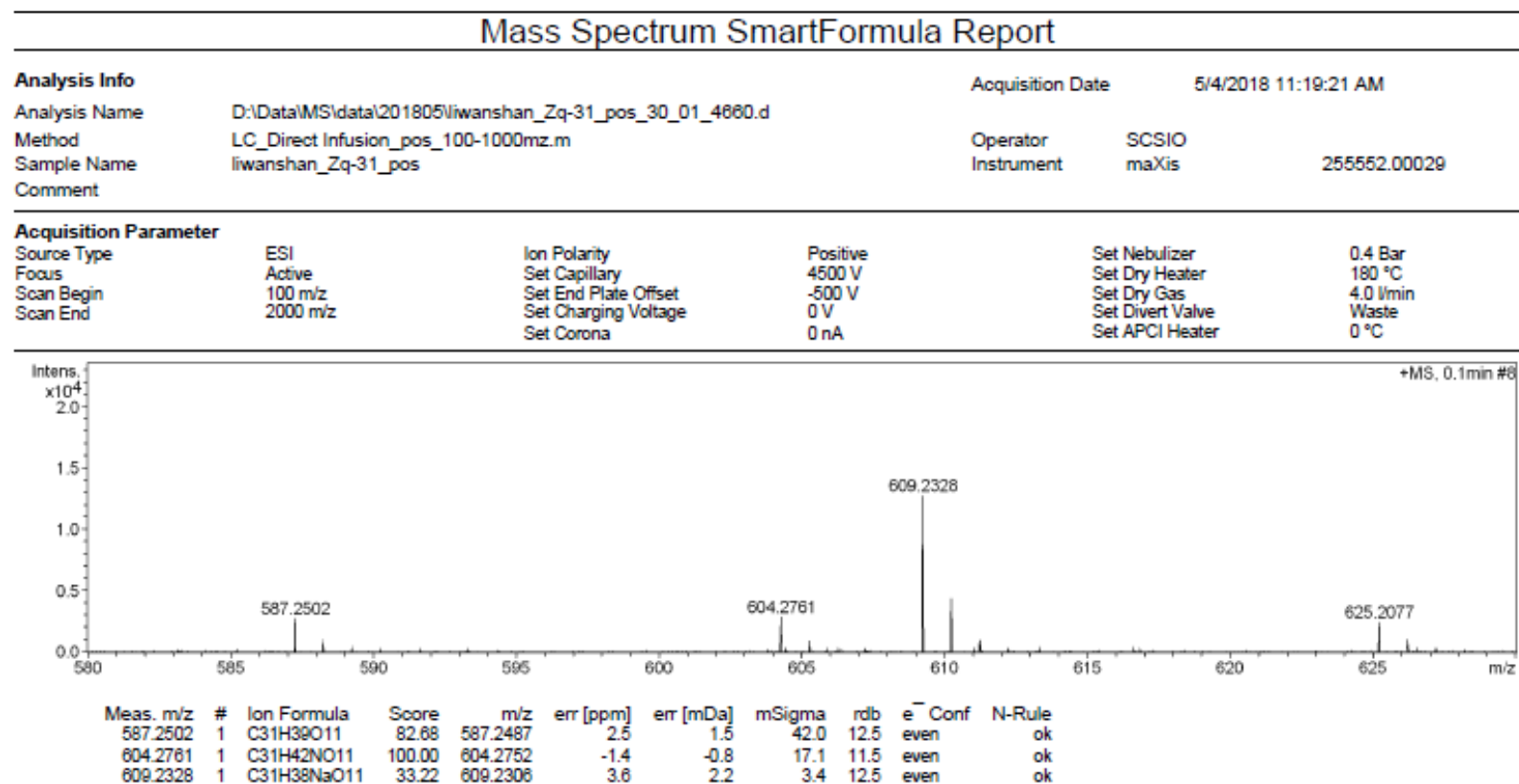


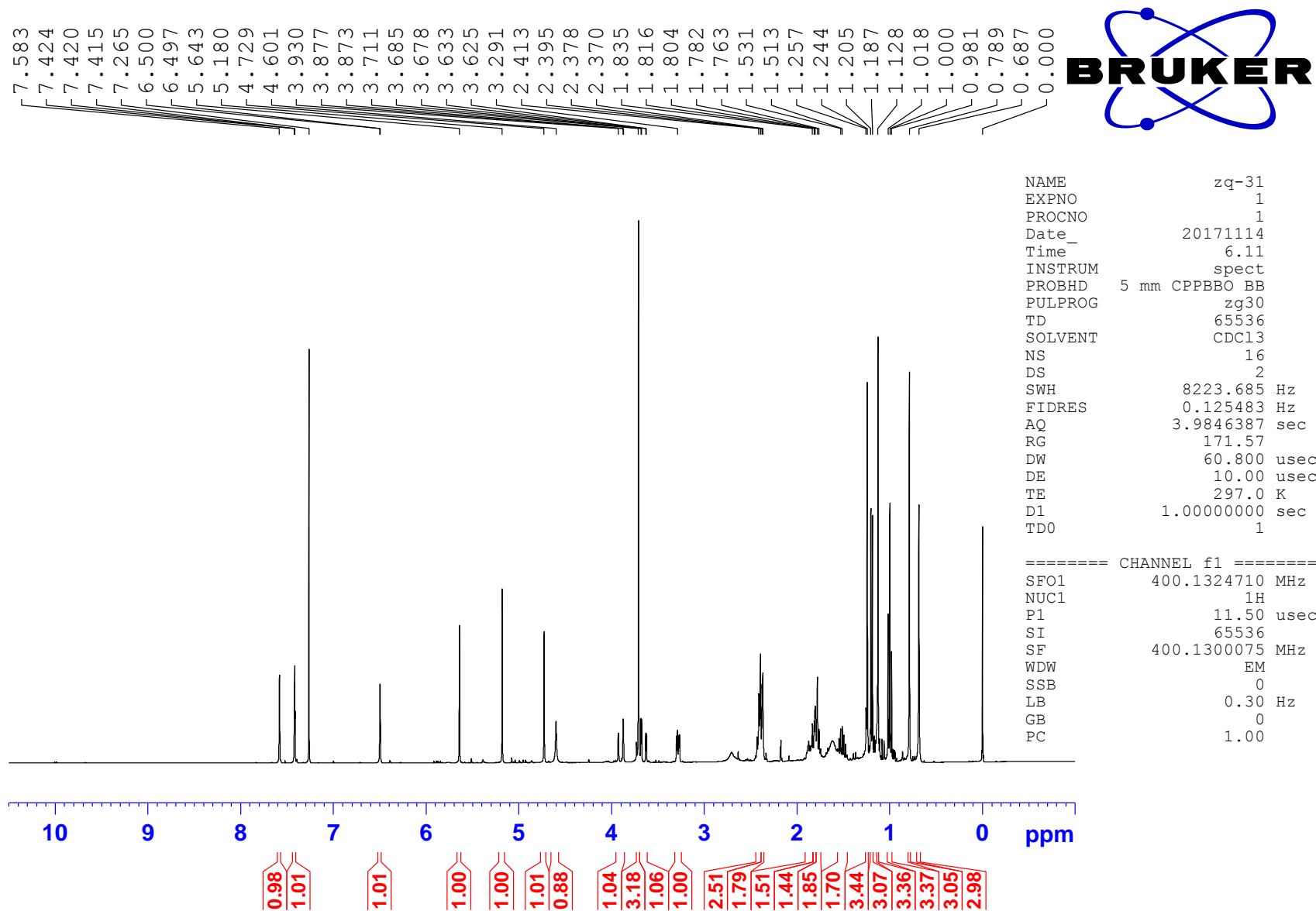
印度红树植物 *Xylocarpus moluccensis* 的柠檬苦素

化合物 1 的谱图:

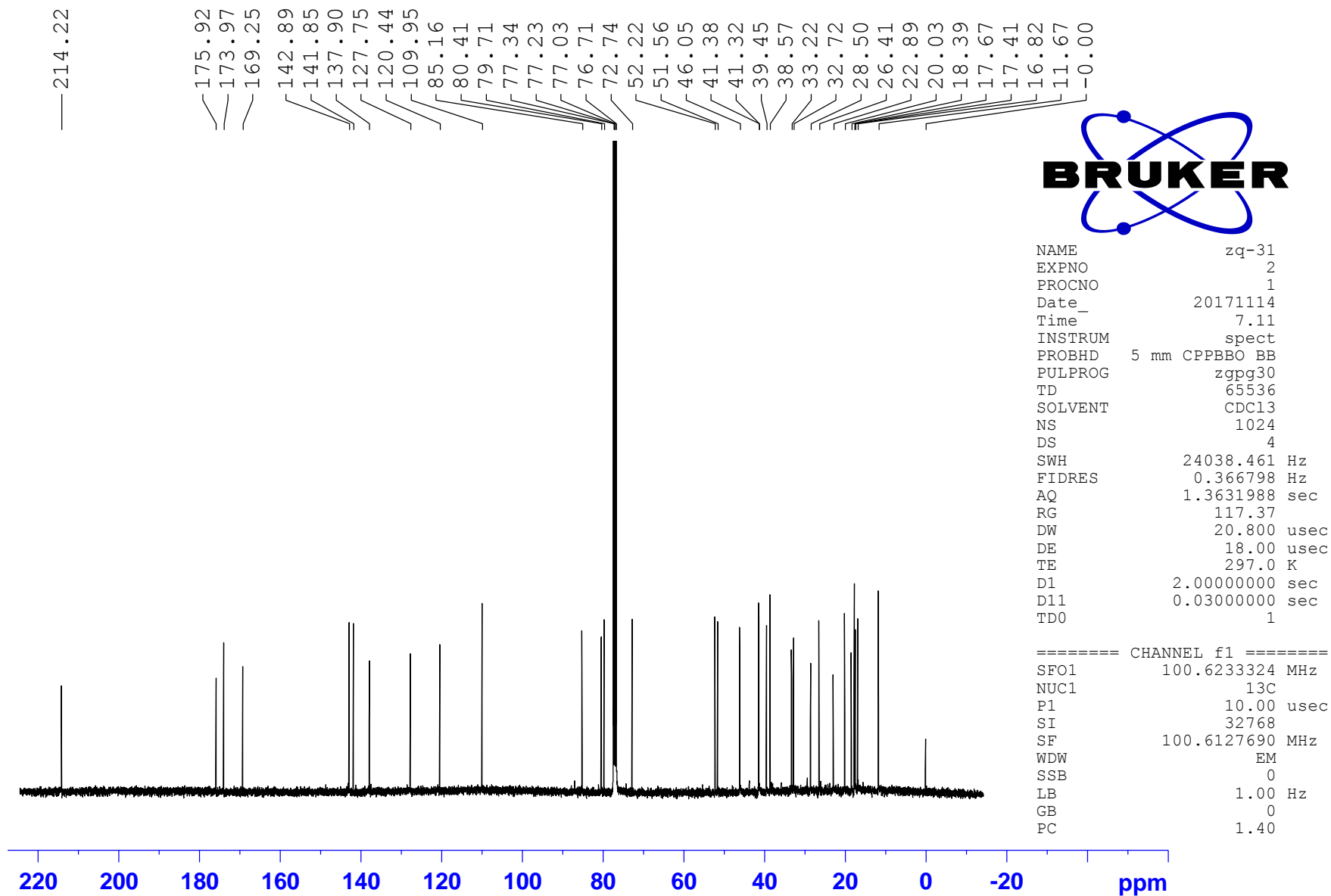
1. 化合物 1 的 HR-ESIMS 谱



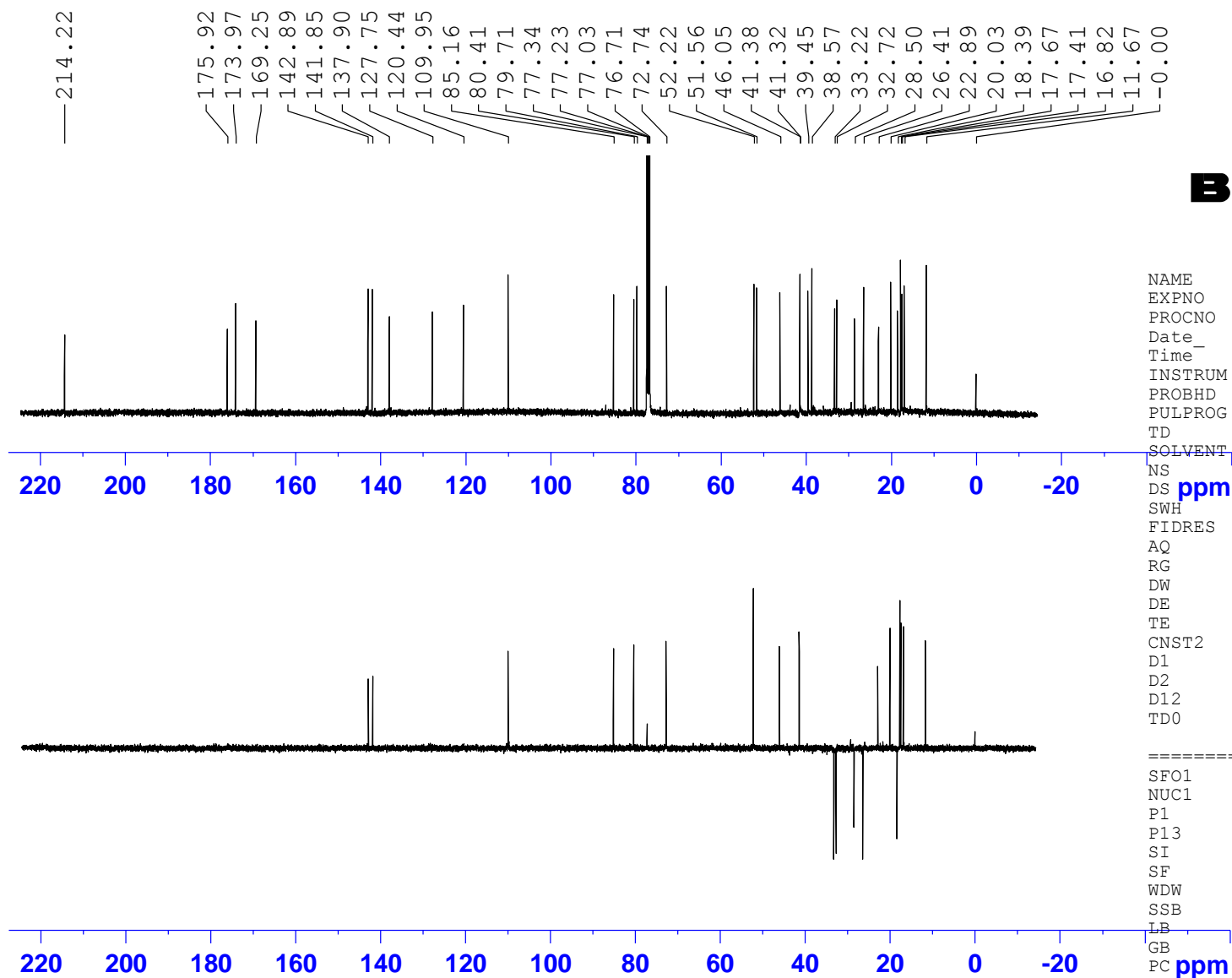
2. 化合物 **1** 的 ^1H NMR 谱 (400 MHz, CDCl_3)



3. 化合物 **1** 的 ^{13}C NMR 谱 (100 MHz, CDCl_3)



4. 化合物 1 的 DEPT 135 谱 (100 MHz, CDCl₃)

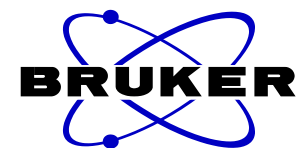
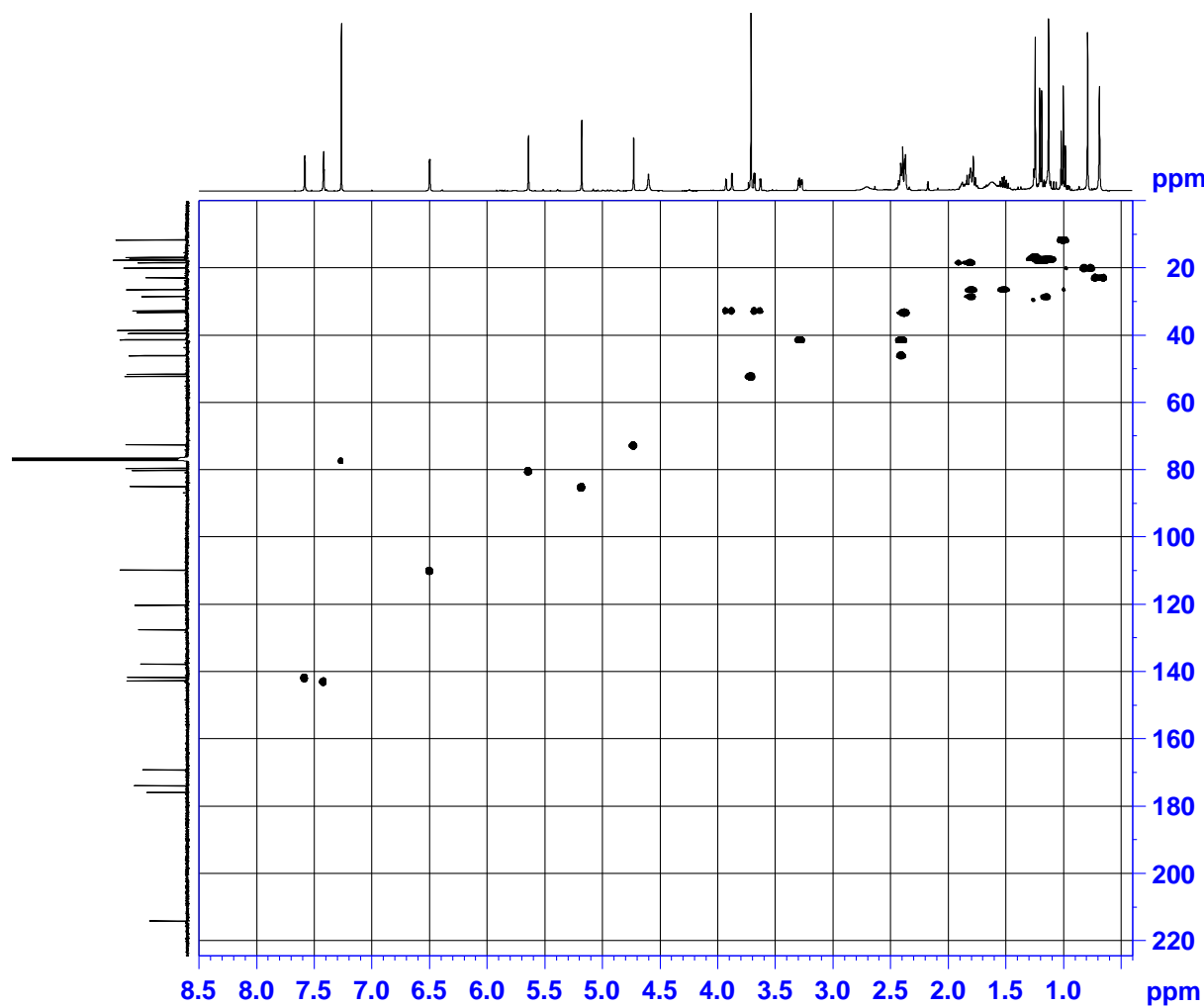


```

NAME          zq-31
EXPNO         3
PROCNO        1
Date_         20171114
Time_         7.29
INSTRUM       spect
PROBHD        5 mm CPPBBO BB
PULPROG       deptsp135
TD            65536
SOLVENT       CDCl3
NS            300
DS            4
SWH           24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631988 sec
RG            102.3
DW            20.800 usec
DE            18.00 usec
TE            297.0 K
CNST2         145.0000000
D1            2.0000000 sec
D2            0.00344828 sec
D12           0.00002000 sec
TD0           1

===== CHANNEL f1 =====
SFO1          100.6233324 MHz
NUC1          13C
P1            10.00 usec
P13           2000.00 usec
SI            32768
SF            100.6127690 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
    
```


6. 化合物 1 的 HSQC 谱 (400 MHz, CDCl₃)

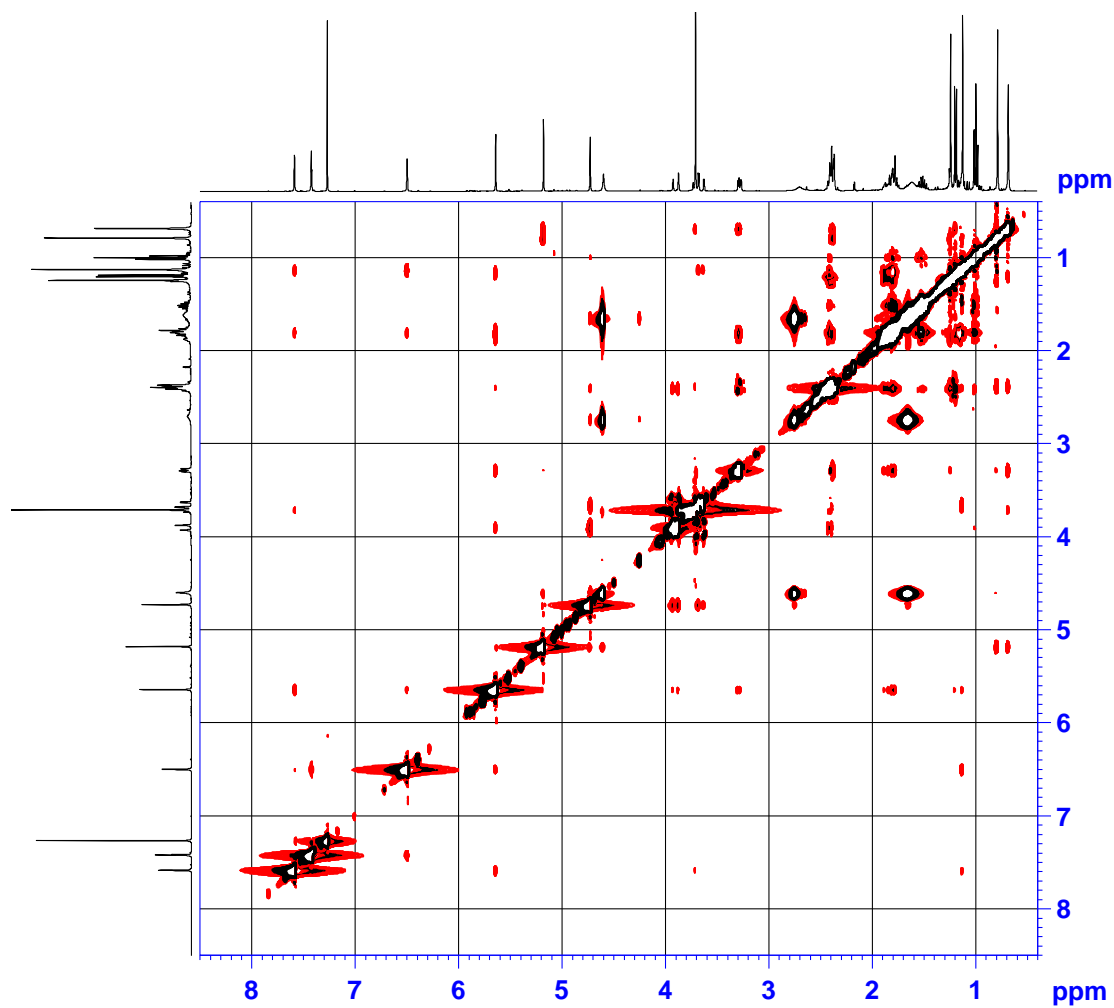


```

NAME          zq-31
EXPNO         5
PROCNO        1
Date_         20171122
Time          14.29
INSTRUM       spect
PROBHD        5 mm CPPBBO BB
PULPROG       hsqcetgpsi2
TD            1024
SOLVENT       CDCl3
NS            16
DS            16
SWH           4302.926 Hz
FIDRES        4.202076 Hz
AQ            0.1190388 sec
RG            208.5
DW            116.200 usec
DE            10.00 usec
TE            297.0 K
CNST2         145.0000000
D0            0.00000300 sec
D1            1.46497905 sec
D4            0.00172414 sec
D11           0.03000000 sec
D16           0.00020000 sec
D24           0.00086207 sec
IN0           0.00002080 sec
ZGOPTNS

===== CHANNEL f1 =====
SFO1          400.1320007 MHz
NUC1          1H
P1            11.50 usec
P2            23.00 usec
P28           0.00 usec
ND0           2
TD            256
SFO1          100.6233 MHz
FIDRES        93.900238 Hz
SW            238.896 ppm
FhMODE        Echo-Antiecho
SI            1024
SF            400.1300043 MHz
WDW           QSINE
SSB           2
LB            0.00 Hz
GB            0
PC            1.40
SI            1024
MC2           echo-antiecho
SF            100.6127579 MHz
WDW           QSINE
SSB           2
LB            0.00 Hz
GB            0
    
```


8. 化合物 1 的 NOESY 谱 (400 MHz, CDCl₃)



```

NAME          zq-31
EXPNO         7
PROCNO        1
Date_         20171122
Time_         16.21
INSTRUM       spect
PROBHD        5 mm CPPBBO BB
PULPROG       noesygpqhpp
TD            2048
SOLVENT       CDCl3
NS            16
DS            32
SWH           4000.000 Hz
FIDRES        1.953125 Hz
AQ            0.2560500 sec
RG            208.5
DW            125.000 usec
DE            10.00 usec
TE            297.0 K
D0            0.00011036 sec
D1            1.99385595 sec
D8            0.30000001 sec
D11           0.03000000 sec
D12           0.00002000 sec
D16           0.00020000 sec
IN0           0.00025000 sec
    
```

```

===== CHANNEL f1 =====
SF01          400.1318006 MHz
NUC1          1H
P1            11.50 usec
P2            23.00 usec
P17           2500.00 usec
ND0           1
TD            256
SF01          400.1318 MHz
FIDRES        15.625000 Hz
SW            9.997 ppm
FnMODE        States-TPPI
SI            1024
SF            400.1300060 MHz
WDW           QSINE
SSB           2
LB            0.00 Hz
GB            0
PC            1.00
SI            1024
MC2           States-TPPI
SF            400.1300043 MHz
WDW           QSINE
SSB           2
LB            0.00 Hz
GB            0
    
```