Karwinaphthopyranones isolated from the Fruits of *K. parvifolia* and Their Cytotoxic Activities

Claudia Rojas-Flores,[†,‡] María Yolanda Rios, [†,‡] Rebeca López-Marure,[§] and Horacio F. Olivo*[,†]

[†]*Medicinal and Natural Products Chemistry, The University of Iowa, Iowa City, IA 52242, U. S. A.*

[‡]*Centro de Investigaciones Químicas, Universidad Autónoma del Estado de Morelos, Avenida Universidad 1001, Col. Chamilpa, 62209 Cuernavaca, Morelos, México*

[§]*Departamento de Biología Celular, Instituto Nacional de Cardiología "Ignacio Chávez," Juan Badiano No. 1, Colonia Sección 16, Tlalpan, C. P. 14080, México D. F., México*

SUPPORTING INFORMATION

Compound **7**. **^{1}H-NMR Spectra.** **SI-3**
Compound **7**. **^{13}C-NMR + DEPT-135 Spectra.** **SI-4**
Compound **7. COSY Spectra.** **SI-5**
Compound **7. HMQC Spectra.** **SI-6**
Compound **7. HMBC Spectra.** **SI-7**

Compound **tullidinol**. **^{1}H-NMR Spectra.** **SI-8**
Compound **tullidinol**. **^{13}C-NMR + DEPT-135 Spectra.** **SI-9**
Compound **tullidinol. COSY Spectra.** **SI-10**
Compound **tullidinol. HMQC Spectra.** **SI-13**

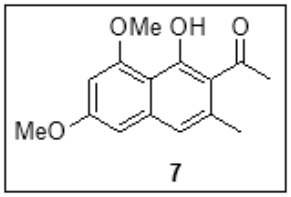
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Compound **8**. **^{13}C-NMR + DEPT-135 Spectra.** **SI-18**
Compound **8**. **COSY Spectra.** **SI-19**
Compound **8**. **HMQC Spectra.** **SI-20**

Compound **9**. **^{1}H-NMR Spectra.** **SI-21**
Compound **9**. **^{13}C-NMR + DEPT-135 Spectra.** **SI-22**

Compound **9**. **HMQC Spectra.** **SI-23**
Compound **9**. **HMBC Spectra.** **SI-26**

Compound **10**. **^{1}H-NMR Spectra.** **SI-28**
Compound **10**. **^{13}C-NMR + DEPT-135 Spectra.** **SI-29**
Compound **10**. **COSY Spectra.** **SI-30**
Compound **10**. **HMQC Spectra.** **SI-32**

Compound **T-510**. **^{1}H-NMR Spectra.** **SI-34**
Compound **T-510**. **^{13}C-NMR + DEPT-135 Spectra.** **SI-35**
Compound **T-510**. **COSY Spectra.** **SI-36**
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Compound **T-510**. **HMBC Spectra.** **SI-44**



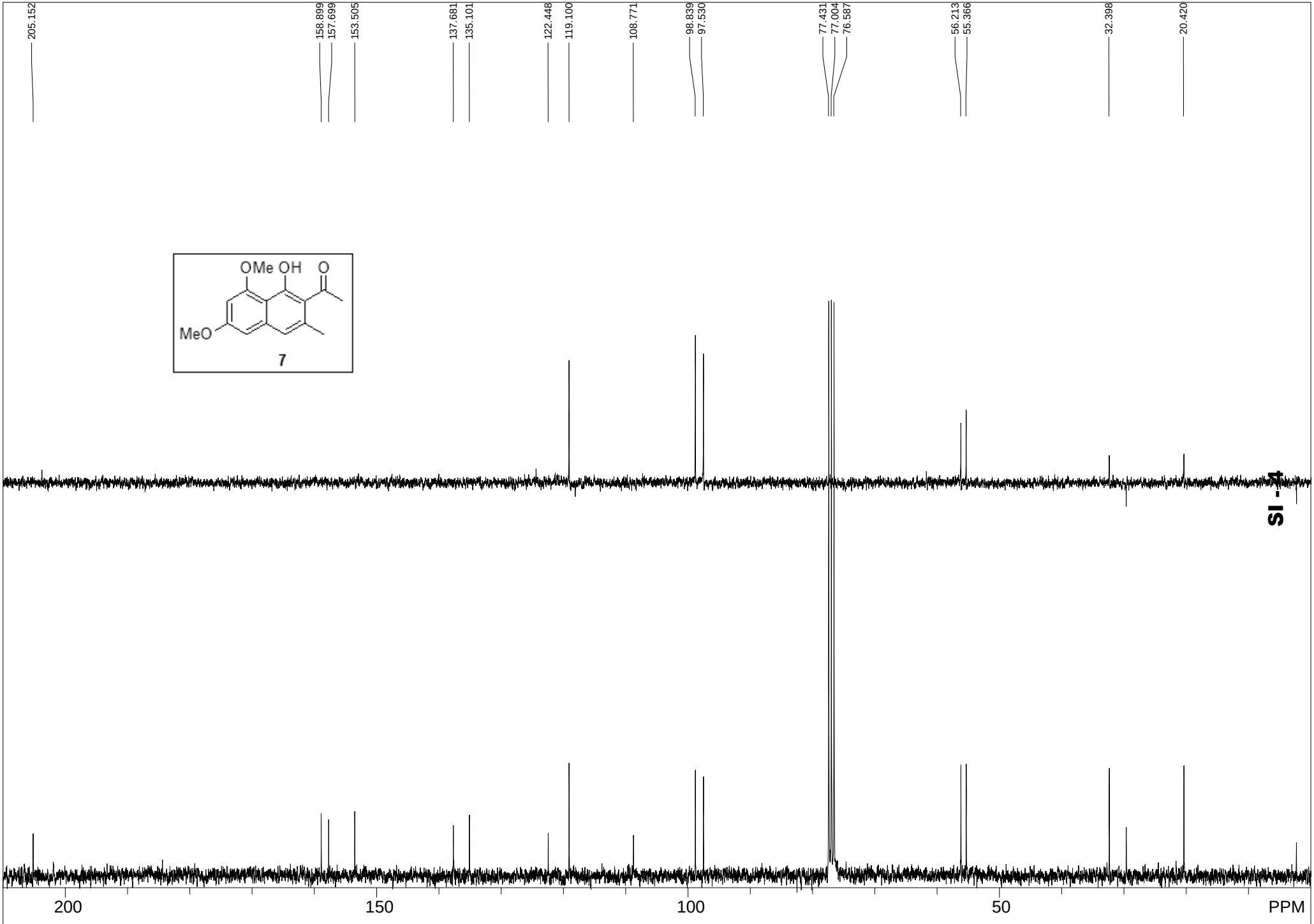
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SI - 3

10 8 6 4 2 PPM

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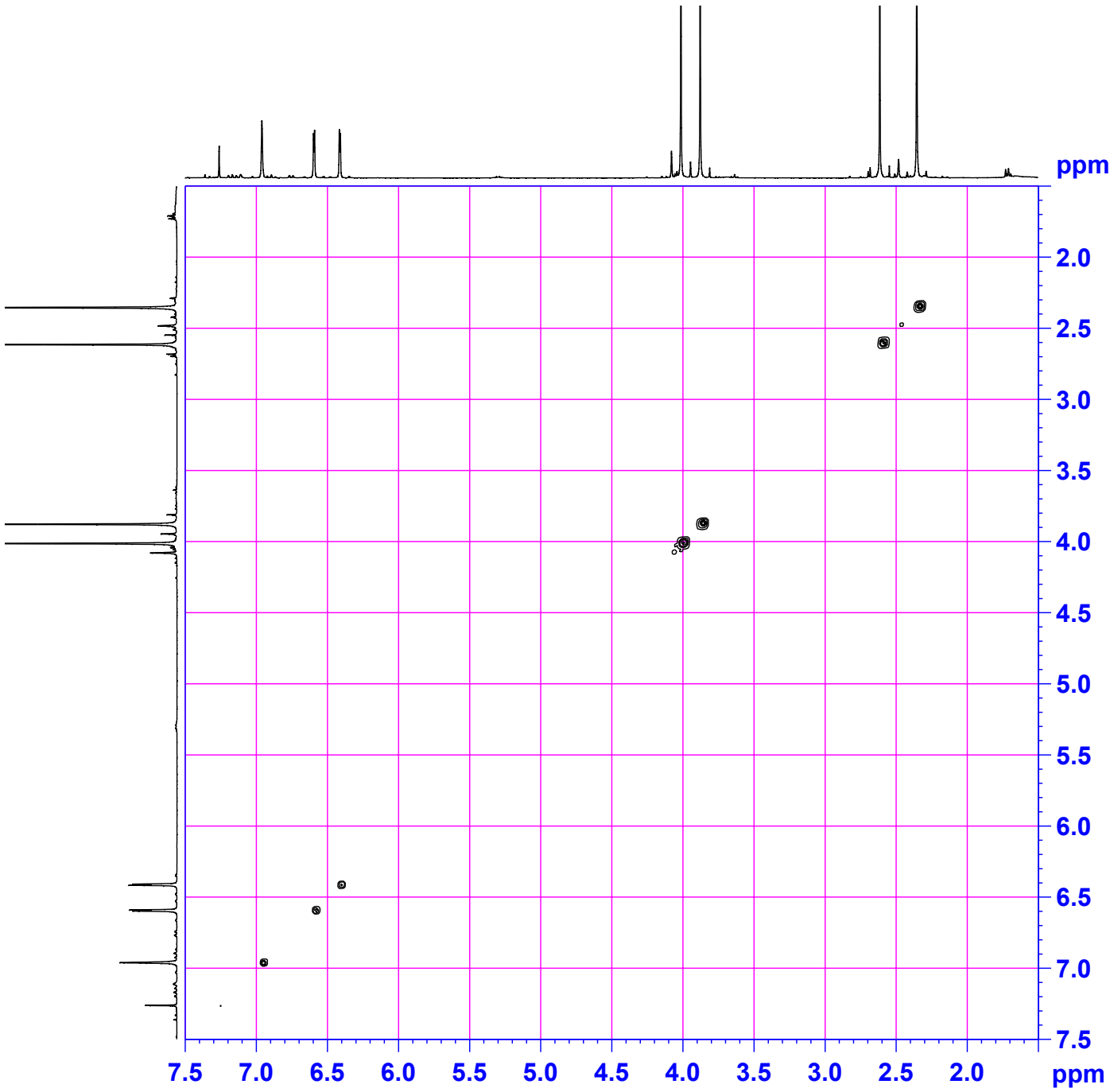
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d0           0.00000300 sec
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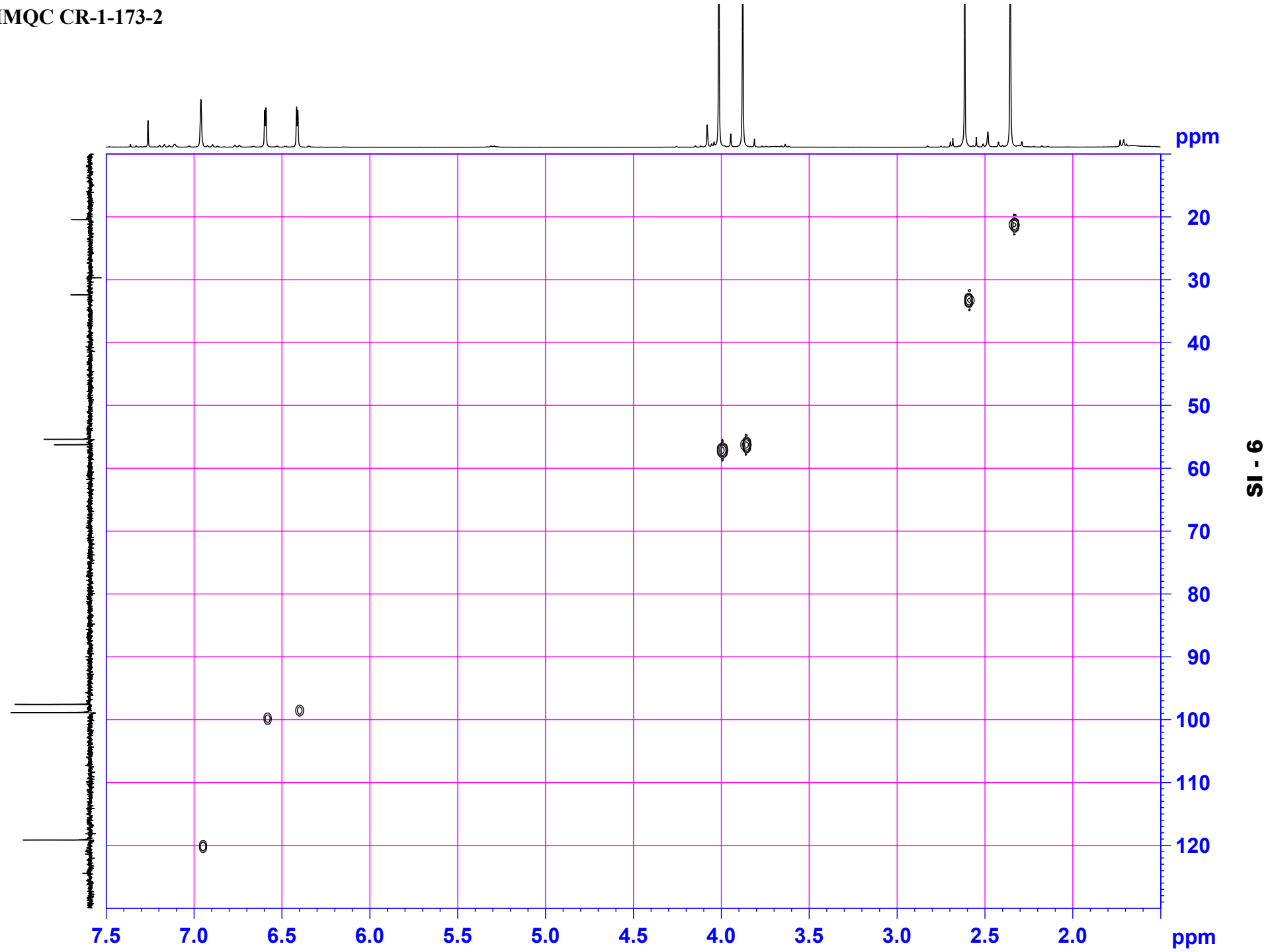
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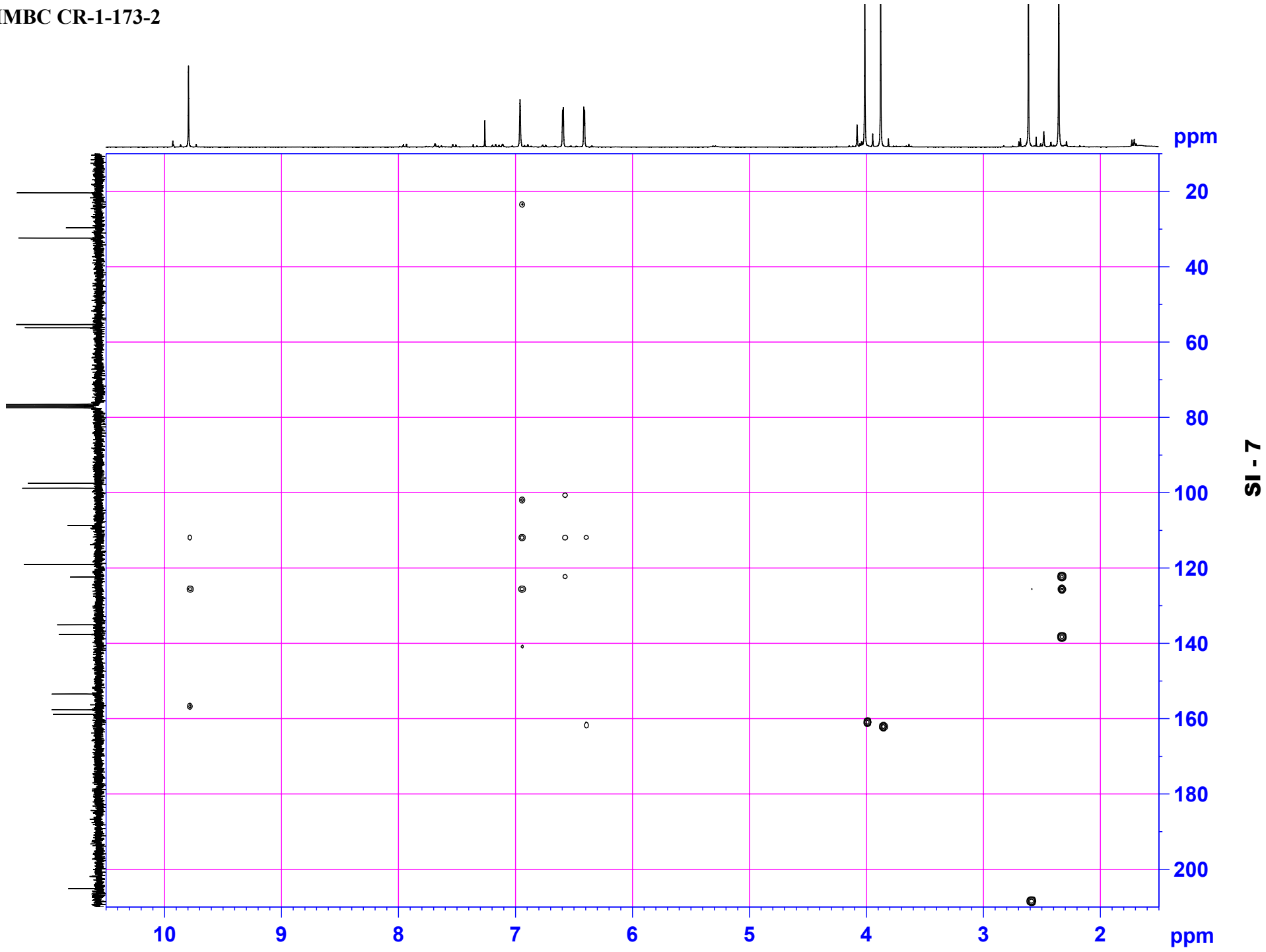
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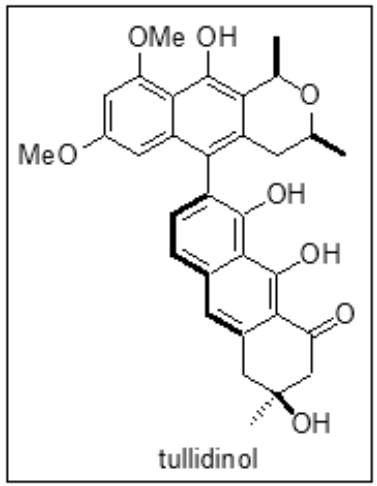
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HMQC CR-1-173-2



HMBC CR-1-173-2





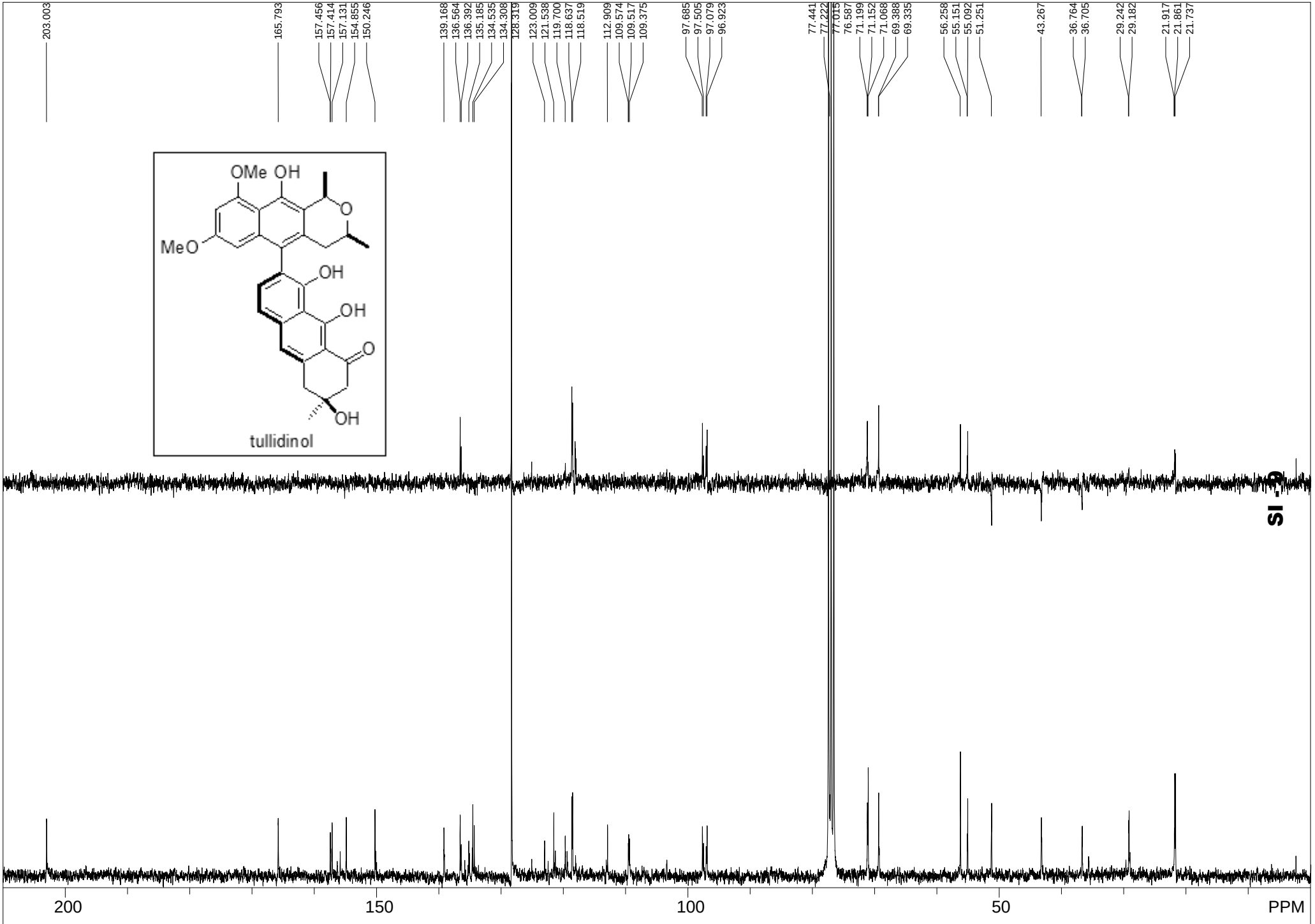
tullidinol

SI - 8

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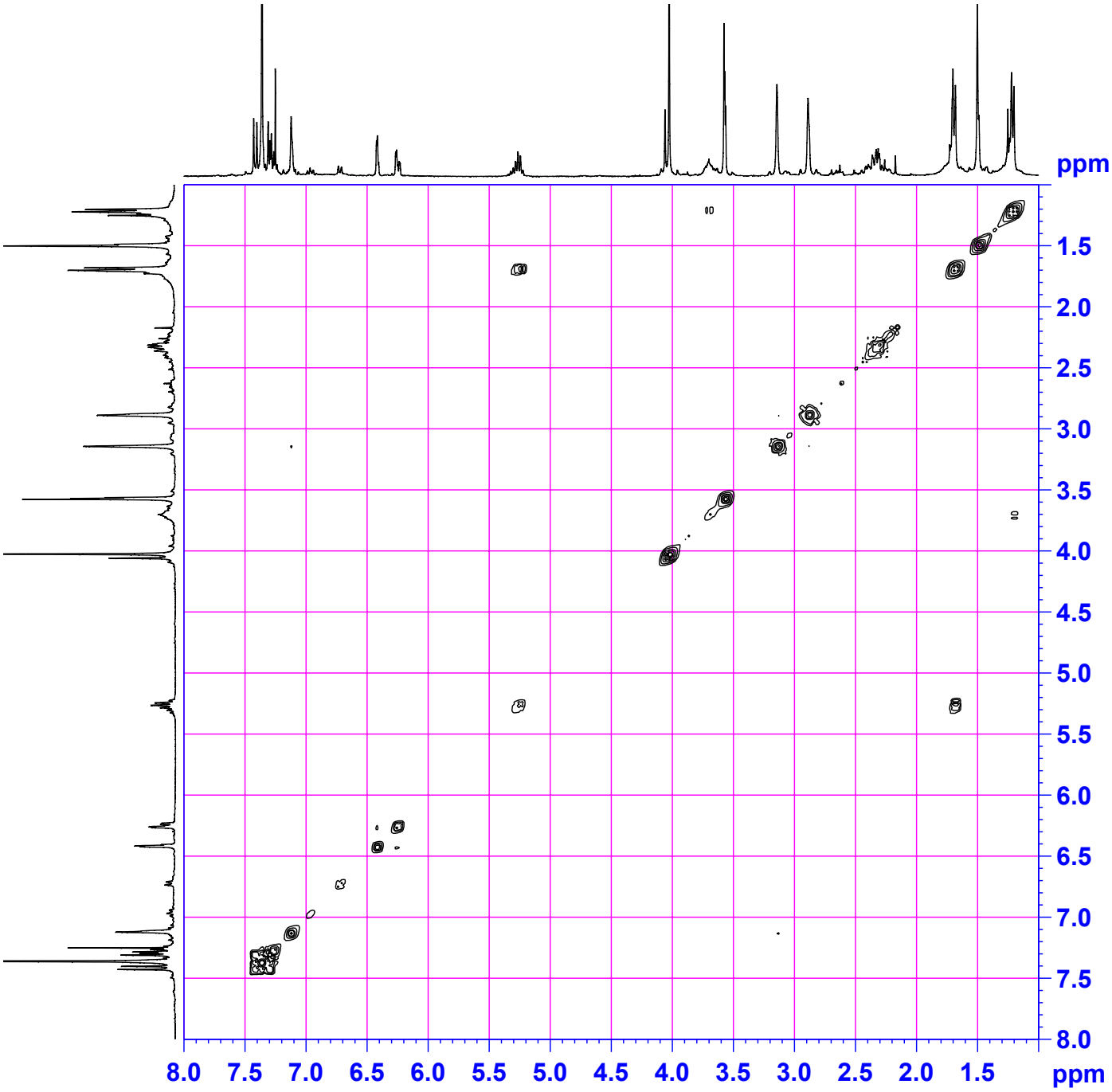


CR-1-175-1 13C-NMR

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COSY CR-1-175-1



BRUKER

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SOLVENT           CDCl3
NS                   4
DS                  16
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FIDRES        1.097755 Hz
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d13         0.00000400 sec
D16         0.00010000 sec
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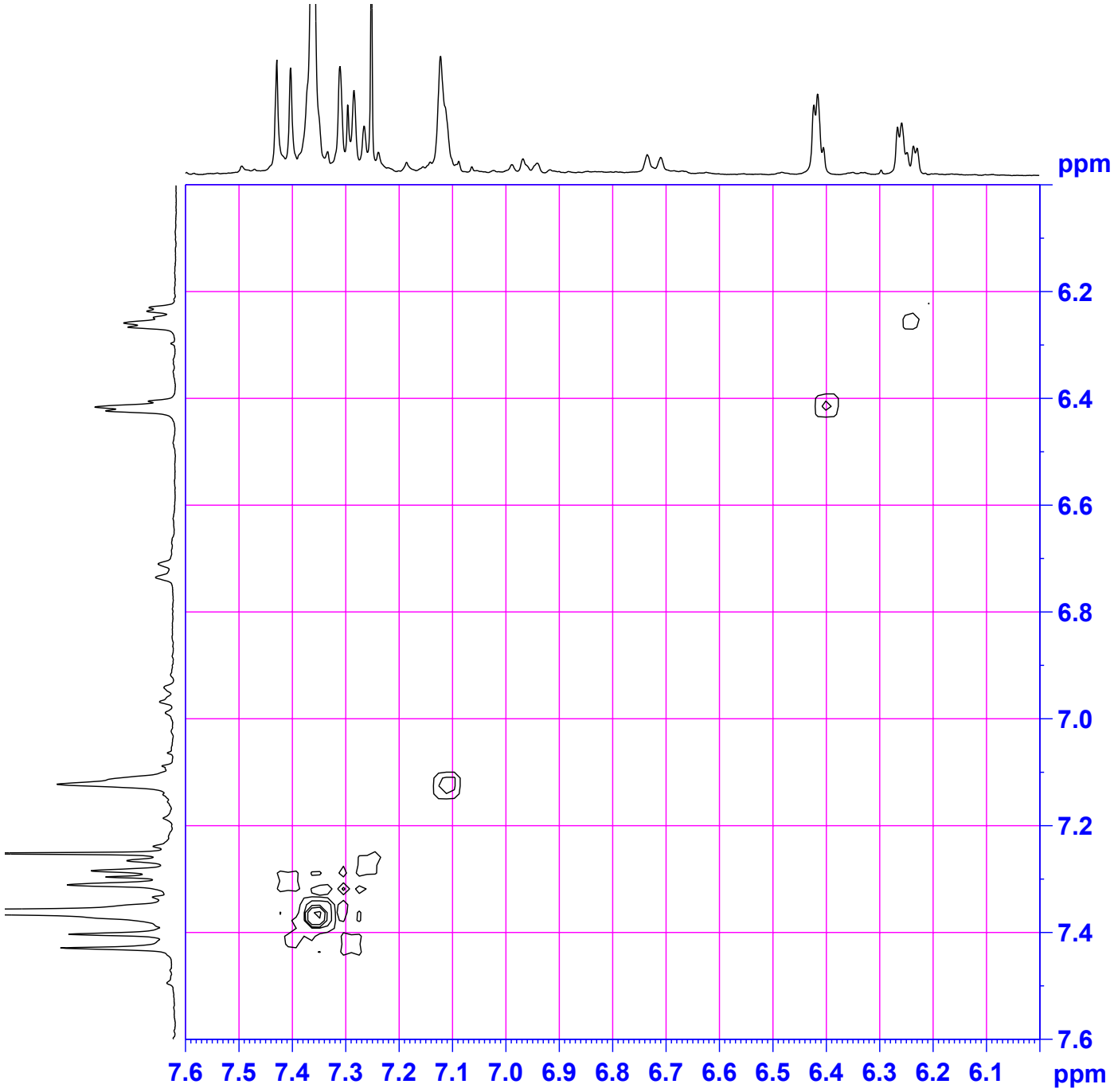
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GPZ2             10.00 %
P16            1000.00 usec

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FIDRES      17.564074 Hz
SW             14.981 ppm
FnMODE              QF

F2 - Processing parameters
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WDW               SINE
SSB                  0
LB                0.00 Hz
GB                   0
PC                1.00

F1 - Processing parameters
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MC2                 QF
SF          300.1300105 MHz
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SSB                  0
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GB                   0
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COSY CR-1-175-1




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PROCNO                 1

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TD                4096
SOLVENT           CDCl3
NS                   4
DS                  16
SWH            4496.403 Hz
FIDRES         1.097755 Hz
AQ             0.4555252 sec
RG                 128
DW               111.200 usec
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MCREST       0.00000000 sec
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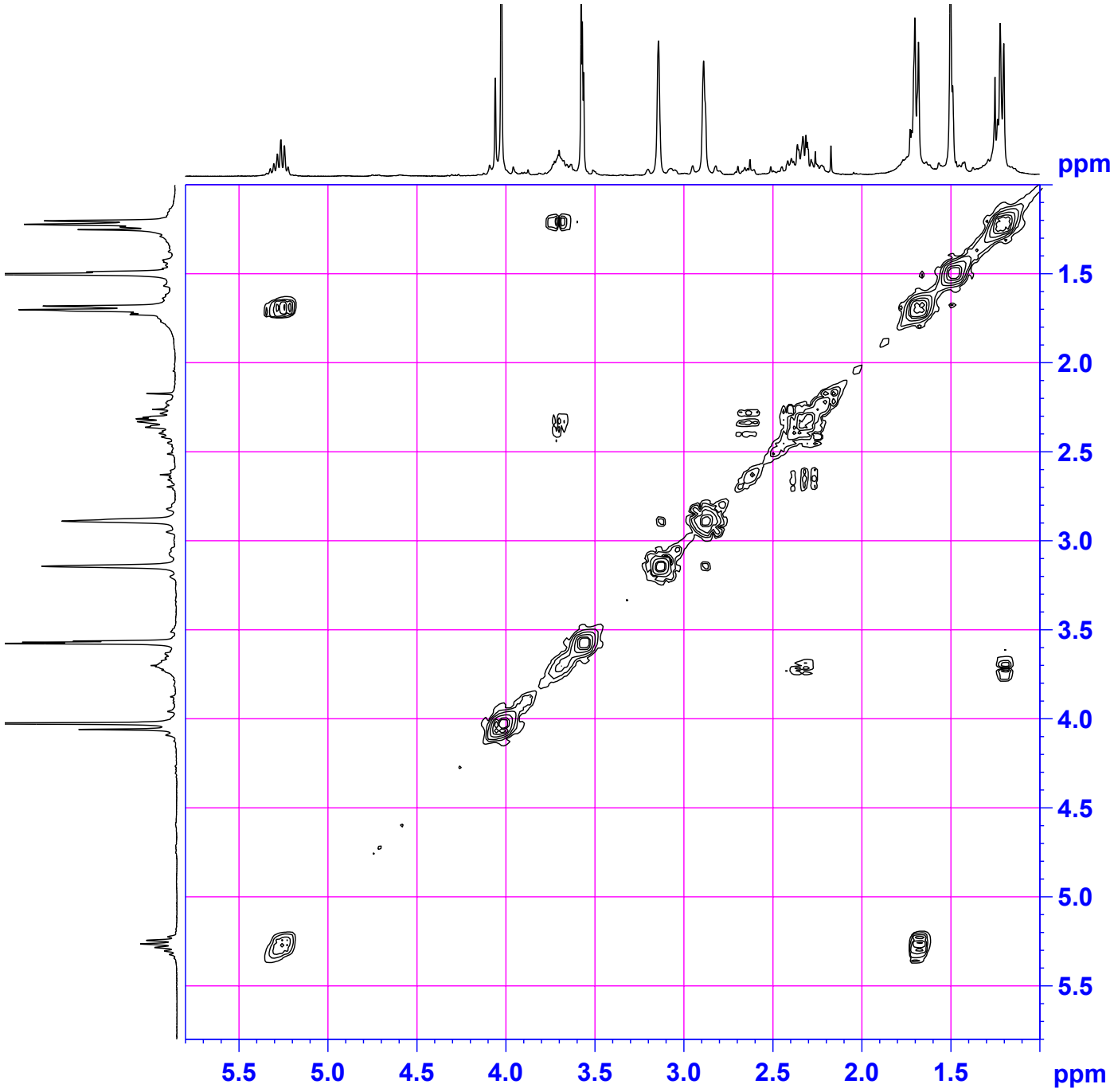
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F1 - Processing parameters
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COSY CR-1-175-1



BRUKER

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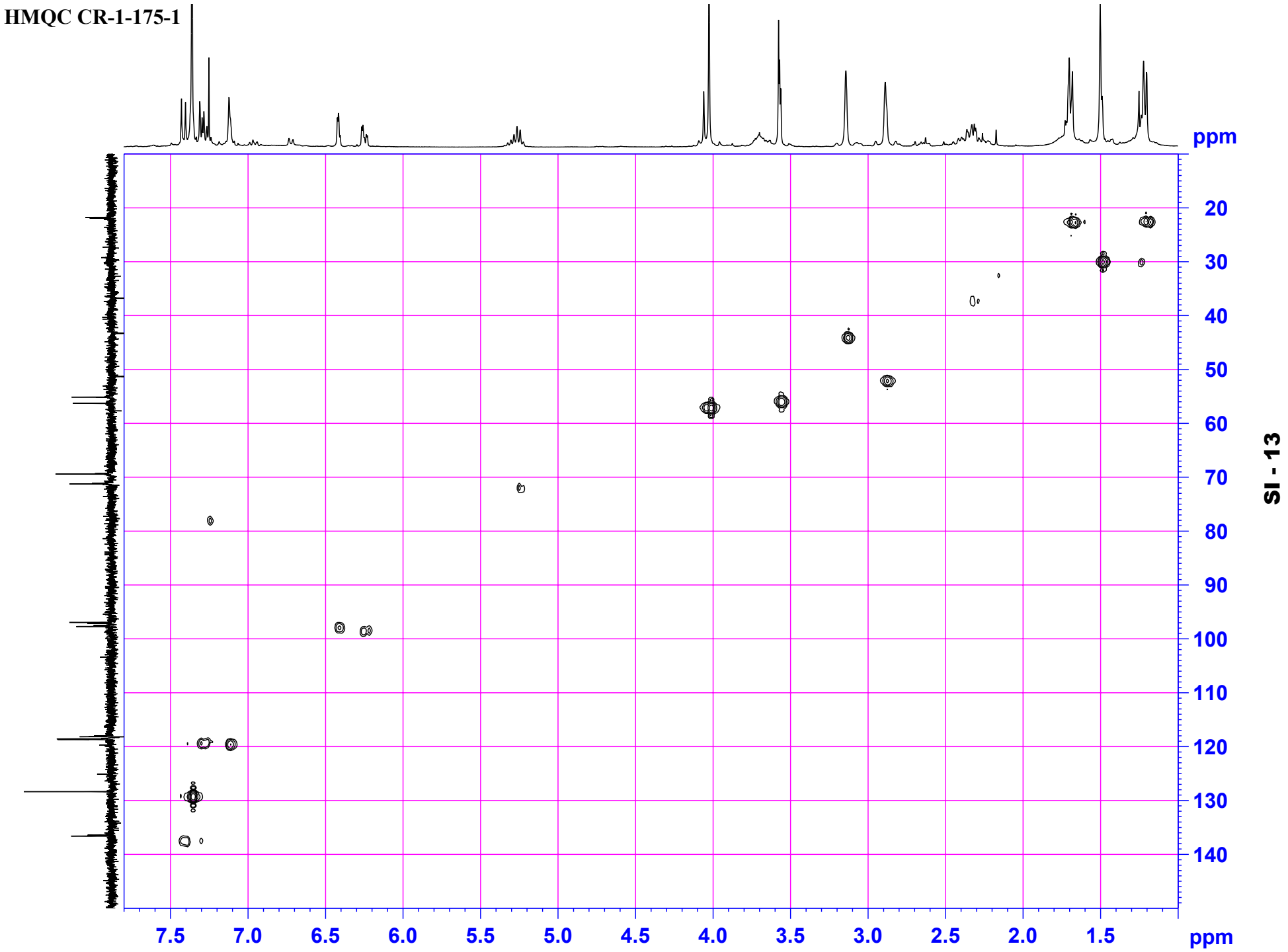
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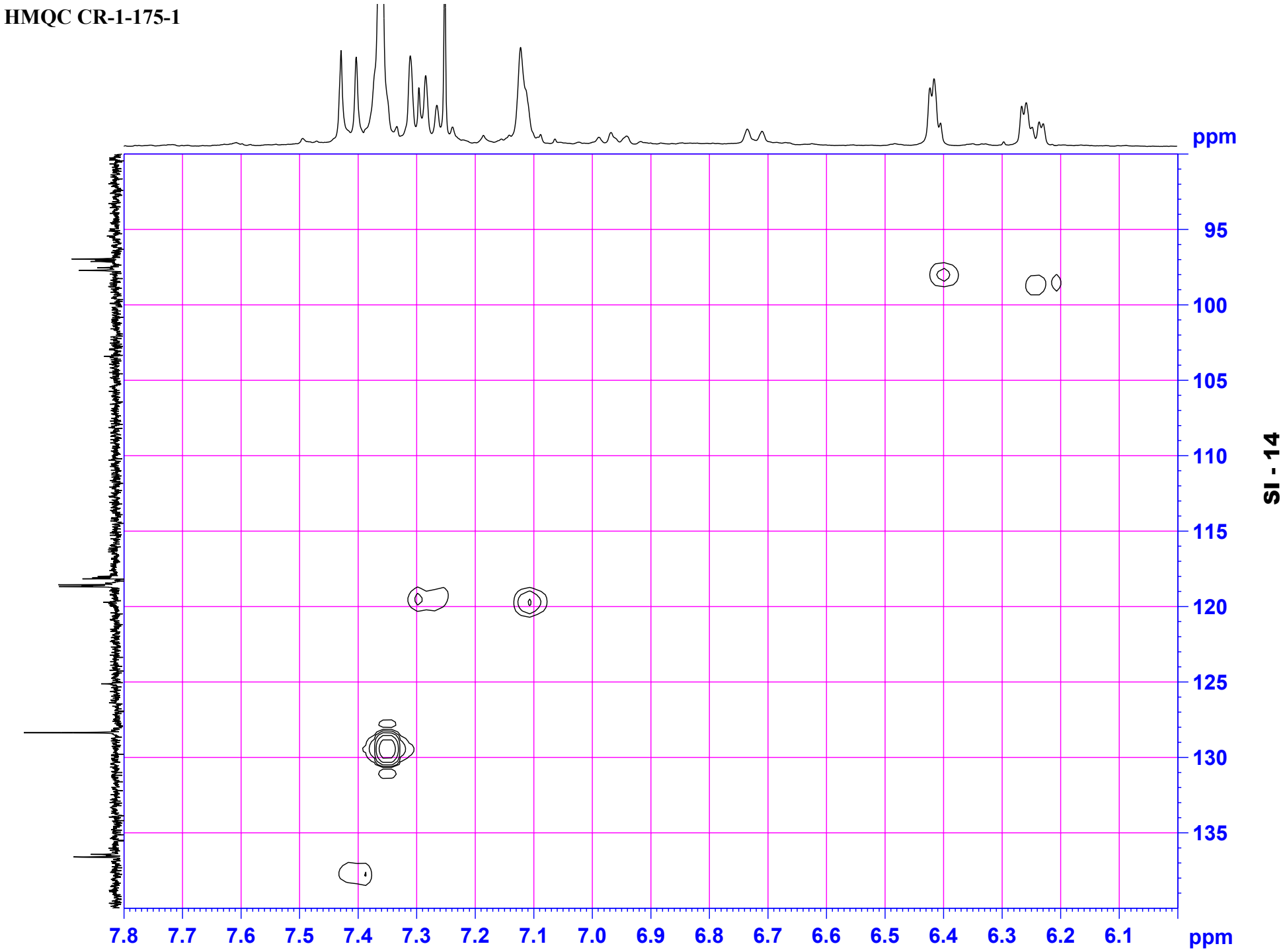
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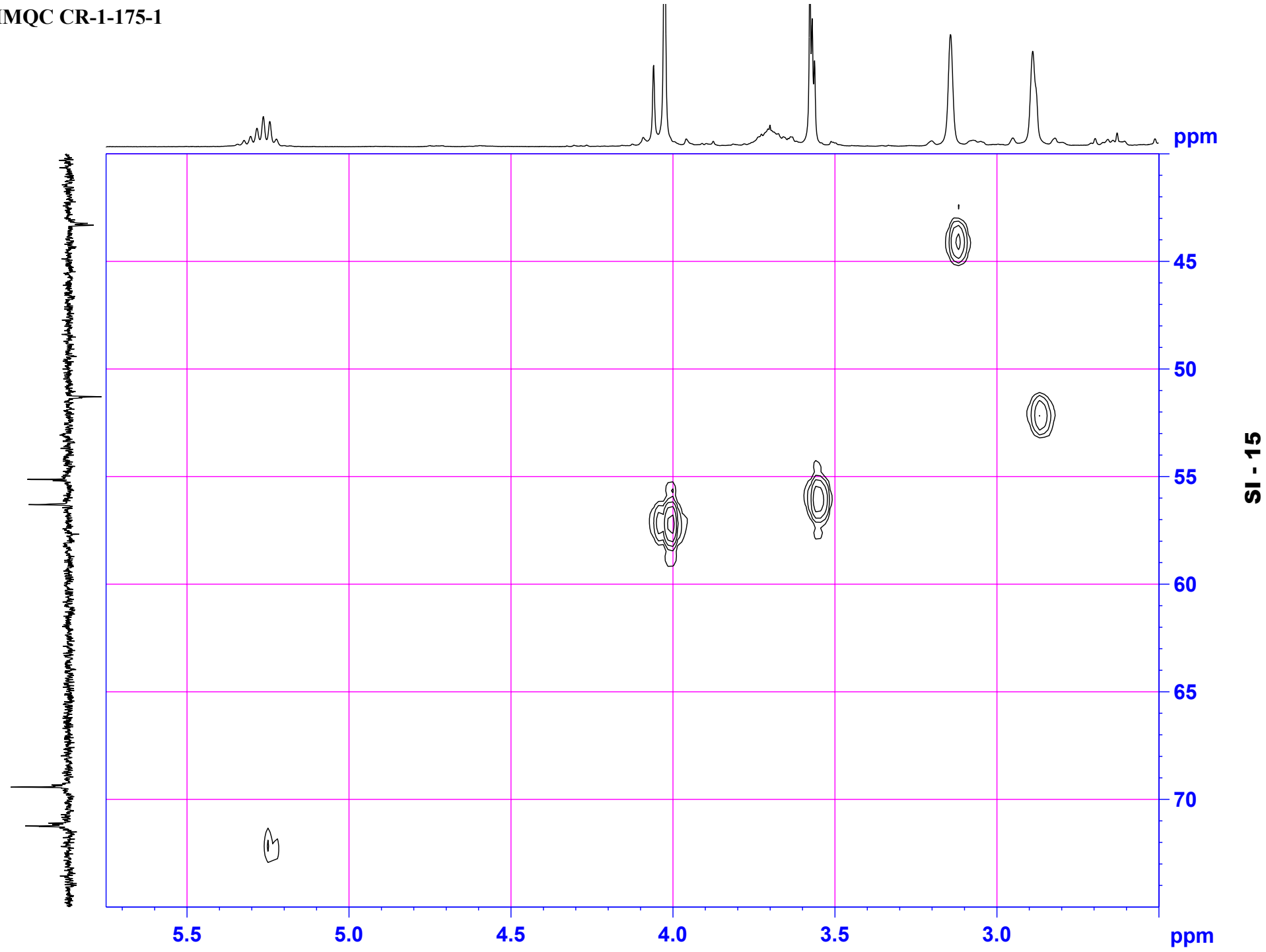
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F1 - Processing parameters
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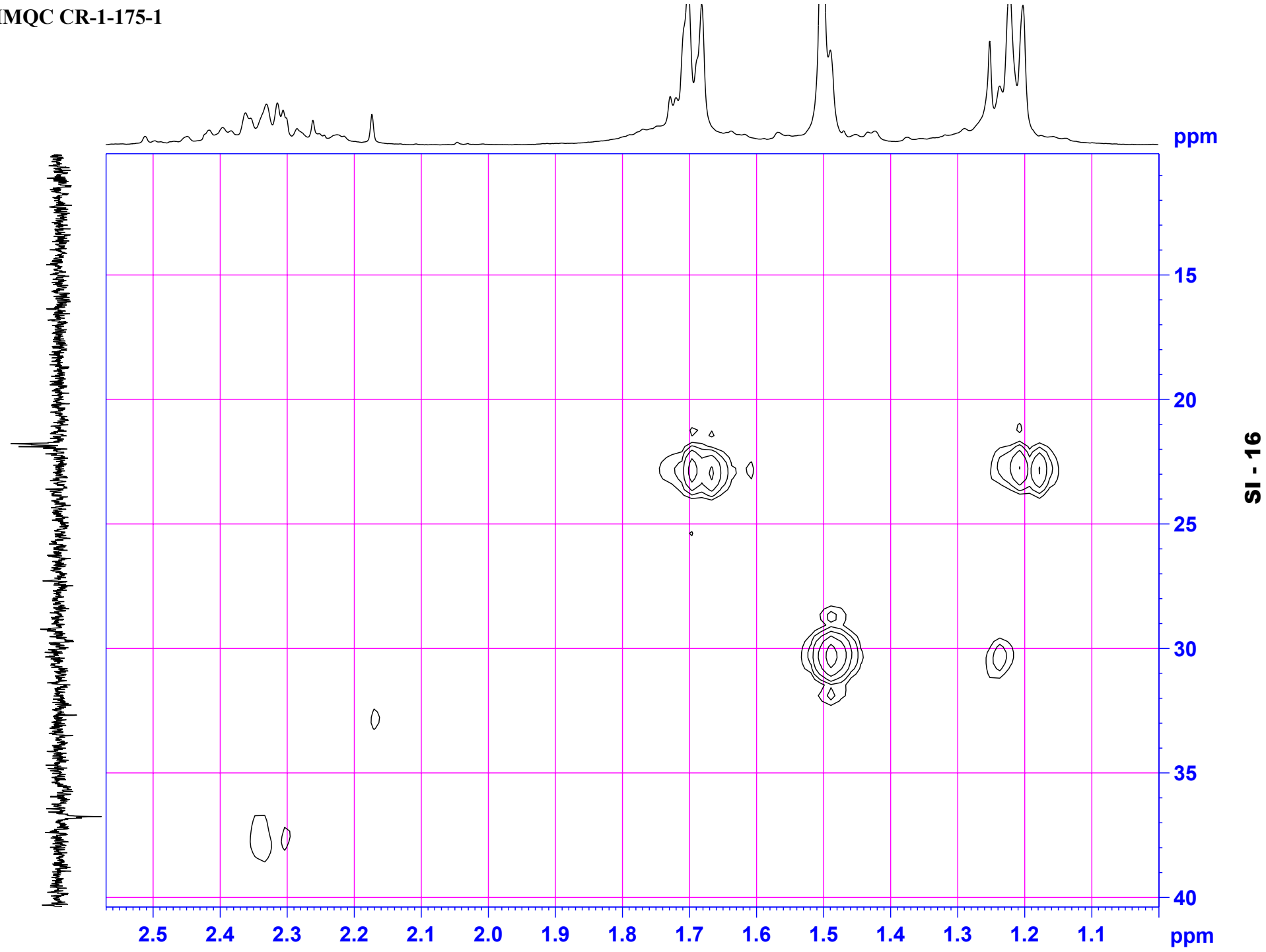

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140
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6.5
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4.0
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3.0
2.5
2.0
1.5
ppm


HMQC CR-1-175-1
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105
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130
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SI - 14
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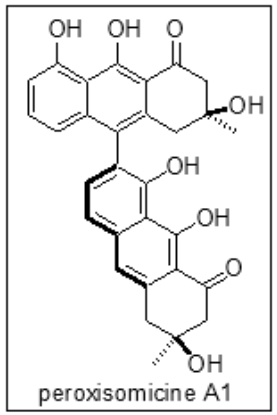
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peroxisomicine A1

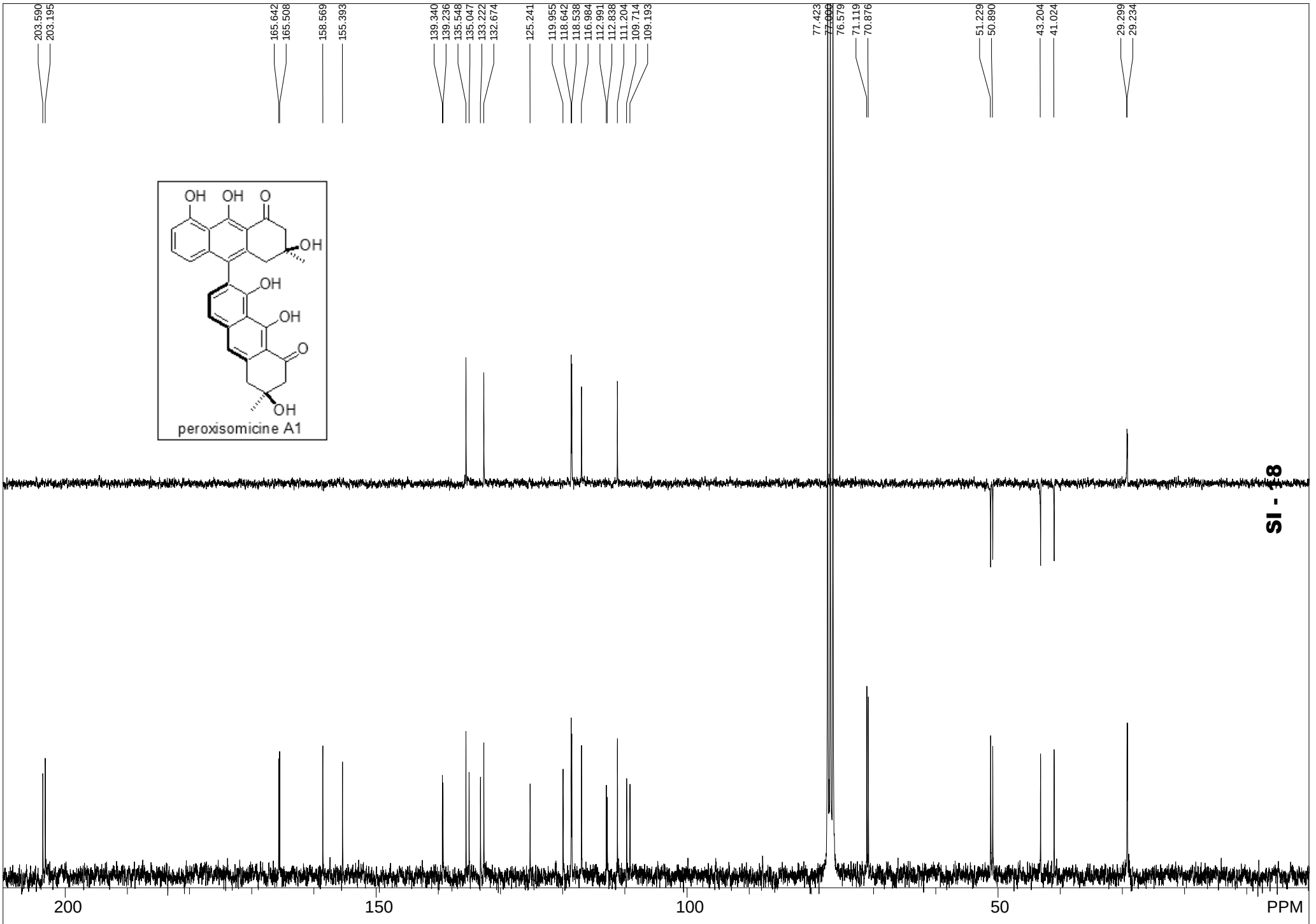
SI - 17

16 14 12 10 8 6 4 2 PPM

1H-NMR, , peroxisomicine A1

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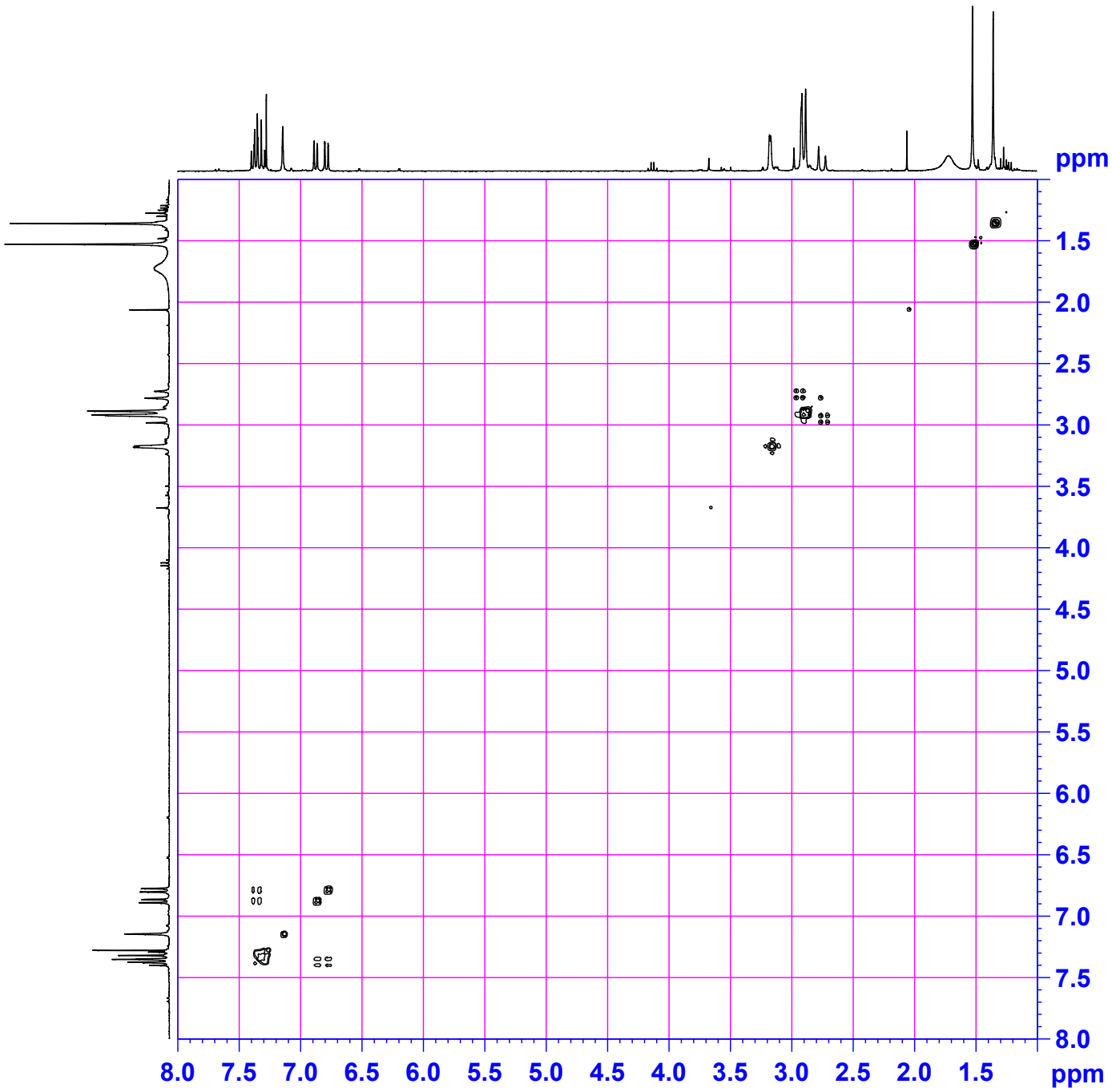


Peroxisomicine A1

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COSY Peroxisomicine A1




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FIDRES            1.097755 Hz
AQ                0.4555252 sec
RG                      128
DW                  111.200 usec
DE                    6.00 usec
TE                   300.0 K
d0              0.00000300 sec
D1              4.00000000 sec
d13             0.00000400 sec
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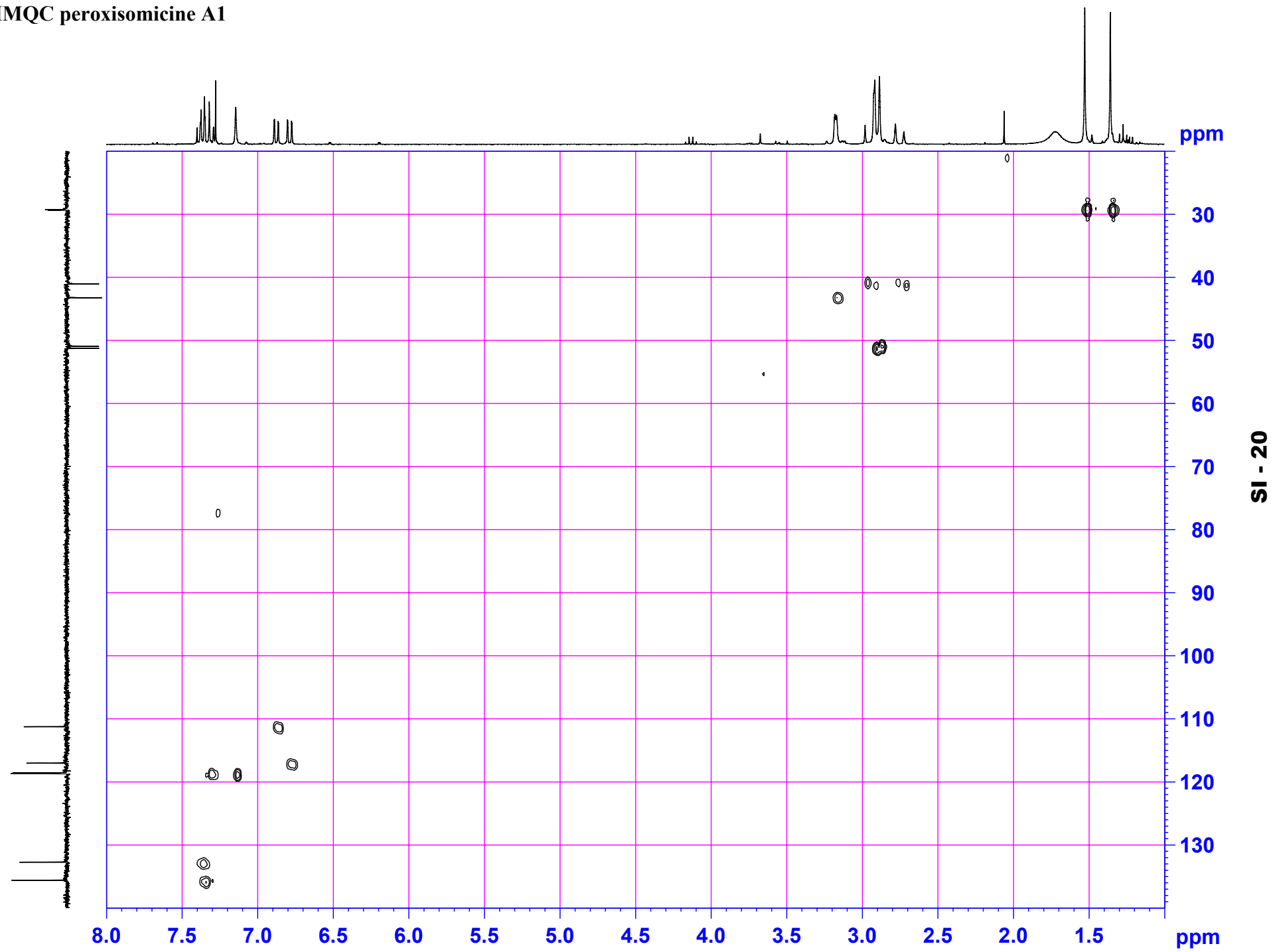
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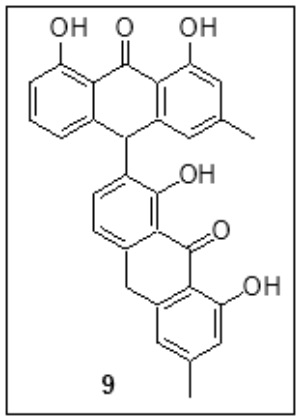
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F1 - Processing parameters
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HMQC peroxisomicine A1





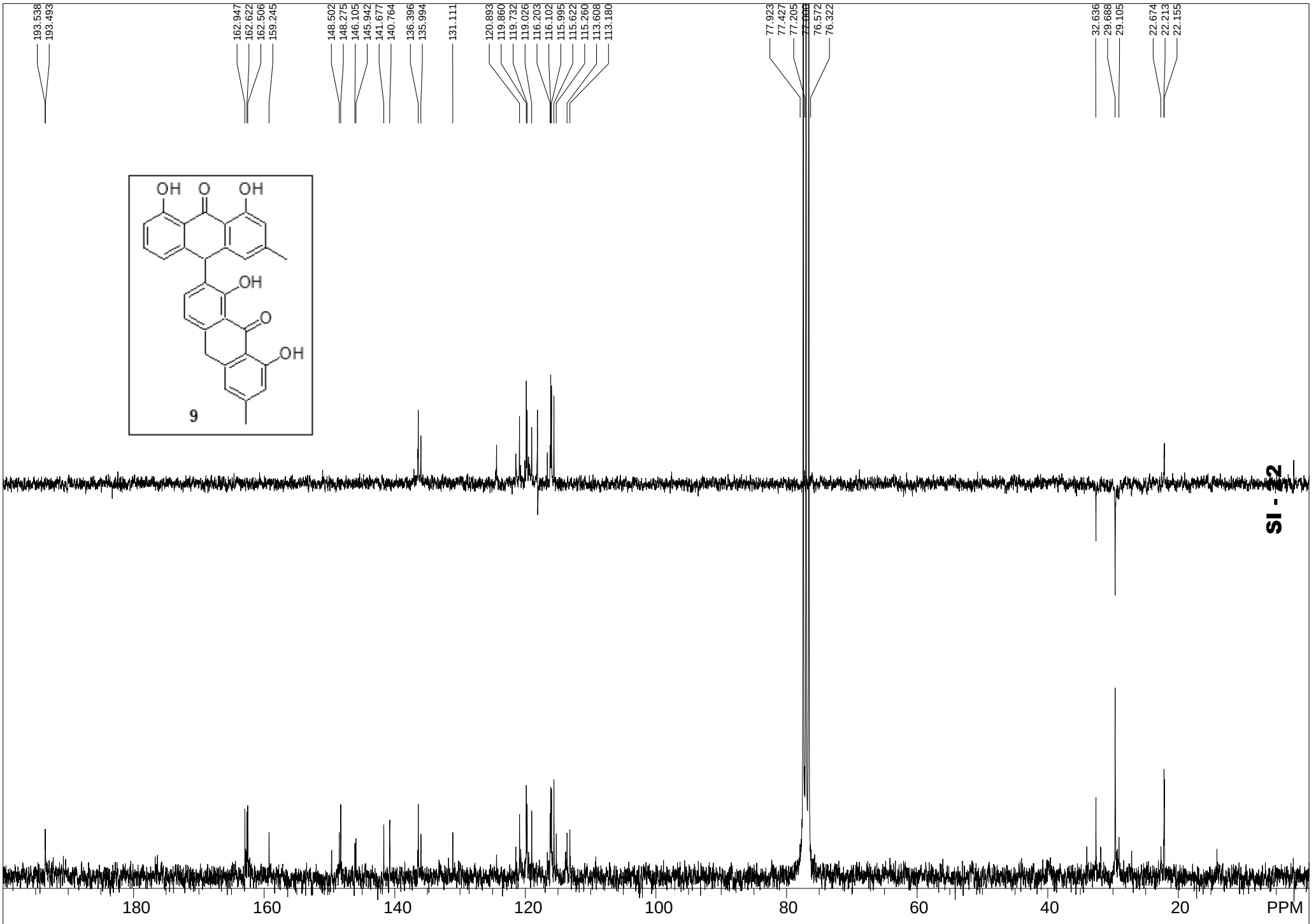
9

SI - 21

12 10 8 6 4 2 PPM

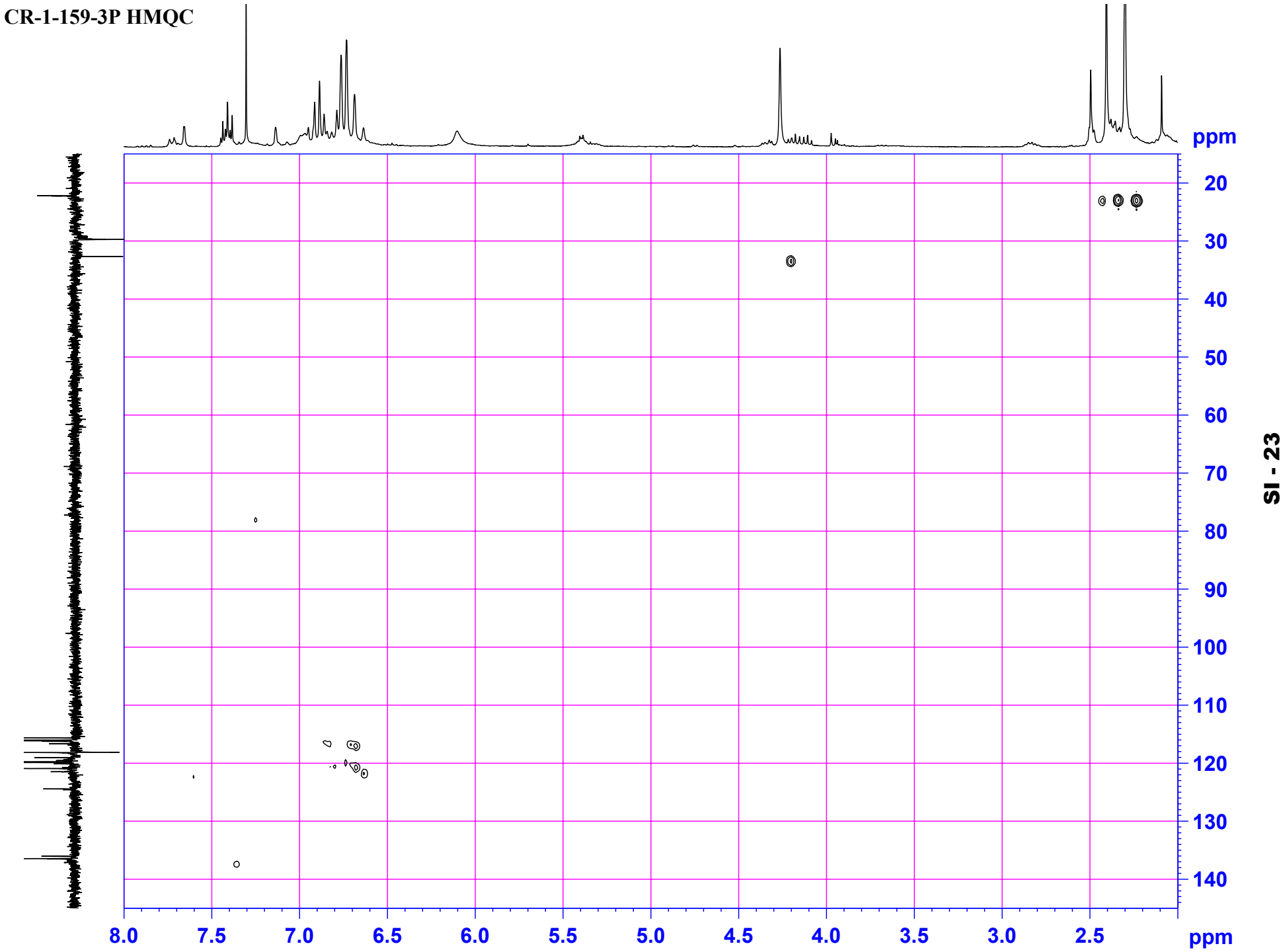
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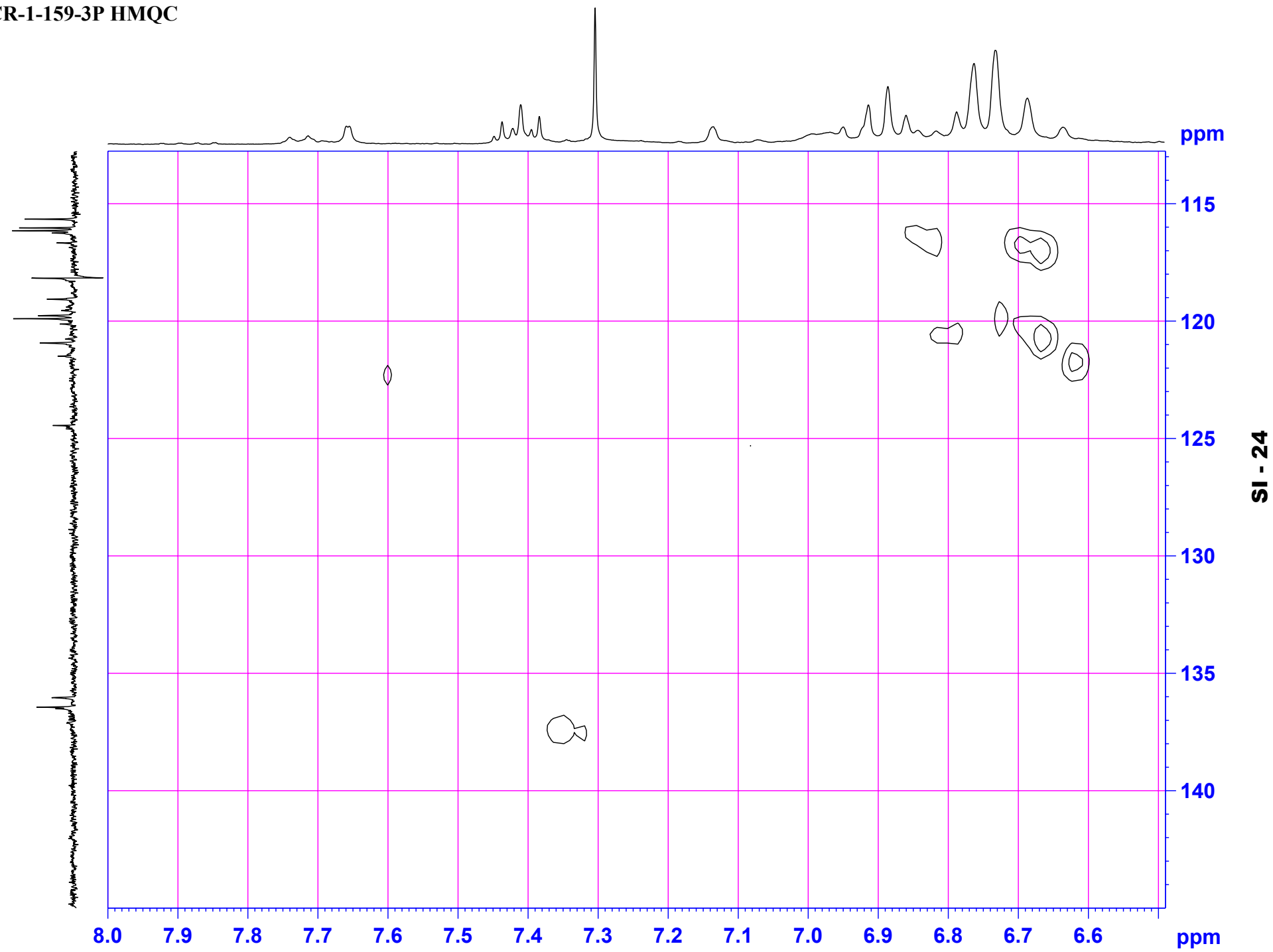


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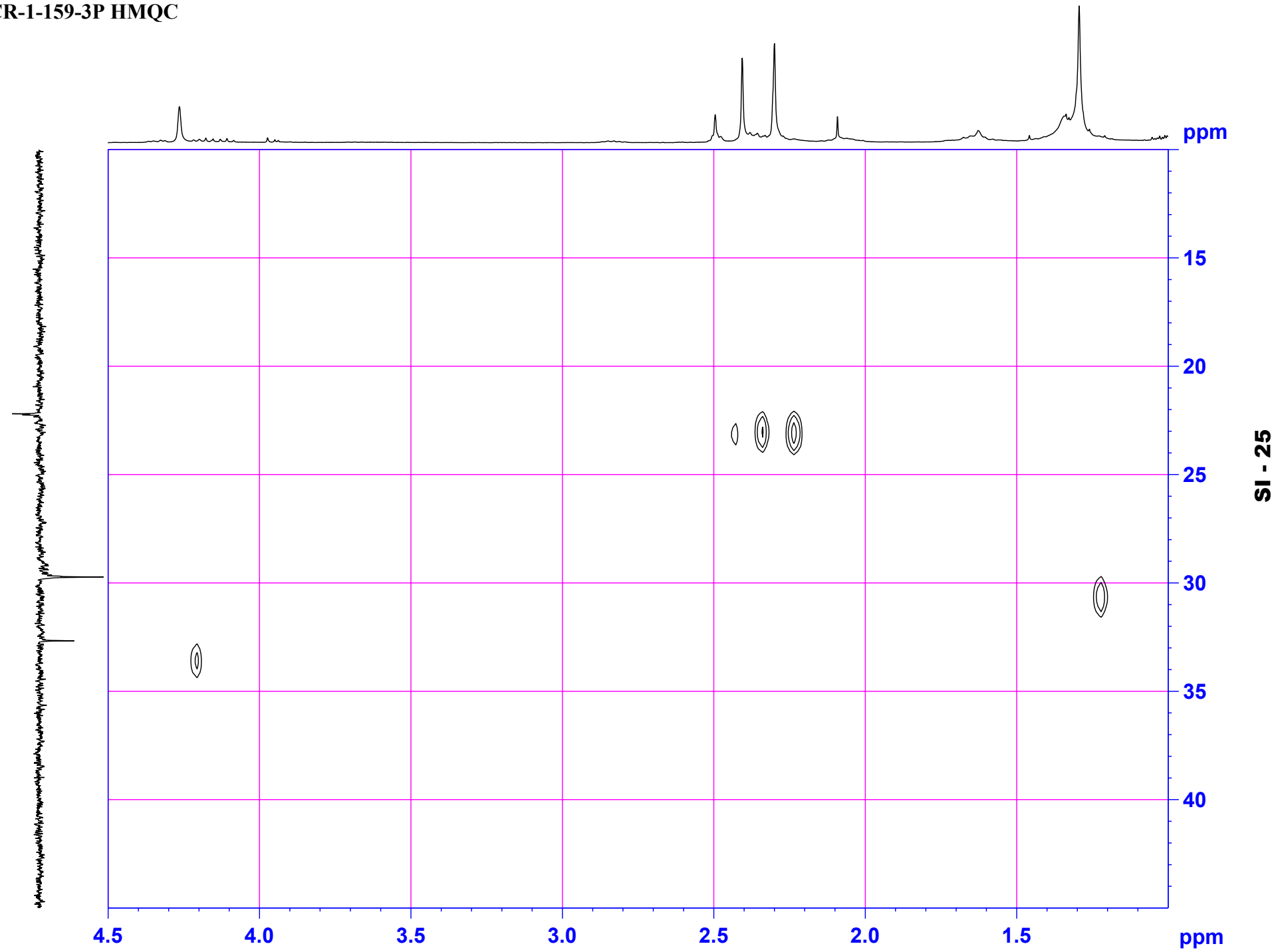
F1: 75.475	F2: 1.000	SW1: 18116		OF1: 7544.2		PTS1d: 32768
EX: zgpg30		PW: 7.3 usec	PD: 2.0 sec	NA: 2054	LB: 1.8	Nuts - $CR-1-159-3P_2


CR-1-159-3P HMQC
ppm
20
30
40
50
60
70
80
90
100
110
120
130
140
SI - 23
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
ppm

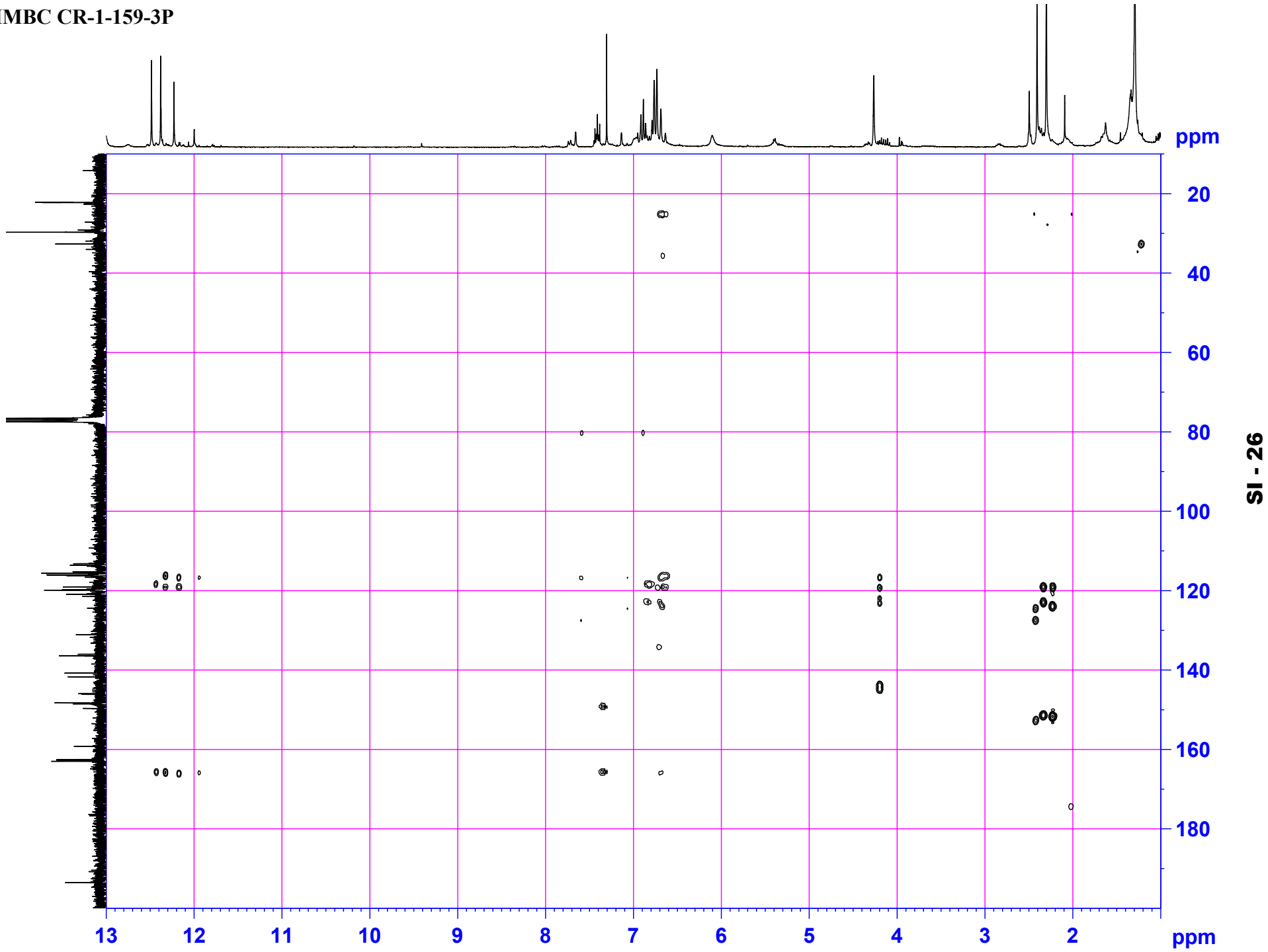
CR-1-159-3P HMQC



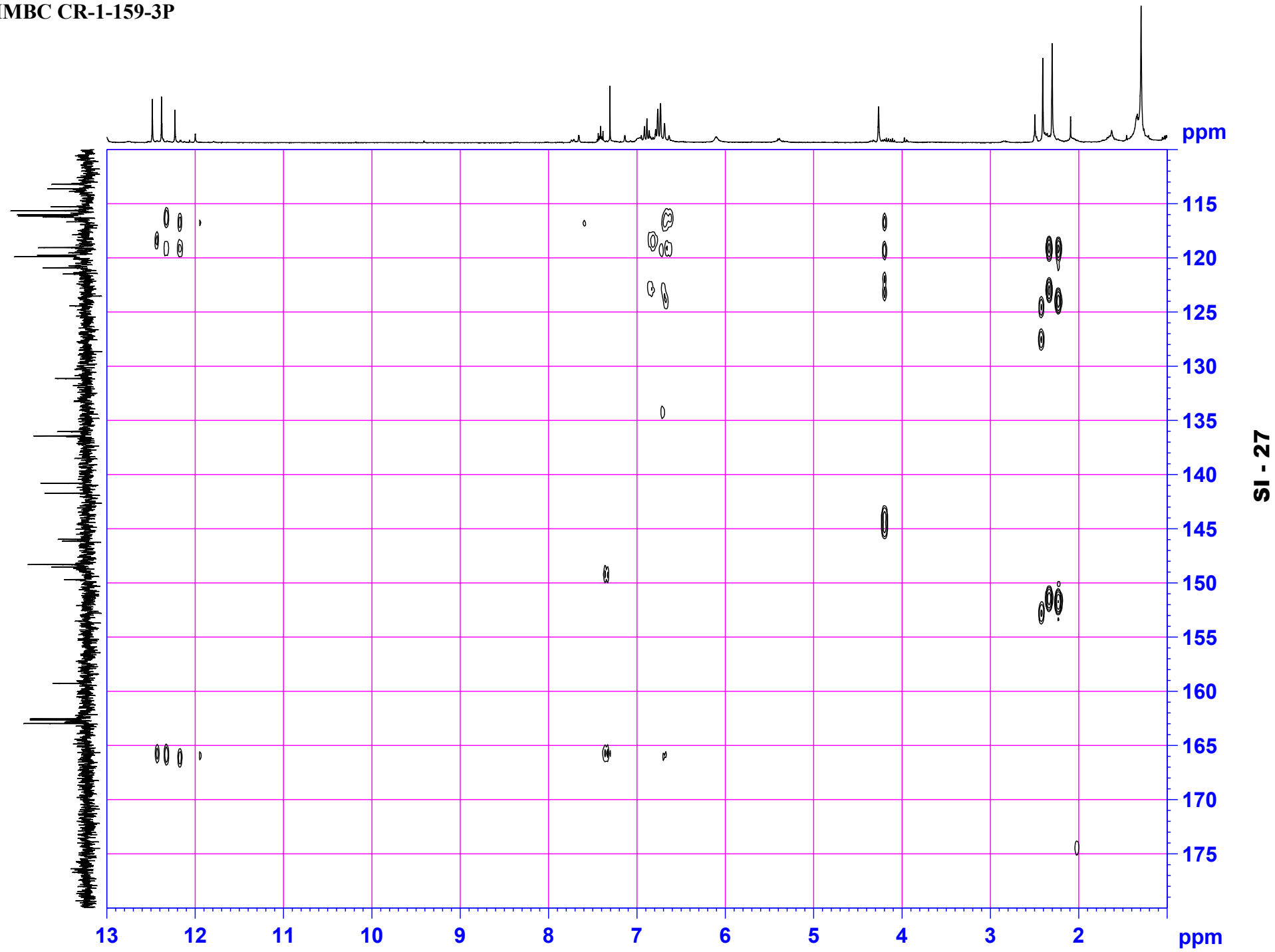
CR-1-159-3P HMQC

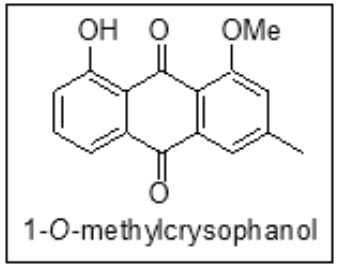


HMBC CR-1-159-3P



HMBC CR-1-159-3P





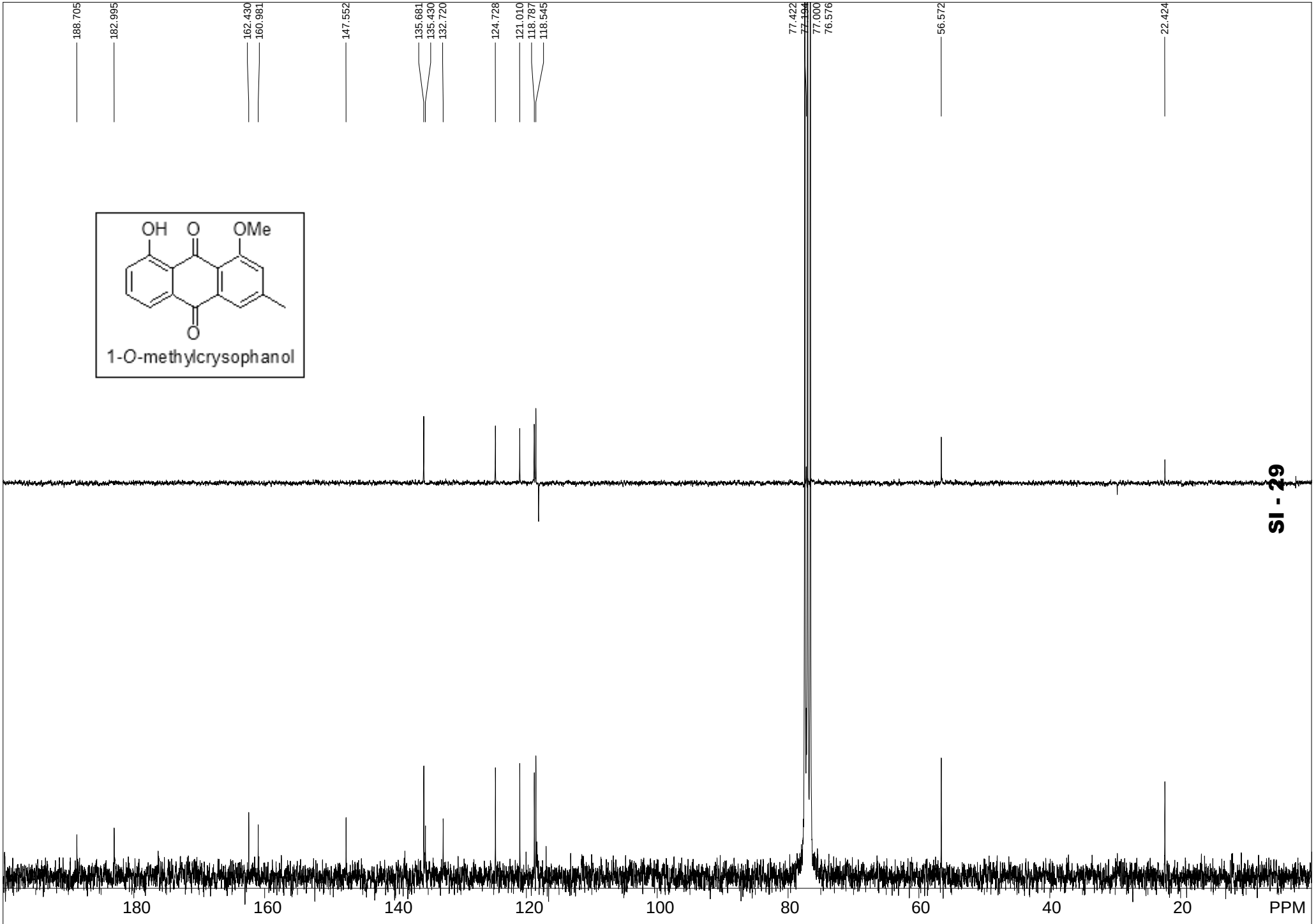
1-*O*-methylcrysophanol

SI - 28

12 10 8 6 4 2 PPM

USER: root -- DATE: Thu Mar 28 19:53:57 2013

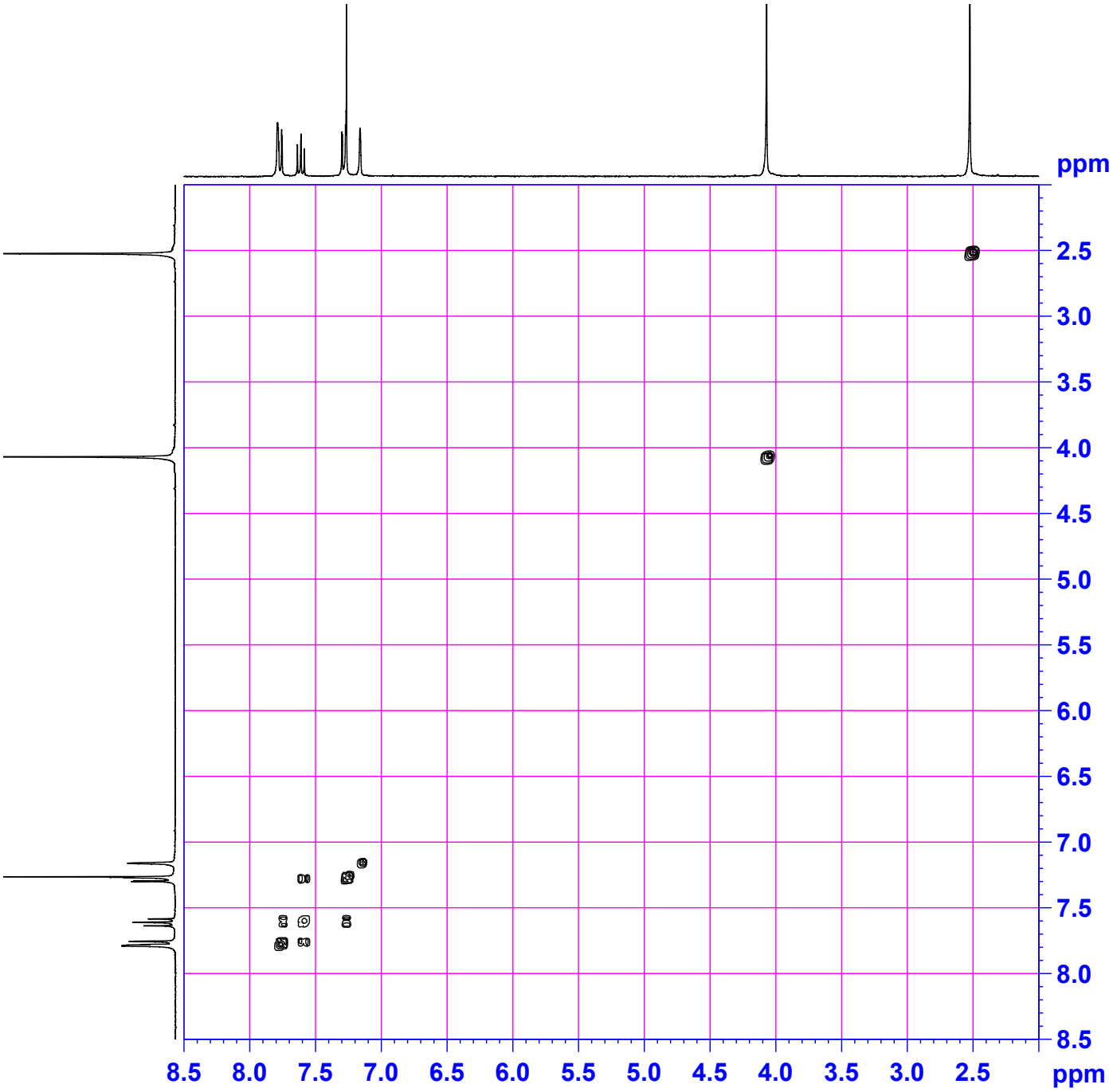
F1: 300.132	F2: 1.000	SW1: 6173		OF1: 1848.6		PTS1d: 32768	
EX: zg30		PW: 7.5 usec	PD: 1.0 sec	NA: 16	LB: 0.2	Nuts - $CR-1-173-3b-cris_1	



USER: root -- DATE: m

F1: 75.475	F2: 1.000	SW1: 18116		OF1: 7544.2		PTS1d: 32768
EX: zgpg30		PW: 7.3 usec	PD: 2.0 sec	NA: 1810	LB: 1.8	Nuts - $CR-1-173-3b-cris_2

COSY CR-1-173-3b-cris




```
Current Data Parameters
NAME      CR-1-173-3b-cris
EXPNO                    4
PROCNO                   1

F2 - Acquisition Parameters
Date_             20130329
Time                 5.53
INSTRUM             spect
PROBHD   5 mm QNP 1H/13
PULPROG          cosygpqf
TD                   4096
SOLVENT             CDCl3
NS                      4
DS                     16
SWH              4496.403 Hz
FIDRES           1.097755 Hz
AQ               0.4555252 sec
RG                     128
DW                111.200 usec
DE                  6.00 usec
TE                 300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
d13           0.00000400 sec
D16           0.00010000 sec
IN0           0.00022240 sec
MCREST        0.00000000 sec
MCWRK         4.00000000 sec

======== CHANNEL f1 ========
NUC1                   1H
P0                  7.20 usec
P1                  7.20 usec
PL1                -3.00 dB
SFO1         300.1315007 MHz

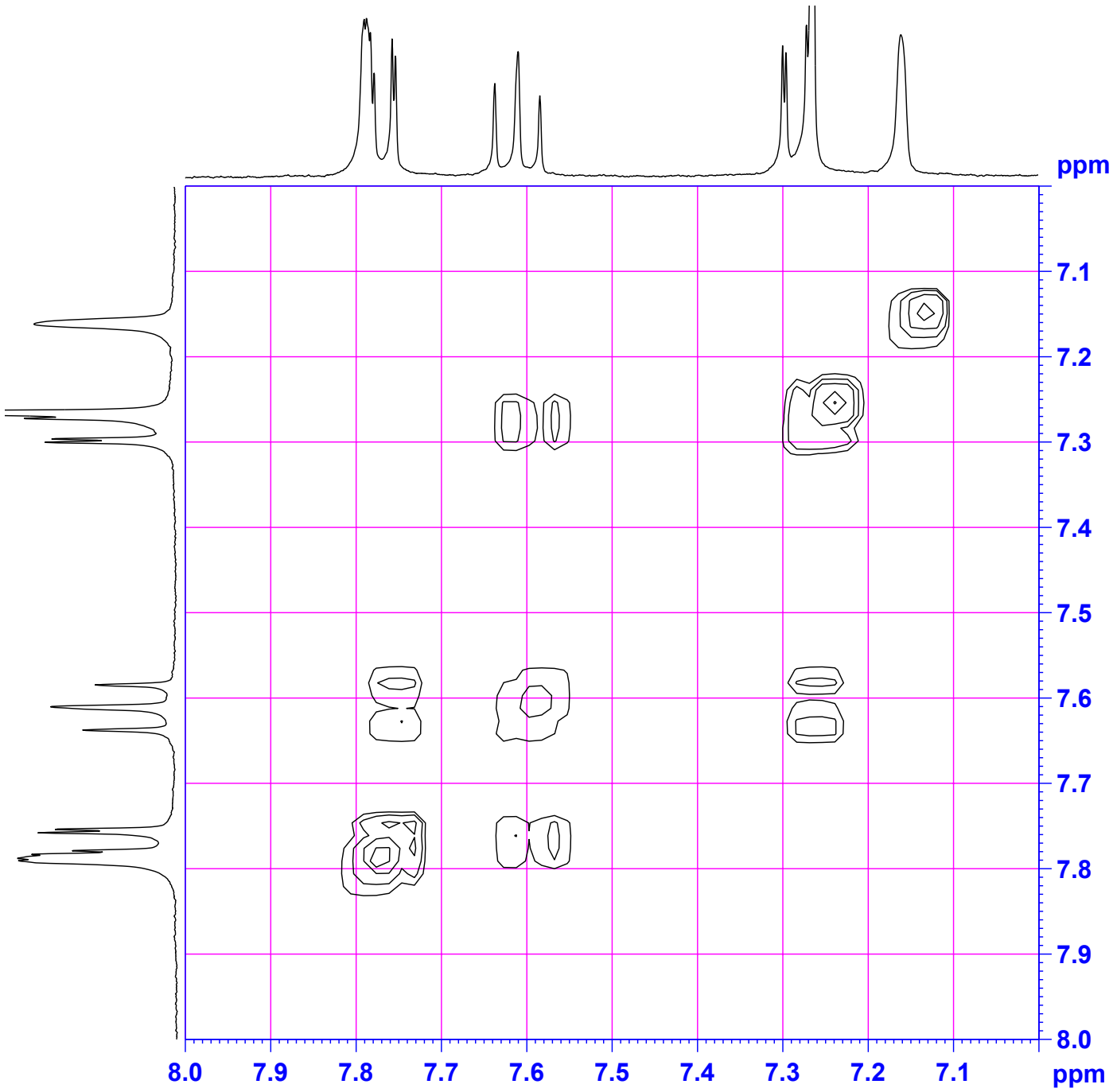
====== GRADIENT CHANNEL =====
GPNAM1          SINE.100
GPNAM2          SINE.100
GPX1                0.00 %
GPX2                0.00 %
GPY1                0.00 %
GPY2                0.00 %
GPZ1               10.00 %
GPZ2               10.00 %
P16              1000.00 usec

F1 - Acquisition parameters
ND0                    1
TD                   256
SFO1           300.1315 MHz
FIDRES        17.564074 Hz
SW               14.981 ppm
FnMODE                QF

F2 - Processing parameters
SI                  1024
SF           300.1300105 MHz
WDW                 SINE
SSB                    0
LB                  0.00 Hz
GB                     0
PC                  1.00

F1 - Processing parameters
SI                  1024
MC2                   QF
SF           300.1300105 MHz
WDW                 SINE
SSB                    0
LB                  0.00 Hz
GB                     0
```

COSY CR-1-173-3b-cris




```
Current Data Parameters
NAME      CR-1-173-3b-cris
EXPNO                    4
PROCNO                   1

F2 - Acquisition Parameters
Date_             20130329
Time                 5.53
INSTRUM             spect
PROBHD   5 mm QNP 1H/13
PULPROG          cosygpqf
TD                   4096
SOLVENT             CDCl3
NS                      4
DS                     16
SWH              4496.403 Hz
FIDRES           1.097755 Hz
AQ               0.4555252 sec
RG                     128
DW                 111.200 usec
DE                   6.00 usec
TE                  300.0 K
d0               0.00000300 sec
D1               4.00000000 sec
d13              0.00000400 sec
D16              0.00010000 sec
IN0              0.00022240 sec
MCREST           0.00000000 sec
MCWRK            4.00000000 sec

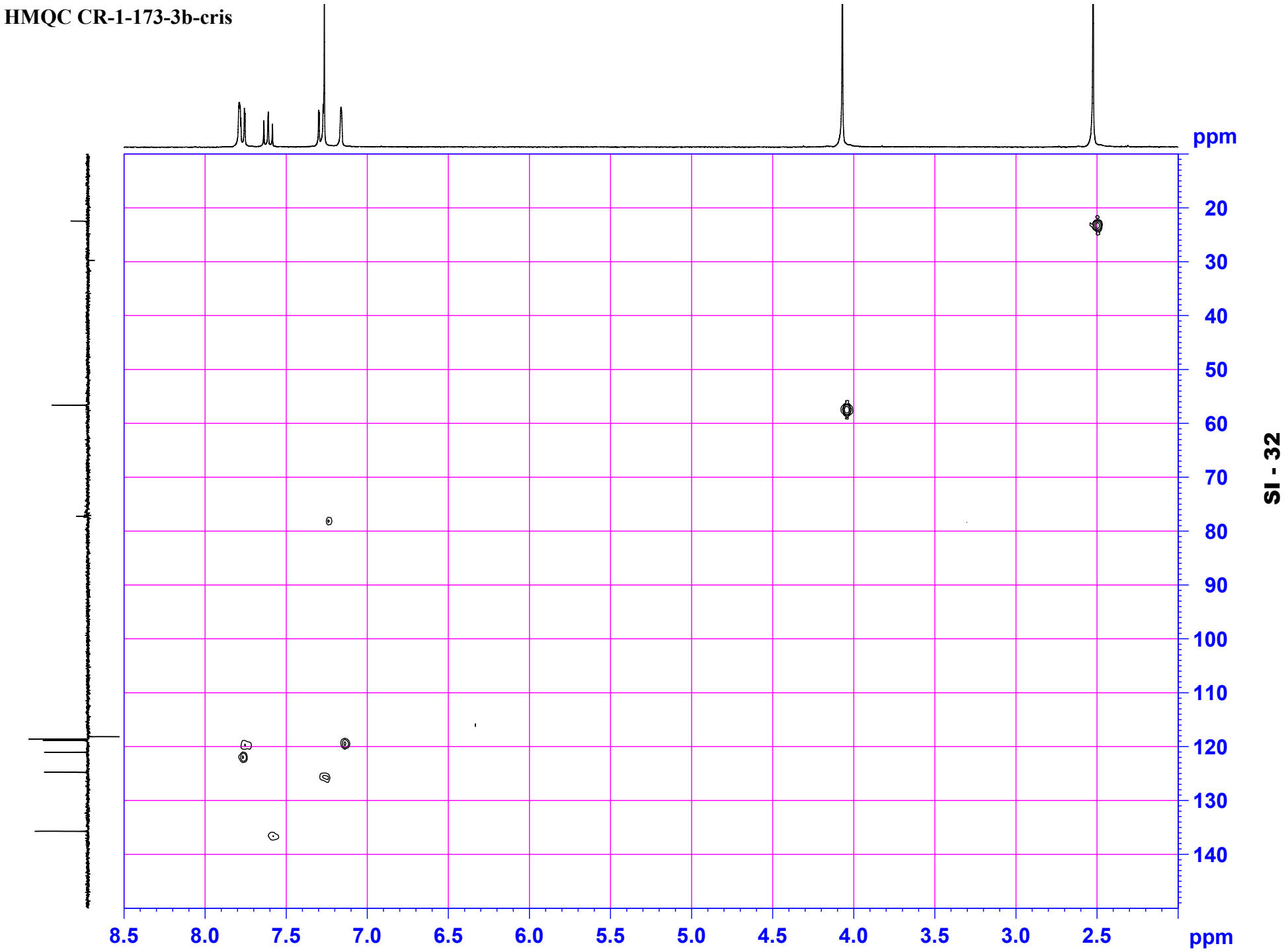
======== CHANNEL f1 ========
NUC1                    1H
P0                    7.20 usec
P1                    7.20 usec
PL1                  -3.00 dB
SFO1          300.1315007 MHz

====== GRADIENT CHANNEL =====
GPNAM1           SINE.100
GPNAM2           SINE.100
GPX1                 0.00 %
GPX2                 0.00 %
GPY1                 0.00 %
GPY2                 0.00 %
GPZ1                10.00 %
GPZ2                10.00 %
P16               1000.00 usec

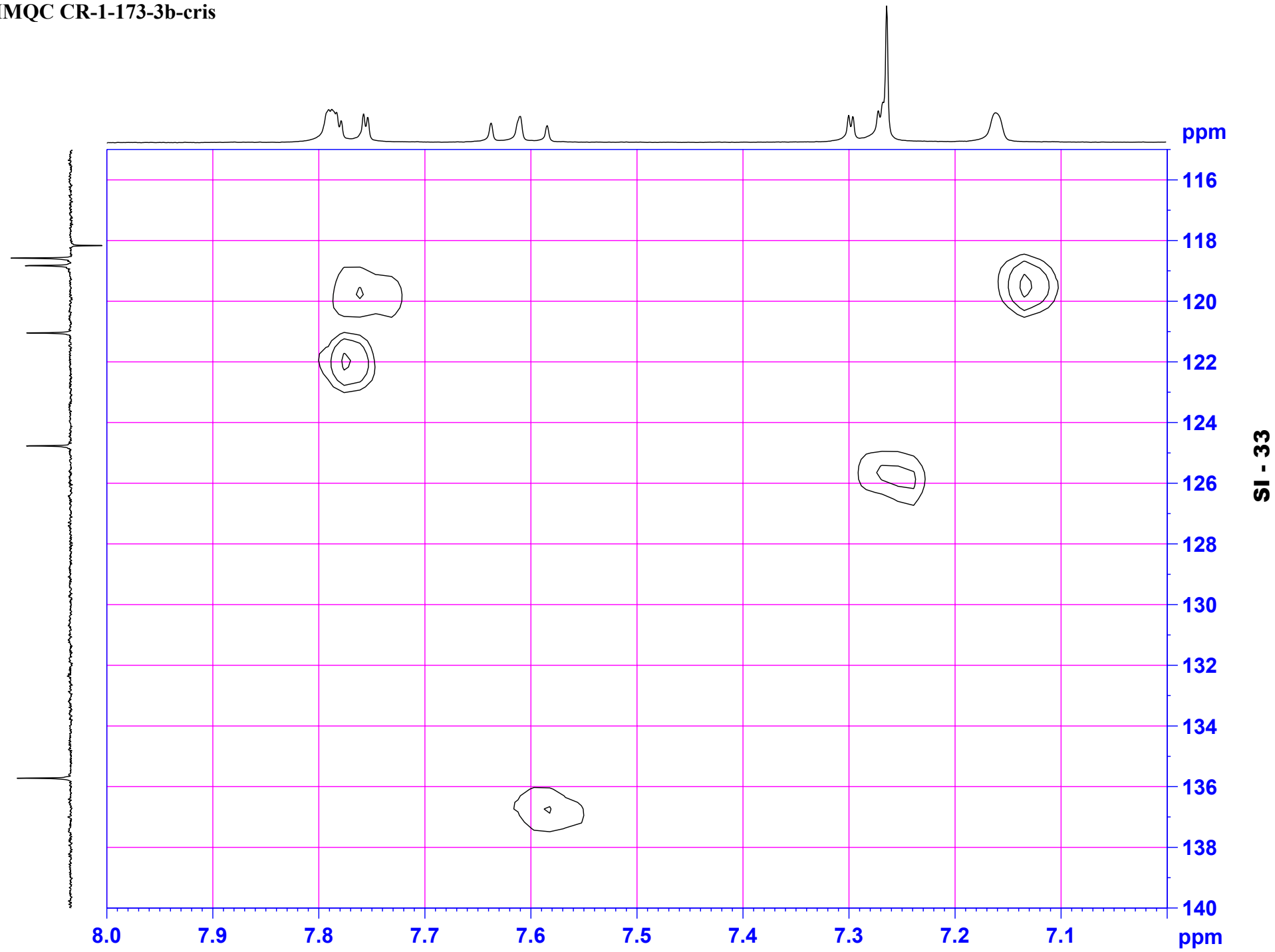
F1 - Acquisition parameters
ND0                     1
TD                    256
SFO1           300.1315 MHz
FIDRES         17.564074 Hz
SW                14.981 ppm
FnMODE                 QF

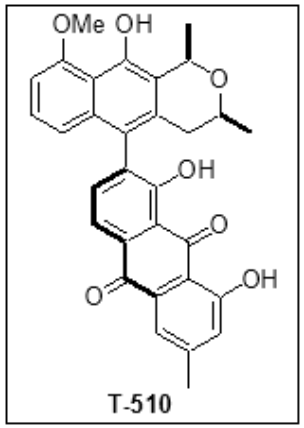
F2 - Processing parameters
SI                   1024
SF            300.1300105 MHz
WDW                  SINE
SSB                     0
LB                   0.00 Hz
GB                      0
PC                   1.00

F1 - Processing parameters
SI                   1024
MC2                    QF
SF            300.1300105 MHz
WDW                  SINE
SSB                     0
LB                   0.00 Hz
GB                      0
```


HMQC CR-1-173-3b-cris
ppm
20
30
40
50
60
70
80
90
100
110
120
130
140
SI - 32
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
ppm

HMQC CR-1-173-3b-cris





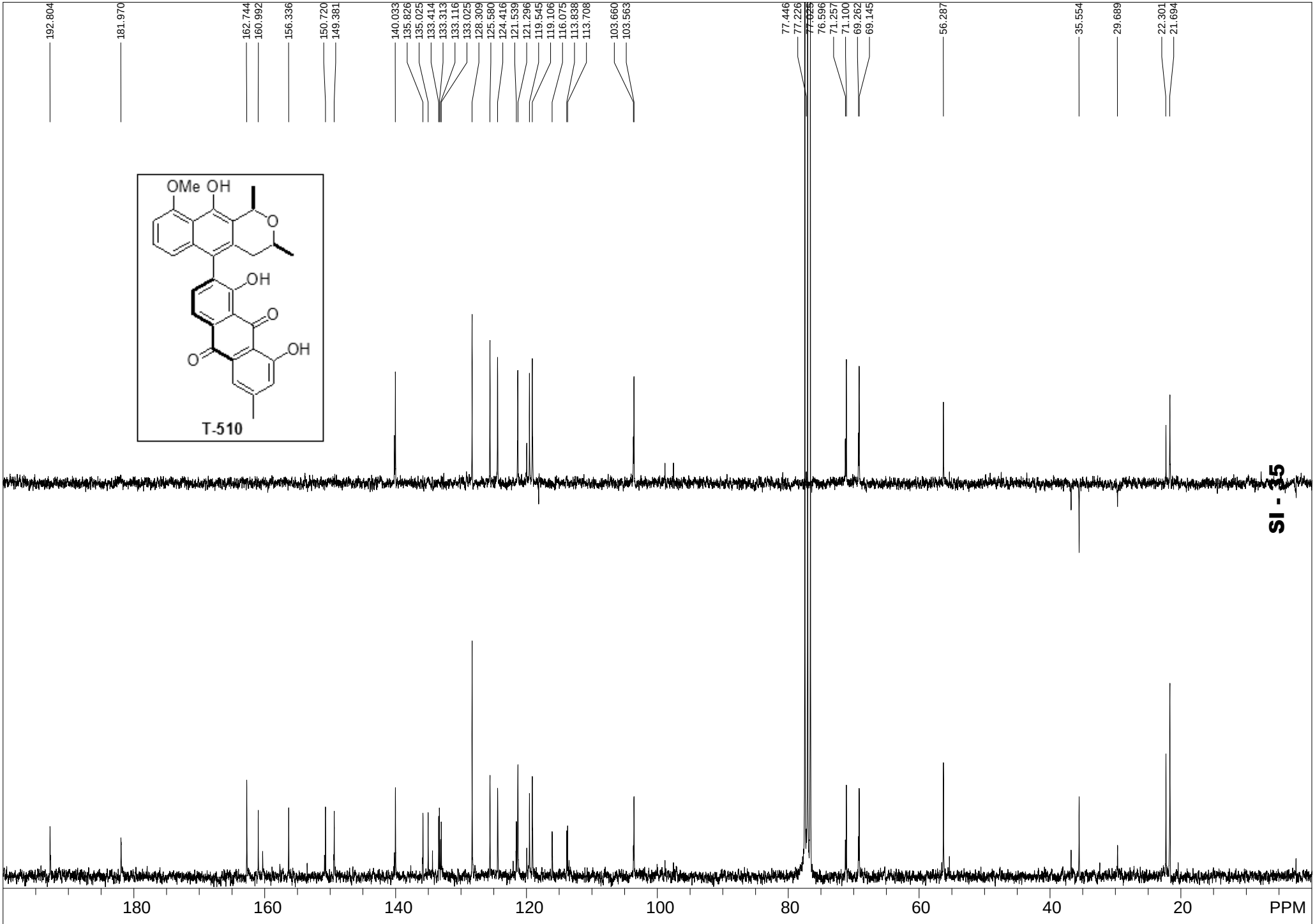
T-510

SI - 34

12 10 8 6 4 2 PPM

USER: root -- DATE: Wed Mar 06 17:06:51 2013

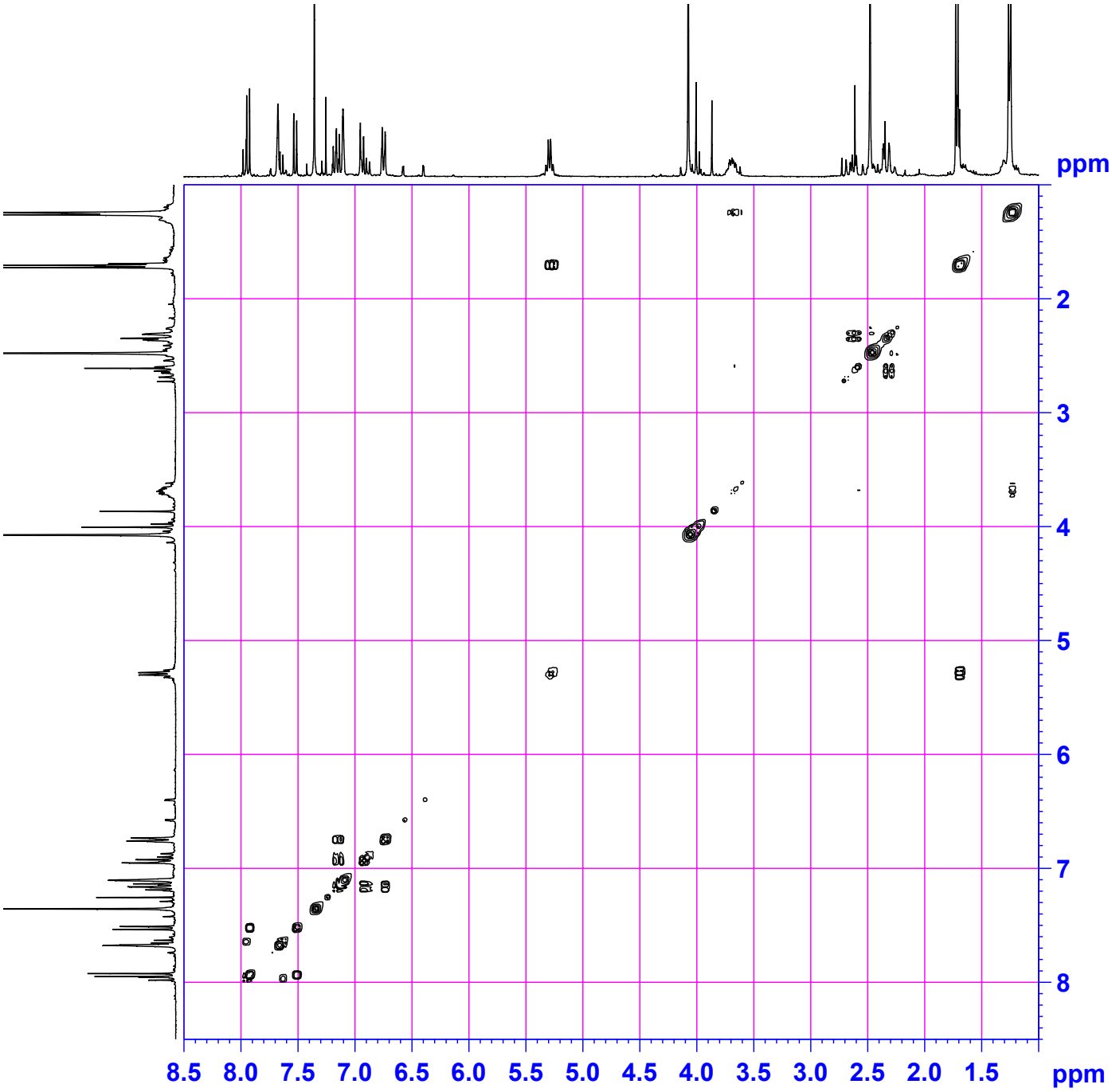
F1: 300.132	F2: 1.000	SW1: 6173		OF1: 1845.8		PTS1d: 32768
EX: zg30		PW: 7.5 usec	PD: 1.0 sec	NA: 16	LB: 0.2	Nuts - $CR-1-173-1b_1



USER: root -- DATE: Thu Mar 07 16:28:06 2013

F1: 75.475	F2: 1.000	SW1: 18116		OF1: 7543.7		PTS1d: 32768	
EX: zgpg30		PW: 7.3 usec	PD: 2.0 sec	NA: 887	LB: 1.8	Nuts - $CR-1-173-1b_2	

COSY CR-1-173-1b



BRUKER

```
Current Data Parameters
NAME         CR-1-173-1b
EXPNO                  4
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130307
Time              13.39
INSTRUM           spect
PROBHD   5 mm QNP 1H/13
PULPROG        cosygpqf
TD                 4096
SOLVENT            CDCl3
NS                    4
DS                   16
SWH            4496.403 Hz
FIDRES         1.097755 Hz
AQ             0.4555252 sec
RG                  128
DW              111.200 usec
DE                6.00 usec
TE                300.0 K
d0           0.00000300 sec
D1           4.00000000 sec
d13          0.00000400 sec
D16          0.00010000 sec
IN0          0.00022240 sec
MCREST       0.00000000 sec
MCWRK        4.00000000 sec

======== CHANNEL f1 ========
NUC1                1H
P0                7.20 usec
P1                7.20 usec
PL1              -3.00 dB
SFO1        300.1315007 MHz

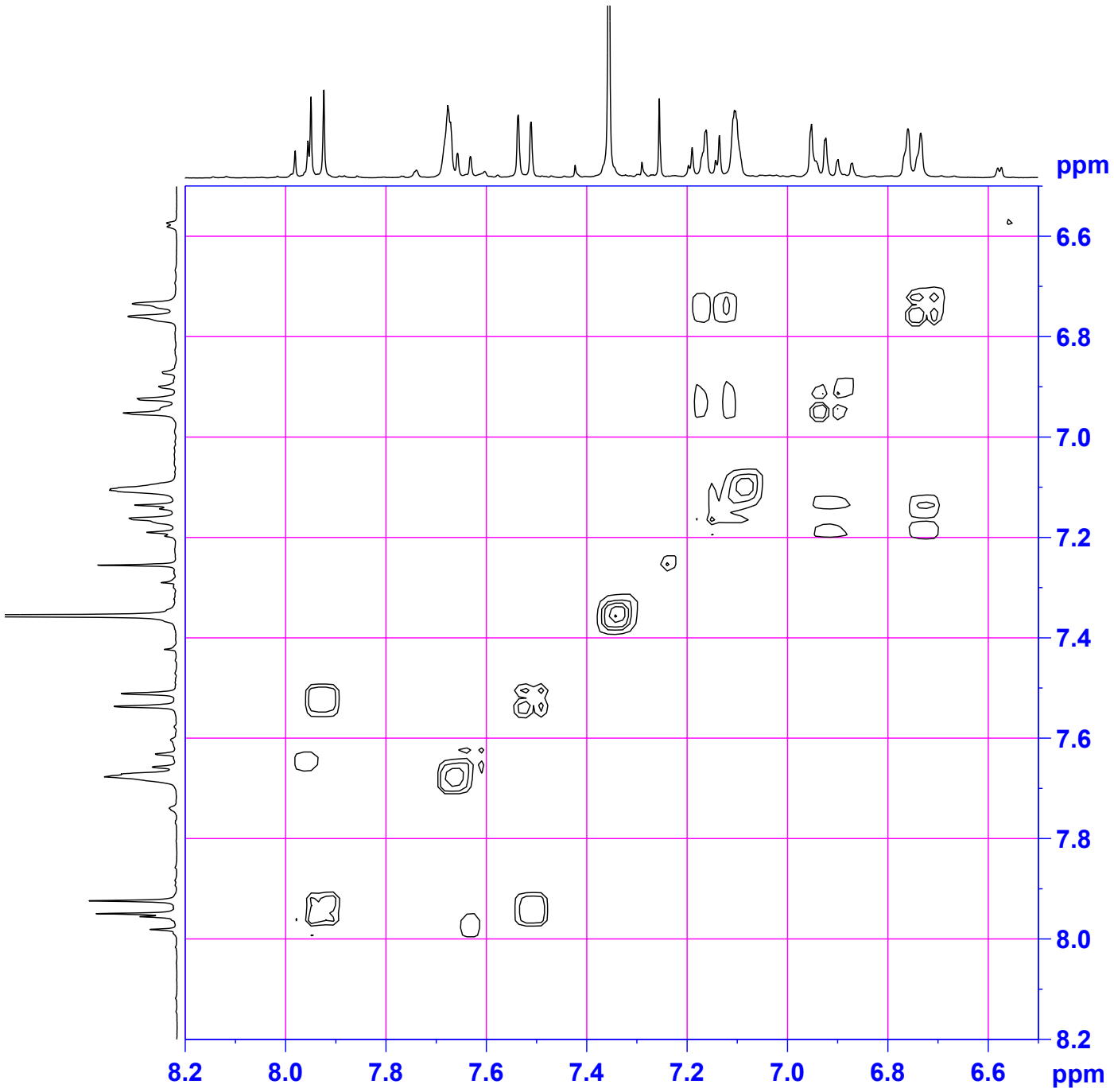
====== GRADIENT CHANNEL =====
GPNAM1         SINE.100
GPNAM2         SINE.100
GPX1              0.00 %
GPX2              0.00 %
GPY1              0.00 %
GPY2              0.00 %
GPZ1             10.00 %
GPZ2             10.00 %
P16            1000.00 usec

F1 - Acquisition parameters
ND0                   1
TD                  256
SFO1        300.1315 MHz
FIDRES       17.564074 Hz
SW             14.981 ppm
FnMODE              QF

F2 - Processing parameters
SI                 1024
SF          300.1300105 MHz
WDW                SINE
SSB                   0
LB                0.00 Hz
GB                    0
PC                1.00

F1 - Processing parameters
SI                 1024
MC2                  QF
SF          300.1300105 MHz
WDW                SINE
SSB                   0
LB                0.00 Hz
GB                    0
```

COSY CR-1-173-1b




```
Current Data Parameters
NAME         CR-1-173-1b
EXPNO                  4
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130307
Time              13.39
INSTRUM           spect
PROBHD   5 mm QNP 1H/13
PULPROG        cosygpqf
TD                4096
SOLVENT           CDCl3
NS                   4
DS                  16
SWH            4496.403 Hz
FIDRES         1.097755 Hz
AQ            0.4555252 sec
RG                 128
DW              111.200 usec
DE                6.00 usec
TE                300.0 K
d0           0.00000300 sec
D1           4.00000000 sec
d13          0.00000400 sec
D16          0.00010000 sec
IN0          0.00022240 sec
MCREST       0.00000000 sec
MCWRK        4.00000000 sec

======== CHANNEL f1 ========
NUC1                1H
P0                7.20 usec
P1                7.20 usec
PL1              -3.00 dB
SFO1        300.1315007 MHz

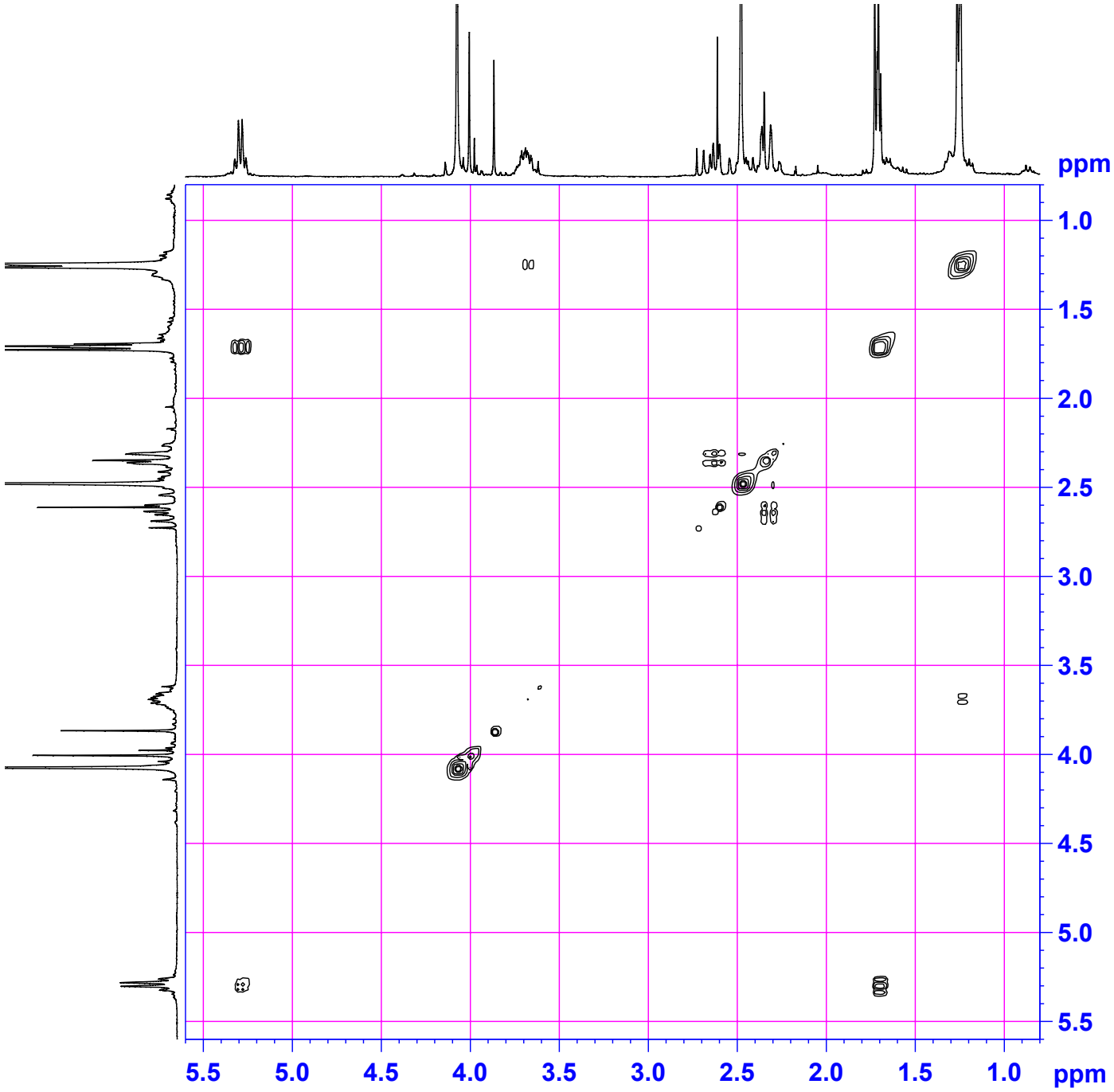
====== GRADIENT CHANNEL =====
GPNAM1         SINE.100
GPNAM2         SINE.100
GPX1              0.00 %
GPX2              0.00 %
GPY1              0.00 %
GPY2              0.00 %
GPZ1             10.00 %
GPZ2             10.00 %
P16            1000.00 usec

F1 - Acquisition parameters
ND0                  1
TD                 256
SFO1        300.1315 MHz
FIDRES     17.564074 Hz
SW            14.981 ppm
FnMODE             QF

F2 - Processing parameters
SI                1024
SF        300.1300105 MHz
WDW               SINE
SSB                  0
LB                0.00 Hz
GB                   0
PC                1.00

F1 - Processing parameters
SI                1024
MC2                QF
SF        300.1300105 MHz
WDW               SINE
SSB                  0
LB                0.00 Hz
GB                   0
```

COSY CR-1-173-1b




```
Current Data Parameters
NAME          CR-1-173-1b
EXPNO                   4
PROCNO                  1

F2 - Acquisition Parameters
Date_            20130307
Time                13.39
INSTRUM             spect
PROBHD   5 mm QNP 1H/13
PULPROG          cosygpqf
TD                  4096
SOLVENT             CDCl3
NS                     4
DS                    16
SWH              4496.403 Hz
FIDRES           1.097755 Hz
AQ               0.4555252 sec
RG                   128
DW                111.200 usec
DE                  6.00 usec
TE                 300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
d13           0.00000400 sec
D16           0.00010000 sec
IN0           0.00022240 sec
MCREST        0.00000000 sec
MCWRK         4.00000000 sec

======== CHANNEL f1 ========
NUC1                   1H
P0                   7.20 usec
P1                   7.20 usec
PL1                 -3.00 dB
SFO1          300.1315007 MHz

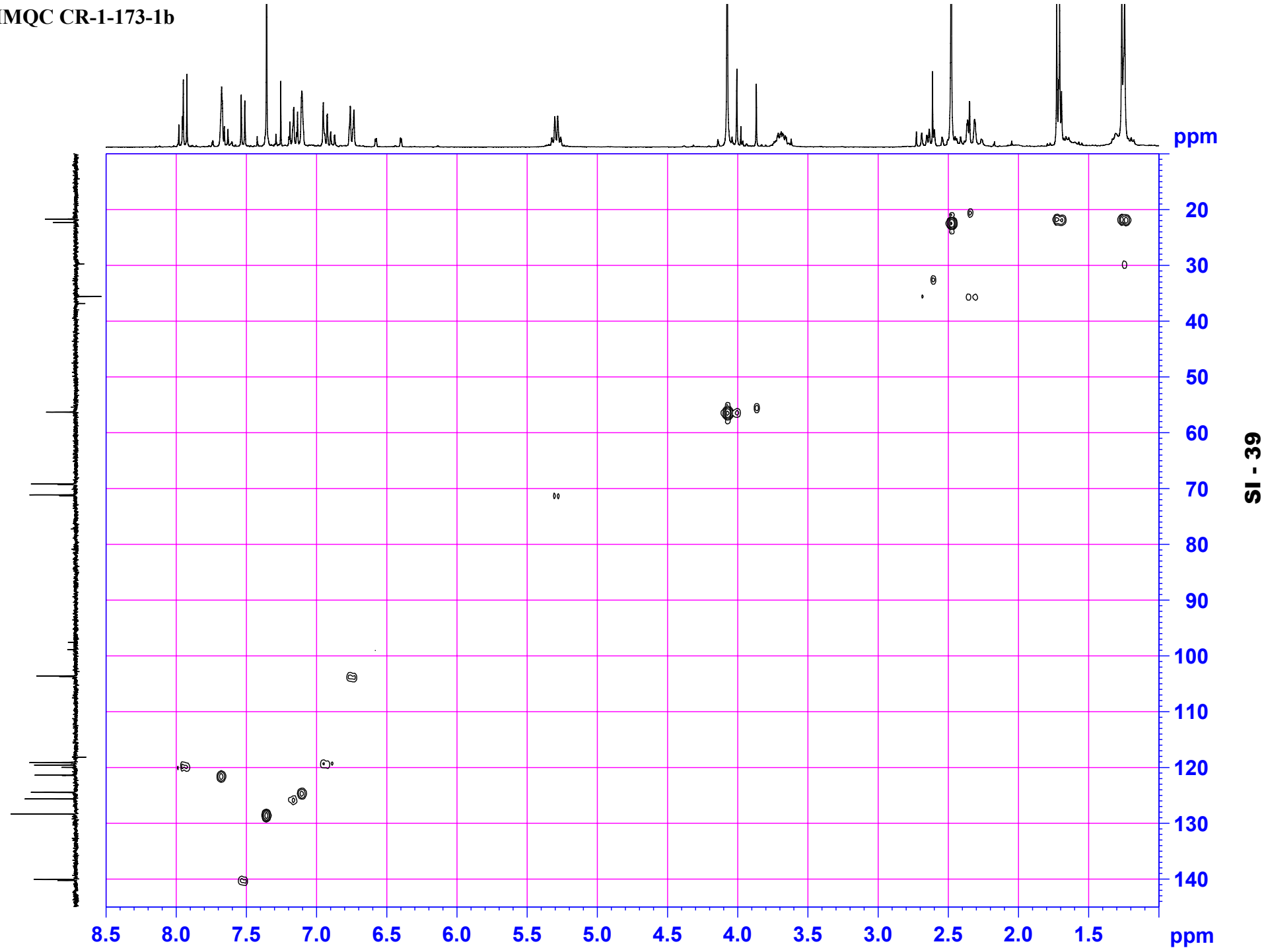
====== GRADIENT CHANNEL =====
GPNAM1           SINE.100
GPNAM2           SINE.100
GPX1                 0.00 %
GPX2                 0.00 %
GPY1                 0.00 %
GPY2                 0.00 %
GPZ1                10.00 %
GPZ2                10.00 %
P16               1000.00 usec

F1 - Acquisition parameters
ND0                    1
TD                   256
SFO1           300.1315 MHz
FIDRES         17.564074 Hz
SW                14.981 ppm
FnMODE                QF

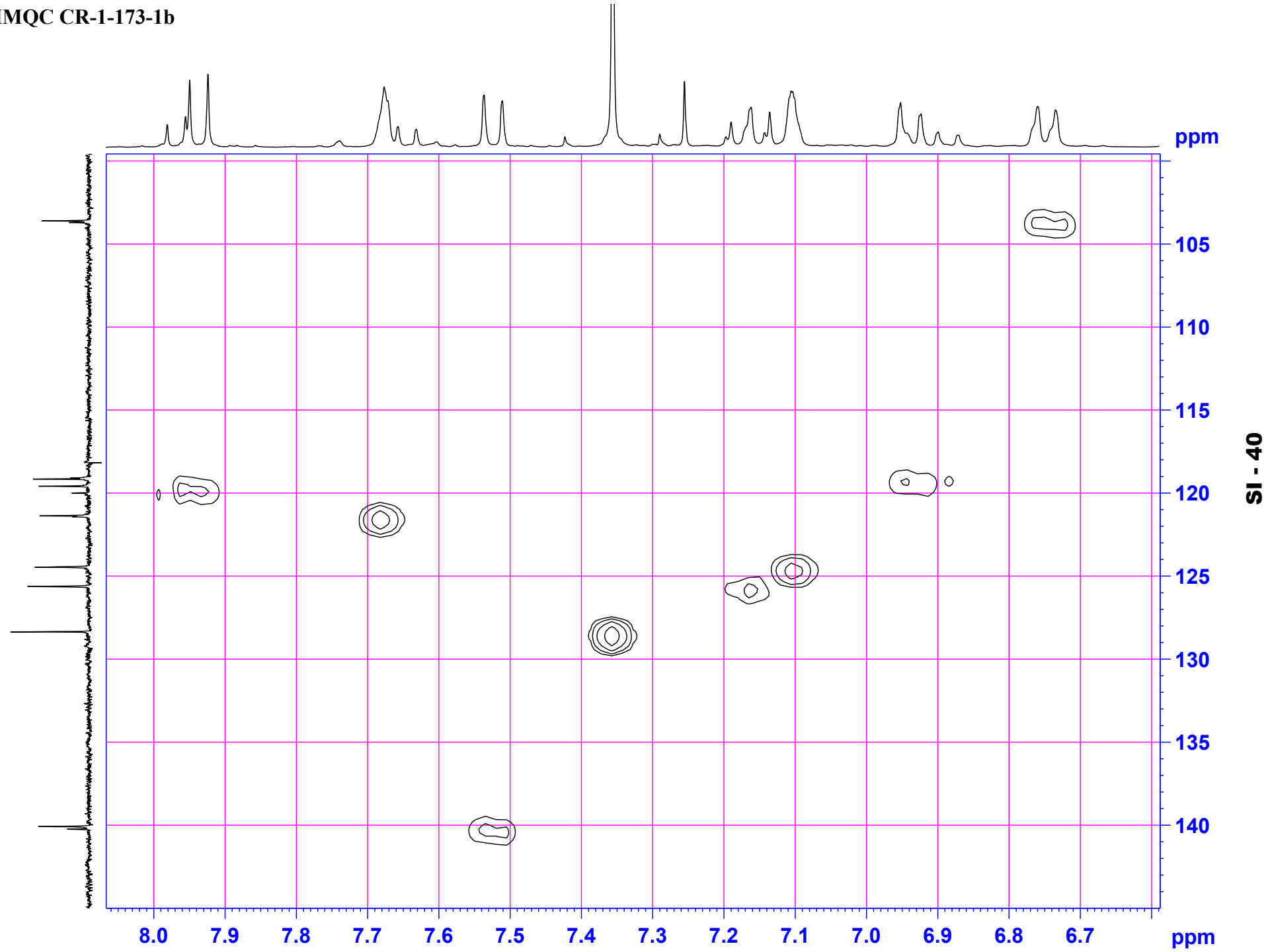
F2 - Processing parameters
SI                  1024
SF           300.1300105 MHz
WDW                 SINE
SSB                    0
LB                  0.00 Hz
GB                     0
PC                  1.00

F1 - Processing parameters
SI                  1024
MC2                   QF
SF           300.1300105 MHz
WDW                 SINE
SSB                    0
LB                  0.00 Hz
GB                     0
```

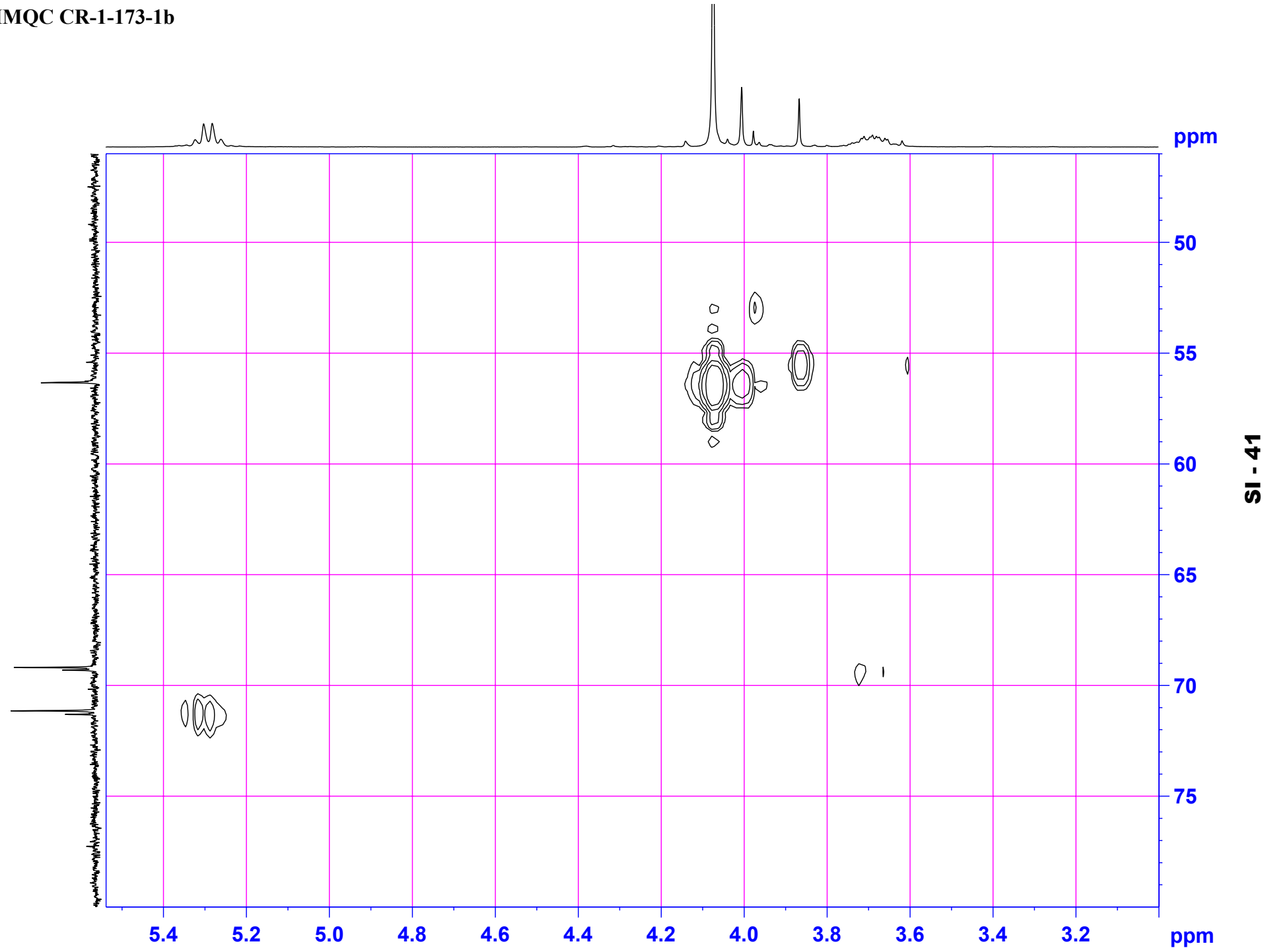
HMQC CR-1-173-1b



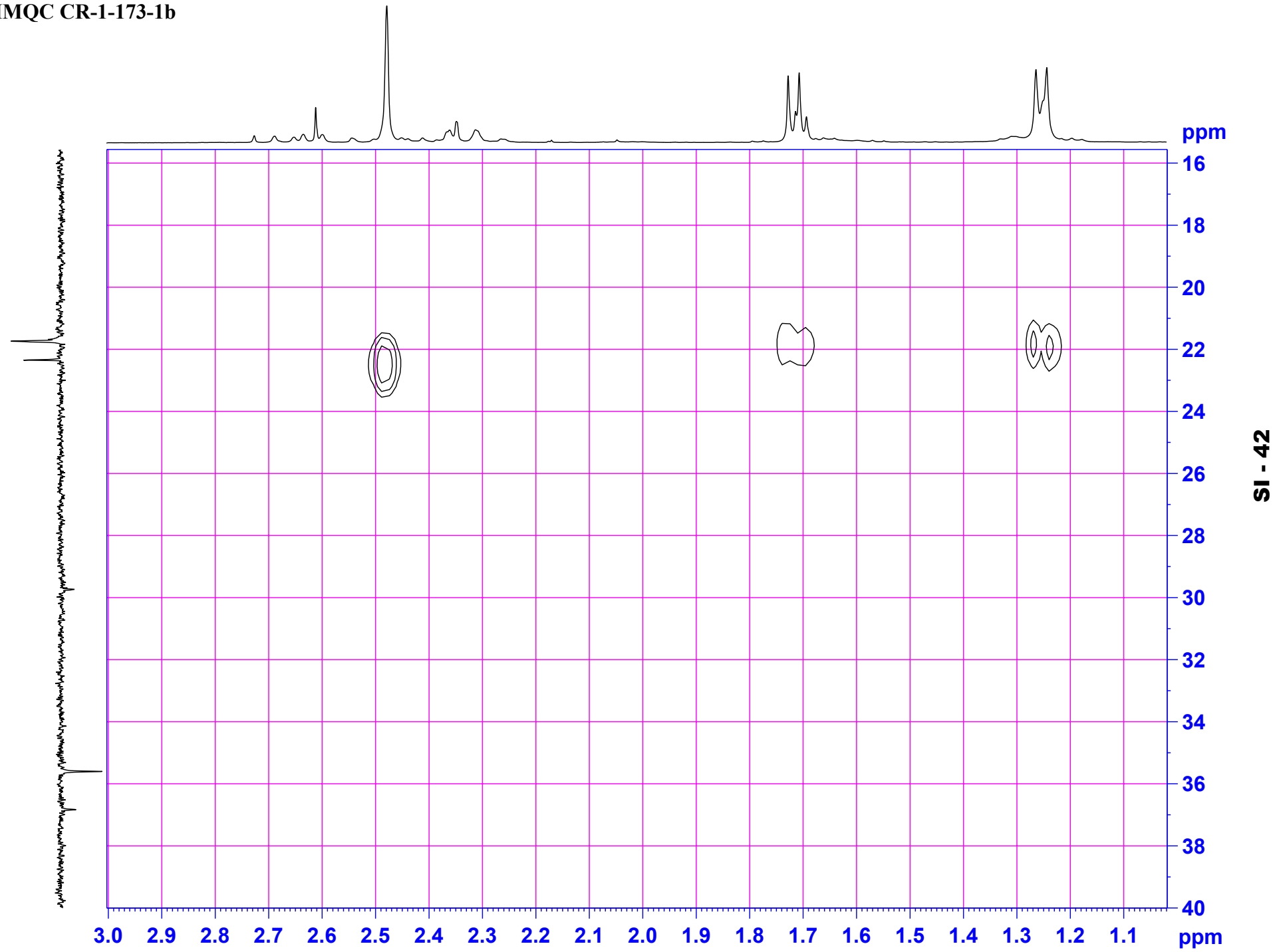
HMQC CR-1-173-1b



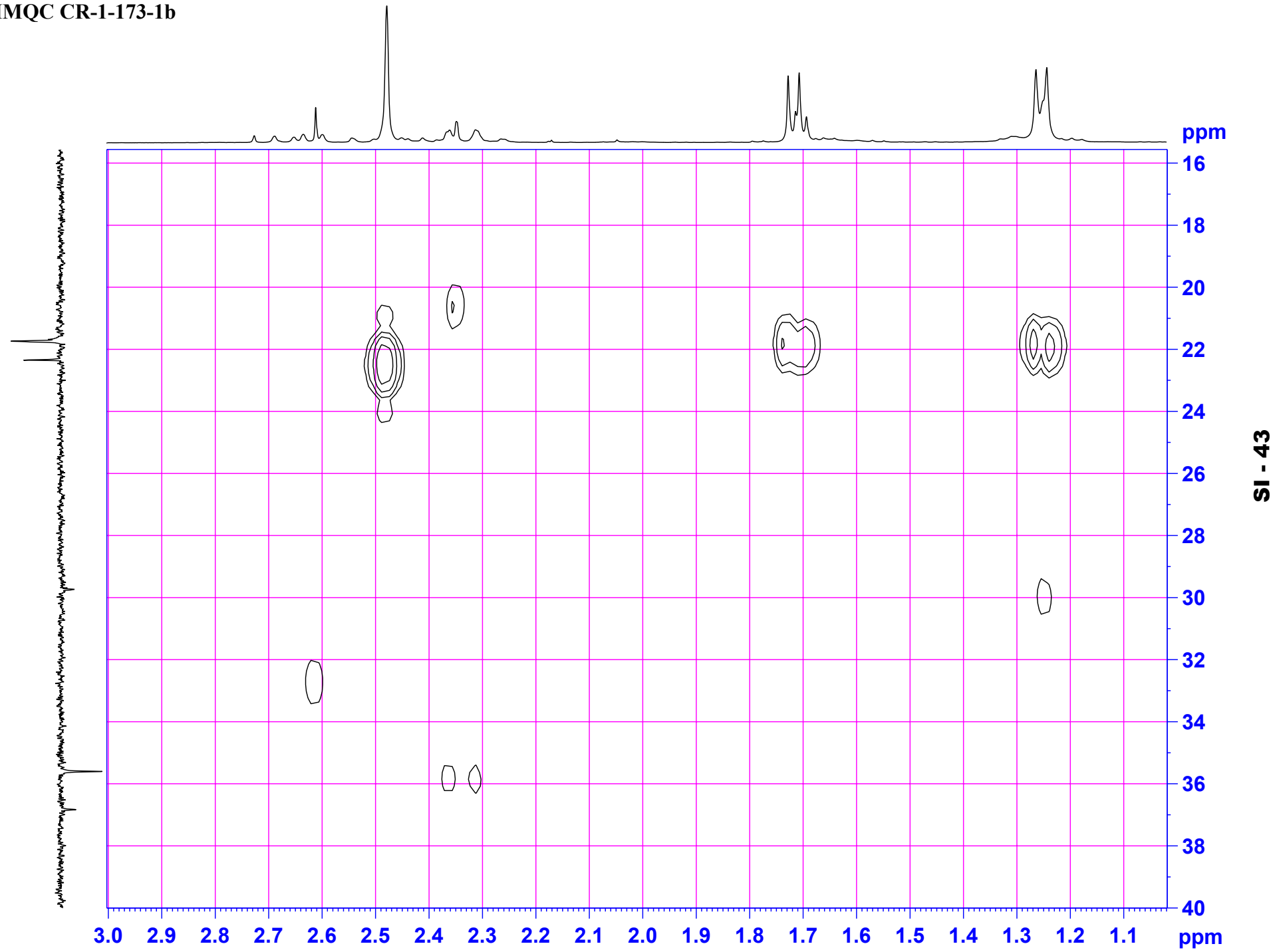
HMQC CR-1-173-1b

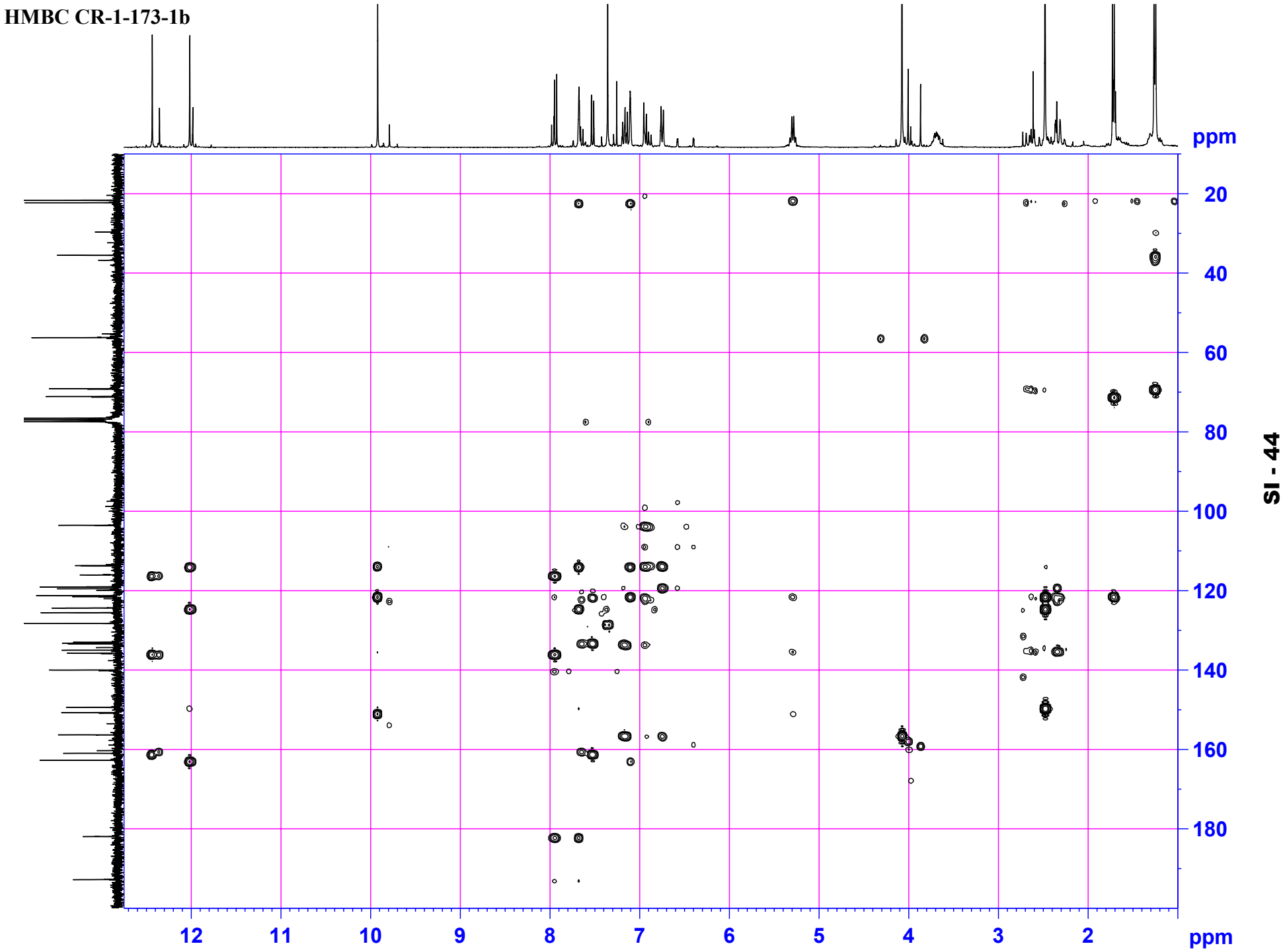


HMQC CR-1-173-1b

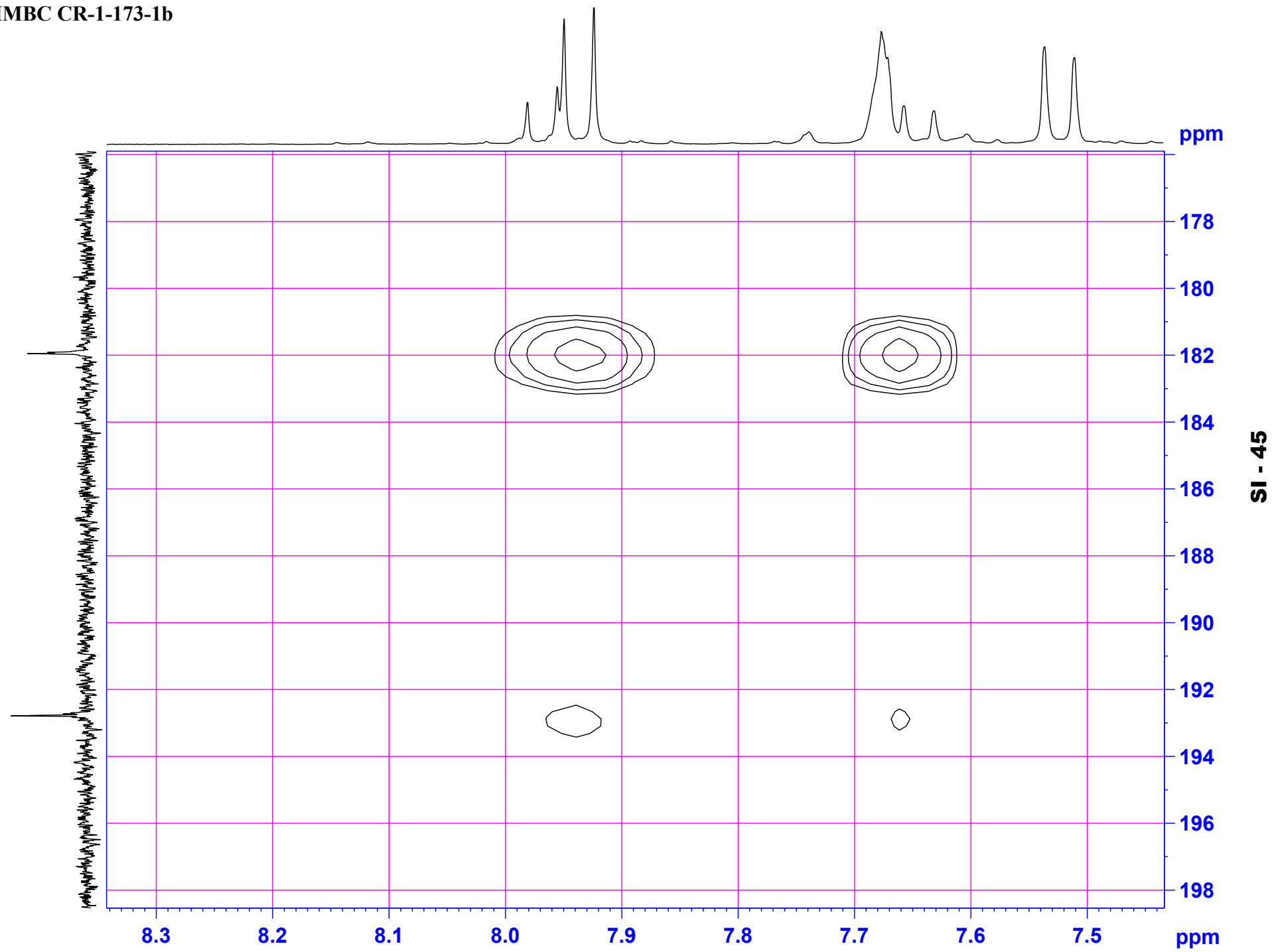


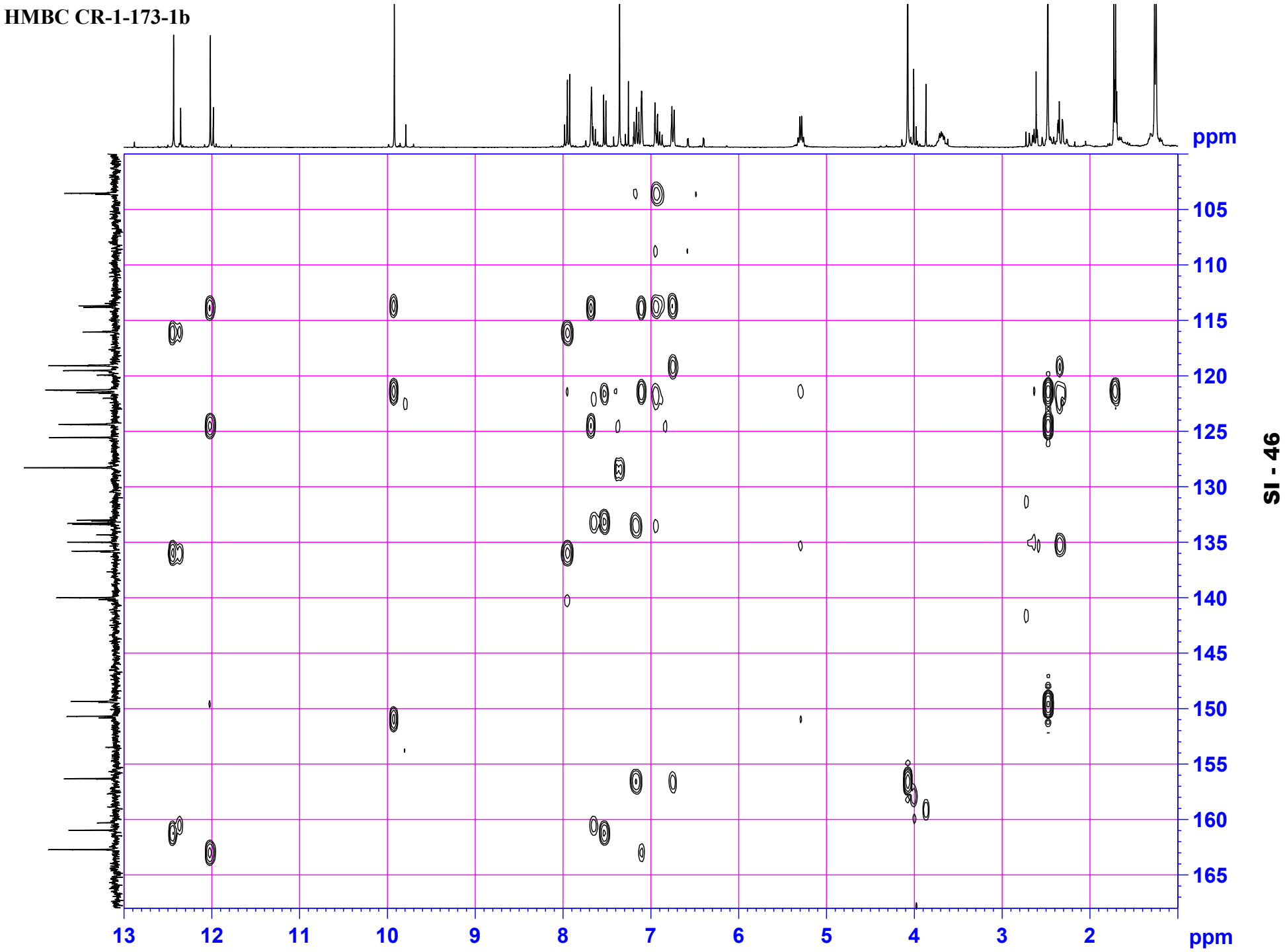
HMQC CR-1-173-1b



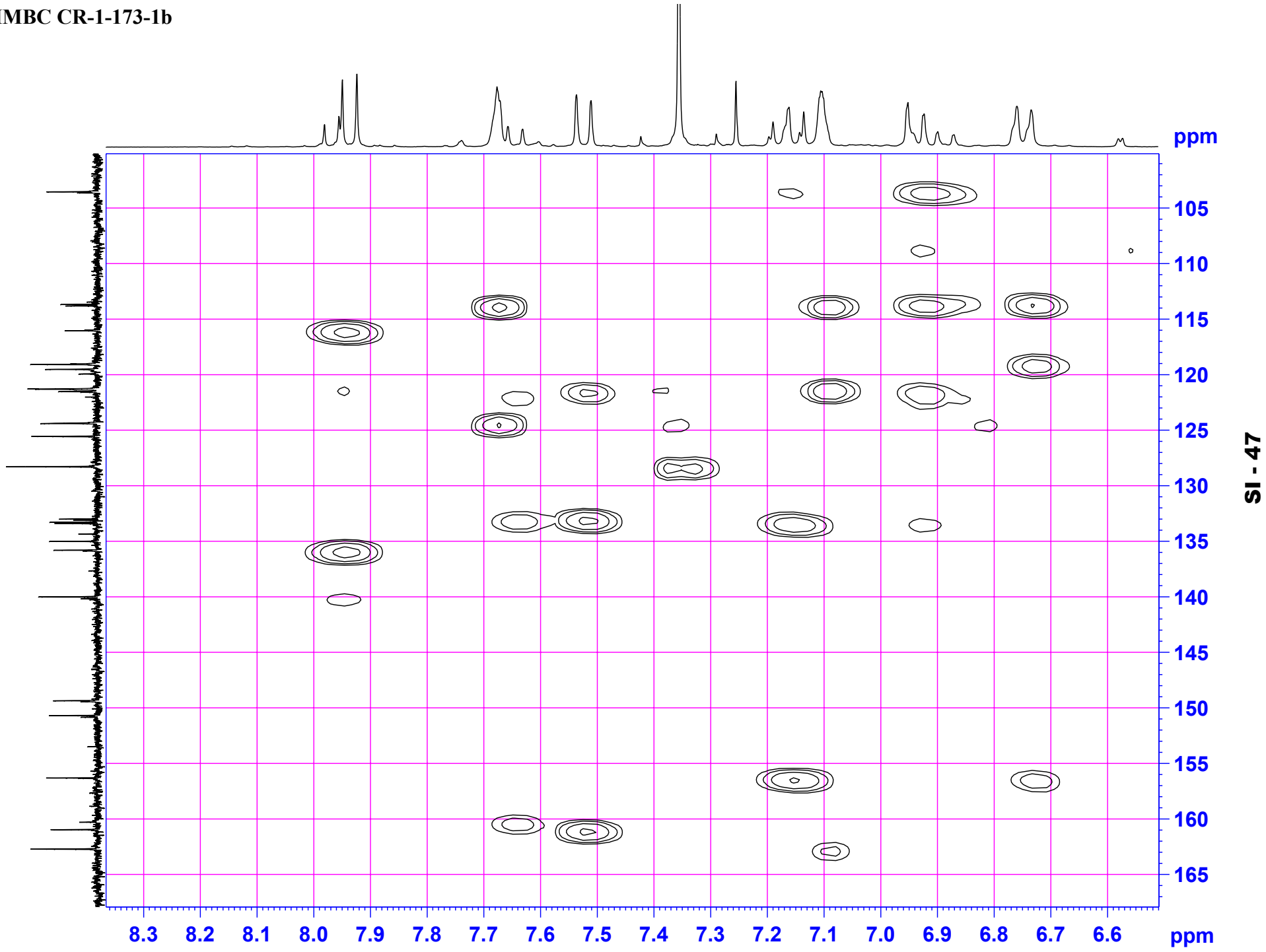

HMBC CR-1-173-1b
ppm
20
40
60
80
100
120
140
160
180
SI - 44
12
11
10
9
8
7
6
5
4
3
2
ppm

HMBC CR-1-173-1b

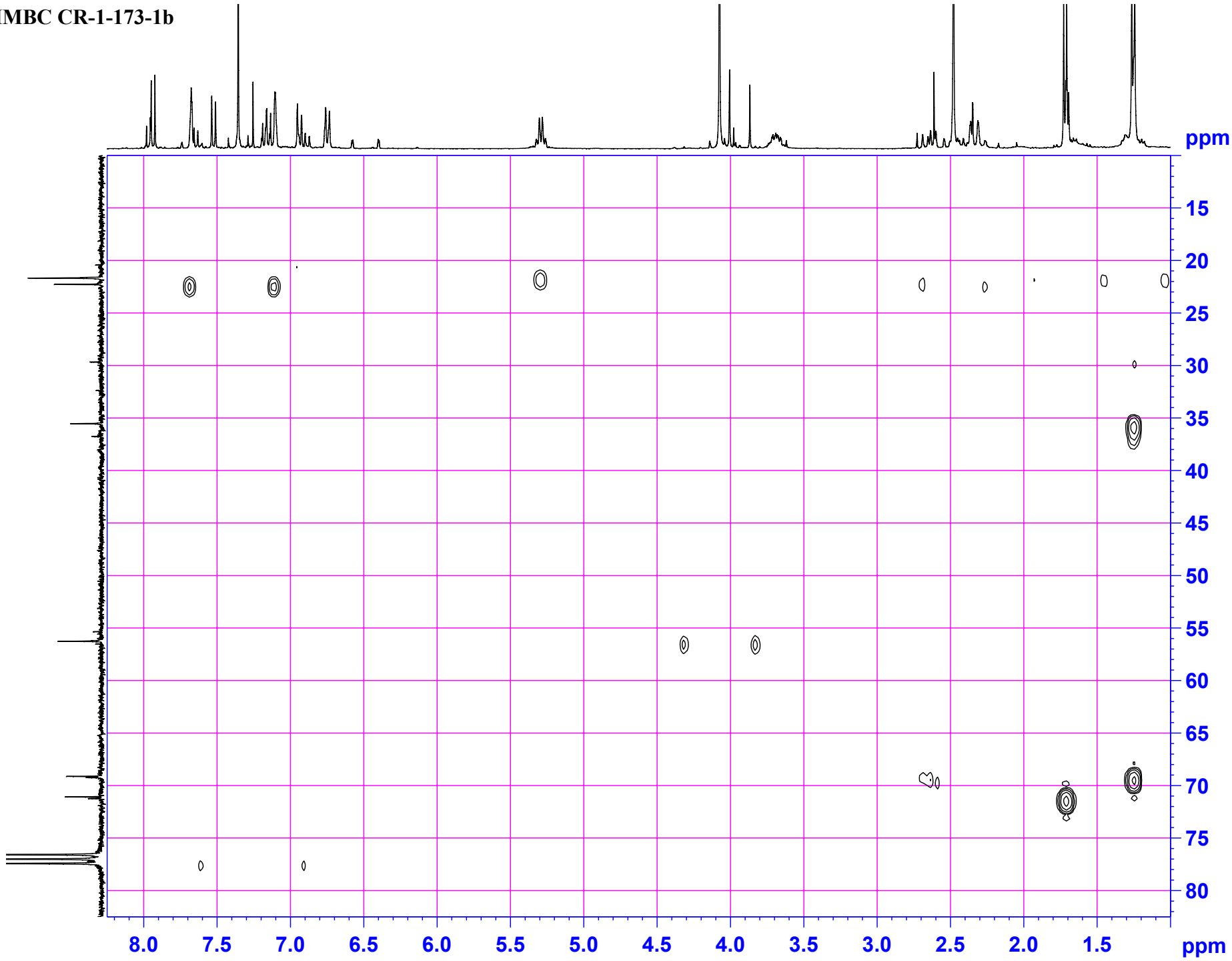



HMBC CR-1-173-1b
ppm
105
110
115
120
125
130
135
140
145
150
155
160
165
13
12
11
10
9
8
7
6
5
4
3
2
ppm
SI - 46

HMBC CR-1-173-1b



HMBC CR-1-173-1b



SI - 48