

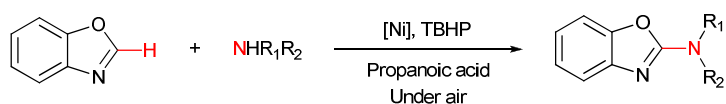
Supporting information for:

Nickel-Catalyzed C-H Direct Amination of Benzoxazoles with Secondary Amines

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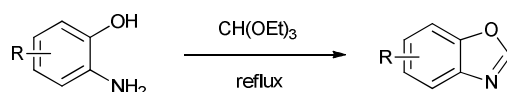
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I General Methods

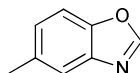
The reactions were carried out under air and the products were isolated by column chromatography on silica gel (200-300 mesh) using petroleum ether (60-90 °C) and ethyl acetate. All compounds were characterized by ^1H NMR, ^{13}C NMR and Mass spectroscopy and melting point. ^1H NMR (400 MHz, CDCl_3) and ^{13}C NMR (100 MHz, CDCl_3) spectra were determined on INOVA 400. GC-MS data were performed on HP 6890GC/5973 MSD. High resolution mass spectrometry data were performed on Q-ToF MS. Melting point was detected on a X-4 microscopic instrument.

Materials Amines, acid, oxidant, benzoxazole were purchased and used without further purification. Substituted benzoxazoles were synthesized according to reported methods as following procedure⁹.



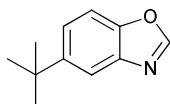
In a 100 mL flask, a mixture of 2-aminophenol derivative (5 mmol) and triethyl orthoformate (15 mL) was refluxed for 4-7 h. After cooling to room temperature, remained triethyl orthoformate was removed under reduced pressure and the residue was purified by column chromatography on silica gel with petroleum ether and ethyl acetate to afford the desired products.

5-methylbenzoxazole



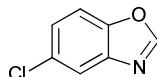
light yellow solid; 62% isolated yield; ^1H NMR (400 MHz, CDCl_3) δ (ppm): 2.48 (s, 3H), 7.19 (d, $J = 8.4$ Hz, 1H), 7.45 (d, $J = 8.4$ Hz, 1H), 7.58 (s, 1H), 8.05 (s, 1H); ^{13}C NMR (100 MHz, CDCl_3) δ (ppm): 21.6, 110.4, 120.6, 126.9, 134.6, 140.4, 148.4, 152.8; GC-MS (EI): $m/z = 133$ $[\text{M}]^+$.

5-tert-butylbenzoxazole



yellow liquid; 94% isolated yield; ^1H NMR (400 MHz, CDCl_3) δ (ppm): 1.39 (s, 9H), 7.45 (dd, $J = 8.4$ Hz, 1.2 Hz, 1H), 7.50 (d, $J = 8.4$ Hz, 1H), 7.81 (d, $J = 1.2$ Hz, 1H), 8.07 (s, 1H); ^{13}C NMR (100 MHz, CDCl_3) δ (ppm): 31.9, 35.1, 110.2, 117.1, 123.6, 140.1, 148.1, 148.3, 152.8; GC-MS (EI): $m/z = 175$ $[\text{M}]^+$.

5-chlorobenzoxazole



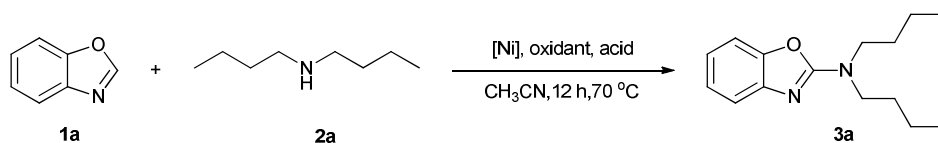
light yellow solid; 53% isolated yield; ^1H NMR (400 MHz, CDCl_3) δ (ppm): 7.38 (dd, $J = 8.8$ Hz, 1.6 Hz, 1H), 7.52 (d, $J = 8.8$ Hz, 1H), 7.79 (d, $J = 1.6$ Hz, 1H), 8.12 (s, 1H); ^{13}C NMR (100 MHz, CDCl_3) δ (ppm): 111.9, 120.7, 126.3, 130.4, 141.3, 148.8, 153.9; GC-MS (EI): $m/z = 153$ $[\text{M}]^+$.

II Optimization study

A dried Schlenk test tube containing a magnetic stirring bar was charged with benzoxazole (0.5 mmol), amine (0.6 mmol), nickel catalyst, acid additive, oxidant, CH_3CN (2 mL). And the tube was sealed and the mixture was treated at 70 °C for 12 h. The resulting mixture was allowed

to room temperature and washed with a saturated solution of NaHCO₃, extracted with ethyl acetate. The organic layers were detected by GC analysis.

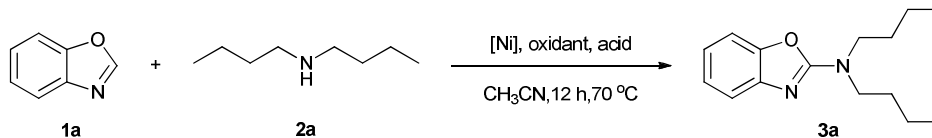
Table S1 Variation of oxidants^a



Entry	Oxidant (equiv)	acid (equiv)	yield (%) ^b
1	-	AcOH (2)	7
2	TBHP (1.2)	AcOH (1.2)	82
3	TBHP (1.2)	AcOH (1.2)	82 ^c
4	MCPBA (1.2)	AcOH (1.2)	6
5	DTBP (1.2)	AcOH (1.2)	2
6	K ₂ S ₂ O ₈ (1.2)	AcOH (1.2)	80

^a Reaction condition: **1a** (0.5 mmol), **2a** (0.6 mmol), Ni(OAc)₂·4H₂O (20 mol%), acid, CH₃CN (2 ml) under oxygen atmosphere, 70 °C, 12 h. ^b GC yield. ^c under air atmosphere.

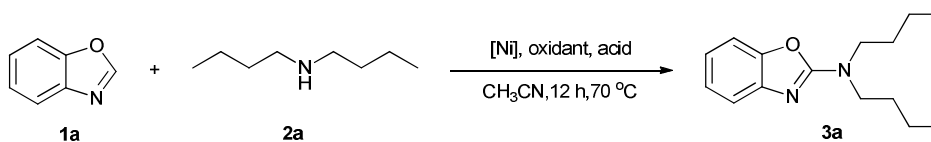
Table S2 Variation of additives^a



Entry	Additive	Yield (%) ^b
1	AcOH	82
2	AlCl ₃	4
3	ZnCl ₂	35
4	C ₂ H ₅ COOH	89
5	L-Proline	7
6	<i>p</i> -anisic acid	83

^a Reaction condition: **1a** (0.5 mmol), **2a** (0.6 mmol), Ni(OAc)₂·4H₂O (20 mol%) additive (1.2 equiv), CH₃CN (2 ml), 70 °C, 12 h, under oxygen atmosphere. ^b GC yield.

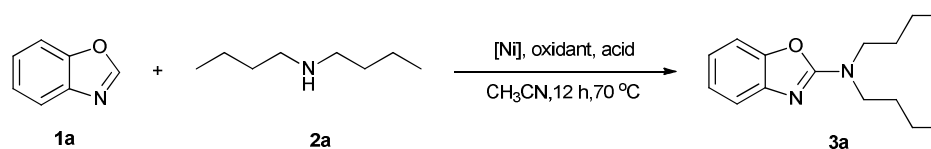
Table S3 Variation of nickel species^a



Entry	[Ni]	Yield (%) ^b
1	Ni(OAc) ₂ ·4H ₂ O	89
2	NiCl ₂ ·6H ₂ O	82
3	Ni(acac) ₂	58
4	Ni(NO ₃) ₂ ·6H ₂ O	76
5	Ni(ClO ₄) ₂	69

^a Reaction condition: **1a** (0.5 mmol), **2a** (0.6 mmol), [Ni] (20 mol%) propanoic acid(1.2 equiv), CH₃CN (2 ml), 70 °C, 12 h, under oxygen atmosphere. ^b GC yield.

Table S4 Variation of gas atmosphere^a



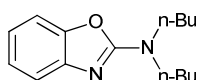
Entry	gas	yield (%) ^b
1	O ₂	89
2	air	87
3	Ar	87

^a Reaction condition: **1a** (0.5 mmol), **2a** (0.6 mmol), Ni(OAc)₂·4H₂O (20 mol%) propanoic acid (1.2 equiv), CH₃CN (2 ml), under oxygen atmosphere, 70 °C, 12 h. ^b GC yield.

III Experimental procedure

A dried Schlenk test tube containing a magnetic stirring bar was charged under air with benzoxazole (0.5 mmol), amine (0.6 mmol), Ni(OAc)₂·4H₂O (5 mol%), C₂H₅CO₂H (1.2 or 5 equiv), TBHP (70% solution in water, 3 equiv), CH₃CN (2 mL). And the tube was sealed and the mixture was treated at 70 °C for 12 h. The resulting mixture was allowed to room temperature and washed with a saturated solution of NaHCO₃, extracted with ethyl acetate for three times. The combined organic layers were dried with Na₂SO₄ and concentrated under reduced pressure. The resulting residue was purified by column chromatography on silica gel with EtOAc / petroleum (1/1-1/30) to provide the desired product.

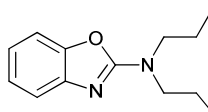
N, N-dibutylbenzoxazol-2-amine (**3a**)^{11f}



Light yellow liquid; Yield 68 %; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.96 (t, *J* = 7.2 Hz, 6H), 1.34-1.43 (m, 4H), 1.62-1.70 (m, 4H), 3.51 (m, 4H), 6.97 (m, 1H), 7.13 (t, *J* = 8.0 Hz, 1H), 7.23 (d, *J* = 8.0 Hz, 1H), 7.34 (d, *J* = 8.0 Hz, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 14.1, 20.2, 30.3, 48.5, 108.6, 115.9, 120.0, 123.9, 143.8,

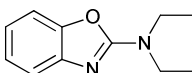
148.9, 162.8; GC - MS (EI) $m/z = 246 [M]^+$

***N,N*-dipropylbenzoxazol-2-amine (3b)^{11d}**



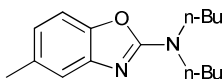
Light yellow liquid; Yield 73%; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.96 (t, $J = 7.2$ Hz, 6H), 1.66-1.76 (m, 4H), 3.48 (t, $J = 7.6$ Hz, 4H), 6.95-6.99 (m, 1H), 7.11-7.15 (m, 1H), 7.23 (d, $J = 8.0$ Hz, 1H), 7.35 (d, $J = 7.6$ Hz, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 11.3, 21.4, 50.5, 108.6, 115.9, 120.0, 123.9, 143.8, 148.9, 162.8; GC - MS (EI) $m/z = 218 [M]^+$

***N,N*-diethylbenzoxazol-2-amine (3c)^{11f}**



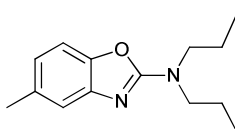
Colorless liquid; Yield 66%; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 1.29 (t, $J = 7.2$ Hz, 6H), 3.57-3.62 (q, $J = 7.2$, 4H), 6.96-7.00 (m, 1H), 7.12-7.16 (m, 1H), 7.24 (d, $J = 8.0$ Hz, 1H), 7.36 (d, $J = 8.0$ Hz, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 13.6, 43.1, 108.7, 115.9, 120.1, 124.0, 143.5, 148.9, 162.2; GC - MS (EI) $m/z = 190 [M]^+$

***N,N*-dibutyl-5-methylbenzoxazol-2-amine (3d)**



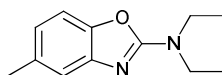
White solid; Yield 70%; M.p.: 58-60 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.95 (t, $J = 7.2$ Hz, 6H), 1.33-1.42 (m, 4H), 1.61-1.69 (m, 4H), 2.38 (s, 3H), 3.49 (t, $J = 7.6$ Hz, 4H), 6.77 (d, $J = 8.0$ Hz, 1H), 7.09 (d, $J = 8.0$ Hz, 1H), 7.15 (s, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 14.1, 20.2, 21.7, 30.3, 48.4, 107.9, 116.4, 120.6, 133.5, 144.0, 147.0, 163.0; GC - MS (EI) $m/z = 260 [M]^+$

5-methyl-*N,N*-dipropylbenzoxazol-2-amine (3e)



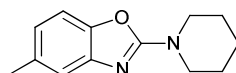
White solid; Yield 78%; M.p.: 38-40 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.96 (t, $J = 7.2$ Hz, 6H), 1.66-1.75 (m, 4H), 2.38 (s, 3H), 3.46 (t, $J = 7.2$ Hz, 4H), 6.77 (d, $J = 8.0$ Hz, 1H), 7.10 (d, $J = 8.0$ Hz, 1H), 7.15 (s, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 11.3, 21.4, 50.5, 108.7, 115.9, 120.0, 123.9, 143.8, 148.9, 162.8; HRESI-MS (m/z): Calculated for C₁₄H₂₁N₂O [M + H]⁺ 233.1654, found [M + H]⁺: 233.1657.

***N,N*-diethyl-5-methylbenzoxazol-2-amine (3f)^{11f}**



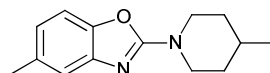
Colorless liquid; Yield 75%; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 1.27 (t, $J = 7.2$ Hz, 6H), 2.38 (s, 3H), 3.57 (q, $J = 7.2$ Hz, 4H), 6.78 (d, $J = 8.0$ Hz, 1H), 7.10 (d, $J = 8.0$ Hz, 1H), 7.15 (s, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 13.7, 21.7, 43.1, 108.0, 116.4, 120.7, 133.6, 143.9, 147.1, 162.5; GC - MS (EI) $m/z = 204 [M]^+$

5-methyl-2-(piperidin-1-yl)benzoxazole (3g)^{11a}



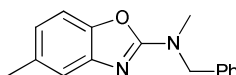
White solid; Yield 77%; M.p.: 97-98 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 1.669 (s, 6H), 2.38 (s, 3H), 3.64 (s, 4H), 6.79 (d, *J* = 8.0 Hz, 1H), 7.09 (d, *J* = 8.0 Hz, 1H), 7.14 (s, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 21.7, 24.2, 25.4, 46.7, 108.0, 116.6, 121.1, 133.6, 143.6, 147.0, 162.8; GC - MS (EI) *m/z* = 216 [M]⁺

5-methyl-2-(4-methylpiperidin-1-yl)benzoxazole (3h)



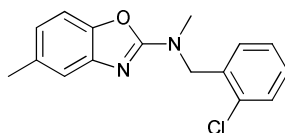
White solid; Yield 72%; M.p.: 63-65 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.98 (d, *J* = 6.4 Hz, 3H), 1.22-1.32 (m, 2H), 1.61-1.64 (m, 1H), 1.74 (d, *J* = 13.2 Hz, 2H), 2.38 (s, 3H), 3.01-3.08 (m, 2H), 4.25 (d, *J* = 12.8 Hz, 2H), 6.79 (d, *J* = 8.0 Hz, 1H), 7.09 (d, *J* = 8.0 Hz, 1H), 7.14 (s, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 21.7, 22.0, 30.8, 33.6, 46.2, 108.0, 116.6, 121.1, 133.6, 143.6, 147.0, 162.8; HRESI-MS (*m/z*): Calculated for C₁₄H₁₉N₂O [M + H]⁺ 231.1497, found [M + H]⁺: 231.1496.

N-benzyl-N, 5-dimethylbenzoxazol-2-amine (3i)^{11f}



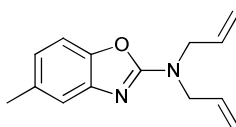
White solid; Yield 67%; M.p.: 50-51 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 2.40 (s, 3H), 3.11 (s, 3H), 4.74 (s, 2H), 6.81 (d, *J* = 8.0 Hz, 1H), 7.13 (d, *J* = 8.0 Hz, 1H), 7.18 (s, 1H), 7.28-7.35 (m, 5H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 21.7, 35.3, 54.0, 108.3, 116.7, 121.2, 127.9, 127.9, 128.9, 133.8, 136.7, 143.8, 147.3, 163.3; GC - MS (EI) *m/z* = 252 [M]⁺

N-(2-chlorobenzyl)-N, 5-dimethylbenzoxazol-2-amine (3j)



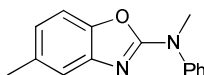
White solid; Yield 67%; M.p.: 69-70 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 2.40 (s, 3H), 3.19 (s, 3H), 4.88 (s, 2H), 6.82 (d, *J* = 8.0 Hz, 1H), 7.12 (d, *J* = 8.0 Hz, 1H), 7.19 (s, 1H), 7.21-7.28 (m, 3H), 7.39-7.41 (m, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 21.7, 35.9, 51.5, 108.3, 116.8, 121.3, 127.3, 128.5, 129.0, 130.0, 133.6, 133.8, 134.2, 143.7, 147.4, 163.2; HRESI-MS (*m/z*): Calculated for C₁₆H₁₅N₂ONaCl [M + Na]⁺ 309.0771, found [M + Na]⁺: 309.0776.

N, N-diallyl-5-methylbenzoxazol-2-amine (3k)⁵



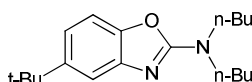
Yellow liquid; Yield 65%; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 2.39 (s, 3H), 4.14 (d, *J* = 5.6 Hz, 4H), 5.21-5.26 (m, 4H), 5.83-5.92 (m, 2H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 21.7, 50.0, 108.2, 116.7, 118.0, 121.2, 132.8, 133.7, 143.6, 147.2, 162.6; GC - MS (EI) *m/z* = 228 [M]⁺

N, 5-dimethyl-N-phenylbenzoxazol-2-amine (3l)



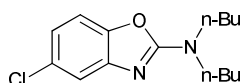
Yellow crystal; Yield 35%; M.p.: 55-56 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 2.40 (s, 3H), 3.62 (s, 3H), 6.84 (d, *J* = 8.0 Hz, 1H), 7.10 (d, *J* = 8.0 Hz, 1H), 7.23-7.25 (m, 2H), 7.42 (s, 4H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 21.7, 39.2, 108.5, 117.2, 122.0, 124.6, 126.1, 129.4, 133.9, 143.1, 143.2, 147.1, 161.6; HRESI-MS (*m/z*): Calculated for C₁₅H₁₅N₂O [M + H]⁺ 239.1184, found [M + H]⁺: 239.1189

5-tert-butyl-N,N-dibutylbenzoxazol-2-amine (4a)^{11f}



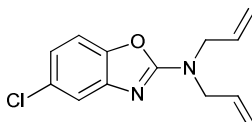
Light yellow liquid; Yield 64% (5 equiv acid), 69 % (1.2 equiv acid); Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.95 (t, *J* = 7.2 Hz, 6H), 1.34-1.40 (m, 13H), 1.61-1.69 (m, 4H), 3.49 (t, *J* = 7.6 Hz, 4H), 7.01 (dd, *J* = 8.4 Hz, 1.6 Hz, 1H), 7.14 (d, *J* = 8.4 Hz, 1H), 7.43 (d, *J* = 1.6 Hz, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 14.0, 20.1, 30.3, 32.0, 35.0, 48.5, 107.6, 113.1, 117.1, 143.6, 146.8, 147.3, 163.0; GC - MS (EI) *m/z* = 302 [M]⁺

N,N-dibutyl-5-chlorobenzoxazol-2-amine (4b)^{11f}



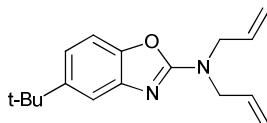
White solid; Yield 57% (5 equiv acid), 43% (1.2 equiv acid); M.p.: 60-61 °C; Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 0.96 (t, *J* = 7.2 Hz, 6H), 1.33-1.43 (m, 4H), 1.61-1.69 (m, 4H), 3.49 (t, *J* = 7.6 Hz, 4H), 6.92 (dd, *J* = 8.4 Hz, 2 Hz, 1H), 7.12 (d, *J* = 8.4 Hz, 1H), 7.29 (d, *J* = 2 Hz, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 14.0, 20.1, 30.2, 48.6, 109.0, 116.0, 119.8, 129.2, 145.3, 147.5, 163.6; GC - MS (EI) *m/z* = 280 [M]⁺

N,N-diallyl-5-chlorobenzoxazol-2-amine (4c)



Colorless liquid; Yield 31% (5 equiv acid), 26% (1.2 equiv acid); Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 4.15 (d, *J* = 5.6 Hz, 4H), 5.23-5.27 (m, 4H), 5.82-5.92 (m, 2H), 6.96 (dd, *J* = 8.4 Hz, 2 Hz, 1H), 7.14 (d, *J* = 8.4 Hz, 1H), 7.32 (d, *J* = 2.0 Hz, 1H); ¹³C NMR (CDCl₃, 100 MHz) δ (ppm): 50.2, 109.4, 116.4, 118.4, 120.4, 129.5, 132.4, 144.8, 147.7, 163.3; HRESI-MS (*m/z*): Calculated for C₁₃H₁₃N₂ONaCl [M + Na]⁺ 271.0614, found [M + Na]⁺: 271.0613.

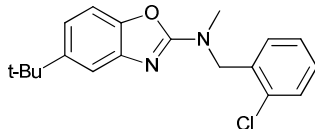
N,N-diallyl-5-tert-butylbenzoxazol-2-amine (4d)



Colorless liquid; Yield 46% (5 equiv acid), 64% (1.2 equiv acid); Prepared as shown in general experimental procedure. ¹H NMR (CDCl₃, 400 MHz) δ (ppm): 1.34 (s, 9H), 4.15 (d, *J* = 5.6 Hz,

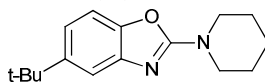
4H), 5.21-5.26 (m, 4H), 5.83-5.91 (m, 2H), 7.05 (dd, $J = 8.4$ Hz, 1.6 Hz, 1H), 7.17 (d, $J = 8.4$ Hz, 1H), 7.45 (d, $J = 1.6$ Hz, 1H); ^{13}C NMR (CDCl_3 , 100 MHz) δ (ppm): 32.0, 35.0, 50.1, 108.0, 113.5, 117.7, 118.0, 132.8, 143.3, 147.1, 147.5, 162.7; HRESI-MS (m/z): Calculated for $\text{C}_{17}\text{H}_{22}\text{N}_2\text{ONa}$ $[\text{M} + \text{Na}]^+$ 293.1630, found $[\text{M} + \text{Na}]^+$: 293.1634.

5-tert-butyl-N-(2-chlorobenzyl)-N-methylbenzoxazol-2-amine (4e)



Yellow solid; Yield 37% (5 equiv acid), 54% (1.2 equiv acid); M.p.: 89-92 °C; Prepared as shown in general experimental procedure. ^1H NMR (CDCl_3 , 400 MHz) δ (ppm): 1.35 (s, 1H), 3.20 (s, 3H), 4.88 (s, 2H), 7.07 (dd, $J = 8.4$ Hz, 2 Hz, 1H), 7.17 (d, $J = 8.4$ Hz, 1H), 7.21-7.26 (m, 3H), 7.39-7.41 (m, 1H), 7.46 (d, $J = 1.6$ Hz, 1H); ^{13}C NMR (CDCl_3 , 100 MHz) δ (ppm): 32.0, 35.0, 36.0, 51.5, 108.0, 113.6, 117.8, 127.3, 128.5, 129.0, 130.0, 133.6, 134.2, 143.3, 147.2, 147.7, 163.2; HRESI-MS (m/z): Calculated for $\text{C}_{19}\text{H}_{22}\text{N}_2\text{OCl}$ $[\text{M} + \text{H}]^+$ 329.1421, found $[\text{M} + \text{H}]^+$: 329.1427.

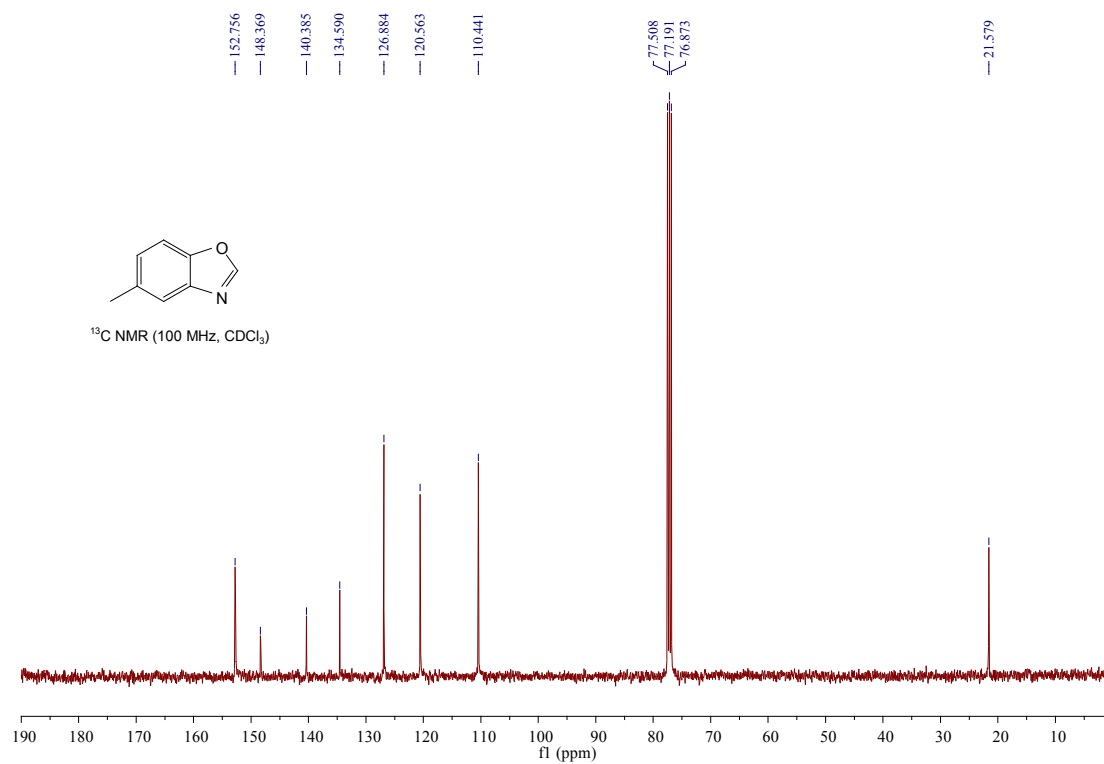
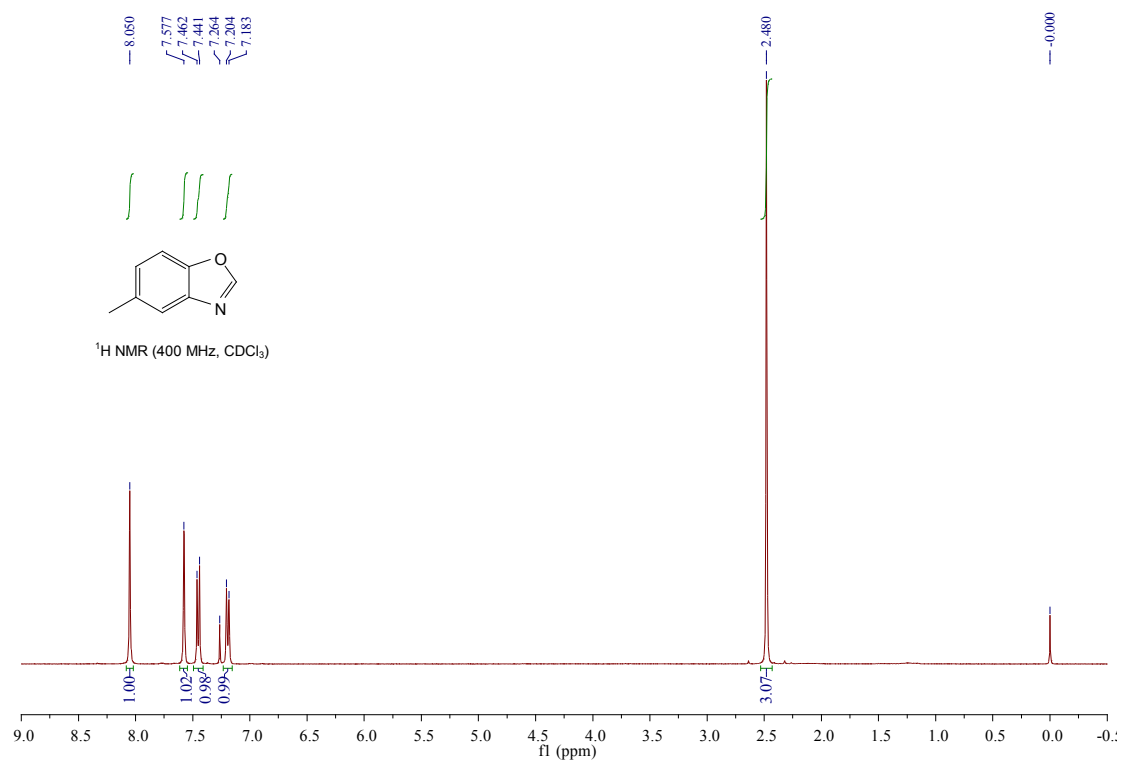
5-tert-butyl-2-(piperidin-1-yl)benzoxazole (4f)



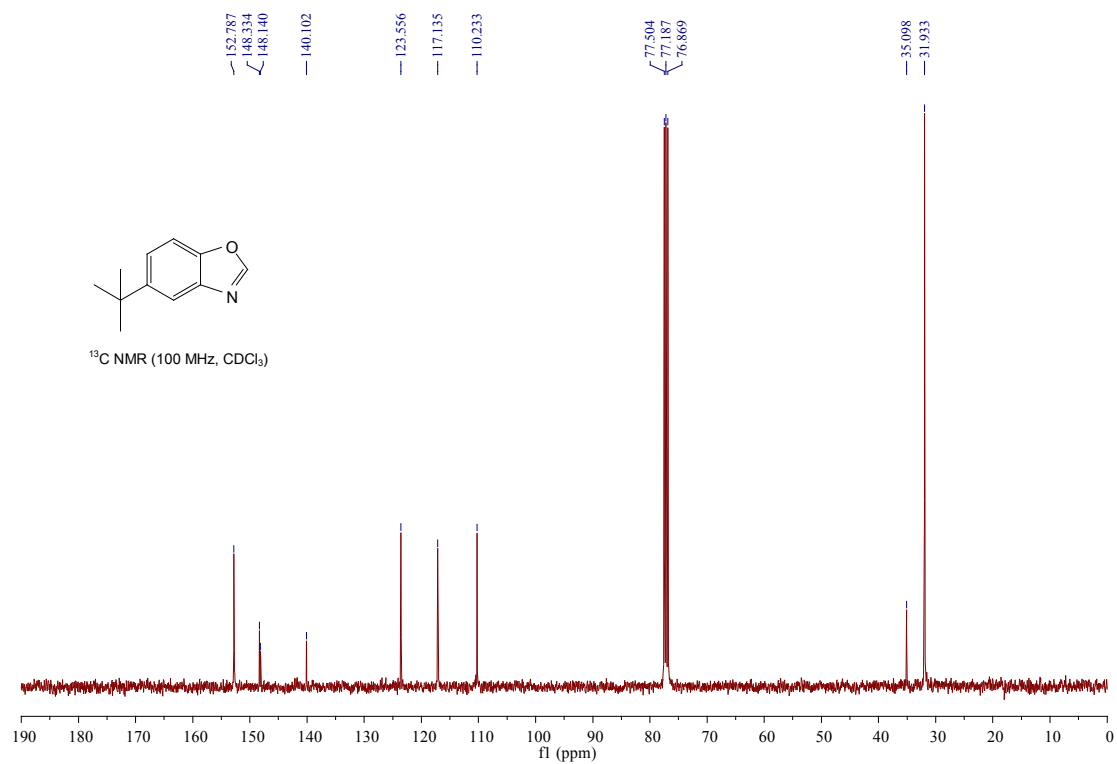
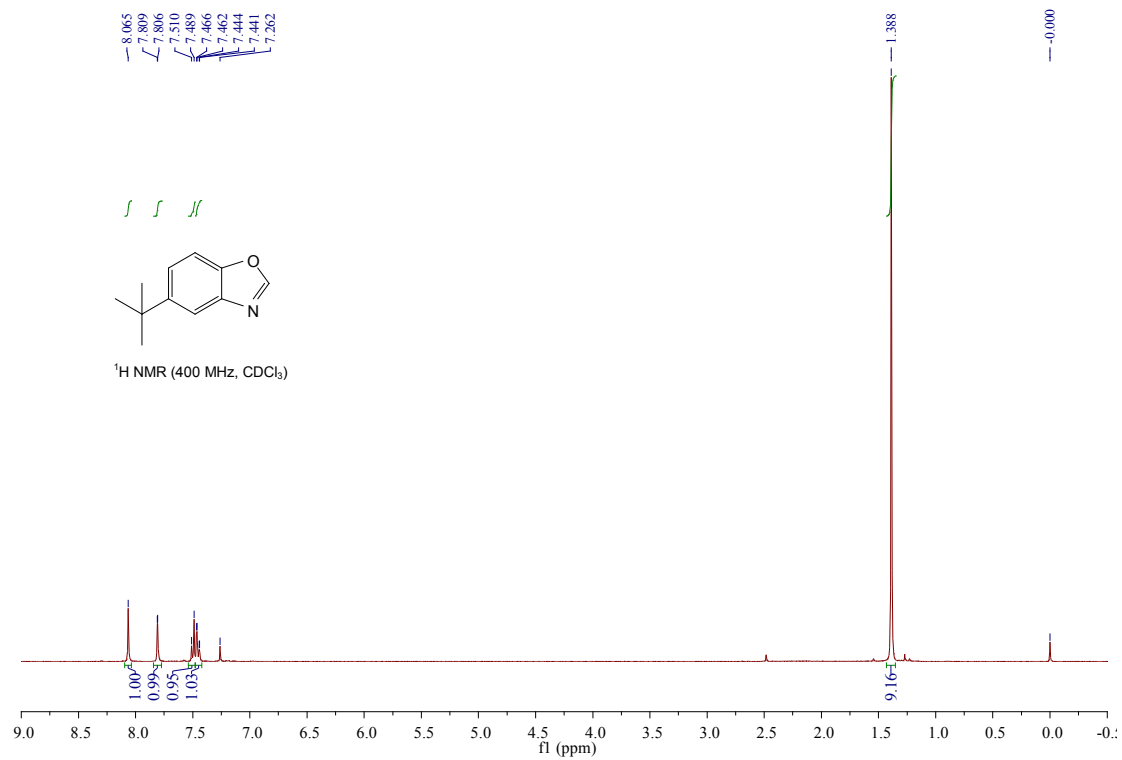
White acicular crystal; Yield 60% (5 equiv acid), 70% (1.2 equiv acid); M.p.: 84-87 °C; Prepared as shown in general experimental procedure. ^1H NMR (CDCl_3 , 400 MHz) δ (ppm): 1.34 (s, 9H), 1.67 (s, 6H), 3.64 (s, 4H), 7.03 (dd, $J = 8.4$ Hz, 1.6 Hz, 1H), 7.14 (d, $J = 8.4$ Hz, 1H), 7.42 (d, $J = 1.6$ Hz, 1H); ^{13}C NMR (CDCl_3 , 100 MHz) δ (ppm): 24.2, 25.4, 32.0, 35.0, 46.8, 107.7, 113.3, 117.5, 143.2, 146.8, 147.4, 162.8; HRESI-MS (m/z): Calculated for $\text{C}_{16}\text{H}_{23}\text{N}_2\text{O}$ $[\text{M} + \text{H}]^+$ 259.1810, found $[\text{M} + \text{H}]^+$: 259.1815.

IV Copies of products' and prepared materials' ^1H NMR and ^{13}C NMR spectra

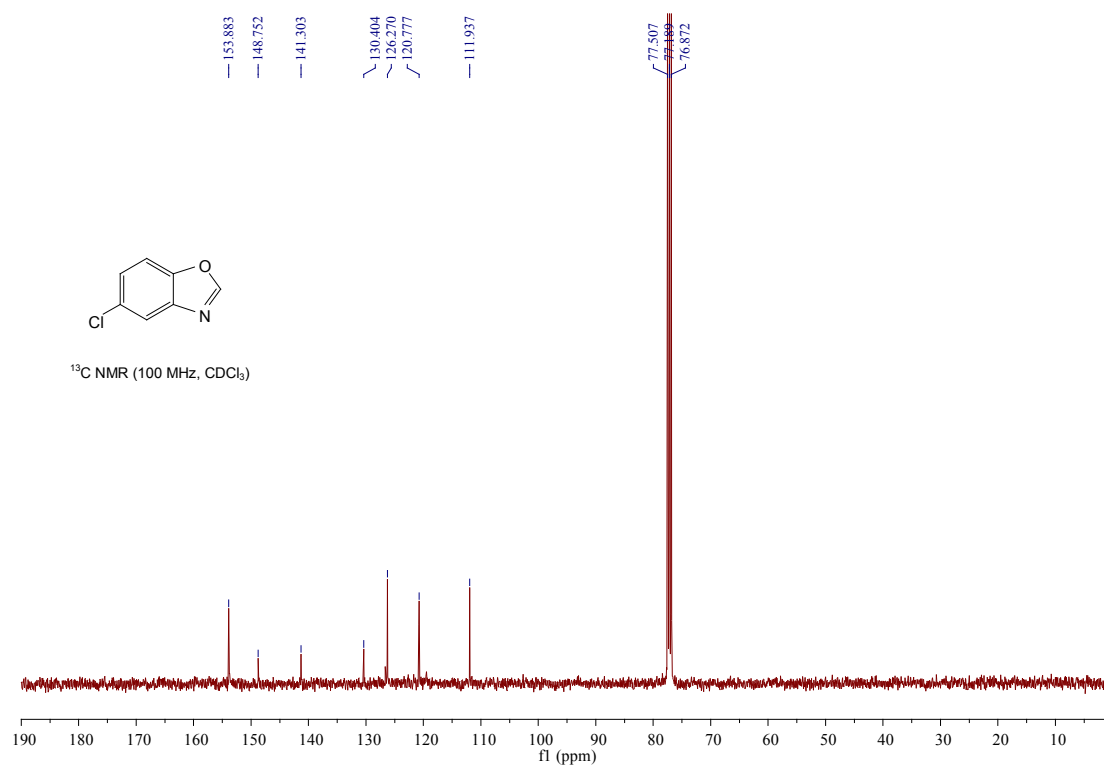
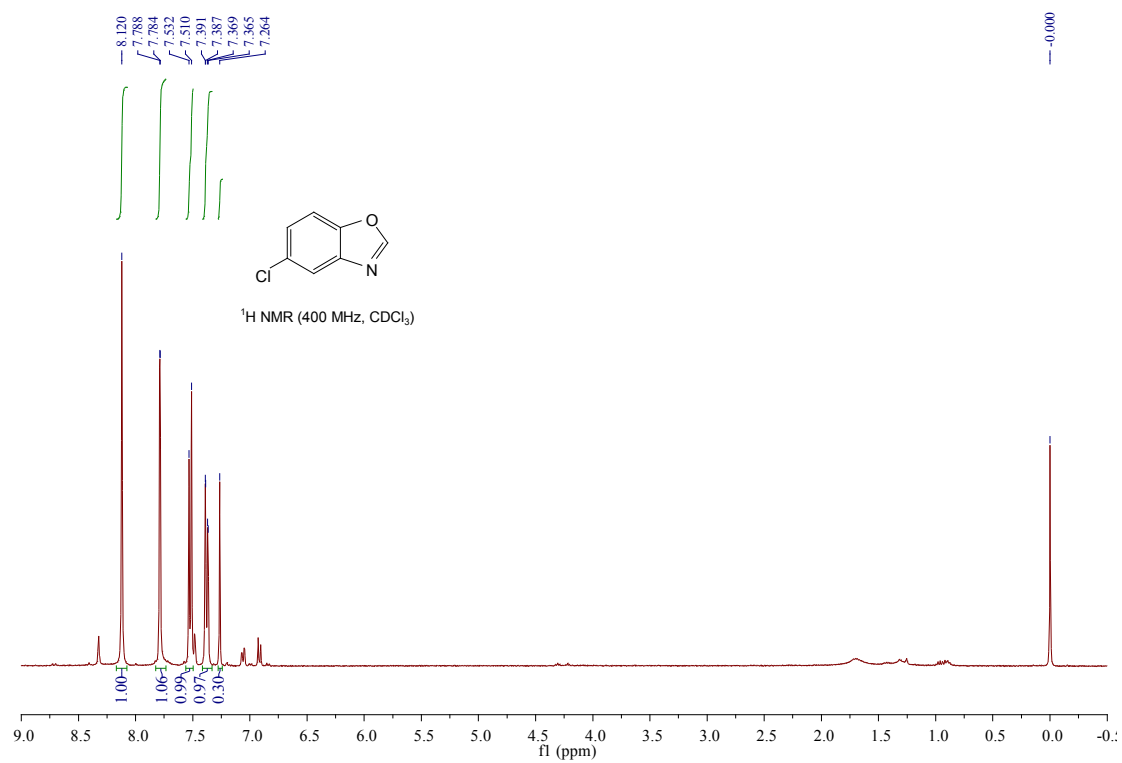
5-methylbenzoxazole



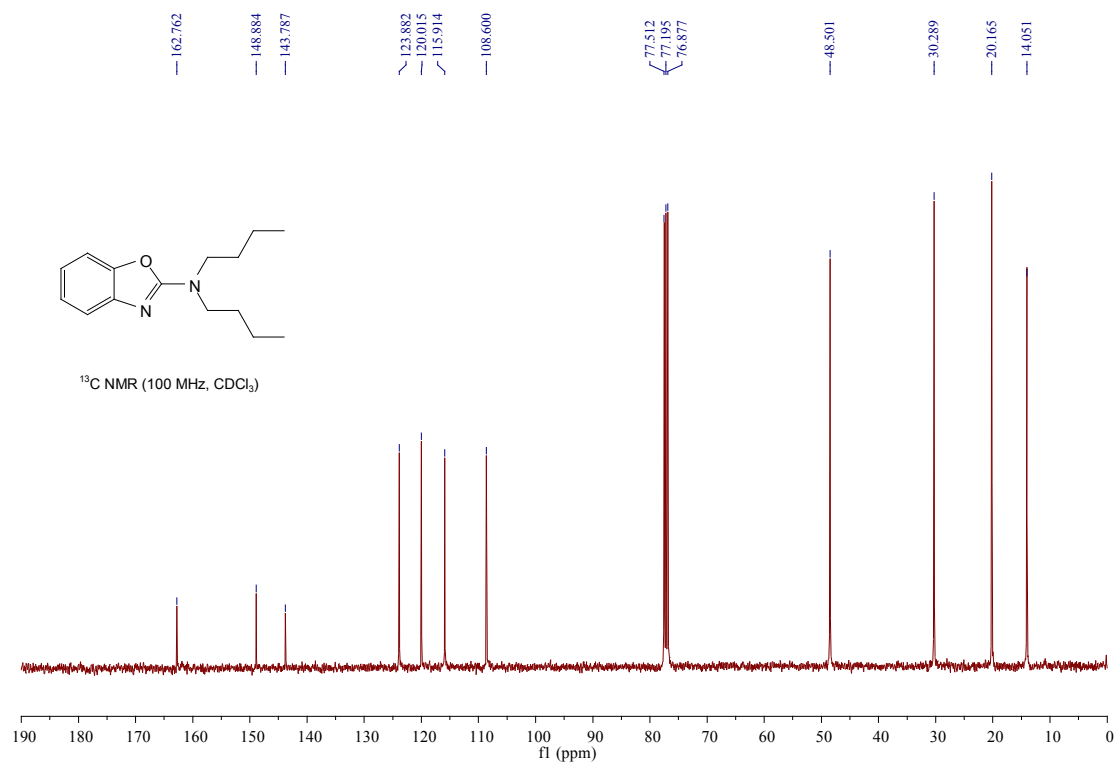
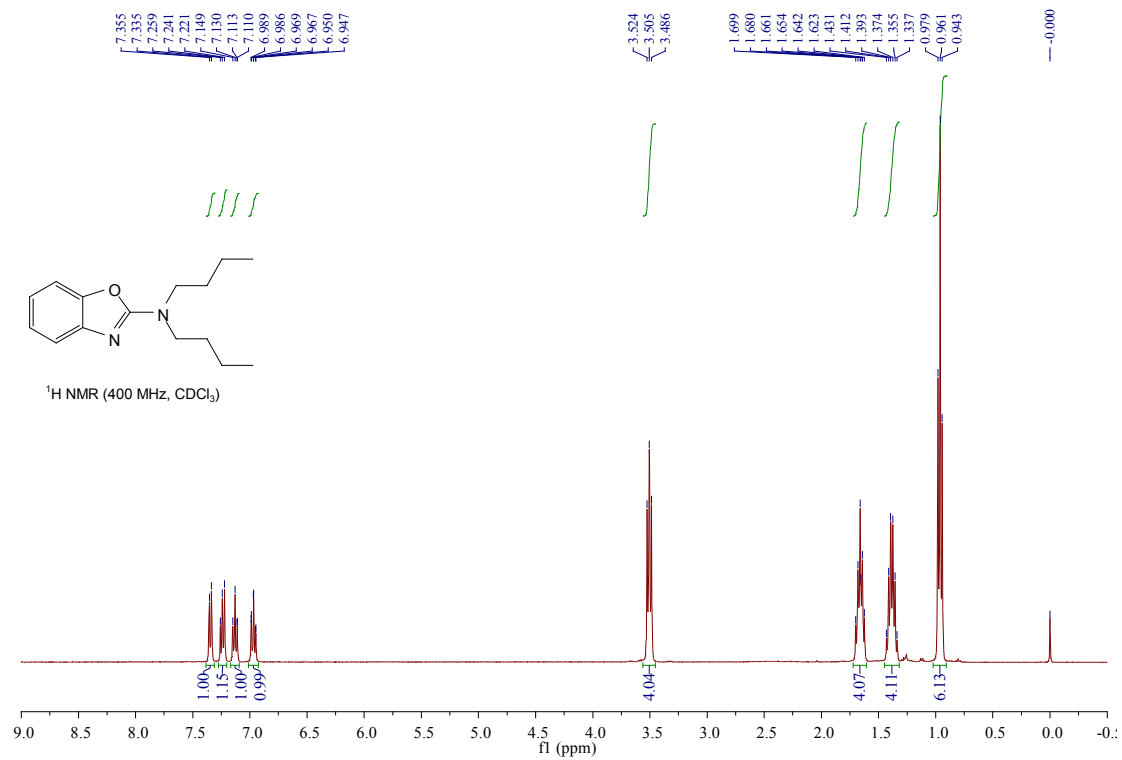
5-tert-butylbenzoxazole



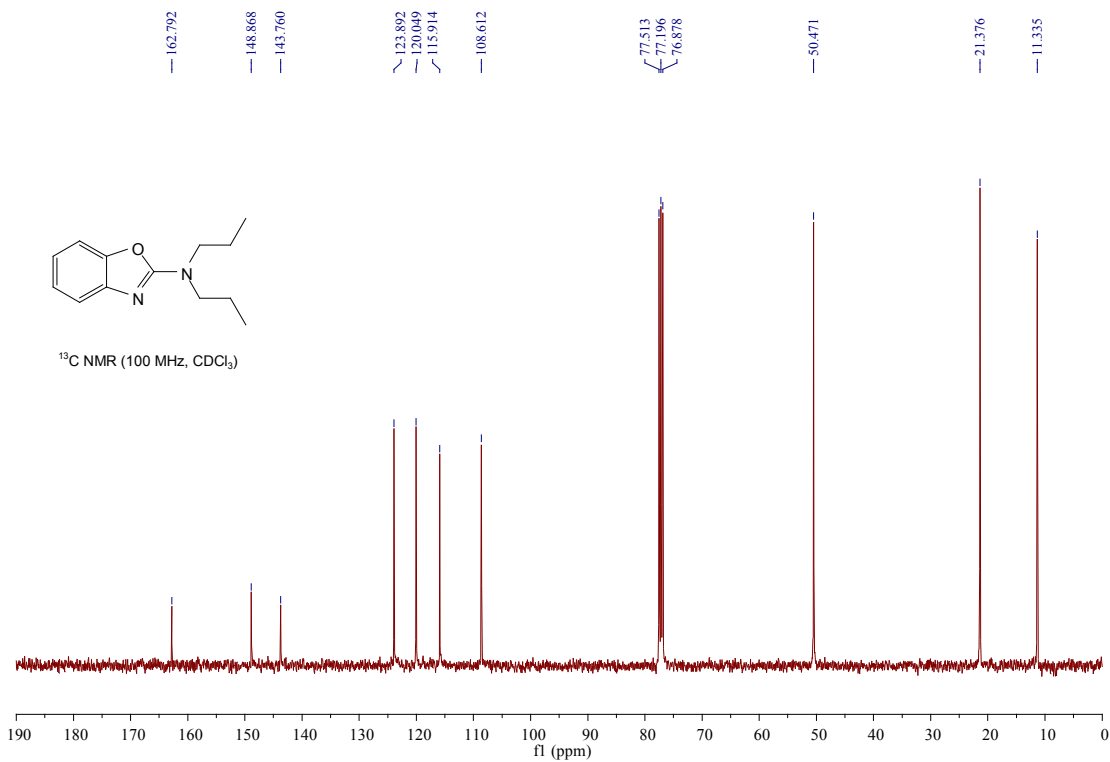
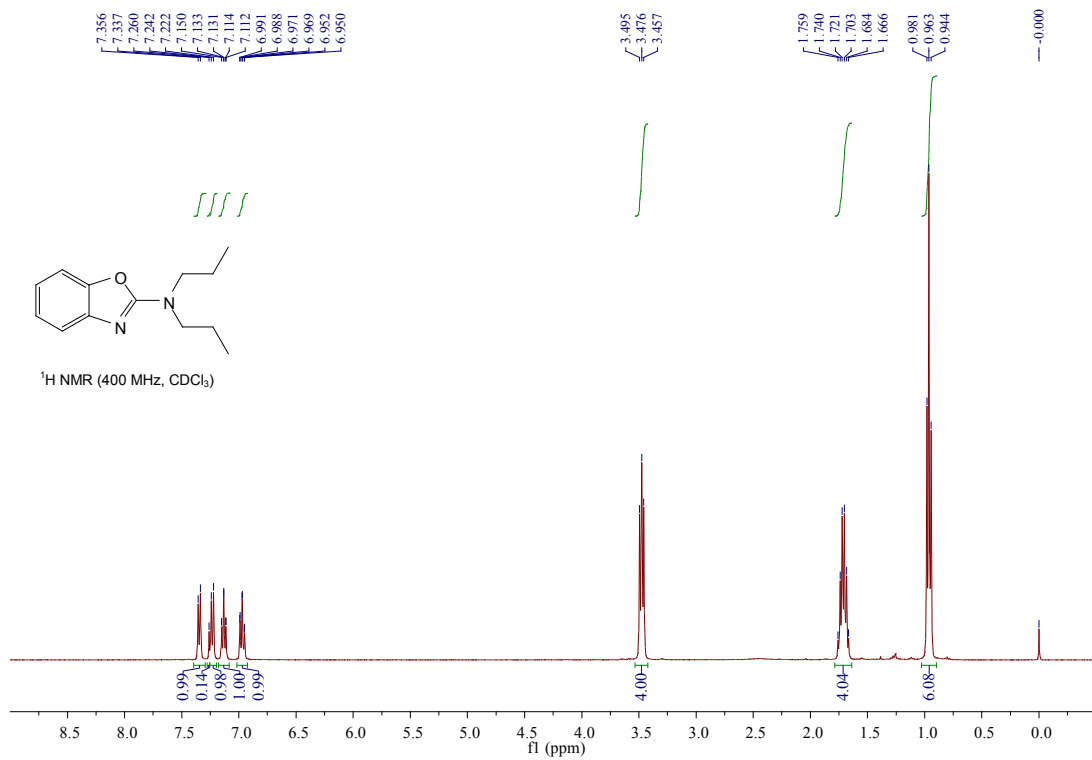
5-chlorobenzoxazole



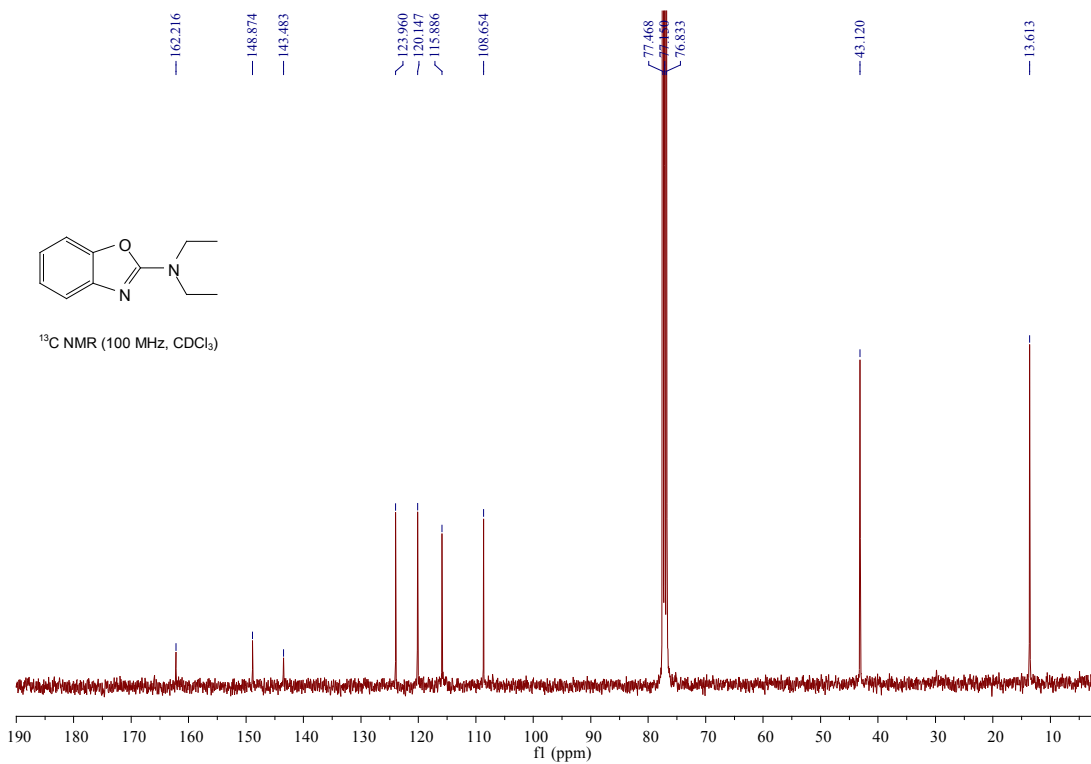
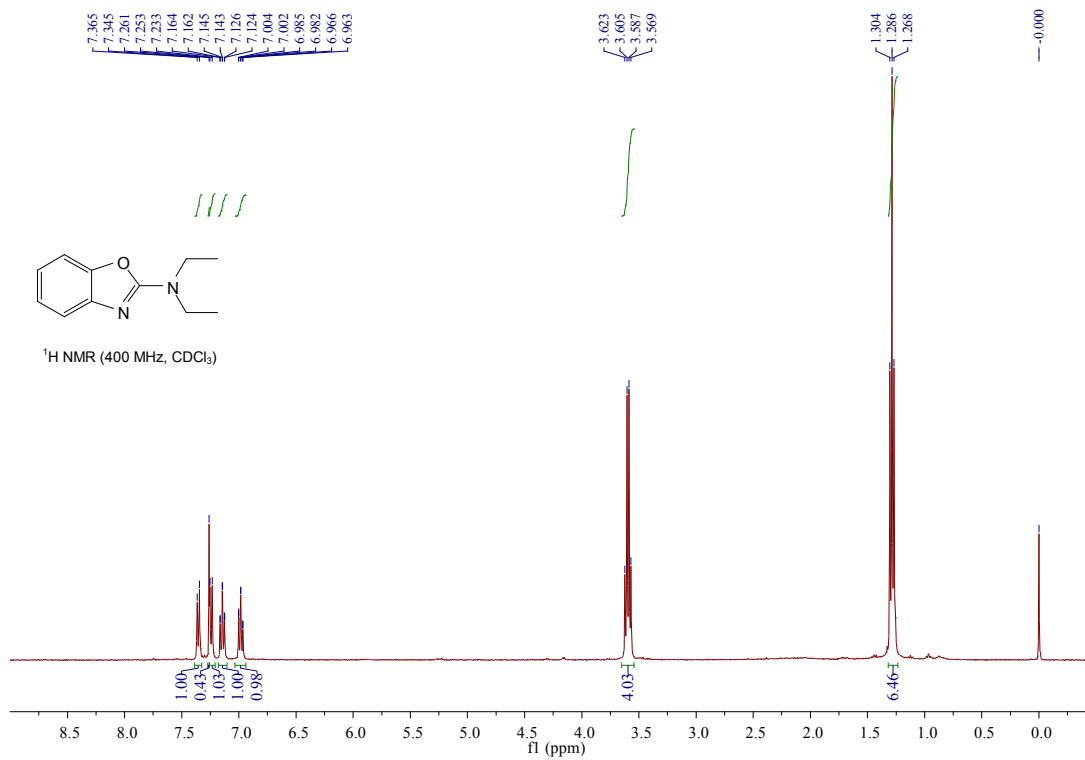
***N,N*-dibutylbenzoxazol-2-amine (3a)**



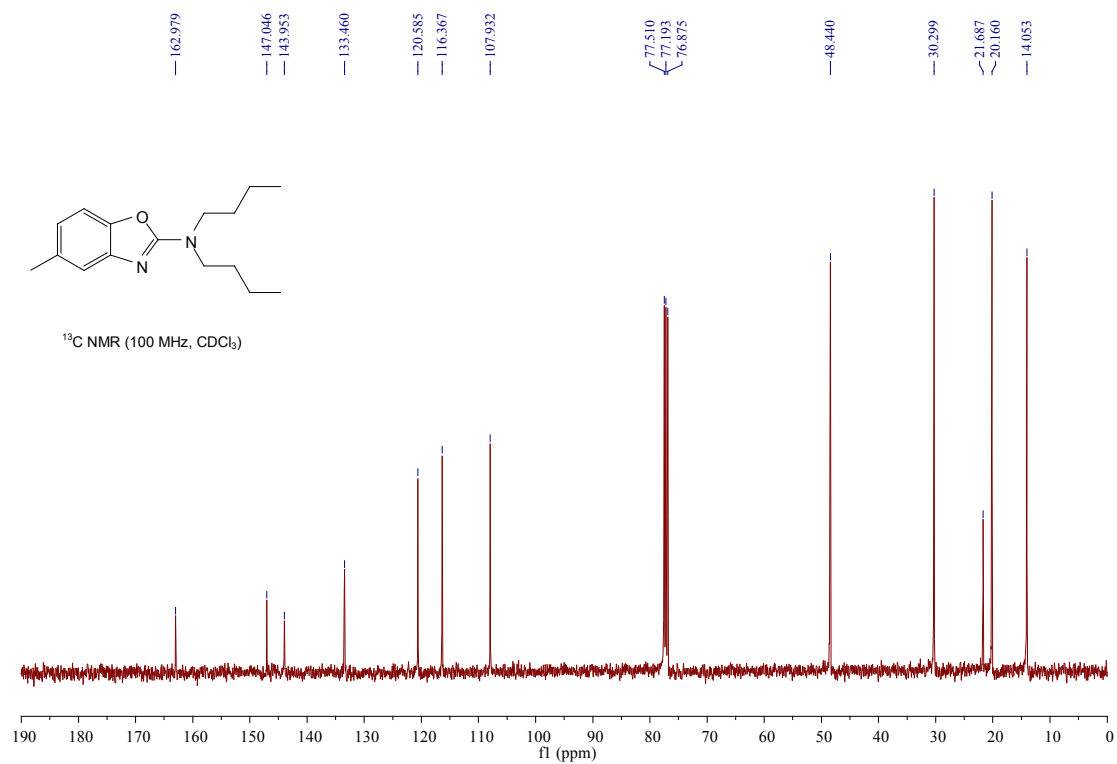
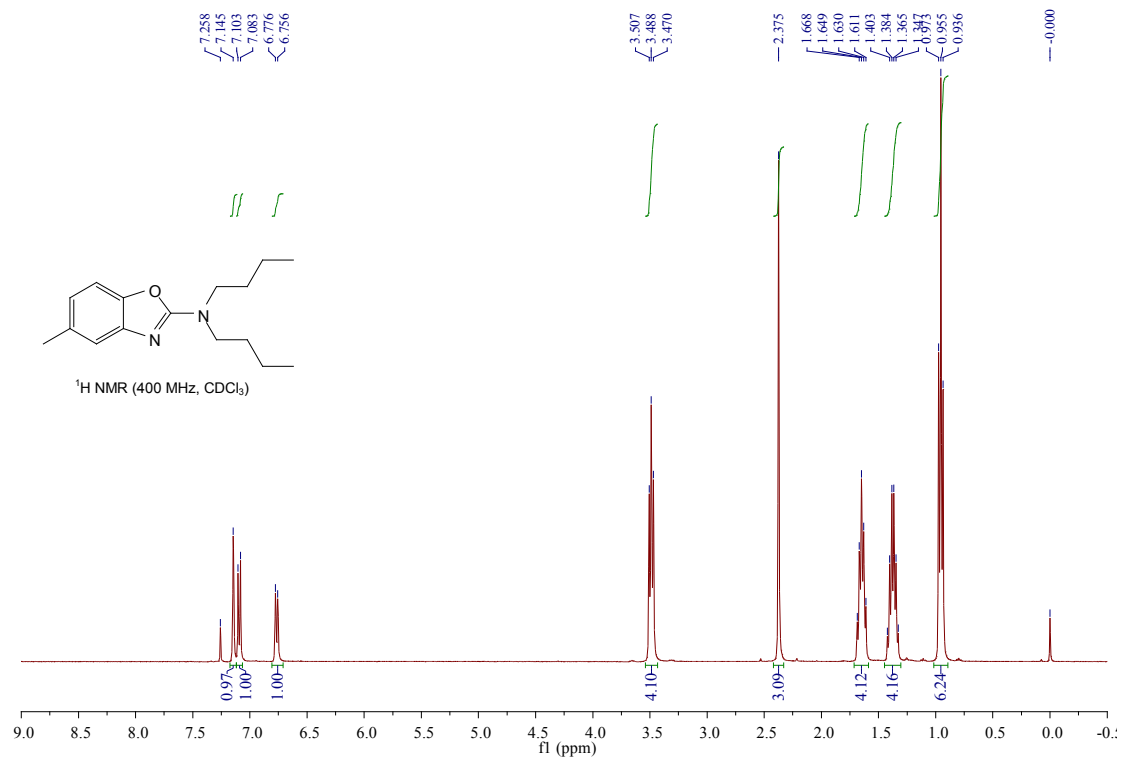
N,N-dipropylbenzoxazol-2-amine (3b)



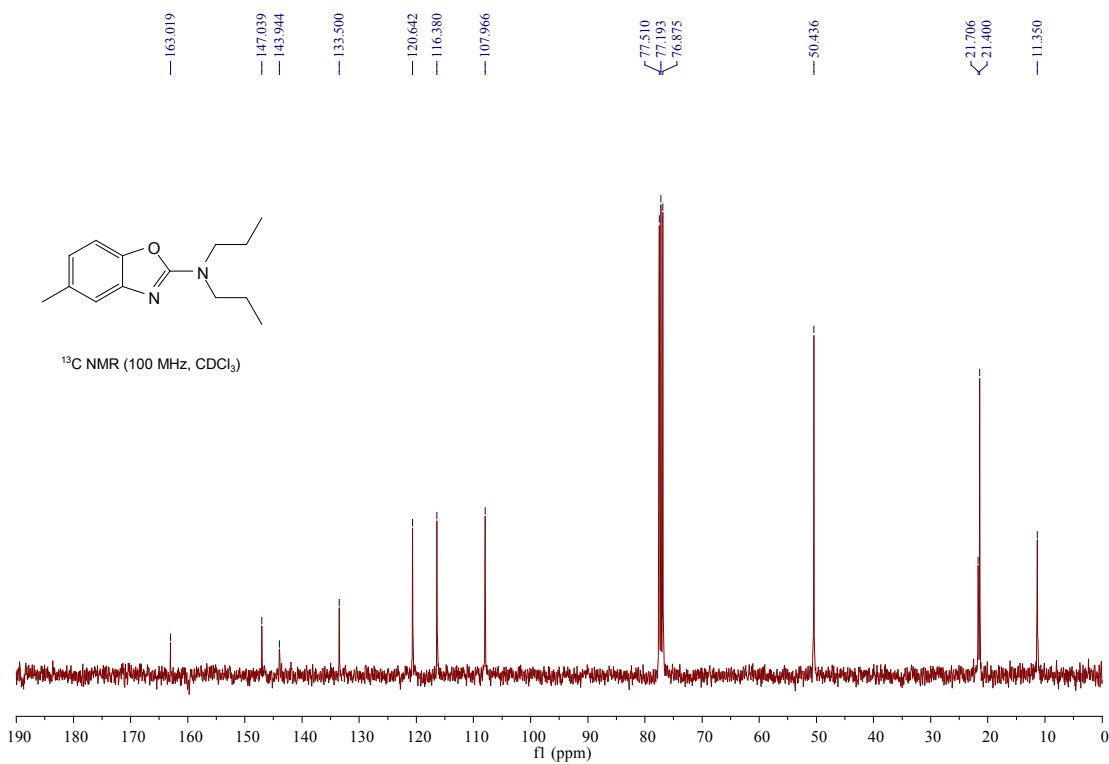
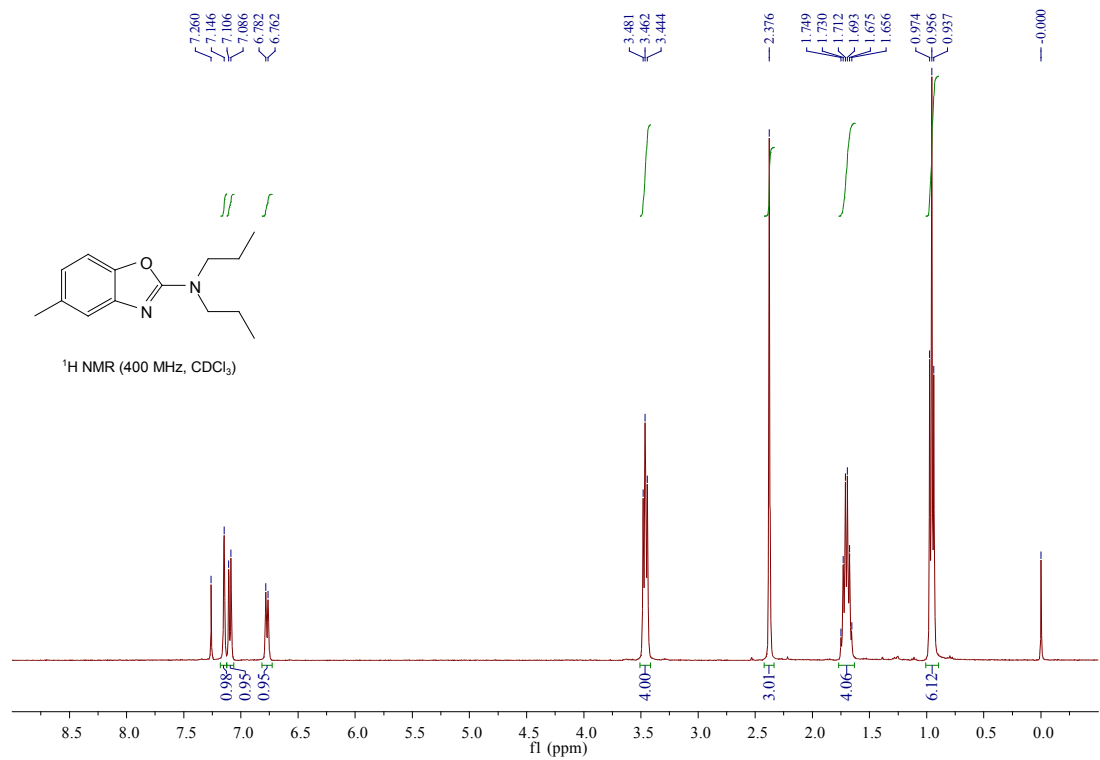
N,N-diethylbenzoxazol-2-amine (3c)



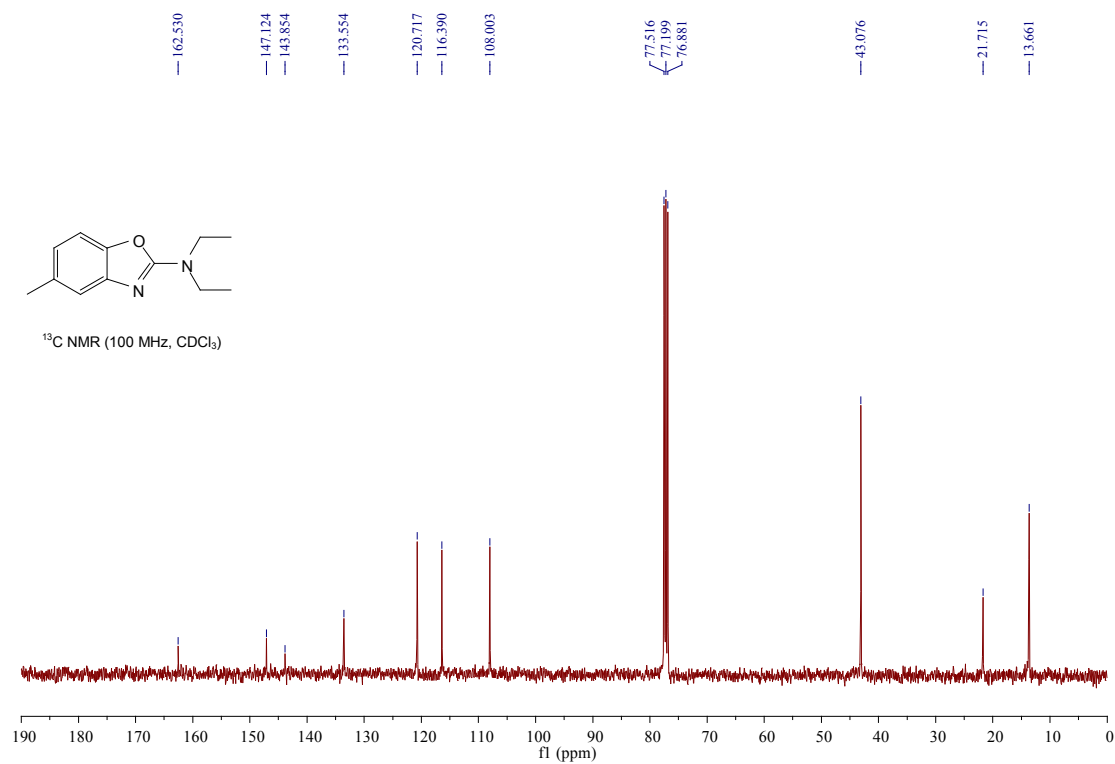
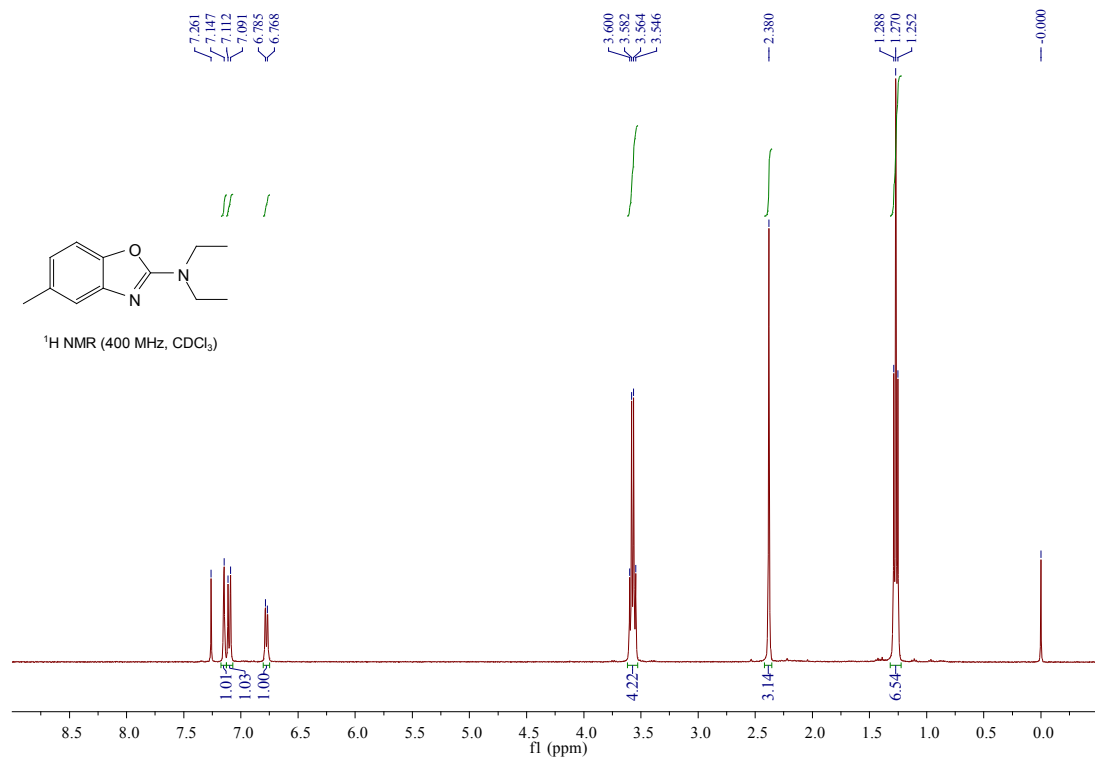
***N,N*-dibutyl-5-methylbenzoxazol-2-amine (3d)**



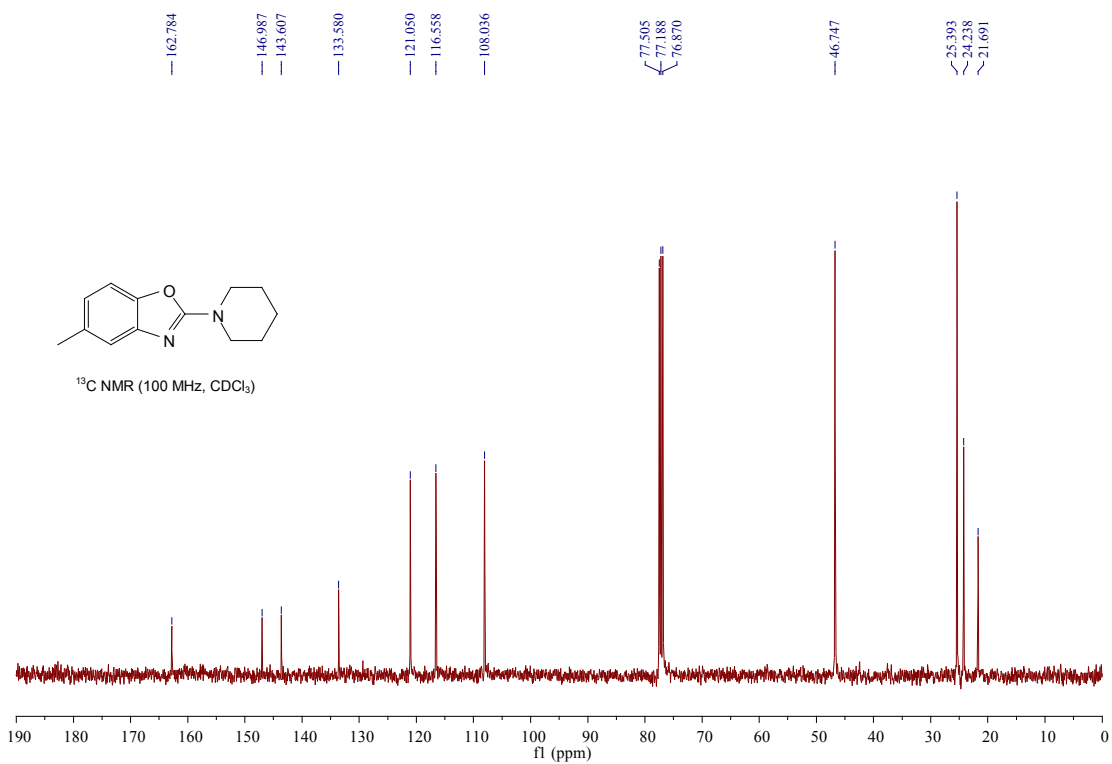
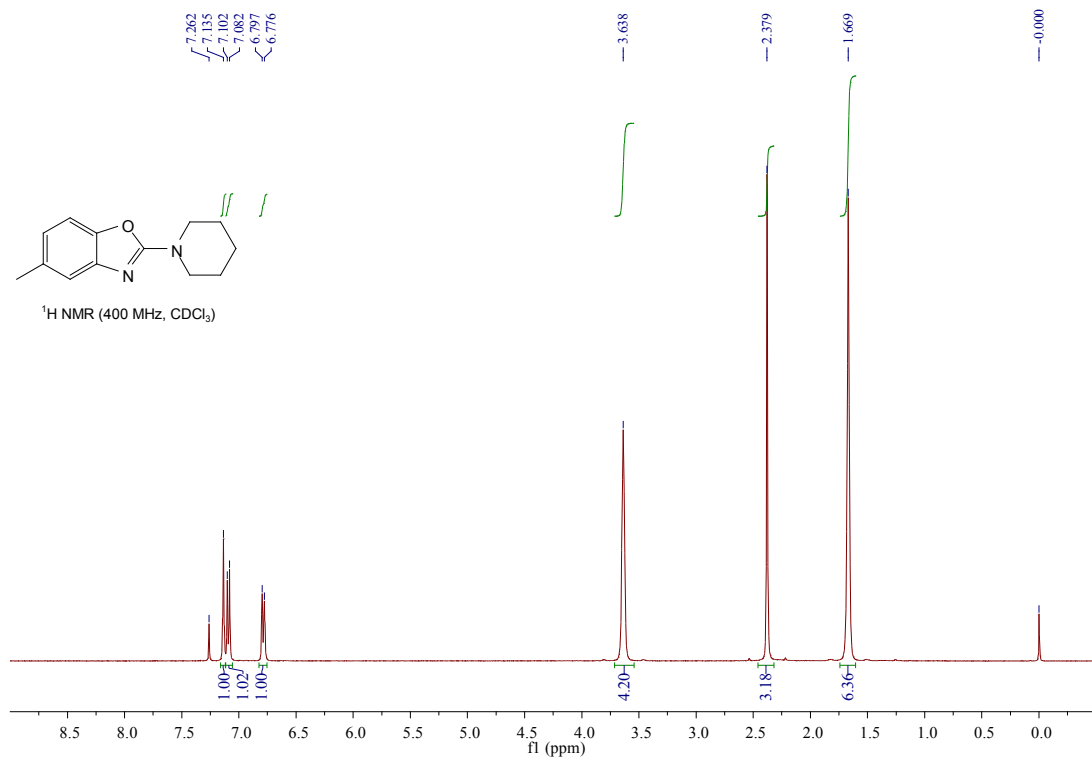
5-methyl-*N,N*-dipropylbenzoxazol-2-amine (3e)



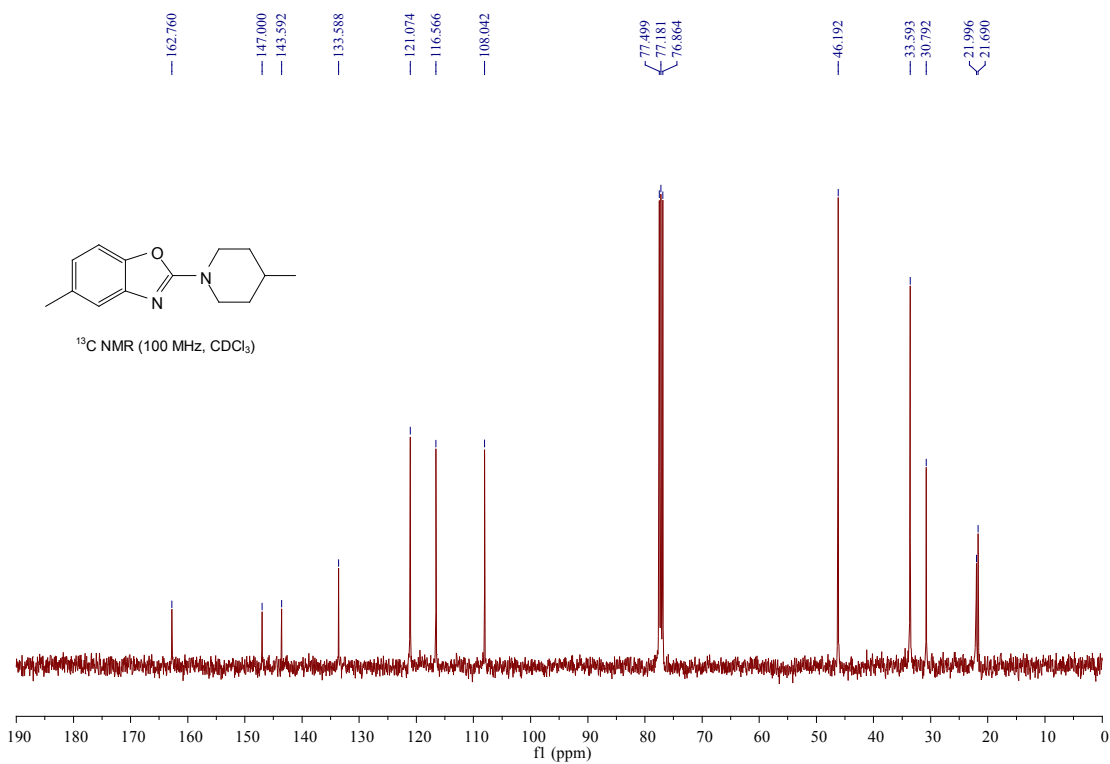
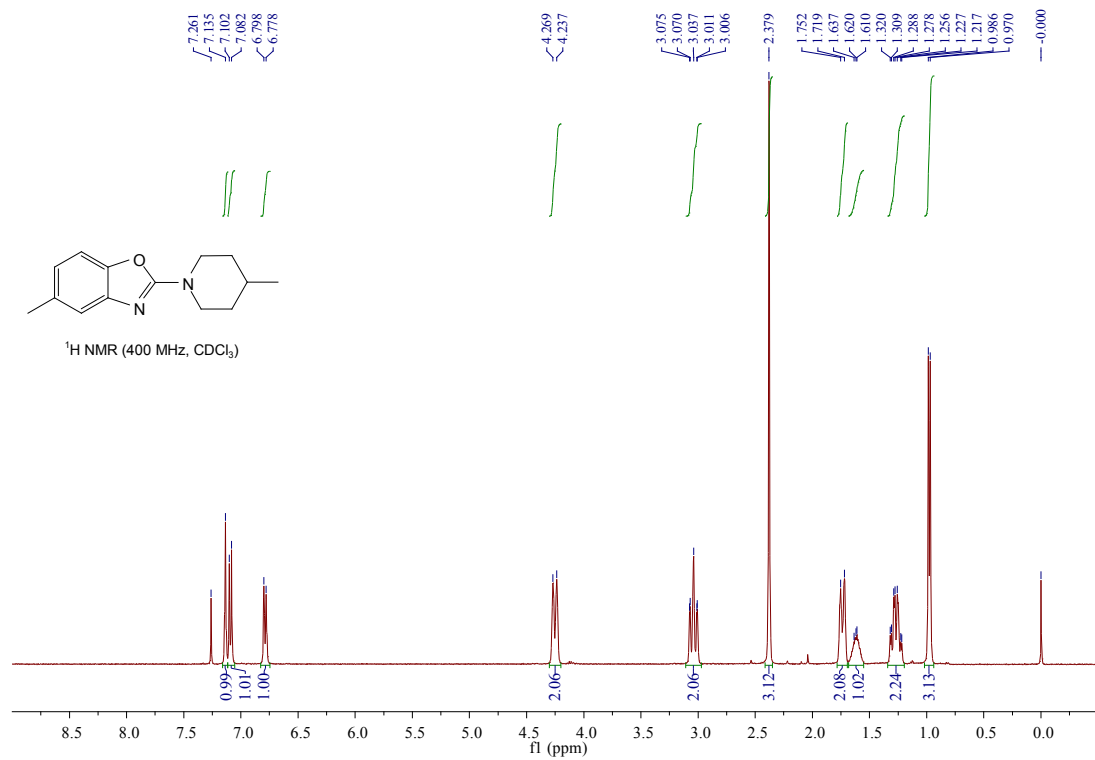
***N,N*-diethyl-5-methylbenzoxazol-2-amine (3f).**



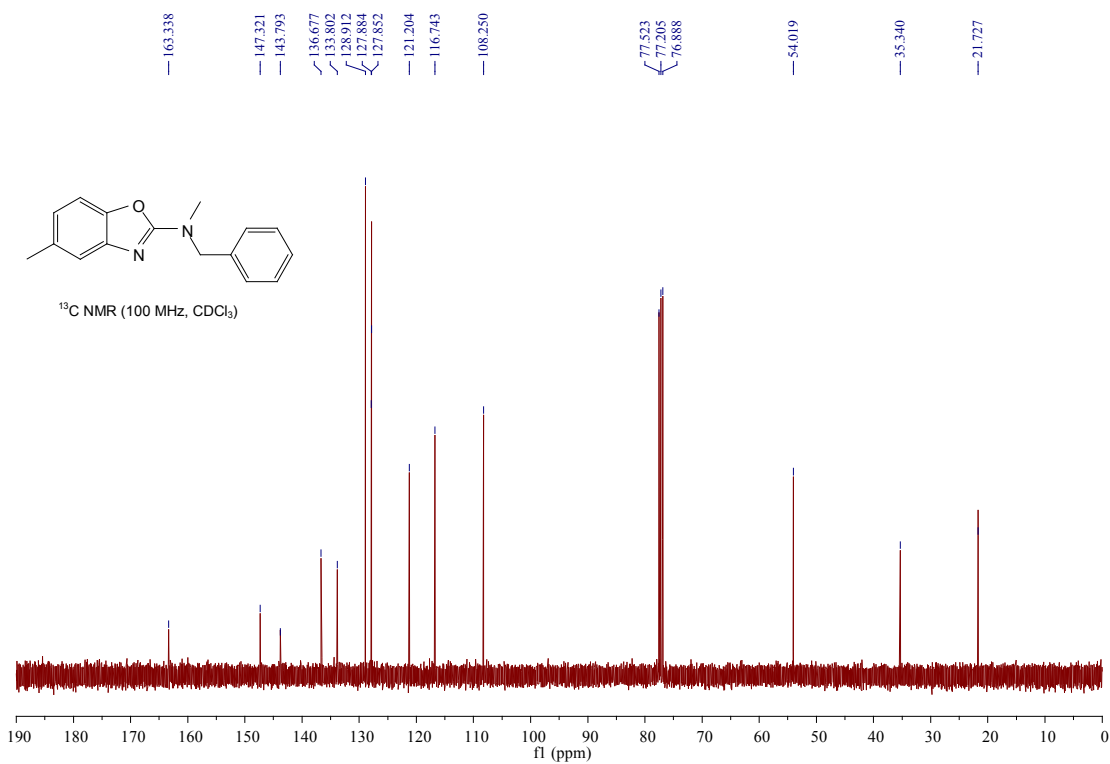
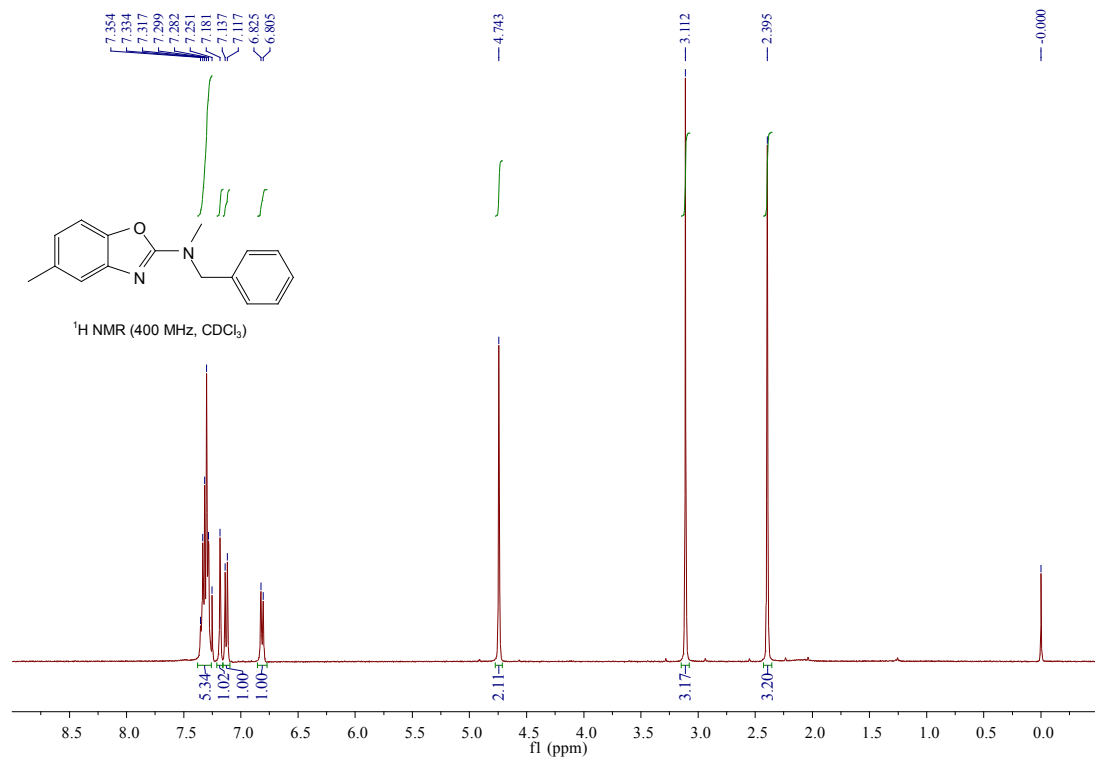
5-methyl-2-(piperidin-1-yl)benzoxazole (3g)



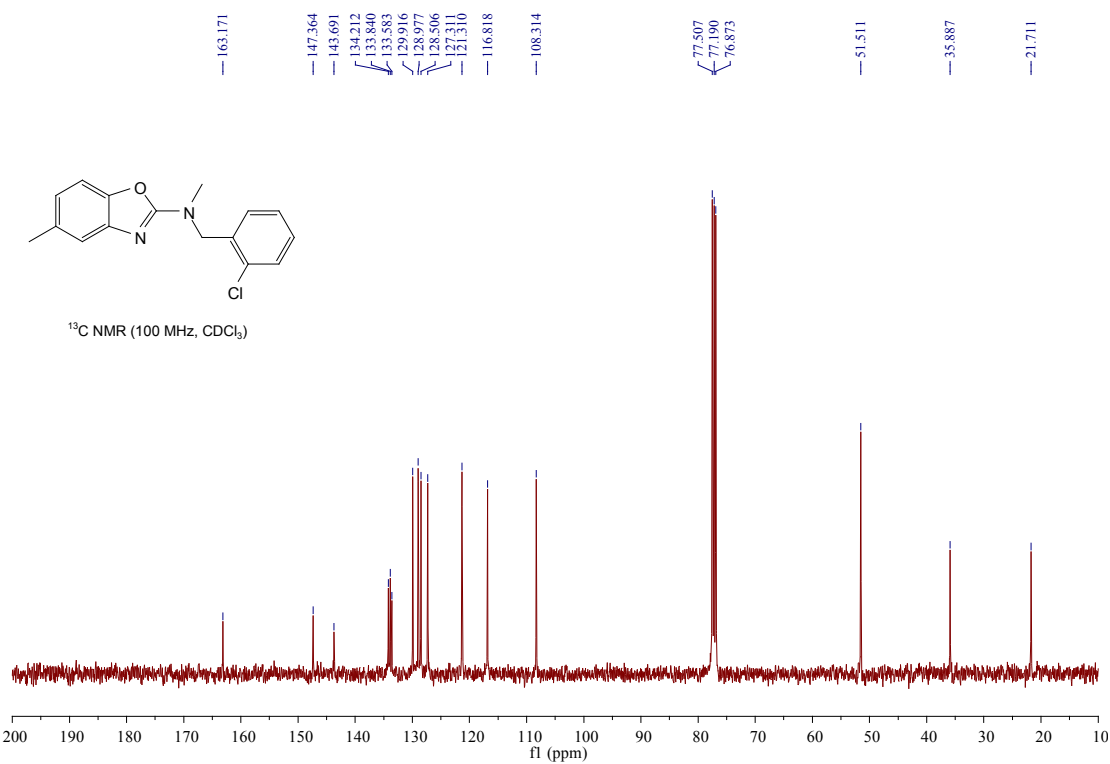
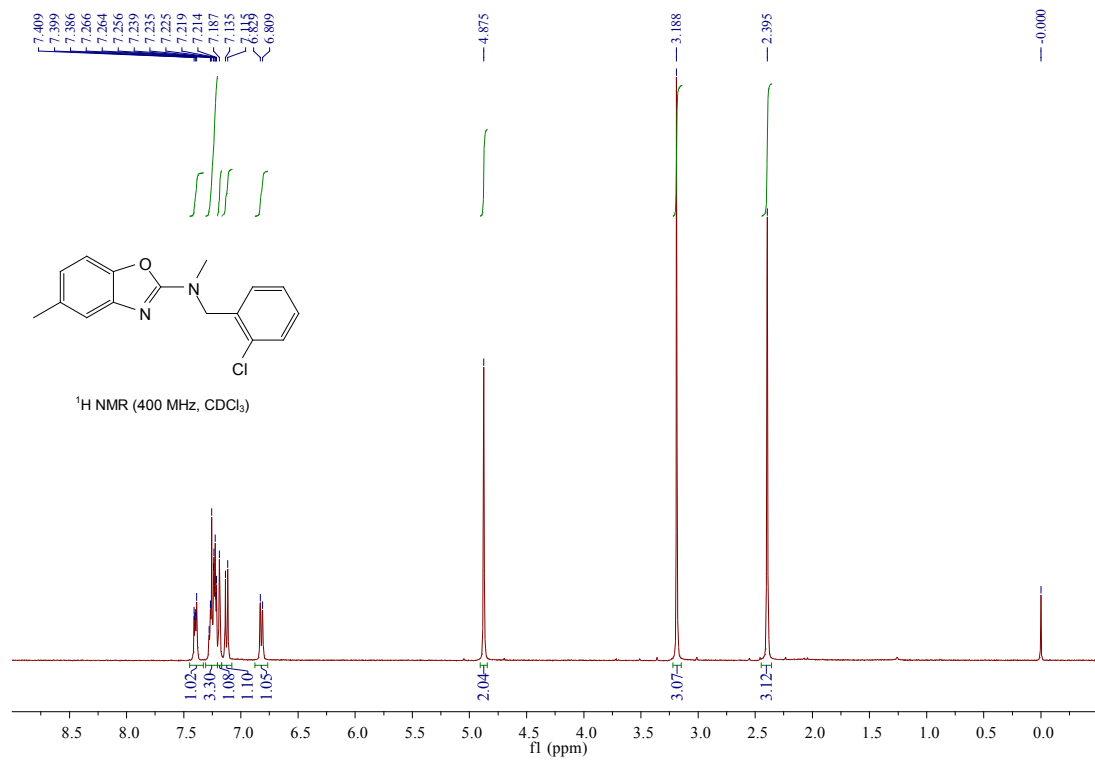
5-methyl-2-(4-methylpiperidin-1-yl)benzoxazole (3h)



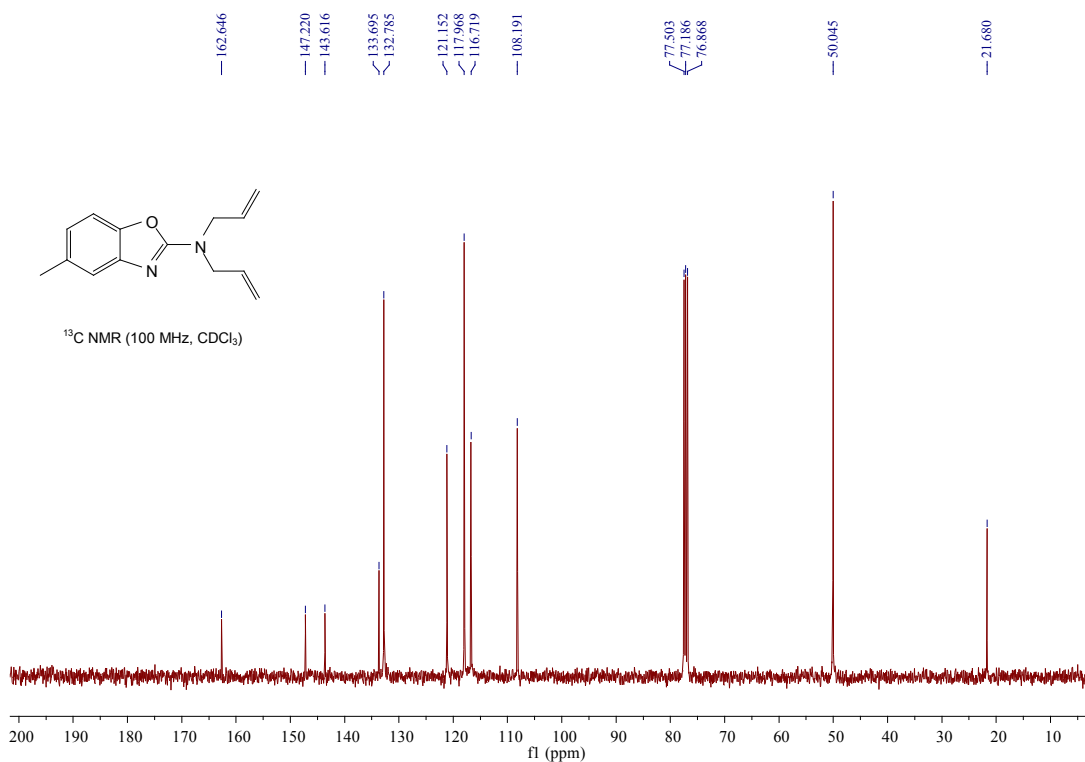
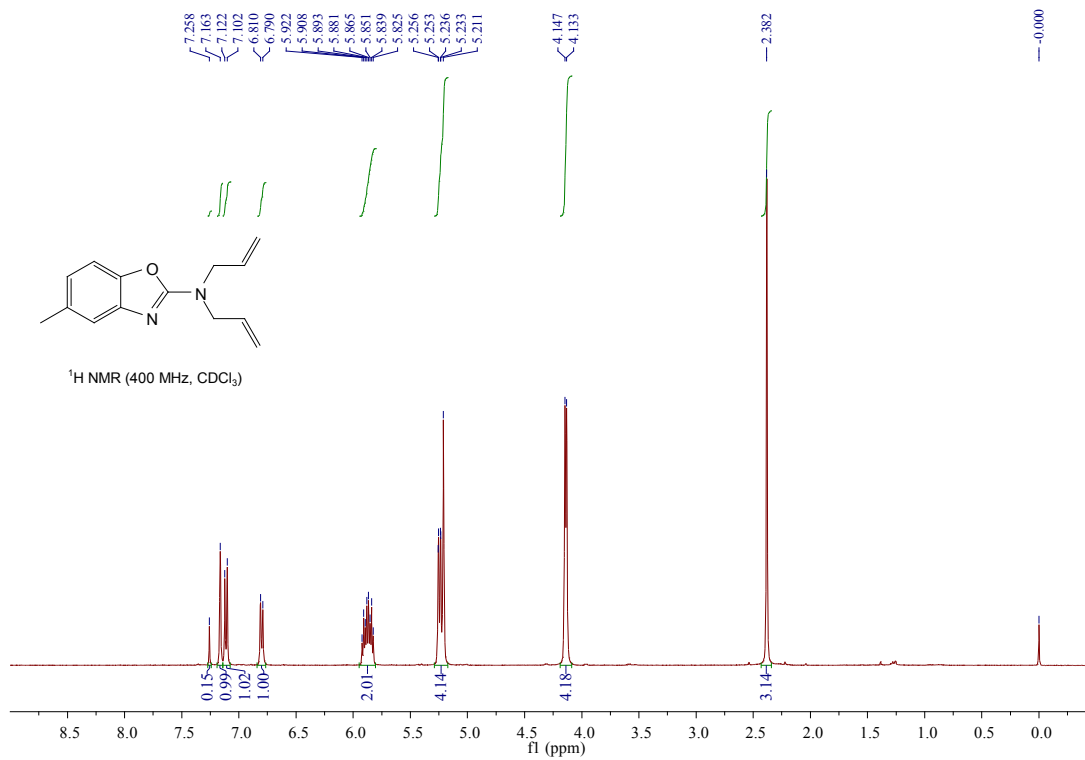
N-benzyl-*N*,5-dimethylbenzoxazol-2-amine (3i)



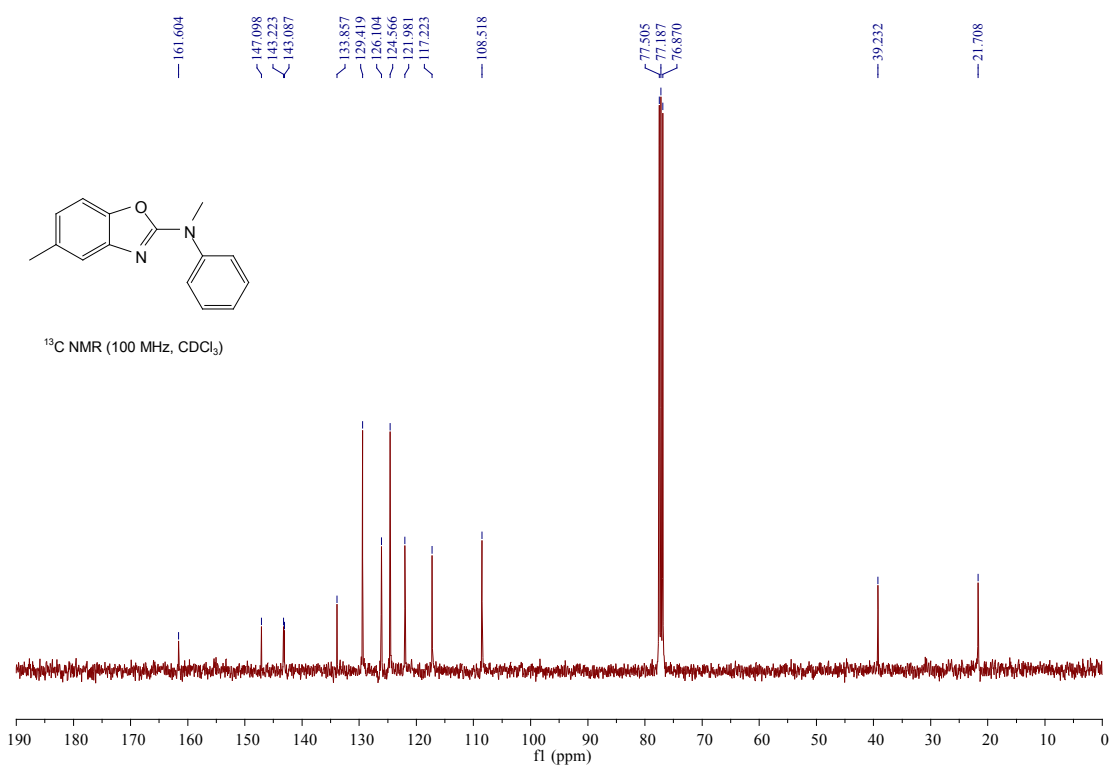
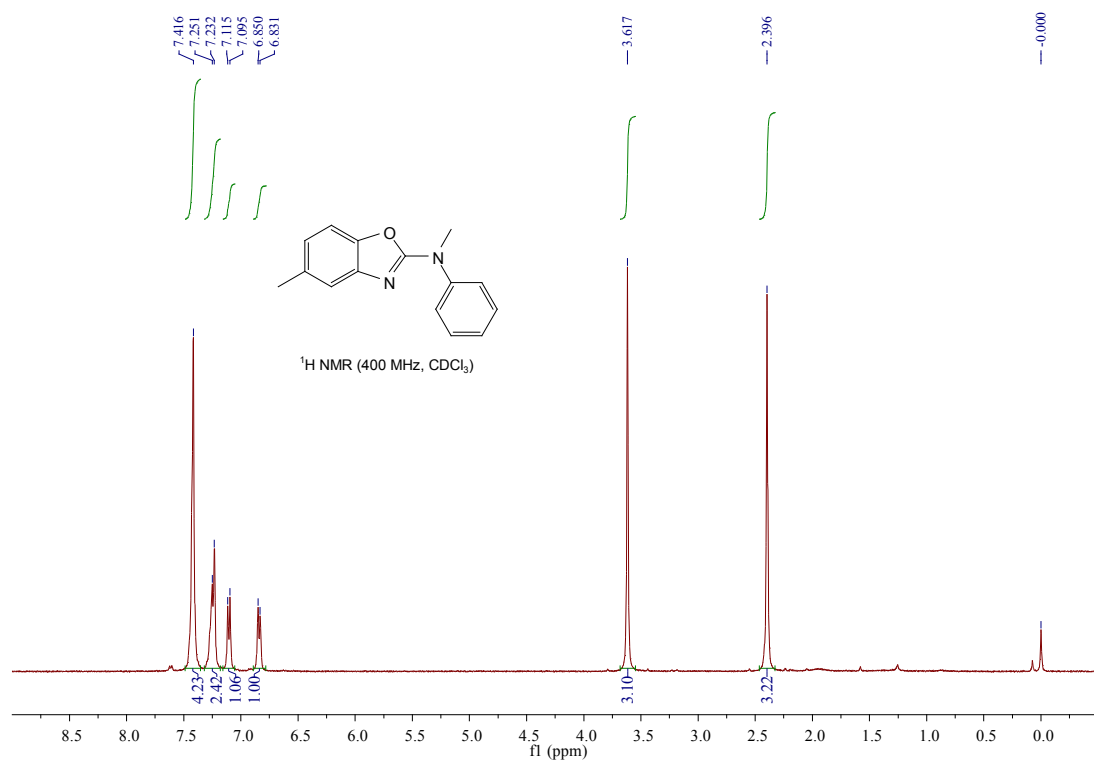
N-(2-chlorobenzyl)-*N*,5-dimethylbenzoxazol-2-amine (3j)



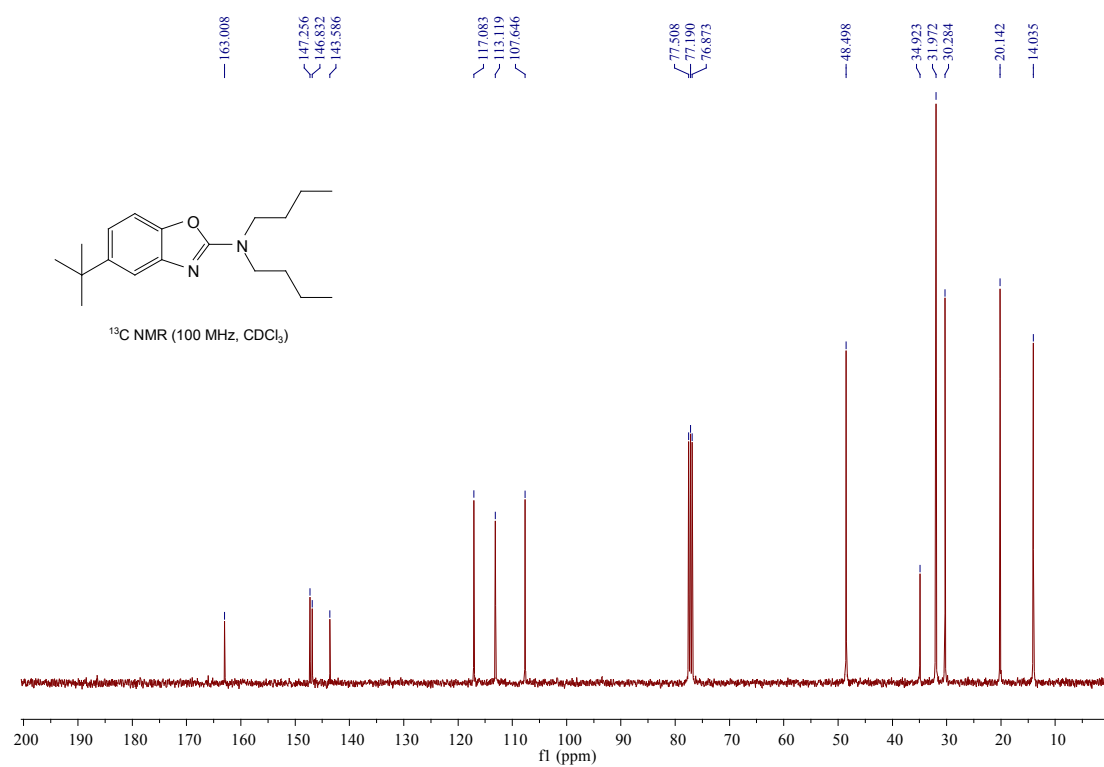
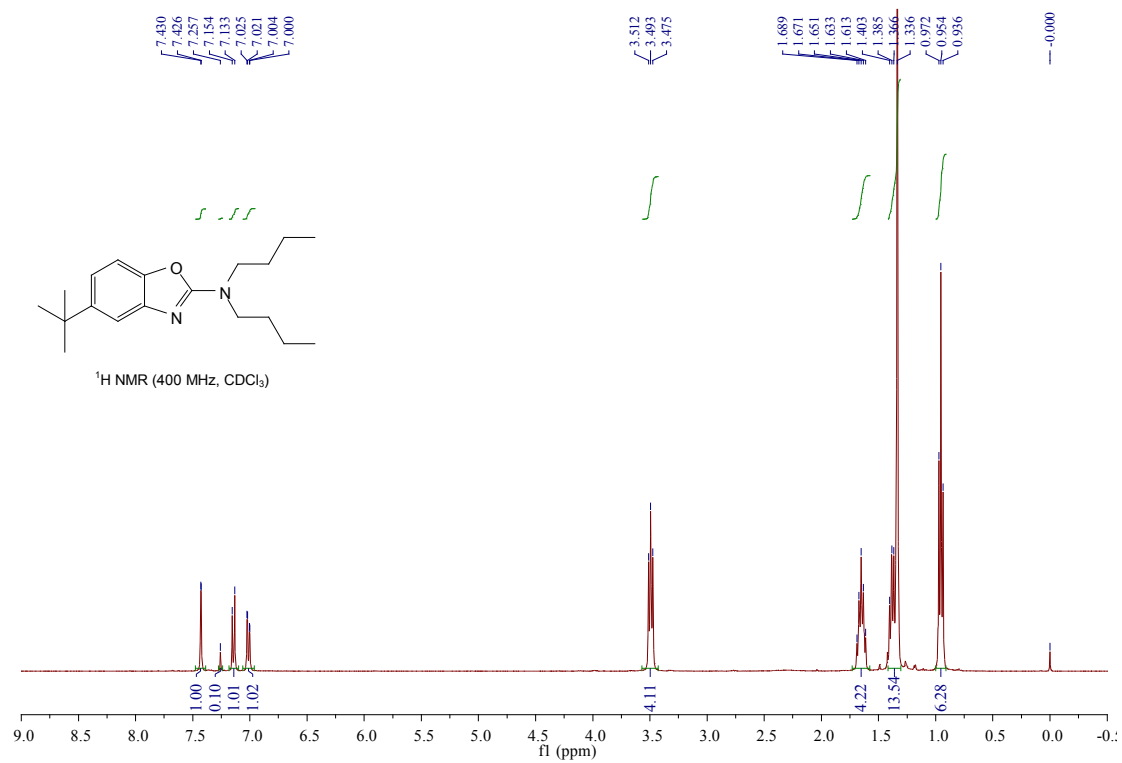
N,N-diallyl-5-methylbenzoxazol-2-amine (3k).



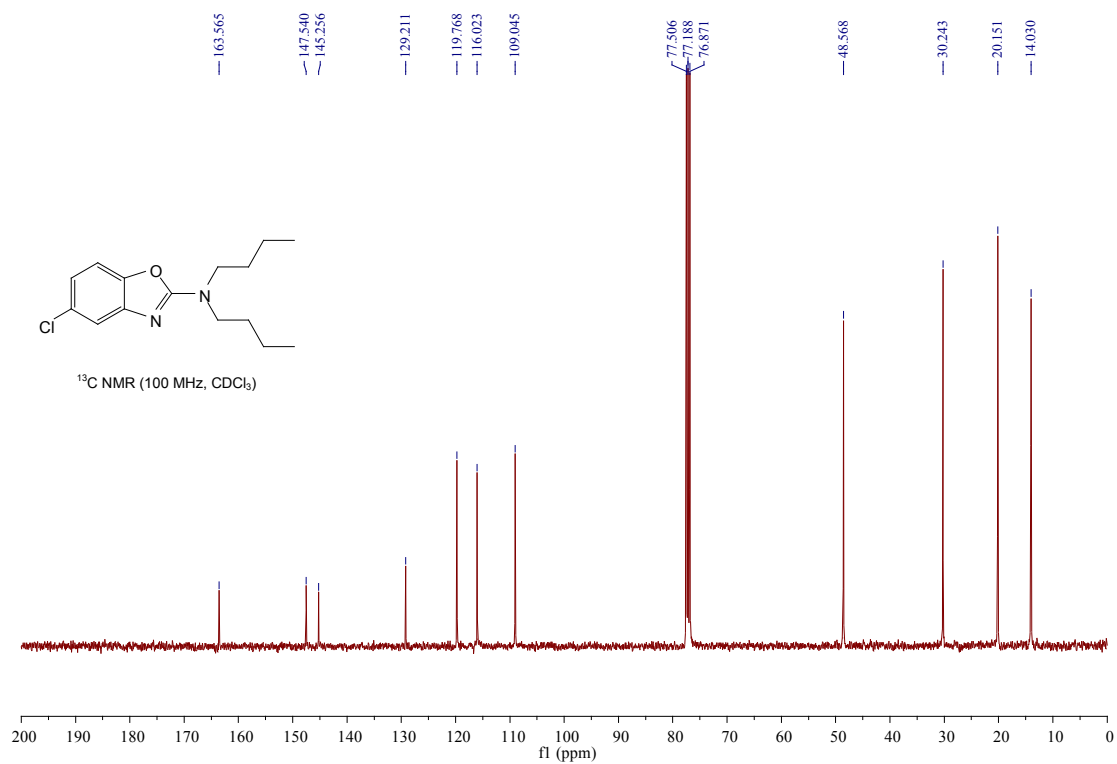
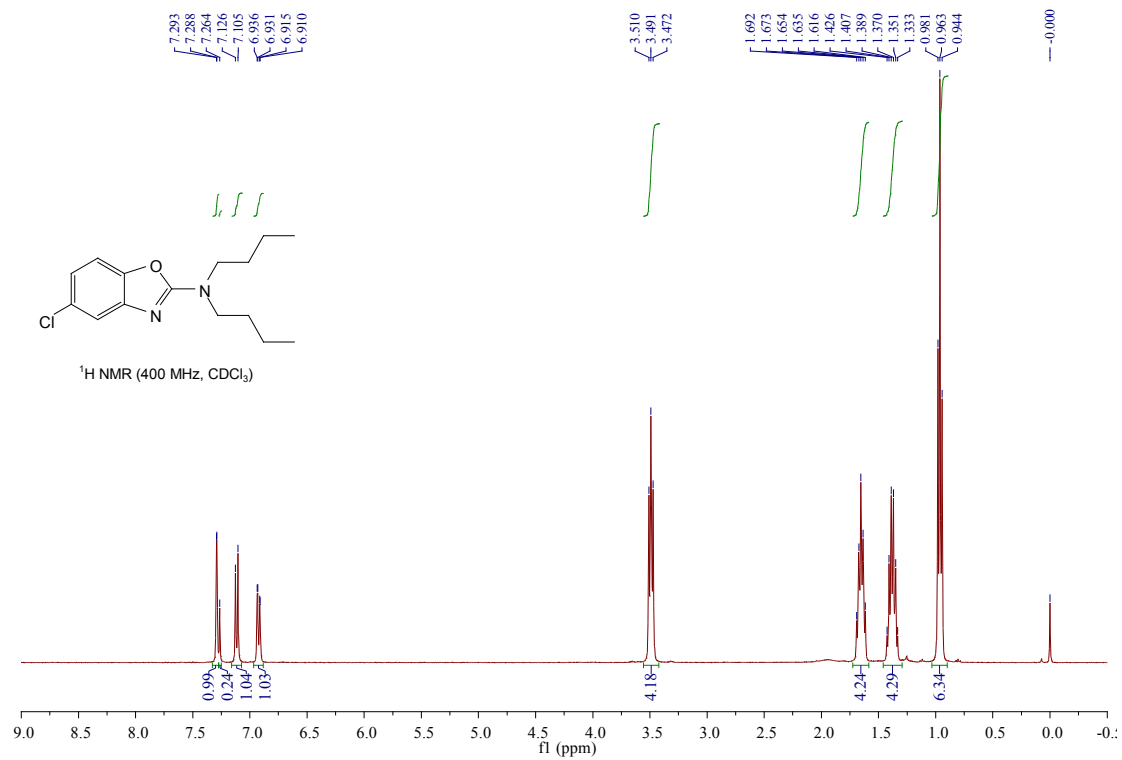
N, 5-dimethyl-*N*-phenylbenzoxazol-2-amine (31)



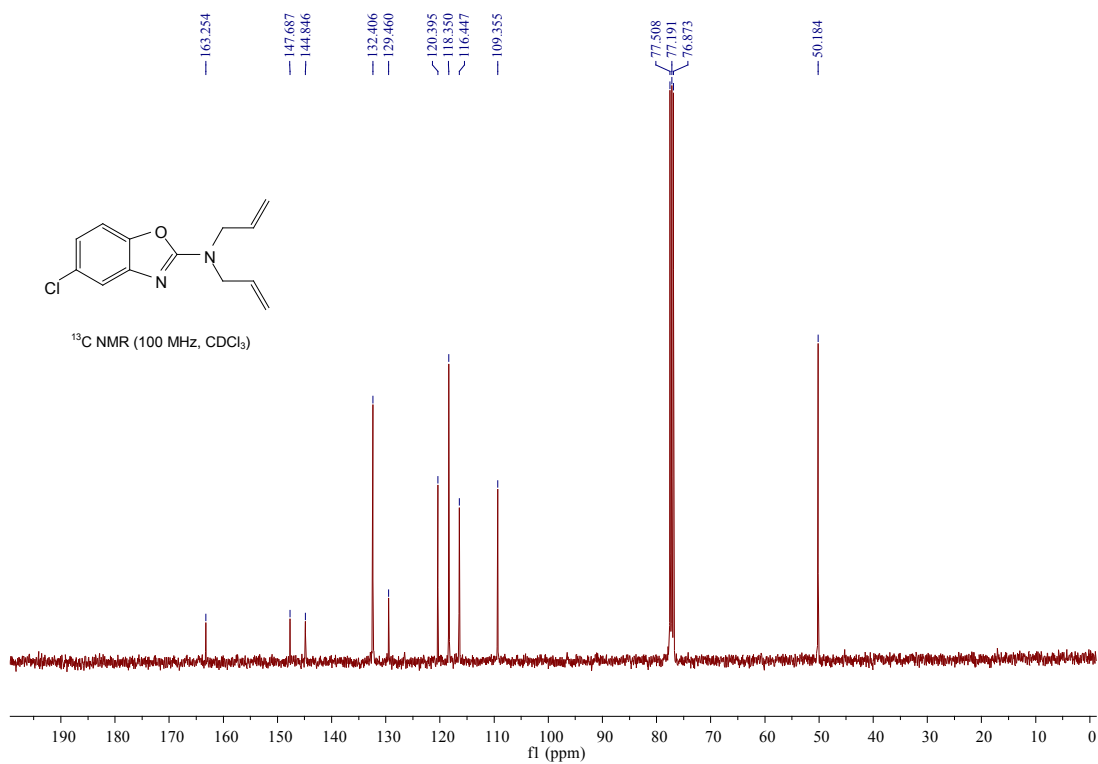
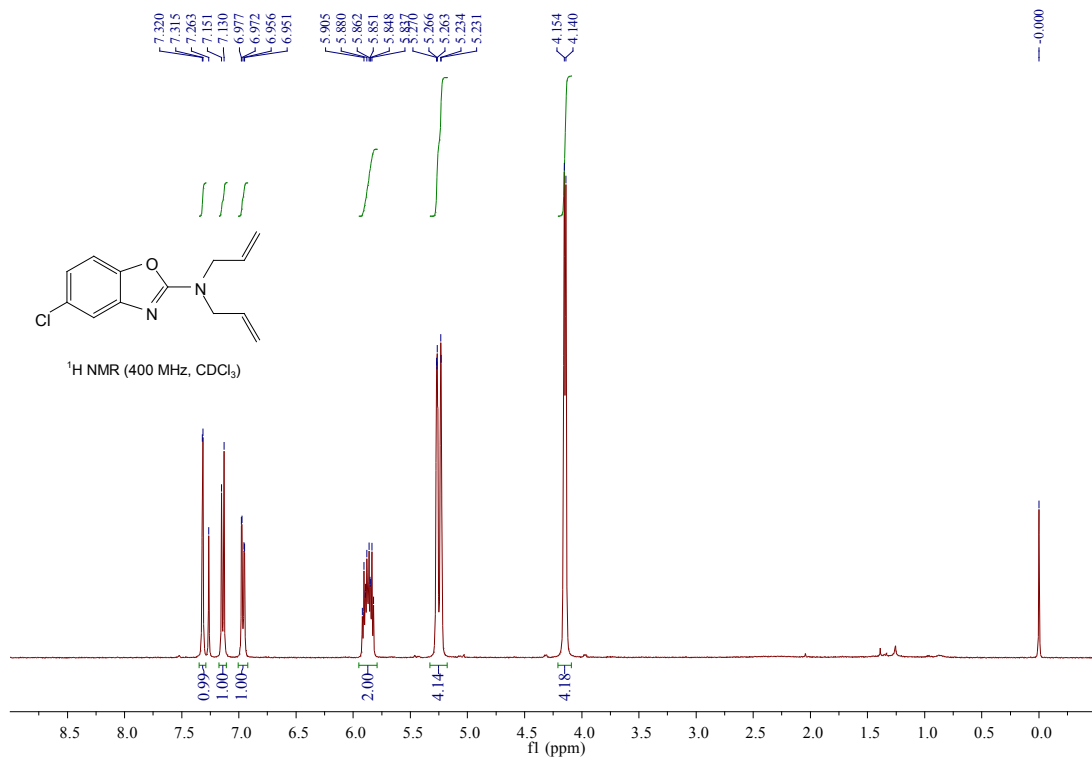
5-tert-butyl-*N,N*-dibutylbenzoxazol-2-amine (4a)



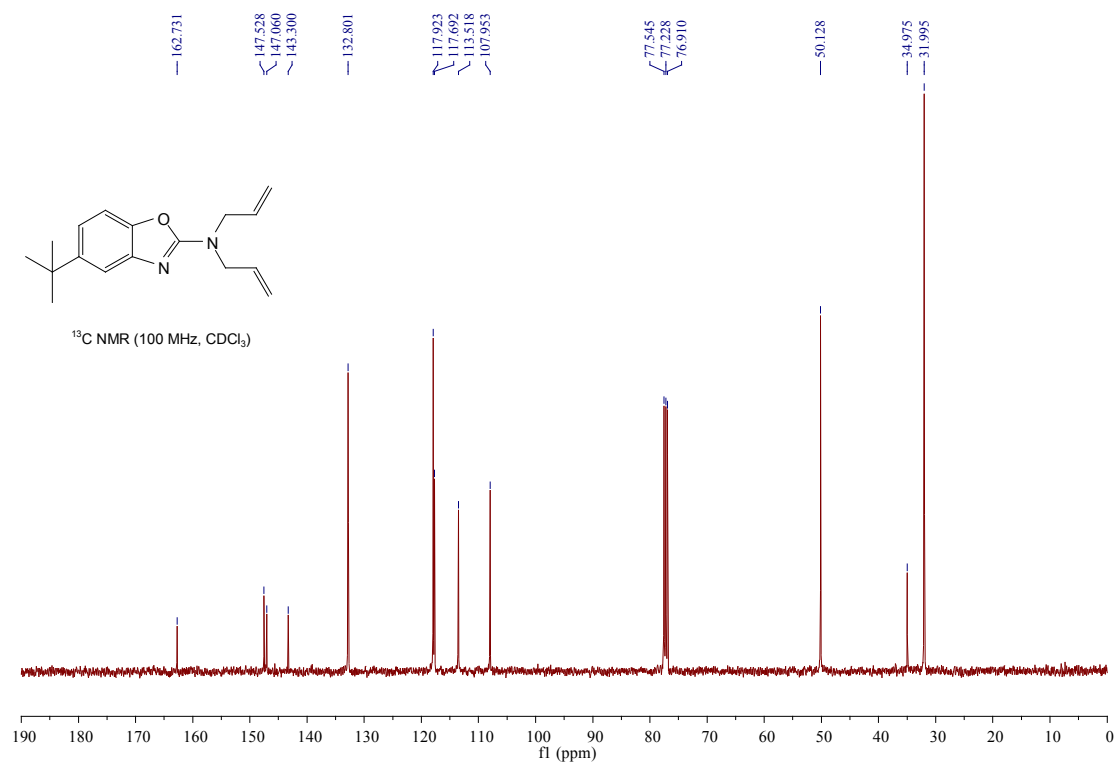
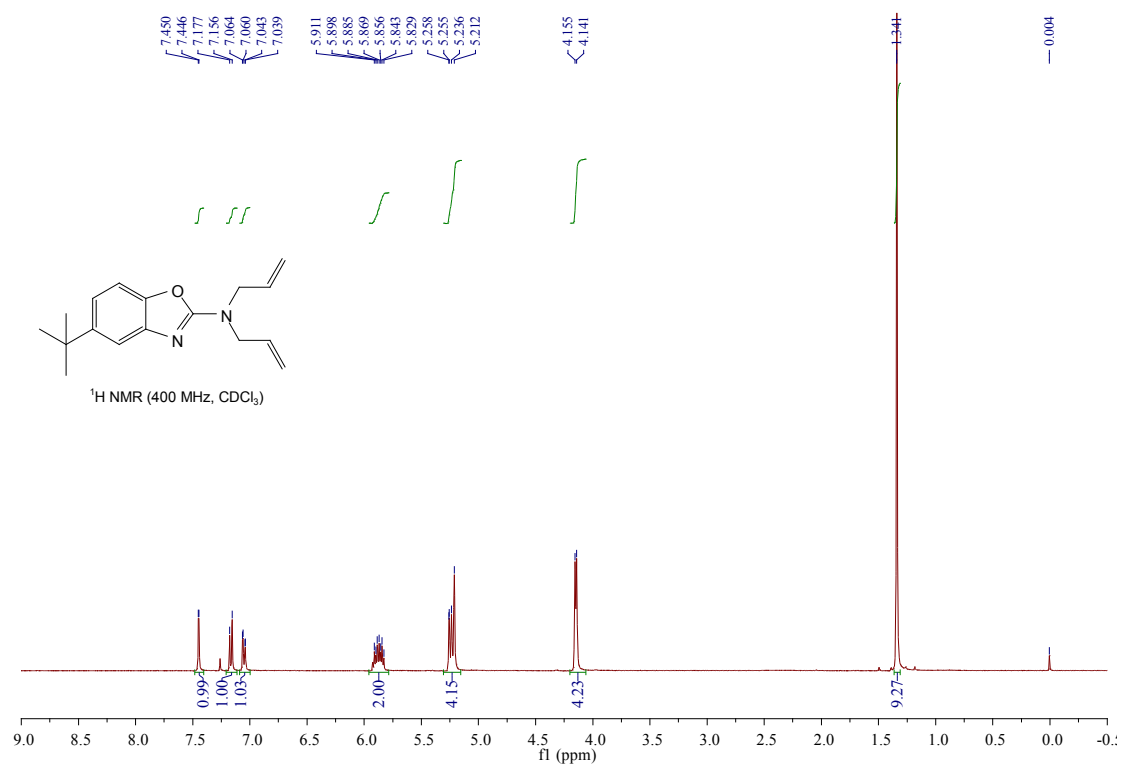
N,N-dibutyl-5-chlorobenzoxazol-2-amine (4b)



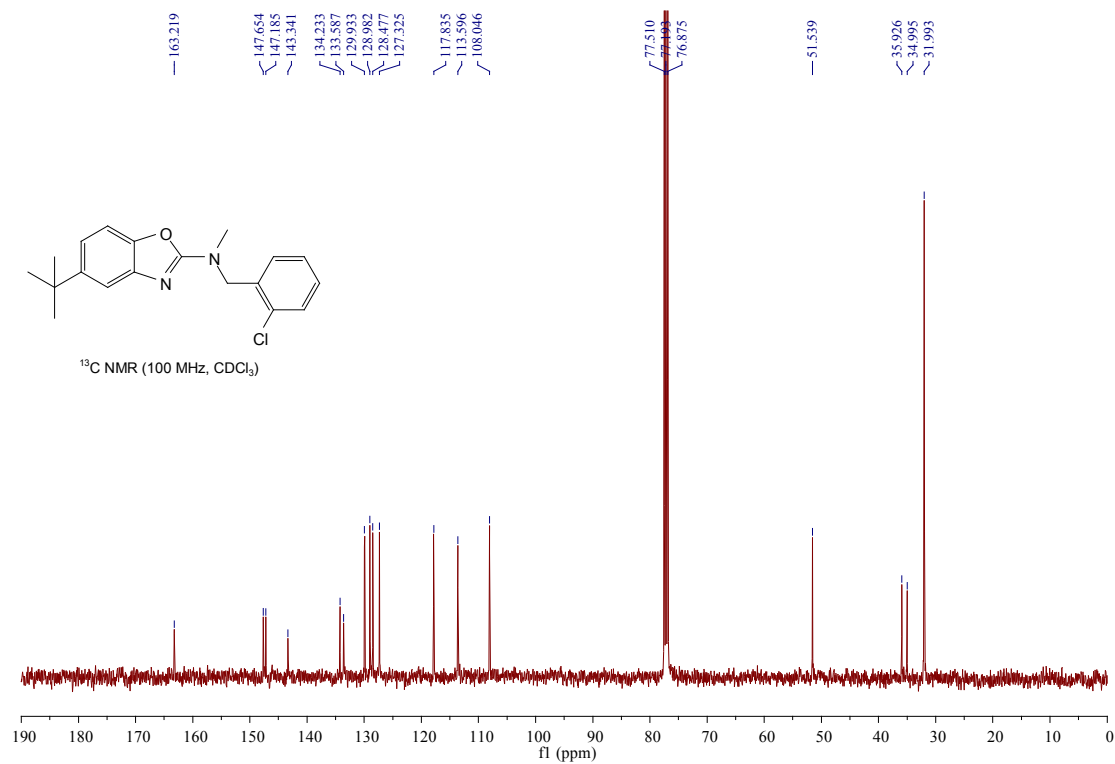
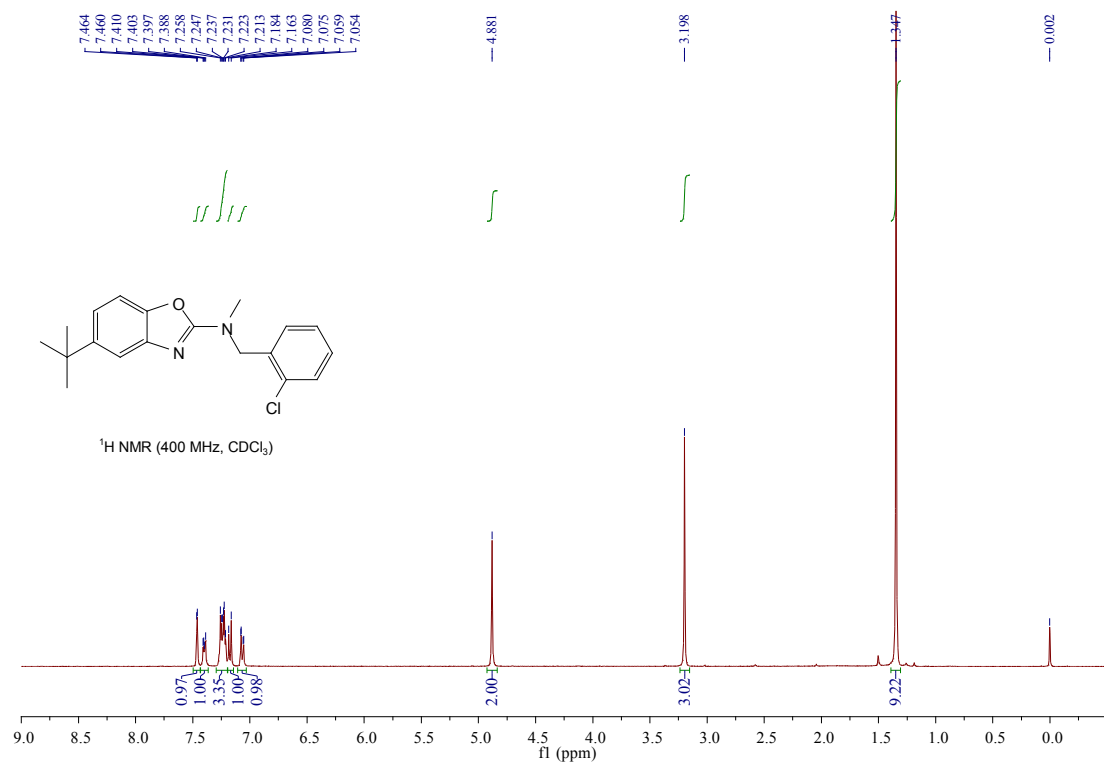
N,N-diallyl-5-chlorobenzoxazol-2-amine (4c)



***N,N*-diallyl-5-tert-butylbenzoxazol-2-amine (4d)**



5-tert-butyl-N-(2-chlorobenzyl)-N-methylbenzoxazol-2-amine (4e)



5-tert-butyl-2-(piperidin-1-yl)benzoxazole (4f)

