

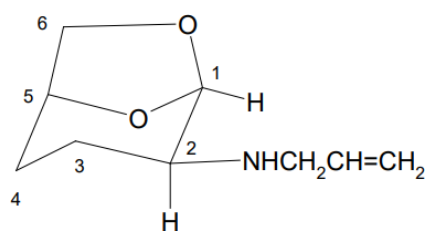
# SUPPLEMENTARY MATERIALS

a) Summary of selected NMR DATA

b) Copy of NMR spectra of the compounds:

- Cyrene, **1**
- Levoglucosenone, **2**
- Allyl amine, **3**
- Propargyl amine, **4**
- Crude chemical reductive amination between cyrene and allyl amine
- Crude reductive amination between cyrene and allyl amine catalyzed by AspRedAm
- Boculated derivatives of the chemical reductive amination between cyrene and allyl amine
- Compounds **5c** and **5d**
- Crude chemical reductive amination between cyrene and propargyl amine
- Crude reductive amination between cyrene and propargyl amine catalyzed by AspRedAm
- Compounds **6a** and **6b**

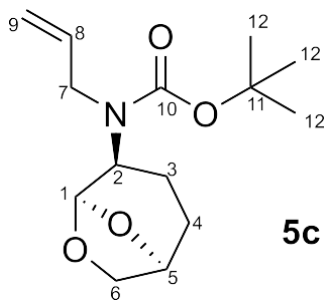




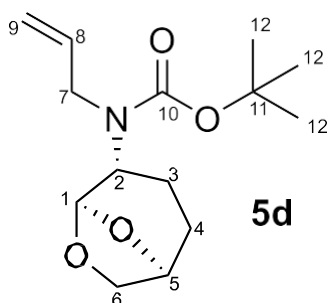
**5a**

Nucleus	$\delta$ (ppm)
H-1	5.41 (1H, s)
H-2	2.66 (1H, ddd (J = 10.6, 5.5, 1.5 Hz))
H-3 <sub>ax</sub>	1.38 (1H, tdd, J = 12.8, 10.7, 6.4 Hz)
H-3 <sub>eq</sub>	1.94 (1H, dtq, J = 12.9, 5.5, 1.4 Hz)
H-4 <sub>eq</sub>	1.56 (1H, ddb r, J = 13.8, 5.5 Hz)
H-4 <sub>ax</sub>	1.81 (1H, t br, J = 13.3 Hz)
H-5	4.42 (1H, m)
H-6 <sub>endo</sub>	3.83 (1H, dd, J = 7.1, 0.8 Hz)
H-6 <sub>exo</sub>	3.77 (1H, ddd, J = 6.8, 4.9, 1.4 Hz)
NCH <sub>2</sub>	3.23 (2H, dt, J = 6.0, 1.5 Hz)
CH=	5.80 (1H, m)
=CH <sub>2</sub>	5.10 (1H, dq, J = 17.1, 1.6 Hz) 5.01 (1H, dq, J = 10.2, 1.6 Hz)
NH + H <sub>2</sub> O	ca. 1.3

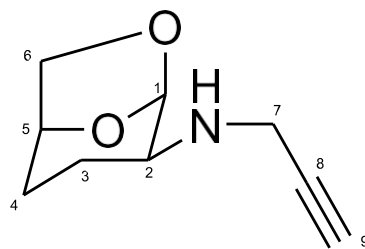
Nucleus	$\delta$ (ppm)
C-1	102.1
C-2	56.4
C-3	24.3
C-4	28.2
C-5	73.2
C-6	68.2
NCH <sub>2</sub>	49.2
CH=	136.9
=CH <sub>2</sub>	115.9



H	ppm	C	ppm
11	1.38	3	18.5
4	1.42	4	26.01
3	1.62	12	28.39
4-3	2.01	7	46.51
6	3.69	2	51.37
6	3.79	6	67.10
7	3.97	5	72.54
7-2	4.05	11	79.89
5	4.50	1	102.66
9	4.99	9	114.51
9	5.07	8	136.59
1	5.30	10	155.67
8	5.82		

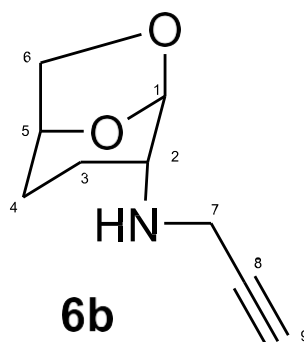


H	ppm	C	ppm
11	1.38	3	20.92
4	1.53	4	26.61
3	1.65	12	28.37
3	1.74	7	44.86
4	1.90	2	55.37
6	3.72	6	68.11
6	3.81	5	72.94
7	3.87	11	79.90
2	4.26	1	103.62
5	4.42	9	114.42
9	5.00	8	136.06
1	5.26	10	175.28
8	5.74		



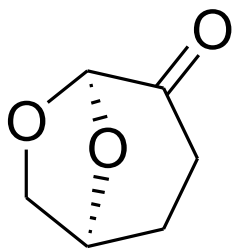
**6a**

H	ppm	C	ppm
3	1.430	3	23.936
4	1.573	4	28.033
4	1.898	7	35.459
3	1.969	2	56.412
9	2.221	6	68.199
2	2.847	9	71.382
7	3.475	5	73.066
6	3.731	8	82.254
6	3.836	1	101.934
5	4.509		
1	5.455		

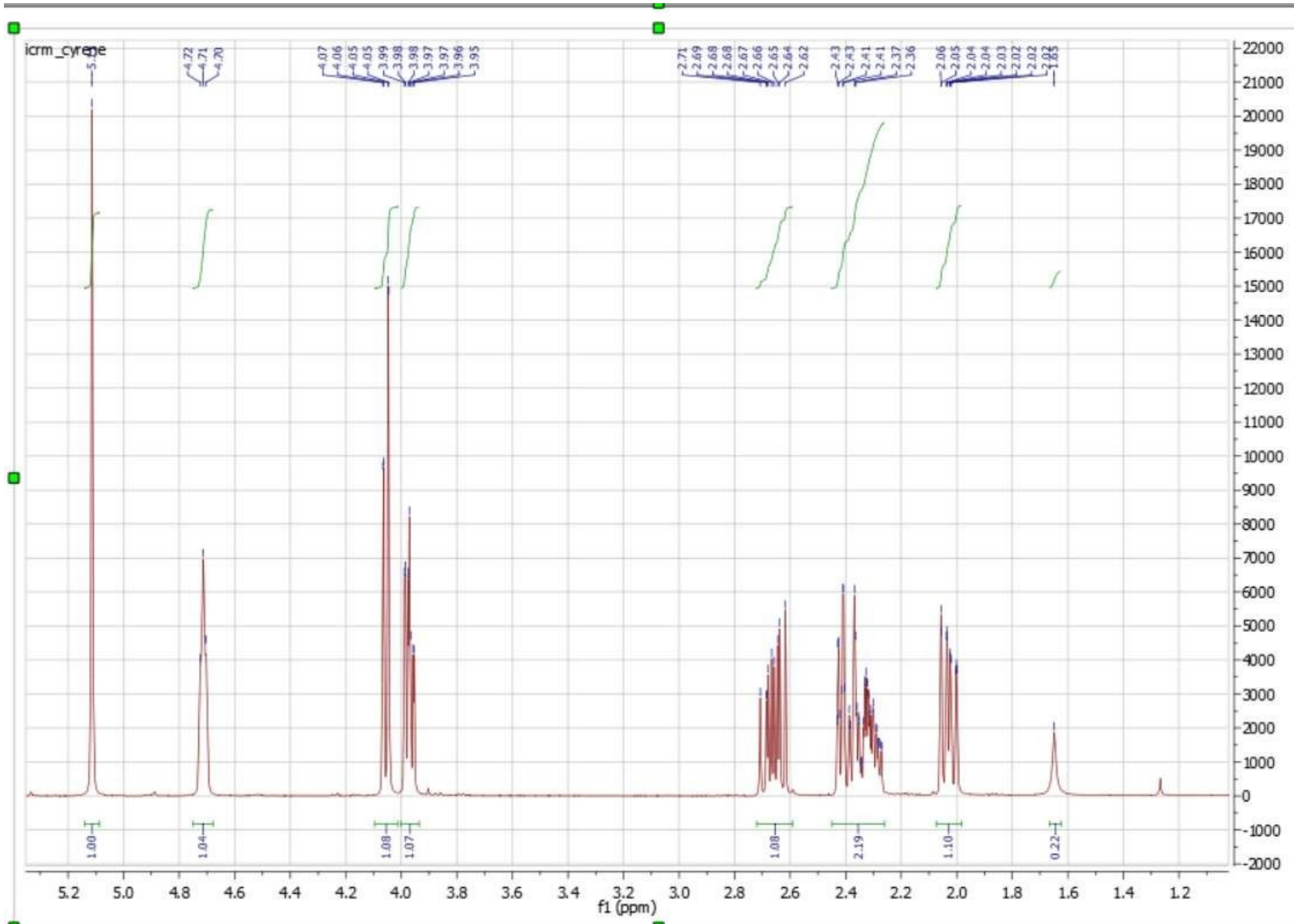


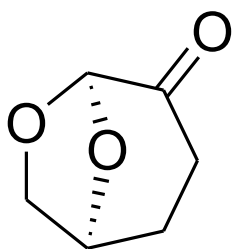
**6b**

H	ppm	C	ppm
4	1.413	3	19.978
3	1.694	4	25.128
3	1.929	7	36.257
4	2.004	2	54.822
9	2.218	6	67.031
2	2.777	9	71.334
7	3.479	5	73.294
6	3.780	8	82.318
6	3.916	1	102.274
5	4.468		
1	5.424		

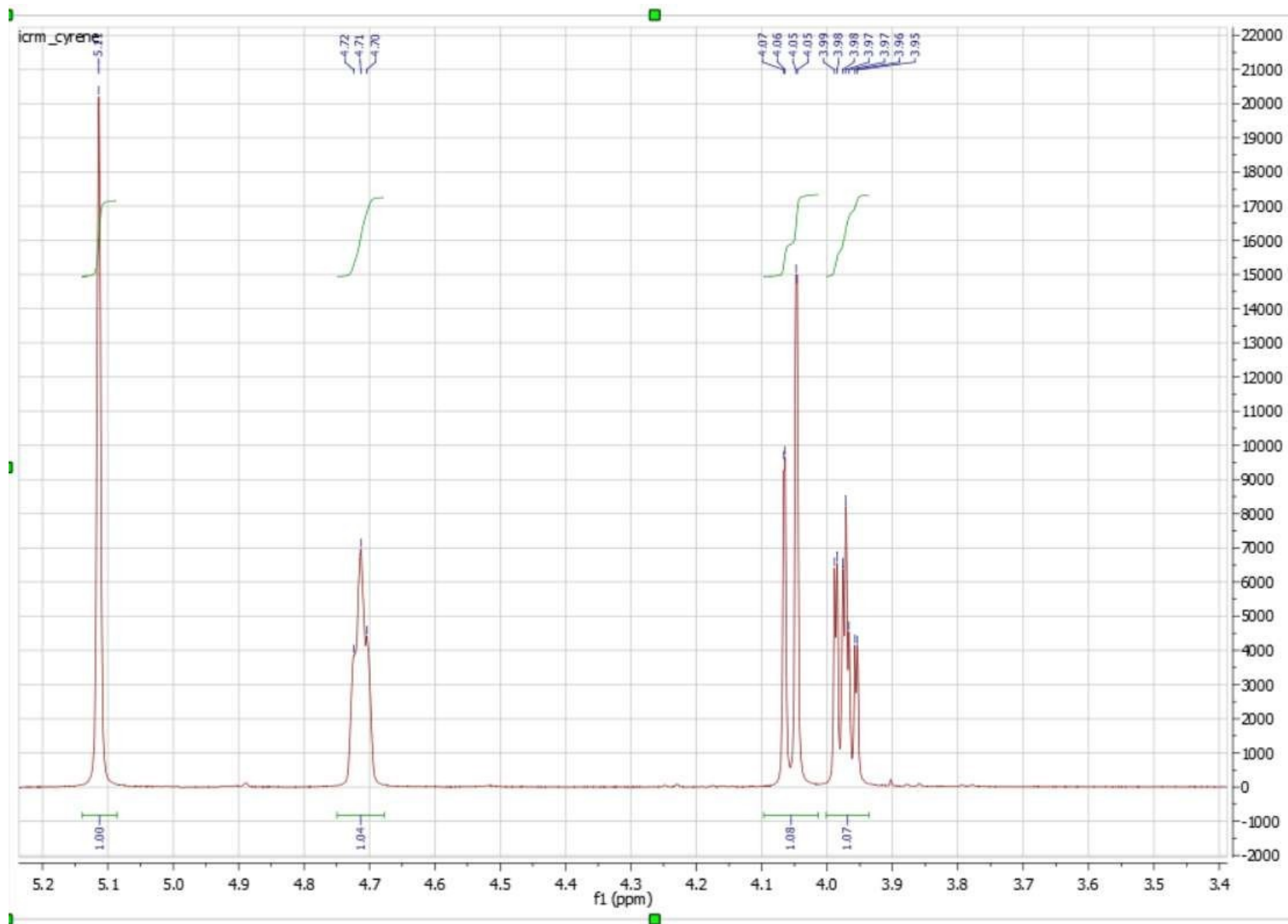


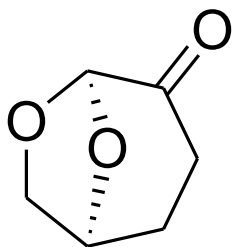
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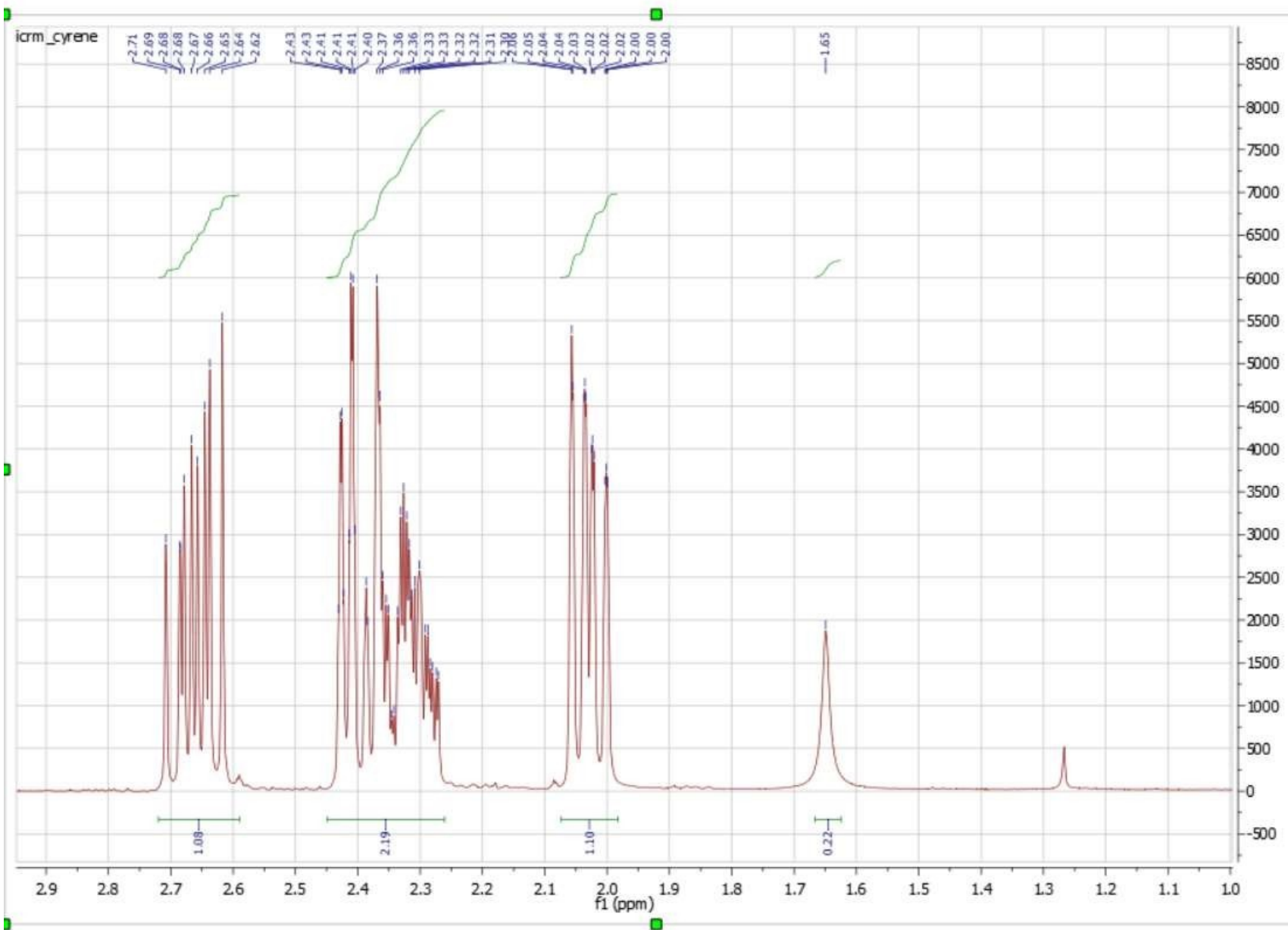


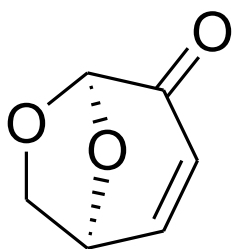
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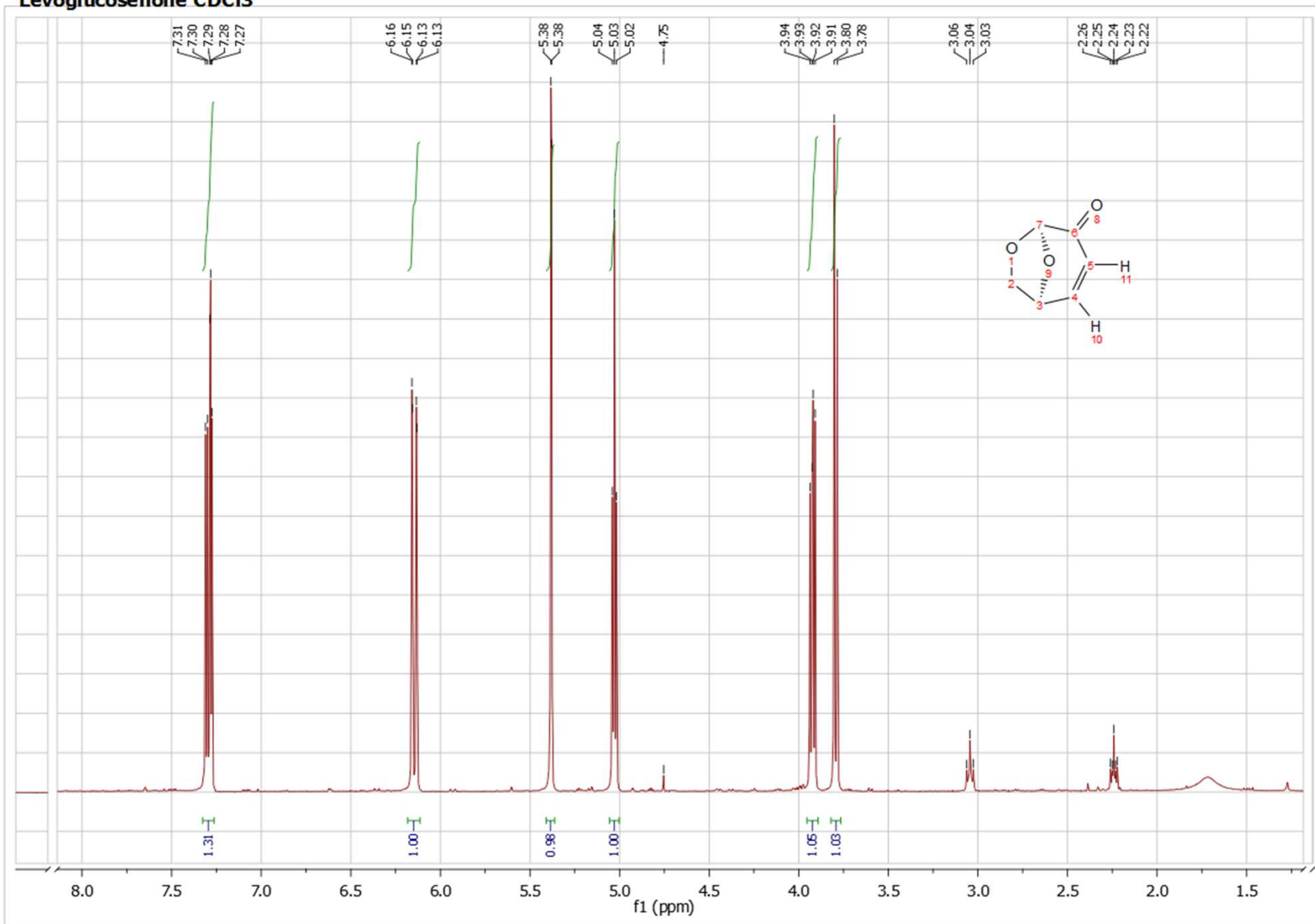
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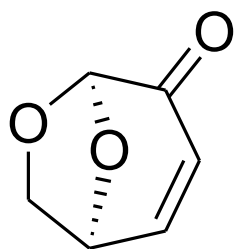




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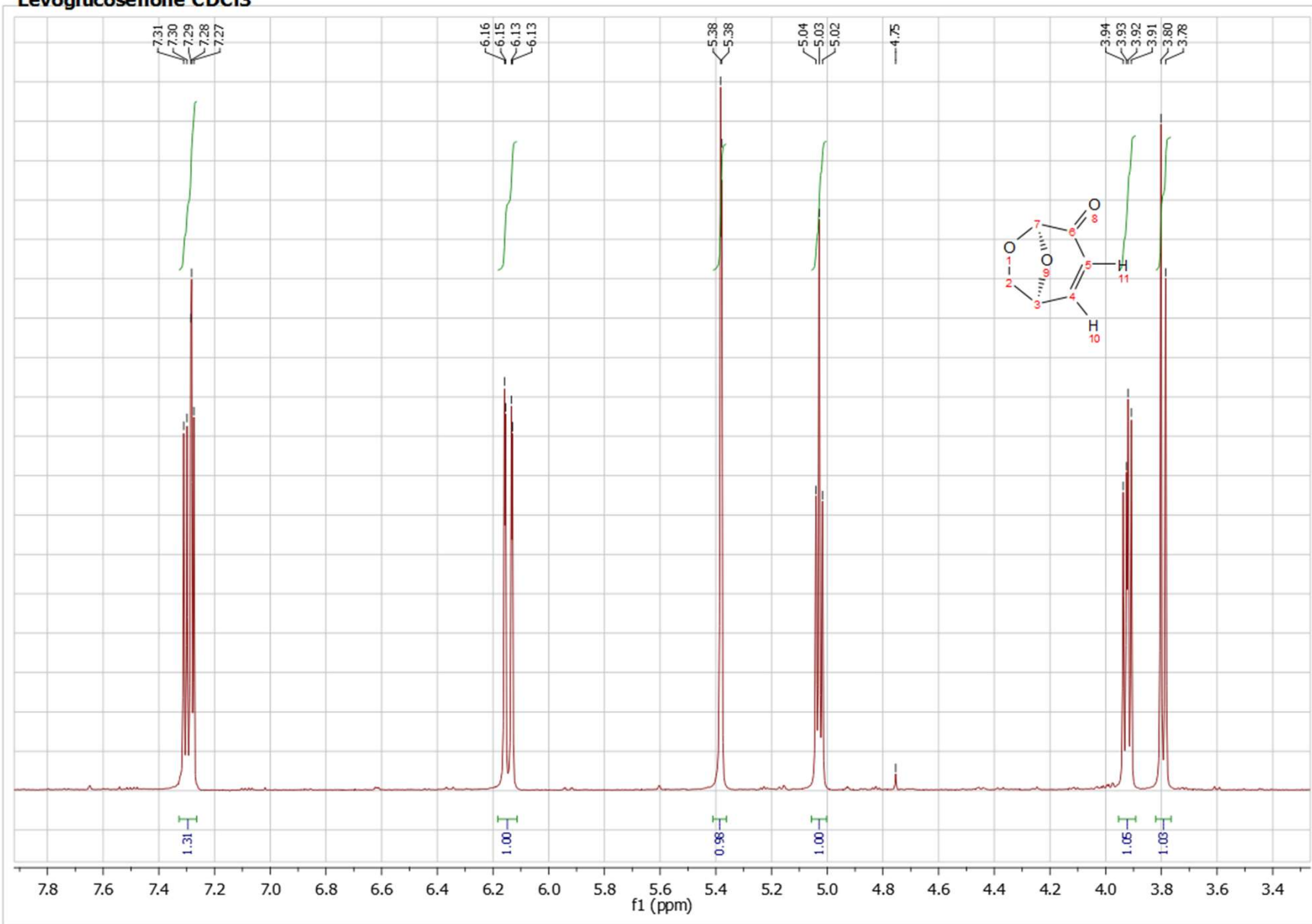
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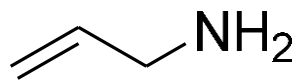




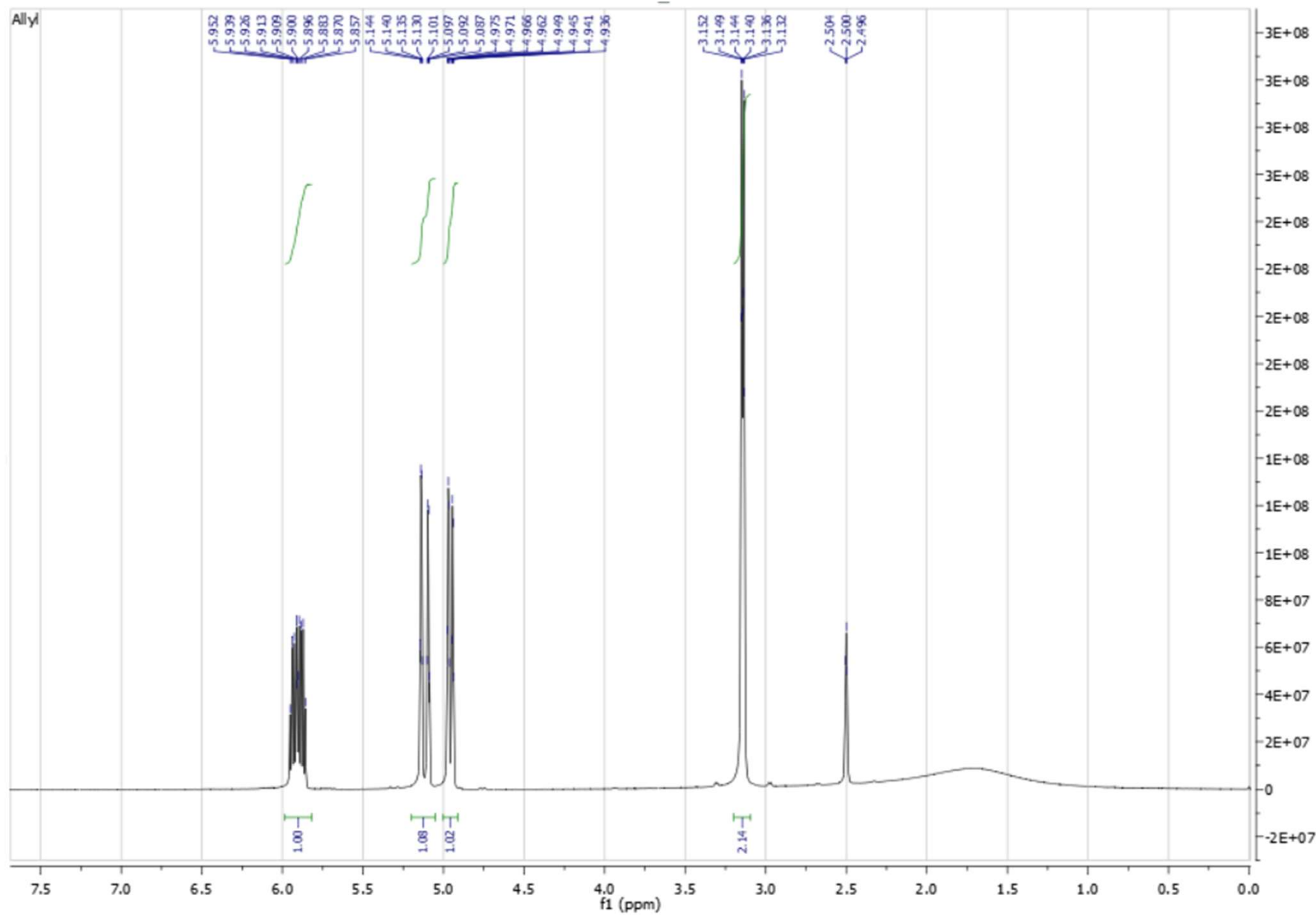
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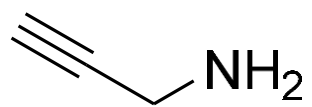
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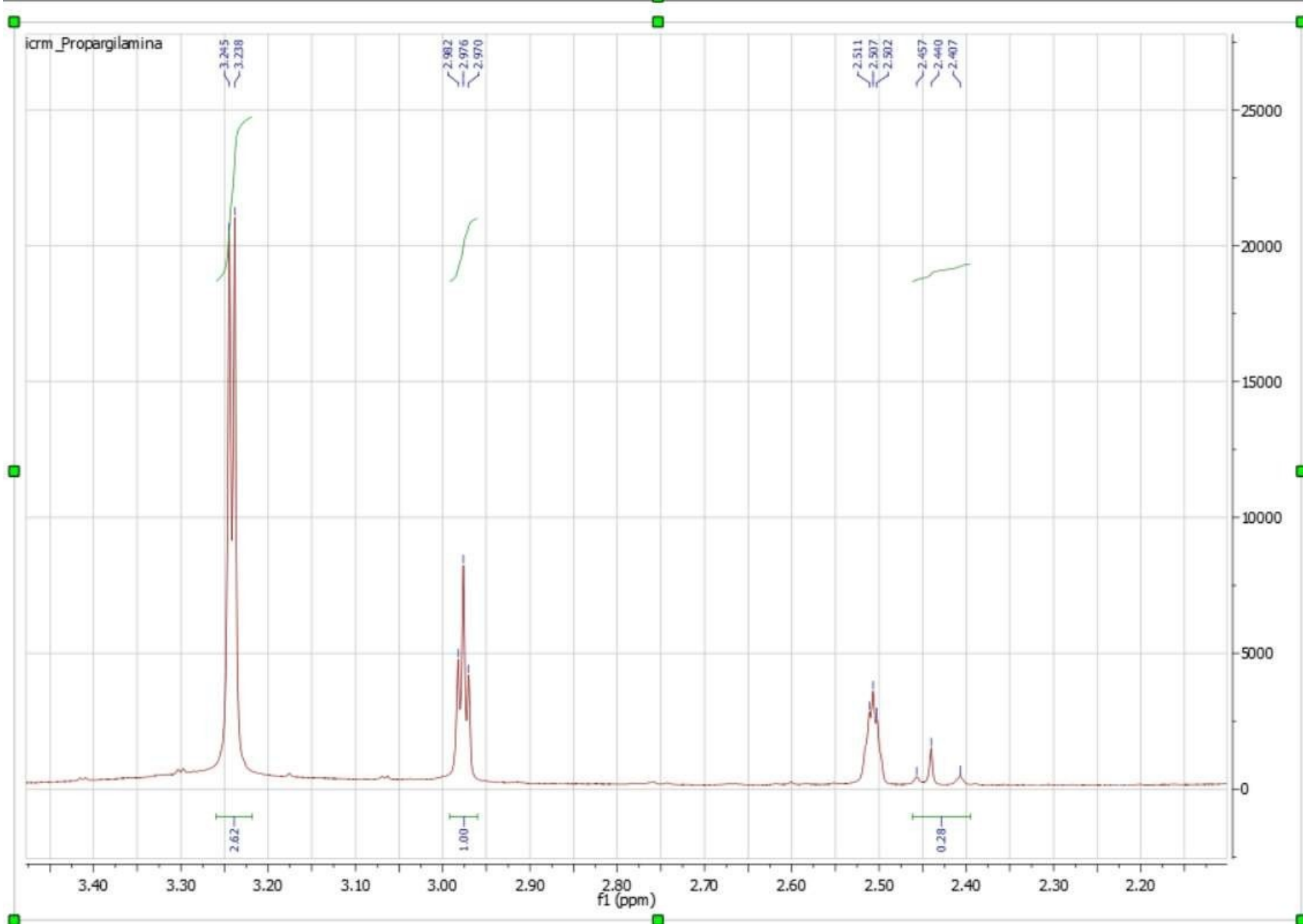


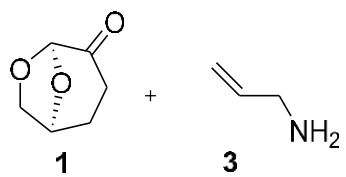
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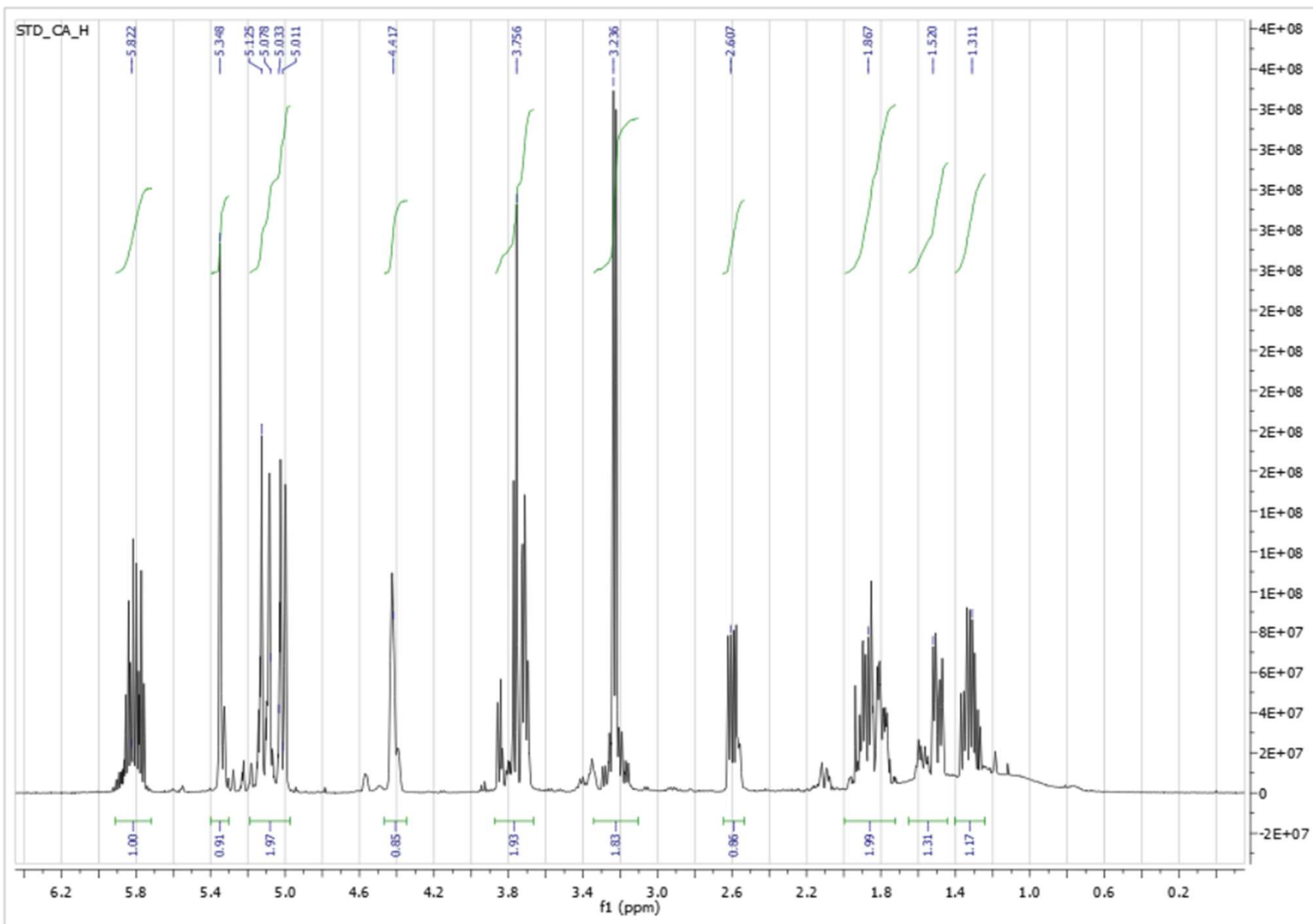


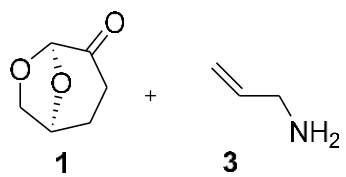
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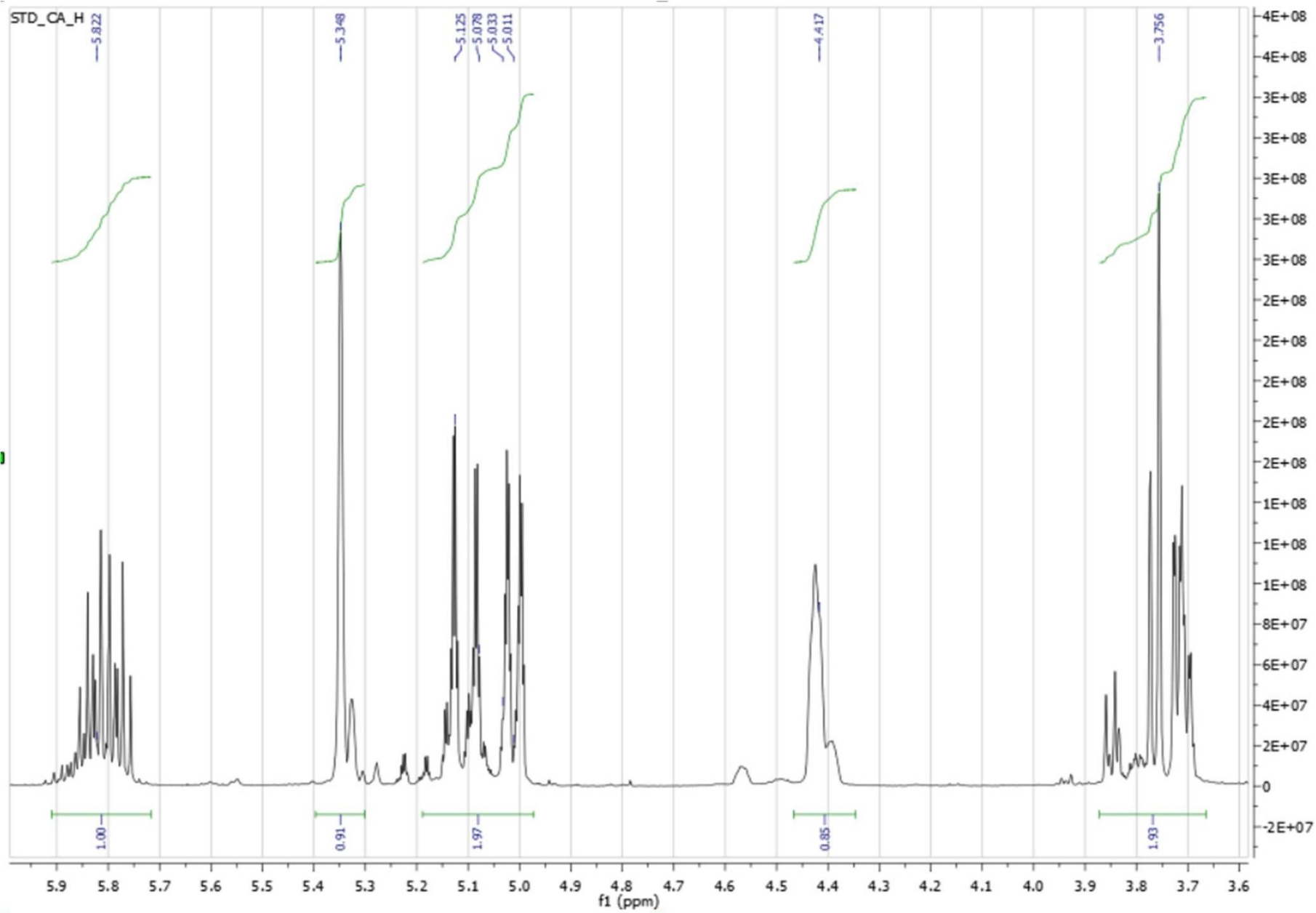


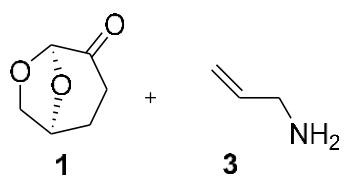
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 Crude  
 reaction mixture



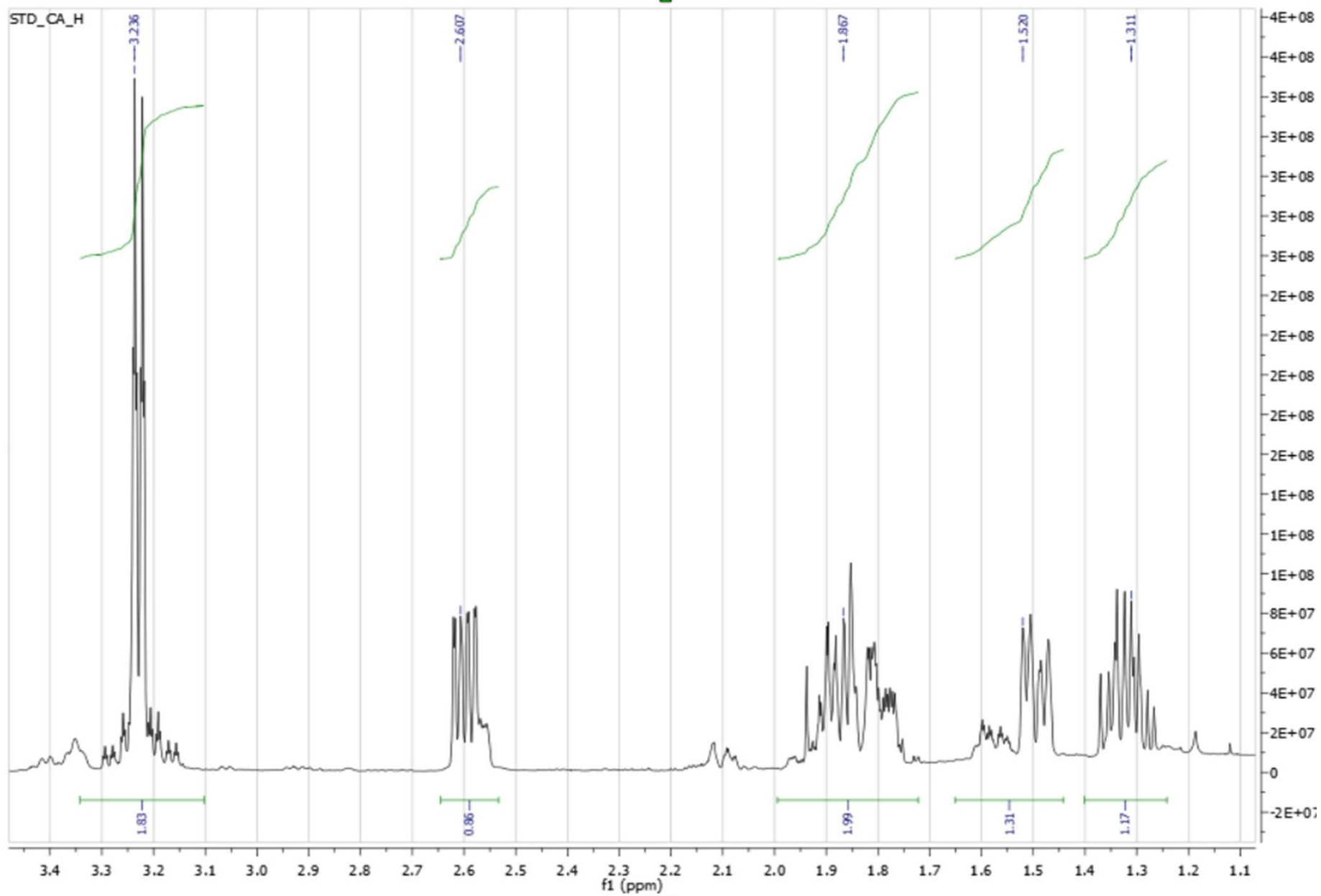


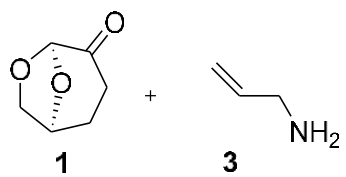
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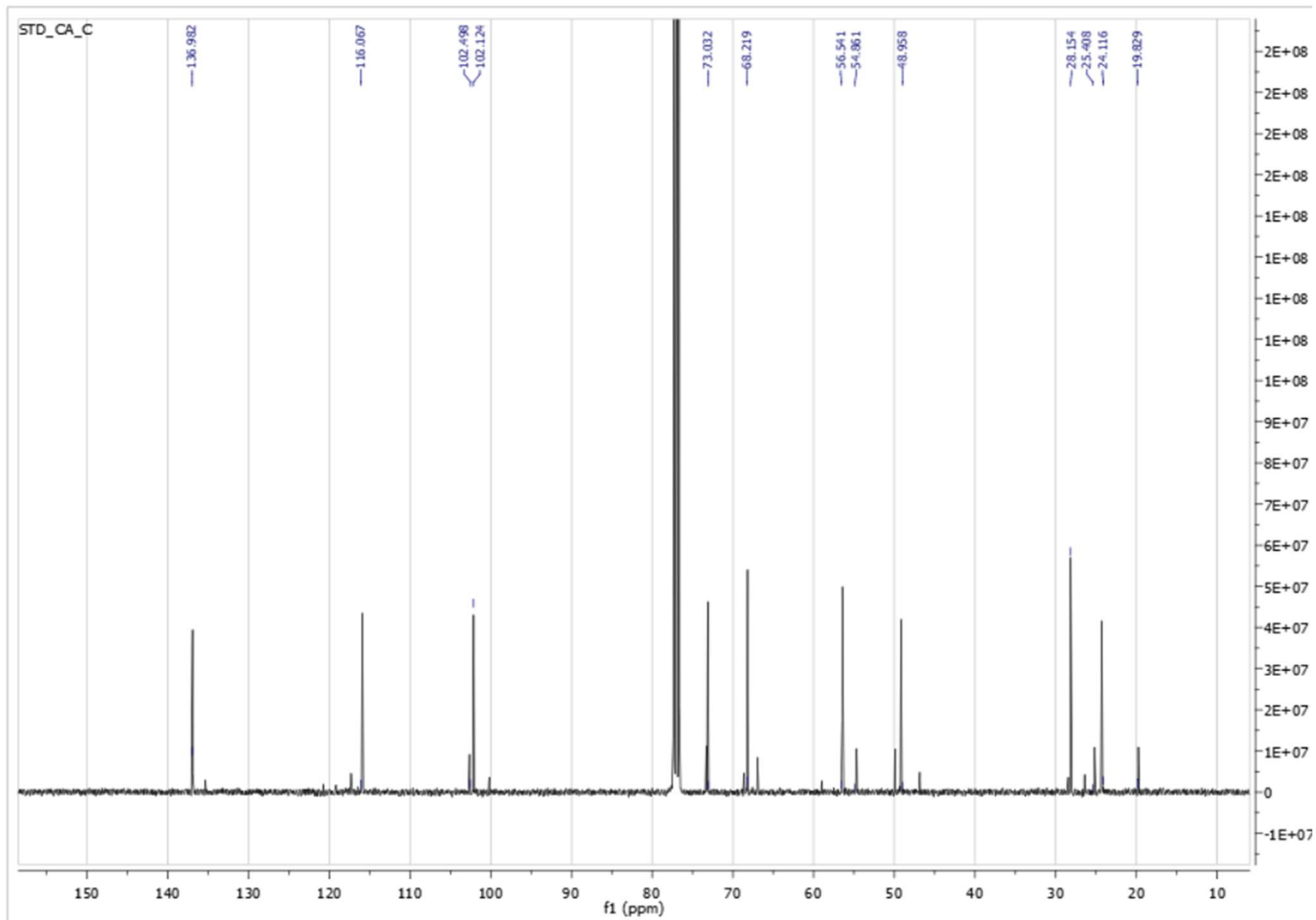


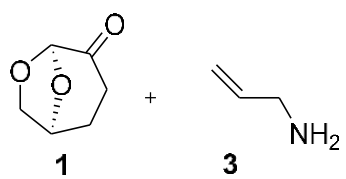
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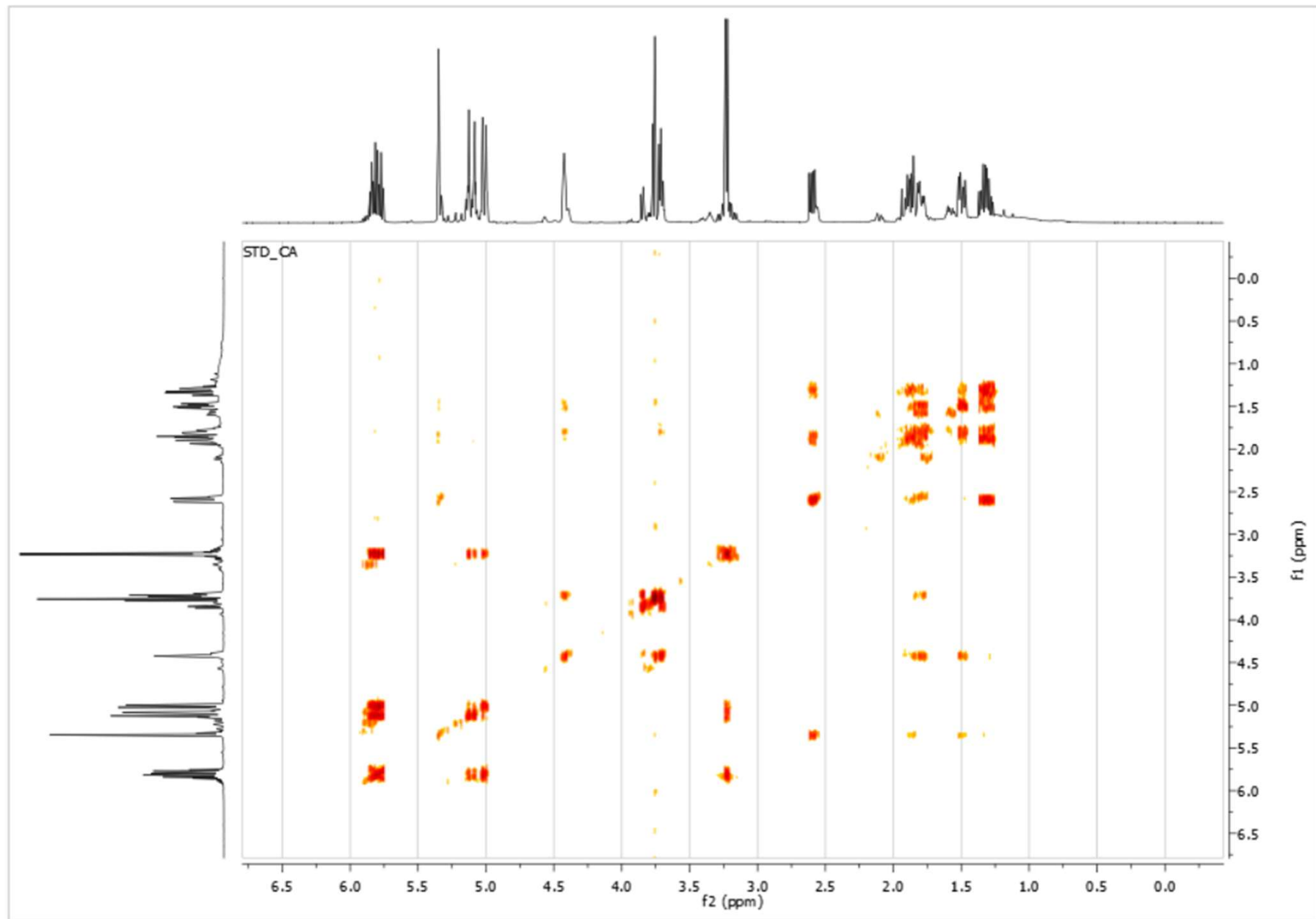


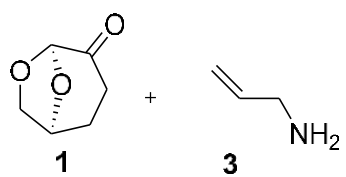
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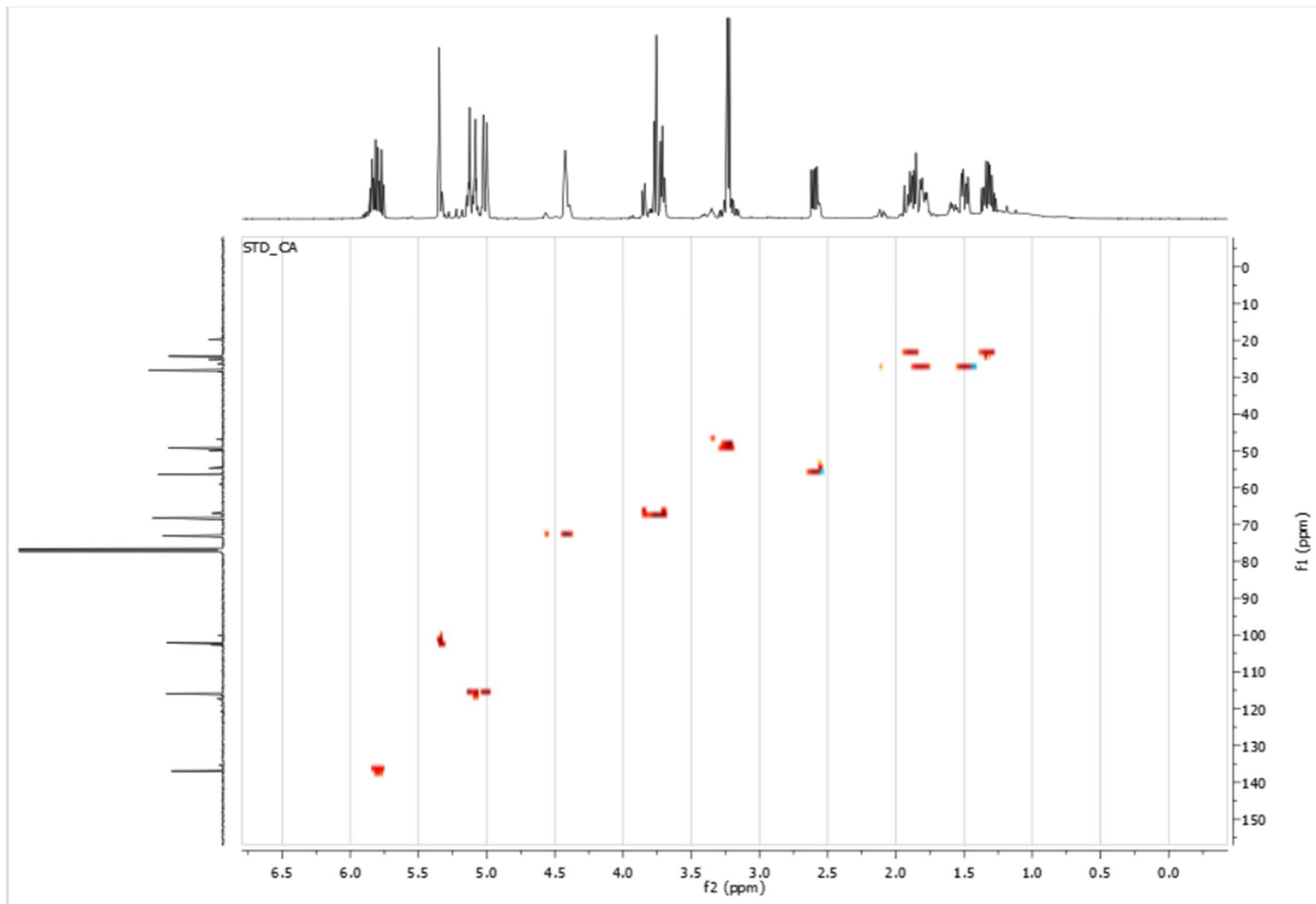


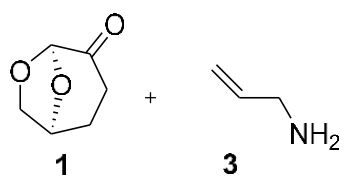
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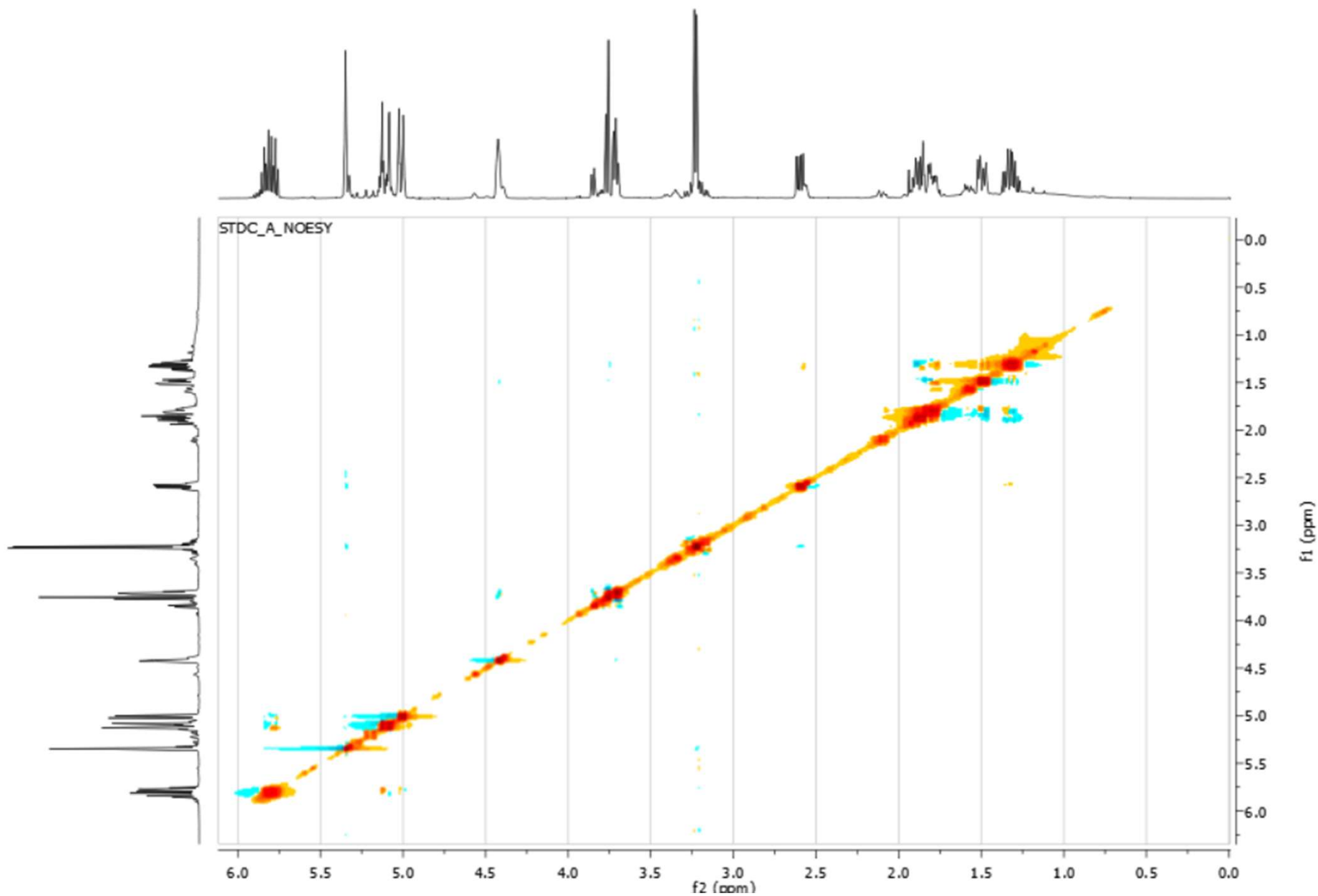


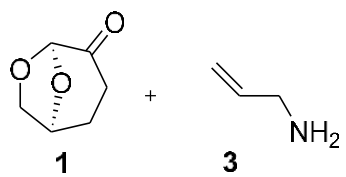
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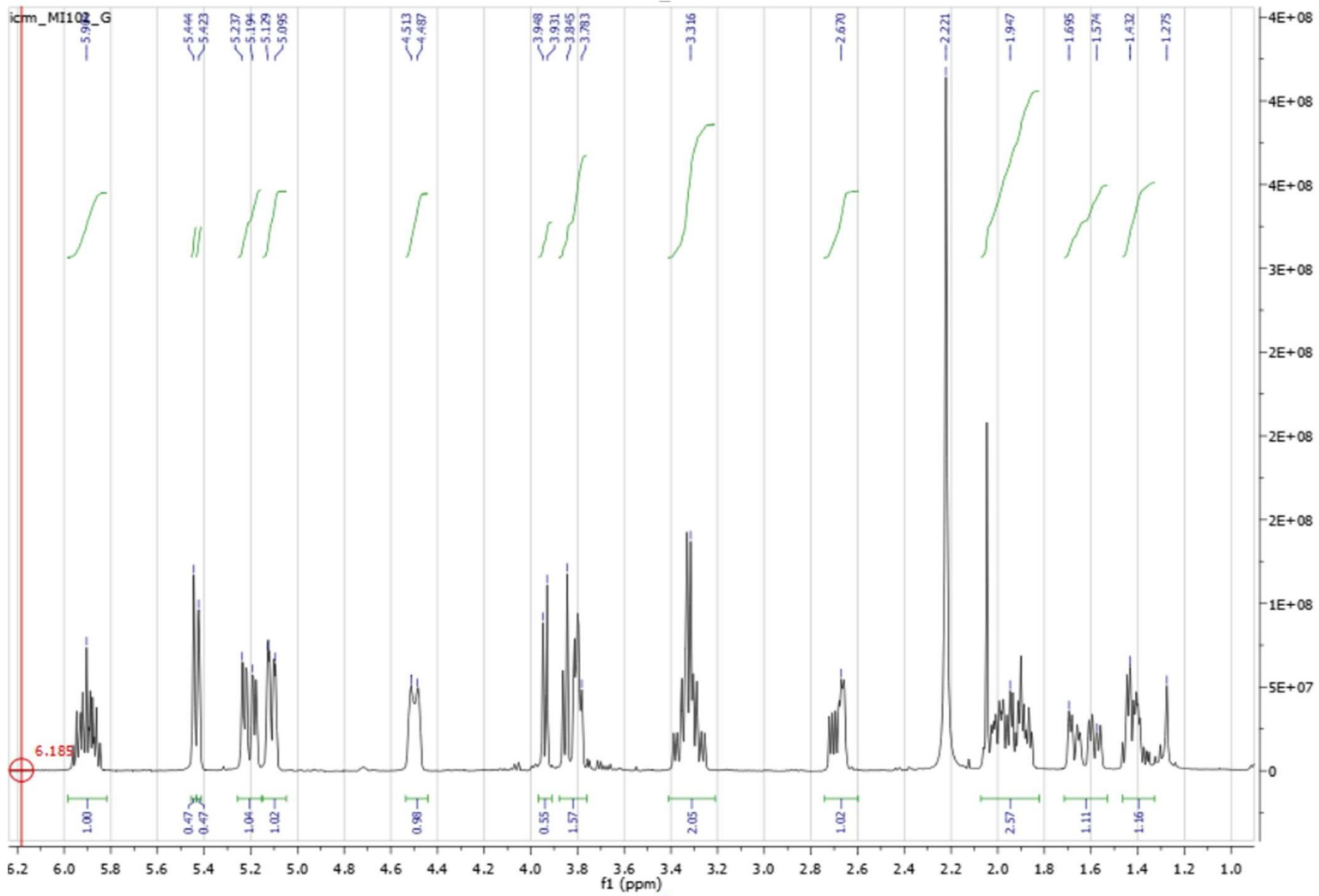


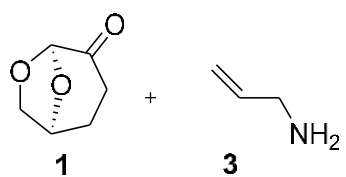
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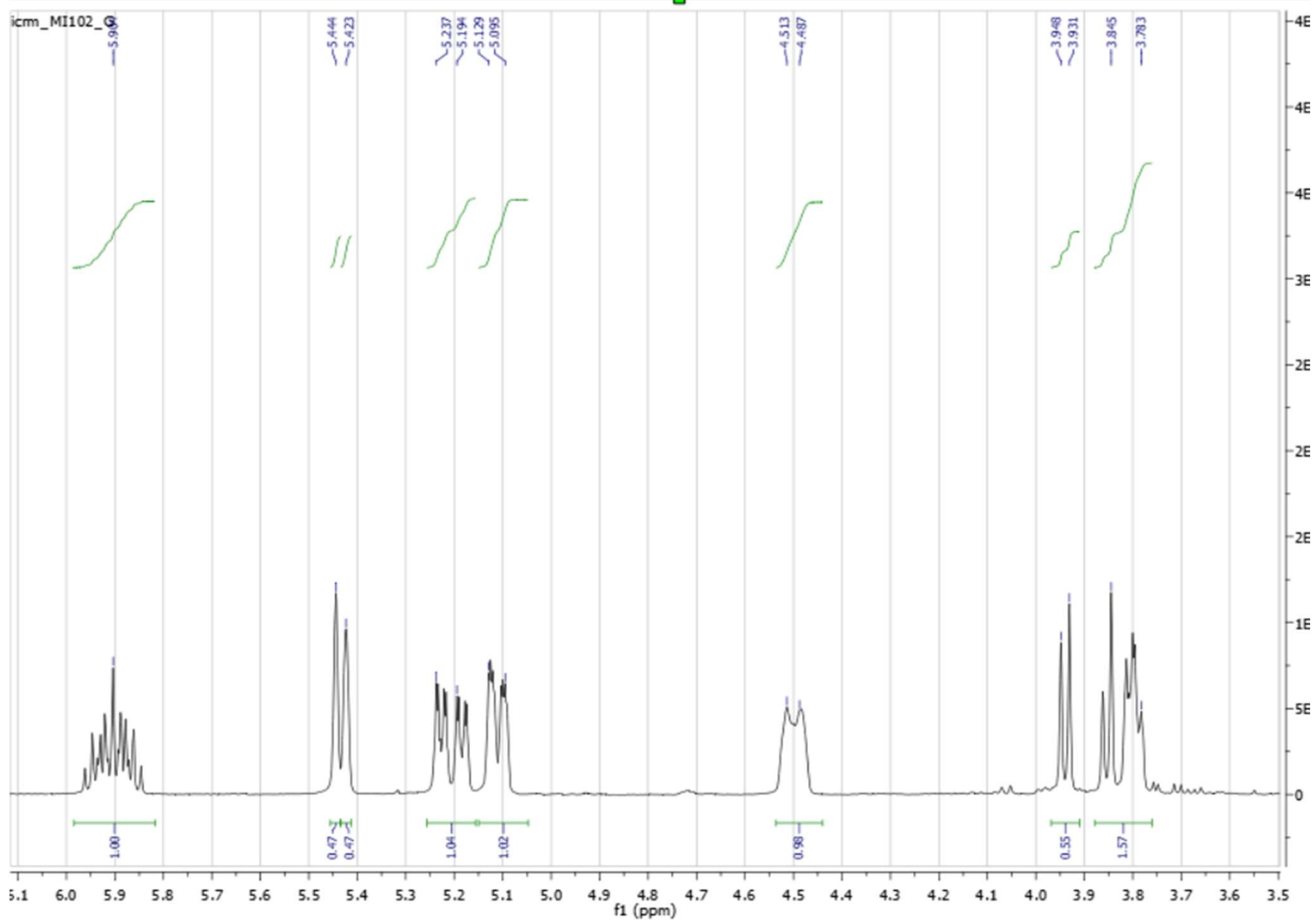


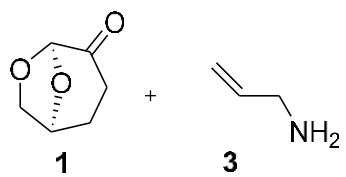
AspRedAm  
 Crude  
 reaction mixture



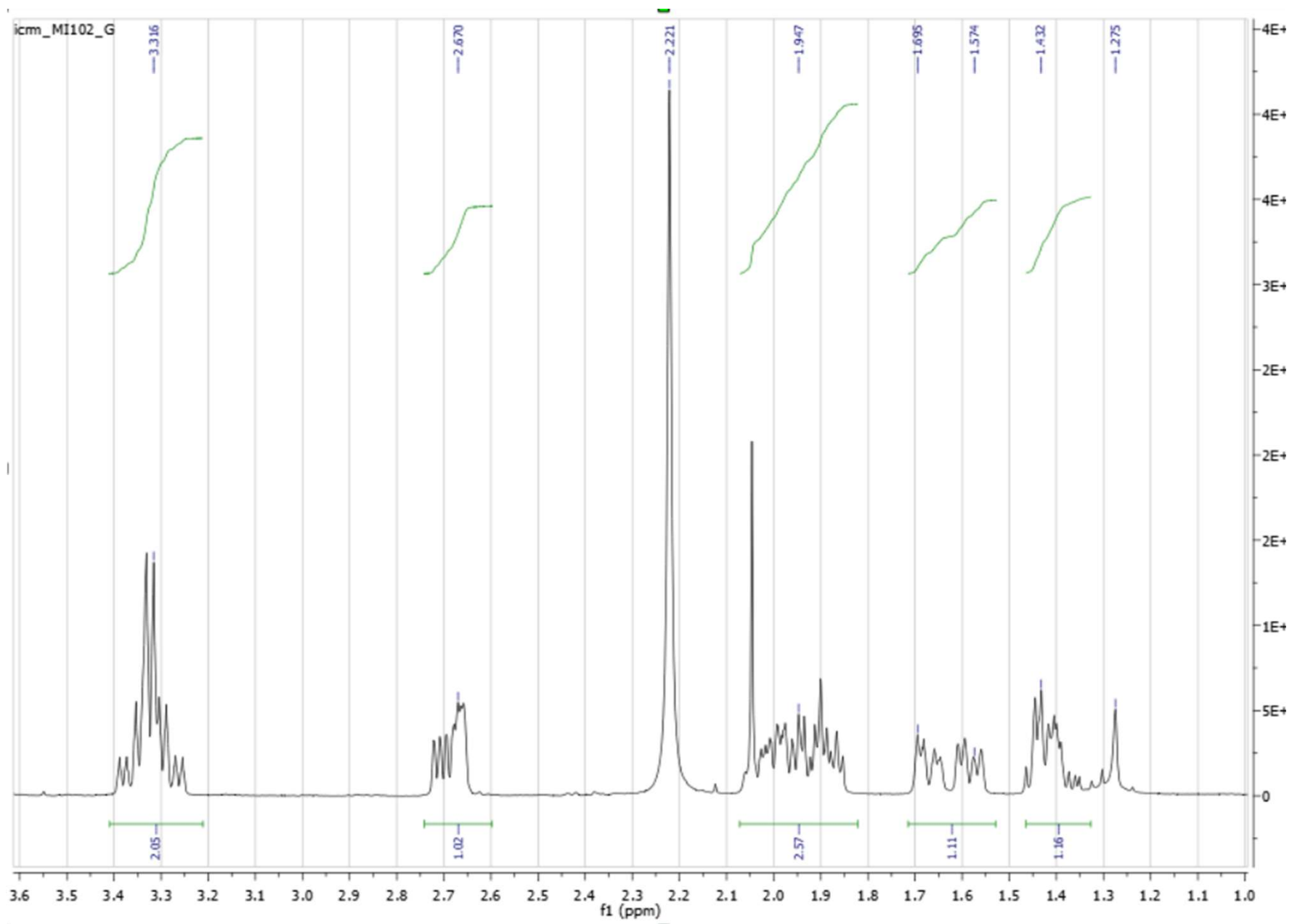


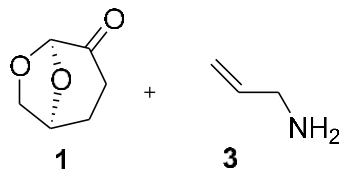
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 Crude  
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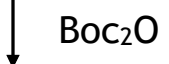


AspRedAm  
 Crude  
 reaction mixture

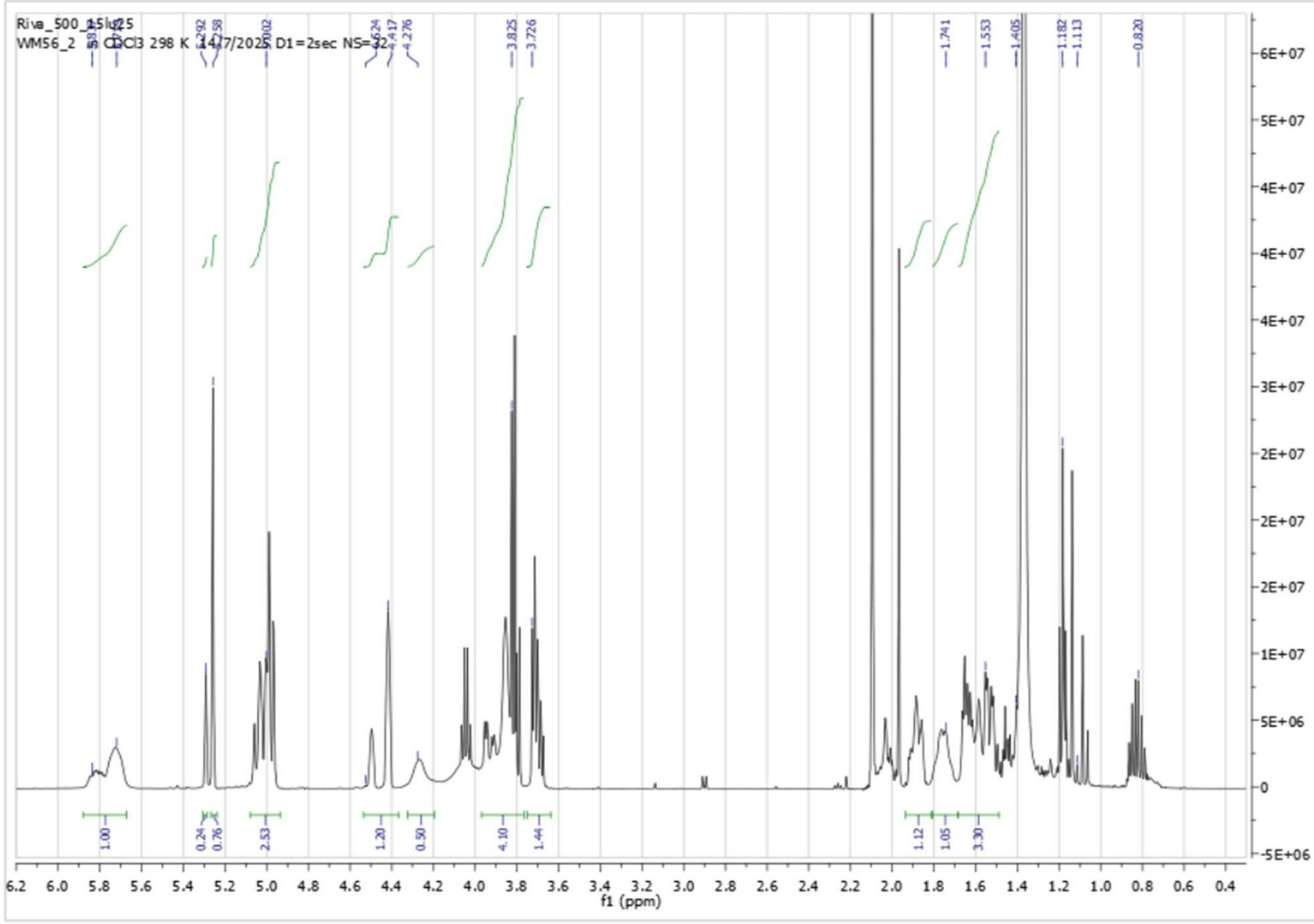


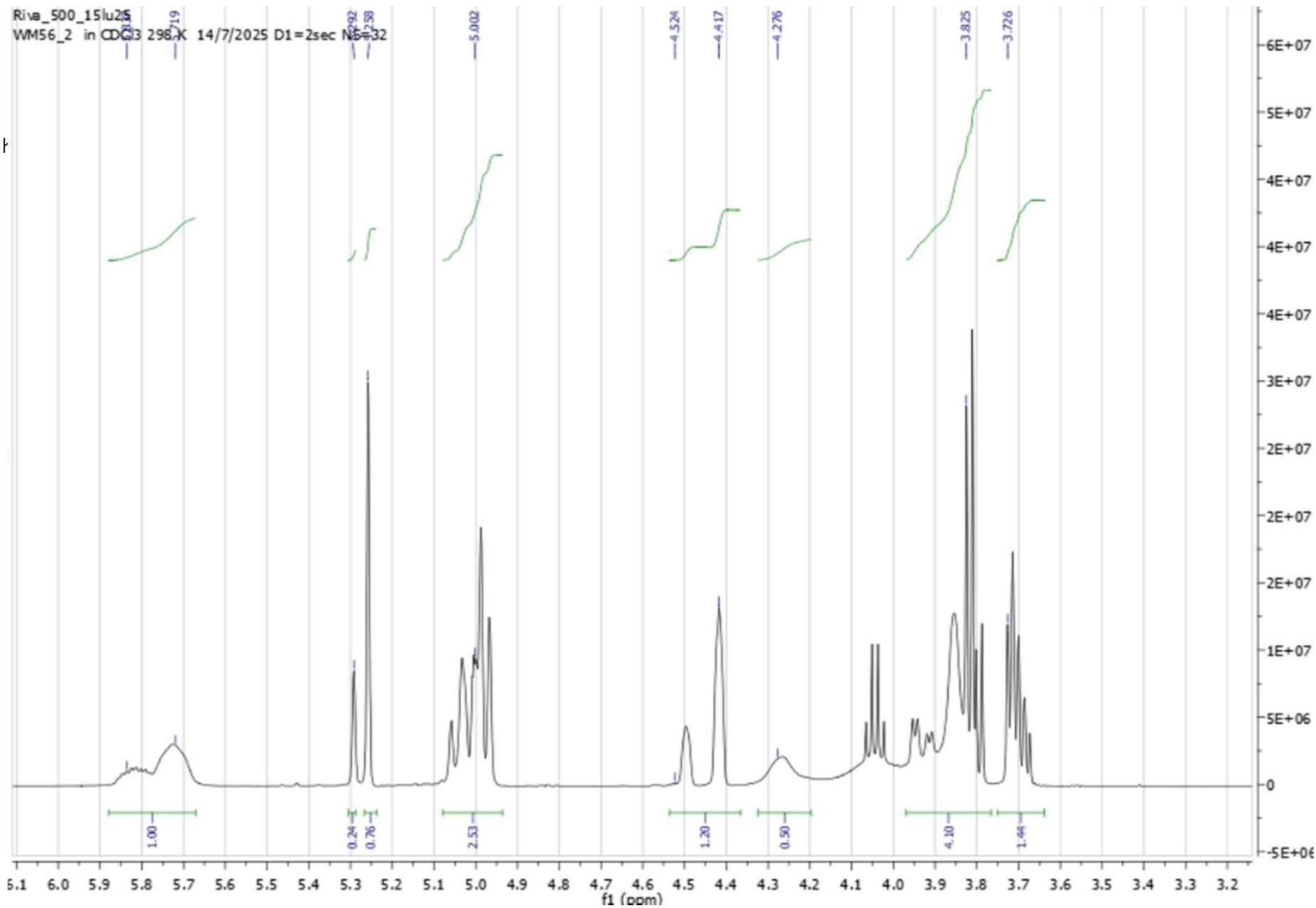
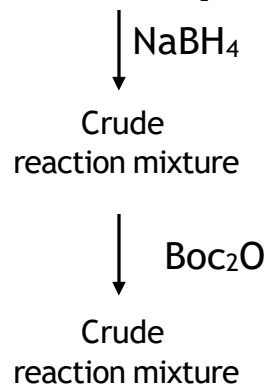
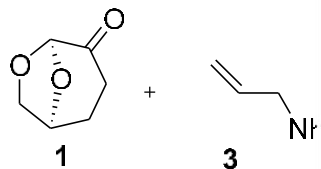


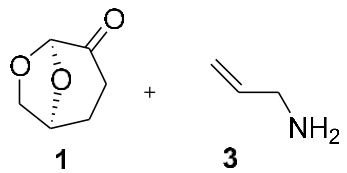
Crude reaction mixture



Crude reaction mixture





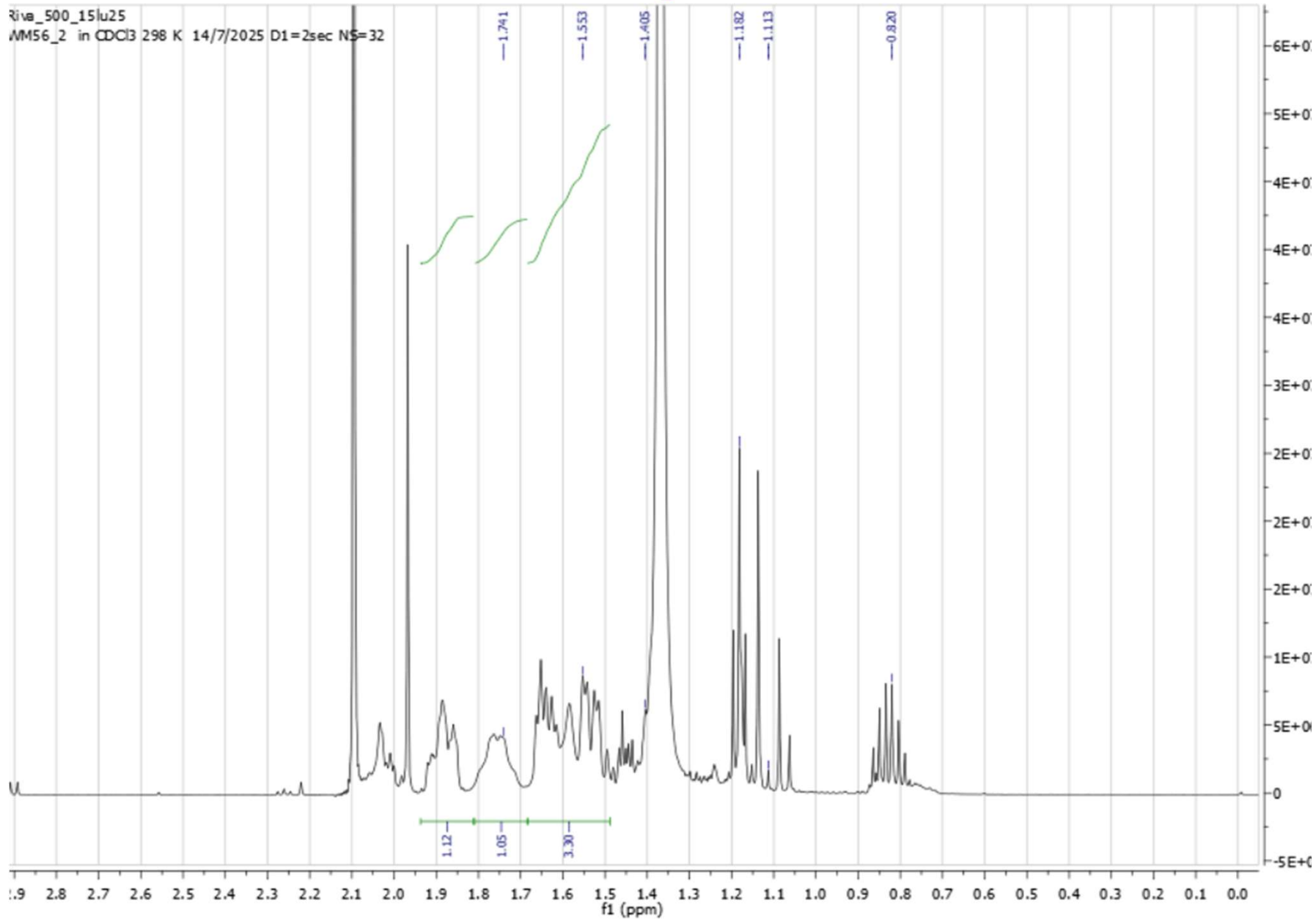


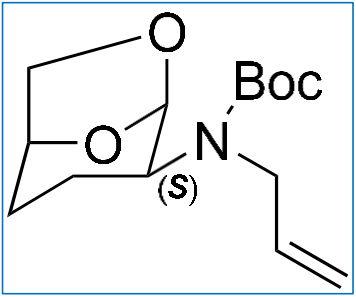
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Crude reaction mixture

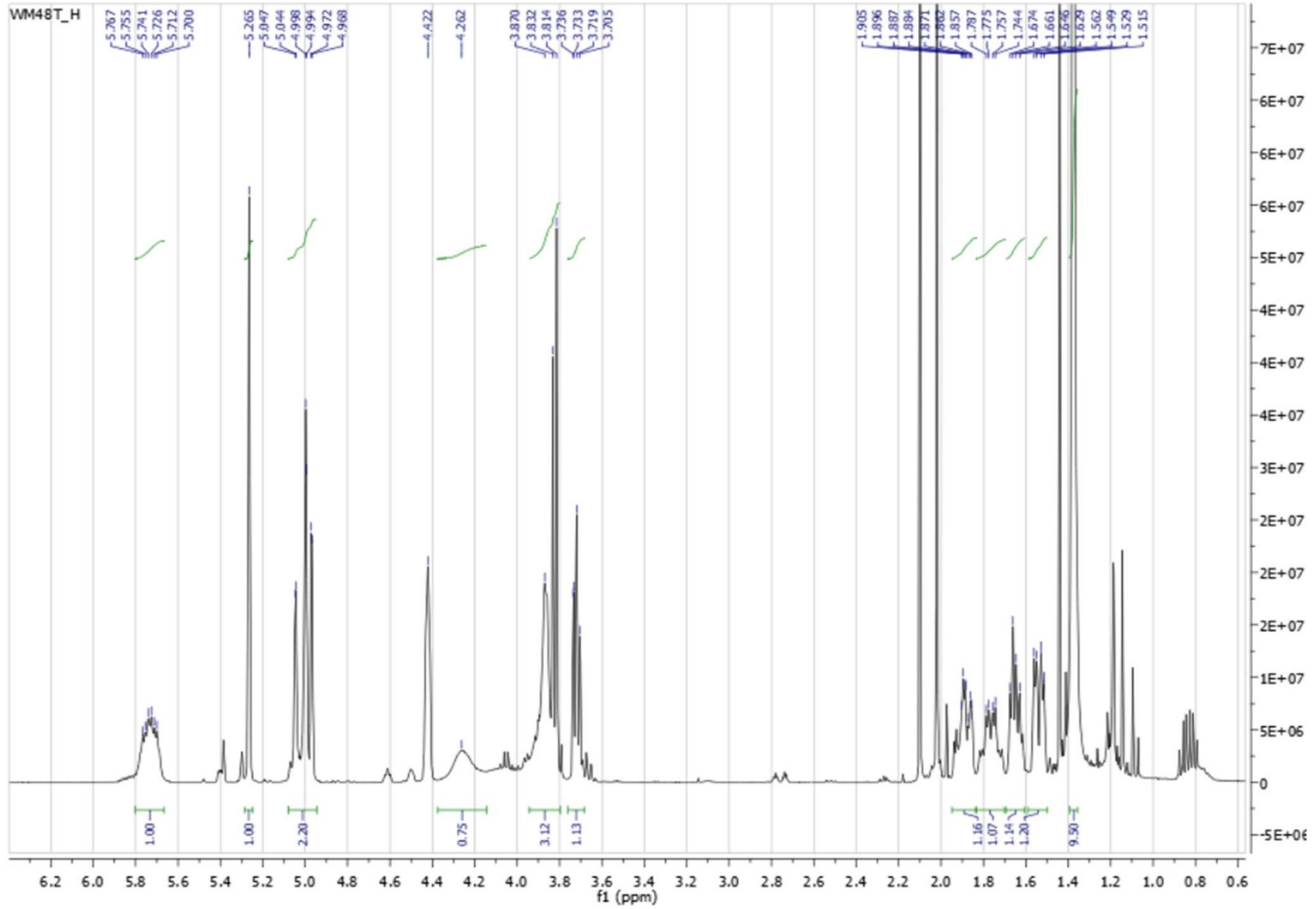
↓ Boc<sub>2</sub>O

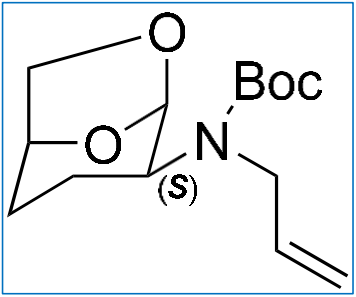
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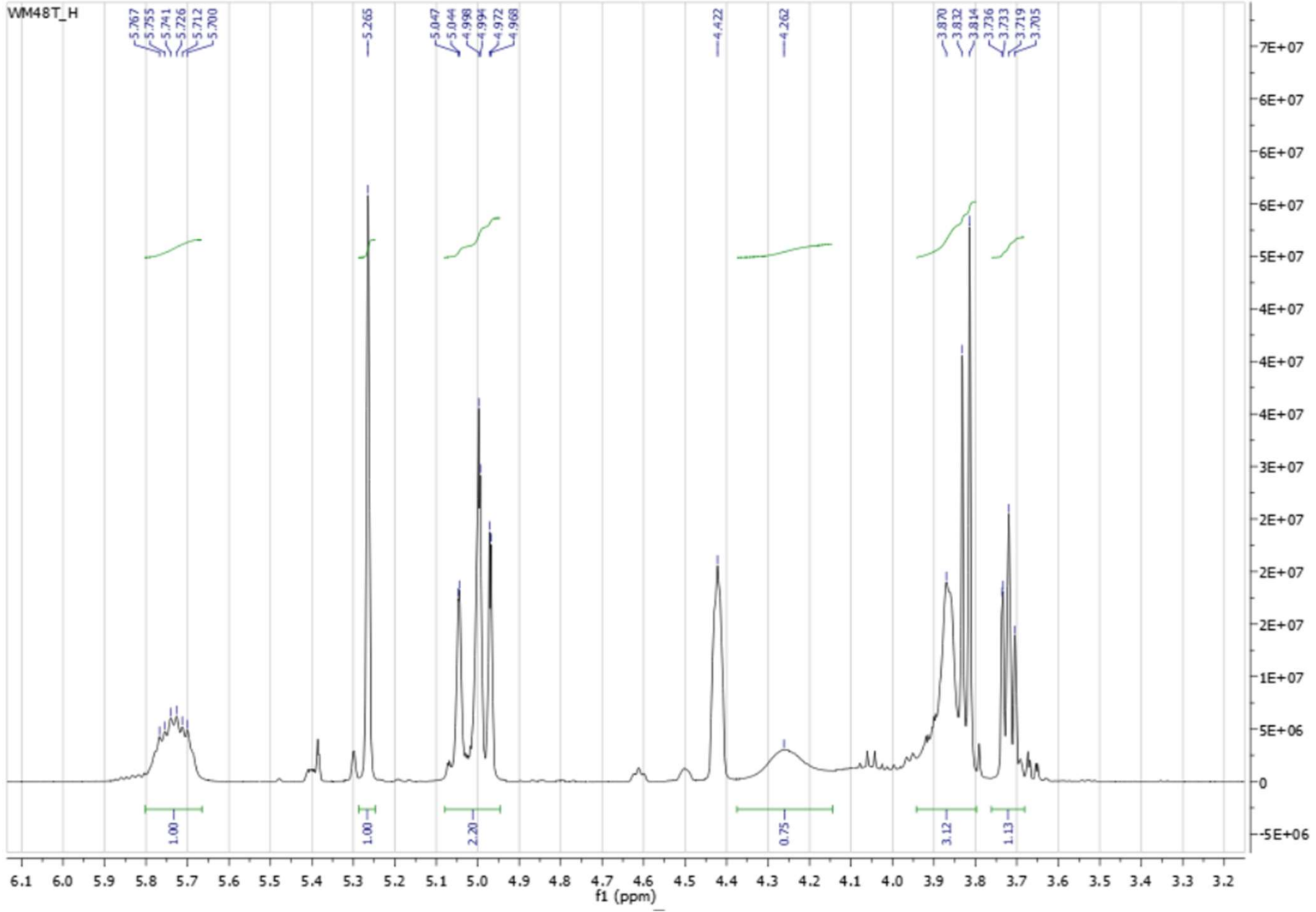


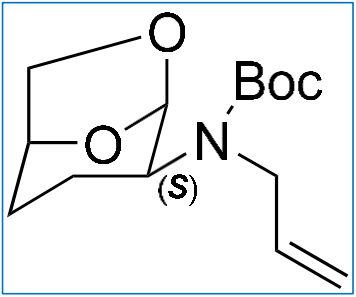
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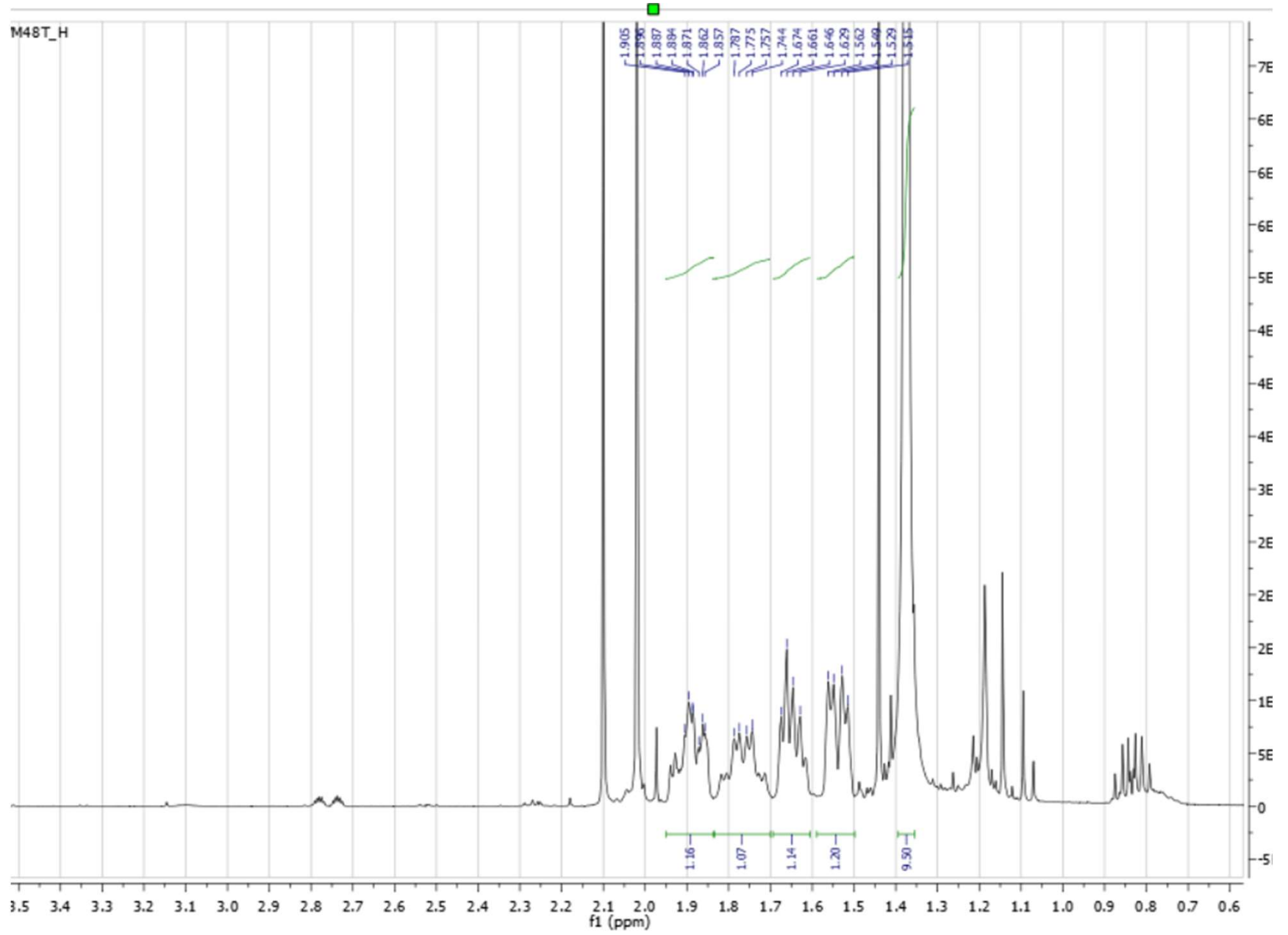


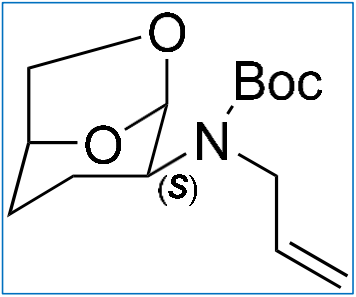
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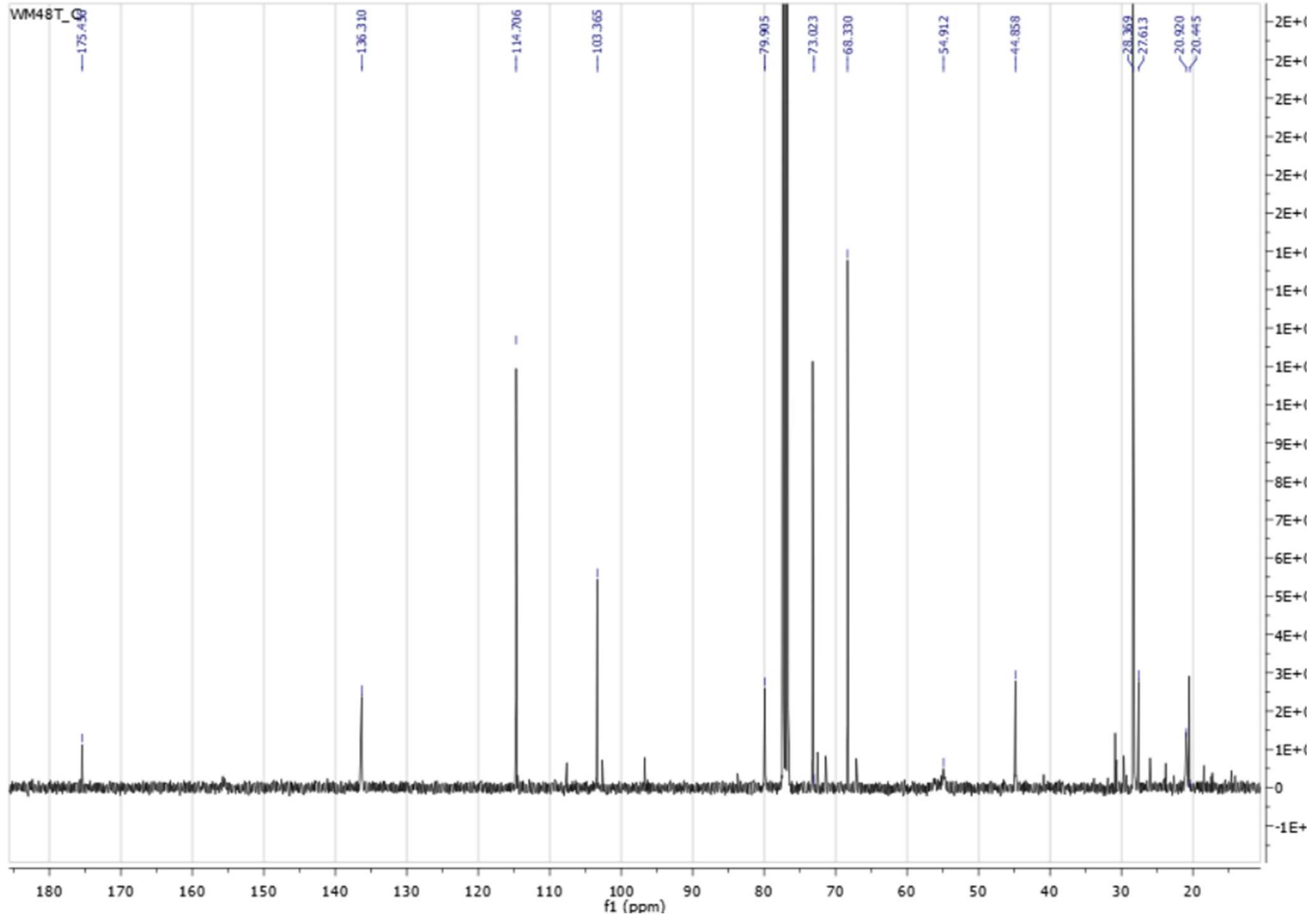


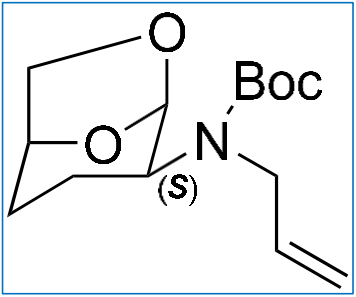
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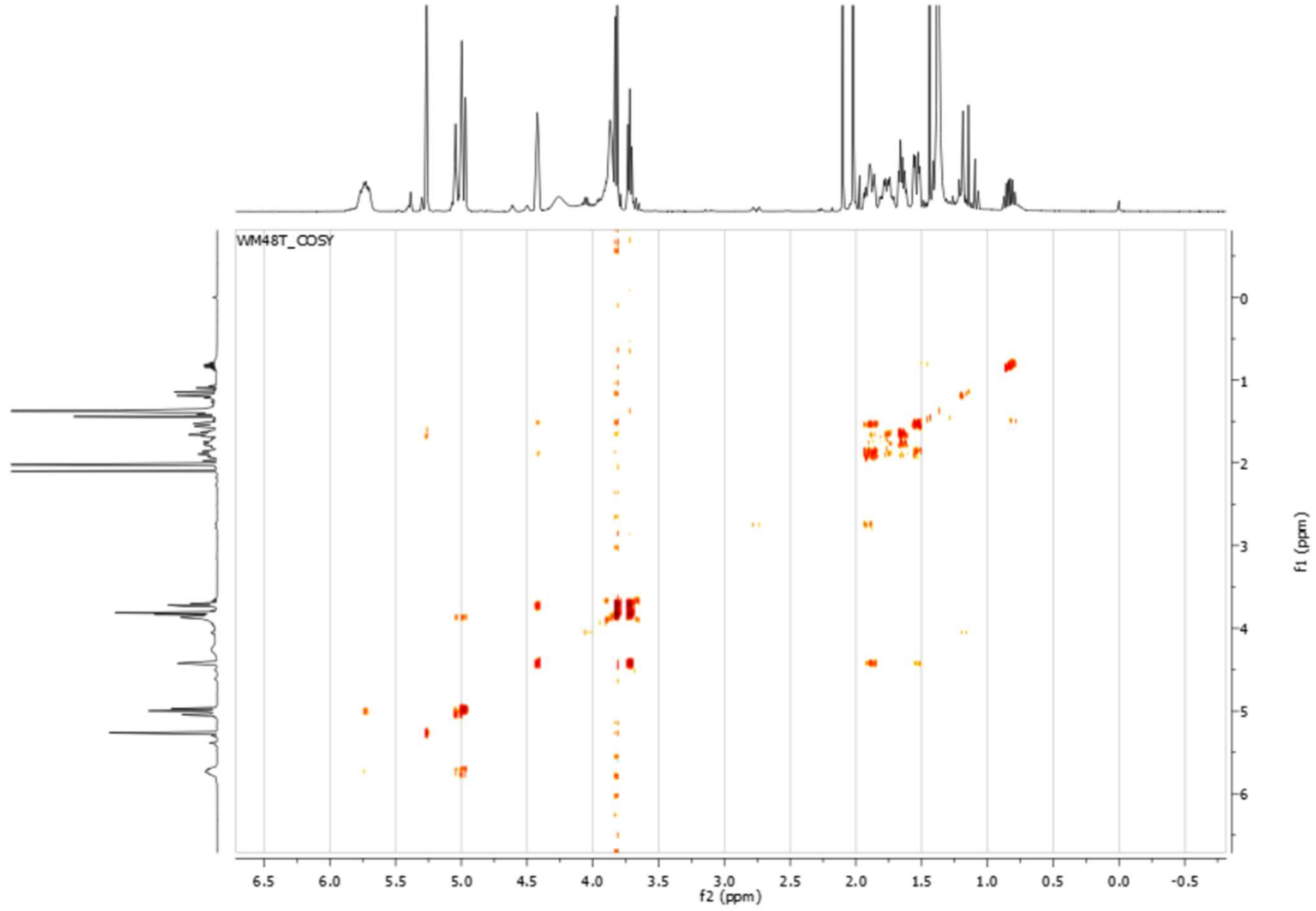


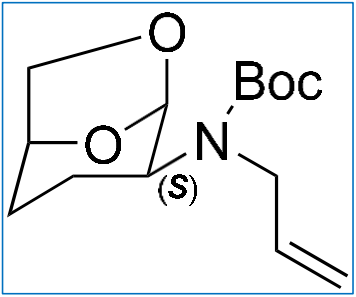
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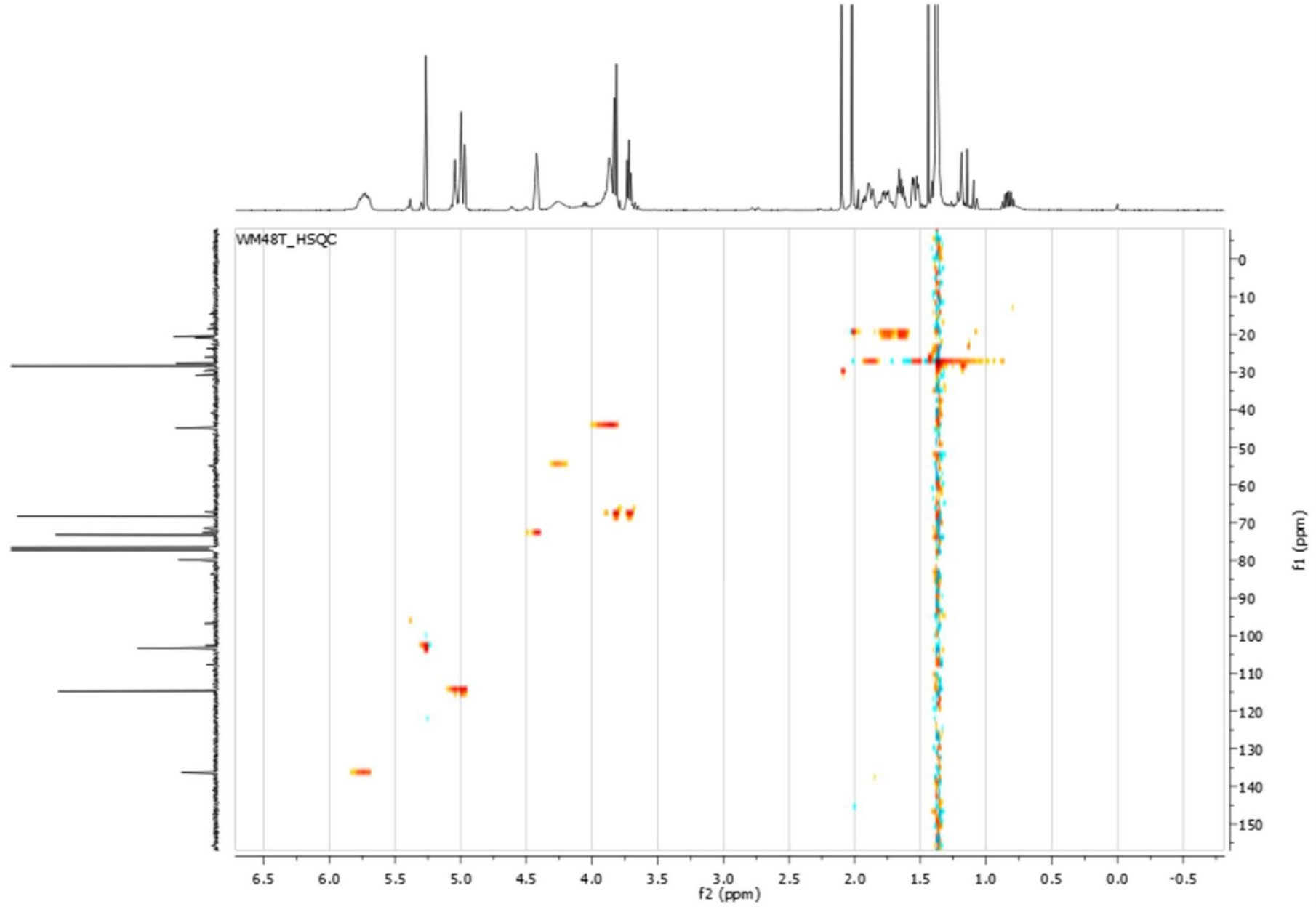


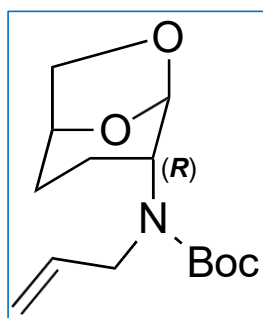
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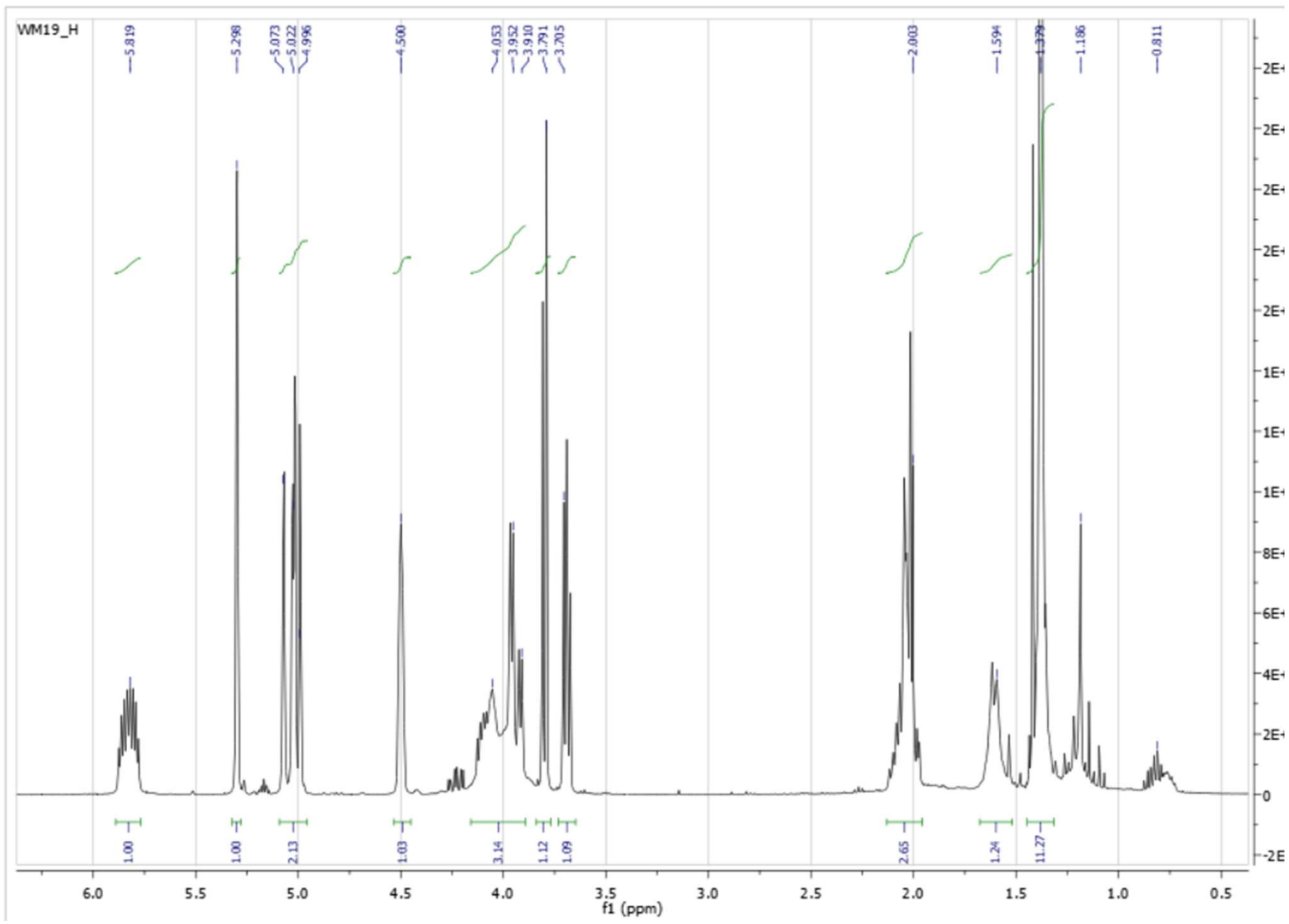


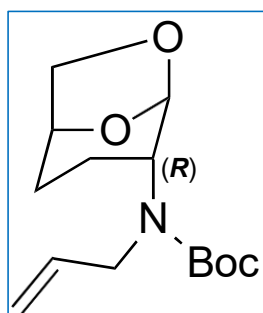
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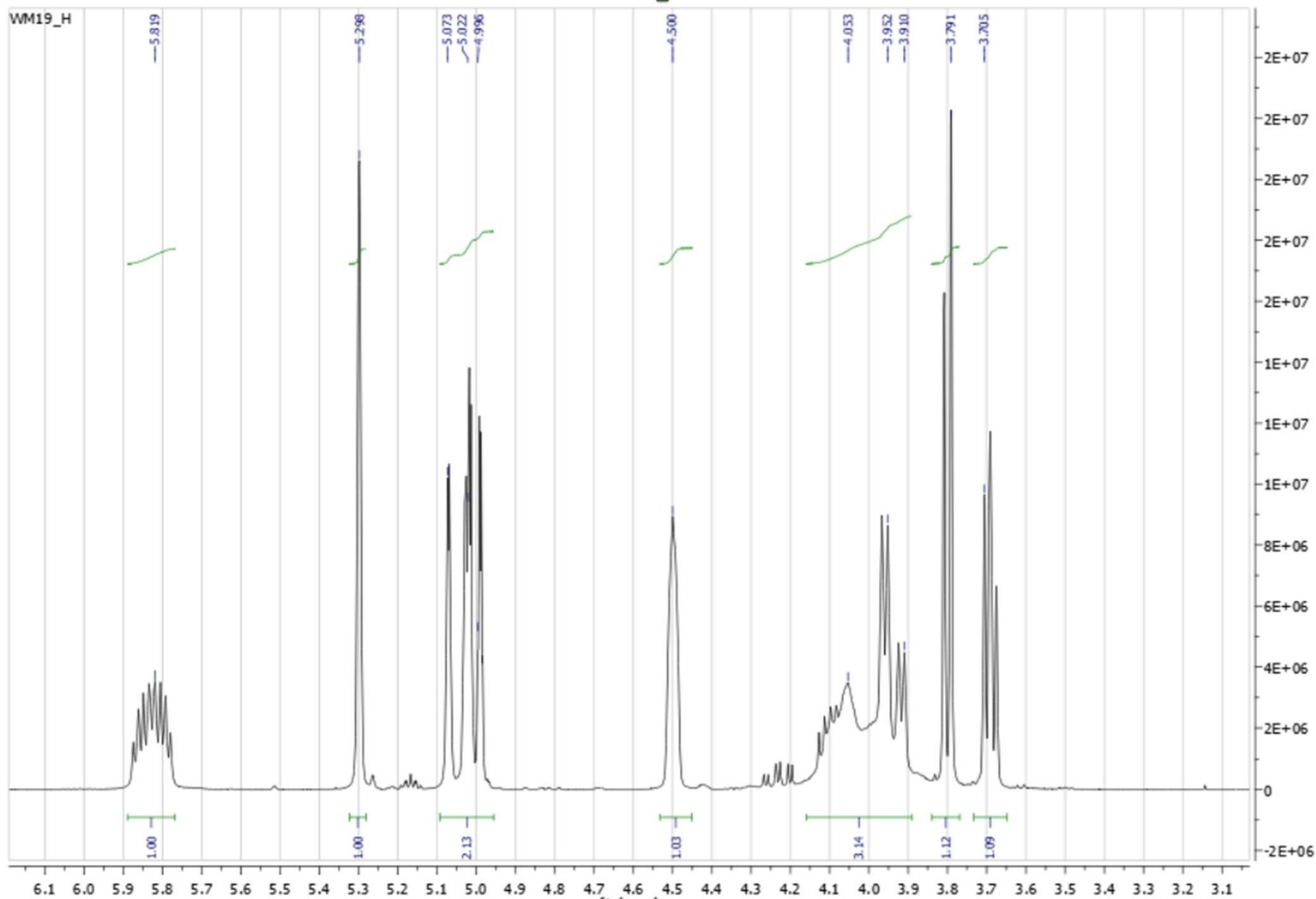


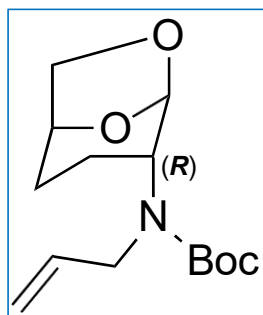
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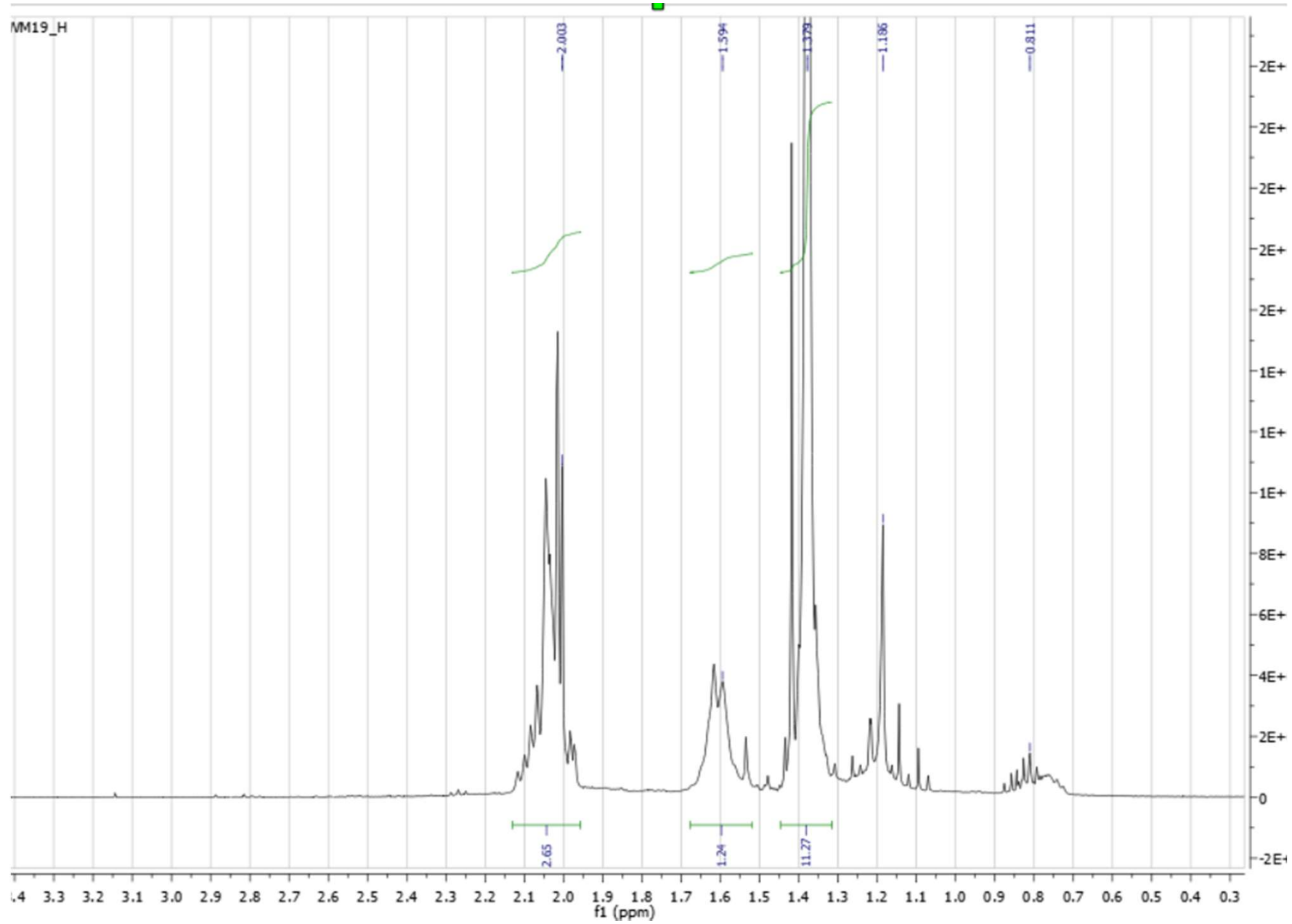


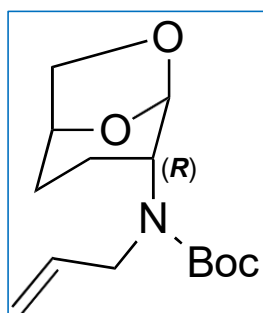
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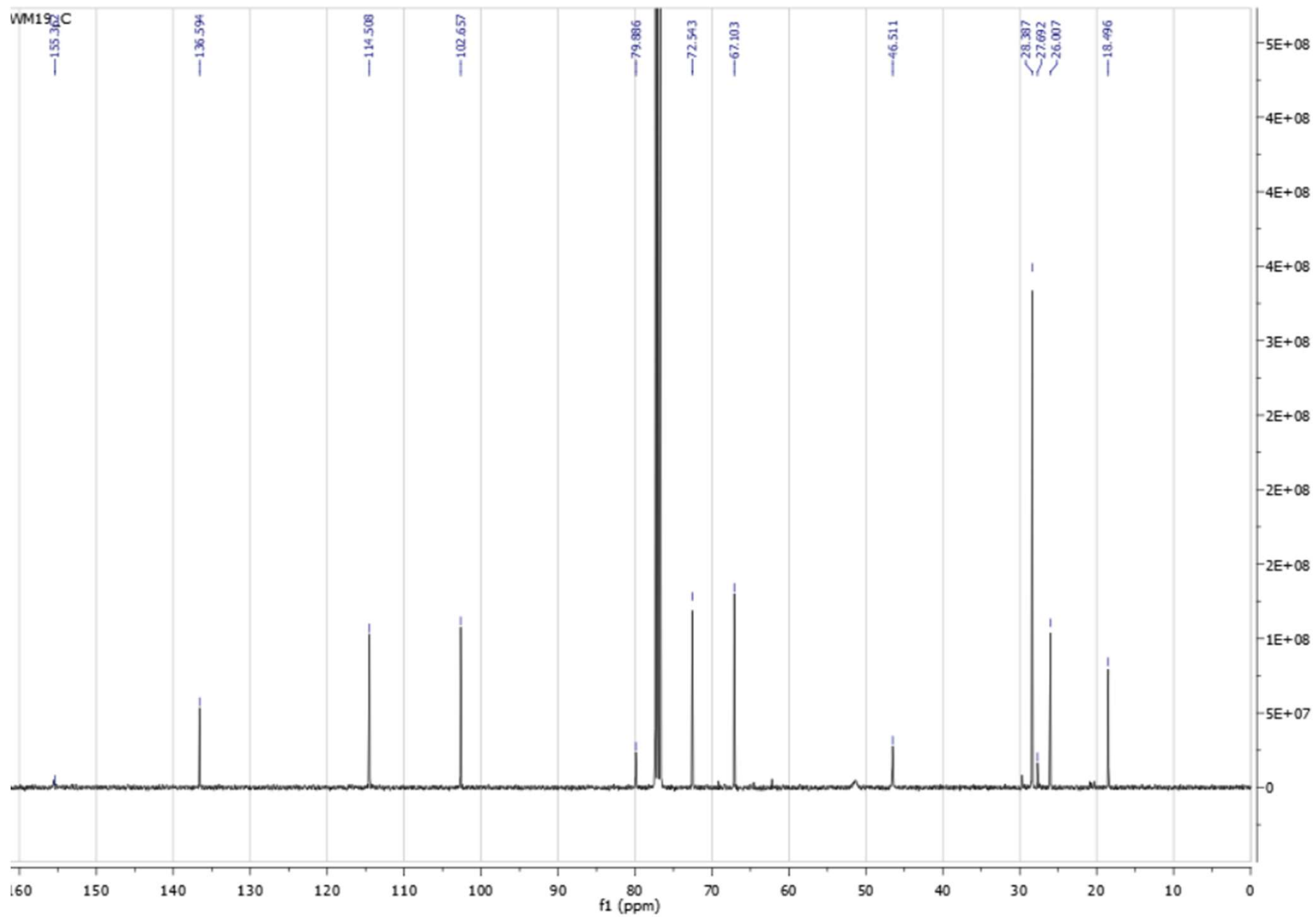


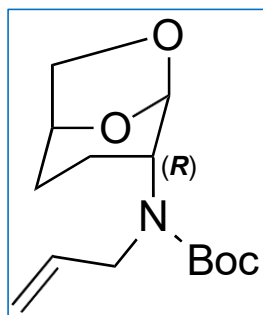
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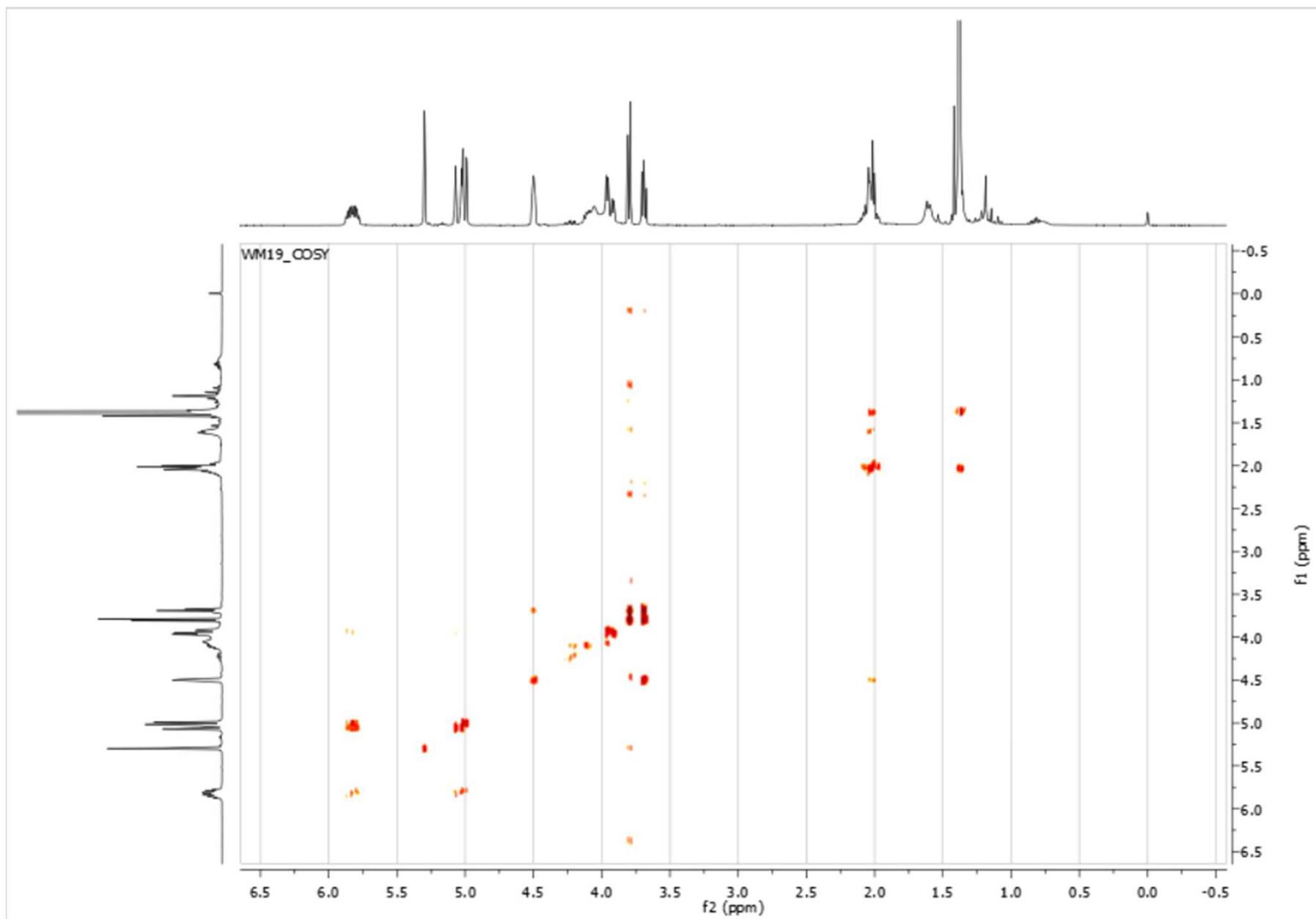


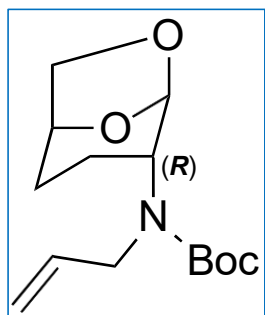
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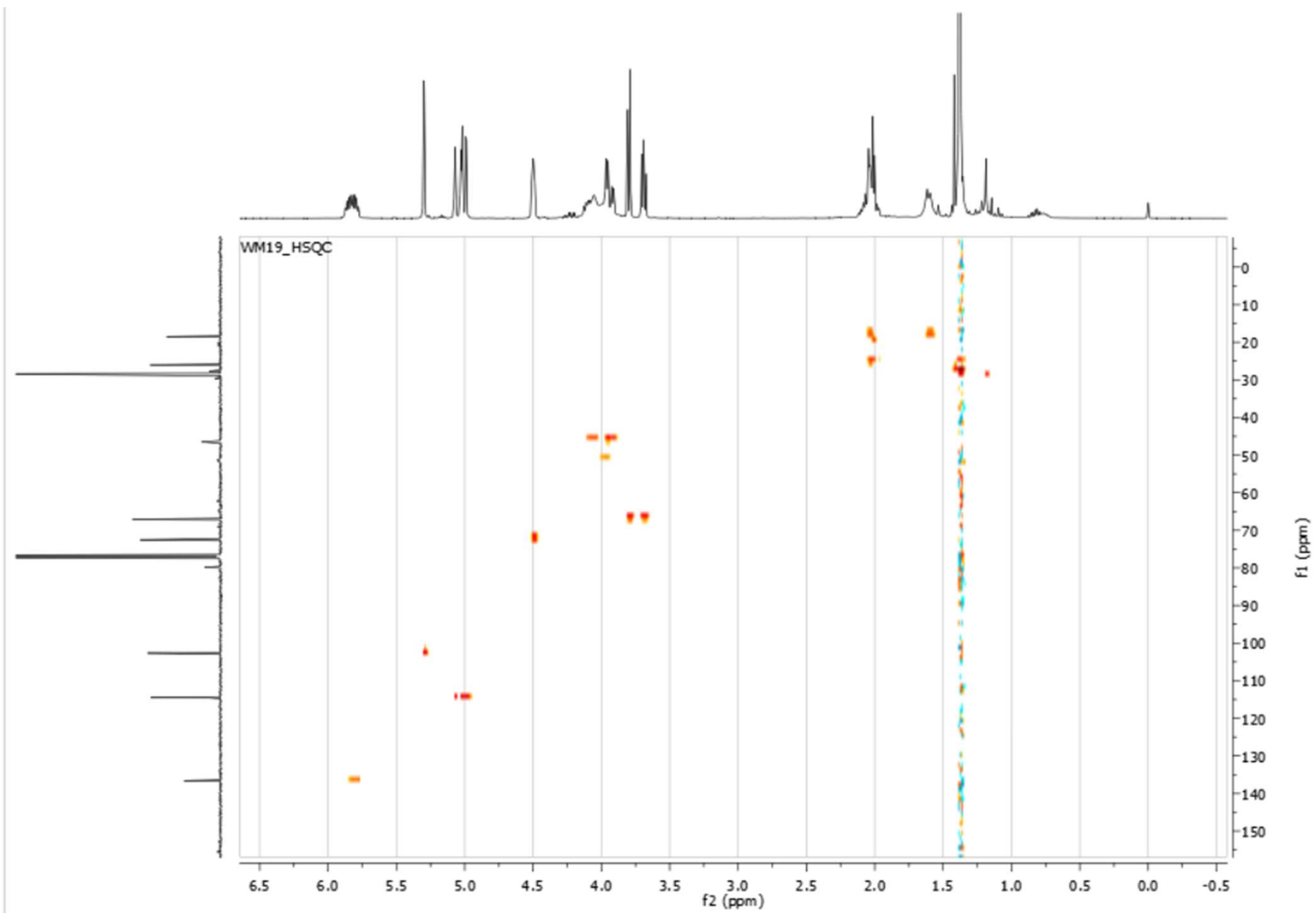


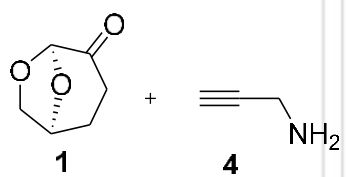
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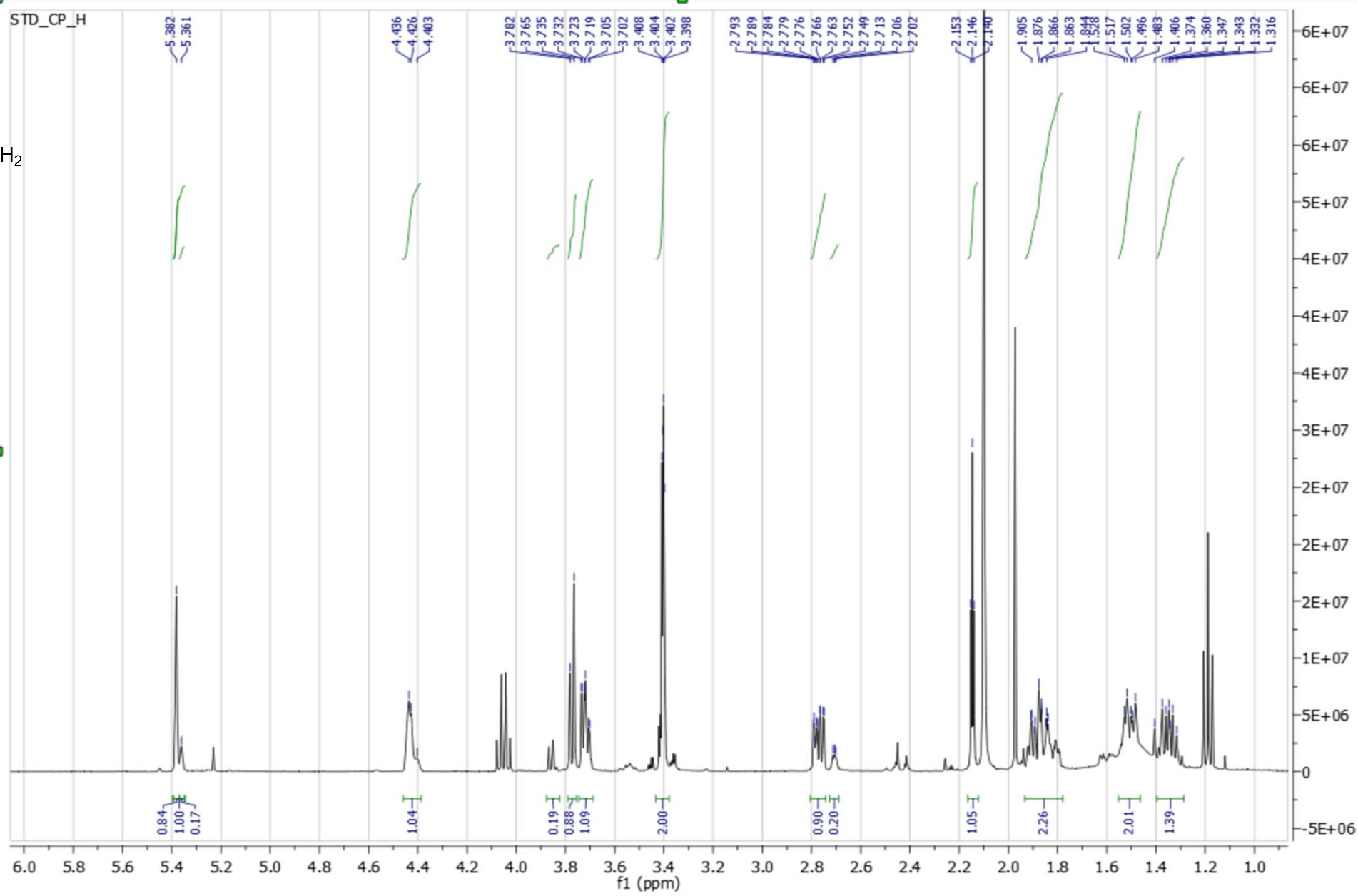


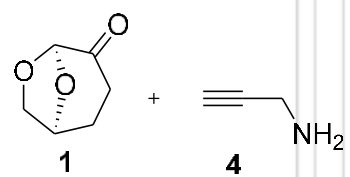
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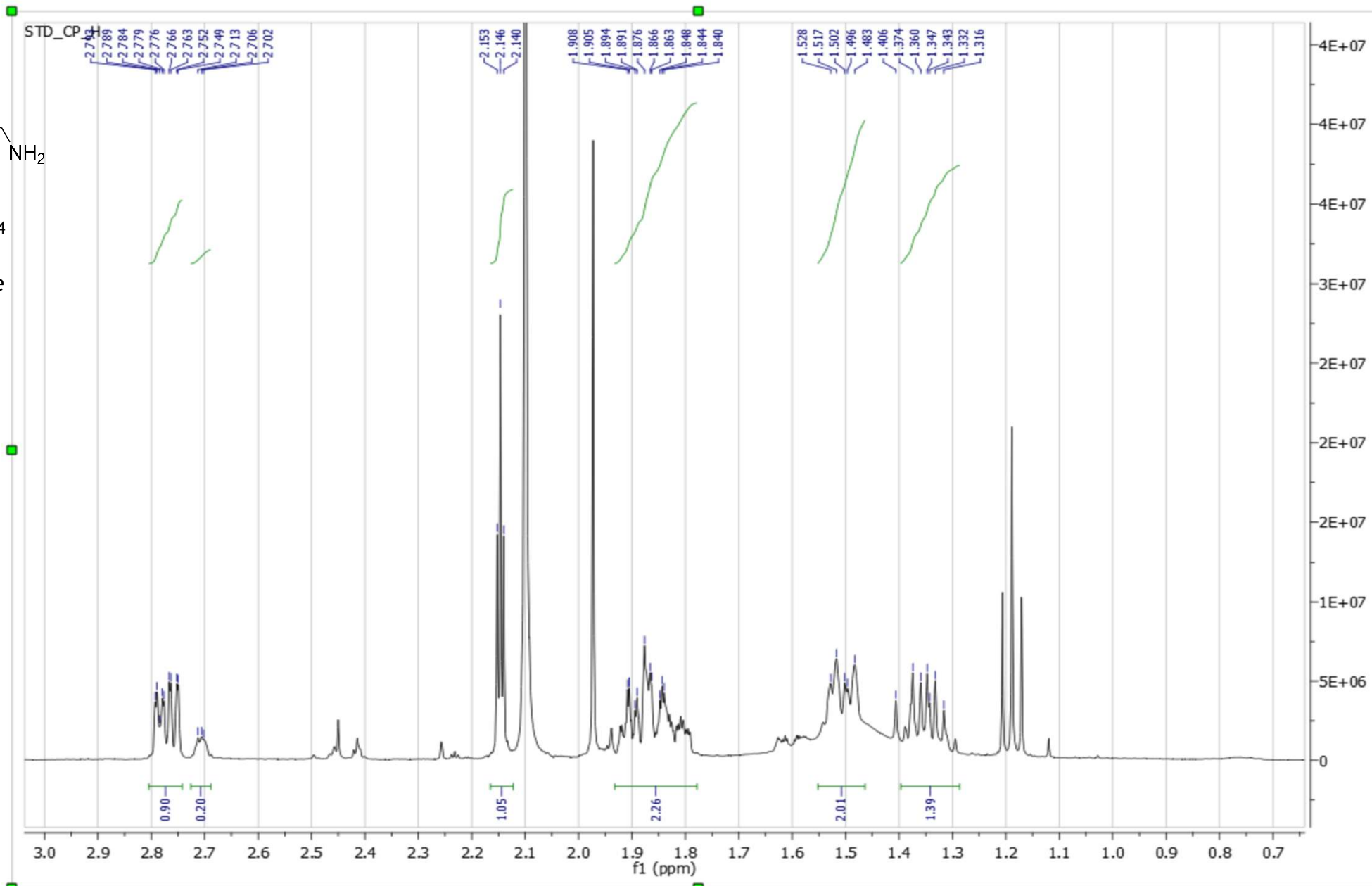


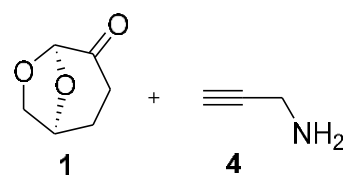
$\text{NaBH}_4$   
 Crude  
 reaction mixture



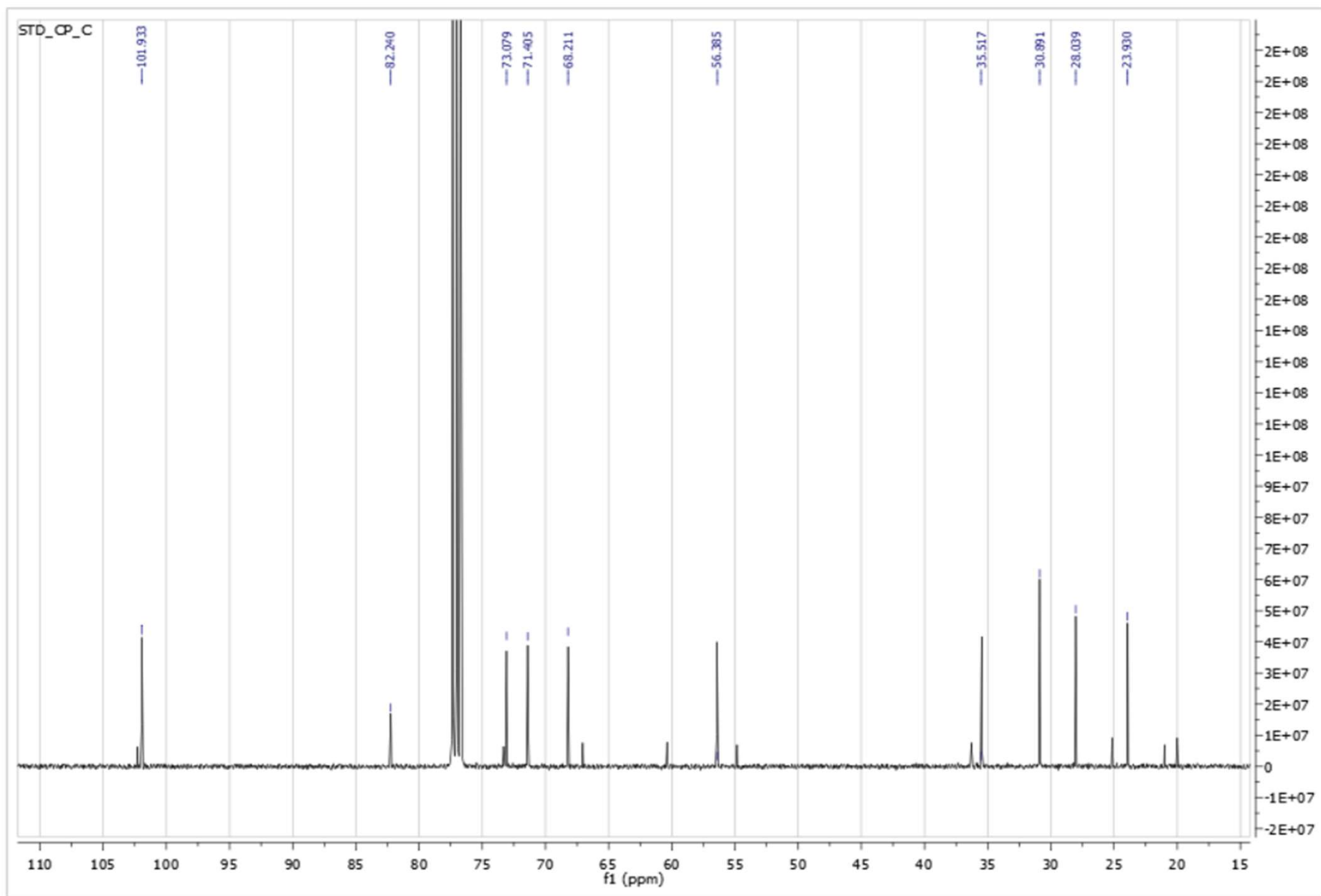


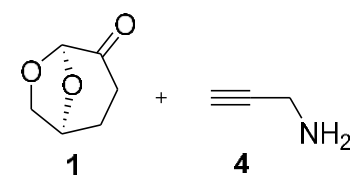
$\downarrow$  NaBH<sub>4</sub>  
 Crude  
 reaction mixture



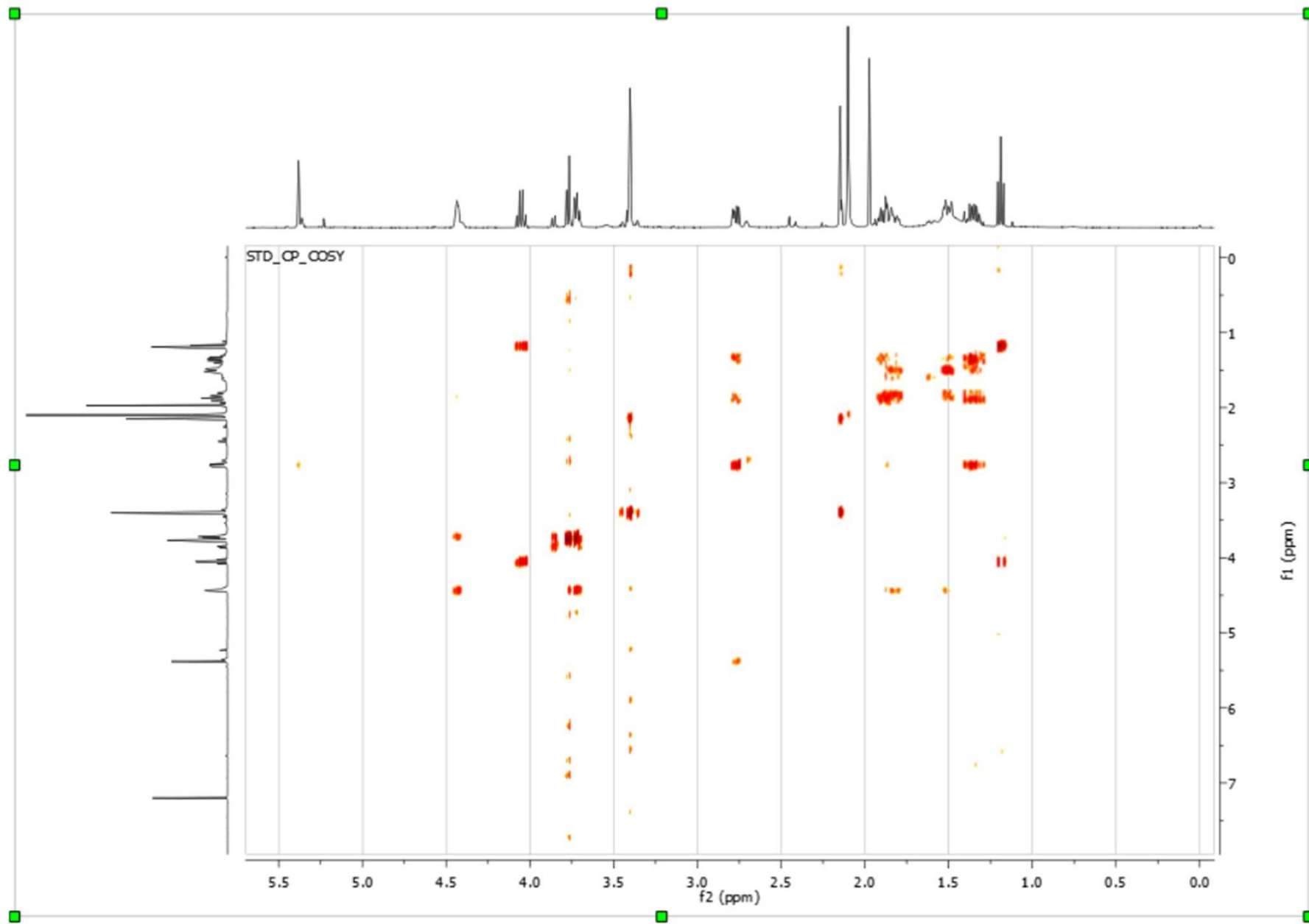


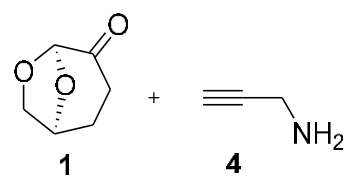
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Crude  
reaction mixture



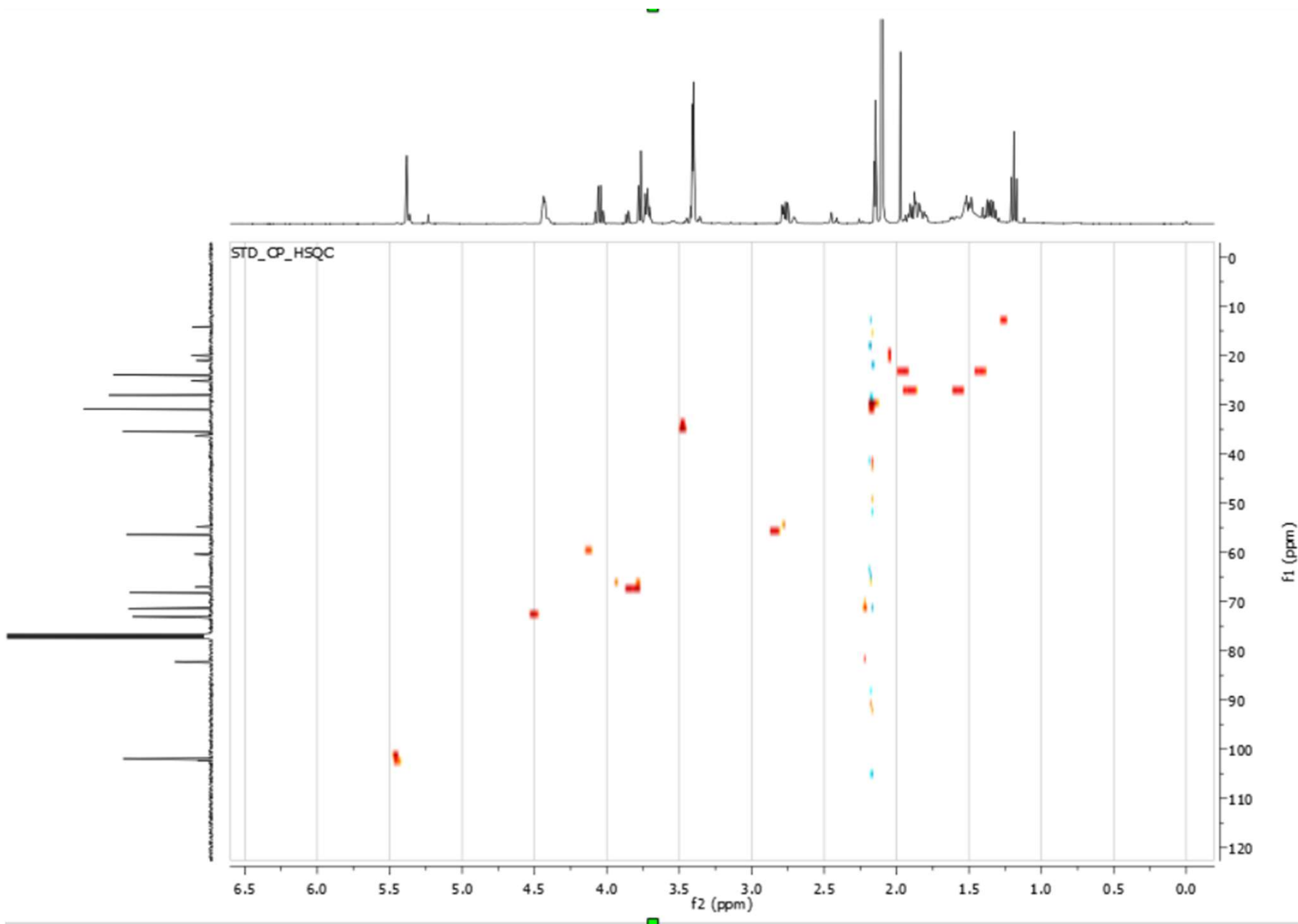


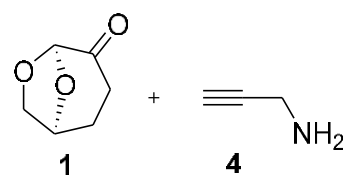
NaBH<sub>4</sub>  
Crude  
reaction mixture



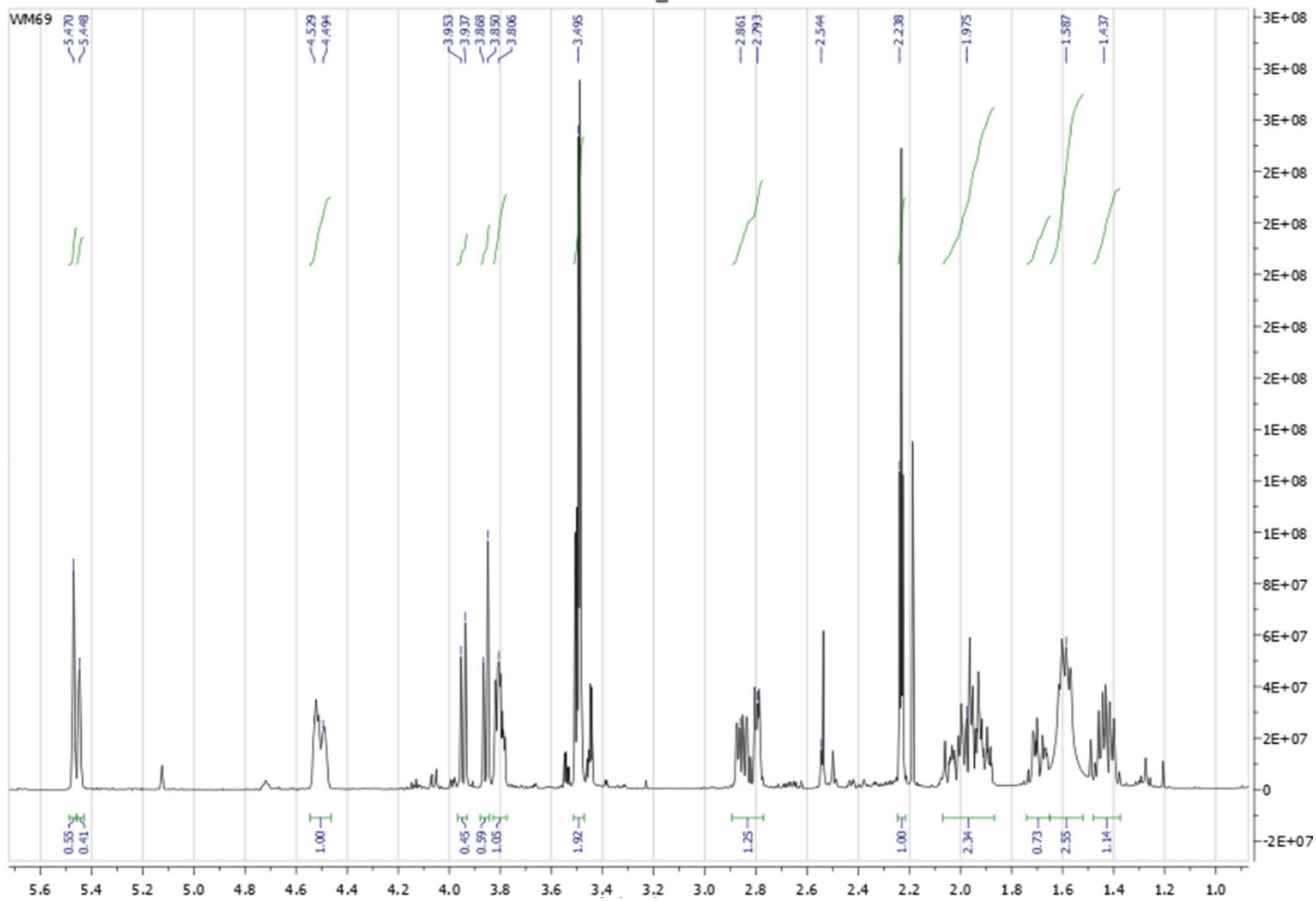


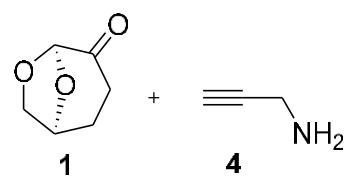
NaBH<sub>4</sub>  
Crude  
reaction mixture



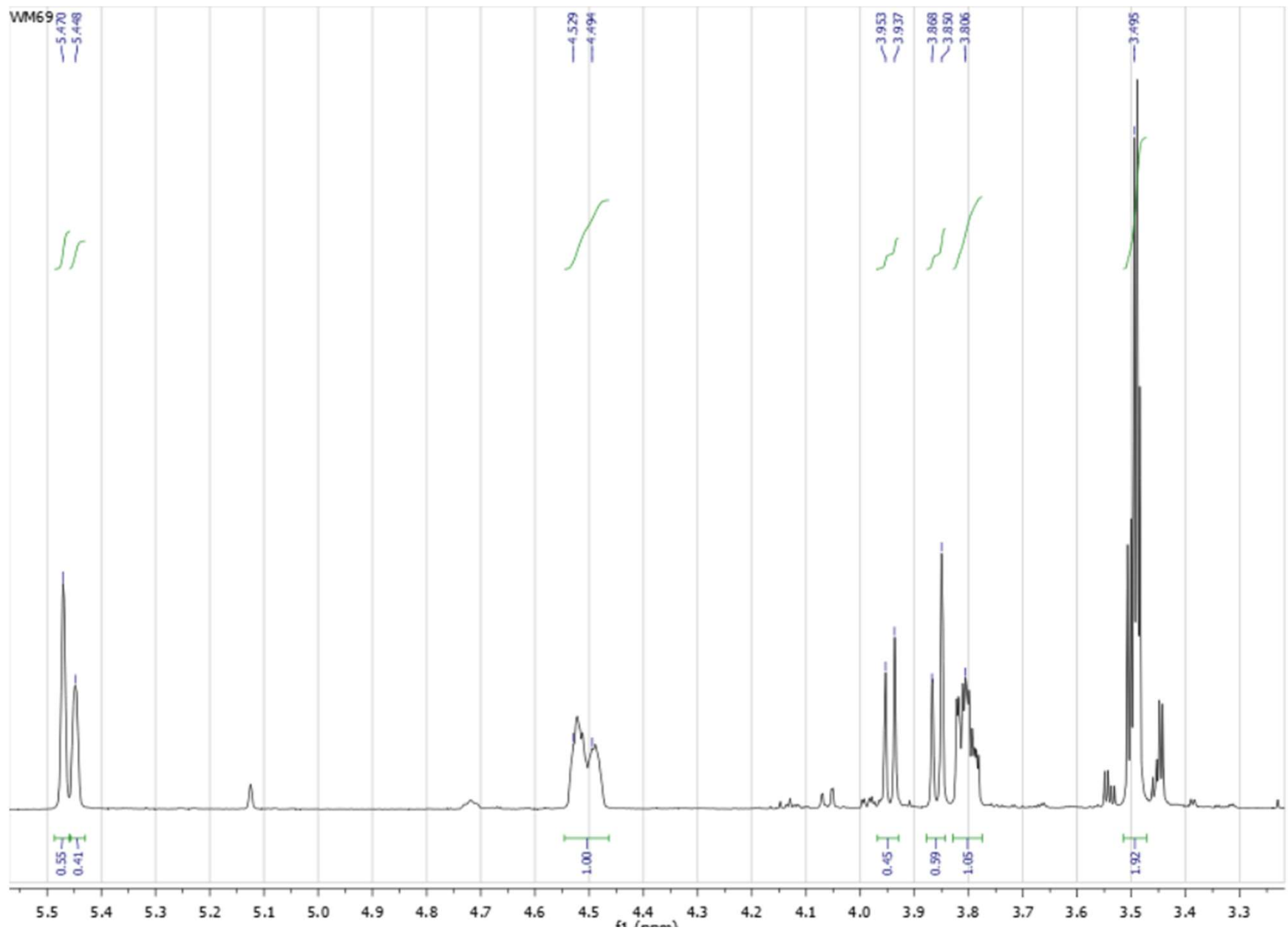


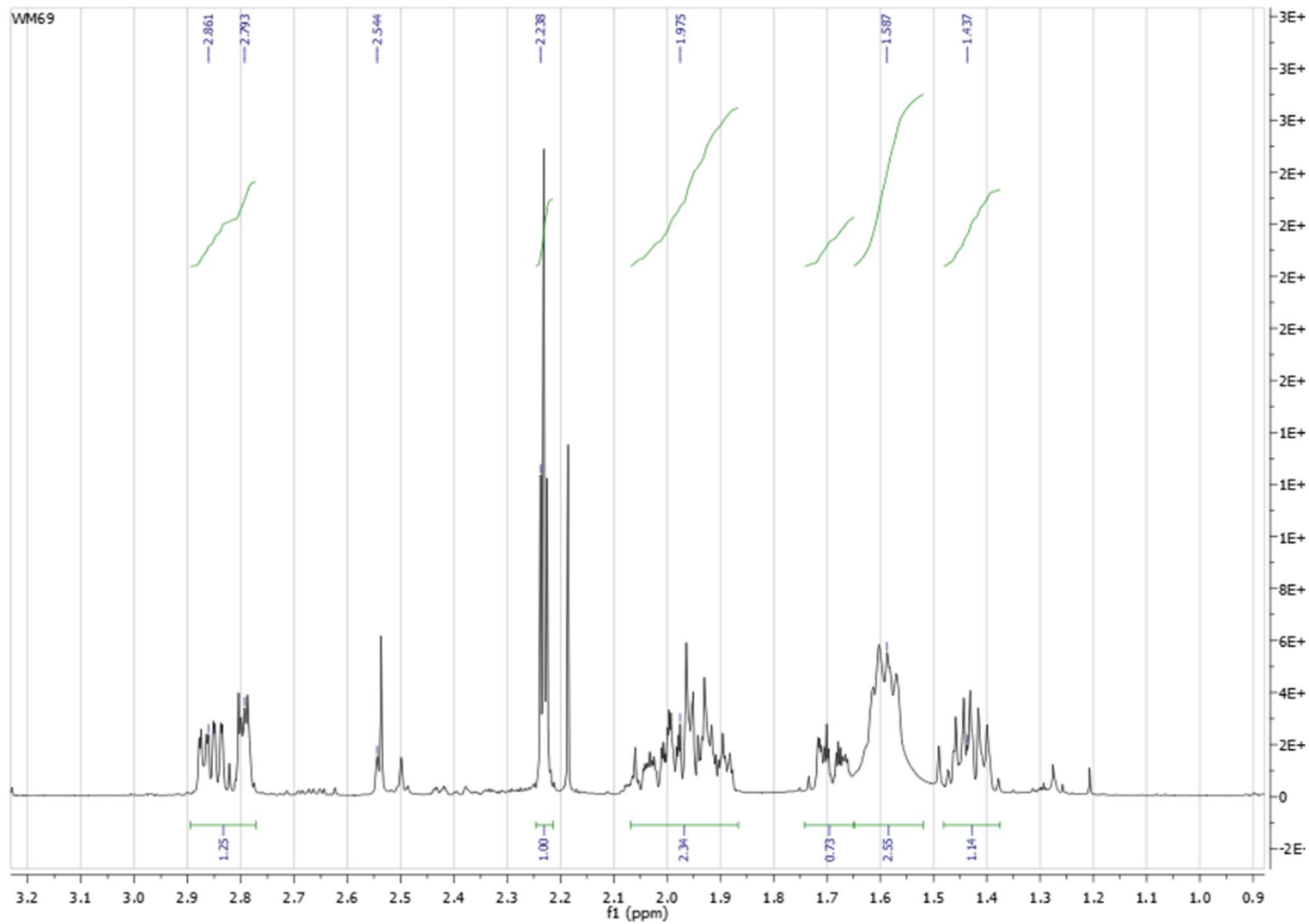
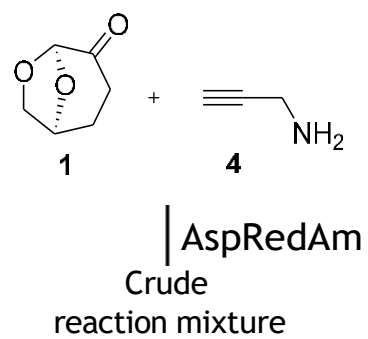
AspRedAm  
 Crude  
 reaction mixture

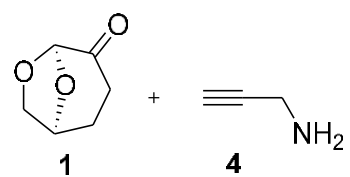




AspRedAm  
Crude  
reaction mixture







AspRedAm  
 Crude  
 reaction mixture

