Four prenylflavone derivatives with antiplasmodial activities from the stems of *Tephrosia purpurea* subsp. *leptostachya*

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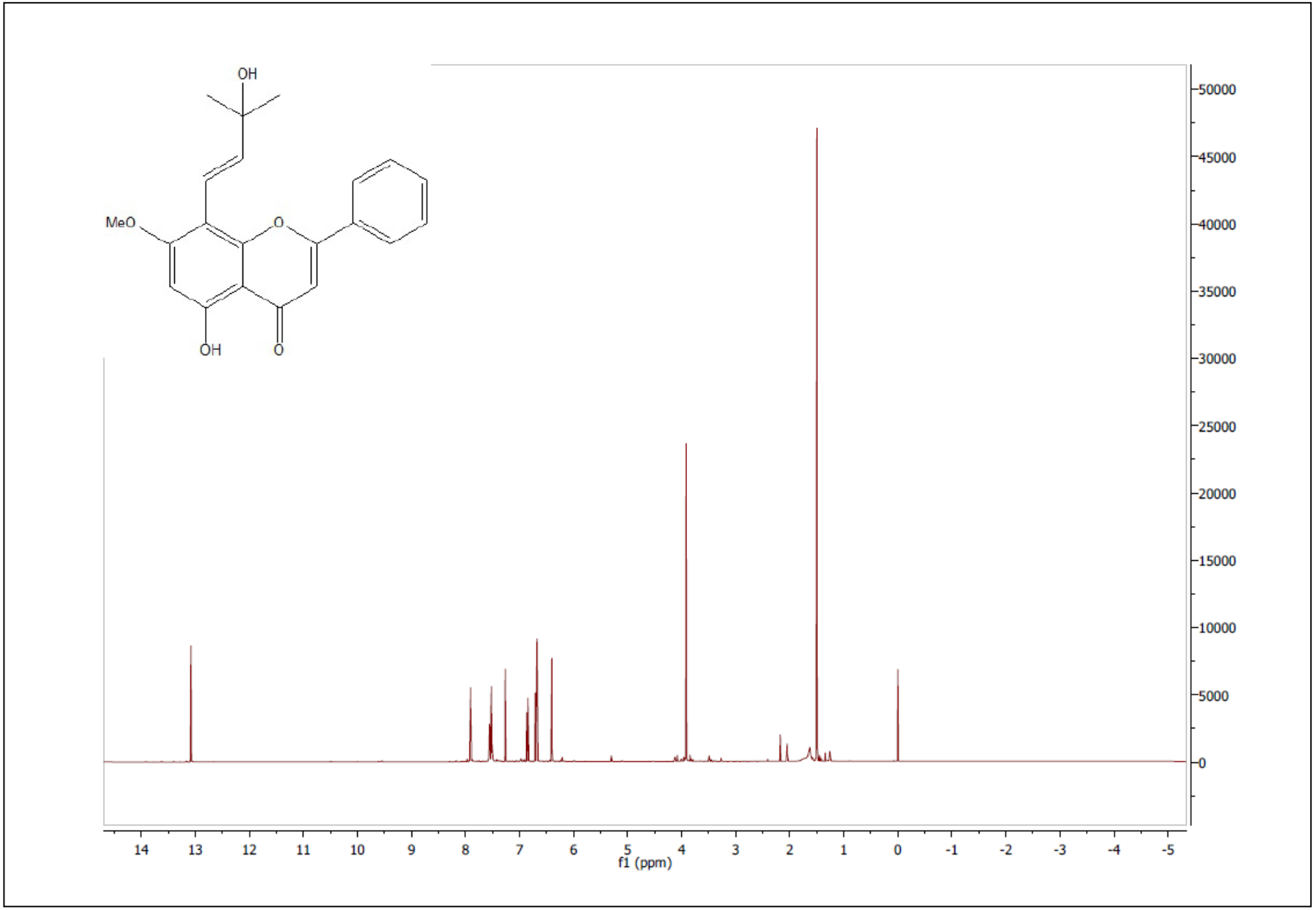

Fig. S1: ^{1}H NMR spectrum of compound 1 (800 MHz; $CDCl_3$)

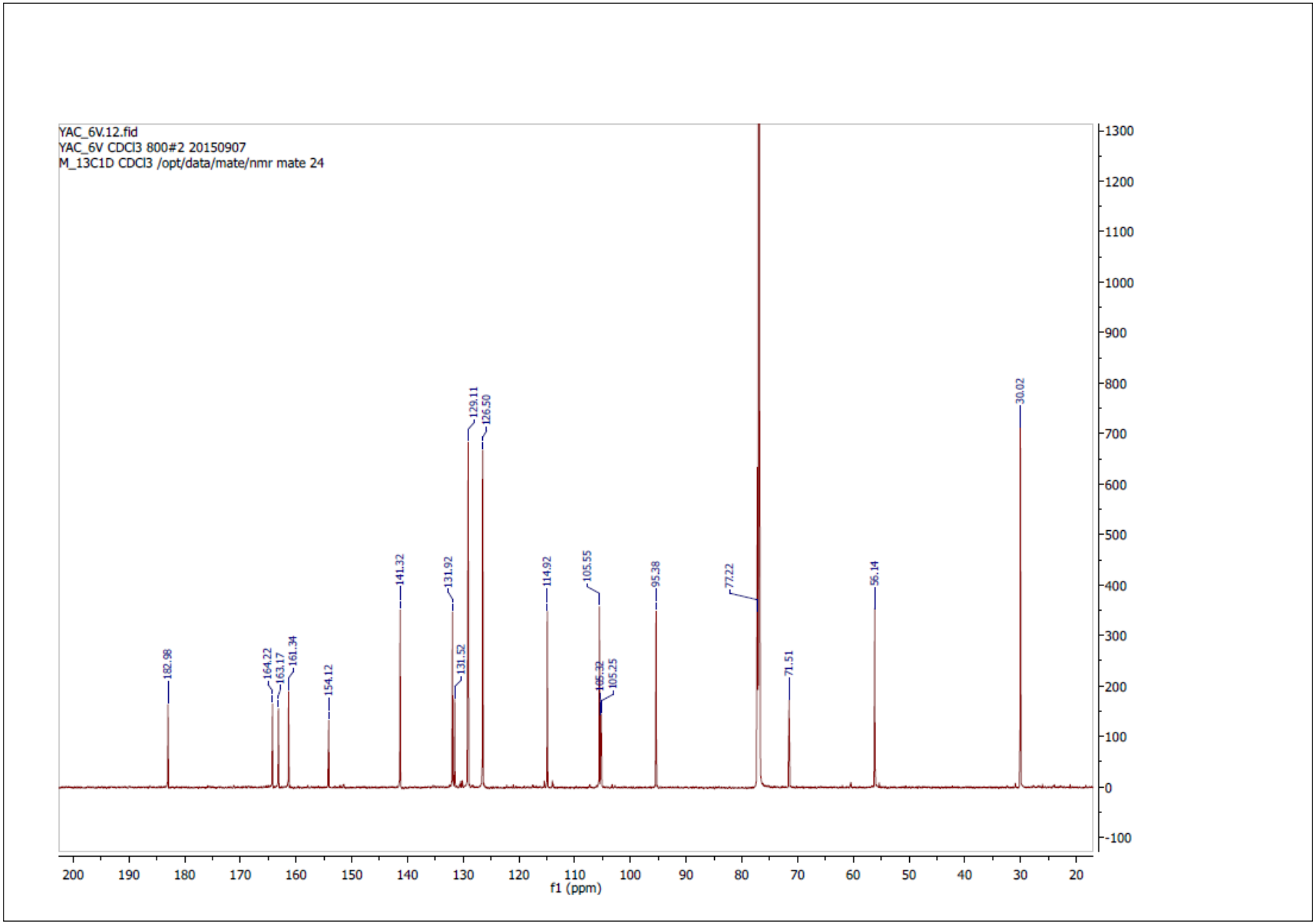

Fig. S2: ^{13}C NMR spectrum of compound 1 (200 MHz; $CDCl_3$)

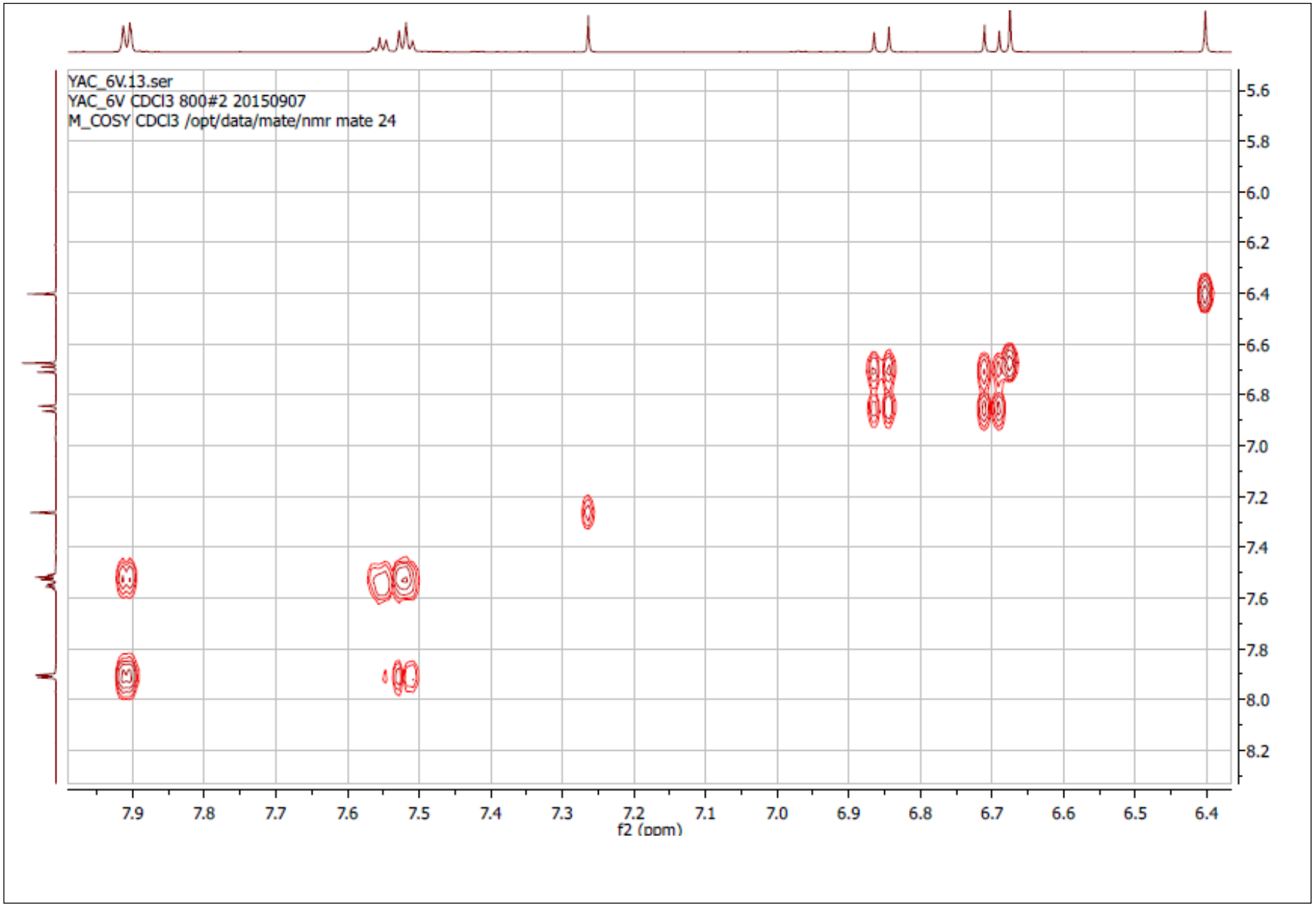

Fig. S3: COSY spectrum of compound **1** ($CDCl_3$)

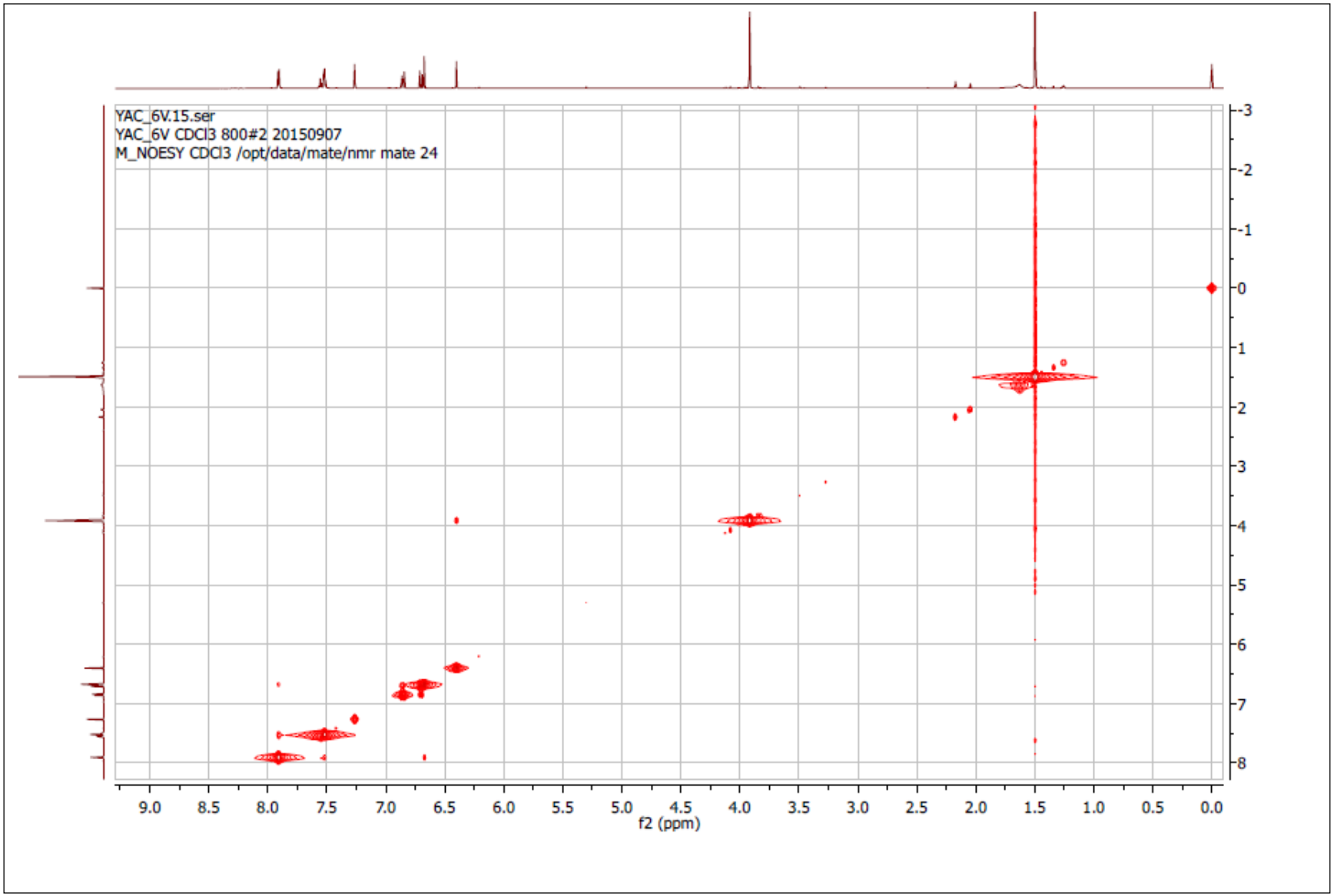

Fig. S4: NOESY spectrum of compound **1** ($CDCl_3$)

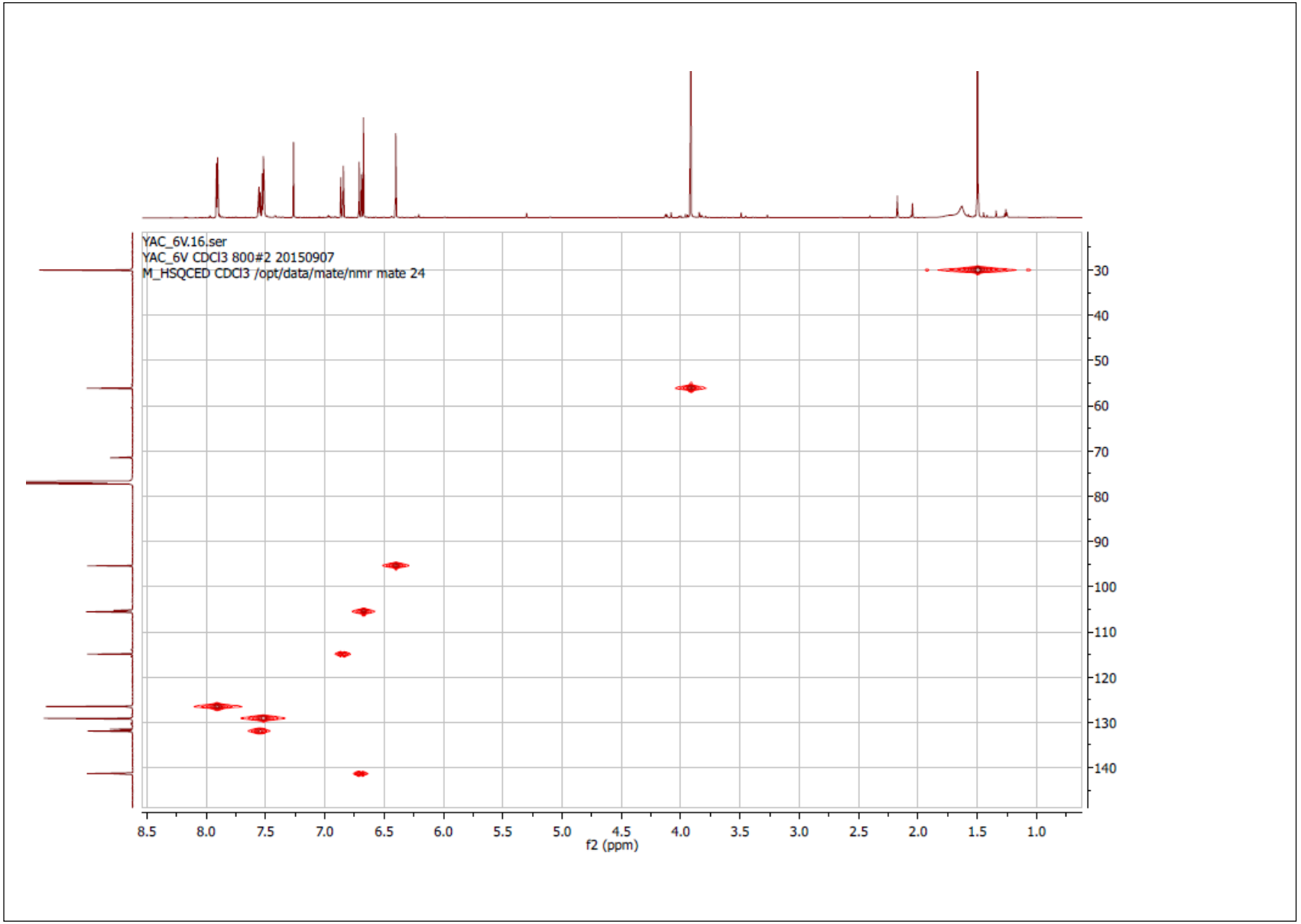

Fig. S5: HSQC spectrum of compound **1** ($CDCl_3$)

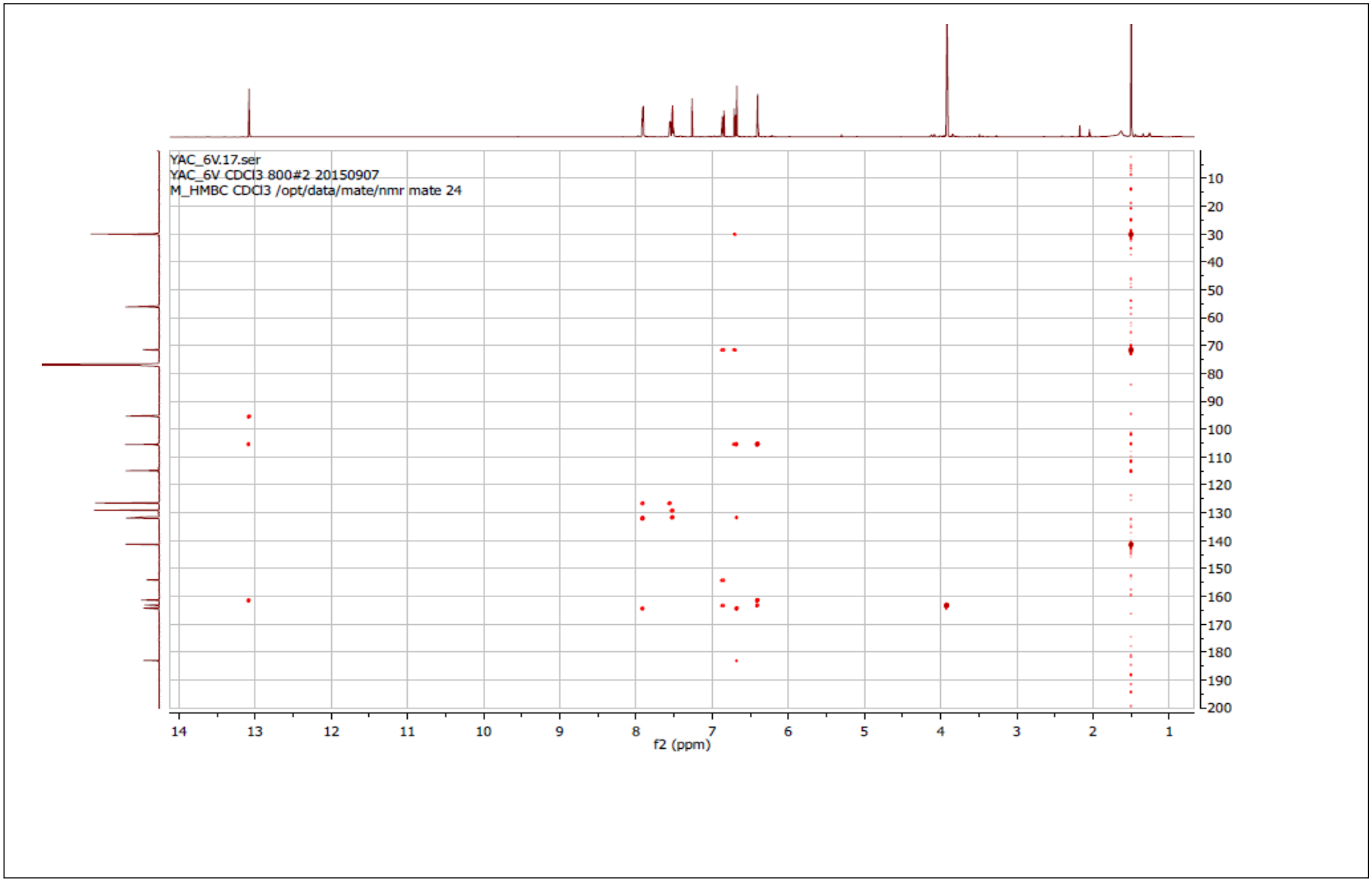

Fig. S6: HMBC spectrum of compound **1** ($CDCl_3$)

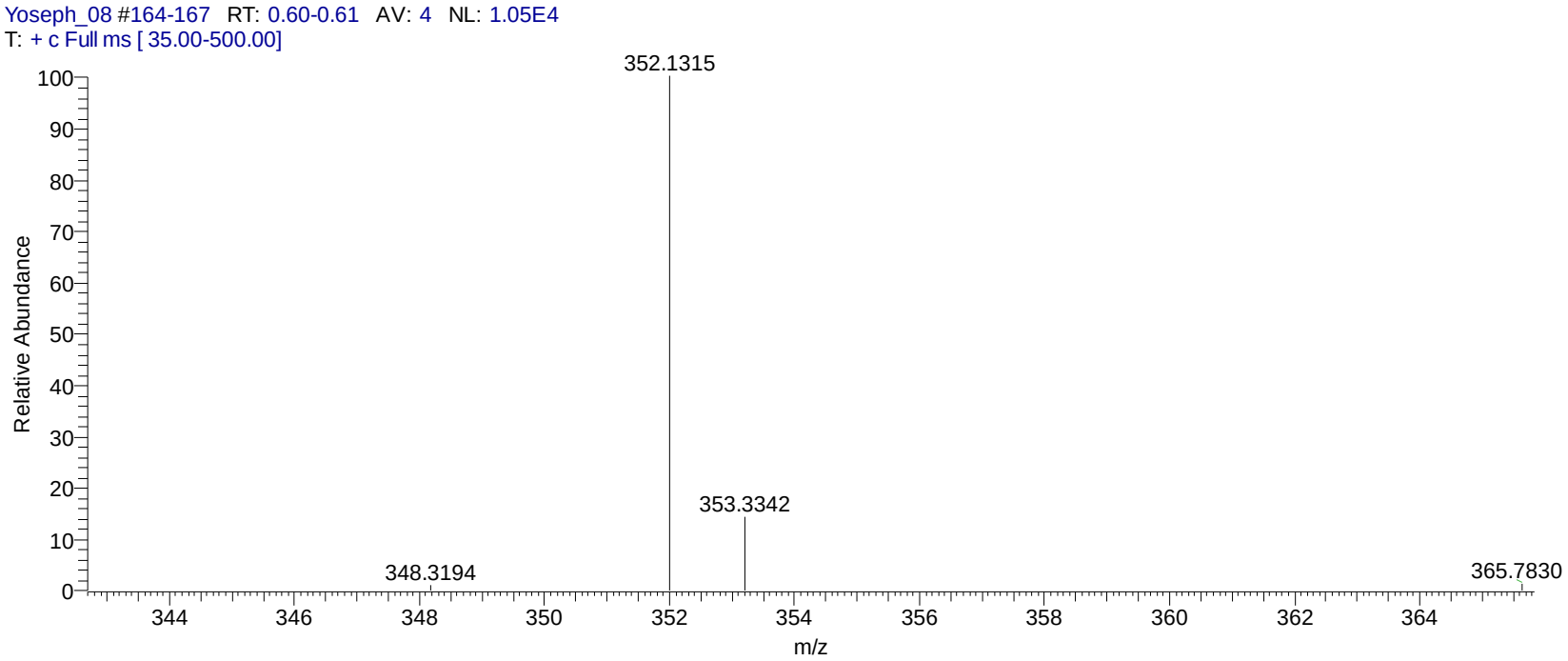

Fig. S7: HRMS of compound **1**

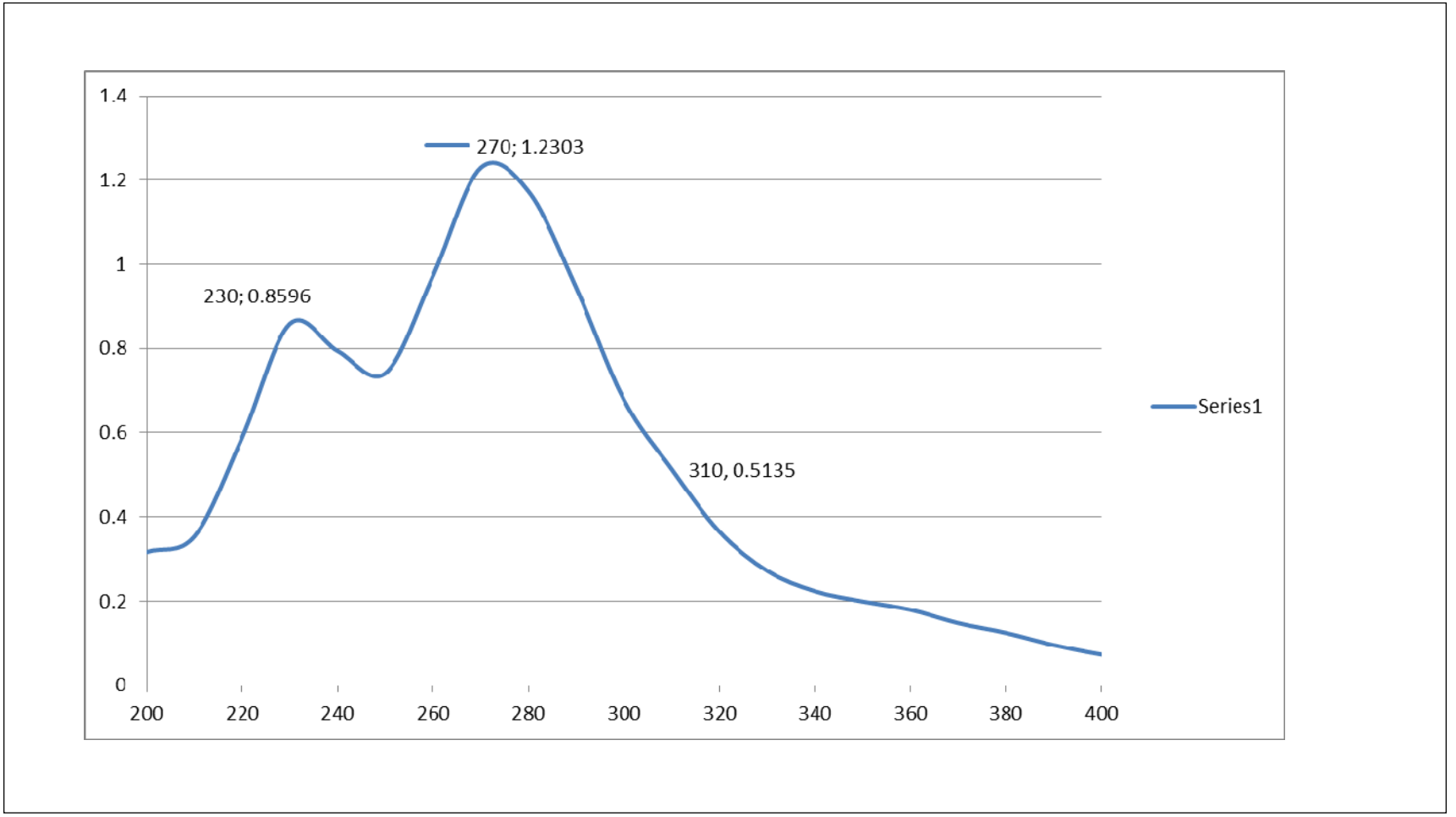

Fig. S8: UV spectrum of compound **1**

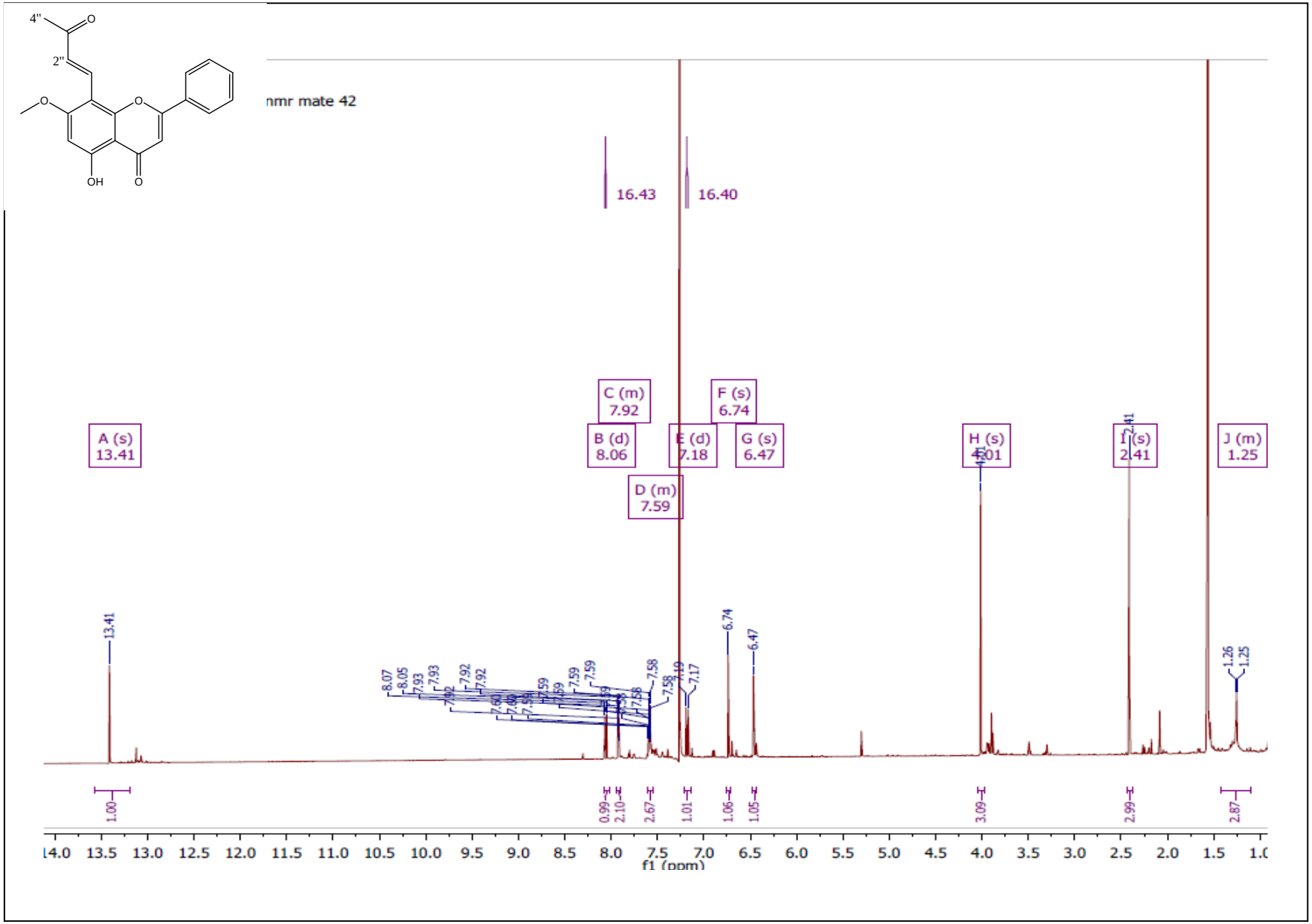

Fig. S9: ^{1}H NMR spectrum of compound **2** (800 MHz; $CDCl_3$)

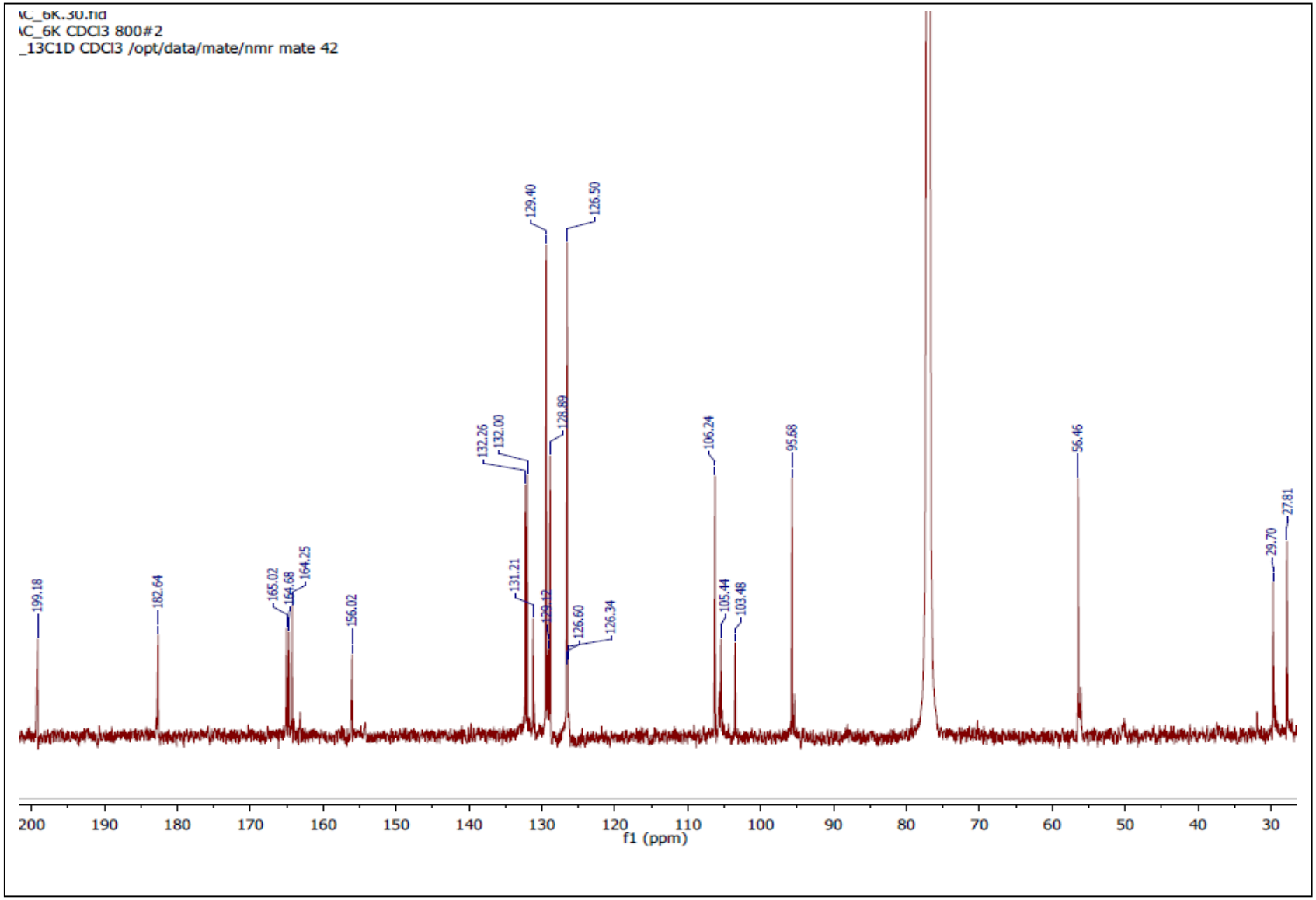

Fig. S10: ^{13}C NMR spectrum of compound **2** (200 MHz; $CDCl_3$)

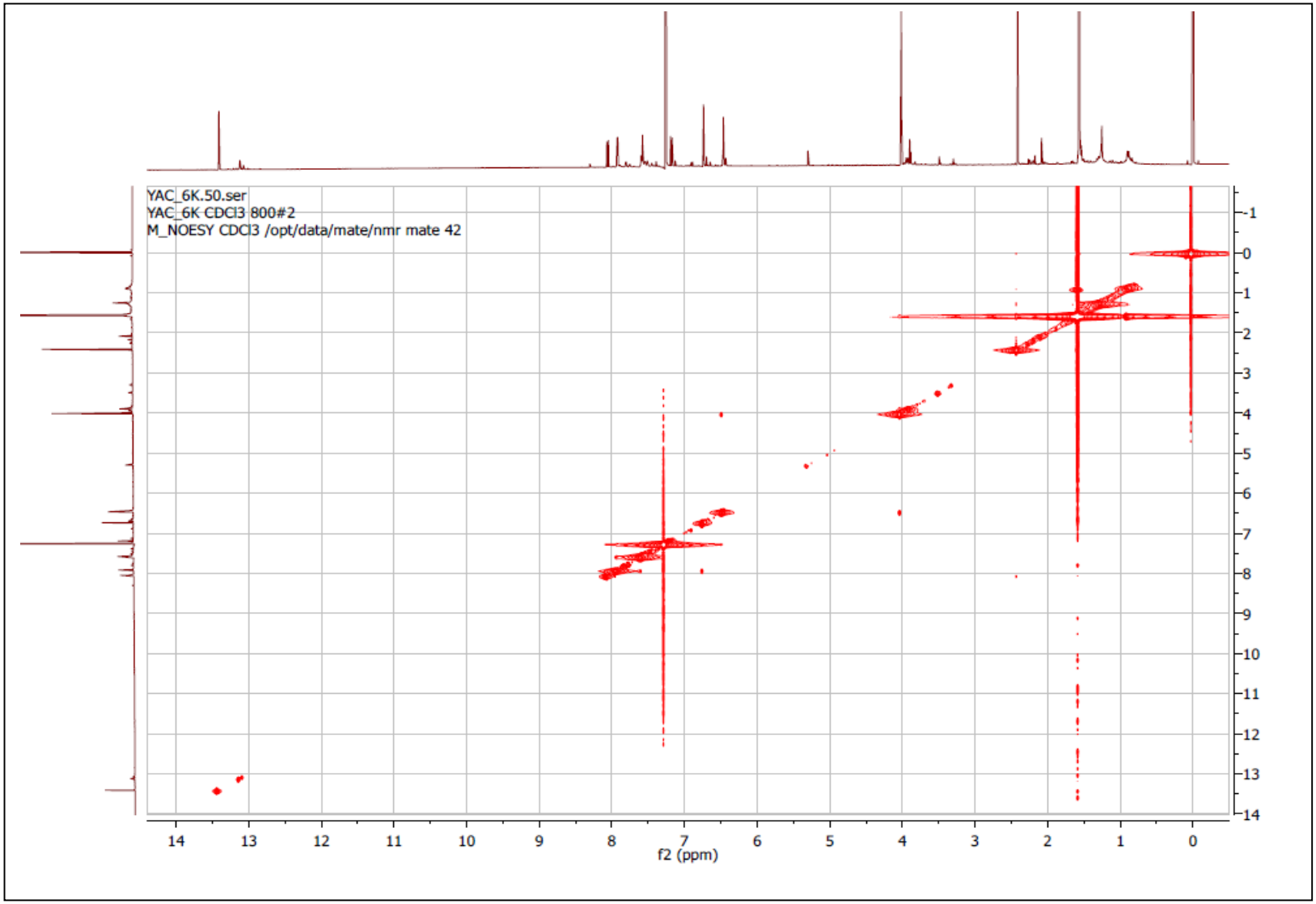

Fig. S11: NOESY spectrum of compound **2** ($CDCl_3$)

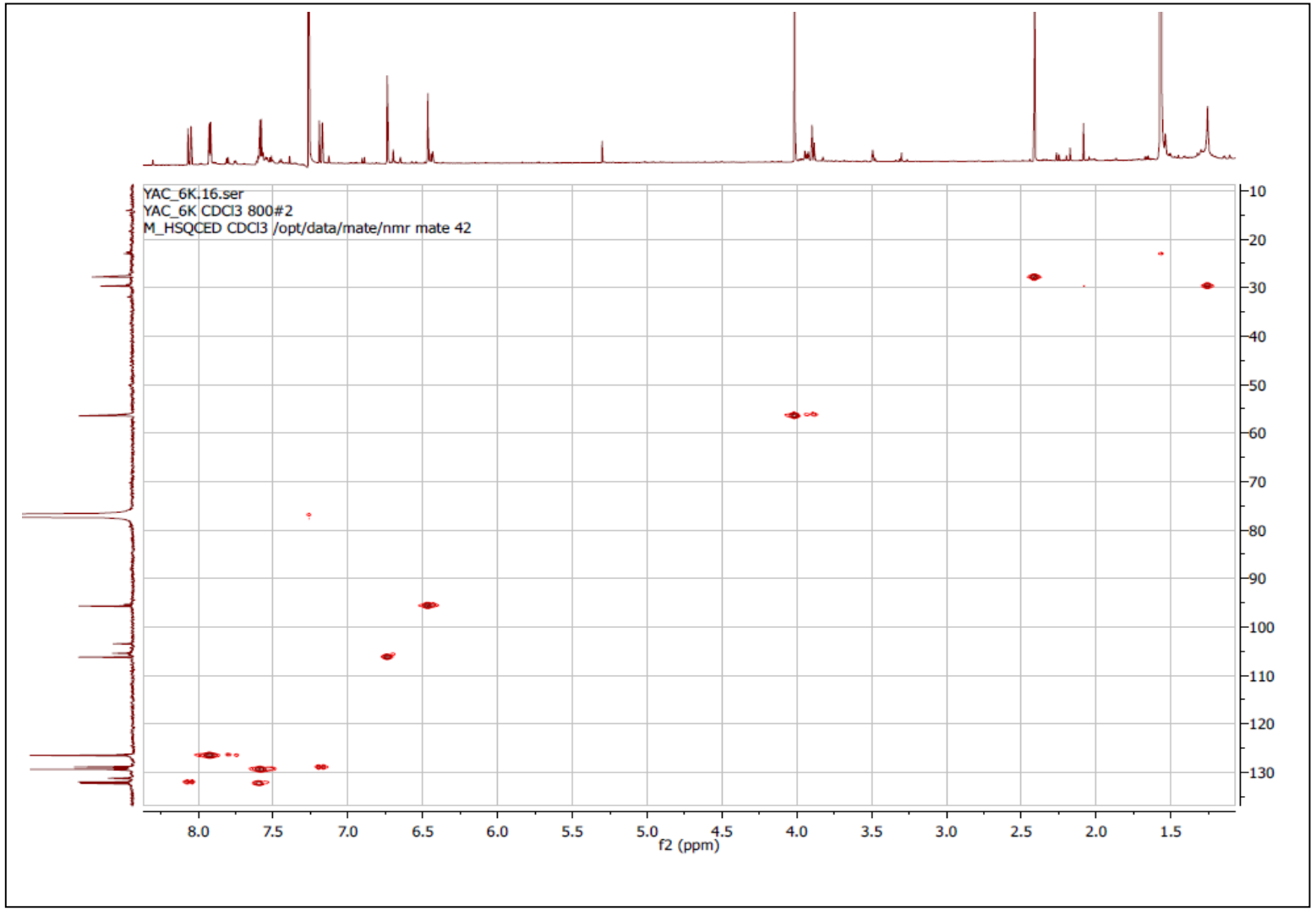

Fig. S12: HSQC spectrum of compound **2** ($CDCl_3$)

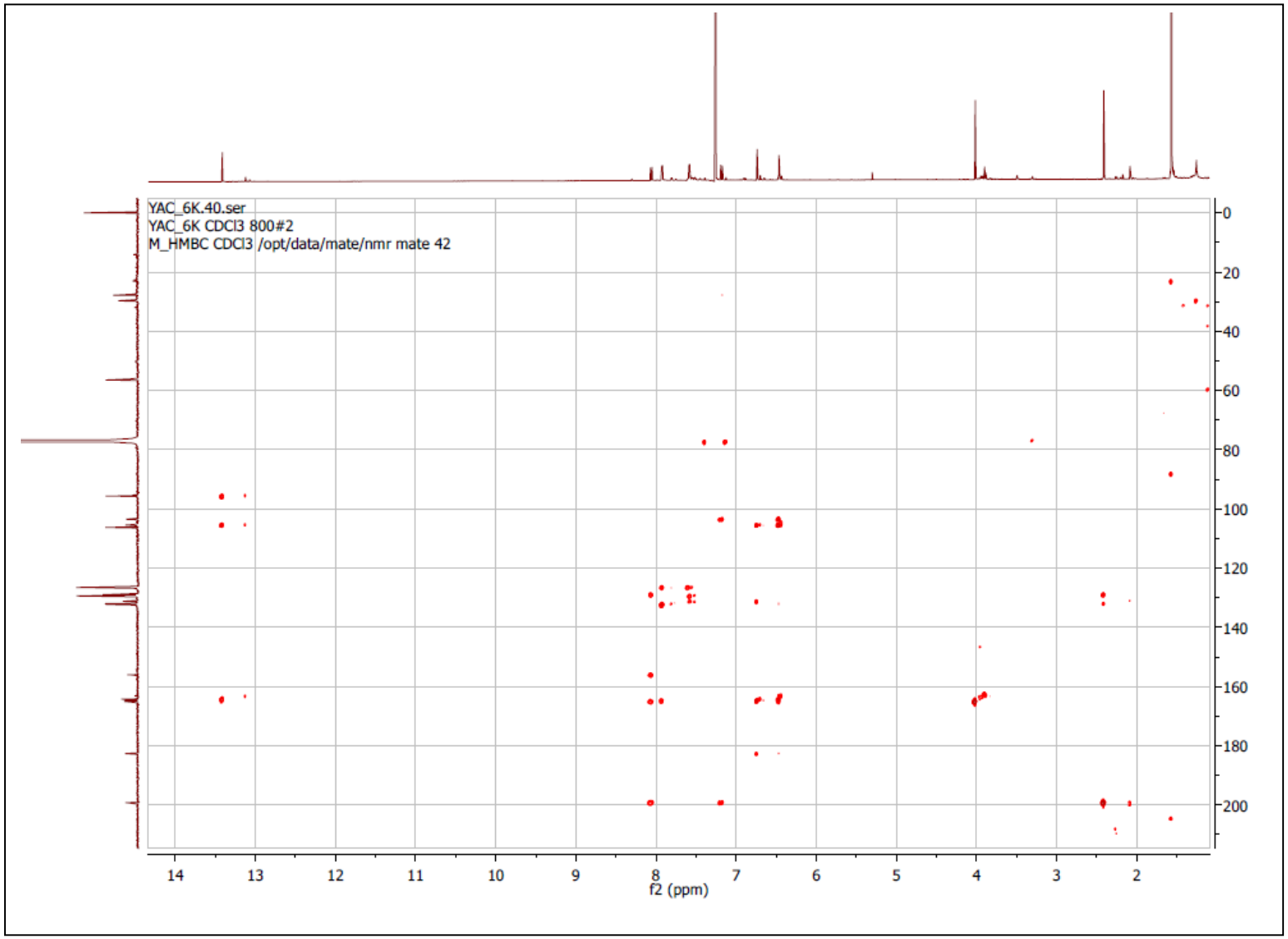

Fig. S13: HMBC spectrum of compound **2** ($CDCl_3$)

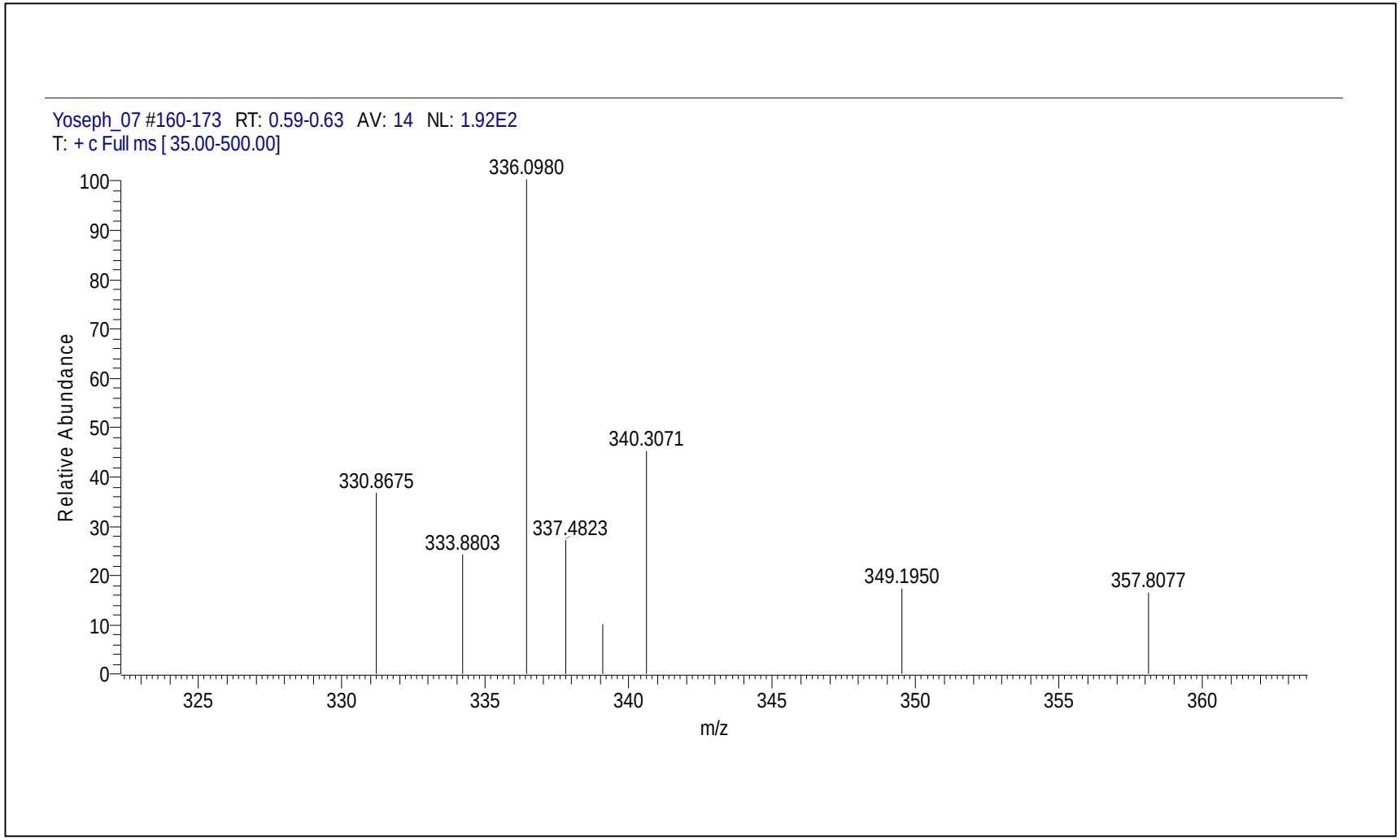

Fig. S14: HRMS of compound **2**

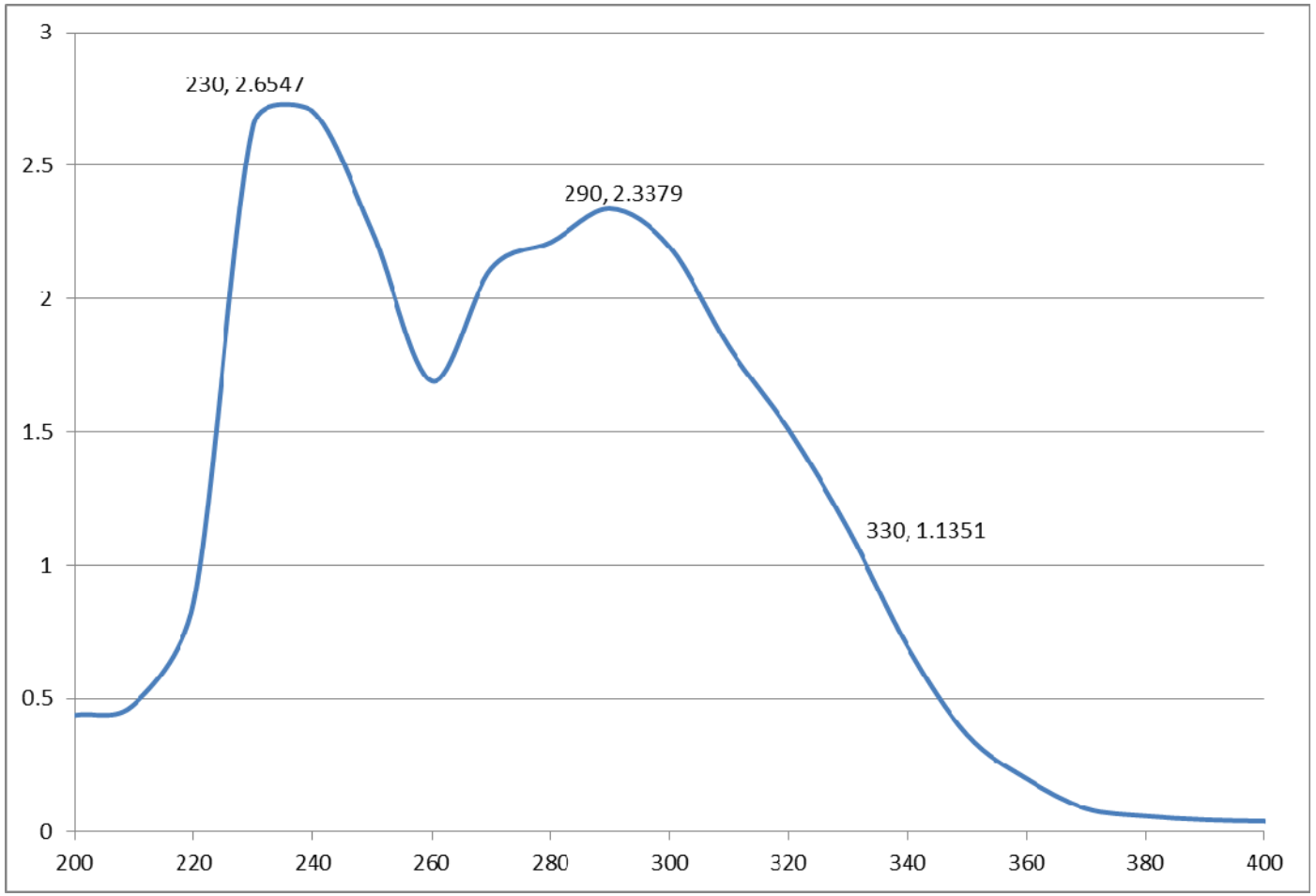

Fig. S15: UV spectrum of compound **2**

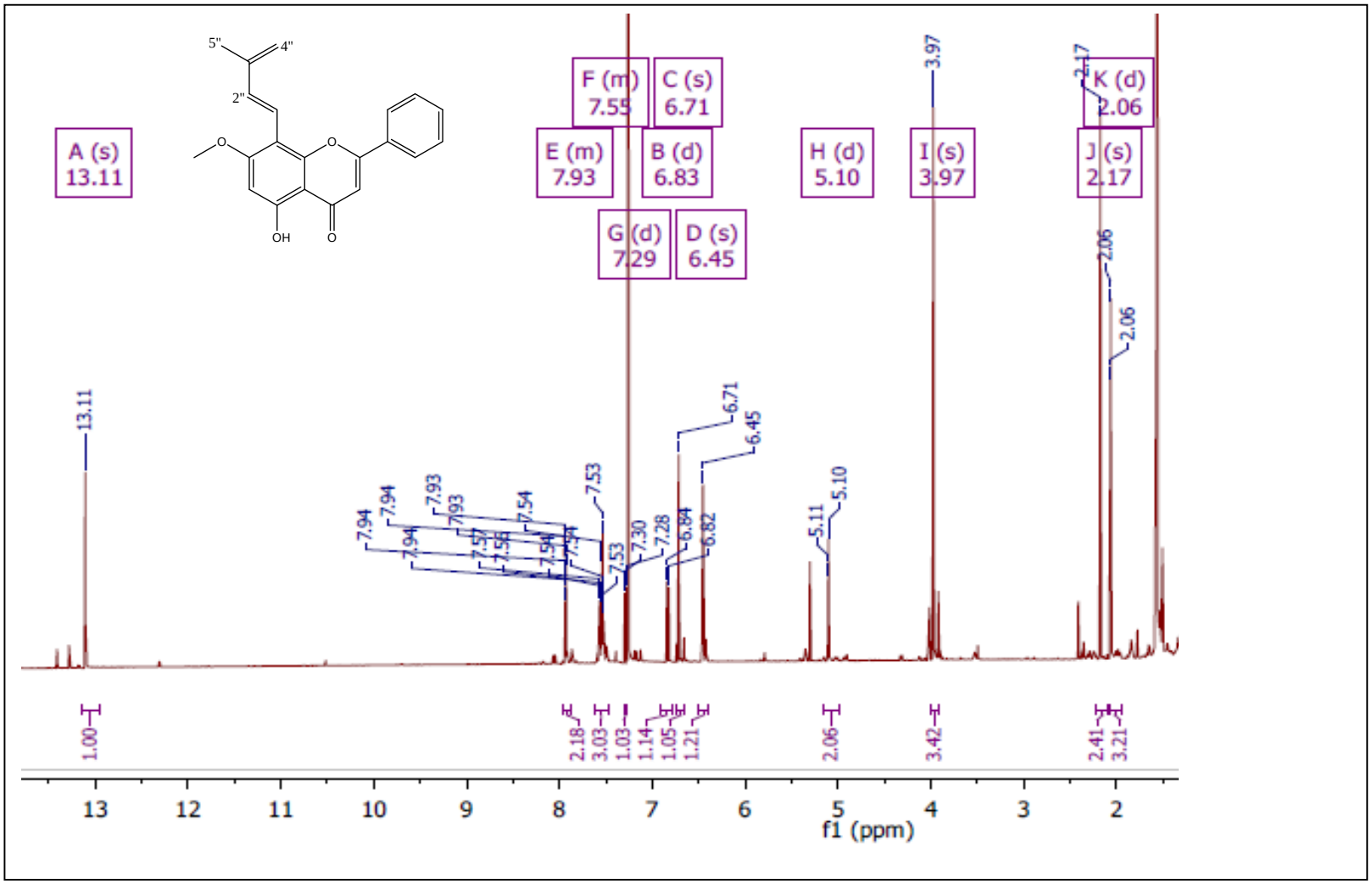

Fig. S16: ^{1}H NMR spectrum of compound **3** (800 MHz; $CDCl_3$)

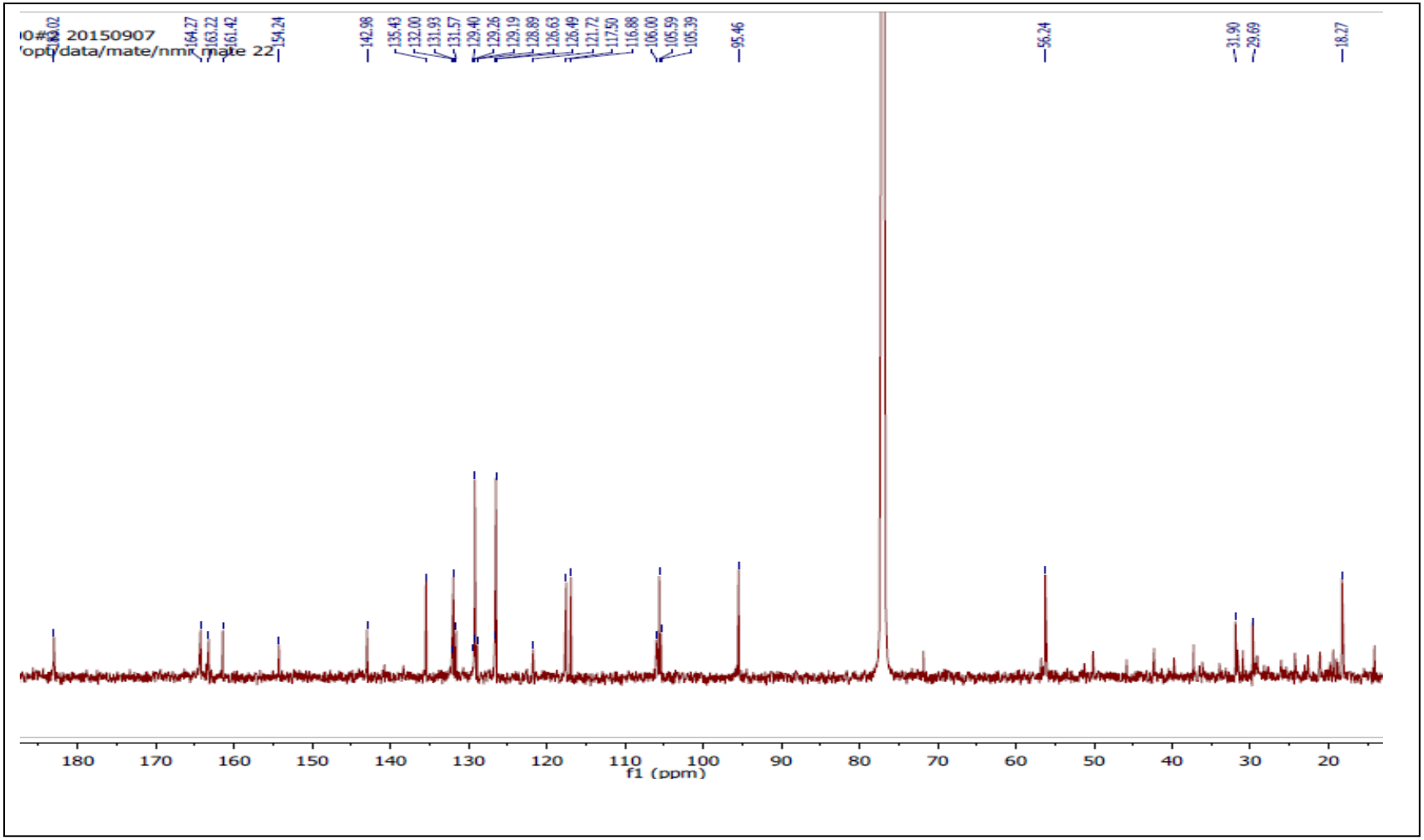

Fig. S17: ^{13}C NMR spectrum of compound **3** (200 MHz; $CDCl_3$)

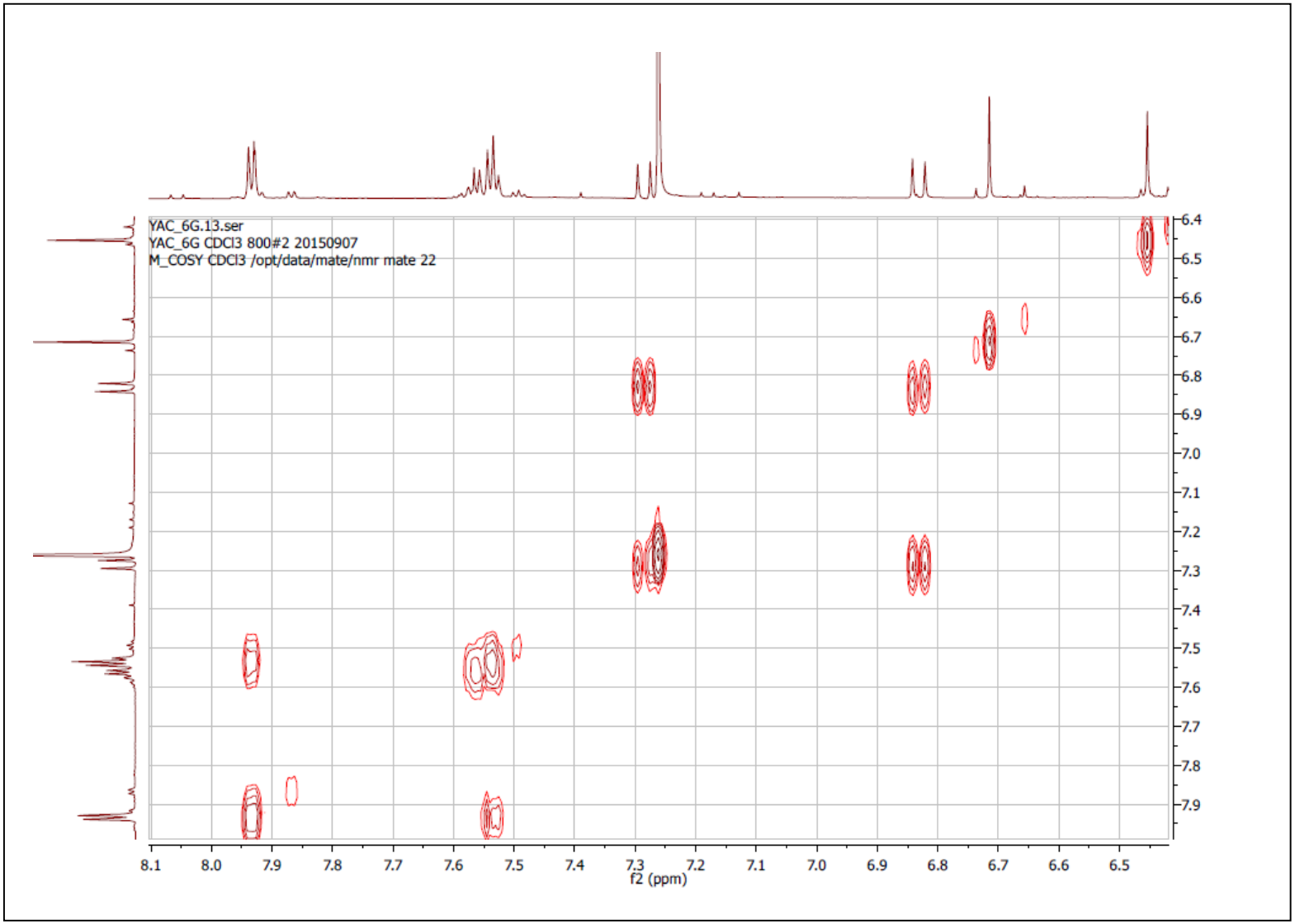

Fig. S18: COSY NMR spectrum of compound **3** ($CDCl_3$)

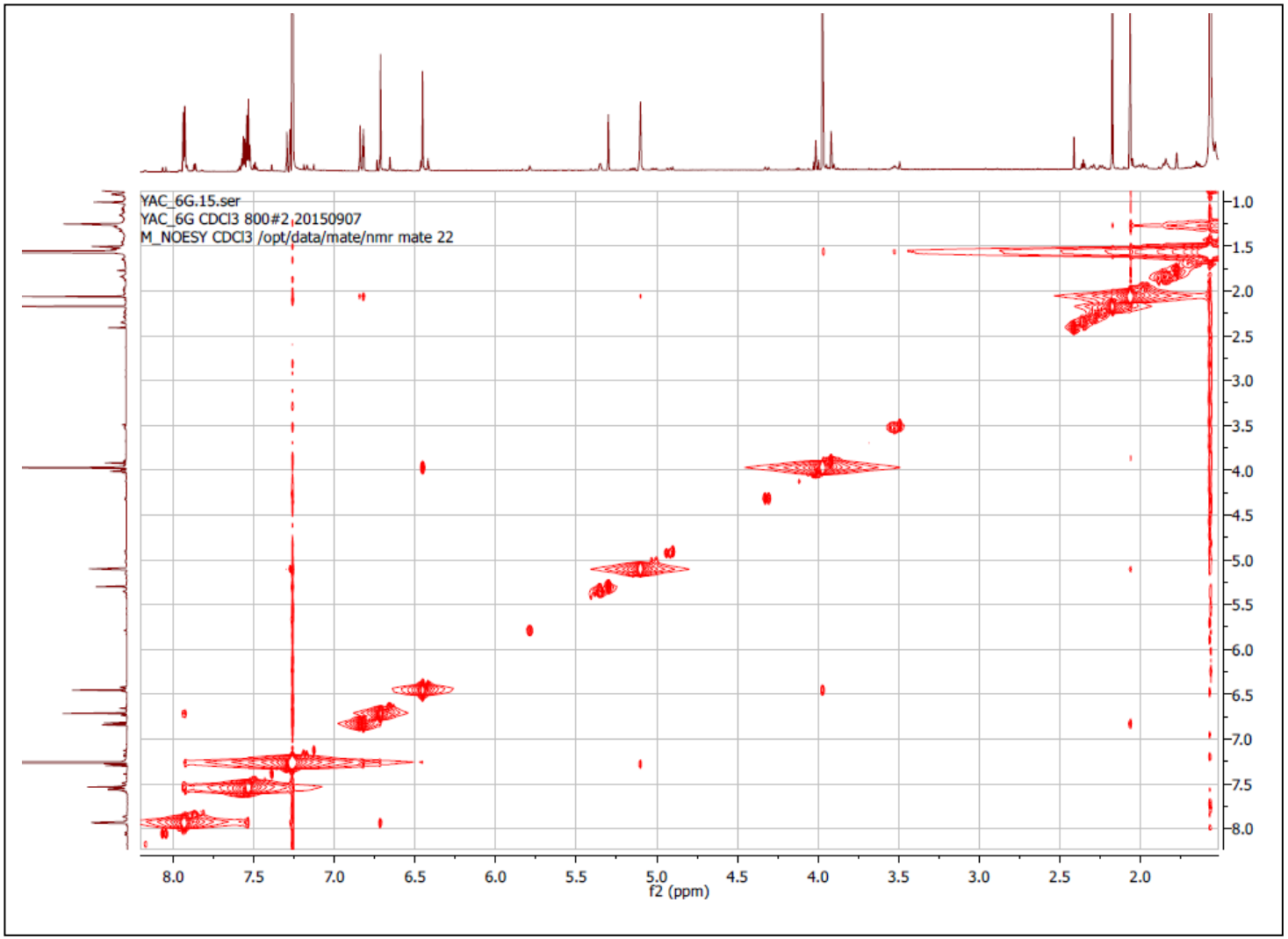

Fig. S19: NOESY spectrum of compound **3** ($CDCl_3$)

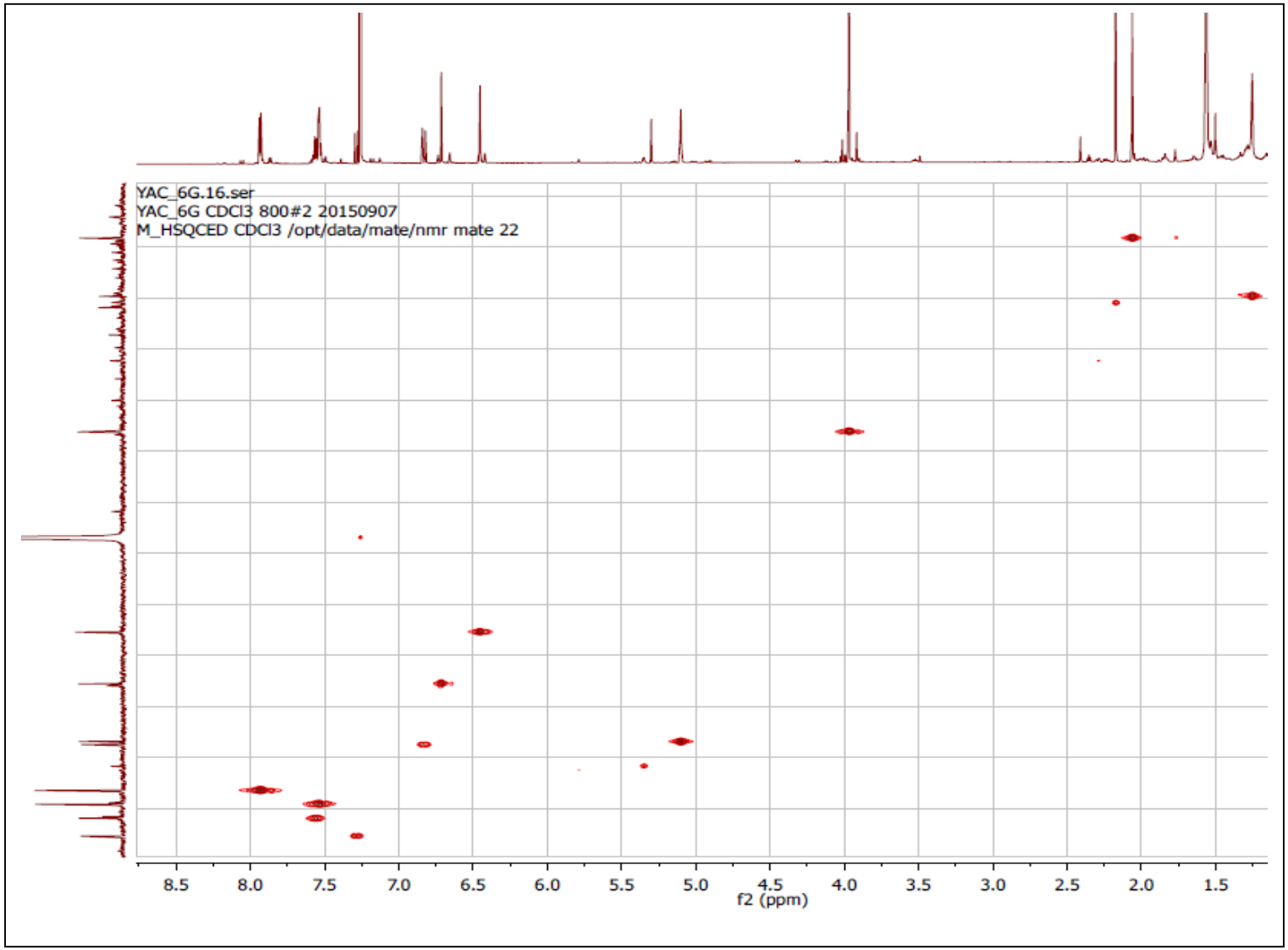

Fig. S20: HSQC NMR spectrum of compound **3** ($CDCl_3$)

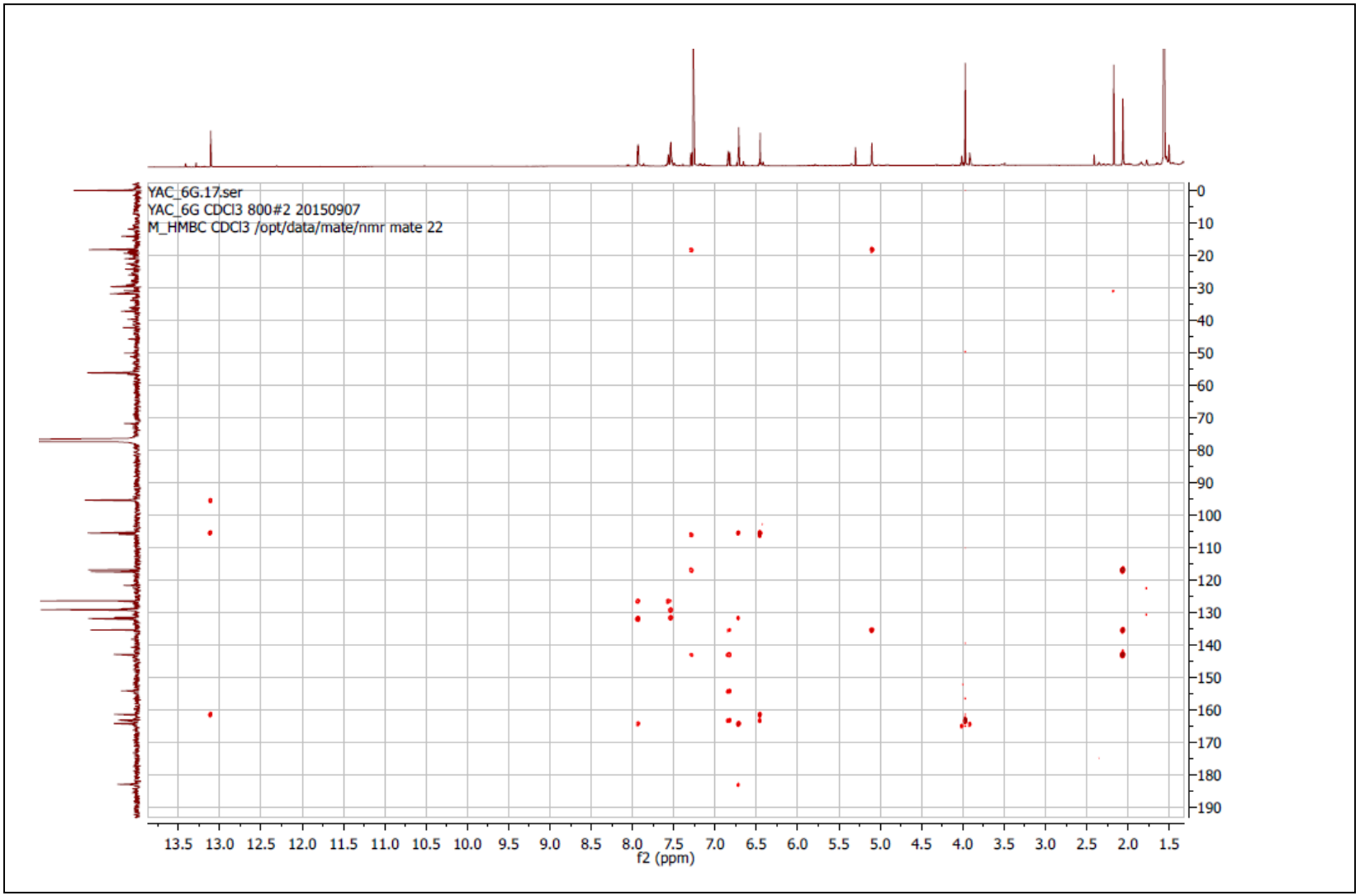

Fig. S21: HBMC spectrum of compound **3** ($CDCl_3$)

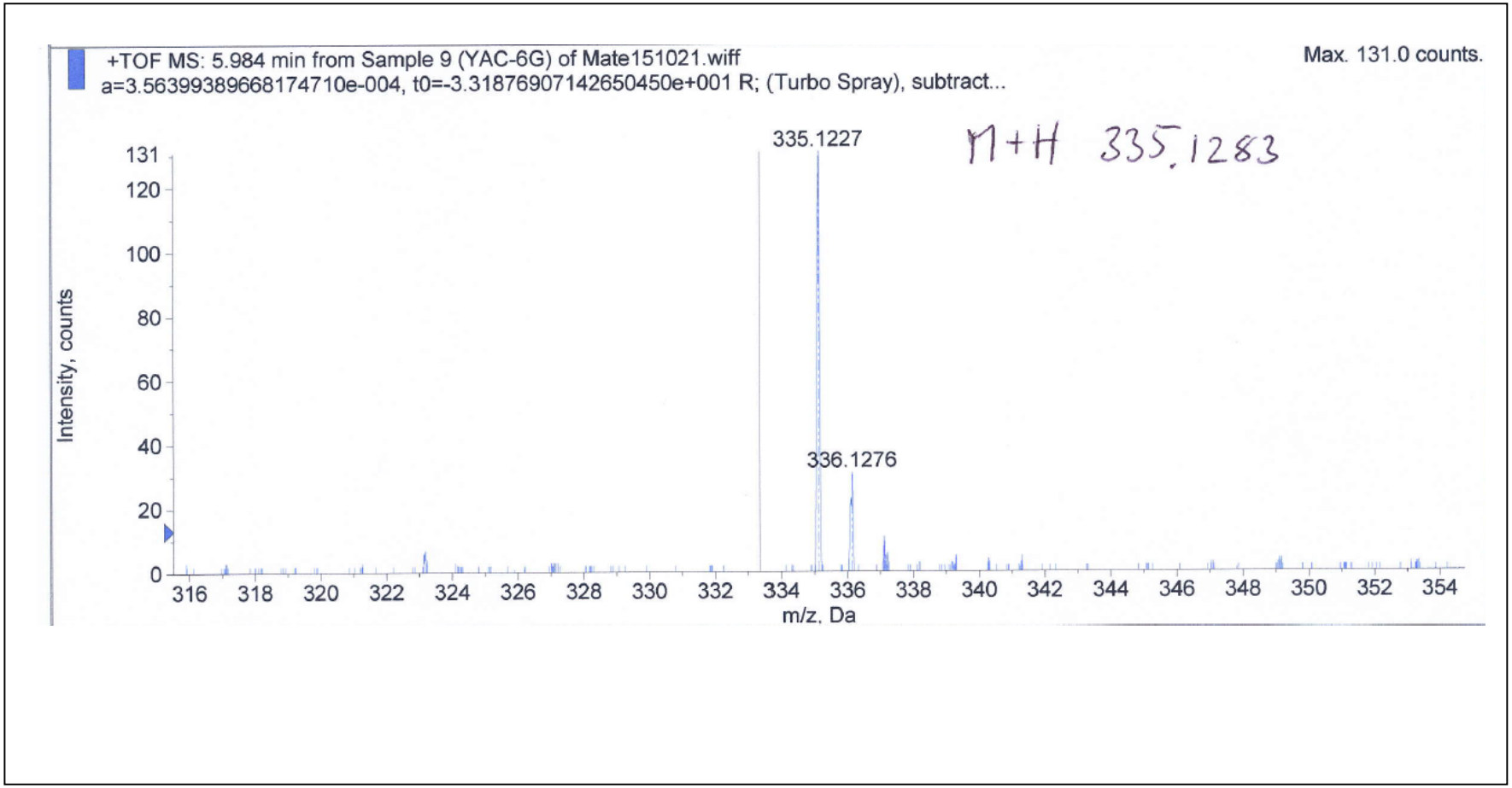

Fig. S22: HRMS of compound **3**

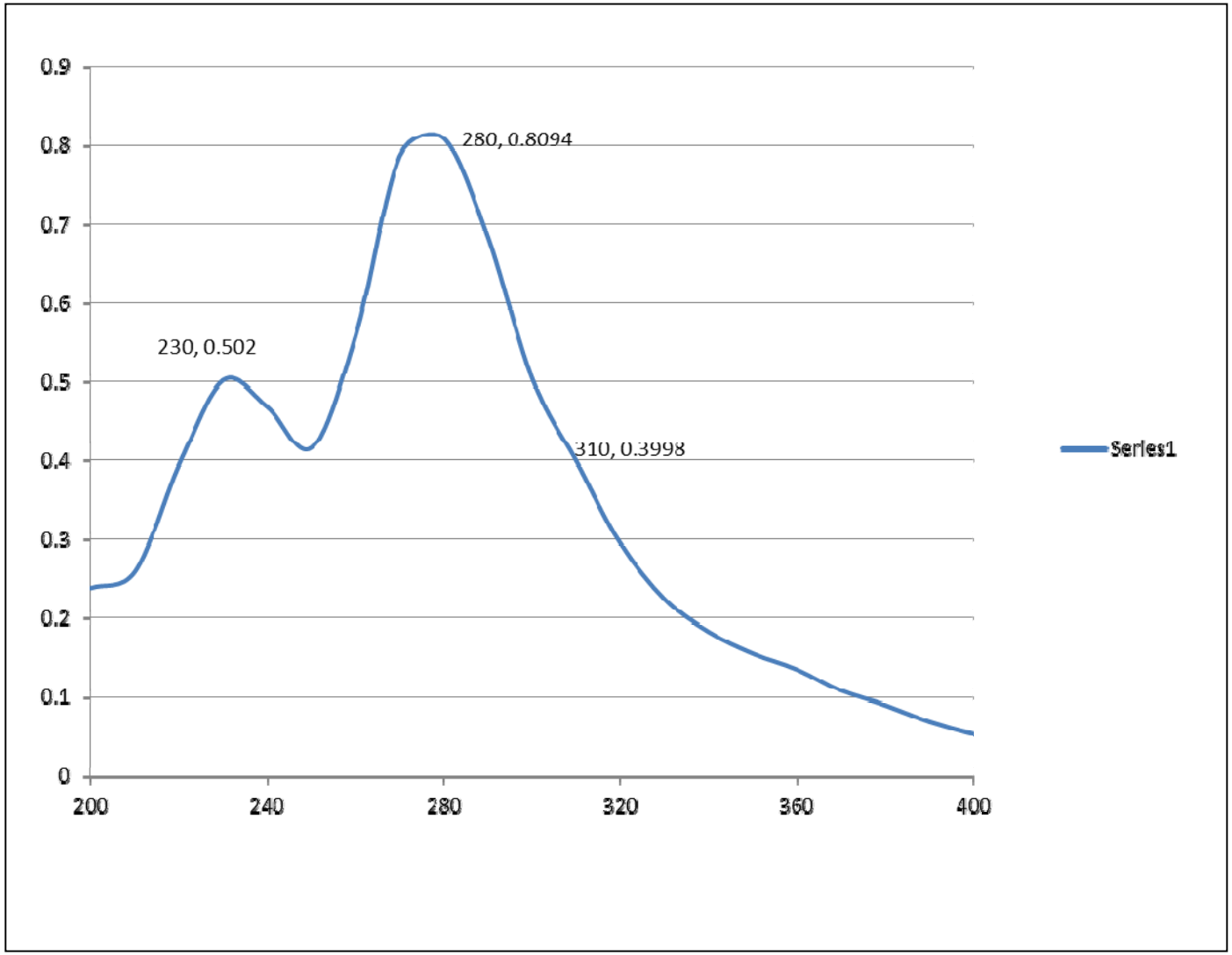

Fig. S23: UV spectrum of compound **3**

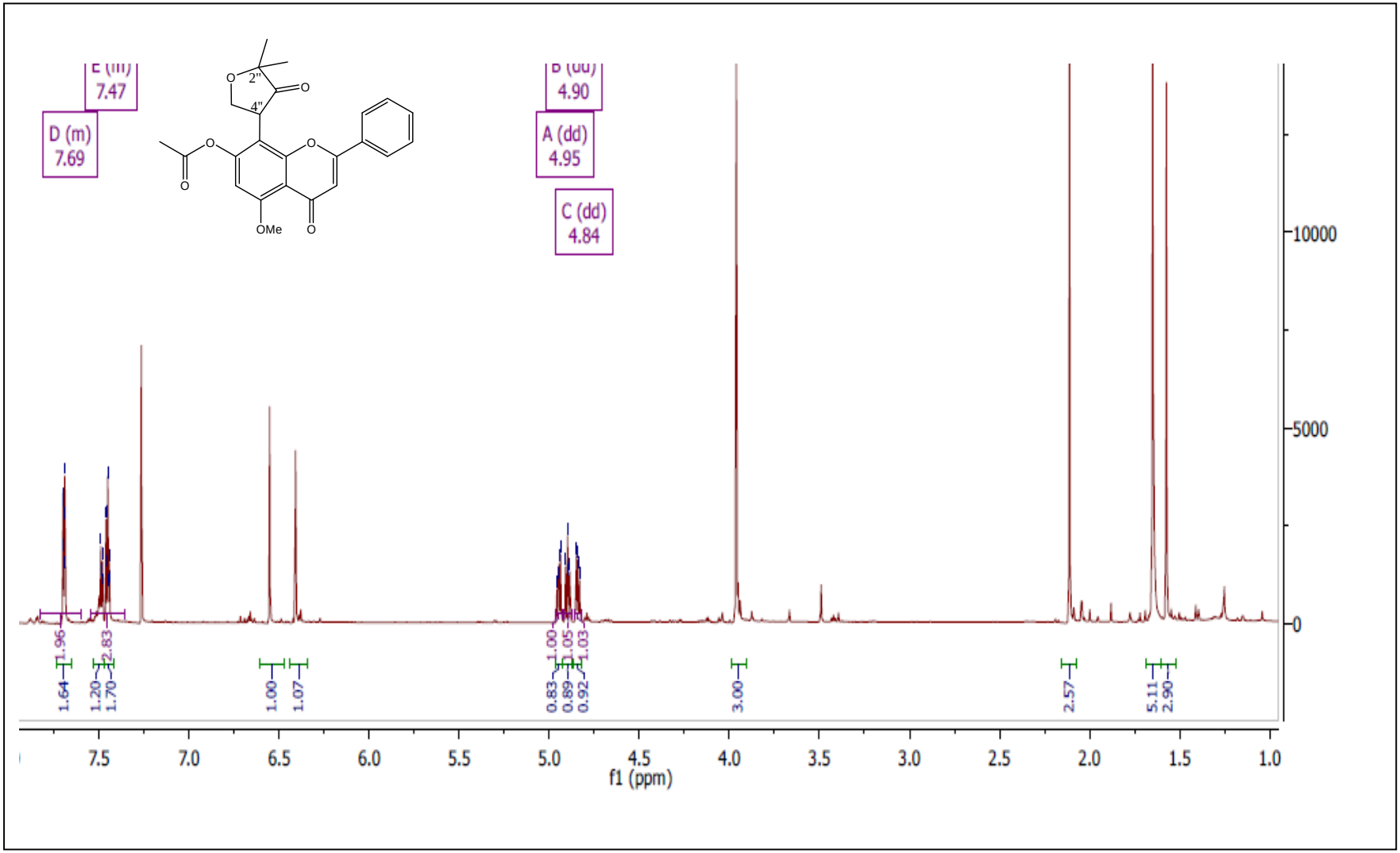

Fig. S24: ^{1}H NMR spectrum of compound **4** (800 MHz; $CDCl_3$)

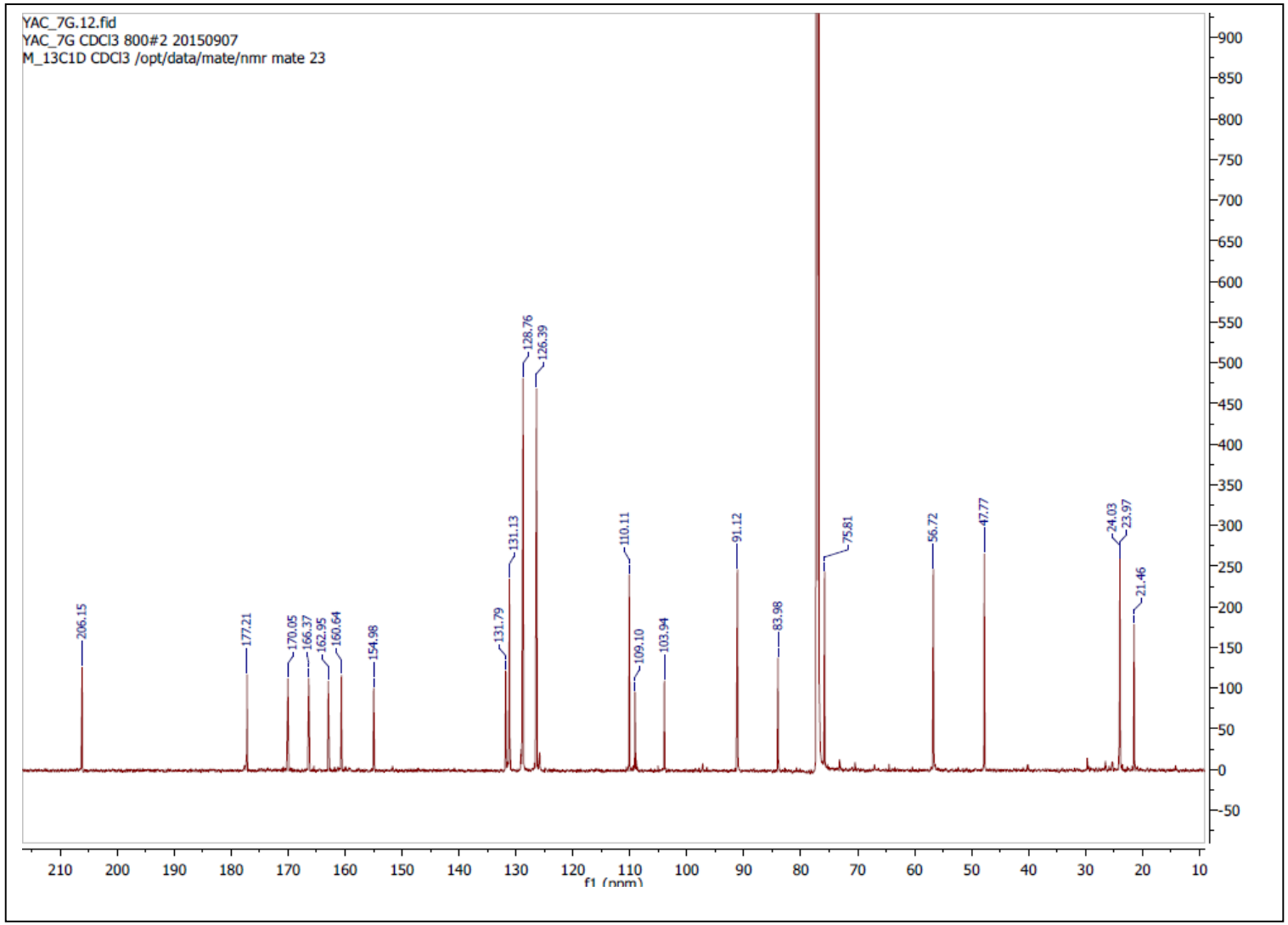

Fig. S25: ^{13}C NMR spectrum of compound **4** (200 MHz; $CDCl_3$)

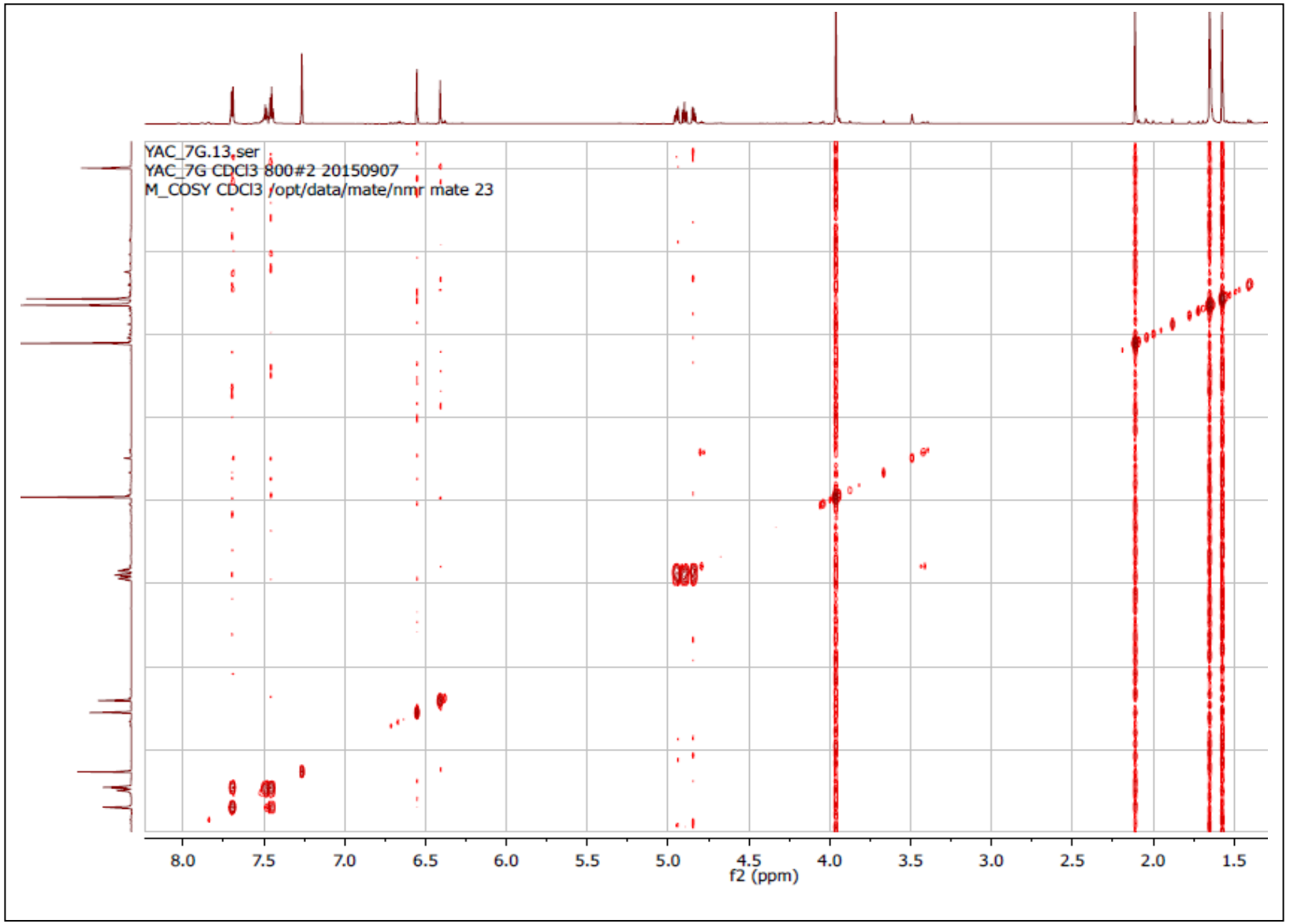

Fig. S26: COSY NMR spectrum of compound **4** ($CDCl_3$)

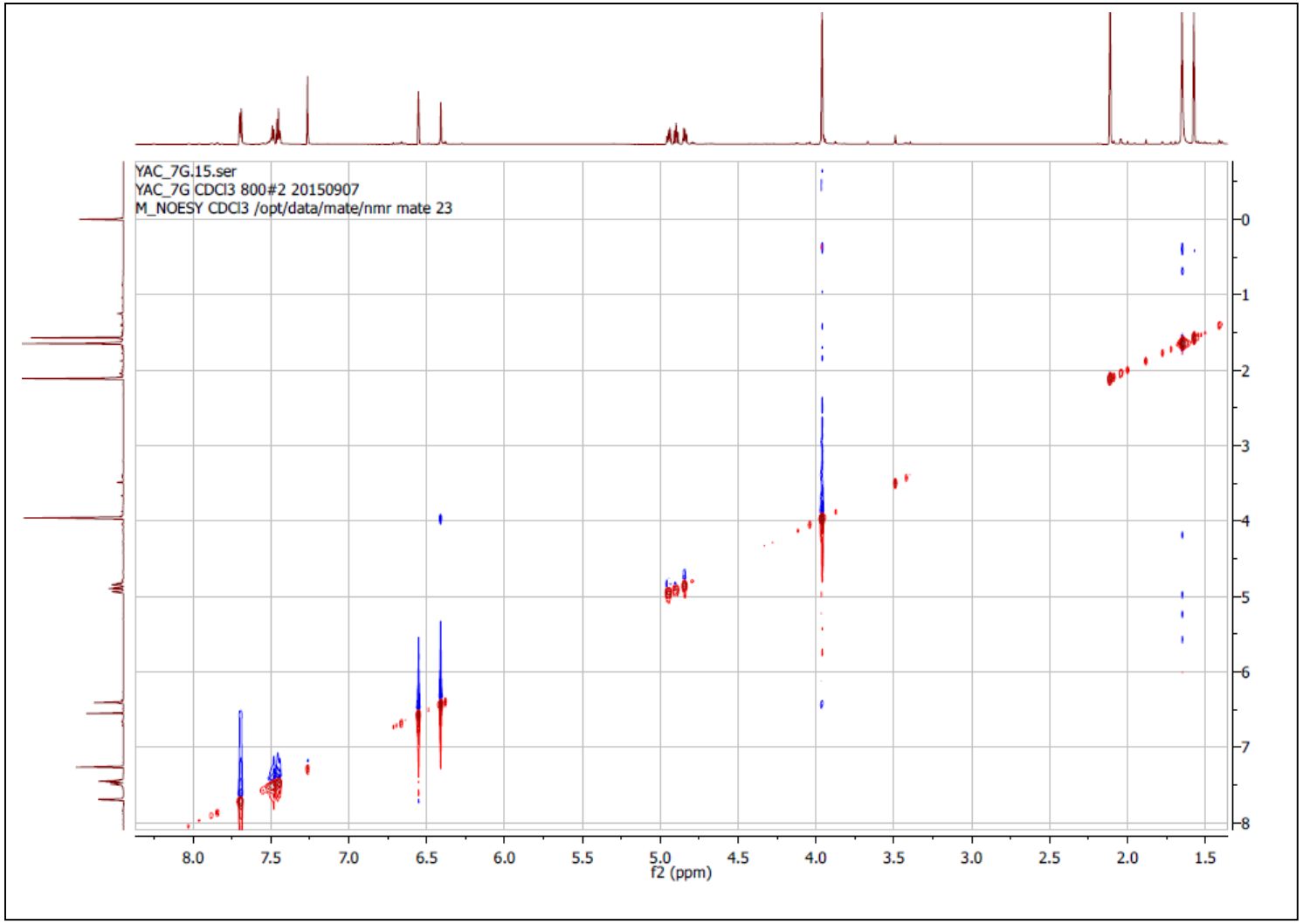

Fig. S27: NOESY spectrum of compound **4** ($CDCl_3$)

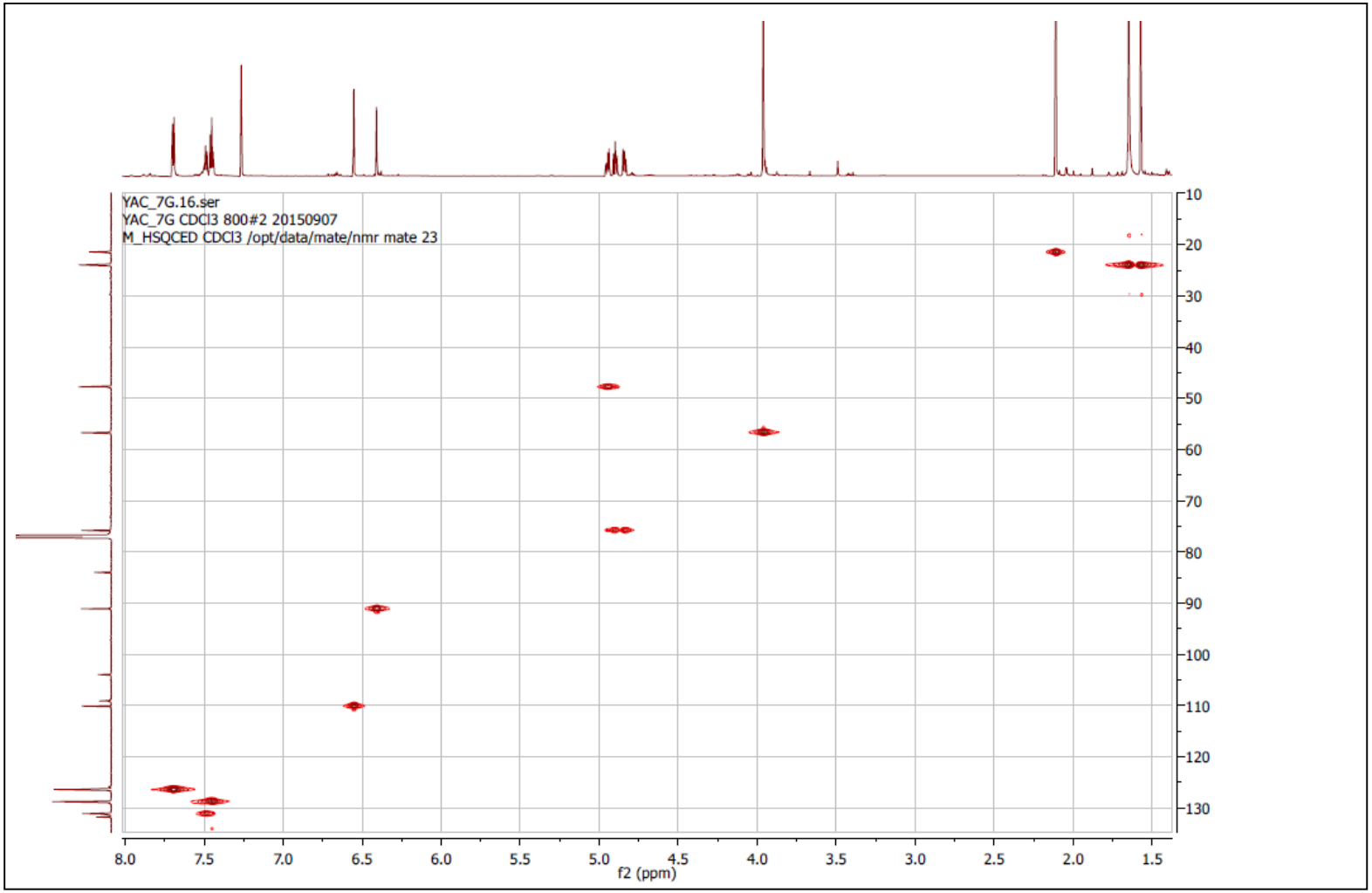

Fig. S28: HSQC NMR spectrum of compound **4** ($CDCl_3$)

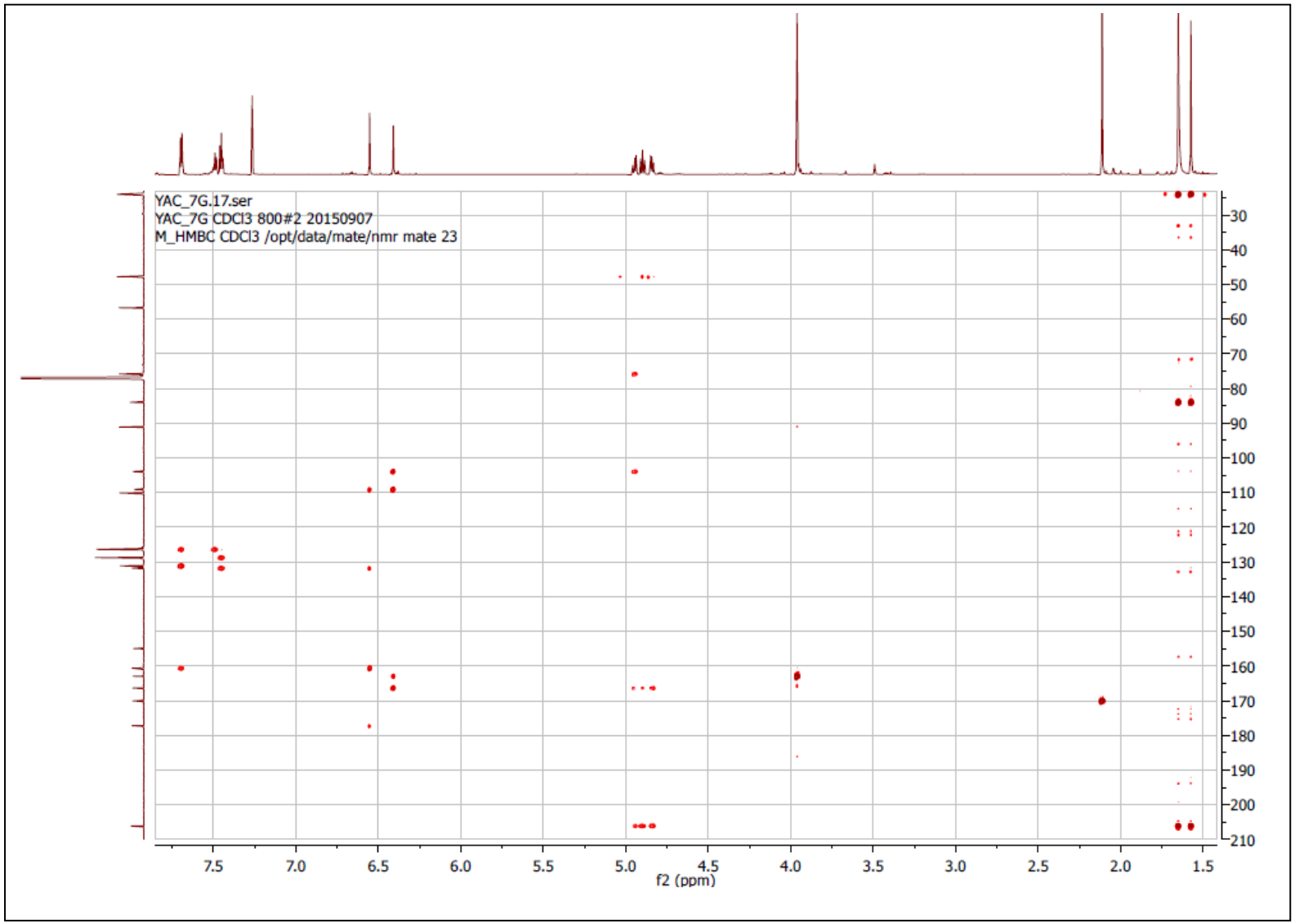

Fig. S29: HMBC NMR spectrum of compound **4** ($CDCl_3$)

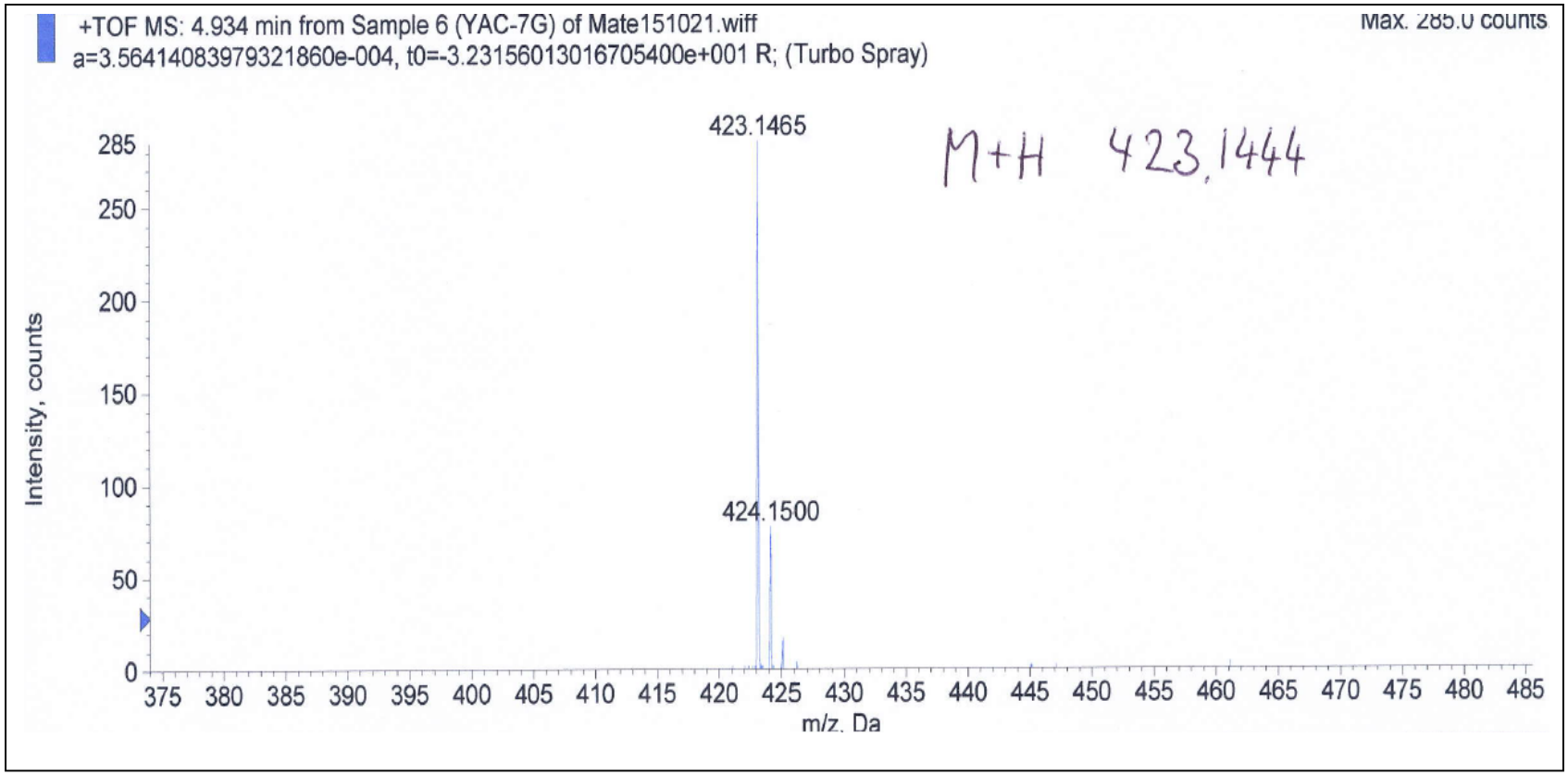

Fig. S30: HRMS of compound **4**

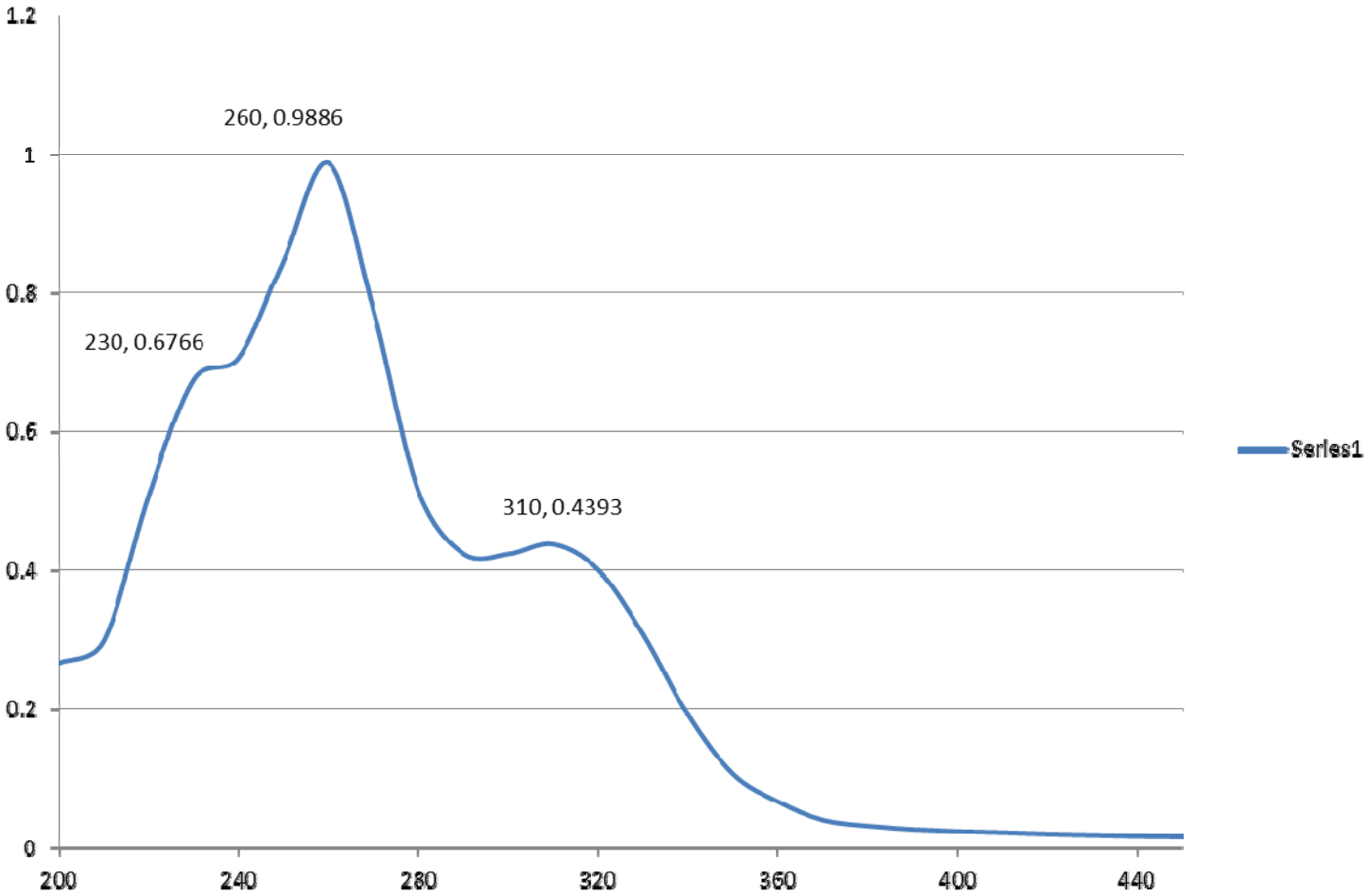

Fig. S31: UV spectrum of compound **4**

Table S1. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **5**, $CDCl_3$

Position	δ_C (ppm)	δ_H (ppm), *m*	HMBC correlations
2	153.91	8.00 *s*	C-3, C-4, C-8a, C-1’
3	122.94		
4	180.77		
4a	104.97		
5	163.73		
5-OH		12.95 *s*	
6	99.21	6.26 *d (2.11)*	C-4a, C-5, C-7, C-8
7	165.12		
8	93.88	6.39 *d (2.11)*	C-4a, C-6, C-7, C-8a
8a	158.26		
1’	122.60		
2’,6’	130.0	7.41 *d (8.65)*	C-3, C-4’, C- 2’, C-6’
3’,5’	115.07	6.90 *d (8.65)*	C-1’, C-3’, C-4’, C-5’
4’	157.05		

Table S2. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **6**, $CDCl_3$

Position			
	δ_C (ppm)	δ_H (ppm), *m*, (*J* in Hz)	HMBC correlations
2	78.98	5.42 *dd* (3.04, 13.03)	C-4,C-1',C-2'/6', C-8a
3	43.47	3.05 *dd* (13.00, 17.10) 2.85 *dd*(3.09, 17.12)	C-2, C-4, C-1' C-4, C-4a, C-1'
4(C=O)	196.20		
4a	103.19		
5	162.23		
5(OH)		11.99 *s*	C-5, C-6, C-4a
6	96.92	6.03 *s*	C-4a, C-5, C-7, C-8
7	163.72		
8	109.02		
8a	159.61		
1'	138.68	-	
2'/6'	125.93	7.46	C-2, C-2'/6', C-3'/5'
3'/5'	128.79	7.45	C-1', C-3'/5'
4'	128.57	7.39	C-2'/6'
1''	21.80	3.33 *bt*	C-7, C-8, C-8a, C-3'', C-2''
2''	121.56	5.22 *btt*	C-1'', 3''-Me_2
3''	134.97		
3''-Me_2	17.84 25.82	1.73 1.73	C-3'', C-2''

Table S3. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **7**, $CDCl_3$

Position			
	δ_C (ppm)	δ_H (ppm), *m*, (*J* in Hz)	HMBC correlations
1			
2	78.95	5.42 *dd* (13.17, 2.39)	
3	45.64	2.83 *dd* (16.46, 2.98) 2.99 *dd* (16.49, 13.16)	C-2, C-4, C-1' C-4, C-4a, C-1'
4(C=O)	176.94		
4a	105.66		
5	162.13		
6	93.79	6.06 *s*	C-4, C-4a, C-5, C-7, C-8
7	160.01		
8	102.89		
8a	158.79		
1'	138.95	-	
2'/6'	125.93	7.46	C-2, C-2'/6', C-3'/5', C-4'
3'/5'	128.73	7.42	C-3'/5', C-1'
4'	128.90	7.38	C-2'/6'
2''	78.03		
3''	126.32	5.47 *d* (10.0)	C-8, C-2'', 2''-Me_2
4''	115.99	6.60 *d* (10.0)	C-7, C-8, C-8a, C-2''
2''-Me_2	28.20 28.50	1.45 *s* 1.46 *s*	C-3'', C-2'', 2''-Me_2
OMe (C-5)	56.20	3.90 *s*	C-5

Table S4. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **8**, $CDCl_3$

Position	δ_C (ppm)	δ_H (ppm), *m*	HMBC correlations
2	153.91	8.00 *s*	C-3, C-4, C-8a, C-1’
3	122.94		
4	180.77		
4a	104.97		
5	163.73		
5-OH		12.95 *s*	
6	99.21	6.26 *d (2.11)*	C-4a, C-5, C-7, C-8
7	165.12		
8	93.88	6.39 *d (2.11)*	C-4a, C-6, C-7, C-8a
8a	158.26		
1’	122.60		
2’,6’	130.0	7.41 *d (8.65)*	C-3, C-4’, C- 2’, C-6’
3’,5’	115.07	6.90 *d (8.65)*	C-1’, C-3’, C-4’, C-5’
4’	157.05		

Table S5. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **9**, $CDCl_3$

Position	δ_C (ppm)	δ_H (ppm), *m*	HMBC correlations
2	161.07		
3	108.86	6.63 *s*	C-2, C-4, C-4a, C-1’
4	204.51		
4a	109.10		
5	161.23		
6	91.63	6.45 *s*	C-4, C-4a, C-5, C-7, C-8
7	161.45		
8	98.30		
8a	156.75		
1’	131.84		
2’,6’	126.21	7.71 *m*	C-2, C-4’, C- 2’, C-6’
3’,5’	128.74	7.41 *m*	C-1’, C-3’, C-5’
4’	131.11	7.45 *m*	C-2’, C-6’
2’'	88.07		
3’’	204.51		
4’’	109.51		
5’'	175.67	6.31, *s*	C-2”, C-3”, C-4”
2 x Me-2’'	23.05	1.57, *s*	C-3”, C-2”

Table S6. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **10**, $CDCl_3$

Position			
	δ_C (ppm)	δ_H (ppm), *m*, (*J* in Hz)	HMBC correlations
1		-	
2	158.39		
3	135.07		
4(C=O)	178.36		
4a	106.16		
5	161.59		
5(OH)		12.61 *s*	**C-4a, C-6, C-5**
6	94.19	6.74 *d* (2.20)	**C-4a, C-6, C-8a, C-7**
7	162.13		
8	99.14	6.48 *d* (2.20)	**C-6, C-4a, C-7**
8a	156.67		
1'	120.98	-	
2'/6'	130.59	7.81 *d* (8.69)	C-**3'/5', C-2'/6', C-4'**
3'/5'	115.18	6.96 *d* (8.21)	C-**3'/5', C-1', C-4'**
4'	160.36	-	
2''	98.44	5.58 *s*	**C-7**
3''	70.26	3.86 *bd*	
4''	71.13	3.16 *m*	
5''	72.04	3.33 *t*	
6''	70.54	3.44 *m*	
2'''	102.10	5.42 s	**C-3**
3'''	70.53	4.00 *bd*	
4'''	70.78	3.50 *bd*	
5'''	70.67	3.66 *bd*	
6'''	71.55	3.15 *m*	
Me(6'')	18.36	1.15 *d*	
Me (6''')	17.95	0.82 *d*	

Table S7. ^{1}H (800 MHz) and ^{13}C (200 MHz) NMR spectroscopic data for compound **11**, $CDCl_3$

Position			
	δ_C (ppm)	δ_H (ppm), *m*, (*J* in Hz)	HMBC correlations
1	70.96	2.59 *d* (2.26)	
2	69.25	2.44 *dd* (2.25, 9.73)	C-5
3	69.78	2.39 *dd* (2.24, 9.70)	
4	71.54	2.28 *t* (9.46, 9.46)	C-3, C-5,
5	82.14	1.95 *t* (9.46, 9.46)	C-3, C-4, OMe-3,
6	70.66	2.59 *d* (2.26)	
OMe-5	58.10	2.31	