

Supporting information for

Four new meridamycin congeners from *Streptomyces* sp. SR107

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NMR data

Table S1: ¹H and ¹³C NMR data for **1^a** and meridamycin^b.

Pos.	1^a		meridamycin^b	
	¹ H J= Hz	¹³ C	¹ H J= Hz	¹³ C
1	1.32 d (5.5)	18.2 (q)	1.33 d (6.2)	22.5 (q)
2	3.86 m	71.9 (d)	3.82 m	71.4 (d)
3	2.63 m	41.8 (d)	2.60 m	41.3 (d)
3a	1.37 d (6.9)	23.0 (q)	1.29 d (6.5)	17.6 (q)
4	5.60 d (13.2)	135.5 (d)	5.60 dd (1.2, 10.0)	134.8 (d)
5		132.5 (s)		132.0 (s)
5a	1.80 s	12.9(q)	1.77 d (1.2)	12.4 (q)
6	5.38 m	82.1 (d)	5.36 dd (5.7, 9.4)	81.6 (d)
7	2.55 m	31.1 (t)	2.52 m	30.8 (t)
			2.66 m	
8	5.62 m	118.6 (d)	5.63 dd (6.8, 7.4)	118.1 (d)
9		148.5 (s)		148.0 (s)
9a	2.08 m	23.4 (t)	2.05 m	22.9 (t)
	2.48 m		2.44 m	
9b	1.14 t (6.7)	14.8 (q)	1.11 t (7.5)	14.3 (q)
10	4.14 m	78.6 (d)	4.11 dd (4.1, 4.5)	78.1 (d)
11	1.98 m	36.7 (d)	1.94 m	36.2 (d)
11a	1.18 d (7.4)	14.4 (q)	1.94 d (7.4)	13.8 (q)
12	1.52 m	44.4 (t)	1.50 m	43.8 (t)
	1.73 m		1.60 m	
13	2.68 m	30.7 (d)	2.70 m	30.2 (d)
13a	1.08 d (5.2)	23.2 (q)	1.04 d (6.7)	22.7 (q)
14	5.75 d (9.7)	130.5 (d)	5.72 d (9.7)	130.0 (d)
15		138.2(s)		137.7 (s)
15a	1.82 s	14.2 (q)	1.79 d (1.2)	13.7 (q)
16	4.77 m	73.6 (d)	4.74 dd (5.7, 6.0)	73.2 (d)
17	2.10 m	45.0 (t)	2.00 m	44.5 (t)
	2.34 m		2.29 m	
18	4.70 m	69.7 (d)	4.68 m	69.2 (d)
19	1.92 m	43.5(t)	1.88 m	43.0 (t)
	2.27 m		2.22 m	
20	4.84 d (10.7)	72.8 (d)	4.80 m	72.3 (d)
21	1.84 m	41.5 (d)	2.09 m	42.7 (d)
21a	1.38 d (6.9)	13.1 (q)	1.36 d (7.8)	12.6 (q)
22	4.30 d (9.1)	73.5 (d)	4.26 m	73.0 (d)
23	2.08 m	43.2 (t)	2.05 m	44.1 (t)
	2.15 m		2.12 m	
24	4.88 t (10.0)	73.5 (d)	4.84 m	67.4 (d)
25	1.59 m	33.3 (t)	1.51 m	32.8 (t)

	1.68 m		1.66 m	
26	1.55 m	28.1 (t)	1.53 m	27.6 (t)
	1.98 m		1.97 m	
27	2.93 m	36.5 (d)	2.71 m	36.1 (d)
27a	1.20 d (7.4)	16.8 (q)	1.17 d (6.7)	16.3 (q)
28		101.1 (s)		100.6 (s)
29		202.1 (s)		201.6 (s)
30		169.3 (s)		168.8 (s)
31	3.25 d (13.4)	44.5 (t)	3.20 d (13.3)	43.9 (t)
	3.45 t (13.2)		3.40ddd (2.9, 12.9, 13.3)	
32	1.05 m	25.6 (t)	1.00 m	25.1 (t)
	1.25 m		1.30 m	
33	1.51 m	21.8 (t)	1.48 m	21.3 (t)
34	2.10 m	27.8(t)	2.07 m	27.4 (t)
	2.15 m		2.16 m	
35	5.52 br s	52.1 (d)	5.49 dd (4.6, 6.2)	81.6 (d)
36		170.5 (s)		170.0 (s)

^a Recorded at 600 MHz for ¹H and 150 MHz for ¹³C NMR in Pyridine-*d*₅

^b Recorded at 400 MHz for ¹H and 100 MHz for ¹³C NMR in Pyridine-*d*₅

Table S2: NMR data for **2** (in CD₃OD).

Pos.	¹ H (<i>J</i> in Hz)	□ ¹³ C	HMBC
1	1.15 d (6.1)	21.1 (q)	C-2, C-3
2	3.52 d (6.5)	72.9 (d)	C-4, C-5a
3	2.41 m	41.0 (d)	C-1, C-2, C-4, C-5a
3a	0.99 d (6.4)	17.4 (q)	C-2, C-3, C-4
4	5.24 d (10.5)	131.0 (d)	C-2, C-3, C-3a, C-5a, C-6
5		137.9 (s)	
5a	1.651 s	11.9 (q)	C-4, C-5, C-6
6	3.99 t (6.9)	79.0 (d)	C-4, C-5, C-5a, C-7, C-8
7	2.31 m 2.36 m	34.0 (t)	C-5, C-6, C-8, C-9
8	5.27 d (6.6)	123.9 (d)	C-7, C-9, C-9a, C-10
9		145.0 (s)	
9a	2.07 m	21.8 (t)	C-8, C-9, C-9b, C-10
9b	1.06 t (7.1)	14.8 (q)	C-9, C-9a
10	3.68 d (6.4)	82.3 (d)	C-8, C-9, C-9a, C-11, C-11a, C-12
11	2.12 m	35.2 (d)	
11a	0.88 d (6.5)	15.4 (q)	C-10, C-11, C-12
12	1.25 m 1.48 m	43.3 (t)	C-10, C-11, C-11a, C-13, C-14
13	2.54 m	30.8 (d)	
13a	0.92 d (6.2)	22.4 (q)	C-13, C-14
14	5.12 d (10.1)	132.3 (d)	C-12, C-13, C-13a, C-15a, C-16
15		137.9 (s)	
15a	1.650 s	12.6 (q)	C-14, C-15, C-16
16	4.16 m	74.5 (d)	C-14, C-15, C-15a, C-17, C-18
17	1.55 m 1.65 m	44.0 (t)	C-18
18	3.91 br s	68.6 (d)	
19	1.62 m 1.66 m	44.3 (t)	
20	4.18 m	71.7 (d)	
21	2.15 m	36.2 (d)	
21a	0.89 m	11.2 (q)	C-20, C-22
22	3.82 t (8.6)	71.3 (d)	C-20, C-21a, C-24
23	1.80 m	42.5 (t)	
24	4.13 m	68.0 (d)	C-22, C-23, C-26
25	1.42 m 1.61 m	33.1 (t)	
26	1.62 m 1.70 m	28.3 (t)	C-27

27	1.61m	36.4 (d)	
27a	0.85 t (7.4)	16.2 (q)	C-26, C-27, C-28
28		100.9 (s)	
29		200.3 (s)	
30		168.8 (s)	
31	4.26 m	40.1 (t)	
	4.37 d (12.0)		
32	1.48 m	26.1 (t)	
	1.69 m		
33	1.44 m	25.7 (t)	
	1.77 m		
34	1.70 m	27.7 (t)	
	2.29 m		
35	3.58 d (13.4)	46.1 (d)	
36		169.3 (s)	

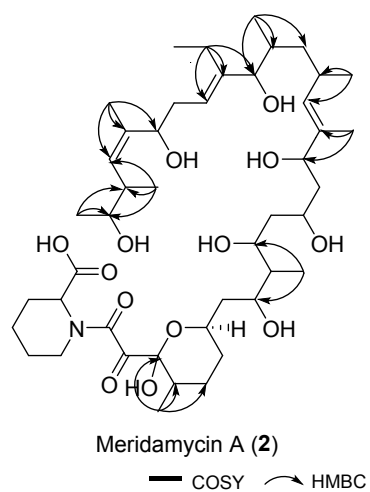


Figure S1: Selected ^1H - ^1H COSY and HMBC correlations for **2**.

Table S3: NMR data for **3** (in CD₃OD).

Pos.	$\delta^1\text{H}$ J= Hz	$\delta^{13}\text{C}$	^1H - ^1H COSY	HMBC
1	1.15 d (6.3)	21.1 (q)	H-2	C-2, C-3
2	3.54 f (6.4, 13.0)	72.9 (d)	H-1, H-3	C-3, C-3a, C-4
3	2.42 m	41.0 (d)	H-2	C-1, C-2, C-3a, C-4, C-5
3a	0.99 d (6.7)	17.4 (q)	H-3	
4	5.25 d (9.8)	130.9 (d)	H-3, H-6	C-2, C-3, C-3a, C-5a, C-6
5		137.9 (s)		
5a	1.66 s	12.0 (q)	H-4	C-4, C-5, C-6
6	3.99 t (7.0)	79.0 (d)	H-4, H-7	C-4, C-5, C-5a, C-7, C-8
7	2.30 m 2.37 m	34.1 (t)	H-6	C-5, C-6, C-8, C-9
8	5.28 t (7.0)	123.9 (d)	H-7, H10	C-6, C-7, C-9, C-9a, C-9b, C-10
9		145.0 (s)		
9a	2.08 m	21.8 (t)	H-9b	C-8, C-9, C-9b, C-10
9b	1.06 t (7.6)	14.8 (q)	H-9a	C-9, C-9a
10	3.69 d (6.6)	82.2 (d)	H-8, H-11	C-8, C-9, C-9a, C-11, C-11a, C-12
11	1.61 m	35.2 (d)	H-10, H-12	
11a	0.88 d (6.5)	15.4 (q)	H-11	C-10, C-11, C-12
12	1.10 m 1.27 m	43.2 (t)	H-10, H-11, H-13	C-11, C-11a, C-13, C-14
13	2.56 m	30.8 (d)	H-12	
13a	0.92 d (6.2)	22.4 (q)	H-13	C-12, C-13, C-14
14	5.13 d (10.6)	132.3 (d)	H-13, H-15a, H-16	C-12, C-13, C-15a, C-16
15		137.9 (s)		
15a	1.65 s	12.5 (q)	H-14	C-14, C-15, C-16
16	4.18 m	74.4 (d)	H-14, H-17	C-14, C-18
17	1.78 m	42.4 (t)		
18	3.92 m	68.8 (d)		
19	1.61 m 1.64 m	44.4 (t)		
20	4.24 m	71.8 (d)	H-21	C-21a
21	1.58 m	44.3 (d)		
21a	0.88 d (6.5)	11.0 (q)	H-21	
22	3.83 m	71.1 (d)	H-21	C-20
23	3.35 m 3.58 br d (3.4)	46.1 (t)		
24	4.15 m	67.8 (d)		
25	1.44 m 1.62 m	33.2 (t)		
26	1.76 m	28.2 (t)		

27	2.23 m	36.2 (d)		
27a	0.84 t (6.5)	15.9 (q)	H-27	C-26, C-27, C-28
28		100.8 (s)		
29		200.1 (s)		C-28
30		169.4 (s)		
31	1.49 m	42.5 (t)		
32	1.67 m	26.0 (t)		
33	1.77 m	22.3 (t)		
34	2.26 m	27.6 (t)	H-33	
35	5.14 m	52.8 (d)	H-34	C-30, C-33, C-34, C-36
36		171.8 (s)		
36-OMe	3.77 m	53.0 (q)		C-36

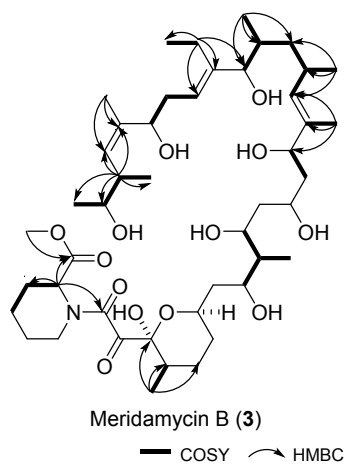


Figure S2: Selected ^1H - ^1H COSY and HMBC correlations for compound **3**.

Table S4: NMR data for **4** (in CD₃OD).

Pos.	$\delta^1\text{H}$ J= Hz	$\delta^{13}\text{C}$	^1H - ^1H COSY	HMBC
1	1.15 d (6.3)	21.2 (q)	H-2	C-2, C-3
2	3.51 m	72.9 (d)	H-1, H-3	C-3a, C-4
3	2.43 m	41.0 (d)	H-2, H-3a, H-4	C-5
3a	0.99 d (6.7)	17.4 (q)	H-3	C-2, C-3, C-4
4	5.25 m	130.9 (d)	H-3, H-5a	C-5a, C-6
5		137.9 (s)		
5a	1.653 s	11.9 (q)		C-4, C-5, C-6
6	4.00 t (6.7)	79.0 (d)	H-7	C-4, C-5a, C-8
7	2.34 m	34.1 (t)	H-6, H-8	C-6, C-8, C-9
8	5.29 m	123.8 (d)	H-7	C-9a, C-10
9		145.1 (s)		
9a	2.06 m	21.8 (t)	H-9b	C-9, C-9b, C-10
9b	1.06 t (7.5)	14.8 (q)	H-9a	C-9, C-9a
10	3.69 m	82.3 (d)	H-11	C-8, C-9, C-9a, C-11, C-11a
11	1.59 m	35.3 (d)		
11a	0.89 m	15.4 (q)	H-11	C-10, C-11, C-12
12	1.09 m	43.3 (t)		
	1.25 m			
13	2.56 m	30.8 (d)	H-13a	
13a	0.93 m	22.4 (q)	H-13	C-12, C-13, C-14
14	5.13 d (7.5)	132.3 (d)	H-13, H-15a	C-15a, C-16
15		137.9 (s)		
15a	1.650 s	12.6 (q)		C-14, C-15, C-16
16	4.18 m	74.4 (d)	H-15a, H-17	
17	1.64 m	44.3 (t)		
18	3.83 m	69.1 (d)		
19	1.57 m	42.7 (t)		
20	4.17 m	71.3 (d)	H-19	
21	1.55 m	44.3 (d)		
21a	0.91 m	10.8 (q)		C-20
22	3.86 m	71.8 (d)	H-21	
23	1.69 m	42.5 (t)		C-24
	1.85 m			
24	3.93 m	68.7 (d)	H-23	
25	1.48 m	36.8 (t)		
26	1.81 m	31.3 (t)	H-25	
27	2.51 m	37.2 (d)	H-27a	
27a	1.27 m	17.7 (q)	H-27	C-26, C-28
28		180.8 (s)		

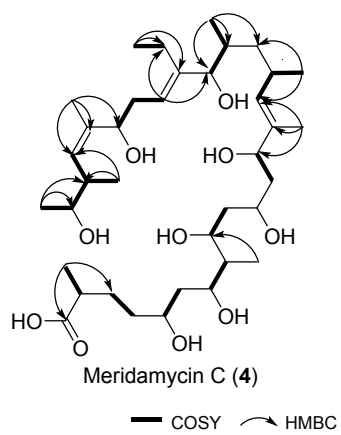


Figure S3: Selected ^1H - ^1H COSY and HMBC correlations for compound **4**.

Table S5: NMR data for **5** (in CD₃OD).

Pos.	¹ H (<i>J</i> in Hz)	¹³ C	¹ H- ¹ H COSY	HMBC
1	1.15 d (6.4)	21.2 (q)	H-2	C-2, C-3
2	3.53 f (6.4, 13.0)	72.9 (d)	H-1, H-3	C-3a, C-4
3	2.43 m	41.0 (d)	H-2, H-3a, H-4	C-2, C-4
3a	0.99 d (6.7)	17.4 (q)	H-3	C-2, C-3, C-4
4	5.25 d (9.8)	130.9 (d)	H-3, H-5a, H-6	C-3a, C-5a, C-6
5		137.9 (s)		
5a	1.653 s	12.0 (q)	H-4	C-4, C-5, C-6
6	3.99 t (7.1)	79.0 (d)	H-4, H-7	C-4, C-5, C-5a, C-7, C-8
7	2.31 m 2.36 m	34.1 (t)	H-6, H-8	C-5, C-6, C-8, C-9
8	5.28 t (7.0)	123.8 (d)	H-7, H10	C-6, C-9a, C-10
9		145.0 (s)		
9a	2.10 m	21.9 (t)	H-9b	C-8, C-9, C-9b, C-10
9b	1.06 t (7.6)	14.8 (q)	H-9a	C-9, C-9a
10	3.68 d (6.0)	82.3 (d)	H-8, H-11	C-8, C-9, C-9a, C-11, C-11a, C-12
11	1.61 m	35.3 (d)	H-10, H-11a	C-12
11a	0.88 d (6.5)	15.4 (q)	H-11	C-10, C-11, C-12
12	1.09 m 1.27 m	43.3 (t)	H-11, H-13	C-14
13	2.56 (m)	30.8 (d)	H-13a, H-14	
13a	0.92 d (6.8)	22.4 (q)	H-13	C-12, C-13, C-14
14	5.13 d (9.7)	132.3 (d)	H-13, H-15a	C-13a, C-15a, C-16
15		137.9 (s)		
15a	1.651 s	12.6 (q)	H-14, H-16	C-14, C-15, C-16
16	4.18 m	74.4 (d)	H-14, H-15a, H-17	C-14
17	1.53 m	44.3 (t)	H-18	
18	3.82 m	69.1 (d)	H-19	
19	1.47 m	42.6 (t)		C-18
20	4.17 m	71.5 (d)	H-21	
21	1.69 m	44.2 (d)		
21a	0.91 d (7.1)	10.8 (q)	H-21	C-20
22	3.85 m	71.9 (d)	H-23	
23	1.55 m	43.1 (t)		
24	3.94 m	68.4 (d)		
25	1.43 m	36.7 (t)	H-27	
26	1.78 m	31.2 (t)	H-25, H-27	C-25, C-27, C-27a
27	2.51 m	40.6 (d)	H-6, H-27a	C-25, C-26, C-28
27a	1.16 d (7.1)	17.6 (q)	H-27	C-26, C-27, C-28
28		178.9 (s)		
28-OMe	3.66 br s	52.1 (q)		C-28

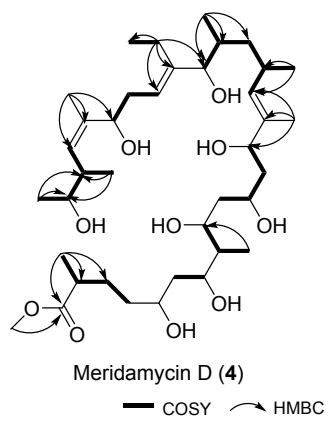


Figure S4: Selected ^1H - ^1H COSY and HMBC correlations for compound **5**.

NMR spectrum for compounds 1- 5.

Figure M1	^1H NMR (600 MHz, d5-pyridine) spectrum for compound 1	4
Figure M2	^{13}C NMR (151 MHz, d5-pyridine) spectrum for compound 1	4
Figure M3	The HSQC spectrum for compound 1	5
Figure M4	The HMBC spectrum for compound 1	5
Figure M5	$^1\text{H}/^1\text{H}$ COSY spectrum for compound 1	6
Figure M6	The HRMS-ESI spectrum for compound 1	6
Figure MA1	^1H NMR (600 MHz, CD_3OD) spectrum for compound 2	7
Figure MA2	^{13}C NMR (151 MHz, CD_3OD) spectrum for compound 2	7
Figure MA3	The HSQC spectrum for compound 2	8
Figure MA4	The HMBC spectrum for compound 2	8

Figure MA5	The HRMS-ESI spectrum for compound 2	9
Figure MB1	¹ H NMR (600 MHz, CD ₃ OD) spectrum for compound 3	9
Figure MB2	¹³ C NMR (151 MHz, CD ₃ OD) spectrum for compound 3	10
Figure MB3	The HSQC spectrum for compound 3	10
Figure MB4	The HMBC spectrum for compound 3	11
Figure MB5	¹ H/ ¹ H COSY spectrum for compound 3	11
Figure MB6	The HRMS-ESI spectrum for compound 3	12
Figure MC1	¹ H NMR (400 MHz, CD ₃ OD) spectrum for compound 4	12
Figure MC2	¹³ C NMR (100 MHz, CD ₃ OD) spectrum for compound 4	13
Figure MC3	The HSQC spectrum for compound 4	13
Figure MC4	The HMBC spectrum for compound 4	14
Figure MC5	¹ H/ ¹ H COSY spectrum for compound 4	14
Figure MC6	The HRMS-ESI spectrum for compound 4	15
Figure MD1	¹ H NMR (600 MHz, CD ₃ OD) spectrum for compound 4	

5.....15

Figure MD2 ^{13}C NMR (151 MHz, CD_3OD) spectrum for compound

5.....16

Figure MD3 The HSQC spectrum for compound

5.....16

Figure MD4 The HMBC spectrum for compound **5**.....17

Figure MD5 $^1\text{H}/^1\text{H}$ COSY spectrum for compound

5.....17

Figure MD6 The HRMS-ESI spectrum for compound **5**.....18

Figure M1. ^1H NMR (600 MHz, $\text{d}_5\text{-pyridine}$) spectrum for compound **1**.

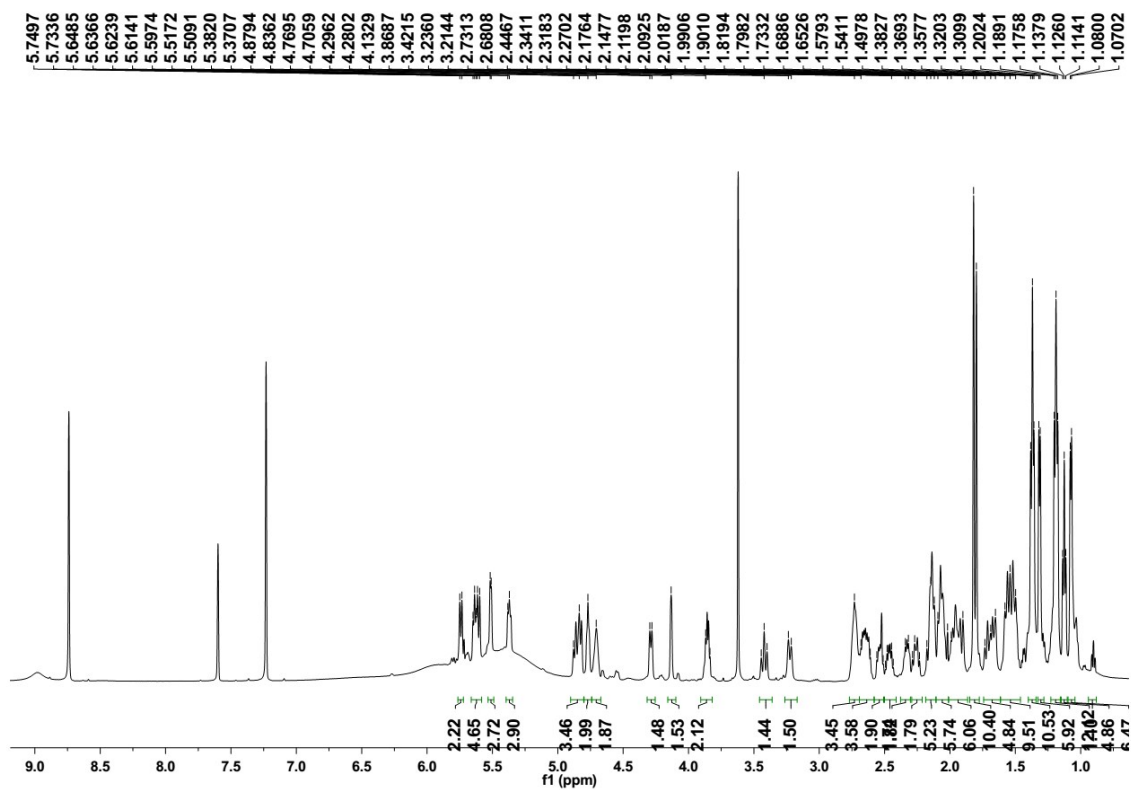


Figure M2. ^{13}C NMR (151 MHz, CDCl_3) spectrum for compound 1.

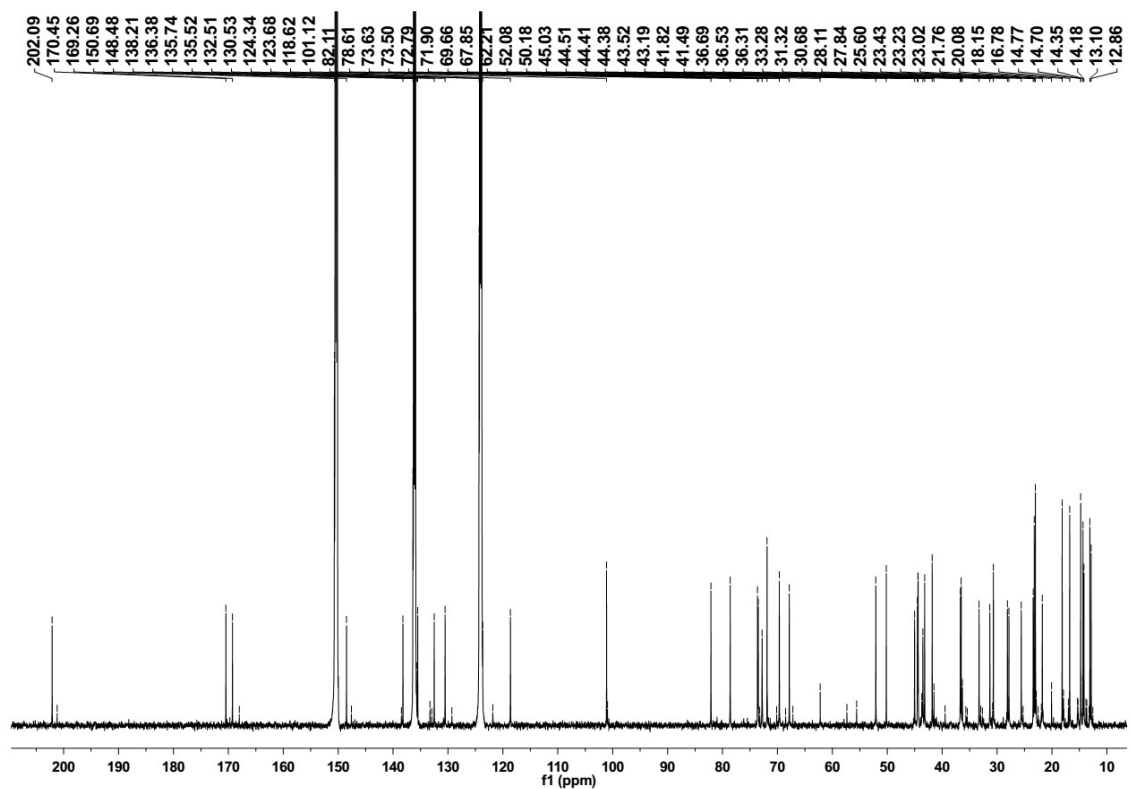


Figure M3. The HSQC spectrum for compound 1.

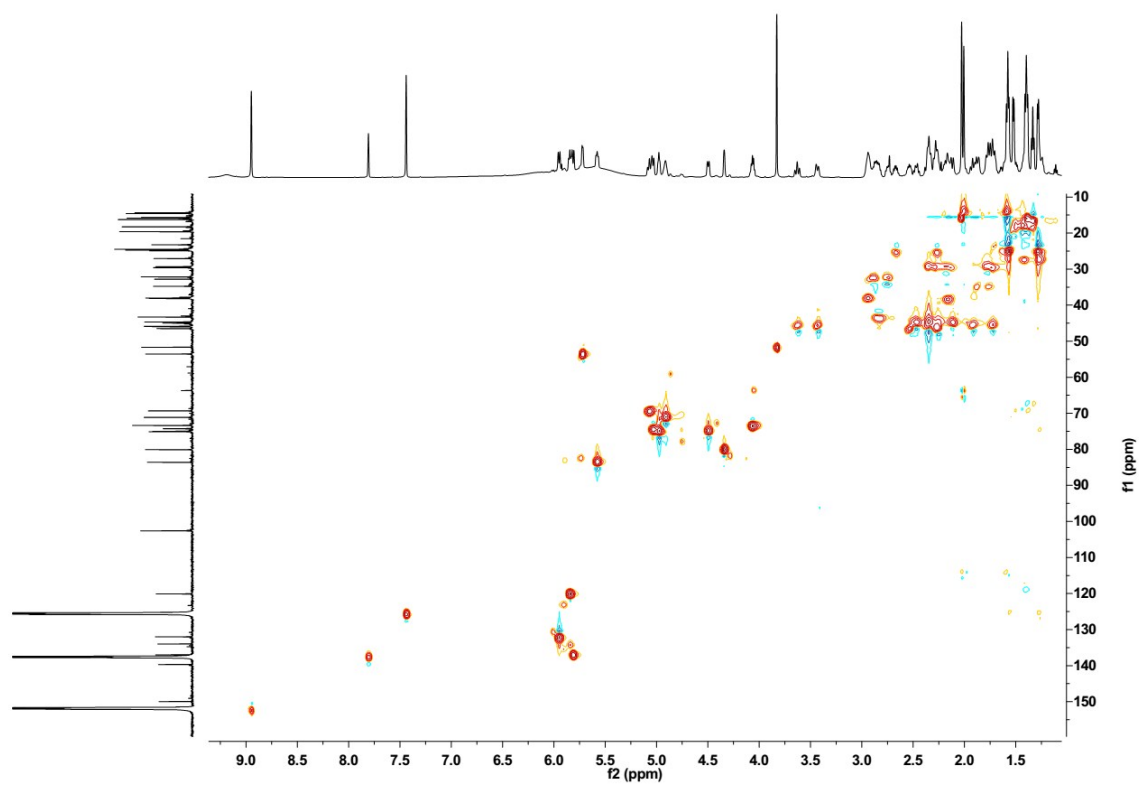


Figure M4. The HMBC spectrum for compound **1**.

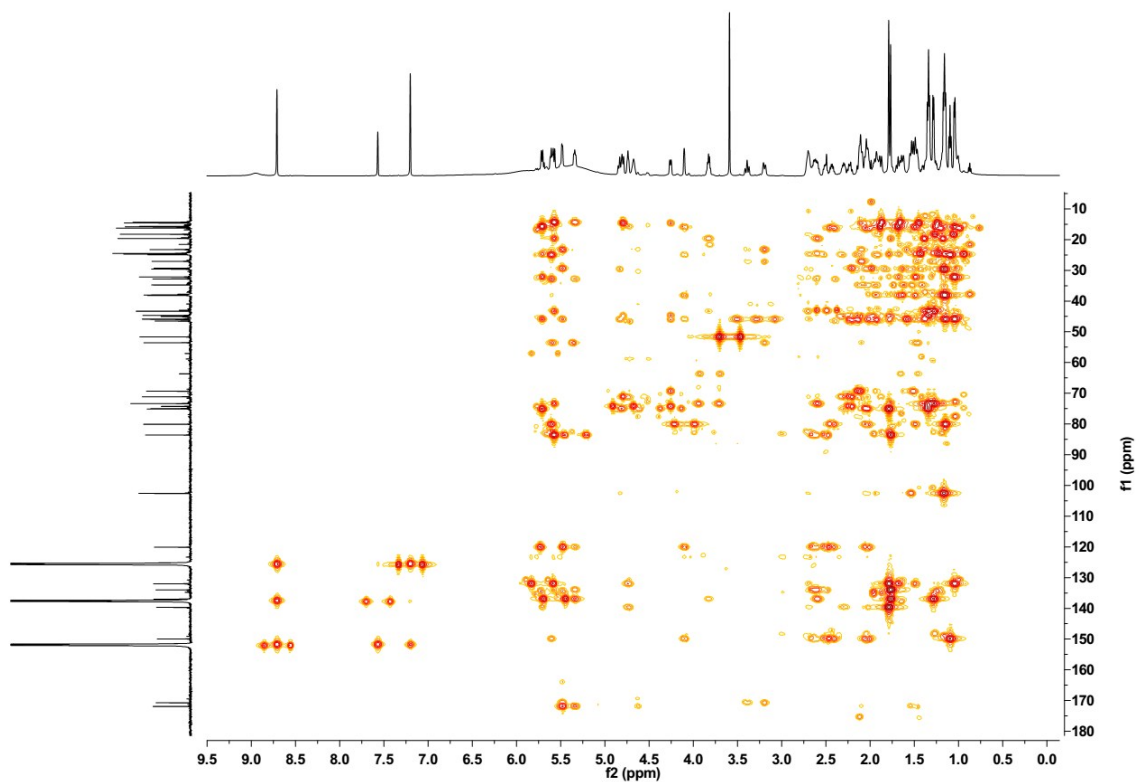


Figure M5. $^1\text{H}/^1\text{H}$ COSY spectrum for compound **1**.

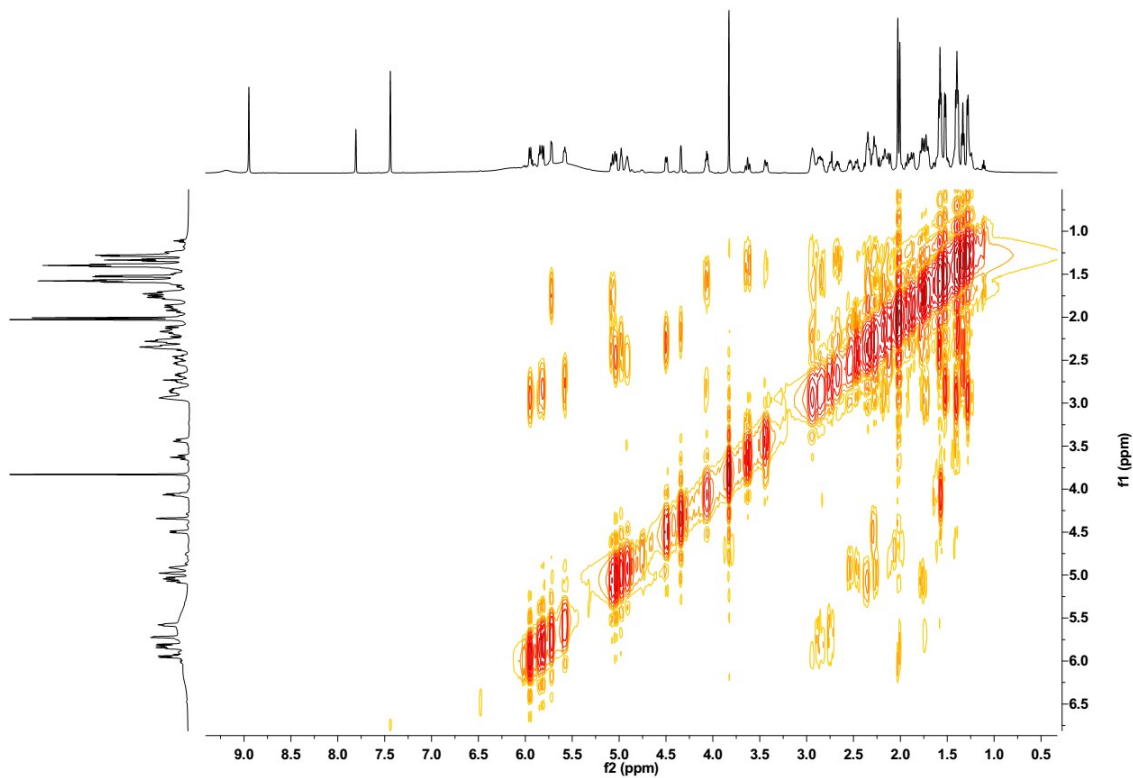


Figure M6. The HRMS-ESI spectrum for compound **1**.

5-L0 #6-14 RT: 0.17-0.39 AV: 9 NL: 9.22E6
 T: FTMS + c ESI Full ms [300.00-1000.00]

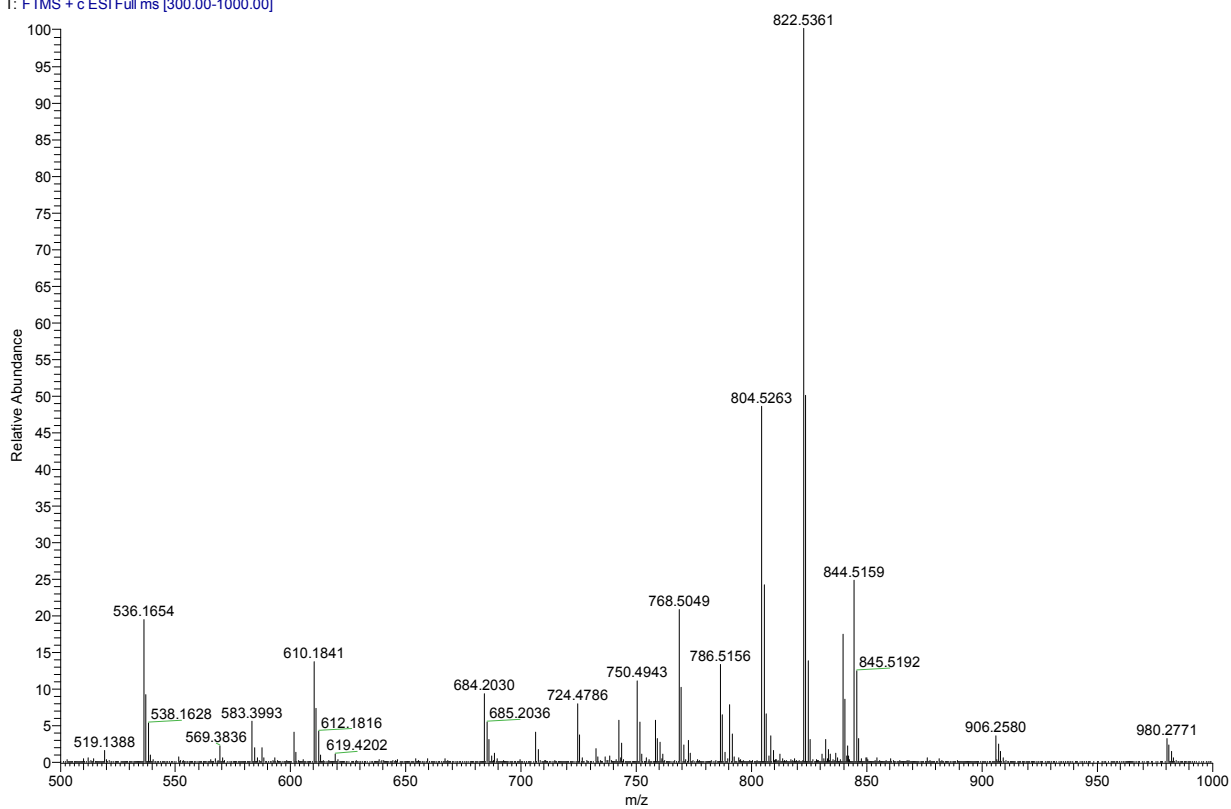


Figure MA1. ¹H NMR (600 MHz, CD₃OD) spectrum for compound 2.

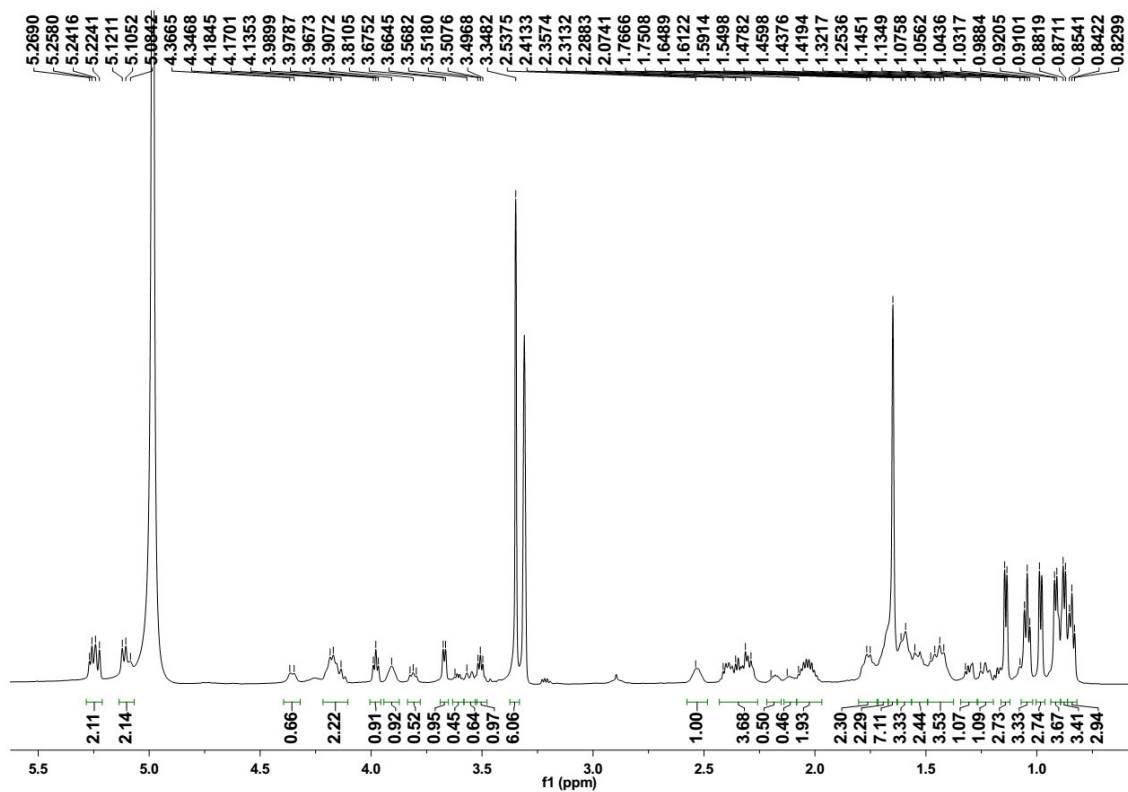


Figure MA2. ¹³C NMR (151 MHz, CD₃OD) spectrum for compound 2.

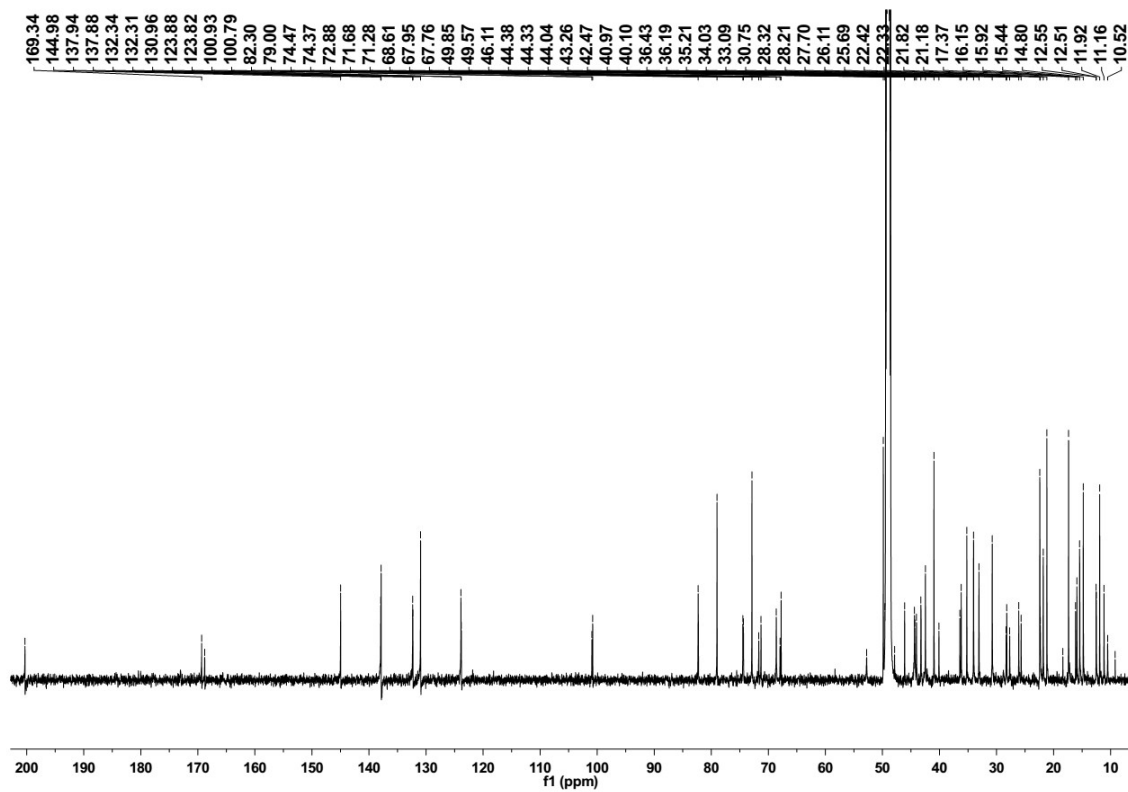


Figure MA3. The HSQC spectrum for compound **2**.

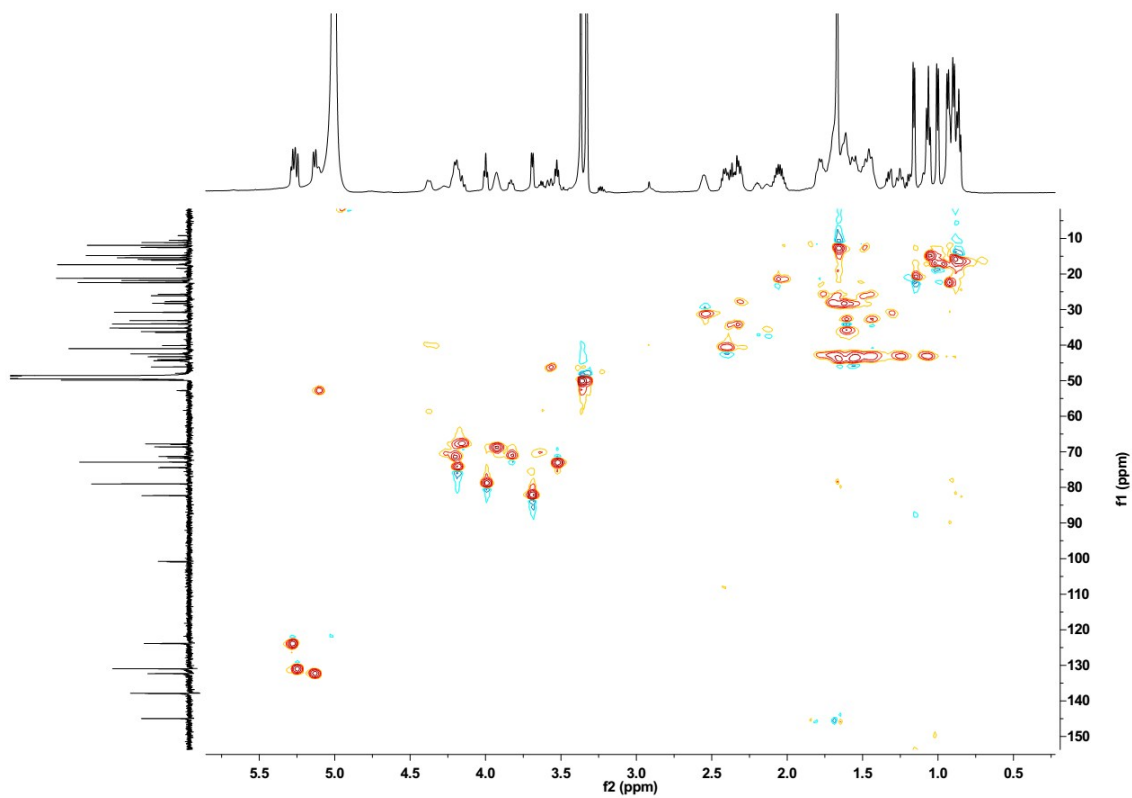


Figure MA4. The HMBC spectrum for compound **2**.

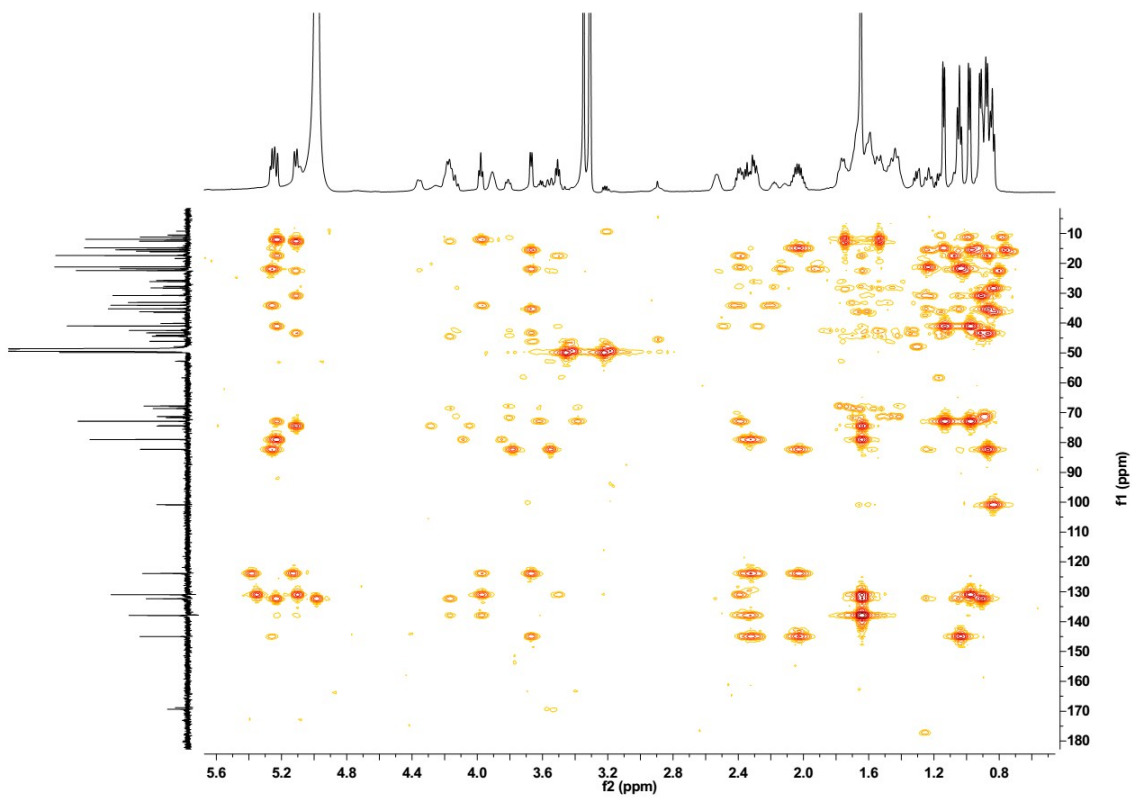


Figure MA5. The HRMS-ESI spectrum for compound **2**.

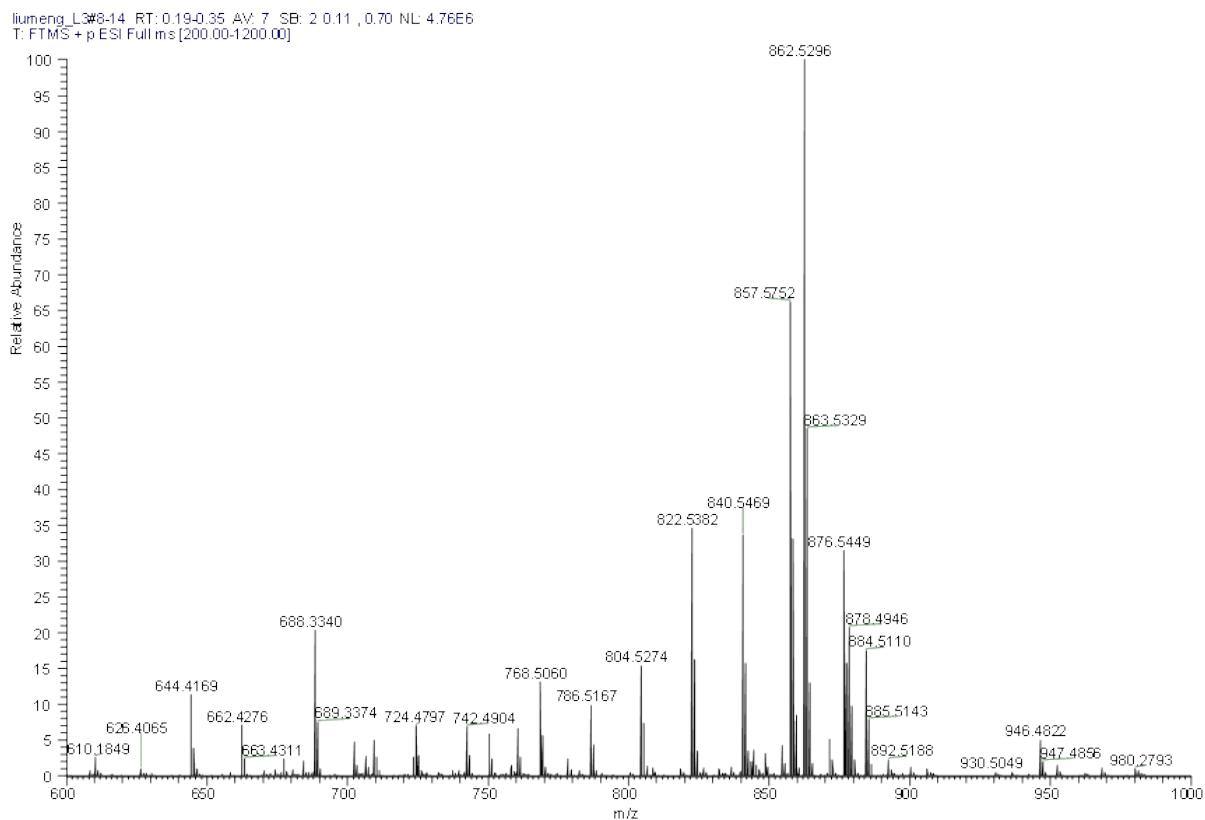


Figure MB1. ^1H NMR (600 MHz, CD_3OD) spectrum for compound **3**.

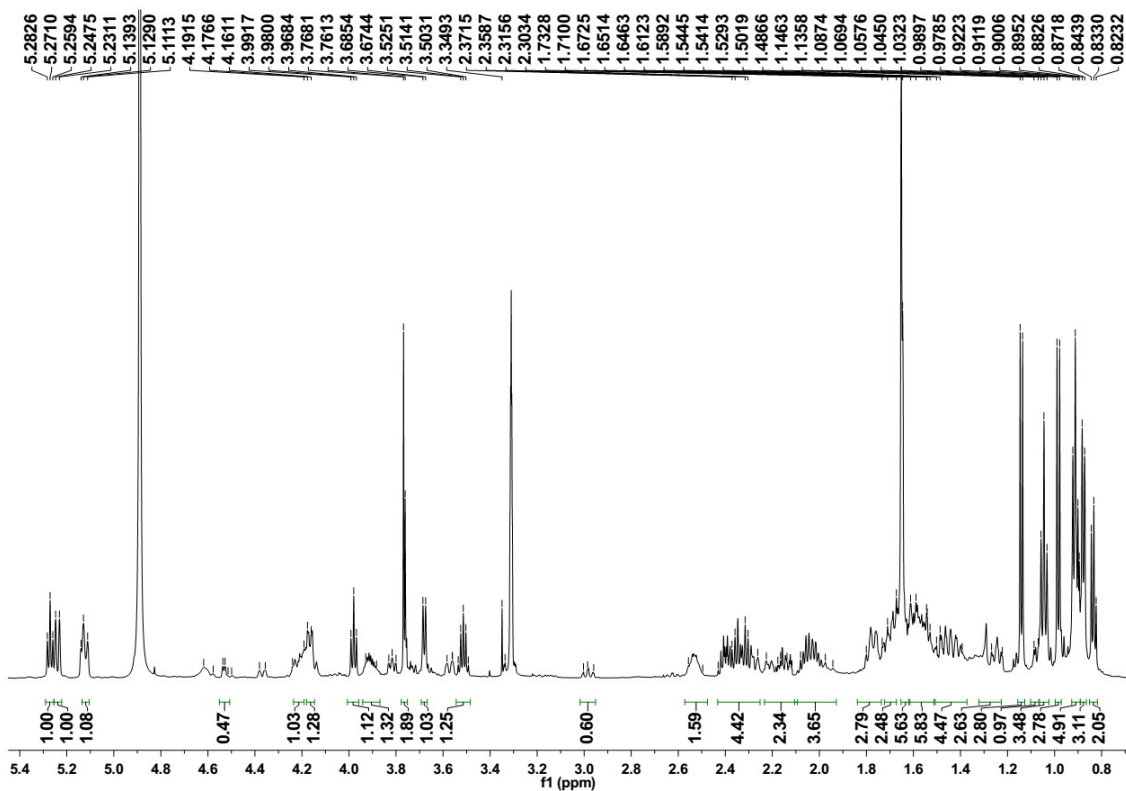


Figure MB2. ^{13}C NMR (151 MHz, CD_3OD) spectrum for compound 3.

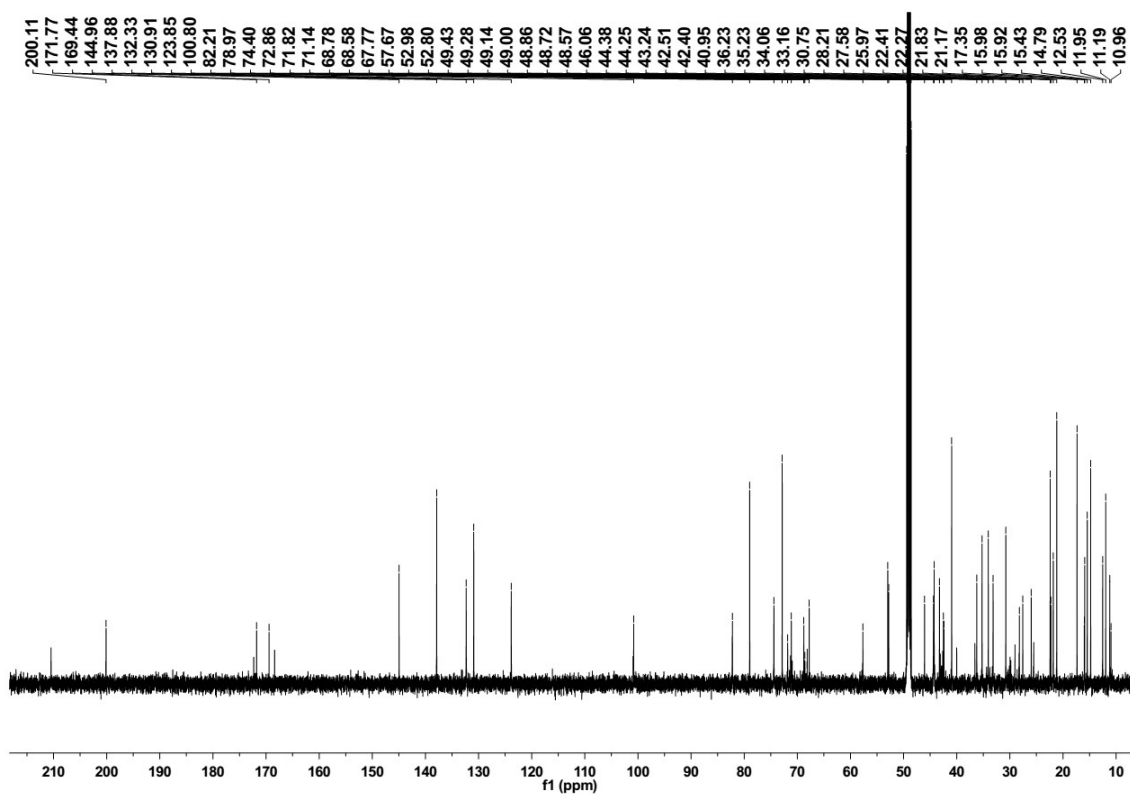


Figure MB3. The HSQC spectrum for compound 3.

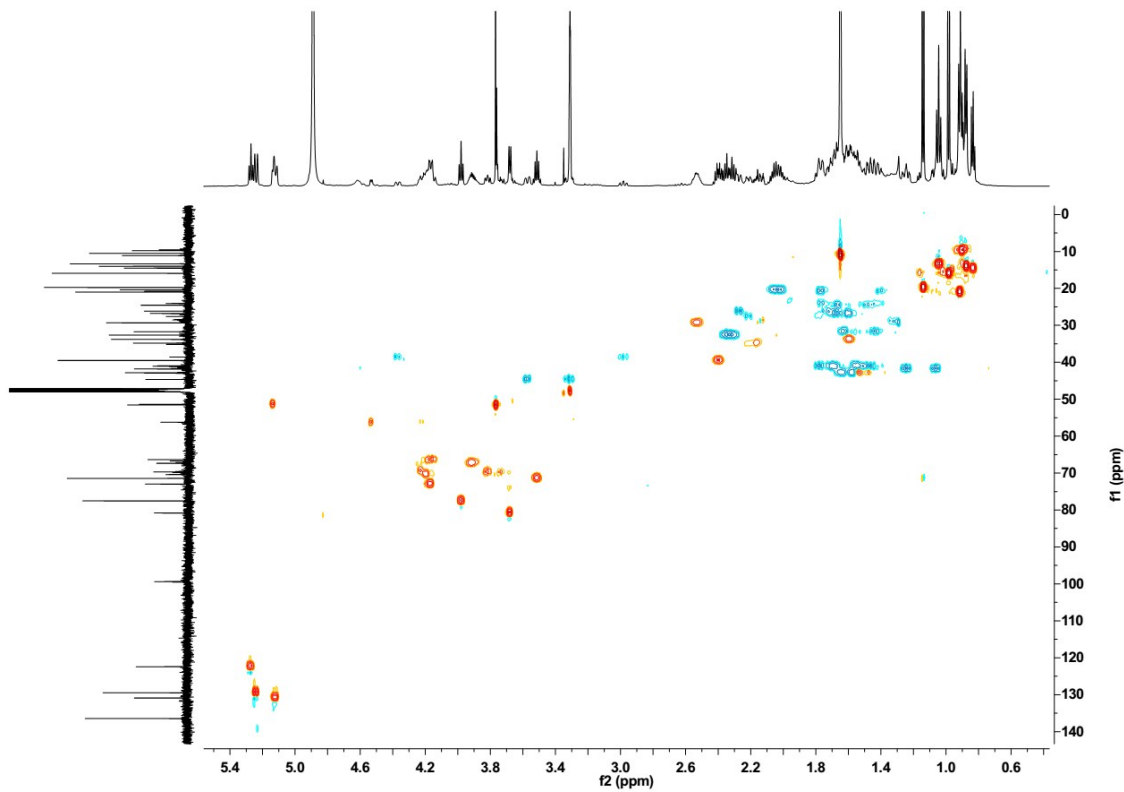


Figure MB4. The HMBC spectrum for compound 3.

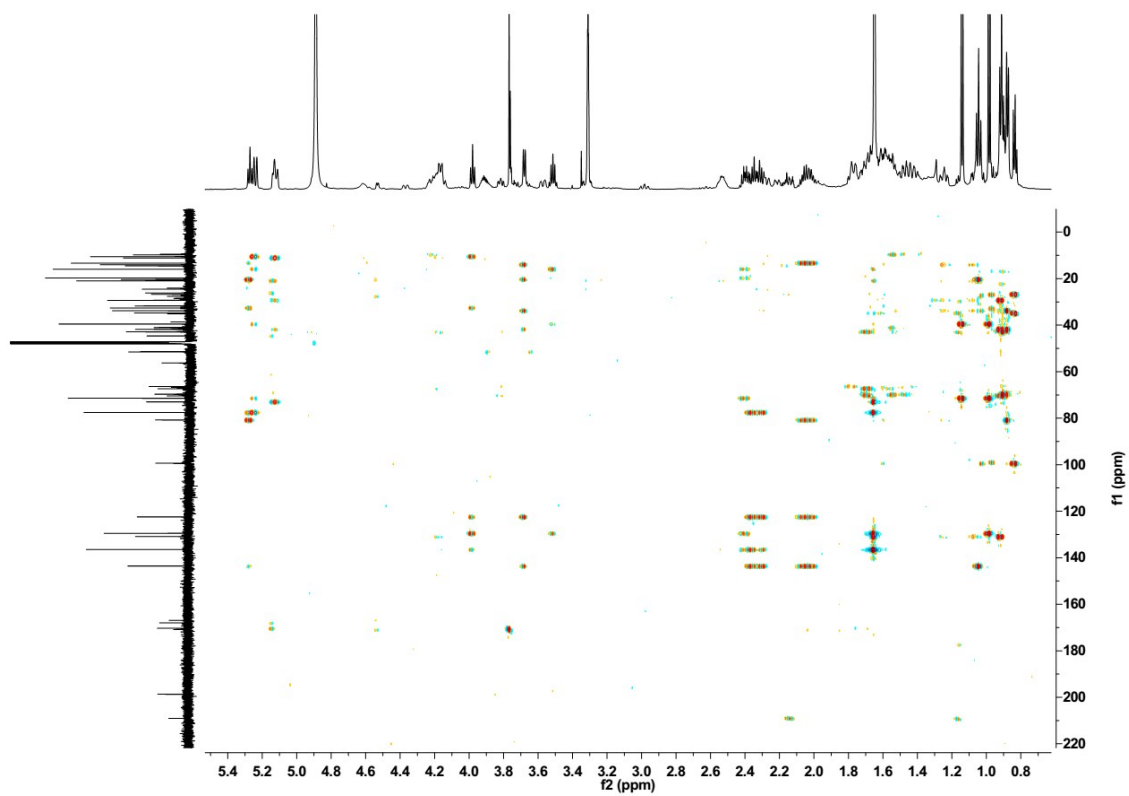


Figure MB5. $^1\text{H}/^1\text{H}$ COSY spectrum for compound 3.

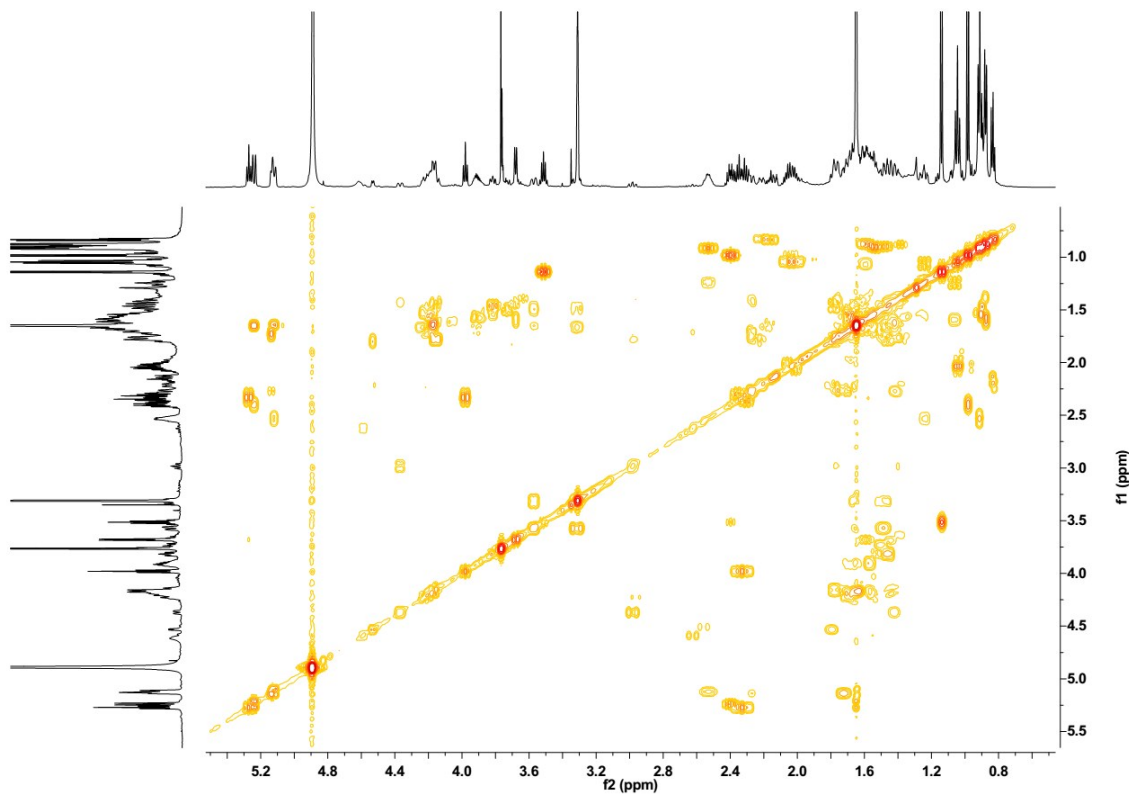


Figure MB6. The HRMS-ESI spectrum for compound 3.

liumeng_L4 #8-13 RT: 0.19-0.32 AV: 6 SB: 2 0.08, 0.73 NL: 1.06E7
T: FTMS + p ESI Full ms [200.00-1200.00]

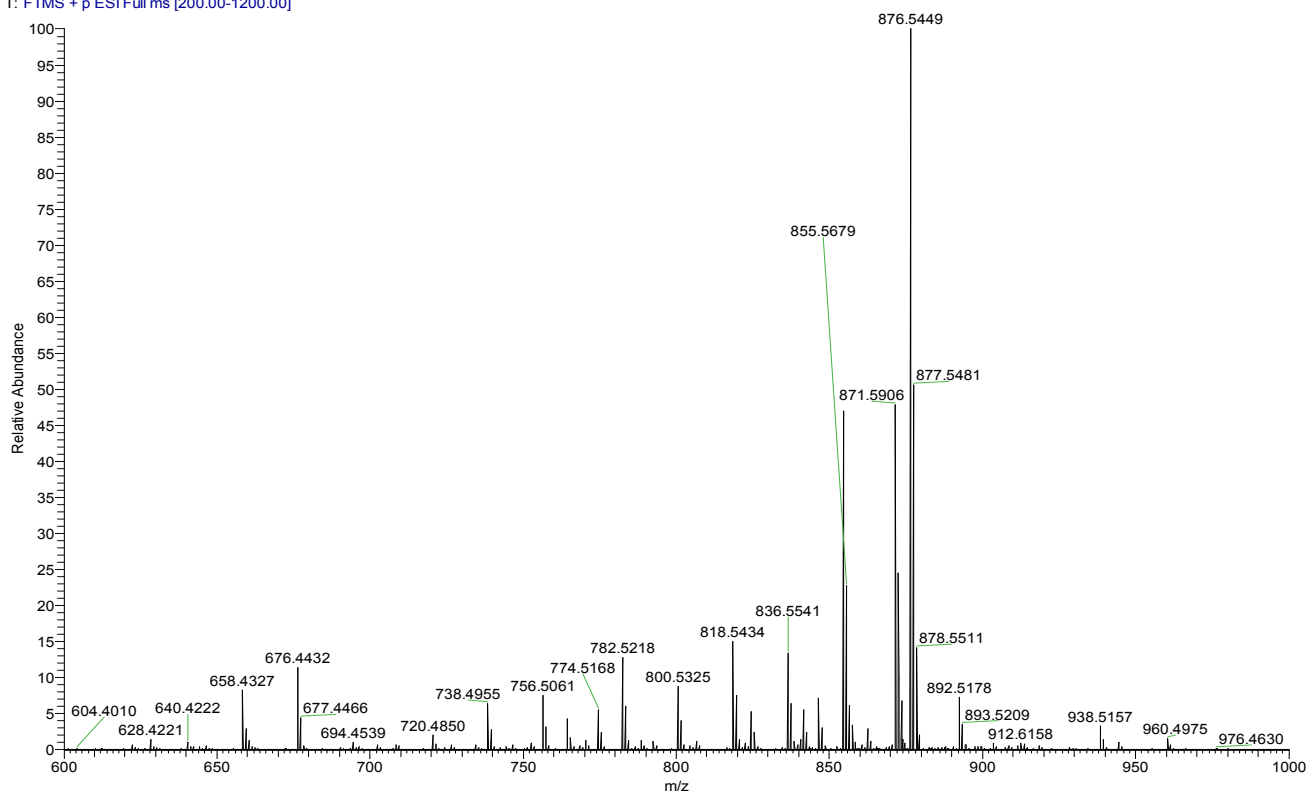


Figure MC1. ¹H NMR (400 MHz, CD₃OD) spectrum for compound 4.

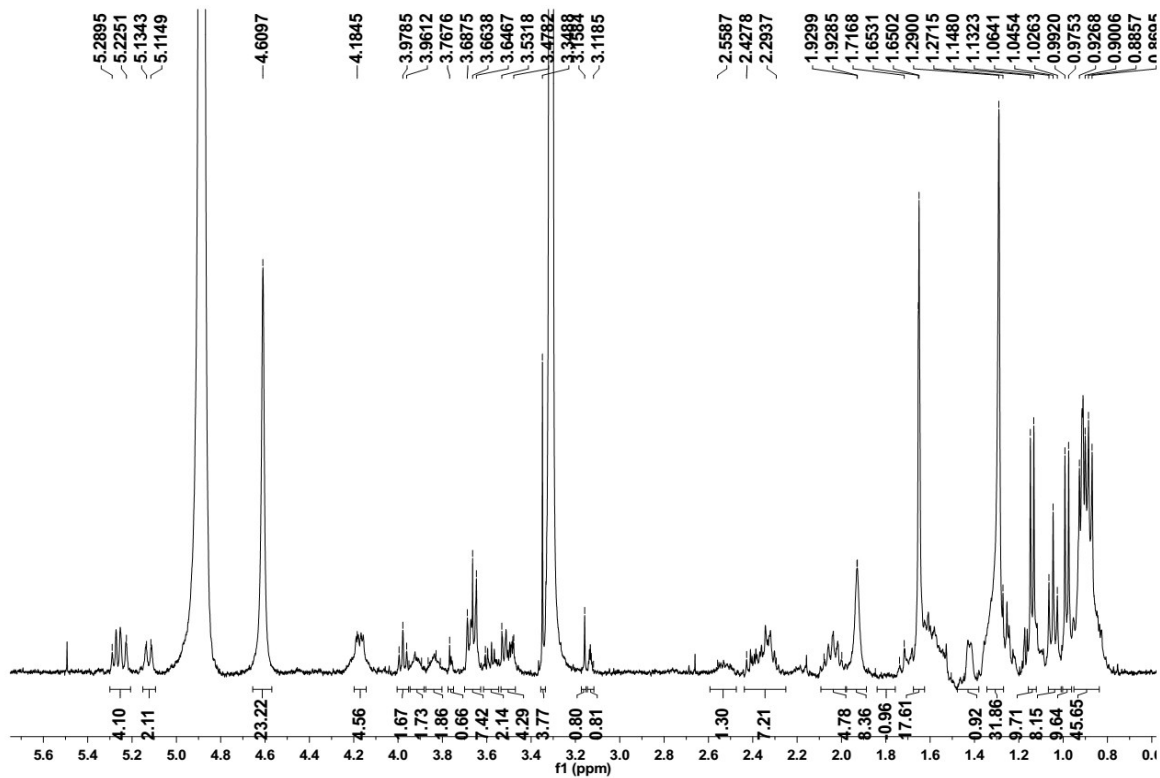


Figure MC2. ^{13}C NMR (100 MHz, CD_3OD) spectrum for compound 4.

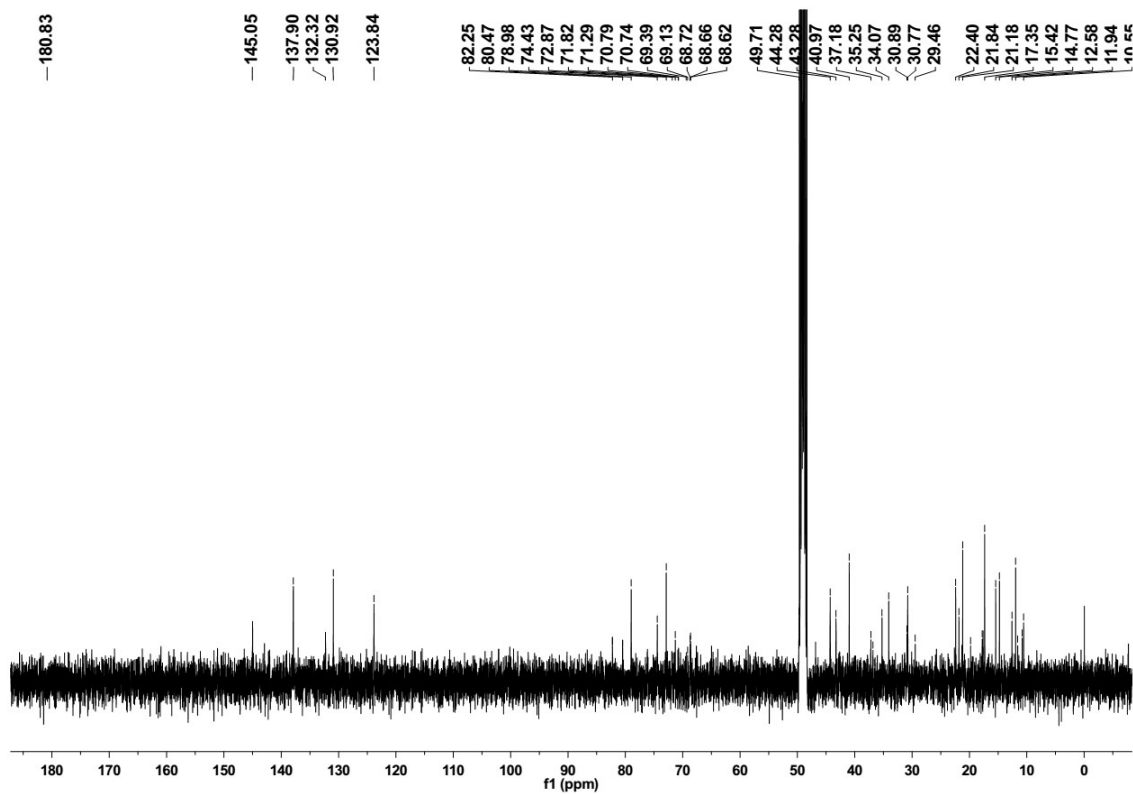


Figure MC3. The HSQC spectrum for compound 4.

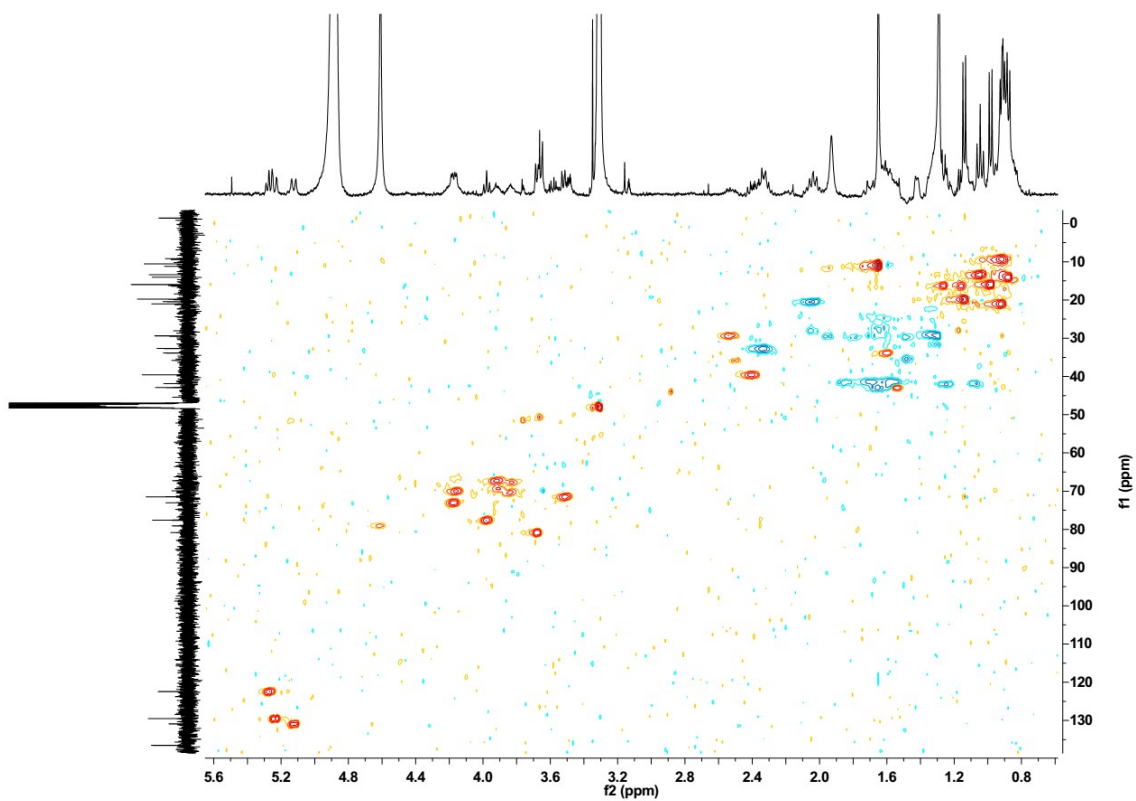


Figure MC4. The HMBC spectrum for compound 4.

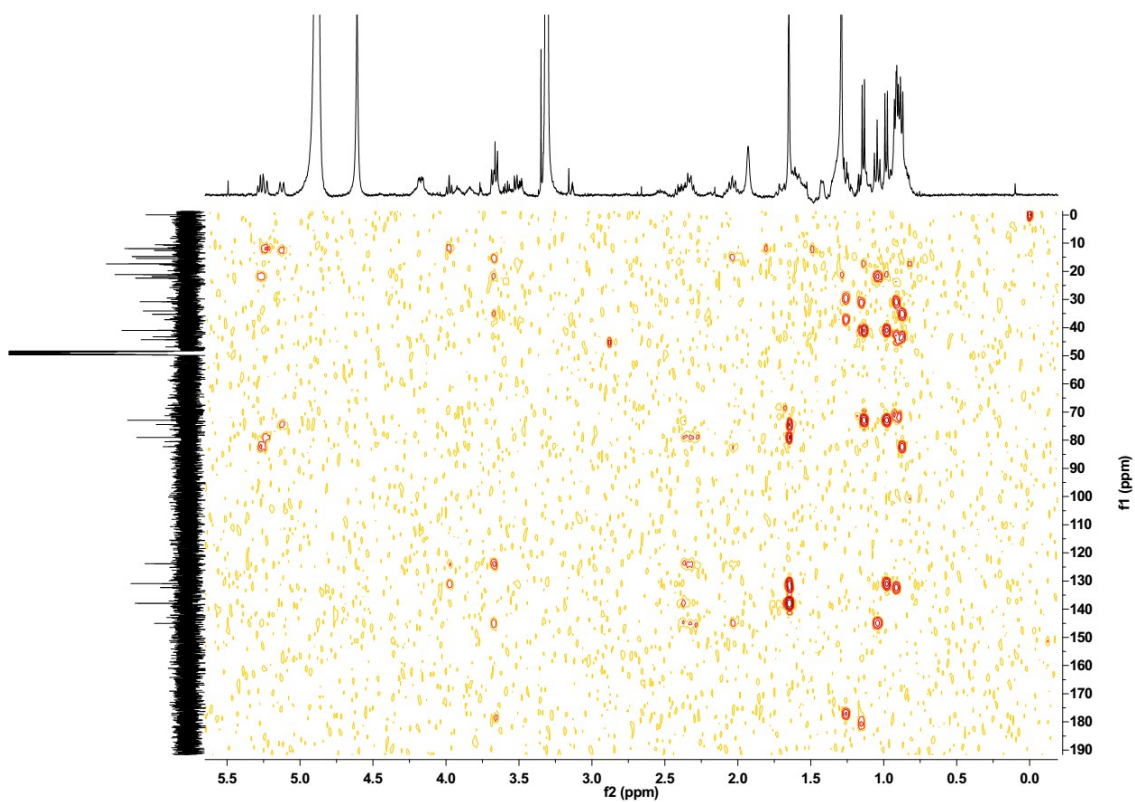


Figure MC5. $^1\text{H}/^1\text{H}$ COSY spectrum for compound 4.

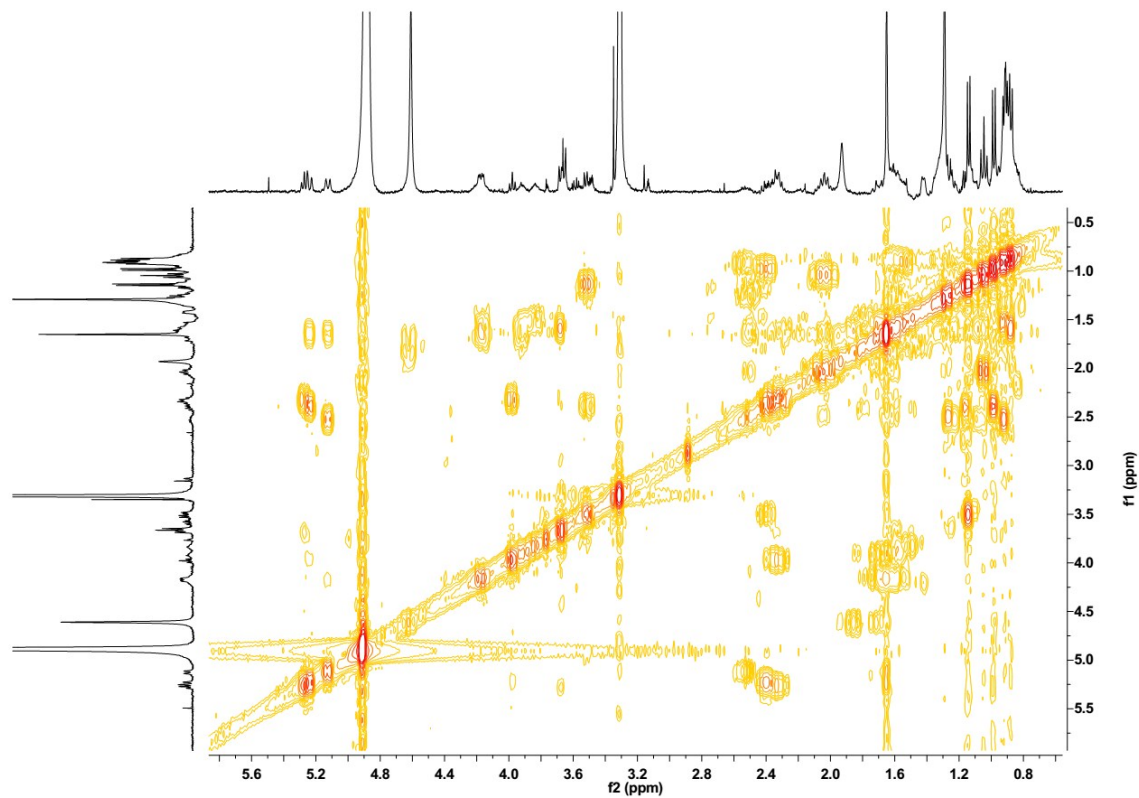


Figure MC6. The HRMS-ESI spectrum for compound 4.

liumeng_L1#8-13 RT: 0.19-0.32 AV: 6 SB: 2 0.10 , 0.67 NL: 7.63E6
T: FTMS + pESI Full ms [200.00-1200.00]

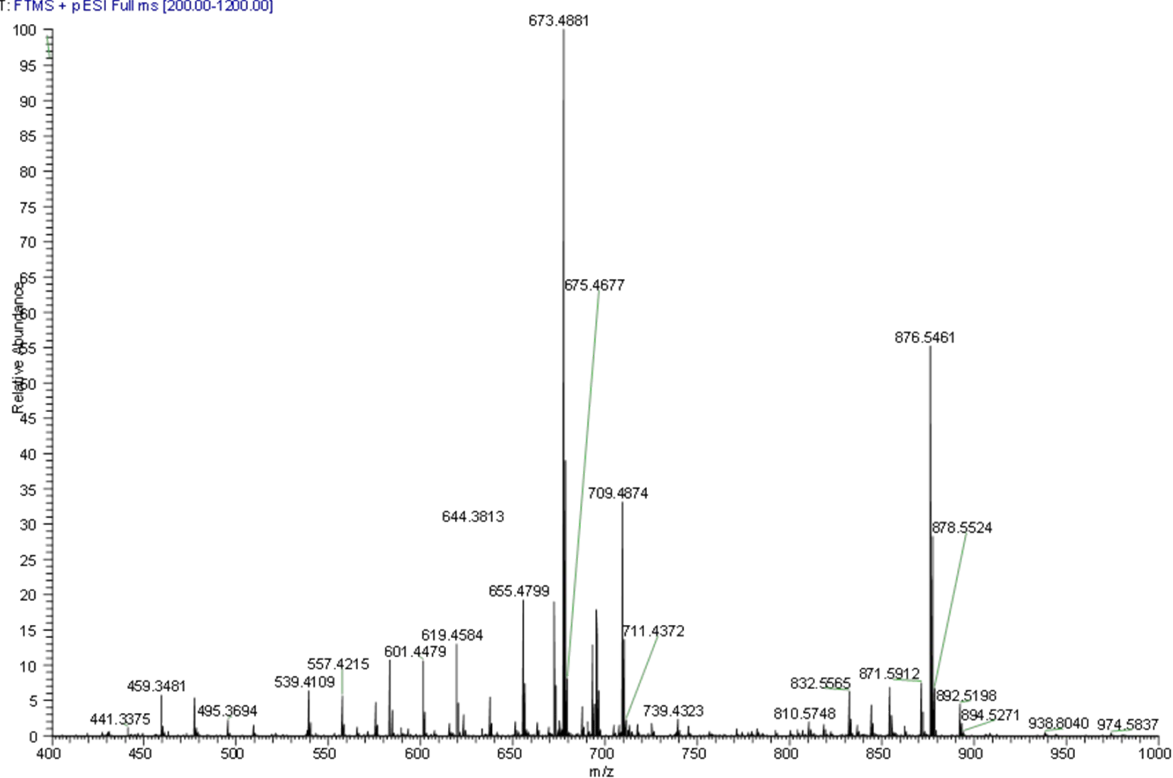


Figure MD1. ^1H NMR (600 MHz, CD_3OD) spectrum for compound 5.

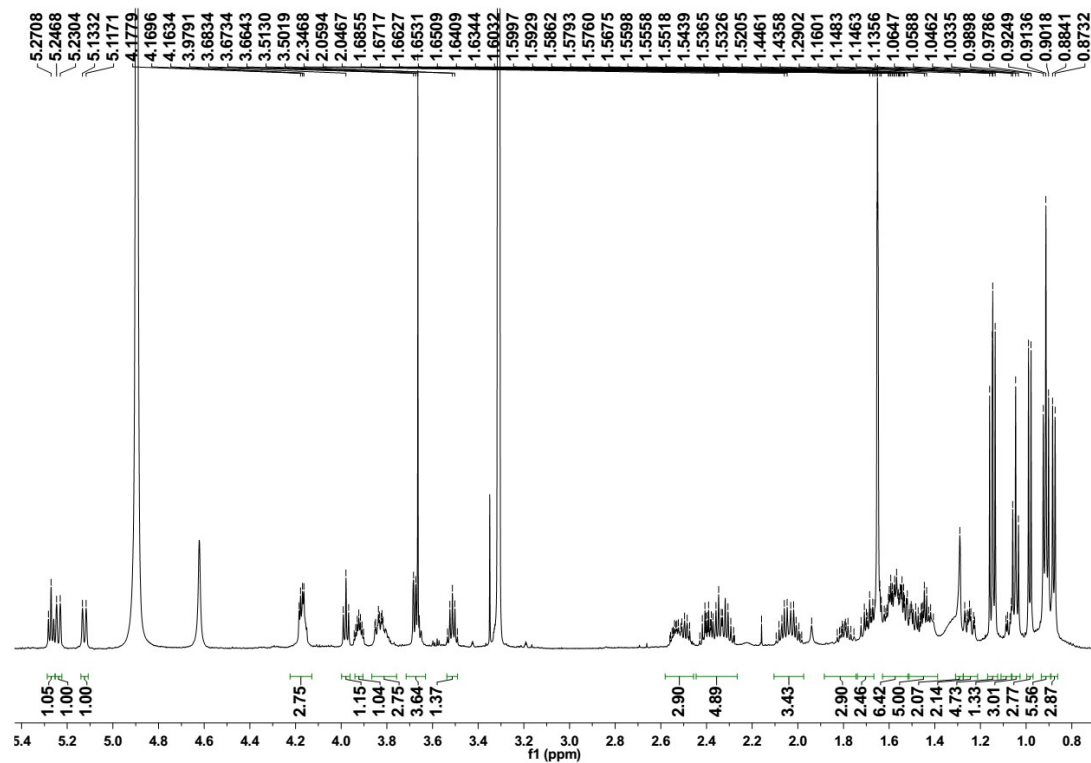


Figure MD2. ^{13}C NMR (151 MHz, CD_3OD) spectrum for compound 5.

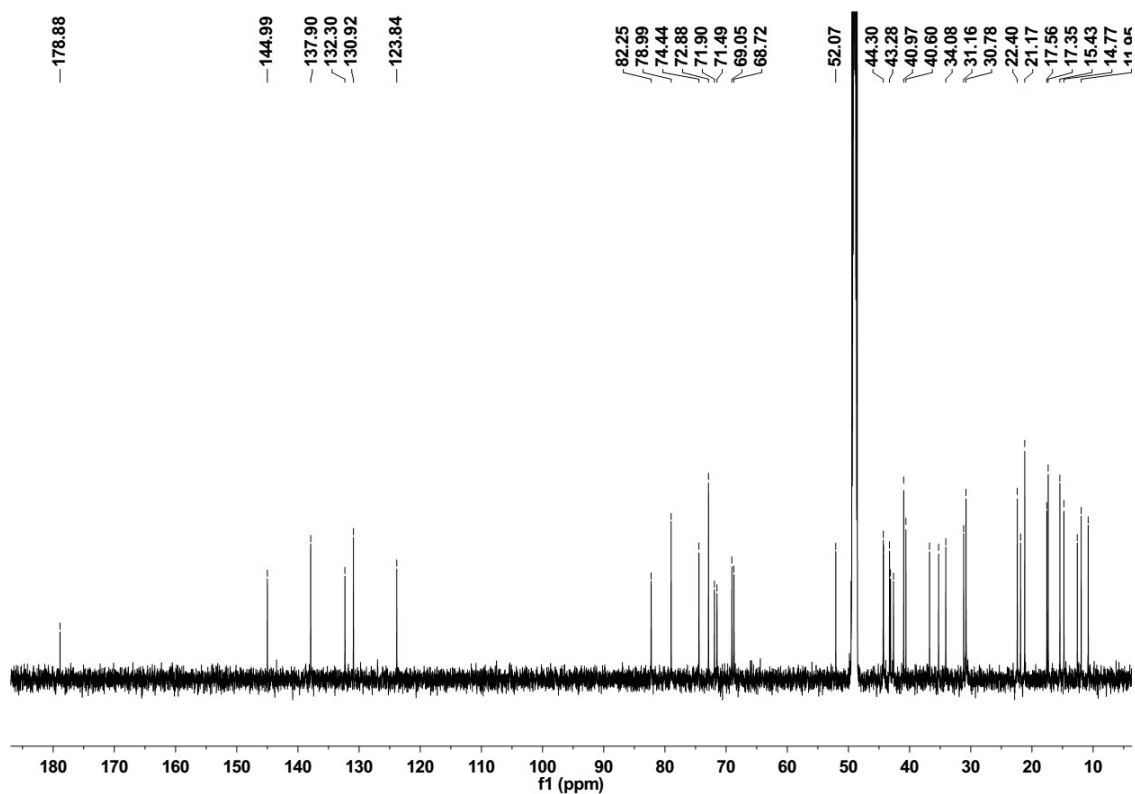


Figure MD3. The HSQC spectrum for compound 5.

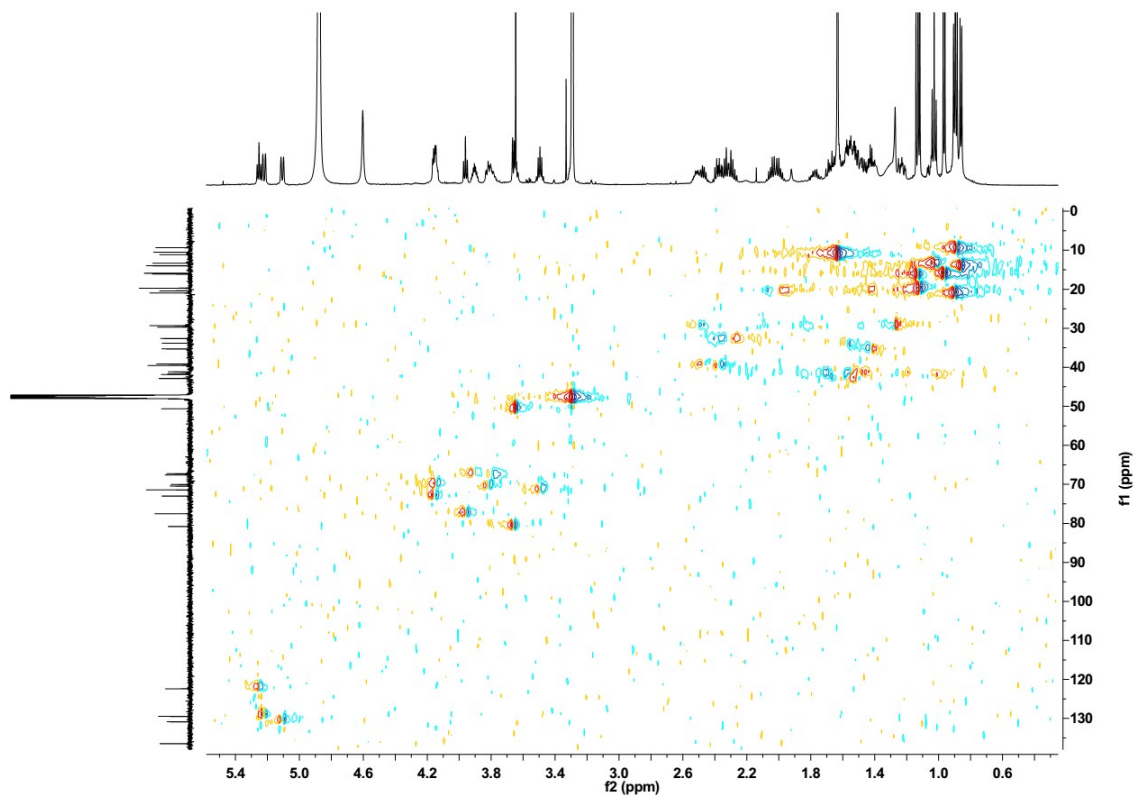


Figure MD4. The HMBC spectrum for compound 5.

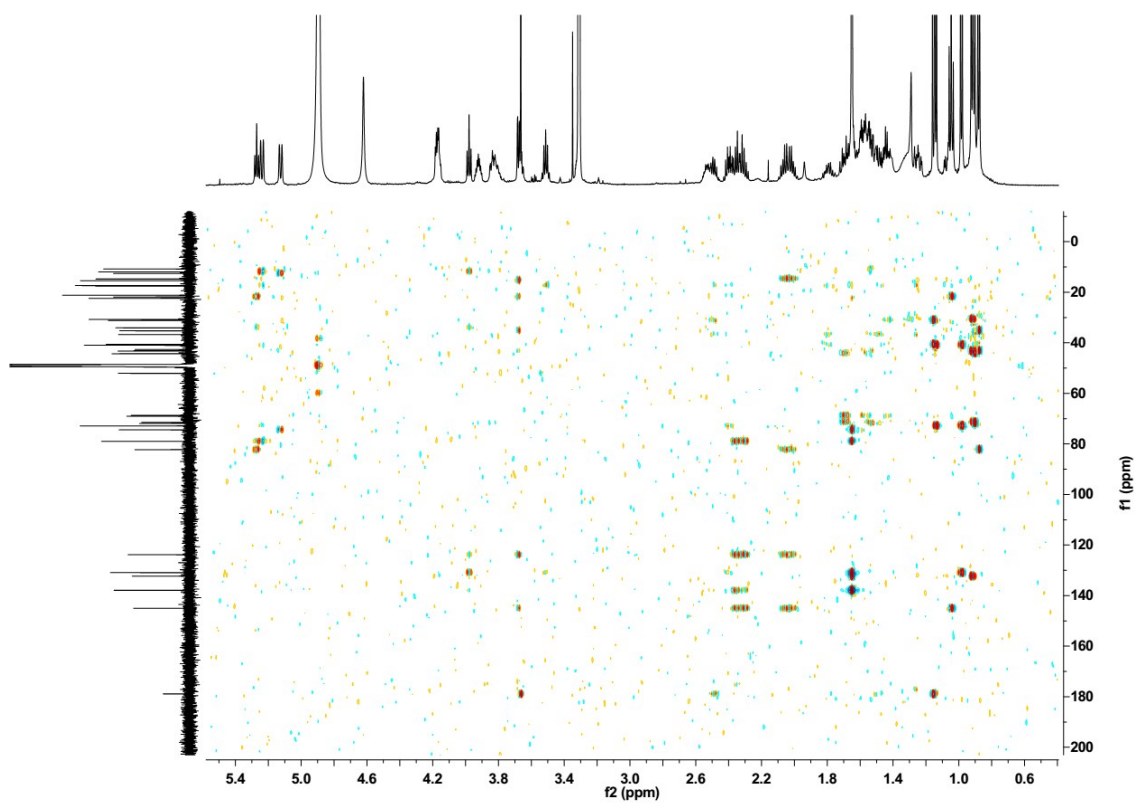


Figure MD5. $^1\text{H}/^1\text{H}$ COSY spectrum for compound 5.

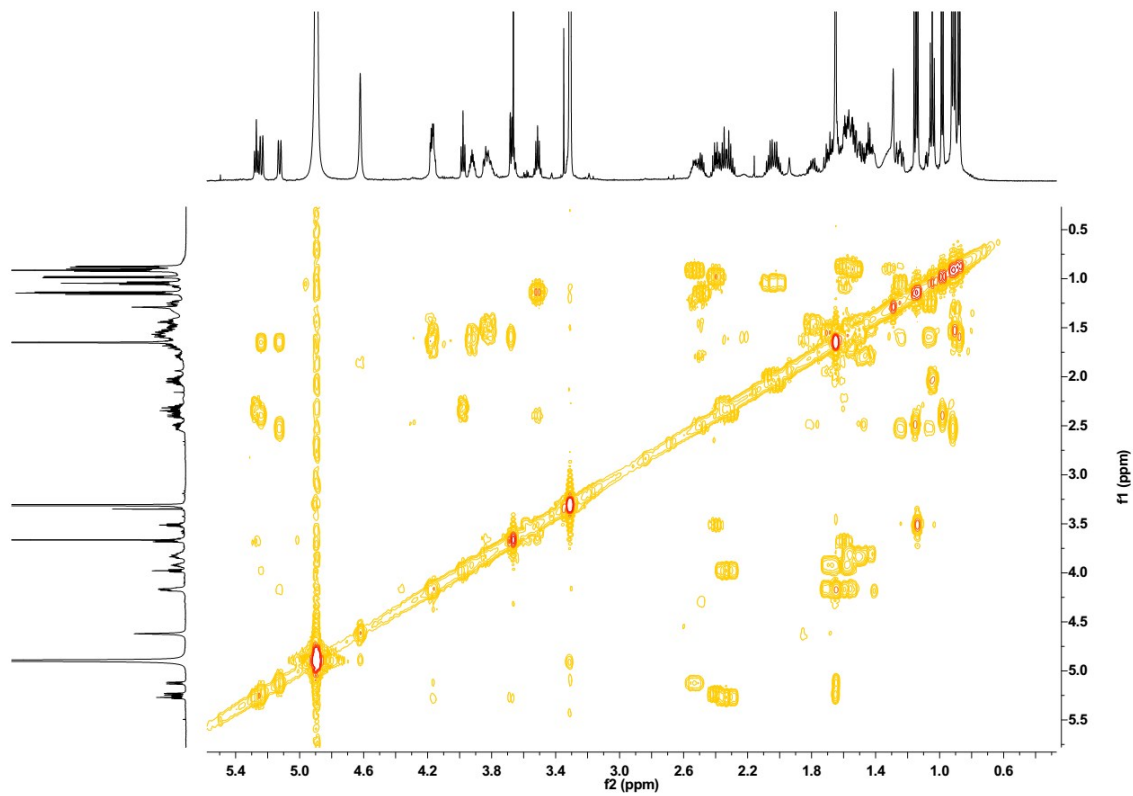


Figure MD6. The HRMS-ESI spectrum for compound **5**.

5-L2#11 RT: 0.30 AV: 1 NL: 2.45E6
T: FTMS + c ESI Full ms [300.00-1000.00]

