

Supplementary materials

Supplementary Figures

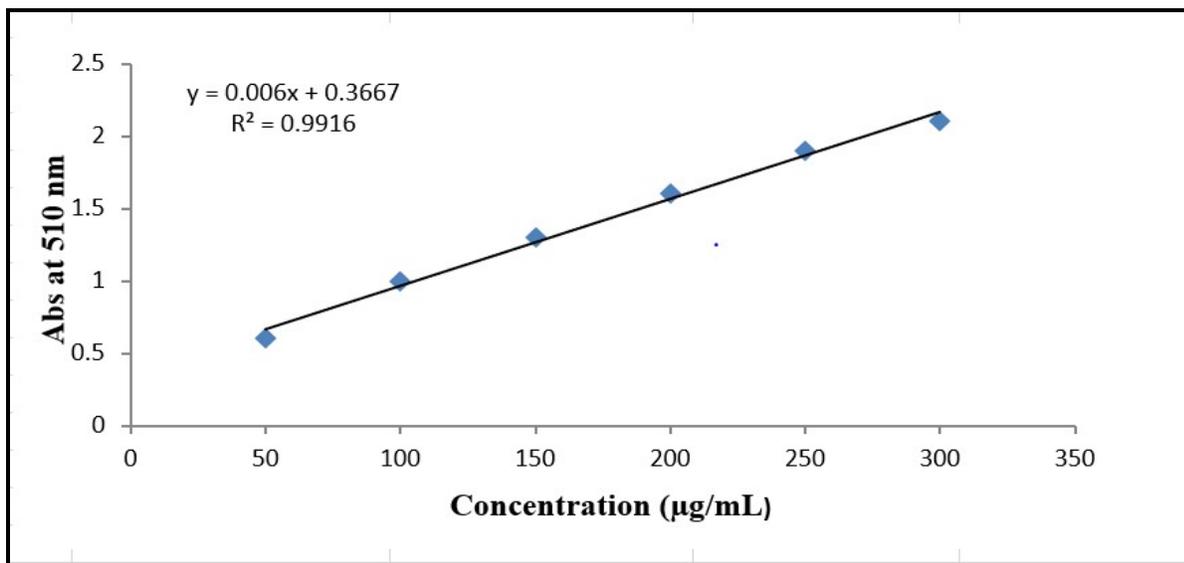


Figure S1: Calibration curve used for TFC using standard rutin

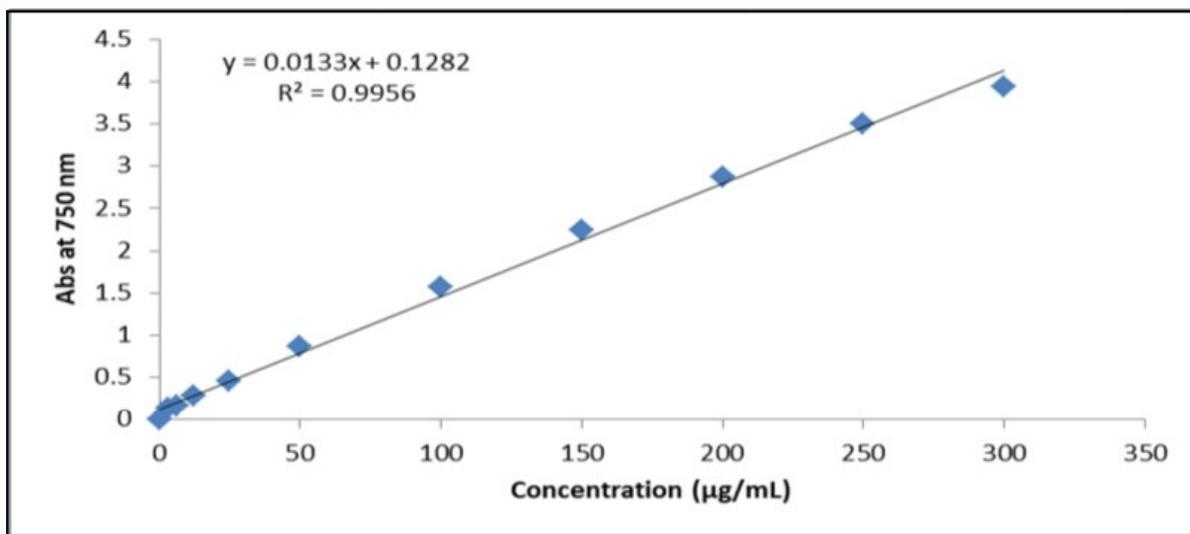


Figure S2: Calibration curve used for TPC using standard Gallic acid

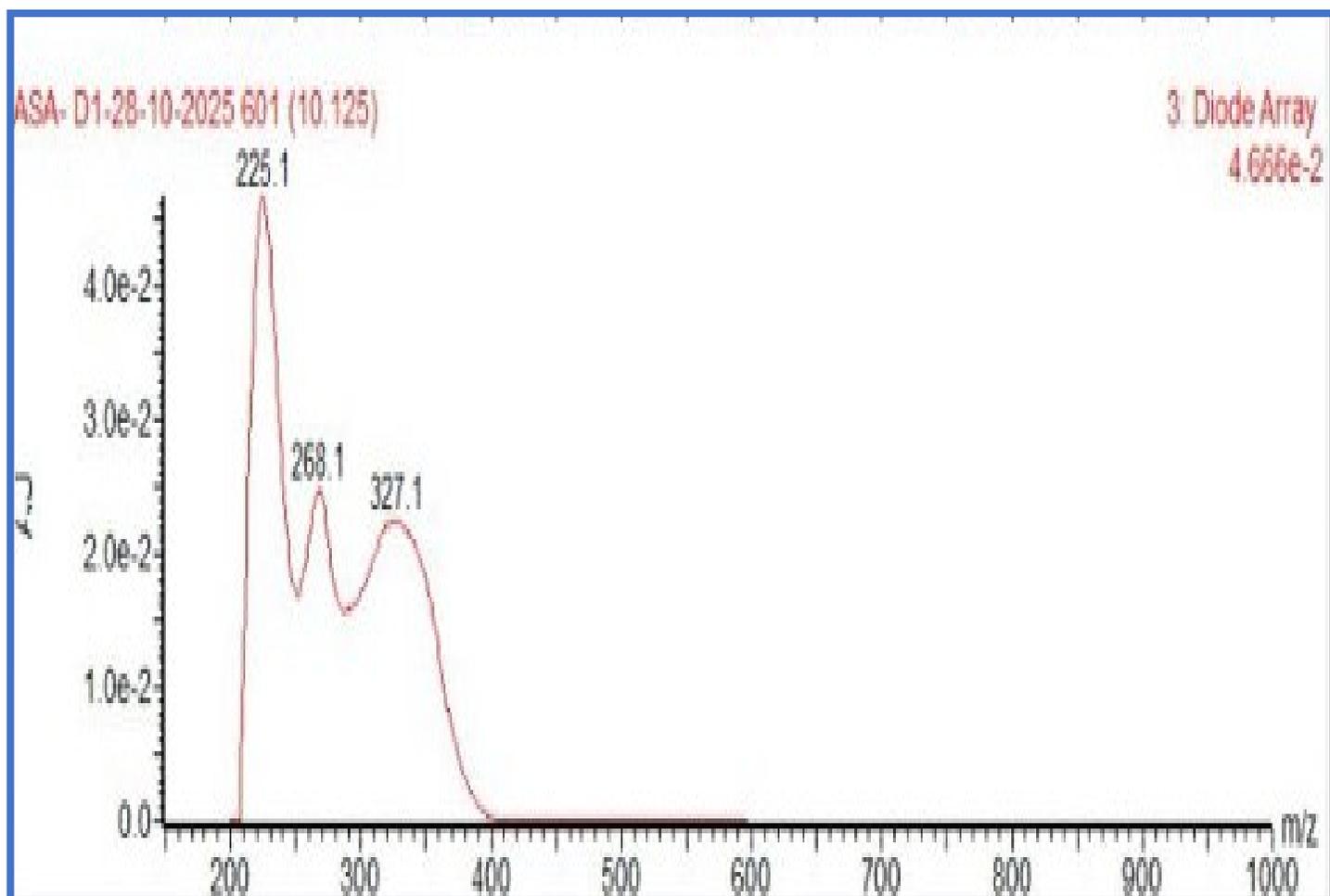


Figure S3: Photodiode array UV spectrum of compound 1 in MeOH

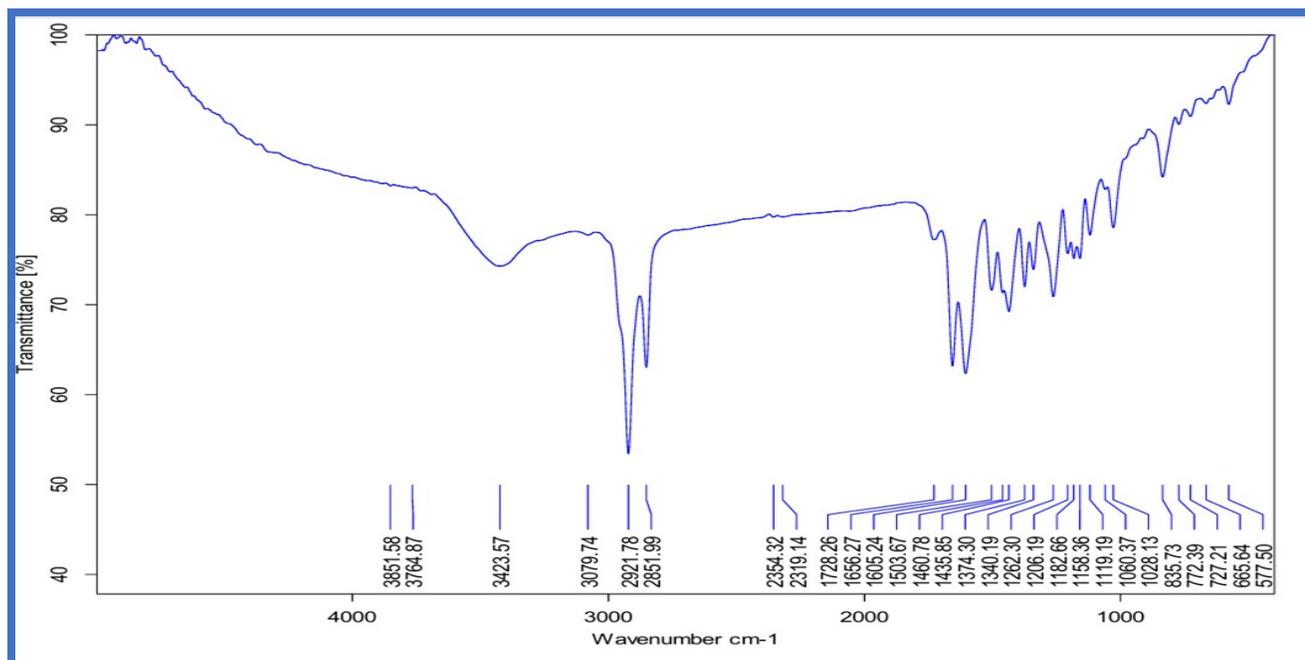


Figure S4: IR spectrum of compound 1 (KBr disc)

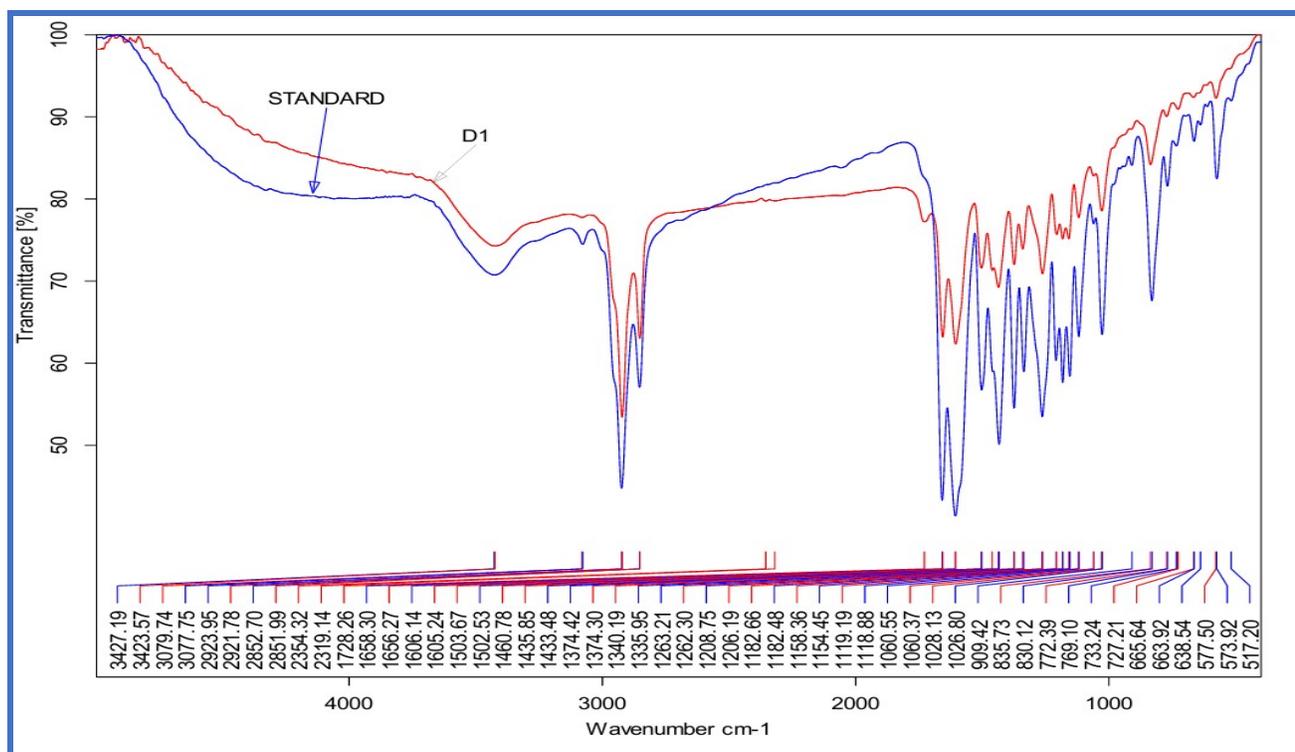


Figure S5: IR superimposable fingerprint of compound 1 with authentic (7,7'',4',4''' tetra-O-methyl amentoflavone)

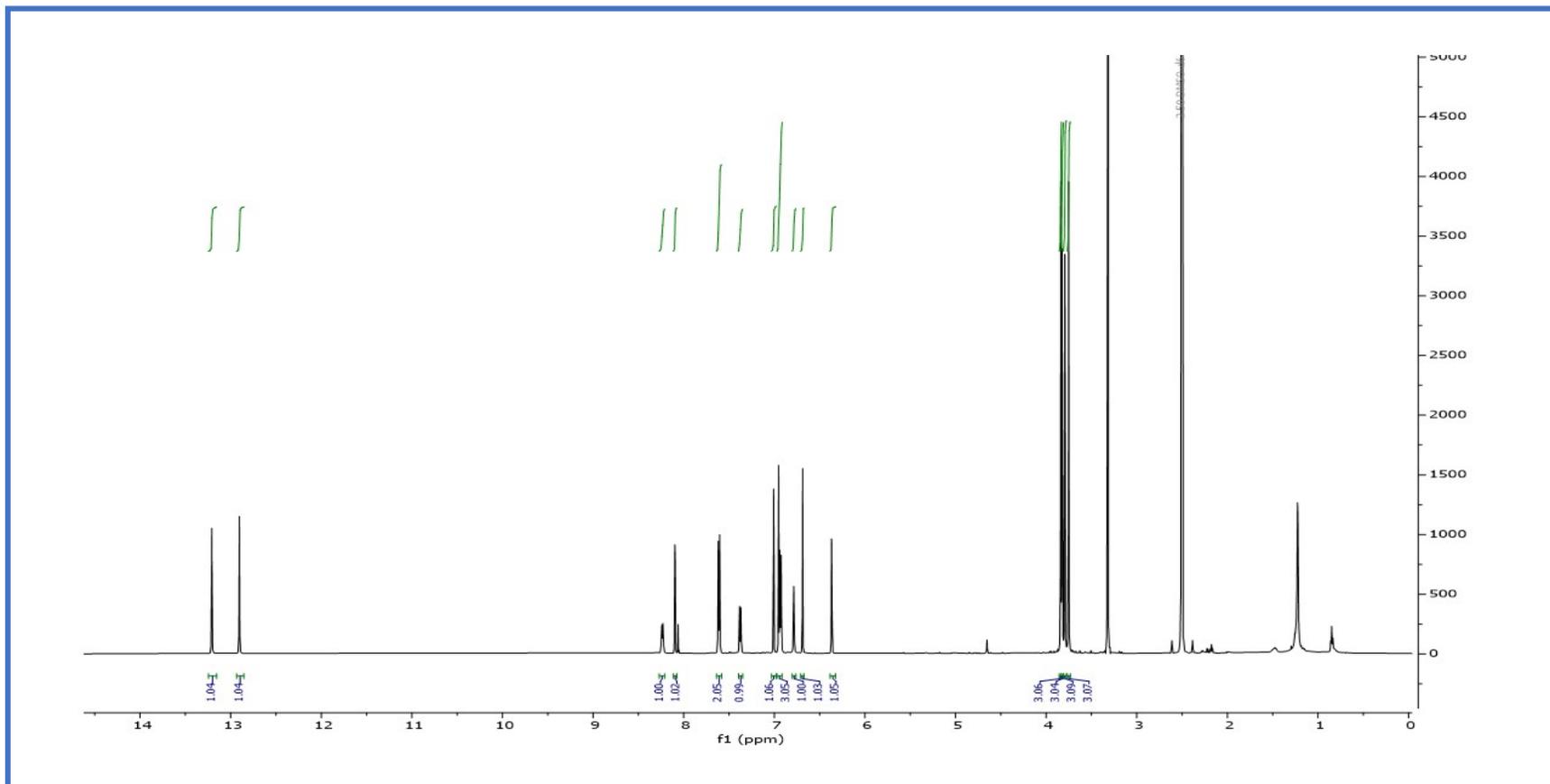


Figure S6a: ¹H-NMR spectrum of compound 1(isolated from DCM) (DMSO-*d*₆, 600 MHz)

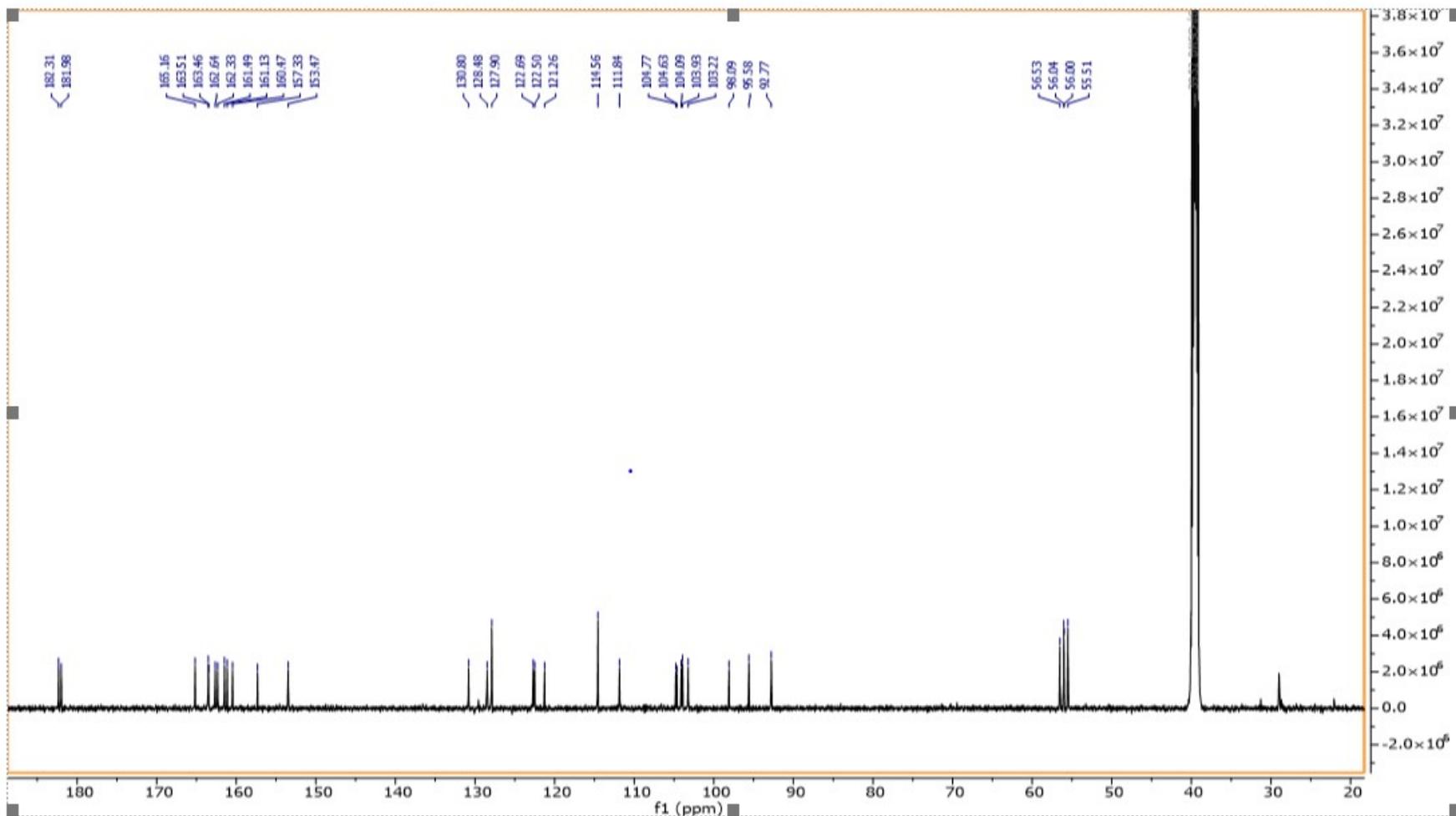


Figure S7a: ¹³C-NMR spectrum of compound 1(isolated from DCM) (DMSO-*d*₆, 151 MHz)

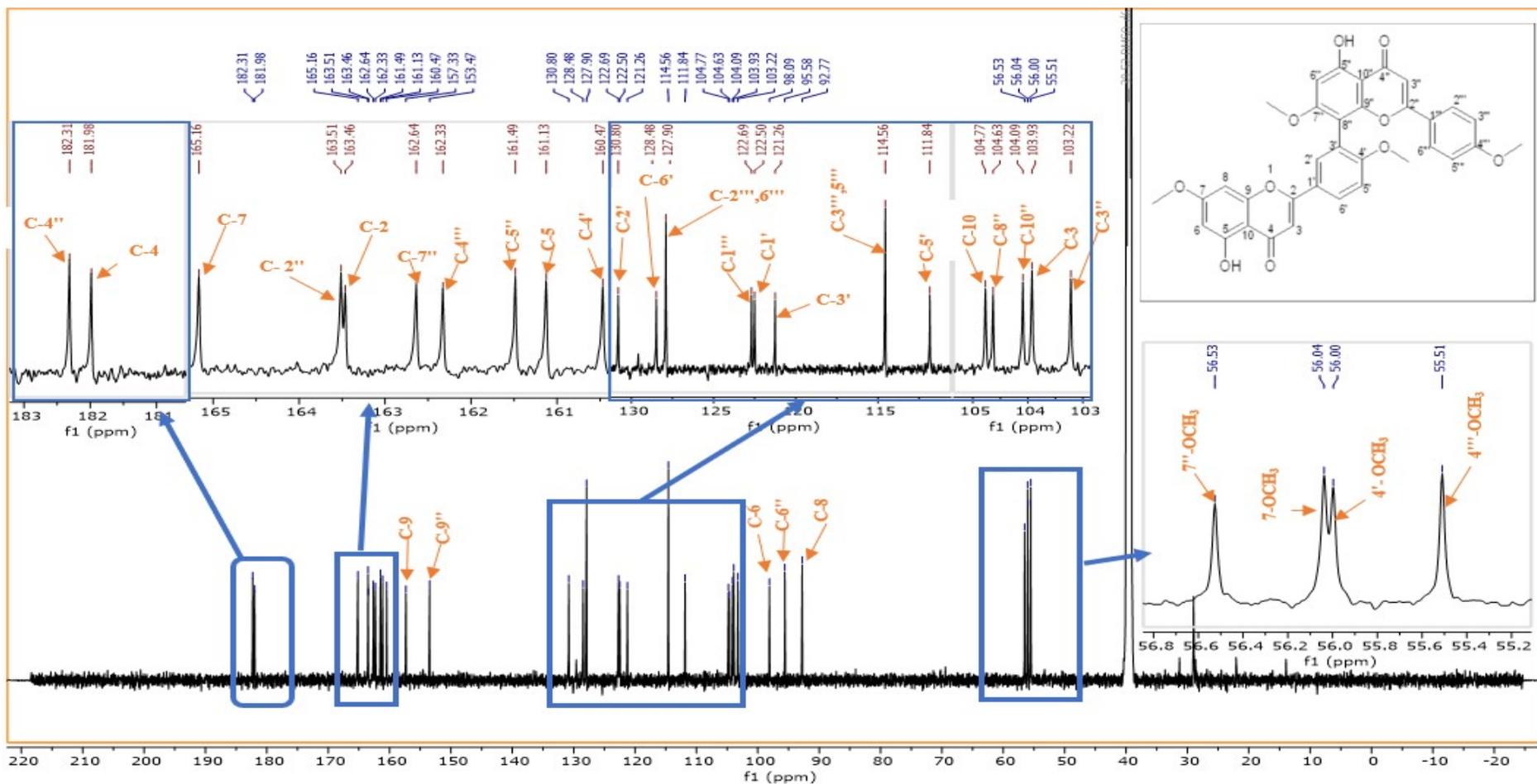


Figure S7b: ^{13}C -NMR spectrum of compound 1 (isolated from DCM) ($\text{DMSO-}d_6$, 151 MHz) with assignment

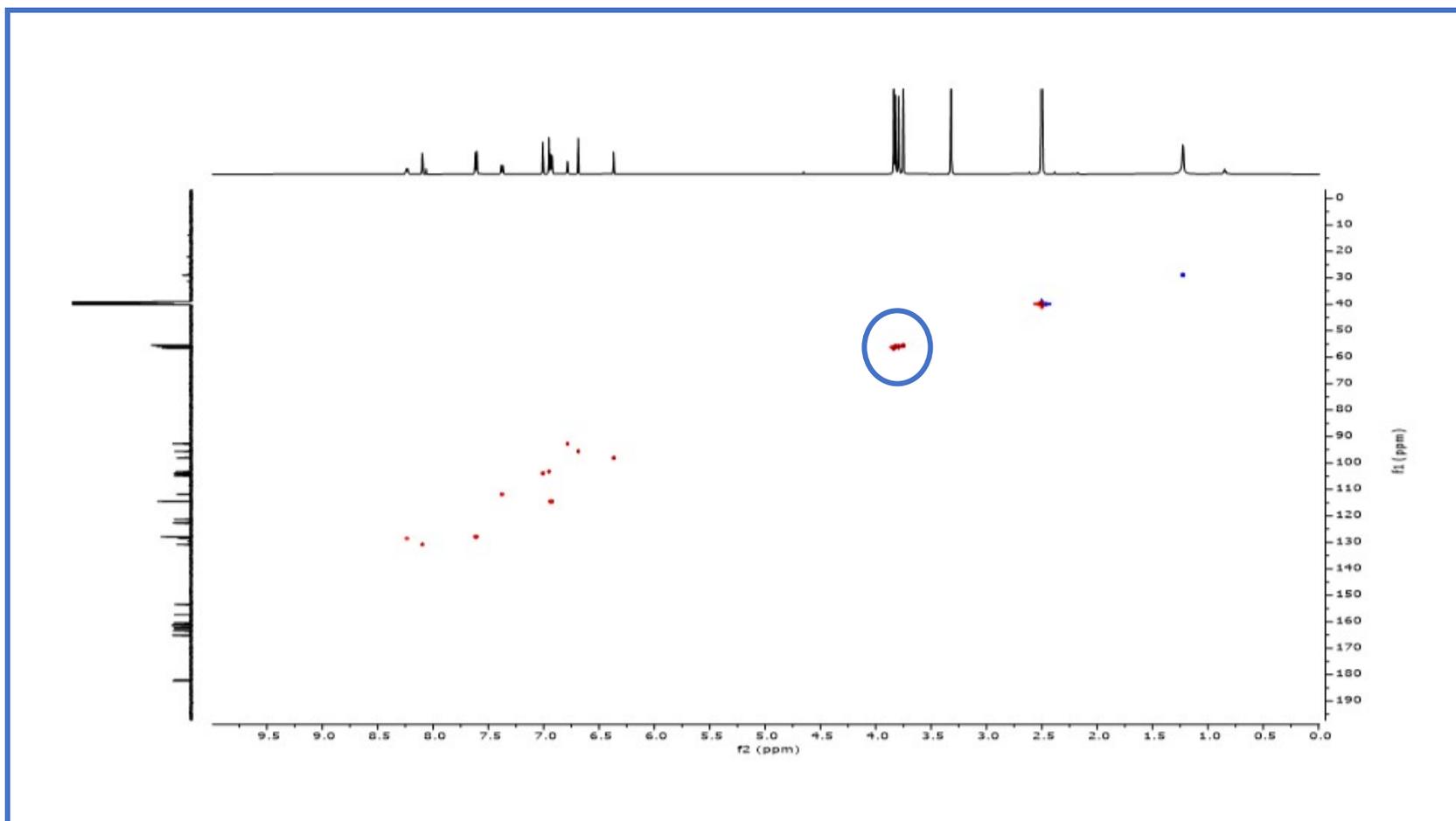


Figure S8a: HSQC spectrum of compound 1 (isolated from DCM) ($\text{DMSO}-d_6$)

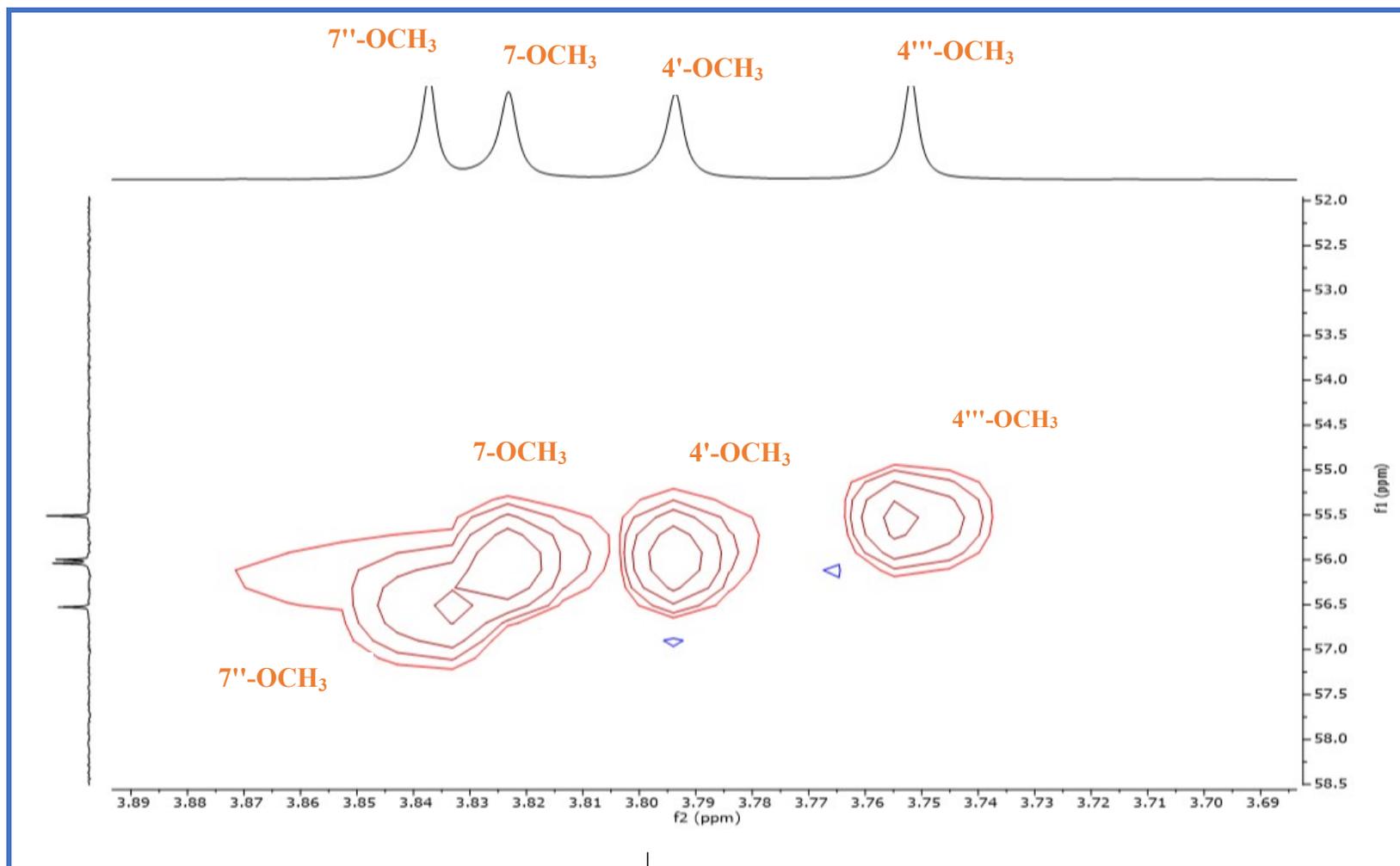


Figure S8b: HSQC spectrum of compound 1 (isolated from DCM) ($\text{DMSO-}d_6$) with assignment

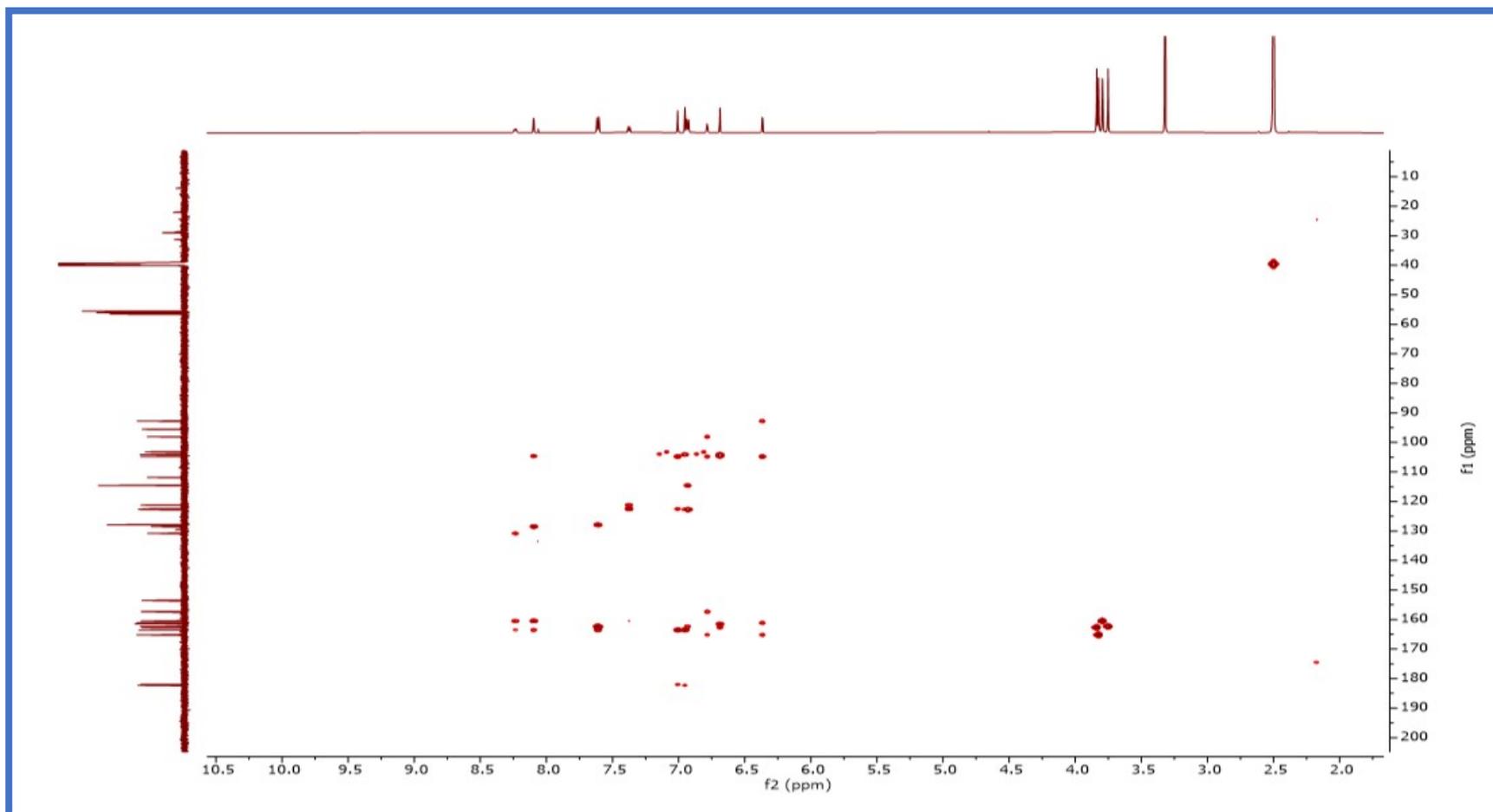


Figure S9a: HMBC spectrum of compound 1(isolated from DCM) ($\text{DMSO-}d_6$)

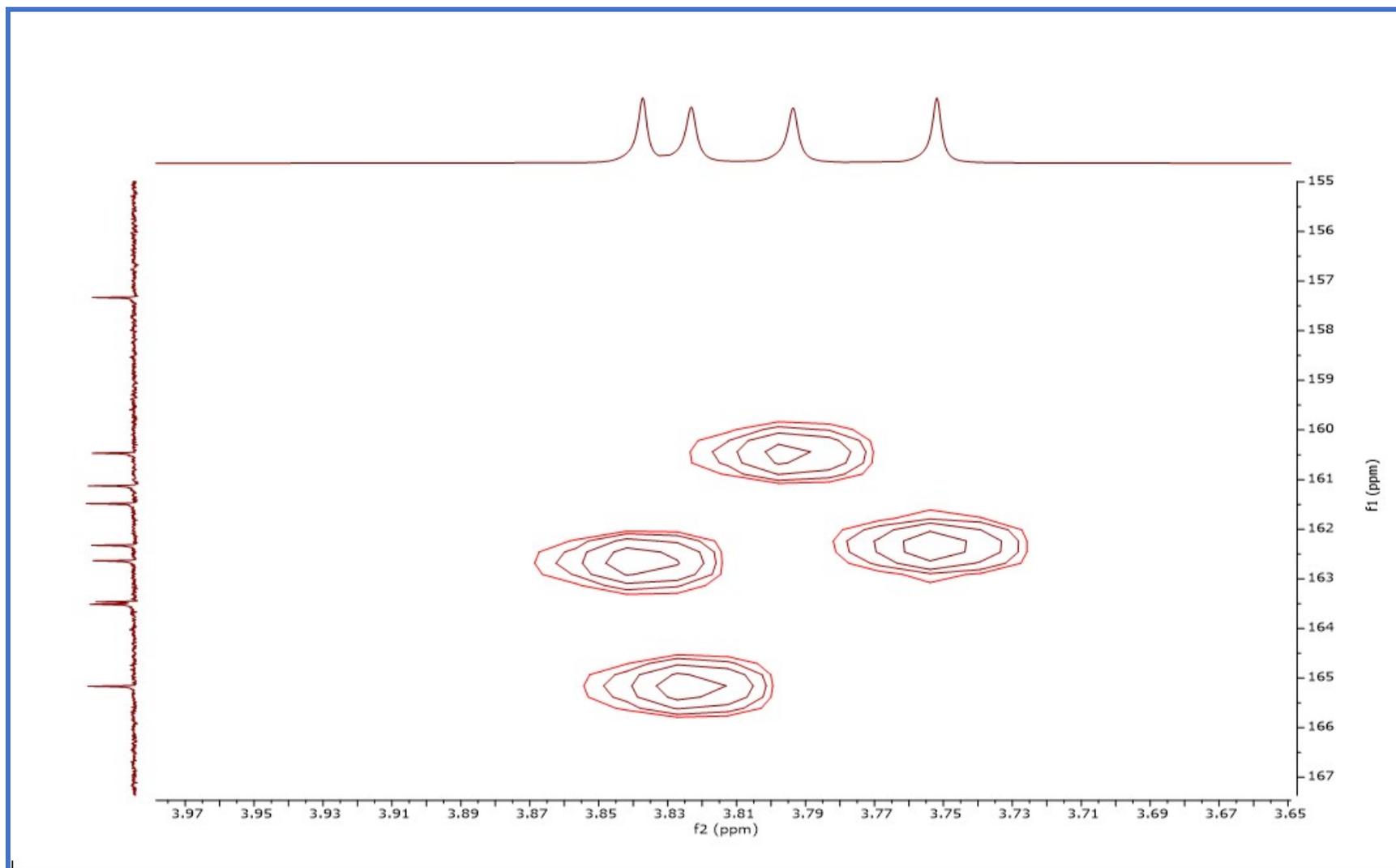


Figure S9b: HMBC spectrum of compound 1(DMSO-*d*₆) (isolated from DCM) with assignment

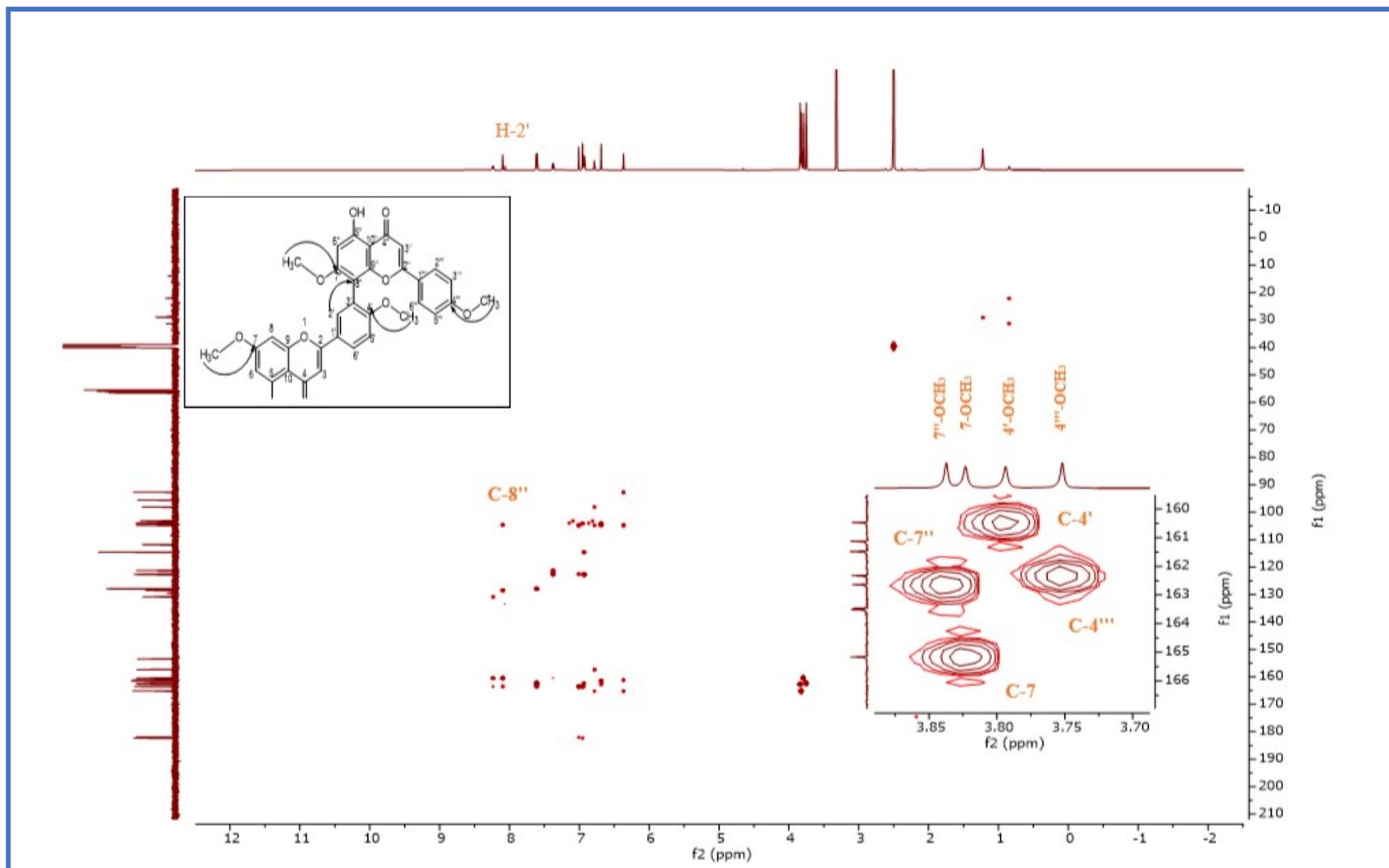


Figure S9c: HMBC spectrum of compound 1 (isolated from DCM) ($\text{DMSO-}d_6$) with assignment

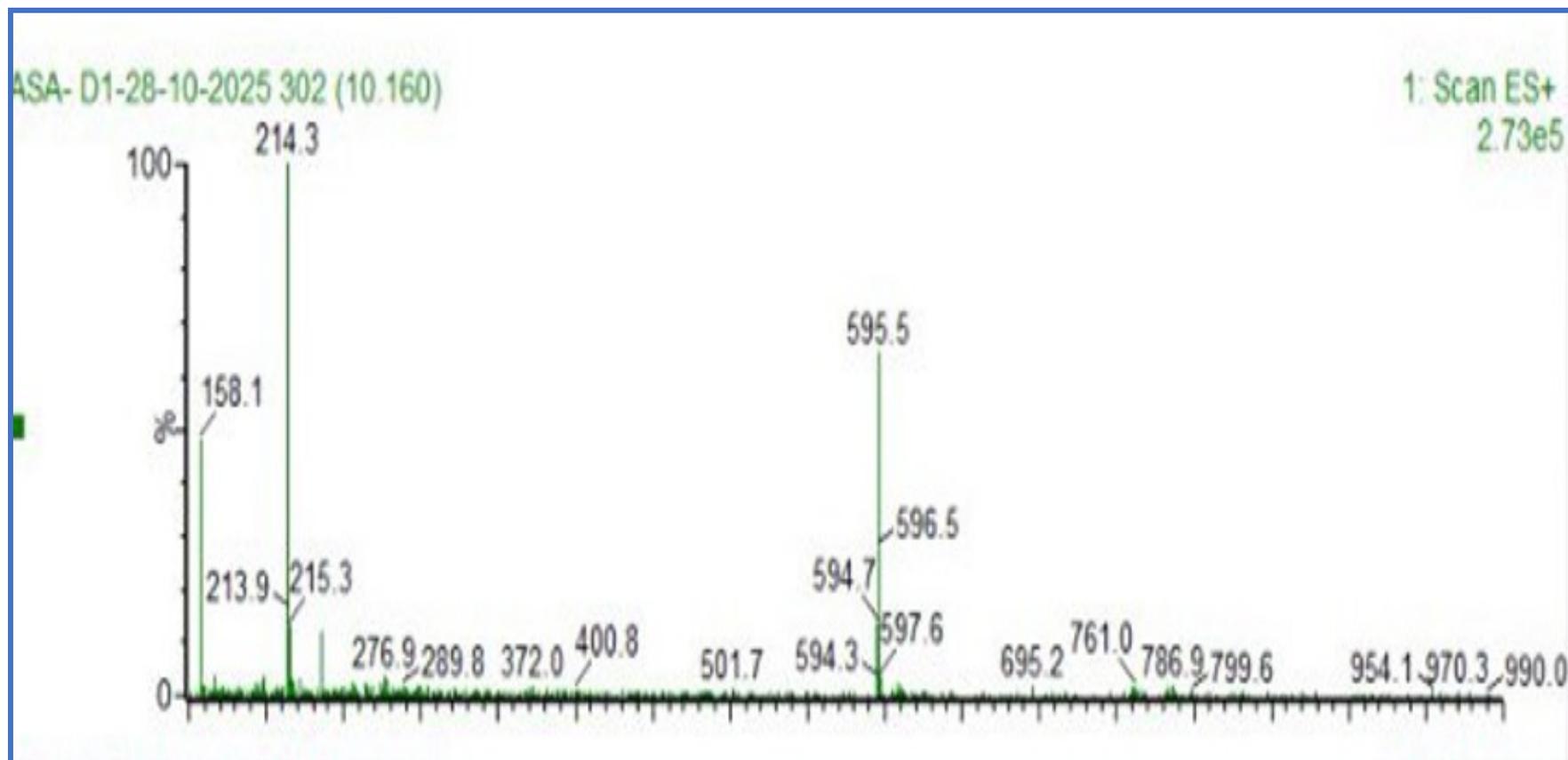


Figure S10: HPLC-ESI-MS (Positive ion mode) of compound 1 (isolated from DCM)

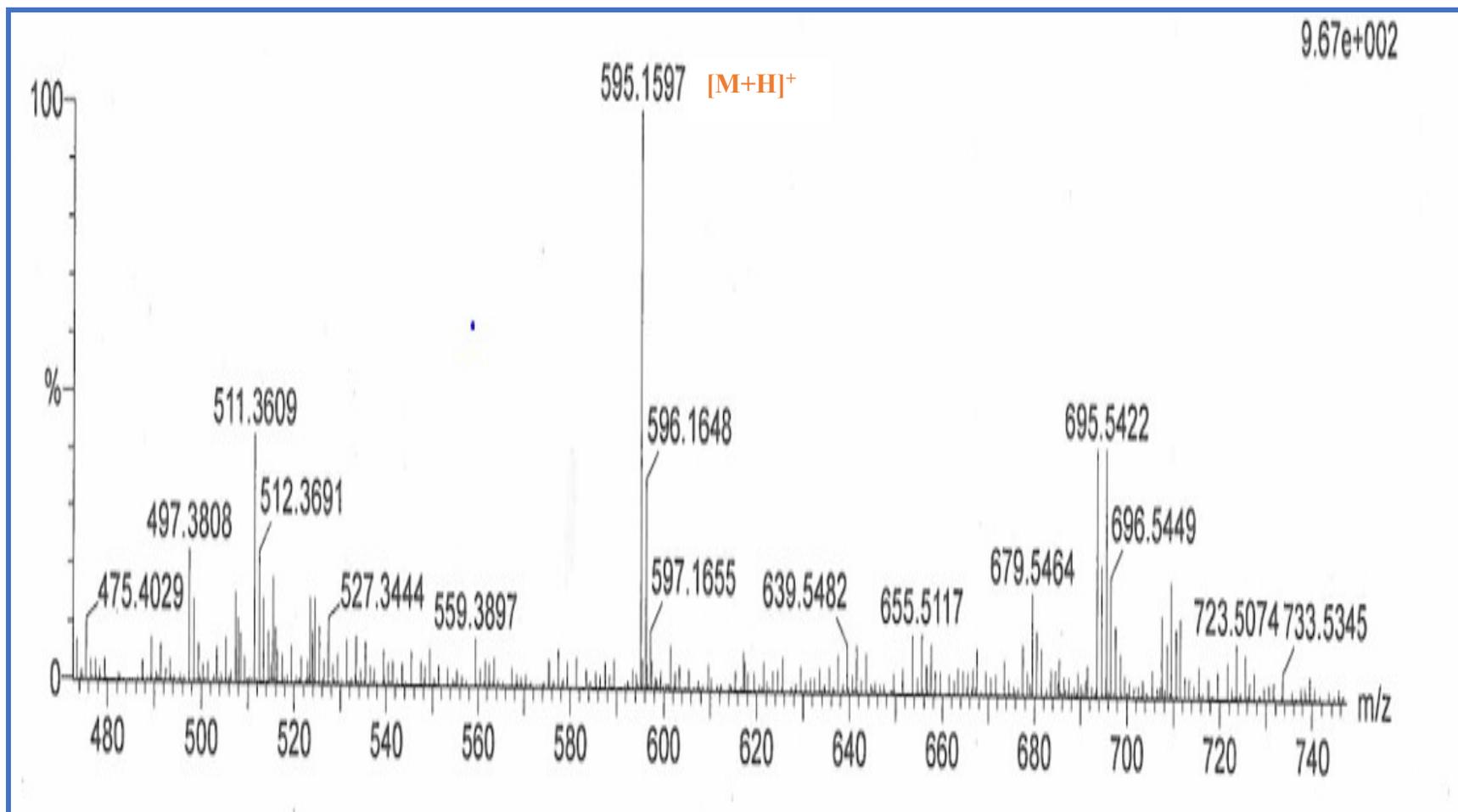


Figure S11: HR-ESI-MS (Positive mode) of compound 1 (isolated from DCM)

AA 55 H



Current Data Parameters
NAME ME20251103
EXPNO 40
PROCNO 1

F2 - Acquisition Parameters
Date_ 20251103
Time 16.23 h
INSTRUM spect
PROBHD Z116098_0618 (
PULPROG zg30
TD 131072
SOLVENT DMSO
NS 128
DS 0
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 5.4525952 sec
RG 112.02
DW 41.600 usec
DE 11.87 usec
TE 298.2 K
D1 0.10000000 sec
TDO 1
SFO1 400.1524711 MHz
NUC1 1H
P1 10.00 usec
PLW1 15.84799957 W

F2 - Processing parameters
SI 131072
SF 400.1500000 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

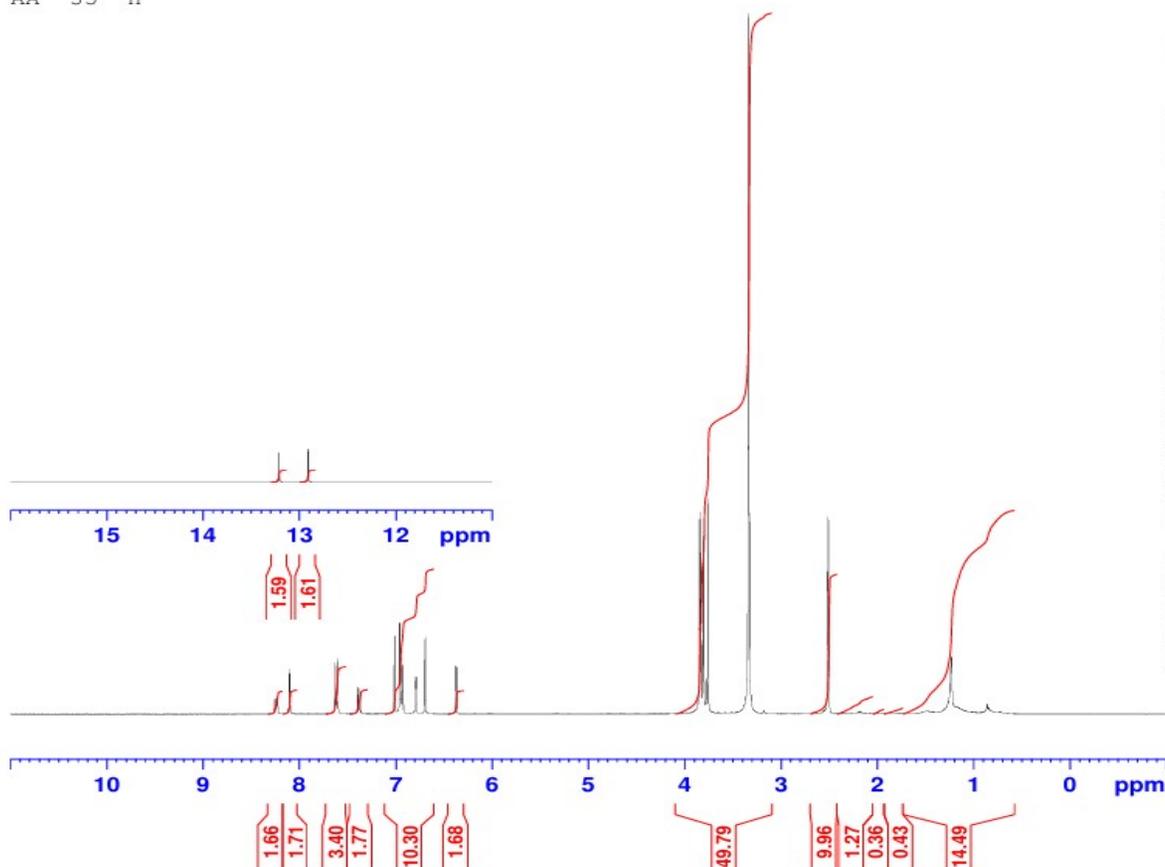


Figure S12a: ¹H-NMR spectrum of compound 1 (isolated from the total extract) (DMSO-*d*₆, 400 MHz)

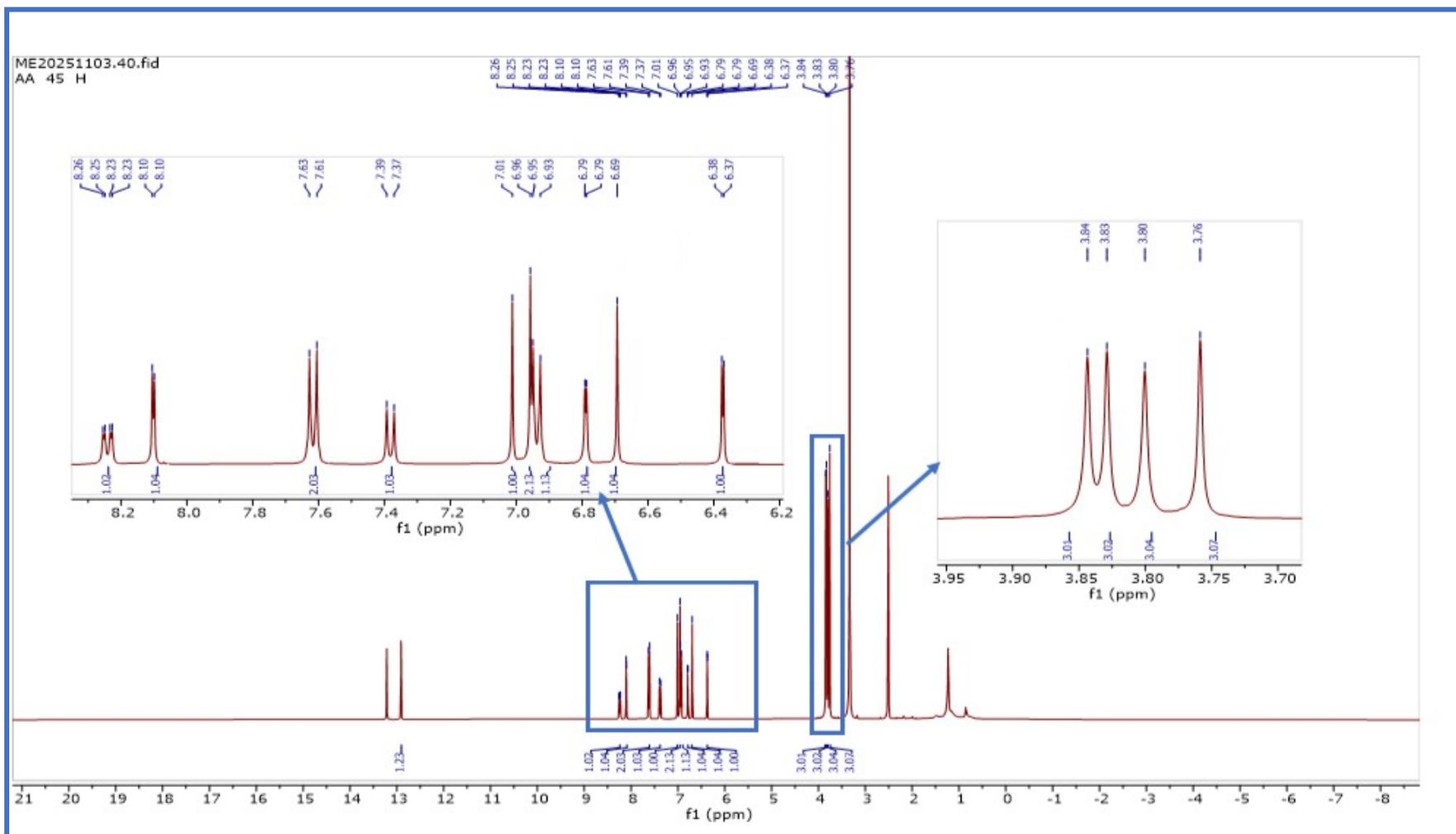


Figure S12b: ¹H-NMR spectrum of compound 1 (isolated from the total extract) (DMSO-*d*₆, 400 MHz) With assignment

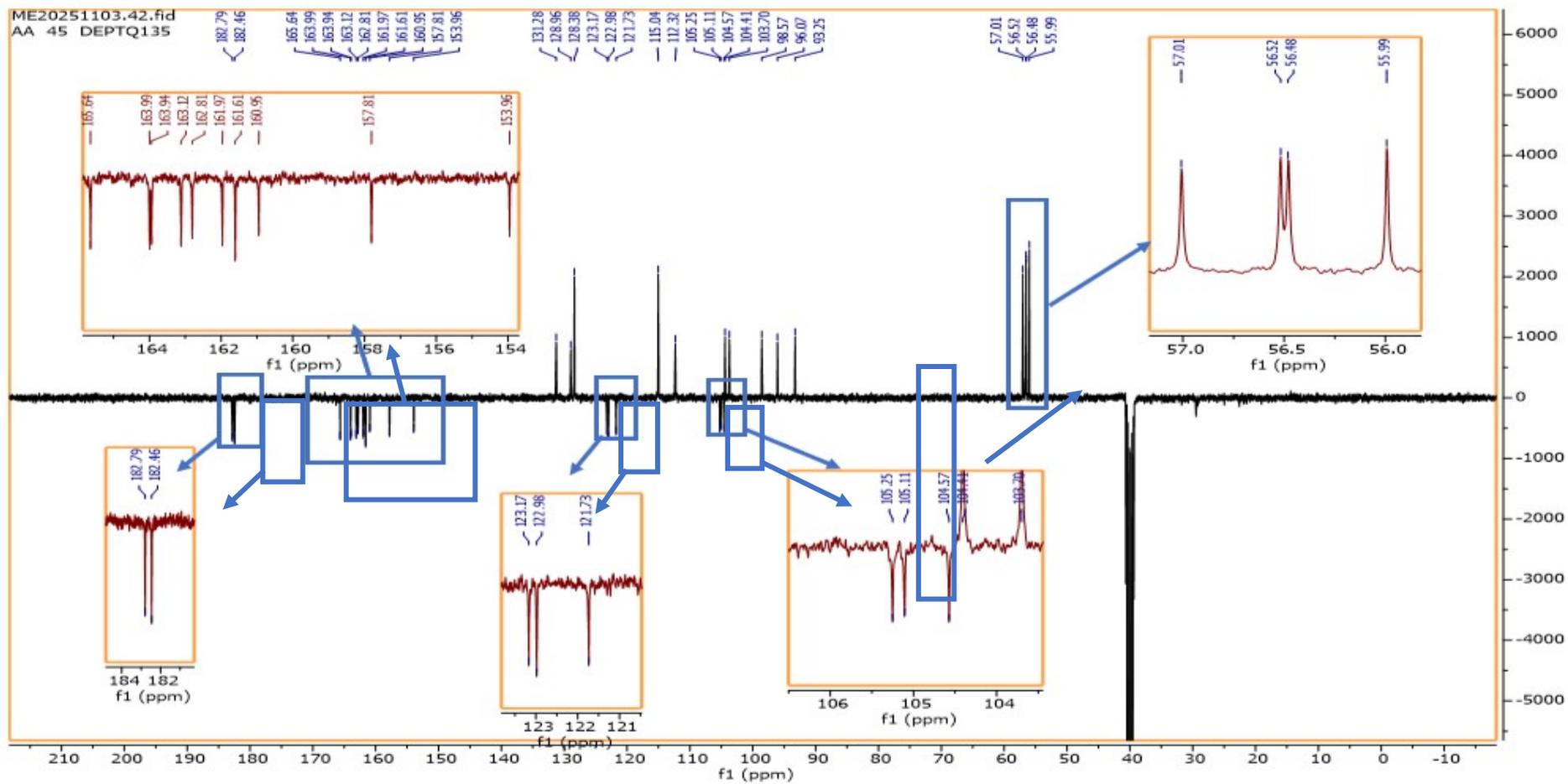


Figure S13: DEPTQ-135 NMR spectrum of compound 1 (isolated from the total extract) (DMSO- d_6 , 101 MHz)

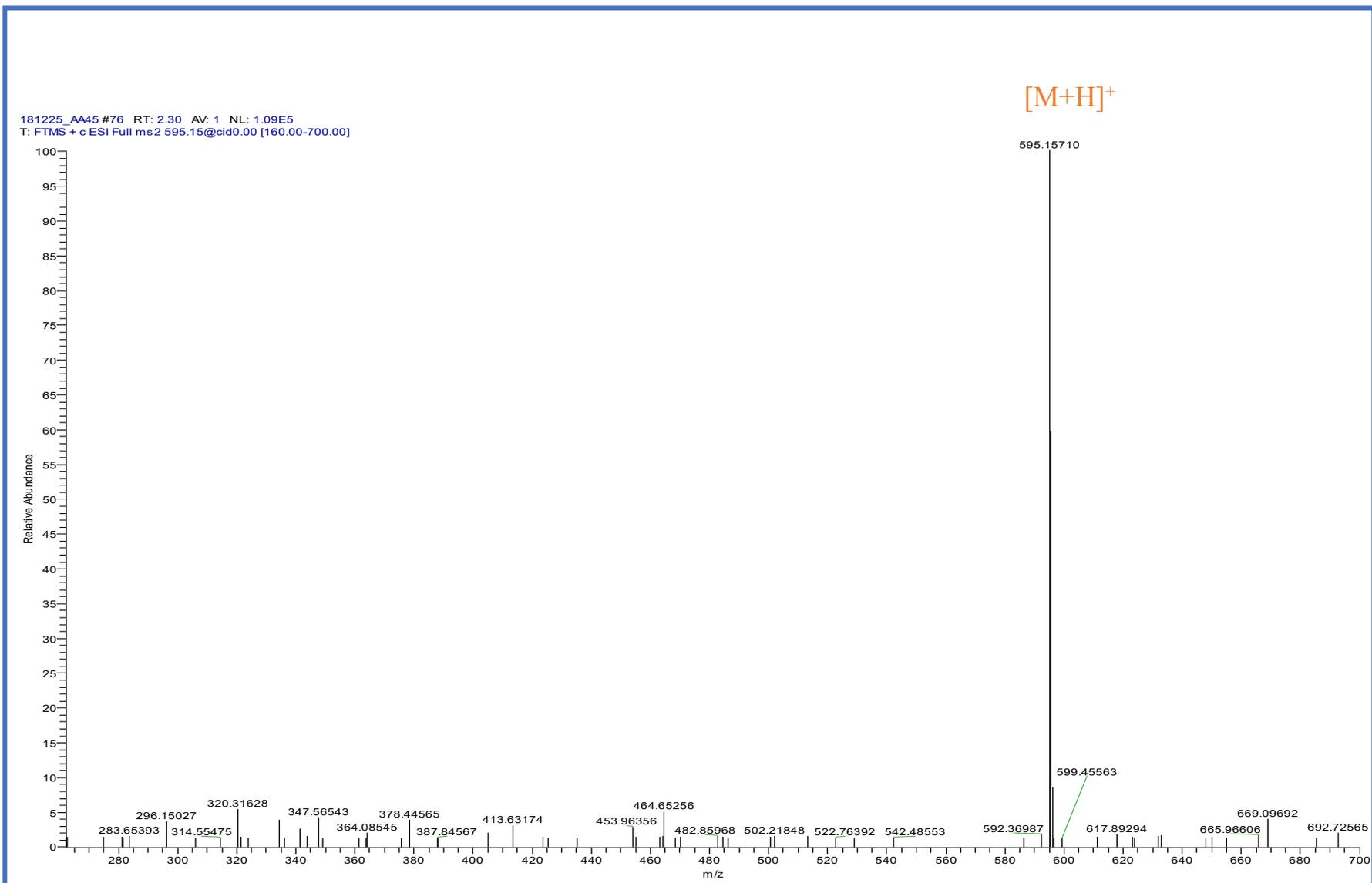


Figure S14: HR-ESI-MS (Positive mode) of compound 1 (isolated from the total extract)

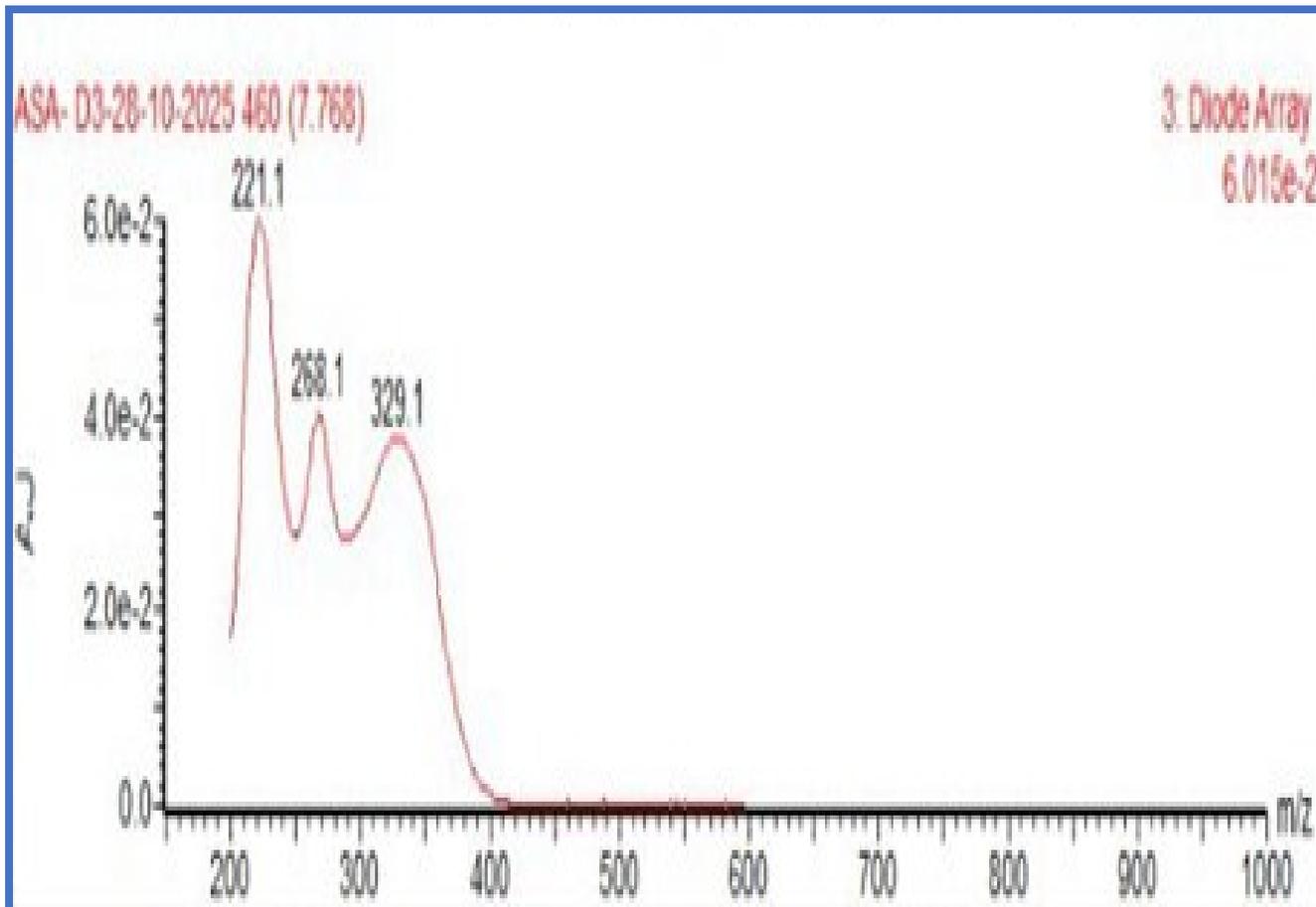


Figure S15: Photodiode array UV spectrum of compound 2 in MeOH

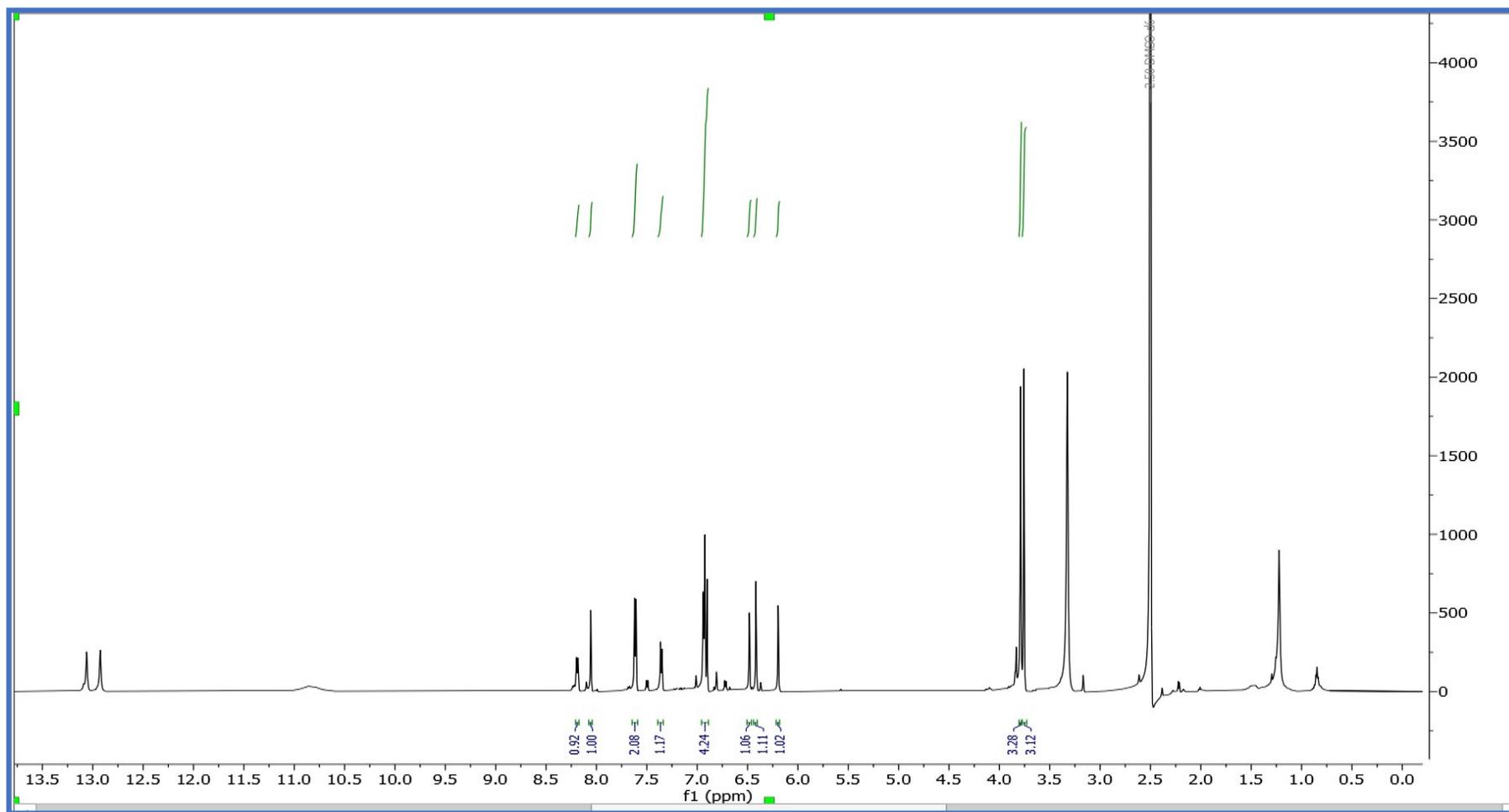


Figure S16a: ¹H-NMR spectrum of compound 2 (DMSO-*d*₆, 600 MHz)

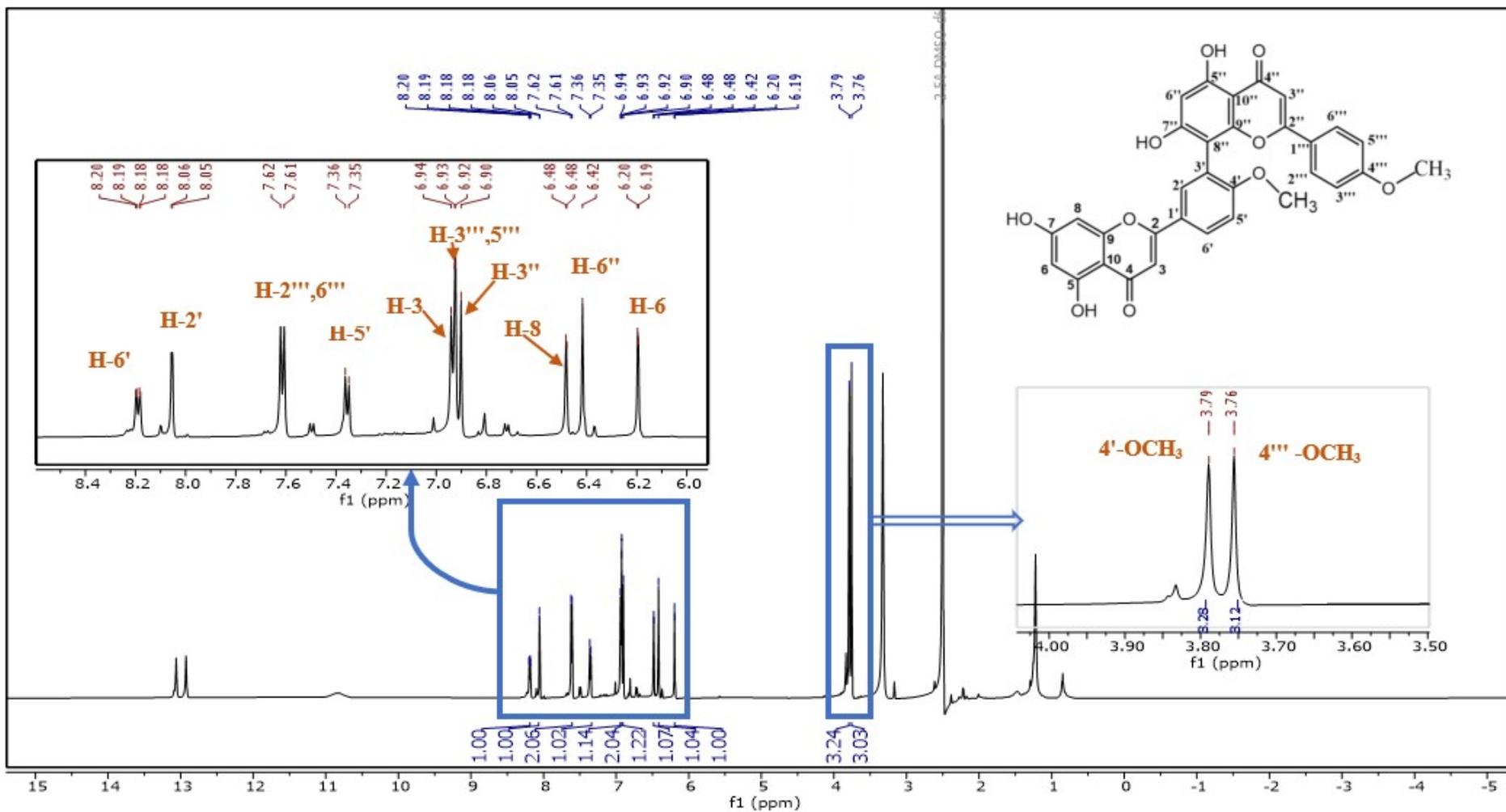


Figure S16b: $^1\text{H-NMR}$ spectrum of compound 2 (DMSO- d_6 , 600 MHz) with assignment

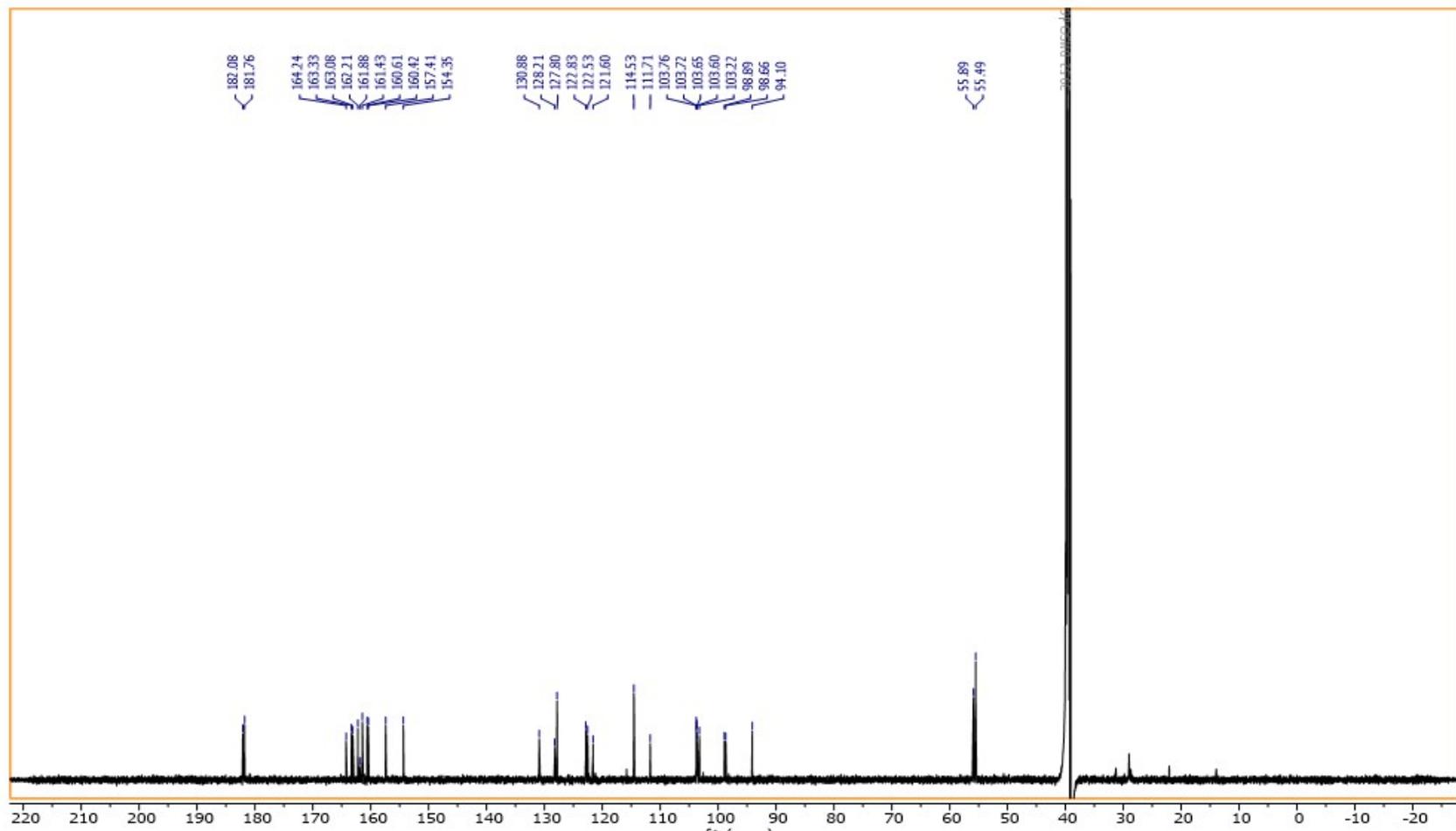


Figure S17a: ^{13}C -NMR spectrum of compound 2 (DMSO- d_6 , 151 MHz)

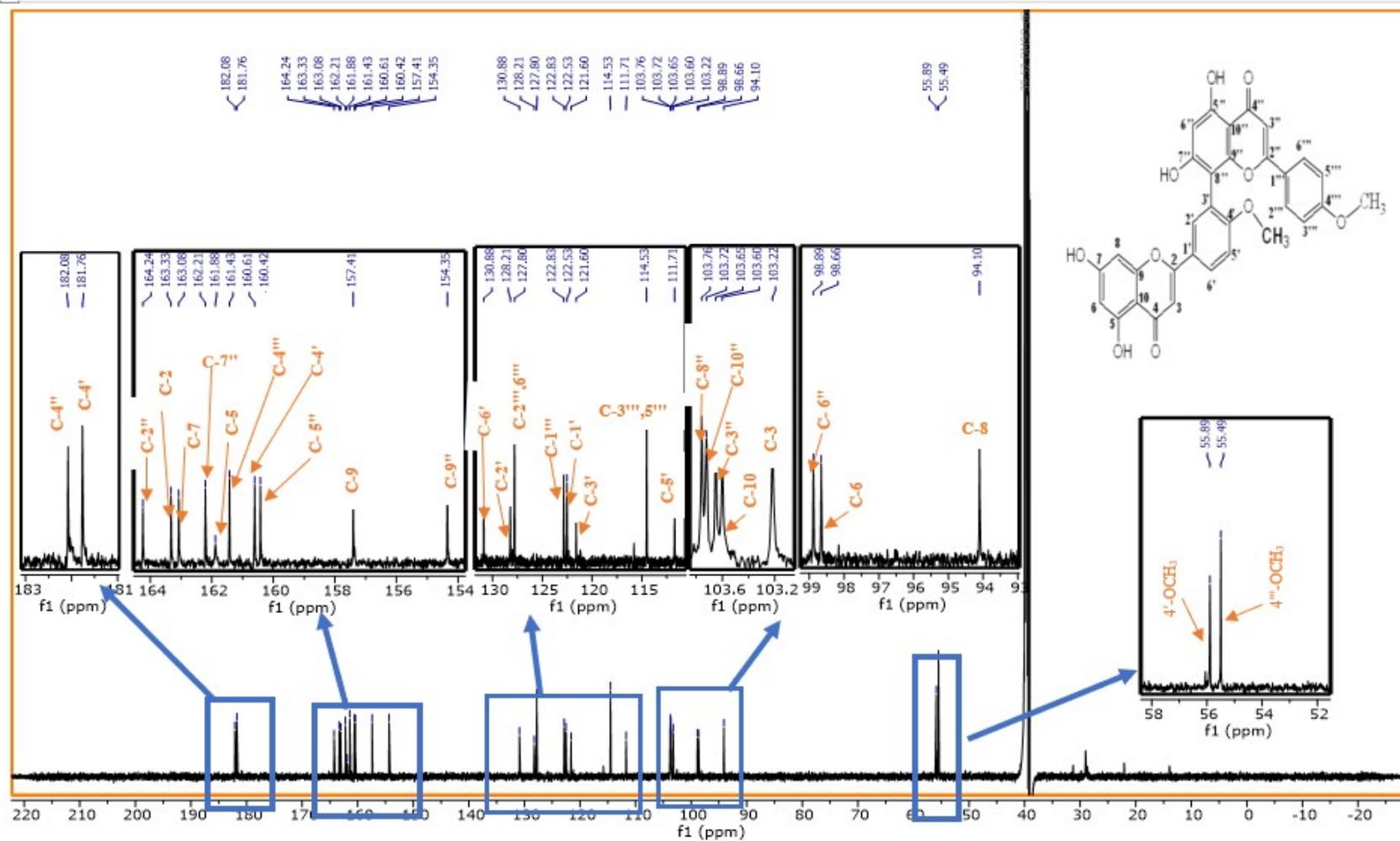


Figure S17b: ^{13}C -NMR spectrum of compound 2 (DMSO- d_6 , 151 MHz) with assignment

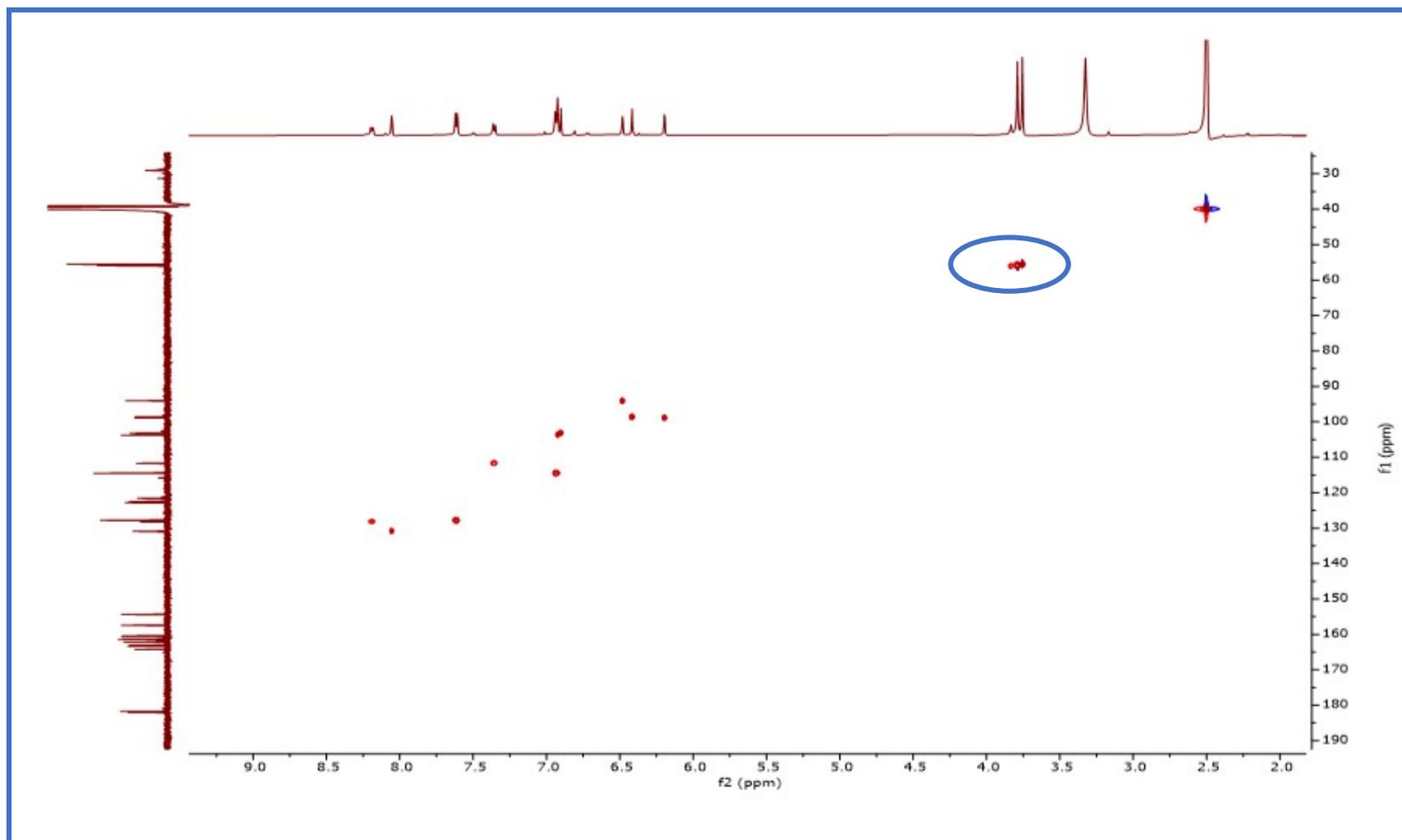


Figure S18a: HSQC spectrum of compound 2 (DMSO-*d*₆)

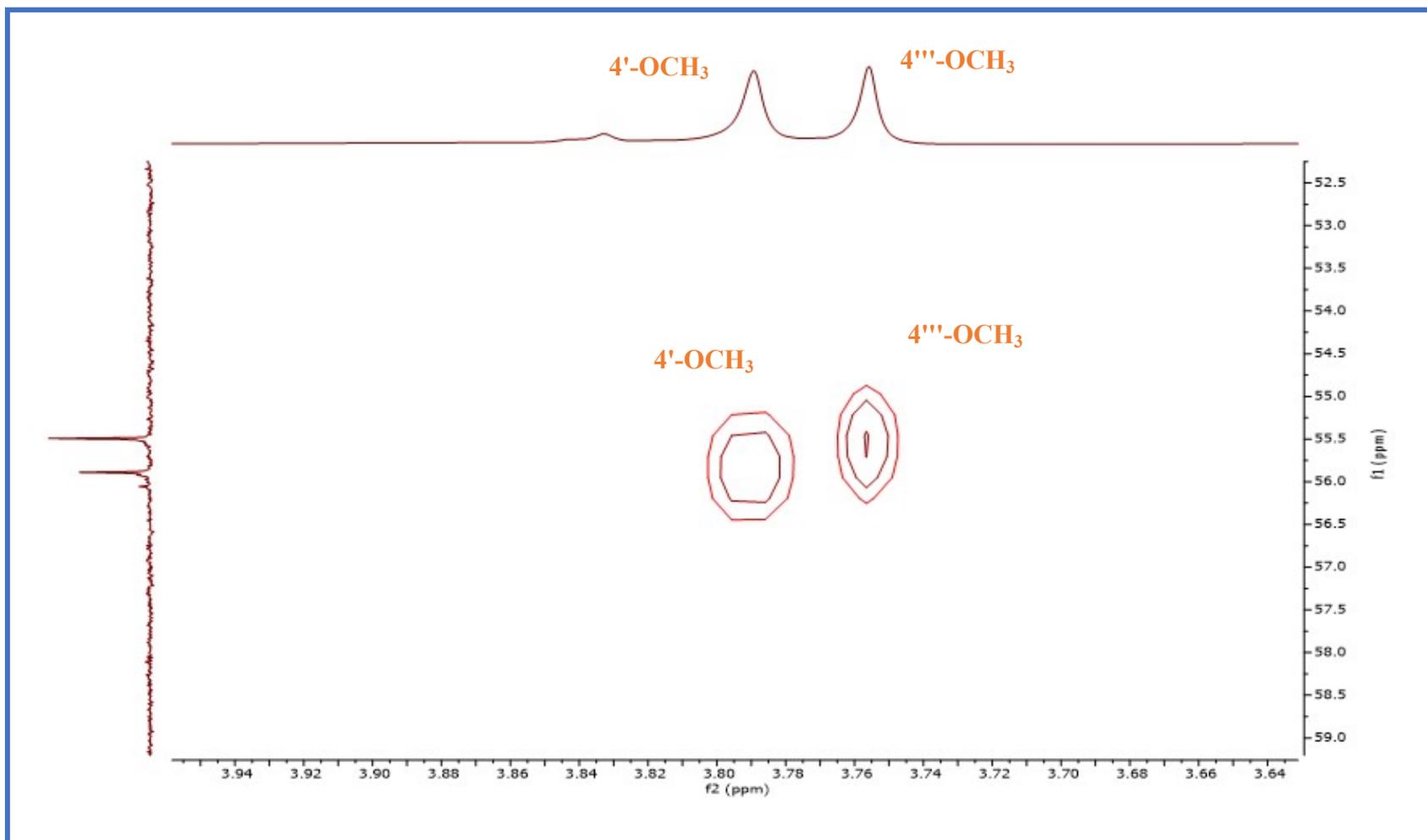


Figure S18b: HSQC spectrum of compound 2 (DMSO- d_6) with assignment

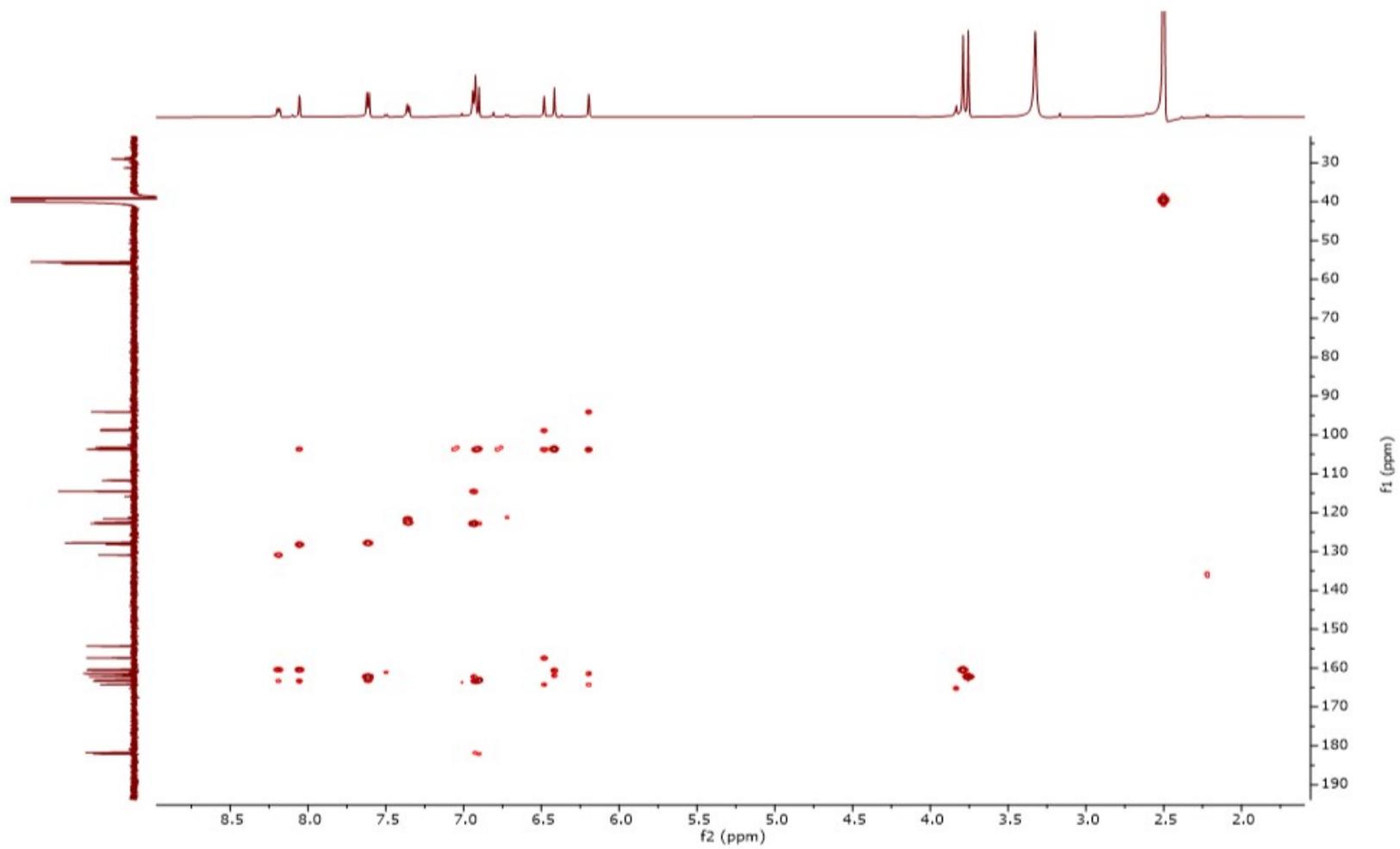


Figure S19a: HMBC spectrum of compound 2 (DMSO- d_6)

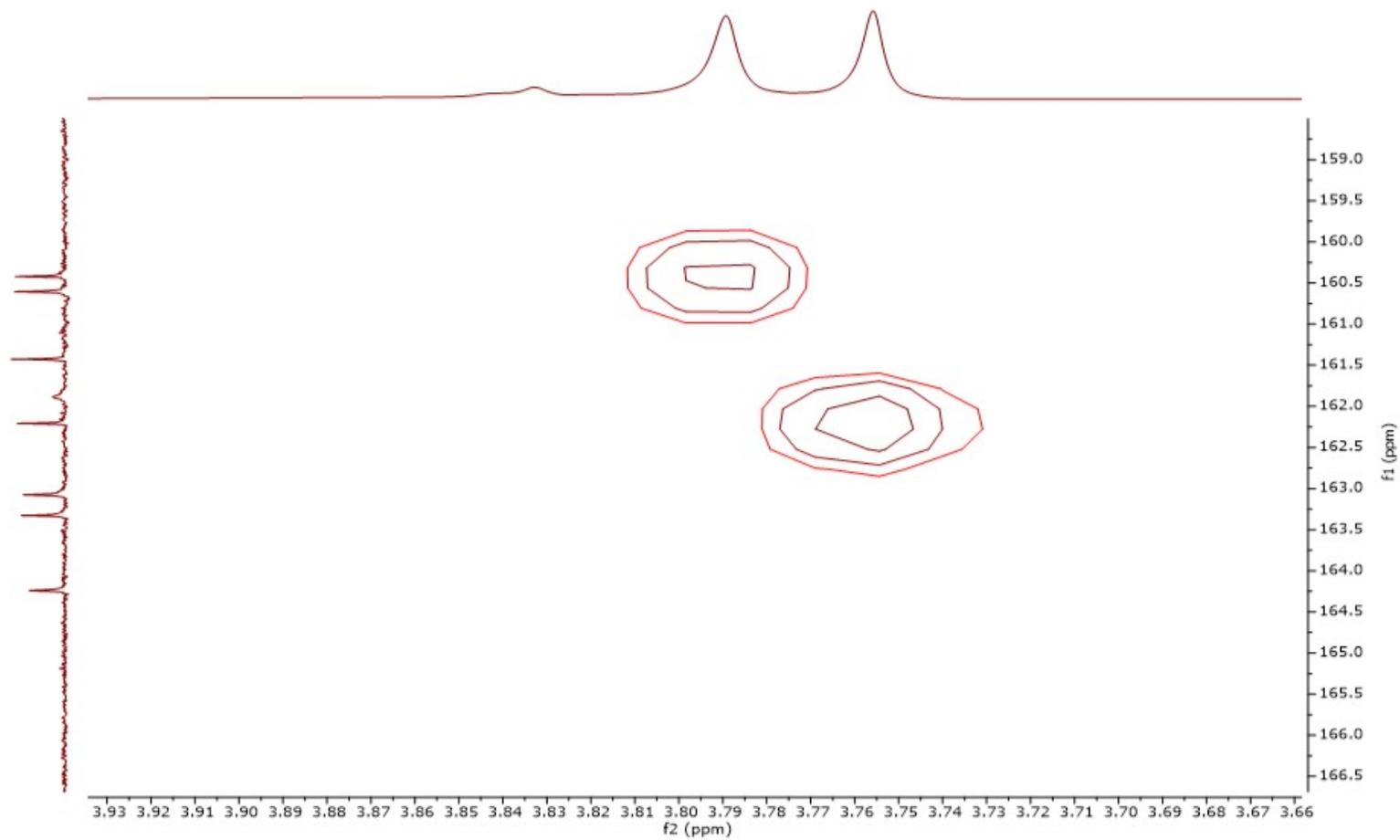


Figure S19b: HMBC spectrum of compound 2 (DMSO-*d*₆) with assignment

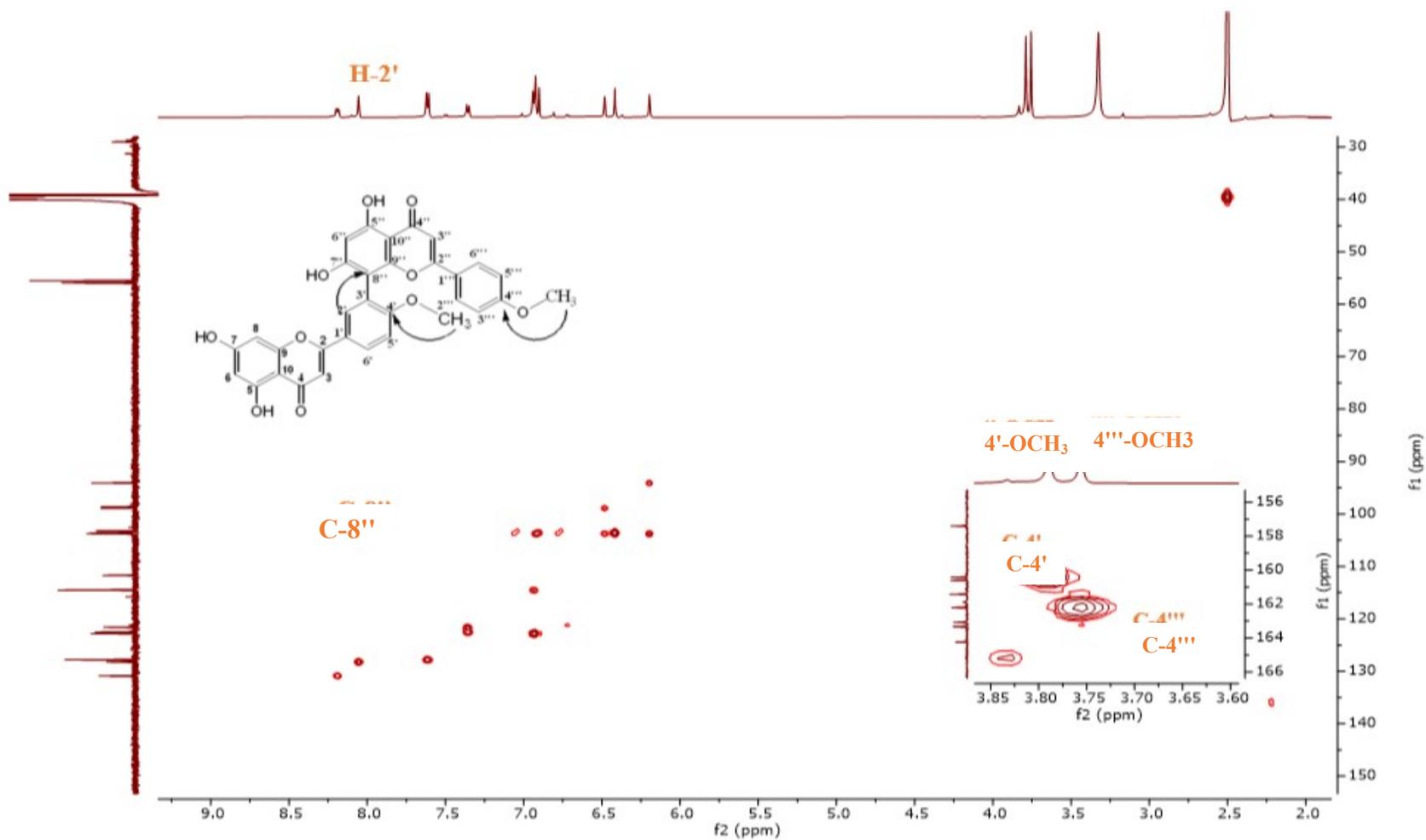


Figure S19c: HMBC spectrum of compound 2 (DMSO-*d*₆) with assignment

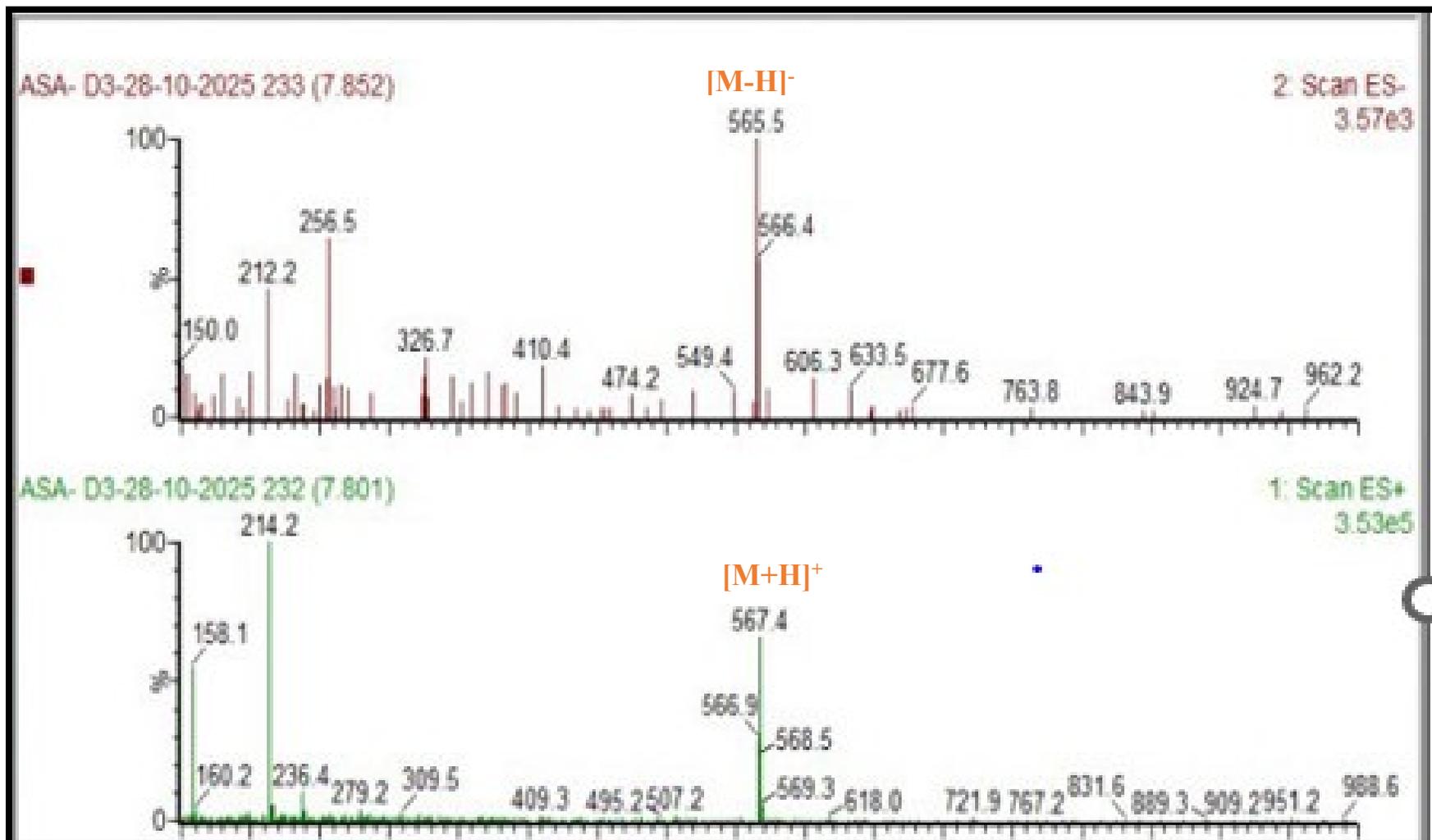


Figure S20: HPLC-ESI-MS (Negative (top) and Positive (bottom) ion modes) of compound 2

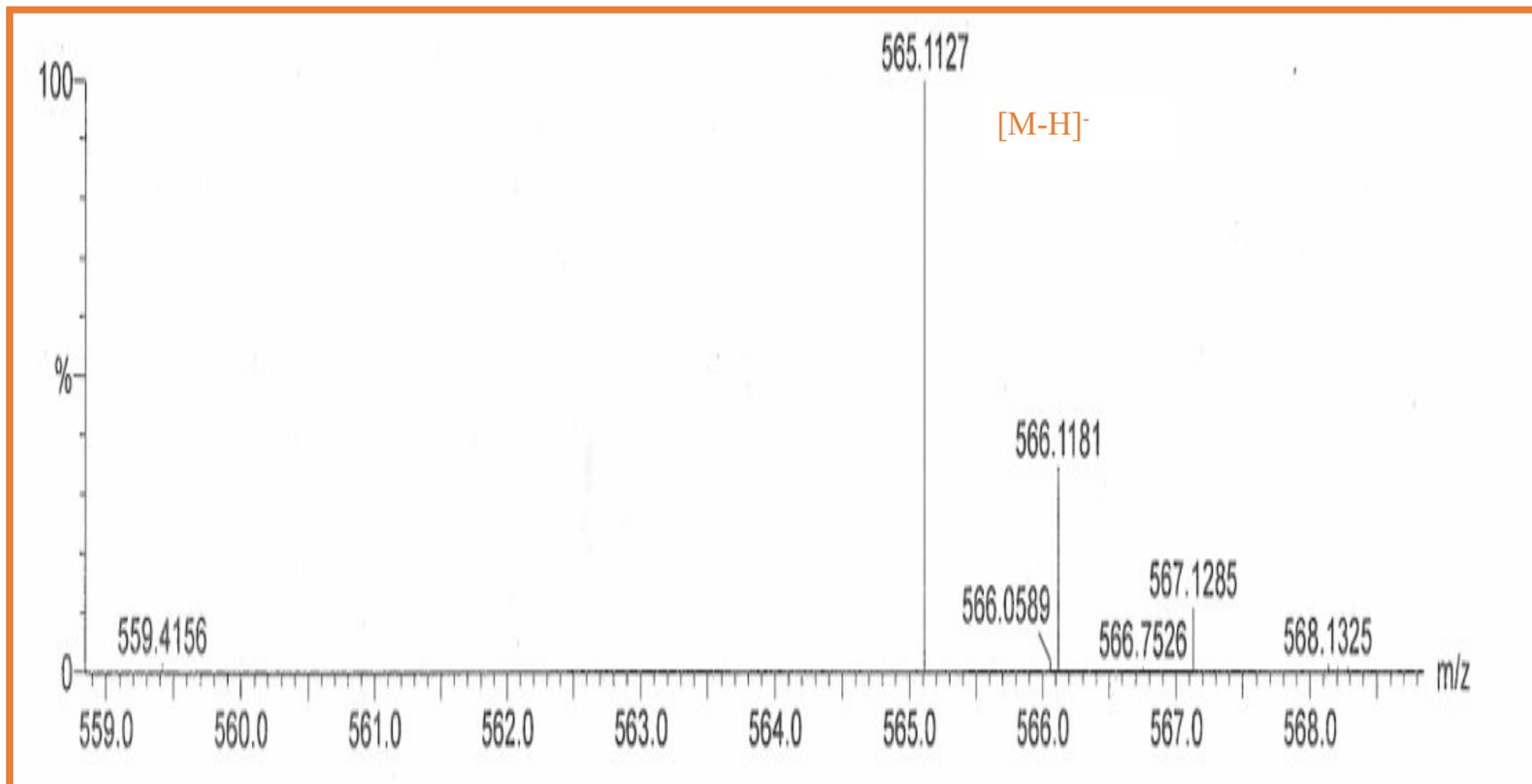


Figure S21: HR-ESI-MS (negative mode) of compound 2

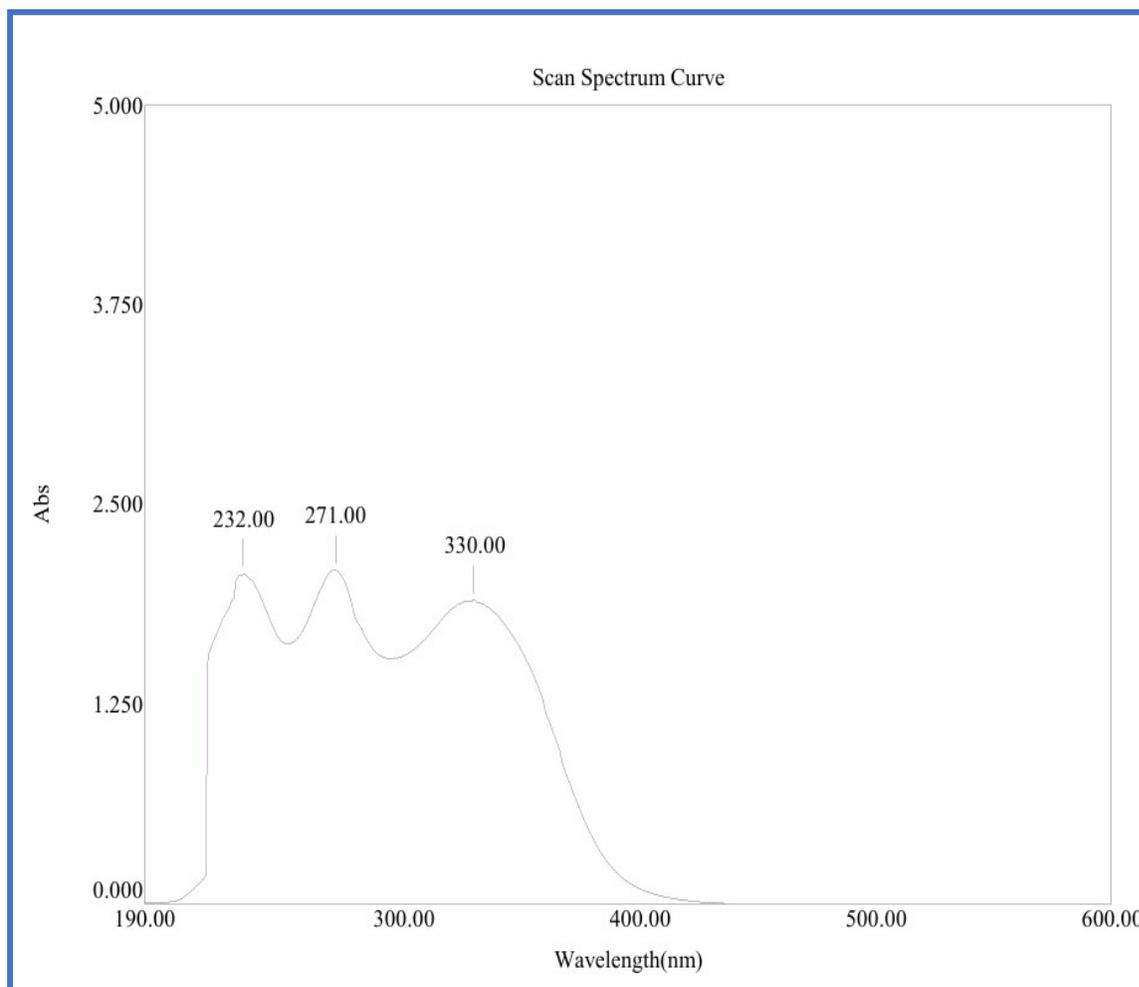


Figure S22: UV spectrum of compound 3 in MeOH

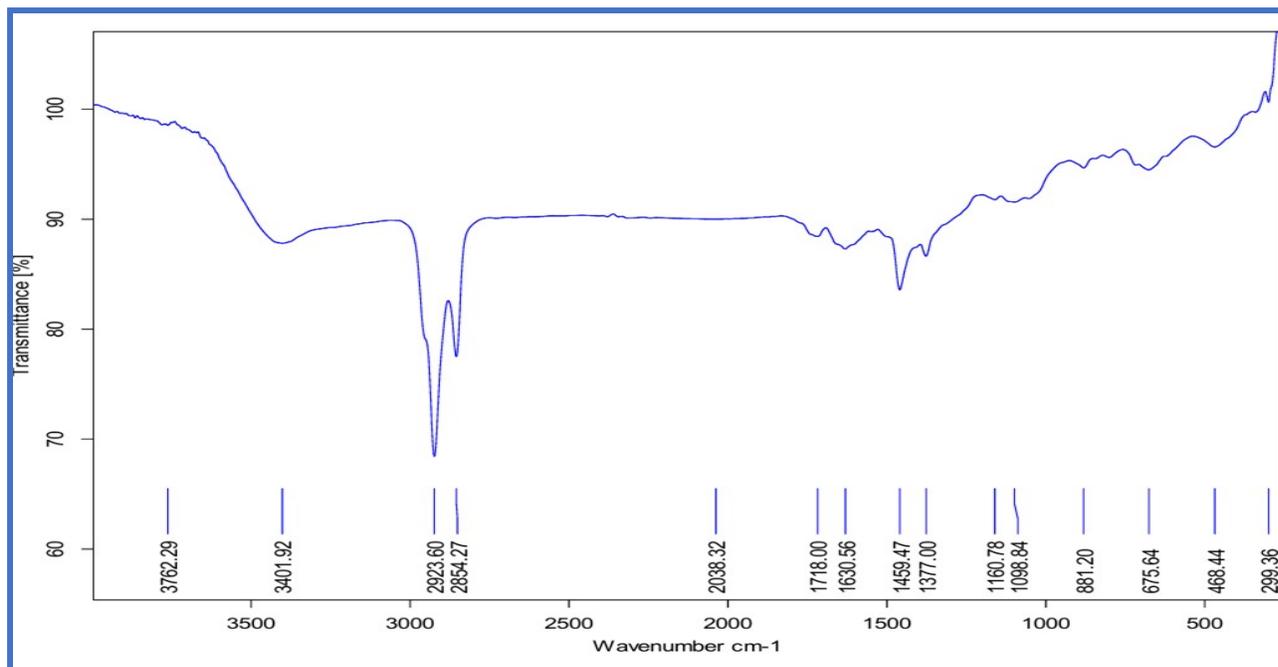


Figure S23: IR spectrum of compound 3 in KBr disc

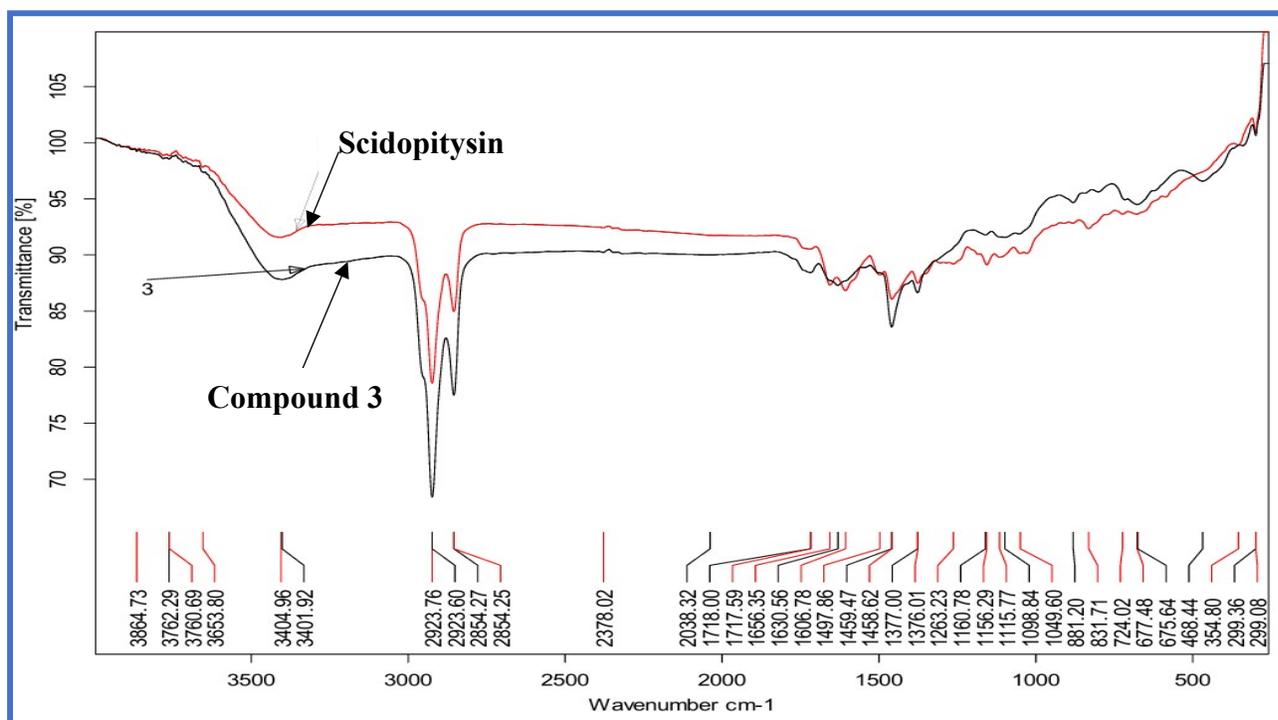


Figure S24: IR superimposable fingerprint of compound 3 with authentic Sciadopitysin

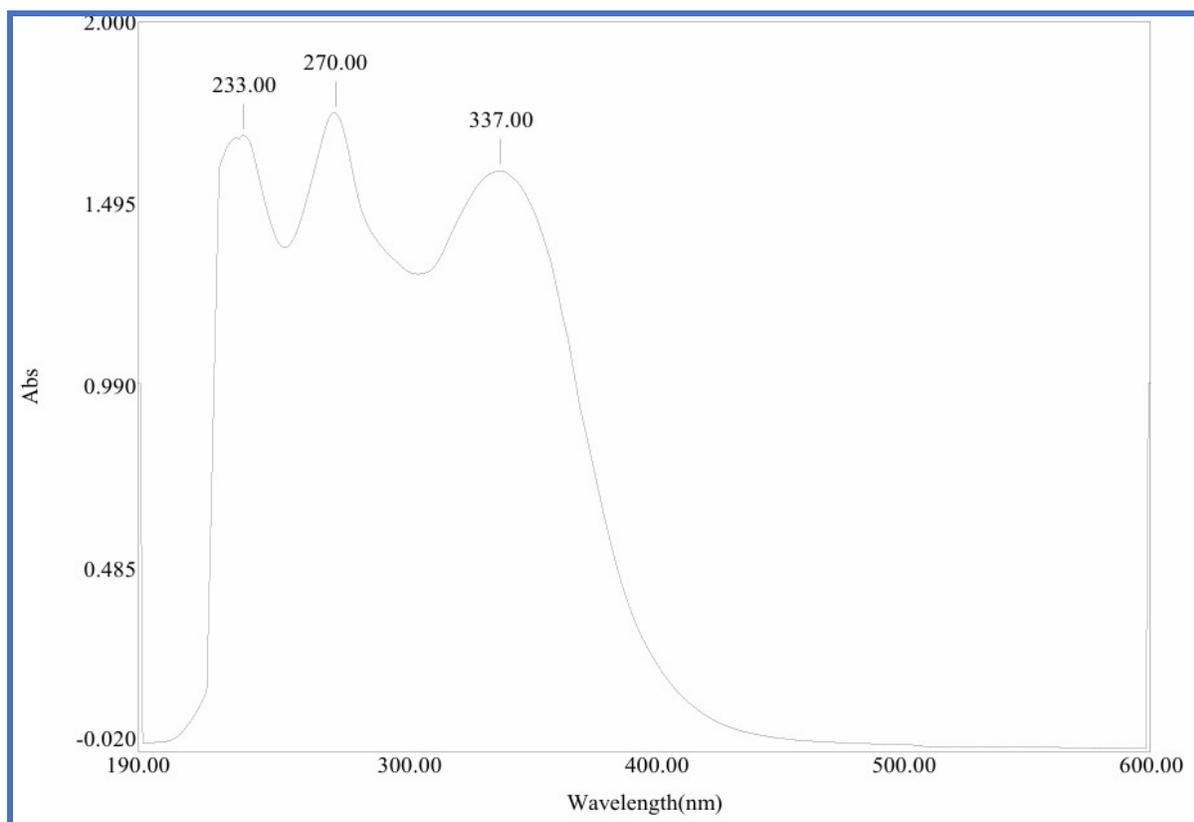


Figure S25: UV spectrum of compound4 in MeOH

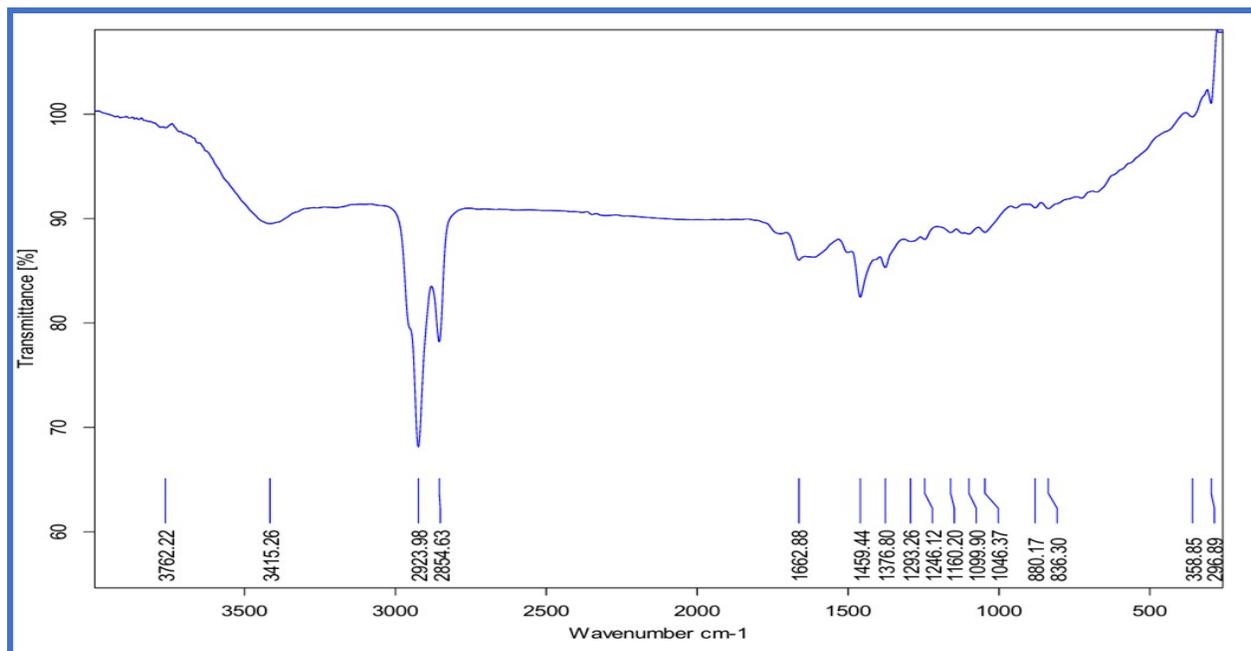


Figure S26: IR spectrum of compound 4 in KBr disc

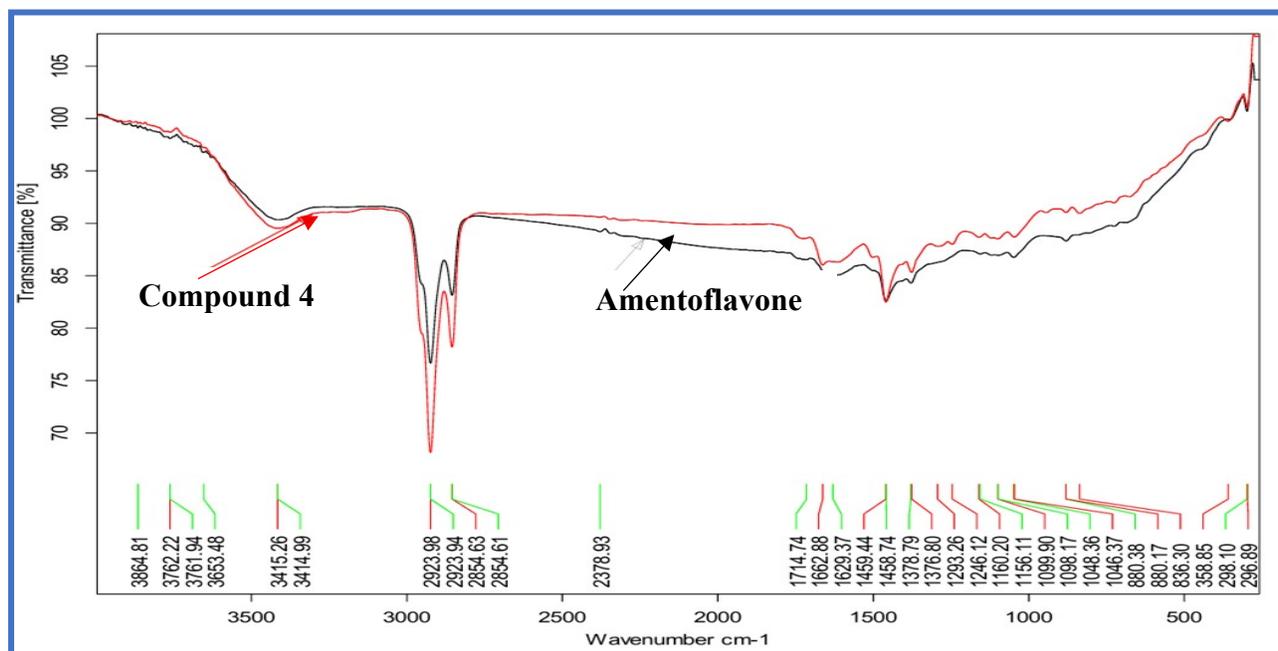


Figure S27: IR superimposable fingerprint of compound 4 with authentic Amentoflavone

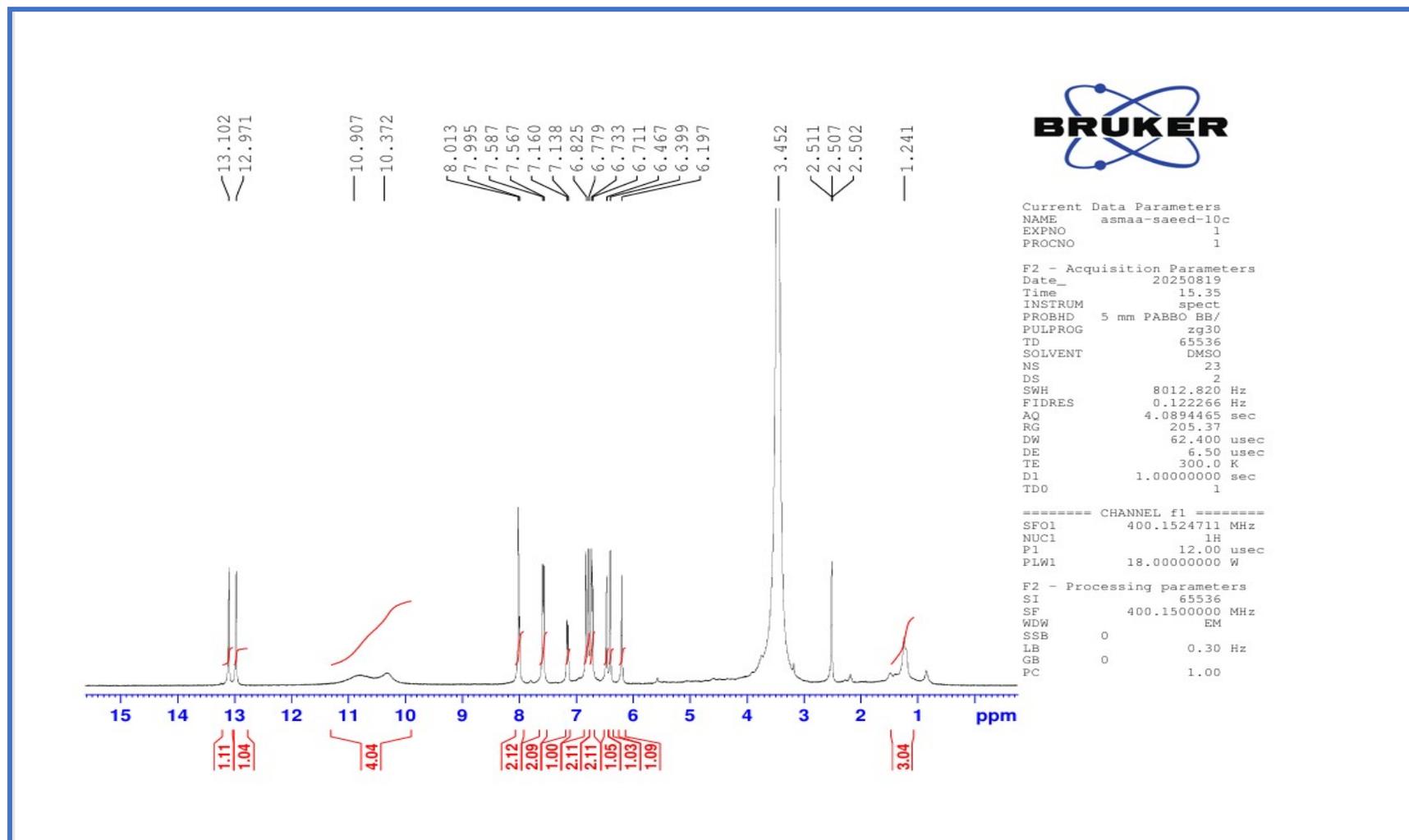


Figure S28a: ^1H -NMR spectrum of compound 4 (DMSO- d_6 , 400 MHz)

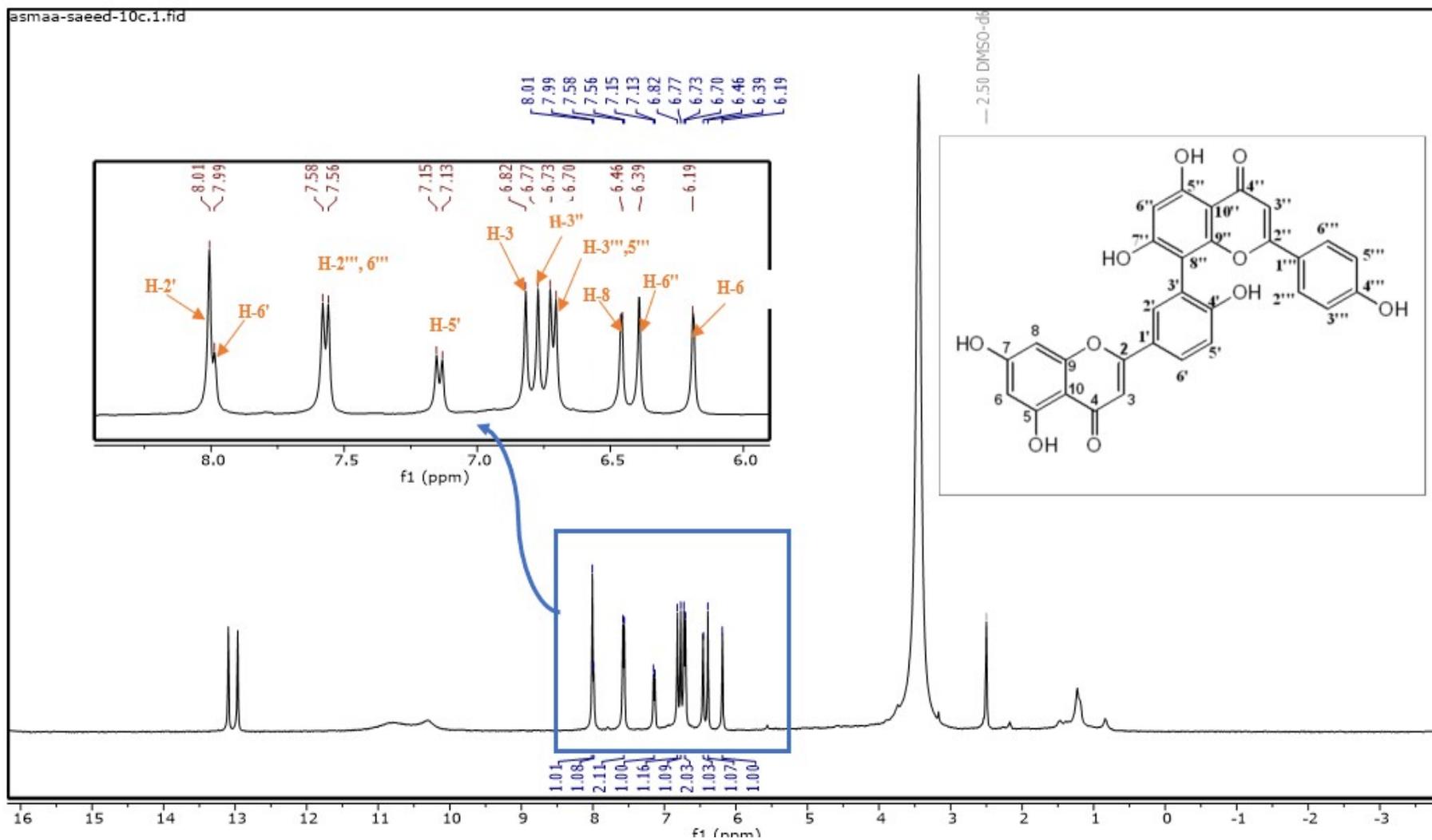


Figure S28b: $^1\text{H-NMR}$ spectrum of compound 4 (DMSO- d_6 , 400 MHz) with assignment

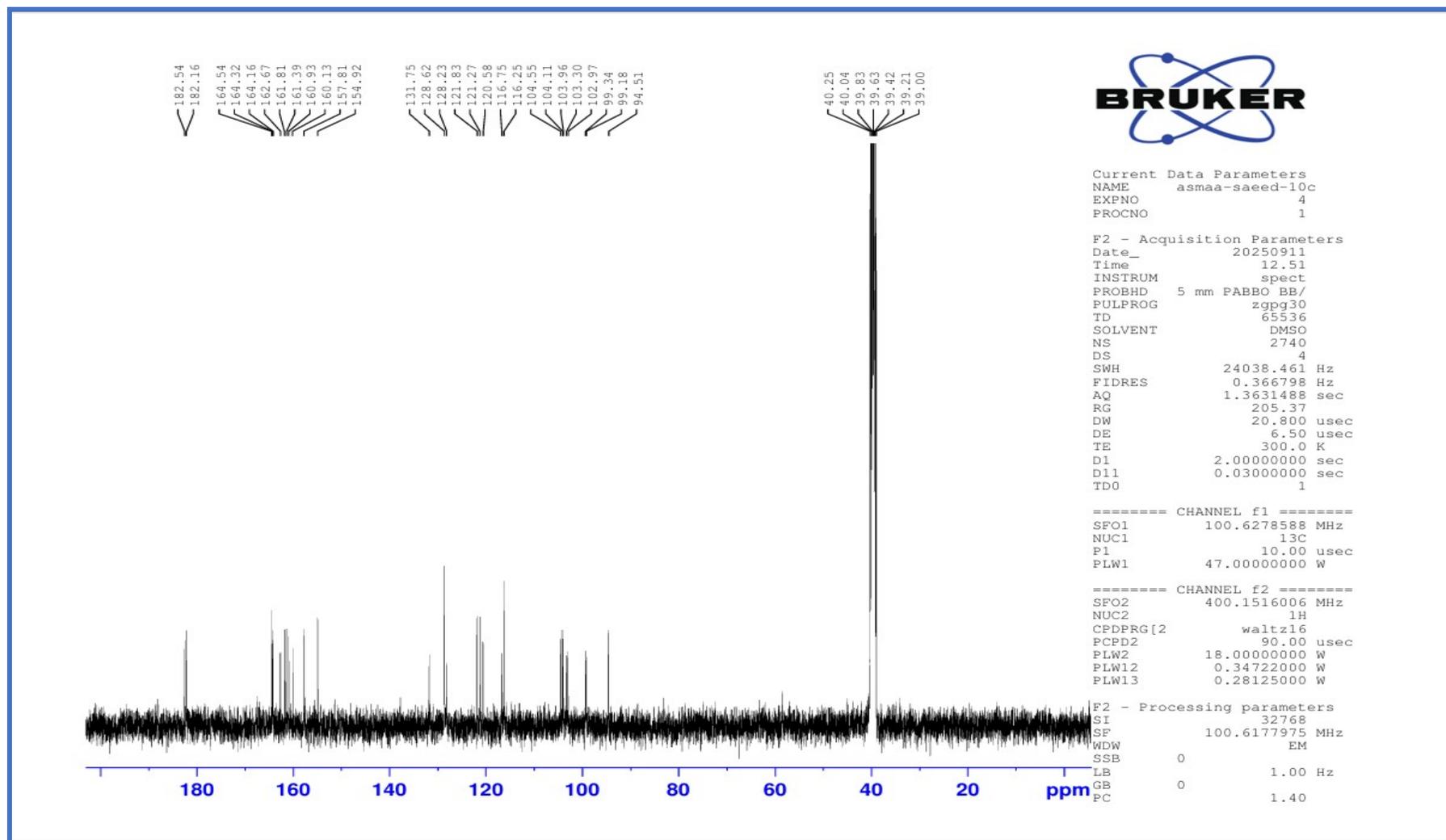


Figure S29a: ^{13}C -NMR spectrum of compound 4 (DMSO- d_6 , 101 MHz)

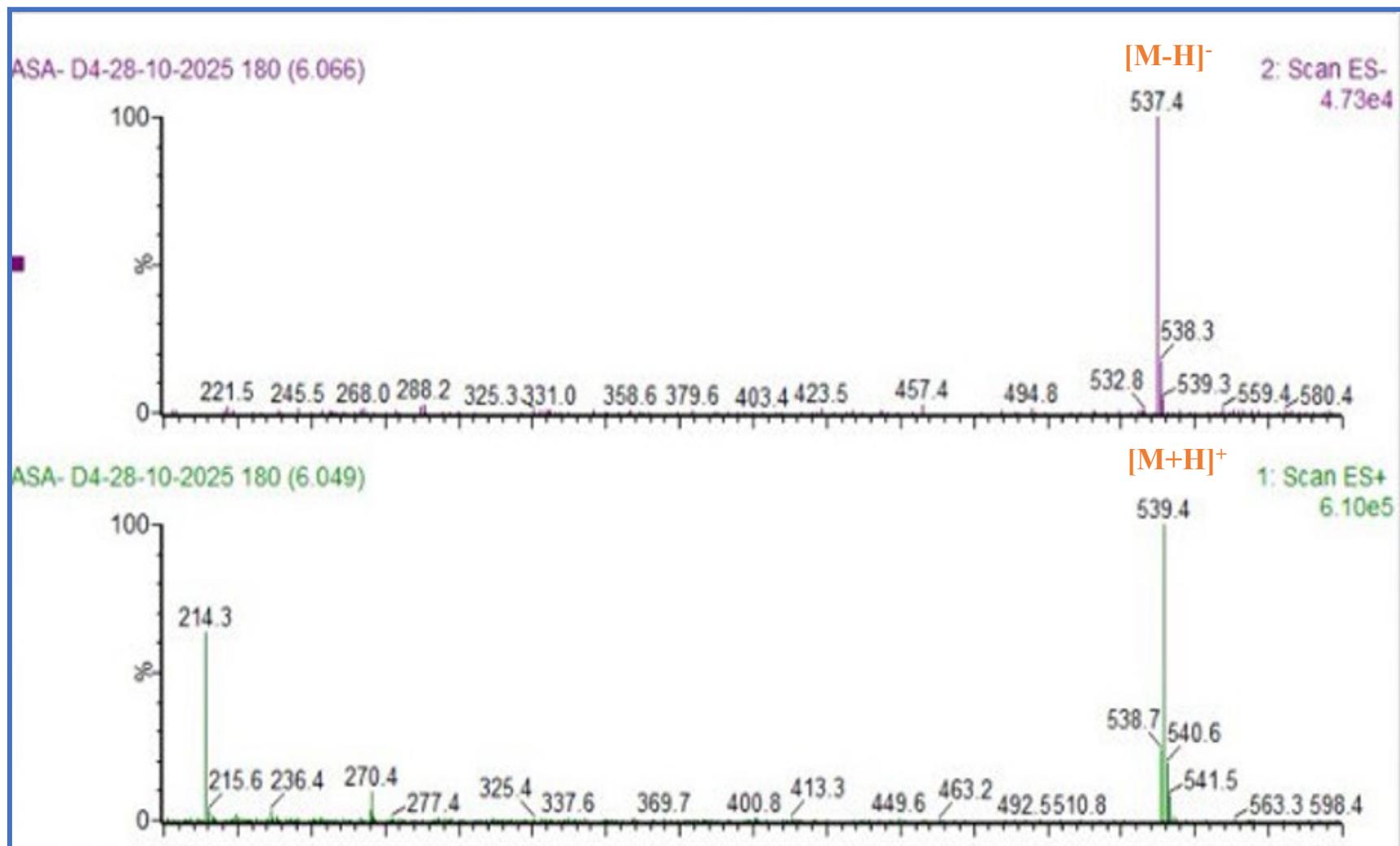


Figure S30: HPLC-ESI-MS (Negative (top) and Positive (bottom) ion modes) of compound 4

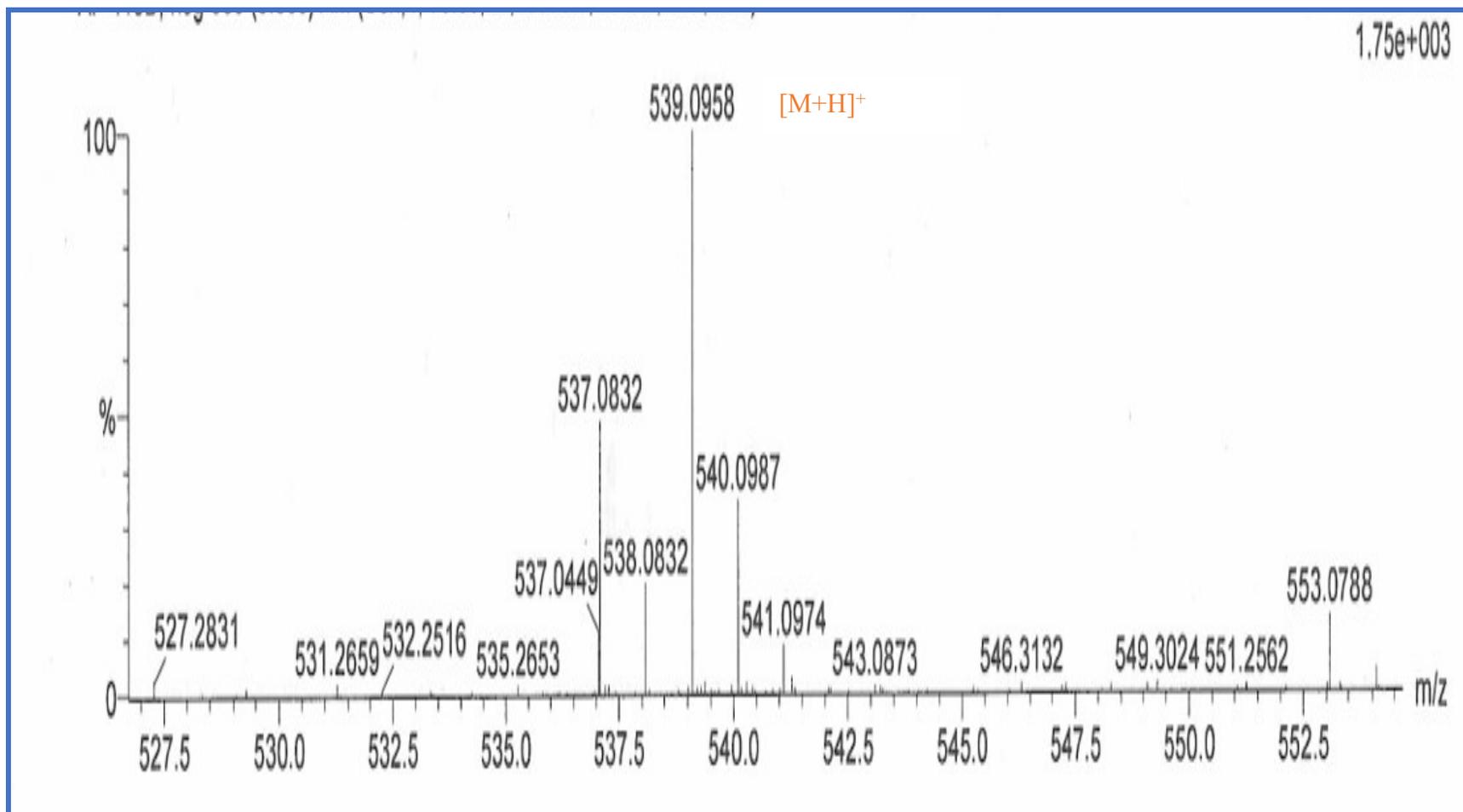


Figure S31: HR-ESI-MS (Positive mode) of compound 4

AA 55 H



Current Data Parameters
NAME ME20251103
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
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Time 16.02 h
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PULPROG 131072
SOLVENT DMSO
NS 128
DS 0
SWH 12019.230 Hz
FIDRES 0.183399 Hz
AQ 5.4525952 sec
RG 120.44
DW 41.600 usec
DE 11.87 usec
TE 298.2 K
D1 0.10000000 sec
TDO 1
SF01 400.1524711 MHz
NUC1 1H
P1 10.00 usec
PLW1 15.84799957 W

F2 - Processing parameters
SI 131072
SF 400.1500000 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

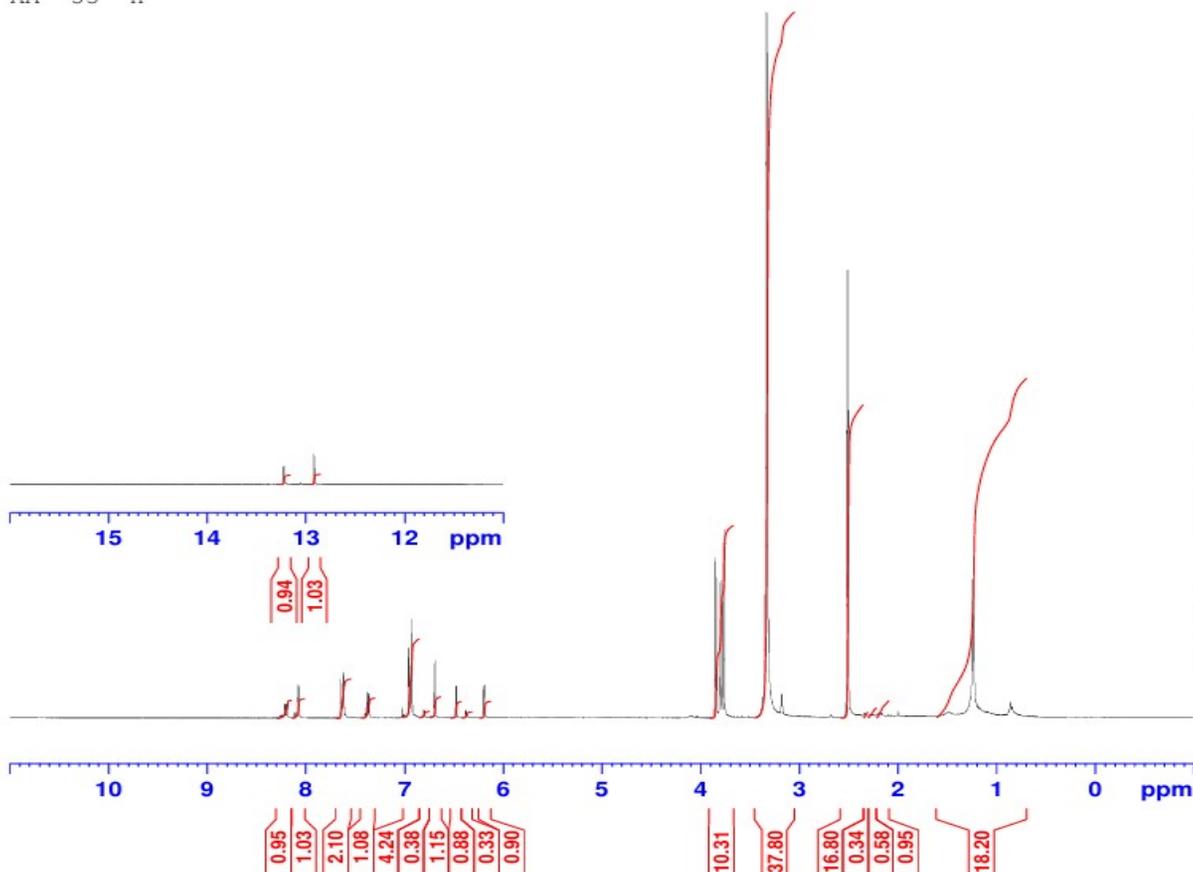


Figure S32a: ^1H -NMR spectrum of compound 5 (DMSO- d_6 , 400 MHz)

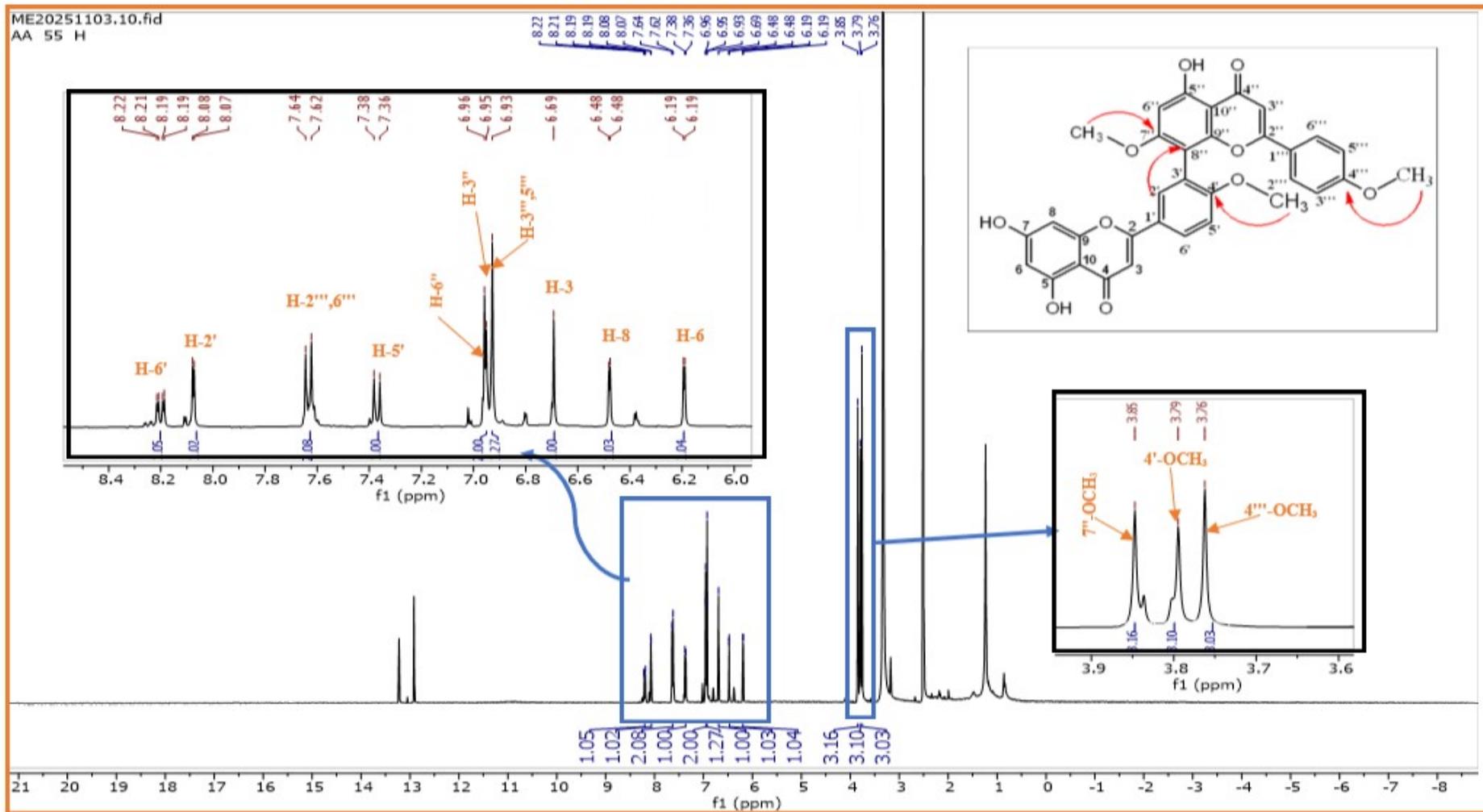


Figure S32b: $^1\text{H-NMR}$ spectrum of compound 5 ($\text{DMSO-}d_6$, 400 MHz) with assignment

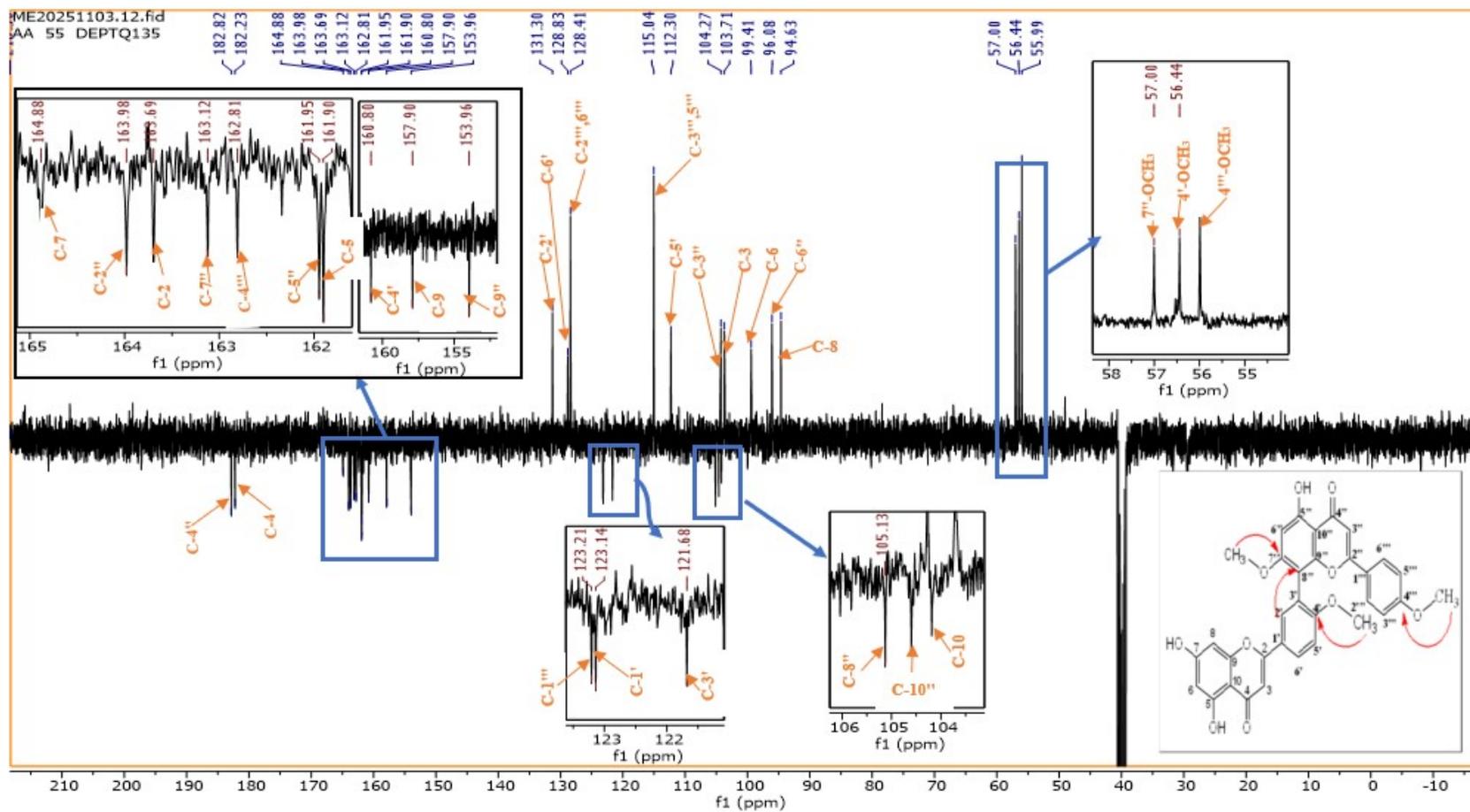


Figure S33: DEPTQ-135 NMR spectrum of compound 5 (DMSO- d_6 , 101 MHz) with assignment

AA 55 HSQC



Current Data Parameters
NAME ME2051103
EXPNO 15
PROCNO 1

F2 - Acquisition Parameters
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Time 2.27 h
INSTRUM spect
PROBHD Z116098_0618 (C
PULPROG hsqc-detqpc
TD 1024
SOLVENT dmsd
NS 8
DS 32
SHE 4807.692 Hz
FIDRES 3.390026 Hz
AQ 0.1068960 sec
RG 298.127
DN 204.000 usec
DE 6.50 usec
TE 298.2 K
CMT2 145.000000
D0 0.0000300 sec
D1 0.80000001 sec
D4 0.00172414 sec
D11 0.03000000 sec
D14 0.00020000 sec
D21 0.00000000 sec
IM0 0.00003010 sec
TDav 1
SFO1 400.1518818 MHz
NUC1 1H
P1 10.00 usec
P2 20.00 usec
P2B 0 usec
PLM1 15.84799957 M
SFO2 100.6253421 MHz
NUC2 13C
CDEPRG(2) 2step4
P3 10.00 usec
P14 800.00 usec
P31 2119.00 usec
PCPD2 0 M
PLM2 75.01399994 M
PLM3 1.17203955 M
SPNAM(3) Crp60_0.5_20.1
SFOAL3 0.500
SFOFF3 0 Hz
SPM3 11.46100044 M
SPNAM(18) Crp60_wfilt.2
SFOAL18 0.500
SFOFF18 0 Hz
SPM18 2.20790005 M
CPNAM(1) SMOQ10.100
CPZ1 80.00 %
CPNAM(2) SMOQ10.100
CPZ2 20.10 %
File 1000.00 usec

F1 - Acquisition parameters
TD 256
SFO1 100.6253 MHz
FIDRES 129.175742 Hz
SN 165.081 ppv
F0RDE Echo-AntiEcho

F2 - Processing parameters
SI 1024
SF 400.1500000 MHz
WDW QDRMK
SFB 2
LB 0 Hz
GB 0
PC 1.40

F1 - Processing parameters
SI 1024
MC2 echo-antiEcho
SF 100.617815 MHz
WDW QDRMK
SFB 2
LB 0 Hz
GB 0

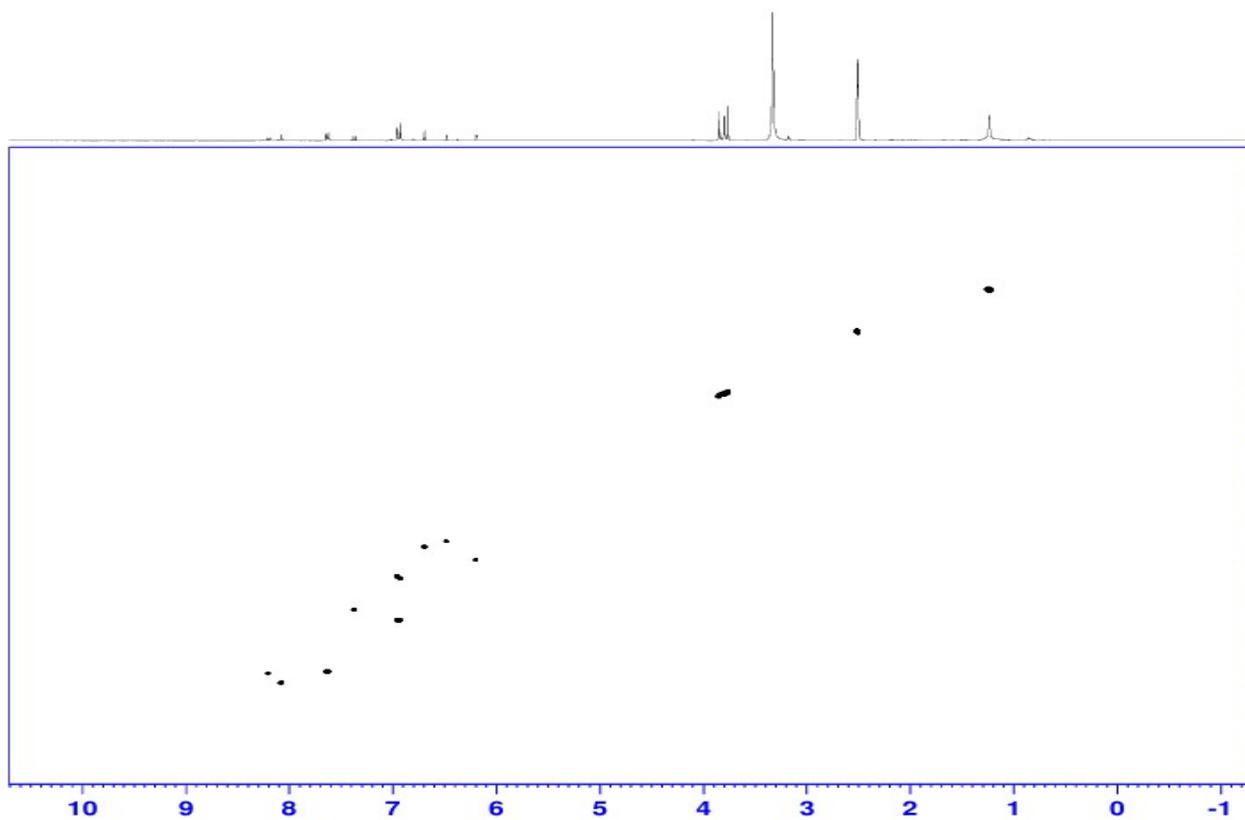


Figure S34a: HSQC spectrum of compound 5 (DMSO-*d*₆)

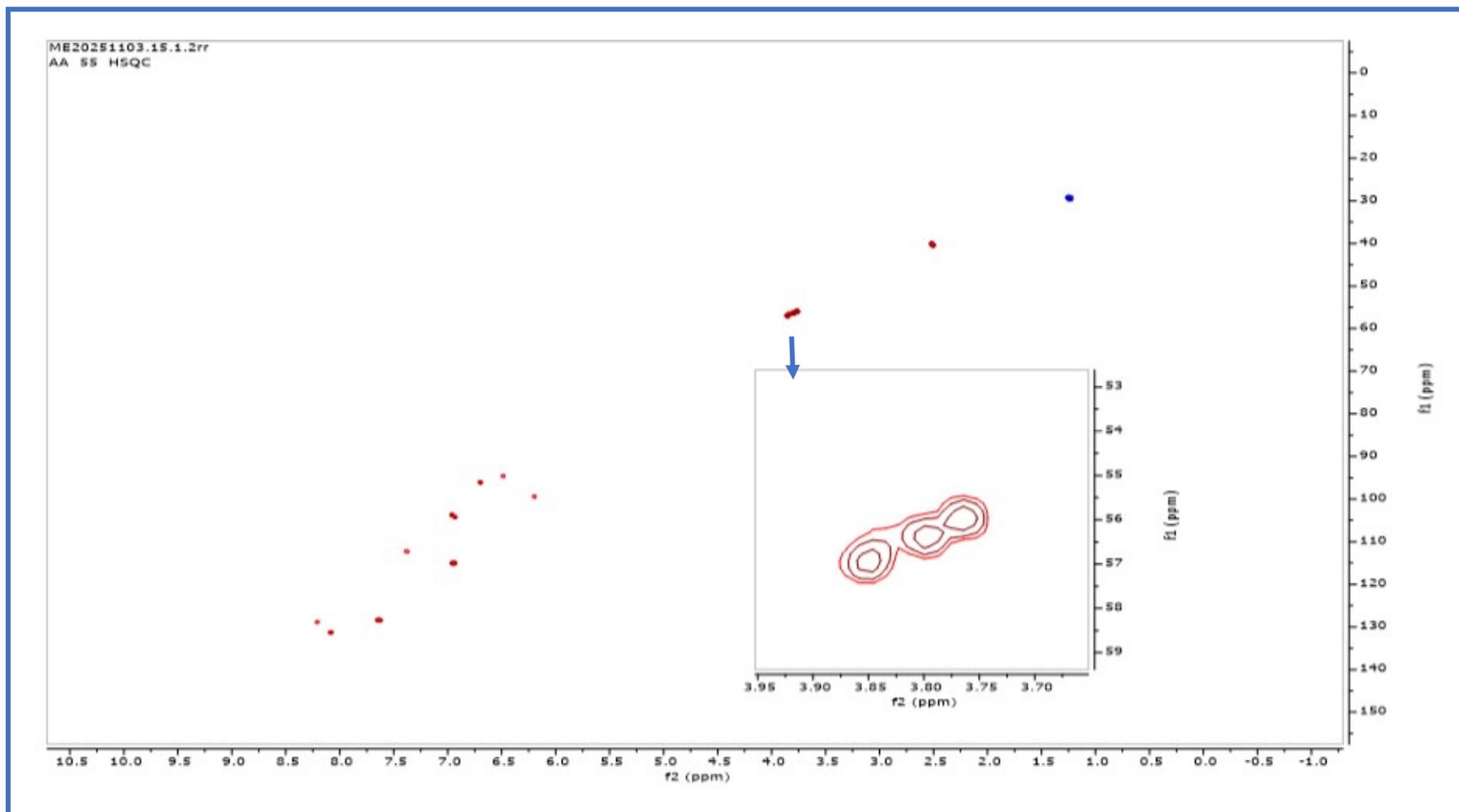


Figure S34b: HSQC spectrum of compound 5 (DMSO- d_6) with assignment

AA 55 HMBC



Current Data Parameters
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EXPRNO 16
PROCNO 1

F2 - Acquisition Parameters
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Time_ 3.00 h
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TD 4096
SOLVENT DMSO
NS 8
DS 16
SWH 5288.353 Hz
FIDRES 2.543132 Hz
AQ 0.3932160 sec
RG 198.17
DM 96.000 usec
DE 6.50 usec
TE 298.1 K
CHST6 120.000000
CHST7 175.000000
CHST13 8.000000
EO 0.0000300 sec
D1 1.5000000 sec
D5 0.0625000 sec
D16 0.0002000 sec
IND 0.00002070 sec
TDav 1
SF01 400.1525209 MHz
NUC1 1H
P1 10.00 usec
F2 20.00 usec
PLW1 15.8479957 W
SF02 100.6288641 MHz
NUC2 13C
P2 10.00 usec
F24 2000.00 usec
PLW2 75.01399994 W
SPAN(7) Crp60comp_4
SF0AL7 0.500
SFCFS7 0 Hz
SPW7 11.46100044 W
SPAN(1) smsg10.100
GP1 80.00 %
SPAN(3) smsg10.100
GP3 18.00 %
SPAN(4) smsg10.100
GP4 -8.00 %
SPAN(5) smsg10.100
GP5 -4.00 %
SPAN(6) smsg10.100
GP6 -2.00 %
F16 1000.00 usec
F1 - Acquisition parameters
TD 512
SF01 100.6289 MHz
FIDRES 94.353867 Hz
SW 240.036 pps
FMSOQE Echo-Amlicho
F2 - Processing parameters
SI 4096
SF 400.1500000 MHz
WDW 0
LB 0 Hz
GB 0
PC 1.40
F1 - Processing parameters
SI 1024
MC2 echo-amlicho
SF 100.617878 MHz
WDW 0
LB 0 Hz
GB 0

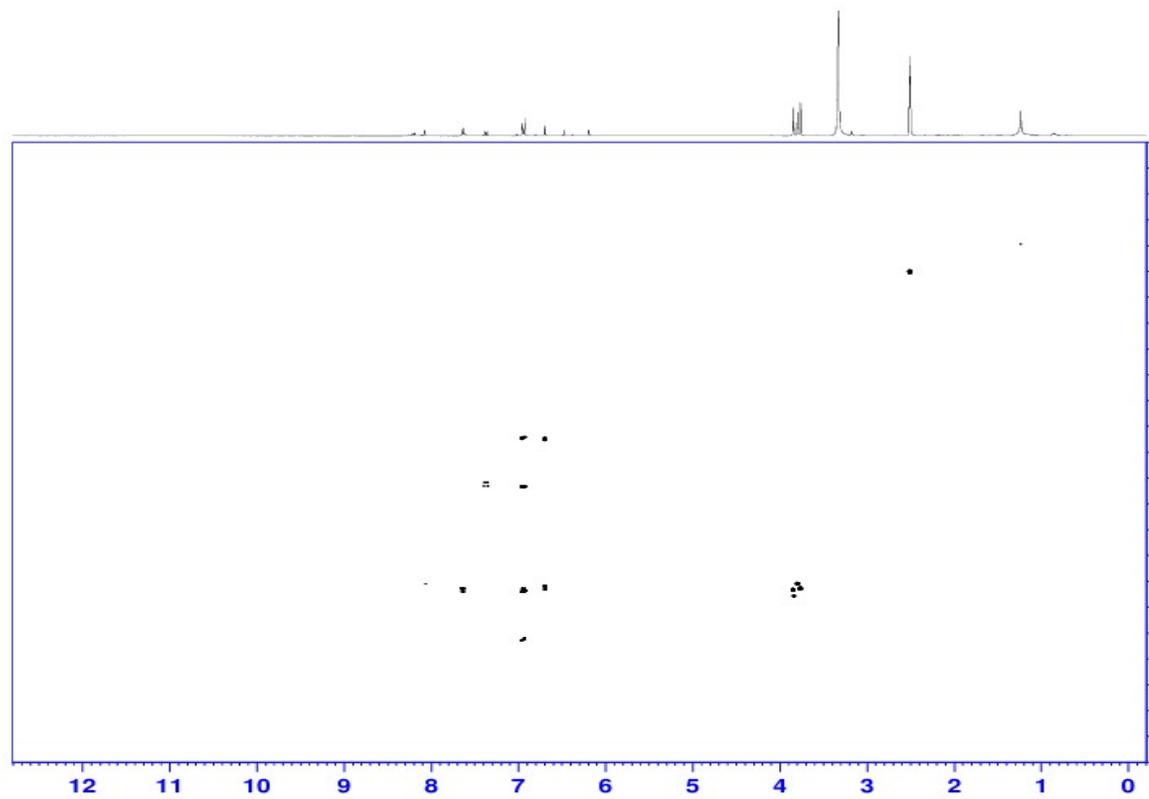


Figure S35a: HMBC spectrum of compound 5 (DMSO- d_6)

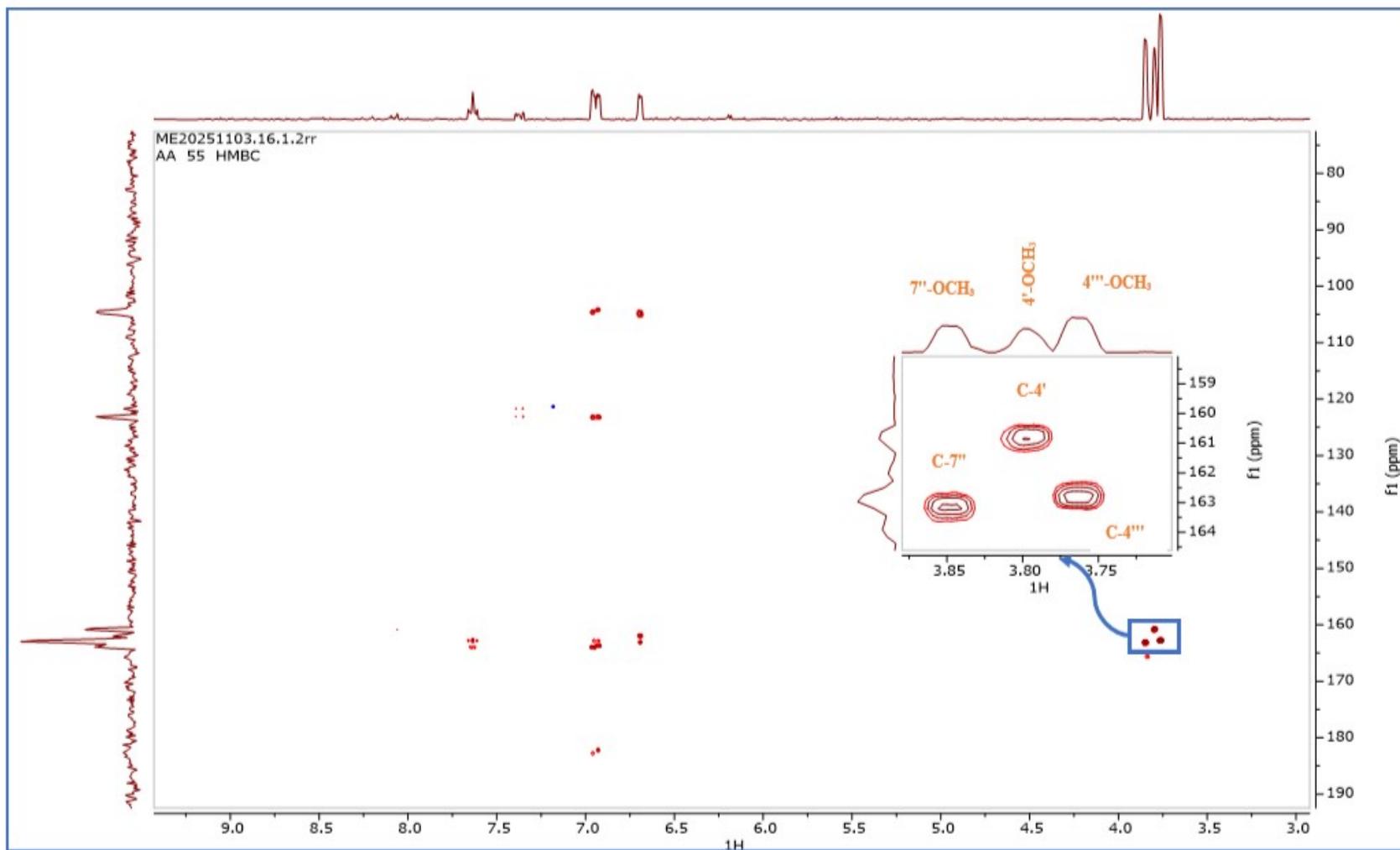


Figure S35b: HMBC spectrum of compound 5 (DMSO-*d*₆) with assignment

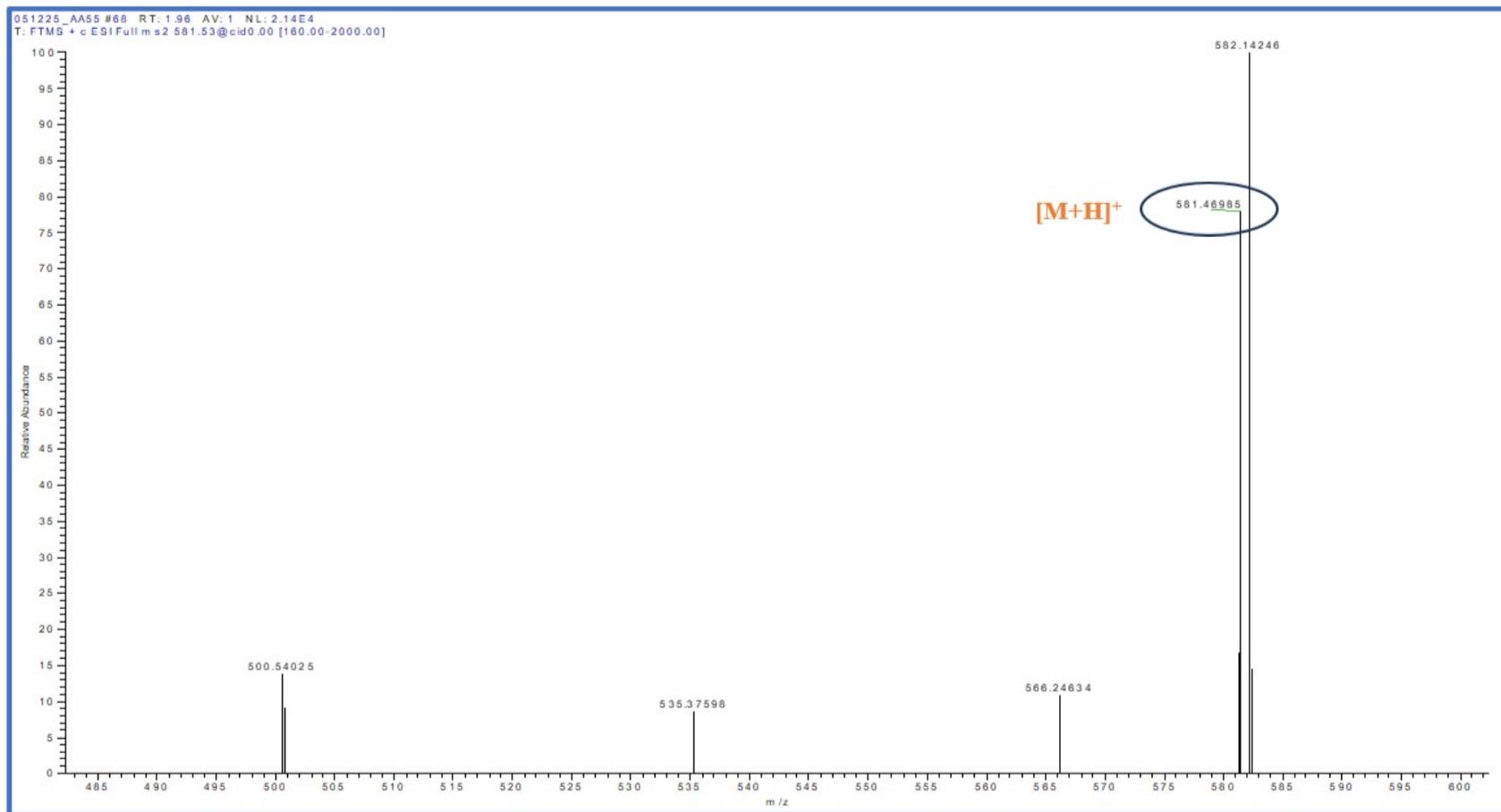


Figure S36: HR-ESI-MS (positive mode) of compound 5

Supplementary Tables

Table S1: ^1H -NMR spectral data of compound 1 (isolated from DCM) ($\text{DMSO-}d_6$, 600 MHz)

Position	δ_{H}
3	6.69 (1H,s)
6	6.37 (1H,d, $J=2.2$ Hz)
8	6.78 (1H,d, $J=2.2$ Hz)
2'	8.10 (1H,d, $J=2.5$ Hz)
5'	7.38 (1H,d, $J=9.0$ Hz)
6'	8.24 (1H,dd, $J=9.0, 2.5$ Hz)
3''	6.95 (1H,s)
6''	7.01 (1H,s)
2''',6'''	6.93 (2H, d, $J=9.1$ Hz)
3''',5'''	7.61 (2H,d, $J=9.1$ Hz)
7-OCH ₃	3.82 (3H,s)
4'-OCH ₃	3.79 (3H,s)
7''-OCH ₃	3.84 (3H,s)
4''' -OCH ₃	3.75 (3H,s)

Position	δ_C	Position	δ_C
2	163.46	2''	163.51
3	103.93	3''	103.22
4	181.98	4''	182.31
5	161.13	5''	161.49
6	98.09	6''	95.58
7	165.16	7''	162.64
8	92.77	8''	104.63
9	157.33	9''	153.47
10	104.77	10''	104.09
1'	122.50	1'''	122.69
2'	130.80	2''', 6'''	127.9
3'	121.26	3''', 5'''	114.56
4'	160.47	4'''	162.33
5'	111.84	7-OCH₃	56.04
6'	128.48	4'-OCH₃	56.00
		7''-OCH₃	56.53
		4'''-OCH₃	55.51

Table S2 : ¹³C-NMR spectral data of compound 1(isolated from DCM) (DMSO-*d*₆, 151 MHz)

Table S3: ¹H-NMR spectral data of compound 2 (DMSO-*d*₆, 600 MHz)

Position	δ_{H}
3	6.94 (1H,s)
6	6.19 (1H,d, $J=2.2$ Hz)
8	6.48 (1H,d, $J=2.2$ Hz)
2'	8.05 (1H,d, d, $J = 2.5$ Hz)
5'	7.35 (1H,d, $J = 9.0$ Hz)
6'	8.19 (1H,dd, $J = 9.0, 2.5$ Hz)
3''	6.90 (1H,s)
6''	6.42 (1H,s)
2''',6'''	7.61 (2H, d, $J = 9.0$ Hz)
3''',5'''	6.92 (2H,d, $J=9.0$ Hz)
4'-OCH ₃	3.79 (3H,s)
4''' -OCH ₃	3.76 (3H,s)

Position	δ_C	Position	δ_C
2	163.33	2''	164.24
3	103.22	3''	103.65
4	181.76	4''	182.1
5	161.88	5''	160.42
6	98.66	6''	98.9
7	163.08	7''	162.21
8	94.1	8''	103.76
9	157.41	9''	154.3
10	103.6	10''	103.72
1'	122.5	1'''	122.8
2'	128.2	2''', 6'''	127.8
3'	121.6	3''', 5'''	114.5
4'	160.61	4'''	161.4
5'	111.71	4'-OCH₃	55.89
6'	130.88	4'''-OCH₃	55.49

Table S4: ¹³C-NMR spectral data of compound 2 (DMSO-*d*₆, 151 MHz)

Table S5: ^1H -NMR spectral data of compound 4 (DMSO- d_6 , 400 MHz)

Position	δ_{H}
3	6.82 (1H,s)
6	6.19 (1H,s)
8	6.46 (1H,s)
2'	8.01 (1H,brs)
5'	7.15 (1H,d, $J=8$ Hz)
6'	7.99 (1H,brs)
3''	6.77 (1H,s)
6''	6.39 (1H,s)
2''',6'''	7.58 (2H,d, $J=8$ Hz)
3''',5'''	6.73 (2H,d, $J=8$ Hz)

Position	δ_C	Position	δ_C
2	163.58	2''	163.81
3	102.57	3''	102.23
4	181.4	4''	181.8
5	160.66	5''	160.20
6	98.60	6''	98.44
7	163.43	7''	161.94
8	93.78	8''	103.81
9	157.07	9''	154.19
10	103.38	10''	103.23
1'	119.84	1'''	120.54
2'	131.01	2''', 6'''	127.88
3'	121.09	3''', 5'''	115.52
4'	159.40	4'''	161.07
5'	116.02		
6'	127.50		

Table S6: ^{13}C -NMR spectral data of compound 4 (DMSO- d_6 , 101 MHz)

Table S7: ¹H-NMR spectral data of compound 5 (DMSO-*d*₆, 400 MHz)

Position	δ_H
3	6.69 (1H,s)
6	6.19 (1H,d, <i>J</i> =2.1 Hz)
8	6.48 (1H,d, <i>J</i> =2.1 Hz)
2'	8.08 (1H, d, <i>J</i> = 2.5 Hz)
5'	7.37 (1H,d, <i>J</i> = 8.9 Hz)
6'	8.20 (1H,dd, <i>J</i> = 8.9, 2.5 Hz)
3''	6.95 (1H,s)
6''	6.96 (1H,s)
2''',6'''	7.63 (2H, d, <i>J</i> = 9.0 Hz)
3''',5'''	6.93 (2H,d, <i>J</i> =9.0 Hz)
4'-OCH₃	3.79 (3H,s)
7'' -OCH₃	3.85 (3H,s)
4''' -OCH₃	3.76 (3H,s)

Position	δ_C	Position	δ_C
2	163.69	2''	163.98
3	103.71	3''	104.27
4	182.23	4''	182.82
5	161.90	5''	161.95
6	99.41	6''	96.08
7	164.88	7''	163.12
8	94.63	8''	105.13
9	157.90	9''	153.96
10	104.18	10''	104.59
1'	123.14	1'''	123.21
2'	131.3	2''', 6'''	128.83
3'	121.68	3''', 5'''	115.04
4'	160.80	4'''	162.81
5'	112.30	4'-OCH₃	56.44
6'	128.83	7''-OCH₃	57.00
		4'''-OCH₃	55.99

Table S8: DEPTQ-135 spectral data of compound 5 (DMSO-*d*₆, 101 MHz)