Electronic Supplementary Material (ESI) for Chemical Communications.

Supporting Information

Pyridine mediated transition-metal-free direct alkylation of anilines using alcohols via borrowing hydrogen conditions

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1. General Information:

All reactions were performed with dry argon or nitrogen atmosphere using standard schlenk techniques. All chemicals were purchased from Sigma-Aldrich, Alfa Aesar, Merck, Loba Chemie, and TCI. Unless otherwise mentioned, these were used without any further purifications. Potassium tert-butoxide sublimed grade, 99.99% trace metal basis (Product number 659878) were purchased from Sigma Aldrich. Deuterated chemicals were purchased from Sigma Aldrich. Proton nuclear magnetic resonance (^{1}H-NMR) spectra were recorded on a Bruker BBFO (500 MHz) spectrometer. Chemical shifts were recorded in parts per million (ppm, δ) relative to Tetramethylsilane (δ 0.00) or chloroform (δ = 7.26, singlet). Carbon nuclear magnetic resonance (^{13}C-NMR) spectra were recorded on a Bruker BBFO (126 MHz) spectrometer. Analytical thin-layer chromatography (TLC) was carried out on Merck 60 F254 pre-coated silica gel plate (0.2 mm thickness). GC analysis were carried out on an Agilent 7890B equipped with a HP-5 column (30 m x 0.32 µm x 0.25 µm). High resolution mass spectrometric analysis was carried out on an Agilent 6230B LC/MS (LC/TOF). For Column chromatography 100-200mesh silica gel used.

2. Reaction Optimization and Experimental Procedures

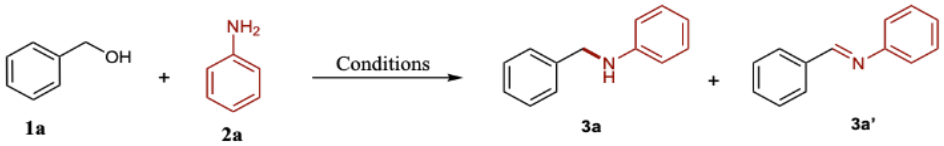


Table S1. Screening of Solvents

Entry	Solvent	GC Yield (%)	
		3a	**3a'**
1.	Toluene	99	0
2.	m-Xylene	40	27
3.	1,4-Dioxane	17	3
4.	DMF	0	3
5.	DMSO	1	9
Reaction Conditions: Benzyl alcohol (1 equiv , 0.92 mmol), Aniline (1.5 equiv, 1.38 mmol), Base (0.4 equiv, 0.37 mmol), Pyridine (0.4 equiv, 0.37 mmol), 135 °C, Argon , 12 h, ***Solvent*** *(1 ml).*			

Table S2. Optimization of base and pyridine equivalents

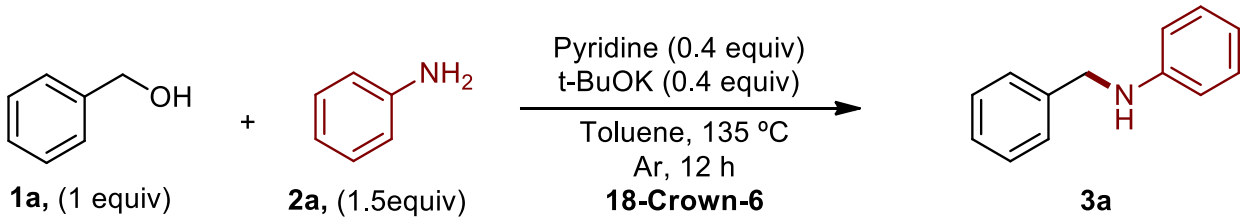
Entry	Base (equiv)	pyridine (equiv)	GC Yield (%)	
			3a	**3a'**
1.	0.4	0.4	99	0
2.	0.4	0.3	83	4
3.	0.4	0.2	59	30
4.	0.4	0.1	12	24
5.	0.4	0.0	2	2
6.	0.3	0.4	71	18
7.	0.2	0.4	66	25
8.	0.1	0.4	8	14
9.	0.0	0.4	0	0
Reaction Conditions: Benzyl alcohol (1 equiv, 0.92 mmol), Aniline (1.5 equiv, 1.38 mmol), ***Base (x equiv, x mmol)****,* ***pyridine (x equiv, x mmol),*** *135 °C, Argon, 12 h, Toluene (1 ml).*				

Table S3. Screening of Benzaldehyde and pyridine equivalents

Entry	Pyridine (equiv)	Benzaldehyde (equiv)	GC Yield (%)	
			3a	**3a'**
1.	0.0	0.0	0	0
2.	0.0	0.2	0	12
3.	0.0	0.3	0	26
4.	0.0	0.4	0	33
5.	0.2	0.0	56	30
6.	0.2	0.2	51	38
7.	0.2	0.3	47	44
8.	0.2	0.4	39	48
9.	0.3	0.0	83	4
10.	0.4	0.0	99	0
Reaction Conditions: Benzyl alcohol (1 equiv, 0.92 mmol), Aniline (1.5 equiv 1.38 mmol), Base (0.4 equiv, 0.37 mmol), ***Pyridine (x equiv, x mmol), Benzaldehyde (x equiv, x mmol),*** *Toluene 1 ml, 135 °C, Argon, 12 h*				

a. Control experiment with 18-Crown-6:

In a 15 ml oven dried Pressure tube t-BuOK (0.37 mmol, 0.4 equiv), Amine (1.38 mmol, 1.5 equiv), Alcohol (0.92 mmol, 1 equiv), Pyridine (0.37 mmol, 0.4 equiv), 18-Crown-6 were added followed by dry Toluene (1 ml) under an argon atmosphere. The reaction mixture kept in preheated oil bath at 135 °C for 12h.



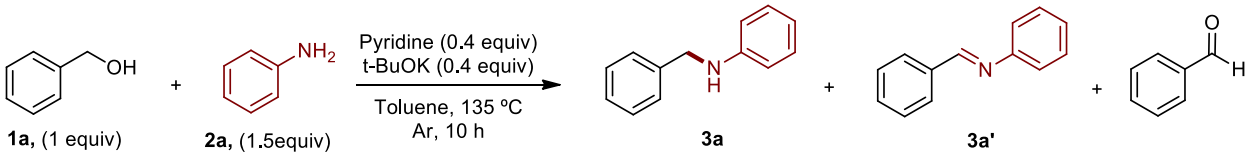
1a, (1 equiv) + **2a,** (1.5equiv) → **18-Crown-6** → **3a**

without 18-Crown-6 3a isolated yield 95%
with 50 mol% 18-Crown-6 3a Nil
with 100 mol% 18-Crown-6 3a Nil

Scheme S1: Metal-ion-sequestering experiments with 18-crown-6.

b. General procedure for the pyridine mediated N-alkylation of anilines with benzyl alcohol:

In a 15 ml oven dried Pressure tube t-BuOK (0.37 mmol, 0.4 equiv), Amine (1.38 mmol, 1.5 equiv), Alcohol (0.92 mmol, 1 equiv), Pyridine (0.37 mmol, 0.4 equiv) were added followed by dry Toluene (1 ml) under an argon atmosphere. The reaction mixture kept in preheated oil bath at 135 °C for 12h. The Reaction mixture was cool down to room temperature and 3 ml of Dichlorormethane (DCM) added and concentrated through in reduced pressure. The curde product was purified through Column chromatography using hexane: ethyl acetate as an eluent system to give desired product.



1a, (1 equiv) **2a,** (1.5equiv) **3a** **3a'**

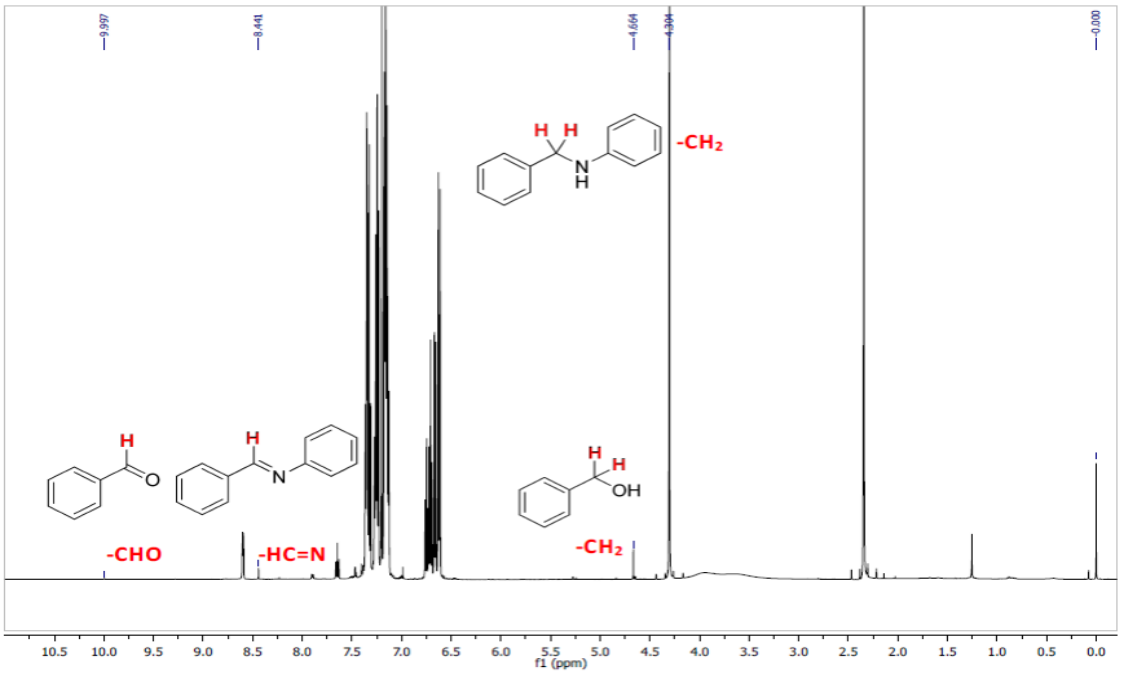
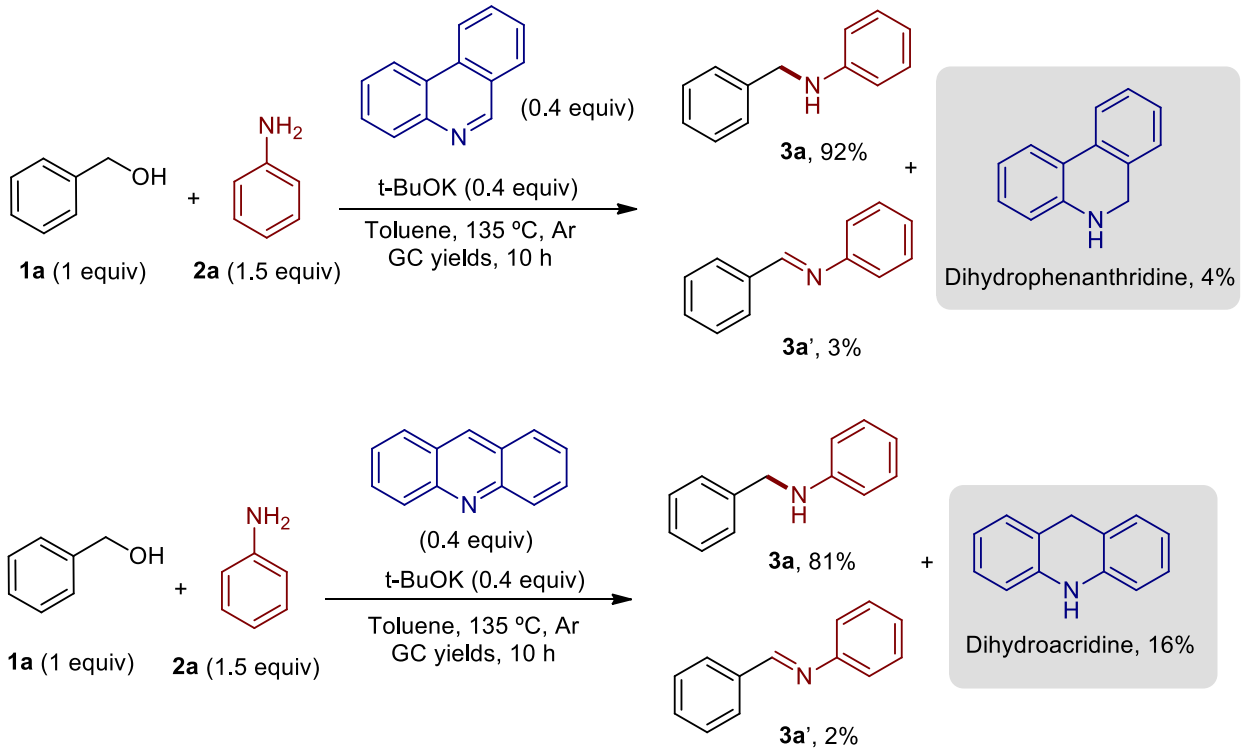


Figure S1. Crude ^{1}H NMR of pyridine mediated N-alkylation of aniline with benzyl alcohol.

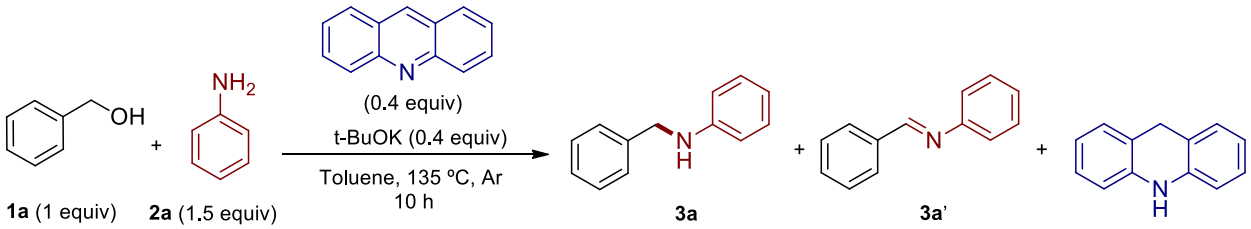
The reaction mixture was stopped at 10 h and solvent was removed in vacuo, residue analyzed through ^{1}H- NMR.

c. Observation of dearomatized dihydro-intermediates in N-alkylation reactions



d. Acridine mediated N-alkylation of aniline with benzyl alcohol

General procedure b was followed. Acridine was employed as the mediator in place of pyridine.



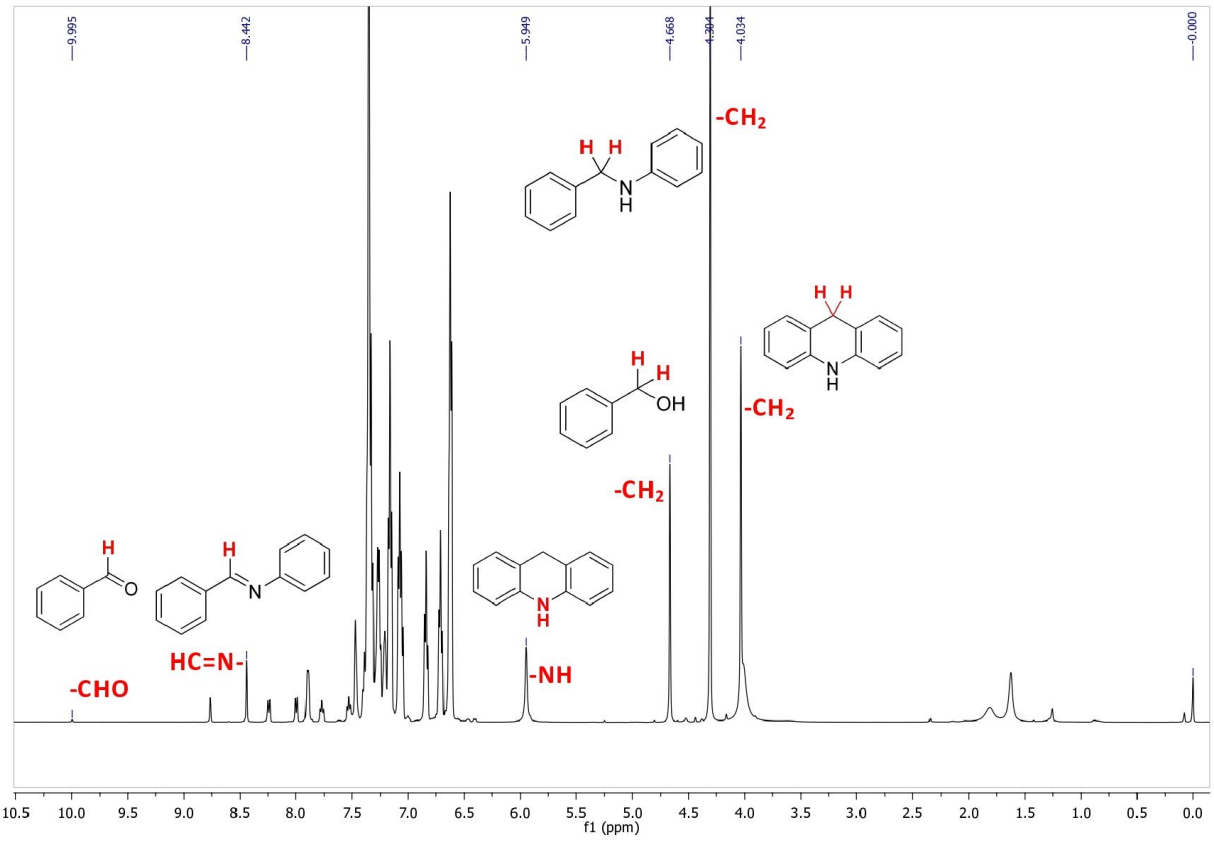
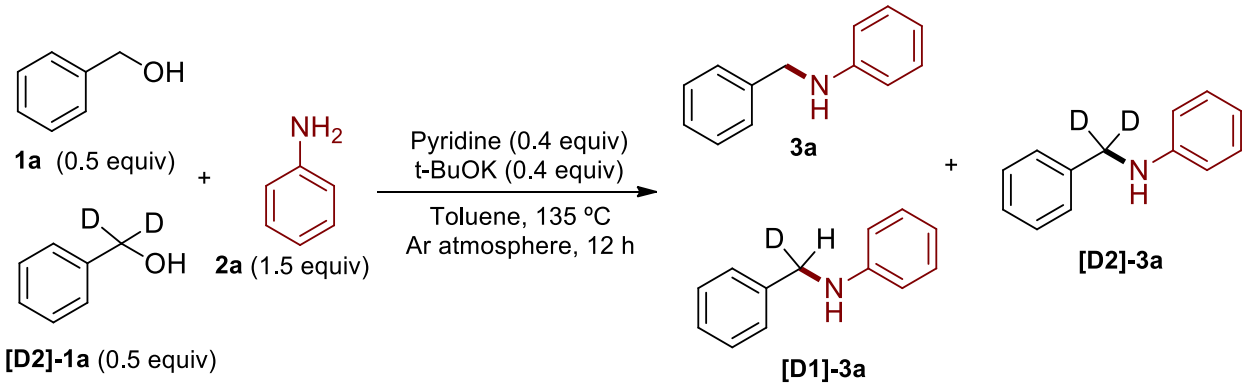
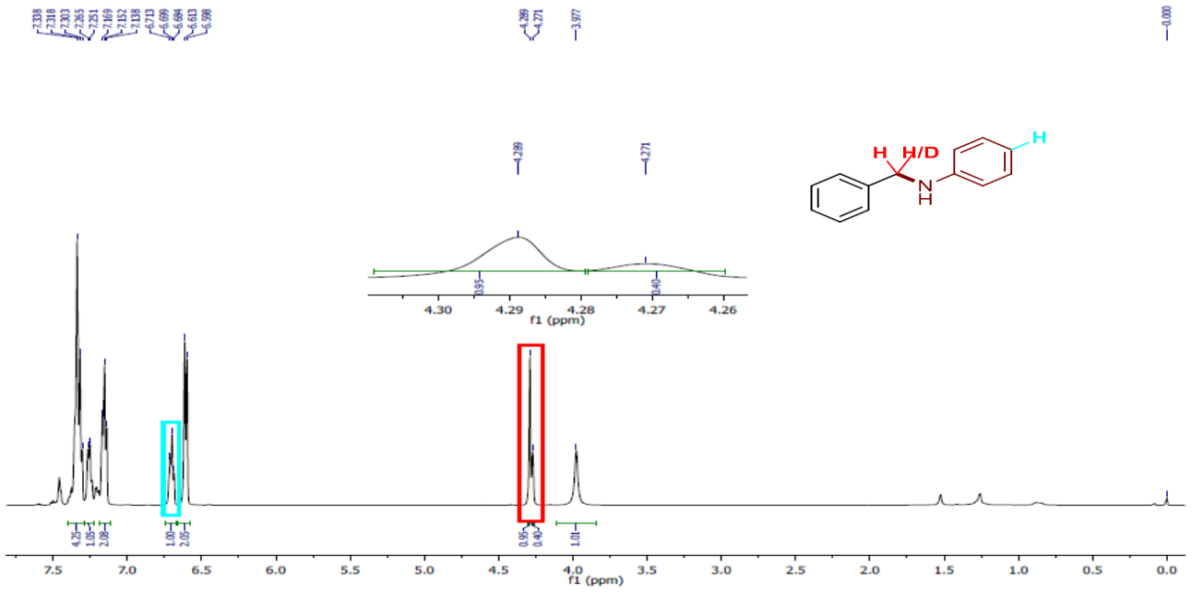


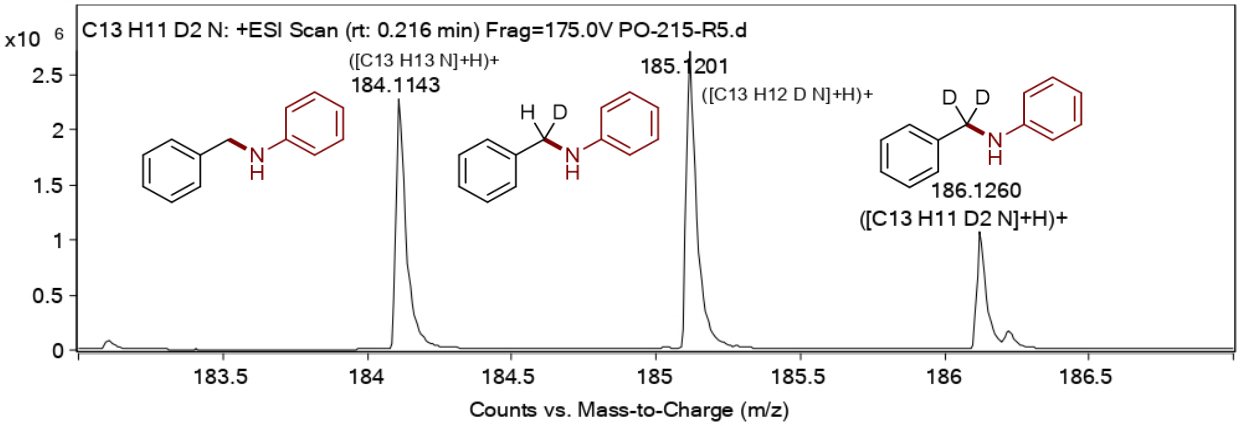
Figure S2. Crude ^{1}H NMR of acridine mediated N-alkylation of aniline with benzyl alcohol.

e. Cross-over experiment





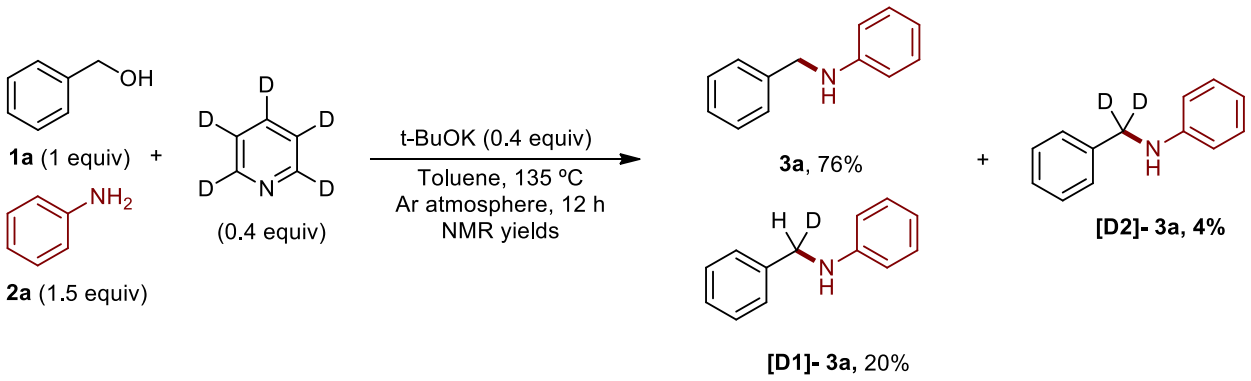
HRMS Data

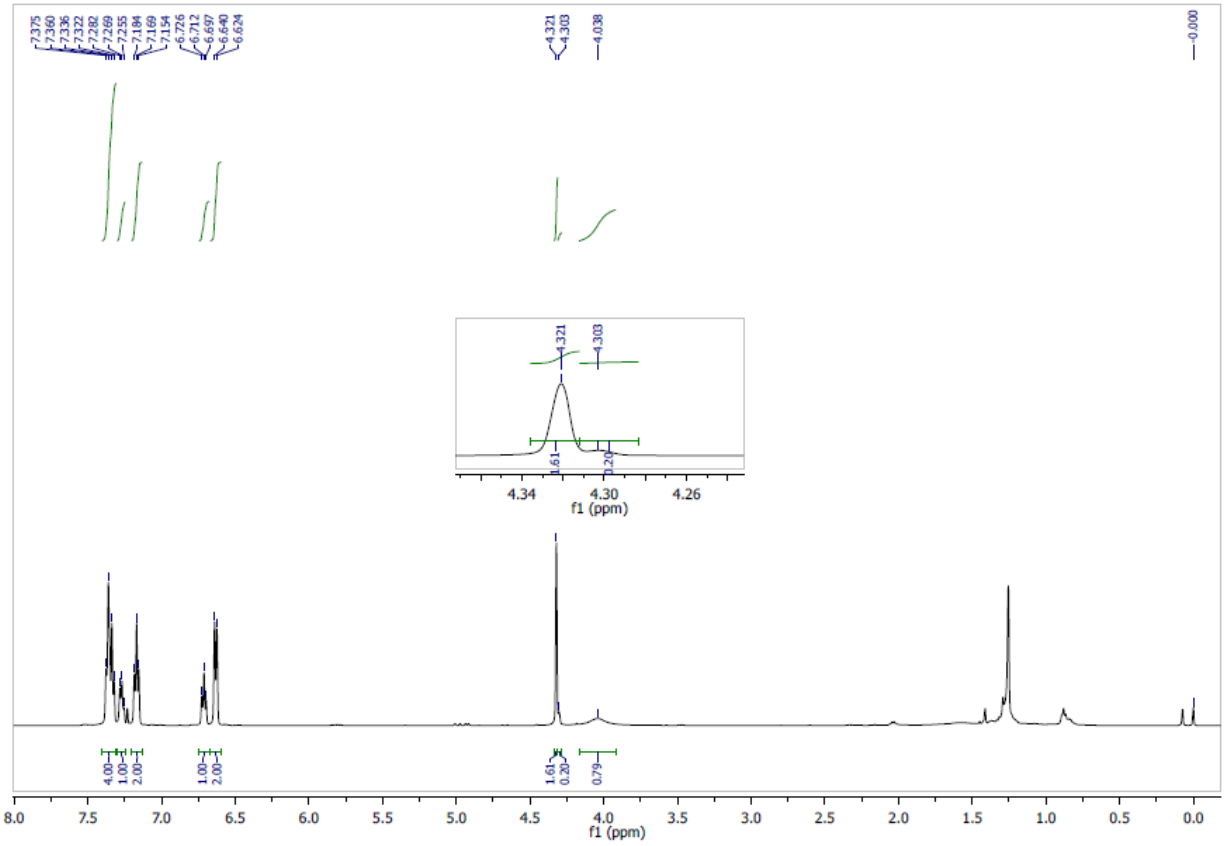


	3a + 3a-D_1	3a	3a-D_1	3a-D_2
Signal δ	6.70[para-H, (1H)]	4.29 [Benzyl-H (2H)]	4.27 [Benzyl-H (1H)]	-
Integral value	1.00	0.95/2.10 = 0.45	0.40	
Calculated ratio		45%	40%	15%
HR-MS ratio		45%	40%	15%
KIE			k_{CHH}/k_{CHD}= 1.12	

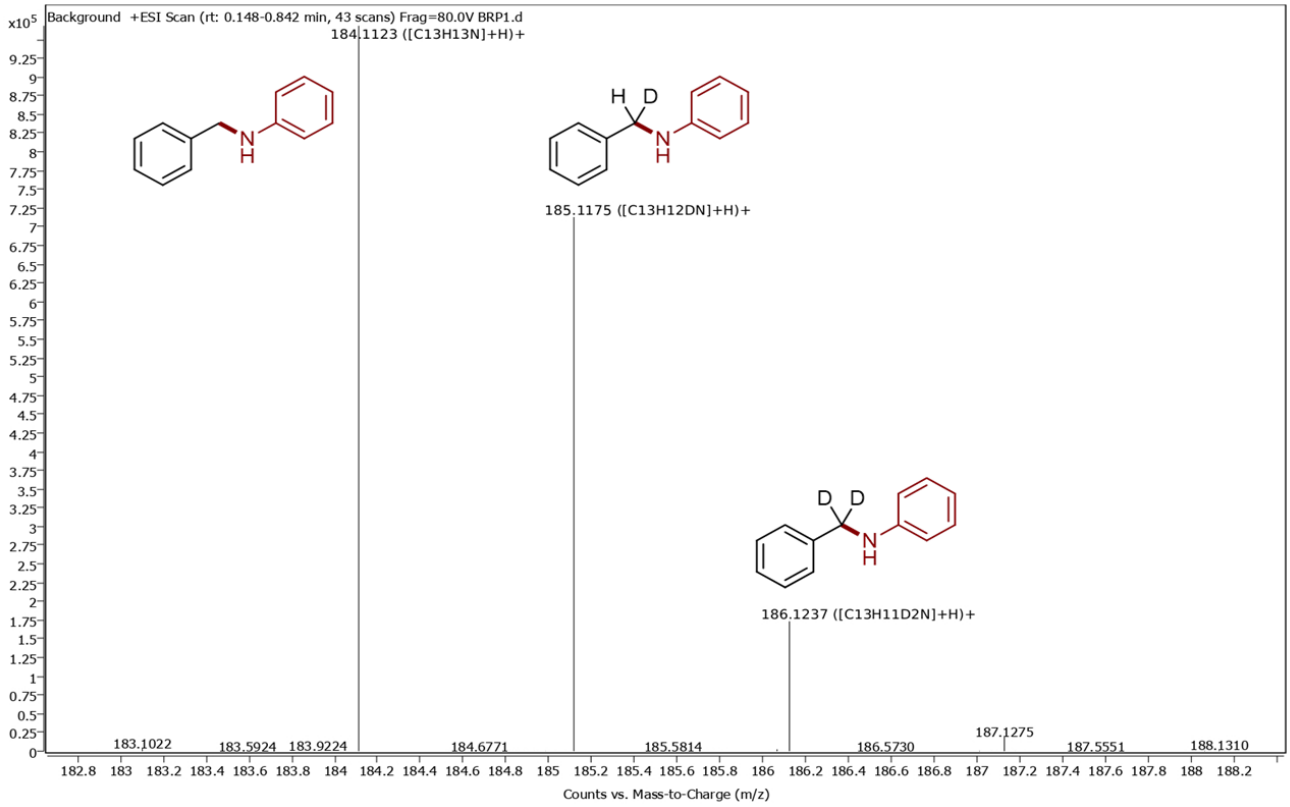
f. Pyridine-d_5 mediated N-alkylation of aniline with benzyl alcohol

General procedure b was followed. Pyridine-d_5 was employed as the mediator in place of pyridine.





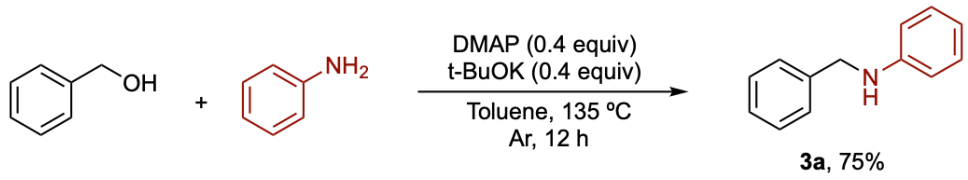
HRMS Data



	3a + 3a-D_1	3a	3a-D_1	3a-D_2
Signal δ	6.70[para-H, (1H)]	4.32 [Benzyl-H (2H)]	4.30 [Benzyl-H (1H)]	-
Integral value	1.00	1.61/2.10 = 0.76	0.20	
Calculated ratio		76%	20%	4%
HR-MS ratio		76%	20%	4%

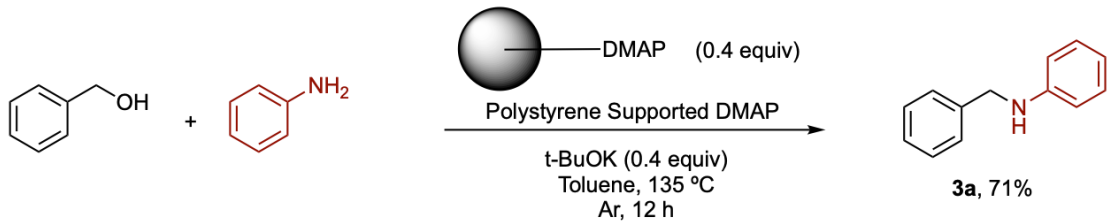
g. DMAP mediated BH N-alkylation reaction

General procedure b was followed. DMAP was employed as the mediator in place of pyridine.



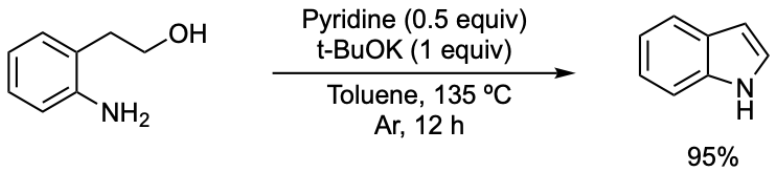
h. Polymer supported DMAP mediated N-alkylation of aniline with benzyl alcohol:

In a 15 ml oven dried Pressure tube t-BuOK (0.37 mmol, 0.4 equiv), Amines (1.38 mmol, 1.5 equiv), Alcohols (0.92 mmol, 1 equiv), Polymer supported –DMAP (0.37 mmol, 0.4equiv) were added followed by dry Toluene (1 ml) under an argon atmosphere. The reaction mixture kept in preheated oil bath at 135 ˚C for 12h. The Reaction mixture was cool down to room temperature and 3ml of Dichlorormethane (DCM) added and concentrated through in reduced pressure. The curde product was purified through Column chromatography using hexane: ethyl acetate as an eluent system to give desired product.



i. General Procedure for the synthesis of Indole:

In a 15ml oven dried Pressure tube t-BuOK (0.72 mmol, 1 equiv), amino alcohol (0.72 mmol, 1 equiv), Pyridine (0.36 mmol, 0.5 equiv) were added followed by dry Toluene (1ml) under an argon atmosphere. The reaction mixture kept in preheated oil bath at 135 °C for 12h. The Reaction mixture was cool down to room temperature and 3ml of Dichlorormethane (DCM) added and concentrated through in reduced pressure. The curde product was purified through Column chromatography using hexane: ethyl acetate as an eluent system to give desired product.



j. Transition-metal-free dehydrogenative quinoline synthesis

The two functions of a BH catalyst, namely dehydrogenation and hydrogenation can be independently utilized for the dehydrogenative synthesis of heterocycles[7, 15] and transfer hydrogenation of ketones, [16] respectively. A previous report by Yus has used benzophenone as an organic hydride sink for a modified Friedlander synthesis of quinolines from aminobenzyl alcohols and ketones.[9] In a similar approach using 0.1 equiv of pyridine as a mediator and 0.2 equiv of KOH as a base, we synthesized various quinolines from 2-amino benzyl alcohols and aryl alkyl ketones in excellent yields of up to 97% in 30 min to 1 h (**Figure S2**, **6a-k**). Significantly, the process enables a transition metal-free, sustainable synthesis of a good range of quinoline building blocks from the corresponding amino alcohols and ketones.

General procedure for the synthesis of various 2-Phenylquinolines:

In a 15 ml oven dried Pressure tube KOH (0.16 mmol, 0.2 equiv), Amino alcohols (0.81 mmol, 1 equiv), Ketones (0.97 mmol, 1.2 equiv), Pyridine (0.081 mmol, 0.1 equiv) were added followed by dry 1,4-Dioxane (1 ml) under an argon atmosphere. The reaction mixture kept in pre-heated oil bath at 135 ^{o}C for 1h. The Reaction mixture was cool down to room temperature and 3 ml of Dichlorormethane (DCM) added and concentrated through in reduced pressure. The curde product was purified through Column chromatography using hexane: ethyl acetate as an eluent system to give desired product.

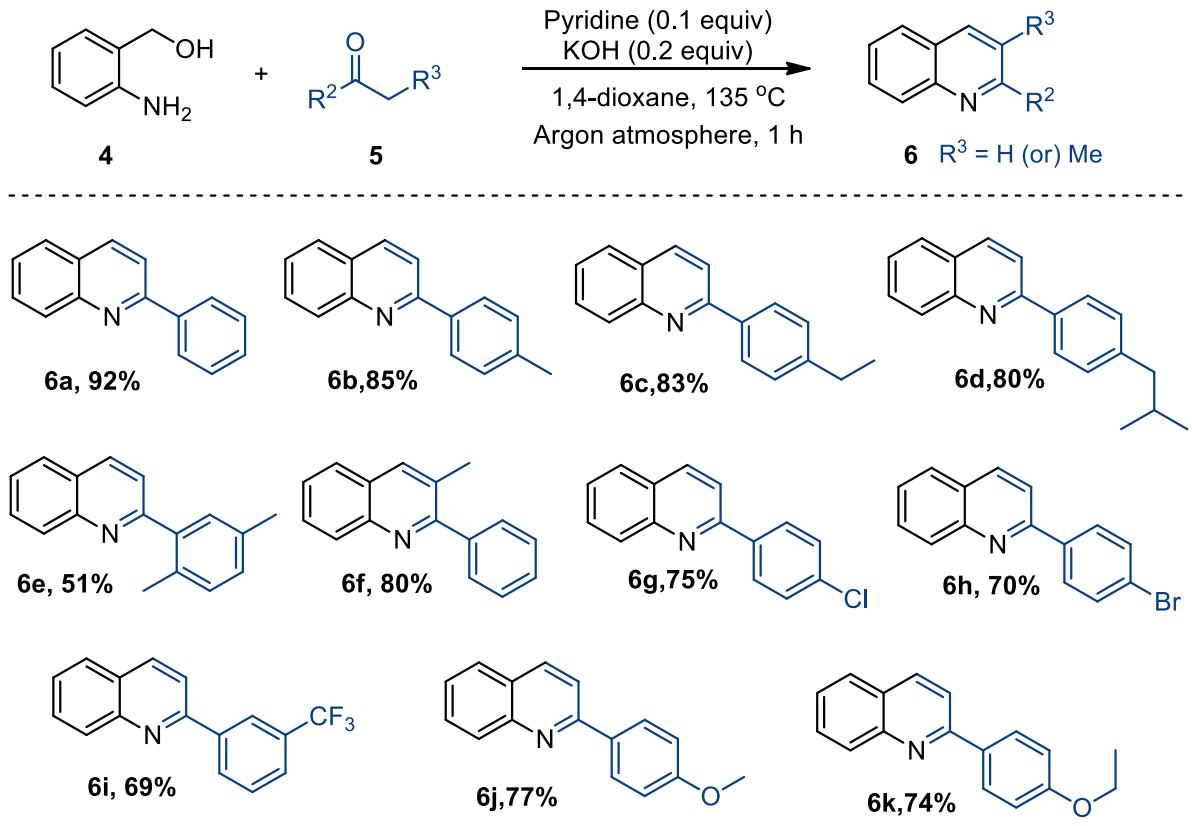


Figure S2. Pyridine mediated transition-metal-free dehydrogenative quinoline synthesis.

k. Transfer hydrogenation of ketones:

Further, in an effort to harness the transfer hydrogenation ability of aza-aromatics, we attempted a metal-free organocatalytic reduction protocol for ketones utilizing isopropyl alcohol as the sacrificial hydrogen source.[16] Pleasingly, various acetophenones and propiophenone were smoothly reduced under our pyridine mediated N-alkylation conditions (**Figure S3**, **7a-k**) .

General procedure for the pyridine mediated transfer hydrogenation of ketones:

In a 15ml oven dried Pressure tube t-BuOK (0.33 mmol, 0.4 equiv), Ketones (0.83 mmol, 1 equiv), Pyridine (0.33 mmol, 0.4 equiv), Isopropyl alcohol (8.32 mmol, 10 equiv) were added followed by dry Toluene (1ml) under an argon atmosphere. The reaction mixture kept in preheated oil bath at 135 °C for 12h. The Reaction mixture was cool down to room temperature and 3 ml of

Dichlorormethane (DCM) added and concentrated through in reduced pressure. The curde product was purified through Column chromatography using hexane: ethyl acetate as an eluent system to give desired product.

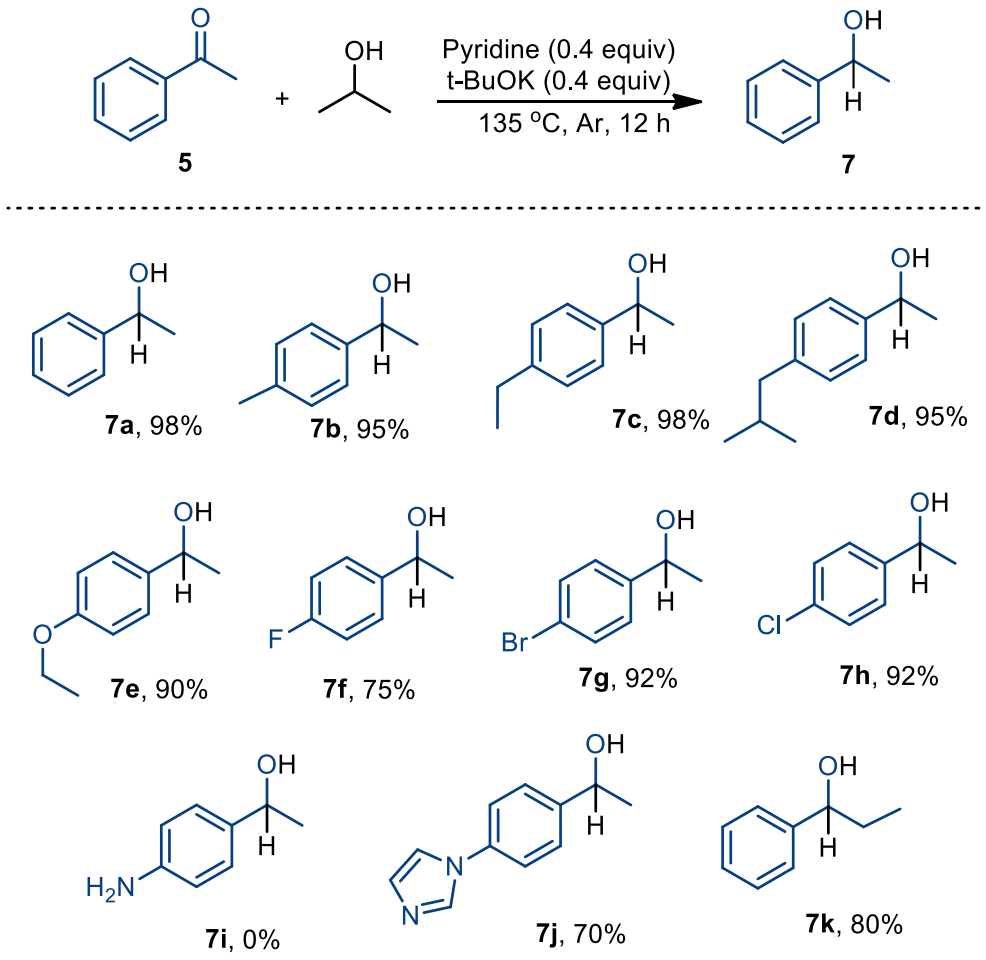
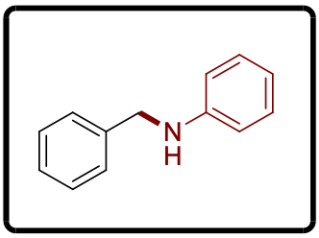
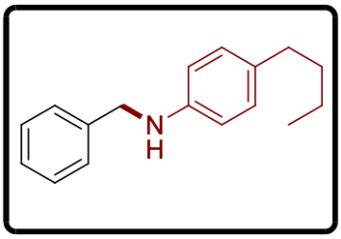
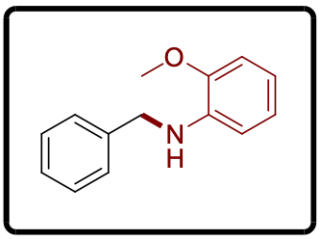
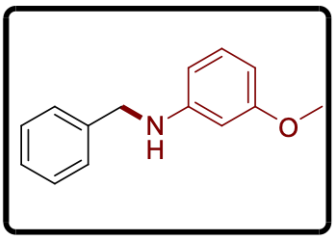
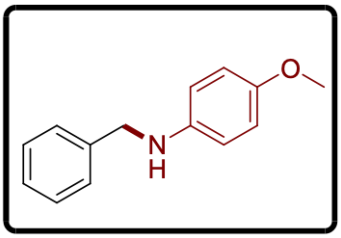
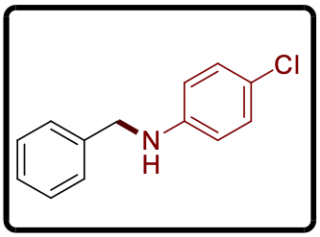
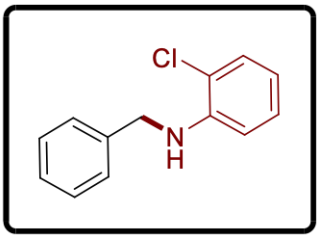
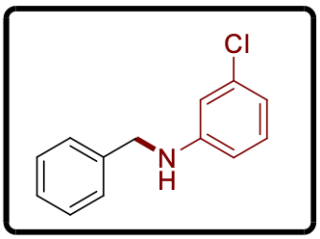
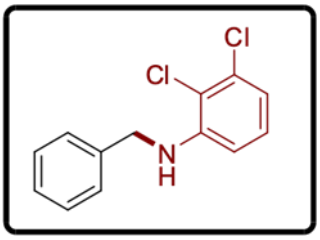
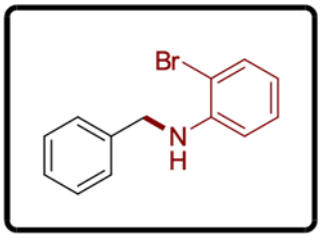
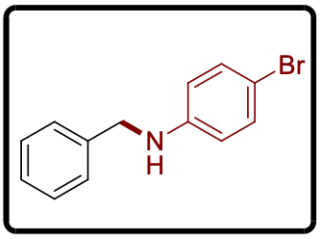
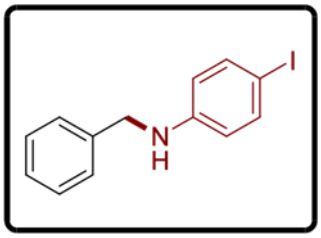
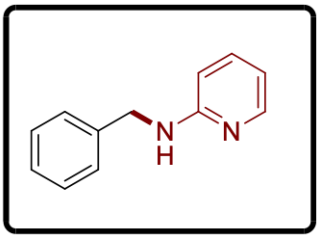
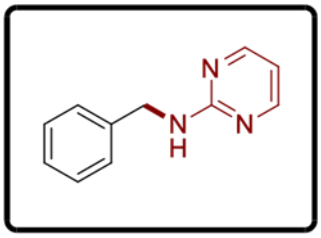


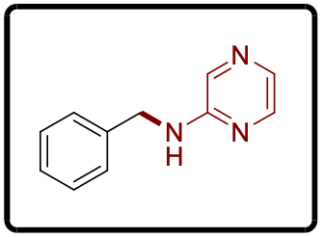
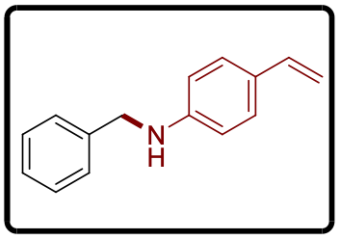
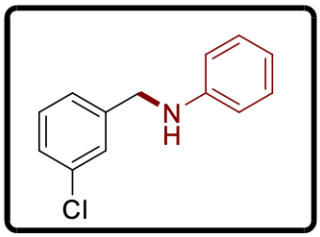
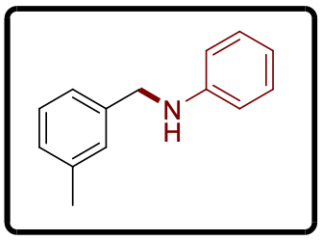
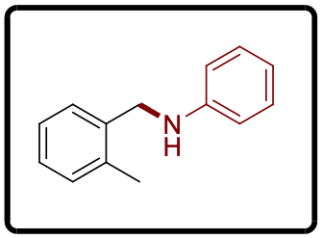
Figure S3. Pyridine mediated transition-metal-free transfer hydrogenation of ketones.

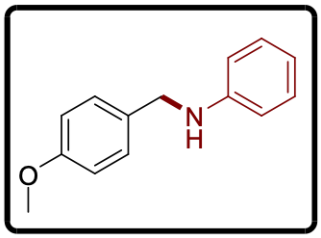
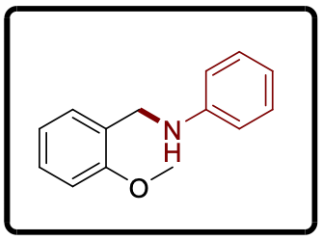
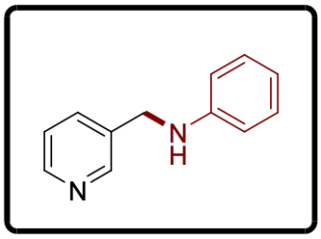
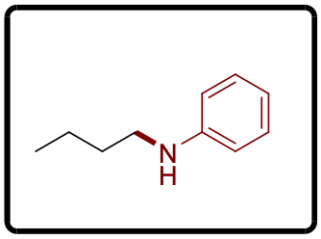
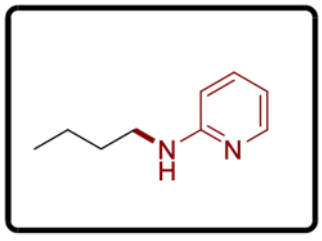
3. Characterization data

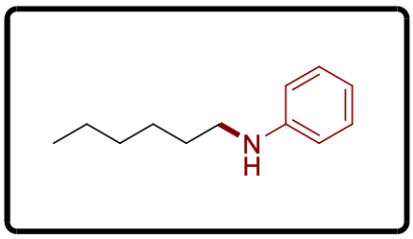
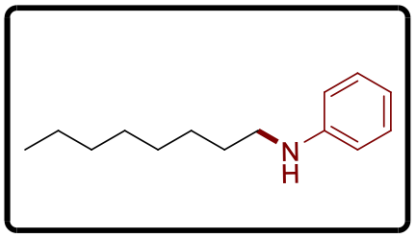
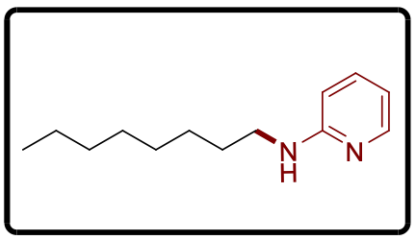
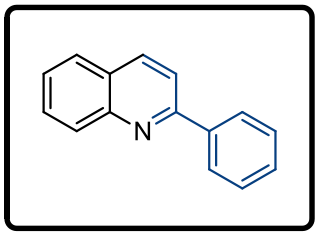
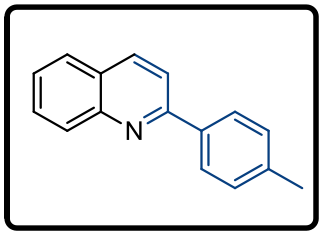
	**N-benzylaniline**[1] Prepared according to general procedure affords **3a** (161mg, 95%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.38 – 7.29 (m, 4H), 7.29 – 7.23 (m, 1H), 7.16 (dd, J = 10.8, 6.5 Hz, 2H), 6.75 – 6.68 (m, 1H), 6.62 (dd, J = 7.1, 1.5 Hz, 2H), 4.30 (s, 2H), 4.00 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 148.35, 139.67, 129.47, 128.83, 127.69, 127.41, 117.72, 113.03, 48.42.
	**N-benzyl-4-butylaniline**[3] Prepared according to general procedure affords **3b** (210mg, 95%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.39 – 7.29 (m, 4H), 7.25 (t, *J* = 7.1 Hz, 1H), 6.98 (d, *J* = 6.7 Hz, 2H), 6.56 (d, *J* = 6.9 Hz, 2H), 4.28 (s, 2H), 3.78 (s, 1H), 2.48 (t, *J* = 7.0 Hz, 2H), 1.58 – 1.49 (m, 2H), 1.37 – 1.29 (m, 2H), 0.94 – 0.87 (m, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 146.21, 139.77, 132.11, 129.24, 128.70, 127.65, 127.26, 112.98, 48.73, 34.85, 34.15, 22.47, 14.15.
	**N-benzyl-2-methoxyaniline**[3] Prepared according to general procedure affords **3c** (160mg, 81%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.29 (d, *J* = 7.3 Hz, 2H), 7.24 (t, *J* = 7.4 Hz, 2H), 7.17 (t, *J* = 6.5 Hz, 1H), 6.74 (t, *J* = 7.6 Hz, 1H), 6.69 (d, *J* = 7.2 Hz, 1H), 6.59 (t, *J* = 7.5 Hz, 1H), 6.50 (d, *J* = 7.0 Hz, 1H), 4.52 (s, 1H), 4.25 (s, 2H), 3.74 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 146.85, 139.67, 138.19, 128.67, 127.60, 127.21, 121.36, 116.72, 110.15, 109.44, 55.47, 48.11.
	**N-benzyl-3-methoxyaniline** Prepared according to general procedure affords **3d** (170mg, 86%) yellow oil obtained after column chromatography; ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.27 (s, 4H), 7.20 (s, 1H), 7.01 (t, *J* = 7.1 Hz, 1H), 6.23 (d, *J* = 7.1 Hz, 1H), 6.17 (d, *J* = 7.0 Hz, 1H), 6.12 (s, 1H), 4.19 (s, 2H), 3.97 (s, br, 1H), 3.64 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 161.03, 149.81, 139.65, 130.21, 128.82, 127.69, 127.40, 106.16, 102.81, 99.08, 55.16, 48.37. **HRMS** (ESI) m/z calculated for $C_{14}H_{16}NO$ $[M+H]^+$ 214.1226 found 214.1227.

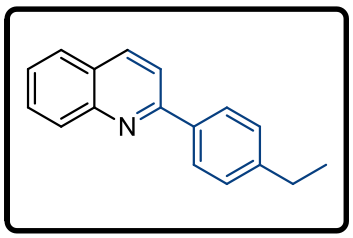
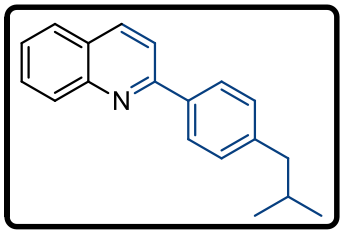
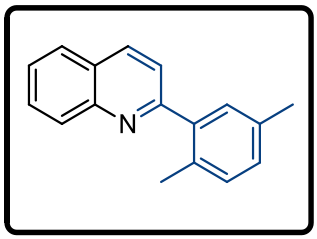
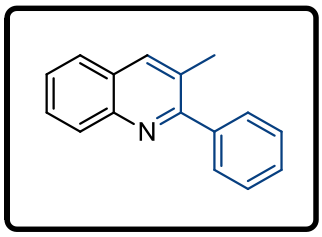
	**N-benzyl-4-methoxyaniline**[2] Prepared according to general procedure affords **3e** (188mg, 95%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.32 – 7.26 (m, 4H), 7.21 (t, *J* = 6.2 Hz, 1H), 6.72 (dd, 2H), 6.52 (dd, 2H), 4.18 (s, 2H), 3.65 (s, 4H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 152.29, 142.65, 139.94, 128.74, 127.68, 127.29, 115.06, 114.25, 55.86, 49.28.
	**N-benzyl-4-chloroaniline**[1] Prepared according to general procedure affords **3f** (187mg, 93%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.32 – 7.26 (m, 4H), 7.25 – 7.20 (m, 1H), 7.07 – 7.02 (m, 2H), 6.46 – 6.42 (m, 2H), 4.19 (s, 2H), 3.95 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 146.81, 139.11, 129.21, 128.86, 127.56, 127.52, 122.11, 114.08, 48.39.
	**N-benzyl-2-chloroaniline**[1] Prepared according to general procedure affords **3g** (182mg, 90%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.28 (t, *J* = 5.1 Hz, 4H), 7.22 (d, *J* = 7.3 Hz, 2H), 7.02 (t, *J* = 7.7 Hz, 1H), 6.57 (t, *J* = 10.0 Hz, 2H), 4.69 (s, 1H), 4.29 (d, *J* = 4.7 Hz, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 144.05, 138.95, 129.31, 128.92, 128.03, 127.54, 127.44, 119.28, 117.62, 111.73, 47.96.
	**N-benzyl-3-chloroaniline**[1] Prepared according to general procedure affords **3h** (177mg, 88%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.40 – 7.21 (m, 5H), 7.02 (t, *J* = 8.0 Hz, 1H), 6.65 (d, *J* = 7.9 Hz, 1H), 6.57 (t, *J* = 2.0 Hz, 1H), 6.44 (dd, *J* = 8.2, 2.2 Hz, 1H), 4.24 (s, 2H), 4.04 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ = 148.12, 137.65, 133.83, 129.11, 127.59, 126.32, 126.28, 116.18, 111.38, 109.98, 46.83.
	**N-benzyl-2,3-dichloroaniline**[7] Prepared according to general procedure affords **3i** (164mg, 70%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.41 – 7.22 (m, 5H), 6.97 (t, *J* = 8.1 Hz, 1H), 6.77 (d, *J* = 8.0 Hz, 1H), 6.49 (d, *J* = 9.5 Hz, 1H), 4.88 (s, 1H), 4.37 (d, *J* = 5.6 Hz, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ (126 145.34, 138.30, 132.90, 128.86, 127.81, 127.57, 127.26, 118.17, 117.17, 109.44, 48.00.

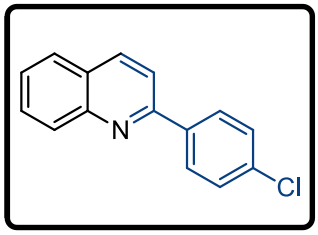
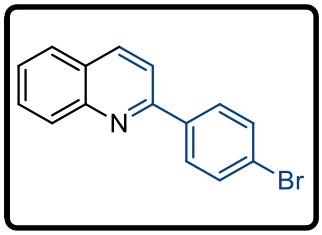
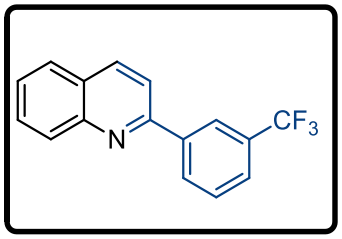
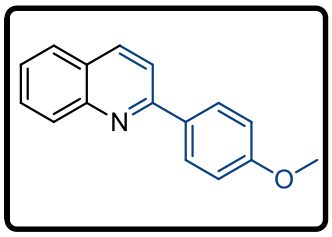
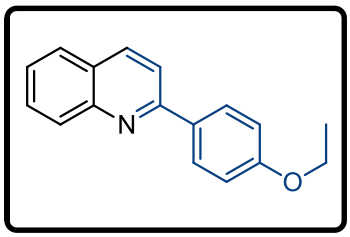
	**N-benzyl-2-bromoaniline**[8] Prepared according to general procedure affords **3j** (155mg, 64%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.42 (dd, *J* = 7.9, 1.5 Hz, 1H), 7.36 – 7.31 (m, 4H), 7.29 – 7.24 (m, 1H), 7.12 – 7.08 (m, 1H), 6.59 – 6.53 (m, 2H), 4.74 (s, 1H), 4.37 (d, *J* = 2.6 Hz, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 144.85, 138.75, 132.46, 128.80, 128.57, 127.42, 127.30, 118.04, 111.69, 109.74, 48.04.
	**N-benzyl-4-bromoaniline**[2] Prepared according to general procedure affords **3k** (206mg, 64%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.34 (d, *J* = 4.6 Hz, 4H), 7.30 – 7.26 (m, 1H), 7.25 – 7.21 (m, 2H), 6.51 – 6.48 (m, 2H), 4.29 (s, 2H), 4.08 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 147.07, 138.88, 131.96, 128.74, 127.43, 127.36, 114.44, 109.13, 48.24.
	**N-benzyl-4-iodoaniline**[6] Prepared according to general procedure affords **3l** (180mg, 63%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.33 – 7.27 (m, 4H), 7.26 – 7.22 (m, 1H), 7.05 (d, *J* = 8.8 Hz, 2H), 6.46 (d, *J* = 8.9 Hz, 2H), 4.21 (s, 2H), 3.96 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 146.80, 139.10, 129.19, 128.83, 127.54, 127.49, 122.12, 114.06, 48.39.
	**N-benzylpyridin-2-amine**[1] Prepared according to general procedure affords **3m** (121mg, 71%) white solid obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.08 (d, *J* = 4.7 Hz, 1H), 7.40 – 7.30 (m, 5H), 7.26 (t, 1H), 6.59 – 6.55 (m, 1H), 6.35 (d, *J* = 8.4 Hz, 1H), 5.01 (s, 1H), 4.49 (d, *J* = 5.8 Hz, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 158.65, 148.19, 139.17, 137.47, 128.62, 127.39, 127.21, 113.11, 106.75, 46.30.
	**N-benzylpyrimidin-2-amine**[4] Prepared according to general procedure affords **3n** (112mg, 65%) white solid obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.20 (s, 2H), 7.40 – 7.30 (m, 4H), 7.30 – 7.24 (m, 1H), 6.67 – 6.32 (m, 1H), 5.98 (s, 1H), 4.63 (d, *J* = 5.8 Hz, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 162.29, 158.03, 139.11, 128.61, 128.52, 127.60, 127.24, 126.98, 110.65, 45.47.

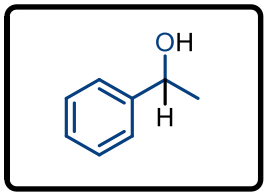
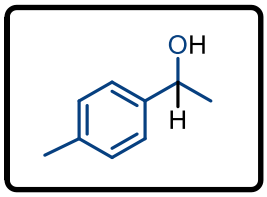
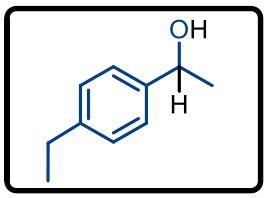
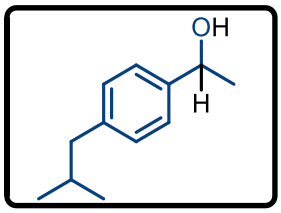
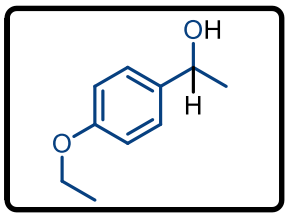
	**N-benzylpyrazin-2-amine**[5] Prepared according to general procedure affords **3o** (160mg, 94%) white solid obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.98 (s, 1H), 7.87 (s, 1H), 7.80 (s, 1H), 7.39 – 7.26 (m, 5H), 5.11 (s, br, 1H), 4.55 (d, *J* = 5.4 Hz, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 154.47, 141.98, 138.46, 133.08, 132.09, 128.75, 127.58, 127.54, 45.55.
	**N-benzyl-4-vinylaniline**[2] Prepared according to general procedure affords **3p** (165mg, 85%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.36 – 7.31 (m, 4H), 7.29 – 7.21 (m, 3H), 6.65 – 6.54 (m, 3H), 5.51 (d, *J* = 17.6 Hz, 1H), 5.00 (d, *J* = 10.9 Hz, 1H), 4.32 (s, 2H), 4.06 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 147.92, 139.28, 136.66, 128.71, 127.50, 127.42, 127.33, 112.77, 109.56, 48.23.
	**N-(3-chlorobenzyl)aniline**[1] Prepared according to general procedure affords **3q** (125mg, 82%) white solid obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.24 (s, 1H), 7.12 (s, 3H), 7.06 (t, *J* = 6.7 Hz, 2H), 6.63 (d, *J* = 6.2 Hz, 1H), 6.48 (d, *J* = 7.6 Hz, 2H), 4.17 (s, 2H), 3.93 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 147.86, 141.85, 134.57, 129.99, 129.41, 127.48, 127.43, 125.49, 117.91, 112.97, 47.79.
	**N-(3-methylbenzyl)aniline**[1] Prepared according to general procedure affords **3r** (150mg, 93%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.25 – 7.11 (m, 5H), 7.07 (s, 1H), 6.70 (dd, *J* = 6.6, 1.7 Hz, 1H), 6.59 (d, *J* = 4.8 Hz, 2H), 4.23 (s, 2H), 3.93 (s, 1H), 2.33 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 148.58, 139.78, 138.51, 129.57, 128.85, 128.58, 128.29, 124.90, 117.77, 113.16, 48.56, 21.75.
	**N-(2-methylbenzyl)aniline**[1] Prepared according to general procedure affords **3s** (145mg, 90%)yellow oil obtained after column chromatography**; ^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.29 (d, *J* = 7.1 Hz, 1H), 7.15 (dd, *J* = 10.9, 3.7 Hz, 5H), 6.69 (t, *J* = 7.2 Hz, 1H), 6.58 (d, *J* = 8.2 Hz, 2H), 4.21 (s, 2H), 3.77 (s, 1H), 2.33 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 148.44, 137.16, 136.46, 130.55, 129.43, 128.37, 127.56, 126.31, 117.58, 112.82, 46.48, 19.08.

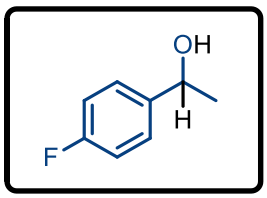
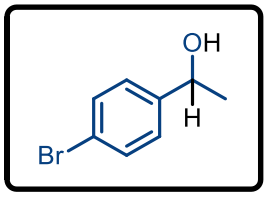
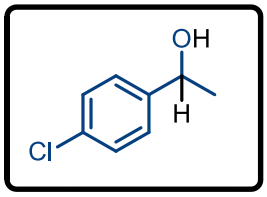
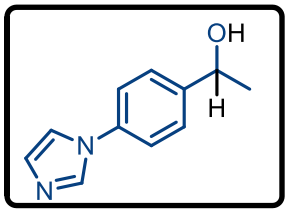
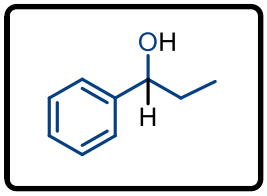
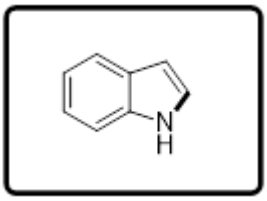
	**N-(4-methoxybenzyl)aniline**[2] Prepared according to general procedure affords **3t** (130mg, 84%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.21 (s, 2H), 7.12 (s, 2H), 6.82 (s, 2H), 6.67 (d, *J* = 3.7 Hz, 1H), 6.56 (s, 2H), 4.16 (s, 2H), 3.84 (s, 1H), 3.71 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 159.00, 148.41, 131.62, 129.42, 128.94, 117.61, 114.18, 113.02, 55.39, 47.87.
	**N-(2-methoxybenzyl)aniline**[1] Prepared according to general procedure affords **3u** (136mg, 88%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.29 (dd, *J* = 7.3, 1.4 Hz, 1H), 7.23 (td, *J* = 8.0, 1.6 Hz, 1H), 7.18 – 7.11 (m, 2H), 6.90 (dd, *J* = 7.4, 0.7 Hz, 1H), 6.87 (d, *J* = 8.2 Hz, 1H), 6.68 (t, *J* = 7.3 Hz, 1H), 6.63 (dd, *J* = 8.5, 0.8 Hz, 2H), 4.31 (s, 2H), 4.08 (s, 1H), 3.83 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 157.46, 148.49, 129.23, 128.95, 128.35, 127.41, 120.58, 117.39, 113.13, 110.31, 55.35, 43.51.
	**N-(pyridin-3-ylmethyl)aniline**[1] Prepared according to general procedure affords **3v** (122mg, 72%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.62 (s, 1H), 8.52 (d, *J* = 4.7 Hz, 1H), 7.69 (d, *J* = 7.8 Hz, 1H), 7.25 (t, *J* = 6.3 Hz, 1H), 7.20 – 7.15 (m, 2H), 6.74 (t, *J* = 7.3 Hz, 1H), 6.62 (d, *J* = 7.8 Hz, 2H), 4.35 (s, 2H), 4.11 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 149.16, 148.71, 147.61, 135.09, 134.90, 129.34, 123.54, 118.02, 112.93, 45.77.
	**N-butylaniline**[3] Prepared according to general procedure affords **3w** (128mg, 64%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.17 – 7.13 (m, 2H), 6.67 (tt, *J* = 7.3, 1.0 Hz, 1H), 6.57 (dd, *J* = 8.6, 1.0 Hz, 2H), 3.50 (s, 1H), 3.08 (t, 2H), 1.61 – 1.54 (m, *J* = 12.6, 7.3 Hz, 2H), 1.44 – 1.37 (m, *J* = 14.9, 7.3 Hz, 2H), 0.94 (t, *J* = 7.4 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 148.65, 129.31, 117.14, 112.77, 43.75, 31.77, 20.42, 14.04.
	**N-butylpyridin-2-amine**[2] Prepared according to general procedure affords **3z** (122mg, 60%) Yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.06 (dd, *J* = 4.9, 1.0 Hz, 1H), 7.42 – 7.37 (m, 1H), 6.54 (dd, *J* = 6.7, 5.4 Hz, 1H), 6.36 (d, *J* = 8.4 Hz, 1H), 4.64 (s, 1H), 3.24 (q, *J* = 12.0, 6.9 Hz, 2H), 1.63 – 1.56 (m, *J* = 14.9, 7.3 Hz, 2H), 1.47 – 1.38 (m, *J* = 14.6, 7.3 Hz, 2H), 0.95 (t, *J* = 7.4 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 158.98, 148.15, 137.40, 112.52, 106.28, 41.98, 31.64, 20.21, 13.87.

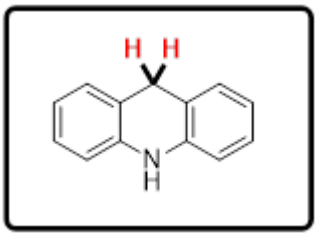
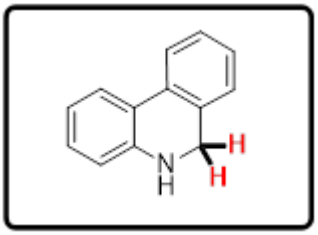
	**N-hexylaniline**[4] Prepared according to general procedure affords **3x** (121mg, 70%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.19 – 7.13 (m, 2H), 6.68 (td, *J* = 7.3, 1.1 Hz, 1H), 6.59 (dd, *J* = 7.7, 0.9 Hz, 2H), 3.57 (s, 1H), 3.08 (t, *J* = 7.2 Hz, 2H), 1.63 – 1.56 (m, 2H), 1.43 – 1.24 (m, 6H), 0.90 (t, *J* = 6.1 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 148.54, 129.20, 117.04, 112.67, 43.98, 31.67, 29.54, 26.87, 22.65, 14.07.
	**N-octylaniline**[3] Prepared according to general procedure affords **3y** (138mg, 88%) yellow oil obtained after column chromatography; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.18 – 7.11 (m, 2H), 6.66 (t, *J* = 7.3 Hz, 1H), 6.57 (dd, *J* = 8.5, 0.9 Hz, 2H), 3.46 (s, br, 1H), 3.06 (t, 2H), 1.58 (dd, *J* = 22.0, 7.1 Hz, 2H), 1.46 – 1.17 (m, 12H), 0.88 (t, *J* = 7.0 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 147.50, 128.15, 115.99, 111.62, 42.94, 30.82, 28.54, 28.42, 28.27, 26.17, 21.66, 13.09.
	**N-Octylpyridin-2-amine**[2] Prepared according to general procedure affords **3ż** (90mg, 57%) yellow oil obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.06 (d, *J* = 3.8 Hz, 1H), 7.41 (t, *J* = 7.6 Hz, 1H), 6.54 (t, *J* = 5.5 Hz, 1H), 6.36 (d, *J* = 8.4 Hz, 1H), 4.53 (s, 1H), 3.23 (dd, *J* = 12.5, 6.2 Hz, 2H), 1.66 – 1.58 (m, 2H), 1.38 (d, *J* = 6.7 Hz, 2H), 1.29 (d, *J* = 5.7 Hz, 8H), 0.88 (t, *J* = 6.1 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ TMS) δ 158.94, 148.17, 137.43, 112.57, 106.27, 42.32, 31.82, 29.55, 29.37, 29.26, 27.08, 22.66, 14.11.
	**2-phenylquinoline**[9] Prepared according to general procedure affords **6a** (153mg, 92%) white solid obtained after column chromatography : **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.21 (d, *J* = 8.6 Hz, 1H), 8.20 – 8.14 (m, 3H), 7.87 (d, *J* = 8.6 Hz, 1H), 7.82 (d, *J* = 8.1 Hz, 1H), 7.74 – 7.71 (m, 1H), 7.55 – 7.50 (m, 3H), 7.49 – 7.44 (m, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 157.40, 148.32, 139.72, 136.79, 129.77, 129.67, 129.33, 128.86, 127.59, 127.47, 127.21, 126.30, 119.03.
	**2-(4-tolyl)quinolone**[10] Prepared according to general procedure affords **6b** (151mg, 85%) white solid obtained after column chromatography : **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ = 8.17 (m, 2H), 8.06 (d, *J* = 8.0 Hz, 2H), 7.84 (d, *J* = 8.6 Hz, 1H), 7.80 (d, *J* = 8.1 Hz, 1H), 7.71 (t, *J* = 7.6 Hz, 1H), 7.50 (t, *J* = 7.4 Hz, 1H), 7.32 (d, *J* = 7.9 Hz, 2H), 2.43 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 157.38, 148.30, 139.42, 136.89, 136.69, 129.64, 129.59, 127.50, 127.47, 127.42, 127.12, 126.11, 118.91, 21.35.

	**2-(4-ethylphenyl)quinoline**[12] Prepared according to general procedure affords **6c** (157mg, 83%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ = 8.20 – 8.14 (m, 2H), 8.14 – 8.05 (m, 2H), 7.83 (d, *J* = 8.6 Hz, 1H), 7.78 (d, *J* = 8.0 Hz, 1H), 7.74 – 7.67 (m, 1H), 7.52 – 7.46 (m, 1H), 7.34 (d, *J* = 8.0 Hz, 2H), 2.72 (q, *J* = 15.2, 7.6 Hz, 2H), 1.28 (t, *J* = 7.6 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 157.43, 148.35, 145.76, 137.19, 136.66, 129.72, 129.59, 128.42, 127.59, 127.47, 127.13, 126.10, 118.93, 28.76, 15.59.
	**2-(4-isobutylphenyl)quinolone** Prepared according to general procedure affords **6d** (170mg, 80%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.21 – 8.14 (m, 2H), 8.07 (d, *J* = 8.1 Hz, 2H), 7.85 (d, *J* = 8.6 Hz, 1H), 7.80 (d, *J* = 8.1 Hz, 1H), 7.74 – 7.68 (m, 1H), 7.54 – 7.46 (m, 1H), 7.30 (d, *J* = 8.1 Hz, 2H), 2.55 (d, *J* = 7.2 Hz, 2H), 1.97 – 1.88 (m, 1H), 0.94 (d, *J* = 6.6 Hz, 6H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 157.51, 148.33, 143.23, 137.21, 136.67, 129.68, 129.58, 127.45, 127.35, 127.11, 126.09, 118.97, 45.26, 30.28, 22.40. **HRMS** (ESI) m/z calculated for $C_{19}H_{20}N$ $[M+H]^+$ 262.1595 found 262.1599.
	**2-(2,5-dimethylphenyl)quinolone**[7] Prepared according to general procedure affords **6e** (97mg, 51%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.20 (d, *J* = 8.5 Hz, 1H), 8.17 (d, *J* = 8.5 Hz, 1H), 7.86 (dd, *J* = 8.1, 1.0 Hz, 1H), 7.75 – 7.72 (m, 1H), 7.58 – 7.54 (m, 1H), 7.53 (d, *J* = 8.4 Hz, 1H), 7.32 (s, 1H), 7.21 (d, *J* = 7.8 Hz, 1H), 7.15 (dd, *J* = 7.8, 1.5 Hz, 1H), 2.38 (s, 3H), 2.36 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 160.46, 147.95, 140.56, 135.93, 135.47, 132.74, 130.78, 130.31, 129.62, 129.57, 129.25, 127.49, 126.74, 126.34, 122.44, 20.96, 19.84.
	**3-methyl-2-phenylquinoline**[11] Prepared according to general procedure affords **6f** (142mg, 80%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.01 (d, *J* = 8.5 Hz, 1H), 7.81 (s, 1H), 7.59 (d, *J* = 8.1 Hz, 1H), 7.50 (m, 1H), 7.47 – 7.43 (m, 2H), 7.36 – 7.32 (m, 3H), 7.30 – 7.26 (m, 1H), 2.29 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 159.40, 145.56, 139.80, 135.62, 128.21, 128.07, 127.78, 127.63, 127.20, 127.08, 126.49, 125.62, 125.29, 19.51.

	**2-(4-chlorophenyl)quinoline**[10] Prepared according to general procedure affords **6g** (146mg, 75%) white solid obtained after column chromatography : **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ = 8.18 (d, *J* = 8.6 Hz, 1H), 8.15 (d, *J* = 8.5 Hz, 1H), 8.12 – 8.08 (m, 2H), 7.80 (d, *J* = 8.6 Hz, 2H), 7.74 – 7.70 (m, *J* = 8.4, 6.9, 1.4 Hz, 1H), 7.54 – 7.50 (m, 1H), 7.49 – 7.45 (m, 2H).**^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ = 156.01, 148.24, 138.05, 136.99, 135.56, 129.88, 129.70, 129.04, 128.84, 127.52, 127.23, 126.53, 118.58.
	**2-(4-bromophenyl)quinoline**[10] Prepared according to general procedure affords **6h** (160mg, 70%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ =8.23 (d, *J* = 8.5 Hz, 1H), 8.16 (d, *J* = 8.4 Hz, 1H), 8.08 – 8.04 (m, 2H), 7.86 – 7.82 (m, 2H), 7.74 (t, *J* = 7.7 Hz, 1H), 7.68 – 7.62 (m, 2H), 7.54 (t, *J* = 7.5 Hz, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 156.05, 148.23, 138.49, 136.99, 131.97, 129.87, 129.69, 129.09, 127.50, 127.23, 126.53, 123.92, 118.52.
	**2-(3-(trifluoromethyl)phenyl)quinoline** Prepared according to general procedure affords **6i** (152mg, 69%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ = 8.36 (s, 1H), 8.22 (d, *J* = 7.8 Hz, 1H), 8.08 (m, 2H), 7.73 (d, *J* = 8.6 Hz, 1H), 7.70 (d, *J* = 8.1 Hz, 1H), 7.65 – 7.61 (m, *J* = 11.7, 4.5 Hz, 1H), 7.59 (d, *J* = 7.8 Hz, 1H), 7.50 (t, *J* = 7.8 Hz, 1H), 7.43 (t, *J* = 7.5 Hz, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 154.45, 147.19, 139.30, 136.06, 129.62, 128.90, 128.76, 128.23, 126.45, 126.32, 125.70, 124.85, 124.82, 124.79, 124.76, 123.38, 123.35, 123.32, 123.29, 117.45. **HRMS** (ESI) m/z calculated for $C_{16}H_{11}NF_3$ $[M+H]^+$ 274.0838 found 274.0845.
	**2-(4-methoxyphenyl)quinoline**[10] Prepared according to general procedure affords **6j** (143mg, 75%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ = 8.34 (d, *J* = 5.4 Hz, 1H), 8.25 (d, *J* = 8.6 Hz, 1H), 8.19 (d, *J* = 8.6 Hz, 2H), 7.86 (d, *J* = 8.6 Hz, 1H), 7.83 (d, *J* = 8.1 Hz, 1H), 7.75 (t, *J* = 7.6 Hz, 1H), 7.54 (t, *J* = 7.4 Hz, 1H), 7.07 (d, *J* = 8.7 Hz, 2H), 3.90 (s, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 160.84, 156.90, 148.32, 136.66, 132.25, 129.61, 129.55, 128.93, 127.50, 126.94, 125.94, 118.56, 114.25, 55.40.
	**2-(4-ethoxyphenyl)quinoline**[7] Prepared according to general procedure affords **6k** (150mg, 74%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 8.21 – 8.09 (m, 4H), 7.83 (d, *J* = 8.6 Hz, 1H), 7.79 (d, *J* = 8.1 Hz, 1H), 7.70 (t, *J* = 8.1 Hz, 1H), 7.49 (t, *J* = 7.5 Hz, 1H), 7.03 (d, *J* = 8.7 Hz, 2H), 4.11 (q, *J* = 7.0 Hz, 2H), 1.45 (t, *J* = 7.0 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 160.22, 156.99, 148.30, 136.62, 132.09, 129.56, 129.51, 128.88, 127.43, 126.91, 125.89, 118.57, 114.78, 63.58, 14.83.

	**1-phenylethanol**[1] Prepared according to general procedure affords **7a** (99.5mg 98%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.27 (d, *J* = 4.8 Hz, 4H), 7.23 – 7.17 (m, 1H), 4.73 (q, *J* = 6.3 Hz, 1H), 3.24 (s, 1H), 1.37 (d, *J* = 6.7 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 146.03, 128.48, 127.38, 125.55, 70.19, 25.22.
	**1-(p-tolyl)ethanol**[1] Prepared according to general procedure affords **7b** (96.5mg 95%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.19 (d, *J* = 7.6 Hz, 2H), 7.10 (d, *J* = 7.4 Hz, 2H), 4.74 (q, *J* = 6.2 Hz, 1H), 2.93 (s, 1H), 2.31 (d, *J* = 2.1 Hz, 3H), 1.40 (d, *J* = 6.7 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 143.10, 136.96, 129.15, 125.49, 70.08, 25.17, 21.17.
	**1-(4-ethylphenyl)ethanol** Prepared according to general procedure affords **7c** (99.3mg 98%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.24 (d, *J* = 8.1 Hz, 2H), 7.15 (d, *J* = 8.0 Hz, 2H), 4.79 (q, *J* = 6.3 Hz, 1H), 2.62 (q, *J* = 7.6 Hz, 2H), 2.41 (s, 1H), 1.43 (d, *J* = 6.5 Hz, 3H), 1.26 – 1.18 (m, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 143.45, 143.24, 127.97, 125.53, 70.16, 28.59, 25.07, 15.69. **HRMS** (ESI) m/z calculated for $C_{10}H_{14}ONa$ $[M+Na]^+$ 173.0942 found 173.0926.
	**1-(4-isobutylphenyl)ethanol** Prepared according to general procedure affords **7d** (96.0mg, 95%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.21 (d, *J* = 8.1 Hz, 2H), 7.07 (d, *J* = 8.0 Hz, 2H), 4.75 (q, *J* = 6.5 Hz, 1H), 2.79 (s, 1H), 2.44 (d, *J* = 7.2 Hz, 2H), 1.89 – 1.78 (m, *J* = 13.6, 6.8 Hz, 1H), 1.40 (d, *J* = 6.5 Hz, 3H), 0.88 (dd, *J* = 6.7, 0.8 Hz, 6H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 143.26, 140.81, 129.18, 125.32, 70.11, 45.17, 30.31, 25.07, 22.45. **HRMS** (ESI) m/z calculated for $C_{12}H_{18}ONa$ $[M+Na]^+$ 201.1255 found 201.1248.
	**1-(4-ethoxyphenyl)ethanol**[1] Prepared according to general procedure affords **7d** (91.0mg, 90%) white solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.24 – 7.20 (m, 2H), 6.82 (d, *J* = 8.7 Hz, 2H), 4.74 (q, *J* = 6.3 Hz, 1H), 3.98 (q, *J* = 7.0 Hz, 2H), 2.70 (s, 1H), 1.44 – 1.35 (m, 6H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 157.13, 136.94, 125.61, 113.27, 68.70, 62.38, 23.95, 13.78.

	**1-(4-fluorophenyl)ethanol**[13] Prepared according to general procedure affords **7f** (76.1mg, 75%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.25 (d, *J* = 3.3 Hz, 2H), 7.04 – 6.92 (m, *J* = 8.3 Hz, 2H), 4.77 (q, *J* = 5.4 Hz, 1H), 2.99 (s, 1H), 1.39 (d, *J* = 3.8 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 163.02, 161.08, 141.59, 127.10, 127.04, 115.25, 115.08, 69.57, 25.21.
	**1-(4-bromophenyl)ethanol**[1] Prepared according to general procedure affords **7g** (92.9mg, 92%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.41 (d, *J* = 8.4 Hz, 2H), 7.15 (d, *J* = 8.4 Hz, 2H), 4.73 (q, *J* = 6.5 Hz, 1H), 3.09 (s, 1H), 1.38 (d, *J* = 6.5 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 144.79, 131.50, 127.22, 121.08, 69.60, 25.20.
	**1-(4-chlorophenyl)ethanol**[1] Prepared according to general procedure affords **7h** (91.9mg, 92%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.30 – 7.23 (m, 4H), 4.81 (q, *J* = 6.2, 1H), 2.47 (s, 1H), 1.42 (d, *J* = 6.5 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 144.27, 133.01, 128.58, 126.83, 69.67, 25.24.
	**1-(4-(1H-imidazol-1-yl)phenyl)ethanol** Prepared according to general procedure affords **7j** (70.6mg, 70%) pale yellow solid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) 7.74 (d, *J* = 12.4 Hz, 1H), 7.50 (d, *J* = 8.1 Hz, 2H), 7.37 – 7.33 (m, *J* = 7.2, 4.8 Hz, 2H), 7.27 – 7.24 (m, 1H), 7.16 (d, *J* = 5.9 Hz, 1H), 4.97 (q, *J* = 6.4 Hz, 1H), 2.94 (s, 1H), 1.53 (d, *J* = 6.5 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 145.76, 135.57, 130.22, 127.38, 126.97, 121.50, 118.29, 69.51, 25.45. **HRMS** (ESI) m/z calculated for $C_{11}H_{13}N_2O$ $[M+H]^+$ 189.1028 found189.1028 .
	**1-phenylpropan-1-ol**[1] Prepared according to general procedure affords **7k** (81.2mg, 80%) colorless liquid obtained after column chromatography: **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) 7.36 – 7.13 (m, 5H), 4.45 (t, *J* = 6.6 Hz, 1H), 2.80 (s, 1H), 1.78 – 1.61 (m, 2H), 0.84 (t, *J* = 7.5 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 144.73, 128.37, 127.42, 126.11, 75.90, 31.88, 10.21.
	**1H-indole**[2] pale yellow solid (90.0mg, 90%) ; **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.94 (s, 1H), 7.64 (dd, *J* = 7.9, 0.8 Hz, 1H), 7.32 (dd, *J* = 8.1, 0.9 Hz, 1H), 7.20 – 7.16 (m, 1H), 7.14 – 7.09 (m, 2H), 6.55 – 6.52 (m, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 135.71, 127.78, 124.16, 121.93, 120.69, 119.77, 111.03, 102.49.

	**9,10-dihydroacridine**[14] white solid (27mg, 16%); **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS) δ 7.08 (dd, *J* = 15.0, 7.5 Hz, 4H), 6.85 (t, *J* = 7.4 Hz, 2H), 6.66 (d, *J* = 7.8 Hz, 2H), 5.95 (s, 1H), 4.05 (s, 2H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 140.15, 128.64, 127.03, 120.67, 120.07, 113.47, 31.41.
	**5,6-dihydrophenanthridine**[14] white solid (7mg, 4%); **^{1}H NMR** (500 MHz, $CDCl_3$, 25°C, TMS)) δ 7.68 (t, 2H), 7.30 (t, *J* = 7.6 Hz, 1H), 7.21 (t, *J* = 7.4 Hz, 1H), 7.10 (dd, *J* = 11.9, 4.6 Hz, 2H), 6.83 (td, *J* = 7.8, 1.0 Hz, 1H), 6.66 (d, *J* = 7.9 Hz, 1H), 4.39 (s, 2H), 3.98 (s, 1H). **^{13}C NMR** (126 MHz, $CDCl_3$, 25°C, TMS) δ 152.41, 131.62, 130.17, 128.93, 127.85, 127.76, 126.55, 126.17, 125.30, 123.12, 121.22, 120.88, 28.68.

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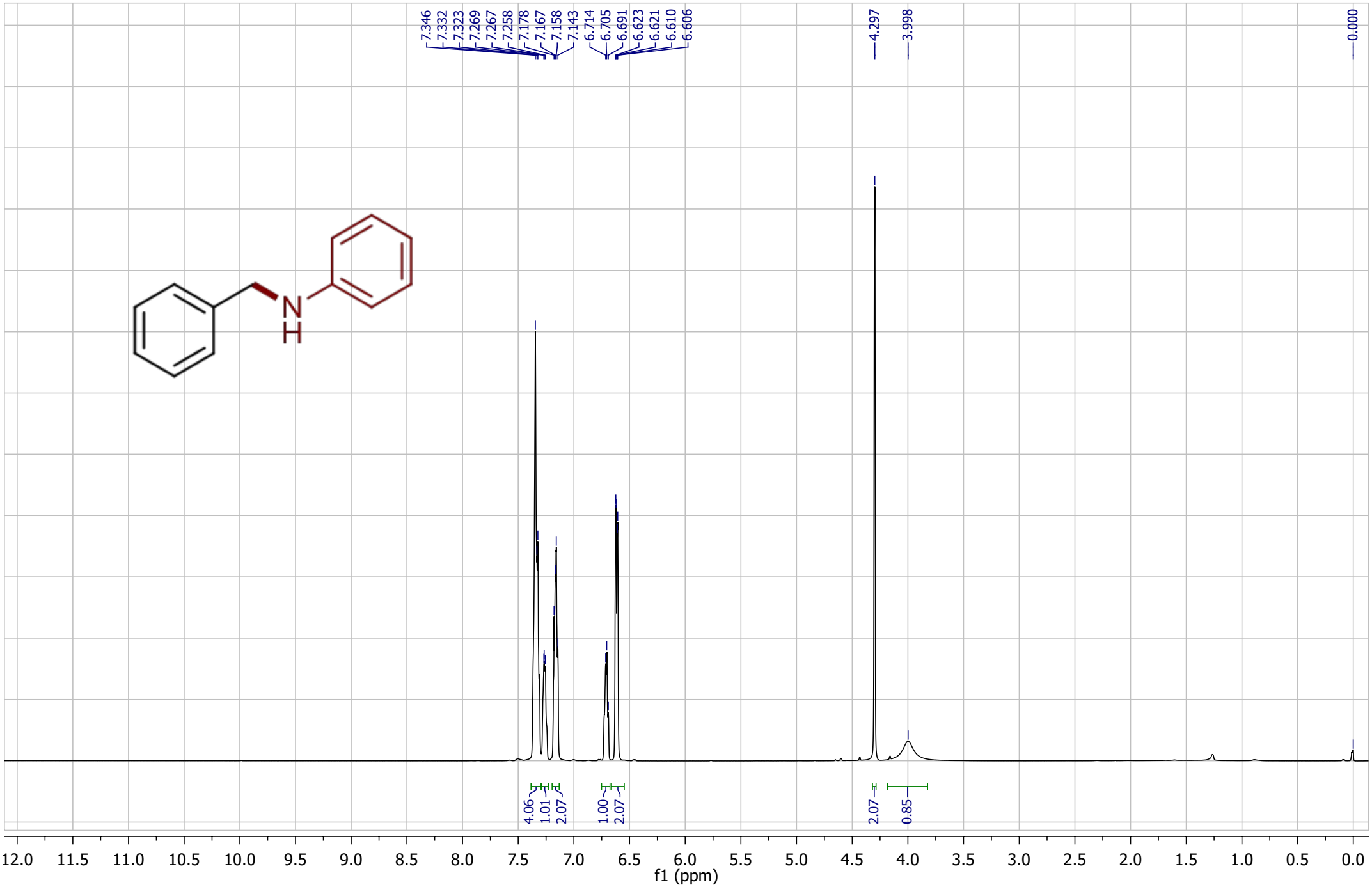
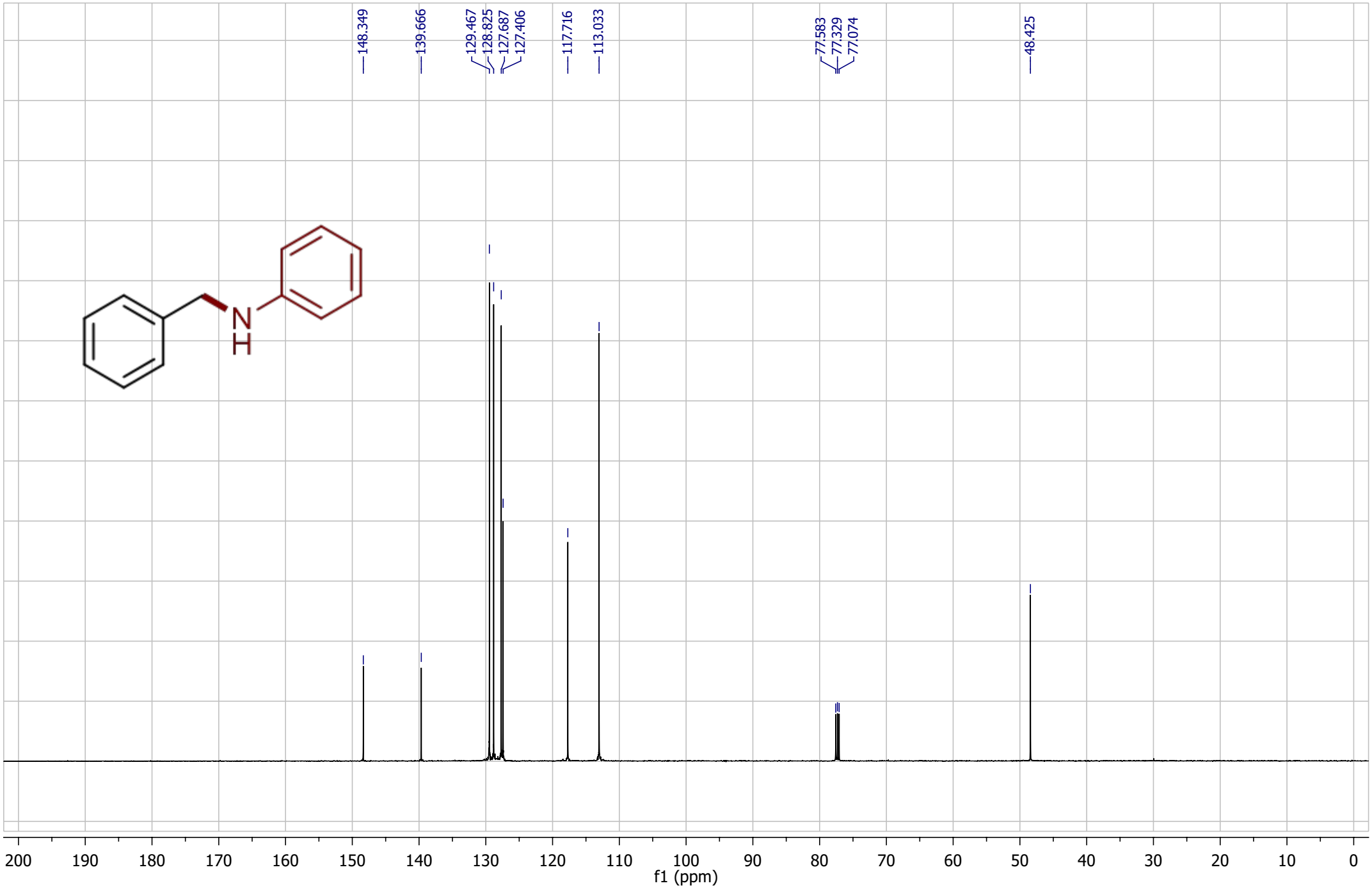
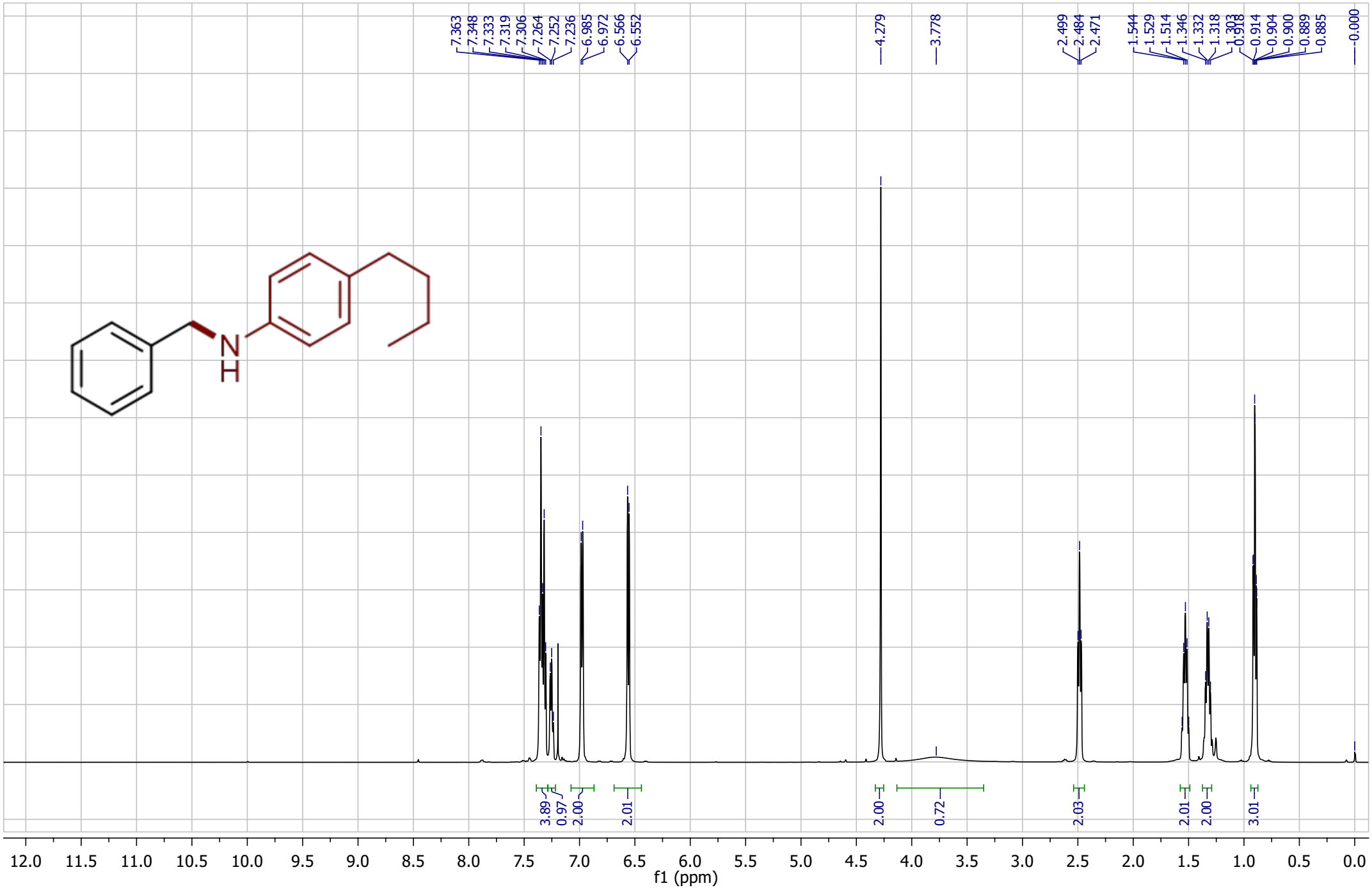


N-benzylaniline (3a)



N-benzylaniline (3a)



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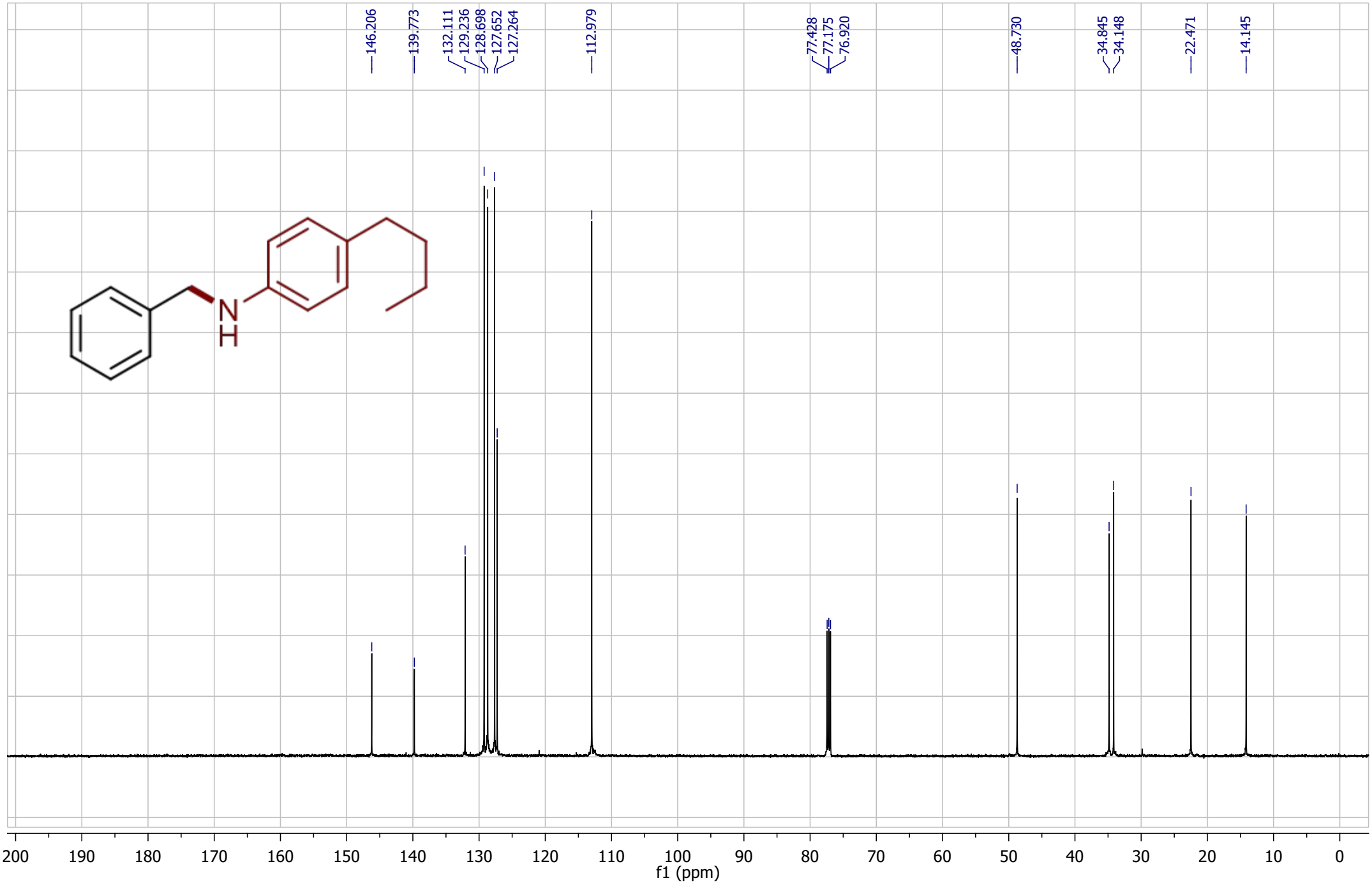

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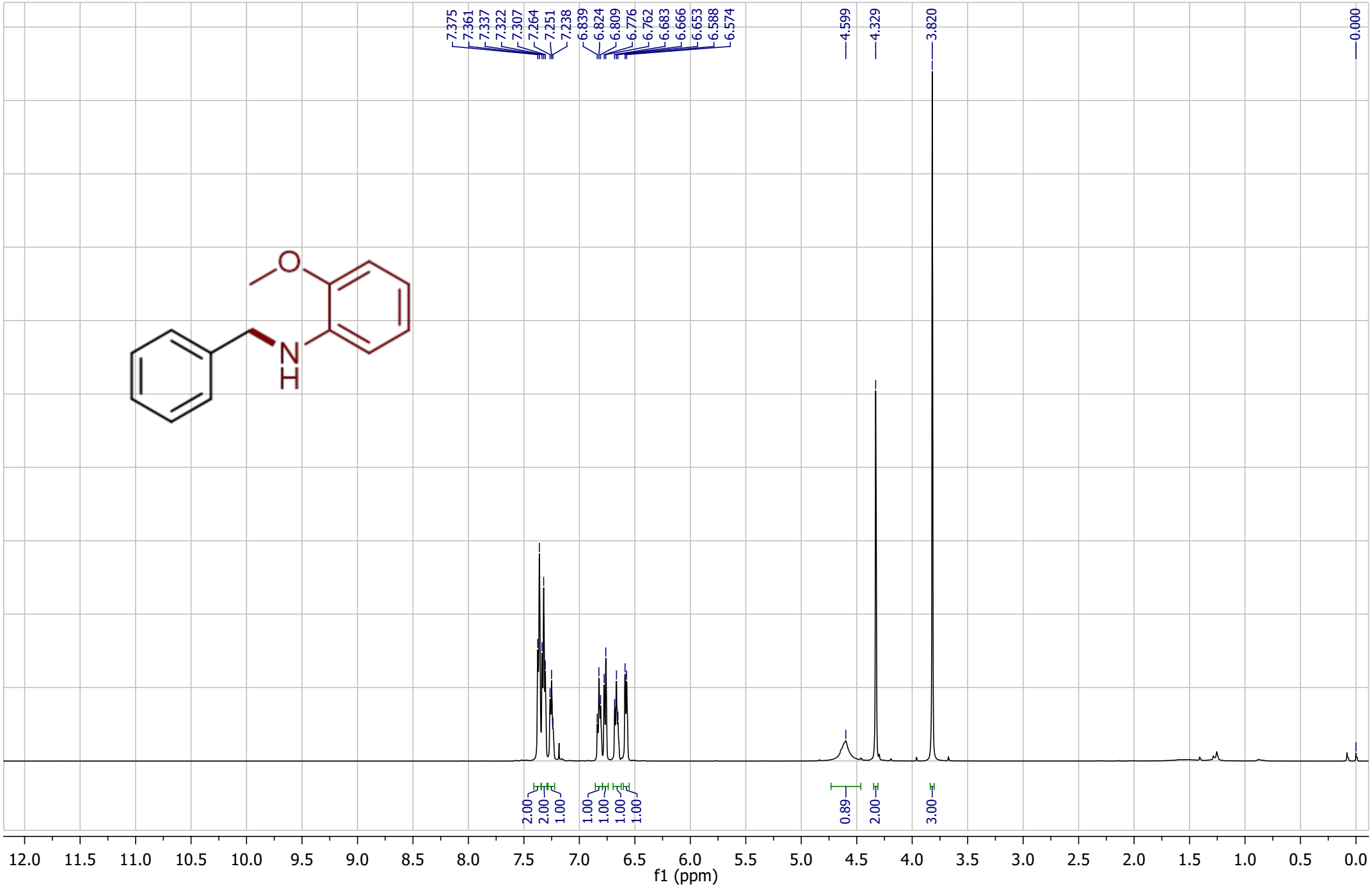

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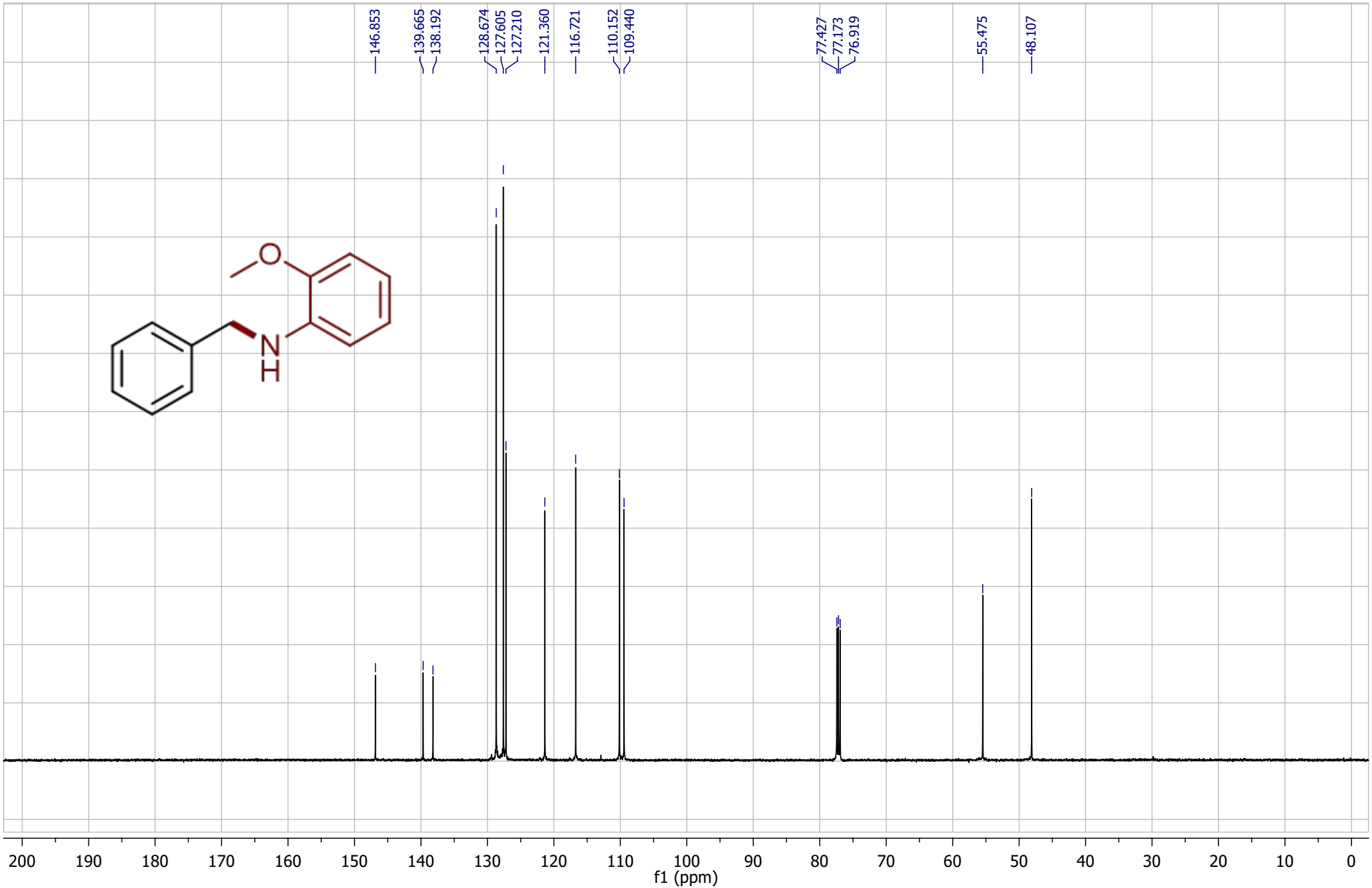

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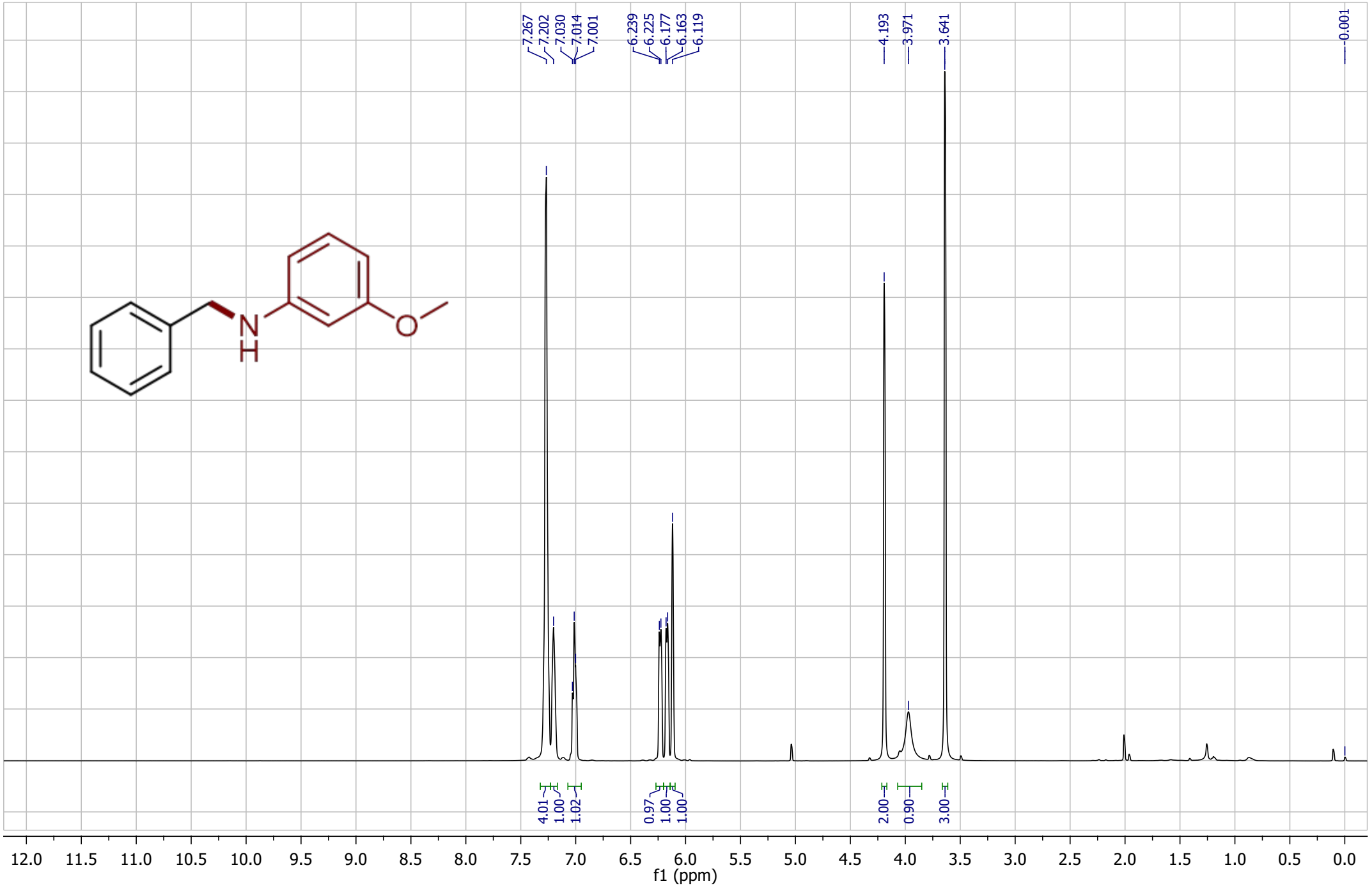

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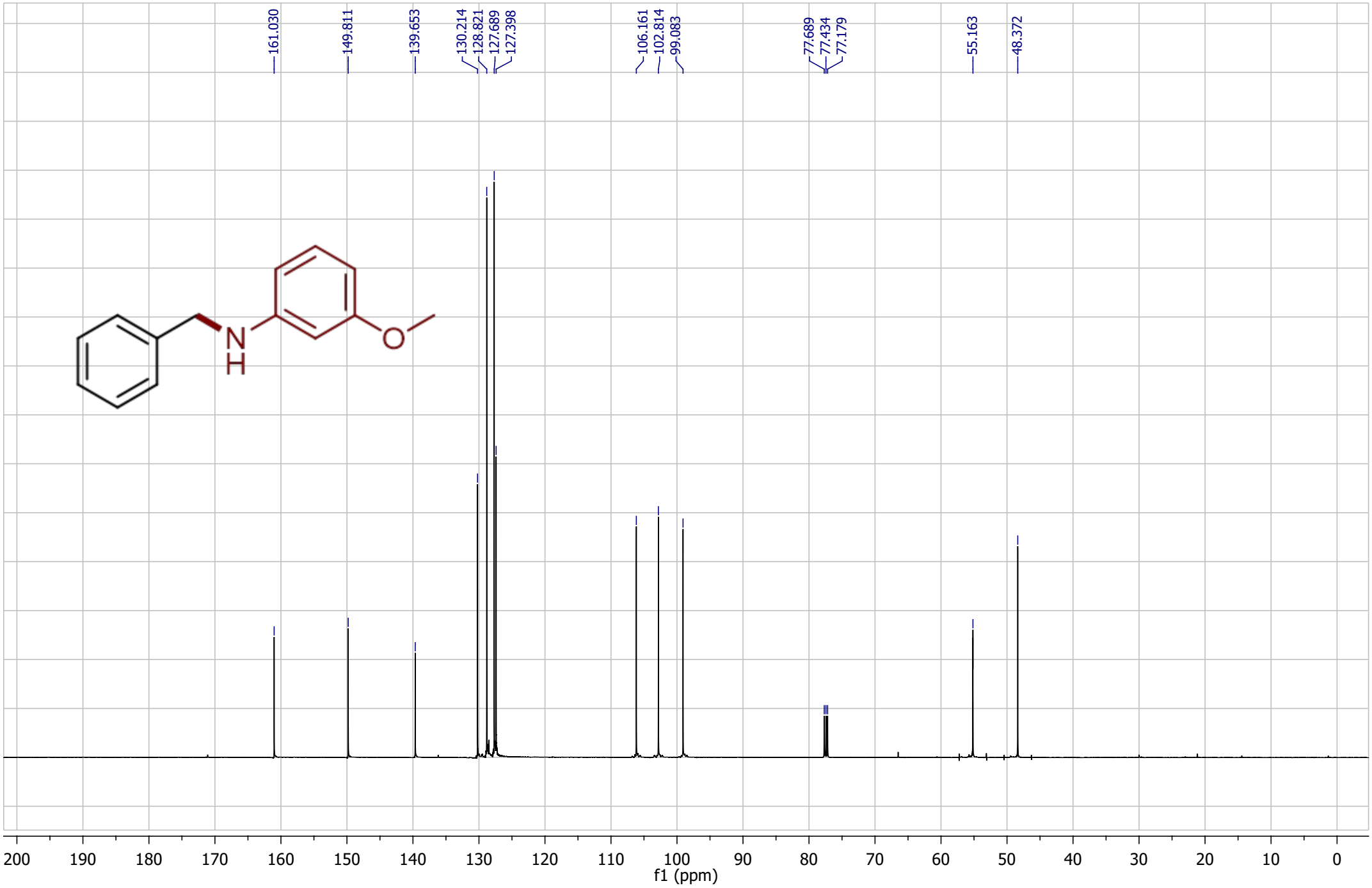

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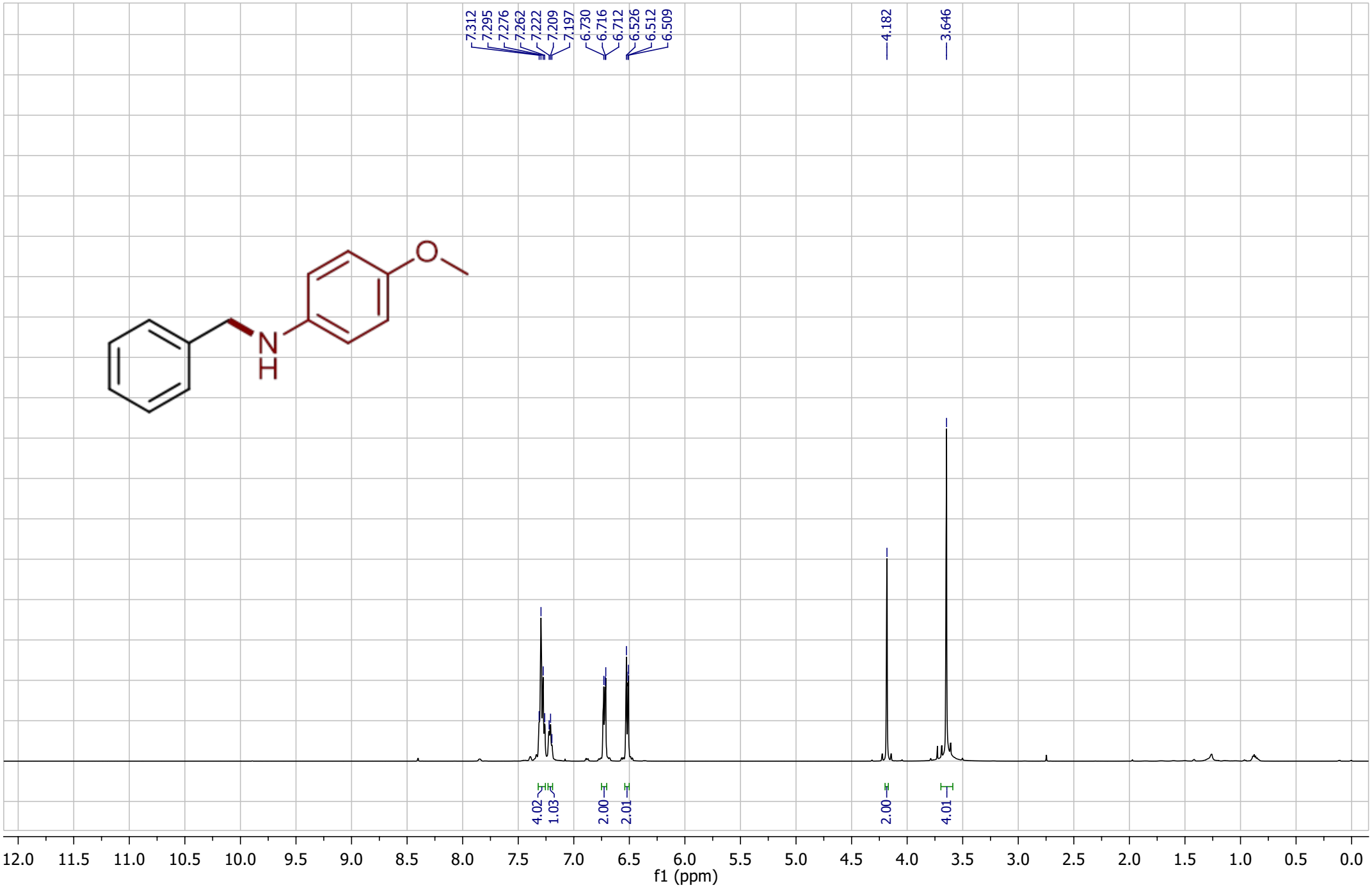

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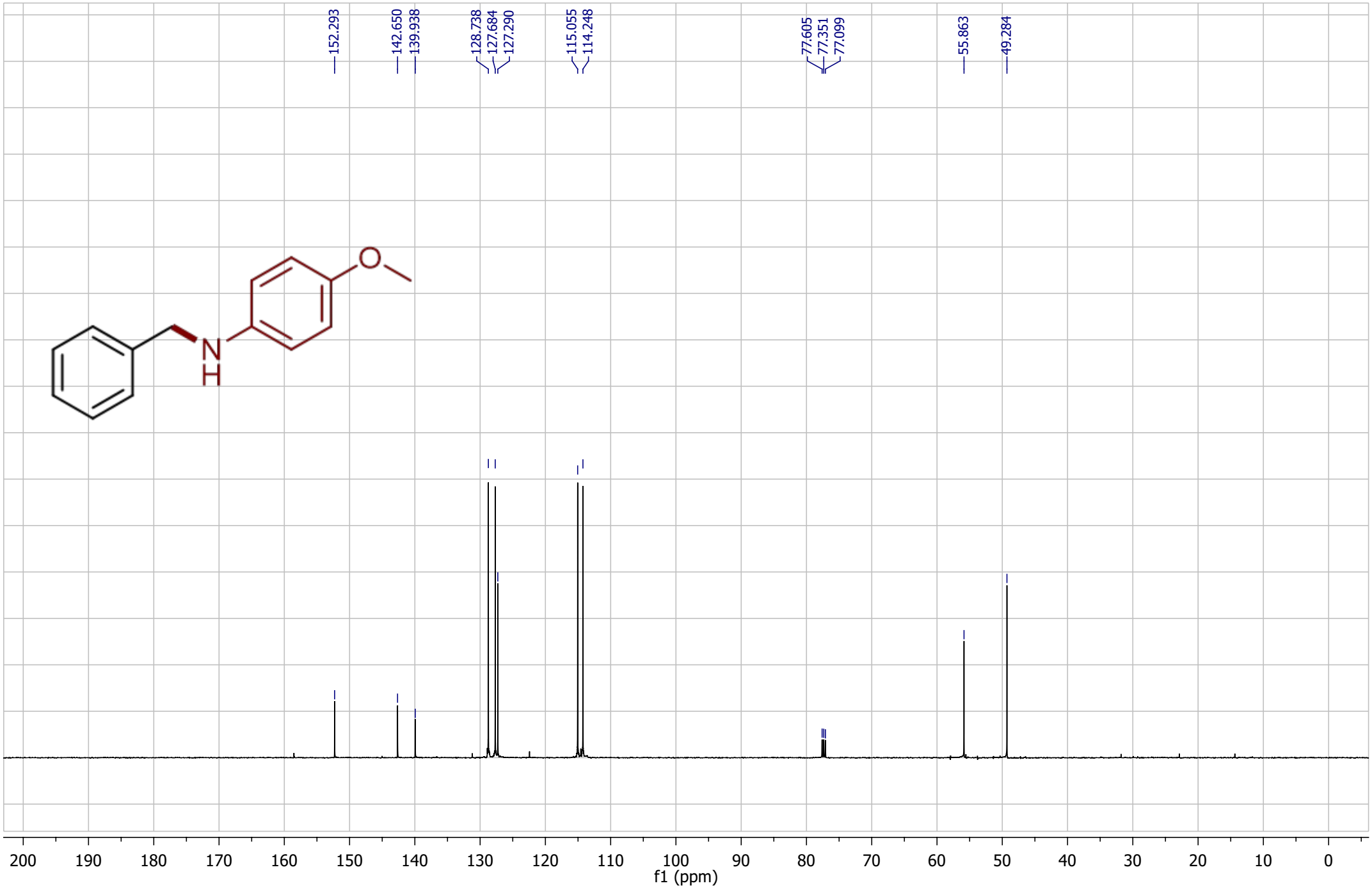

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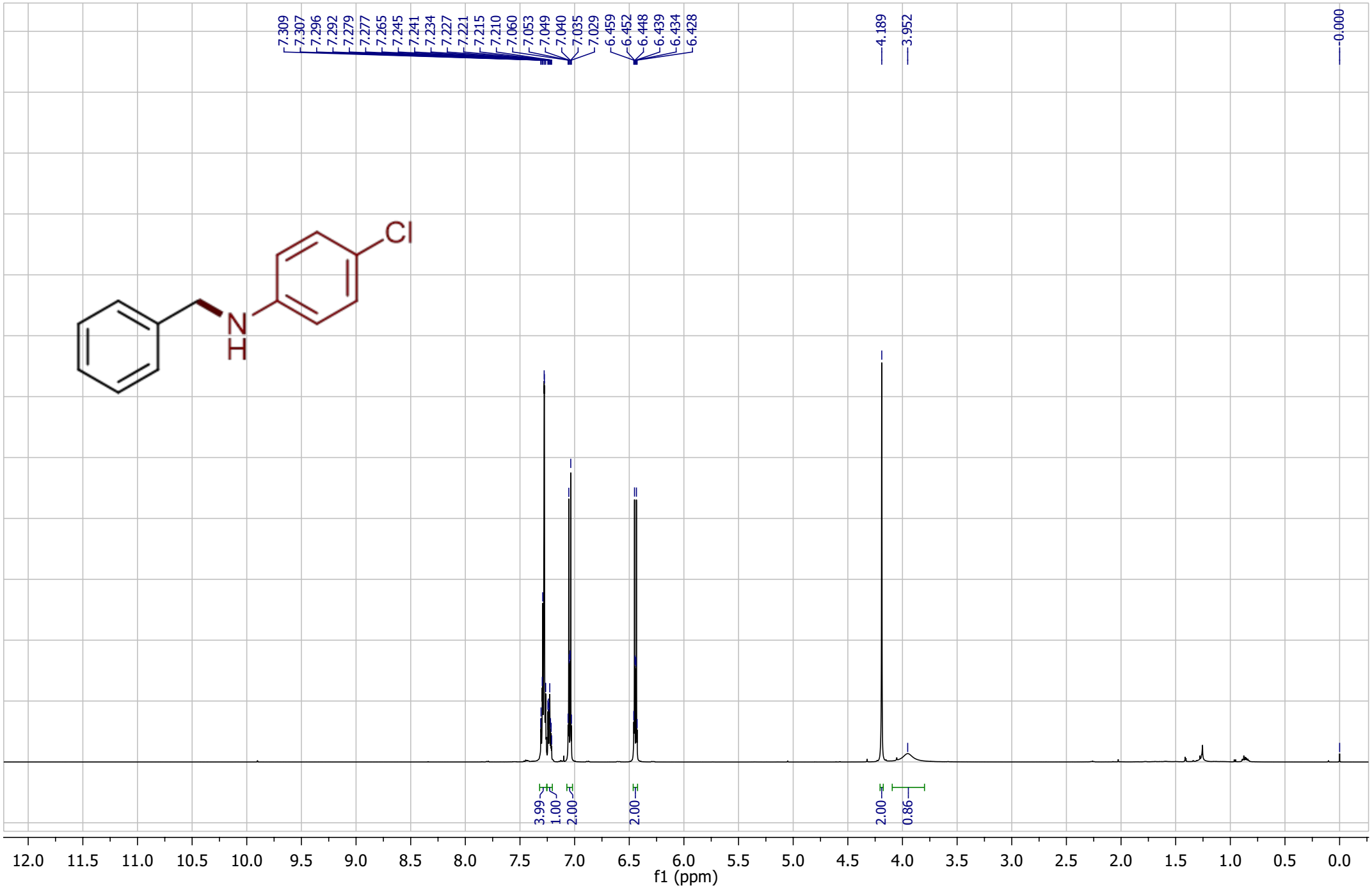
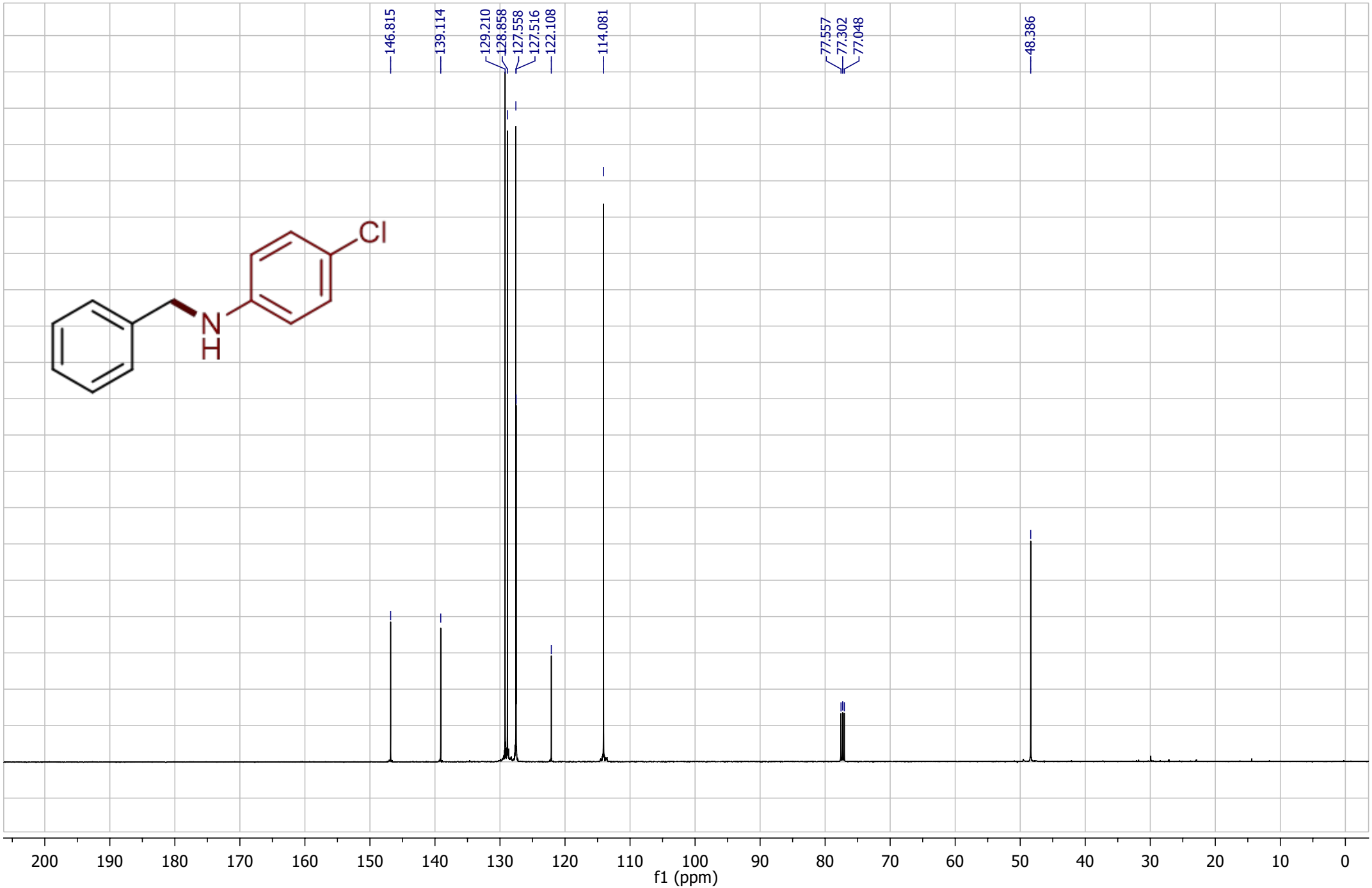
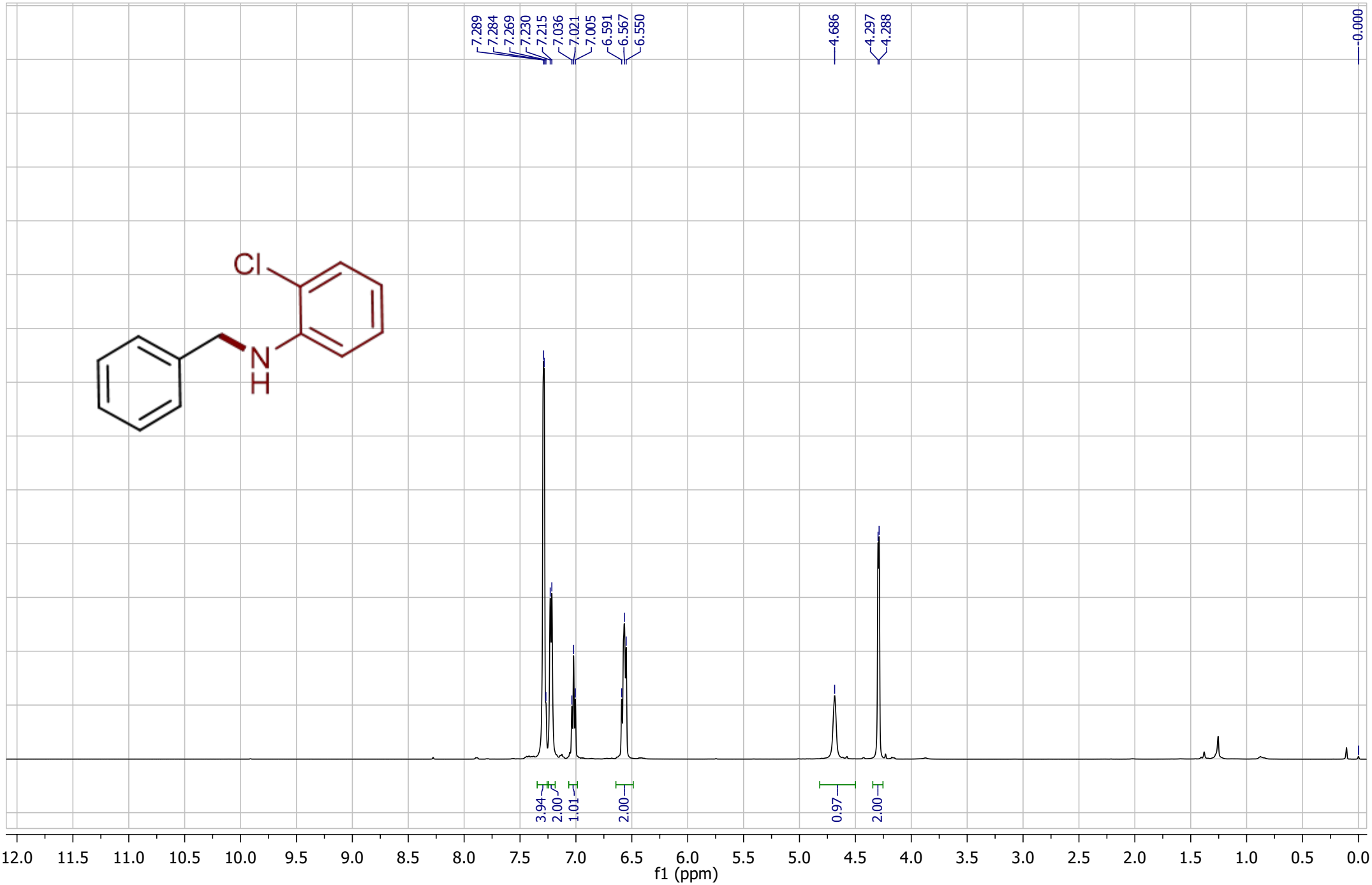


N-benzyl-4-chloroaniline (3f)



N-benzyl-4-chloroaniline (3f)



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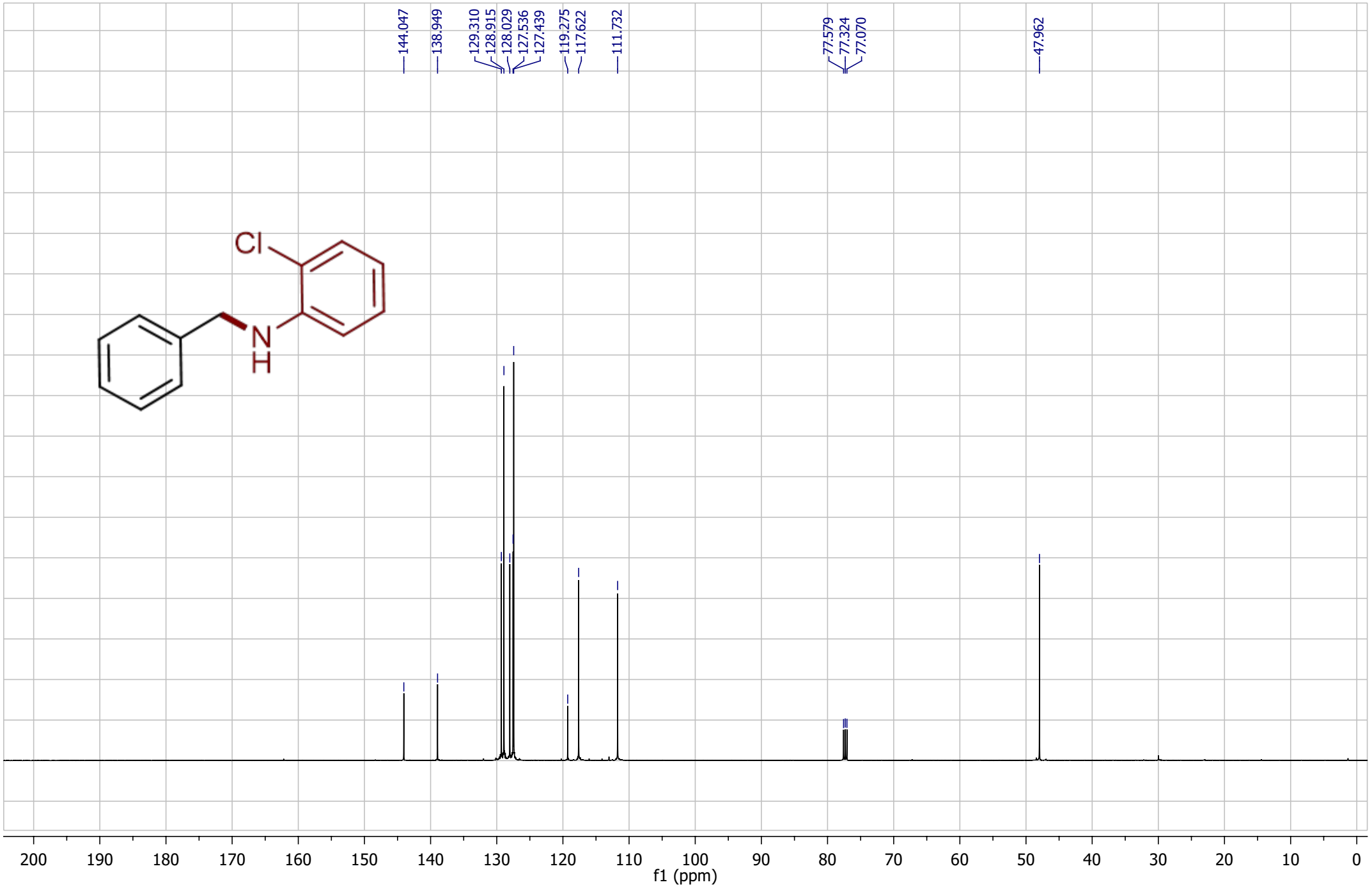

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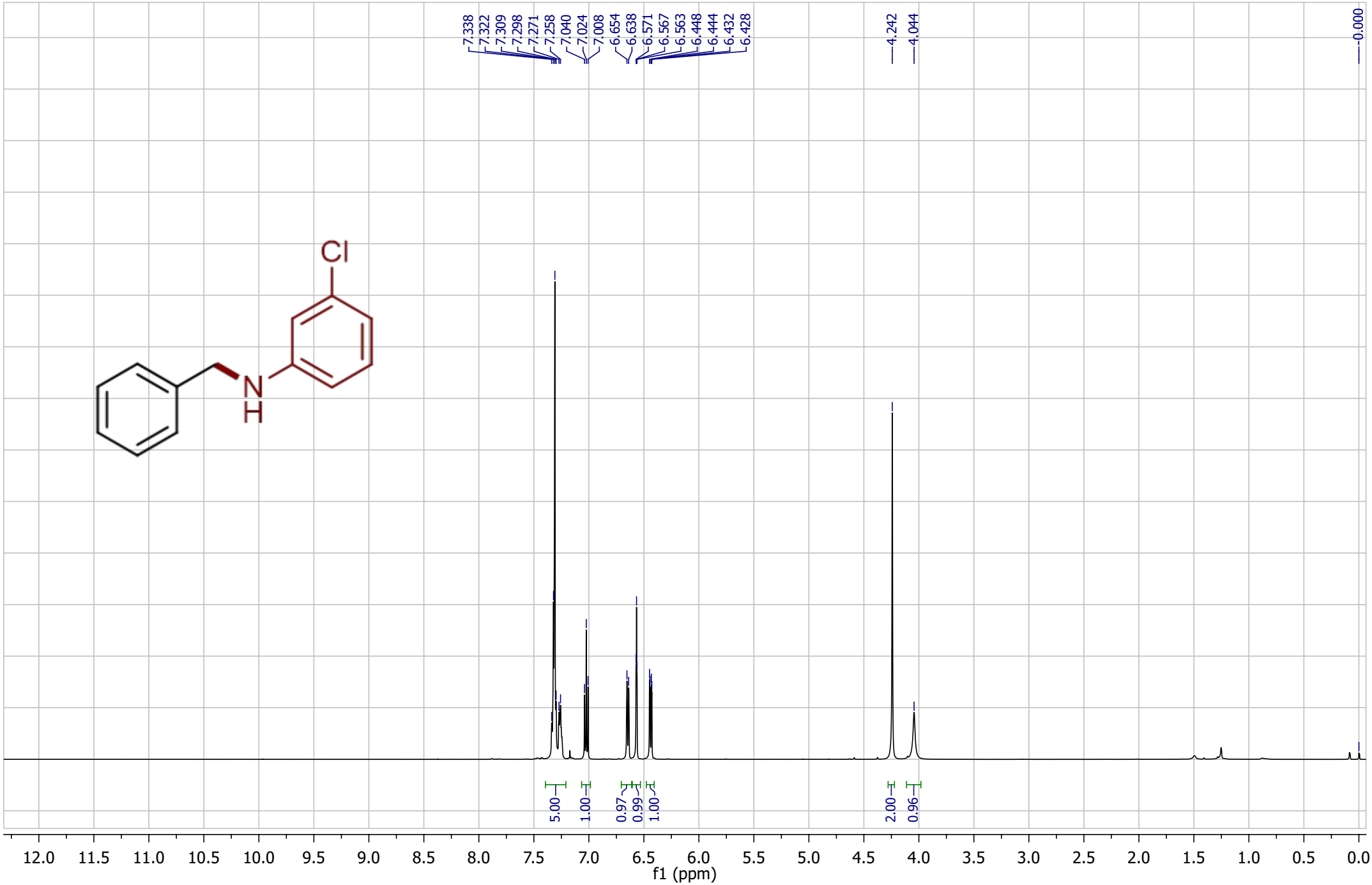

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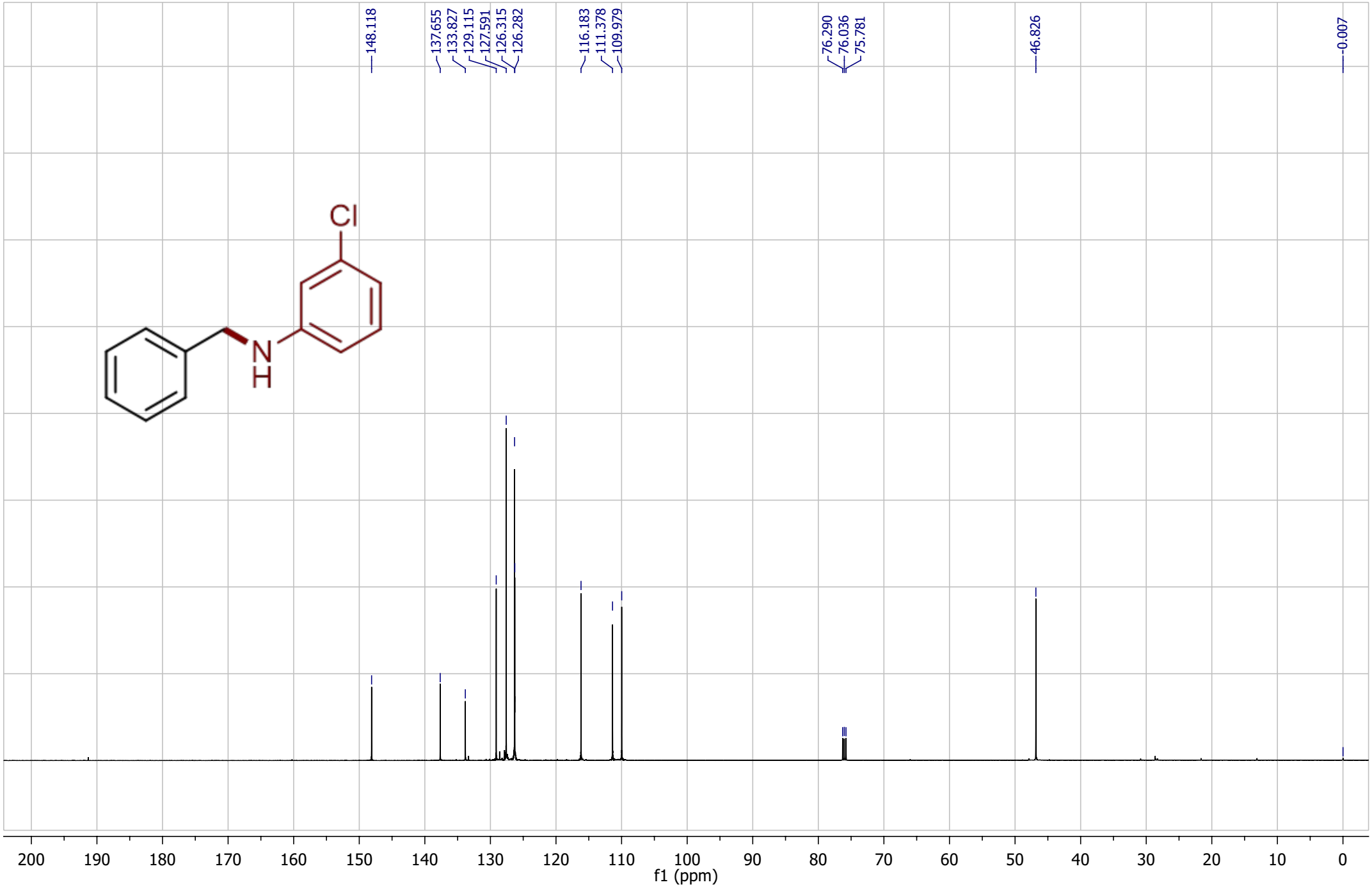

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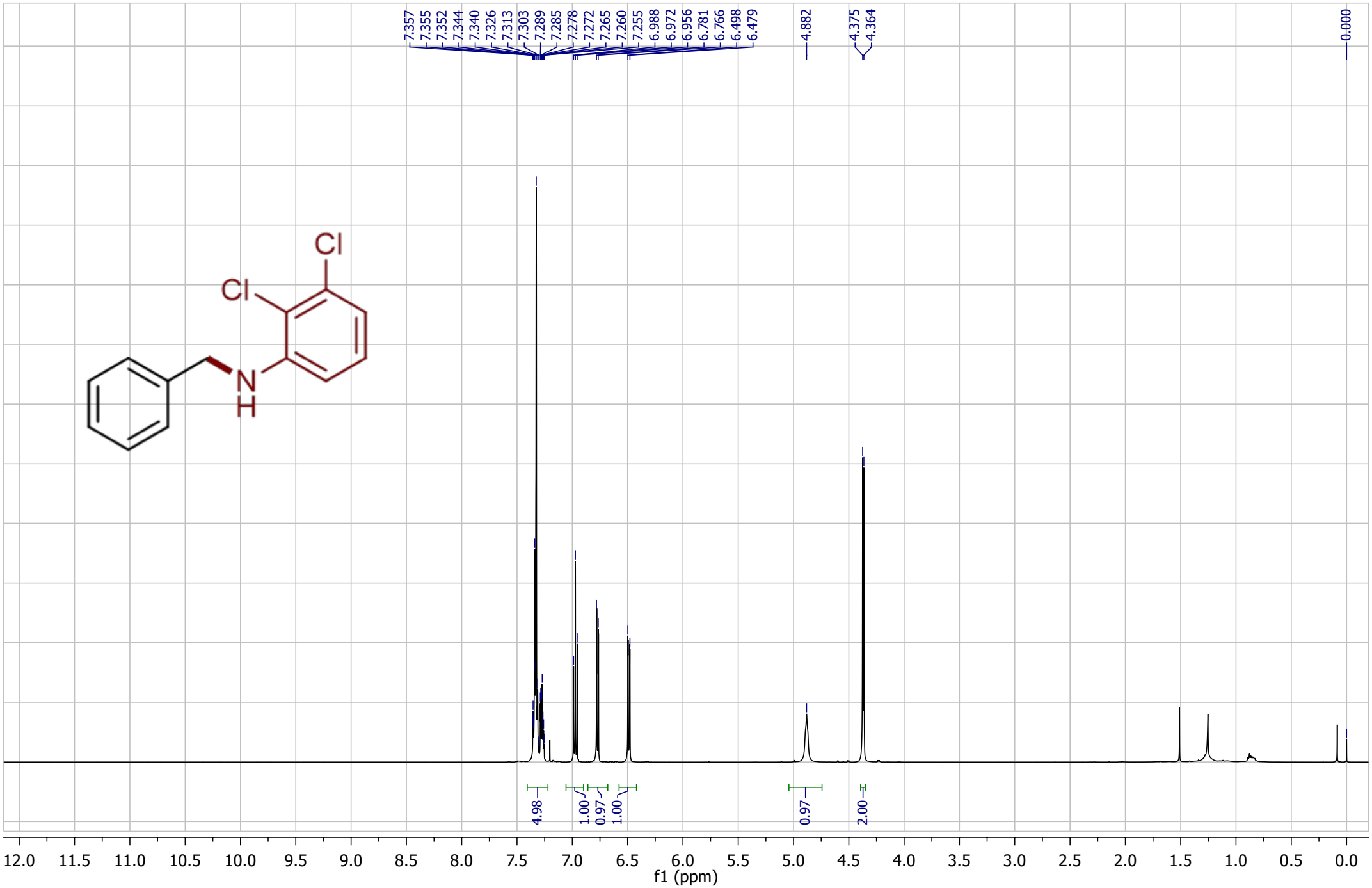
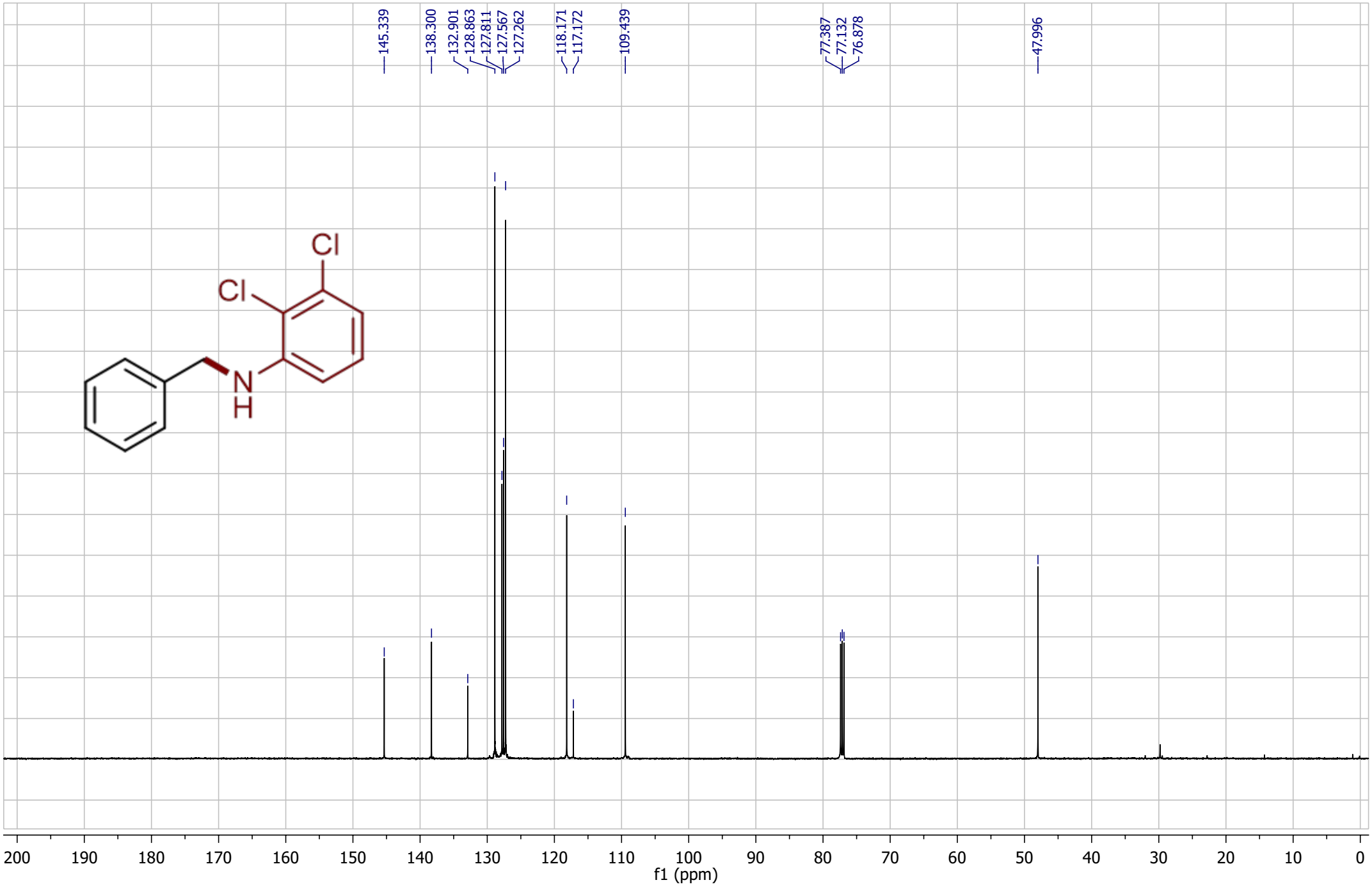
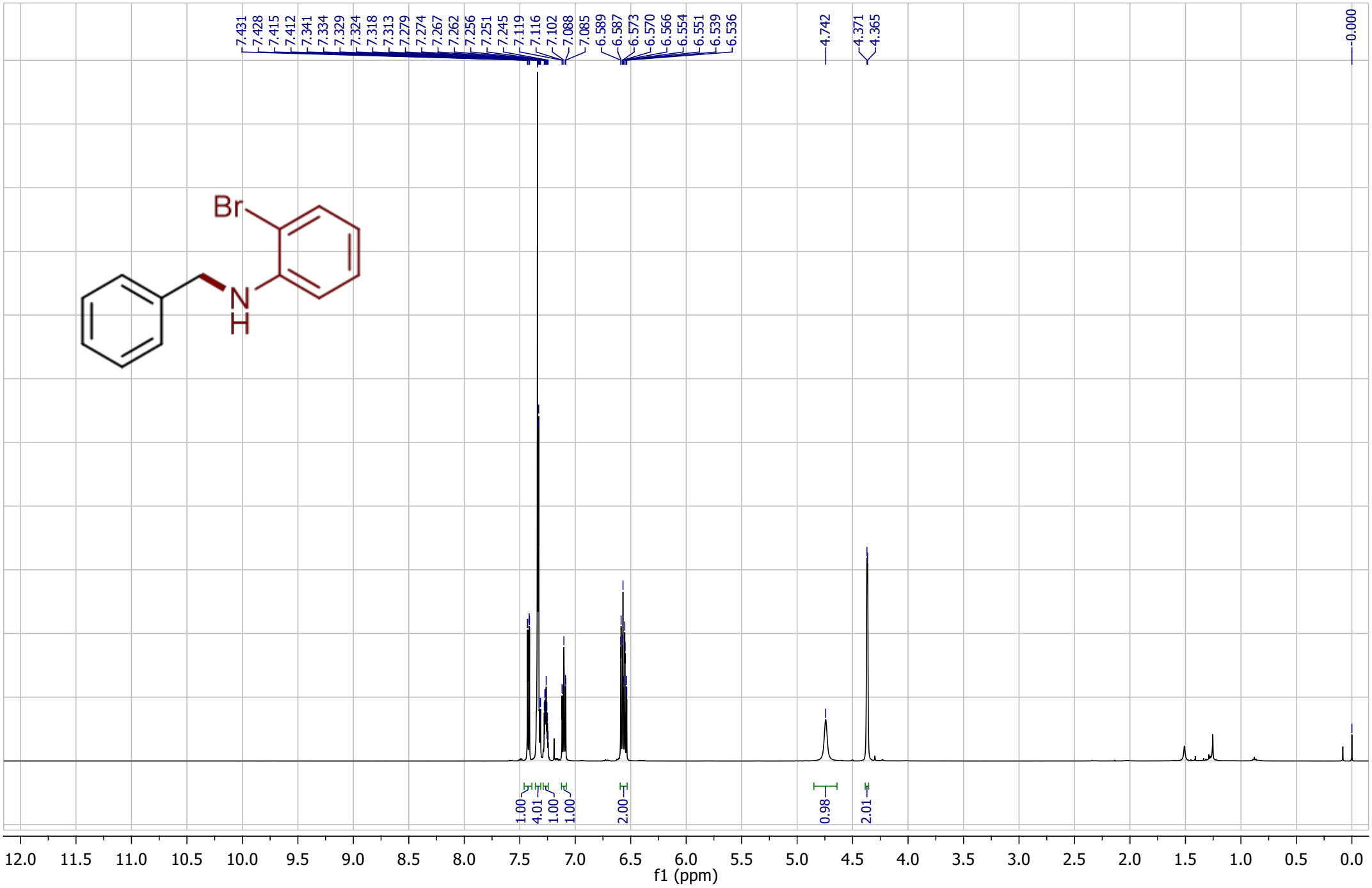


N-benzyl-2,3-dichloroaniline (3i)



N-benzyl-2,3-dichloroaniline (3i)



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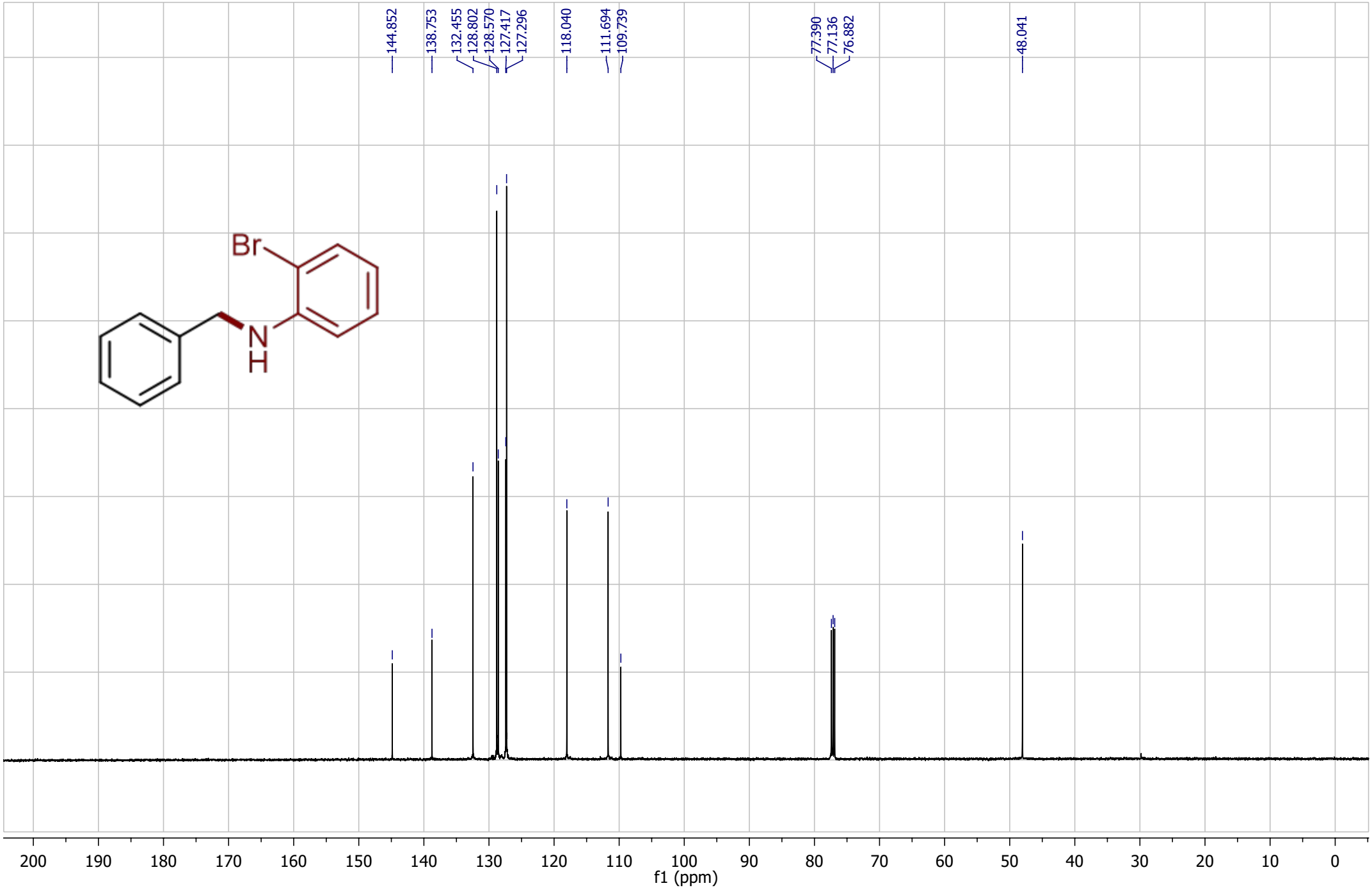

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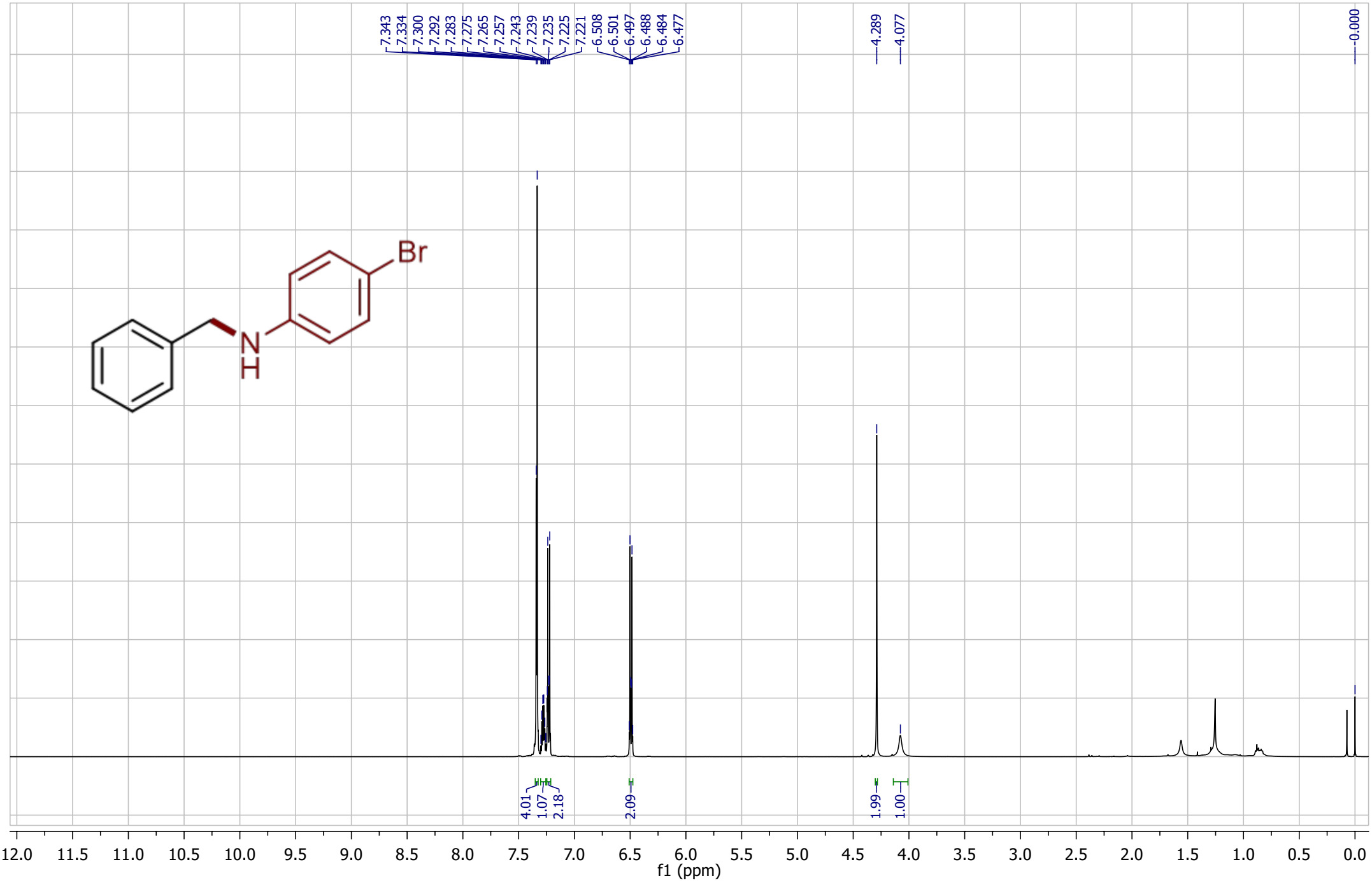
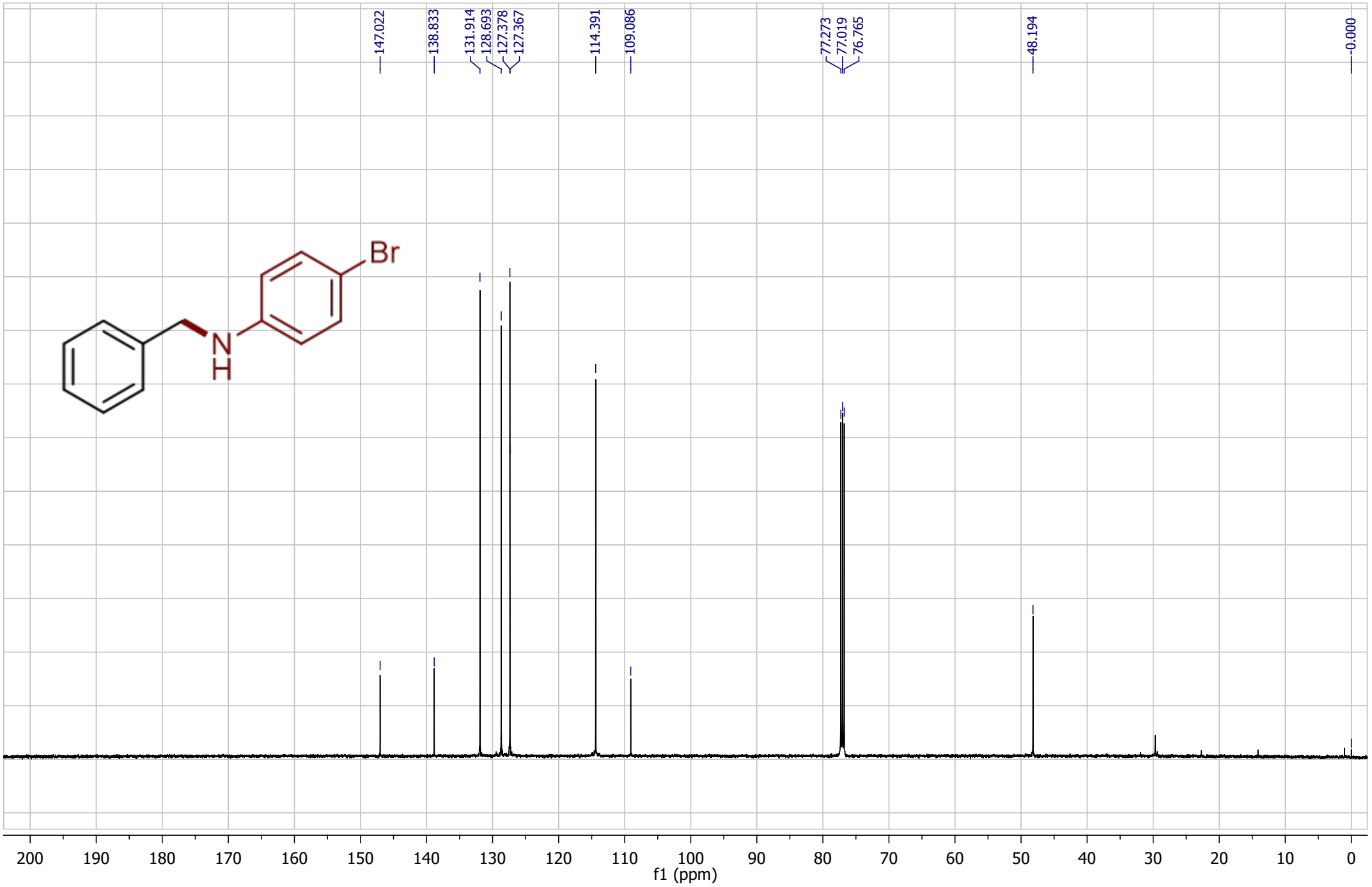
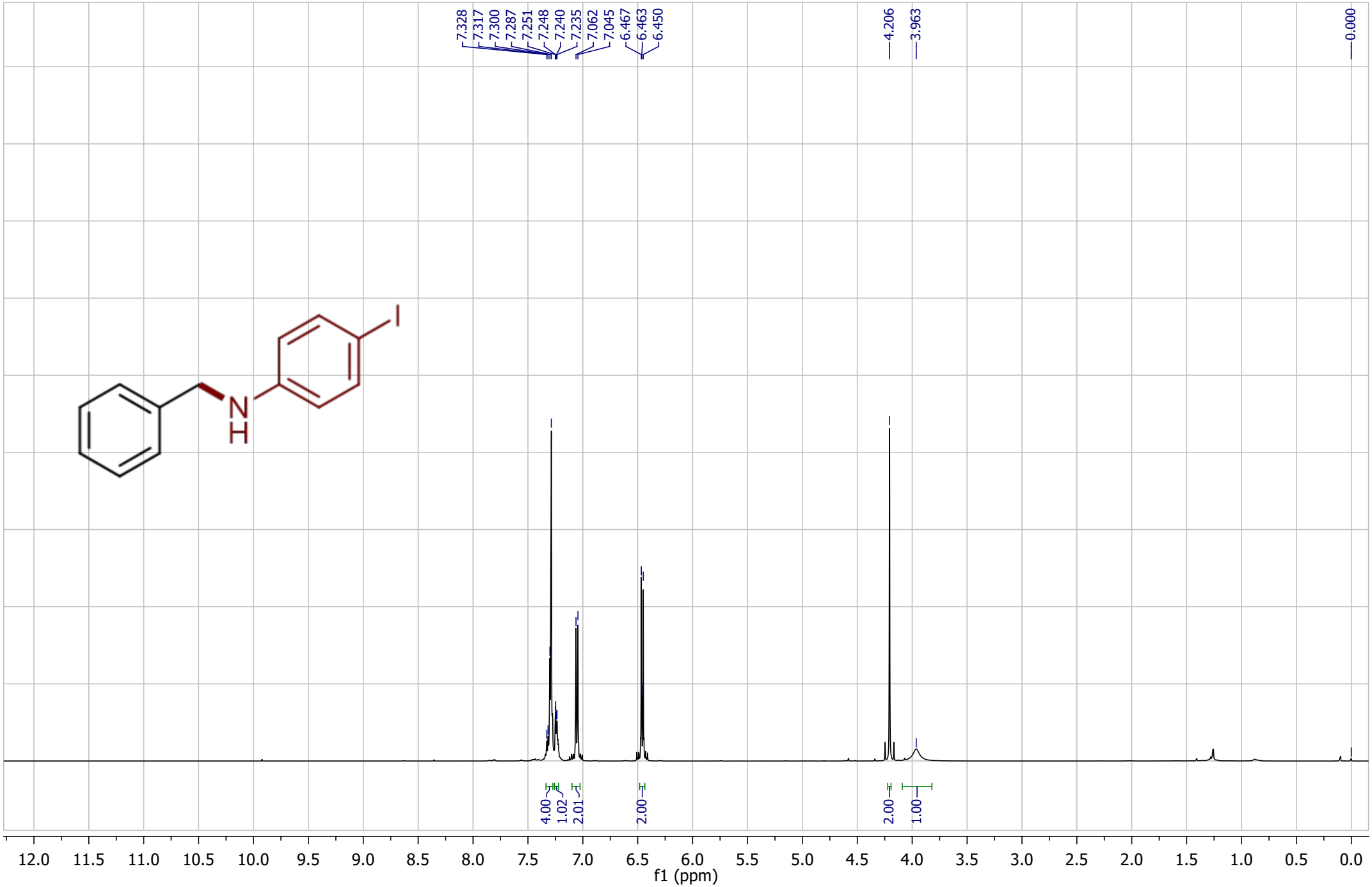


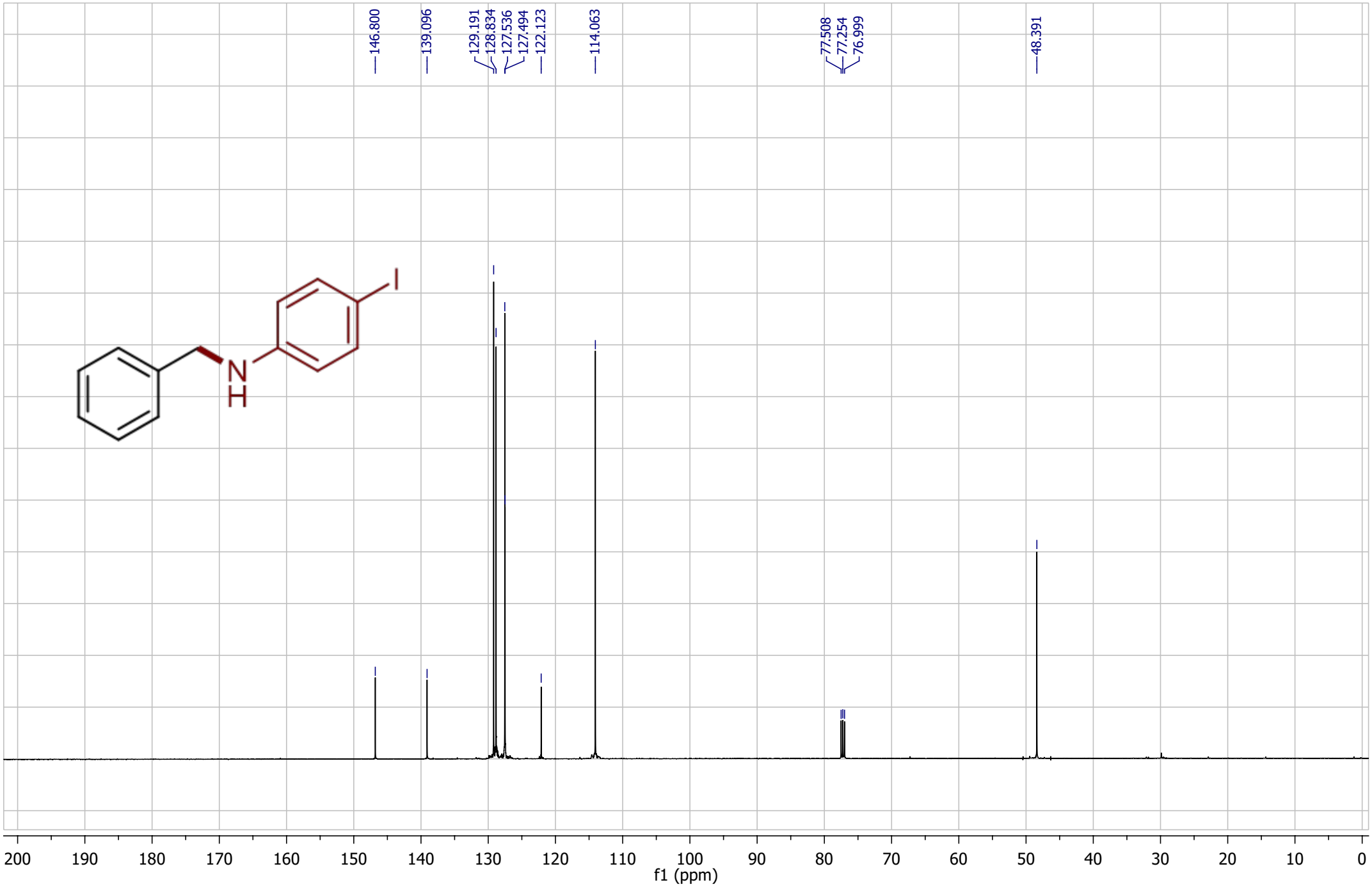
N-benzyl-4-bromoaniline (3k)



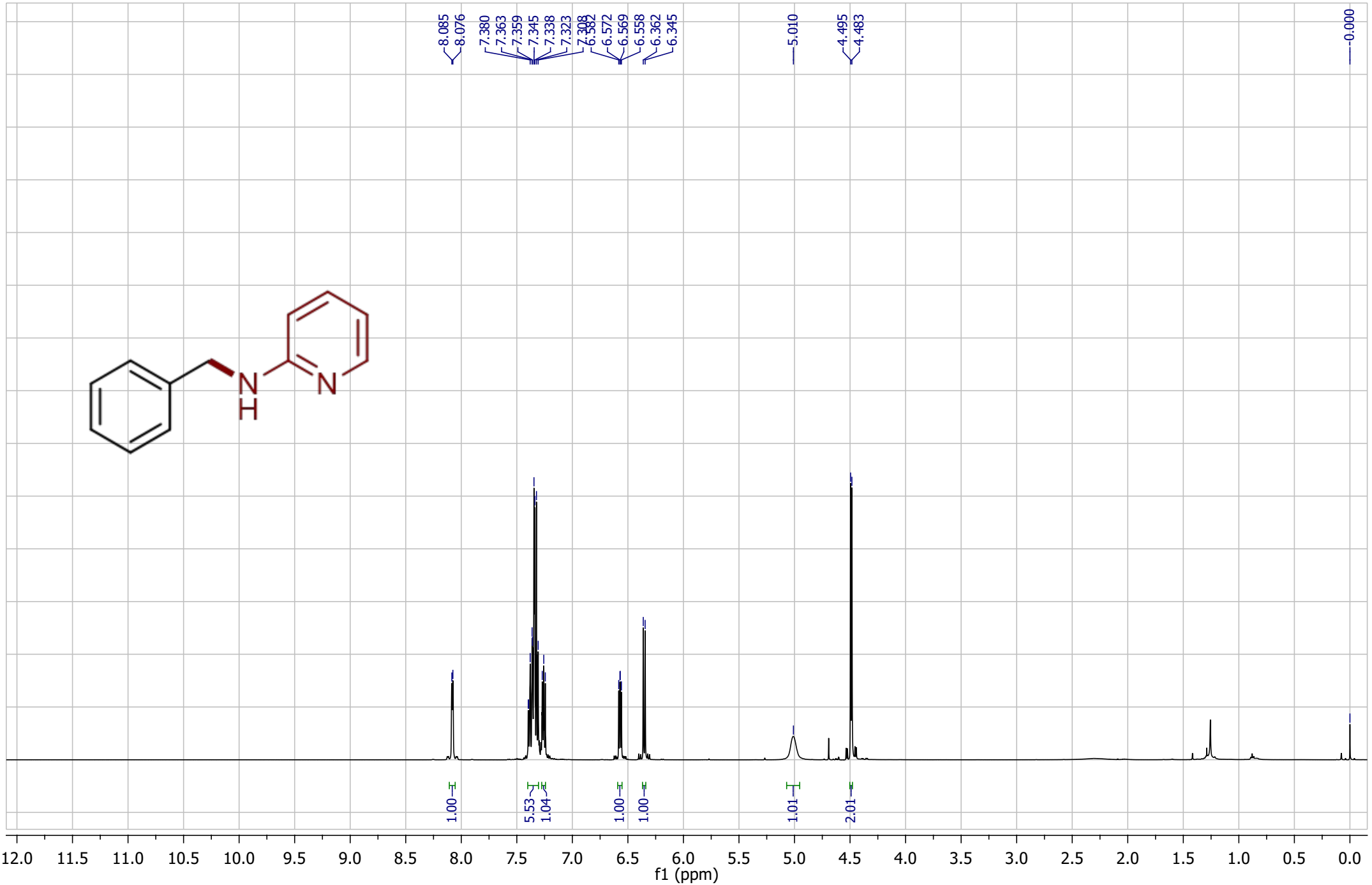
N-benzyl-4-bromoaniline (3k)



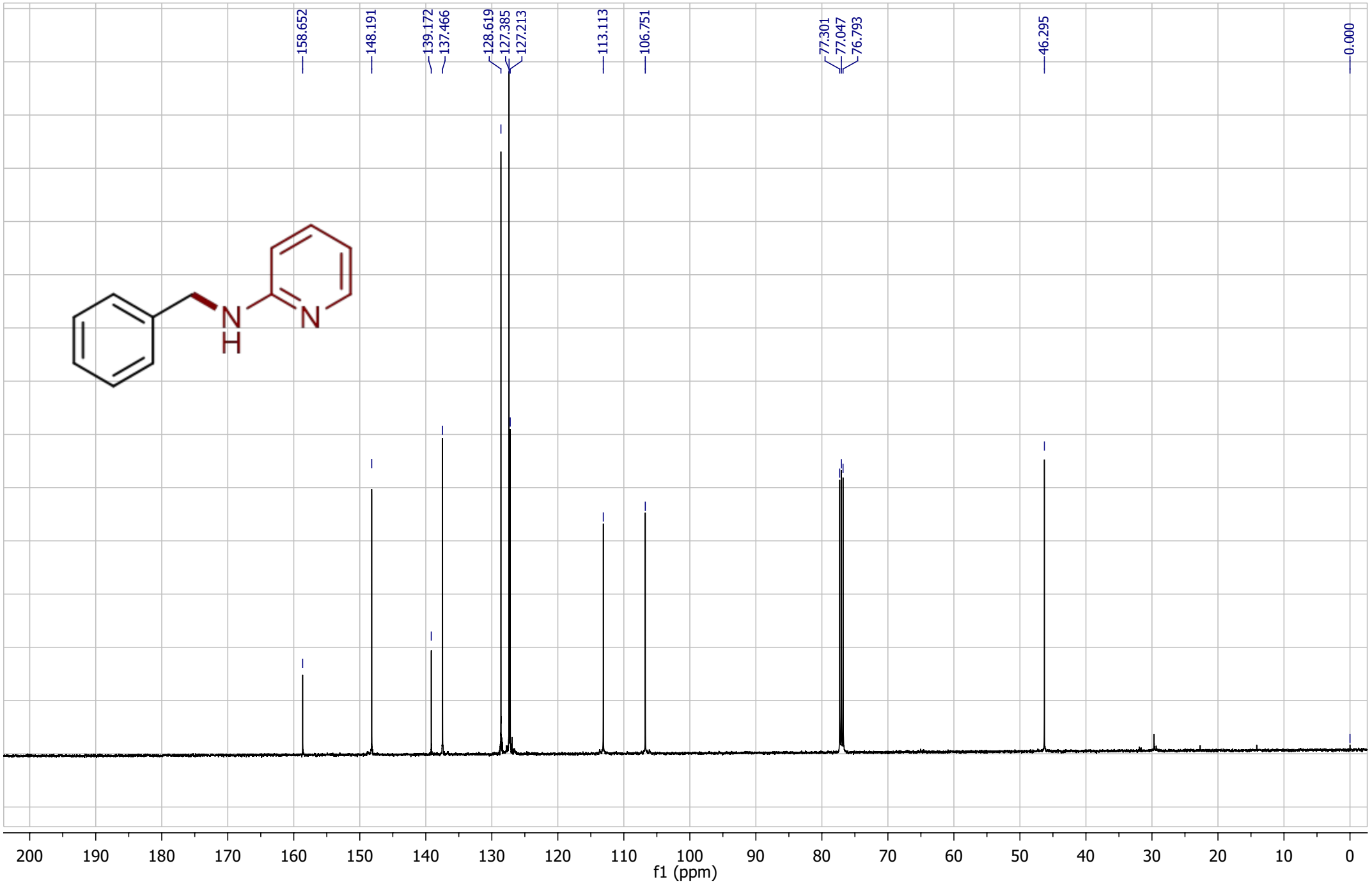
N-benzyl-4-iodoaniline (3l)



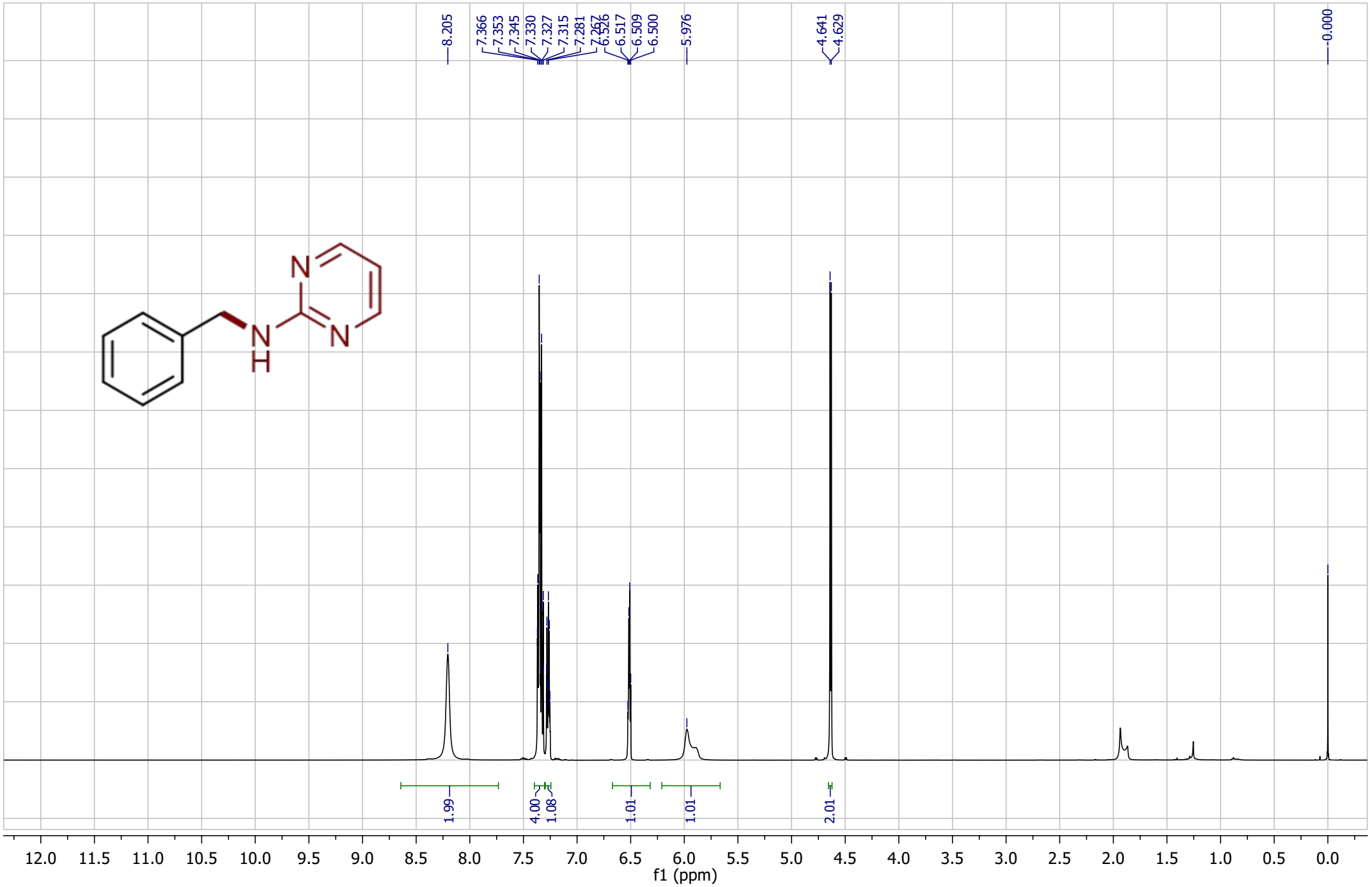
N-benzyl-4-iodoaniline (3l)



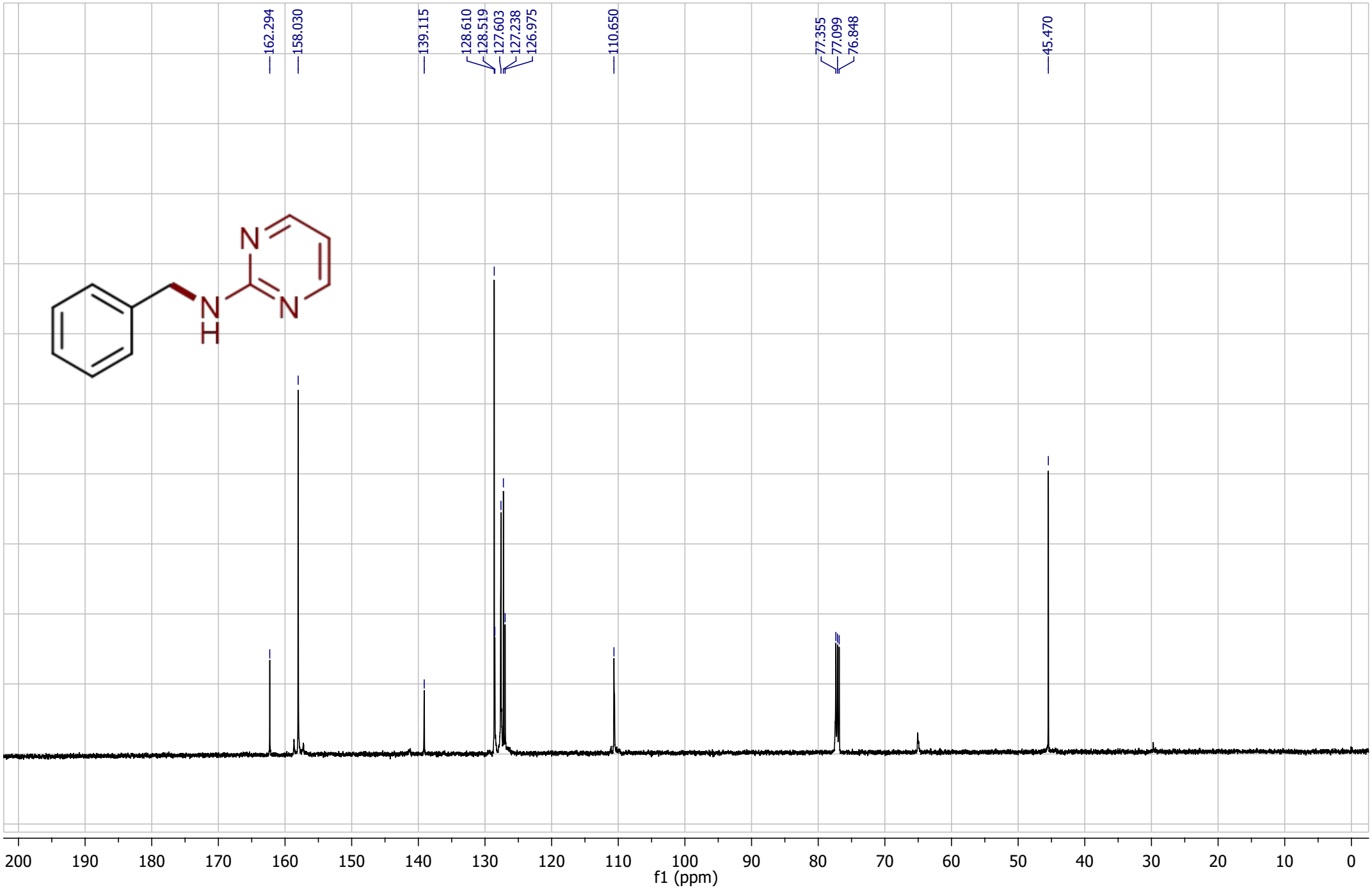
N-benzylpyridin-2-amine (3m)



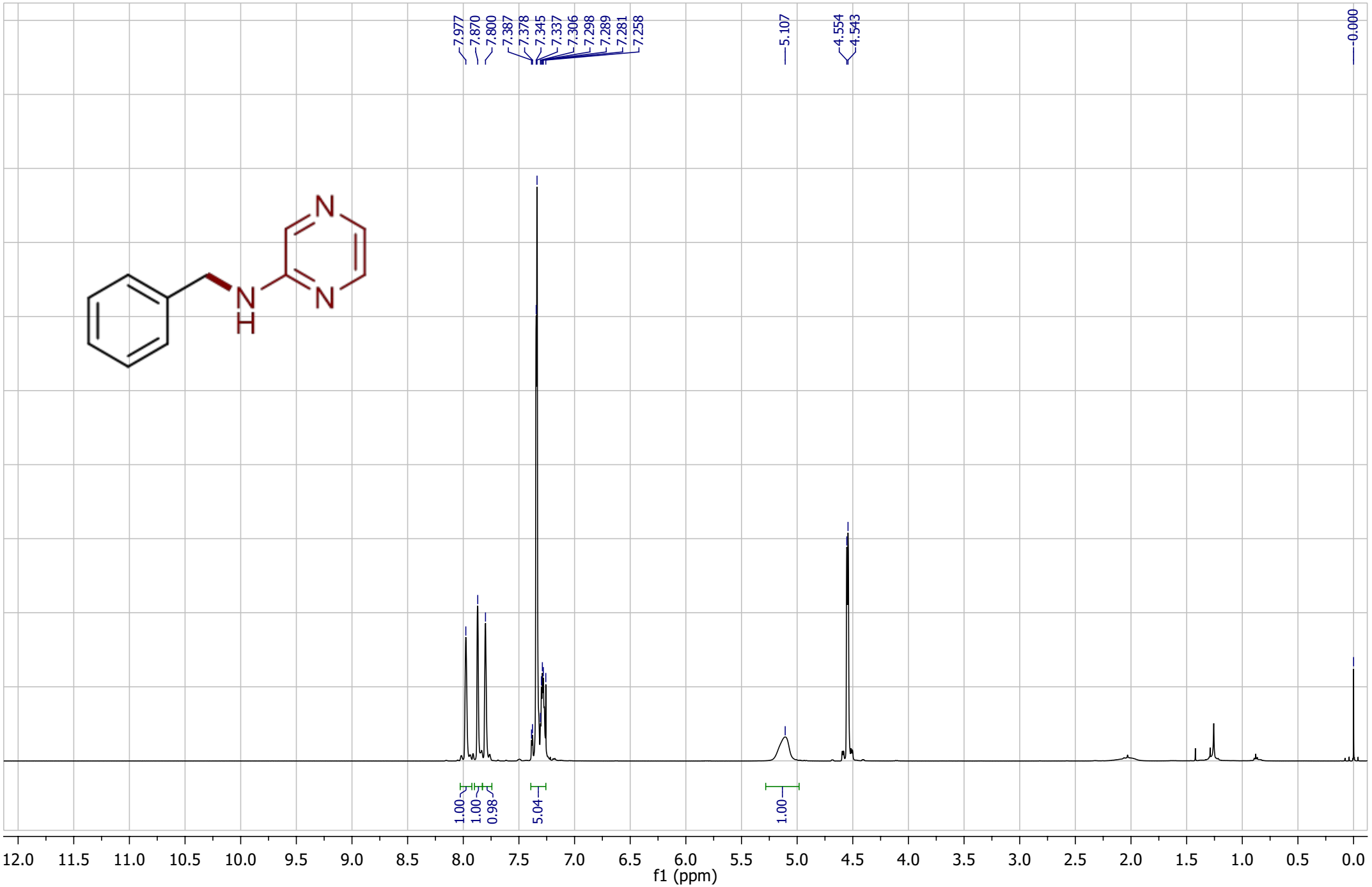
N-benzylpyridin-2-amine (3m)



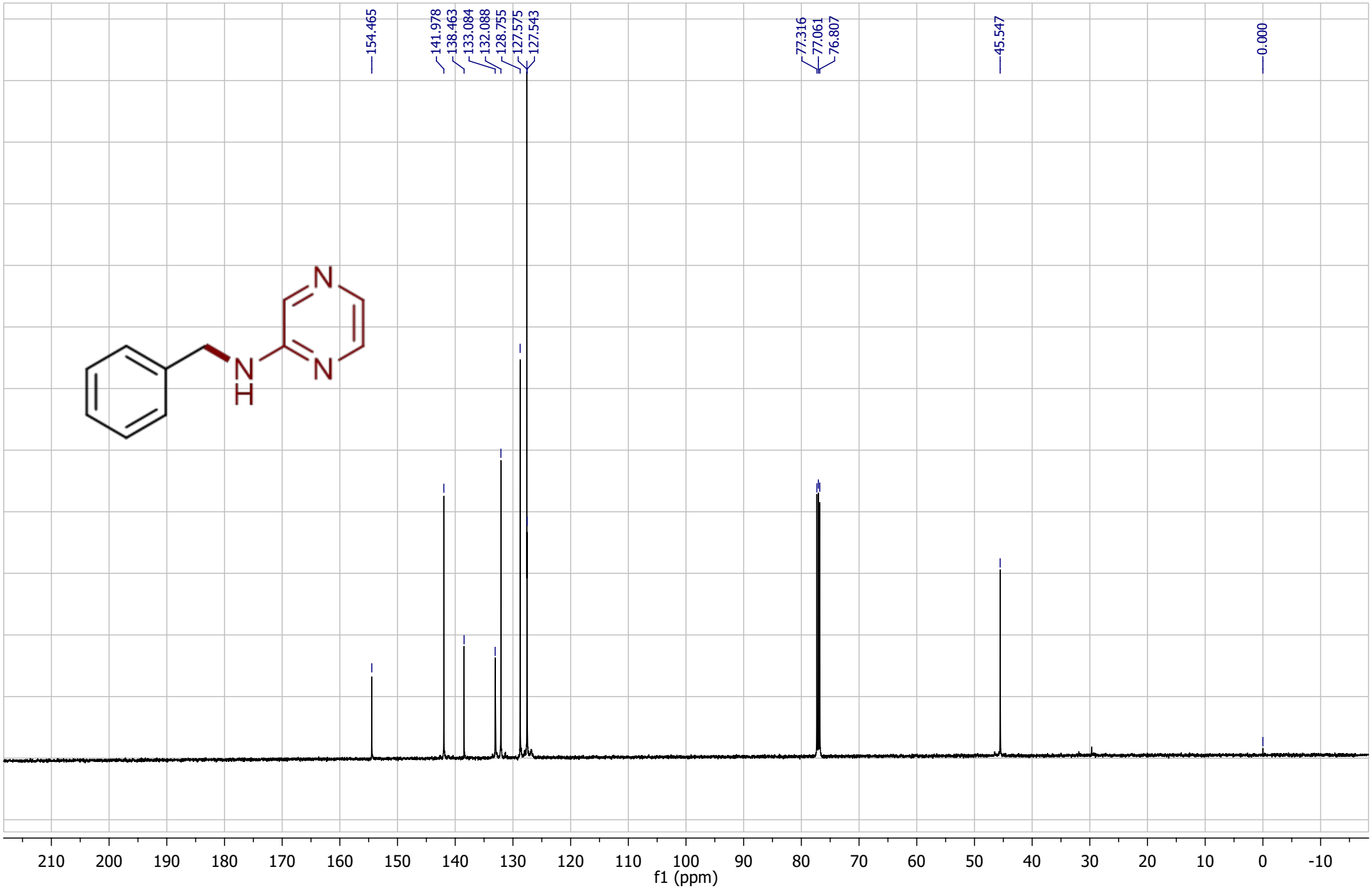
N-benzylpyrimidin-2-amine (3n)



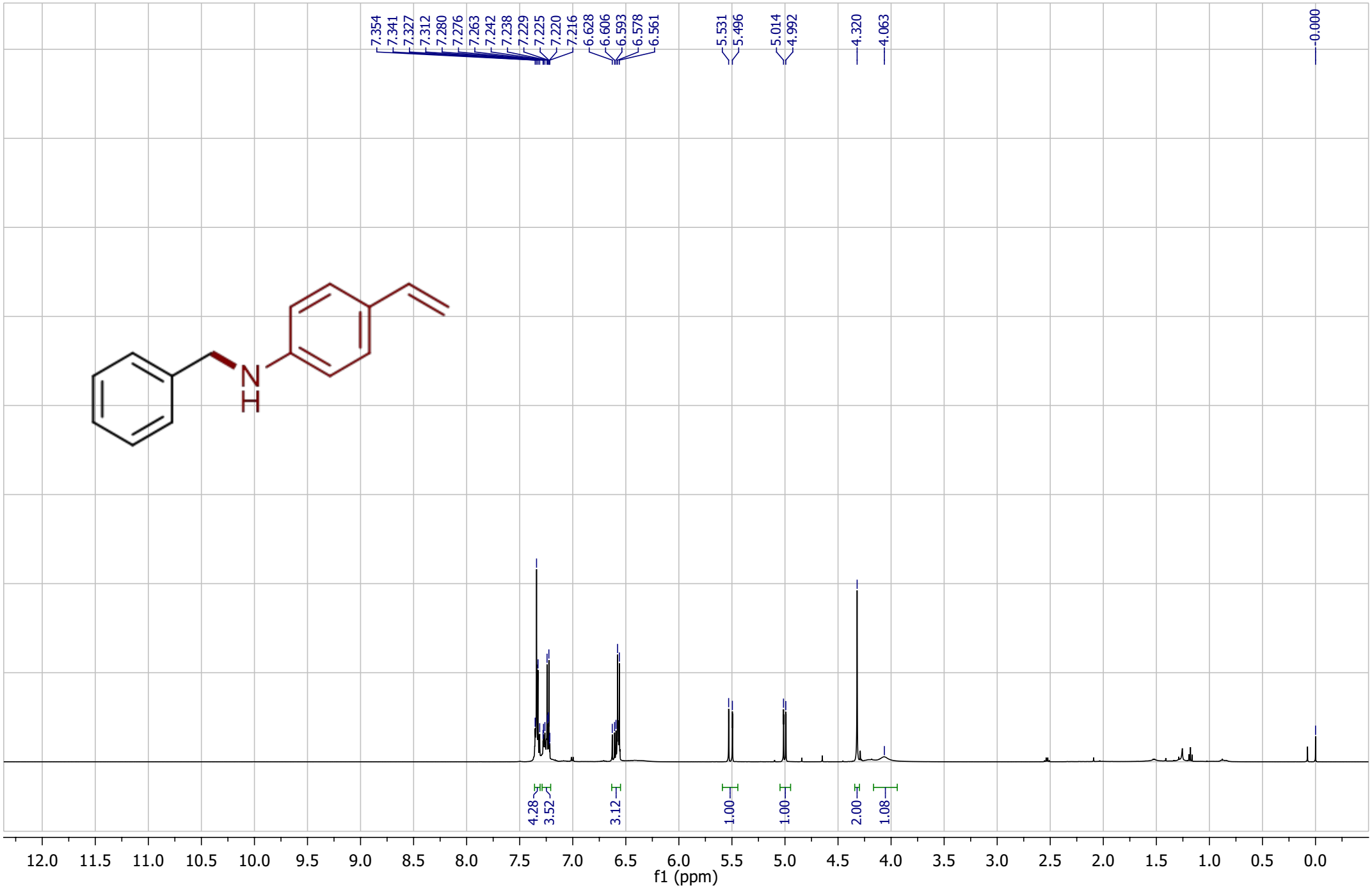
N-benzylpyrimidin-2-amine (3n)



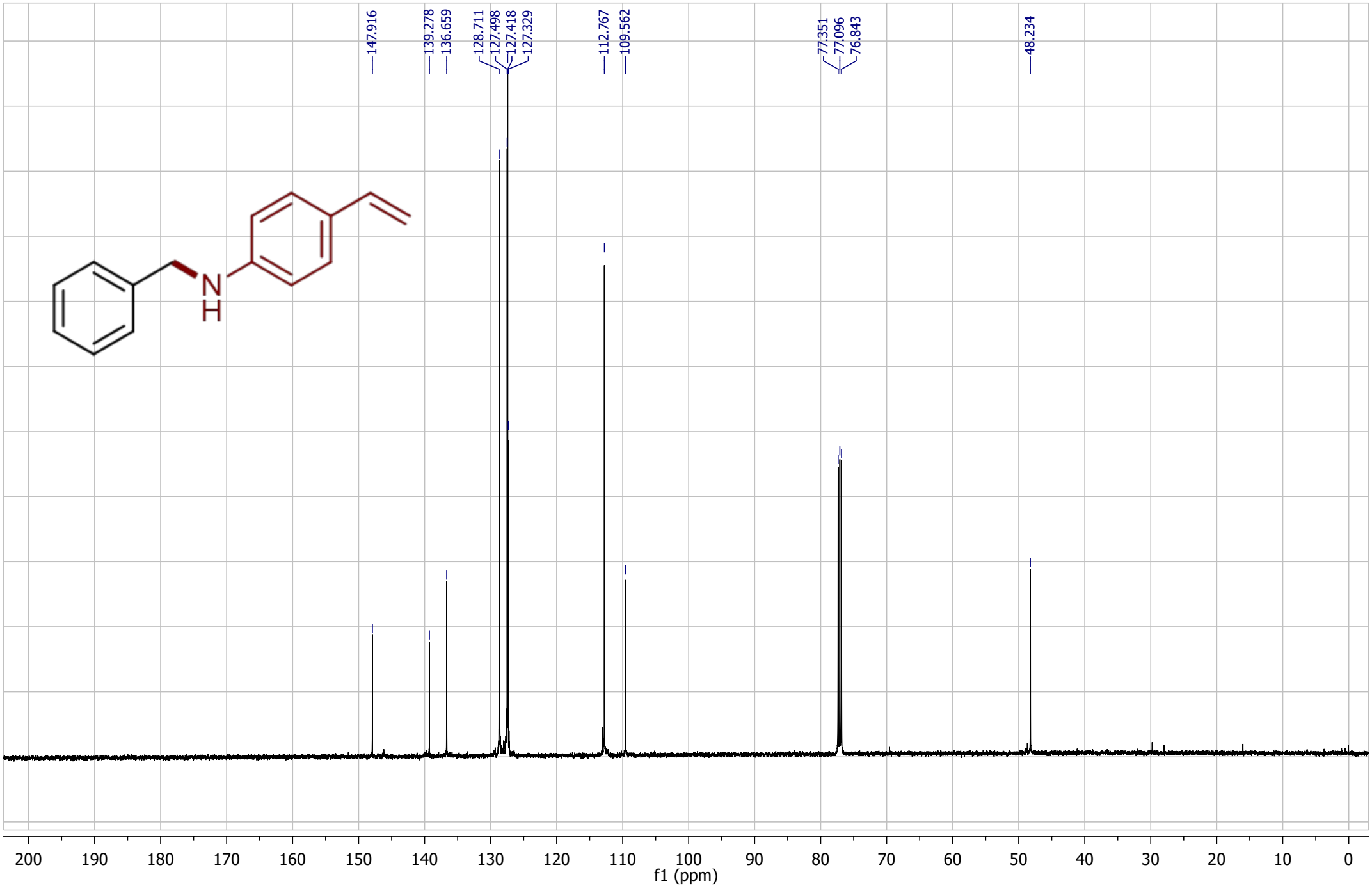
N-benzylpyrazin-2-amine (3o)



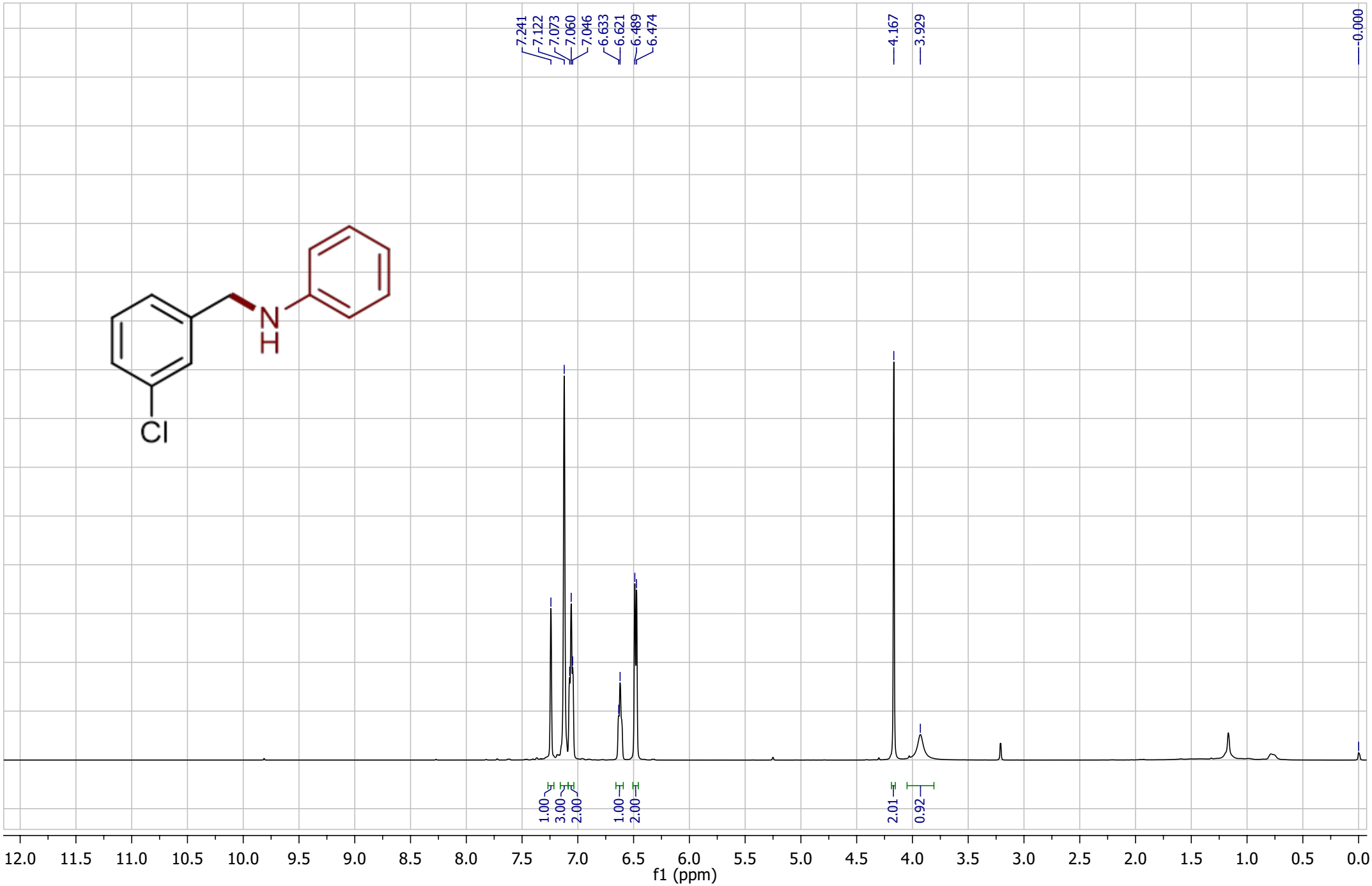
N-benzylpyrazin-2-amine (3o)



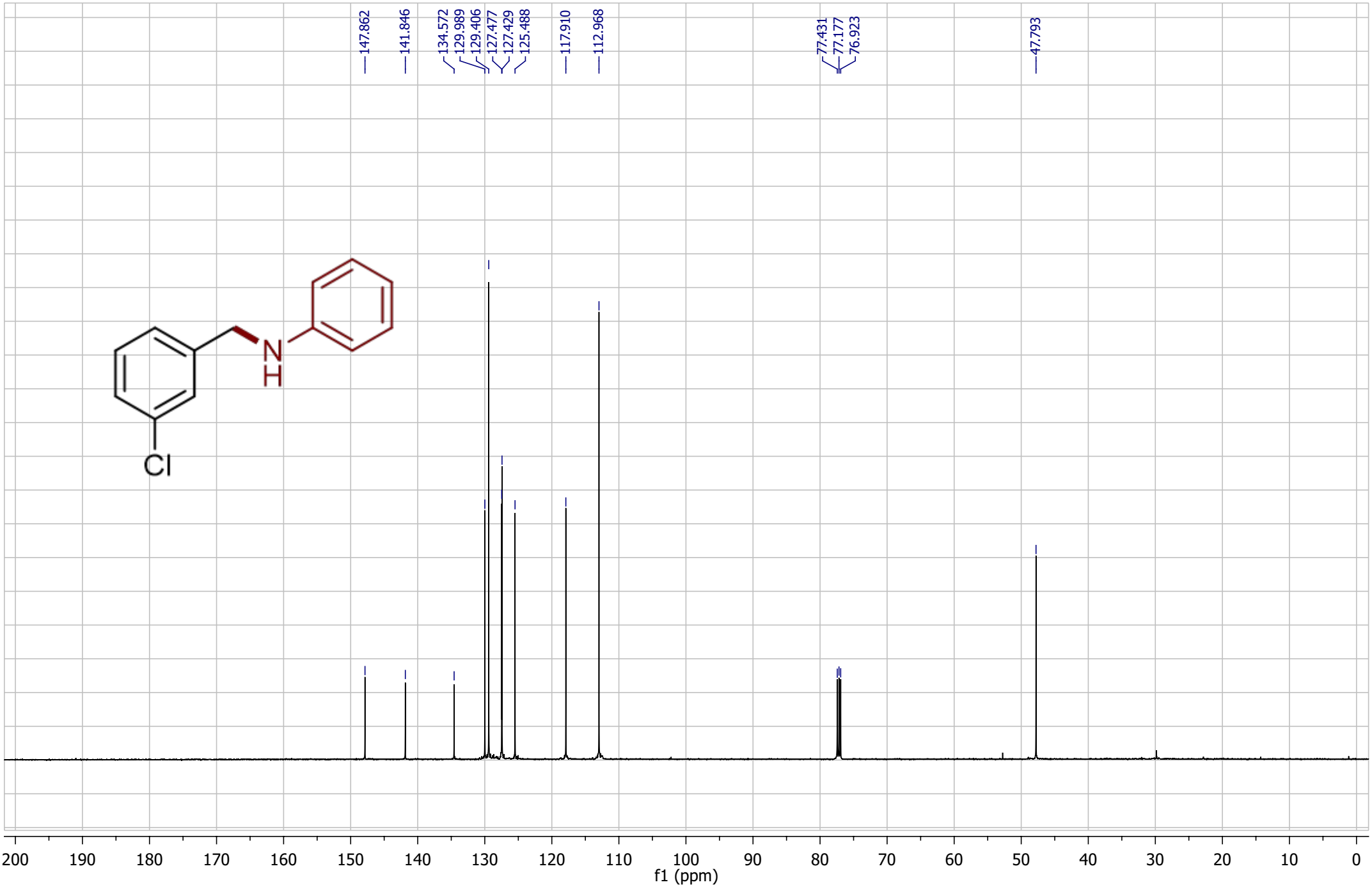
N-benzyl-4-vinylaniline (3p)



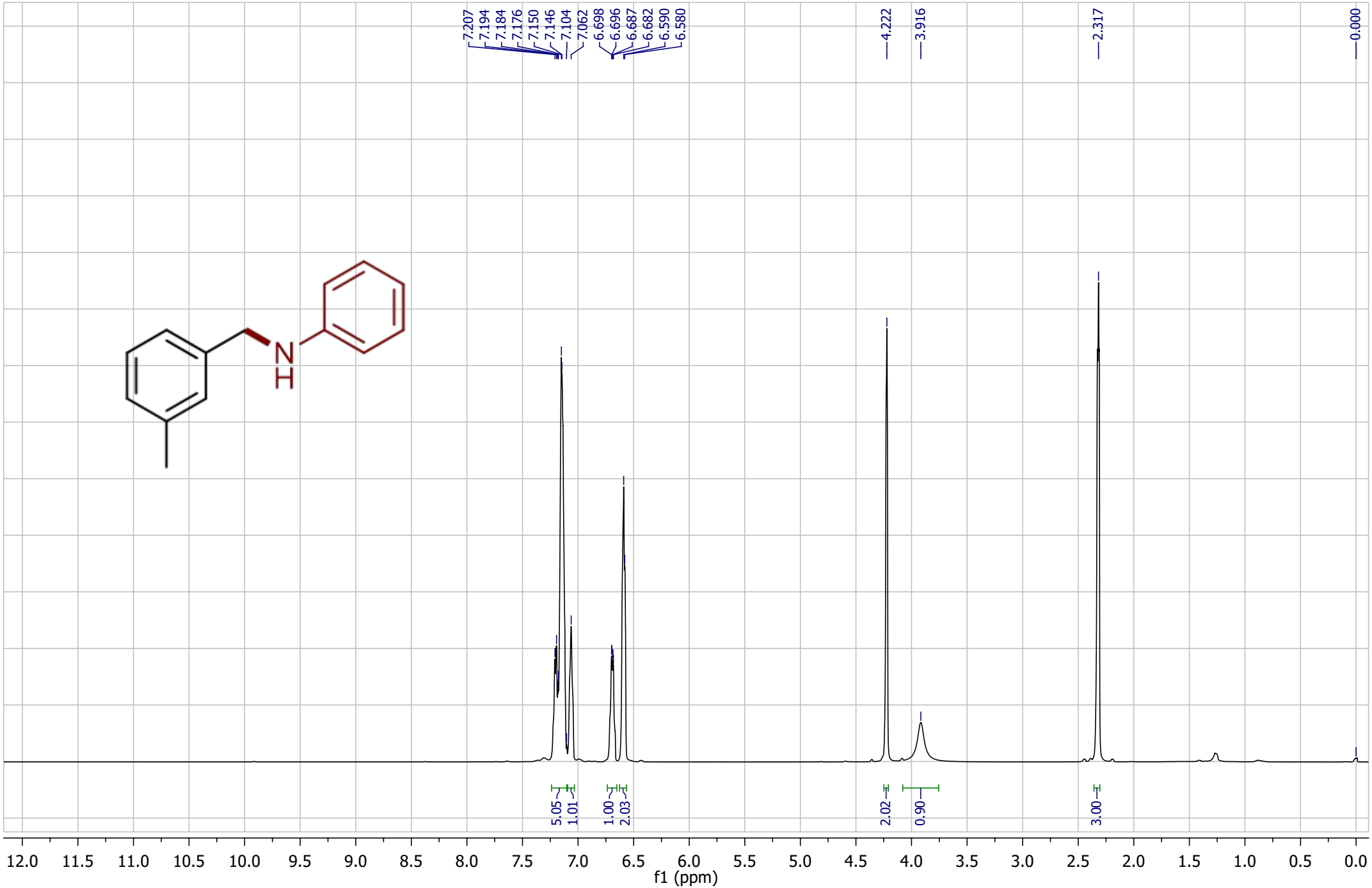
N-benzyl-4-vinylaniline (3p)



N-(3-chlorobenzyl)aniline (3q)



N-(3-chlorobenzyl)aniline (3q)



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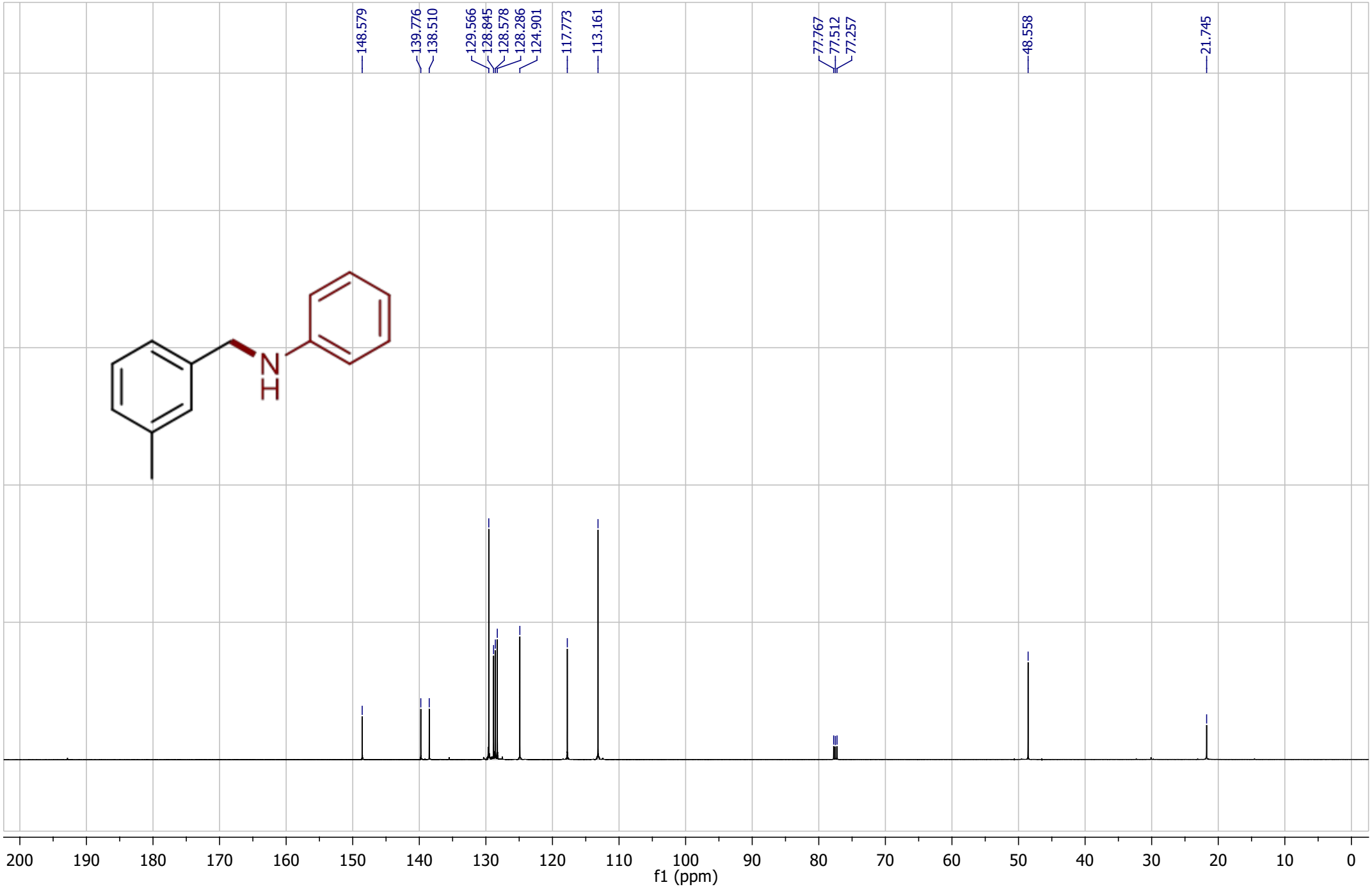

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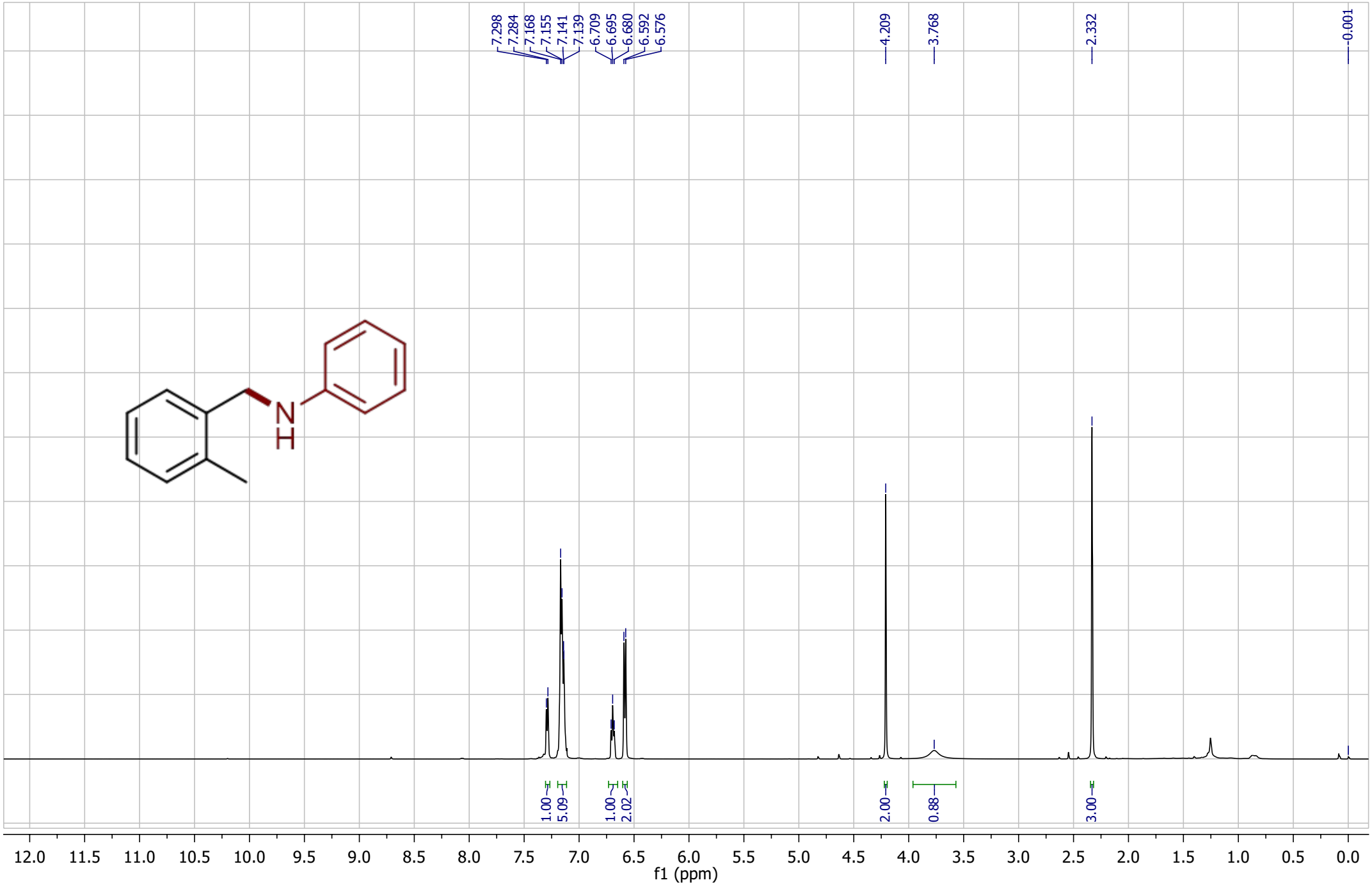
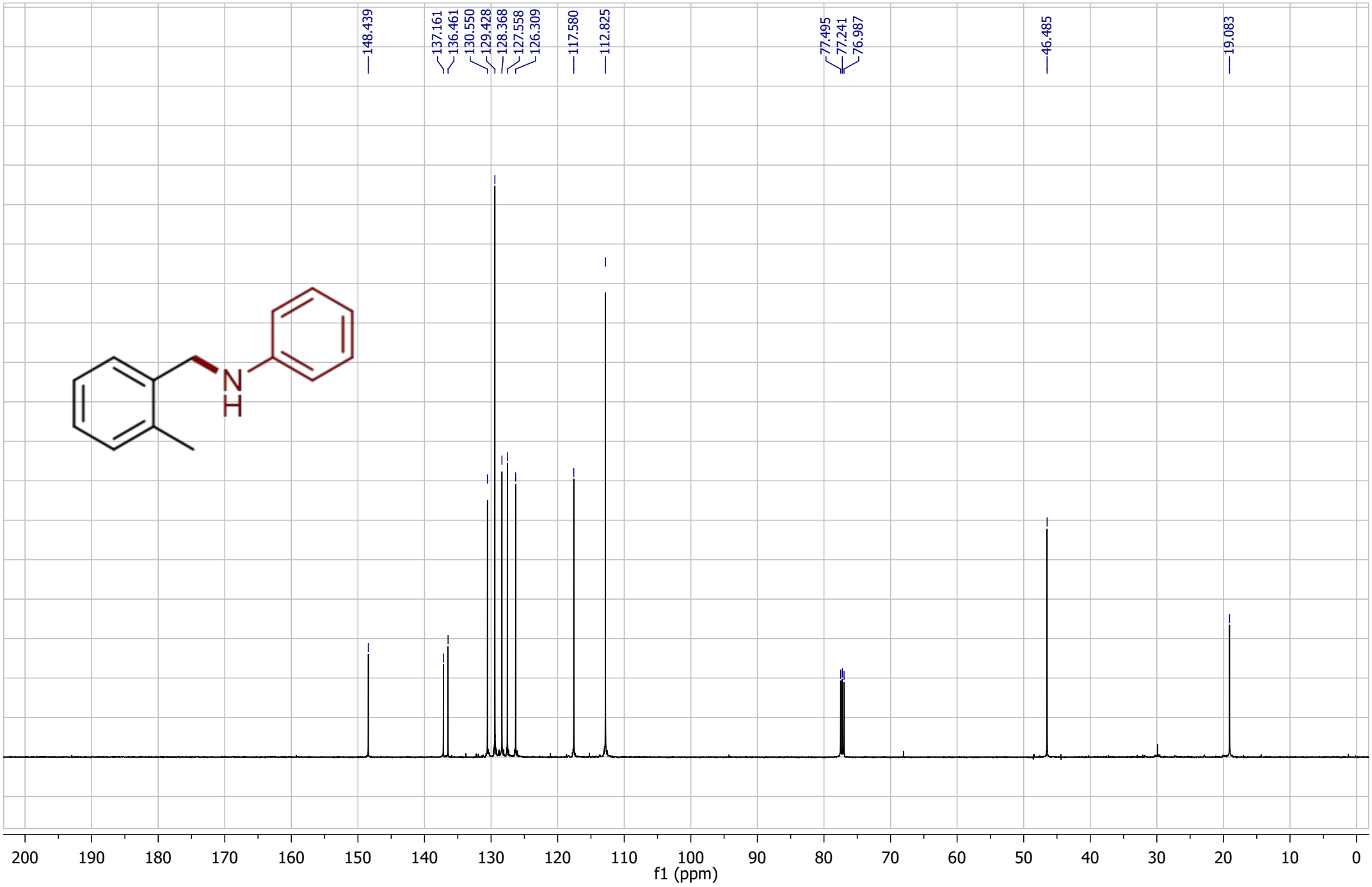
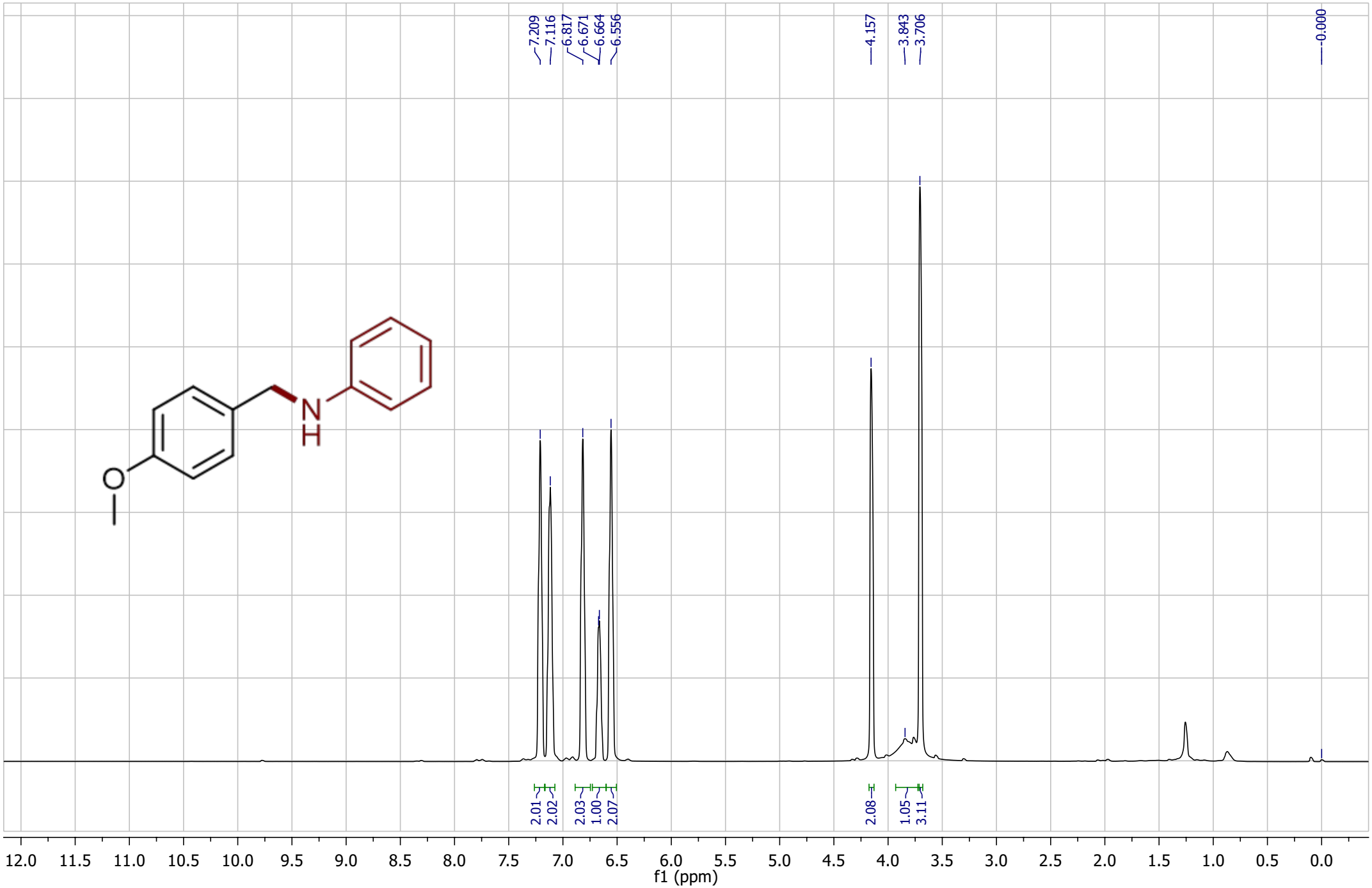


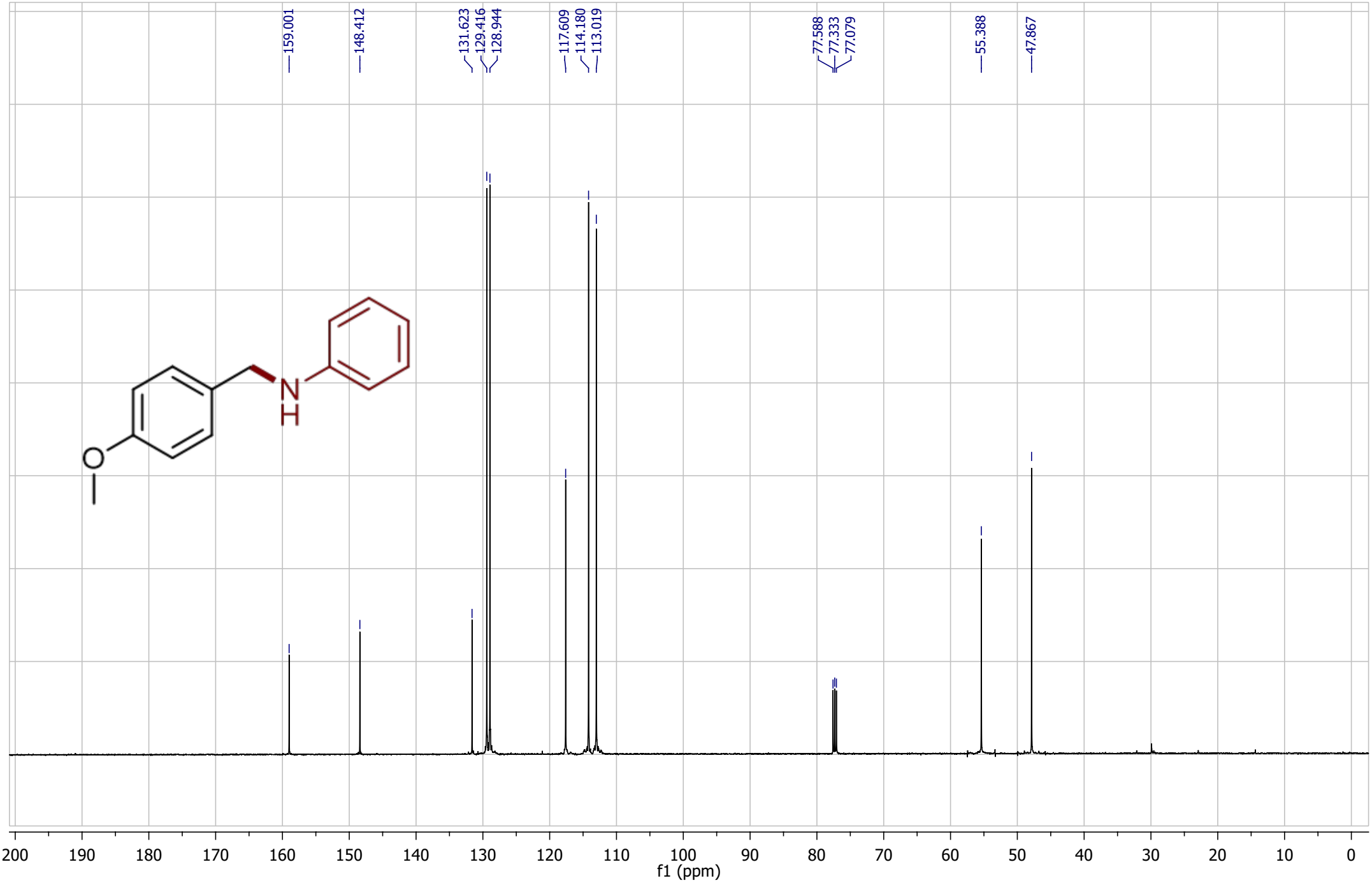
N-(2-methylbenzyl)aniline (3s)



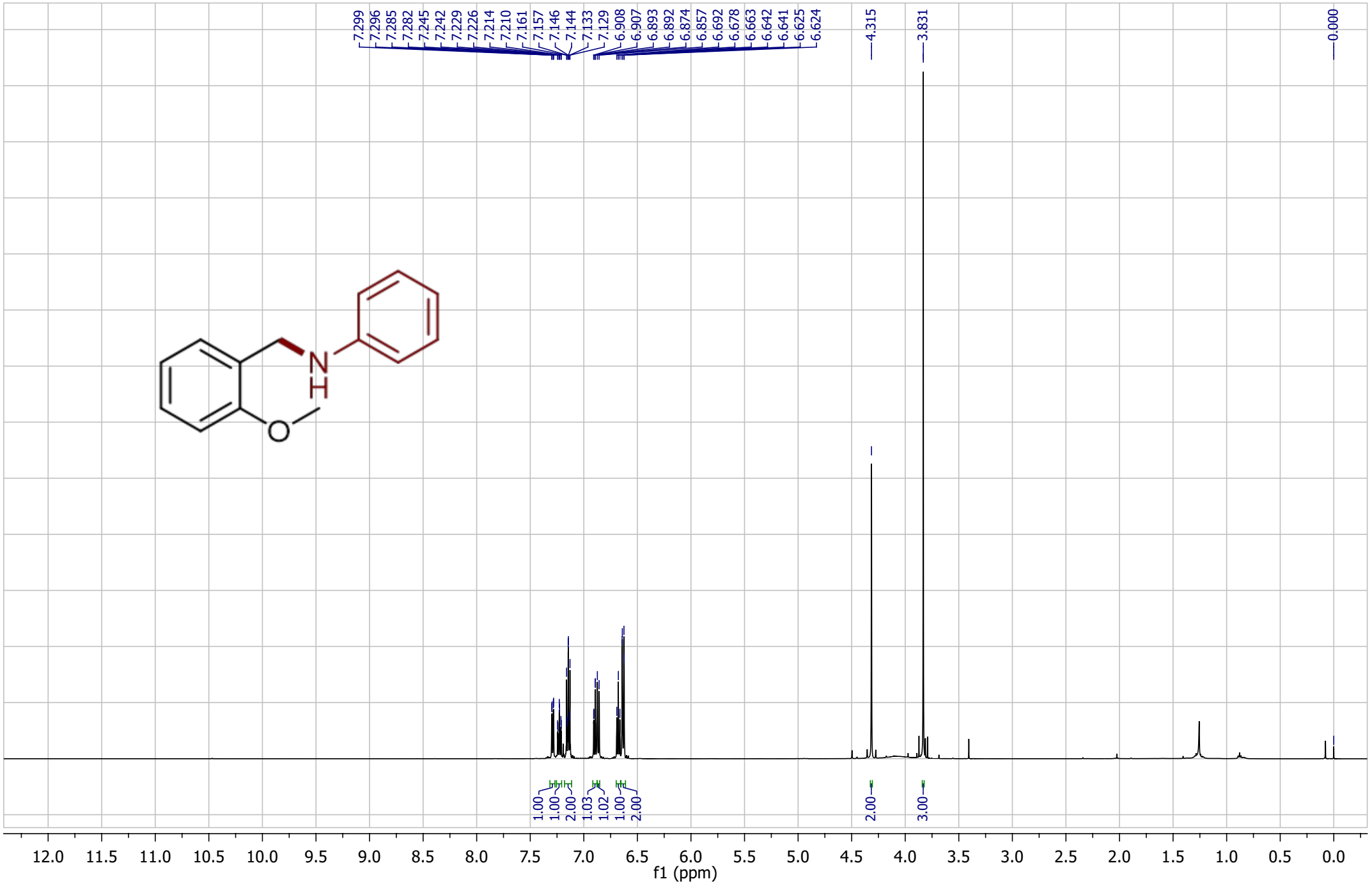
N-(2-methylbenzyl)aniline (3s)



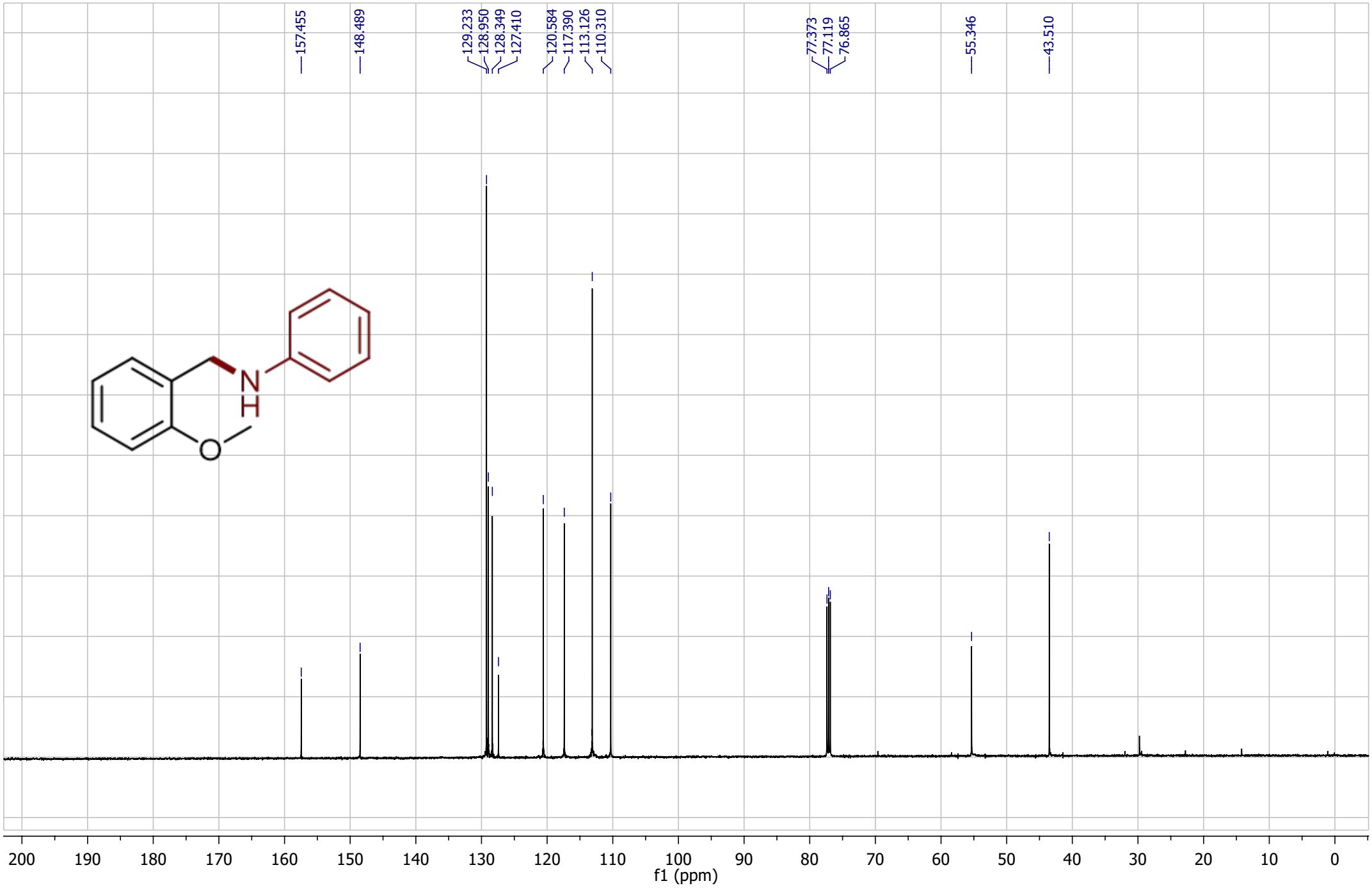
N-(4-methoxybenzyl)aniline (3t)



N-(4-methoxybenzyl)aniline (3t)



N-(2-methoxybenzyl)aniline (3u)



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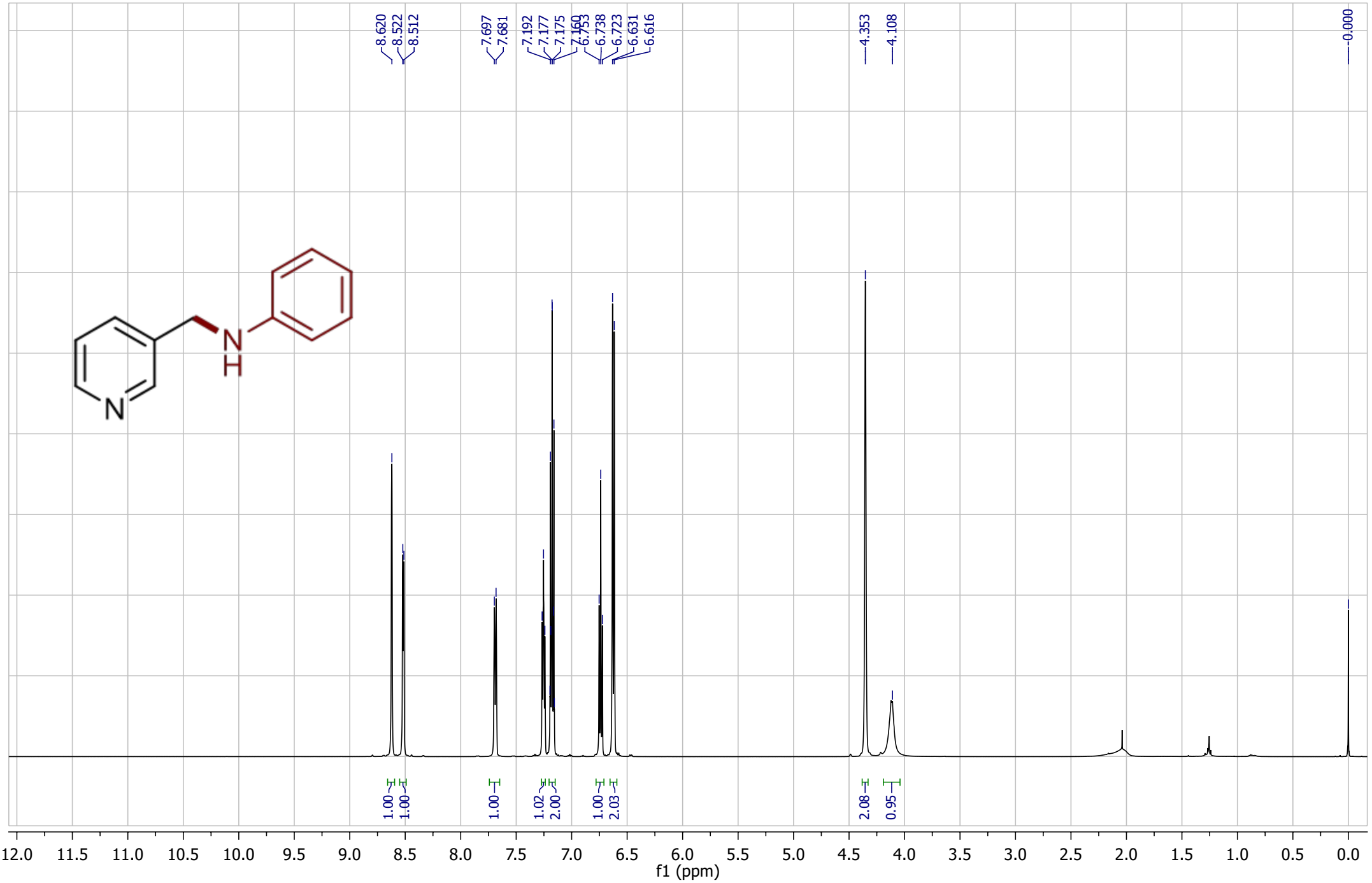
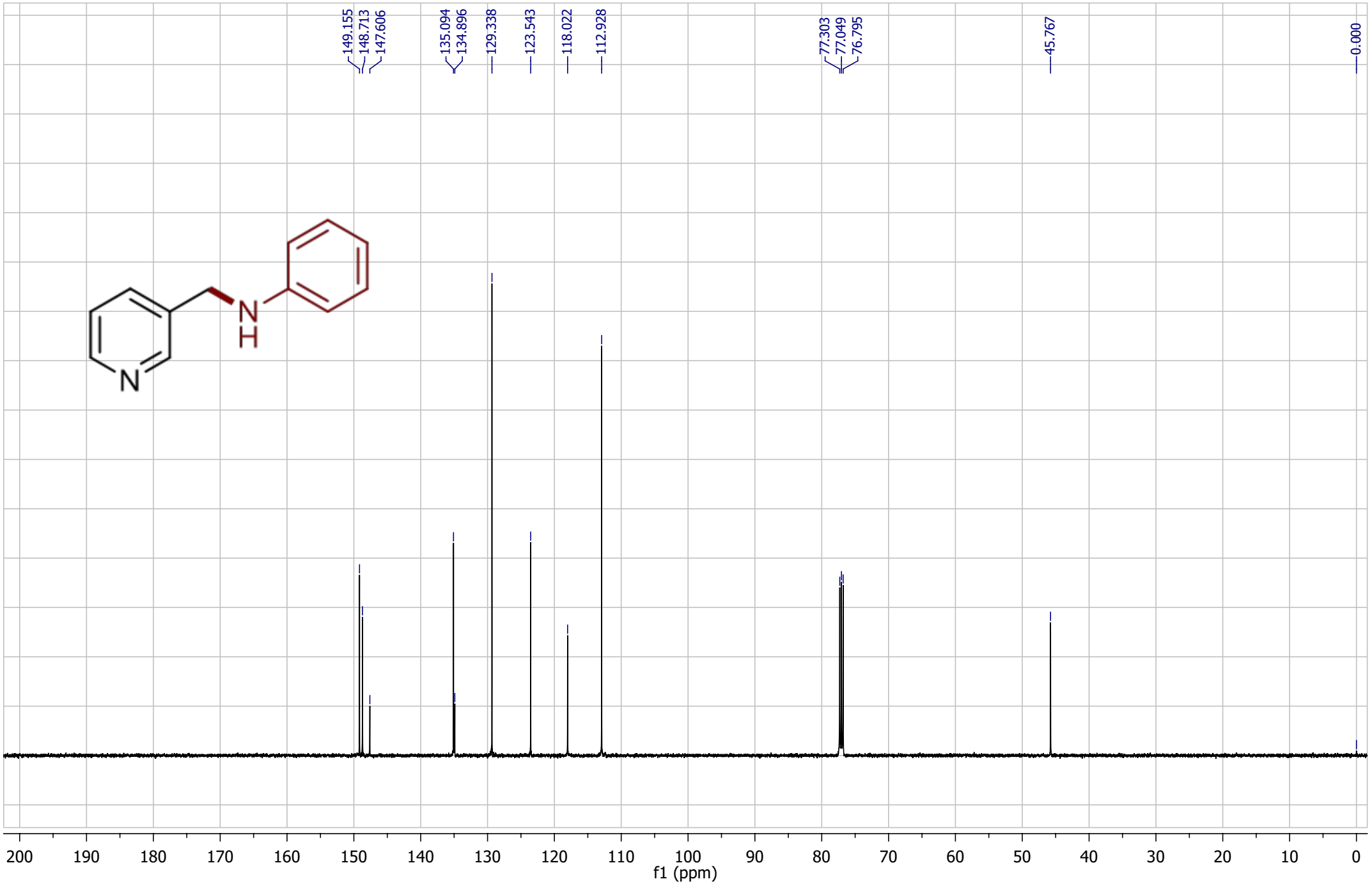
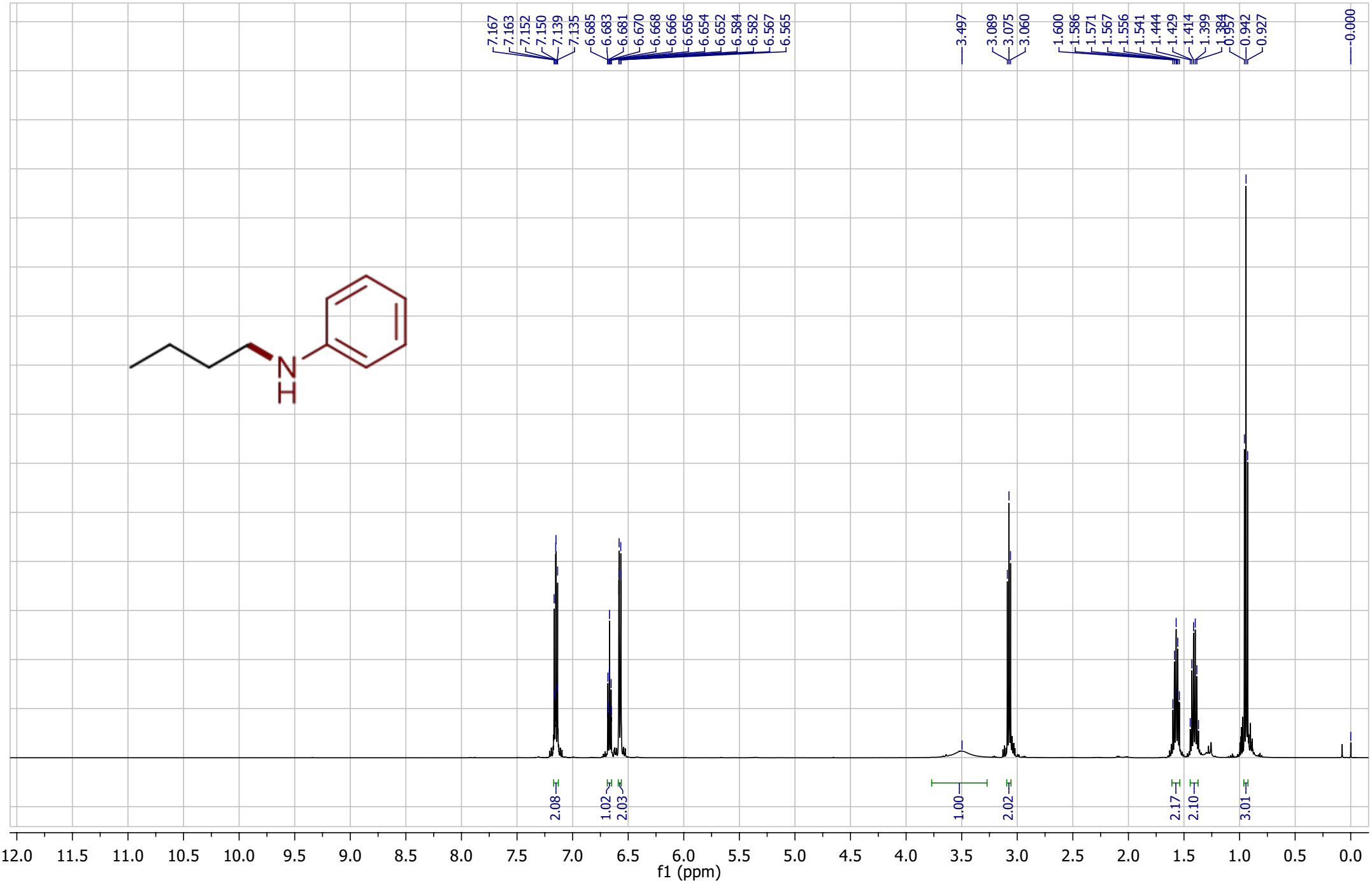


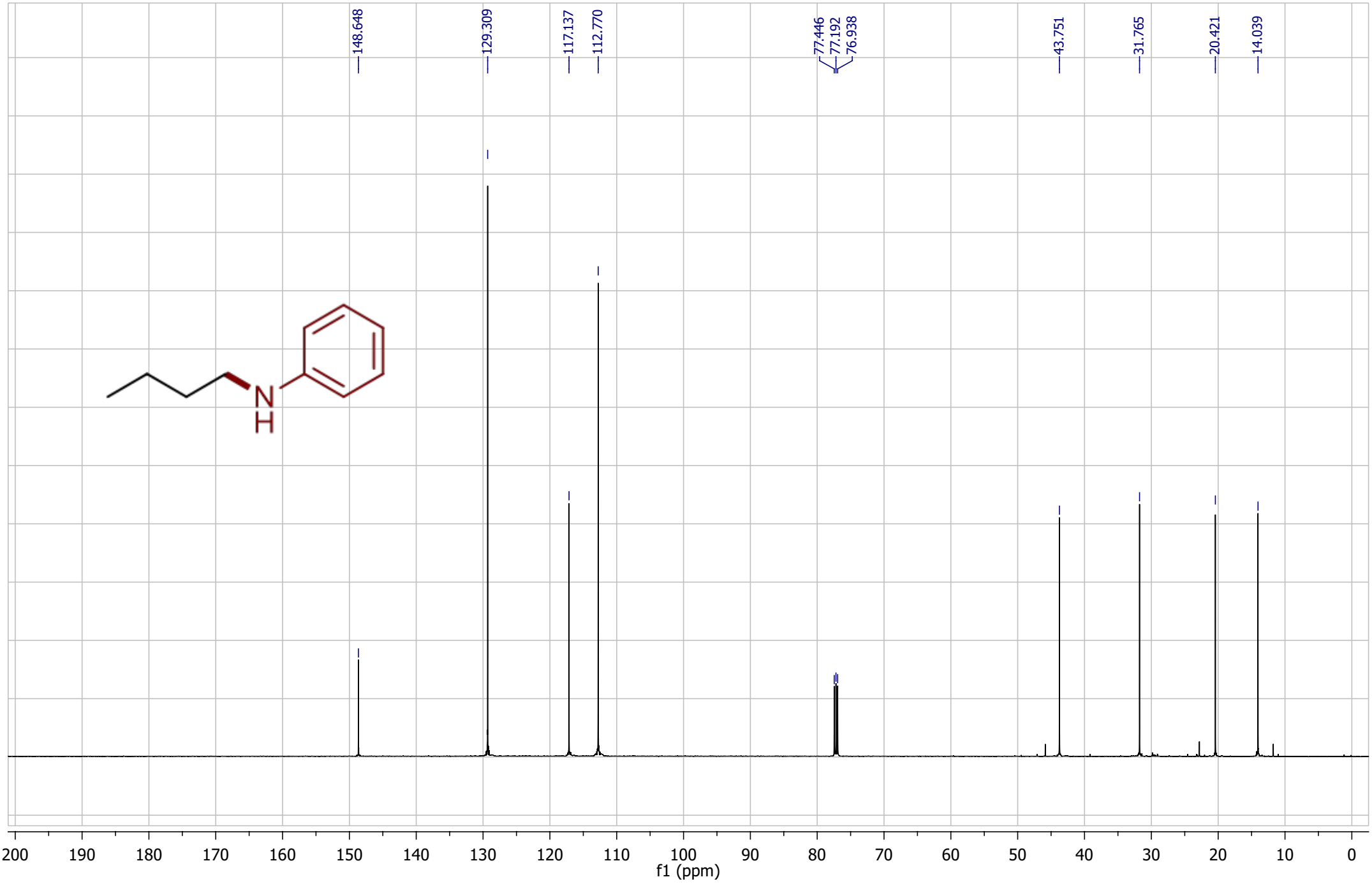
N-(pyridin-3-ylmethyl)aniline (3v)



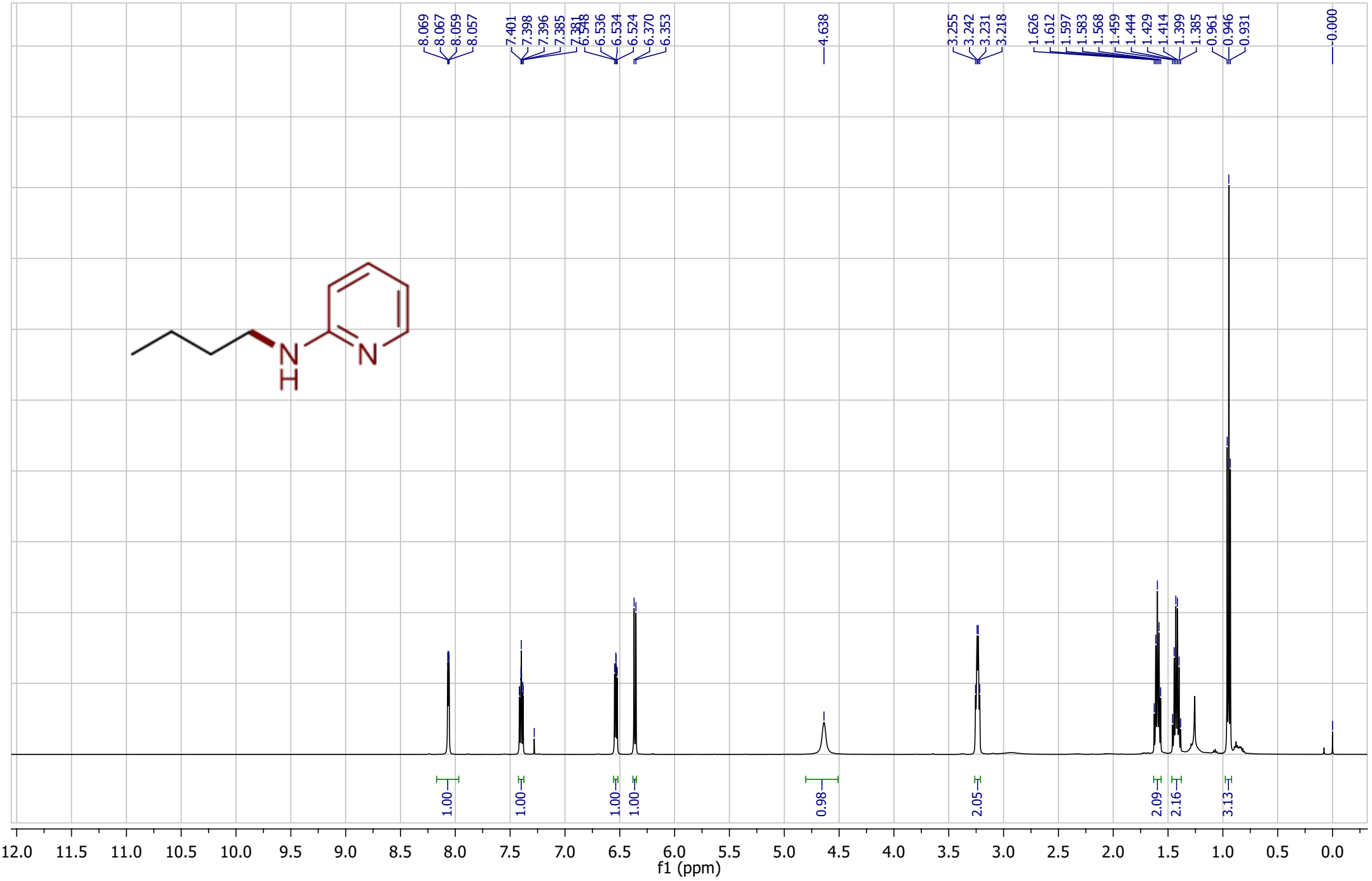
N-(pyridin-3-ylmethyl)aniline (3v)



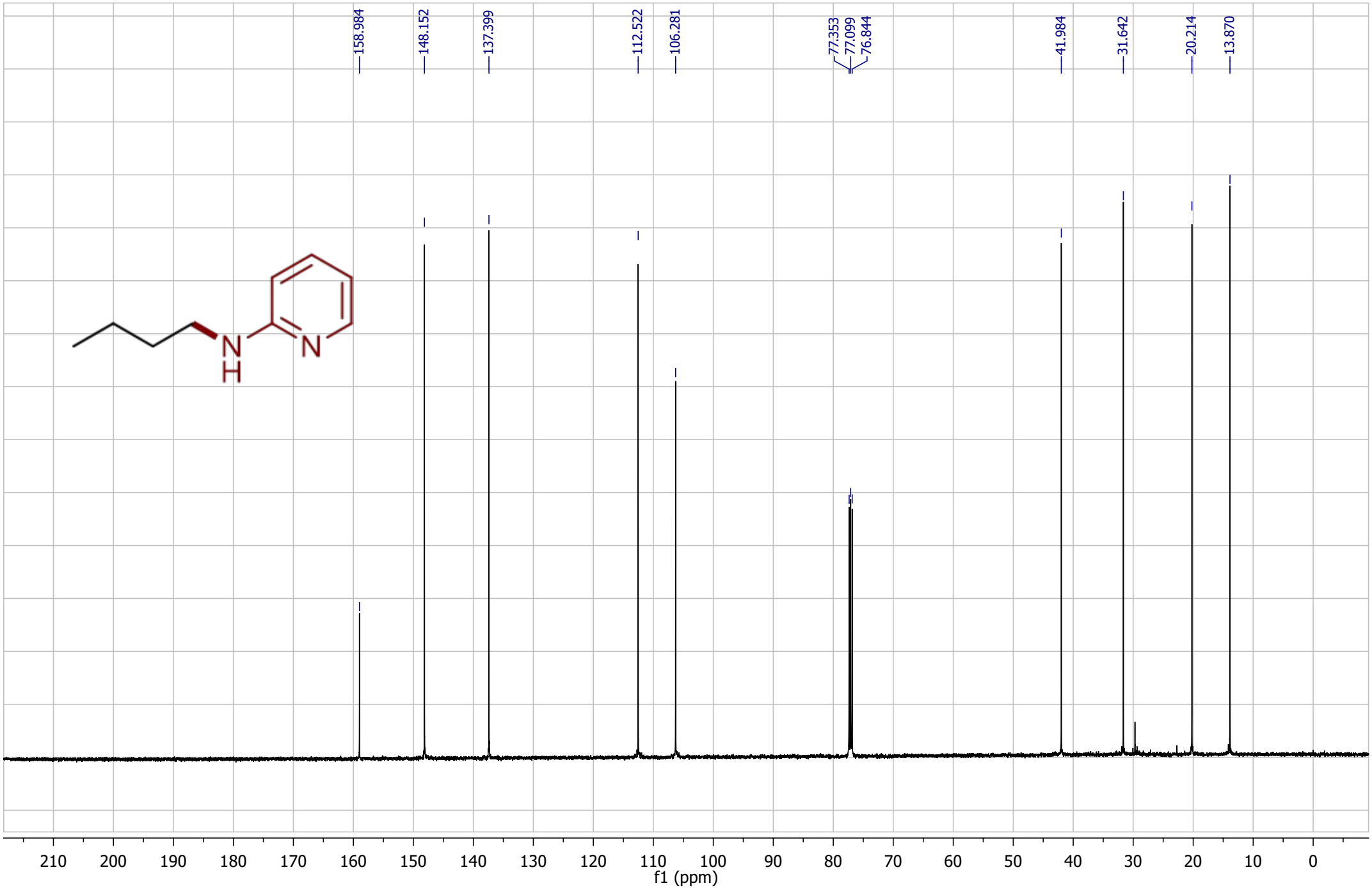
N-butylaniline (3w)



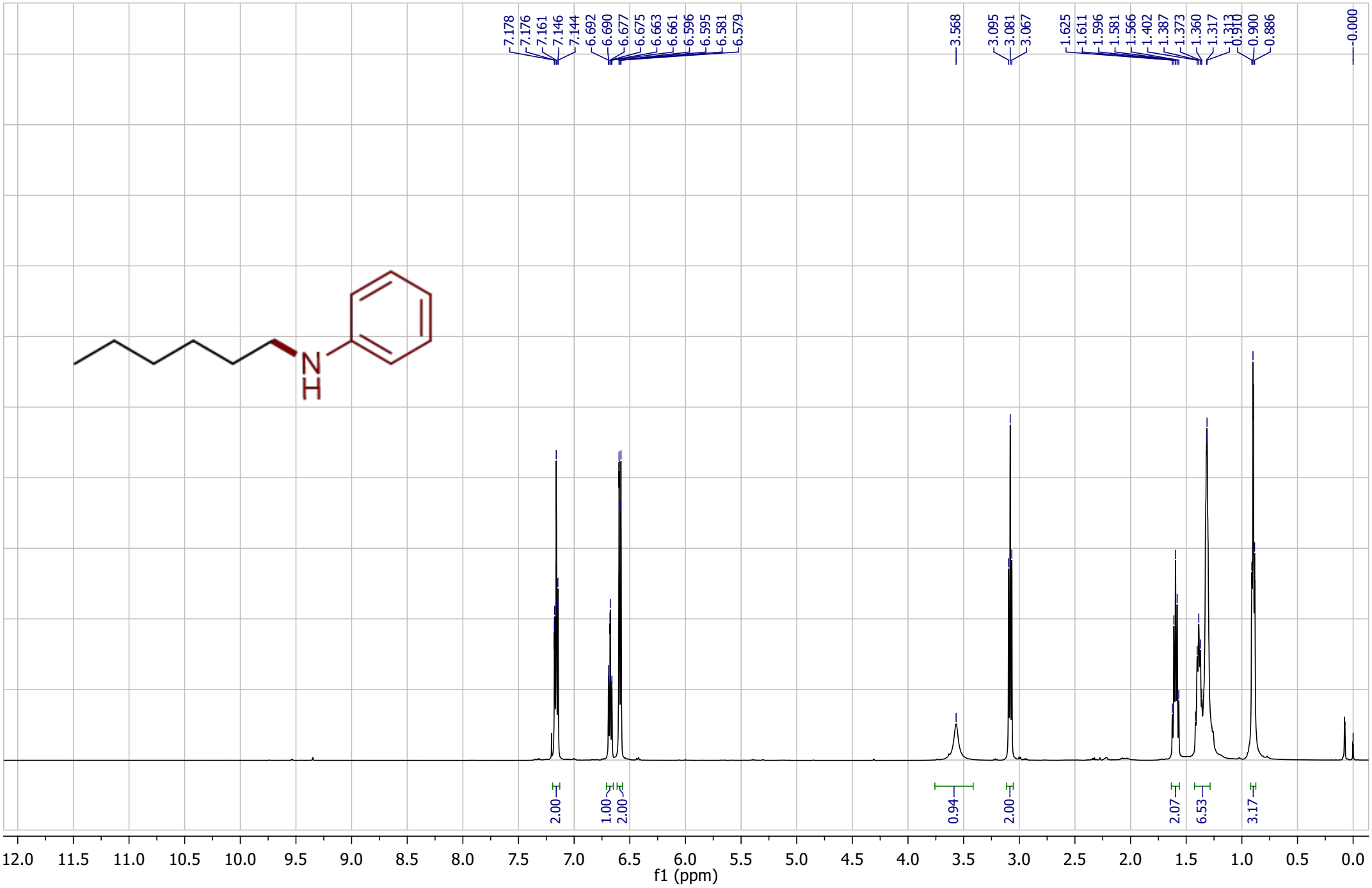
N-butylaniline (3w)



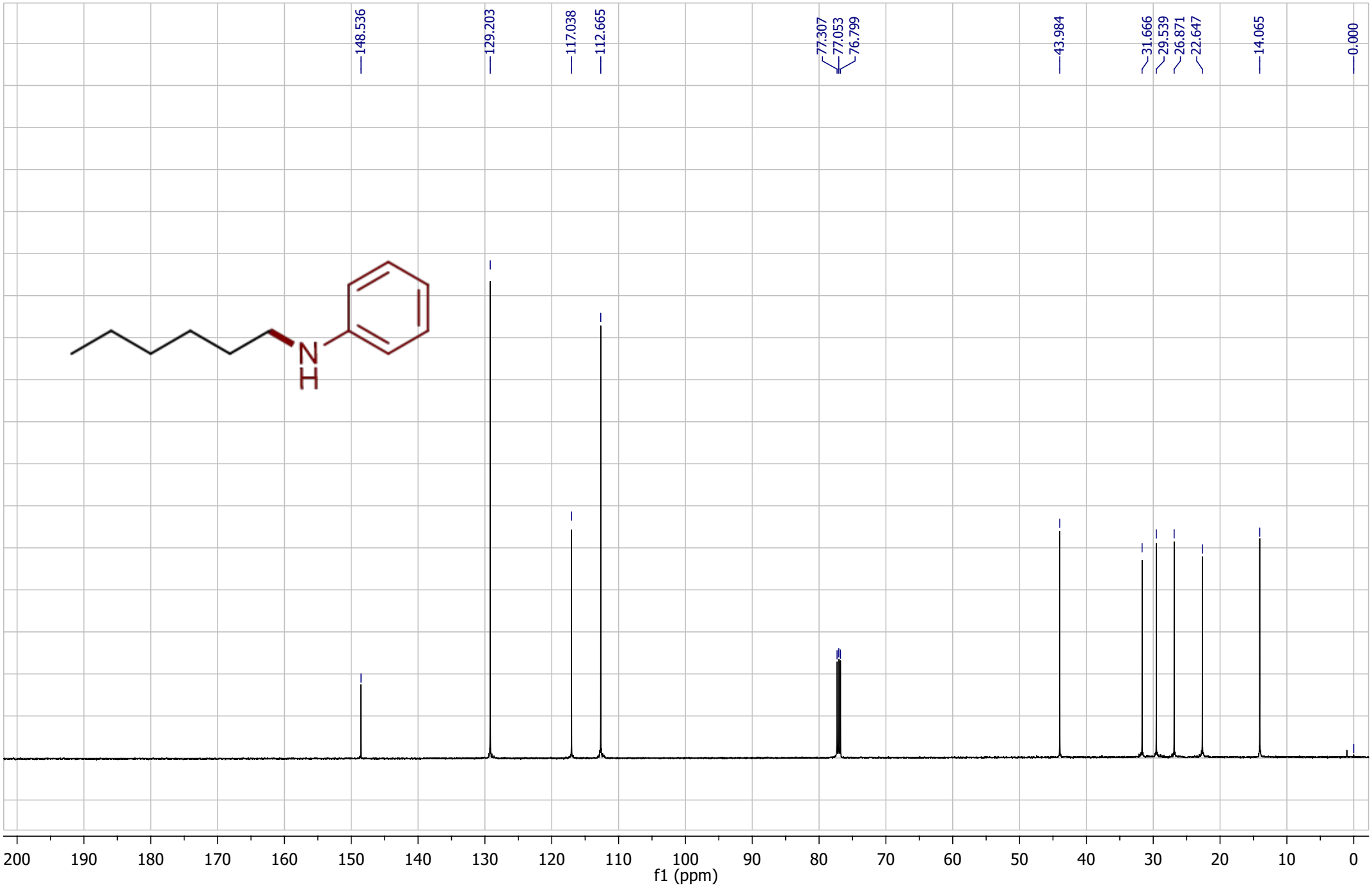
N-butylpyridin-2-amine (3x)



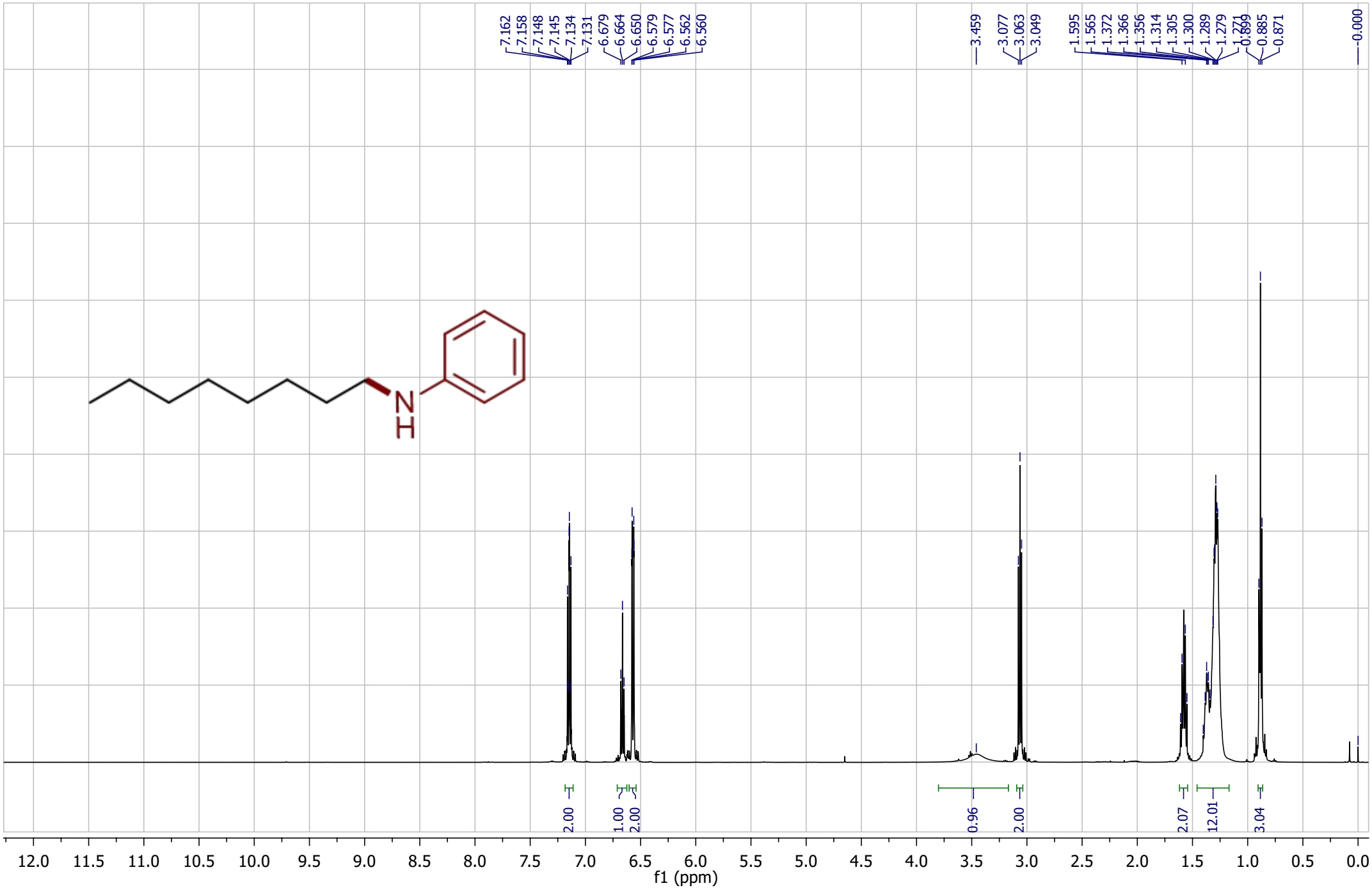
N-butylpyridin-2-amine (3x)



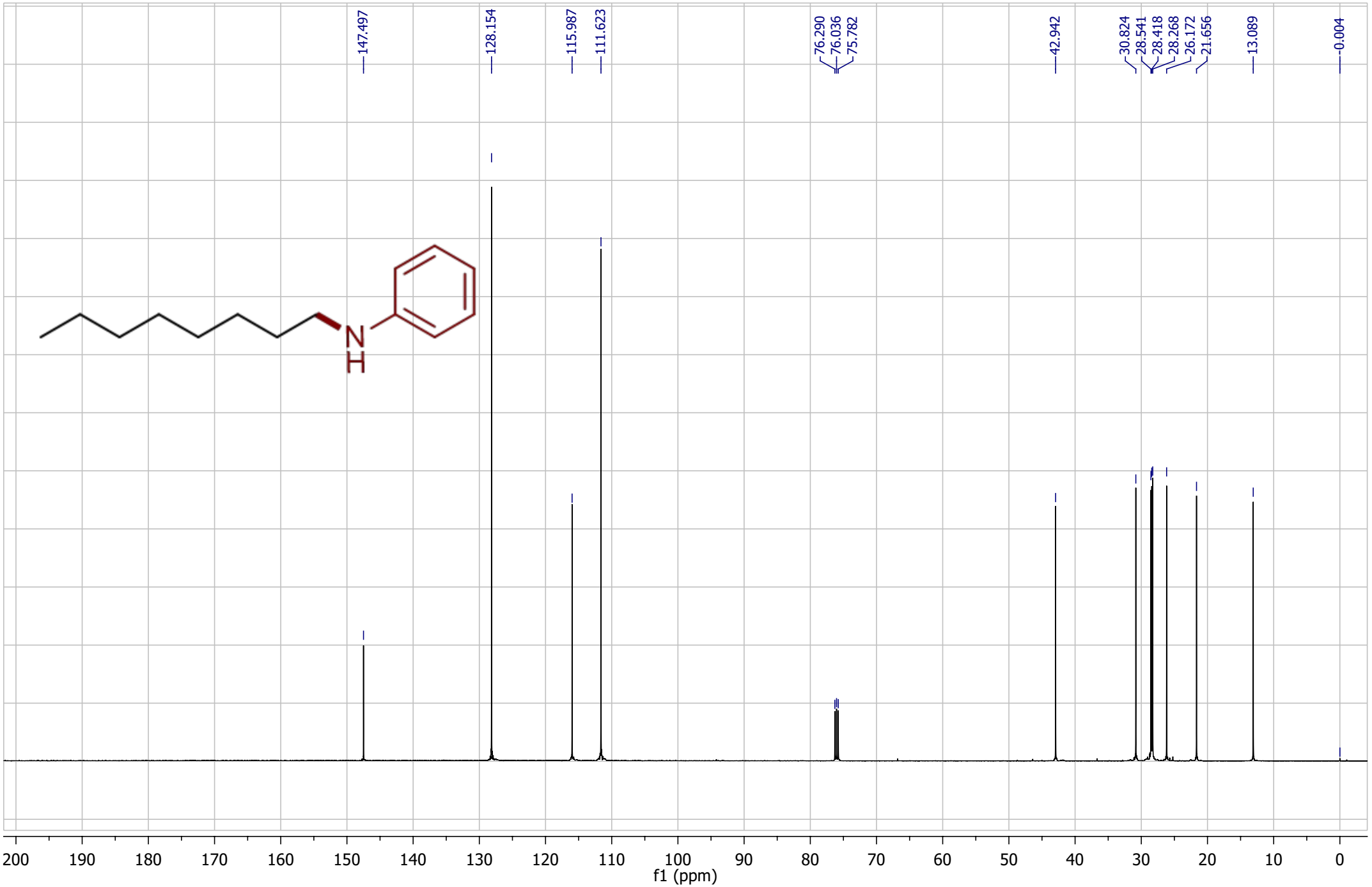
N-hexylaniline (3y)



N-hexylaniline (3y)



N-octylaniline (3z)



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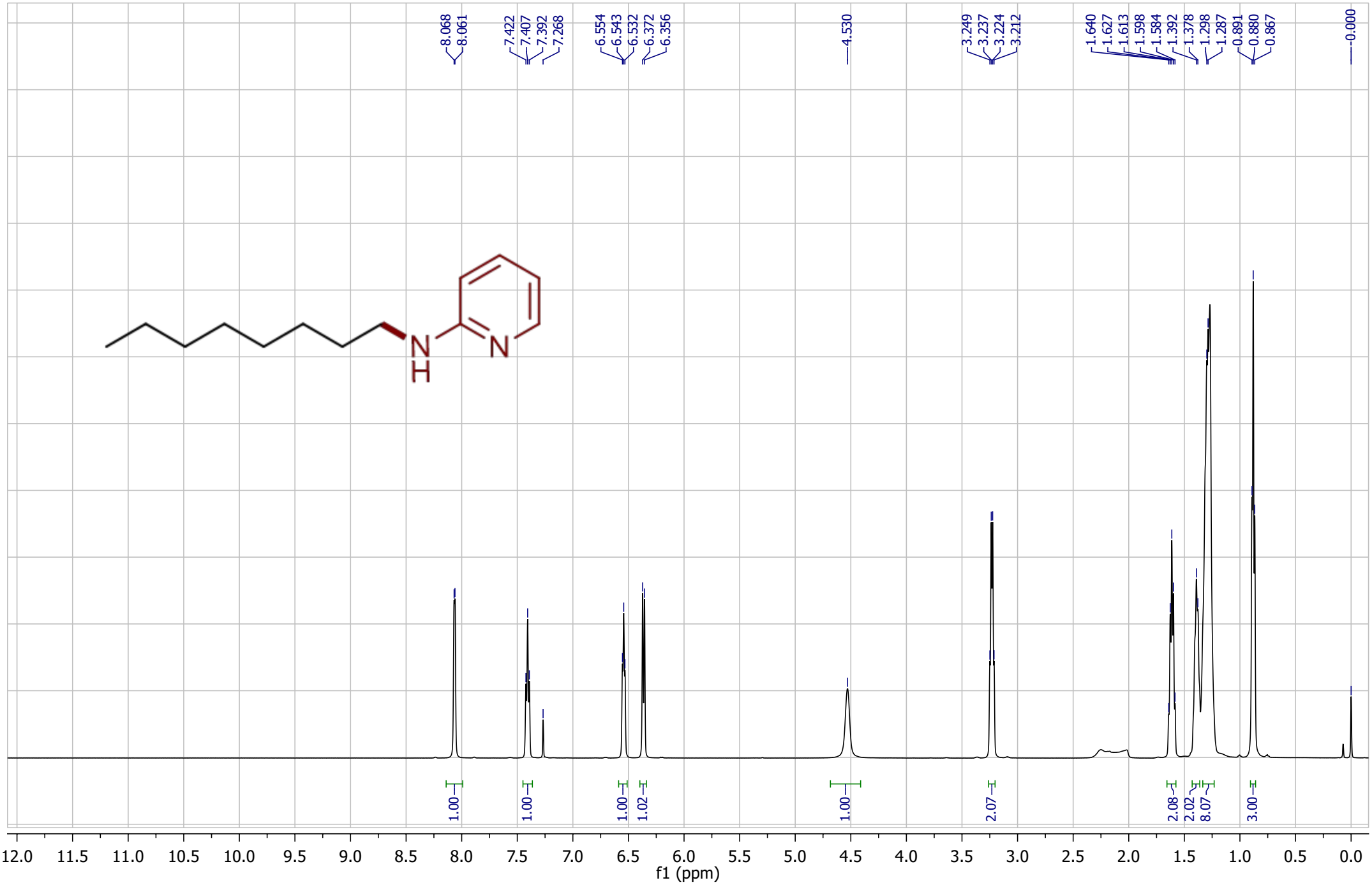
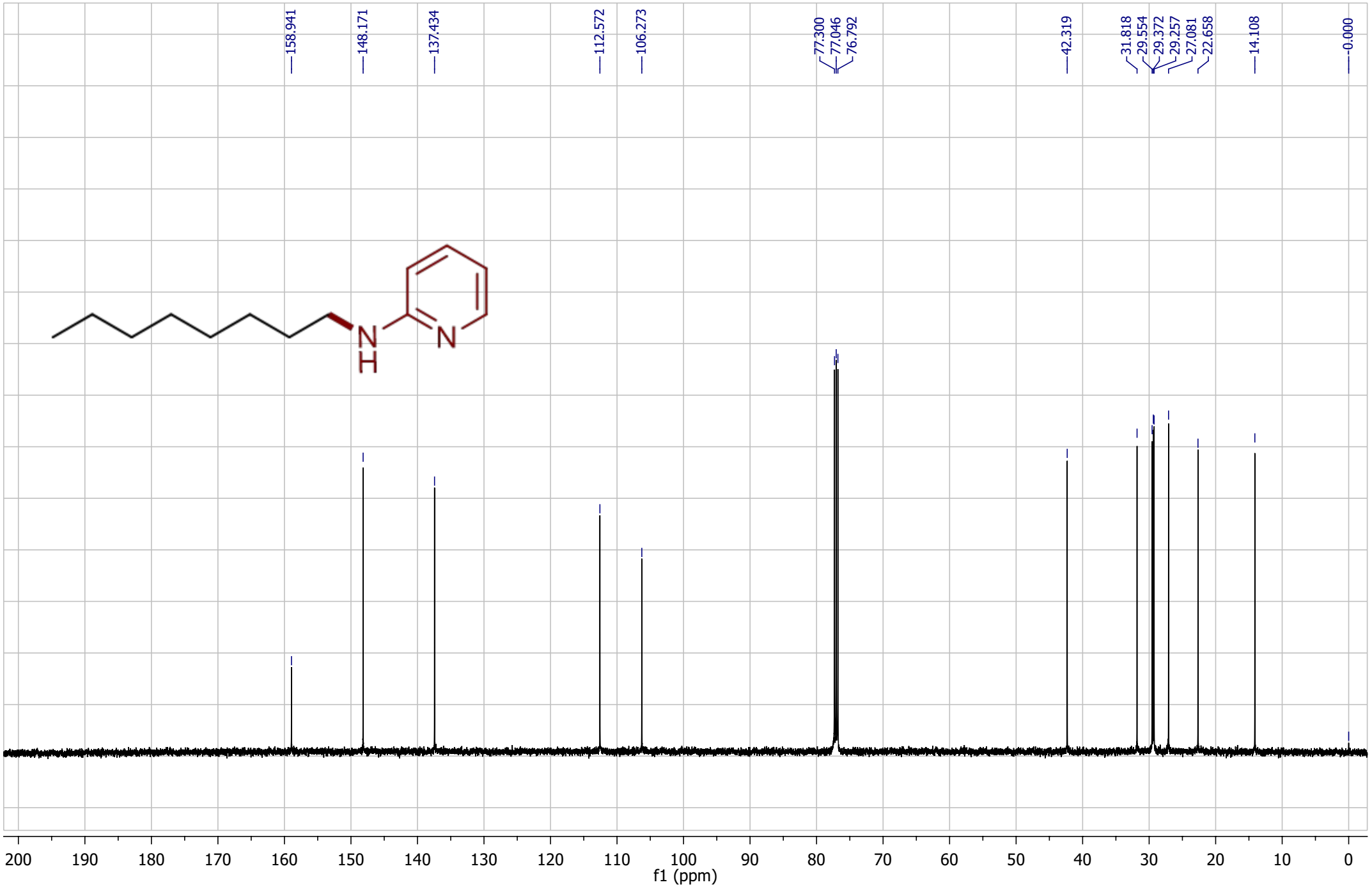
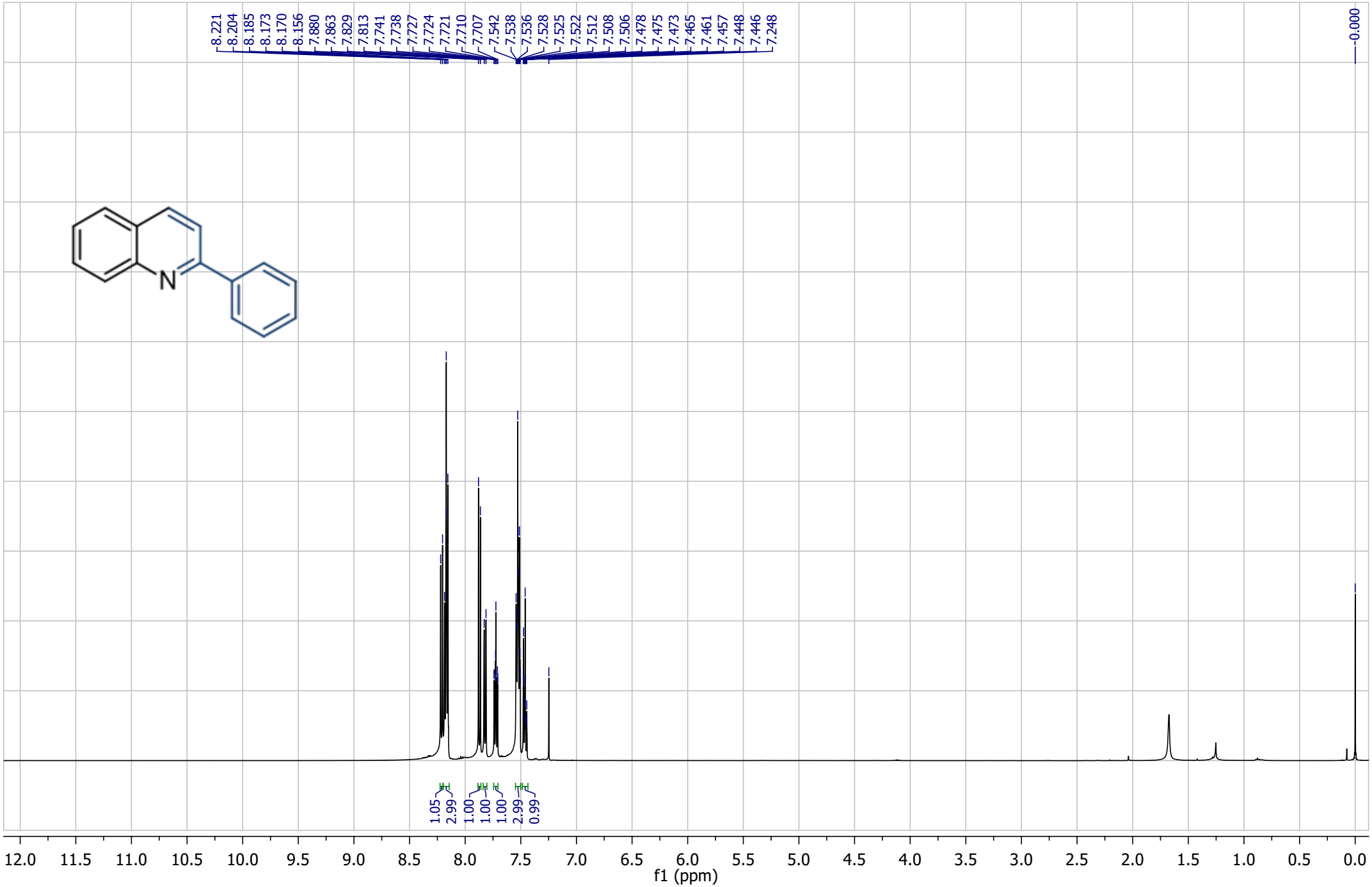


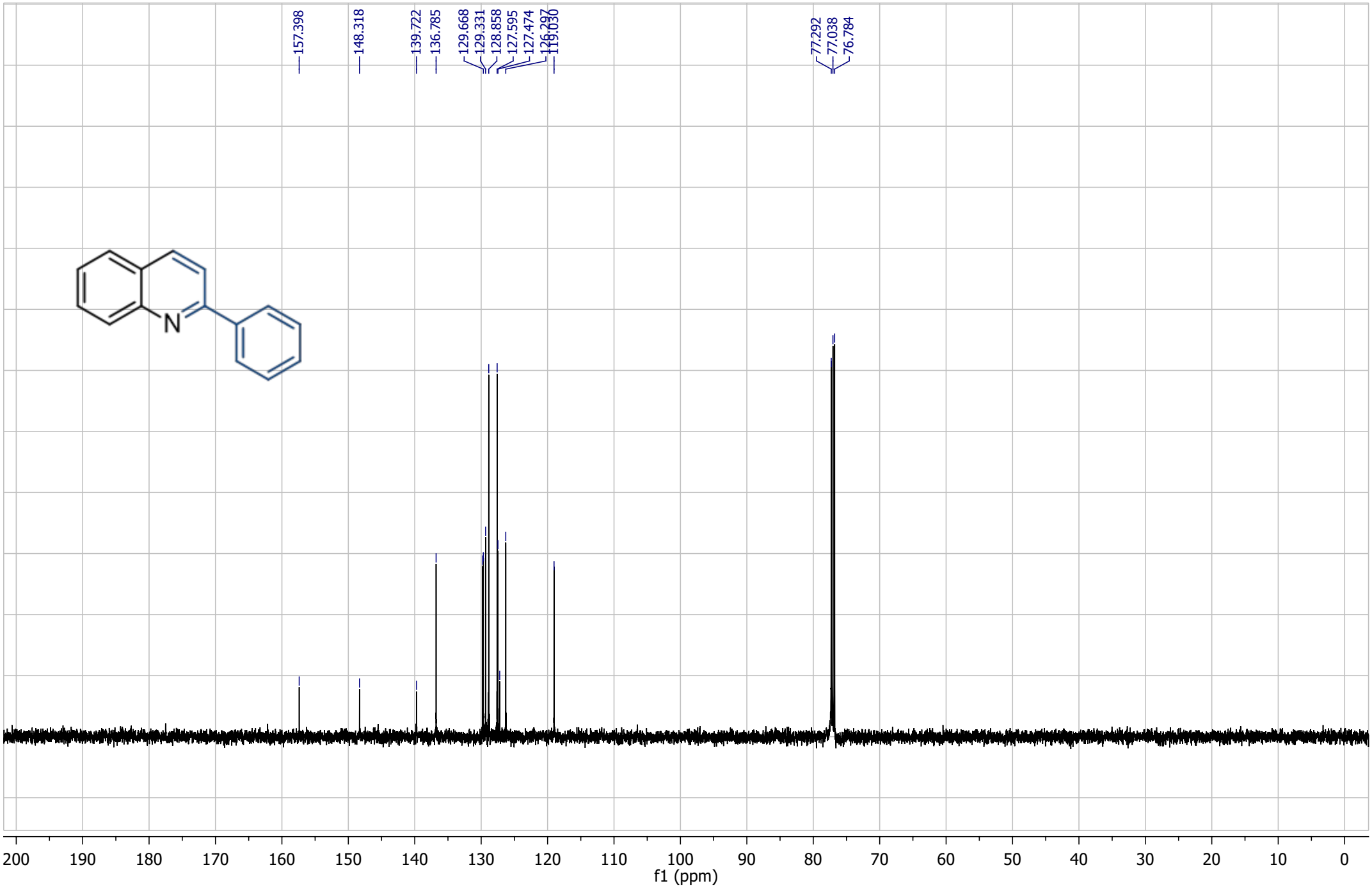
N-octylpyridin-2-amine (3z')



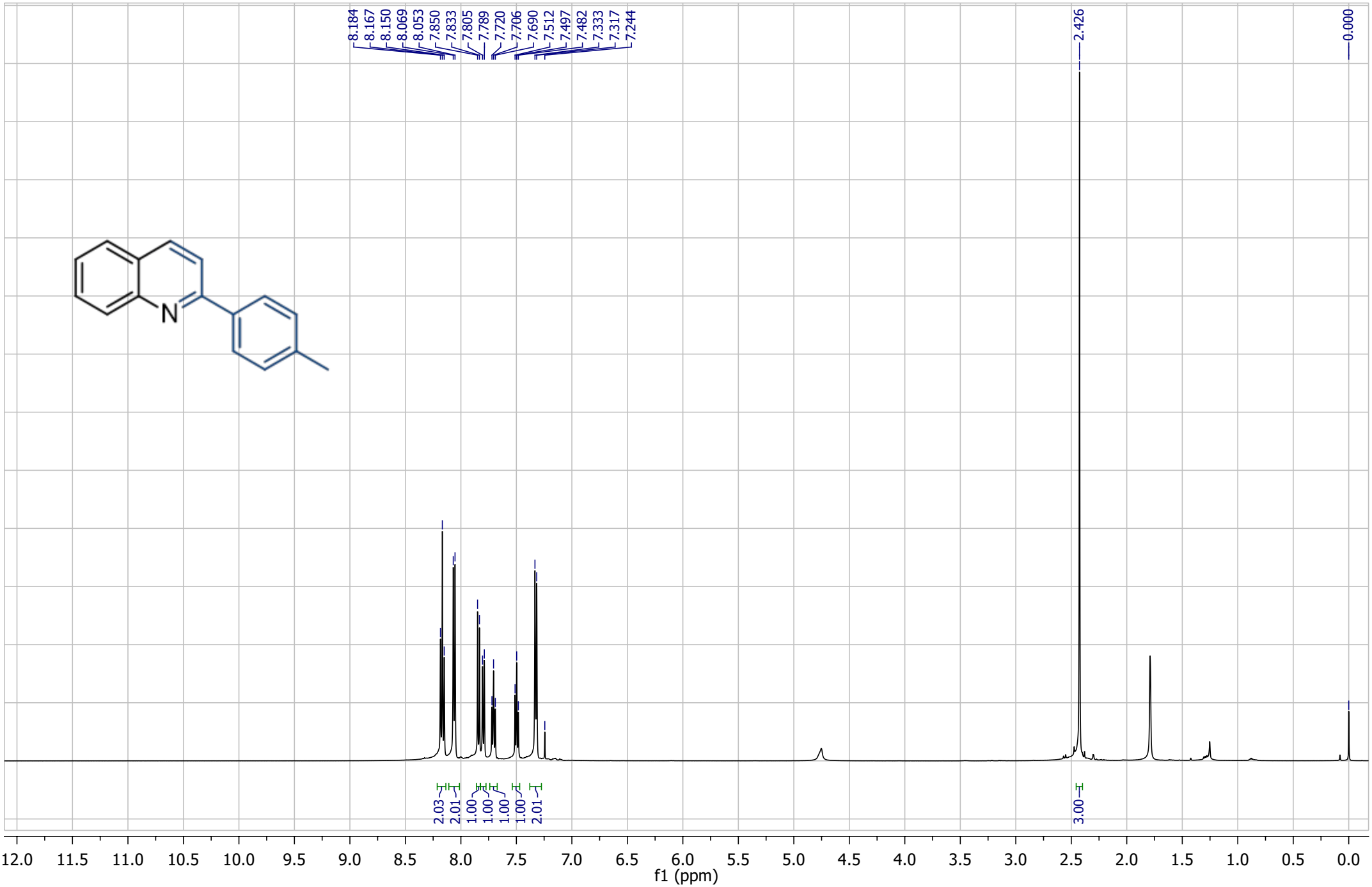
N-octylpyridin-2-amine (3z')



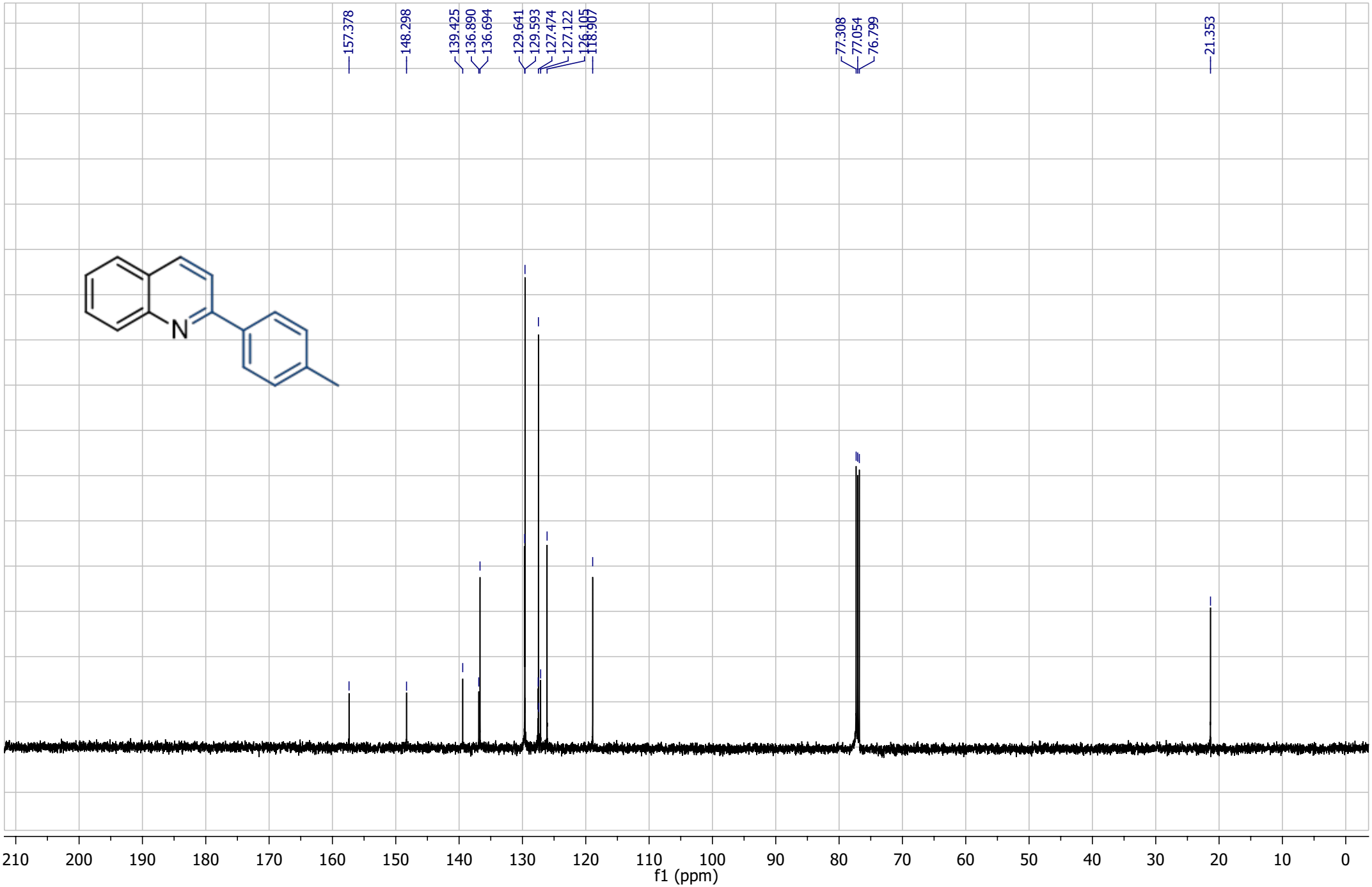
2-phenylquinoline (6a)



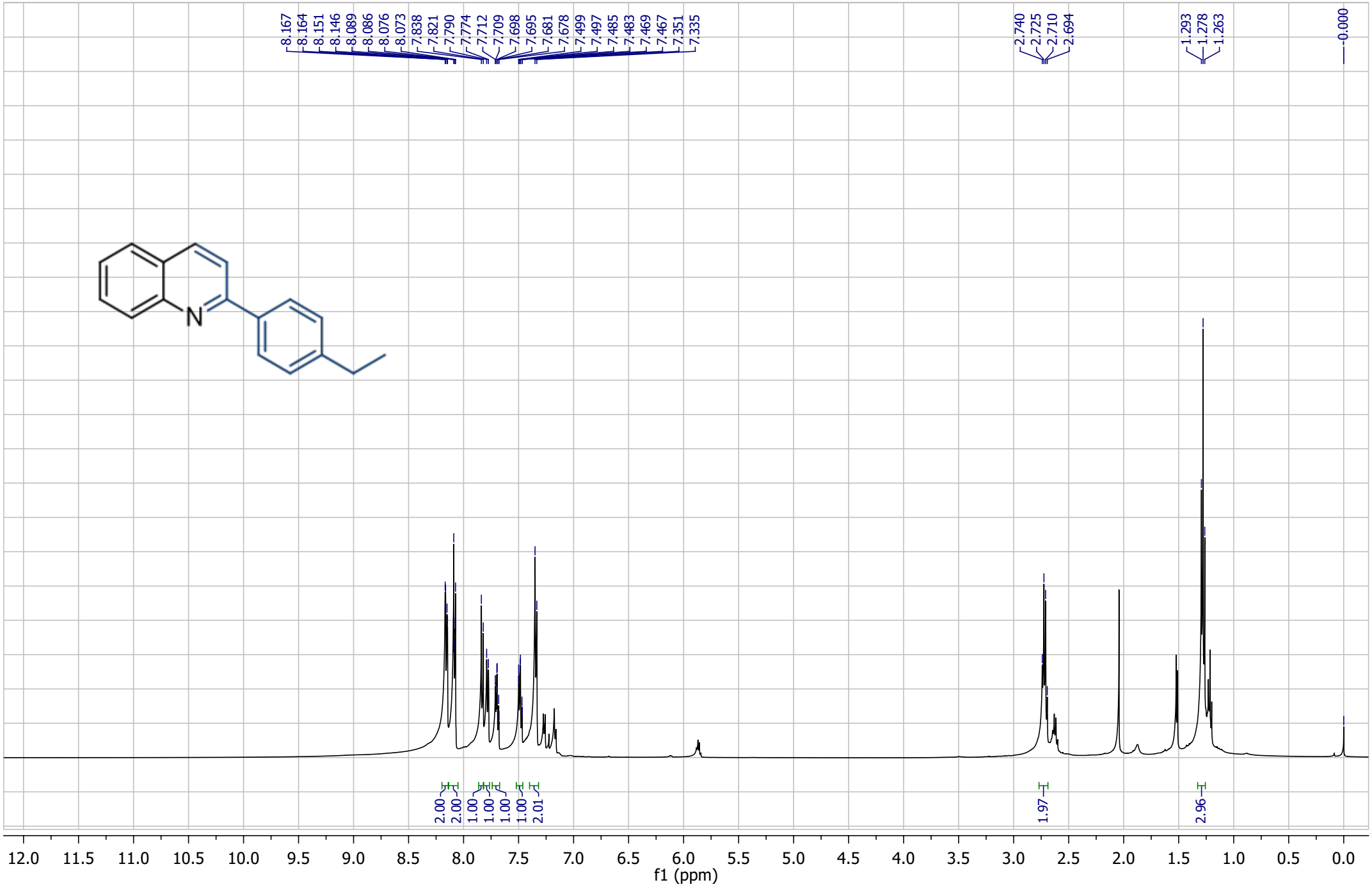
2-phenylquinoline (6a)



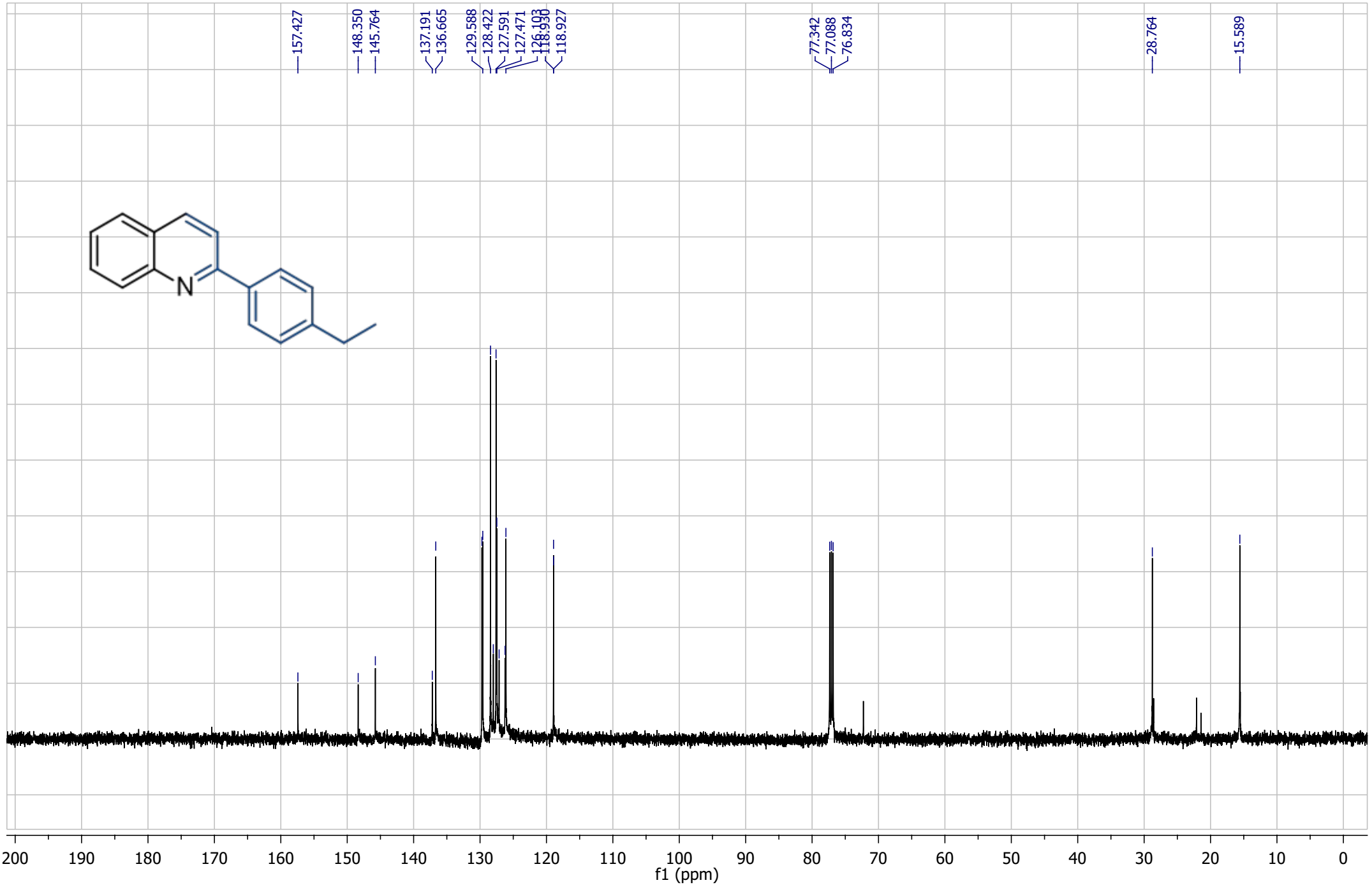
2-(p-tolyl)quinoline (6b)



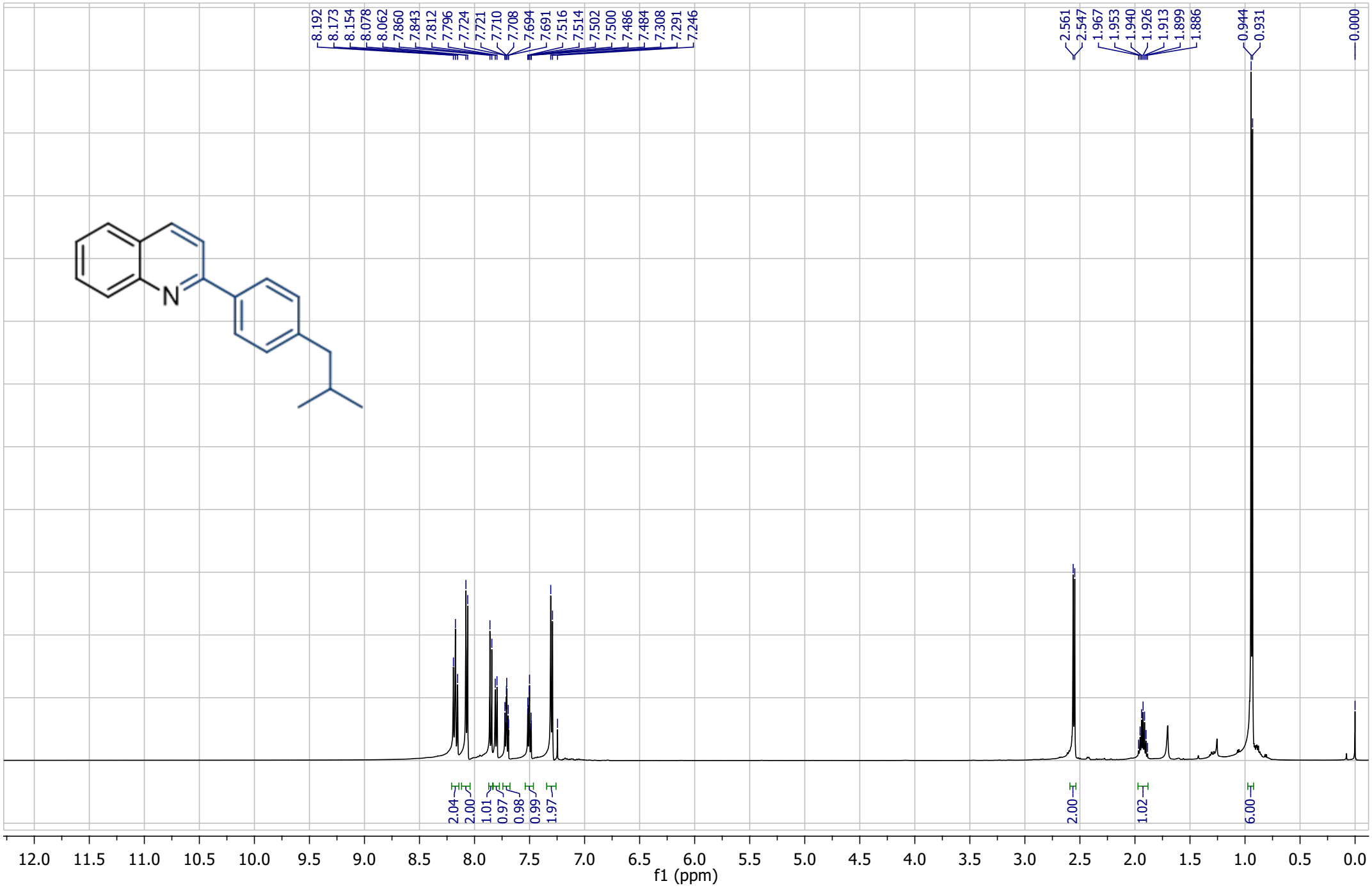
2-(p-tolyl)quinoline (6b)



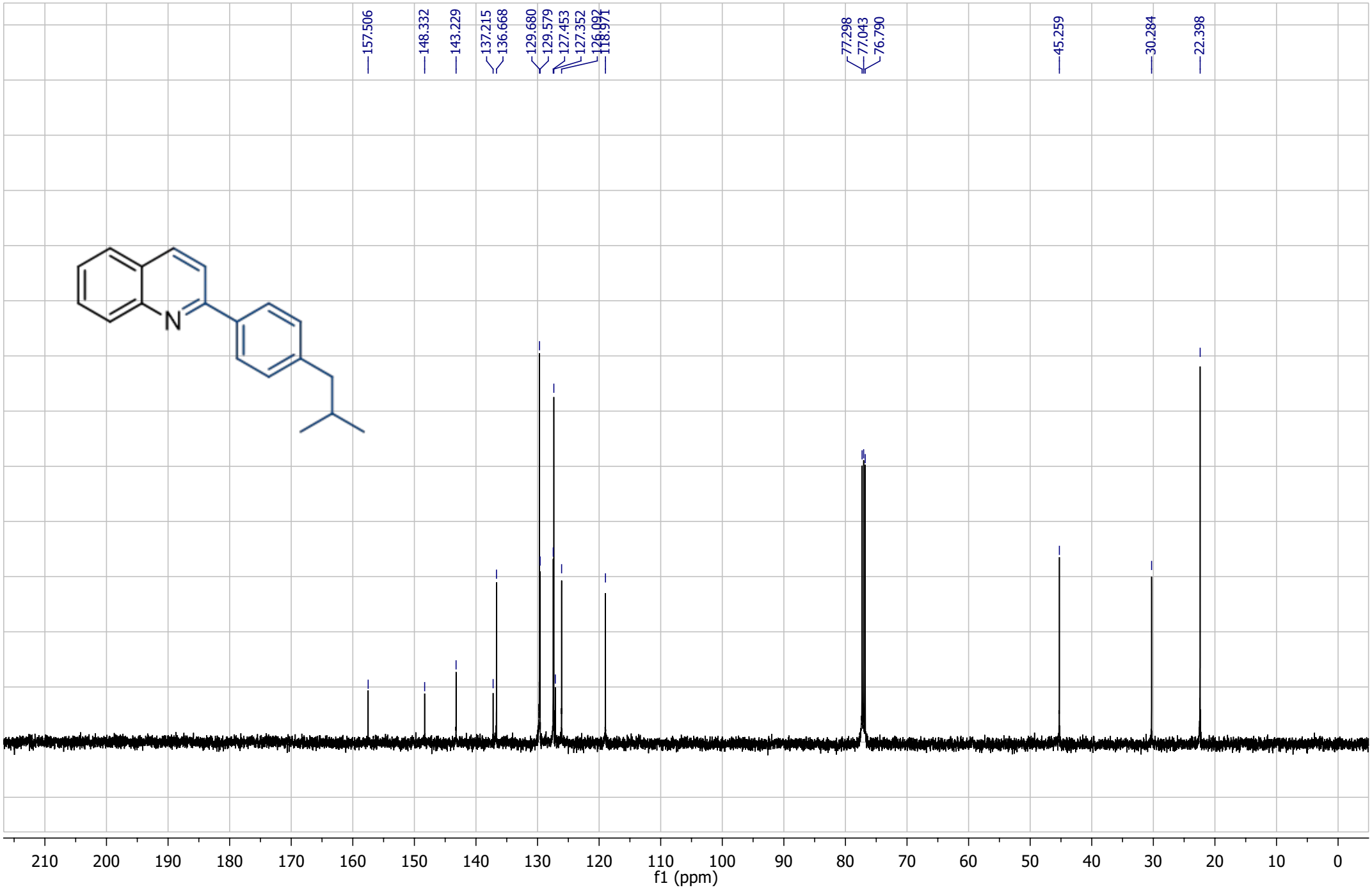
2-(4-ethylphenyl)quinoline (6c)



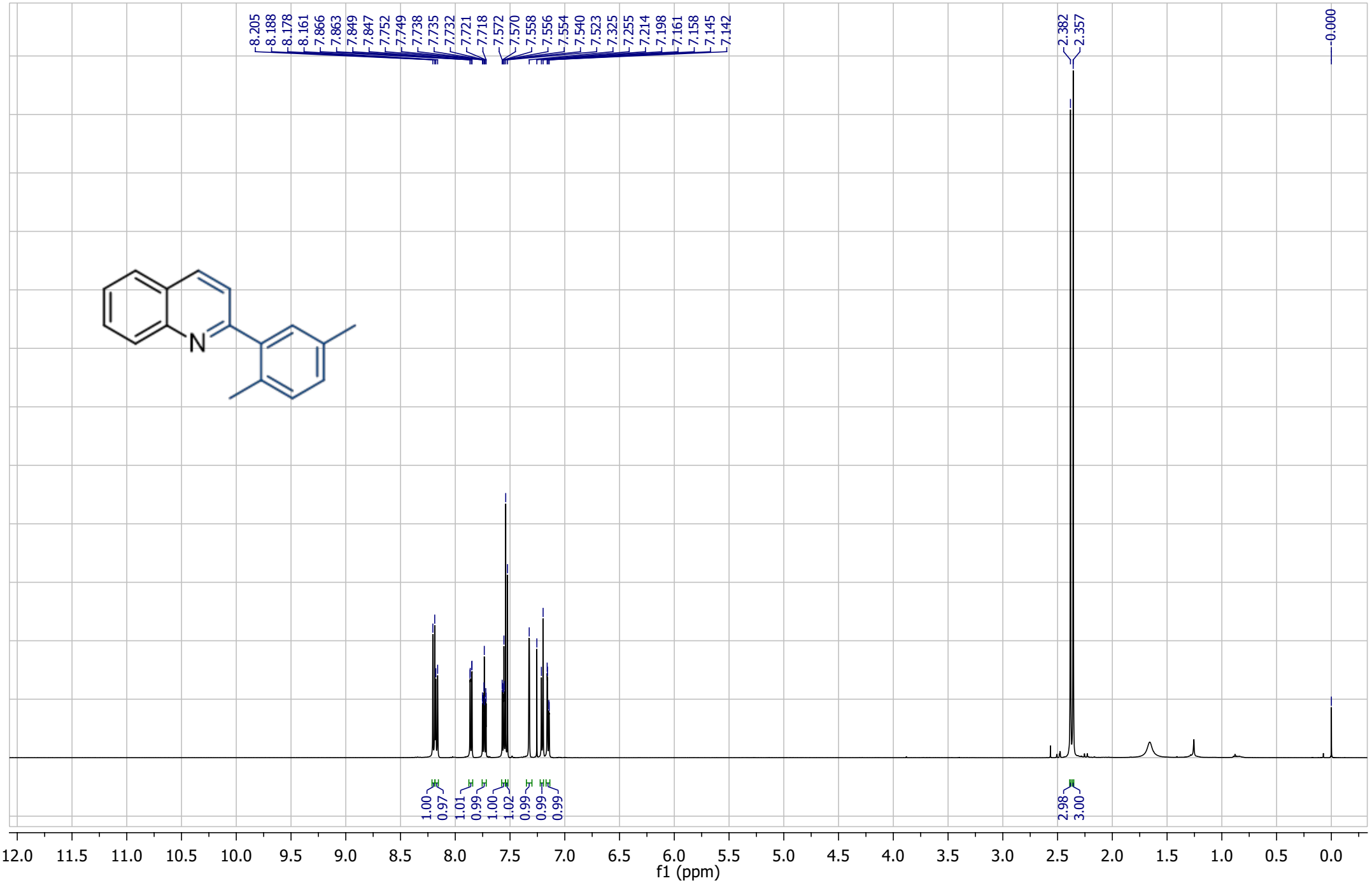
2-(4-ethylphenyl)quinoline (6c)



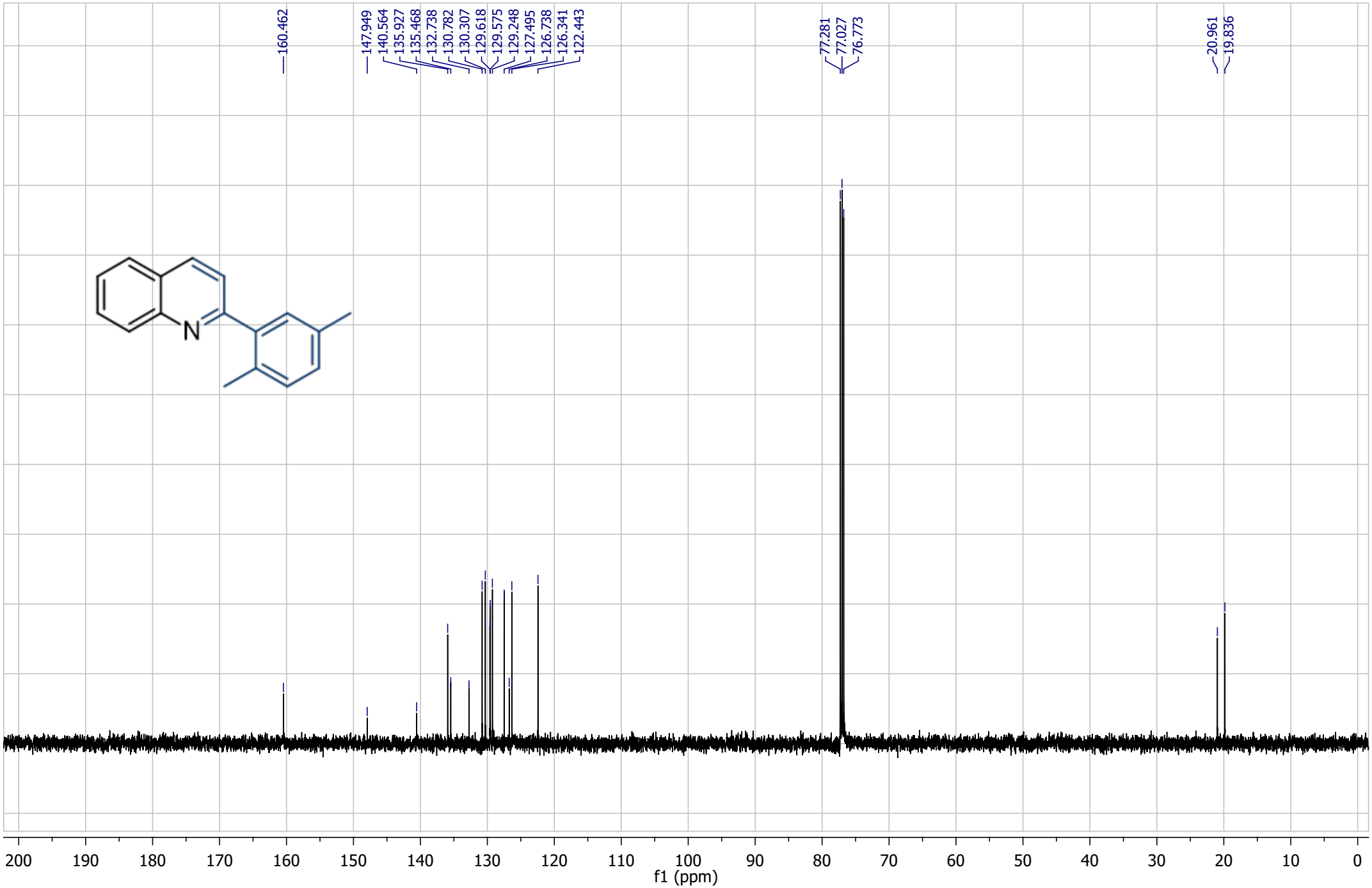
2-(4-isobutylphenyl)quinoline (6d)



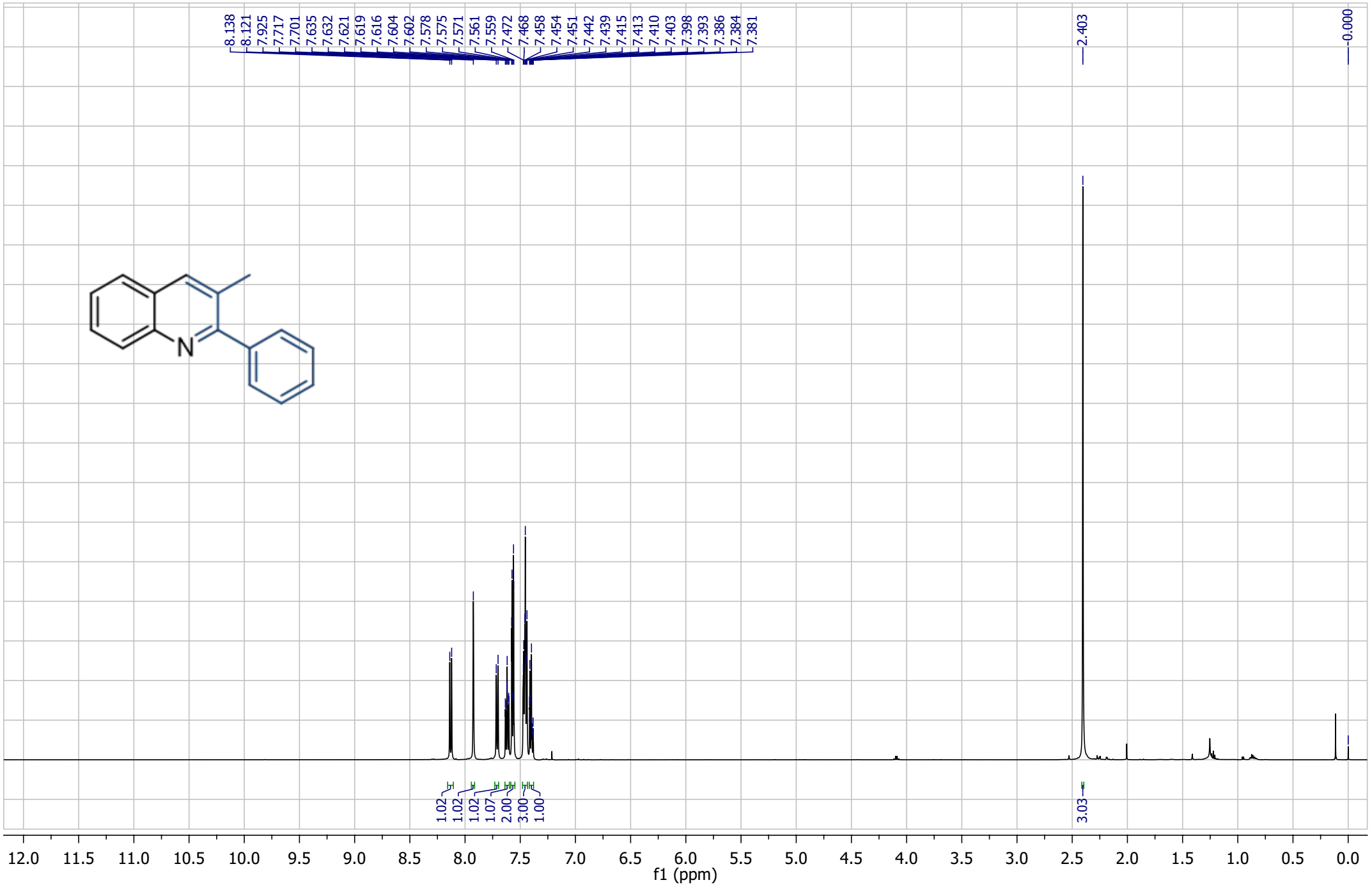
2-(4-isobutylphenyl)quinoline (6d)



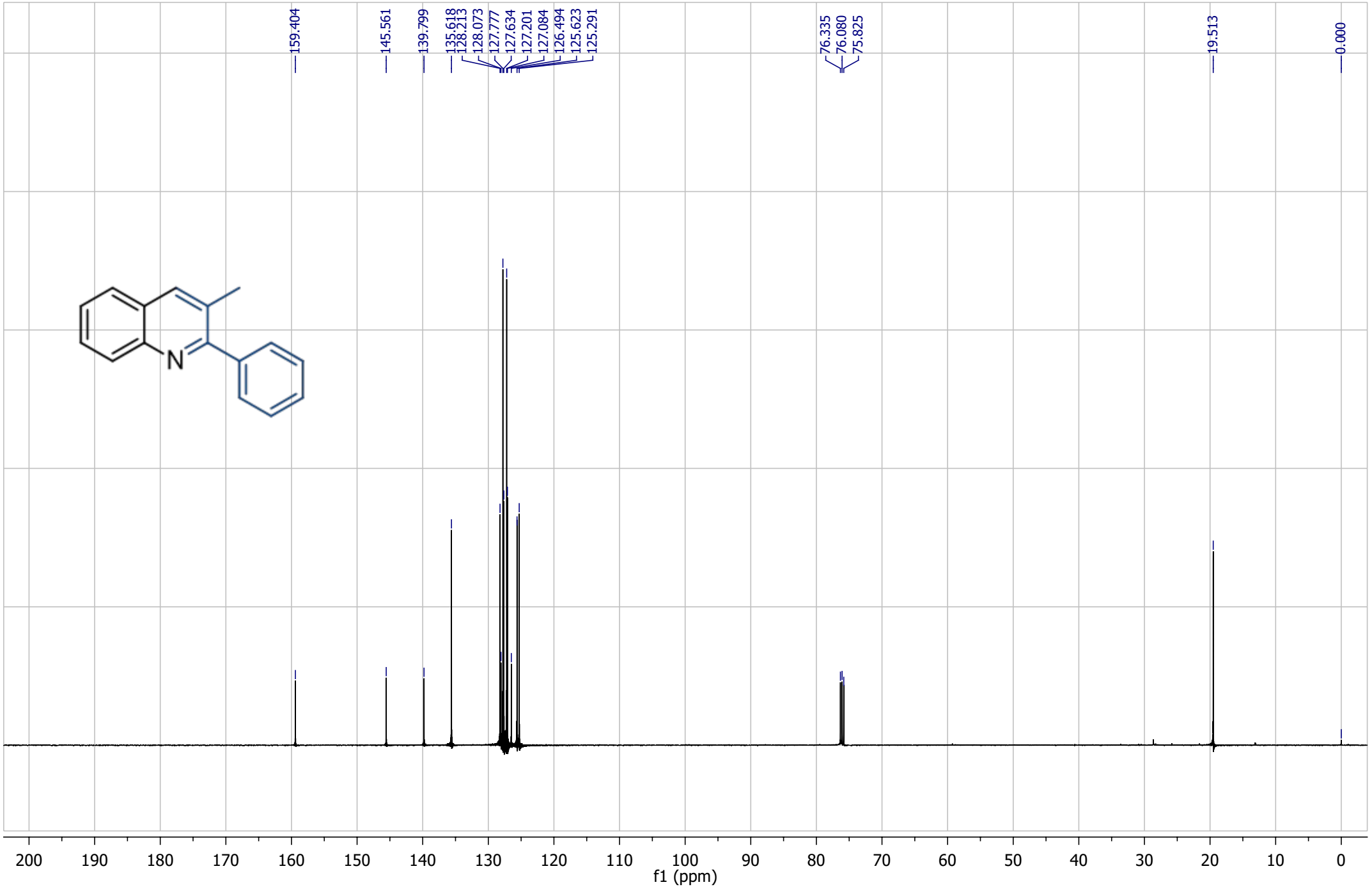
2-(2,5-dimethylphenyl)quinoline (6e)



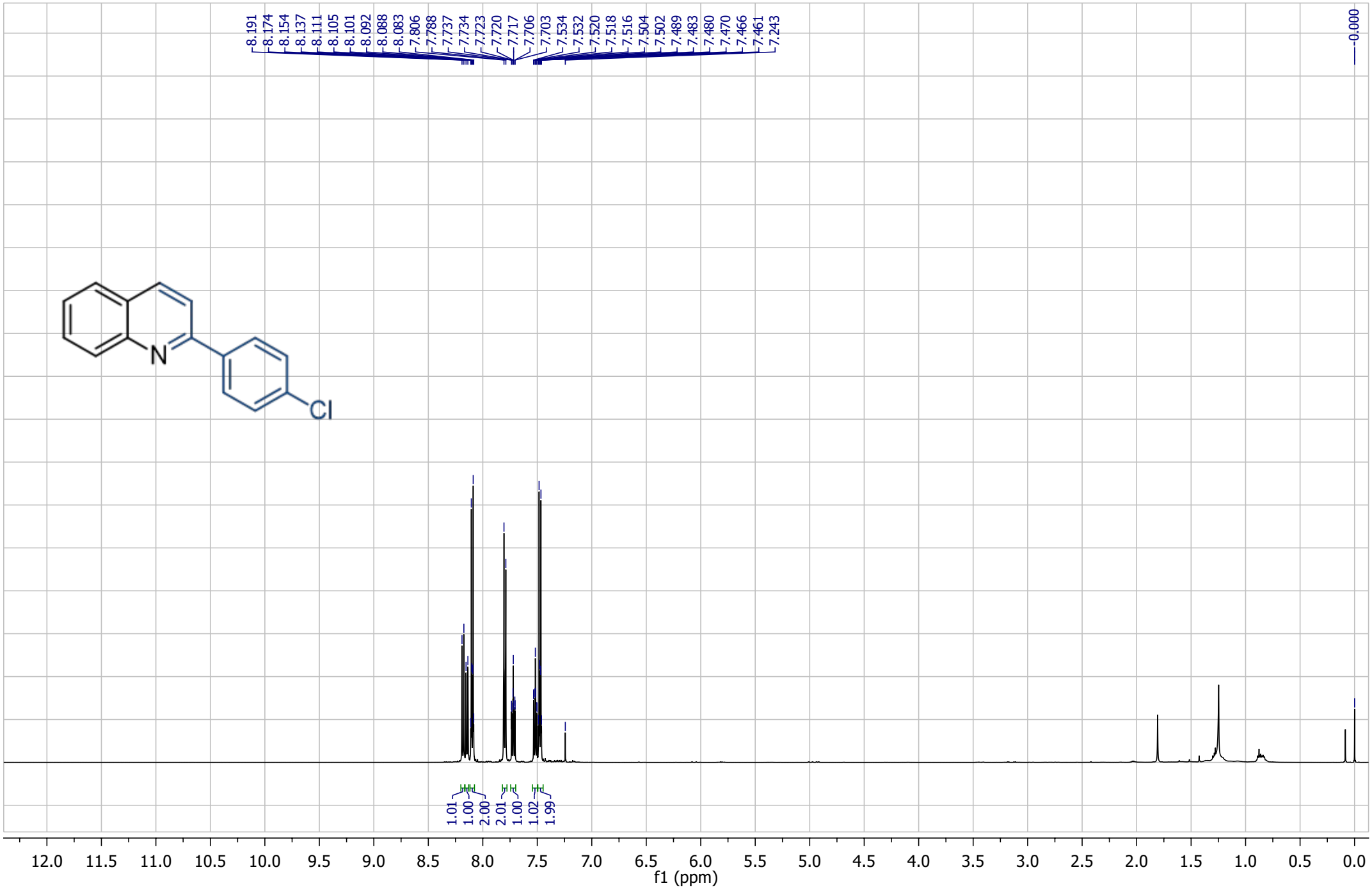
2-(2,5-dimethylphenyl)quinoline (6e)



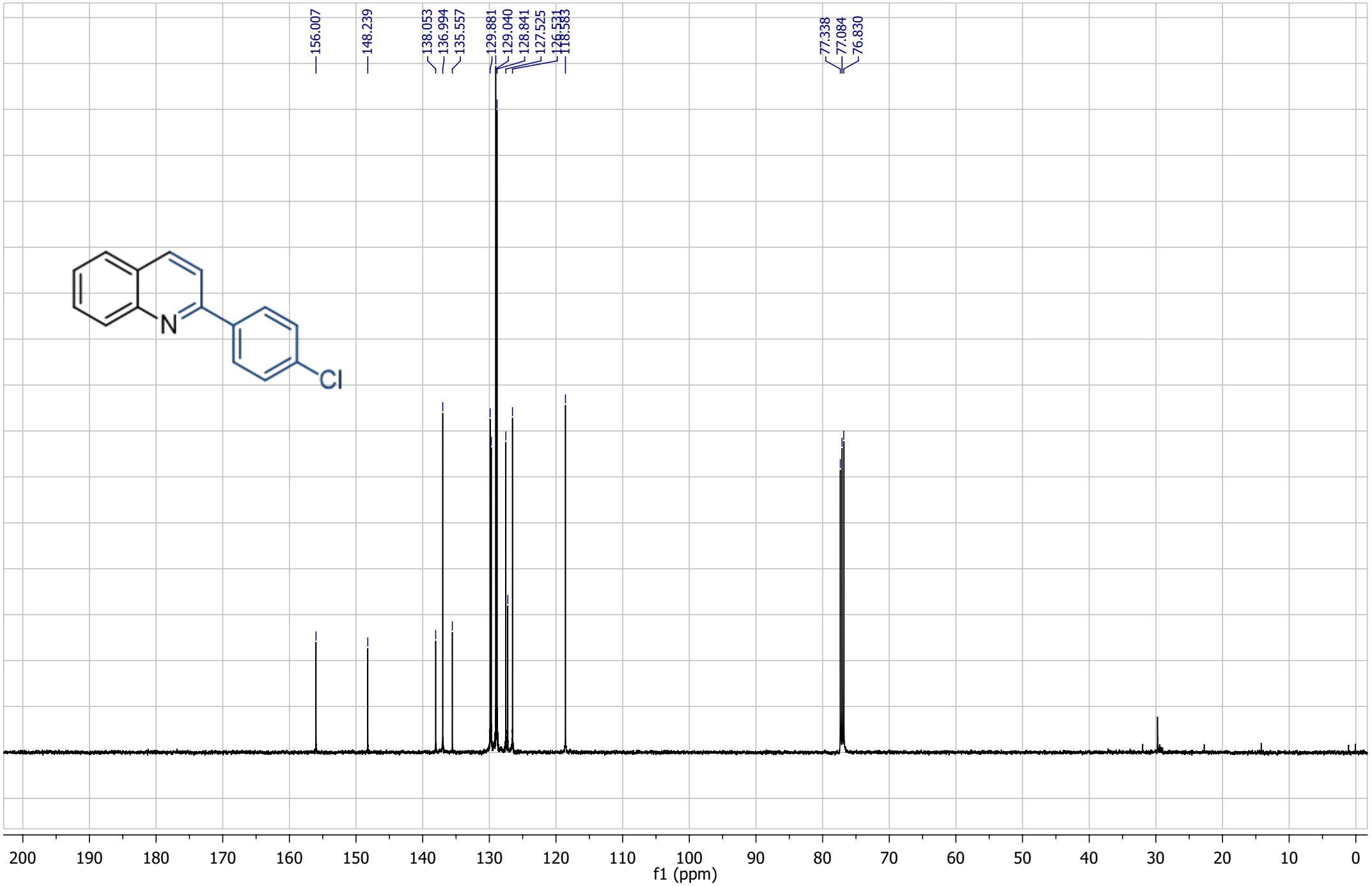
3-methyl-2-phenylquinoline (6f)



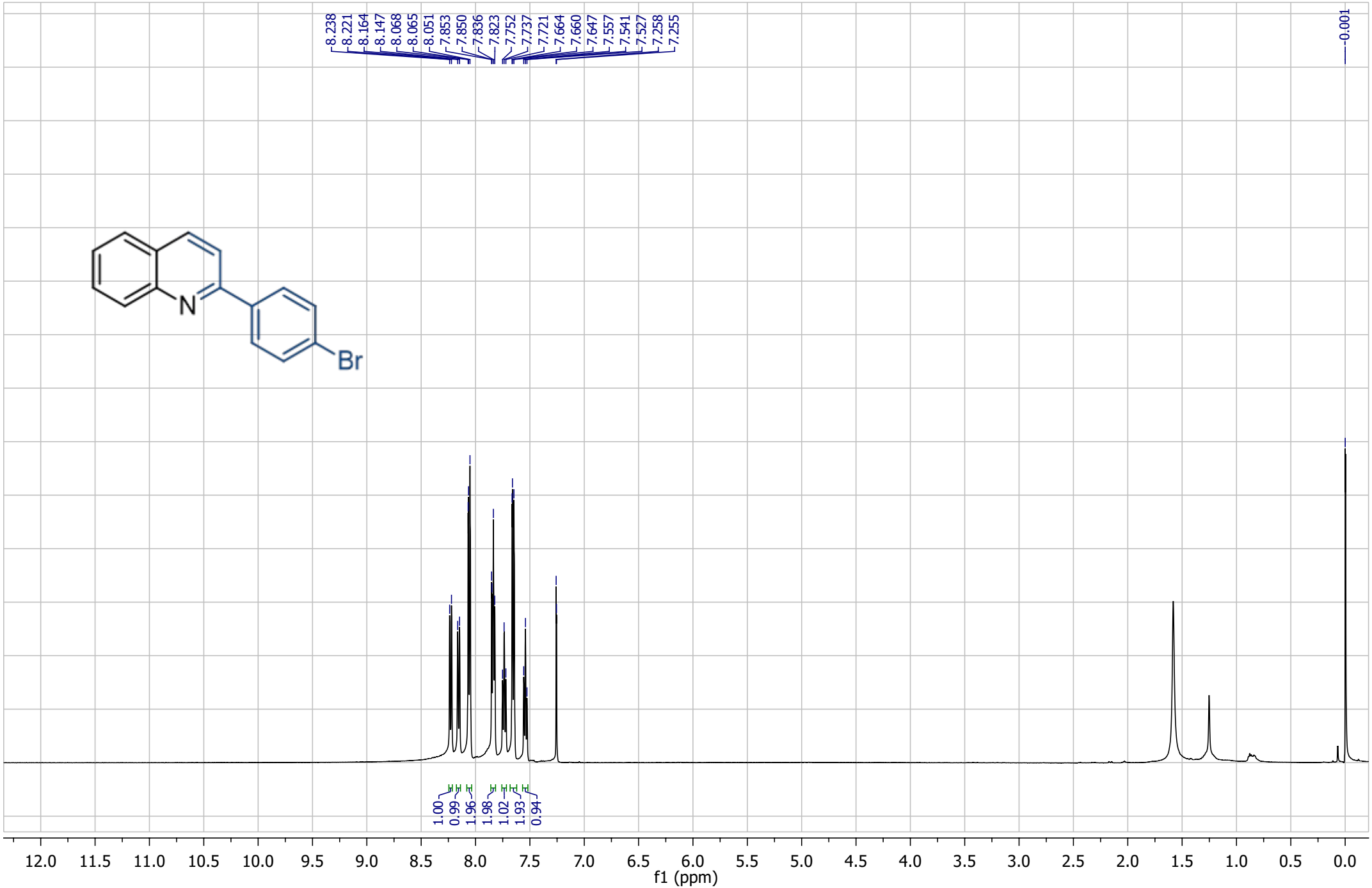
3-methyl-2-phenylquinoline (6f)



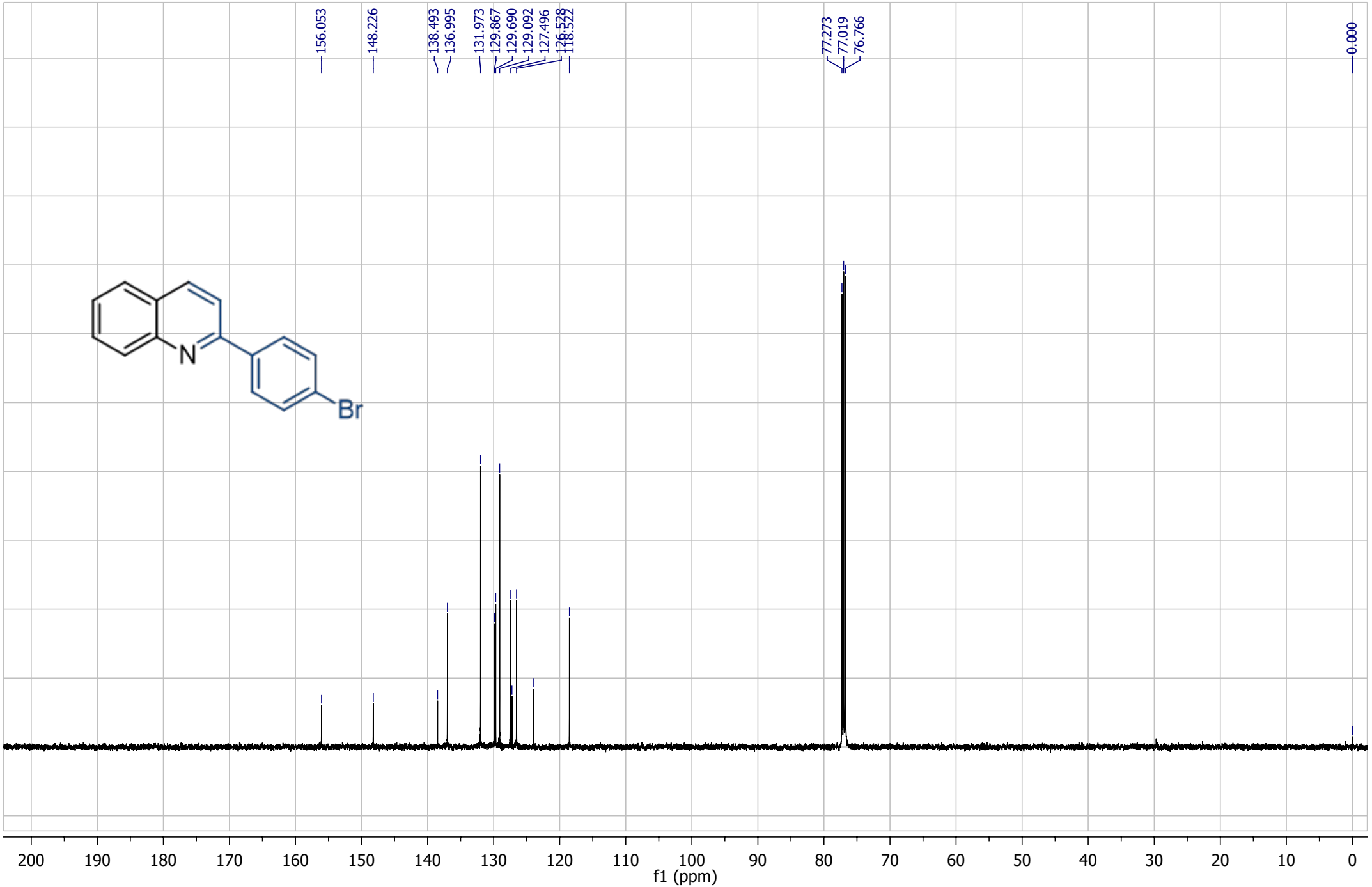
2-(4-chlorophenyl)quinoline (6g)



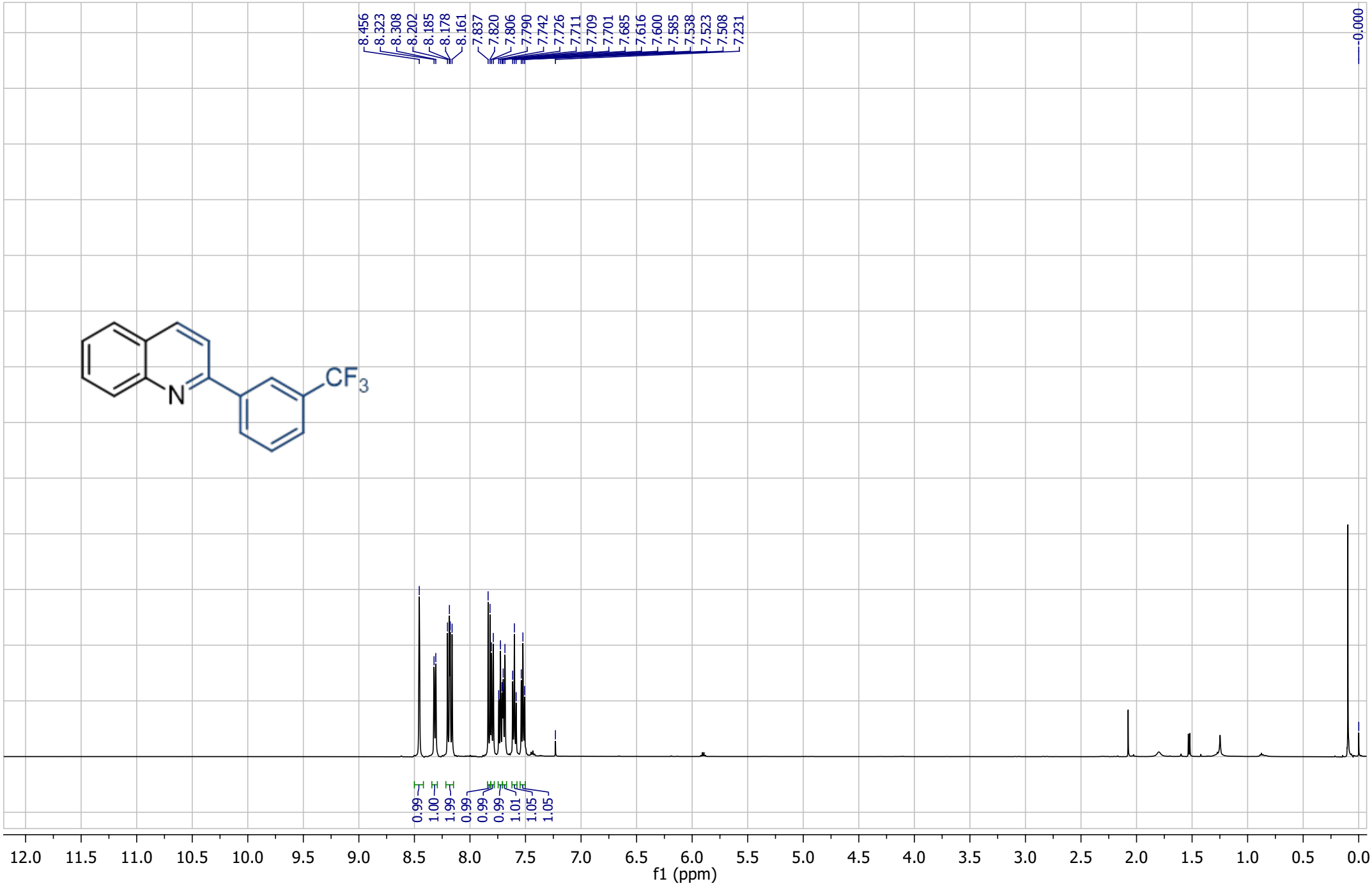
2-(4-chlorophenyl)quinoline (6g)



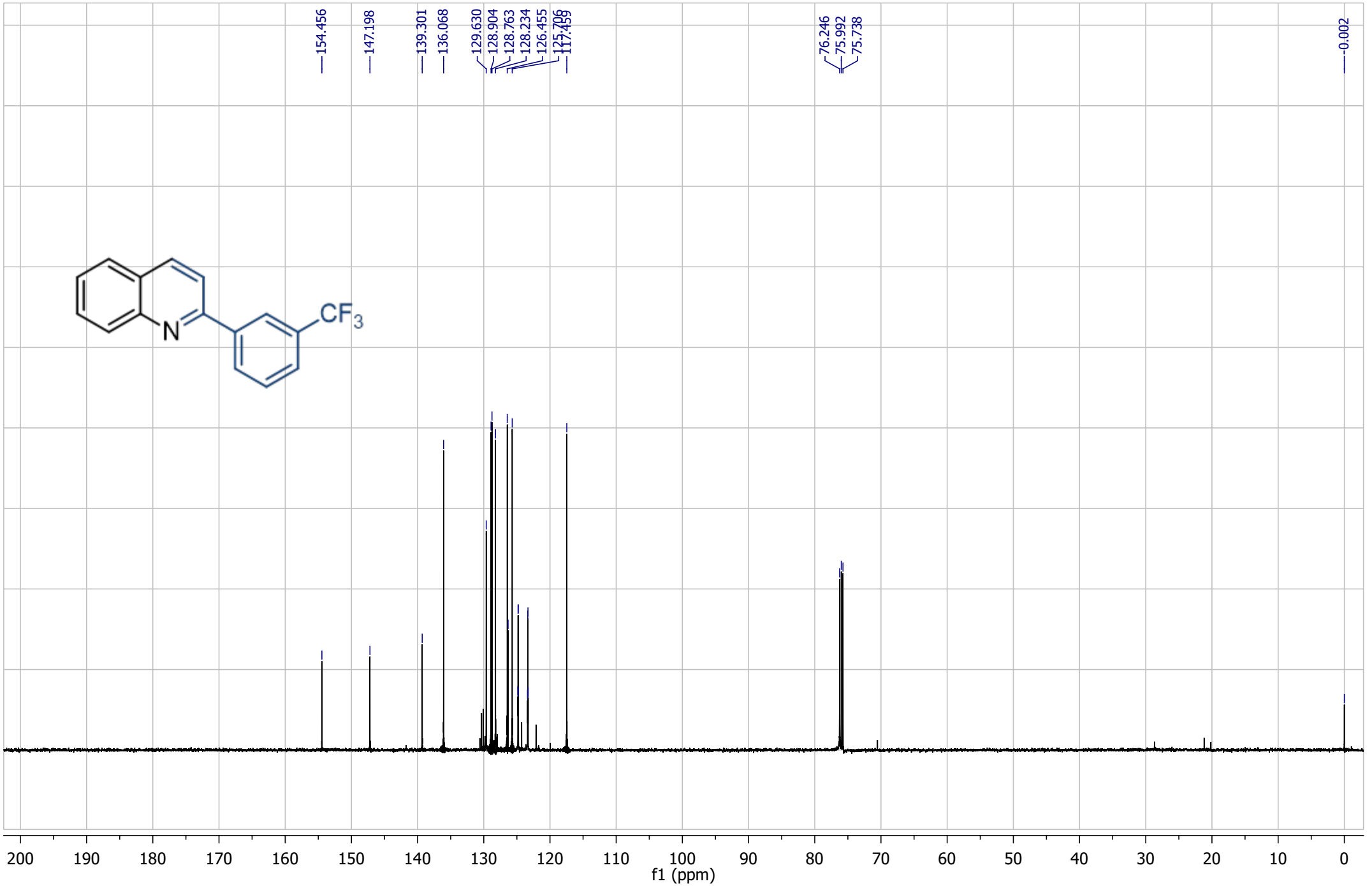
2-(4-bromophenyl)quinoline (6h)



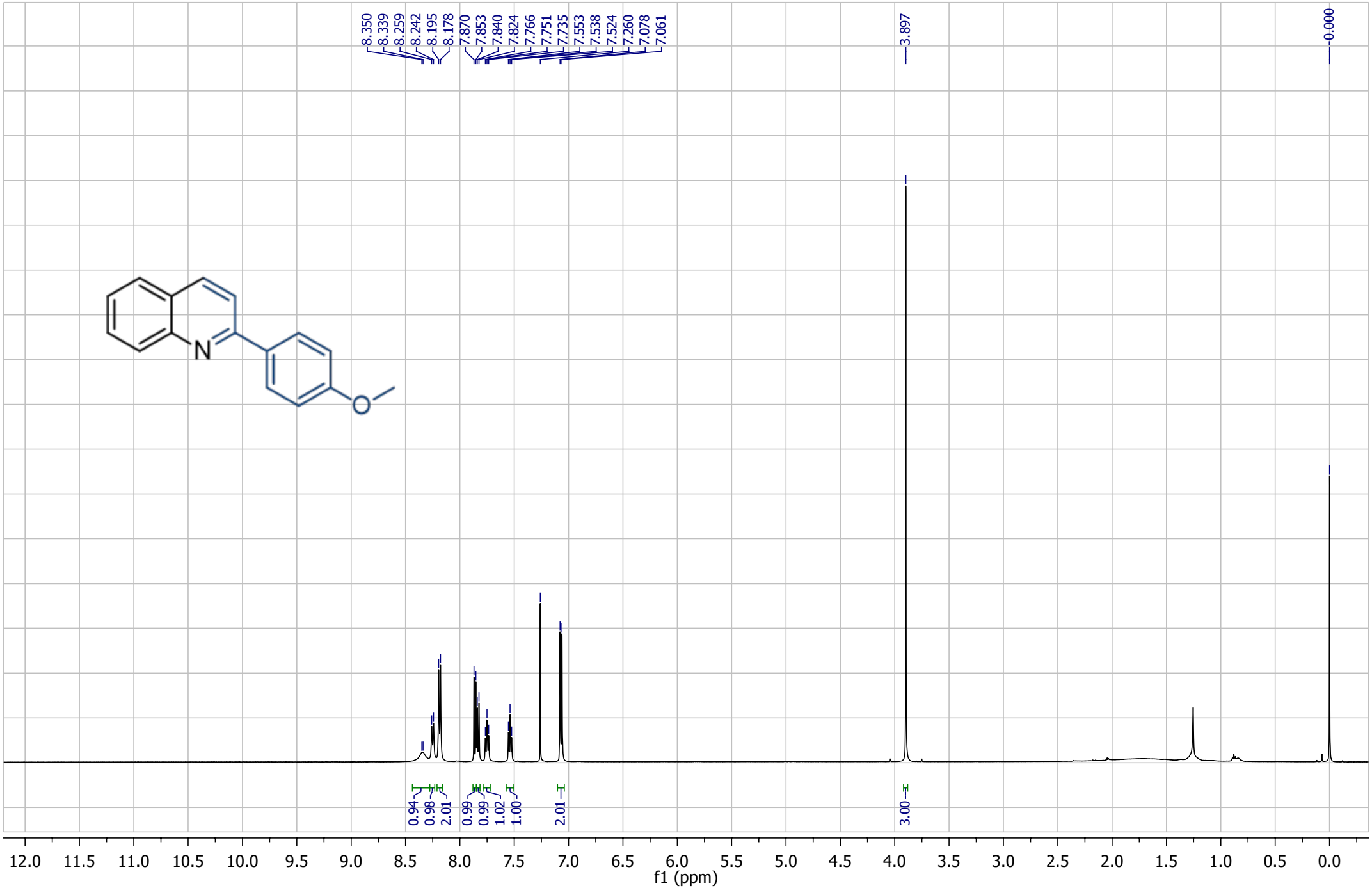
2-(4-bromophenyl)quinoline (6h)



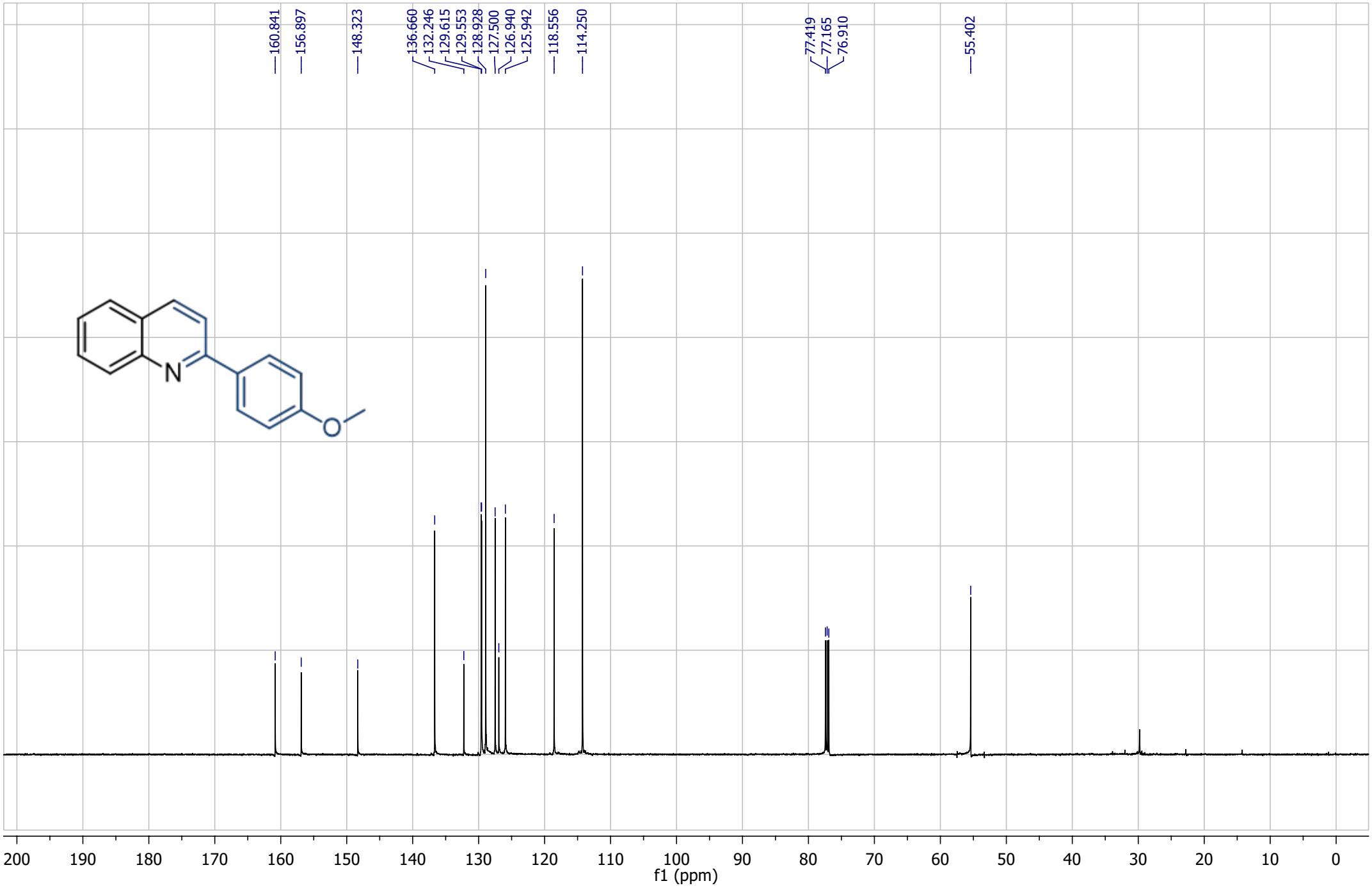
2-(3-(trifluoromethyl)phenyl)quinoline (6i)



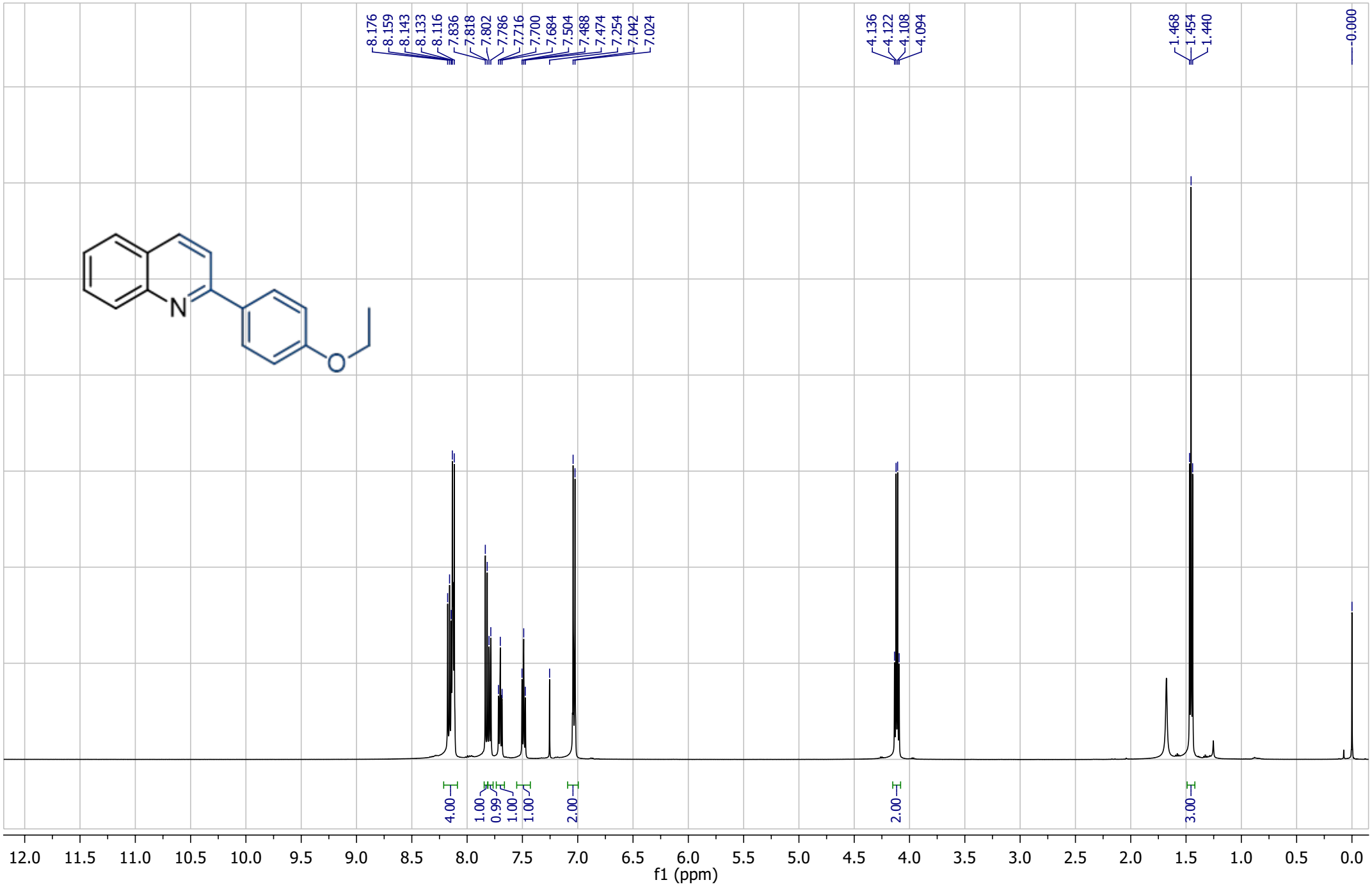
2-(3-(trifluoromethyl)phenyl)quinoline (6i)



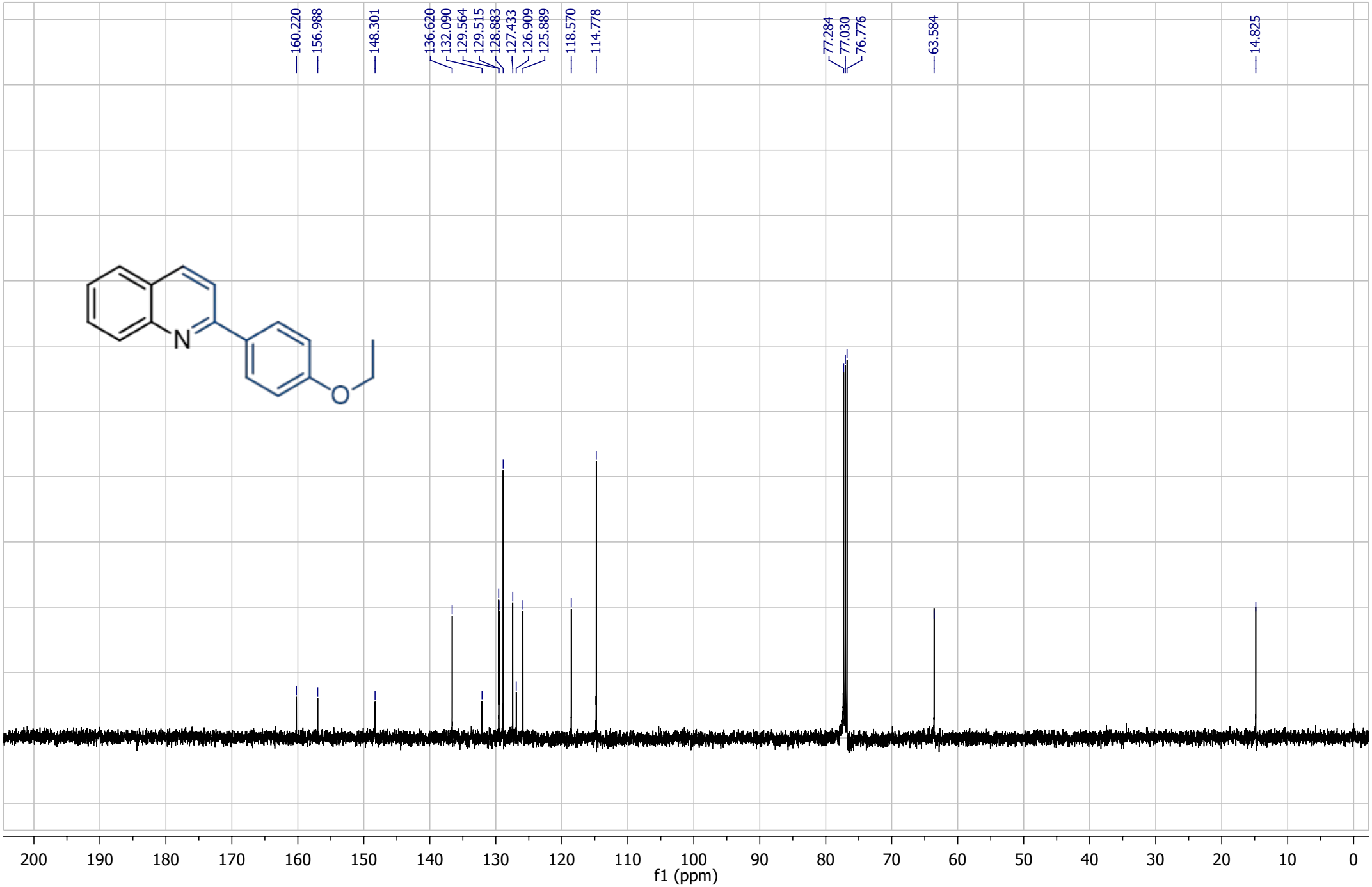
2-(4-methoxyphenyl)quinoline (6j)



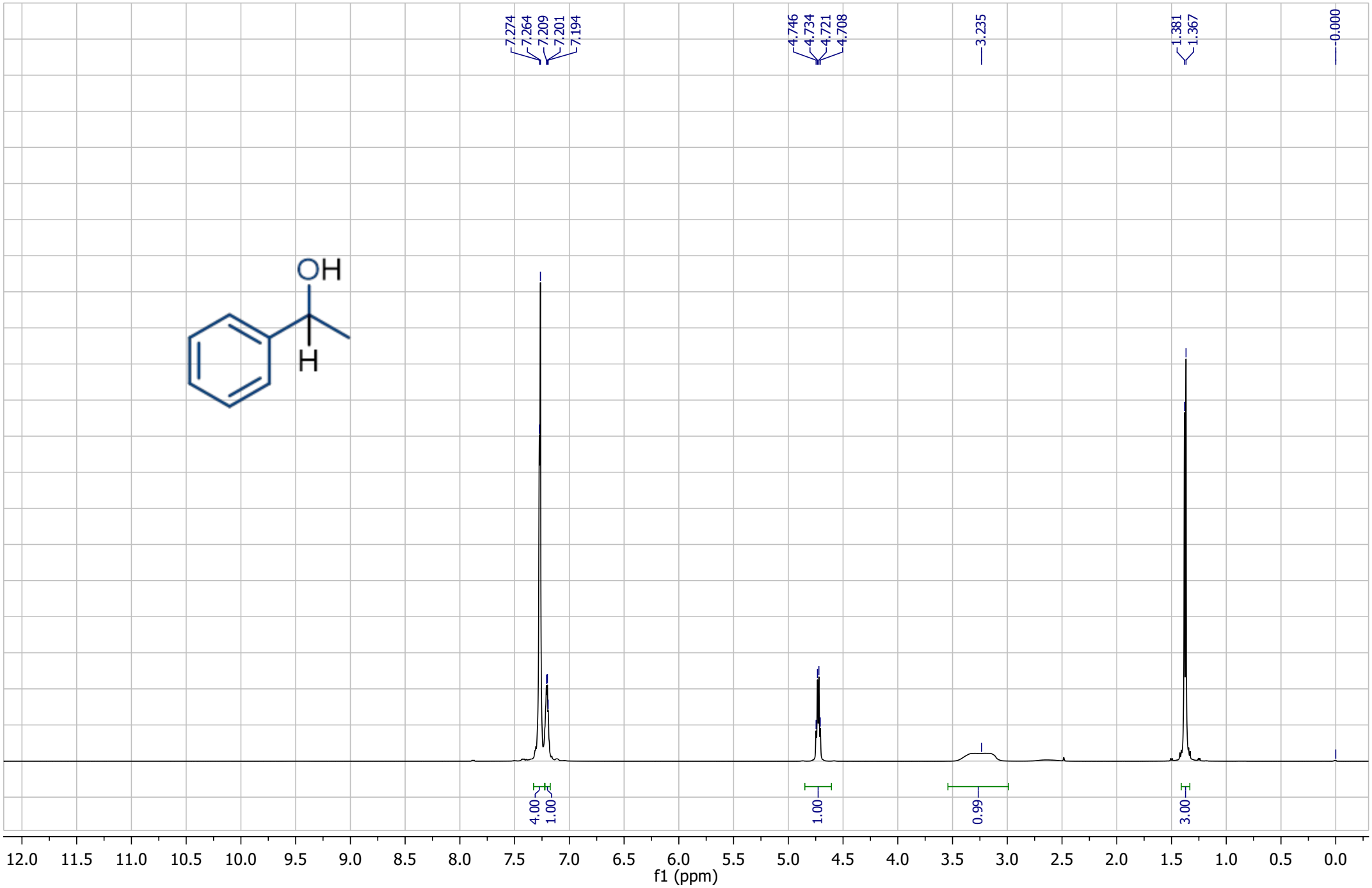
2-(4-methoxyphenyl)quinoline (6j)



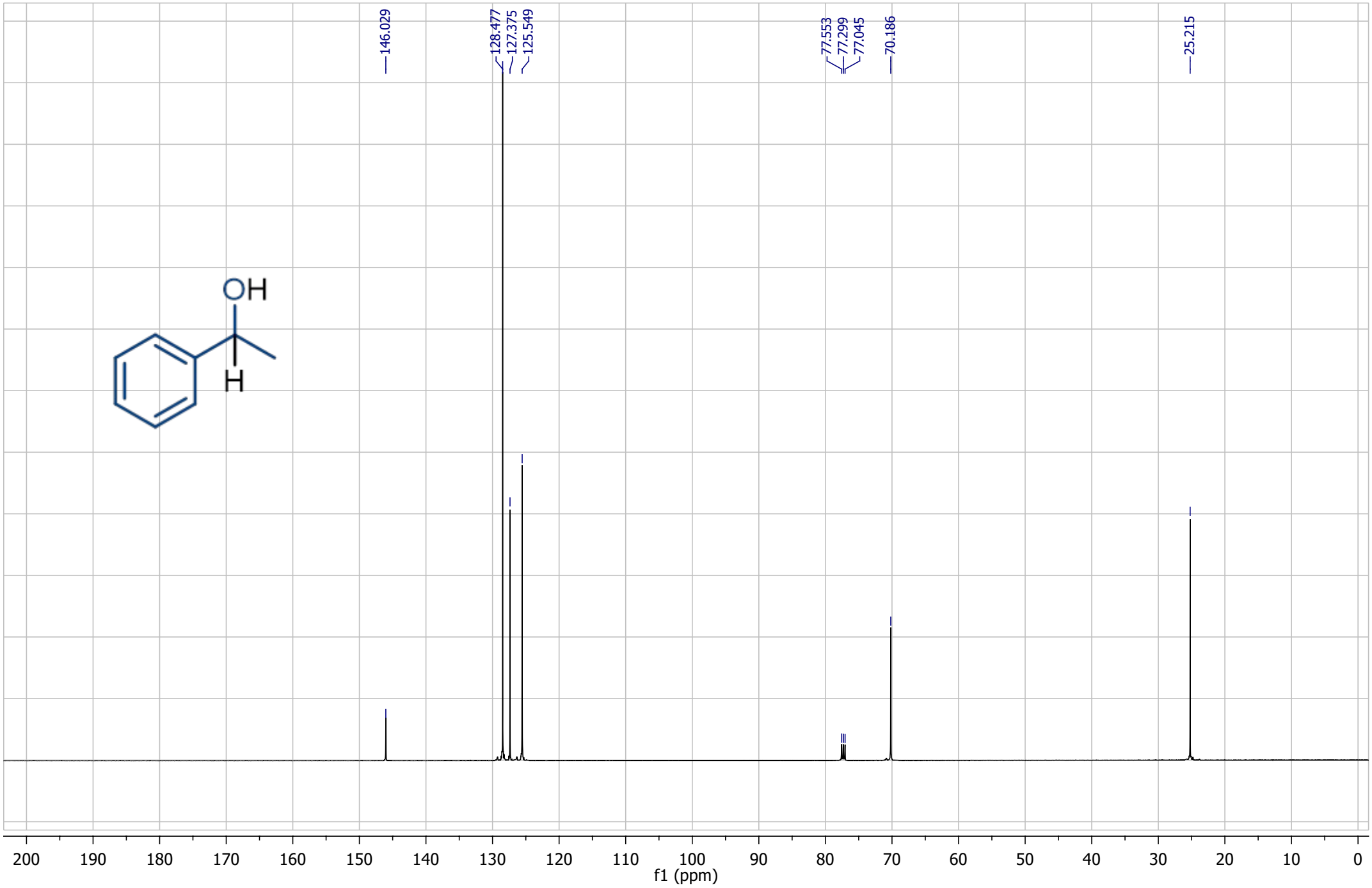
2-(4-ethoxyphenyl)quinoline (6k)



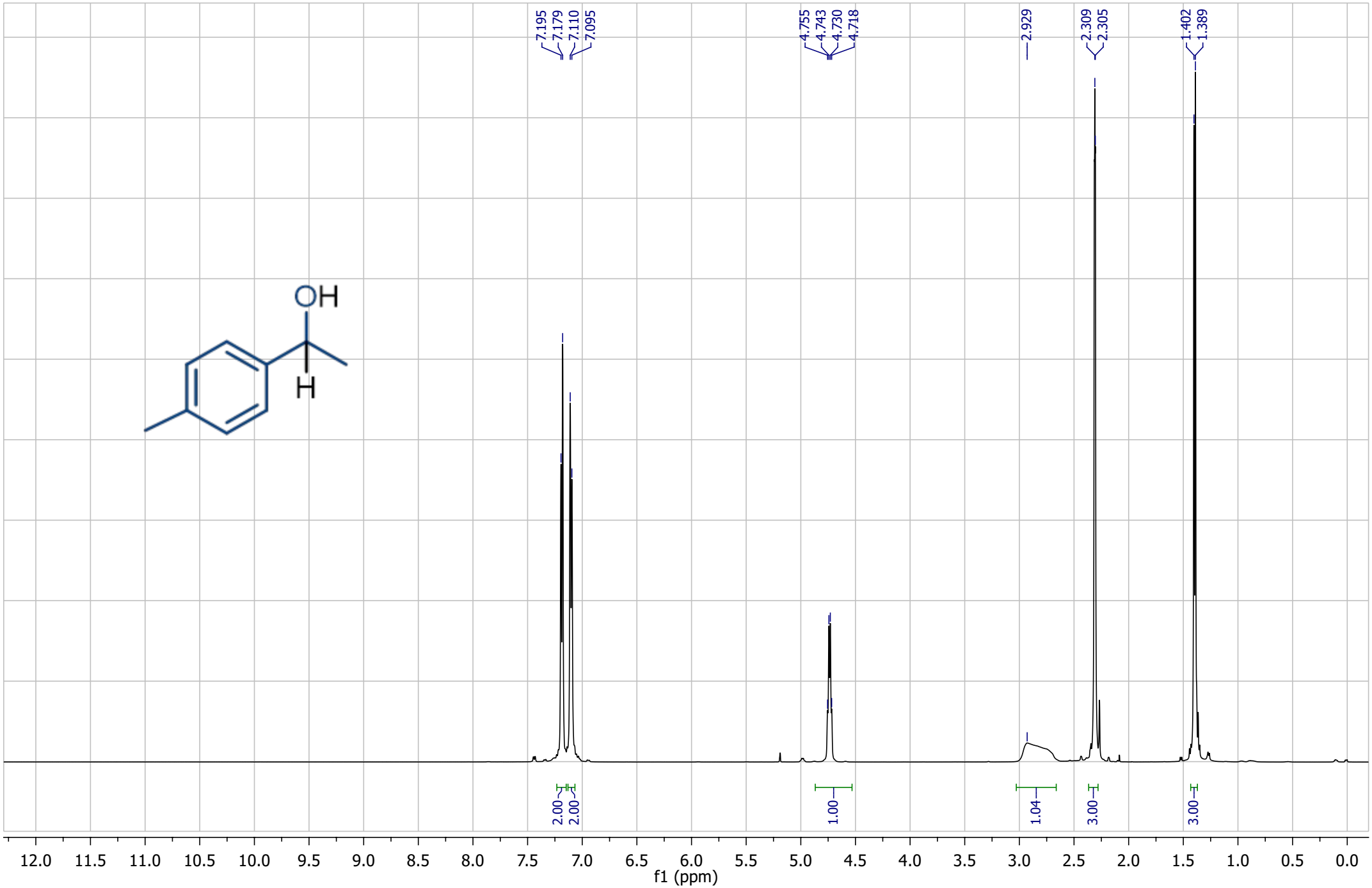
2-(4-ethoxyphenyl)quinoline (6k)



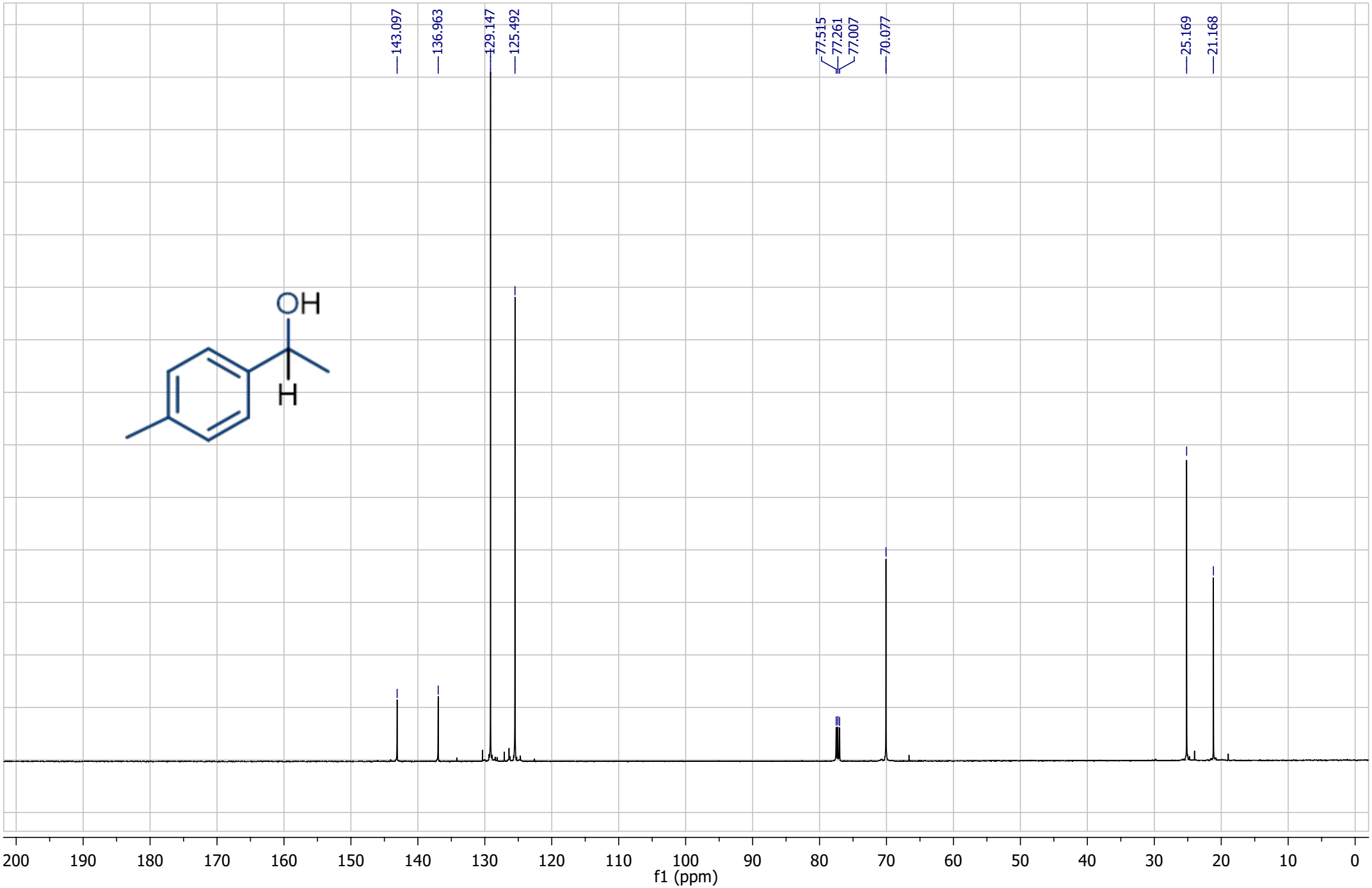
1-phenylethanol (7a)



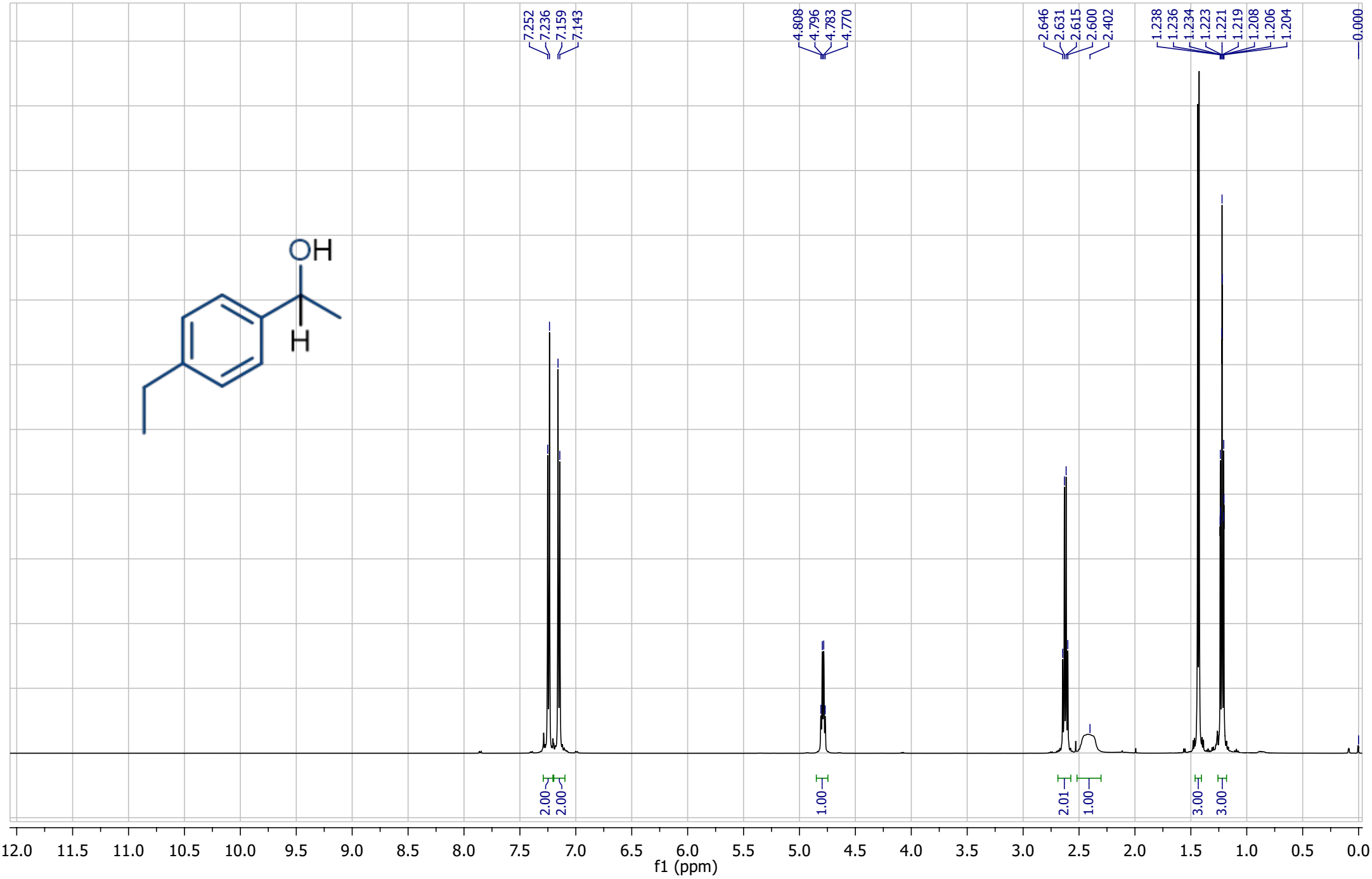
1-phenylethanol (7a)



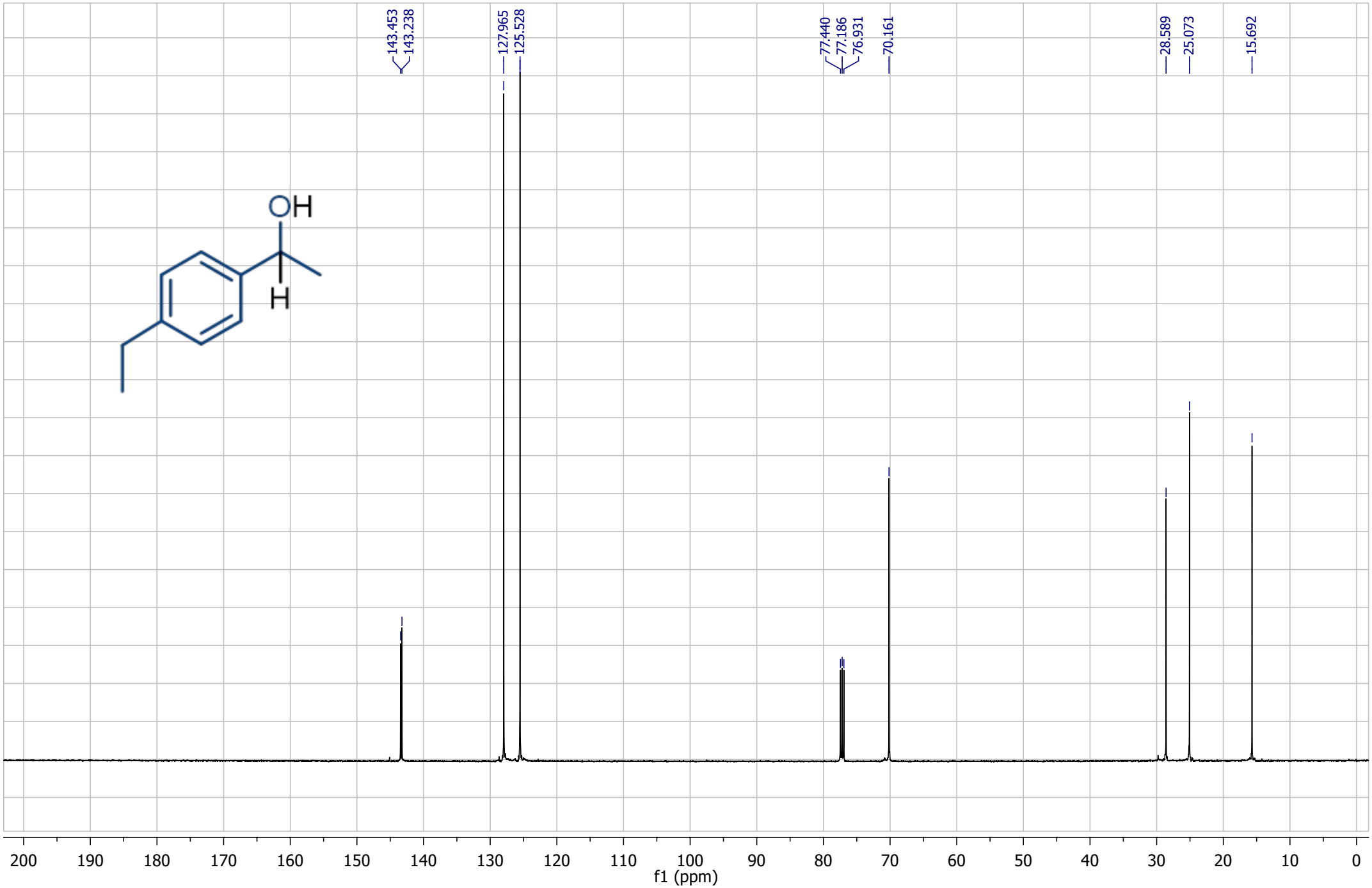
1-(p-tolyl)ethanol (7b)



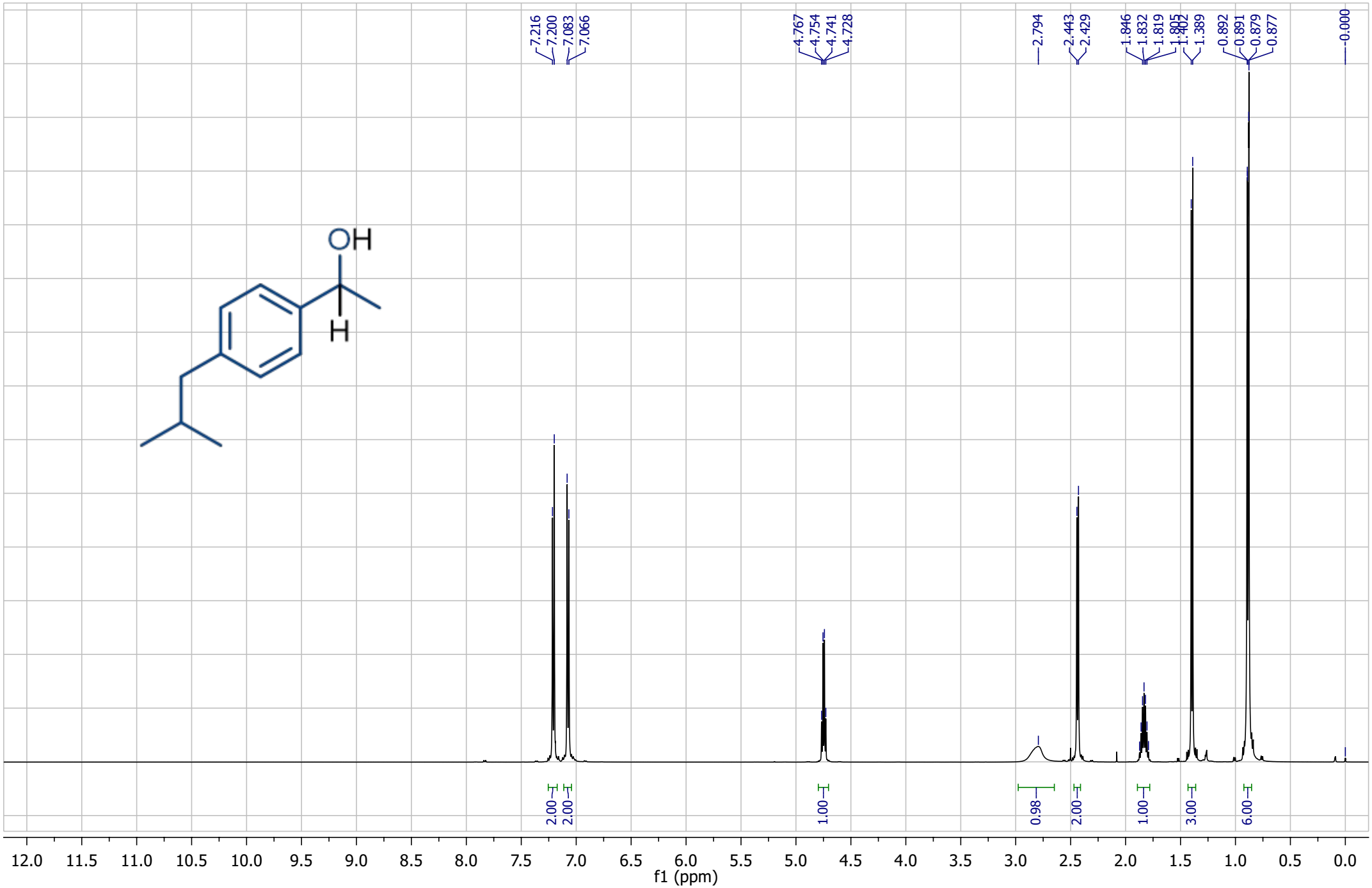
1-(p-tolyl)ethanol (7b)



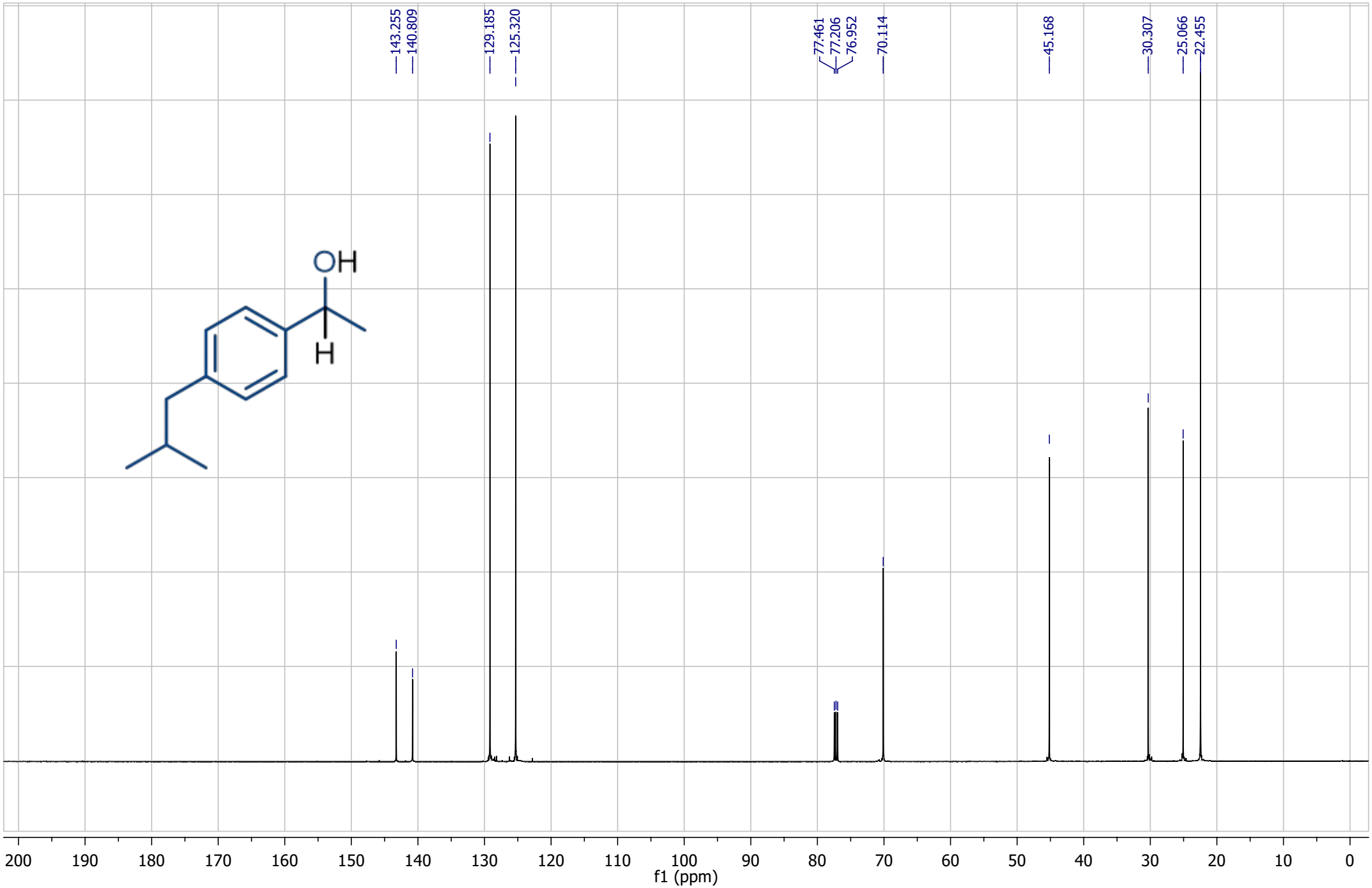
1-(4-ethylphenyl)ethanol (7c)



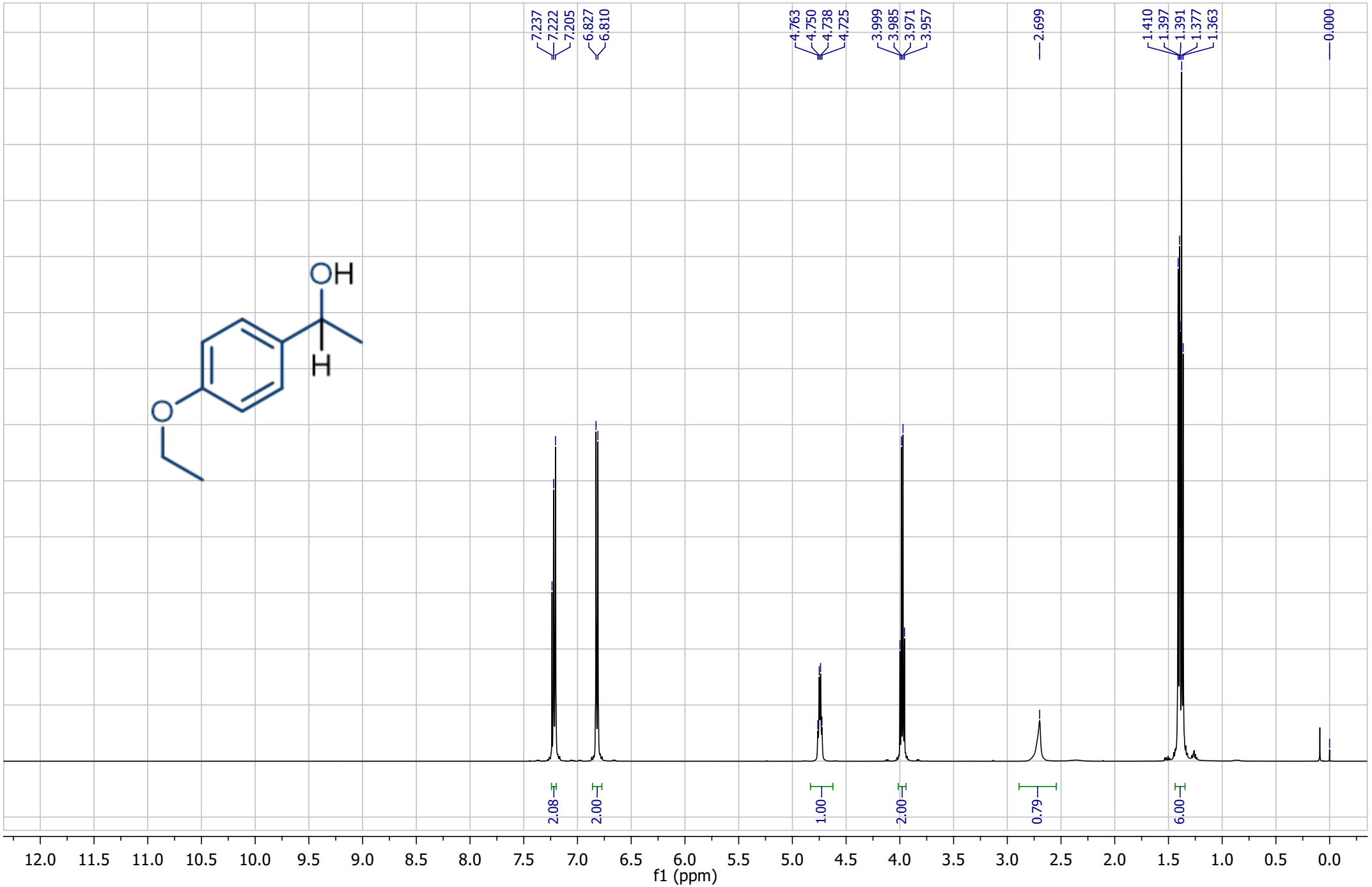
1-(4-ethylphenyl)ethanol (7c)



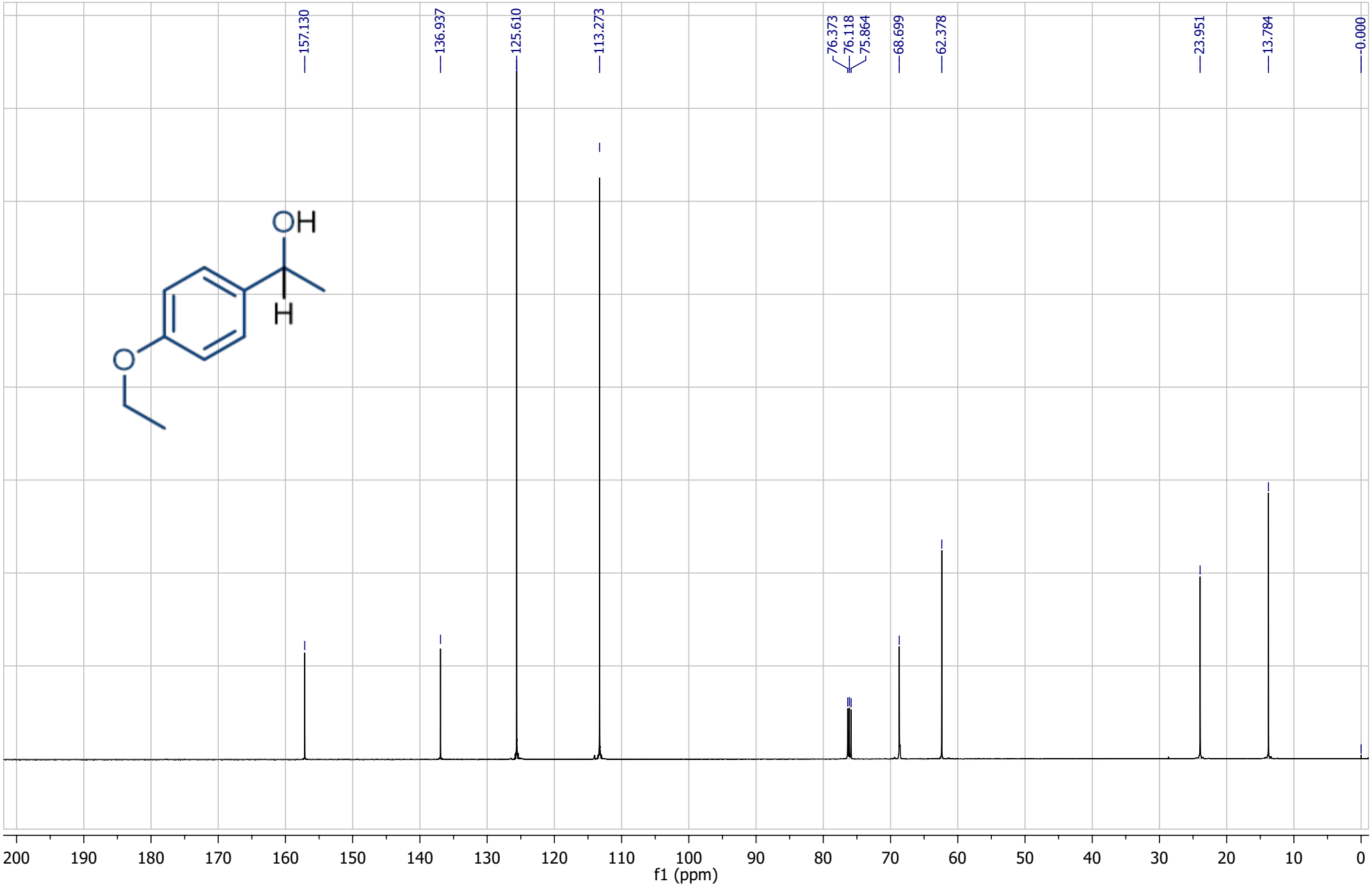
1-(4-isobutylphenyl)ethanol (7d)



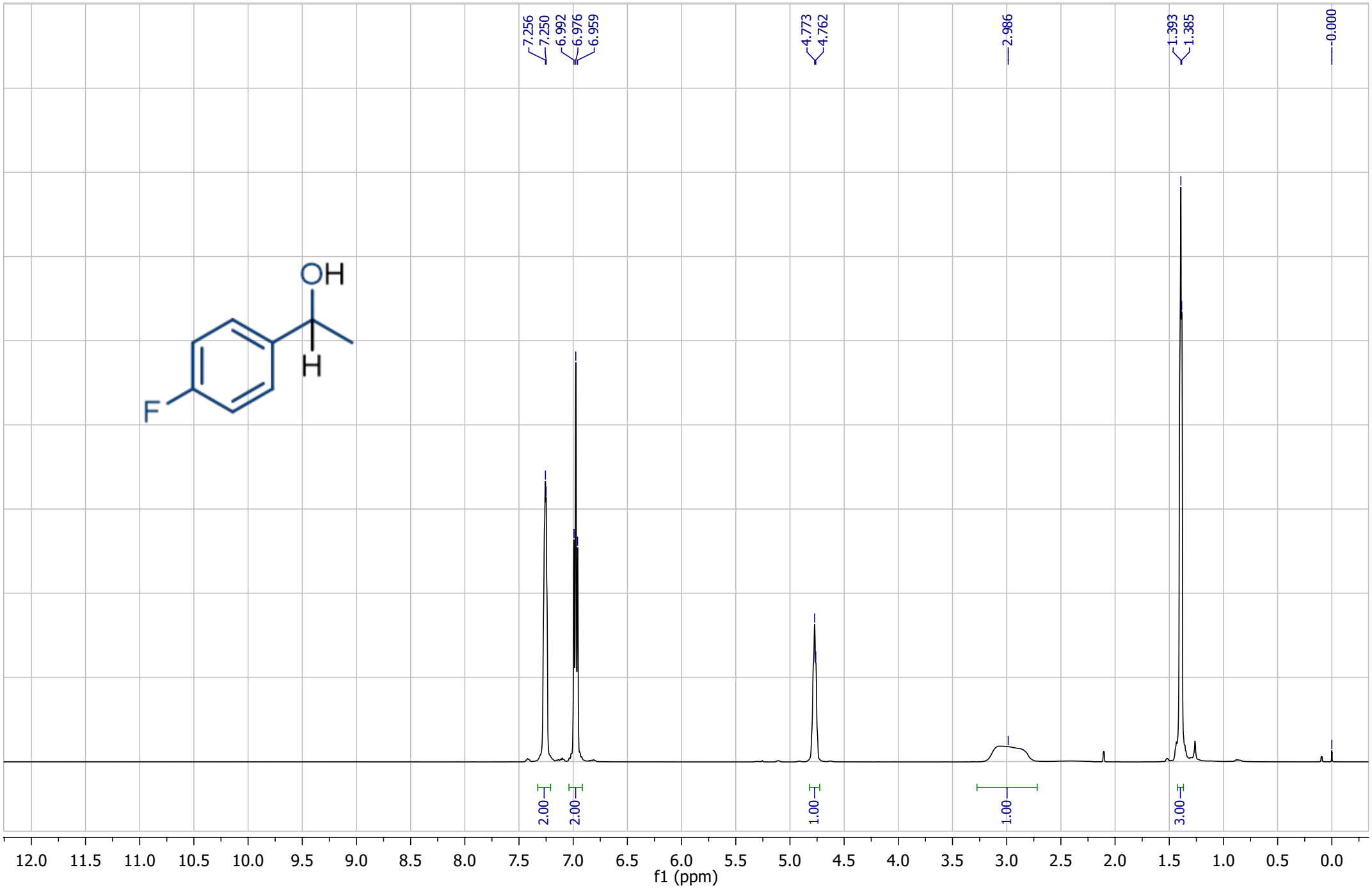
1-(4-isobutylphenyl)ethanol (7d)



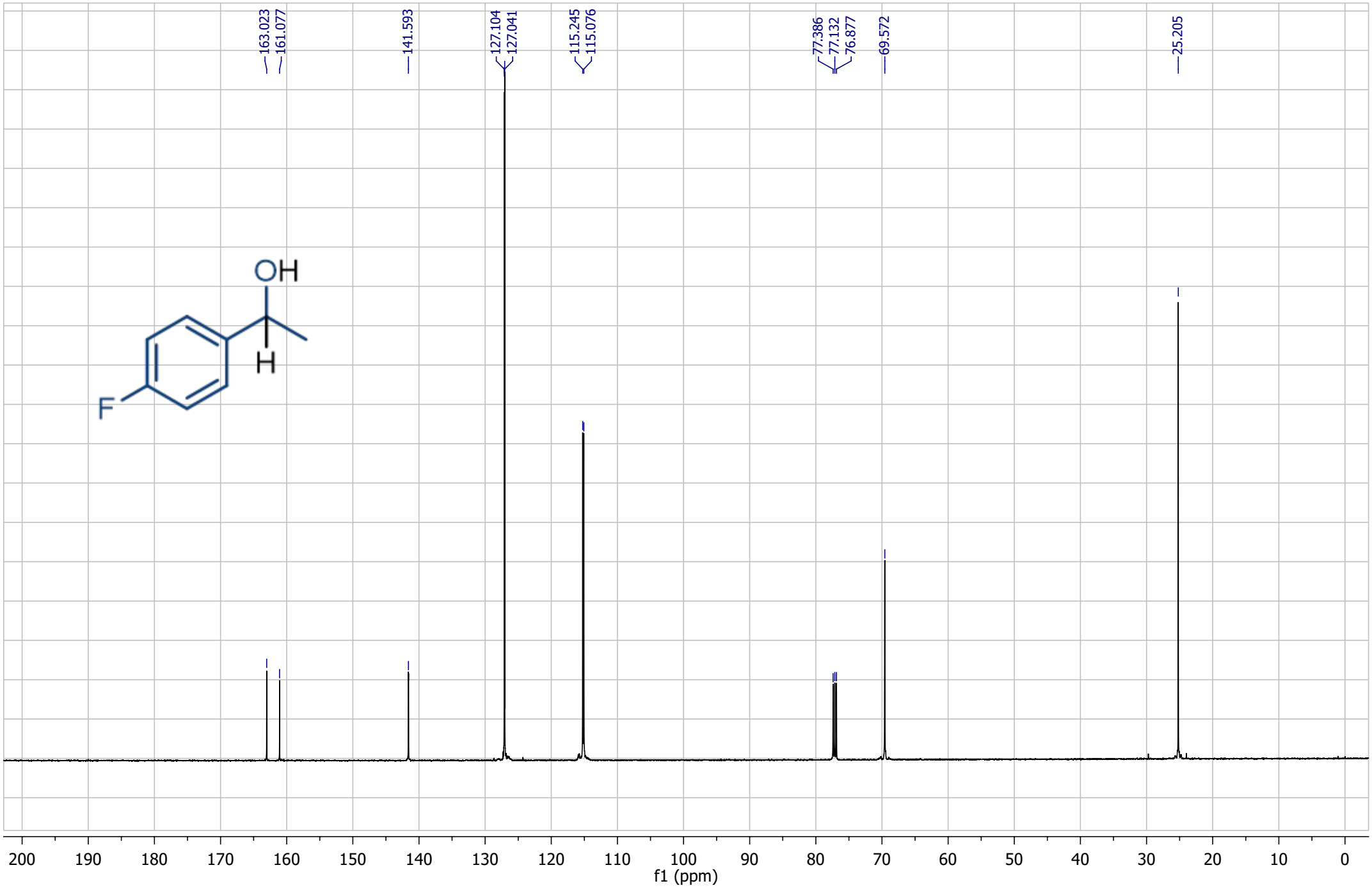
1-(4-ethoxyphenyl)ethanol (7e)



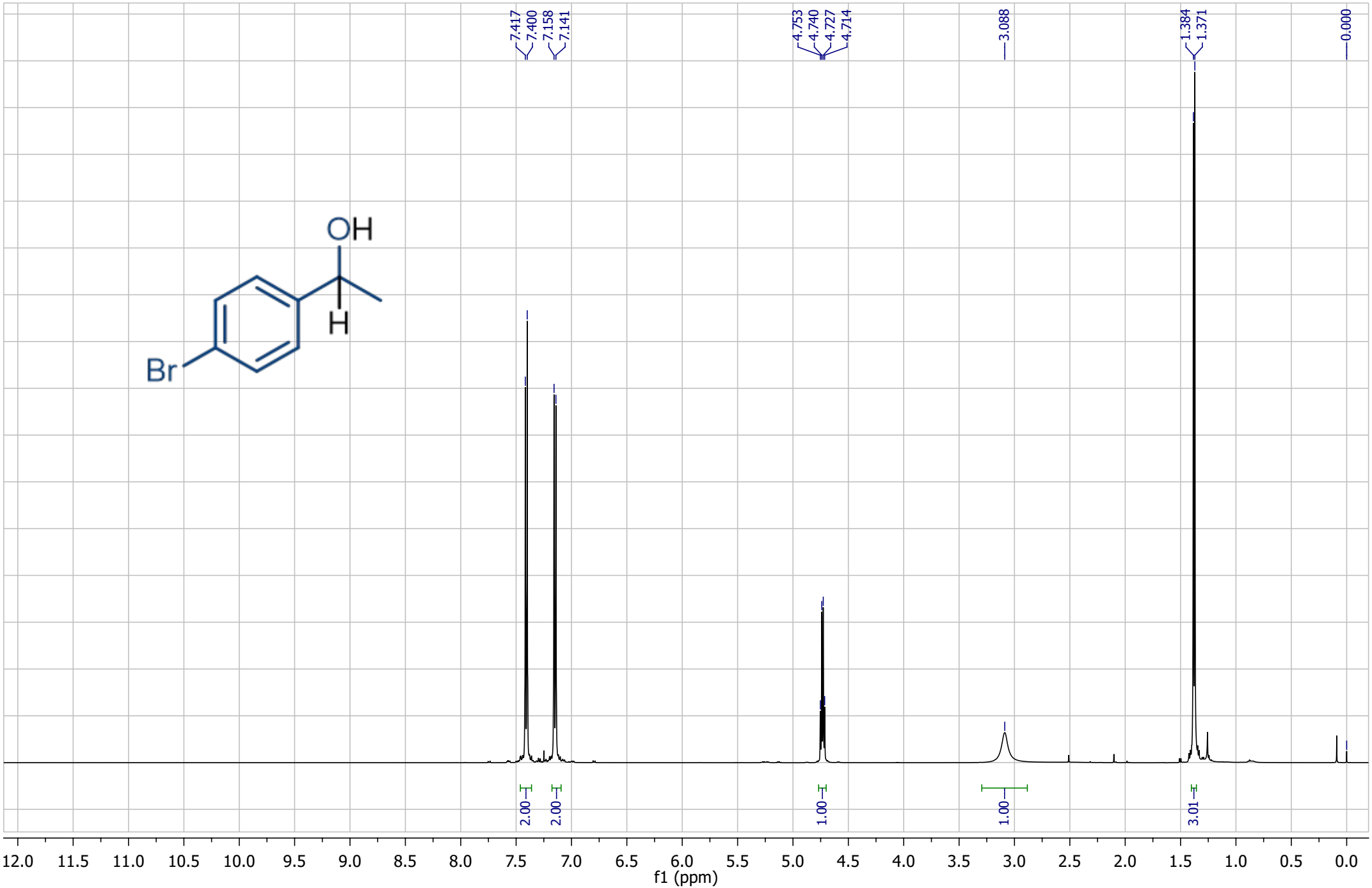
1-(4-ethoxyphenyl)ethanol (7e)



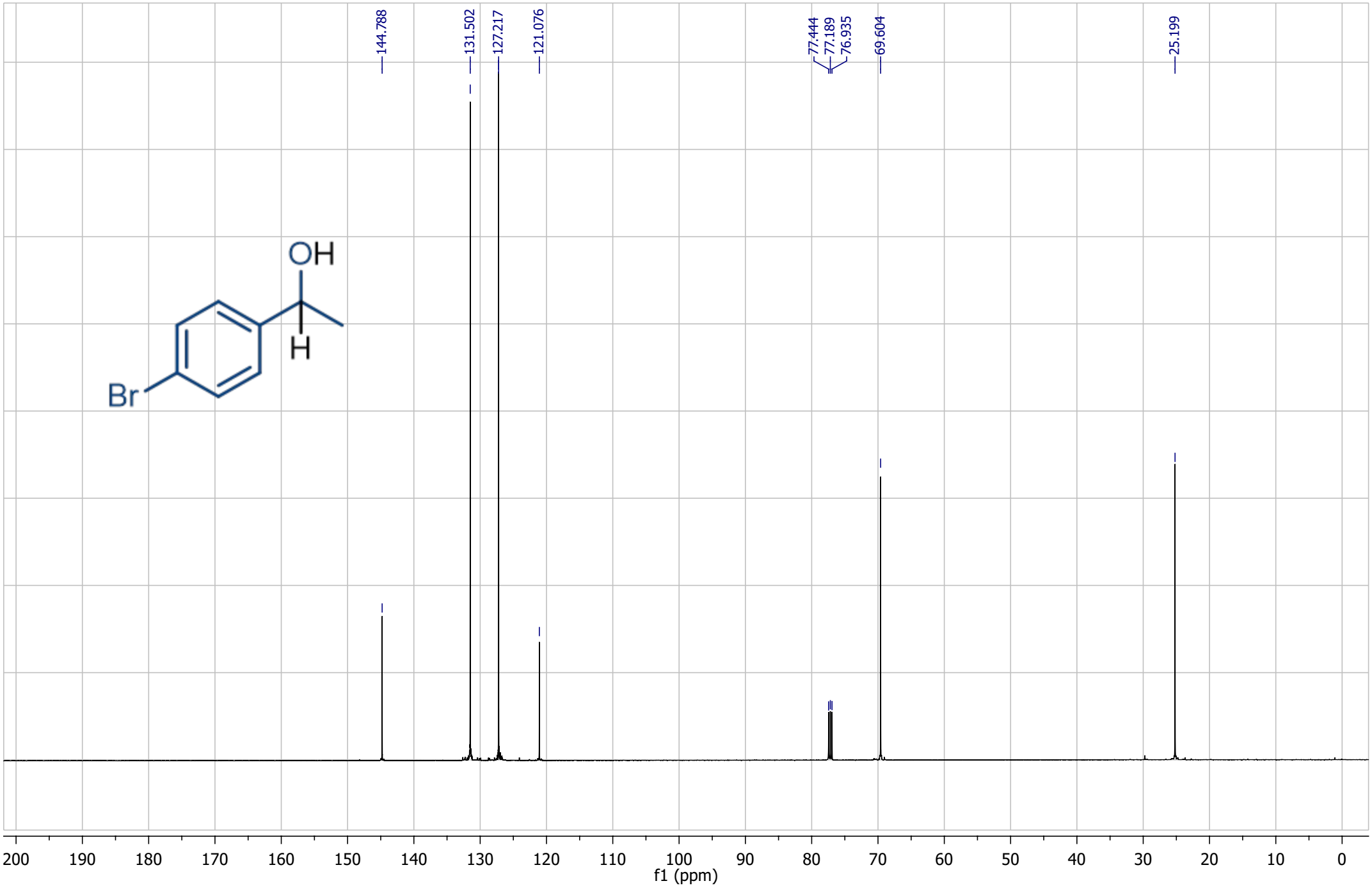
1-(4-fluorophenyl)ethanol (7f)



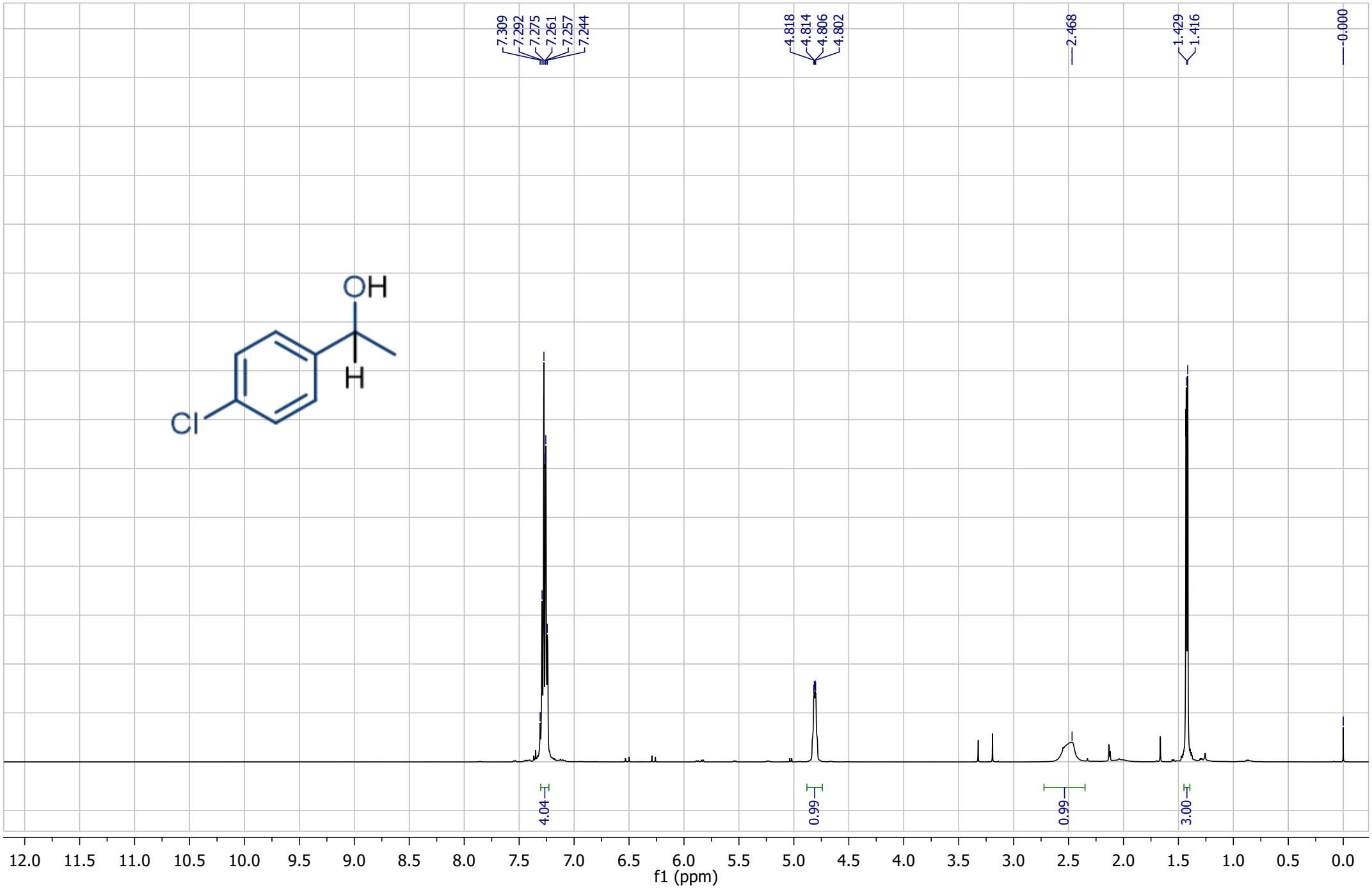
1-(4-fluorophenyl)ethanol (7f)



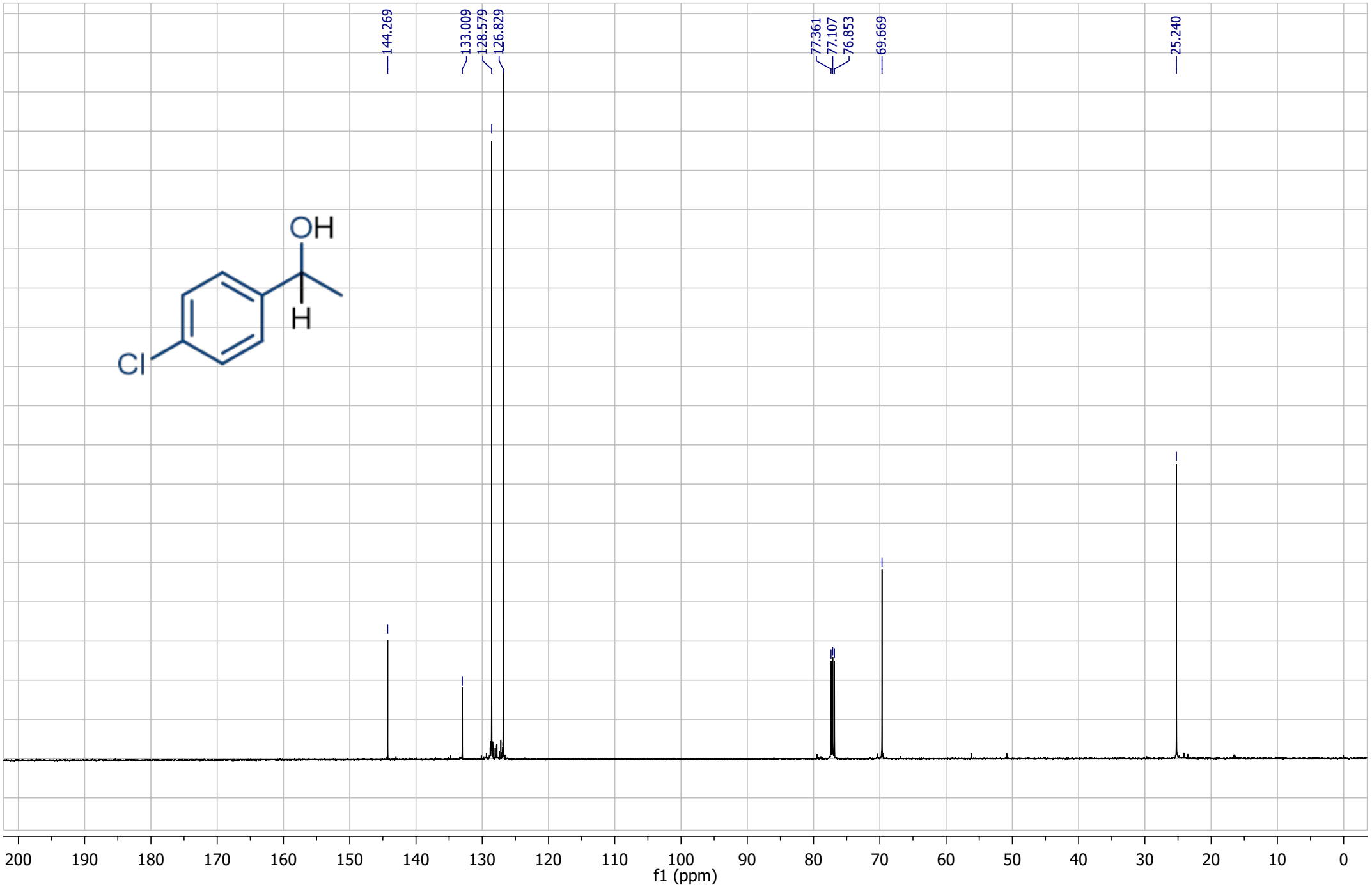
1-(4-bromophenyl)ethanol (7g)



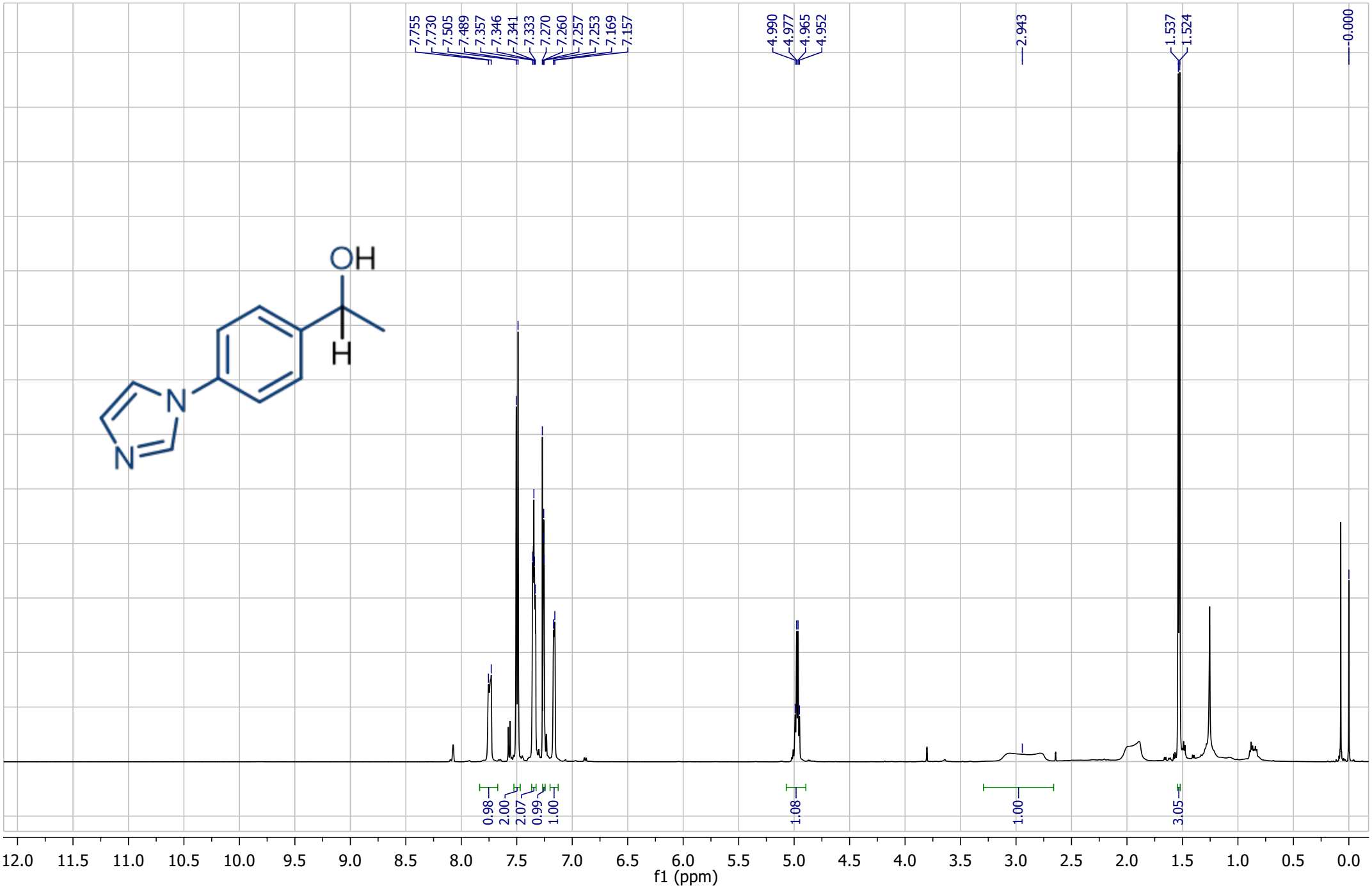
1-(4-bromophenyl)ethanol (7g)



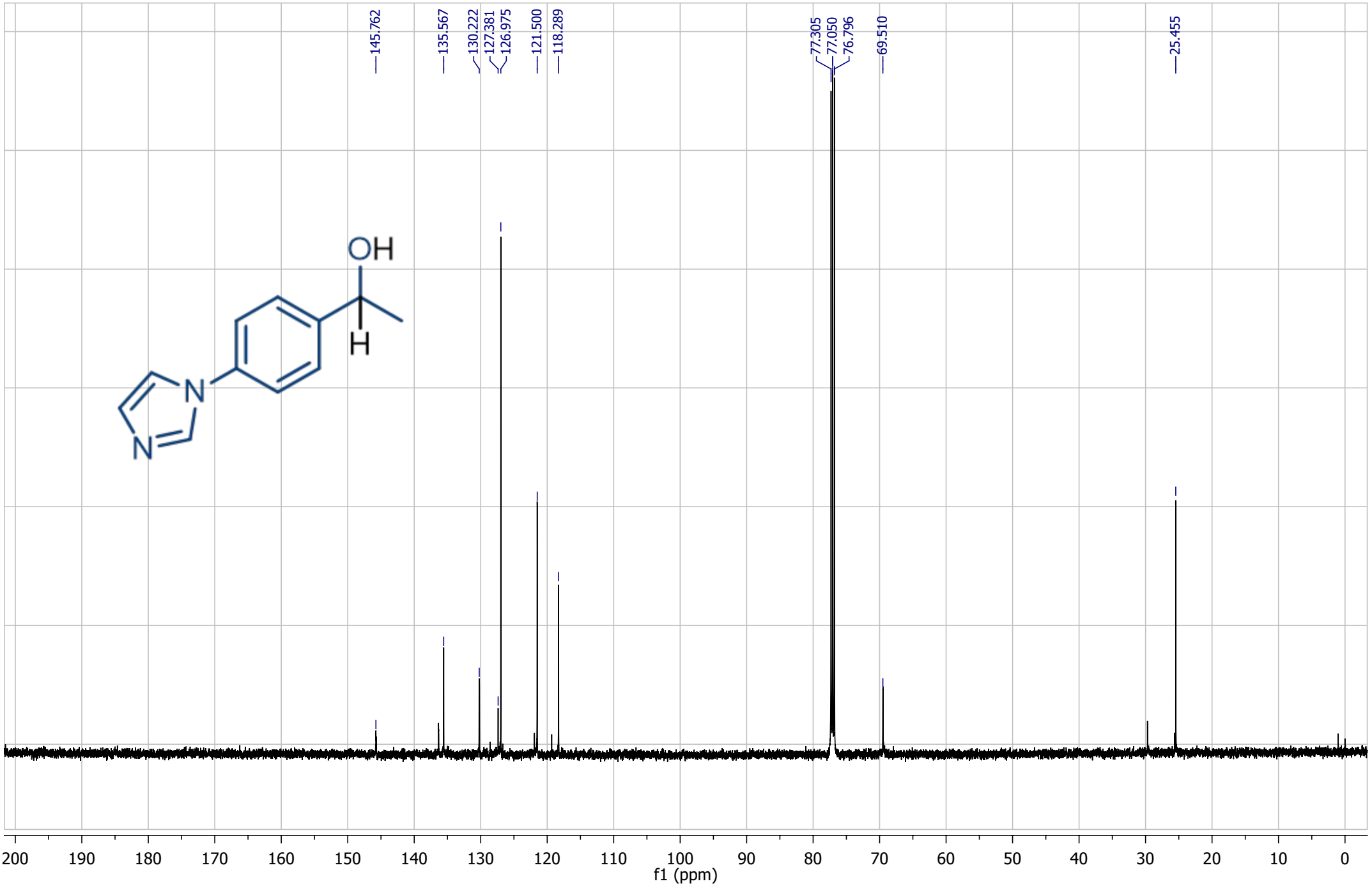
1-(4-chlorophenyl)ethanol (7h)



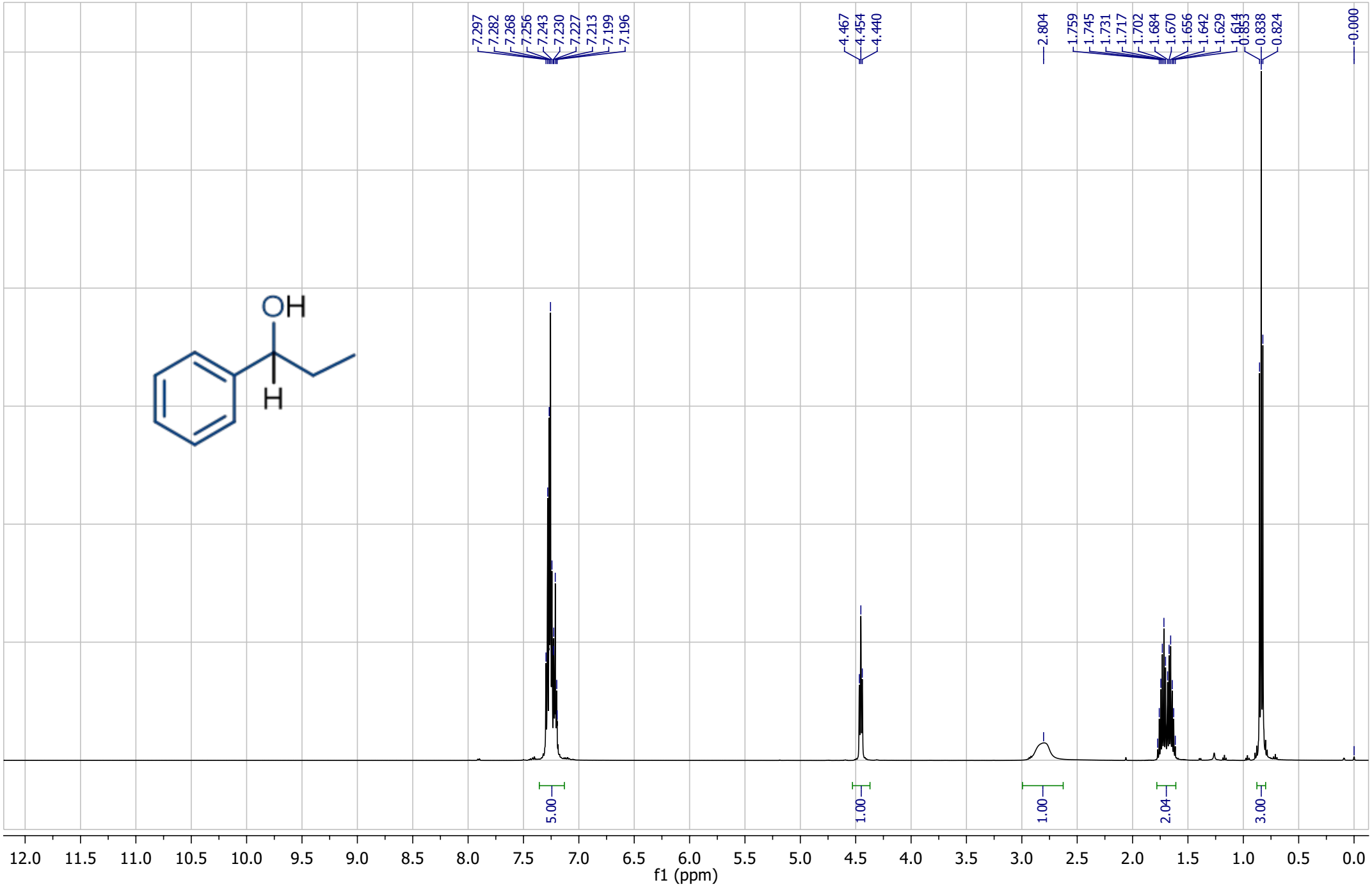
1-(4-chlorophenyl)ethanol (7h)



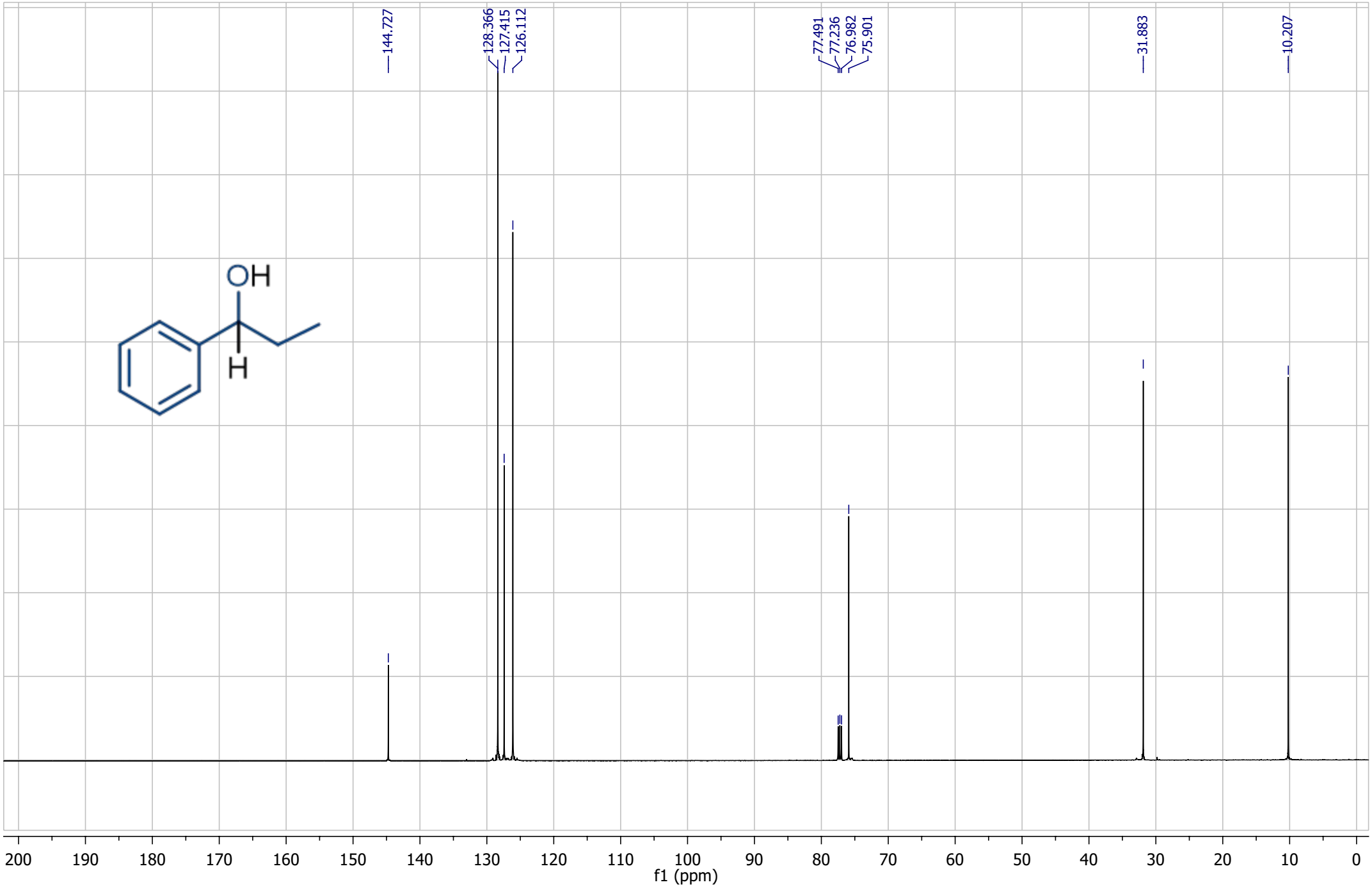
1-(4-(1H-imidazol-1-yl)phenyl)ethanol (7j)



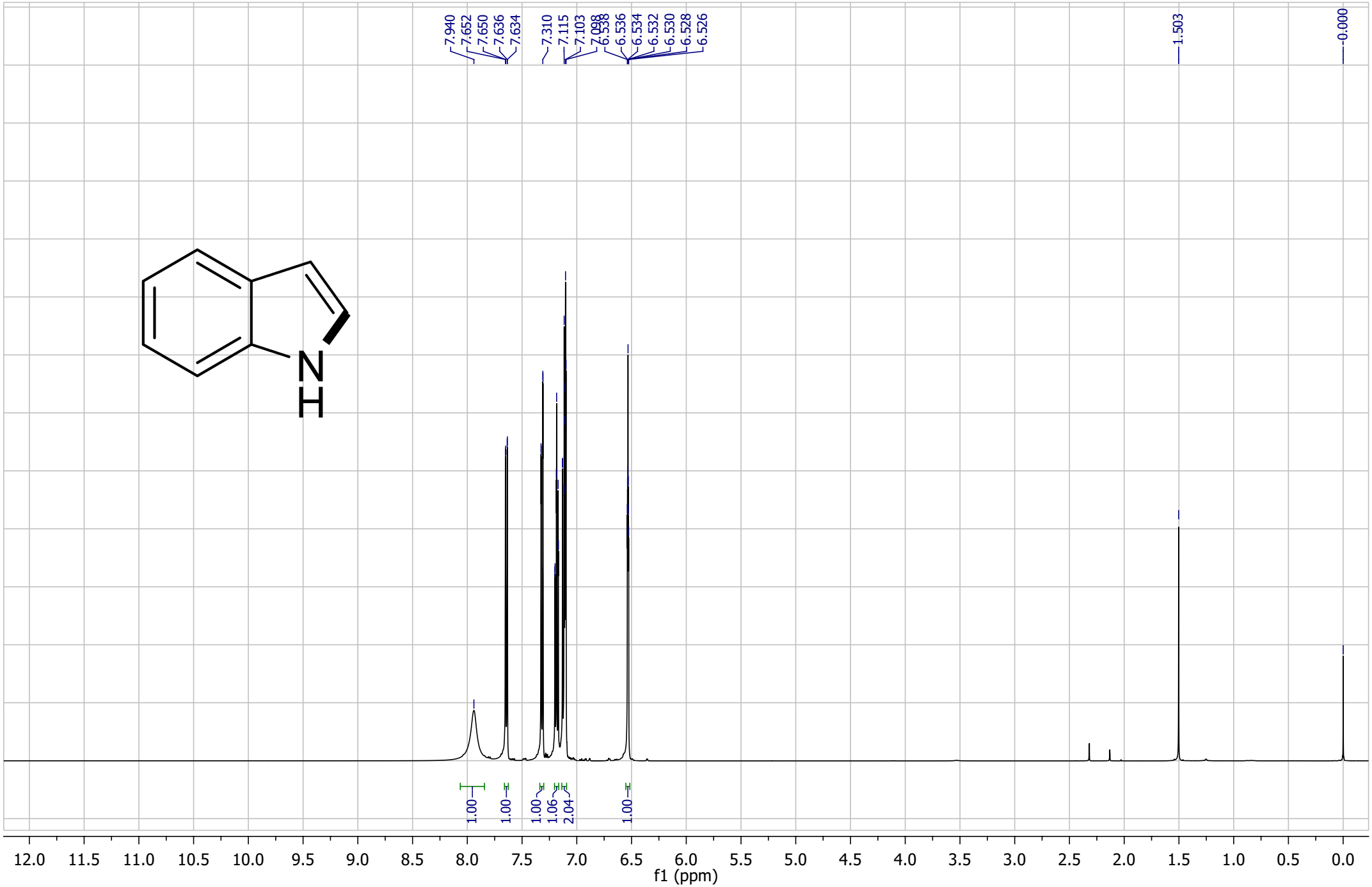
1-(4-(1H-imidazol-1-yl)phenyl)ethanol (7j)



1-phenylpropan-1-ol (7k)



1-phenylpropan-1-ol (7k)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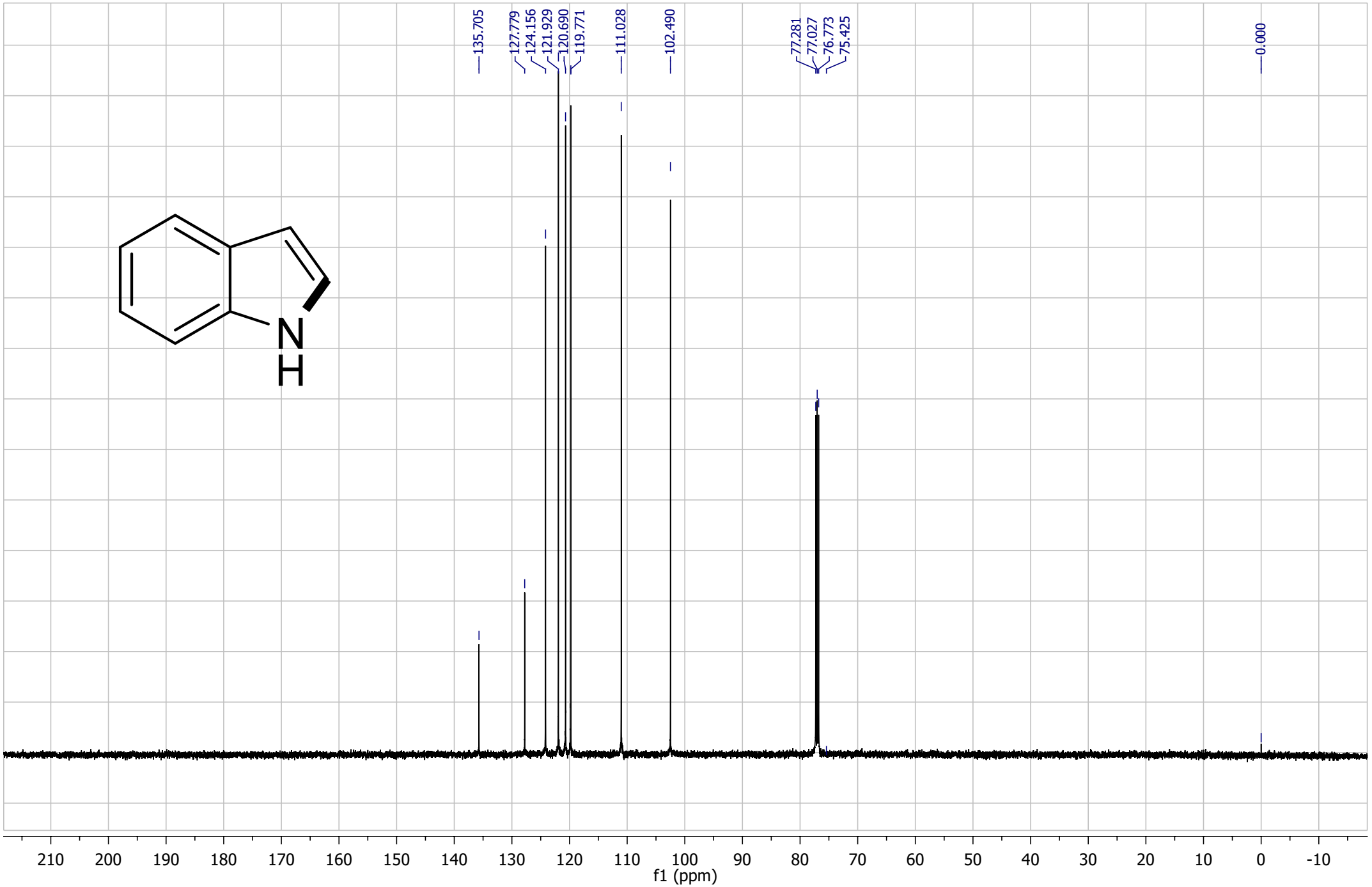
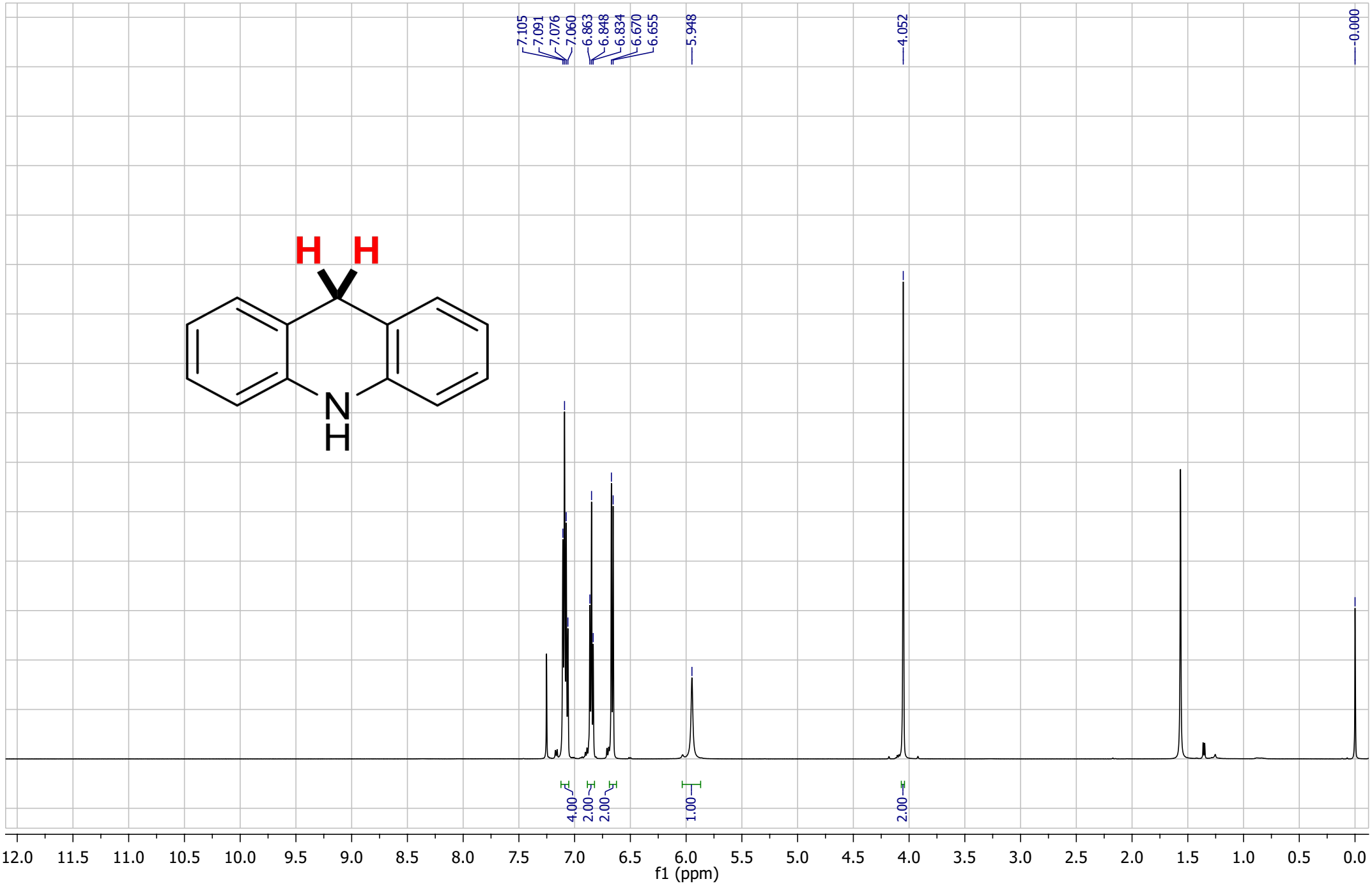
7.652
7.650
7.636
7.634
7.310
7.115
7.103
6.536
6.534
6.532
6.530
6.528
6.526
1.503
0.000
1.00
1.00
1.00
1.06
2.04
1.00
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

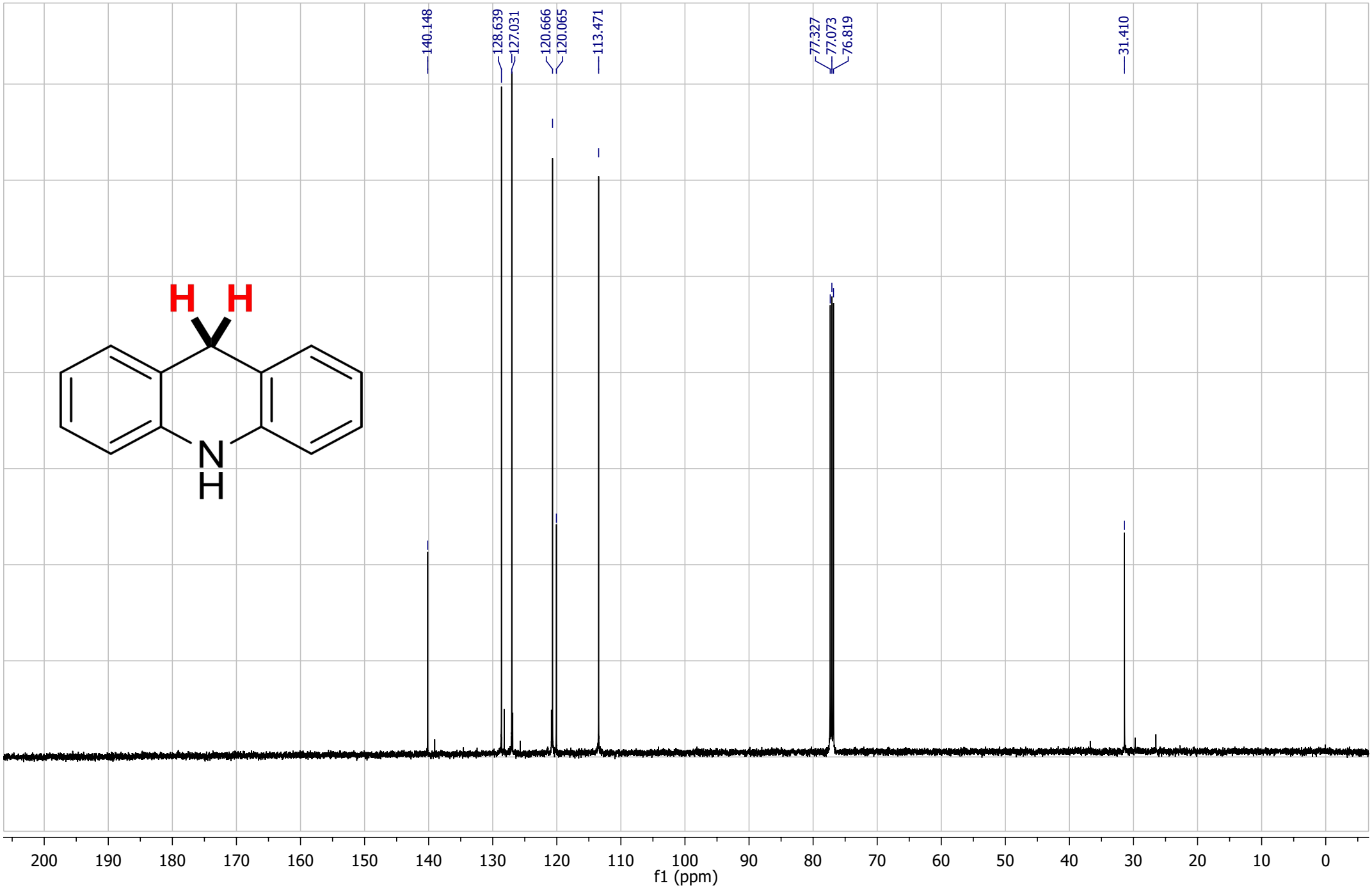
1H-indole


135.705
127.779
124.156
121.929
120.690
119.771
111.028
102.490
77.281
77.027
76.773
75.425
0.000
N
H
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

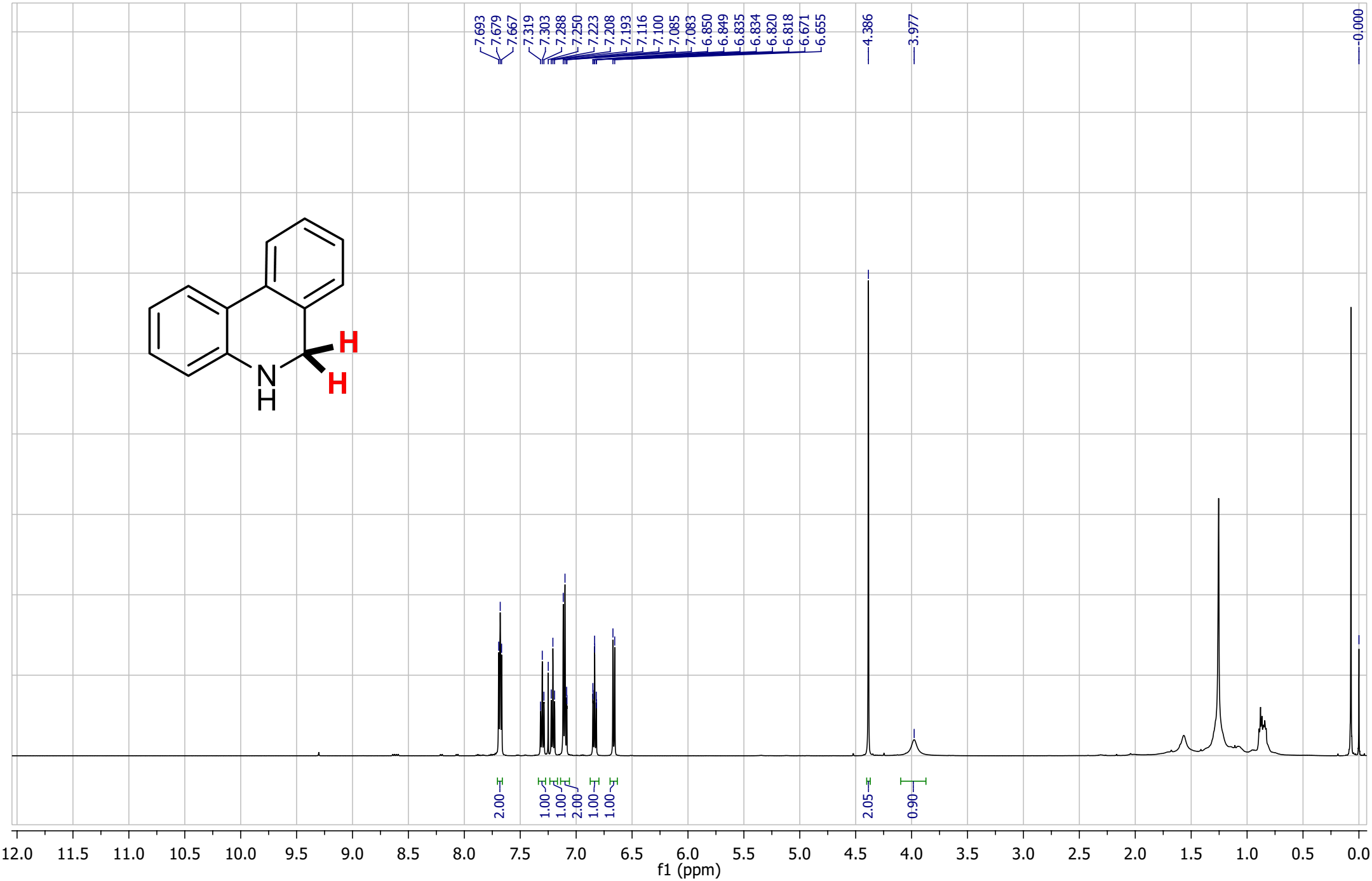
1H-indole



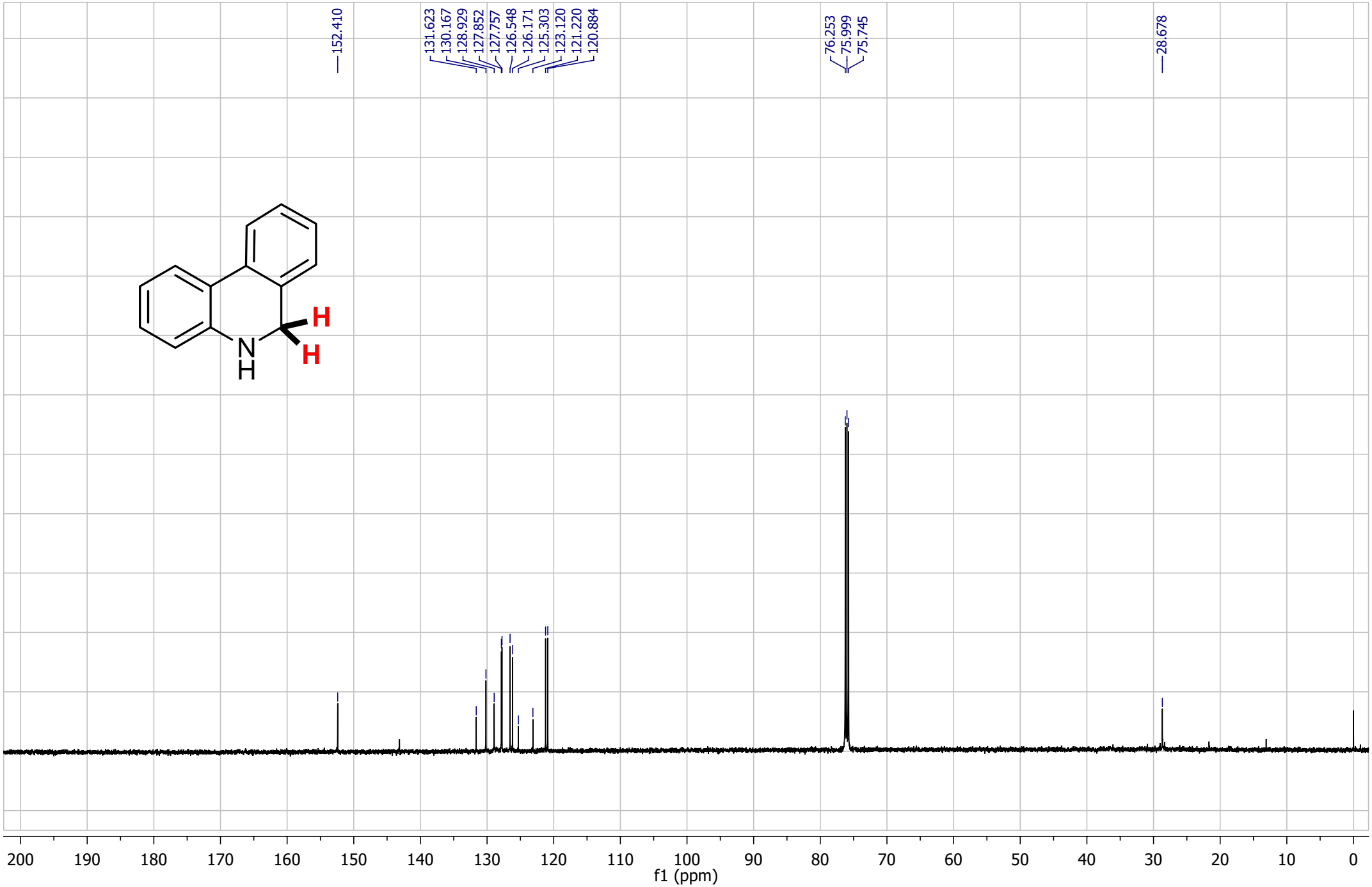
9,10-dihydroacridine



9,10-dihydroacridine



5,6-dihydrophenanthridine



5,6-dihydrophenanthridine