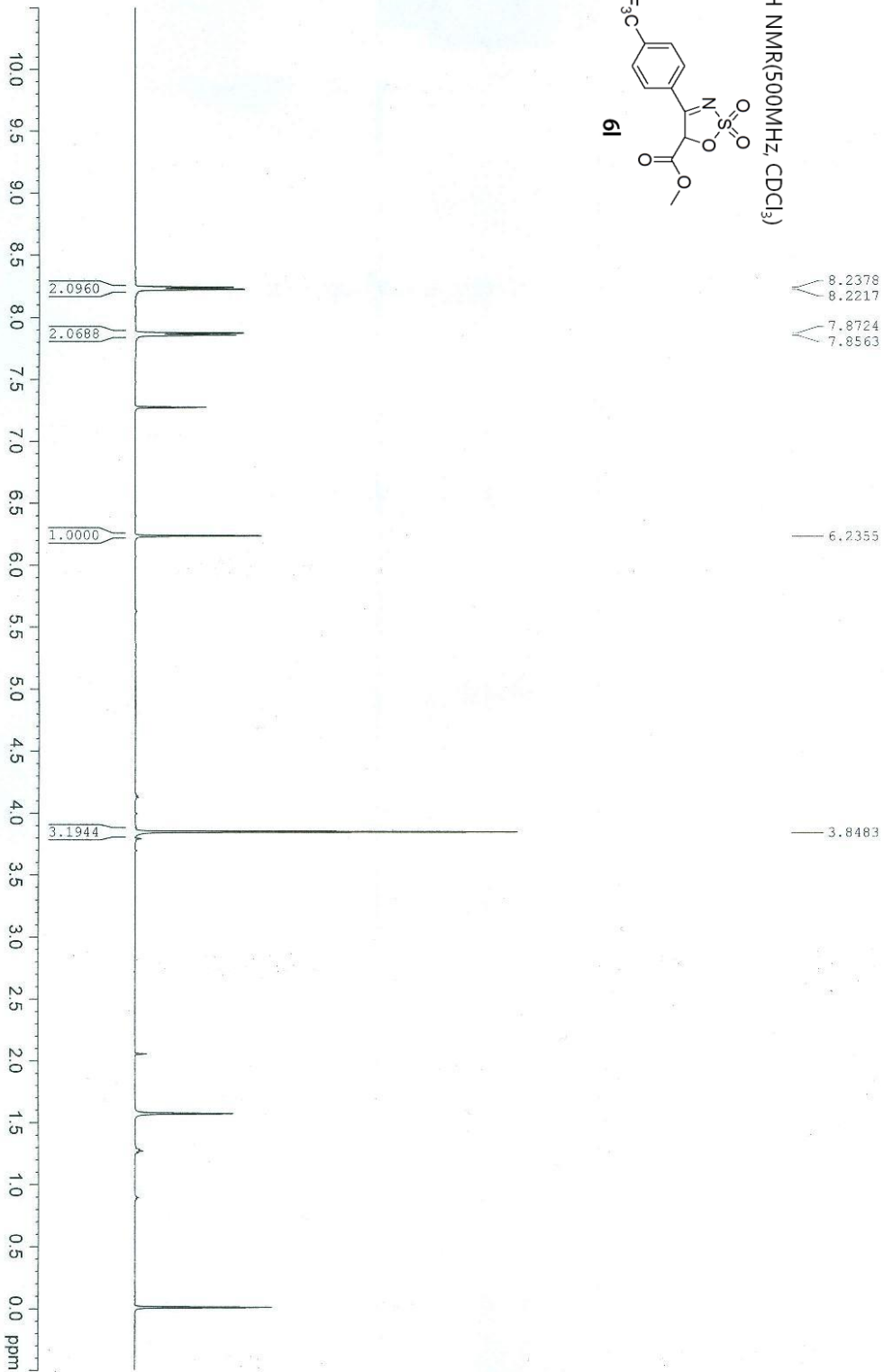
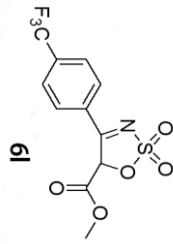


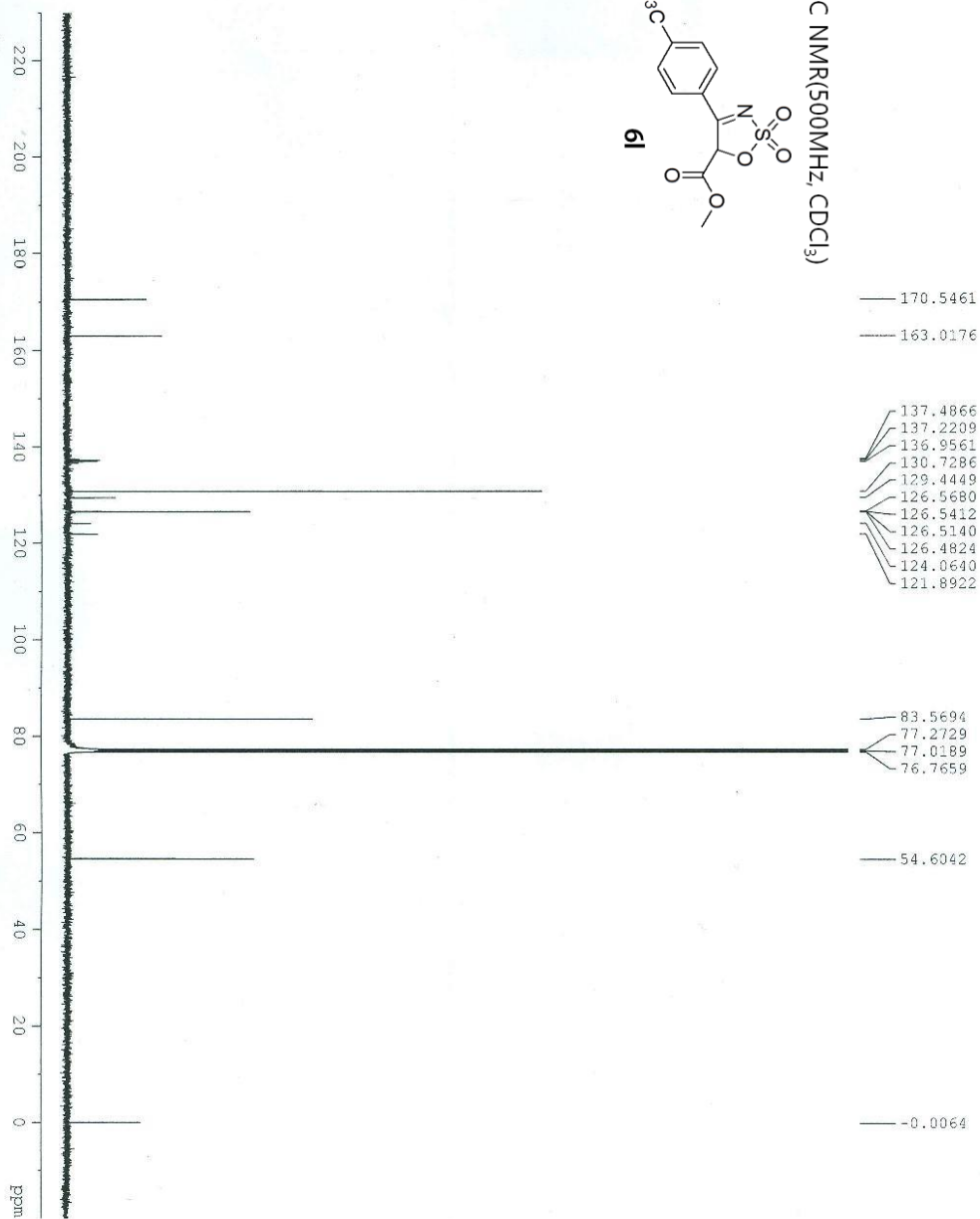
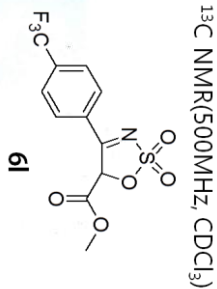
¹³C NMR(500MHz, CDCl₃)



KJA-4-CF3-imine-1

¹H NMR(500MHz, CDCl₃)





KJA_4_CF3_imine

```

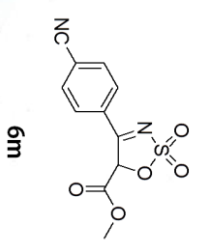
NAME          KJA_4_CF3_imine
EXPNO         1
PROCNO        1
Date_         20130912
Time_         3.09
INSTRUM       5 mm DUL 13C-1
PROBHD        zppr30
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            3000
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
RG            512
DW           14.200 usec
DE           6.00 usec
TE           297.5 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1         125.7728799 MHz

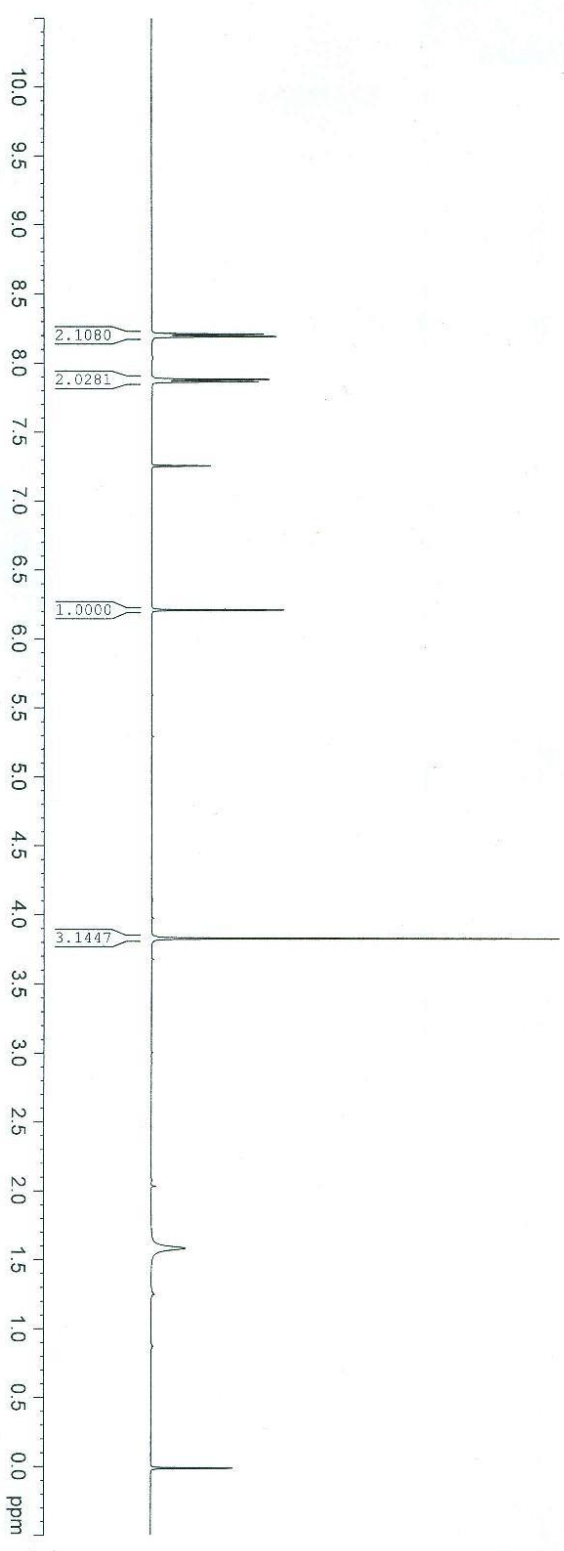
===== CHANNEL f2 =====
CPPRG2       waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         18.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SE           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```


KJA-4-CN-carbo-imine

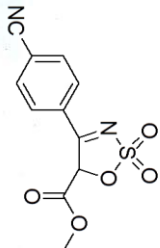
¹H NMR(500MHz, CDCl₃)



- 8.2082
- 8.1925
- 7.8806
- 7.8650
- 7.2550
- 6.2089
- 3.8286

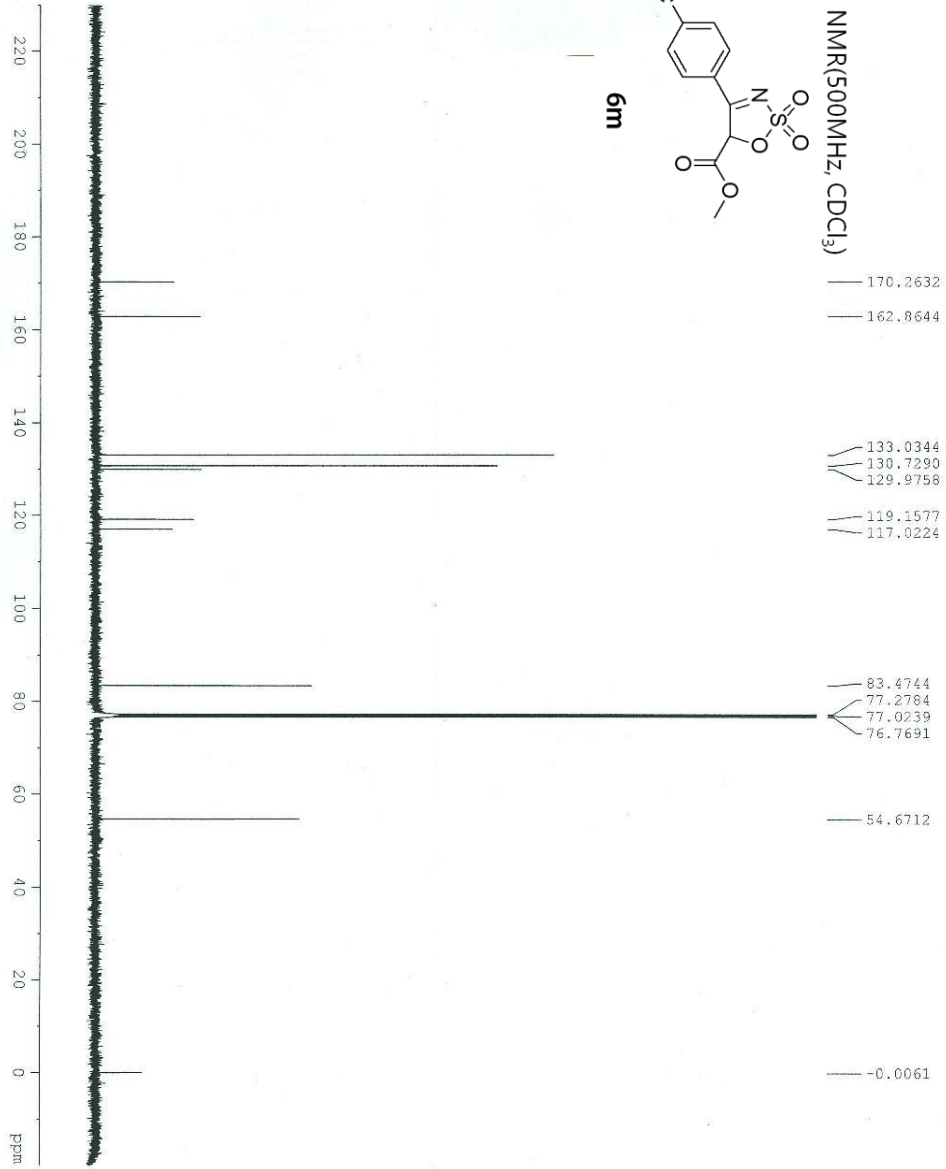


KJA_4_CN_carbo_imine



6m

¹³C NMR(500MHz, CDCl₃)



- 170.2632
- 162.8644
- 133.0344
- 130.7290
- 129.9758
- 119.1577
- 117.0224
- 83.4744
- 77.2784
- 77.0239
- 76.7691
- 54.6712
- 0.0061

```

NAME          KJA_4_CN_carbo_imine
EXPNO         1
PROCNO        1
Date_         20130729
Time_         19.47
INSTRUM       spect
PROBHD        5 mm DUL 1H-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1000
DS            2
SFR           35211.276 Hz
FIDRES        0.537281 Hz
AQ            0.930794 sec
RG            643.1
DM            14.200 usec
DE            56.00 usec
TE            298.2 K
D1            2.0000000 sec
D11           0.0300000 sec
TD0           1

===== CHANNEL f1 13C =====
NUC1          13C
P1            6.00 usec
PL1           1.00 dB
SFO1          70.60439301 M
SFO1          125.7728799 MHz

===== CHANNEL f2 13C =====
CPDPRG2      waltz16
NUC2          13C
ROPR2         100.00 usec
RF2           -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL12W        27.23316002 M
PL13W        0.42156943 M
SFO2         500.132078 MHz
SFO2         125.7577890 MHz
SI            31
SF            500.132078 MHz
WDW           EM
SSB           0
GB            0
PC            1.40
  
```

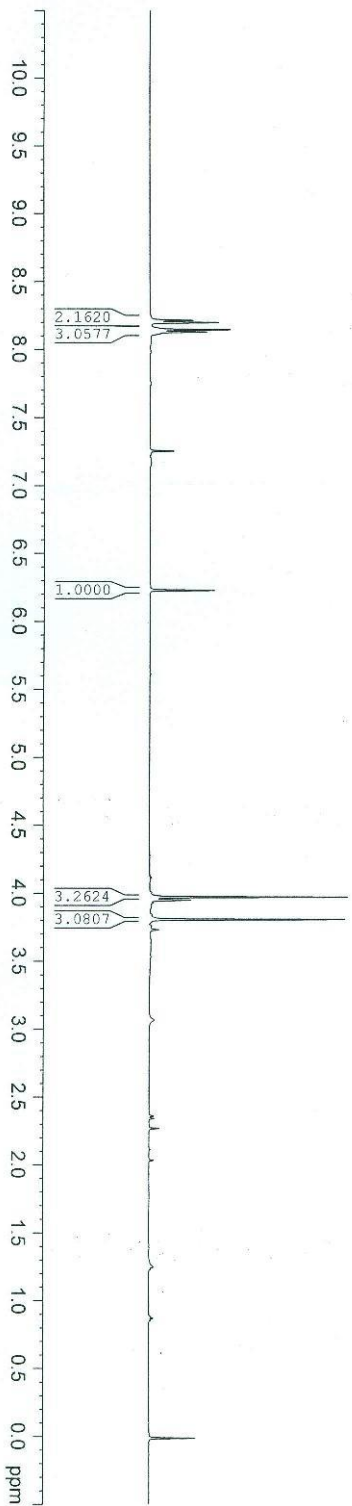
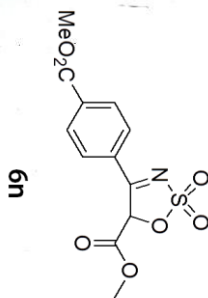
KJA-4-co2me-car-imine

¹H NMR(500MHz, CDCl₃)

8.2135
8.1974
8.1442
8.1279

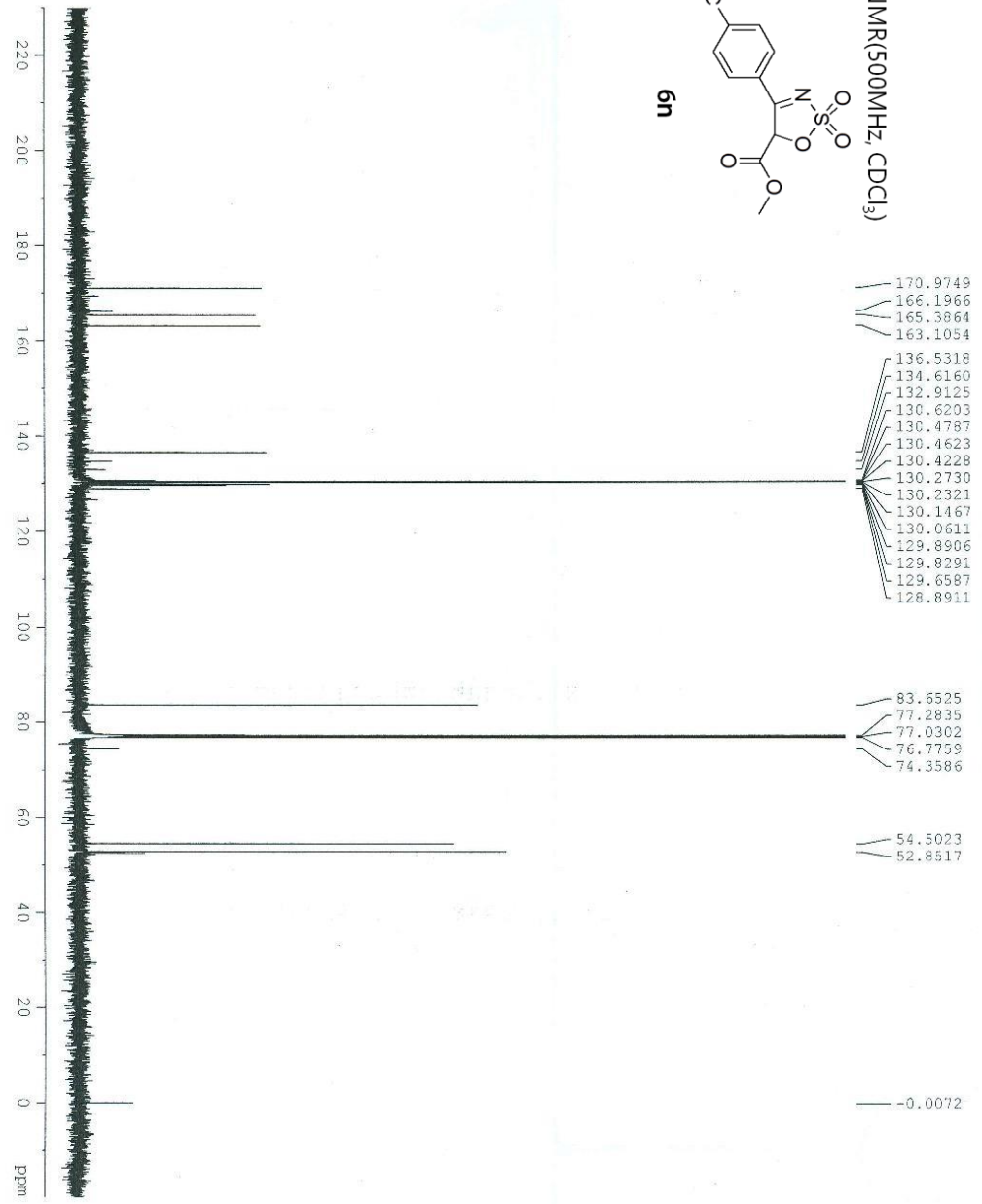
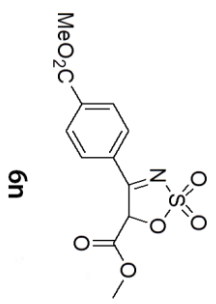
6.2268

3.9717
3.8066



KJA_4_CO2Me_carbo_1m

¹³C NMR(500MHz, CDCl₃)



170.9749
166.1966
165.3864
163.1054
136.5318
134.6160
132.9125
130.6203
130.4787
130.4623
130.4228
130.2730
130.2321
130.1467
130.0611
129.8906
129.8291
129.6587
128.8911

83.6525
77.2835
77.0302
76.7759
74.3586

54.5023
52.8517

0.0072

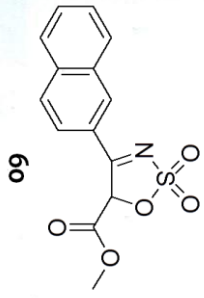
```

NAME      KJA_4_CO2Me_carbo_1m
EXPNO     1
PROCNO    1
Date_     20131119
Time      22.32
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zgpg30
TD        32768
SOLVENT   CDCl3
NS        1000
DS        2
SWH        35211.270 Hz
FIDRES    1.074563 Hz
AQ        0.4653898 sec
RG        512
DE        14.200 usec
TE        298.5 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
    
```

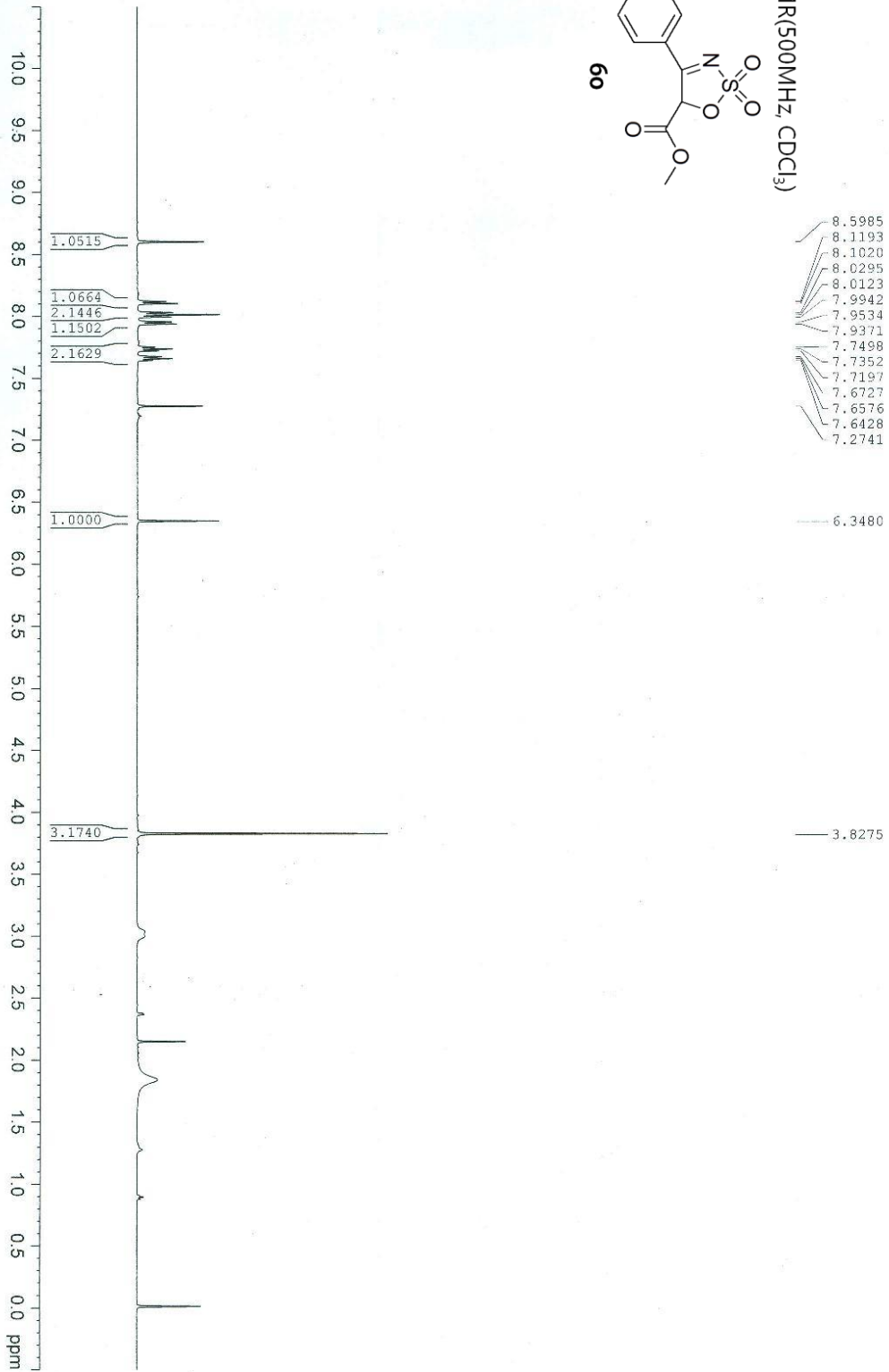
```

===== CHANNEL f1 =====
NUC1      13C
P1        8.00 usec
PL1       1.40 dB
P1LW      70.60439301 W
SFO1      125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     100.00 usec
PT2       -1.90 dB
PL12      16.00 dB
PL13      19.00 dB
PL12W     27.23316002 W
PL13W     0.44167015 W
SFO2      500.1320005 MHz
SI        32768
SF        125.7577890 MHz
KRM       RM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
    
```

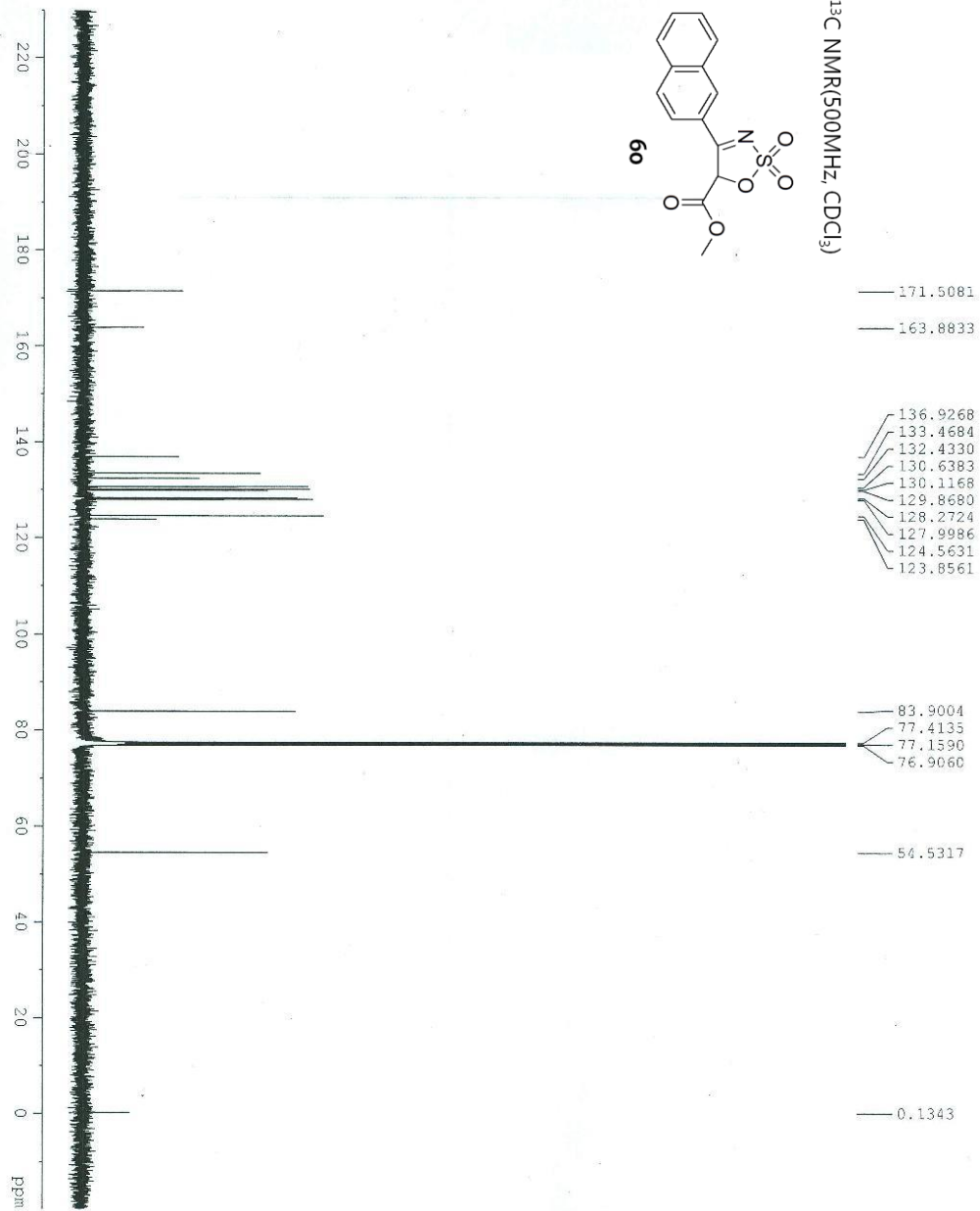
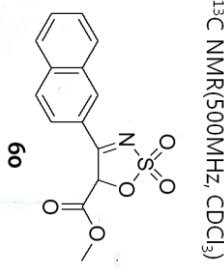


¹H NMR(500MHz, CDCl₃)



KJA-naphthon-imine

KJA_naphthon_imine



```

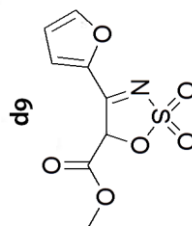
NAME          KJA_naphthon_imine
EXPNO         1
PROCNO        1
Date_         20130802
Time          1:07
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DW            14.200 usec
DE            6.00 usec
TE            298.1 K
D1            2.0000000 sec
D11           0.0300000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
P1M1         70.60439301 W
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2M         27.23316002 W
PL12M        0.44167013 W
PL13M        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577112 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

KSY_120611_Fu_1

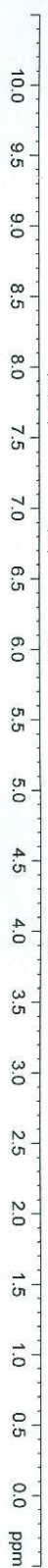
¹H NMR(500MHz, CDCl₃)



- 7.8694
- 7.8677
- 7.8642
- 7.8622
- 7.6829
- 7.6811
- 7.6702
- 7.6684
- 7.2600
- 6.7728
- 6.7671
- 6.7601
- 6.7545

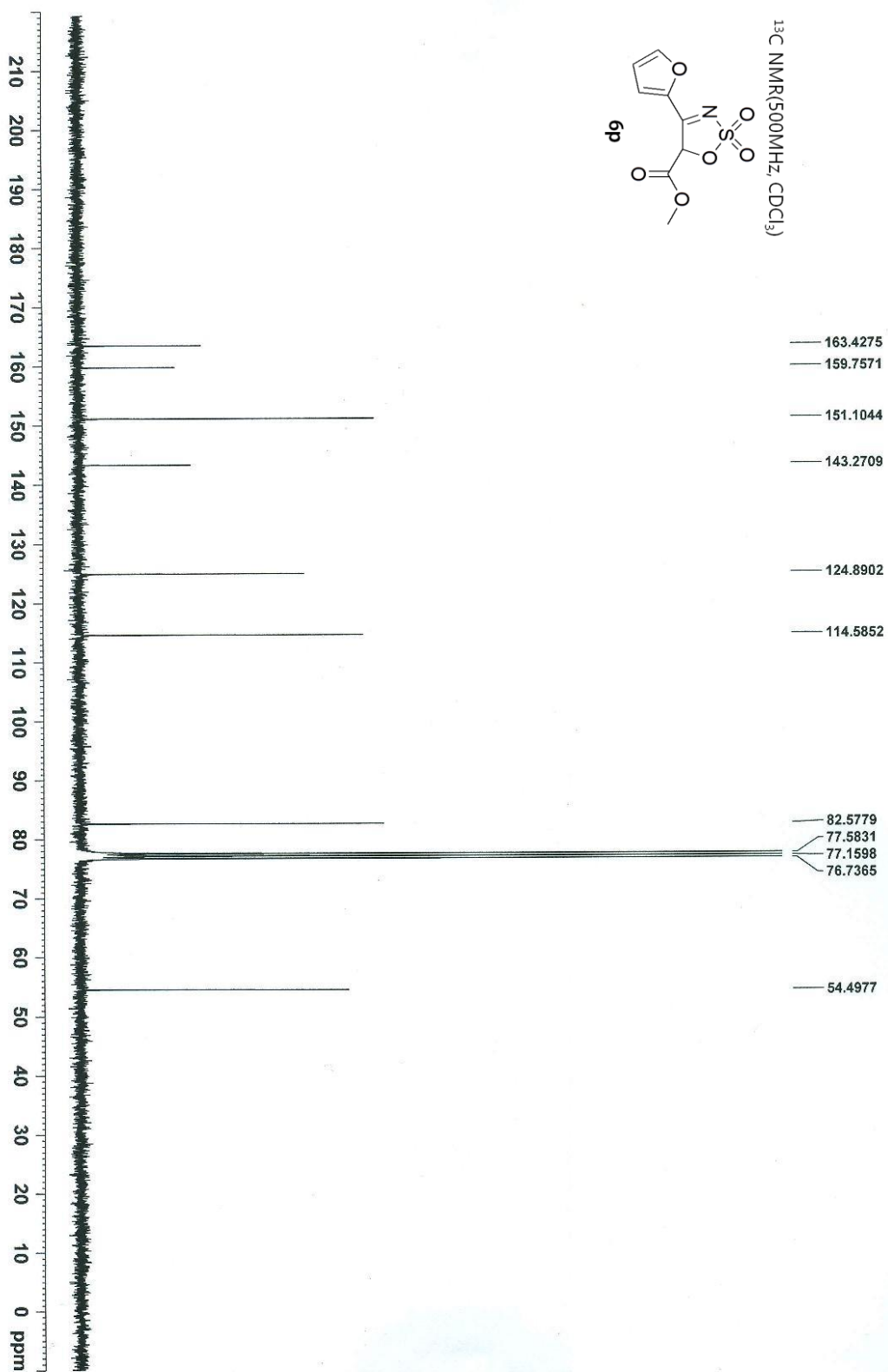
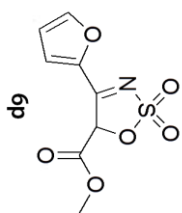
5.9735

3.8681



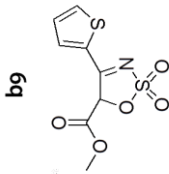
KSY_120611_Fu_1

¹³C NMR(500MHz, CDCl₃)



KSY_Thi_lm

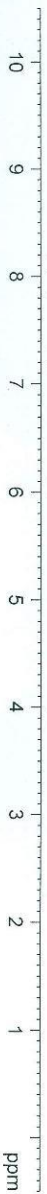
¹H NMR(500MHz, CDCl₃)



8.0750
8.0682
7.9875
7.9784
7.3142
7.3055
7.2966
7.2873

6.0943

3.8990



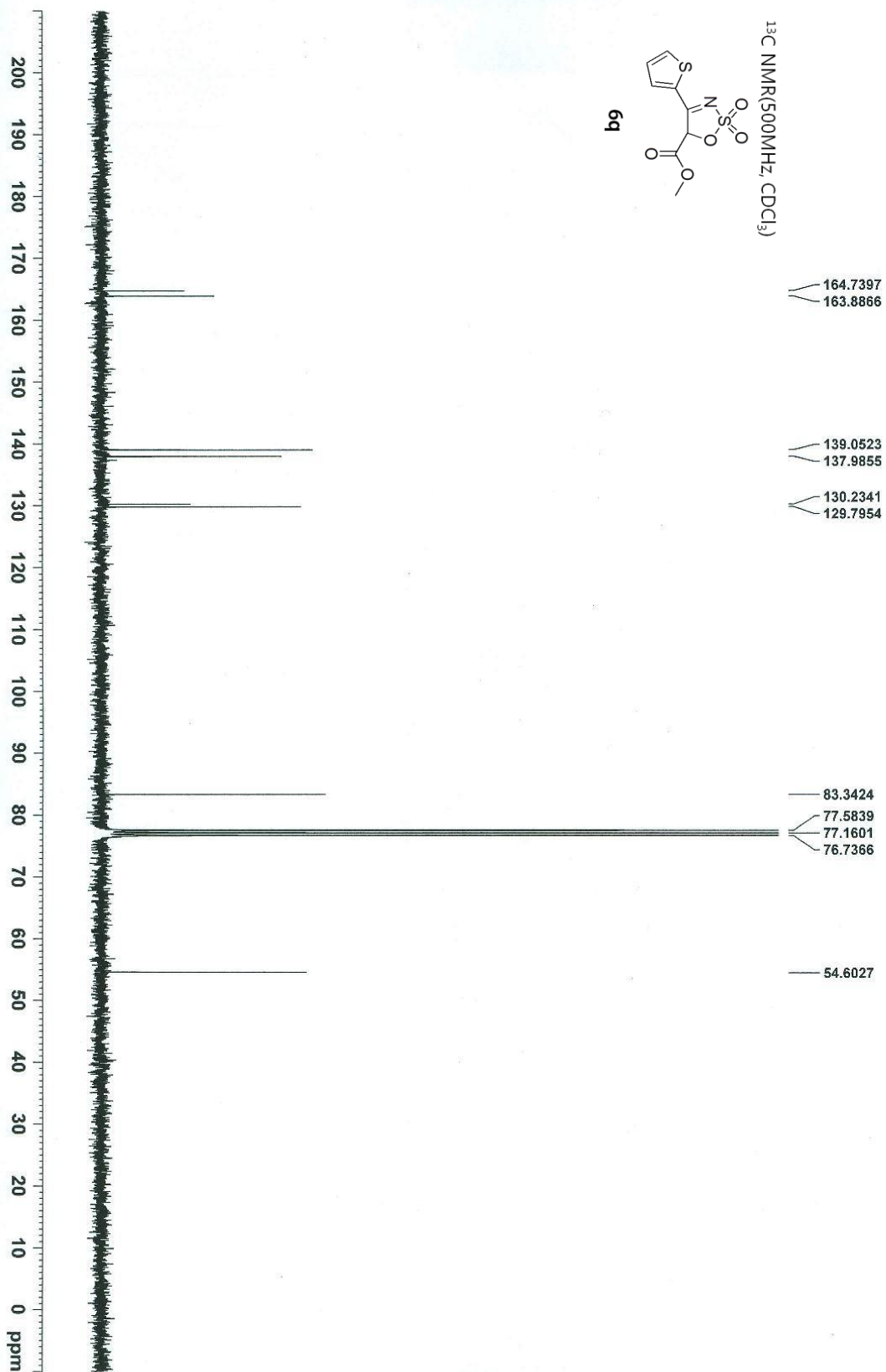
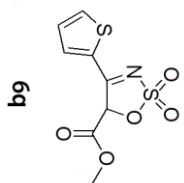
```

NAME          KSY_Thi_lm
EXPNO         1
PROCNO        1
Date_         20120612
Time_         14.34
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zg30
TD            65536
SOLVENT       CDCl3
NS            4
DS            2
SWH           7507.507 Hz
FIDRES        0.114555 Hz
AQ            4.3648143 sec
RG            322.5
DW            66.600 usec
DE            6.00 usec
TE            300.6 K
D1            1.00000000 sec
TD0           1

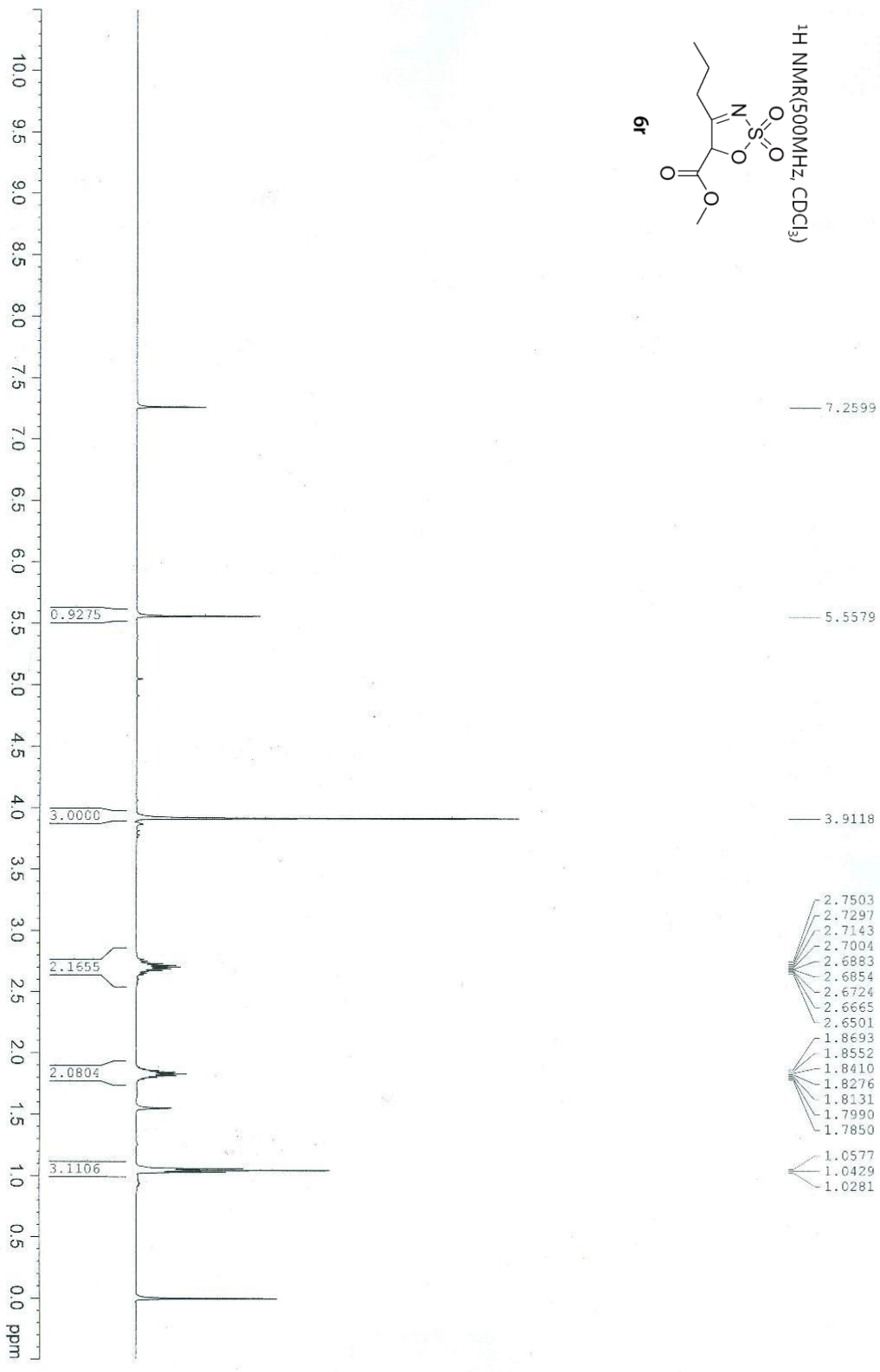
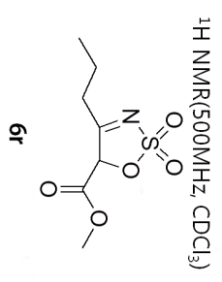
===== CHANNEL f1 =====
NUC1          1H
P1            9.80 usec
PL1           -1.90 dB
PL1W         27.23316002 W
SFO1         500.1332508 MHz
SI           32768
SF           500.1300000 MHz
WDW          EM
SSB           0
LB           0.30 Hz
GB           0
PC           1.00
    
```

KSY_120612_Thio_lm

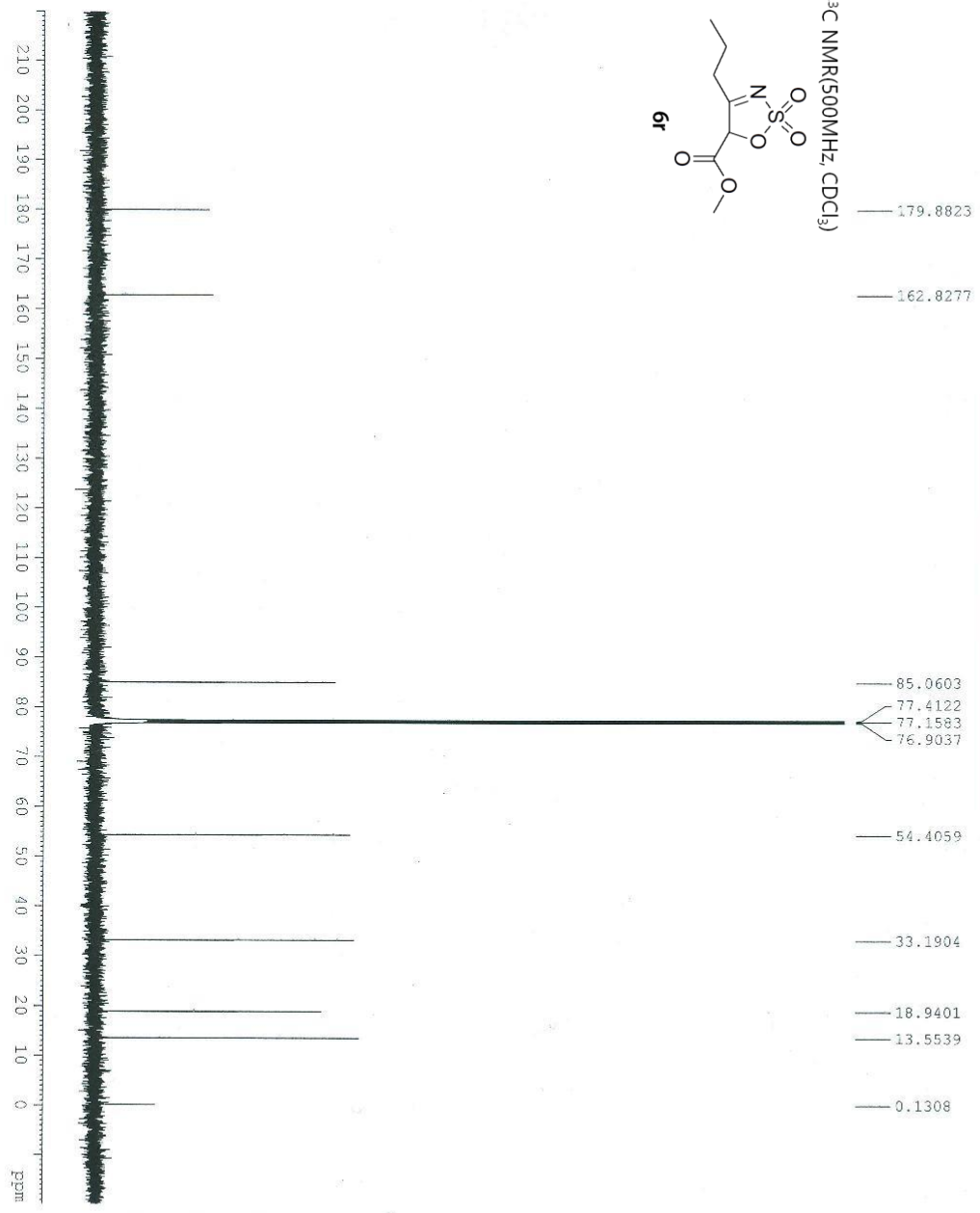
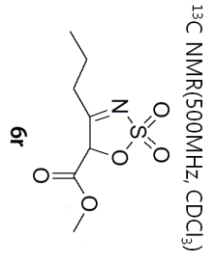
¹³C NMR(500MHz, CDCl₃)



KSY_120626_prop_imine



KSY_120626_prop_im

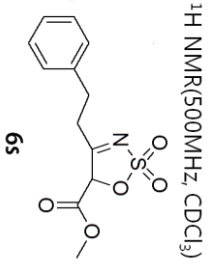


```

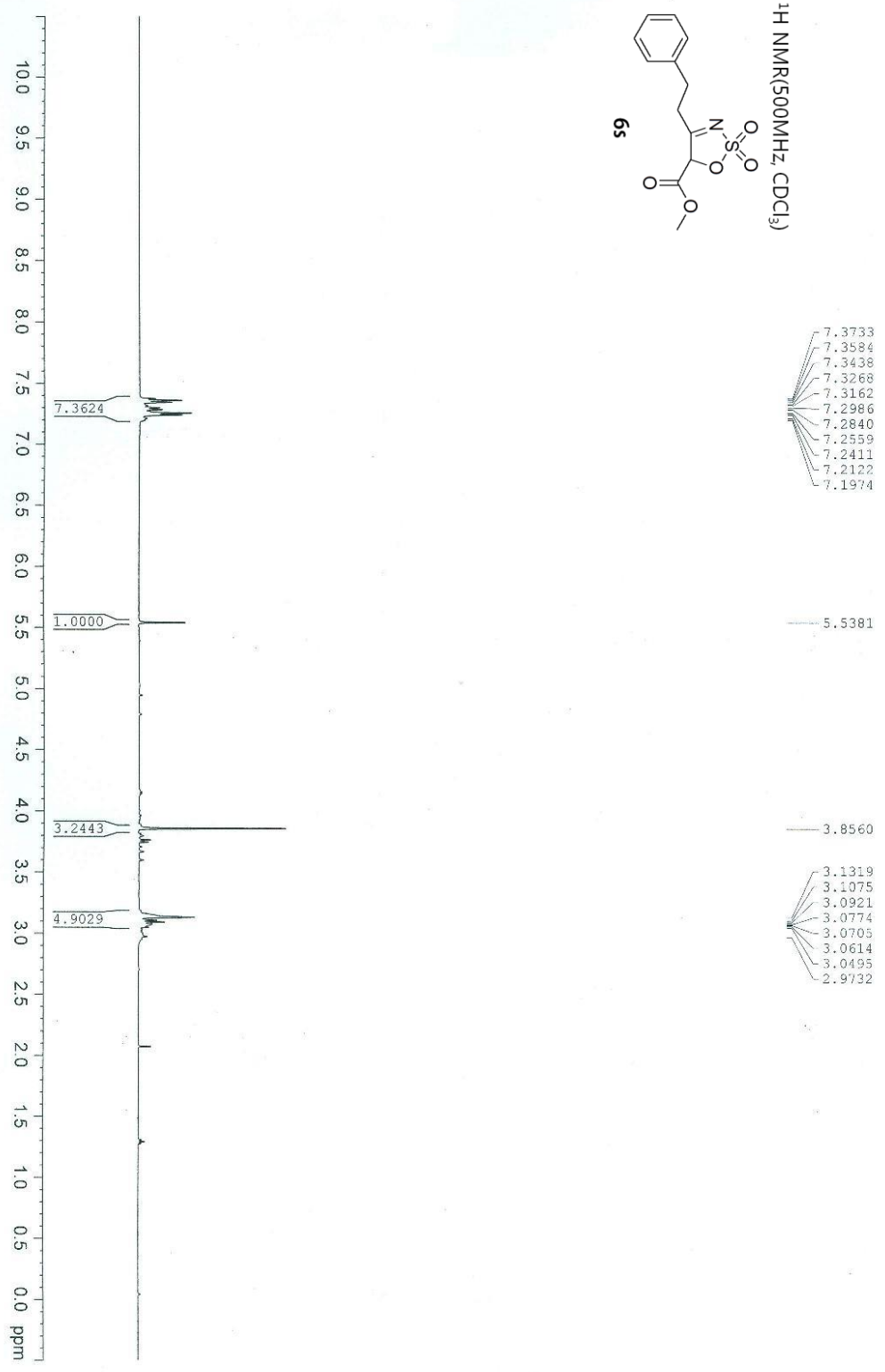
NAME          KSY_120626_prop_im
EXPNO         1
PROCNO        1
Date_         20120627
Time          11.11
INSTRUM       spect
PROBHD        5 mm DDL 13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1024
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306794 sec
RG            3792.6
DM            14.200 usec
DE            6.00 usec
TE            300.6 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
P1LW         70.60439301 W
SFO1         125.7728799 MHz

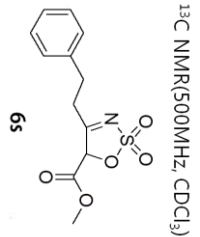
===== CHANNEL f2 =====
CPDPRG2      waltz16
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL1Z         0.44167015 W
SFO2         500.1330005 MHz
SI           32768
SF          125.7577709 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```



KJA-pro-carbo-imine-puri



KJA_phene_imine_pu_0516



```

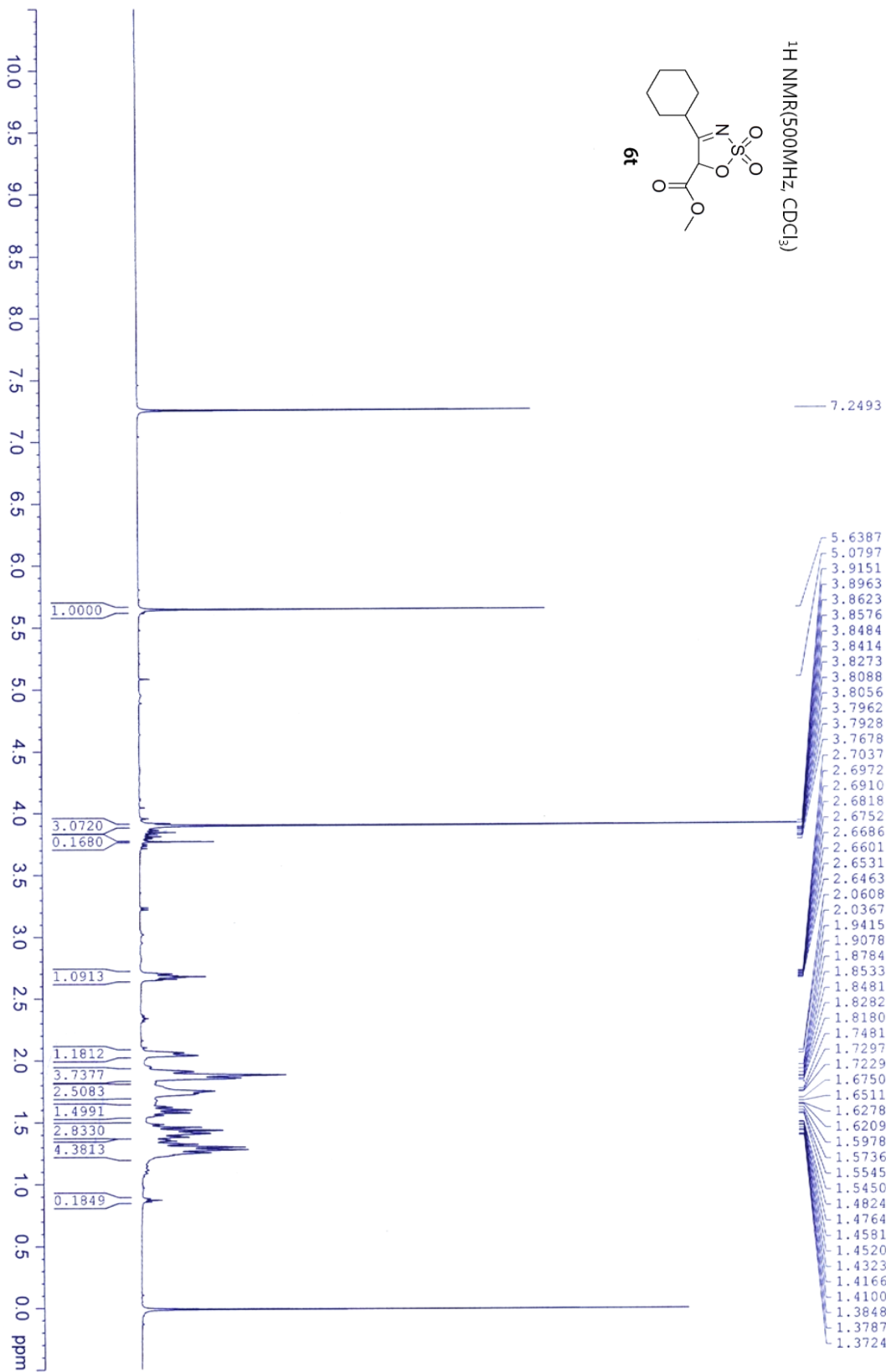
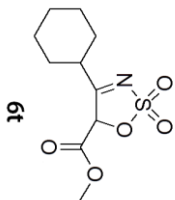
NAME          KJA_phene_imine_pu_0516
EXPNO         1
PROCNO       20140519
Date_        3.37
Time_        3.37
INSTRUM      spect
PROBHD       5 mm DUL 13C-1
PULPROG      zgpg30
TD           32768
SOLVENT      CDCl3
NS           1000
DS           2
SWH          37593.984 Hz
FIDRES       1.147277 Hz
AQ           0.4359777 sec
RG           1625.5
DE           13.300 usec
TE           296.7 K
D1           2.0000000 sec
D11          0.0300000 sec
TD0          1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          -1.40 dB
P1LM         70.60439301 W
SFO1         125.7728799 MHz

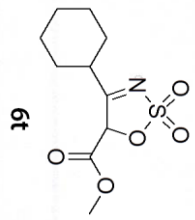
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PDZM         27.23316002 W
PL1ZM        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320095 MHz
SI           32768
SE           125.7577850 MHz
EN           EN
GB           1.00 Hz
PC           0
  
```

KJA-cyclo-imine(140311)

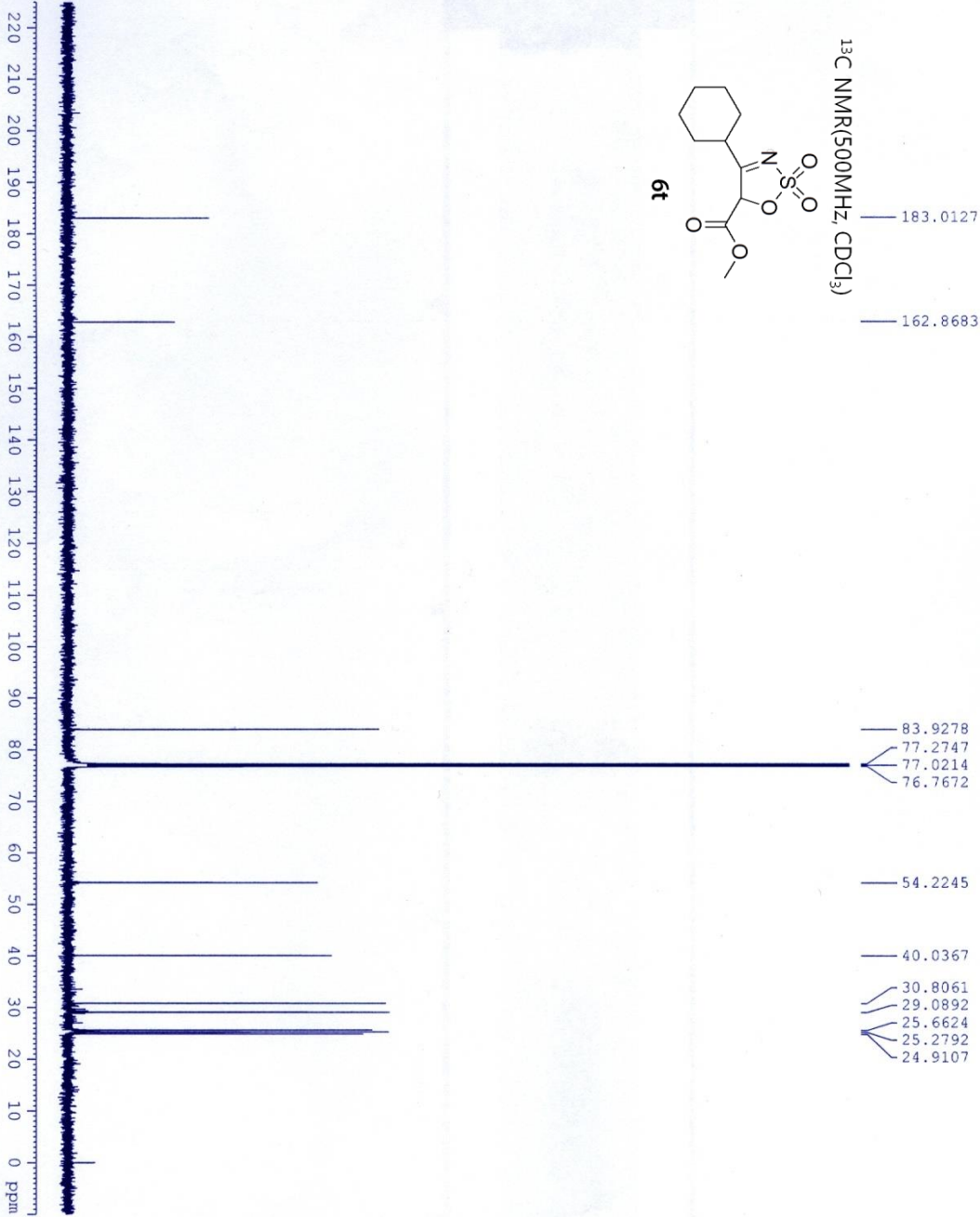
¹H NMR(500MHz, CDCl₃)



KJA_cyclo_im_0327



¹³C NMR(500MHz, CDCl₃)



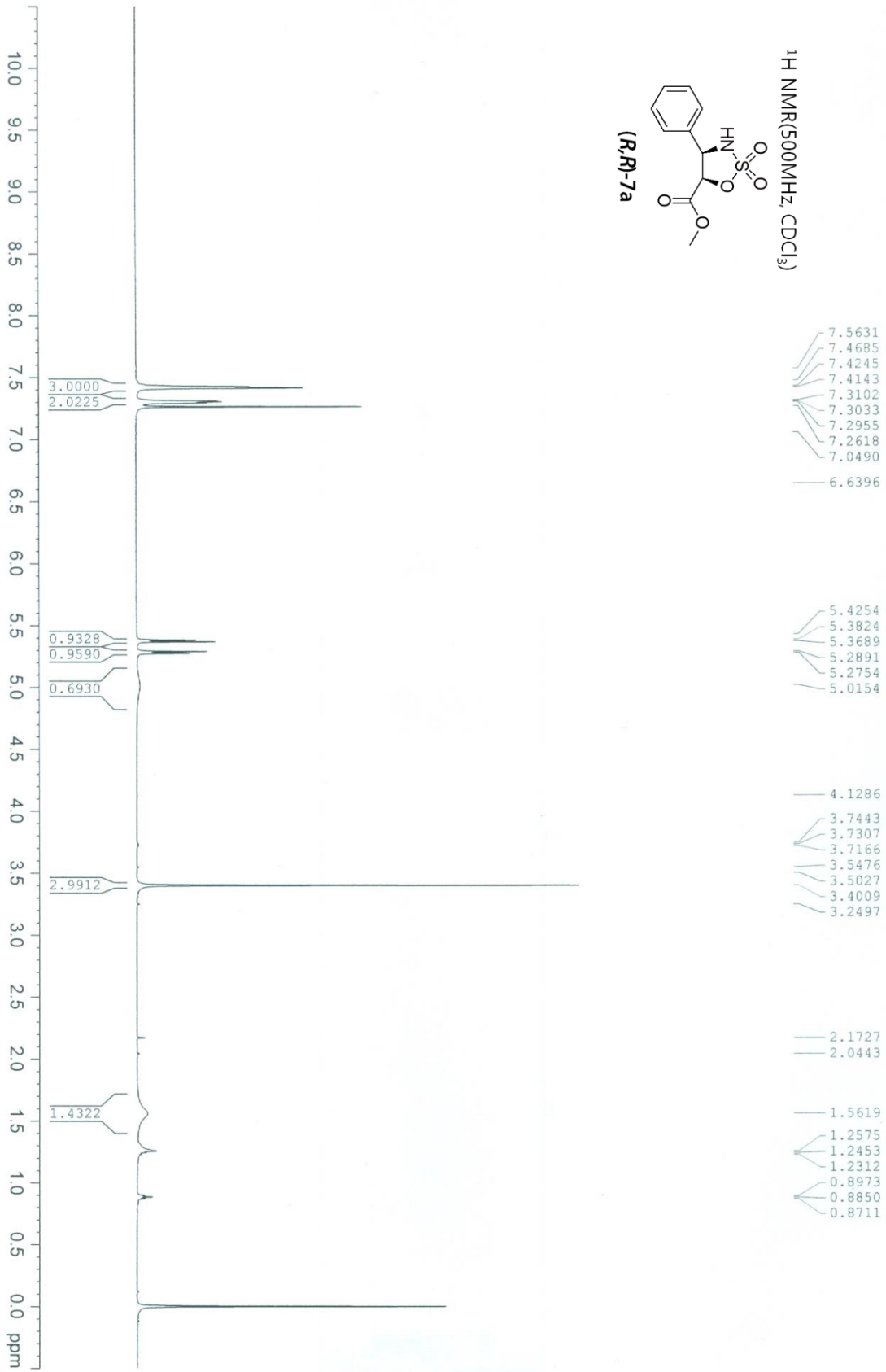
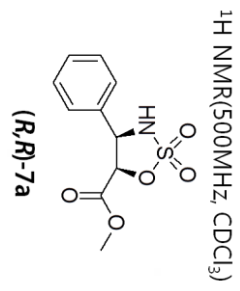
```

NAME          KJA_cyclo_im_0327
EXPNO         2
PROCNO        1
Date_         20140329
Time_         7.41
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            2896.3
DE            14.200 usec
TE            6.00 usec
D1            300.6 K
D11           2.00000000 sec
D12           0.03000000 sec
TD0           1

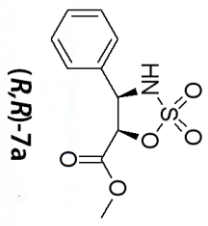
===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60438301 W
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SEF          125.7577890 MHz
WDM          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

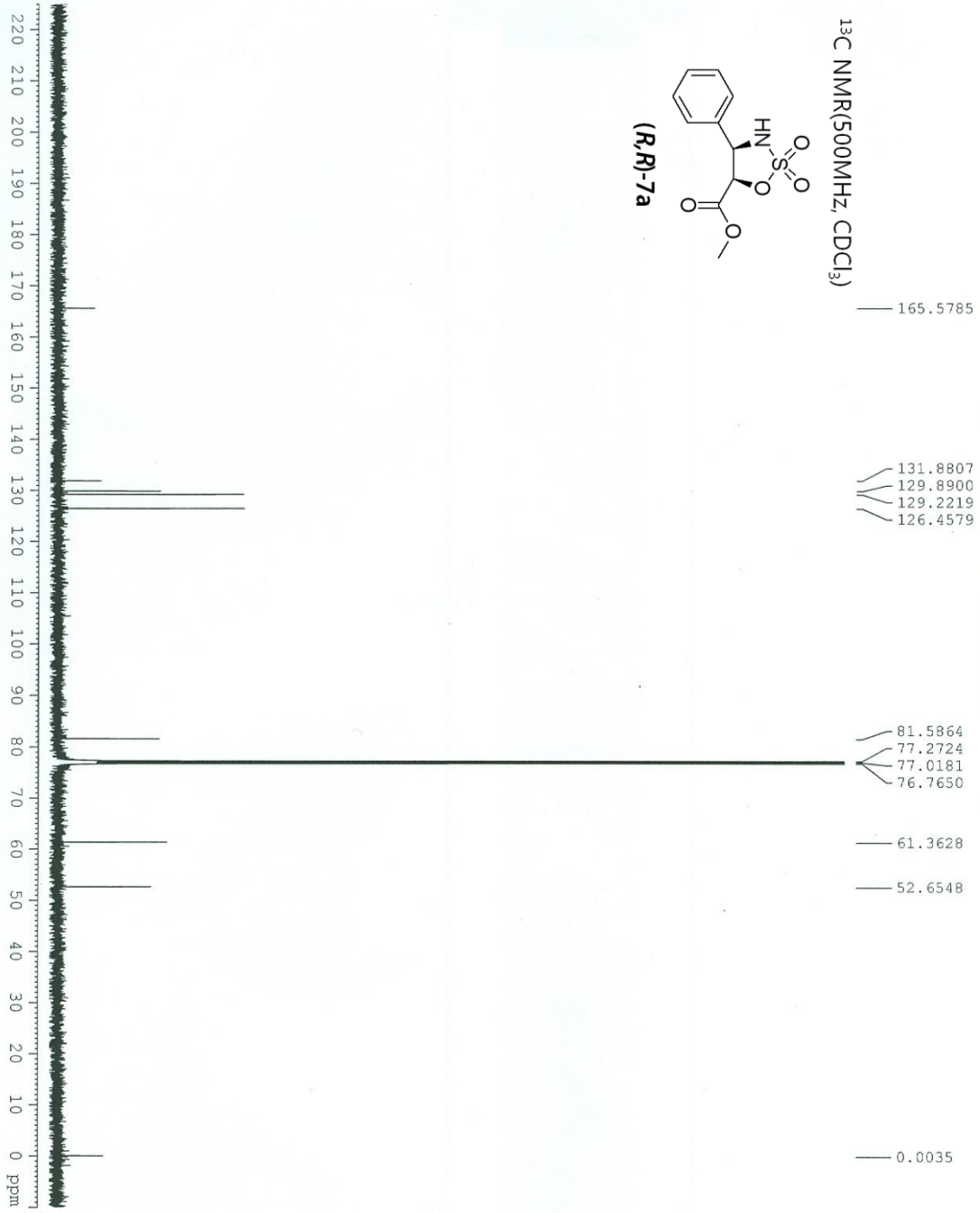

KJA-ph-carbo



KJA_ph_carbo_NH



¹³C NMR(500MHz, CDCl₃)



```

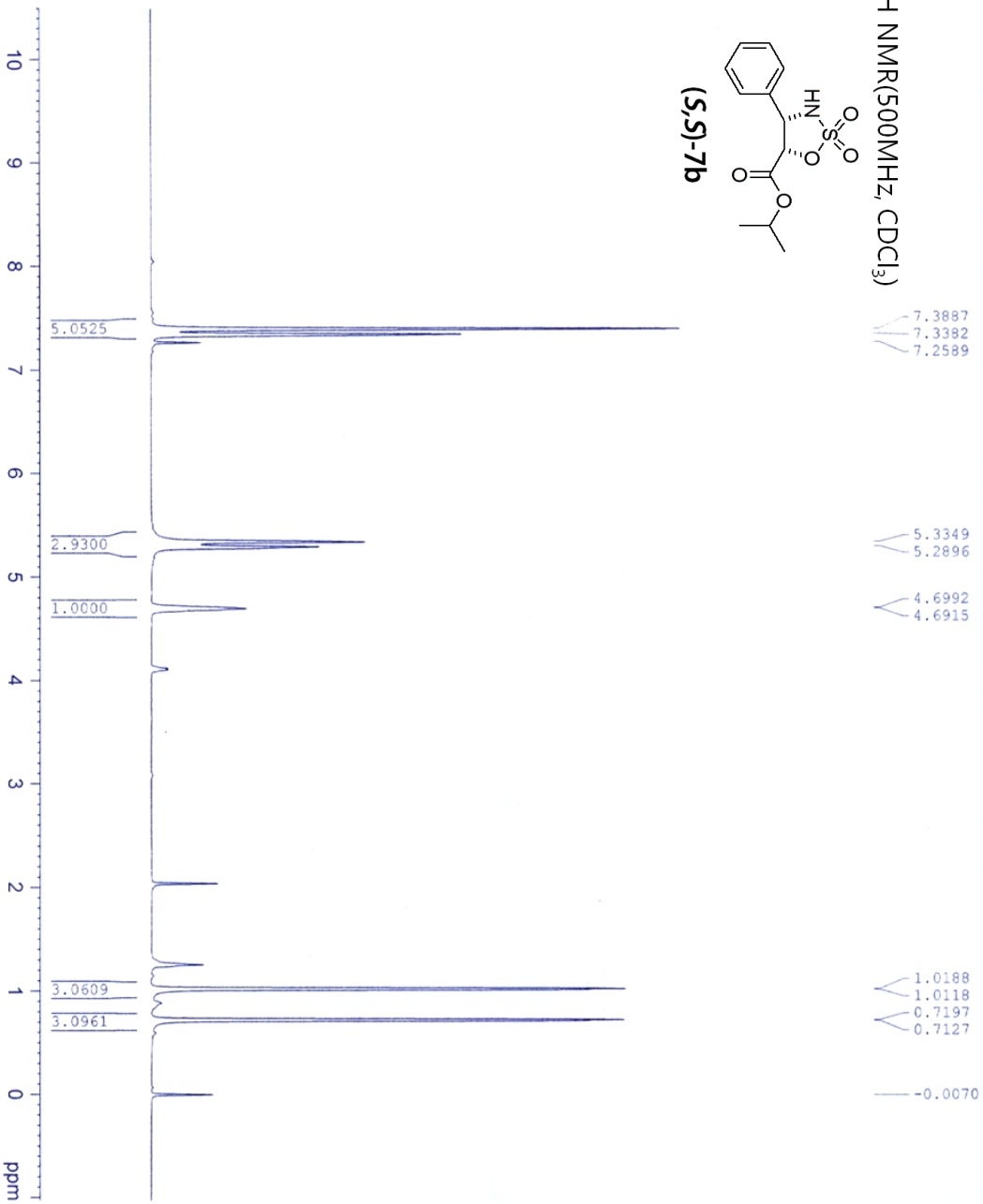
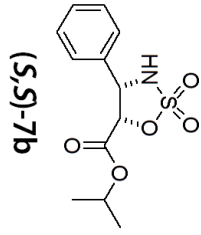
NAME          KJA_ph_carbo_NH_s,s
EXPNO         1
PROCNO        1
Date_         20140306
Time          10.45
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            2000
DS            2
SWH           35211.270 Hz
FIDRES       1.074563 Hz
AQ           0.4653698 sec
RG           3251
DW           14.200 usec
DE           6.00 usec
TE           297.6 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0          1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
PL1W         70.60439301 W
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2         1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

HJA_ipr_NH

¹H NMR(500MHz, CDCl₃)

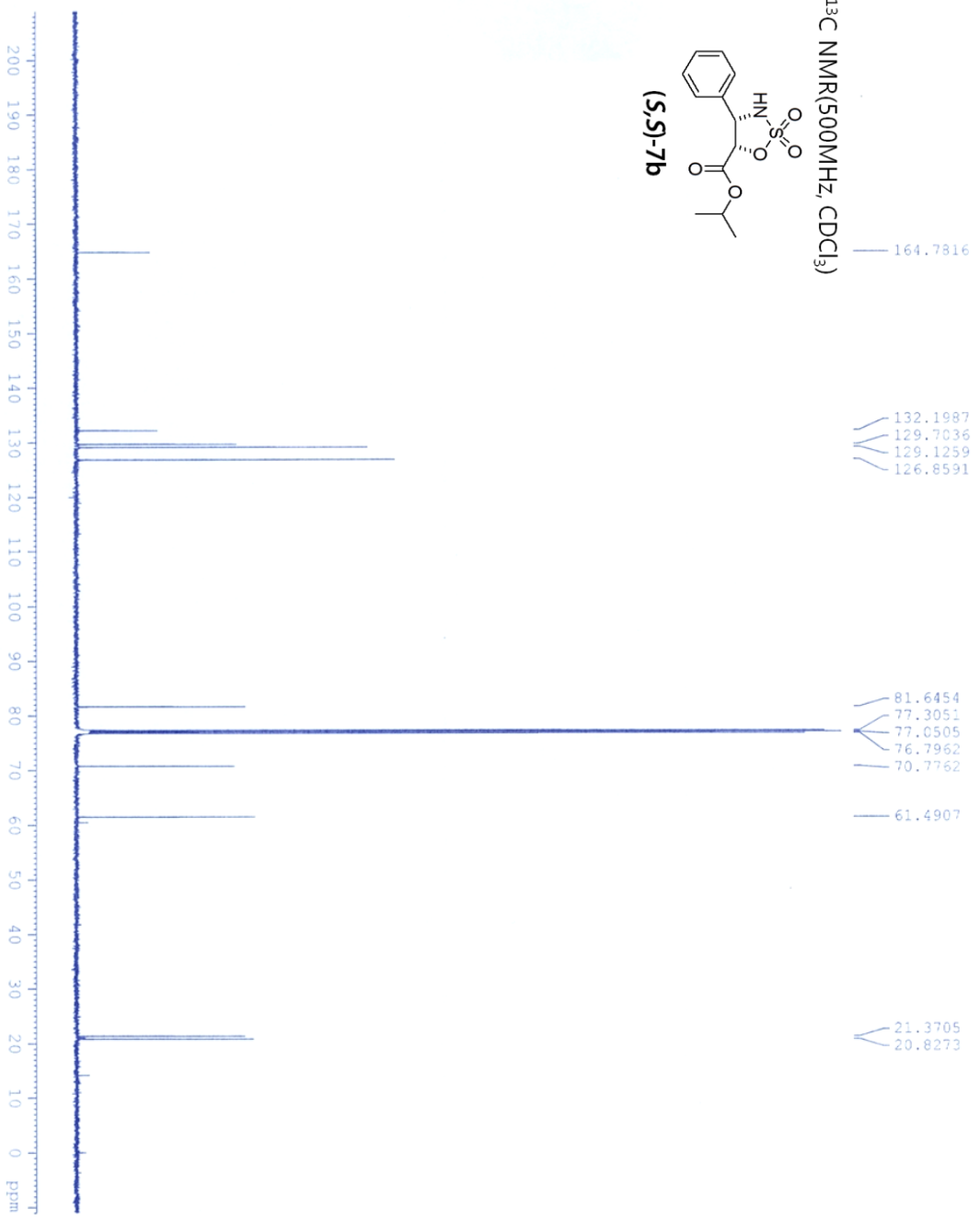
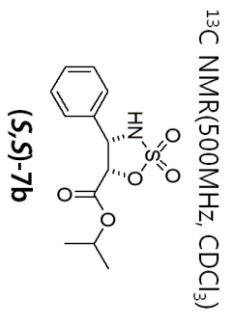


```

NAME          HJA_ipr_NH
EXPNO         2
PROCNO        1
Date_         20110214
Time         13.53
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zg30
TD            65536
SOLVENT       CDCl3
NS            8
DS            2
SWMH          7507.507 Hz
FIDRES        0.114555 Hz
AQ            4.3648143 sec
RG            114
DW            66.600 usec
DE            6.00 usec
TE            294.6 K
D1            1.00000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          1H
P1            9.80 usec
PL1          -1.90 dB
PL1W         27.23316002 W
SFO1         500.1332508 MHz
SI           32768
SF           500.1300144 MHz
WDW          EM
SSB          0
LB           0.30 Hz
GB           0
PC           1.00
  
```

HJA_iPr_NH



```

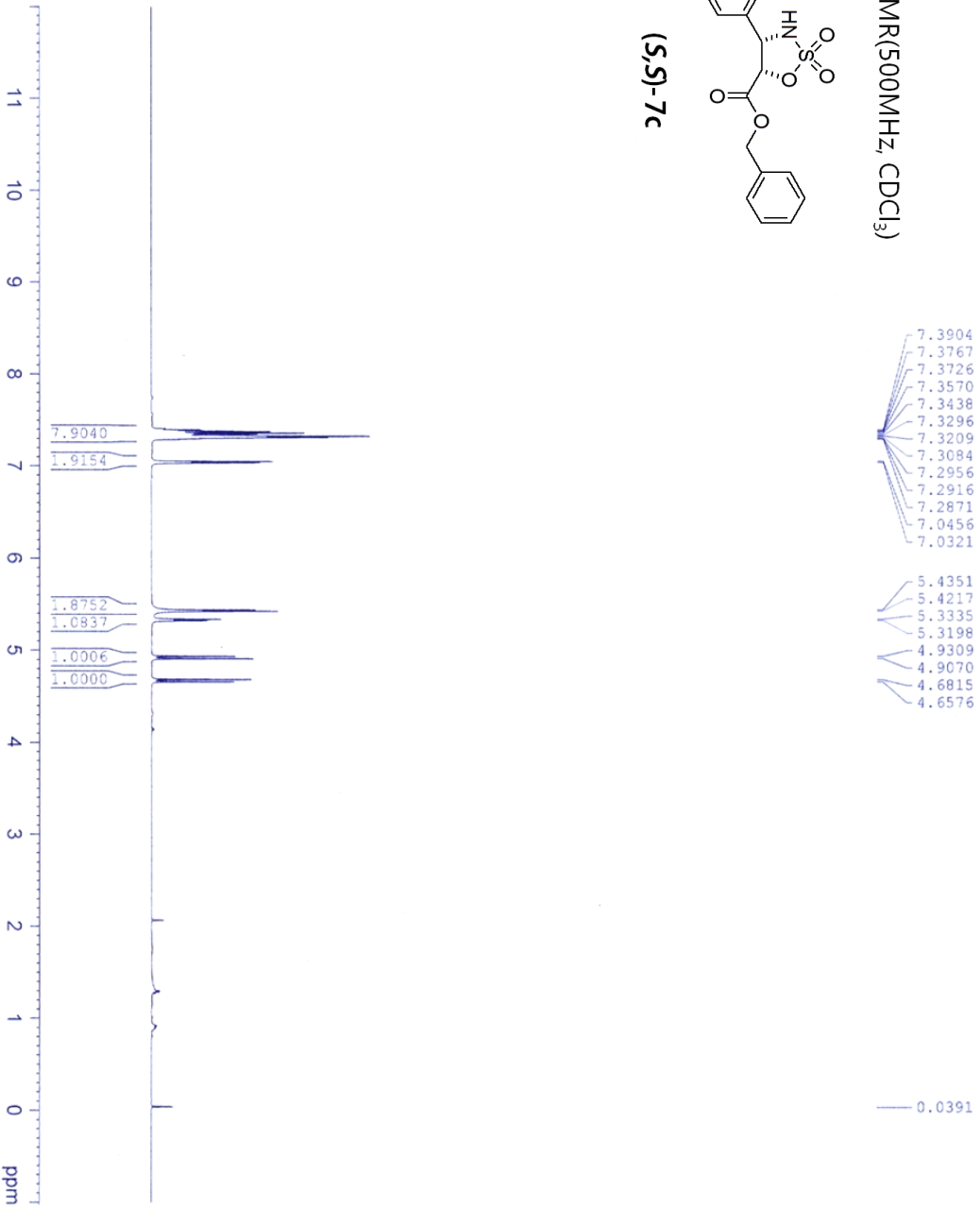
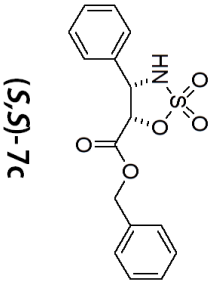
NAME          HJA_iPr_NH_C
EXPNO         2
PROCNO        1
Date_         20110214
Time_         14.25
INSTRUM       spect
PROBHD        5 mm DUL-13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            512
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DE            14.200 usec
TE            295.4 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2           -1.90 dB
PL12          16.00 dB
PL13          19.00 dB
PL2W         27.23316002 W
PL12W         0.44167015 W
PL13W         0.22135943 W
SFO2          500.1320005 MHz
SI            32768
SE           125.7577890 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
  
```

HJA_OBn_

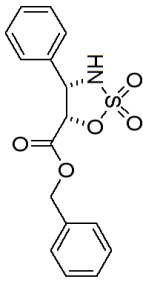
¹H NMR(500MHz, CDCl₃)



```
NAME HJA_OBn_R
EXPNO 1
PROCNO 1
Date_ 20110211
Time_ 13.36
INSTRUM spect
PROBHD 5 mm DUL-13C-1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 7507.507 Hz
FIDRES 0.114555 Hz
AQ 4.3648143 sec
RG 71.8
DW 66.600 usec
DE 6.00 usec
TE 295.7 K
D1 1.00000000 sec
TD0 1

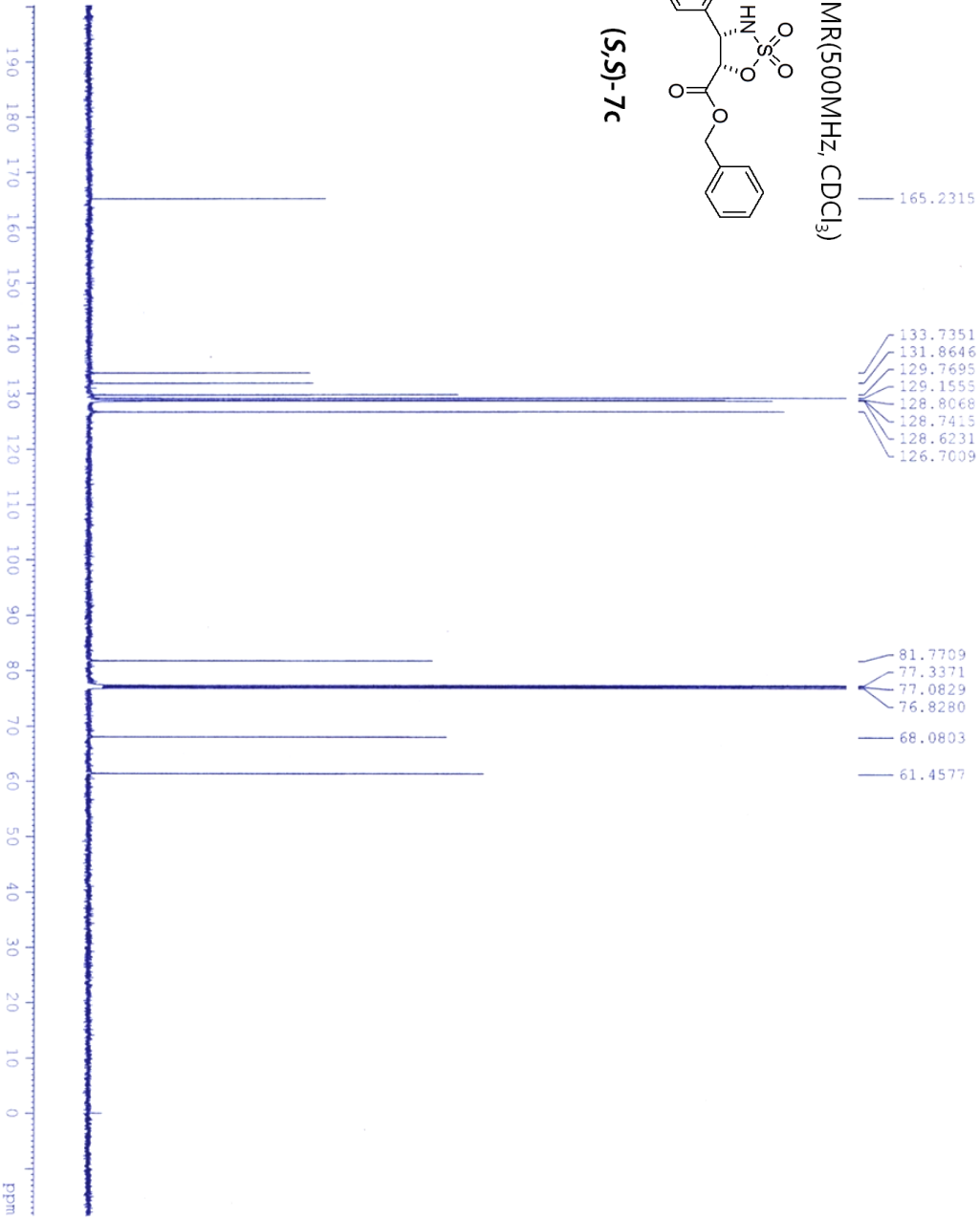
===== CHANNEL f1 =====
NUC1 1H
P1 9.80 usec
PL1 -1.90 dB
PL1W 27.23316002 W
SFO1 500.1332508 MHz
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
GB 0
PC 1.00
```

HJA_OBn



(S,S)-7c

¹³C NMR(500MHz, CDCl₃)



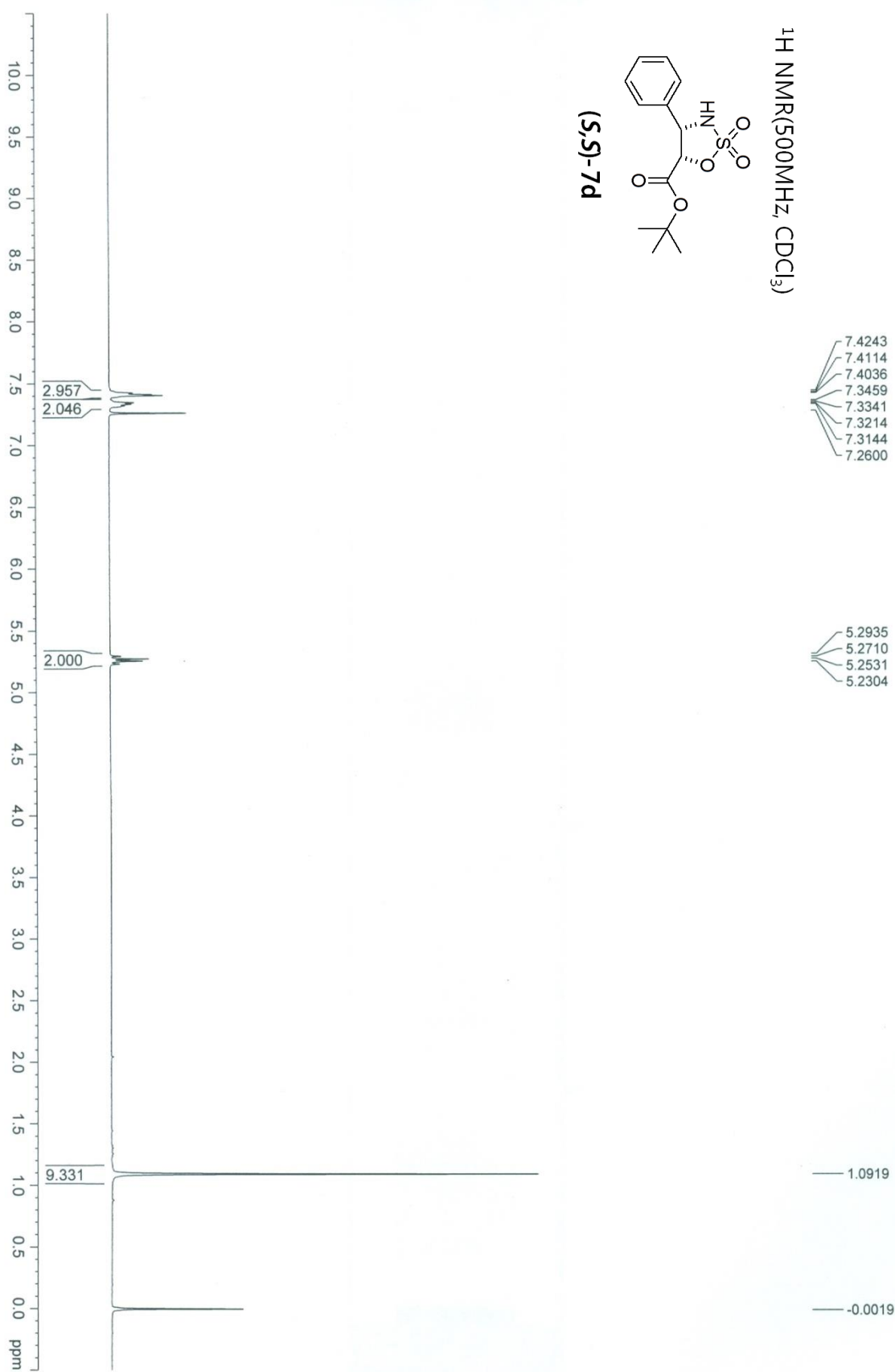
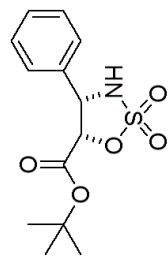
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NAME HJA_obn_R
EXPNO 1
PROCNO 1
Date_ 20110211
Time_ 14.07
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zgpg30
TD 299930
FIDRES 0.537281 Hz
AQ 0.9306754 sec
RG 512
DE 14.200 usec
TE 296.5 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

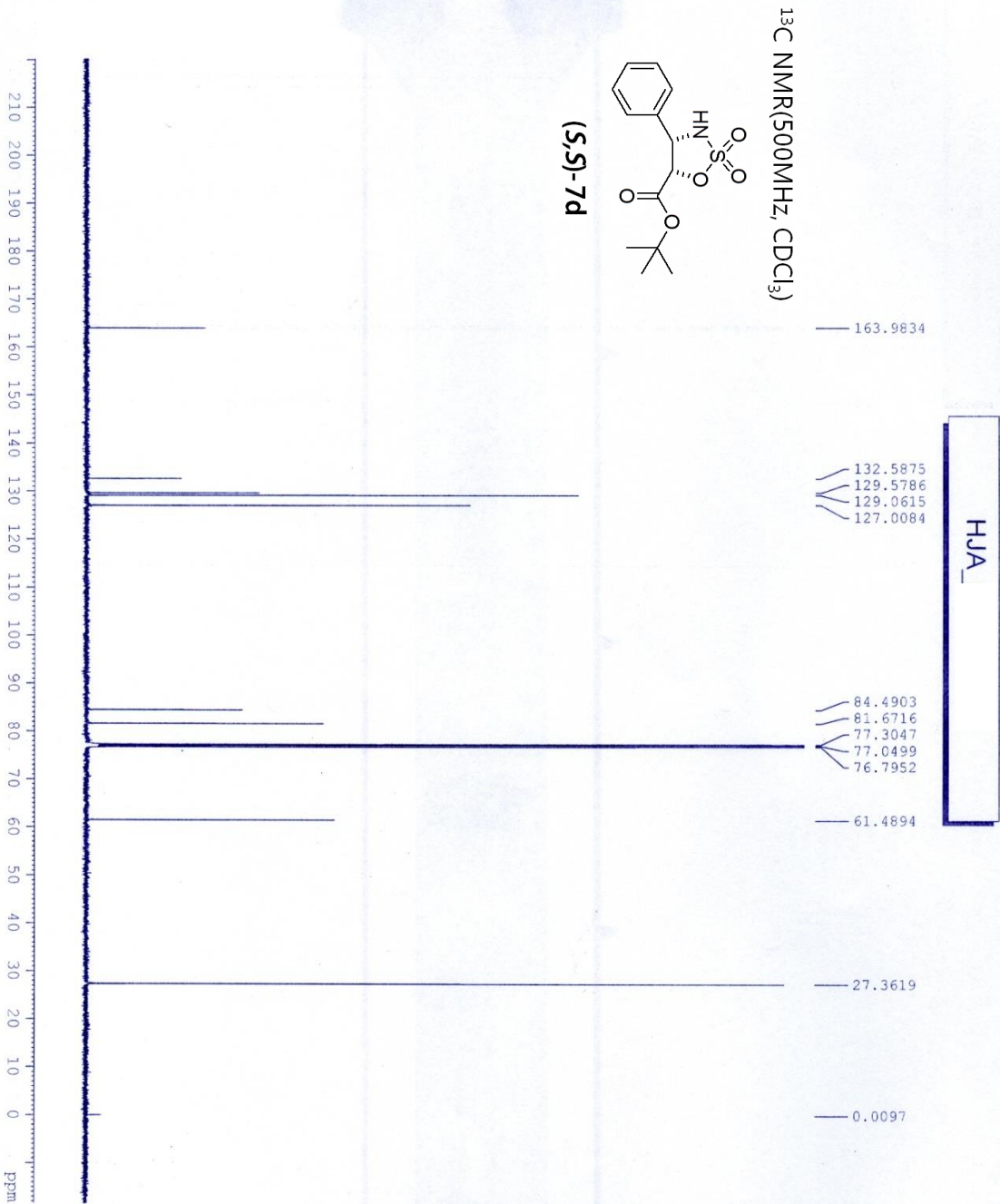
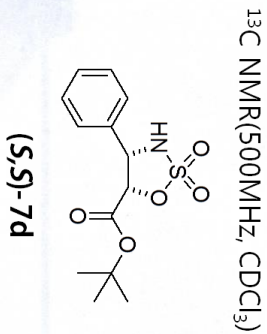
===== CHANNEL f1 =====
NUC1 13C
P1 8.00 usec
PL1 1.40 dB
PL1W 70.60439301 W
SFO1 125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -1.90 dB
PL12 16.00 dB
PL13 19.00 dB
PL2W 27.23316002 W
PL12W 0.44167015 W
PL13W 0.22135943 W
SFO2 500.1320005 MHz
SI 32768
SF 125.7577890 MHz
MDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
```

HJA_tBu

¹H NMR(500MHz, CDCl₃)





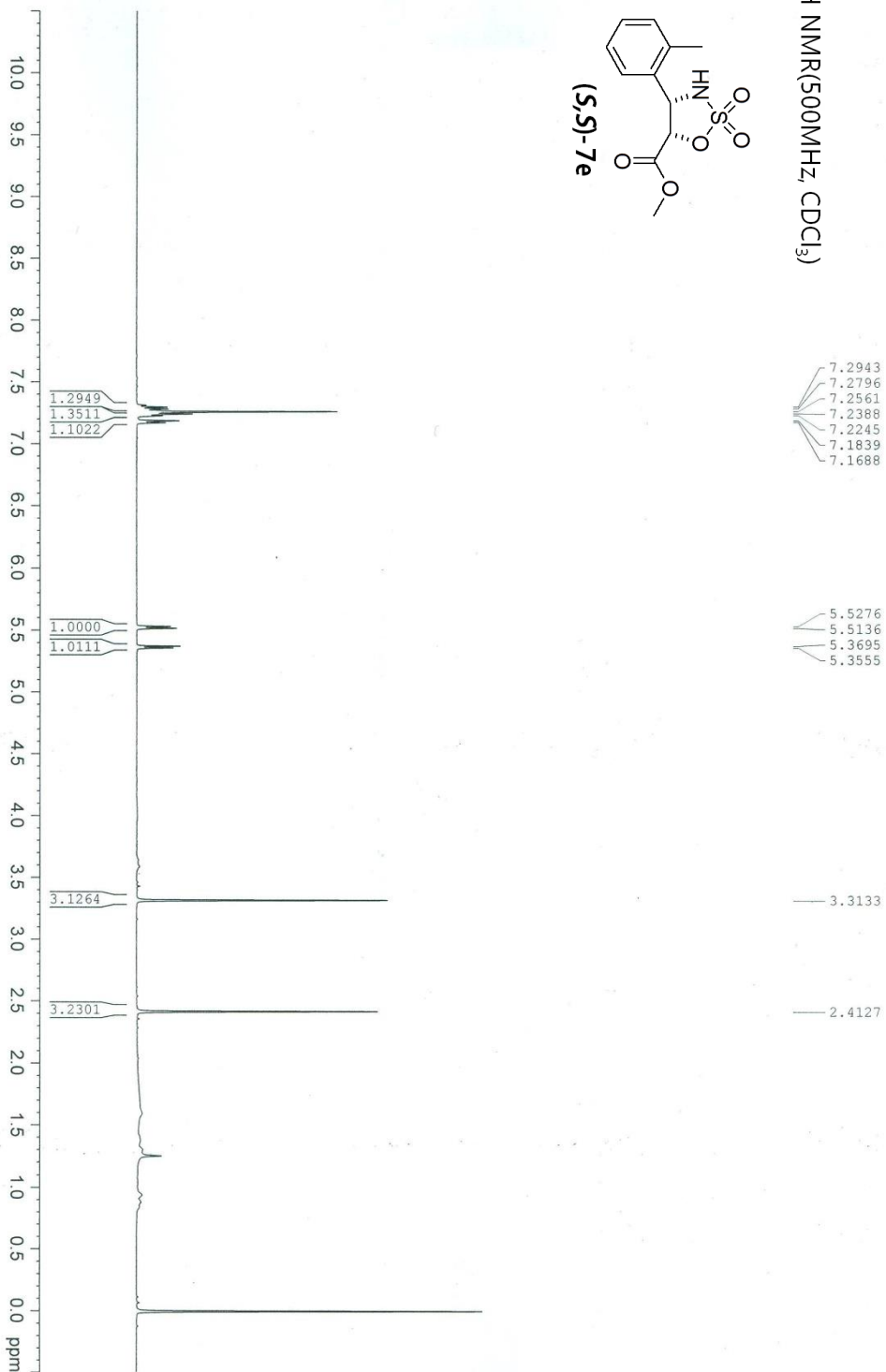
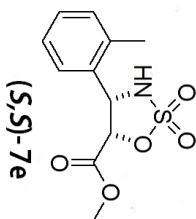
NAME	HJA_Obn_imine
EXPNO	1
PROCNO	1
Date_	20110209
Time_	15.20
INSTRUM	spect
PROBHD	13C-1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	512
DS	2
SMH	35211.270 Hz
FIDRES	0.537281 Hz
AO	0.9306754 sec
RG	1625.5
DW	14.200 usec
DE	6.00 usec
TE	296.7 K
D1	2.00000000 sec
D11	0.03000000 sec
TDO	1

===== CHANNEL f1 =====	
NUC1	¹³ C
P1	8.00 usec
PL1	1.40 dB
PL1W	70.60433301 W
SFO1	125.7728799 MHz

===== CHANNEL f2 =====	
CPDPRG2	waltz16
NUC2	¹ H
PCPD2	100.00 usec
PL2	-1.90 dB
PL12	16.00 dB
PL13	19.00 dB
PL2W	27.23316002 W
PL12W	0.44167015 W
PL13W	0.22135943 W
SFO2	500.1320005 MHz
SI	32768
SF	125.7577890 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

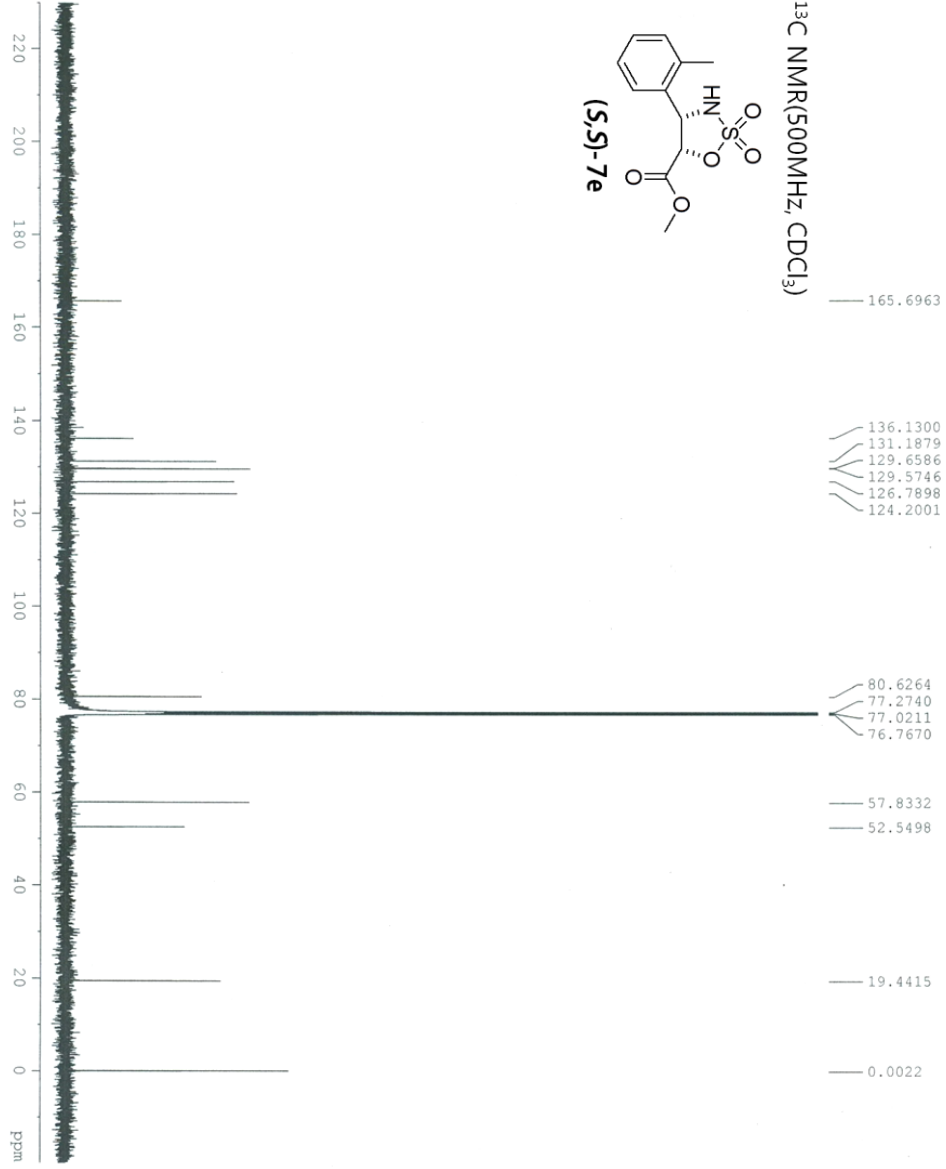
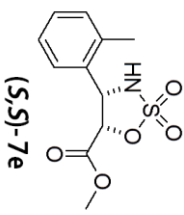
KJA-2-Me-carbo

¹H NMR(500MHz, CDCl₃)



KJA_2_Me_carbo.

¹³C NMR(500MHz, CDCl₃)



```

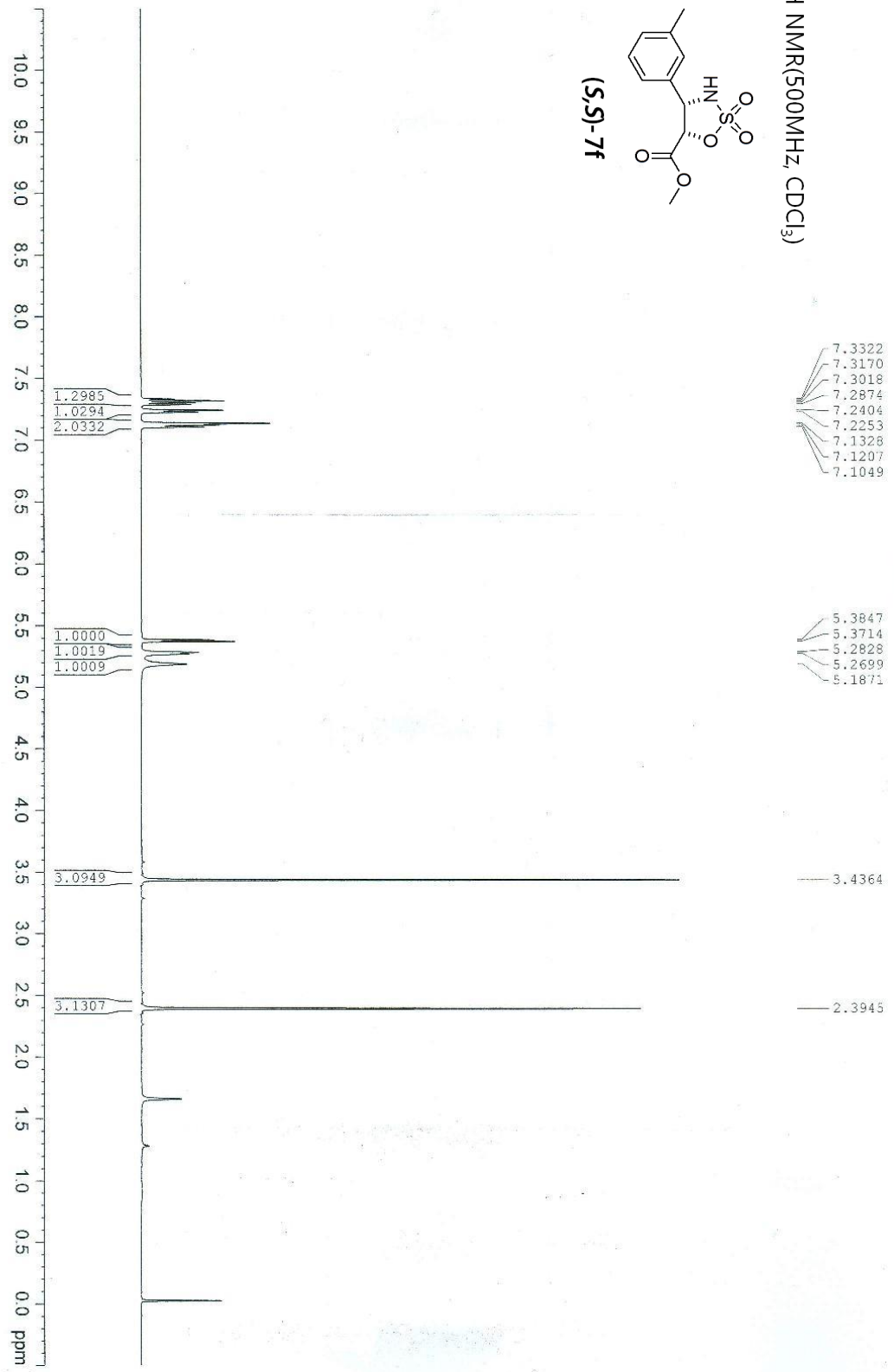
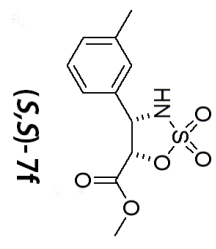
NAME      KJA_2_Me_carbo P.R.1021
EXPNO     1
PROCNO    1
Date_     20131022
Time      0.55
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zgpg30
SOLVENT   CDCl3
NS         5000
DS         2
SMH        35211.270 Hz
FIDRES     0.537281 Hz
AQ         0.9306754 sec
RG         512
DM         14.200 usec
DE         6.00 usec
TE         296.7 K
D1         2.0000000 sec
D11        0.0300000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         8.00 usec
PL1        1.40 dB
EL1W       70.60439501 W
SFO1       125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     100.00 usec
PL2        -1.90 dB
PL12       16.00 dB
PL13       19.00 dB
PL14       27.23316002 W
PL15       0.44167015 W
PL16       0.22135943 W
PL17       500.1320005 MHz
SFO2       500.1320005 MHz
SR         125.7577890 MHz
WDW        EM
SSB        0
GB         0
PC         1.40
  
```

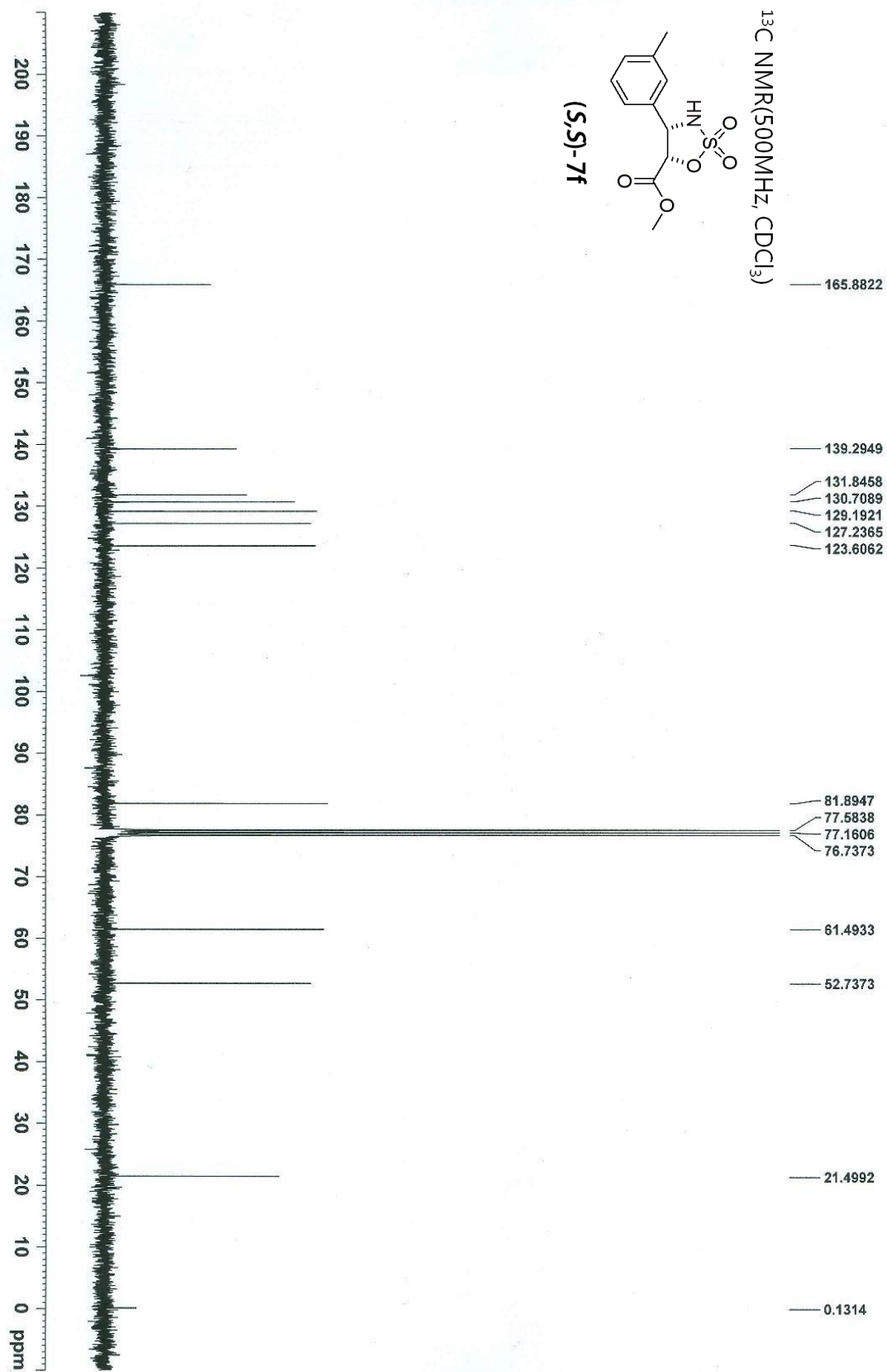
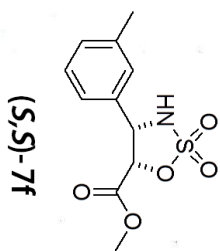
KJA-3-Me-car-

¹H NMR(500MHz, CDCl₃)



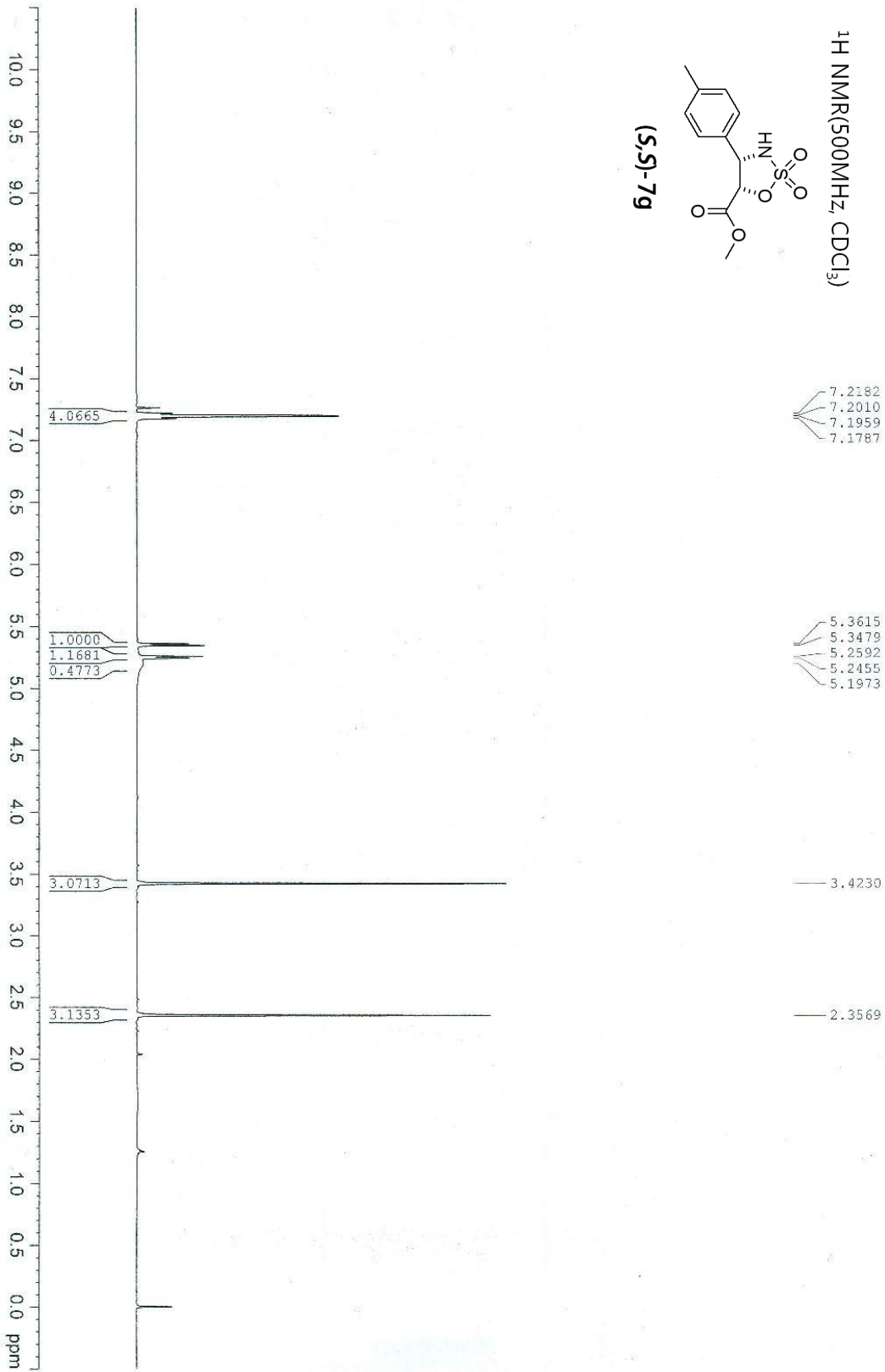
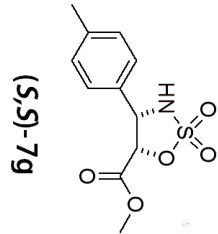
KSY_3CH3_am

^{13}C NMR(500MHz, CDCl_3)



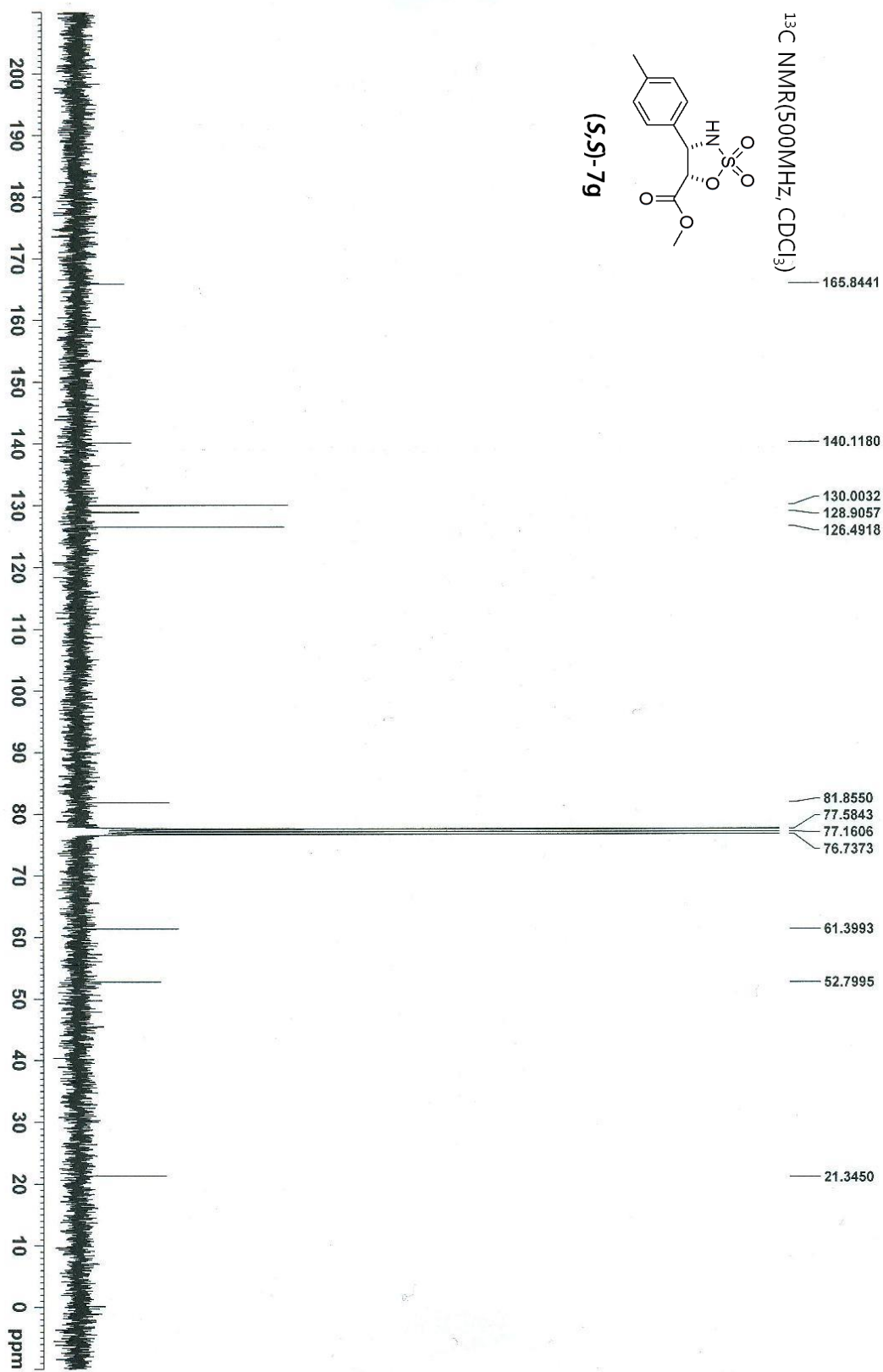
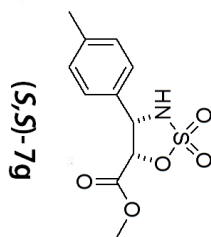
KJA-4-Me-car-

¹H NMR(500MHz, CDCl₃)



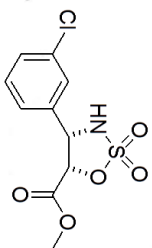
KSY_120509_4Me_A

¹³C NMR(500MHz, CDCl₃)



KSY_120510_3Cl_A

¹H NMR(500MHz, CDCl₃)

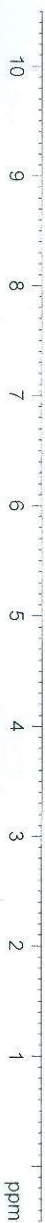


(S,S)-7h

7.4006
7.3975
7.3846
7.3761
7.3609
7.3450
7.3274
7.2599
7.2521
7.2373

5.4008
5.3873
5.3638
5.2504

2.9481



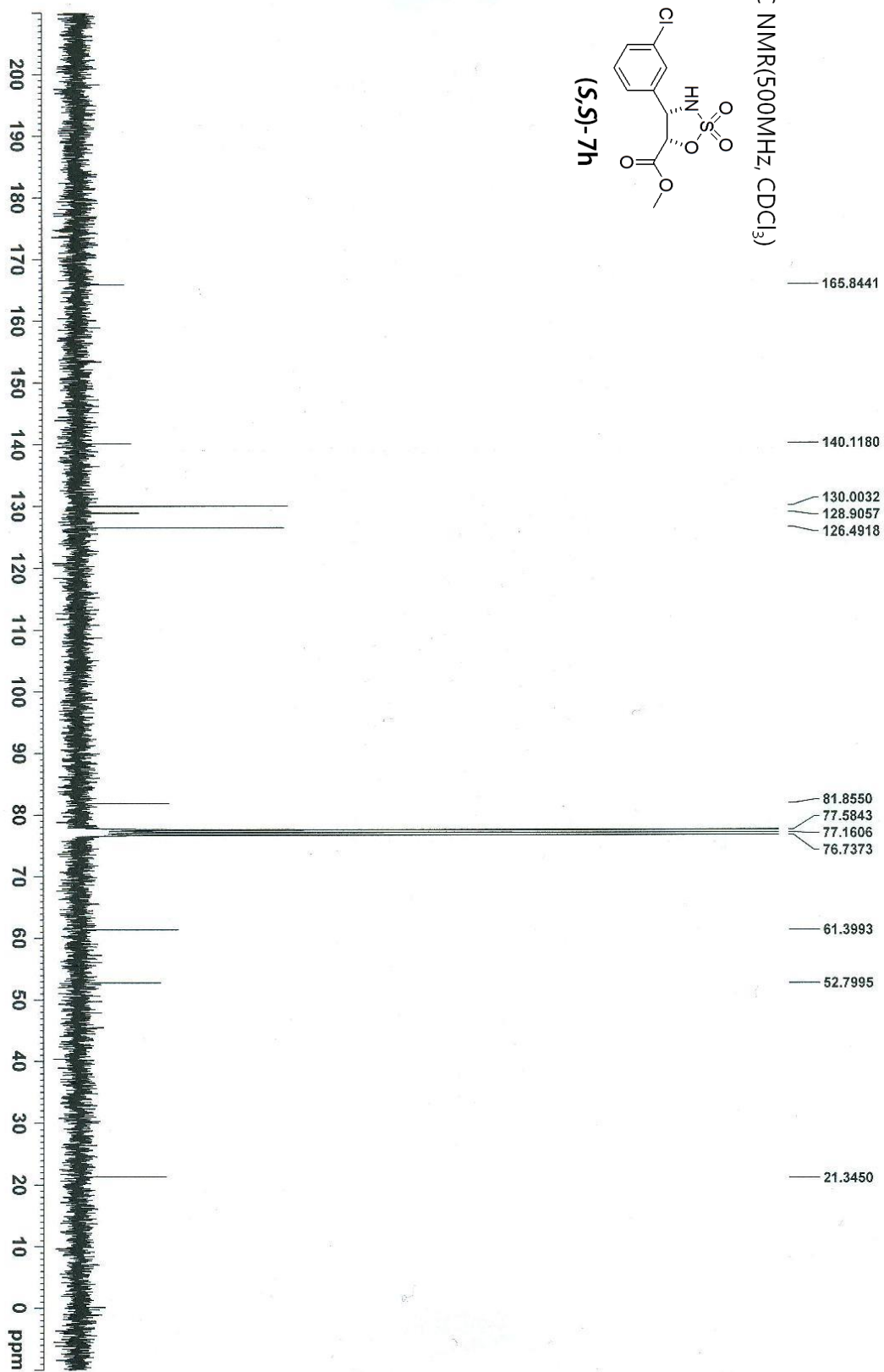
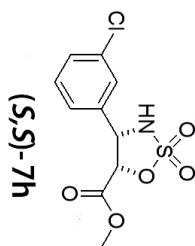
```

NAME      KSY_120510_3Cl_A
EXPNO     1
PROCNO    1
Date_     20120510
Time      15:13
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         2
SWH        7507.507 Hz
FIDRES     0.114555 Hz
AQ         4.3648143 sec
RG         322.5
DW         66.600 usec
DE         6.00 usec
TE         299.9 K
D1         1.000000000 sec
TDO        1

===== CHANNEL f1 =====
NUC1       1H
P1         9.80 usec
PL1        -1.90 dB
PL1W       27.23316002 W
SFO1       500.1332508 MHz
SI         32768
SF         500.1300136 MHz
WDW        EMI
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```

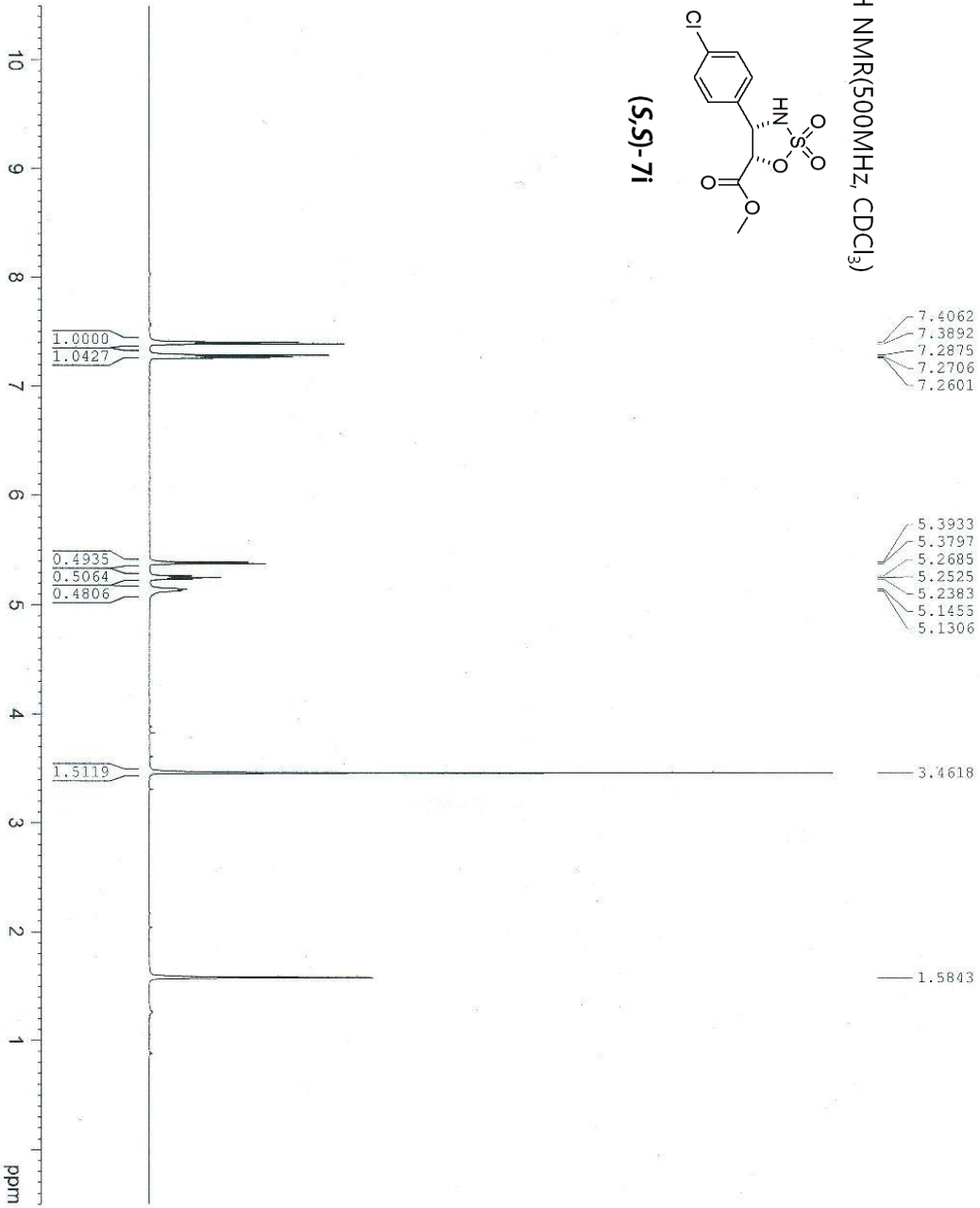
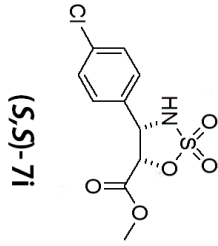
KSY_120509_4Me_A

^{13}C NMR(500MHz, CDCl_3)



KSY_120607_4Cl_A

¹H NMR(500MHz, CDCl₃)



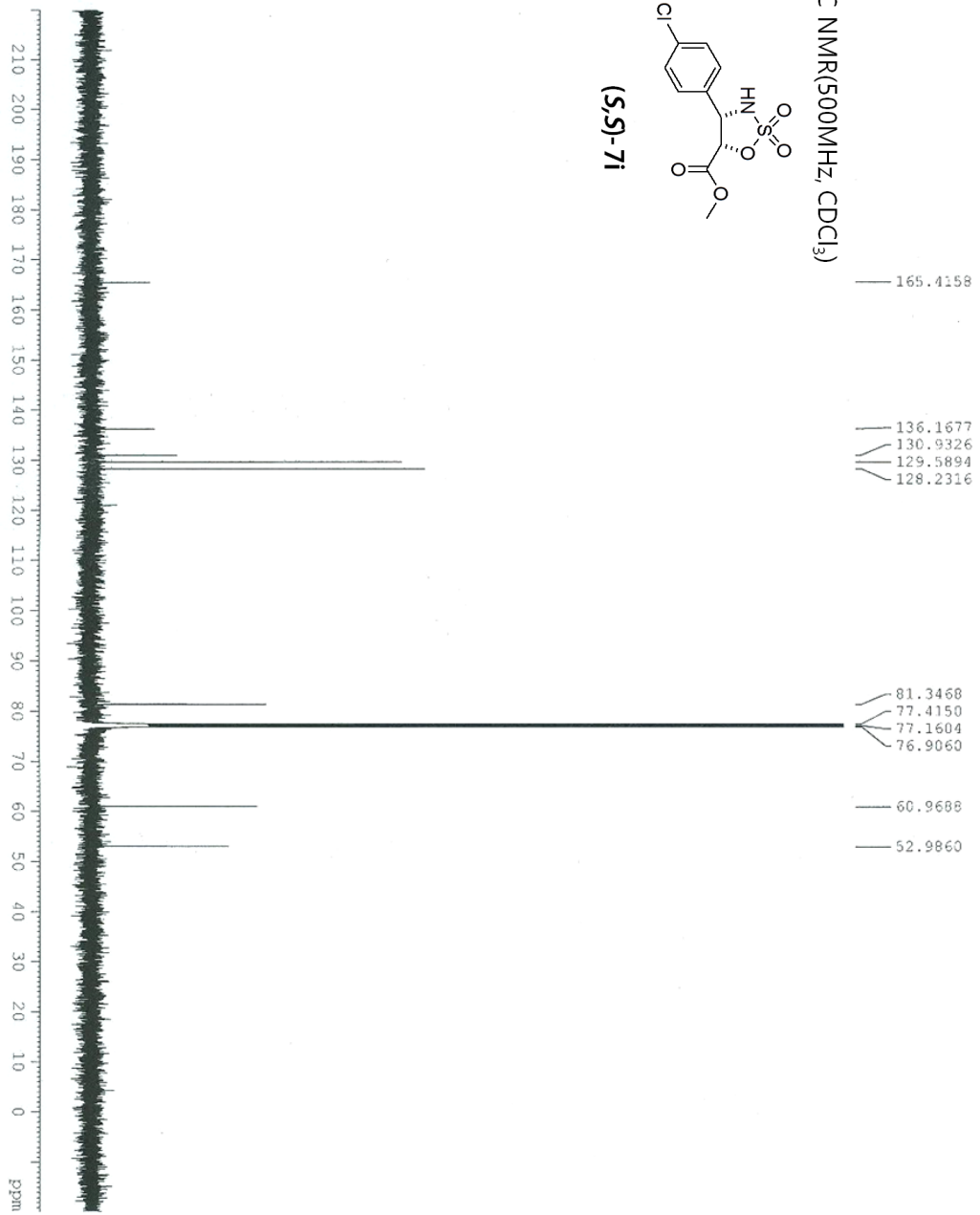
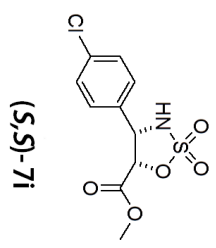
```

NAME      KSY_120607_4Cl_A
EXPNO    1
PROCNO   1
Date_    20120608
Time     17:44
INSTRUM  spect
PROBHD   5 mm DUL 13C-1
PULPROG  zg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        2
SWH       7507.507 Hz
FIDRES    0.114555 Hz
AQ        4.3648143 sec
RG        574.7
DW        66.600 usec
DE        6.00 usec
TE        300.7 K
D1        300.7 K
D10       1.000000000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        9.80 usec
PL1       -1.90 dB
PL1W      27.23316002 W
SFO1      500.1332508 MHz
SI        32768
SF        500.1300137 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
    
```

KSY_120607_4Cl_A

¹³C NMR(500MHz, CDCl₃)



```

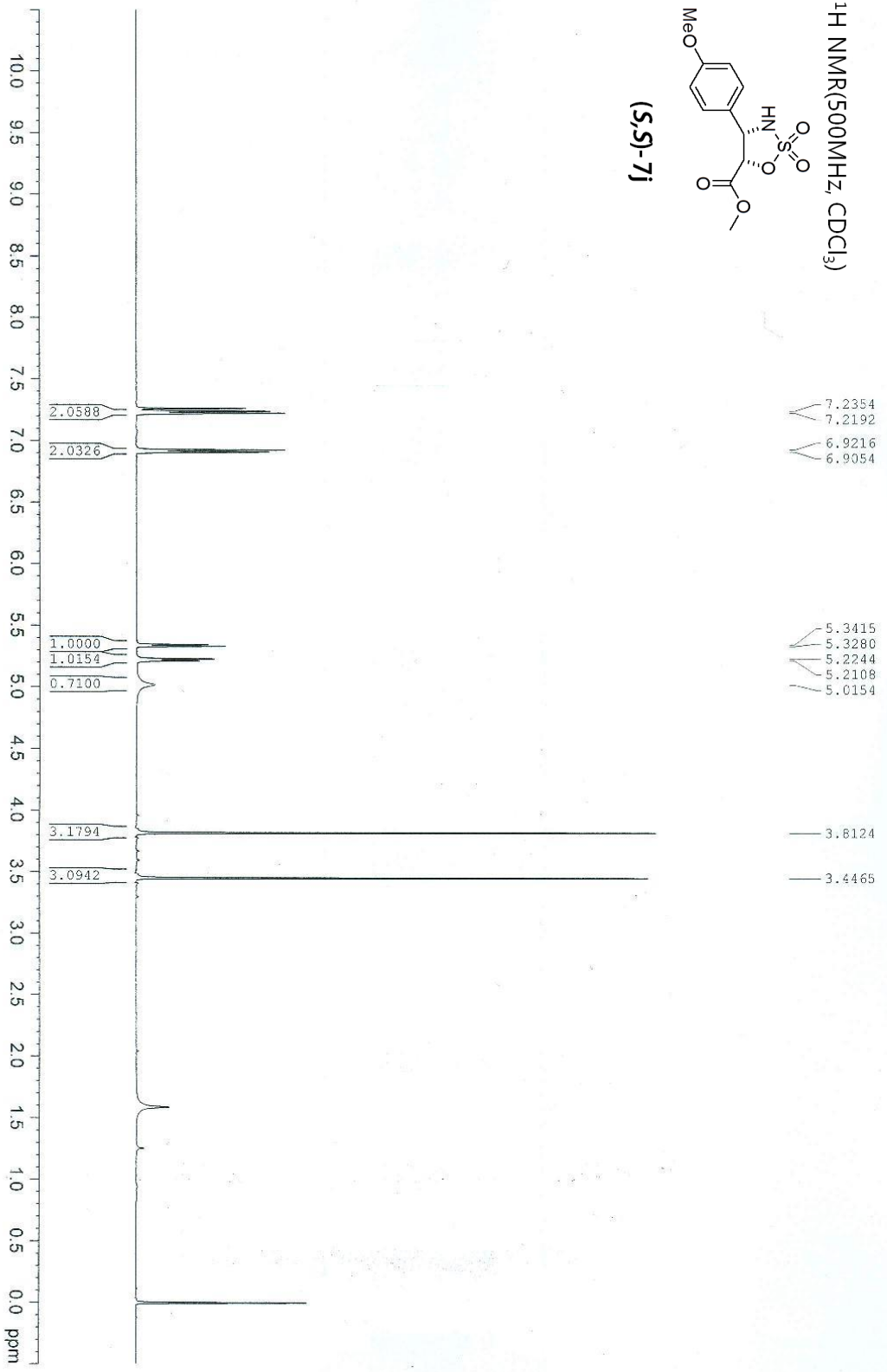
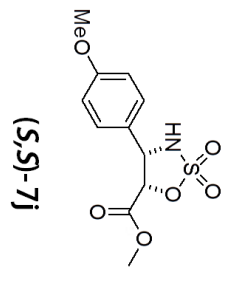
NAME          KSY_120607_4Cl_A
EXPNO         2
PROCNO        1
Date_         20120611
Time         10.08
INSTRUM       spect
PROBHD        5 mm DCL 13C-1
PULPROG       zgpg30
TD            299430
SOLVENT       CDCl3
NS            65536
DS            1024
SWH           35211.270 Hz
FIDRES        0.337281 Hz
AQ            0.9306754 sec
RG            5160.6
DE            14.200 usec
TE            300.2 K
D1            2.00000000 sec
D11           0.03000000 sec
TDO           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2       waltz16
NUC2           1H
PCPD2         100.00 usec
PI2           -1.90 dB
PL12          16.00 dB
PL13          19.00 dB
PL1Z          27.23316002 W
PL1ZW         0.44167015 W
PL12W         0.22135943 W
SFO2          500.1320005 MHz
SI            32768
SE            125.7577687 MHz
WDW           EM
SSB           0
GB            1.00 Hz
PC            1.40
    
```

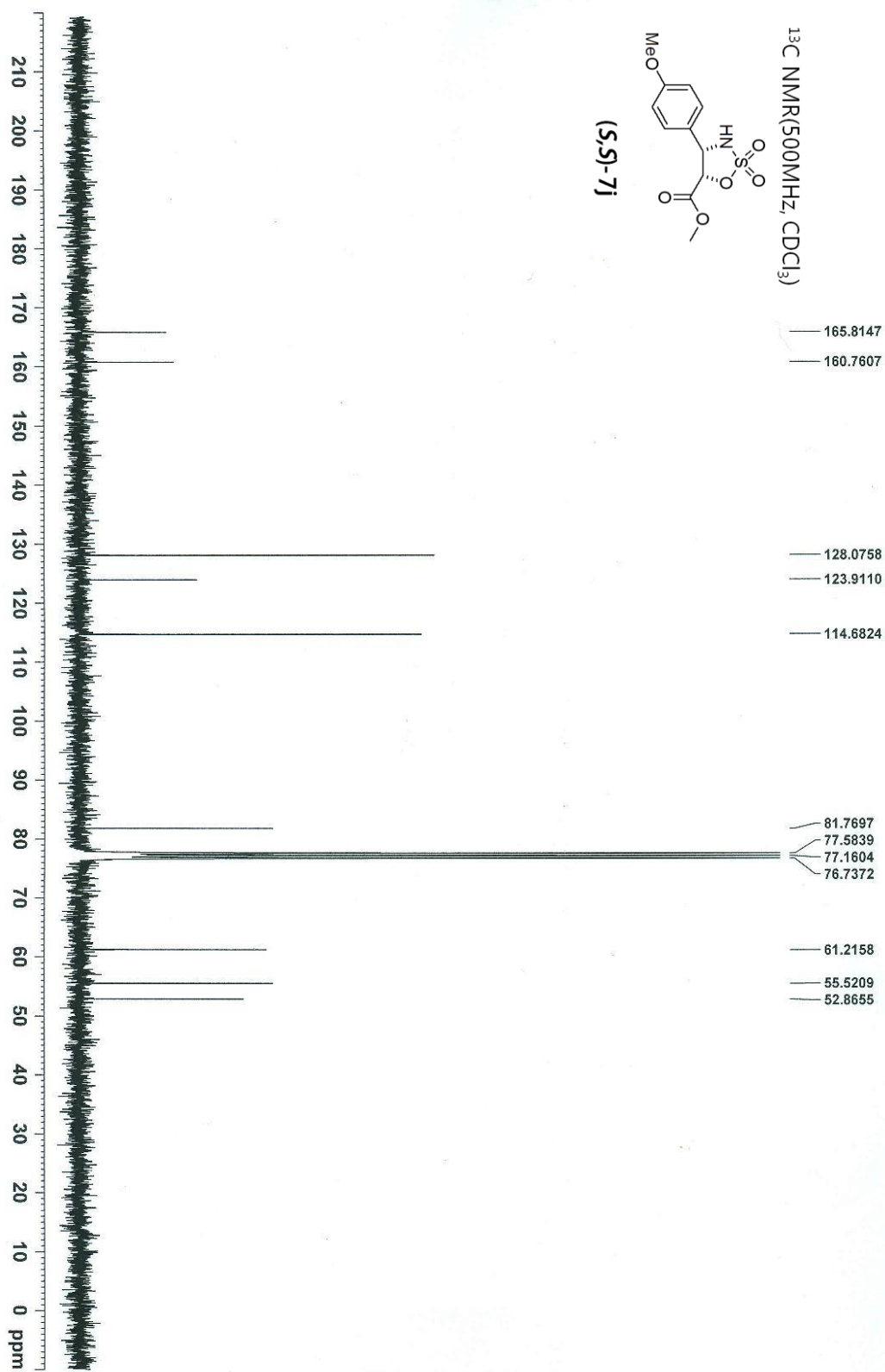
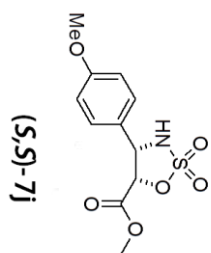
KJA-4-Ome-car

¹H NMR(500MHz, CDCl₃)



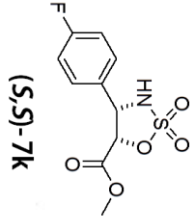
KSY_120510_40Me_A

¹³C NMR(500MHz, CDCl₃)

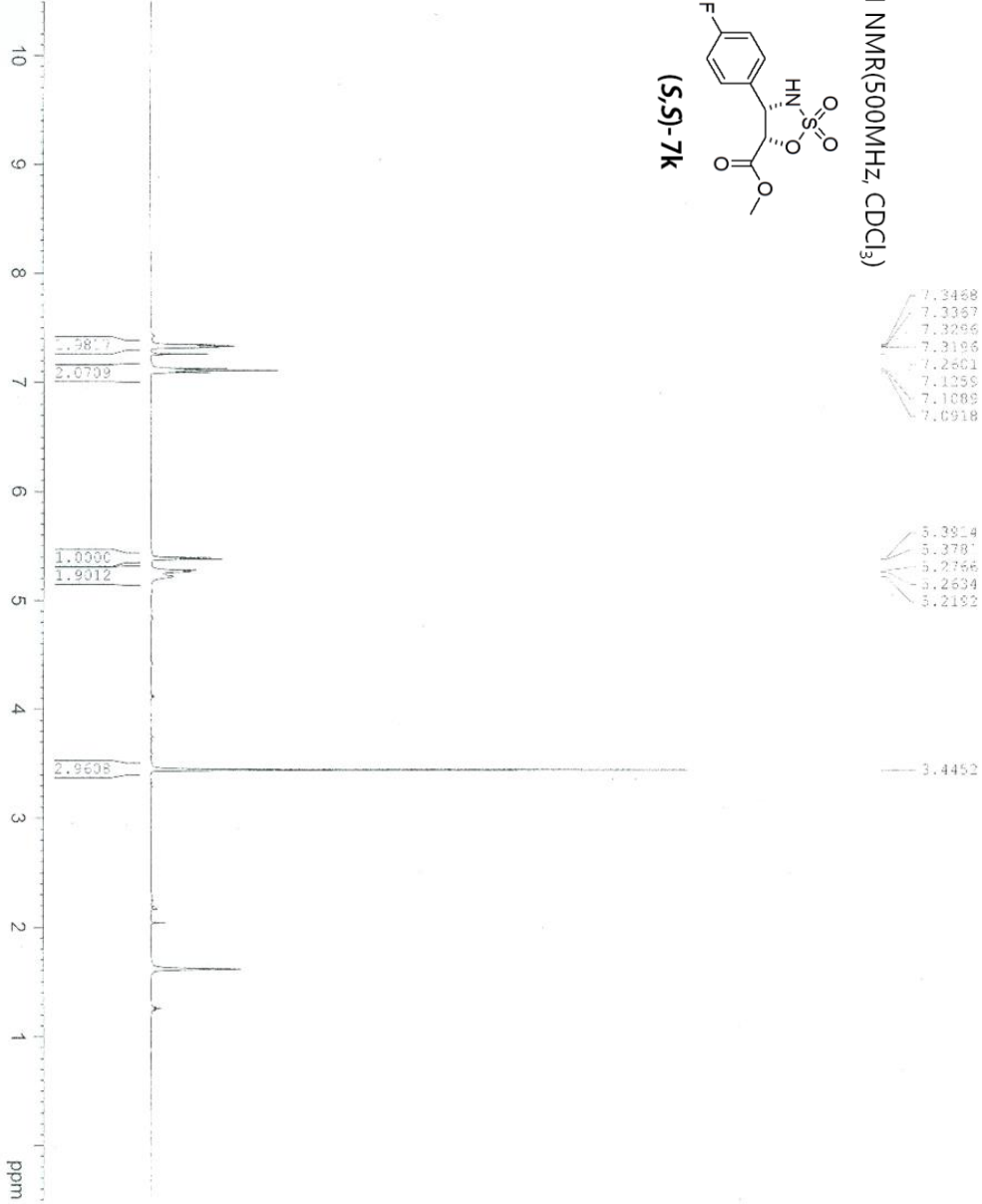


KSY_120510_4F_A

¹H NMR(500MHz, CDCl₃)



7.3468
7.3367
7.3266
7.3166
7.2601
7.1258
7.1088
7.0918
5.3814
5.3787
5.2756
5.2634
5.2182



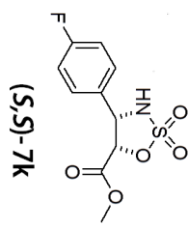
```

NAME      KSY_120510_4F_A
EXPNO     1
PROCNO    1
Date_     20120510
Time      15:24
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zg30
TD         65535
SOLVENT   CDCl3
NS         4
DS         2
SWH        7507.507 Hz
FIDRES     0.114555 Hz
AQ         4.3648143 sec
RG         322.5
DW         66.600 usec
DE         6.00 usec
TE         300.0 K
D1         1.000000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1      1H
P1        9.80 usec
PL1       -1.90 dB
PL1W      27.23316002 W
SFO1      500.1332508 MHz
SI         32768
SF         500.1300135 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```

KSY_120510_4F_A

¹³C NMR(500MHz, CDCl₃)



- 163.5811
- 164.5370
- 162.5488
- 128.9749
- 128.9072
- 128.4039
- 116.5767
- 116.4602
- 81.3645
- 77.4850
- 77.2305
- 76.9770
- 61.6037
- 52.9848

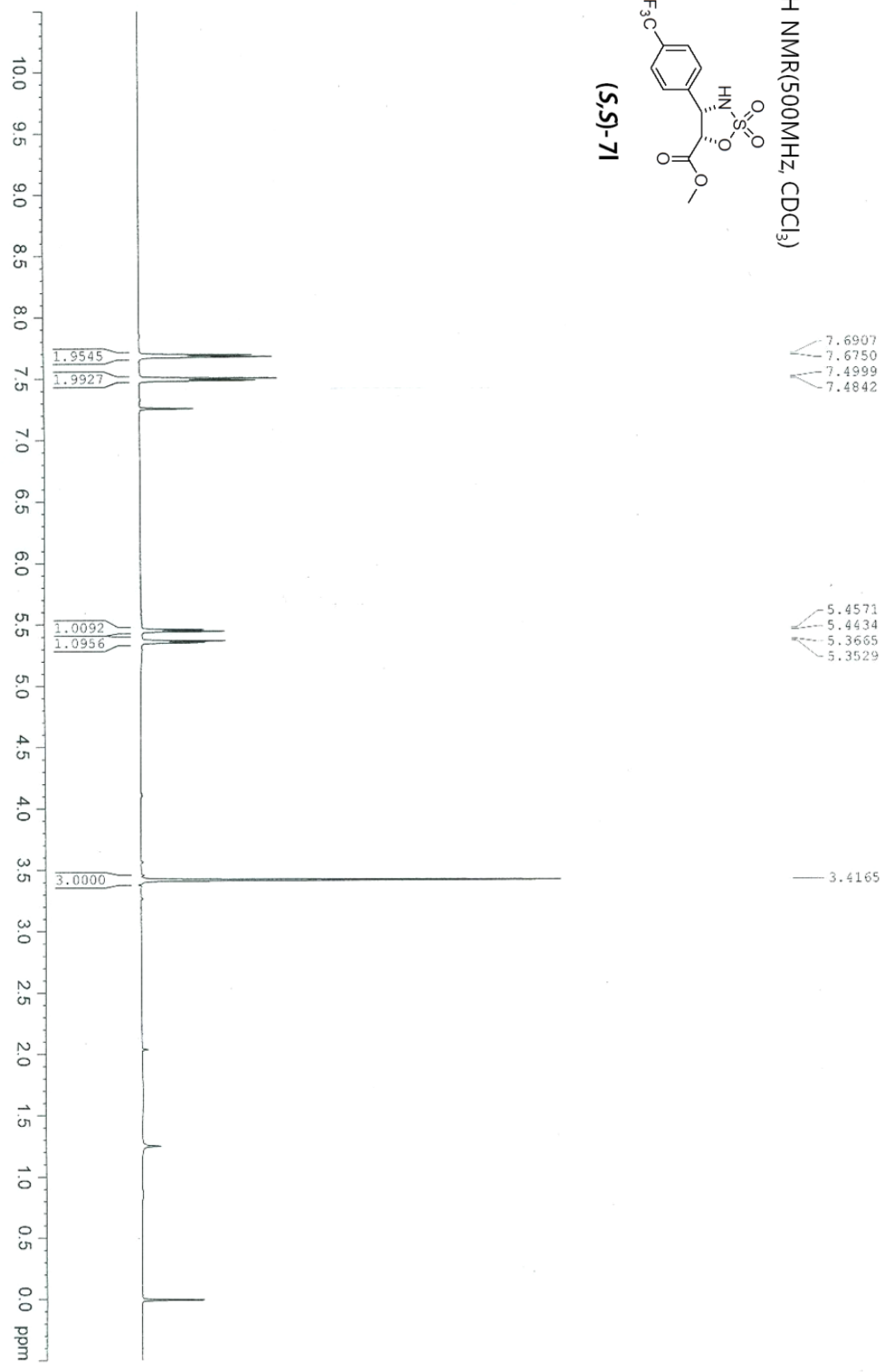
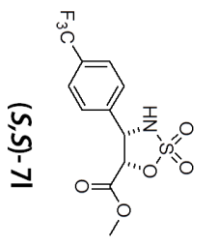


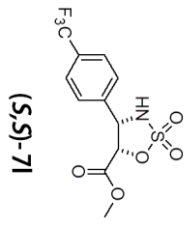
```

NAME          KSY_120510_4F_A
EXPNO         1
PROCNO        1
Date_         20120511
Time          11.14
INSTRUM       5 mm BBO
PROBHD        13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            512
DS            2
SWH           38211.270 Hz
FIDRES        0.53728 Hz
AQ            0.9306754 sec
RG            4597.6
DM           14.200 usec
DE           6.00 usec
WE           300.3 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           1
===== CHANNEL f1 =====
NUC1          13C
P1            8.10 usec
PL1           1.40 dB
PL1W          70.60439501 W
SFO1          125.7728789 MHz
===== CHANNEL f2 =====
CHPRG2       waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL14         19.00 dB
PL15         19.00 dB
PL16         19.00 dB
PL17         19.00 dB
PL18         19.00 dB
PL19         19.00 dB
PL20         19.00 dB
PL21         19.00 dB
PL22         19.00 dB
PL23         19.00 dB
PL24         19.00 dB
PL25         19.00 dB
PL26         19.00 dB
PL27         19.00 dB
PL28         19.00 dB
PL29         19.00 dB
PL30         19.00 dB
SFO2          500.1320000 MHz
SI            32768
SF           125.7577622 MHz
WDW           RM
SSB           0
SSS           0
GB            0
PC            1.40
  
```

KJA-4-CF3-

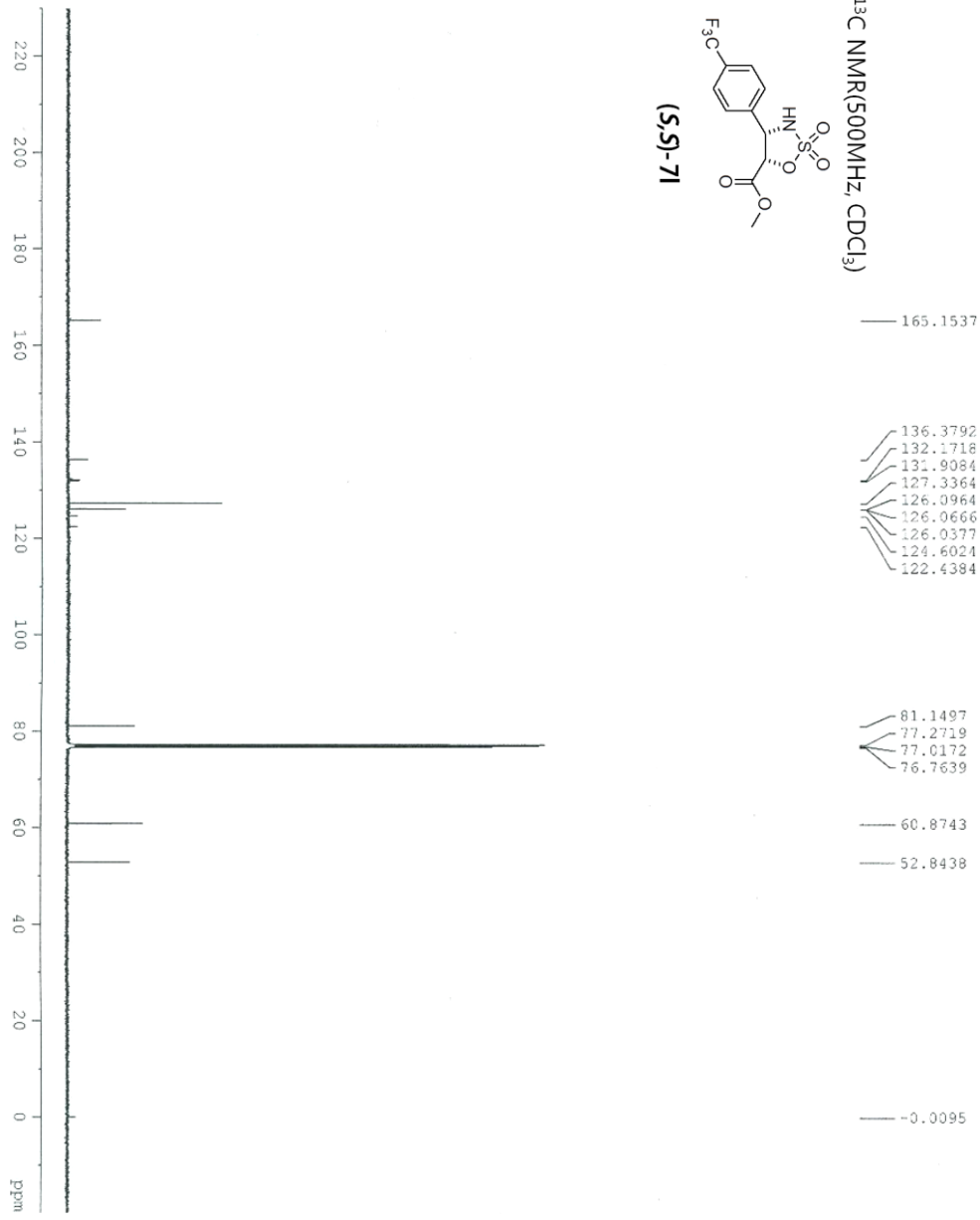
¹H NMR(500MHz, CDCl₃)





¹³C NMR(500MHz, CDCl₃)

KJA_4_CF3_



```

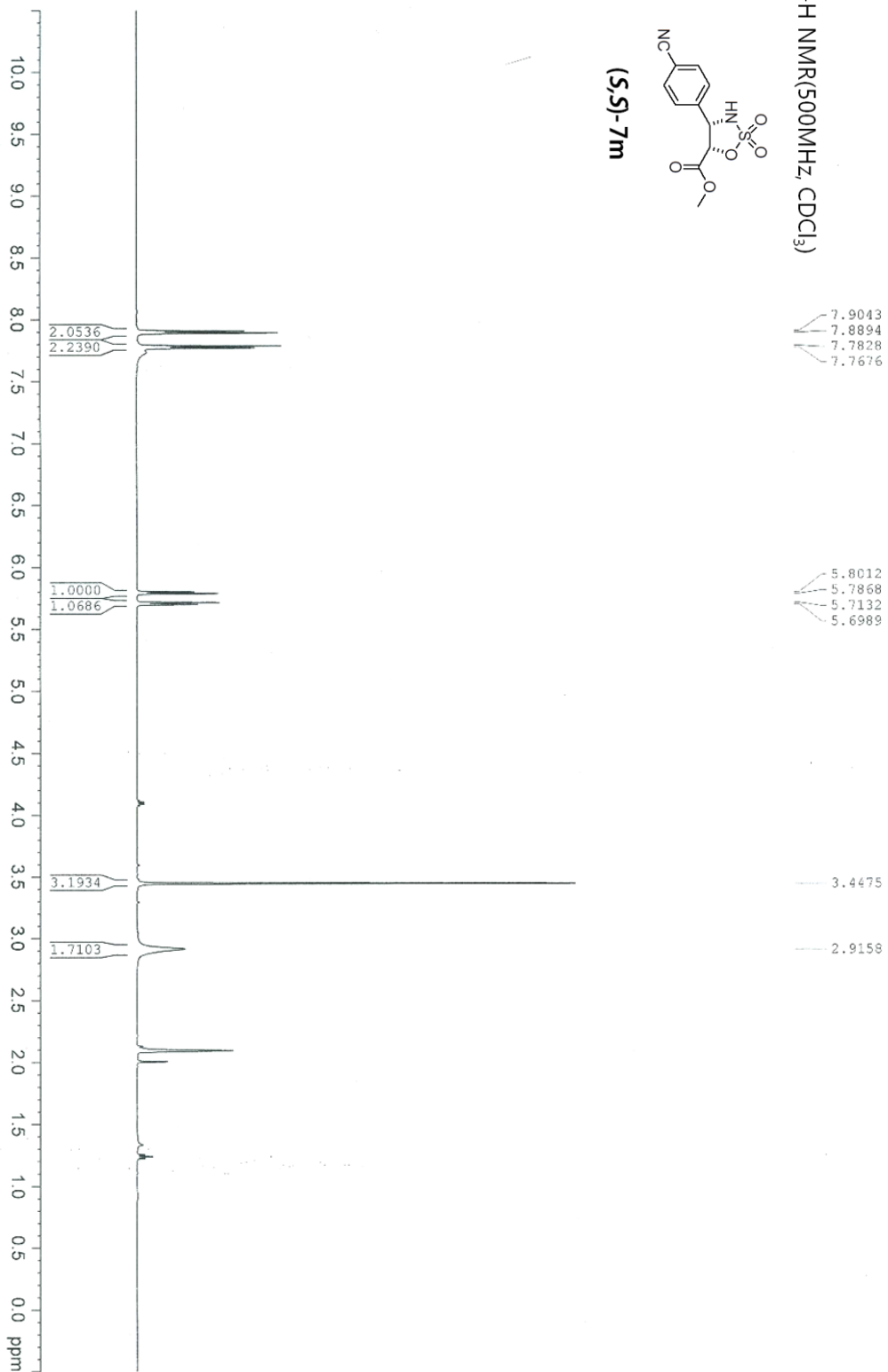
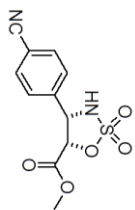
NAME          KJA_4_CF3_R_puri
EXPNO         1
PROCNO        1
Date_         20130912
Time         20.36
INSTRUM       spect
PROBHD        5 mm DUL_13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1000
DS            2
SMH           35211.270 Hz
FIDRES        0.531281 Hz
AQ            0.9306754 sec
RG            512
DE            14.200 usec
TE            297.7 K
D1            2.00000000 sec
D11           0.03000000 sec
TDO           1

===== CHANNEL F1 =====
NUC1           13C
P1             8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

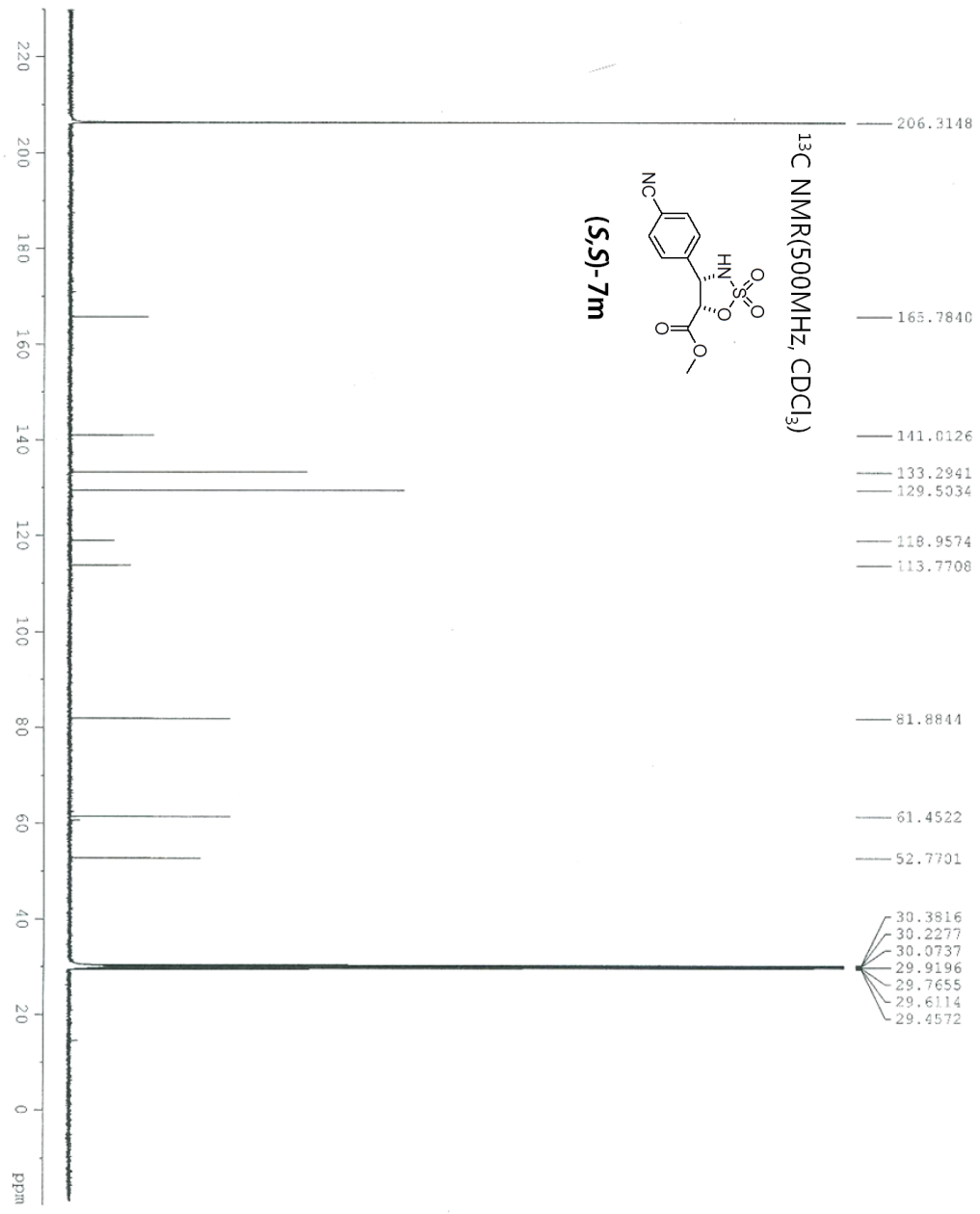
===== CHANNEL F2 =====
CPDPRG2       waltz16
NUC2           1H
PCPD2         100.00 usec
PL2           -1.50 dB
PL12          16.00 GB
PL13          19.00 GB
PL2W          27.23316002 W
PL12W         0.44167015 W
PL13W         0.22135943 W
SFO2          500.1320005 MHz
SI            32768
SF            125.7577890 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
  
```


KJA-4-CN-carbo

¹H NMR(500MHz, CDCl₃)



KJA_4_CN_carbo



```

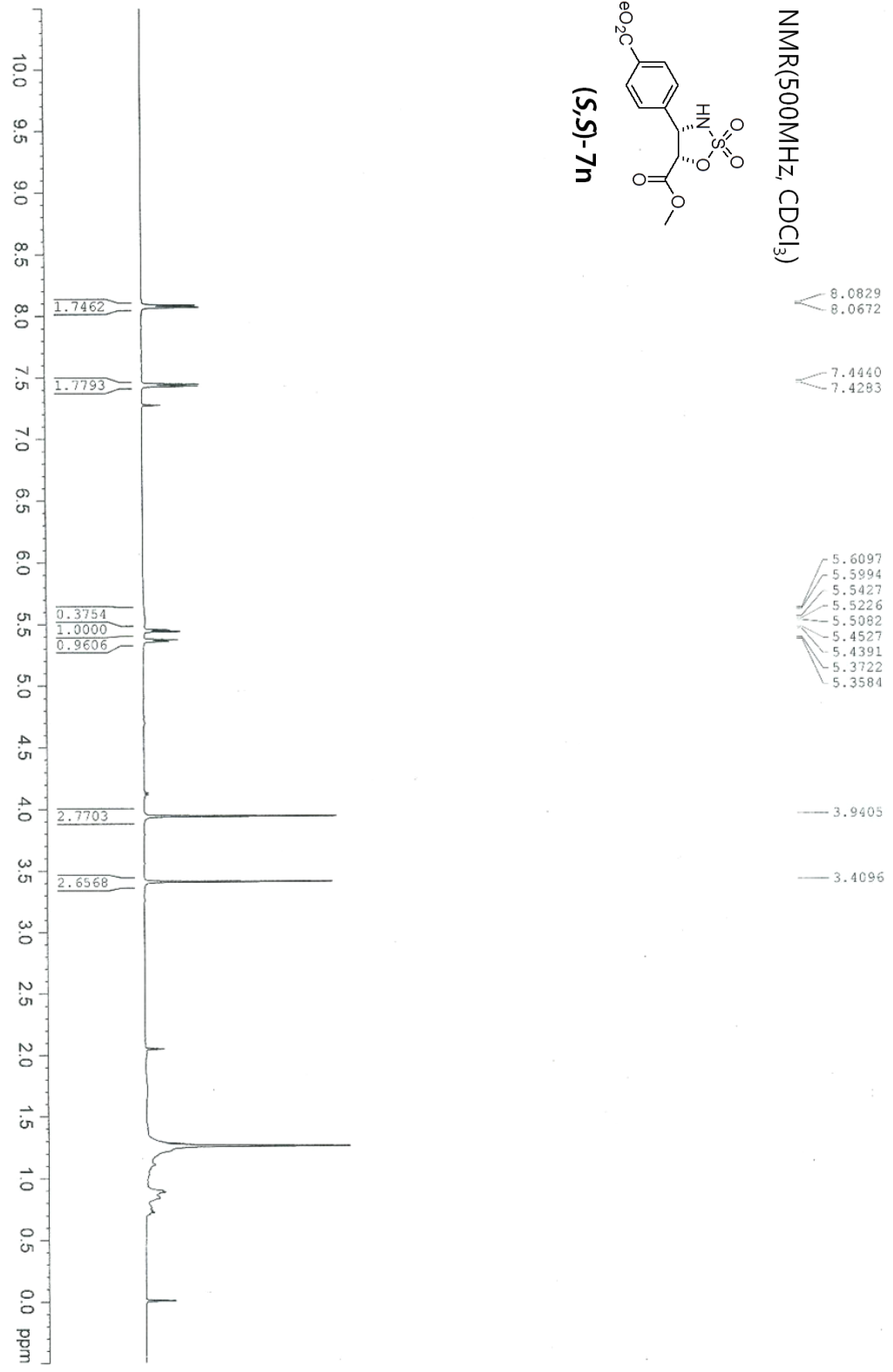
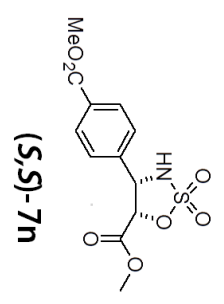
NAME      KJA_4_CN_carbo_B_F.pur1
EXPNO     1
PROCNO    1
Date_     20130802
Time      0.12
INSTRUM   spect
PROBHD    5 mm DVT 13C-1
PULPROG   zgpg30
TD         65536
SOLVENT   Acetone
NS         1000
DS         2
SWH        35211.270 Hz
FIDRES     0.537281 Hz
AQ         0.9306754 sec
RG         812.7
DM         14.200 usec
DE         6.00 usec
TE         299.5 K
D1         2.00000000 sec
D11        0.03000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         9.00 usec
PL1        1.40 dB
PL1R       70.60439301 W
SFO1       125.7728199 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       13C
PCPD2      100.00 usec
PL2        -1.90 dB
PL12       16.00 dB
PL13       19.00 dB
PL14       19.00 dB
PL15       27.23316002 W
PL16       0.44167015 W
PL17       0.2135943 W
PL18       500.1320005 MHz
SFO2       500.1320005 MHz
SI         32768
SF         125.7576669 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```

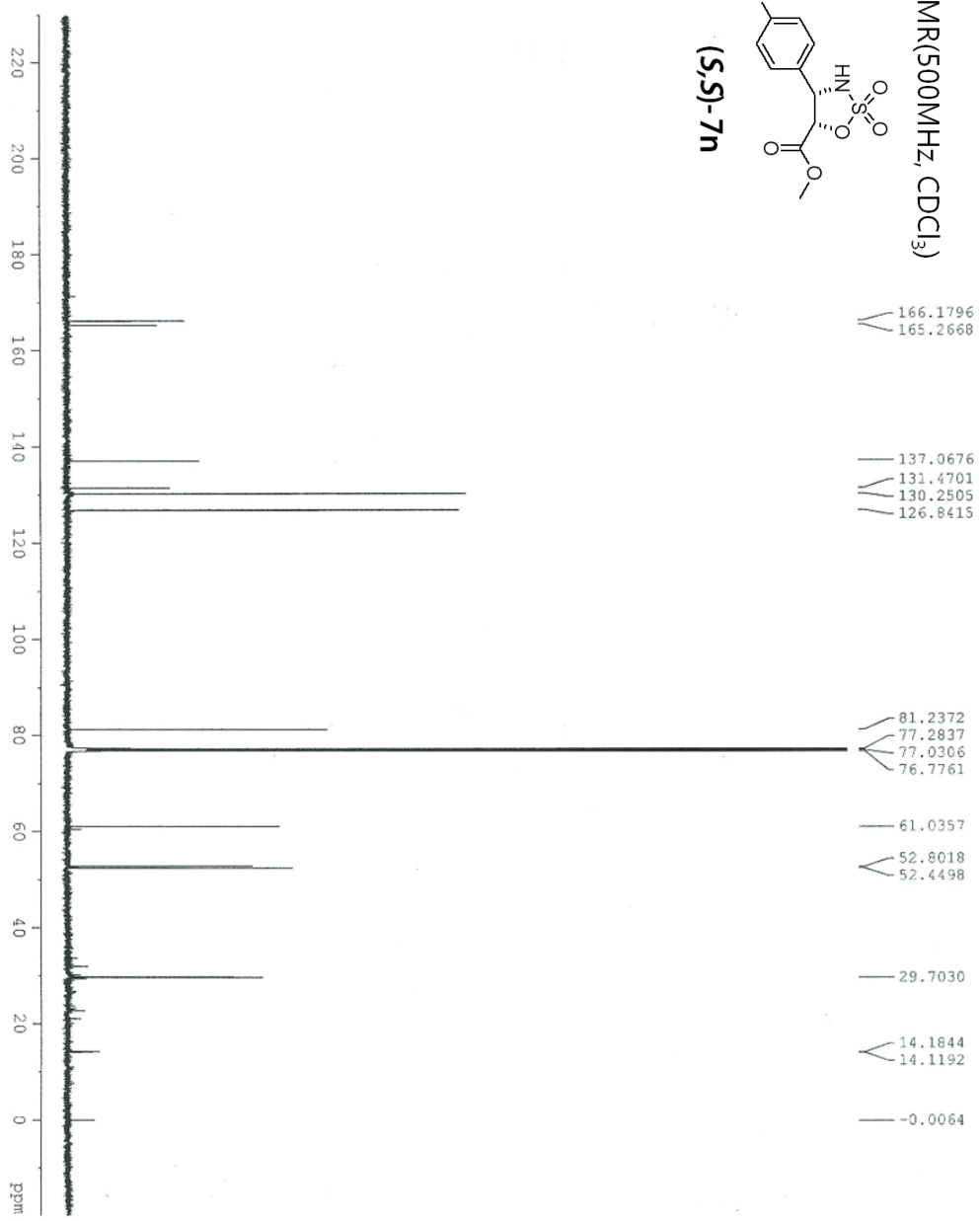
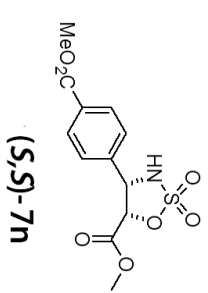
KJA-4-CO2Me-car

¹H NMR(500MHz, CDCl₃)



KJA_4_CO2Me_cat

¹³C NMR(500MHz, CDCl₃)

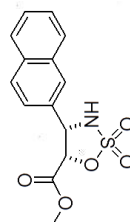


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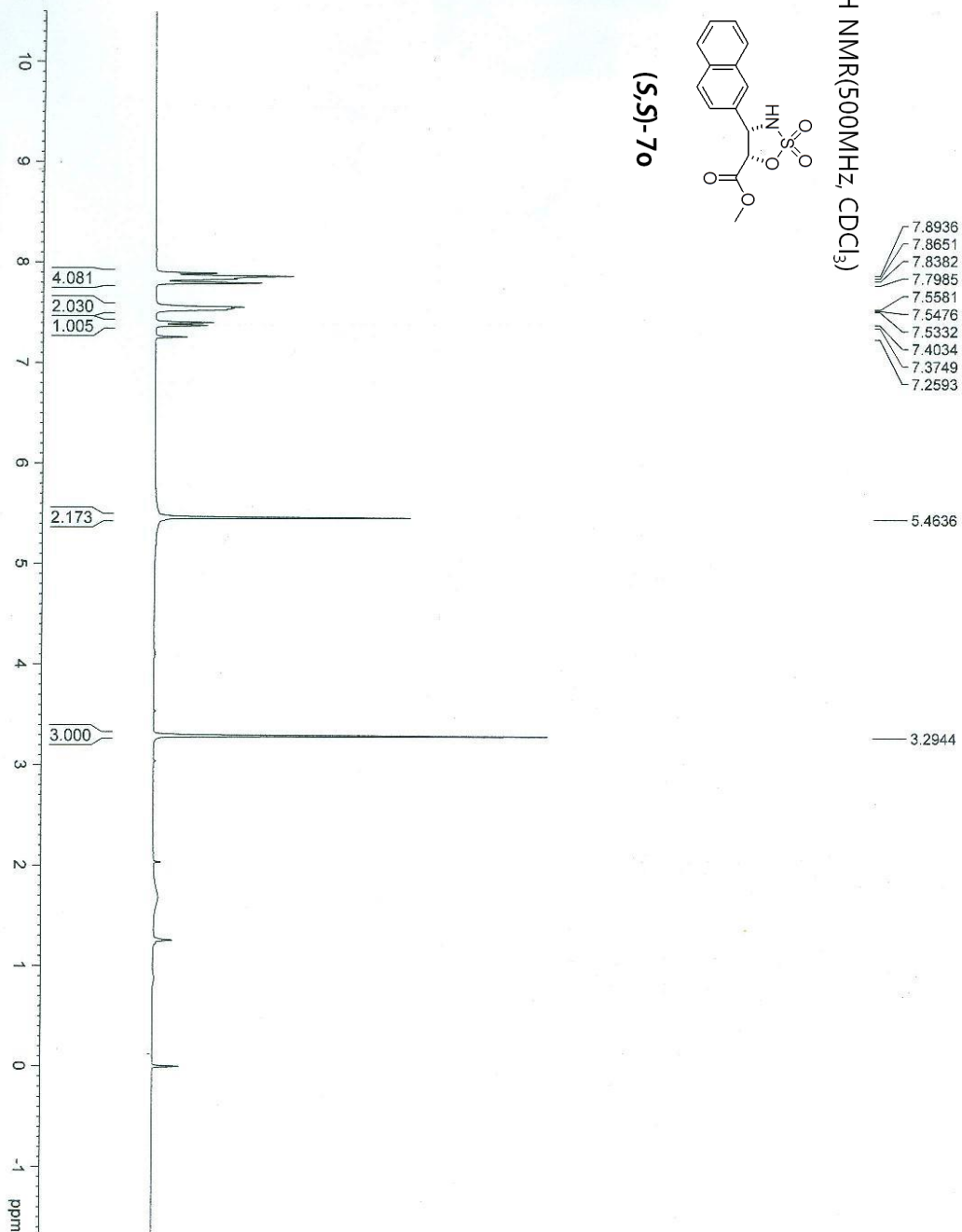
NAME          KJA_4_CO2Me_cat_h.R_pur1
EXPNO        1
PROCNO       1
Date_         20130910
Time         18.38
INSTRUM      spect
PROBHD       5 mm BBL 13CCT
PULPROG      zgpg30
TD           65536
SOLVENT      CDCl3
NS           1000
DS           2
SWH          35211.270 Hz
FIDRES       0.537281 Hz
AQ           0.9306754 sec
RG           812.7
DK           14.200 usec
DE           5.00 usec
TE           300.2 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0          1
===== CHANNEL f1 =====
NUC1          13C
P1           8.00 usec
PL1          1.40 dB
PL1W         79.60439301 W
SFO1         125.7728799 MHz
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          13C
P2           100.00 usec
PL2          -1.30 dB
PL2W         15.00 dB
PL3          19.00 dB
PL3W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WLEN         EM
SSB          0 Hz
GB           1.00
PC           1.40
  
```

KJA-naphthyl-amine-

¹H NMR(500MHz, CDCl₃)



(S,S)-70



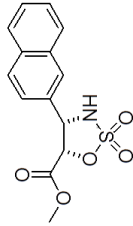
```

NAME      KJA-naphthyl-amine-R,R
EXPNO    1
PROCNO   1
Date_    20130812
Time     14:15
INSTRUM  spect
PROBHD   5 mm 5mm BB-1H
PULPROG  zg30
TD        32768
SOLVENT  CDCl3
NS        16
DS        2
SWH       6172.839 Hz
FIDRES    0.166380 Hz
AQ         2.6542580 sec
RG         327.5
DE         81.000 usec
DW         6.50 usec
TE        301.1 K
D1        1.00000000 sec
TD0       1

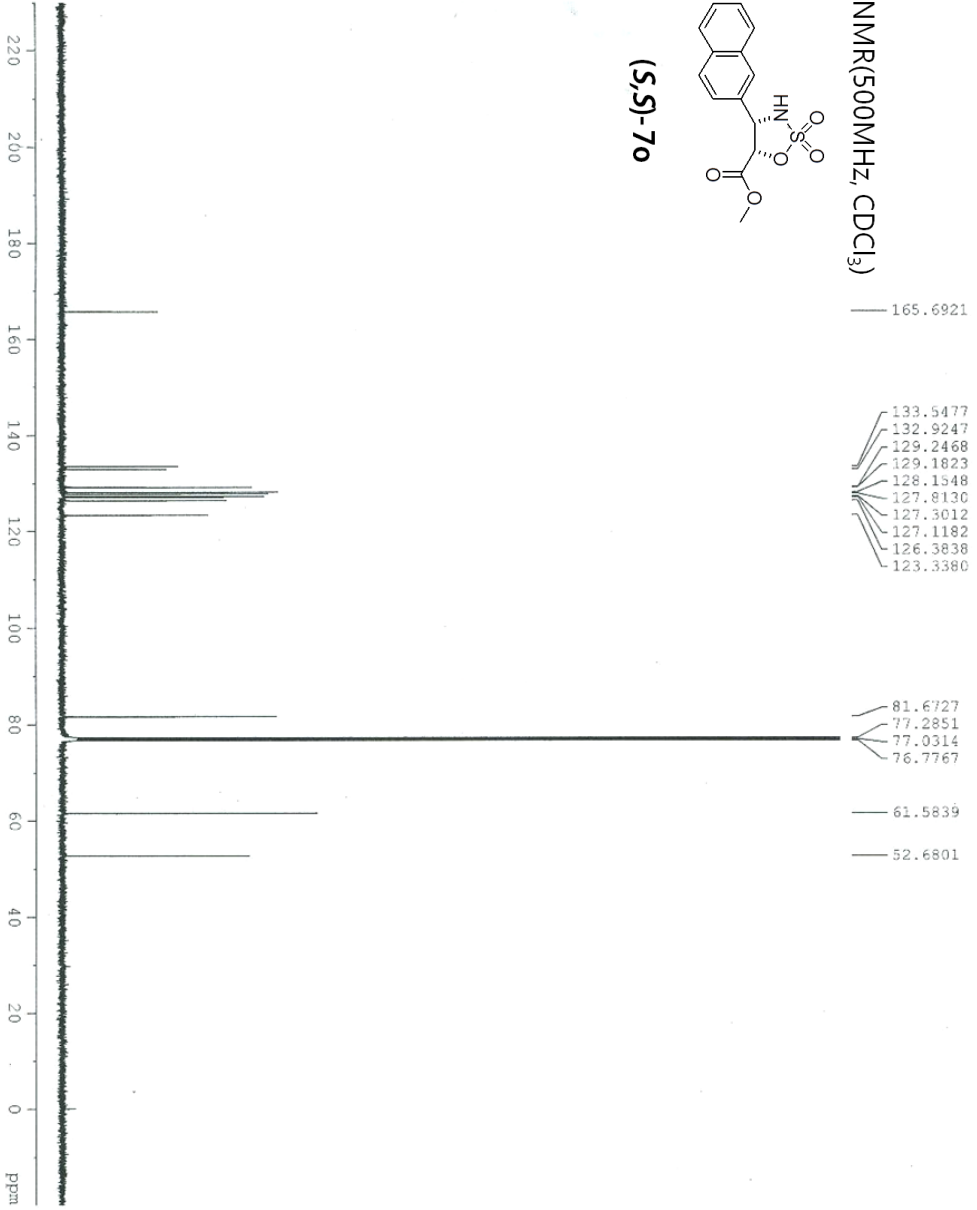
===== CHANNEL f1 =====
NUC1      1H
P1        10.00 usec
PL        4.60 dB
SFO1     300.1318334 MHz
SI        16384
SF        300.1300067 MHz
WDW       EM
SSB       0
GB        0
PC        1.00
    
```

KJA_naphthyl_amine_

¹³C NMR(500MHz, CDCl₃)



(S)-7o



- 165.6921
- 133.5477
- 132.9247
- 129.2468
- 129.1823
- 128.1548
- 127.8130
- 127.3012
- 127.1182
- 126.3838
- 123.3380
- 81.6727
- 77.2851
- 77.0314
- 76.7767
- 61.5839
- 52.6801

```

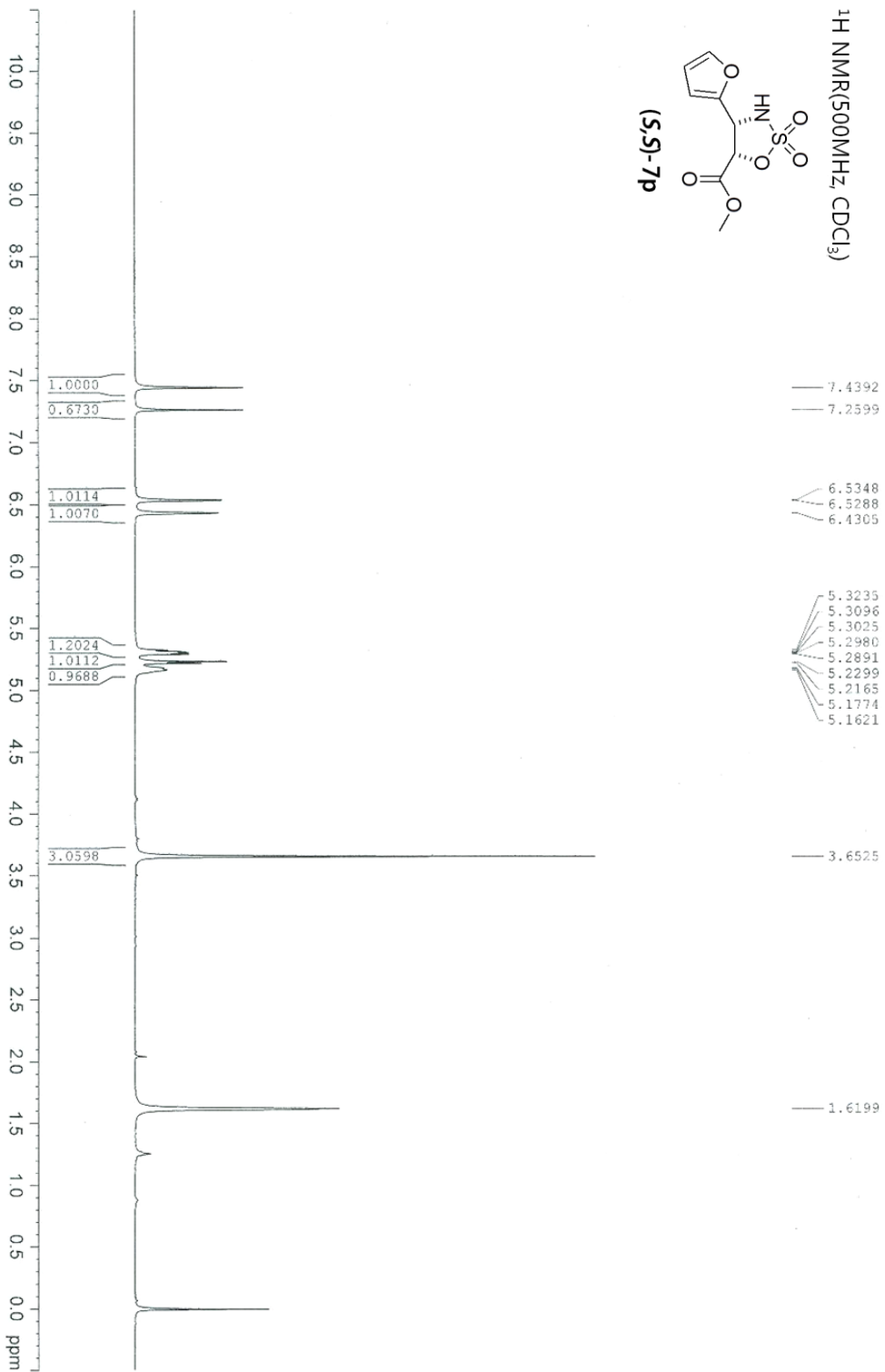
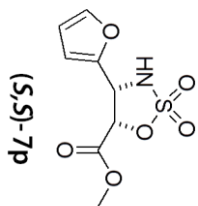
NAME          KJA_naphthyl_amine_P,R
EXPNO         2
PROCNO        1
Date_         20130823
Time          18.30
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        0.537281 Hz
AQ            0.9306754 sec
RG            512
DE            14.200 usec
TE            299.4 K
D1            2.00000000 sec
D11           0.03000000 sec
TDO           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
SFO1         125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL1Z         0.44167015 W
PL1W         0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
GB           0
PC           1.40
  
```

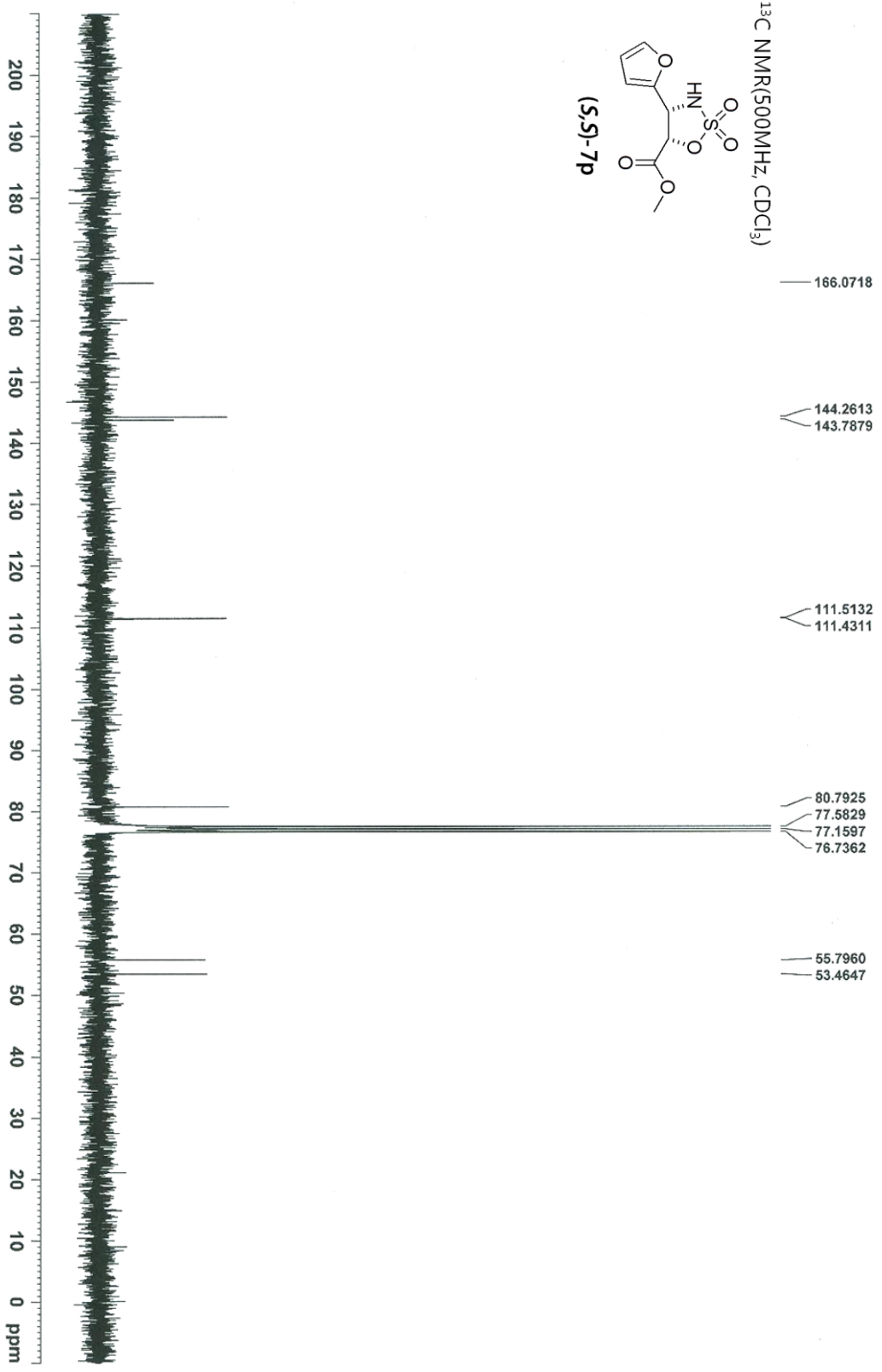
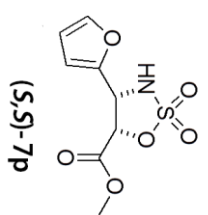
KSY_120719_Fu_am

¹H NMR(500MHz, CDCl₃)



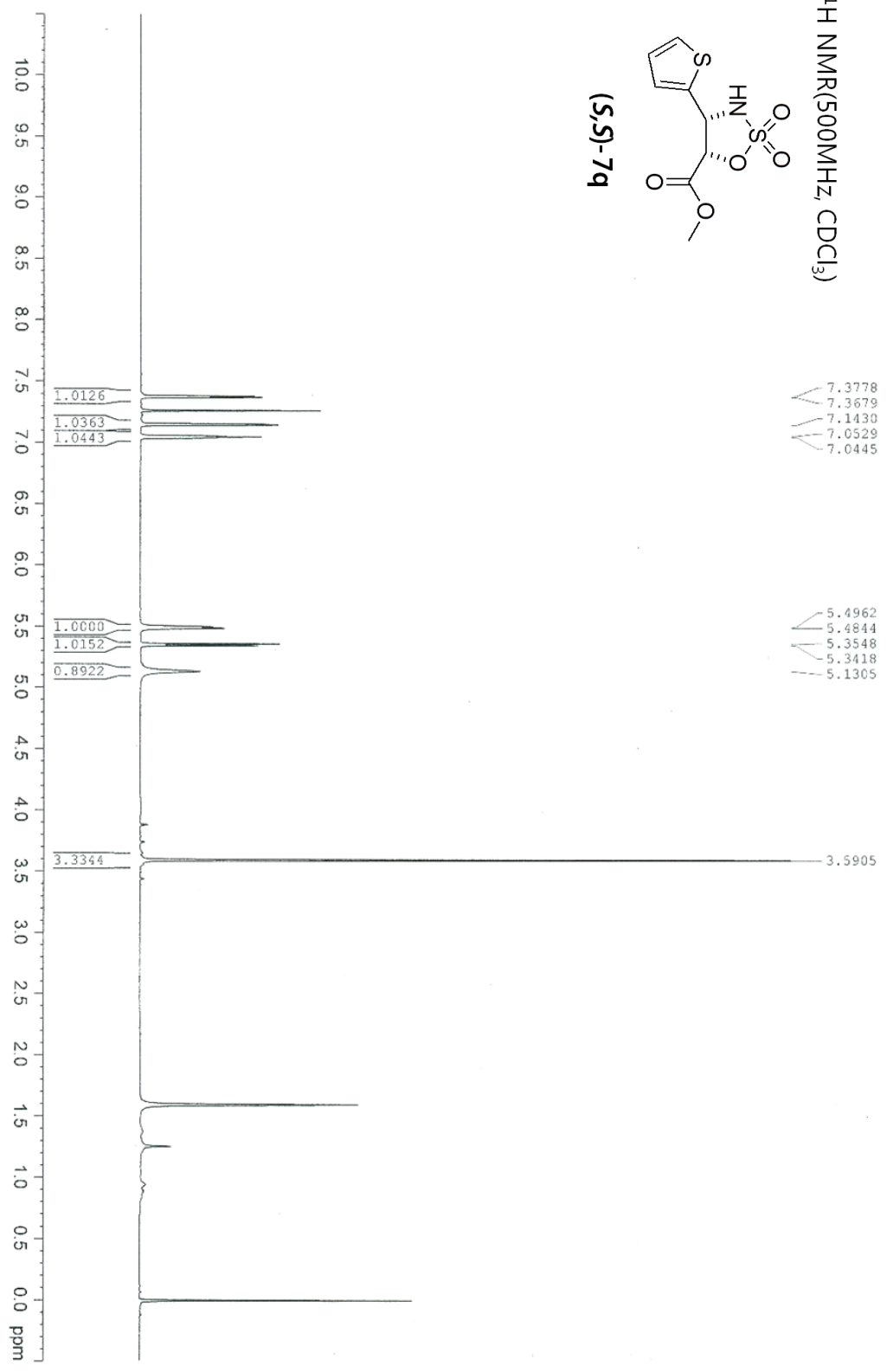
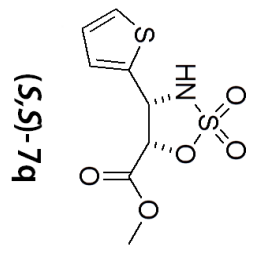
KSY_Fu_am

¹³C NMR(500MHz, CDCl₃)

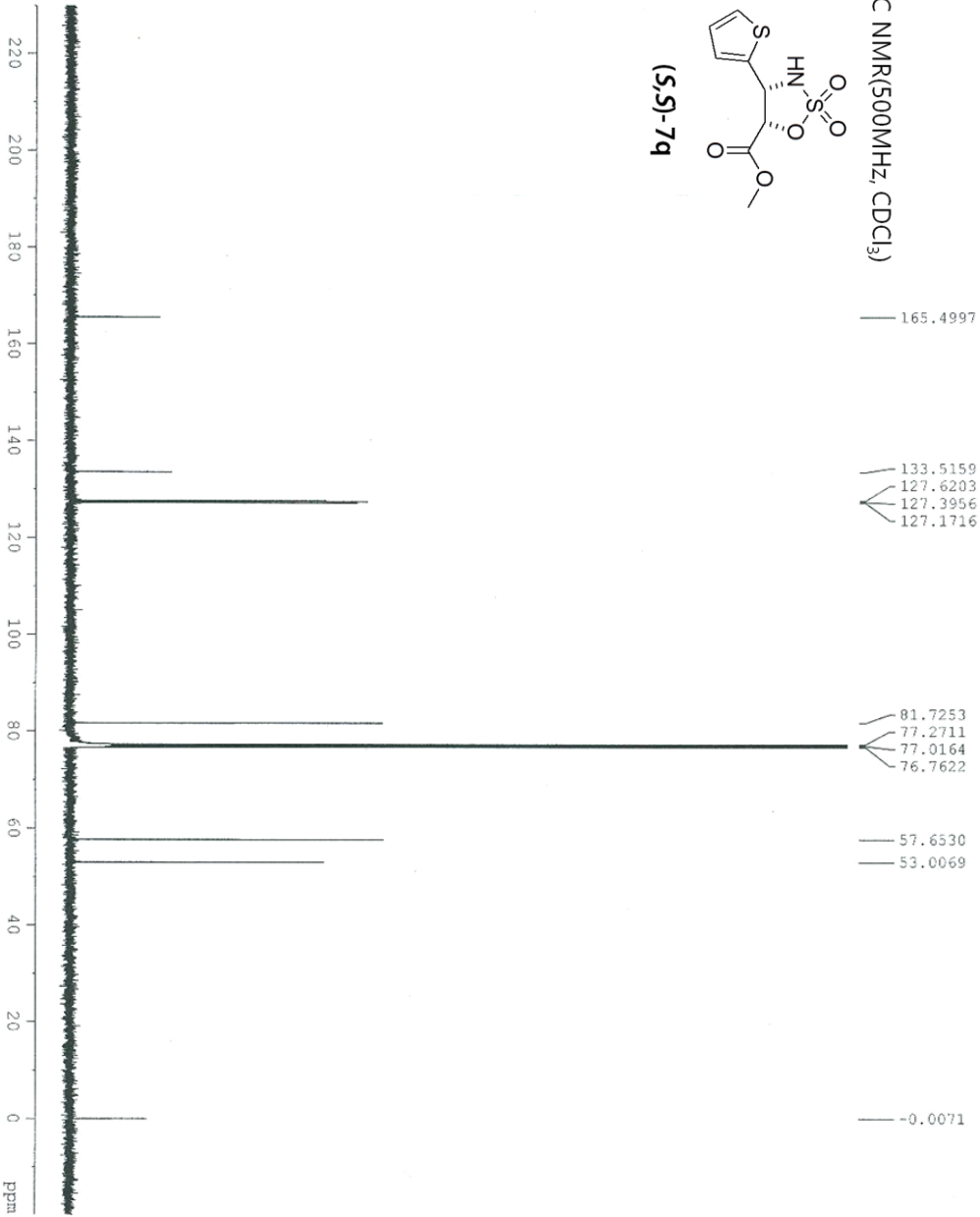
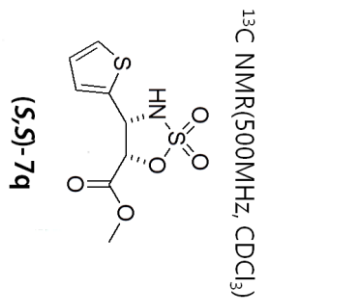


KJA-2-Thio-carbo

¹H NMR(500MHz, CDCl₃)



KJA_2_thio_carbo_amine



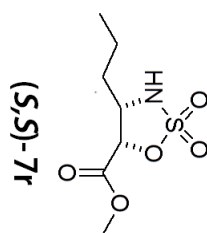
```

NAME      KJA_2_thio_carbo_amine
EXPNO    1
PROCNO   1
Date_    20131107
Time     5.41
INSTRUM  spect
PROBHD   5 mm DUL 13C-1
PULPROG  zgpg30
TD        32768
SOLVENT  CDCl3
NS        3000
DS        2
SWH       35211.270 Hz
FIDRES    1.074563 Hz
AQ         0.4653698 sec
RG         14.200 usec
DE         6.00 usec
TE        299.7 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1

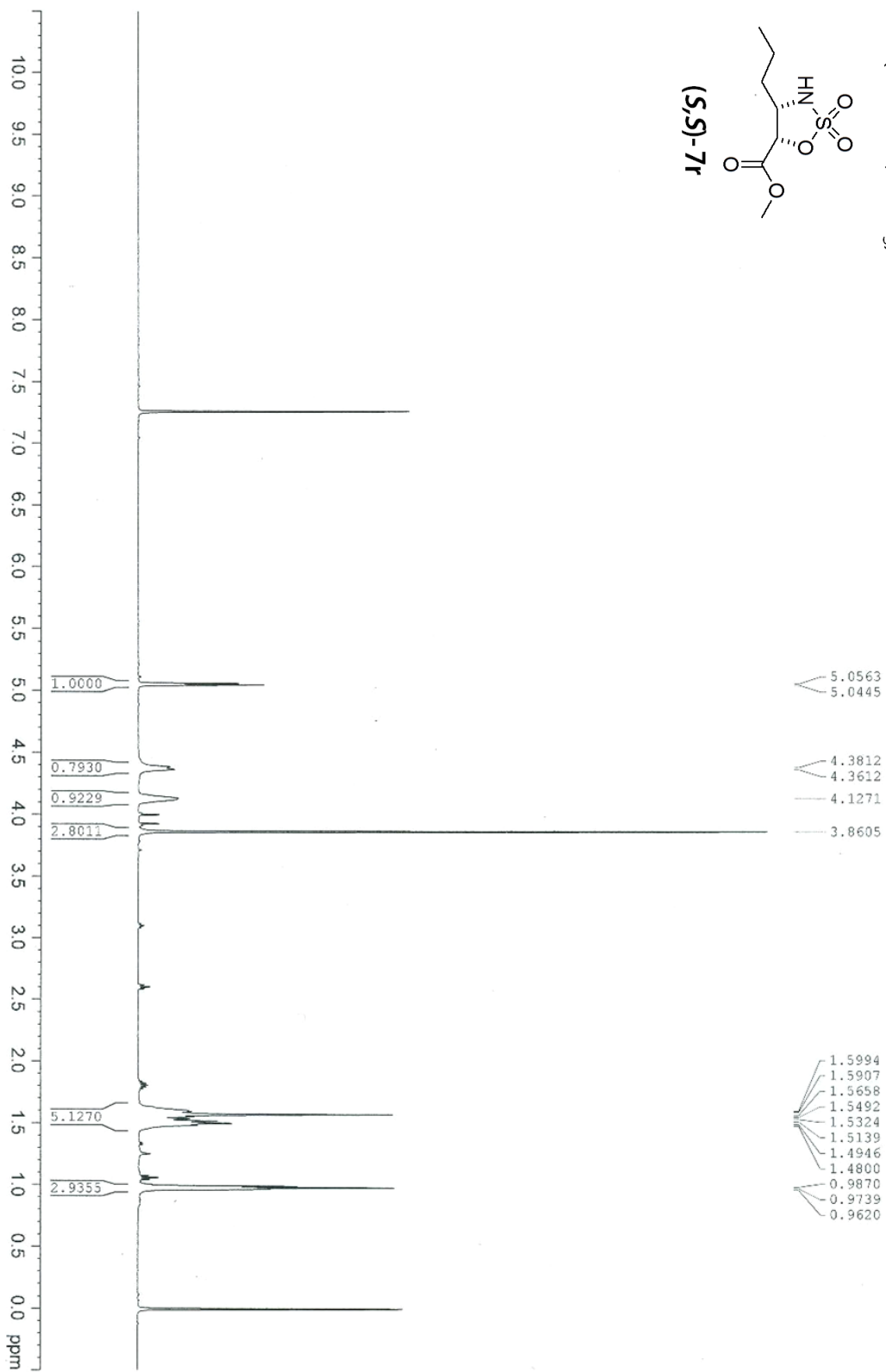
===== CHANNEL f1 =====
NUC1      13C
P1        8.00 usec
PL1       1.40 dB
PL1W      70.60439301 W
SFO1      125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     100.00 usec
PL2       -1.90 dB
PL12      16.00 dB
PL13      19.00 dB
PL1W      27.23316002 W
PL2W      0.44167015 W
PL3W      0.22139443 W
SFO2      500.1320005 MHz
SI        32768
SF        125.7577890 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```

¹H NMR(500MHz, CDCl₃)

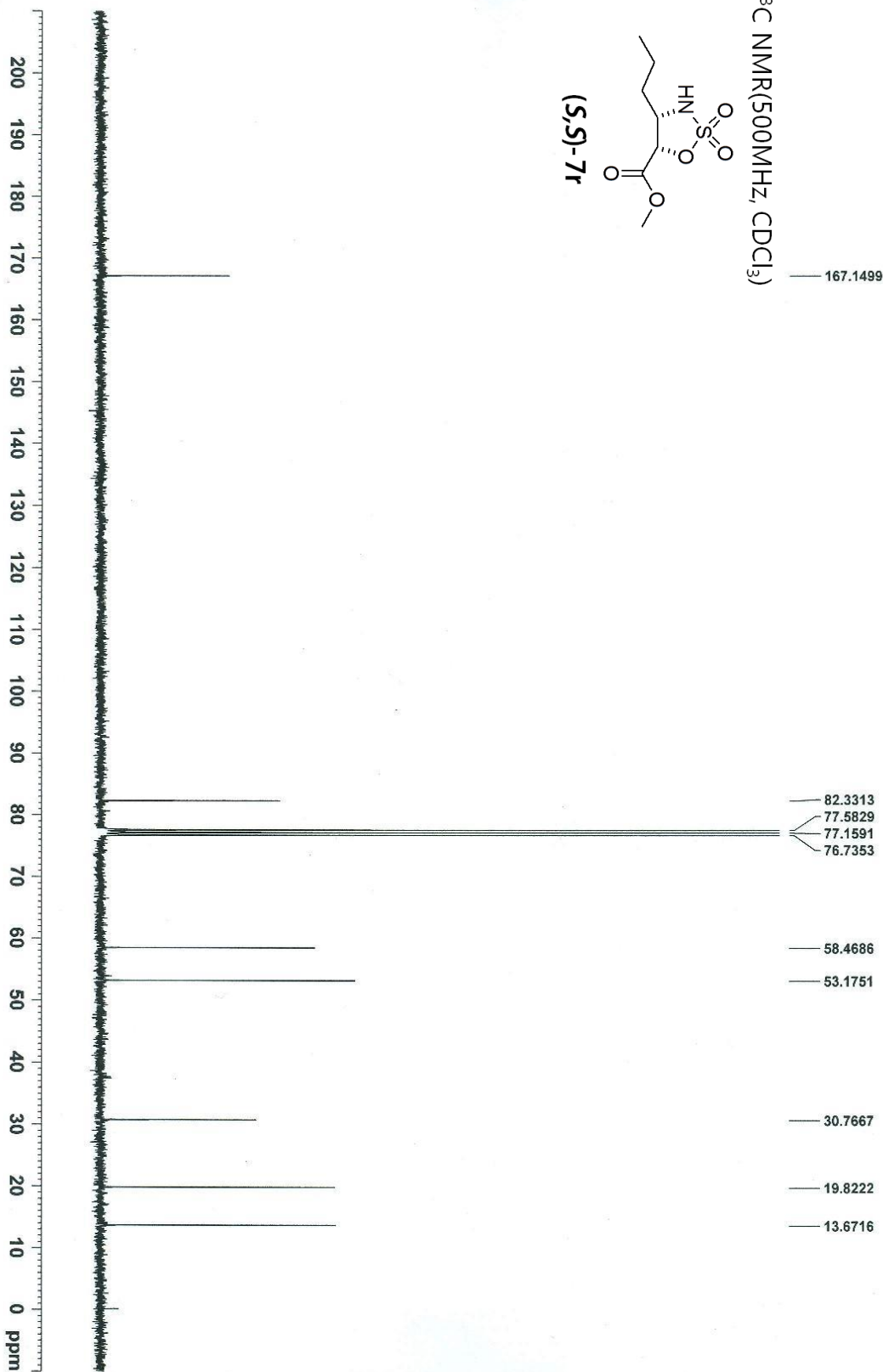
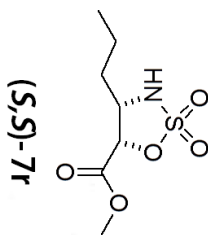


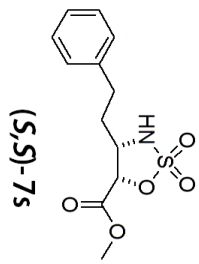
KJA-propyl



KSY_pro_am

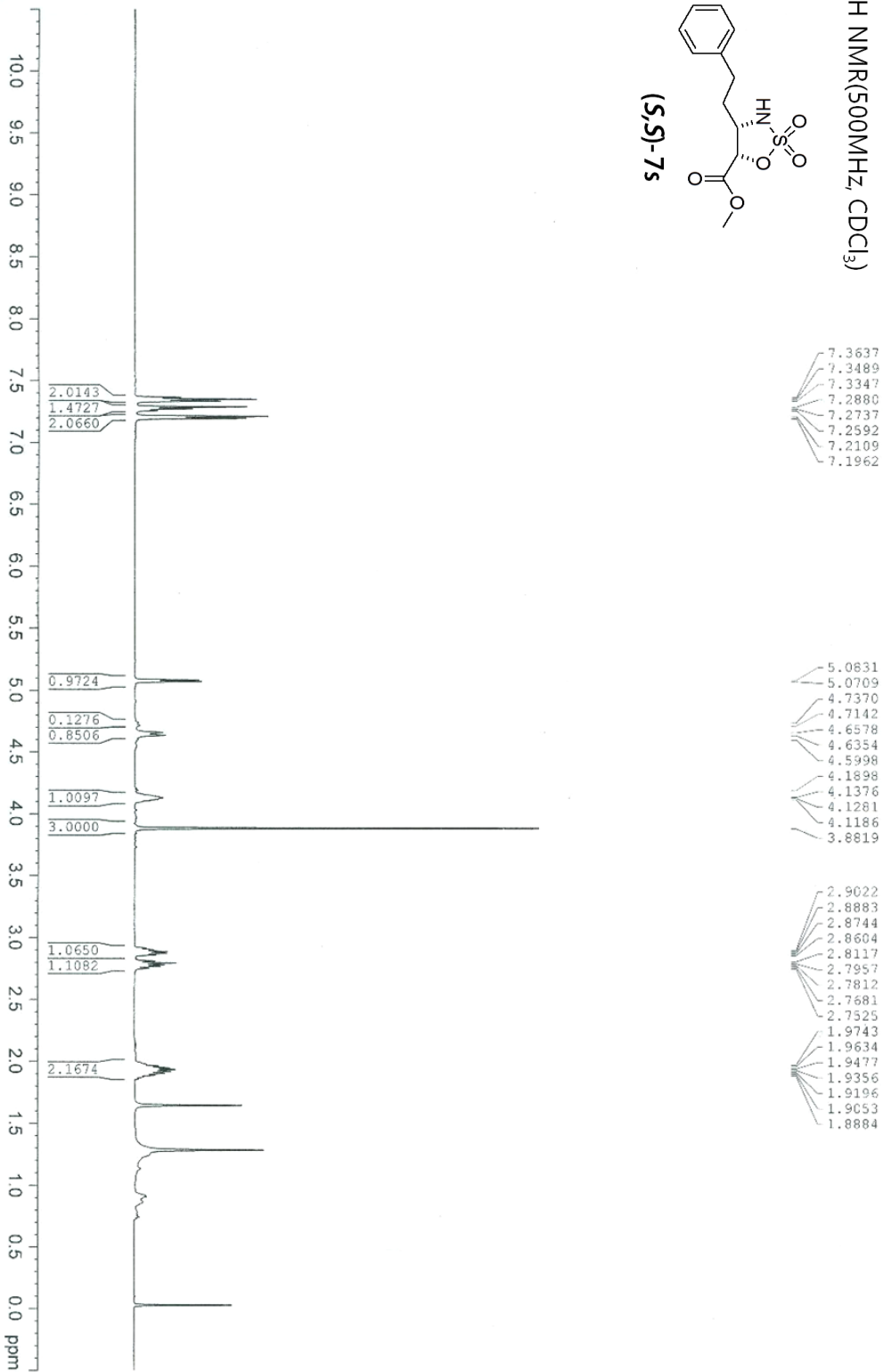
^{13}C NMR(500MHz, CDCl_3)

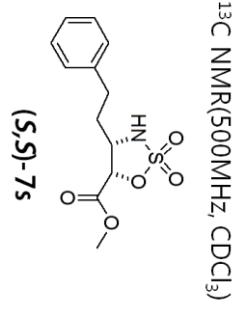




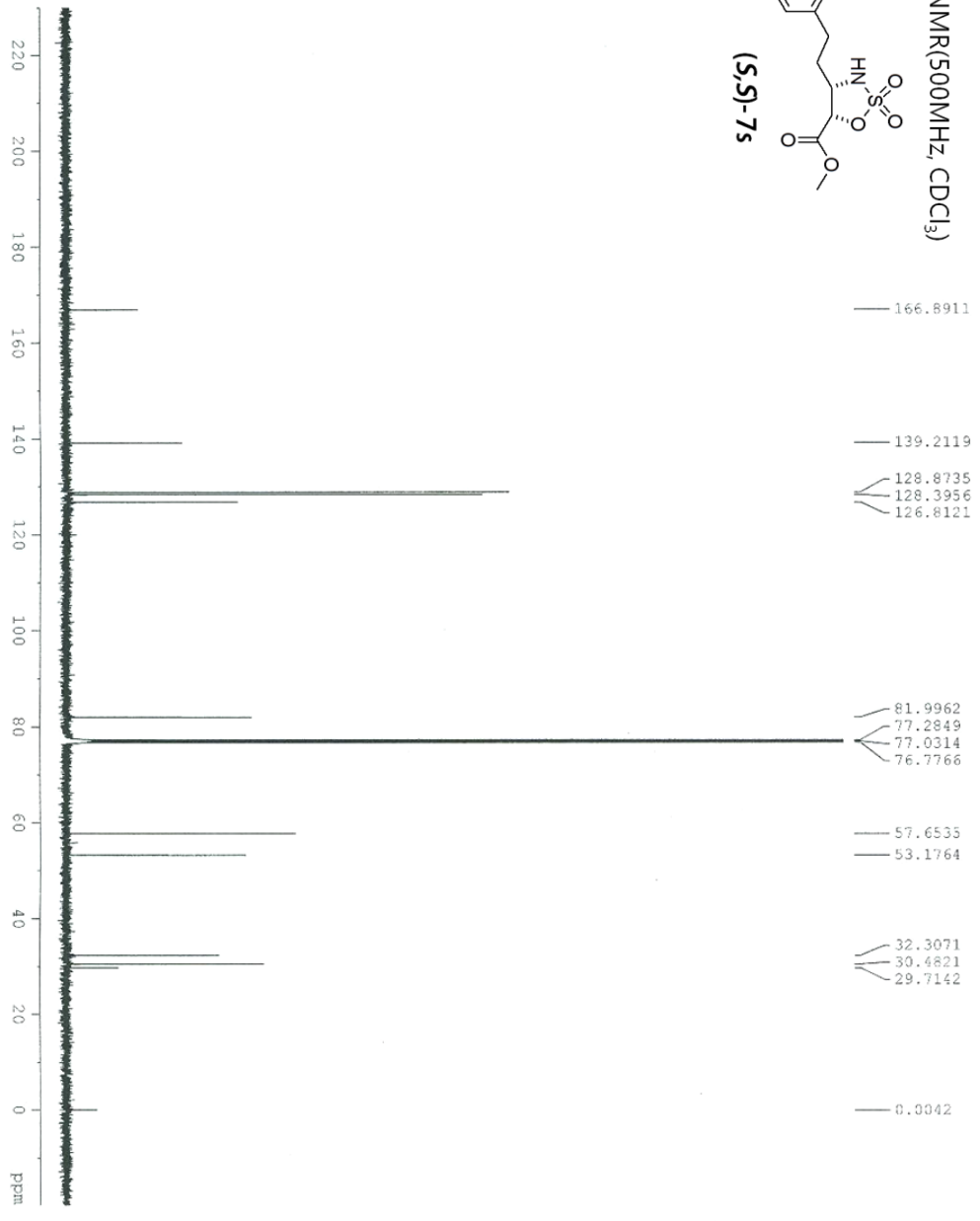
¹H NMR(500MHz, CDCl₃)

KJA-pro





KJA_propio_carbo_puri



```

NAME      KJA_propio_H,K_carbo_puri
EXPNO    1
PROCNO   1
Date_    20130926
Time     1.57
INSTRUM  spect
PROBHD   5 mm DUL 1H/13
PULPROG  zgpg30
TD        65536
F2        45536
SOLVENT  CDCl3
NS        1000
DS        2
SWH       35211.270 Hz
FIDRES    0.537281 Hz
AQ        0.9306754 sec
RG         512
RW         14.202 ussec
DM         500
DQ         237.2 K
TE        297.2
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1

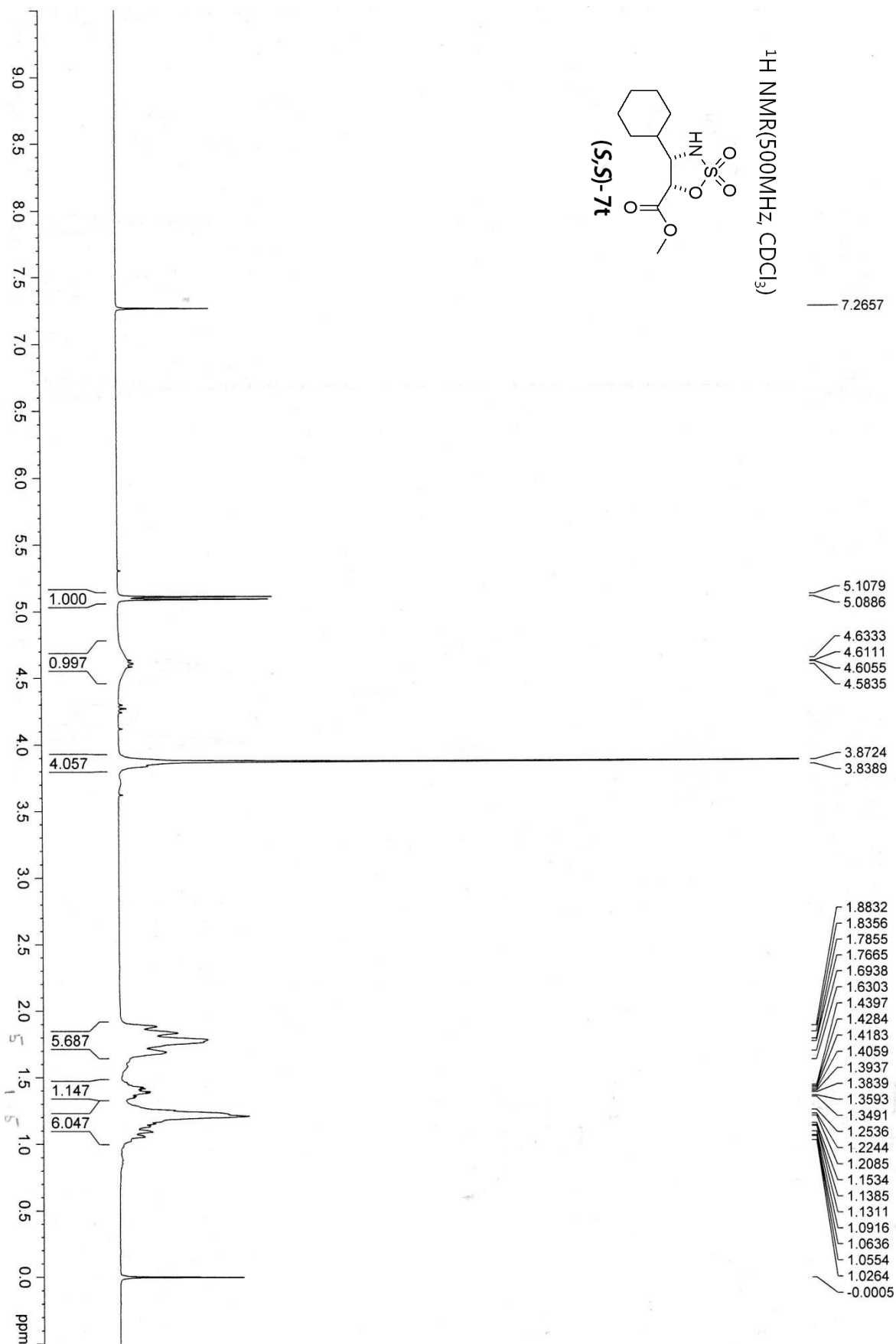
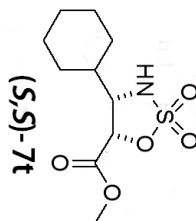
===== CHANNEL f1 =====
NUC1      13C
P1        8.00 ussec
PL1       0.00 dB
NUC2      1H
P2        125.60433300 us
PL2       19.00 dB
SFO1      125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     100.00 ussec
PL2       1.00 dB
PL12      1.00 dB
PL13      15.00 dB
PL14      15.00 dB
PL15      15.00 dB
PL16      15.00 dB
PL17      15.00 dB
PL18      15.00 dB
PL19      15.00 dB
PL20      15.00 dB
PL21      15.00 dB
PL22      15.00 dB
PL23      15.00 dB
PL24      15.00 dB
PL25      15.00 dB
PL26      15.00 dB
PL27      15.00 dB
PL28      15.00 dB
PL29      15.00 dB
PL30      15.00 dB
PL31      15.00 dB
PL32      15.00 dB
PL33      15.00 dB
PL34      15.00 dB
PL35      15.00 dB
PL36      15.00 dB
PL37      15.00 dB
PL38      15.00 dB
PL39      15.00 dB
PL40      15.00 dB
PL41      15.00 dB
PL42      15.00 dB
PL43      15.00 dB
PL44      15.00 dB
PL45      15.00 dB
PL46      15.00 dB
PL47      15.00 dB
PL48      15.00 dB
PL49      15.00 dB
PL50      15.00 dB
PL51      15.00 dB
PL52      15.00 dB
PL53      15.00 dB
PL54      15.00 dB
PL55      15.00 dB
PL56      15.00 dB
PL57      15.00 dB
PL58      15.00 dB
PL59      15.00 dB
PL60      15.00 dB
PL61      15.00 dB
PL62      15.00 dB
PL63      15.00 dB
PL64      15.00 dB
PL65      15.00 dB
PL66      15.00 dB
PL67      15.00 dB
PL68      15.00 dB
PL69      15.00 dB
PL70      15.00 dB
PL71      15.00 dB
PL72      15.00 dB
PL73      15.00 dB
PL74      15.00 dB
PL75      15.00 dB
PL76      15.00 dB
PL77      15.00 dB
PL78      15.00 dB
PL79      15.00 dB
PL80      15.00 dB
PL81      15.00 dB
PL82      15.00 dB
PL83      15.00 dB
PL84      15.00 dB
PL85      15.00 dB
PL86      15.00 dB
PL87      15.00 dB
PL88      15.00 dB
PL89      15.00 dB
PL90      15.00 dB
PL91      15.00 dB
PL92      15.00 dB
PL93      15.00 dB
PL94      15.00 dB
PL95      15.00 dB
PL96      15.00 dB
PL97      15.00 dB
PL98      15.00 dB
PL99      15.00 dB
PL100     15.00 dB
=====

```

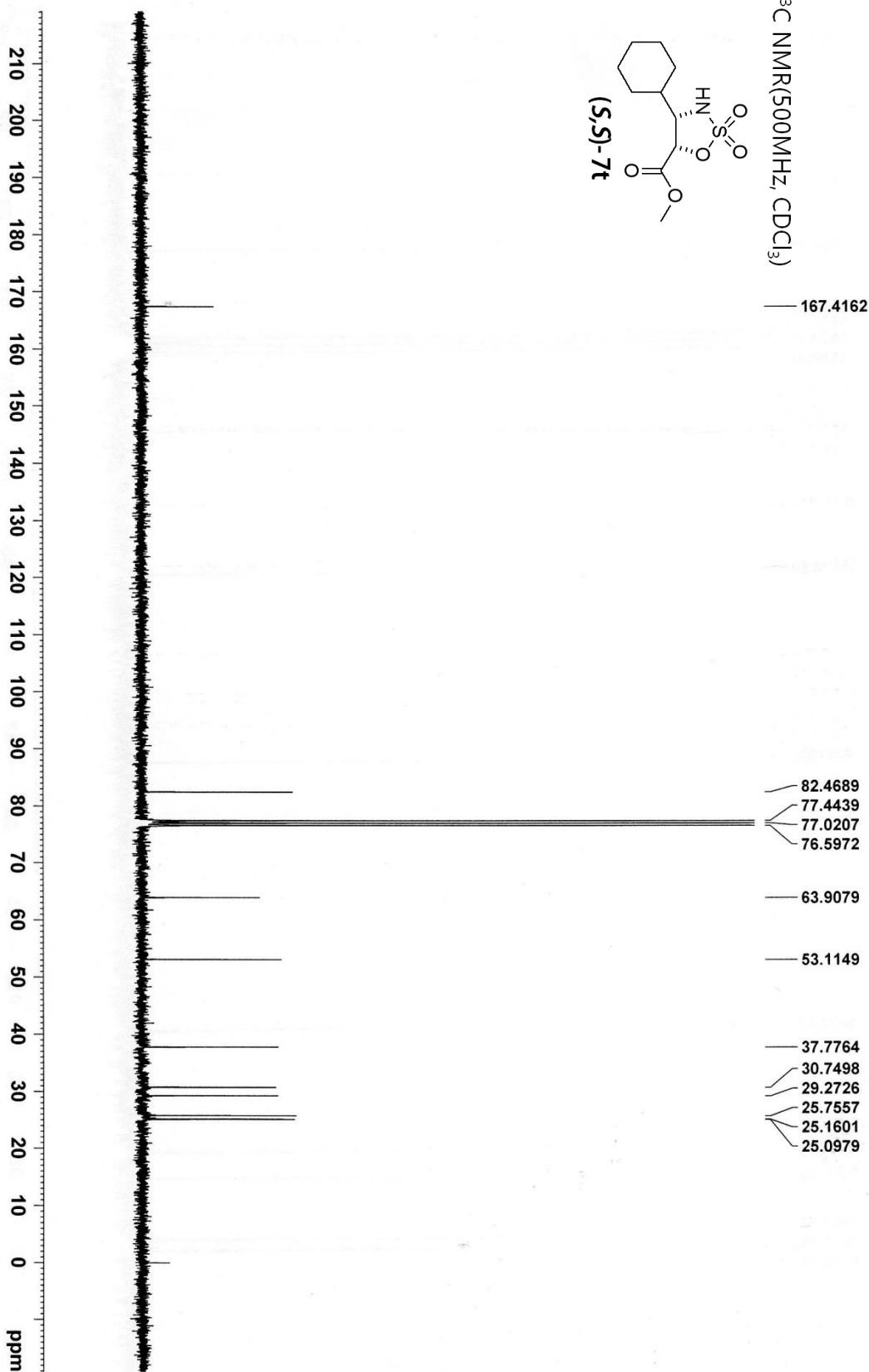
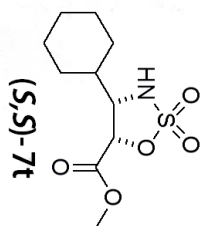
LR-151-main

¹H NMR(500MHz, CDCl₃)



1r-158-1_C13

^{13}C NMR(500MHz, CDCl_3)



SYJ-S,S-ph-NBoc-PLC-0813

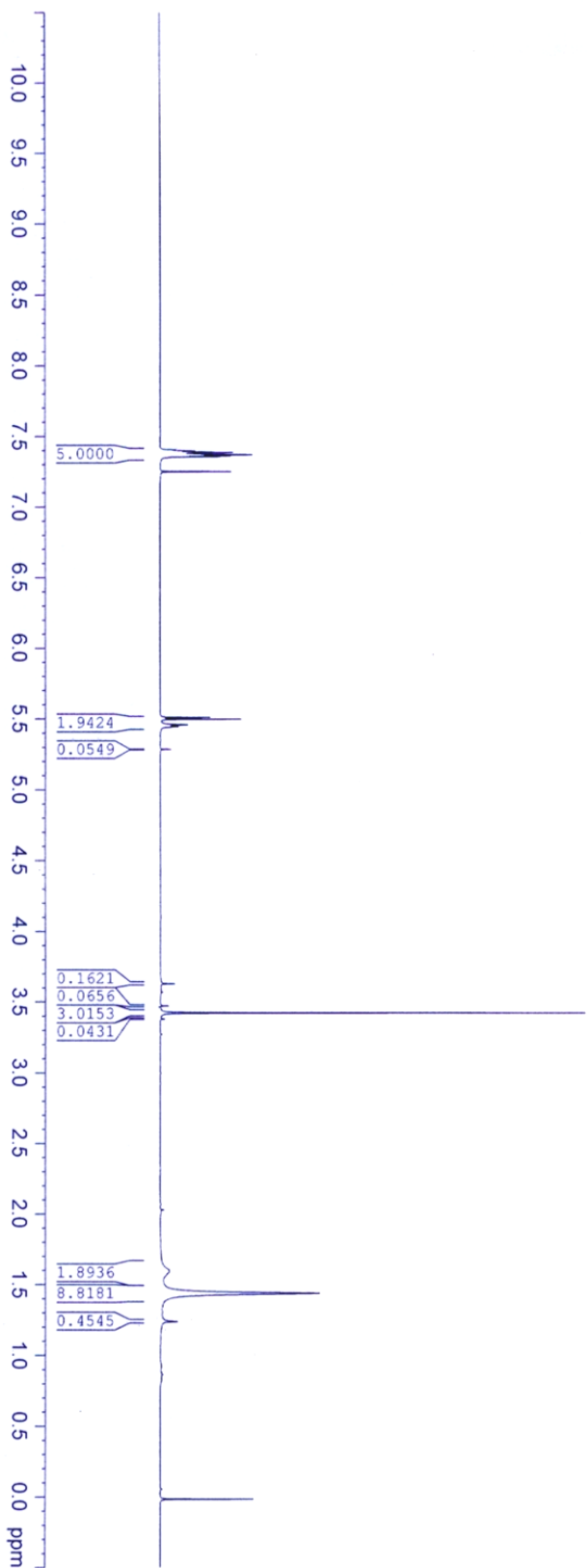
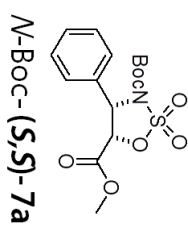
7.3942
7.3863
7.3827
7.3726
7.3676
7.3595
7.3539

5.5080
5.4953
5.4558
5.4432
5.2836

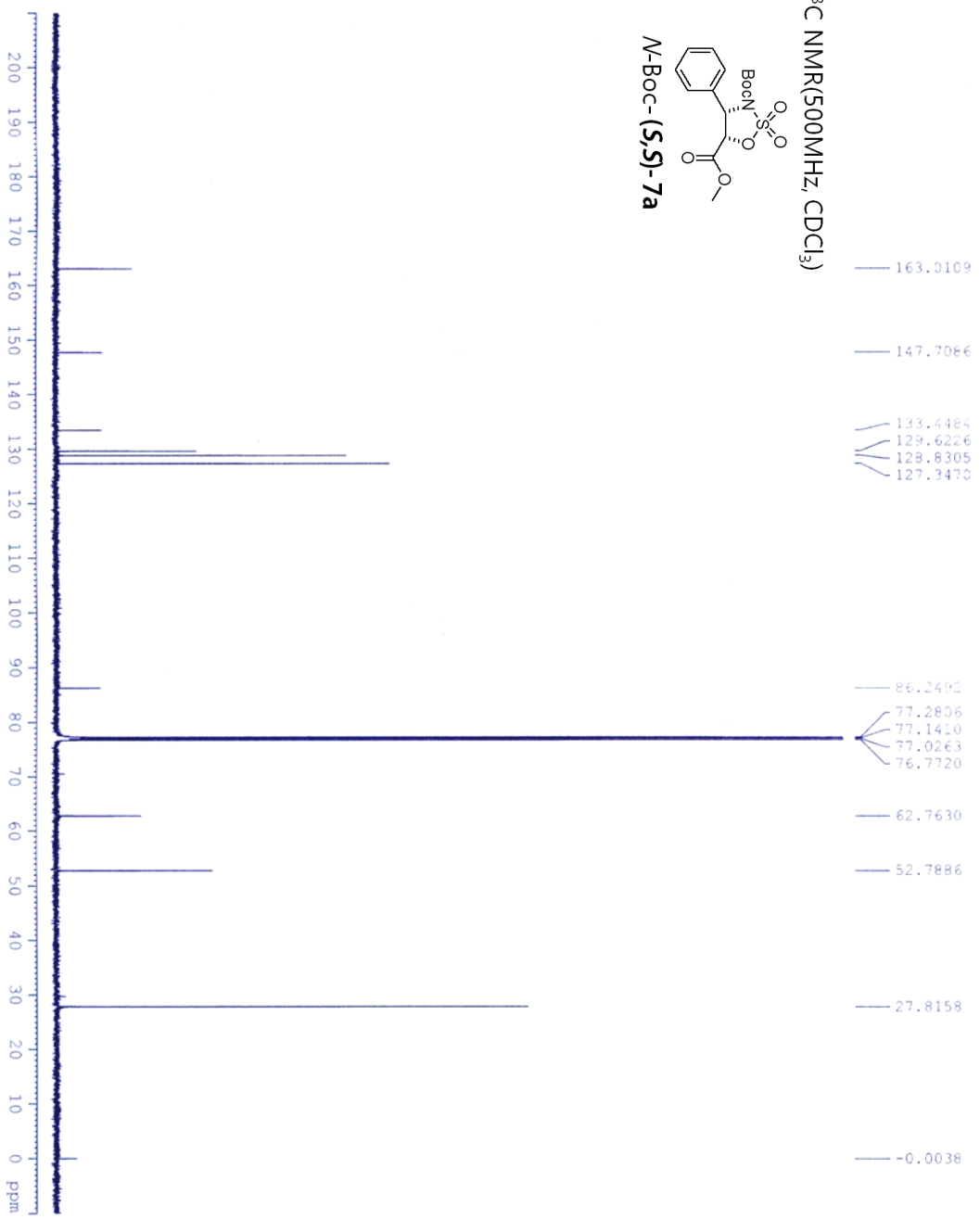
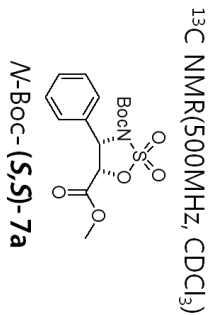
3.6286
3.4226

1.5932
1.4371
1.2379

^1H NMR(500MHz, CDCl_3)



SYJ_ph_NBoc_S,S_PL1C



```

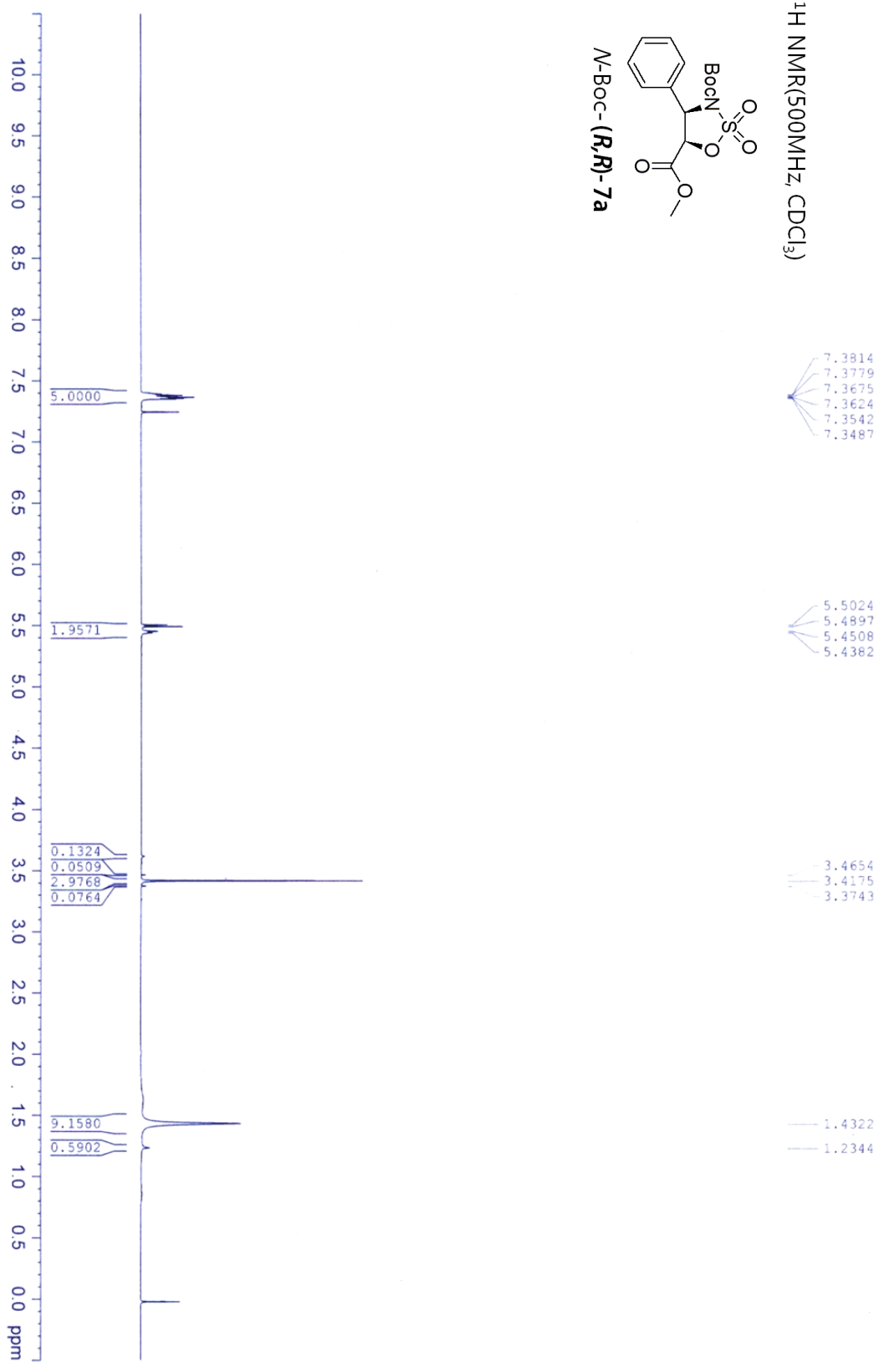
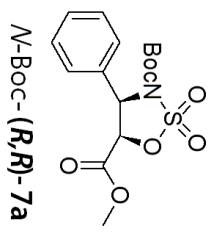
NAME          SYJ_ph_NBoc_S,S_PL1C
EXPNO         1
PROCNO        1
Date_         20140813
Time          11.14
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            1000
DS            2
SWH           30303.031 Hz
FIDRES       0.924775 Hz
AQ           0.5407385 sec
RG           256
DM           16.500 usec
DE           6.00 usec
TE           297.7 K
D1           2.00000000 sec
D11          0.03000000 sec
TDO          1

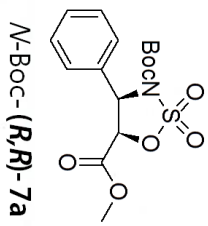
===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
PL1W         70.60439301 W
SFO1         125.7703661 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPDZ        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22136943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

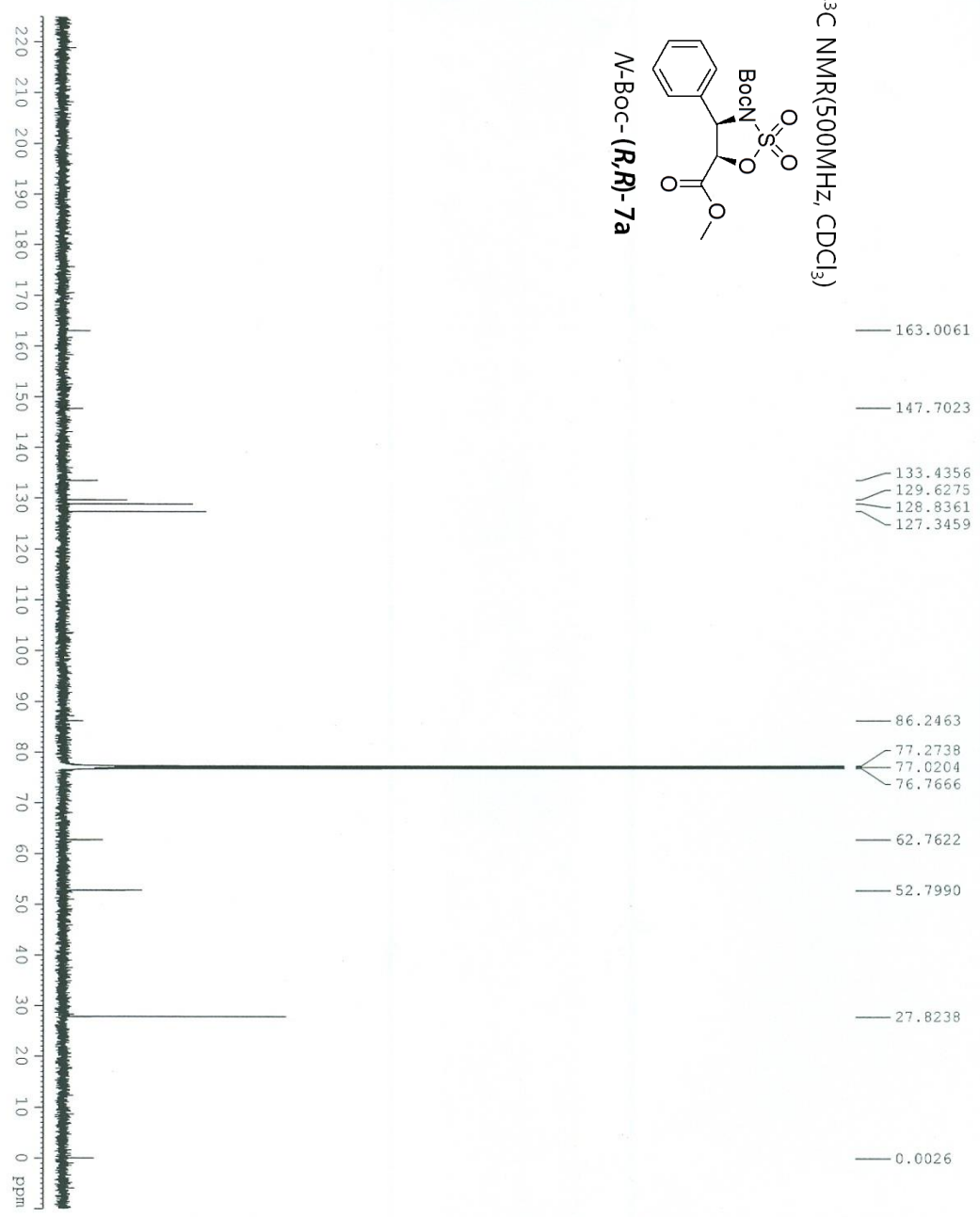
SYJ-R,R-ph-NBoc-PLC-0812

¹H NMR(500MHz, CDCl₃)





¹³C NMR(500MHz, CDCl₃)



KJA_ph_carbo_N_Boc

```

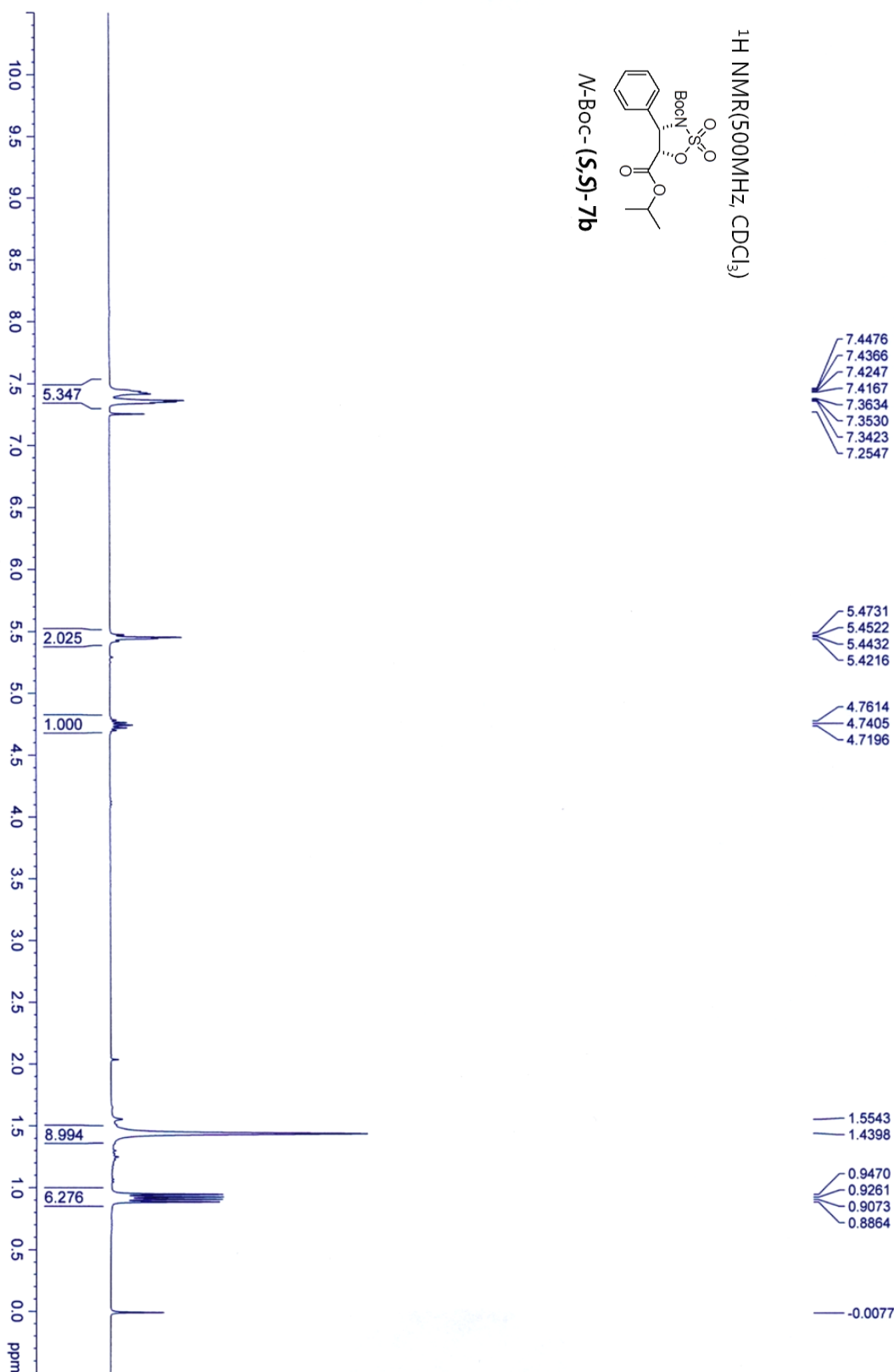
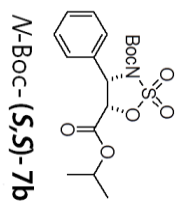
NAME      KJA_ph_carbo_N_Boc
EXPNO     1
PROCNO    1
Date_     2010306
Time      8.25
INSTRUM   spect
PROBHD    5 mm DUX 13C1
PULPROG   zgpg30
TD         32768
SOLVENT   CDCl3
NS         1000
DS         2
SWH        35211.270 Hz
FIDRES     1.074563 Hz
AQ         0.4653698 sec
RG         3251
DE         14.200 usec
TE         297.1 K
D1         2.0000000 sec
D11        0.0300000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         8.00 usec
PL1        1.40 dB
PL1W       70.60439301 W
SFO1       125.7728799 MHz

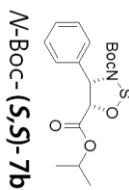
===== CHANNEL f2 =====
CEPRRG2   waltz16
NUC2       1H
F2PRG2    100.00 usec
PL2        1.50 dB
PL2W       19.00 dB
PL13       19.00 dB
PL14       19.00 dB
PL15       19.00 dB
PL16       19.00 dB
PL17       27.23316002 W
PL18       0.44167015 W
PL19       0.22135943 W
PL13W      500.1320005 MHz
SFO2       500.1320005 MHz
SI         32768
SE         125.7577890 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```

HJA_iPr_Boc

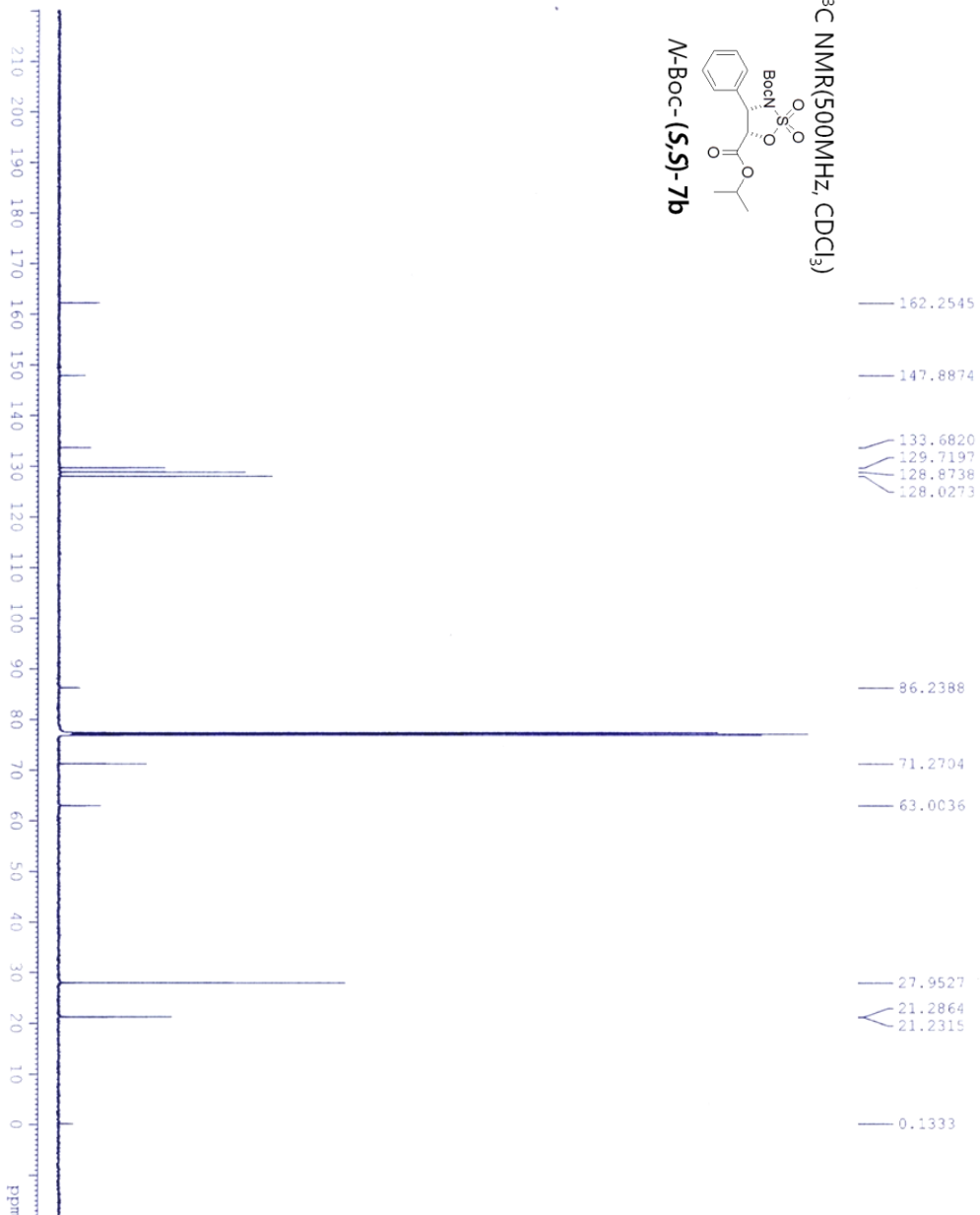
¹H NMR(500MHz, CDCl₃)



HJA_iPr_Boc



¹³C NMR(500MHz, CDCl₃)



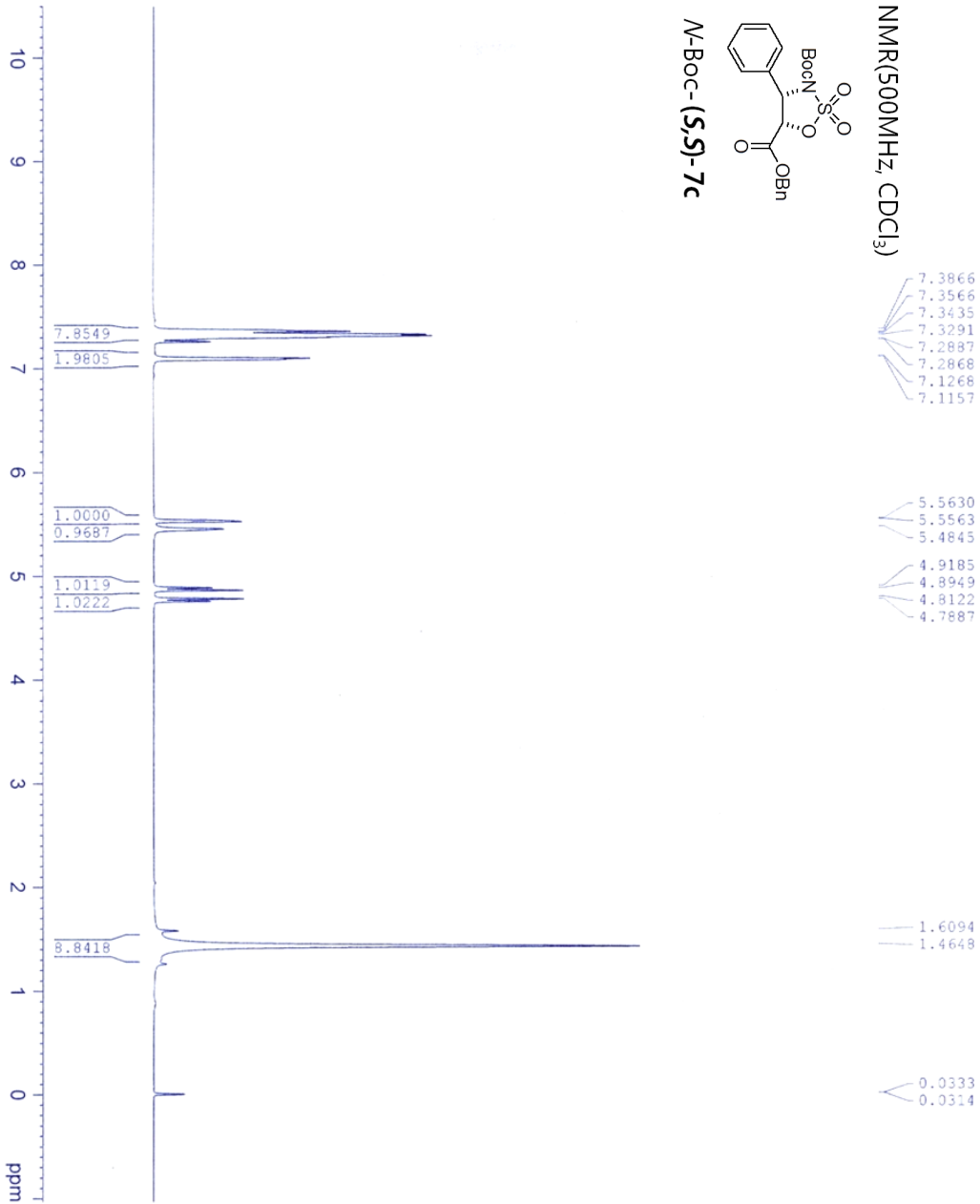
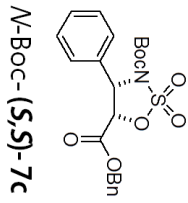
NAME	HJA_iPr_Boc
EXPNO	1
PROCNO	1
Date_	20110210
Time	3:05
INSTRUM	spect
PROBHD	5 mm DUL 13C-1
FULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	2048
DS	2
SWH	35211.270 Hz
FIDRES	0.537281 Hz
AQ	0.9306754 sec
RG	512
DW	14.200 usec
DE	6.00 usec
TE	295.6 K
D1	2.00000000 sec
D11	0.03000000 sec
TDO	1

----- CHANNEL f1 -----	
NUC1	¹³ C
P1	8.00 usec
PL1	1.40 dB
PL1W	70.60439301 W
SFO1	125.7728799 MHz

----- CHANNEL f2 -----	
CPDPRG2	waltz16
NUC2	¹ H
PCPD2	100.00 usec
PL2	-1.90 dB
PL12	16.00 dB
PL13	19.00 dB
PL2W	27.23316002 W
PL12W	0.44167015 W
PL13W	0.22135943 W
SFO2	500.1320005 MHz
SF	32768
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

HJA_Bn_Boc

¹H NMR(500MHz, CDCl₃)

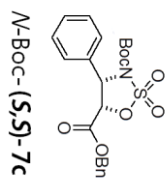


```

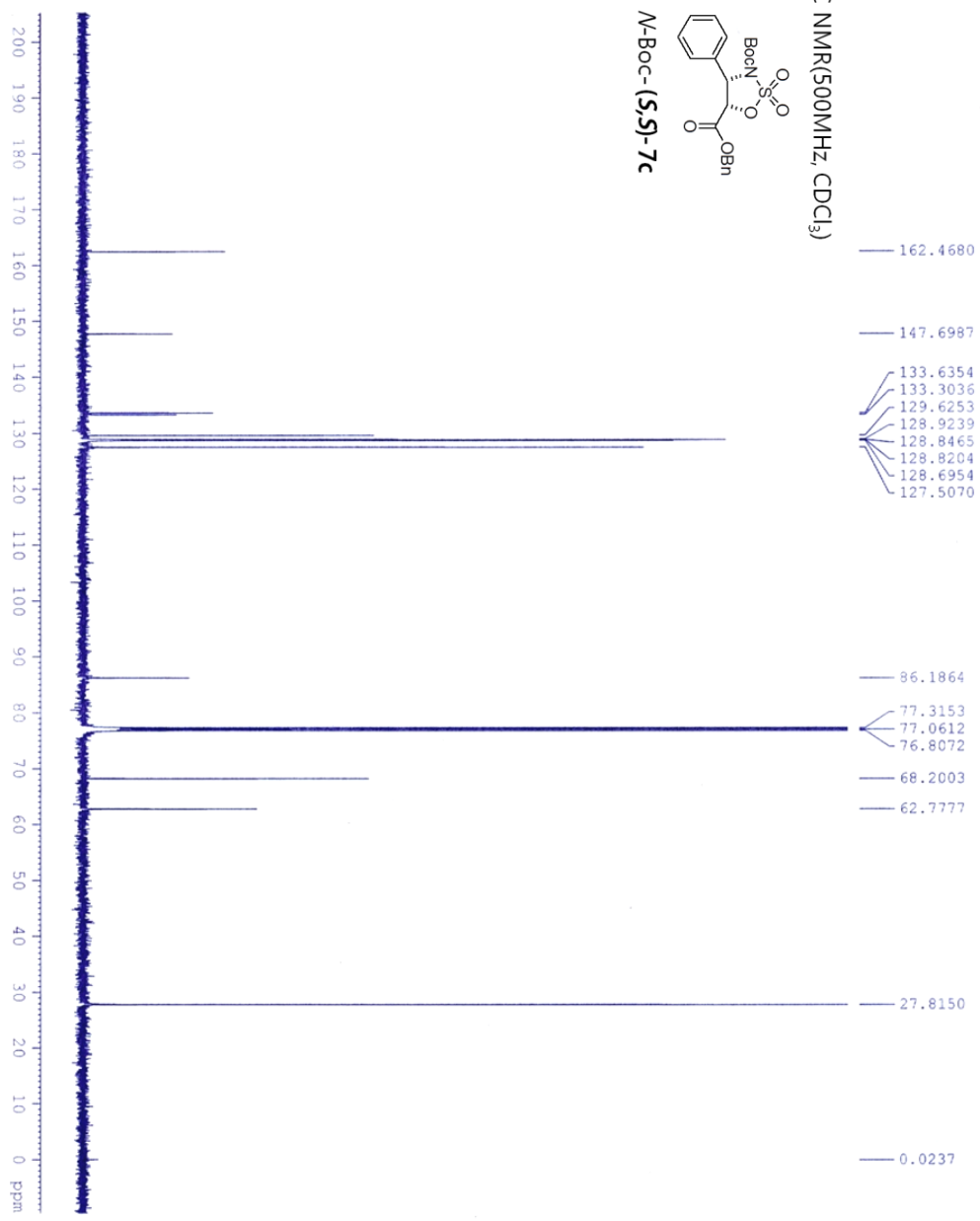
NAME      HJA_Bn_Boc
EXPNO     2
PROCNO    1
Date_     20110214
Time      15:11
INSTRUM   spect
PROBHD    5 mm DUL 13C-1
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         8
DS         2
SWH        7507.507 Hz
FIDRES     0.114555 Hz
AQ         4.3648143 sec
RG         71.8
DE         66.600 usec
TE         295.1 K
D1         1.00000000 sec
TDO        1

===== CHANNEL f1 =====
NUC1       1H
P1         9.80 usec
PL1        -1.90 dB
PL1W       27.23316002 W
SFO1       500.1332508 MHz
SI         32768
SF         500.1300144 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```

HJA_Bn_Boc



¹³C NMR(500MHz, CDCl₃)



```

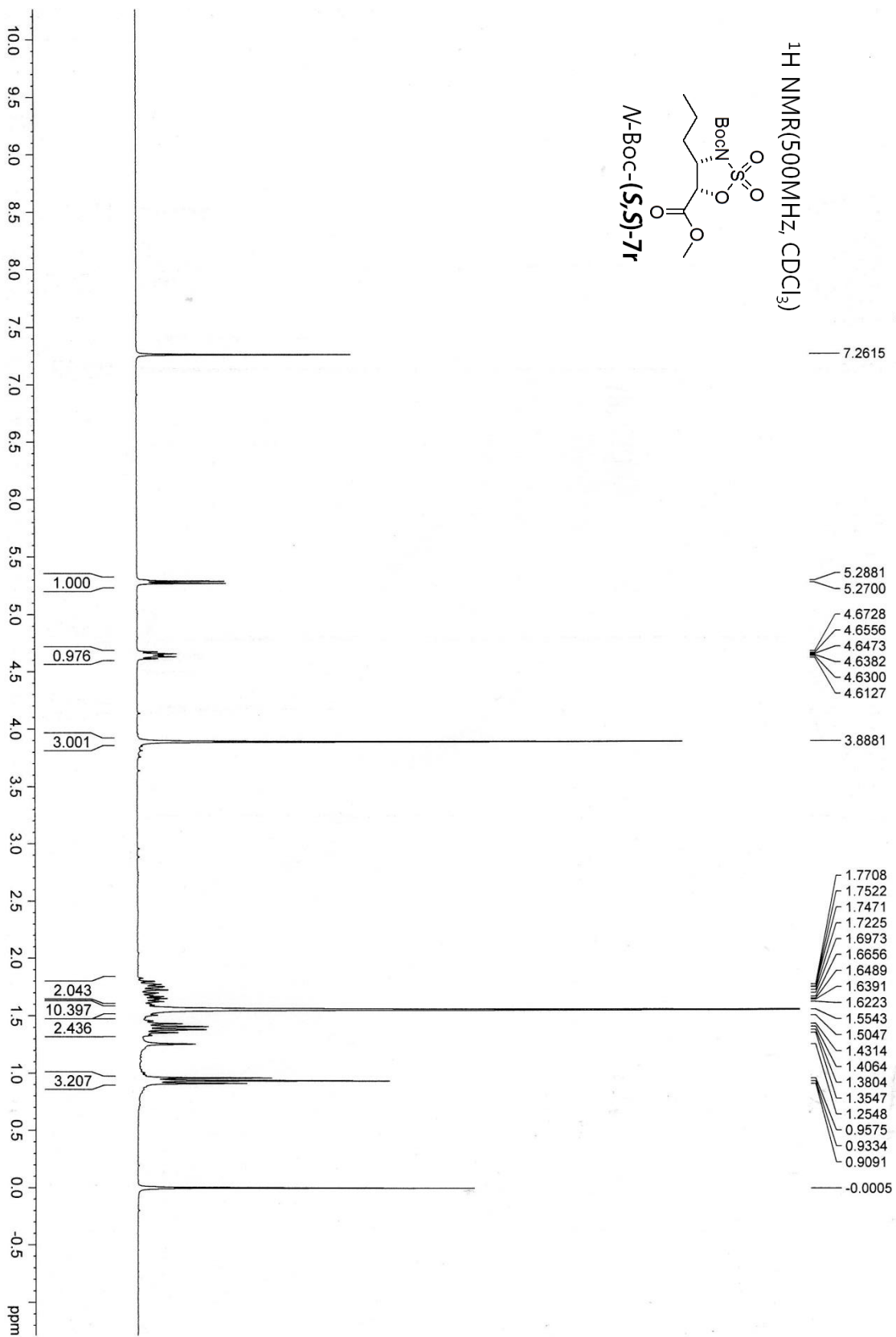
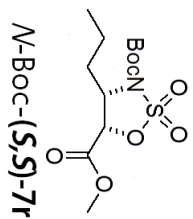
NAME          HJA_Bn_Boc_C
EXPNO         2
PROCNO        1
Date_         20110214
Time_         15.44
INSTRUM       spect
PROBHD        5 mm DUL-13C-1
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS           512
DS           2
SWH           35211.270 Hz
FIDRES       0.537281 Hz
AQ           0.9306754 sec
RG           1625.5
DE           14.200 usec
TE           296.1 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0          1

===== CHANNEL f1 =====
NUC1          13C
P1           8.00 usec
PL1          1.40 dB
PL1W         70.60433301 W
SFO1         125.7728799 MHz

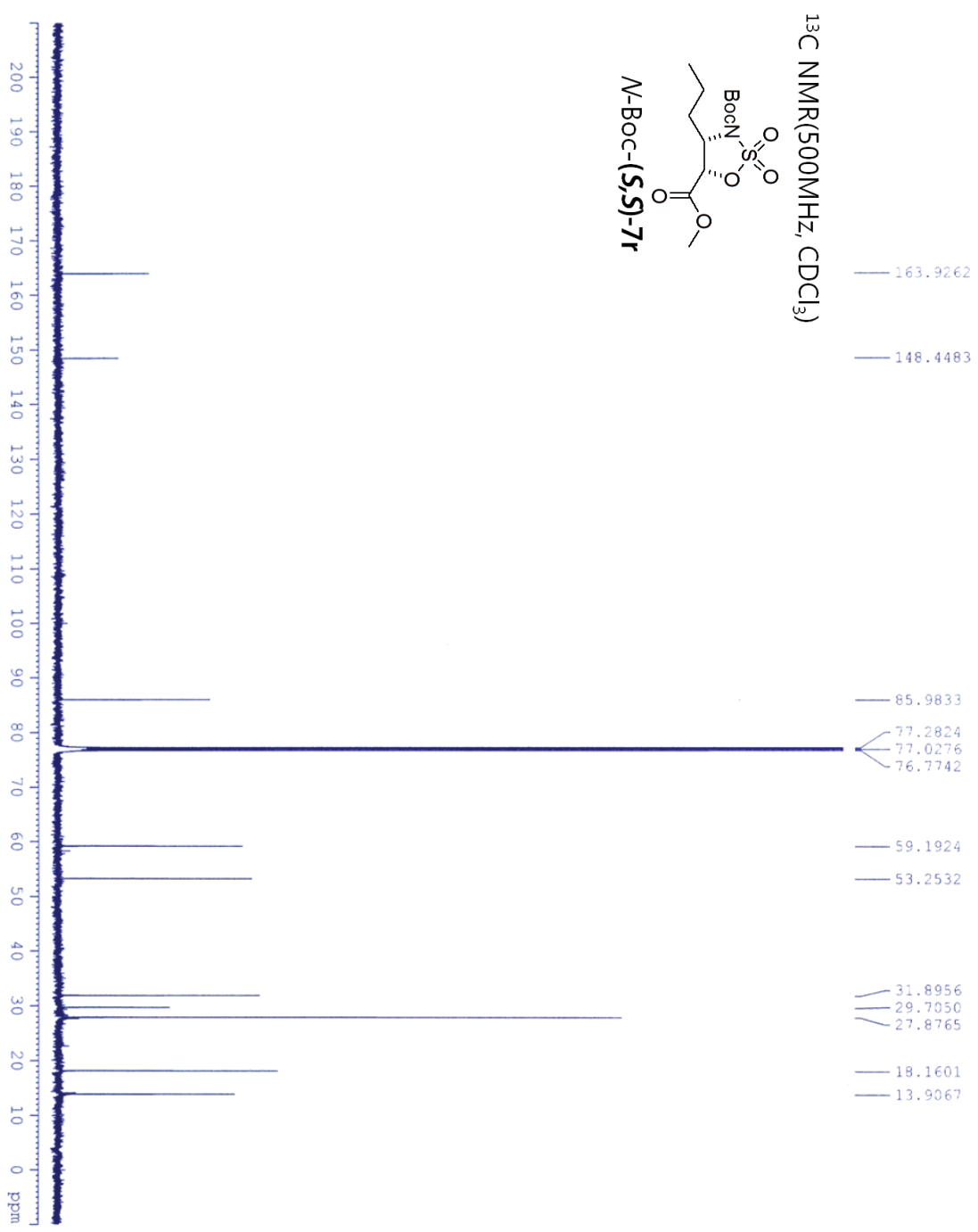
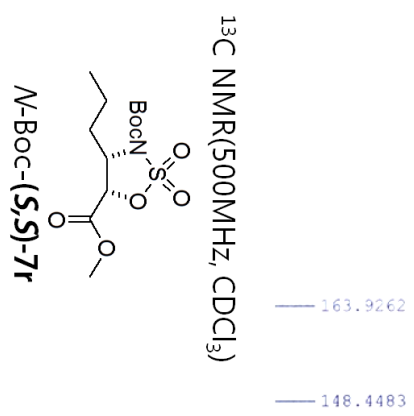
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.2331602 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
GB           0
PC           1.00 Hz
          0
          1.40
  
```


n-Pr-Boc-col_major

¹H NMR(500MHz, CDCl₃)



SYJ_propyl_NBoc_pure



```

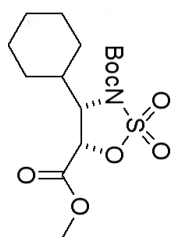
NAME          SYJ_propyl_NBoc_pure
EXPNO         1
PROCNO        1
Date_         20140711
Time          3.04
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            1000
DS            2
SWH           30303.031 Hz
FIDRES        0.924775 Hz
AQ            0.5407385 sec
RG            161.3
DW            16.500 usec
DE            6.00 usec
TE            297.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
P1LW         70.60439301 W
SFO1         125.7703661 MHz

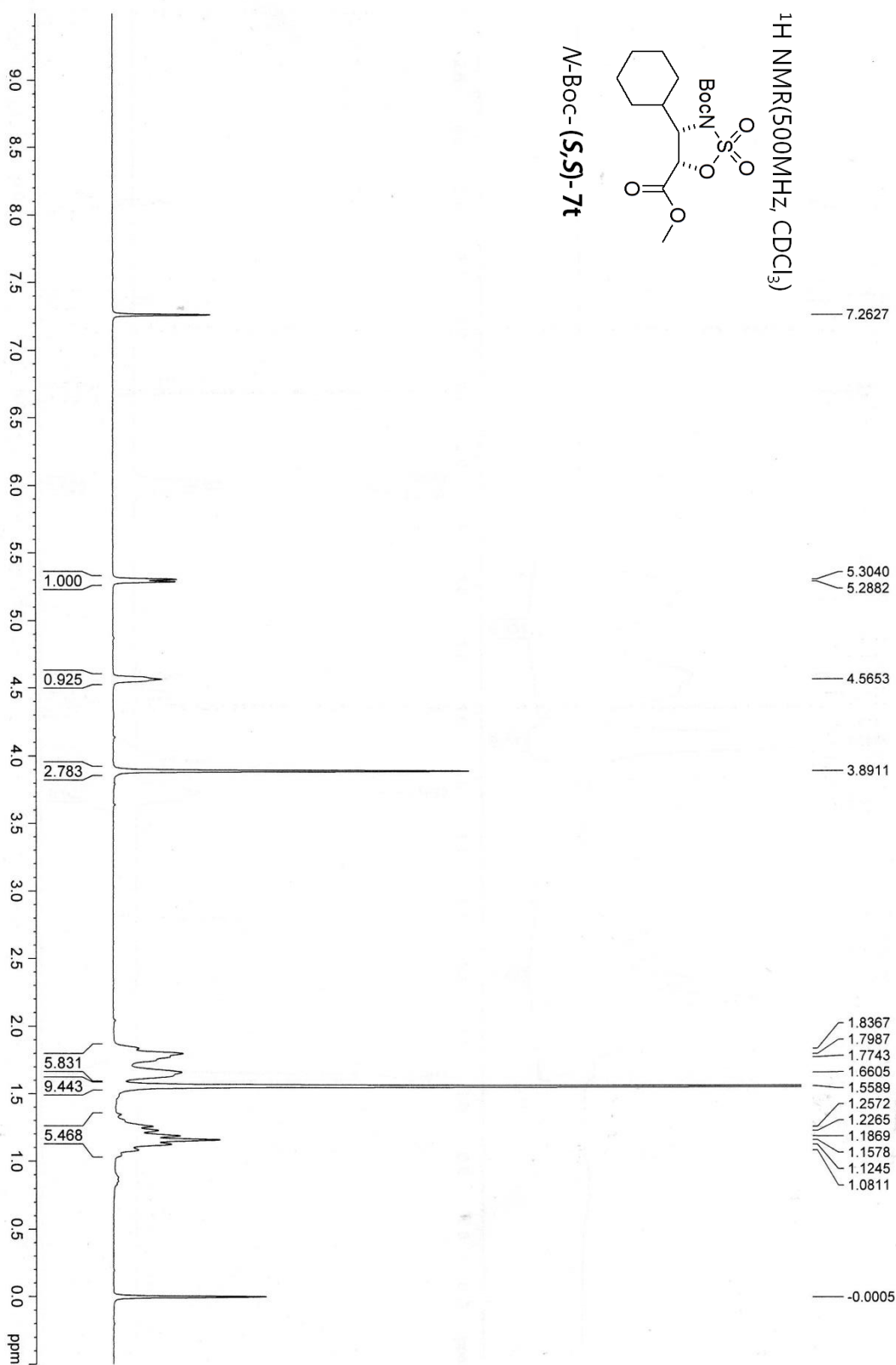
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2           -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

LR-158-Boc

¹H NMR(500MHz, CDCl₃)

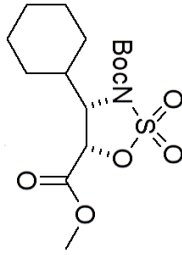


N-Boc-(*S,S*)-7t

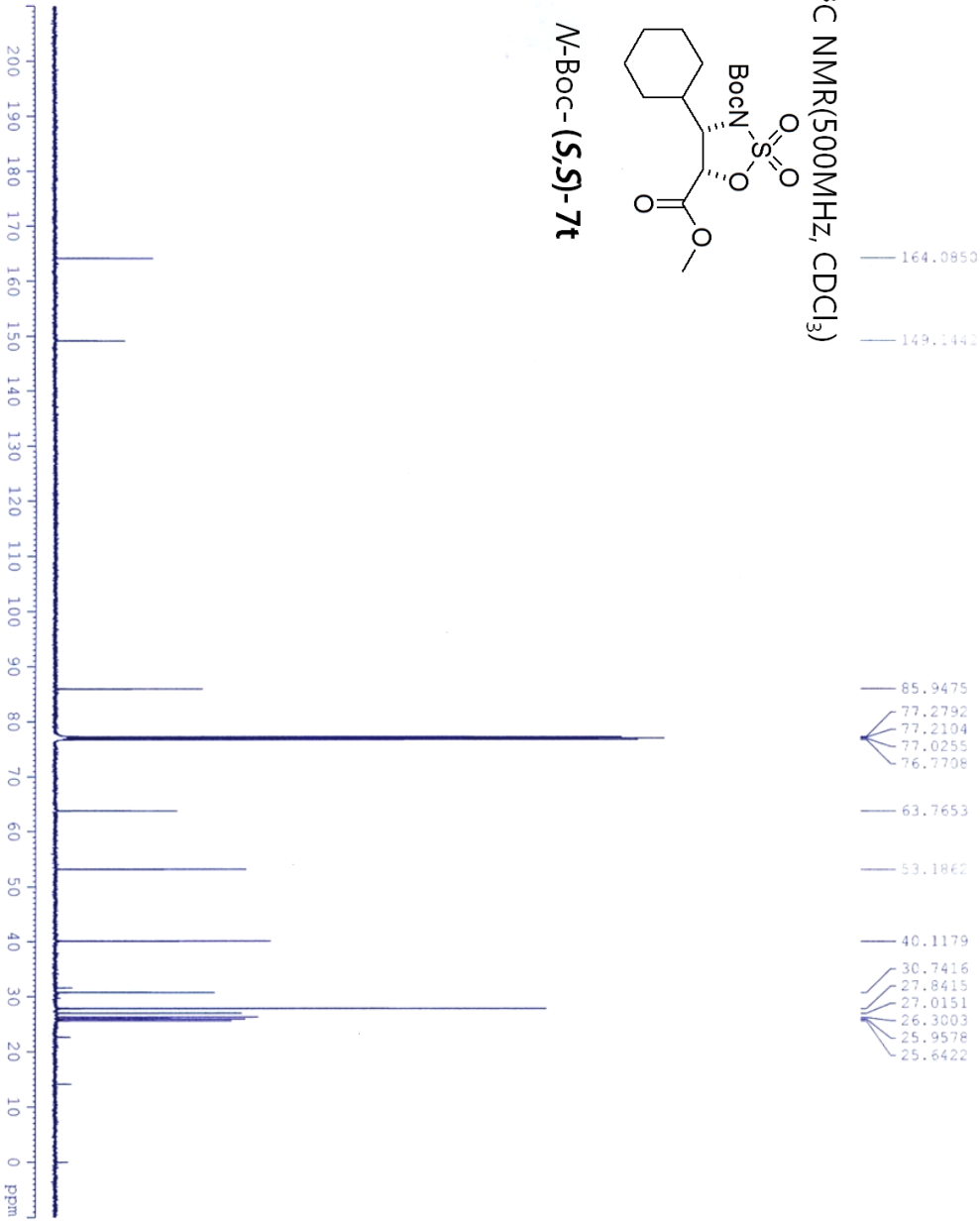


LR_158_Boc

¹³C NMR(500MHz, CDCl₃)



N-Boc-(S,S)-7t



- 164.0850
- 149.1442
- 85.9475
- 77.2792
- 77.2104
- 77.0255
- 76.7708
- 63.7653
- 53.1862
- 40.1179
- 30.7416
- 27.8415
- 27.0151
- 26.3003
- 25.9578
- 25.6422

```

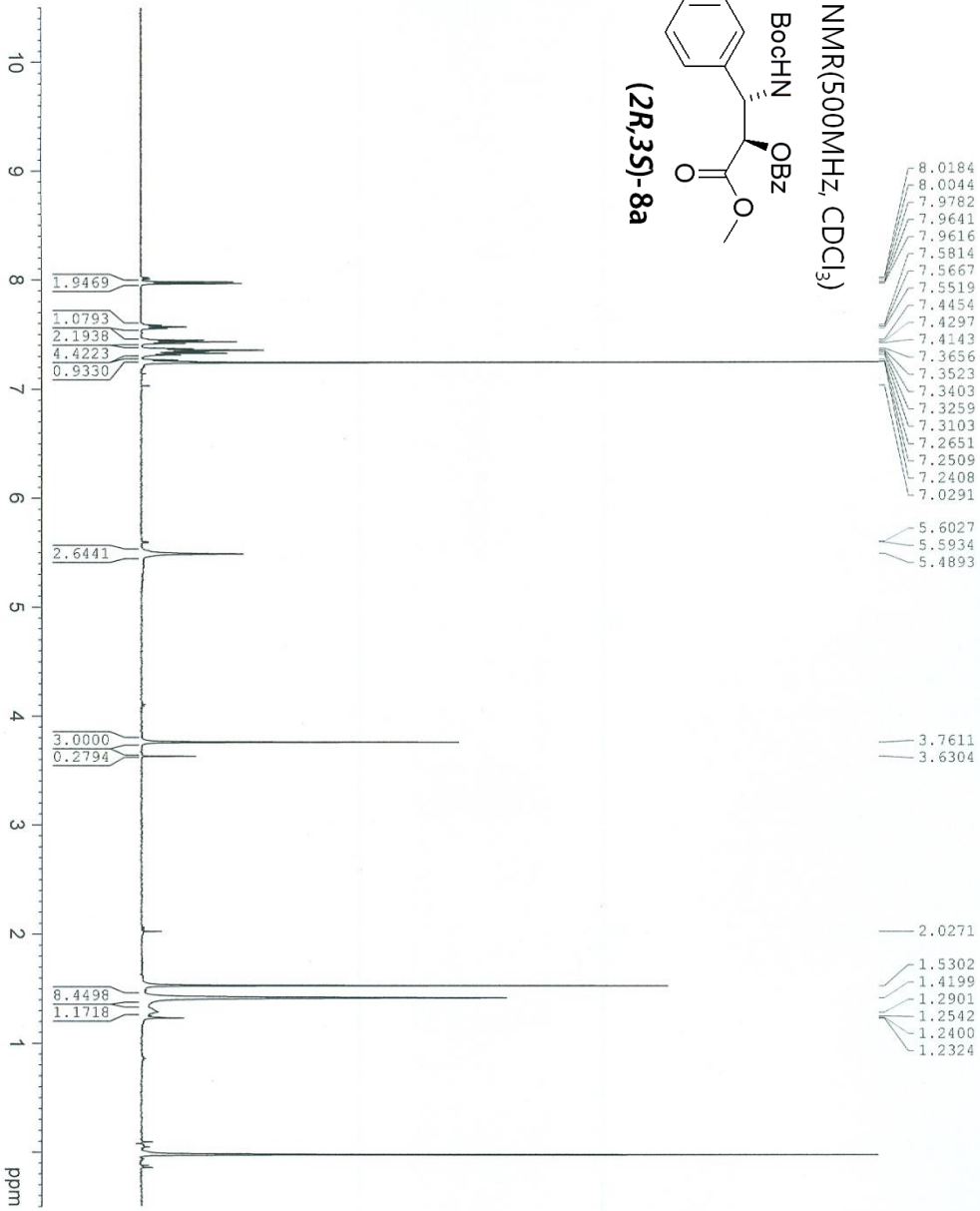
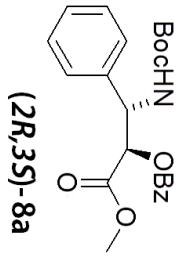
NAME LR_158_Boc
EXPNO 1
PROCNO 1
Date_ 20140715
Time_ 21.17
INSTRUM spect
PROBHD 5 mm DUL-13C-1
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1000
DS 2
SWH 30303.031 Hz
FIDRES 0.924775 Hz
AQ 0.5407385 sec
RG 456.1
DM 16.500 usec
DE 6.00 usec
TE 298.6 K
D1 2.000000000 sec
D11 0.030000000 sec
TDO 1

----- CHANNEL f1 -----
NUC1 13C
P1 8.00 usec
PL1 1.40 dB
PL1W 70.60439301 W
SFO1 125.7703661 MHz

----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -1.90 dB
PL12 16.00 dB
PL13 19.00 dB
PL1W 27.23316002 W
PL2W 0.44167015 W
PL13W 0.22135943 W
SFO2 500.1320005 MHz
SI 32768
SF 125.7577890 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
  
```

KJA-OBZ-0321

¹H NMR(500MHz, CDCl₃)

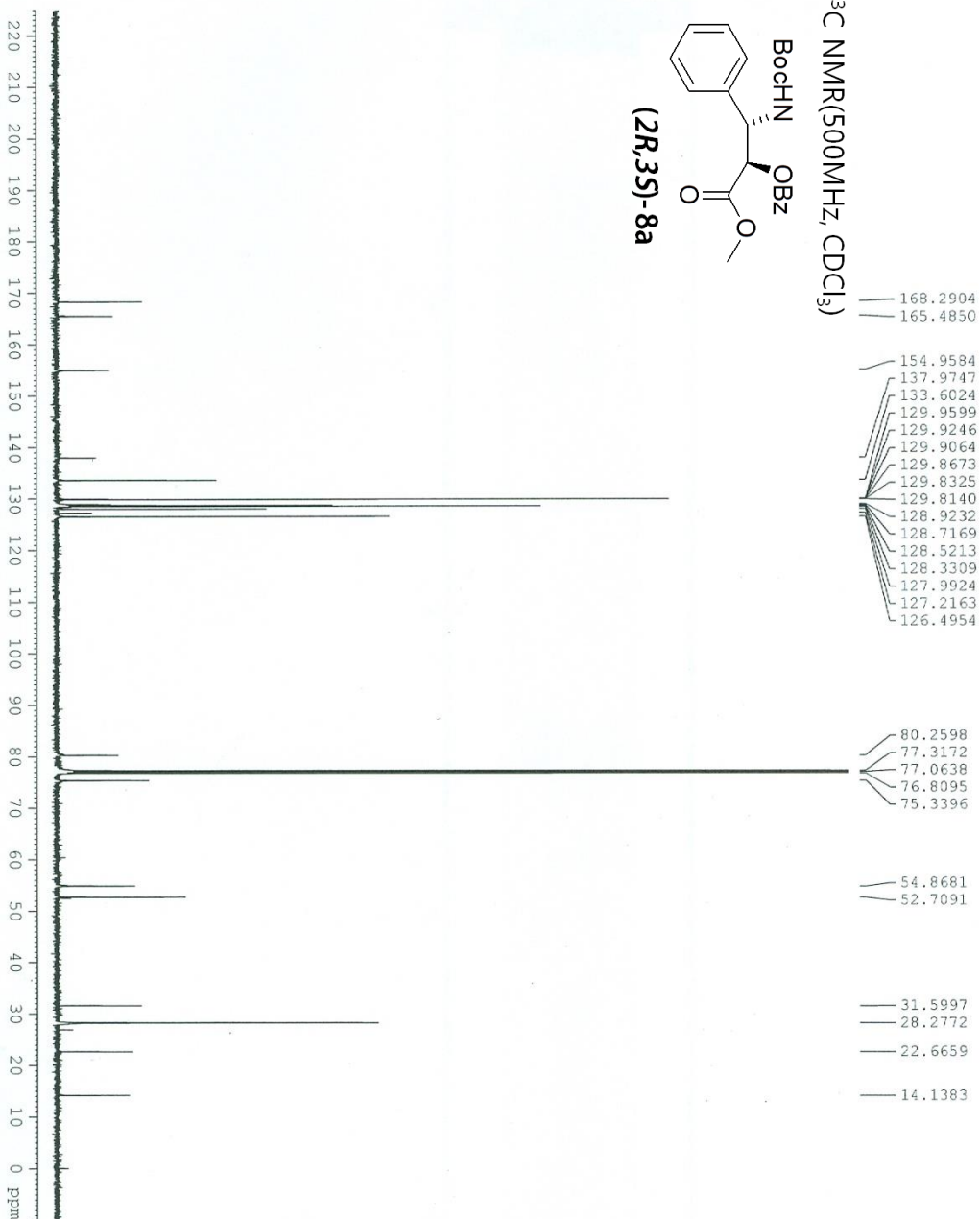
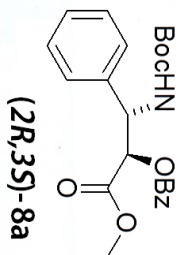


```
NAME KJA-OBZ-0321
EXPNO 1120
PROCNO 1
Date_ 20140321
Time 14.39
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 2
SWH 7507.507 Hz
FIDRES 0.229111 Hz
AQ 2.1824653 sec
RG 574.7
DW 66.600 usec
DE 6.00 usec
TE 295.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 9.80 usec
PL1 -1.90 dB
PL1W 27.23316002 W
SFO1 500.1332508 MHz
SI 16384
SF 500.1300231 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
```

KJA_ph_carbo_OBz

¹³C NMR(500MHz, CDCl₃)



```

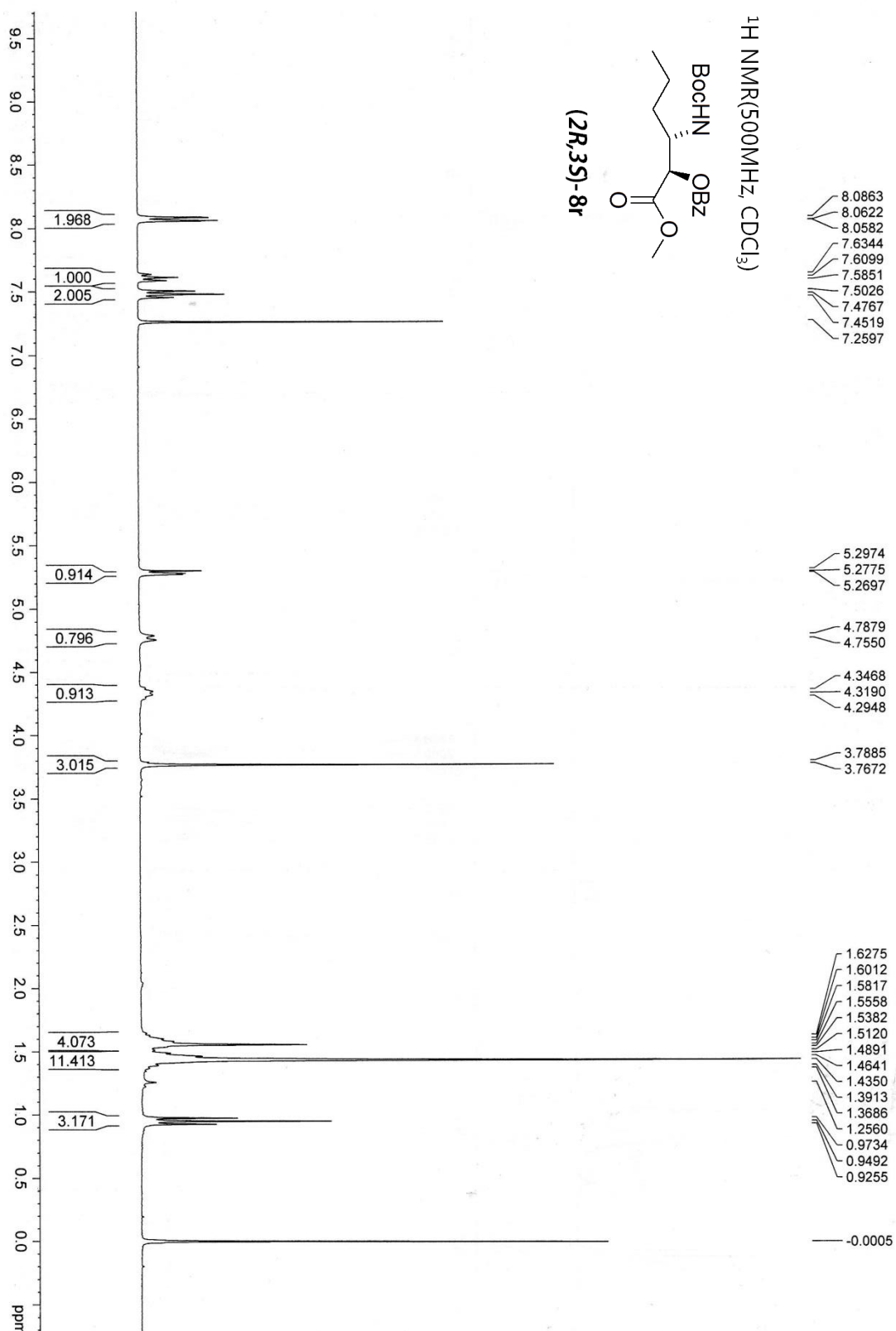
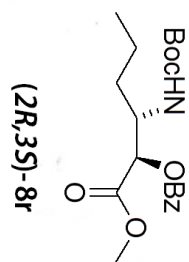
NAME          KJA_ph_carbo_OBz
EXPNO         1
PROCNO        1
Date_         20140306
Time_         9.14
INSTRUM       5 mm DUI 13C-1
PROBHD        zgpg30
PULPROG       32768
TD            CDCl3
SOLVENT       1000
NS            2
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            4096
DW            14.200 usec
DE            6.00 usec
TE            297.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz216
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL2W         27.23316002 W
PL12W        0.44167015 W
PL13W        0.22135943 W
SFO2          500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```

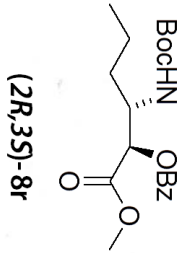
LR-155-puri

¹H NMR(500MHz, CDCl₃)

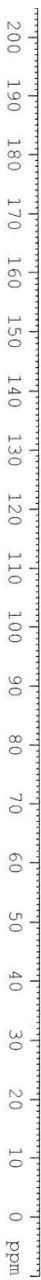


LR_155_puri

¹³C NMR(500MHz, CDCl₃)



- 168.7918
- 165.6835
- 155.2579
- 133.5601
- 129.8903
- 129.1271
- 128.5143
- 79.7179
- 77.3186
- 77.0636
- 76.8095
- 74.1641
- 52.4724
- 51.1259
- 34.3789
- 28.2632
- 19.2255
- 13.7186



```

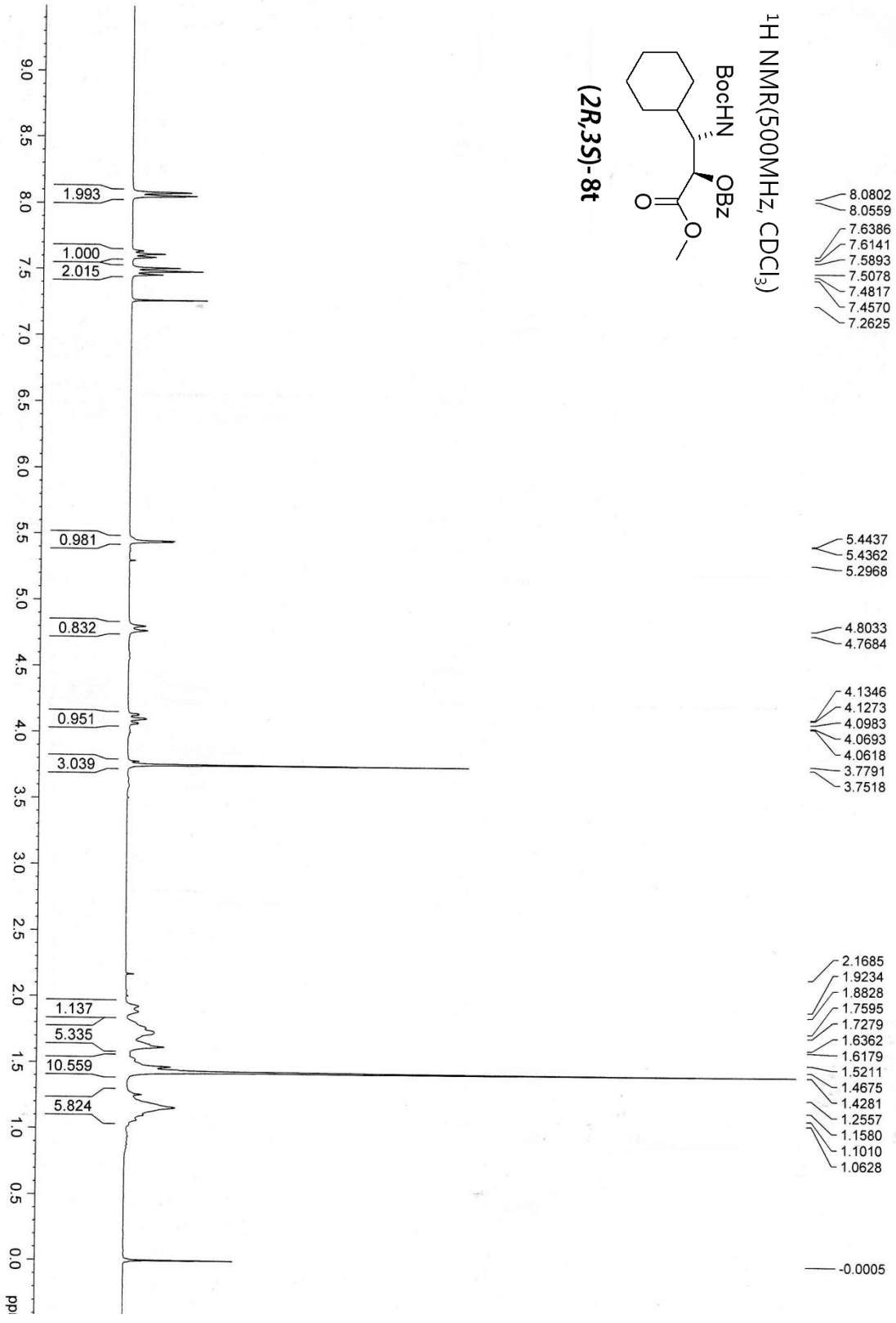
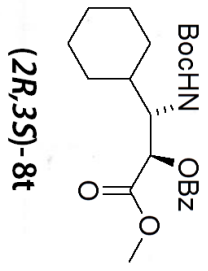
NAME LR_155_puri
EXPNO 1
PROCNO 1
Date_ 20140707
Time_ 21.13
INSTRUM spect
PROBHD 5 mm DUL-13C-1
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1000
DS 2
SWH 30303.031 Hz
FIDRES 0.924775 Hz
AQ 0.5407385 sec
RG 574.7
DE 16.500 us
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 8.00 us
PL1 1.40 dB
PL1W 70.60439301 W
SF01 125.7703661 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 us
PL2 -1.90 dB
PL12 16.00 dB
PL13 19.00 dB
PL1W 27.23316002 W
PL2W 0.44167015 W
PL1W 0.22135943 W
SF02 500.1320005 MHz
SI 32768
SF 125.7577890 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
  
```


LR-147-1_dry sample

¹H NMR(500MHz, CDCl₃)



LR_147_1

169.1667
165.6650
155.4547

133.5780
129.9069
129.1735
128.5501

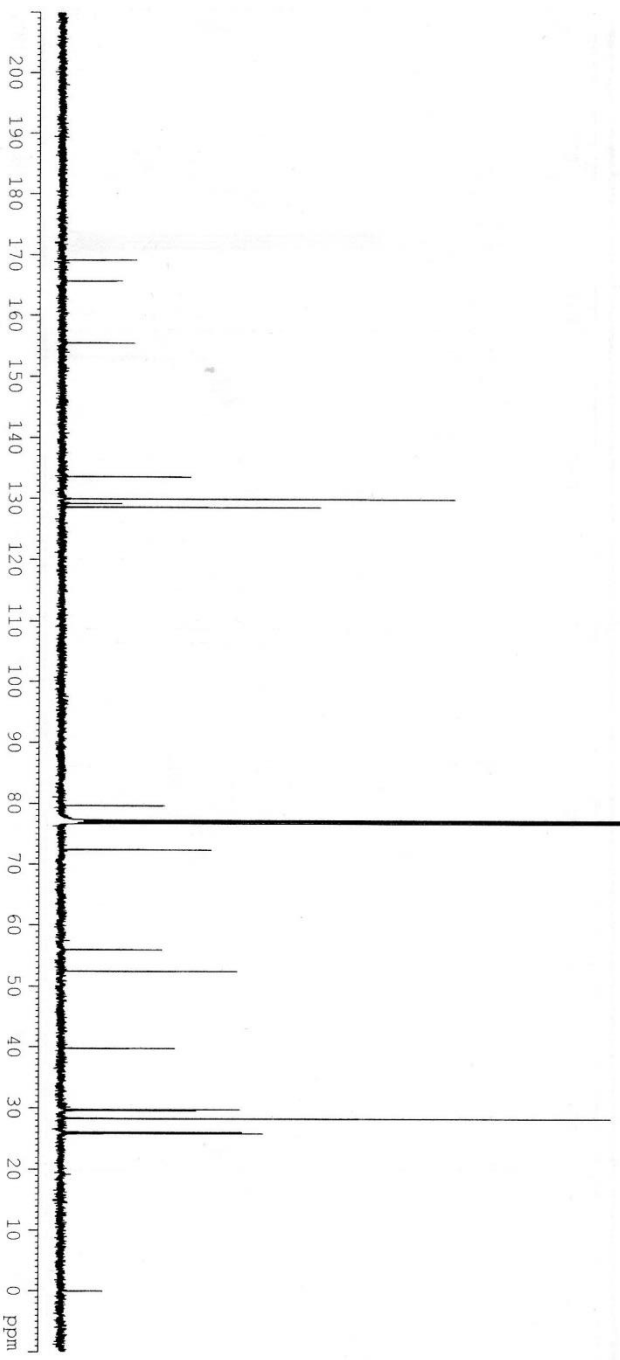
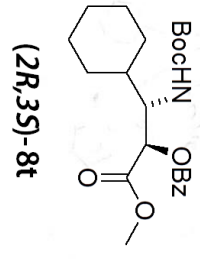
79.6631
77.2780
77.0246
76.7699
72.3941

55.9821
52.4598

39.7633
29.7420
29.5785
28.2726
26.0569
25.8613

-0.0031

¹³C NMR(500MHz, CDCl₃)



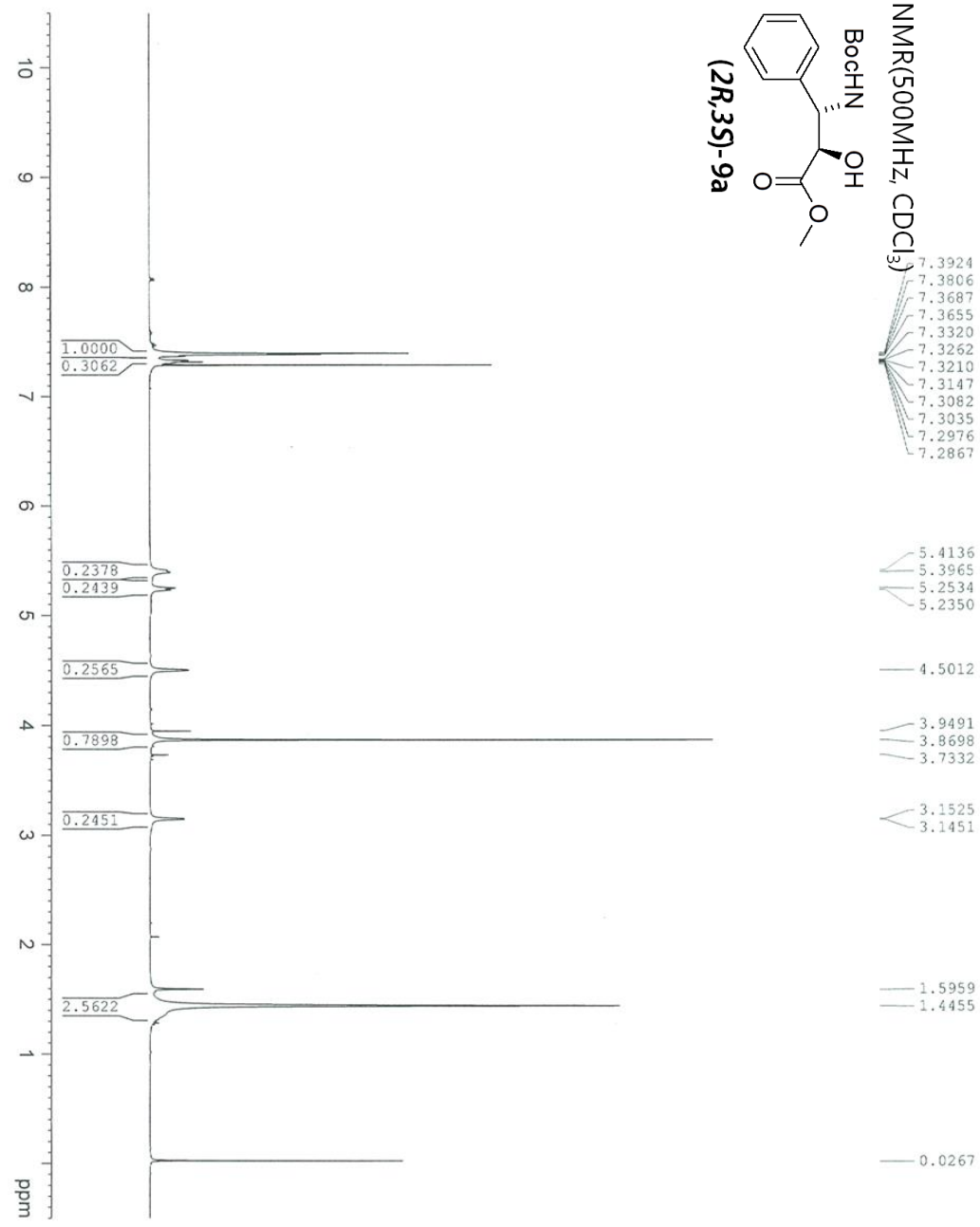
```
NAME LR_147_1
EXPNO 1
PROCNO 1
Date_ 20140619
Time_ 23.23
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1000
DS 2
SWH 30303.031 Hz
FIDRES 0.924775 Hz
AQ 0.5407385 se
RG 161.3
DE 16.500 us
TE 297.8 K
D1 2.00000000 se
D11 0.03000000 se
TDO 1
```

```
===== CHANNEL f1 =====
NUC1 13C
P1 8.00 us
PL1 1.40 dB
PL1W 70.60439301 W
SFO1 125.7703661 MHz
```

```
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 us
PL2 -1.90 dB
PL12 16.00 dB
PL13 19.00 dB
PL1W 27.23316002 W
PL12W 0.44167015 W
PL13W 0.22135943 W
SFO2 500.1320005 MHz
SI 32768
SF 125.7577890 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
```

KJA_ph_carbo_N_Boc_OH

¹H NMR(500MHz, CDCl₃)



- 7.3924
- 7.3806
- 7.3687
- 7.3655
- 7.3320
- 7.3262
- 7.3210
- 7.3147
- 7.3082
- 7.3035
- 7.2976
- 7.2867

- 5.4136
- 5.3965
- 5.2534
- 5.2350

- 4.5012

- 3.9491
- 3.8698
- 3.7332

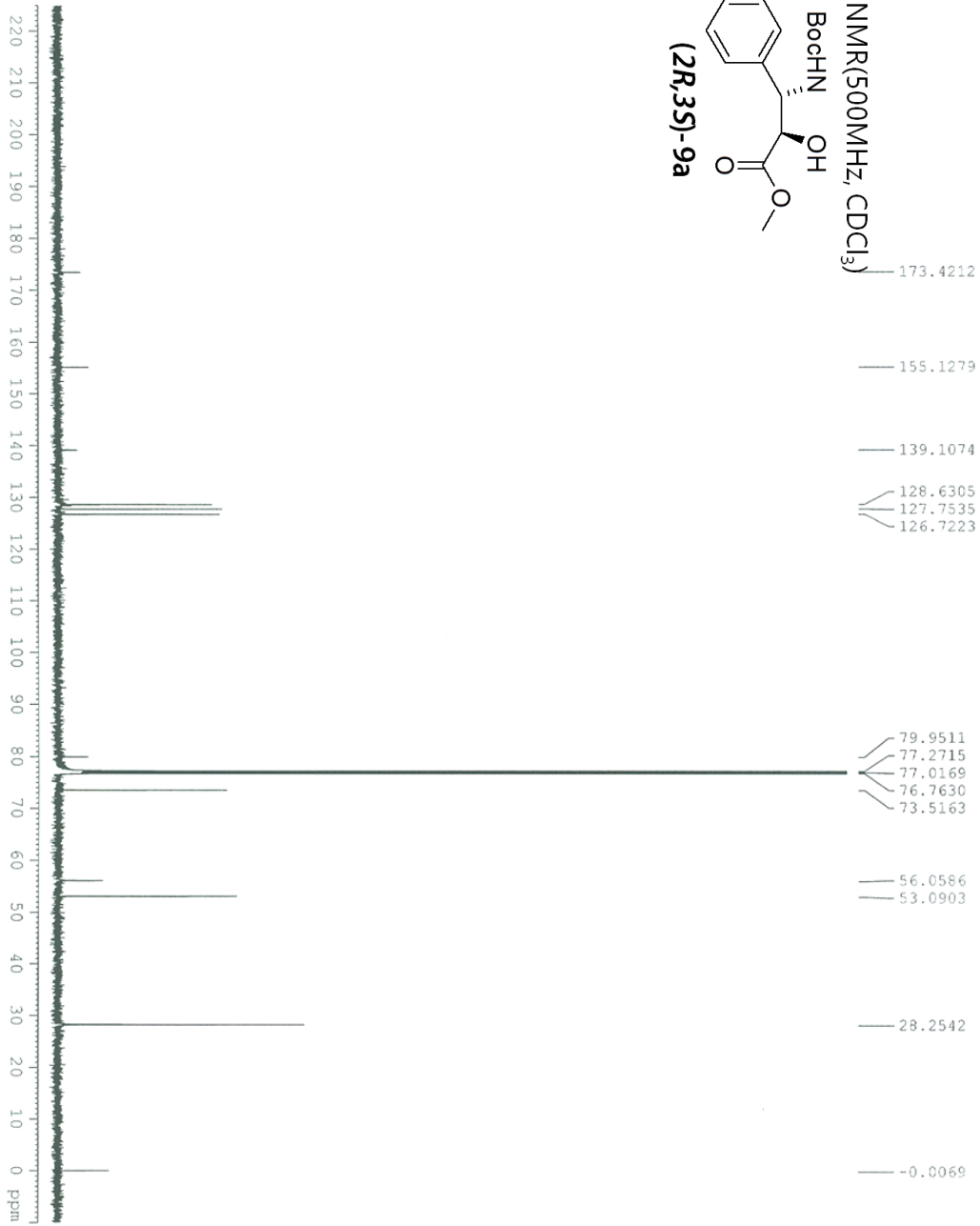
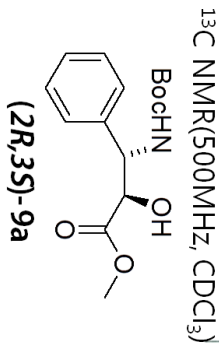
- 3.1525
- 3.1451

- 1.5959
- 1.4455

- 0.0267

```

NAME      KJA_ph_carbo_N_Boc_OH
EXPNO    1
PROCNO   1
Date_    20140307
Time     12.06
INSTRUM  spect
PROBHD   5 mm DUL 13C-1
PULPROG  zg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        2
SWH       7507.507 Hz
FIDRES    0.114555 Hz
AQ         4.3648143 sec
RG         322.5
DW         66.600 usec
DE         6.00 usec
TE         298.3 K
D1         1.00000000 sec
TDO        1
===== CHANNEL f1 =====
NUC1      1H
P1         9.80 usec
PL1       -1.90 dB
PL1W      27.23316002 W
SFO1      500.1332906 MHz
SI         32768
SF         500.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```



KJA_ph_carbo_N_Boc_OH_0401

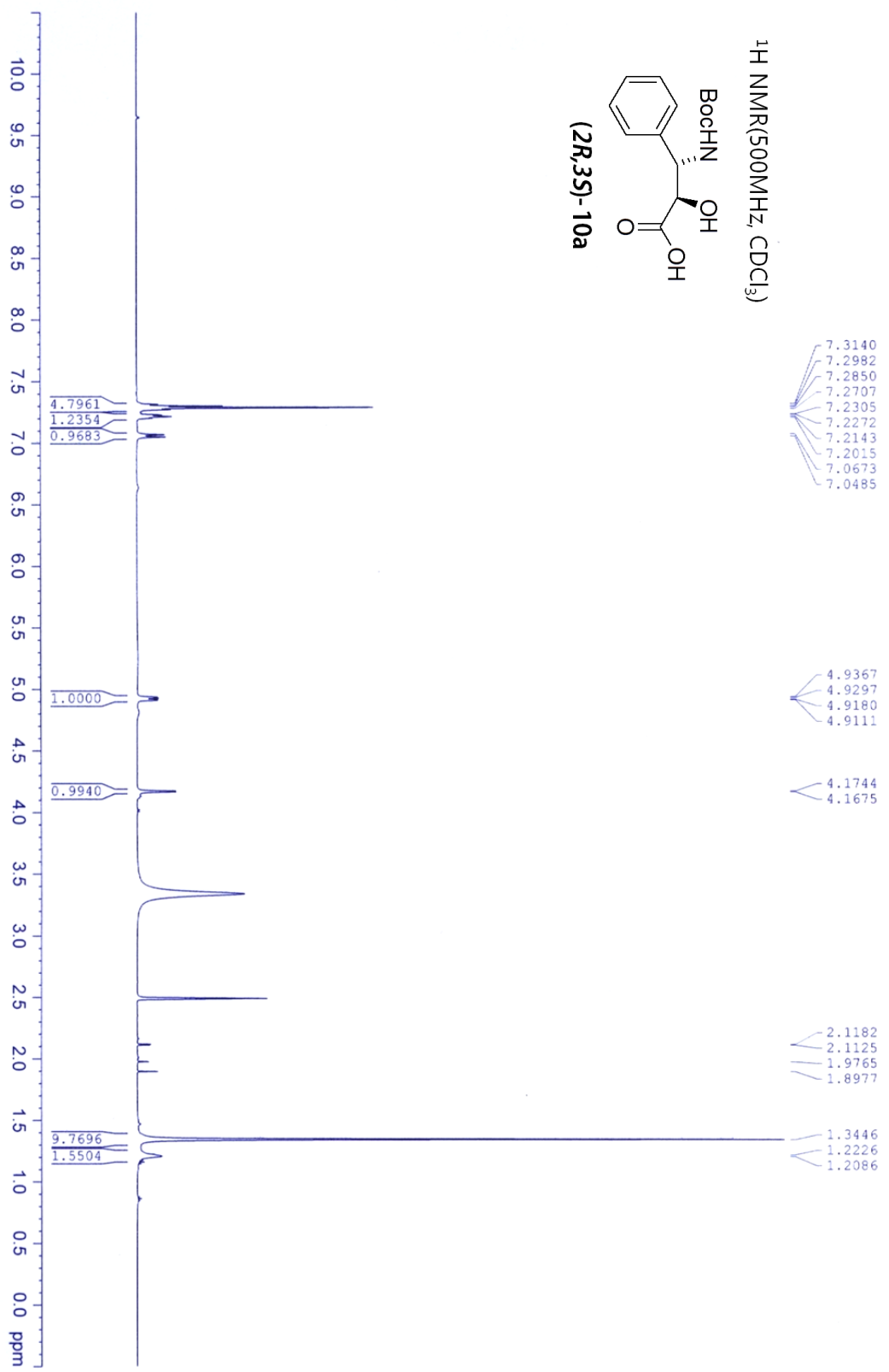
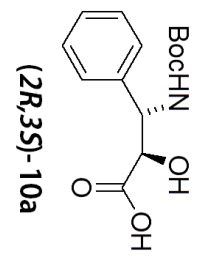
NAME	KJA_ph_carbo_N_Boc_OH_0401
EXPNO	1
PROCNO	1
DATE_	20140401
TIME	20:19
INSTRUM	spect
PROBHD	5 mm DUL 13C-1
PULPROG	zgpg30
TD	32768
SOLVENT	CDCl3
NS	2000
DS	2
SWH	35211.270 Hz
FIDRES	1.074563 Hz
AQ	0.4652698 sec
RG	16
RG2	51.200 usec
RG3	1.000 usec
DE	6.00 usec
TE	299.5 K
D1	2.00000000 sec
D11	0.03000000 sec
TD0	1

===== CHANNEL f1 =====	
NUC1	¹³ C
P1	9.00 usec
PL1	0.00 dB
PL1W	70.60438301 W
SFO1	125.7728799 MHz

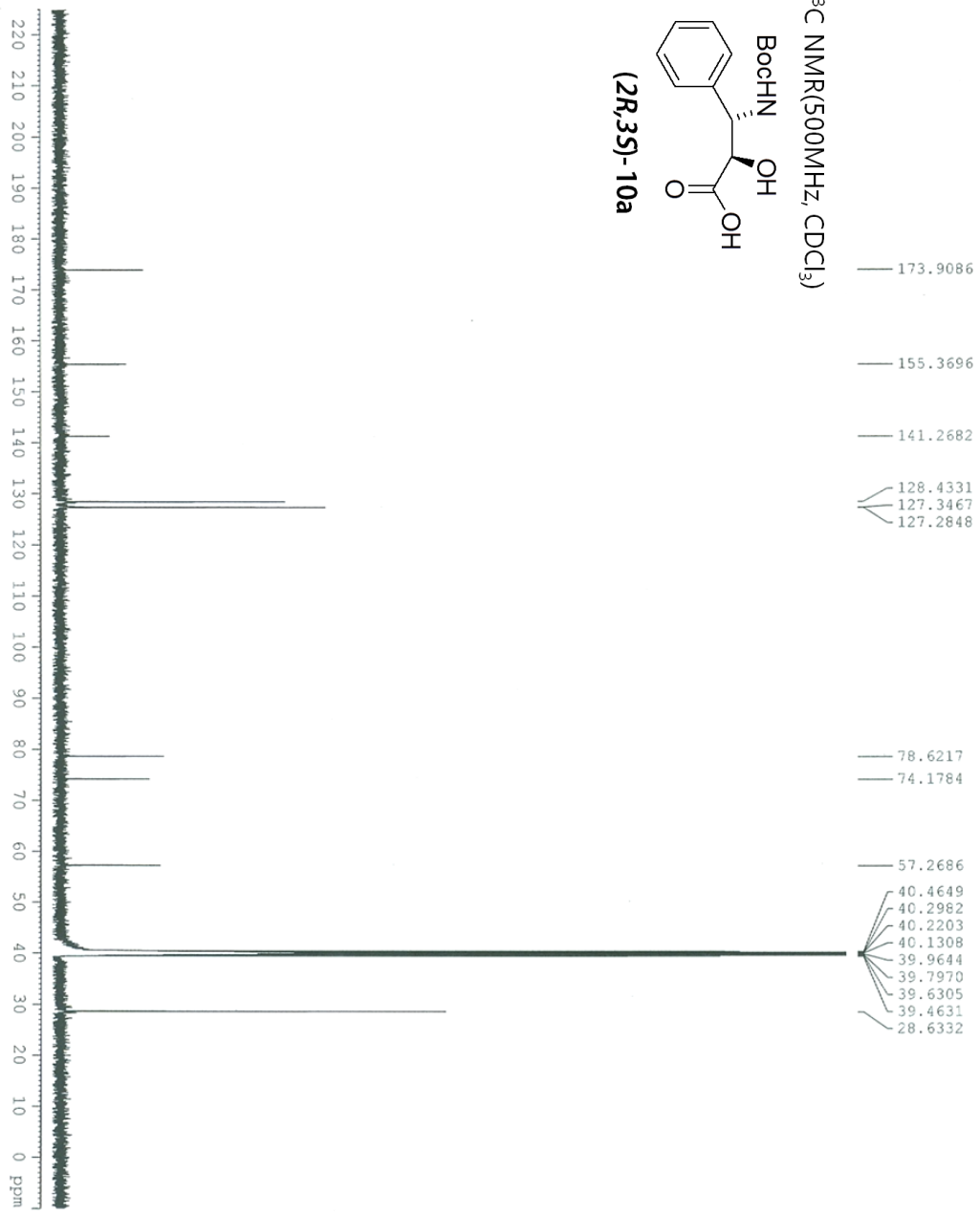
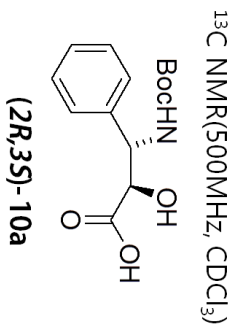
===== CHANNEL f2 =====	
CPDPRG2	waltz16
NUC2	¹ H
PCPD2	100.00 usec
P12	-1.80 dB
P122	16.00 dB
P12W	16.00 dB
P12M	27.2311002 W
P12W	0.44167015 W
P13W	0.27155943 W
SFO2	500.1320005 MHz
SI	32768
SR	125.777890 MHz
KRM	EM
SSB	0
LB	1.00 Hz
CB	0
FC	1.40

KJA-Taxo-0402 DMSO

¹H NMR(500MHz, CDCl₃)



KJA_Taxo_0402



```

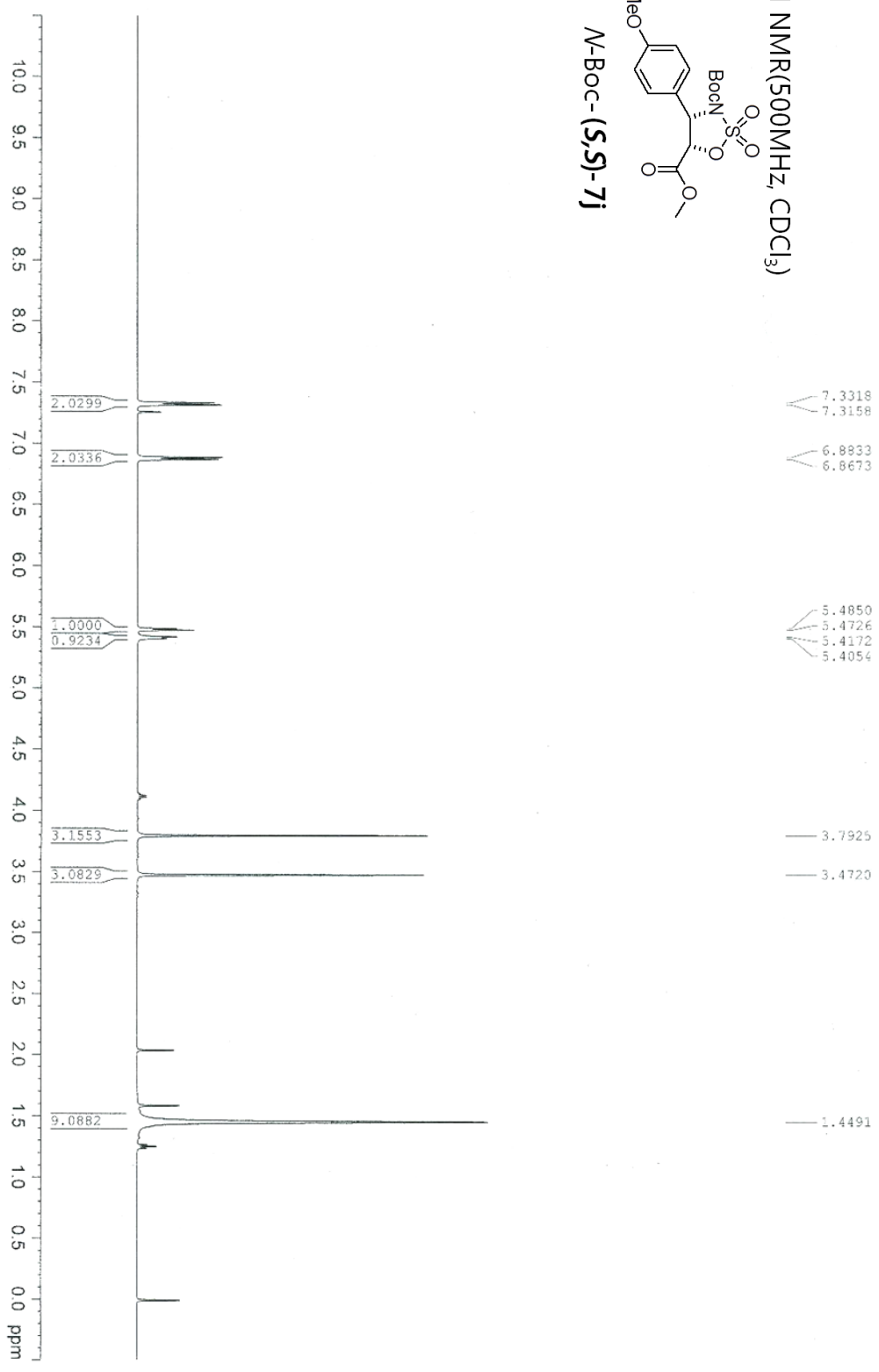
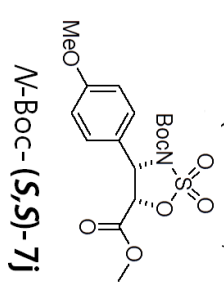
NAME          KJA_Taxo_0402
EXPNO         2
PROCNO        1
Date_         20140402
Time_         22.57
INSTRUM       spect
PROBHD        5 mm DUL 13C-1
PULPROG       zgpg30
TD            32768
SOLVENT       DMSO
NS            1000
DS            2
SWH           35211.270 Hz
FIDRES        1.074563 Hz
AQ            0.4653698 sec
RG            90.5
DE            14.200 usec
TE            296.5 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439301 W
SFO1          125.7728799 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PL2          -1.90 dB
PL12         16.00 dB
PL13         19.00 dB
PL1W         27.23316002 W
PL2W         0.44167015 W
PL13W        0.22135943 W
SFO2          500.1320005 MHz
SI           32768
SF           125.7577890 MHz
MDW          EM
SSB           0
LB           1.00 Hz
GB           0
PC           1.40
  
```

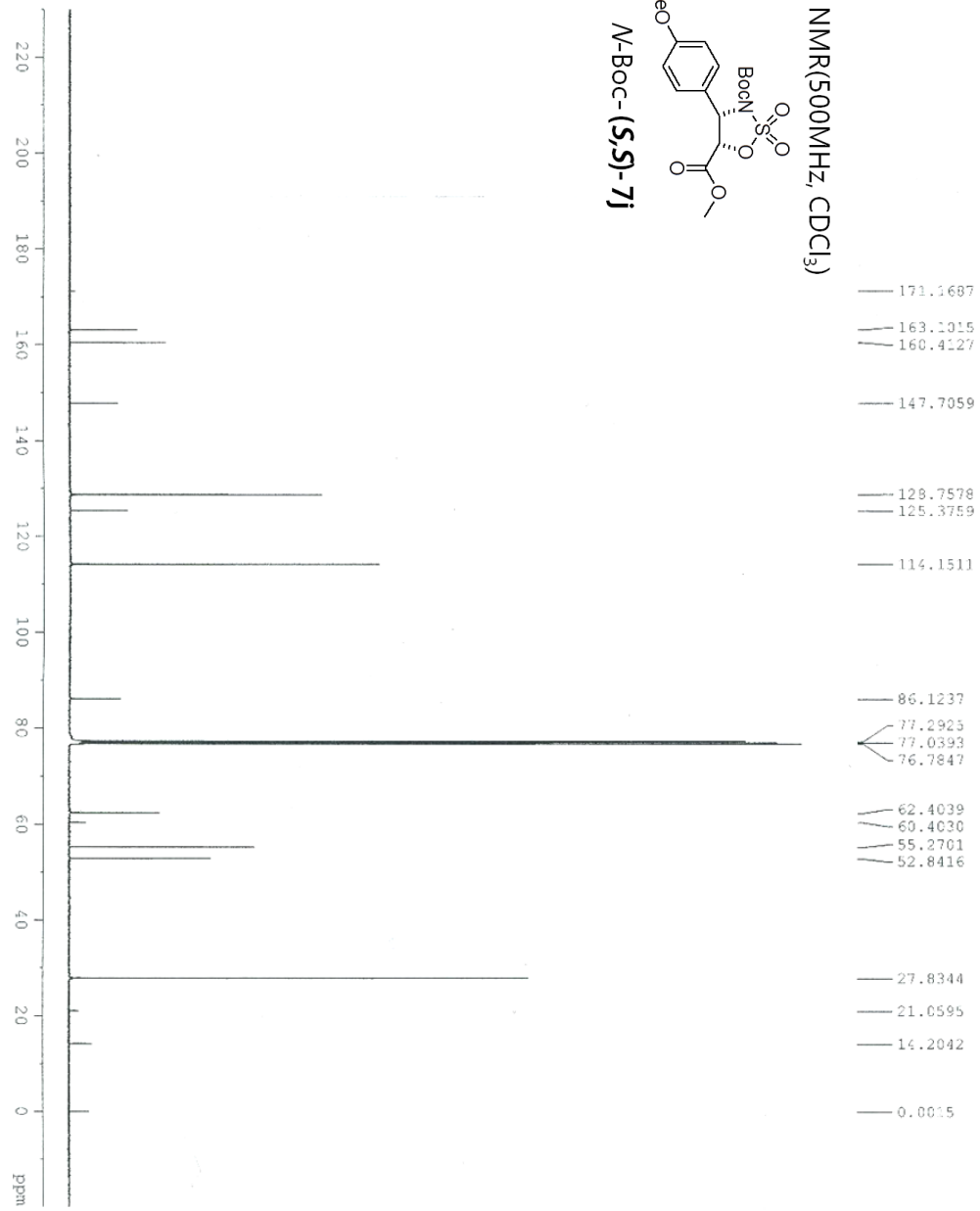
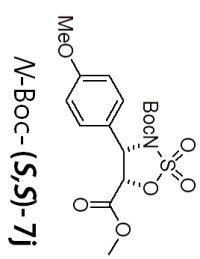
KJA-4-OMe-car-N-Boc-1023

¹H NMR(500MHz, CDCl₃)



KJA_4_OME_car_N_BOC_1023

¹³C NMR(500MHZ, CDCl₃)



```

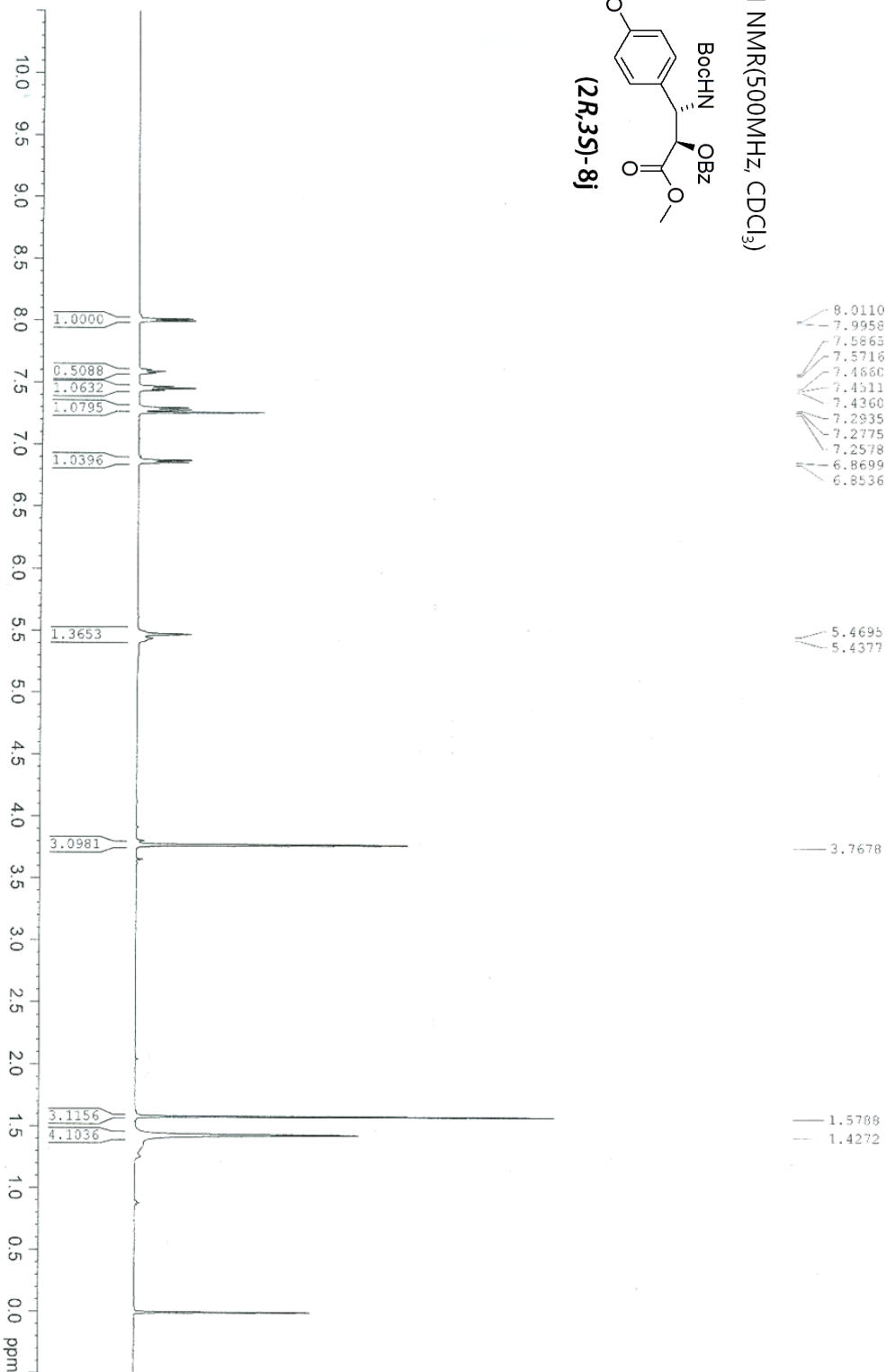
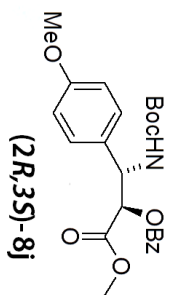
NAME          KJA_4_OME_CAR_N_BOC_1023
EXPNO         1
PROCNO        1
PROCNAME      20131024
Date_         7.45
Time          7.45
INSTRUM       5 mm BBL 13C-1
PROBHD        zgpg30
PULPROG       zgpg30
SFOFF         82916
GDCALIB       GZG30
AQ            4.003
RG            4003
DS            2
SWH           35211.273 Hz
FIDRES       0.537281 Hz
AQ           0.9306759 sec
RG           812.7
DK           14.200 usec
DE           6.000 usec
TE           296.5 K
D1           2.000000000 sec
D11          0.030000000 sec
TD0

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          -1.40 dB
PL12         75.50439301 K
SFO1         125.7728799 MHz

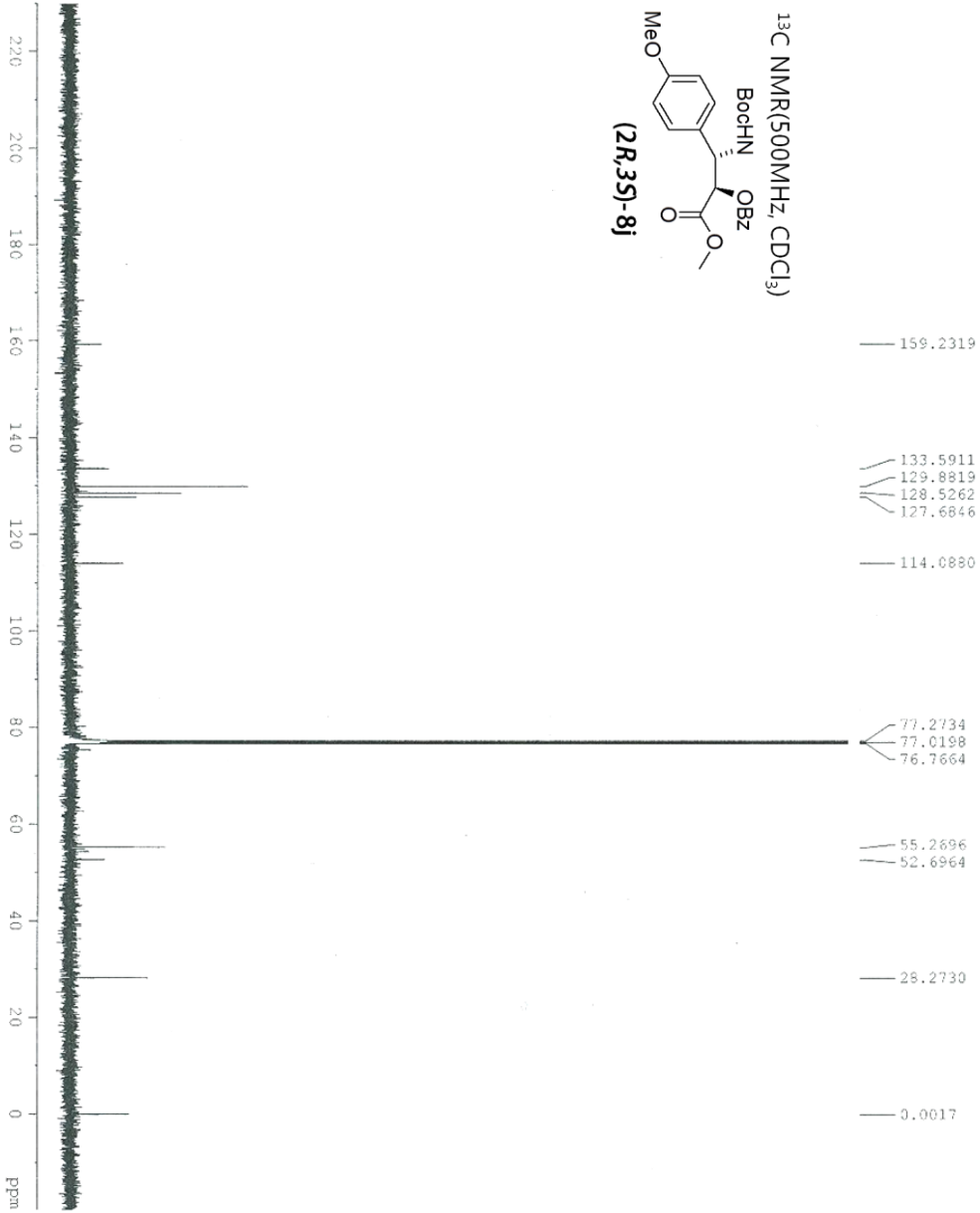
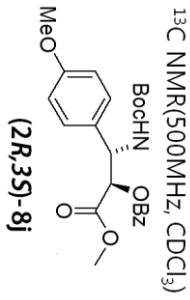
===== CHANNEL f2 =====
NAME          wa1lx216
NUC2          1H
PCPD2        100.00 usec
PD2          -1.90 dB
PL12         18.00 dB
PL13         19.00 dB
PL14         21.23241600 dB
PL15         0.44169015 dB
PL13W        0.421339443 K
SFO2         500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```


JJA-4-OMe-carbo-N-Boc-OBz-pur

¹H NMR(500MHz, CDCl₃)



KJA_4_OME_carbo_N_Boc_OBz

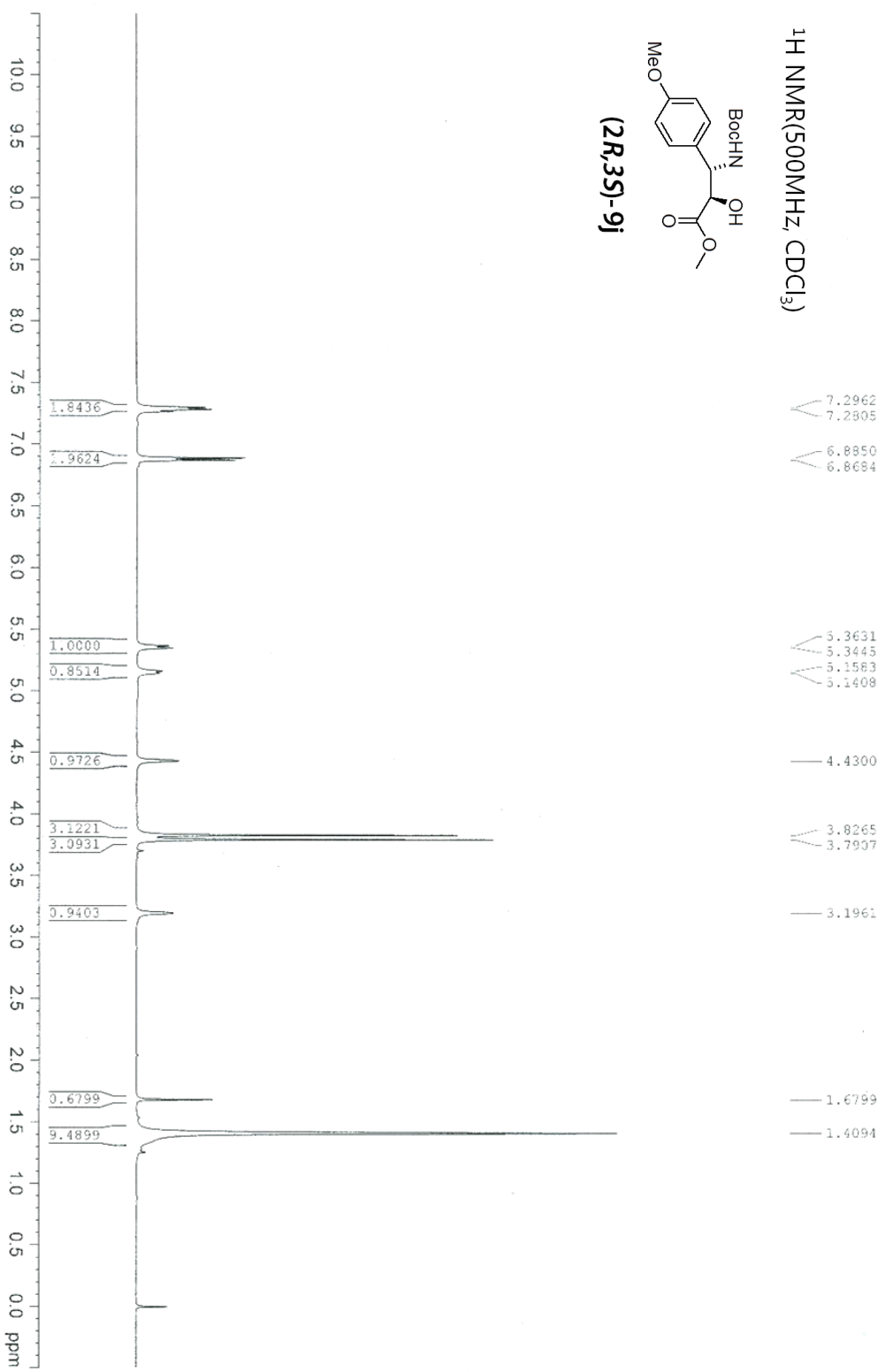
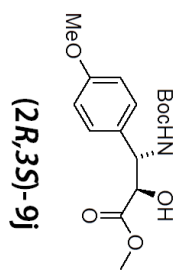


```

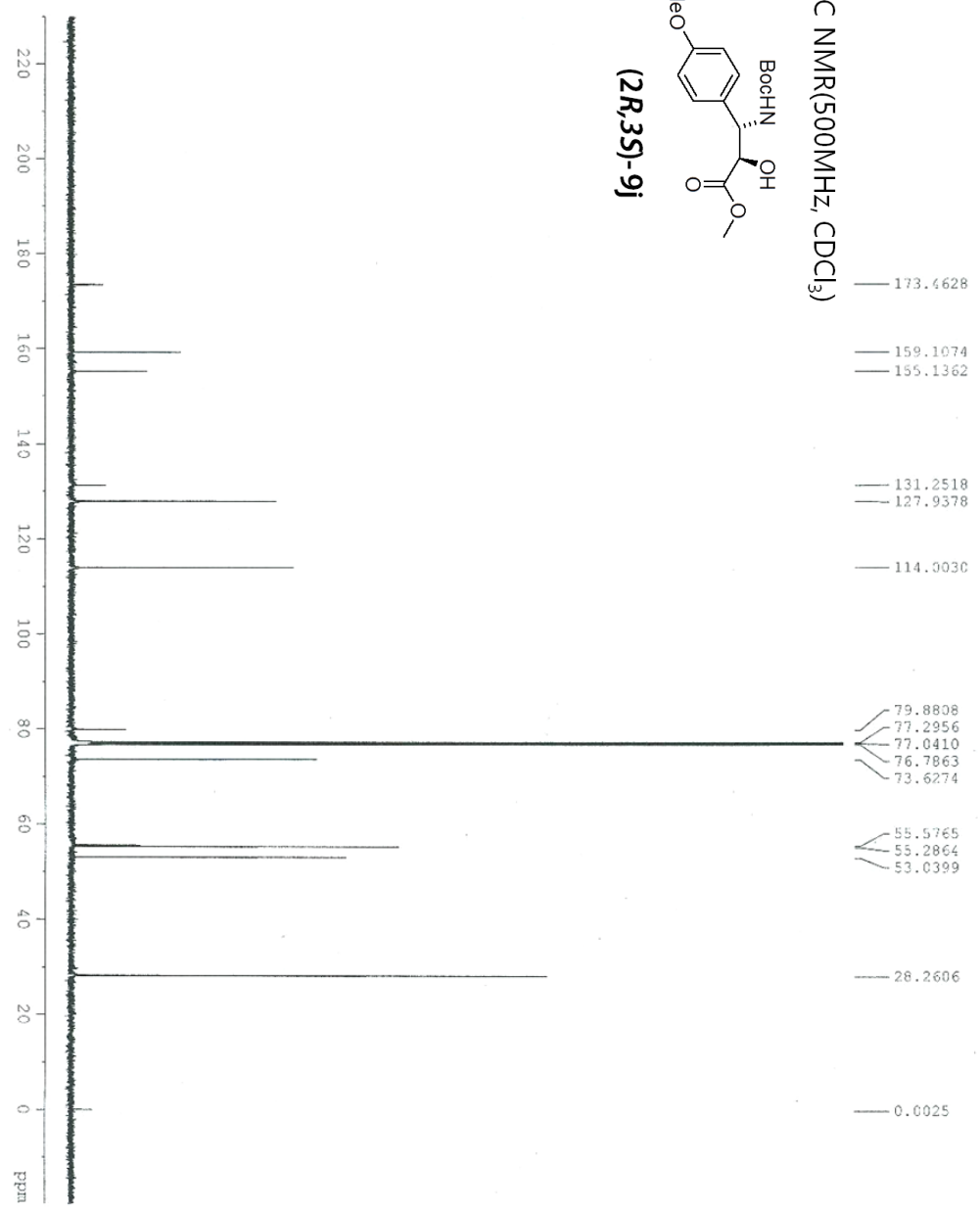
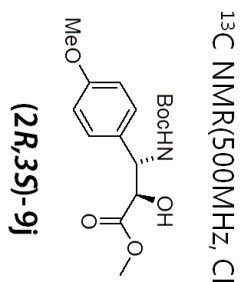
NAME          KJA_4_OME_carbo_N_Boc_OBz
EXPNO         1
PROCNO        1
F2          20131010
Date_         2012
Time          22:27
INSTRUM      spect
PROBHD       5 mm DUL 13C-1
PULPROG      zgpg30
TD            65536
SOLVENT      CDCl3
NS            1000
DS            2
SWH           35211.272 Hz
AQ            0.3306754 sec
RG            512
FREQ         125.762899 MHz
WDW           14.200 usec
SSB           0
GB            0
PC            1.400 usec
DE           297.3 K
TE           2.00000000 sec
D1            0.03000000 sec
D11           1
D12           1
D13           1
===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1           1.40 dB
PL1W          70.60439303 W
SFO1          125.762899 MHz
===== CHANNEL f2 =====
COPROCG2     waltz16
NUC2          13C
P2            100.00 usec
PCPD2        -1.90 dB
PL12         16.00 dB
PL13         19.30 dB
PL2W         27.23316602 W
PL12W        0.44157015 W
PL13W        0.22115948 W
SFO2          500.136002 MHz
SF           125.7575800 MHz
WDW           EM
SSB           0
GB            0
PC            1.400 Hz
=====
  
```

KJA-4-OMe-carbo-N-Boc-OH

¹H NMR(500MHz, CDCl₃)



KJA_4_OME_carbo_N_Boc_OH



```

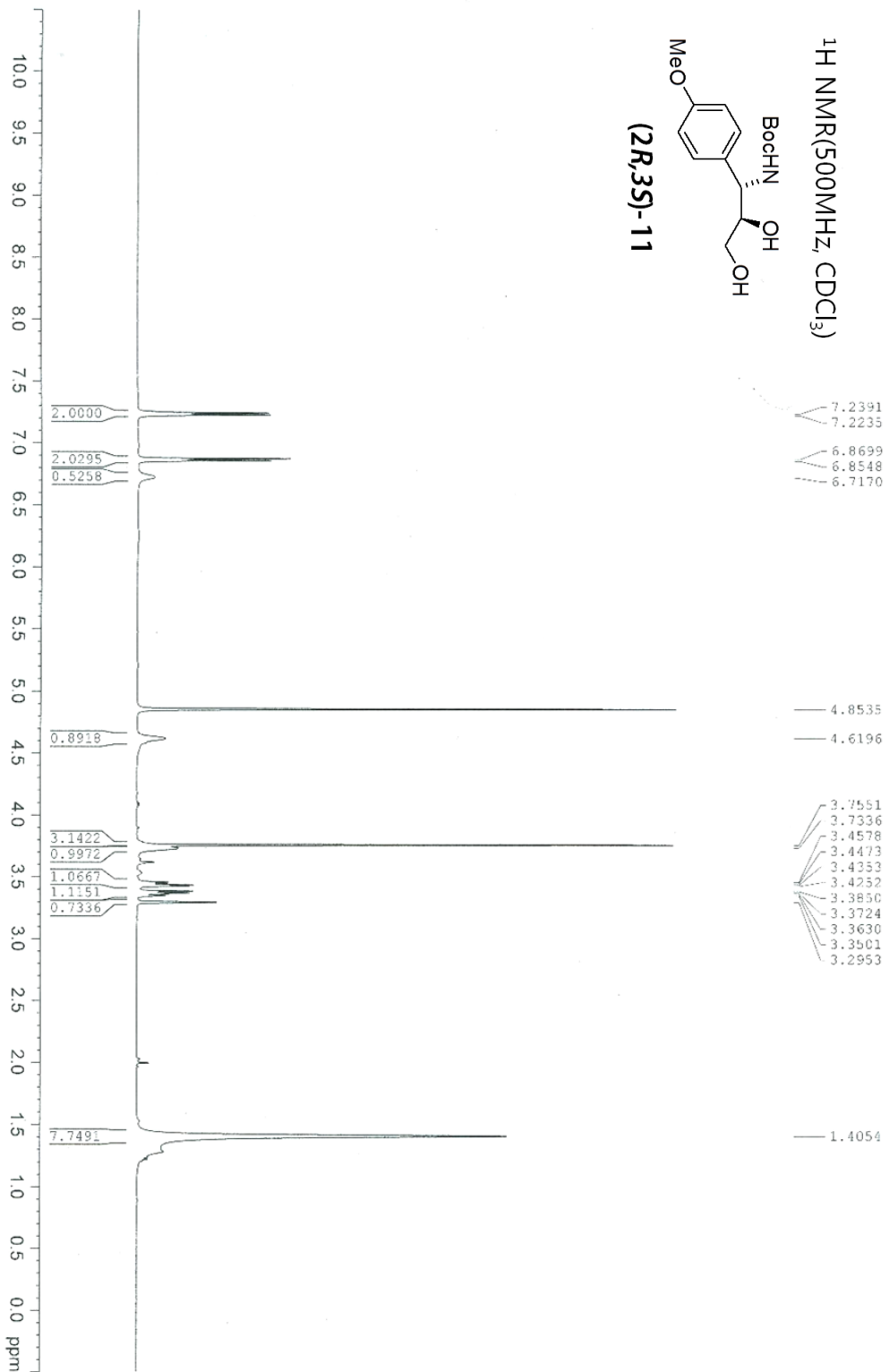
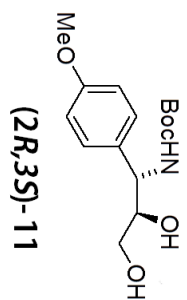
NAME: KJA_4_OME_carbo_N_Boc_OH
EXPNO: 1
PROCNO: 1
Date_ : 20131011
Time: 23:41
INSTRUM: zgpg30
PROBHD: 5 mm DUL 13C-1
PULPROG: zgpg30
TD: 65536
F2: 500.132002 MHz
SOLVENT: CDCl3
NS: 1000
DS: 2
SWH: 39211.270 Hz
FIDRES: 0.537281 Hz
AQ: 0.9306794 sec
RG: 14.512
DM: 14.200 usec
DE: 28.00 usec
TE: 300.2 K
D1: 2.00000000 sec
d11: 0.03000000 sec
TD0: 1

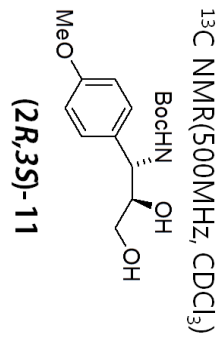
===== CHANNEL f1 =====
NUC1: 13C
P1: 9.00 usec
PL1: 1.40 dB
F1F2: 70.60435801 MHz
SFO1: 125.7728799 MHz

===== CHANNEL f2 =====
CPUPROG: walz16
NUC2: 1H
P2: 100.00 usec
PL2: -1.90 dB
PCPD2: 16.00 dB
PL12: 19.00 dB
PL13: 27.23316002 W
PL12W: 0.44167015 W
PL13W: 0.22135943 W
SFO2: 500.132002 MHz
SI: 32.68
SFO: 225.7977850 MHz
SFOH: 400.1415910 MHz
SSB: 0
LB: 1.00 Hz
GB: 0
FC: 1.40
  
```

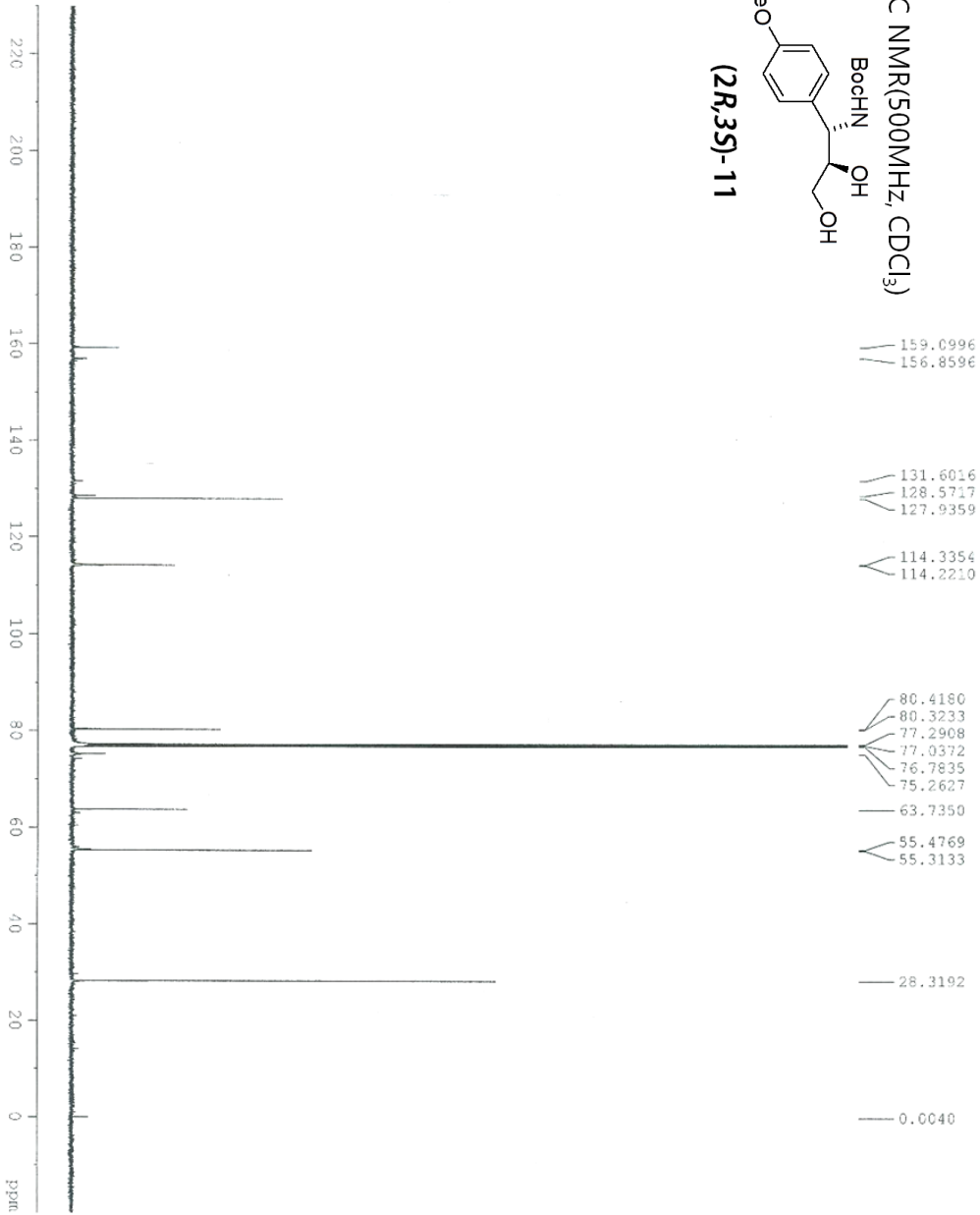
KJA-4-OMe - N-Dec - ch - reduct

¹H NMR(500MHz, CDCl₃)





KJA_4_OMe_N_Boc_OH_reduct



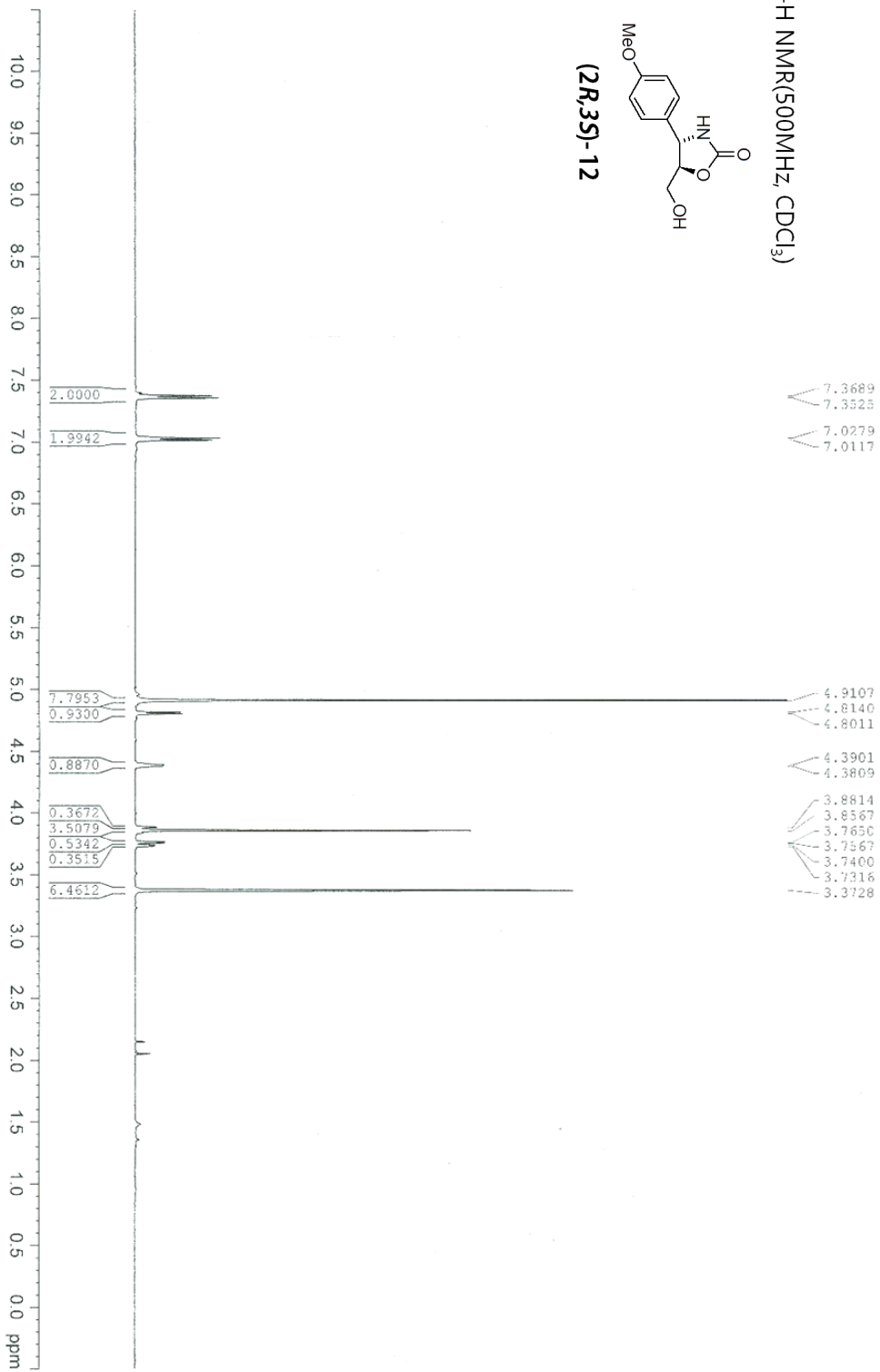
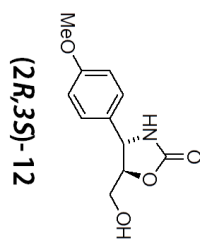
NAME KJA_4_OMe_N_Boc_OH_reduct
 EXPNO 2
 PROCNO 1
 Date_ 20131113
 Time 11:19
 INSTRUM spect
 PROBHD 5 mm DDU 400P30
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 2000
 DS 2
 SWH 35211.270 Hz
 FIDRES 1.074563 Hz
 AQ 0.469369 sec
 RG 812.0
 SQ 14240
 DR 14.240 usec
 DE 296.8 K
 ST 2.00000000 sec
 D1 0.03000000 sec
 D11 1
 TD0 1

===== CHANNEL f1 =====
 NUCL ¹³C
 P1 8.00 usec
 PL 1.50 dB
 F1 70.6063601 MHz
 SFO1 125.7728799 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUCL ¹H
 SFO2 100.60 usec
 PCPR2 1.00 dB
 PL2 -1.50 dB
 PL1 18.00 dB
 PL12 27.2315002 MHz
 PL13 0.44167015 MHz
 PL13W 0.22135943 MHz
 SFO2 500.1320005 MHz
 SI 32768
 SF 125.7577890 MHz
 WDW EX
 SSS 0
 LB 1.00 Hz
 GB 0
 EC 1.40

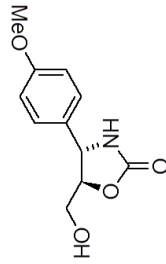
KJA-4-OMe-epi-cyto

¹H NMR(500MHz, CDCl₃)



KJA_4_OMe_epi_cyto_re

¹³C NMR(500MHz, CDCl₃)



- 160.1476
- 159.9671
- 132.1900
- 127.1824
- 114.0289
- 85.4472
- 61.1022
- 57.1511
- 54.3644
- 48.1005
- 47.9297
- 47.7590
- 47.5882
- 47.4176
- 47.2471
- 47.0767



```

NAME          KJA_4_OMe_epi_cyto_re
EXPNO         1
PROCNO        1
Date_         20131105
Time          22.43
INSTRUM       5 mm DUL 13C-1
PROBHD        zgpg30
PULPROG       zgpg30
TD            65536
SOLVENT       MeOD
NS            5000
DS            2
SRH           35211.270 Hz
FIDRES        0.537281 Hz
AQ           0.9206794 sec
RG           14596.5
DM           14.200 usec
DE           6.00 usec
TE           299.9 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0          1

===== CHANNEL f1 =====
NUC1          13C
P1            8.00 usec
PL1          1.40 dB
PL1W         70.60439301 W
SFO1         125.7728799 MHz

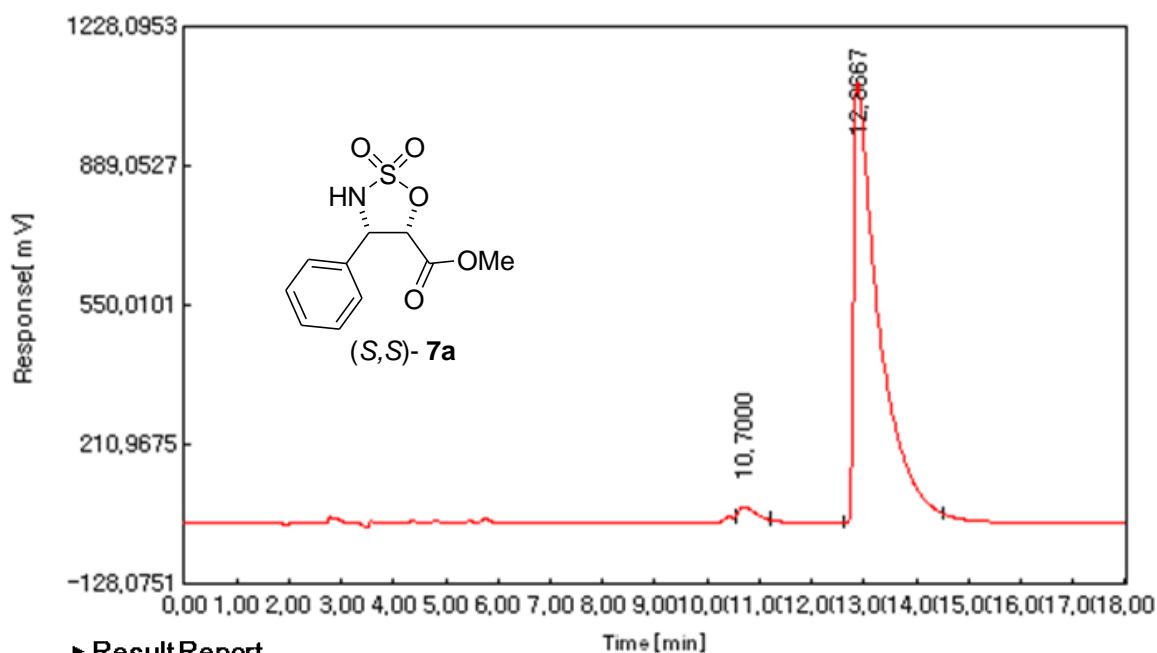
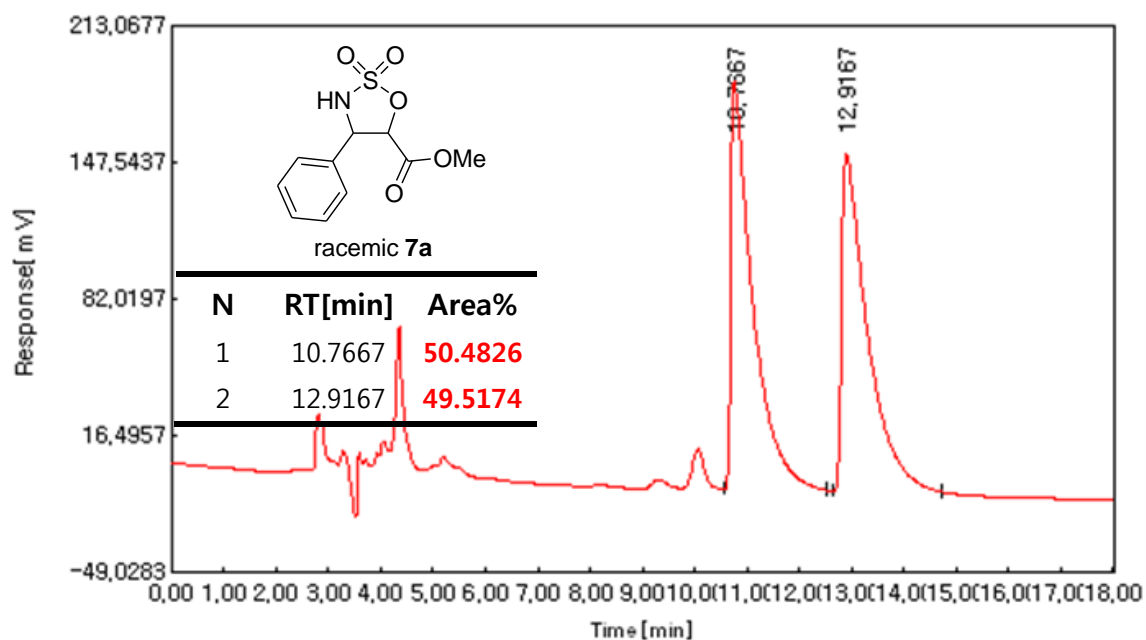
===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        100.00 usec
PT2          21.90 dB
PL2          16.00 dB
PL3          19.00 dB
PL4          19.00 dB
PL5          19.00 dB
PL6          19.00 dB
PL7          19.00 dB
PL8          19.00 dB
PL9          19.00 dB
PL10         19.00 dB
PL11         19.00 dB
PL12         19.00 dB
PL13         19.00 dB
PL14         19.00 dB
PL15         19.00 dB
PL16         19.00 dB
PL17         19.00 dB
PL18         19.00 dB
PL19         19.00 dB
PL20         19.00 dB
SFO2         500.1320005 MHz
SF           500.1320005 MHz
SI           32768
SF           125.7577890 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```


Chiral HPLC Chromatograms

Chiral HPLC Chromatograms of ATH-DKR products

▶ **Sample name:** (*S,S*)-7a

▶ **Analysis condition:** Chiralpak IB, 20% EtOH/n-hexane, 1.0 ml/min, 215nm



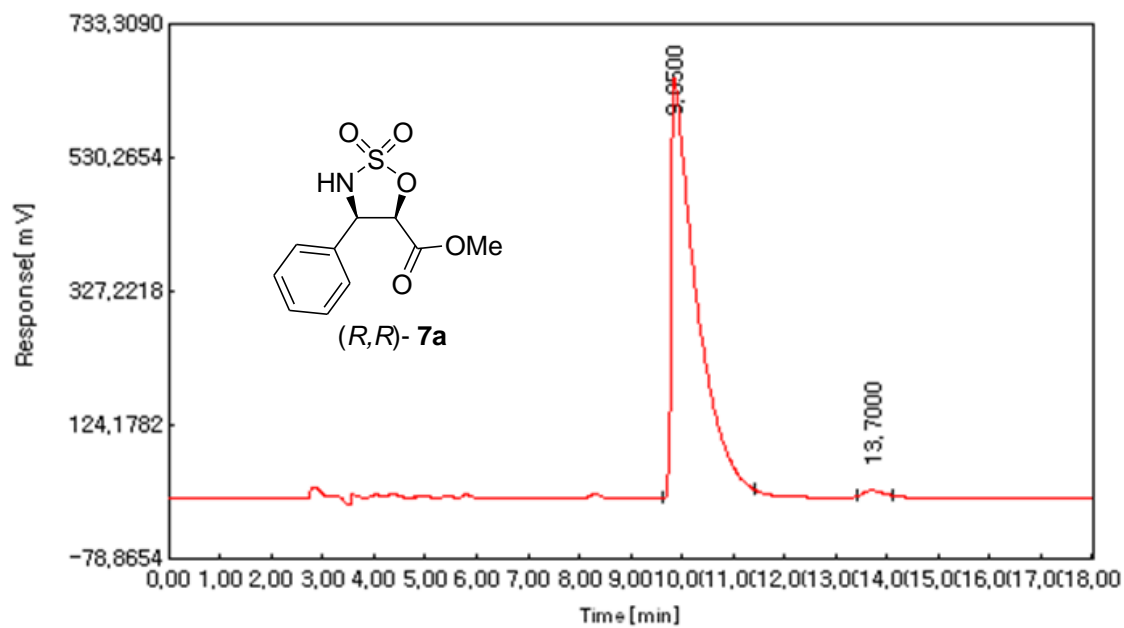
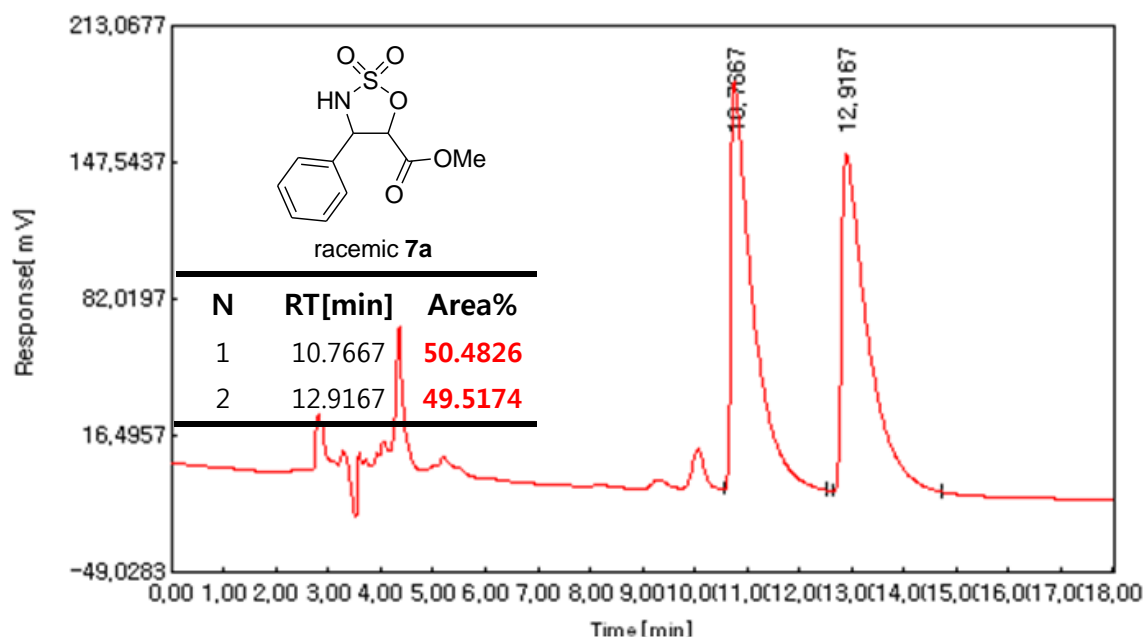
▶ Result Report

Peak #	Time[min]	Area[mV*s]	BL	wide[sec]	Area%
1	10.7000	550.3280	FF	40.0000	1.4940
2	12.8667	36285.7819	FF	114.0000	98.5060
합계		36836.1094			

ee=97%

▶ **Sample name:** (*R,R*)-7a

▶ **Analysis condition:** Chiralpak IB, 20% EtOH/n-hexane, 1.0 ml/min, 215nm



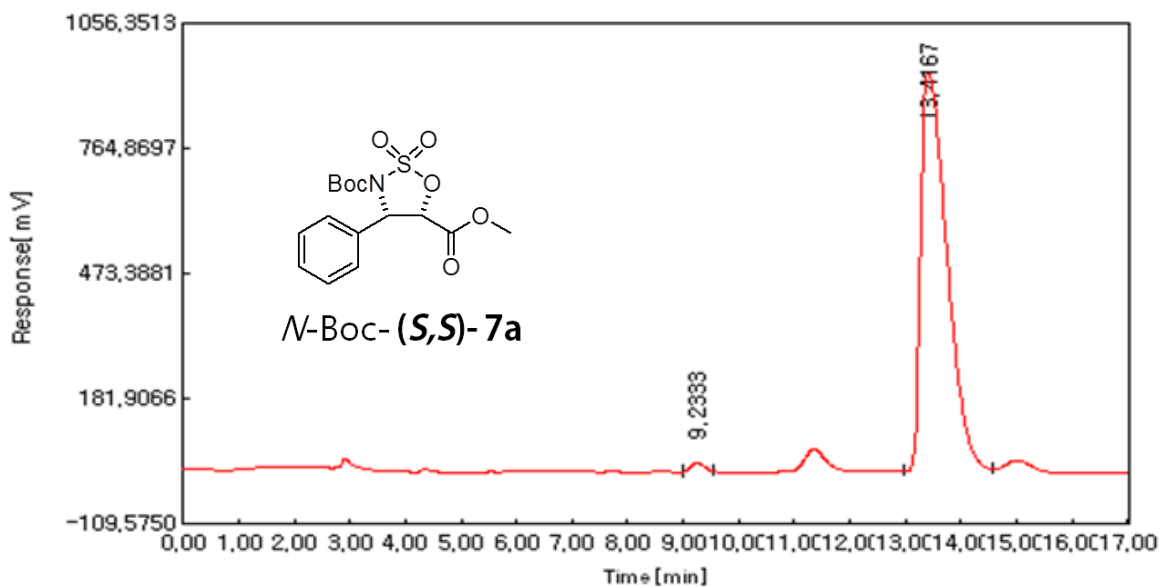
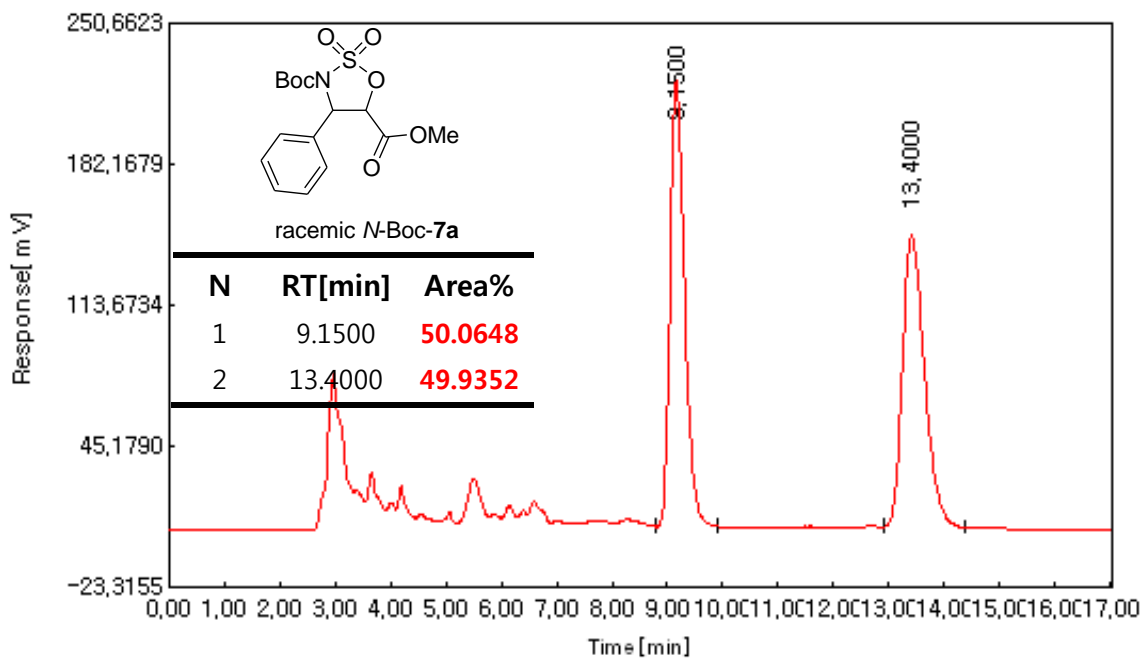
▶ **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.8500	22019.3878	FF	109.0000	99.0959
2	13.7000	200.8943	FF	42.0000	0.9041
합계		22220.2832			

ee=98%

► **Sample name:** (*S,S*)-*N*-Boc-7a

► **Analysis condition:** Chiralpak AD-H, 10% iPrOH/n-hexane, 1.0 ml/min, 215nm



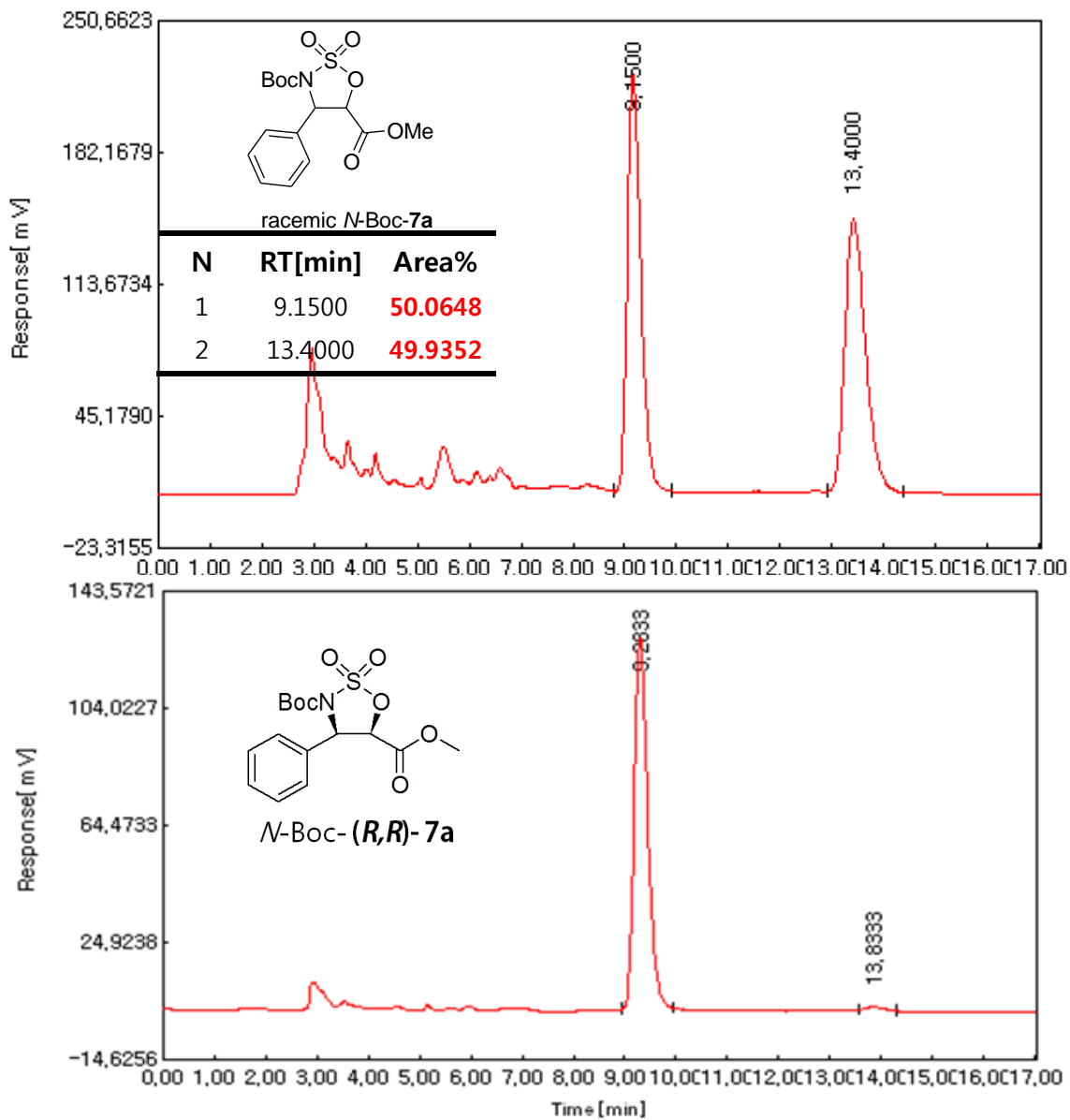
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.2333	347.1643	FF	32.0000	1.0986
2	13.4167	31252.2745	BB	96.0000	98.9014
Total		31599.4395			

ee=98%

► **Sample name:** (*R,R*)-*N*-Boc-7a

► **Analysis condition:** Chiralpak AD-H, 10% iPrOH/n-hexane, 1.0 ml/min, 215nm



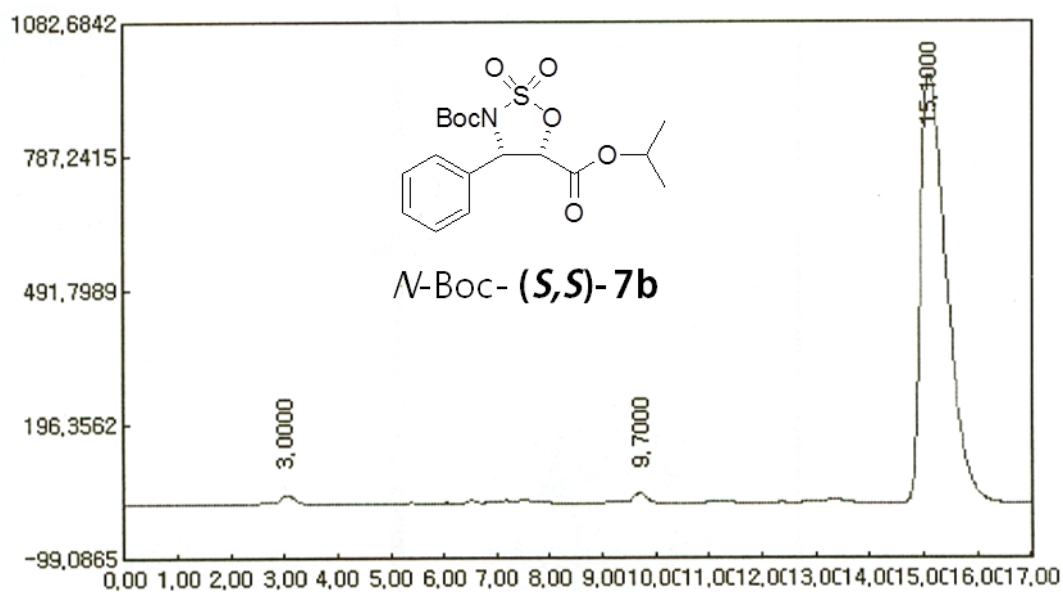
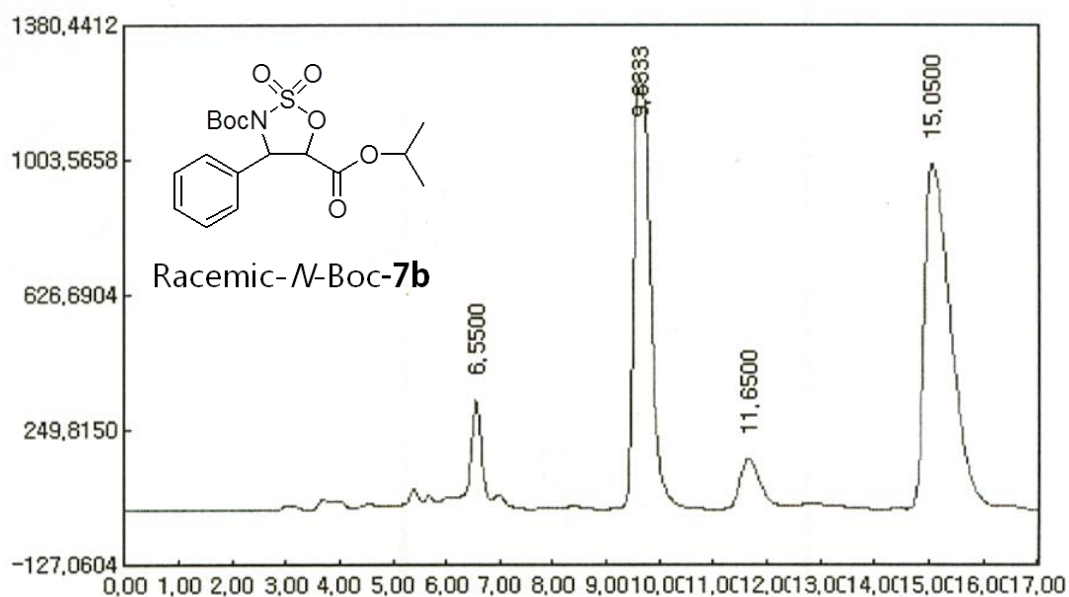
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.2833	2362.1962	BB	62.0000	98.8747
2	13.8333	26.8841	FF	43.0000	1.1253
Total		2389.0803			

ee=98%

► **Sample name:** (*S,S*)-*N*-Boc-7b

► **Analysis condition:** Chiralpak AD-H, 10% iPrOH/n-hexane, 1.0 ml/min, 215nm



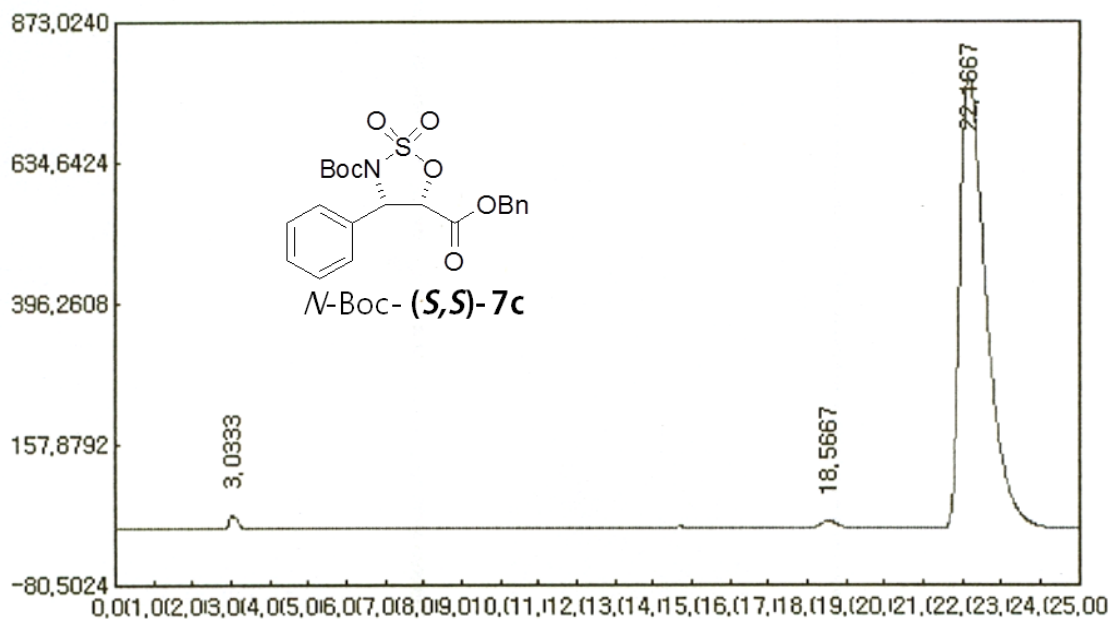
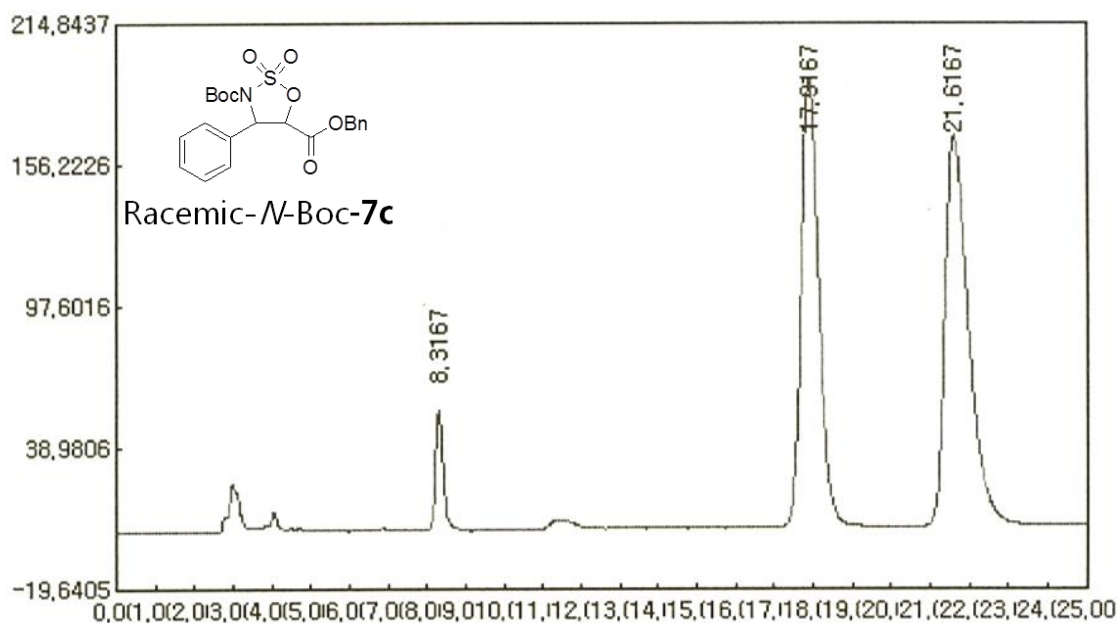
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.7000	351.3224	BB	43.0000	1.0484
2	14.2833	32805.7090	BB	118.0000	97.8995
Total		33510.9453			

ee=97.2%

► **Sample name:** (*S,S*)-*N*-Boc-7c

► **Analysis condition:** Chiralpak AD-H, 10% iPrOH/n-hexane, 1.0 ml/min, 215nm



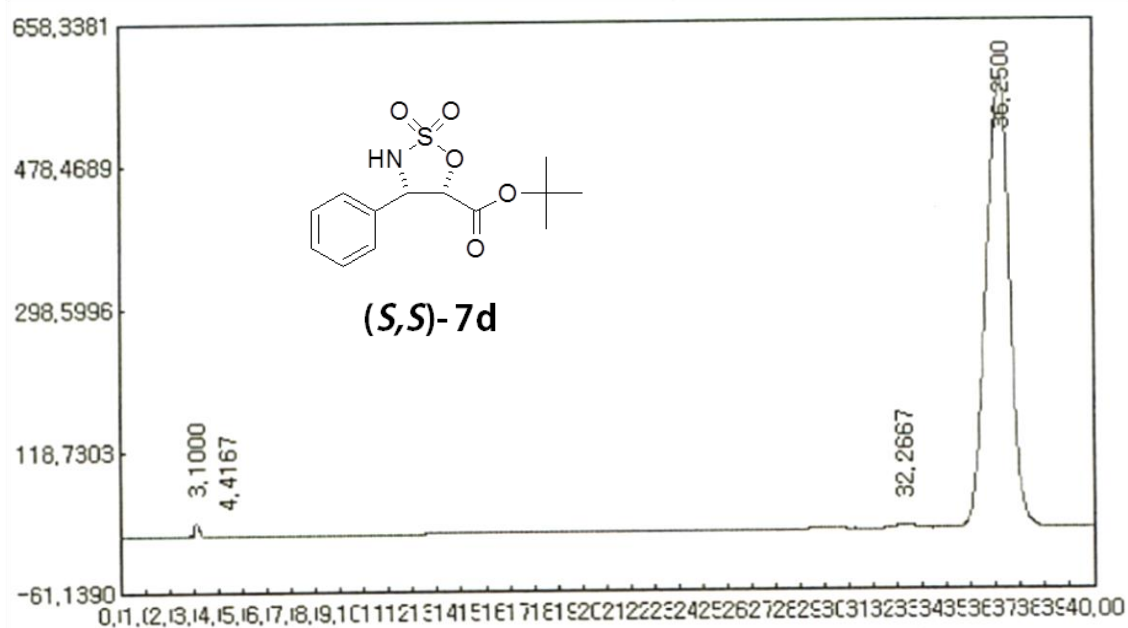
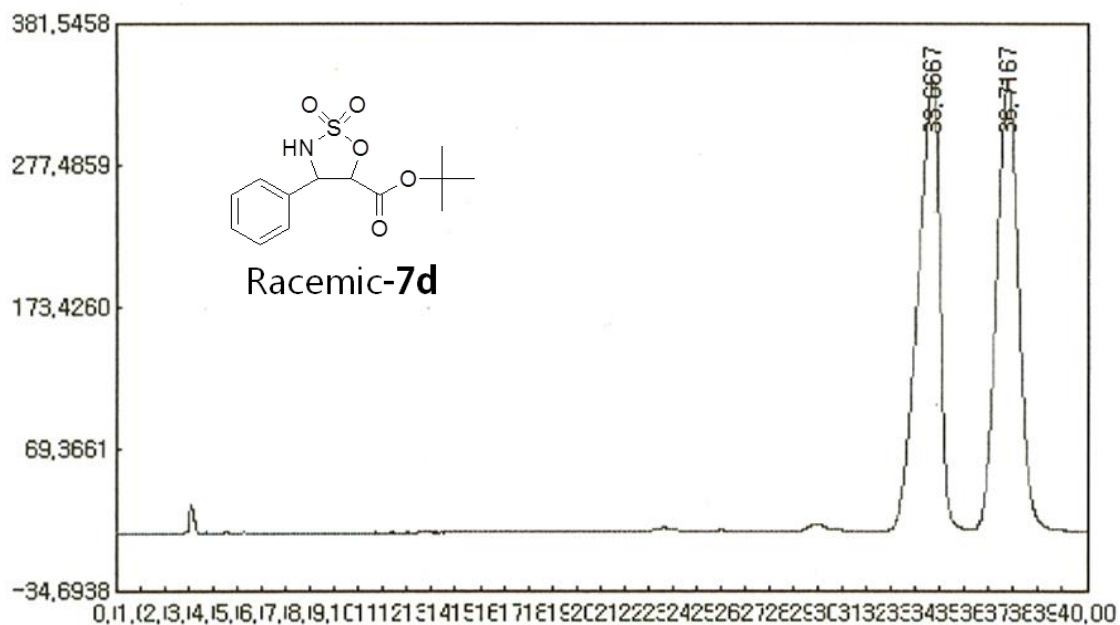
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	18.5667	387.5644	BB	68.0000	1.0268
2	22.1667	37040.3066	BB	168.0000	98.1286
Total		37746.6836			

ee=97.9%

► **Sample name:** (S,S)-7d

► **Analysis condition:** Chiralpak AD-H, 5% iPrOH/n-hexane, 1.0 ml/min, 215nm



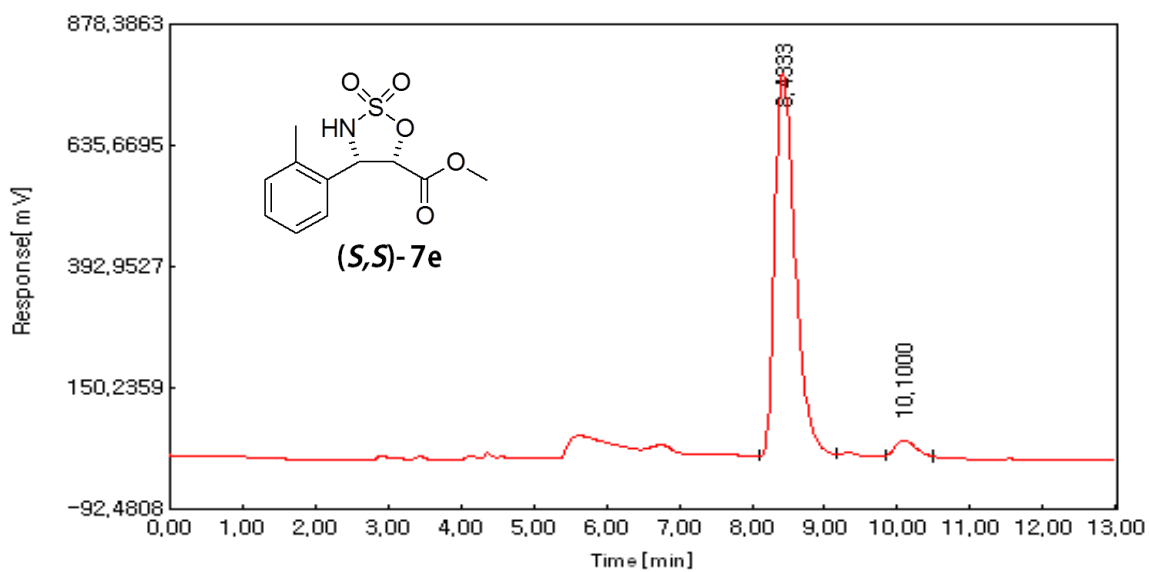
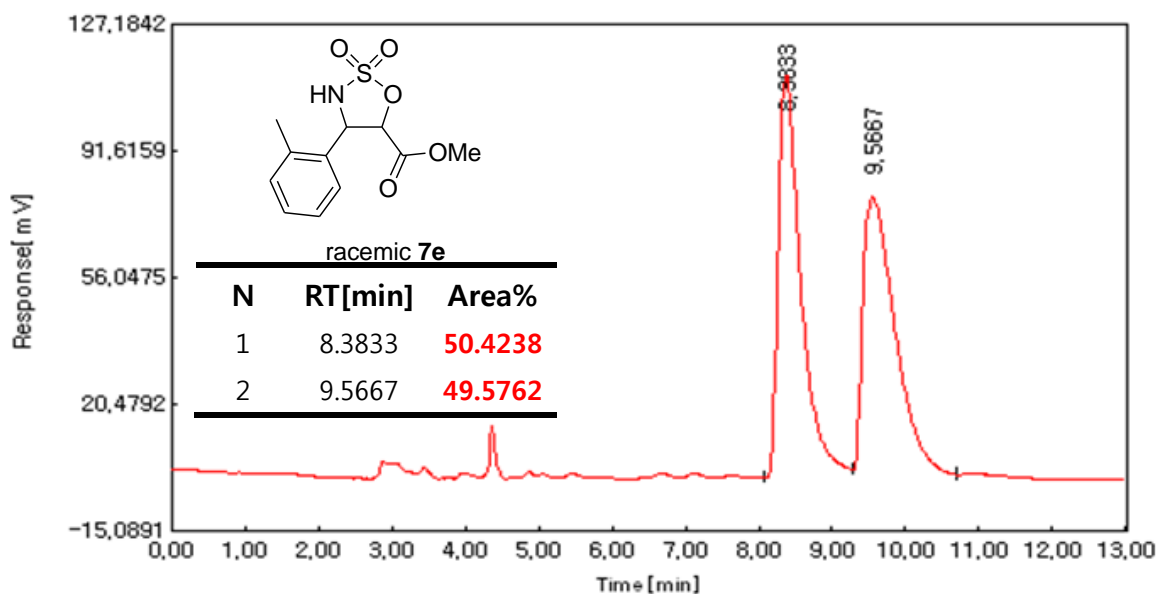
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	32.2667	28.7343	BB	42.0000	0.0730
2	36.2500	39153.5218	BB	208.0000	99.4094
Total		39182.2561			

ee=>99%

► **Sample name:** (*S,S*)-7e

► **Analysis condition:** Chiralpak AD-H, 20% iPrOH/n-hexane, 1.0 ml/min, 215nm



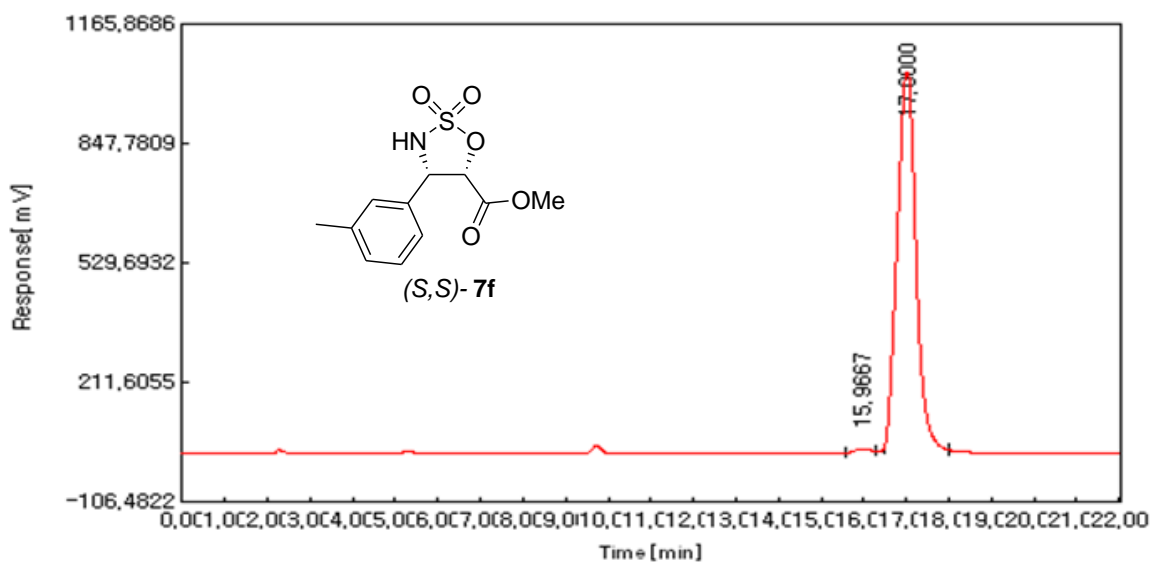
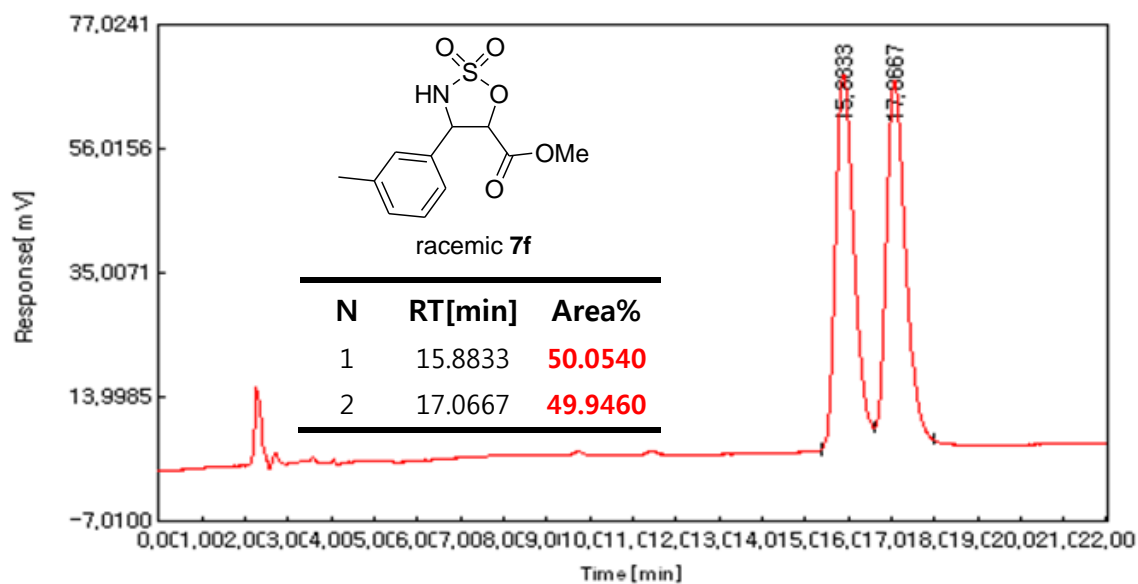
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	8.4333	15569.3232	BB	63.0000	96.0666
2	10.1000	637.4800	FF	40.0000	3.9334
Total		16206.8037			

ee=92.1%

► **Sample name:** (*S,S*)-7f

► **Analysis condition:** Chiralpak AD-H, 10% iPrOH/n-hexane, 1.3 ml/min, 215nm



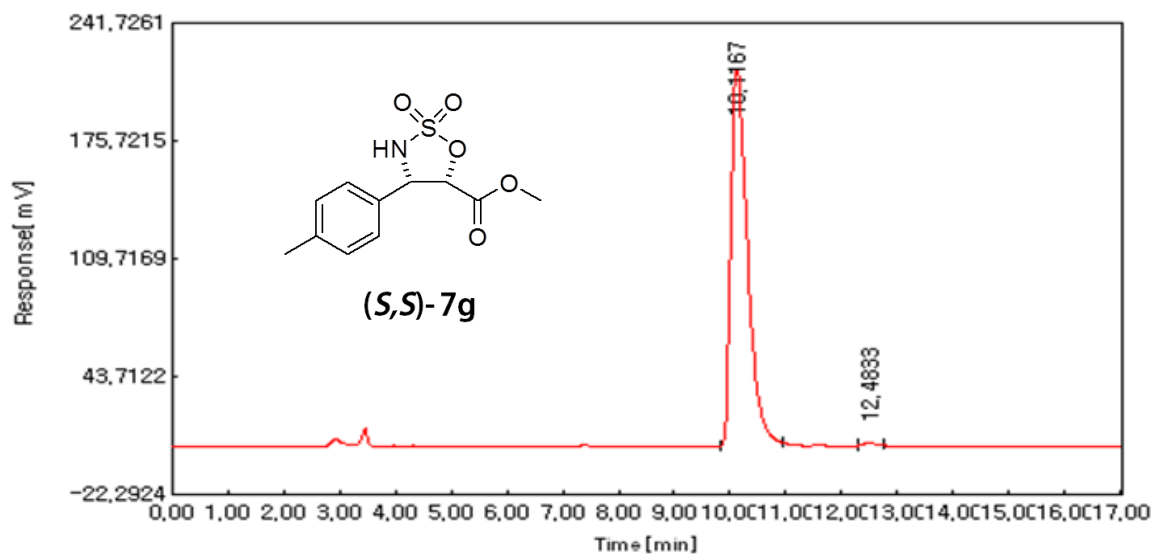
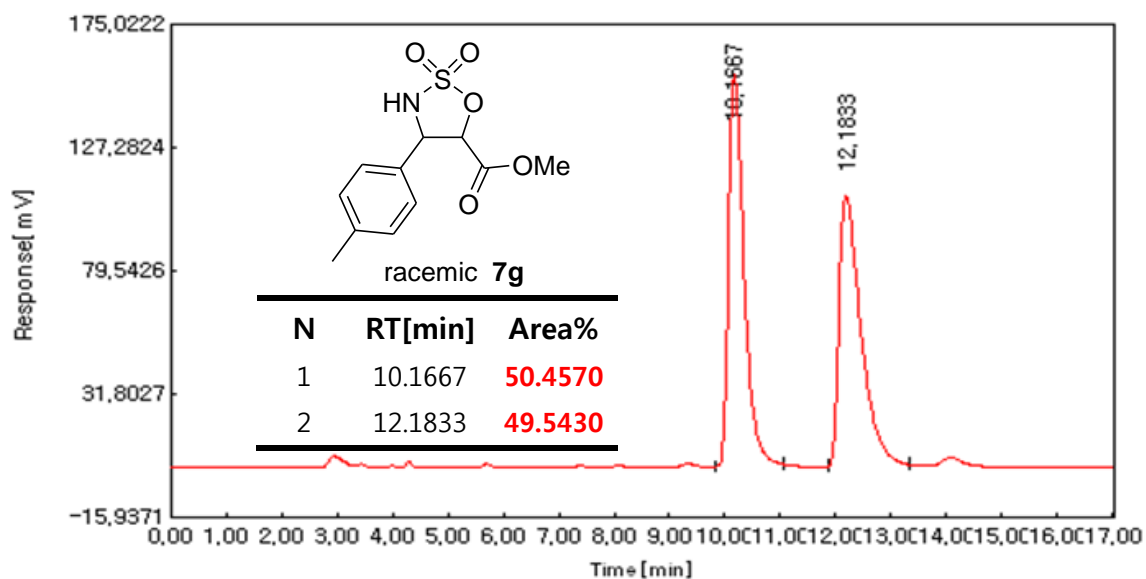
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	15.9667	196.3357	FF	43.0000	0.6009
2	17.0000	32476.0723	FF	93.0000	99.3991
Total		32672.4082			

ee=98.7%

► **Sample name:** (*S,S*)-7g

► **Analysis condition:** Chiralpak AD-H, 20% iPrOH/n-hexane, 1.0 ml/min, 215nm



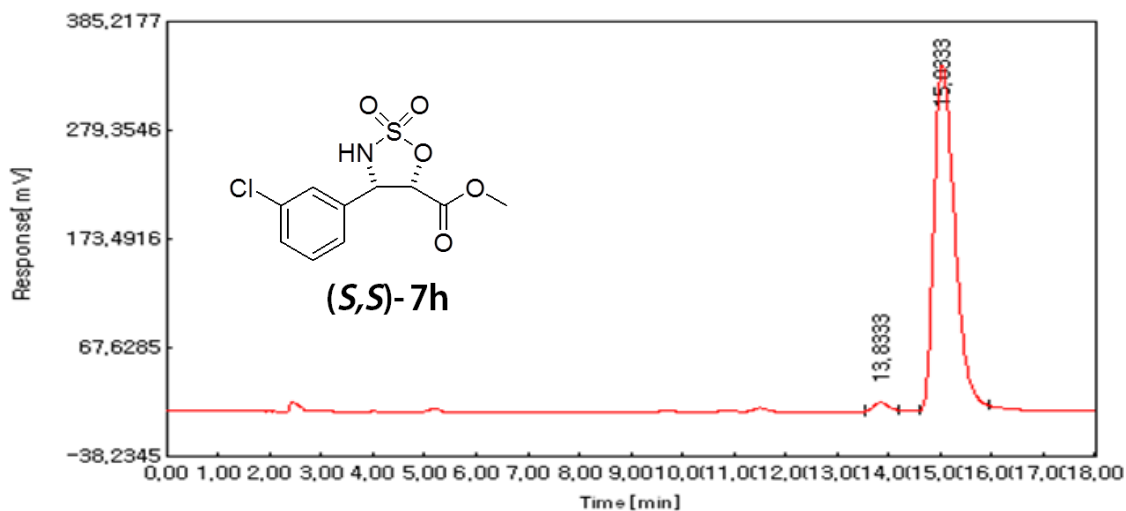
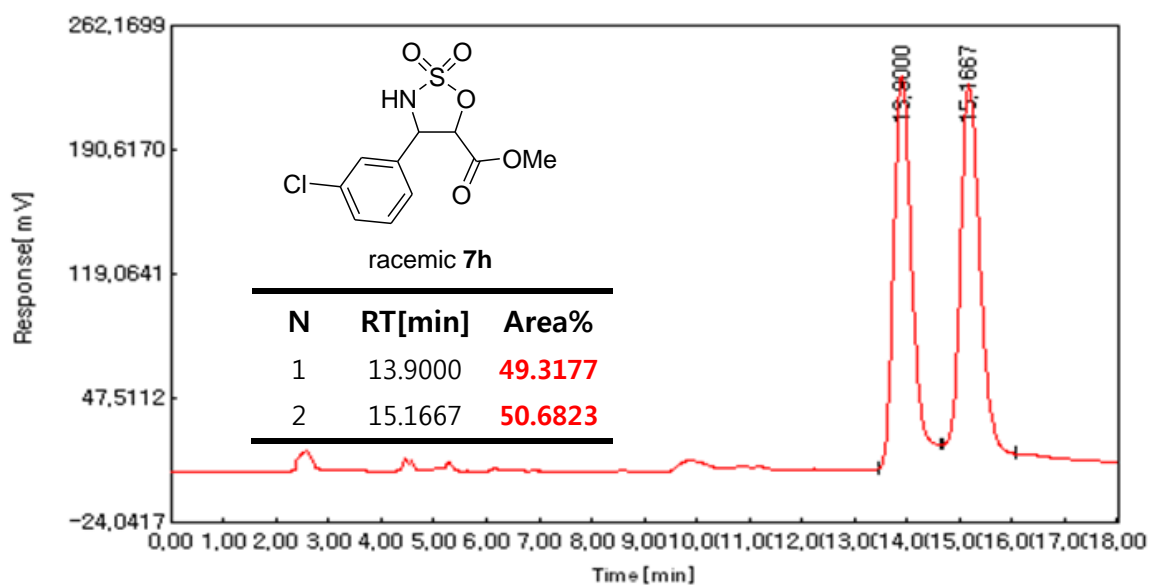
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	10.1167	4504.8323	FF	67.0000	99.5876
2	12.4833	18.6563	FF	27.0000	0.4124
Total		4523.4886			

ee=99.2%

► **Sample name:** (*S,S*)-7h

► **Analysis condition:** Chiralpak AD-H, 10% iPrOH/n-hexane, 1.2 ml/min, 215nm



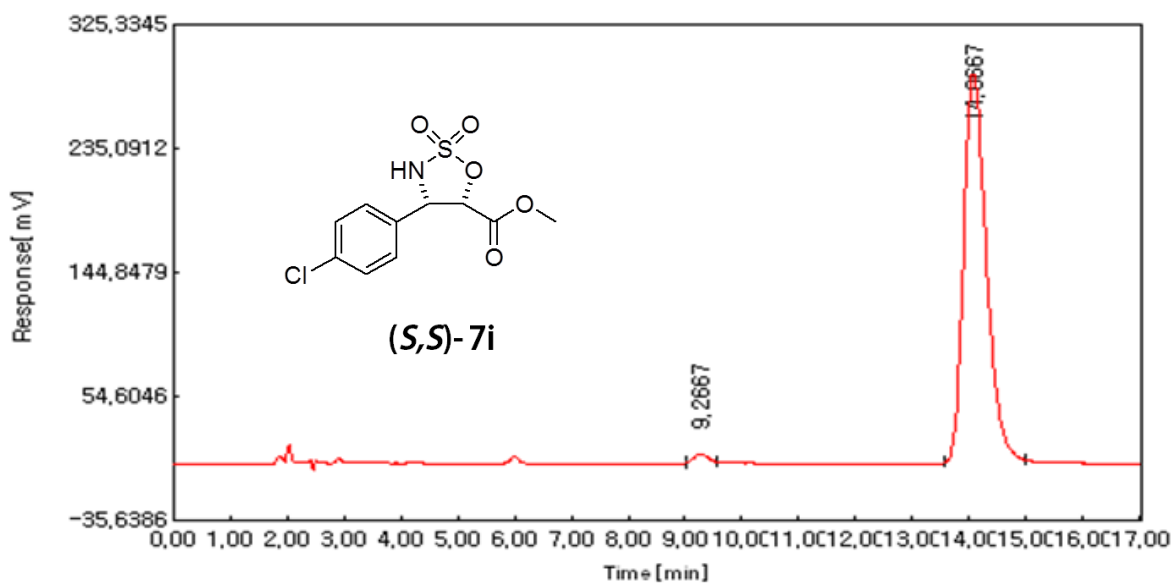
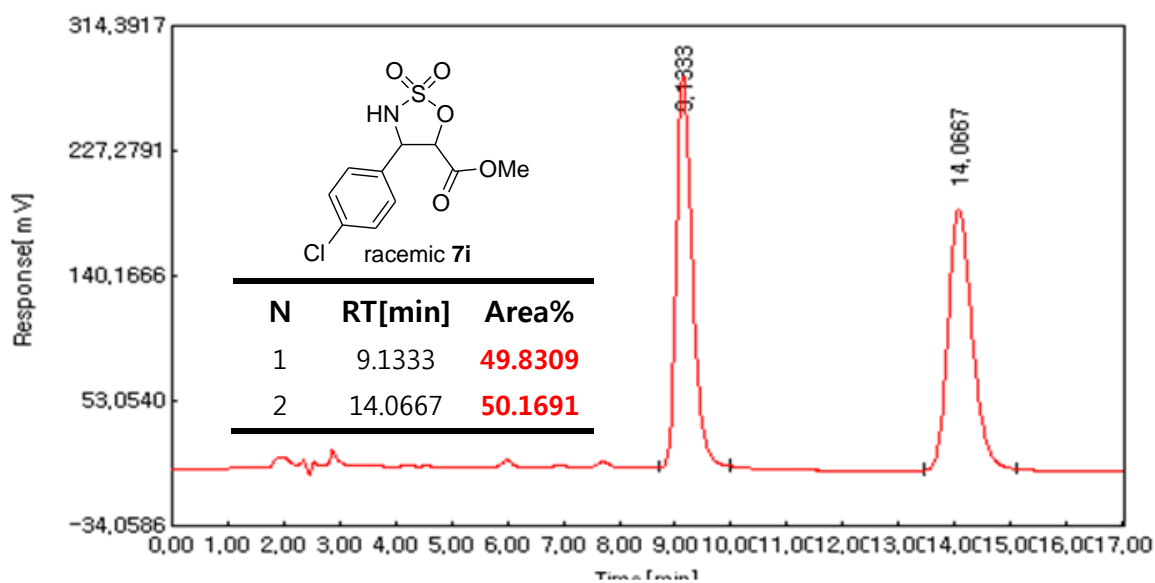
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	13.8333	156.0047	FF	40.0000	1.6030
2	15.0333	9576.3127	FF	80.0000	98.3970
Total		9732.3174			

ee=96.7%

► **Sample name:** (*S,S*)-7i

► **Analysis condition:** Chiralpak AD-H, 10% EtOH/n-hexane, 1.5 ml/min, 215nm



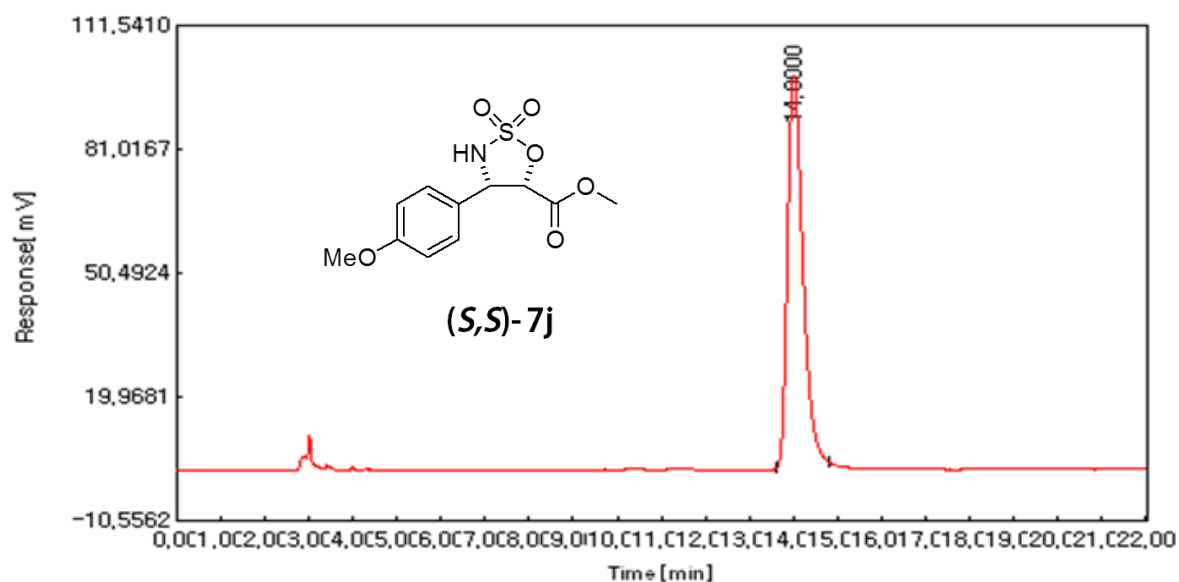
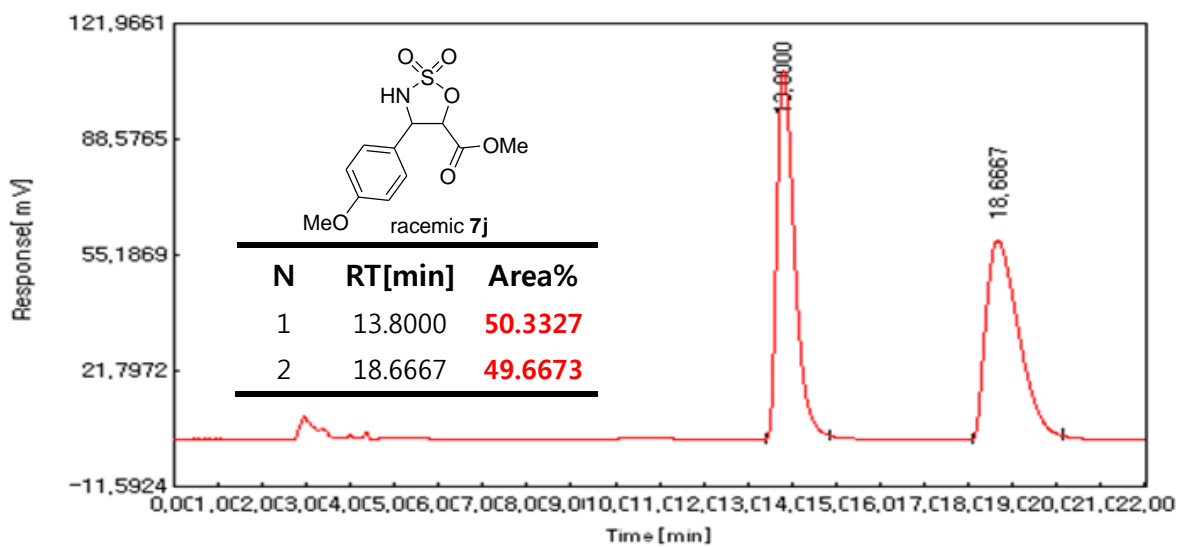
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.2667	110.8649	FF	33.0000	1.3545
2	14.0667	8073.8913	FF	85.0000	98.6455
Total		8184.7563			

ee=97.3%

► **Sample name:** (*S,S*)-7j

► **Analysis condition:** Chiralpak AD-H, 20% iPrOH/n-hexane, 1.0 ml/min, 215nm



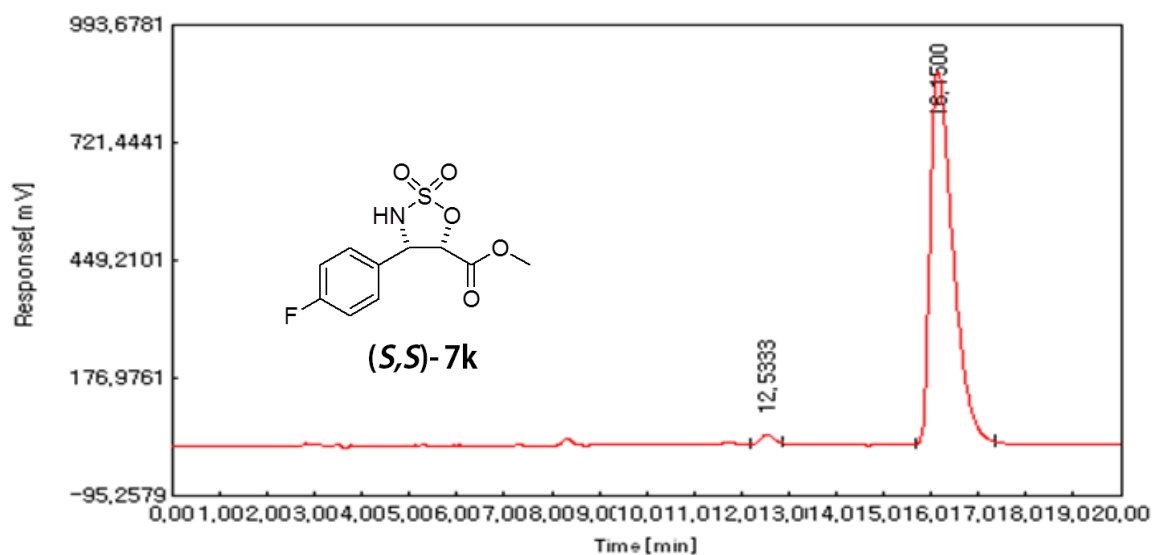
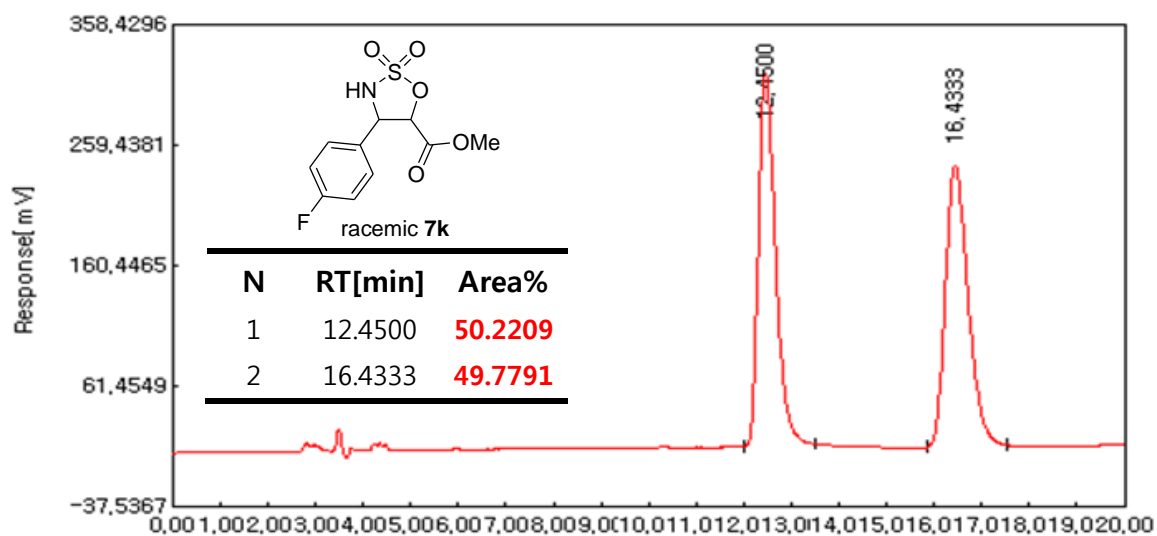
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	14.0000	2420.6589	FF	72.0000	100.0000
Total					100.0000

ee => 99%

► **Sample name:** (*S,S*)-7k

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.0 ml/min, 215nm



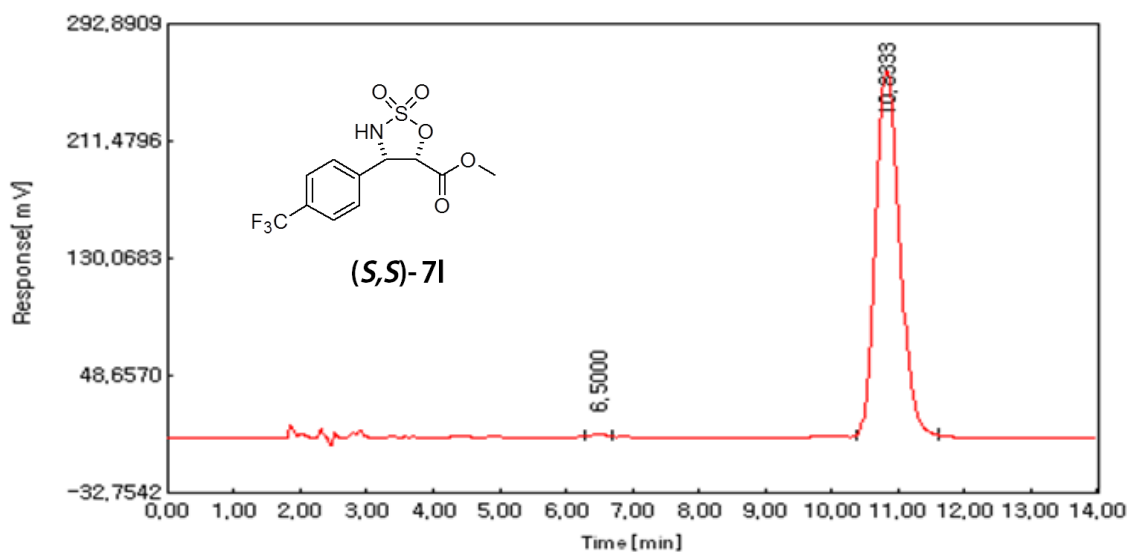
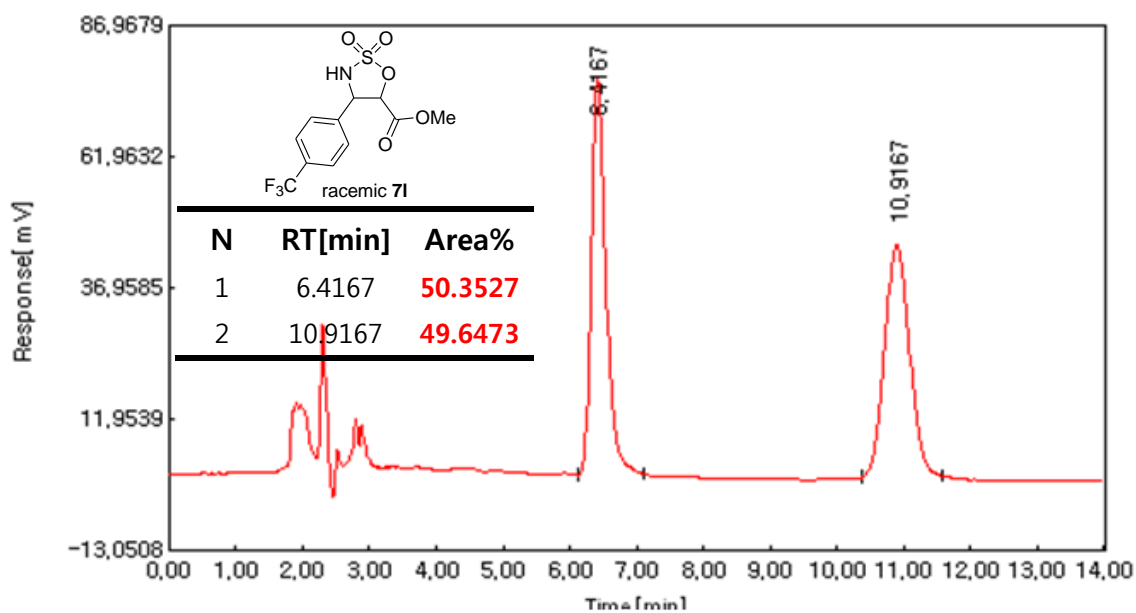
► **Result Report**

Peak #	Time[min]	Area[mV*s]	BL	wide[sec]	Area%
1	12.5333	402.7184	FF	41.0000	1.3427
2	16.1500	29590.0409	FF	100.0000	98.6573
Total		29992.7598			

ee=97.3%

► **Sample name:** (*S,S*)-71

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.5 ml/min, 215nm



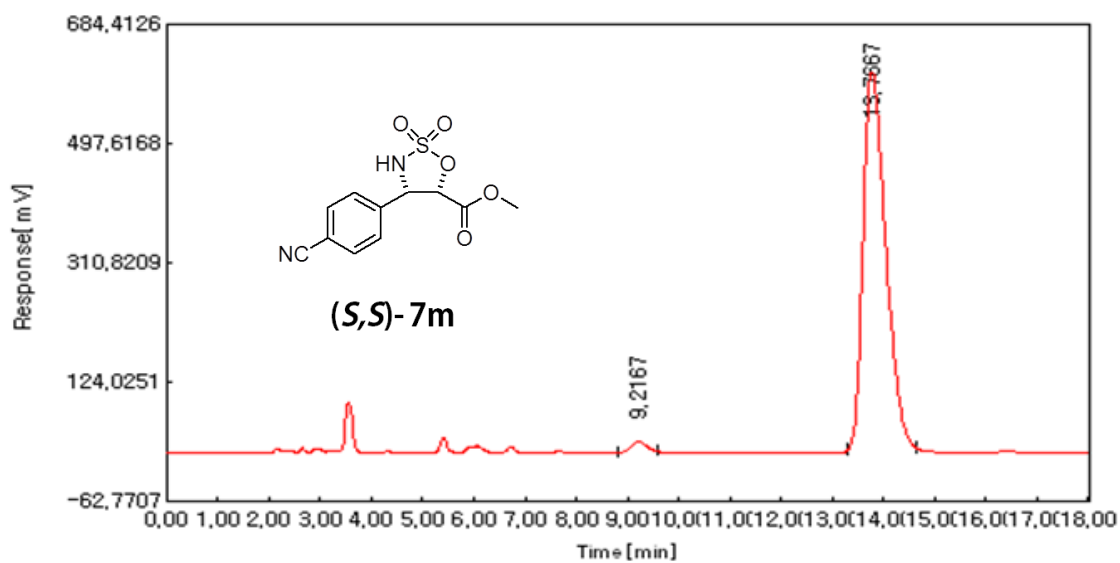
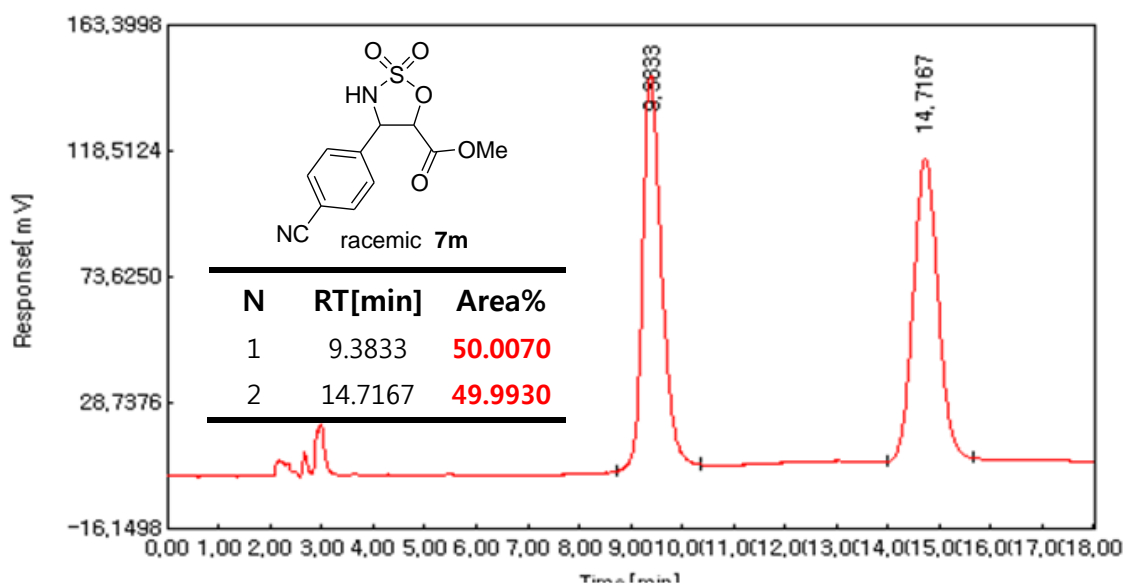
► **Result Report**

Peak #	Time[min]	Area[mV*s]	BL	wide[sec]	Area%
1	6.5000	16.5963	FF	24.0000	0.2520
2	10.8333	6569.2955	FF	74.0000	99.7480
Total		6585.8921			

ee=98.5%

► **Sample name:** (*S,S*)-7m

► **Analysis condition:** Chiralpak IA, 30% EtOH/n-hexane, 1.3 ml/min, 215nm



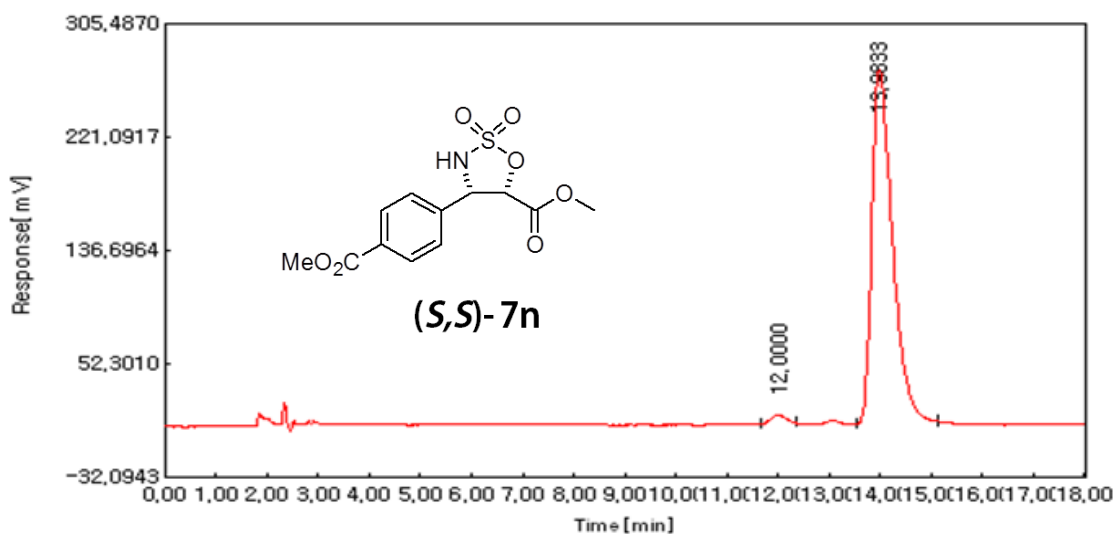
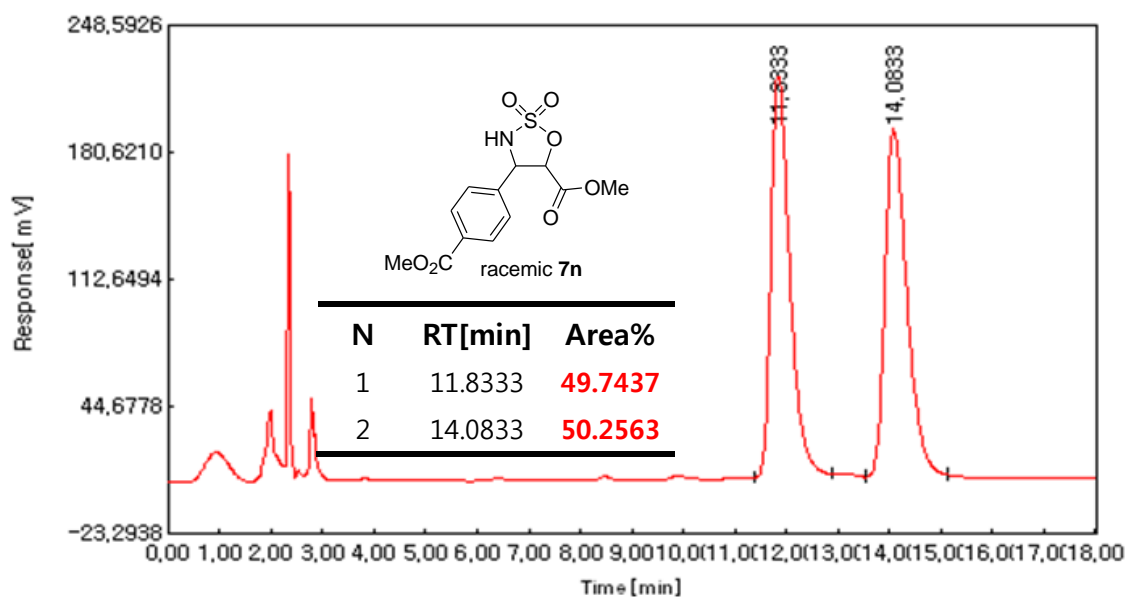
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.2167	351.4940	FF	46.0000	1.8410
2	13.7667	18740.6826	FF	81.0000	98.1590
Total		19092.1758			

ee=96.3%

► **Sample name:** (*S,S*)-7n

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.5 ml/min, 215nm



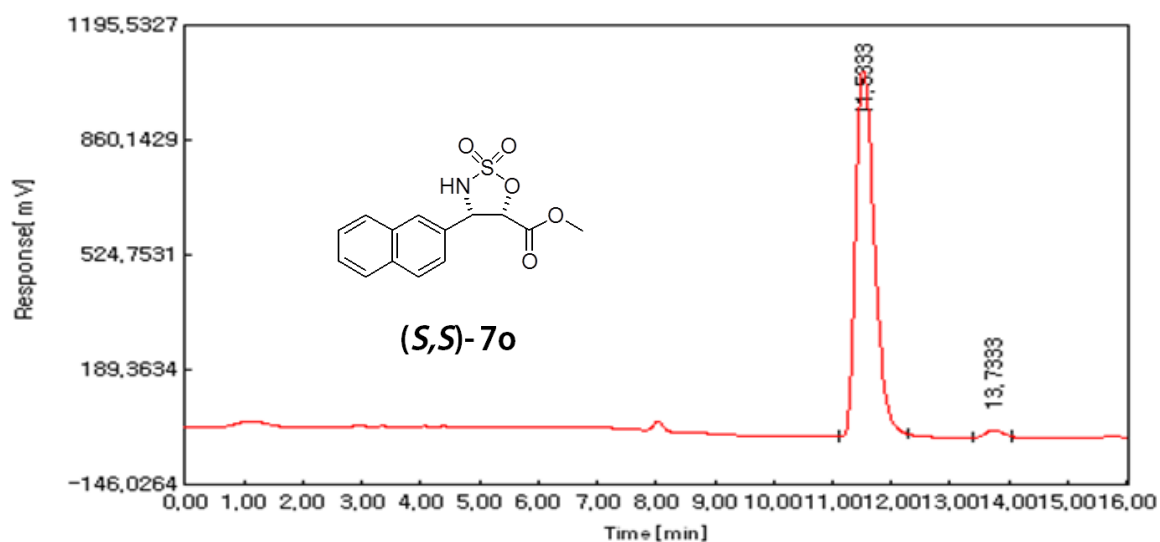
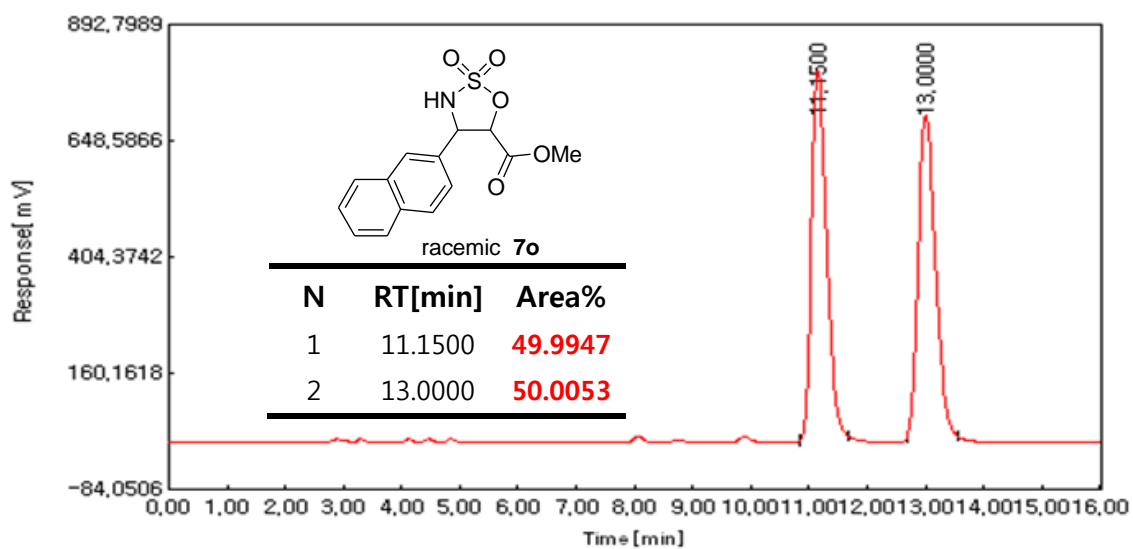
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	12.0000	129.7953	FF	41.0000	1.6647
2	13.9833	7666.9291	BB	97.0000	98.3353
Total		7796.7246			

ee=96.7%

► **Sample name:** (*S,S*)-**7o**

► **Analysis condition:** Chiralpak AD-H, 20% iprOH/n-hexane, 1.0 ml/min, 215nm



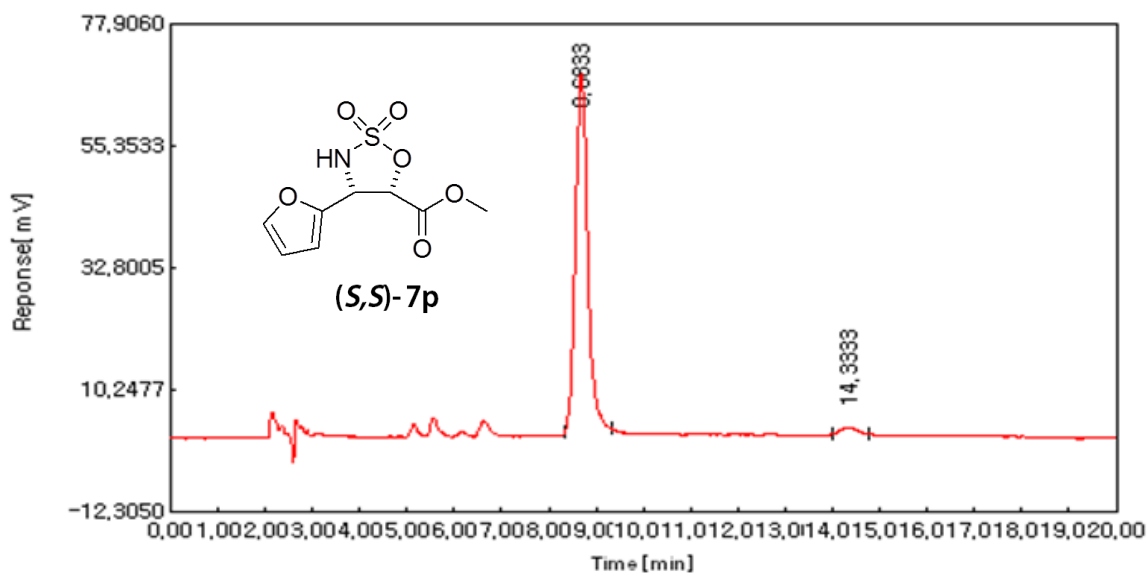
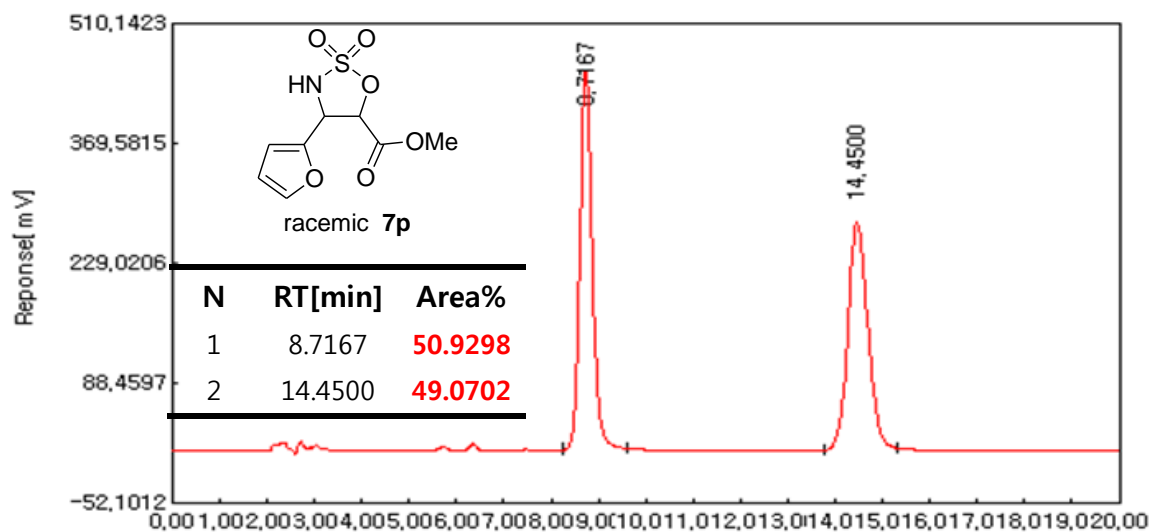
► **Result Report**

Peak #	Time[min]	Area[mV*s]	BL	wide[sec]	Area%
1	11.5333	24396.7379	FF	69.0000	98.3557
2	13.7333	407.8611	FF	41.0000	1.6443
Total		24804.5996			

ee=96.7%

► **Sample name:** (*S,S*)-7p

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.5 ml/min, 215nm



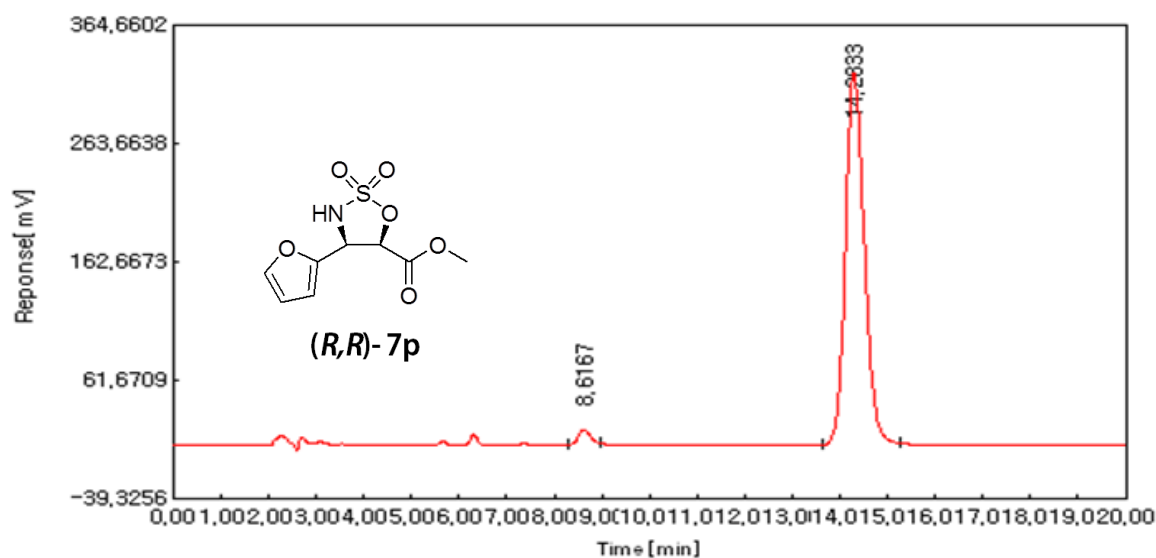
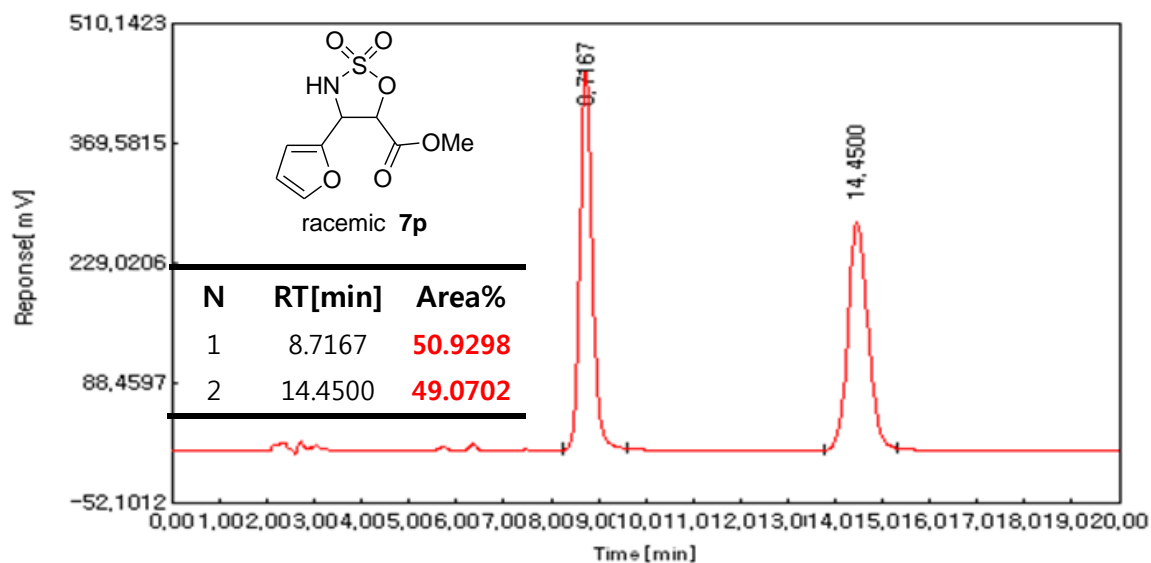
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	8.6833	1230.3090	FF	60.0000	97.4679
2	14.3333	31.9625	FF	48.0000	2.5321
Total		1262.2714			

ee=94.9%

► **Sample name:** (*R,R*)-7p

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.5 ml/min, 215nm



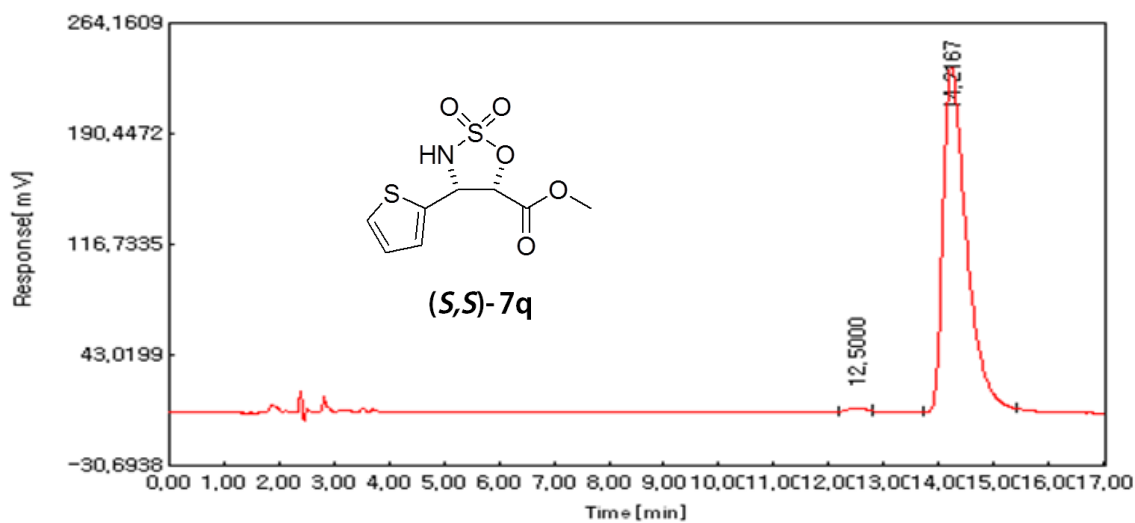
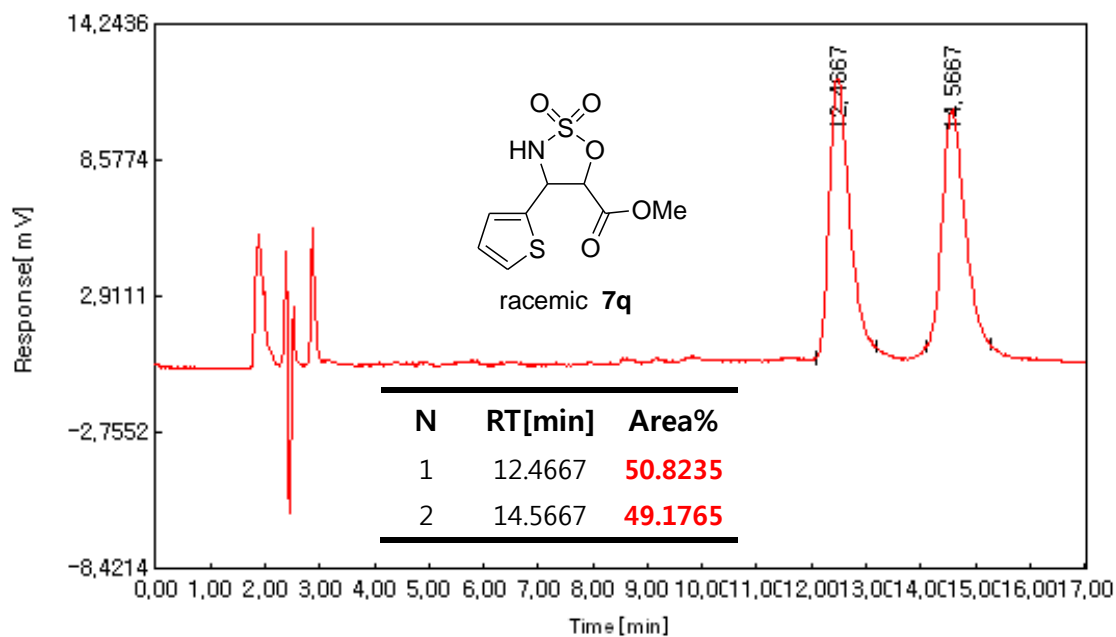
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	8.6167	213.4351	FF	39.0000	2.3101
2	14.2833	9025.6053	BB	99.0000	97.6899
Total		9239.0400			

ee=95.3%

► **Sample name:** (*S,S*)-7q

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.5 ml/min, 215nm



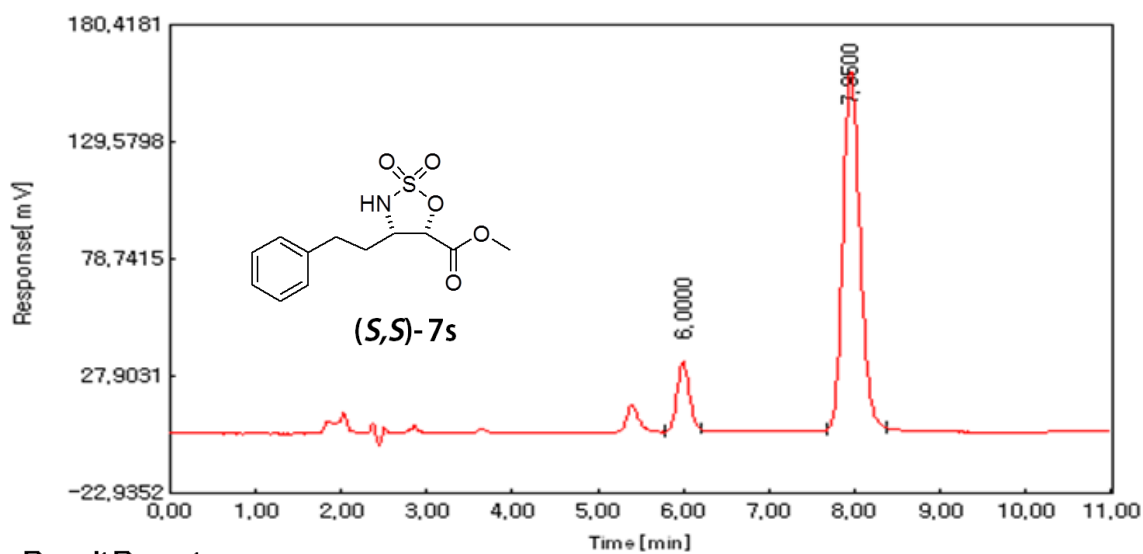
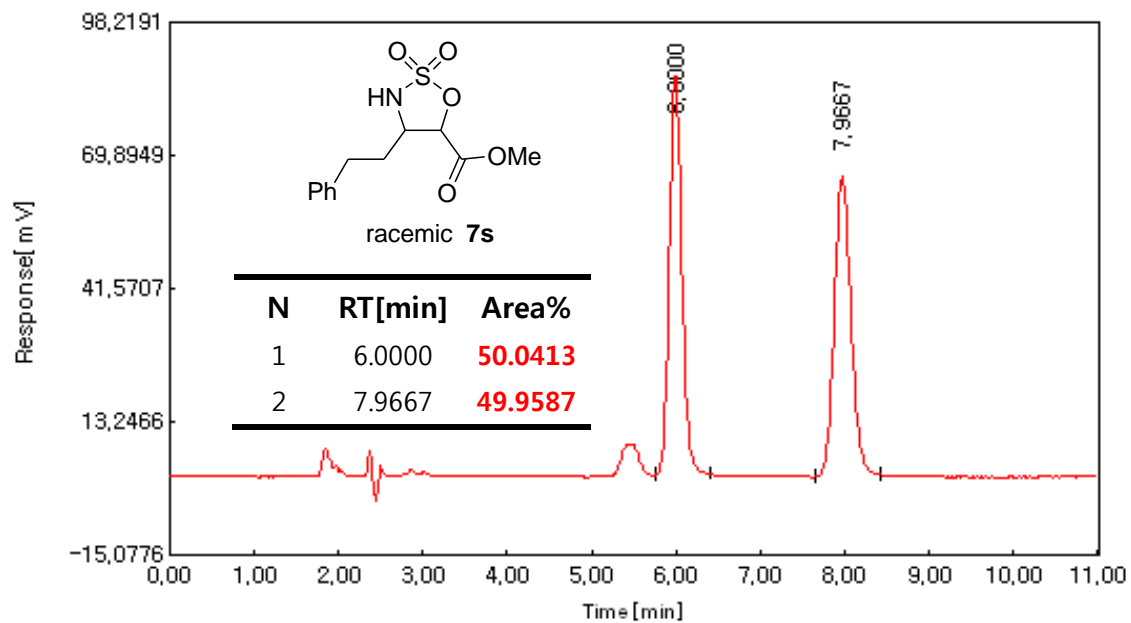
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	12.5000	47.0973	FF	36.0000	0.6703
2	14.2167	6979.5146	FF	100.0000	99.3297
Total		7026.6118			

ee=98.7%

► **Sample name:** (*S,S*)-7s

► **Analysis condition:** Chiralpak IA, 20% EtOH/n-hexane, 1.5 ml/min, 215nm



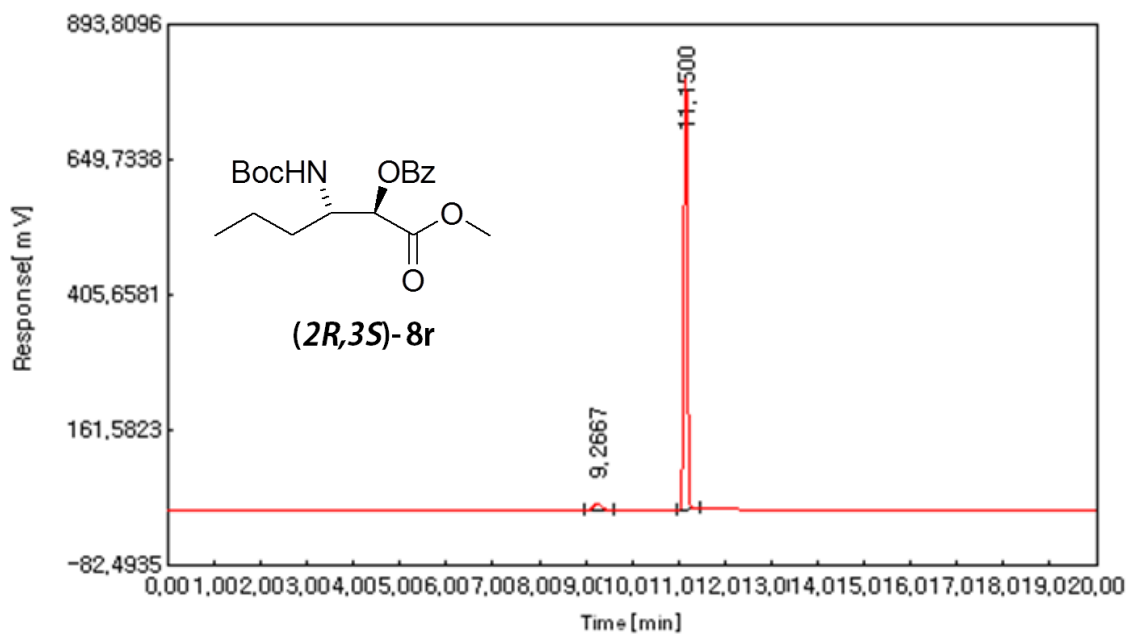
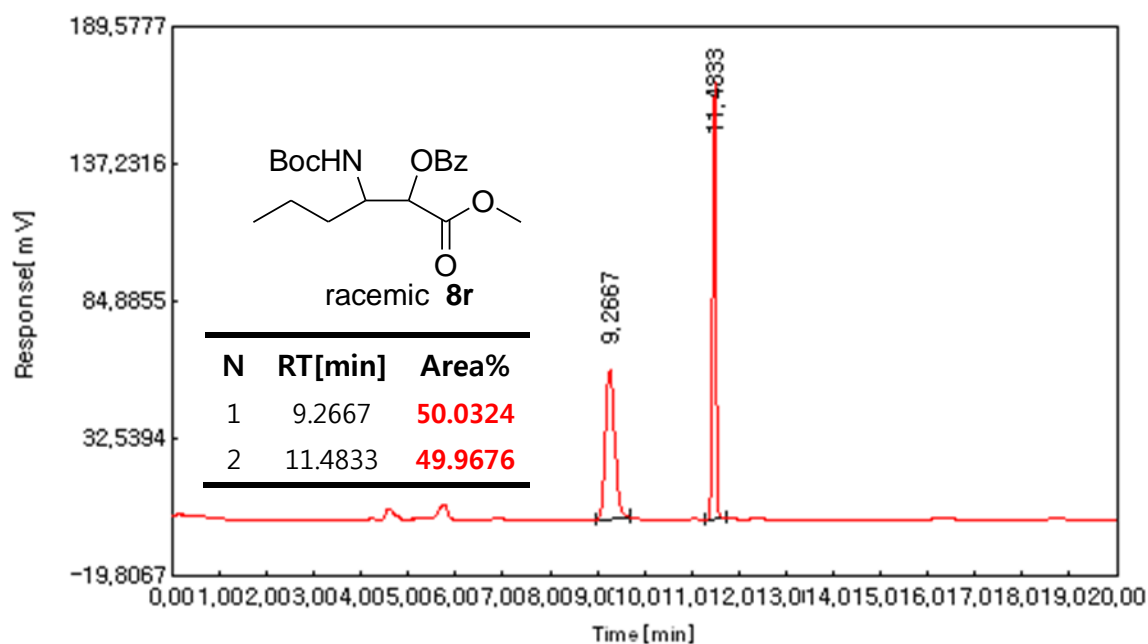
► **Result Report**

Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	6.0000	302.5704	FF	25.0000	11.9138
2	7.9500	2237.1001	FF	43.0000	88.0862
Total		2539.6707			

ee=76.1%

► **Sample name:** (2*R*,3*S*)-8r

► **Analysis condition:** Chiralpak IC, 10% iPrOH/n-hexane, 0.7 ml/min, 254nm

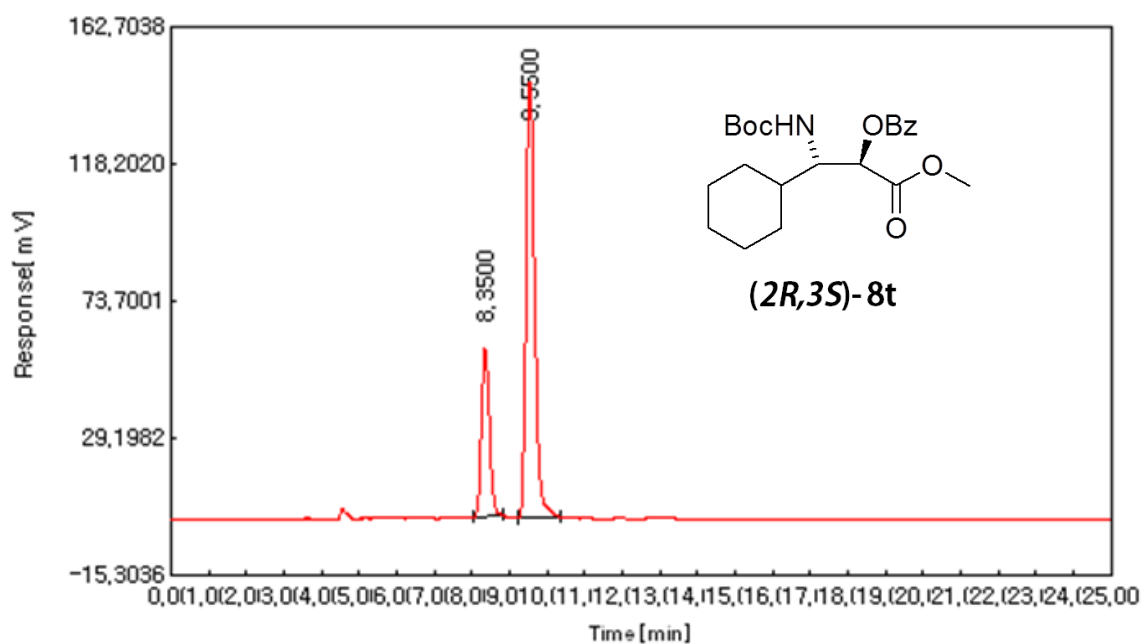
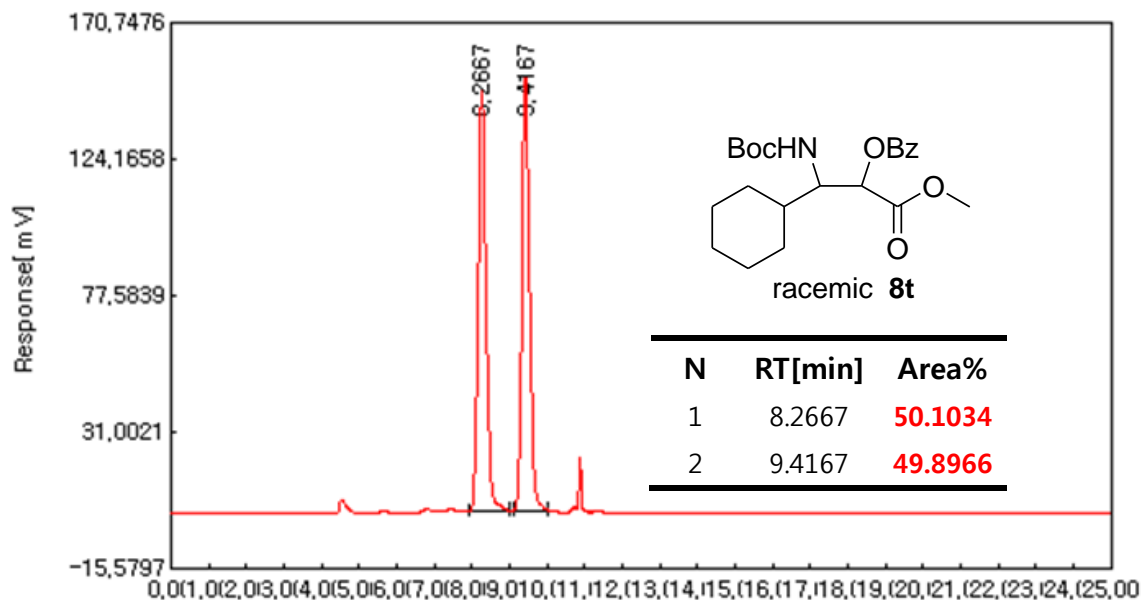


Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	9.2667	185.5496	BB	38.0000	4.3399
2	11.1500	4089.8949	BB	28.0000	95.6601
Total		4275.4443			

ee=91.3%

► **Sample name:** (2*R*,3*S*)-8t

► **Analysis condition:** Chiralpak IC, 10% iPrOH/n-hexane, 0.7 ml/min, 254nm



Peak #	Time [min]	Area [mV*s]	BL	wide [sec]	Area%
1	8.3500	832.8883	BB	46.0000	26.2840
2	9.5500	2335.9153	BB	68.0000	73.7160
Total		3168.8035			

ee=47.4%