

## Supporting Information

### Ligand-Free Pd-Catalyzed Synthesis of 3-Allylbenzofurans by Merging

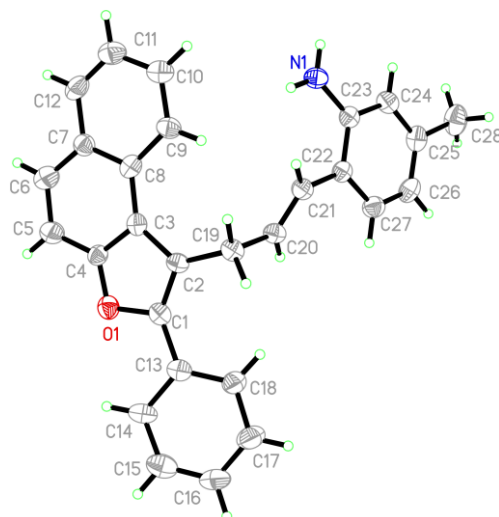
### Decarboxylative Allylation and Nucleophilic Cyclization

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## Context

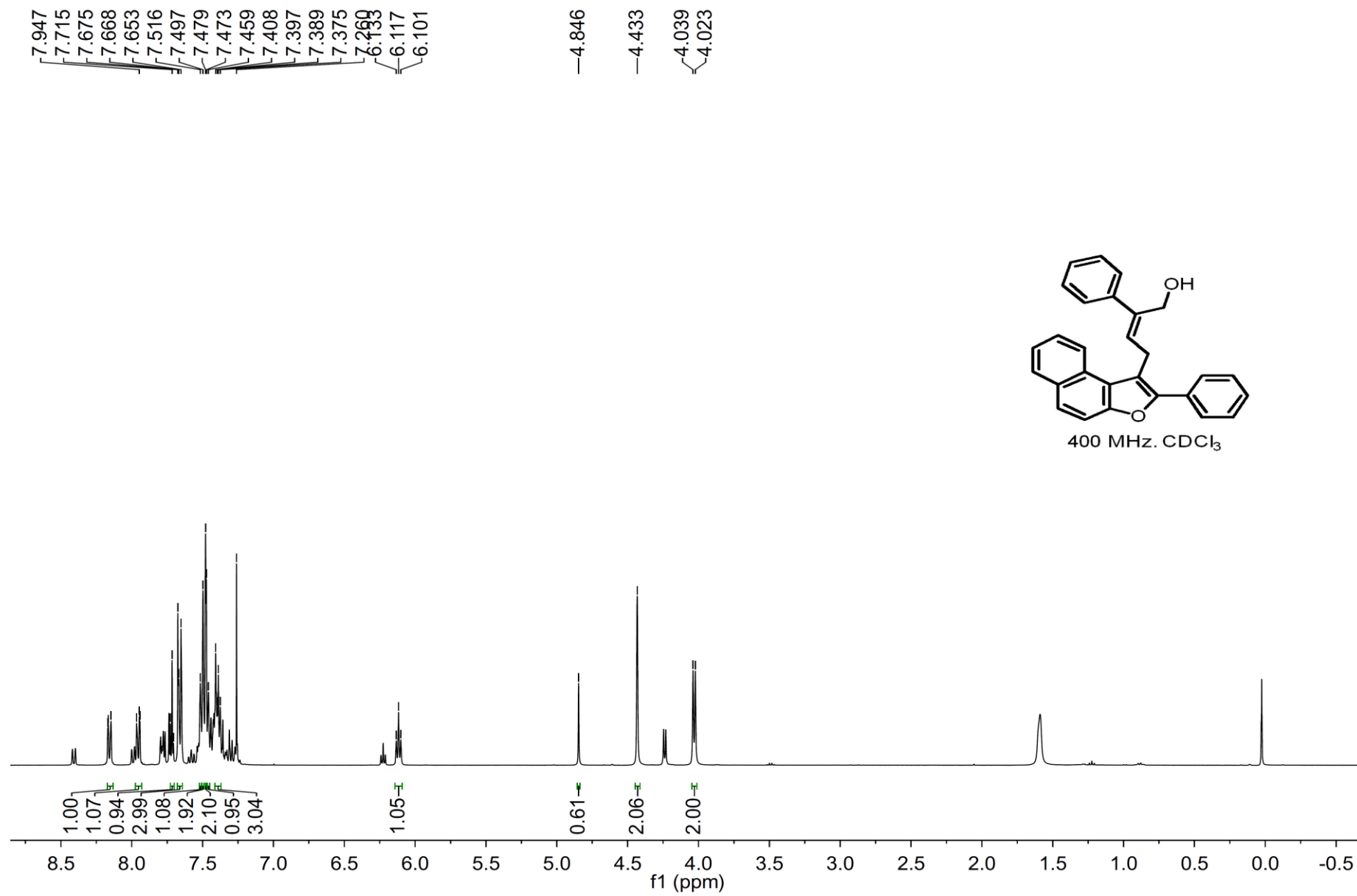
The ORTEP Drawing of <b>5b</b> .....	S2
Copies of <sup>1</sup> H and <sup>13</sup> C NMR Spectra for Substrates <b>3a-3dd</b> .....	S3-S62
Copies of <sup>1</sup> H and <sup>13</sup> C NMR Spectra for Substrates <b>5a-5c</b> .....	S63-S68
Copies of <sup>1</sup> H and <sup>13</sup> C NMR Spectra for Compound <b>6a</b> .....	S69-S70



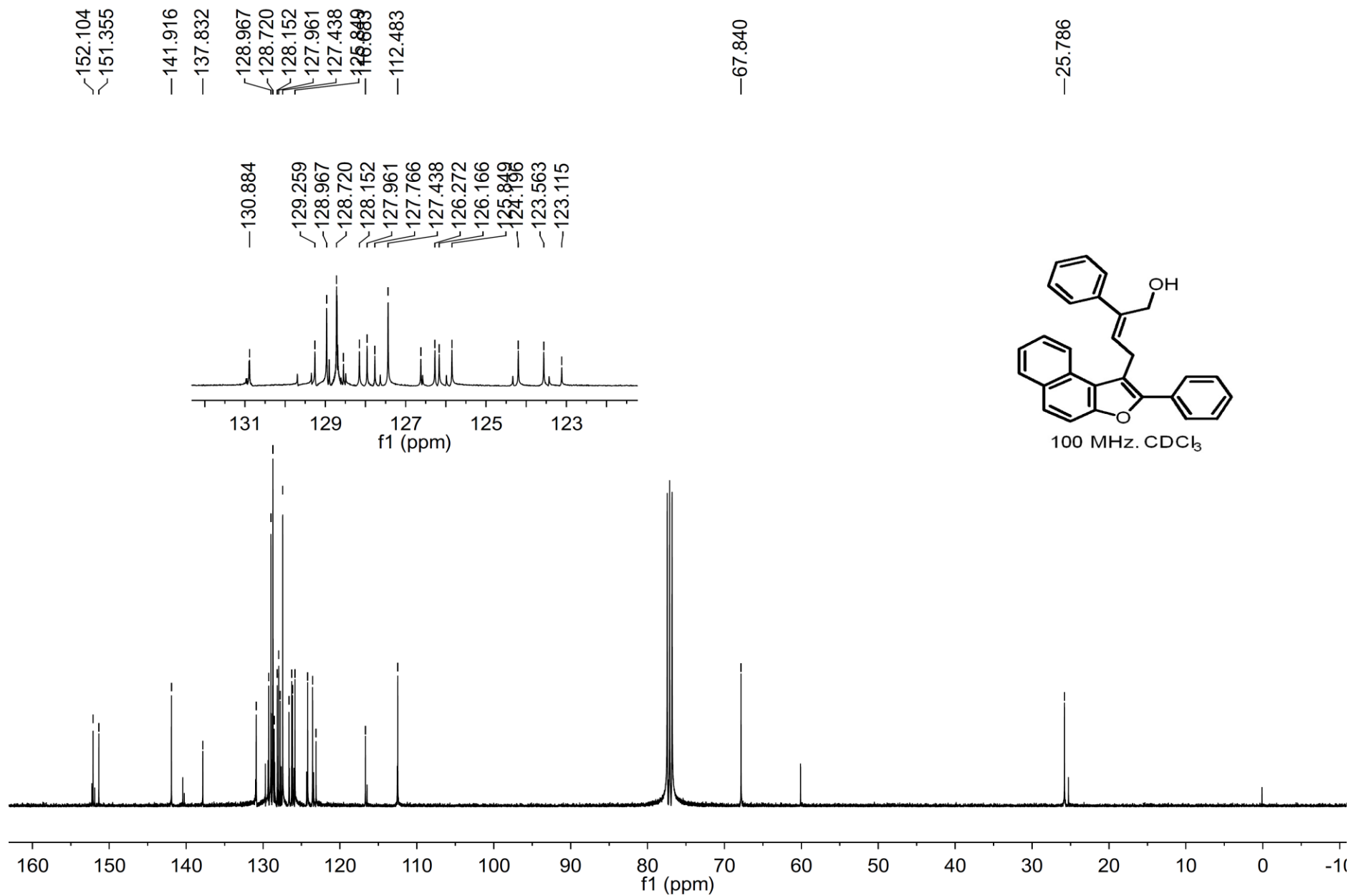
**Figure S1** The ORTEP Drawing of **5b** (The ellipsoid contour 30% probability levels)

A single crystal **5b** was obtained by slowly evaporating 95% EtOH solvent at room temperature under the air conditions. Its dimensions of 0.40 mm  $\times$  0.13 mm  $\times$  0.07 mm was mounted on a Siemens P1 diffractometer equipped with a graphite mono-chromated MoK $\alpha$  ( $\lambda$  = 0.71073 Å) radiation at 293(2) K. A total of 8438 reflections were collected in the  $2.73 < \theta < 66.03^\circ$  range by using an  $\omega$  scan mode and 3646 were independent ( $R_{\text{int}}$  = 0.0611), of which 1809 with  $I > 2\sigma(I)$  were observed. The calculations were performed with SHELXS-97 and SHELXS-97 programs and corrections for  $Lp$  factors and absorptions were applied. The structure was solved by direct methods. The non-hydrogen atoms were refined anisotropically, and the hydrogen atoms were determined by theoretical calculations. The final cycle of refinement gave  $R$  = 0.1172 and  $wR$  = 0.3104 ( $w = 1/[\sigma^2(F_o^2) + (0.1389P)^2 + 5.1948P]$ , where  $P = (F_o^2 + 2F_c^2)/3$ ).  $S$  = 1.056,  $(\Delta/\sigma)_{\text{max}}$  = 0.000,  $(\Delta\rho)_{\text{min}}$  = 0.550 e/Å<sup>3</sup> and  $(\Delta\rho)_{\text{max}}$  = -0.254 e/Å<sup>3</sup>.

The crystal of compound **5b** belongs to Orthorhombic, space group  $Pbca$  with  $a$  = 4.9482(6) Å,  $b$  = 26.280(3) Å,  $c$  = 26.280(3) Å,  $\alpha = \beta = \gamma = 90^\circ$ ,  $V$  = 4208.5(8) Å<sup>3</sup>,  $Mr$  = 389.47,  $Z$  = 8,  $D_c$  = 1.229 g/cm<sup>3</sup>,  $\mu(\text{MoK}\alpha)$  = 0.572 mm<sup>-1</sup>,  $F(000)$  = 1648, the final  $R$  = 0.1172 and  $wR$  = 0.3104.

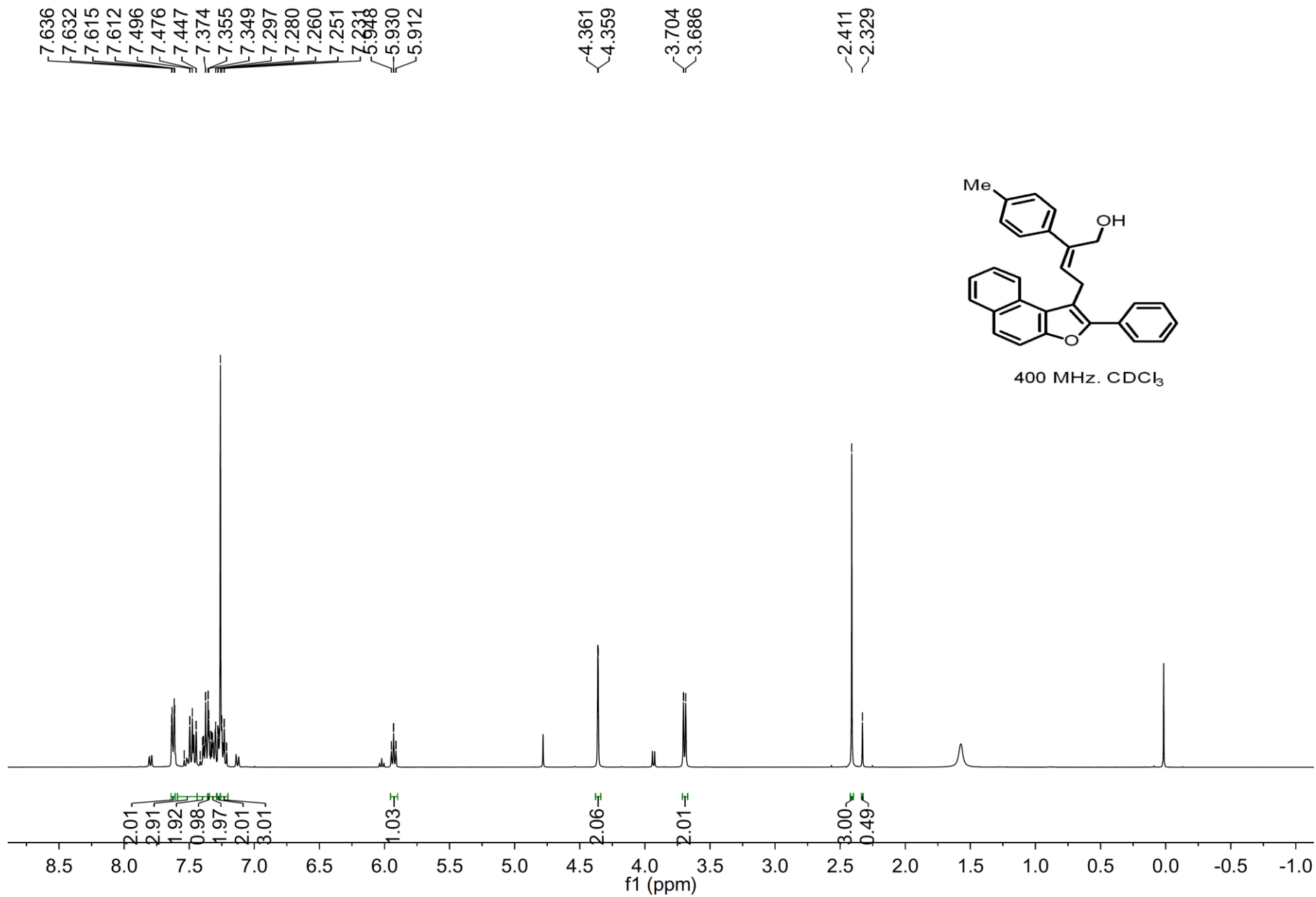


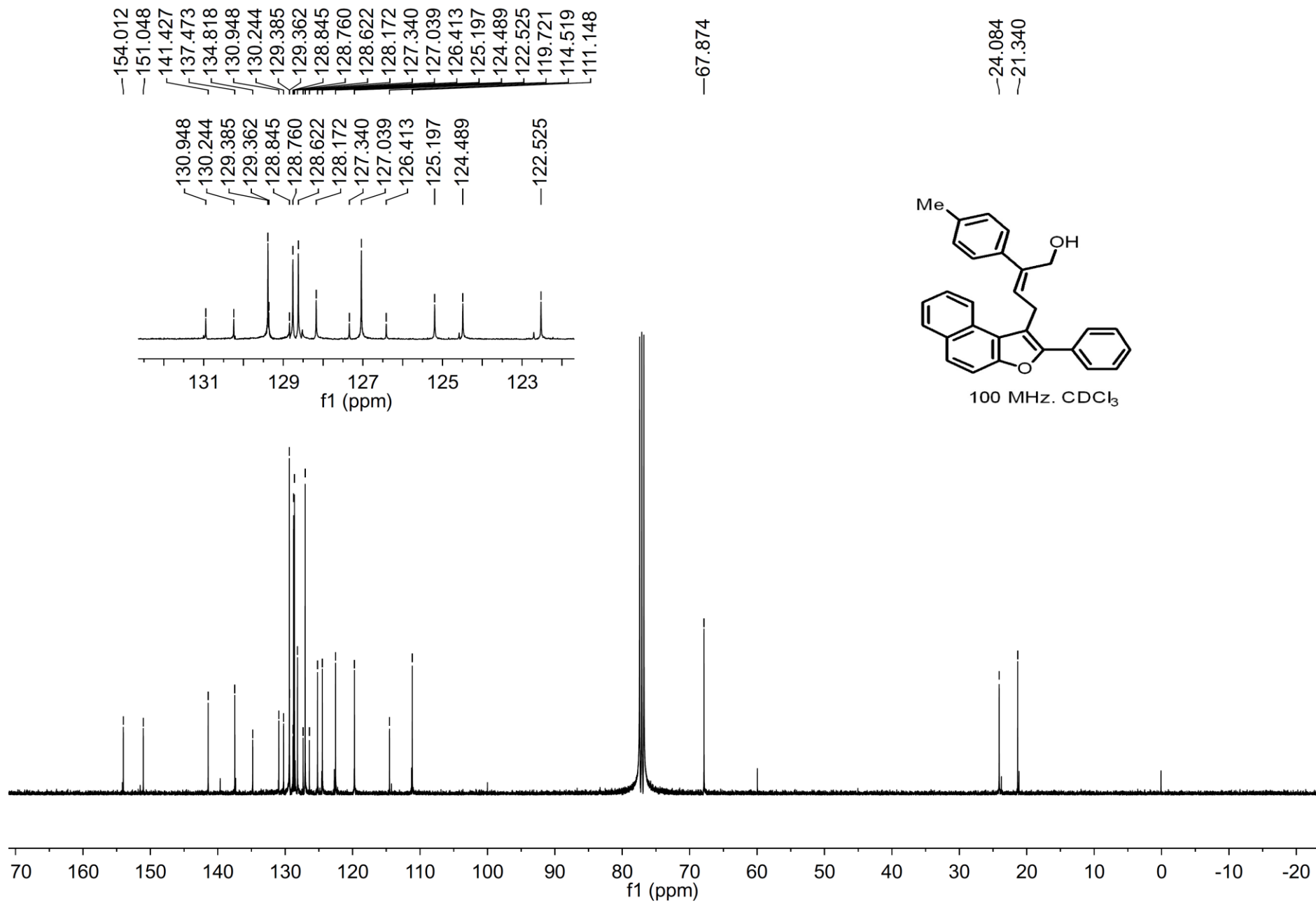
<sup>1</sup>H NMR Spectrum of Compound 3a

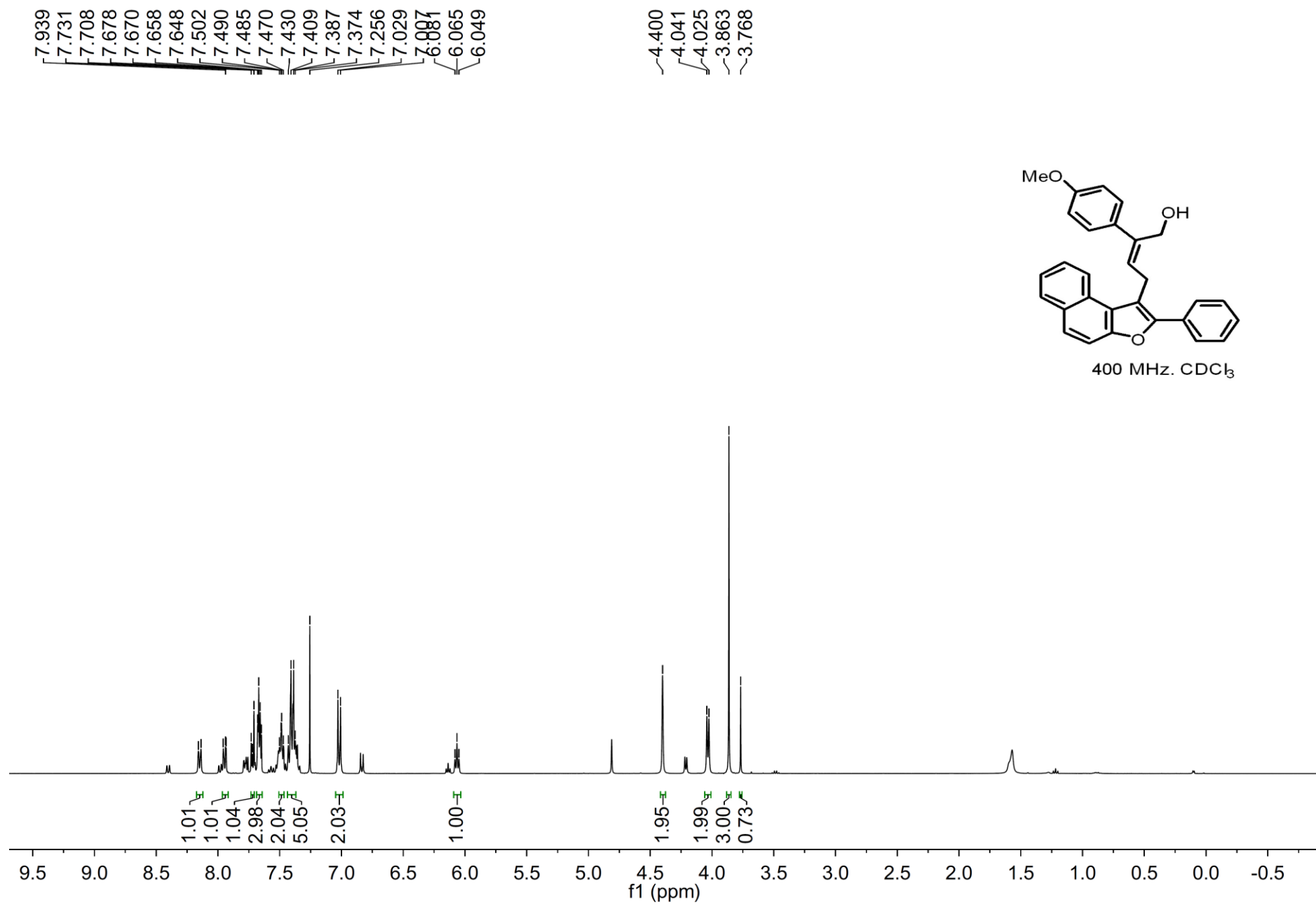


**<sup>13</sup>C NMR Spectrum of Compound 3a**

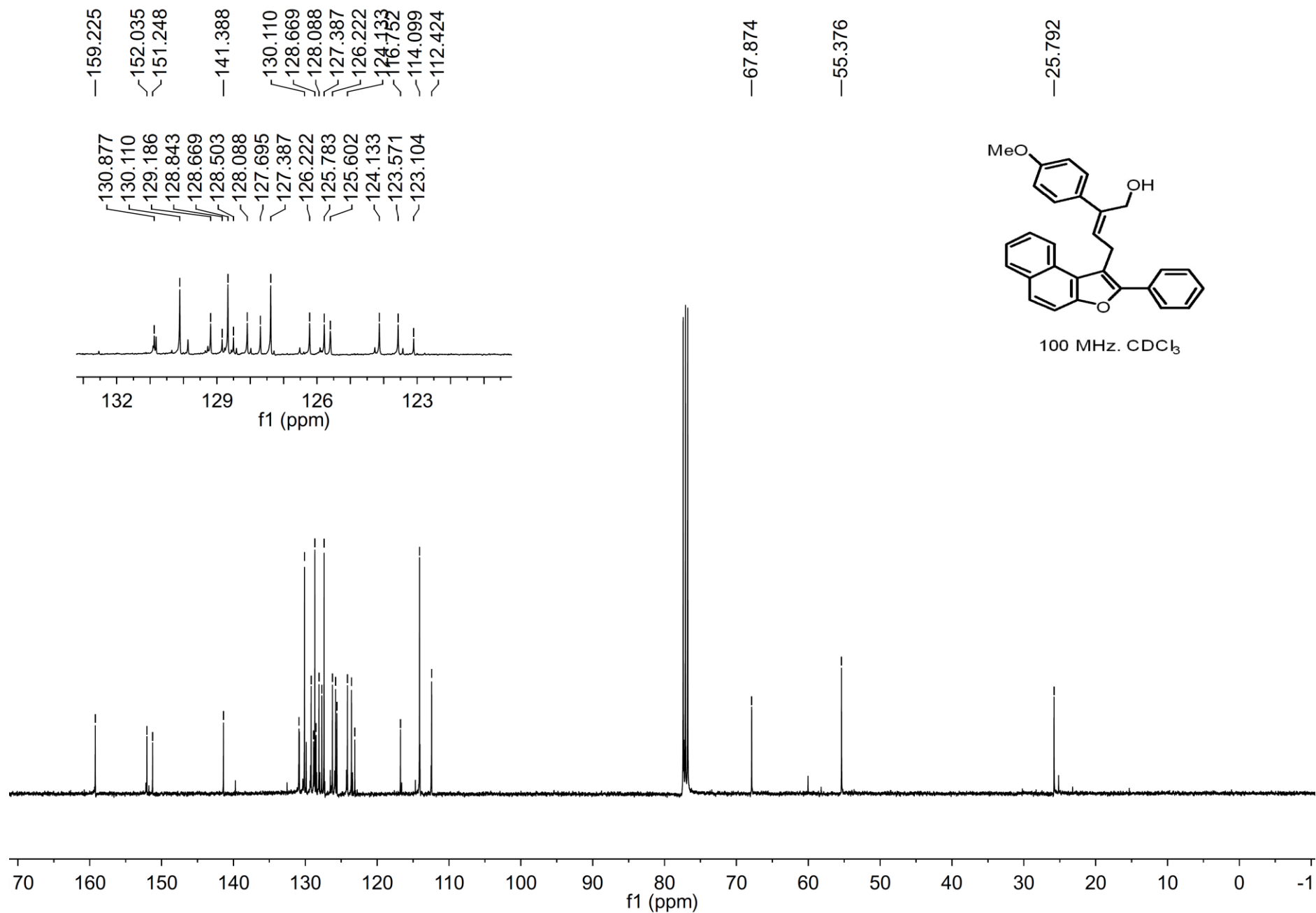




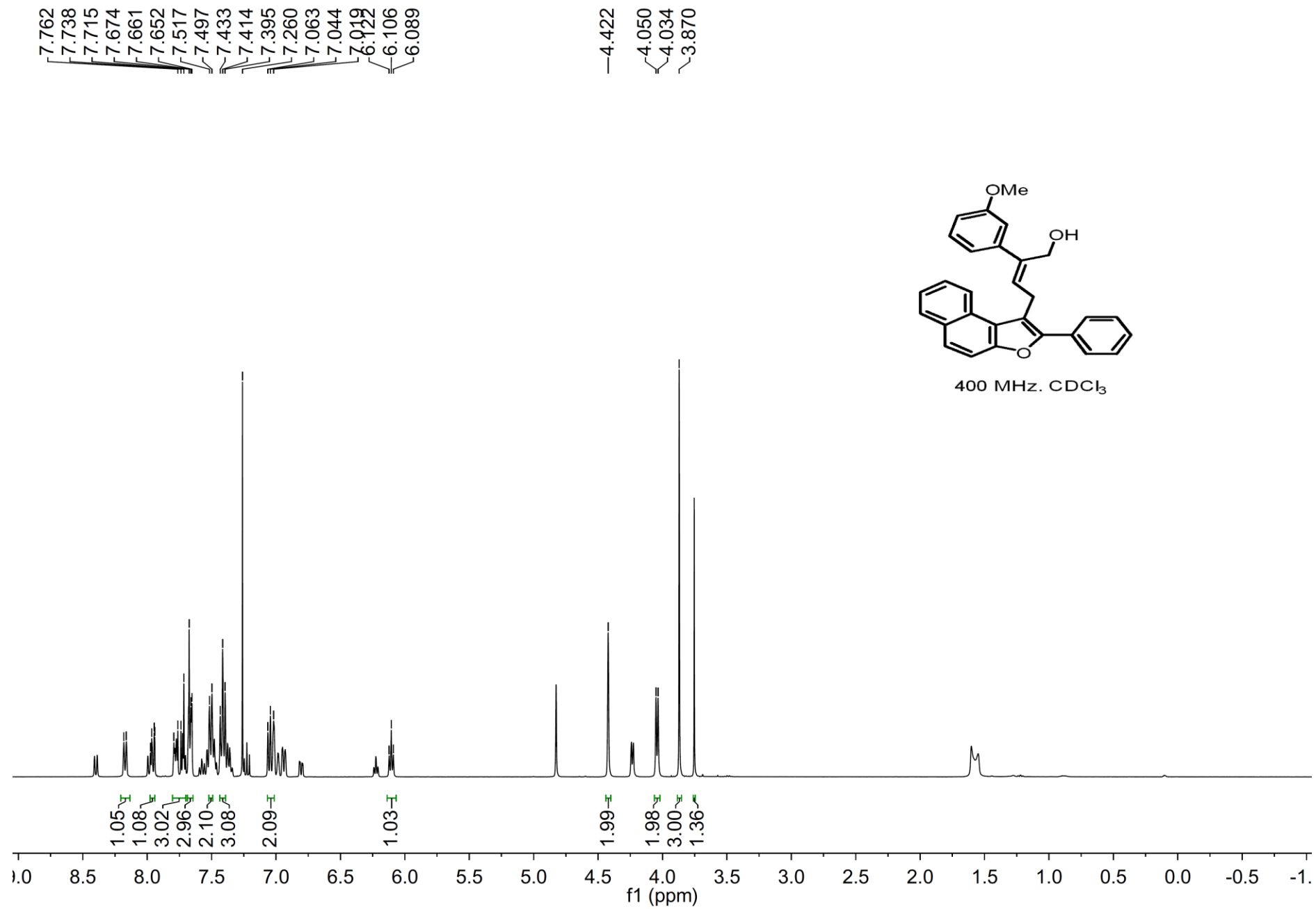




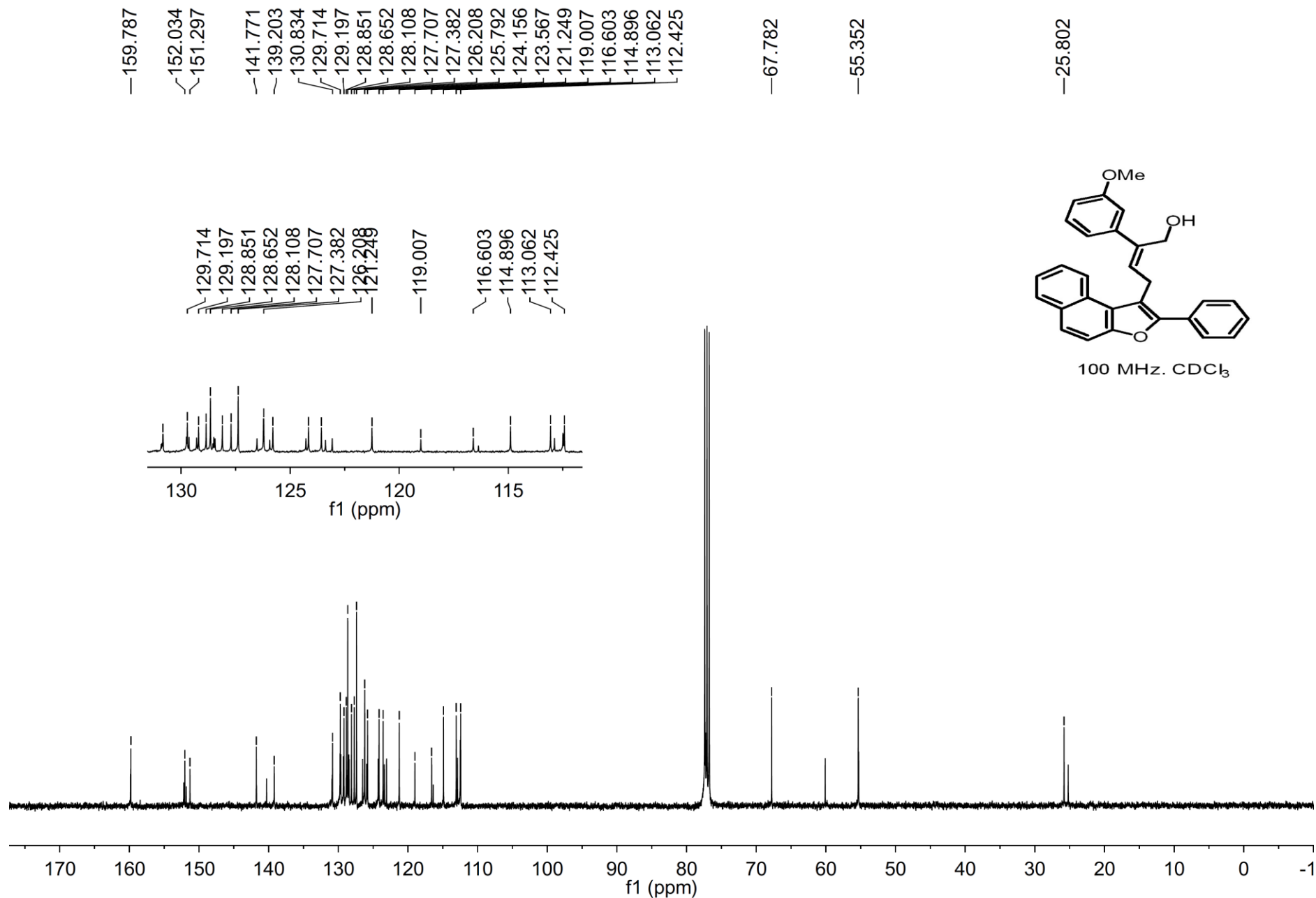
**<sup>1</sup>H NMR Spectrum of Compound 3c**  
S7

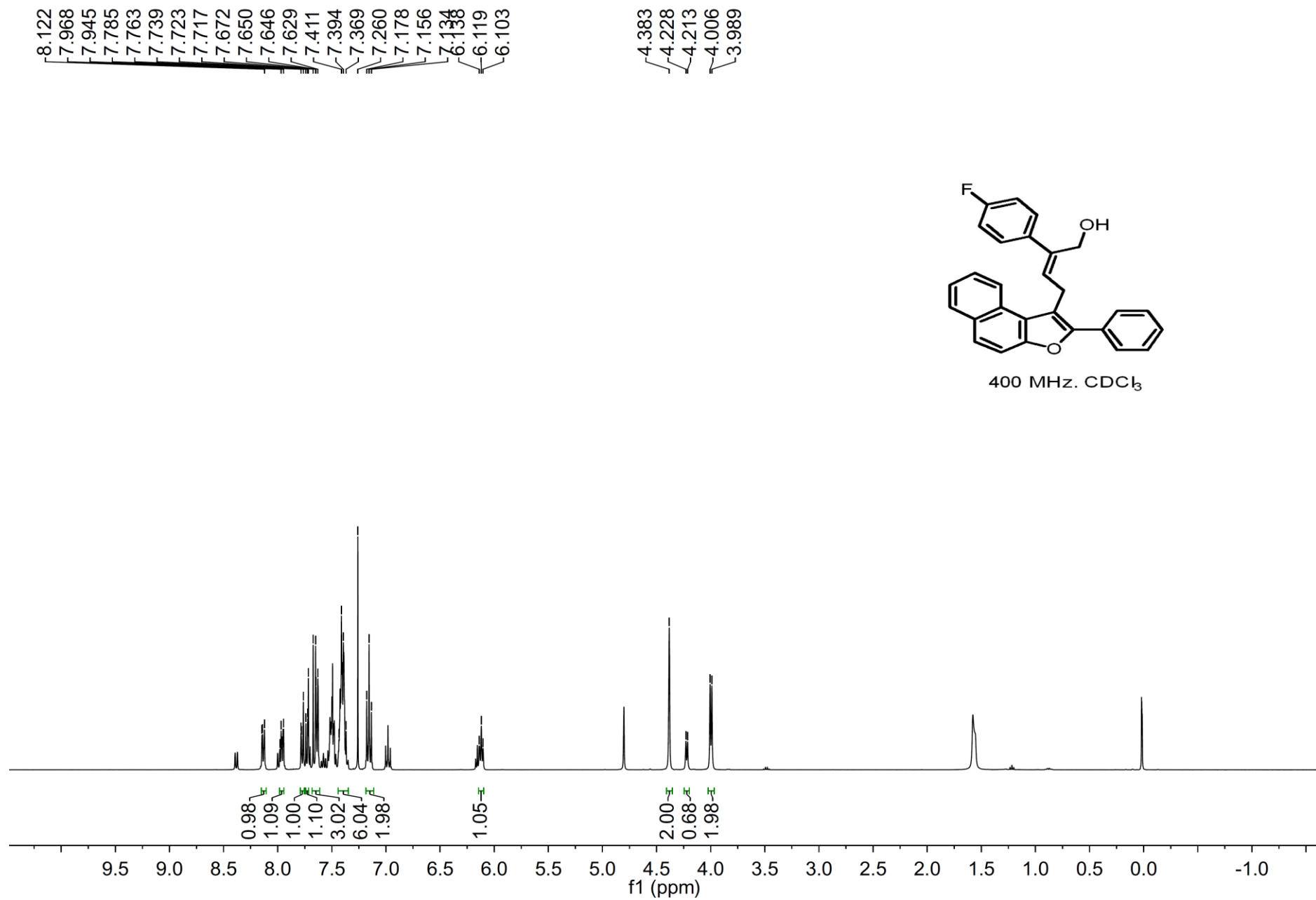


**<sup>13</sup>C NMR Spectrum of Compound 3c**

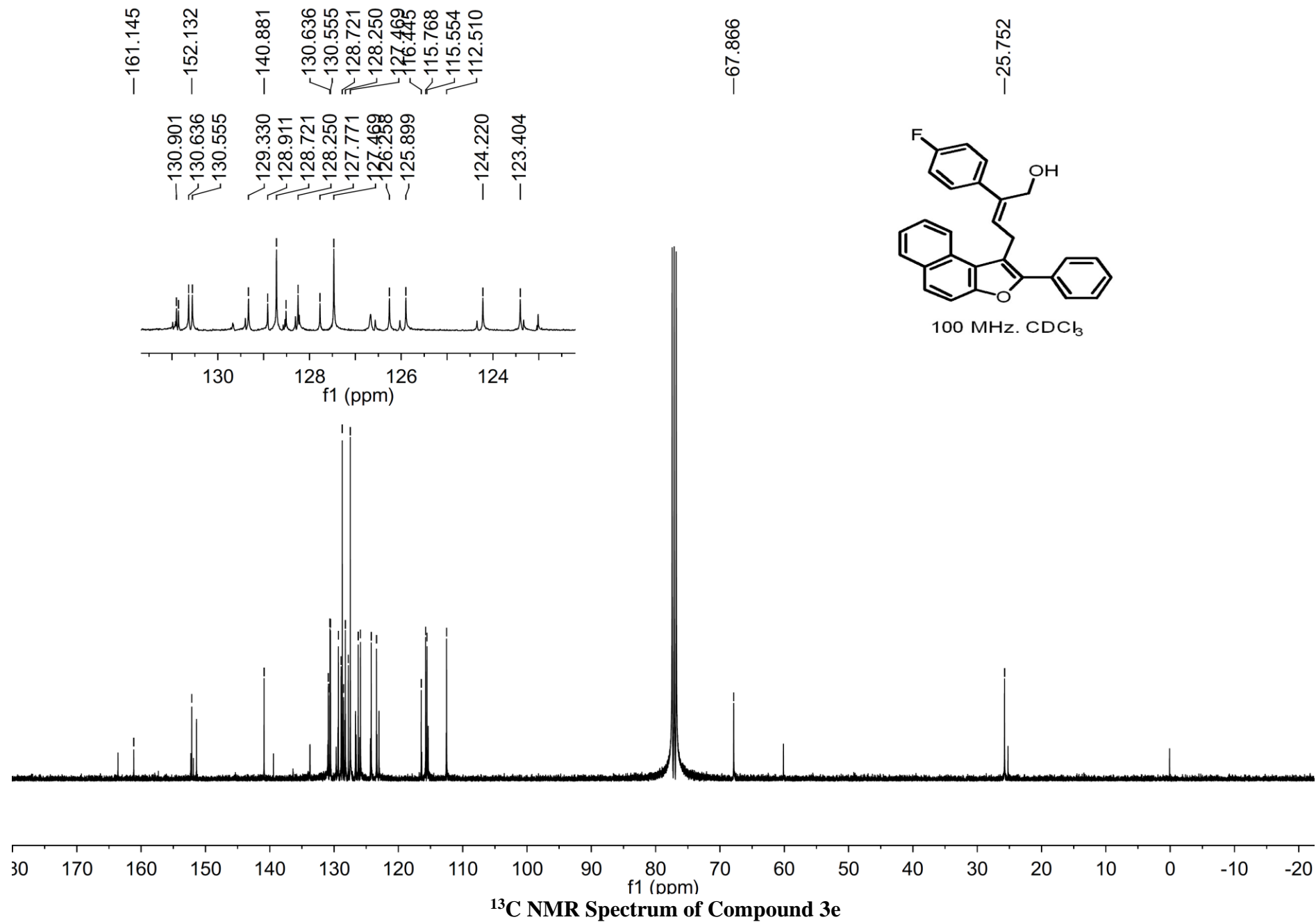


<sup>1</sup>H NMR Spectrum of Compound 3d  
S9

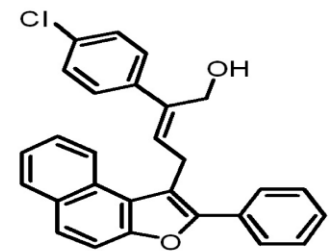
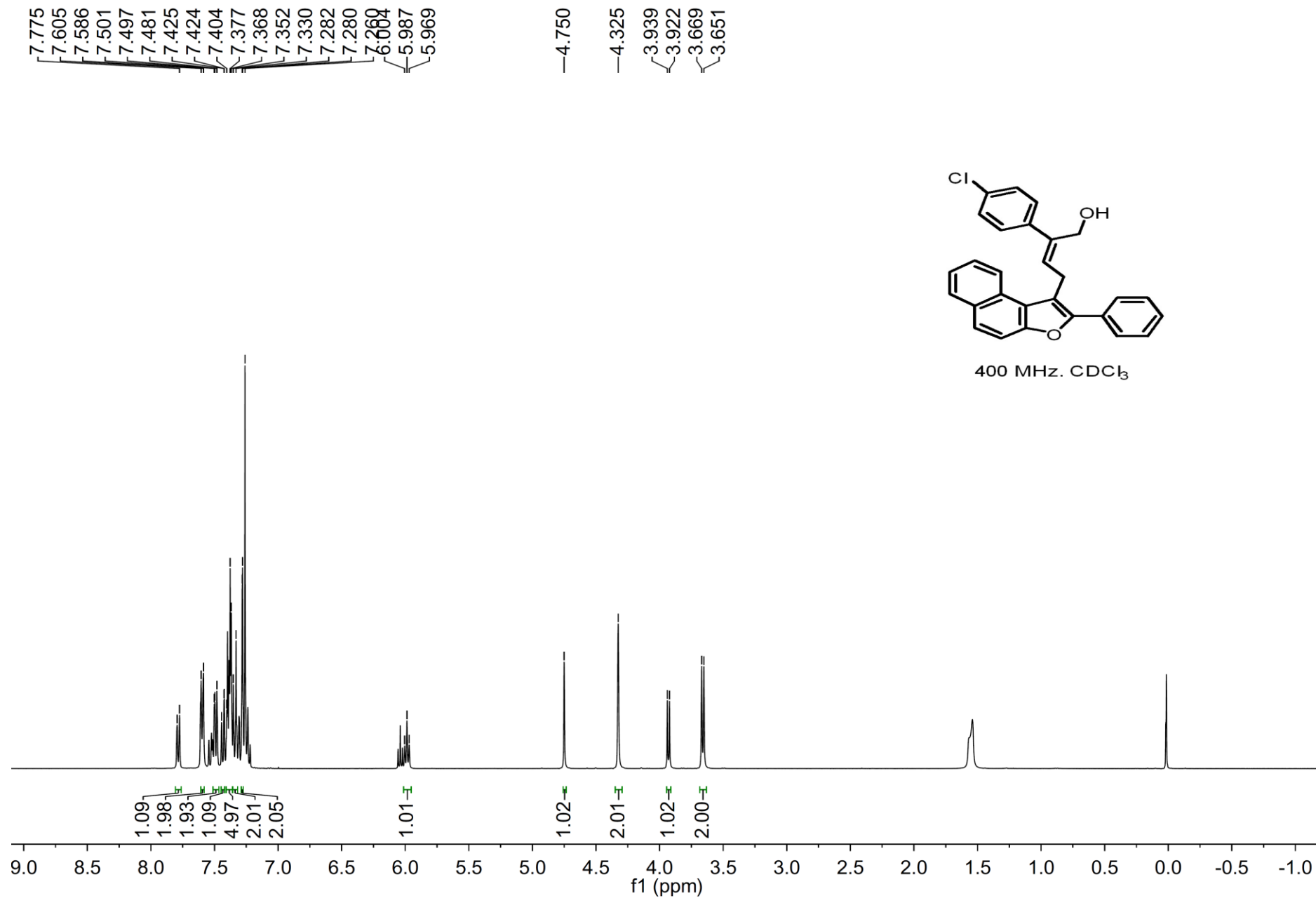




<sup>1</sup>H NMR Spectrum of Compound 3e

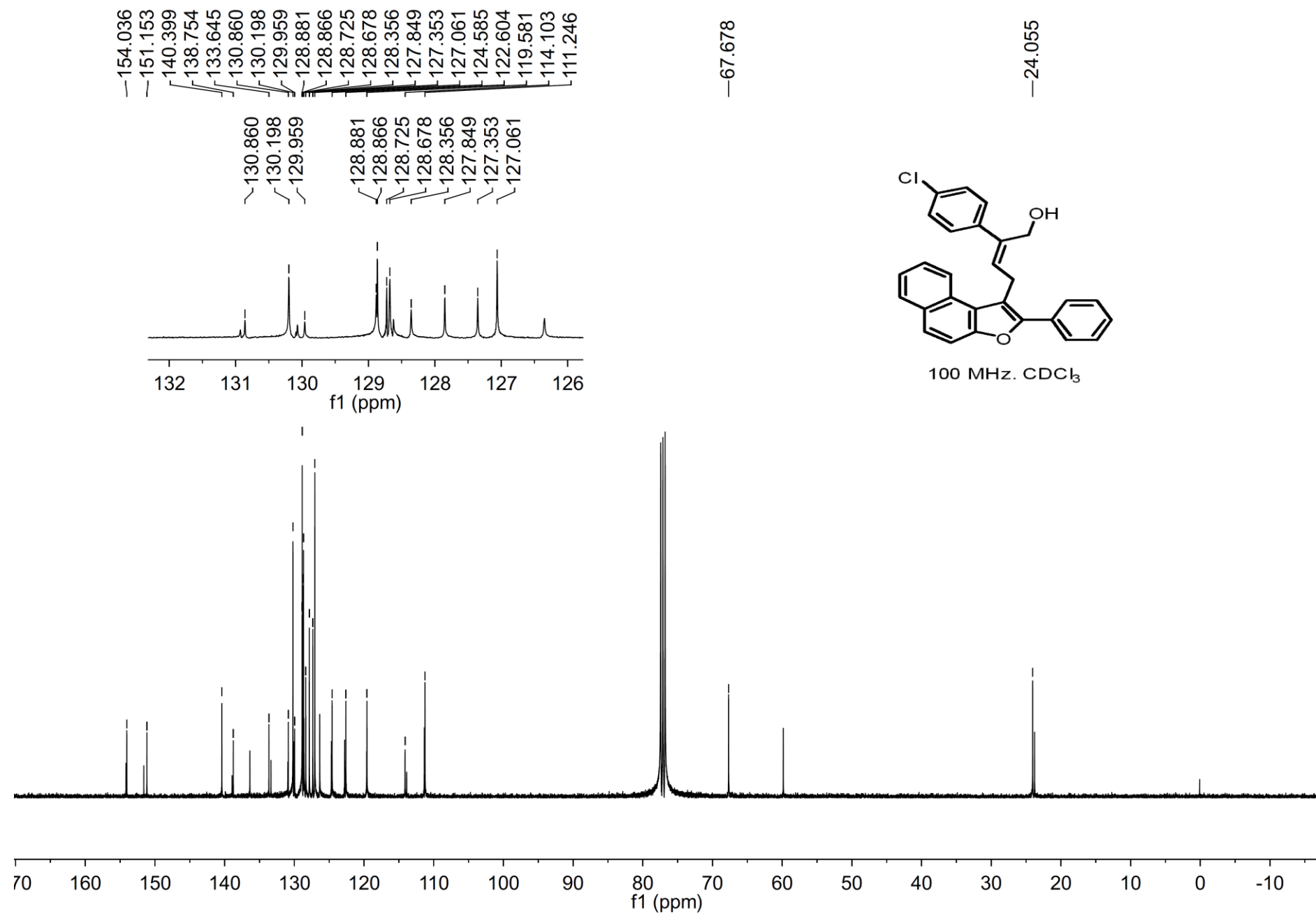




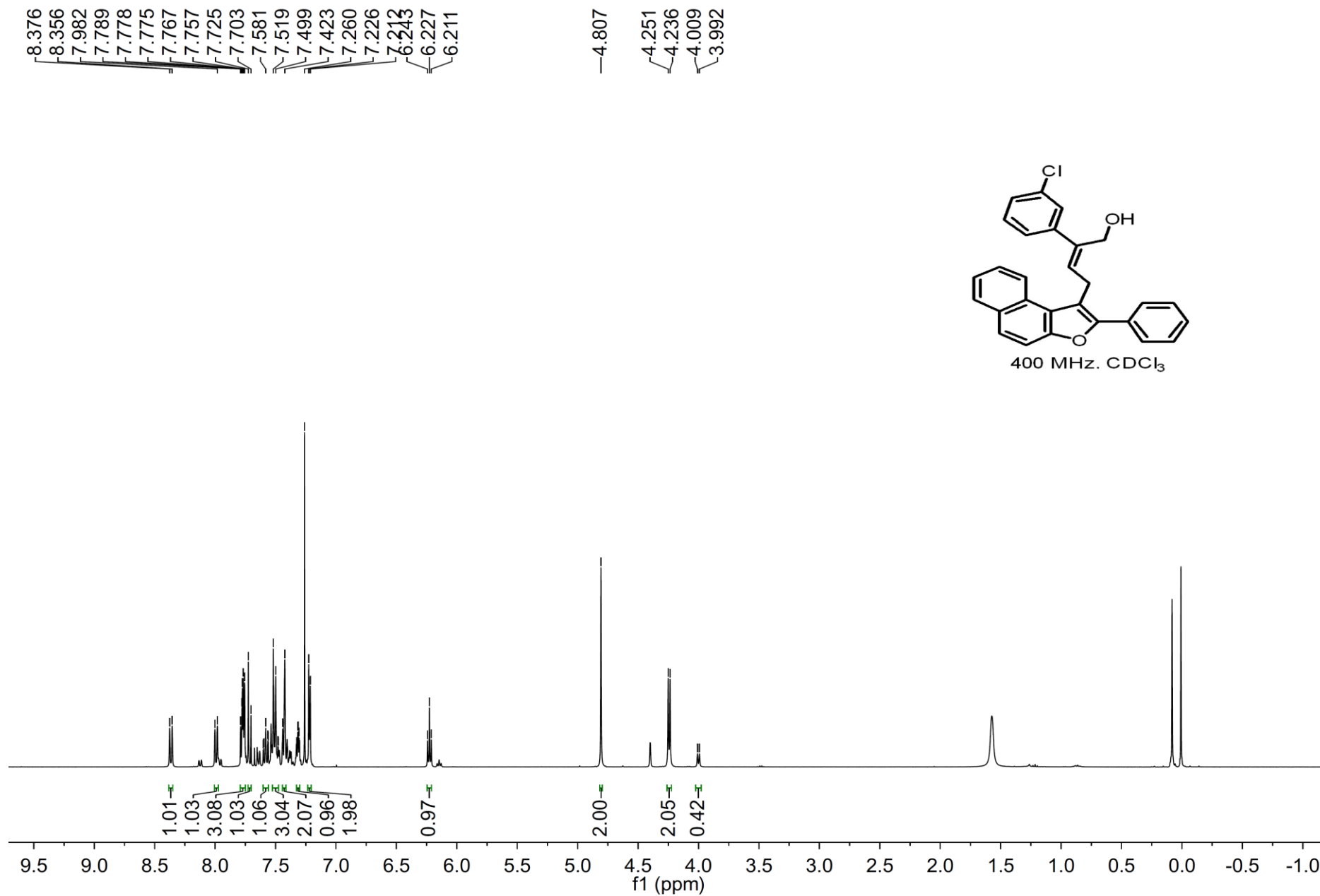


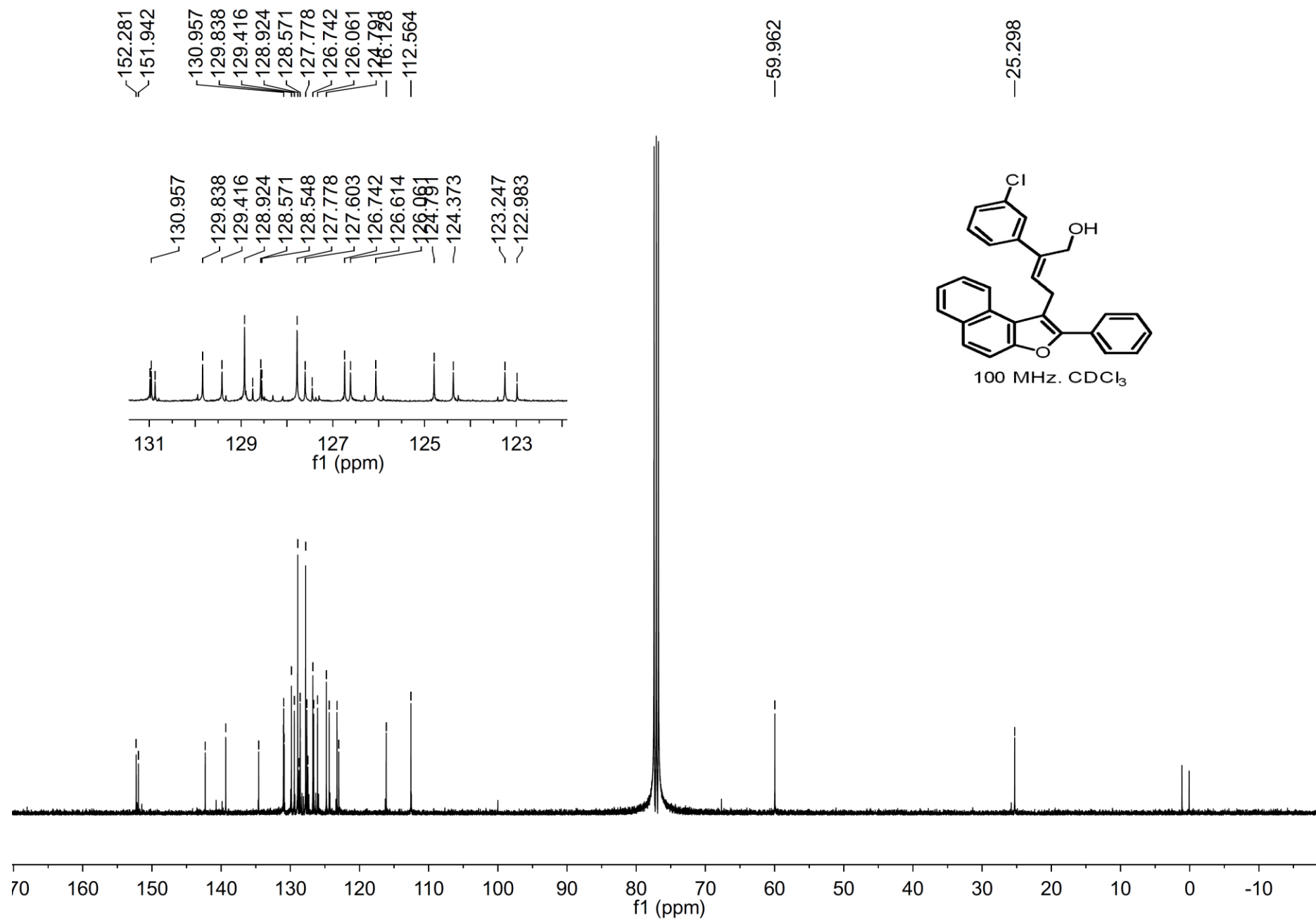
400 MHz. CDCl<sub>3</sub>

<sup>1</sup>H NMR Spectrum of Compound 3f

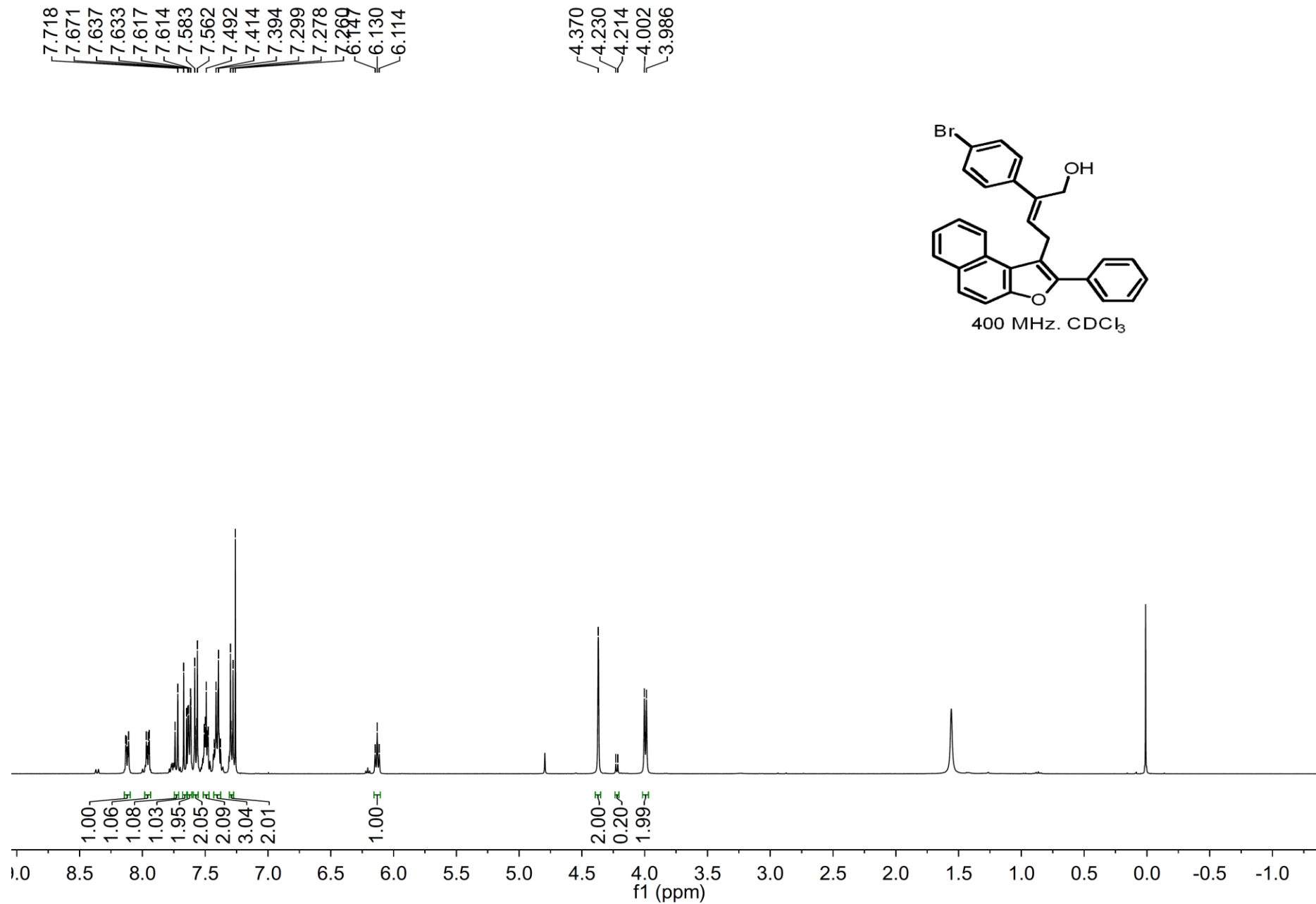


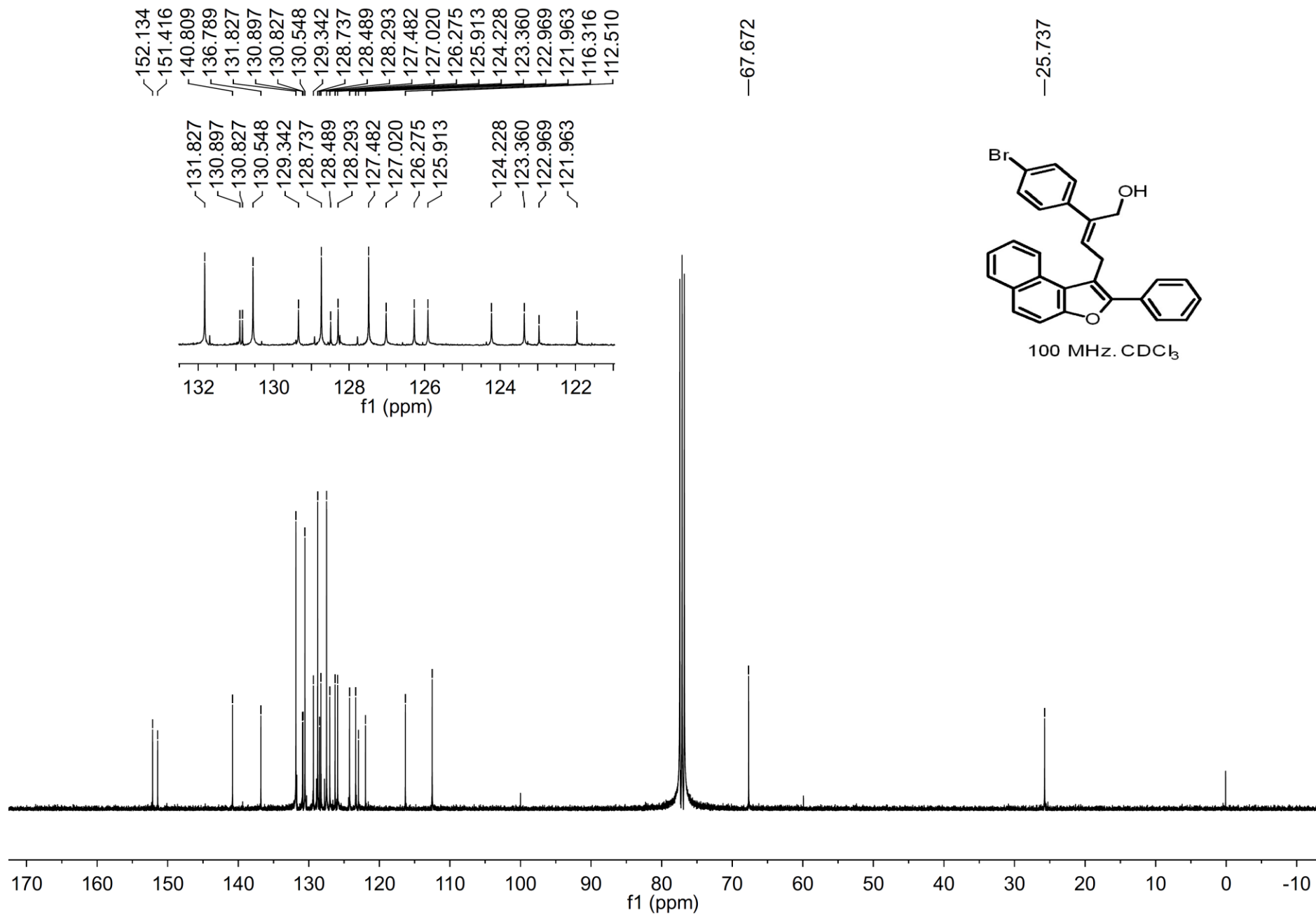
**<sup>13</sup>C NMR Spectrum of Compound 3f**



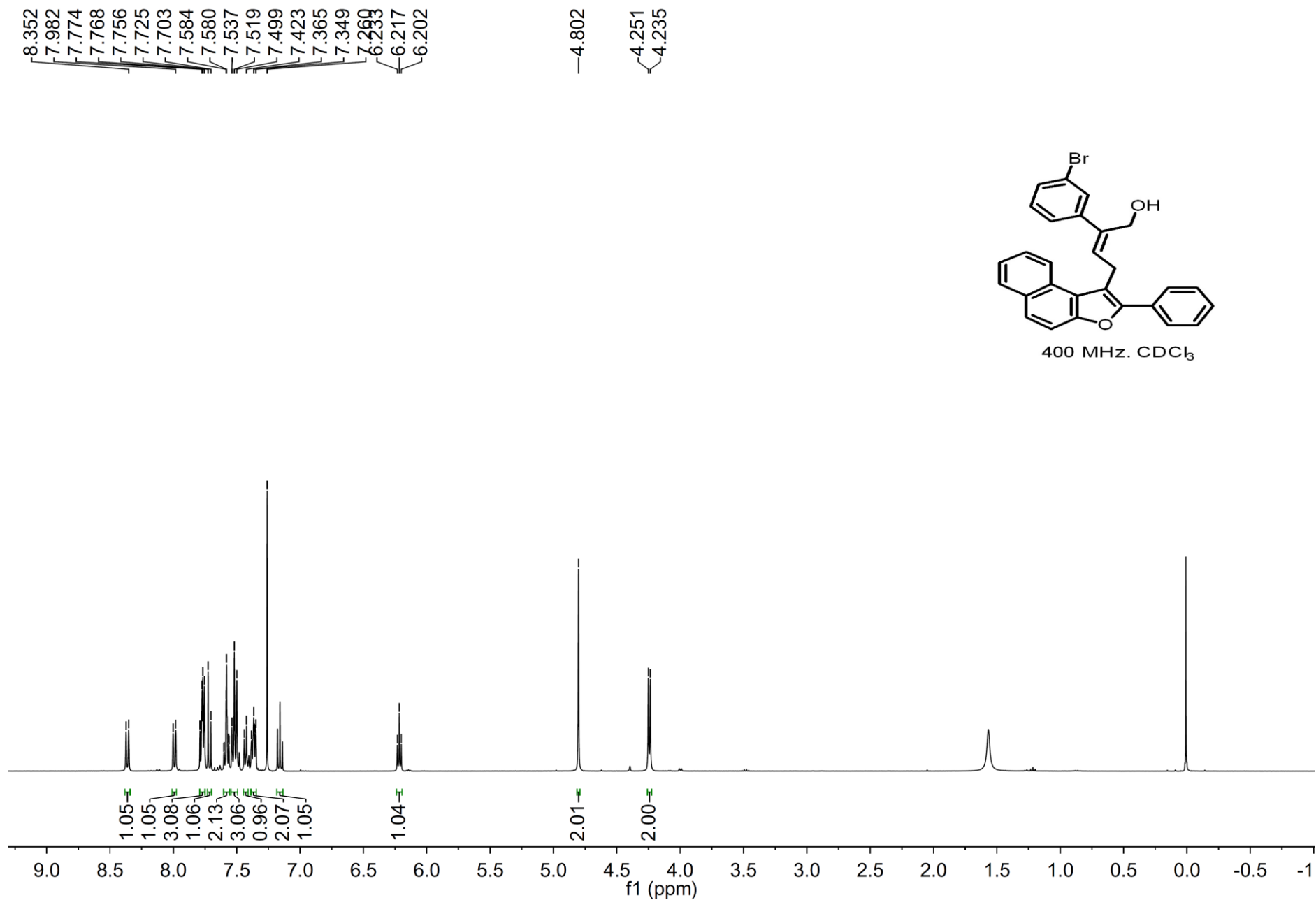


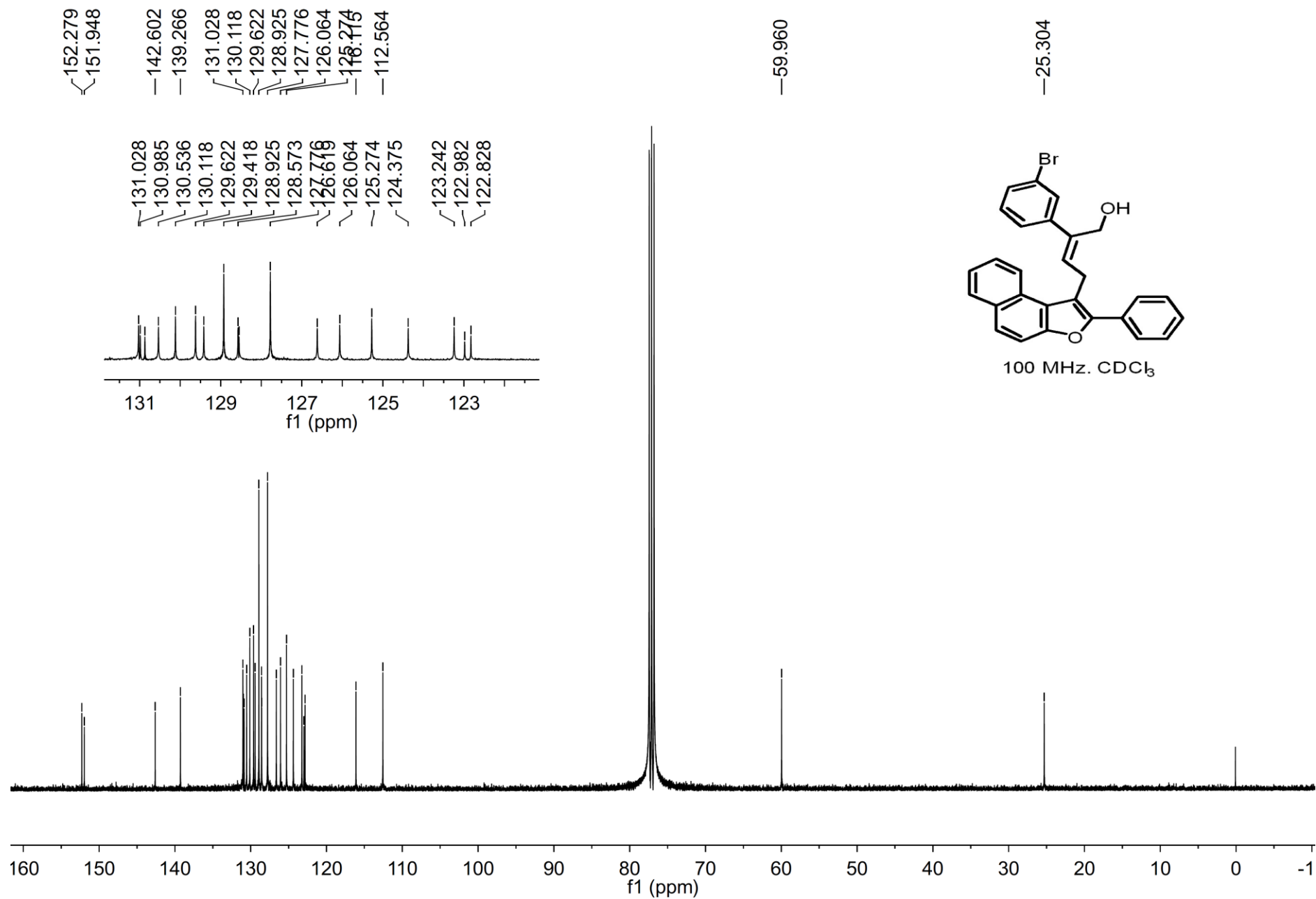
**<sup>13</sup>C NMR Spectrum of Compound 3g**  
S16



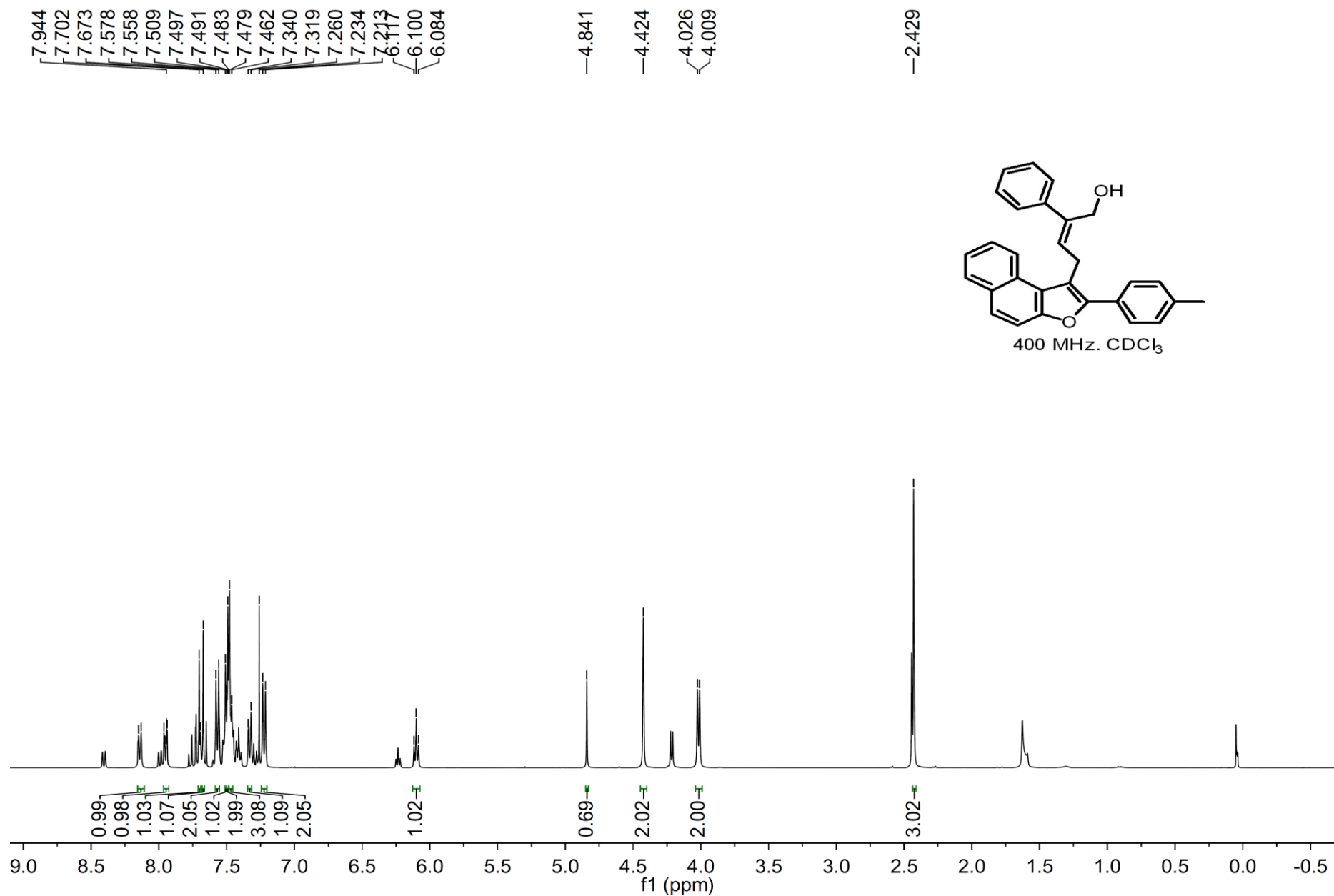


**<sup>13</sup>C NMR Spectrum of Compound 3h**

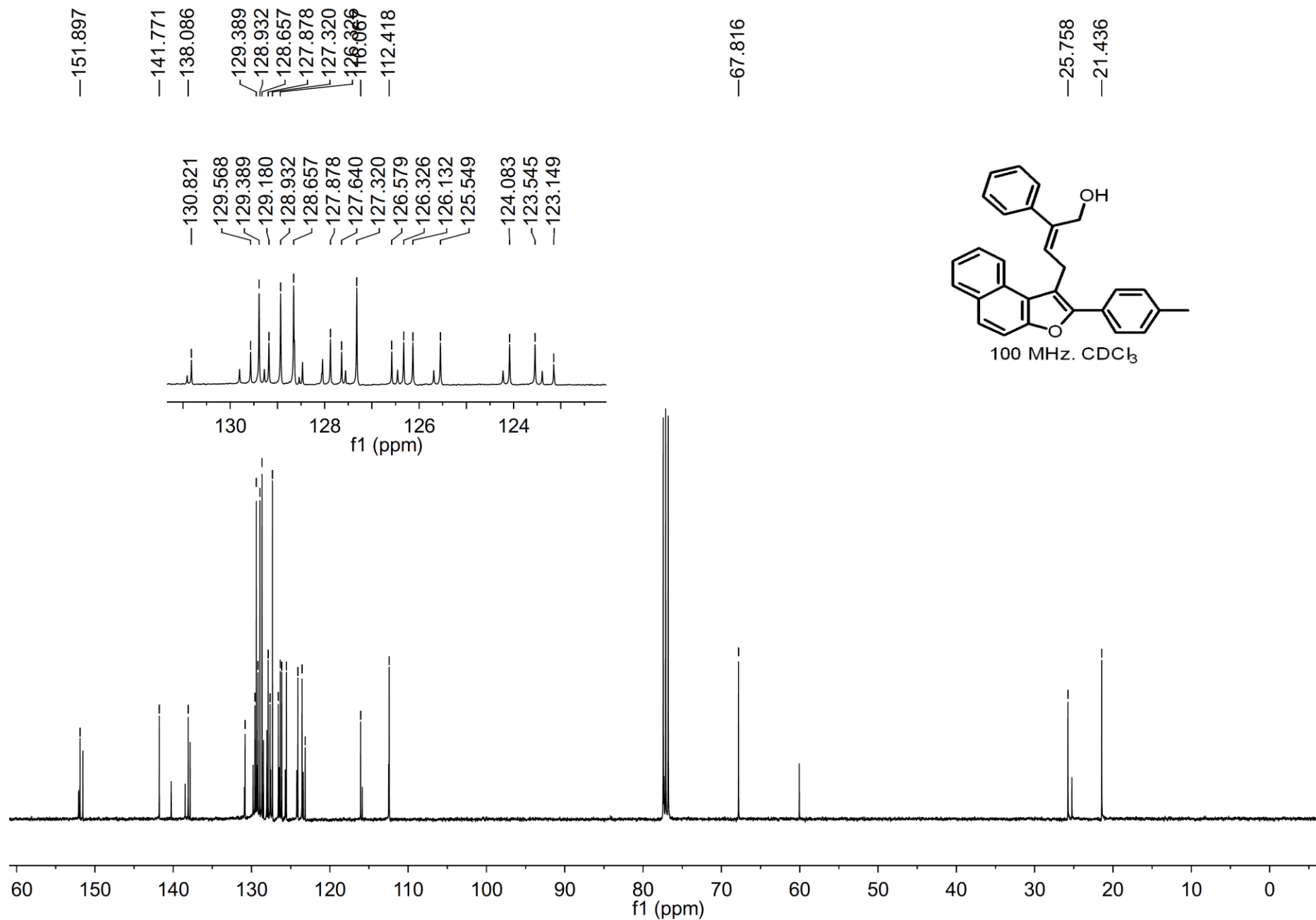




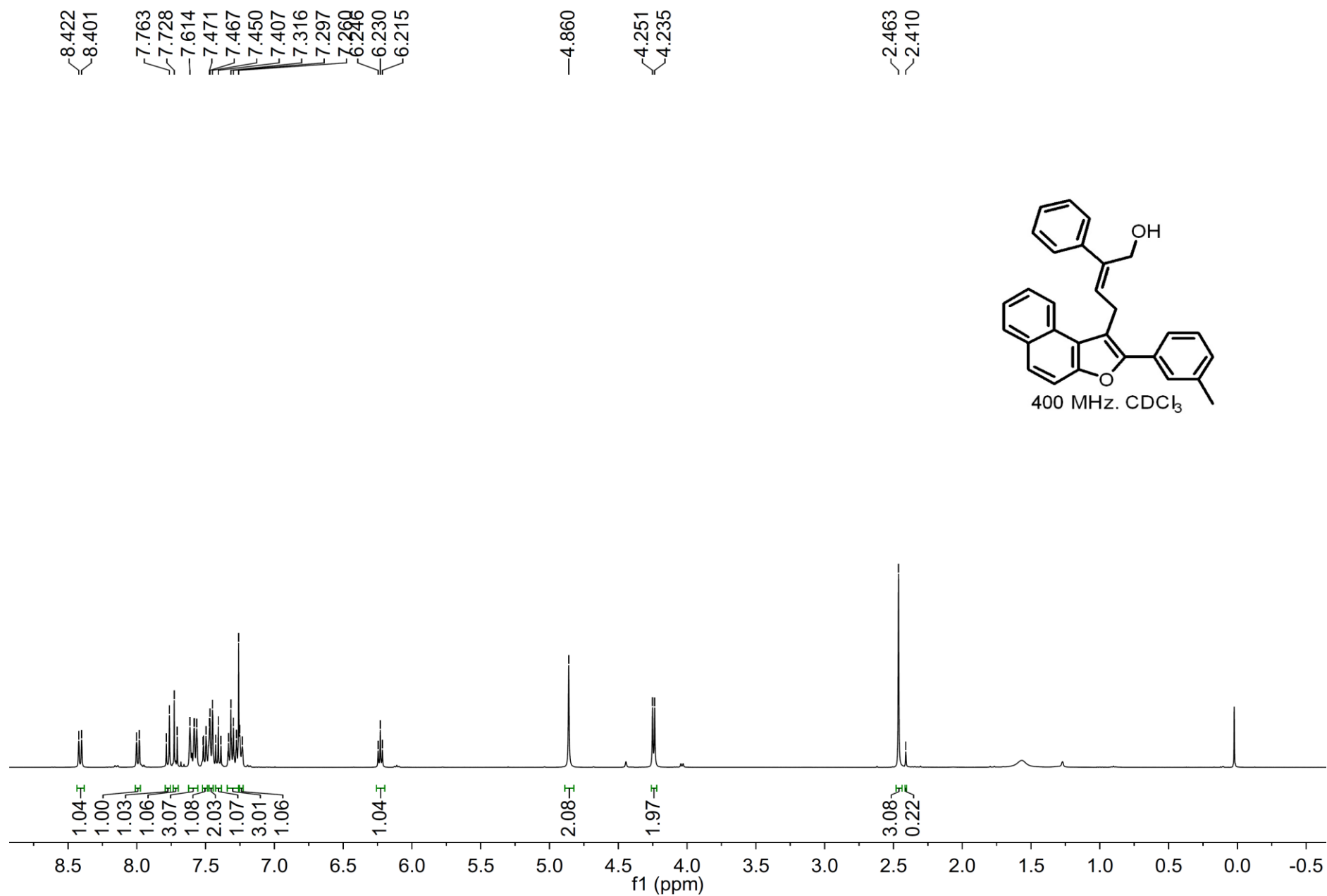




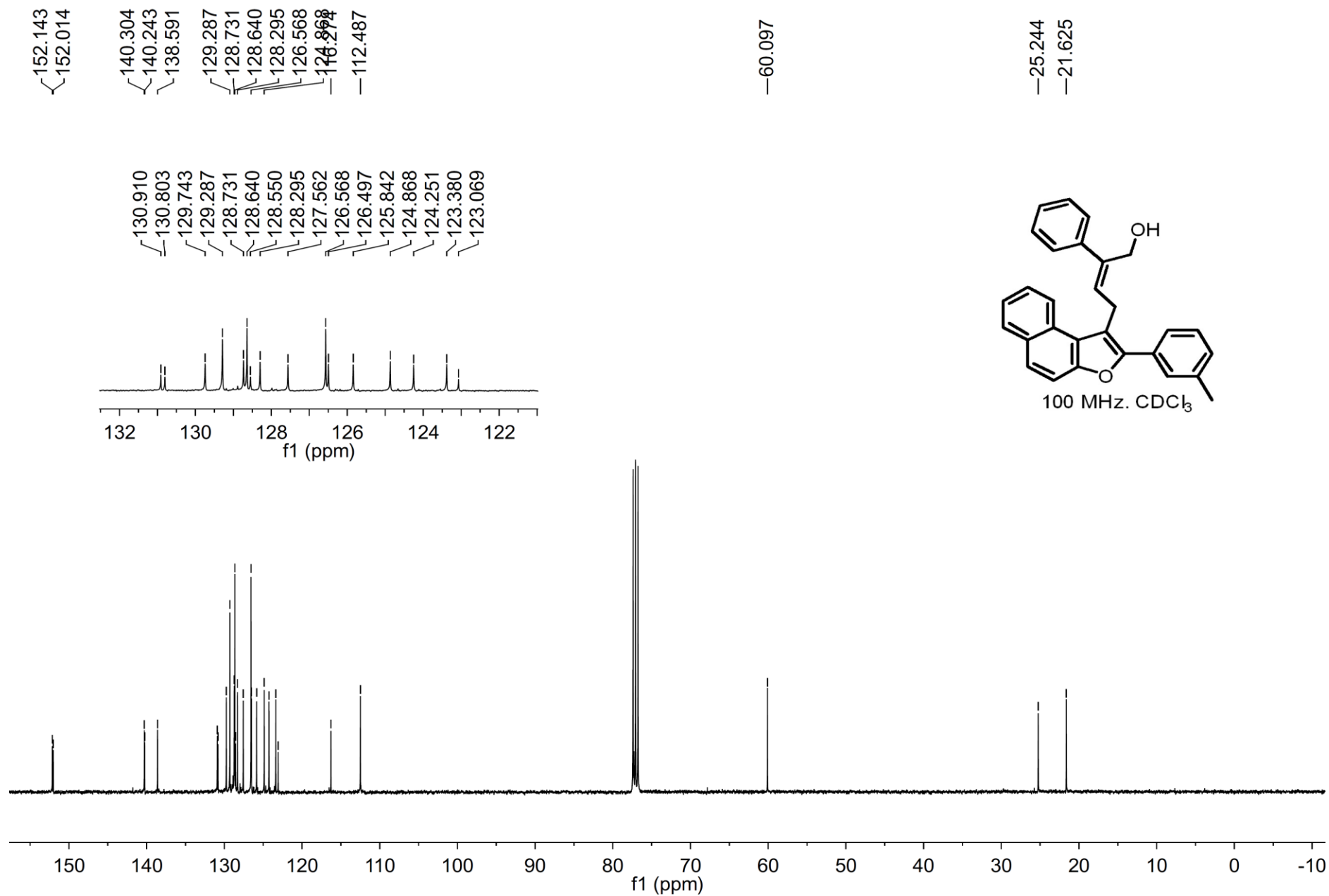
**<sup>1</sup>H NMR Spectrum of Compound 3j**

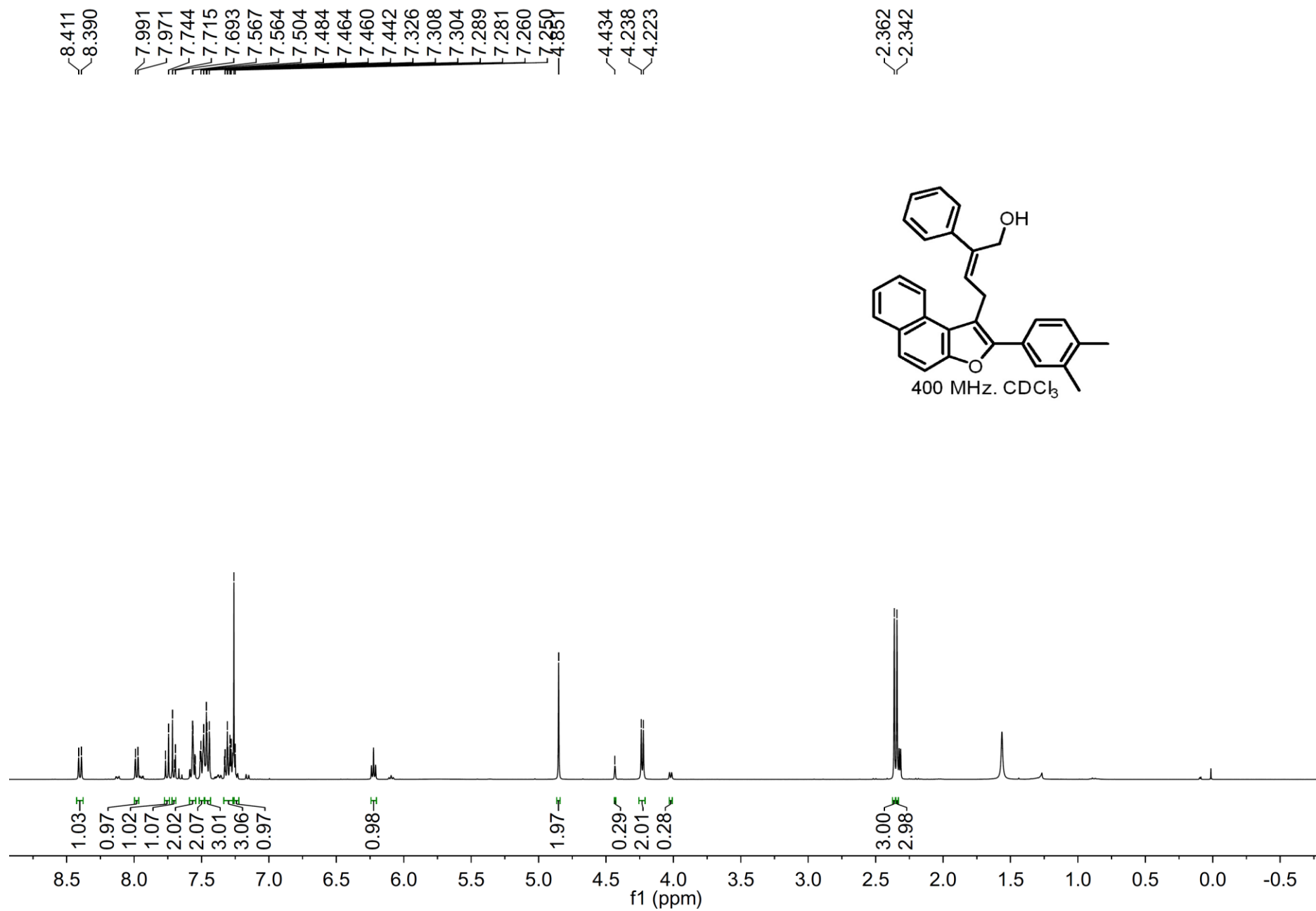


**<sup>13</sup>C NMR Spectrum of Compound 3j**

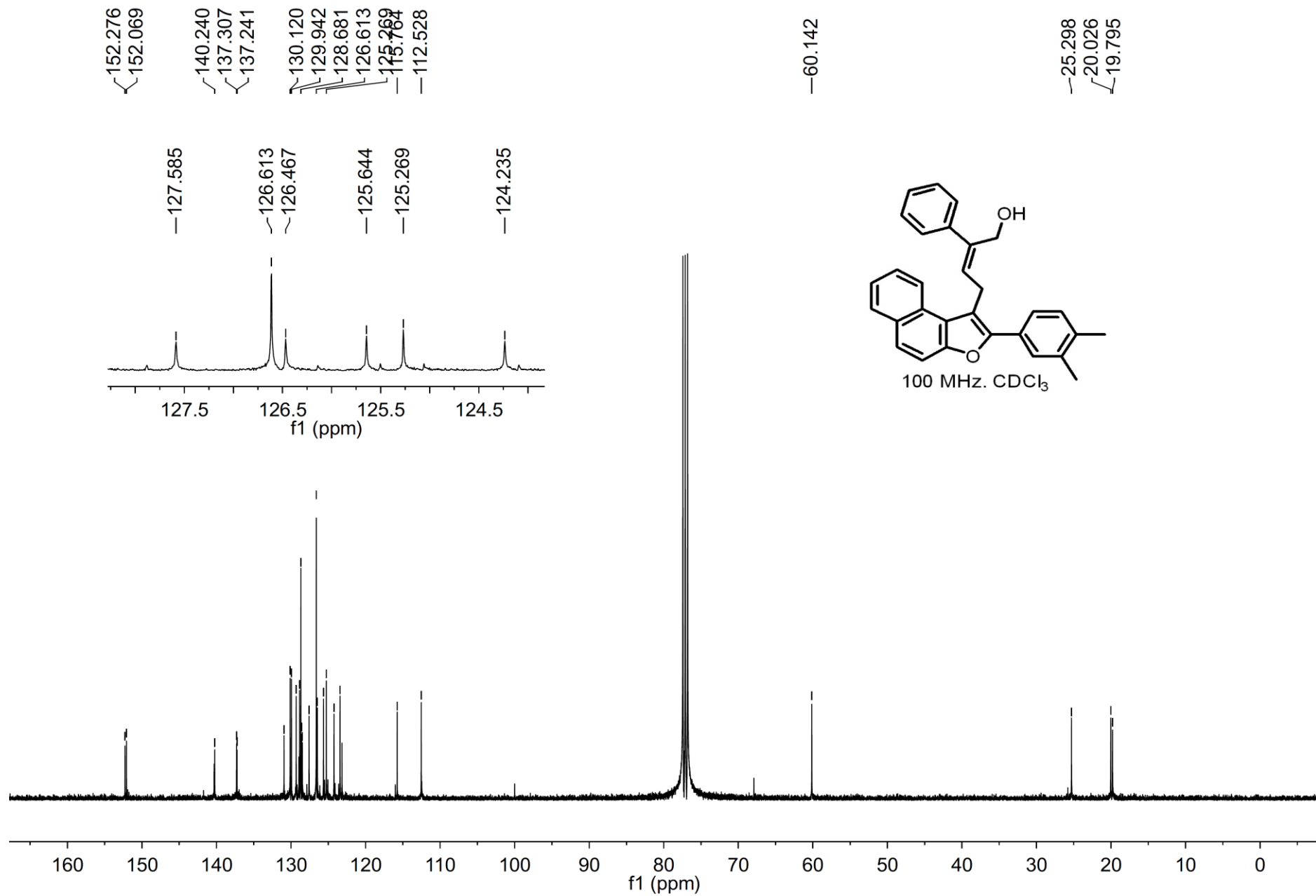


**<sup>1</sup>H NMR Spectrum of Compound 3k**

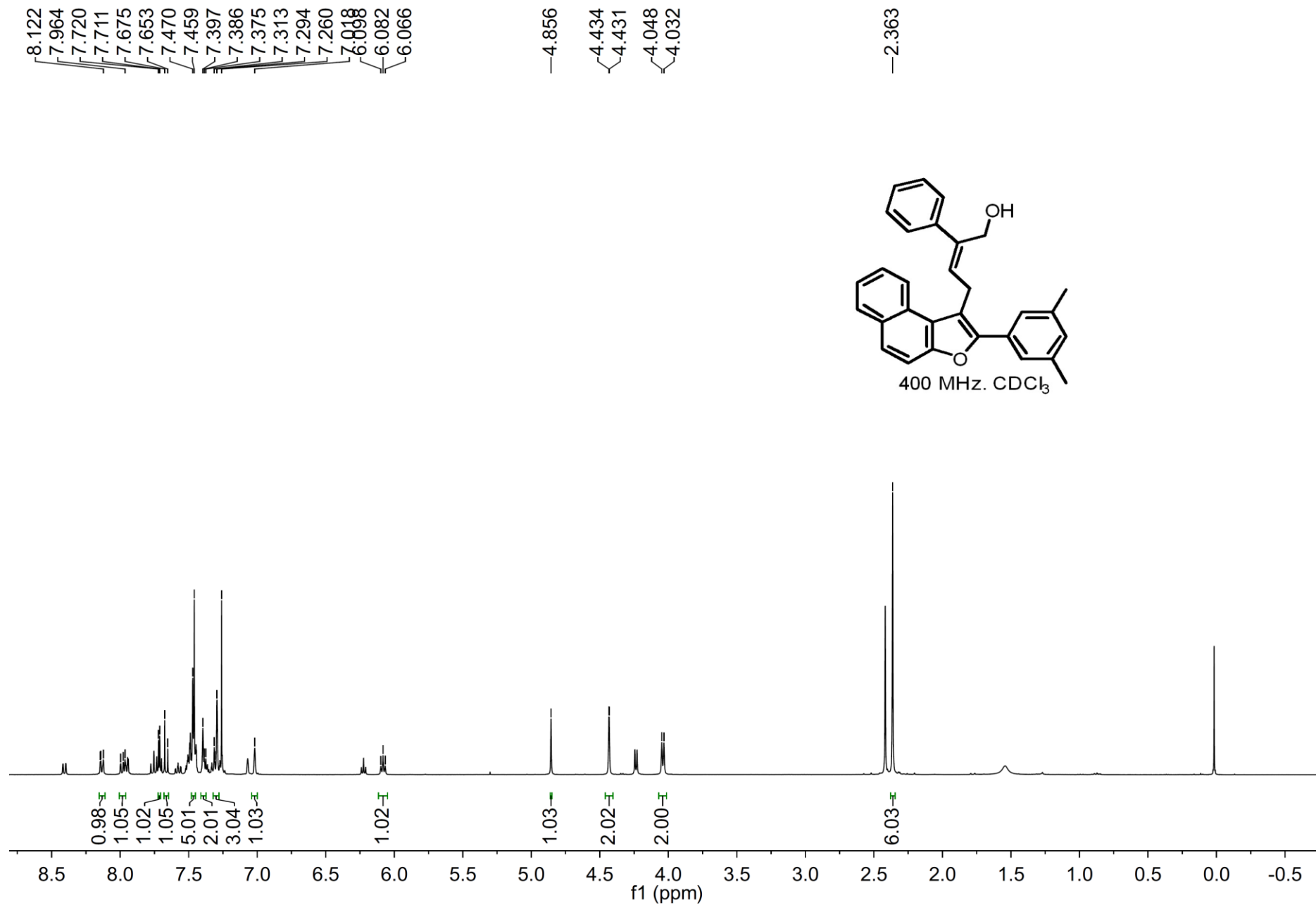




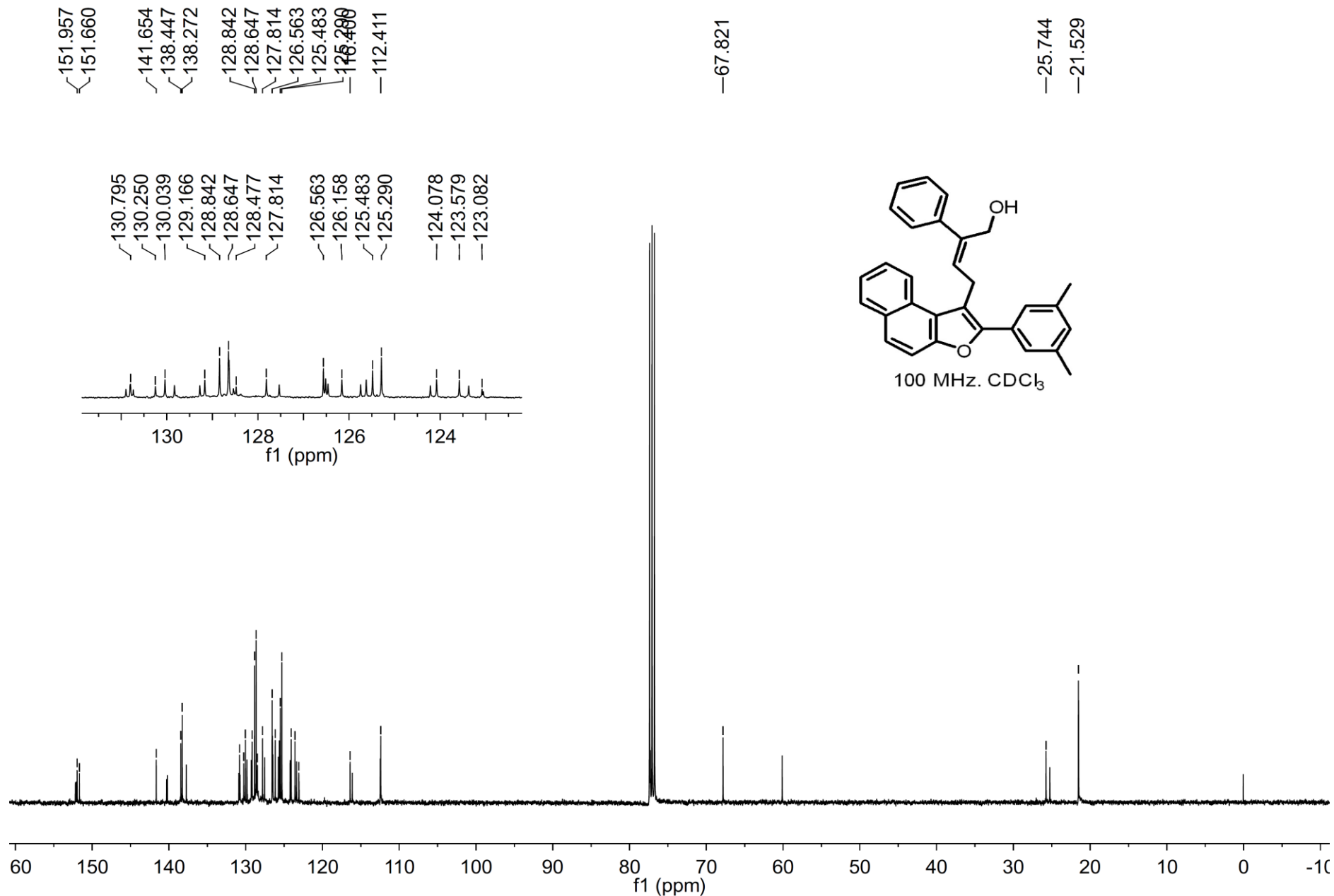
<sup>1</sup>H NMR Spectrum of Compound 31



$^{13}\text{C}$  NMR Spectrum of Compound 3l

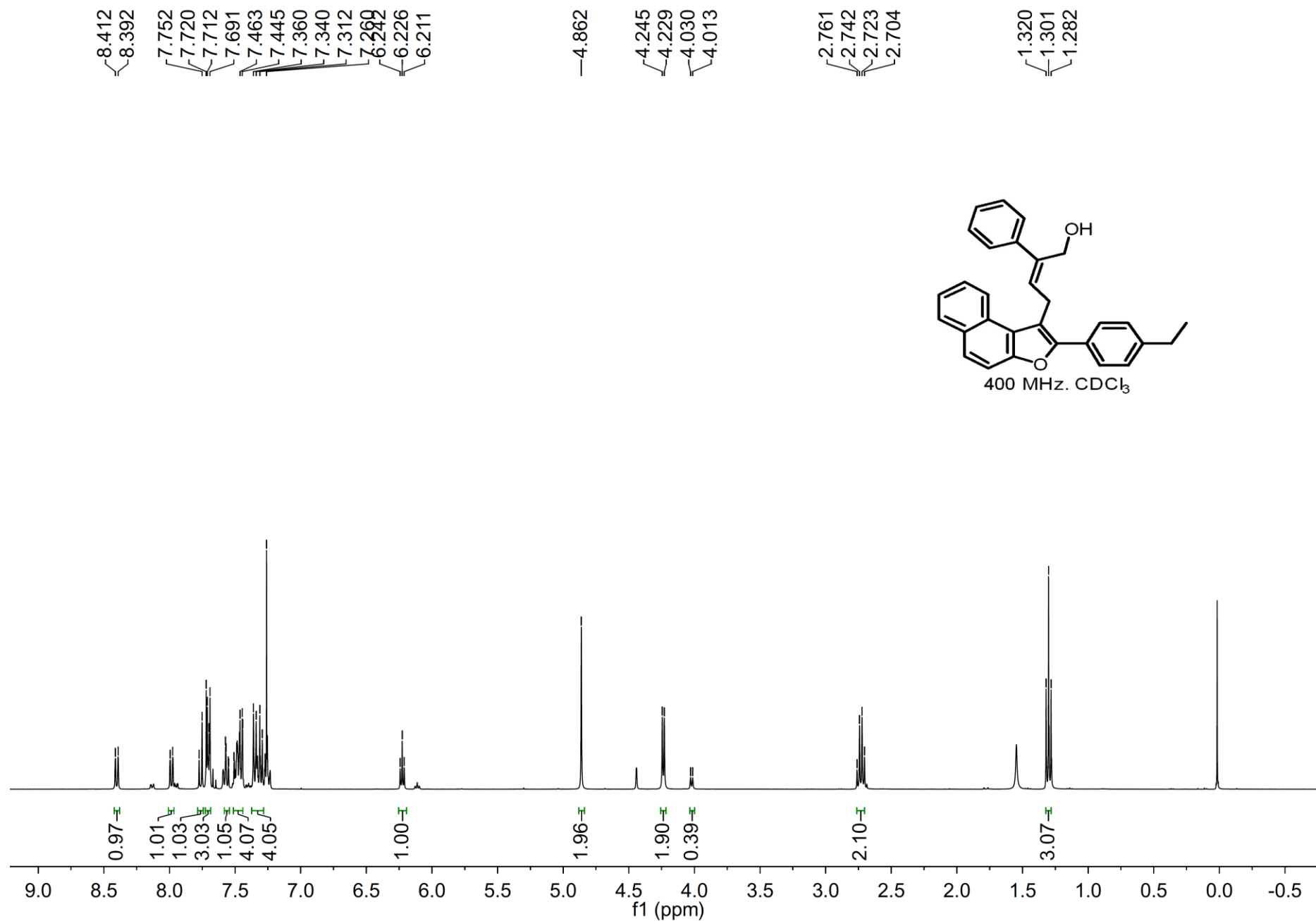


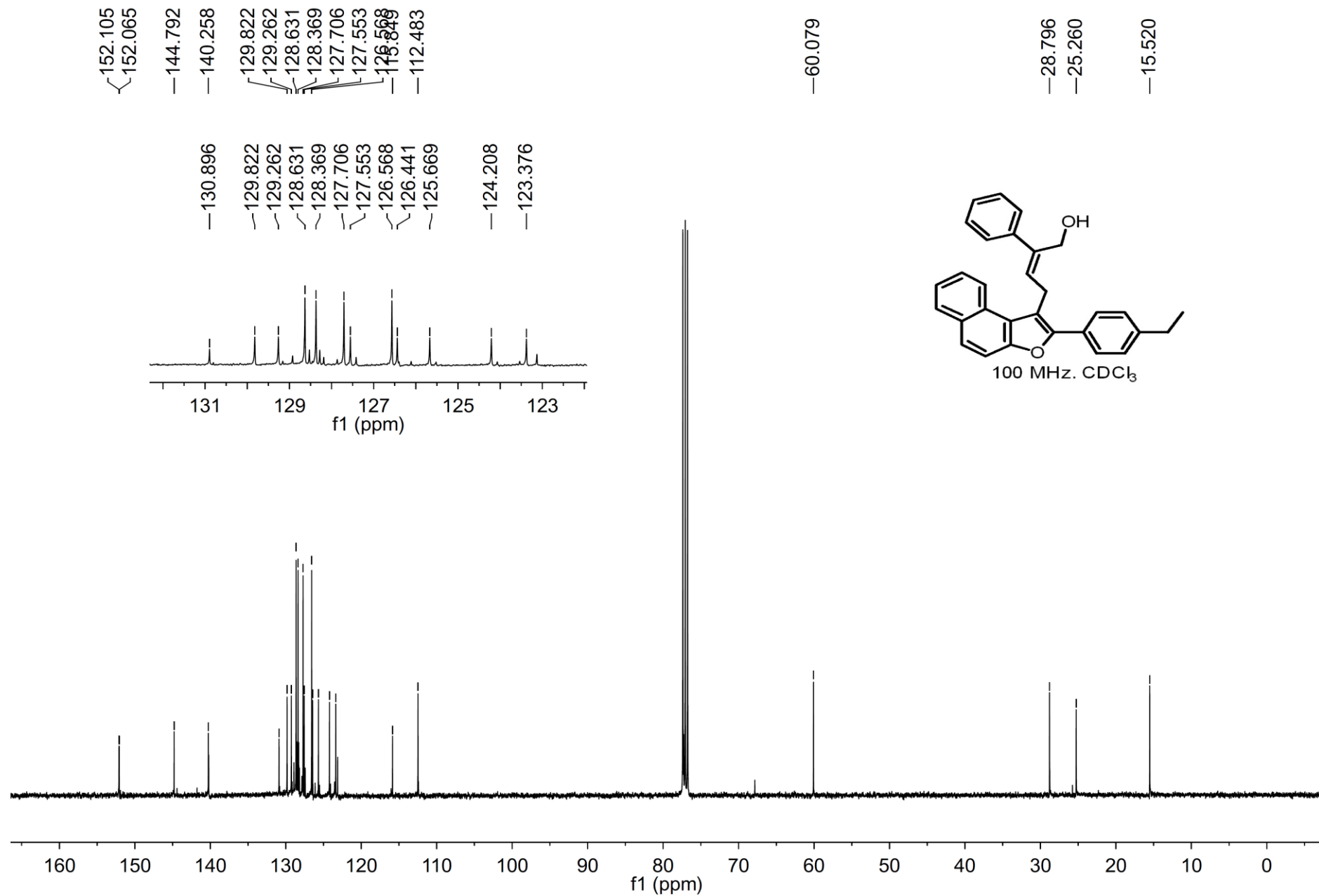
**<sup>1</sup>H NMR Spectrum of Compound 3m**



**<sup>13</sup>C NMR Spectrum of Compound 3m**

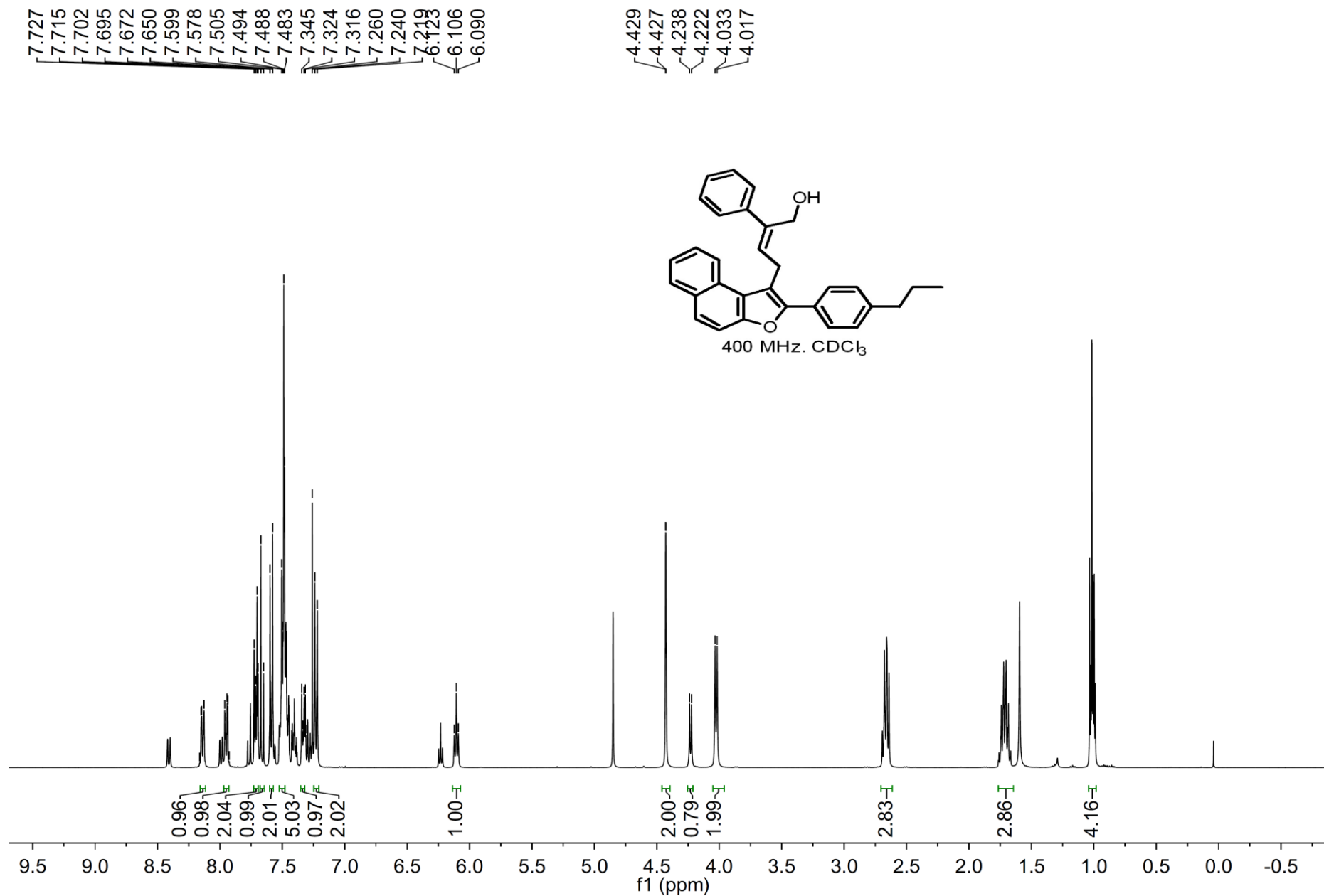


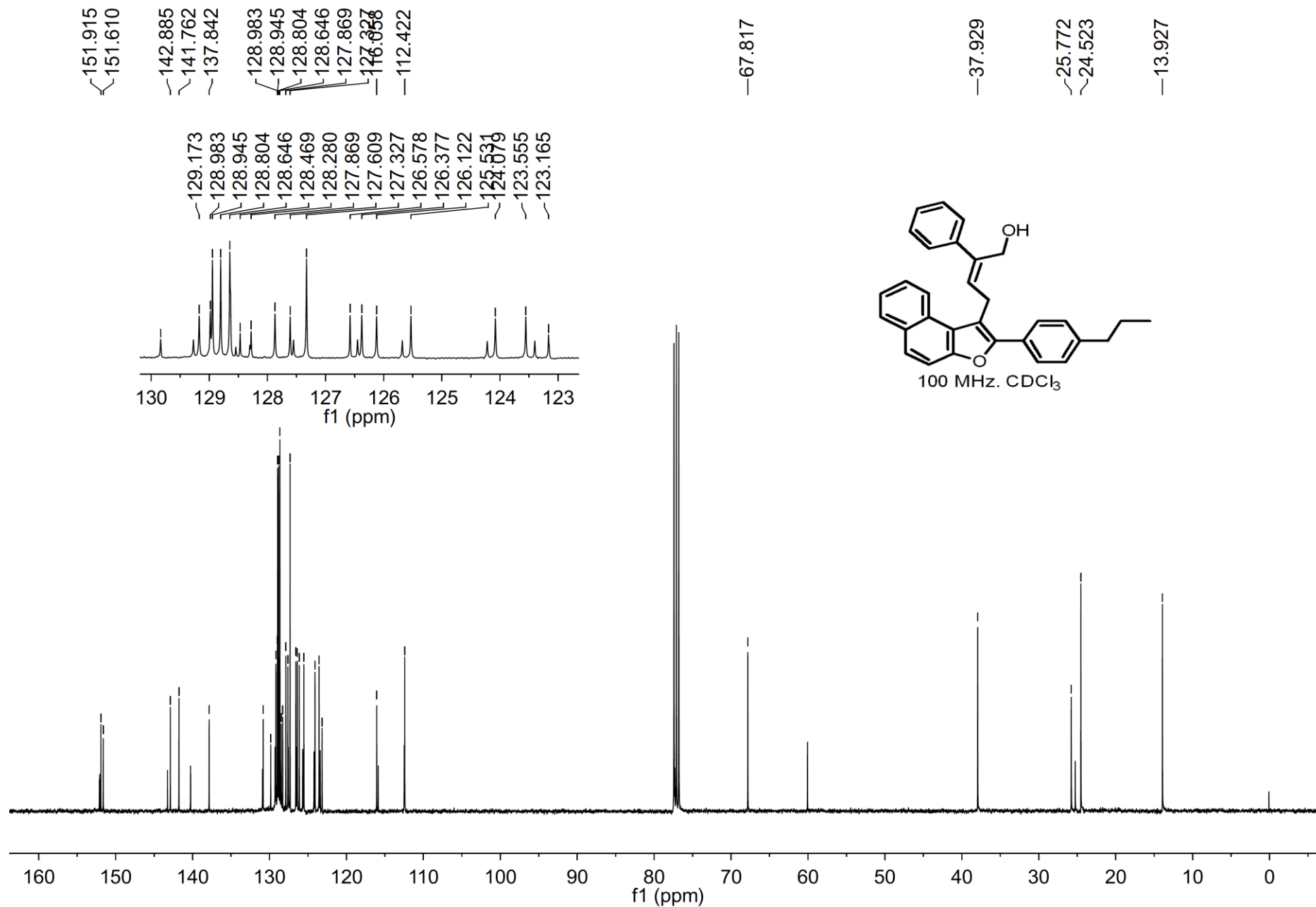




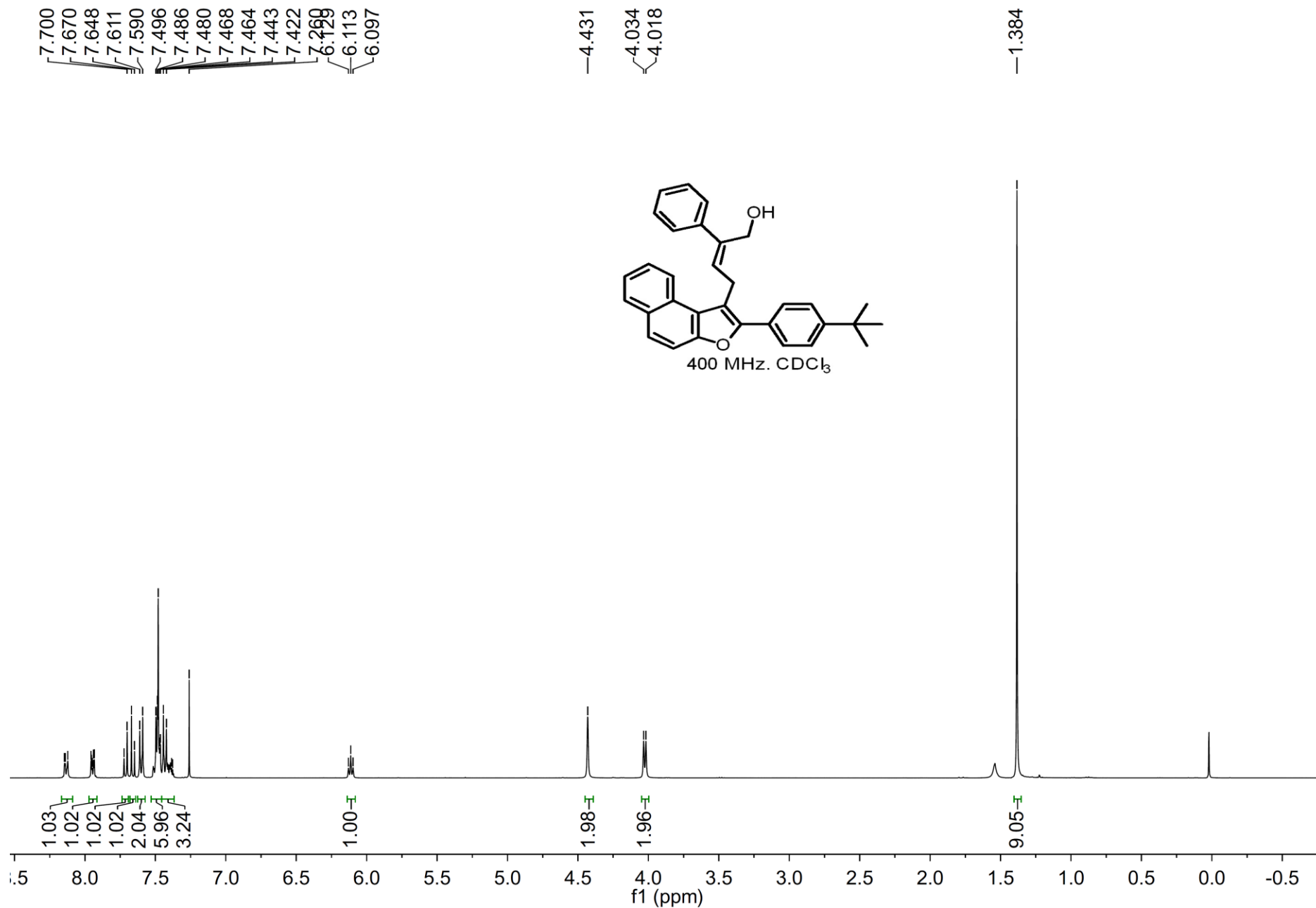
**<sup>13</sup>C NMR Spectrum of Compound 3n**

S30

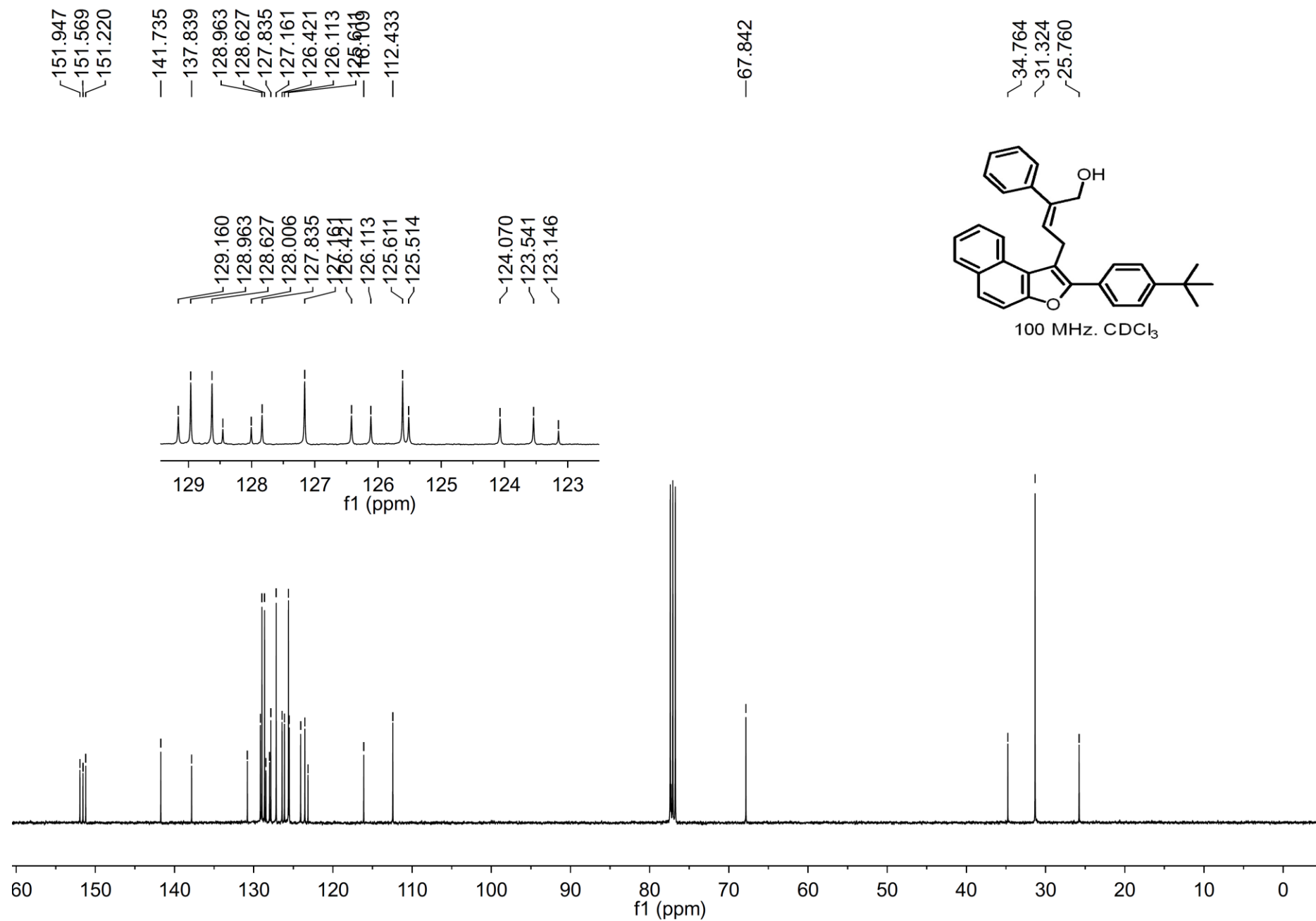




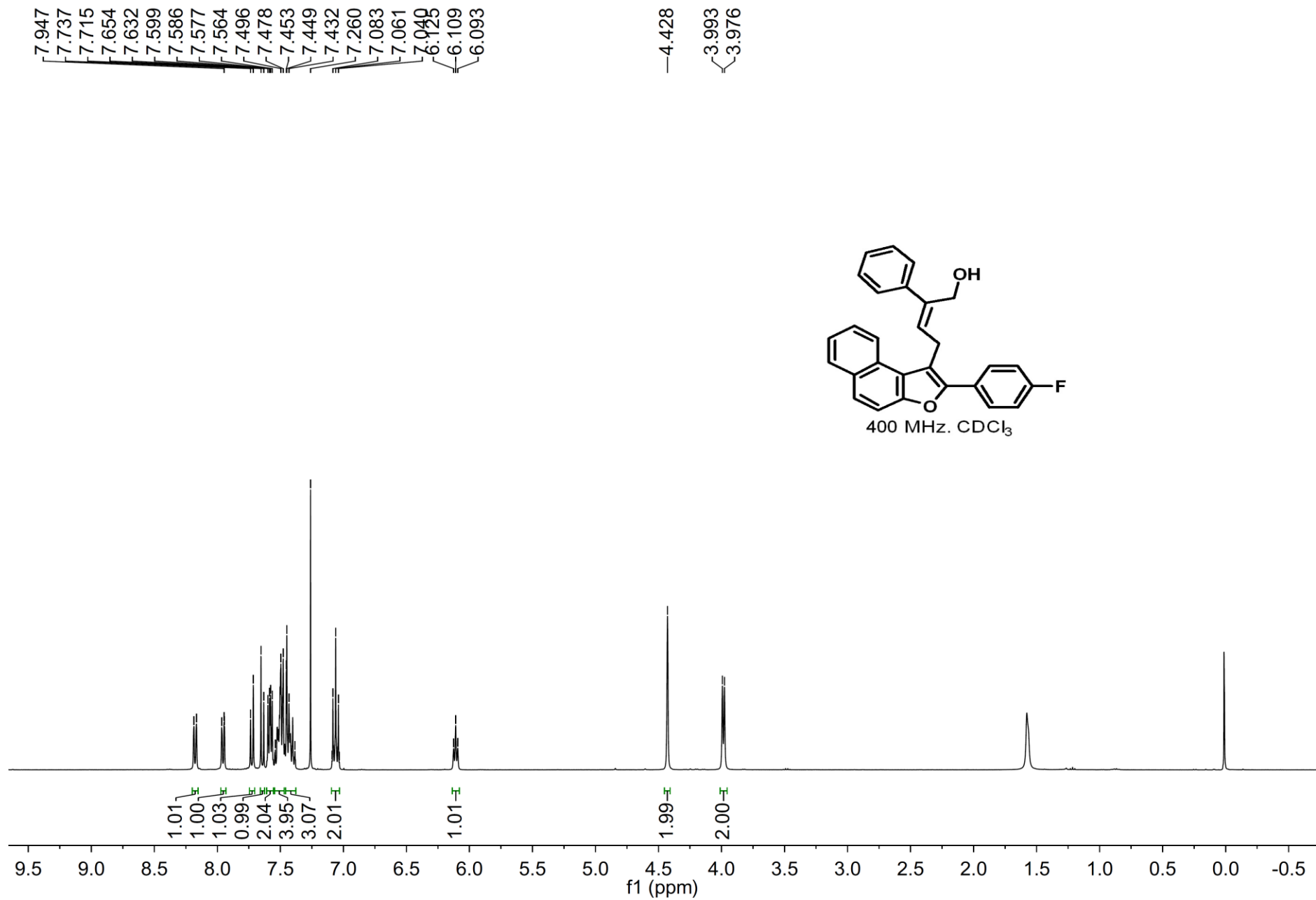
**<sup>13</sup>C NMR Spectrum of Compound 3o**



**<sup>1</sup>H NMR Spectrum of Compound 3p**

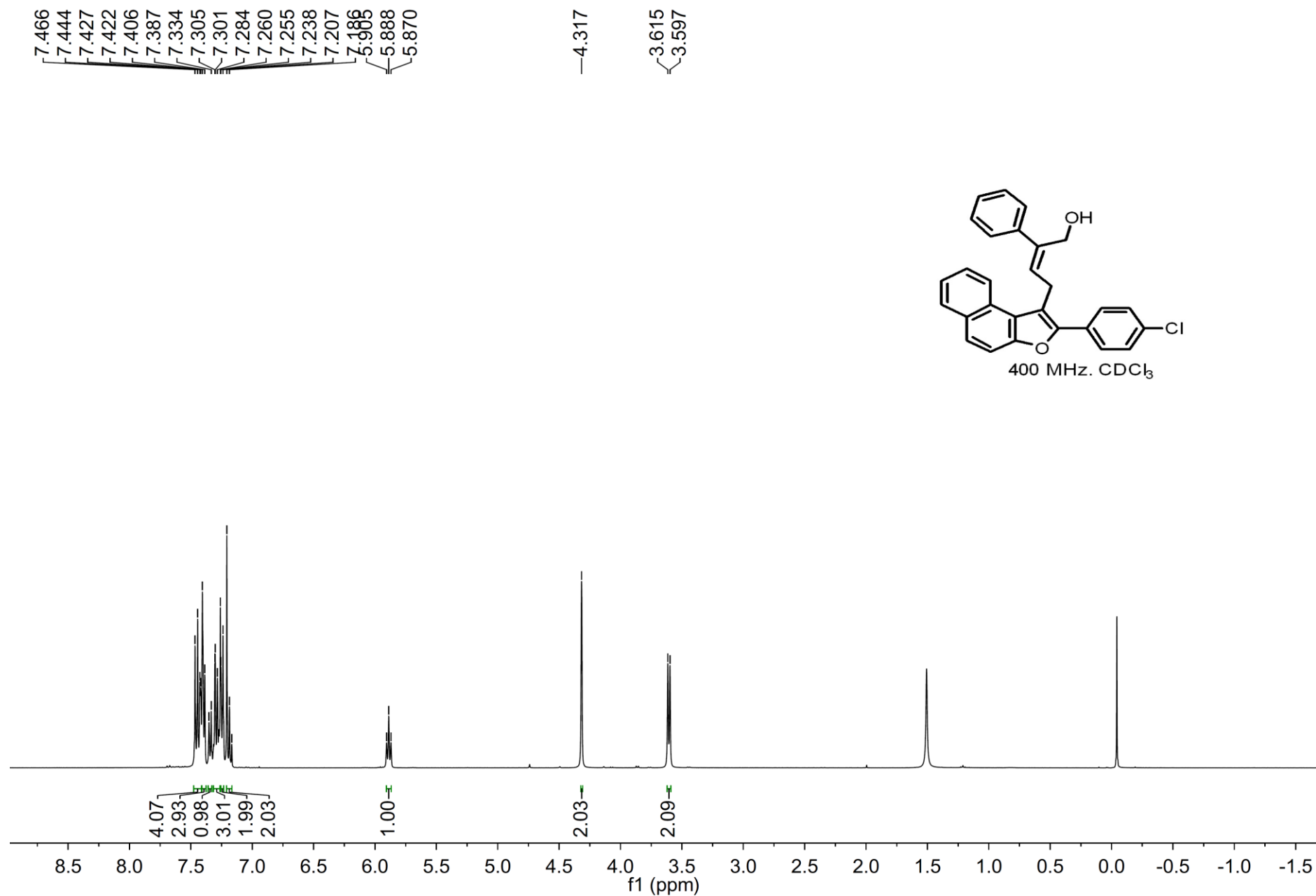


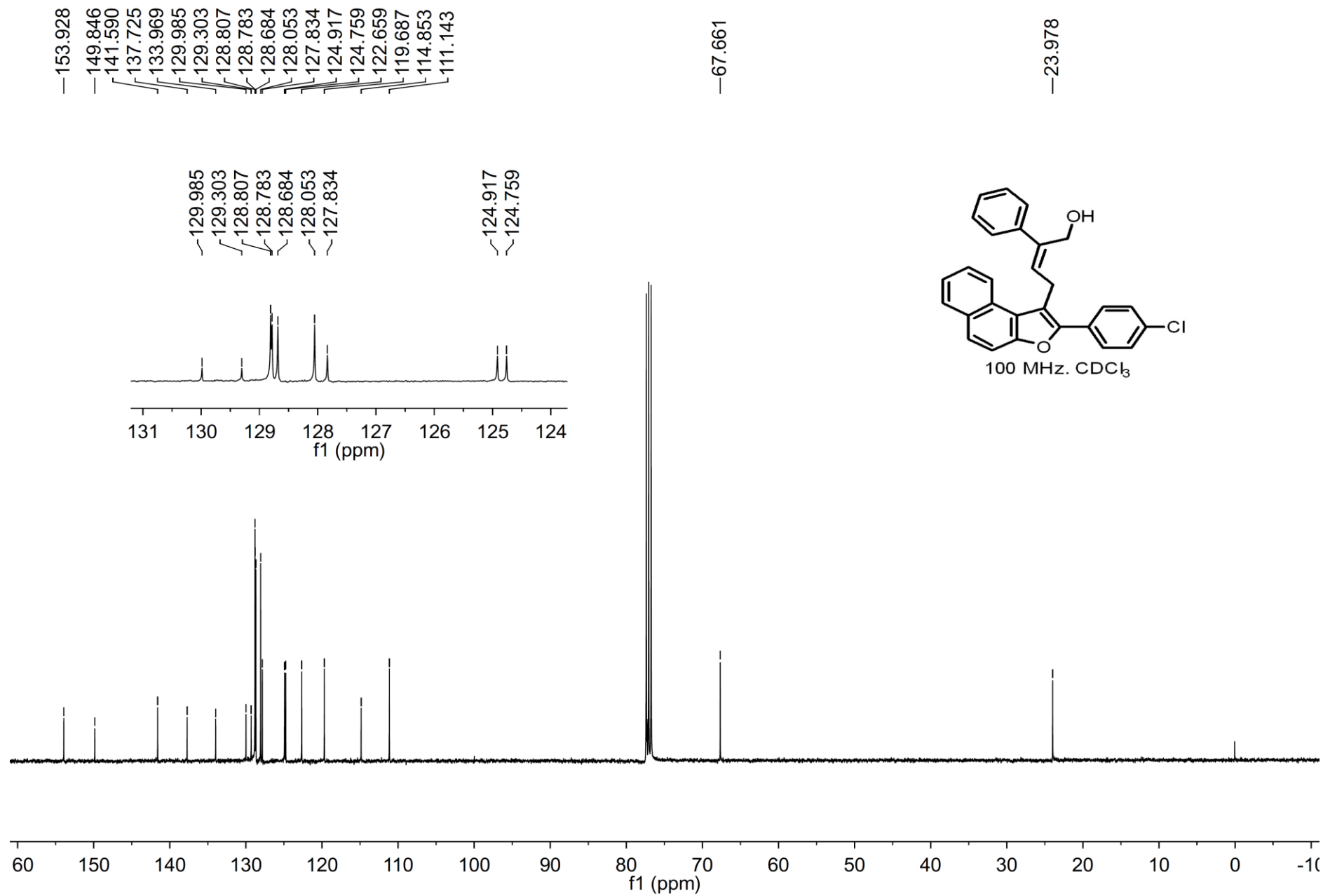
**<sup>13</sup>C NMR Spectrum of Compound 3p**

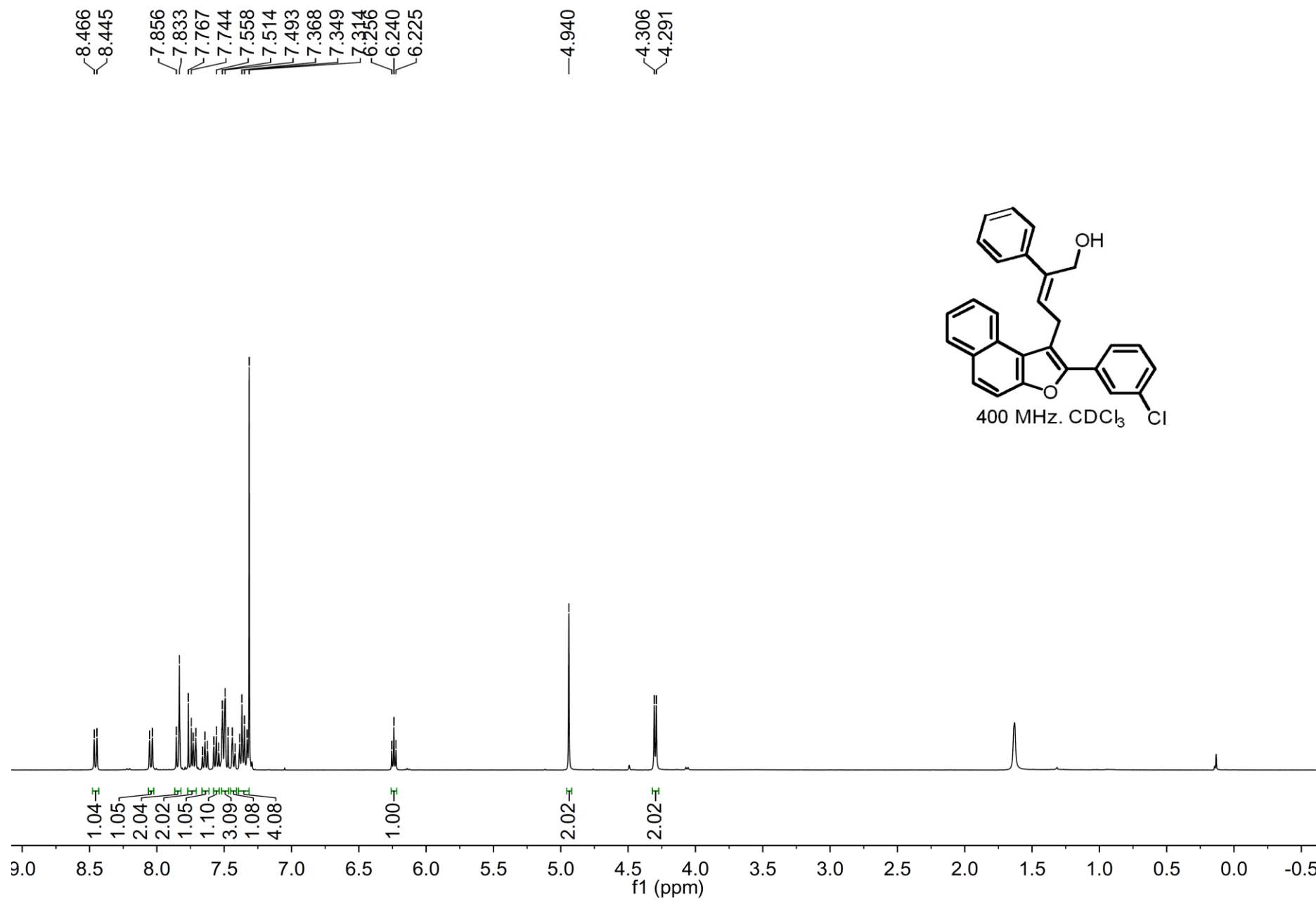






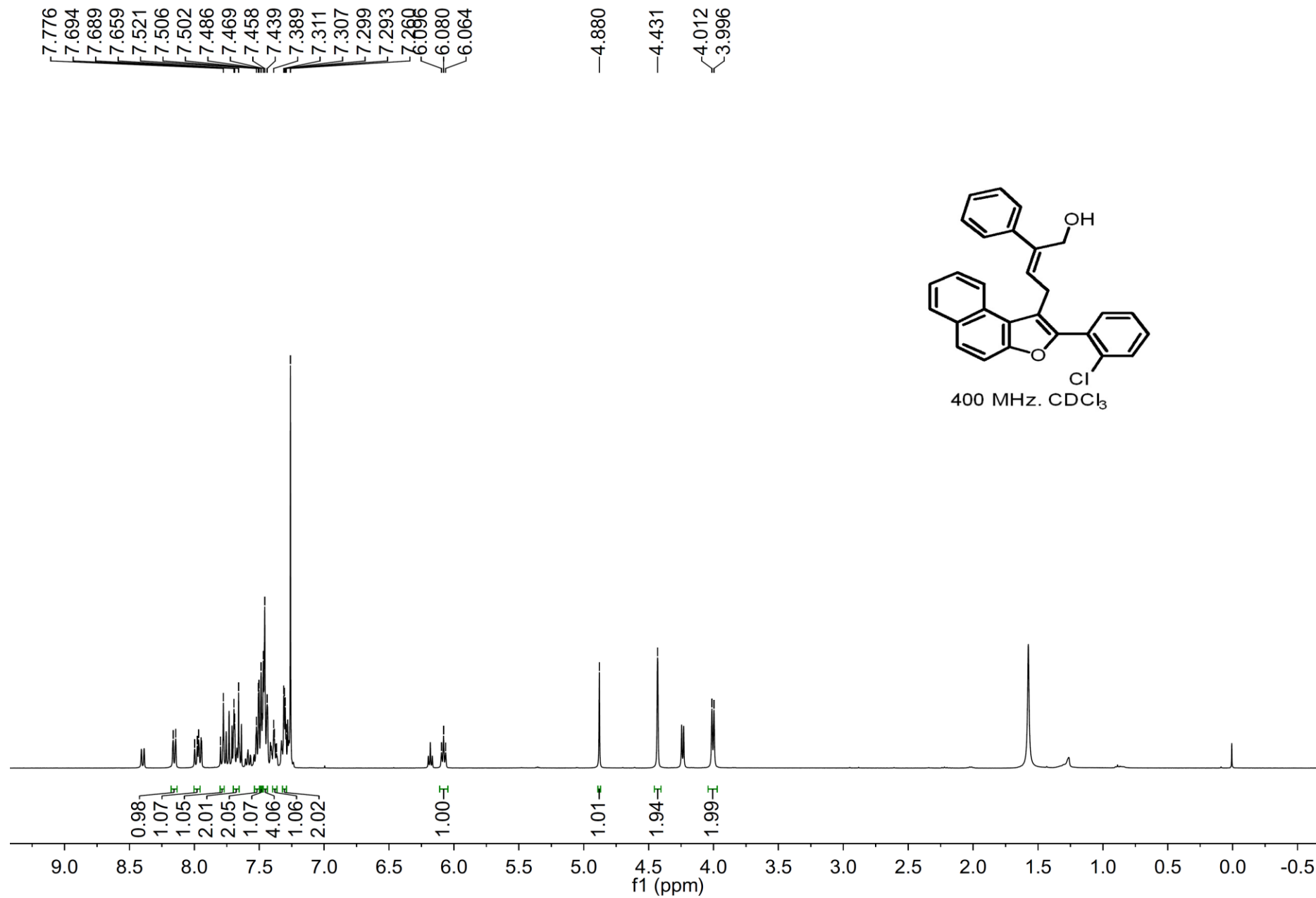


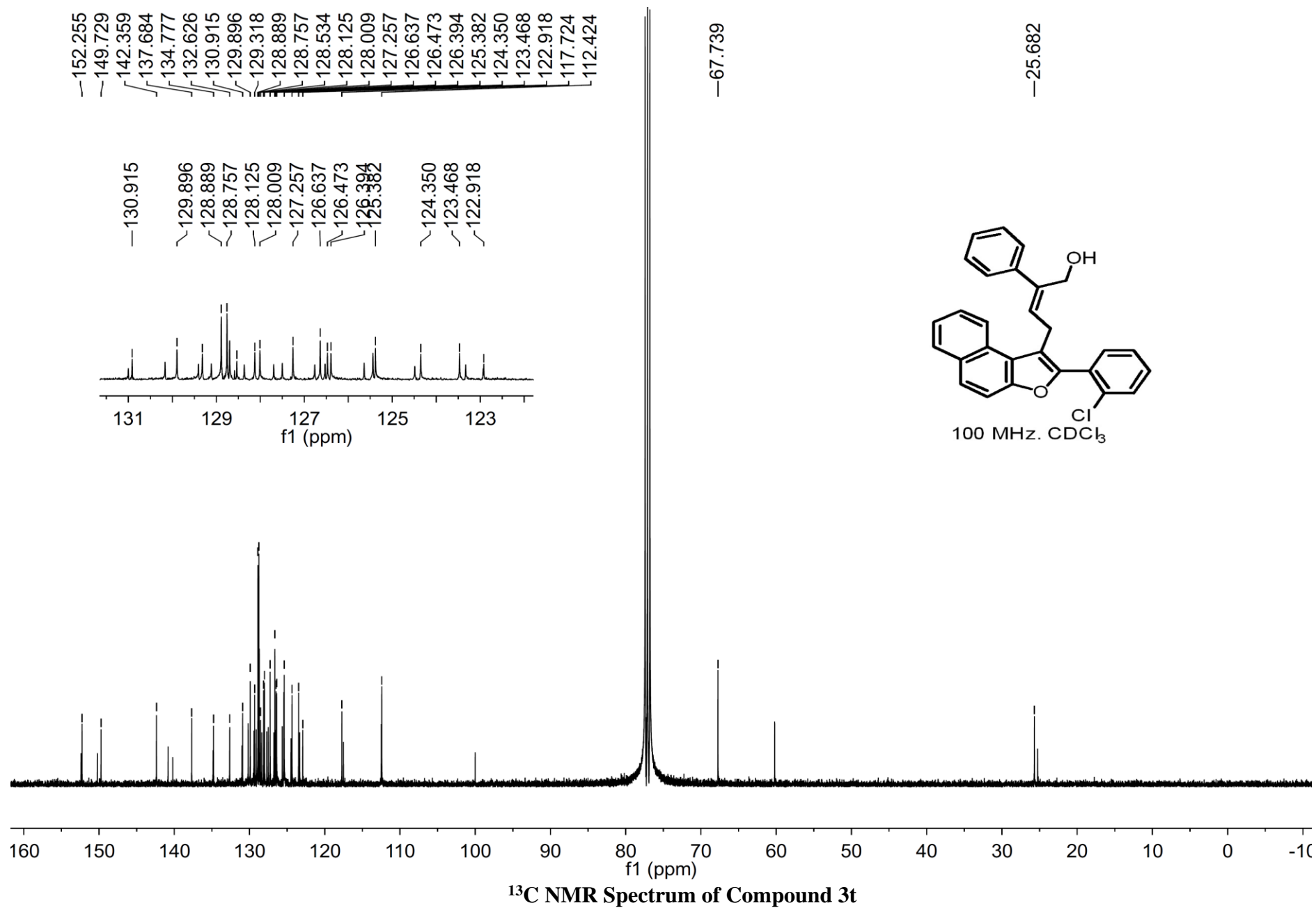


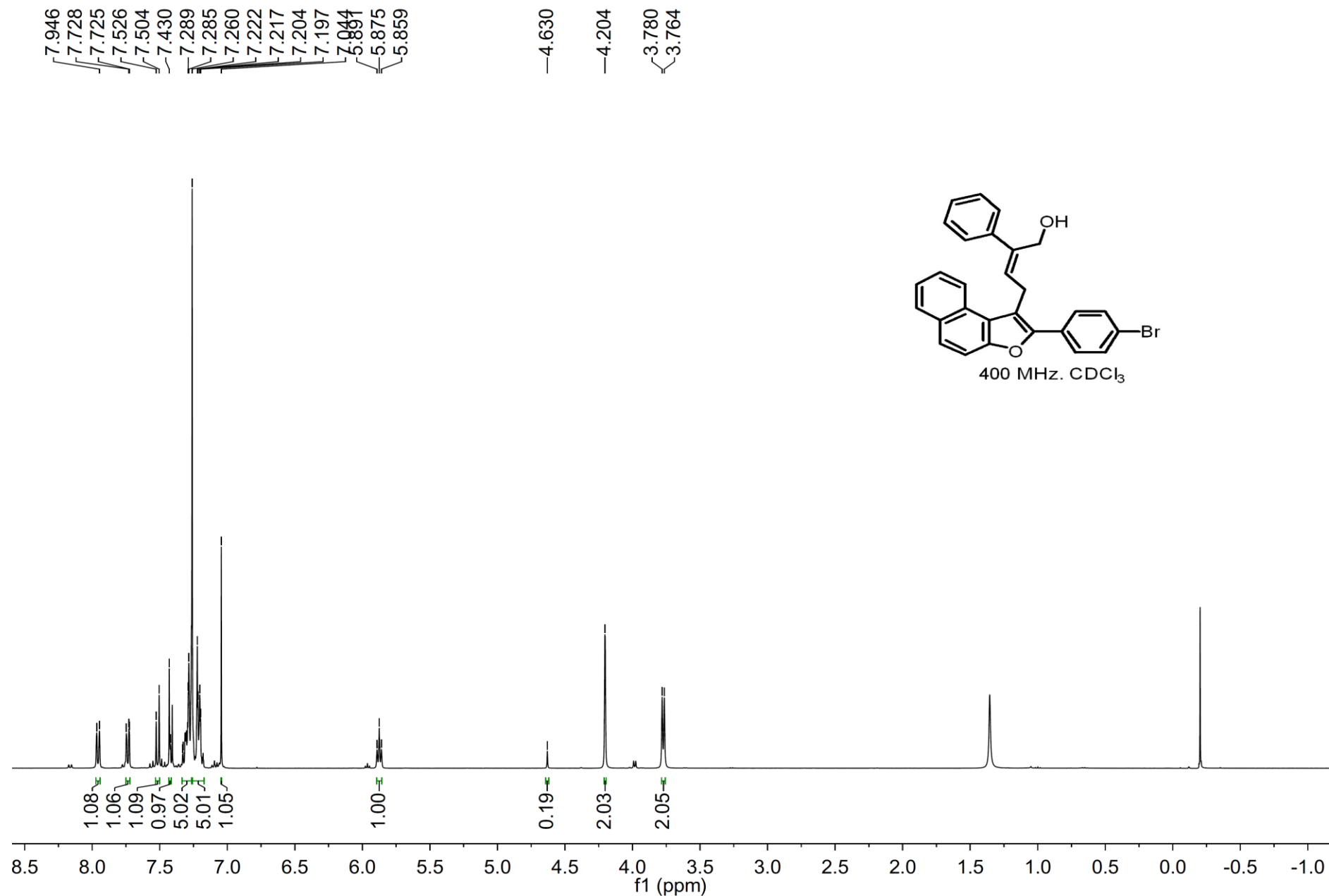


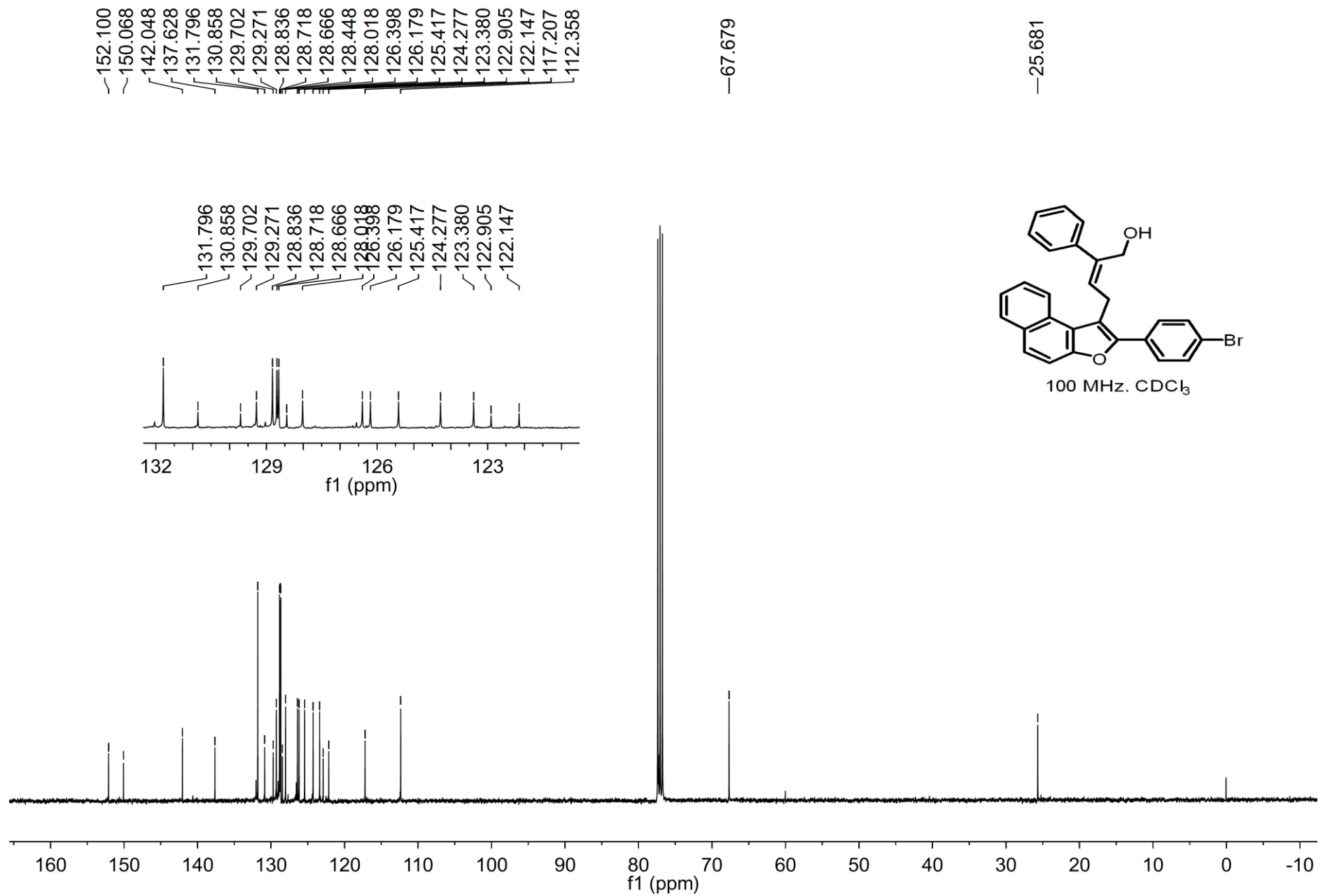
<sup>1</sup>H NMR Spectrum of Compound 3s





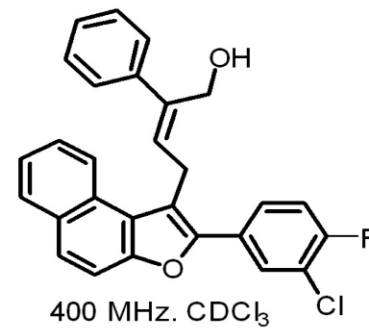
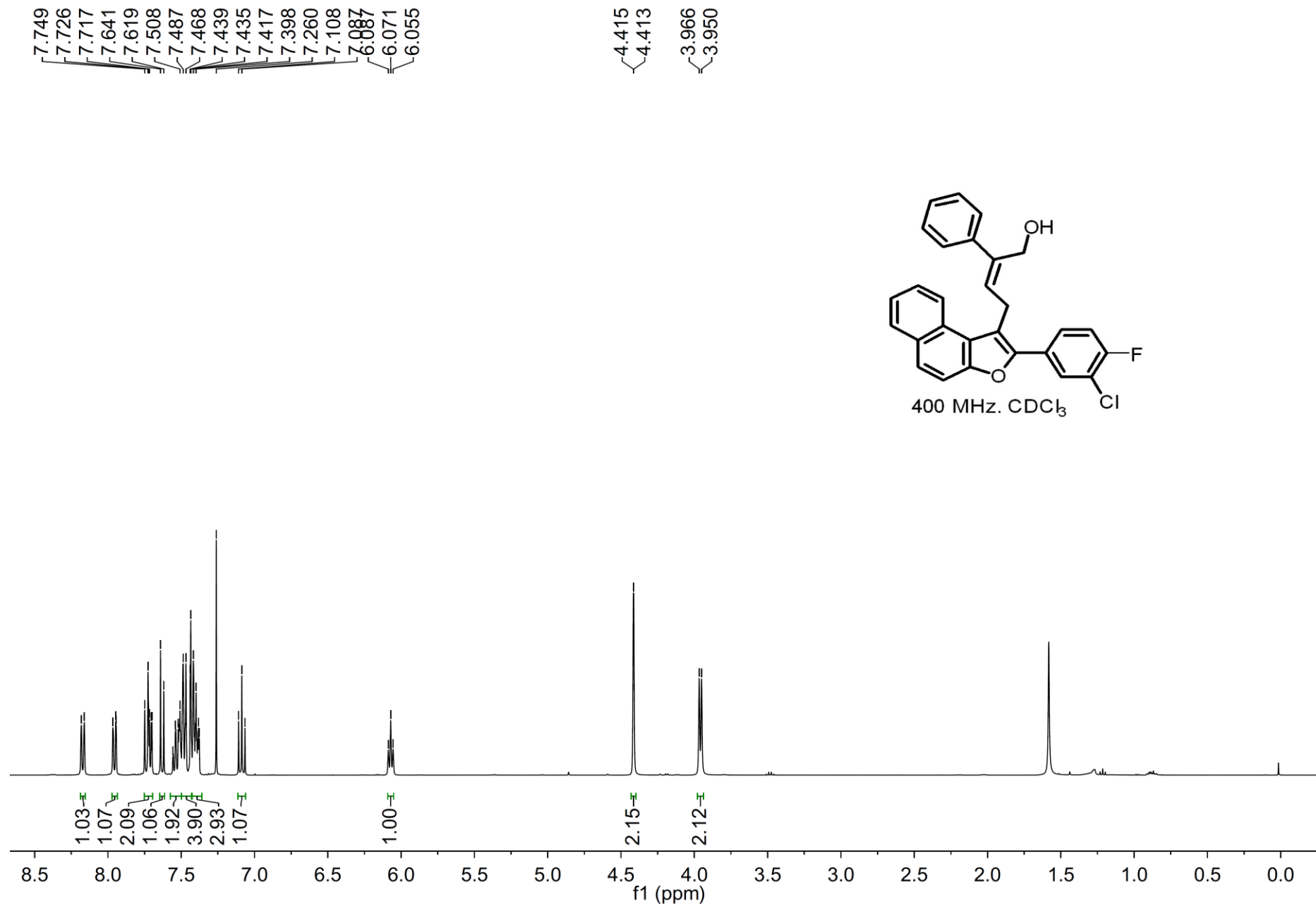




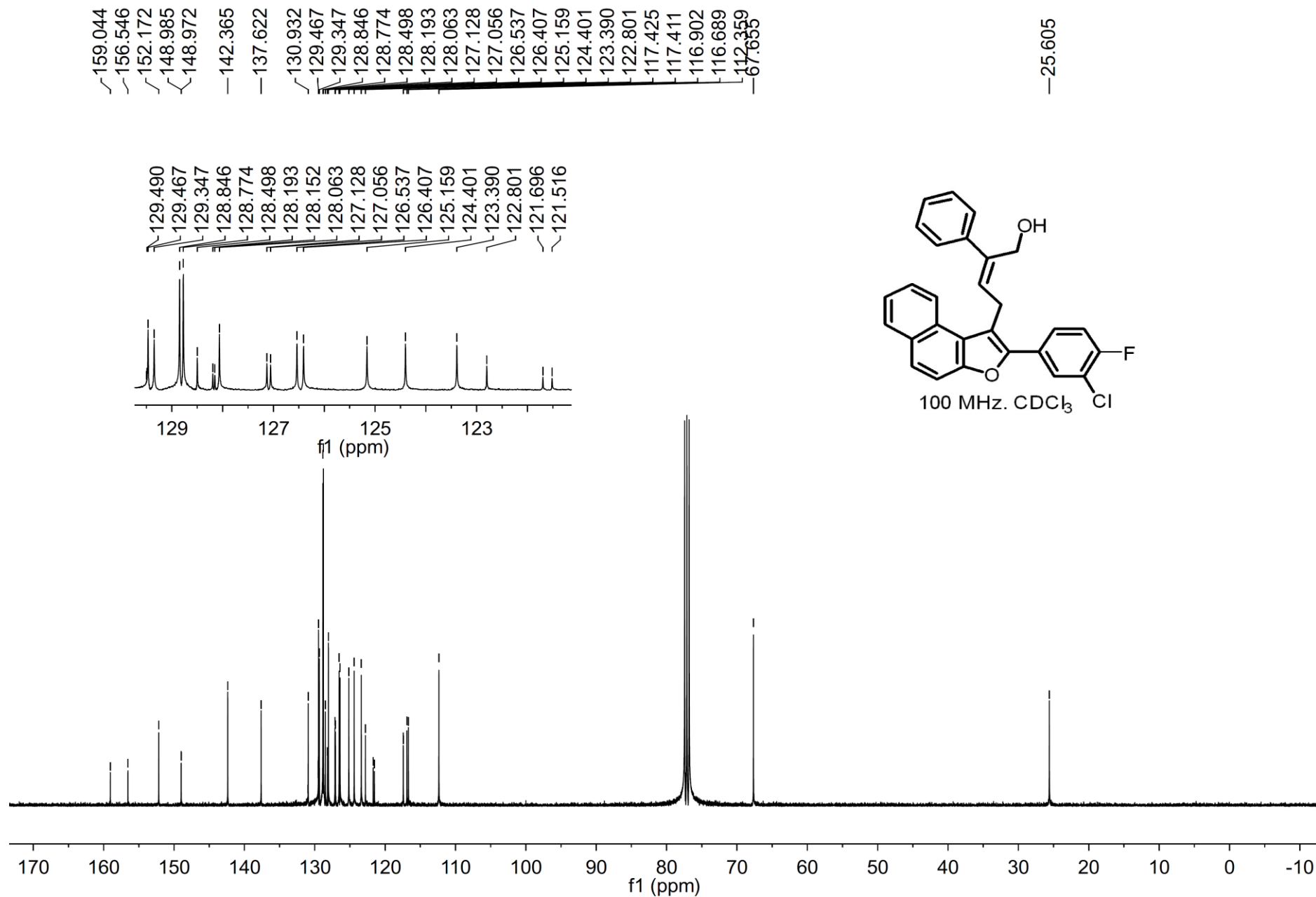


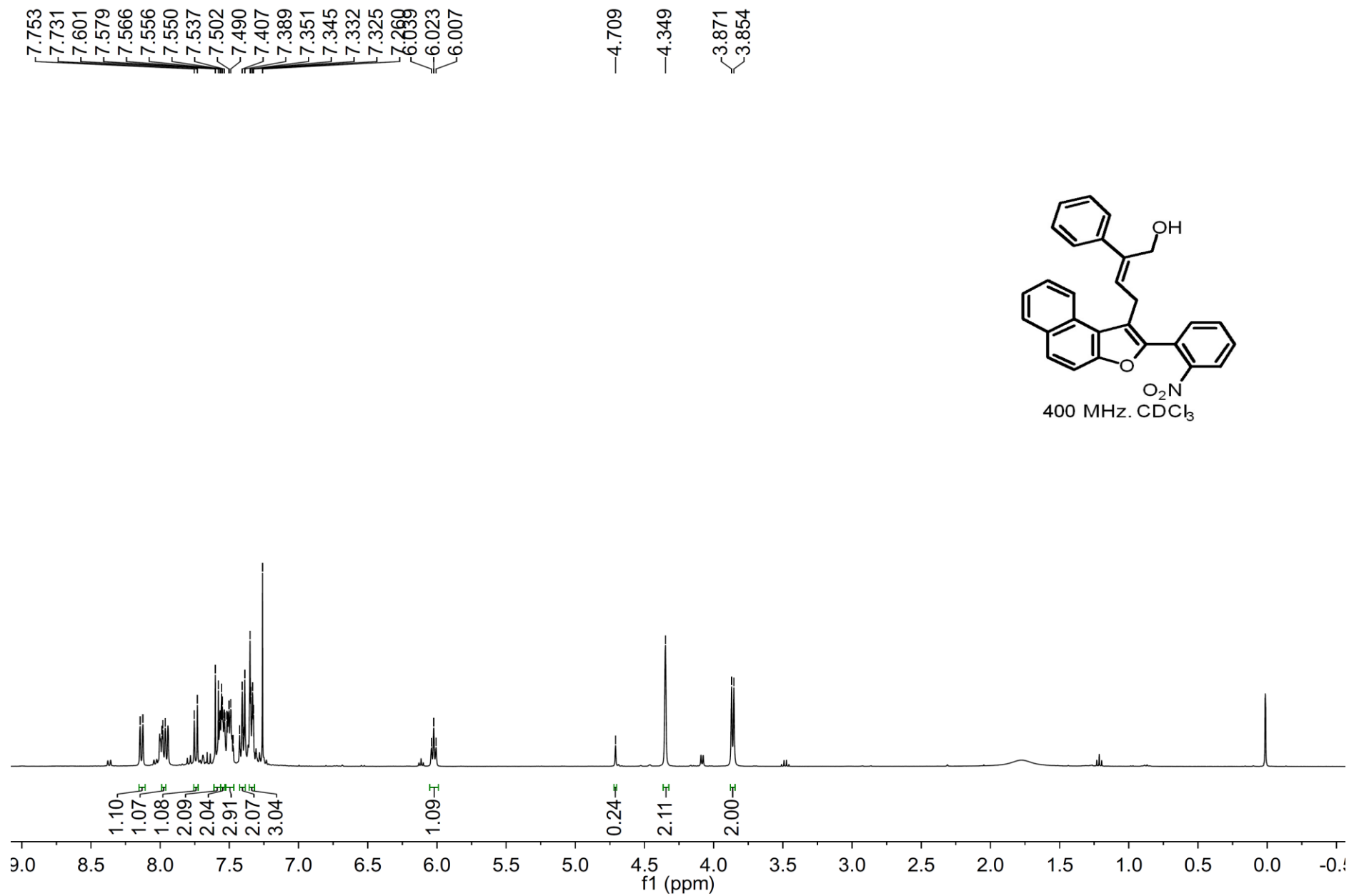
**<sup>13</sup>C NMR Spectrum of Compound 3u**

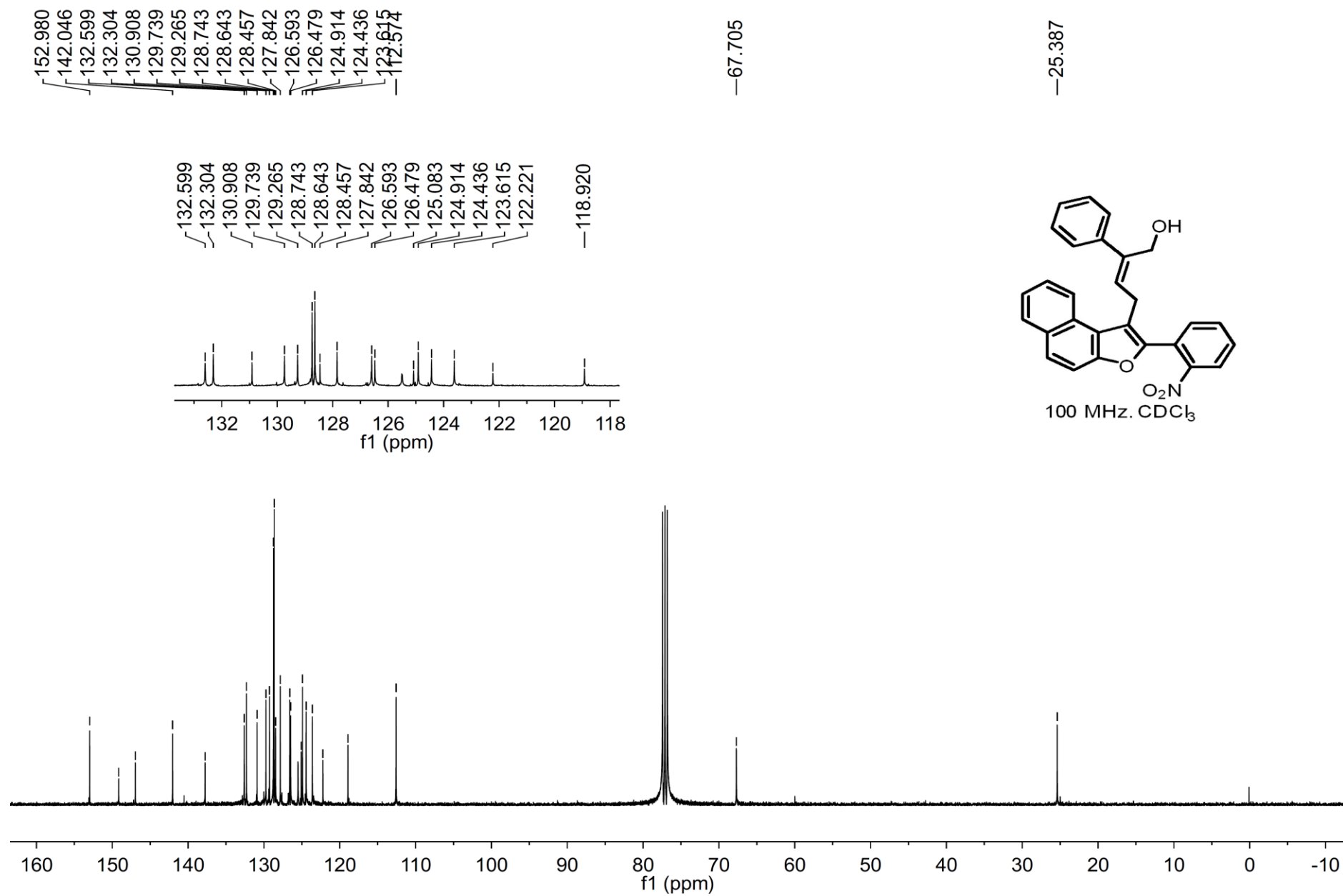


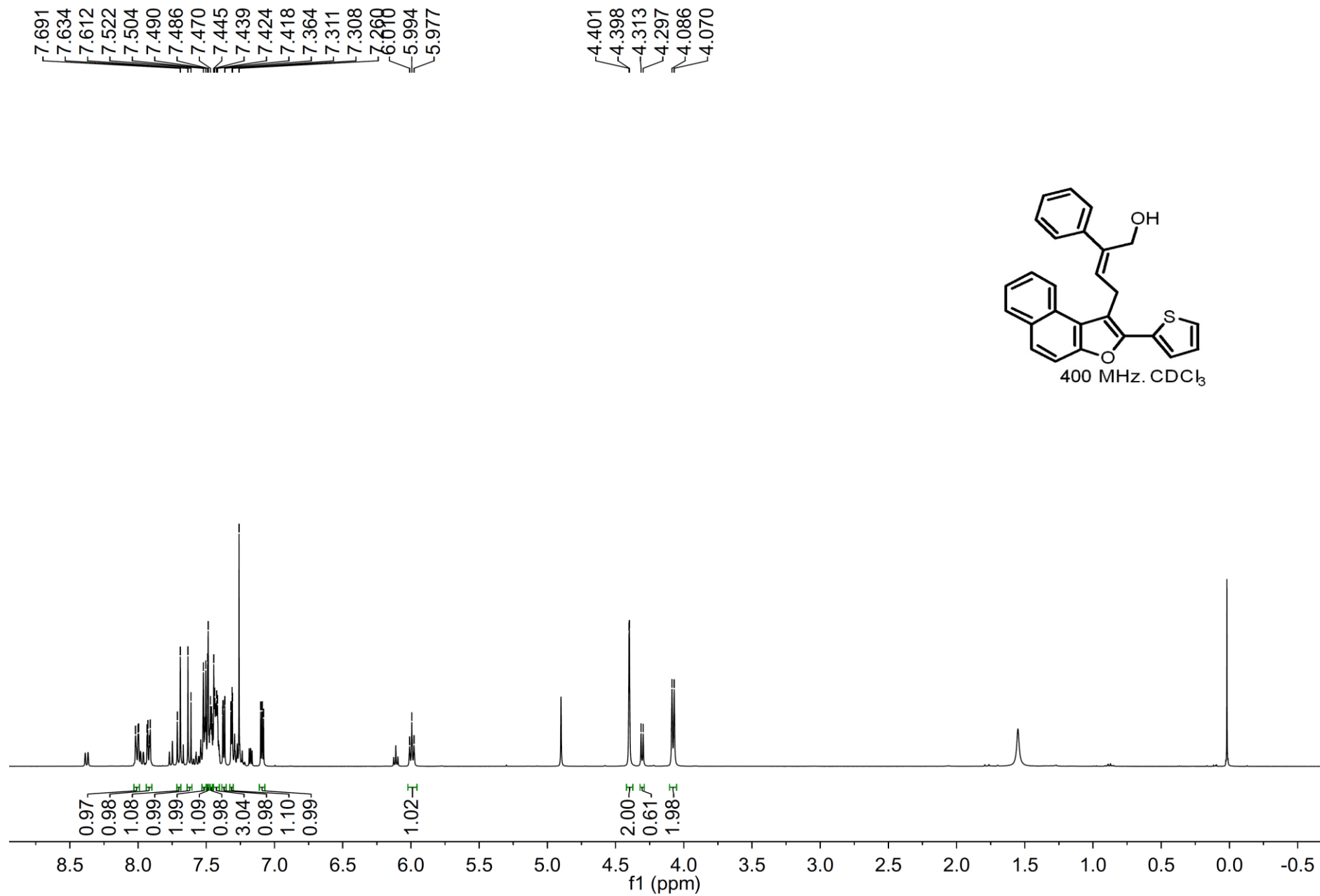


<sup>1</sup>H NMR Spectrum of Compound 3v

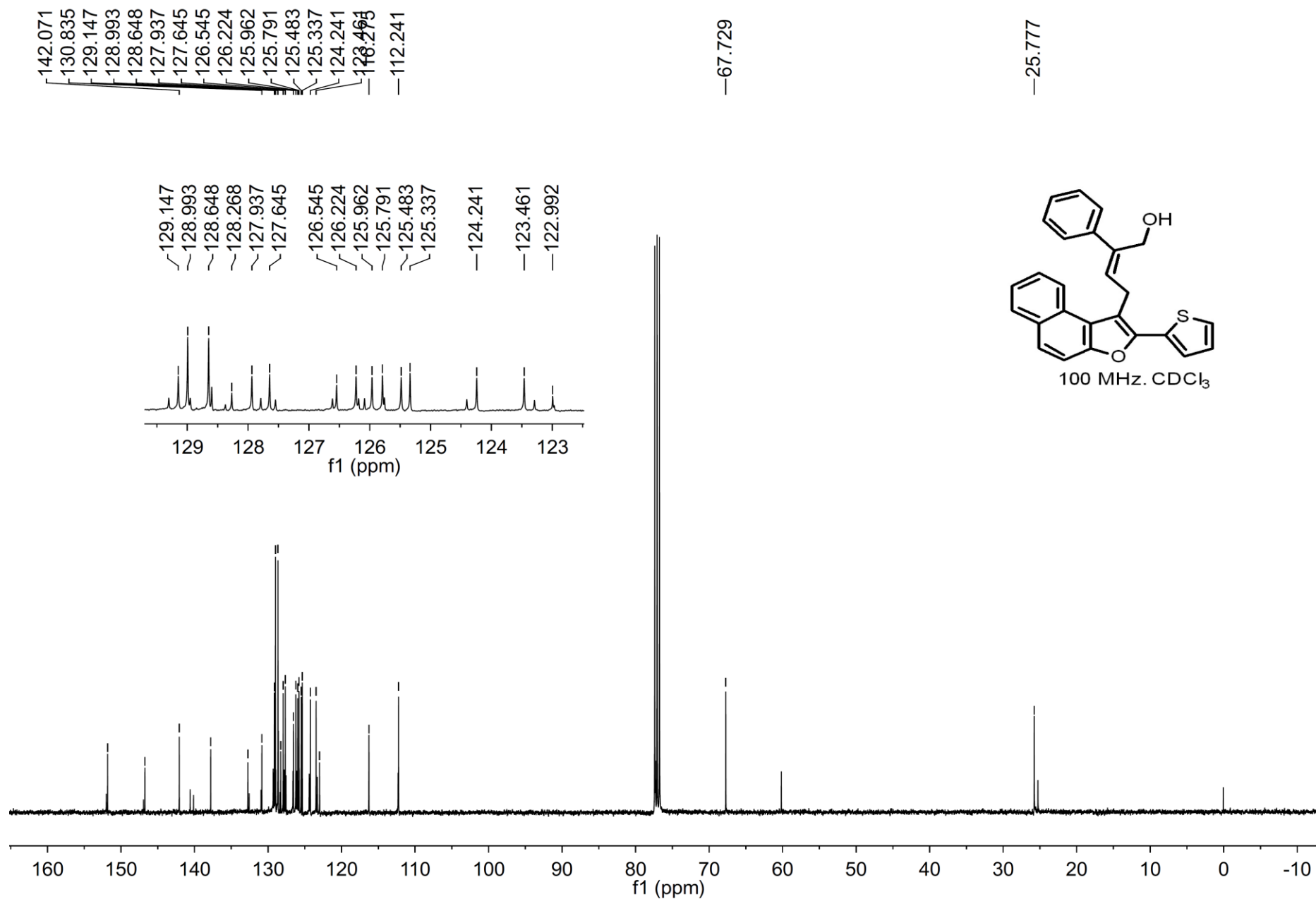
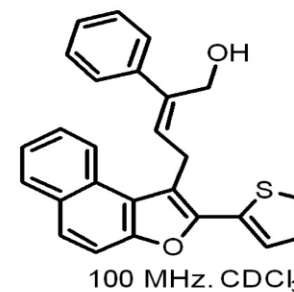




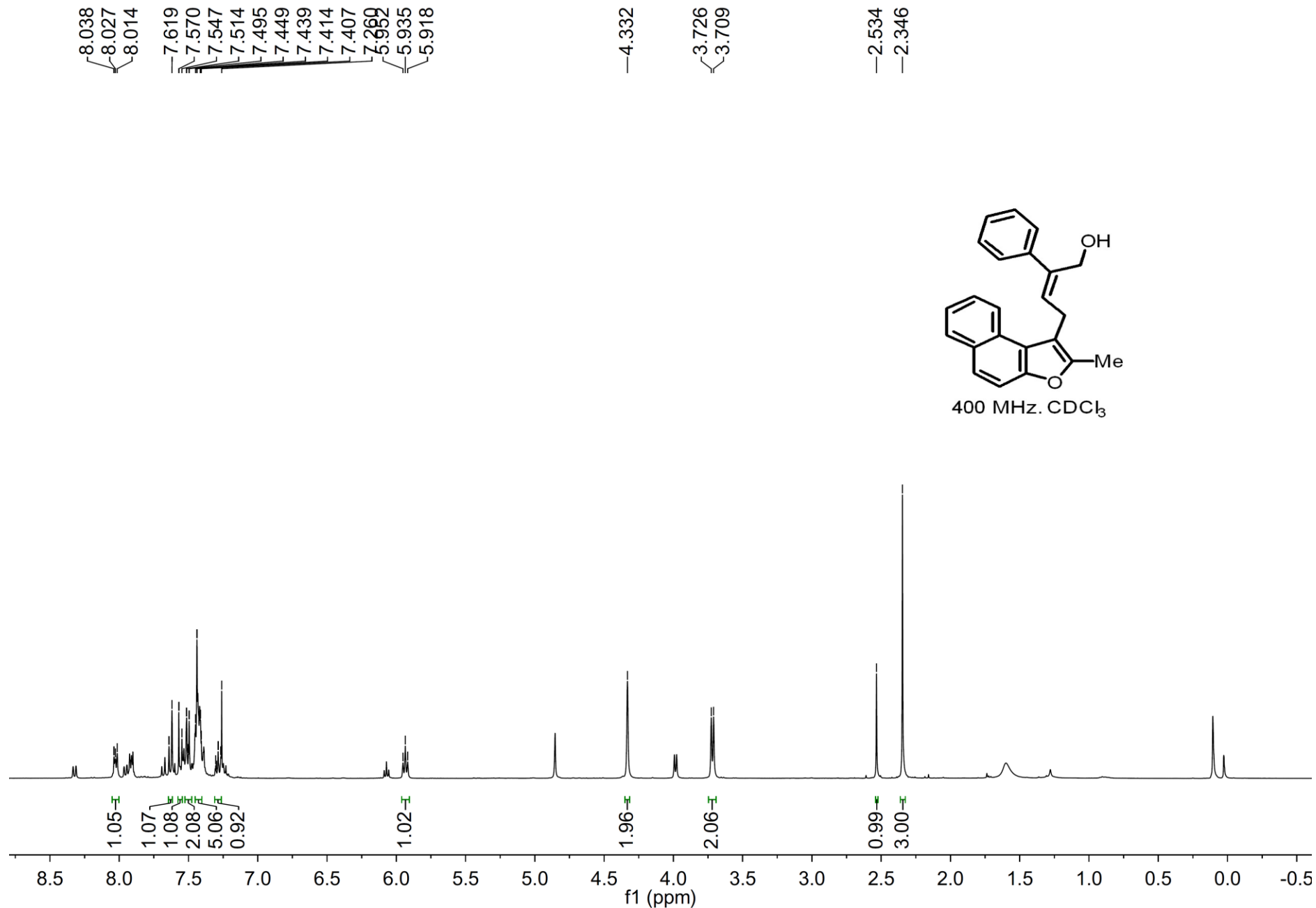




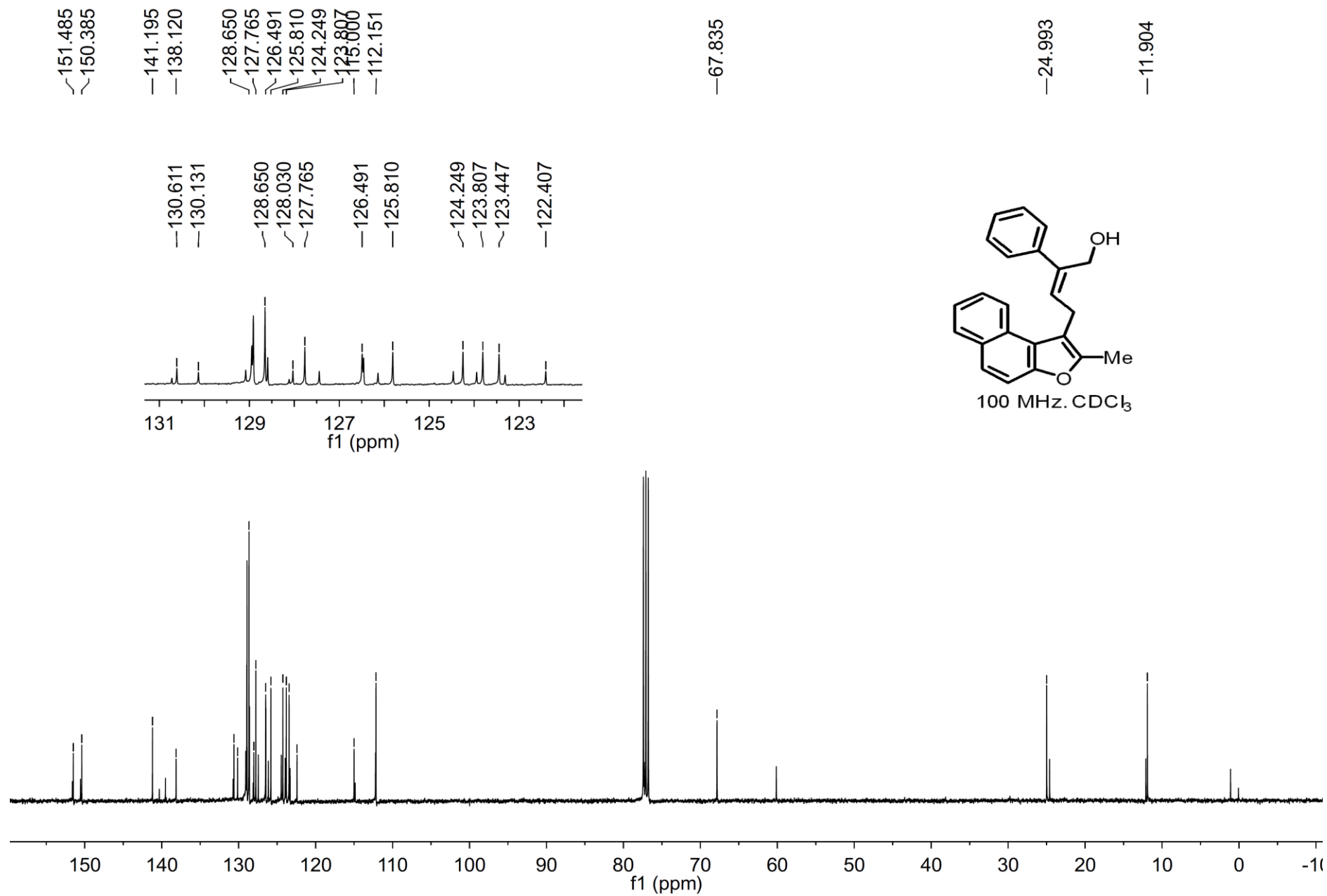
**<sup>1</sup>H NMR Spectrum of Compound 3x**



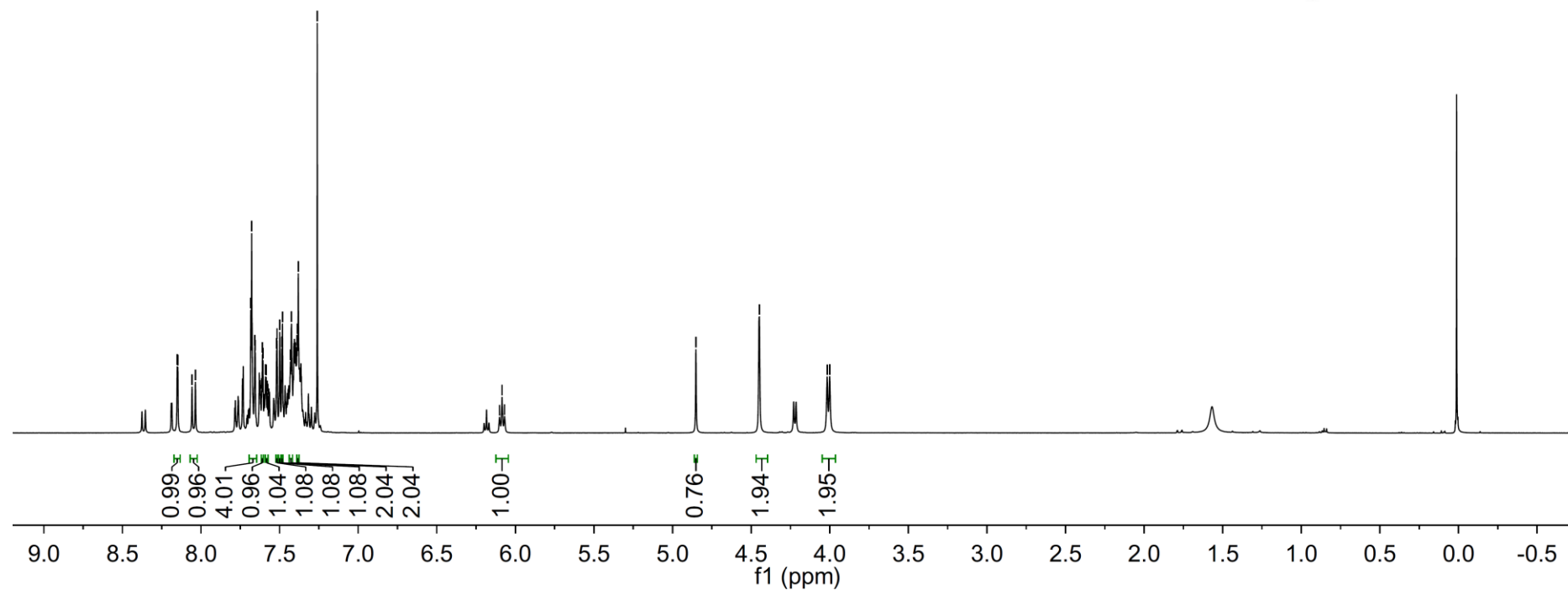
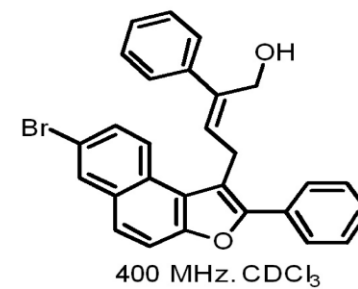
<sup>13</sup>C NMR Spectrum of Compound 3x



**<sup>1</sup>H NMR Spectrum of Compound 3y**



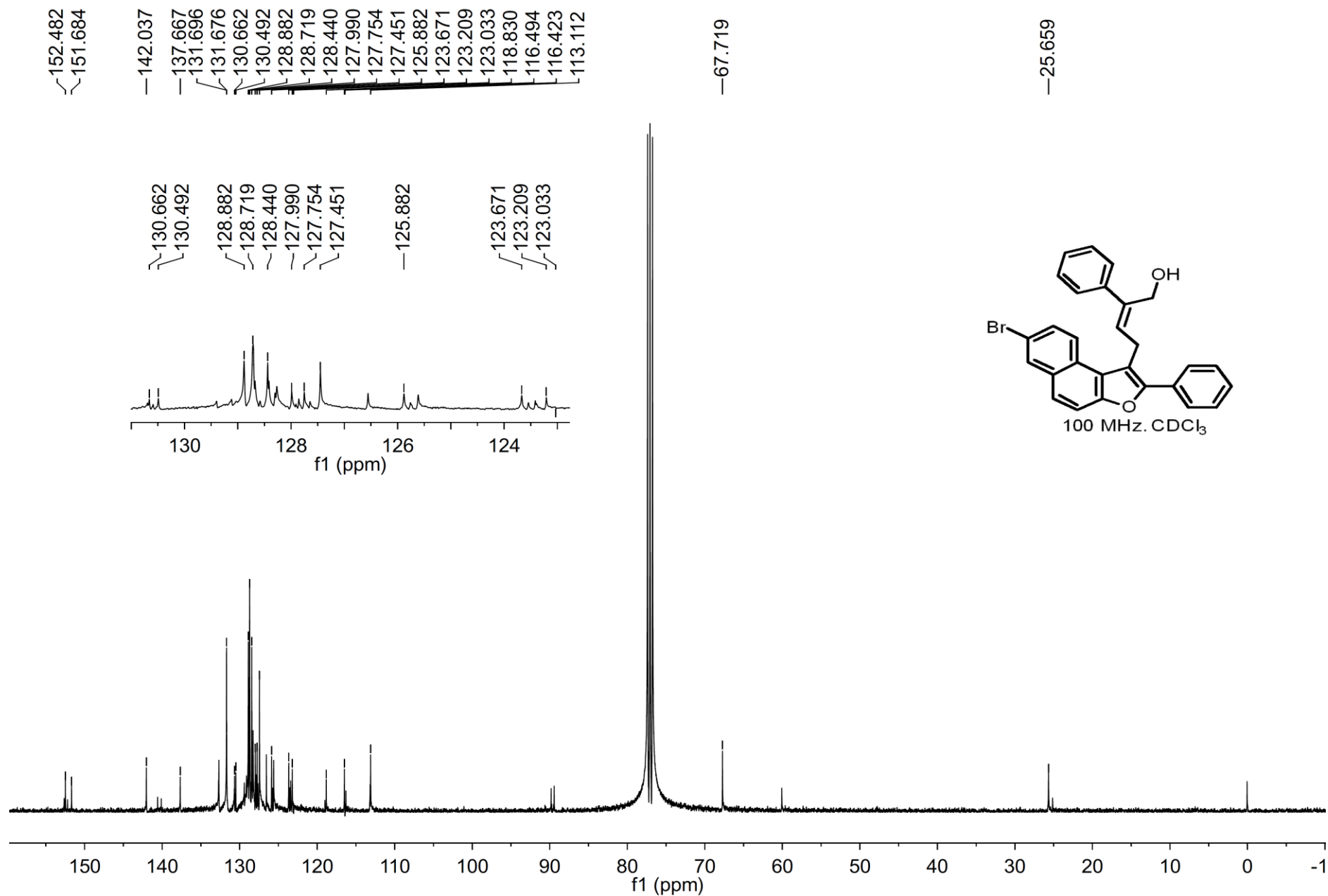


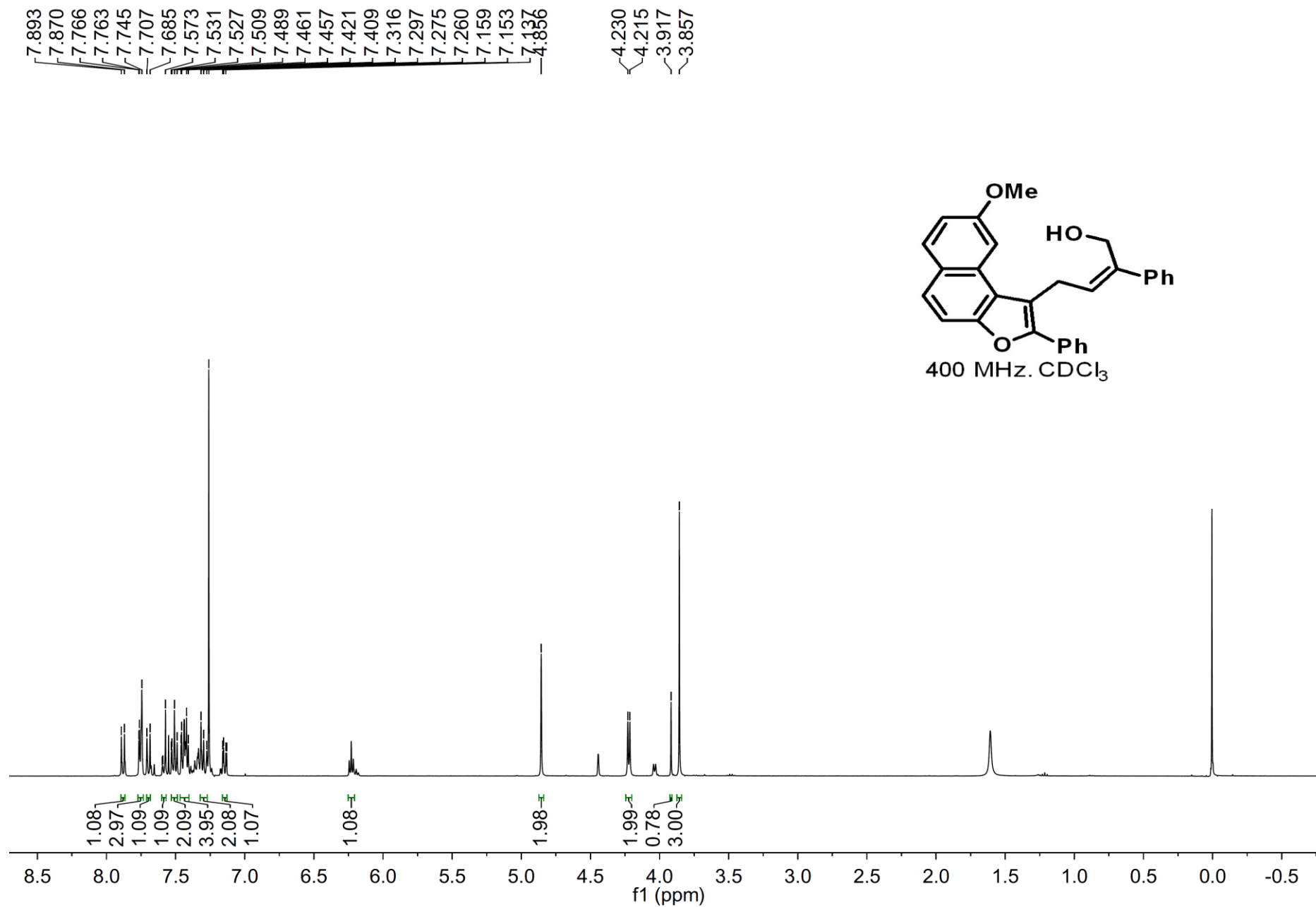


8.151  
8.147  
8.057  
8.035  
7.683  
7.678  
7.499  
7.482  
7.424  
7.386  
7.381  
7.260  
6.085  
6.068

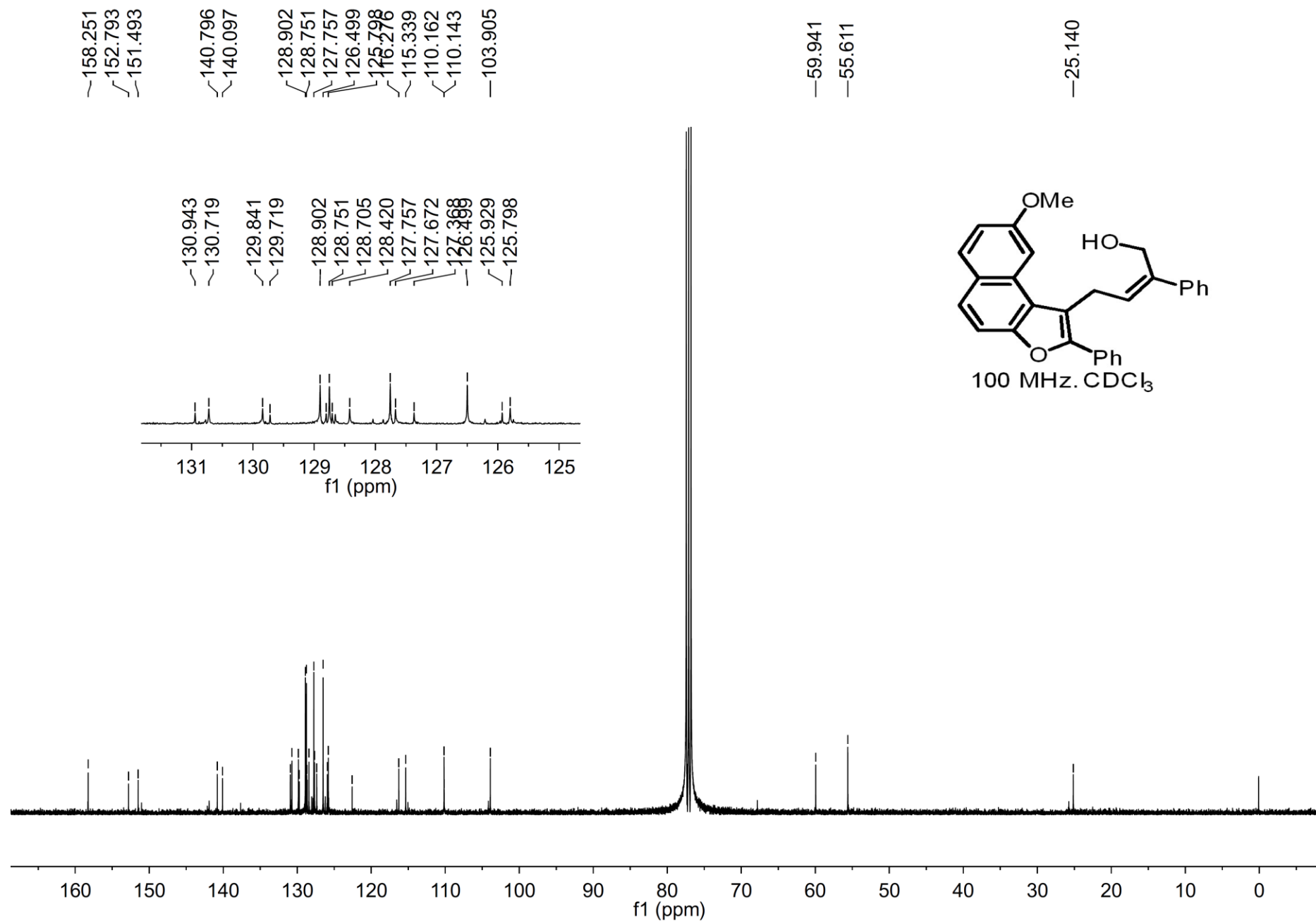
4.851  
4.448  
4.016  
4.000

<sup>1</sup>H NMR Spectrum of Compound 3z





<sup>1</sup>H NMR Spectrum of Compound 3aa



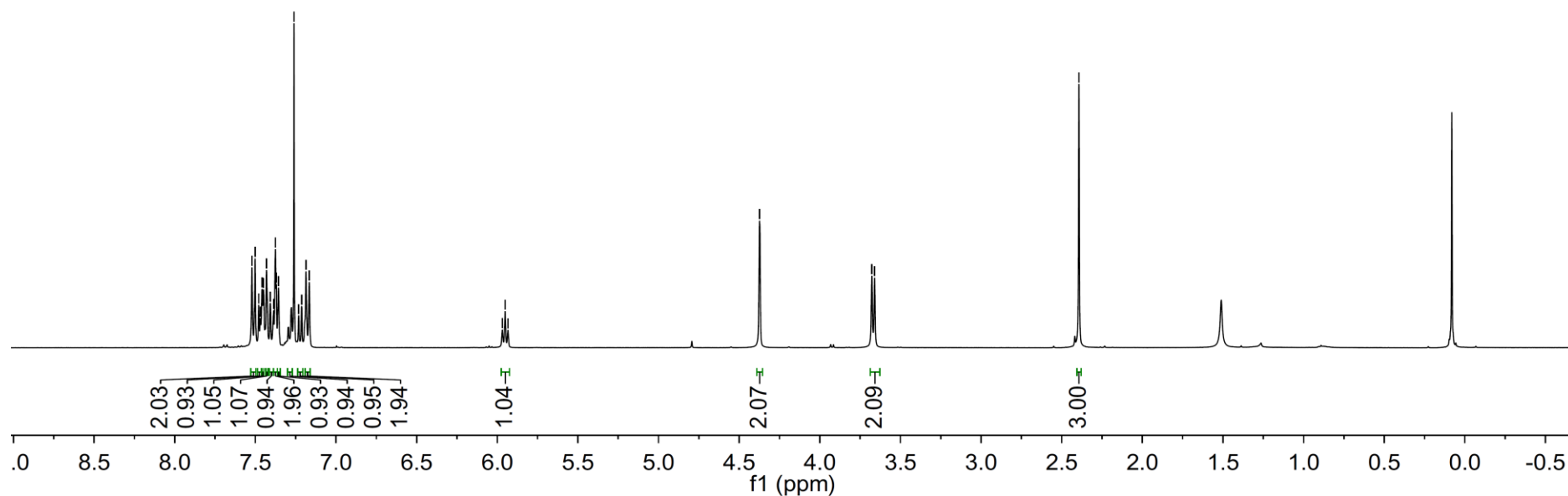
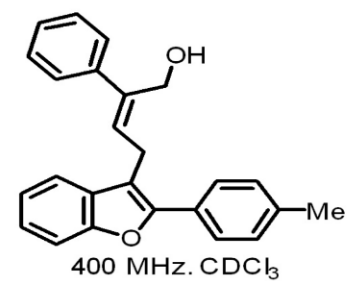
**<sup>13</sup>C NMR Spectrum of Compound 3aa**

7.522  
7.501  
7.479  
7.468  
7.458  
7.449  
7.431  
7.407  
7.387  
7.375  
7.370  
7.357  
7.260  
7.232  
7.213  
7.186  
7.166  
5.969  
5.951  
5.933

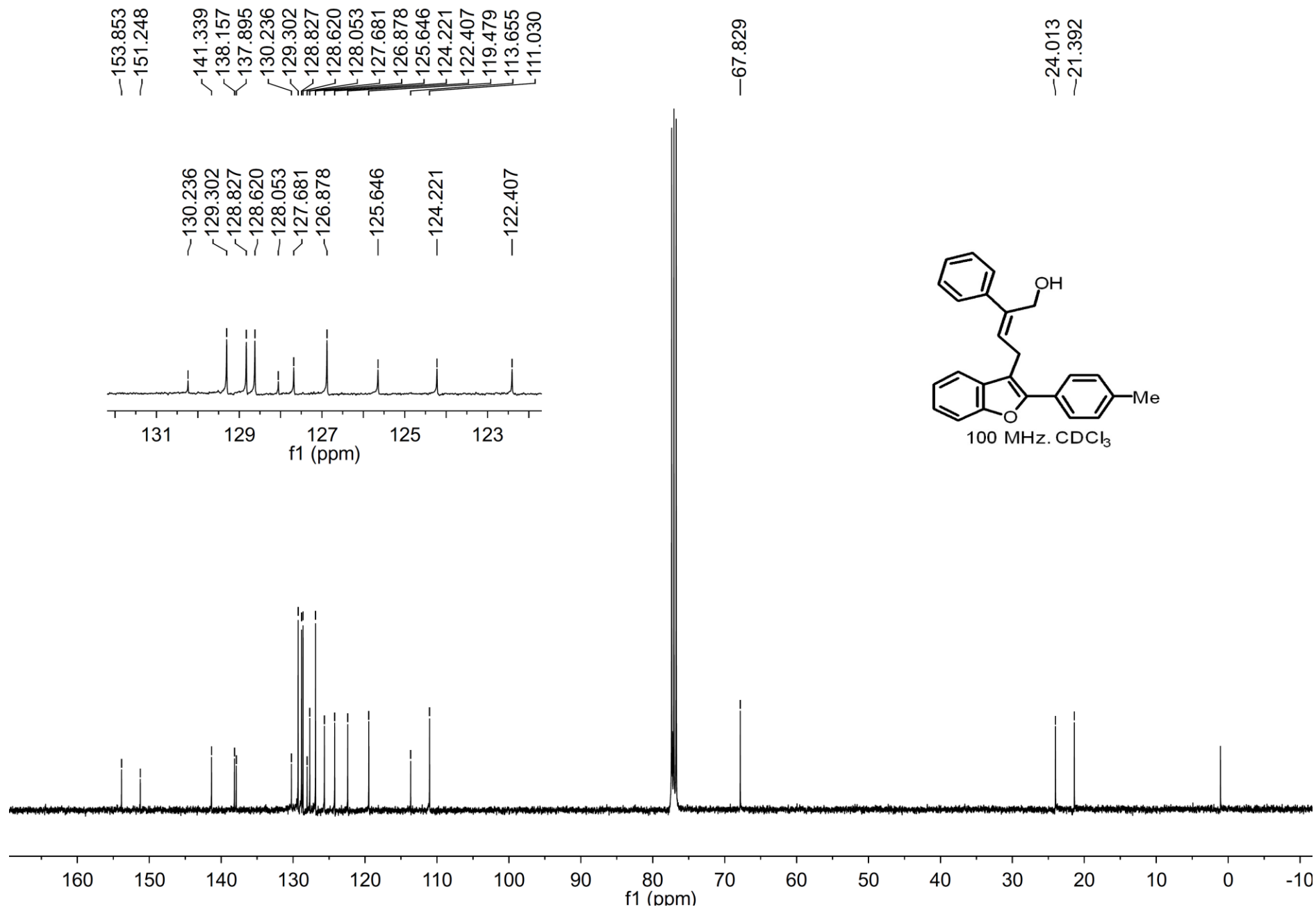
—4.374

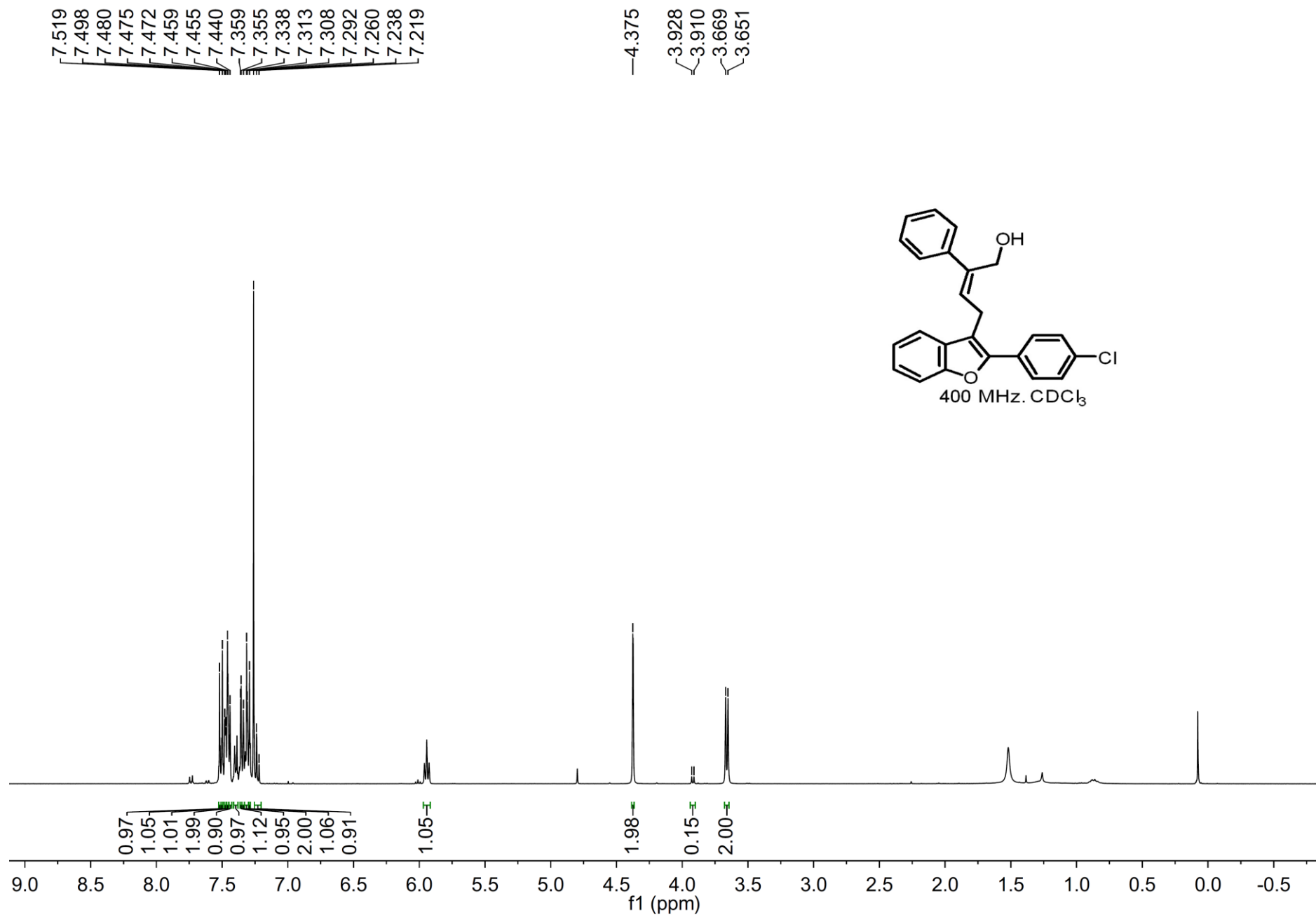
3.677  
3.660

—2.393

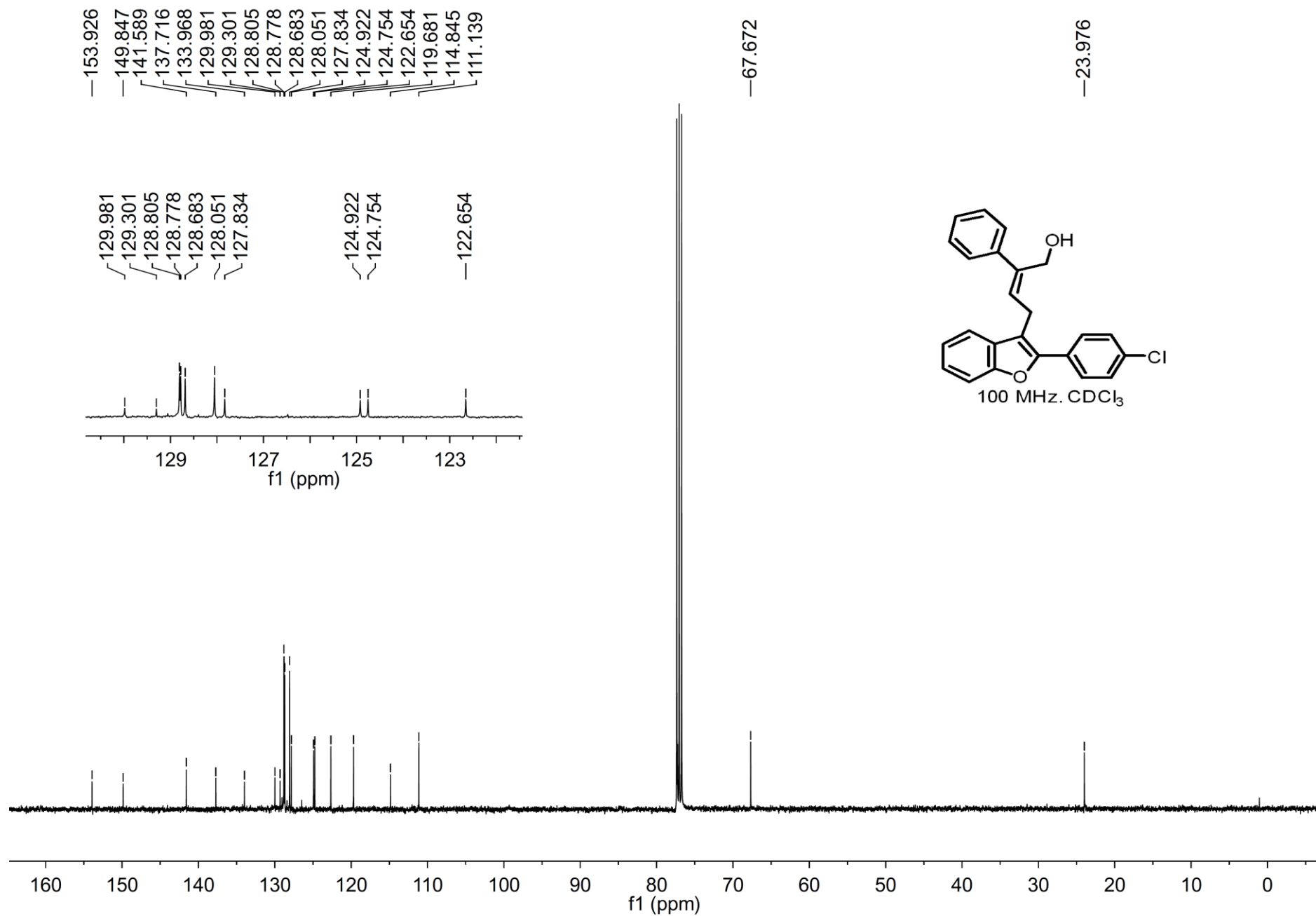


**$^1\text{H}$  NMR Spectrum of Compound 3bb**



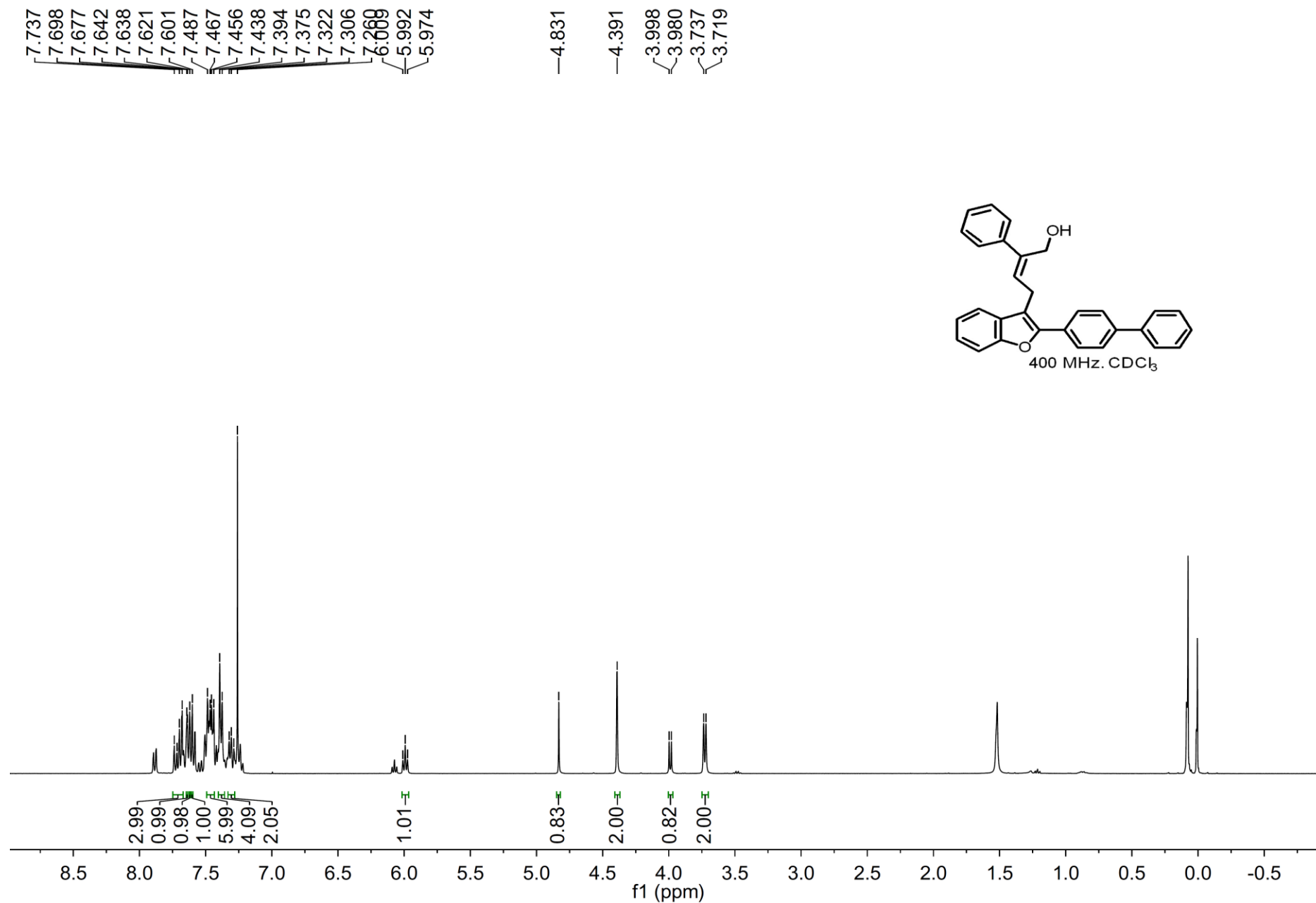


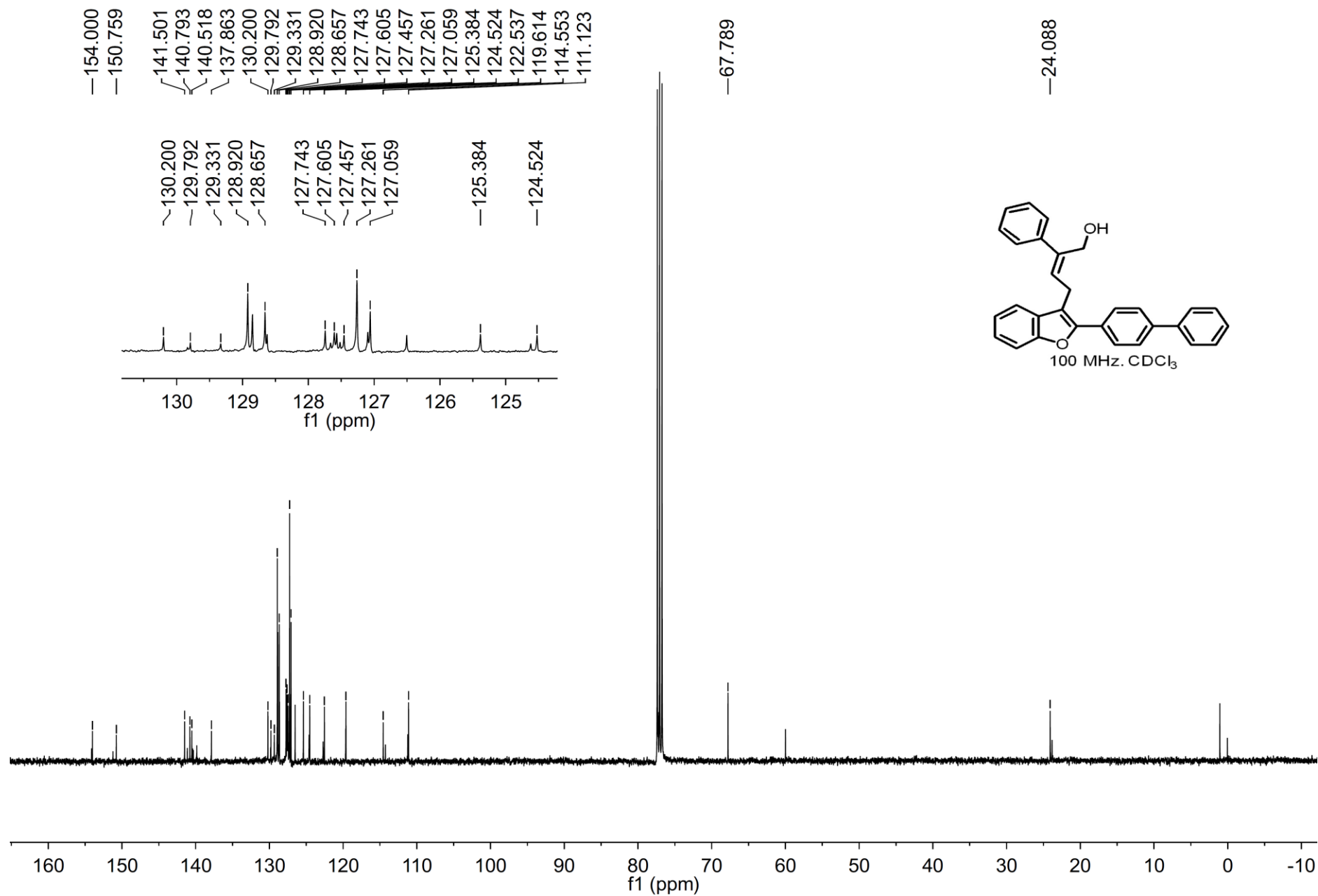
**<sup>1</sup>H NMR Spectrum of Compound 3cc**

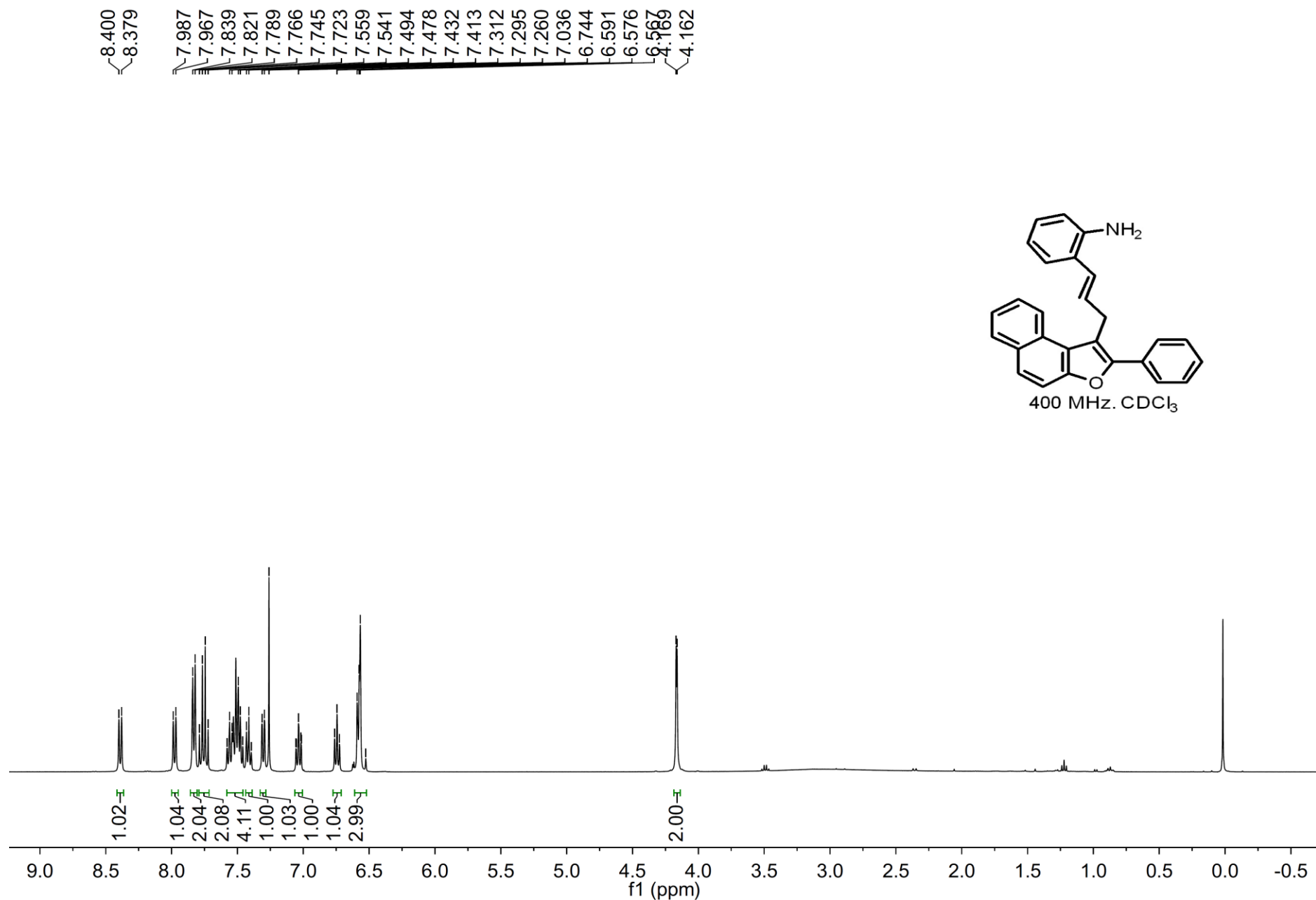
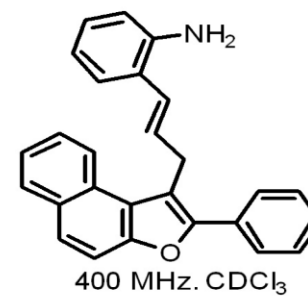


**<sup>13</sup>C NMR Spectrum of Compound 3cc**

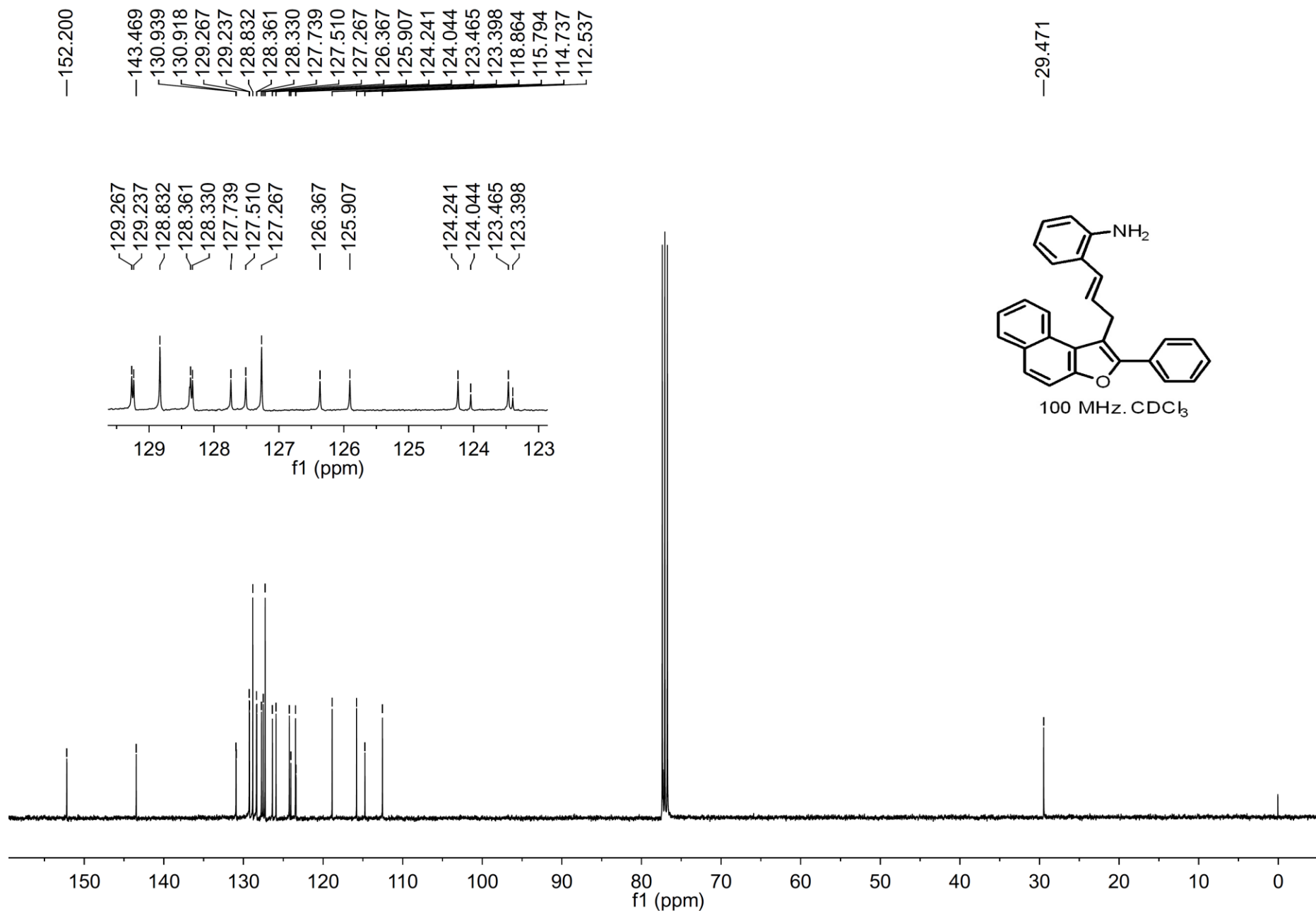




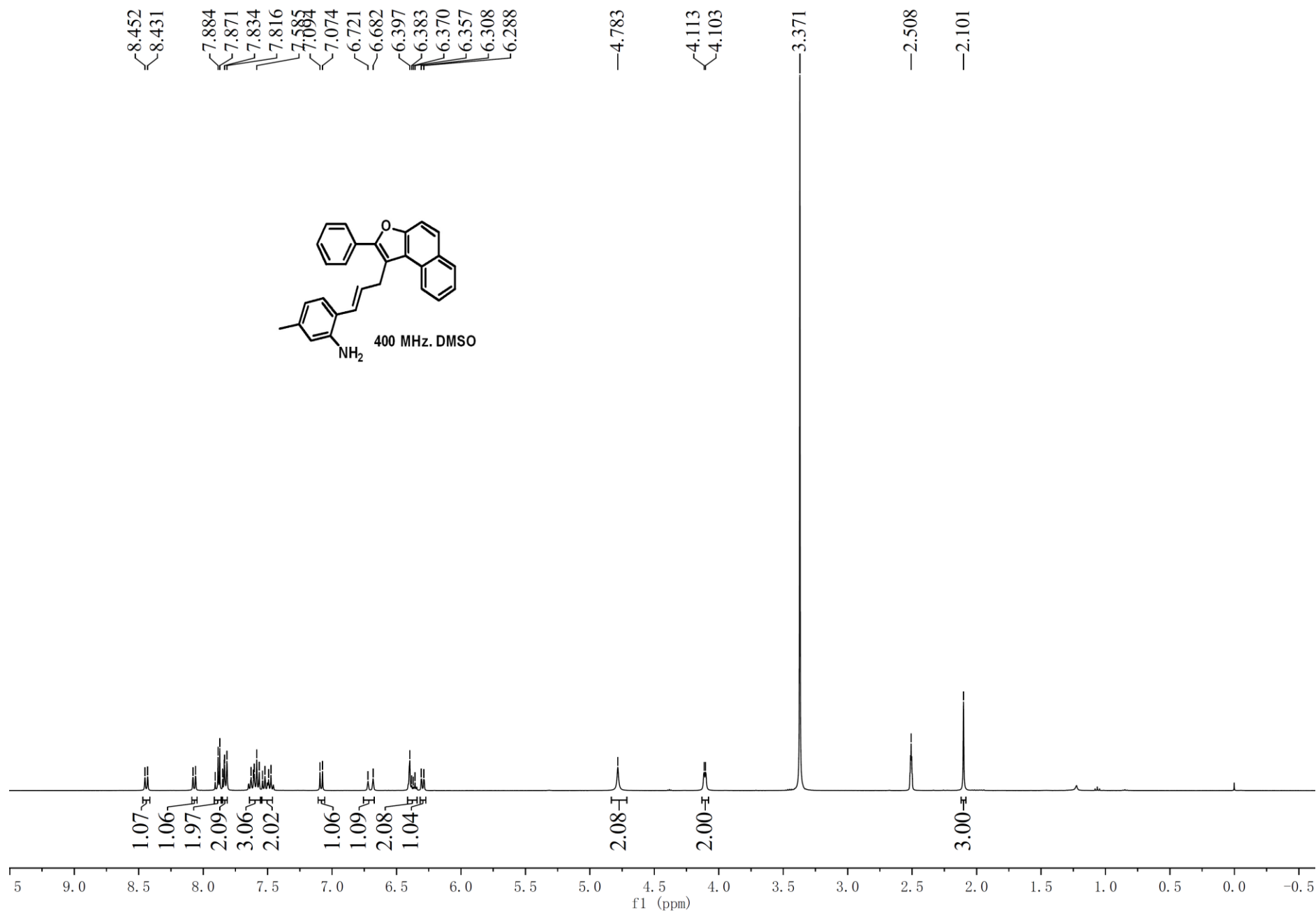




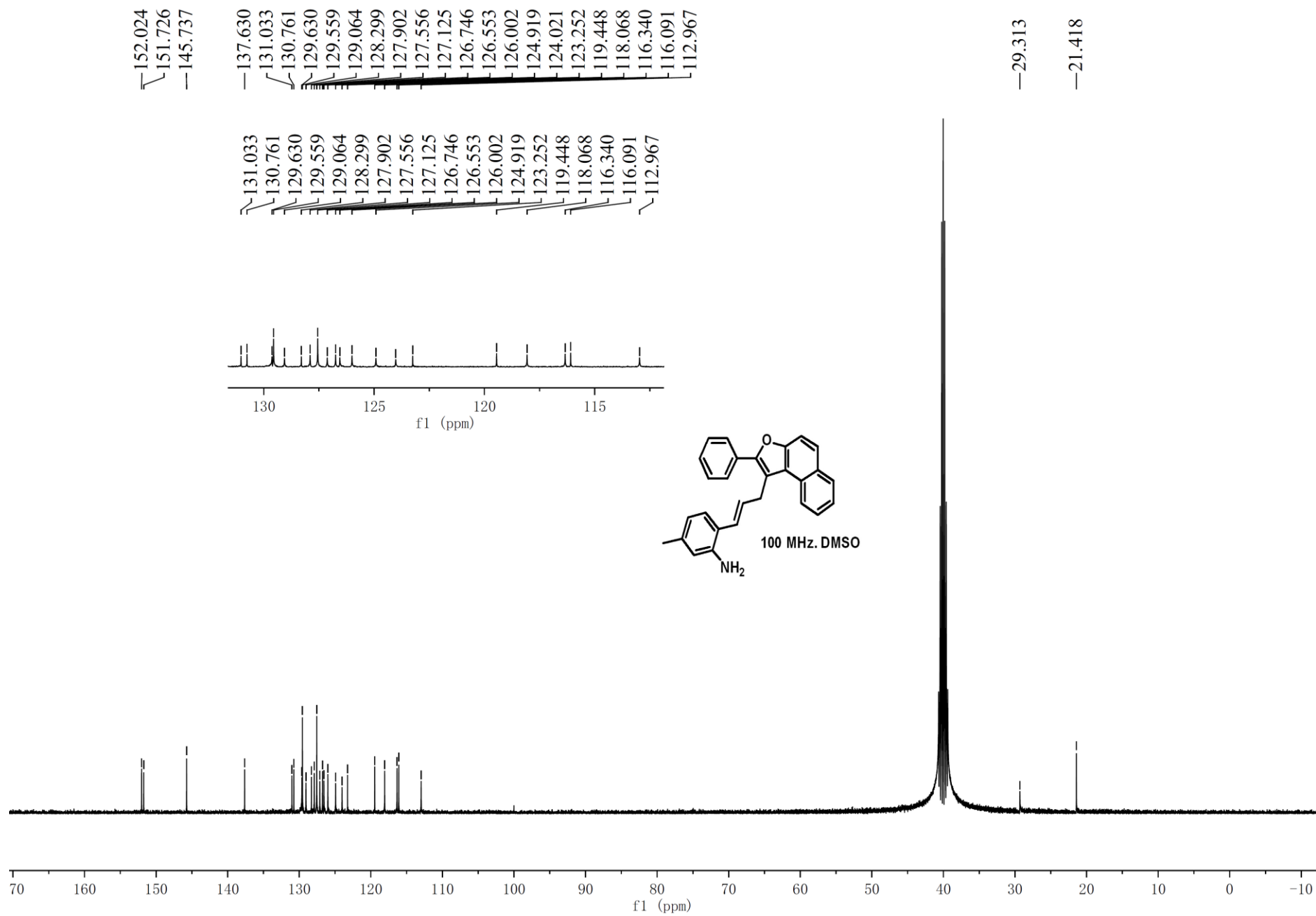
**<sup>1</sup>H NMR Spectrum of Compound 5a**



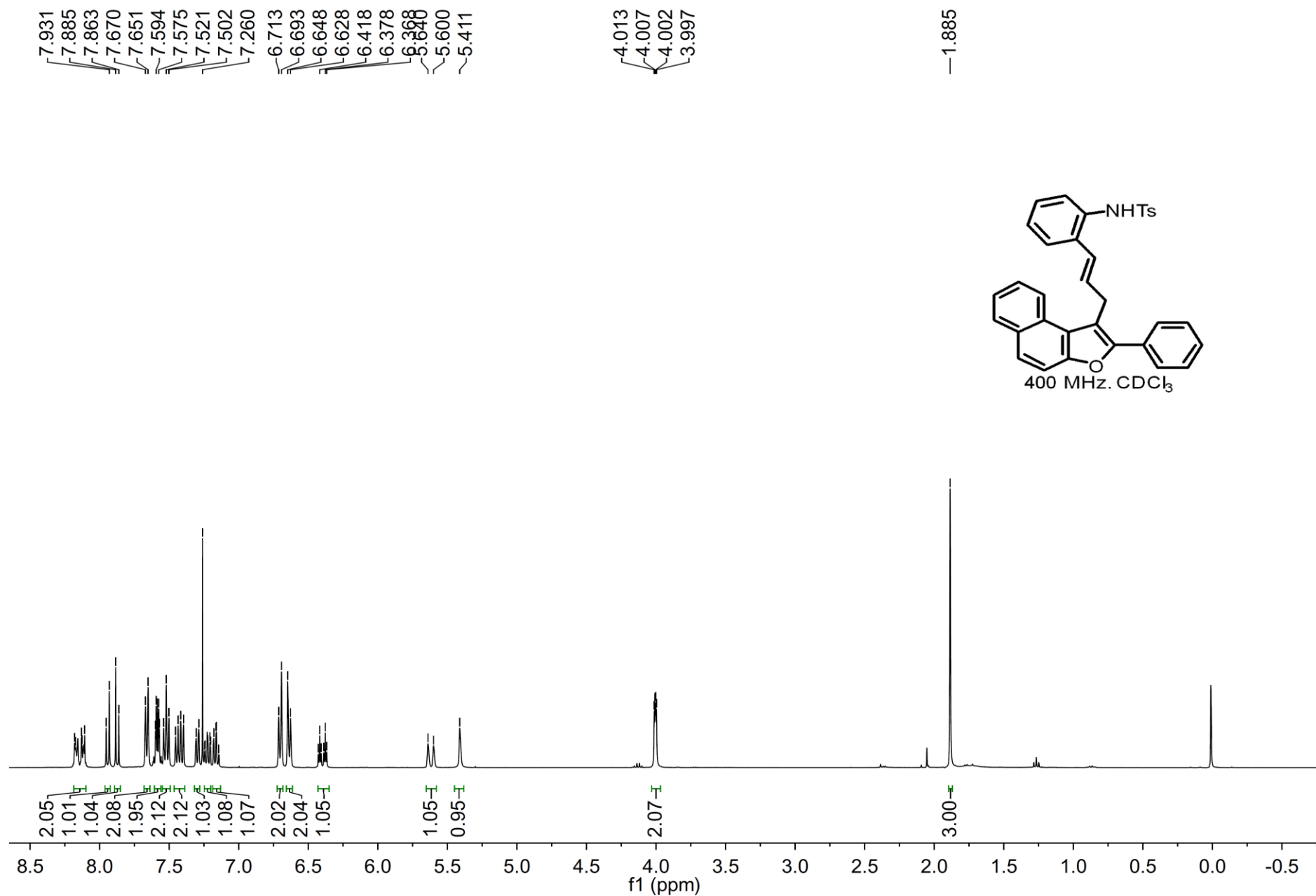
**<sup>13</sup>C NMR Spectrum of Compound 5a**

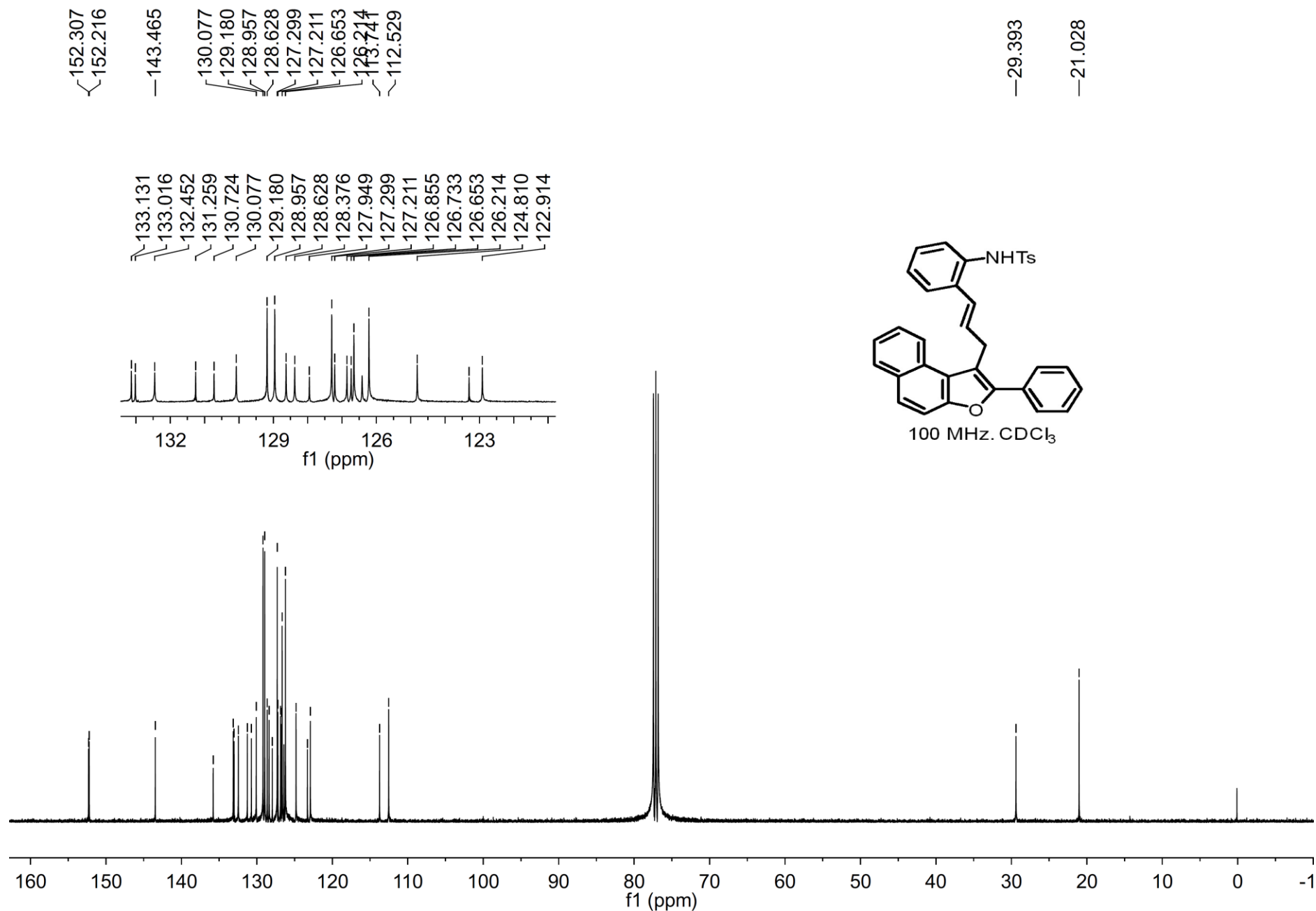


<sup>1</sup>H NMR Spectrum of Compound 5b



**<sup>13</sup>C NMR Spectrum of Compound 5b**





**<sup>13</sup>C NMR Spectrum of Compound 5c**



