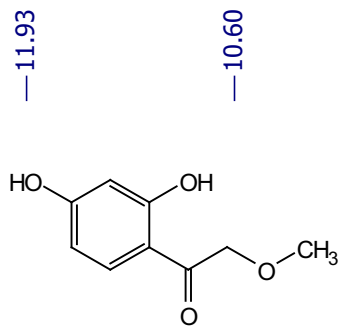


**SYNTHESIS OF 2-TRIFLUOROACETONYL-3-ALKYL/ALKOXY-  
CHROMONES AND THEIR REACTIONS WITH 1,2-BIDENTATE  
NUCLEOPHILES**

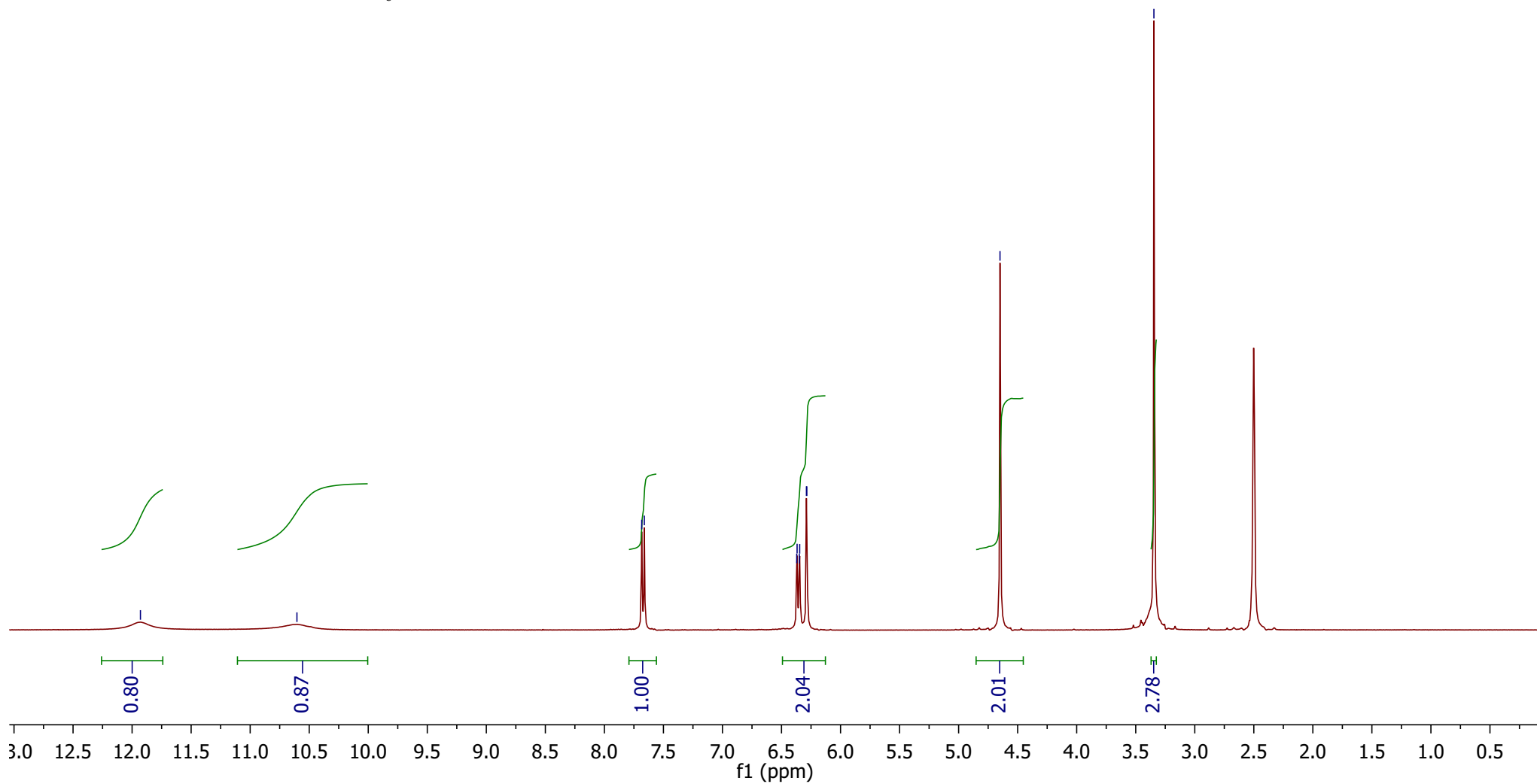
**Iryna M. Biletska,<sup>1</sup> Galyna P. Mrug,<sup>1</sup> Yaroslav O. Prostota,<sup>1</sup> Kostyantyn M.  
Kondratyuk,<sup>1</sup> Svitlana P. Bondarenko,<sup>2</sup> and Mykhaylo S. Frasinyuk<sup>1\*</sup>**

<sup>1</sup>V. P. Kukhar Institute of Bioorganic Chemistry and Petrochemistry of National Academy of Science of Ukraine, Kyiv 02094, Ukraine, Email: mykhaylo.frasinyuk@ukr.net; <sup>2</sup>National University of Food Technologies, Kyiv 01601, Ukraine

***SUPPORTING INFORMATION***



$^1\text{H}$  NMR of **2a** in  $\text{DMSO-d}_6$



—199.33

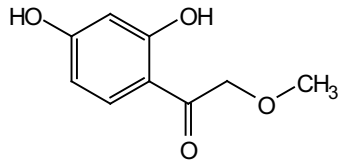
—164.75  
—163.63

—131.96

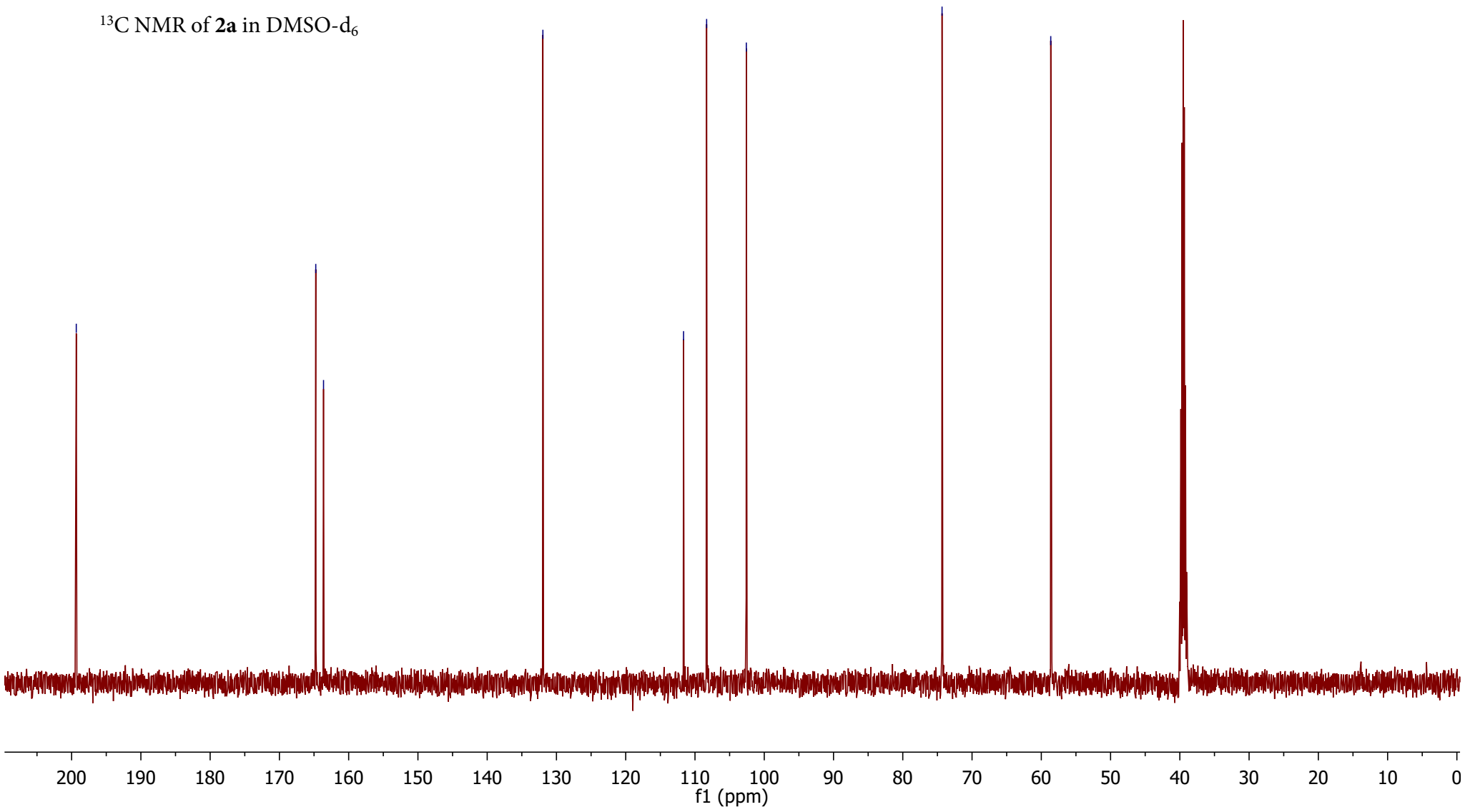
—111.65  
—108.32  
—102.59

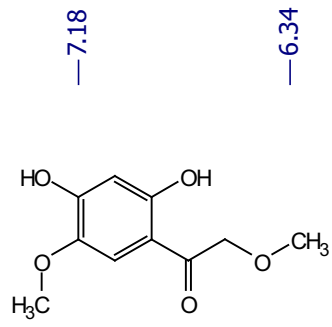
—74.33

—58.64

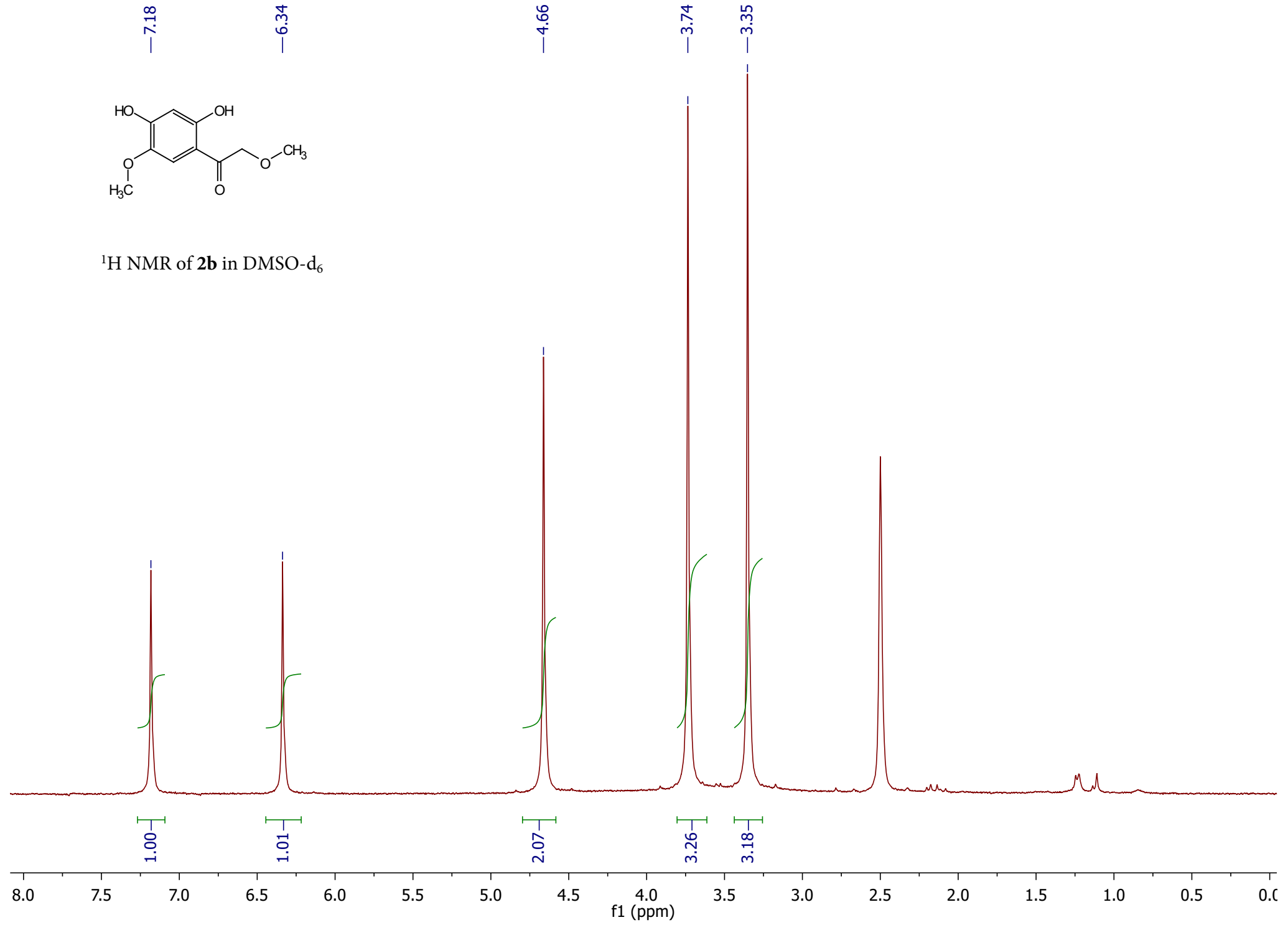


$^{13}\text{C}$  NMR of **2a** in  $\text{DMSO-d}_6$





<sup>1</sup>H NMR of **2b** in DMSO-d<sub>6</sub>



— 198.13

— 157.95  
— 155.70

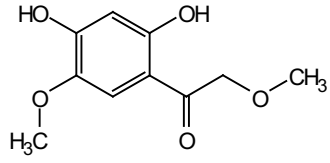
— 141.42

— 111.59  
— 109.84

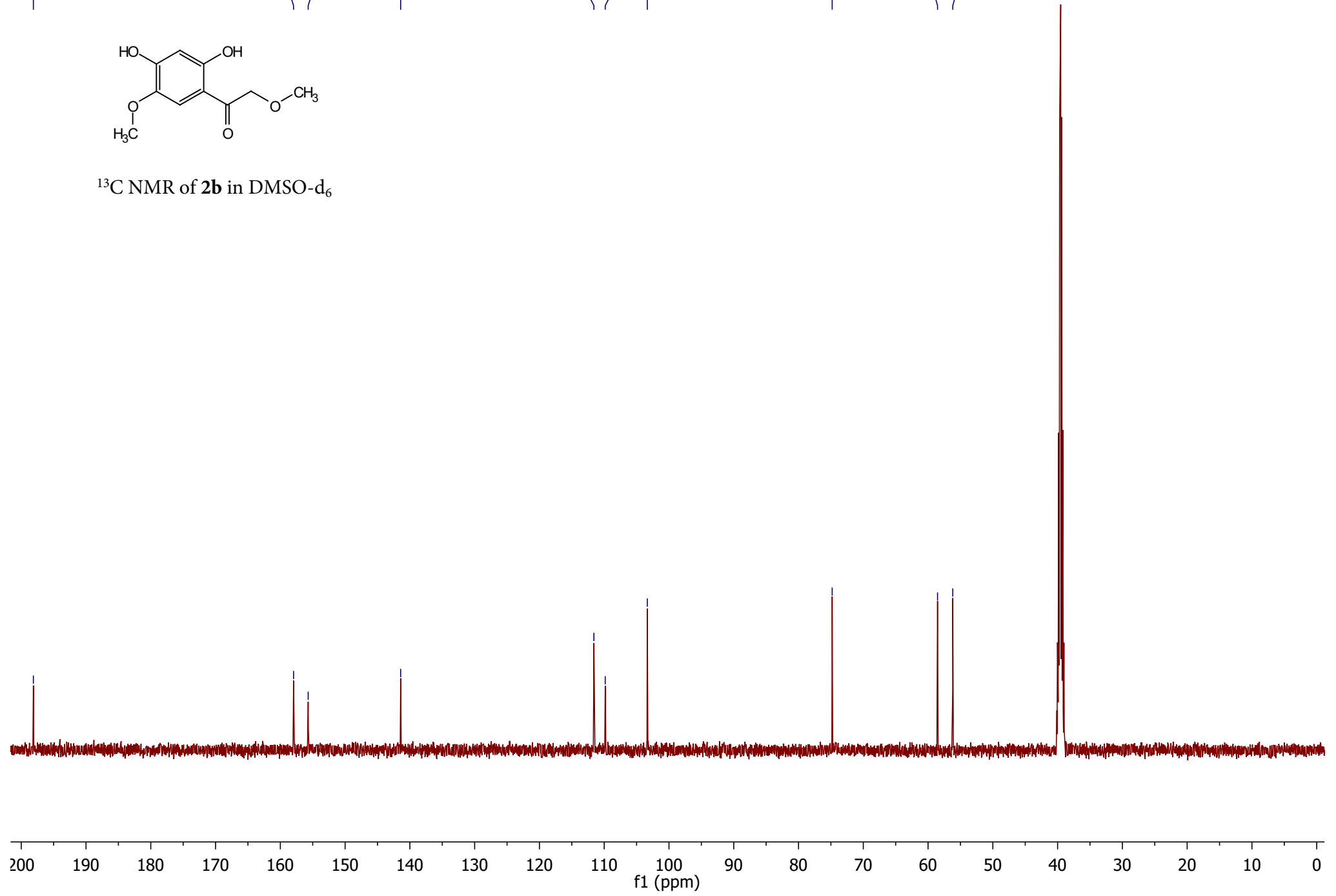
— 103.34

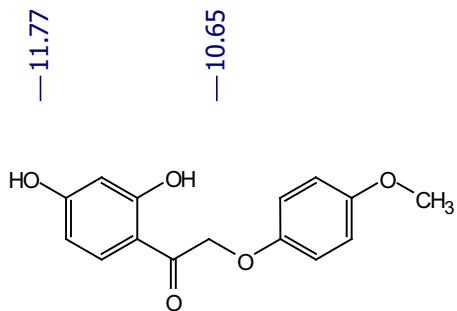
— 74.80

— 58.54  
— 56.18

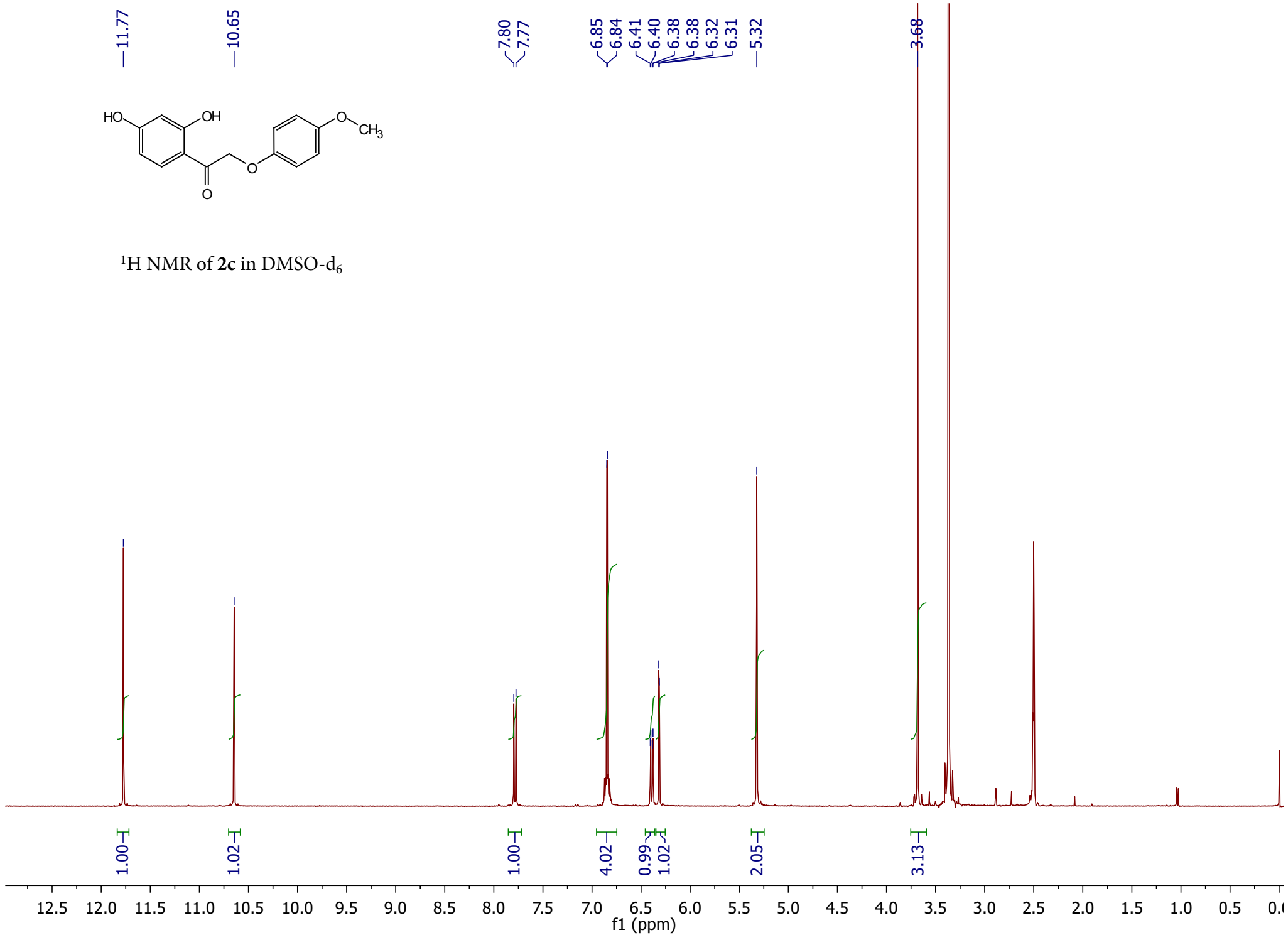


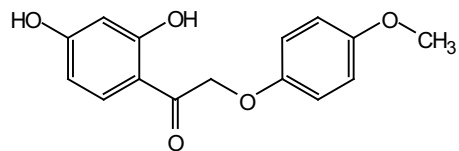
<sup>13</sup>C NMR of **2b** in DMSO-d<sub>6</sub>



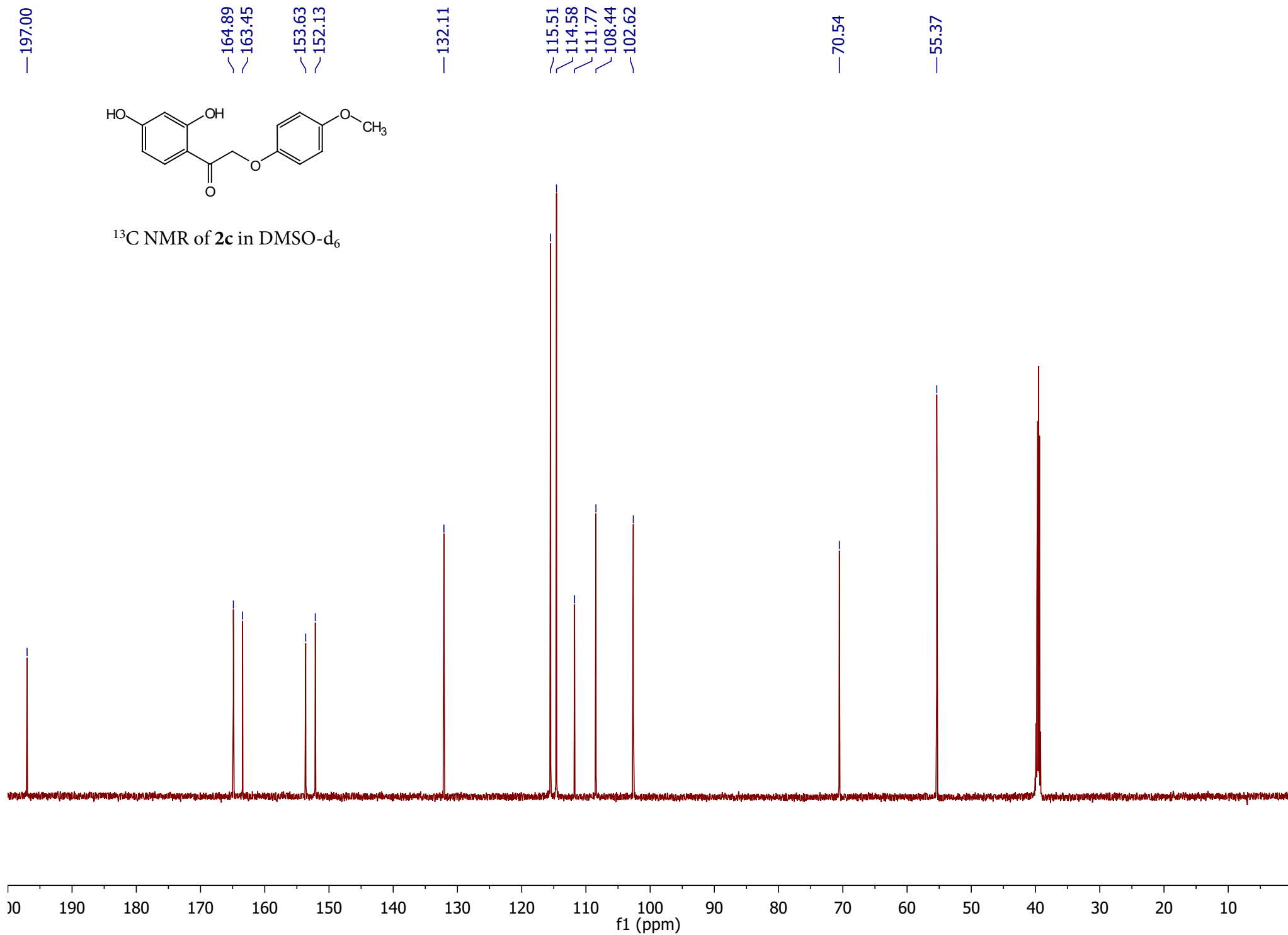


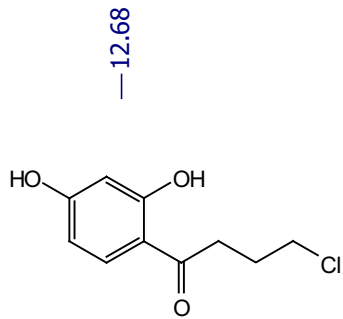
<sup>1</sup>H NMR of **2c** in DMSO-d<sub>6</sub>



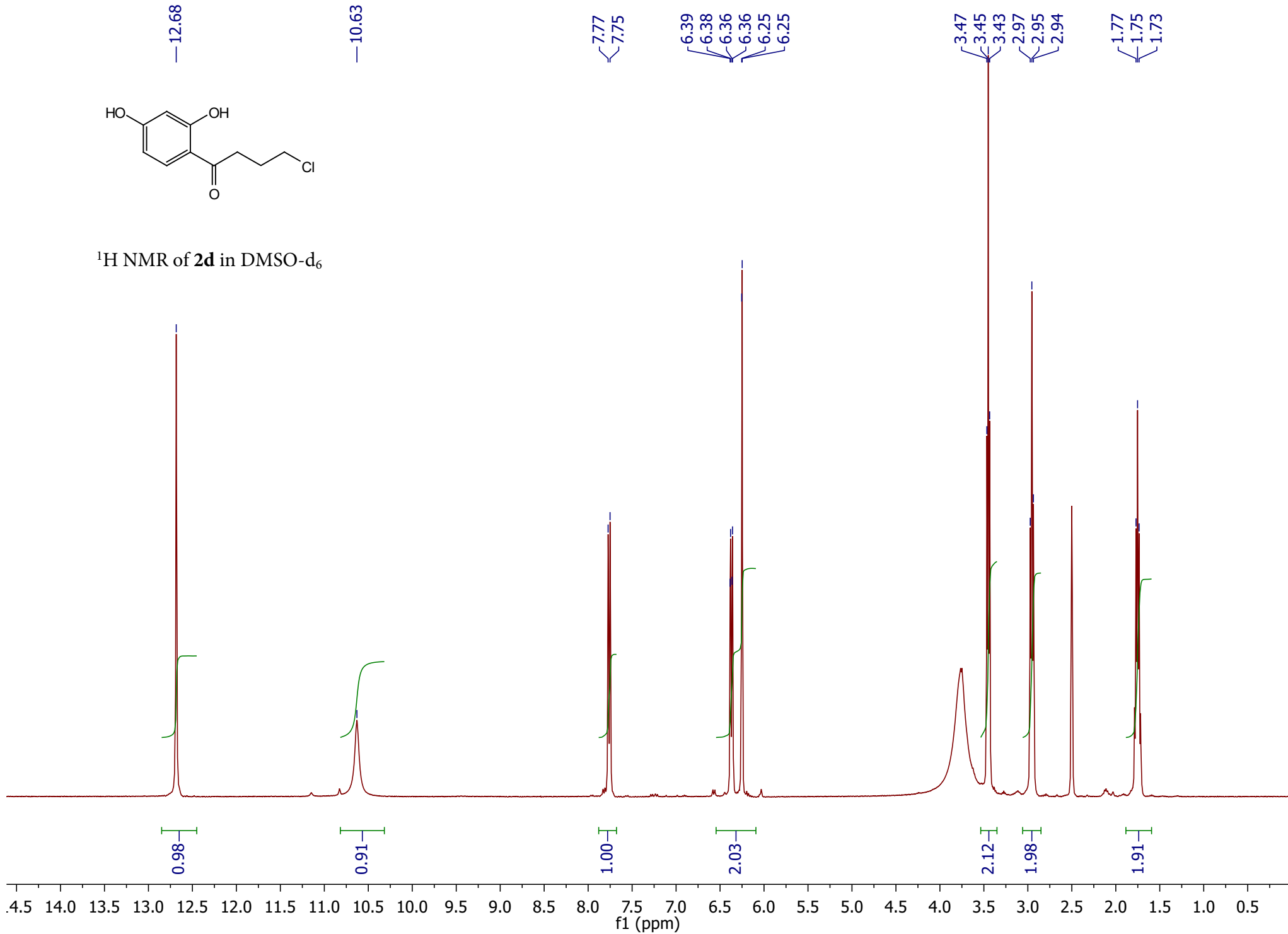


$^{13}\text{C}$  NMR of 2c in DMSO- $\text{d}_6$





$^1\text{H}$  NMR of **2d** in  $\text{DMSO-d}_6$



—204.90

164.78  
164.40

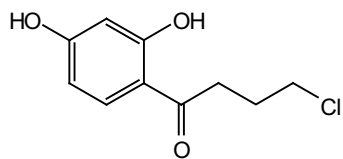
—132.94

112.55  
108.22  
102.54

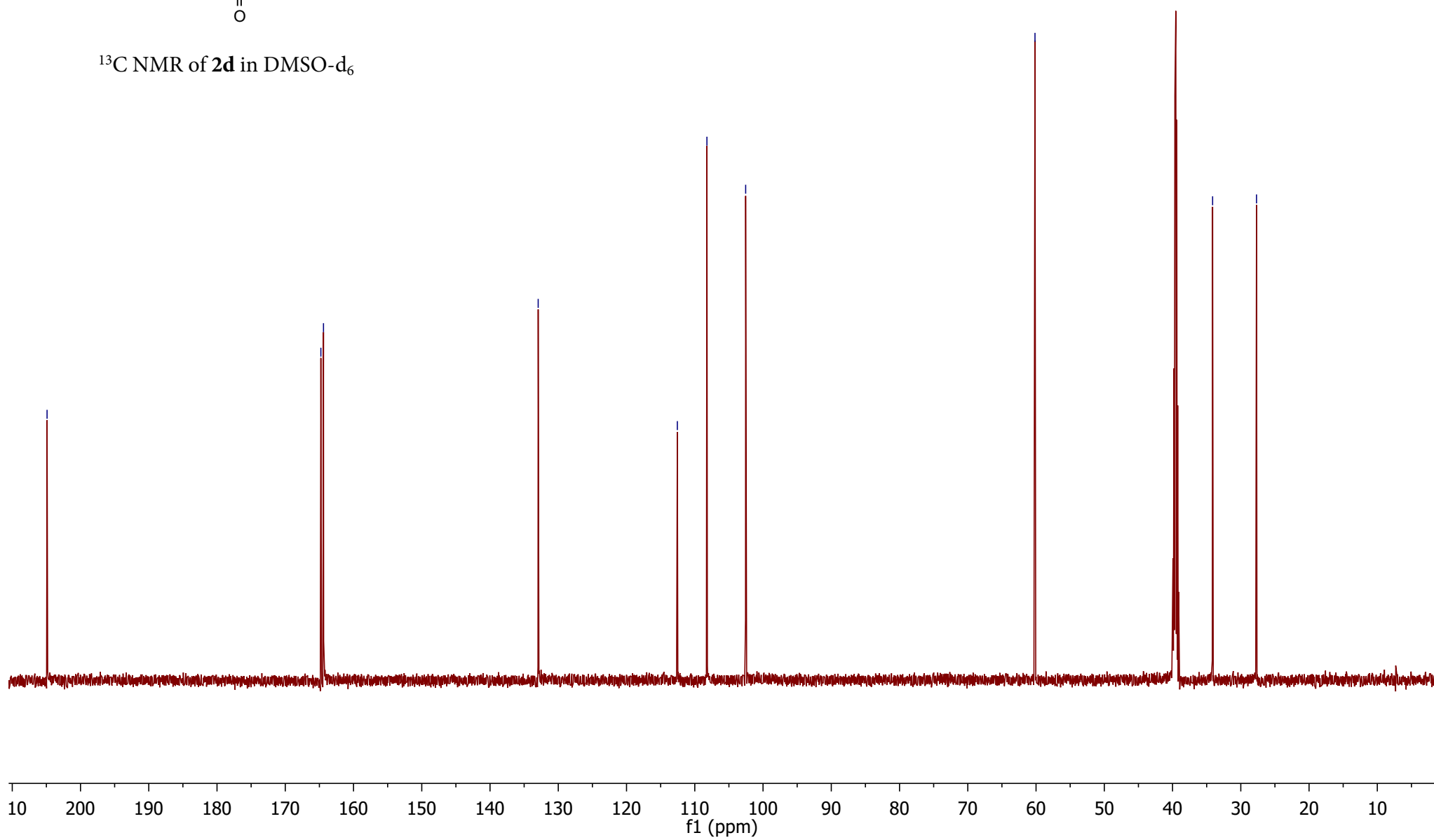
—60.15

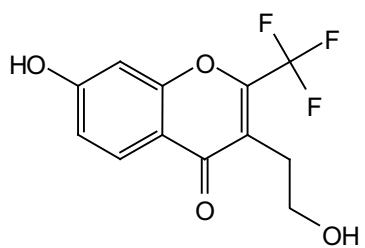
—34.13

—27.70

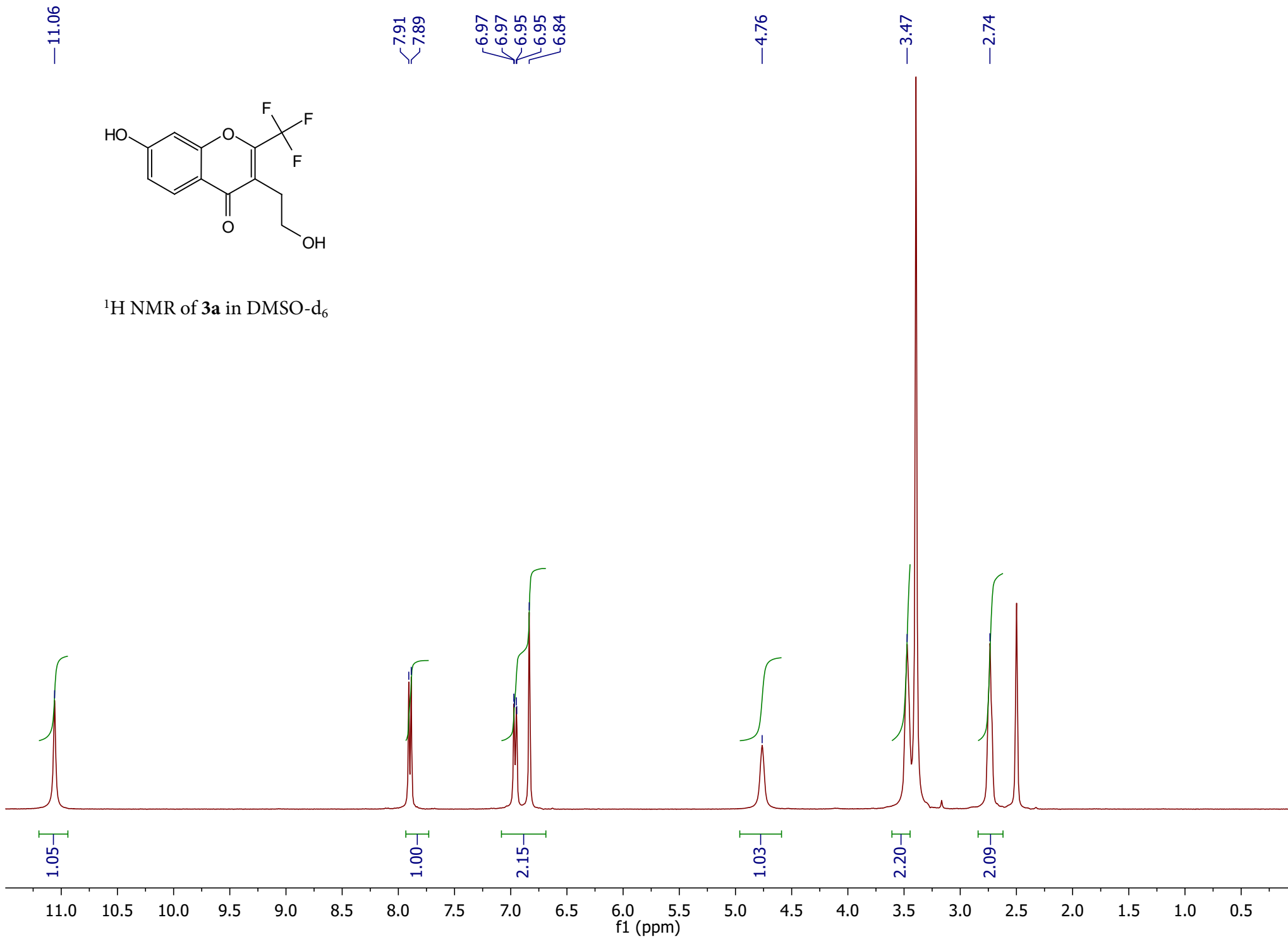


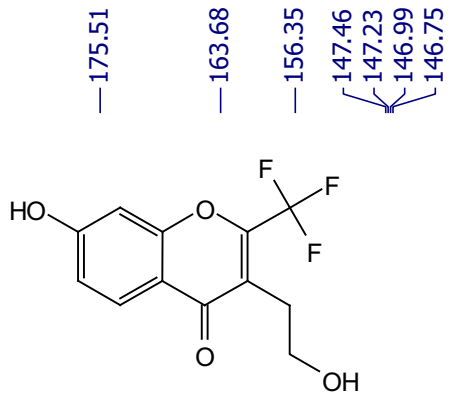
$^{13}\text{C}$  NMR of **2d** in DMSO- $\text{d}_6$



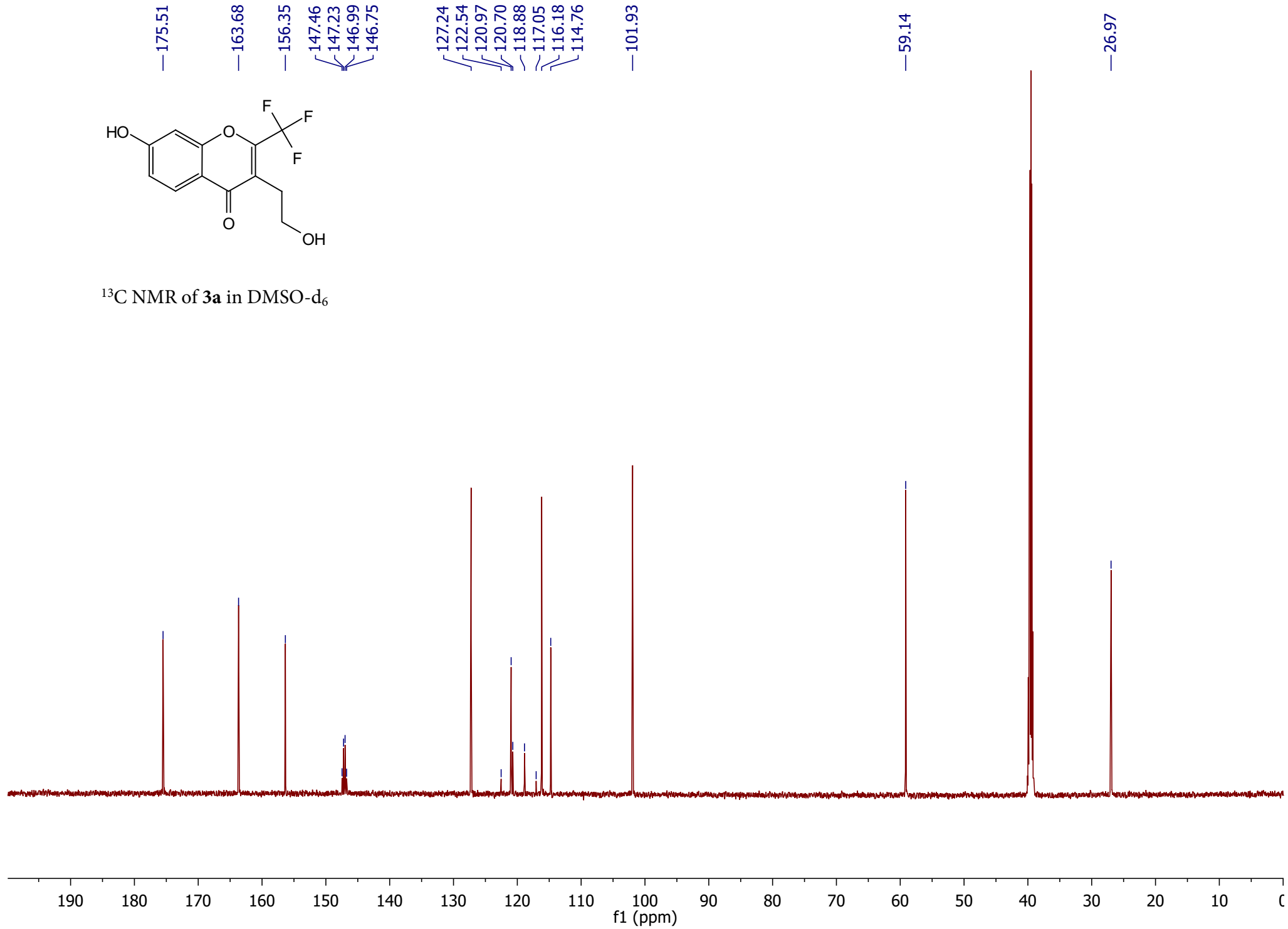


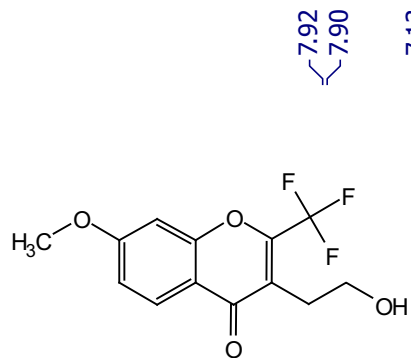
$^1\text{H}$  NMR of **3a** in  $\text{DMSO-d}_6$



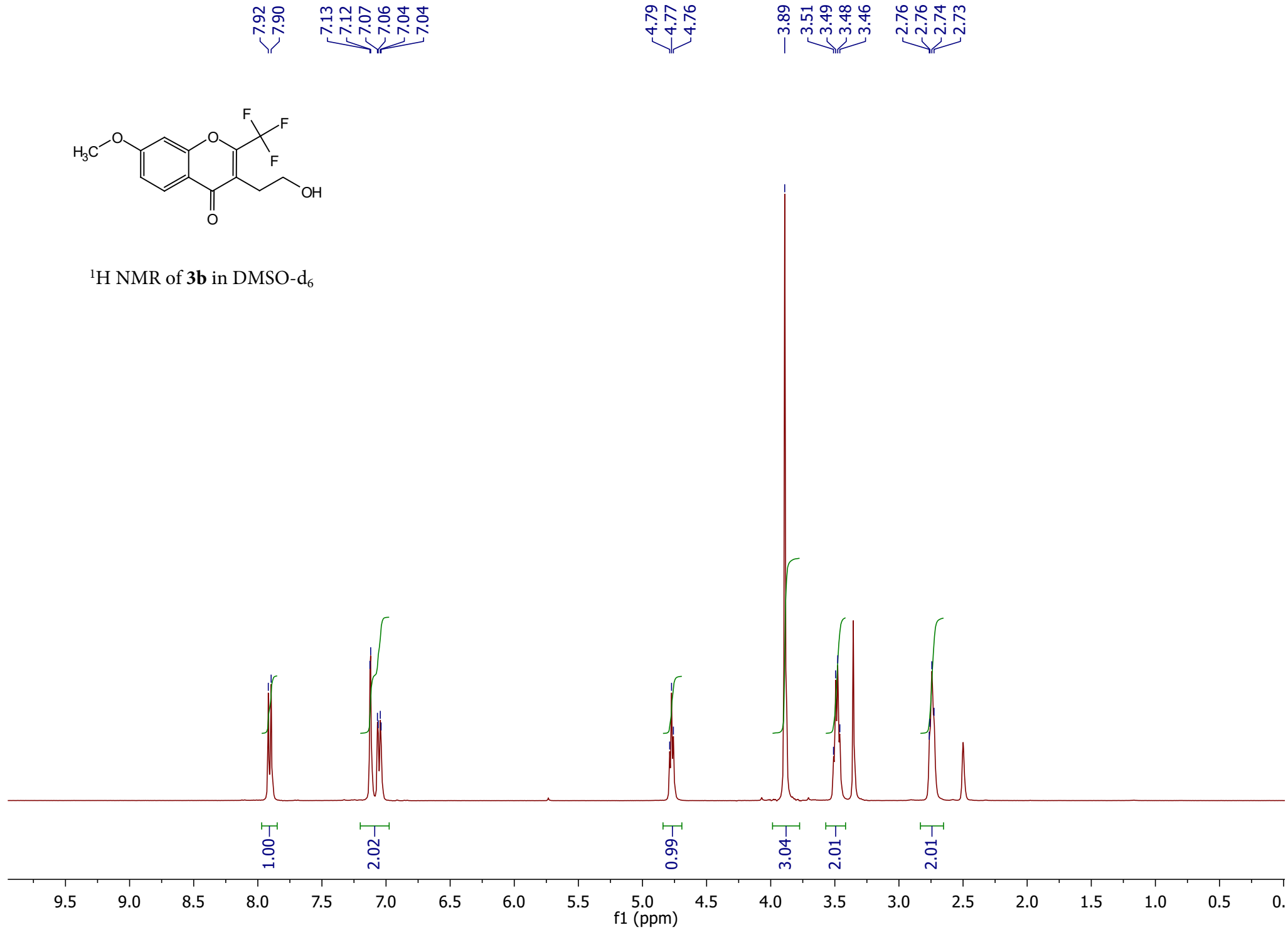


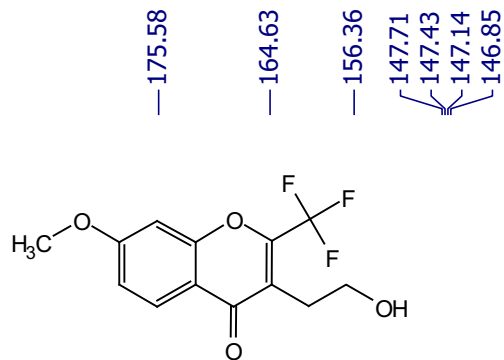
$^{13}\text{C}$  NMR of **3a** in DMSO- $\text{d}_6$



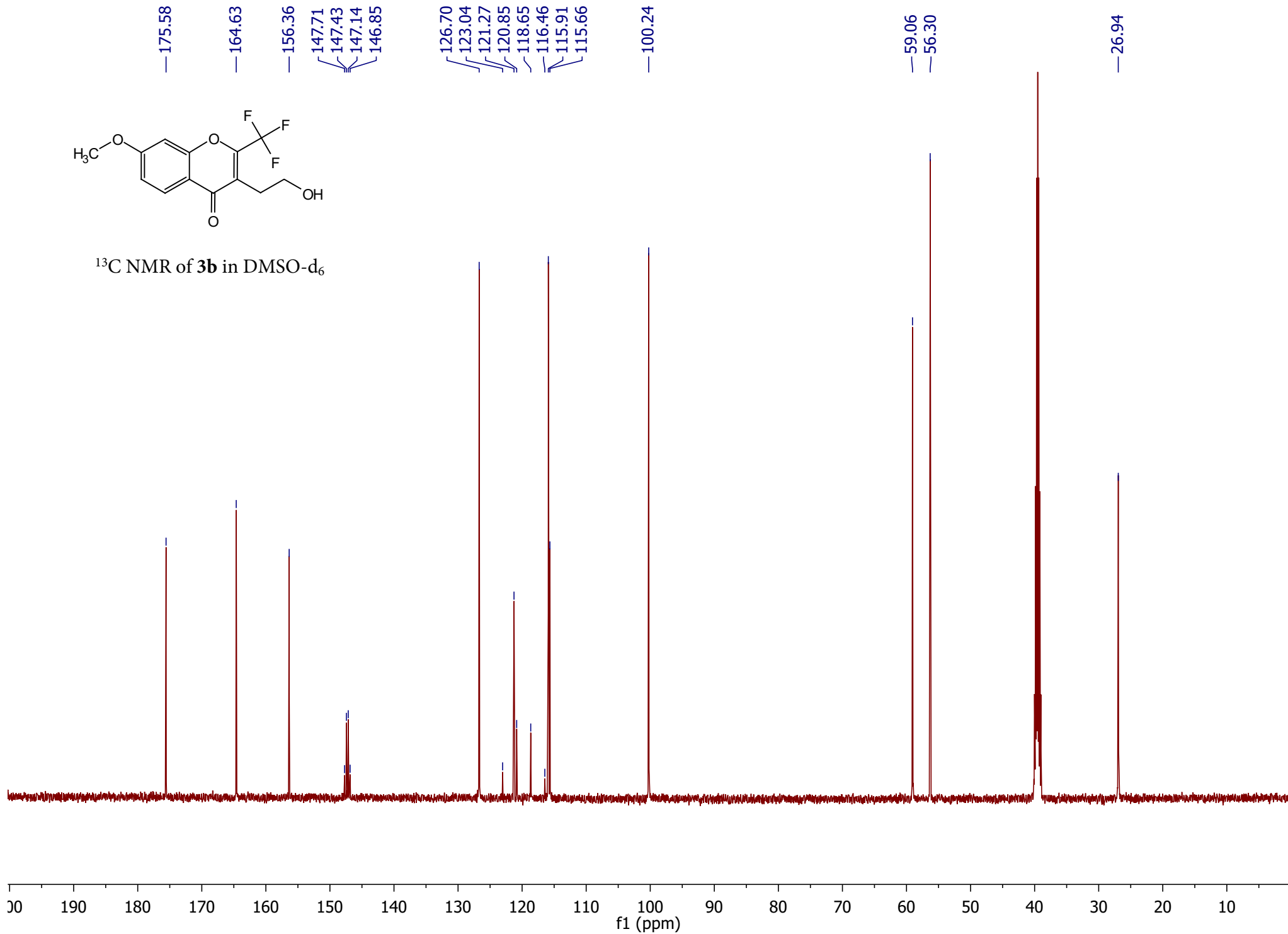


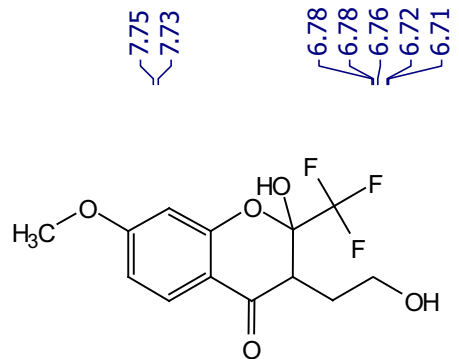
$^1\text{H}$  NMR of **3b** in  $\text{DMSO-d}_6$



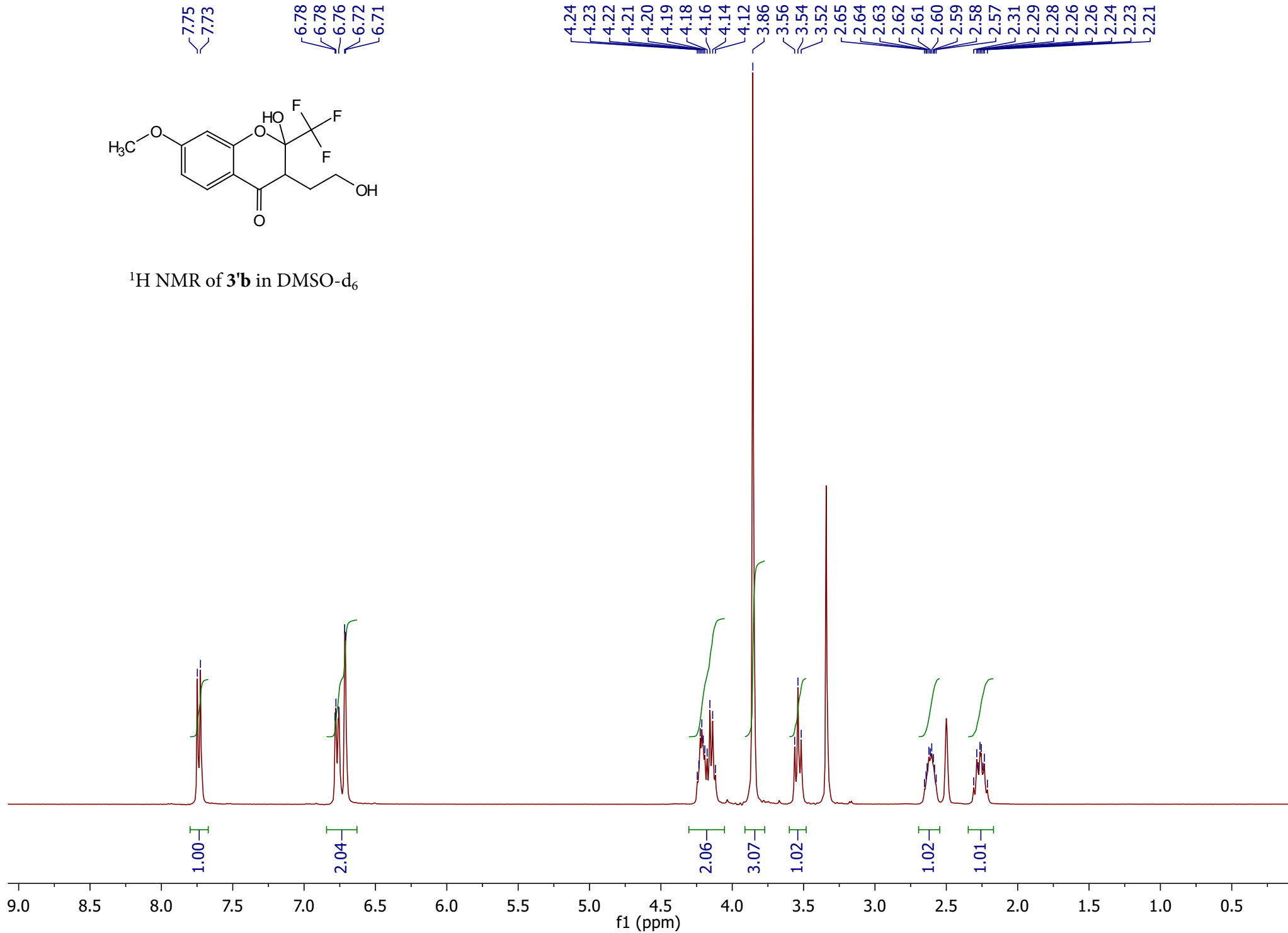


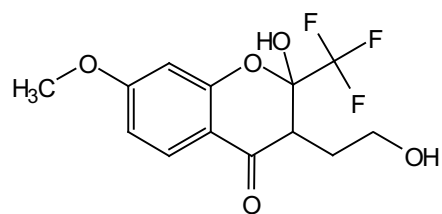
$^{13}\text{C}$  NMR of **3b** in DMSO- $d_6$



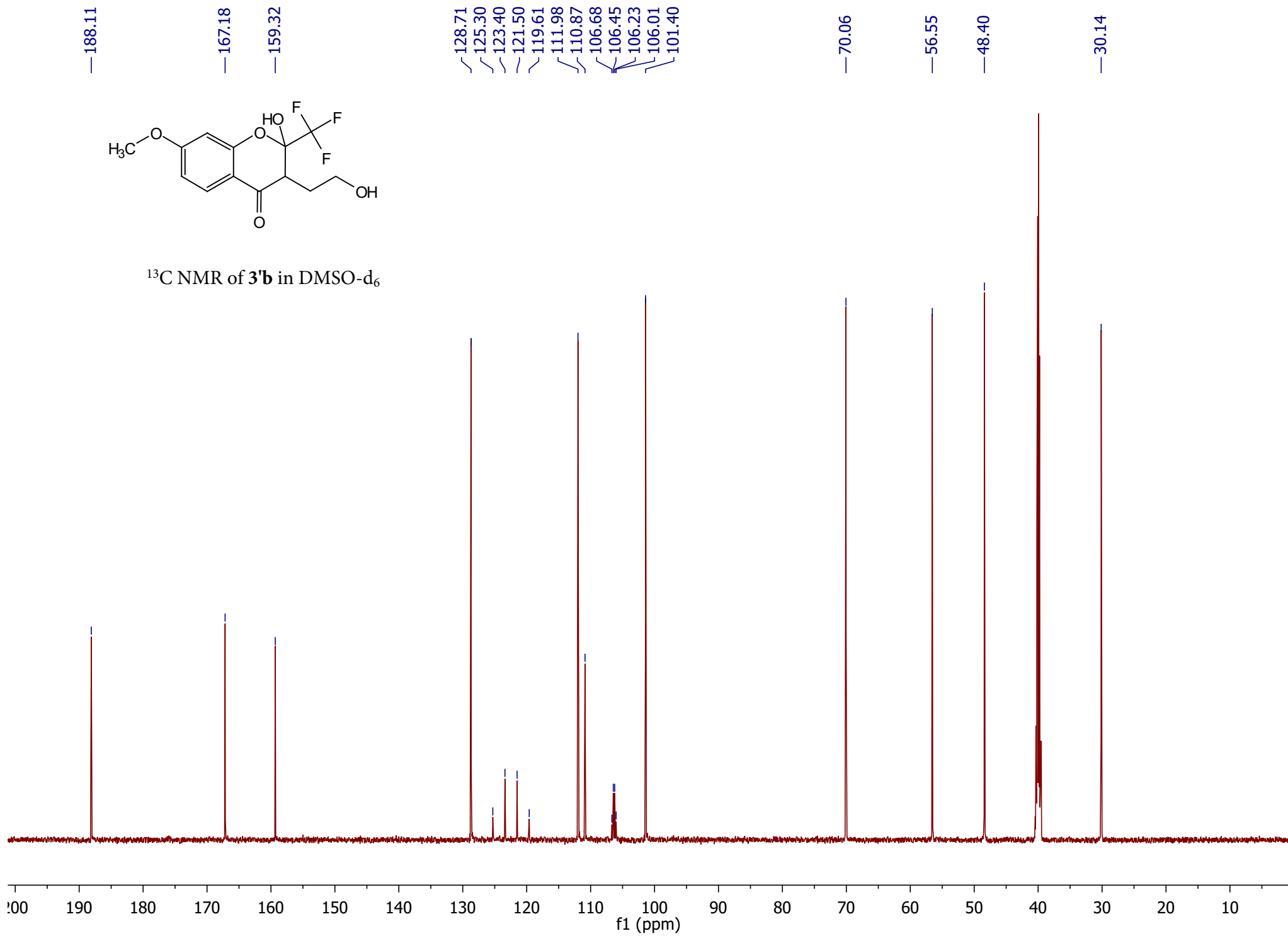


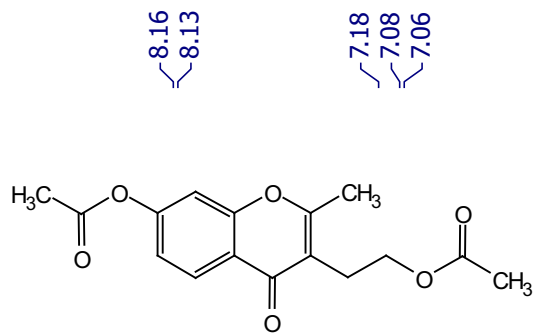
<sup>1</sup>H NMR of **3'b** in DMSO-d<sub>6</sub>



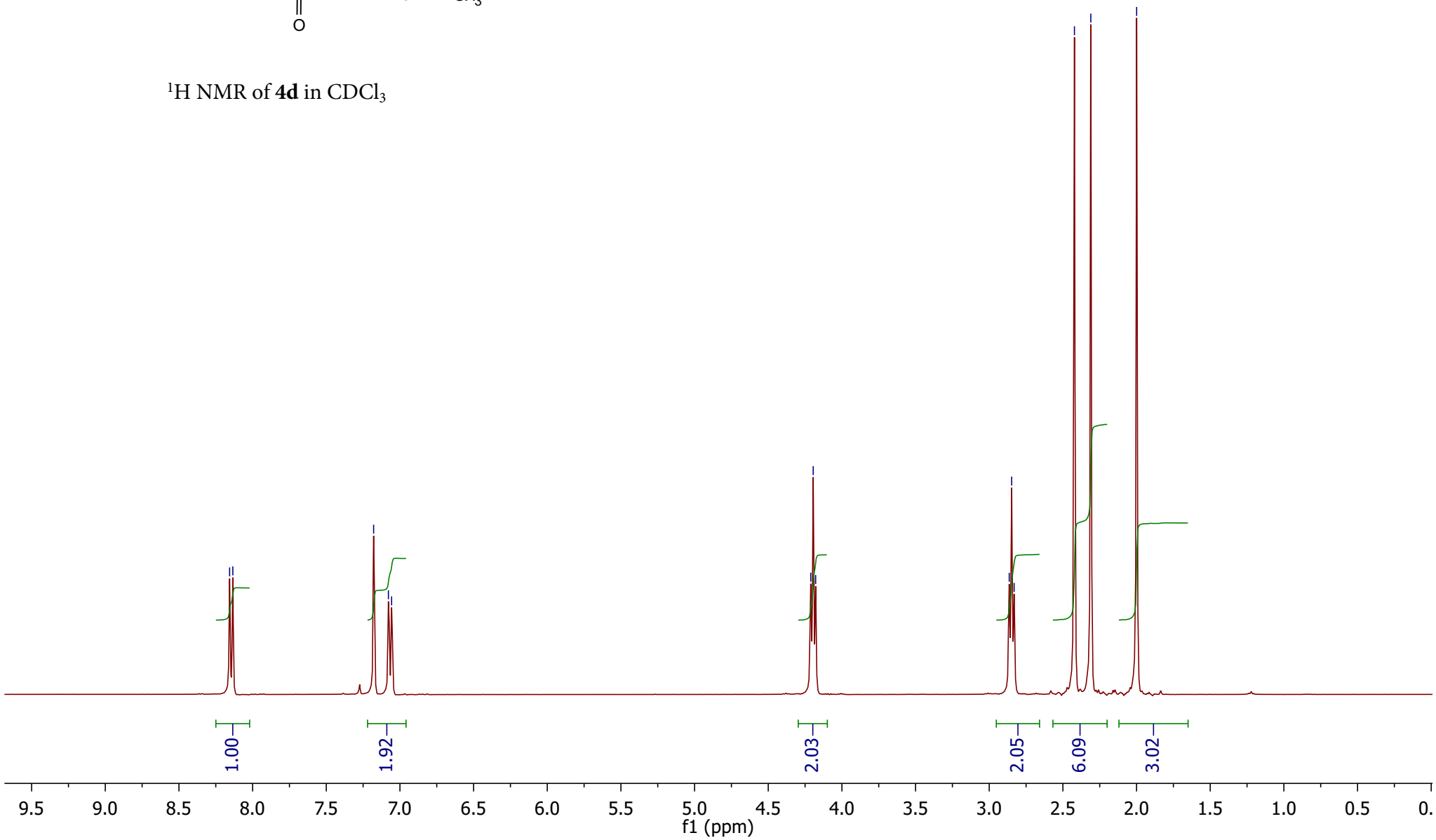


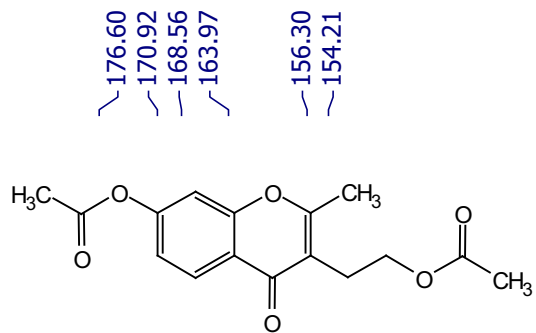
$^{13}\text{C}$  NMR of **3'b** in  $\text{DMSO-d}_6$



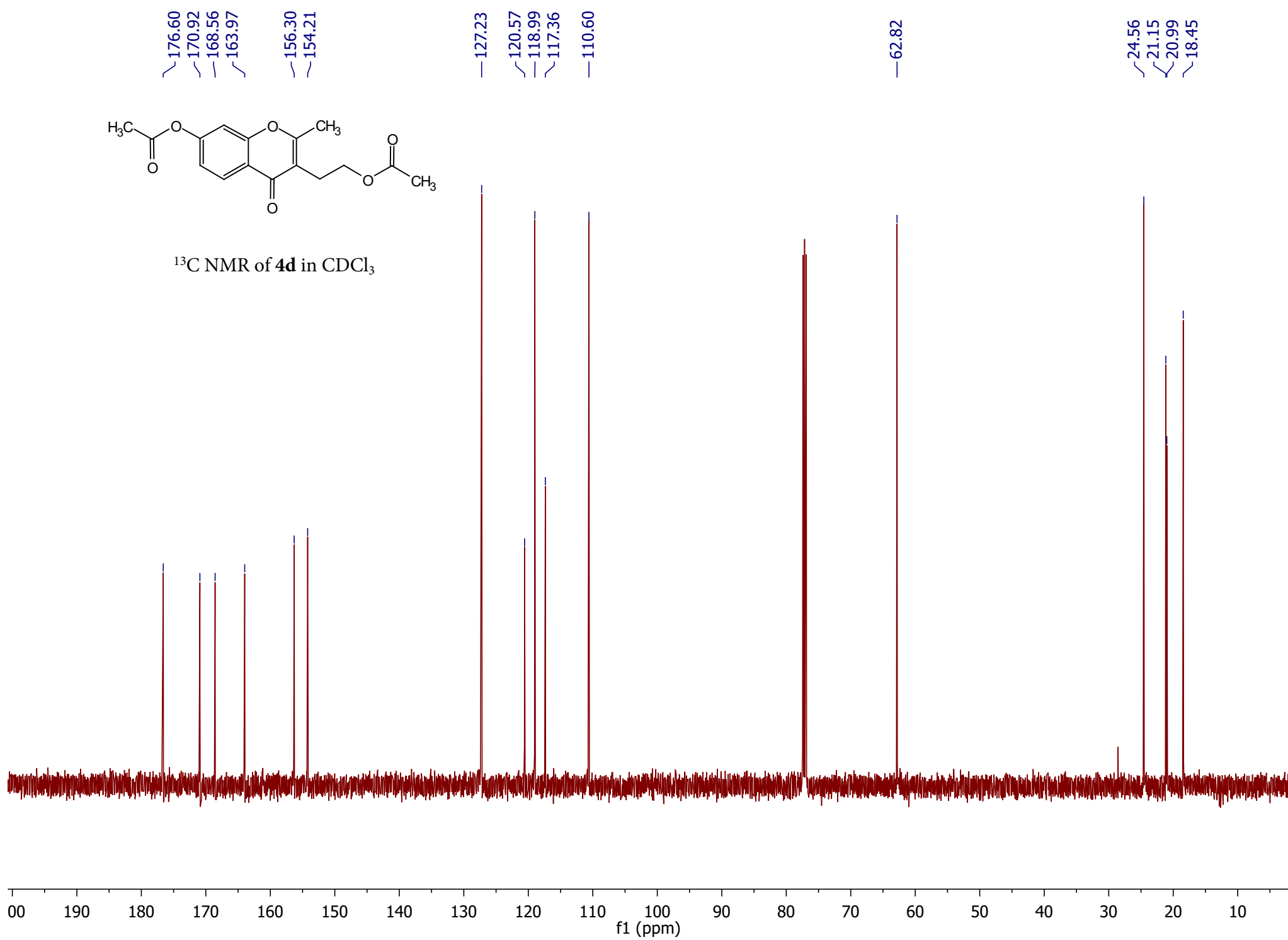


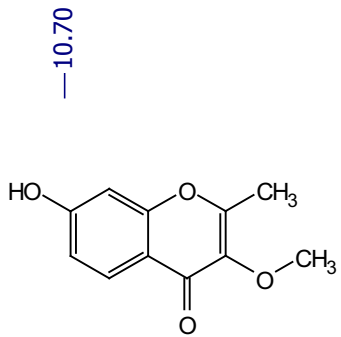
$^1\text{H}$  NMR of **4d** in  $\text{CDCl}_3$



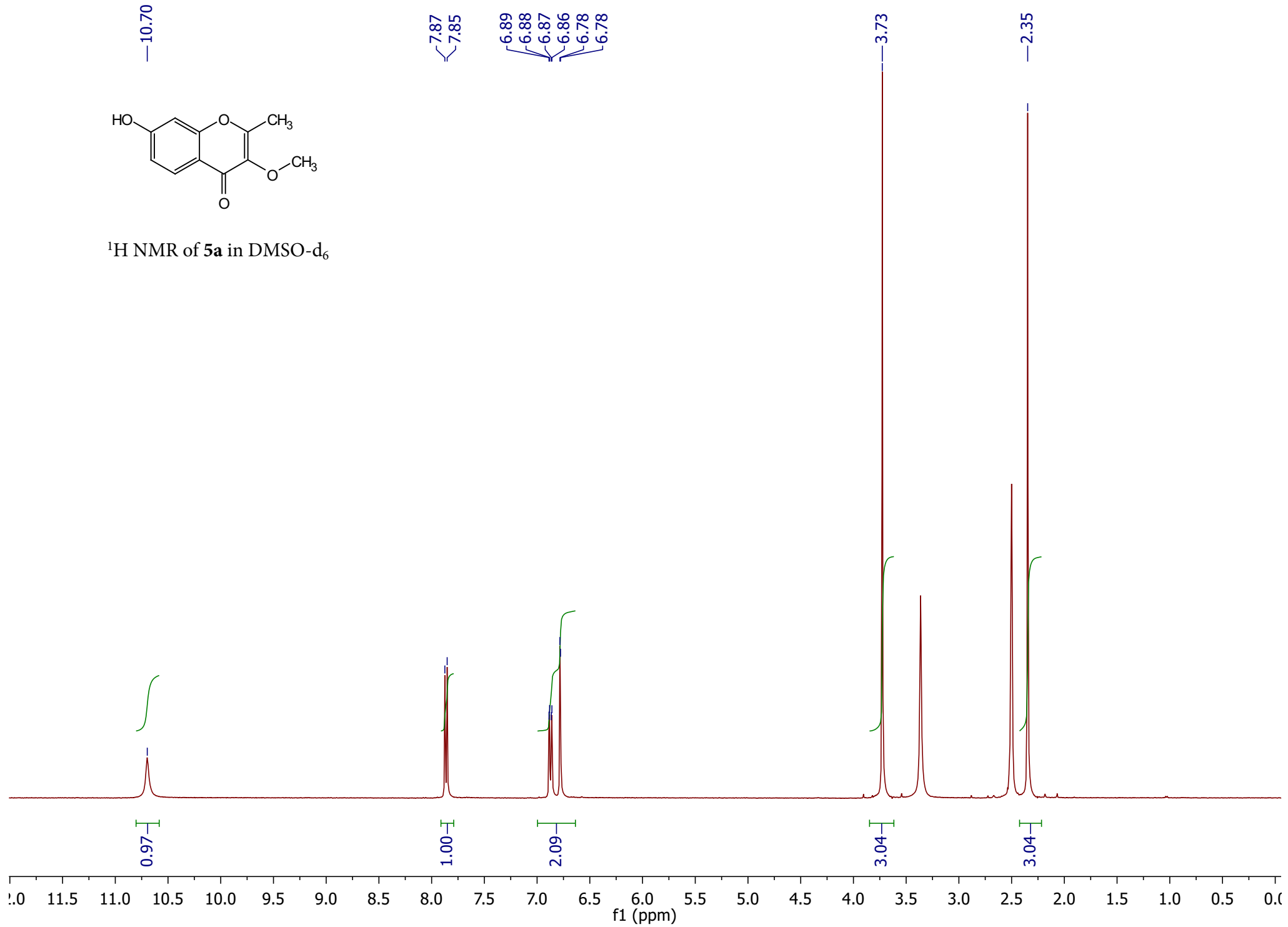


<sup>13</sup>C NMR of **4d** in CDCl<sub>3</sub>

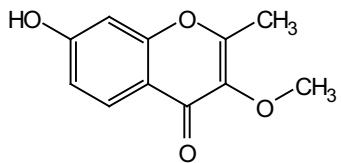




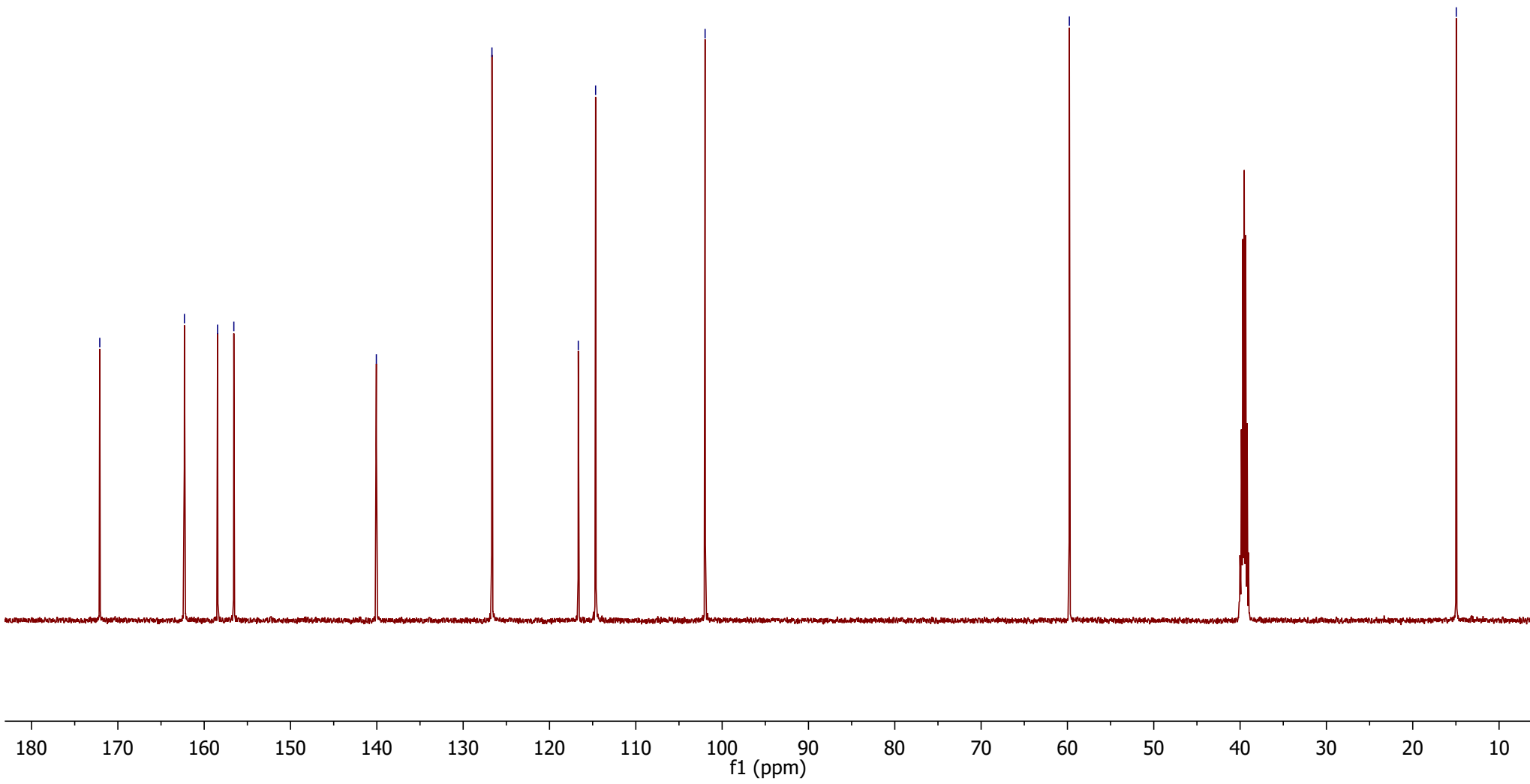
$^1\text{H}$  NMR of **5a** in  $\text{DMSO-d}_6$

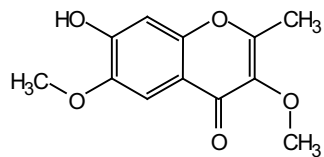


—172.10      —162.29  
—158.45      —156.57  
—140.06      —126.67  
—116.66      —114.66  
—101.97  
—59.78  
—14.96

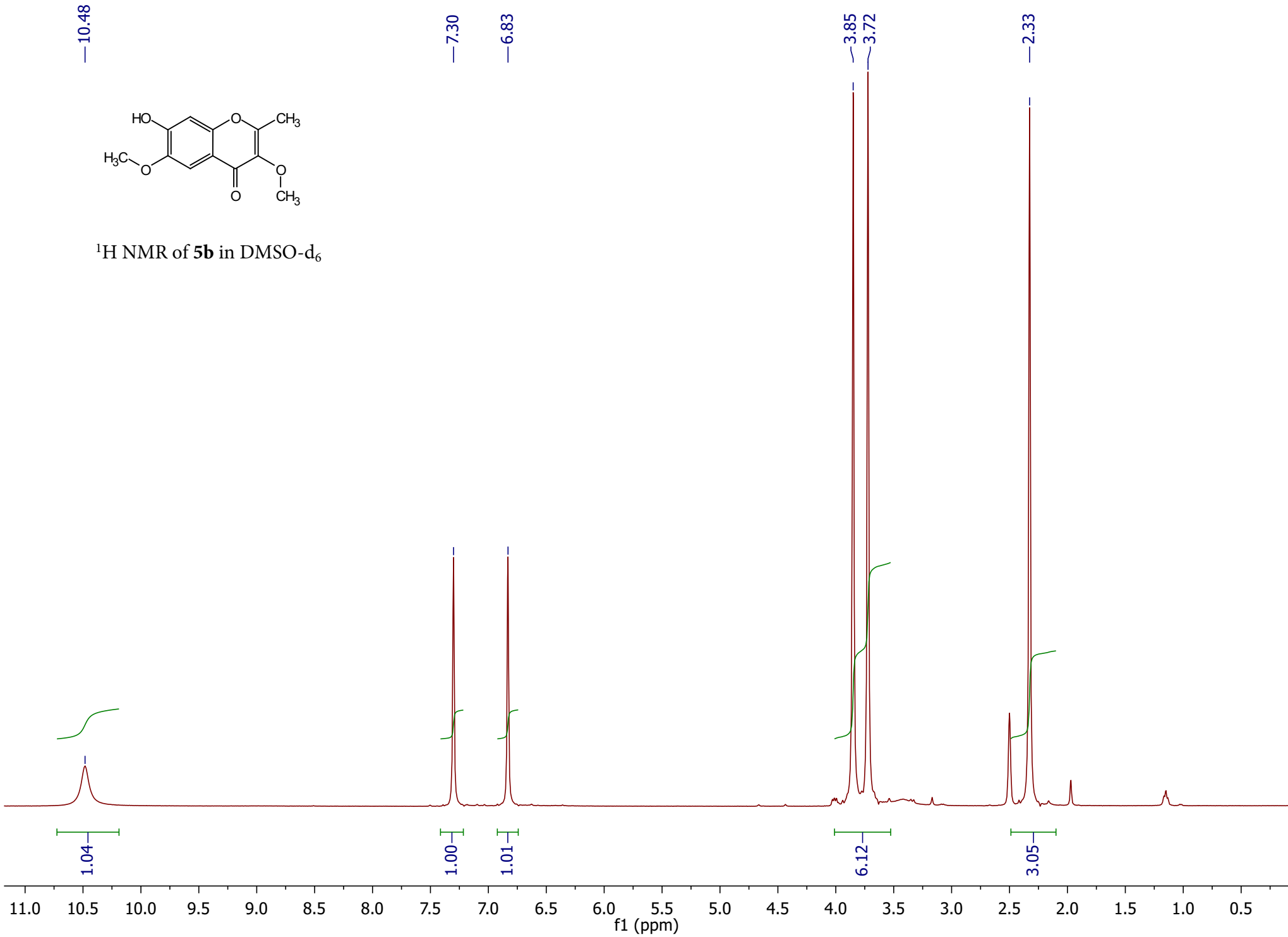


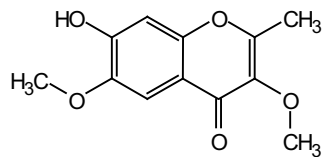
<sup>13</sup>C NMR of **5a** in DMSO-d<sub>6</sub>



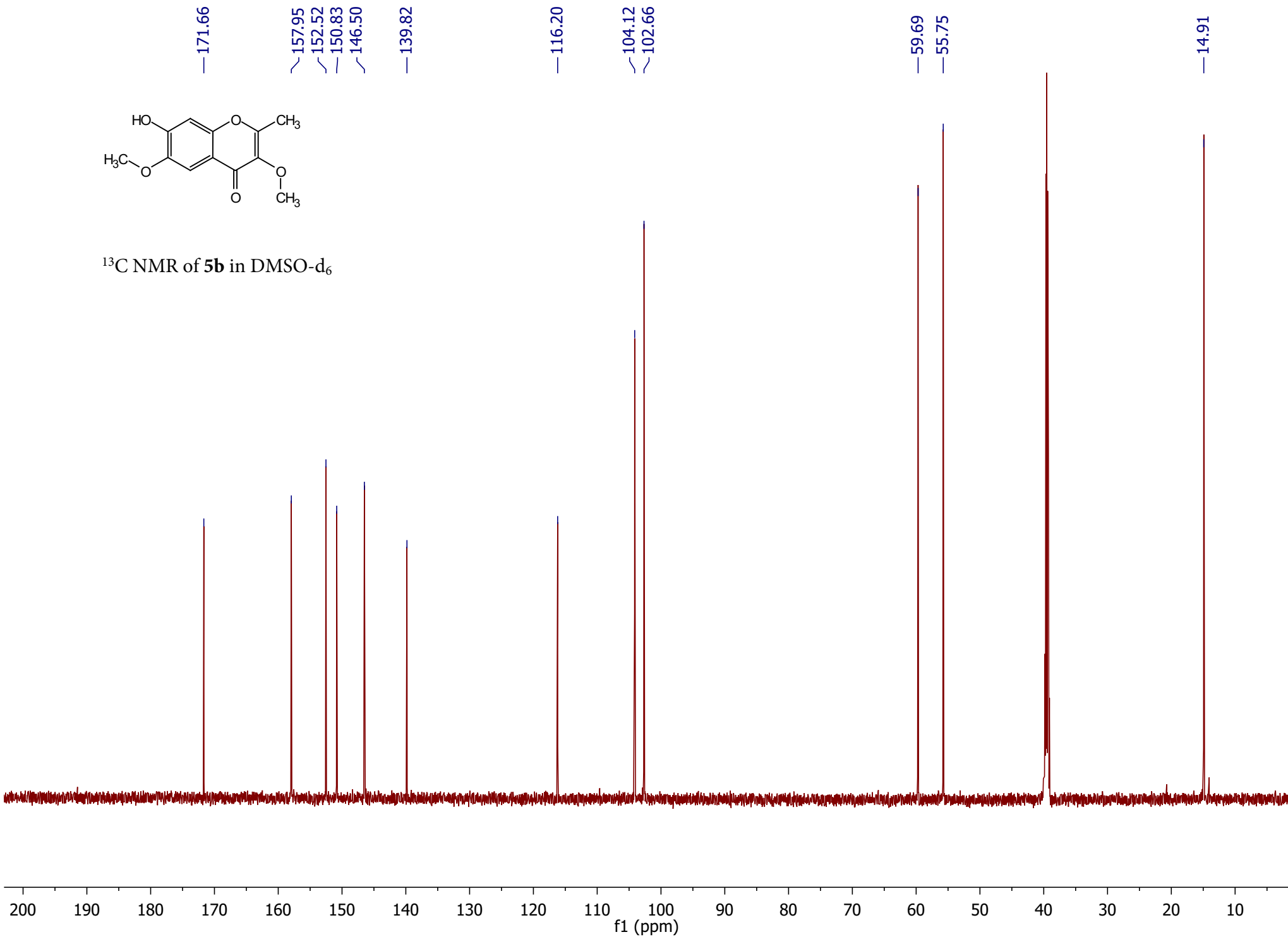


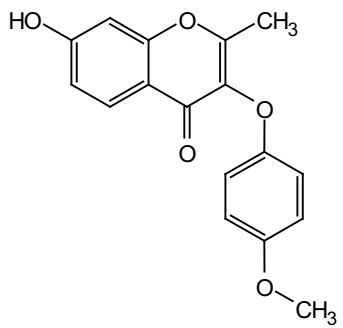
$^1\text{H}$  NMR of **5b** in  $\text{DMSO-d}_6$



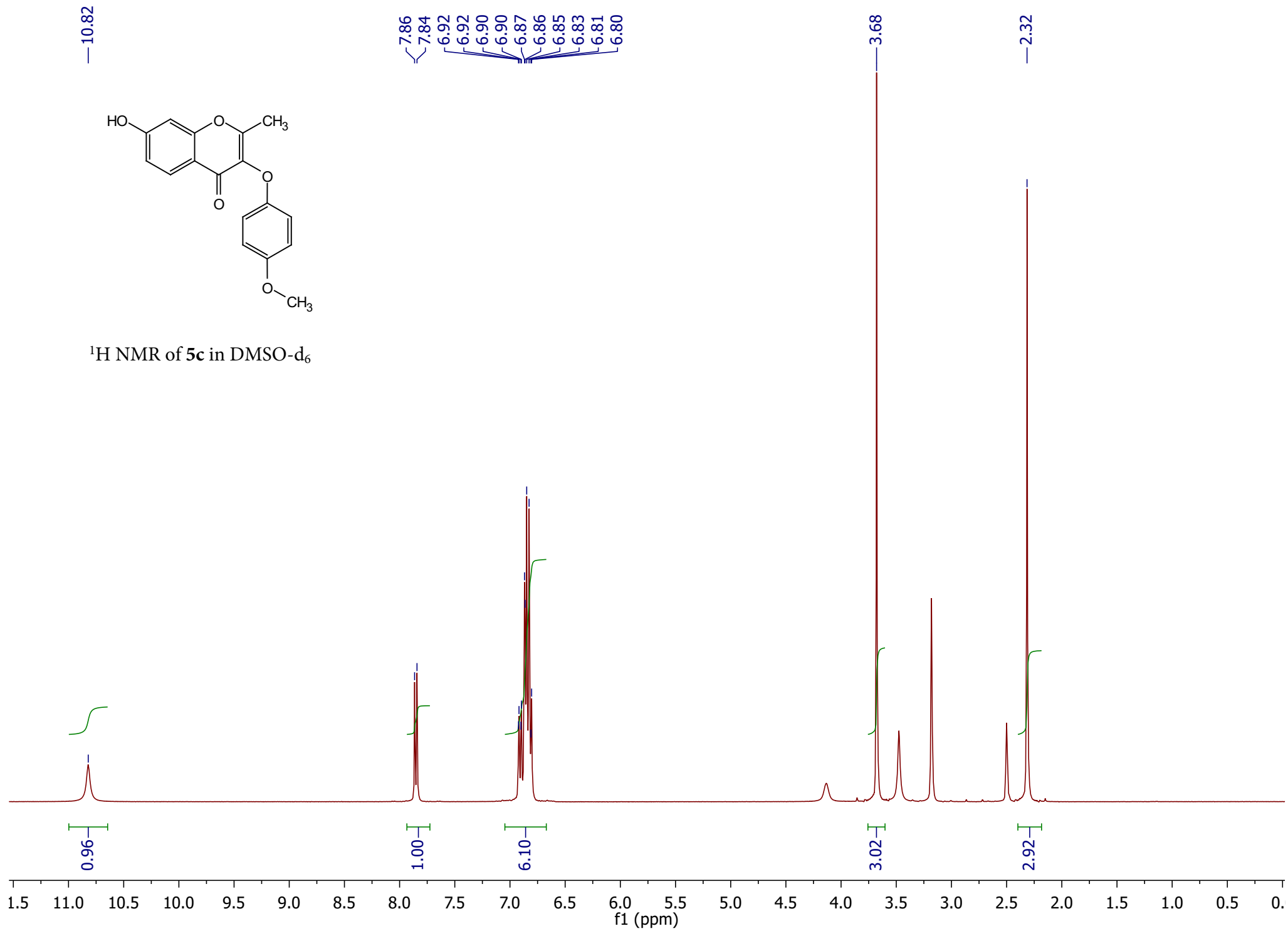


$^{13}\text{C}$  NMR of **5b** in  $\text{DMSO-d}_6$



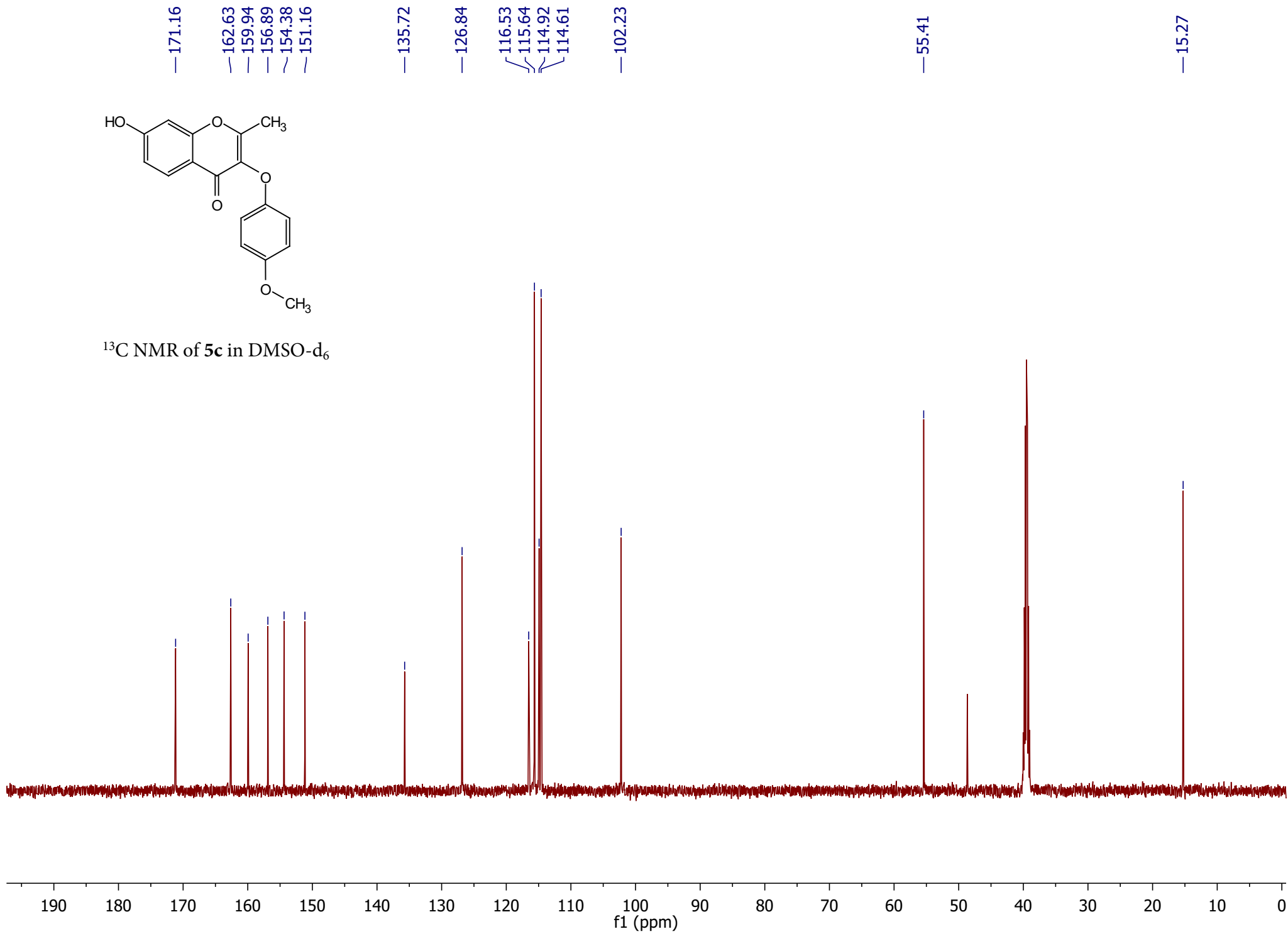


$^1\text{H}$  NMR of 5c in DMSO- $d_6$





$^{13}\text{C}$  NMR of 5c in DMSO- $\text{d}_6$



—10.68

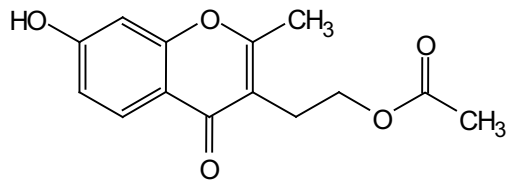
7.84  
7.82

6.88  
6.87  
6.85  
6.85  
6.76  
6.75

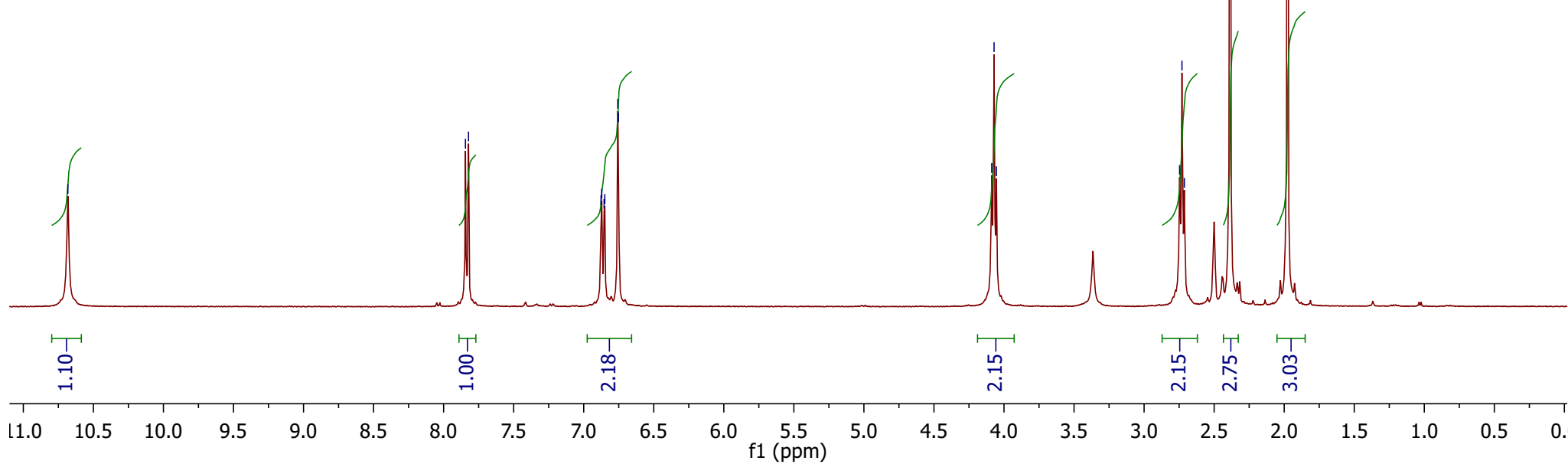
4.09  
4.07  
4.05

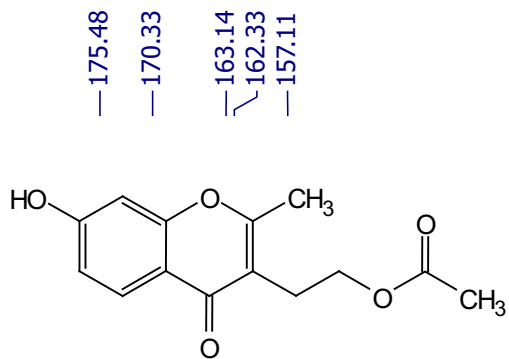
2.75  
2.73  
2.71  
2.39

1.98

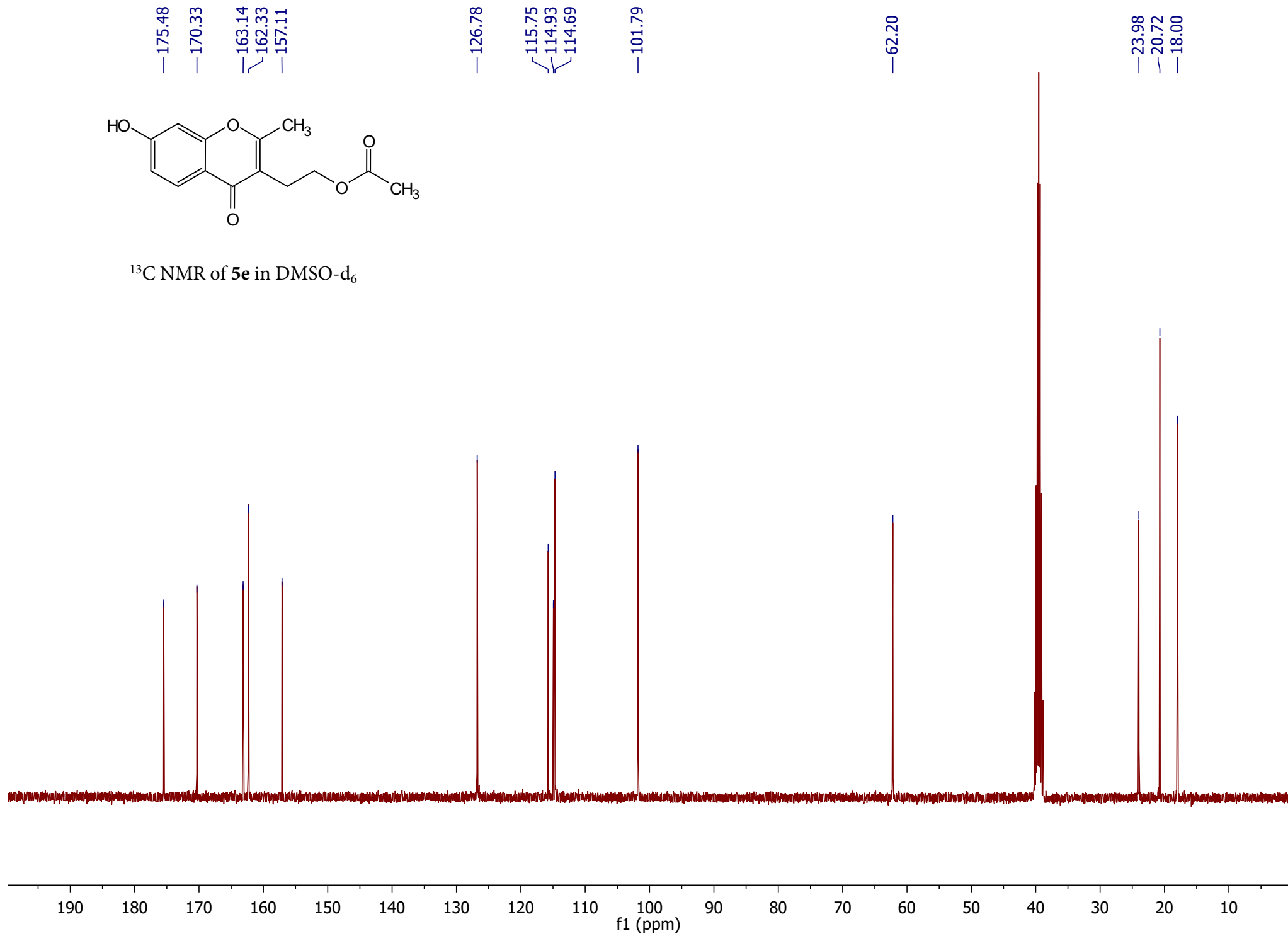


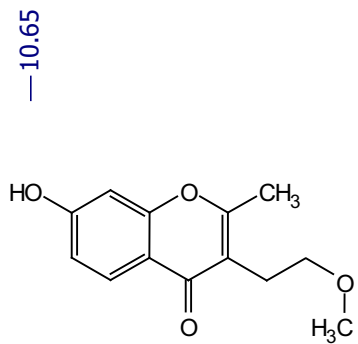
$^1\text{H}$  NMR of **5e** in DMSO- $d_6$



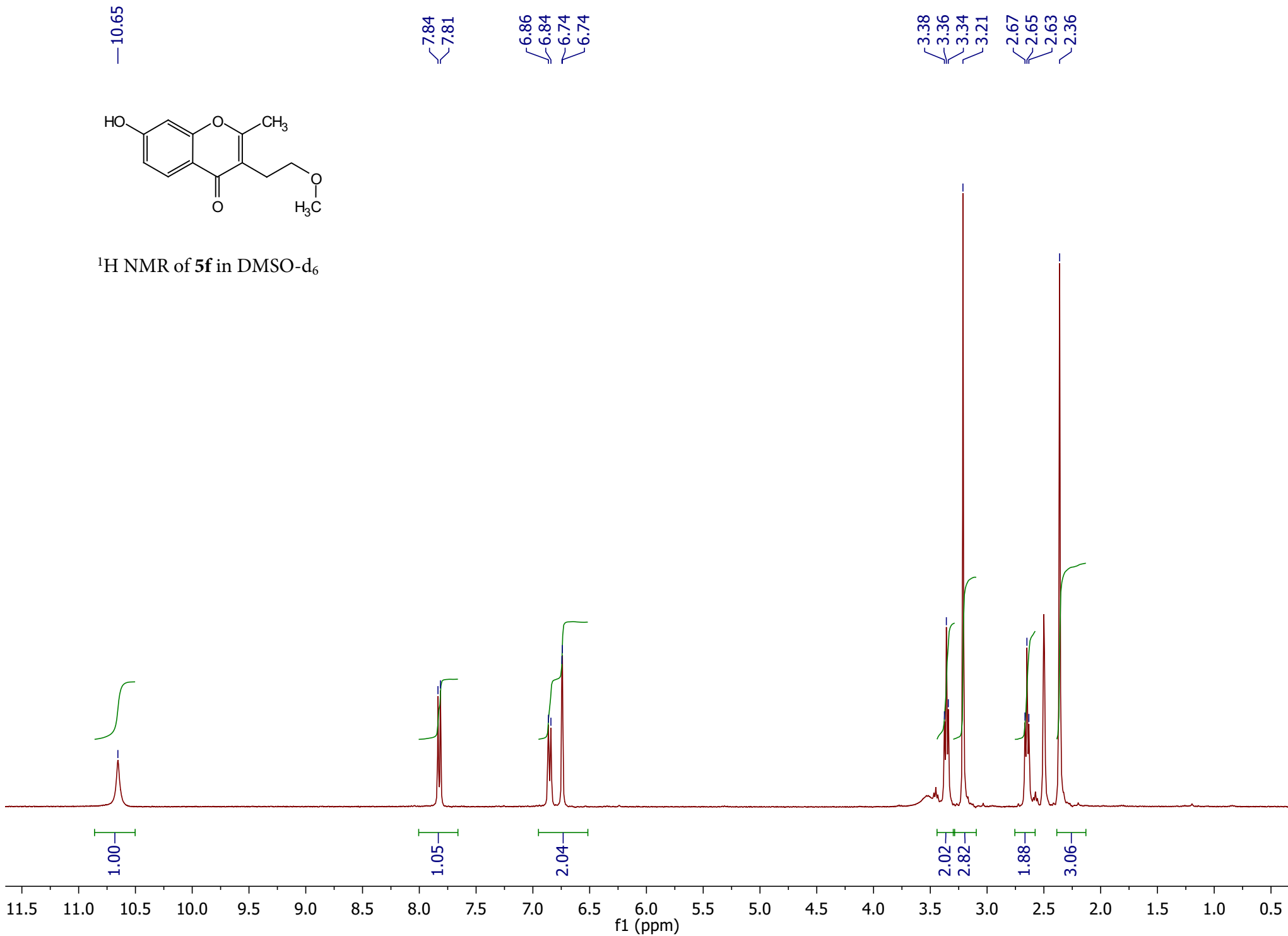


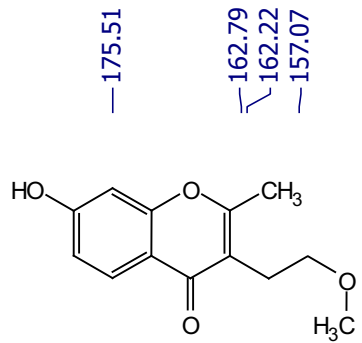
$^{13}\text{C}$  NMR of **5e** in DMSO- $d_6$



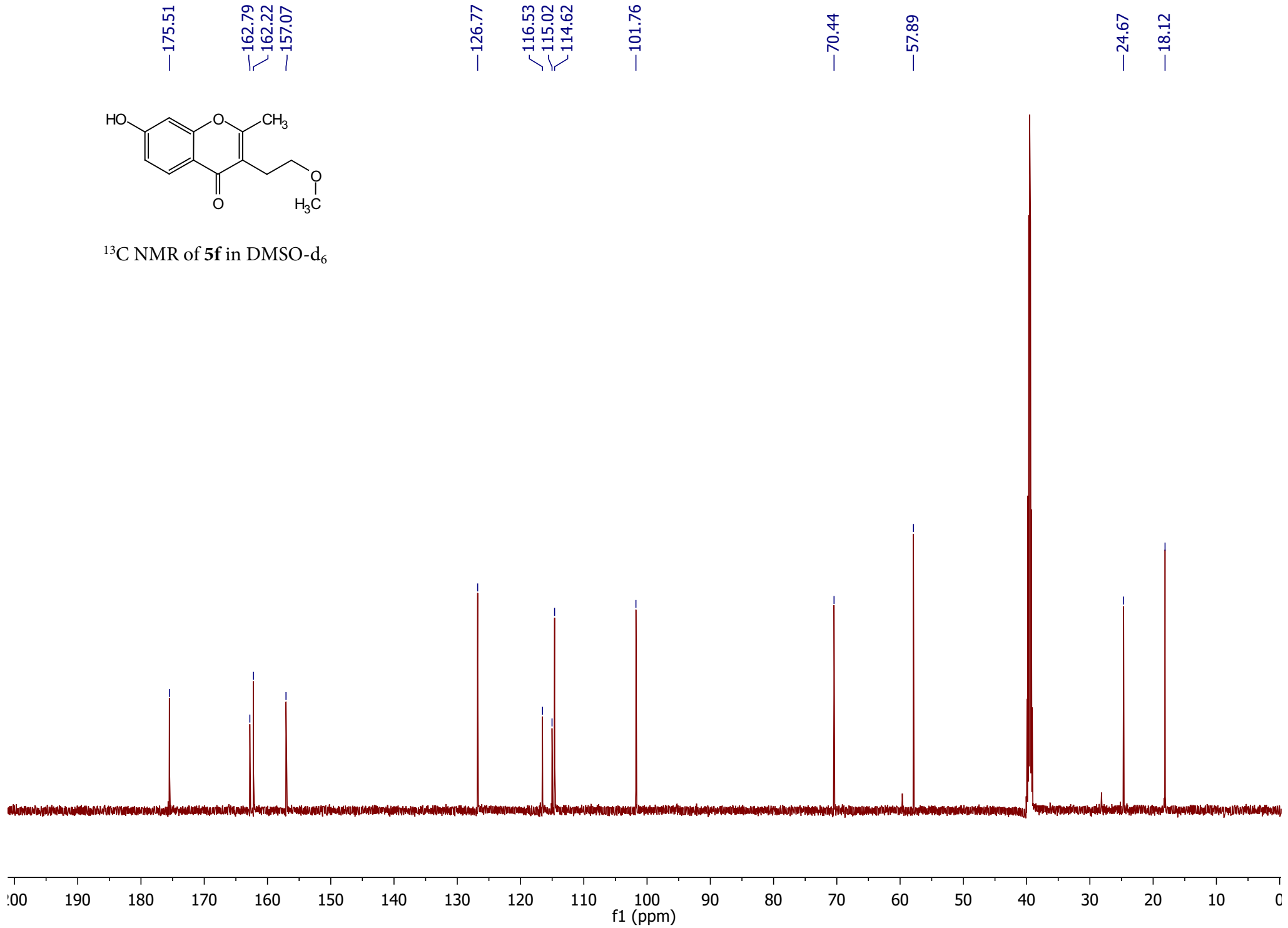


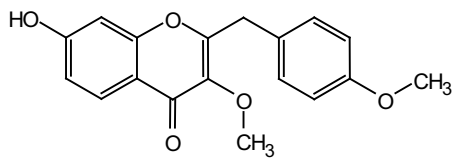
$^1\text{H}$  NMR of **5f** in DMSO- $\text{d}_6$



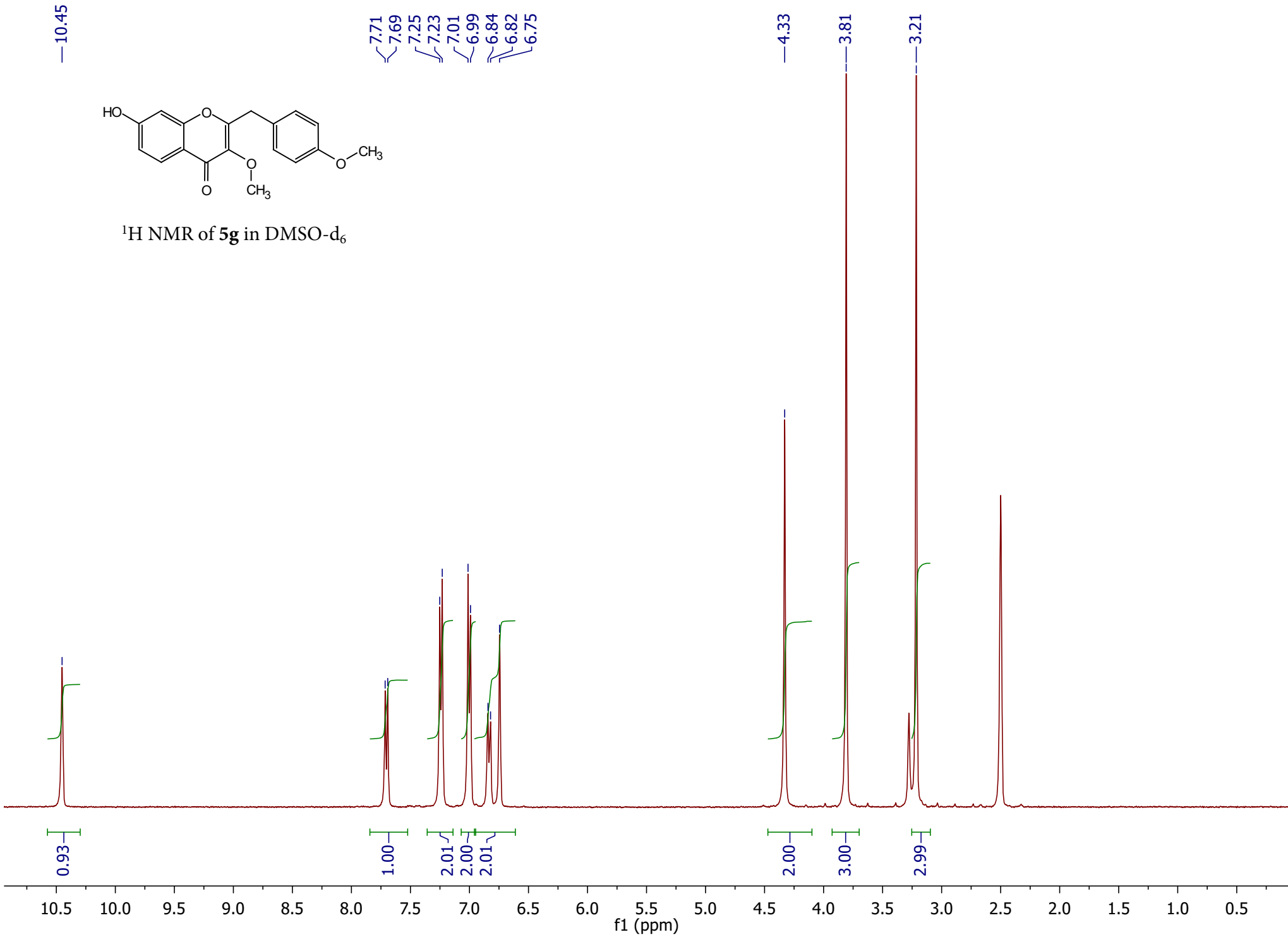


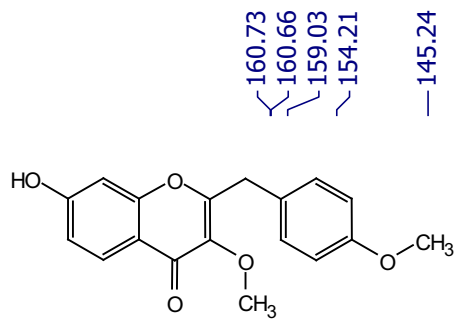
$^{13}\text{C}$  NMR of 5f in DMSO- $\text{d}_6$





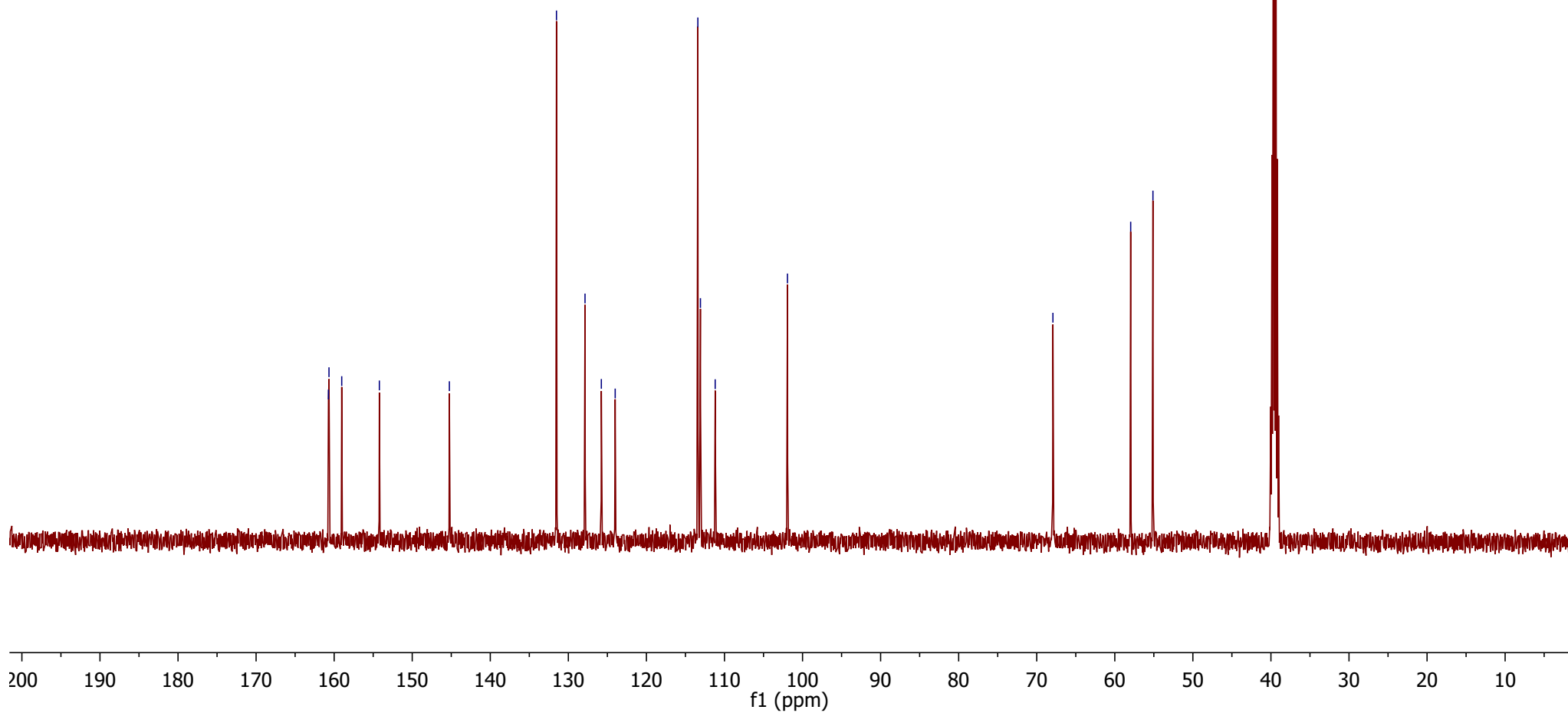
$^1\text{H}$  NMR of **5g** in  $\text{DMSO-d}_6$



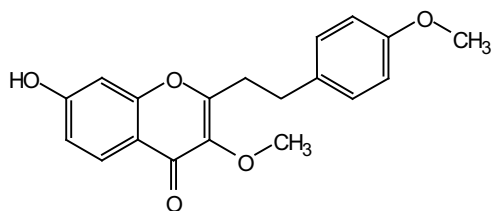


$^{13}\text{C}$  NMR of **5g** in  $\text{DMSO-d}_6$

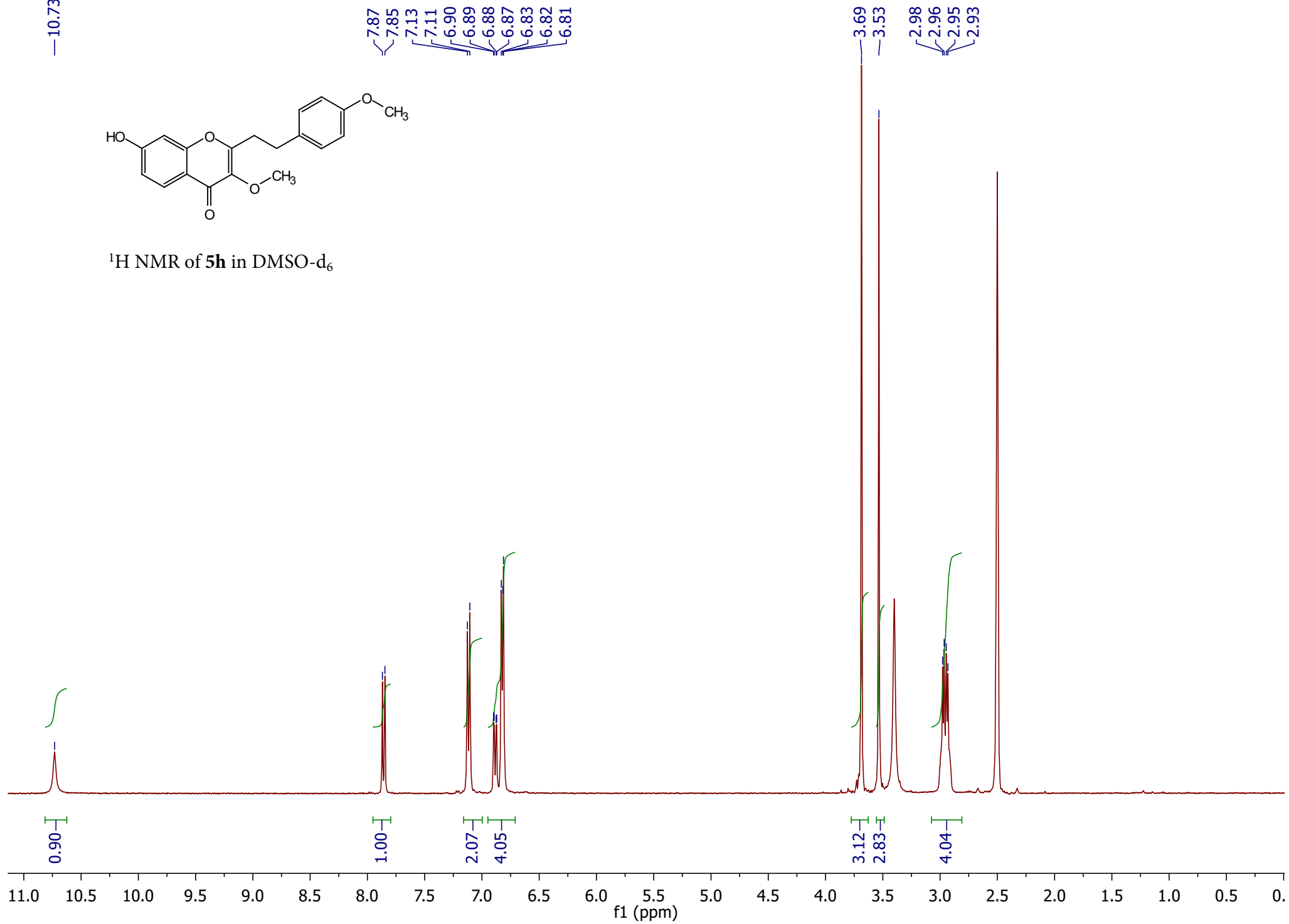
- 160.73
- 160.66
- 159.03
- 154.21
- 145.24
- 131.52
- 127.86
- 125.77
- 124.00
- 113.41
- 113.08
- 111.19
- 101.93
- 67.93
- 57.97
- 55.11

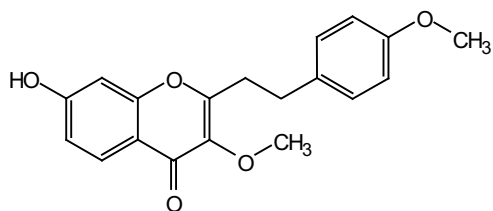


—10.73

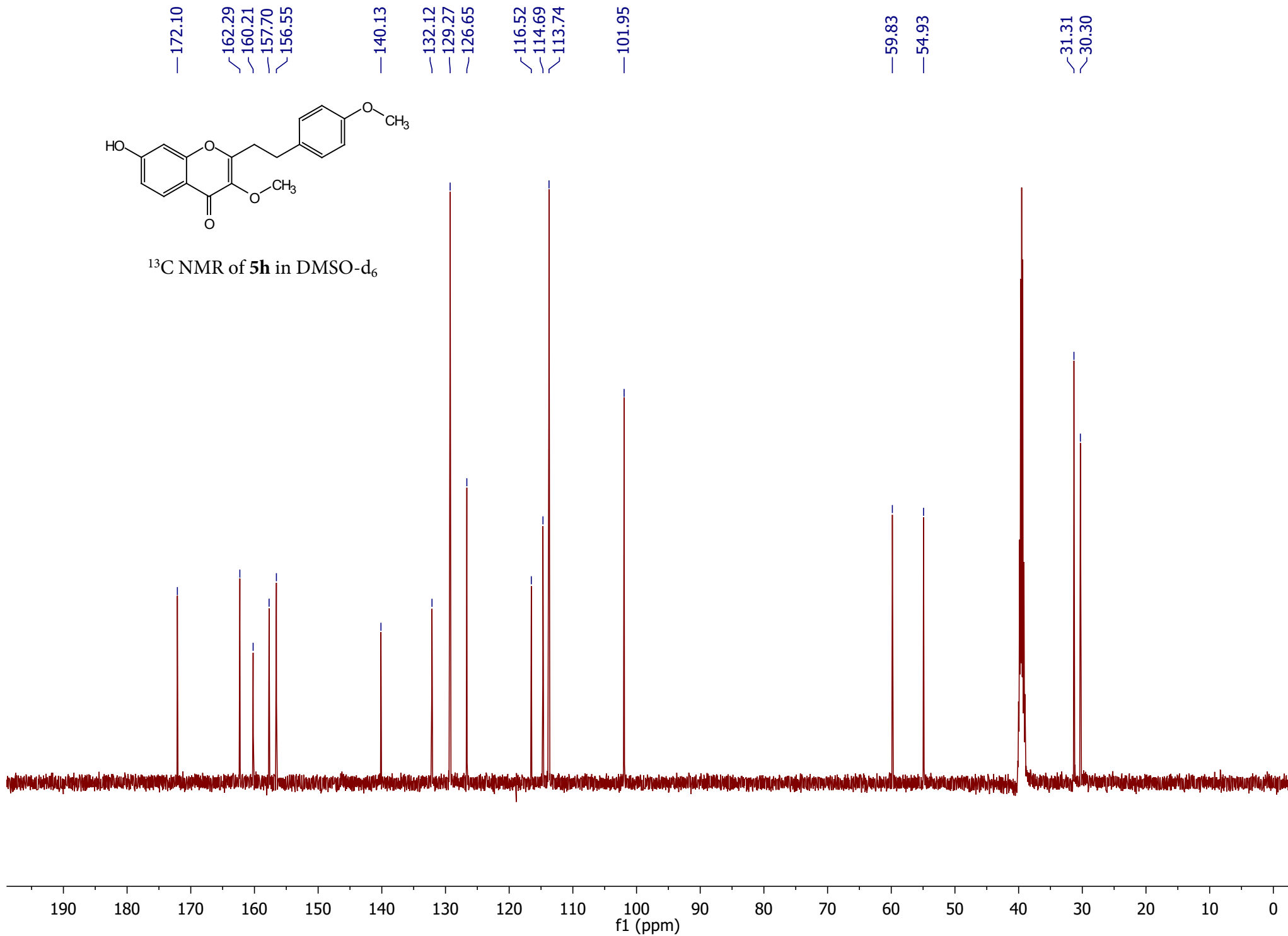


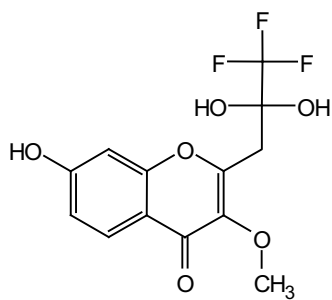
$^1\text{H}$  NMR of **5h** in  $\text{DMSO-d}_6$



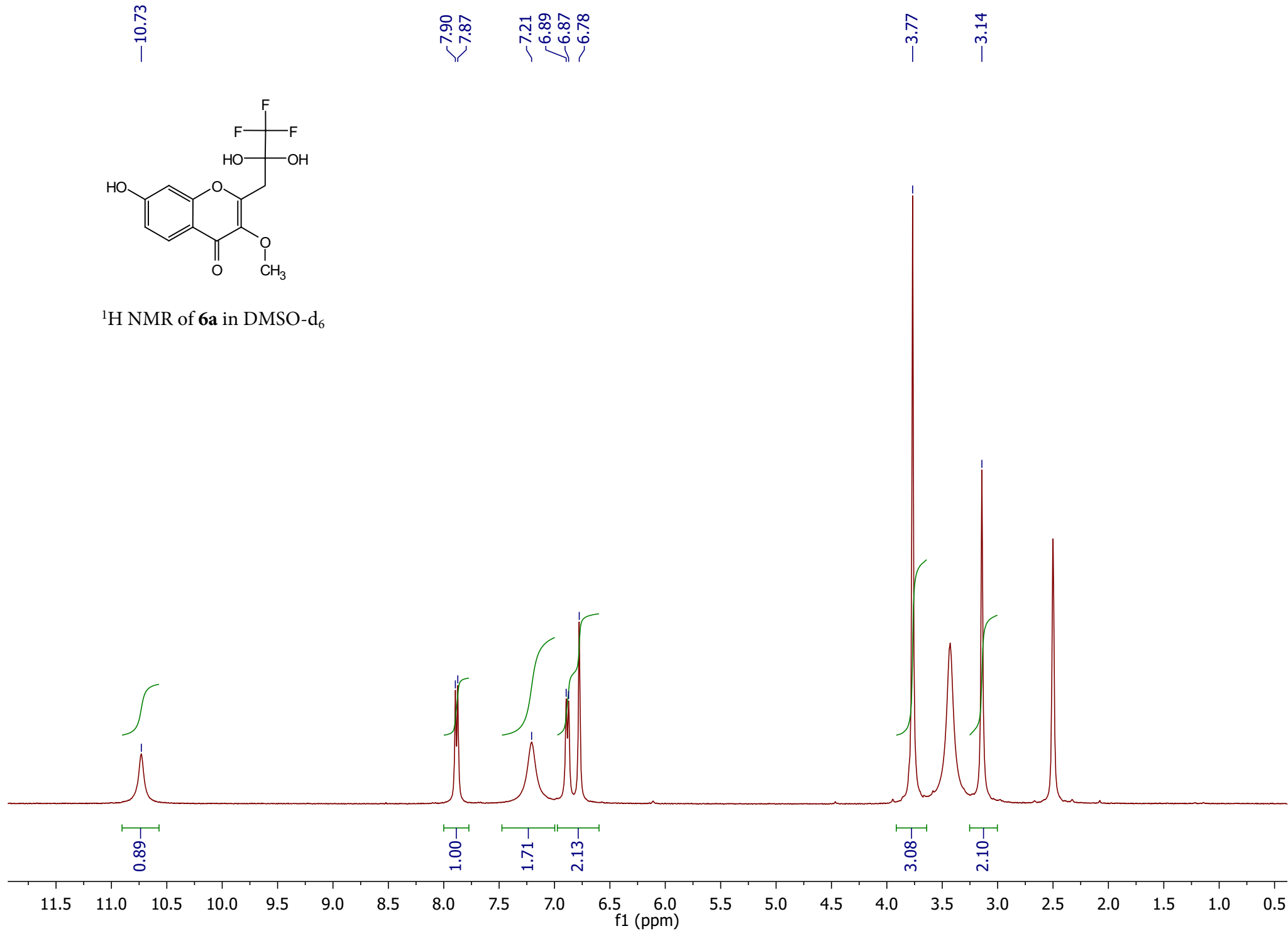


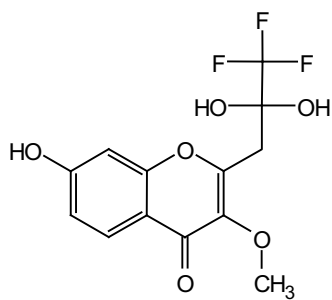
$^{13}\text{C}$  NMR of **5h** in  $\text{DMSO-d}_6$



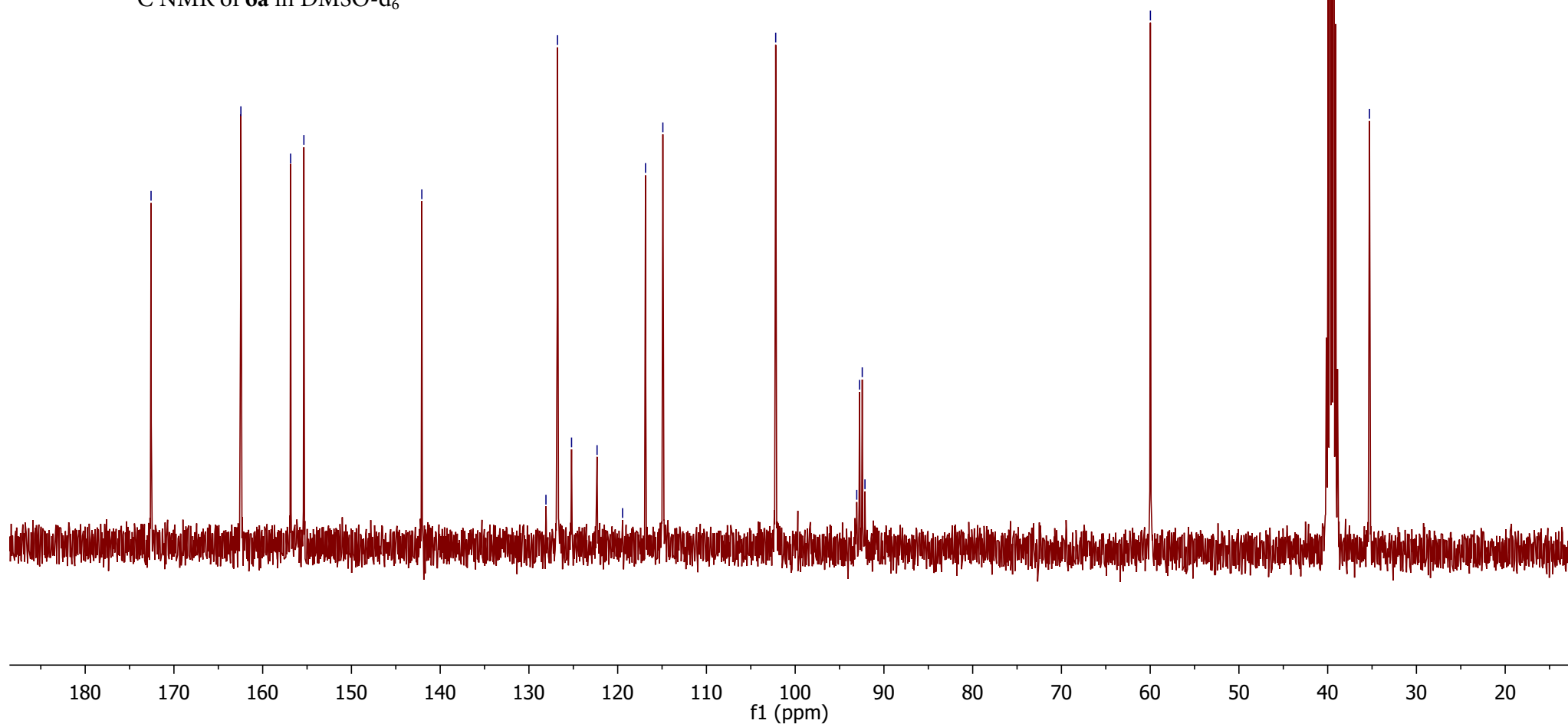


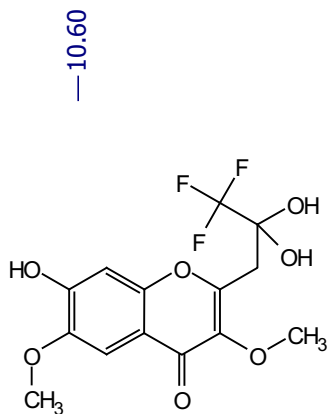
$^1\text{H}$  NMR of **6a** in DMSO- $d_6$



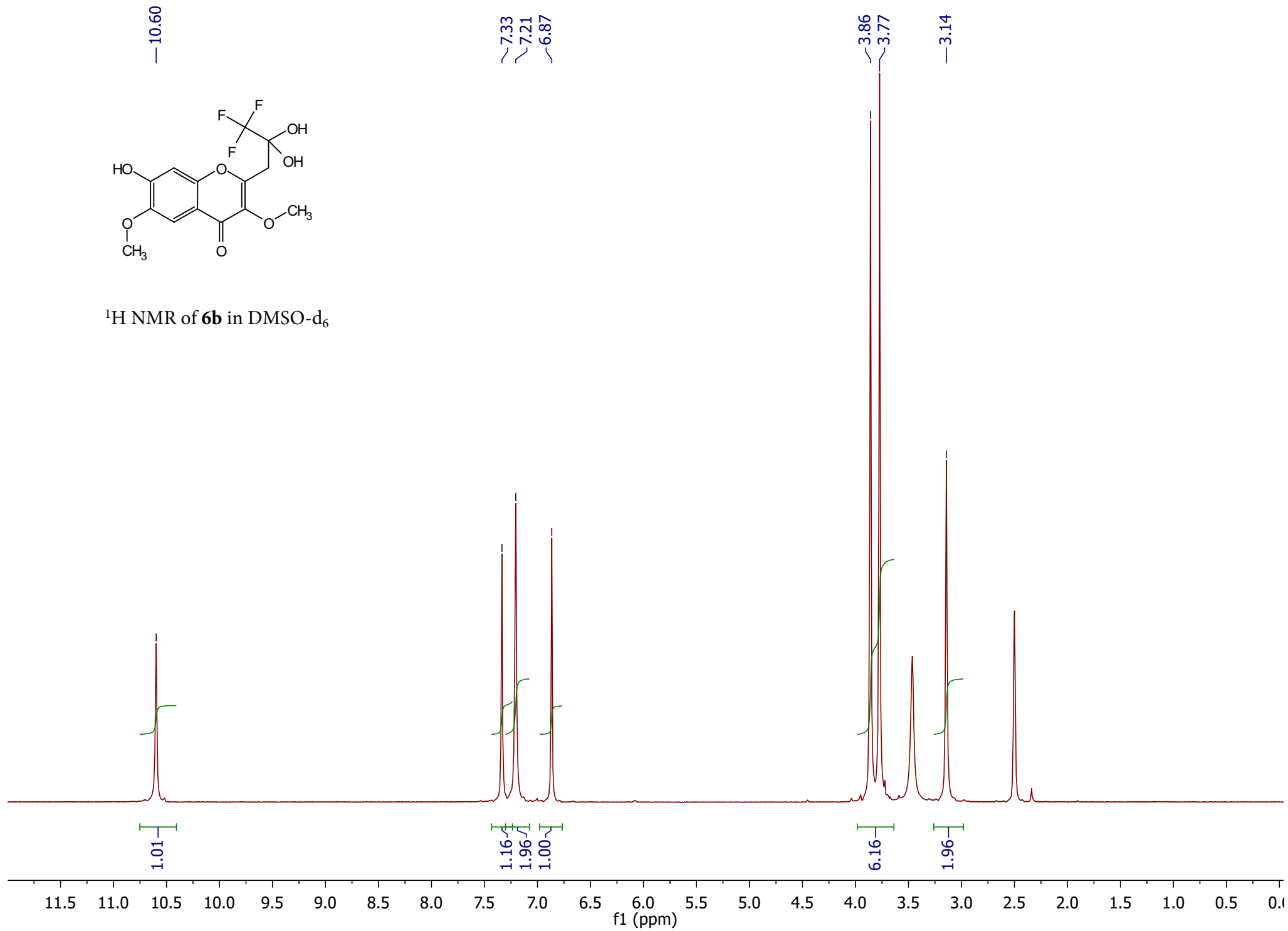


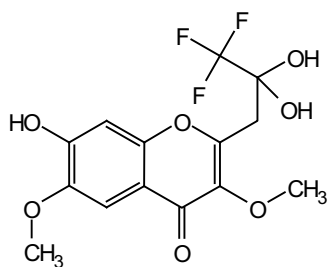
$^{13}\text{C}$  NMR of **6a** in  $\text{DMSO-d}_6$



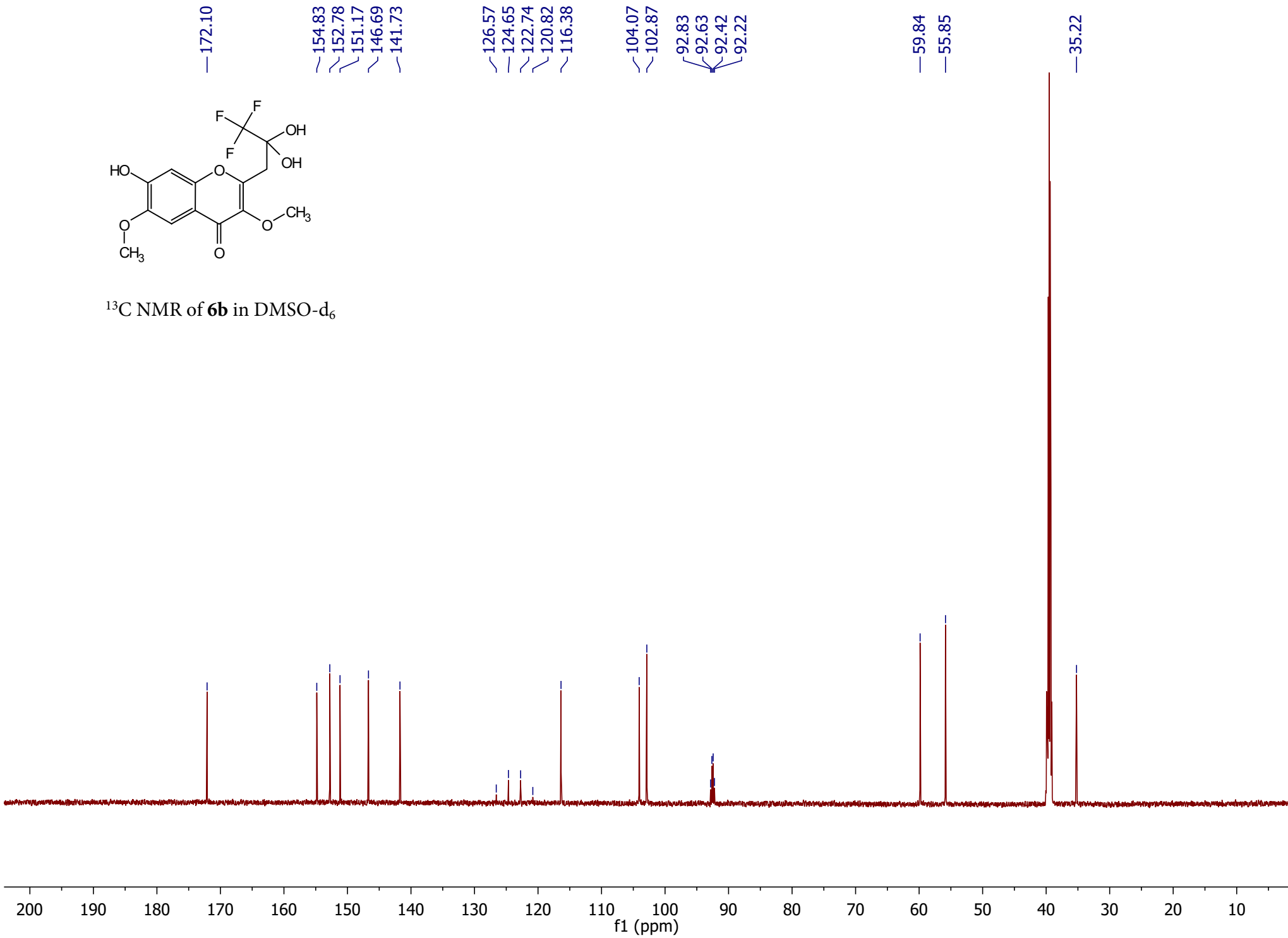


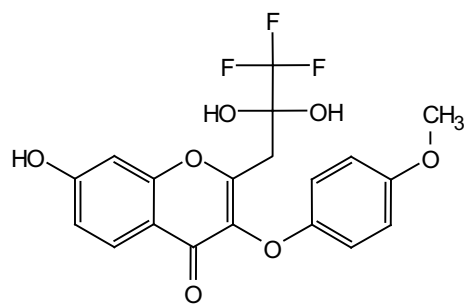
<sup>1</sup>H NMR of **6b** in DMSO-d<sub>6</sub>



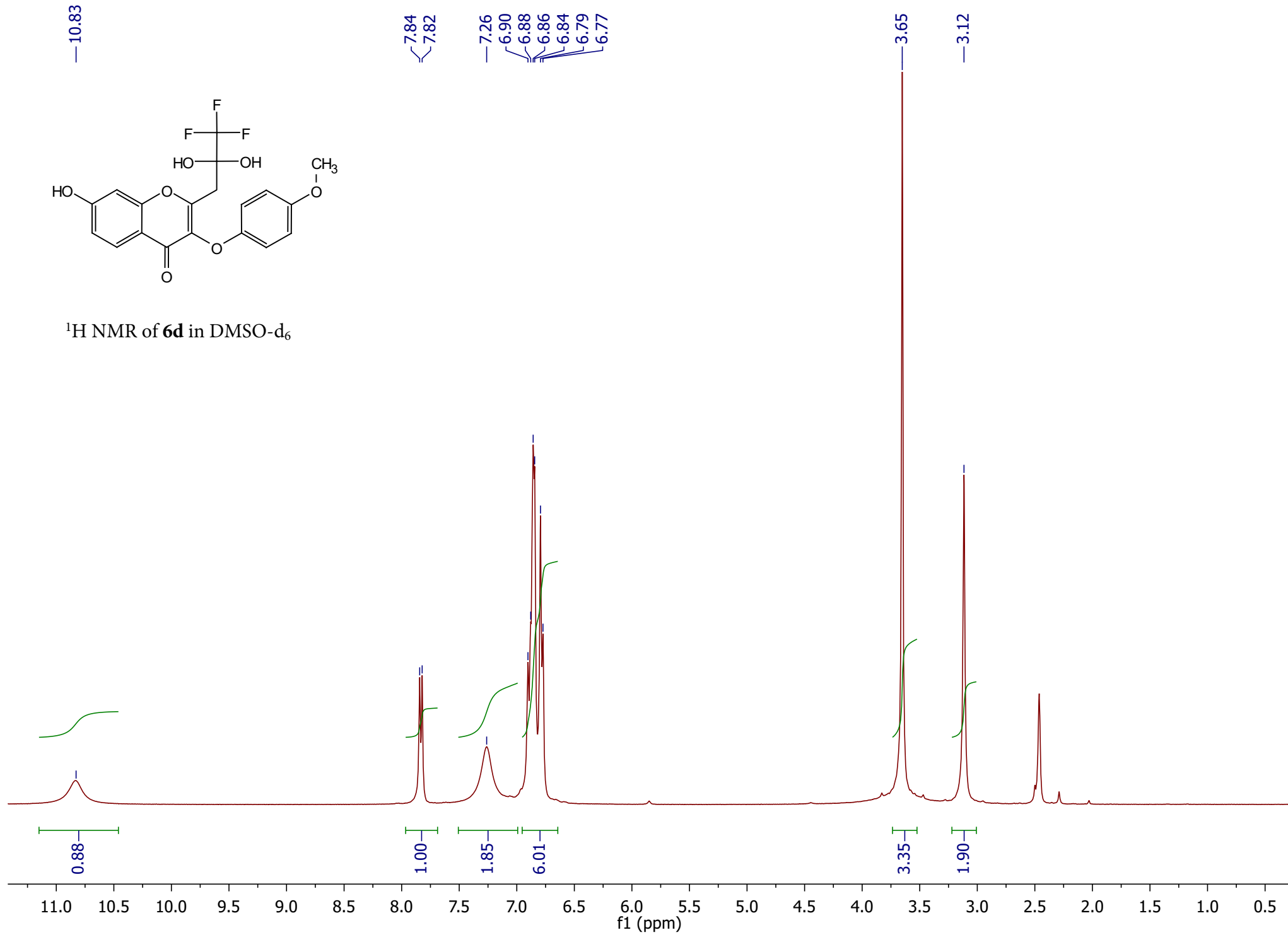


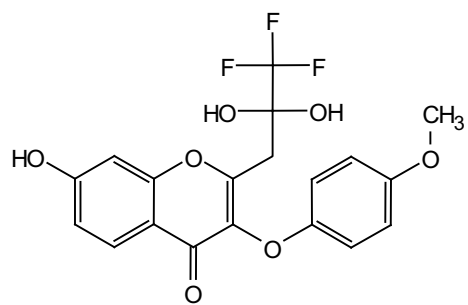
$^{13}\text{C}$  NMR of **6b** in  $\text{DMSO-d}_6$



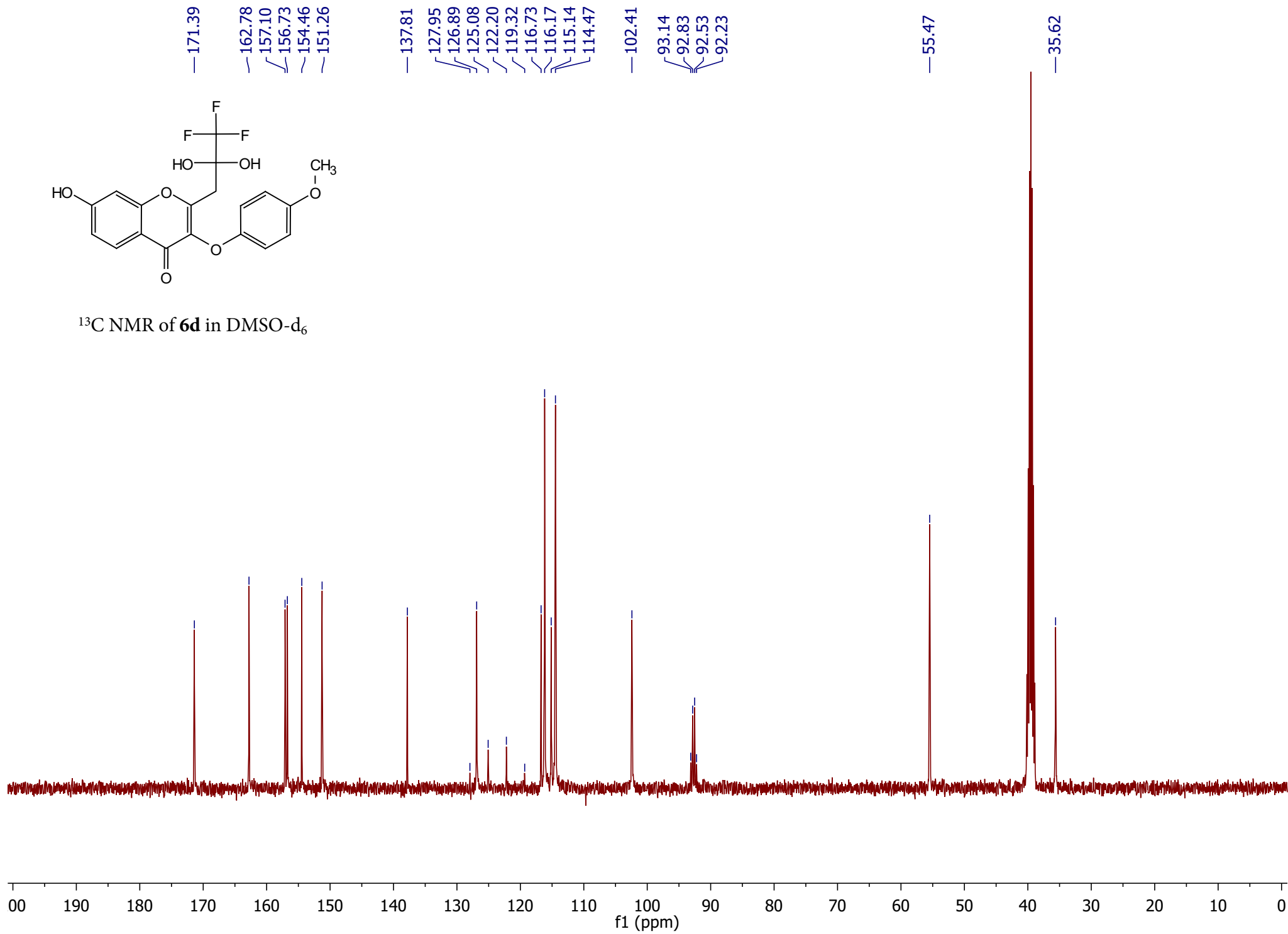


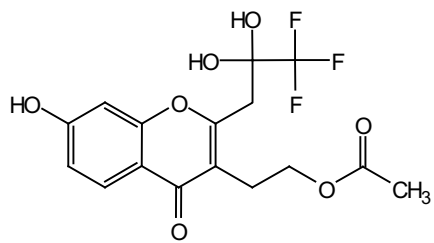
$^1\text{H}$  NMR of **6d** in  $\text{DMSO-d}_6$



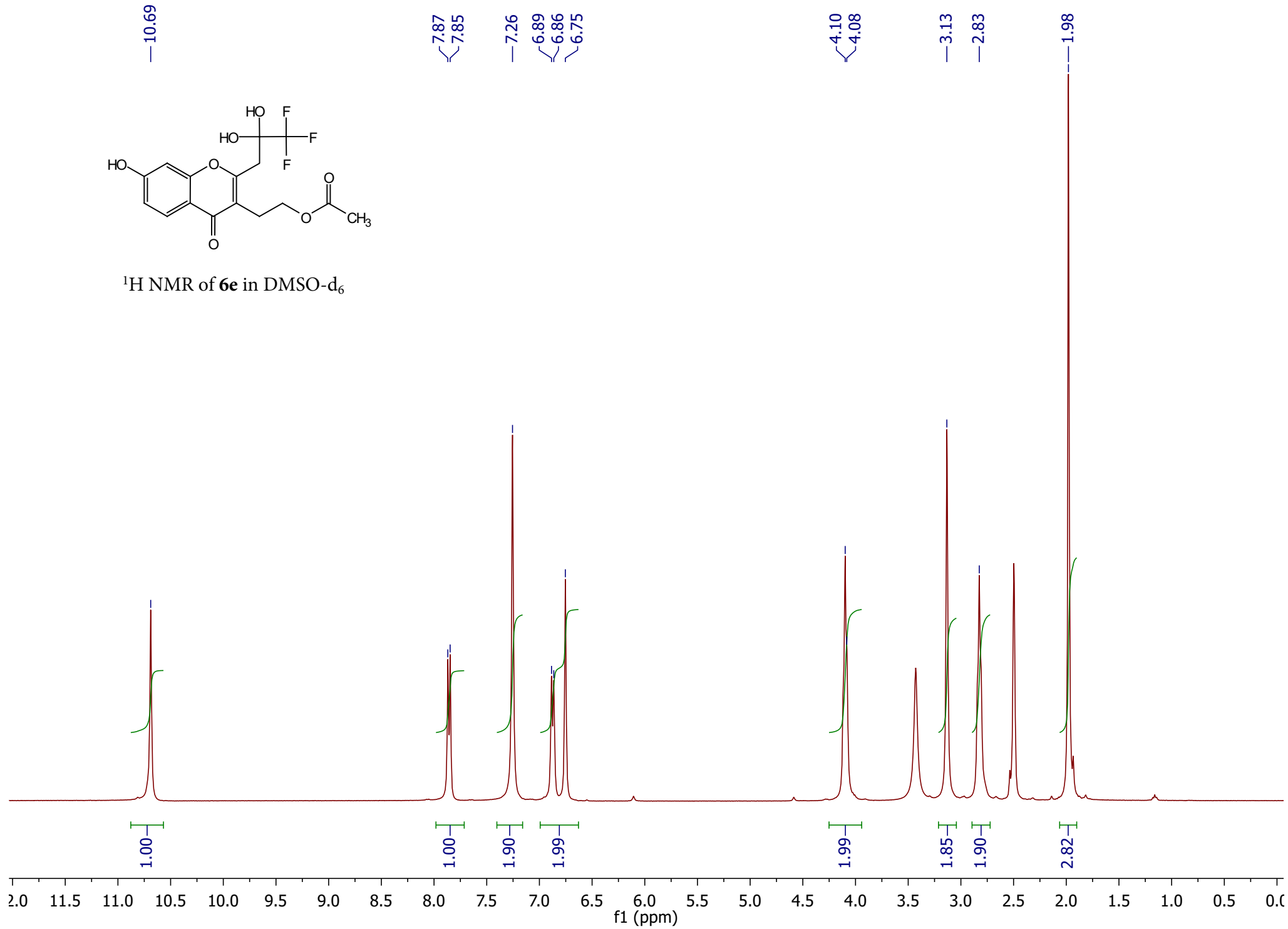


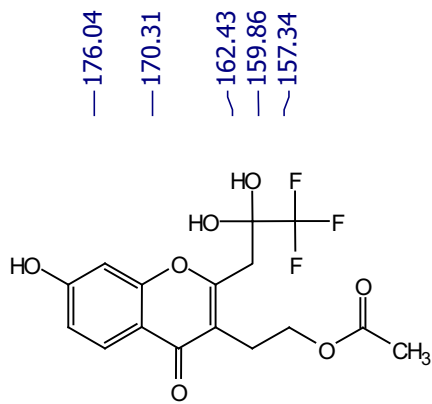
$^{13}\text{C}$  NMR of **6d** in  $\text{DMSO-d}_6$



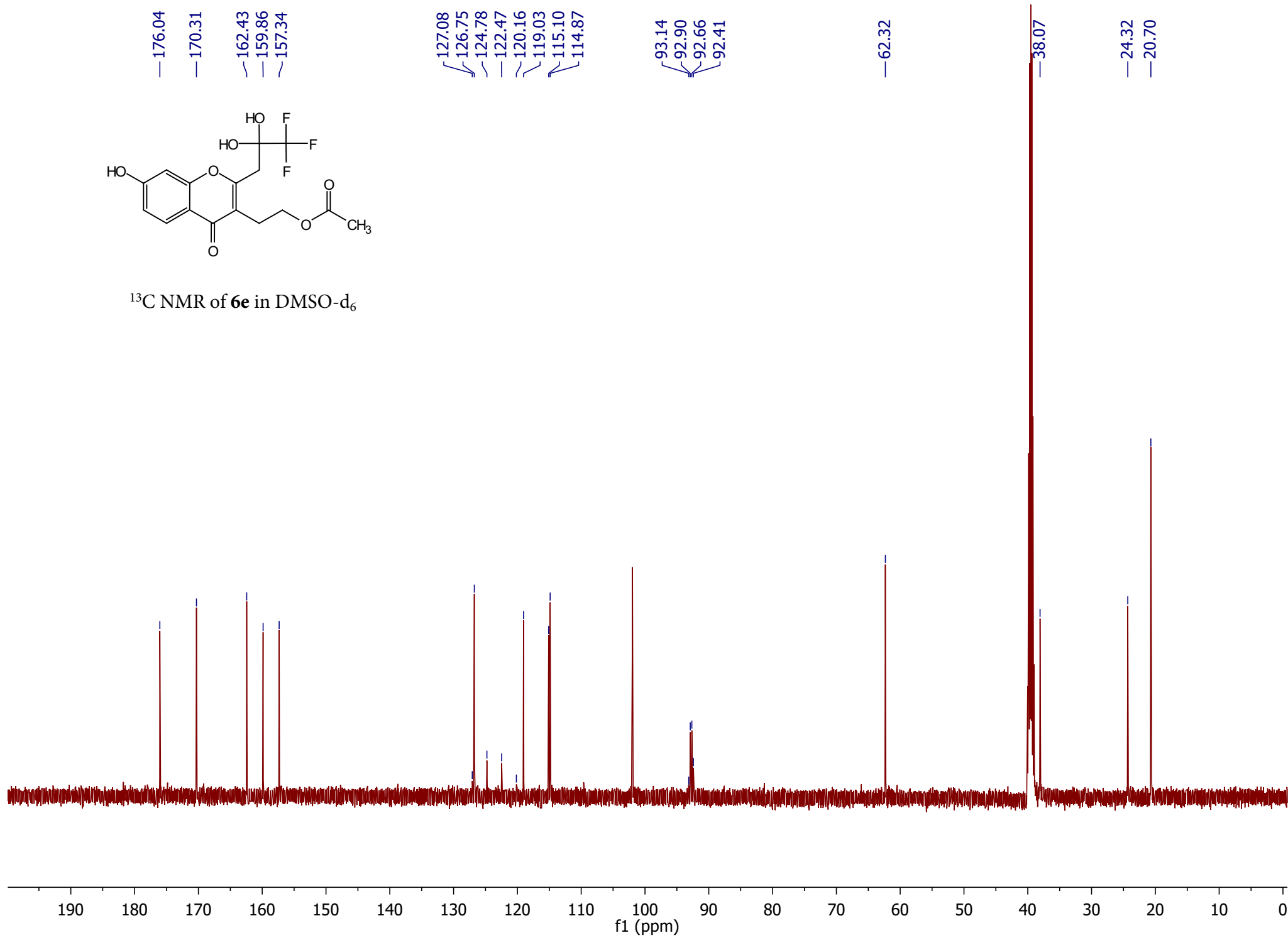


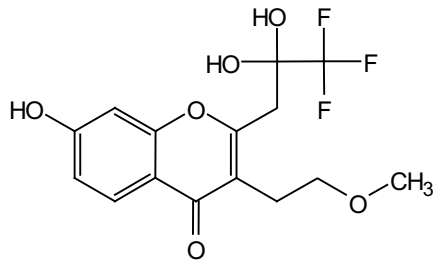
$^1\text{H}$  NMR of **6e** in DMSO- $d_6$



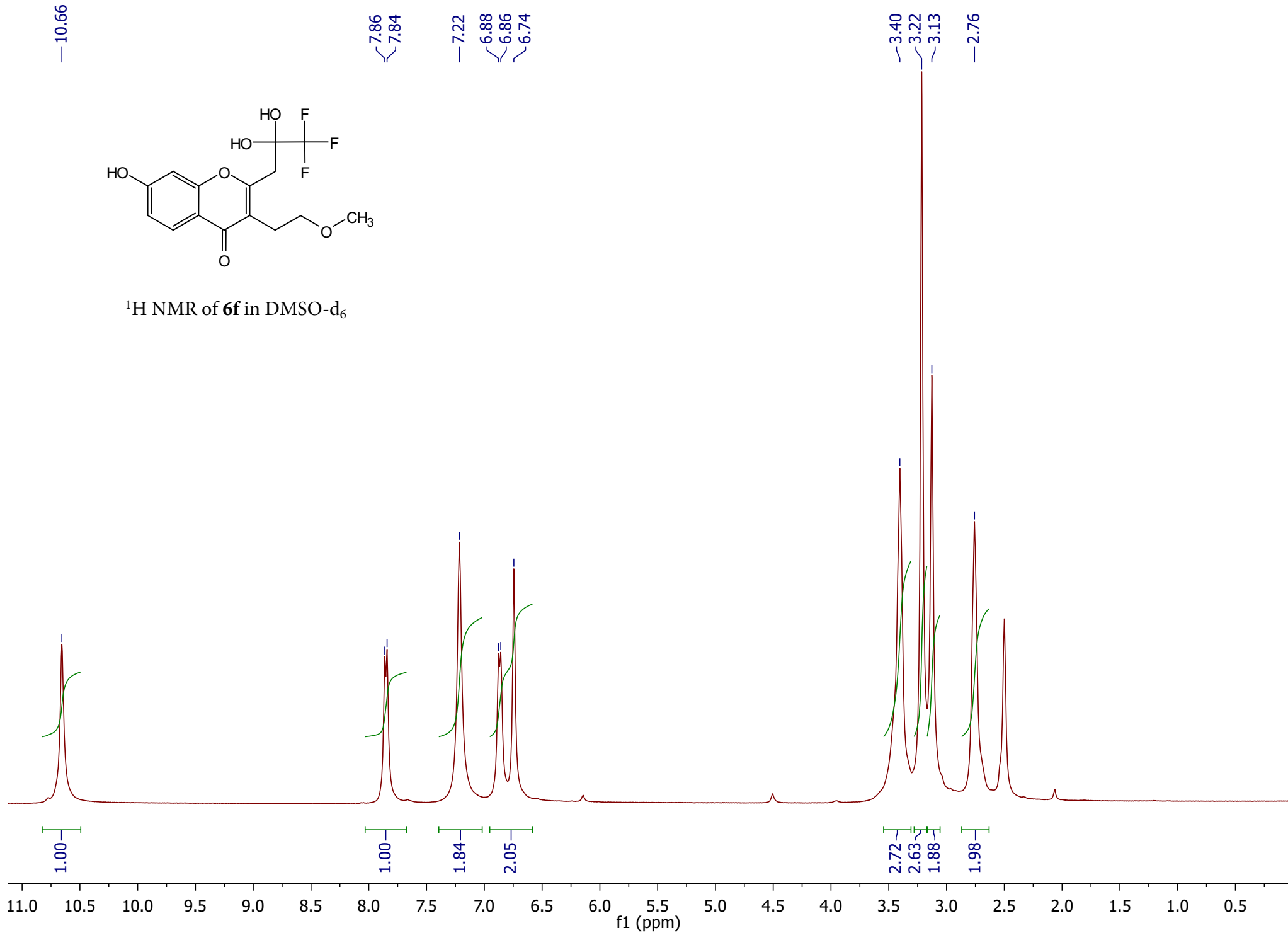


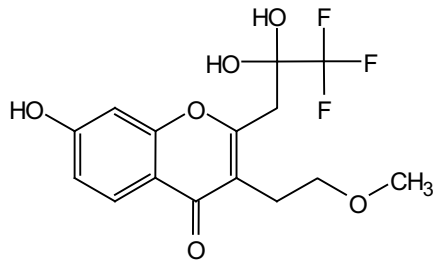
$^{13}\text{C}$  NMR of **6e** in  $\text{DMSO-d}_6$



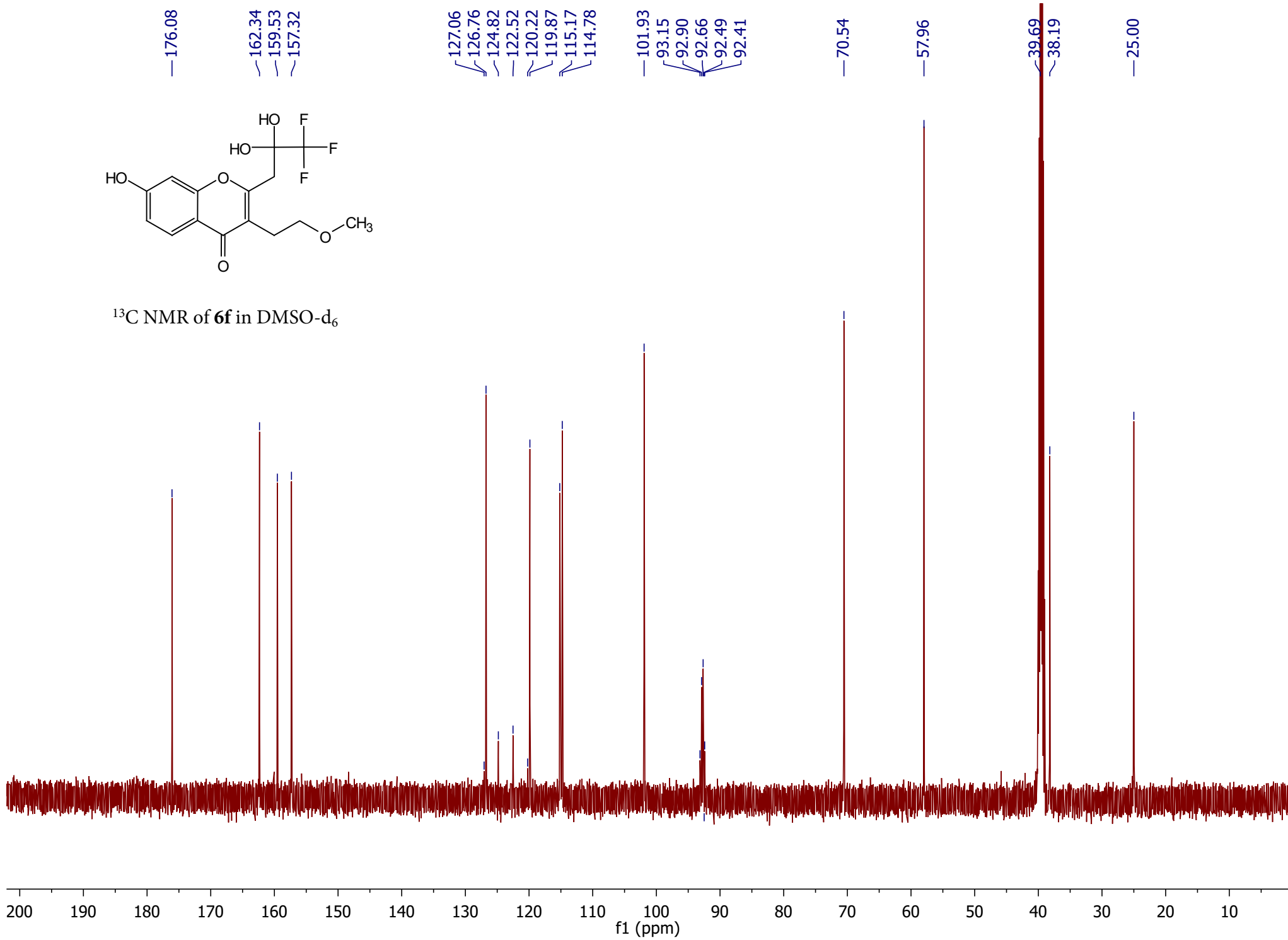


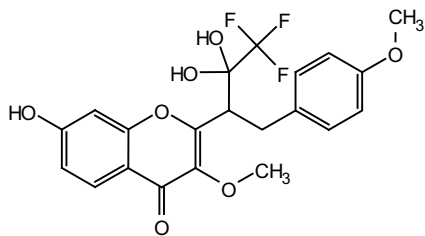
$^1\text{H}$  NMR of **6f** in  $\text{DMSO-d}_6$



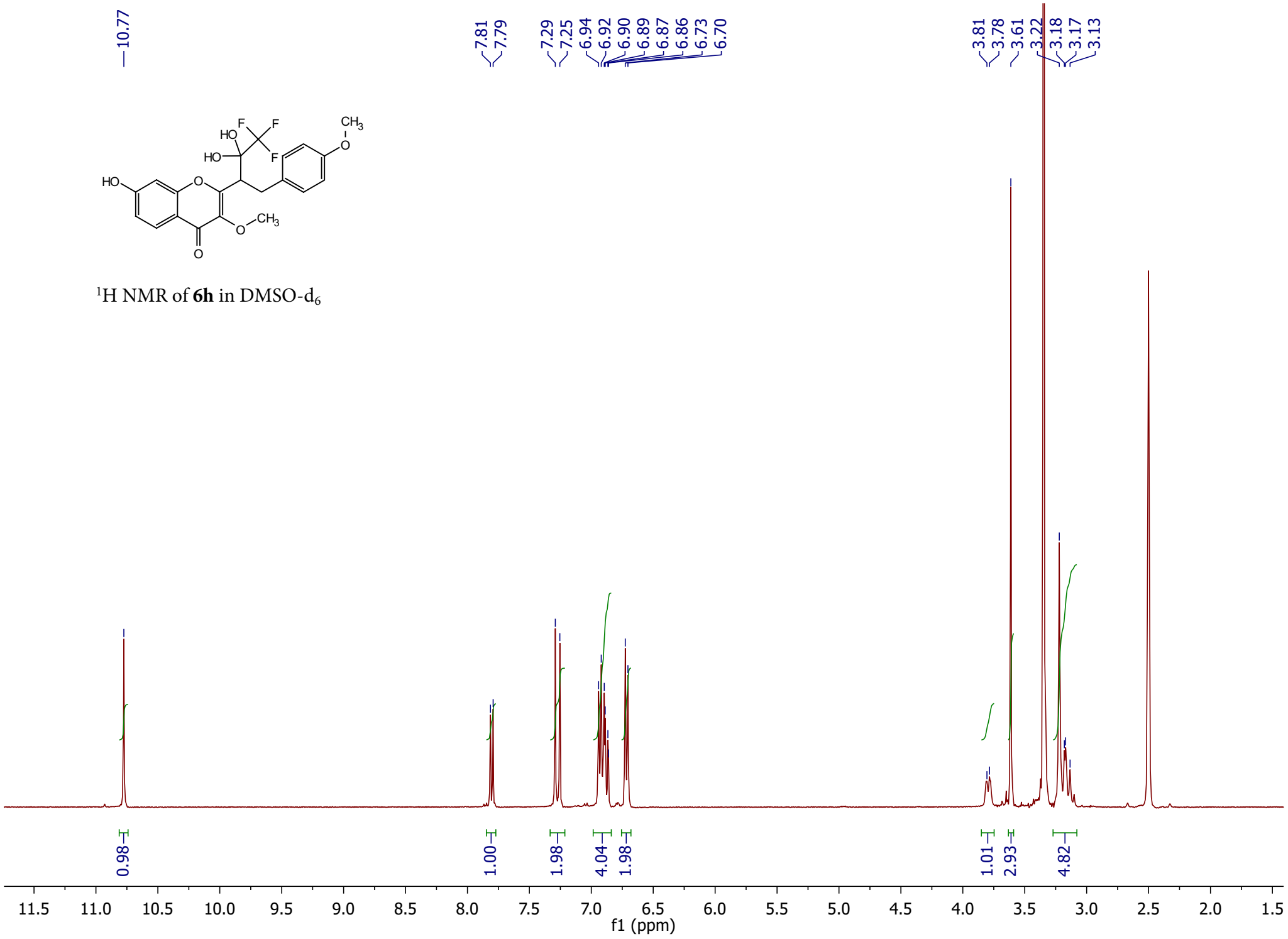


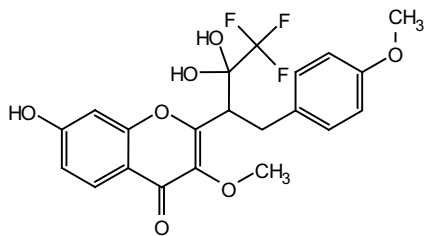
$^{13}\text{C}$  NMR of **6f** in  $\text{DMSO-d}_6$



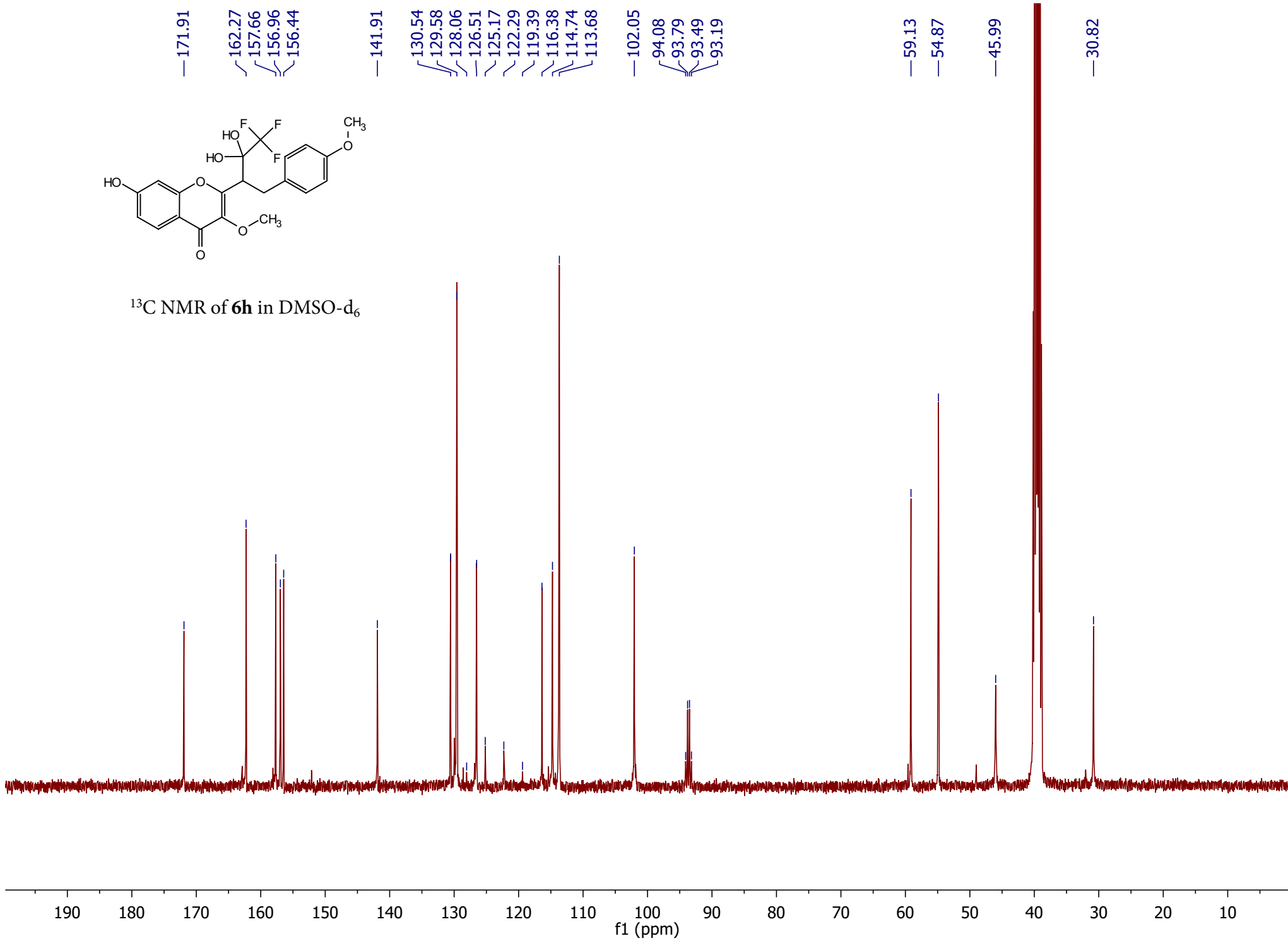


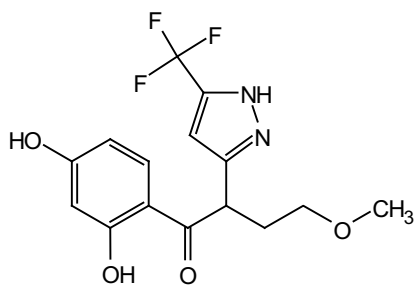
$^1\text{H}$  NMR of **6h** in  $\text{DMSO-d}_6$





$^{13}\text{C}$  NMR of **6h** in  $\text{DMSO-d}_6$





$^1\text{H}$  NMR of 7f in DMSO- $d_6$



— 200.67

165.38  
164.72

142.59  
141.38  
141.19  
140.90  
140.60  
132.94

124.92  
122.78  
120.65  
118.52

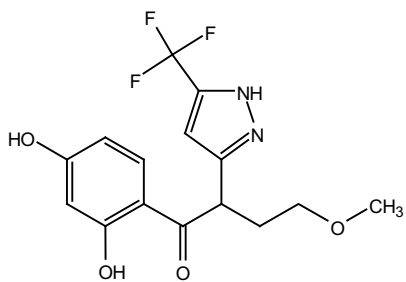
111.76  
108.58  
102.69  
102.47

— 69.18

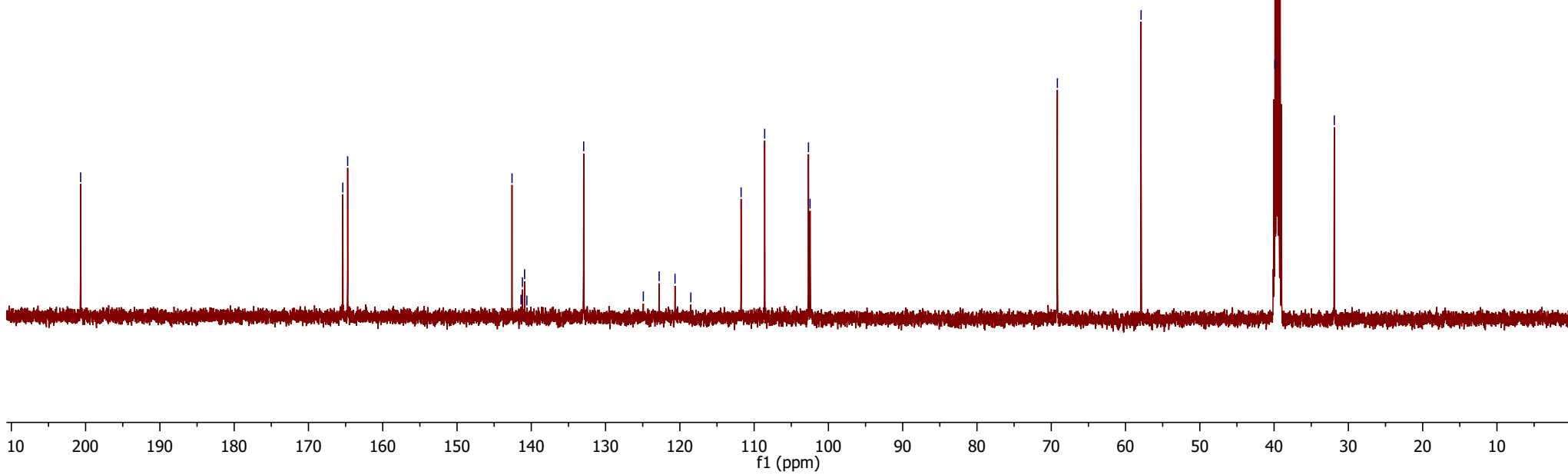
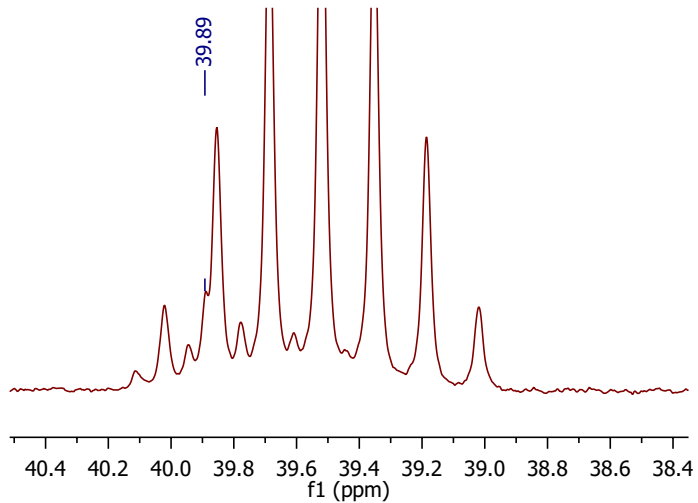
— 57.91

39.89

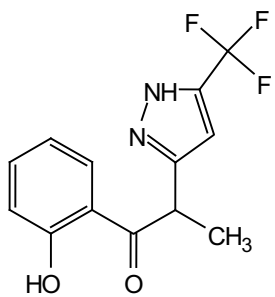
— 31.90



$^{13}\text{C}$  NMR of **7f** in  $\text{DMSO-d}_6$



—12.01

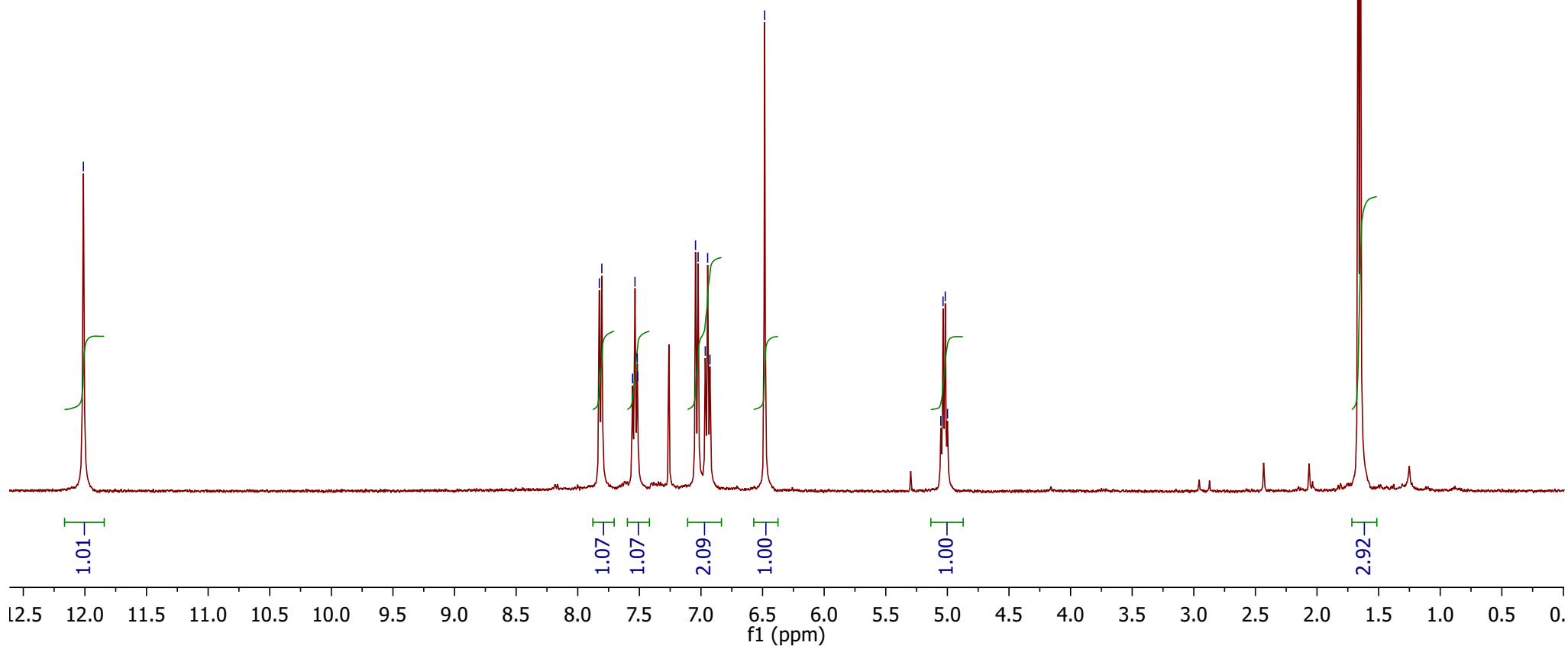


$^1\text{H}$  NMR of **7j** in  $\text{CDCl}_3$

7.82  
7.80  
7.56  
7.54  
7.52  
7.51  
7.04  
7.02  
6.97  
6.95  
6.93  
—6.48

5.05  
5.04  
5.02  
5.00

1.67  
1.65



—204.70

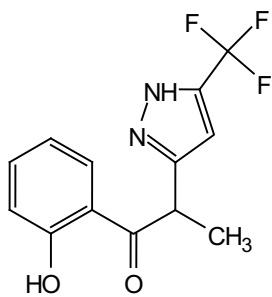
—163.56

143.96  
143.31  
142.93  
142.55  
142.17  
137.60  
129.86  
125.28  
122.61  
119.94  
119.55  
119.22  
117.68  
117.27

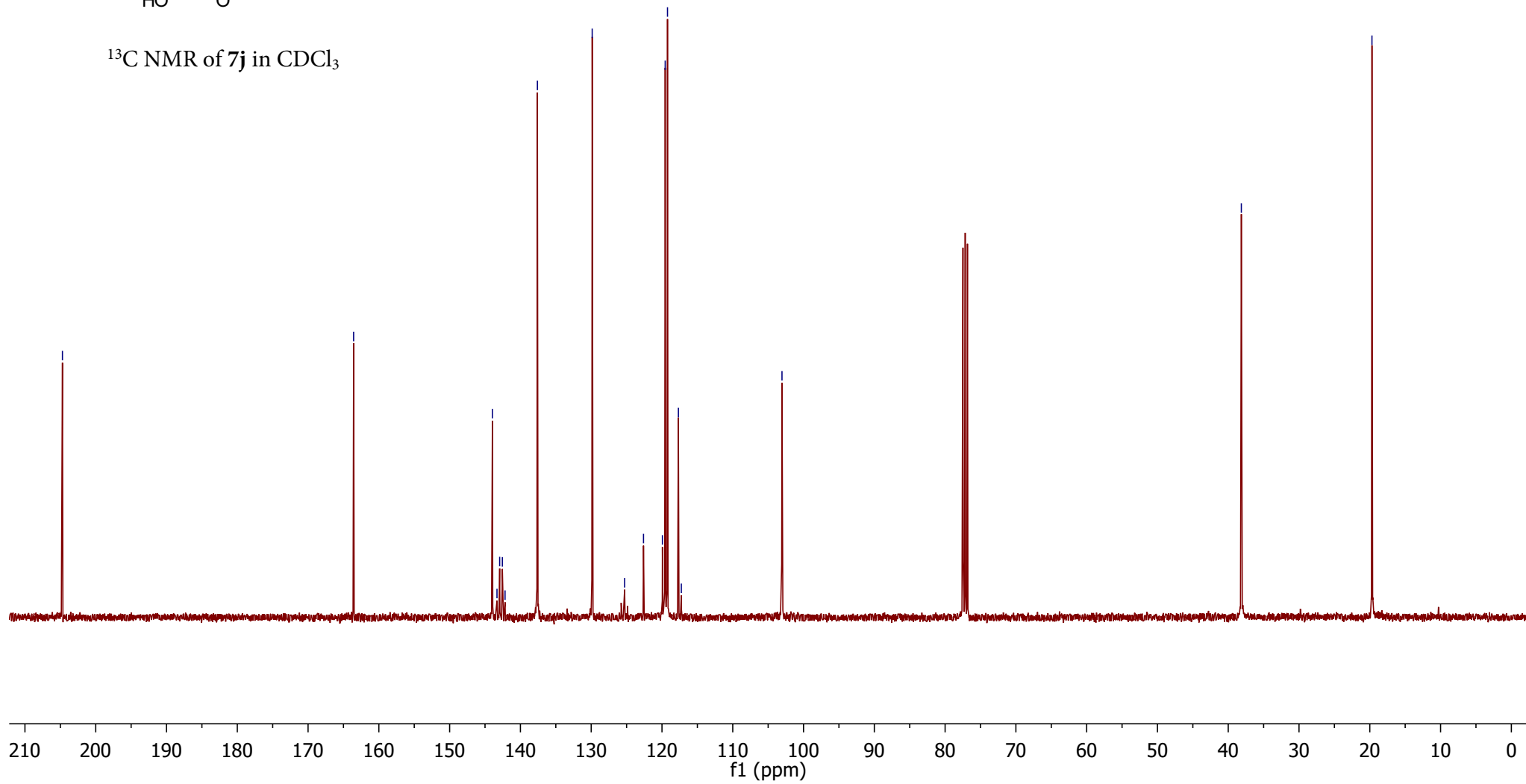
—103.05

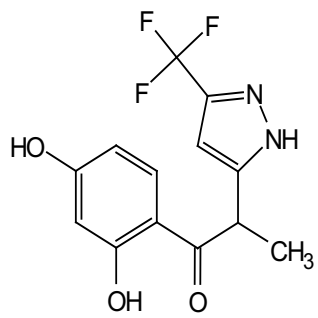
—38.15

—19.69

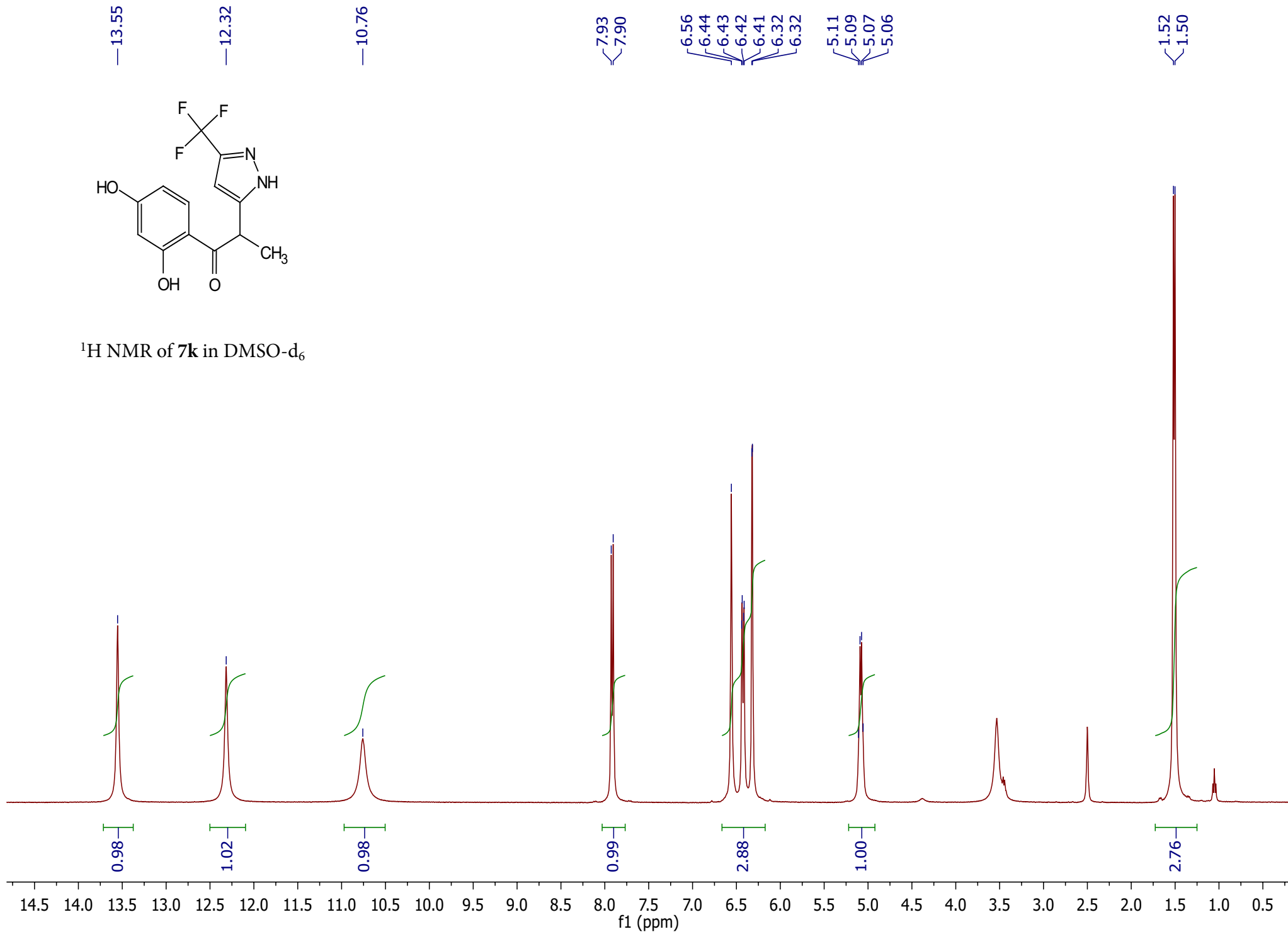


$^{13}\text{C}$  NMR of **7j** in  $\text{CDCl}_3$





$^1\text{H}$  NMR of **7k** in  $\text{DMSO-d}_6$



—202.26

165.77  
165.28

144.74  
142.00  
141.62  
141.26  
140.88

—133.54

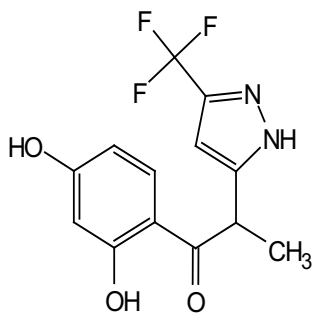
—126.23  
—123.57  
—120.90  
—118.24

—111.71  
—109.02

103.21  
102.58

—38.14

—17.97

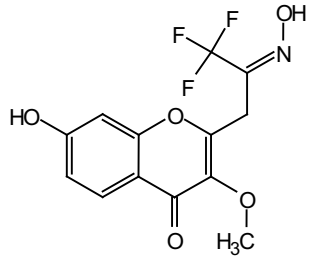


<sup>13</sup>C NMR of **7k** in DMSO-d<sub>6</sub>



—12.88

—10.80

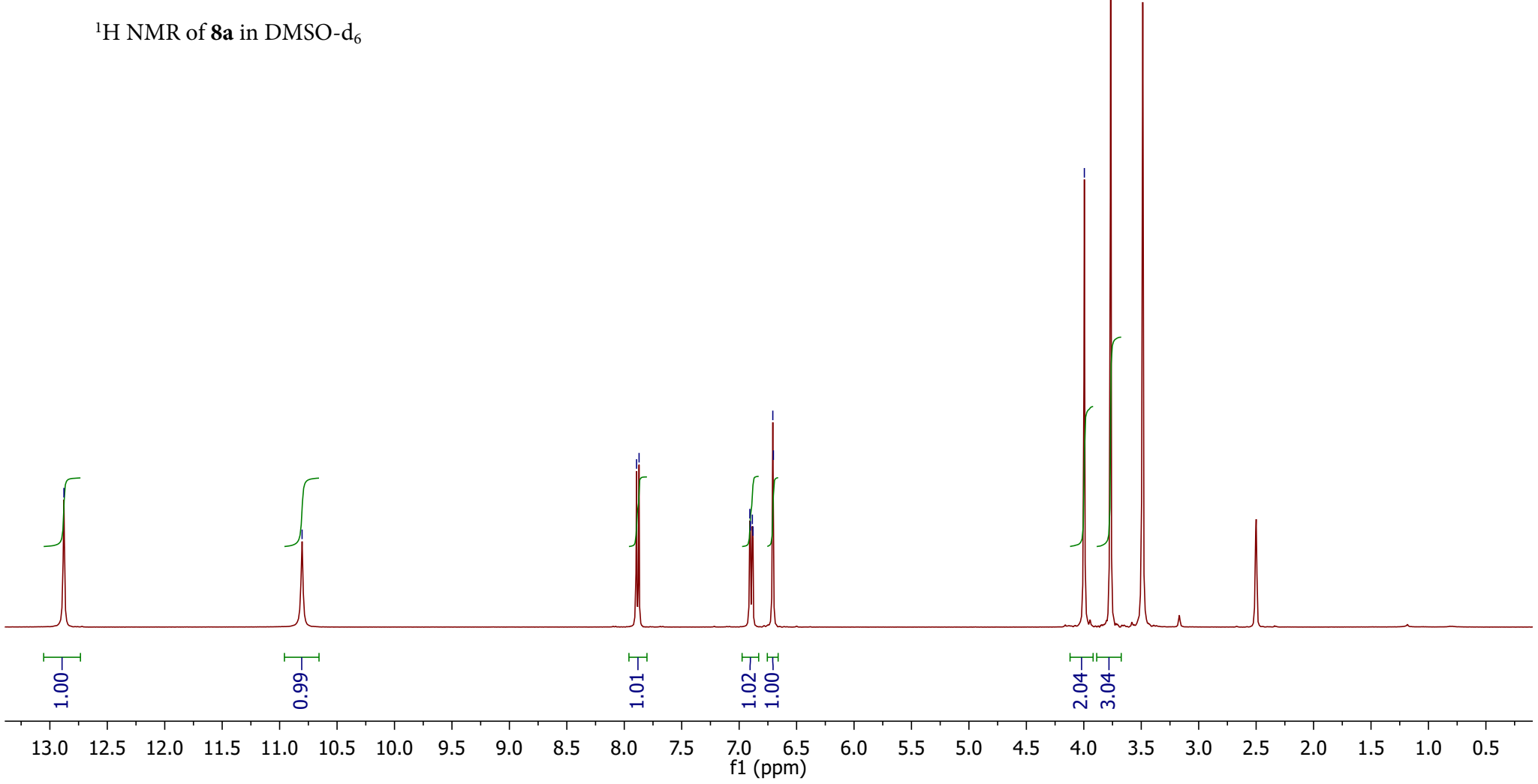


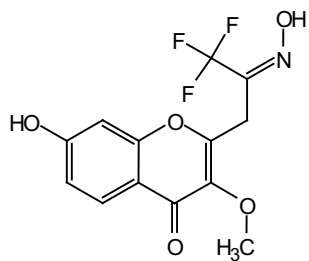
<sup>1</sup>H NMR of **8a** in DMSO-d<sub>6</sub>

7.89  
7.87

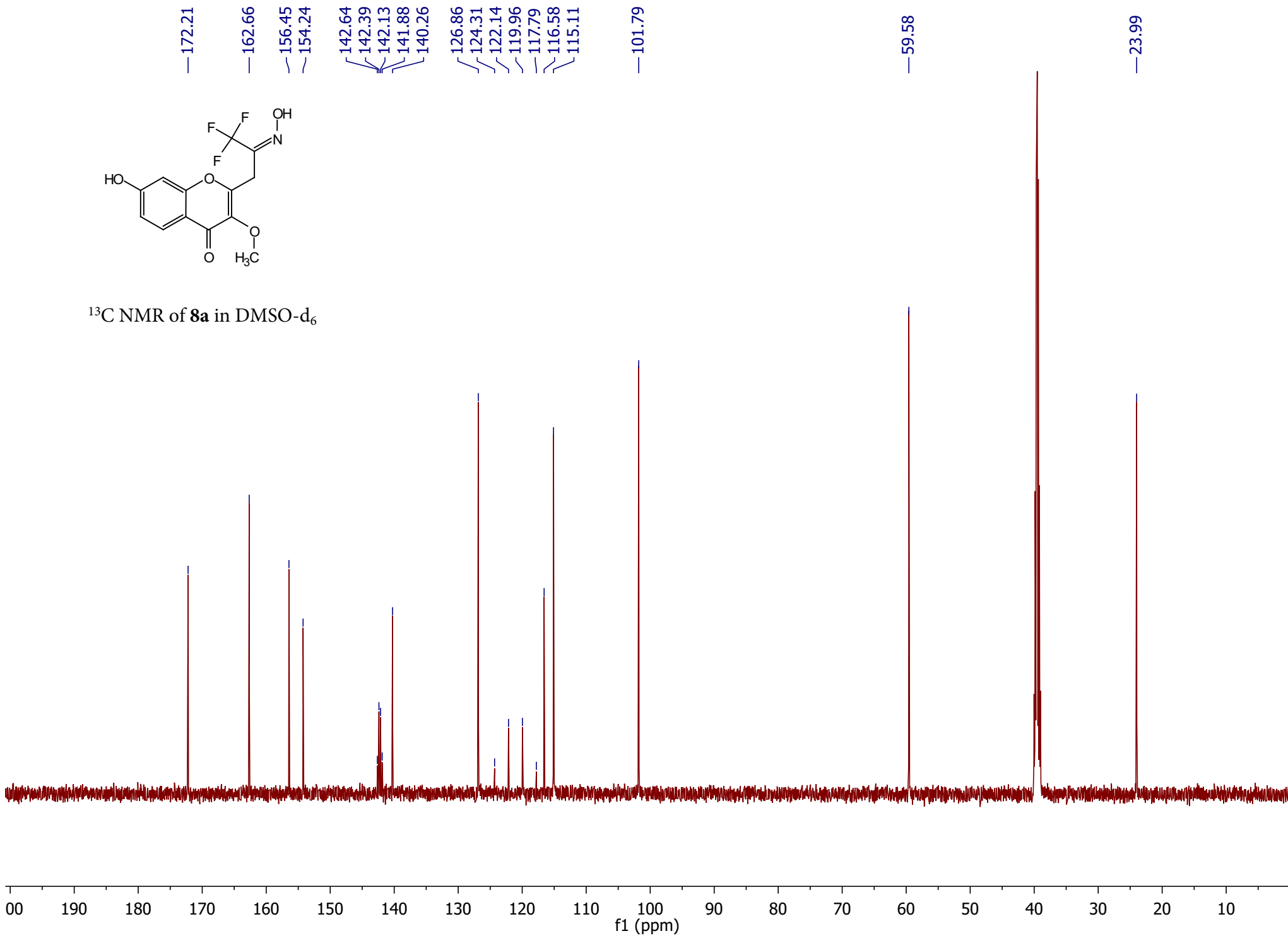
6.91  
6.90  
6.89  
6.88  
6.71  
6.70

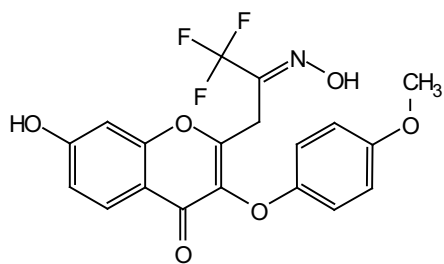
4.00  
3.77



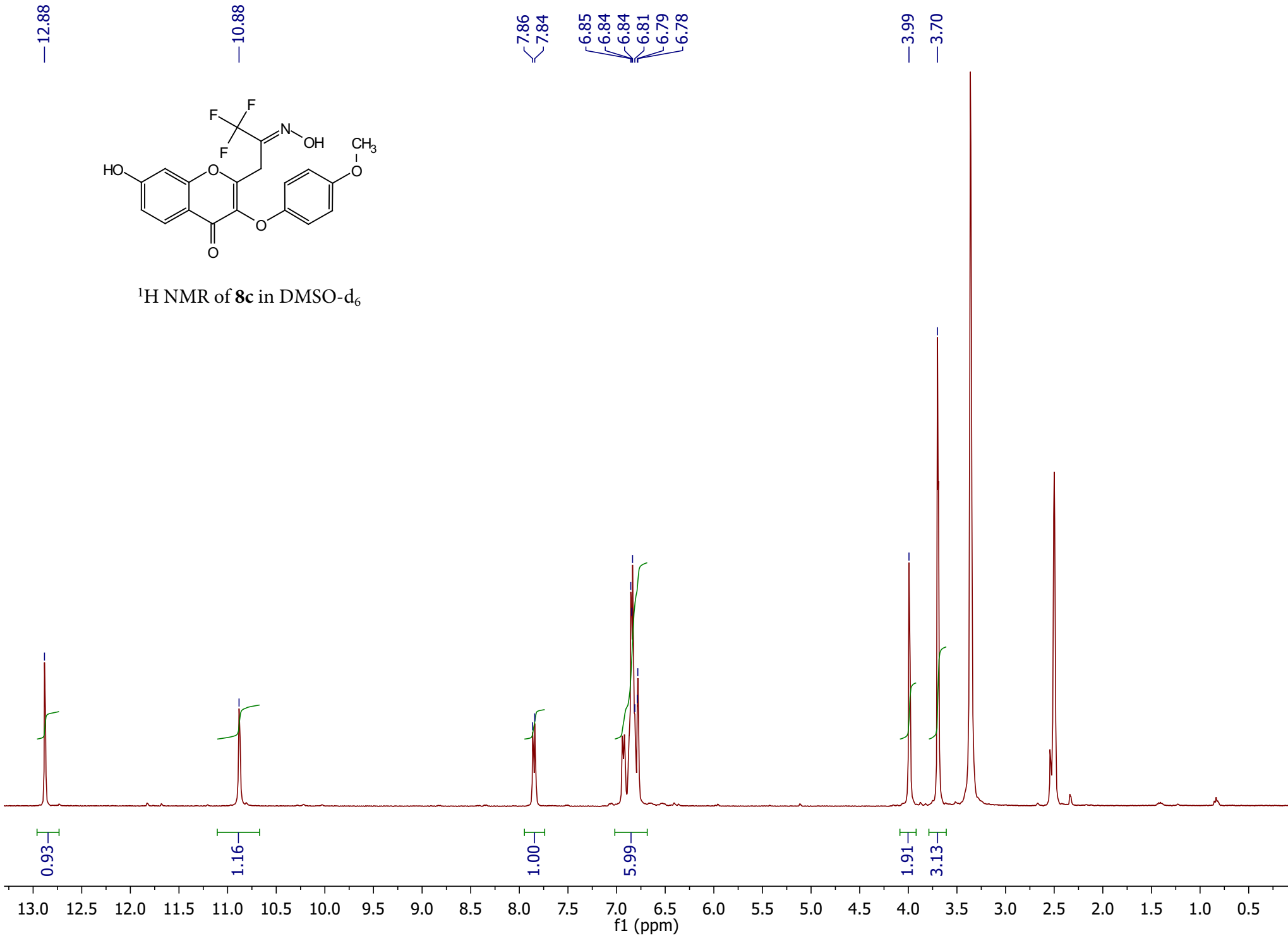


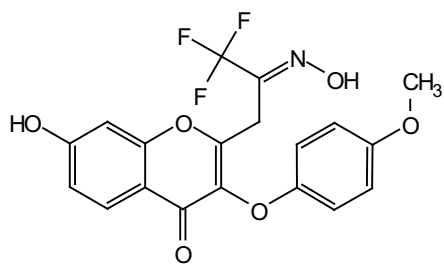
$^{13}\text{C}$  NMR of **8a** in  $\text{DMSO-d}_6$



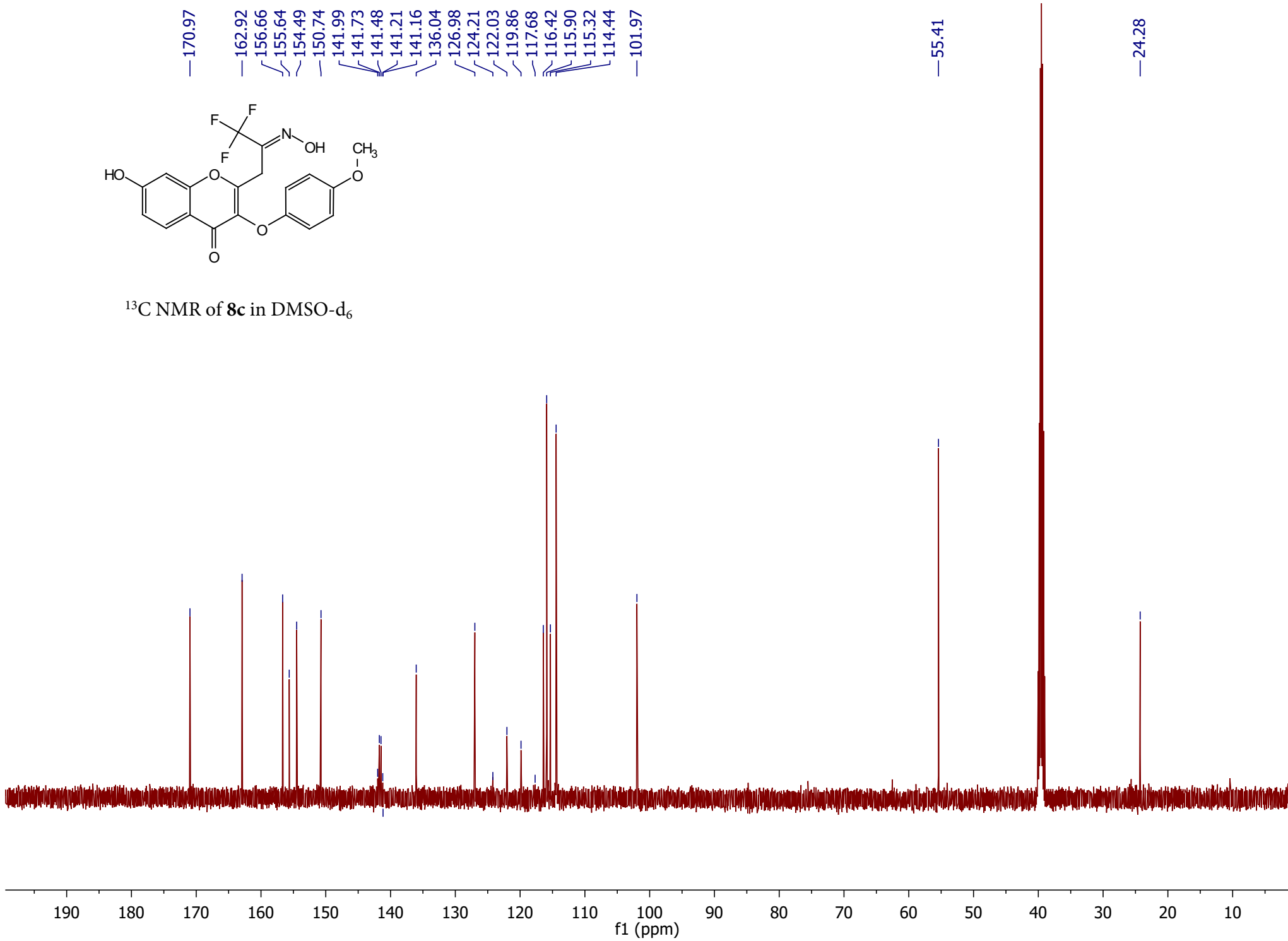


$^1\text{H}$  NMR of **8c** in DMSO- $d_6$



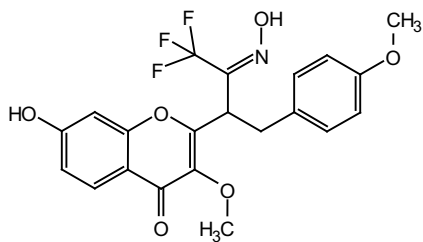


$^{13}\text{C}$  NMR of **8c** in DMSO- $d_6$

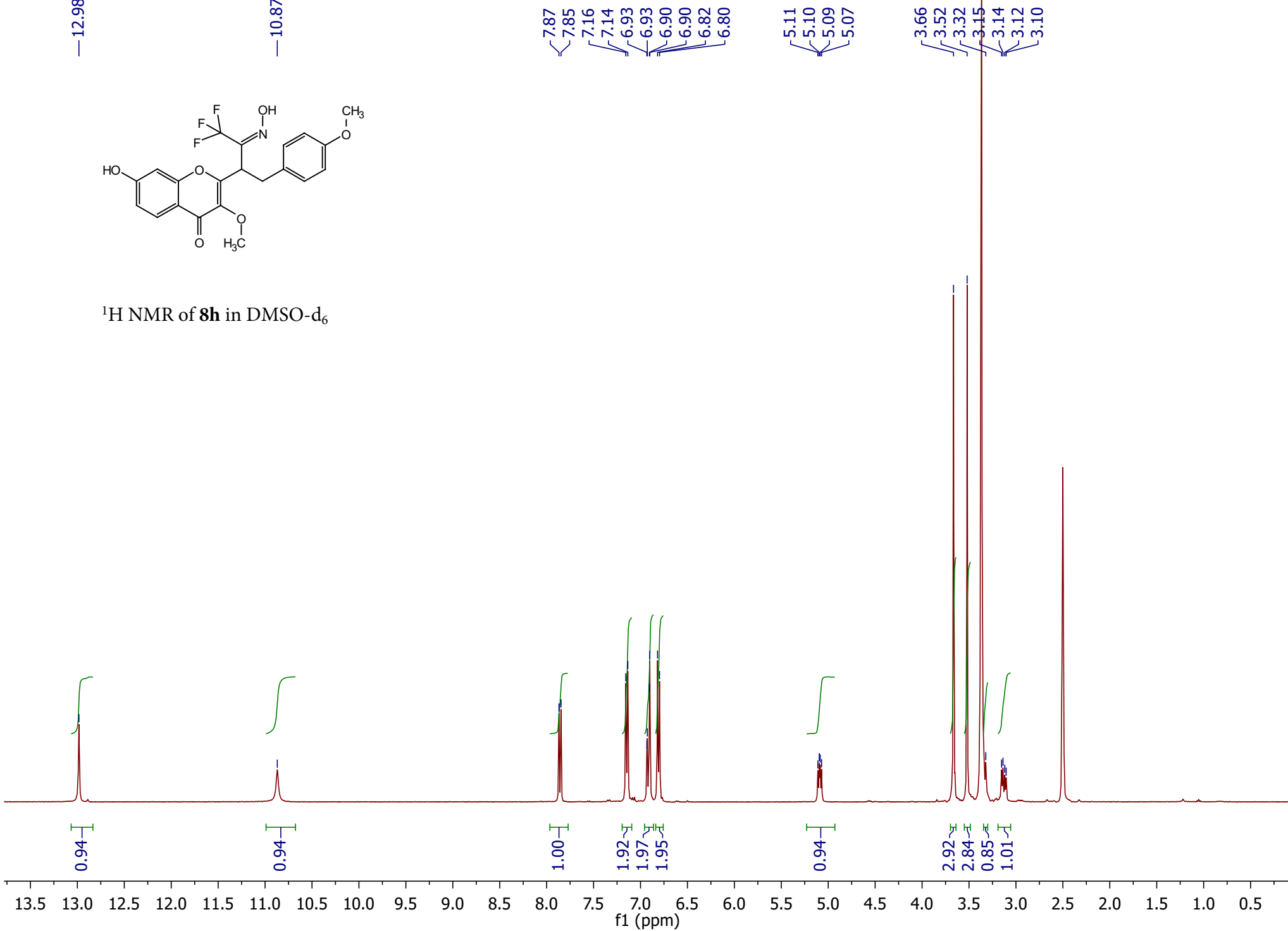


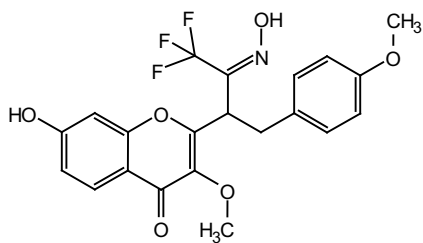
—12.98

—10.87

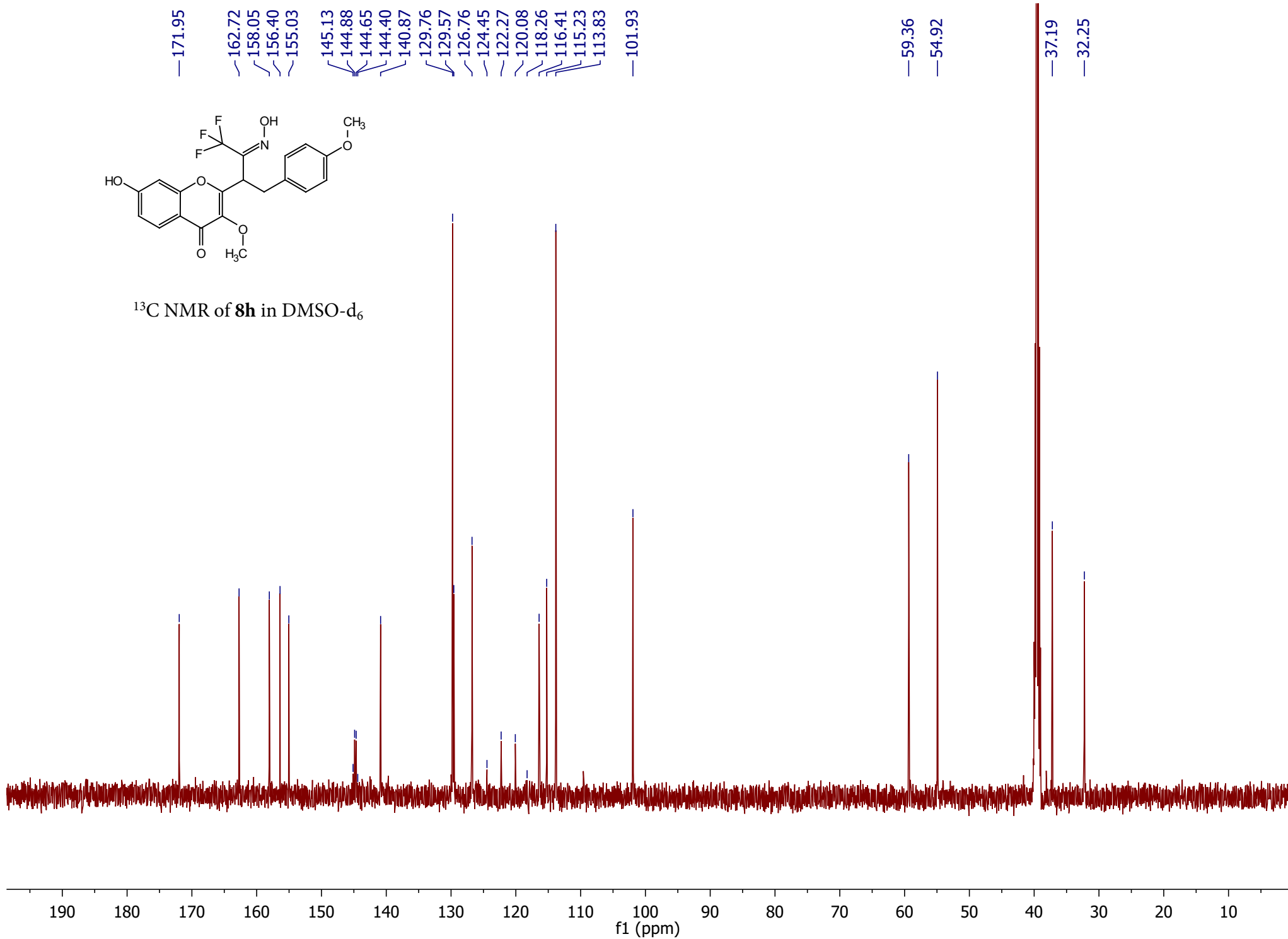


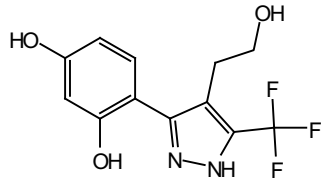
<sup>1</sup>H NMR of **8h** in DMSO-d<sub>6</sub>



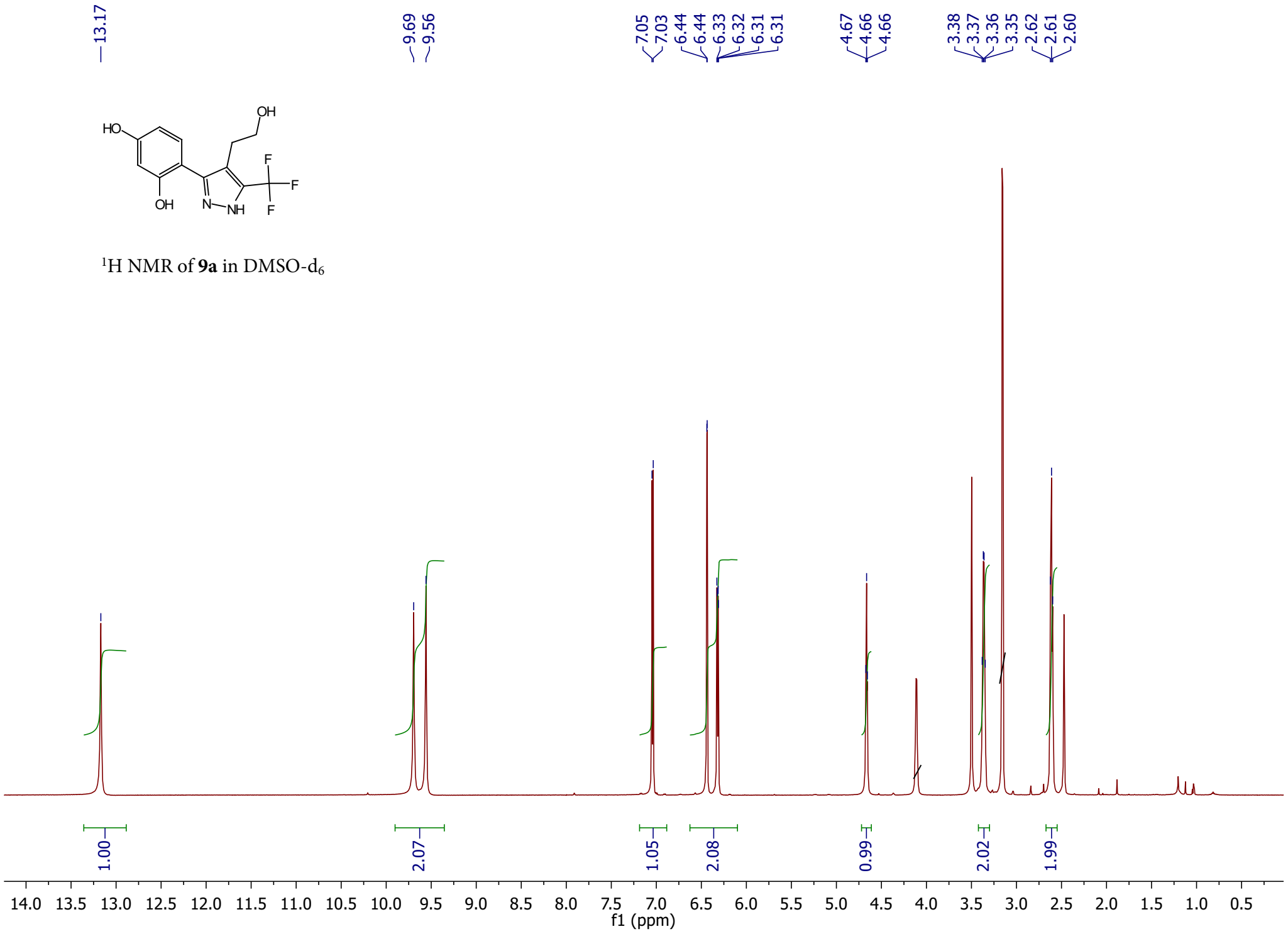


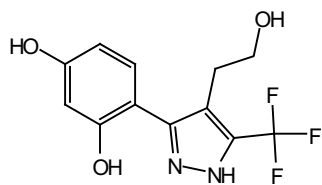
$^{13}\text{C}$  NMR of **8h** in DMSO- $\text{d}_6$



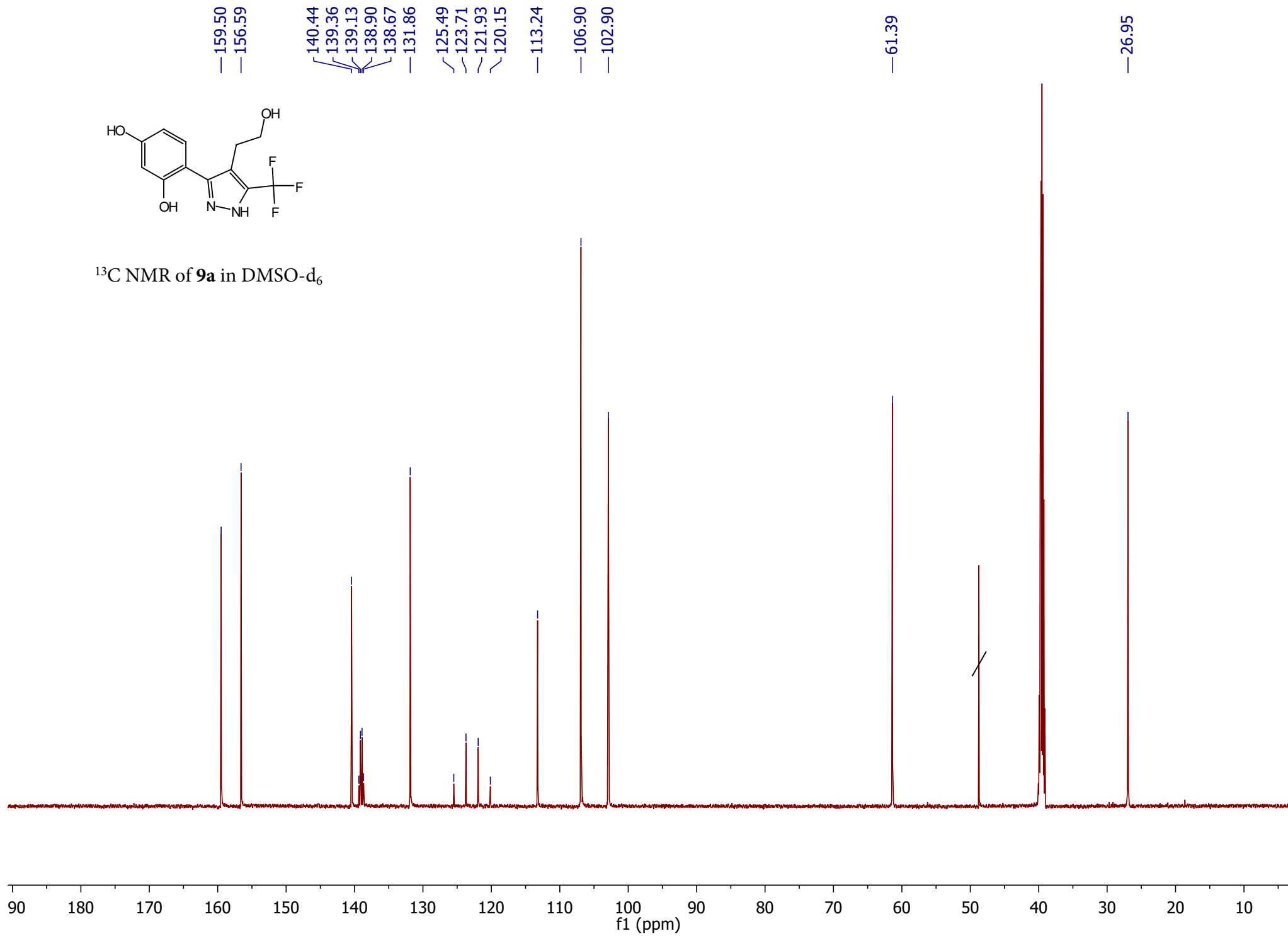


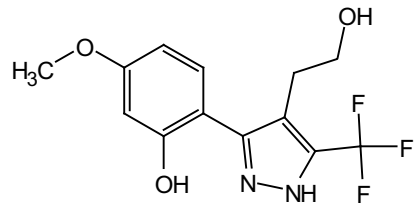
$^1\text{H}$  NMR of **9a** in  $\text{DMSO-d}_6$



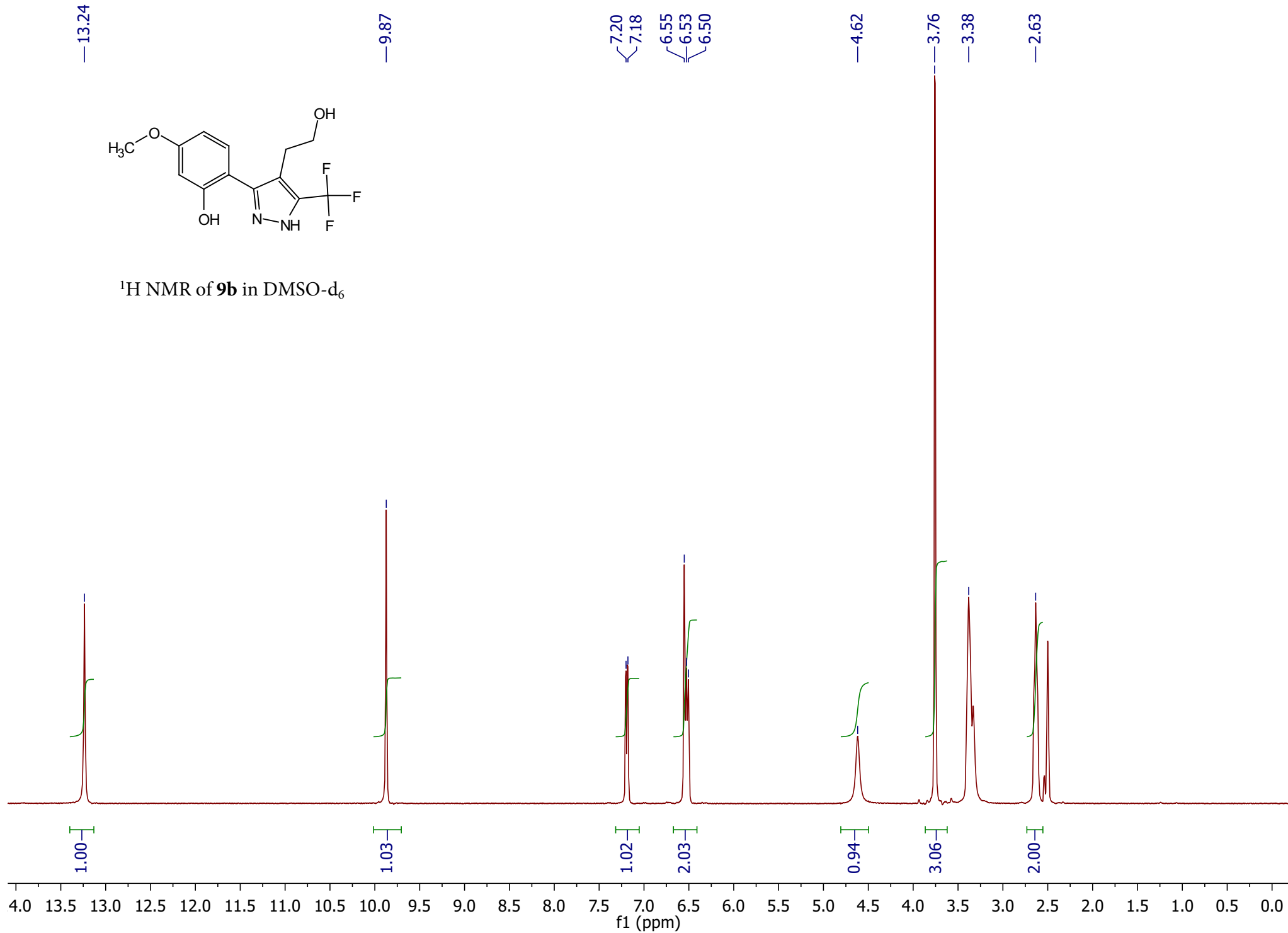


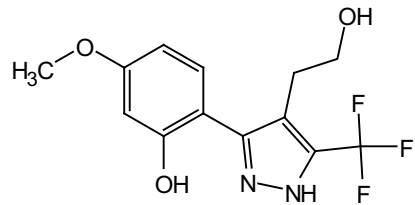
$^{13}\text{C}$  NMR of **9a** in DMSO- $\text{d}_6$



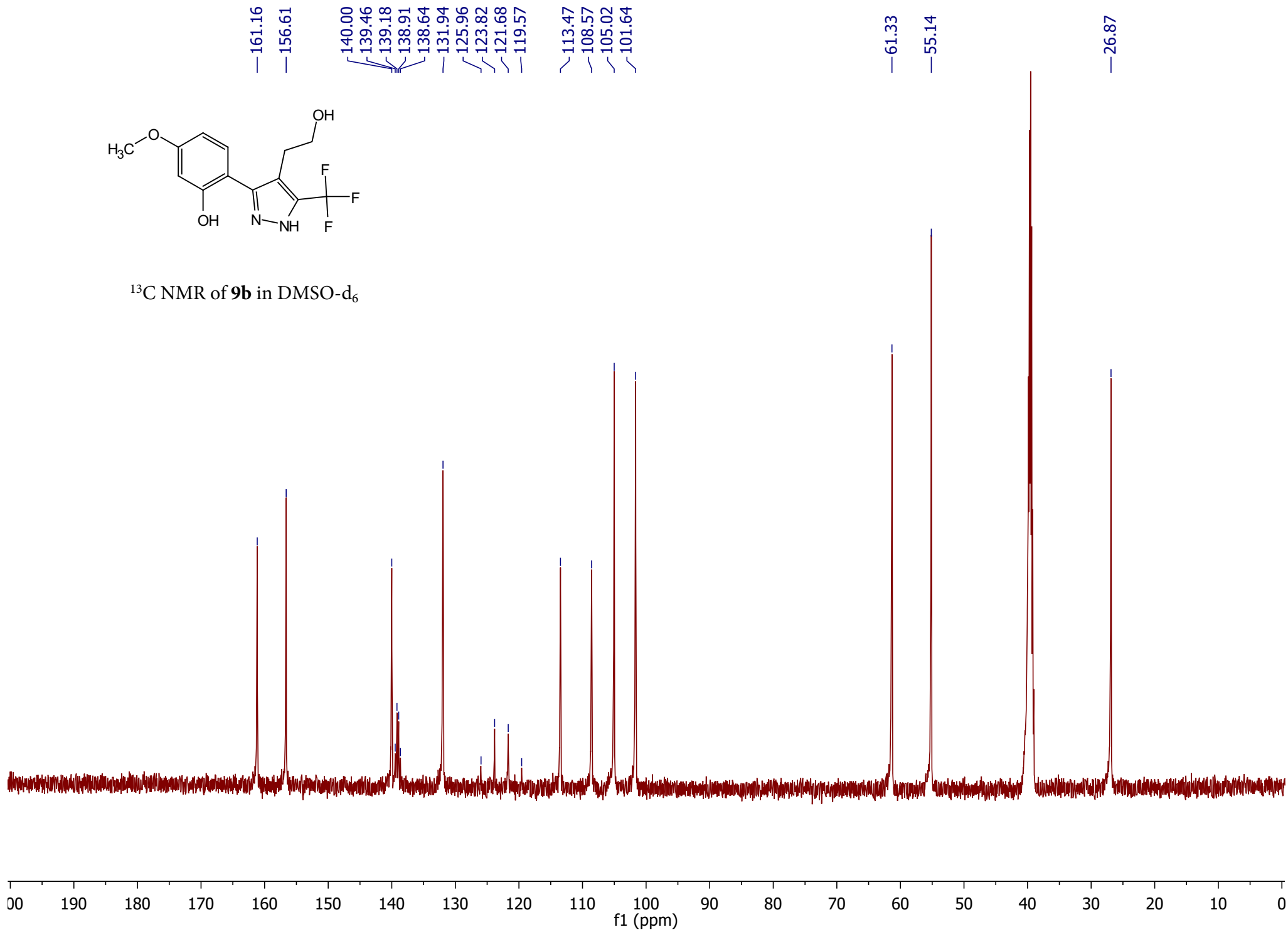


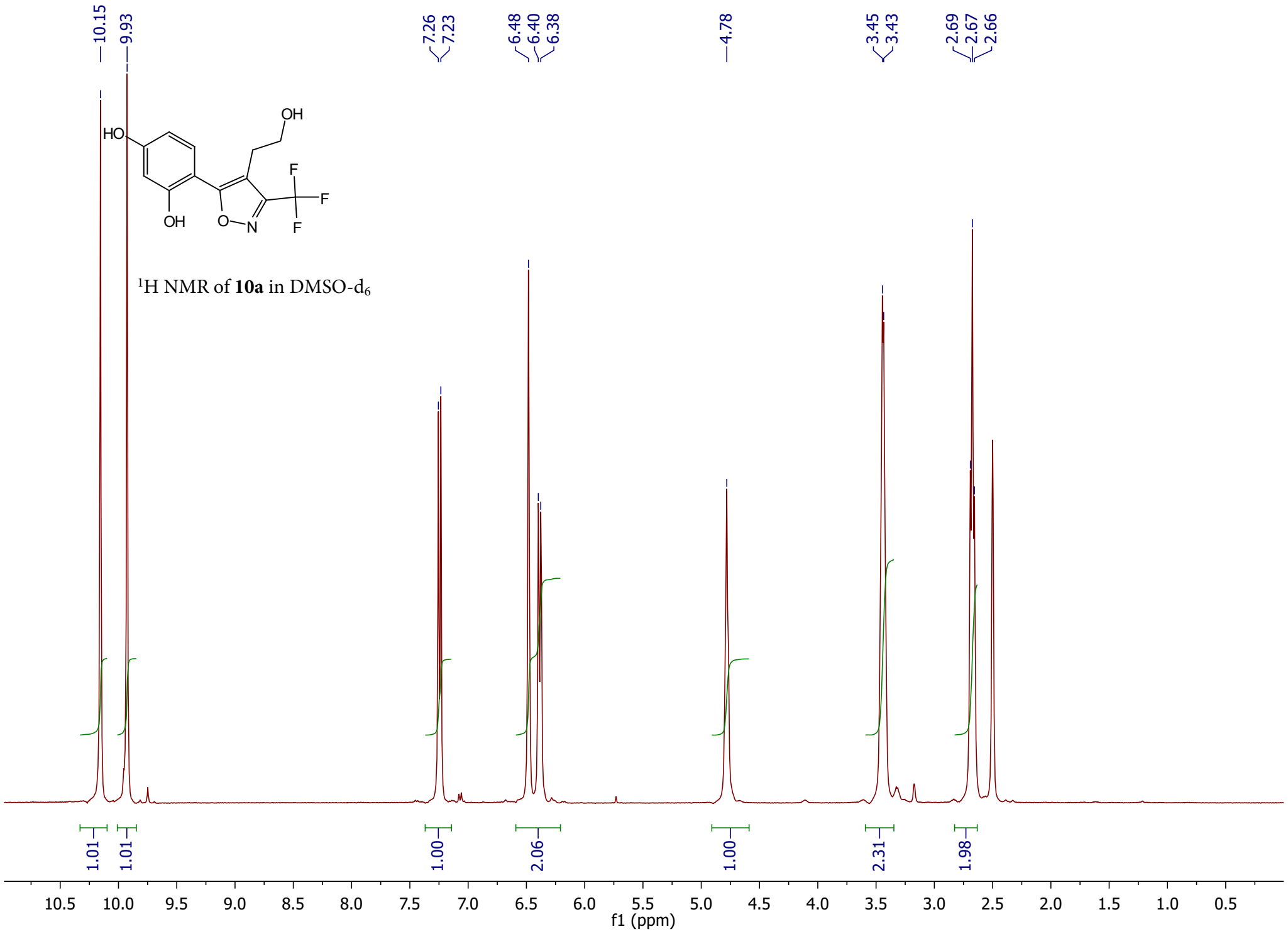
$^1\text{H}$  NMR of **9b** in  $\text{DMSO-d}_6$

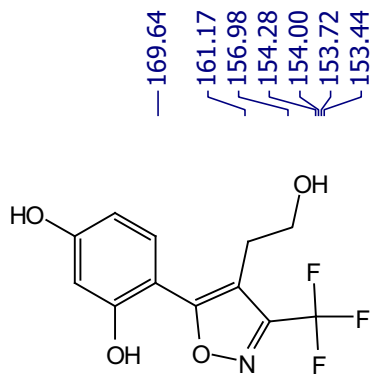




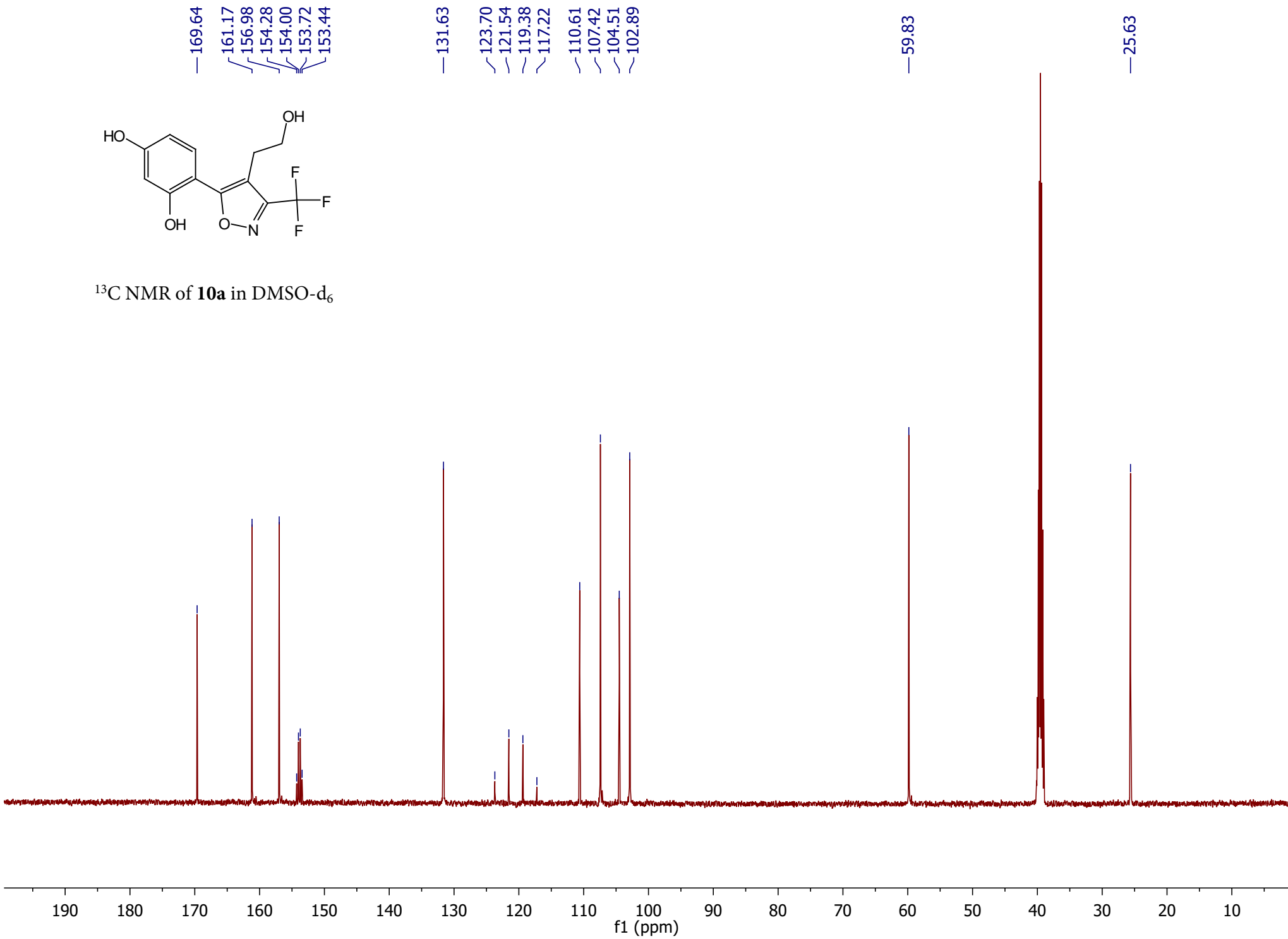
$^{13}\text{C}$  NMR of **9b** in  $\text{DMSO-d}_6$

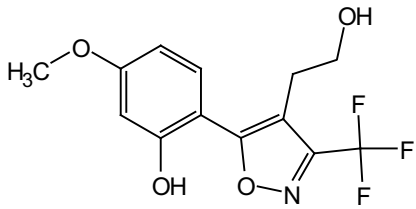




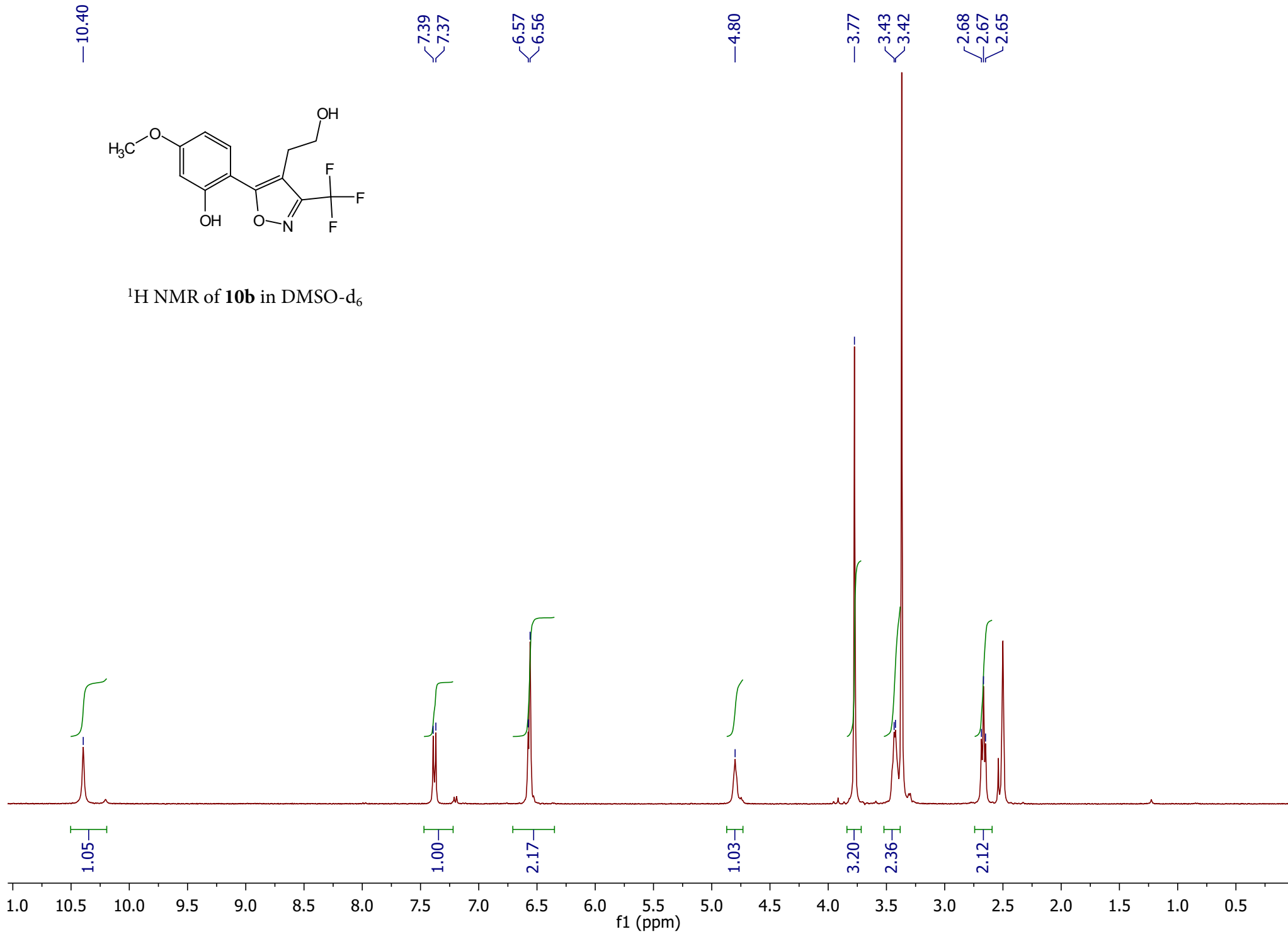


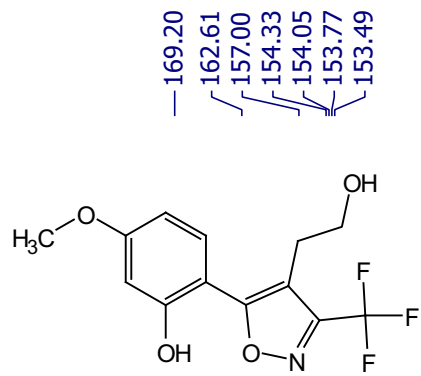
$^{13}\text{C}$  NMR of **10a** in  $\text{DMSO-d}_6$



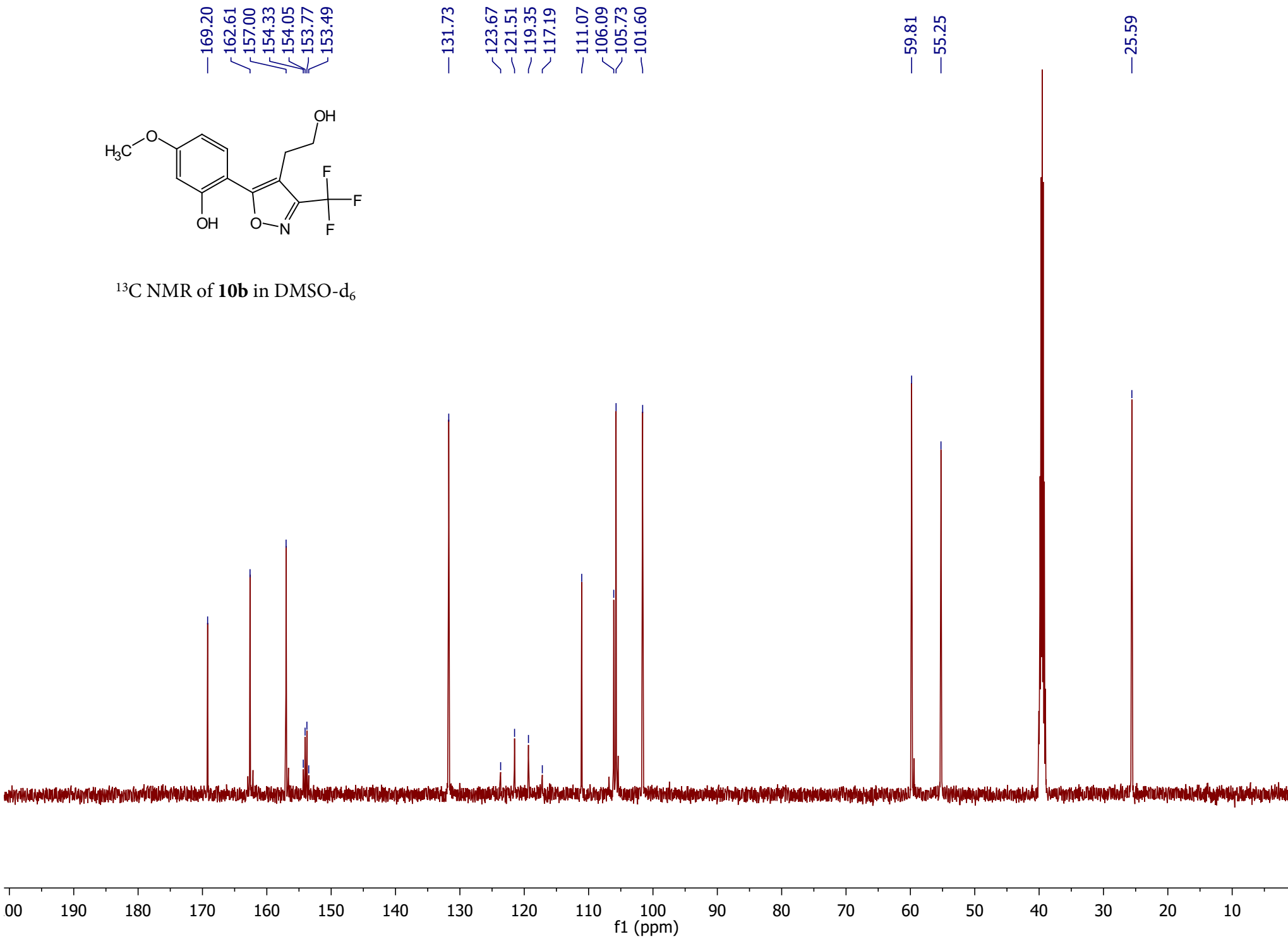


$^1\text{H}$  NMR of **10b** in  $\text{DMSO-d}_6$

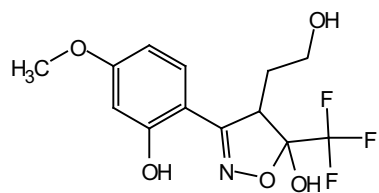




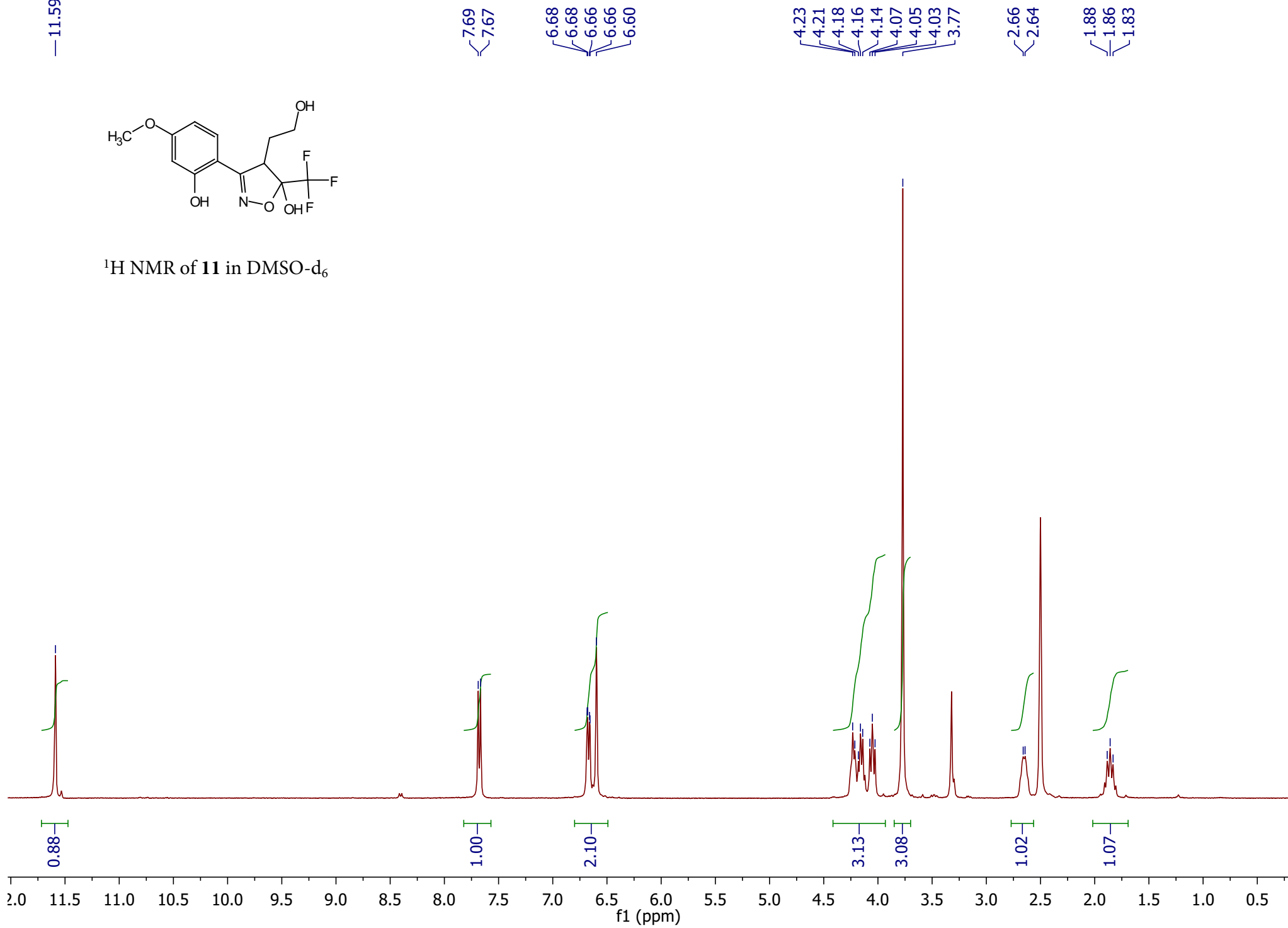
$^{13}\text{C}$  NMR of **10b** in DMSO- $\text{d}_6$

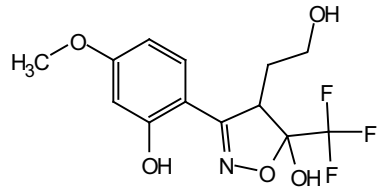


—11.59



$^1\text{H}$  NMR of **11** in  $\text{DMSO-d}_6$





$^{13}\text{C}$  NMR of **11** in  $\text{DMSO-d}_6$

