

Cycloartane and Oleanane Glycosides from the Tubers of *Eranthis cilicica*

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Supplementary Materials: All NMR spectra of **1**, **1a**, **2-8**, **8a**, and **9-13** are available online.

Table 1. ¹H-NMR spectral data for compounds **1-7**, and **1a** in C₅D₅N

Table 2. ¹H-NMR spectral data for compounds **8-11**, and **8a** in C₅D₅N

NMR spectra of **1** in C₅D₅N_ page 3

NMR spectra of **1a** in C₅D₅N_ page 9

NMR spectra of **2** in C₅D₅N_ page 15

NMR spectra of **3** in C₅D₅N_ page 21

NMR spectra of **4** in C₅D₅N_ page 27

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NMR spectra of **6** in C₅D₅N_ page 40

NMR spectra of **7** in C₅D₅N_ page 47

NMR spectra of **8** in C₅D₅N_ page 53

NMR spectra of **8a** in C₅D₅N_ page 60

NMR spectra of **9** in C₅D₅N_ page 66

NMR spectra of **10** in C₅D₅N_ page 73

NMR spectra of **11** in C₅D₅N_ page 79

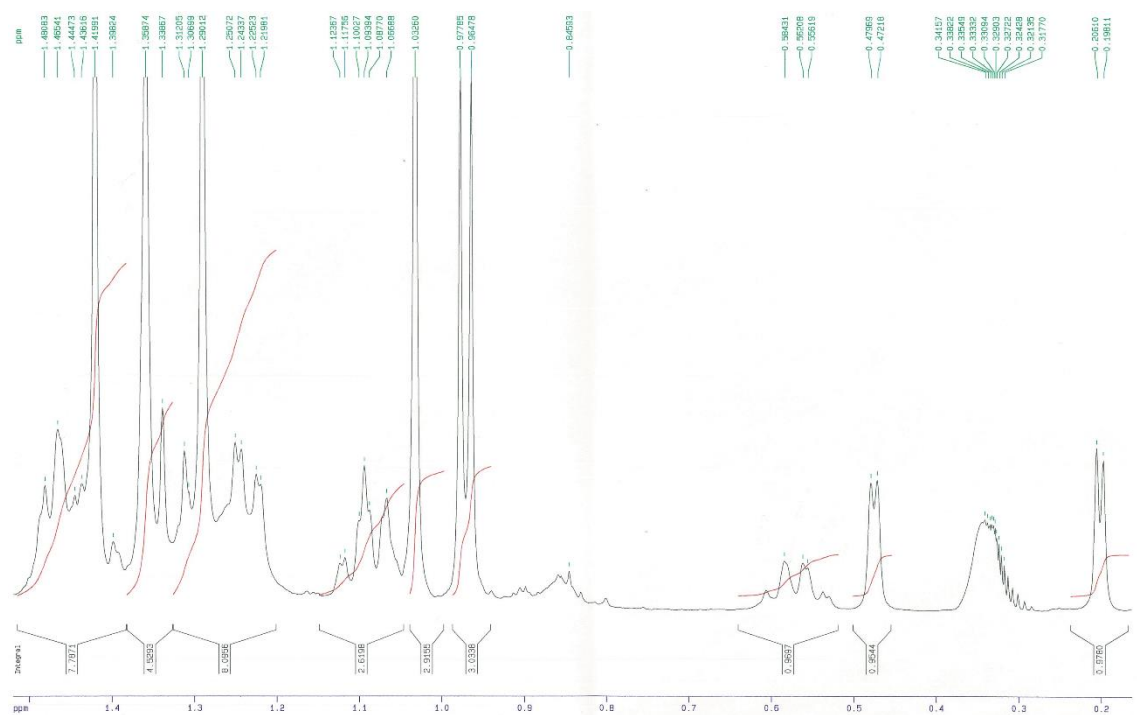
NMR spectra of **13** in C₅D₅N_ page 86

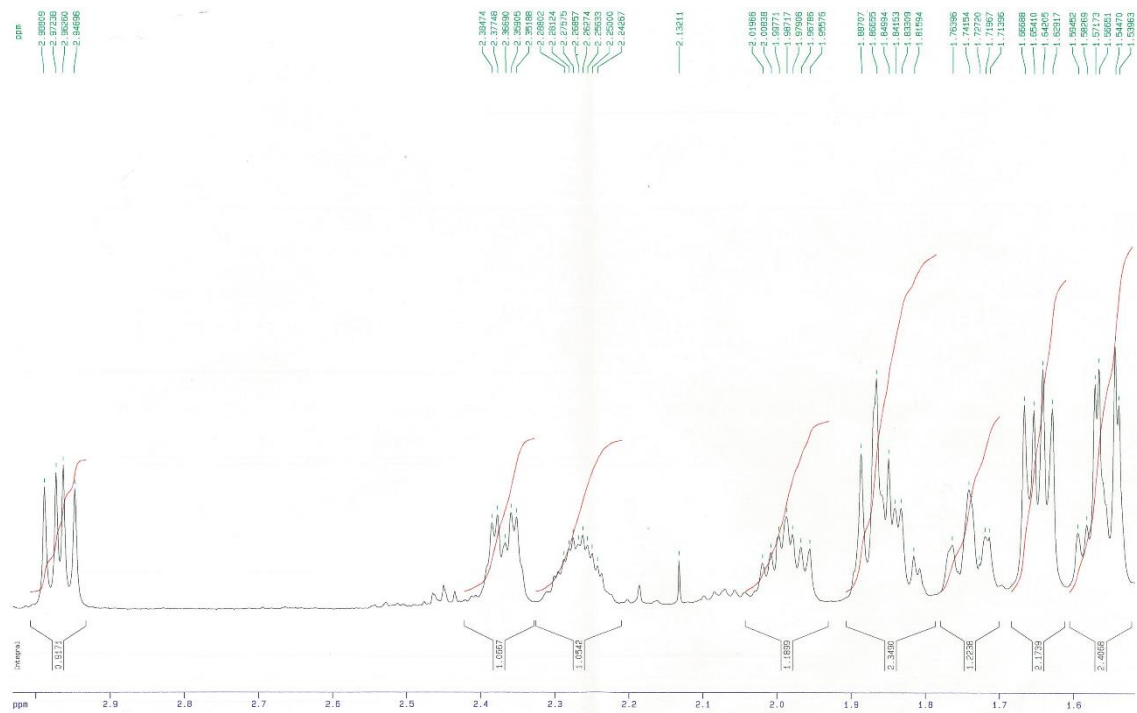
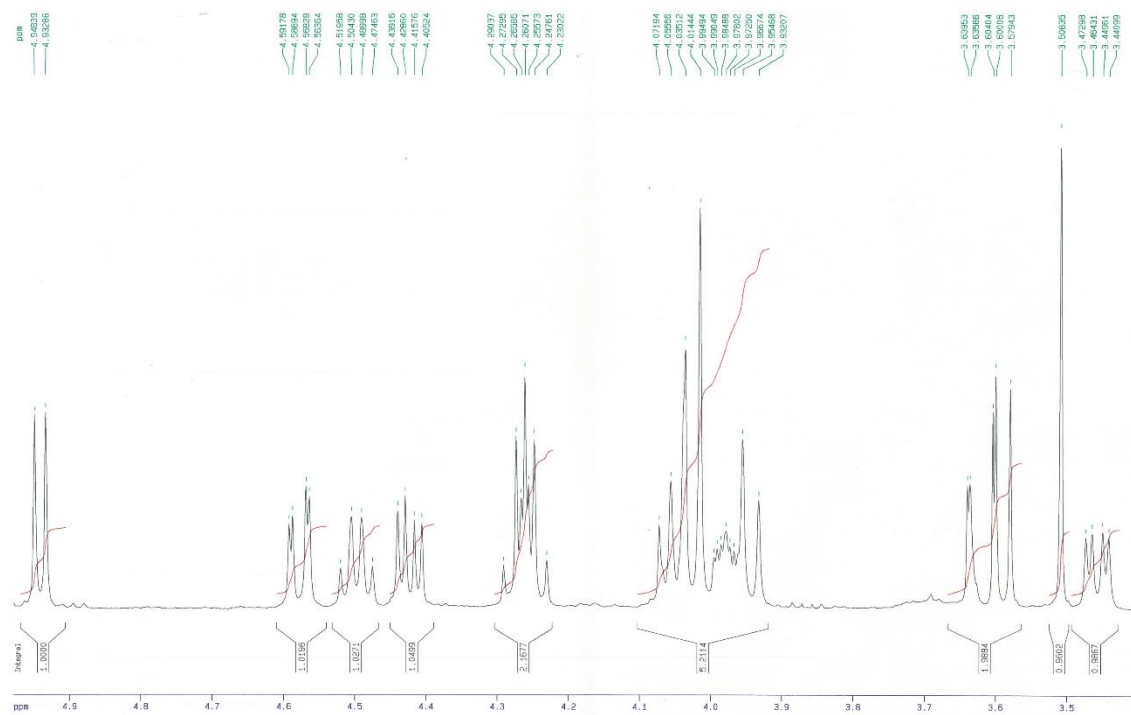
Table 1. ¹H-NMR spectral data for compounds **1–7**, and **1a** in C₅D₅N

	1		1a		2		3		4		5		6		7	
	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)
1	1.42 m		1.53 m		1.42 m		1.38 m		1.60 m		1.44 m		1.47 m		1.65 ddd	13.4, 13.0, 3.0
	1.08 m		1.22 m		1.08 m		1.04 m		1.20 m		1.06 m		1.18 m		1.23 m	
2	2.37 m		1.97 m		2.27 m		2.28 m		2.48 m		2.28 m		2.32 m		2.54 m	
	1.85 m		1.86 m		1.81 m		1.78 m		1.89 m		1.77 m		1.81 m		1.93 m	
3	3.46 dd	11.7, 4.3	3.48 dd	11.5, 4.5	3.40 dd	11.7, 4.3	3.40 dd	11.7, 4.3	3.44 dd	11.6, 4.3	3.38 dd	11.6, 4.2	3.41 dd	11.7, 4.3	3.52 dd	11.6, 4.3
5	1.23 dd	12.7, 3.7	1.28 dd	12.9, 3.6	1.24 dd	12.7, 3.8	1.20 dd	12.6, 4.0	1.17 dd	12.4, 3.6	1.19 m		1.17 dd	11.9, 4.3	1.20 m	
6	1.44 m		1.52 m		1.44 m		1.28 m		1.39 m		1.42 m		1.31 m		1.39 m	
	0.56 qd-like	11.1, 2.9	0.66 qd-like	12.1, 2.1	0.57 qd-like	11.2, 3.5	0.54 qd-like	10.9, 2.7	0.53 qd-like	12.1, 2.1	0.53 qd-like	11.3, 3.0	0.69 qd-like	11.9, 2.4	0.58 qd-like	12.5, 1.6
7	1.48 m		1.51 m		1.47 m		1.46 m		1.43 m		1.42 m		1.39 m		1.88 m	
	1.44 m		1.47 m		1.43 m		1.41 m		1.37 m		1.38 m		0.75 m		1.03 m	
8	1.65 m		1.70 m		1.64 m		1.60 m		1.60 m		1.60 m		1.84 m		1.49 m	
11	1.99 m		2.06 m		1.99 m		1.95 m		1.94 m		1.94 m		1.90 m		1.16 m	
	1.09 m		1.18 m		1.10 m		1.05 m		1.04 ddd	12.7, 10.8, 2.7	1.05 m		1.53 m		0.92 m	
12	1.74 m		1.78 m		1.74 m		1.71 m		1.66 m		1.68 m		1.63 m		1.49 m	
	1.56 m		1.61 m		1.56 m		1.53 m		1.49 m		1.51 m		1.58 m		1.44 m	
15	2.97 dd	12.7, 7.9	2.99 dd	12.8, 7.8	2.95 dd	12.7, 7.8	2.93 dd	12.7, 7.8	2.93 dd	12.7, 7.8	2.93 dd	12.7, 7.5	2.59 dd	13.0, 8.0	1.87 m	
	1.65 dd	12.7, 6.4	1.69 dd	12.8, 6.5	1.63 dd	12.7, 6.4	1.60 dd	12.7, 6.9	1.59 m		1.60 m		1.47 m		1.60 m	
16	4.50 ddd	8.3, 7.9, 6.4	4.50 ddd	8.4, 7.8, 6.5	4.49 ddd	8.4, 7.8, 6.4	4.50 ddd	8.4, 7.8, 6.9	4.49 m		4.50 q-like	7.5	4.42 q-like	8.0	4.06 m	
17	1.87 dd	10.3, 8.3	1.89 dd	9.9, 8.4	1.87 dd	10.2, 8.4	1.85 dd	10.3, 8.4	1.84 dd	9.6, 8.3	1.85 dd	9.3, 7.5	1.25 m		1.55 dd	10.0, 8.3
18	1.36 s		1.40 s		1.35 s		1.32 s		1.32 s		1.32 s		1.29 s		1.21 s	
19	0.48 d	4.0	0.56 d	4.1	0.47 d	4.0	0.44 d	3.9	0.44 d	3.9	0.43 d	3.7	0.62 d	4.4	0.43 d	4.0
	0.20 d	4.0	0.32 d	4.1	0.20 d	4.0	0.16 d	3.9	0.20 d	3.9	0.18 d	3.7	0.19 d	4.4	0.16 d	4.0
20	2.27 m		2.29 m		2.26 m		2.23 m		2.23 m		2.23 m		2.20 m		2.20 m	
21	0.97 d	6.5	0.99 d	6.5	0.97 d	6.6	0.95 d	6.5	0.96 d	6.5	0.95 d	6.5	0.91 d	6.6	0.97 d	6.6
	1.56 dd	13.3, 2.6	1.57 dd	13.3, 2.6	1.55 dd	13.1, 2.2	1.54 dd	13.3, 2.4	1.54 dd	13.4, 2.5	1.54 dd	13.1, 1.6	1.57 dd	13.1, 1.6	1.57 dd	13.2, 3.1
22	1.34 dd	13.3, 13.3	1.35 dd	13.3, 13.3	1.35 dd	13.1, 13.1	1.26 dd	13.3, 13.3	1.34 dd	13.4, 13.4	1.37 dd	13.1, 13.1	1.29 m		1.38 dd	13.2, 13.2
24	3.51 s		3.50 s		3.51 s		3.54 s		3.51 s		3.52 s		3.58 s		3.66 s	
26	4.02 d	10.3	4.03 d	10.1	4.02 d	10.2	4.01 d	10.3	4.00 d	10.3	4.01 d	10.2	4.03 d	10.3	4.02 d	10.3
	3.59 d	10.3	3.60 d	10.1	3.59 d	10.2	3.58 d	10.3	3.58 d	10.3	3.58 d	10.2	3.58 d	10.3	3.60 d	10.3
27	1.42 s		1.43 s		1.43 s		1.41 s		1.41 s		1.41 s		1.44 s		1.45 s	
28	4.02 d	11.3	4.05 d	11.4	4.02 d	11.5	4.00 d	11.3	3.96 d	11.4	3.98 d	11.4	10.14 s		0.80 s	
	3.94 d	11.3	3.96 d	11.4	3.94 d	11.5	3.93 d	11.3	3.89 d	11.4	3.90 d	11.4				
29	1.29 s		1.17 s		1.27 s		1.24 s		1.21 s		1.22 s		1.27 s		1.28 s	
30	1.03 s		1.07 s		1.02 s		0.99 s		1.00 s		0.99 s		1.00 s		1.02 s	
1'	4.94 d	7.8			4.87 d	7.8	4.86 d	7.8	4.86 d	7.7	4.80 d	7.5	4.90 d	7.8	4.90 d	7.7
2'	4.05 dd	8.2, 7.8			4.03 dd	8.7, 7.8	4.03 dd	8.3, 7.8	3.97 dd	8.1, 7.7	3.87 dd	8.4, 7.5	4.05 dd	8.6, 7.8	3.99 dd	8.7, 7.7
3'	4.27 dd	8.7, 8.2			4.26 dd	8.7, 8.7	4.20 dd	9.0, 8.3	4.19 dd	8.9, 8.1	4.17 dd	9.1, 8.4	4.29 dd	8.6, 8.4	4.18 dd	9.1, 8.7
4'	4.25 dd	9.1, 8.7			4.30 dd	9.8, 8.7	4.07 dd	9.4, 9.0	4.07 dd	8.9, 8.9	4.37 dd	9.1, 9.1	4.33 dd	8.9, 8.4	4.09 dd	9.1, 7.9
5'	3.98 ddd	9.1, 5.3, 2.4			3.92 ddd	9.8, 3.9, 2.1	3.88 ddd	9.4, 5.0, 2.0	4.09 m		3.96 m		3.97 m		4.10 m	
6'a	4.58 dd	11.7, 2.4			4.56 dd	12.0, 3.9	4.44 dd	11.9, 2.0	4.82 br d	11.0	4.82 br d	11.2	4.59 dd	11.9, 4.0	4.85 br d	10.7
b	4.42 dd	11.7, 5.3			4.48 dd	12.0, 2.1	4.27 dd	11.9, 5.0	4.31 dd	11.0, 5.3	4.63 dd	11.2, 3.8	4.30 br d	11.9	4.34 dd	12.1, 5.5
1"					5.20 d	7.9	5.28 d	7.9	5.28 d	7.8	5.45 d	7.9	5.21 d	7.9	5.16 d	7.8
2"					4.09 dd	8.3, 7.9	4.04 dd	8.3, 7.9	4.03 dd	8.8, 7.8	4.03 dd	8.9, 7.9	4.12 dd	8.6, 7.9	4.19 dd	8.7, 7.8
3"					4.24 dd	8.8, 8.3	4.25 dd	9.0, 8.3	4.24 dd	8.8, 8.8	4.35 dd	9.1, 8.9	4.24 dd	8.6, 8.6	4.22 dd	9.1, 8.7
4"					4.20 dd	9.1, 8.8	4.16 dd	9.5, 9.0	4.21 dd	8.8, 8.4	4.19 dd	9.5, 9.1	4.20 dd	8.6, 8.6	4.23 dd	9.1, 8.1
5"					3.99 ddd	9.1, 5.7, 2.1	3.98 ddd	9.5, 5.5, 2.1	3.90 ddd	8.4, 5.2, 2.0	4.13 m		4.01 ddd	8.6, 4.8, 2.3	3.92 ddd	8.1, 5.2, 2.5
6"a					4.50 dd	11.7, 2.1	4.49 dd	11.7, 2.1	4.47 dd	11.8, 2.0	4.45 br d	11.7	4.53 dd	12.0, 2.3	4.51 dd	11.9, 2.5
b					4.28 dd	11.7, 5.7	4.28 dd	11.7, 5.5	4.34 dd	11.8, 5.2	4.25 dd	11.7, 4.7	4.32 dd	12.0, 4.8	4.37 dd	11.9, 5.2
1"											5.34 d	7.8				
2"											4.01 dd	8.4, 7.8				
3"											4.25 dd	9.3, 8.4				
4"											4.22 dd	9.3, 8.8				
5"											3.93 m					
6"a											4.43 br d	12.0				
b											4.31 dd	12.0, 4.1				

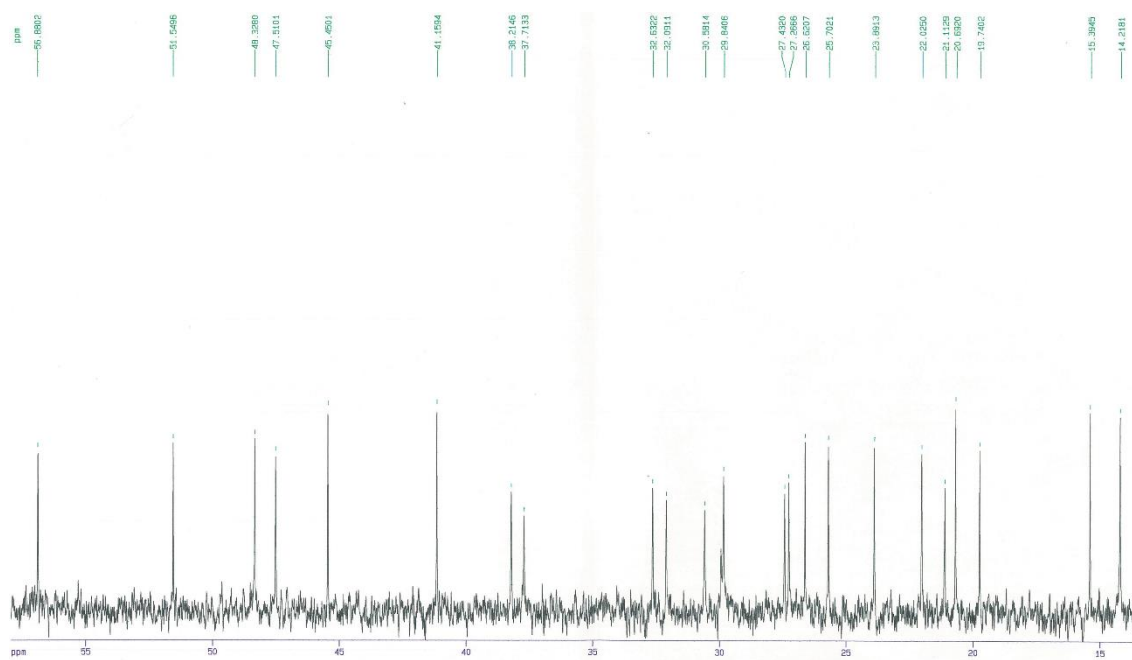
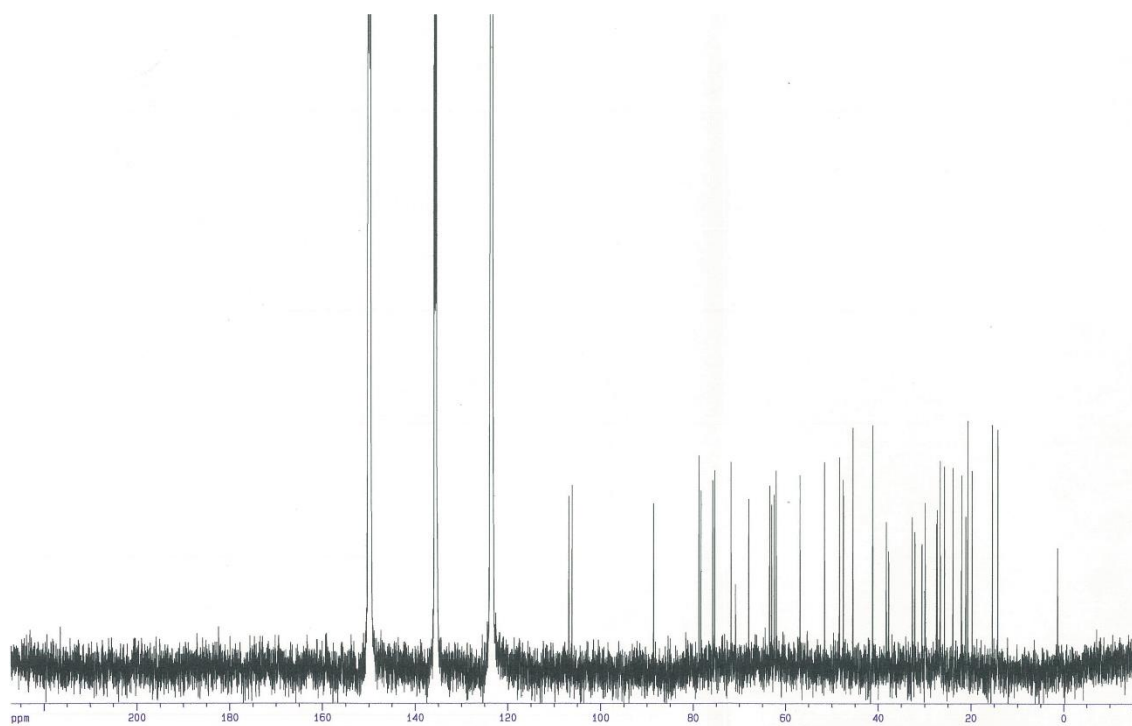
Table 2. ¹H-NMR spectral data for compounds **8–11**, and **8a** in C₅D₅N

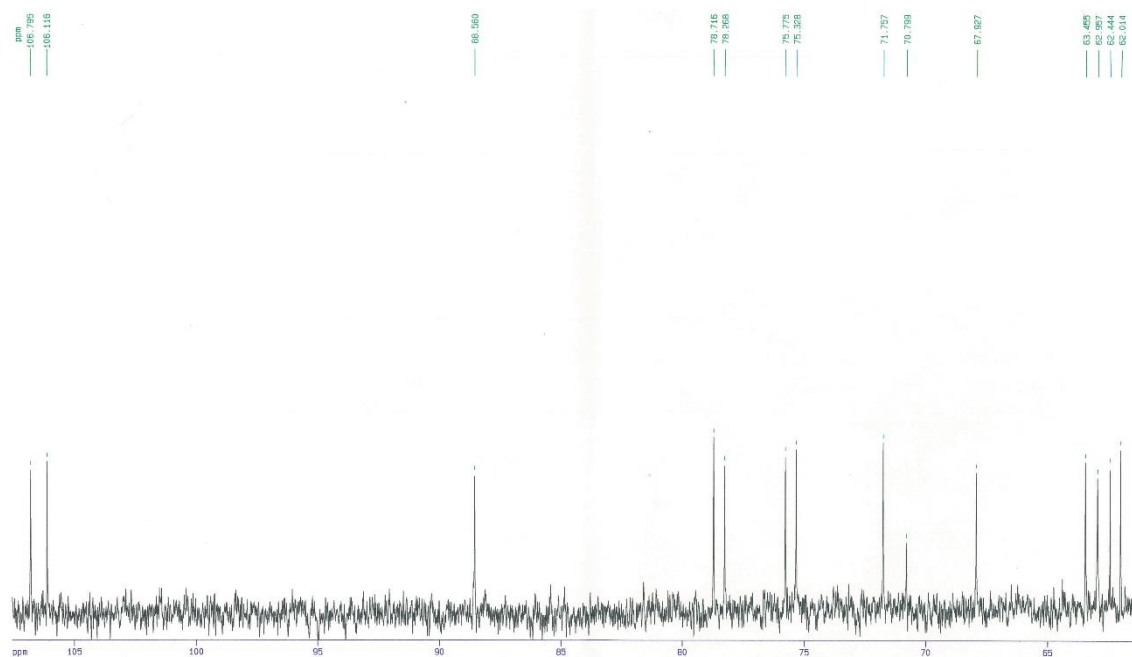
	8		8a		9		10		11	
	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)	¹ H	<i>J</i> (Hz)
1	1.44 ddd	13.5, 12.2, 3.0	1.53 ddd	13.1, 11.5, 2.9	1.43 m		1.65 m		1.62 ddd	13.2, 11.6, 3.1
2	1.11 m		1.21 m		1.09 m		1.23 m		1.21 m	
	2.29 m		1.98 m		2.33 m		2.53 m		2.51 m	
3	1.84 m		1.88 qd-like	11.5, 3.6	1.82 m		1.93 m		1.92 m	
	3.42 dd	11.7, 4.3	3.49 dd	11.5, 4.4	3.45 dd	11.7, 4.3	3.48 dd	11.5, 4.0	3.51 ddd	11.6, 4.3
5	1.28 dd	11.9, 2.9	1.30 dd	12.5, 3.6	1.27 dd	11.7, 3.3	1.25 m		1.21 m	
6	1.51 m		1.54 m		1.53 m		1.46 m		1.41 m	
7	0.65 qd-like	11.9, 2.7	0.70 qd-like	11.9, 2.6	0.65 qd-like	11.8, 2.8	0.62 qd-like	12.5, 2.5	0.61 qd-like	12.4, 2.1
	1.56 m		1.57 m		1.56 m		1.52 m		1.19 m	
8	1.51 m		1.54 m		1.54 m		1.48 m		0.94 m	
	1.70 m		1.71 dd	12.5, 4.6	1.70 m		1.66 m		1.51 m	
11	2.00 m		2.03 m		1.99 m		1.95 m		1.88 m	
12	1.12 ddd	12.6, 10.7, 4.2	1.15 m		1.10 m		1.07 m		1.02 m	
	1.71 m		1.72 m		1.72 m		1.65 m		1.44 m	
15	1.57 m		1.58 m		1.57 m		1.51 m		1.42 m	
	2.99 dd	12.6, 7.9	3.01 dd	12.6, 8.0	3.00 dd	12.5, 8.0	2.99 dd	12.4, 8.0	1.88 m	
16	1.57 m		1.58 dd	12.6, 6.4	1.57 m		1.54 m		1.52 m	
	4.79 q-like	7.9	4.80 q-like	7.6	4.79 q-like	8.0	4.78 q-like	8.0	4.48 q-like	7.6
17	1.83 m		1.84 m		1.85 m		1.82 m		1.53 m	
18	1.32 s		1.34 s		1.32 s		1.30 s		1.15 s	
19	0.55 d	4.0	0.60 d	3.8	0.55 d	3.9	0.53 d	3.6	0.46 d	4.0
20	0.26 d	4.0	0.34 d	3.8	0.25 d	3.9	0.26 d	3.6	0.13 d	4.0
	1.84 m		1.85 m		1.84 m		1.82 m		1.76 m	
21	0.90 d	5.8	0.90 d	5.8	0.90 d	5.6	0.90 d	5.3	0.88 d	6.4
22	2.17 dd	12.4, 1.9	2.16 dd	13.3, 2.0	2.17 br d	12.7	2.16 br d	13.6	2.14 dd	13.9, 2.5
24	1.57 dd	12.4, 12.4	1.56 dd	13.3, 13.3	1.57 dd	12.7, 12.7	1.56 dd	13.6, 13.6	1.56 dd	13.9, 13.9
	3.68 s		3.69 s		3.68 s		3.67 s		3.64 s	
26	3.89 d	10.0	3.88 d	10.0	3.89 d	10.0	3.88 d	9.9	3.91 d	10.0
27	3.83 d	10.0	3.82 d	10.0	3.83 d	10.0	3.82 d	9.9	3.83 d	10.0
	1.42 s		1.42 s		1.42 s		1.42 s		1.41 s	
28	4.02 d	11.6	4.03 d	11.4	4.03 d	11.3	3.98 d	11.5	0.79 s	
29	3.93 d	11.6	3.94 d	11.4	3.94 d	11.3	3.89 d	11.5		
	1.29 s		1.17 s		1.29 s		1.25 s		1.28 s	
30	1.05 s		1.07 s		1.05 s		1.04 s		1.02 s	
1'	4.88 d	7.8			4.89 d	7.8	4.89 d	7.7	4.90 d	7.8
2'	4.04 dd	8.2, 7.8			4.07 dd	9.4, 7.8	4.00 dd	8.7, 7.7	3.99 dd	8.7, 7.8
3'	4.27 dd	8.9, 8.2			4.22 dd	9.4, 8.6	4.21 dd	8.7, 8.7	4.22 dd	8.7, 8.3
4'	4.31 dd	9.1, 8.9			4.11 dd	9.3, 8.6	4.12 dd	9.8, 8.7	4.11 dd	8.3, 8.3
5'	3.93 ddd	9.1, 3.9, 2.7			3.91 ddd	9.3, 4.6, 1.8	4.11 m		4.10 m	
6' a	4.57 dd	12.0, 3.9			4.48 dd	11.8, 1.8	4.85 br d	11.3	4.82 br d	11.1
b	4.49 dd	12.0, 2.7			4.30 dd	11.8, 4.6	4.33 dd	11.3, 5.2	4.33 dd	11.1, 5.1
1''	5.20 d	7.9			5.31 d	7.9	5.16 d	7.8	5.15 d	8.0
2''	4.10 dd	8.4, 7.9			4.08 dd	8.3, 7.9	4.06 dd	8.4, 7.8	4.03 dd	9.7, 8.0
3''	4.23 dd	8.8, 8.4			4.27 dd	8.9, 8.3	4.25 dd	8.9, 8.4	4.25 dd	9.7, 8.8
4''	4.20 dd	9.5, 8.8			4.20 dd	8.9, 8.9	4.24 dd	8.9, 8.4	4.22 dd	8.8, 8.8
5''	3.99 ddd	9.5, 5.4, 2.5			4.03 ddd	8.9, 5.7, 2.2	3.93 ddd	8.4, 4.9, 2.1	3.90 ddd	8.8, 5.1, 2.4
6'' a	4.52 dd	11.6, 2.5			4.53 dd	11.7, 2.2	4.50 dd	11.4, 2.1	4.47 dd	12.1, 2.4
b	4.30 dd	11.6, 5.4			4.32 dd	11.7, 5.7	4.37 dd	11.4, 4.9	4.36 dd	12.1, 5.1



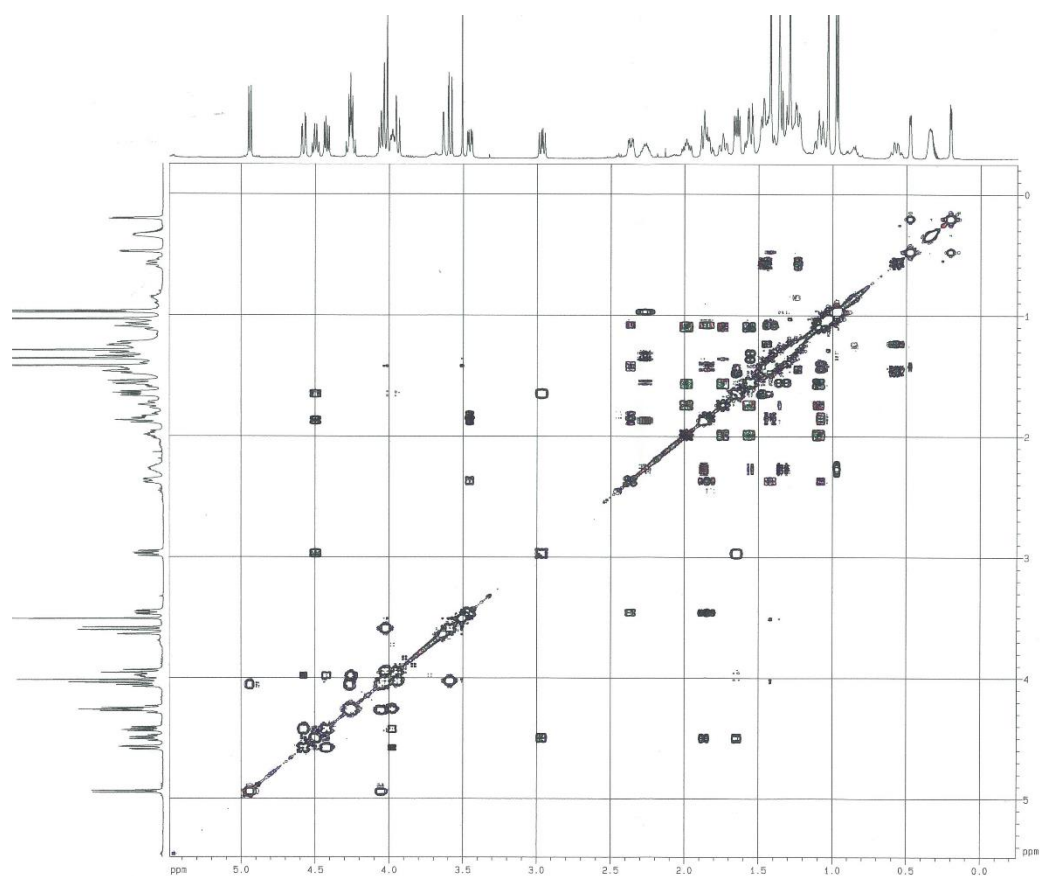


^{13}C -NMR spectrum of **1** in $\text{C}_5\text{D}_5\text{N}$

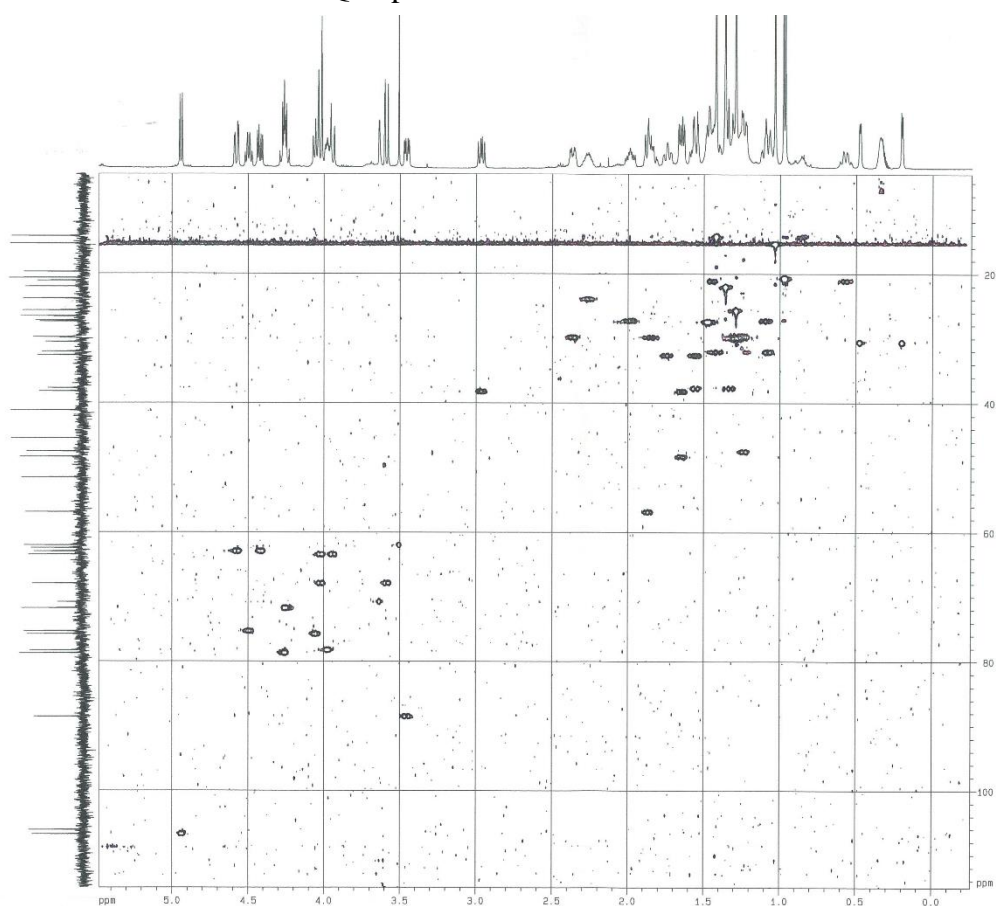




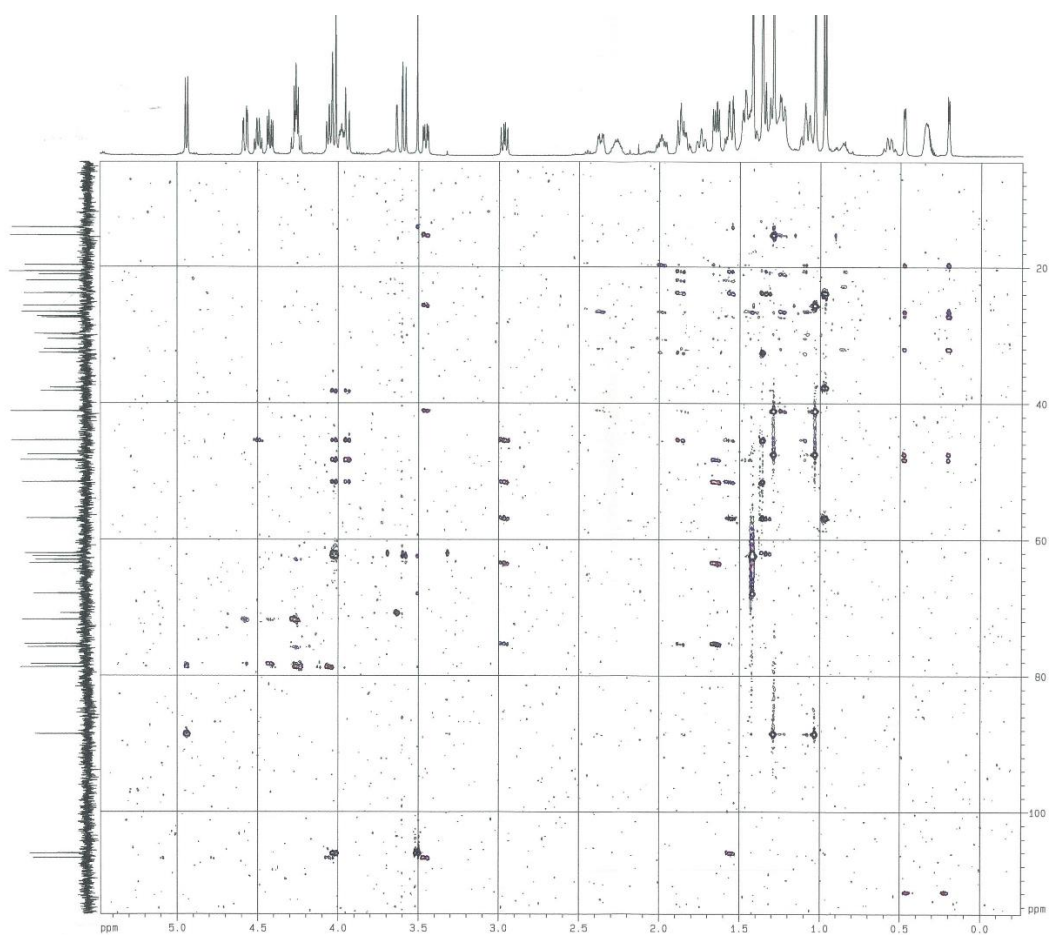
COSY spectrum of **1** in C_5D_5N



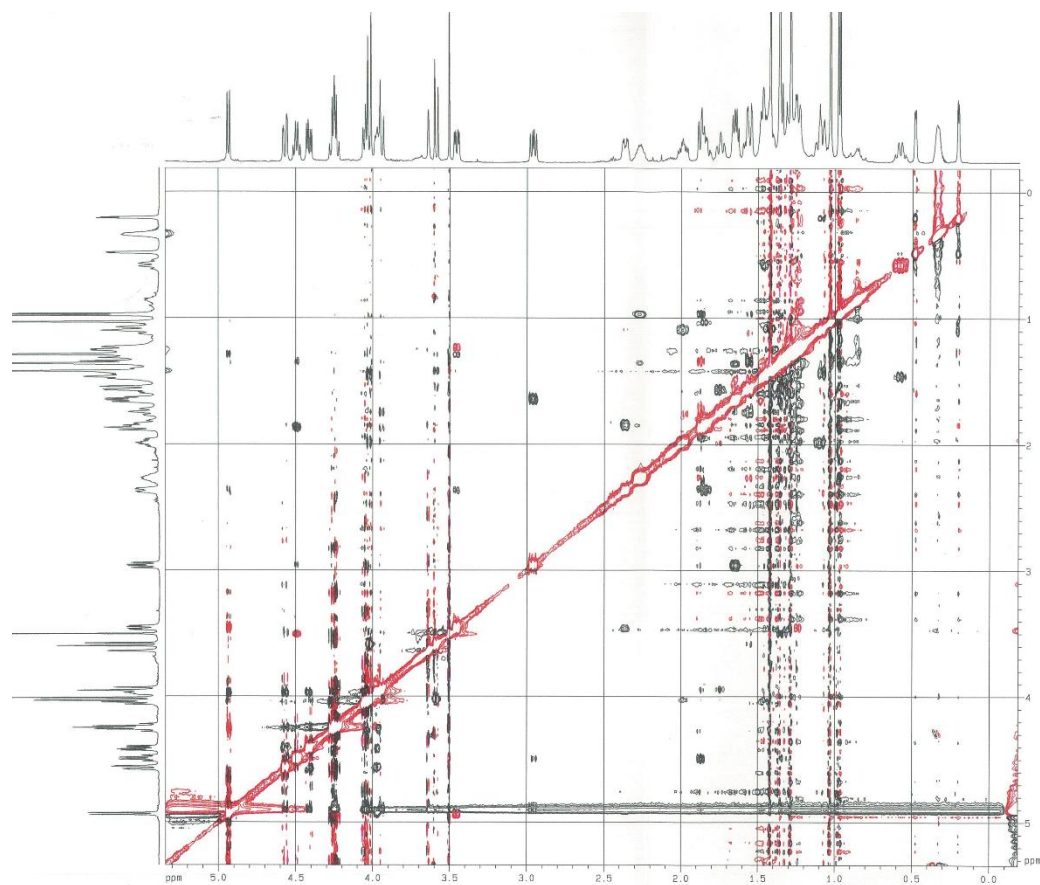
HMQC spectrum of **1** in C₅D₅N



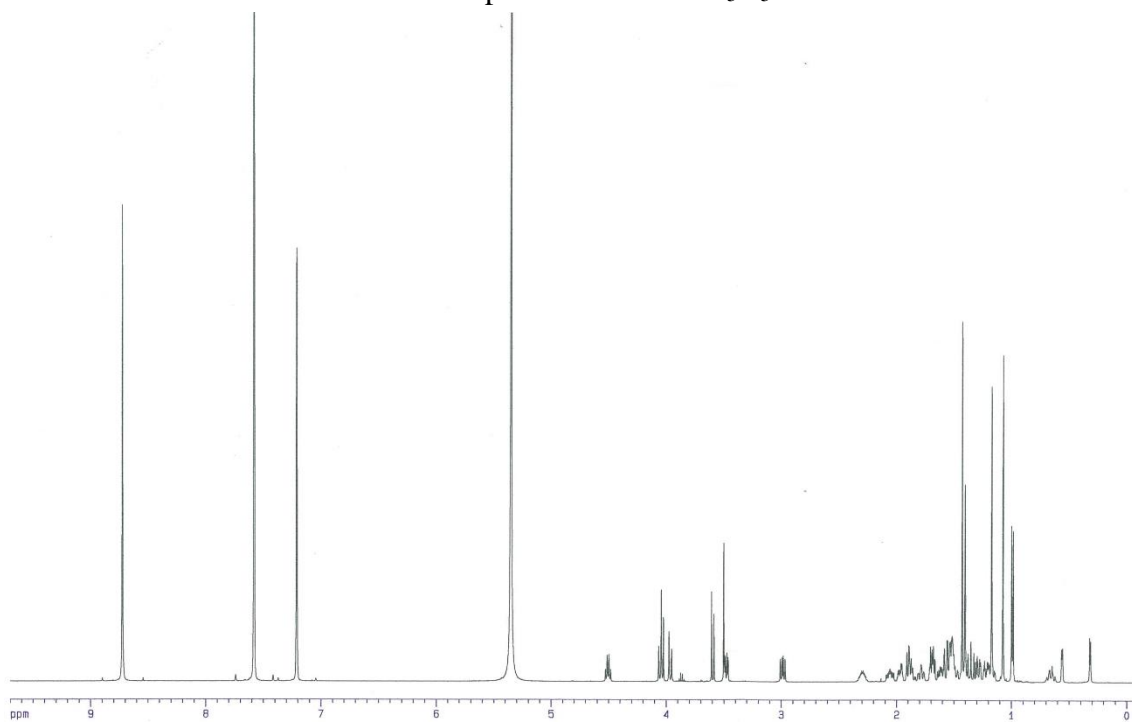
HMBC spectrum of **1** in C₅D₅N

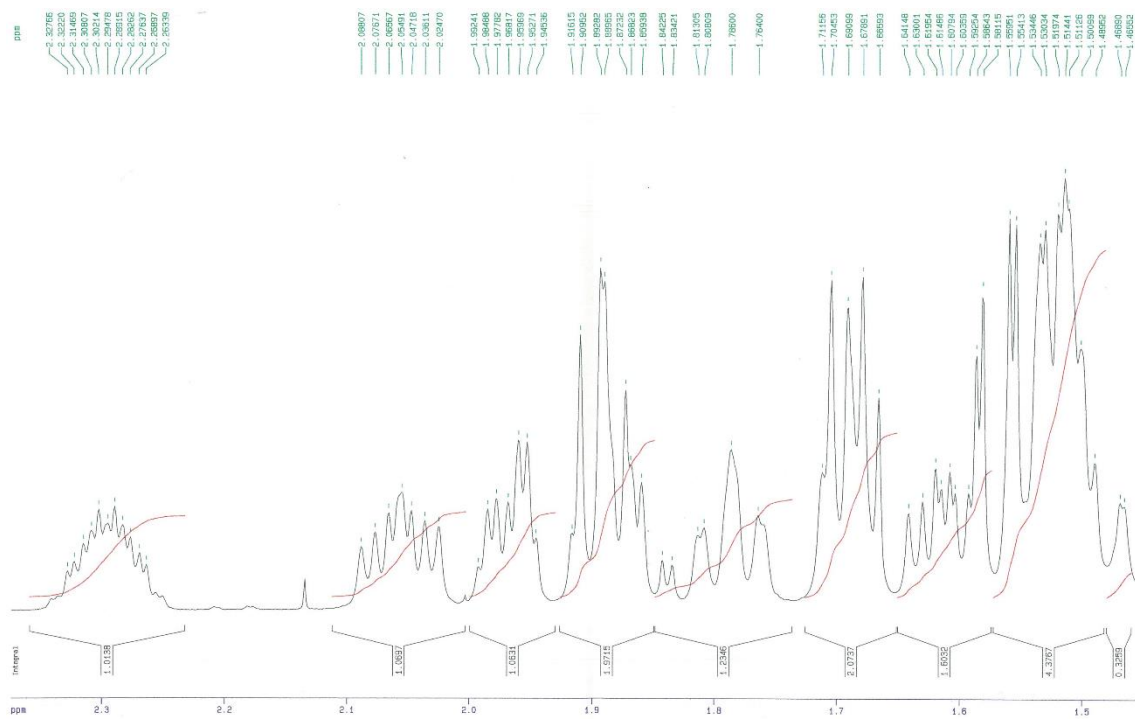


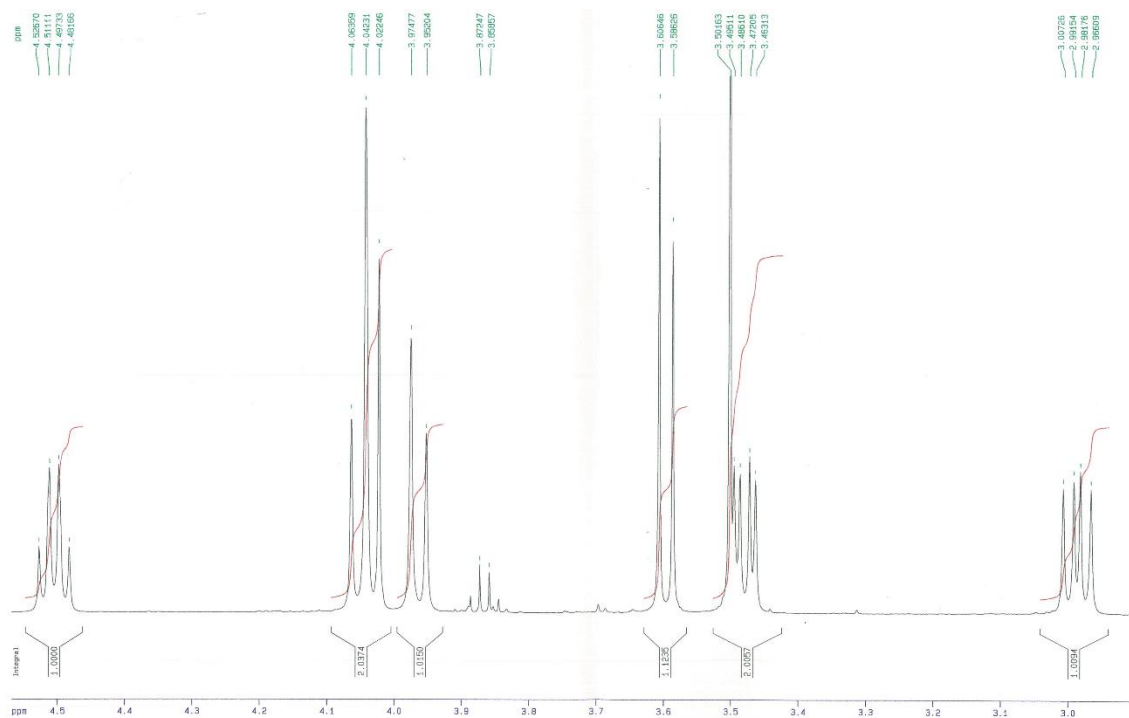
NOESY spectrum of **1** in C₅D₅N



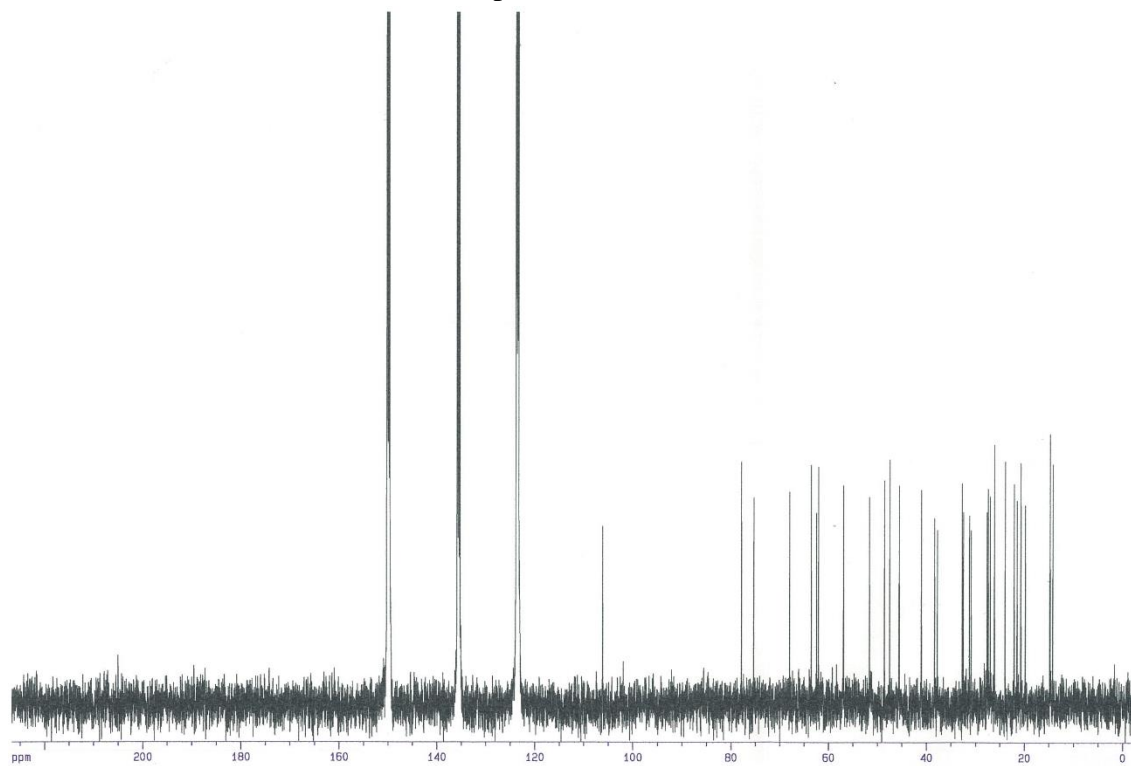
¹H-NMR spectrum of **1a** in C₅D₅N

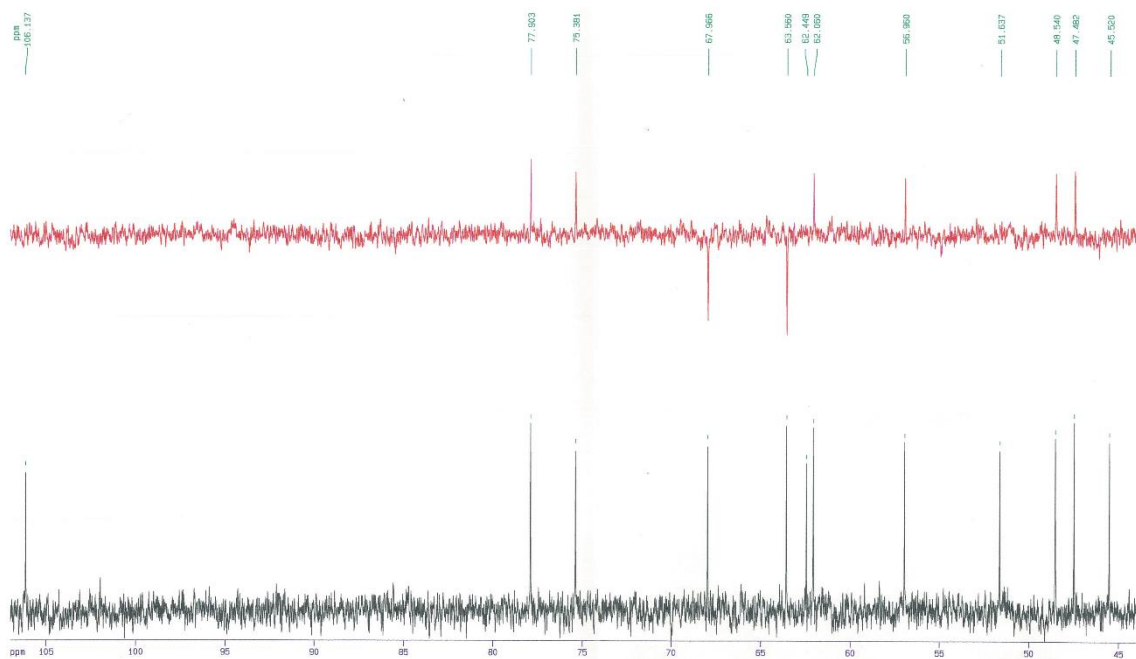
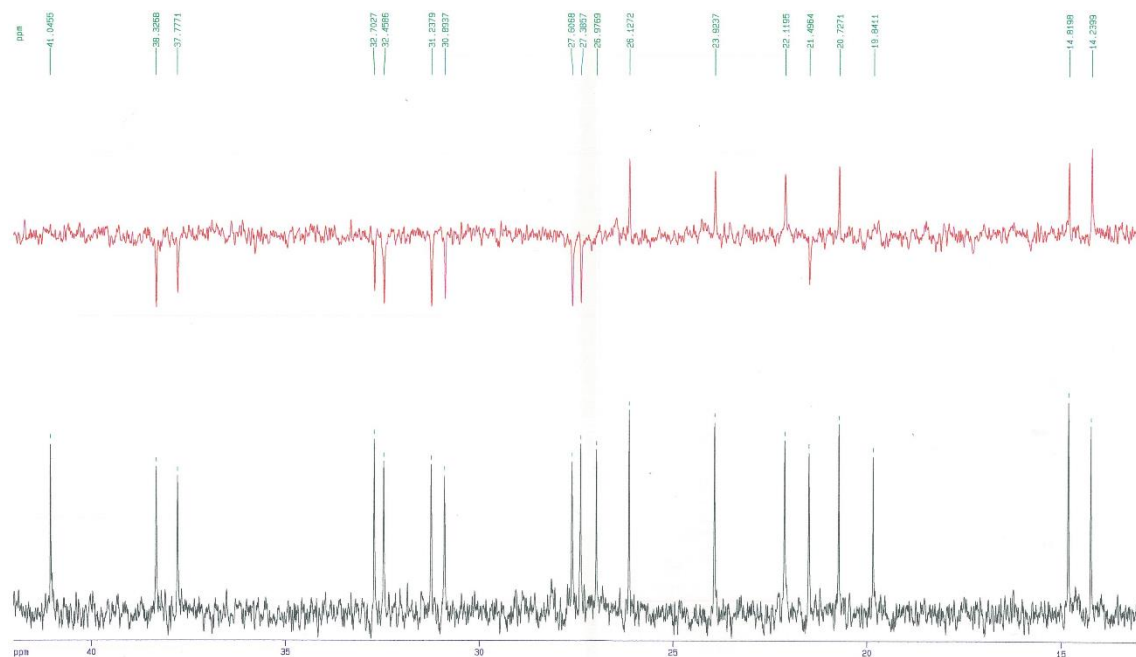




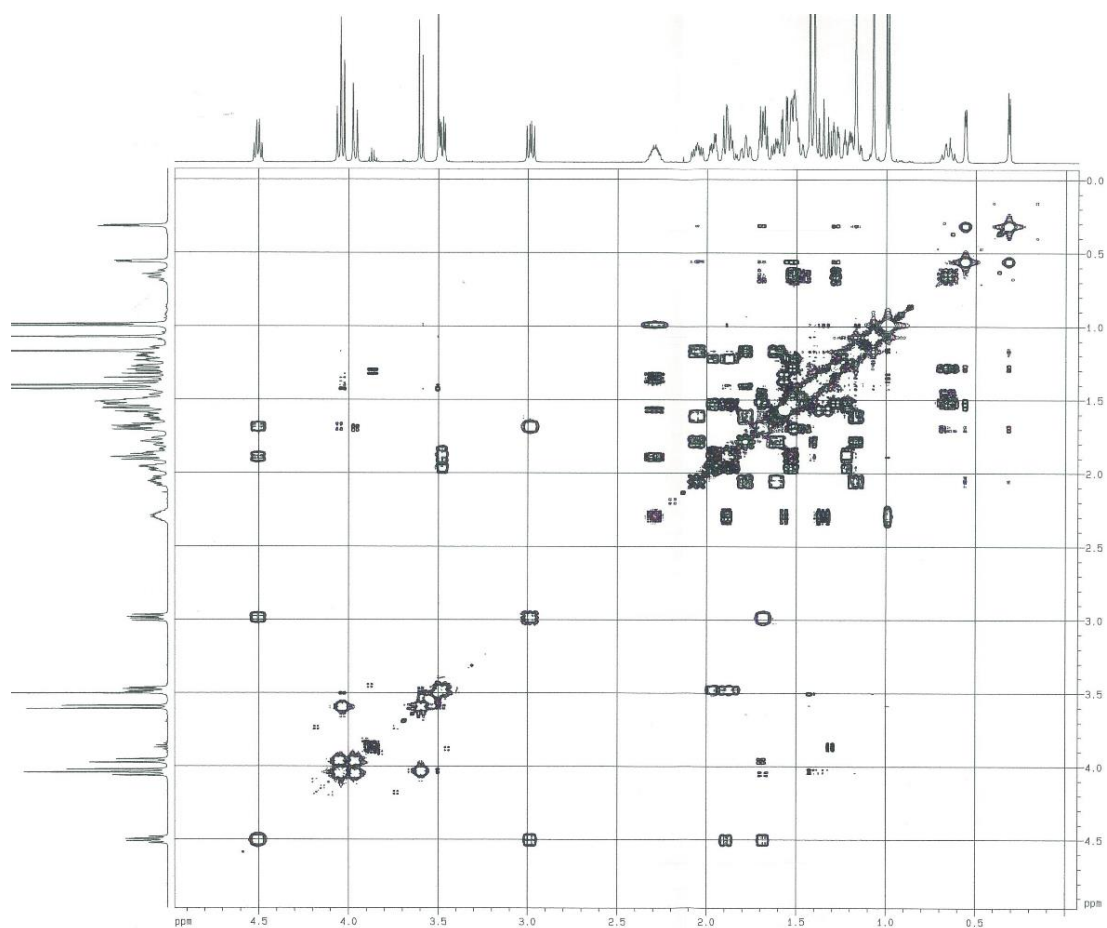


¹³C-NMR spectrum of **1a** in C₅D₅N

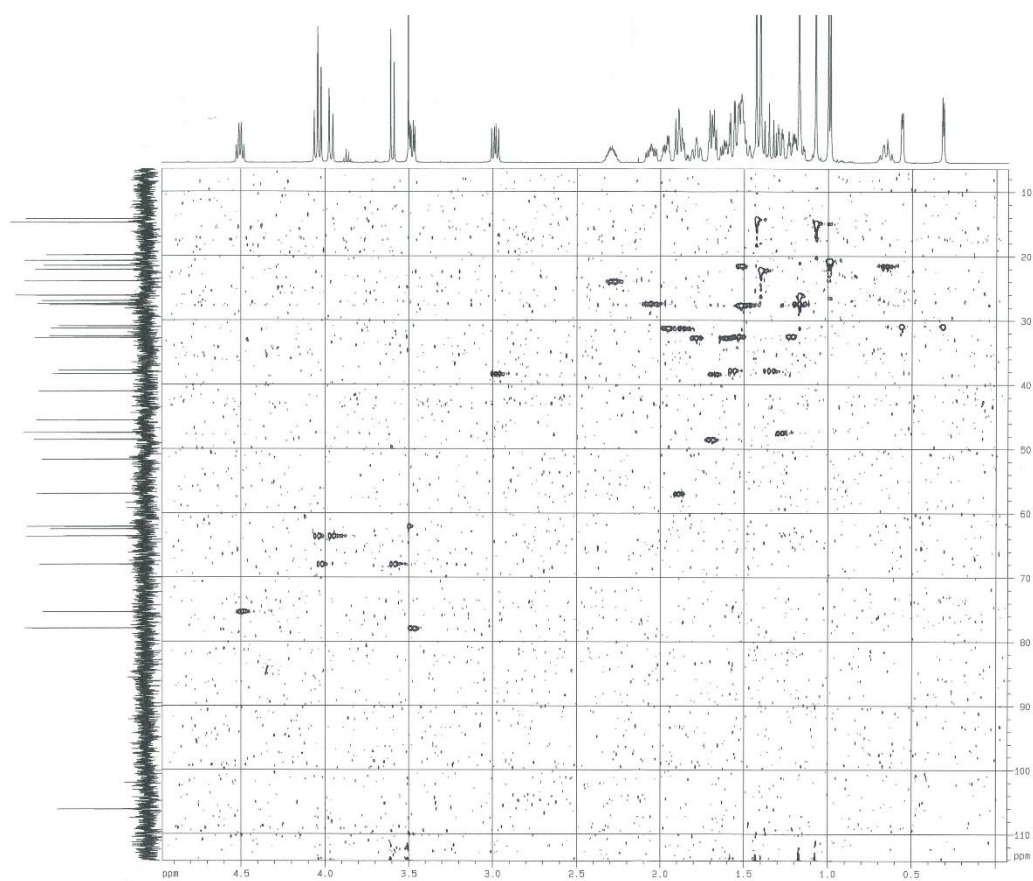




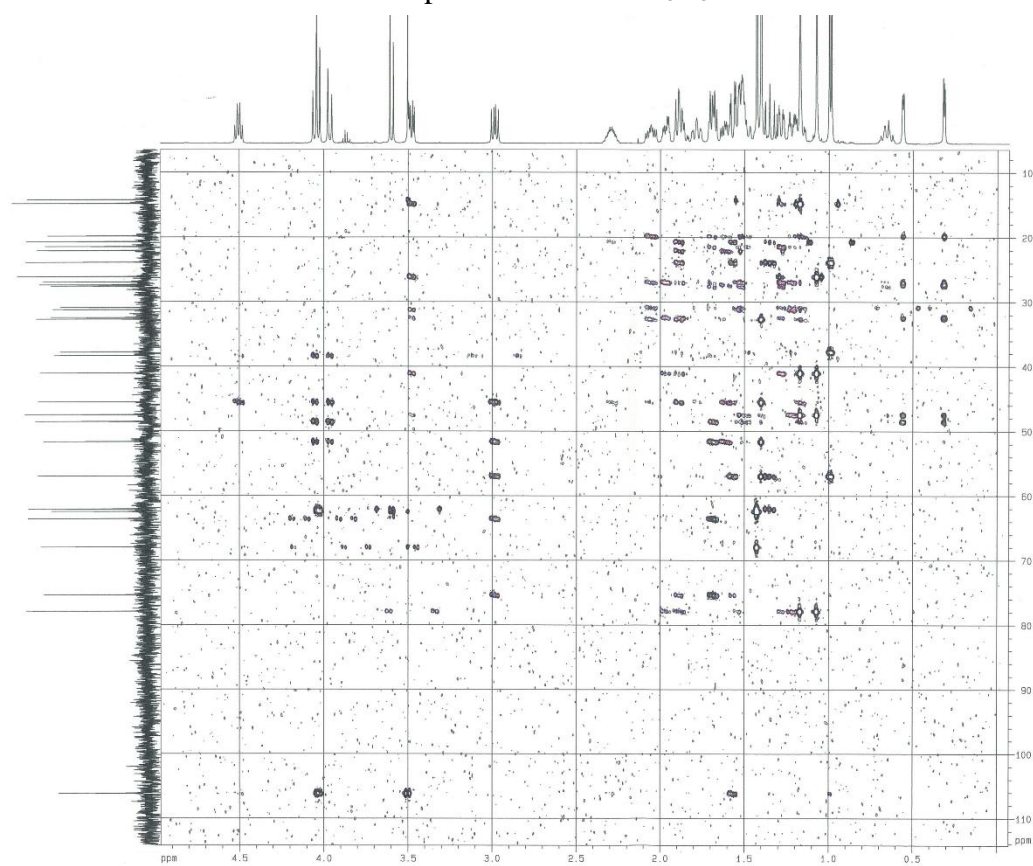
COSY spectrum of **1a** in C₅D₅N



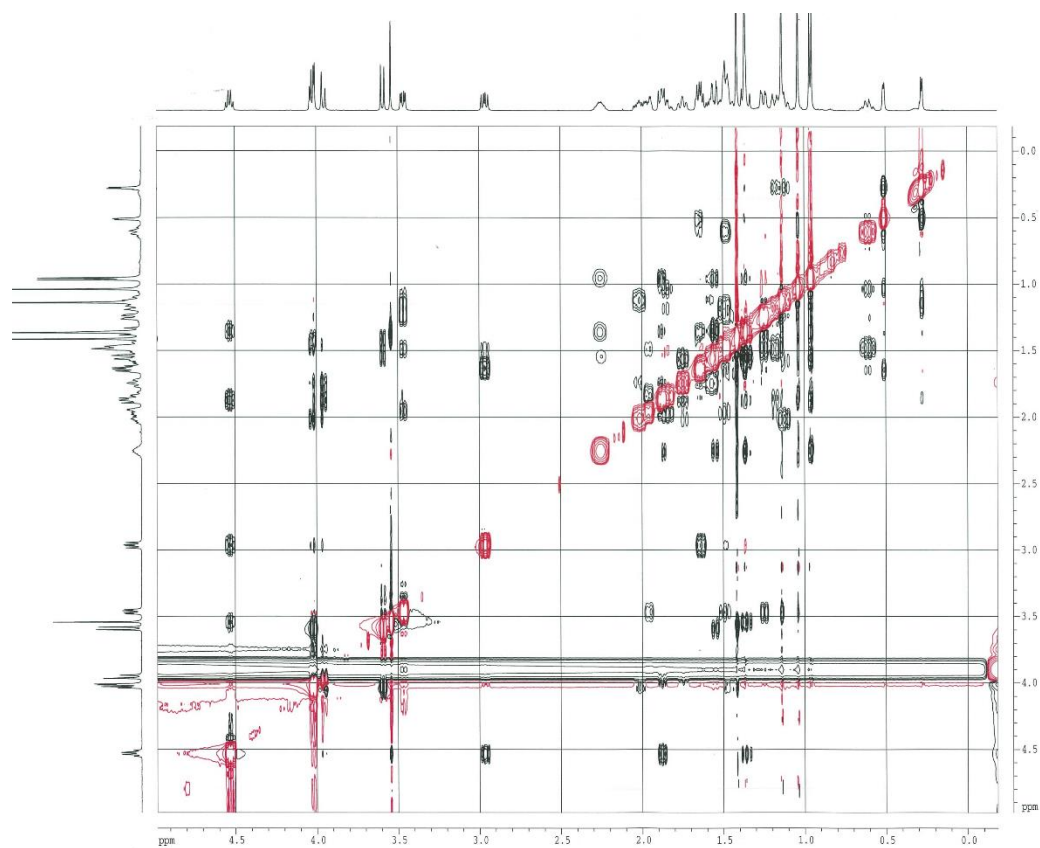
HMQC spectrum of **1a** in C₅D₅N



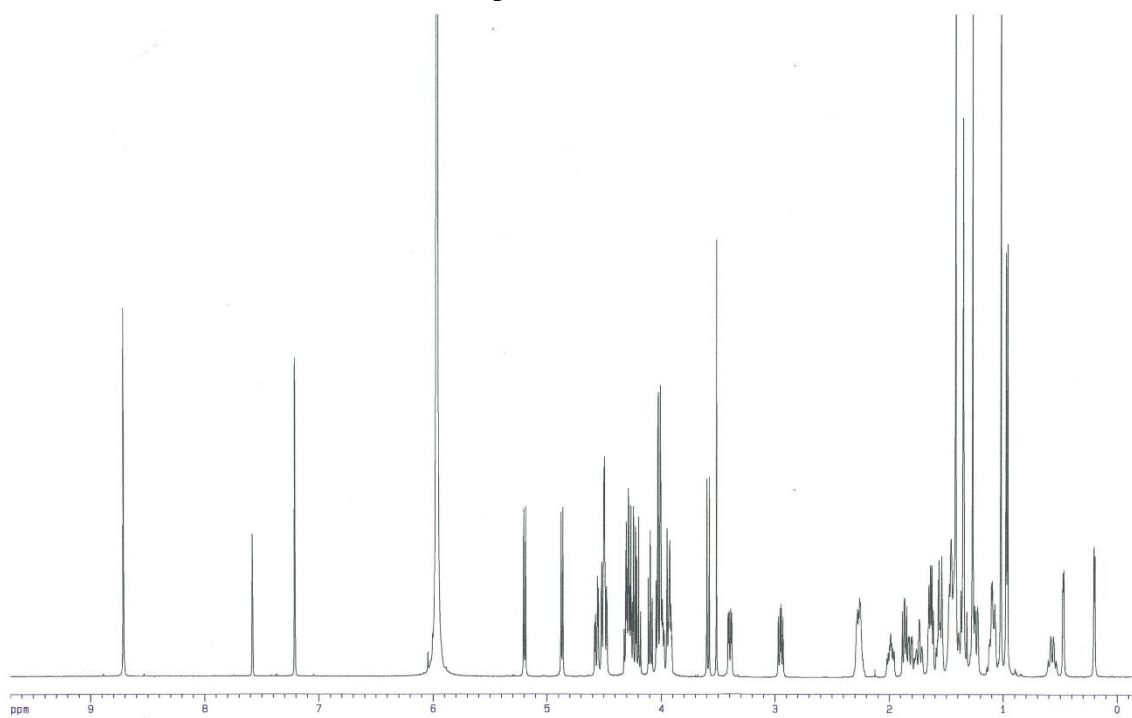
HMBC spectrum of **1a** in C₅D₅N

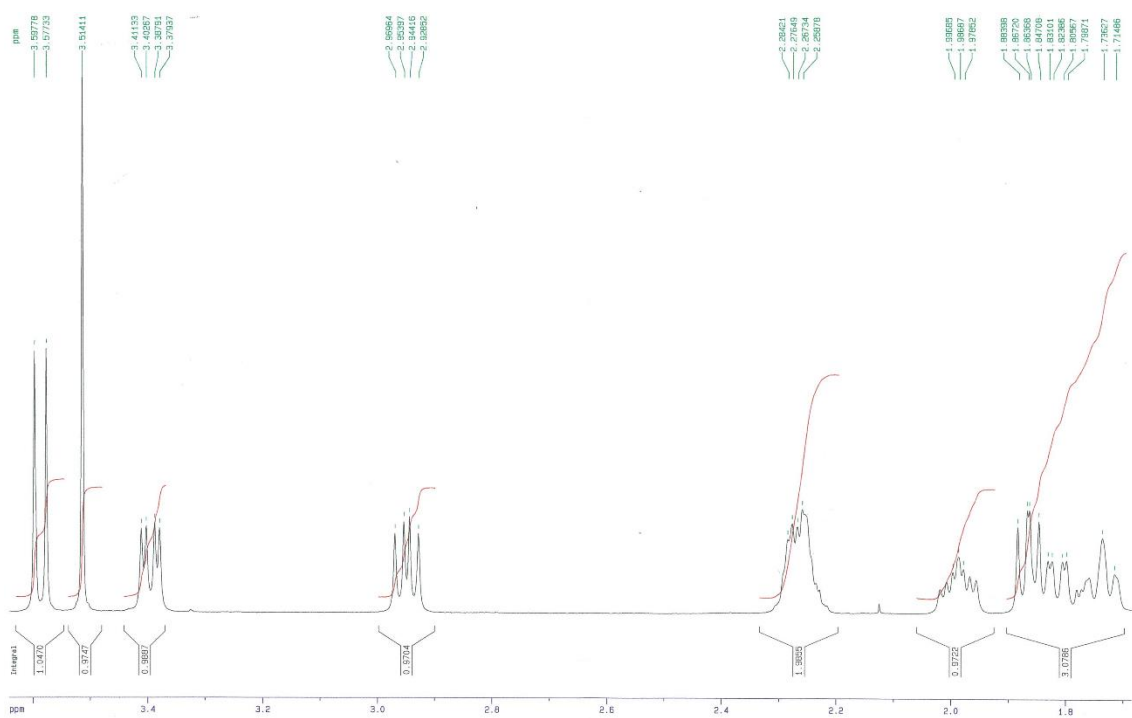
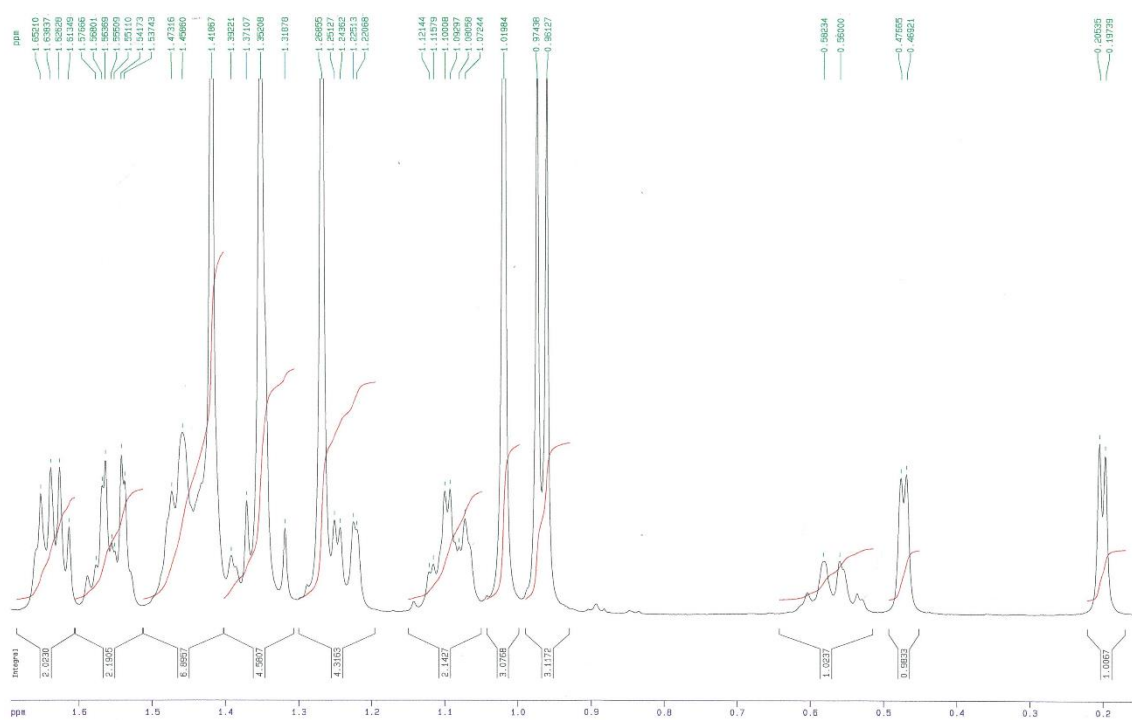


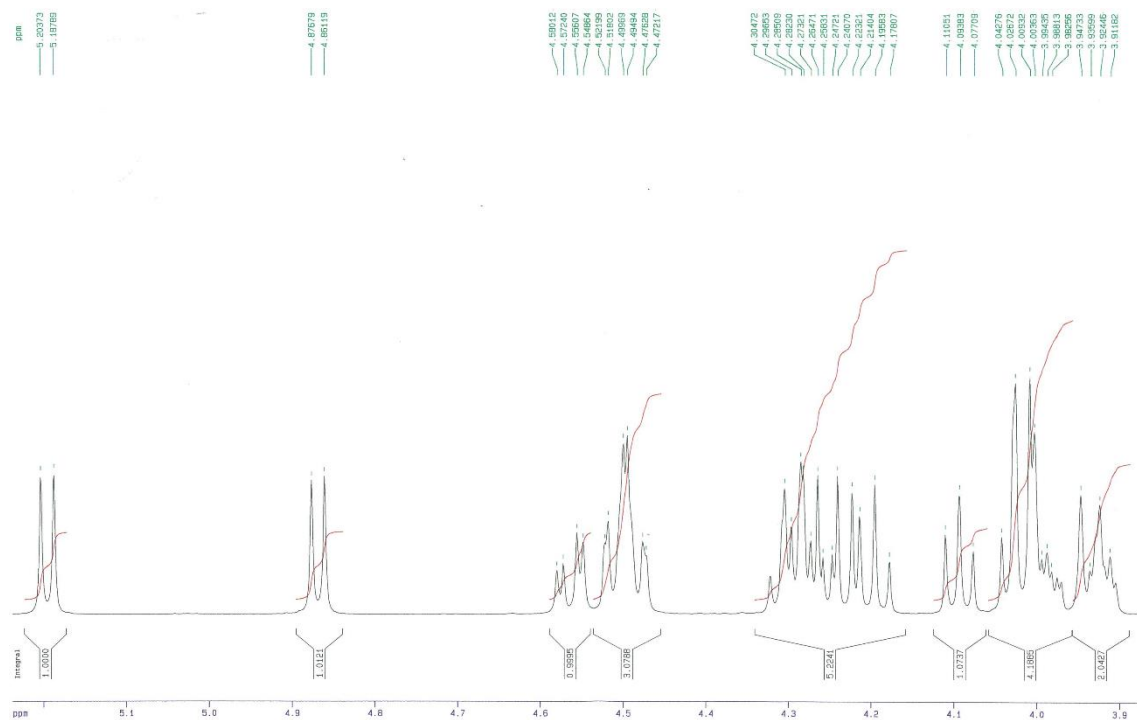
NOESY spectrum of **1a** in C₅D₅N



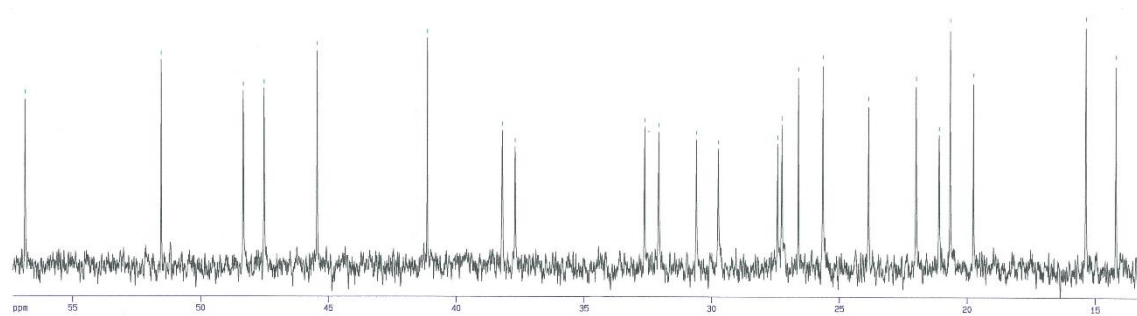
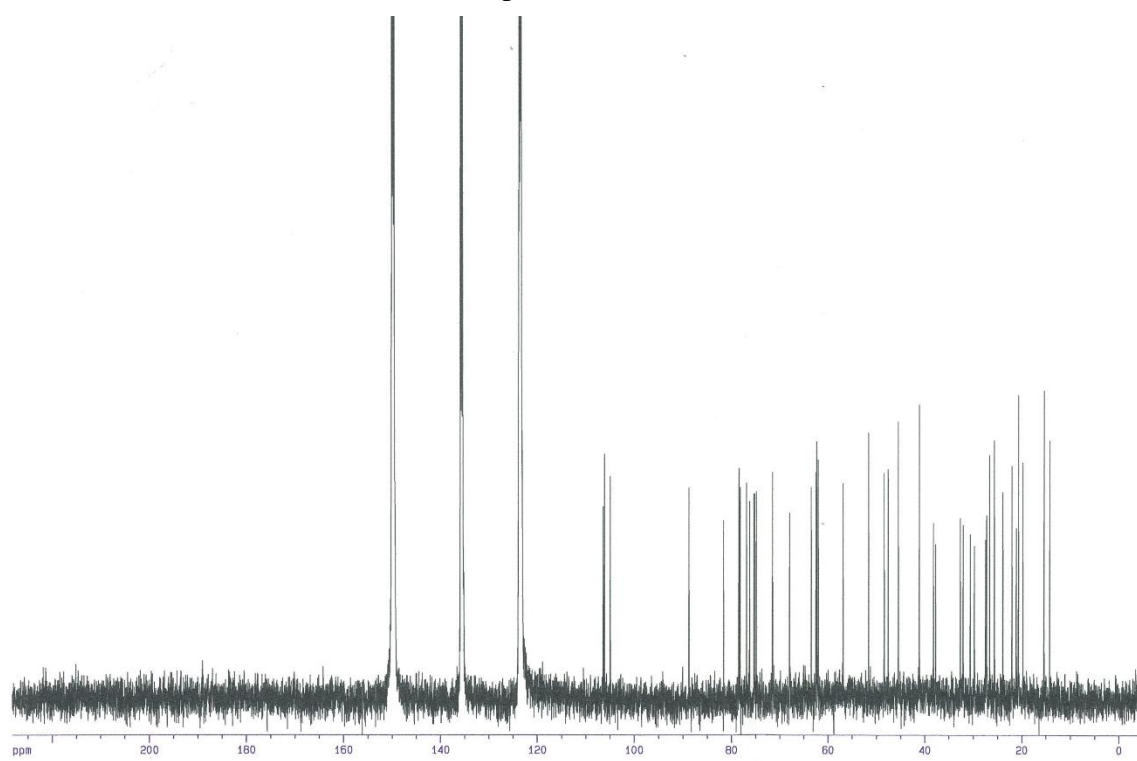
¹H-NMR spectrum of **2** in C₅D₅N

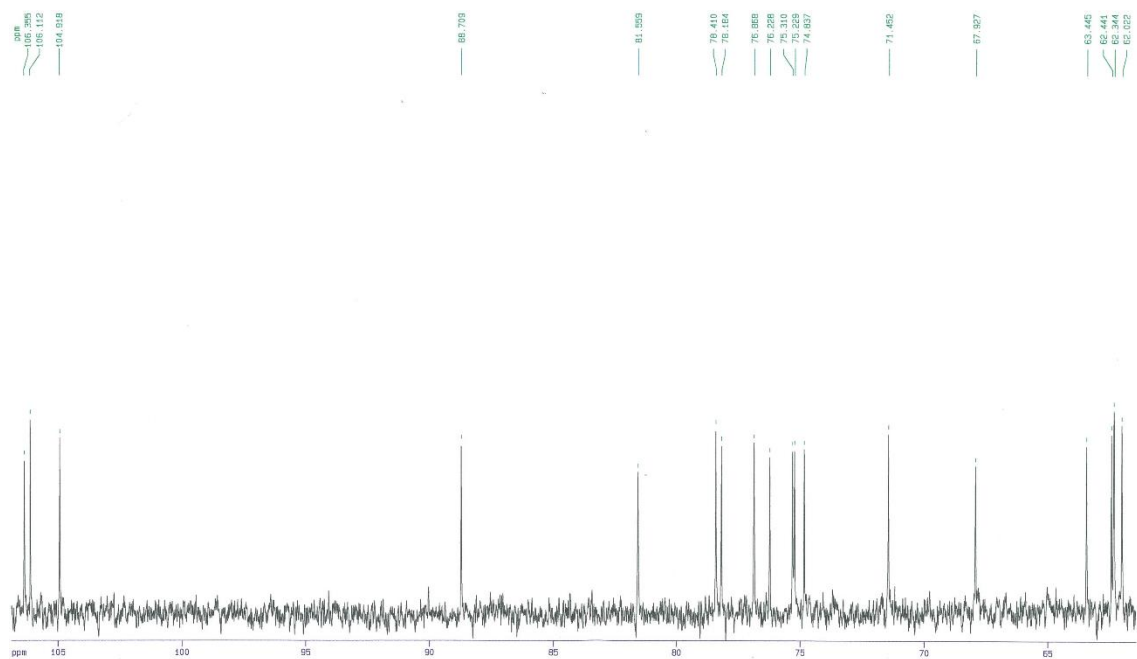




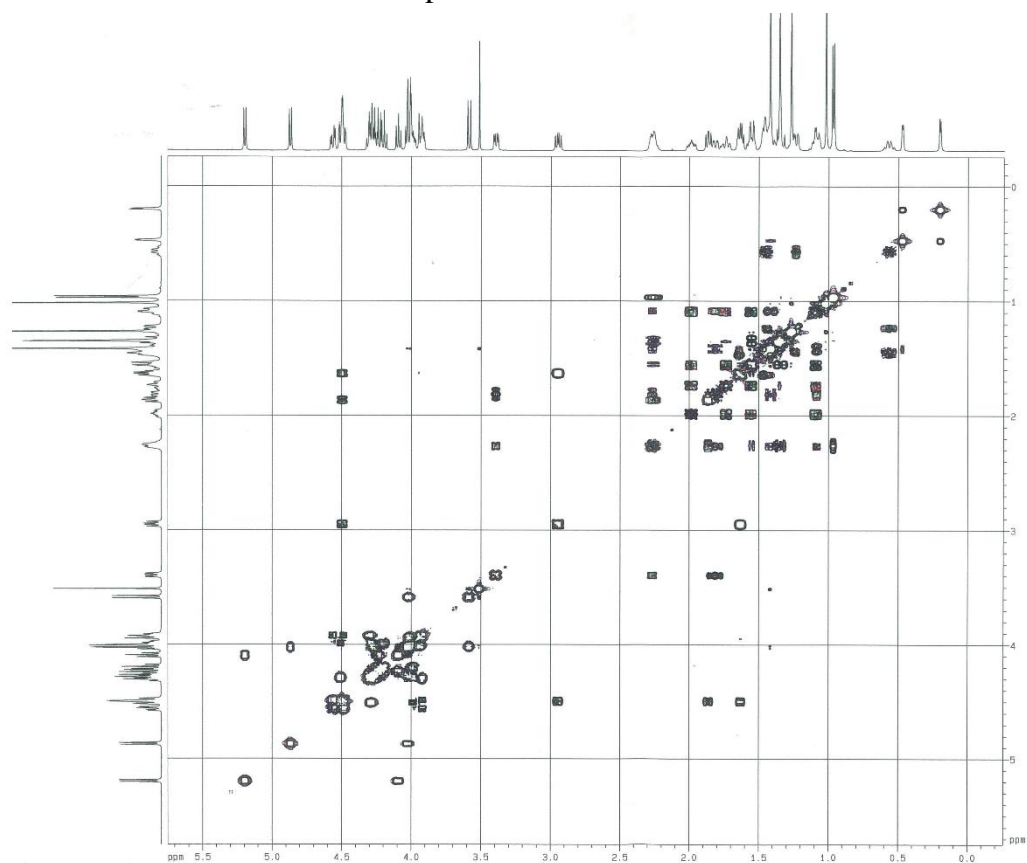


^{13}C -NMR spectrum of **2** in $\text{C}_5\text{D}_5\text{N}$

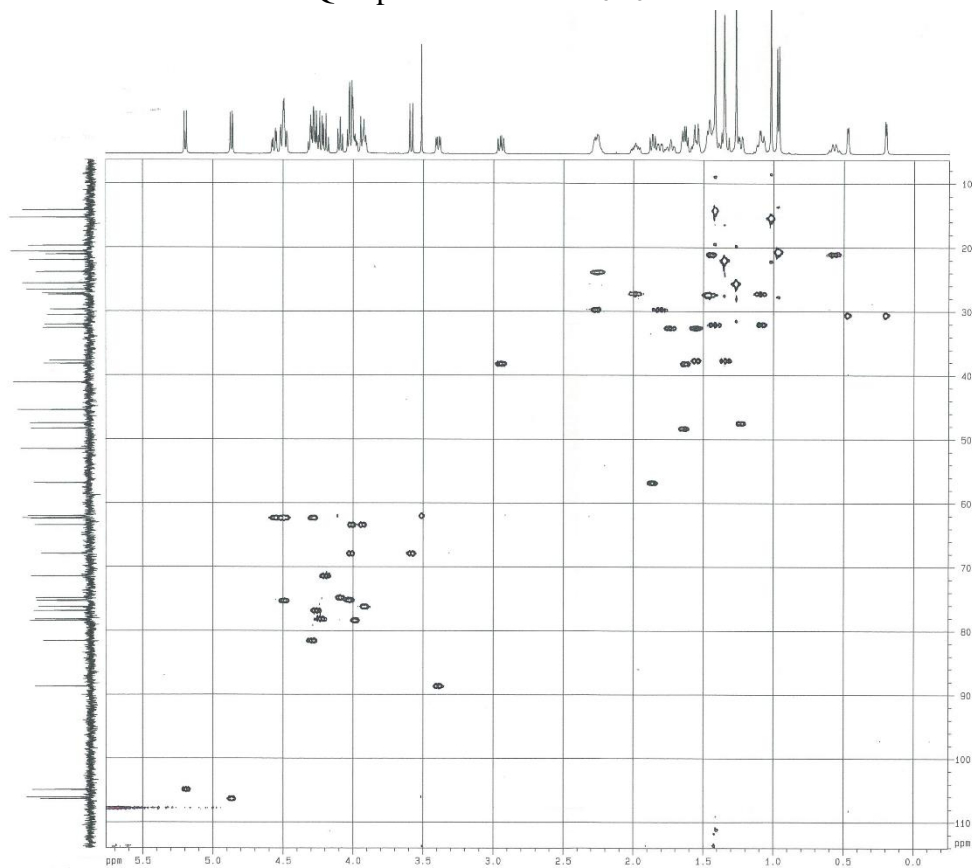




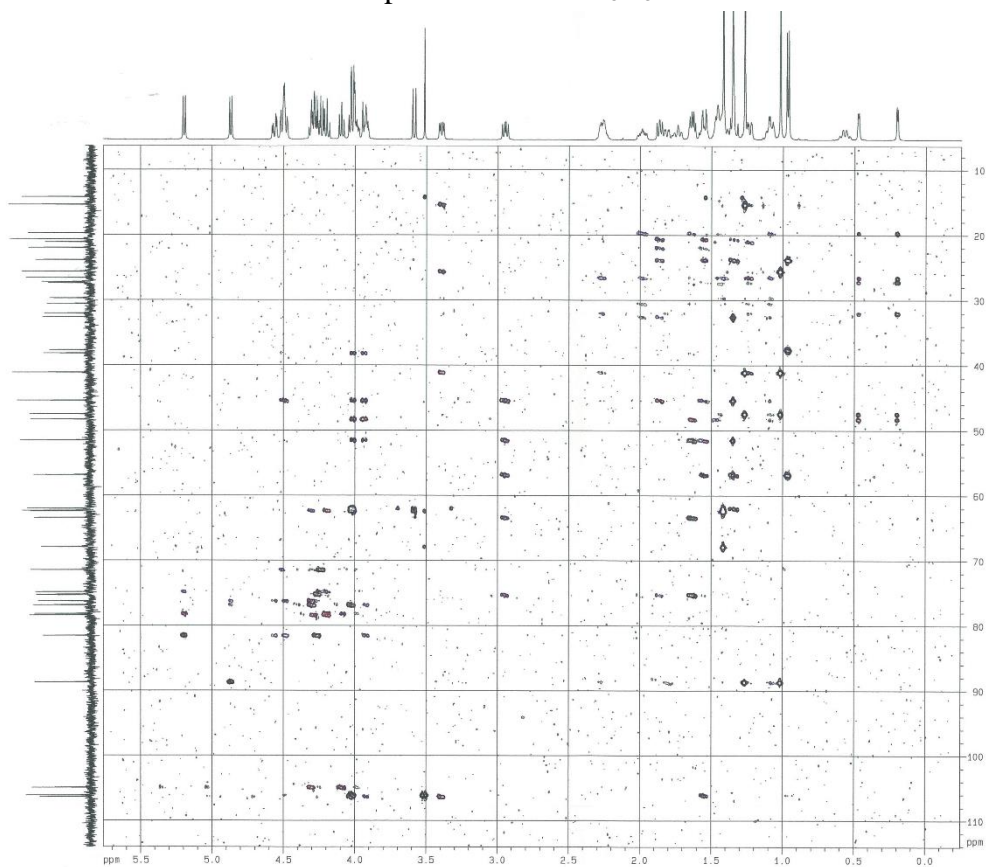
COSY spectrum of **2** in C_5D_5N



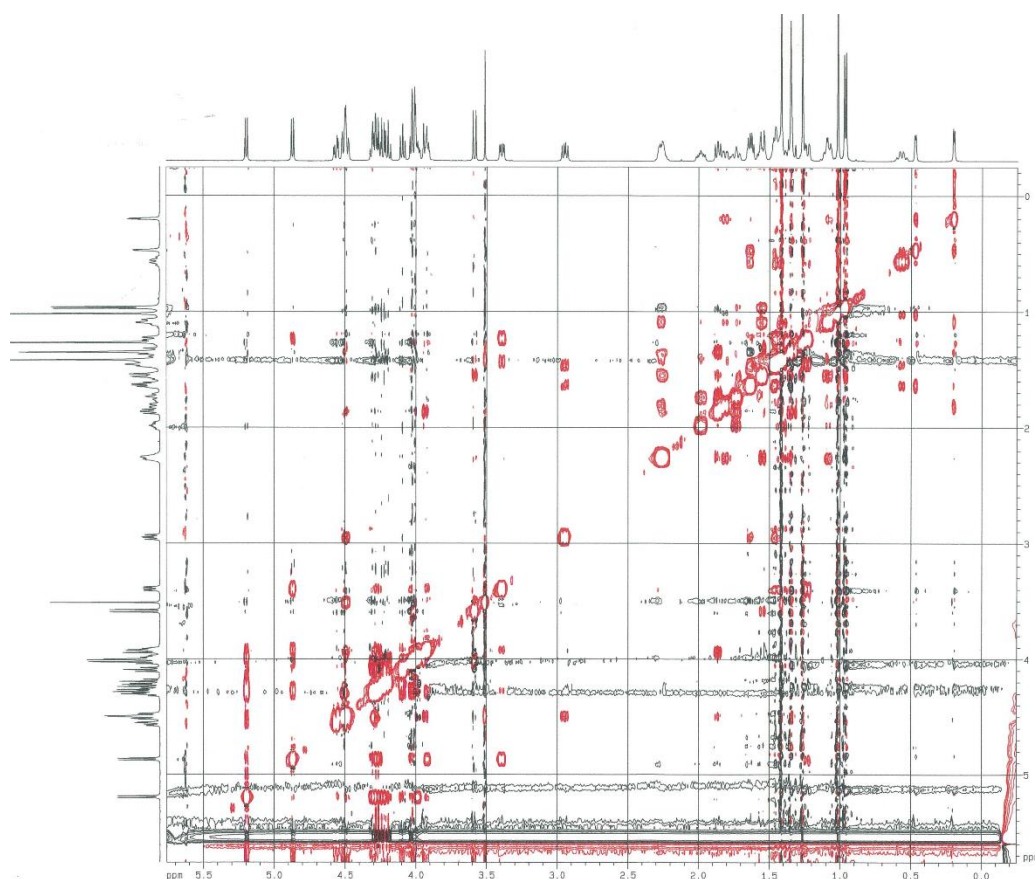
HMQC spectrum of **2** in C₅D₅N



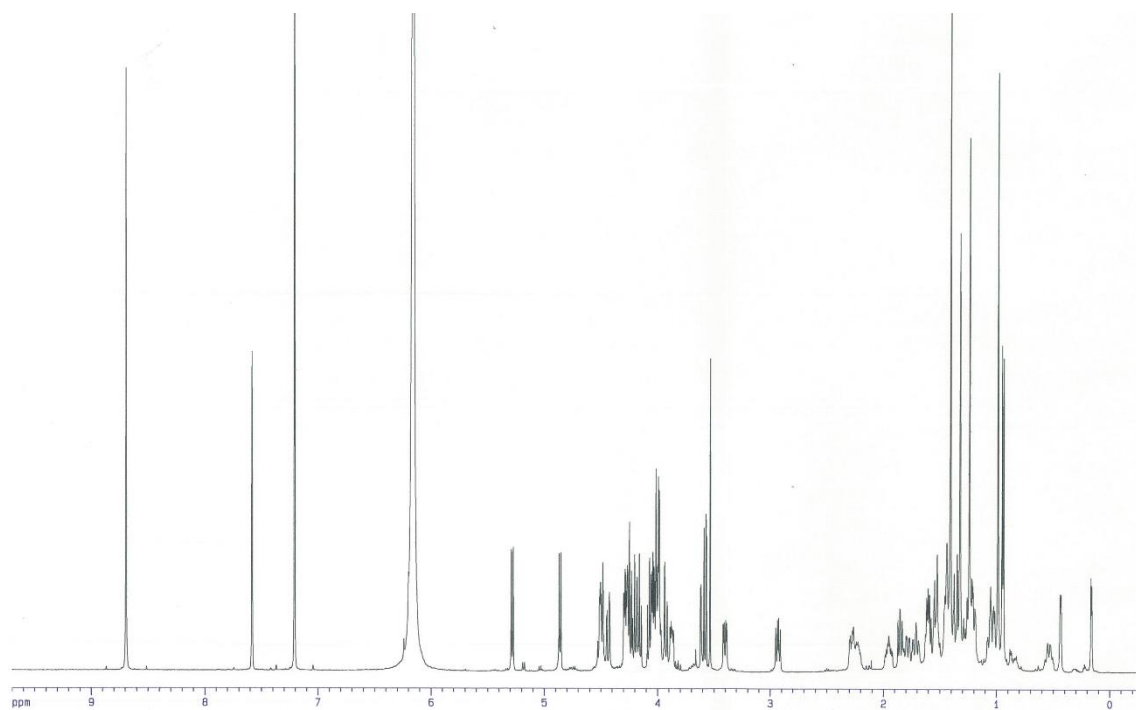
HMBC spectrum of **2** in C₅D₅N

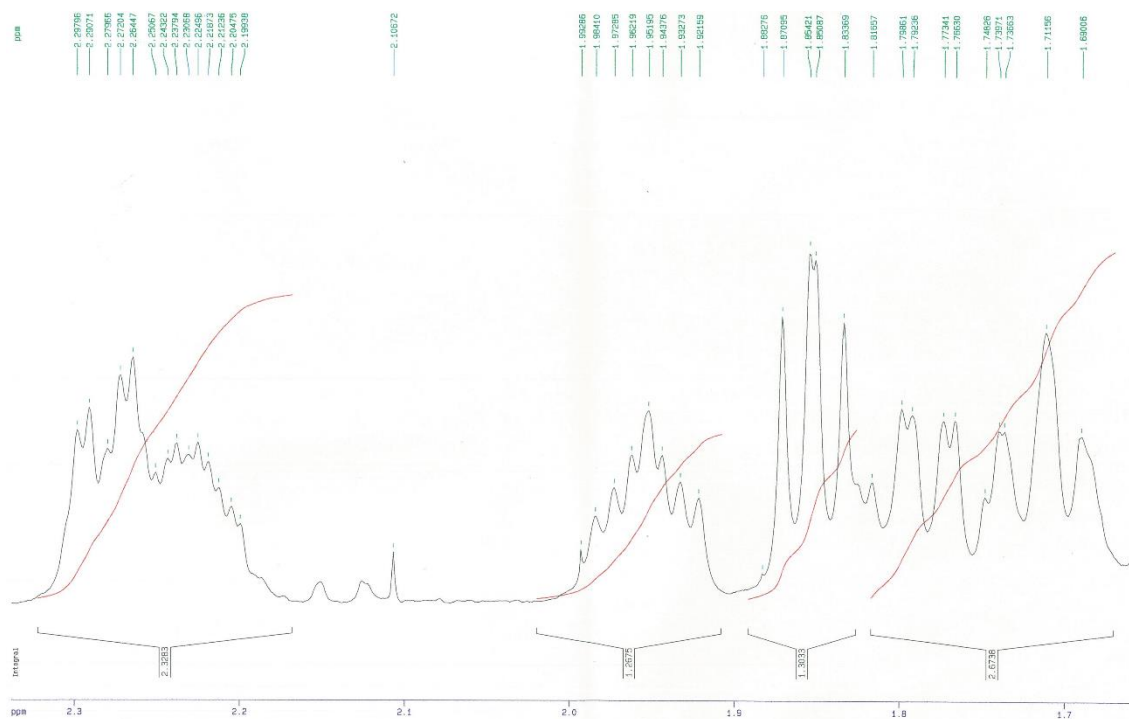
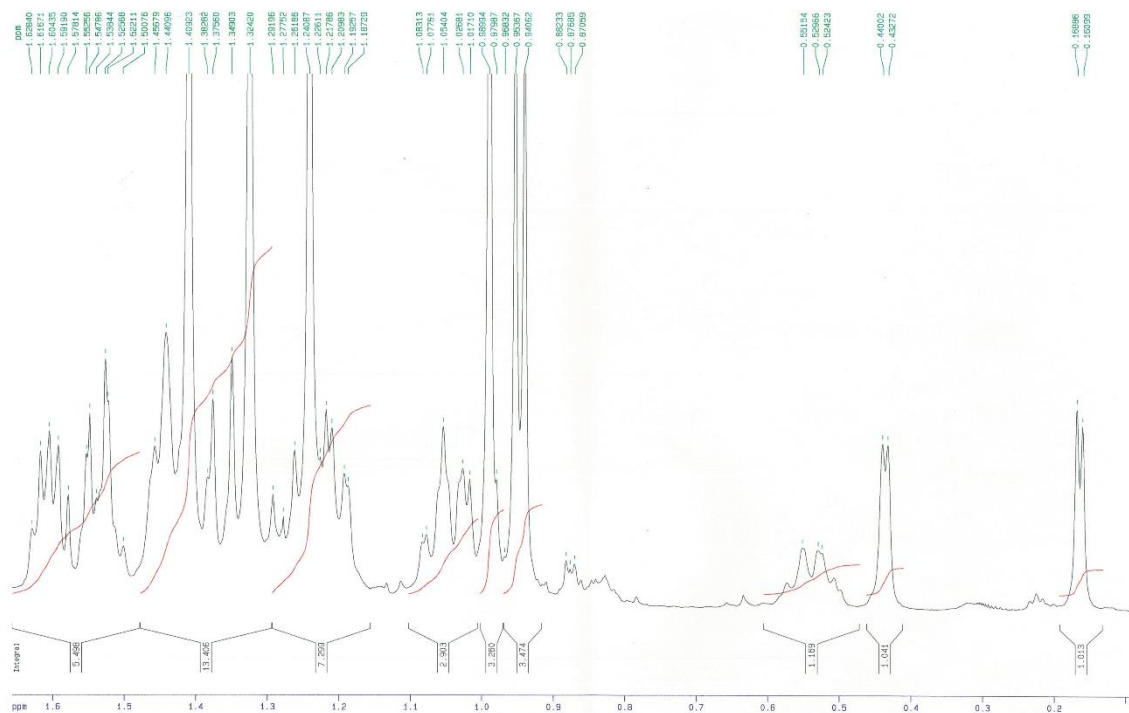


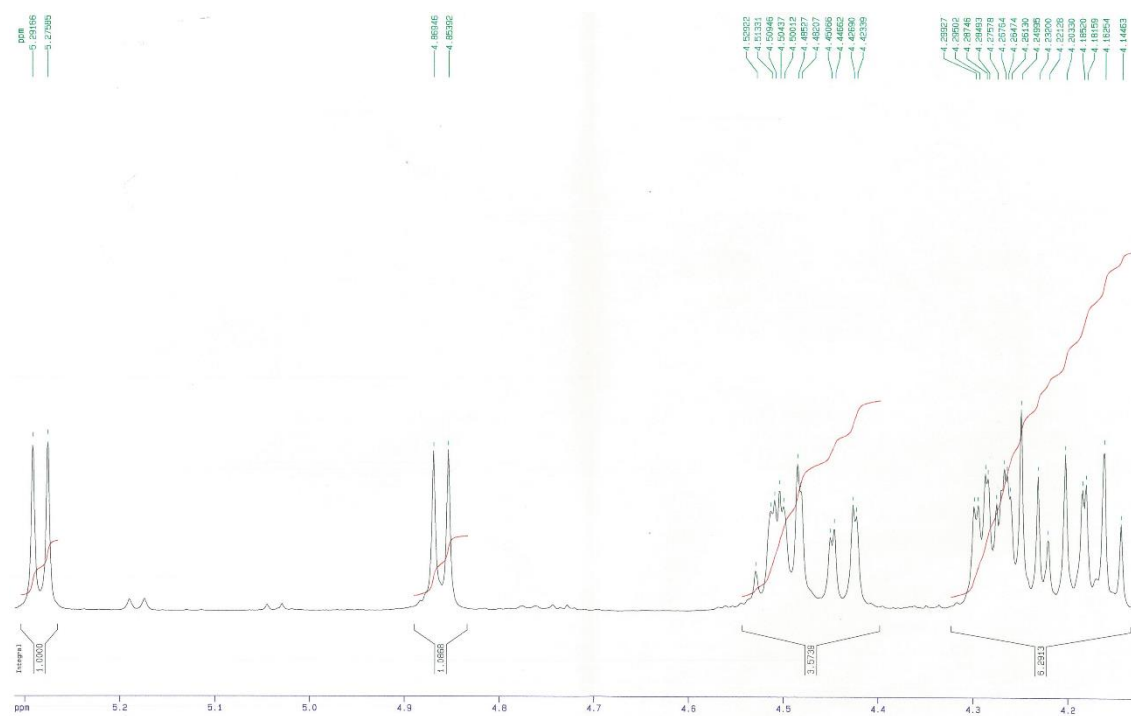
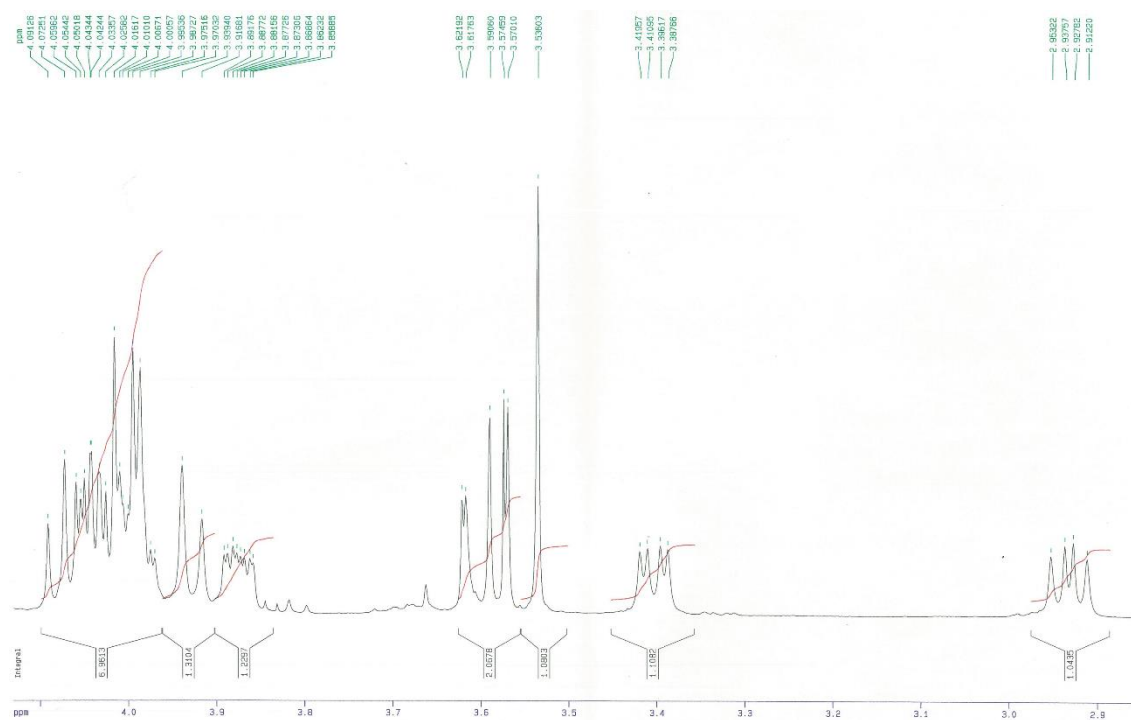
NOESY spectrum of **2** in C₅D₅N



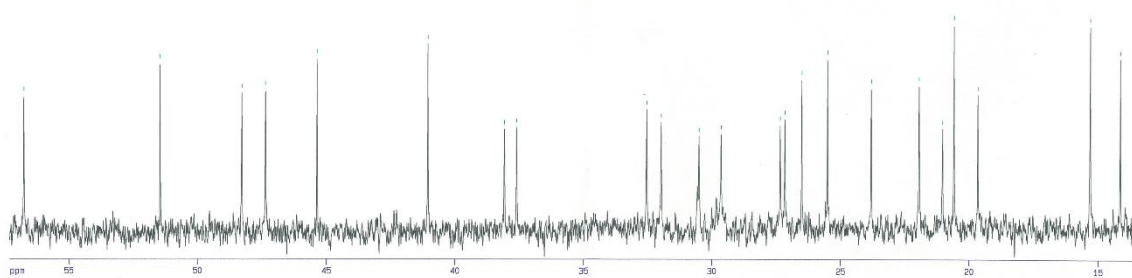
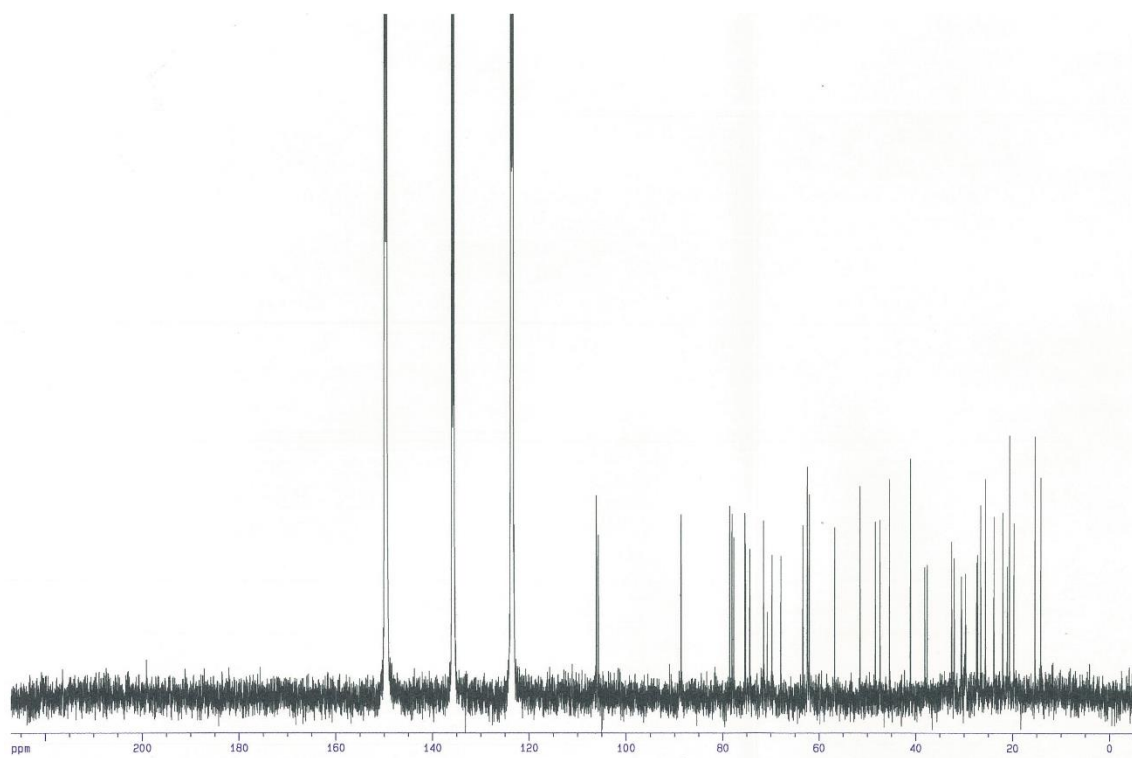
¹H-NMR spectrum of **3** in C₅D₅N

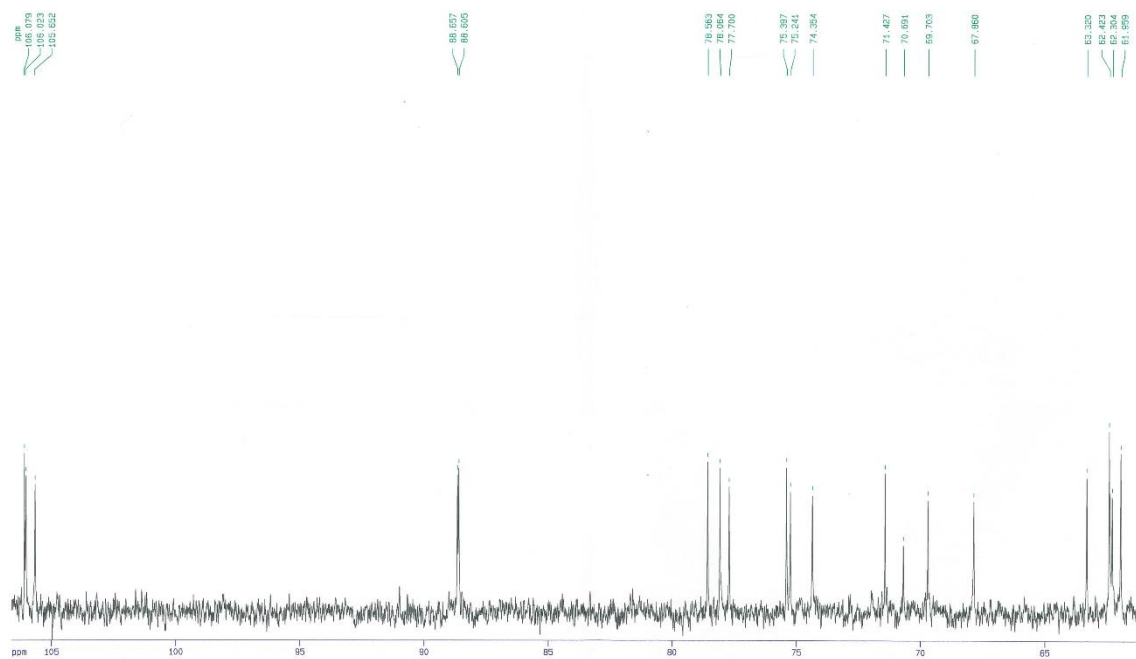




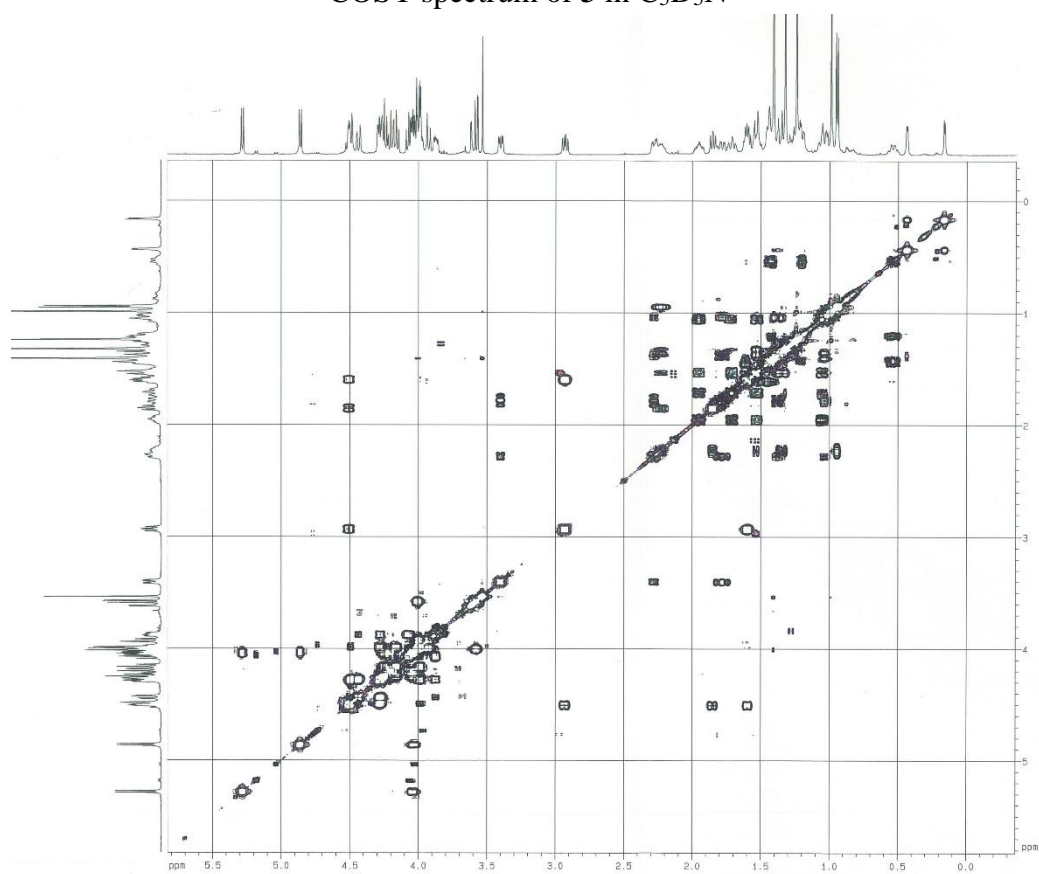


^{13}C -NMR spectrum of **3** in $\text{C}_5\text{D}_5\text{N}$

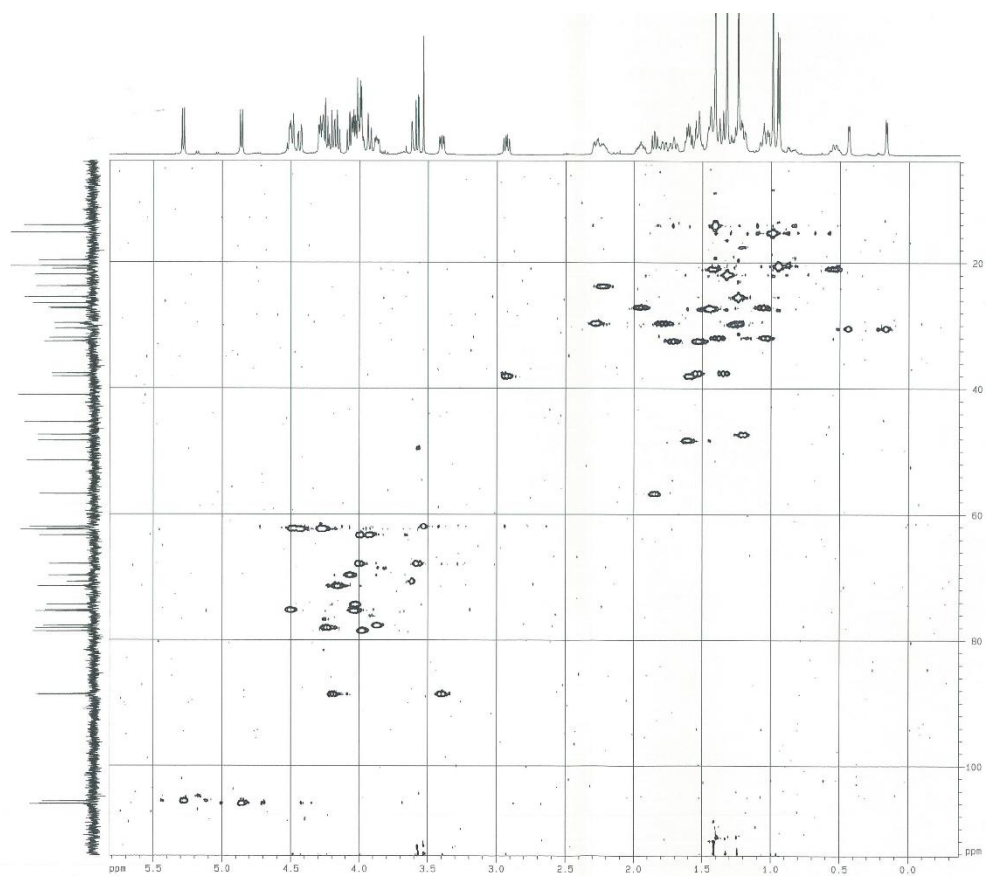




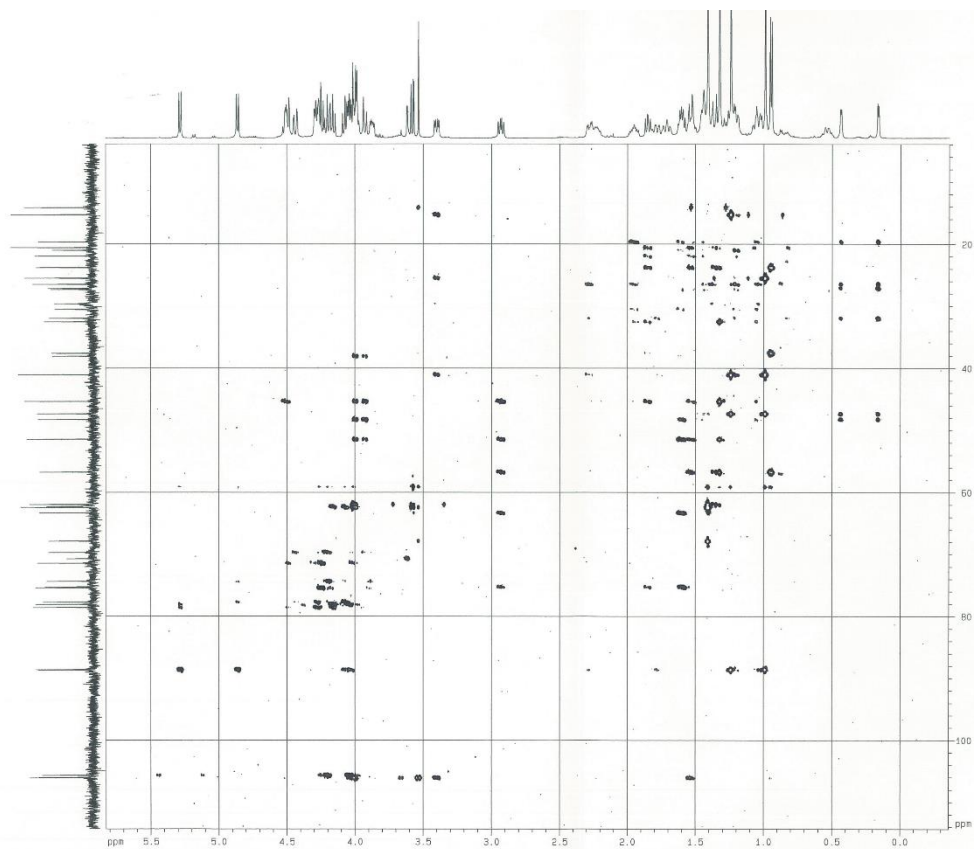
COSY spectrum of **3** in C₅D₅N



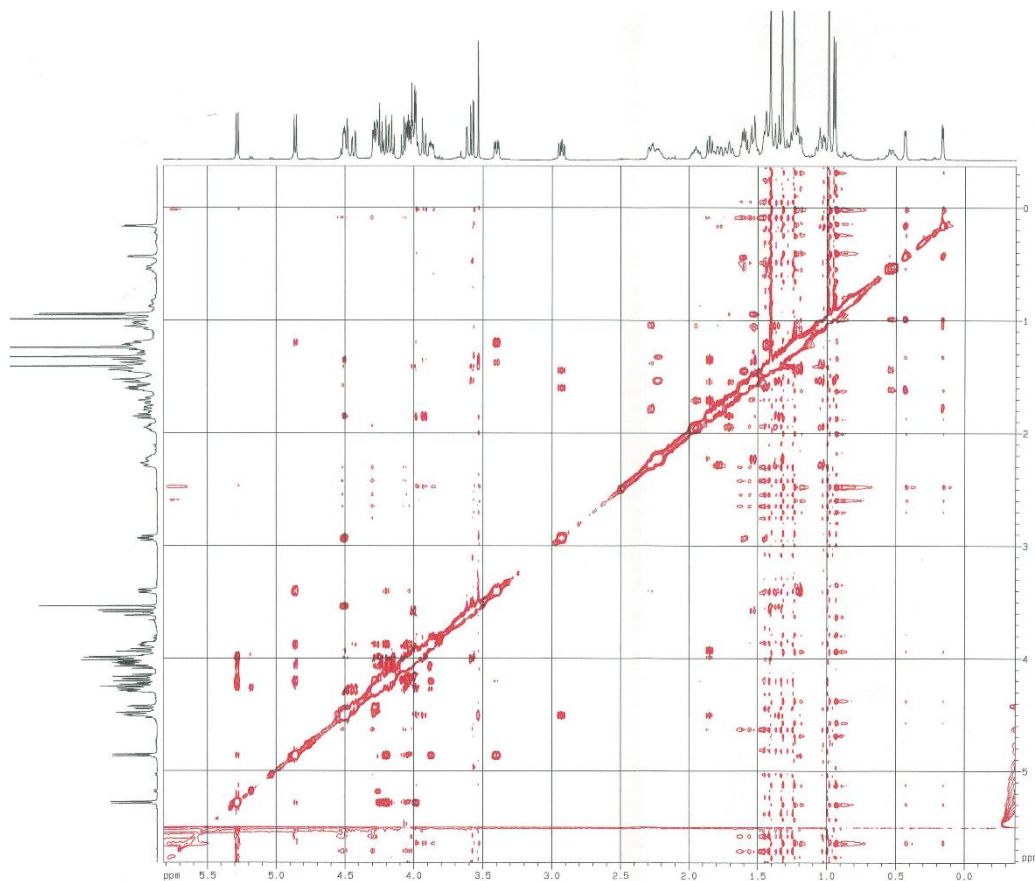
HMQC spectrum of **3** in C₅D₅N



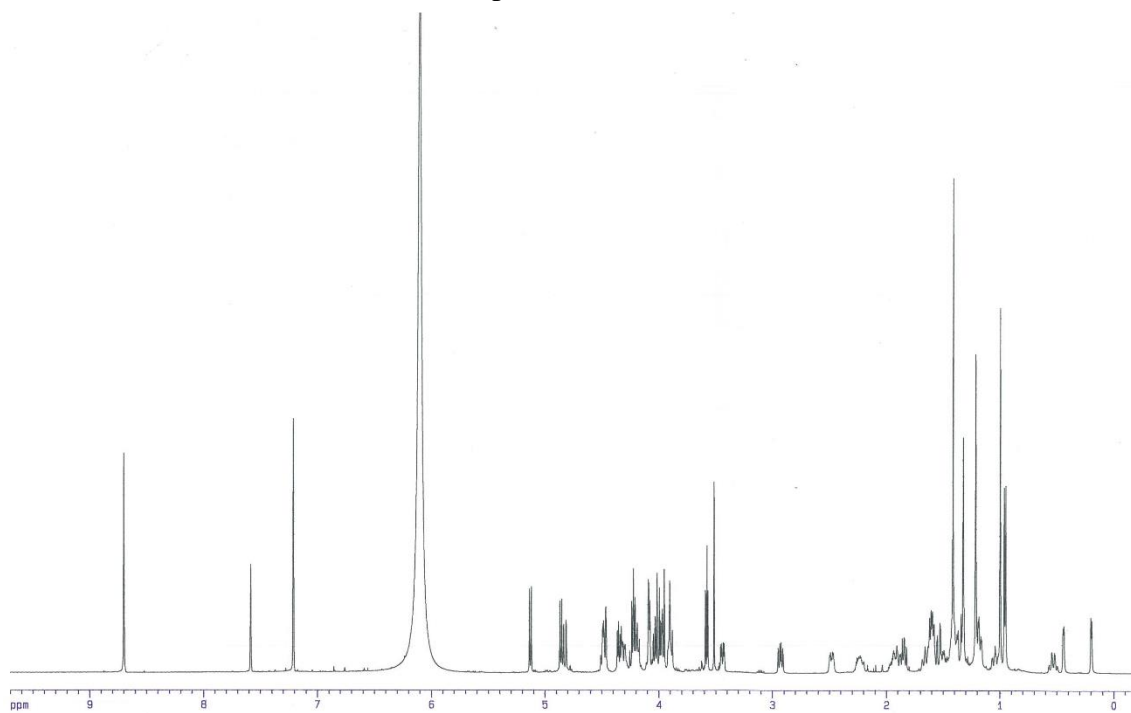
HMBC spectrum of **3** in C₅D₅N

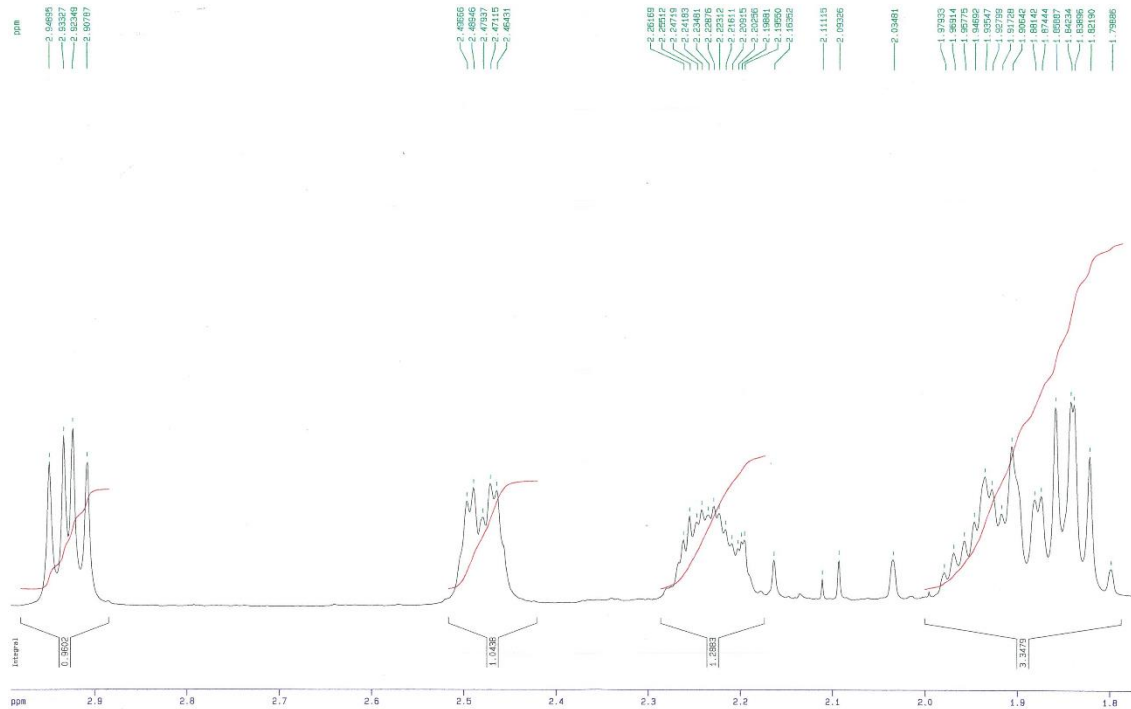
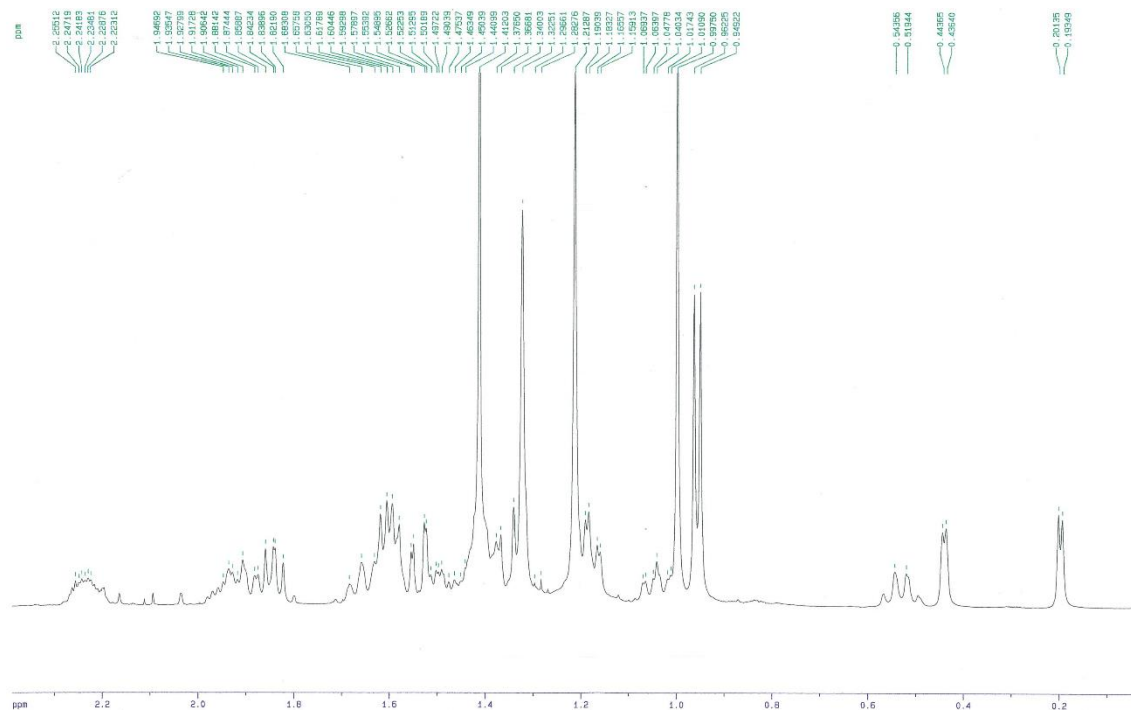


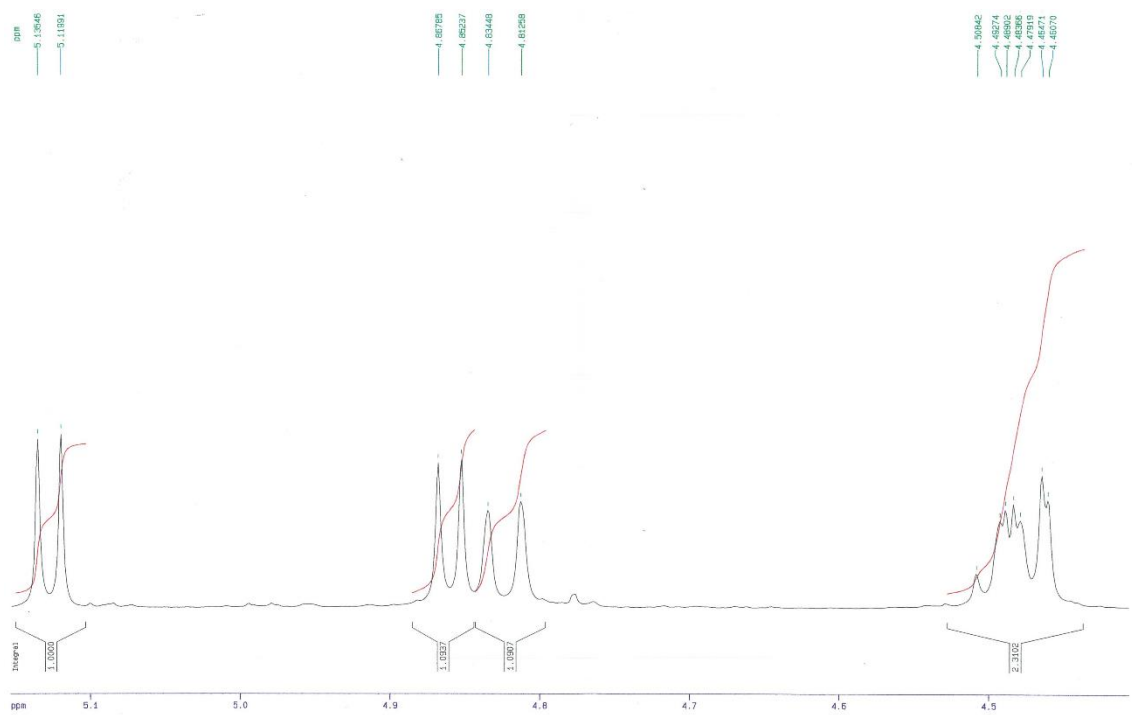
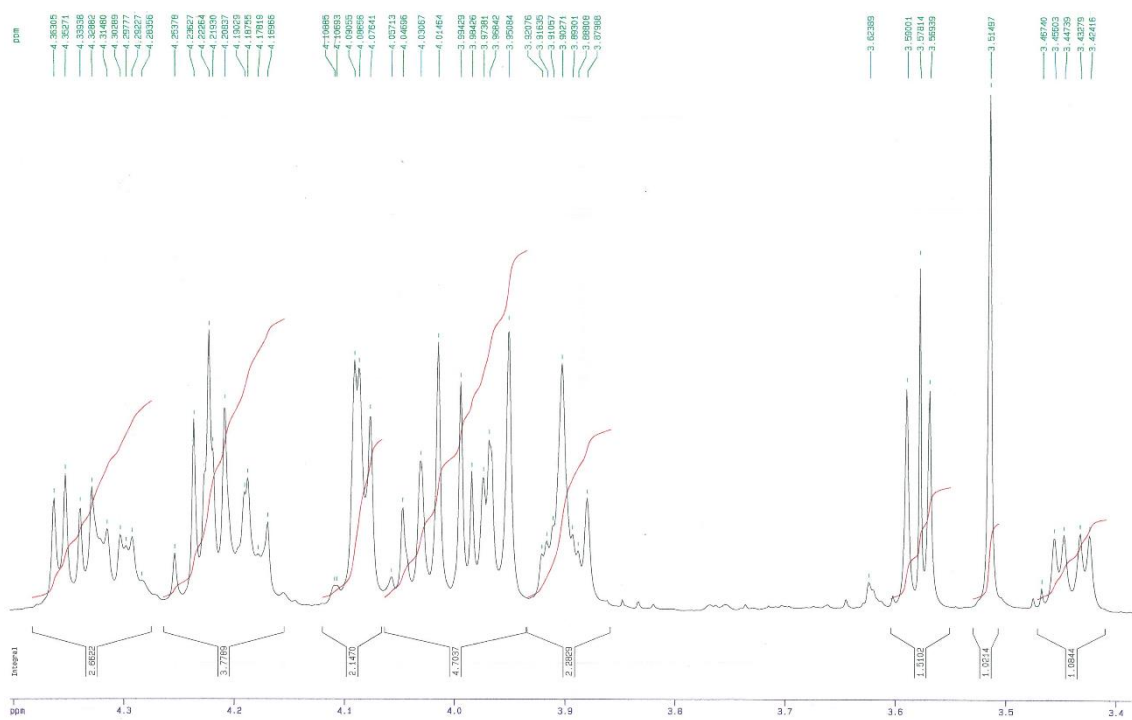
NOESY spectrum of **3** in C₅D₅N



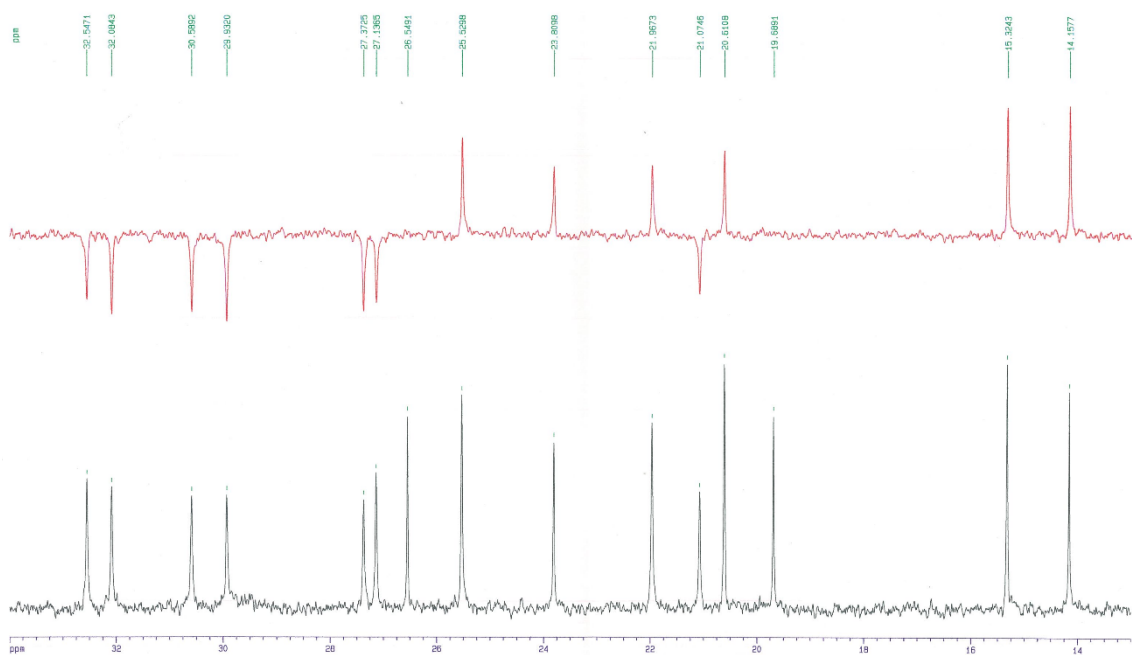
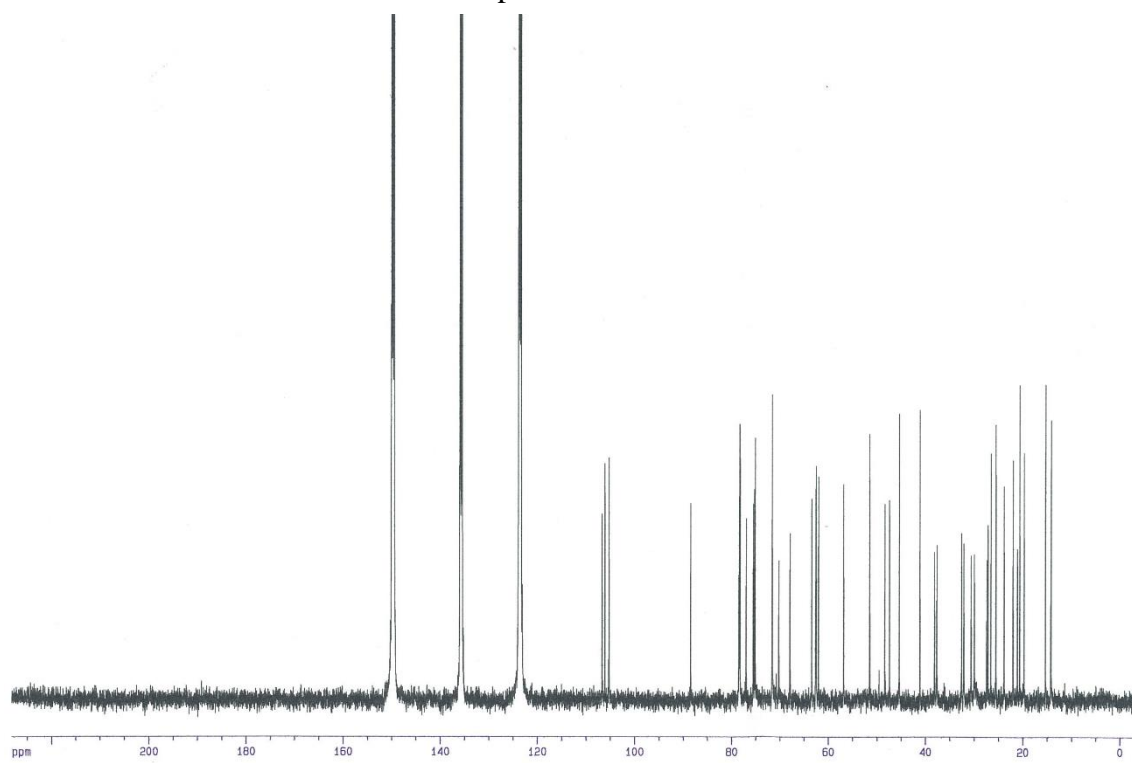
¹H-NMR spectrum of **4** in C₅D₅N

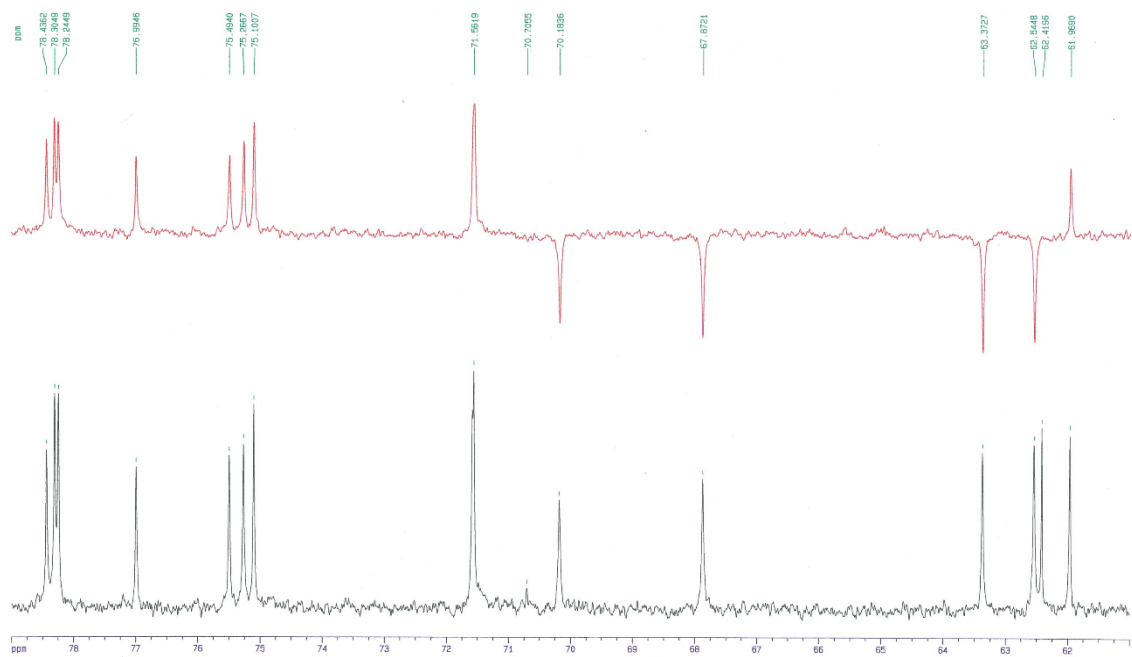
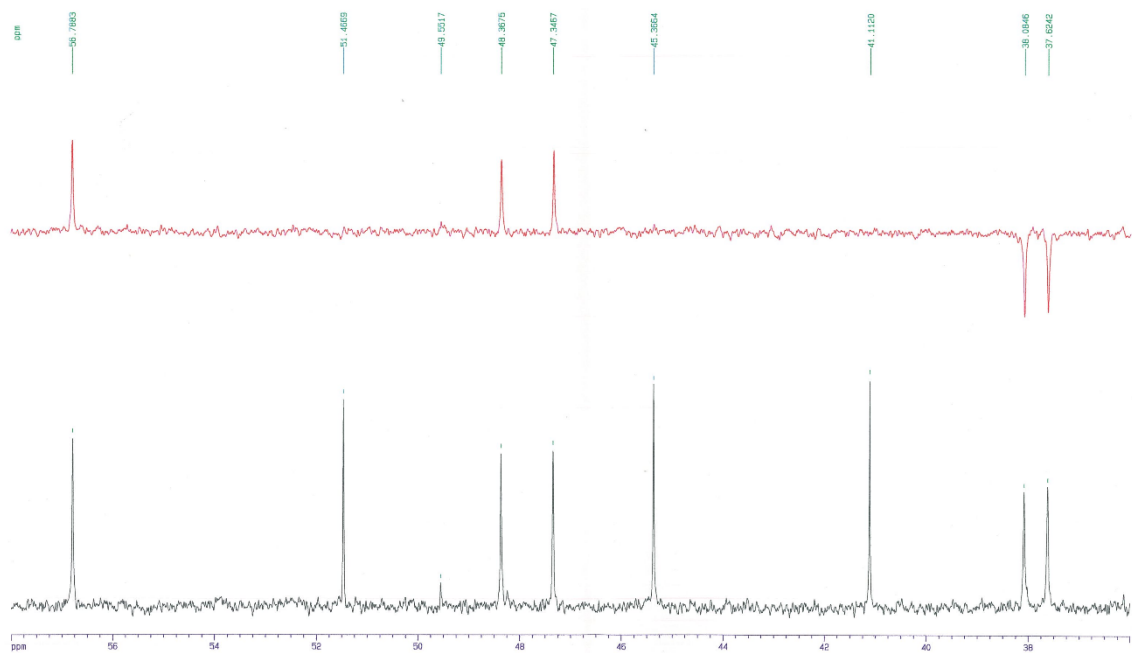


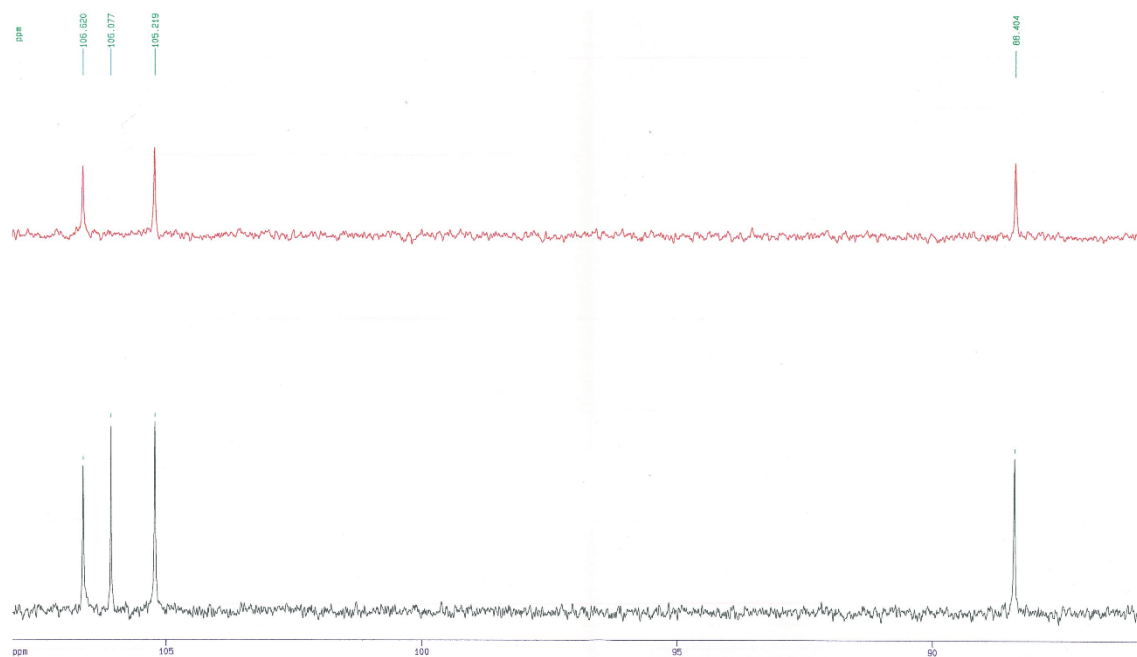




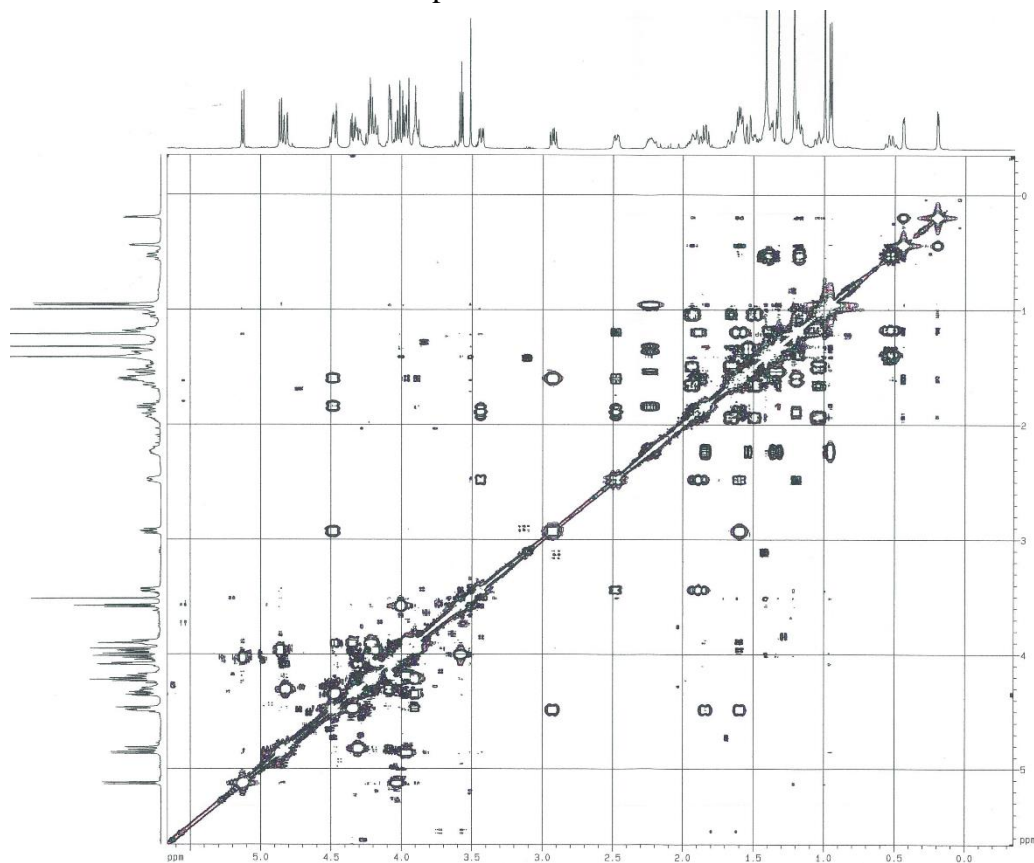
^{13}C -NMR spectrum of **4** in $\text{C}_5\text{D}_5\text{N}$



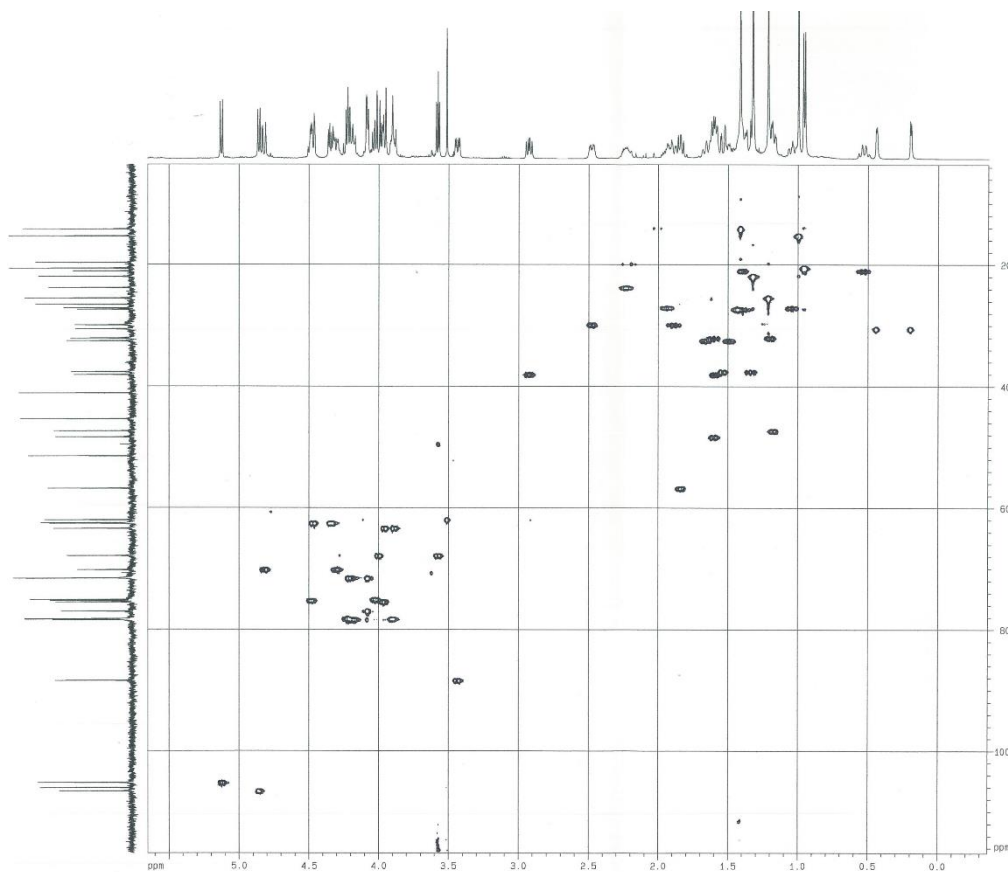




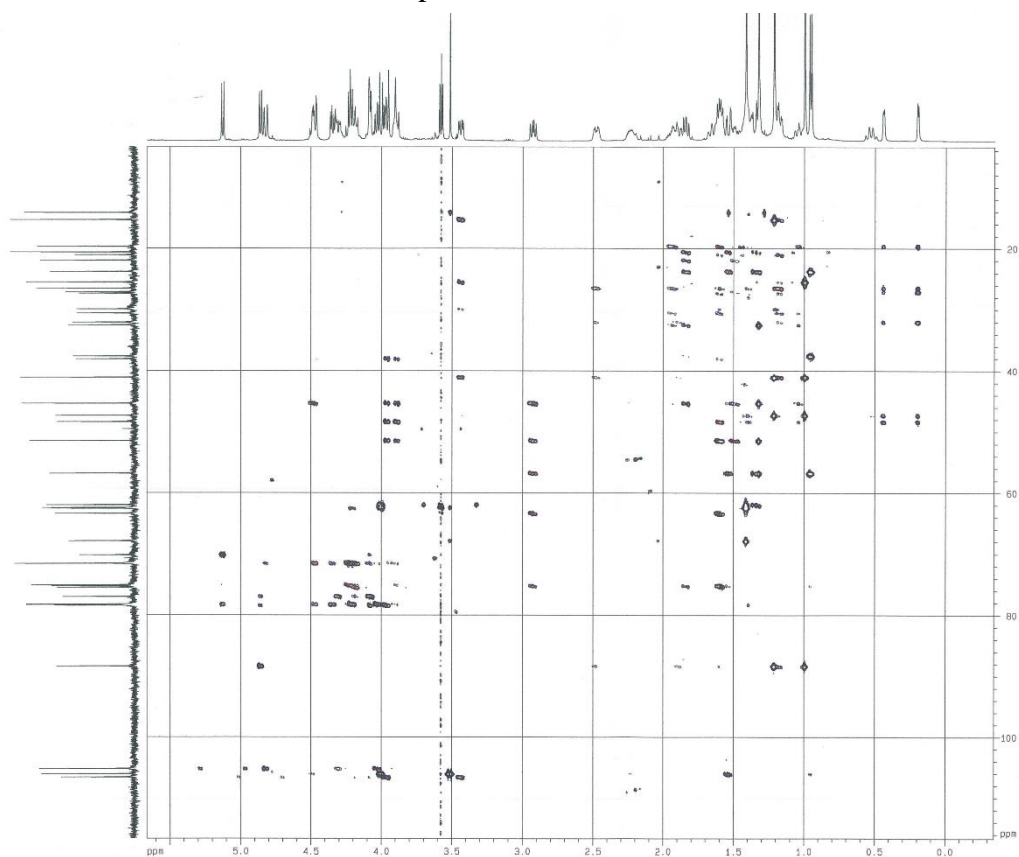
COSY spectrum of **4** in C₅D₅N



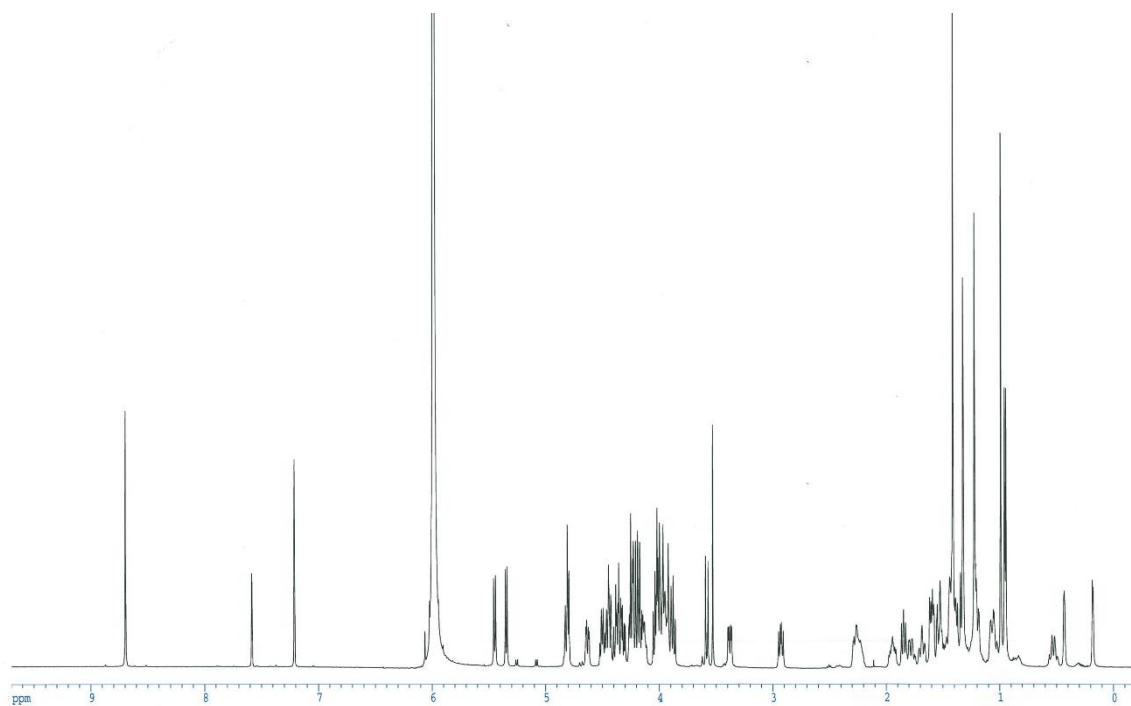
HMQC spectrum of **4** in C₅D₅N

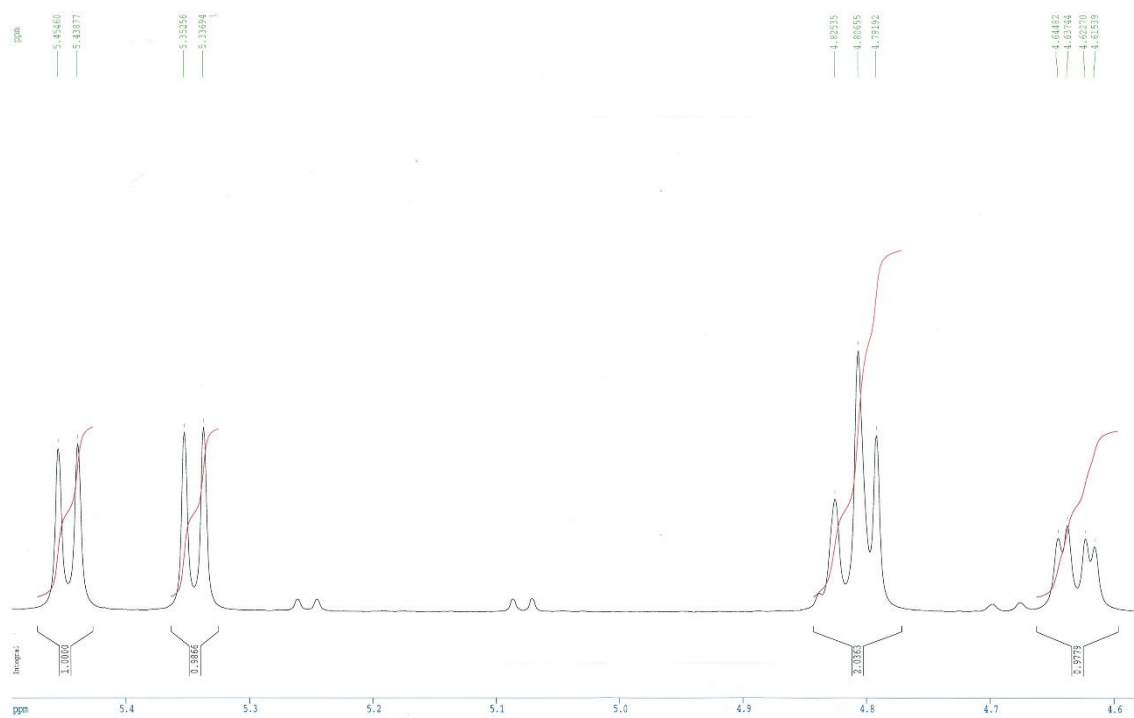


HMBC spectrum of **4** in C₅D₅N

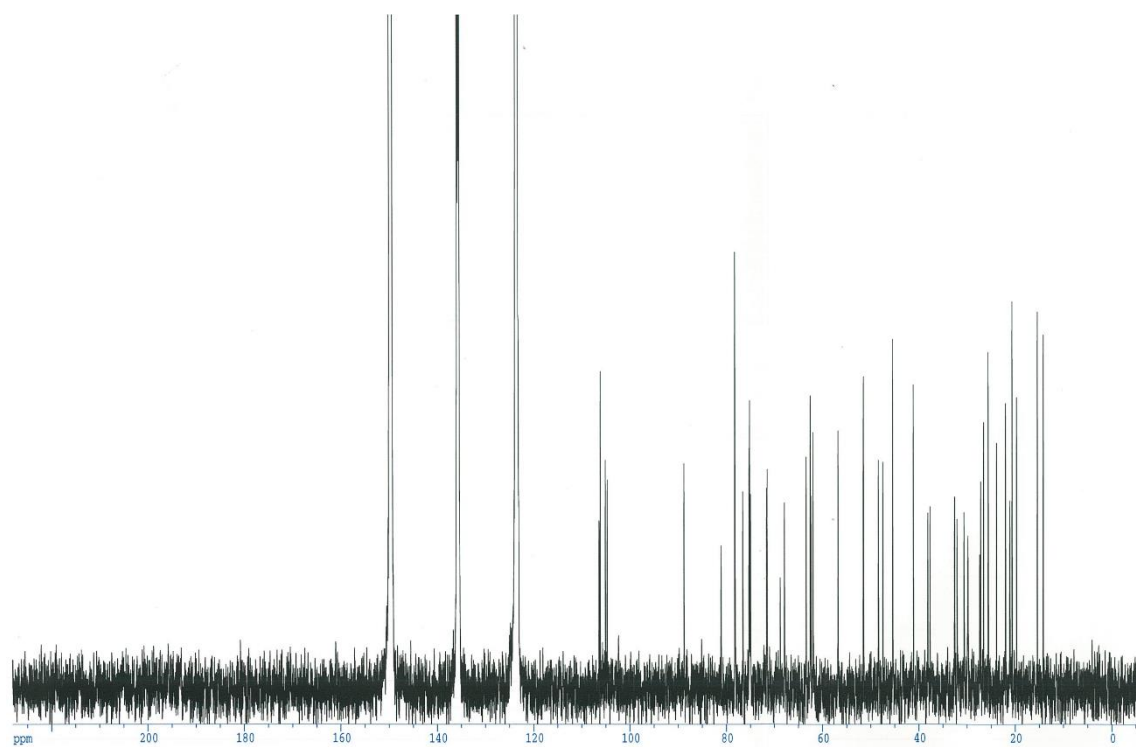


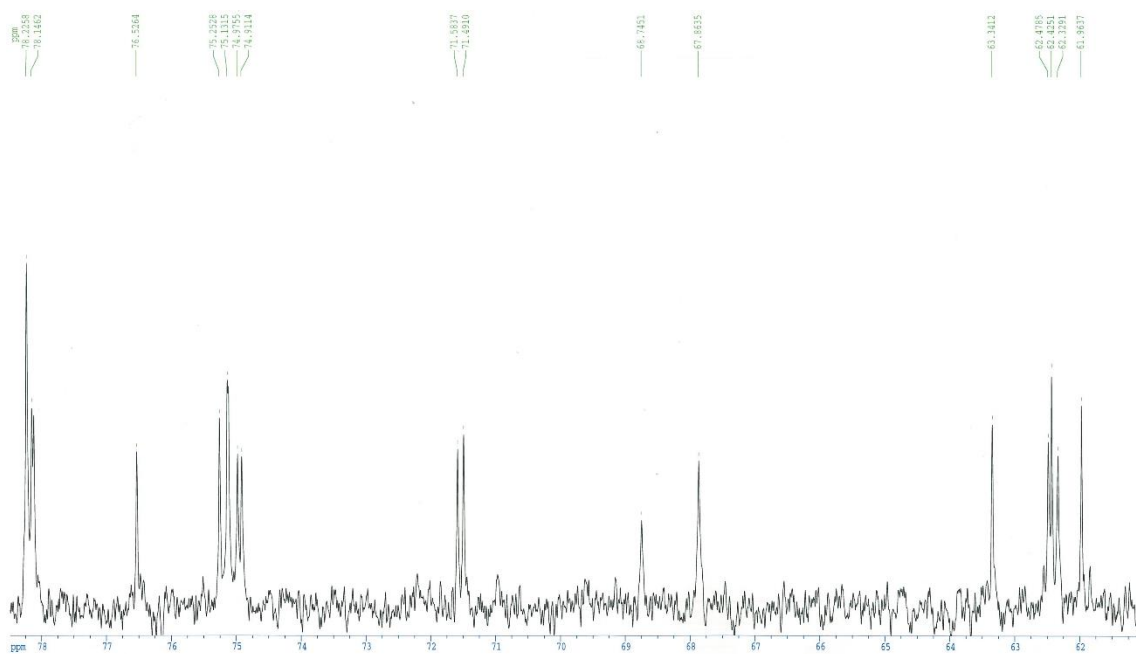
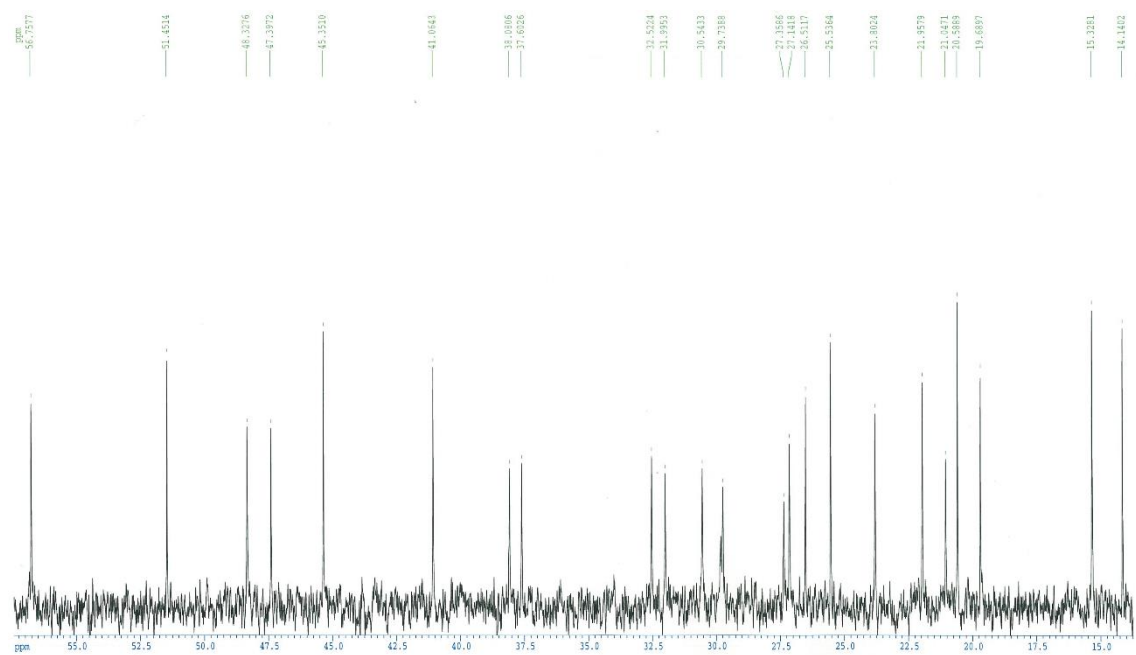
¹H-NMR spectrum of **5** in C₅D₅N

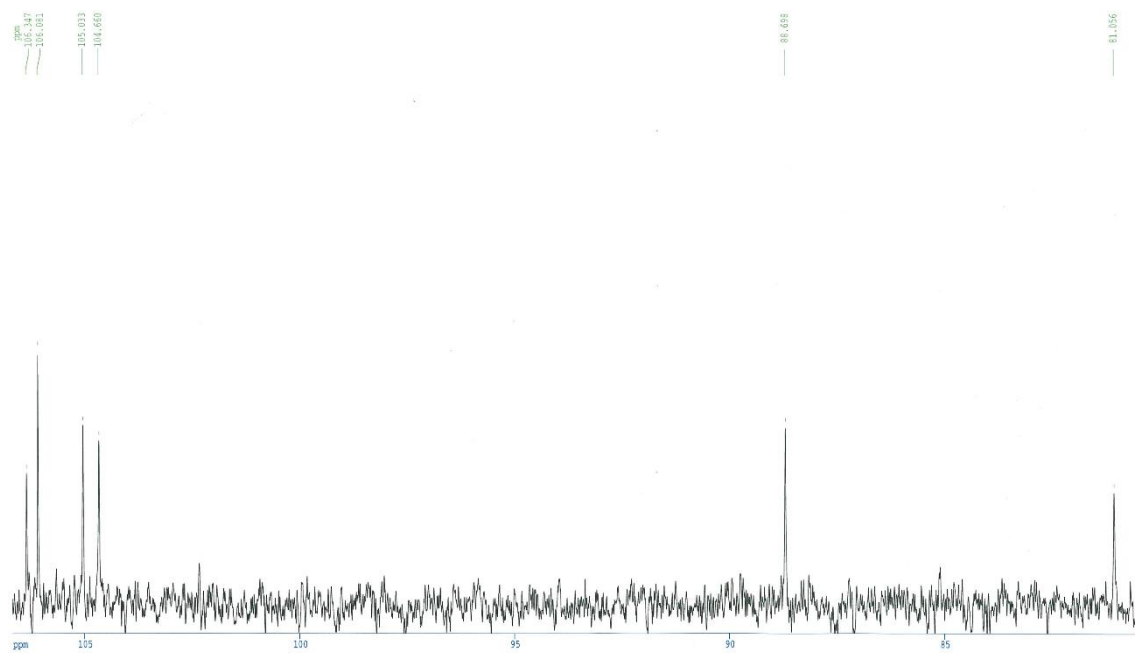




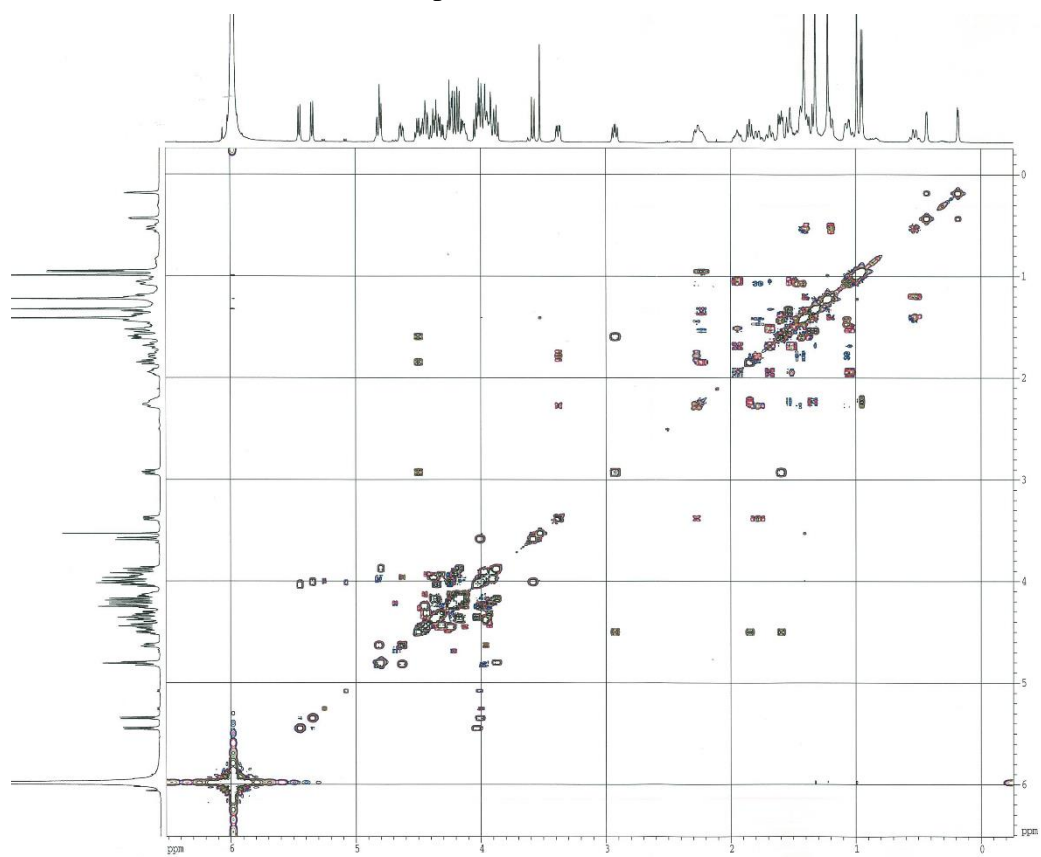
¹³C-NMR spectrum of **5** in C₅D₅N



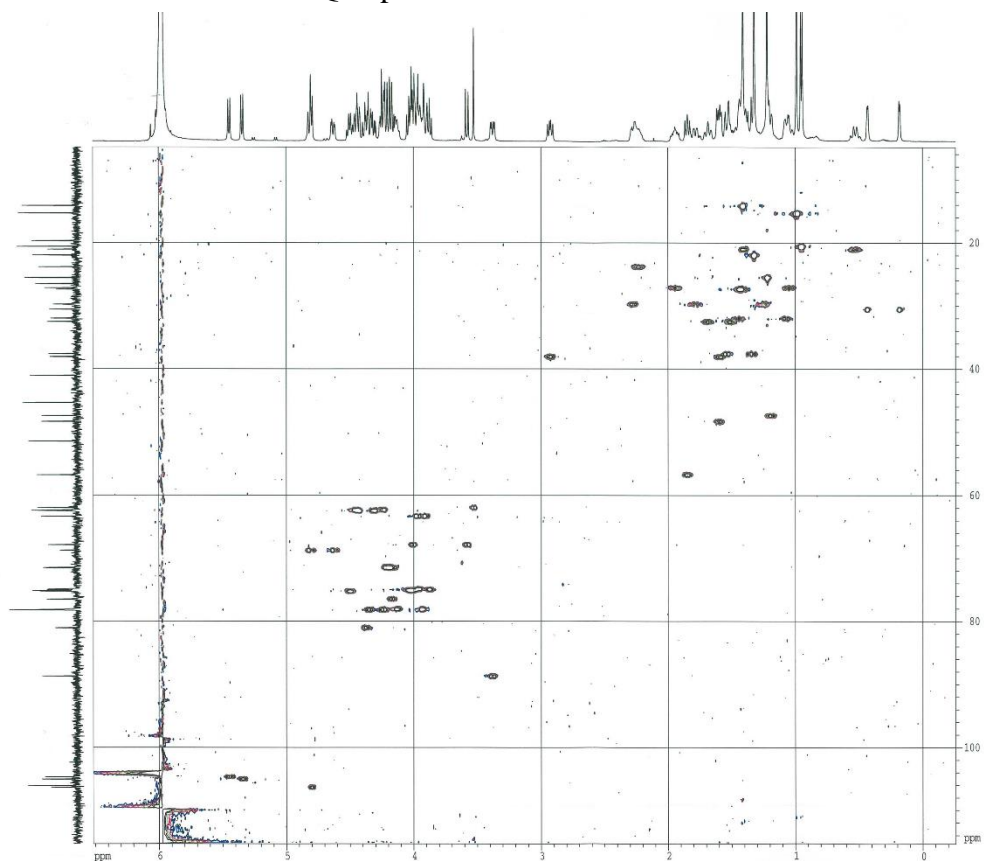




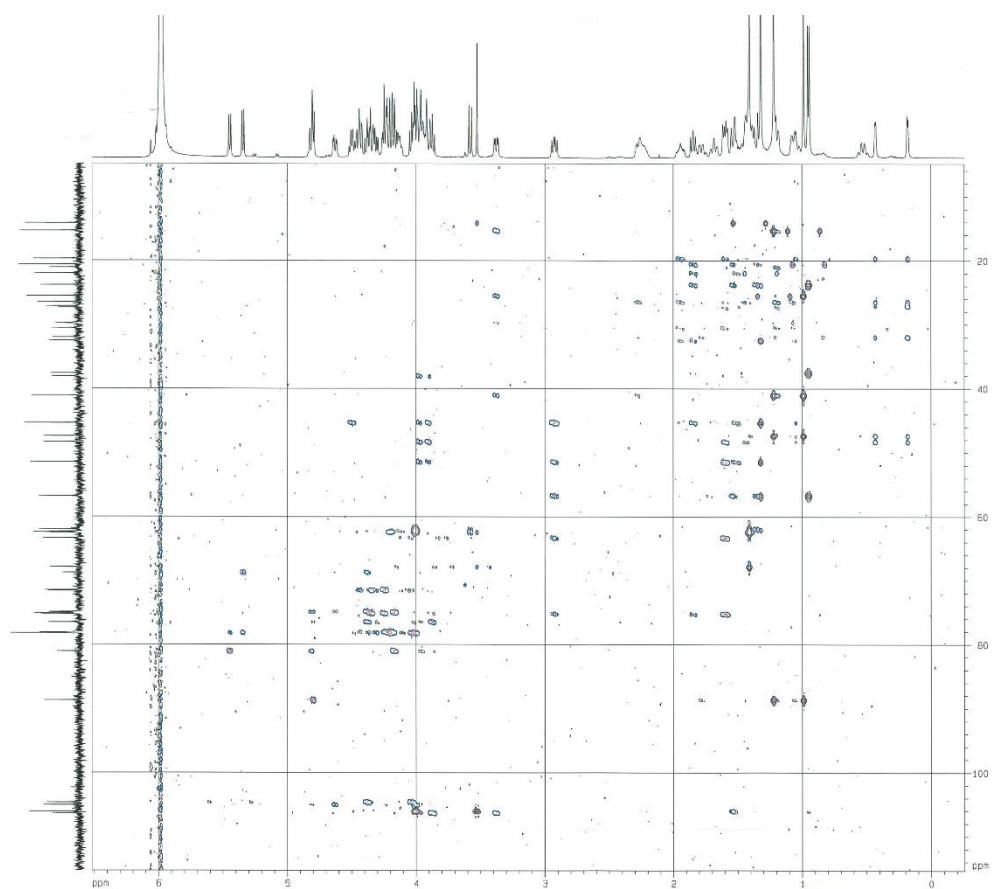
COSY spectrum of **5** in $\text{C}_5\text{D}_5\text{N}$



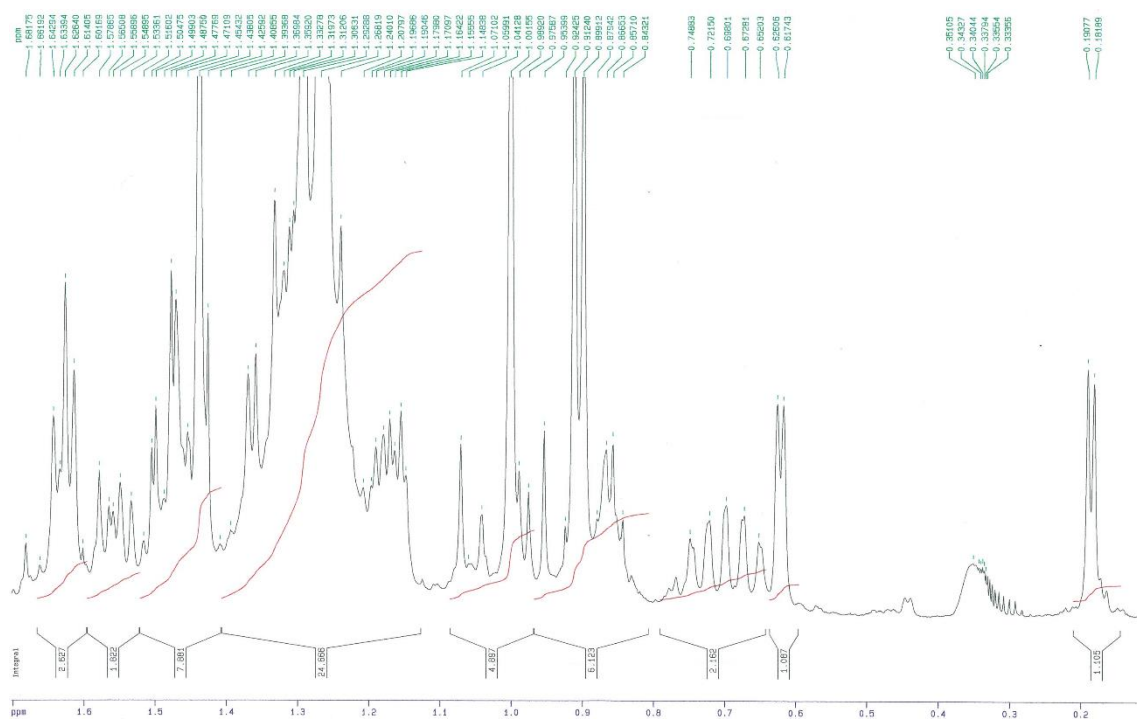
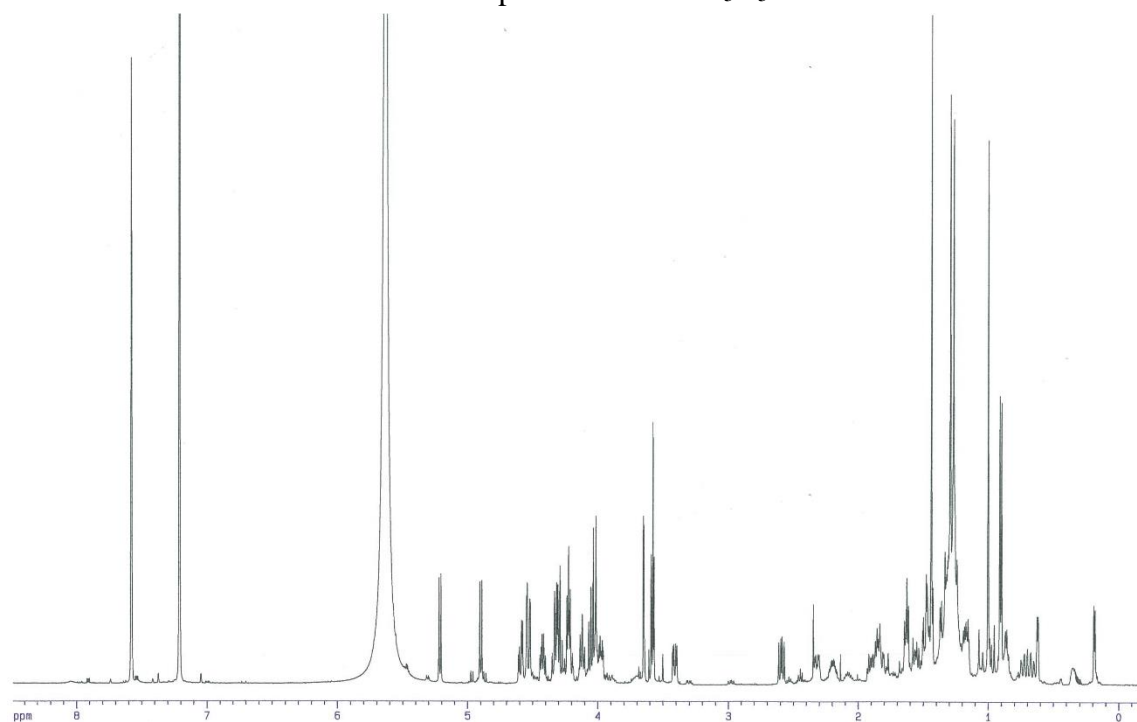
HMQC spectrum of **5** in C₅D₅N

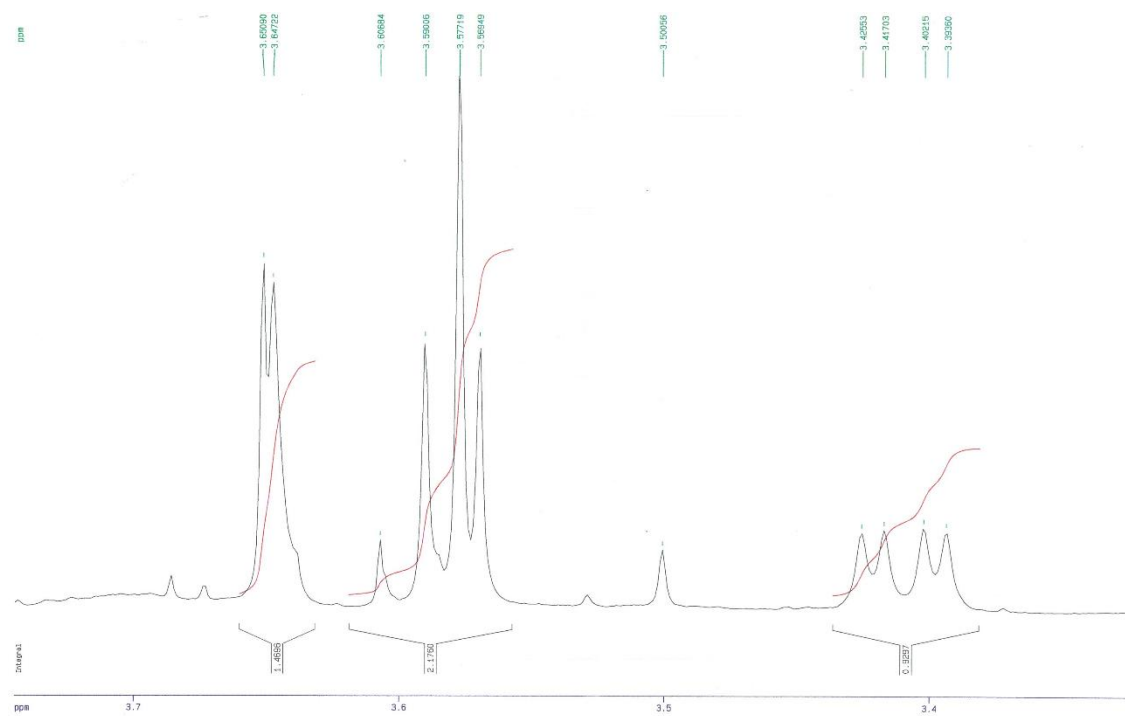
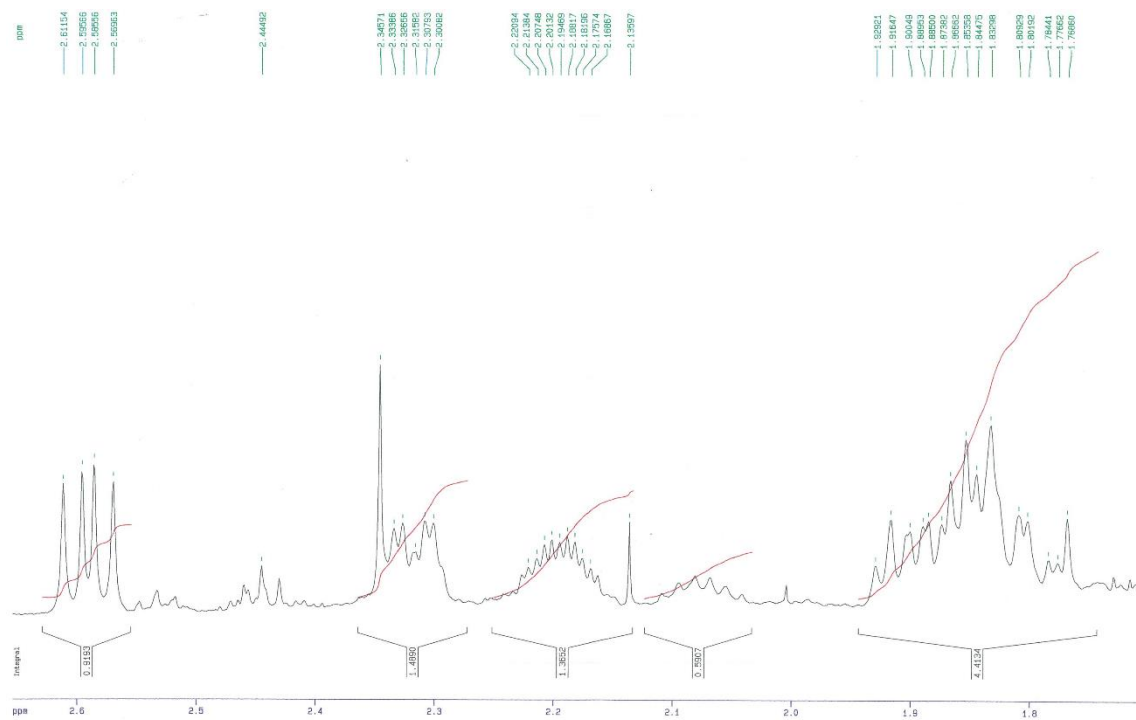


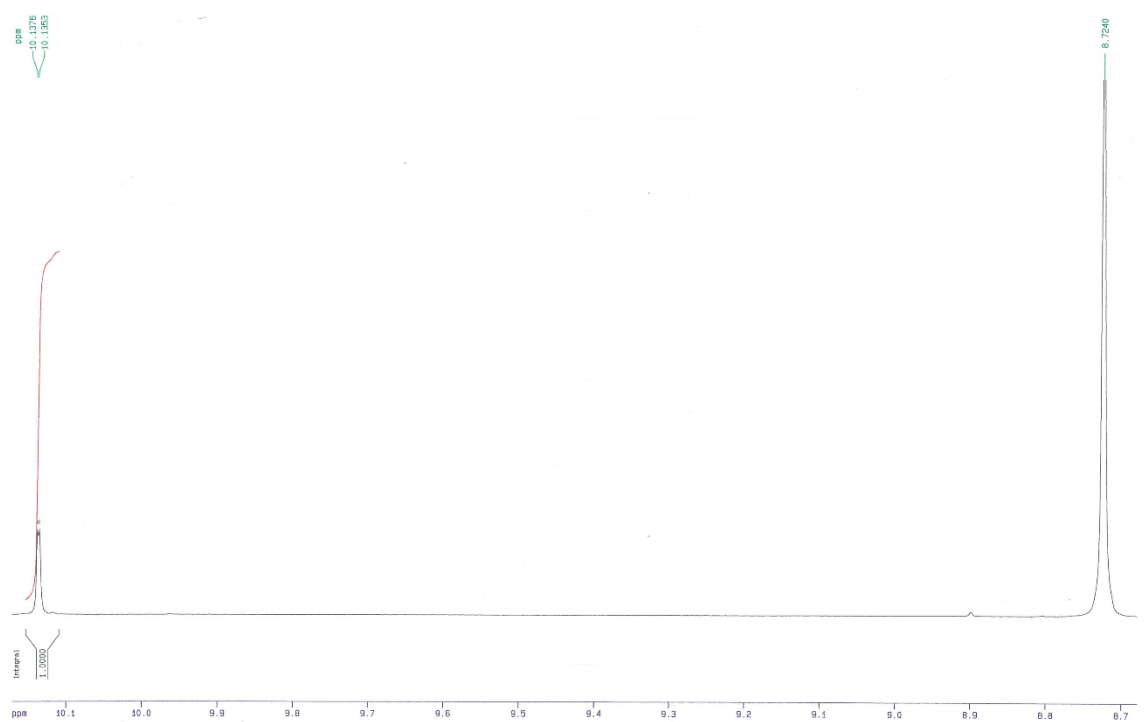
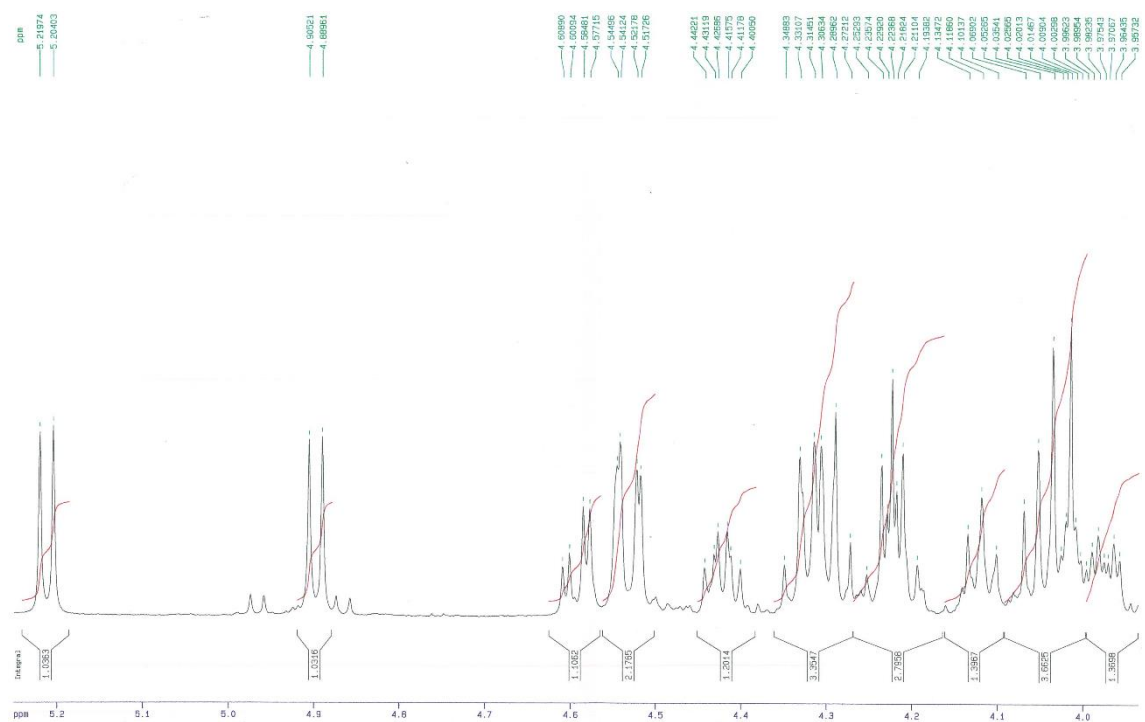
HMBC spectrum of **5** in C₅D₅N



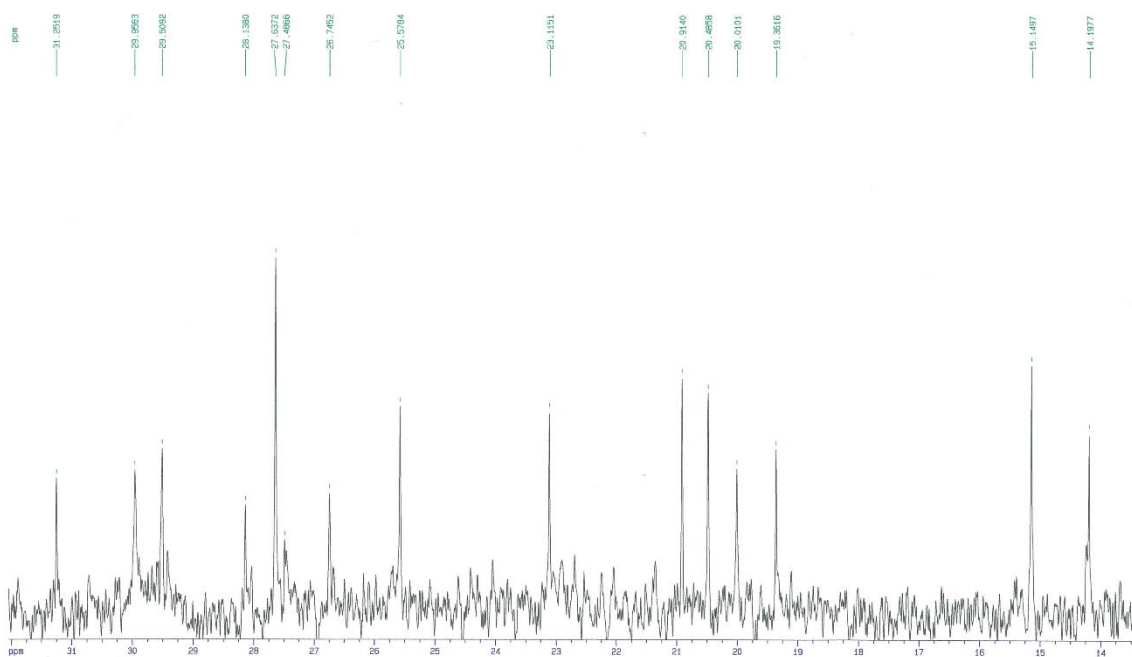
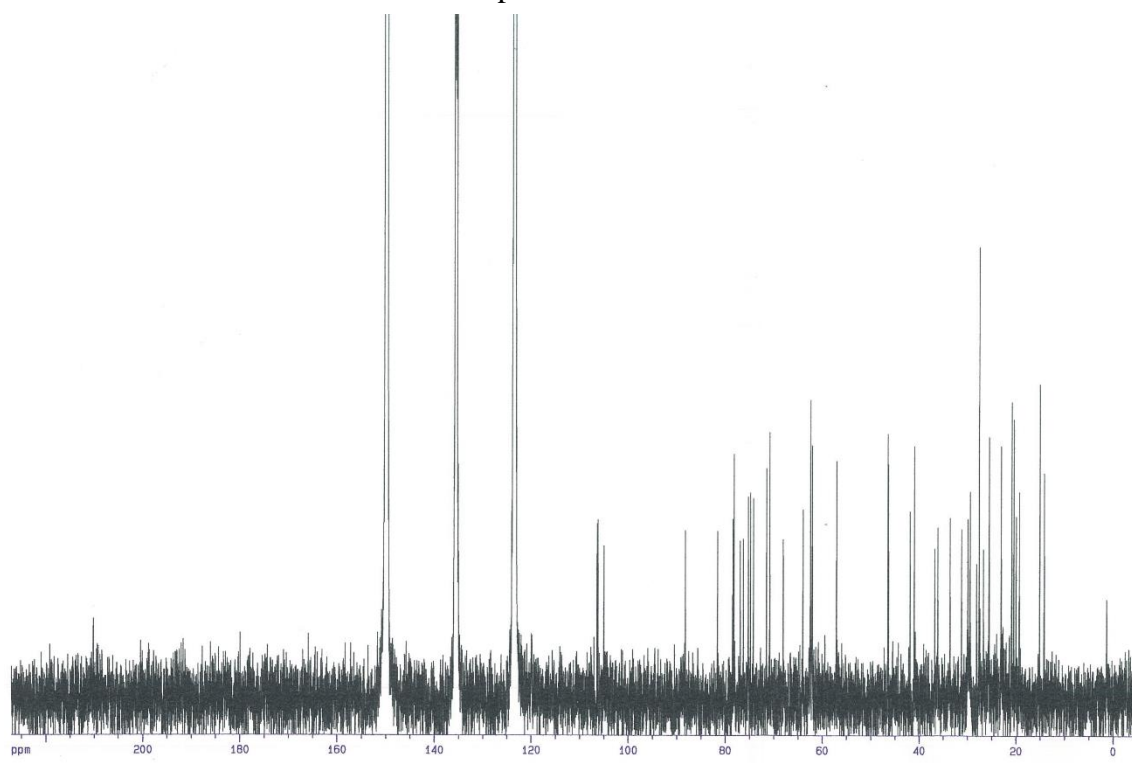
^1H -NMR spectrum of **6** in $\text{C}_5\text{D}_5\text{N}$

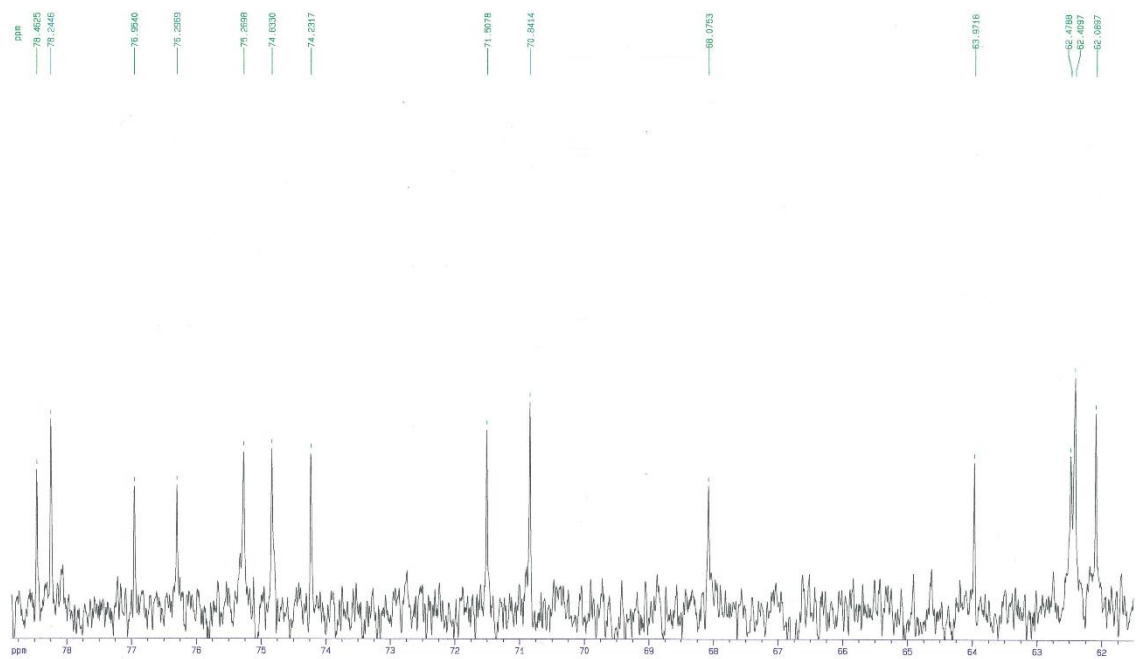
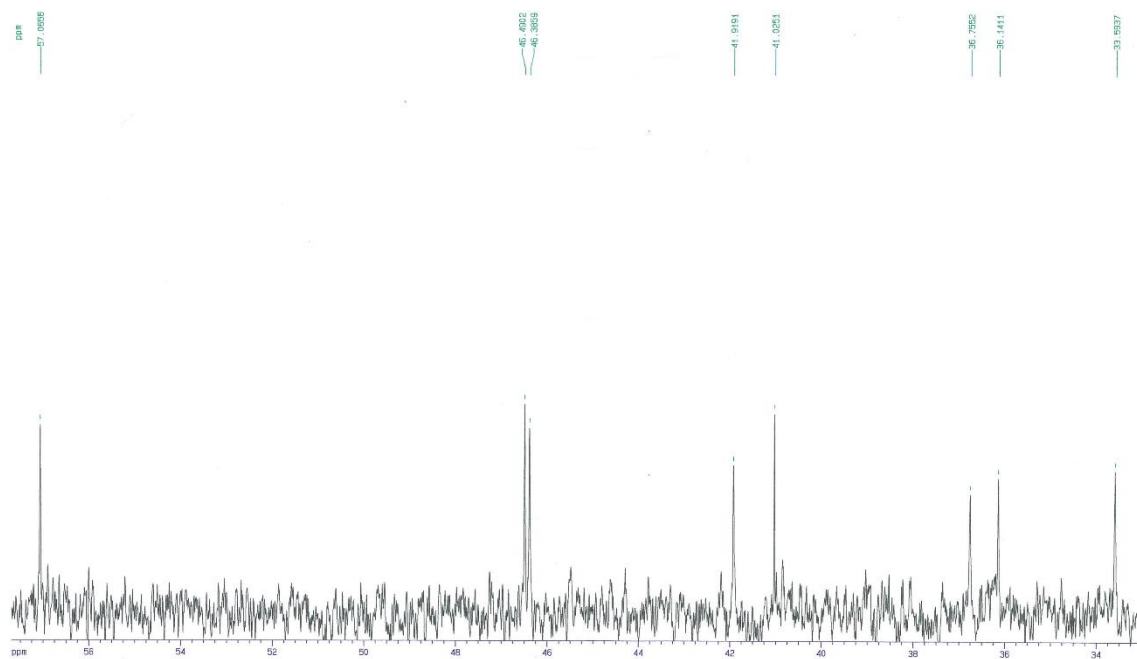


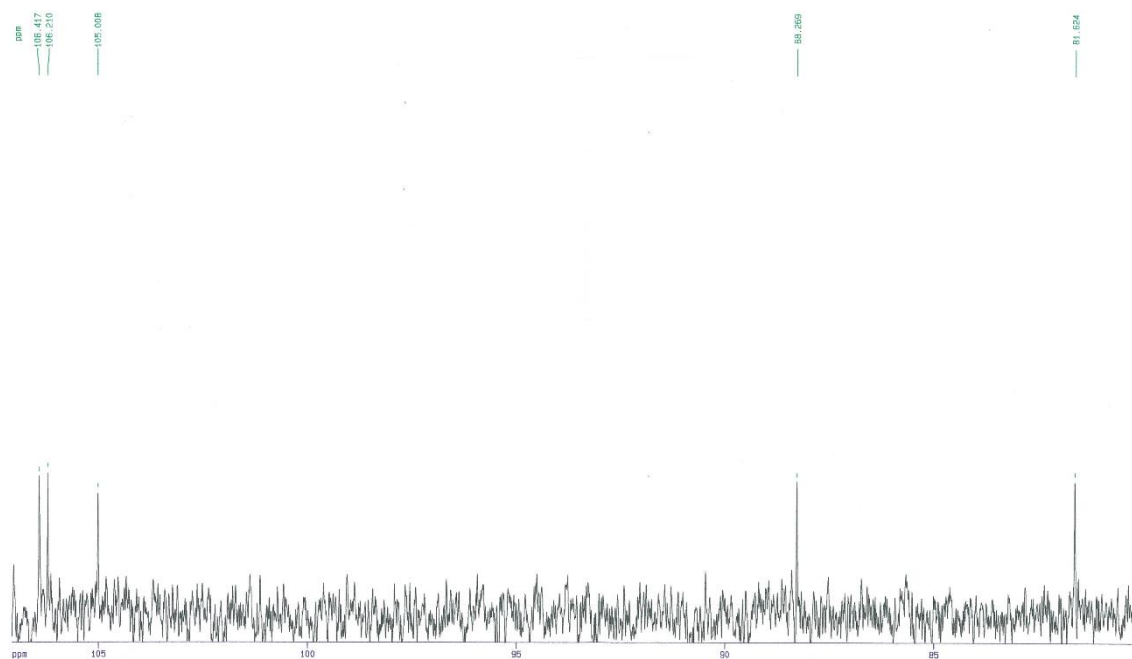




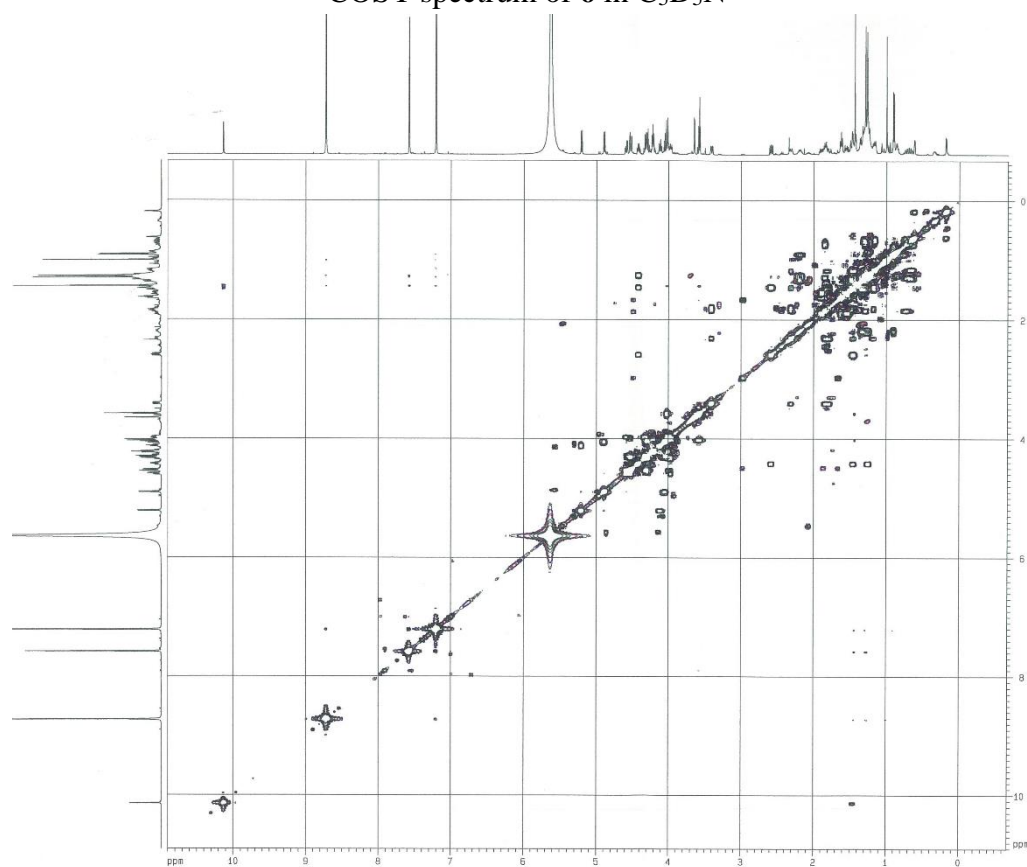
^{13}C -NMR spectrum of **6** in $\text{C}_5\text{D}_5\text{N}$



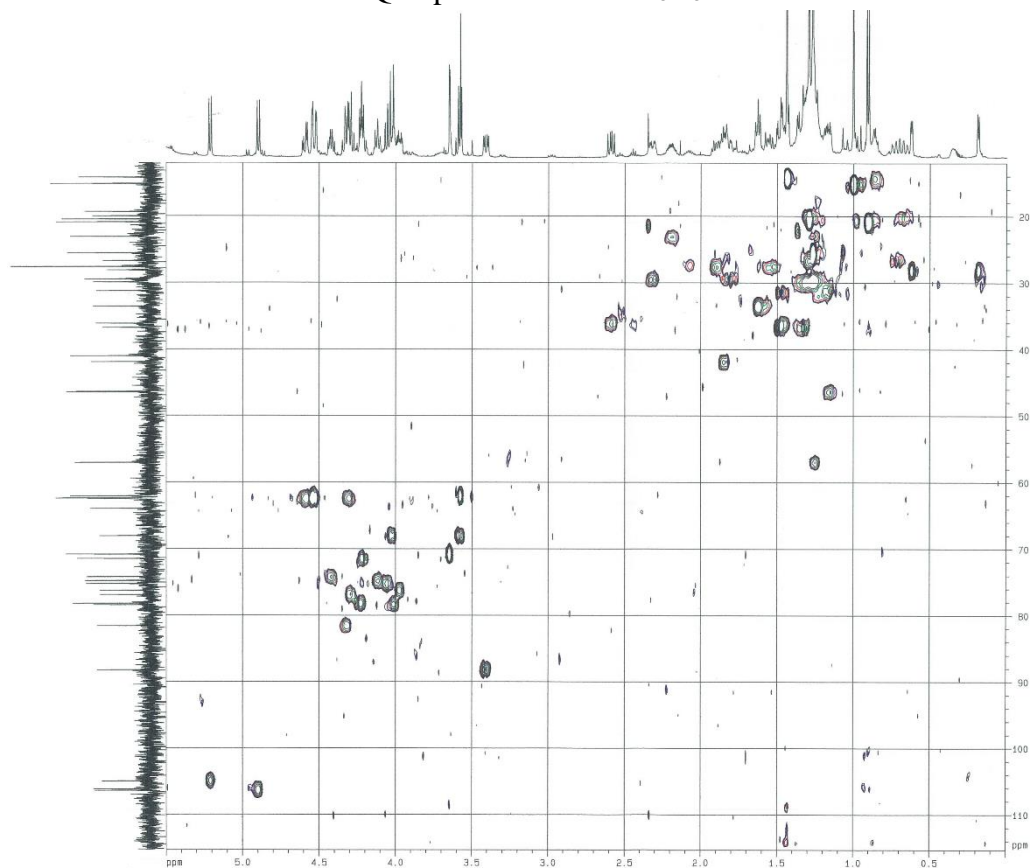




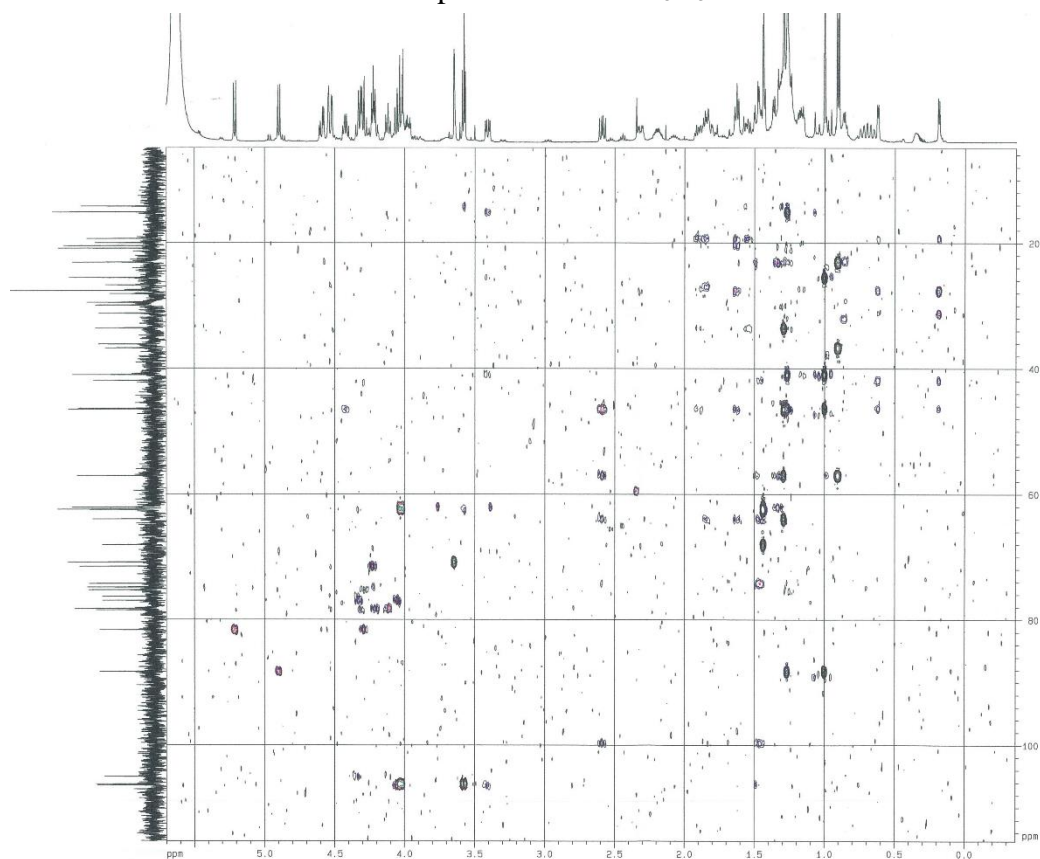
COSY spectrum of **6** in $\text{C}_5\text{D}_5\text{N}$



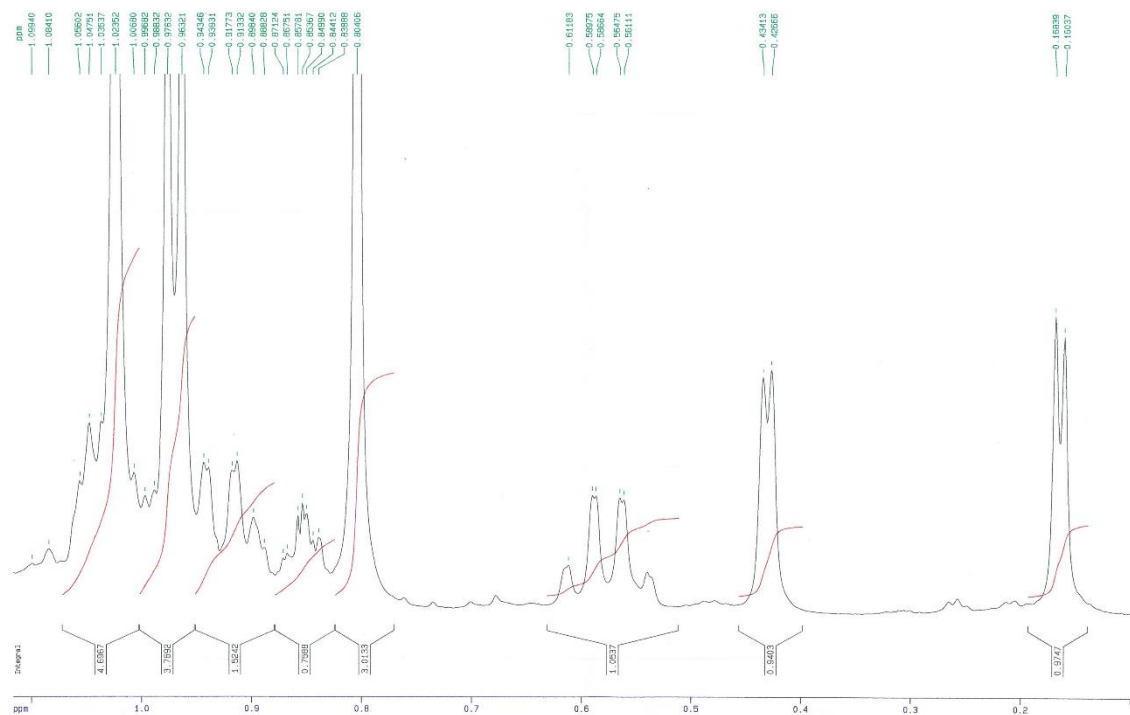
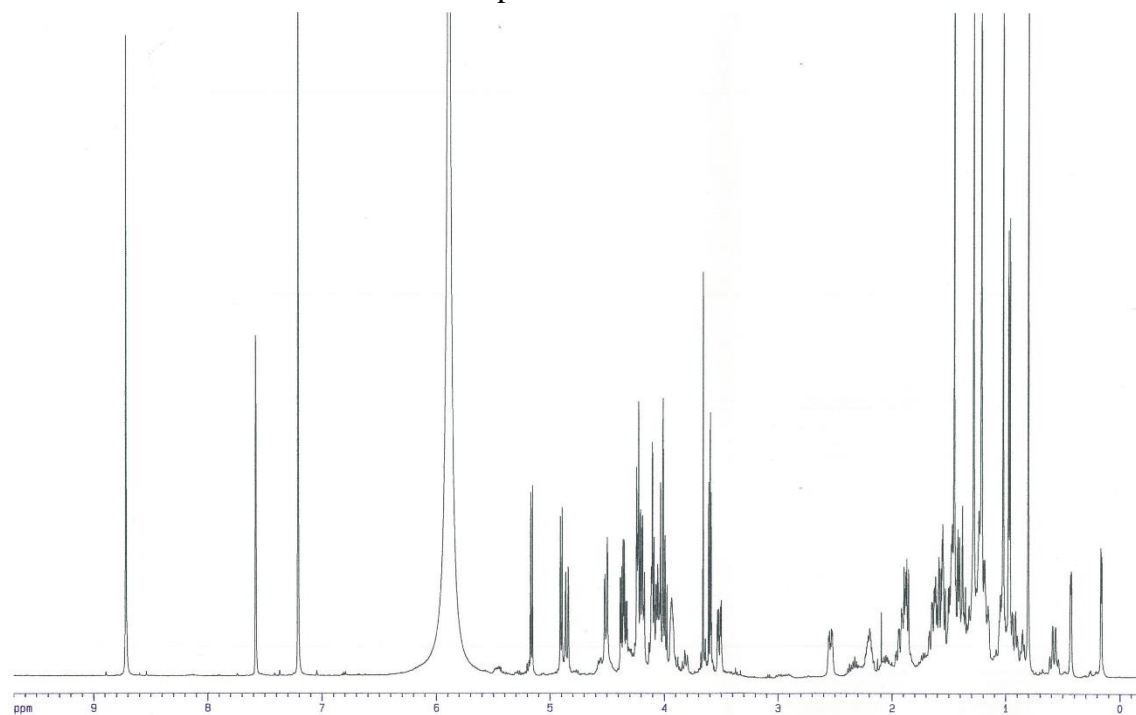
HMQC spectrum of **6** in C₅D₅N

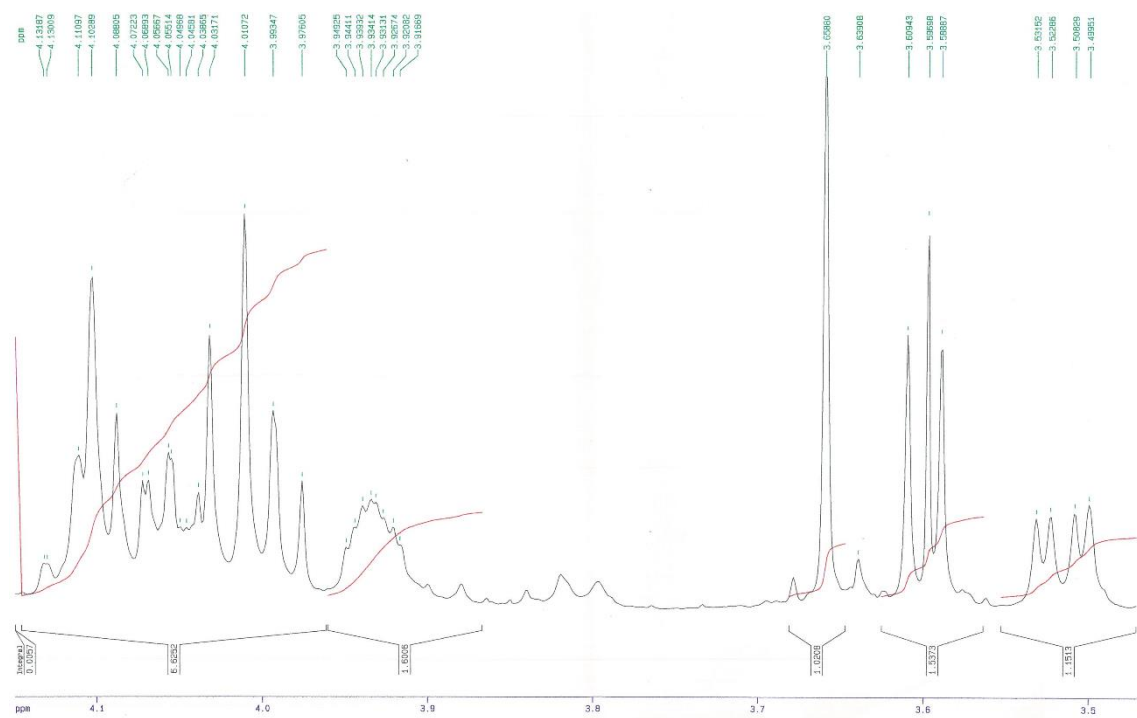
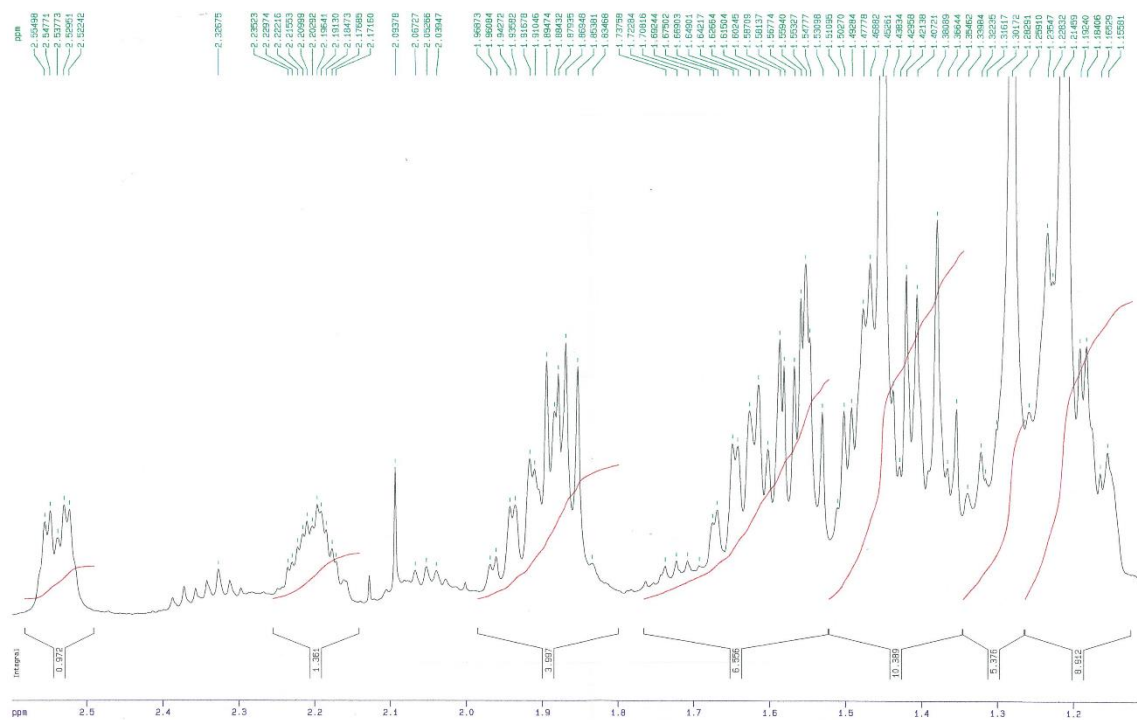


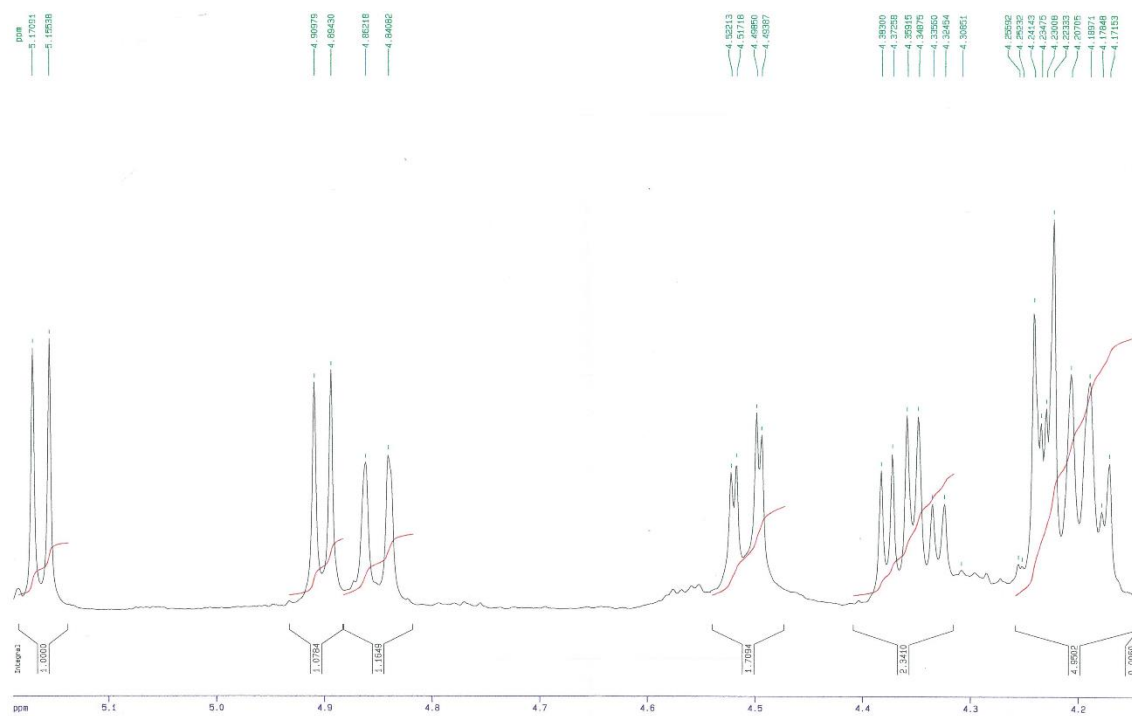
HMBC spectrum of **6** in C₅D₅N



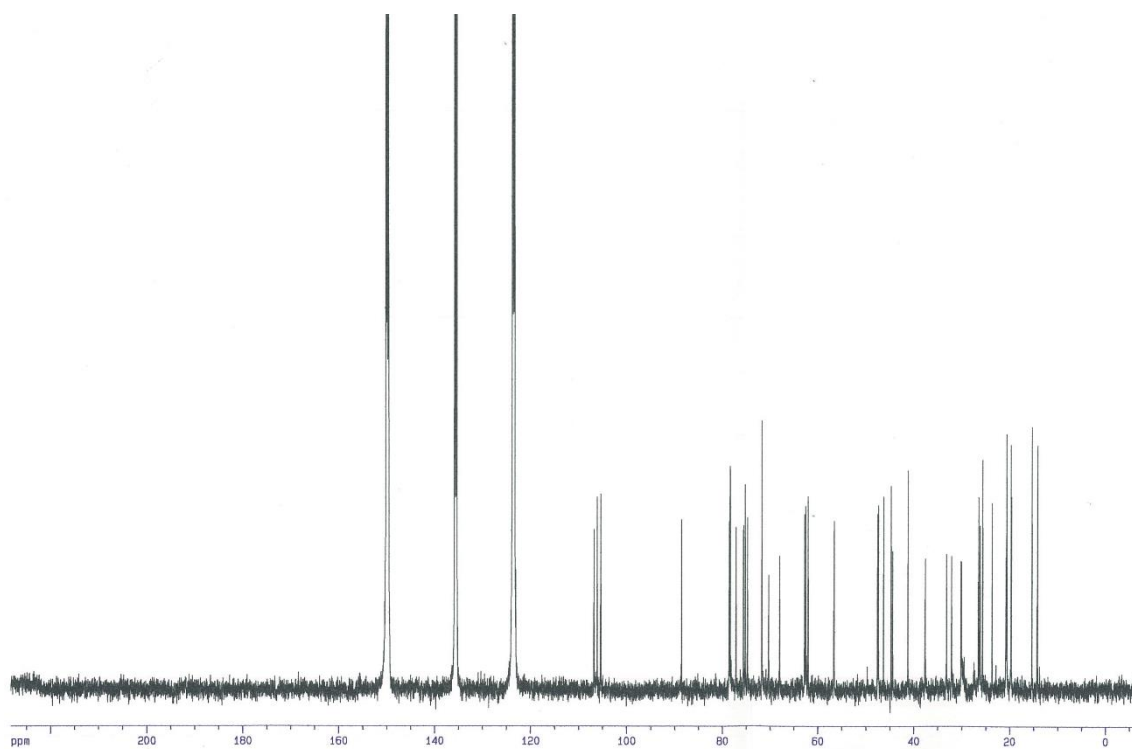
^1H -NMR spectrum of **7** in $\text{C}_5\text{D}_5\text{N}$

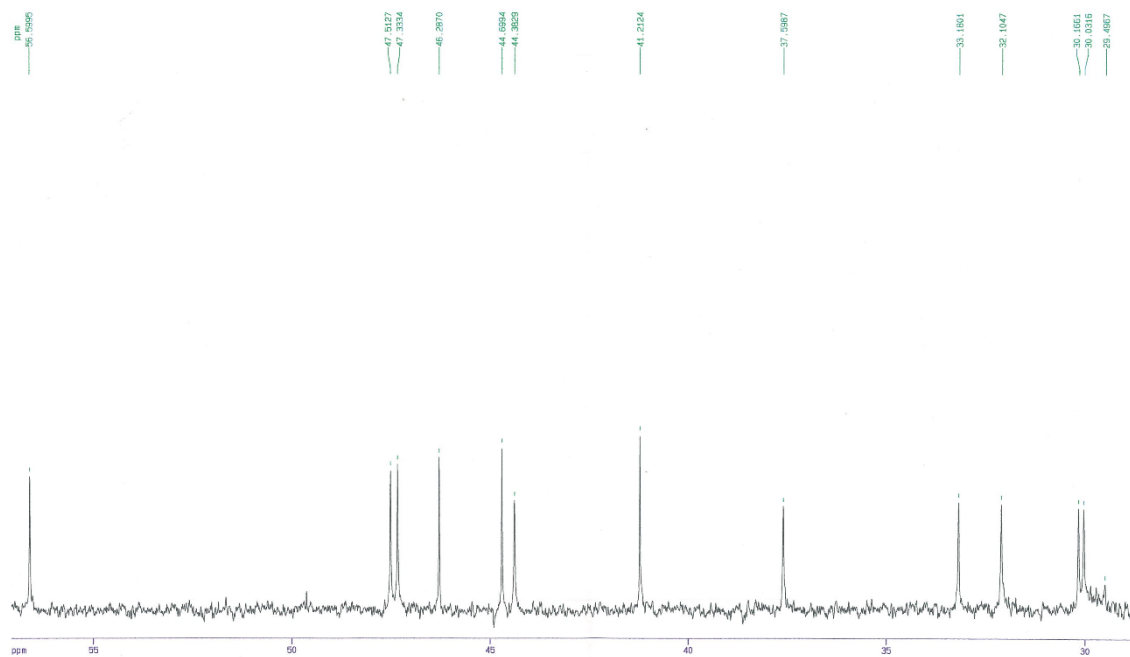
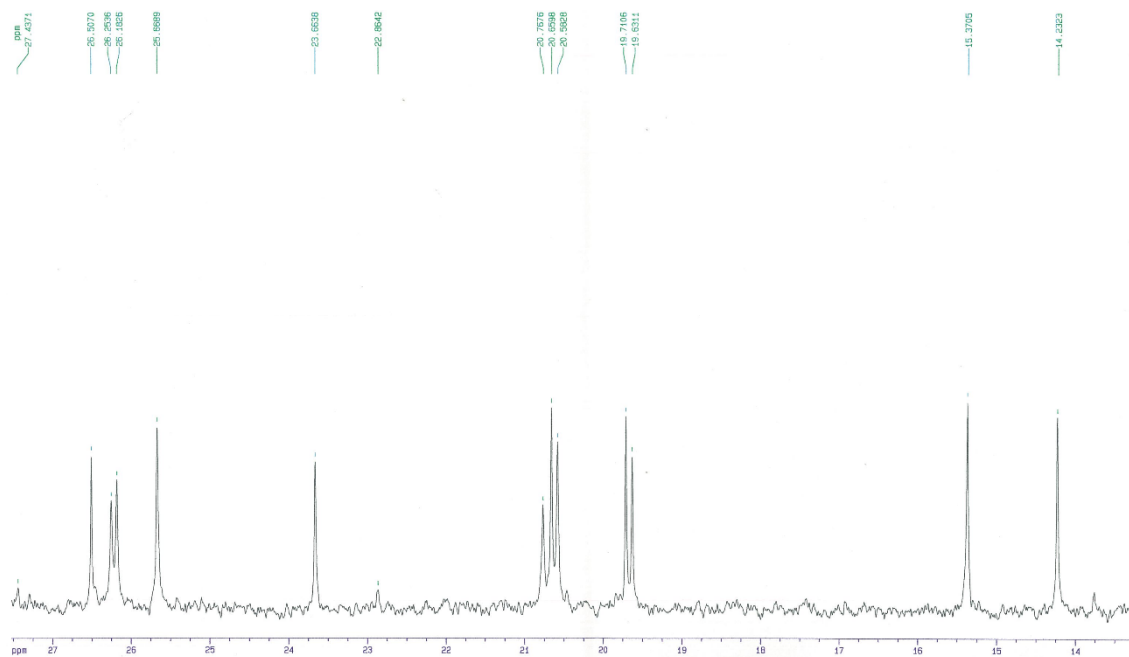


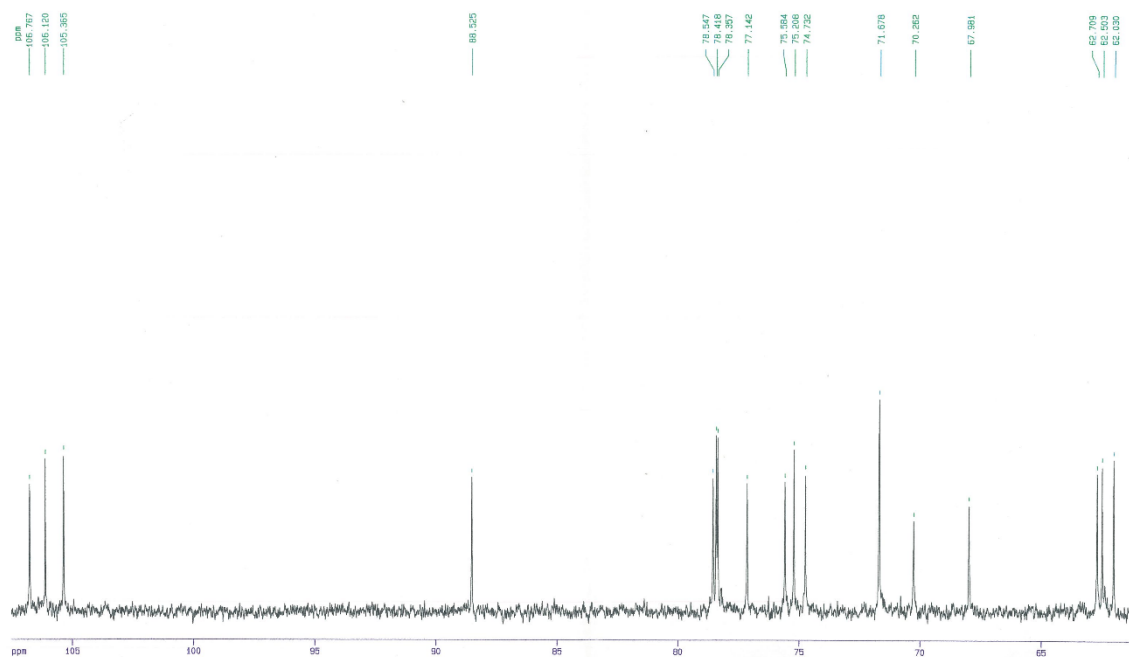




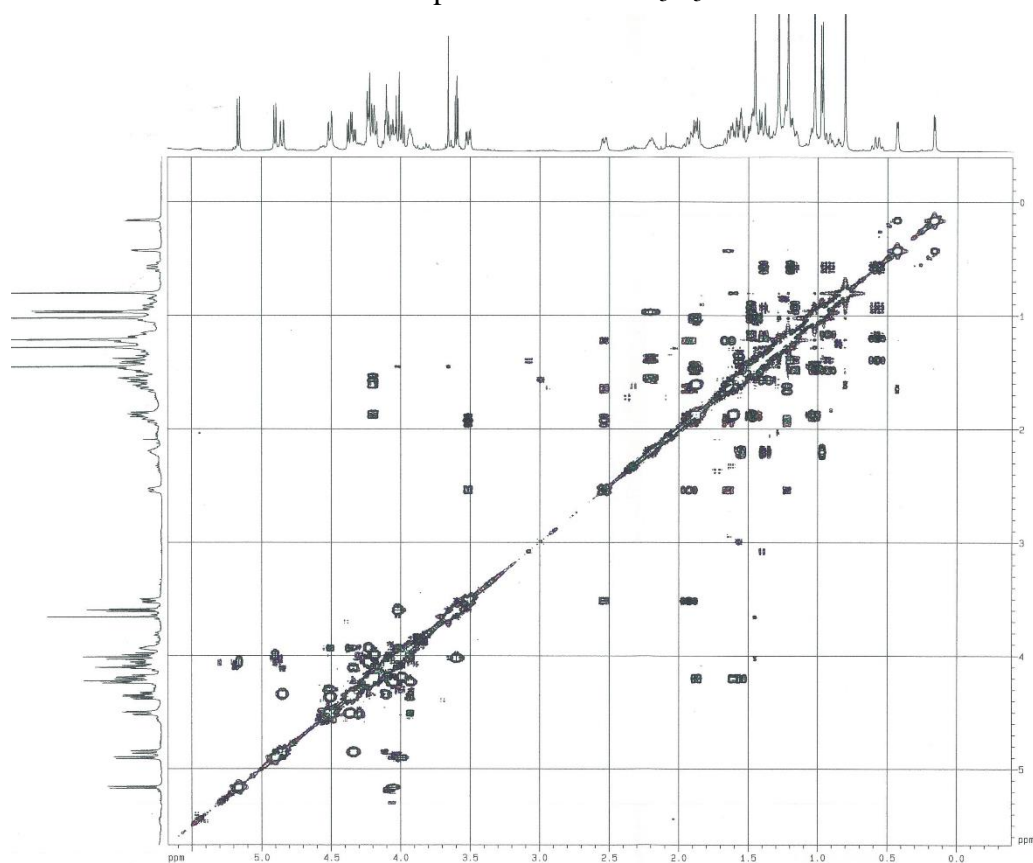
¹³C-NMR spectrum of **7** in C₅D₅N



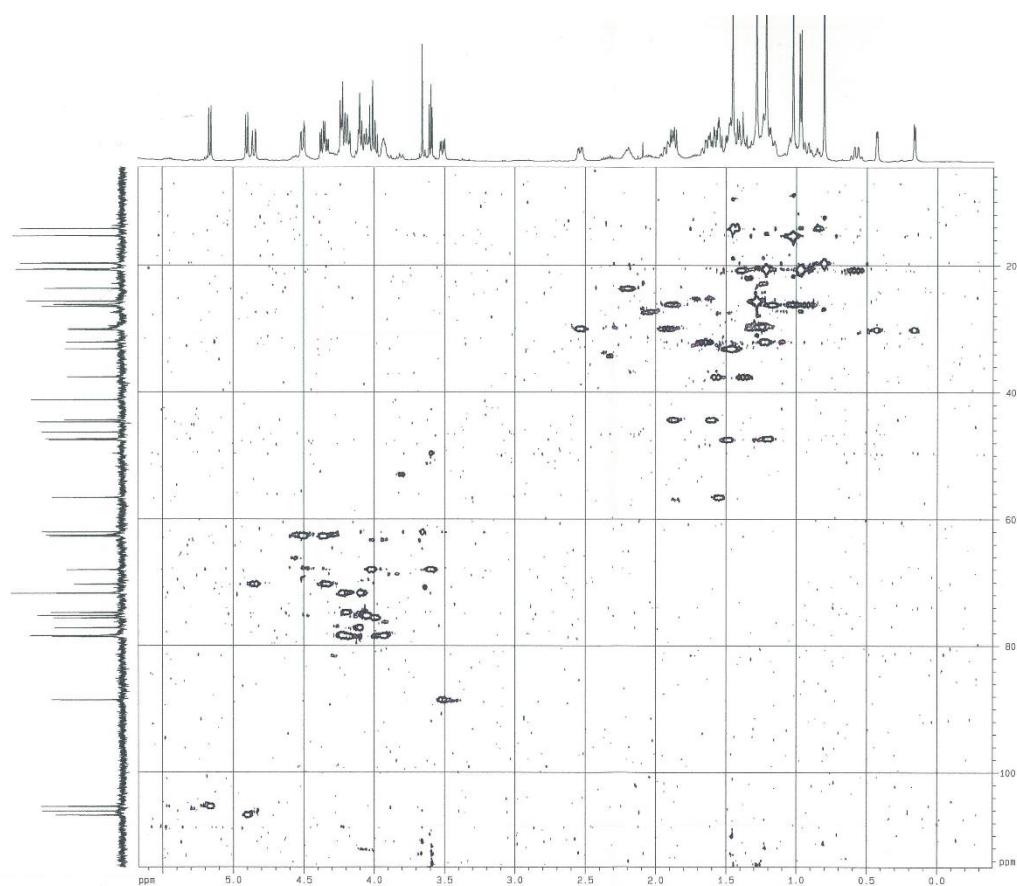




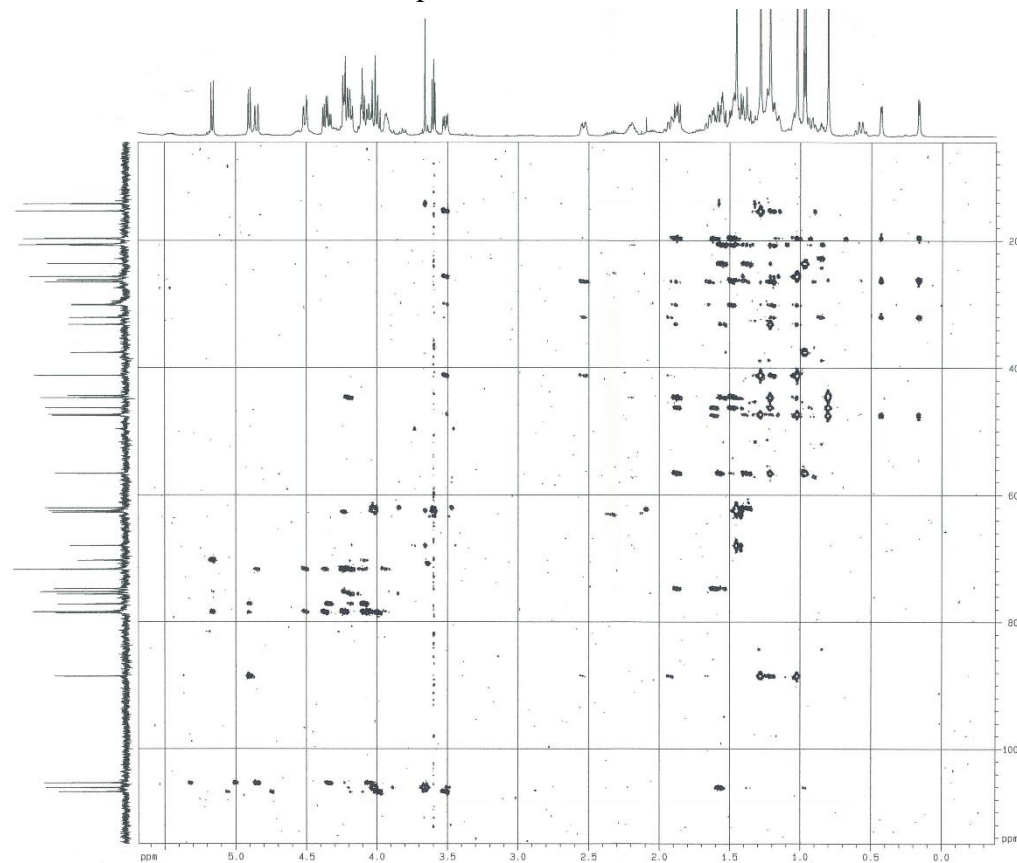
COSY spectrum of **7** in C₅D₅N



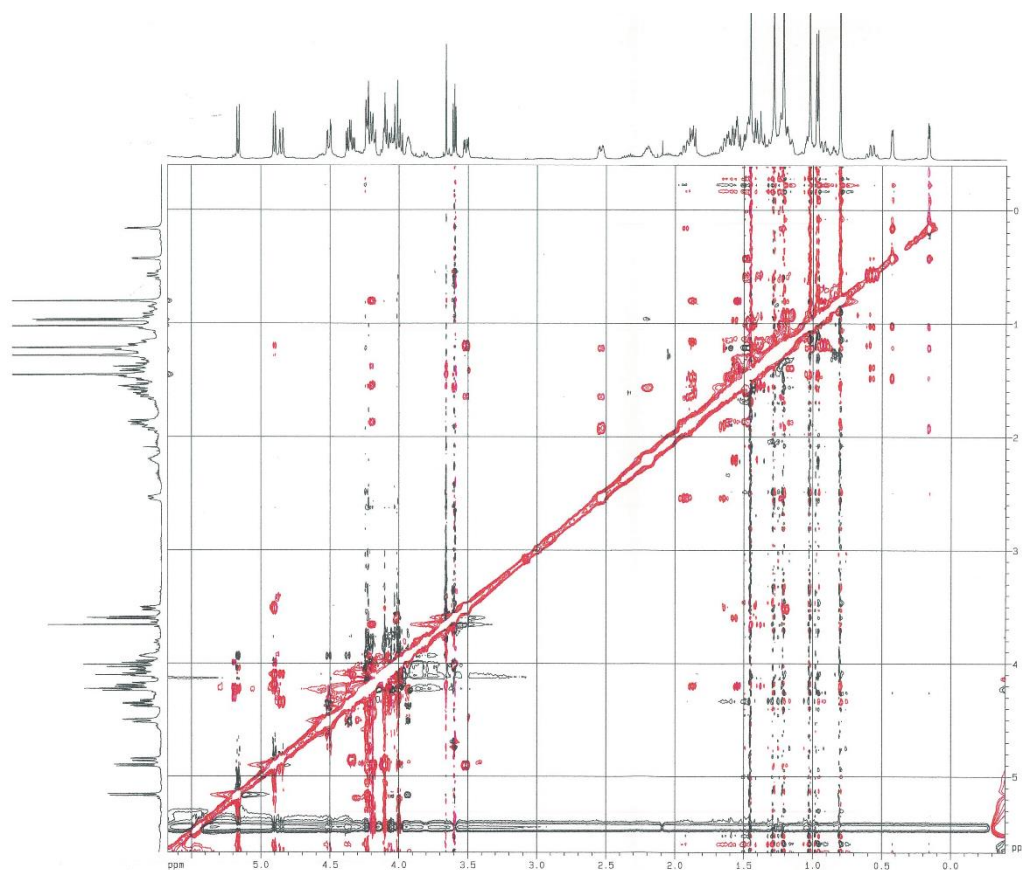
HMQC spectrum of **7** in C₅D₅N



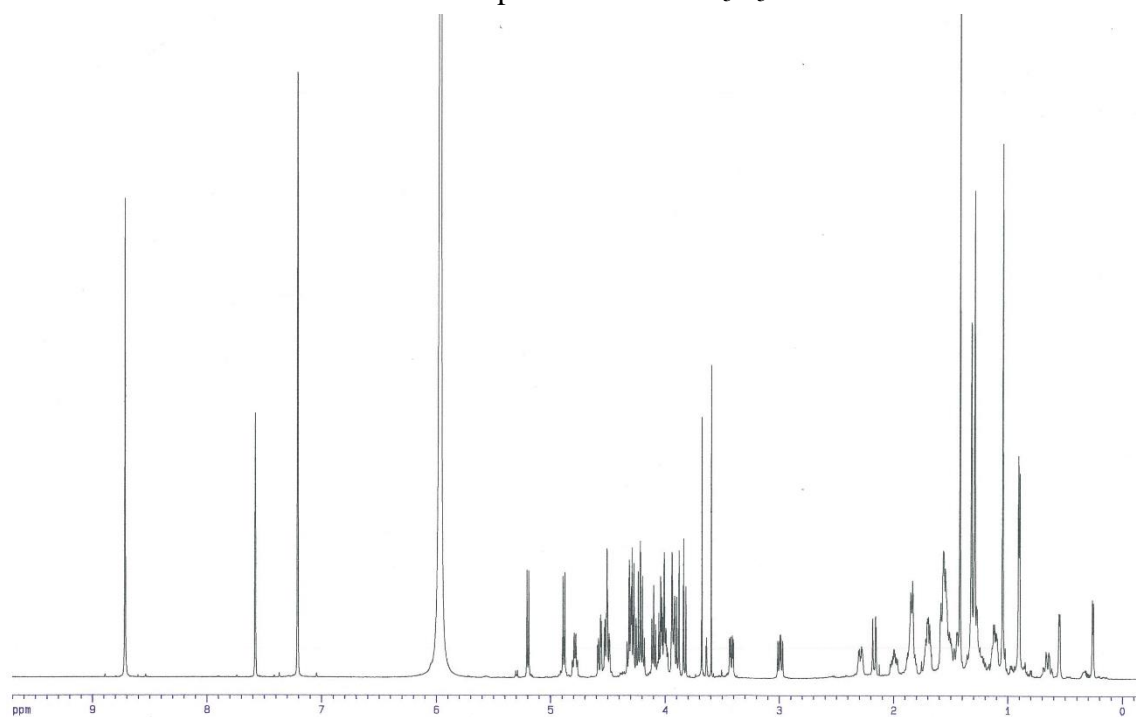
HMBC spectrum of **7** in C₅D₅N

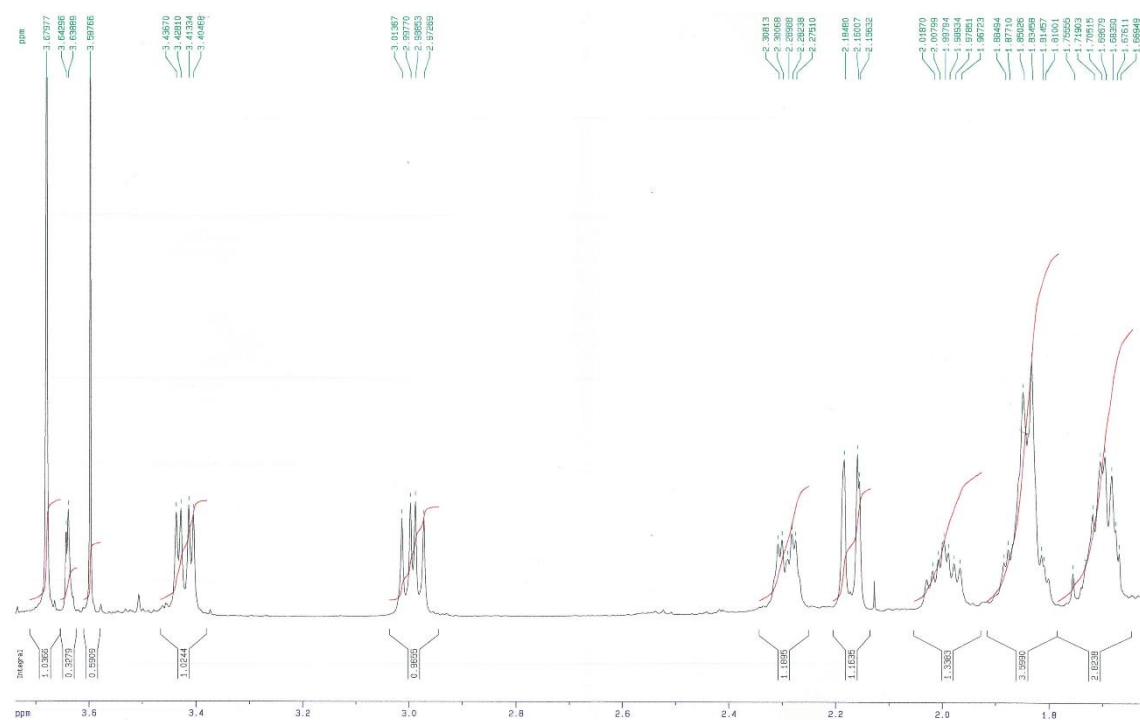
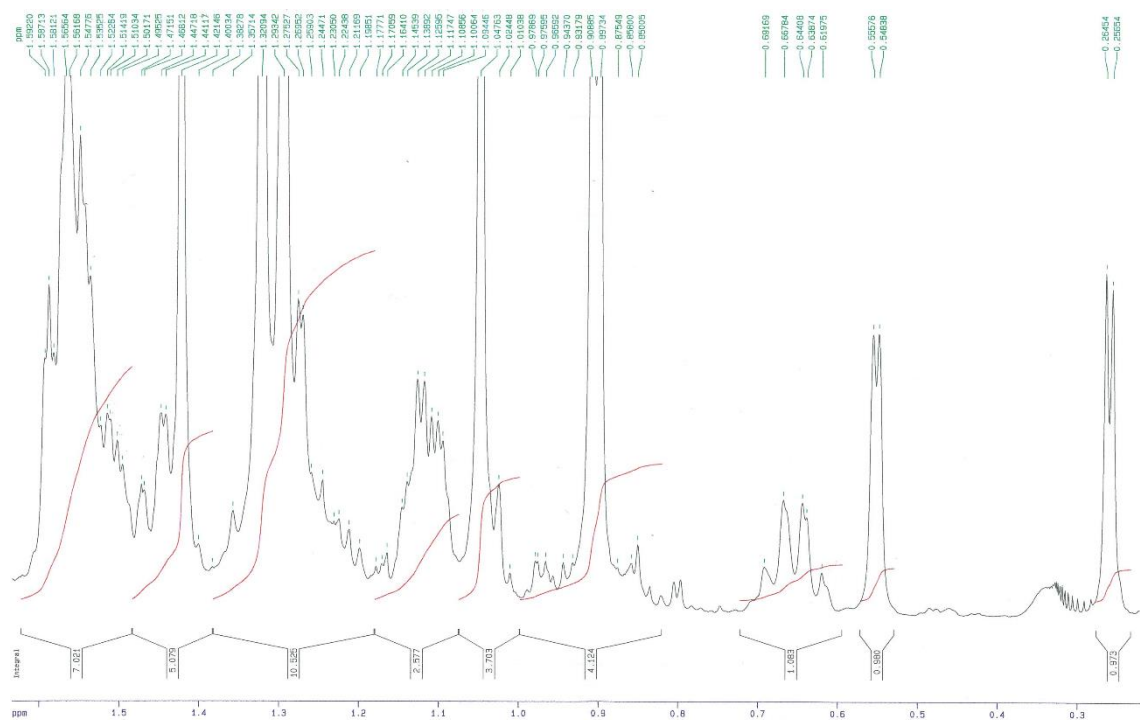


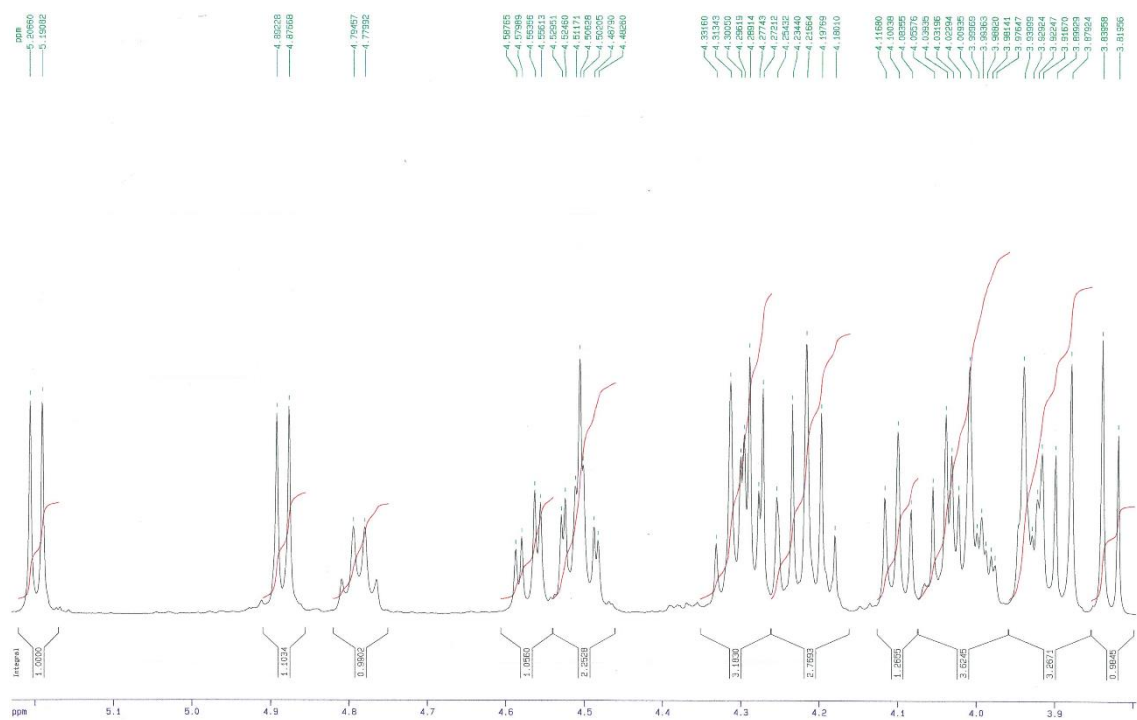
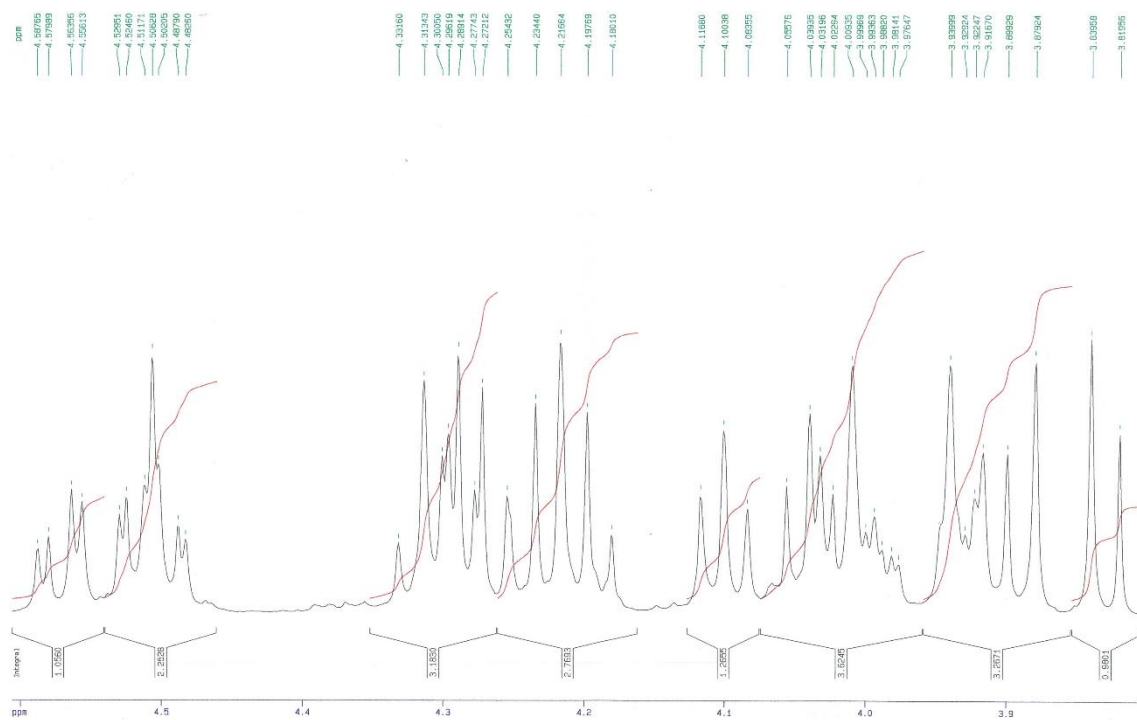
NOESY spectrum of **7** in C₅D₅N



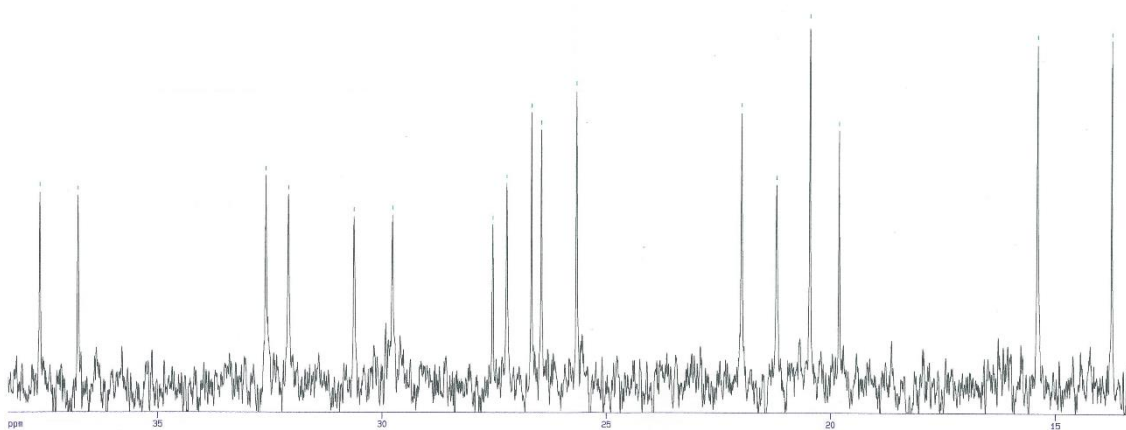
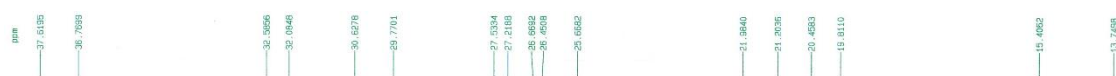
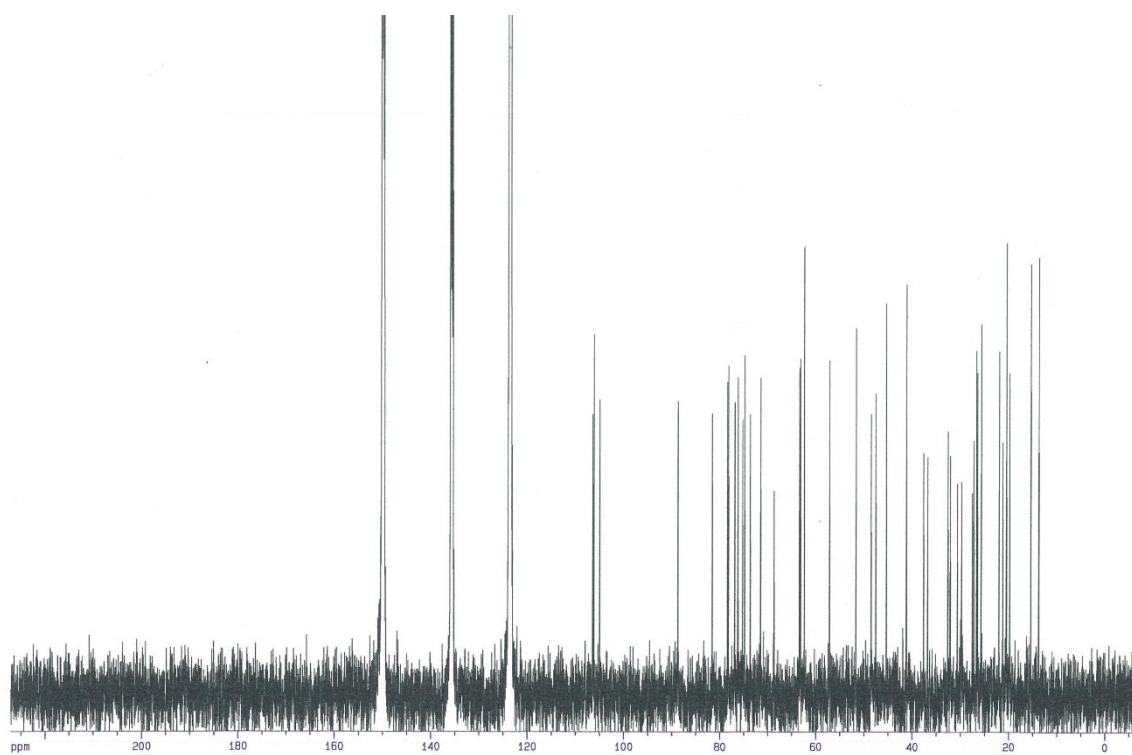
¹H-NMR spectrum of **8** in C₅D₅N

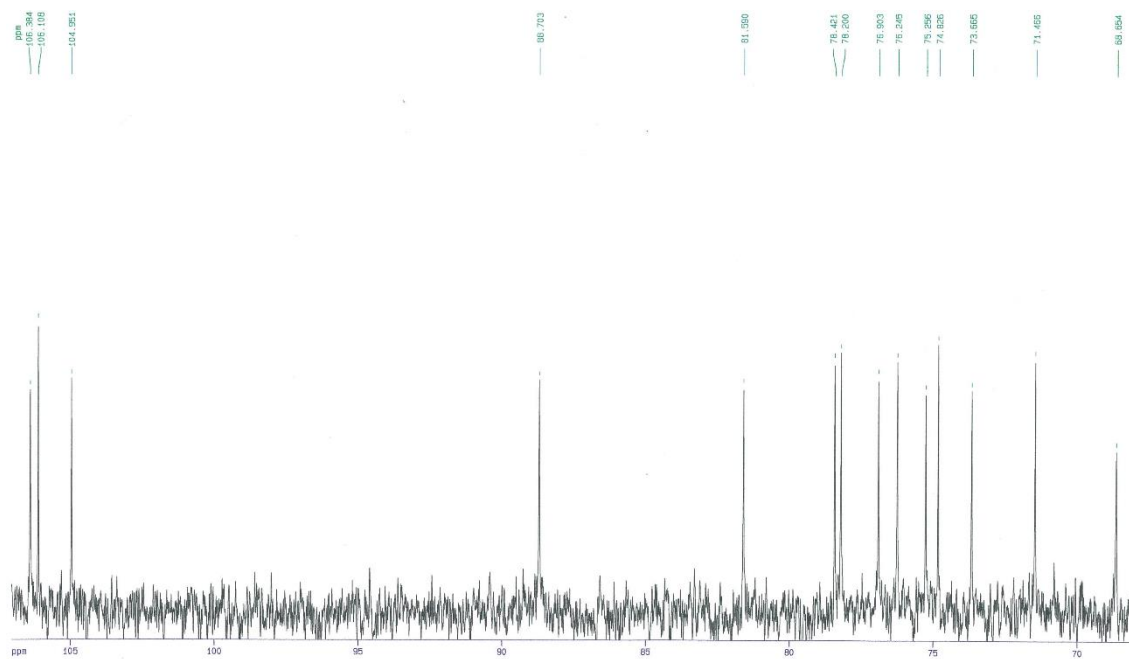
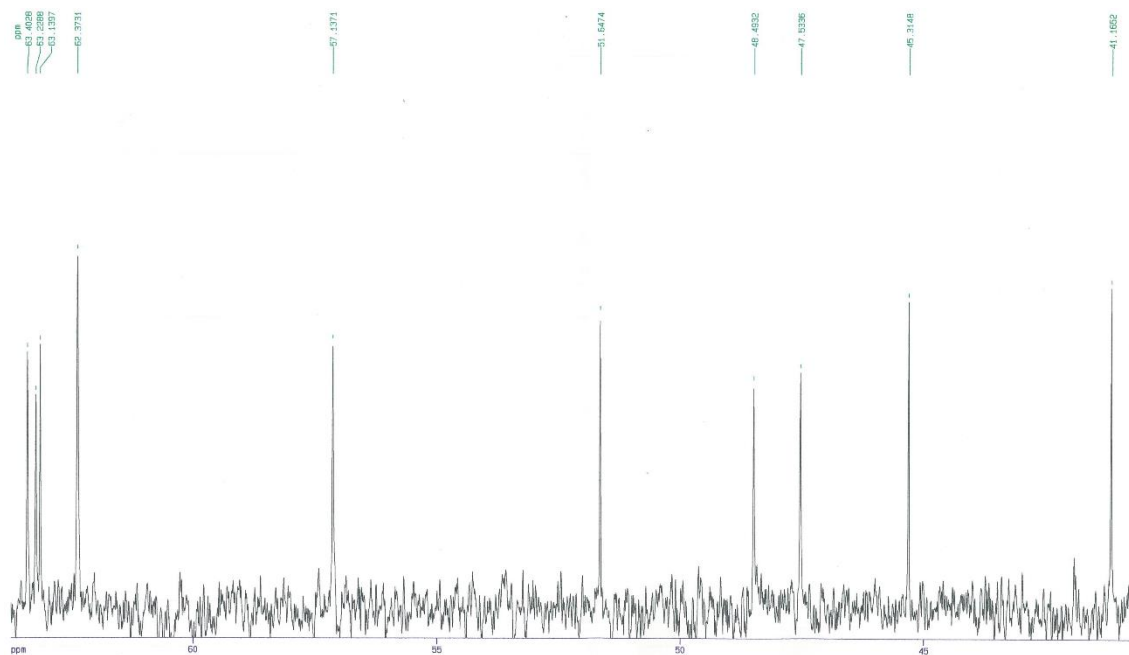




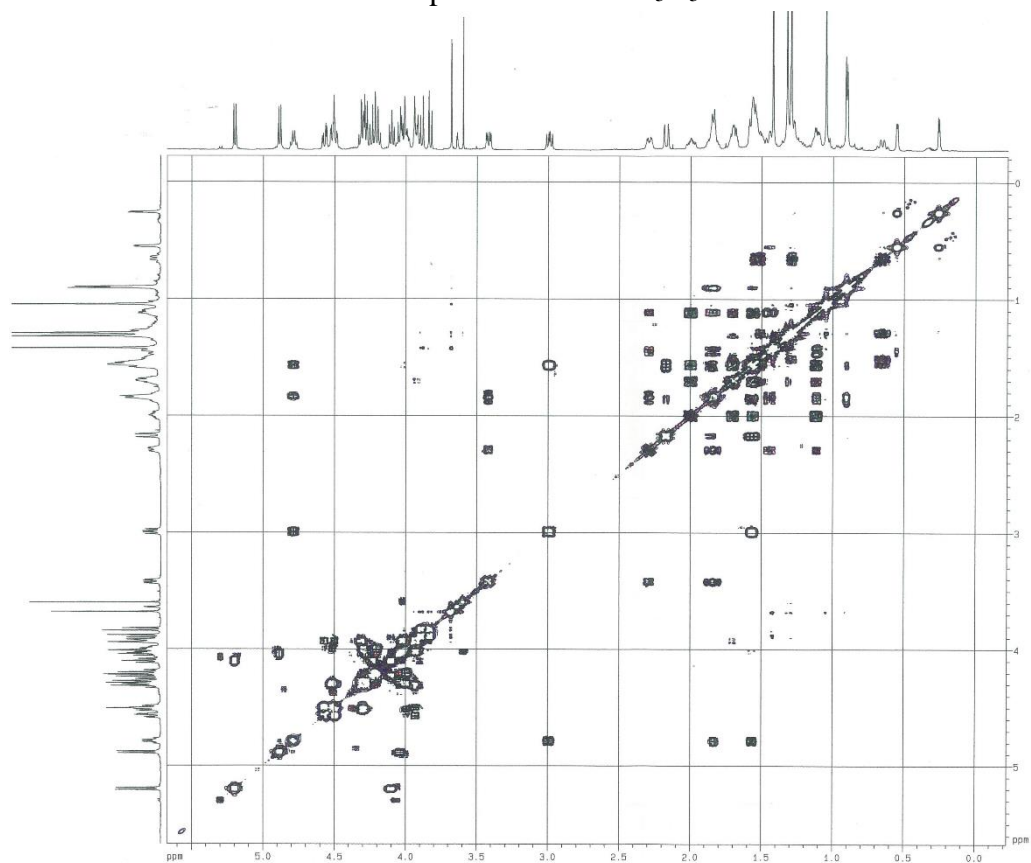


^{13}C -NMR spectrum of **8** in $\text{C}_5\text{D}_5\text{N}$

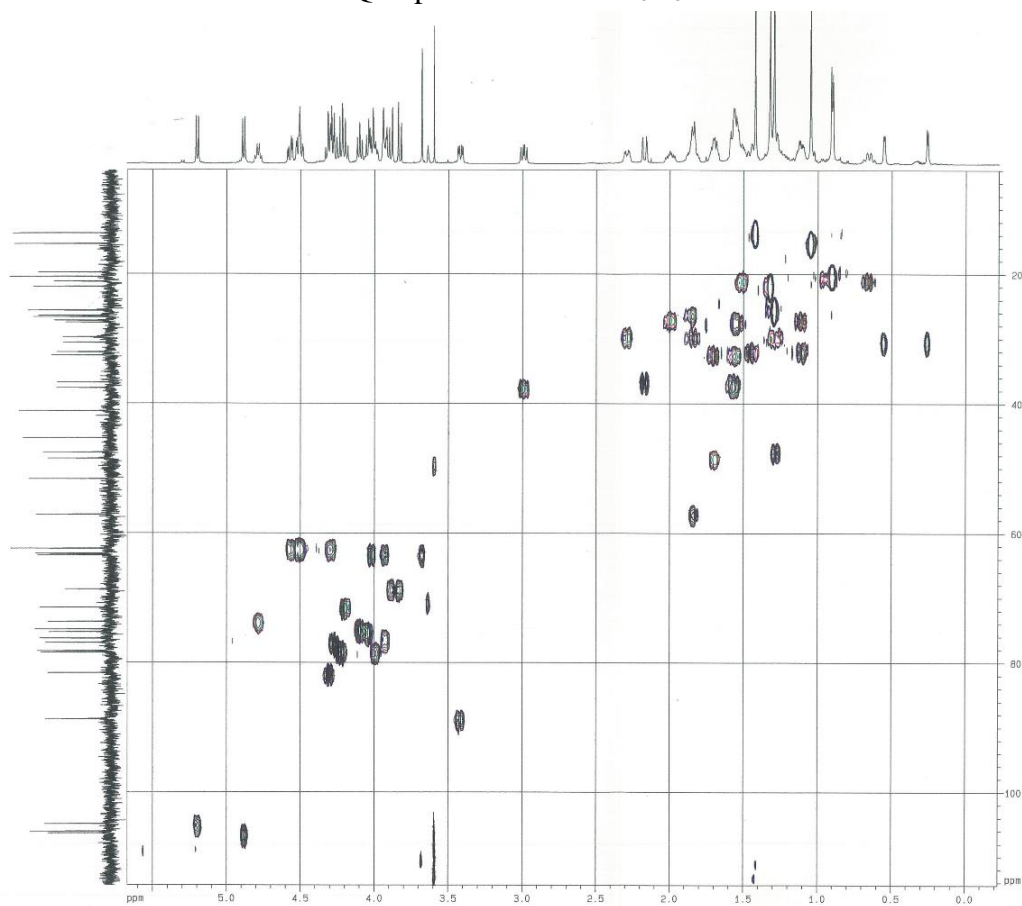




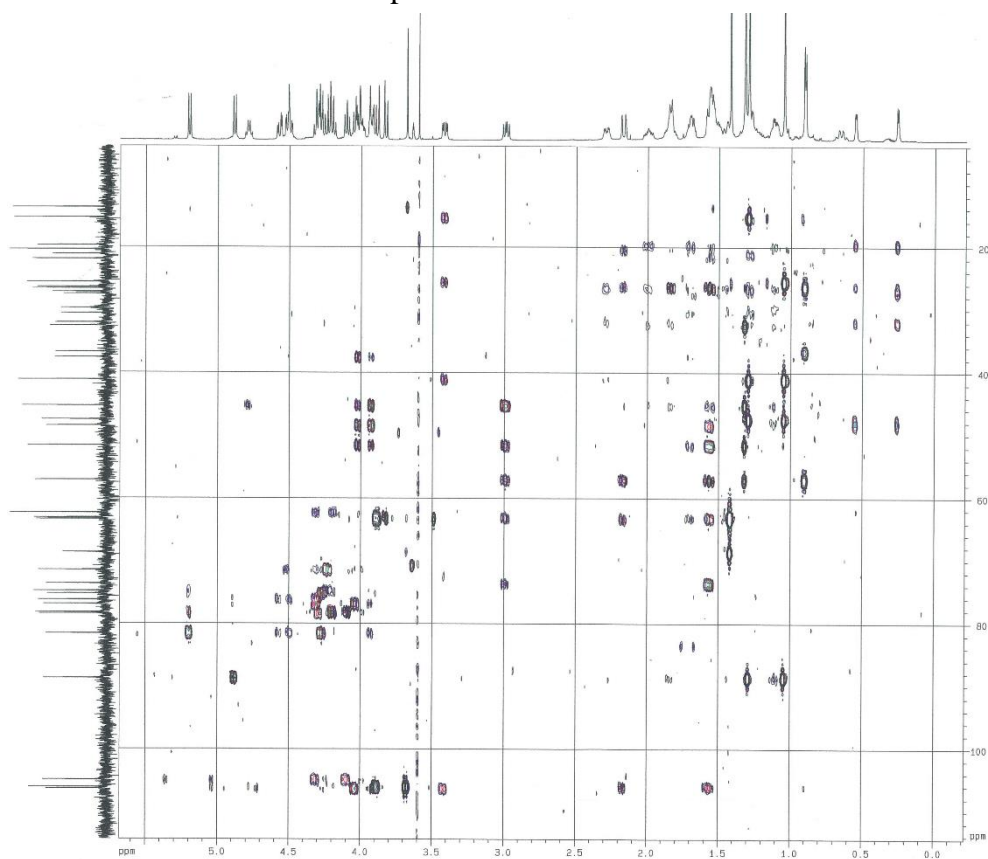
COSY spectrum of **8** in C₅D₅N



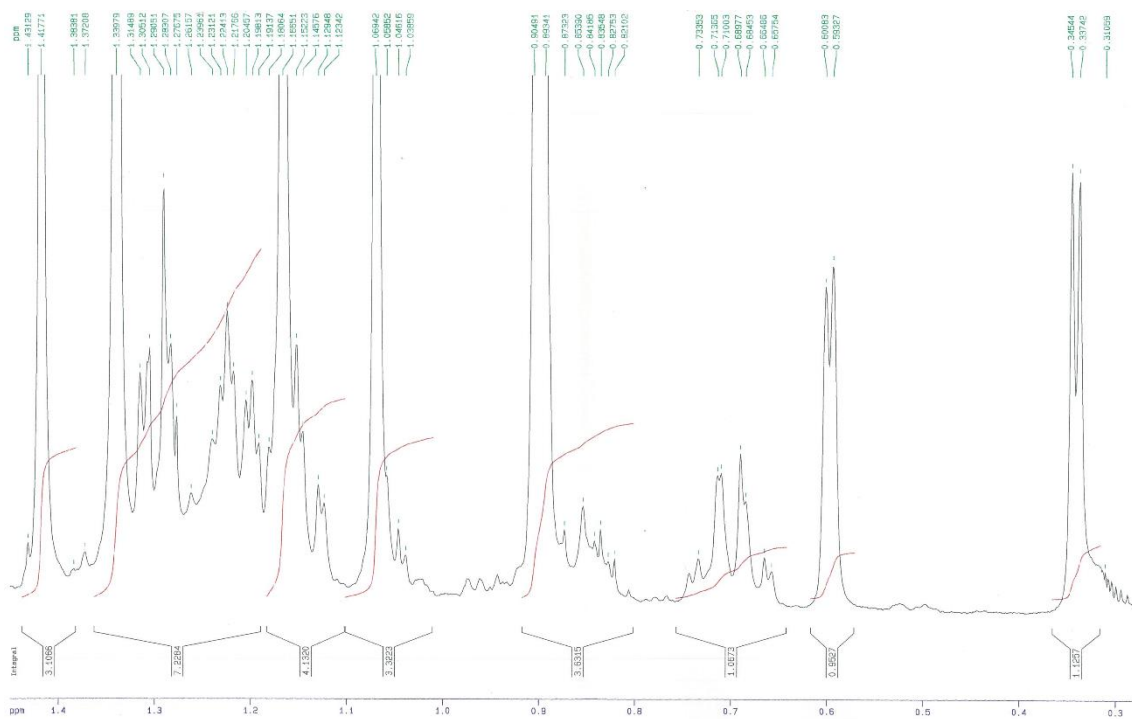
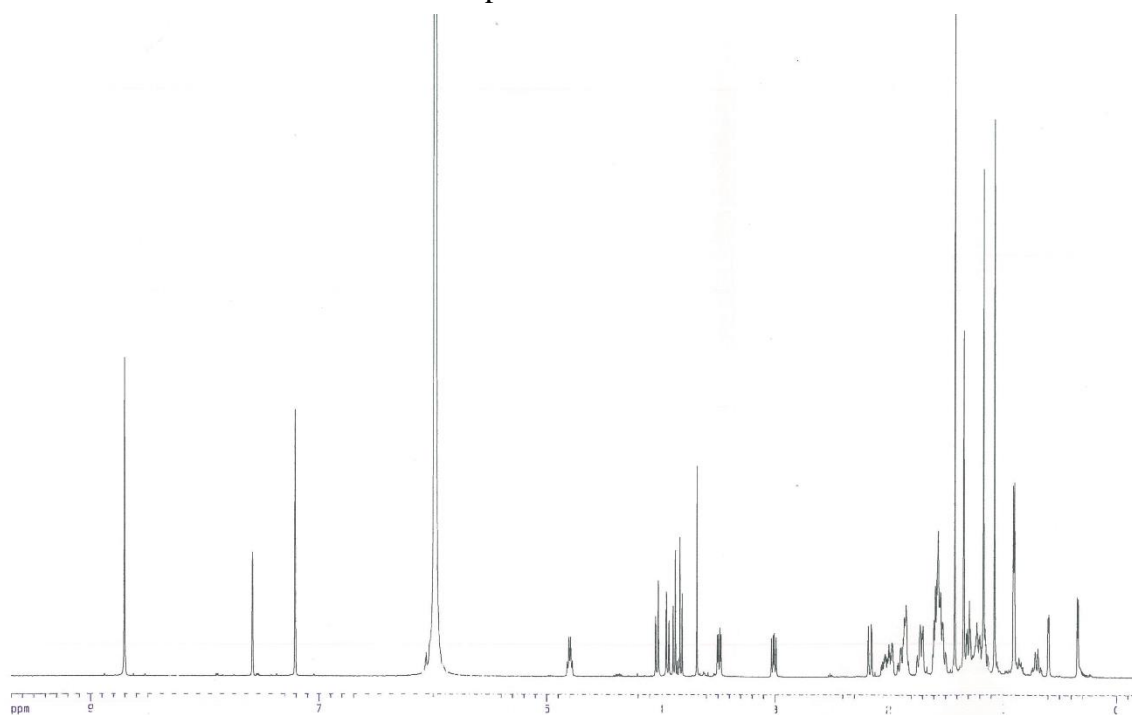
HMQC spectrum of **8** in C₅D₅N

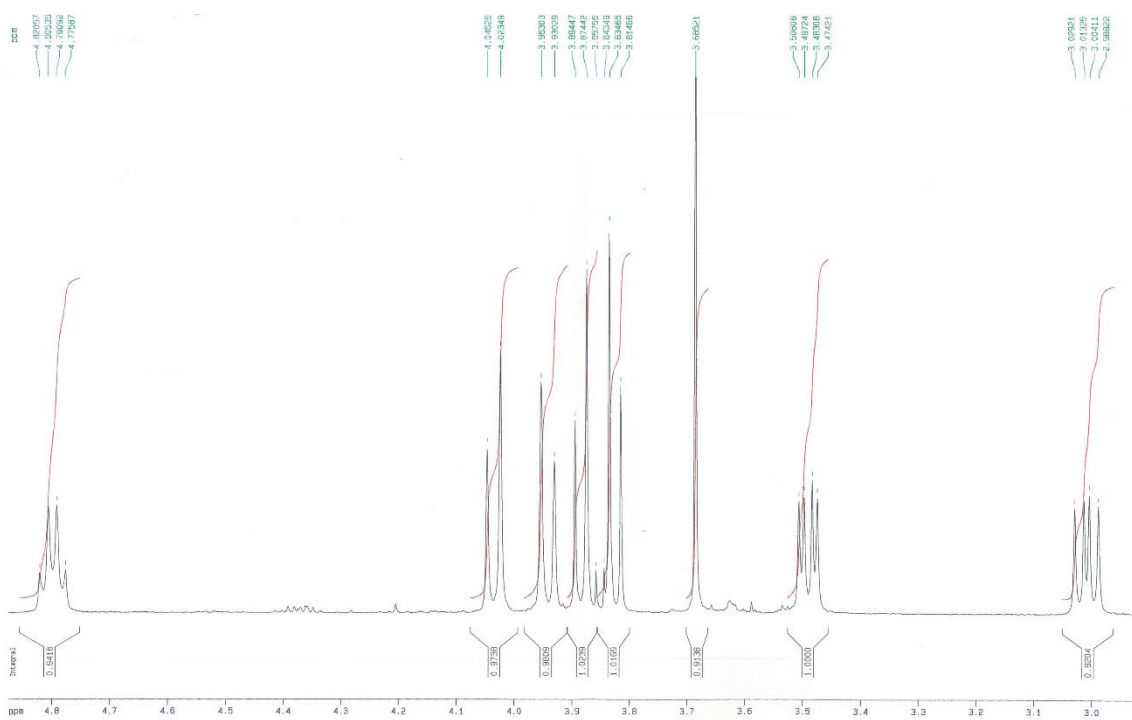
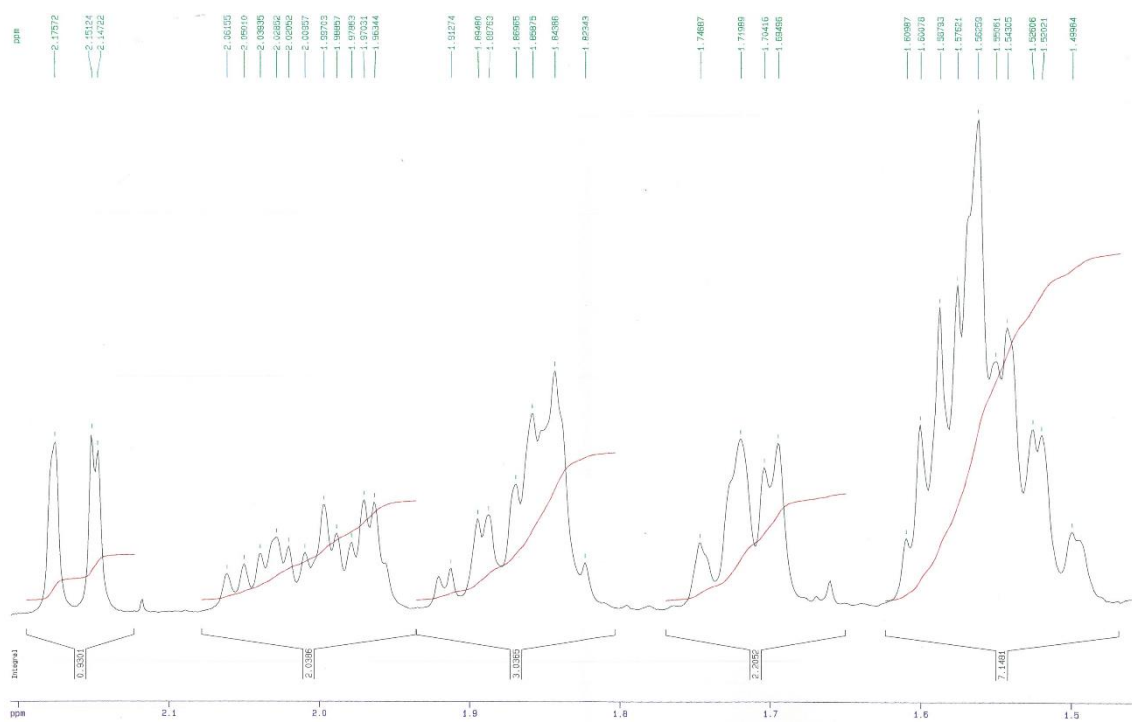


HMBC spectrum of **8** in C₅D₅N

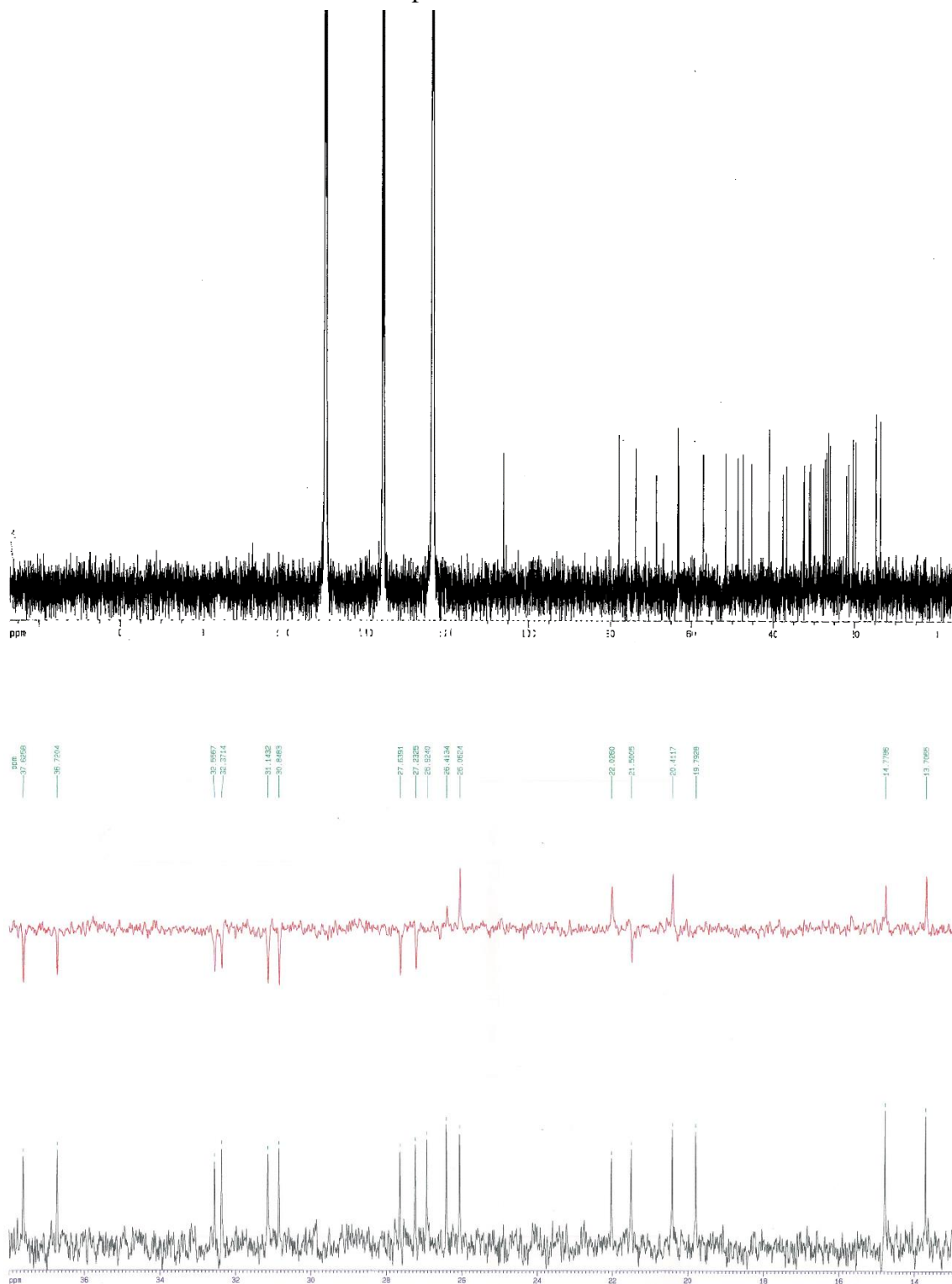


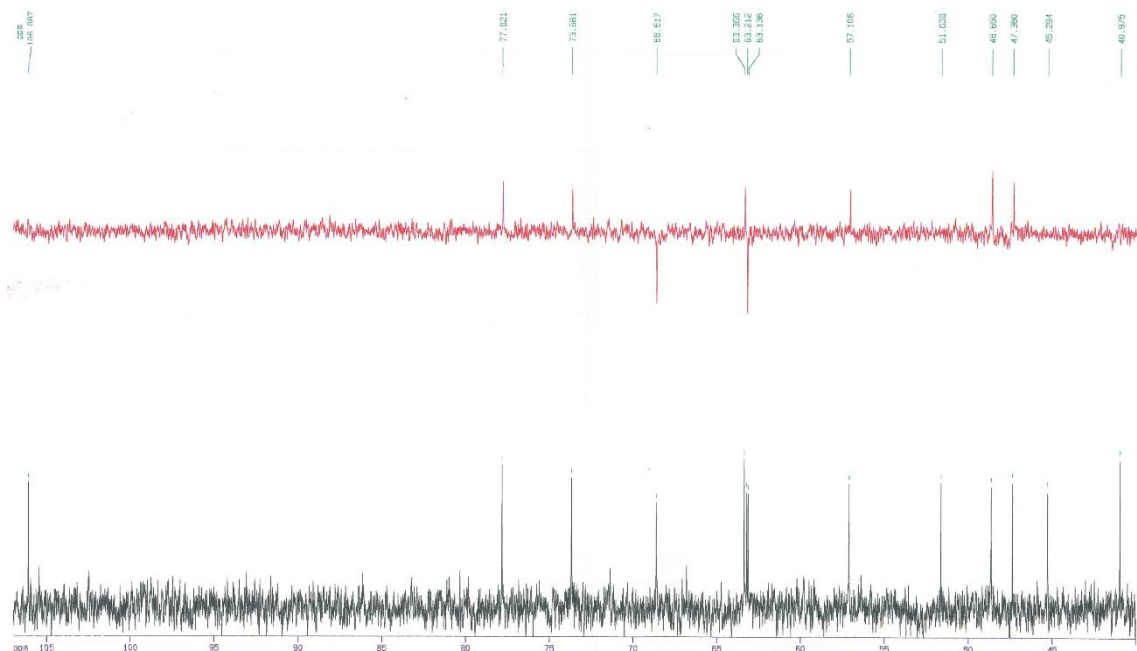
¹H-NMR spectrum of **8a** in C₅D₅N



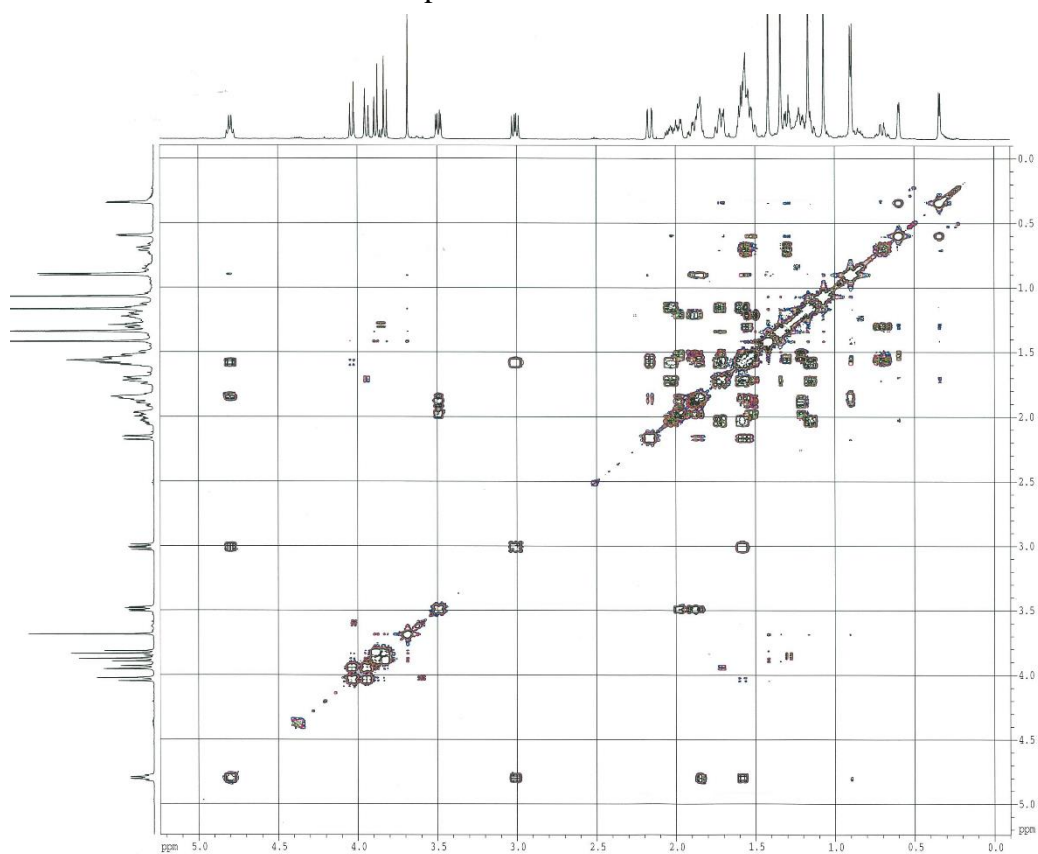


^{13}C -NMR spectrum of **8a** in $\text{C}_5\text{D}_5\text{N}$

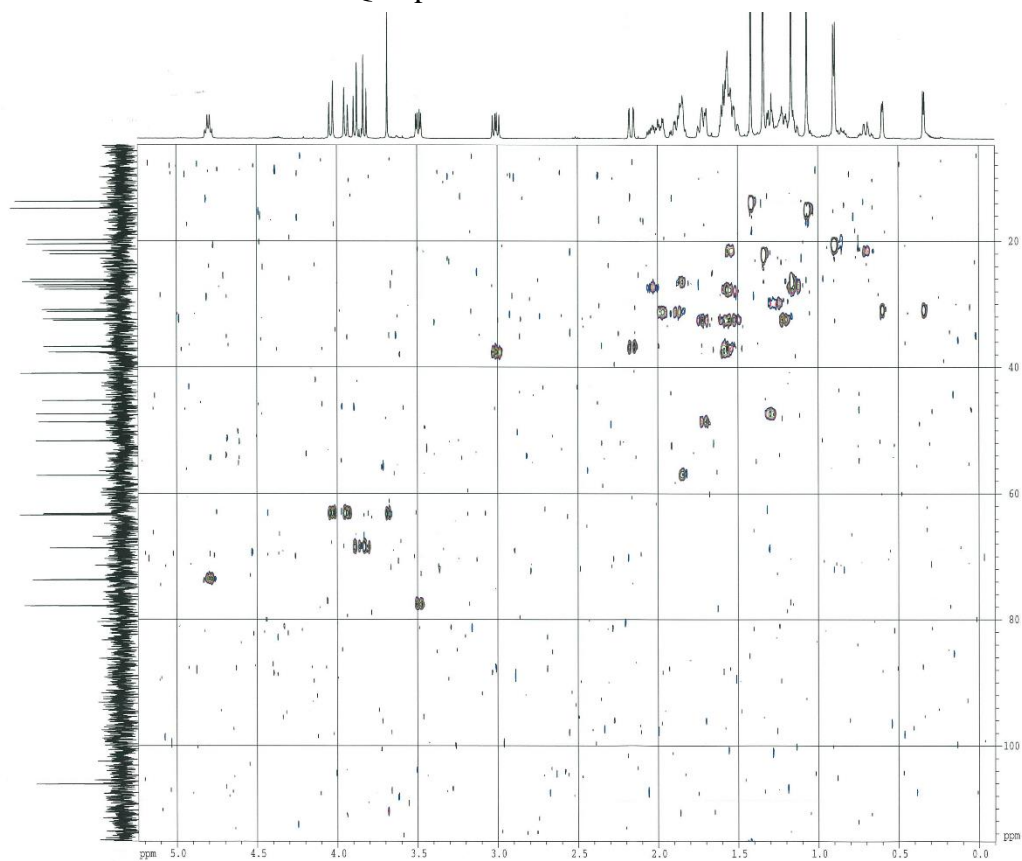




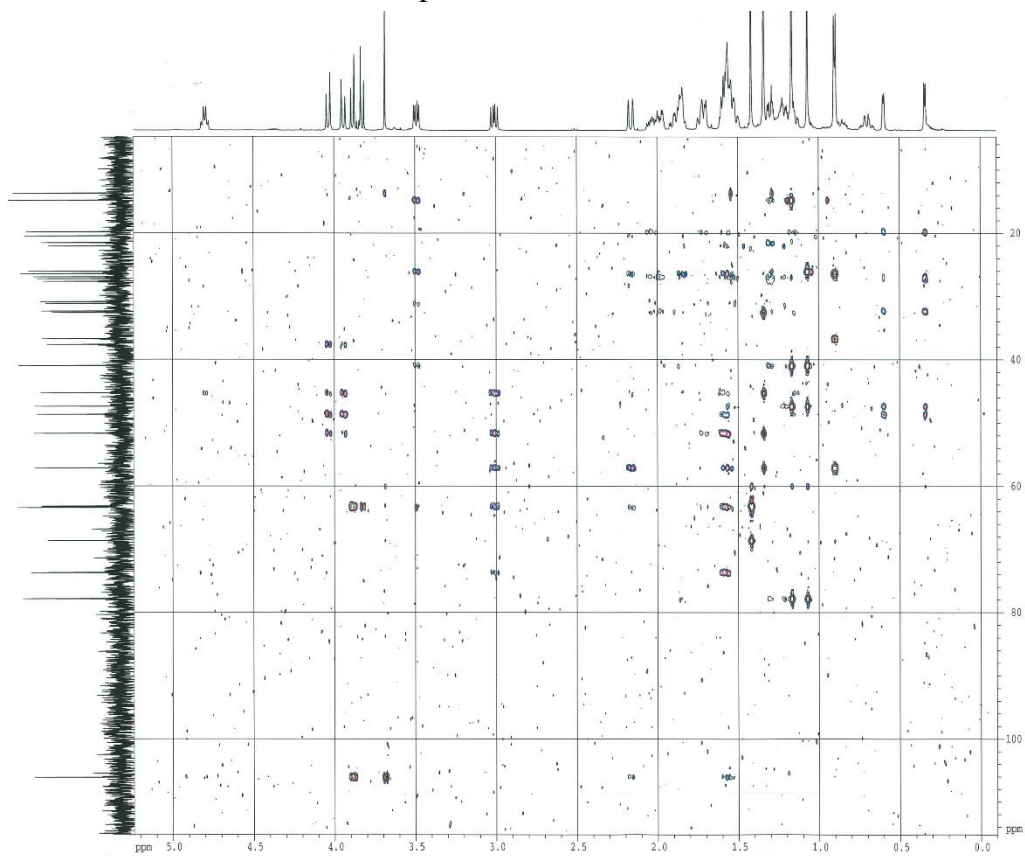
COSY spectrum of **8a** in C_5D_5N



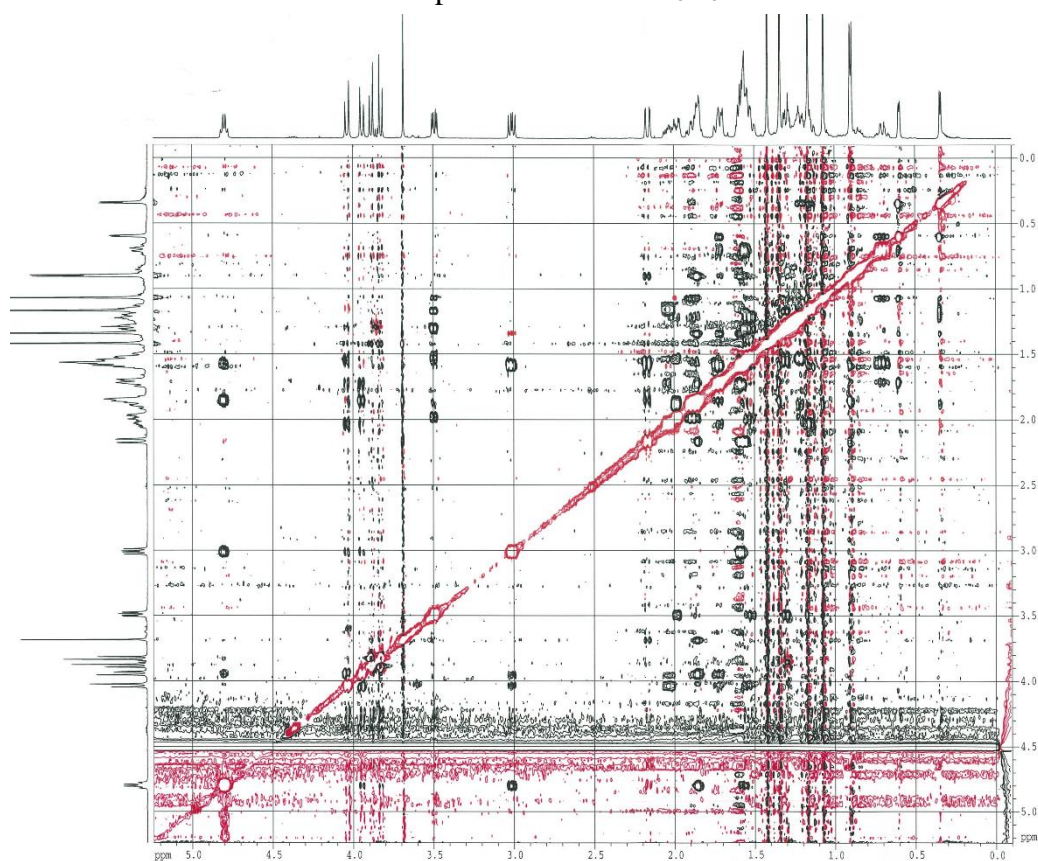
HMQC spectrum of **8a** in C₅D₅N

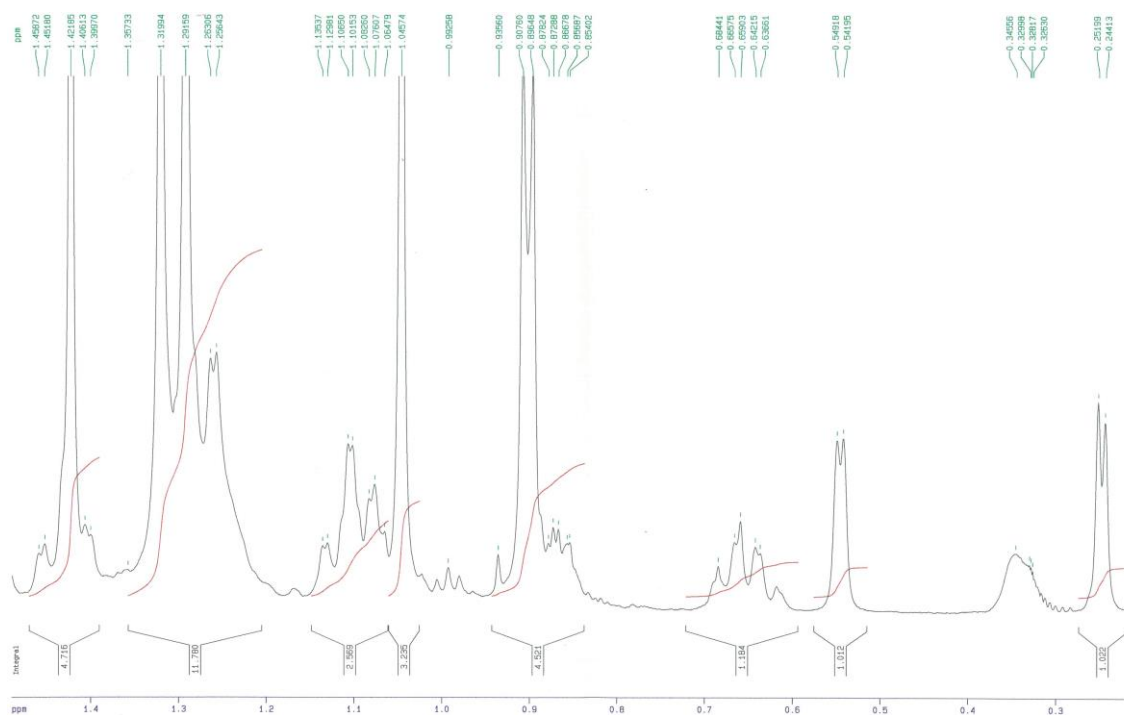


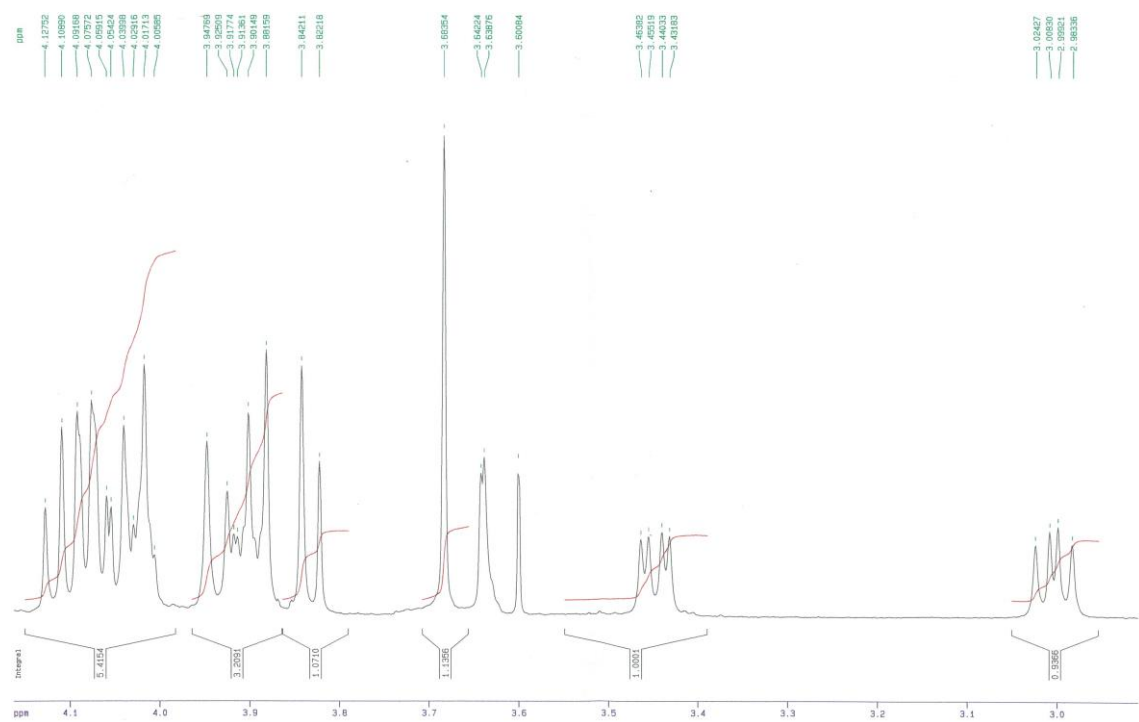
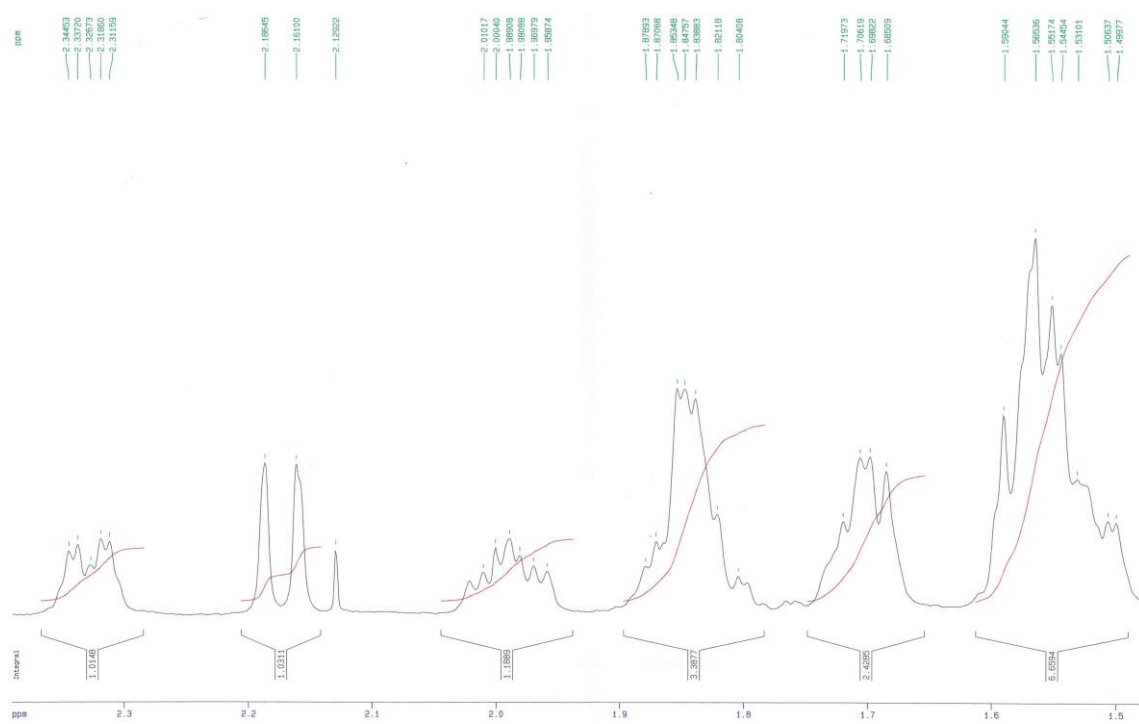
HMBC spectrum of **8a** in C₅D₅N

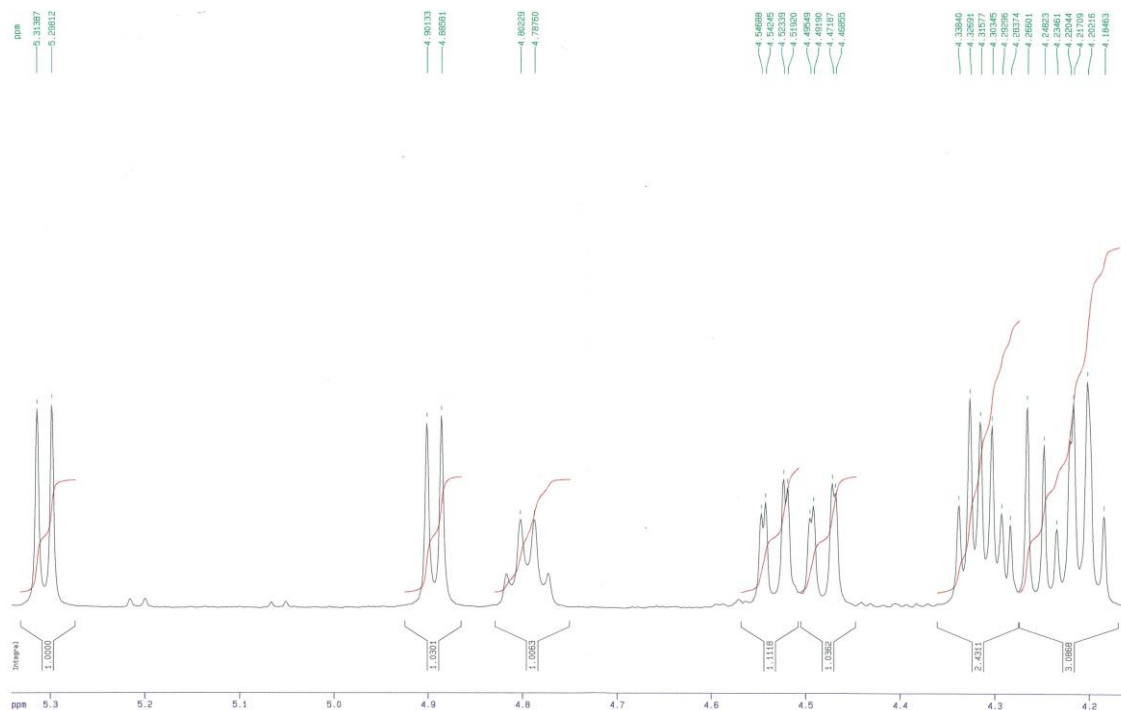


NOESY spectrum of **8a** in C₅D₅N

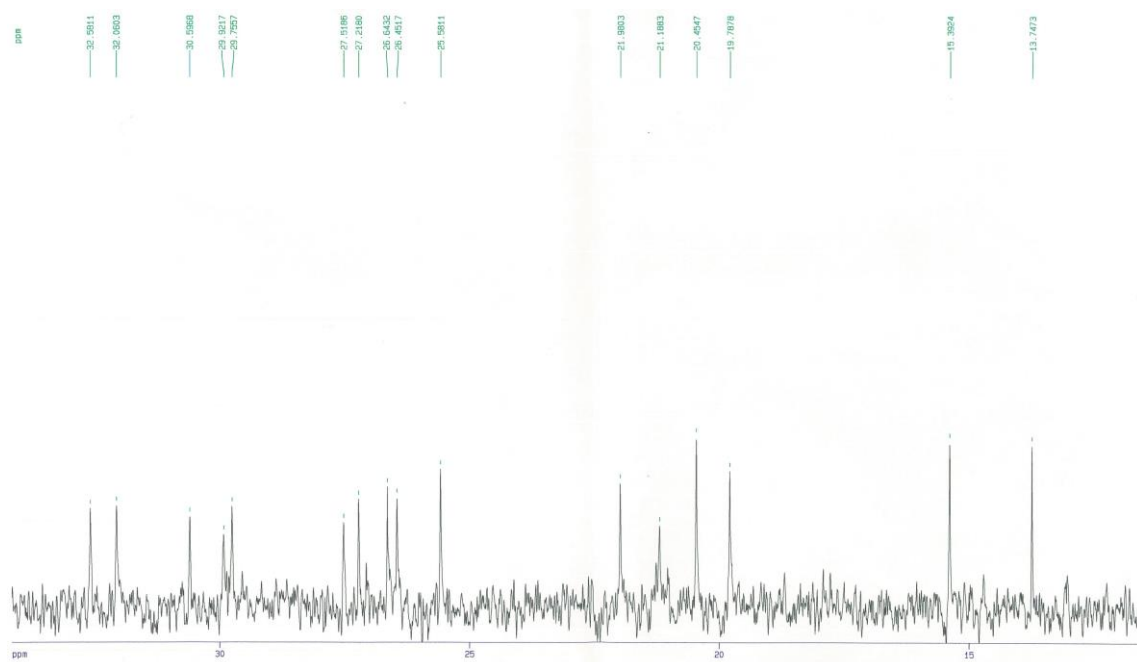
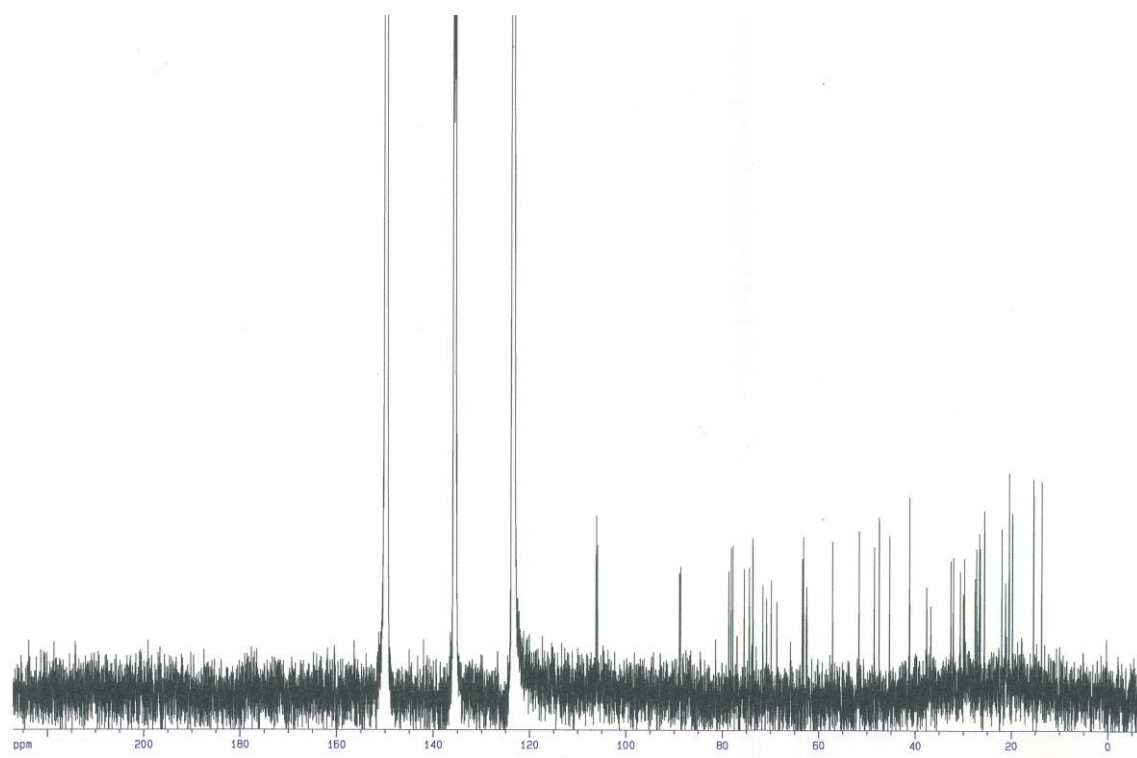


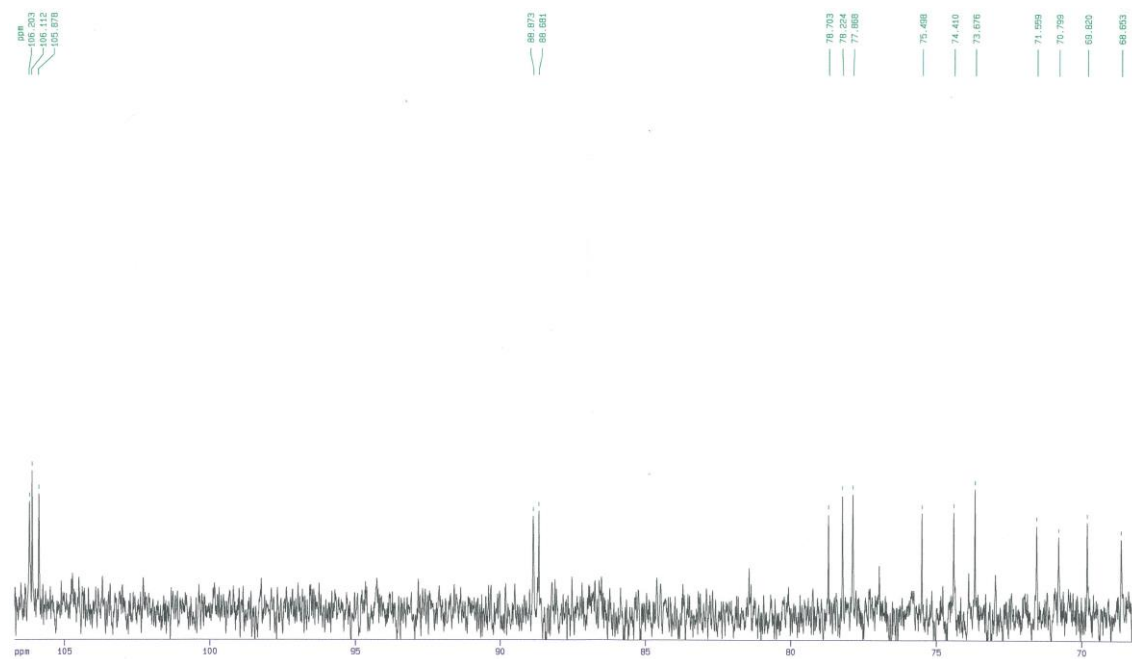
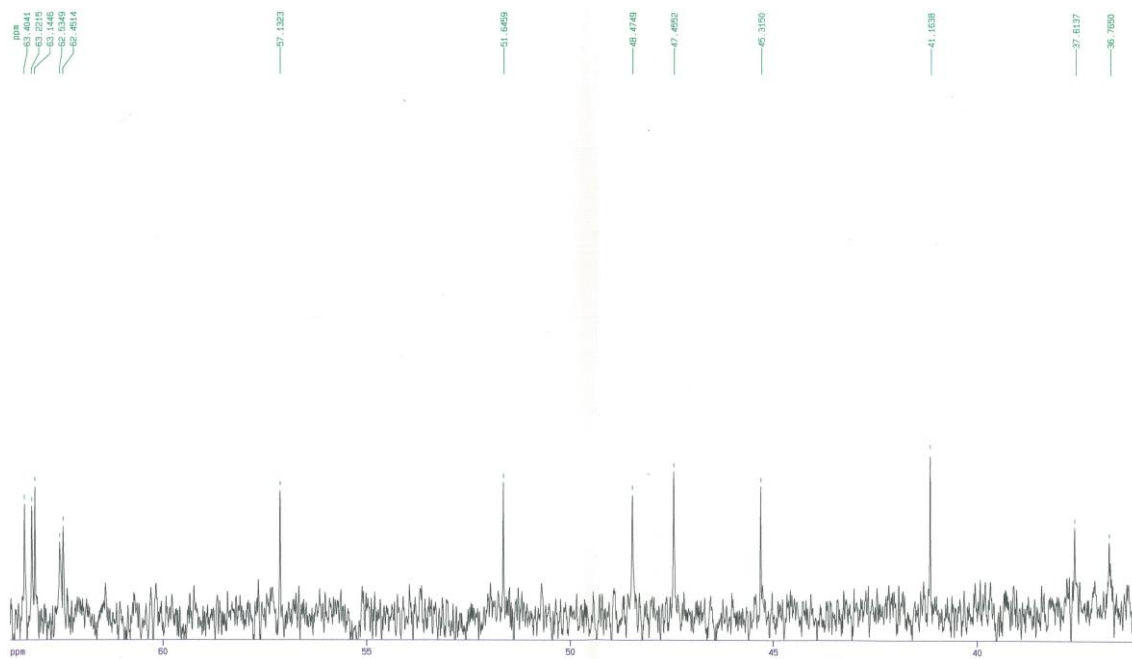




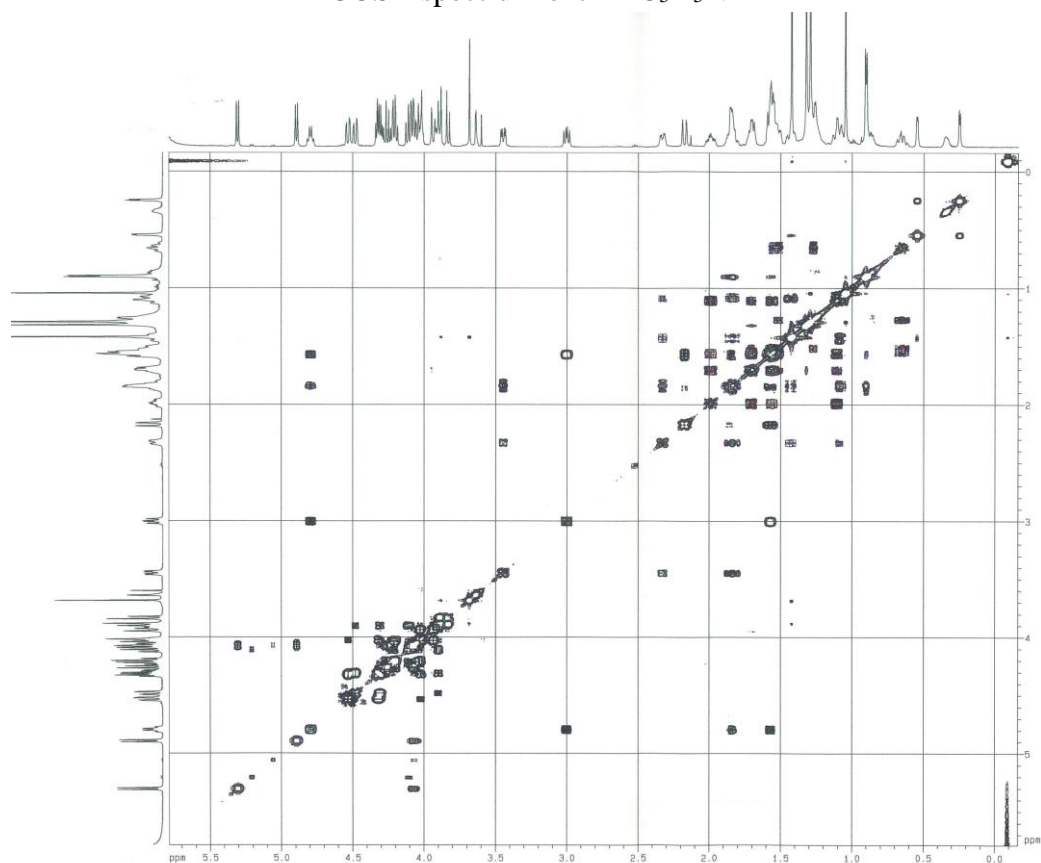


^{13}C -NMR spectrum of **9** in $\text{C}_5\text{D}_5\text{N}$

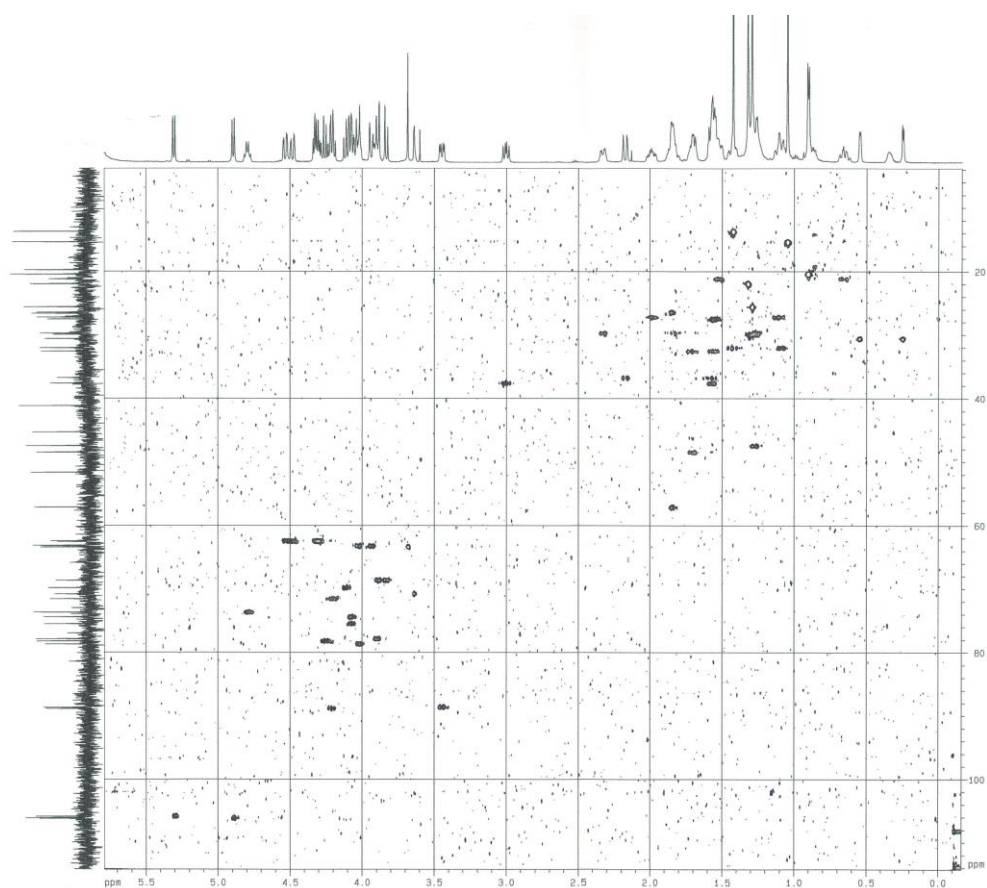




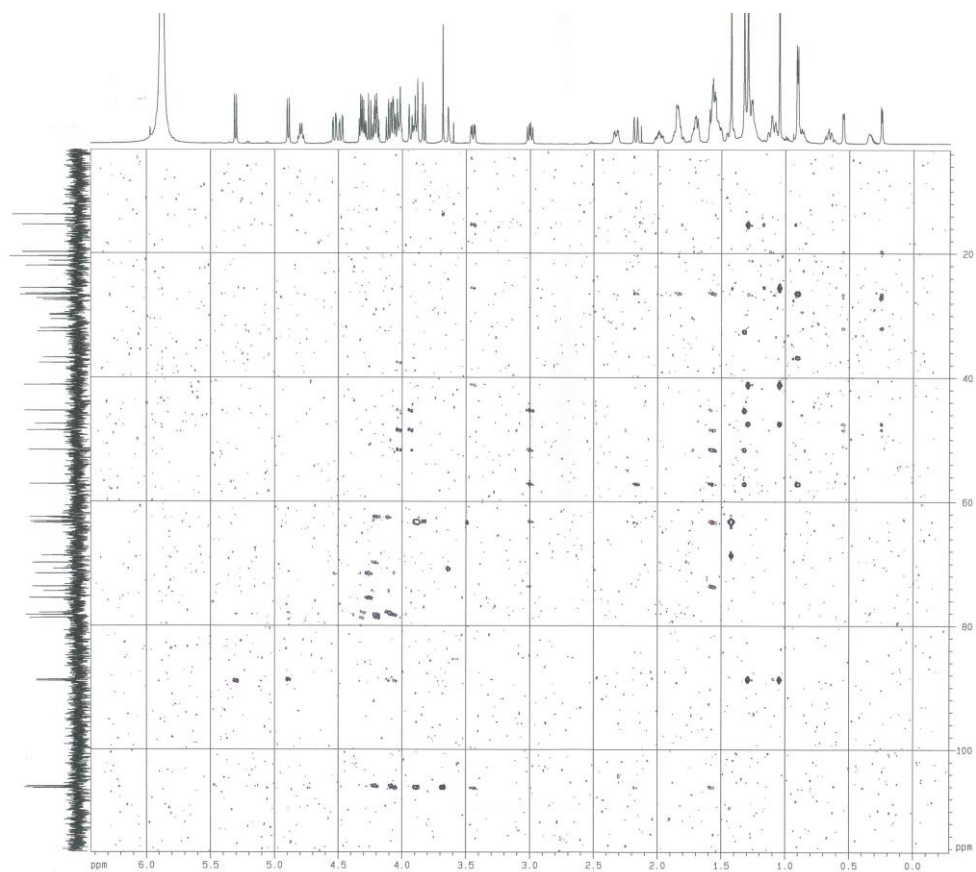
COSY spectrum of **9** in C₅D₅N



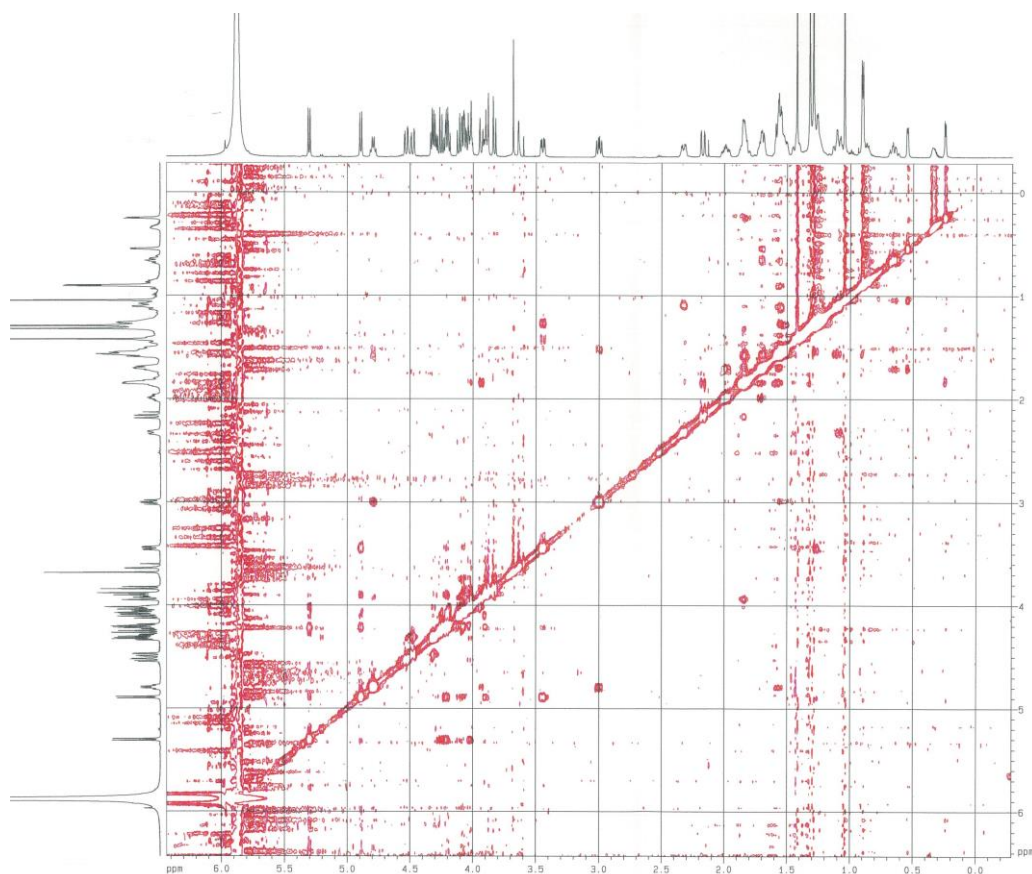
HMQC spectrum of **9** in C₅D₅N



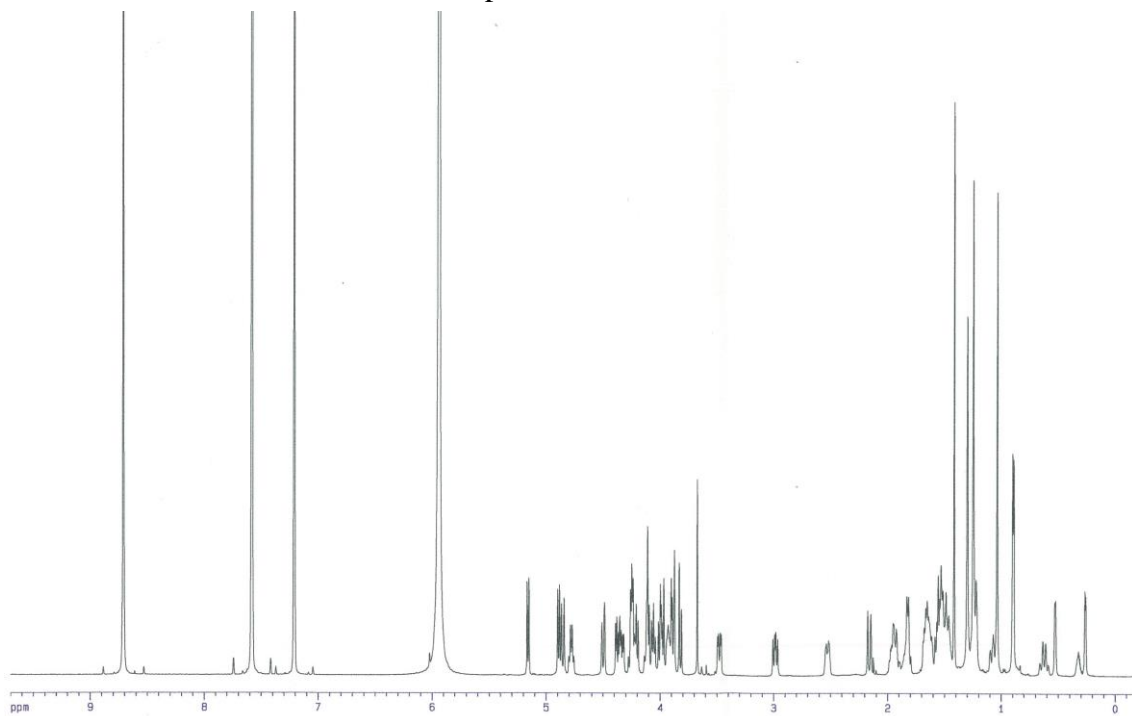
HMBC spectrum of **9** in C₅D₅N

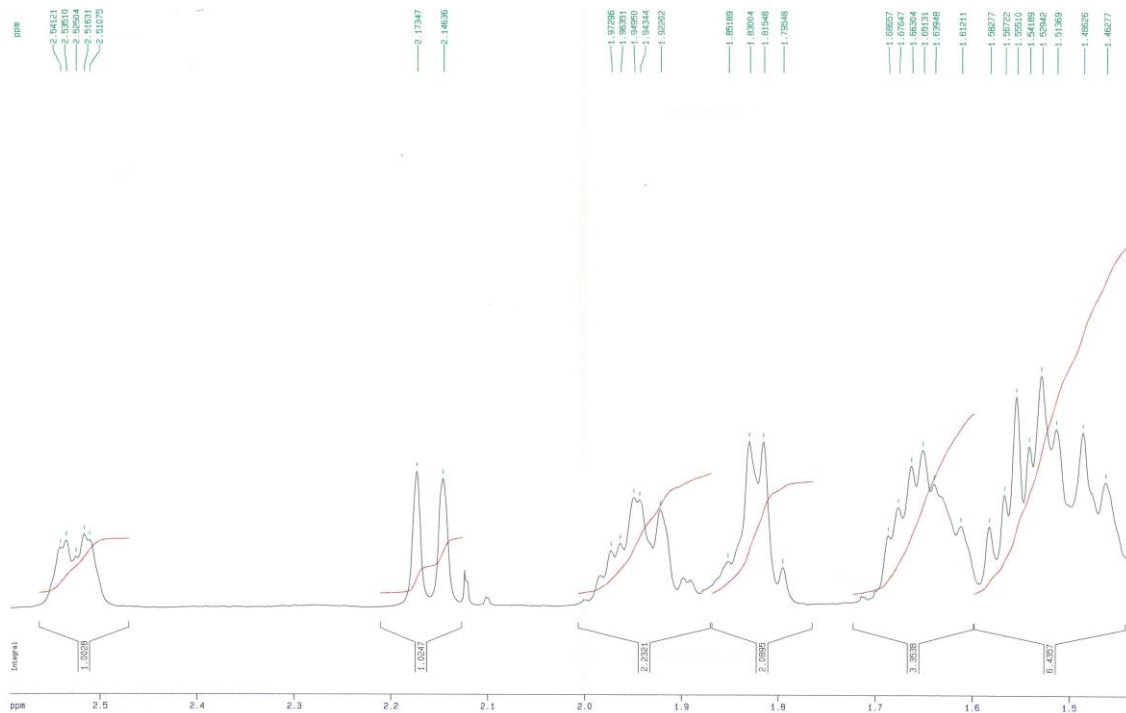
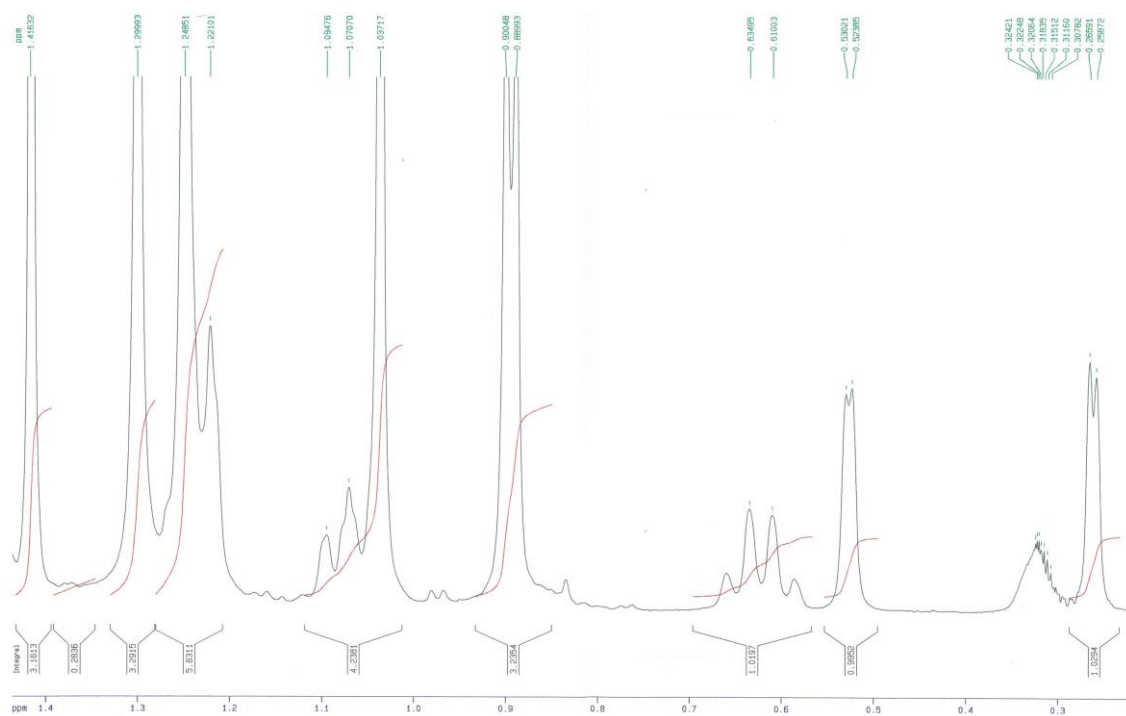


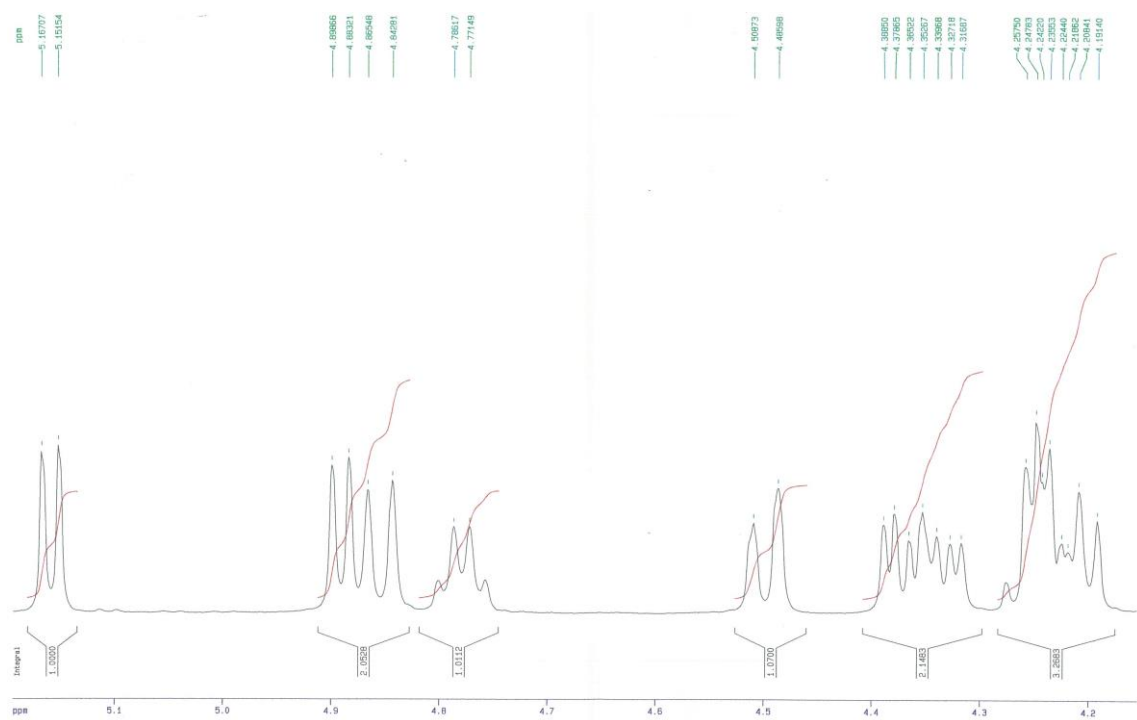
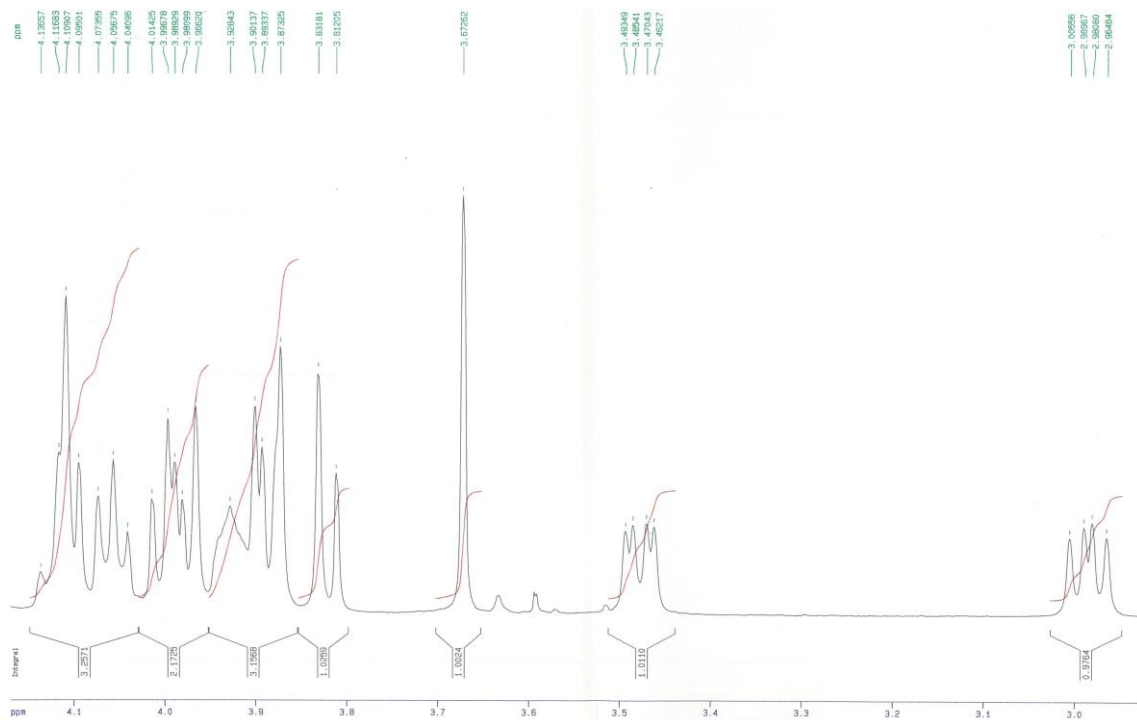
NOESY spectrum of **9** in C₅D₅N



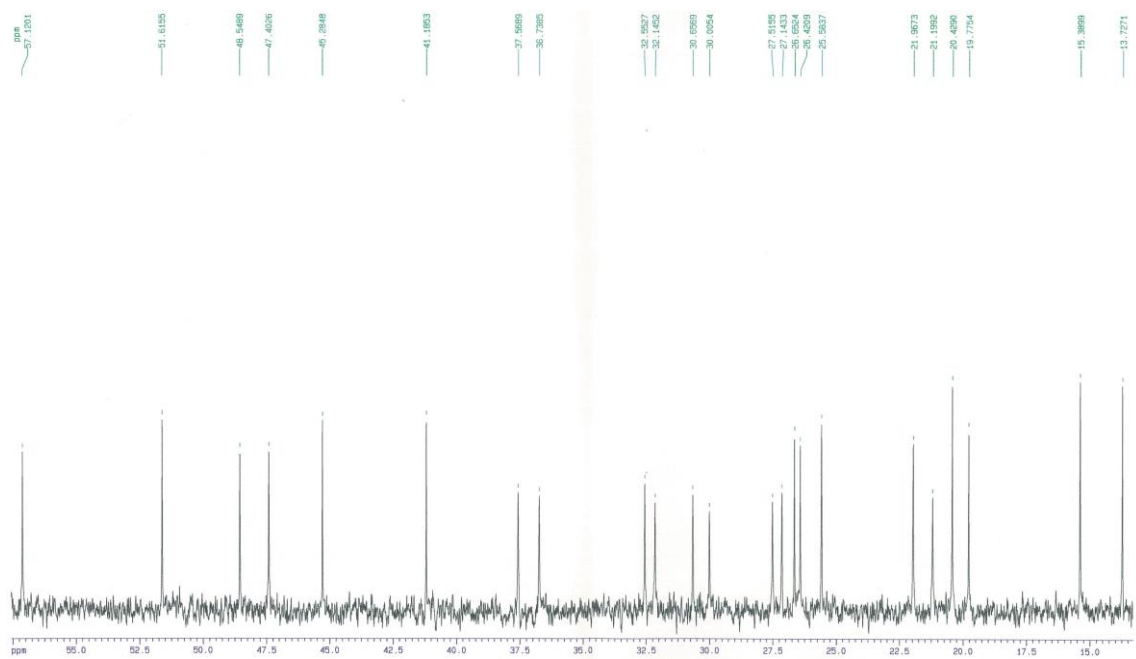
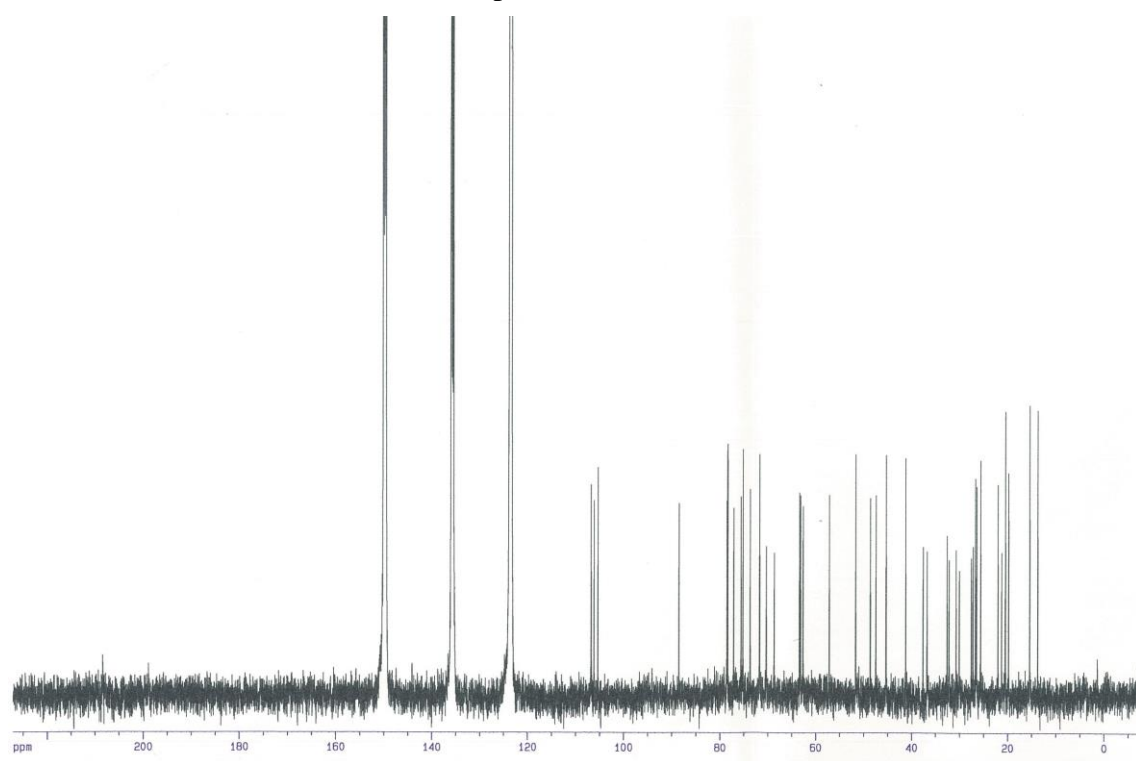
¹H-NMR spectrum of **10** in C₅D₅N

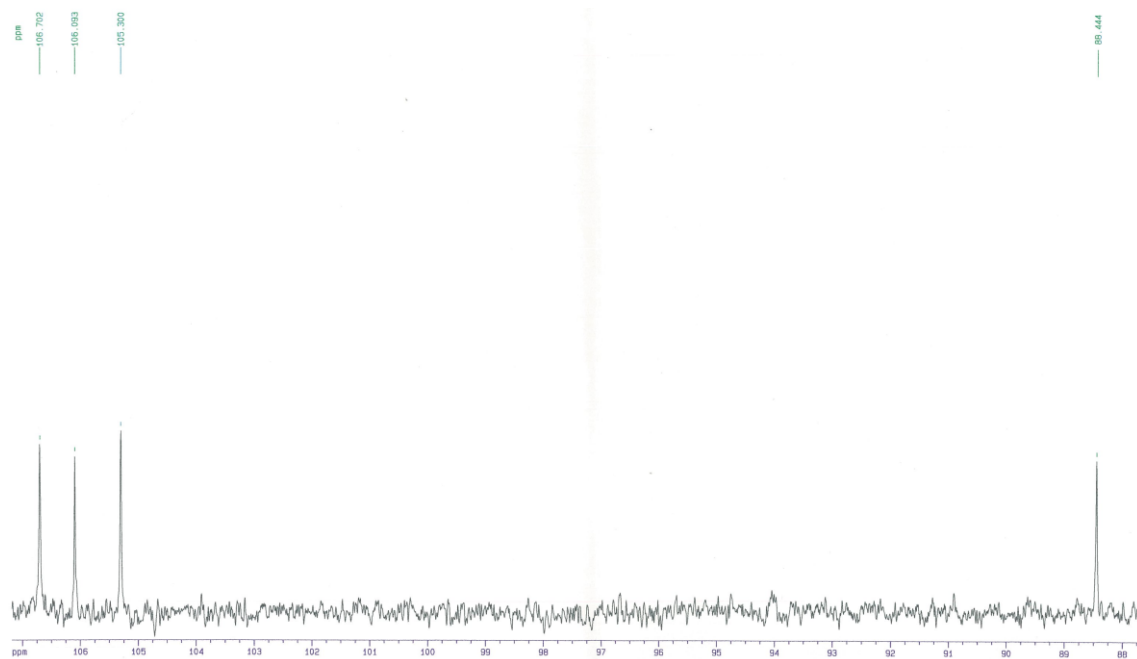
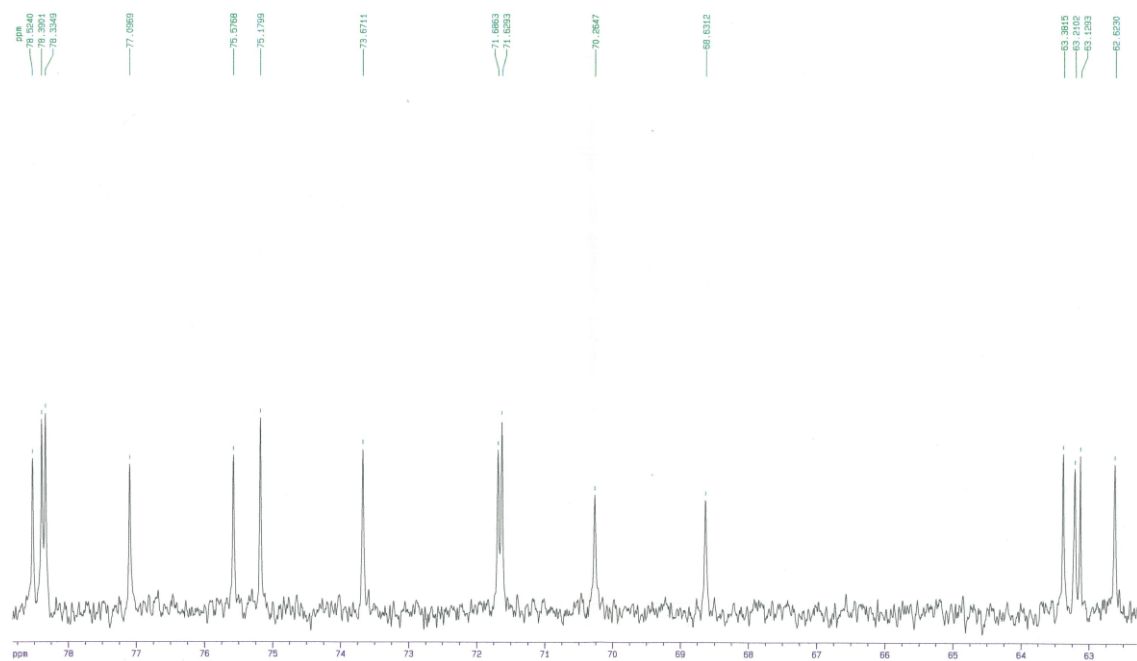




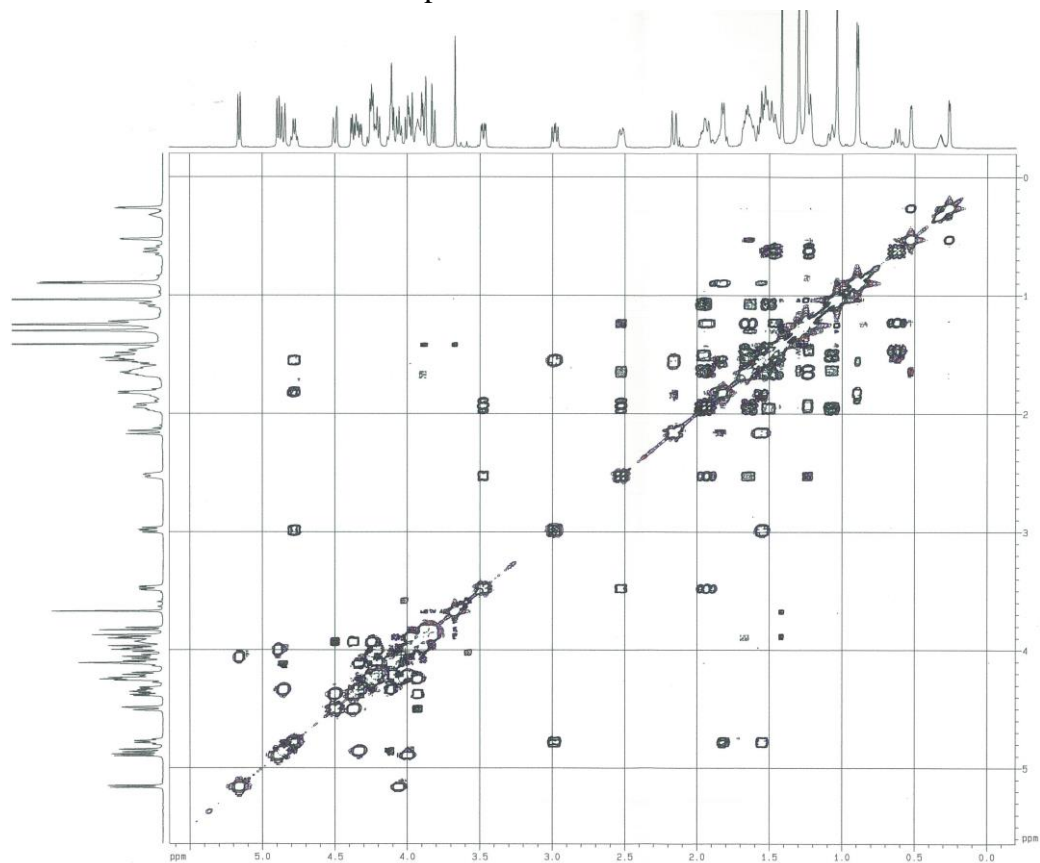


^{13}C -NMR spectrum of **10** in $\text{C}_5\text{D}_5\text{N}$

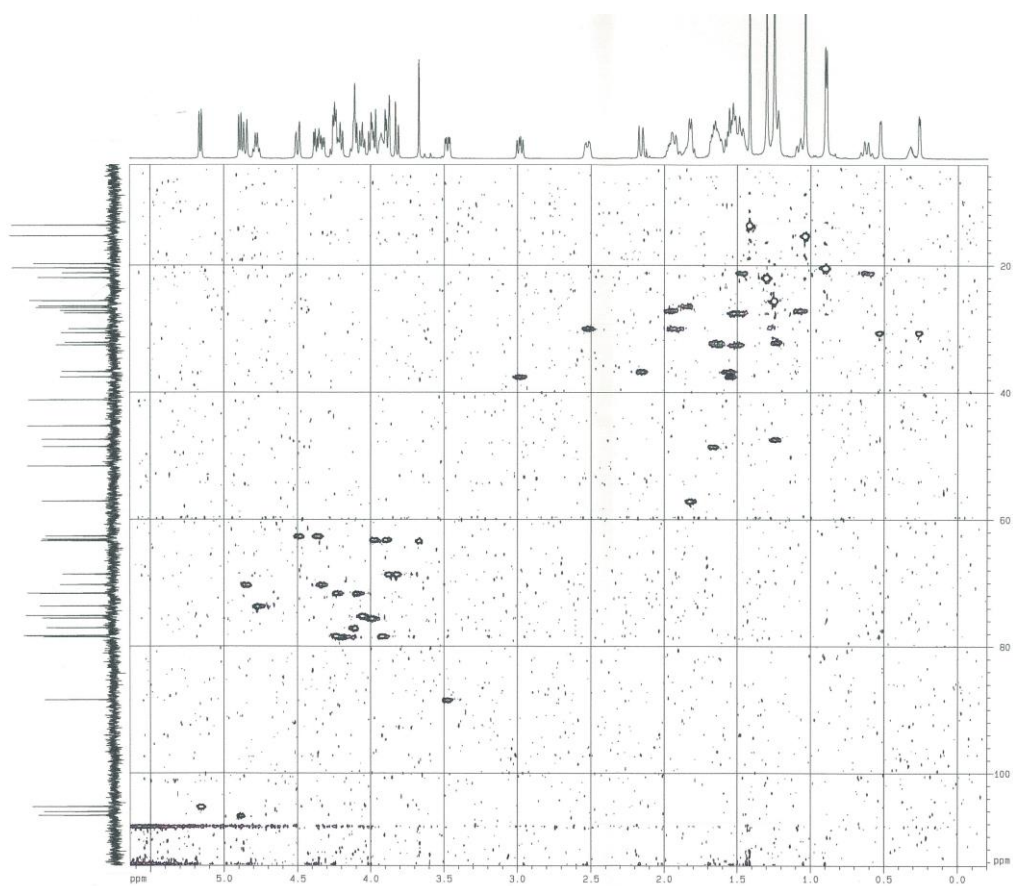




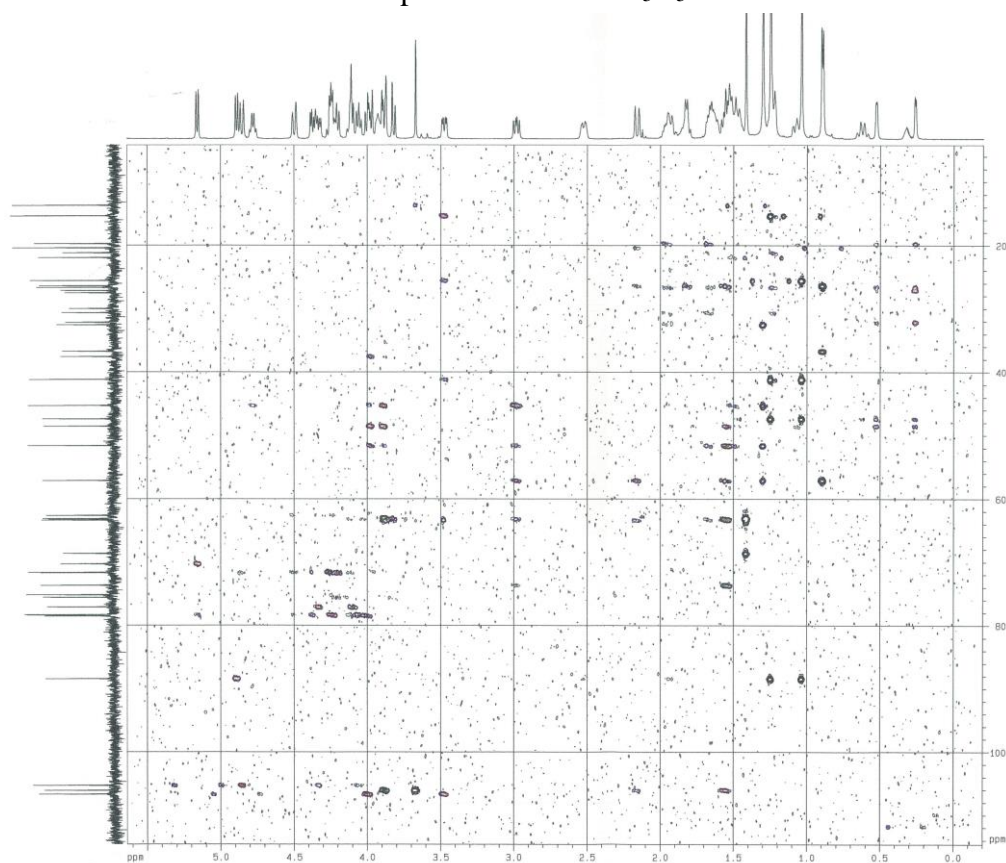
COSY spectrum of **10** in C₅D₅N



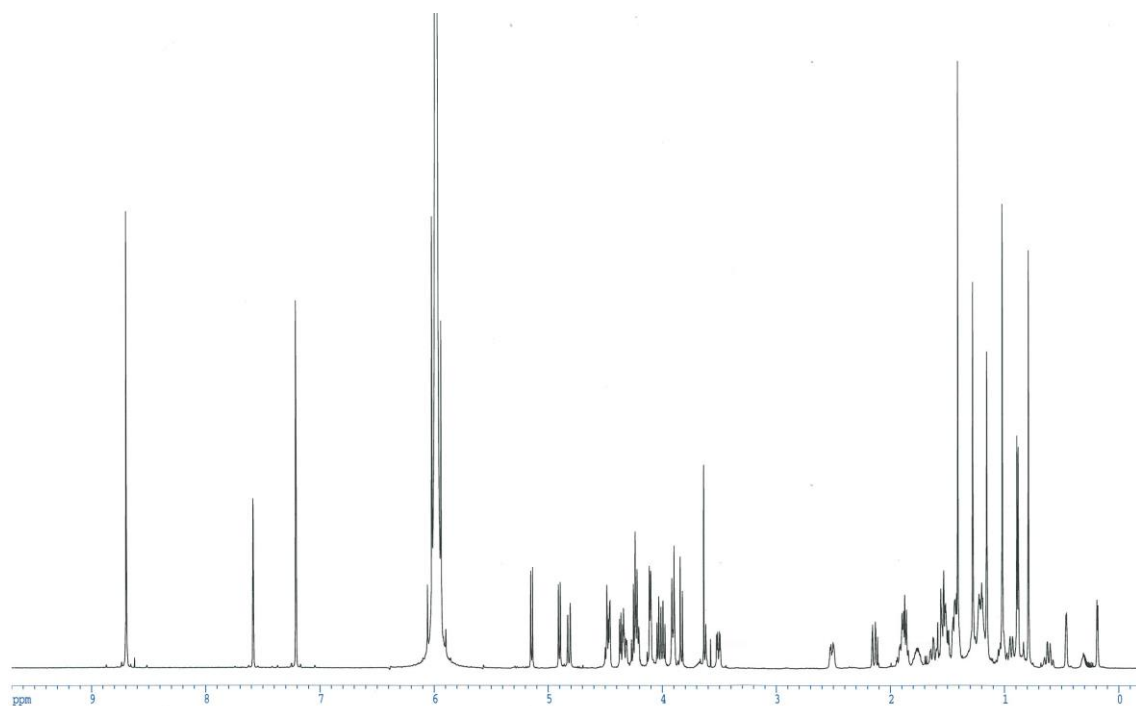
HMQC spectrum of **10** in C₅D₅N

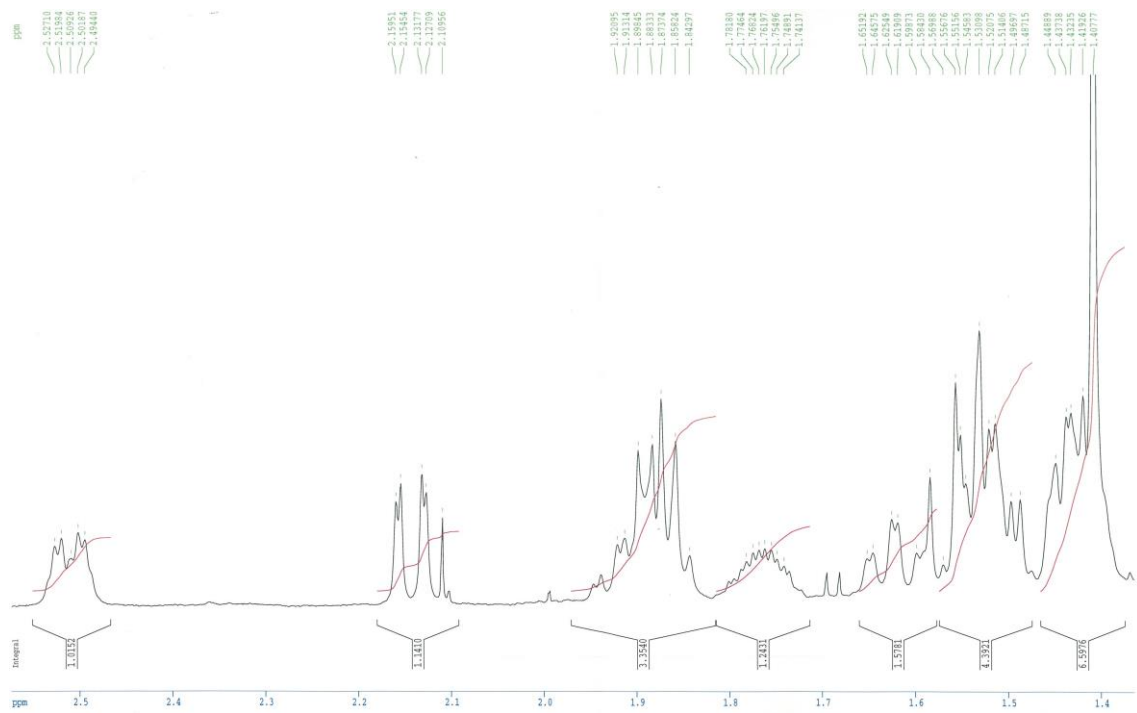
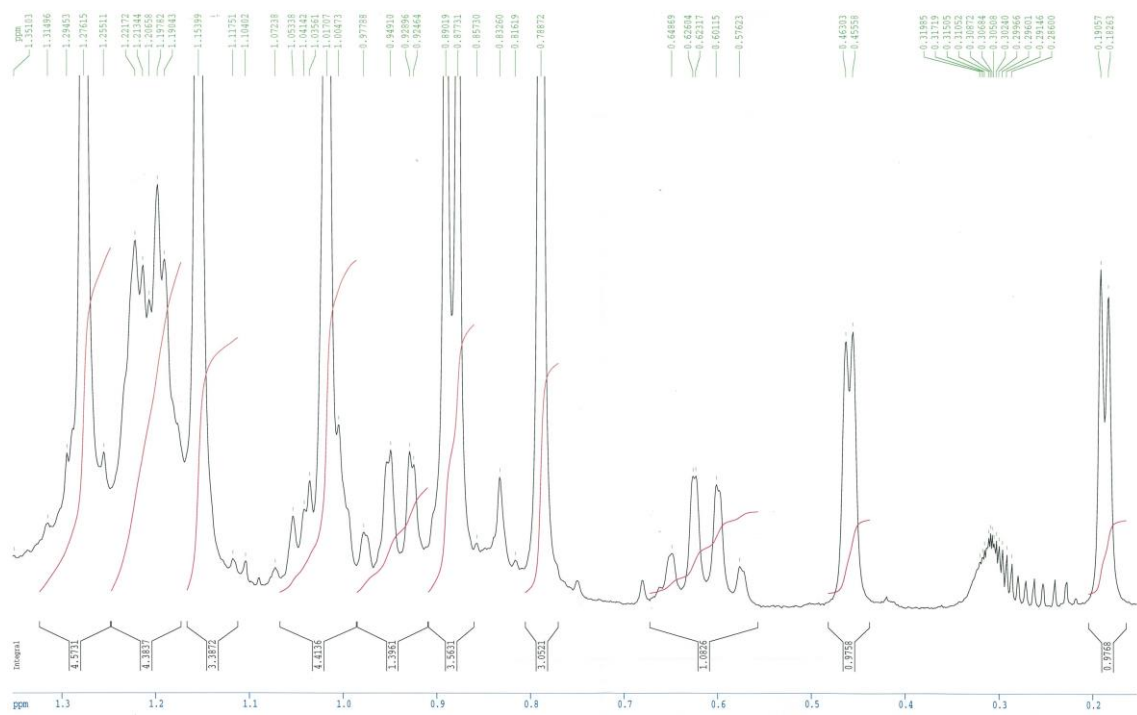


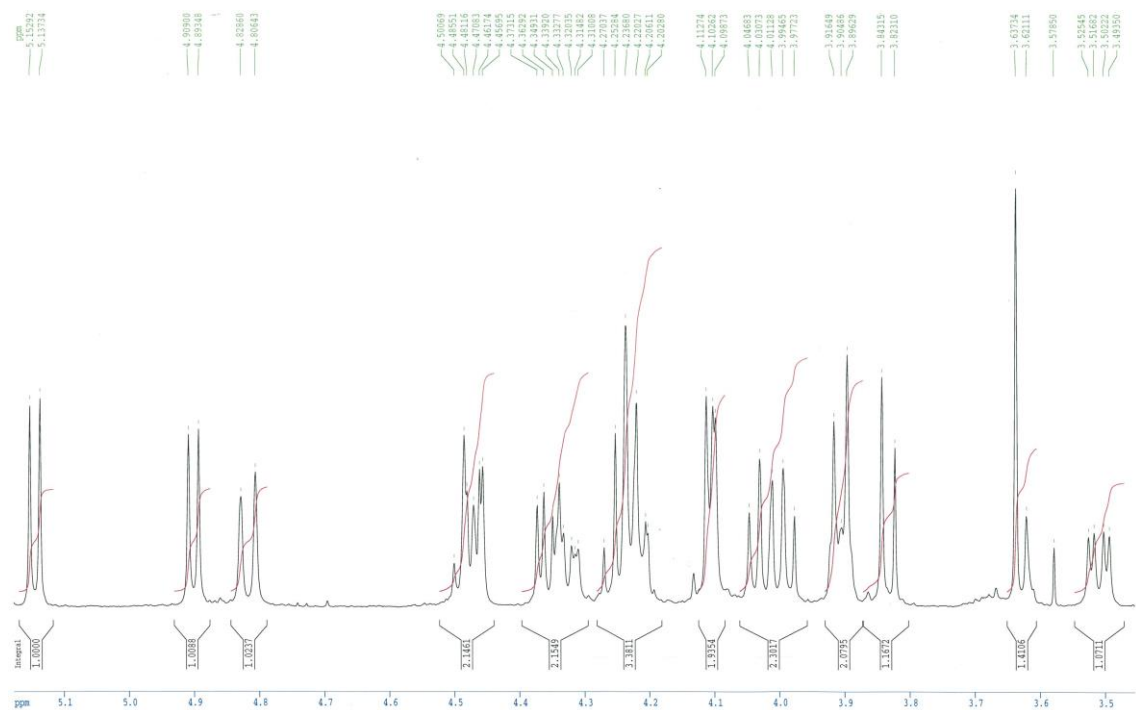
HMBC spectrum of **10** in C₅D₅N



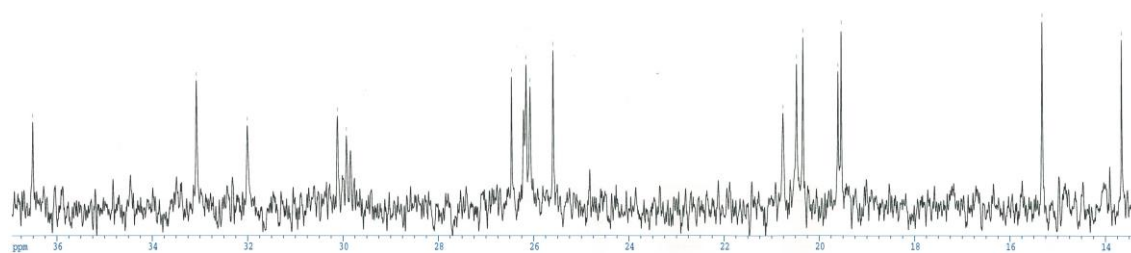
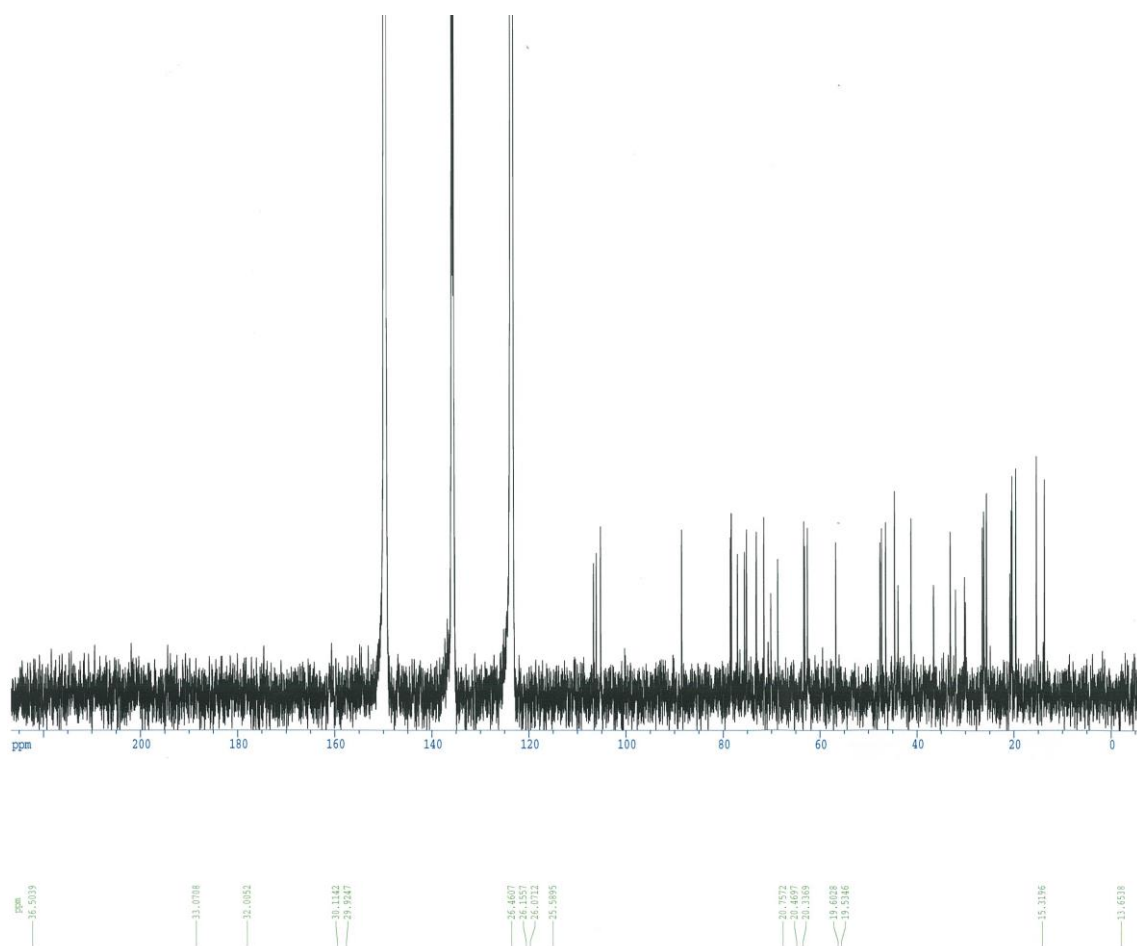
¹H-NMR spectrum of **11** in C₅D₅N

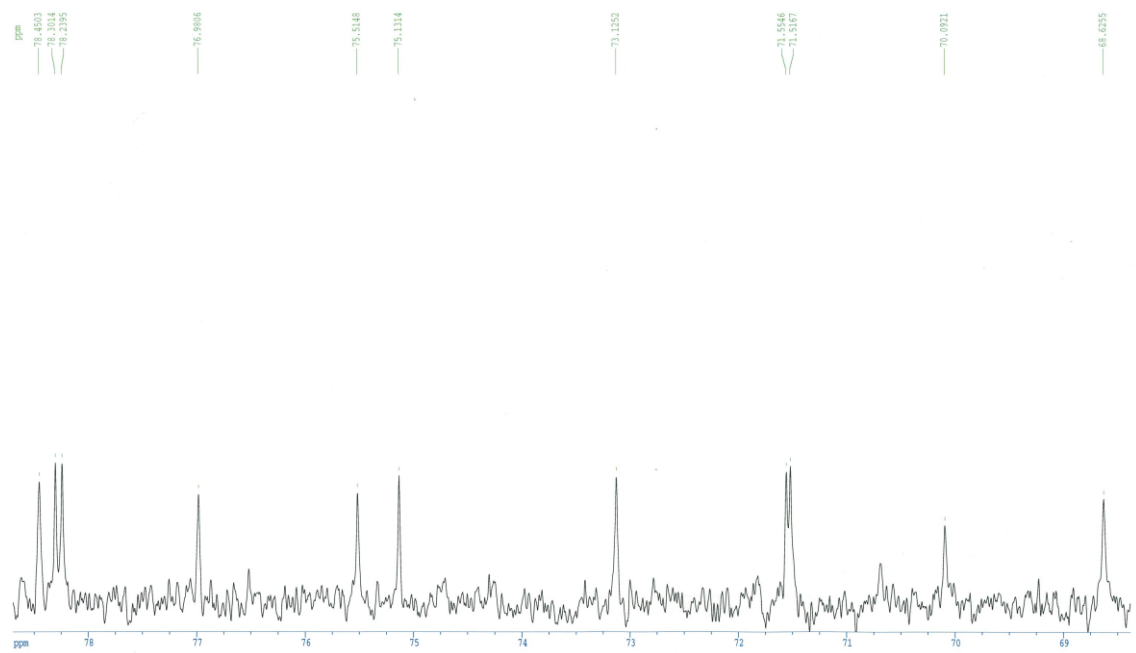
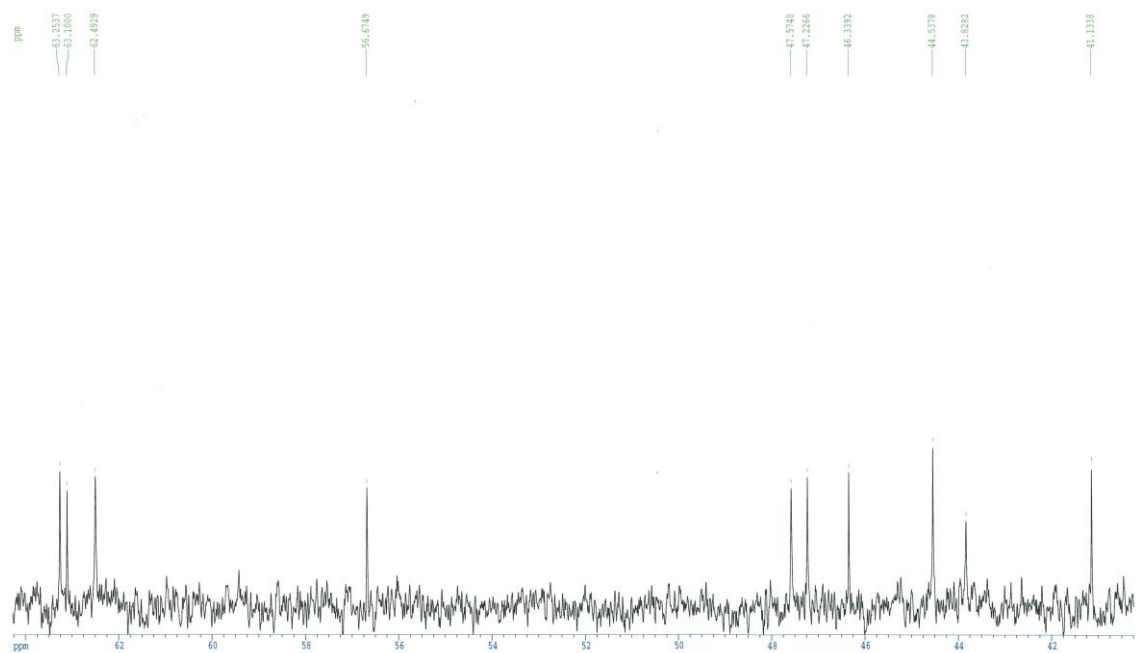


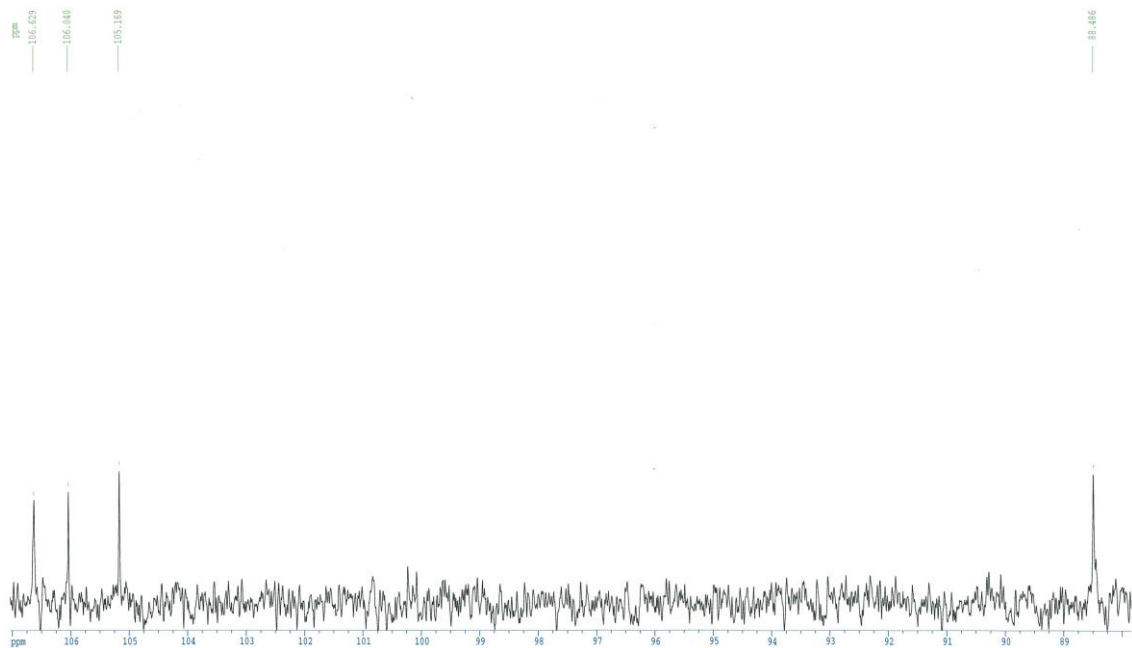




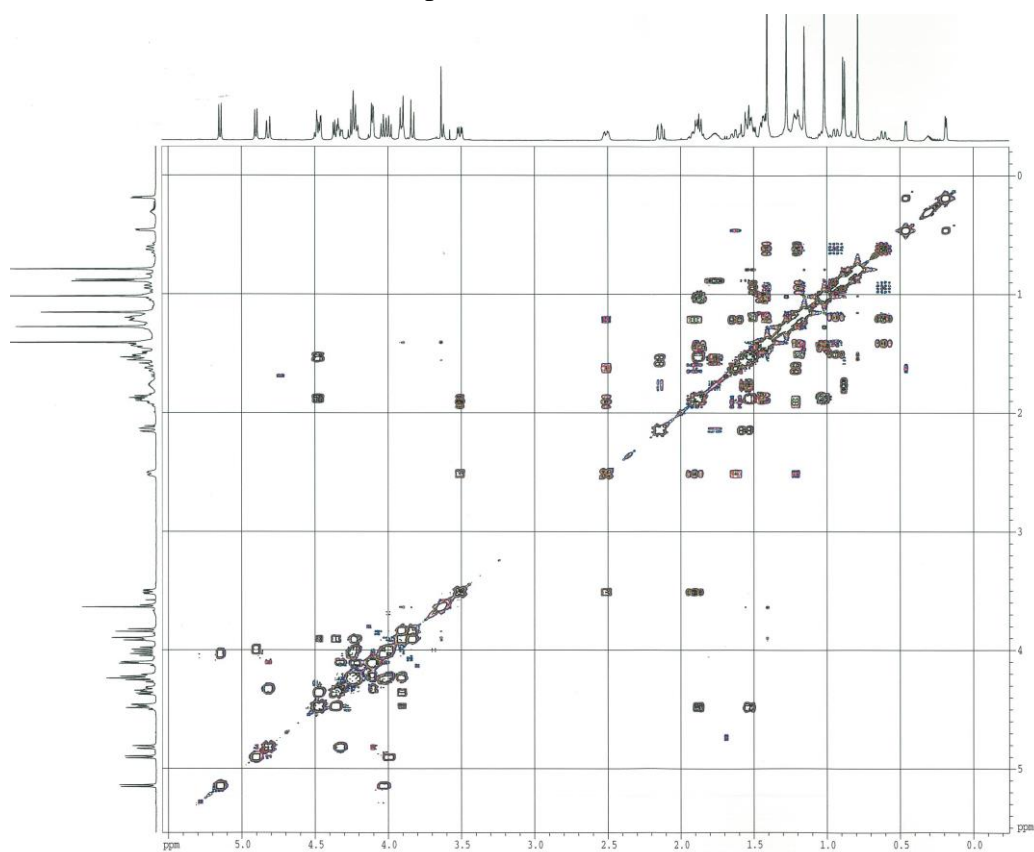
^{13}C -NMR spectrum of **11** in $\text{C}_5\text{D}_5\text{N}$



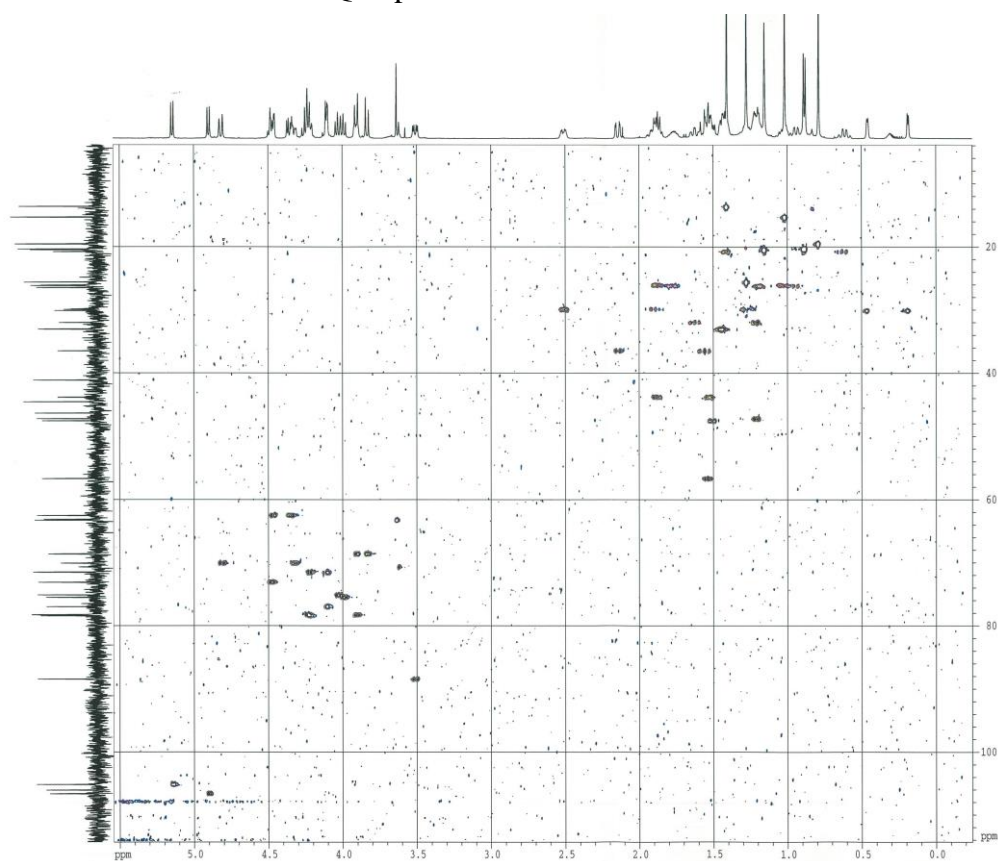




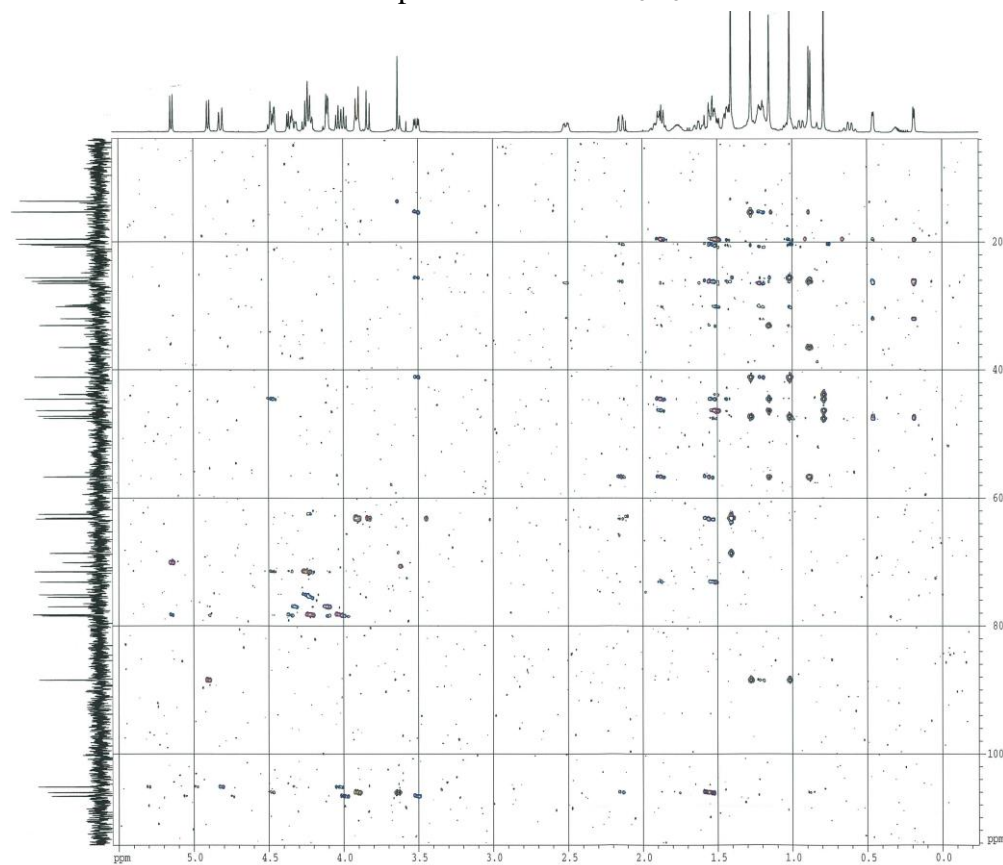
COSY spectrum of **11** in C_5D_5N



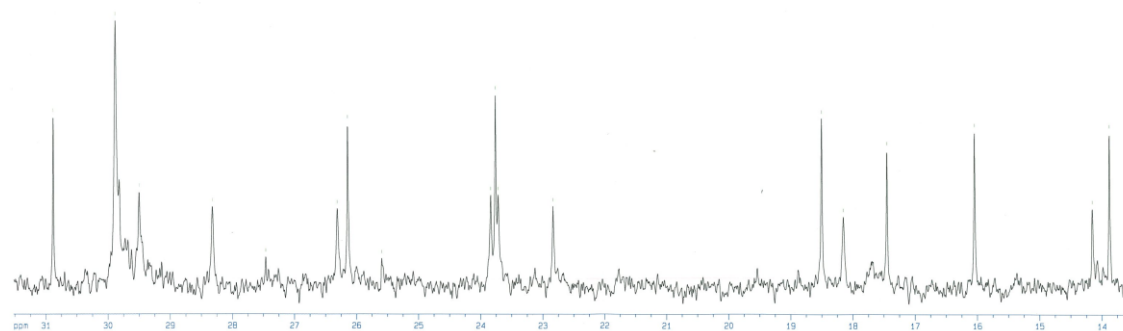
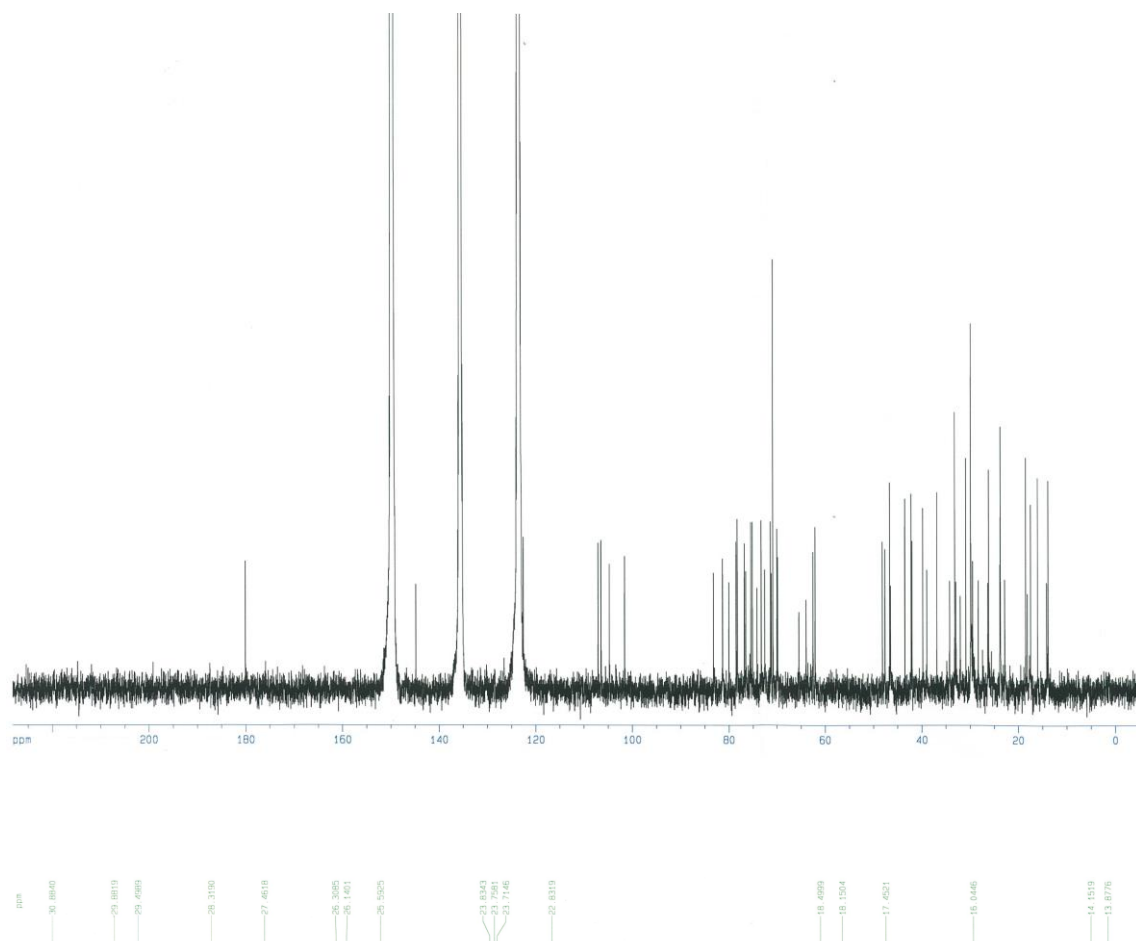
HMQC spectrum of **11** in C₅D₅N

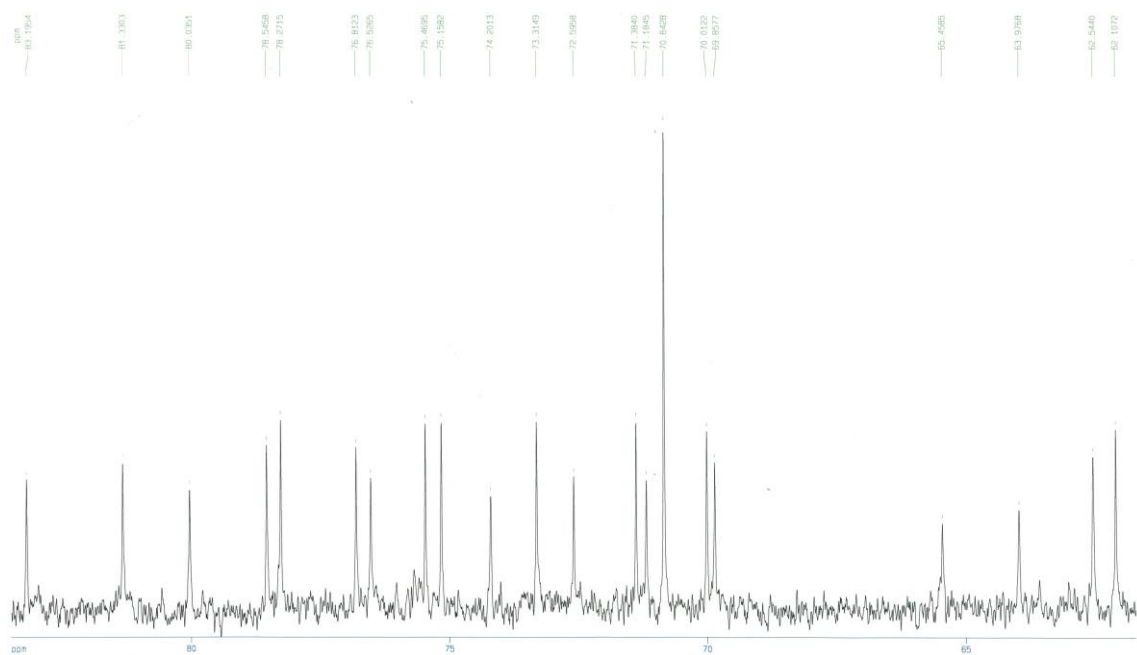
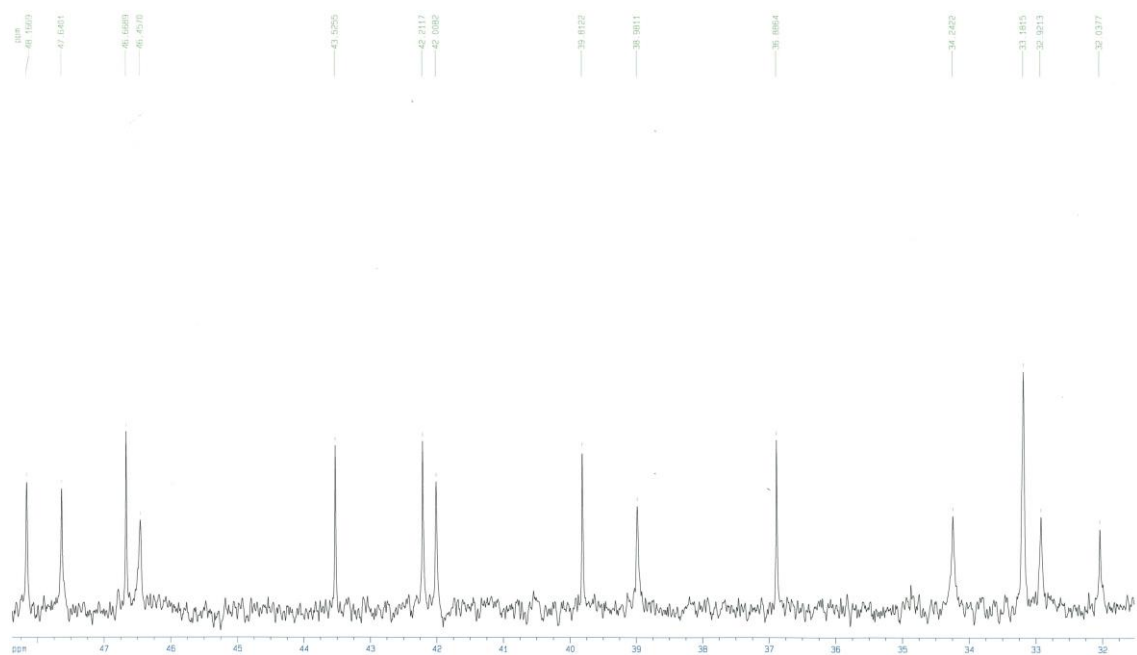


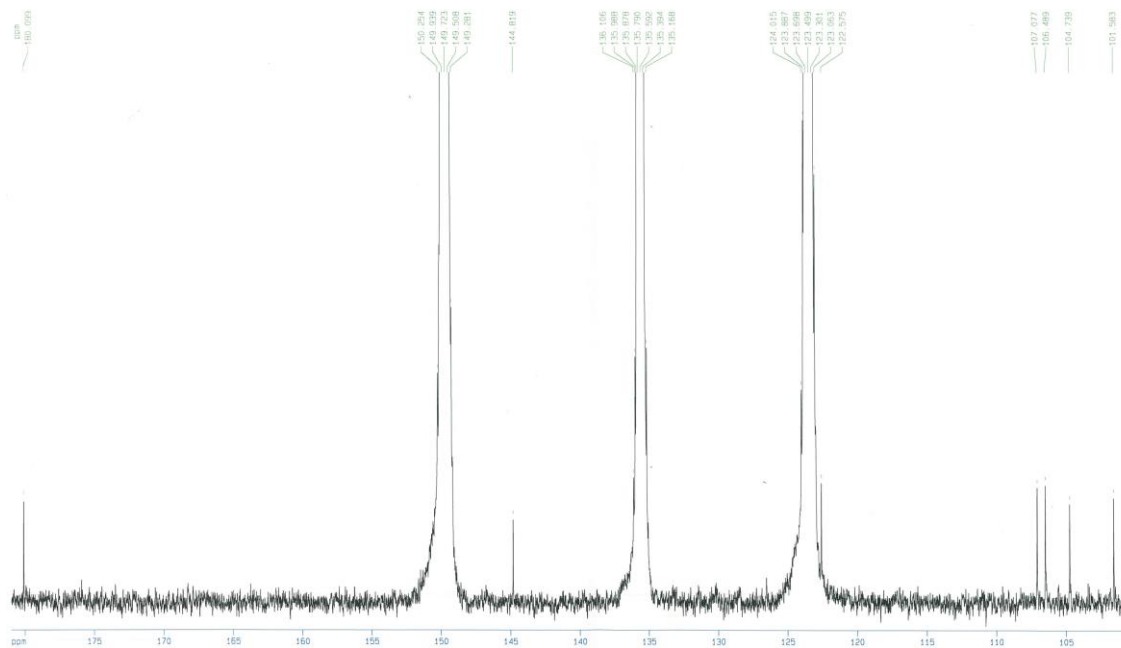
HMBC spectrum of **11** in C₅D₅N



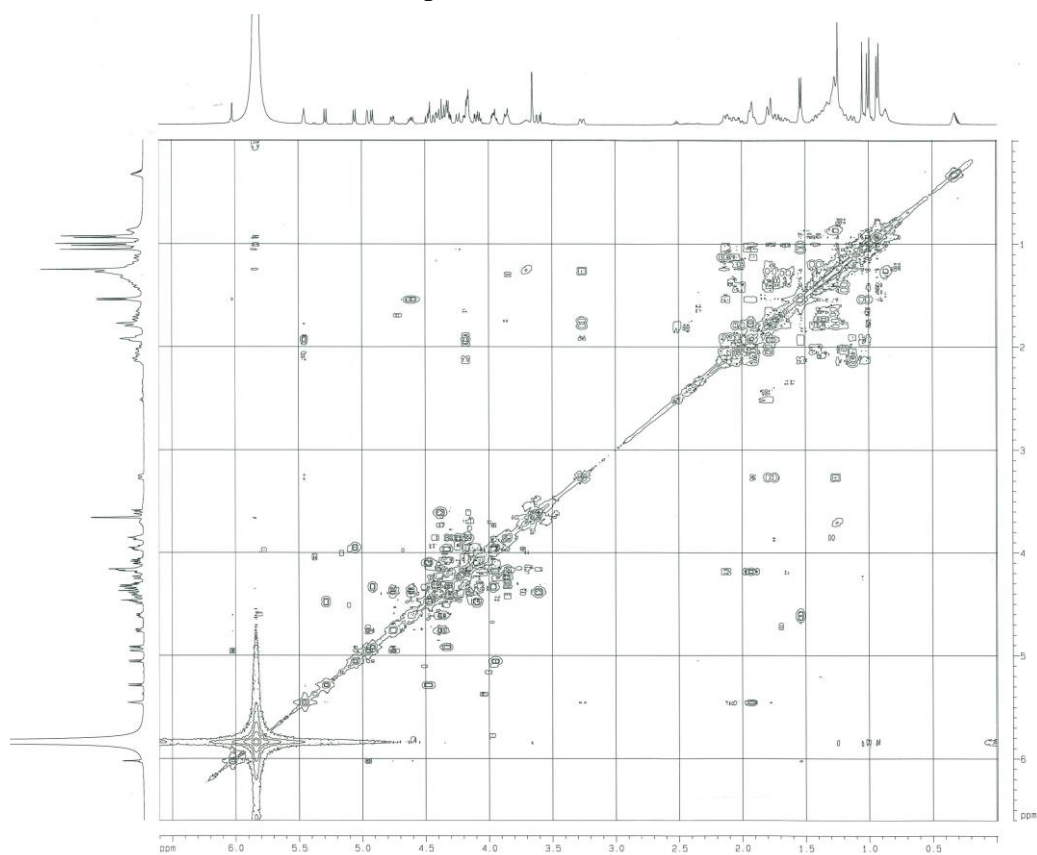
^{13}C -NMR spectrum of **13** in $\text{C}_5\text{D}_5\text{N}$



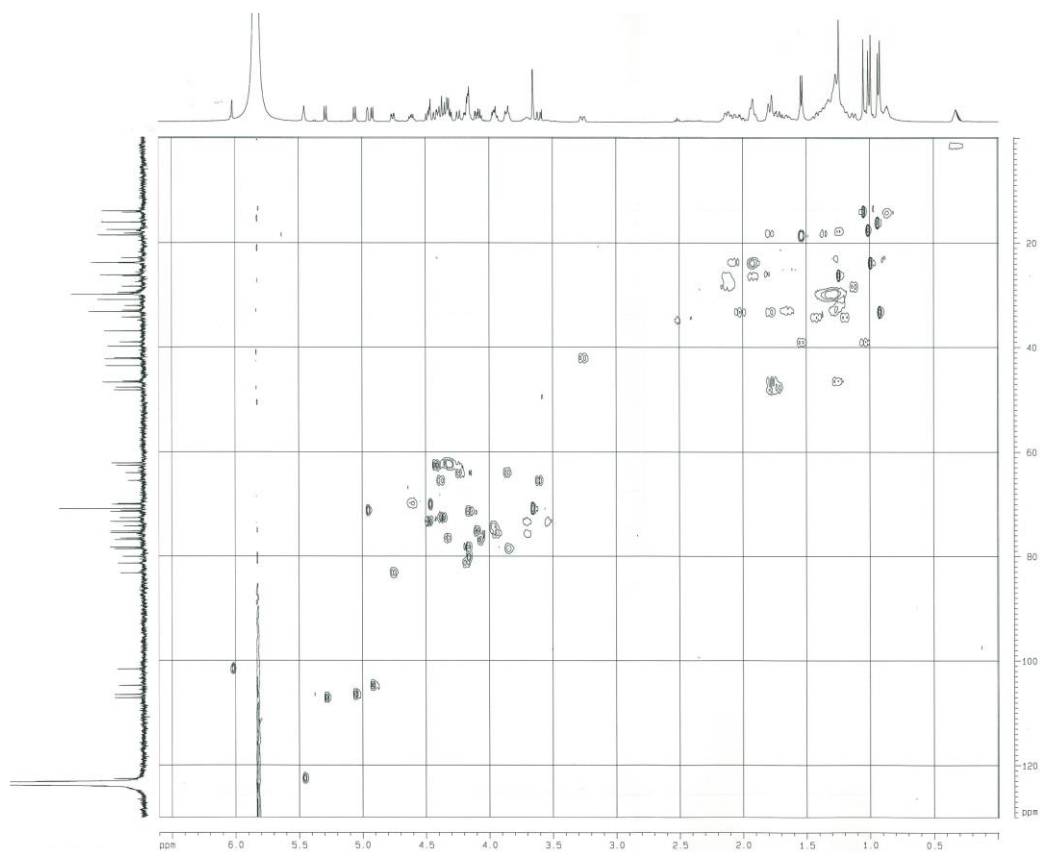




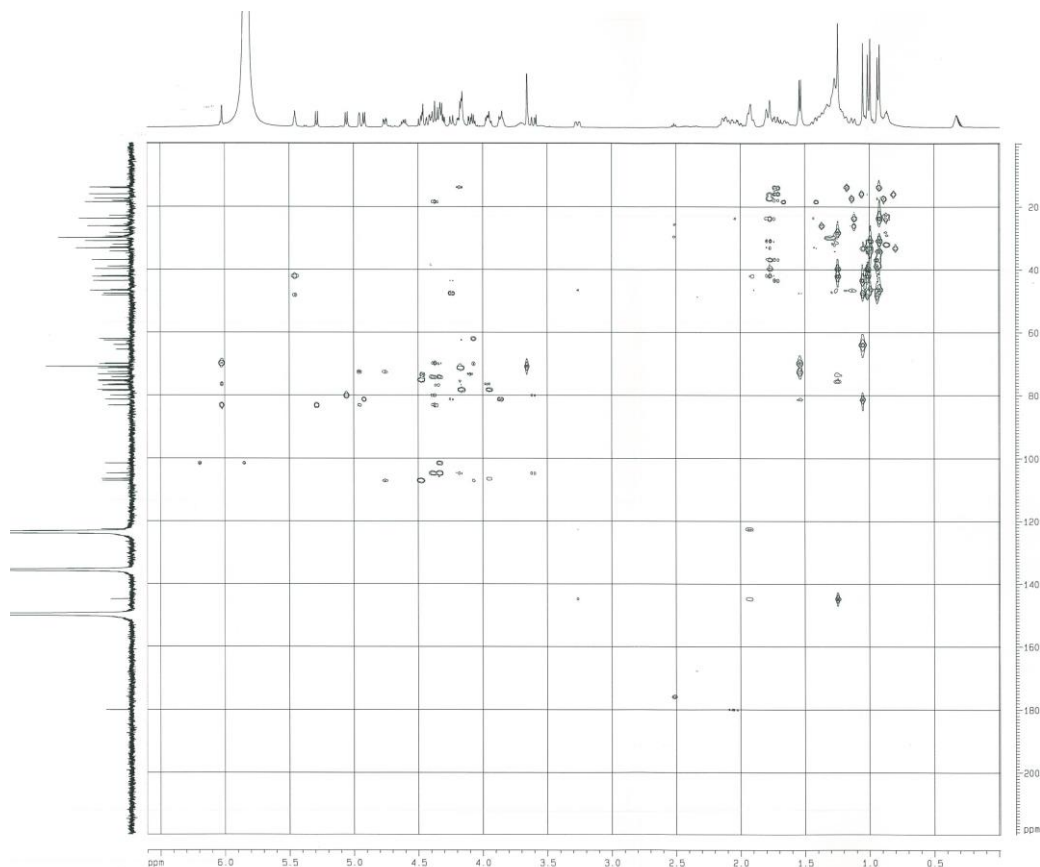
COSY spectrum of **13** in C_5D_5N



HMQC spectrum of **13** in C₅D₅N



HMBC spectrum of **13** in C₅D₅N



NOESY spectrum of **13** in C₅D₅N

