

Supporting Information
for
**Acceptorless Dehydrogenation and Dehydrogenative Coupling of Alcohols
by Protic NHC Ruthenium Complexes**

Weihong Chang,^a Xue Gong,^{a,b} Shuizhong Wang,^a Ling-Ping Xiao^a and Guoyong Song^{a*}

^a Beijing Key Laboratory of Lignocellulosic Chemistry, Beijing Forestry University, No.35
Tsinghua East Road, Beijing 100083, China.

^b School of Science, Beijing Forestry University, Beijing 100083, China

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1. General Information

All reactions dealing with air- or moisture-sensitive compounds were performed by standard Schlenk techniques or in the nitrogen-filled Vigor glove box. Analytical thin-layer chromatography (TLC) was performed on HSGF254 silica gel plates. THF, xylene, toluene, diethyl ether and hexane were distilled from sodium and stored over fresh Na chips in a glovebox. ^1H and ^{13}C nuclear magnetic resonance (NMR) spectra of organic products were recorded on a Bruker AVIII 400 MHz spectrometer instrument. Data are reported as follows: chemical shift in ppm (δ), multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, br = broad signal), coupling constant (Hz), and integration.

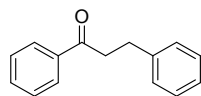
2. Catalytic reactions

General procedure for acceptorless dehydrogenation of alcohols: In a nitrogen-filled glovebox, 1-phenylethanol (120 mg, 0.98 mmol), complex **2** (5.5 mg, 1% mol), Cs_2CO_3 (3.2 mg, 1% mol) and xylene (1 mL) were charged in a seal bottle, which was heated at 140 °C. The reaction was monitored by GC-MS. After reaction, the solution was allowed to cool to room temperature, filtered through a silica gel column, and eluted with petroleum ether. The resulted solution was evaporated carefully under vacuum to afford acetophenone (100 mg, 85% yield). The ^1H NMR and MS spectra of acetophenone were matched with the previous reports.

General procedure for dehydrogenative coupling of secondary alcohols with primary alcohols: In a nitrogen-filled glovebox, 1-phenylethanol (60 mg, 0.49 mmol), benzyl alcohol (55 mg, 0.51 mmol), complex **2** (5.5 mg, 2% mol), Cs_2CO_3 (3.2 mg, 2% mol) and xylene (1 mL) were charged in a seal bottle, which was heated at 150 °C for 48 h. After reaction, the solution was allowed to cool to room temperature. The pure product **8a** was obtained as a white solid (87 mg, 85% yield) by column chromatography with petroleum ether/ethyl acetate (100:1) as eluent.

Table S1 Optimization of dehydrogenative coupling of 1-phenylethanol and benzyl alcohol

Entry	Cat. (2 mol%)	Solution	Temp (°C)	Base	GC Yield (%)
1	4	toluene	120	Cs ₂ CO ₃	43
2	4	xylene	150	Cs ₂ CO ₃	90
3	4	xylene	120	Cs ₂ CO ₃	38
4	4	xylene	150	none	0
5	2	xylene	150	none	0
6	2	xylene	150	Cs ₂ CO ₃	89
7	2	xylene	150	KO ^t Bu	3
8	2	xylene	150	NaO ^t Bu	24
9	2	xylene	150	NaOAc	0

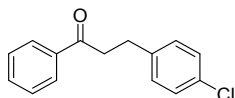


1, 3-diphenylpropan-1-one (8a), White solid (85%). ¹H NMR (400 MHz, CDCl₃):

δ 7.97 (d, *J* = 7.2 Hz, 2H), 7.56 (t, *J* = 7.4 Hz, 1H), 7.46 (t, *J* = 7.6 Hz, 2H), 7.25 – 7.34 (m, 4H), 7.22 (t, *J* = 7 Hz, 1H), 3.32 (t, *J* = 7.6 Hz, 2H), 3.09 (t, *J* = 7.8 Hz, 2H);

¹³C NMR (100 MHz, CDCl₃): δ 199.2, 141.3, 136.9, 133.1, 128.6, 128.6, 128.5, 128.1, 126.2, 40.5, 30.2.

Data are consistent with previously reported data. [D. W. Wang, K. Y. Zhao, C. Y. Xu, H. Y. Miao, Y. Q. Ding, *ACS Catal.* **2014**, *4*, 3910-3918]

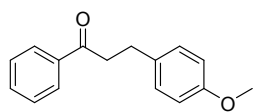


3-(4-chlorophenyl)-1-phenylpropan-1-one (8b), pale yellow solid (71%). ¹H

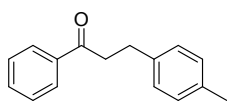
NMR (400 MHz, CDCl₃): δ 7.96 – 7.94 (m, 2H), 7.56 (t, *J* = 7.4 Hz, 1H), 7.46 (t, *J* = 7.6 Hz, 2H), 7.27 (s, 1H), 7.25 (s, 1H), 7.20 – 7.17 (m, 2H), 3.28 (t, *J* = 7.6

Hz, 2H), 3.05 (t, *J* = 7.6 Hz, 2H); ¹³C NMR (100 MHz, CDCl₃): δ 198.9, 139.7, 136.8, 133.2, 131.9, 129.8, 128.6 (2C), 128.0, 40.1, 29.4. Data are consistent with previously reported data. [D. W. Wang, K. Y. Zhao,

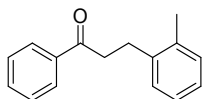
C. Y. Xu, H. Y. Miao, Y. Q. Ding, *ACS Catal.* **2014**, *4*, 3910-3918]



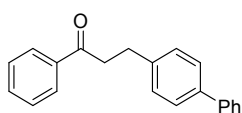
3-(4-methoxyphenyl)-1-phenylpropan-1-one (8c), colorless oil (95%). ^1H NMR (400 MHz, CDCl_3): δ 7.96 (d, $J = 7.2$, 2H), 7.56 (t, $J = 7.2$ Hz, 1H), 7.45 (t, $J = 7.4$ Hz, 2H), 7.17 (d, $J = 8.4$ Hz, 2H), 6.84 (d, $J = 8.8$ Hz, 2H), 3.79 (s, 3H), 3.27 (t, $J = 7.6$ Hz, 2H), 3.02 (t, $J = 7.8$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 199.4, 158.0, 136.9, 133.3, 133.1, 129.4, 128.6, 128.1, 114.0, 55.3, 40.7, 29.3. Data are consistent with previously reported data. [D. W. Wang, K. Y. Zhao, C. Y. Xu, H. Y. Miao, Y. Q. Ding, *ACS Catal.* **2014**, *4*, 3910-3918]



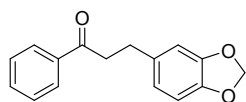
1-phenyl-3-(p-tolyl)propan-1-one (8d), yellow oil (75%). ^1H NMR (400 MHz, CDCl_3): δ 7.97 (d, $J = 7.2$ Hz, 2H), 7.56 (t, $J = 7.4$ Hz, 1H), 7.46 (t, $J = 7.6$ Hz, 2H), 7.16 (d, $J = 8.4$, 2H), 7.12 (d, $J = 8.2$, 2H), 3.29 (t, $J = 7.8$ Hz, 2H), 3.04 (t, $J = 7.6$ Hz, 2H), 2.33 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3): δ 199.4, 138.2, 136.9, 135.6, 133.1, 129.2, 128.6, 128.3, 128.1, 40.6, 29.7, 21.0. Data are consistent with previously reported data. [S. Musa, L. Ackermann, D. Gelman, *Adv. Synth. Catal.* **2013**, *355*, 3077-3080]



1-phenyl-3-(o-tolyl)propan-1-one (8e), white solid (74%). ^1H NMR (400 MHz, CDCl_3): δ 7.98 (d, $J = 7.2$ Hz, 2H), 7.57 (t, $J = 7.4$ Hz, 1H), 7.47 (t, $J = 7.6$ Hz, 2H), 7.12 – 7.22 (m, 4H), 3.26 (t, $J = 8$ Hz, 2H), 3.06 (t, $J = 7.8$ Hz, 2H), 2.36 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3): δ 199.4, 139.4, 136.9, 136.0, 133.1, 130.4, 128.7, 128.6, 128.1, 126.3, 126.2, 39.1, 27.5, 19.4. Data are consistent with previously reported data. [X. Liu, R. S. Ding, L. He, Y. M. Liu, Y. Cao, H. Y. He, K. N. Fan, *ChemSusChem*, **2013**, *6*, 604-608]

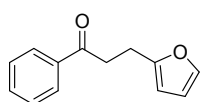


3-([1,1'-biphenyl]-4-yl)-1-phenylpropan-1-one (8f), yellow solid (58%); ^1H NMR (400 MHz, CDCl_3): δ 8.00 (d, $J = 7.2$ Hz, 2H), 7.52 – 7.61 (m, 5H), 7.40 – 7.50 (m, 4H), 7.32 – 7.36 (m, 3H), 3.36 (t, $J = 7.2$ Hz, 2H), 3.13 (t, $J = 7.6$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 199.2, 141.0, 140.4, 139.2, 136.9, 133.1, 128.9, 128.8, 128.6, 128.1, 127.3, 127.1, 127.0, 40.4, 29.8. Data are consistent with previously reported data. [T. Kuwahara, T. Fukuyama, I.



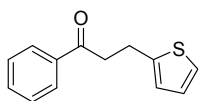
3-(benzo[d][1,3]dioxol-5-yl)-1-phenylpropan-1-one (8g), colorless oil (58%).

¹H NMR (400 MHz, CDCl₃): δ 7.95 (d, *J* = 8.4 Hz, 2H), 7.56 (t, *J* = 6.8, 1H), 7.46 (t, *J* = 6.8 Hz, 2H), 6.67 – 6.75 (m, 3H), 5.92 (d, *J* = 1.2 Hz, 2H), 3.26 (t, *J* = 8.4 Hz, 2H), 3.00 (t, *J* = 7.6 Hz, 2H); **¹³C NMR** (100 MHz, CDCl₃): δ 199.2, 147.7, 145.9, 136.9, 135.1, 133.1, 128.6, 128.0, 121.2, 108.9, 108.3, 100.8, 40.7, 29.9. Data are consistent with previously reported data. [X. J. Cui, Y. Zhang, F. Shi, Y. Q. Deng, *Chem. Eur. J.* **2011**, *17*, 1021-1028]



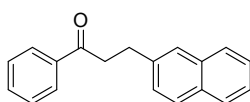
3-(furan-2-yl)-1-phenylpropan-1-one (8h), yellow oil (94%). **¹H NMR** (400 MHz,

CDCl₃): δ 7.98 (d, *J* = 7.2 Hz, 2H), 7.57 (t, *J* = 7.4 Hz, 1H), 7.47 (t, *J* = 7.6 Hz, 2H), 7.32 (d, *J* = 0.8 Hz, 1H), 6.29 (dd, *J* = 2.9, 2.0 Hz, 1H), 6.06 (d, *J* = 2.4 Hz, 1H), 3.34 (t, *J* = 7.6 Hz, 2H), 3.10 (t, *J* = 7.4 Hz, 2H); **¹³C NMR** (100 MHz, CDCl₃): δ 198.7, 154.8, 141.1, 136.8, 133.1, 128.6, 128.0, 110.3, 105.3, 36.9, 22.5. Data are consistent with previously reported data. [D. W. Wang, K. Y. Zhao, C. Y. Xu, H. Y. Miao, Y. Q. Ding, *ACS Catal.* **2014**, *4*, 3910-3918]



1-phenyl-3-(thiophen-2-yl)propan-1-one (8i), yellow oil (75%). **¹H NMR** (400 MHz,

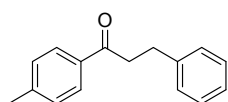
CDCl₃): δ 7.97 (d, *J* = 7.6 Hz, 2H), 7.57 (t, *J* = 7.2 Hz, 1H), 7.47 (t, *J* = 7.6 Hz, 2H), 7.13 (dd, *J* = 1.2, 2.6, 1H), 6.90 – 6.94 (m, 1H), 6.87 (d, *J* = 2.8 Hz, 1H), 3.35 – 3.40 (m, 2H), 3.20 – 3.33 (m, 2H); **¹³C NMR** (100 MHz, CDCl₃): δ 198.6, 143.9, 136.8, 133.2, 128.7, 128.1, 126.9, 124.7, 123.4, 40.6, 24.2. Data are consistent with previously reported data. [T. Kuwahara, T. Fukuyama, I. Ryu, *Org. Lett.* **2012**, *14*, 4703-4705]



3-(naphthalen-2-yl)-1-phenylpropan-1-one (8j), white solid (86%); **¹H NMR**

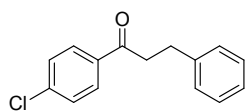
(400 MHz, CDCl₃): δ 7.99 (d, *J* = 7.2 Hz, 2H), 7.79 – 7.82 (m, 3H), 7.70 (s, 1H),

7.56 (t, $J = 7.2$ Hz, 1H), 7.38 – 7.50 (m, 5H), 3.40 (t, $J = 7.6$ Hz, 2H), 3.25 (t, $J = 7.6$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 199.2, 138.8, 136.9, 133.7, 133.1, 132.1, 128.6, 128.14, 128.07, 127.6, 127.5, 127.2, 126.5, 126.0, 125.3, 40.4, 30.3. Data are consistent with previously reported data. [B. Q. Ding, Z. F. Zhang, Y. G. Liu, M. Sugiya, T. Imamoto, W. Zhang, *Org. Lett.* **2013**, *14*, 3690-3693]



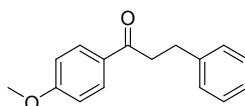
1-phenyl-1-(*p*-tolyl)propan-1-one (8k), white solid (76%); ^1H NMR (400 MHz, CDCl_3): δ 7.87 (d, $J = 8.4$ Hz, 2H), 7.19 – 7.34 (m, 7H), 3.29 (t, $J = 7.6$ Hz, 2H), 3.07 (t, $J = 7.8$ Hz, 2H), 2.42 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3): δ 199.0, 144.0,

141.5, 134.5, 129.4, 128.6, 128.5, 128.3, 126.2, 40.5, 30.4, 21.8. Data are consistent with previously reported data. [X. Liu, R. S. Ding, L. He, Y. M. Liu, Y. Cao, H. Y. He, K. N. Fan, *ChemSusChem*, **2013**, *6*, 604-608]



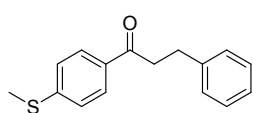
1-(4-chlorophenyl)-3-phenylpropan-1-one (8l), yellow solid (68%). ^1H NMR (400 MHz, CDCl_3): δ 7.89 (d, $J = 8.4$ Hz, 2H), 7.43 (d, $J = 8.4$ Hz, 2H), 7.20 – 7.31(m, 5H), 3.27 (t, $J = 7.8$ Hz, 2H), 3.07 (t, $J = 7.8$ Hz, 2H); ^{13}C NMR (100

MHz, CDCl_3): δ 198.0, 141.1, 139.2, 135.2, 129.5, 128.9, 128.6, 128.4, 128.2, 40.4, 30.1. Data are consistent with previously reported data. [D. W. Wang, K. Y. Zhao, C. Y. Xu, H. Y. Miao, Y. Q. Ding, *ACS Catal.* **2014**, *4*, 3910-3918]



1-(4-methoxyphenyl)-3-phenylpropan-1-one (8m), white solid (90%). ^1H NMR (400 MHz, CDCl_3): δ 7.95 (d, $J = 8$ Hz, 2H), 7.19-7.33 (m, 5H), 6.93 (d, $J = 8.4$ Hz, 2H), 3.87 (s, 3H), 3.26 (t, $J = 7.8$ Hz, 2H), 3.06 (t, $J = 7.6$ Hz, 2H); ^{13}C NMR (100

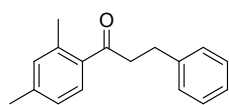
MHz, CDCl_3): δ 197.8, 163.5, 141.5, 130.3, 130.0, 128.5, 128.4, 126.1, 113.7, 55.5, 40.1, 30.4. Data are consistent with previously reported data. [X. Liu, R. S. Ding, L. He, Y. M. Liu, Y. Cao, H. Y. He, K. N. Fan, *ChemSusChem*, **2013**, *6*, 604-608]



1-(4-(methylthio)phenyl)-3-phenylpropan-1-one (8n), white solid (92%). ¹H

NMR (400 MHz, CDCl₃): δ 7.87 (d, *J* = 8.4 Hz, 2H), 7.20 – 7.33 (m, 7H), 3.26 (t, *J* = 7.8 Hz, 2H), 3.06 (t, *J* = 7.8 Hz, 2H), 2.52 (s, 3H); ¹³C **NMR** (100 MHz,

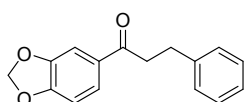
CDCl₃): δ 198.2, 145.8, 141.3, 133.2, 128.54, 128.47(2C), 126.2, 125.0, 40.3, 30.2, 14.8. Data are consistent with previously reported data. [F. Caturla, J.–M. Jiménez, N. Godessart, M. Amat, A. Cárdenas, L. Soca, J. Beleta, H. Ryder, M. Crespo, *J. Med. Chem.* **2004**, *47*, 3874-3886]



1-(2,4-dimethylphenyl)-3-phenylpropan-1-one (8o), colorless oil (58%). ¹H

NMR (400 MHz, CDCl₃): δ 7.56 (s, 1H), 7.16 – 7.32 (m, 5H), 7.03 – 7.06 (m, 2H),

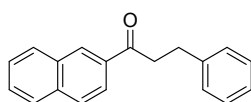
3.22 (t, *J* = 7.8 Hz, 2H), 3.04 (t, *J* = 7.6 Hz, 2H), 2.48 (s, 3H), 2.35 (s, 3H); ¹³C **NMR** (100 MHz, CDCl₃): δ 202.6, 141.9, 141.4, 138.7, 134.9, 132.9, 129.0, 128.5, 128.4, 126.3, 126.1, 42.9, 30.5, 21.5, 21.3. Data are consistent with previously reported data. [Q. B. Jiang, T. L. Guo, Q. F. Wang, P. Wu, Z. K. Yu, *Adv. Synth. Catal.* **2013**, *355*, 1874-1880]



1-(benzo[d][1,3]dioxol-5-yl)-3-phenylpropan-1-one (8p), white solid (87%). ¹H

NMR (400 MHz, CDCl₃): δ 7.56 (dd, *J* = 8.2, 1.5 Hz, 1H), 7.45 (d, *J* = 1.6 Hz, 1H), 7.19 – 7.33 (m, 5H), 6.83 (d, *J* = 8 Hz, 1H), 6.03 (s, 2H), 3.22 (t, *J* = 7.6 Hz,

2H), 3.05 (t, *J* = 7.6 Hz, 2H); ¹³C **NMR** (100 MHz, CDCl₃): δ 197.3, 151.7, 148.2, 141.4, 131.8, 128.8, 128.5, 128.4, 126.1, 124.2, 107.9, 101.8, 40.2, 30.4. Data are consistent with previously reported data. [P. Colbon, J. Ruan, M. Purdie, J. L. Xiao, *Org. Lett.* **2010**, *12*, 3670-3673]

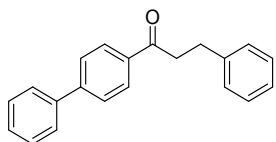


1-(naphthalen-2-yl)-3-phenylpropan-1-one (8q), White solid (93%). ¹H **NMR**

(400 MHz, CDCl₃): δ 8.47 (s, 1H), 8.05 (d, *J* = 8.4 Hz, 1H), 7.80 – 7.96 (m, 3H), 7.50 – 7.63 (m, 2H), 7.20 – 7.35 (m, 4H), 3.45 (t, *J* = 7.8 Hz, 2H), 3.14 (t, *J* = 7.8

Hz, 2H); ¹³C **NMR** (100 MHz, CDCl₃): δ 199.2, 141.4, 135.6, 134.2, 132.6, 129.7, 129.6, 128.6, 128.5 (3C), 127.8, 126.8, 126.2, 123.9, 40.6, 30.3. Data are consistent with previously reported data. [K.

Chakrabarti, B. Paul, M. Maji, B. C. Roy, S. Shee, S. Kundu, *Org. Biomol. Chem*, **2016**, 14, 10988-10997]

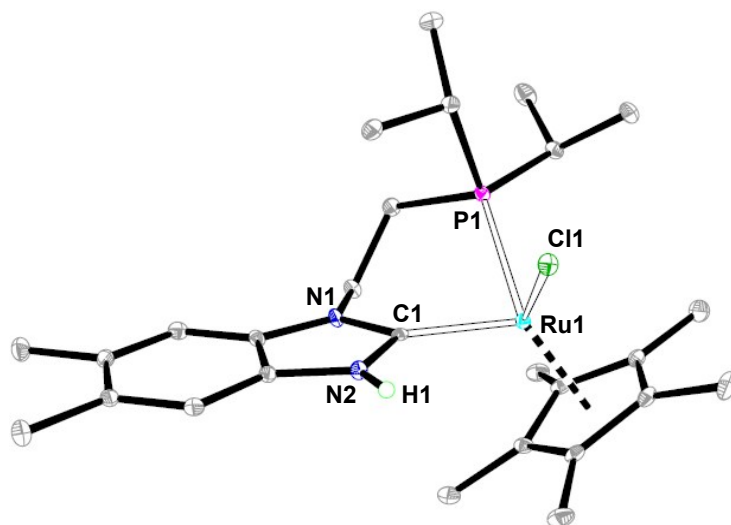


1-([1,1'-biphenyl]-4-yl)-3-phenylpropan-1-one (8r), white solid (66%); **¹H**

NMR (400 MHz, CDCl₃): δ 8.05 (d, *J* = 8.4 Hz, 2H), 7.69 (d, *J* = 8.4 Hz, 2H), 7.64 (d, *J* = 7.6 Hz, 2H), 7.48 (t, *J* = 7.6 Hz, 2H), 7.42 (d, *J* = 7.2 Hz, 1H), 7.20 – 7.36 (m, 5H), 3.35 (t, *J* = 7.6 Hz, 2H), 3.12 (t, *J* = 7.8 Hz, 2H); **¹³C**

NMR (100 MHz, CDCl₃): δ 198.8, 145.8, 141.4, 139.9, 135.6, 129.0, 128.7, 128.6, 128.5, 128.3, 127.3 (2C signals), 126.2, 40.5, 30.2. Data are consistent with previously reported data. [A. Zanardi, J A. Mata, E. Peris, *J. Am. Chem. Soc.* **2009**, 131, 14531-14537.]

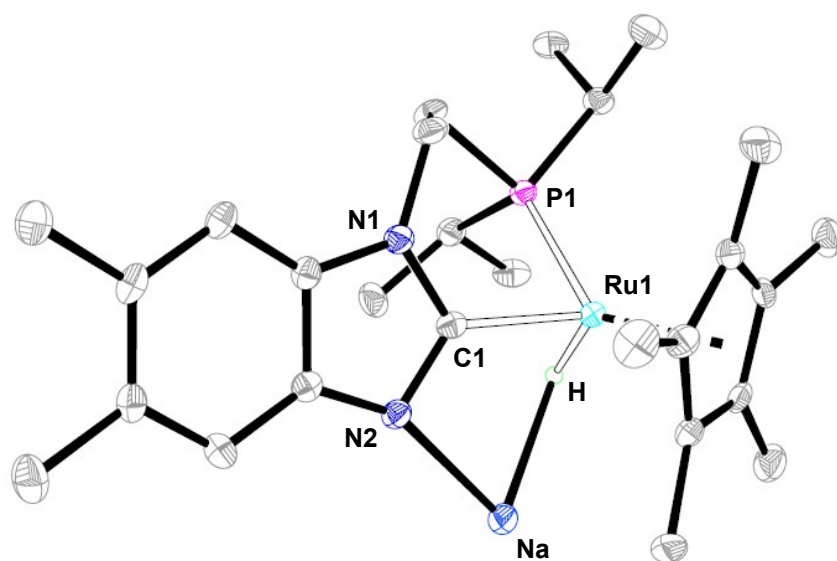
3. X-ray structures and data of **2** and **4**



ORTEP of **2** with thermal ellipsoids at the 30% probability level. Hydrogen atoms have been omitted for clarity (CCDC No: 1529097).

Table S2: Crystal data and structure refinement for 2

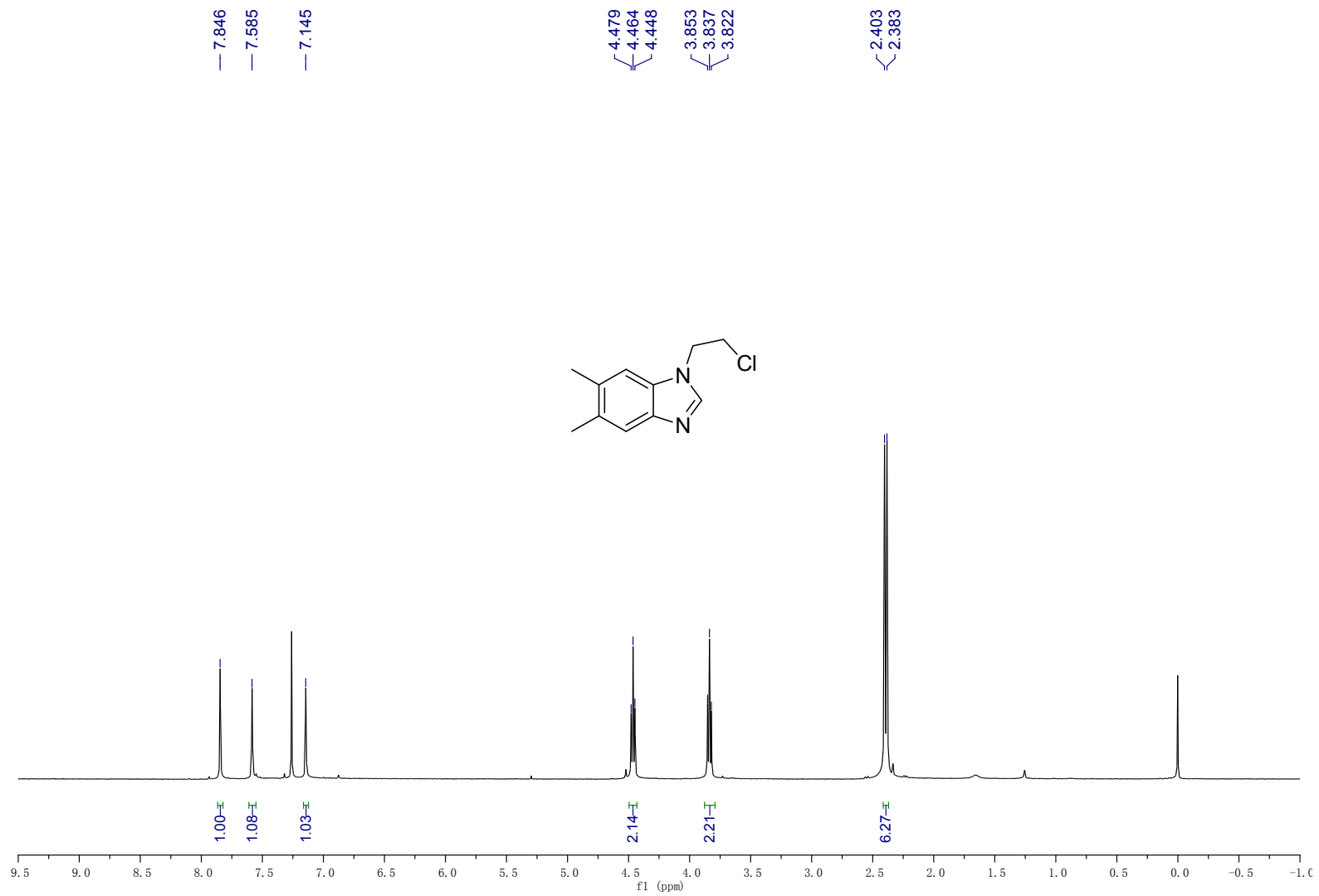
Identification code	Complex 2
Empirical formula	C ₂₇ H ₄₂ ClN ₂ PRu
Formula weight	562.12
Temperature / K	104.4
Crystal system	Monoclinic
Space group	P2 ₁ /c
a / Å, b / Å, c / Å	12.74606(16), 10.64439(15), 19.7255(3)
α /°, β /°, γ /°	90.00, 98.7804(13), 90.00
Volume / Å ³	2644.88(6)
Z	4
ρ_{calc} / mg mm ⁻³	1.412
μ / mm ⁻¹	0.772
F (ooo)	1176
Crystal size / mm ³	0.25 × 0.24 × 0.09
2 θ range for data collection	6.2 to 52°
Index ranges	-15 ≤ h ≤ 12, -12 ≤ k ≤ 13, -24 ≤ l ≤ 22
Reflections collected	11464
Independent reflections	5191 [R(int) = 0.0265 (inf-0.9Å)]
Data/restraints/parameters	5191/0/300
Goodness-of-fit on F ²	1.051
Final R indexes [I > 2 σ (I) i.e. F _o > 4 σ (F _o)]	R ₁ = 0.0285, wR ₂ = 0.0598
Final R indexes [all data]	R ₁ = 0.0340, wR ₂ = 0.0626
Largest diff.peak/hole/ e Å ⁻³	0.418/-0.488
Flack Parameters	N
Completeness	0.998

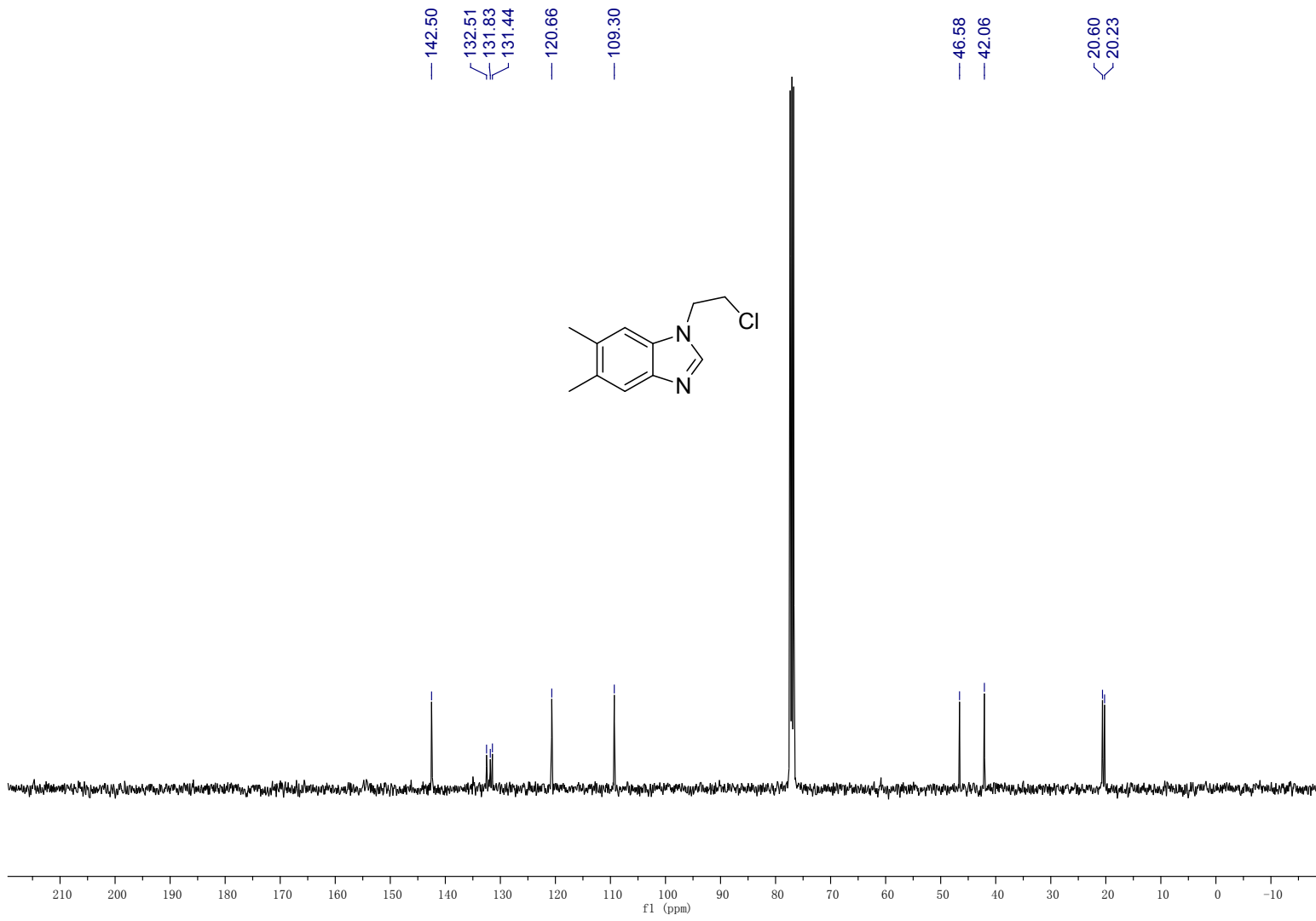


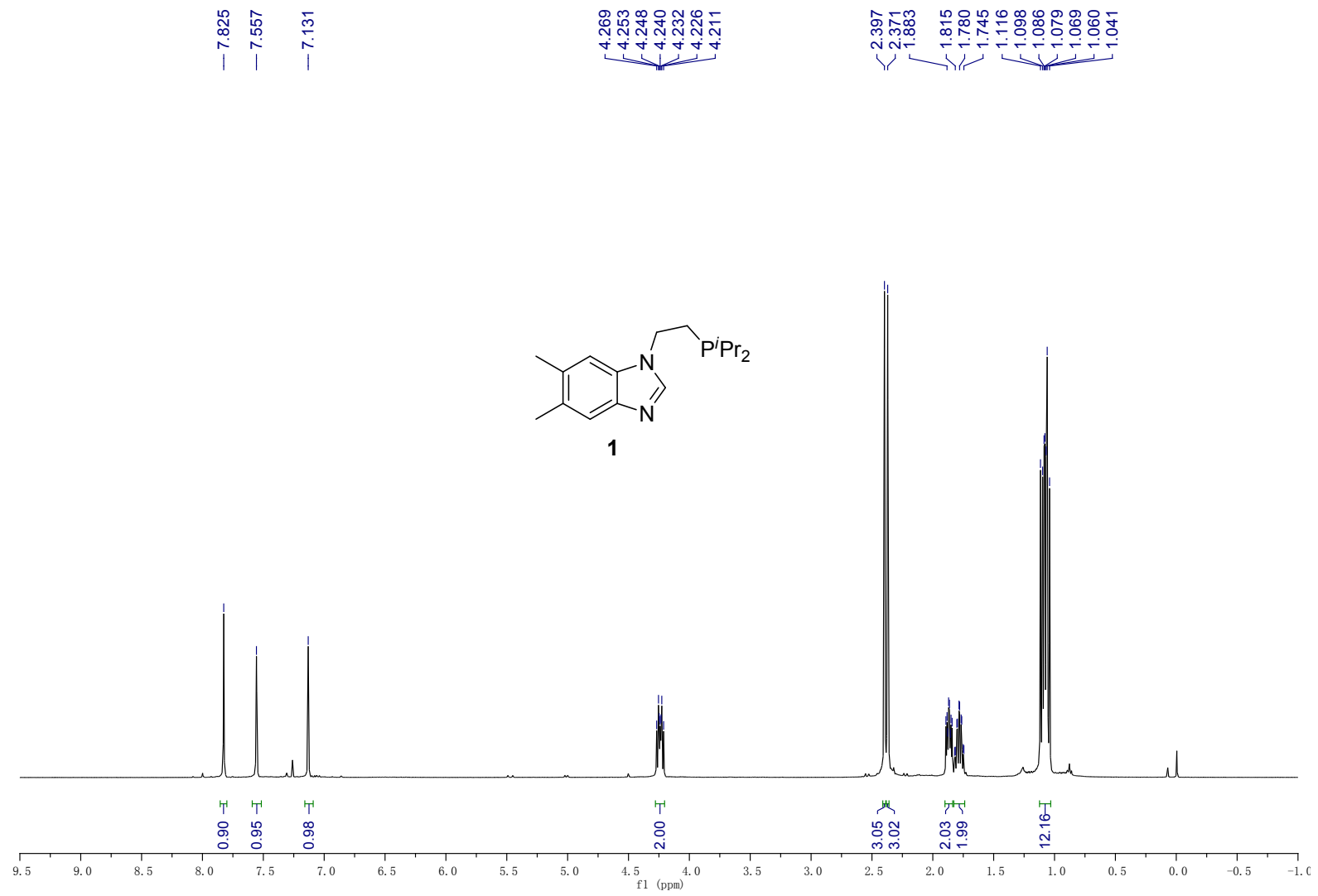
ORTEP of **3** with thermal ellipsoids at the 30% probability level. Hydrogen atoms and C₆H₆ have been omitted for clarity (CCDC No: 1529098).

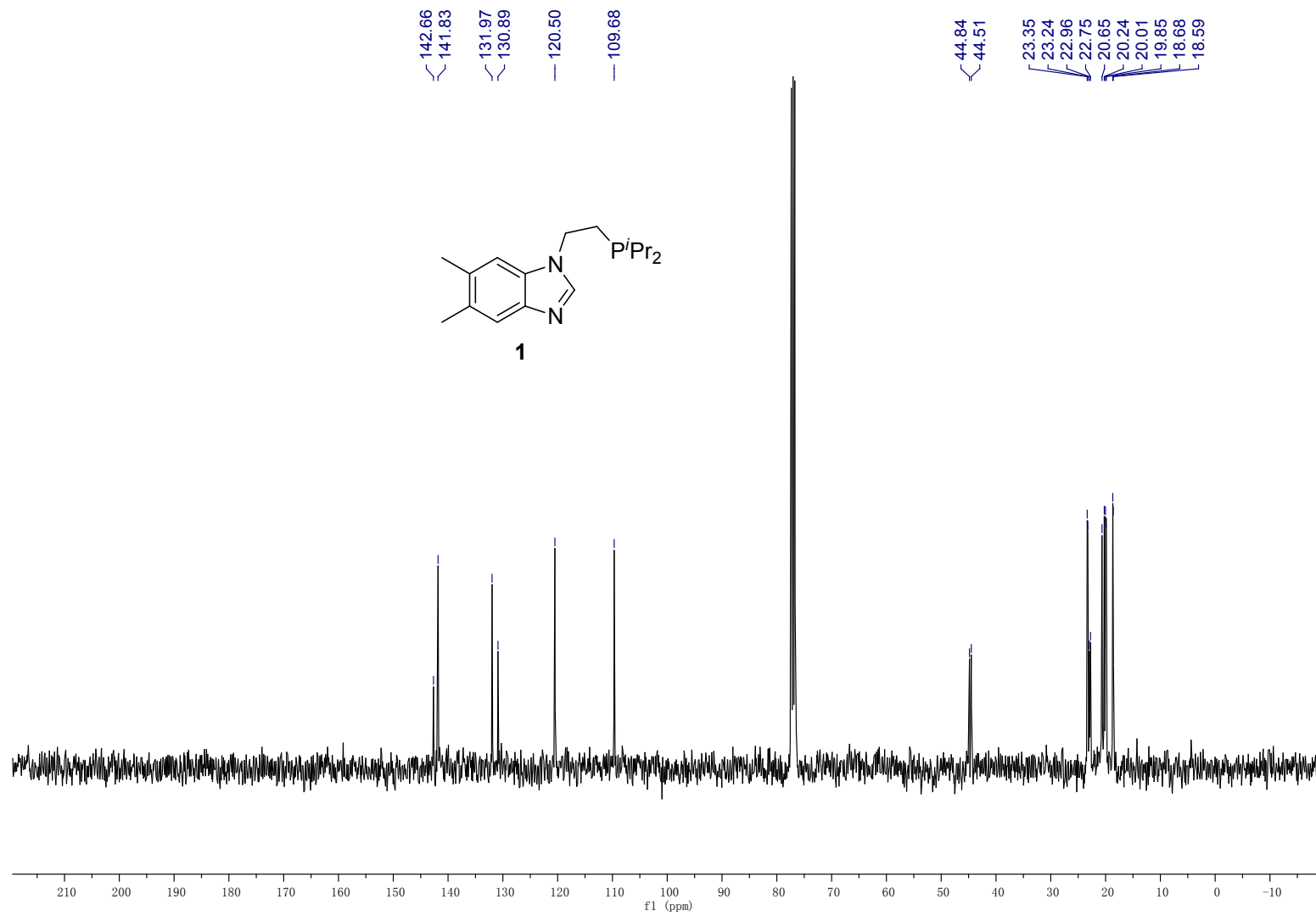
Table S3: Crystal data and structure refinement for 3

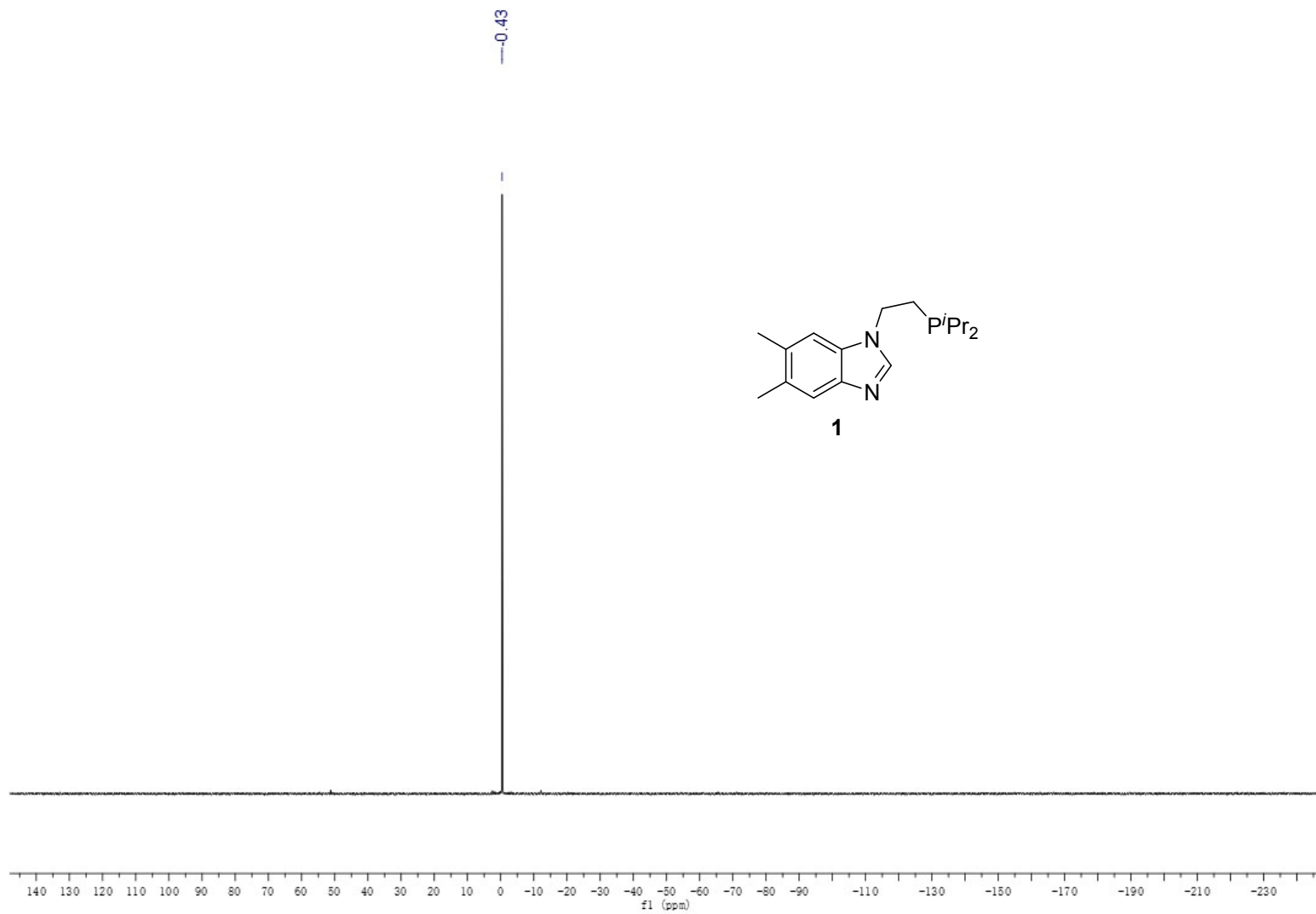
Identification code	Complex 3·C₆H₆
Empirical formula	C ₂₇ H ₄₂ N ₂ NaPRu·C ₆ H ₆
Formula weight	627.76
Temperature / K	163(2)K
Wavelength	0.71073 Å
Crystal system	Triclinic
Space group	P-1
a / Å, b / Å, c / Å	10.123(3), 12.566(3), 13.275(4)
α/deg, β/deg, γ/deg	83.199(5), 84.143(5), 68.651(4)
Volume / Å ³	1559.3(7)
Z	2
ρ _{calc} / mg m ⁻³	1.337
μ / mm ⁻¹	0.59
F (000)	660
Crystal size / mm ³	0.23 × 0.16 × 0.14
2θ range for data collection	1.6 to 28.31 deg
Index ranges	-13 ≤ h ≤ 11, -16 ≤ k ≤ 16, -17 ≤ l ≤ 11
Reflections collected	10055
Independent reflections	6939[R(int) = 0.0404]
Absorption correction	None
Max. and min. transmission	0.920 and 0.893
Refinement method	Full-matrix least-squares on F ²
Data/restraints/parameters	6939/0/349
Goodness-of-fit on F ²	0.95
Final R indexes [I>2σ(I)]	R ₁ = 0.0538, wR ₂ = 0.1268
Final R indexes [all data]	R ₁ = 0.0747, wR ₂ = 0.1377
Largest diff.peak/hole/ e Å ⁻³	0.615/-0.65
Completeness	0.922

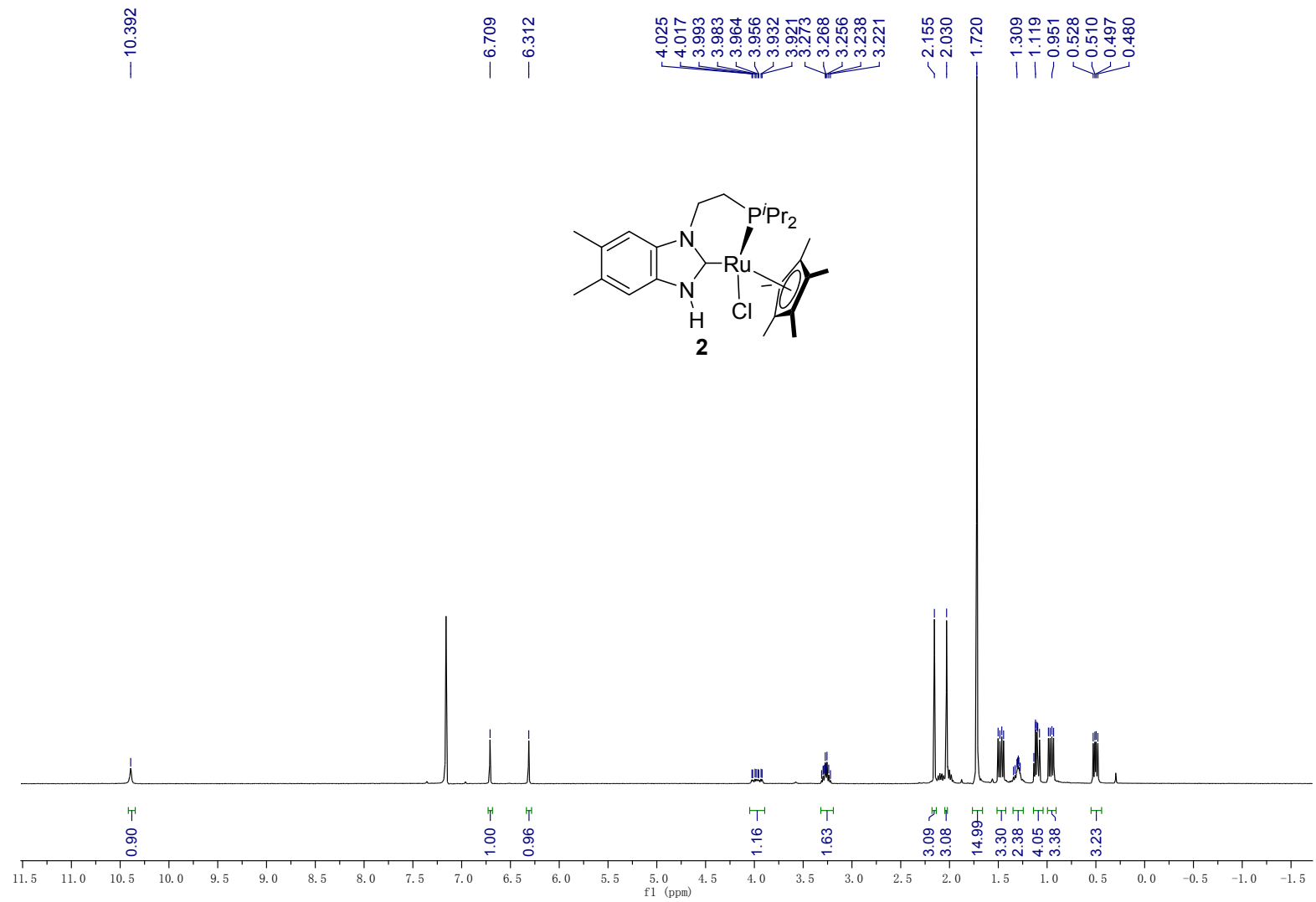


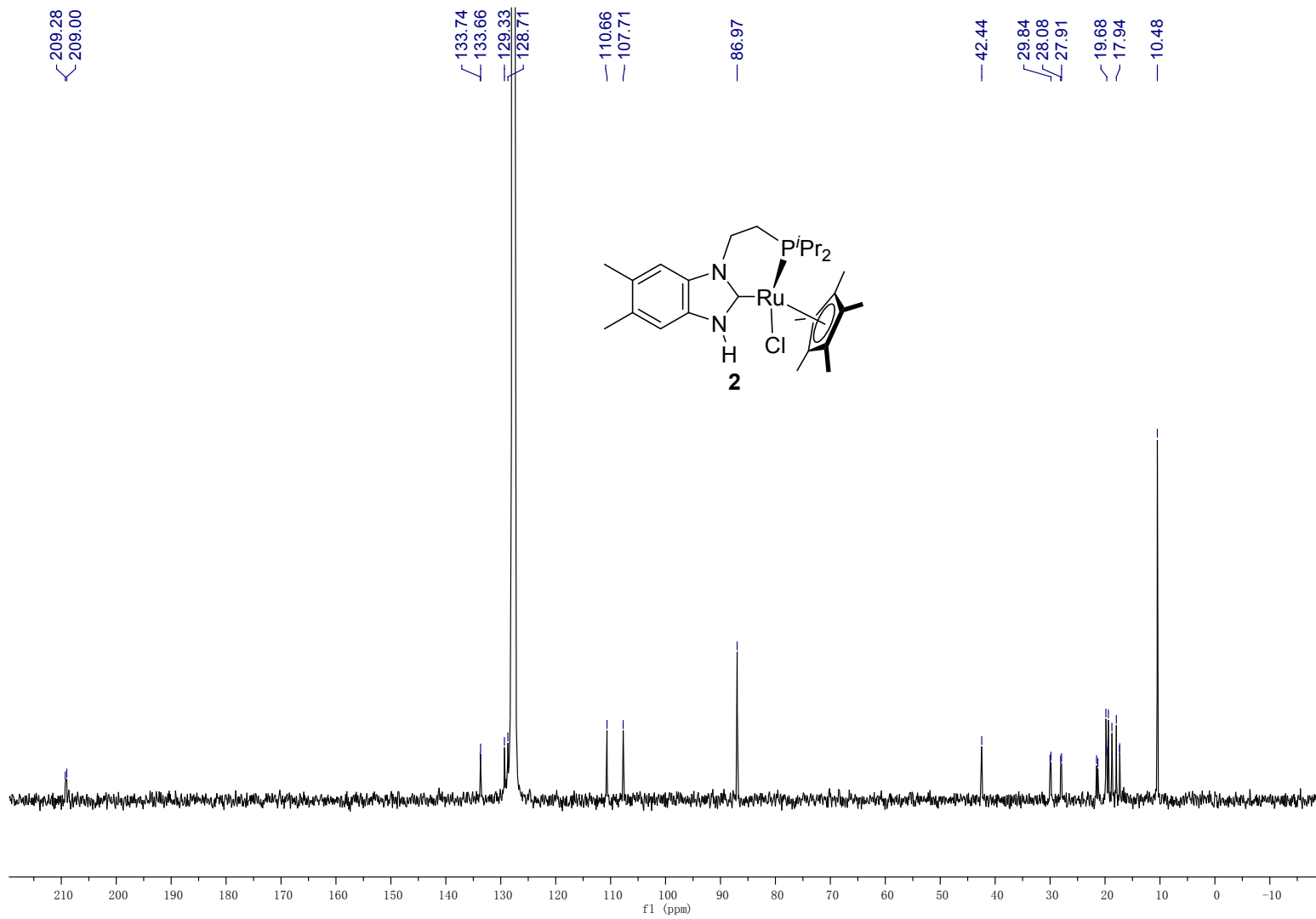


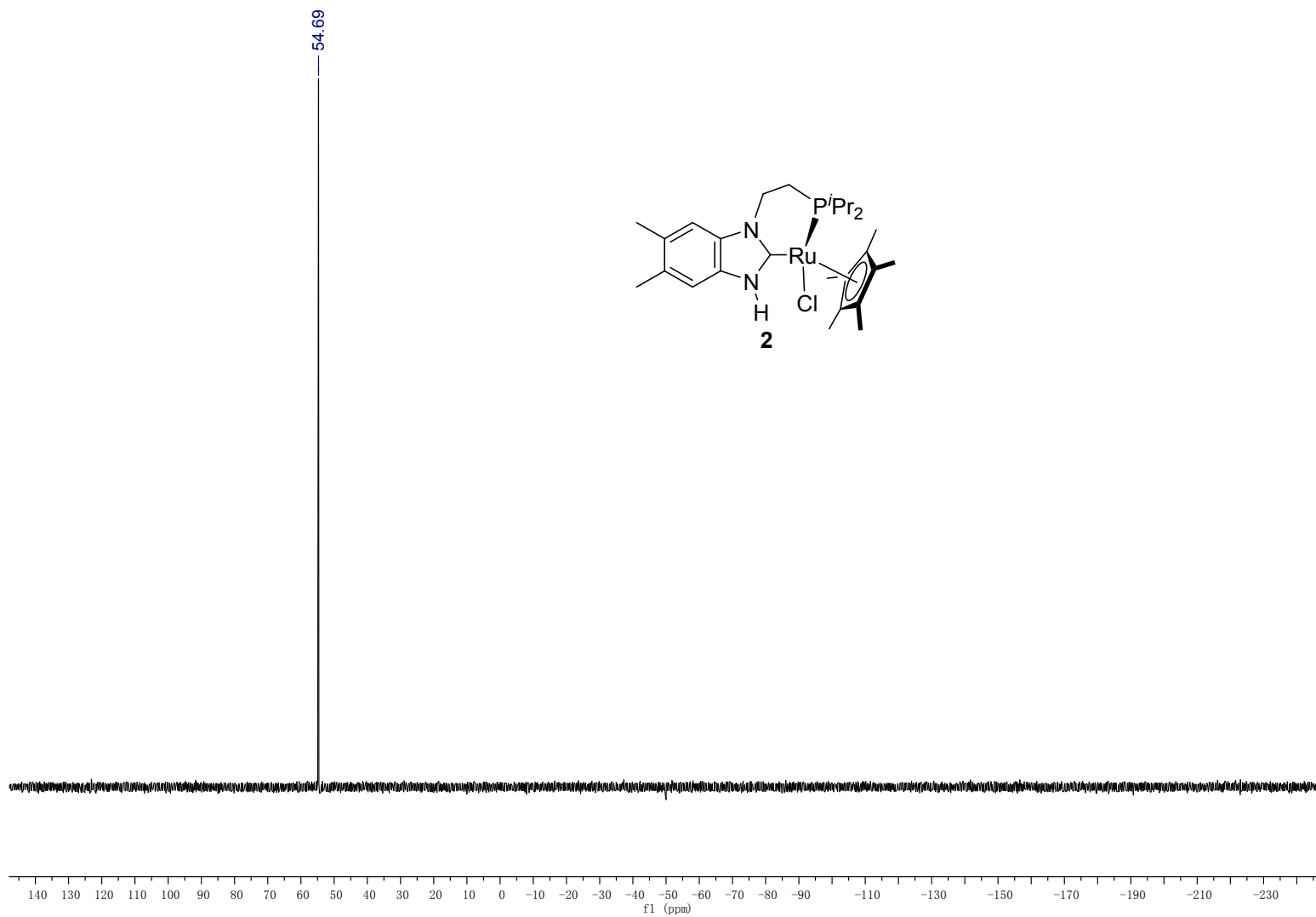


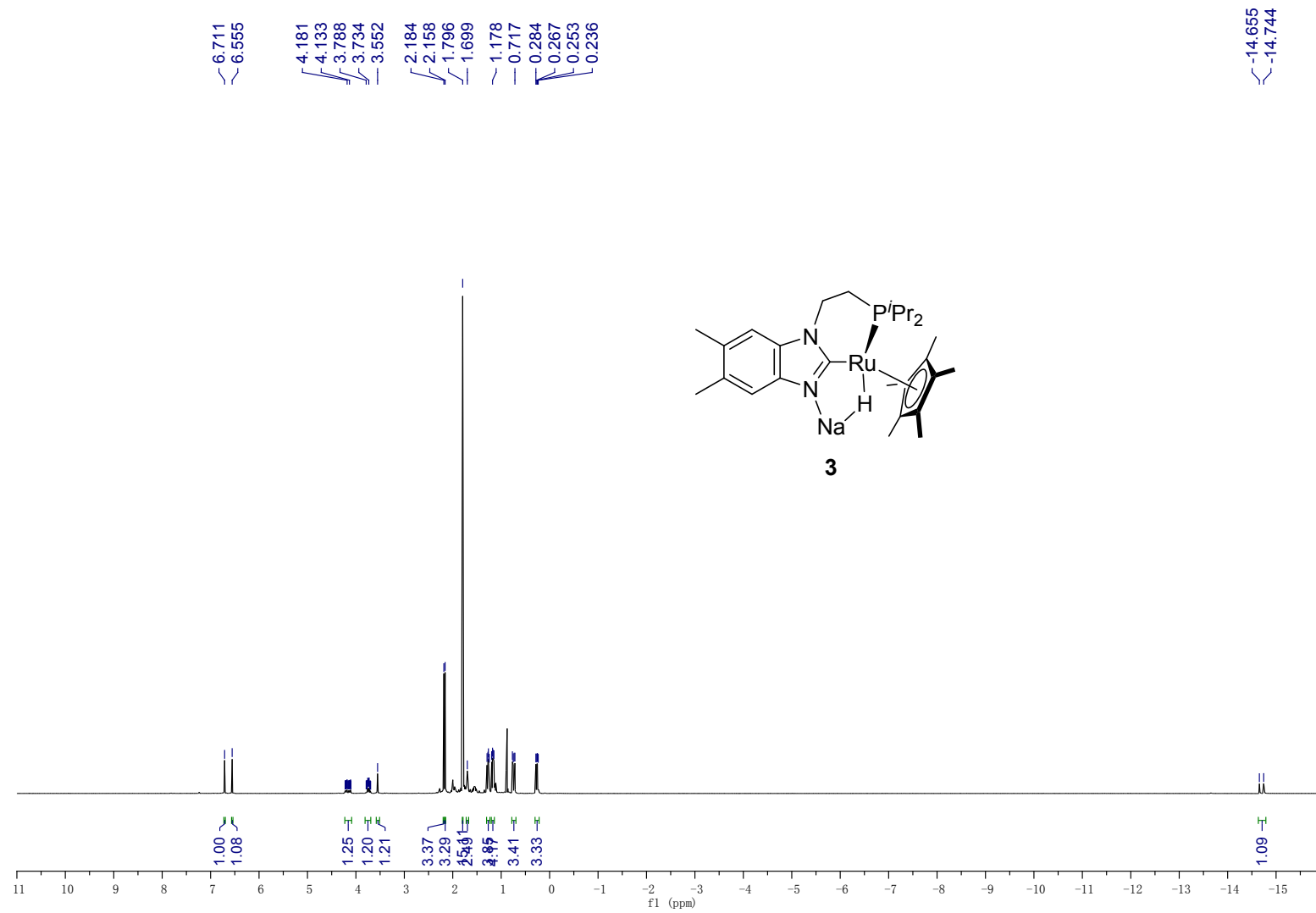


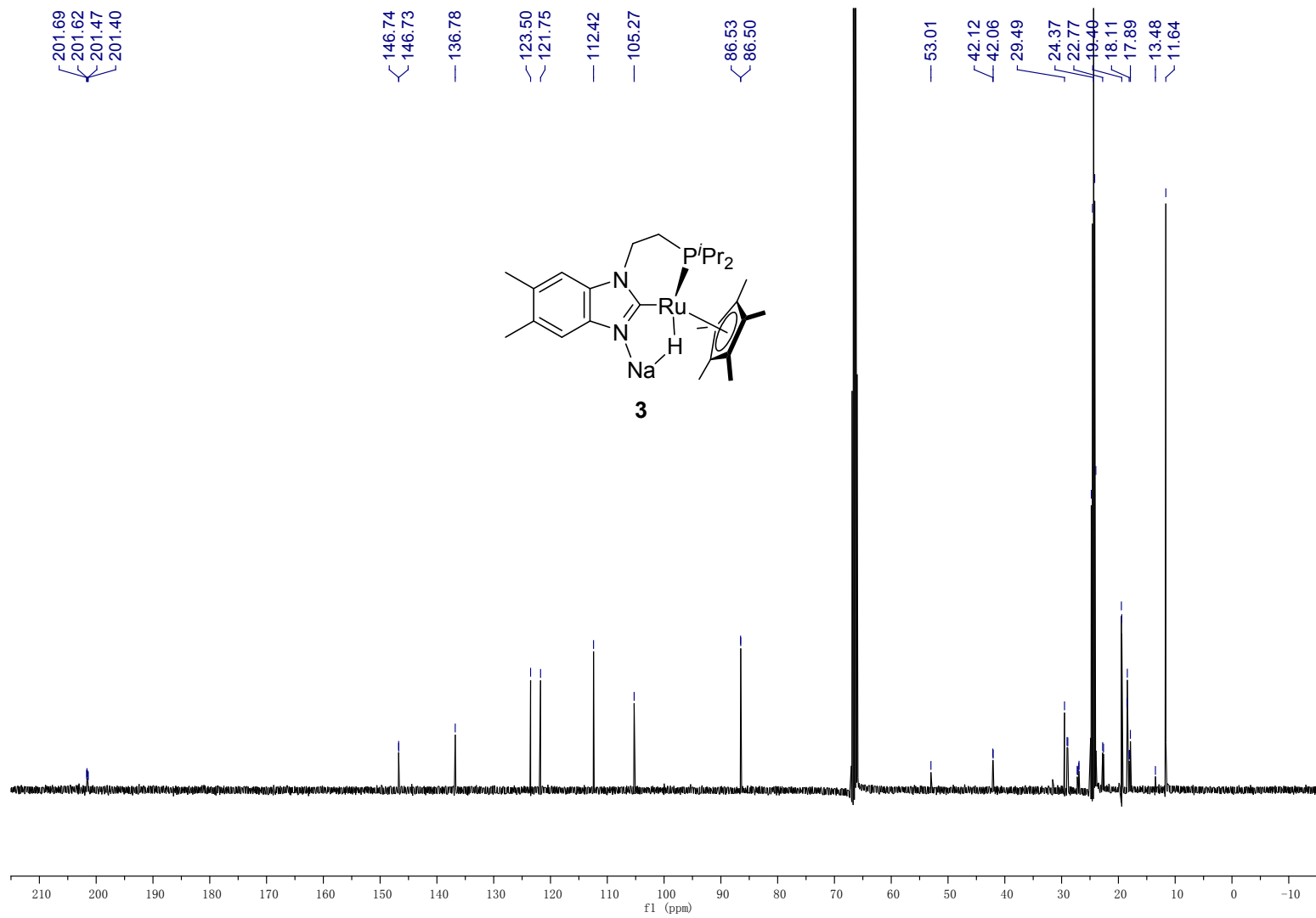


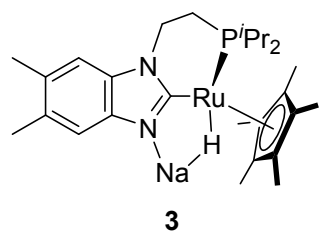
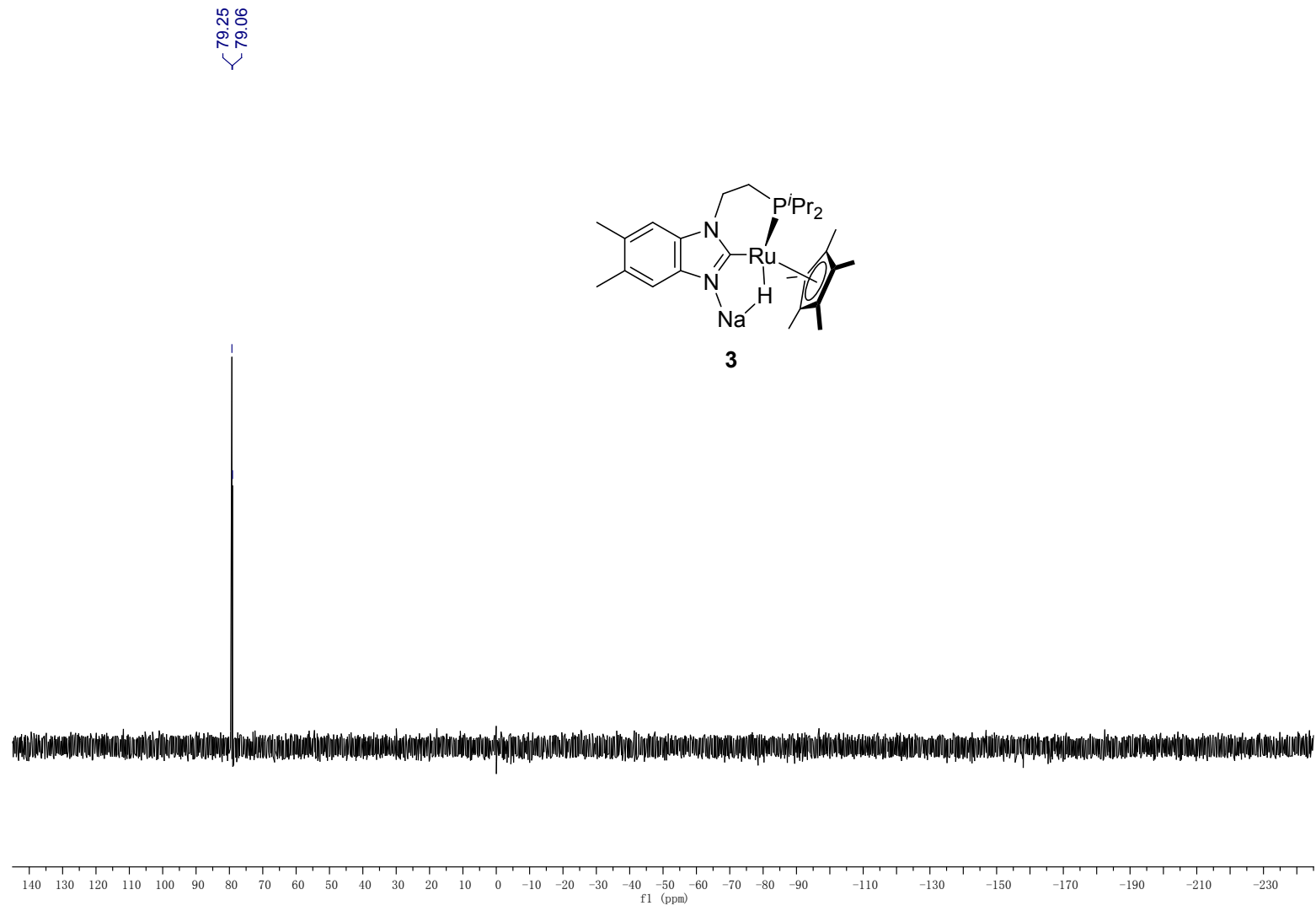


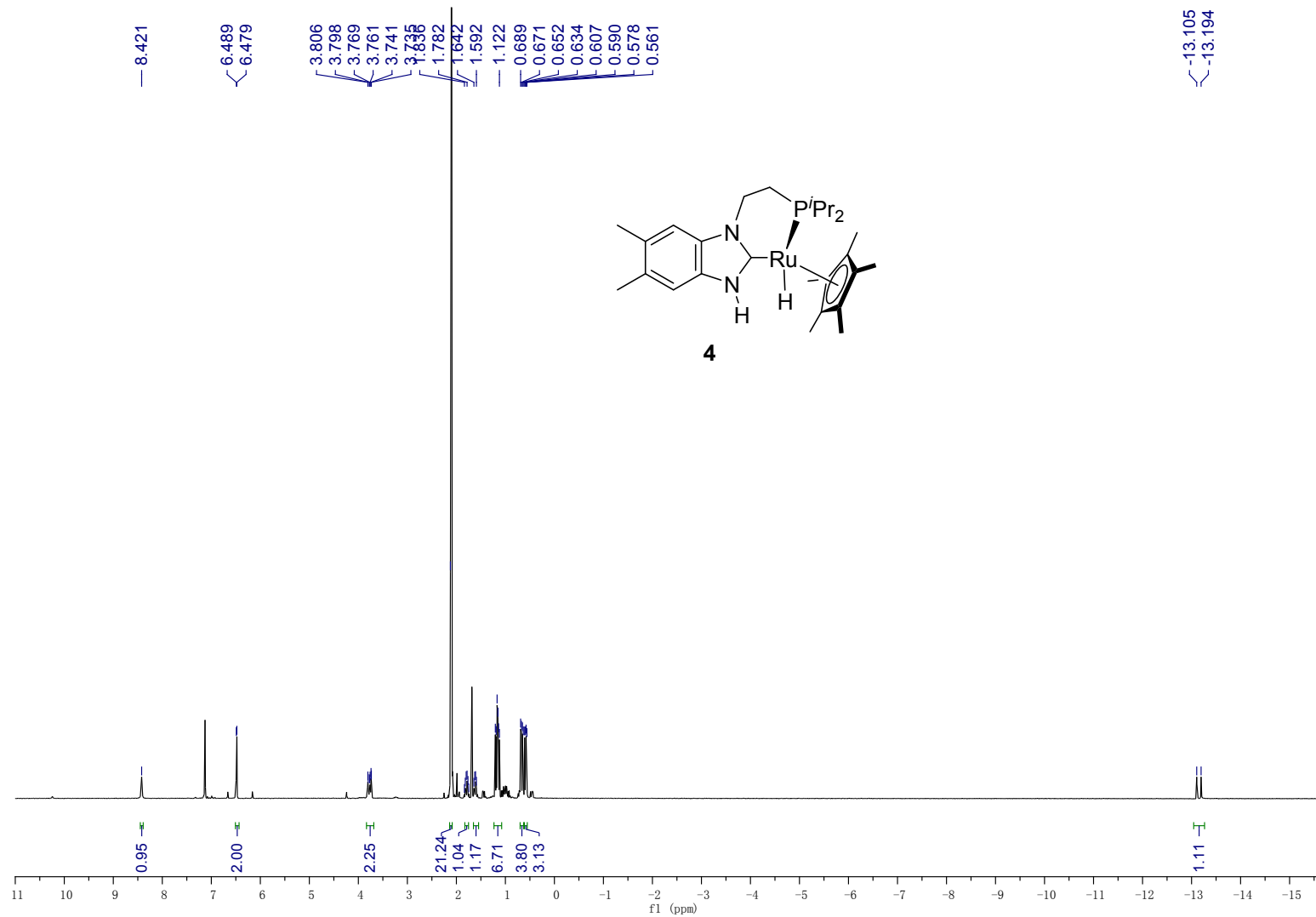


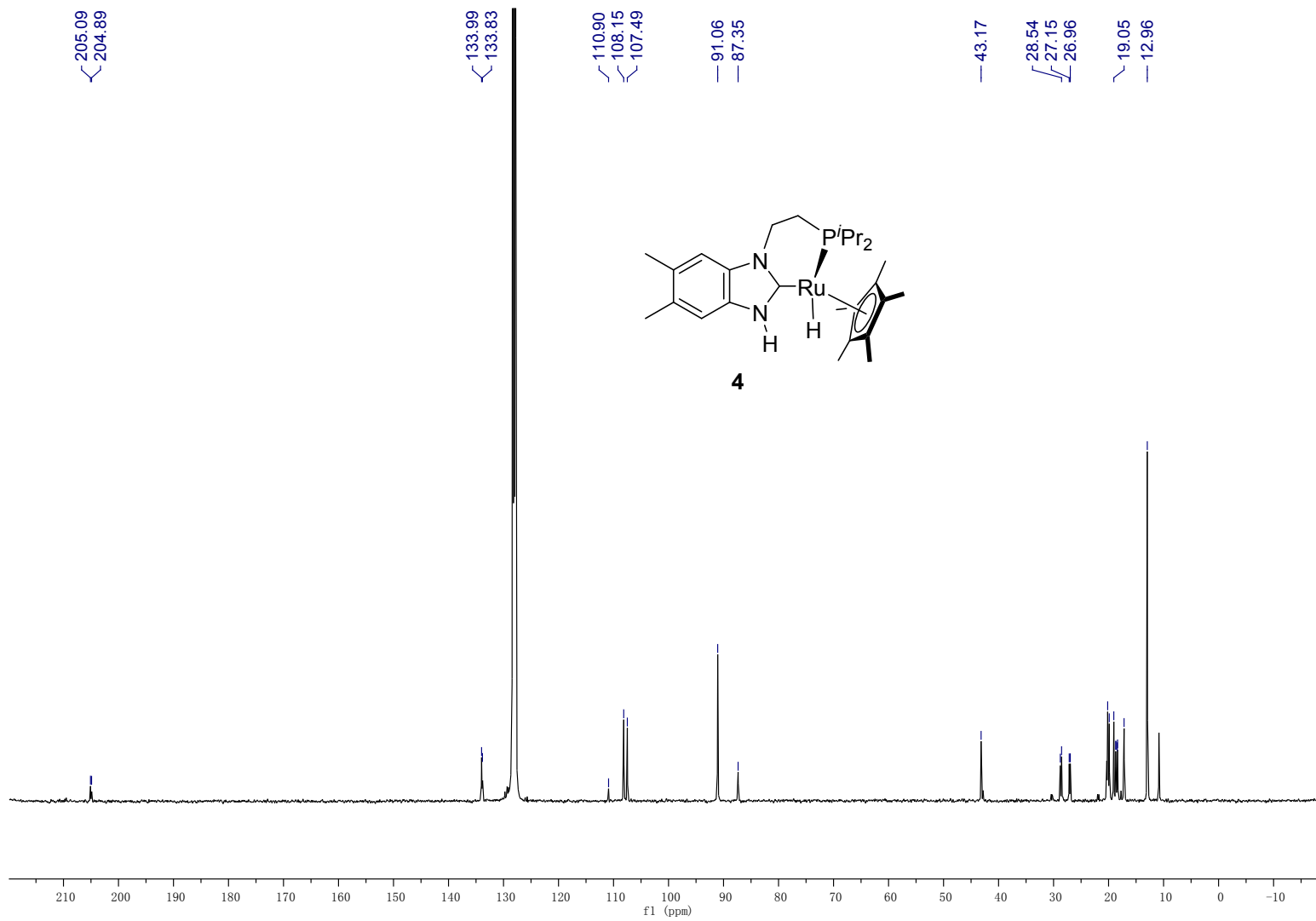


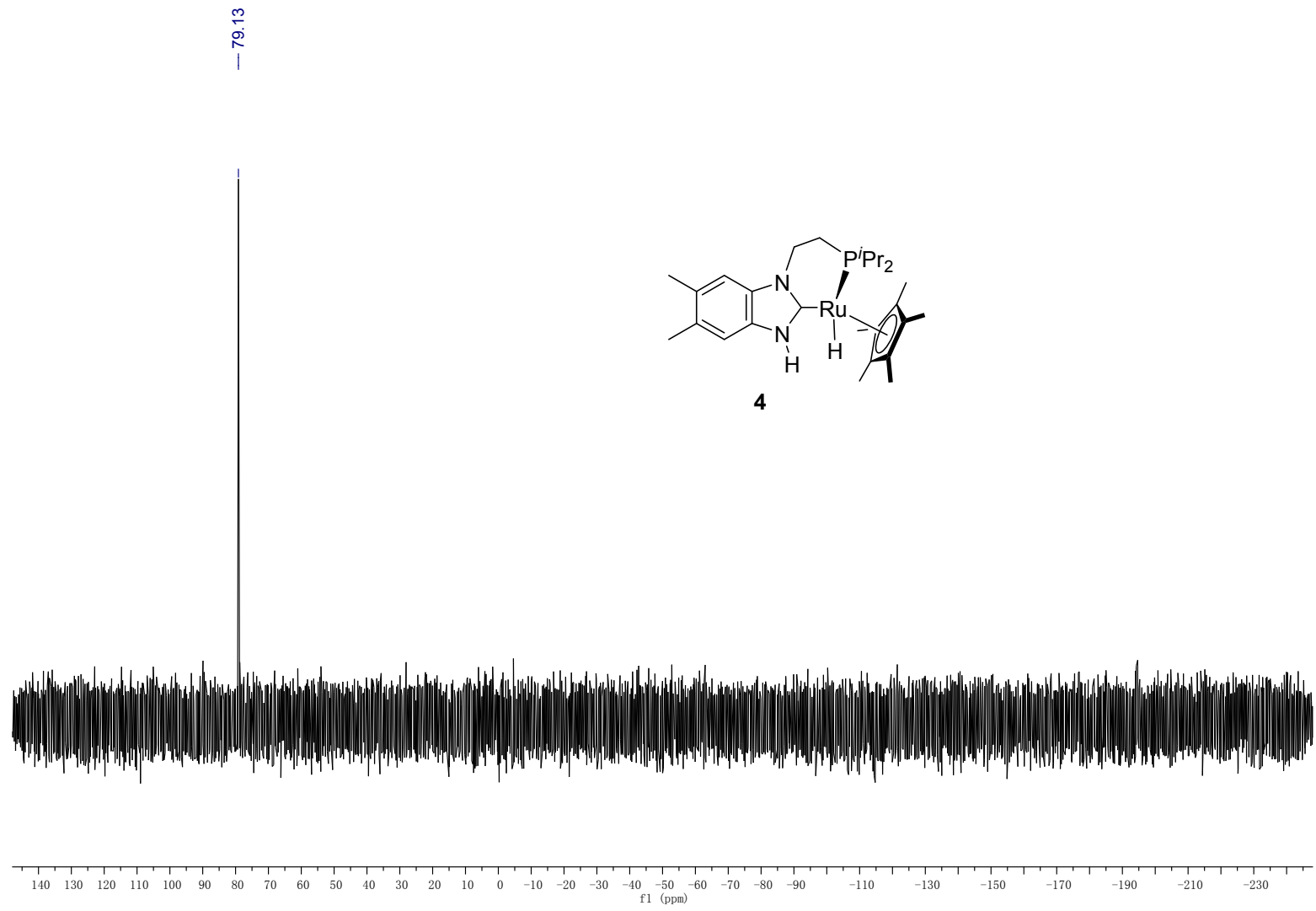


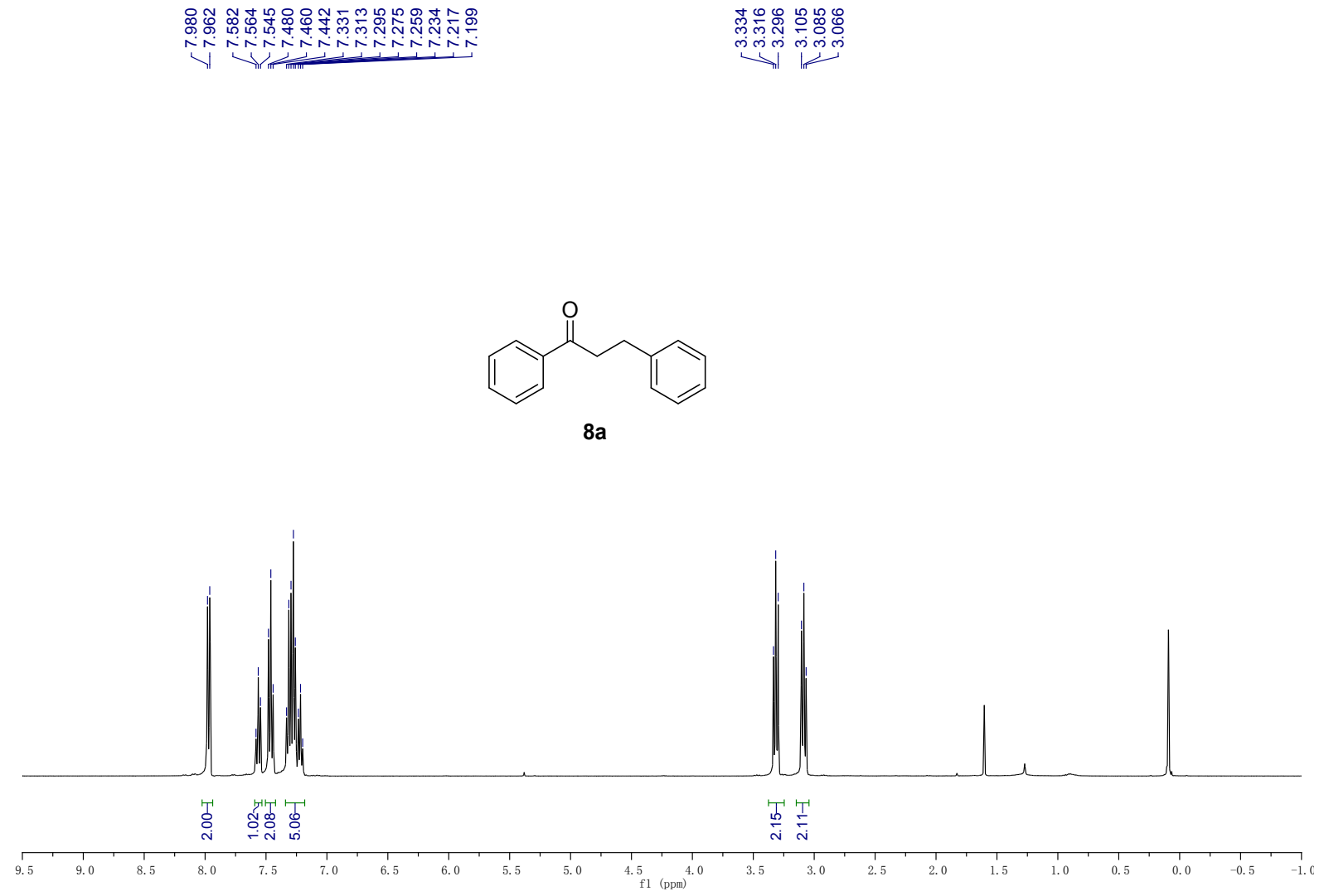


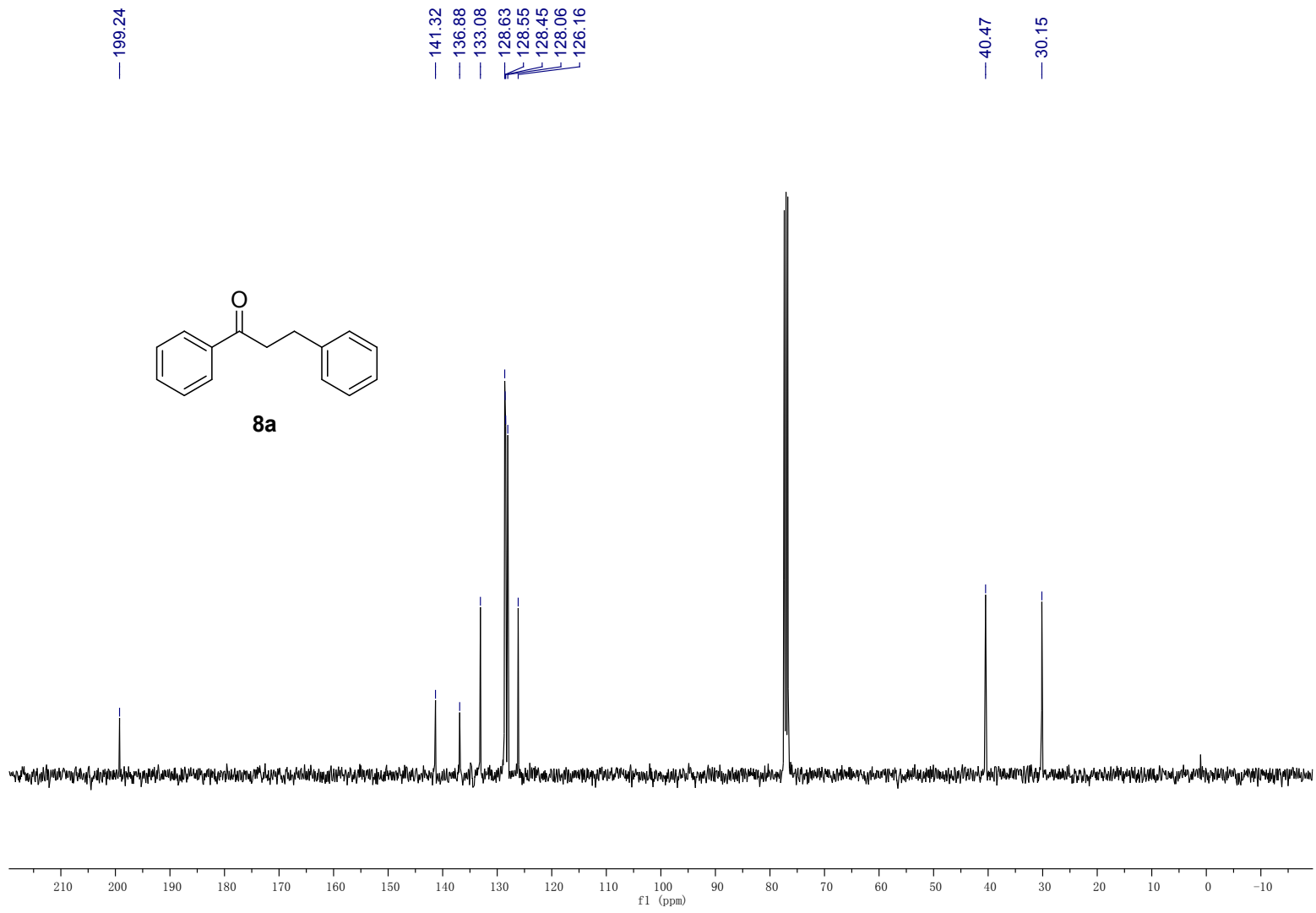






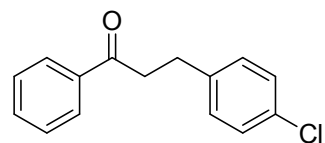




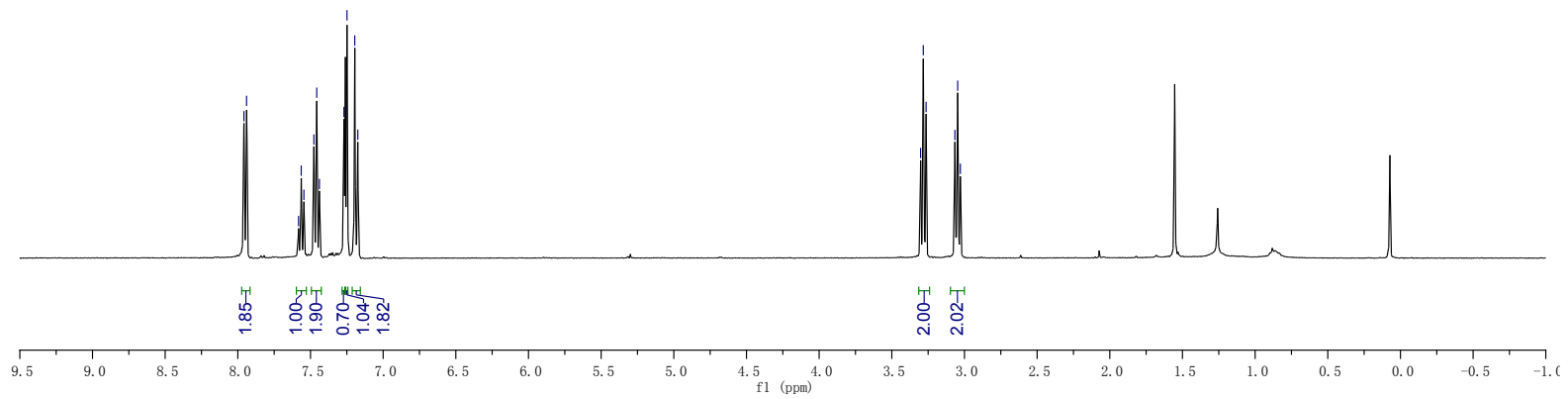


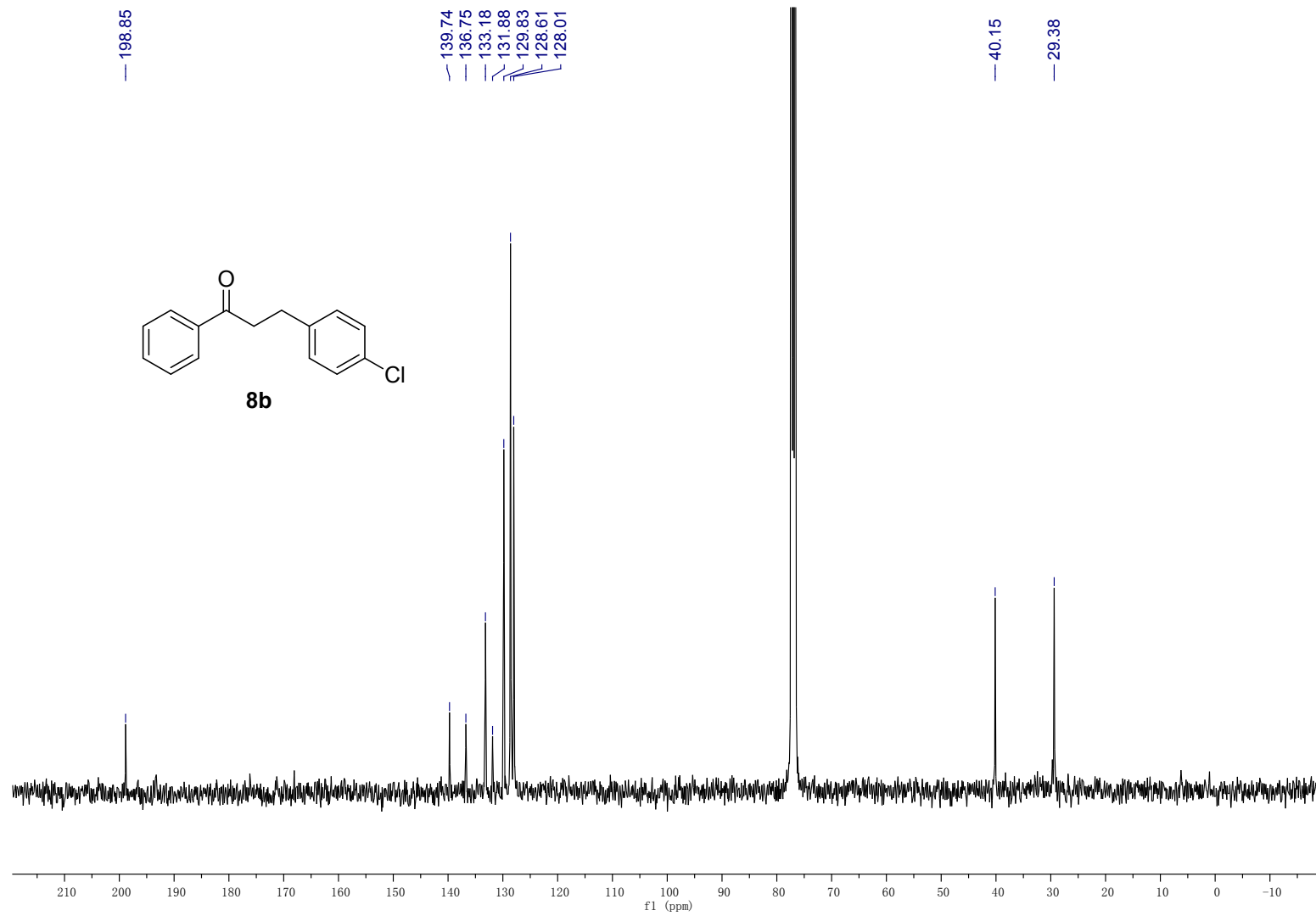
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7.564
7.477
7.439
7.270
7.249
7.195
7.174

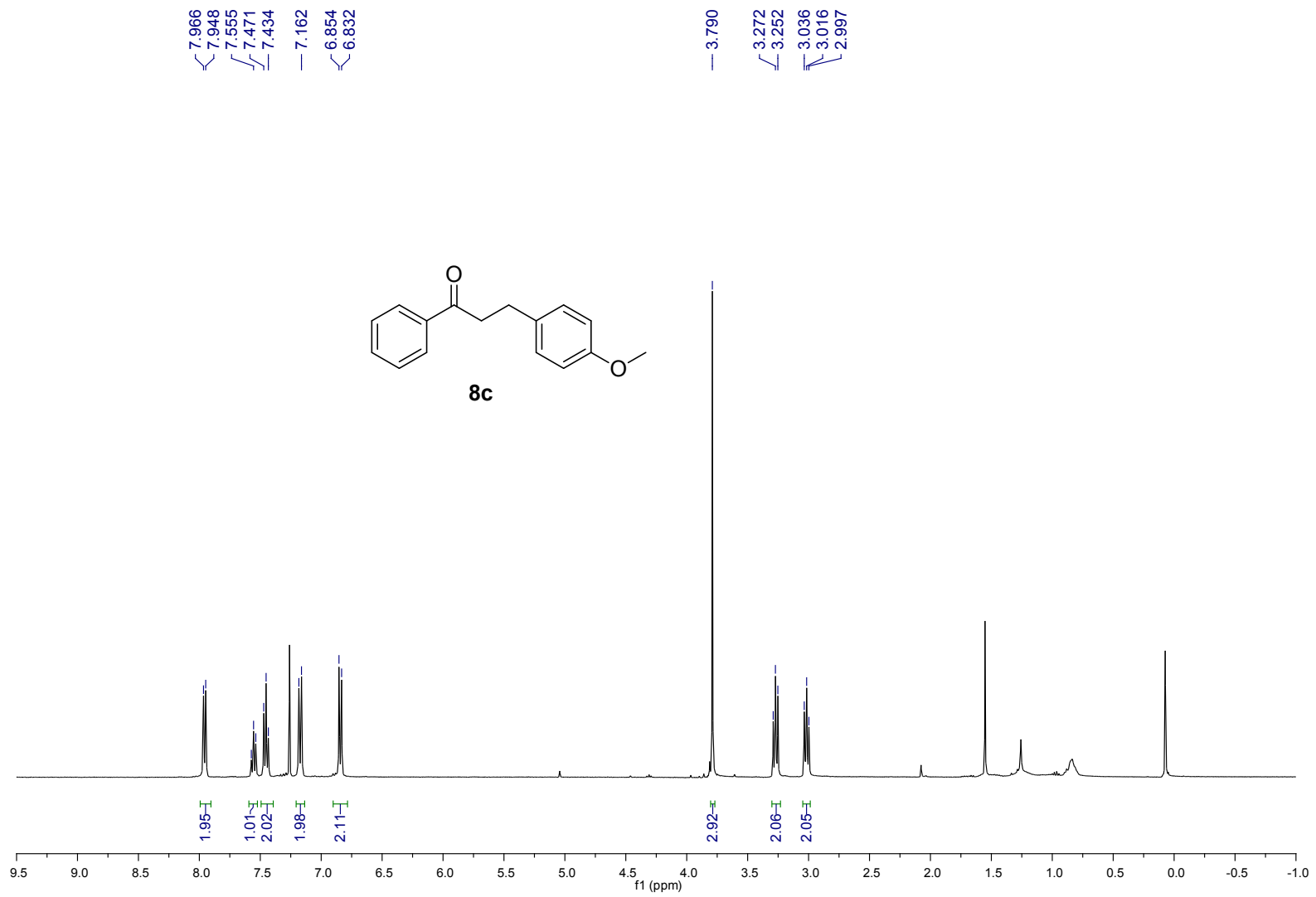
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3.284
3.264
3.066
3.047
3.028

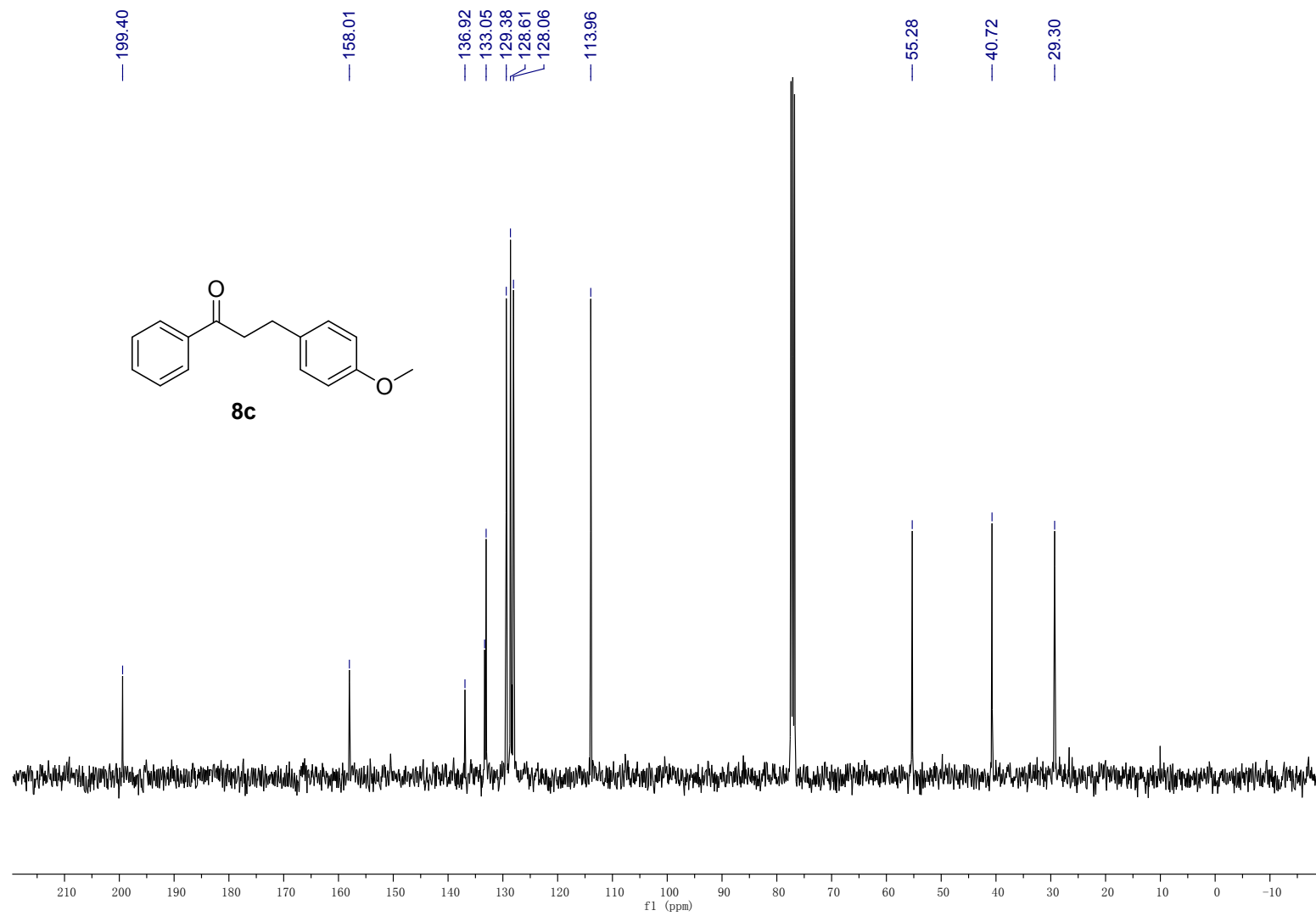


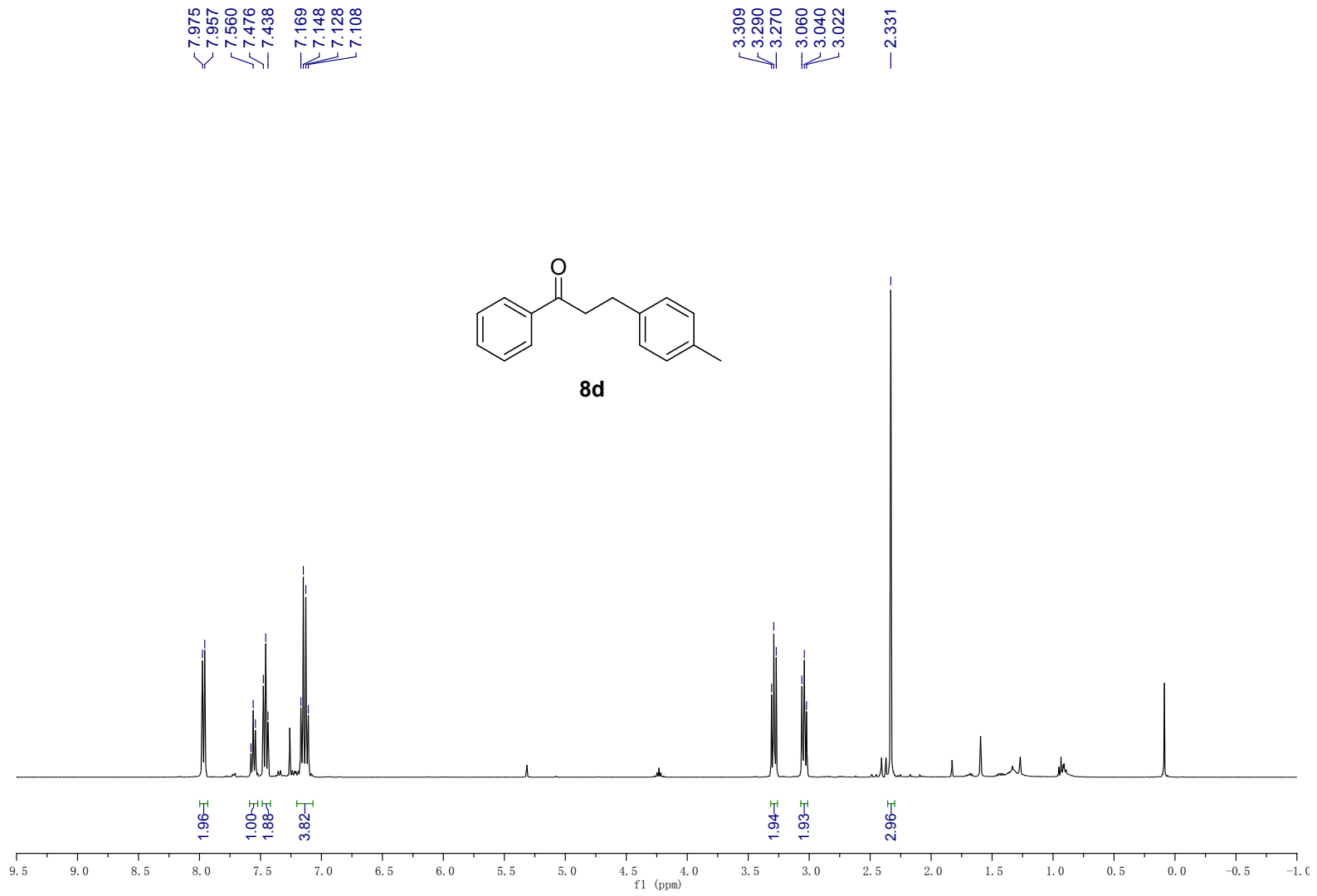
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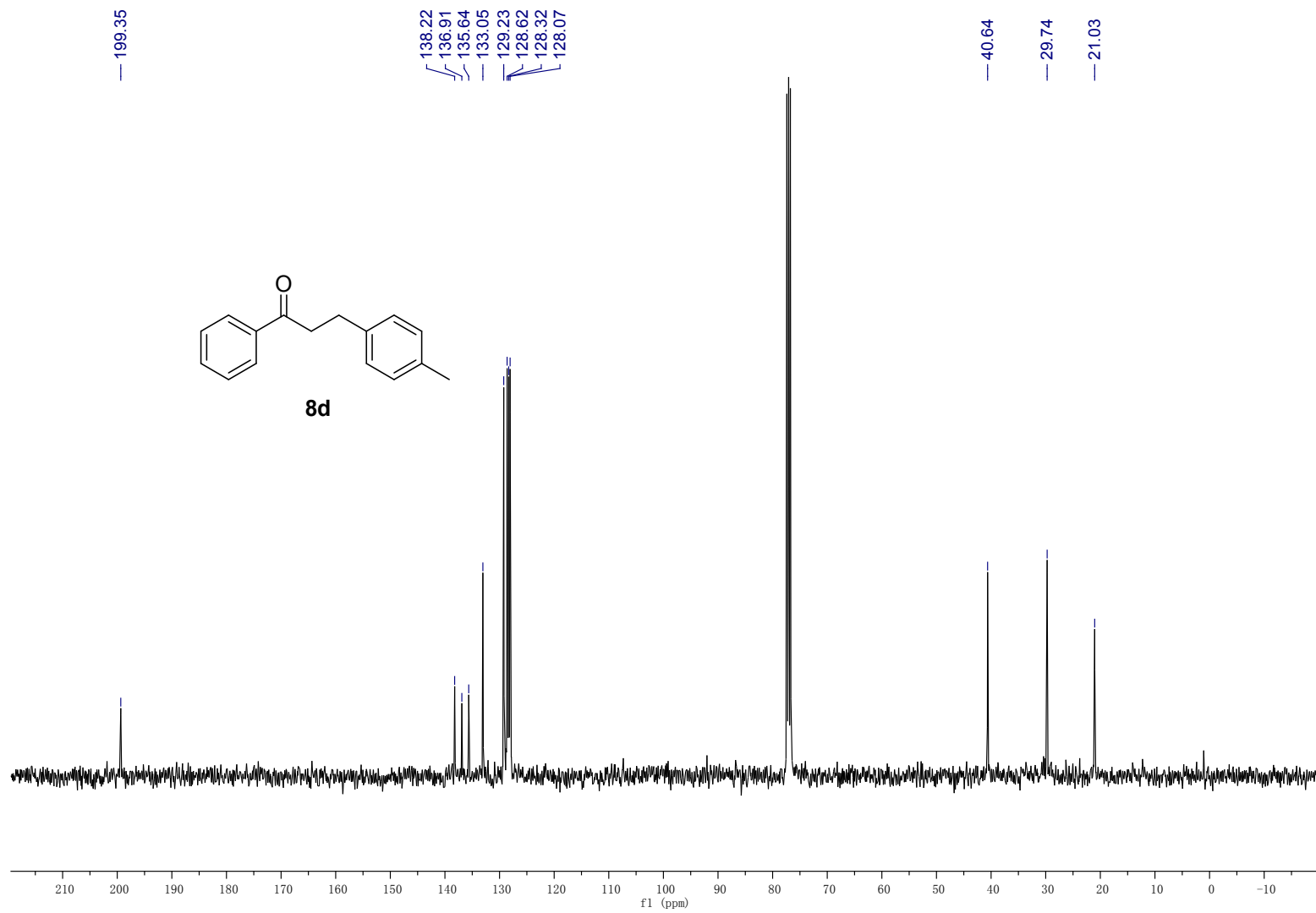


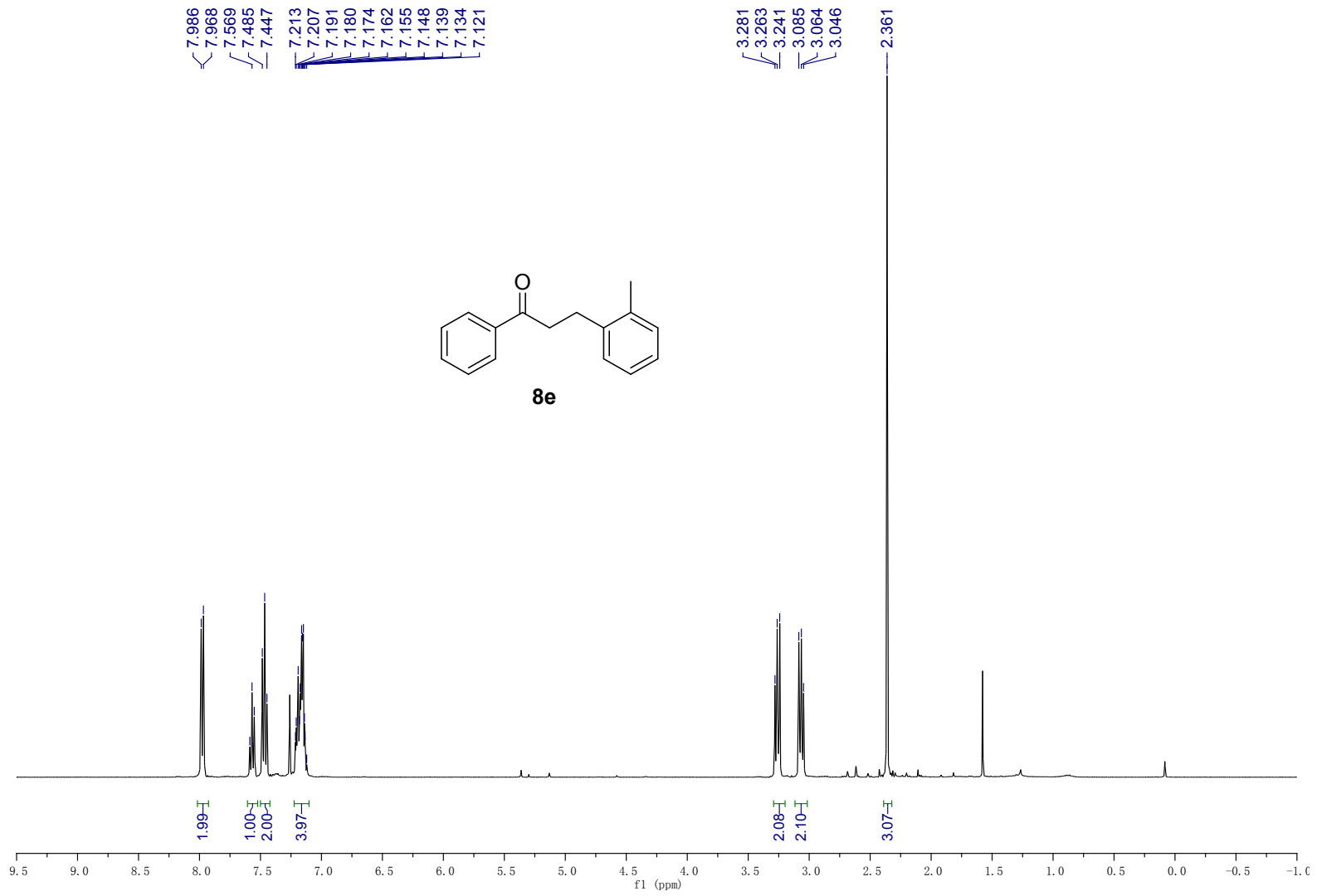


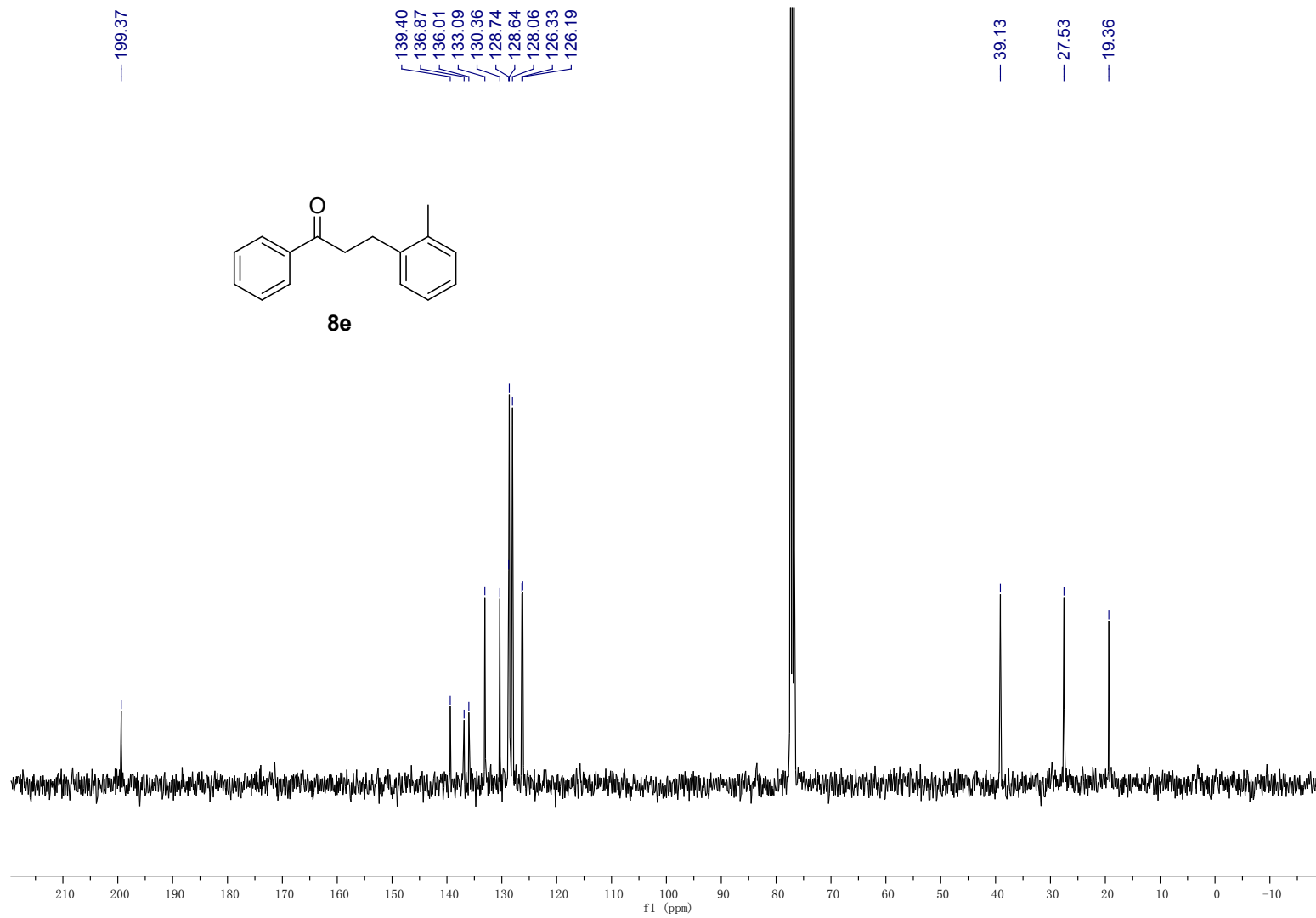


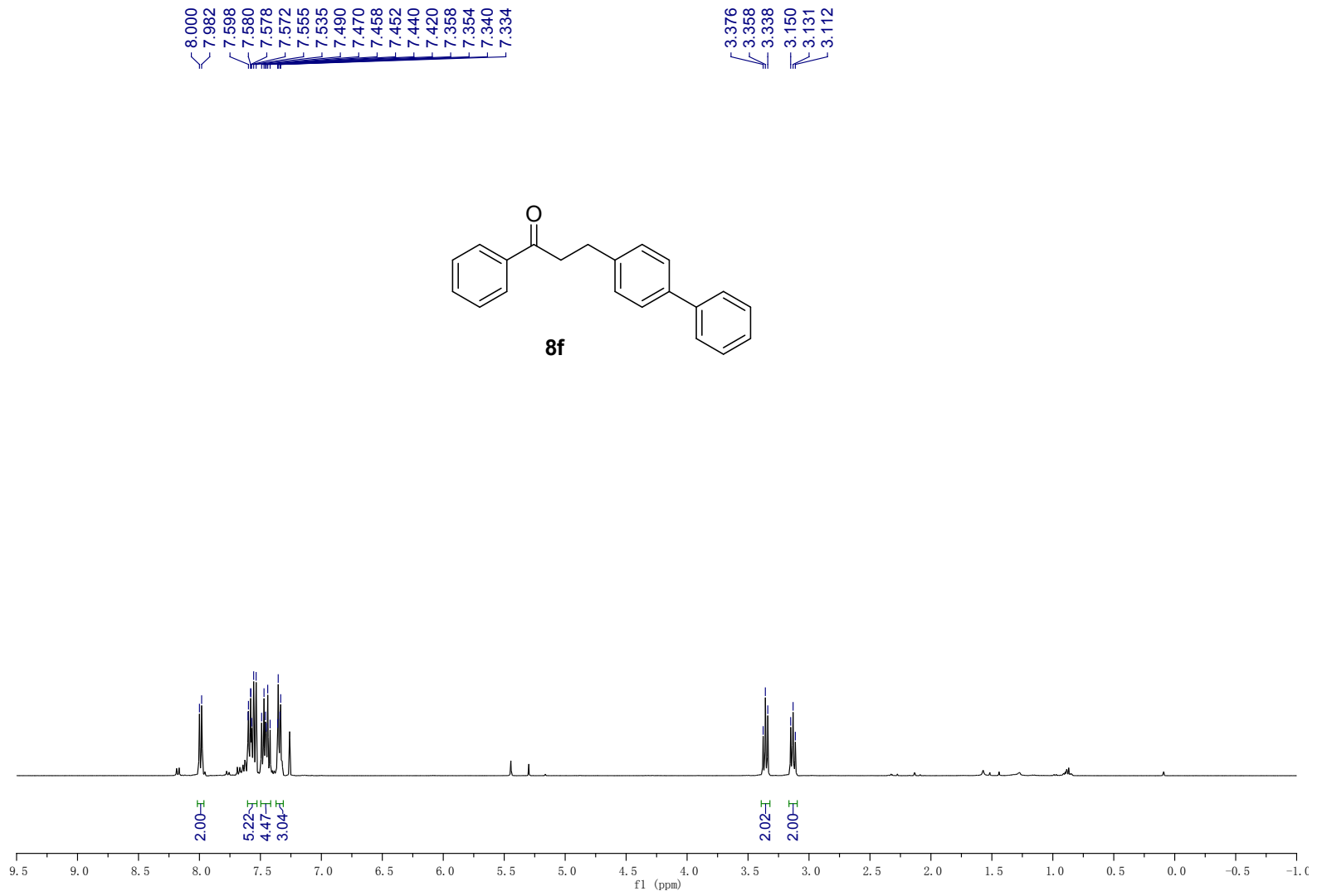


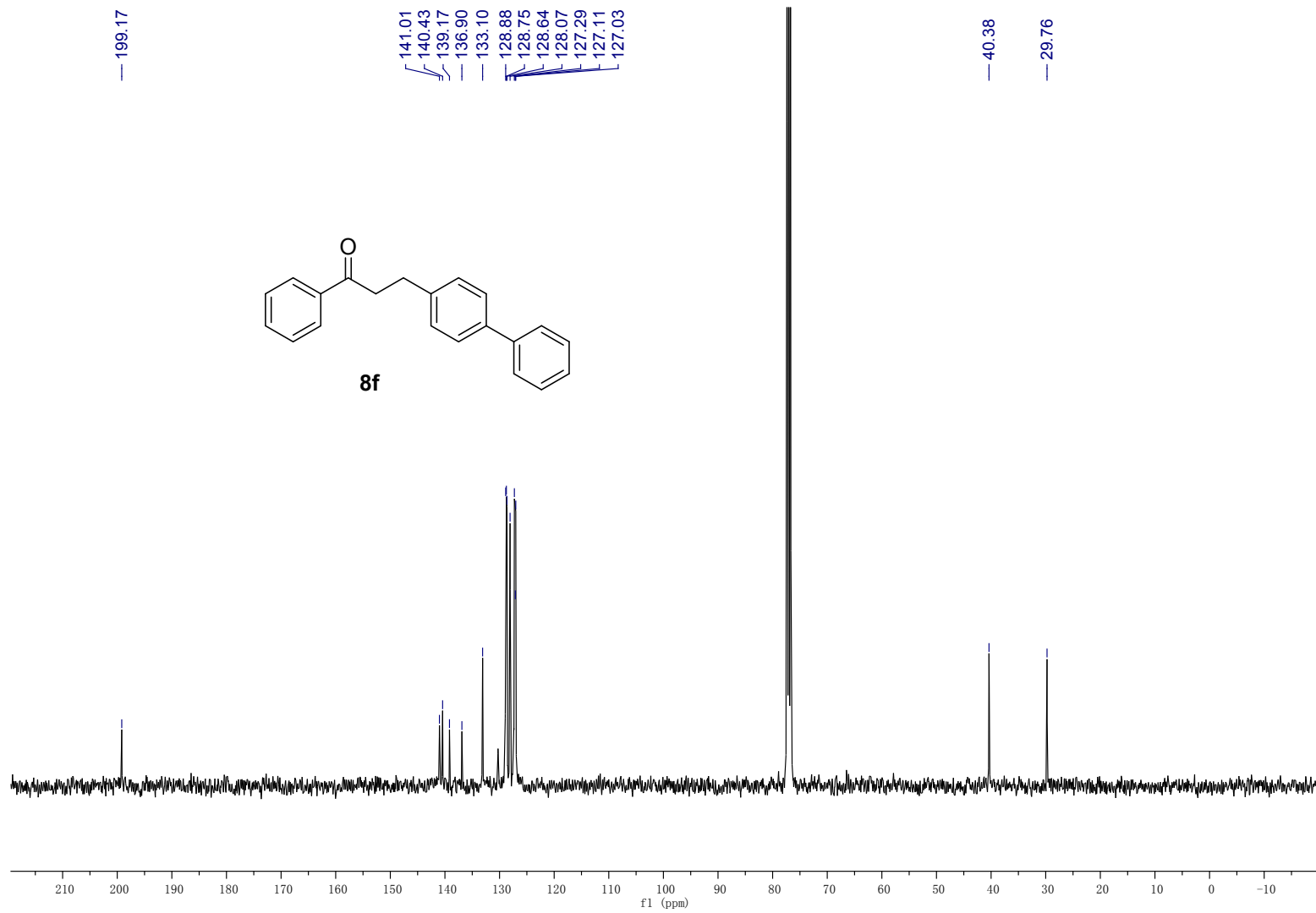






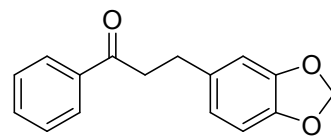




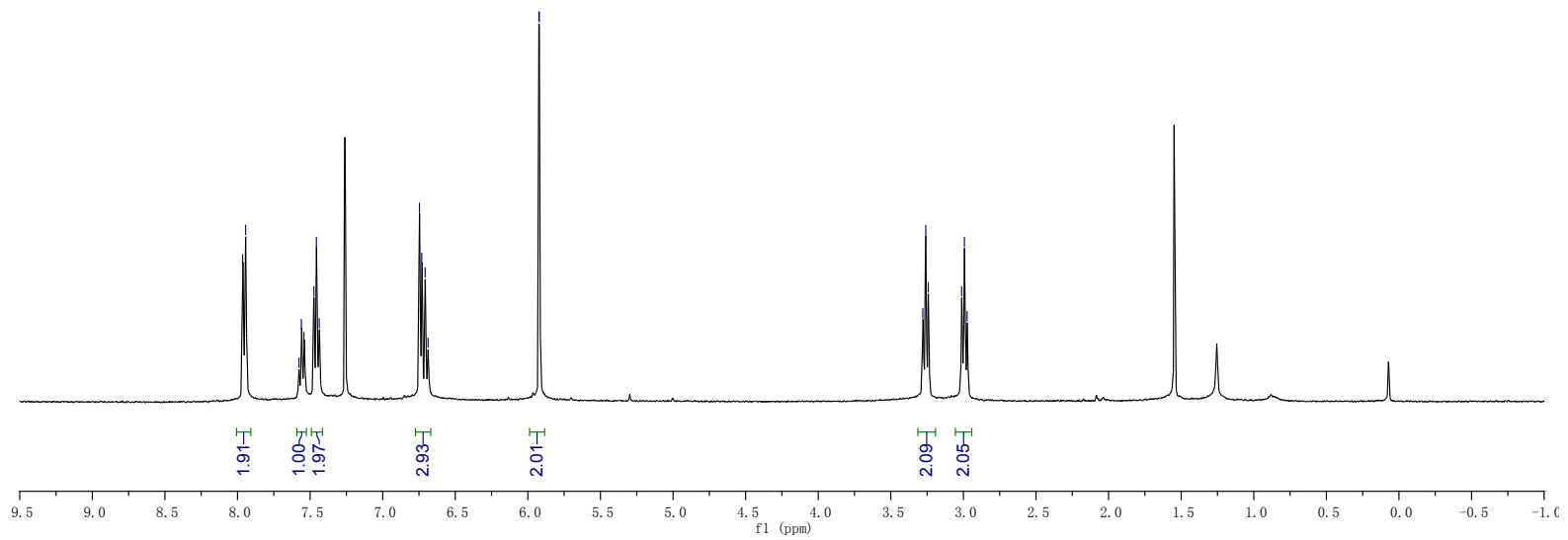


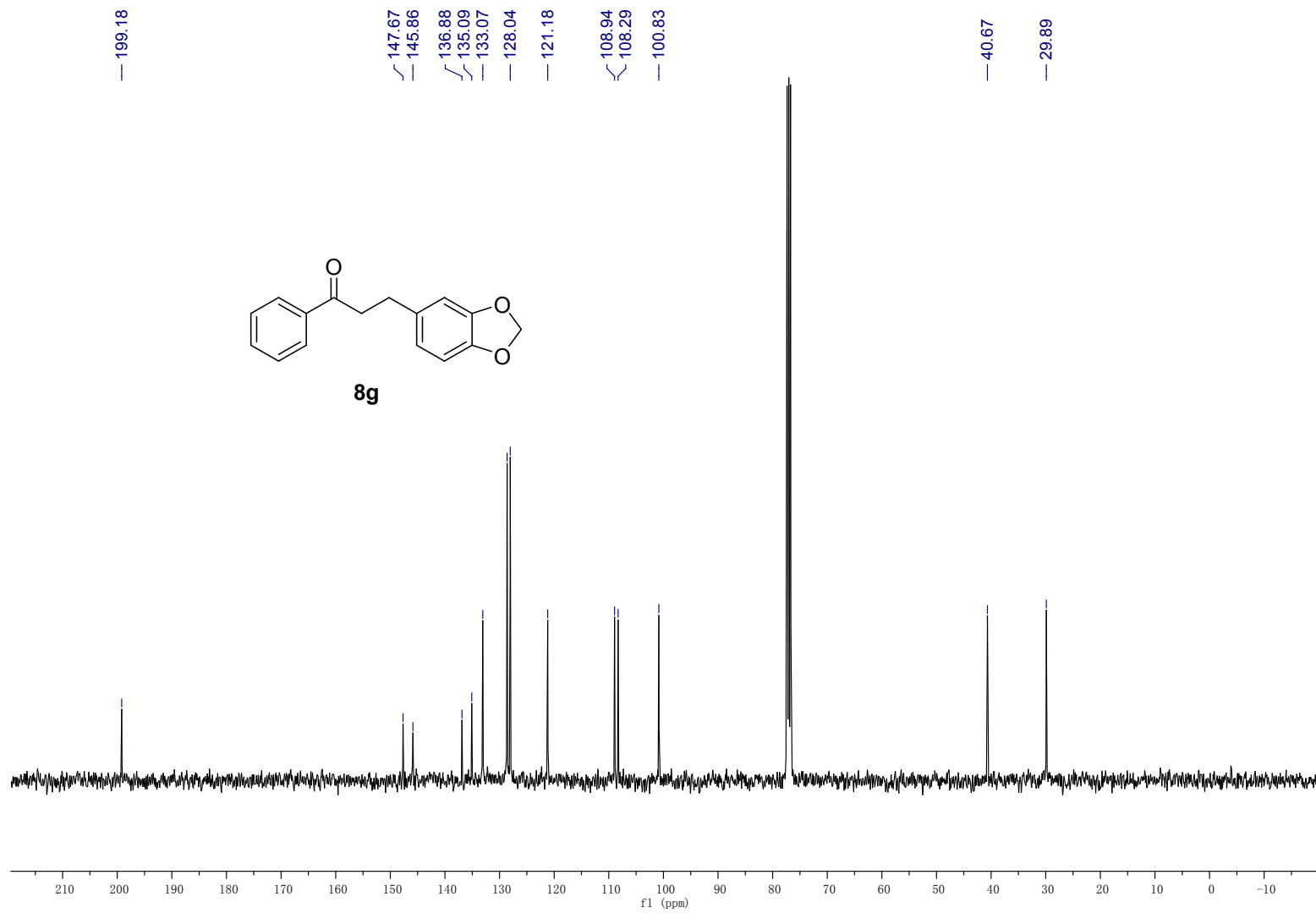
7.965
7.944
7.860
7.474
7.457
7.437
6.747
6.731
6.707
6.688
5.924
5.921

3.280
3.259
3.242
3.012
2.993
2.975



8g

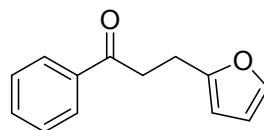




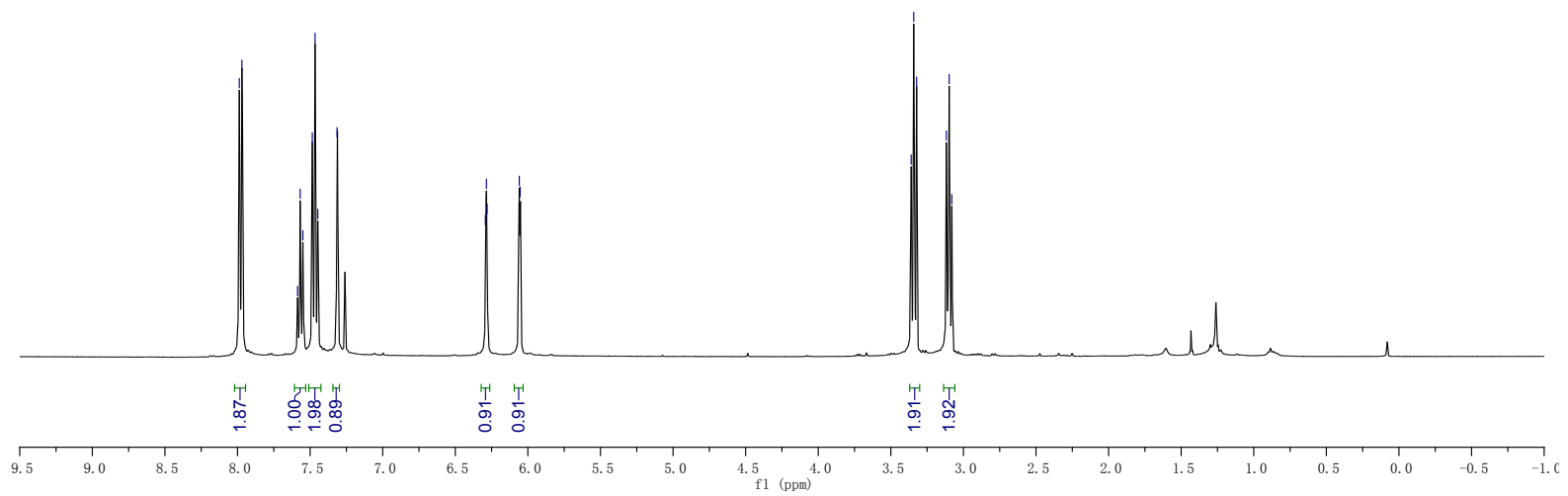
7.988
7.970
7.568
7.550
7.485
7.466
7.447
7.315

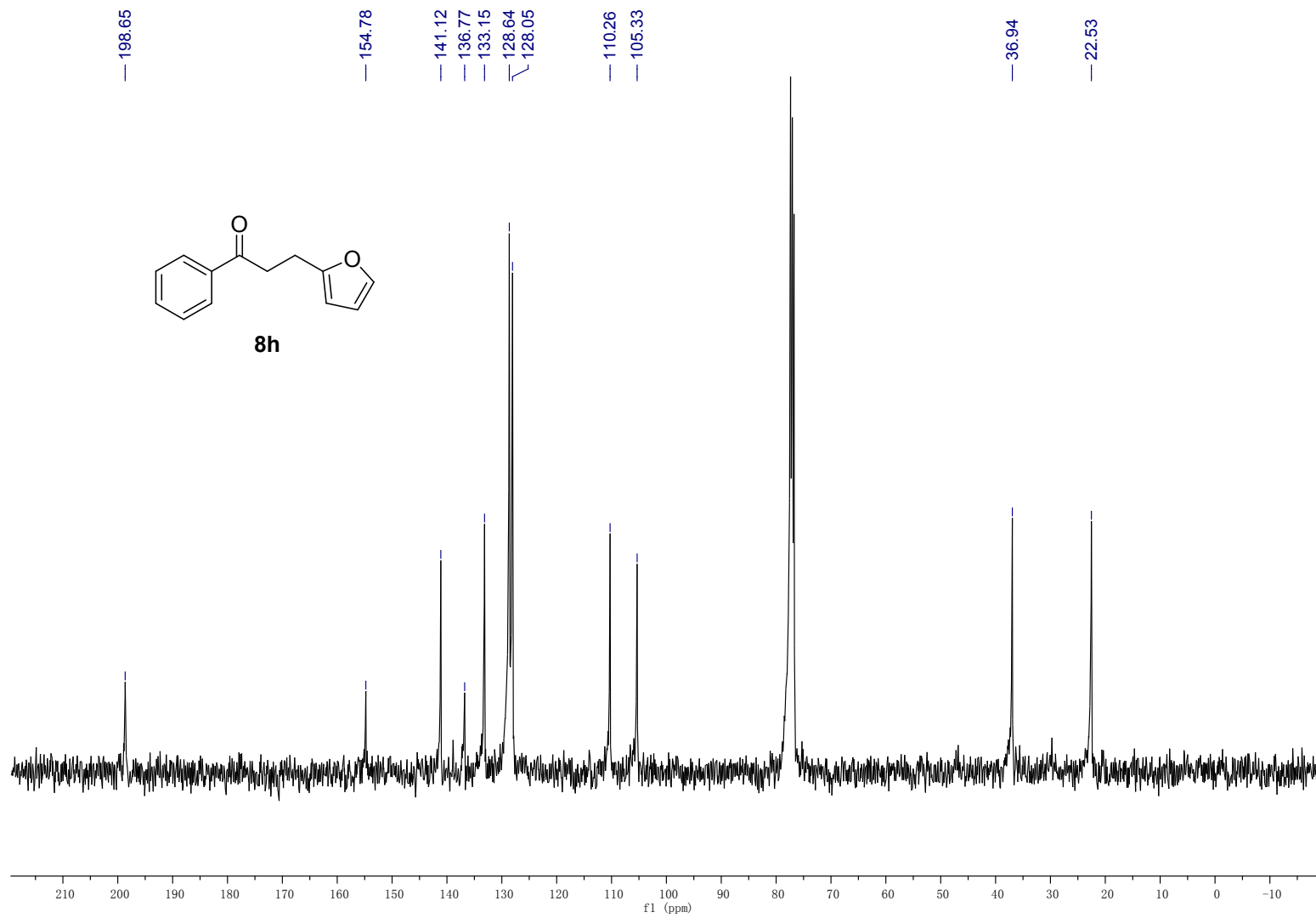
6.293
6.286
6.281
6.059
6.053

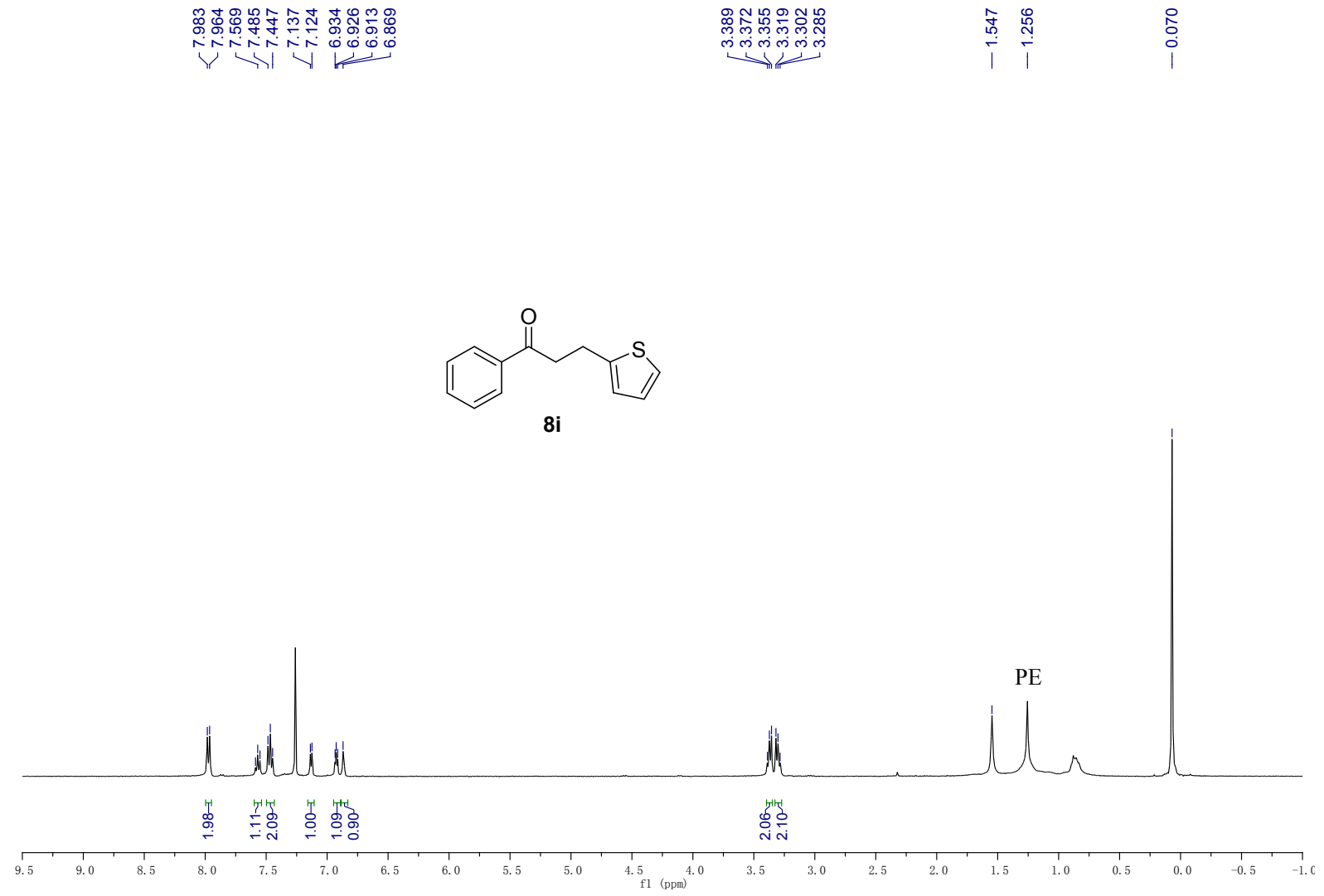
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3.342
3.322
3.117
3.098
3.080

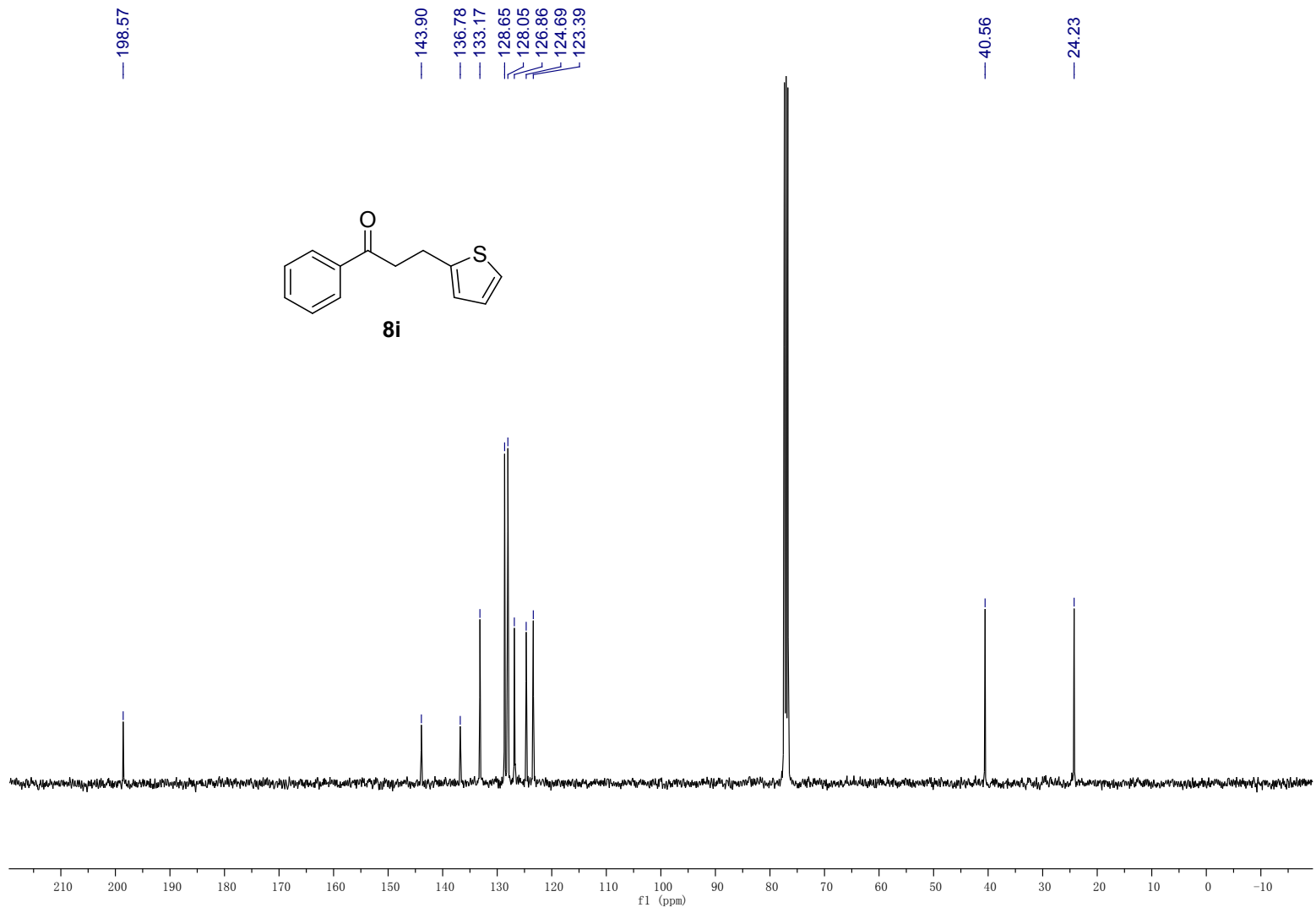


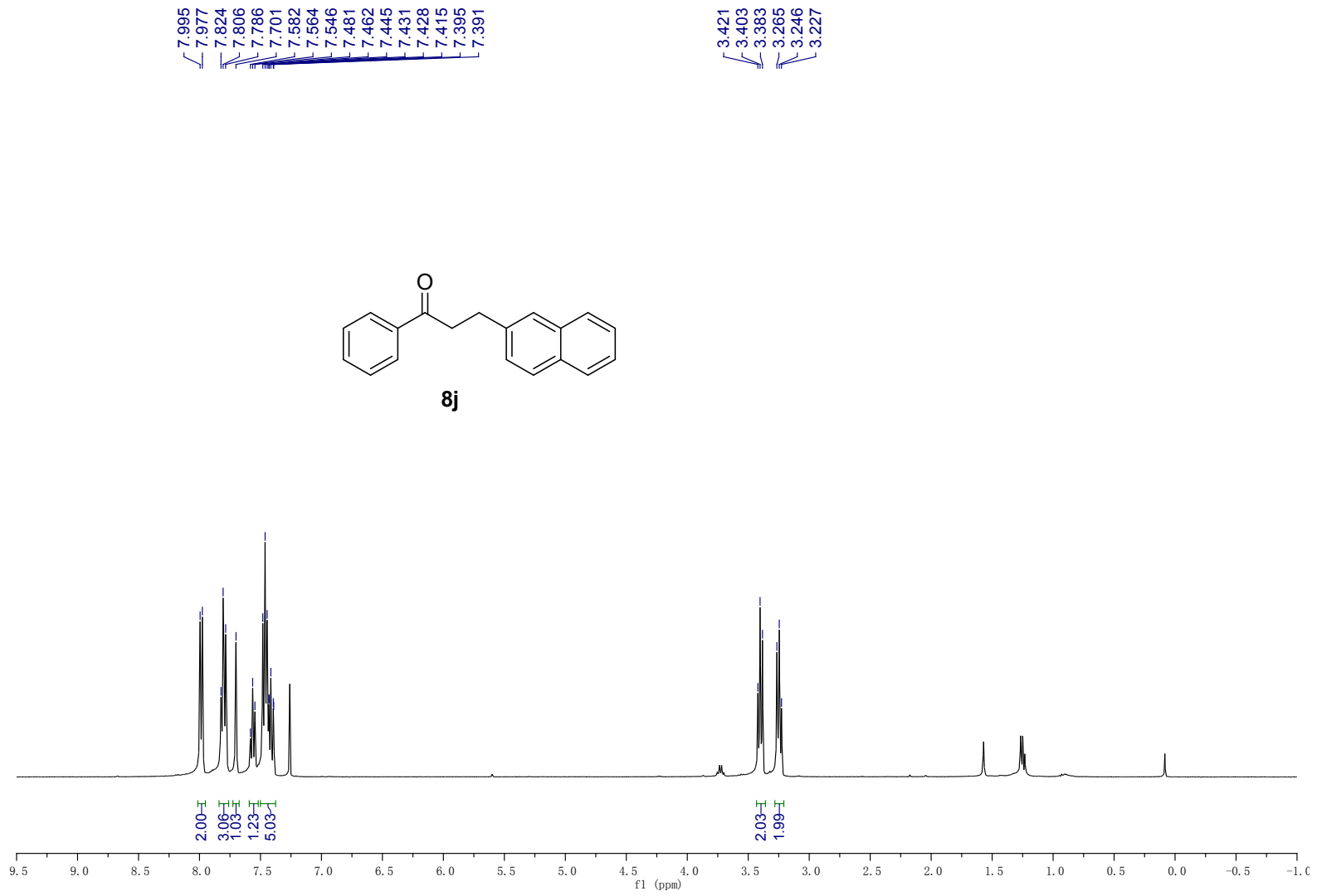
8h

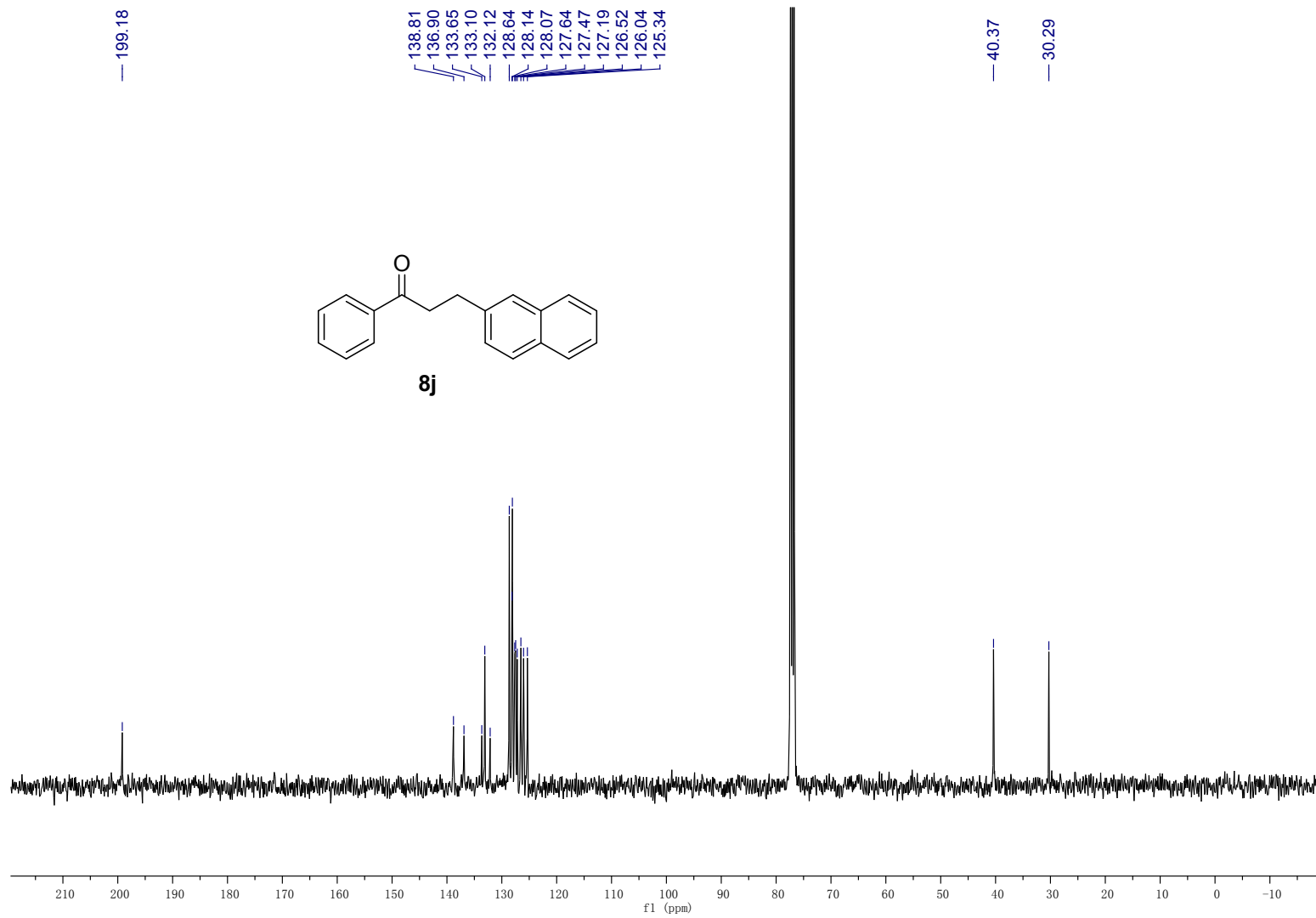






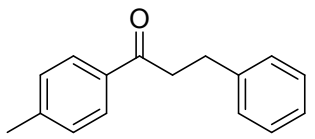




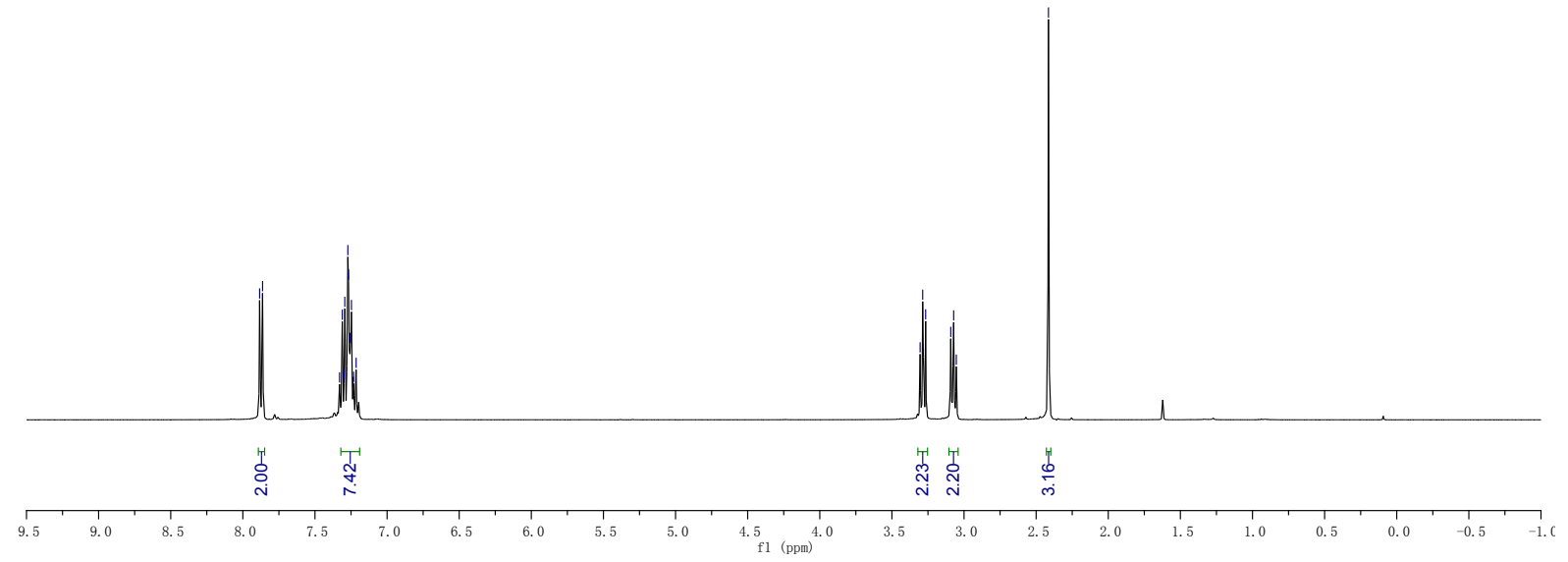


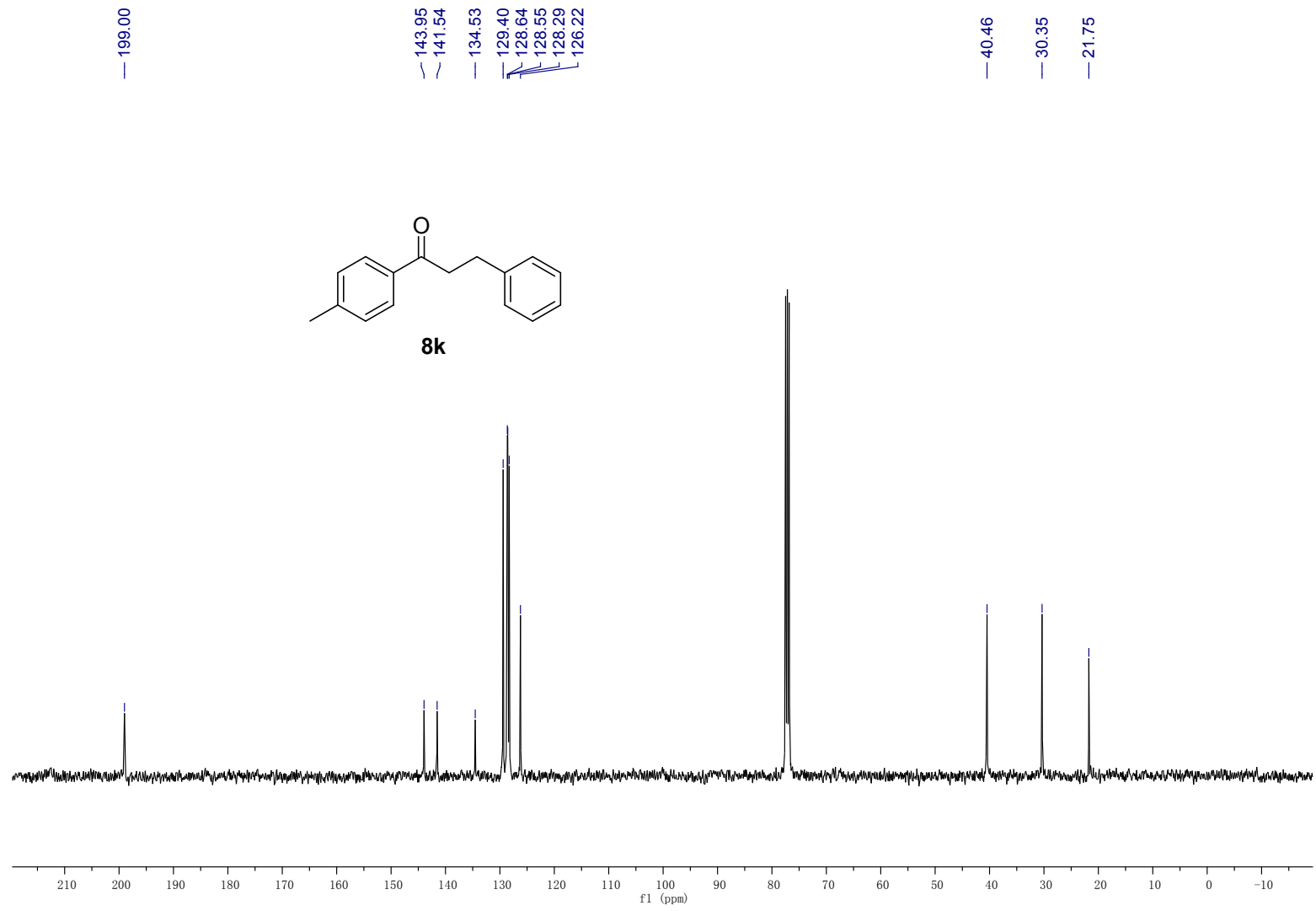
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7.329
7.311
7.298
7.293
7.272
7.267
7.255
7.247
7.236
7.232
7.215

3.304
3.287
3.266
3.092
3.072
3.053
2.415



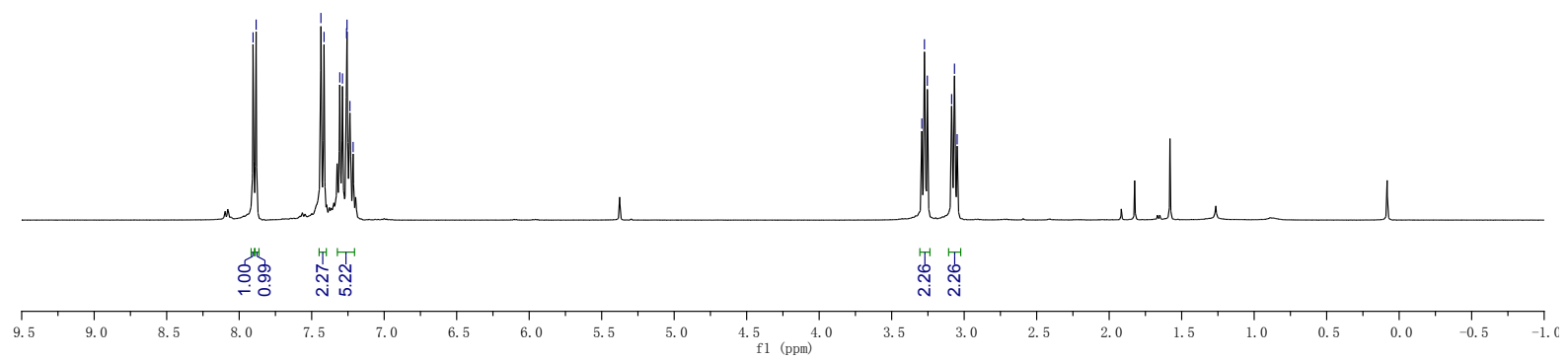
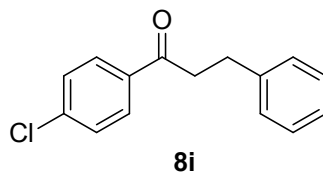
8k

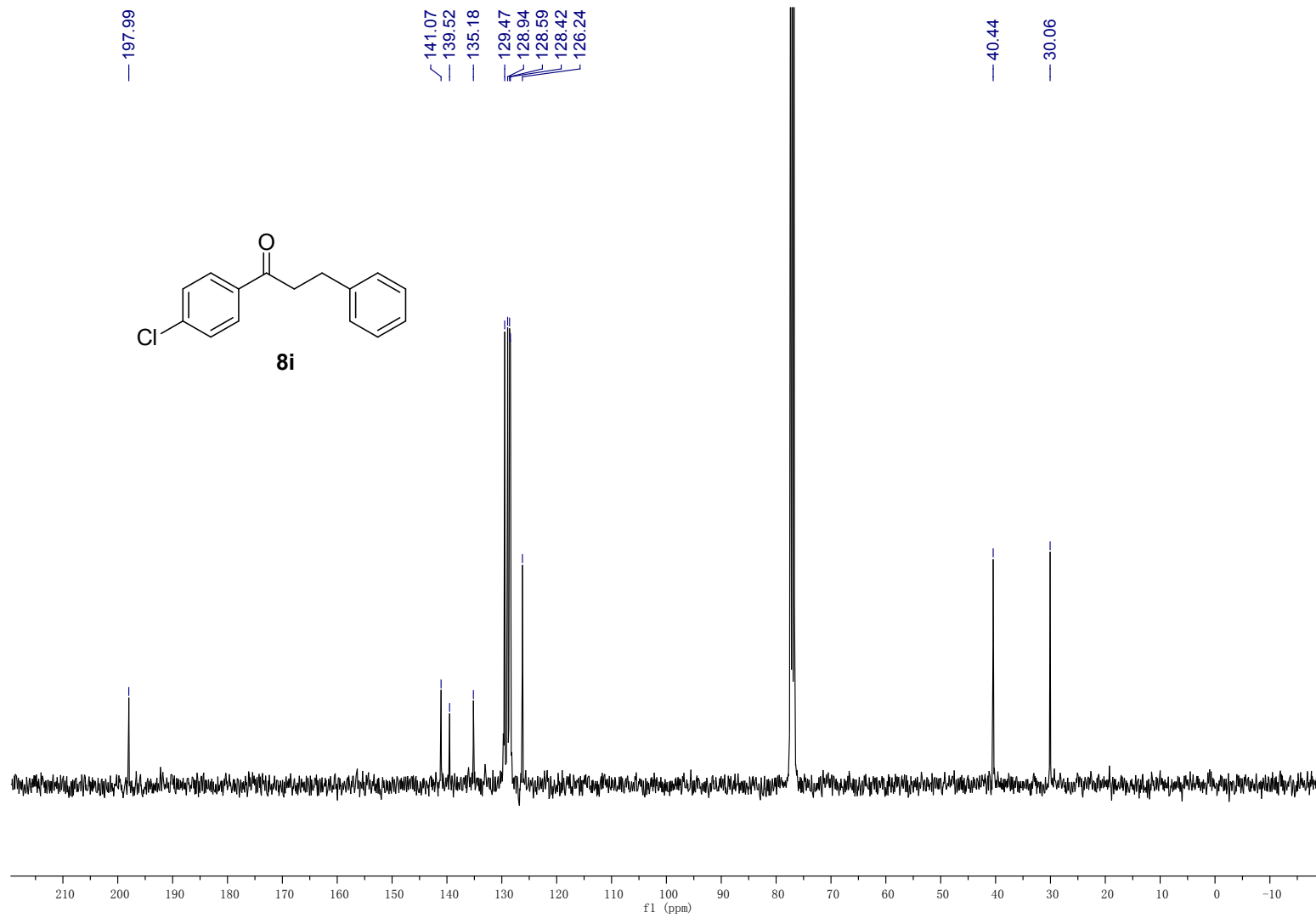


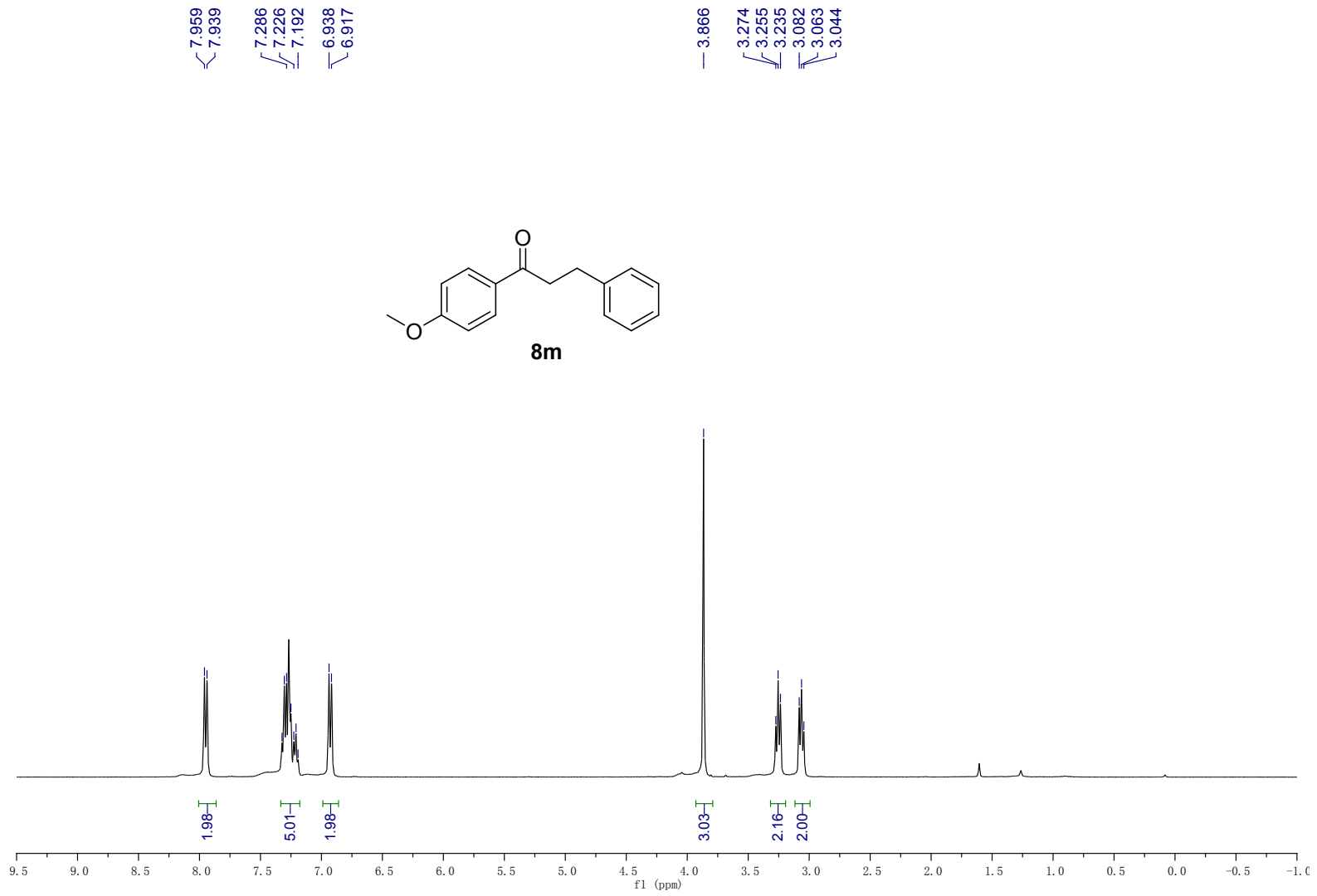


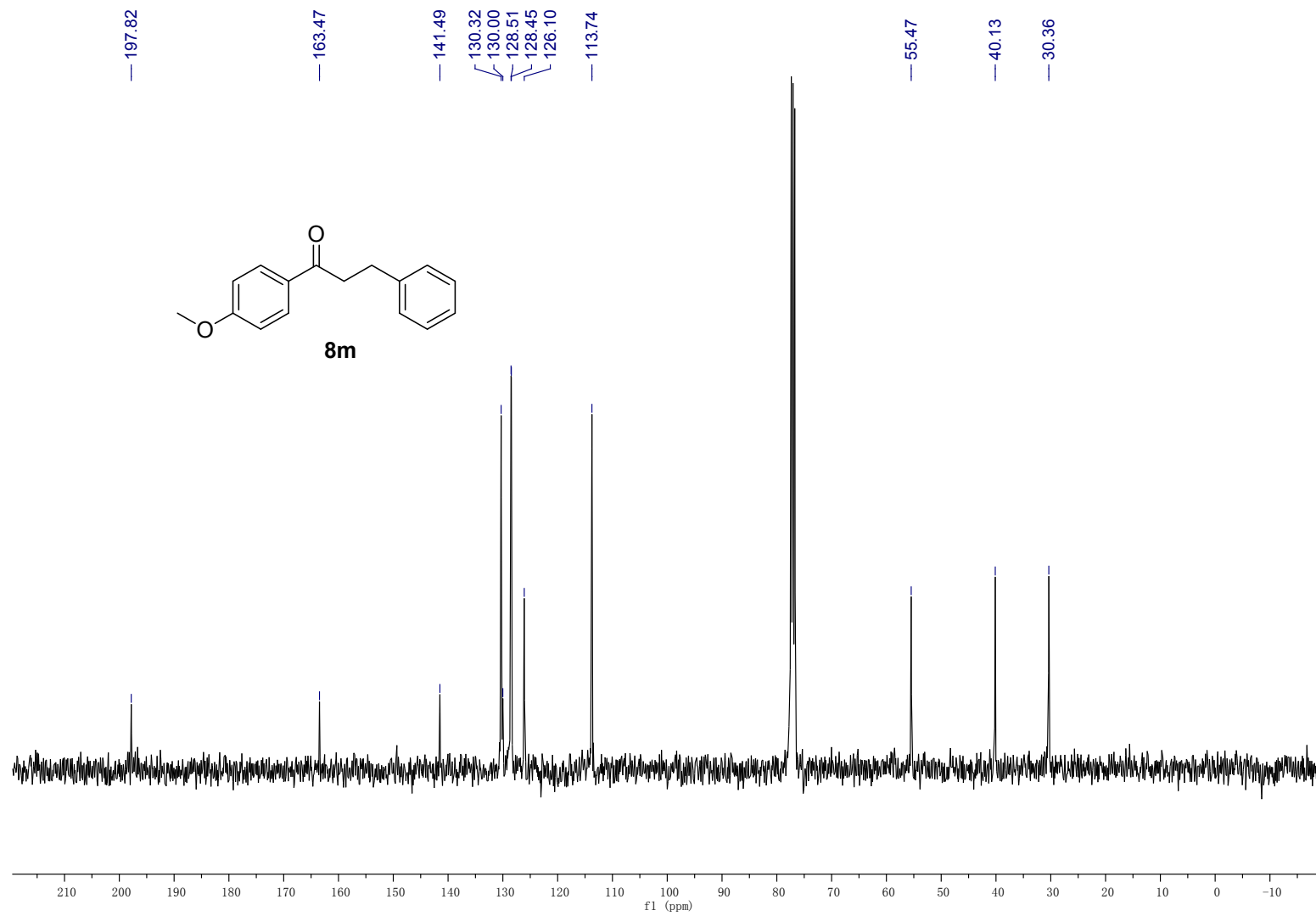
7.904
7.883
7.436
7.415
7.306
7.288
7.259
7.256
7.236
7.214

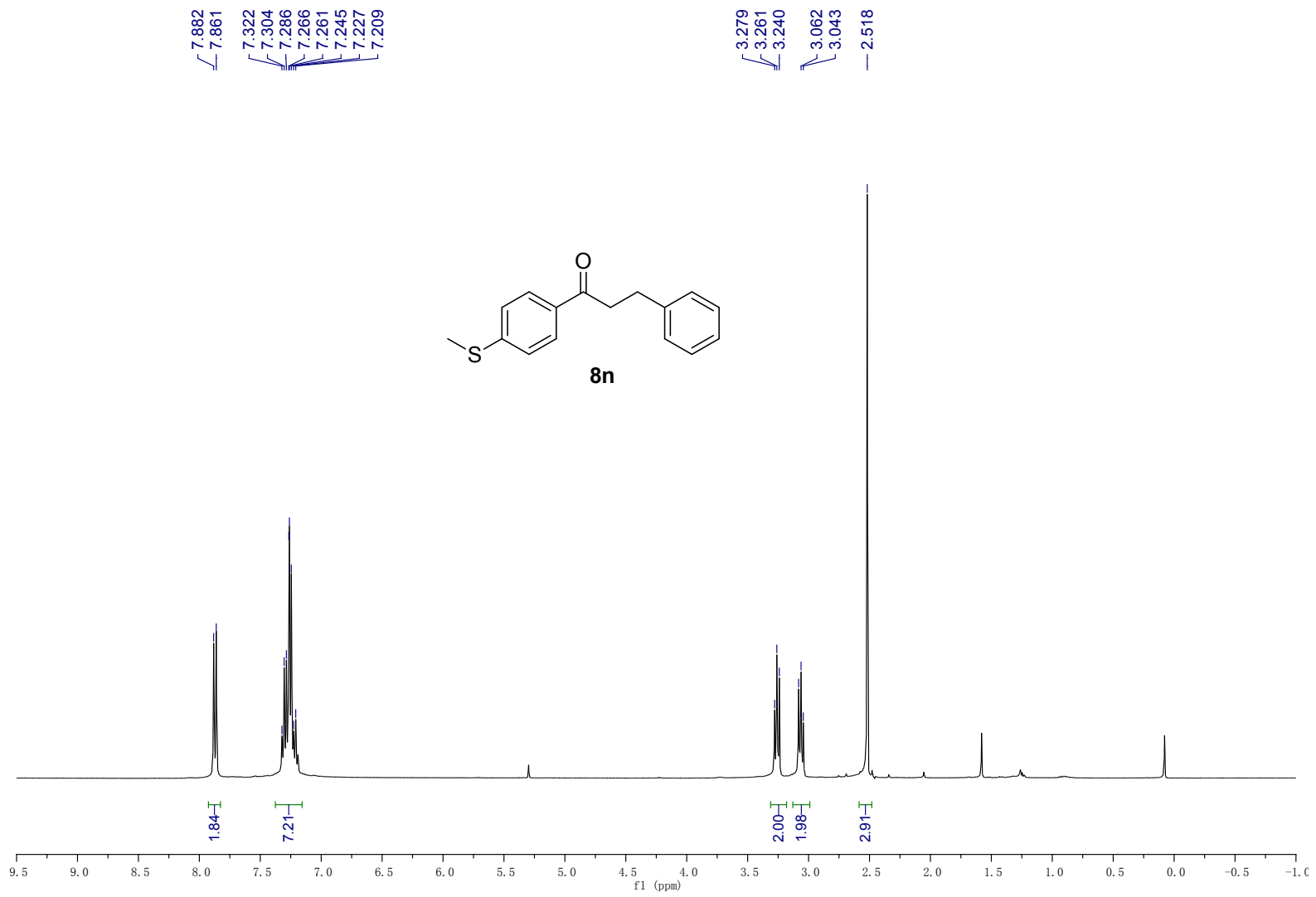
3.292
3.274
3.254
3.087
3.048

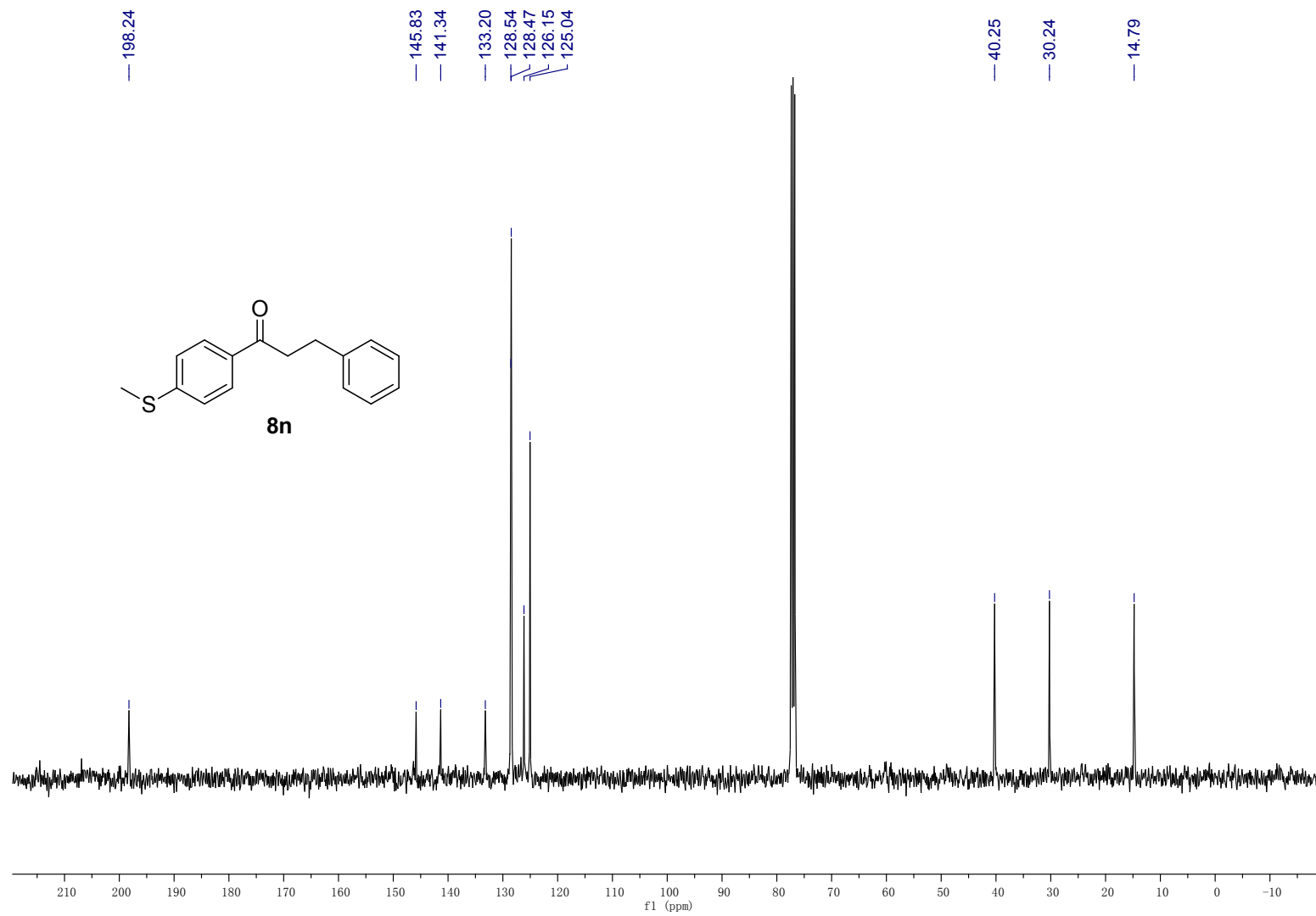


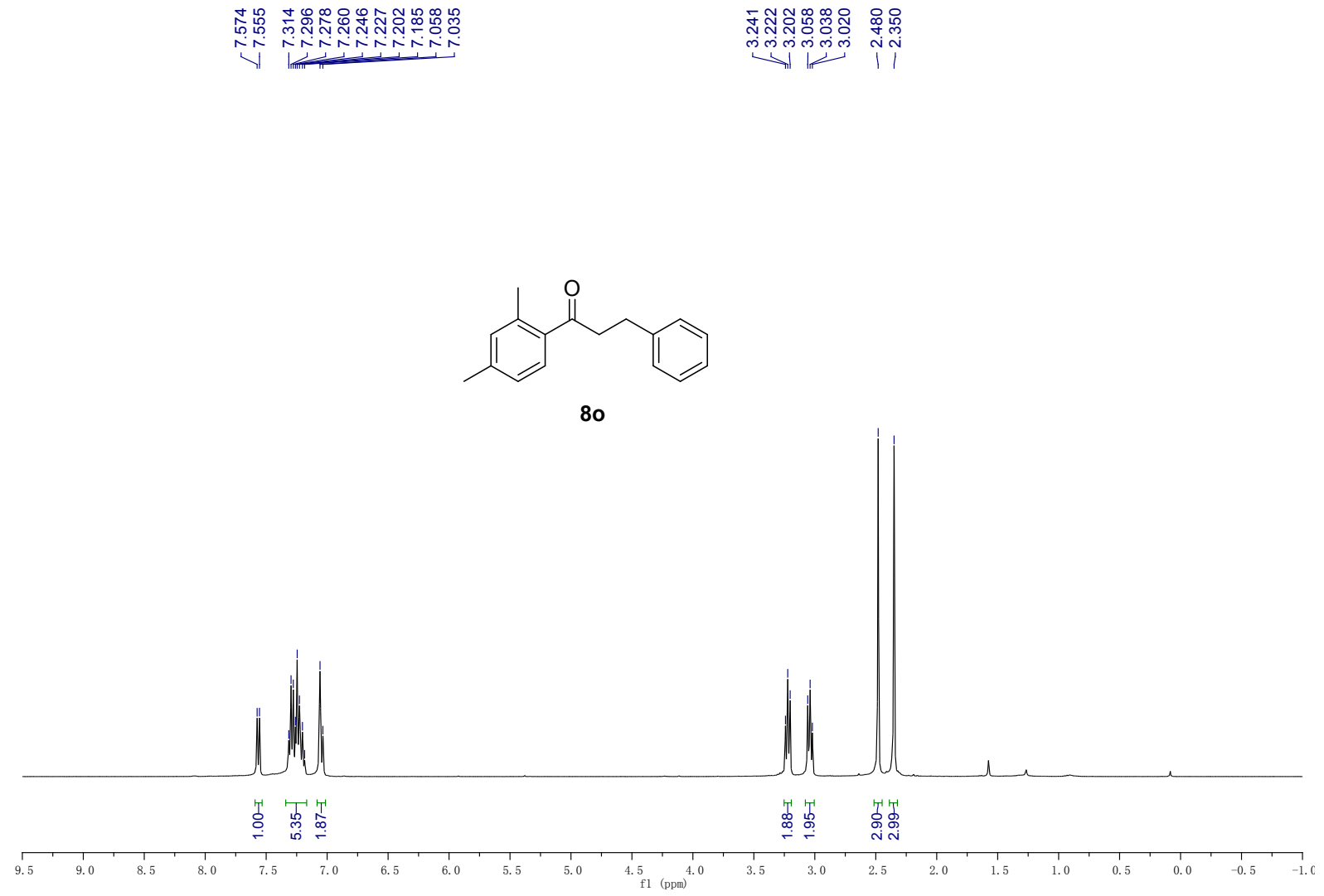


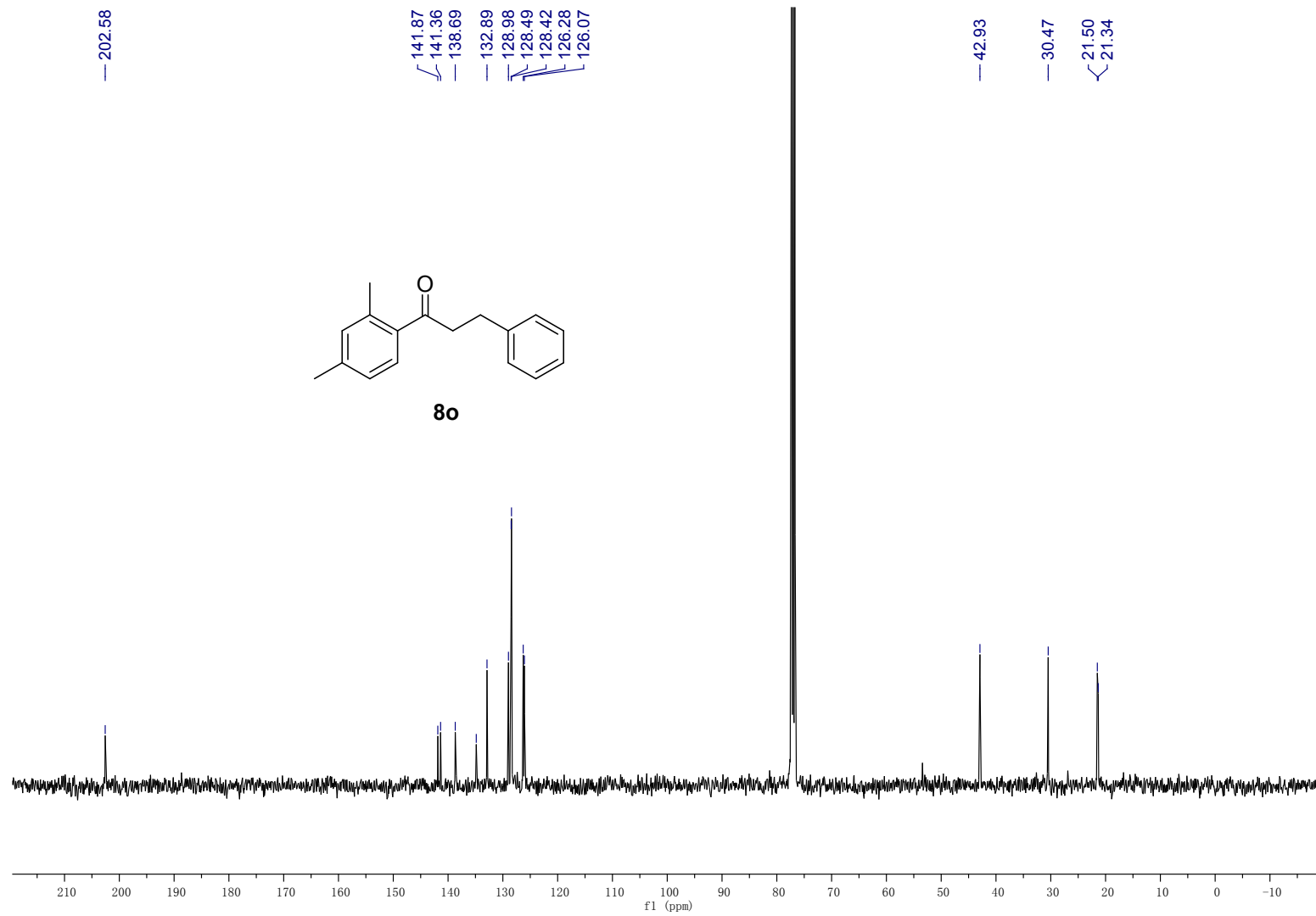


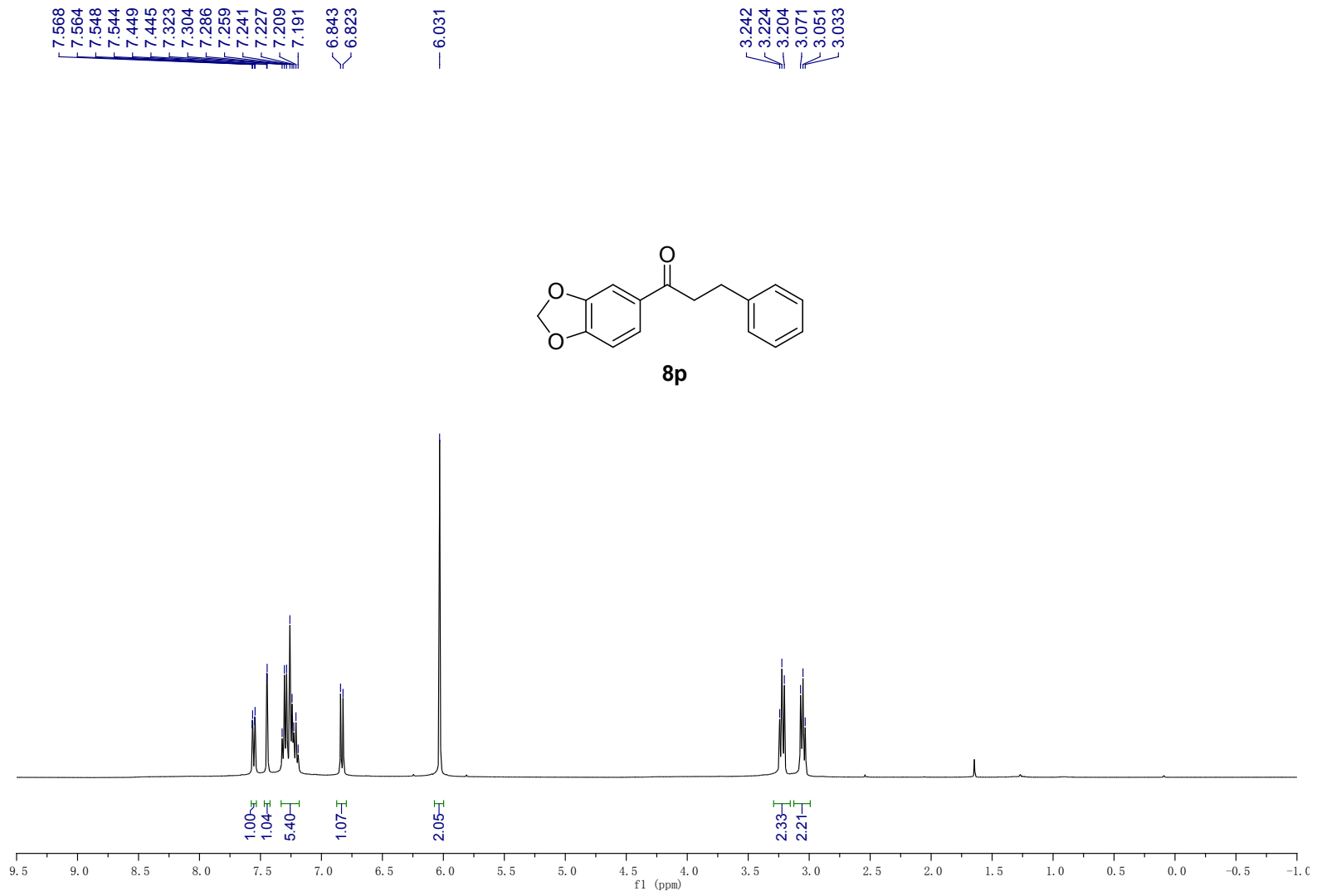


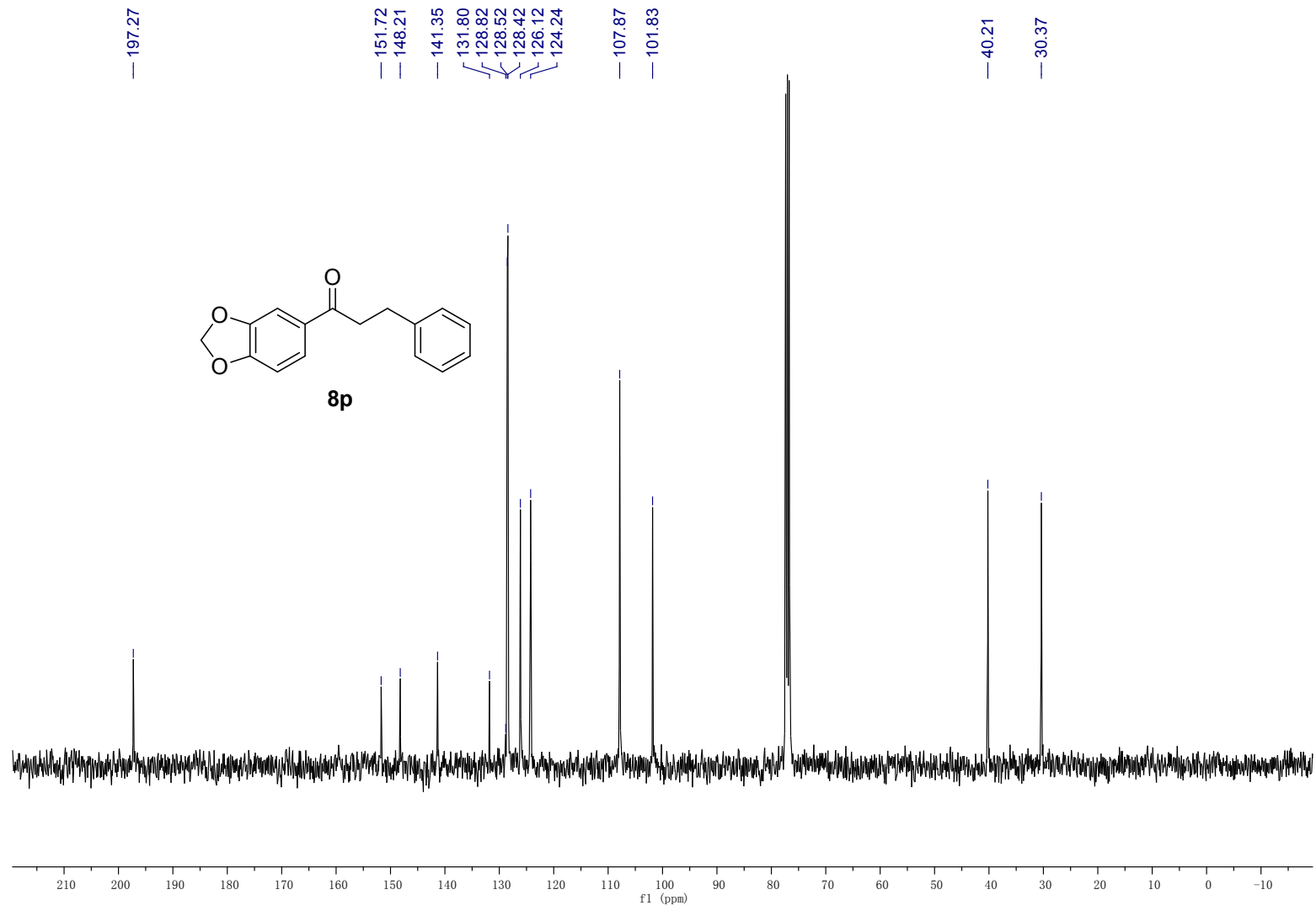






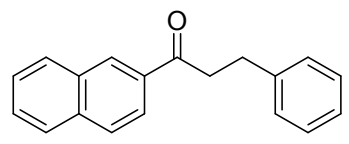






8.467
7.952
7.906
7.867
7.532
7.347
7.328
7.311
7.294
7.228

3.468
3.449
3.429
3.161
3.141
3.122



8q

