

## Supporting Information

# Oxidation of Organotrifluoroborates via Oxone<sup>®</sup>

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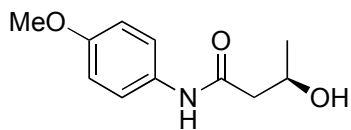
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**General Considerations:** All of the reagents and HPLC grade acetone were used as received. Melting points (°C) are uncorrected. <sup>1</sup>H, <sup>13</sup>C, and <sup>19</sup>F NMR spectra were recorded at 500.4, 125.8, and 470.8 MHz, respectively. <sup>19</sup>F NMR chemical shifts were referenced to external CFCl<sub>3</sub> (0.0 ppm). Compounds **4d** and **4e** were characterized by comparison of their NMR data with commercially available samples.

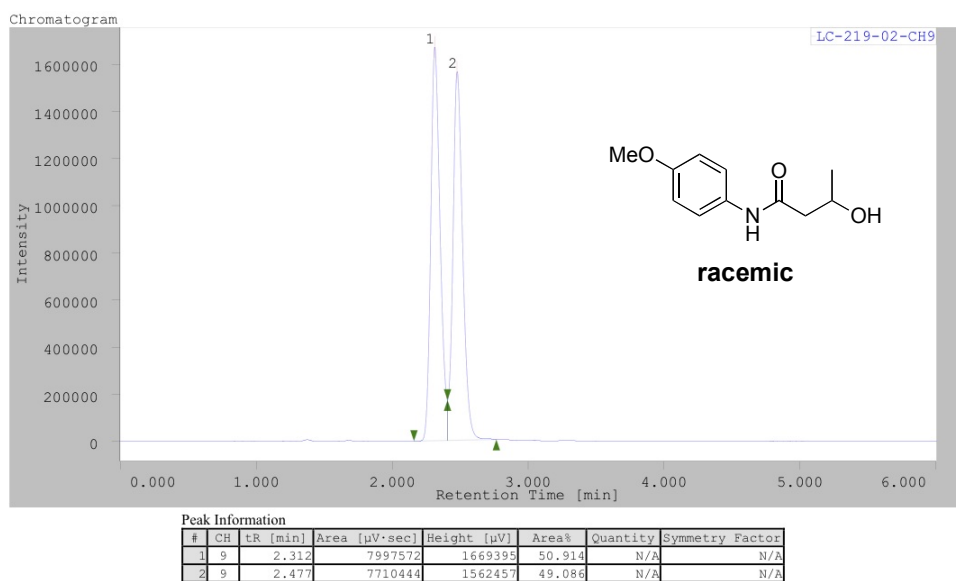


### Analysis of 3-Hydroxy-*N*-(4-methoxyphenyl)butanamide using SFC.

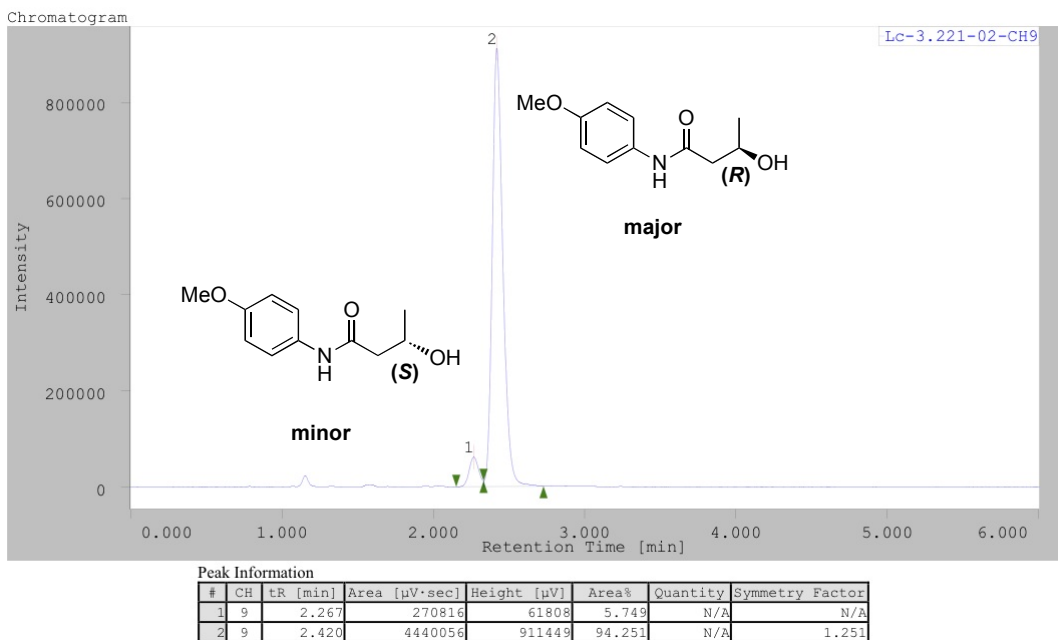
Analysis was performed using Column OD-H, 20% *i*-PrOH, 4 mL, 12MPa.

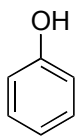
(*S*) – isomer  $t_r = 2.3$  min and (*R*) – isomer  $t_r = 2.4$  min.

### Chromatogram of racemic 3-Hydroxy-*N*-(4-methoxyphenyl)butanamide product:

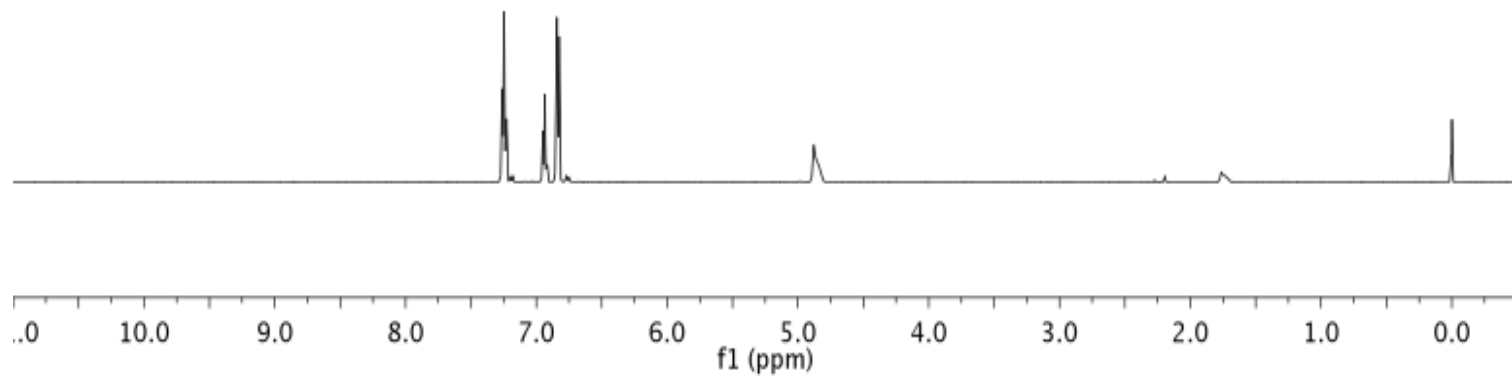


### Chromatogram of enantioenriched 3-Hydroxy-*N*-(4-methoxyphenyl)butanamide product (5):

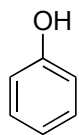




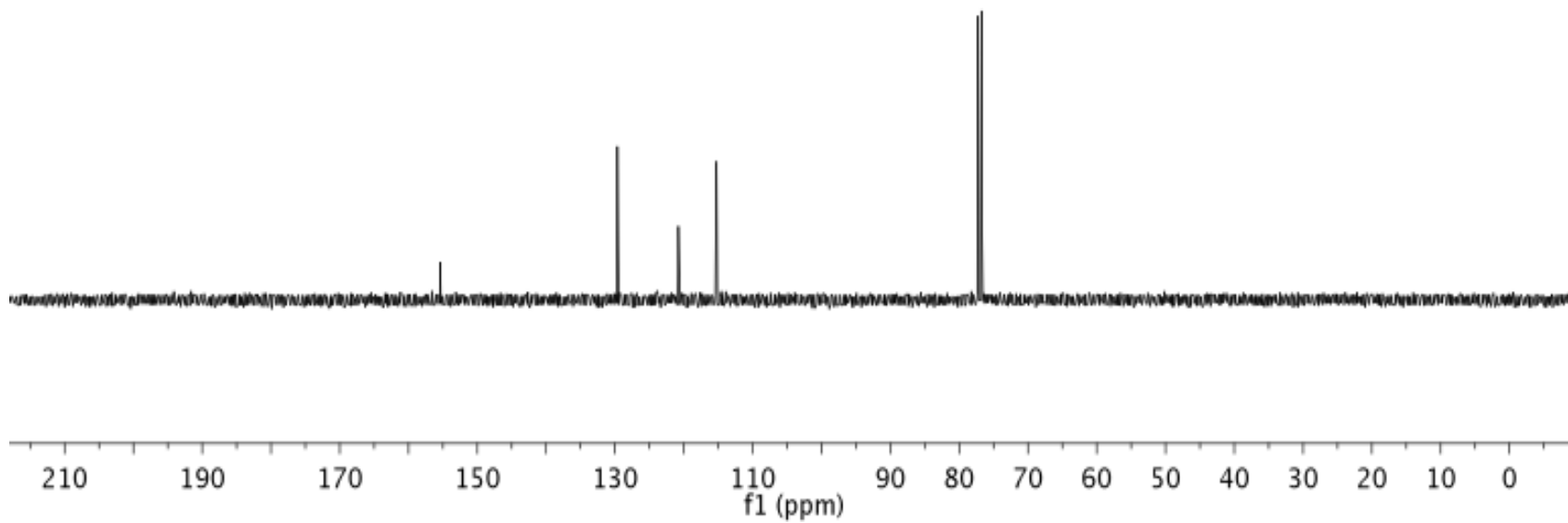
**(1a)**



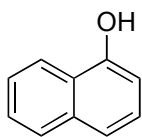
**<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Phenol (1a)**



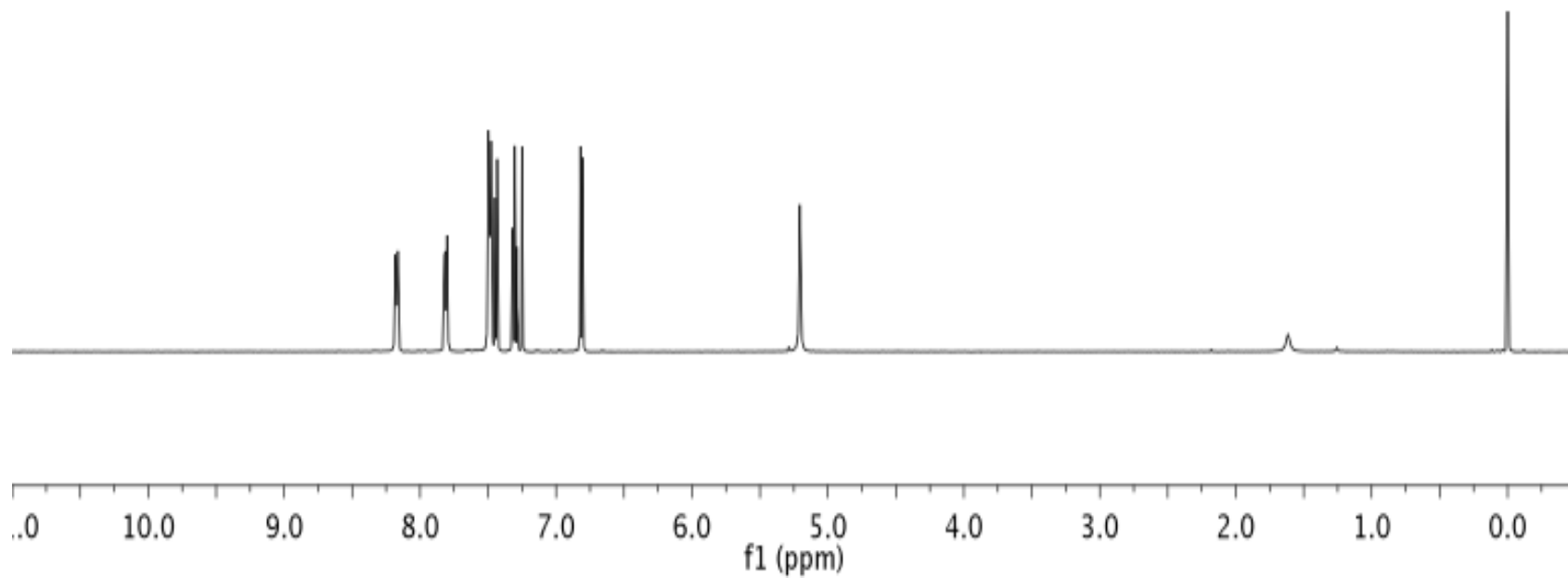
(1a)



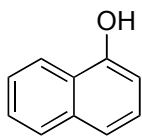
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of Phenol (1a)



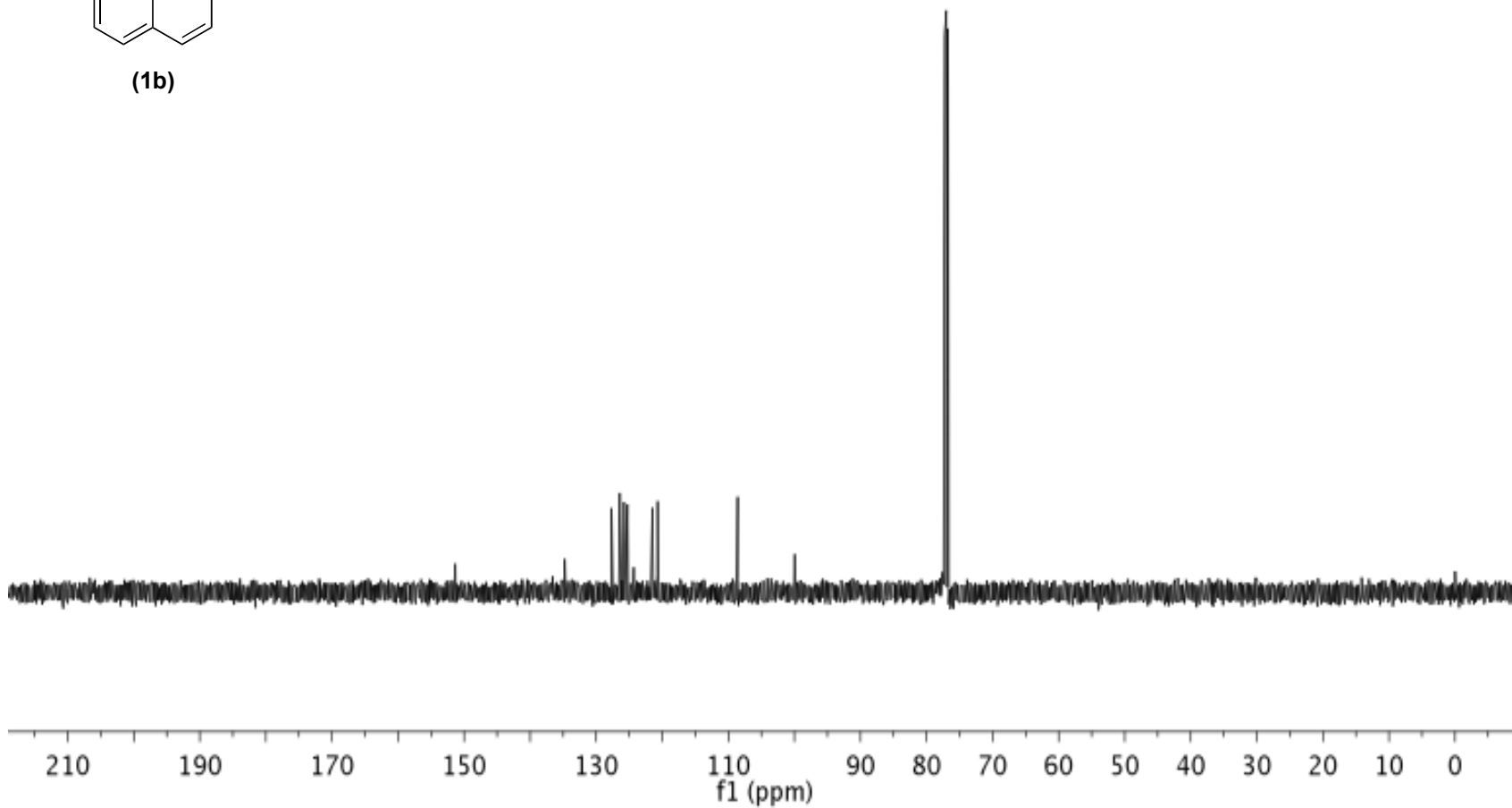
**(1b)**



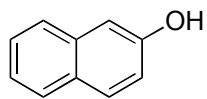
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Naphthalen-1-ol (1b)



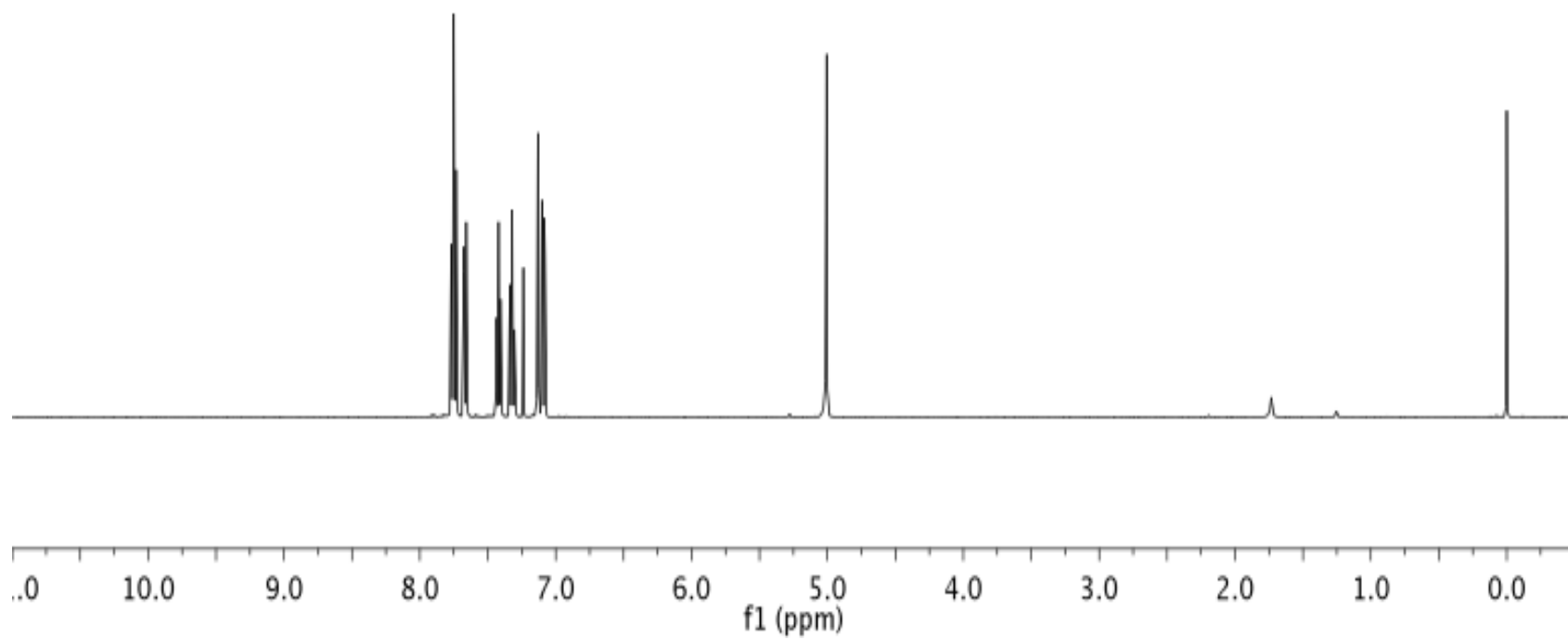
**(1b)**



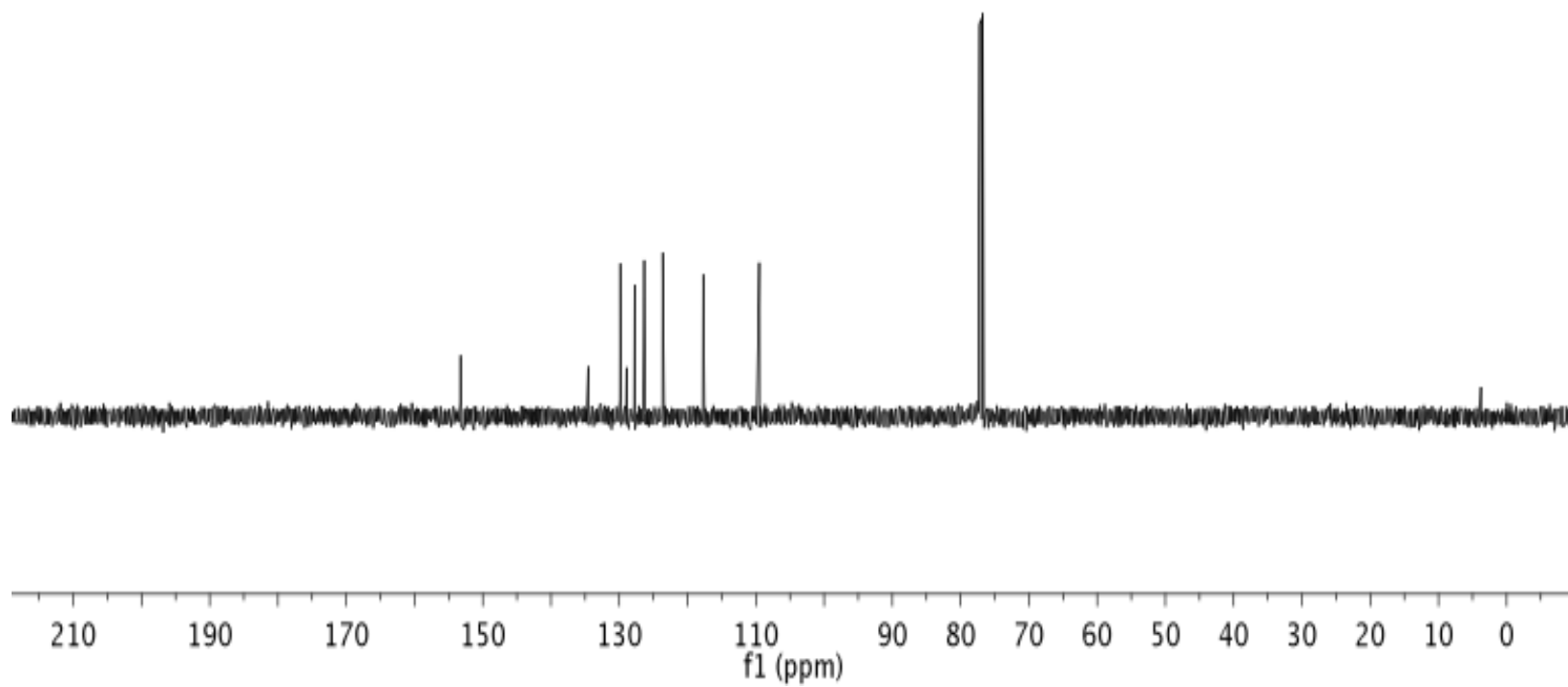
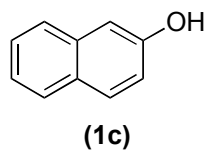
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of Naphthalen-1-ol (1b)



(1c)

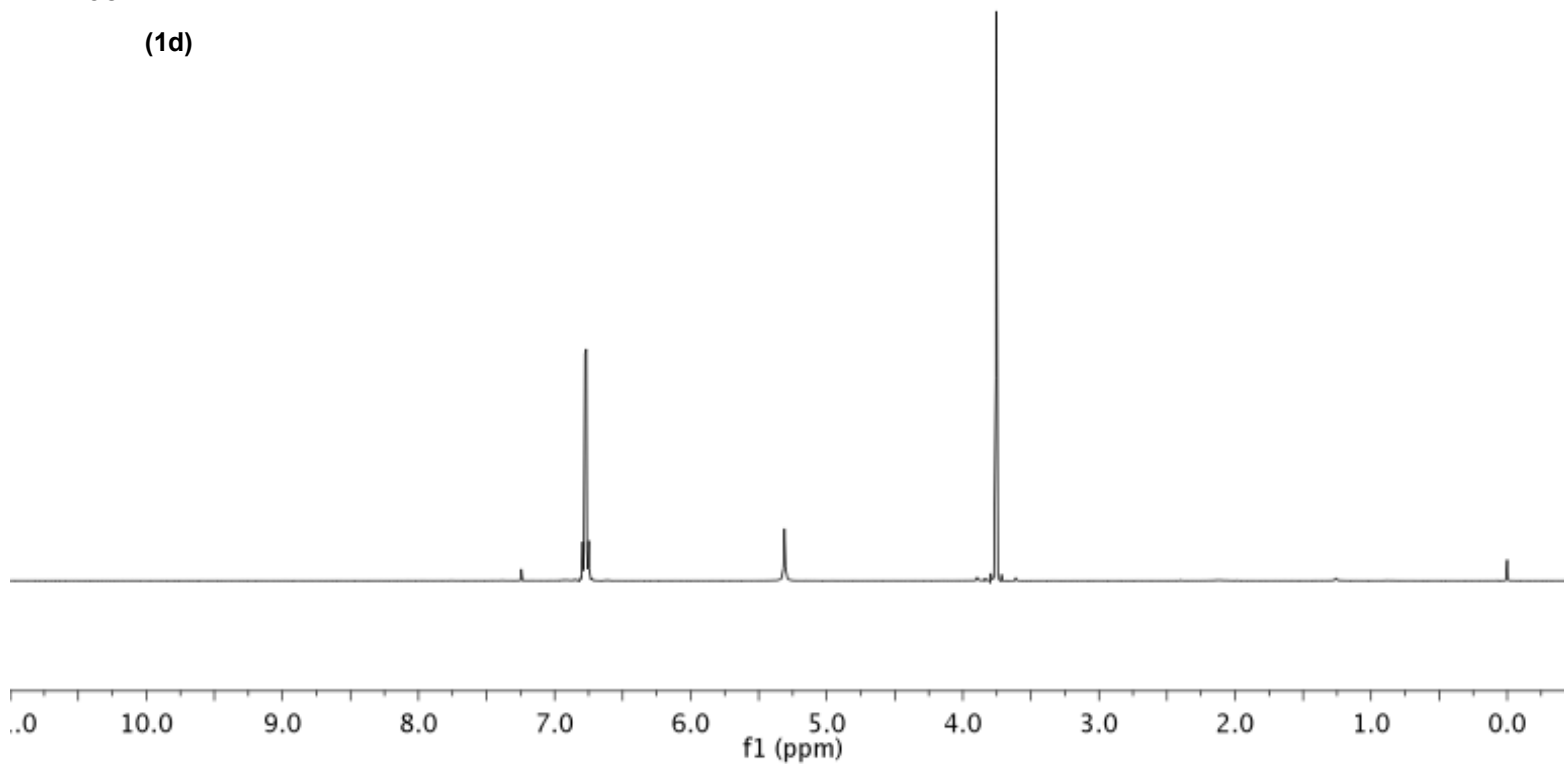
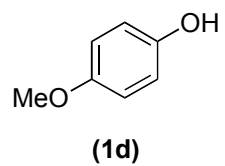


<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Naphthalen-2-ol (1c)

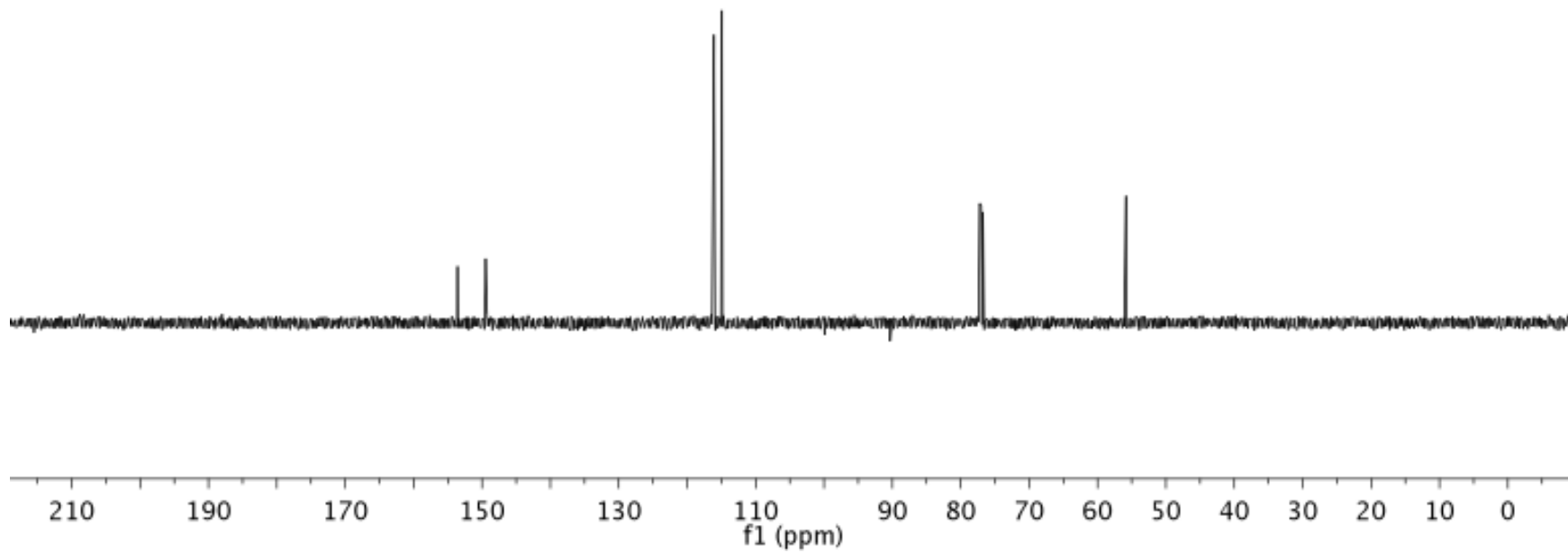
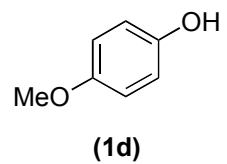


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of Naphthalen-2-ol (1c)

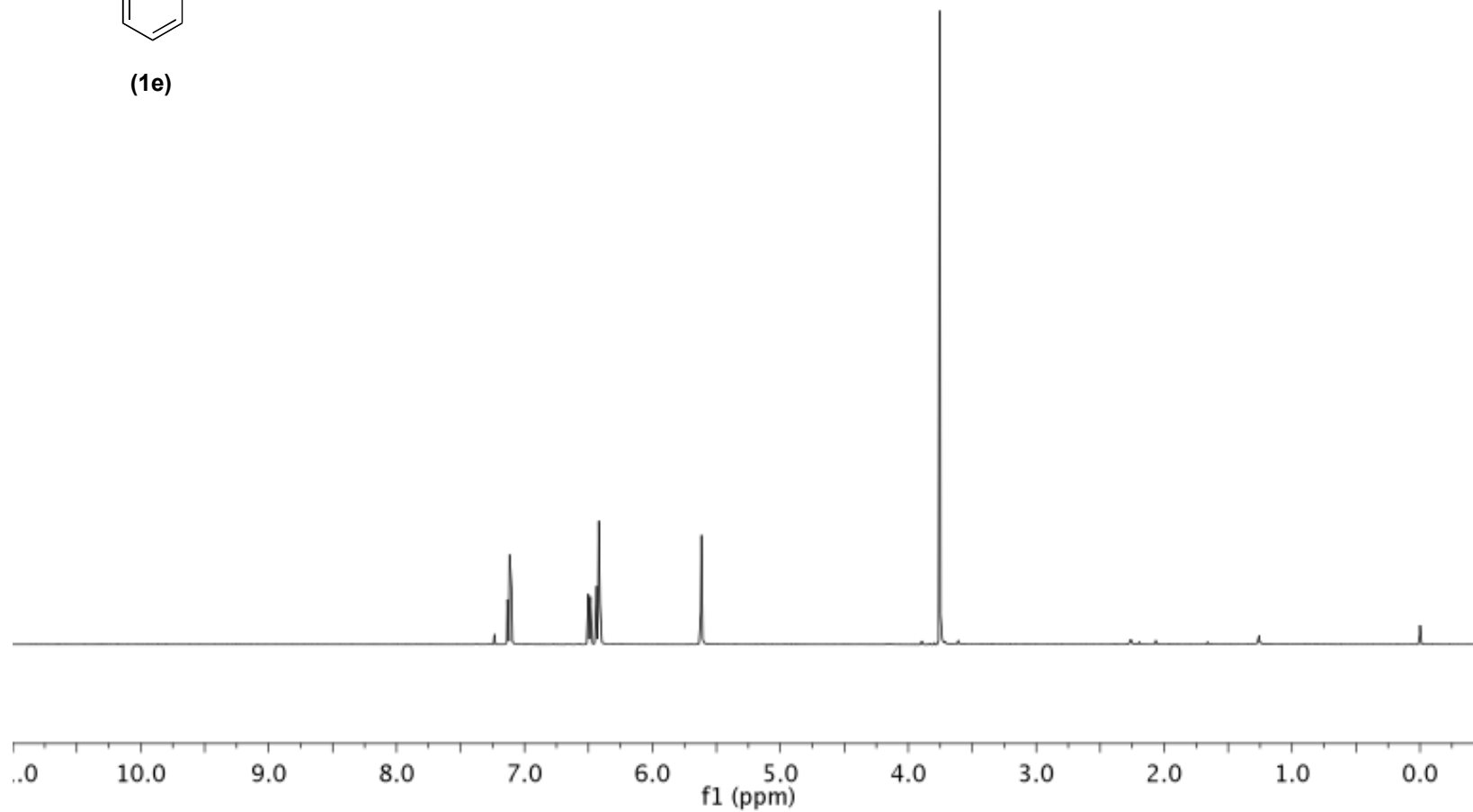
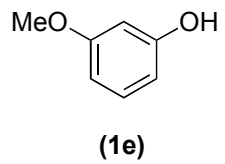




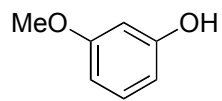
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Methoxyphenol (1d)



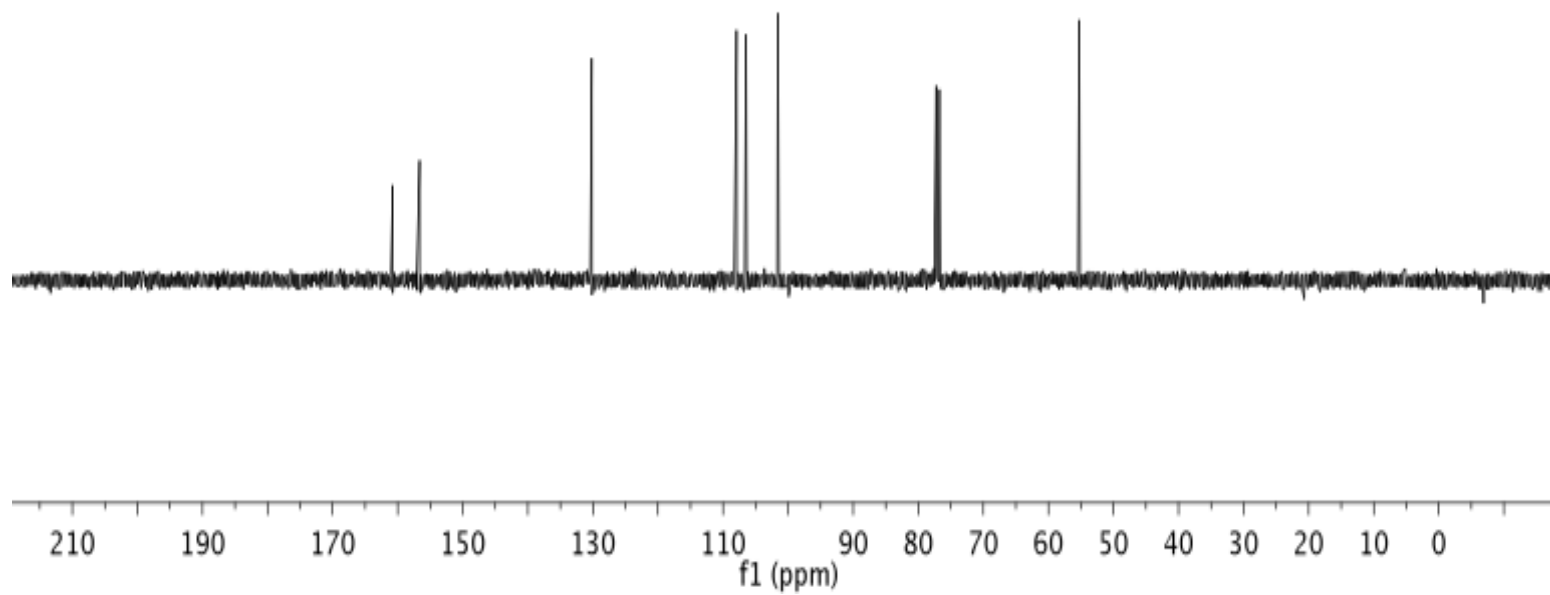
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Methoxyphenol (1d)



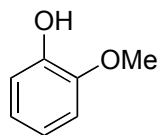
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 3-Methoxyphenol (1e)



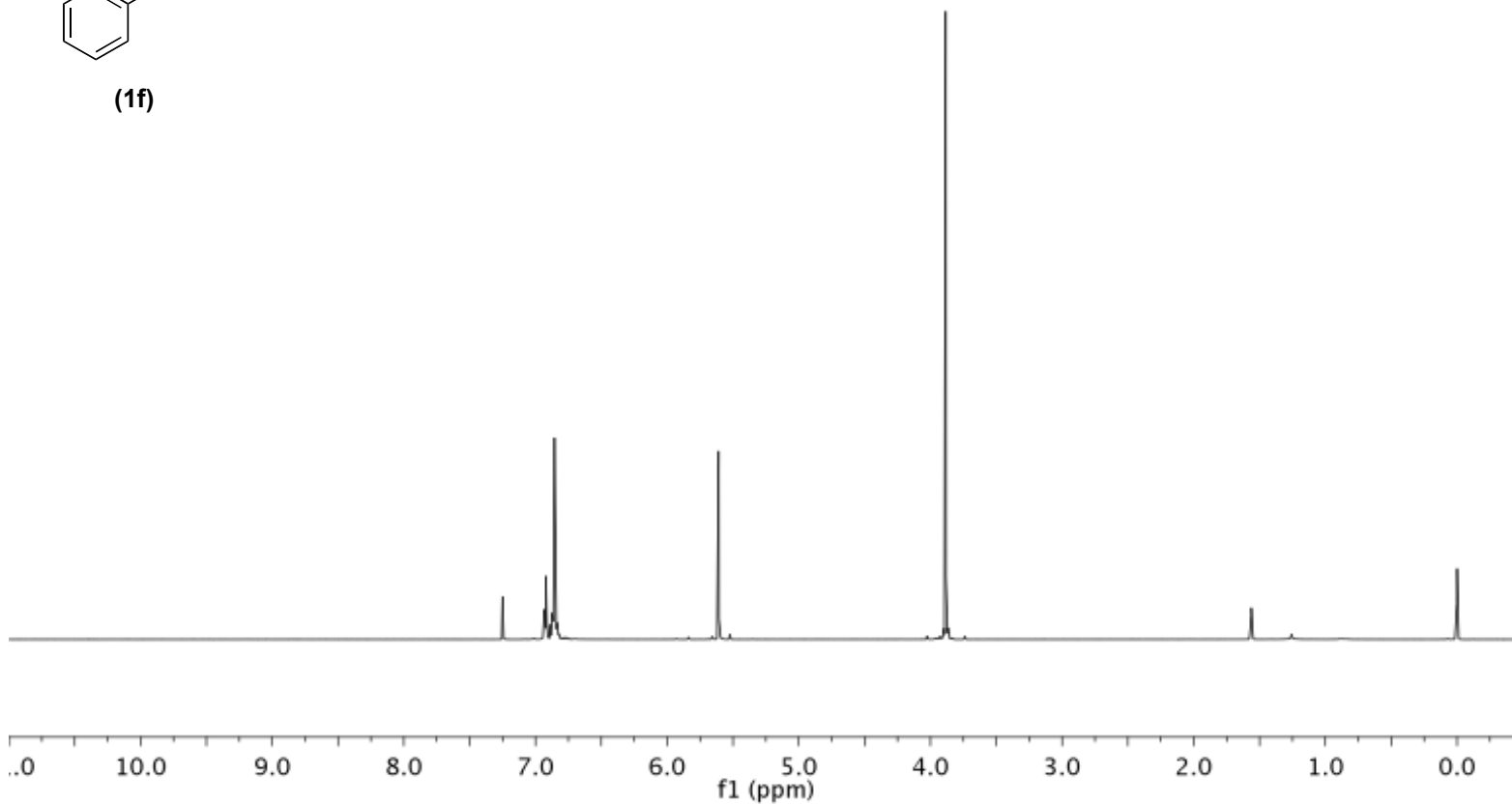
(1e)



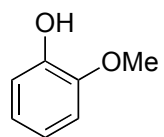
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 3-Methoxyphenol (1e)



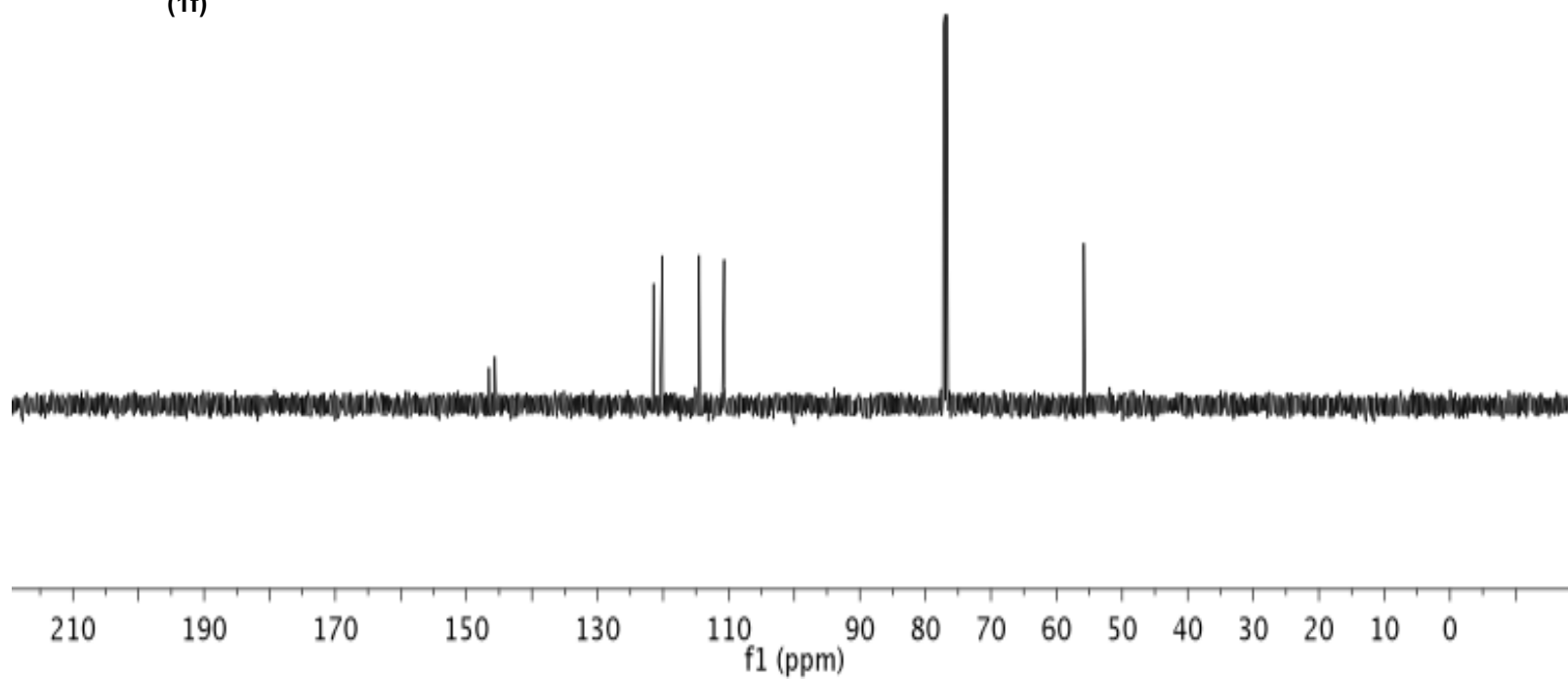
(1f)



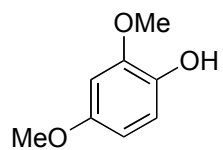
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 2-Methoxyphenol (1f)



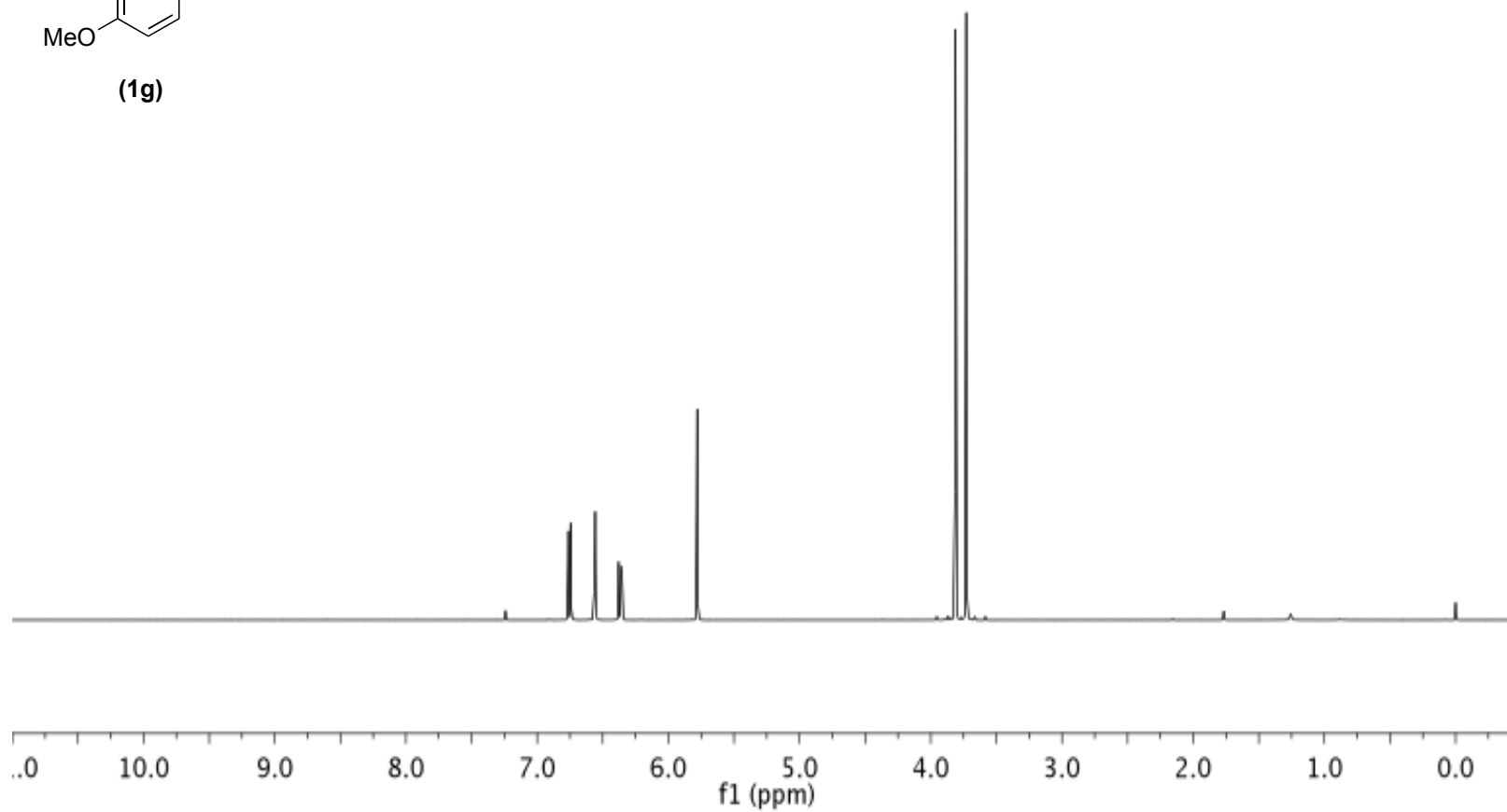
(1f)



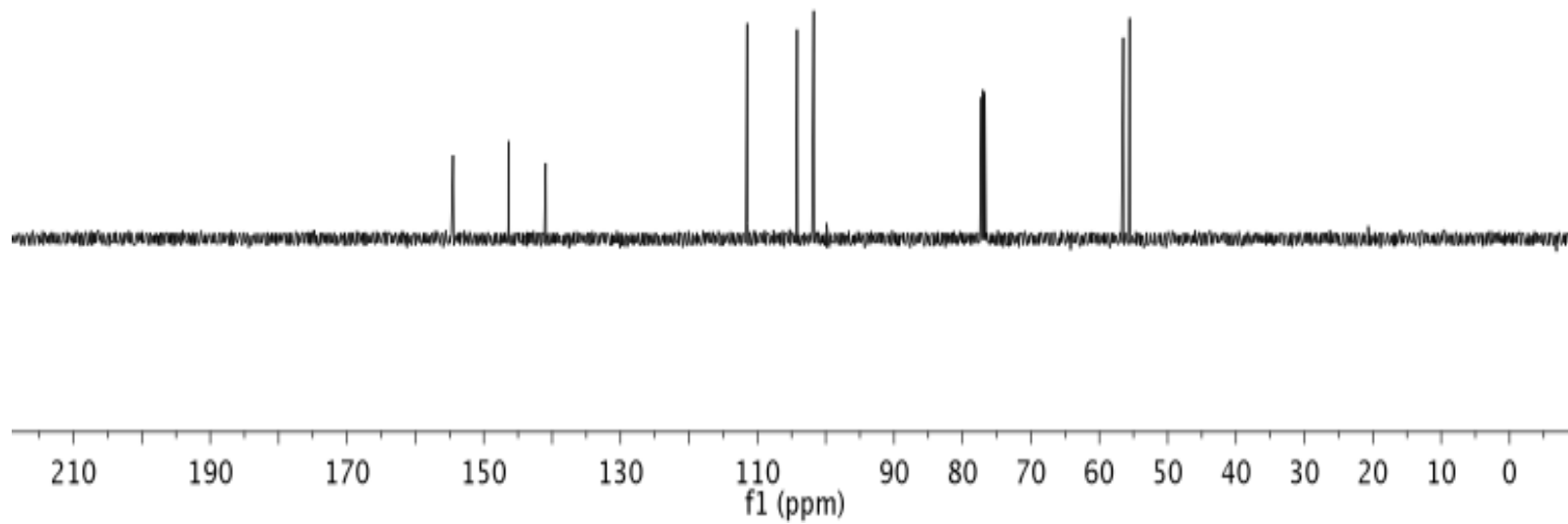
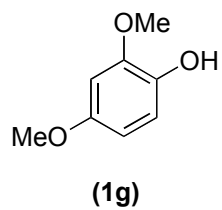
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 2-Methoxyphenol (1f)



**(1g)**

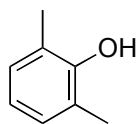


**<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 2,4-Dimethoxyphenol (1g)**

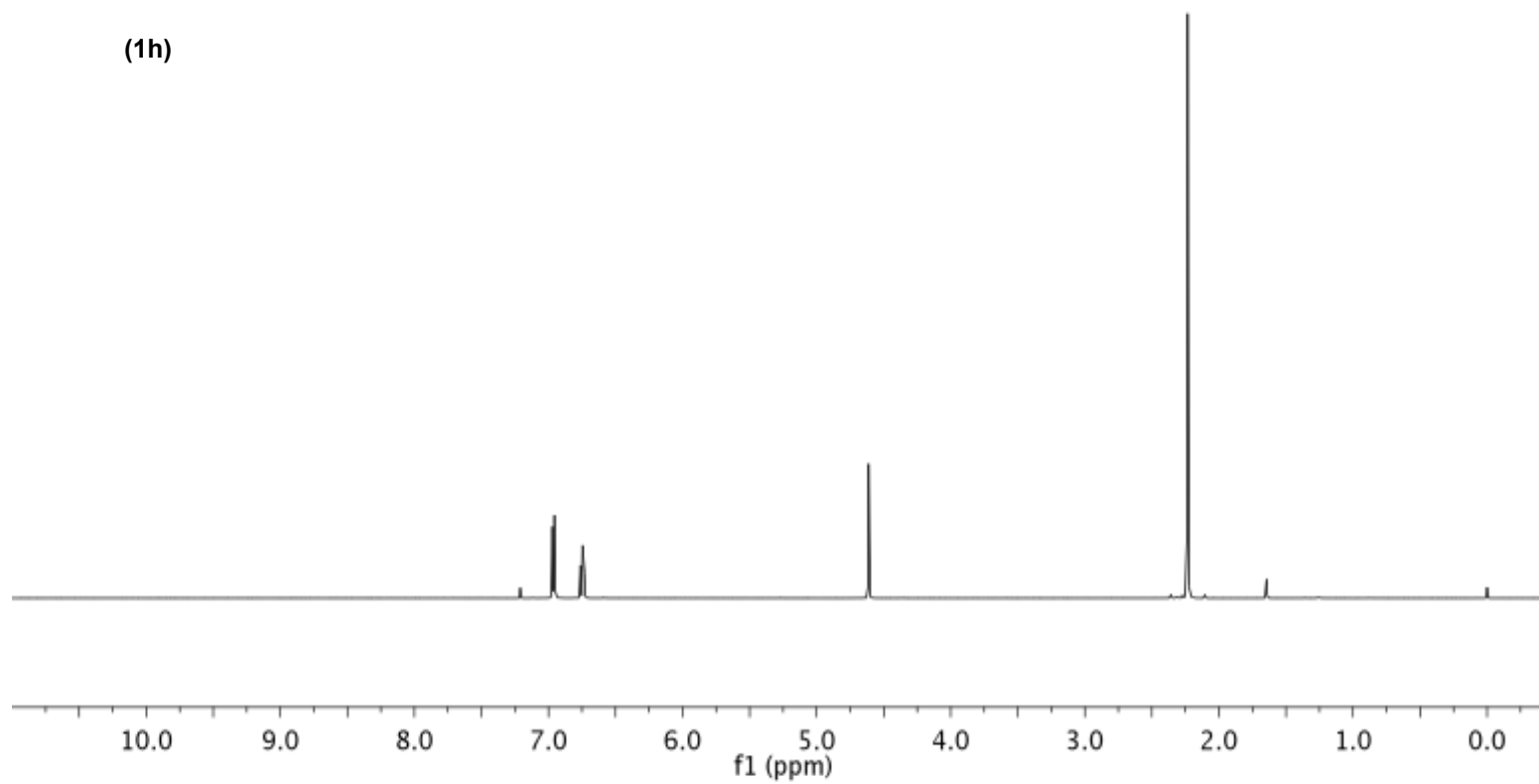


<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 2,4-Dimethoxyphenol (1g)

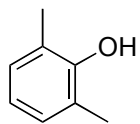




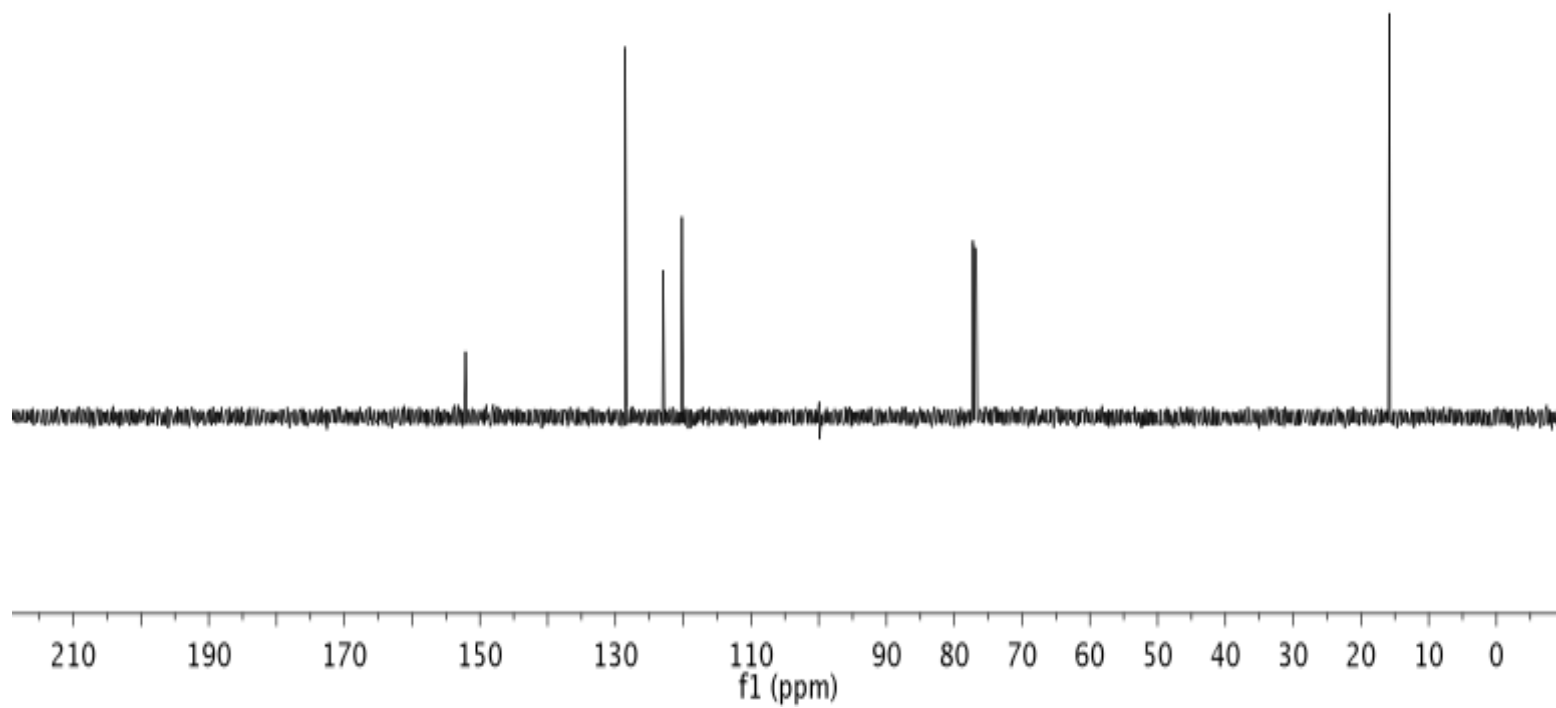
(1h)



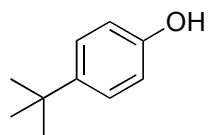
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 2,6-Dimethylphenol (1h)



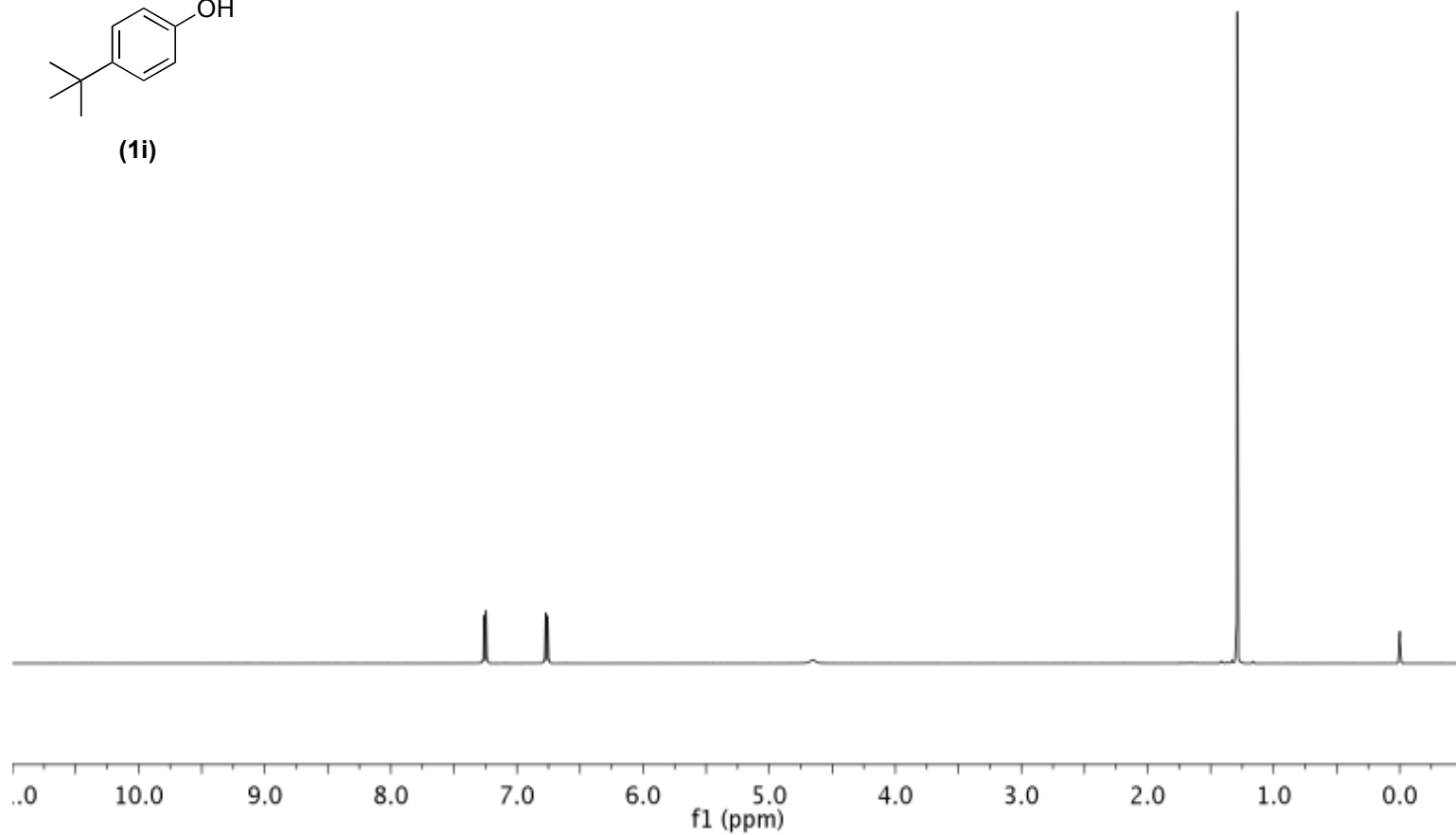
(1h)



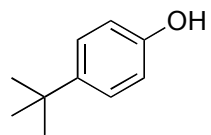
$^{13}\text{C}$  NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 2,6-Dimethylphenol (1h)



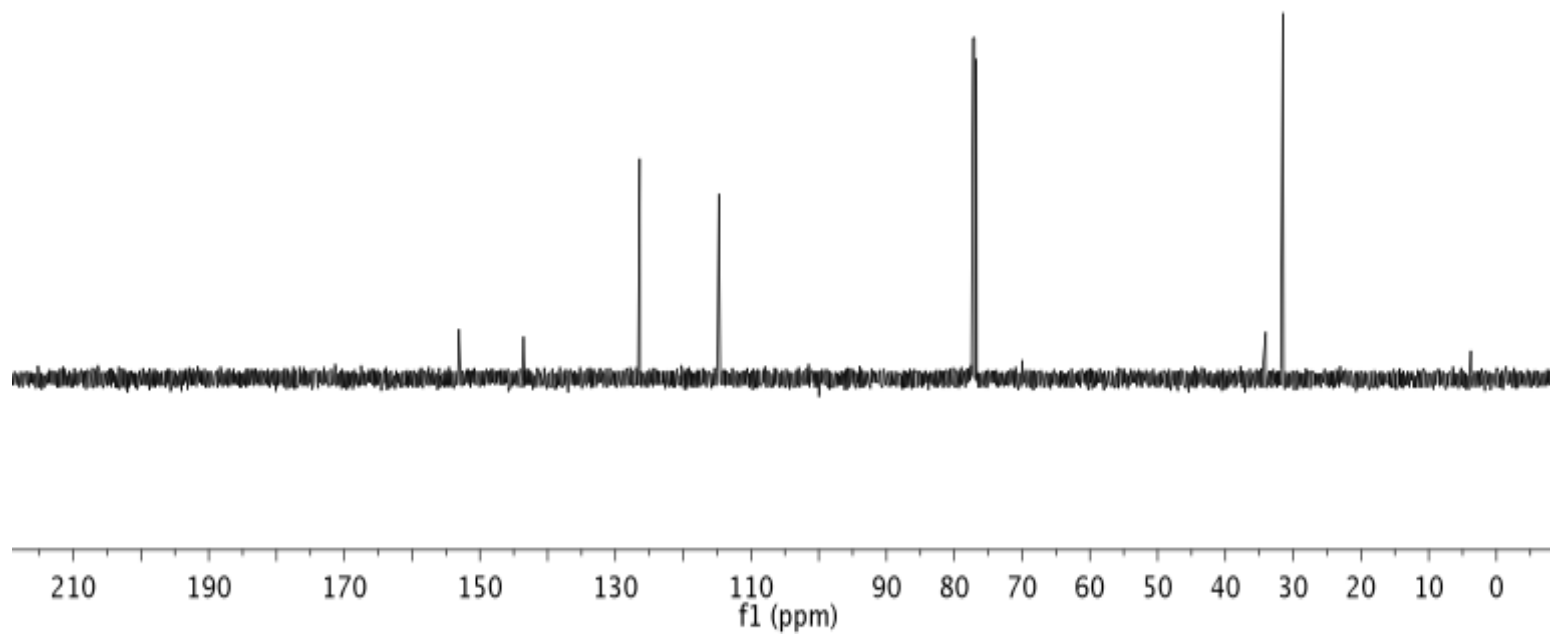
(1i)



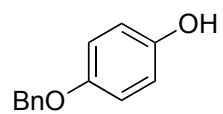
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-(*tert*-Butyl)phenol (1i)



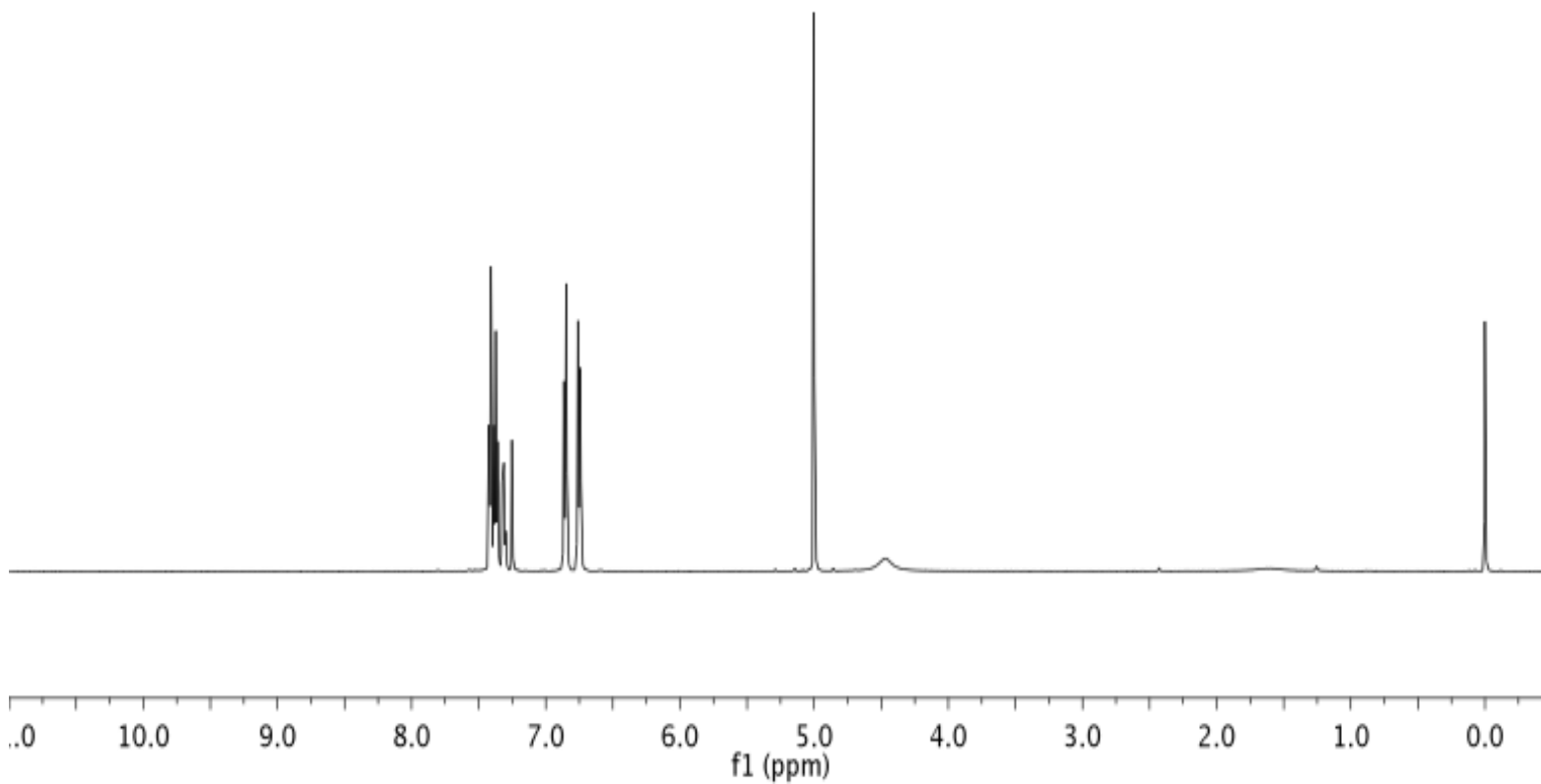
(1i)



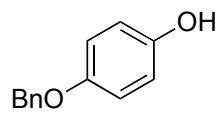
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-*tert*-Butylphenol (1i)



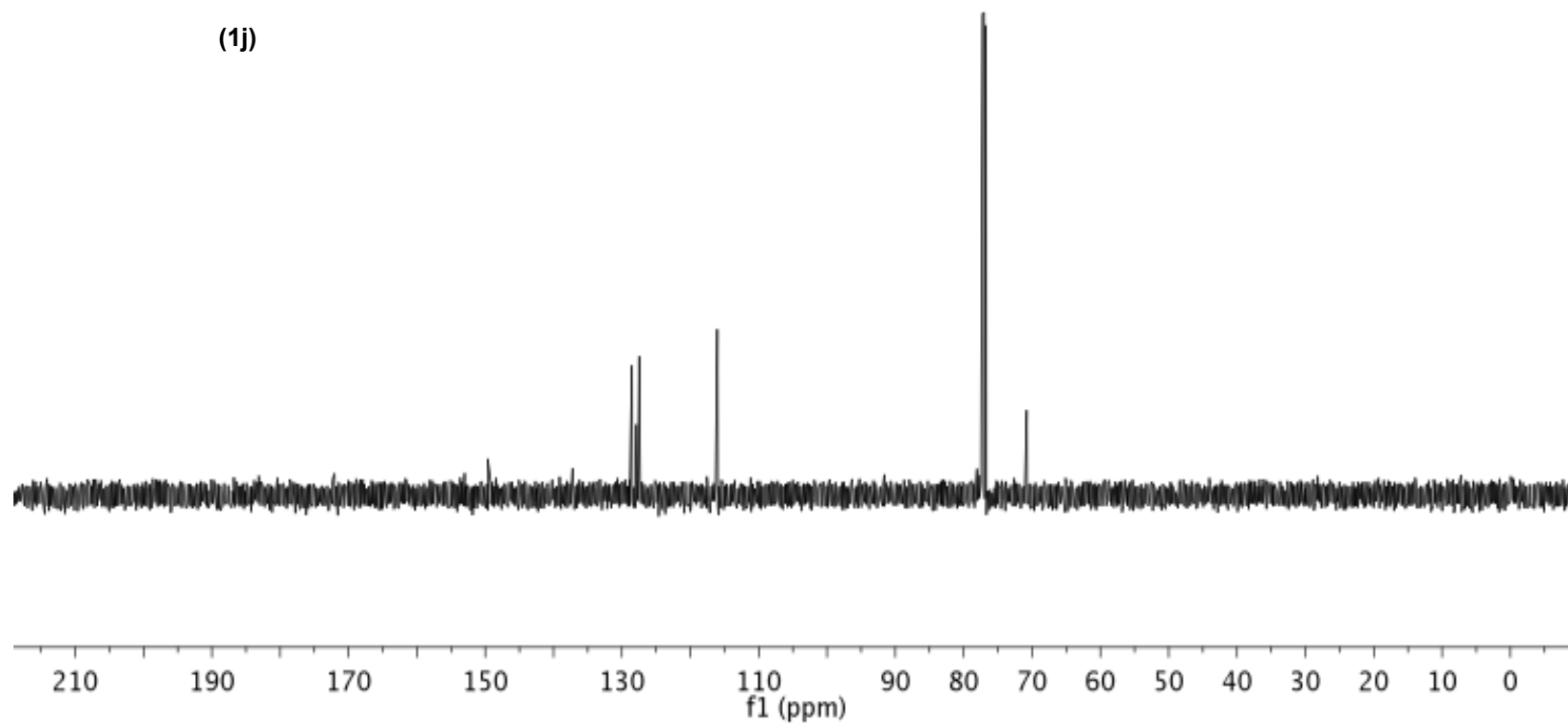
(1j)



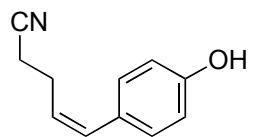
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-(Benzyloxy)phenol (1j)



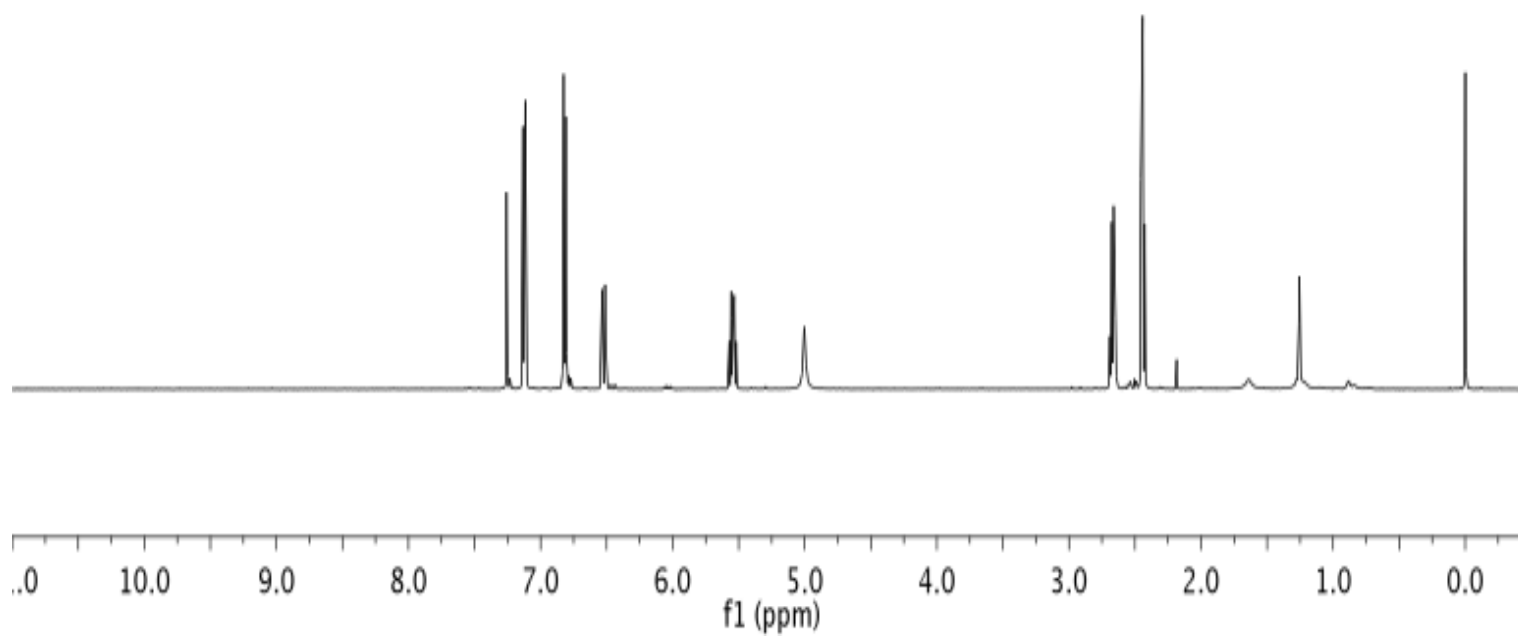
(1j)



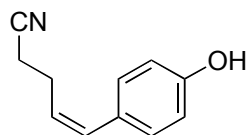
$^{13}\text{C}$  NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 4-(Benzyloxy)phenol (1j)



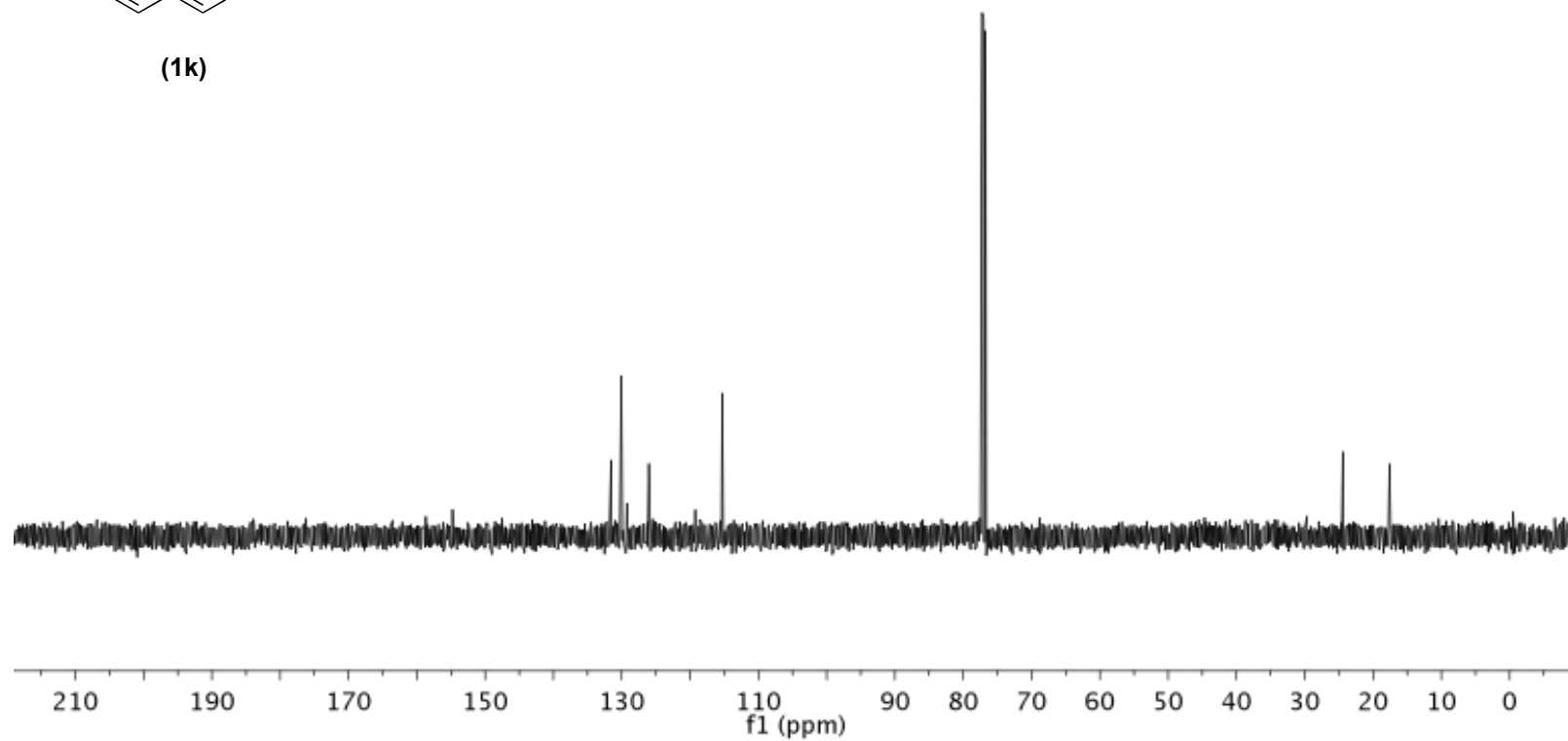
**(1k)**



**<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of (Z)-5-(4-Hydroxyphenyl)pent-4-enitrile (1k)**

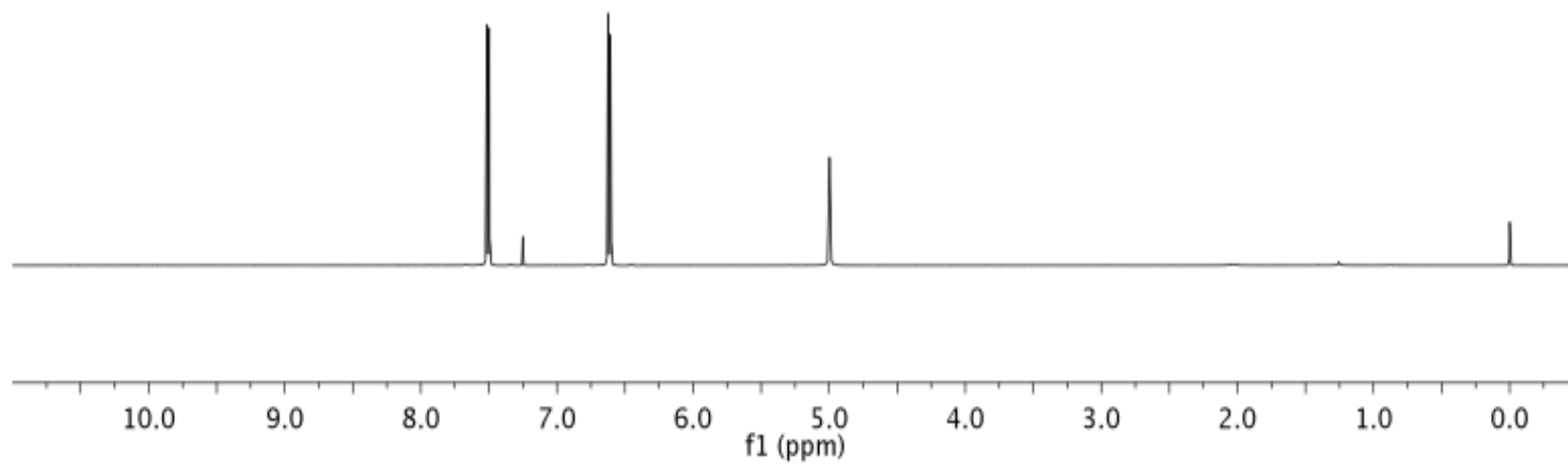
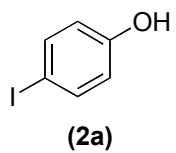


(1k)

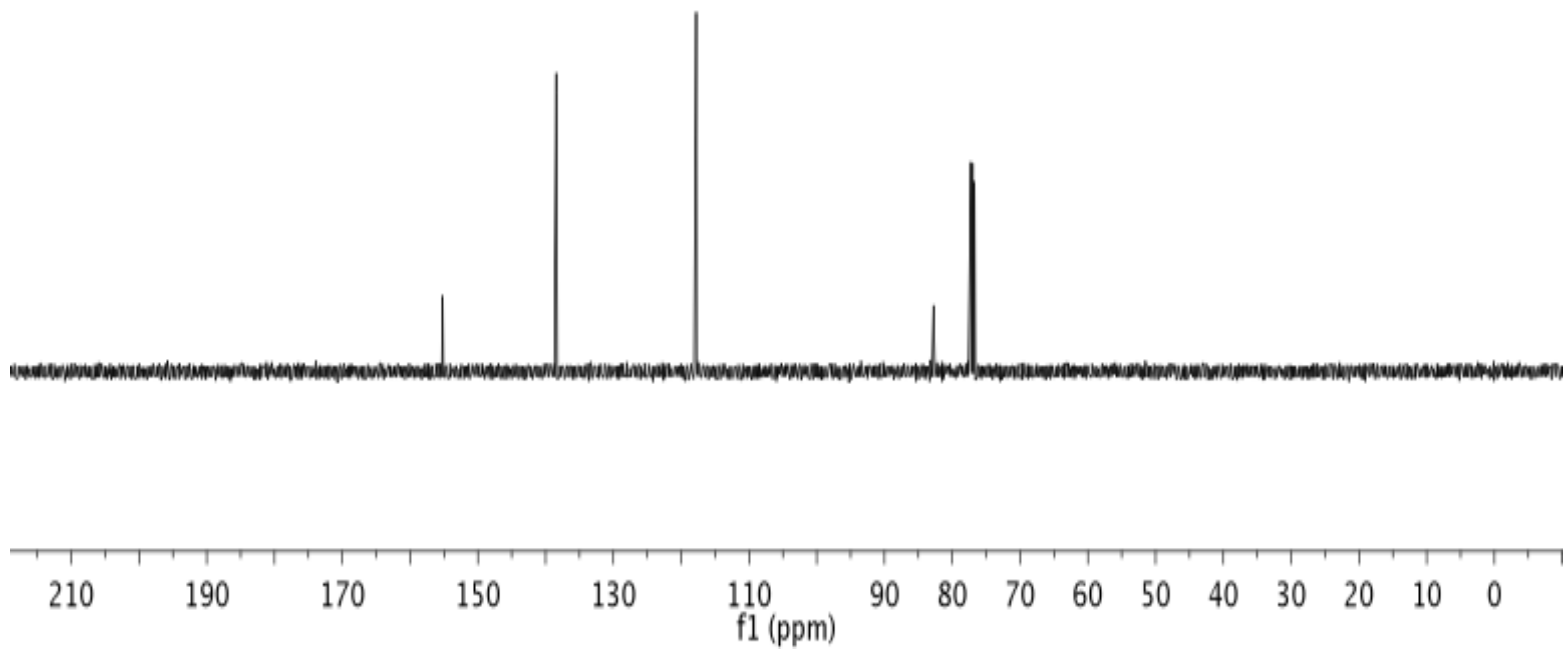
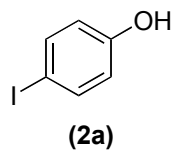


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of (Z)-5-(4-Hydroxyphenyl)pent-4-enitrile (1k)

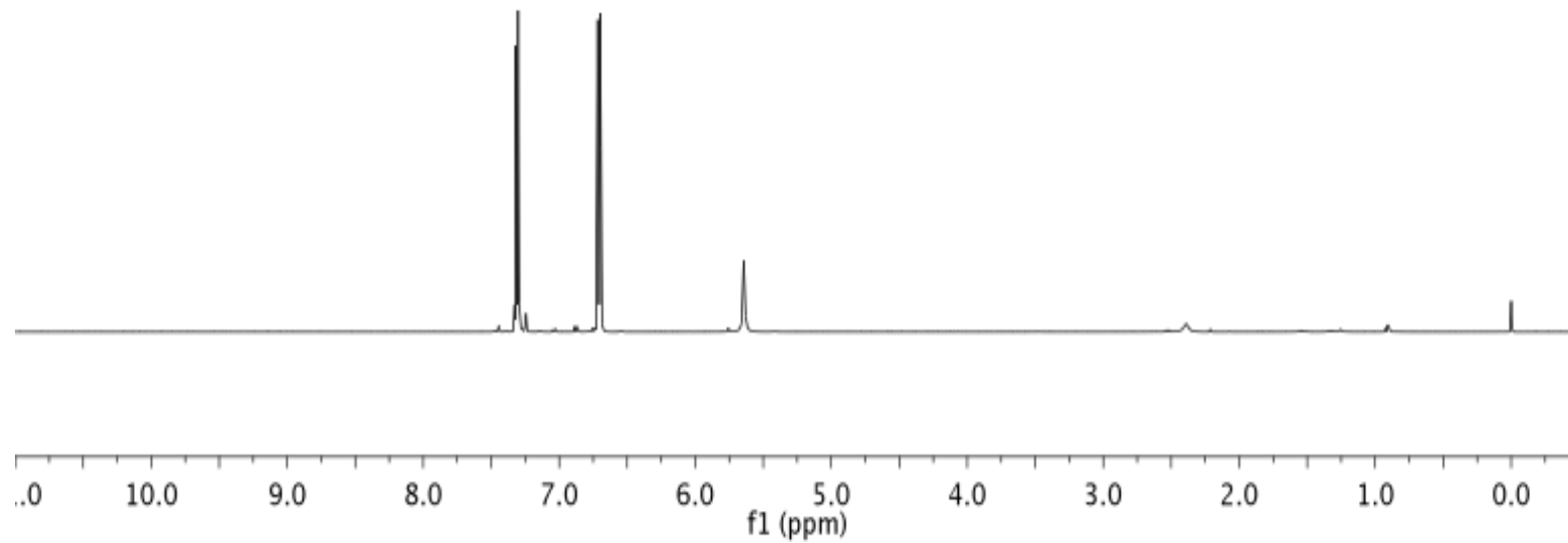
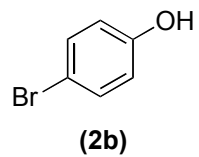




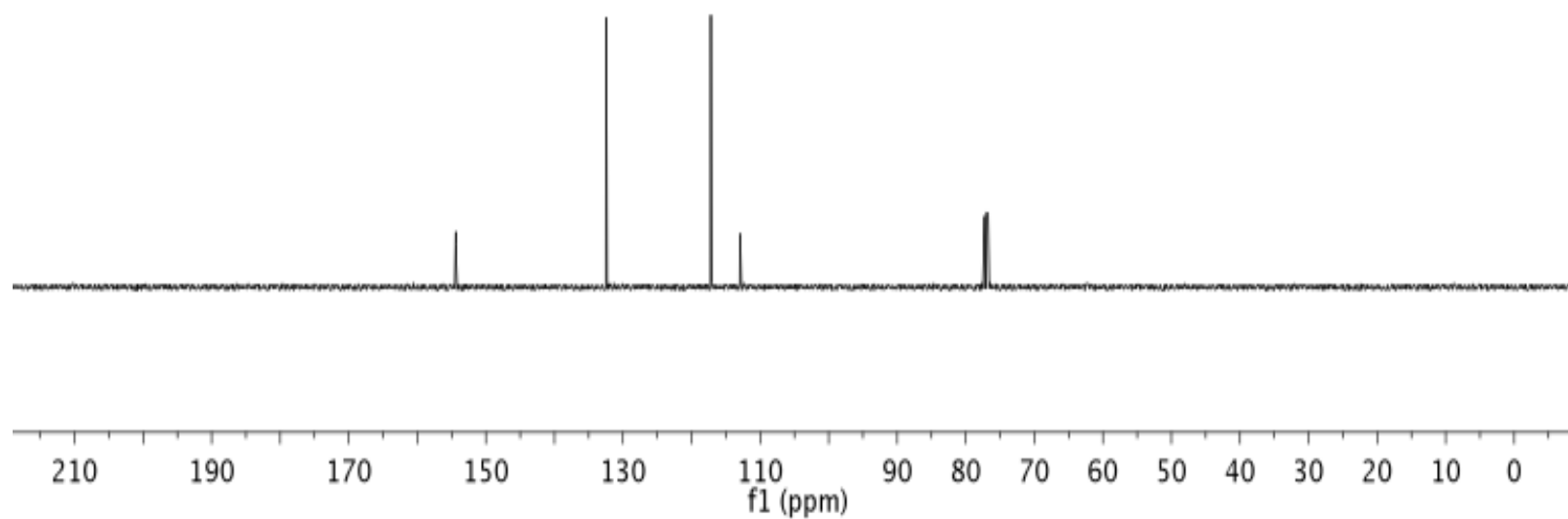
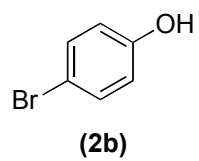
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-Iodophenol (2a)



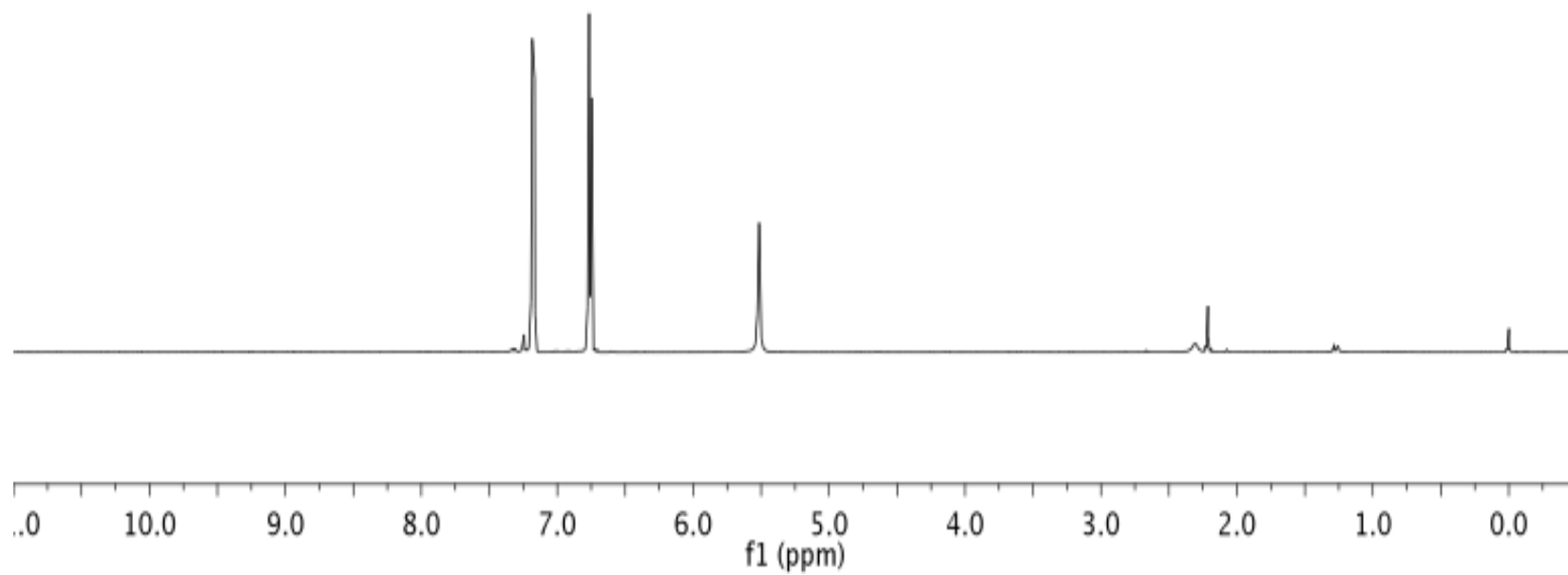
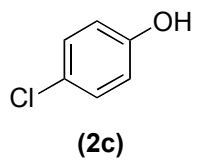
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Iodophenol (2a)



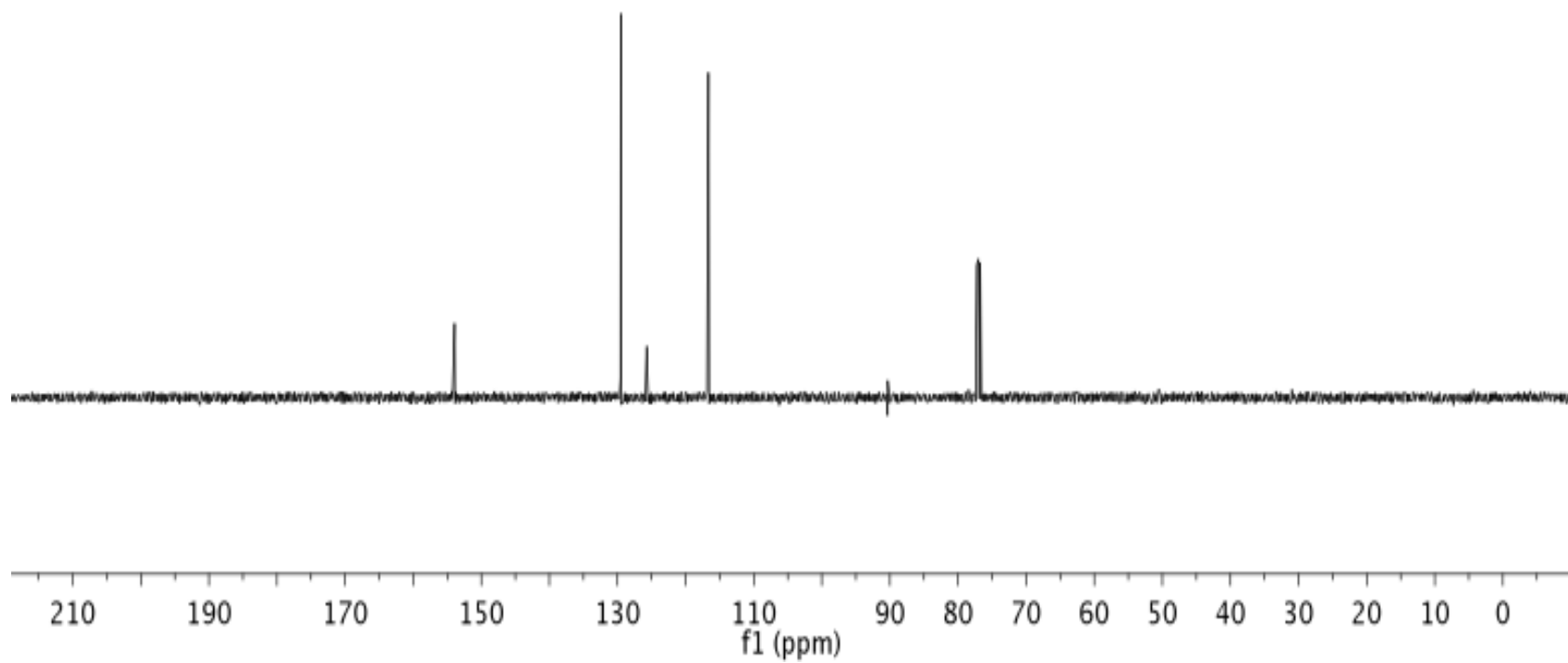
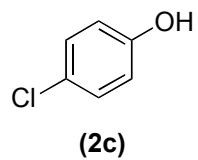
**<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-Bromophenol (2b)**



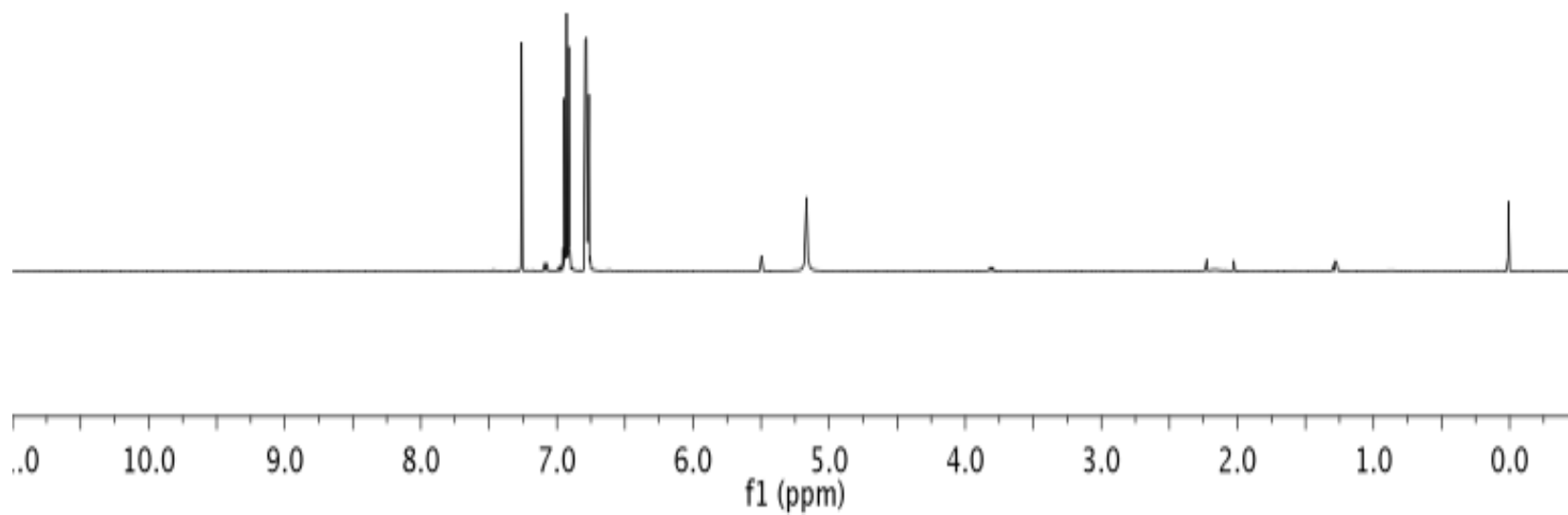
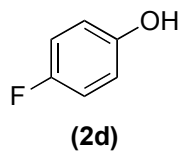
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Bromophenol (2b)



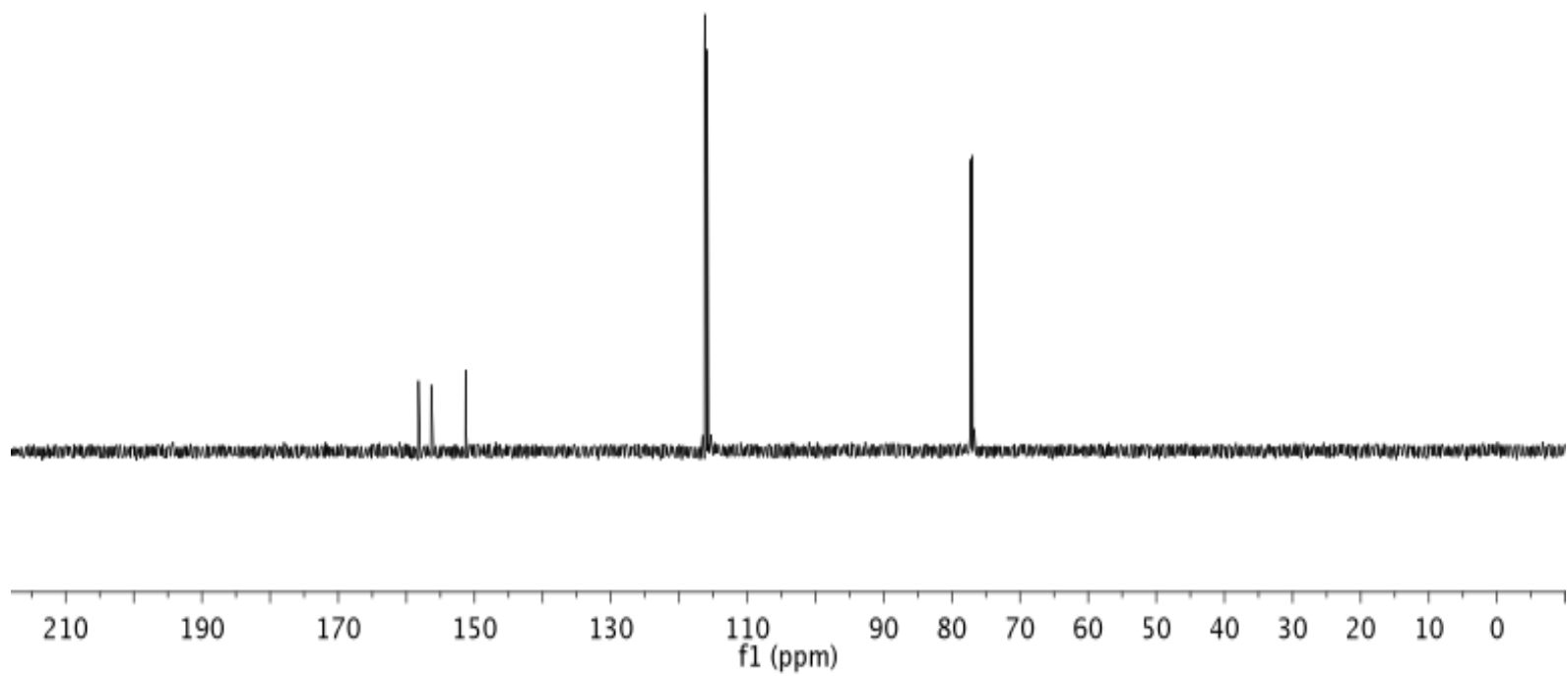
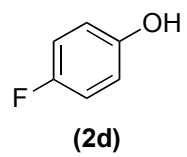
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Chlorophenol (2c)



$^{13}\text{C}$  NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 4-Chlorophenol (2c)

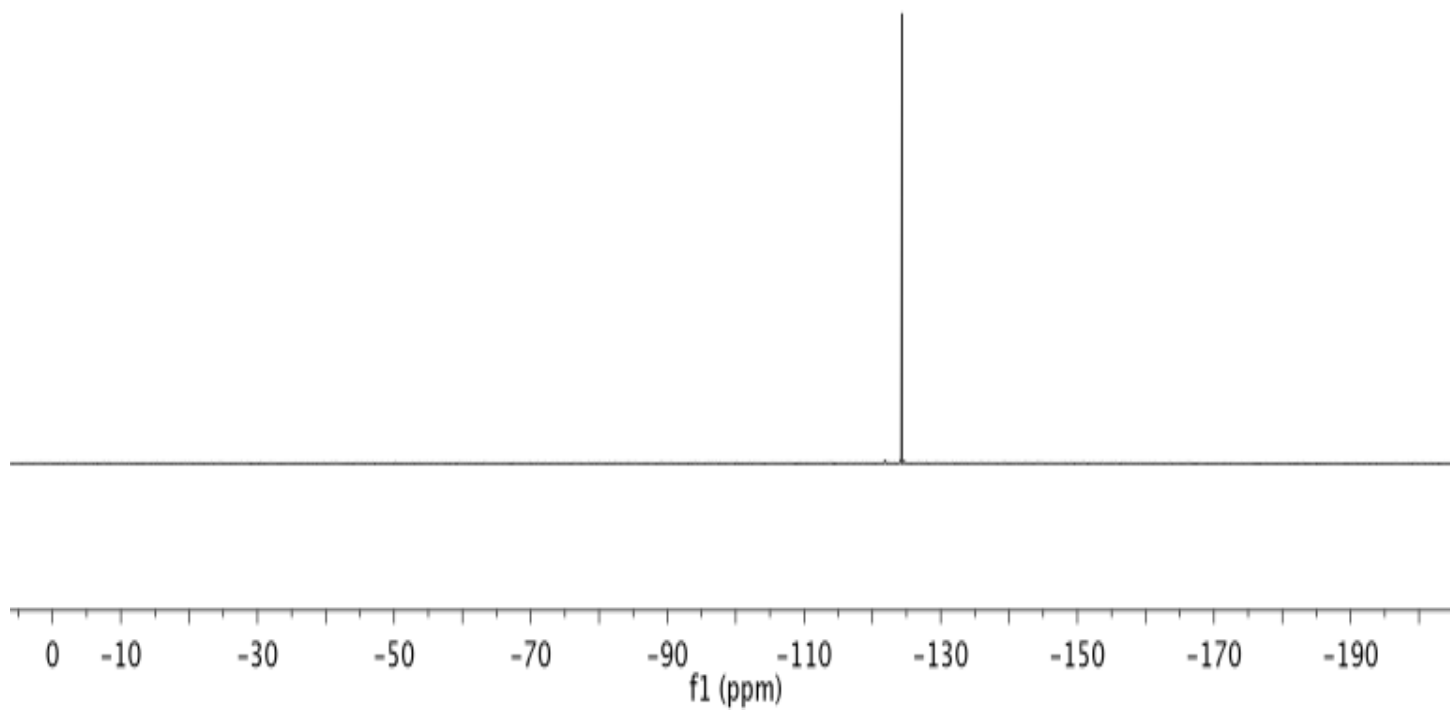
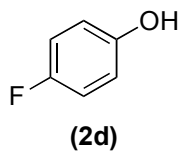


<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-Fluorophenol (2d)

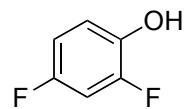


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Fluorophenol (2d)

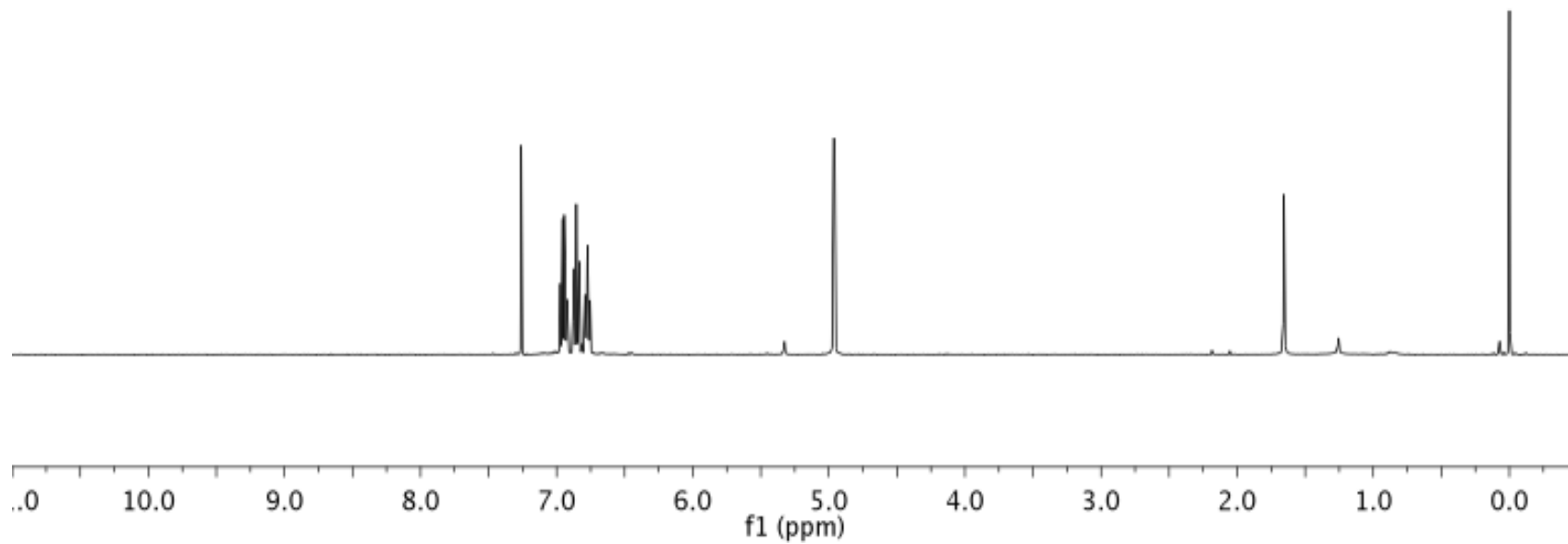




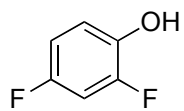
$^{19}\text{F}$  NMR (470.8 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Fluorophenol (2d)



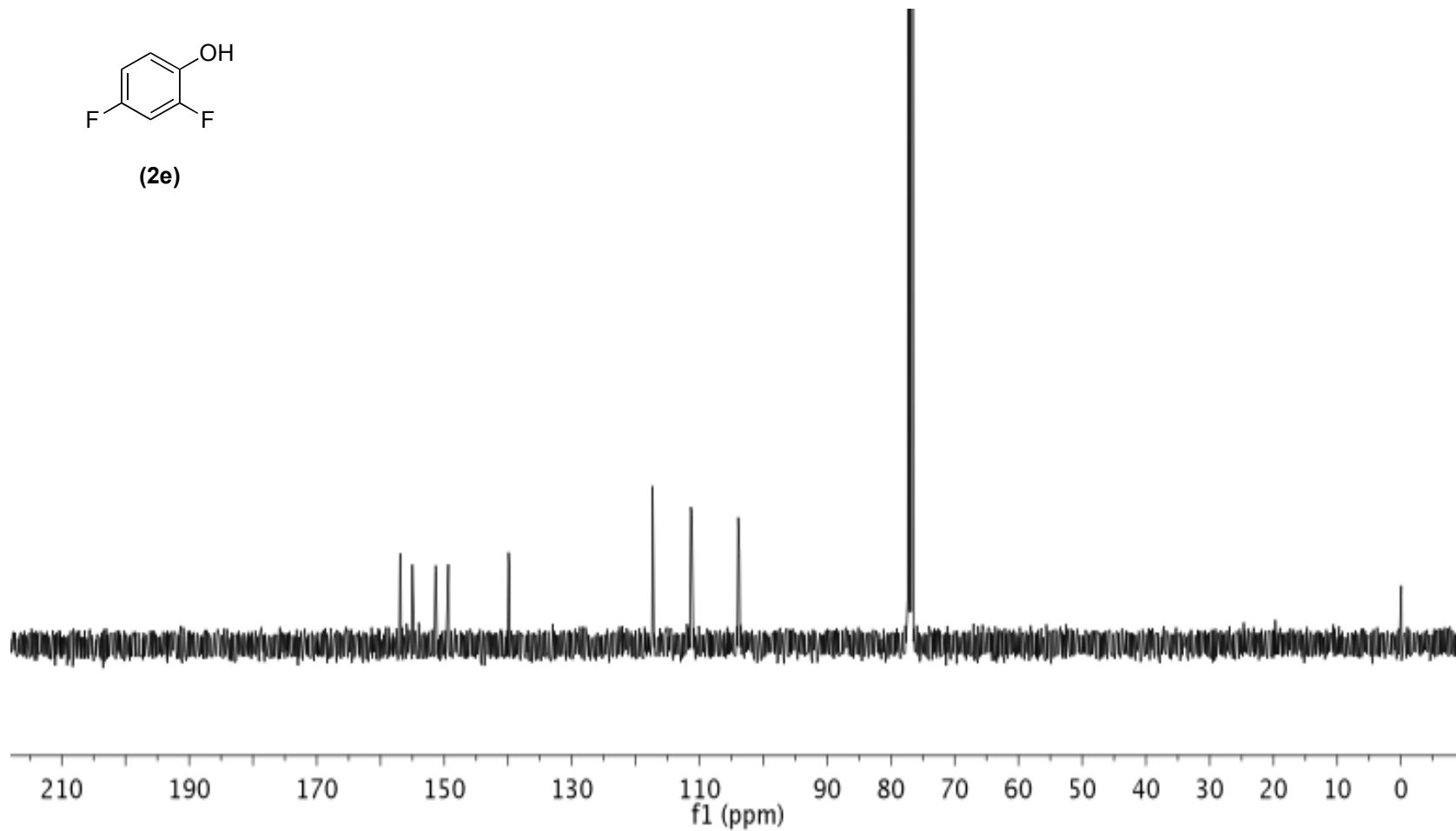
(2e)



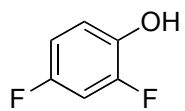
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 2,4-Difluorophenol (2e)



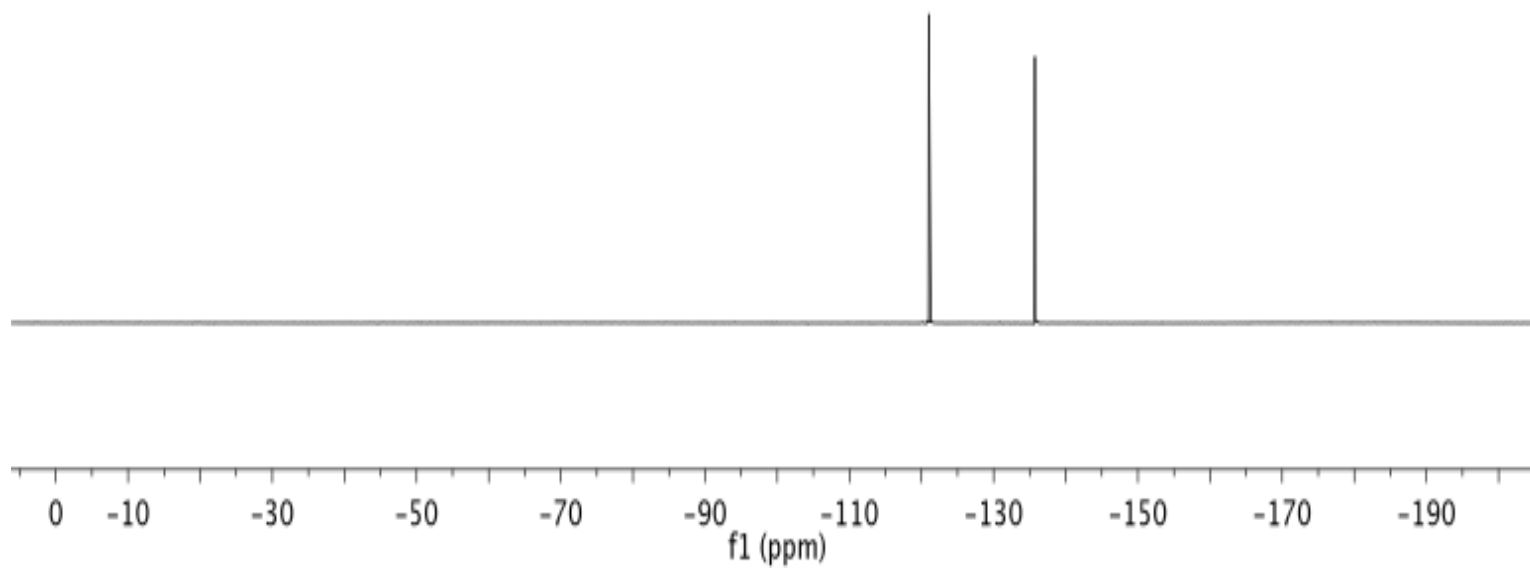
(2e)



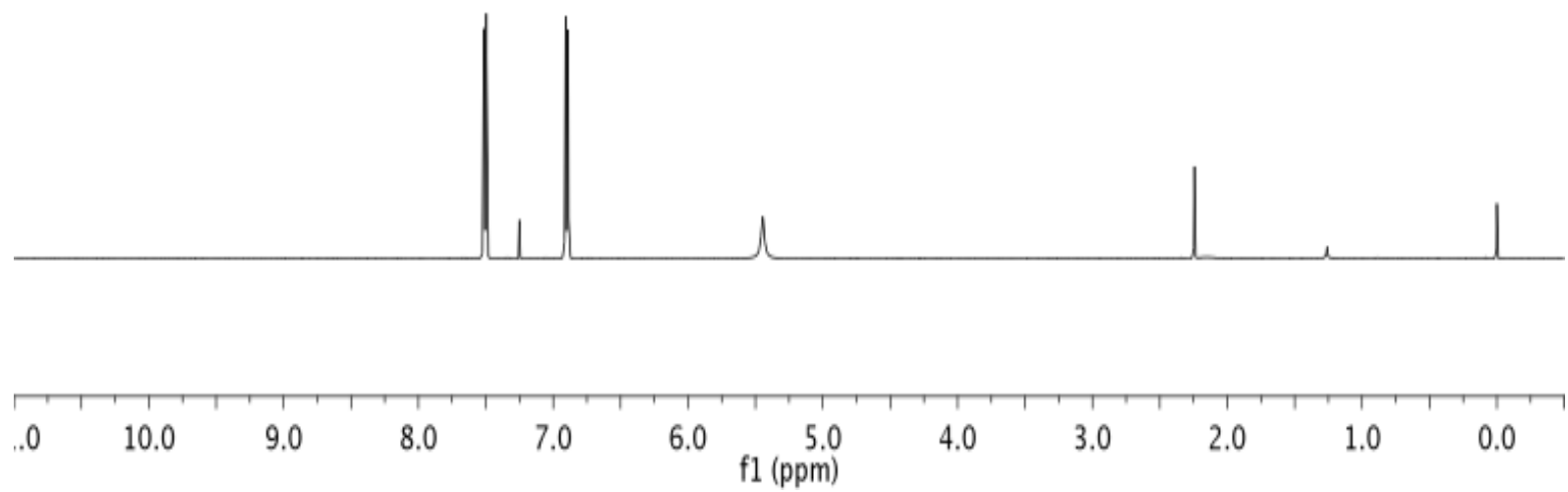
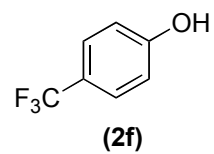
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 2,4-Difluorophenol (2e)



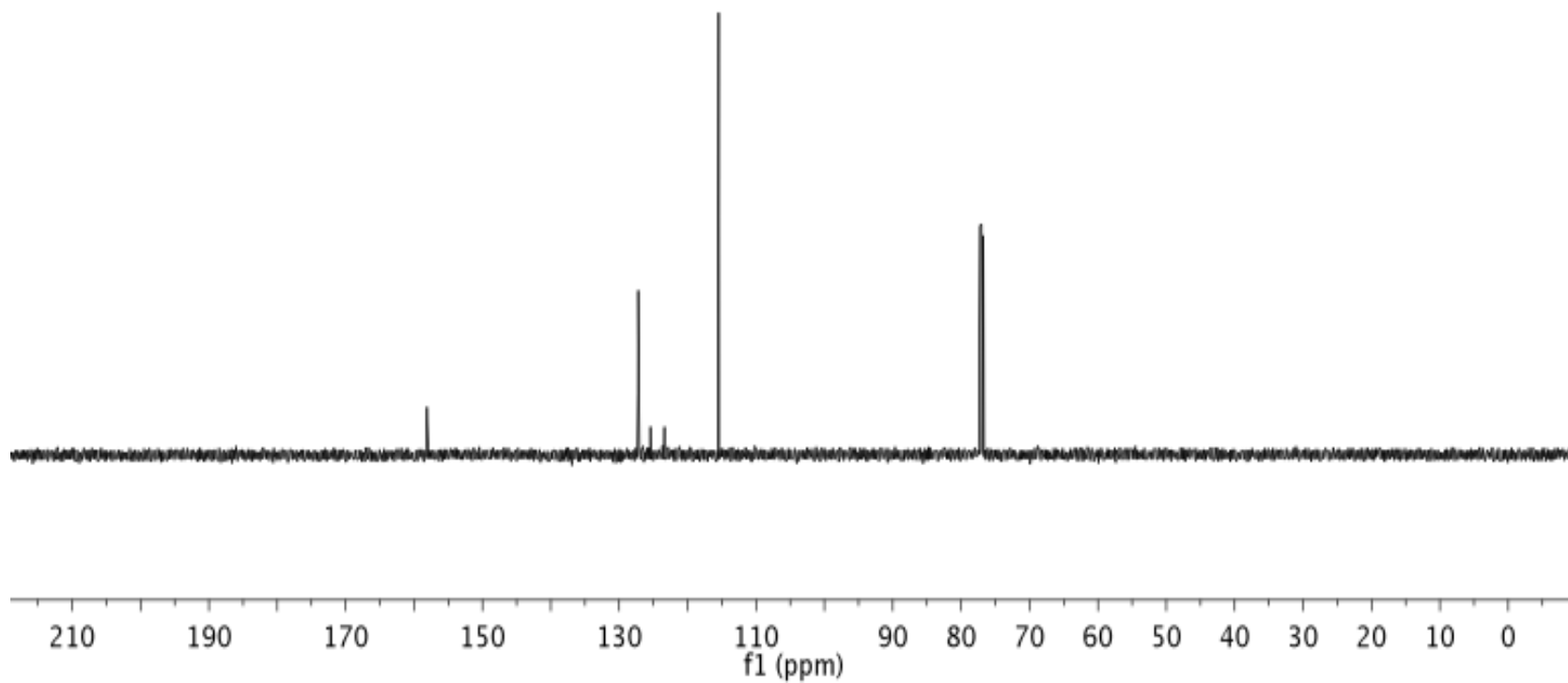
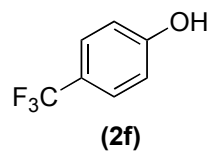
(2e)



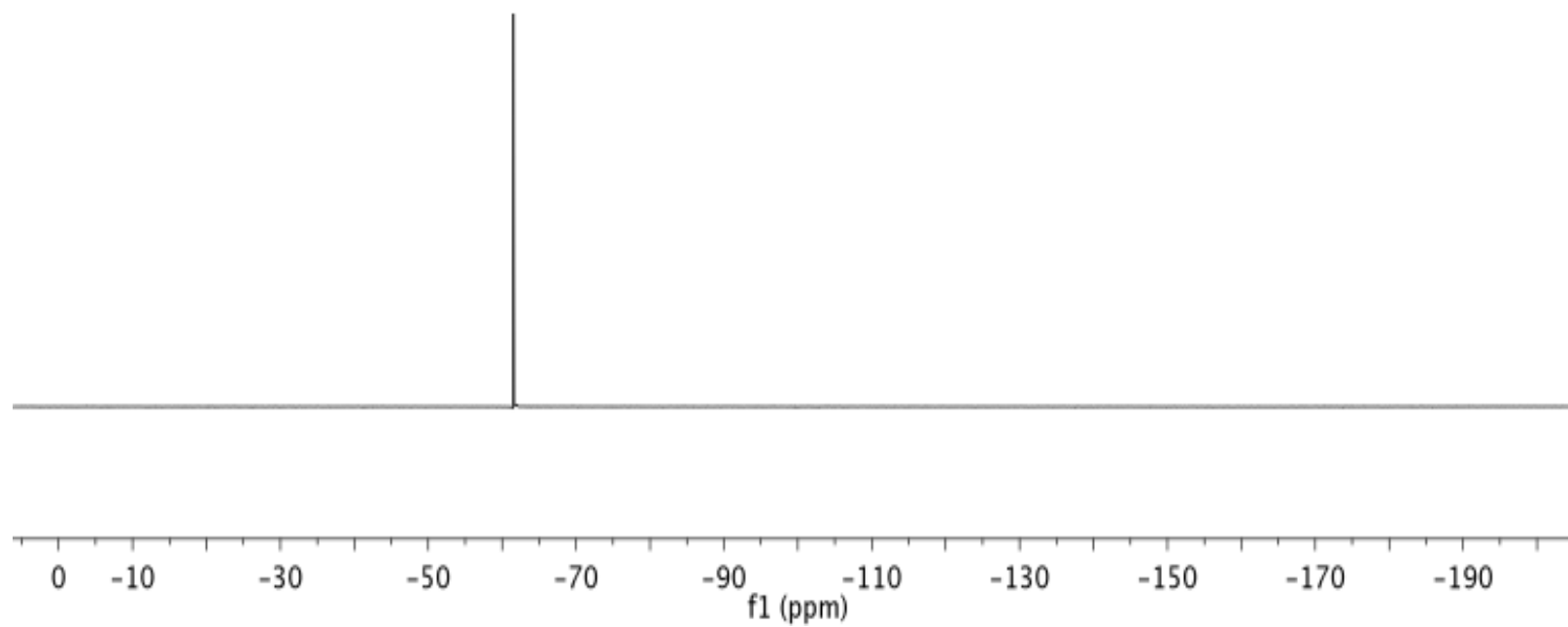
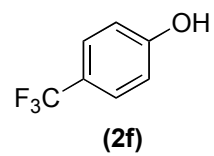
$^{19}\text{F}$  NMR (470.8 MHz,  $\text{CDCl}_3$ ) Spectrum of 2,4-Difluorophenol (2e)



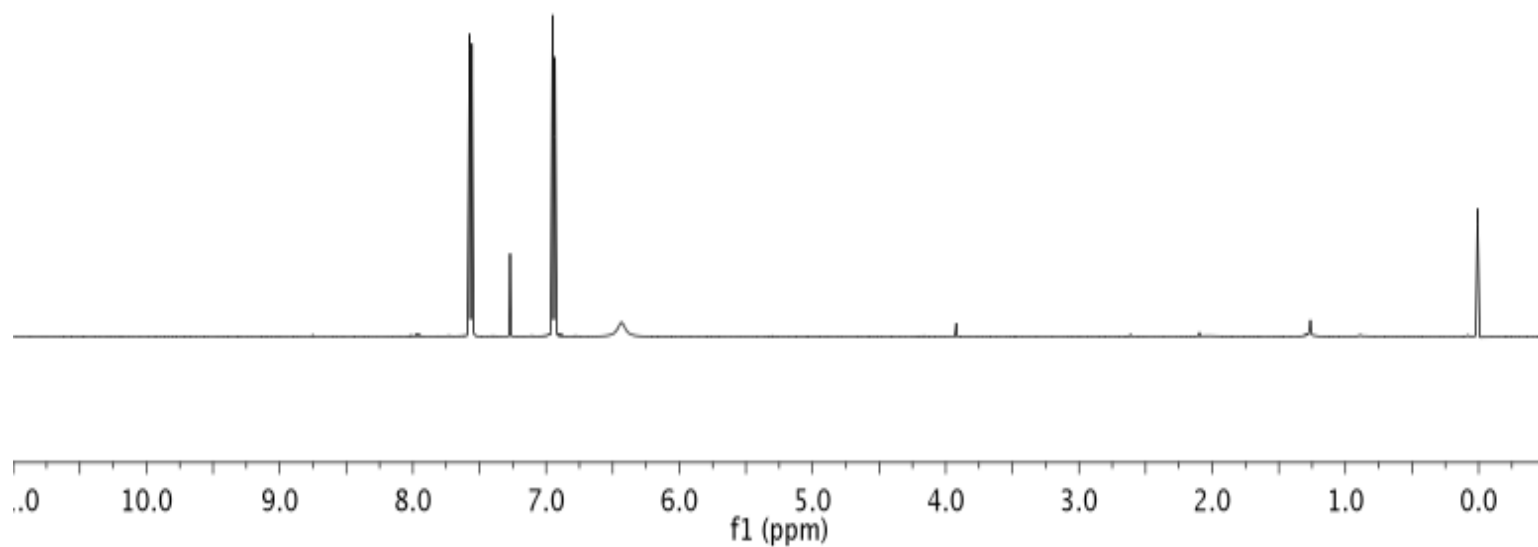
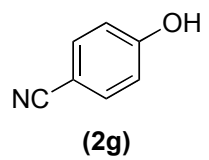
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-(Trifluoromethyl)phenol (2f)



<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 4-(Trifluoromethyl)phenol (2f)

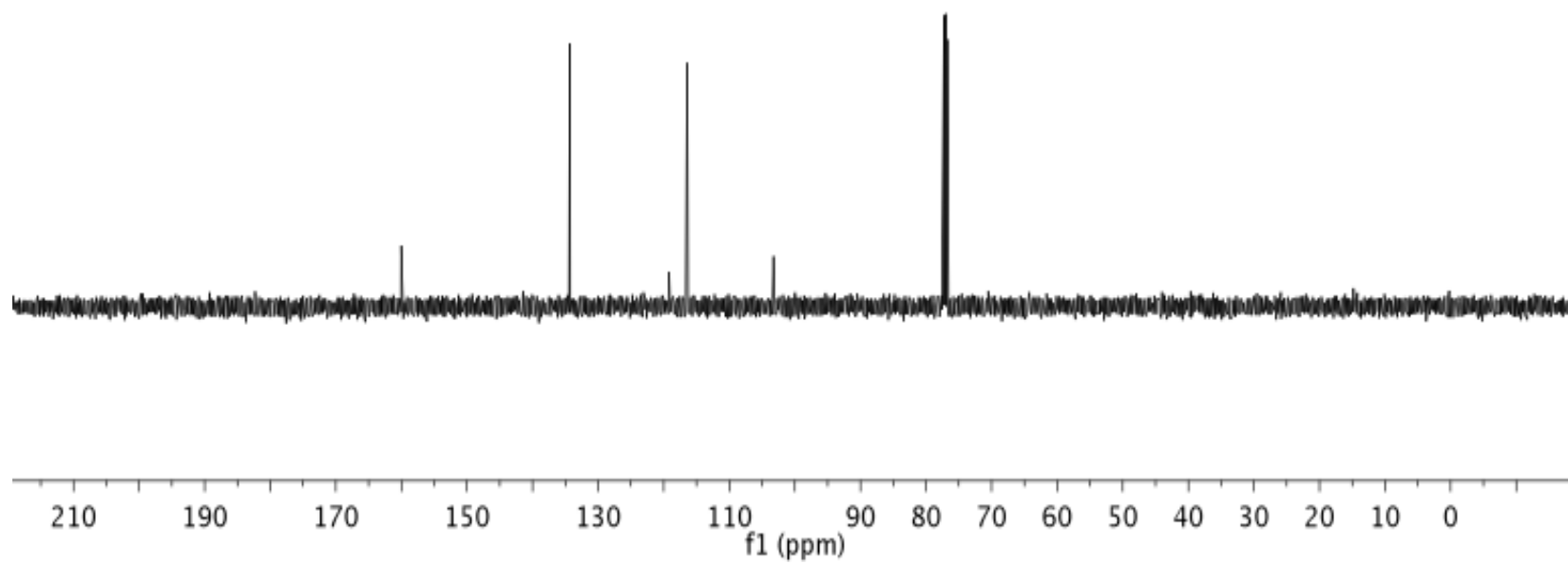
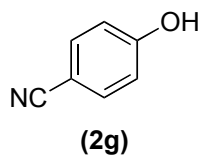


$^{19}\text{F}$  NMR (470.8 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-(Trifluoromethyl)phenol (2f)

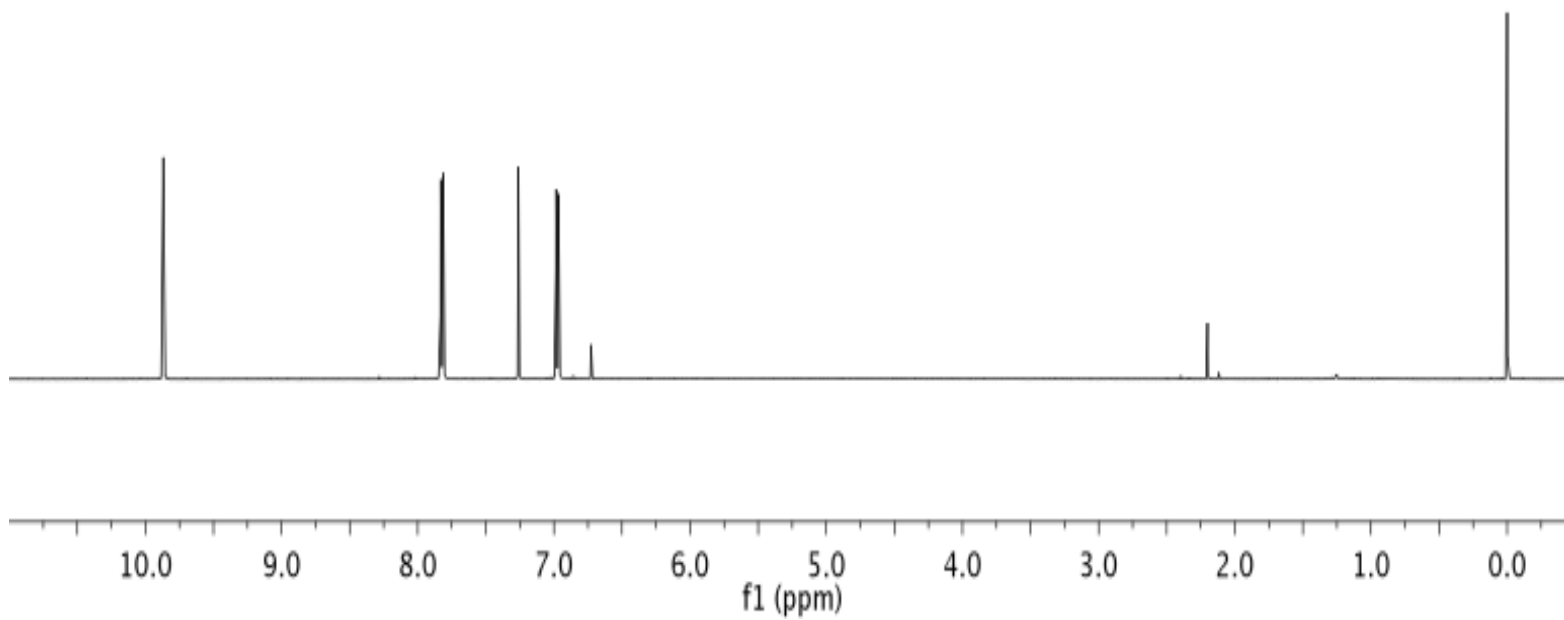
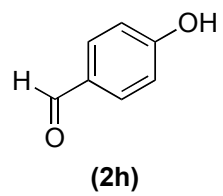


<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-Hydroxybenzonitrile (2g)

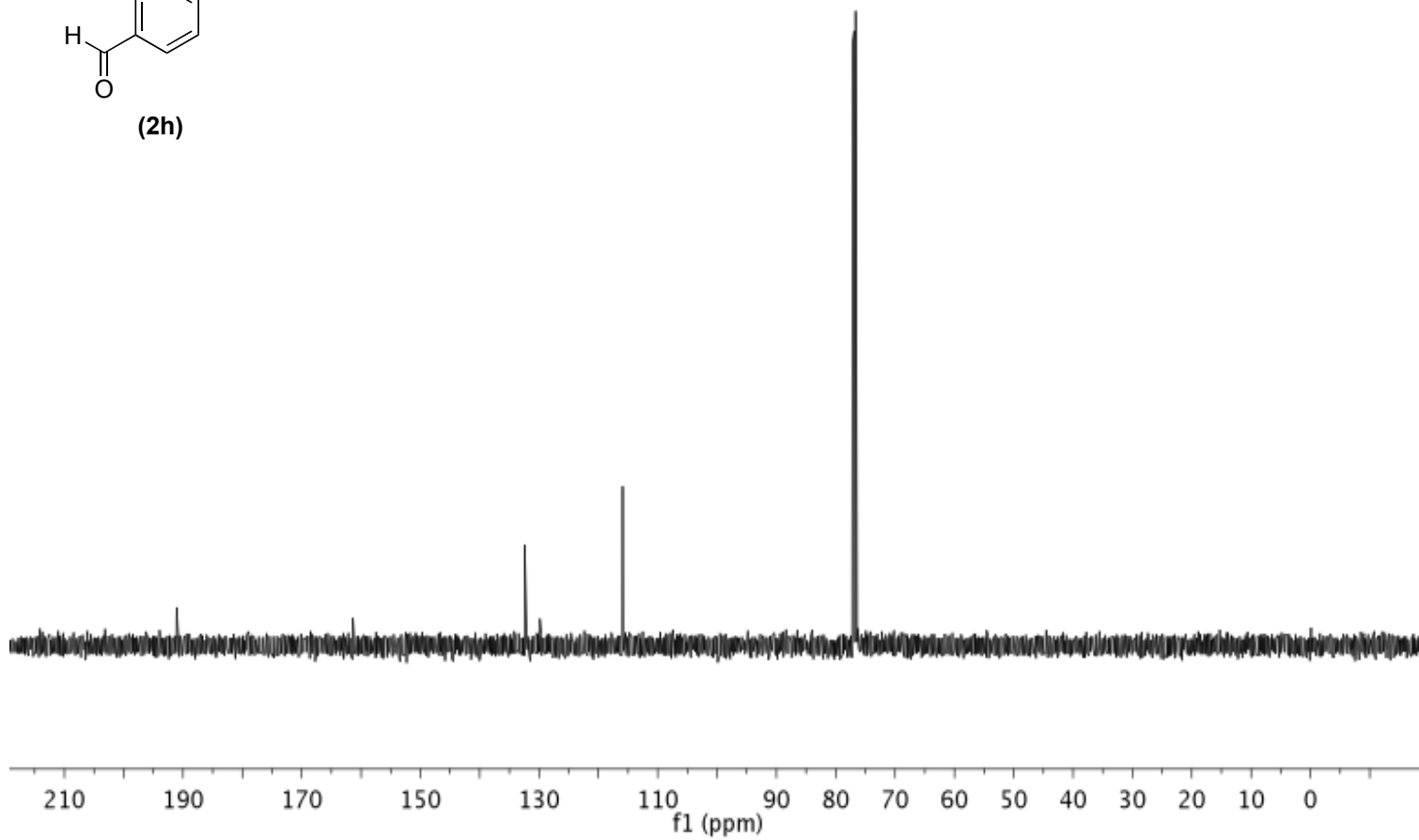
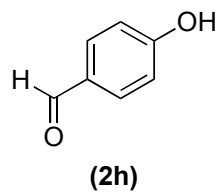




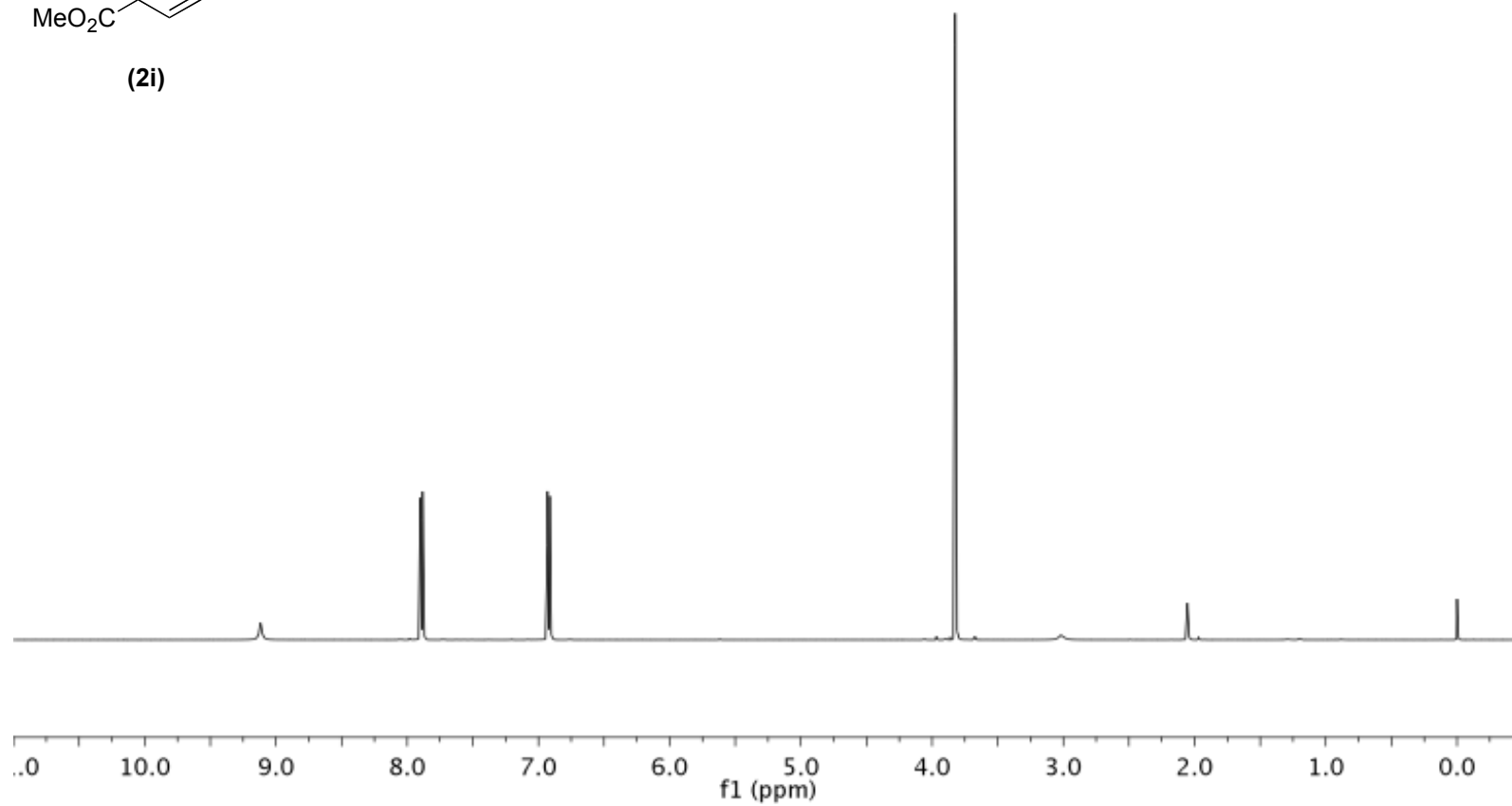
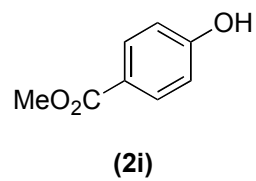
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Hydroxybenzointrile (2g)



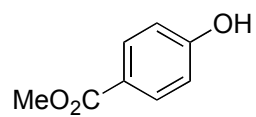
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-Hydroxybenzaldehyde (2h)



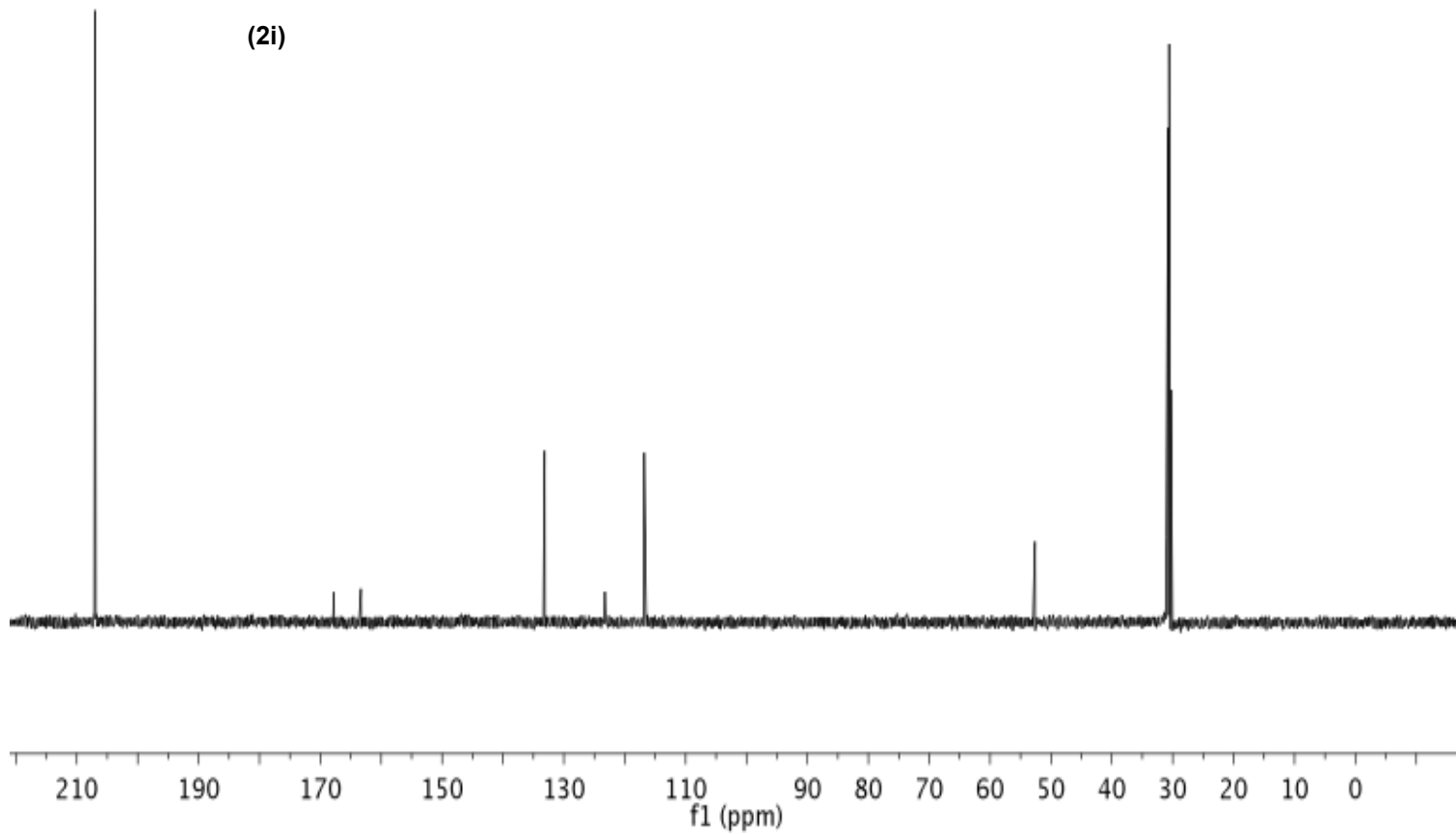
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Hydroxybenzaldehyde (2h)



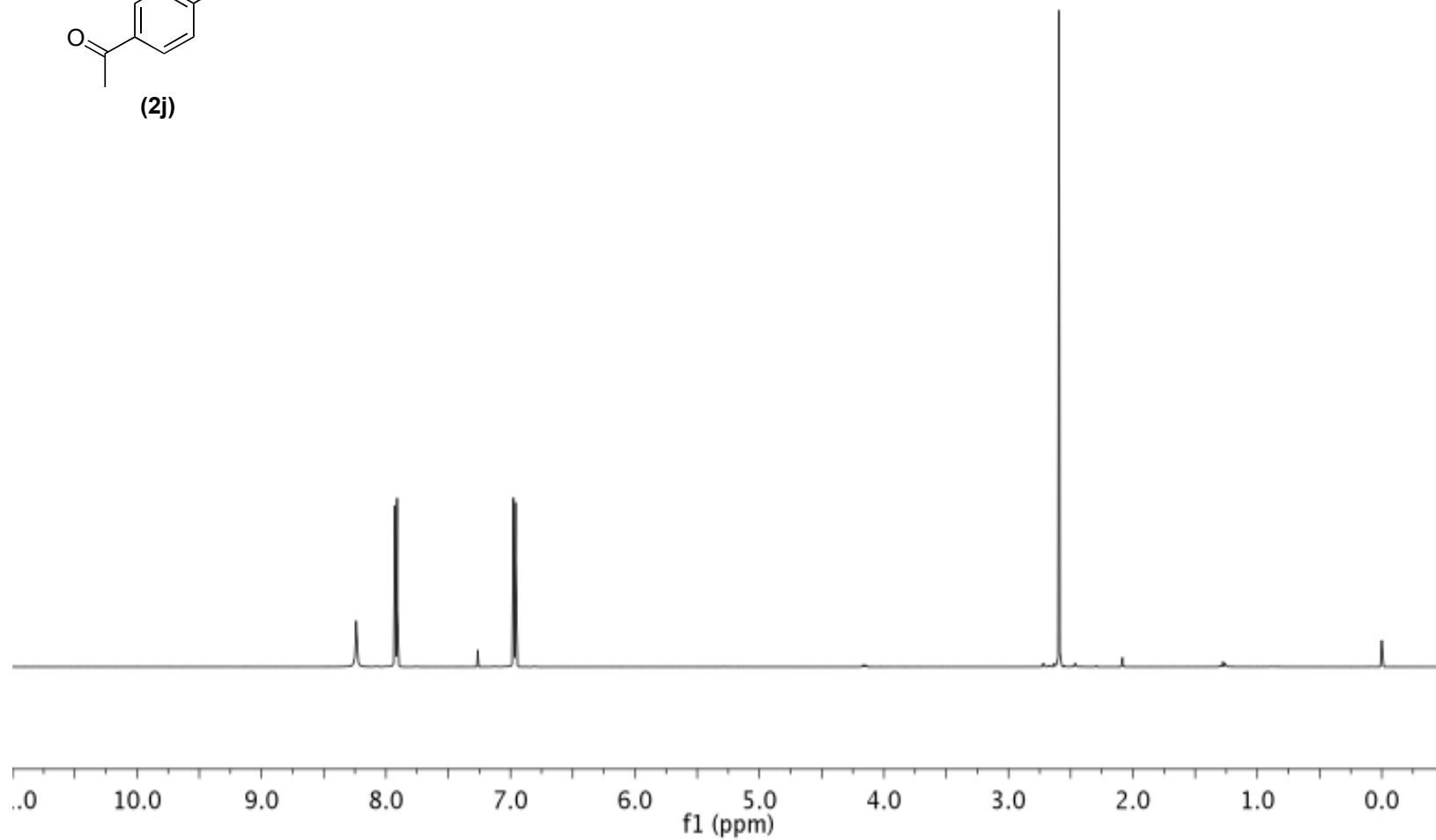
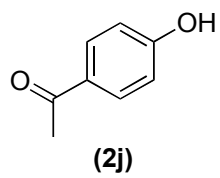
<sup>1</sup>H NMR (500 MHz, acetone-*d*<sub>6</sub>) Spectrum of Methyl 4-Hydroxybenzoate (2i)



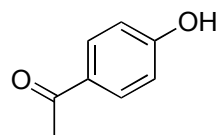
(2i)



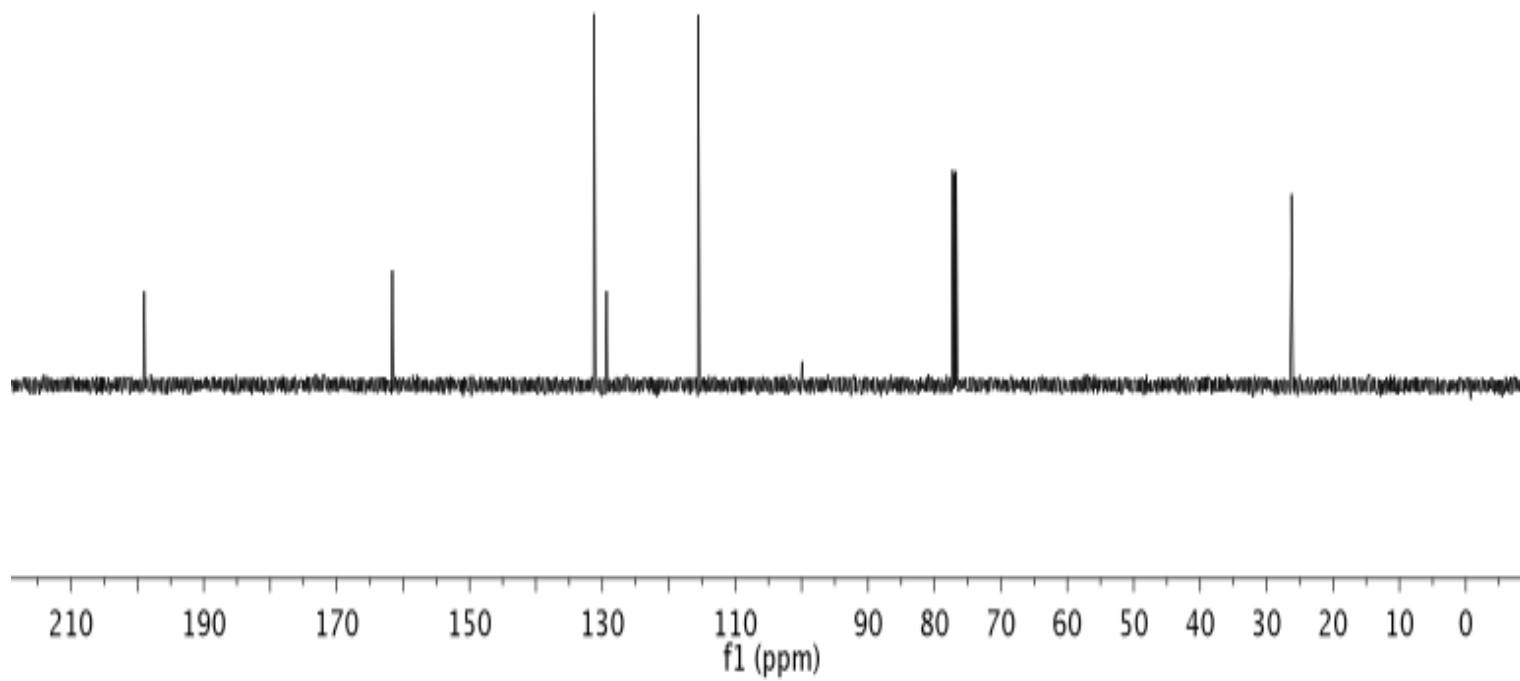
$^{13}\text{C}$  NMR (128.5 MHz, acetone- $d_6$ ) Spectrum of Methyl 4-Hydroxybenzoate (2i)



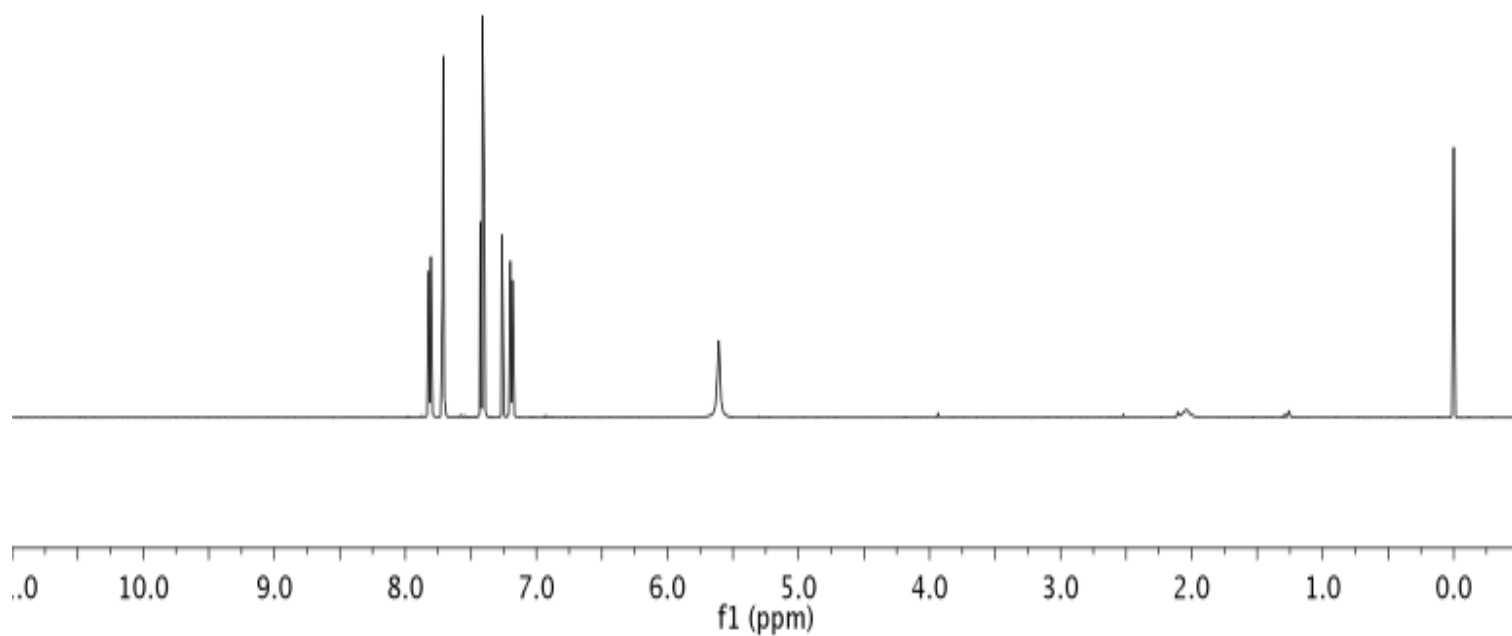
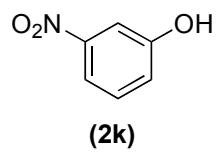
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 1-(4-Hydroxyphenyl)ethanone (2j)



(2j)

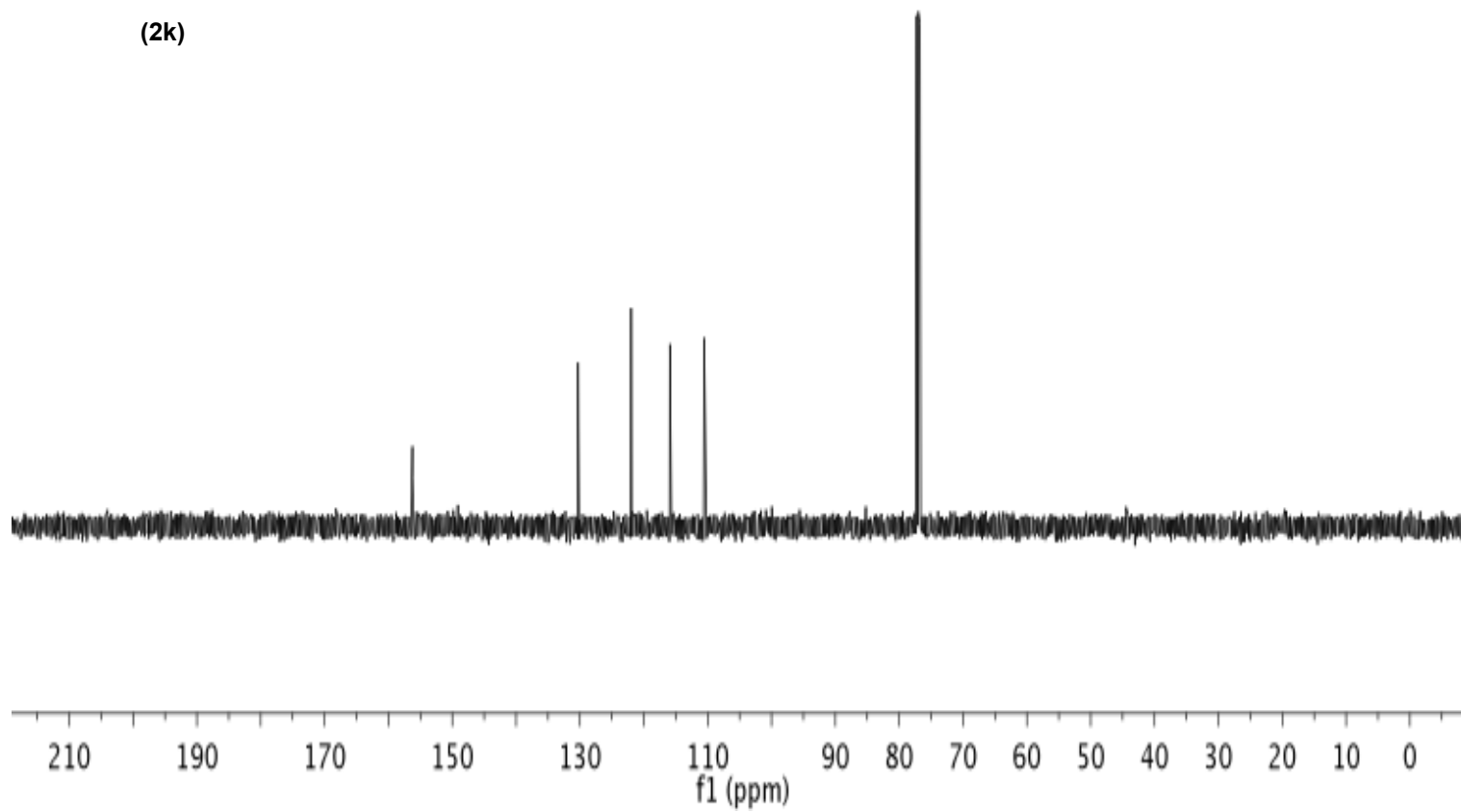
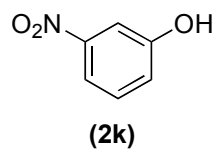


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 1-(4-Hydroxyphenyl)ethanone (2j)

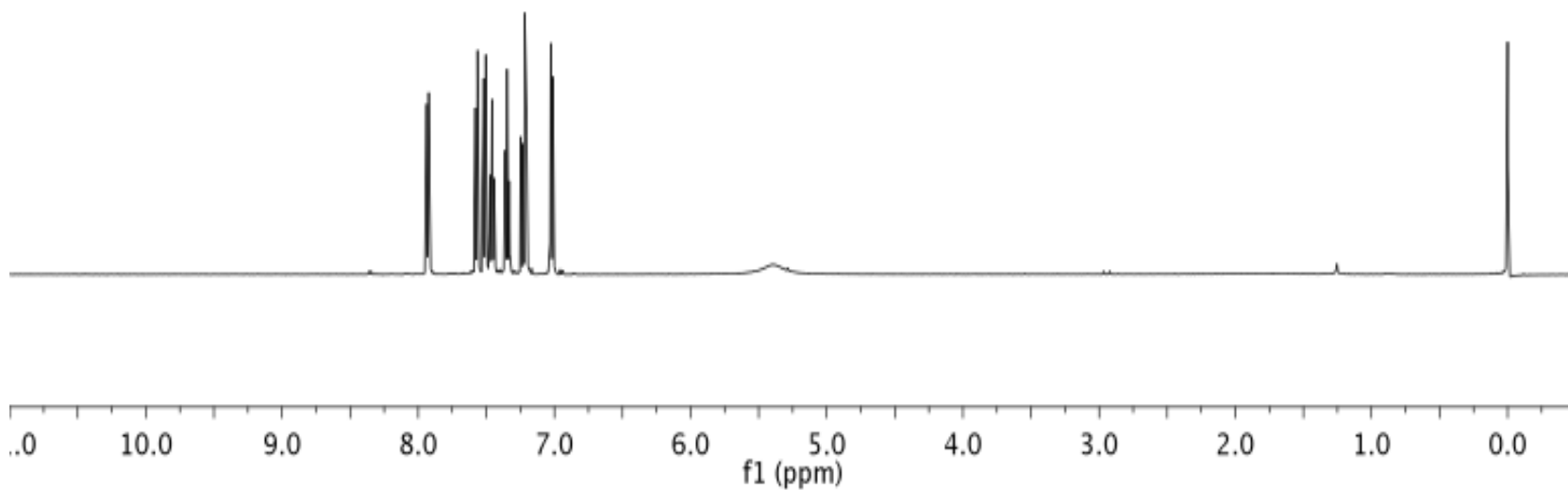
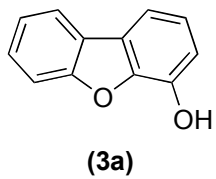


$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 3-Nitrophenol (2k)

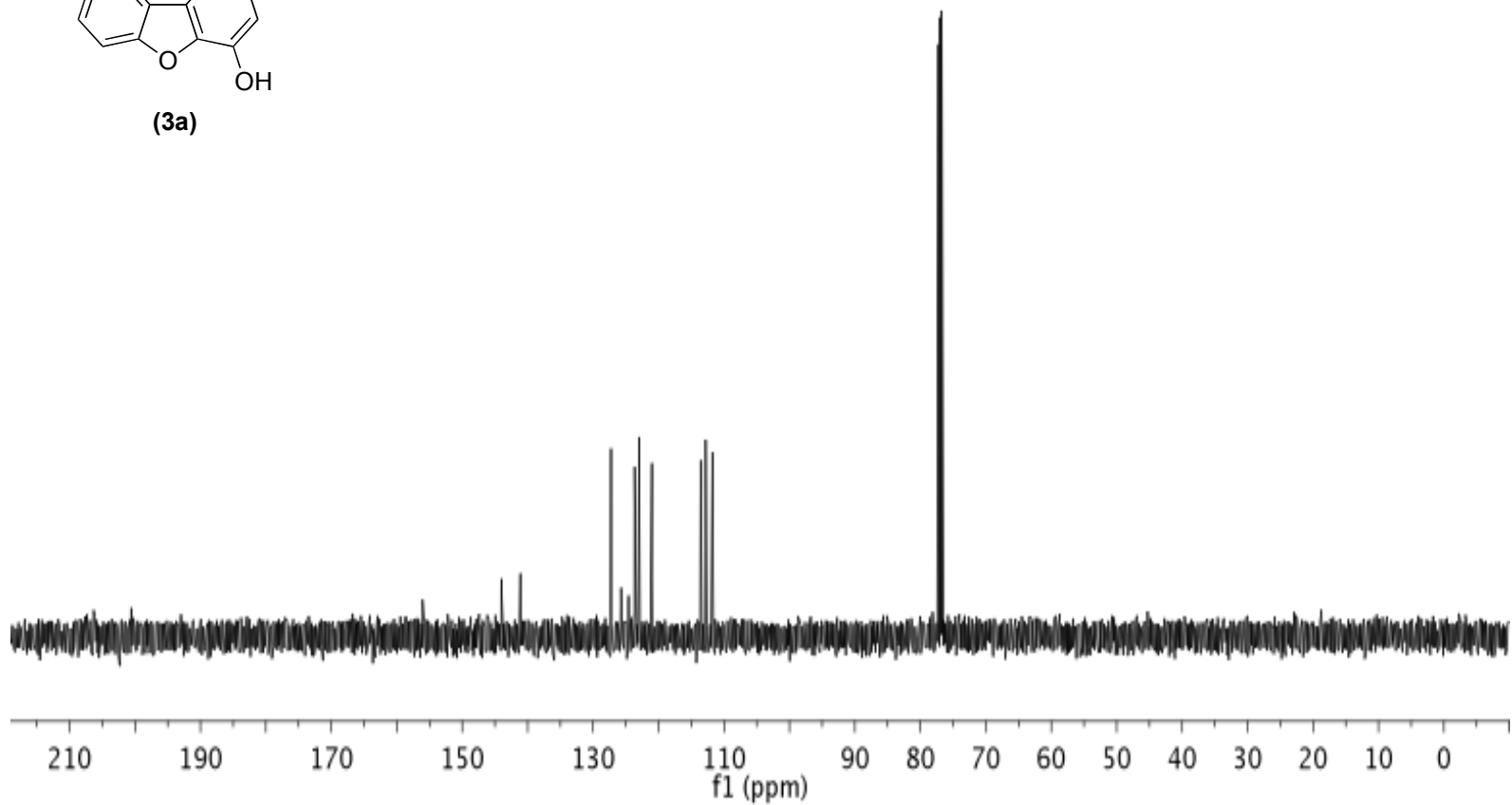
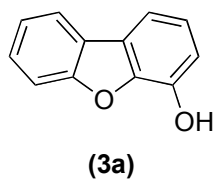




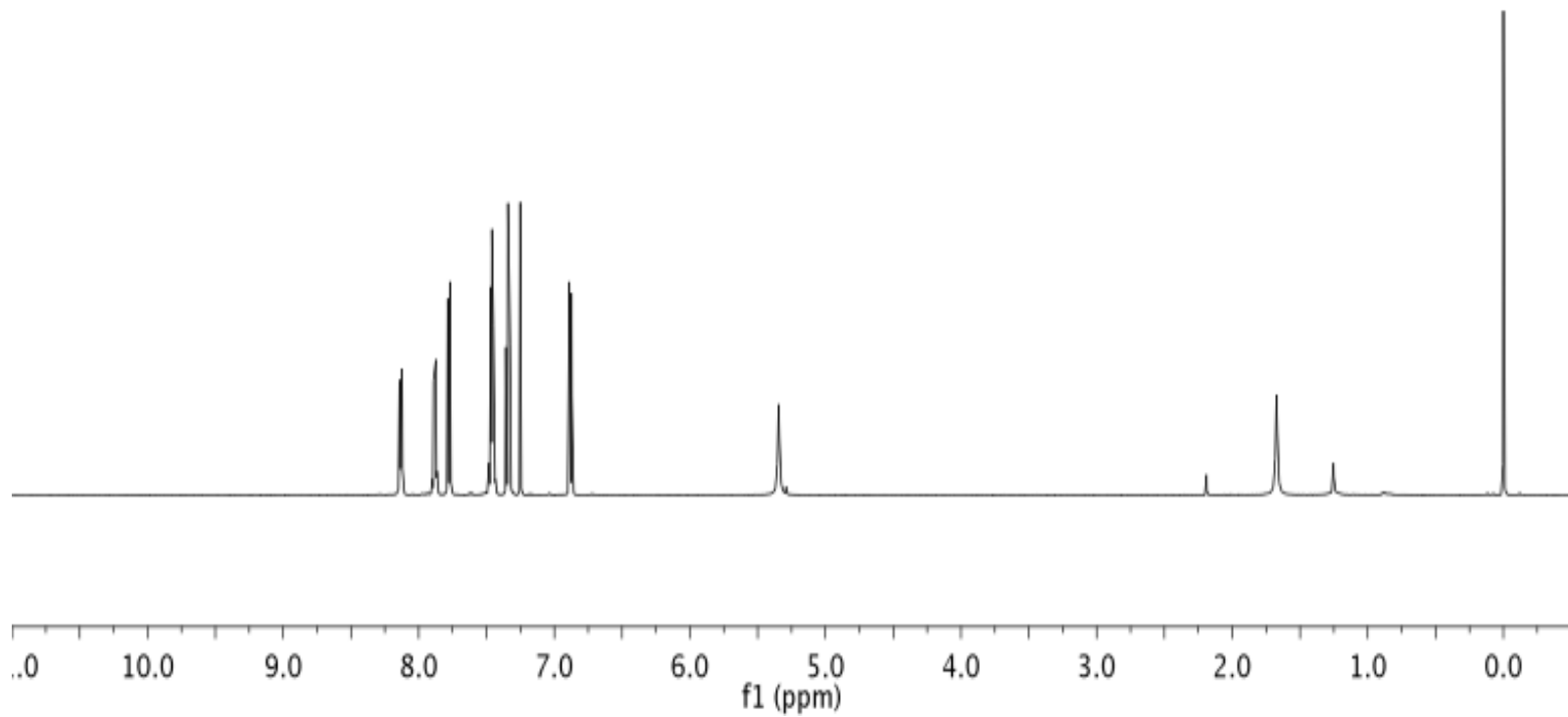
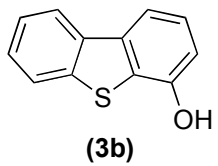
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 3-Nitrophenol (2k)



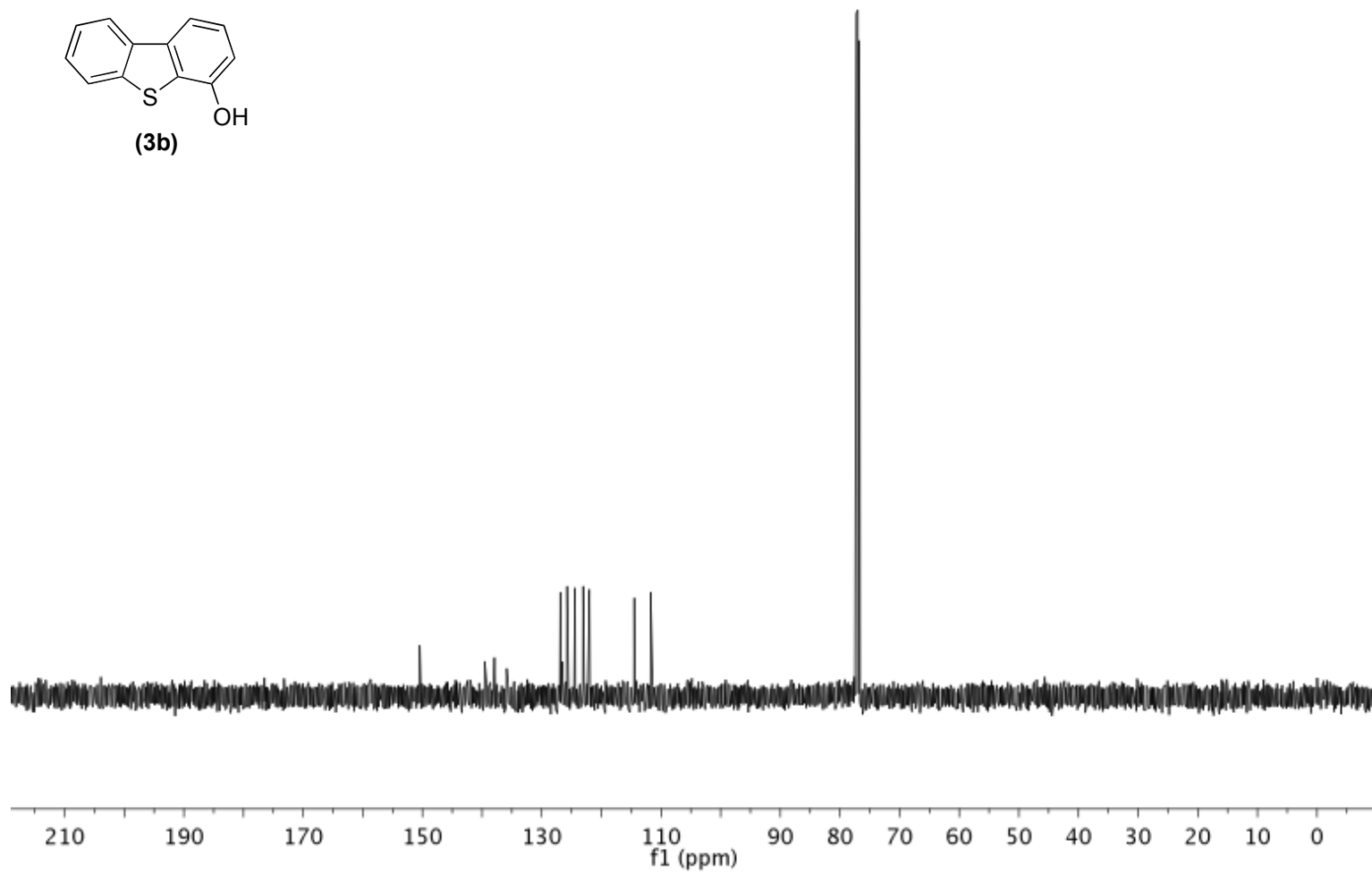
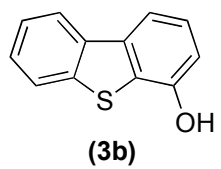
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Dibenzob[b,d]furan-4-ol (3a)



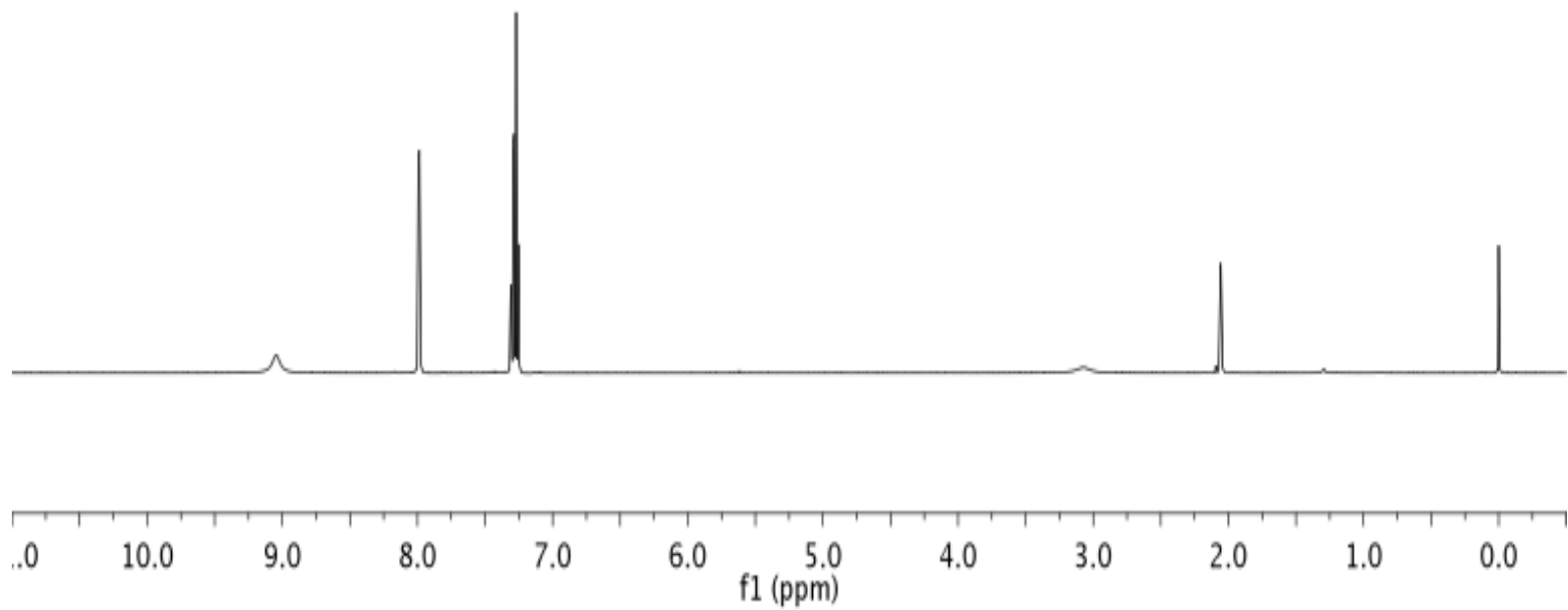
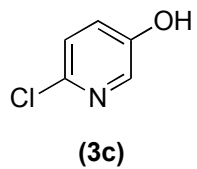
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of Dibenzo[*b,d*]furan-4-ol (3a)



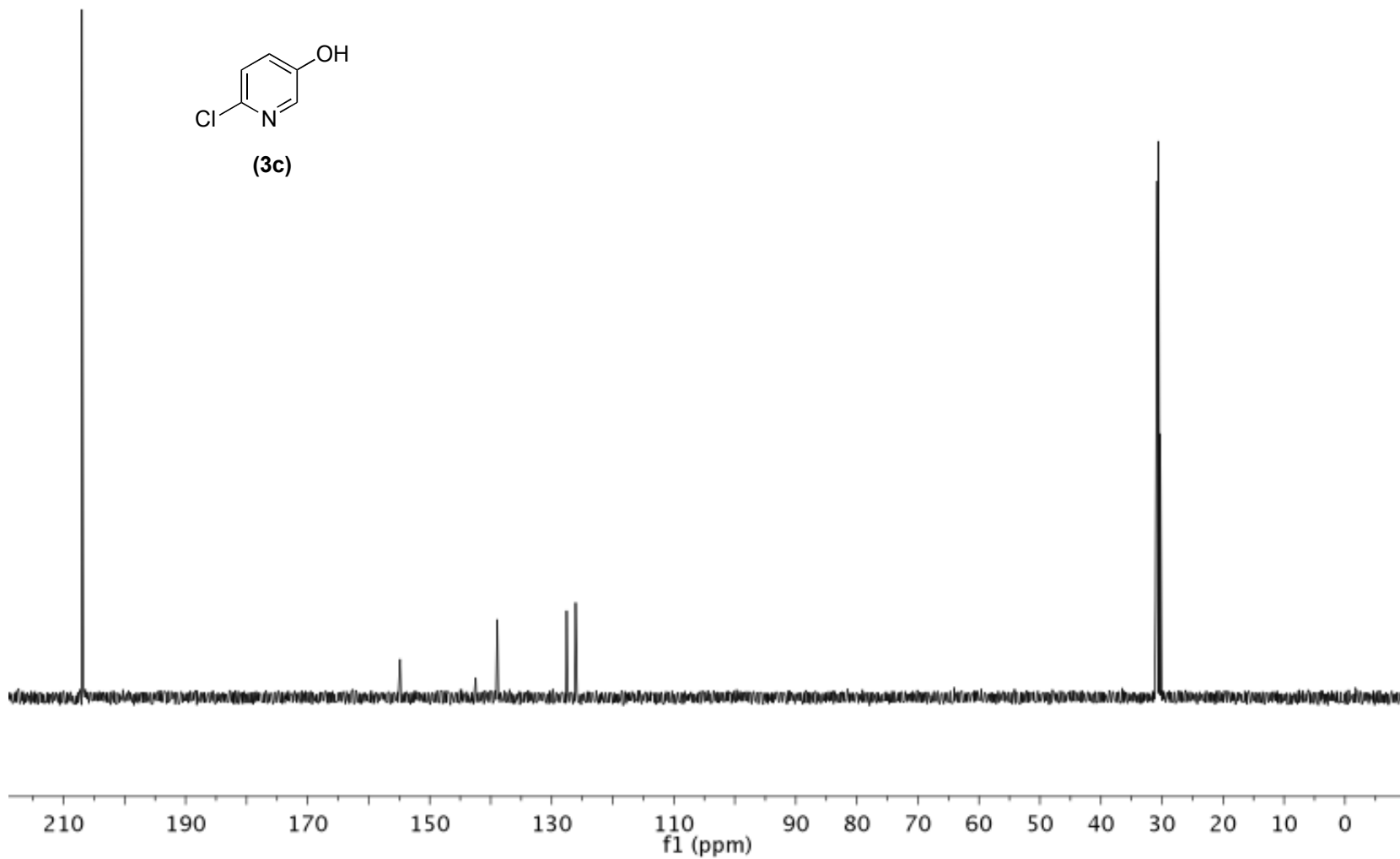
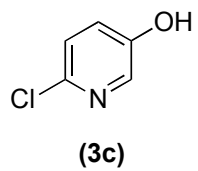
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Dibenzo[*b,d*]thiophen-4-ol (3b)



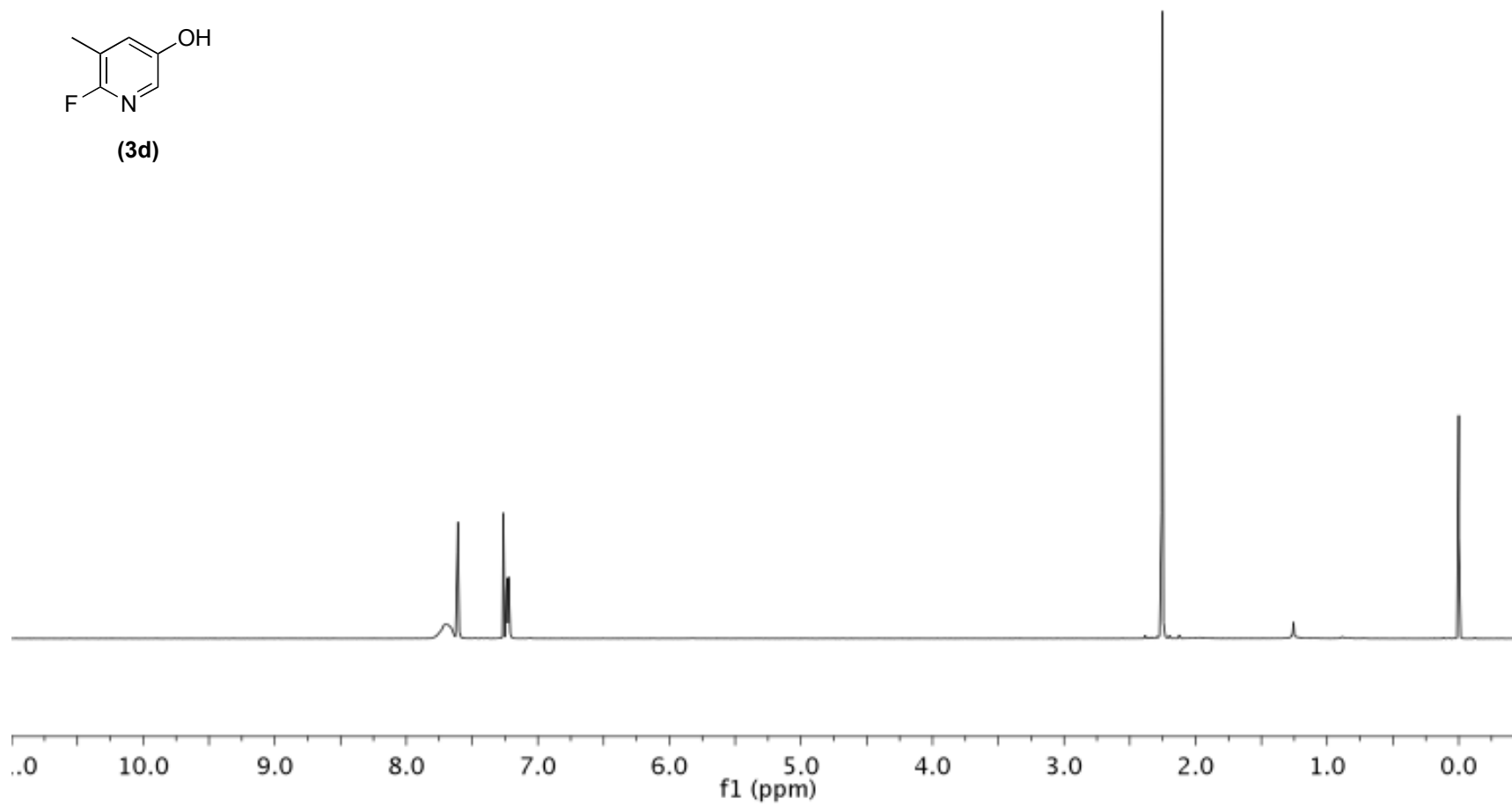
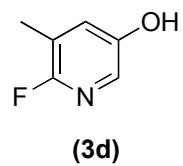
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of Dibenzo[*b,d*]thiophen-4-ol (3b)



<sup>1</sup>H NMR (500 MHz, acetone-*d*<sub>6</sub>) Spectrum of 6-Chloropyridin-3-ol (3c)

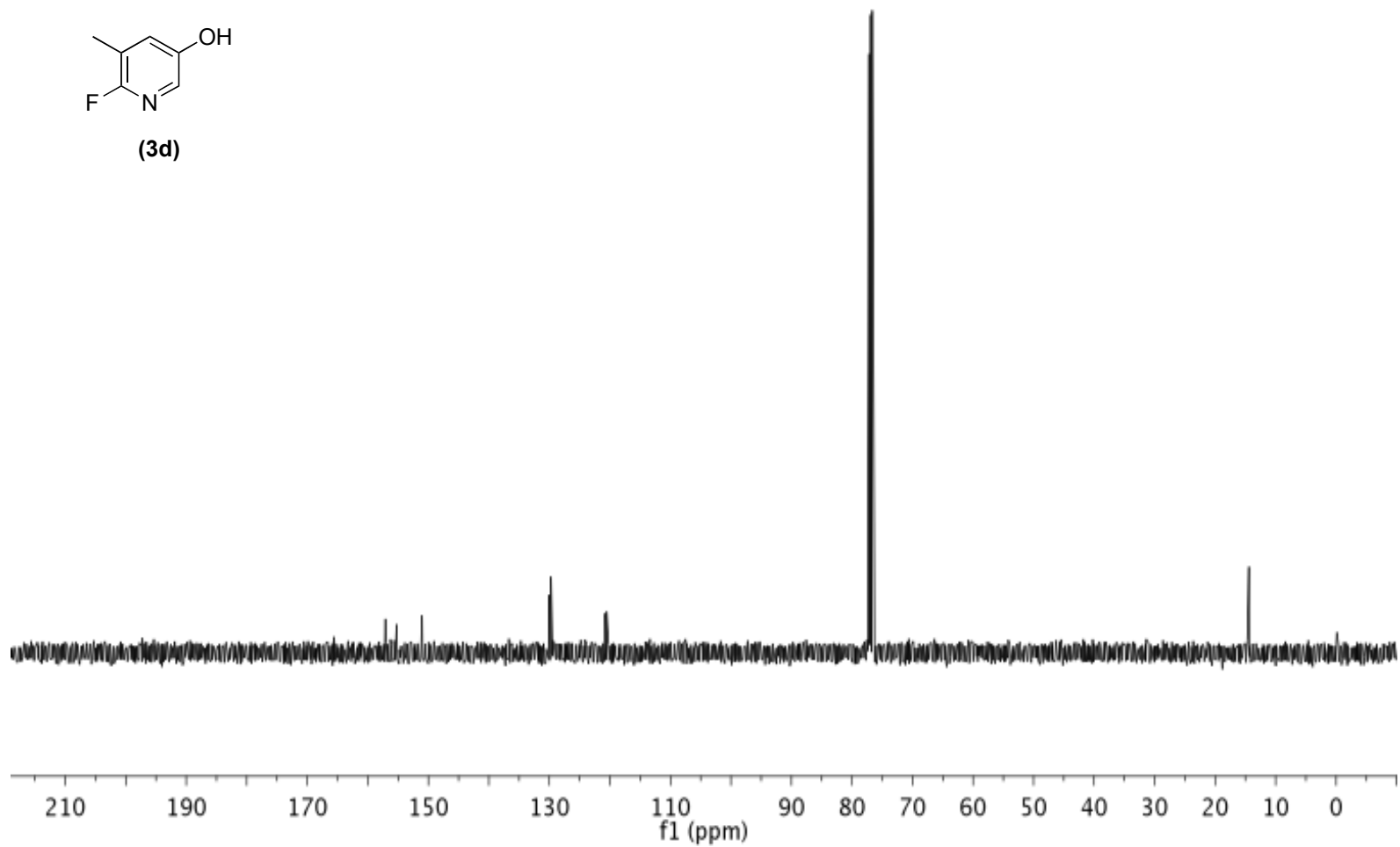
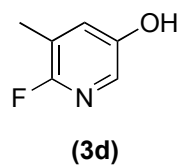


$^{13}\text{C}$  NMR (128.5 MHz, acetone- $d_6$ ) Spectrum of 6-Chloropyridin-3-ol (3c)

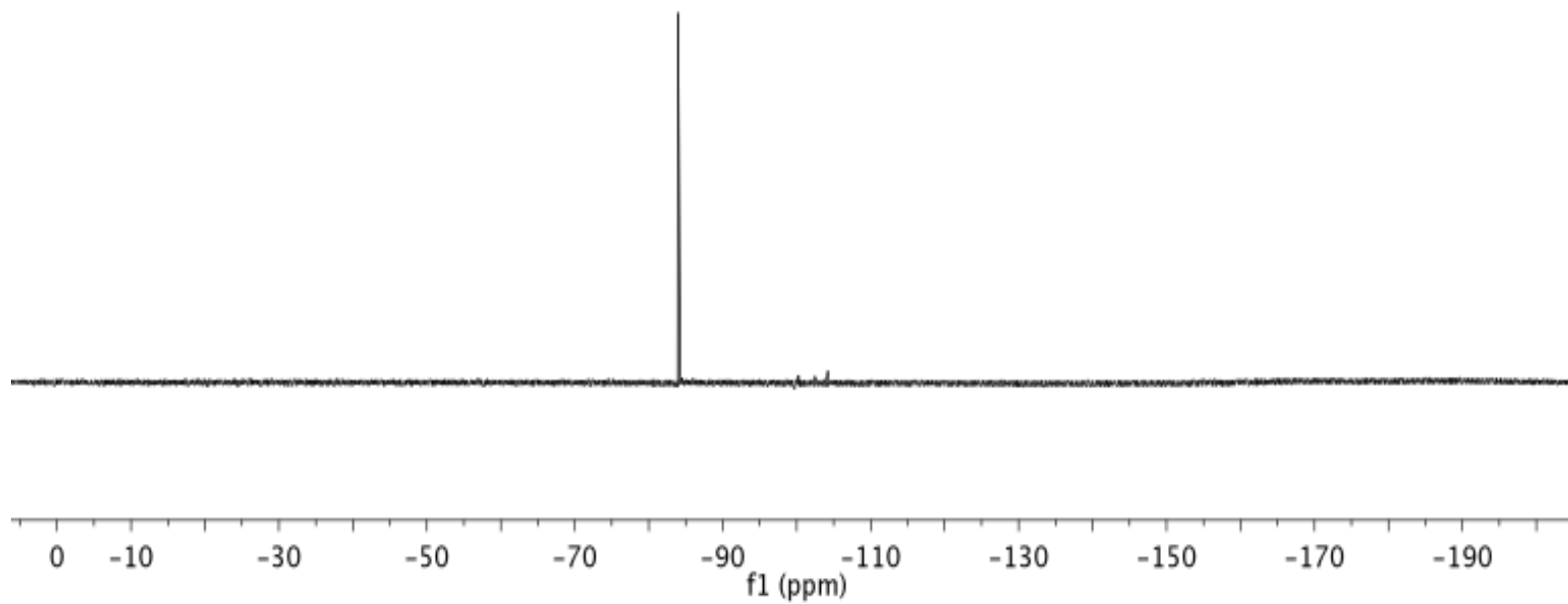
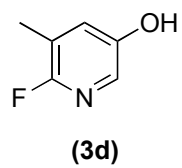


<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 6-Fluoro-5-methylpyridin-3-ol (3d)

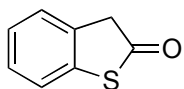




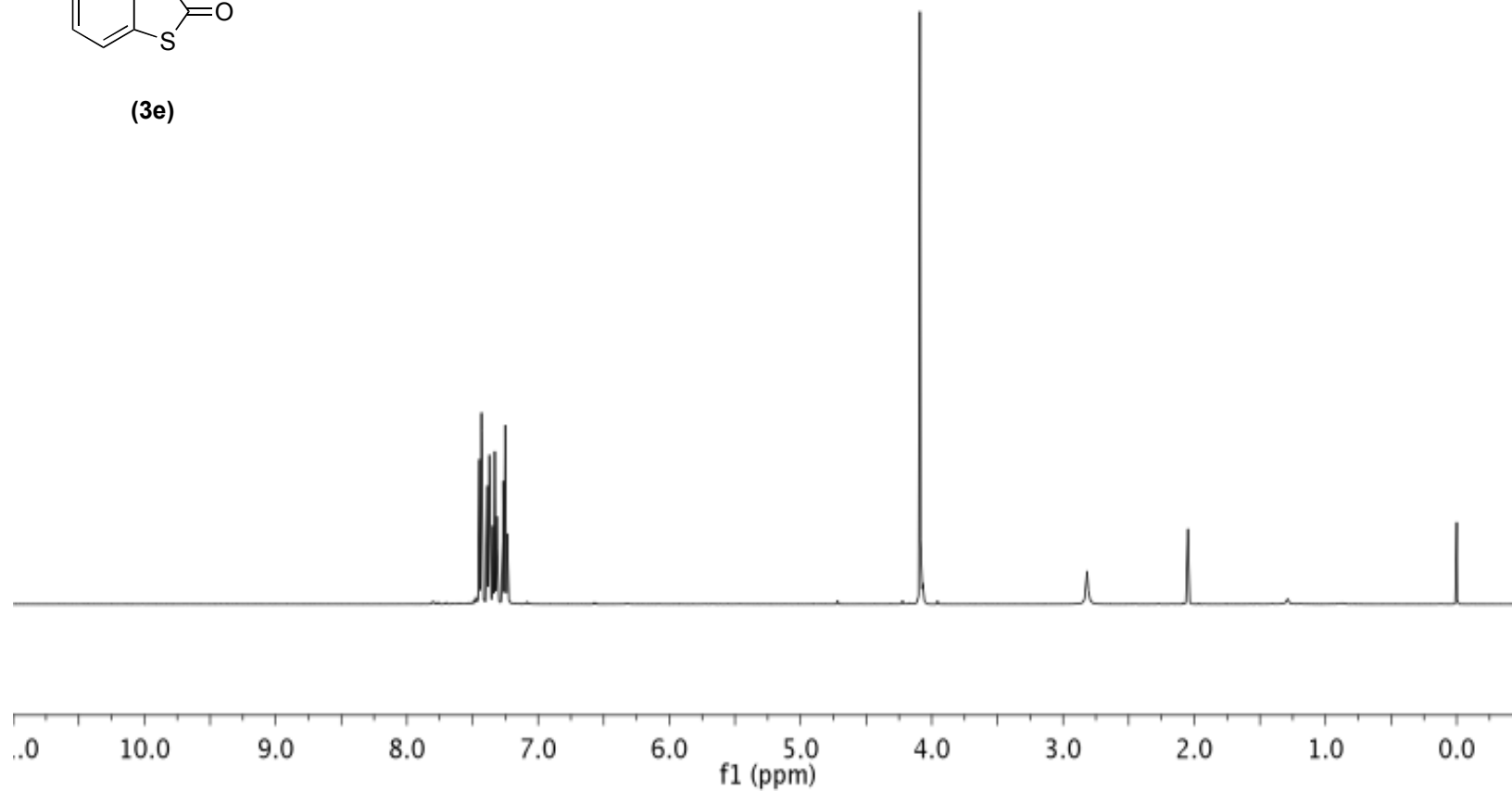
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 6-Fluoro-5-methylpyridin-3-ol (3d)



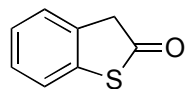
$^{19}\text{F}$  NMR (470.8 MHz,  $\text{CDCl}_3$ ) Spectrum of 6-Fluoro-5-methylpyridin-3-ol (3d)



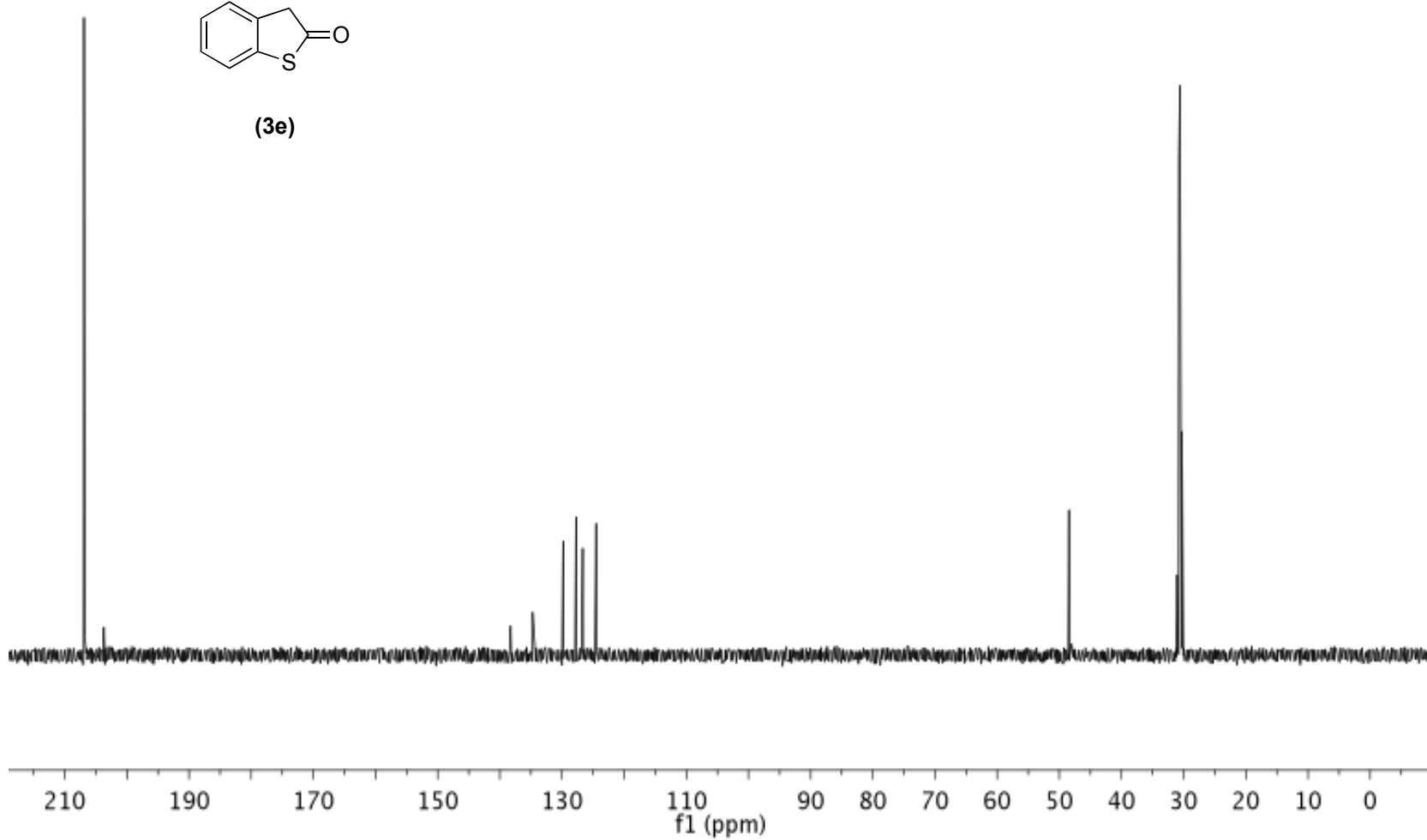
**(3e)**



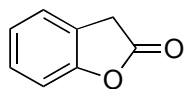
$^1\text{H}$  NMR (500 MHz, acetone- $d_6$ ) Spectrum of Benzo[*b*]thiophen-2(3*H*)-one (3e)



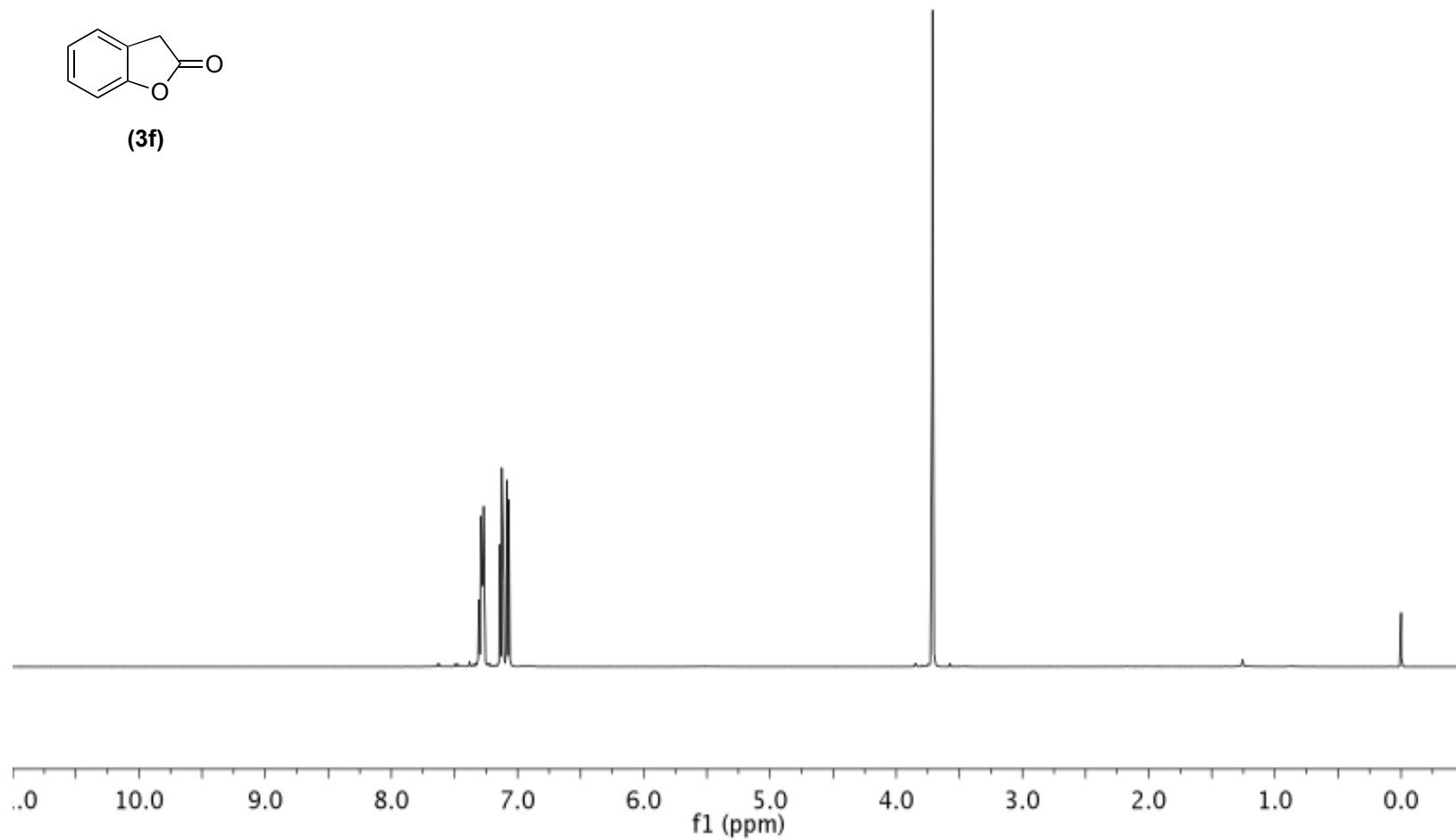
(3e)



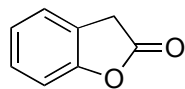
<sup>13</sup>C NMR (128.5 MHz, acetone-*d*<sub>6</sub>) Spectrum of Benzo[*b*]thiophen-2(3*H*)-one (3e)



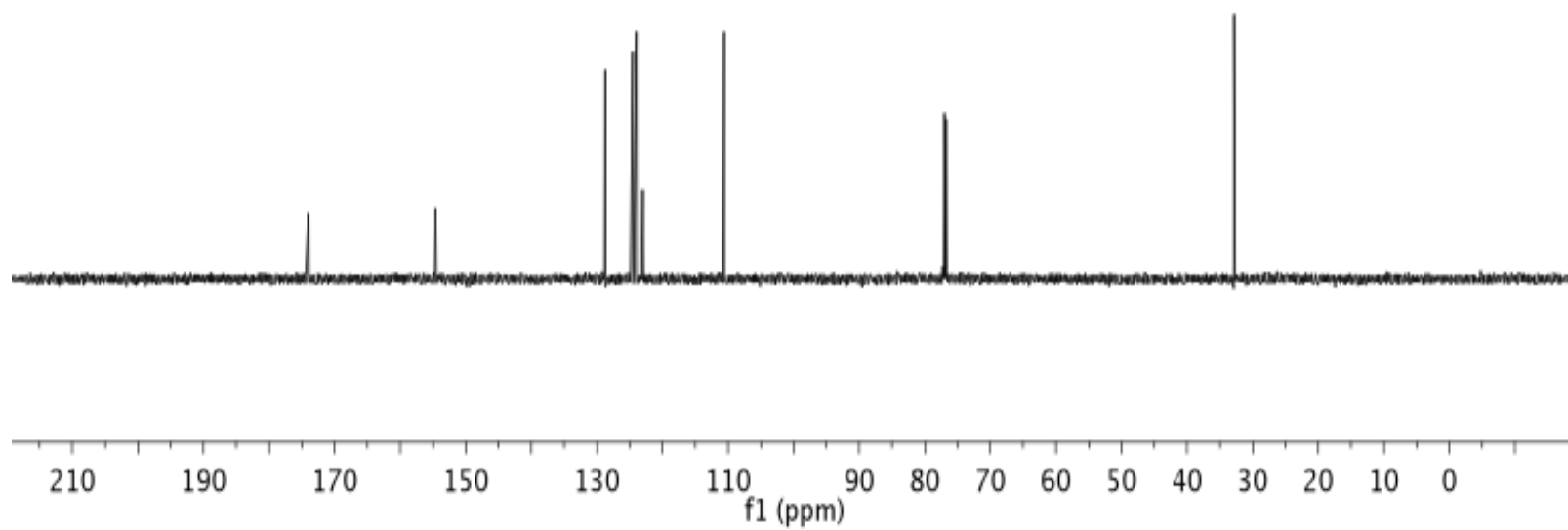
(3f)



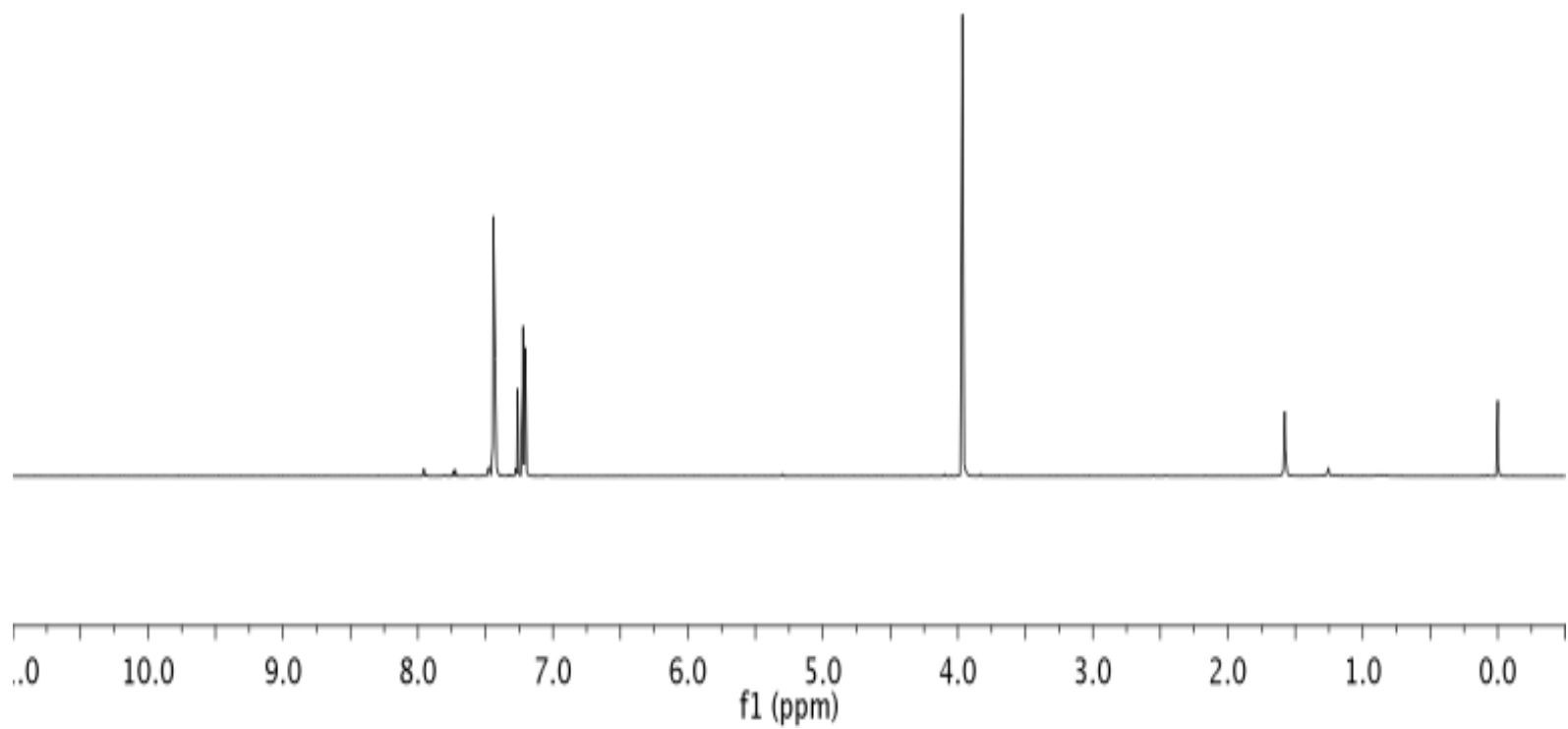
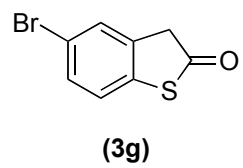
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Benzofuran-2(3H)-one (3f)



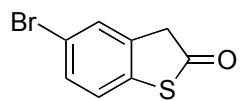
(3f)



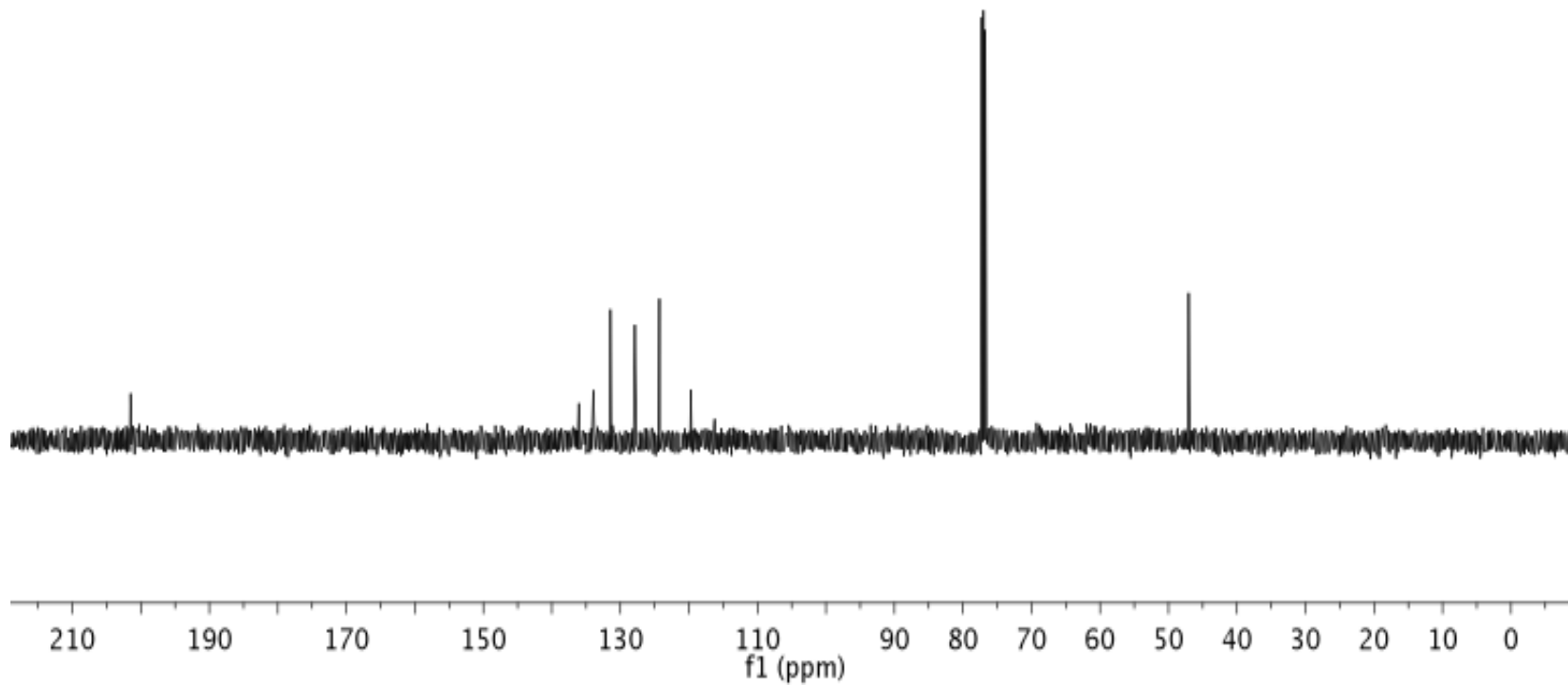
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of Benzofuran-2(3H)-one (3f)



<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 5-Bromobenzo[*b*]thiophen-2(3*H*)-one (3g)

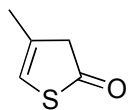


(3g)

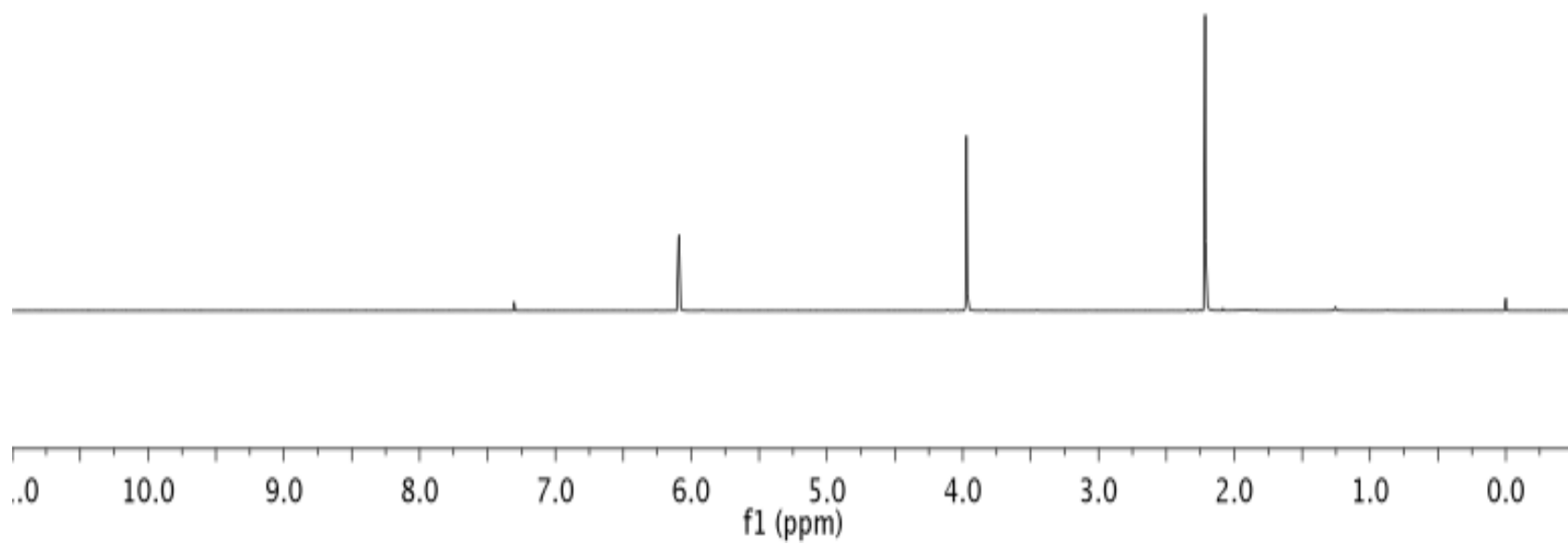


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 5-Bromobenzo[*b*]thiophen-2(3*H*)-one (3g)

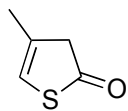




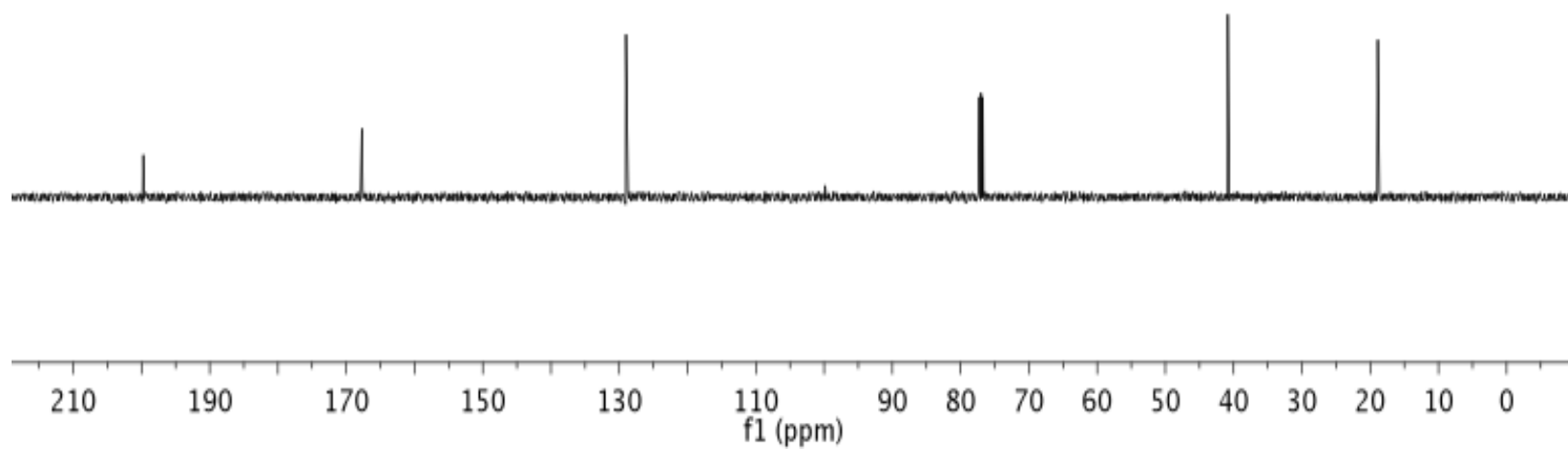
(3h)



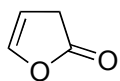
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-Methylthiophen-2(3H)-one (3h)



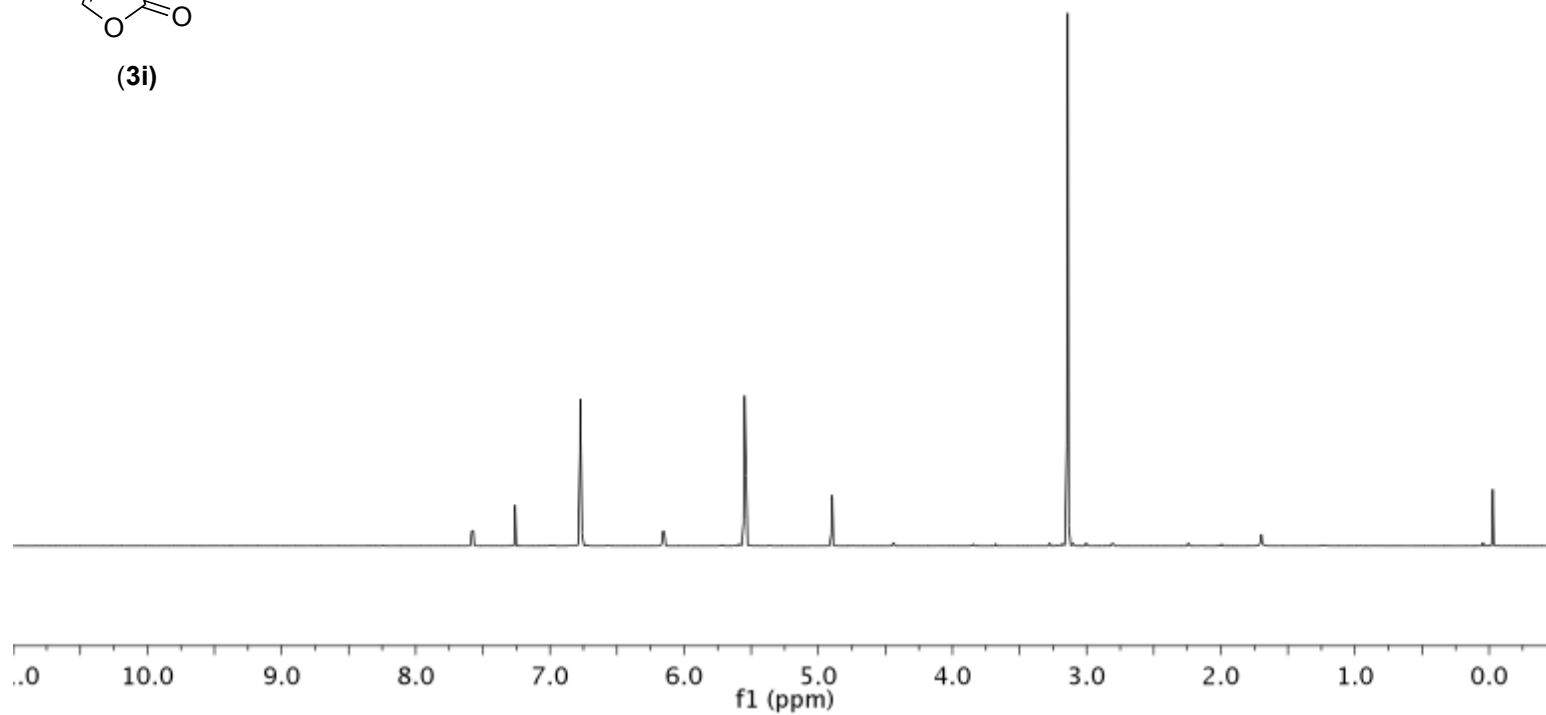
(3h)



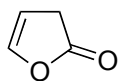
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 4-Methylthiophen-2(3H)-one (3h)



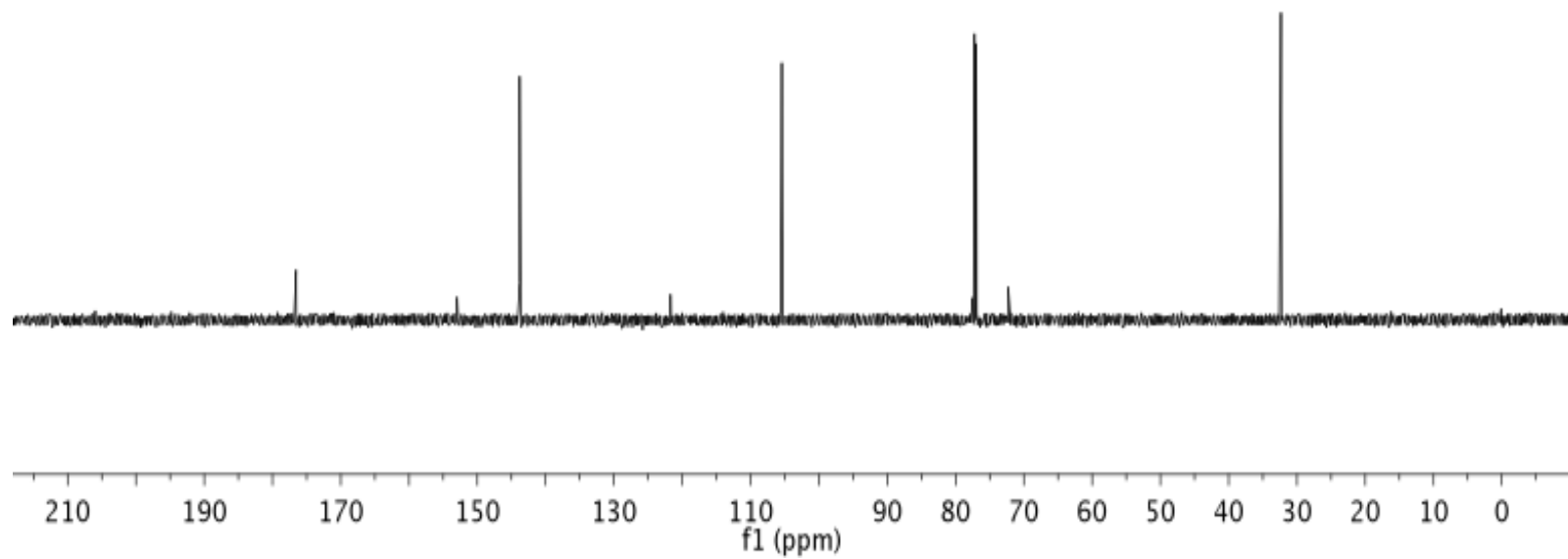
(3i)



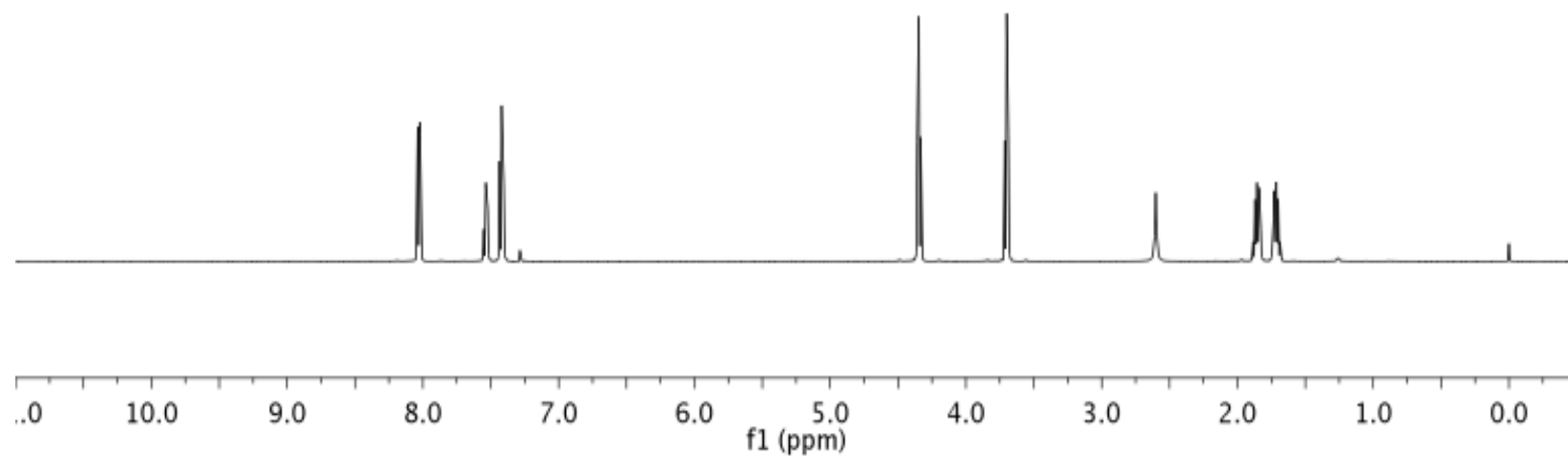
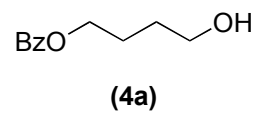
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Furan-2(3H)-one (3i)



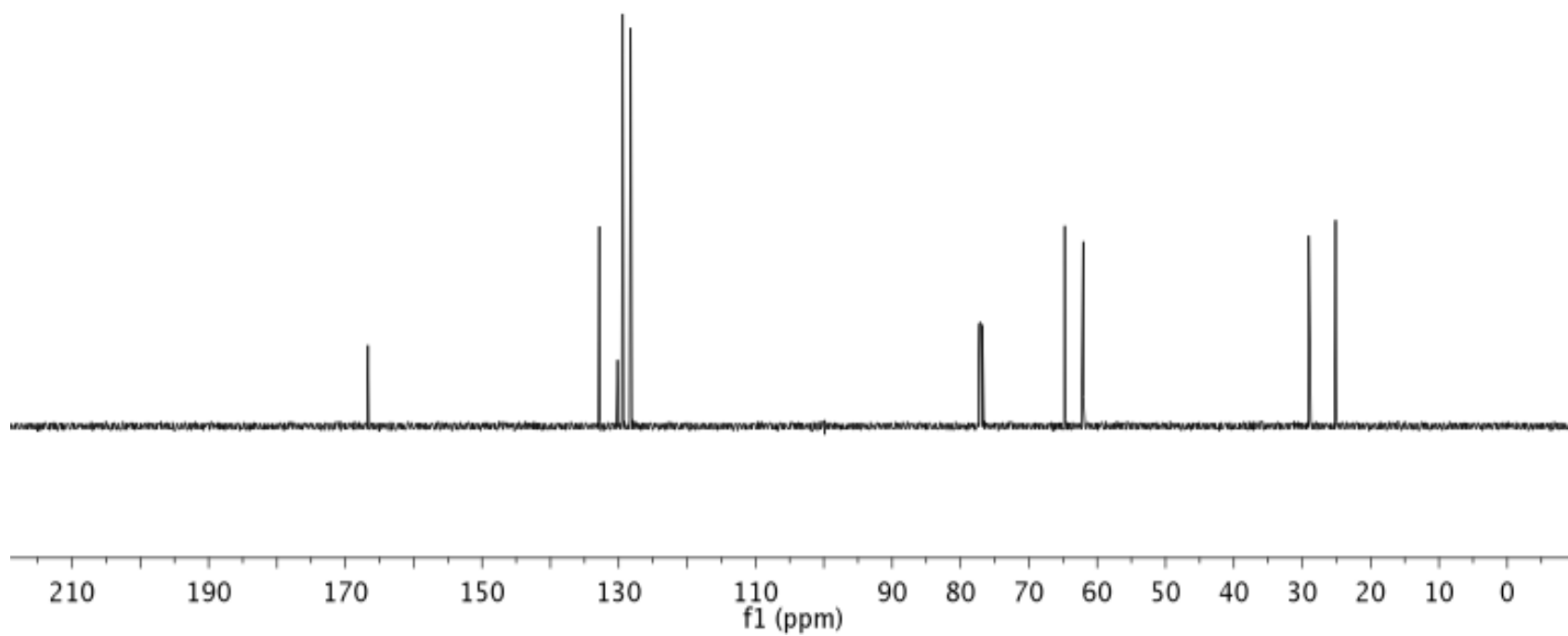
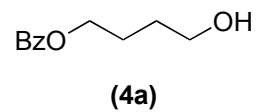
(3i)



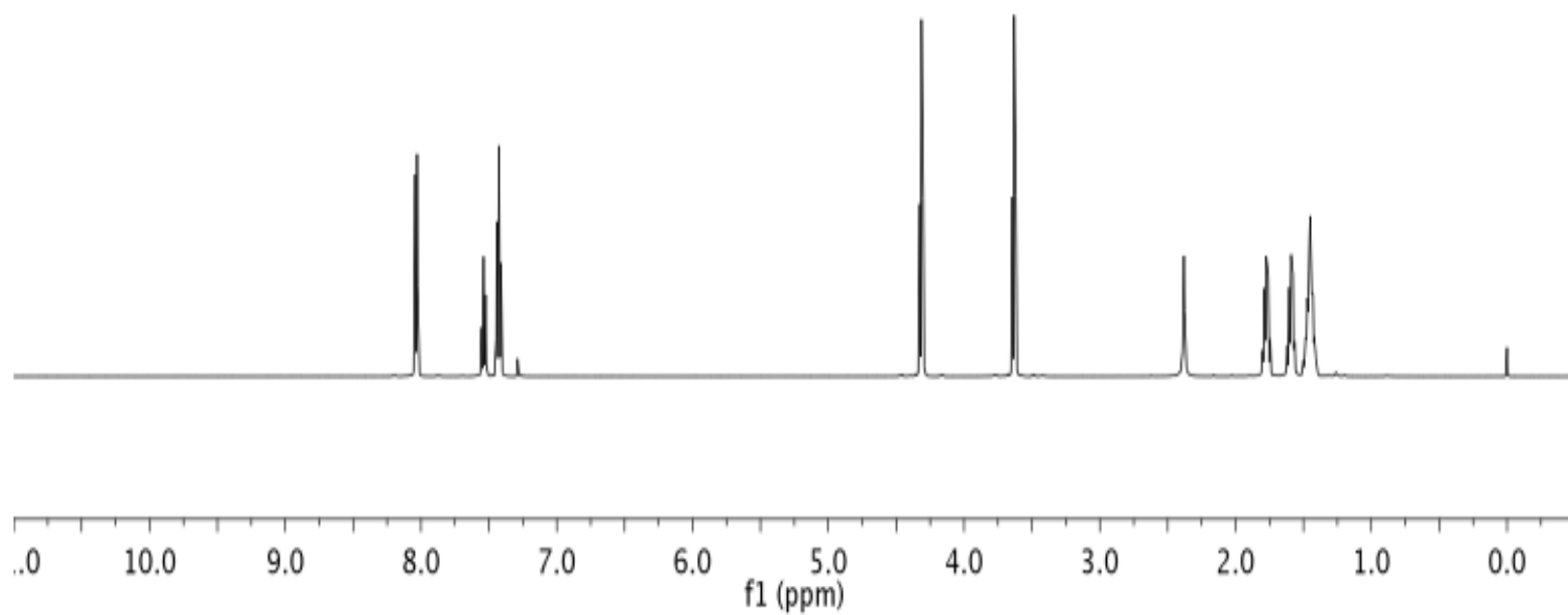
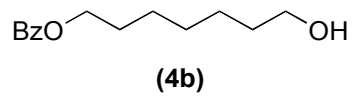
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of Furan-2(3H)-one (3i)



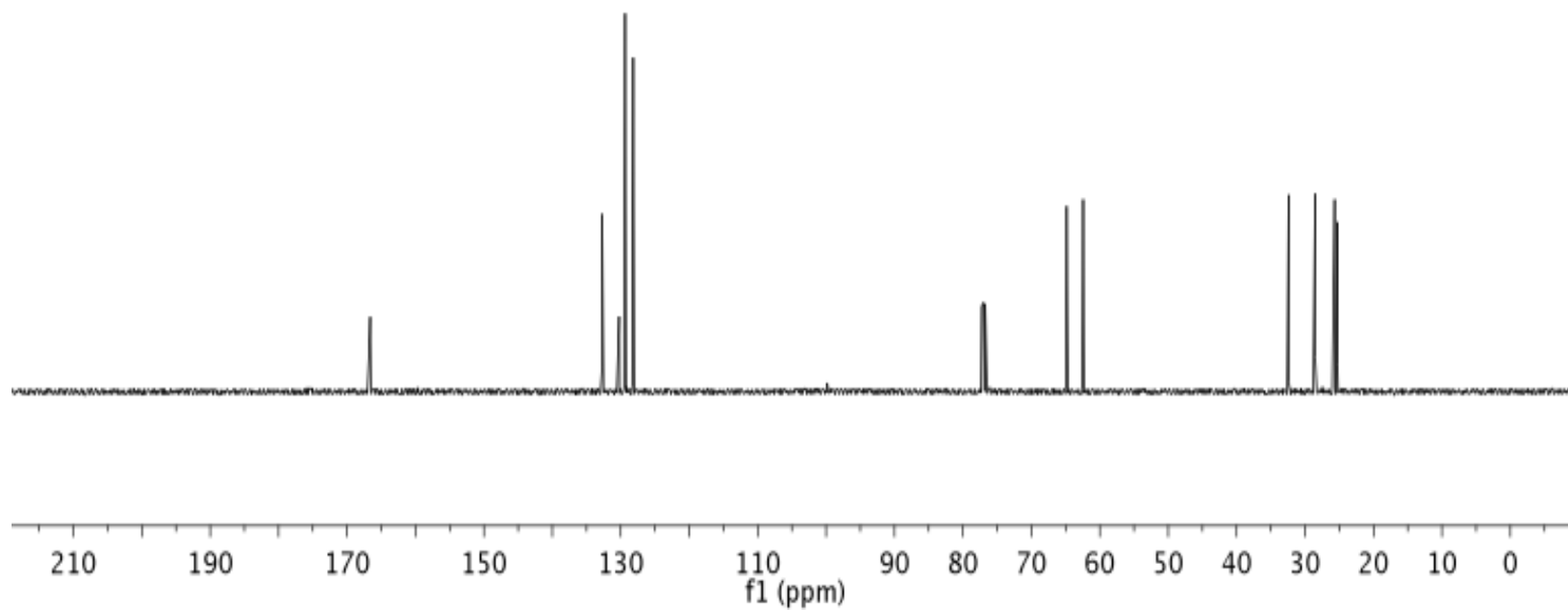
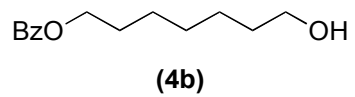
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 4-hydroxybutyl benzoate (4a)



<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 4-Hydroxybutyl benzoate (4a)

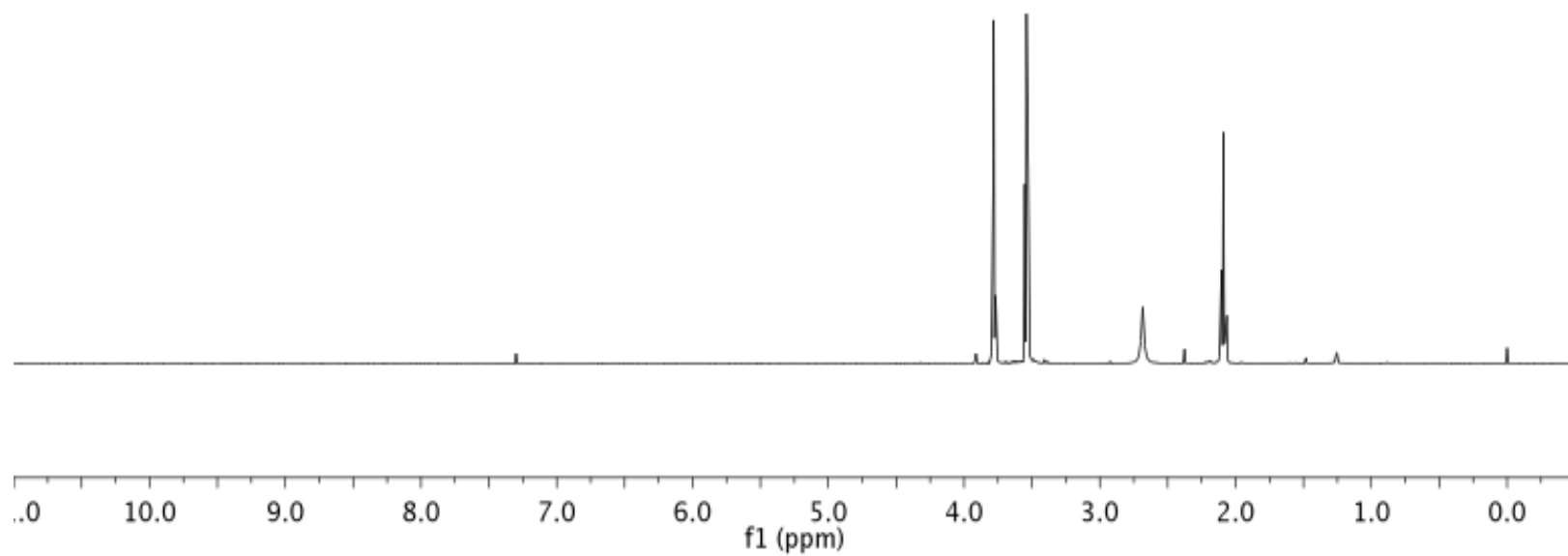
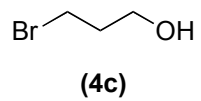


<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 7-Hydroxyheptylbenzoate (4b)

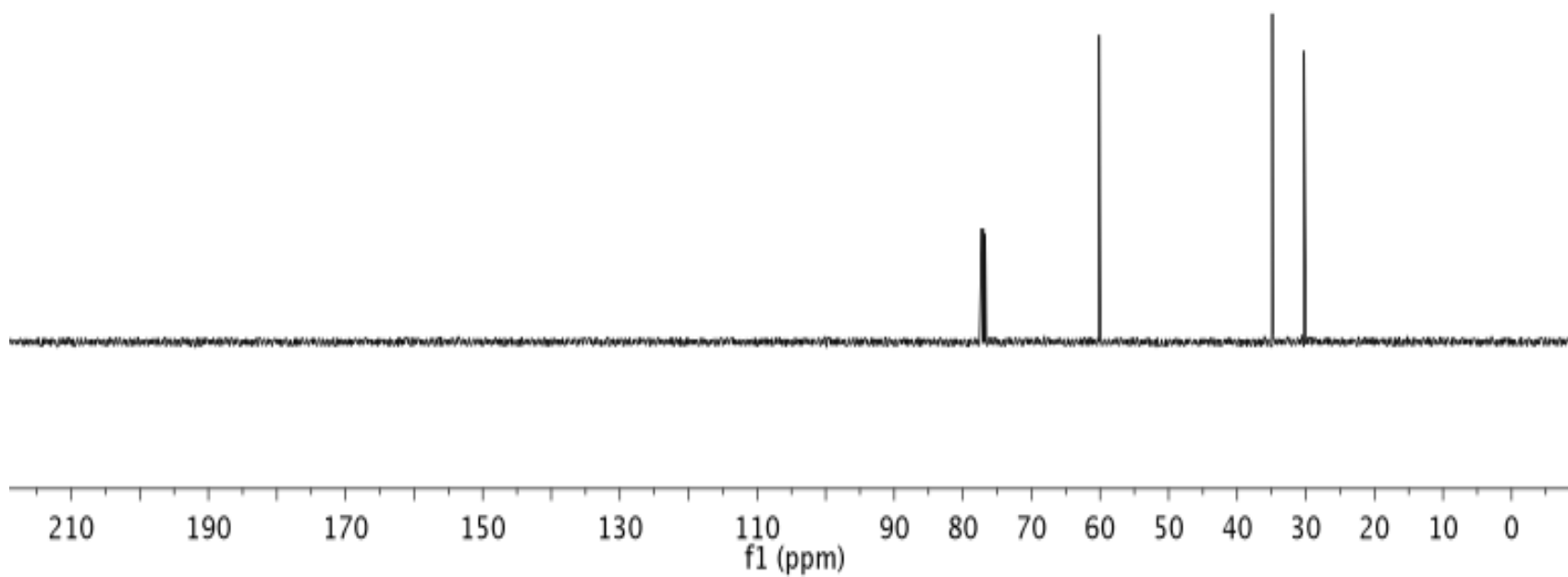
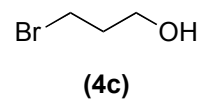


<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 7-Hydroxyheptylbenzoate (4b)

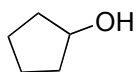




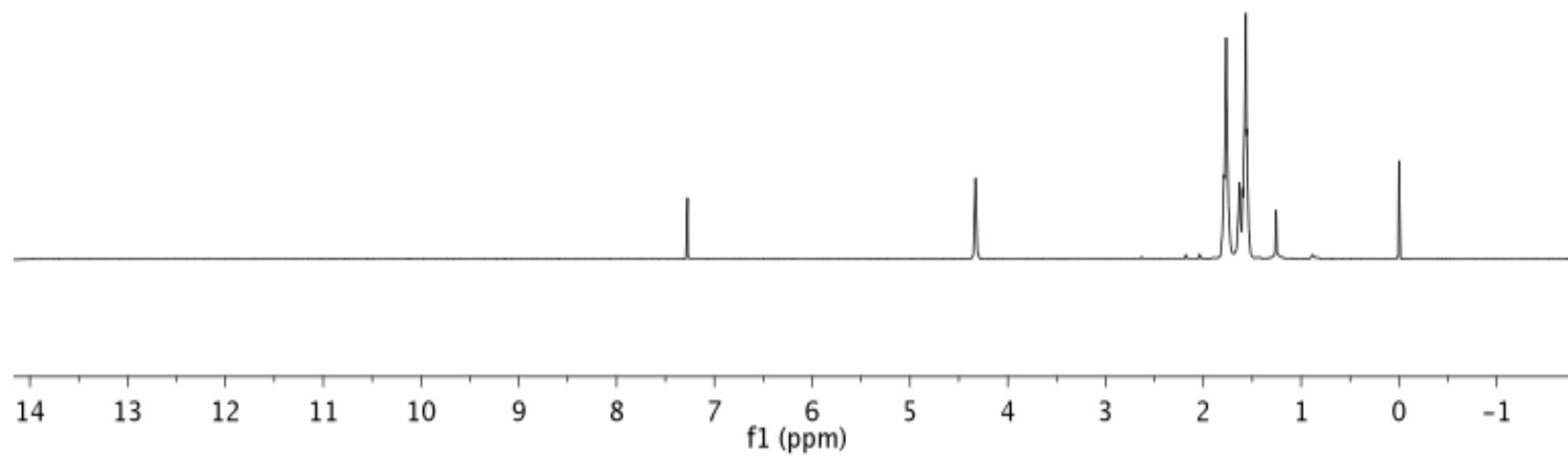
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 3-Bromopropan-1-ol (4c)



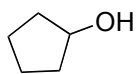
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 3-Bromopropan-1-ol (4c)



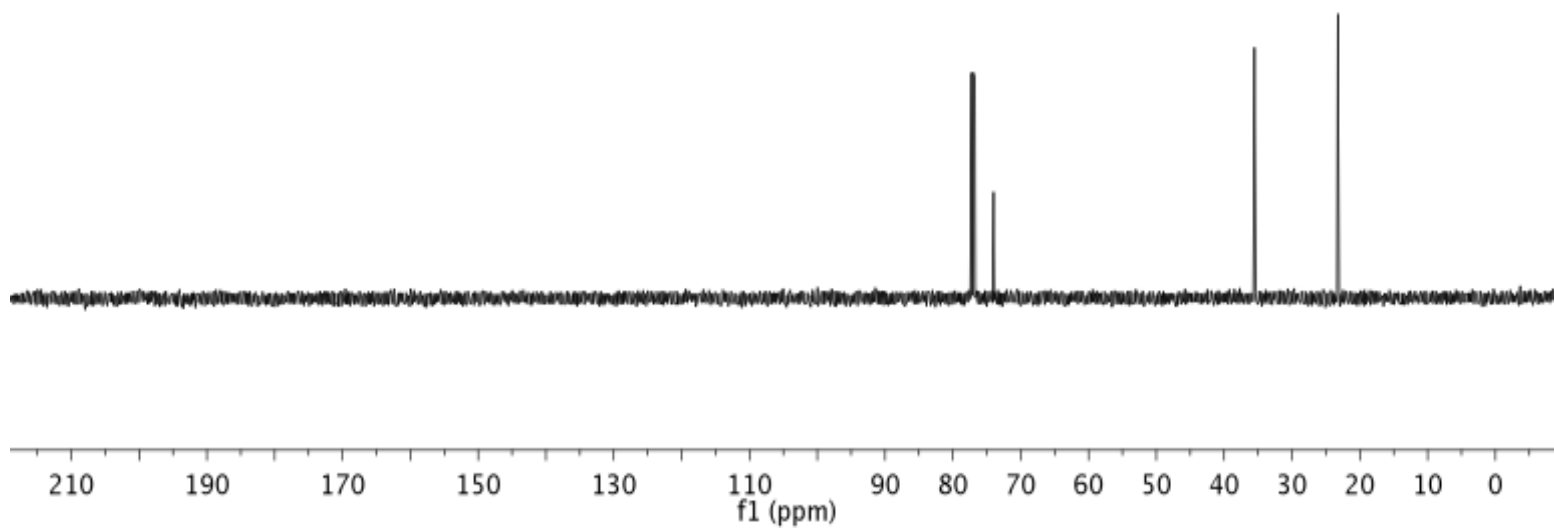
(4d)



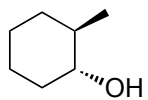
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Cyclopentanol (4d)



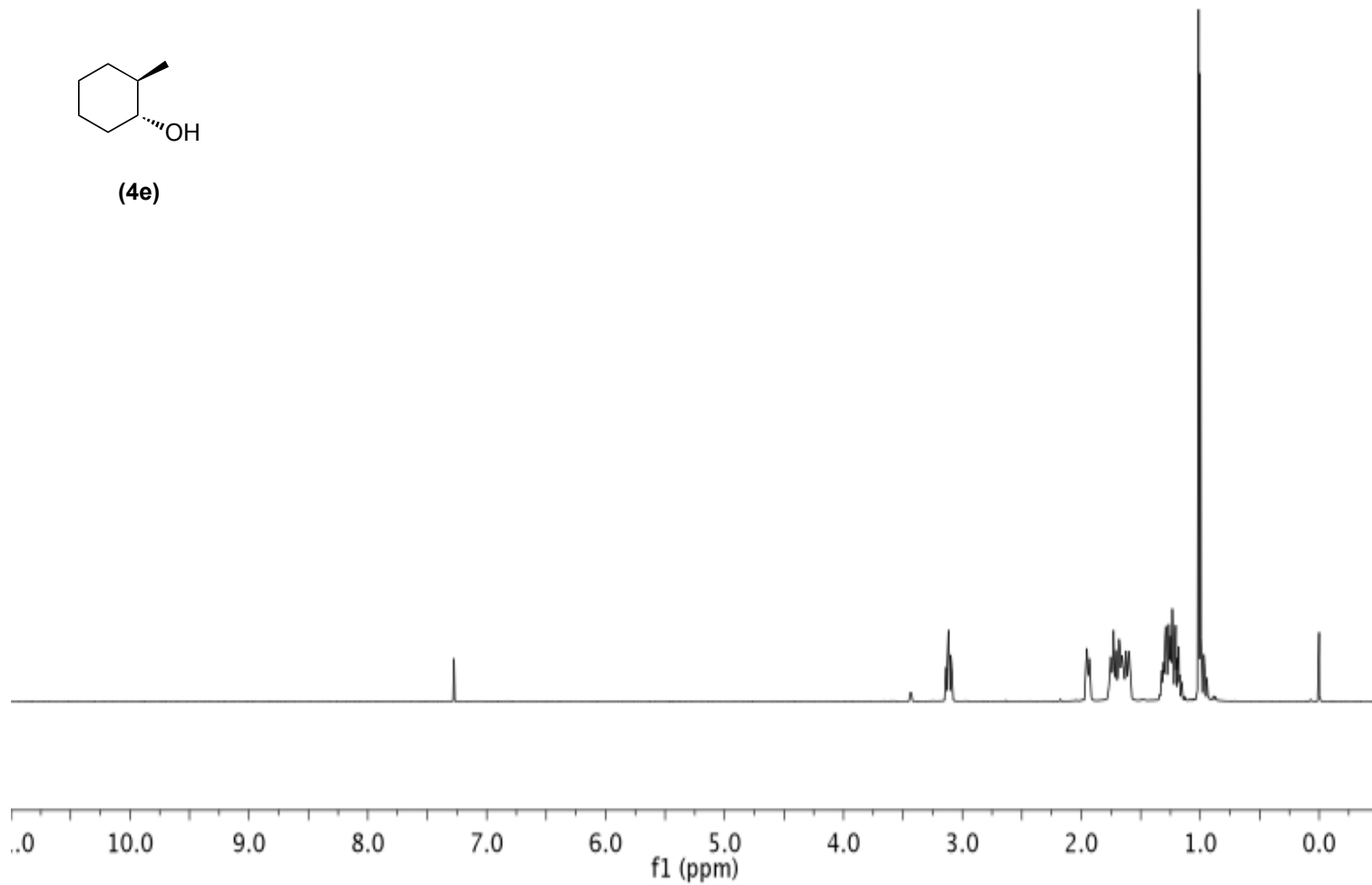
(4d)



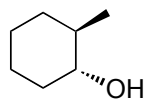
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of Cyclopentanol (4d)



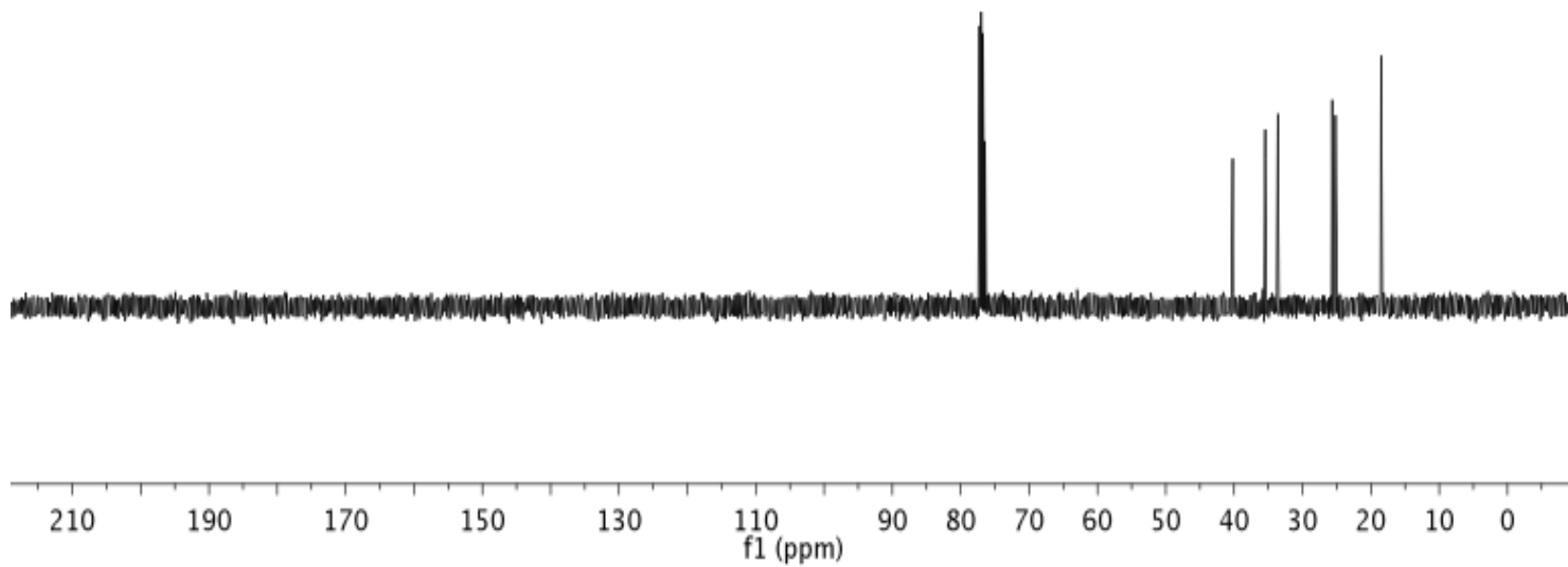
(4e)



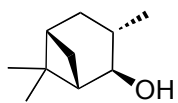
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of *trans*-2-Methylcyclohexanol (4e)



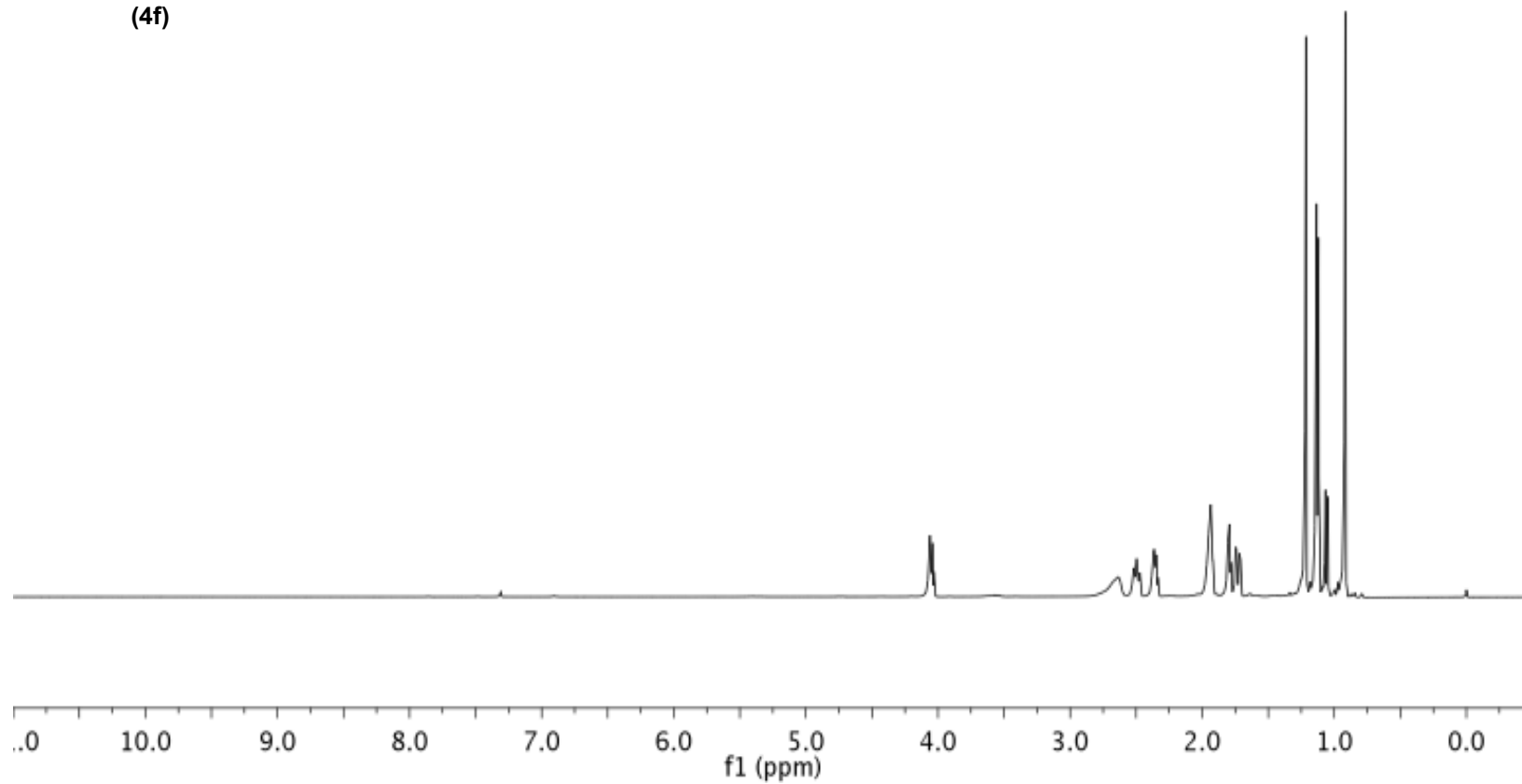
(4e)



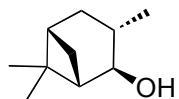
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of *trans*-2-Methylcyclohexanol (4e)



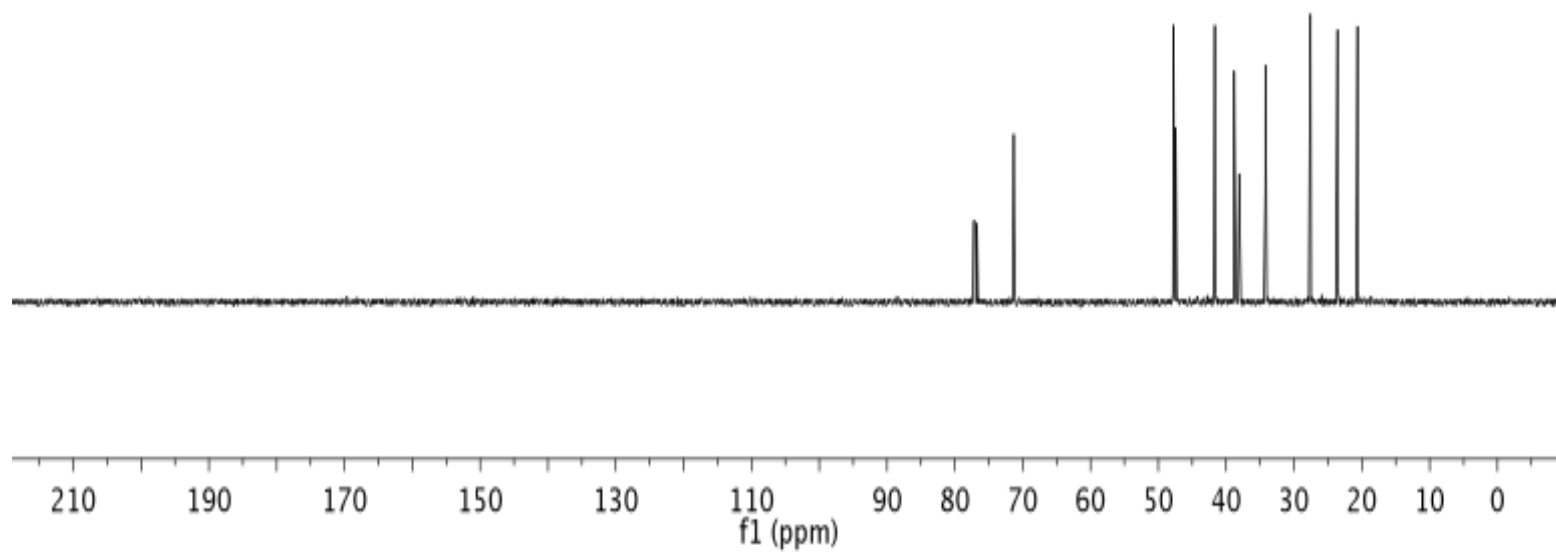
(4f)



<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 3,6,6-Trimethylbicyclo[3.1.1]heptan-2-ol (4f)

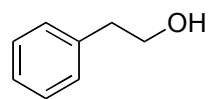


(4f)

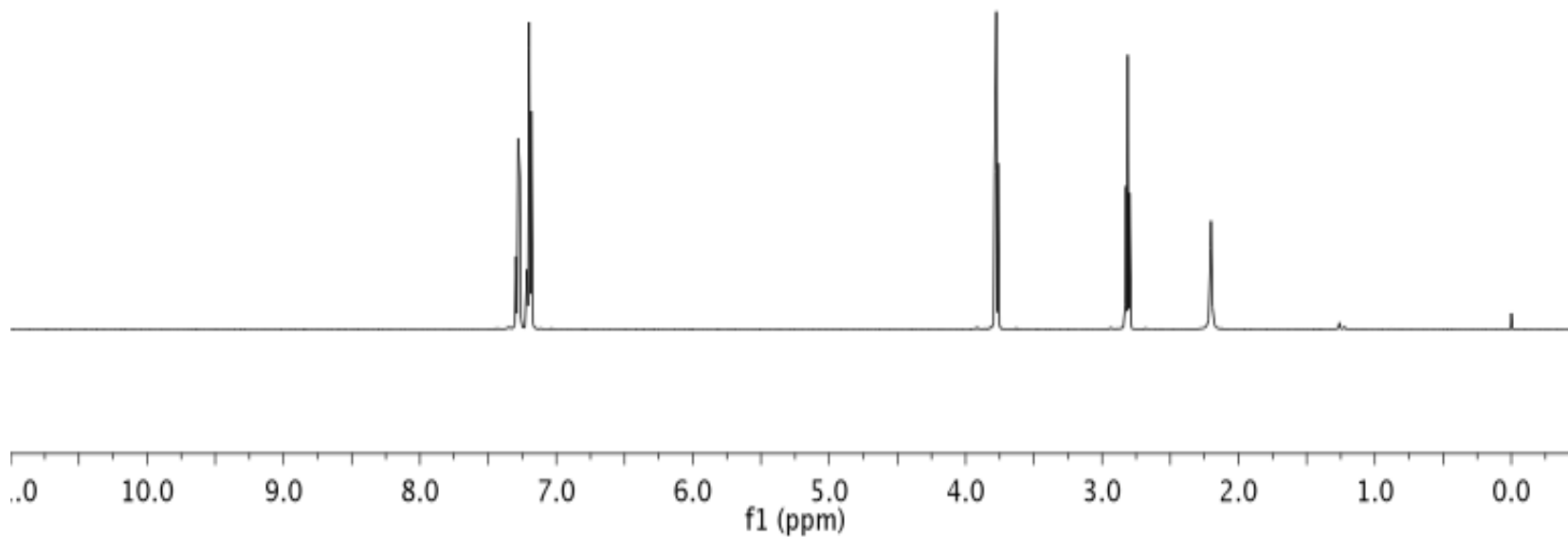


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of 3,6,6-Trimethylbicyclo[3.1.1]heptan-2-ol (4f)

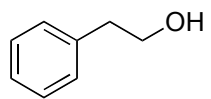




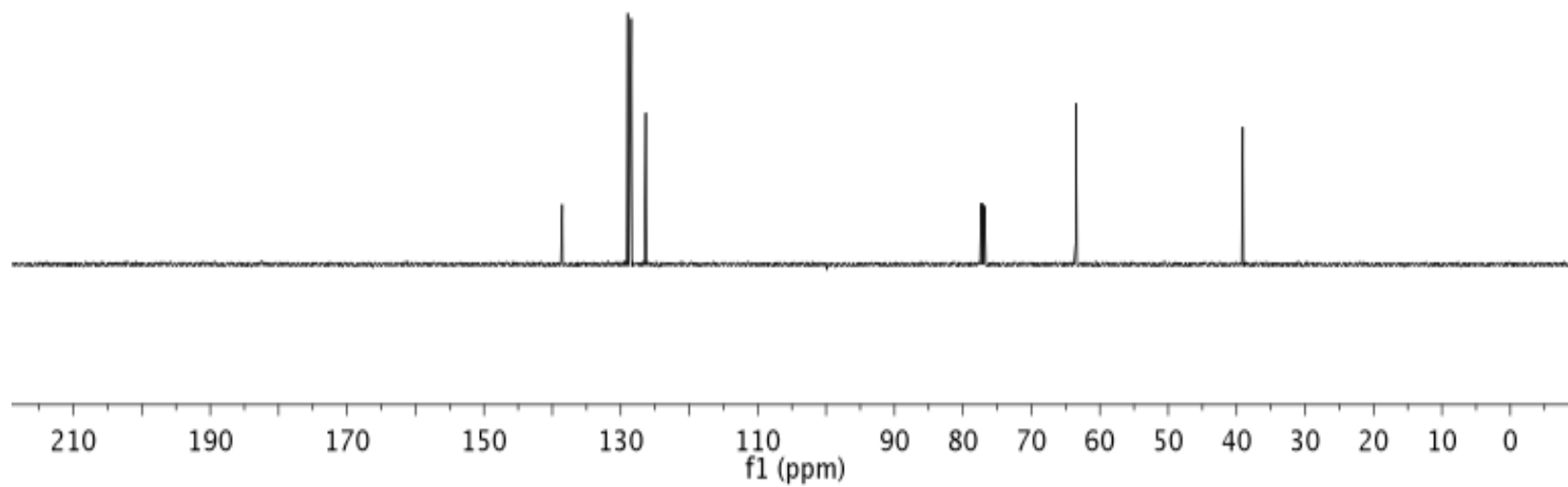
(4g)



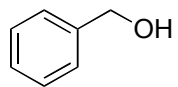
$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of 2-Phenylethanol (4g)



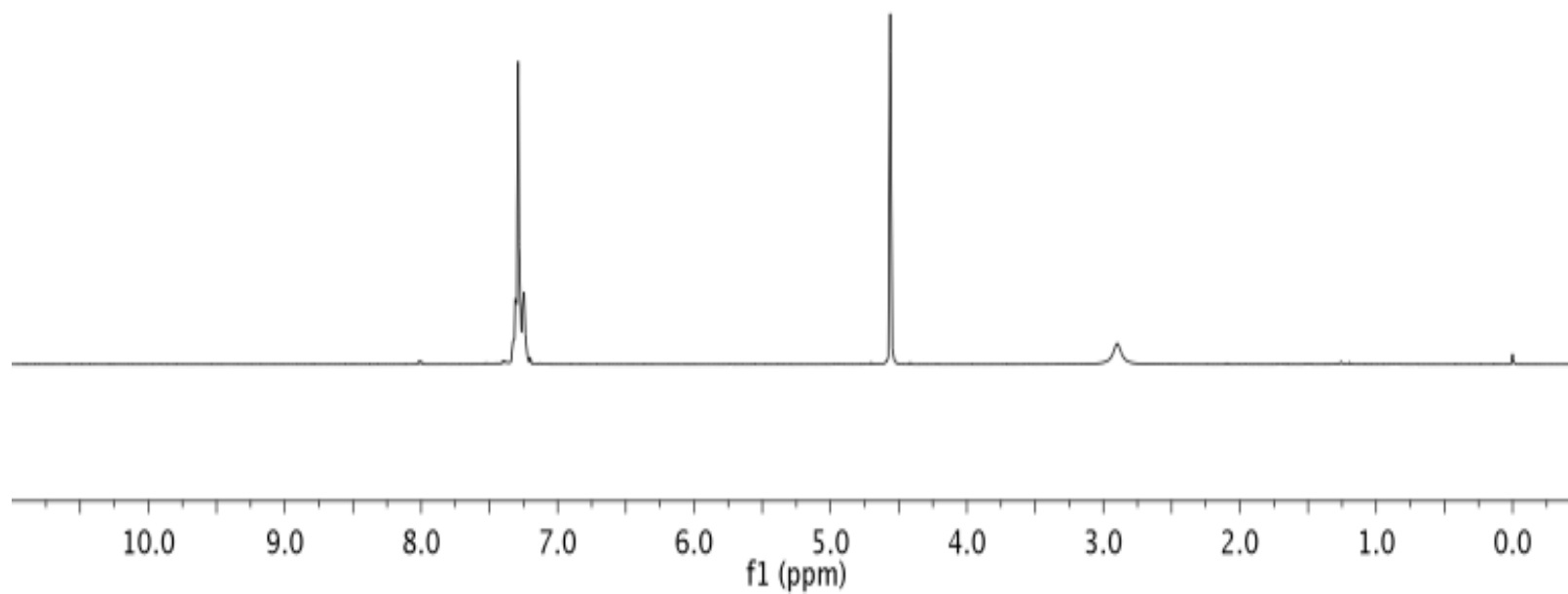
(4g)



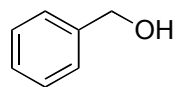
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 2-Phenylethanol (4g)



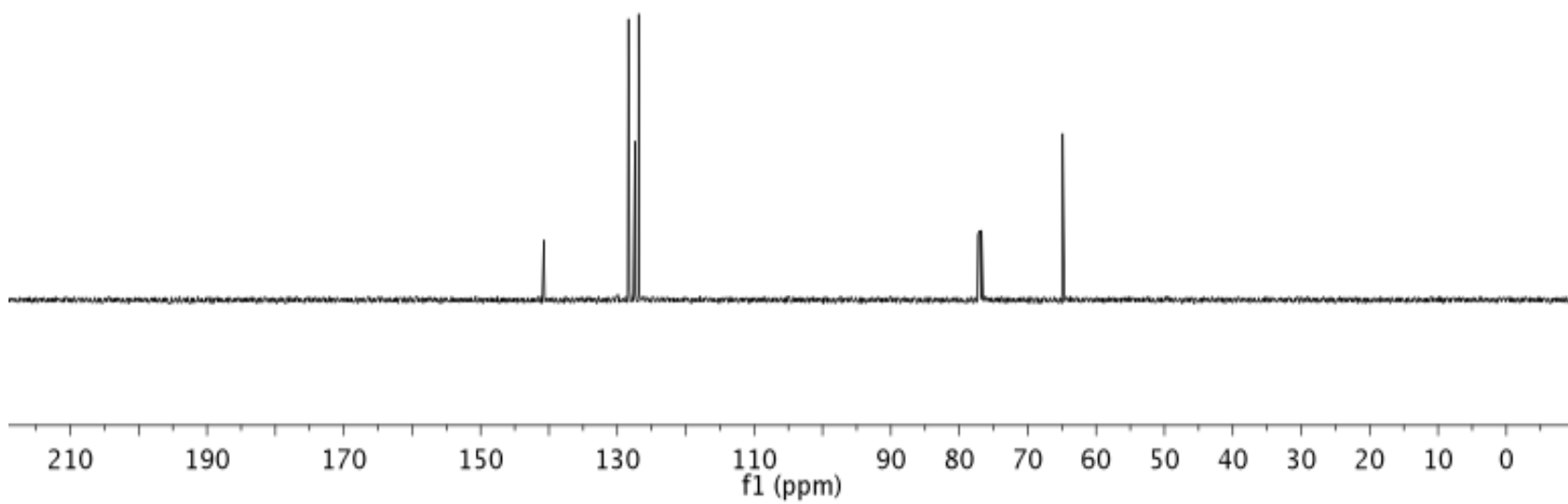
(4h)



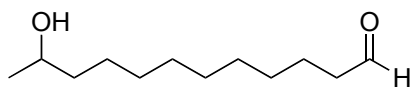
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Phenylmethanol (4h)



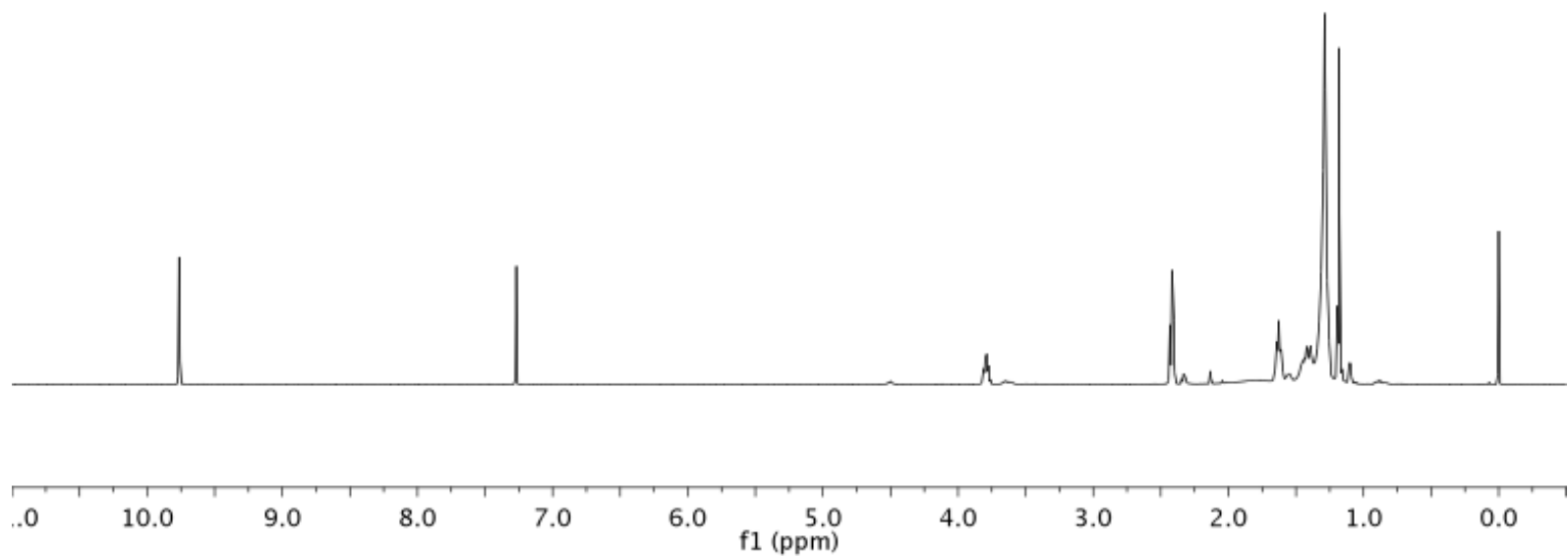
(4h)



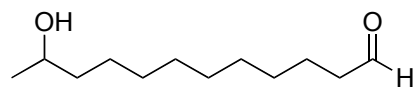
$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of Phenylmethanol (4h)



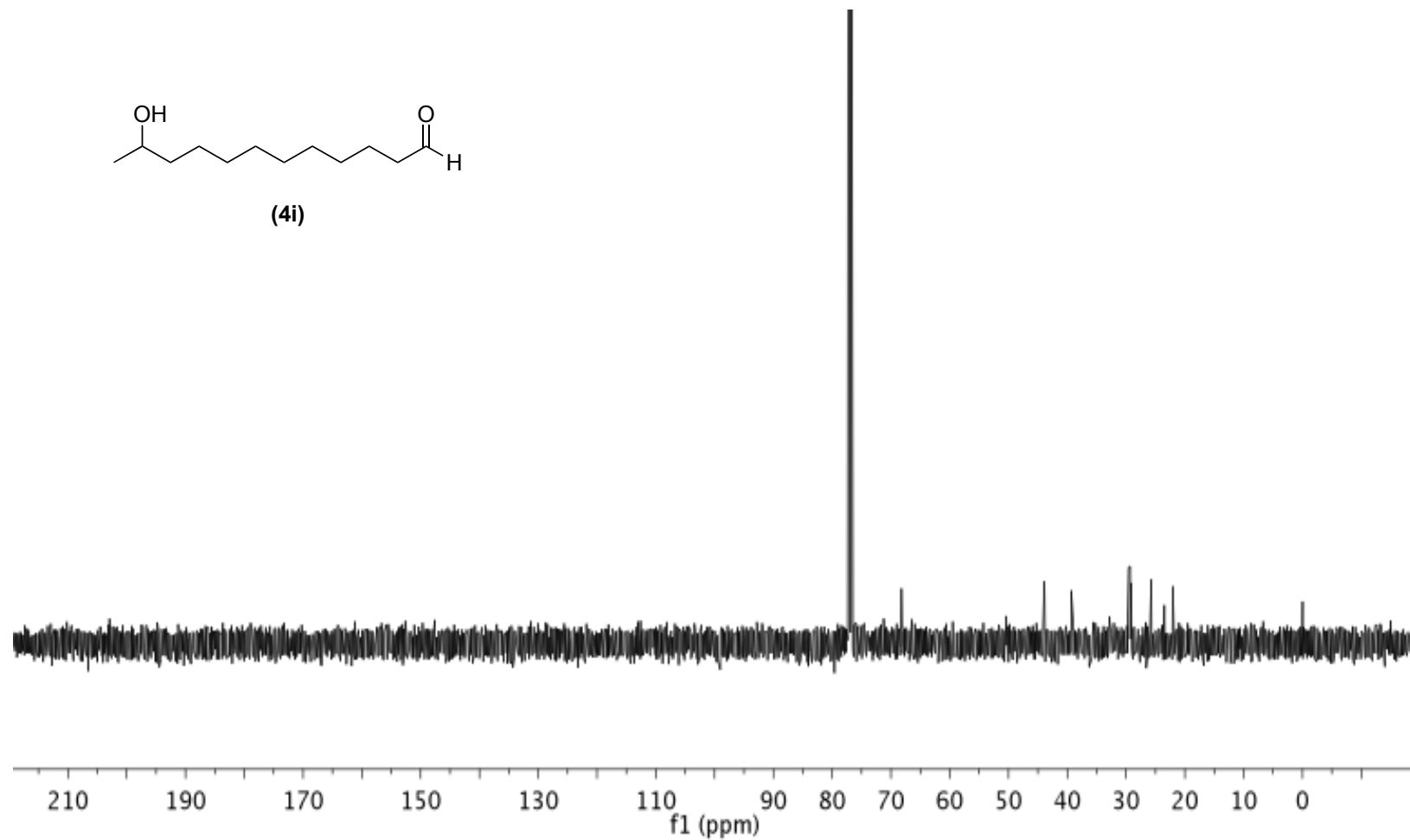
(4i)



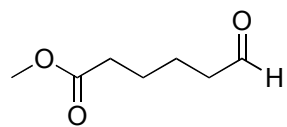
<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 11-Hydroxydodecanal (4i)



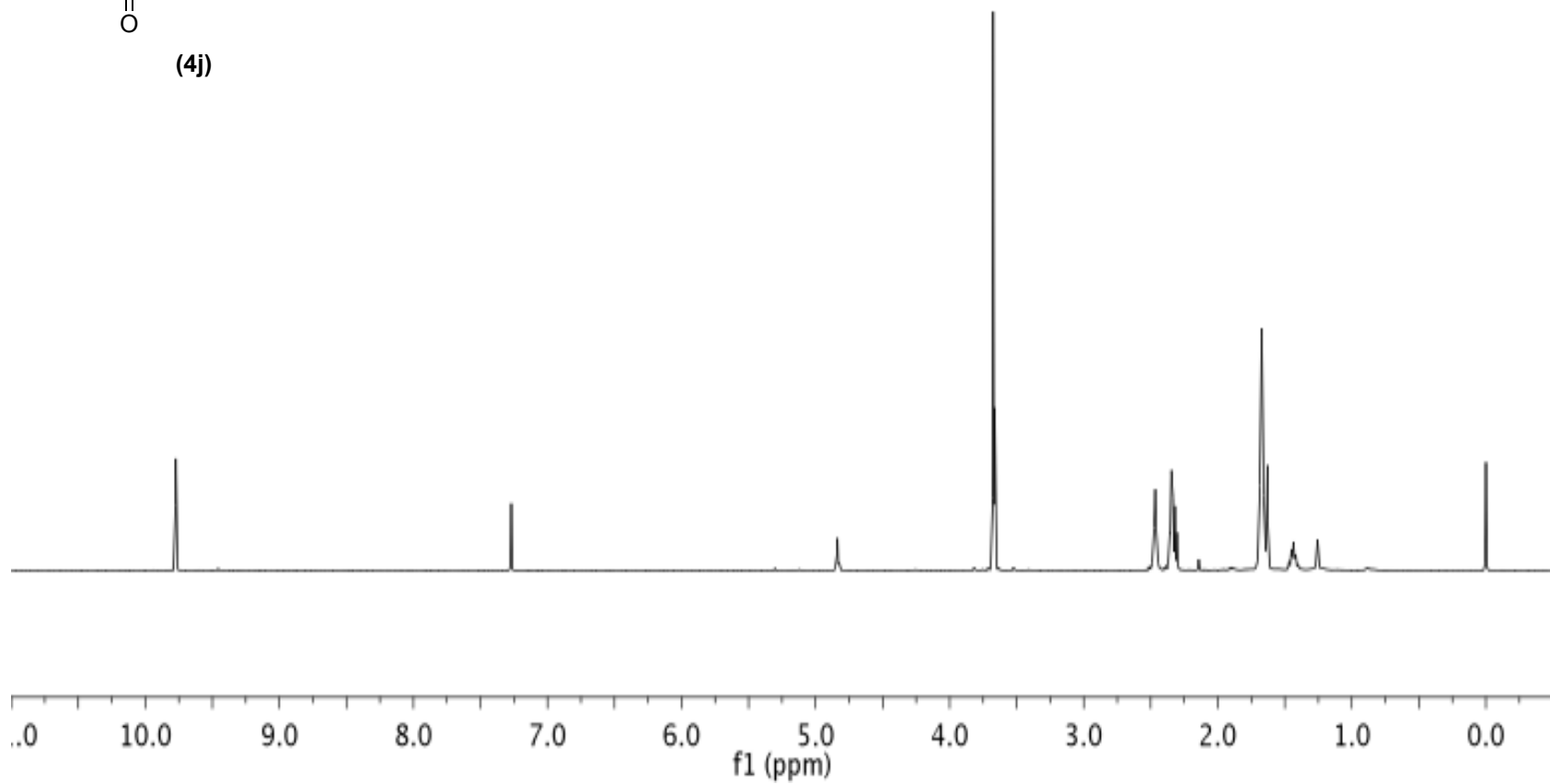
(4i)



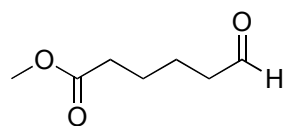
<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of 11-Hydroxydodecanal (4i)



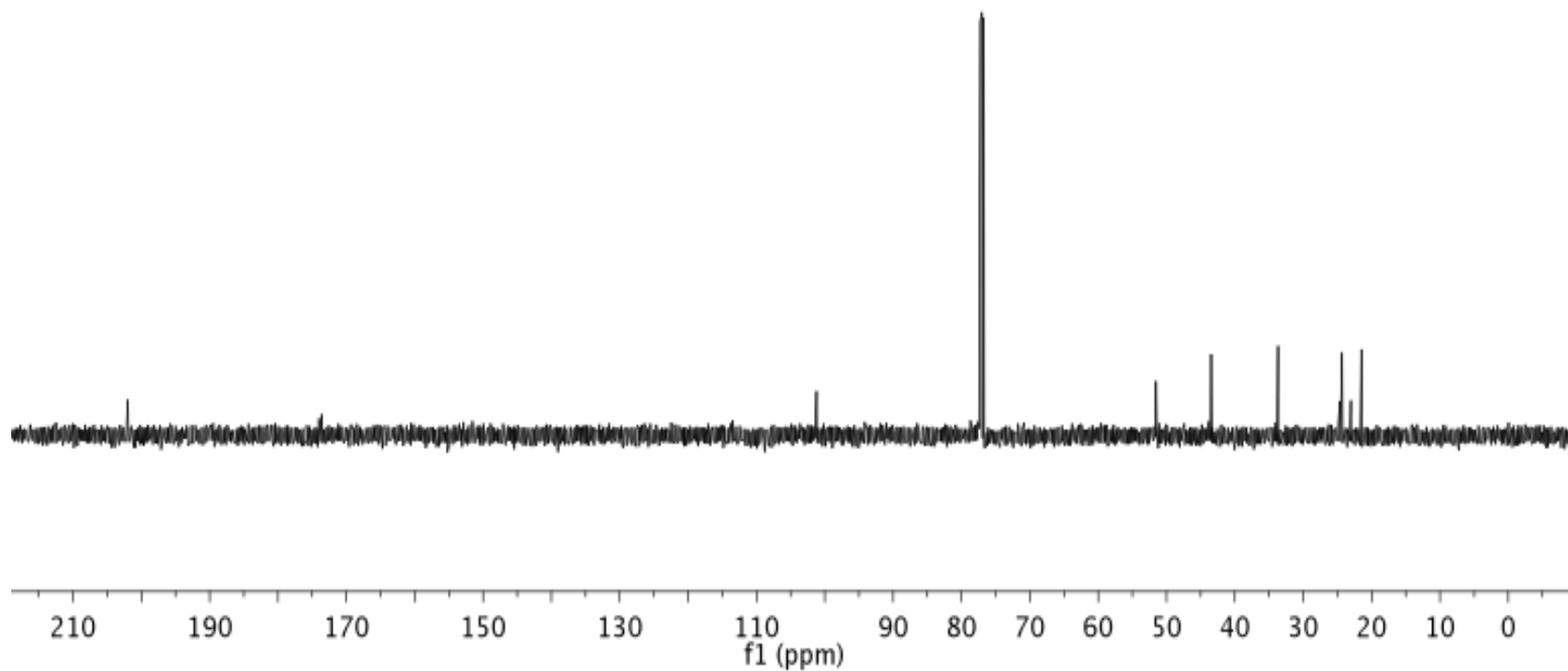
(4j)



<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Methyl 6-Oxohexanoate (4j)

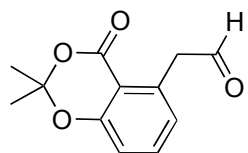


(4j)

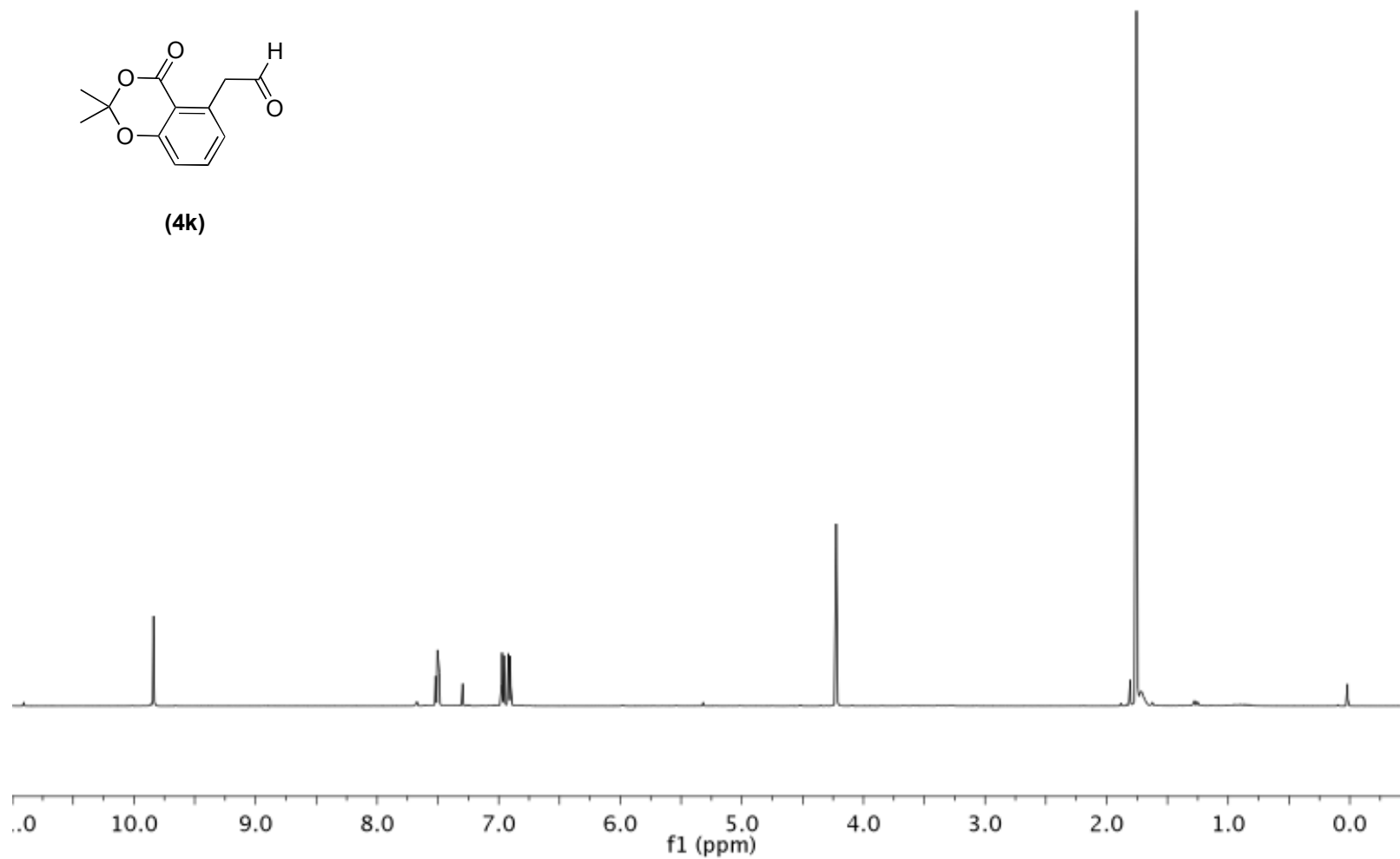


$^{13}\text{C}$  NMR (128.5 MHz,  $\text{CDCl}_3$ ) Spectrum of methyl 6-oxohexanoate (4j)

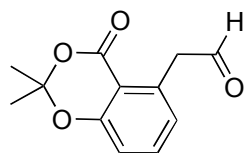




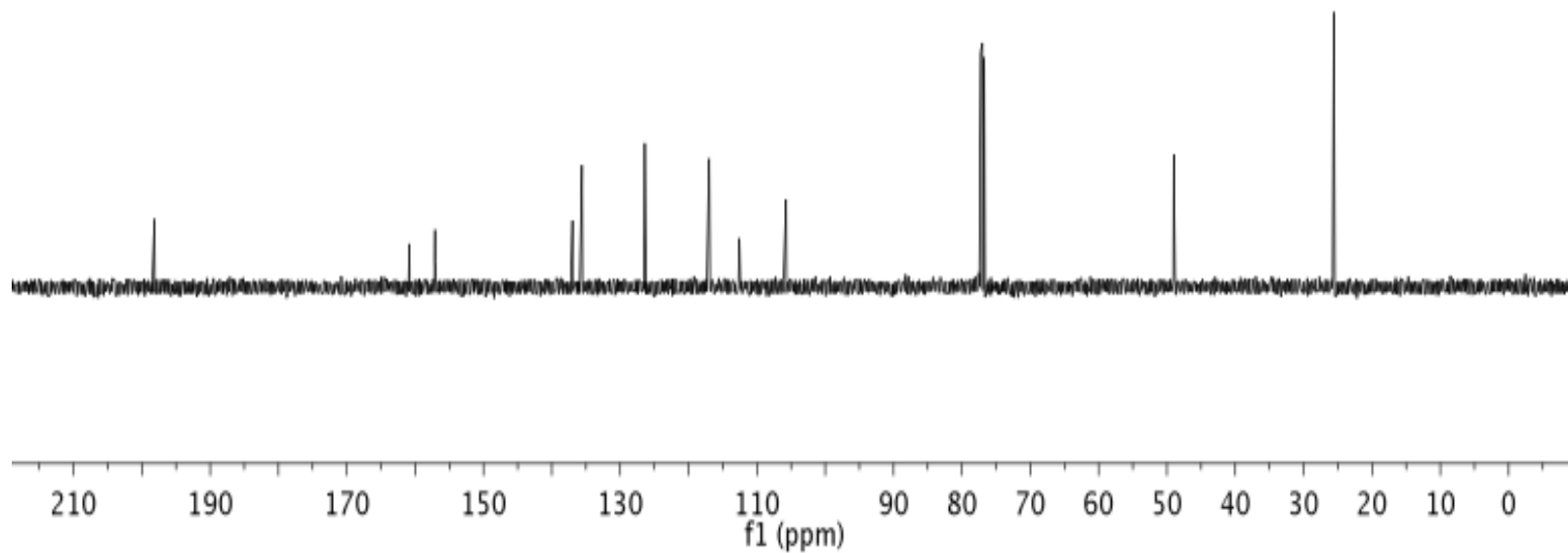
(4k)

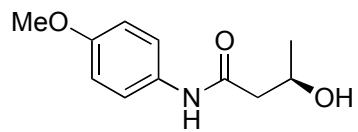


<sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of 2-(2,2-Dimethyl-4-oxo-4H-benzo[d][1,3]dioxin-5-yl)acetaldehyde (4k)

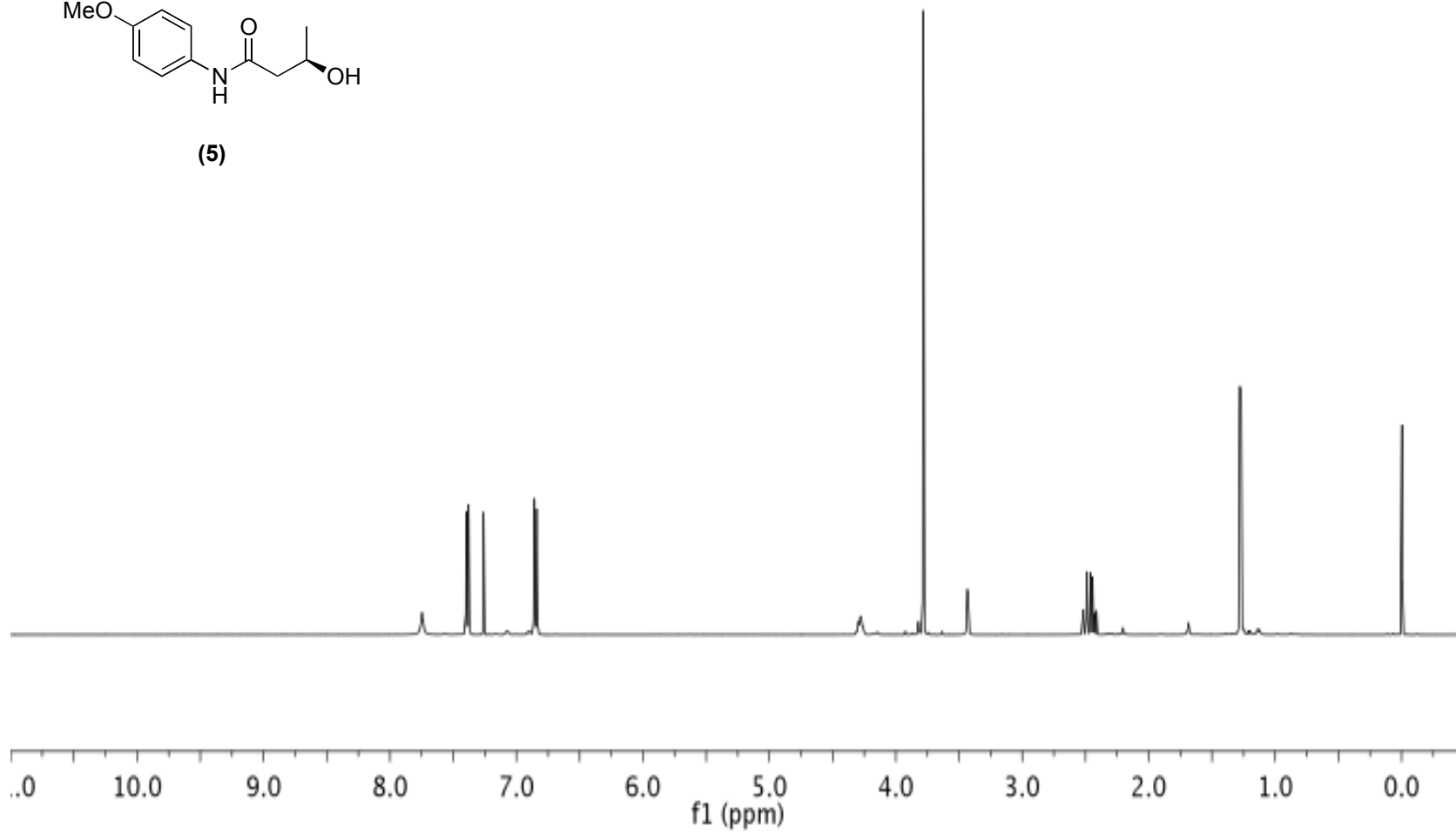


(4k)

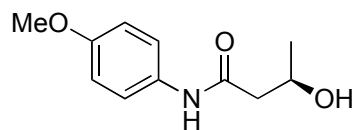




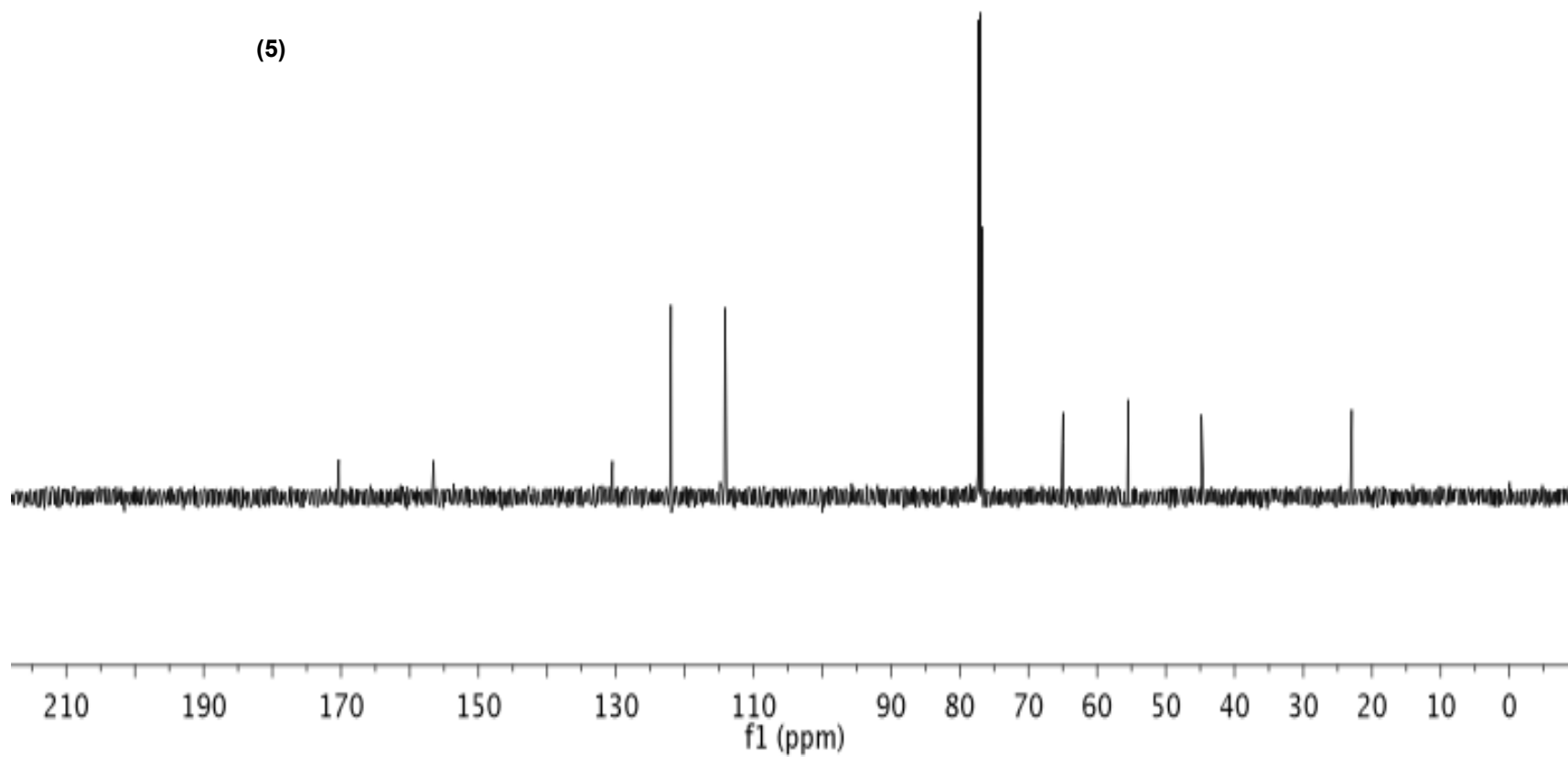
(5)



$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of (R)-3-Hydroxy-N-(4-methoxyphenyl)butanamide (5)



(5)



<sup>13</sup>C NMR (128.5 MHz, CDCl<sub>3</sub>) Spectrum of (*R*)-3-Hydroxy-*N*-(4-methoxyphenyl)butanamide (5)