

## Supporting Information

For

### Gold nanoparticle decorated amorphous carbon for oxidative cyclization of anthranilamide and aryl alcohols

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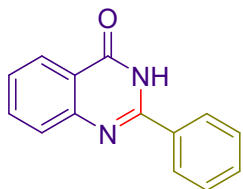
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### Contents

<b>Section 1.</b> NMR spectrum data of 2-arylquinazolin-4(3 <i>H</i> )-one	<b>S2-S7</b>
<b>Section 2.</b> NMR spectrum images of 2-arylquinazolin-4(3 <i>H</i> )-one	<b>S8-S21</b>
<b>Section 3.</b> References	<b>S22</b>

**Section 1.** NMR spectrum data of 2-arylquinazolin-4(3*H*)-one

**2-Phenylquinazolin-4(3*H*)-one**<sup>1-4</sup> (**3a**)

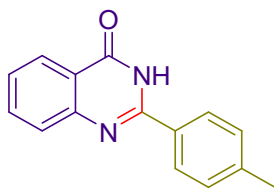


White solid, mp. 232–233.5 °C

<sup>1</sup>H NMR (500 MHz, DMSO-*d*<sub>6</sub>) δ 12.52 (s, 1H), 8.21–8.15 (m, 3H), 7.84 (ddd, *J* = 8.5, 7.0, 1.5 Hz, 1H), 7.74 (d, *J* = 8.0 Hz, 1H), 7.60–7.51 (m, 4H).

<sup>13</sup>C NMR (125 MHz, DMSO-*d*<sub>6</sub>) δ 162.2, 152.3, 148.7, 134.6, 132.7, 131.3, 128.6, 127.7, 127.5, 126.6, 125.8, 121.0.

**2-(4-Methylphenyl)quinazolin-4(3*H*)-one**<sup>1-4</sup> (**3b**)

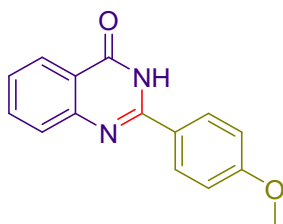


White solid, mp. 240–242 °C

<sup>1</sup>H NMR (500 MHz, DMSO-*d*<sub>6</sub>) δ 12.44 (s, 1H), 8.15 (dd, *J* = 8.0, 1.5 Hz, 1H), 8.10 (d, *J* = 8.0, 2H), 7.82 (ddd, *J* = 8.5, 7.0, 1.5 Hz, 1H), 7.72 (dd, *J* = 8.5, 1.0 Hz, 1H), 7.50 (ddd, *J* = 8.5, 7.0, 1.5 Hz, 1H), 7.35 (d, *J* = 8.0 Hz, 2H), 2.39 (s, 3H).

<sup>13</sup>C NMR (125 MHz, DMSO-*d*<sub>6</sub>) δ 162.2, 152.2, 148.8, 141.4, 134.4, 129.9, 129.1, 127.6, 127.4, 126.3, 125.8, 120.9, 20.9.

**2-(4-Methoxyphenyl)quinazolin-4(3*H*)-one**<sup>1,5</sup> (**3c**)

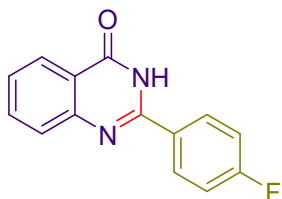


White solid, mp. 244–246 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.40 (s, 1H), 8.19 (d,  $J = 9.0$  Hz, 2H), 8.13 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.81 (ddd,  $J = 8.5, 7.0, 1.5$  Hz, 1H), 7.71 (d,  $J = 7.0$  Hz, 1H), 7.48 (ddd,  $J = 8.5, 7.0, 1.5$  Hz, 1H), 7.09 (d,  $J = 9.0$  Hz, 2H), 3.85 (s, 3H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  162.3, 161.9, 151.9, 148.8, 134.5, 129.5, 127.2, 126.1, 125.8, 124.8, 120.7, 114.0, 55.4.

### 2-(4-Fluorophenyl)quinazolin-4(3H)-one<sup>2,5</sup> (3d)

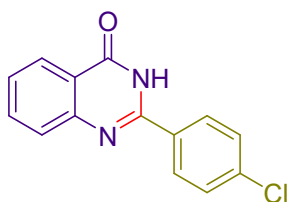


White solid, mp. 279–281 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.56 (s, 1H), 8.25 (dd,  $J = 9.0, 5.5$  Hz, 2H), 8.15 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.84 (ddd,  $J = 8.5, 7.0, 1.5$  Hz, 1H), 7.73 (d,  $J = 8.5$  Hz, 1H), 7.52 (ddd,  $J = 8.0, 7.0, 1.5$  Hz, 1H), 7.39 (t,  $J = 9.0$  Hz, 2H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  164.0 (d,  $J = 248.0$  Hz), 162.16, 151.35, 148.63, 134.60, 130.4 (d,  $J = 9.0$  Hz), 129.2 (d,  $J = 3.0$  Hz), 127.44, 126.58, 125.82, 120.87, 115.6 (d,  $J = 21.9$  Hz).

### 2-(4-Chlorophenyl)quinazolin-4(3H)-one<sup>2,4</sup> (3e)

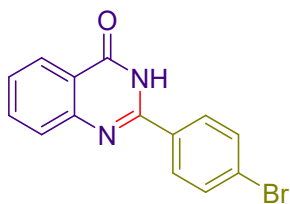


White solid, mp. 264.5–265.5 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.60 (s, 1H), 8.20 (d,  $J = 8.5$  Hz, 2H), 8.16 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.85 (ddd,  $J = 8.0, 7.0, 1.5$  Hz, 1H), 7.75 (d,  $J = 7.5$  Hz, 1H), 7.63 (d,  $J = 8.5$  Hz, 2H), 7.54 (ddd,  $J = 8.0, 7.0, 1.0$  Hz, 1H).

$^{13}\text{C}$  NMR (126 MHz,  $\text{DMSO}$ )  $\delta$  162.1, 151.3, 148.6, 136.3, 134.7, 131.6, 129.61, 128.7, 127.5, 126.8, 125.9, 121.0.

**2-(4-Bromophenyl)quinazolin-4(3H)-one<sup>2,3,5</sup> (3f)**

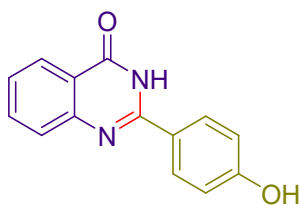


White solid, mp. 293–295 °C

<sup>1</sup>H NMR (500 MHz, DMSO-*d*<sub>6</sub>) δ 12.60 (s, 1H), 8.16 (dd, *J* = 8.0, 1.5 Hz, 1H), 8.13 (d, *J* = 8.5 Hz, 2H), 7.84 (ddd, *J* = 8.0, 7.0, 1.5 Hz, 1H), 7.77-7.74 (m, 3H), 7.56 (ddd, *J* = 8.0, 7.0, 1.0 Hz, 1H).

<sup>13</sup>C NMR (125 MHz, DMSO-*d*<sub>6</sub>) δ 162.1, 151.4, 148.5, 134.6, 131.9, 131.6, 129.8, 127.5, 126.7, 125.8, 125.2, 121.0.

**2-(4-Hydroxyphenyl)quinazolin-4(3H)-one<sup>3,6</sup> (3g)**

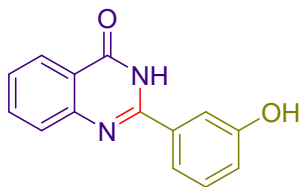


White solid, mp. >300 °C

<sup>1</sup>H NMR (500 MHz, DMSO-*d*<sub>6</sub>) δ 12.29 (s, 1H), 10.15 (s, 1H), 8.12 (dd, *J* = 8.0, 1.5 Hz, 1H), 8.08 (d, *J* = 9.0 Hz, 2H), 7.80 (ddd, *J* = 8.0, 7.0, 1.5 Hz, 1H), 7.68 (d, *J* = 8.5 Hz, 1H), 7.50-7.43 (m, 1H), 6.89 (d, *J* = 9.0 Hz, 2H).

<sup>13</sup>C NMR (125 MHz, DMSO-*d*<sub>6</sub>) δ 162.3, 160.5, 152.1, 149.0, 134.4, 129.5, 127.2, 125.9, 125.8, 123.2, 120.6, 115.3.

**2-(3-Hydroxyphenyl)quinazolin-4(3H)-one<sup>7</sup> (3h)**

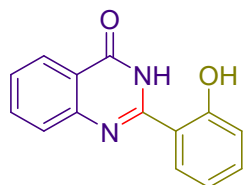


Yellow solid, mp. 252–254 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.42 (s, 1H), 9.75 (s, 1H), 8.15 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.88-7.80 (m, 1H), 7.72 (d,  $J = 8.0$  Hz, 1H), 7.65-7.56 (m, 2H), 7.51 (t,  $J = 7.5$  Hz, 1H), 7.33 (t,  $J = 8.0$  Hz, 1H), 7.02-6.93 (m, 1H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  162.1, 157.5, 152.3, 148.7, 134.5, 134.0, 129.6, 127.4, 126.5, 125.8, 121.0, 118.5, 118.3, 114.6.

### 2-(2-Hydroxyphenyl)quinazolin-4(3H)-one<sup>3,6</sup> (3i)

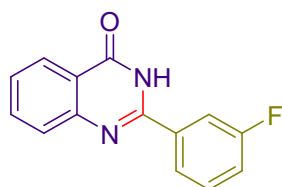


Brown solid, mp.  $>300$  °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  13.76 (s, 1H), 12.47 (s, 1H), 8.23 (dd,  $J = 8.0, 1.5$  Hz, 1H), 8.16 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.86 (ddd,  $J = 8.5, 7.0, 1.5$  Hz, 1H), 7.76 (d,  $J = 8.0$  Hz, 1H), 7.59-7.52 (m, 1H), 7.45 (ddd,  $J = 8.5, 7.0, 1.5$  Hz, 1H), 7.01 (dd,  $J = 8.5, 1.0$  Hz, 1H), 6.99-6.94 (m, 1H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  161.3, 160.0, 153.7, 146.1, 135.0, 133.7, 127.7, 126.9, 126.0, 120.7, 118.8, 117.8, 112.9.

### 2-(3-Fluorophenyl)quinazolin-4(3H)-one<sup>1</sup> (3j)

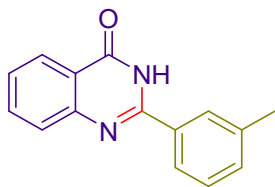


White solid, mp. 262–263.5 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.56 (s, 1H), 8.17 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.86 (ddd,  $J = 8.0, 7.0, 1.5$  Hz, 1H), 7.79 (td,  $J = 7.5, 2.0$  Hz, 1H), 7.73 (d,  $J = 8.3$  Hz, 1H), 7.65-7.60 (m, 1H), 7.57 (ddd,  $J = 8.0, 7.0, 1.0$  Hz, 1H), 7.41-7.36 (m, 2H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO}$ )  $\delta$  161.4, 159.5 (d,  $J = 247.8$  Hz), 149.9, 148.6, 134.6, 132.8 (d,  $J = 8.6$  Hz), 131.0 (d,  $J = 2.8$  Hz), 127.5, 127.0, 125.8, 124.6 (d,  $J = 3.5$  Hz), 122.2 (d,  $J = 9.8$  Hz), 121.1, 116.2, 116.1 (d,  $J = 21.1$  Hz).

### 2-(3-Methylphenyl)quinazolin-4(3H)-one (3k)

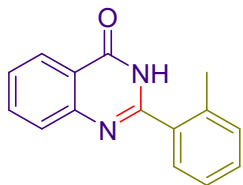


White solid, mp. 207–209 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.53 (s, 1H), 8.16 (d,  $J = 8.0$  Hz, 1H), 7.87–7.82 (m, 1H), 7.79 (d,  $J = 8.0$  Hz, 1H), 7.75 (m, 2H), 7.53 (t,  $J = 7.5$  Hz, 1H), 7.46 (t,  $J = 8.0$  Hz, 1H), 7.15 (dd,  $J = 8.5, 2.5$  Hz, 1H), 3.87 (s, 3H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  162.2, 159.4, 152.07, 148.7, 134.6, 134.0, 129.8, 127.6, 126.7, 125.9, 121.0, 120.1, 117.6, 112.6, 55.4.

### 2-(2-Methylphenyl)quinazolin-4(3H)-one<sup>4</sup> (3l)

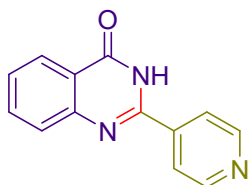


White solid, mp. 215–217 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.44 (s, 1H), 8.17 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.84 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.69 (d,  $J = 8.0$  Hz, 1H), 7.58–7.52 (m, 1H), 7.51 (dd,  $J = 7.5, 1.5$  Hz, 1H), 7.43 (td,  $J = 7.5, 1.5$  Hz, 1H), 7.39–7.30 (m, 2H), 2.39 (s, 3H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  161.8, 154.4, 148.5, 136.1, 134.4, 134.1, 130.5, 129.9, 129.1, 127.2, 126.6, 125.7, 125.6, 120.9, 19.5.

### 2-(Pyridin-4-yl)quinazolin-4(3H)-one (3m)

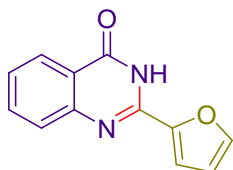


White solid, mp. 225–226 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.76 (s, 1H), 8.79 (d,  $J = 6.0$  Hz, 2H), 8.19 (dd,  $J = 7.5, 1.5$  Hz, 1H), 8.12 (d,  $J = 6.0$  Hz, 2H), 7.88 (ddd,  $J = 8.5, 7.0, 1.5$  Hz, 1H), 7.80 (d,  $J = 8.5$  Hz, 1H), 7.59 (dd,  $J = 8.5, 7.0, 1.5$  Hz, 1H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  162.0, 150.3, 148.1, 142.8, 139.9, 134.8, 127.8, 127.4, 125.9, 121.6, 121.5.

**2-(Furan-2-yl)quinazolin-4(3H)-one<sup>5</sup> (3n)**



Yellow solid, mp. 225–229 °C

$^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  12.49 (s, 1H), 8.12 (dd,  $J = 8.0, 1.5$  Hz, 1H), 7.99 (dd,  $J = 2.0, 1.0$  Hz, 1H), 7.81 (ddd,  $J = 8.0, 7.0, 1.5$  Hz, 1H), 7.69 (dd,  $J = 8.0, 1.0$  Hz, 1H), 7.63 (dd,  $J = 3.5, 1.0$  Hz, 1H), 7.49 (ddd,  $J = 8.0, 7.0, 1.0$  Hz, 1H), 6.75 (dd,  $J = 3.5, 1.5$  Hz, 1H).

$^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ )  $\delta$  161.5, 148.7, 146.6, 146.1, 144.0, 134.6, 127.2, 126.5, 125.9, 121.2, 114.5, 112.5.

Section 2. NMR spectrum images of 2-arylquinazolin-4(3H)-one

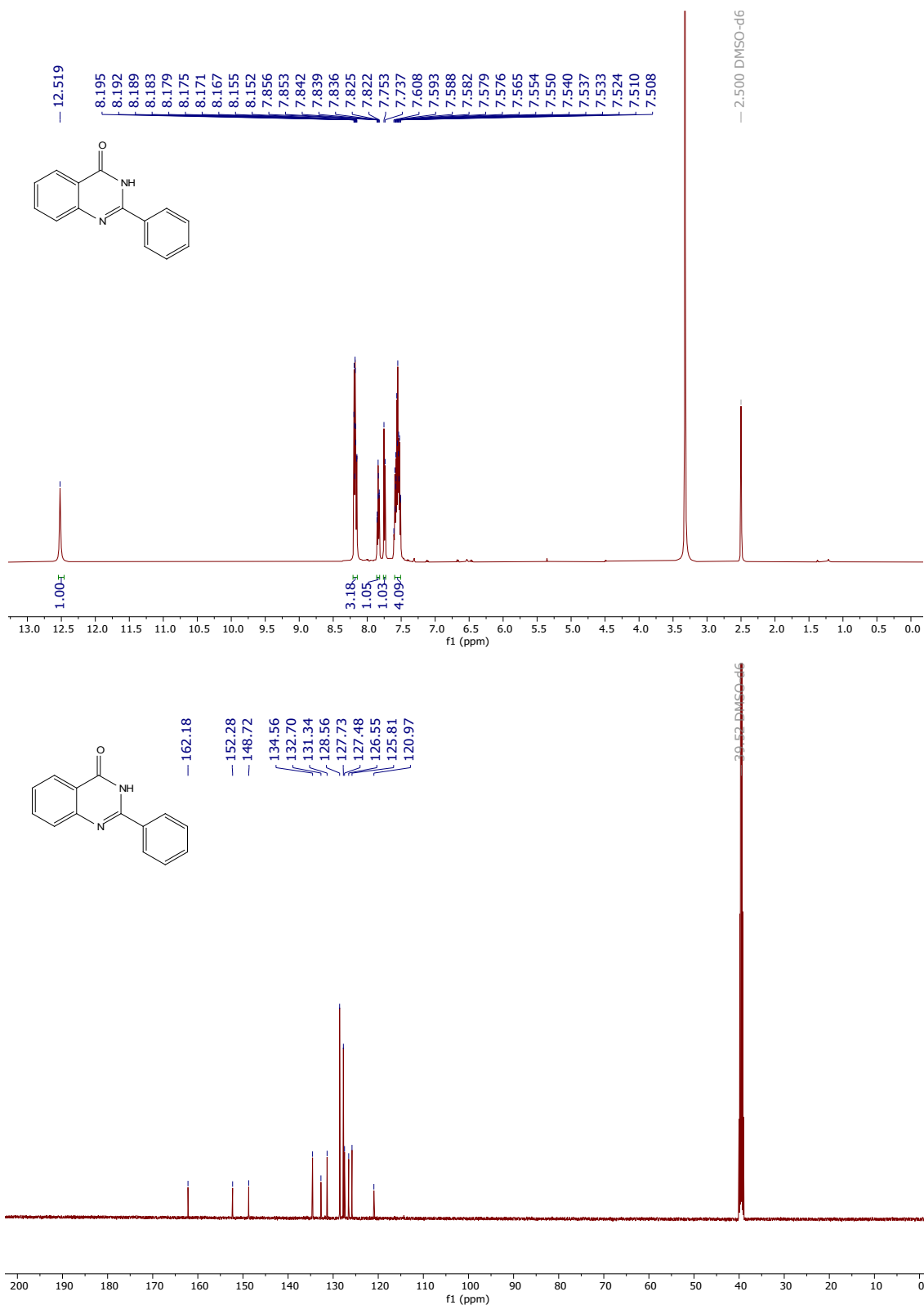


Figure S1. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-phenylquinazolin-4(3H)-one (3a)



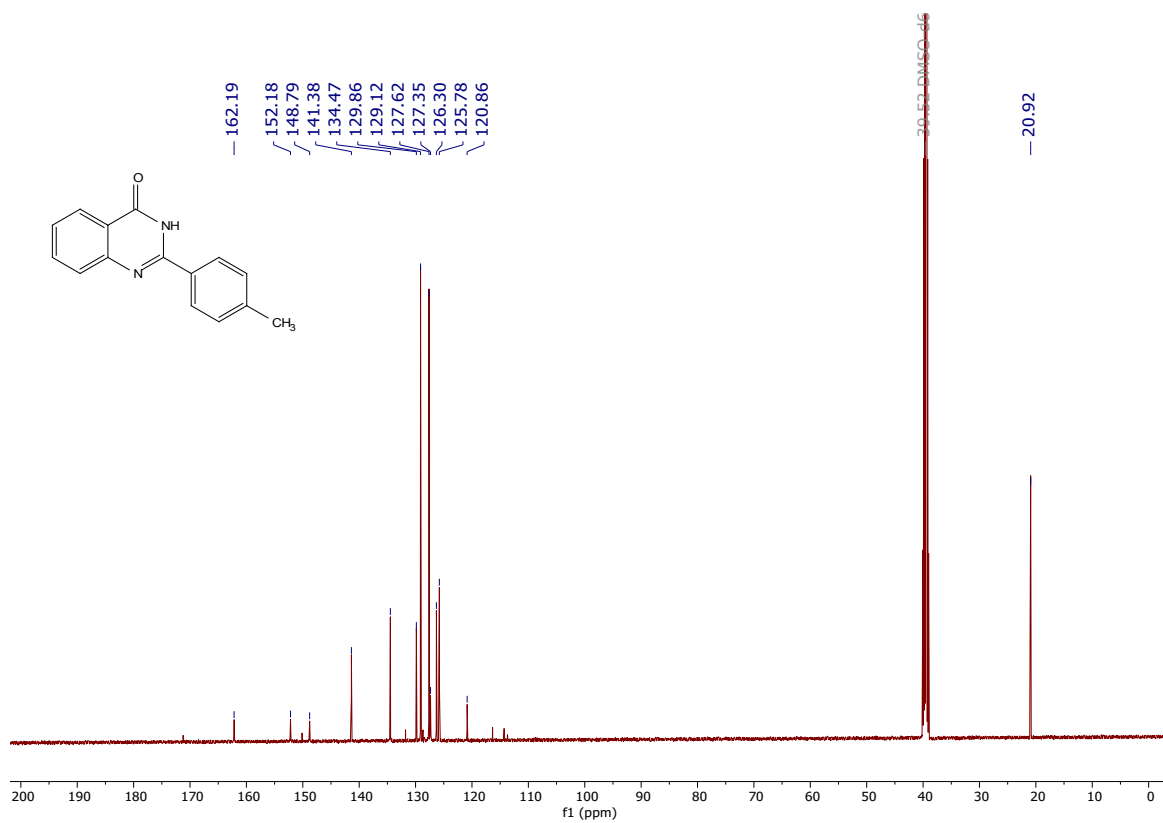
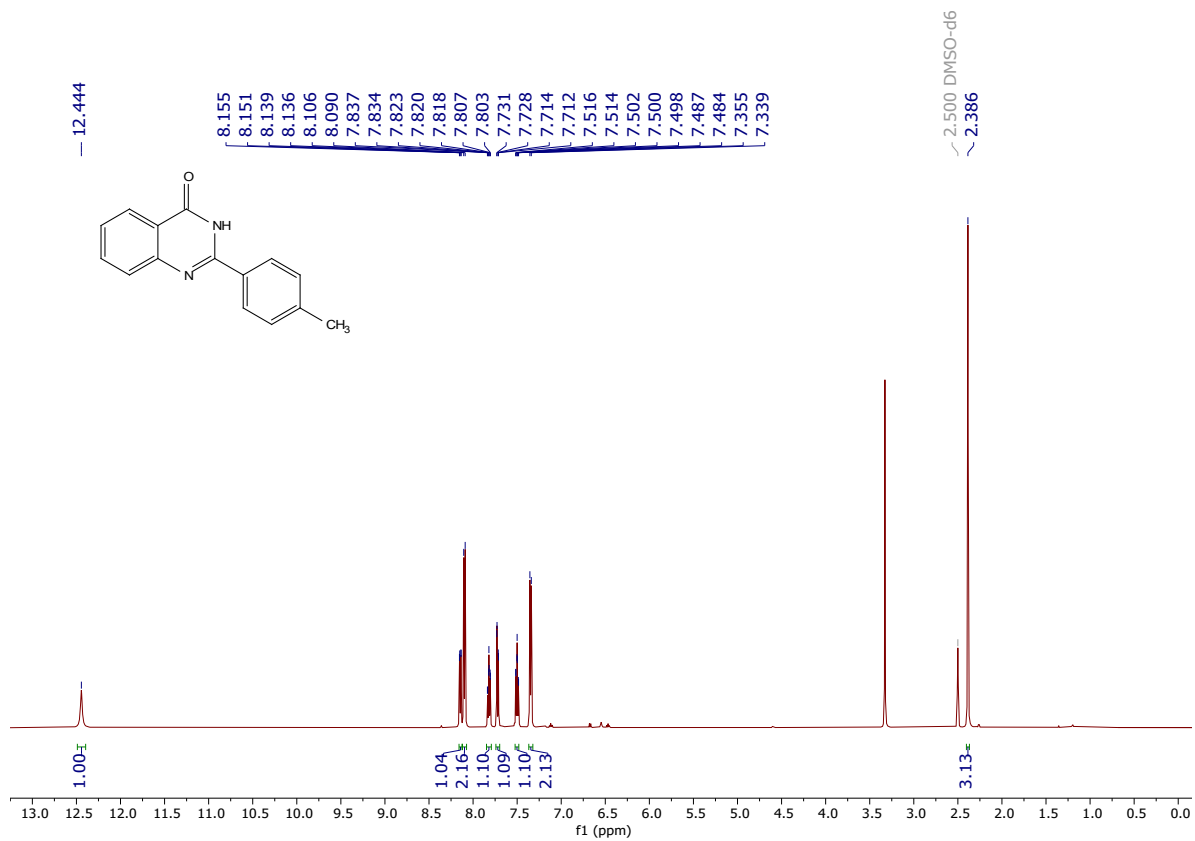
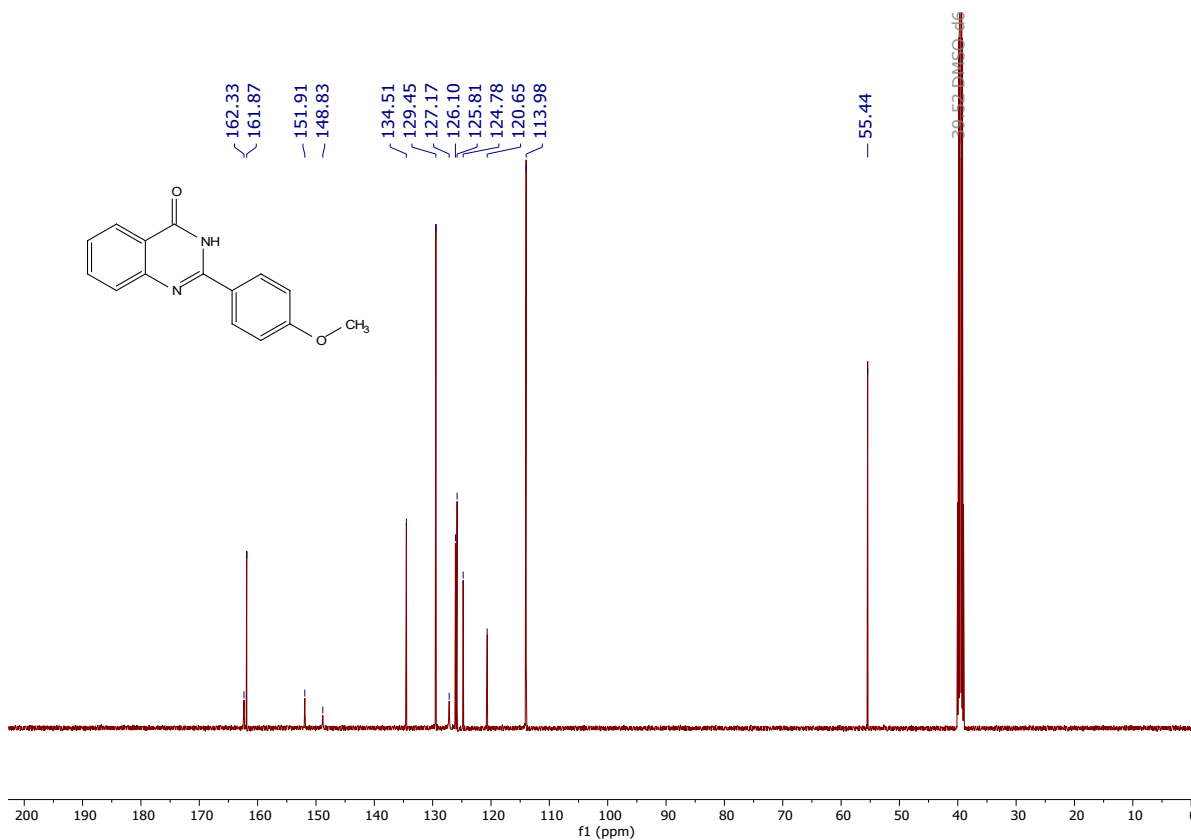
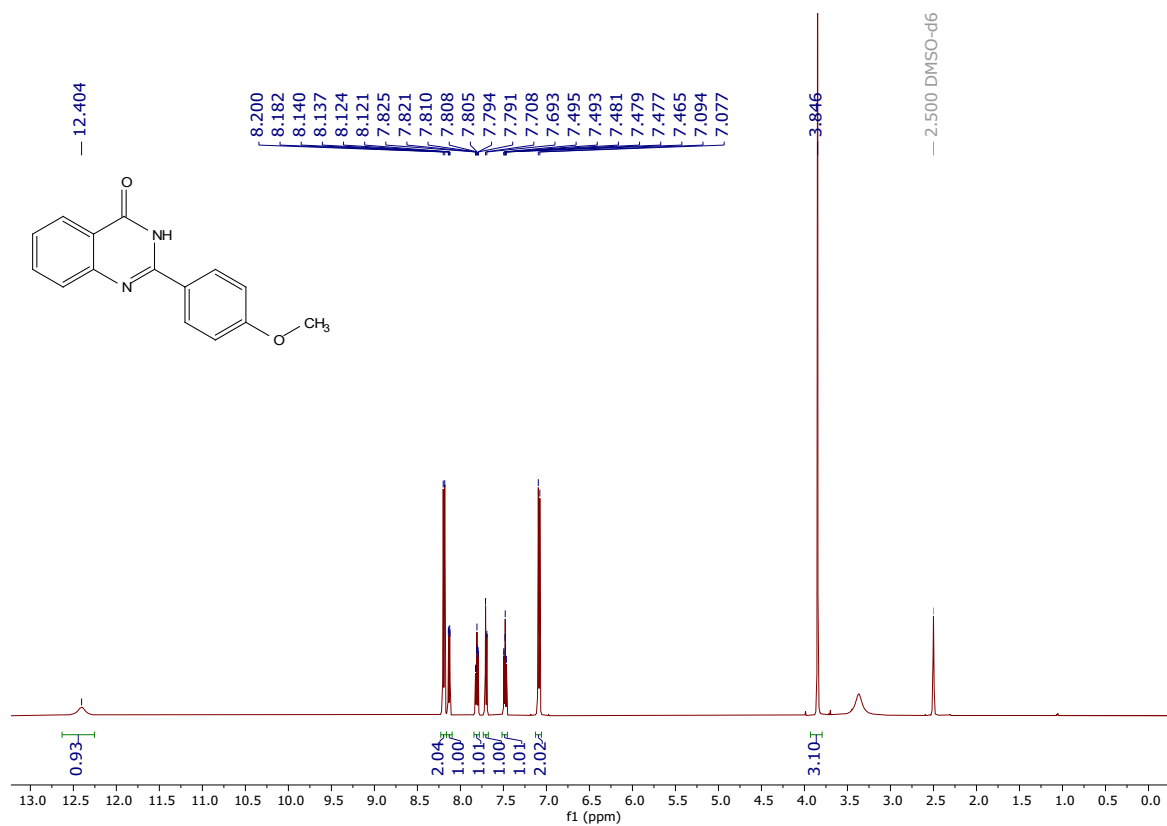


Figure S2. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(4-methylphenyl)quinazolin-4(3H)-one (3b)



**Figure S3.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(4-methoxyphenyl)quinazolin-4(3H)-one (3c)

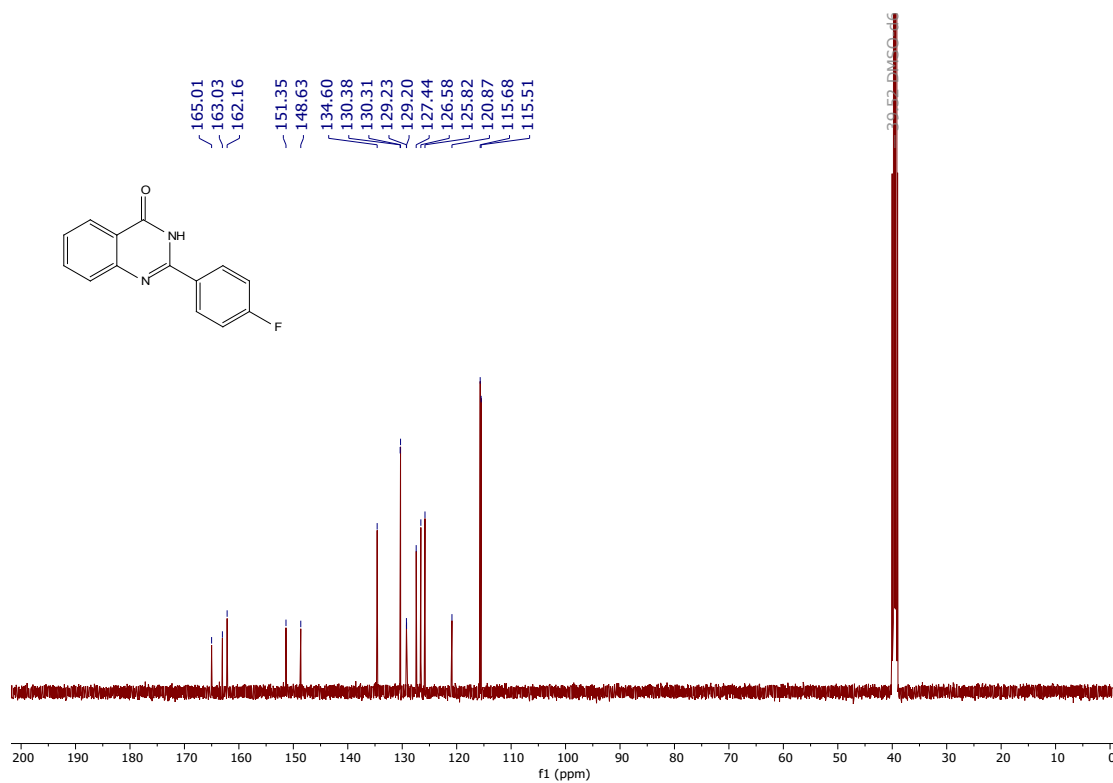
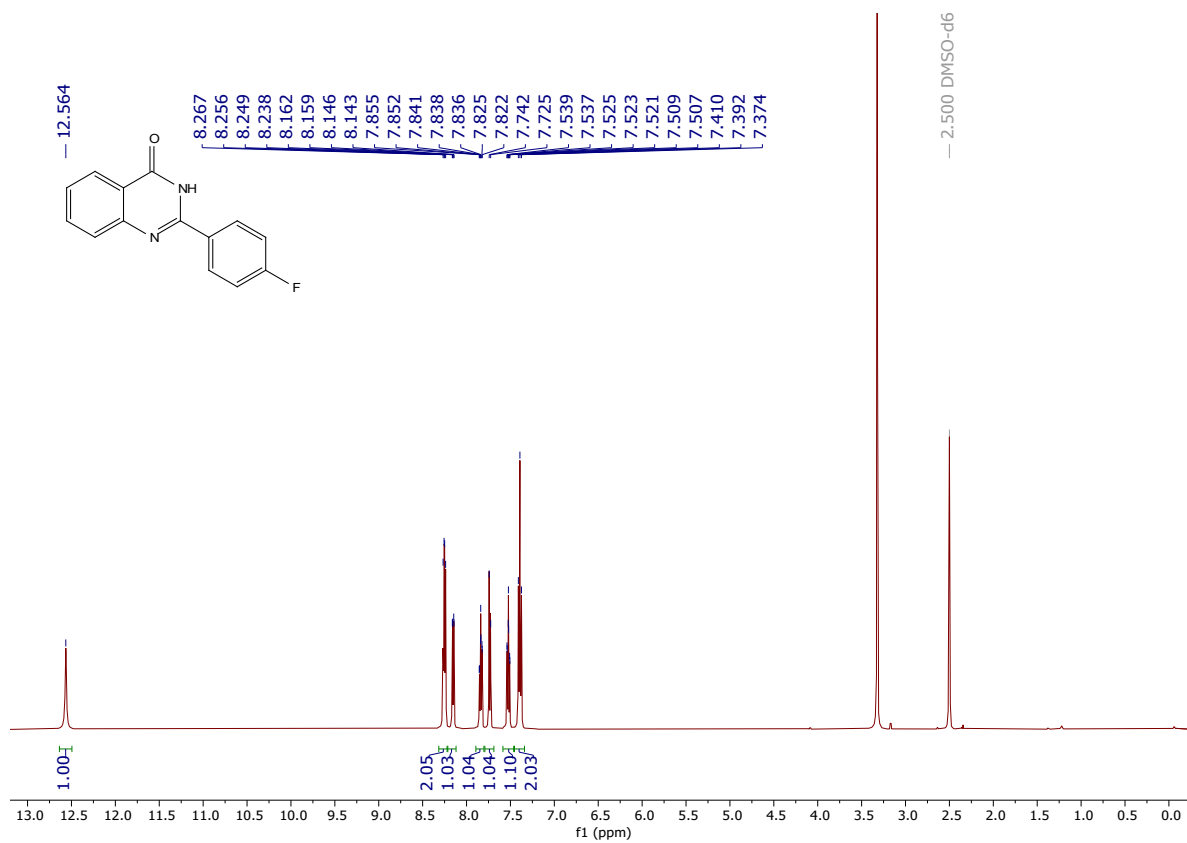
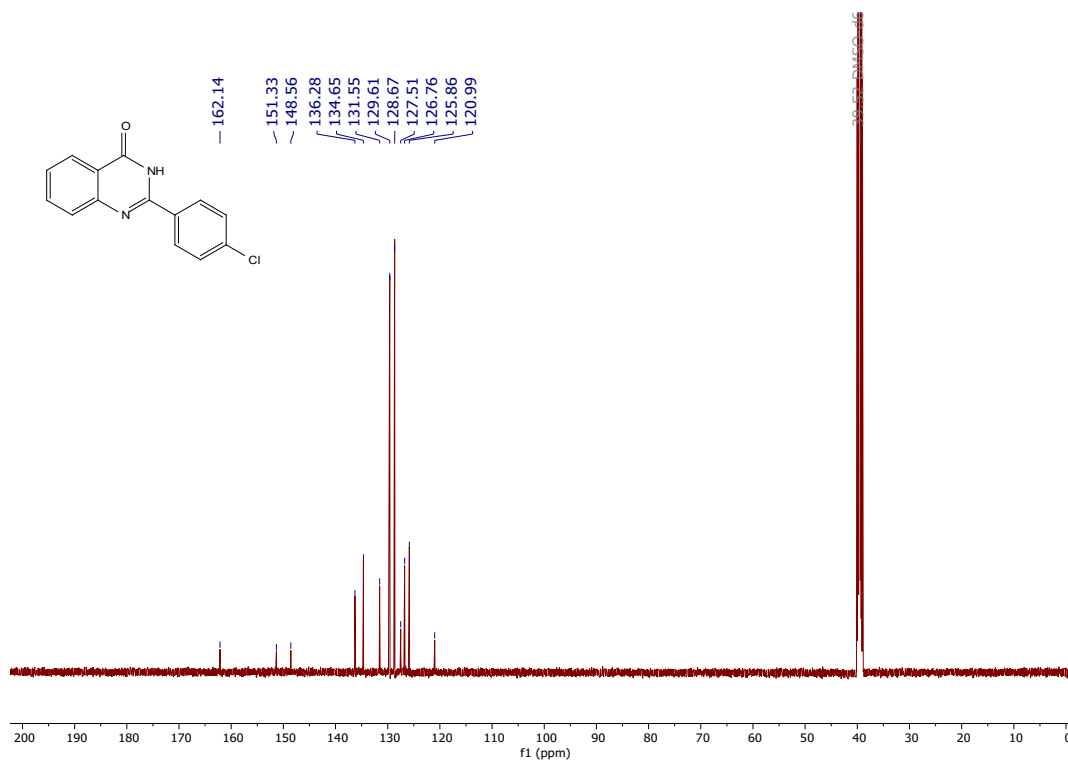
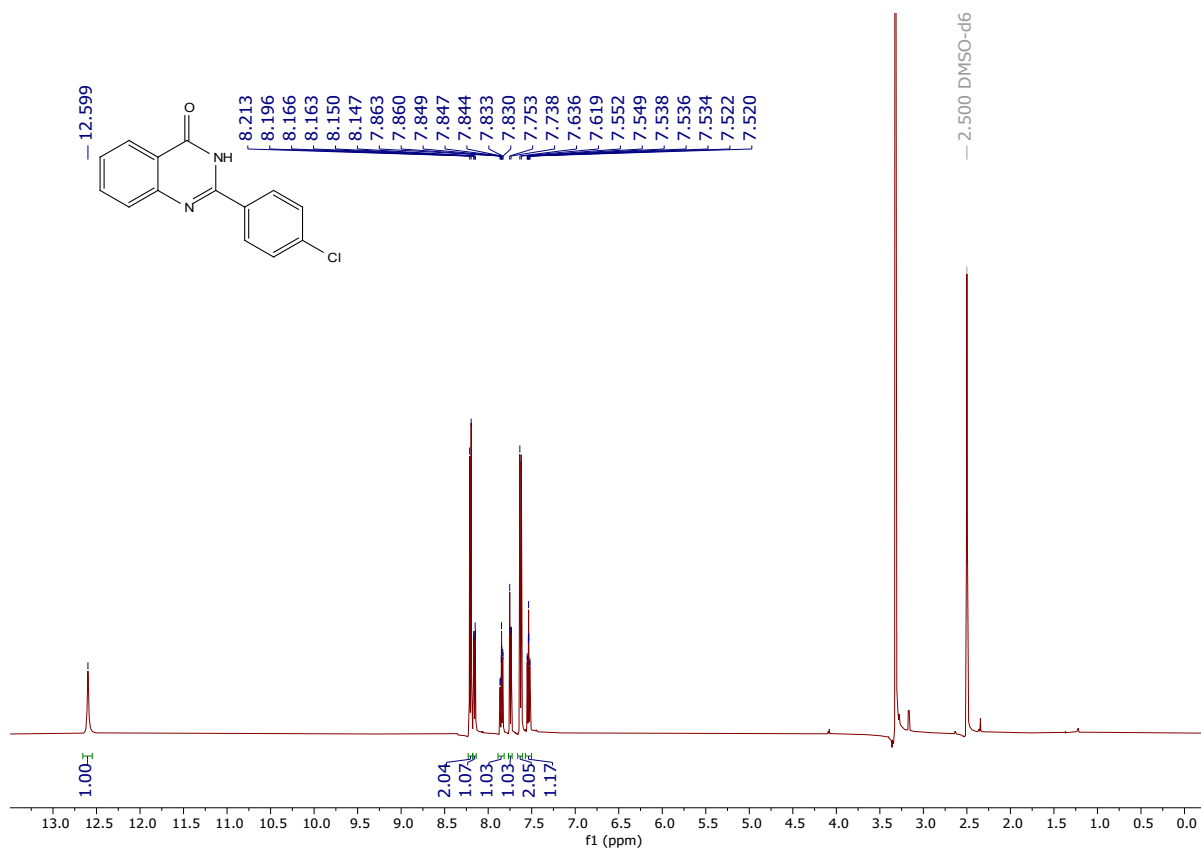
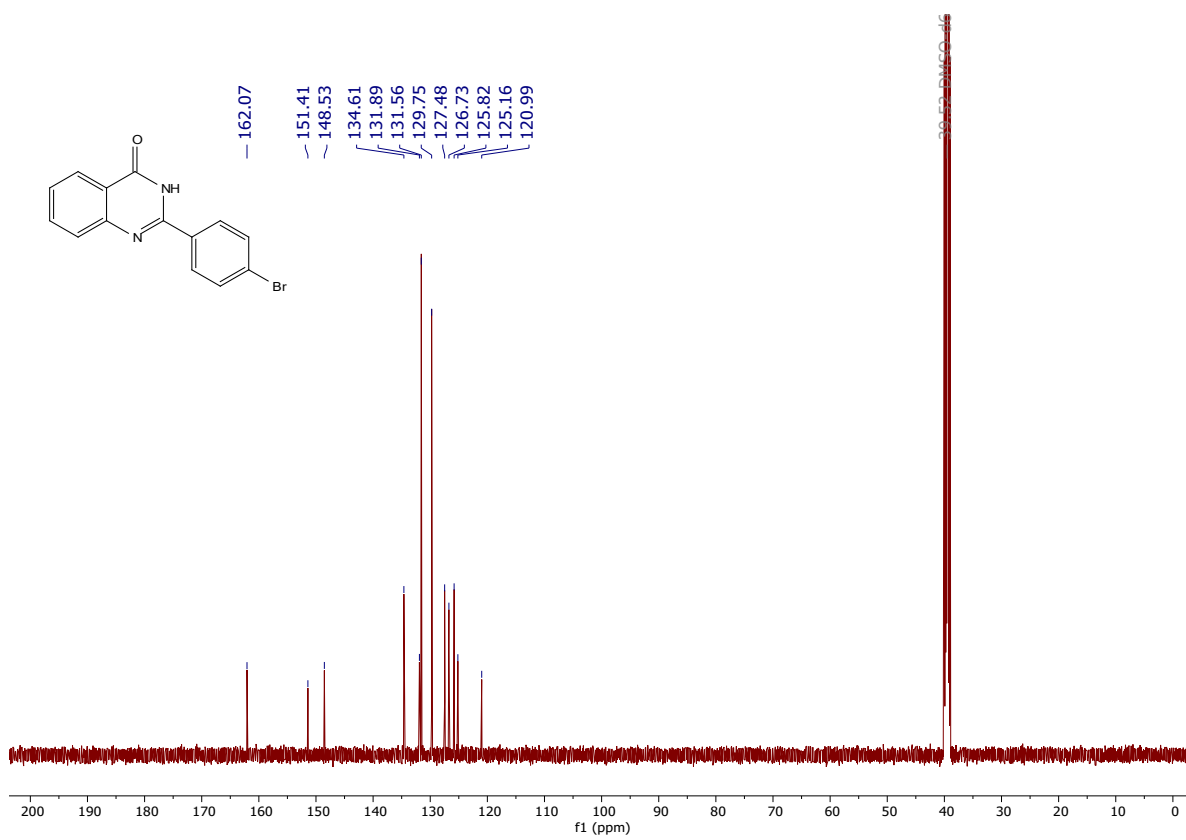
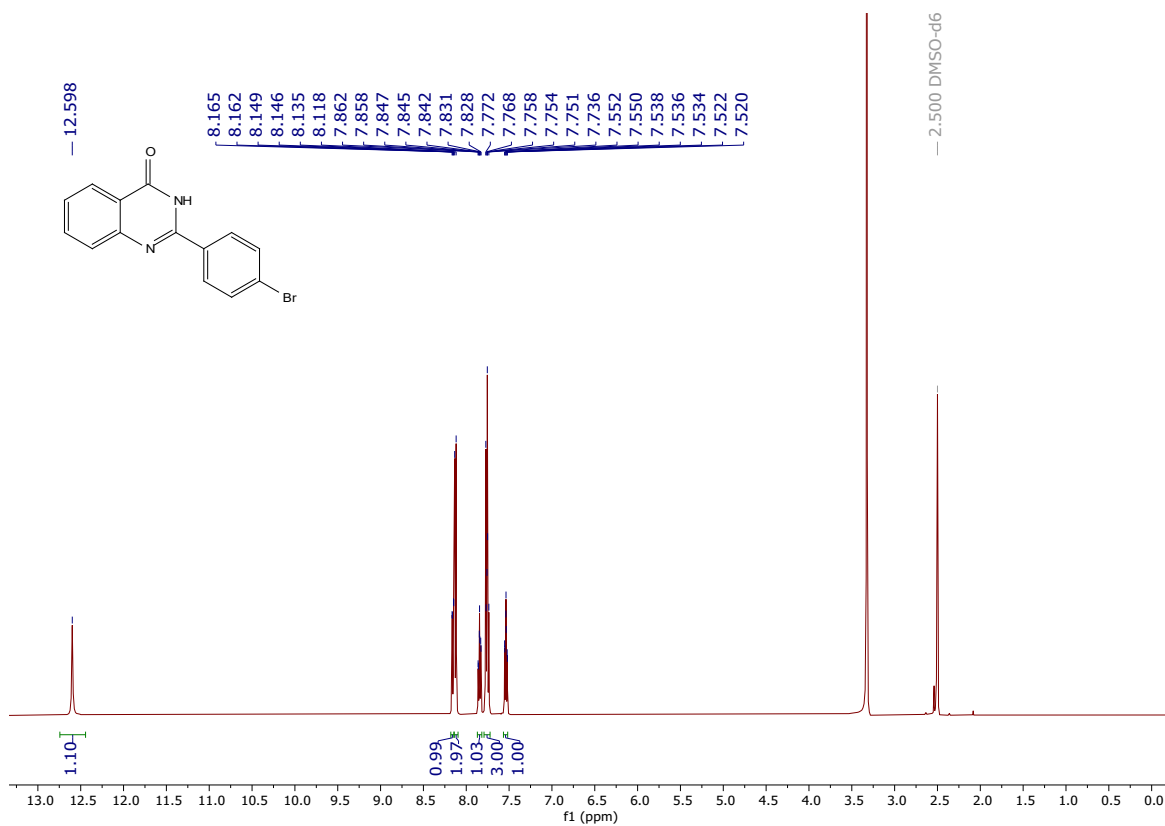


Figure S4. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(4-fluorophenyl)quinazolin-4(3H)-one (3d)



**Figure S5.**  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectrum of 2-(4-chlorophenyl)quinazolin-4(3H)-one (3e)



**Figure S6.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(4-bromophenyl)quinazolin-4(3H)-one (3f)

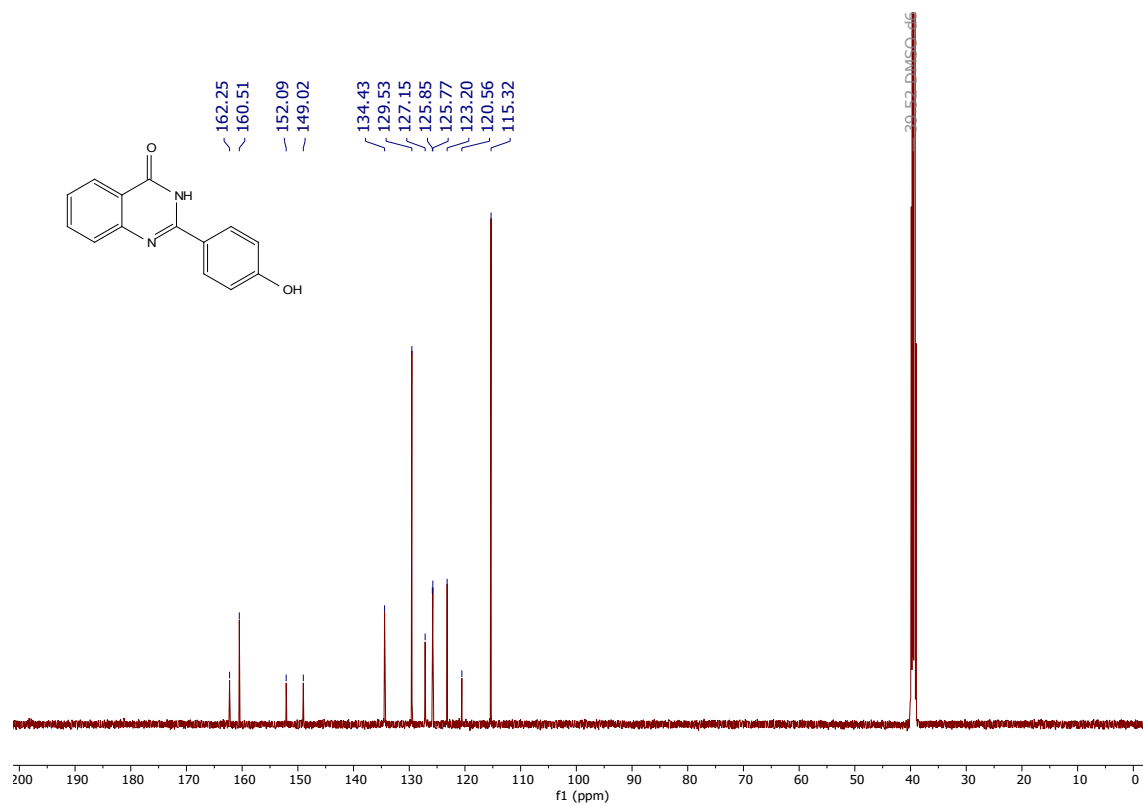
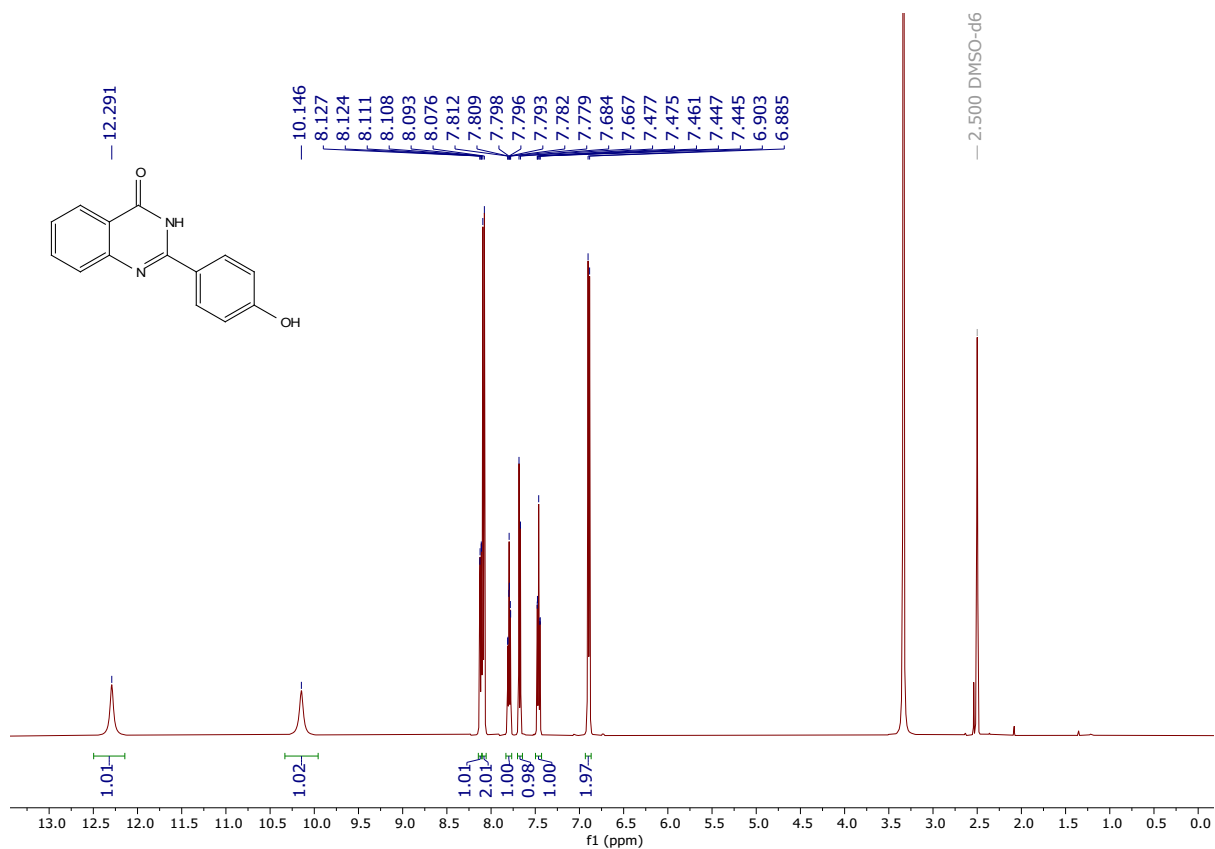
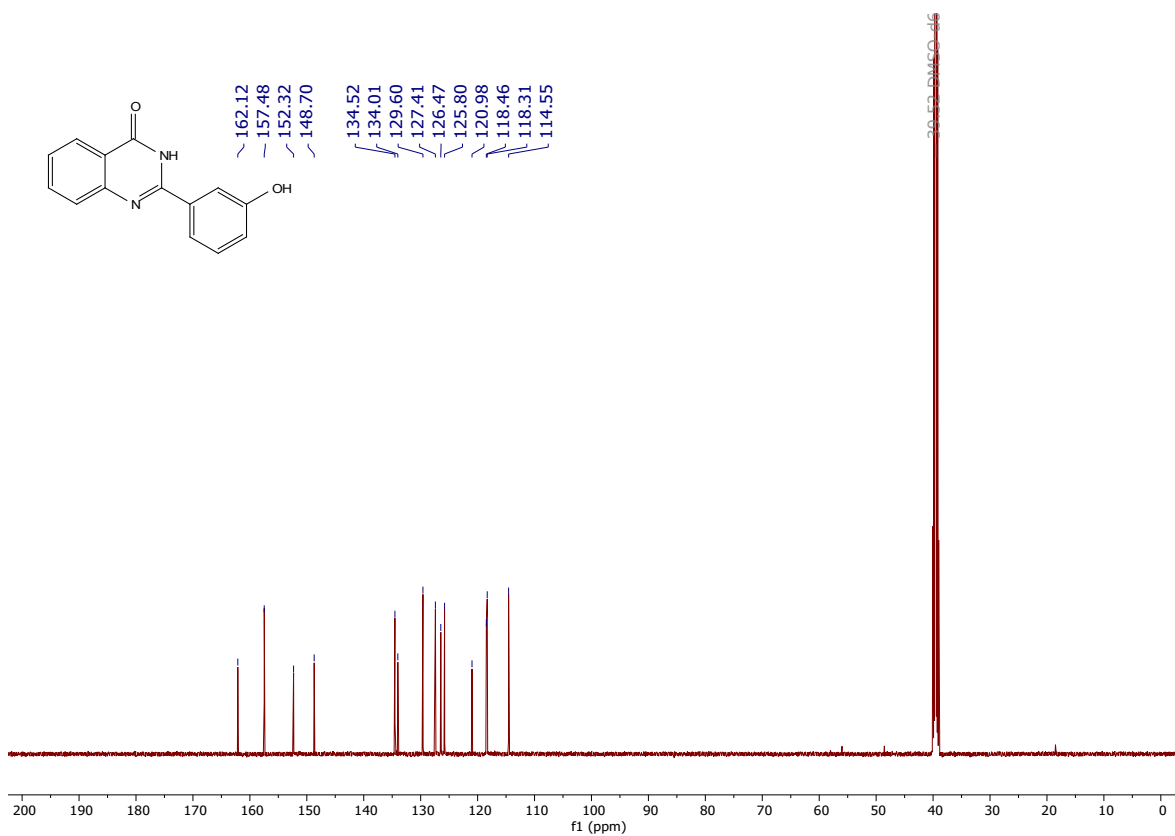
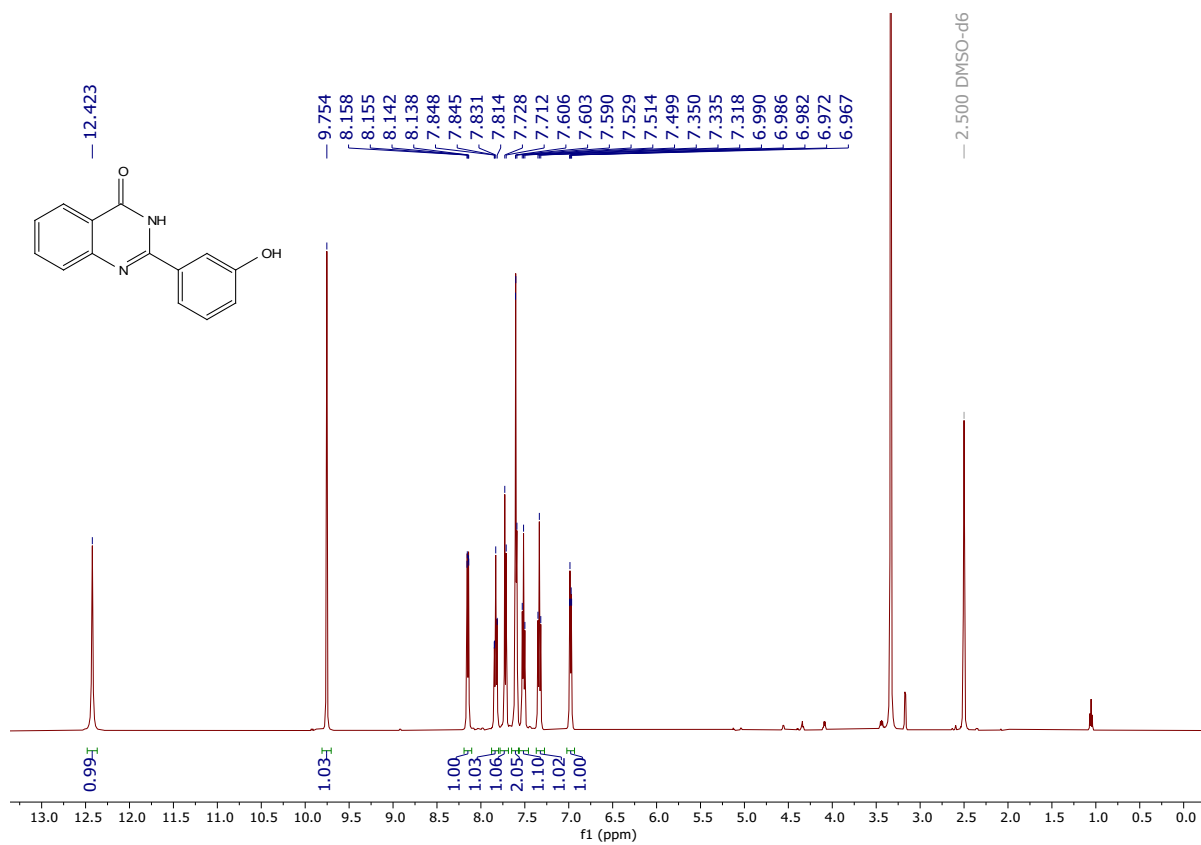
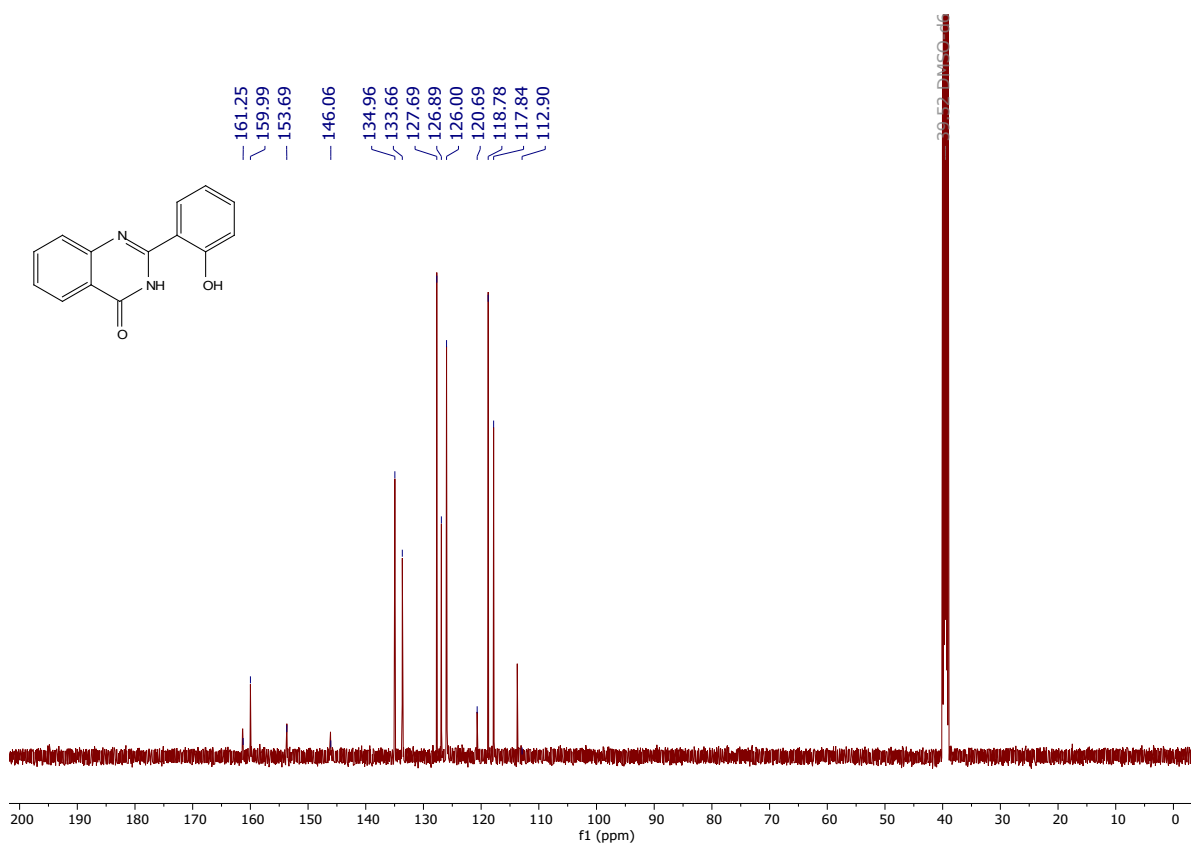
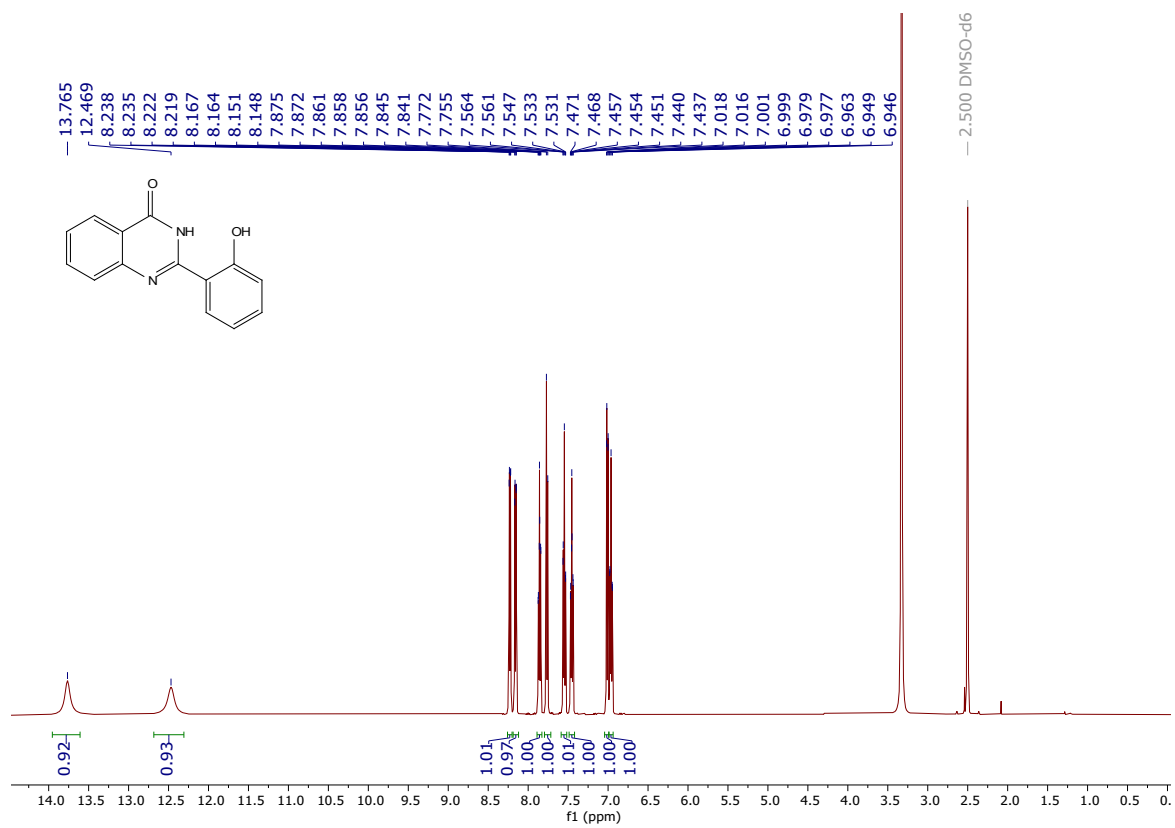


Figure S7. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(4-hydroxyphenyl)quinazolin-4(3H)-one (3g)

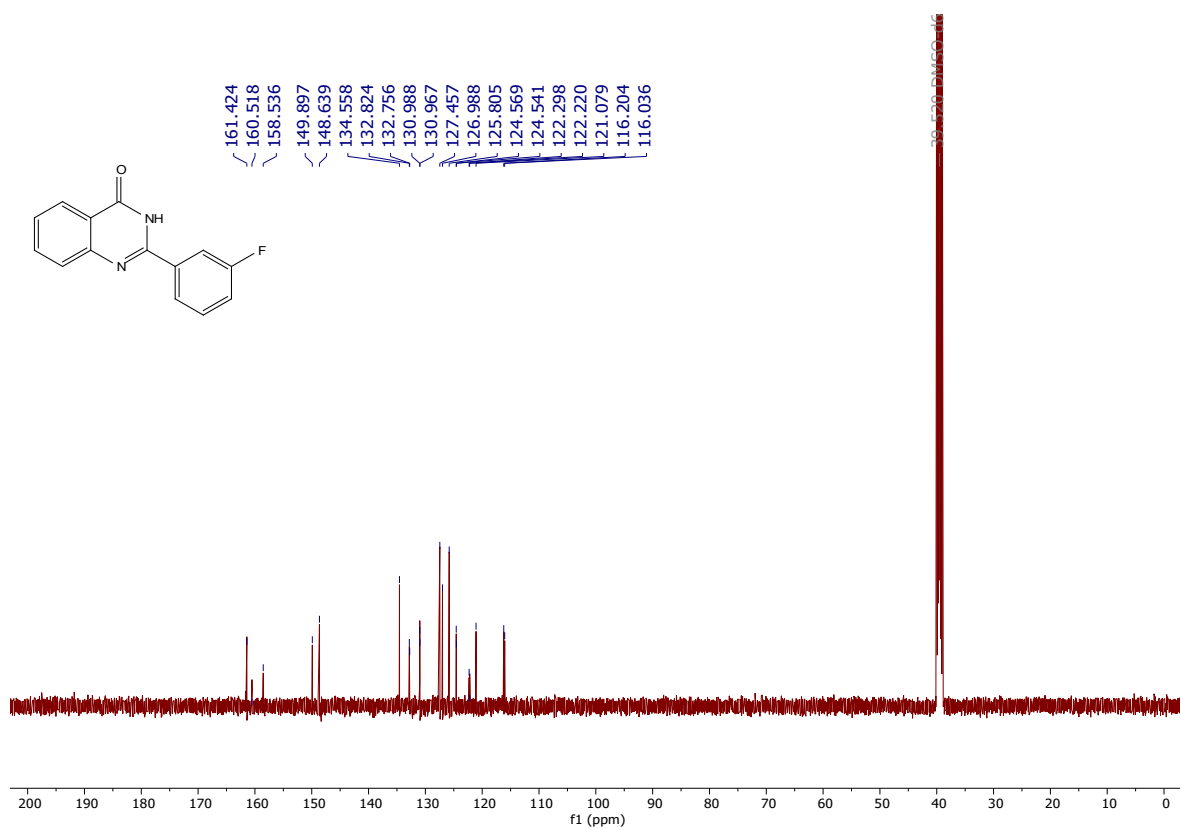
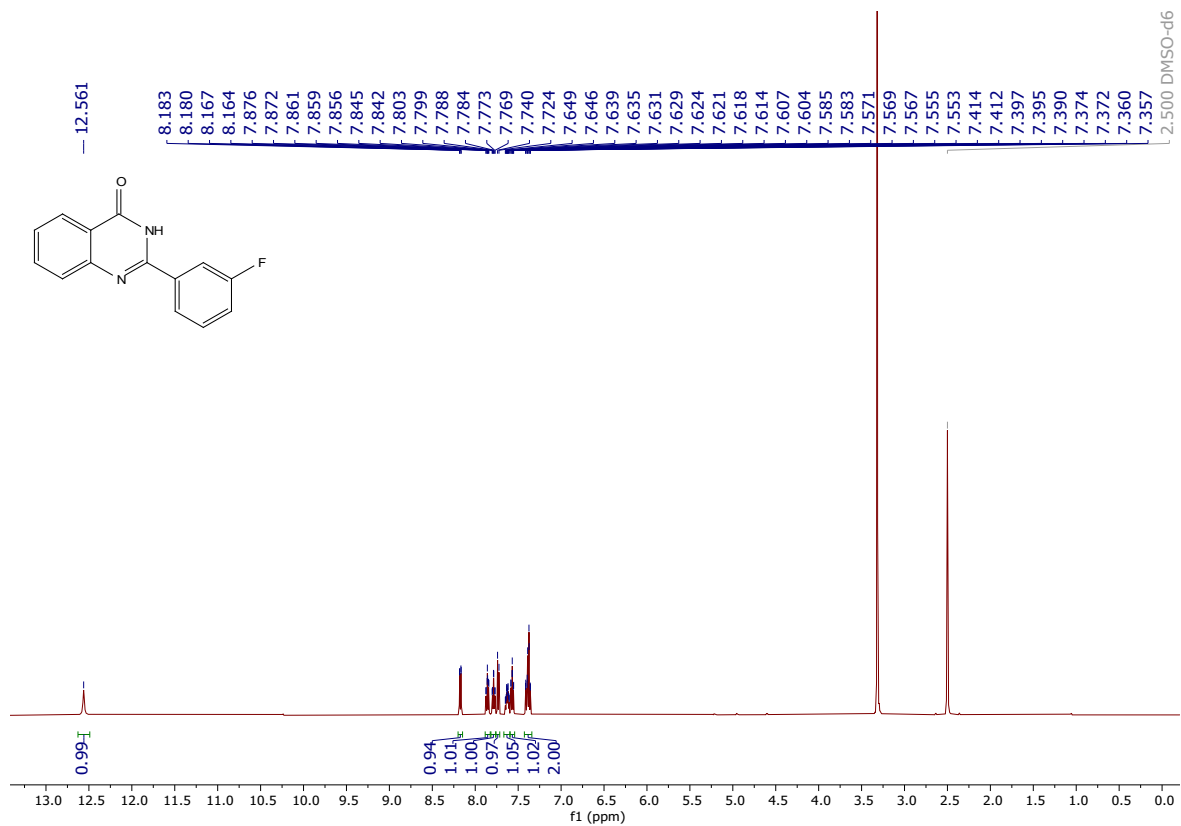


**Figure S8.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(3-hydroxyphenyl)quinazolin-4(3H)-one (3h)



**Figure S9.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(2-hydroxyphenyl)quinazolin-4(3H)-one (3i)





**Figure S10.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(3-fluorophenyl)quinazolin-4(3H)-one (3j)

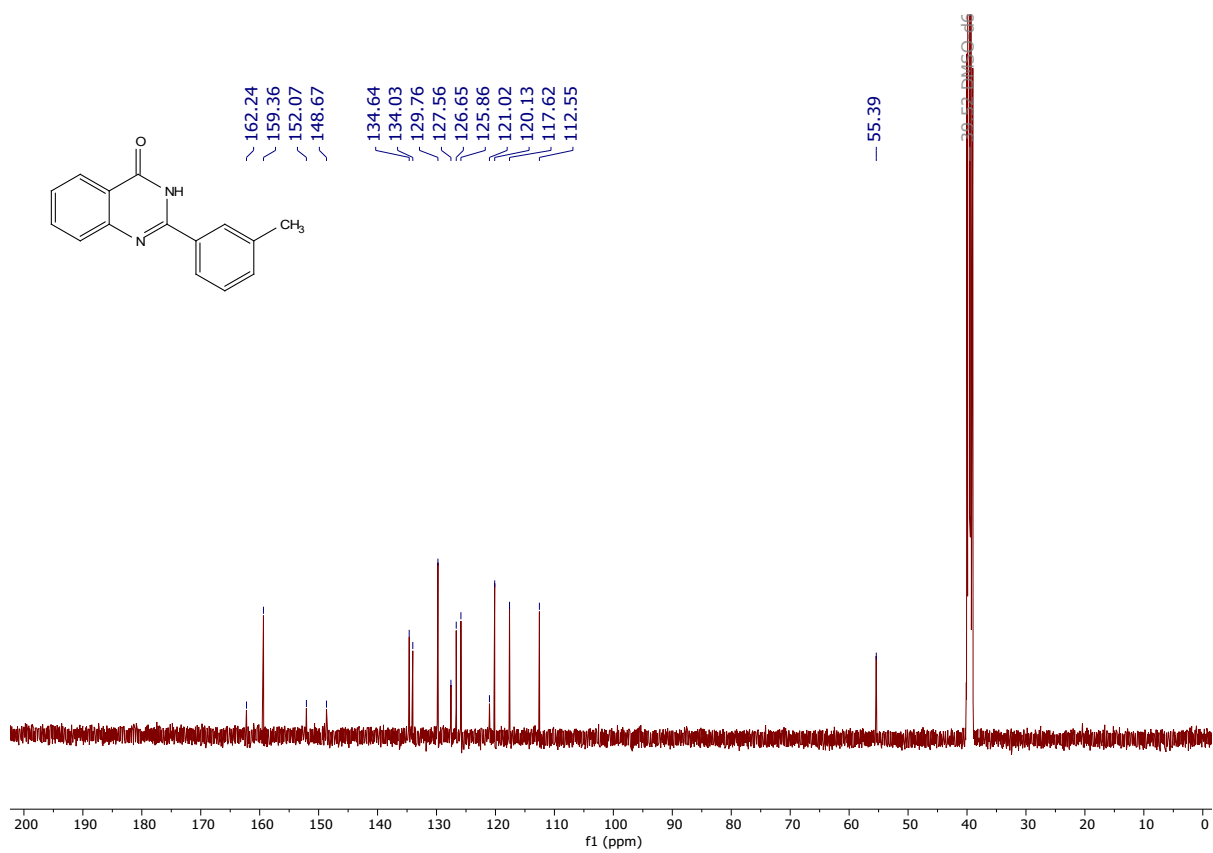
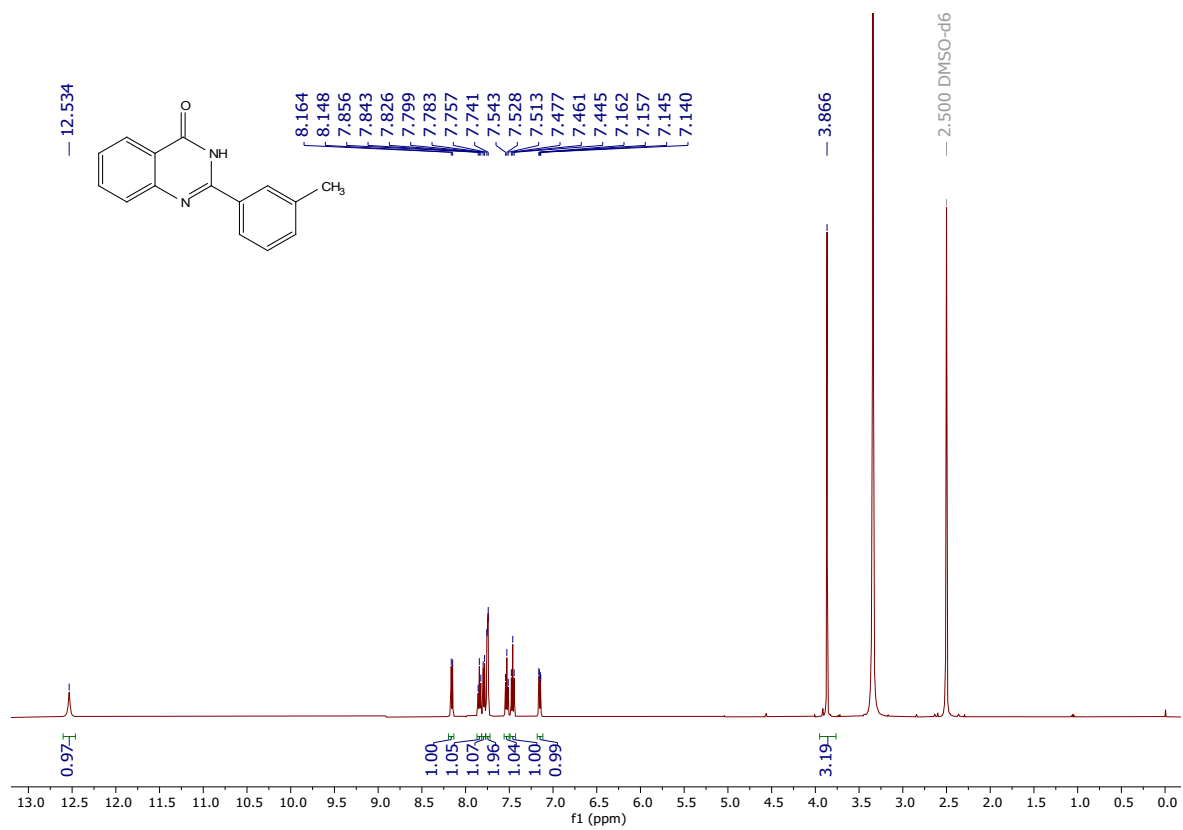
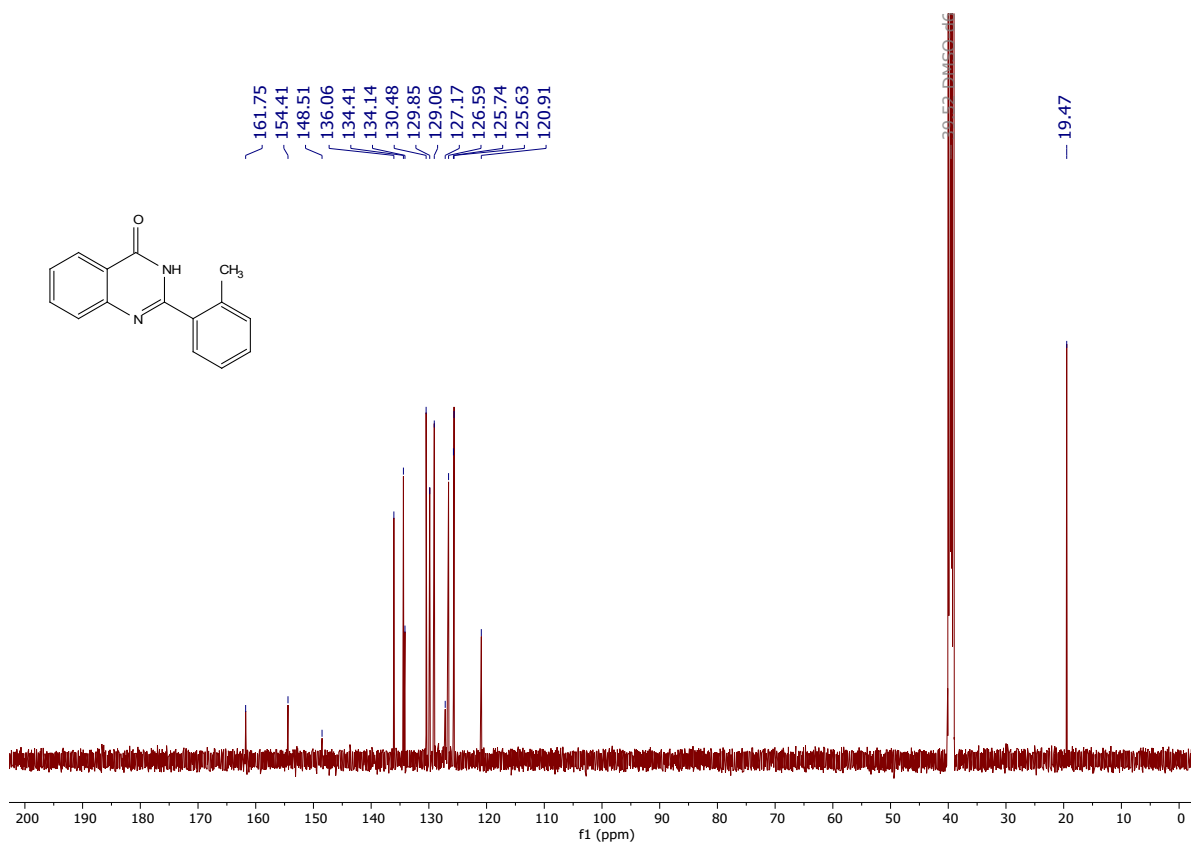
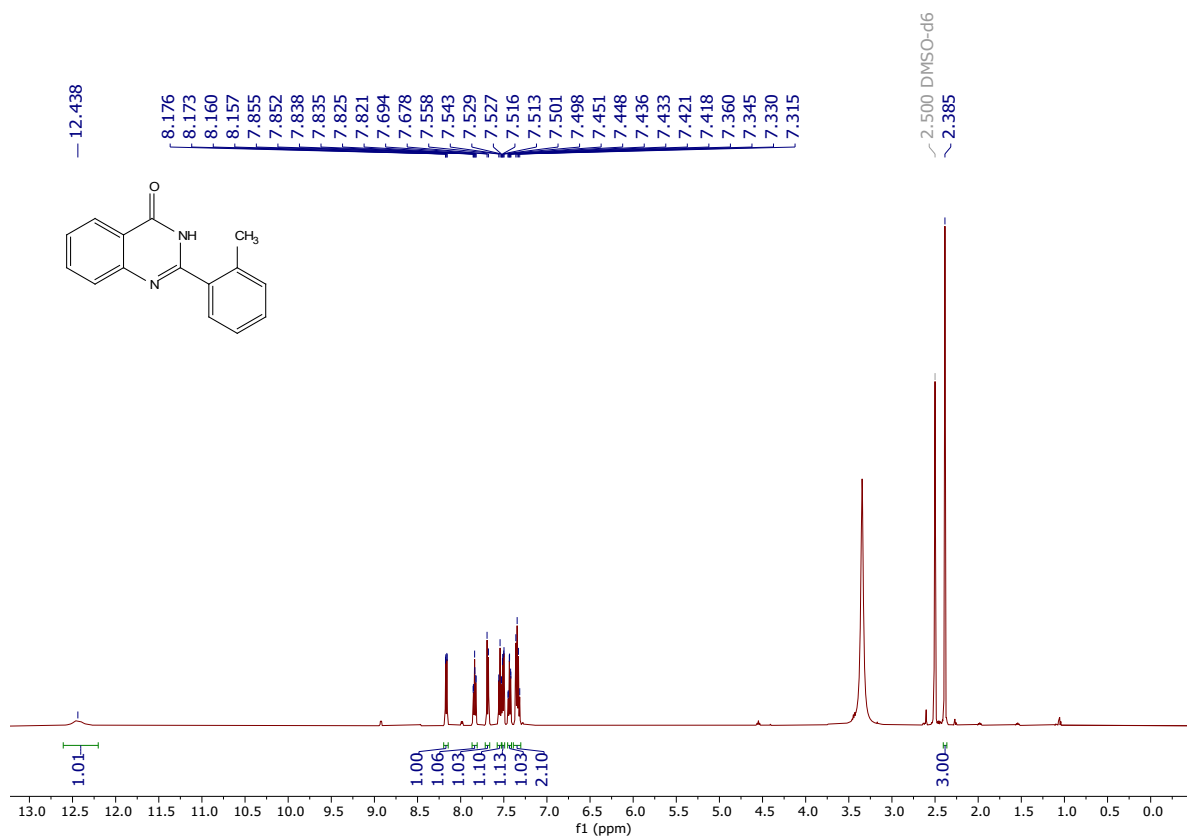


Figure S11. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(3-methylphenyl)quinazolin-4(3H)-one (3k)



**Figure S12.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(2-methylphenyl)quinazolin-4(3H)-one (31)

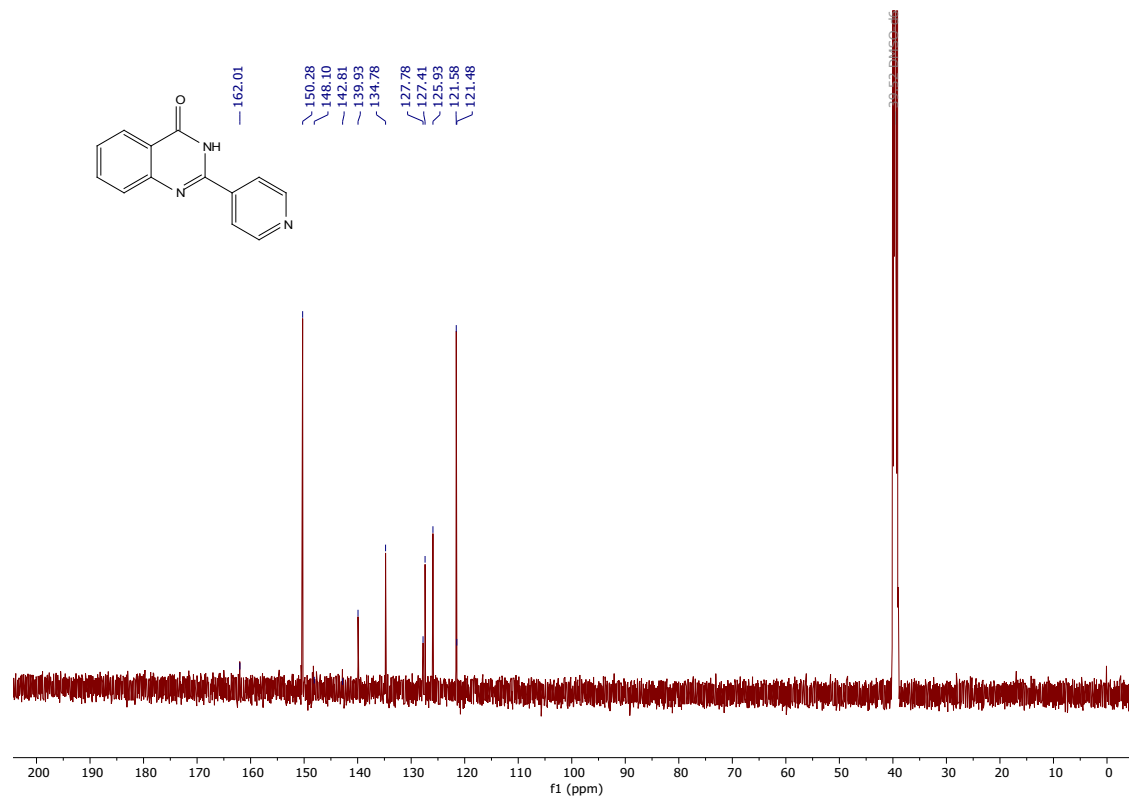
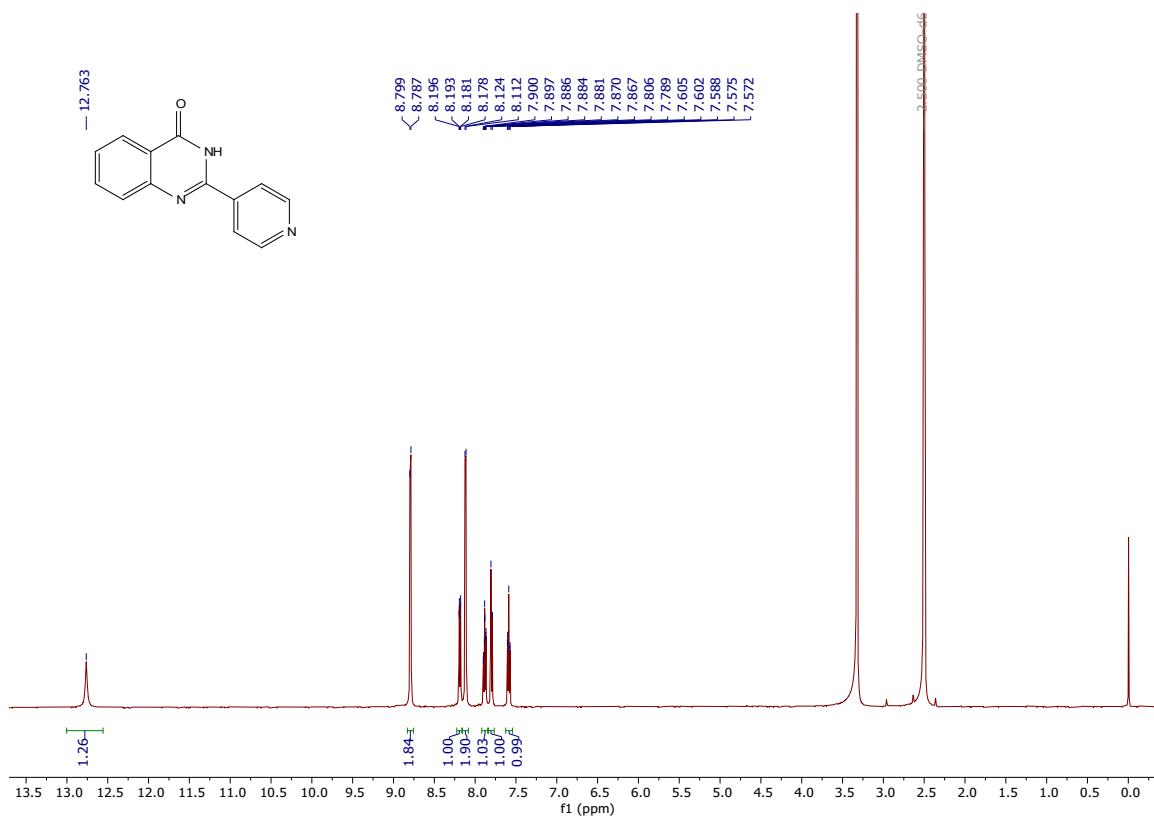
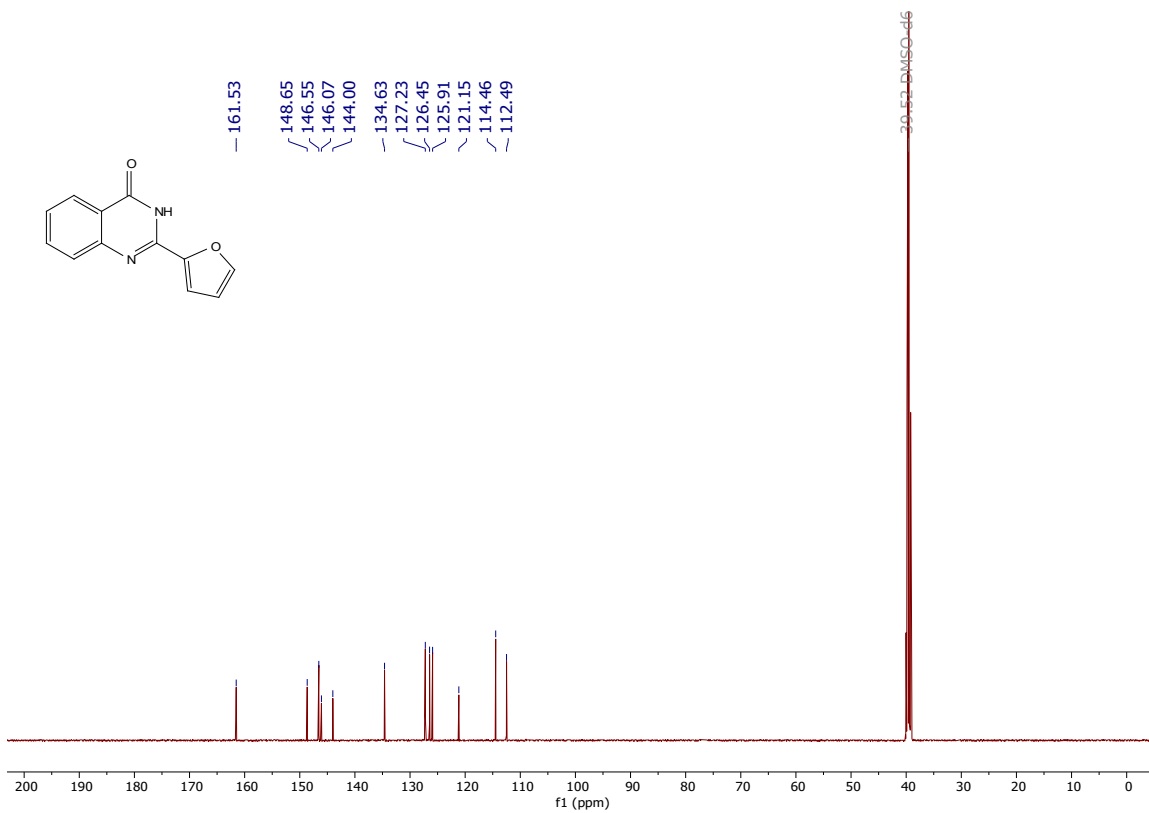
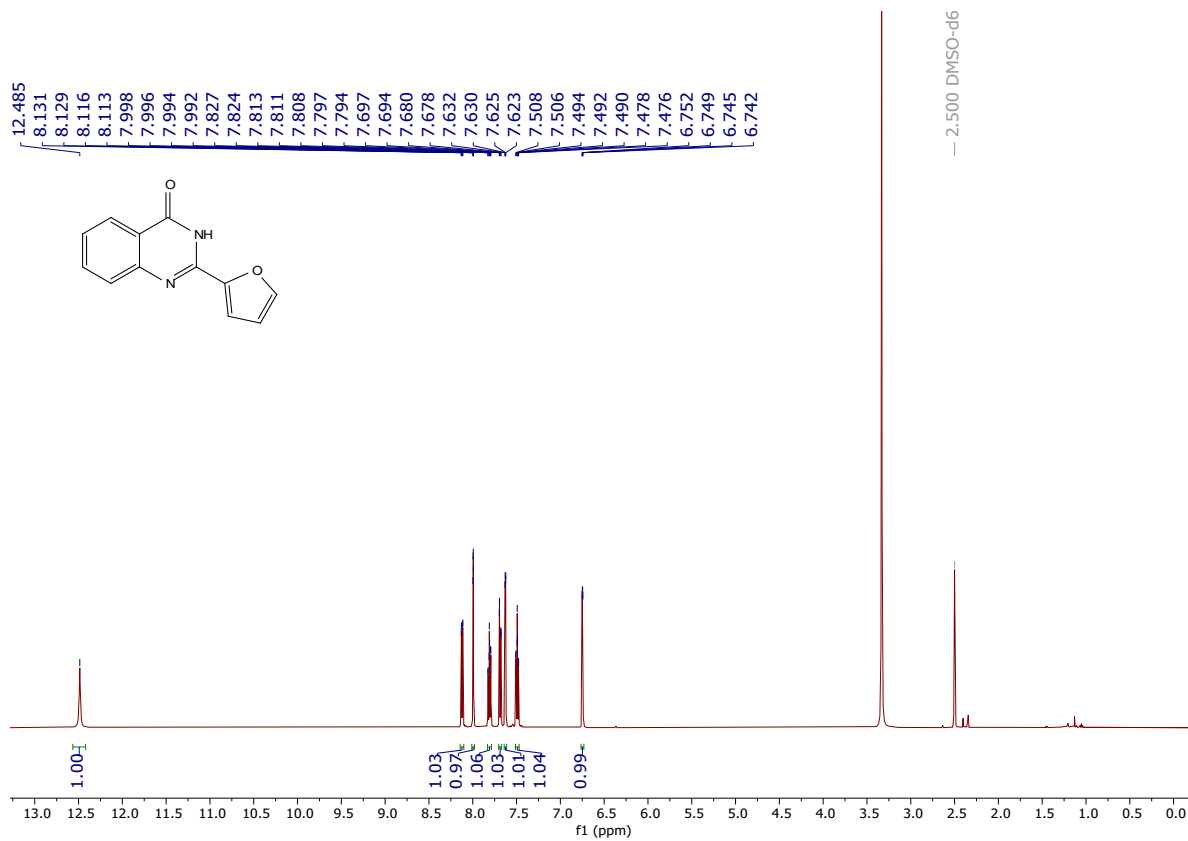


Figure S13. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(pyridin-4-yl)quinazolin-4(3H)-one (3m)



**Figure S14.** <sup>1</sup>H NMR and <sup>13</sup>C NMR spectrum of 2-(furan-2-yl)quinazolin-4(3H)-one (3n)

### Section 3. References

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