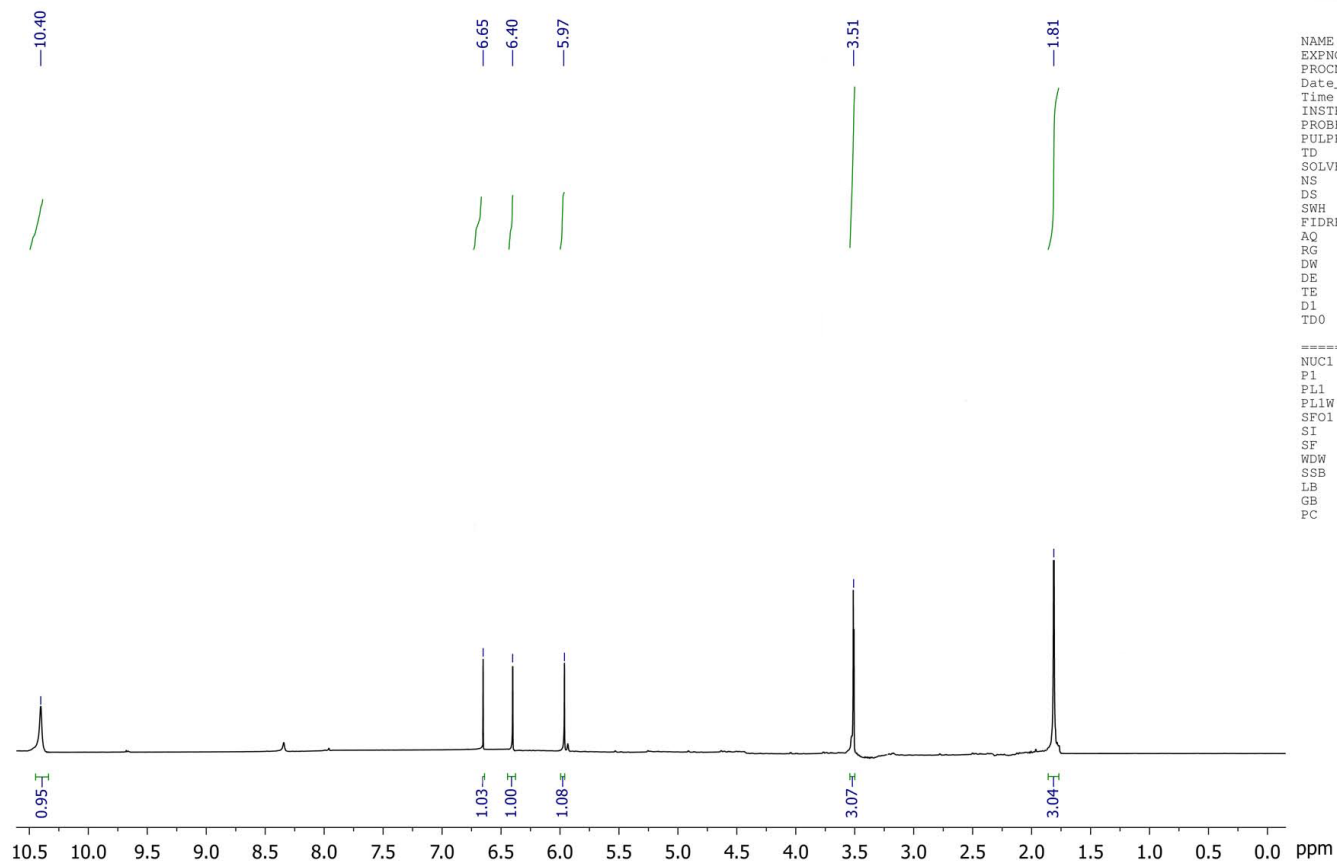
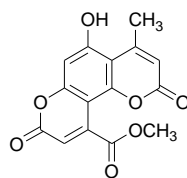


Supporting Information

Preparation, characterization and catalytic application of nano- $\text{Fe}_3\text{O}_4@\text{SiO}_2@(\text{CH}_2)_3\text{OCO}_2\text{Na}$ as a novel basic magnetic nanocatalyst for the synthesis of new pyranocoumarin derivatives

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farahimb@yu.ac.ir

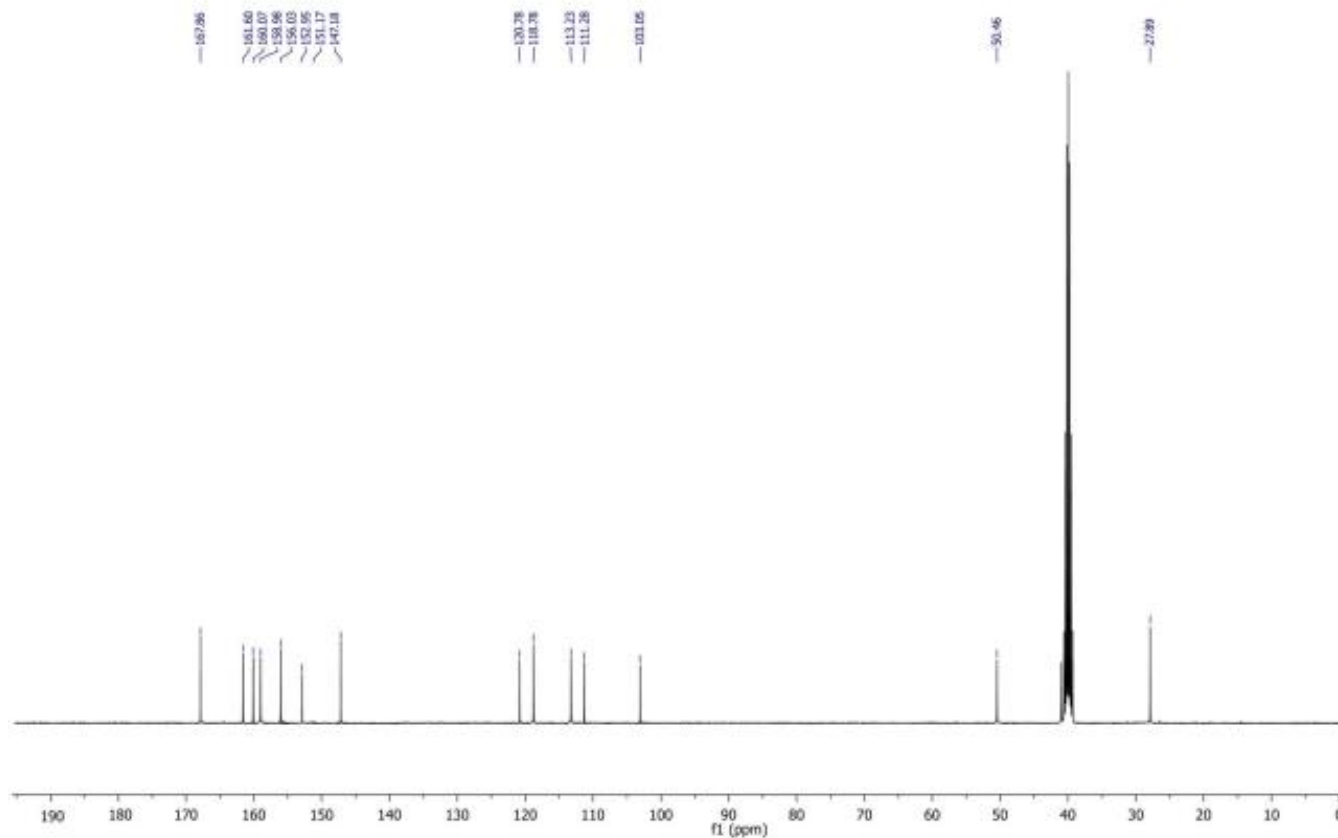
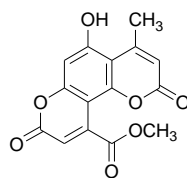


```

NAME      Yasooj UN
EXPNO     919
PROCNO    1
Date_     20170217
Time      9.42
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         40
DS         0
SWH        8012.820 Hz
FIDRES     0.122266 Hz
AQ         4.0894966 sec
RG         40.3
DW         62.400 usec
DE         6.50 usec
TE         293.7 K
D1         4.0000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
NUC1      1H
P1        14.00 usec
PL1       -2.00 dB
PL1W      11.86359406 W
SFO1      400.2236020 MHz
SI        32768
SF        400.2200000 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```



```

NAME      Yaeu01 UN
EXPNO     1000
PROCNO    1
DATE_     20170628
Time      21.38
INSTRUM   spect
PROBHD    5 mm PABBO 5B-
PULPROG   zgpg30
TD         65536
SOLVENT   DMSO
NS         8192
DS         0
SWH        35714.285 Hz
FIDRES    0.544357 Hz
AQ         0.3175540 sec
RG         2520
SQ         14.000 usec
DE         6.50 usec
TE         294.7 K
SI         1.0000000 sec
D11        0.0300000 sec
TD0        1

```

```

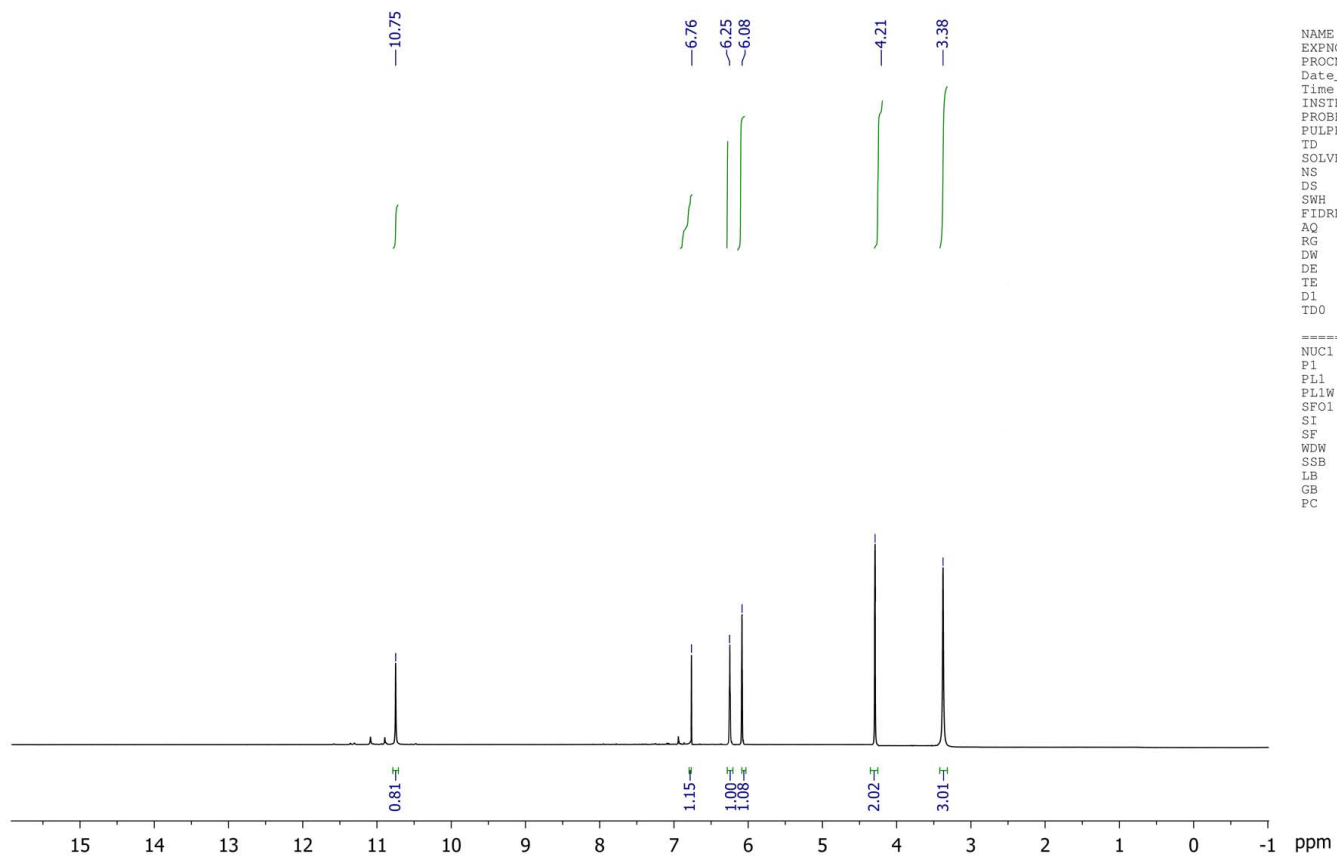
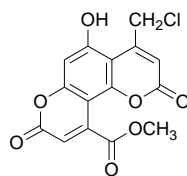
===== CHANNEL f1 =====
NUC1       13C
P1         9.00 usec
PL1        -0.30 dB
PL1N       42.02801935 W
SFO1       100.6250000 MHz

```

```

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     90.00 usec
PL2        -2.00 dB
PL12       14.14 dB
PL13       17.90 dB
PL2N       11.86359406 W
PL12N      0.28722104 W
PL13N      0.12159514 W
SFO2       400.2216009 MHz
SI         32768
SF         100.6253590 MHz
WDW        RM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40

```

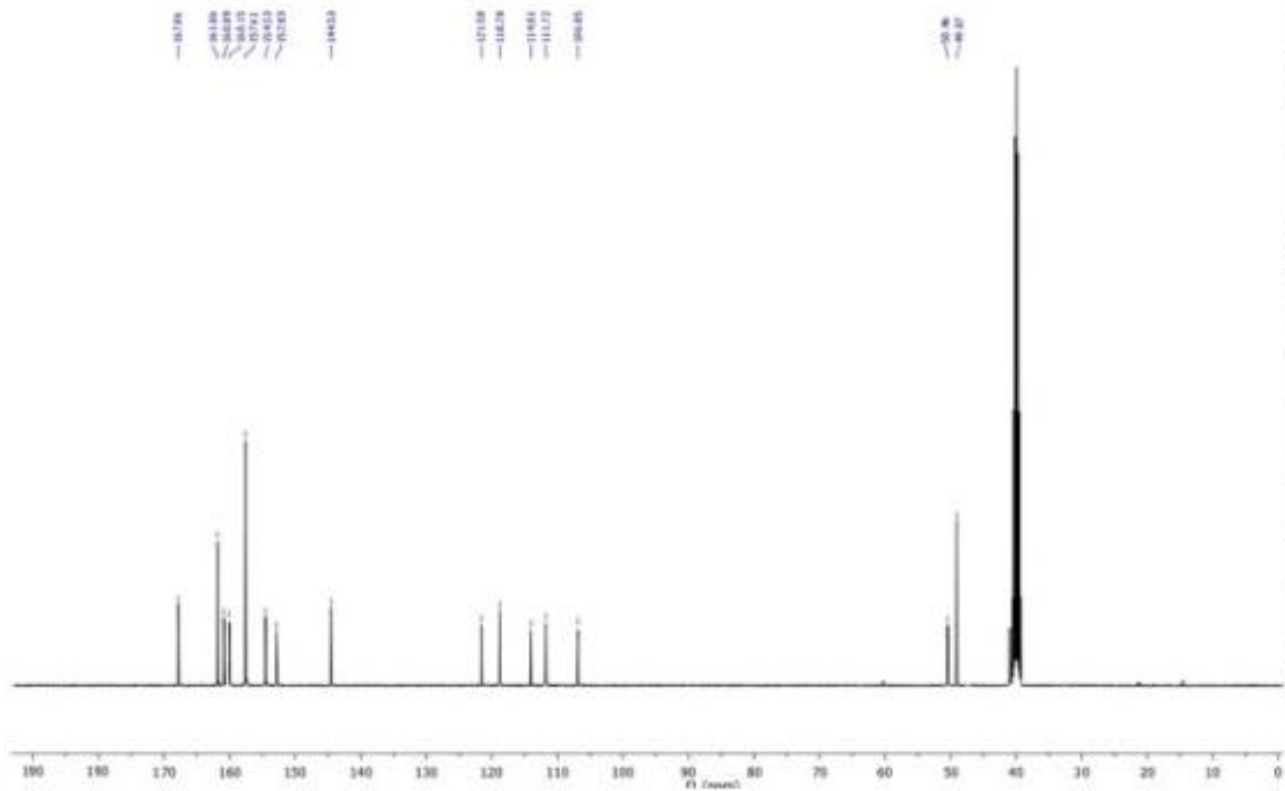
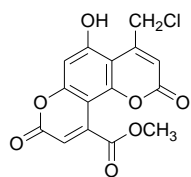


```

NAME      Yasooj UN
EXPNO     963
PROCNO    1
Date_     20170502
Time      11.56
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         20
DS         0
SWH        8012.820 Hz
FIDRES     0.122266 Hz
AQ         4.0894966 sec
RG         161
DW         62.400 usec
DE         6.50 usec
TE         293.9 K
D1         4.0000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         14.00 usec
PL1        -2.00 dB
PL1W       11.86359406 W
SFO1       400.2236020 MHz
SI         32768
SF         400.2200000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00

```



```

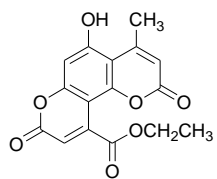
NAME          Tanso1 08
EXPNO         1000
PROCNO        1
Date_         20170628
Time          21.58
INSTRUM       spect
PROBHD        5 mm PABBO BB-
PULPROG       zgpg30
TD            65536
SOLVENT       DMSO
NS            8192
DS            0
SWH           35714.280 Kz
FIDRES        0.544957 Hz
AQ            0.8175540 sec
RG            2050
DW            14.000 usec
DE            6.50 usec
TE            294.7 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0           1
  
```

```

***** CHANNEL f1 *****
NUC1           13C
P1             9.00 usec
PL1            -0.90 dB
PL1W           42.02851895 W
SFO1           100.6251954 MHz
  
```

```

***** CHANNEL f2 *****
CPDPRG2       waltz16
NUC2           1H
PCPD2          90.00 usec
PL2            -2.00 dB
PL12           14.16 dB
PL13           17.90 dB
PL1W           31.86339404 W
PL12W          0.26722104 W
PL13W          0.32539934 W
SFO2           400.2216009 MHz
SI             32768
SF            100.6253990 MHz
WDW            EM
SSB            0
LB             1.50 Hz
GB             0
PC             1.40
  
```

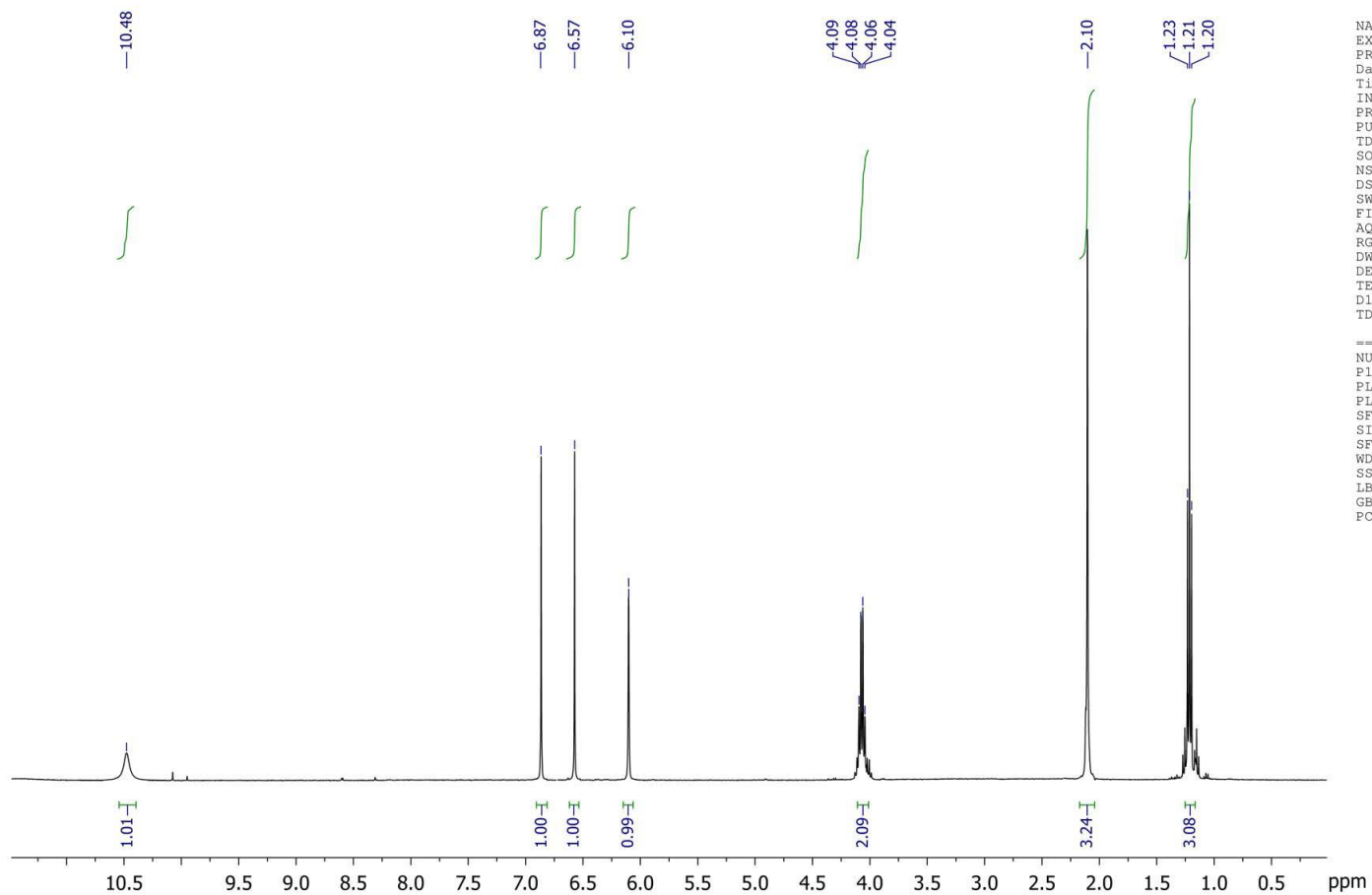


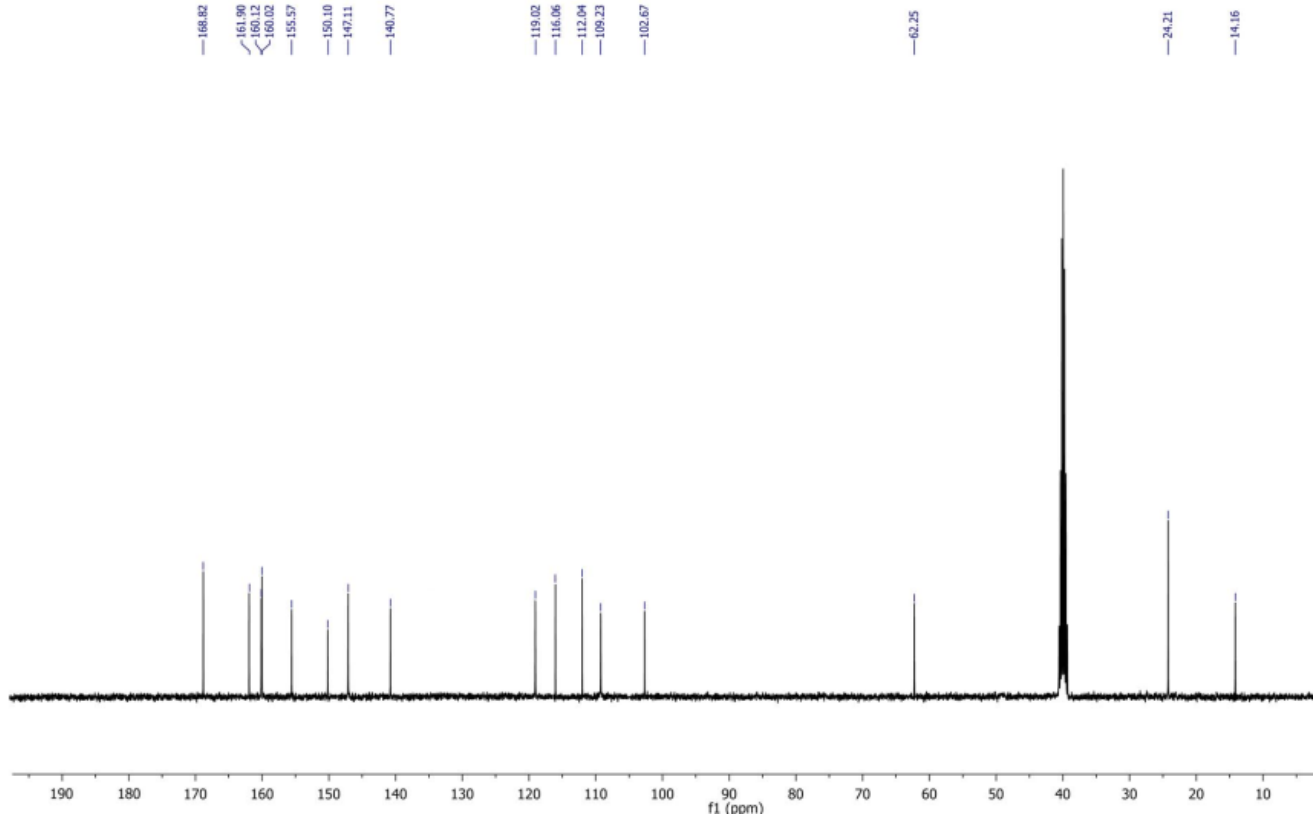
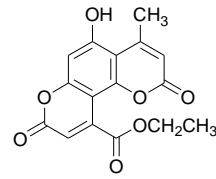
```

NAME      Yasooj UN
EXPNO     964
PROCNO    1
Date_     20170502
Time      12.02
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         20
DS         0
SWH       8012.820 Hz
FIDRES    0.122266 Hz
AQ         4.0894966 sec
RG         161
DW         62.400 usec
DE         6.50 usec
TE         293.9 K
D1         4.0000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
NUC1      1H
P1        14.00 usec
PL1       -2.00 dB
PL1W      11.86359406 W
SFO1      400.2236020 MHz
SI        32768
SF        400.2200000 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```





```

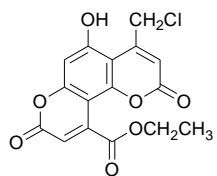
NAME      Tehran UN
EXPNO     642
PROCNO    1
Date_     20170628
Time      13.58
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   DMSO
NS         200
DS         0
SWH        35714.285 Hz
FIDRES     0.544957 Hz
AQ         0.9175540 sec
RG         2050
DM         14.000 usec
DE         6.50 usec
TE         294.3 K
D1         1.00000000 sec
D11        0.03000000 sec
TDO        1
  
```

```

----- CHANNEL f1 -----
NUC1      13C
P1        9.00 usec
PL1       -0.90 dB
PL1W      42.02801895 W
SFO1      100.6479784 MHz
  
```

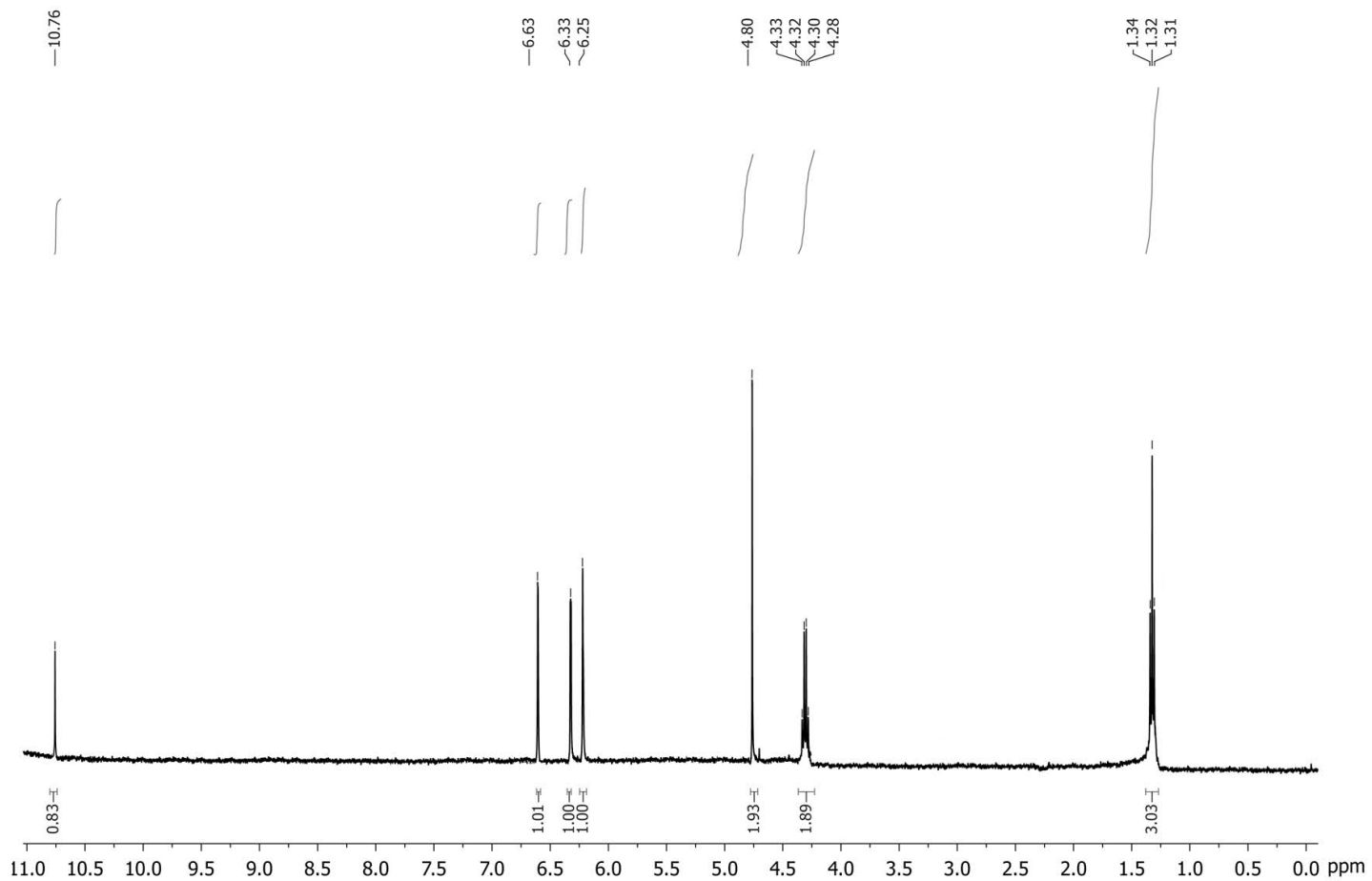
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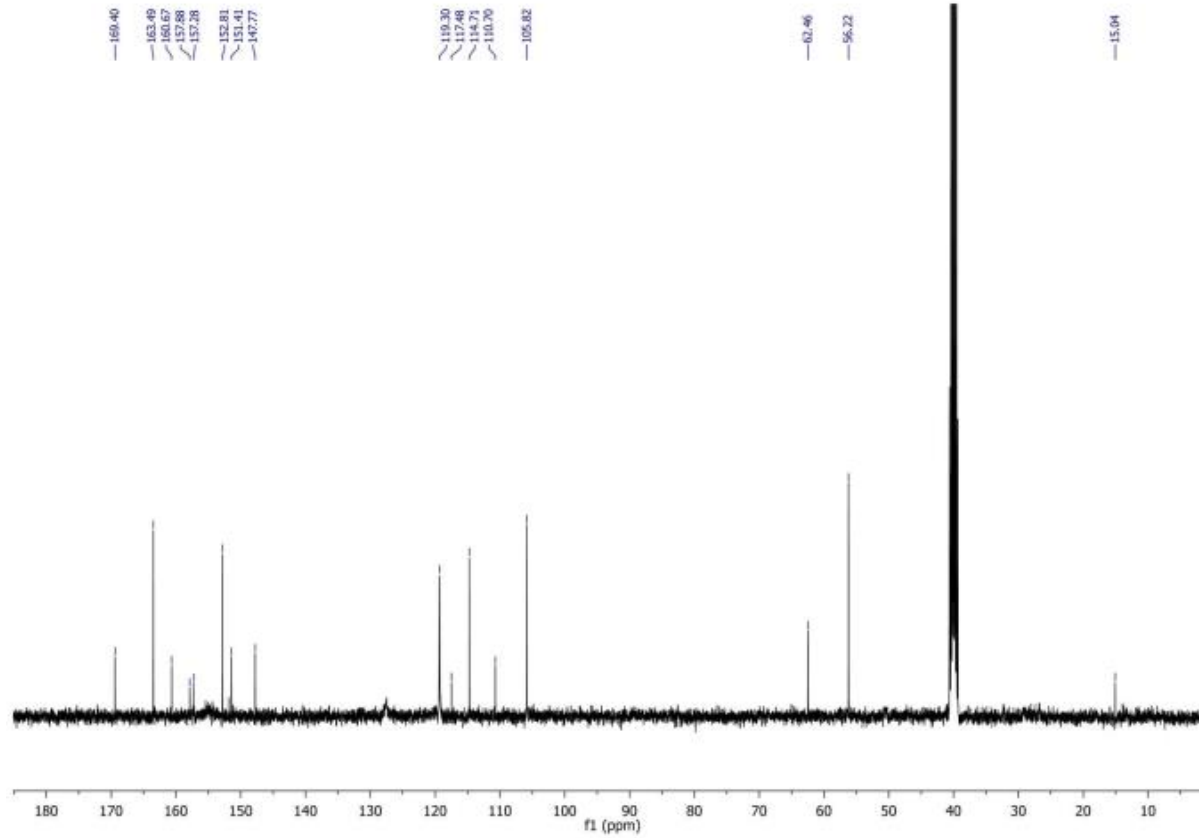
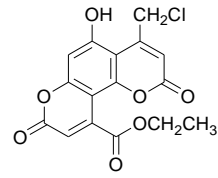
----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     90.00 usec
PL2       -2.00 dB
PL12      14.48 dB
PL13      17.90 dB
PL2W      11.86359406 W
PL12W     0.26681873 W
PL13W     0.12139934 W
SFO2      400.2216009 MHz
SI         32768
SF        100.6353990 MHz
NDM       EM
SSB       0
LB        1.00 Hz
GB         0
PC        1.40
  
```



NAME Yasooj UN
 EXPNO 964
 PROCNO 1
 Date_ 20170502
 Time 12.02
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 20
 DS 0
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894966 sec
 RG 161
 DW 62.400 usec
 DE 6.50 usec
 TE 293.9 K
 DL 4.0000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 14.00 usec
 PL1 -2.00 dB
 PL1W 11.86359406 W
 SFO1 400.2236020 MHz
 SI 32768
 SF 400.2200000 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



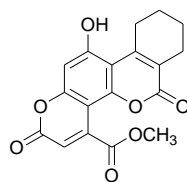


```

NAME      Yasooj UN
EXPNO     1002
PROCNO    1
Date_     20170629
Time      12.47
INSTRUM   spect
PROBHD    5 mm PARBO HS-
PULPROG   zgpg30
TD         85536
SOLVENT   DMSO
NS         900
DS         0
SWH        35714.285 Hz
FIDRES     0.544957 Hz
AQ         0.9175540 sec
RG         2050
DW         14.000 usec
DE         6.50 usec
TE         295.0 K
D1         1.00000000 sec
D11        0.03000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         9.00 usec
PL1        -0.90 dB
PL1W       42.02801895 W
SFO1       100.6479784 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     90.00 usec
PL2        -2.00 dB
PL12       14.16 dB
PL13       17.90 dB
PL2W       11.86359406 W
PL12W      0.28722104 W
PL13W      0.12139934 W
SFO2       400.2216009 MHz
SI         32768
SF         100.6353990 MHz
WDW        EM
SBB         0
LB         1.00 Hz
GB         0
PC         1.40
  
```

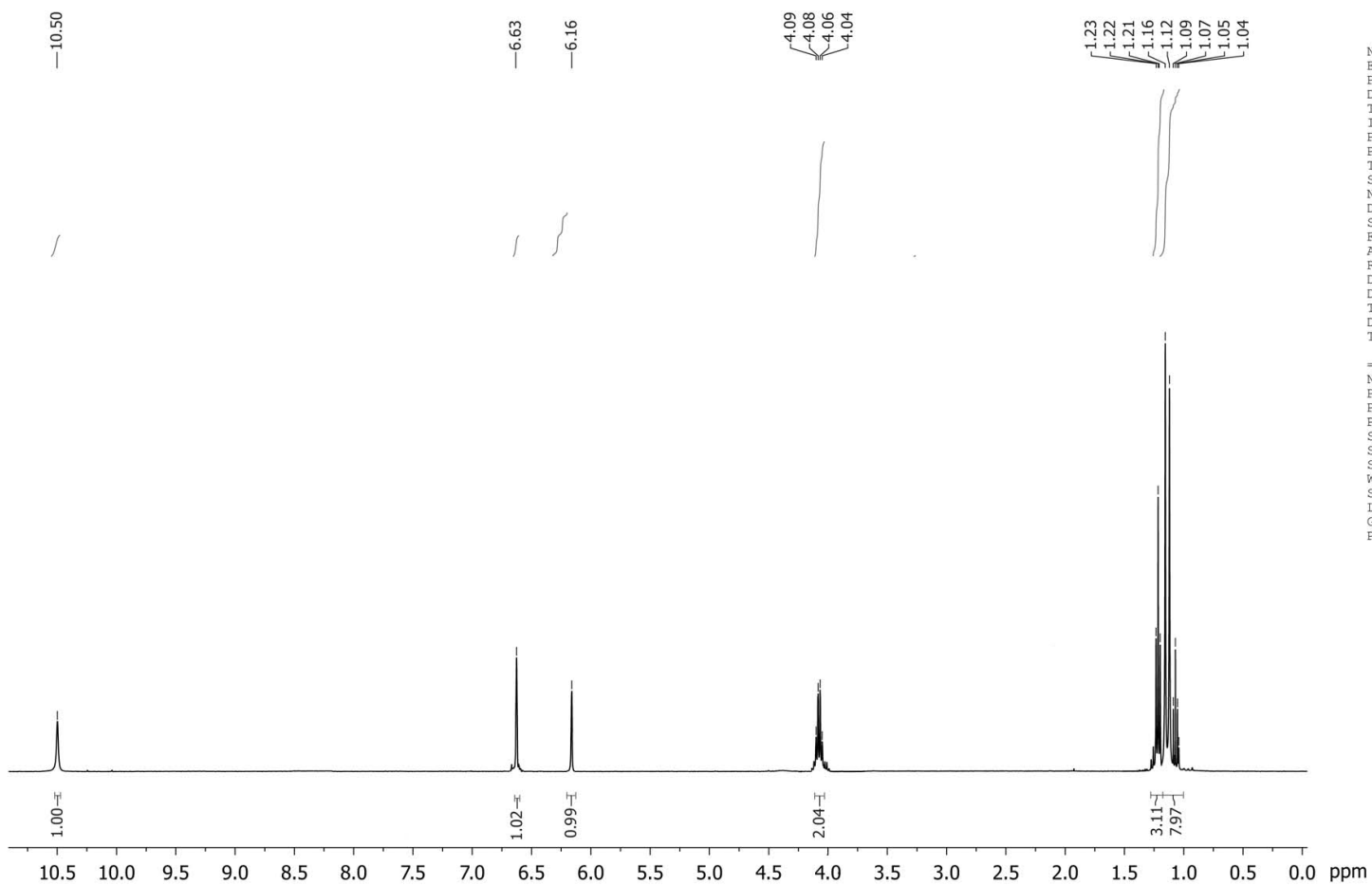


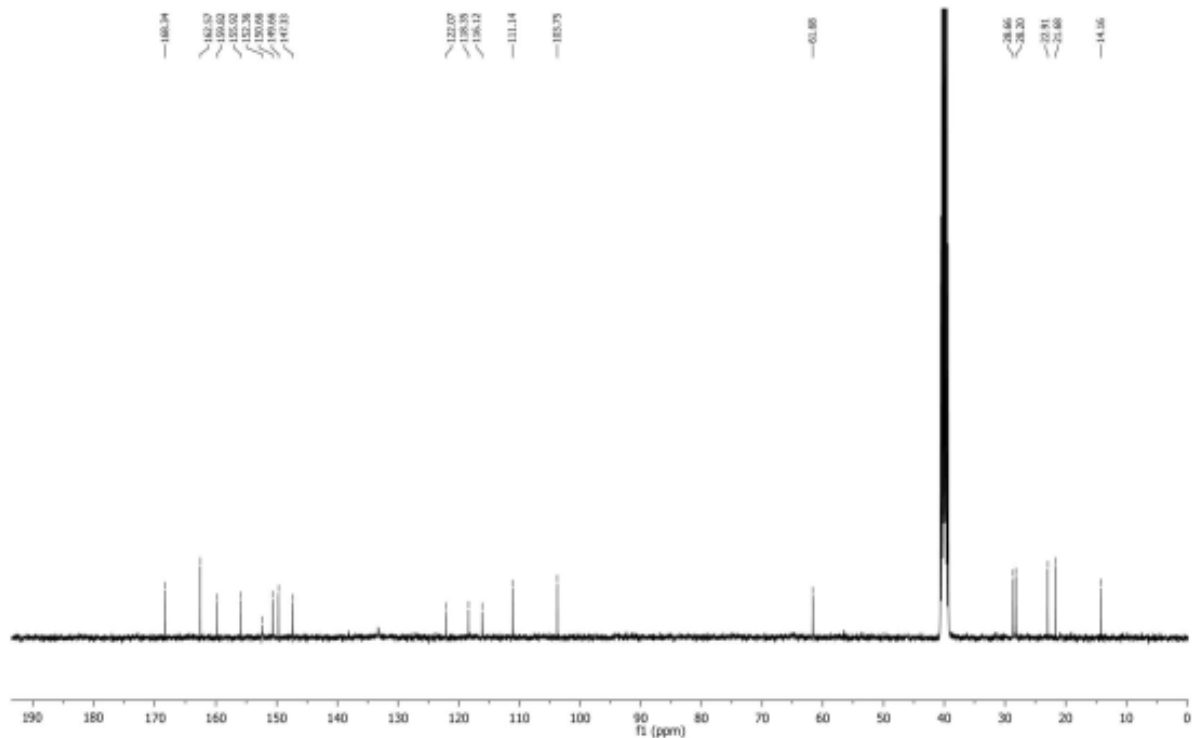
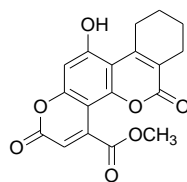
```

NAME      Yasooj UN
EXPNO     891
PROCNO    1
Date_     20161226
Time      17.07
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         20
DS         0
SWH        8012.820 Hz
FIDRES     0.122266 Hz
AQ         4.0894966 sec
RG         203
DW         62.400 usec
DE         6.50 usec
TE         293.8 K
D1         4.00000000 sec
TDO        1
  
```

```

===== CHANNEL f1 =====
NUC1      1H
P1        14.00 usec
PL1       -2.00 dB
PL1W      11.86359406 W
SFO1      400.2236020 MHz
SI        32768
SF        400.2200000 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```





```

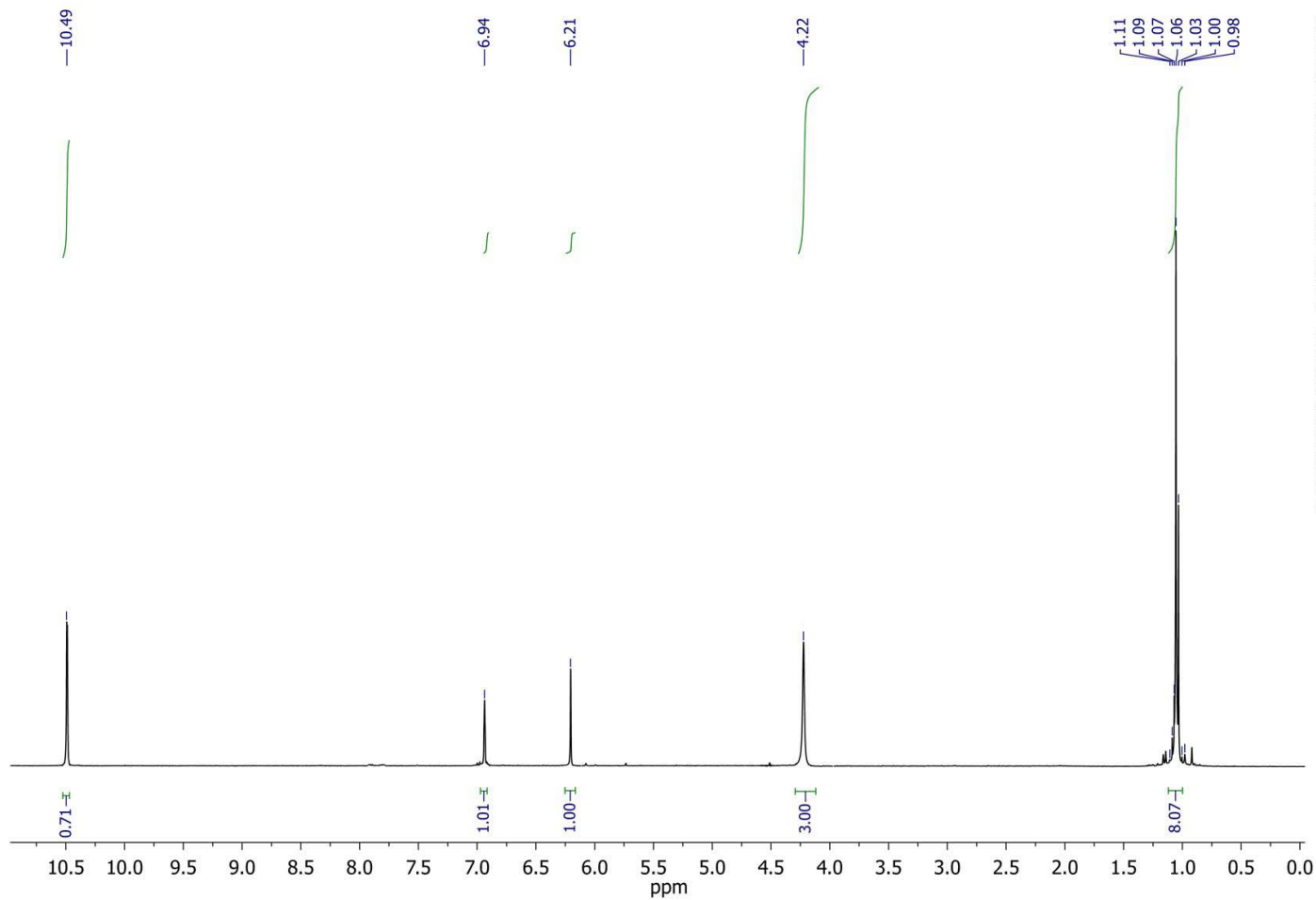
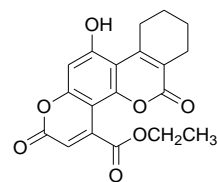
NAME       Y00001.D
EXPNO      900
PROCNO     1
Date_      20170105
Time       15.32
INSTRUM    spect
PROBHD     5 mm PABBO BB-
PULPROG    zgpg30
TD         65536
SOLVENT    DMSO
RG         8192
DS         0
SWH        35714.285 Hz
FIDRES     0.544957 Hz
AQ         0.9178640 sec
RG         3059
SW         14.000 usec
DE         6.90 usec
TE         294.2 K
D1         1.0000000 sec
D11        0.0390000 sec
D10        1
  
```

```

----- CHANNEL f1 -----
NUC1       13C
P1         9.00 usec
PC1        -0.90 dB
PL1W      42.0281895 W
RFQ1      180.6419784 MHz
  
```

```

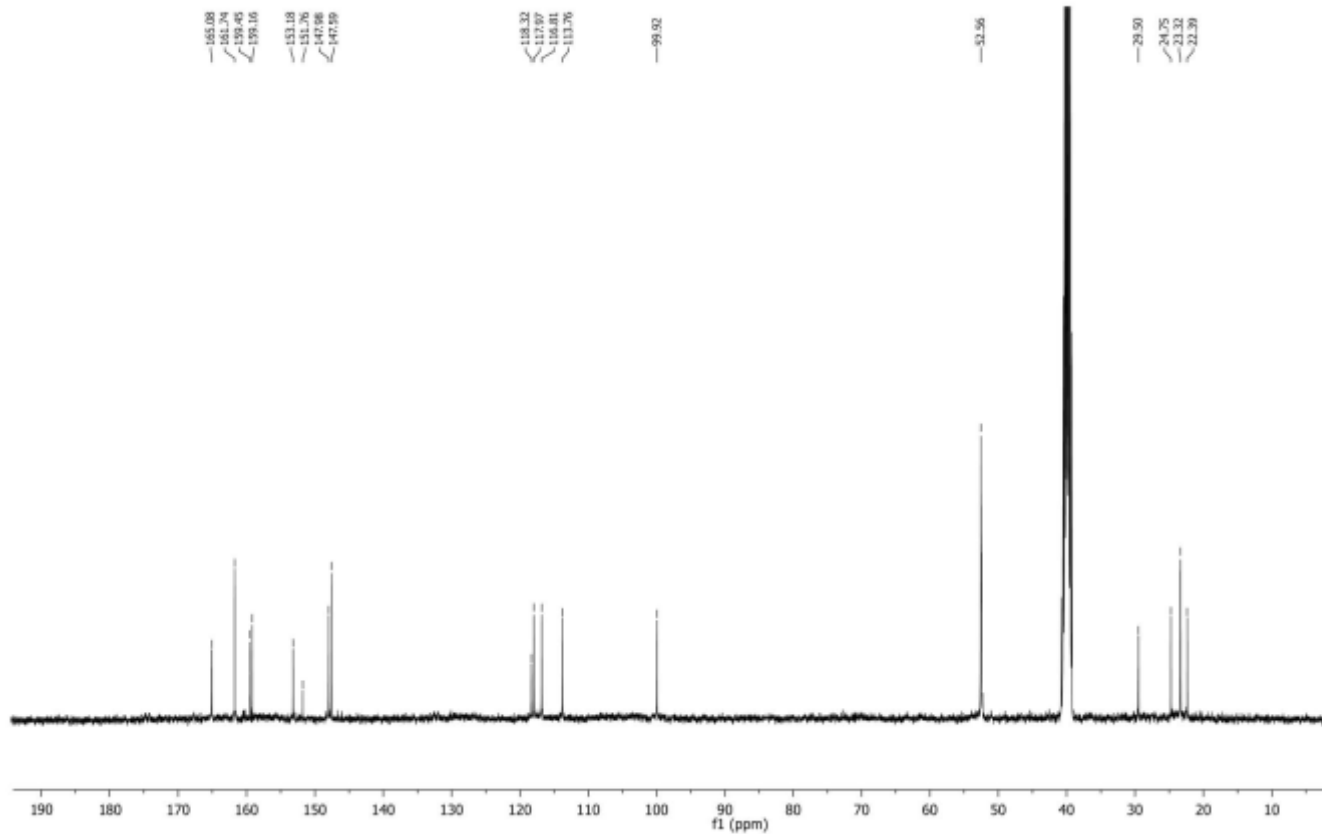
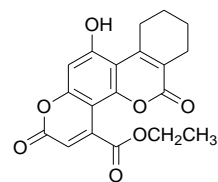
----- CHANNEL f2 -----
CPCPRG2    waltz16
NUC2       1H
PCPG2     90.00 usec
PC2        -2.00 dB
PL2W      54.16 dB
PL13      17.90 dB
PL2W      11.8635940 W
PL13W     0.20722104 W
PL13W     0.12139934 W
SFO2      400.2216009 MHz
SI         32768
SF         180.6353990 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```



```

NAME      Yasooj UN
EXPNO     892
PROCNO    1
Date_     20161226
Time      17.15
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         20
DS         0
SWH        8012.820 Hz
FIDRES     0.122266 Hz
AQ         4.0894966 sec
RG         203
DW         62.400 usec
DE         6.50 usec
TE         293.8 K
D1         4.0000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         14.00 usec
PL1        -2.00 dB
PL1W       11.86359406 W
SFO1       400.2236020 MHz
SI         32768
SF         400.2200000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```



```

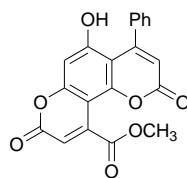
NAME      Yaso0] UN
EXPNO     920
PROCNO    1
Date_     20170221
Time      18.20
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   DMSO
NS         8192
DS         0
SFO       35714.285 Hz
FIDRES    0.544957 Hz
AQ         0.9175540 sec
RG         2050
DM         14.000 usec
DE         6.50 usec
TE         292.9 K
D1         1.0000000 sec
D11        0.0300000 sec
TD0        1
  
```

```

----- CHANNEL f1 -----
NUC1       13C
P1         9.00 usec
PL1        -0.90 dB
PL1W       42.02801895 W
SFO1       100.6479784 MHz
  
```

```

----- CHANNEL f2 -----
PCPD2     waltz16
NUC2       1H
PCPD2     90.00 usec
PL2        -2.00 dB
PL12       14.16 dB
PL13       17.90 dB
PL2W       11.86359406 W
PL12W      0.28722104 W
PL13W      0.12139934 W
SFO2       400.2216009 MHz
SI         32768
SF         100.6353990 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```

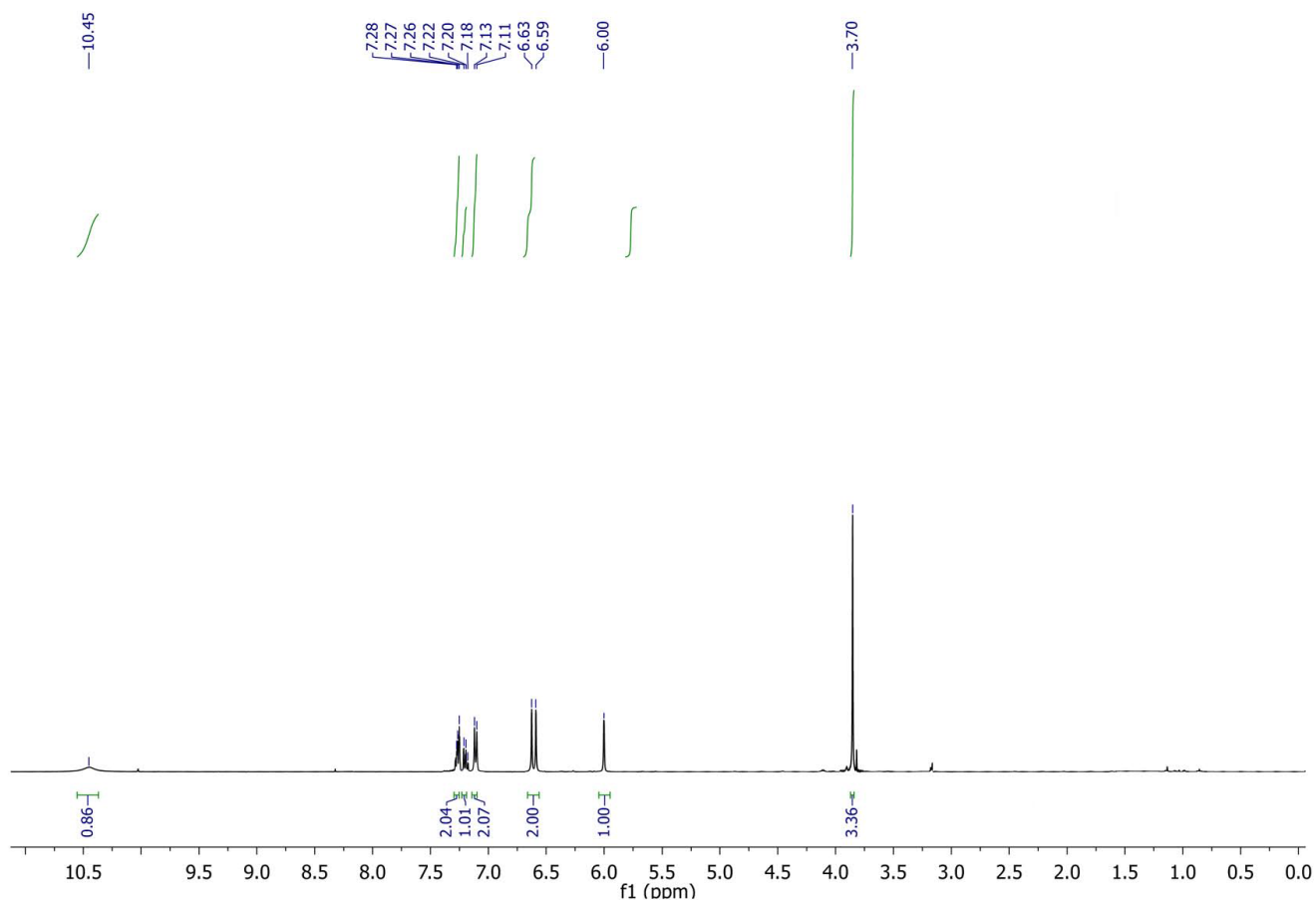


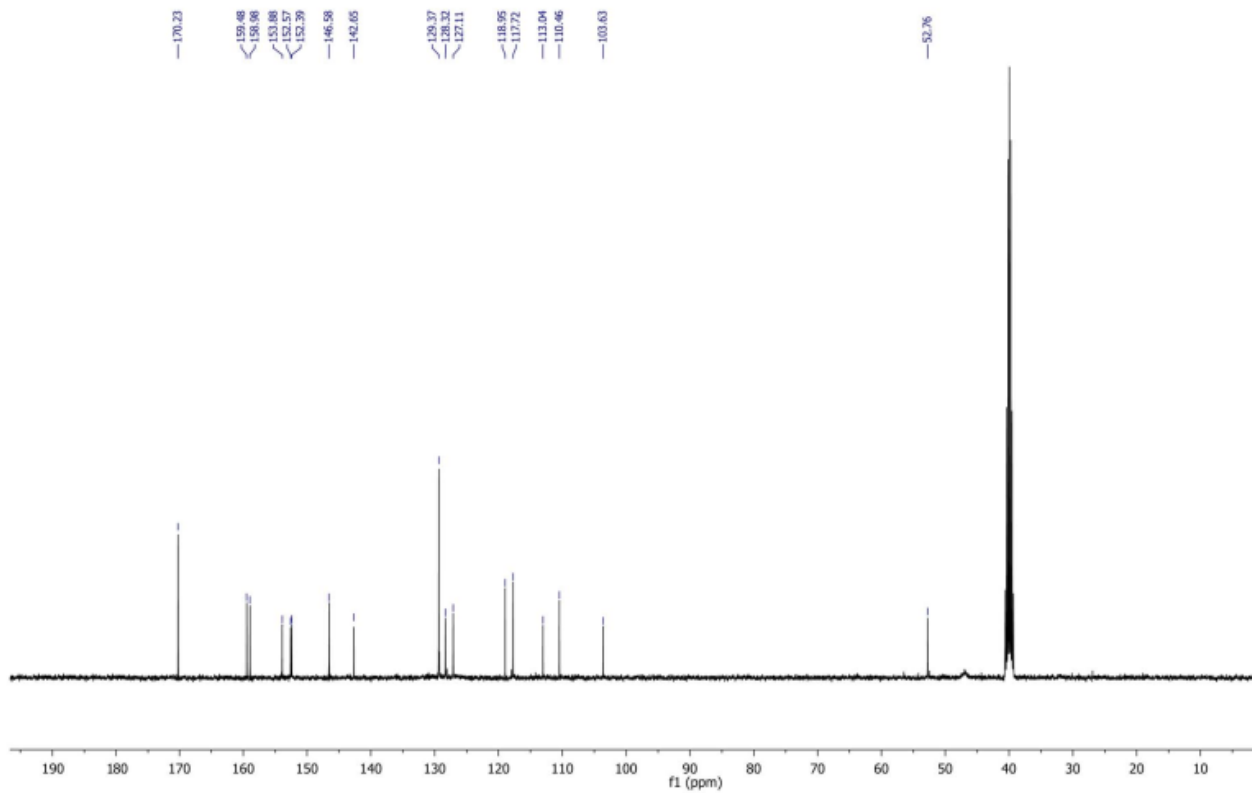
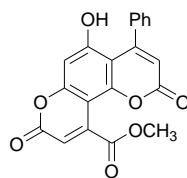
```

NAME      Yasooj UN
EXPNO     898
PROCNO    1
Date_     20171226
Time      17.15
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   DMSO
NS         20
DS         0
SWH       8012.820 Hz
FIDRES    0.122266 Hz
AQ         4.0894966 sec
RG         203
DW         62.400 usec
DE         6.50 usec
TE         293.8 K
D1         4.0000000 sec
TDO        1
  
```

```

===== CHANNEL f1 =====
NUC1      1H
P1         14.00 usec
PL1       -2.00 dB
PL1W      11.86359406 W
SFOL      400.2236020 MHz
SI         32768
SF         400.2200000 MHz
WDW        EM
SSB         0
LB         0.30 Hz
GB         0
PC         1.00
  
```





```

NAME      Yasooj UN
EXPNO     1
PROCNO    1
Date_     20170105
Time      15.09
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   DMSO
NS         403
DS         0
SWH        35714.285 Hz
FIDRES     0.544937 Hz
AQ          0.9175540 sec
RG          2050
DM          14.000 usec
DE          6.50 usec
TE          294.5 K
D1          1.00000000 sec
D11         0.03000000 sec
TD0         1
  
```

```

***** CHANNEL f1 *****
NUC1       13C
P1          9.00 usec
PL1         -0.90 dB
PL1W        42.02801895 W
SFO1        100.6479784 MHz
  
```

```

***** CHANNEL f2 *****
CPDPRG2    waltz16
NUC2        1H
PCPD2       90.00 usec
PL2          -2.00 dB
PL12         14.16 dB
PL13         17.90 dB
PL2W        11.86359406 W
PL12W        0.28722104 W
PL13W        0.12139934 W
SFO2        400.2216009 MHz
SI           32768
SF          100.6353990 MHz
WDW          EM
SSB          0
LB           1.00 Hz
GB           0
PC           1.40
  
```