Supporting Information for

Aryl Radicals Induced Desulfonylative *ipso*-Substitution of Diaryliodonium Salts: An Efficient Route to Steric Hindered Biarylamines

Huangguan Chen[a], Limin Wang[a], and Jianwei Han[a]*

[a]Key Laboratory for Advanced Materials and Feringa Nobel Prize Scientist Joint Research Center, Institute of Fine Chemicals, School of Chemistry & Molecular Engineering, East China University of Science and Technology, 130 Meilong Road, Shanghai 200237, P. R. China
Email: jianweihan@ecust.edu.cn

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Part 1. General Information

a. Methods:

NMR spectrum: ^{1}H, ^{13}C, and ^{19}F NMR spectra were recorded in $CDCl_3$ or DMSO-d_6 (with tetramethylsilane as an internal standard) on a Bruker AVANCE 400 spectrometer at ambient temperature, operating at 400 MHz, 100 MHz, and 376 MHz respectively. Data were reported as follows: Chemical shifts (δ) are reported in ppm, coupling constants (J) are in Hertz (Hz). The following abbreviations were used to explain the multiplicities: s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, br = broad.

Mass spectroscopy: Mass spectra were in general recorded on a Waters LCT Premier XE spectrometer or EI Mass spectra were measured on HP HP5989A, Aglient HP5873 or Waters Micromass GCT mass spectrometer. ESI-MS analyses were performed in positive ionization mode on an Agilent 1100-MSD or Bruker Daltonics FTMS-7 mass spectrometer.

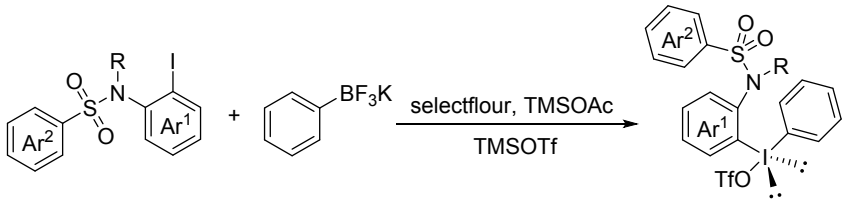
Chromatography: Column chromatography was performed with silica gel (200-300 mesh ASTM).

b. Materials:

All solvents were purchased from Adamas-beta and dried and/or distilled by standard methods. All reagents were purchased from commercial sources (Adamas-beta; Sinopharma reagents; TCI; Acros) and used without further purification. Reactions were monitored by TLC (detection with UV light). *ortho*-Iodo sulfonamides were synthesized following the literature procedures.[1-3] The preparation of all other materials is described in detail below.

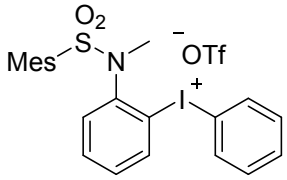
Part 2. Synthesis and Characterization of Diaryliodonium Salts

General Procedure:



Following the modified procedure of literature.[4] Under an atmosphere of dry nitrogen, *ortho*-iodo sulfonamides (4.5 mmol), Selectflour™ (2.07 g, 1.3 equiv.) and 15 mL of dry CH_3CN were introduced to an oven-dried Schlenk flask. TMSOAc (1.8 mL, 2.6 equiv.) was added by syringe dropwise with stirring. The mixture was stirred at 50 °C for 24 h. The reaction mixture was cooled to room temperature and solid potassium aryltrifluoroborate (1.0 equiv.) was added directly to the flask against a flow of nitrogen. Once the added solid was dissolved, TMSOTf (1.0 equiv.) was added dropwise by syringe and the mixture was allowed to stir at room temperature for 12 hours. The solvents were removed under reduced pressure and 100 mL of acetate buffer (NaOAc: HOAc = 0.5 M: 0.5 M, pH = 5) was added. The mixture was extracted with CH_2Cl_2 for 3 times. The combined organic extracts were dried with Na_2SO_4, filtered, and the solvent was removed by rotary evaporation. The residue was dissolved in CH_2Cl_2 and a solution of potassium trifluoromethanesulfonate (4.0 equiv.) in H_2O was added with stirring for 0.5 hour. The mixture was transferred to a separatory funnel and extracted with CH_2Cl_2. The combined organic extracts were dried with Na_2SO_4, filtered, and the solvent was removed by rotary evaporation. The residue was either triturated with diethyl ether or subjected to column chromatography directly on silica gel to afford pure diaryliodonium salts. The details for the specific scale, purification process of reactions, and characterization data of individual compounds are listed as following.

Phenyl(2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1a)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.31 g, 80 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 167-169 °C.

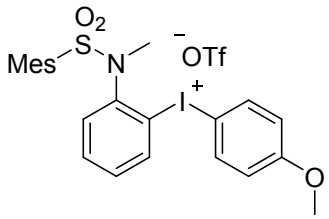
^{1}H NMR (400 MHz, DMSO) δ 8.24 (d, *J* = 7.5 Hz, 2H), 8.18 (dd, *J* = 7.9, 1.4 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.64 – 7.55 (m, 3H), 7.52 (td, *J* = 7.7, 1.6 Hz, 1H), 7.10 (s, 2H), 7.08 (dd, *J* = 8.0, 1.7 Hz, 1H), 3.04 (s, 3H), 2.29 (s, 3H), 2.18 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.46, 141.27, 139.73, 136.66, 135.81, 133.45, 132.52, 132.37, 131.82, 131.73, 129.77, 129.10, 121.26, 120.69 (q, J_{C-F} = 323.7 Hz), 116.15, 39.10, 23.25, 20.46.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{23}NO_2SI^+$ [M-OTf]$^+$ 492.0494, found 492.0494.

(4-Methoxyphenyl)(2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1b)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.33 g, 77 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 172-173 °C.

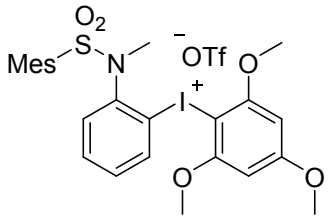
^{1}H NMR (400 MHz, DMSO) δ 8.19 (d, *J* = 9.0 Hz, 2H), 8.15 – 8.00 (m, 1H), 7.66 – 7.36 (m, 2H), 7.14 (d, *J* = 9.0 Hz, 2H), 7.11 (s, 2H), 7.09 – 7.04 (m, 1H), 3.83 (s, 3H), 3.11 (s, 3H), 2.29 (s, 3H), 2.17 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 162.29, 143.54, 141.03, 139.79, 138.06, 136.08, 133.26, 132.59, 131.75, 129.72, 128.98, 121.52, 120.71 (q, $J_{C\text{-}F}$ = 323.5 Hz), 117.61, 104.72, 55.82, 39.31, 23.34, 20.52.

^{19}F NMR (376 MHz, DMSO) δ -77.77.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{25}NO_3SI^+$ [M-OTf]$^+$ 522.0600, found 522.0608.

(2-((*N*,2,4,6-Tetramethylphenyl)sulfonamido)phenyl)(2,4,6-trimethoxyphenyl)iodonium trifluoromethanesulfonate (1c)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.63 g, 80 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 180-182 °C.

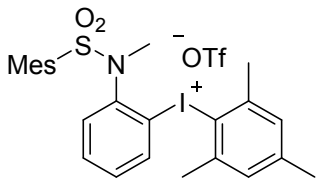
^{1}H NMR (400 MHz, DMSO) δ 7.83 (dd, *J* = 8.0, 1.0 Hz, 1H), 7.53 (td, *J* = 7.7, 1.4 Hz, 1H), 7.45 (td, *J* = 7.8, 1.4 Hz, 1H), 7.10 (m, 3H), 6.51 (s, 2H), 3.93 (s, 6H), 3.89 (s, 3H), 3.17 (s, 3H), 2.29 (s, 3H), 2.18 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 166.70, 159.40, 143.57, 140.68, 139.77, 135.31, 133.07, 132.53, 131.86, 129.68, 128.76, 120.71 (q, $J_{C\text{-}F}$ = 323.5 Hz), 120.67, 92.21, 86.23, 57.40, 56.30, 39.04, 23.20, 20.49.

^{19}F NMR (376 MHz, DMSO) δ -77.76.

HRMS m/z (ESI-TOF): calculated for $C_{25}H_{29}NO_5SI^+$ [M-OTf]$^+$ 582.0811, found 582.0809.

Mesityl(2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1d)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.84 g, 60 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 182-184 °C.

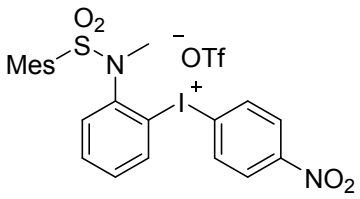
^{1}H NMR (400 MHz, DMSO) δ 7.75 (d, *J* = 7.9 Hz, 1H), 7.56 (t, *J* = 7.4 Hz, 1H), 7.48 (t, *J* = 7.6 Hz, 1H), 7.28 (s, 2H), 7.10 (m, 3H), 3.03 (s, 3H), 2.54 (s, 6H), 2.33 (s, 3H), 2.29 (s, 3H), 2.15 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.77, 143.67, 141.94, 140.94, 139.99, 135.13, 133.19, 132.61, 132.07, 130.08, 129.19, 129.02, 121.97, 120.69 (q, $J_{C\text{-}F}$ = 323.5 Hz), 118.71, 38.90, 26.14, 23.25, 20.55, 20.50.

^{19}F NMR (376 MHz, DMSO) δ -77.76.

HRMS m/z (ESI-TOF): calculated for $C_{25}H_{29}NO_2SI^+$ [M-OTf]$^+$ 534.0964, found 534.0968.

(4-Nitrophenyl)(2-((N,2,4,6-tetramethylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1e)



Prepared according to the **general procedure** on 4.5 mmol scale and a light yellow powder (1.67 g, 54 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 187-189 °C.

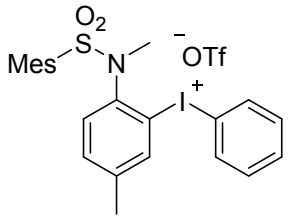
^{1}H NMR (400 MHz, DMSO) δ 8.45 – 8.29 (m, 5H), 7.68 – 7.51 (m, 2H), 7.13 – 7.04 (m, 3H), 2.93 (s, 3H), 2.28 (s, 3H), 2.17 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 149.39, 143.45, 141.68, 139.75, 137.68, 136.78, 133.89, 132.57, 131.79, 129.81, 129.26, 126.14, 122.77, 122.46, 120.70 (q, $J_{C\text{-}F}$ = 323.5 Hz), 39.10, 23.38, 20.49.

^{19}F NMR (376 MHz, DMSO) δ -77.77.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}N_2O_4SI^+$ [M-OTf]$^+$ 537.0345, found 537.0337.

(5-Methyl-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ab)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.15 g, 73 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 171-173 °C.

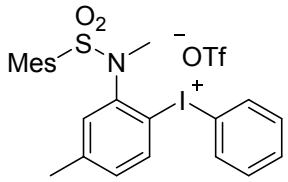
^{1}H NMR (400 MHz, DMSO) δ 8.21 (d, *J* = 7.5 Hz, 2H), 8.06 (d, *J* = 1.2 Hz, 1H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.58 (dd, *J* = 10.7, 4.8 Hz, 2H), 7.40 (dd, *J* = 8.1, 1.2 Hz, 1H), 7.10 (s, 2H), 6.94 (d, *J* = 8.1 Hz, 1H), 2.97 (s, 3H), 2.33 (s, 3H), 2.29 (s, 3H), 2.19 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.35, 142.06, 139.69, 138.79, 136.89, 135.73, 134.00, 132.50, 132.28, 131.79, 129.99, 128.59, 121.04, 120.68 (q, J_{C-F} = 323.7 Hz), 116.06, 39.17, 23.34, 20.48, 20.33.

^{19}F NMR (376 MHz, DMSO) δ -77.76.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{25}NO_2SI^+$ [M-OTf]$^+$ 506.0651, found 506.0636.

(4-Methyl-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ac)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.09 g, 71 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 169-171 °C.

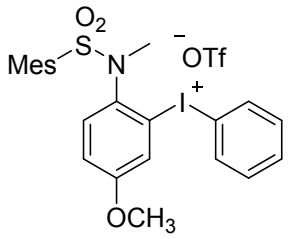
^{1}H NMR (400 MHz, DMSO) δ 8.19 (d, *J* = 8.0 Hz, 2H), 8.08 (d, *J* = 8.3 Hz, 1H), 7.70 (t, *J* = 7.4 Hz, 1H), 7.57 (dd, *J* = 10.8, 4.7 Hz, 2H), 7.34 (dd, *J* = 8.3, 1.3 Hz, 1H), 7.11 (s, 2H), 6.80 (d, *J* = 1.4 Hz, 1H), 2.97 (s, 3H), 2.30 (s, 3H), 2.18 (s, 6H), 2.18 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 144.23, 143.44, 141.25, 139.79, 136.54, 135.64, 132.42, 132.23, 131.75, 129.72, 129.69, 120.69 (q, J_{C-F} = 323.6 Hz), 117.58, 116.25, 39.20, 23.25, 20.47, 20.43.

^{19}F NMR (376 MHz, DMSO) δ -77.75.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{25}NO_2SI^+$ [M-OTf]$^+$ 506.0651, found 506.0659.

(5-Methoxy-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ad)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.48 g, 82 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 182-183 °C.

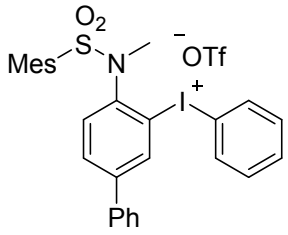
^{1}H NMR (400 MHz, DMSO) δ 8.24 (d, *J* = 8.3 Hz, 2H), 7.79 (d, *J* = 2.8 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.58 (dd, *J* = 10.8, 4.7 Hz, 2H), 7.14 (dd, *J* = 8.9, 2.8 Hz, 1H), 7.09 (s, 2H), 6.97 (d, *J* = 8.9 Hz, 1H), 3.78 (s, 3H), 2.96 (s, 3H), 2.28 (s, 3H), 2.21 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 160.07, 143.30, 139.67, 135.75, 133.69, 132.50, 132.35, 131.80, 130.11, 129.48, 122.21, 121.65, 120.70 (q, J_{C-F} = 323.6 Hz), 118.32, 116.22, 56.35, 39.31, 23.34, 20.49.

^{19}F NMR (376 MHz, DMSO) δ -77.75.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{25}NO_3SI^+$ [M-OTf]$^+$ 522.0600, found 522.0593.

Phenyl(4-((*N*,2,4,6-tetramethylphenyl)sulfonamido)-[1,1'-biphenyl]-3-yl)iodonium trifluoromethanesulfonate (1ae)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.77 g, 55 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 128-130 °C.

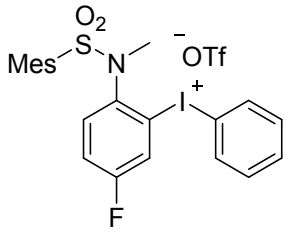
^{1}H NMR (400 MHz, DMSO) δ 8.58 (d, *J* = 2.1 Hz, 1H), 8.28 (dd, *J* = 8.3, 1.0 Hz, 2H), 7.91 (dd, *J* = 8.4, 2.1 Hz, 1H), 7.76 – 7.65 (m, 3H), 7.58 (dd, *J* = 10.7, 4.8 Hz, 2H), 7.55 – 7.49 (m, 2H), 7.49 – 7.42 (m, 1H), 7.14 (d, *J* = 8.4 Hz, 1H), 7.11 (s, 2H), 2.99 (s, 3H), 2.29 (s, 3H), 2.23 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.47, 142.83, 140.43, 139.78, 136.73, 135.77, 134.75, 132.59, 132.30, 131.80, 131.22, 129.92, 129.33, 129.16, 129.00, 126.95, 122.33, 120.72 (q, $J_{C\text{-}F}$ = 326.0 Hz), 116.56, 39.05, 23.37, 20.53.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{28}H_{27}NO_2SI^+$ [M-OTf]$^+$ 568.0807, found 568.0803.

(5-Fluoro-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1af)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.01 g, 68 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 190-192 °C.

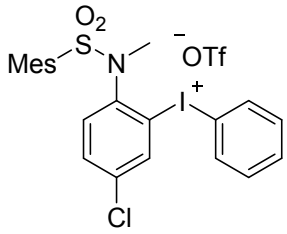
^{1}H NMR (400 MHz, DMSO) δ 8.29 – 8.16 (m, 3H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.59 (dd, *J* = 10.8, 4.7 Hz, 2H), 7.56 – 7.46 (m, 1H), 7.14 (dd, *J* = 9.0, 5.1 Hz, 1H), 7.11 (s, 2H), 2.95 (s, 3H), 2.29 (s, 3H), 2.20 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 161.22 (d, $J_{C\text{-}F}$ = 255.4 Hz), 143.52, 139.73, 138.08 (d, $J_{C\text{-}F}$ = 3.4 Hz), 135.79, 132.60, 132.45, 131.88, 130.42 (d, $J_{C\text{-}F}$ = 9.1 Hz), 129.72, 124.00 (d, $J_{C\text{-}F}$ = 26.1 Hz), 122.10 (d, $J_{C\text{-}F}$ = 8.1 Hz), 120.70 (q, $J_{C\text{-}F}$ = 323.6 Hz), 120.52 (d, $J_{C\text{-}F}$ = 22.5 Hz), 116.68, 39.18, 23.33, 20.51.

^{19}F NMR (376 MHz, DMSO) δ -77.76, -107.88.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}NO_2FSI^+$ [M-OTf]$^+$ 510.0400, found 510.0391.

(5-Chloro-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ag)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.04 g, 67 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 206-207 °C.

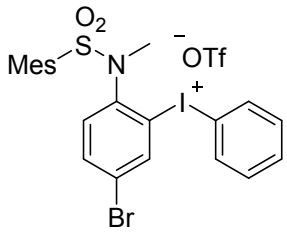
^{1}H NMR (400 MHz, DMSO) δ 8.39 (d, *J* = 2.4 Hz, 1H), 8.25 (d, *J* = 7.5 Hz, 2H), 7.71 (dt, *J* = 8.5, 4.9 Hz, 2H), 7.60 (t, *J* = 7.8 Hz, 2H), 7.11 (s, 2H), 7.10 (d, *J* = 8.7 Hz, 1H), 2.92 (s, 3H), 2.29 (s, 3H), 2.21 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.56, 140.55, 139.71, 136.24, 135.79, 134.84, 133.38, 132.61, 132.43, 131.85, 130.11, 129.65, 122.58, 120.69 (q, $J_{C\text{-}F}$ = 323.5 Hz), 116.75, 38.97, 23.35, 20.50.

^{19}F NMR (376 MHz, DMSO) δ -77.75.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}NO_2SClI^+$ [M-OTf]$^+$ 526.0105, found 526.0103.

(5-Bromo-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ah)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.20 g, 68 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 208-209 °C.

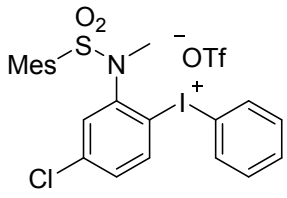
^{1}H NMR (400 MHz, DMSO) δ 8.49 (d, *J* = 2.2 Hz, 1H), 8.25 (d, *J* = 7.5 Hz, 2H), 7.81 (dd, *J* = 8.5, 2.2 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.60 (t, *J* = 7.8 Hz, 2H), 7.12 (s, 2H), 7.02 (d, *J* = 8.6 Hz, 1H), 2.92 (s, 3H), 2.29 (s, 3H), 2.21 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.56, 140.90, 139.71, 138.92, 136.31, 135.79, 132.62, 132.42, 131.84, 130.47, 129.65, 123.22, 122.93, 120.69 (q, $J_{C\text{-}F}$ = 323.7 Hz), 116.76, 38.90, 23.35, 20.50.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}NO_2SBrI^+$ [M-OTf]$^+$ 569.9599, found 569.9592.

(4-Chloro-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ai)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.07 g, 68 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 197-198 °C.

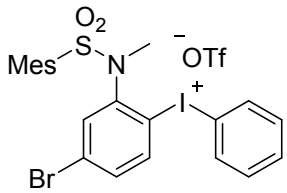
^{1}H NMR (400 MHz, DMSO) δ 8.23 (dd, *J* = 4.9, 3.9 Hz, 3H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.67 (dd, *J* = 8.7, 2.4 Hz, 1H), 7.59 (t, *J* = 7.8 Hz, 2H), 7.17 (d, *J* = 2.4 Hz, 1H), 7.14 (s, 2H), 2.97 (s, 3H), 2.30 (s, 3H), 2.20 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.69, 142.83, 139.85, 138.05, 137.98, 135.77, 132.58, 132.42, 131.87, 131.55, 129.40, 129.37, 120.70 (q, $J_{C\text{-}F}$ = 323.5 Hz), 119.80, 116.52, 38.90, 23.26, 20.50.

^{19}F NMR (376 MHz, DMSO) δ -77.75.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}NO_2SClI^+$ $[M\text{-}OTf]^+$ 526.0105, found 526.0103.

(4-Bromo-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1aj)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.17 g, 67 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 206-208 °C.

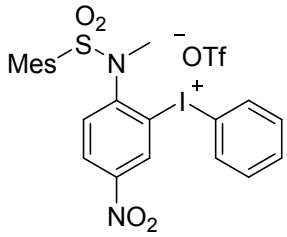
^{1}H NMR (400 MHz, DMSO) δ 8.26 – 8.17 (m, 2H), 8.13 (d, *J* = 8.6 Hz, 1H), 7.78 (dd, *J* = 8.6, 2.2 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.58 (t, *J* = 7.8 Hz, 2H), 7.22 (d, *J* = 2.2 Hz, 1H), 7.14 (s, 2H), 2.97 (s, 3H), 2.30 (s, 3H), 2.20 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.67, 142.72, 139.85, 138.10, 135.78, 134.45, 132.57, 132.41, 132.20, 131.86, 129.34, 126.48, 120.70 (q, $J_{C\text{-}F}$ = 323.4 Hz), 120.51, 116.49, 38.96, 23.26, 20.51.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}NO_2SBrI^+$ $[M\text{-}OTf]^+$ 569.9599, found 569.9587.

(5-Nitro-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ak)



Prepared according to the **general procedure** on 4.5 mmol scale and a light yellow powder (1.64 g, 53 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 206-208 °C.

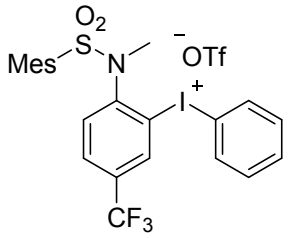
^{1}H NMR (400 MHz, DMSO) δ 9.08 (d, *J* = 2.5 Hz, 1H), 8.40 (dd, *J* = 8.8, 2.5 Hz, 1H), 8.27 (d, *J* = 7.7 Hz, 2H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.60 (t, *J* = 7.8 Hz, 2H), 7.39 (d, *J* = 8.8 Hz, 1H), 7.14 (s, 2H), 2.89 (s, 3H), 2.30 (s, 3H), 2.22 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 147.27, 147.20, 143.86, 139.82, 135.81, 132.76, 132.48, 132.08, 131.88, 129.57, 129.38, 128.17, 122.36, 120.69 (q, $J_{C\text{-}F}$ = 323.5 Hz), 117.15, 38.63, 23.45, 20.53.

^{19}F NMR (376 MHz, DMSO) δ -77.76.

HRMS m/z (ESI-TOF): calculated for $C_{22}H_{22}N_2O_4SI^+$ [M-OTf]$^+$ 537.0345, found 537.0331.

Phenyl(2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)-5-(trifluoromethyl)phenyl)iodonium trifluoromethanesulfonate (1al)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.04 g, 64 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 191-193 °C.

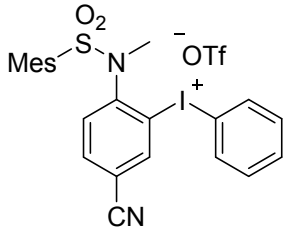
^{1}H NMR (400 MHz, DMSO) δ 8.70 (d, *J* = 1.5 Hz, 1H), 8.26 (d, *J* = 8.2 Hz, 2H), 8.03 (dd, *J* = 8.4, 1.6 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.60 (t, *J* = 7.8 Hz, 2H), 7.33 (d, *J* = 8.4 Hz, 1H), 7.14 (s, 2H), 2.91 (s, 3H), 2.30 (s, 3H), 2.20 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 145.53, 143.77, 139.76, 135.81, 134.20 (q, $J_{C\text{-}F}$ = 3.7 Hz), 132.73, 132.51, 131.89, 130.57, 129.82, 129.45, 122.58 (q, $J_{C\text{-}F}$ = 274.4 Hz), 122.32, 120.70 (q, $J_{C\text{-}F}$ = 323.7 Hz), 116.72, 38.69, 23.33, 20.51.

^{19}F NMR (376 MHz, DMSO) δ -61.14, -77.78.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{22}NO_2SF_3I^+$ [M-OTf]$^+$ 560.0368, found 560.0367.

(5-Cyano-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1am)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.89 g, 63 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 208-209 °C.

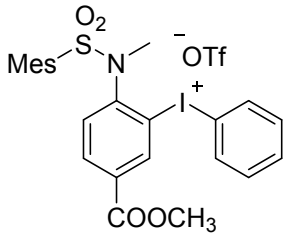
^{1}H NMR (400 MHz, DMSO) δ 8.83 (d, *J* = 1.8 Hz, 1H), 8.23 (d, *J* = 7.5 Hz, 2H), 8.12 (dd, *J* = 8.3, 1.9 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.59 (dd, *J* = 10.8, 4.8 Hz, 2H), 7.33 (d, *J* = 8.3 Hz, 1H), 7.12 (s, 2H), 2.91 (s, 3H), 2.29 (s, 3H), 2.19 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 145.87, 143.79, 140.79, 139.79, 137.30, 135.80, 132.72, 132.48, 131.90, 129.67, 129.42, 122.36, 120.70 (q, $J_{C\text{-}F}$ = 323.6 Hz), 116.92, 116.41, 113.44, 38.62, 23.38, 20.53.

^{19}F NMR (376 MHz, DMSO) δ -77.76.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{22}N_2O_2SI^+$ [M-OTf]$^+$ 517.0447, found 517.0442.

(5-(Methoxycarbonyl)-2-((*N*,2,4,6-tetramethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1an)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.17 g, 69 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 194-196 °C.

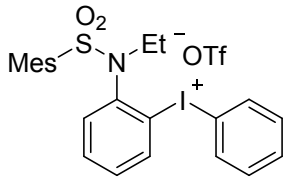
^{1}H NMR (400 MHz, DMSO) δ 8.74 (d, *J* = 1.9 Hz, 1H), 8.25 (d, *J* = 7.5 Hz, 2H), 8.08 (dd, *J* = 8.3, 1.9 Hz, 1H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.60 (t, *J* = 7.8 Hz, 2H), 7.23 (d, *J* = 8.3 Hz, 1H), 7.12 (s, 2H), 3.88 (s, 3H), 2.91 (s, 3H), 2.29 (s, 3H), 2.19 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 163.91, 145.60, 143.74, 139.78, 137.51, 135.87, 133.76, 132.69, 132.46, 131.88, 131.67, 129.42, 129.15, 121.83, 120.70 (q, J_{C-F} = 323.5 Hz), 116.51, 52.99, 38.71, 23.40, 20.53.

^{19}F NMR (376 MHz, DMSO) δ -77.77.

HRMS m/z (ESI-TOF): calculated for $C_{24}H_{25}NO_4SI^+$ [M-OTf]$^+$ 550.0549, found 550.0544.

(2-((*N*-Ethyl-2,4,6-trimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ba)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.77 g, 60 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 168-170 °C.

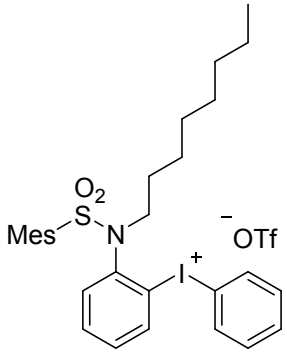
^{1}H NMR (400 MHz, DMSO) δ 8.26 (d, *J* = 7.5 Hz, 2H), 8.06 (dd, *J* = 8.0, 1.4 Hz, 1H), 7.77 (t, *J* = 7.4 Hz, 1H), 7.65 – 7.56 (m, 3H), 7.53 (td, *J* = 7.8, 1.5 Hz, 1H), 7.19 (dd, *J* = 7.9, 1.5 Hz, 1H), 7.08 (s, 2H), 4.06 (m, 1H), 3.59 (m, 1H), 2.28 (s, 3H), 2.16 (s, 6H), 0.92 (t, *J* = 7.1 Hz, 3H).

^{13}C NMR (101 MHz, DMSO) δ 143.57, 139.60, 138.09, 135.95, 135.84, 133.33, 132.80, 132.53, 132.23, 132.07, 130.29, 130.18, 122.42, 120.69 (q, J_{C-F} = 323.6 Hz), 116.15, 45.91, 23.10, 20.46, 12.98.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{25}NO_2SI^+$ [M-OTf]$^+$ 506.0651, found 506.0642.

Phenyl(2-((2,4,6-trimethyl-*N*-octylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1ca)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.83 g, 55 %) was obtained through the procedure of column chromatography.

M. p.: 45-47 °C.

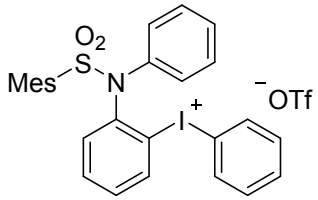
^{1}H NMR (400 MHz, $CDCl_3$) δ 8.04 – 7.91 (m, 2H), 7.68 (t, *J* = 7.5 Hz, 1H), 7.57 (dd, *J* = 8.2, 1.2 Hz, 1H), 7.51 (m, 3H), 7.42 – 7.35 (m, 1H), 7.06 (dd, *J* = 8.0, 1.4 Hz, 1H), 6.95 (s, 2H), 4.14 (ddd, *J* = 12.6, 9.8, 6.3 Hz, 1H), 3.45 – 3.29 (m, 1H), 2.31 (s, 3H), 2.18 (s, 6H), 1.39 – 1.31 (m, 2H), 1.30 – 1.17 (m, 10H), 0.84 (t, *J* = 6.8 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 144.50, 140.45, 139.23, 136.25, 134.51, 133.41, 133.22, 133.03, 132.61, 132.49, 130.30, 130.04, 121.64, 120.48 (q, $J_{C\text{-}F}$ = 321.4 Hz), 114.61, 51.91, 31.79, 29.20, 28.54, 26.93, 23.73, 22.67, 21.12, 14.16.

^{19}F NMR (376 MHz, $CDCl_3$) δ -78.24.

HRMS m/z (ESI-TOF): calculated for $C_{29}H_{37}NO_2SI^+$ [M-OTf]$^+$ 590.1590, found 590.1591.

Phenyl(2-((2,4,6-trimethyl-*N*-phenylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1da)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.80 g, 57 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 161-163 °C.

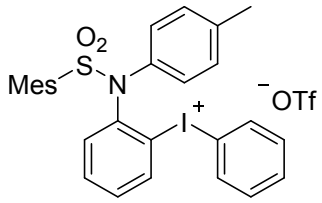
^{1}H NMR (400 MHz, DMSO) δ 8.47 (dd, *J* = 8.0, 1.2 Hz, 1H), 7.89 (d, *J* = 7.6 Hz, 2H), 7.71 (td, *J* = 7.7, 1.2 Hz, 1H), 7.57 (dt, *J* = 9.2, 4.3 Hz, 3H), 7.47 – 7.31 (m, 7H), 7.09 (s, 2H), 2.30 (s, 3H), 2.01 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.89, 140.17, 139.99, 139.40, 138.50, 134.75, 133.87, 132.42, 132.28, 132.12, 132.09, 131.91, 131.63, 129.53, 128.58, 128.21, 120.86, 120.71(q, $J_{C\text{-}F}$ = 323.4 Hz), 116.18, 22.87, 20.55.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{27}H_{25}NO_2SI^+$ [M-OTf]$^+$ 554.0651, found 554.0642.

Phenyl(2-((2,4,6-trimethyl-*N*-(*p*-tolyl)phenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1ea)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.00 g, 62 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 138-140 °C.

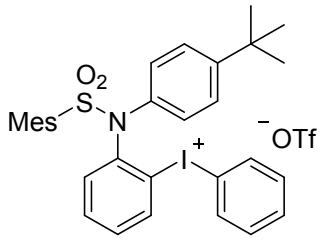
^{1}H NMR (400 MHz, DMSO) δ 8.43 (dd, *J* = 8.3, 1.3 Hz, 1H), 7.86 (d, *J* = 7.5 Hz, 2H), 7.75 – 7.65 (m, 1H), 7.65 – 7.52 (m, 3H), 7.41 (t, *J* = 7.9 Hz, 2H), 7.17 (m, 4H), 7.09 (s, 2H), 2.30 (s, 3H), 2.28 (s, 3H), 2.03 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.83, 140.48, 139.99, 138.48, 137.95, 136.86, 134.63, 133.82, 132.38, 132.19, 132.06, 131.92, 131.67, 131.57, 129.95, 128.52, 120.72, 120.70 (q, $J_{C\text{-}F}$ = 323.7 Hz), 116.23, 22.93, 20.55, 20.51.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{28}H_{27}NO_2SI^+$ [M-OTf]$^+$ 568.0807, found 568.0813.

(2-((*N*-(4-(*tert*-Butyl)phenyl)-2,4,6-trimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1fa)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.88 g, 55 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 165-167 °C.

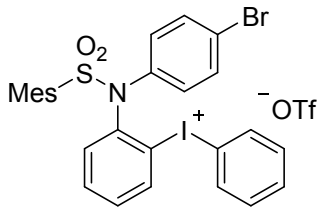
^{1}H NMR (400 MHz, DMSO) δ 8.45 (dd, *J* = 8.0, 1.3 Hz, 1H), 7.84 (d, *J* = 7.5 Hz, 2H), 7.72 (td, *J* = 7.7, 1.3 Hz, 1H), 7.64 – 7.49 (m, 3H), 7.39 (dd, *J* = 12.4, 5.4 Hz, 4H), 7.28 (d, *J* = 8.7 Hz, 2H), 7.08 (s, 2H), 2.30 (s, 3H), 2.01 (s, 6H), 1.26 (s, 9H).

^{13}C NMR (101 MHz, DMSO) δ 150.94, 143.80, 140.34, 139.97, 138.45, 136.74, 134.66, 133.86, 132.37, 132.18, 132.09, 131.75, 131.60, 128.21, 126.23, 120.76, 120.70 (q, $J_{C\text{-}F}$ = 323.6 Hz), 116.11, 34.37, 30.97, 22.80, 20.54.

^{19}F NMR (376 MHz, DMSO) δ -77.72.

HRMS m/z (ESI-TOF): calculated for $C_{31}H_{33}NO_2SI^+$ [M-OTf]$^+$ 610.1277, found 610.1254.

(2-((*N*-(4-Bromophenyl)-2,4,6-trimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ga)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.04 g, 58 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 178-180 °C.

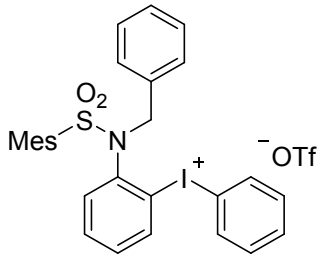
^{1}H NMR (400 MHz, DMSO) δ 8.54 (dd, *J* = 8.0, 1.3 Hz, 1H), 7.88 (d, *J* = 7.6 Hz, 2H), 7.72 (td, *J* = 7.7, 1.4 Hz, 1H), 7.66 – 7.56 (m, 2H), 7.52 (t, *J* = 5.9 Hz, 2H), 7.46 (dd, *J* = 7.9, 1.4 Hz, 1H), 7.40 (t, *J* = 7.9 Hz, 2H), 7.26 (t, *J* = 5.9 Hz, 2H), 7.09 (s, 2H), 2.30 (s, 3H), 2.02 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 144.06, 139.99, 139.62, 139.10, 138.83, 134.49, 133.99, 132.48, 132.33, 132.03, 131.95, 131.81, 131.48, 130.13, 120.97, 120.78, 120.70 (q, J_{C-F} = 323.7 Hz), 116.00, 22.86, 20.57.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{27}H_{24}NO_2SBrI^+$ $[M\text{-}OTf]^+$ 631.9756, found 631.9762.

(2-((*N*-Benzyl-2,4,6-trimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ha)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.97 g, 61 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 203-205 °C.

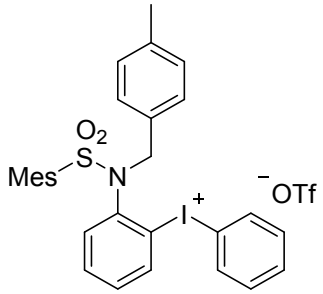
^{1}H NMR (400 MHz, DMSO) δ 7.74 – 7.64 (m, 2H), 7.57 – 7.49 (m, 4H), 7.50 – 7.45 (m, 2H), 7.43 – 7.35 (m, 4H), 7.35 – 7.29 (m, 2H), 7.12 (s, 2H), 5.44 (d, *J* = 13.0 Hz, 1H), 4.77 (d, *J* = 13.0 Hz, 1H), 2.30 (s, 3H), 2.20 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.87, 139.72, 137.55, 135.46, 134.86, 134.51, 132.95, 132.77, 132.64, 132.22, 131.95, 130.64, 130.15, 128.87, 128.57, 122.60, 120.70 (q, J_{C-F} = 323.5 Hz), 116.37, 54.70, 23.08, 20.48.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{28}H_{27}NO_2SI^+$ $[M\text{-}OTf]^+$ 568.0807, found 568.0800.

Phenyl(2-((2,4,6-trimethyl-*N*-(4-methylbenzyl)phenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1ia)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.84 g, 56 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 195-196 °C.

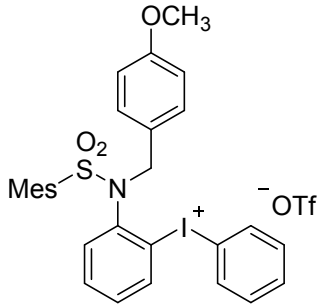
^{1}H NMR (400 MHz, DMSO) δ 7.71 (ddd, *J* = 14.3, 8.9, 6.0 Hz, 2H), 7.60 – 7.52 (m, 1H), 7.52 – 7.44 (m, 5H), 7.44 – 7.35 (m, 1H), 7.23 – 7.15 (m, 4H), 7.12 (s, 2H), 5.41 (d, *J* = 13.0 Hz, 1H), 4.72 (d, *J* = 12.9 Hz, 1H), 2.30 (s, 3H), 2.29 (s, 3H), 2.19 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 143.85, 139.69, 138.10, 137.56, 135.43, 134.90, 133.05, 132.89, 132.64, 132.29, 131.99, 131.43, 130.71, 130.22, 130.19, 129.38, 122.41, 120.70 (q, $J_{C\text{-}F}$ = 323.7 Hz), 116.19, 54.54, 23.09, 20.71, 20.51.

^{19}F NMR (376 MHz, DMSO) δ -77.75.

HRMS m/z (ESI-TOF): calculated for $C_{29}H_{29}NO_2SI^+$ [M-OTf]$^+$ 582.0964, found 582.0958.

(2-((*N*-(4-Methoxybenzyl)-2,4,6-trimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1ja)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.02 g, 60 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 175-177 °C.

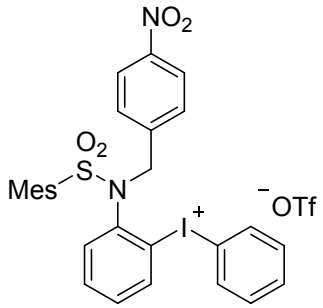
^{1}H NMR (400 MHz, DMSO) δ 7.72 (t, *J* = 7.4 Hz, 2H), 7.57 (m, 3H), 7.52 – 7.37 (m, 4H), 7.22 (d, *J* = 8.5 Hz, 2H), 7.12 (s, 2H), 6.91 (d, *J* = 8.5 Hz, 2H), 5.38 (d, *J* = 12.9 Hz, 1H), 4.71 (d, *J* = 13.0 Hz, 1H), 3.72 (s, 3H), 2.30 (s, 3H), 2.18 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 159.40, 143.85, 139.70, 137.59, 135.50, 134.95, 133.04, 132.94, 132.66, 132.28, 131.94, 131.57, 130.79, 130.24, 126.35, 122.61, 120.71 (q, $J_{C\text{-}F}$ = 323.5 Hz), 116.29, 114.16, 55.25, 54.24, 23.12, 20.53.

^{19}F NMR (376 MHz, DMSO) δ -77.77.

HRMS m/z (ESI-TOF): calculated for $C_{29}H_{29}NO_3SI^+$ [M-OTf]$^+$ 598.0913, found 598.0926.

Phenyl(2-((2,4,6-trimethyl-*N*-(4-nitrobenzyl)phenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1ka)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.30 g, 67 %) was obtained through the procedure of column chromatography.

M. p.: 216-218 °C.

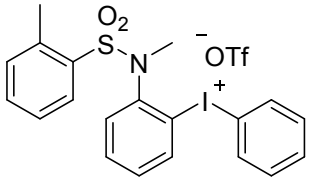
^{1}H NMR (400 MHz, DMSO) δ 8.21 (d, *J* = 8.7 Hz, 2H), 7.89 – 7.82 (m, 1H), 7.77 – 7.67 (m, 3H), 7.64 (d, *J* = 8.6 Hz, 2H), 7.60 – 7.51 (m, 1H), 7.51 – 7.39 (m, 4H), 7.13 (s, 2H), 5.49 (d, *J* = 13.4 Hz, 1H), 4.96 (d, *J* = 13.4 Hz, 1H), 2.30 (s, 3H), 2.19 (s, 6H).

^{13}C NMR (101 MHz, DMSO) δ 147.40, 144.14, 142.07, 139.91, 137.56, 135.48, 135.16, 133.22, 132.91, 132.75, 132.39, 131.99, 131.28, 130.47, 129.61, 123.91, 121.49, 120.70 (q, J_{C-F} = 323.6 Hz), 116.08, 53.46, 23.12, 20.52.

^{19}F NMR (376 MHz, DMSO) δ -77.75.

HRMS m/z (ESI-TOF): calculated for $C_{28}H_{26}N_2O_4SI^+$ [M-OTf]$^+$ 613.0658, found 613.0655.

(2-((*N*,2-Dimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1f)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.74 g, 63 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 151-152 °C.

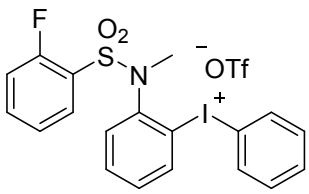
^{1}H NMR (400 MHz, DMSO) δ 8.33 – 8.17 (m, 3H), 7.72 (t, *J* = 7.4 Hz, 2H), 7.67 (t, *J* = 7.6 Hz, 1H), 7.58 (m, 3H), 7.51 (m, 3H), 6.92 (dd, *J* = 7.7, 1.7 Hz, 1H), 2.93 (s, 3H), 2.12 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.30, 137.93, 137.05, 135.79, 134.18, 133.55, 133.37, 133.16, 132.29, 131.78, 131.70, 130.48, 128.35, 126.97, 121.80, 120.69 (q, J_{C-F} = 323.7 Hz), 116.30, 39.10, 20.70.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{20}H_{19}NO_2SI^+$ [M-OTf]$^+$ 464.0181, found 464.0168.

(2-((2-Fluoro-*N*-methylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1g)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.17 g, 78 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 126-127 °C.

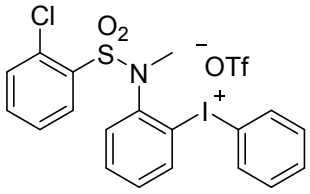
^{1}H NMR (400 MHz, DMSO) δ 8.37 (d, *J* = 7.9 Hz, 1H), 8.23 (d, *J* = 7.9 Hz, 2H), 7.87 (ddd, *J* = 8.2, 6.1, 1.6 Hz, 1H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.66 – 7.49 (m, 6H), 7.45 (t, *J* = 7.6 Hz, 1H), 7.10 (d, *J* = 7.8 Hz, 1H), 2.96 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 158.35 (d, J_{C-F} = 256.9 Hz), 141.23, 137.56, 137.31 (d, J_{C-F} = 8.6 Hz), 135.78, 133.88, 132.28, 131.88, 131.78, 131.56, 128.43, 125.46 (d, J_{C-F} = 3.2 Hz), 122.88 (d, J_{C-F} = 14.0 Hz), 121.88, 120.71 (q, J_{C-F} = 323.6 Hz), 118.16 (d, J_{C-F} = 21.9 Hz), 116.24, 38.89.

^{19}F NMR (376 MHz, DMSO) δ -77.74, -106.61.

HRMS m/z (ESI-TOF): calculated for $C_{19}H_{16}NO_2FSI^+$ [M-OTf]$^+$ 467.9931, found 467.9939.

(2-((2-Chloro-*N*-methylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1h)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.00 g, 70 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 143-145 °C.

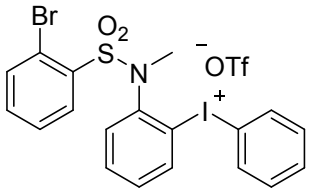
^{1}H NMR (400 MHz, DMSO) δ 8.33 (dd, *J* = 7.9, 1.3 Hz, 1H), 8.23 (d, *J* = 7.5 Hz, 2H), 7.82 – 7.74 (m, 3H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.64 – 7.56 (m, 4H), 7.53 (td, *J* = 7.8, 1.4 Hz, 1H), 7.12 (dd, *J* = 7.8, 1.3 Hz, 1H), 3.05 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.11, 137.42, 135.75, 133.81, 133.27, 132.92, 132.71, 132.32, 131.90, 131.81, 131.43, 129.16, 128.19, 121.48, 120.71 (q, J_{C-F} = 323.6 Hz), 116.28, 39.41.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{19}H_{16}NO_2ClSI^+$ [M-OTf]$^+$ 483.9635, found 483.9638.

(2-((2-Bromo-*N*-methylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1i)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.83 g, 60 %) was obtained through the procedure of column chromatography.

M. p.: 129-131 °C.

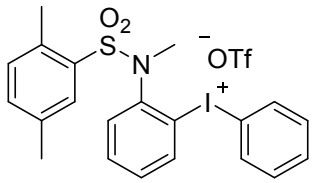
^{1}H NMR (400 MHz, DMSO) δ 8.31 (dd, *J* = 8.0, 1.4 Hz, 1H), 8.26 – 8.20 (m, 2H), 7.94 (dd, *J* = 7.6, 1.5 Hz, 1H), 7.80 (dd, *J* = 7.6, 2.0 Hz, 1H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.69 – 7.61 (m, 2H), 7.61 – 7.56 (m, 3H), 7.53 (td, *J* = 7.7, 1.6 Hz, 1H), 7.10 (dd, *J* = 7.9, 1.5 Hz, 1H), 3.08 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.11, 137.34, 136.48, 135.71, 135.54, 135.04, 133.81, 132.78, 132.30, 131.90, 131.79, 129.26, 128.64, 121.34, 120.69 (q, J_{C-F} = 323.4 Hz), 119.82, 116.22, 40.00.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{19}H_{16}NO_2BrSI^+$ $[M\text{-}OTf]^+$ 527.9130, found 527.9133.

Phenyl(2-((*N*,2,5-trimethylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1j)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.64 g, 58 %) was obtained through the procedure of column chromatography.

M. p.: 153-154 °C.

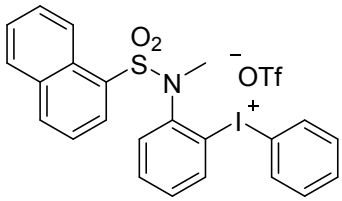
^{1}H NMR (400 MHz, DMSO) δ 8.25 (t, *J* = 7.6 Hz, 3H), 7.72 (t, *J* = 7.4 Hz, 1H), 7.59 (t, *J* = 7.9 Hz, 3H), 7.51 (m, 3H), 7.32 (d, *J* = 7.7 Hz, 1H), 6.92 (d, *J* = 7.7 Hz, 1H), 2.92 (s, 3H), 2.35 (s, 3H), 2.03 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.35, 136.97, 136.52, 135.84, 134.85, 133.51, 133.26, 132.71, 132.36, 131.83, 131.71, 130.54, 128.35, 121.59, 120.70 (q, $J_{C\text{-}F}$ = 323.4 Hz), 116.14, 39.10, 20.36, 20.24.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{21}H_{21}NO_2SI^+$ $[M\text{-}OTf]^+$ 478.0338, found 478.0340.

(2-(*N*-Methylnaphthalene-1-sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1k)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.58 g, 54 %) was obtained through the procedure of column chromatography.

M. p.: 138-140 °C.

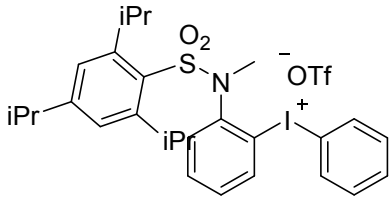
^{1}H NMR (400 MHz, DMSO) δ 8.40 (d, *J* = 8.2 Hz, 1H), 8.34 (dd, *J* = 8.1, 1.2 Hz, 1H), 8.26 (d, *J* = 7.5 Hz, 2H), 8.18 (d, *J* = 8.8 Hz, 1H), 8.13 (d, *J* = 8.1 Hz, 1H), 8.08 (dd, *J* = 7.5, 1.0 Hz, 1H), 7.73 (td, *J* = 7.7, 3.0 Hz, 2H), 7.69 – 7.54 (m, 3H), 7.53 – 7.43 (m, 2H), 7.34 (td, *J* = 7.8, 1.3 Hz, 1H), 6.70 (dd, *J* = 8.0, 1.3 Hz, 1H), 2.91 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.27, 137.28, 135.85, 135.81, 134.05, 133.37, 132.34, 131.84, 131.77, 131.68, 130.47, 129.21, 129.01, 128.48, 128.12, 127.13, 124.74, 124.53, 121.72, 120.71 (q, $J_{C\text{-}F}$ = 323.4 Hz), 116.13, 39.10.

^{19}F NMR (376 MHz, DMSO) δ -77.71.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{19}NO_2SI^+$ $[M\text{-}OTf]^+$ 500.0181, found 500.0180.

Phenyl(2-((2,4,6-triisopropyl-*N*-methylphenyl)sulfonamido)phenyl)iodonium trifluoromethanesulfonate (1l)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.73 g, 53 %) was obtained through the procedure of column chromatography.

M. p.: 183-185 °C.

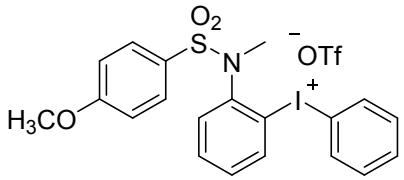
^{1}H NMR (400 MHz, $CDCl_3$) δ 8.20 – 8.08 (m, 2H), 7.74 (dd, *J* = 8.2, 1.2 Hz, 1H), 7.67 (t, *J* = 7.5 Hz, 1H), 7.56 – 7.44 (m, 3H), 7.38 – 7.30 (m, 1H), 7.15 (s, 2H), 7.07 (dd, *J* = 8.0, 1.4 Hz, 1H), 3.38 (s, 3H), 3.37 – 3.30 (m, 2H), 2.89 (m, 1H), 1.25 (s, 3H), 1.23 (s, 3H), 1.17 (s, 3H), 1.15 (s, 3H), 0.97 (s, 3H), 0.96 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 154.55, 151.86, 141.58, 136.51, 135.15, 133.70, 133.13, 132.54, 132.10, 128.86, 128.61, 124.77, 120.48 (q, J_{C-F} = 321.6 Hz), 120.19, 114.79, 39.31, 34.24, 30.89, 25.42, 24.82, 23.54.

^{19}F NMR (376 MHz, $CDCl_3$) δ -78.24.

HRMS m/z (ESI-TOF): calculated for $C_{28}H_{35}NO_2SI^+$ [M-OTf]$^+$ 576.1433, found 576.1434.

(2-((4-Methoxy-*N*-methylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1m)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.07 g, 73 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 144-145 °C.

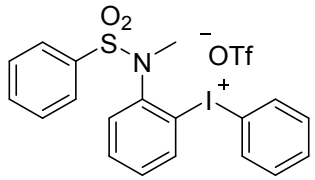
^{1}H NMR (400 MHz, DMSO) δ 8.31 (d, *J* = 8.0 Hz, 1H), 8.23 (d, *J* = 8.3 Hz, 2H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.65 – 7.43 (m, 6H), 7.20 (t, *J* = 5.9 Hz, 2H), 6.94 – 6.80 (m, 1H), 3.88 (s, 3H), 2.85 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 163.52, 141.89, 137.11, 135.79, 133.71, 132.22, 131.74, 131.58, 130.49, 127.88, 125.94, 122.28, 120.69 (q, J_{C-F} = 322.1 Hz), 116.18, 114.81, 55.87, 38.89.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{20}H_{19}NO_3SI^+$ [M-OTf]$^+$ 480.0130, found 480.0115.

(2-(*N*-Methylphenylsulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1n)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.48 g, 55 %) was obtained through the procedure of column chromatography.

M. p.: 177-179 °C.

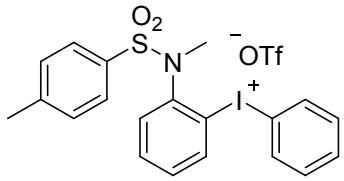
^{1}H NMR (400 MHz, DMSO) δ 8.35 (d, *J* = 7.8 Hz, 1H), 8.23 (d, *J* = 7.8 Hz, 2H), 7.83 (t, *J* = 7.1 Hz, 1H), 7.73 – 7.67 (m, 3H), 7.64 (d, *J* = 7.6 Hz, 2H), 7.61 – 7.48 (m, 4H), 6.82 (d, *J* = 7.9 Hz, 1H), 2.88 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.67, 137.33, 135.76, 134.59, 134.29, 133.75, 132.22, 131.73, 129.69, 129.45, 128.15, 127.92, 127.60, 122.24, 120.70 (q, J_{C-F} = 323.7 Hz), 116.28, 39.04.

^{19}F NMR (376 MHz, DMSO) δ -77.72.

HRMS m/z (ESI-TOF): calculated for $C_{19}H_{17}NO_2SI^+$ [M-OTf]$^+$ 450.0025, found 450.0026.

(2-((*N*,4-Dimethylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1o)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.23 g, 81 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 127-129 °C.

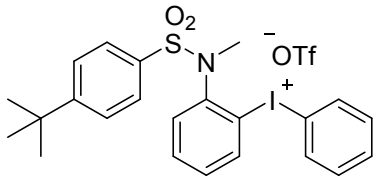
^{1}H NMR (400 MHz, DMSO) δ 8.33 (dd, *J* = 8.0, 1.0 Hz, 1H), 8.23 (d, *J* = 7.8 Hz, 2H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.64 – 7.56 (m, 3H), 7.55 – 7.46 (m, 5H), 6.85 (dd, *J* = 7.9, 1.4 Hz, 1H), 2.86 (s, 3H), 2.44 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 144.89, 141.79, 137.25, 135.80, 133.78, 132.28, 131.77, 131.69, 131.67, 130.12, 128.23, 127.91, 122.06, 120.70 (q, J_{C-F} = 323.5 Hz), 116.08, 38.95, 21.15.

^{19}F NMR (376 MHz, DMSO) δ -77.73.

HRMS m/z (ESI-TOF): calculated for $C_{20}H_{19}NO_2SI^+$ [M-OTf]$^+$ 464.0181, found 464.0184.

(2-((4-(*tert*-Butyl)-*N*-methylphenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1p)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.80 g, 61 %) was obtained through the procedure of column chromatography.

M. p.: 78-80 °C.

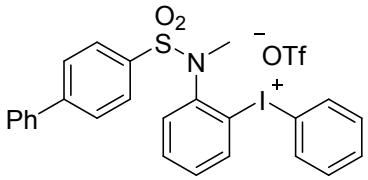
^{1}H NMR (400 MHz, $CDCl_3$) δ 8.12 (dd, *J* = 8.4, 0.9 Hz, 2H), 7.71 (dd, *J* = 8.2, 1.3 Hz, 1H), 7.69 – 7.62 (m, 1H), 7.56 – 7.48 (m, 4H), 7.48 – 7.43 (m, 3H), 7.41 – 7.31 (m, 1H), 6.79 (dd, *J* = 8.0, 1.5 Hz, 1H), 3.21 (s, 3H), 1.33 (s, 9H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 158.73, 141.57, 136.56, 134.95, 133.47, 133.20, 132.58, 132.23, 130.52, 128.61, 127.56, 126.52, 120.48 (q, J_{C-F} = 321.5 Hz), 119.97, 114.17, 39.22, 35.51, 31.10.

^{19}F NMR (376 MHz, $CDCl_3$) δ -78.21.

HRMS m/z (ESI-TOF): calculated for $C_{23}H_{25}NO_2SI^+$ [M-OTf]$^+$ 506.0651, found 506.0656.

(2-(*N*-Methyl-[1,1'-biphenyl]-4-sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1q)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.76 g, 58 %) was obtained through the procedure of column chromatography.

M. p.: 147-149 °C.

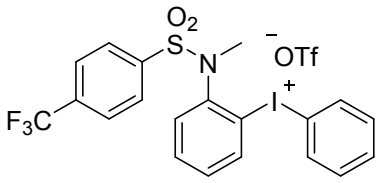
^{1}H NMR (400 MHz, DMSO) δ 8.37 (dd, *J* = 8.0, 1.3 Hz, 1H), 8.25 (d, *J* = 7.5 Hz, 2H), 8.00 (d, *J* = 8.6 Hz, 2H), 7.85 – 7.75 (m, 2H), 7.72 (t, *J* = 7.4 Hz, 3H), 7.66 – 7.57 (m, 3H), 7.55 (ddd, *J* = 7.7, 3.4, 1.6 Hz, 3H), 7.50 – 7.44 (m, 1H), 6.96 (dd, *J* = 7.9, 1.5 Hz, 1H), 2.91 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 145.44, 141.75, 137.97, 137.37, 135.79, 133.88, 133.32, 132.27, 131.78, 131.74, 129.24, 128.93, 128.91, 128.07, 127.68, 127.18, 122.13, 120.71 (q, $J_{C\text{-}F}$ = 323.6 Hz), 116.15, 39.04.

^{19}F NMR (376 MHz, DMSO) δ -77.72.

HRMS m/z (ESI-TOF): calculated for $C_{25}H_{21}NO_2SI^+$ [M-OTf]$^+$ 526.0338, found 526.0335.

(2-((*N*-Methyl-4-(trifluoromethyl)phenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1r)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (1.62 g, 54 %) was obtained through the procedure of column chromatography.

M. p.: 154-155 °C.

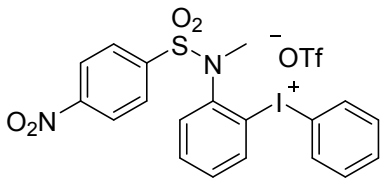
^{1}H NMR (400 MHz, DMSO) δ 8.41 (dd, *J* = 7.9, 1.0 Hz, 1H), 8.24 (d, *J* = 7.7 Hz, 2H), 8.07 (d, *J* = 8.4 Hz, 2H), 7.87 (d, *J* = 8.2 Hz, 2H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.66 – 7.50 (m, 4H), 6.98 (dd, *J* = 7.8, 1.4 Hz, 1H), 2.92 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 141.40, 138.67, 137.64, 135.75, 134.06, 133.60 (q, $J_{C\text{-}F}$ = 32.5 Hz), 132.28, 131.93, 131.77, 129.26, 128.23, 126.92 (q, $J_{C\text{-}F}$ = 3.5 Hz), 123.38 (q, $J_{C\text{-}F}$ = 274.3 Hz), 122.03, 120.70 (q, $J_{C\text{-}F}$ = 323.6 Hz), 116.22, 39.10.

^{19}F NMR (376 MHz, DMSO) δ -61.71, -77.76.

HRMS m/z (ESI-TOF): calculated for $C_{20}H_{16}NO_2SF_3I^+$ [M-OTf]$^+$ 517.9899, found 517.9899.

(2-((*N*-Methyl-4-nitrophenyl)sulfonamido)phenyl)(phenyl)iodonium trifluoromethanesulfonate (1s)



Prepared according to the **general procedure** on 4.5 mmol scale and a white powder (2.03 g, 70 %) was obtained through the procedure of trituration with diethyl ether.

M. p.: 165-166 °C.

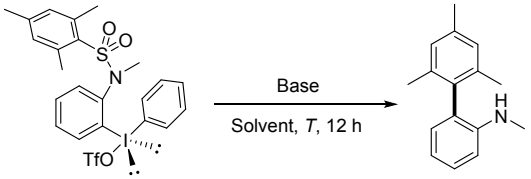
^{1}H NMR (400 MHz, DMSO) δ 8.47 (d, *J* = 8.9 Hz, 2H), 8.42 (dd, *J* = 7.8, 1.5 Hz, 1H), 8.23 (d, *J* = 7.9 Hz, 2H), 7.91 (d, *J* = 8.9 Hz, 2H), 7.71 (t, *J* = 7.4 Hz, 1H), 7.65 – 7.52 (m, 4H), 6.96 (dd, *J* = 7.7, 1.6 Hz, 1H), 2.93 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 150.56, 141.24, 140.04, 137.67, 135.69, 134.05, 132.21, 131.98, 131.72, 129.86, 129.13, 128.27, 124.92, 124.80, 122.16, 120.68 (q, J_{C-F} = 323.6 Hz), 116.41, 39.21.

^{19}F NMR (376 MHz, DMSO) δ -77.74.

HRMS m/z (ESI-TOF): calculated for $C_{19}H_{16}N_2O_4SI^+$ [M-OTf]$^+$ 494.9876, found 494.9866.

Part 3. Optimization of Desulfonylative *ipso*-Substitution Cascade reaction [a]



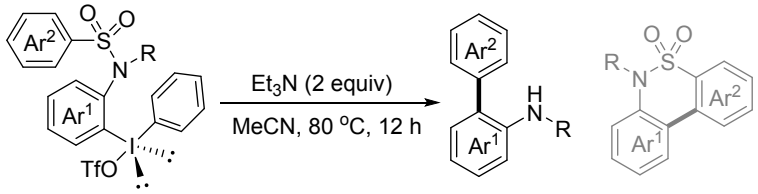
1a **2aa**

Entry	Base	Solvent	*T* [°C]	Yield [%][b]
1	Morpholine	MeCN	50	11
2	4-Methylmorpholine	MeCN	50	6
3	DIPEA	MeCN	50	68
4	Et_3N	MeCN	50	70
5	1-Ethylpiperidine	MeCN	50	39
6	DBU	MeCN	50	Trace
7	DMAP	MeCN	50	n. r.
8	Pyridine	MeCN	50	n. r.
9	$NH_3·H_2O$	MeCN	50	n. r.
10	Na_2CO_3	MeCN	50	n. r.
11	Cs_2CO_3	MeCN	50	Trace
12	KOH	MeCN	50	8
13	K_3PO_4	MeCN	50	5
14	KO*t*Bu	MeCN	50	6
15	Et_3N	Toluene	50	21
16	Et_3N	DCE	50	45
17	Et_3N	DMF	50	42
18	Et_3N	DMSO	50	39
19	Et_3N	THF	50	42
20	Et_3N	1,4-Dioxane	50	60
21	Et_3N	$CHCl_3$	50	23
22	Et_3N	TFE	50	n. r.
23	Et_3N	MeOH	50	Trace
24	Et_3N	H_2O	50	n. r.
25	Et_3N	MeCN	80	86 (80[c])

26	/	MeCN	80	n. r.
27[d]	Et_3N	MeCN	80	34
28[e]	Et_3N	MeCN	80	49

[a] Reaction conditions: **1a** (0.3 mmol), base (2 equiv.) in 5 mL solvent, temperature (see table). [b] Isolated yield. [c] 5.0 mmol scale. [d] 1.2 equiv. of base was used. [e] 1.5 equiv. of base was used. n. r. = no reaction. OTf = triflate. DCE = 1,2-dichloroethane, DMF = *N*, *N*-dimethylformamide, DMSO = dimethylsulfoxide, THF = tetrahydrofuran, TFE = 2,2,2-trifluoroethanol.

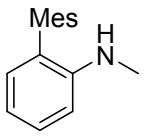
Part 4. Synthesis and Characterization of Products from Desulfonylative Cascade Reactions.



General procedure:

To a Schlenk tube was added iodonium salts (0.3 mmol, 1 equiv.) and the tube was degassed with argon for three times. Acetonitrile (5 mL) and Et_3N (0.6 mmol, 2.0 equiv.) was added via syringe, and the mixture was stirred at 80 °C in an oil bath for 12 h. The solvent was evaporated under vacuum. The crude products were purified using flash column chromatography on silica gel to afford the desired products.

_N_,2',4',6'-Tetramethyl-[1,1'-biphenyl]-2-amine (2aa)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 86% (58 mg) as a white solid.

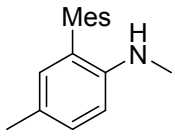
M. p.: 45-46 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.31 – 7.26 (m, 1H), 6.99 (s, 2H), 6.90 (dd, *J* = 7.3, 1.6 Hz, 1H), 6.78 (td, *J* = 7.3, 1.0 Hz, 1H), 6.71 (d, *J* = 8.1 Hz, 1H), 3.32 (br, 1H), 2.78 (s, 3H), 2.35 (s, 3H), 2.00 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.39, 137.48, 137.13, 134.94, 129.57, 128.58, 128.35, 125.99, 116.96, 109.59, 30.83, 21.22, 20.24.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{19}N$ $[M]^+$ 225.1517, found 225.1519.

_N_,2',4',5,6'-Pentamethyl-[1,1'-biphenyl]-2-amine (2ab)



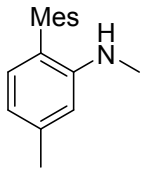
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 72% (52 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.10 (dd, *J* = 8.2, 1.6 Hz, 1H), 6.98 (s, 2H), 6.73 (d, *J* = 2.0 Hz, 1H), 6.64 (d, *J* = 8.2 Hz, 1H), 3.18 (br, 1H), 2.77 (s, 3H), 2.35 (s, 3H), 2.29 (s, 3H), 2.01 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 144.24, 137.38, 136.98, 135.11, 130.20, 128.66, 128.52, 126.15, 126.02, 109.86, 31.20, 21.20, 20.61, 20.29.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{21}N$ $[M]^+$ 239.1674, found 239.1673.

***N*,2',4,4',6'-Pentamethyl-[1,1'-biphenyl]-2-amine (2ac)**



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 89% (64 mg) as a white solid.

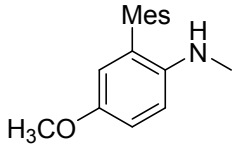
M. p.: 43-45 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 6.97 (s, 2H), 6.78 (d, *J* = 7.4 Hz, 1H), 6.60 (d, *J* = 7.5 Hz, 1H), 6.53 (s, 1H), 3.26 (br, 1H), 2.77 (s, 3H), 2.39 (s, 3H), 2.34 (s, 3H), 2.00 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.25, 138.00, 137.68, 136.99, 134.96, 129.39, 128.53, 123.20, 117.75, 110.53, 30.85, 21.97, 21.21, 20.31.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{21}N$ $[M]^+$ 239.1674, found 239.1678.

5-Methoxy-*N*,2',4',6'-tetramethyl-[1,1'-biphenyl]-2-amine (2ad)



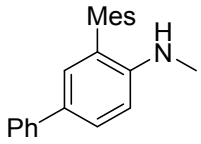
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 83% (63 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 6.97 (s, 2H), 6.87 (dd, *J* = 8.7, 3.0 Hz, 1H), 6.66 (d, *J* = 8.8 Hz, 1H), 6.55 (d, *J* = 3.0 Hz, 1H), 3.76 (s, 3H), 3.02 (br, 1H), 2.75 (s, 3H), 2.34 (s, 3H), 2.00 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 151.76, 140.96, 137.29, 137.24, 134.81, 128.57, 127.34, 115.80, 113.29, 110.89, 55.88, 31.71, 21.19, 20.21.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{21}NO$ $[M]^+$ 255.1623, found 255.1622.

***N*,2'',4'',6''-Tetramethyl-[1,1':3',1''-terphenyl]-4'-amine (2ae)**



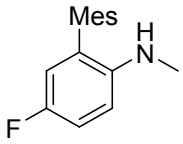
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 74% (67 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.66 – 7.53 (m, 3H), 7.45 – 7.33 (m, 2H), 7.25 (m, 2H), 7.00 (s, 2H), 6.77 (d, *J* = 8.4 Hz, 1H), 3.41 (br, 1H), 2.82 (s, 3H), 2.36 (s, 3H), 2.04 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.90, 141.40, 137.53, 137.30, 134.78, 129.64, 128.77, 128.65, 128.16, 126.84, 126.32, 126.22, 125.99, 109.88, 30.83, 21.23, 20.33.

HRMS m/z (EI-TOF): calculated for $C_{22}H_{23}N$ $[M]^+$ 301.1830, found 301.1829.

5-Fluoro-*N*,2',4',6'-tetramethyl-[1,1'-biphenyl]-2-amine (2af)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 41% (30 mg) as a white solid.

M. p.: 67-69 °C.

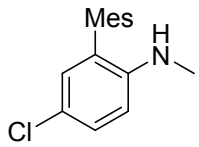
^{1}H NMR (400 MHz, $CDCl_3$) δ 7.03 – 6.90 (m, 3H), 6.67 (dd, *J* = 9.0, 3.0 Hz, 1H), 6.60 (dd, *J* = 8.9, 4.7 Hz, 1H), 3.16 (br, 1H), 2.75 (s, 3H), 2.34 (s, 3H), 1.99 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 155.60 (d, J_{C-F} = 235.4 Hz), 142.93 (d, J_{C-F} = 1.5 Hz), 137.54, 137.22, 133.89, 128.69, 127.11 (d, J_{C-F} = 7.3 Hz), 116.31 (d, J_{C-F} = 22.0 Hz), 114.31 (d, J_{C-F} = 21.8 Hz), 110.21 (d, J_{C-F} = 7.9 Hz), 31.36, 21.21, 20.12.

^{19}F NMR (376 MHz, $CDCl_3$) δ -129.12.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{18}NF$ $[M]^+$ 243.1423, found 243.1424.

5-Chloro-*N*,2',4',6'-tetramethyl-[1,1'-biphenyl]-2-amine (2ag)



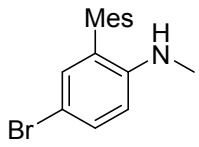
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 99% (77 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.22 (dd, *J* = 8.6, 2.5 Hz, 1H), 6.98 (s, 2H), 6.89 (d, *J* = 2.5 Hz, 1H), 6.61 (d, *J* = 8.7 Hz, 1H), 3.32 (d, *J* = 3.9 Hz, 1H), 2.76 (d, *J* = 5.0 Hz, 3H), 2.34 (s, 3H), 2.00 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.09, 137.59, 137.26, 133.56, 129.21, 128.71, 128.07, 127.44, 121.41, 110.58, 30.83, 29.85, 21.21, 20.15.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{18}NCl$ $[M]^+$ 259.1128, found 259.1129.

5-Bromo-*N*,2',4',6'-tetramethyl-[1,1'-biphenyl]-2-amine (2ah)



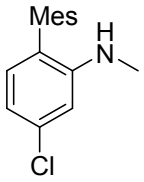
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 88% (80 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.35 (dd, *J* = 8.6, 2.4 Hz, 1H), 7.01 (d, *J* = 2.4 Hz, 1H), 6.97 (s, 2H), 6.56 (d, *J* = 8.7 Hz, 1H), 3.34 (d, *J* = 4.0 Hz, 1H), 2.75 (d, *J* = 5.0 Hz, 3H), 2.34 (s, 3H), 1.99 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.50, 137.61, 137.27, 133.46, 131.92, 130.97, 128.70, 127.92, 111.09, 108.50, 30.74, 29.85, 21.21, 20.17.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{18}NBr$ $[M]^+$ 303.0623, found 303.0621.

4-Chloro-*N*,2',4',6'-tetramethyl-[1,1'-biphenyl]-2-amine (2ai)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 78% (61 mg) as a white solid.

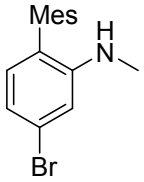
M. p.: 67-69 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 6.97 (s, 2H), 6.80 (d, *J* = 7.9 Hz, 1H), 6.74 (dd, *J* = 7.9, 2.0 Hz, 1H), 6.66 (d, *J* = 2.0 Hz, 1H), 2.76 (s, 3H), 2.34 (s, 3H), 1.97 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 147.32, 137.53, 137.48, 134.06, 133.70, 130.50, 128.71, 124.37, 116.79, 109.71, 30.63, 21.21, 20.17.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{18}NCl$ $[M]^+$ 259.1128, found 259.1129.

4-Bromo-*N*,2',4',6'-tetramethyl-[1,1'-biphenyl]-2-amine (2aj)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 77% (70 mg) as a white solid.

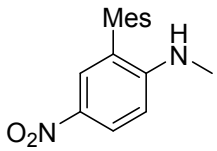
M. p.: 54-56 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 6.97 (s, 2H), 6.88 (dd, *J* = 7.9, 1.9 Hz, 1H), 6.80 (d, *J* = 1.9 Hz, 1H), 6.74 (d, *J* = 7.9 Hz, 1H), 3.40 (d, *J* = 4.7 Hz, 1H), 2.76 (d, *J* = 5.2 Hz, 3H), 2.34 (s, 3H), 1.98 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 147.60, 137.52, 137.39, 133.71, 130.82, 128.70, 124.74, 122.29, 119.61, 112.40, 30.54, 21.20, 20.16.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{18}NBr$ $[M]^+$ 303.0623, found 303.0620.

***N*,2',4',6'-Tetramethyl-5-nitro-[1,1'-biphenyl]-2-amine (2ak)**



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 53% (43 mg) as a yellow solid.

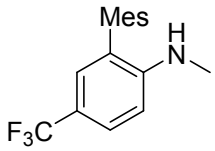
M. p.: 171-173 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.21 (dd, *J* = 9.1, 2.7 Hz, 1H), 7.85 (d, *J* = 2.7 Hz, 1H), 6.99 (s, 2H), 6.62 (d, *J* = 9.1 Hz, 1H), 4.17 (br, 1H), 2.87 (s, 3H), 2.34 (s, 3H), 1.97 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 151.69, 138.36, 137.99, 137.31, 131.93, 129.04, 126.21, 126.02, 125.27, 107.77, 30.29, 21.22, 20.08.

HRMS m/z (EI-TOF): calculated for $C_{16}H_{18}N_2O_2$ $[M]^+$ 270.1368, found 270.1369.

_N_,2',4',6'-Tetramethyl-5-(trifluoromethyl)-[1,1'-biphenyl]-2-amine (2al)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 74% (65 mg) as a white solid.

M. p.: 82-84 °C.

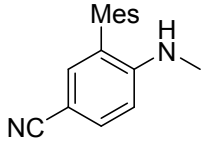
^{1}H NMR (400 MHz, $CDCl_3$) δ 7.51 (dd, J = 8.5, 1.7 Hz, 1H), 7.14 (d, J = 2.0 Hz, 1H), 6.99 (s, 2H), 6.69 (d, J = 8.5 Hz, 1H), 3.67 (d, J = 4.5 Hz, 1H), 2.81 (d, J = 5.2 Hz, 3H), 2.35 (s, 3H), 1.98 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 148.84, 137.80, 137.39, 133.36, 128.82, 126.66 (q, $J_{C\text{-}F}$ = 3.7 Hz), 125.89 (q, $J_{C\text{-}F}$ = 3.8 Hz), 125.52, 125.35 (q, $J_{C\text{-}F}$ = 271.3 Hz), 118.44 (q, $J_{C\text{-}F}$ = 32.5 Hz), 108.56, 30.37, 21.19, 20.12.

^{19}F NMR (376 MHz, $CDCl_3$) δ -60.63.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{18}NF_3$ $[M]^+$ 293.1391, found 293.1390.

2',4',6'-Trimethyl-6-(methylamino)-[1,1'-biphenyl]-3-carbonitrile (2am)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 80% (60 mg) as a white solid.

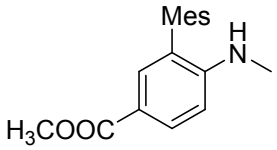
M. p.: 102-104 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.54 (dd, J = 8.5, 2.0 Hz, 1H), 7.14 (d, J = 2.0 Hz, 1H), 6.98 (s, 2H), 6.64 (d, J = 8.5 Hz, 1H), 2.81 (s, 3H), 2.33 (s, 3H), 1.95 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 149.63, 138.13, 137.27, 133.39, 133.26, 132.23, 128.94, 126.15, 109.00, 98.51, 30.09, 21.20, 20.04.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{18}N_2$ $[M]^+$ 250.1470, found 250.1469.

Methyl 2',4',6'-trimethyl-6-(methylamino)-[1,1'-biphenyl]-3-carboxylate (2an)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 70% (59 mg) as a white solid.

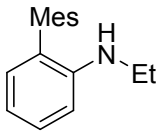
M. p.: 157-159 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.98 (dd, *J* = 8.6, 2.0 Hz, 1H), 7.60 (d, *J* = 2.1 Hz, 1H), 6.97 (s, 2H), 6.65 (d, *J* = 8.6 Hz, 1H), 3.84 (s, 3H), 2.82 (d, *J* = 5.2 Hz, 3H), 2.33 (s, 3H), 1.97 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 167.73, 150.16, 137.58, 137.44, 133.54, 131.45, 131.02, 128.73, 125.05, 118.01, 108.24, 51.60, 30.24, 21.19, 20.13.

HRMS m/z (EI-TOF): calculated for $C_{18}H_{21}NO_2$ $[M]^+$ 283.1572, found 283.1571.

_N_-Ethyl-2',4',6'-trimethyl-[1,1'-biphenyl]-2-amine (2ba)



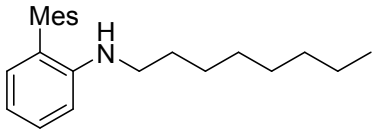
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 68% (49 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.28 – 7.20 (m, 1H), 6.98 (s, 2H), 6.89 (dd, *J* = 7.3, 1.6 Hz, 1H), 6.80 – 6.67 (m, 2H), 3.23 (br, 1H), 3.15 (d, *J* = 6.7 Hz, 2H), 2.35 (s, 3H), 2.00 (s, 6H), 1.11 (t, *J* = 7.0 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.36, 137.41, 137.07, 134.95, 129.78, 128.58, 128.26, 126.10, 116.86, 110.22, 38.33, 21.23, 20.22, 15.00.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{21}N$ $[M]^+$ 239.1674, found 239.1675.

2',4',6'-Trimethyl-_N_-octyl-[1,1'-biphenyl]-2-amine (2ca)



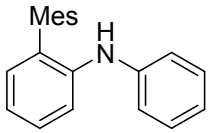
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 75% (73 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.28 – 7.20 (m, 1H), 6.98 (s, 2H), 6.89 (dd, *J* = 7.3, 1.6 Hz, 1H), 6.74 (ddd, *J* = 10.8, 8.5, 4.6 Hz, 2H), 3.29 (br, 1H), 3.08 (m, 2H), 2.35 (s, 3H), 2.00 (s, 6H), 1.53 – 1.41 (m, 2H), 1.35 – 1.16 (m, 10H), 0.89 (t, *J* = 6.9 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.47, 137.44, 137.06, 134.95, 129.74, 128.58, 128.25, 126.01, 116.69, 110.09, 43.87, 31.91, 29.50, 29.43, 29.38, 27.17, 22.79, 21.23, 20.24, 14.25.

HRMS m/z (EI-TOF): calculated for $C_{23}H_{33}N$ $[M]^+$ 323.2613, found 323.2614.

2',4',6'-Trimethyl-_N_-phenyl-[1,1'-biphenyl]-2-amine (2da)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 56% (48 mg) as a white solid.

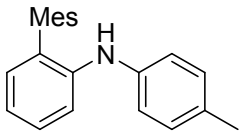
M. p.: 97-99 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 (d, *J* = 8.2 Hz, 1H), 7.30 – 7.19 (m, 3H), 7.10 – 7.02 (m, 3H), 7.02 – 6.88 (m, 4H), 5.20 (br, 1H), 2.36 (s, 3H), 2.05 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 143.01, 140.92, 137.40, 137.32, 134.52, 130.52, 129.35, 129.02, 128.74, 127.88, 121.52, 120.44, 119.09, 115.44, 21.23, 20.40.

HRMS m/z (EI-TOF): calculated for $C_{21}H_{21}N$ $[M]^+$ 287.1674, found 287.1677.

2',4',6'-Trimethyl-*N*-(*p*-tolyl)-[1,1'-biphenyl]-2-amine (2ea)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 61% (55 mg) as a white solid.

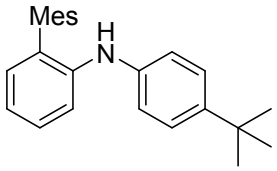
M. p.: 92-93 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.32 – 7.27 (m, 1H), 7.26 – 7.19 (m, 1H), 7.06 (d, *J* = 8.3 Hz, 2H), 7.03 – 6.95 (m, 5H), 6.92 (td, *J* = 7.3, 1.2 Hz, 1H), 5.11 (br, 1H), 2.35 (s, 3H), 2.30 (s, 3H), 2.05 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 141.64, 140.30, 137.39, 137.35, 134.60, 131.40, 130.41, 129.87, 128.72, 128.40, 127.89, 120.06, 119.83, 114.72, 21.22, 20.84, 20.40.

HRMS m/z (EI-TOF): calculated for $C_{22}H_{23}N$ $[M]^+$ 301.1830, found 301.1829.

***N*-(4-(*tert*-Butyl)phenyl)-2',4',6'-trimethyl-[1,1'-biphenyl]-2-amine (2fa)**



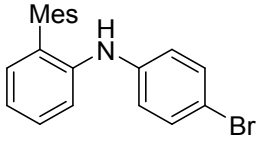
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 65% (67 mg) as a light yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 – 7.30 (m, 1H), 7.27 – 7.18 (m, 3H), 7.04 – 6.95 (m, 5H), 6.91 (td, *J* = 7.4, 1.1 Hz, 1H), 5.12 (br, 1H), 2.33 (s, 3H), 2.03 (s, 6H), 1.29 (s, 9H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 144.66, 141.44, 140.23, 137.37, 137.34, 134.60, 130.40, 128.72, 128.45, 127.86, 126.13, 119.85, 119.38, 114.79, 34.31, 31.58, 21.22, 20.42.

HRMS m/z (EI-TOF): calculated for $C_{25}H_{29}N$ $[M]^+$ 343.2300, found 343.2298.

***N*-(4-Bromophenyl)-2',4',6'-trimethyl-[1,1'-biphenyl]-2-amine (2ga)**



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 74% (81 mg) as a white solid.

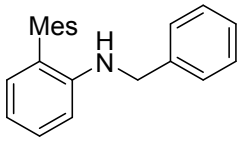
M. p.: 96-98 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.37 – 7.29 (m, 3H), 7.27 (m, 1H), 7.05 (dd, *J* = 7.5, 1.7 Hz, 1H), 7.00 (m, 3H), 6.96 – 6.88 (m, 2H), 5.16 (br, 1H), 2.35 (s, 3H), 2.02 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 142.28, 140.25, 137.61, 137.52, 137.22, 134.28, 132.22, 130.68, 129.56, 128.78, 127.97, 121.15, 120.17, 116.01, 113.20, 21.22, 20.40.

HRMS m/z (EI-TOF): calculated for $C_{21}H_{20}NBr$ $[M]^+$ 365.0779, found 365.0782.

_N_-Benzyl-2',4',6'-trimethyl-[1,1'-biphenyl]-2-amine (2ha)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 66% (59 mg) as a white solid.

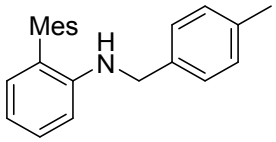
M. p.: 57-59 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.31 – 7.18 (m, 5H), 7.18 – 7.10 (m, 1H), 6.95 (s, 2H), 6.88 (dd, *J* = 7.4, 1.5 Hz, 1H), 6.73 (td, *J* = 7.4, 0.8 Hz, 1H), 6.62 (d, *J* = 8.1 Hz, 1H), 4.28 (d, *J* = 5.6 Hz, 2H), 3.81 (br, 1H), 2.30 (s, 3H), 2.02 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.03, 140.02, 137.45, 137.19, 134.81, 129.78, 128.65, 128.61, 128.26, 127.00, 126.10, 117.27, 110.48, 47.85, 21.20, 20.31.

HRMS m/z (EI-TOF): calculated for $C_{22}H_{23}N$ $[M]^+$ 301.1830, found 301.1832.

2',4',6'-Trimethyl-_N_-(4-methylbenzyl)-[1,1'-biphenyl]-2-amine (2ia)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 64% (60 mg) as a white solid.

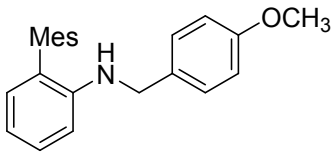
M. p.: 100-102 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.23 – 7.18 (m, 1H), 7.14 (m, 4H), 6.99 (s, 2H), 6.92 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.77 (td, *J* = 7.4, 1.1 Hz, 1H), 6.72 – 6.63 (m, 1H), 4.29 (d, *J* = 5.6 Hz, 2H), 3.81 (br, 1H), 2.35 (s, 3H), 2.33 (s, 3H), 2.05 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.13, 137.46, 137.17, 136.92, 136.61, 134.85, 129.77, 129.30, 128.64, 128.26, 127.03, 126.08, 117.18, 110.47, 47.64, 21.20, 20.32.

HRMS m/z (EI-TOF): calculated for $C_{23}H_{25}N$ $[M]^+$ 315.1987, found 315.1989.

_N_-(4-Methoxybenzyl)-2',4',6'-trimethyl-[1,1'-biphenyl]-2-amine (2ja)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 40% (40 mg) as a white solid.

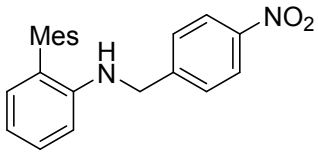
M. p.: 58-59 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.23 – 7.13 (m, 3H), 6.97 (s, 2H), 6.90 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.87 – 6.79 (m, 2H), 6.76 (td, *J* = 7.4, 1.0 Hz, 1H), 6.67 (d, *J* = 8.1 Hz, 1H), 4.25 (d, *J* = 4.9 Hz, 2H), 3.78 (s, 3H), 3.76 (br, 1H), 2.33 (s, 3H), 2.03 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 158.69, 145.09, 137.44, 137.17, 134.82, 131.96, 129.78, 128.63, 128.25, 126.10, 117.20, 114.00, 110.48, 55.38, 47.34, 21.22, 20.32.

HRMS m/z (EI-TOF): calculated for $C_{23}H_{25}NO$ $[M]^+$ 331.1936, found 331.1935.

2',4',6'-Trimethyl-*N*-(4-nitrobenzyl)-[1,1'-biphenyl]-2-amine (2ka)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 46% (48 mg) as a yellow solid.

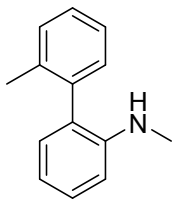
M. p.: 155-156 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.28 – 8.01 (m, 2H), 7.42 (d, *J* = 8.8 Hz, 2H), 7.14 (td, *J* = 8.1, 1.6 Hz, 1H), 7.00 (s, 2H), 6.94 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.79 (td, *J* = 7.4, 1.0 Hz, 1H), 6.55 – 6.38 (m, 1H), 4.42 (d, *J* = 5.6 Hz, 2H), 3.97 (br, 1H), 2.34 (s, 3H), 2.04 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 148.12, 147.19, 144.21, 137.49, 137.41, 134.48, 130.05, 128.76, 128.33, 127.43, 126.36, 123.98, 118.04, 110.32, 47.33, 21.22, 20.35.

HRMS m/z (EI-TOF): calculated for $C_{22}H_{22}N_2O_2$ $[M]^+$ 346.1681, found 346.1680.

***N*,2'-Dimethyl-[1,1'-biphenyl]-2-amine (2f)**



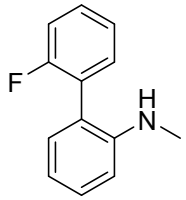
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 68% (40 mg) as a light yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.32 – 7.22 (m, 4H), 7.21 – 7.14 (m, 1H), 6.98 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.76 (td, *J* = 7.4, 1.0 Hz, 1H), 6.68 (d, *J* = 8.1 Hz, 1H), 3.42 (br, 1H), 2.77 (s, 3H), 2.12 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.43, 138.68, 137.39, 130.50, 130.41, 129.70, 128.68, 127.82, 127.32, 126.37, 116.62, 109.56, 30.80, 19.79.

HRMS m/z (EI-TOF): calculated for $C_{14}H_{15}N$ $[M]^+$ 197.1204, found 197.1205.

2'-Fluoro-*N*-methyl-[1,1'-biphenyl]-2-amine (2g)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 70% (42 mg) as a white solid.

M. p.: 33-35 °C.

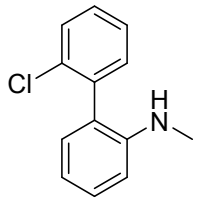
^{1}H NMR (400 MHz, $CDCl_3$) δ 7.42 – 7.28 (m, 3H), 7.26 – 7.21 (m, 1H), 7.18 (dd, *J* = 9.8, 8.5 Hz, 1H), 7.11 (dd, *J* = 7.4, 1.4 Hz, 1H), 6.80 (td, *J* = 7.4, 0.9 Hz, 1H), 6.74 (d, *J* = 8.2 Hz, 1H), 2.83 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 160.16 (d, $J_{C\text{-}F}$ = 247.6 Hz), 146.78, 132.37 (d, $J_{C\text{-}F}$ = 3.6 Hz), 130.71, 129.57, 129.55 (d, $J_{C\text{-}F}$ = 7.9 Hz), 126.62 (d, $J_{C\text{-}F}$ = 16.7 Hz), 124.70 (d, $J_{C\text{-}F}$ = 3.7 Hz), 121.28, 116.81, 116.25 (d, $J_{C\text{-}F}$ = 22.4 Hz), 110.13, 30.94.

^{19}F NMR (376 MHz, $CDCl_3$) δ -114.05.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{12}NF$ $[M]^+$ 201.0954, found 201.0955.

2'-Chloro-*N*-methyl-[1,1'-biphenyl]-2-amine (2h)



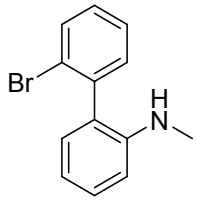
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 66% (43 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.56 – 7.46 (m, 1H), 7.40 – 7.29 (m, 4H), 7.04 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.80 (td, *J* = 7.4, 1.0 Hz, 1H), 6.74 (d, *J* = 8.1 Hz, 1H), 3.47 (br, 1H), 2.82 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.49, 137.98, 134.31, 132.29, 130.07, 129.47, 129.17, 127.41, 125.08, 116.67, 110.01, 30.92.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{12}NCl$ $[M]^+$ 217.0658, found 217.0659.

2'-Bromo-*N*-methyl-[1,1'-biphenyl]-2-amine (2i)



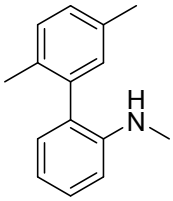
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 63% (49 mg) as a light yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.70 (dd, *J* = 8.0, 1.1 Hz, 1H), 7.40 (td, *J* = 7.5, 1.2 Hz, 1H), 7.36 – 7.29 (m, 2H), 7.29 – 7.15 (m, 1H), 7.01 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.79 (td, *J* = 7.4, 1.1 Hz, 1H), 6.73 (d, *J* = 8.2 Hz, 1H), 3.42 (br, 1H), 2.82 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.33, 140.08, 133.28, 132.21, 129.92, 129.46, 129.35, 128.05, 126.92, 124.74, 116.66, 110.04, 30.93.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{12}NBr$ $[M]^+$ 261.0153, found 261.0152.

***N*-, 2',5'-Trimethyl-[1,1'-biphenyl]-2-amine (2j)**



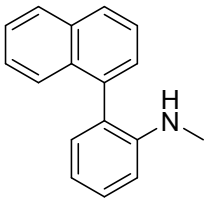
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 65% (41 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.32 – 7.23 (m, 1H), 7.19 (d, *J* = 7.7 Hz, 1H), 7.10 (d, *J* = 7.7 Hz, 1H), 7.02 (s, 1H), 6.99 (d, *J* = 7.3 Hz, 1H), 6.76 (t, *J* = 7.3 Hz, 1H), 6.69 (d, *J* = 8.1 Hz, 1H), 3.46 (br, 1H), 2.79 (s, 3H), 2.35 (s, 3H), 2.09 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.44, 138.52, 135.81, 134.08, 131.12, 130.28, 129.66, 128.59, 128.51, 127.51, 116.61, 109.52, 30.81, 21.04, 19.26.

HRMS m/z (EI-TOF): calculated for $C_{15}H_{17}N$ $[M]^+$ 211.1361, found 211.1362.

***N*-Methyl-2-(naphthalen-1-yl)aniline (2k)**



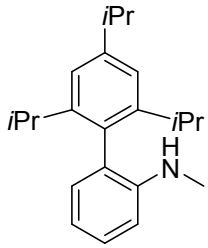
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 56% (39 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.91 (t, *J* = 8.8 Hz, 2H), 7.62 (d, *J* = 8.2 Hz, 1H), 7.56 (dd, *J* = 8.2, 7.1 Hz, 1H), 7.51 (ddd, *J* = 8.1, 6.9, 1.2 Hz, 1H), 7.47 – 7.34 (m, 3H), 7.14 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.85 (td, *J* = 7.4, 1.1 Hz, 1H), 6.82 – 6.72 (m, 1H), 3.45 (br, 1H), 2.73 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 147.15, 137.04, 133.99, 132.09, 130.91, 129.13, 128.41, 128.13, 127.98, 126.36, 126.21, 126.16, 126.03, 125.75, 116.74, 109.84, 30.82.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{15}N$ $[M]^+$ 233.1204, found 233.1203.

2',4',6'-Triisopropyl-*N*-methyl-[1,1'-biphenyl]-2-amine (2l)



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 94% (87 mg) as a white solid.

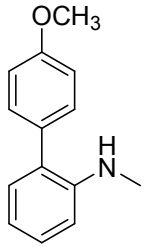
M. p.: 73-75 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.29 (td, *J* = 8.0, 1.5 Hz, 1H), 7.09 (s, 2H), 6.93 (dd, *J* = 7.3, 1.5 Hz, 1H), 6.75 (dd, *J* = 10.6, 4.0 Hz, 1H), 6.68 (d, *J* = 8.1 Hz, 1H), 3.31 (d, *J* = 4.8 Hz, 1H), 2.95 (m, 1H), 2.77 (d, *J* = 5.1 Hz, 3H), 2.68 – 2.51 (m, 2H), 1.33 (s, 3H), 1.31 (s, 3H), 1.10 (s, 3H), 1.08 (s, 3H), 1.07 (s, 3H), 1.05 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 148.46, 147.91, 147.38, 132.59, 130.36, 128.20, 125.52, 121.28, 116.38, 109.24, 34.39, 30.70, 30.40, 24.77, 24.22, 24.11.

HRMS m/z (EI-TOF): calculated for $C_{22}H_{31}N$ $[M]^+$ 309.2457, found 309.2458.

4'-Methoxy-*N*-methyl-[1,1'-biphenyl]-2-amine (2m)



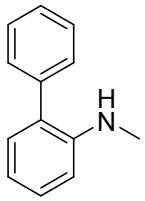
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 69% (44 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.38 – 7.31 (m, 2H), 7.31 – 7.22 (m, 1H), 7.08 (dd, *J* = 7.4, 1.6 Hz, 1H), 7.02 – 6.93 (m, 2H), 6.77 (td, *J* = 7.4, 1.1 Hz, 1H), 6.69 (d, *J* = 8.1 Hz, 1H), 3.96 (br, 1H), 3.86 (s, 3H), 2.80 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 158.89, 146.52, 131.76, 130.64, 130.19, 128.62, 127.39, 116.89, 114.38, 109.81, 55.45, 30.95.

HRMS m/z (EI-TOF): calculated for $C_{14}H_{15}NO$ $[M]^+$ 213.1154, found 213.1155.

***N*-Methyl-[1,1'-biphenyl]-2-amine (2n)**



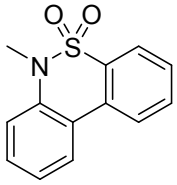
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 44% (24 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.50 – 7.41 (m, 4H), 7.39 – 7.33 (m, 1H), 7.29 (td, *J* = 8.1, 1.6 Hz, 1H), 7.11 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.79 (td, *J* = 7.4, 1.0 Hz, 1H), 6.71 (d, *J* = 8.1 Hz, 1H), 3.98 (br, 1H), 2.81 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.30, 139.63, 130.15, 129.54, 128.99, 128.90, 127.70, 127.31, 116.92, 109.92, 30.90.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{13}N$ $[M]^+$ 183.1048, found 183.1047.

6-Methyl-*6H*-dibenzo[c,e][1,2]thiazine 5,5-dioxide (2n')



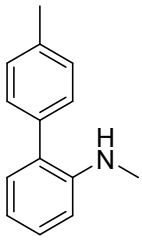
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 31% (23 mg) as a brown oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.01 (dd, *J* = 7.9, 1.2 Hz, 2H), 7.96 (d, *J* = 8.0 Hz, 1H), 7.71 (td, *J* = 7.8, 1.4 Hz, 1H), 7.57 (td, *J* = 7.7, 1.0 Hz, 1H), 7.54 – 7.46 (m, 1H), 7.38 – 7.28 (m, 2H), 3.45 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 139.57, 134.31, 132.56, 132.51, 130.56, 128.35, 125.63, 125.55, 124.80, 124.07, 122.58, 119.51, 32.87.

HRMS m/z (ESI-TOF): calculated for $C_{13}H_{12}NO_2S$ $[M+H]^+$ 246.0589, found 246.0587.

***N*,4'-Dimethyl-[1,1'-biphenyl]-2-amine (2o)**



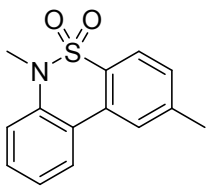
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 66% (39 mg) as a light yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.35 – 7.30 (m, 2H), 7.30 – 7.24 (m, 3H), 7.09 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.78 (td, *J* = 7.4, 1.1 Hz, 1H), 6.70 (d, *J* = 8.1 Hz, 1H), 3.99 (br, 1H), 2.80 (s, 3H), 2.41 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.40, 137.00, 136.58, 130.15, 129.68, 129.39, 128.72, 127.67, 116.89, 109.84, 30.91, 21.32.

HRMS m/z (EI-TOF): calculated for $C_{14}H_{15}N$ $[M]^+$ 197.1204, found 197.1205.

2,6-Dimethyl-*6H*-dibenzo[c,e][1,2]thiazine 5,5-dioxide (2o')



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 26% (20 mg) as a white solid.

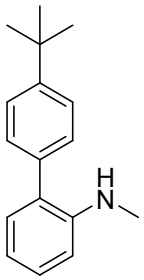
M. p.: 109-111 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.00 (dd, *J* = 7.9, 1.4 Hz, 1H), 7.89 (d, *J* = 8.0 Hz, 1H), 7.76 (s, 1H), 7.49 (td, *J* = 8.1, 1.5 Hz, 1H), 7.37 (dd, *J* = 8.0, 0.7 Hz, 1H), 7.31 (ddd, *J* = 15.6, 7.9, 1.0 Hz, 2H), 3.43 (s, 3H), 2.52 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 143.15, 139.73, 132.43, 131.75, 130.41, 129.17, 125.89, 125.57, 124.70, 124.10, 122.64, 119.50, 32.77, 22.07.

HRMS m/z (ESI-TOF): calculated for $C_{14}H_{13}NO_2SNa$ $[M+Na]^+$ 282.0565, found 282.0566.

4'-(*tert*-Butyl)-*N*-methyl-[1,1'-biphenyl]-2-amine (2p)



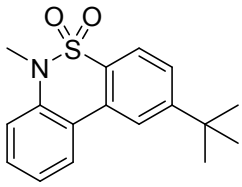
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 56% (40 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.48 (d, *J* = 7.7 Hz, 2H), 7.37 (d, *J* = 7.5 Hz, 2H), 7.27 (dd, *J* = 11.7, 3.9 Hz, 1H), 7.12 (d, *J* = 7.4 Hz, 1H), 6.79 (t, *J* = 7.3 Hz, 1H), 6.71 (d, *J* = 8.1 Hz, 1H), 4.04 (br, 1H), 2.81 (s, 3H), 1.39 (s, 9H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 150.16, 146.46, 136.56, 130.18, 129.13, 128.69, 127.65, 125.90, 116.88, 109.84, 34.72, 31.52, 30.91.

HRMS m/z (EI-TOF): calculated for $C_{17}H_{21}N$ $[M]^+$ 239.1674, found 239.1675.

2-(*tert*-Butyl)-6-methyl-*6H*-dibenzo[c,e][1,2]thiazine 5,5-dioxide (2p')



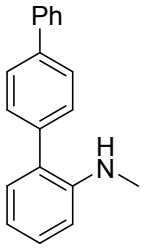
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 22% (20 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.04 (d, *J* = 7.9 Hz, 1H), 7.96 (s, 1H), 7.93 (d, *J* = 8.5 Hz, 1H), 7.61 (d, *J* = 8.3 Hz, 1H), 7.50 (t, *J* = 7.8 Hz, 1H), 7.35 (d, *J* = 7.6 Hz, 1H), 7.30 (d, *J* = 8.1 Hz, 1H), 3.44 (s, 3H), 1.41 (s, 9H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 156.22, 139.74, 132.13, 131.75, 130.37, 125.81, 125.55, 124.71, 124.50, 122.46, 122.34, 119.51, 35.58, 32.77, 31.32.

HRMS m/z (ESI-TOF): calculated for $C_{17}H_{20}NO_2S$ $[M+H]^+$ 302.1215, found 302.1217.

***N*-Methyl-[1,1':4',1''-terphenyl]-2-amine (2q)**



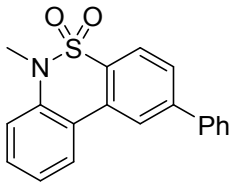
Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 52% (40 mg) as a colorless oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.69 (m, 4H), 7.51 (m, 4H), 7.40 (t, *J* = 7.3 Hz, 1H), 7.32 (t, *J* = 7.7 Hz, 1H), 7.17 (d, *J* = 7.3 Hz, 1H), 6.83 (t, *J* = 7.3 Hz, 1H), 6.75 (d, *J* = 8.1 Hz, 1H), 4.06 (br, 1H), 2.85 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.38, 140.86, 140.15, 138.60, 130.15, 129.93, 128.97, 127.70, 127.50, 127.26, 127.18, 117.00, 109.99, 30.92.

HRMS m/z (EI-TOF): calculated for $C_{19}H_{17}N$ $[M]^+$ 259.1361, found 259.1360.

6-Methyl-2-phenyl-*6H*-dibenzo[c,e][1,2]thiazine 5,5-dioxide (2q')



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 19% (18 mg) as a white solid.

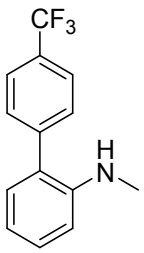
M. p.: 165-167 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.13 (s, 1H), 8.08 (t, *J* = 8.9 Hz, 2H), 7.77 (d, *J* = 8.1 Hz, 1H), 7.66 (d, *J* = 7.6 Hz, 2H), 7.51 (m, 3H), 7.48 – 7.41 (m, 1H), 7.35 (dd, *J* = 13.0, 7.7 Hz, 2H), 3.47 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.78, 139.85, 139.81, 133.01, 132.95, 130.68, 129.25, 128.67, 127.61, 127.23, 125.69, 124.85, 124.32, 124.19, 123.21, 119.62, 32.91.

HRMS m/z (ESI-TOF): calculated for $C_{19}H_{16}NO_2S$ $[M+H]^+$ 322.0902, found 322.0903.

***N*-Methyl-4'-(trifluoromethyl)-[1,1'-biphenyl]-2-amine (2r)**



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 45% (34 mg) as a colorless oil.

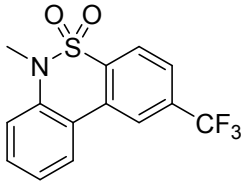
^{1}H NMR (400 MHz, $CDCl_3$) δ 7.71 (d, *J* = 8.0 Hz, 2H), 7.57 (d, *J* = 8.0 Hz, 2H), 7.35 – 7.29 (m, 1H), 7.09 (dd, *J* = 7.4, 1.6 Hz, 1H), 6.81 (td, *J* = 7.4, 1.0 Hz, 1H), 6.73 (d, *J* = 8.2 Hz, 1H), 3.86 (br, 1H), 2.82 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.10, 143.51, 130.10, 129.94, 129.63, 129.47 (q, J_{C-F} = 32.6 Hz), 126.15, 125.95 (q, J_{C-F} = 3.7 Hz), 124.35 (q, J_{C-F} = 273.1 Hz), 117.16, 110.24, 30.84.

^{19}F NMR (376 MHz, $CDCl_3$) δ -62.47.

HRMS m/z (EI-TOF): calculated for $C_{14}H_{12}NF_3$ $[M]^+$ 251.0922, found 251.0923.

6-Methyl-2-(trifluoromethyl)-*6H*-dibenzo[c,e][1,2]thiazine 5,5-dioxide (2r')



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 21% (20 mg) as a brown oil.

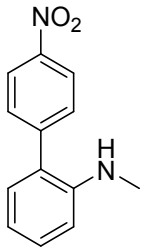
^{1}H NMR (400 MHz, $CDCl_3$) δ 8.22 (s, 1H), 8.13 (d, *J* = 8.2 Hz, 1H), 8.06 (dd, *J* = 7.9, 1.4 Hz, 1H), 7.82 (dd, *J* = 8.2, 0.9 Hz, 1H), 7.57 (td, *J* = 8.2, 1.4 Hz, 1H), 7.39 (td, *J* = 7.9, 1.1 Hz, 1H), 7.35 (dd, *J* = 8.2, 0.8 Hz, 1H), 3.48 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 139.67, 136.97, 134.46 (q, J_{C-F} = 33.1 Hz), 133.44, 131.52, 125.82, 125.19, 124.97 (q, J_{C-F} = 3.6 Hz), 123.57, 123.42 (q, J_{C-F} = 274.2 Hz), 123.25, 122.85 (q, J_{C-F} = 3.8 Hz), 119.75, 33.13.

^{19}F NMR (376 MHz, $CDCl_3$) δ -62.96.

HRMS m/z (ESI-TOF): calculated for $C_{14}H_{11}NO_2SF_3$ $[M+H]^+$ 314.0463, found 314.0465.

***N*-Methyl-4'-nitro-[1,1'-biphenyl]-2-amine (2s)**



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 64% (44 mg) as a yellow solid.

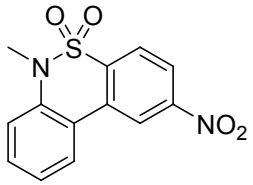
M. p.: 153-155 ^{o}C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.36 – 8.21 (m, 2H), 7.70 – 7.53 (m, 2H), 7.33 (td, *J* = 8.3, 1.6 Hz, 1H), 7.09 (dd, *J* = 7.5, 1.5 Hz, 1H), 6.82 (td, *J* = 7.4, 0.9 Hz, 1H), 6.73 (d, *J* = 8.2 Hz, 1H), 3.85 (br, 1H), 2.82 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 146.99, 146.86, 145.95, 130.39, 130.21, 130.10, 125.17, 124.29, 117.37, 110.52, 30.85.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{12}N_2O_2$ $[M]^+$ 228.0899, found 228.0900.

6-Methyl-2-nitro-*6H*-dibenzo[c,e][1,2]thiazine 5,5-dioxide (2s')



Prepared according to the general procedure on 0.3 mmol scale and obtained an isolated yield of 9% (8 mg) as a yellow solid.

M. p.: 160-162 °C.

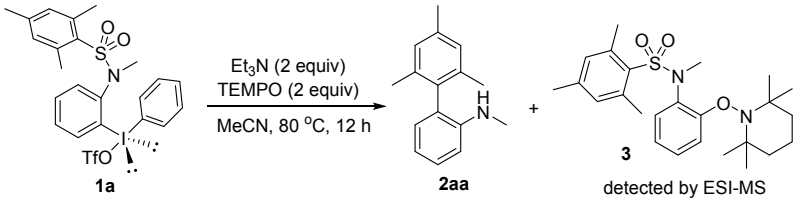
^{1}H NMR (400 MHz, $CDCl_3$) δ 8.84 (d, *J* = 2.1 Hz, 1H), 8.40 (dd, *J* = 8.6, 2.1 Hz, 1H), 8.18 (d, *J* = 8.6 Hz, 1H), 8.12 (dd, *J* = 8.0, 1.4 Hz, 1H), 7.67 – 7.56 (m, 1H), 7.44 (td, *J* = 7.9, 1.1 Hz, 1H), 7.38 (dd, *J* = 8.2, 0.9 Hz, 1H), 3.50 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 150.17, 139.69, 138.58, 134.41, 132.05, 126.05, 125.42, 124.42, 122.90, 122.81, 121.06, 119.79, 33.26.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{10}N_2O_4S$ $[M]^+$ 290.0361, found 290.0360.

Part 5. Radical Trapping Experiments, EPR Experiments and Deuteration Experiment.

Radical trapping experiment:



To a Schlenk tube was added iodonium salts **1a** (0.3 mmol, 1 equiv.) and TEMPO (0.6 mmol, 2.0 equiv.). The tube was degassed with argon for three times. Acetonitrile (5 mL) and Et_3N (2 equiv) was added via syringe, and the mixture was stirred at 80 °C in an oil bath for 12 h. After cooling to room temperature, a drop of the reaction mixture was delivered to ESI-MS analysis, and the remaining solvent was evaporated under vacuum. The crude products were purified using flash column chromatography on silica gel to afford the desired products **2aa** (37%).

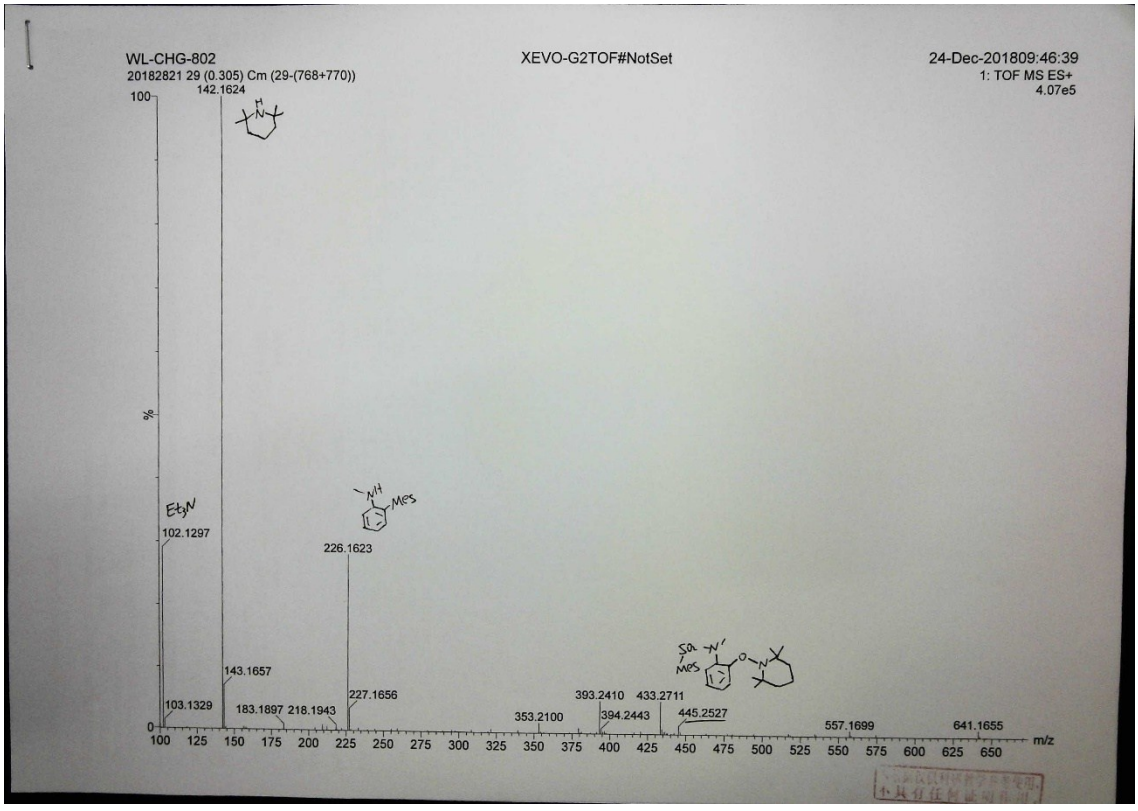


Figure 1. ESI-MS spectra of crude reaction mixture.

EPR experiment:

Line 1a: A 25 mL Schlenk tube equipped magnetic stir bar was charged with **1a** (0.1 mmol, 1.0 equiv), Et_3N (0.2 mmol, 2.0 equiv), PBN (0.2 mmol, 2.0 equiv), and MeCN (5 mL). EPR spectrum was recorded by Bruker EMX-8/2.7 EPR spectrometer immediately.

Line 1b: A 25 mL Schlenk tube equipped magnetic stir bar was charged with **1b** (0.1 mmol, 1.0 equiv), Et_3N (0.2 mmol, 2.0 equiv), PBN (0.2 mmol, 2.0 equiv), and MeCN (5 mL). EPR spectrum was recorded by Bruker EMX-8/2.7 EPR spectrometer immediately.

Line 1c: A 25 mL Schlenk tube equipped magnetic stir bar was charged with **1c** (0.1 mmol, 1.0 equiv), Et_3N (0.2 mmol, 2.0 equiv), PBN (0.2 mmol, 2.0 equiv), and MeCN (5 mL). EPR spectrum was recorded by Bruker EMX-8/2.7 EPR spectrometer immediately.

Line 1d: A 25 mL Schlenk tube equipped magnetic stir bar was charged with **1d** (0.1 mmol, 1.0 equiv), Et_3N (0.2 mmol, 2.0 equiv), PBN (0.2 mmol, 2.0 equiv), and MeCN (5 mL). EPR spectrum was recorded by Bruker EMX-8/2.7 EPR spectrometer immediately.

Line 1e: A 25 mL Schlenk tube equipped magnetic stir bar was charged with **1e** (0.1 mmol, 1.0 equiv), Et_3N (0.2 mmol, 2.0 equiv), PBN (0.2 mmol, 2.0 equiv), and MeCN (5 mL). EPR spectrum was recorded by Bruker EMX-8/2.7 EPR spectrometer immediately.

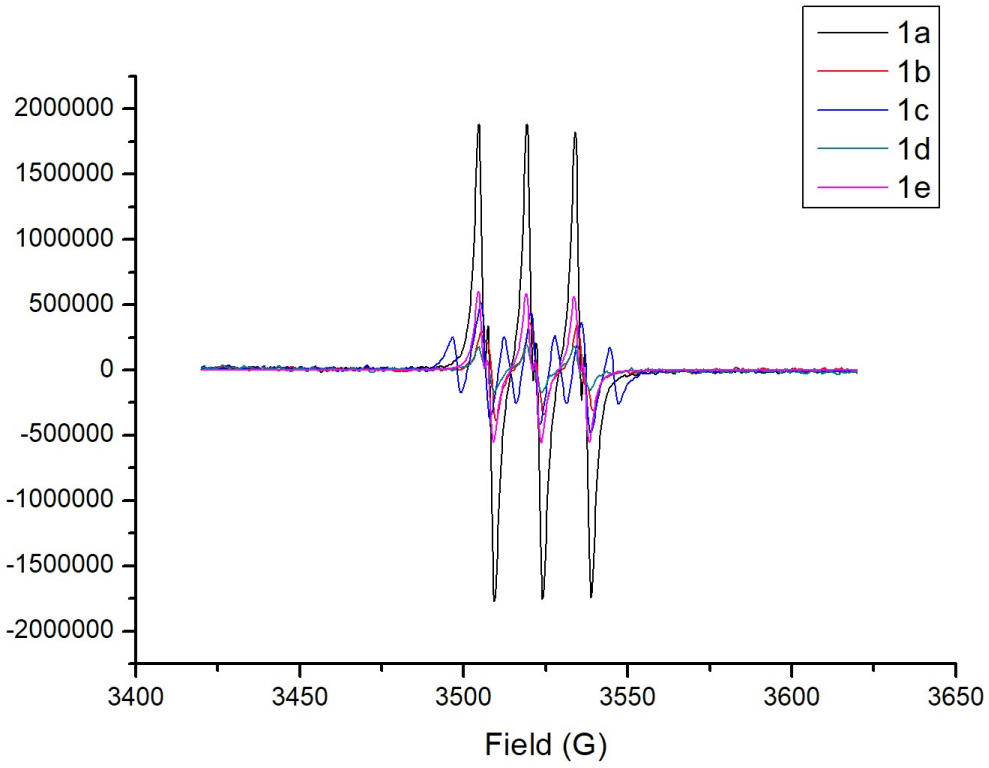


Figure 2. EPR Spectra of spin adducts generated in MeCN (5 mL) in the presence of iodonium salts **1** (0.1 mmol), Et_3N (0.2 mmol), and PBN (0.2 mmol) at room temperature. PBN = *α*-phenyl-*N*-*tert*-butylnitrone.

Note: the multiple peaks in the case of **1c** may be ascribed to the existence of a considerable amount of stable 2,4,6-trimethoxylphenyl radicals.

Deuteration experiment:

To a Schlenk tube was added iodonium salts **1a** (0.3 mmol, 1 equiv.) and the tube was degassed with argon for three times. MeCN-*d*3 (5 mL) and Et_3N (2 equiv) was added via syringe, and the mixture was stirred at 80 °C in

an oil bath for 12 h. After cooling to room temperature, the crude reaction mixture was directly delivered to ^{1}H NMR.

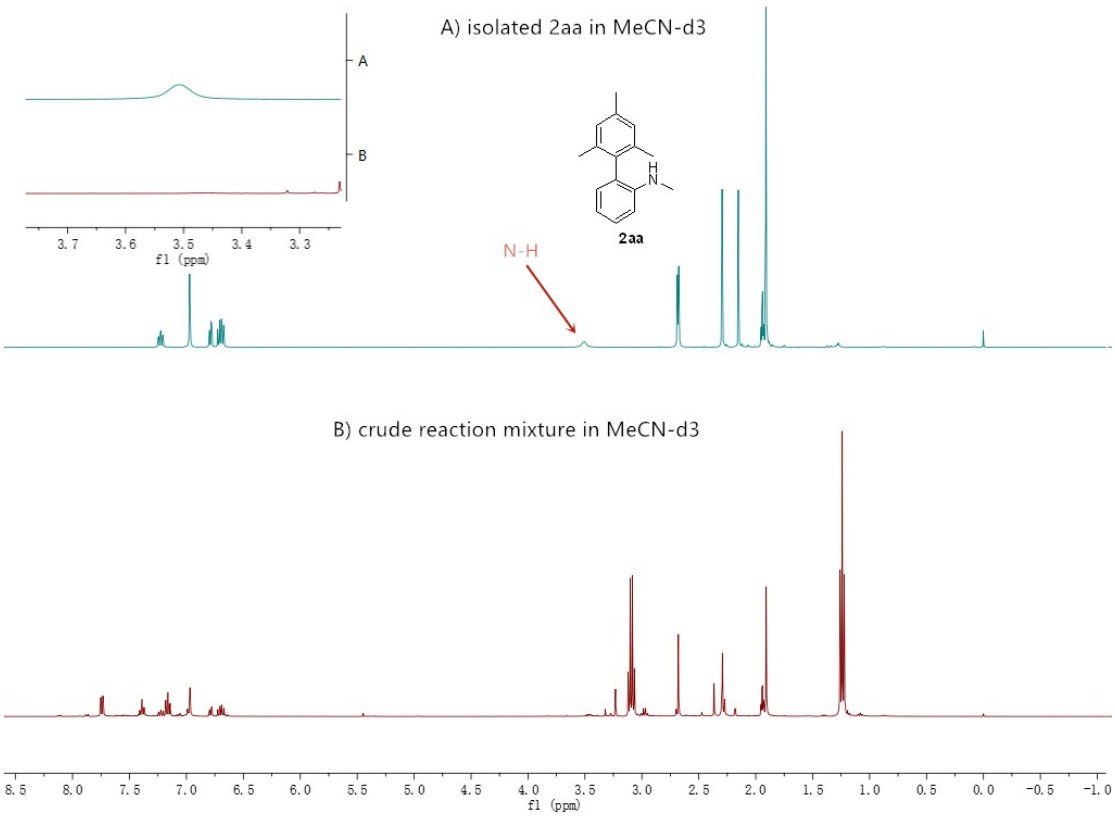
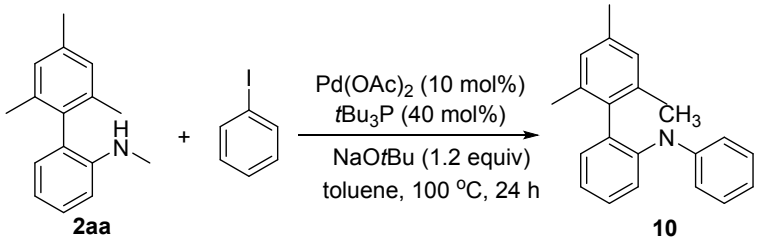


Figure 3. ^{1}H-NMR spectra of isolated product and crude reaction mixture .

Part 6. Derivatization of Products



2aa **10**

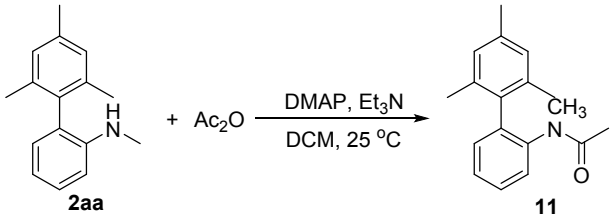
Following the modified procedure described by Bushby et al.[5] An oven-dried screw cap test tube was charged with a magnetic stir bar, $Pd(OAc)_2$ (11 mg, 0.1 equiv.), NaO*t*Bu (1.2 equiv.), and **2aa** (0.5 mmol, 1.0 equiv.). The tube was then evacuated and back-filled with argon. The evacuation/backfill sequence was repeated two additional times. Anhydrous toluene (2 mL) was added volumetrically followed by iodobenzene (2.0 equiv.) and tri-*tert*-butylphosphine (1M in toluene, 0.2 mL, 0.4 equiv.). The contents were heated at 100 °C for 24 h. The contents were allowed to cool and were treated with dilute (2 M) ammonium chloride and washed with a saturated solution of brine. The organic layer was separated and the aqueous extracted with ethyl acetate (3 x 25 mL). The organics were combined and dried with $MgSO_4$, and the solvent was removed under reduced pressure. The crude product was purified by column chromatography on silica gel. White solid, 105 mg, 70%.

M. p.: 62-63 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.37 (dd, *J* = 8.0, 1.2 Hz, 1H), 7.33 – 7.27 (m, 1H), 7.23 (td, *J* = 7.3, 1.4 Hz, 1H), 7.15 (ddd, *J* = 13.7, 7.0, 1.8 Hz, 3H), 6.87 (s, 2H), 6.80 (d, *J* = 7.9 Hz, 2H), 6.74 (t, *J* = 7.3 Hz, 1H), 2.75 (s, 3H), 2.29 (s, 3H), 2.02 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 148.86, 147.55, 137.67, 136.68, 136.48, 136.43, 132.67, 128.70, 128.38, 127.98, 127.45, 125.09, 118.05, 115.02, 38.74, 21.15, 20.98.

HRMS m/z (EI-TOF): calculated for $C_{22}H_{23}N$ $[M]^+$ 301.1830, found 301.1832.



2aa **11**

Amine **2aa** (0.5 mmol, 1.0 equiv) was dissolved in dichloromethane (5 mL) at 25 °C, followed by the addition of DMAP (0.2 equiv.) and Et_3N (1.5 equiv.). Ac_2O (1.5 equiv.) was added dropwise and the mixture was stirred for 24 h. The reaction was quenched with dilute hydrochloric acid (2M, 50 mL) and the mixture was extracted with CH_2Cl_2 for 3 times. The combined organic extracts were dried with Na_2SO_4, filtered, and the solvent was removed by rotary evaporation. Purification of the crude product by flash chromatography on silica gel afforded the *N*-acetyl amide **11** as a white solid (132 mg, 99% yield).

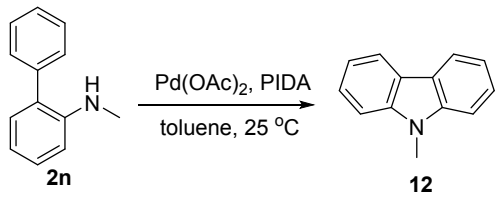
M. p.: 111-112 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.43 – 7.32 (m, 2H), 7.24 – 7.12 (m, 2H), 6.91 (d, *J* = 6.7 Hz, 2H), 2.83 (s, 0.29H), 2.75 (s, 2.75H), 2.32 (s, 0.37H), 2.30 (s, 2.58H), 2.06 (s, 0.30H), 2.01 (s, 2.67H), 1.99 (s, 0.71H), 1.97 (s, 5.32H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 170.73, 142.60, 138.31, 137.40, 135.90, 135.86, 135.03, 132.37, 128.86, 128.65, 128.58, 128.18, 127.85, 35.32, 22.59, 21.08, 20.44.

Note: two rotamers are visible due to restricted rotation of the amide bond.

HRMS m/z (EI-TOF): calculated for $C_{18}H_{21}NO$ $[M]^+$ 267.1623, found 267.1625.

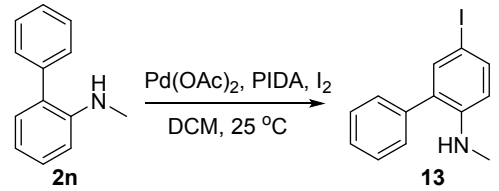


2n **12**

Following the modified procedure described by Gaunt et al.[6] The biarylamine **2n** (0.5 mmol, 1.0 equiv) and $Pd(OAc)_2$ (10 mol%) were stirred in toluene (5 mL) under Ar atmosphere at 25 °C for 1 h. Phenyliodonium diacetate (PIDA, 1.2 equiv) was then added and the reaction mixture was stirred at 25 °C for 24 h. The solvent was removed under reduced pressure and the crude product was purified by column chromatography on silica gel. White solid, 64 mg, 71%. Spectral data is consistent with that of previously reported.[6]

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.13 (d, *J* = 7.8 Hz, 2H), 7.50 (ddd, *J* = 8.2, 7.1, 1.1 Hz, 2H), 7.42 (d, *J* = 8.2 Hz, 2H), 7.26 (td, *J* = 7.8, 0.9 Hz, 2H), 3.86 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 141.11, 125.79, 122.89, 120.42, 118.95, 108.54, 29.16.



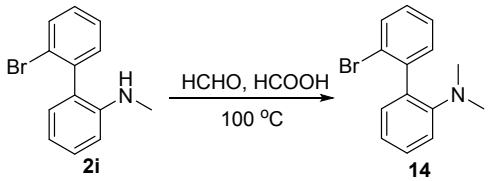
2n **13**

The biarylamine **2n** (0.5 mmol, 1.0 equiv), $Pd(OAc)_2$ (10 mol%), PIDA (1.0 equiv), and I_2 (1.0 equiv) were stirred in DCM (5 mL) under air atmosphere at 25 °C for 24 h. The solvent was removed under reduced pressure and the crude product was purified by column chromatography on silica gel. Light yellow oil, 100 mg, 65%.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.52 (dd, *J* = 8.6, 2.2 Hz, 1H), 7.45 (dd, *J* = 10.4, 4.3 Hz, 2H), 7.36 (ddd, *J* = 6.6, 4.6, 2.0 Hz, 4H), 6.45 (d, *J* = 8.6 Hz, 1H), 3.99 (br, 1H), 2.77 (s, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 145.97, 138.09, 138.03, 137.32, 130.03, 129.32, 129.14, 127.81, 112.09, 77.61, 30.71.

HRMS m/z (EI-TOF): calculated for $C_{13}H_{12}IN$ $[M]^+$ 309.0014, found 309.0013.



2i **14**

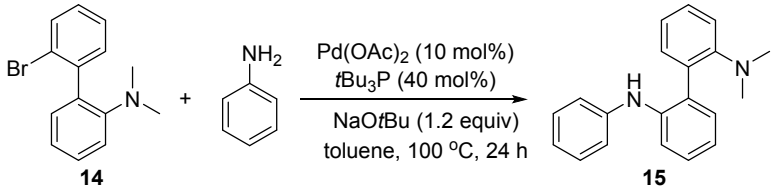
HCOOH (2.5 mL) was added to a stirred solution of **2i** (0.5 mmol) in HCHO (37%, 1.75 mL), and the mixture was kept at reflux overnight, cooled, neutralized with a saturated solution of NaHCO3, and extracted with EtOAc. The combined organic extracts were dried with Na_2SO_4, filtered, and the solvent was removed by rotary evaporation. Purification of the crude product by flash chromatography on silica gel afforded **14** as a white solid (125 mg, 91% yield).

M. p.: 59-61 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.67 (d, *J* = 7.9 Hz, 1H), 7.40 – 7.29 (m, 3H), 7.21 – 7.11 (m, 2H), 7.07 (d, *J* = 8.1 Hz, 1H), 7.02 (t, *J* = 7.4 Hz, 1H), 2.54 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 151.62, 142.66, 133.84, 133.09, 132.02, 131.96, 128.84, 128.30, 127.28, 124.03, 121.00, 118.02, 43.35.

HRMS m/z (EI-TOF): calculated for $C_{14}H_{14}BrN$ $[M]^+$ 275.0310, found 275.0310.



14 **15**

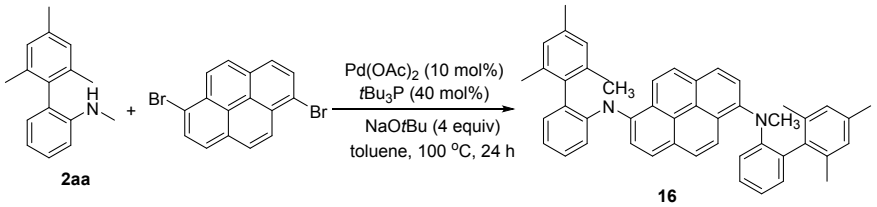
An oven-dried screw cap test tube was charged with a magnetic stir bar, $Pd(OAc)_2$ (11 mg, 0.1 equiv.), NaO*t*Bu (1.2 equiv.), and **14** (0.5 mmol, 1.0 equiv.). The tube was then evacuated and back-filled with argon. The evacuation/backfill sequence was repeated two additional times. Anhydrous toluene (2 mL) was added volumetrically followed by aniline (5.0 equiv.) and tri-*tert*-butylphosphine (1M in toluene, 0.2 mL, 0.4 equiv.). The contents were heated at 100 °C for 24 h. The contents were allowed to cool and were treated with dilute (2 M) ammonium chloride and washed with a saturated solution of brine. The organic layer was separated and the aqueous extracted with ethyl acetate (3 x 25 mL). The organics were combined and dried with $MgSO_4$, and the solvent was removed under reduced pressure. The crude product was purified by column chromatography on silica gel. White solid, 130 mg, 90%.

M. p.: 106-108 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.64 (br, 1H), 7.44 (dd, *J* = 8.1, 0.8 Hz, 1H), 7.34 – 7.25 (m, 3H), 7.25 – 7.19 (m, 1H), 7.19 – 7.11 (m, 2H), 7.10 – 7.00 (m, 2H), 6.98 (td, *J* = 7.5, 1.1 Hz, 1H), 6.90 (dd, *J* = 8.5, 0.9 Hz, 2H), 6.77 (t, *J* = 7.3 Hz, 1H), 2.65 (s, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 150.58, 144.11, 141.04, 133.95, 133.48, 132.66, 131.70, 129.28, 128.43, 127.85, 122.51, 121.30, 119.76, 117.54, 117.46, 117.32, 43.30, 43.26.

HRMS m/z (EI-TOF): calculated for $C_{20}H_{20}N_2$ $[M]^+$ 288.1626, found 288.1625.



2aa **16**

Following the modified procedure described by Bushby et al.[5] An oven-dried screw cap test tube was charged with a magnetic stir bar, $Pd(OAc)_2$ (11 mg, 0.1 equiv.), NaO*t*Bu (4 equiv.), **2aa** (2 equiv.), and 1,6-dibromopyrene (0.5 mmol, 1.0 equiv.). The tube was then evacuated and back-filled with argon. The evacuation/backfill sequence was repeated two additional times. Anhydrous toluene (2 mL) was added volumetrically followed by tri-*tert*-butylphosphine (1M in toluene, 0.2 mL, 0.4 equiv.). The contents were heated at 100 °C for 24 h. The contents were allowed to cool and were treated with dilute (2 M) ammonium chloride and washed with a saturated solution of brine. The organic layer was separated and the aqueous extracted with ethyl acetate (3 x 25 mL). The organics were combined and dried with $MgSO_4$, and the solvent was removed under reduced

pressure. The crude product was purified by column chromatography on silica gel. Green solid, 260 mg, 80%. M. p.: 278-280 °C.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.77 (d, *J* = 9.1 Hz, 2H), 7.72 (d, *J* = 8.1 Hz, 2H), 7.59 (d, *J* = 9.2 Hz, 2H), 7.54 (d, *J* = 7.7 Hz, 2H), 7.51 – 7.43 (m, 2H), 7.33 (d, *J* = 8.1 Hz, 2H), 7.13 (t, *J* = 6.9 Hz, 2H), 6.98 (dd, *J* = 7.4, 1.4 Hz, 2H), 6.21 (s, 4H), 3.34 (s, 6H), 1.69 (s, 6H), 1.63 (s, 12H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 150.31, 145.74, 136.87, 135.94, 135.54, 135.21, 131.85, 128.37, 127.79, 127.63, 127.20, 126.10, 125.33, 124.45, 124.26, 122.39, 122.11, 119.95, 43.75, 20.62, 20.31.

HRMS m/z (EI-TOF): calculated for $C_{48}H_{44}N_2$ $[M]^+$ 648.3504, found 648.3503.

Part 7. References

[1] A. Polley, G. Bairy, P. Das, R. Jana, *Adv. Synth. Catal.* **2018**, *360*, 4161.

[2] X. Geng, S. Mao, L. Chen, J. Yu, J. Han, J. Hua, L. Wang, *Tetrahedron Letters* **2014**, *55*, 3856.

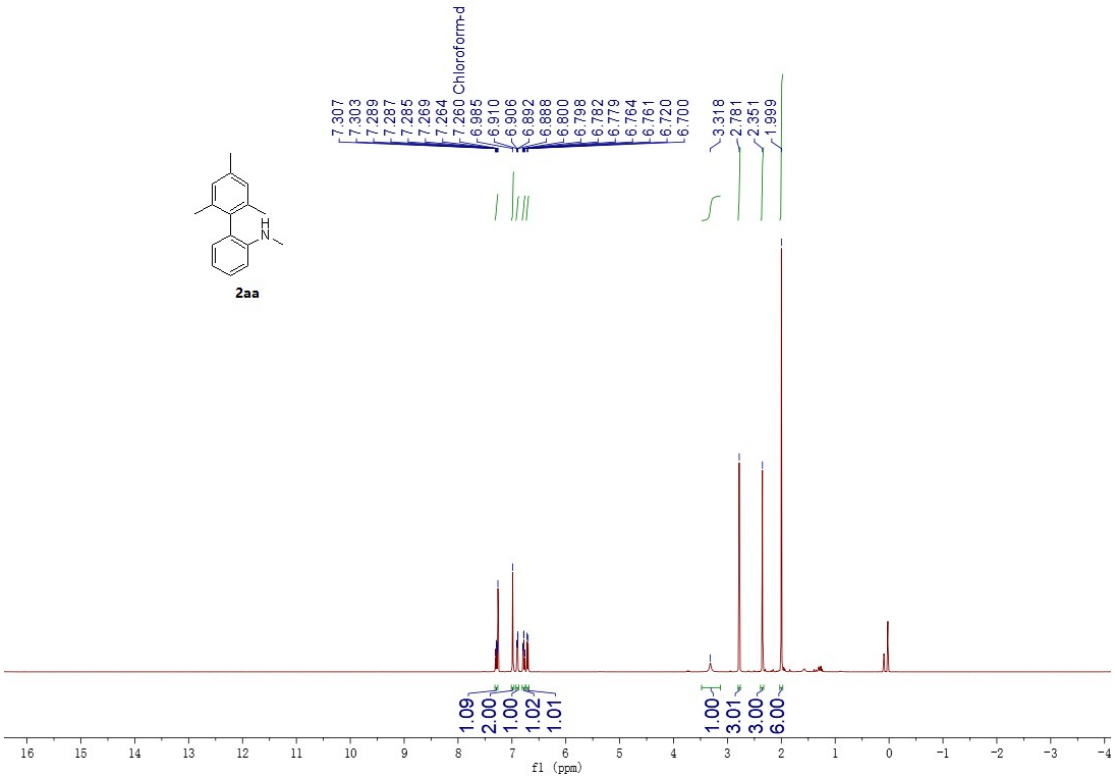
[3] S. W. Youn, T. Y. Ko, Y. H. Jang, *Angew. Chem. Int. Ed.* **2017**, *56*, 6636.

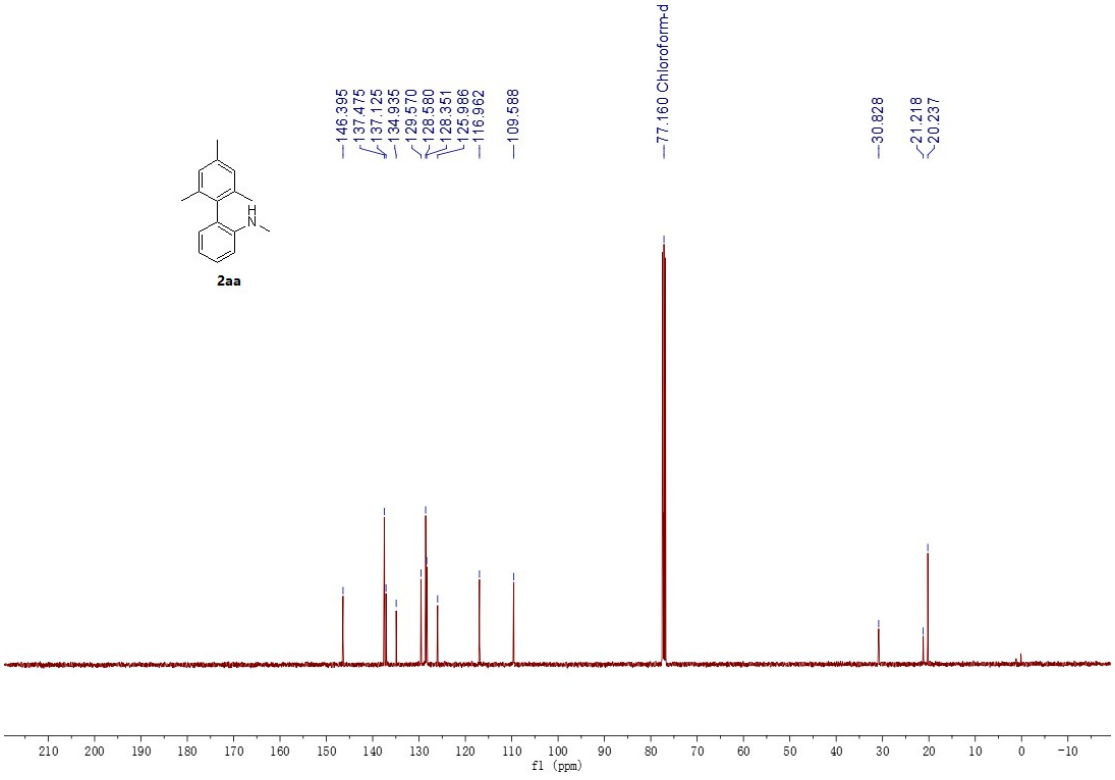
[4] L. Qin, B. Hu, K. D. Neumann, E. J. Linstad, K. McCauley, J. Veness, J. J. Kempinger, S. G. DiMagno, *Eur. J. Org. Chem.* **2015**, 5919.

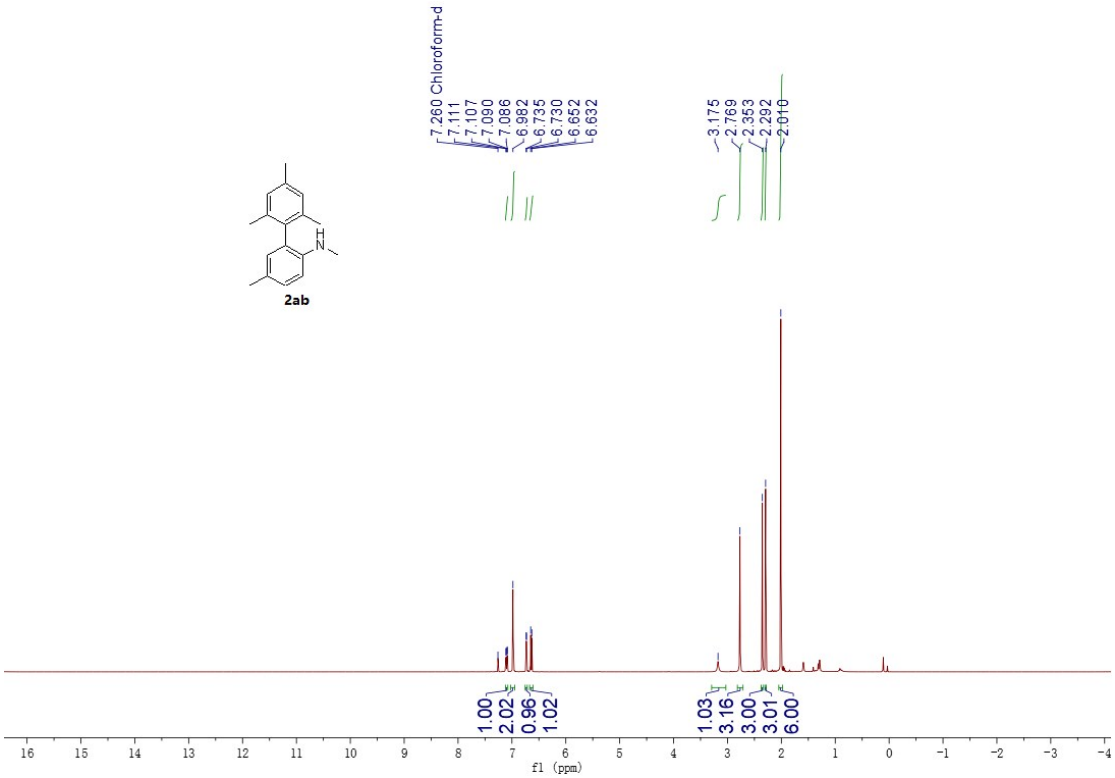
[5] R. J. Bushby, C. A. Kilner, N. Taylor, M. E. Vale, *Tetrahedron* **2007**, *63*, 11458.

[6] J. A. Jordan-Hore, C. C. C. Johansson, M. Gulias, E. M. Beck, M. J. Gaunt, *J. Am. Chem. Soc.* **2008**, *130*, 16184.

Part 8. ^{1}H, ^{13}C, and ^{19}F NMR spectra of Products



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7.090
7.086
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6.735
6.730
6.652
6.632
3.175
2.769
2.353
2.292
2.010
2ab
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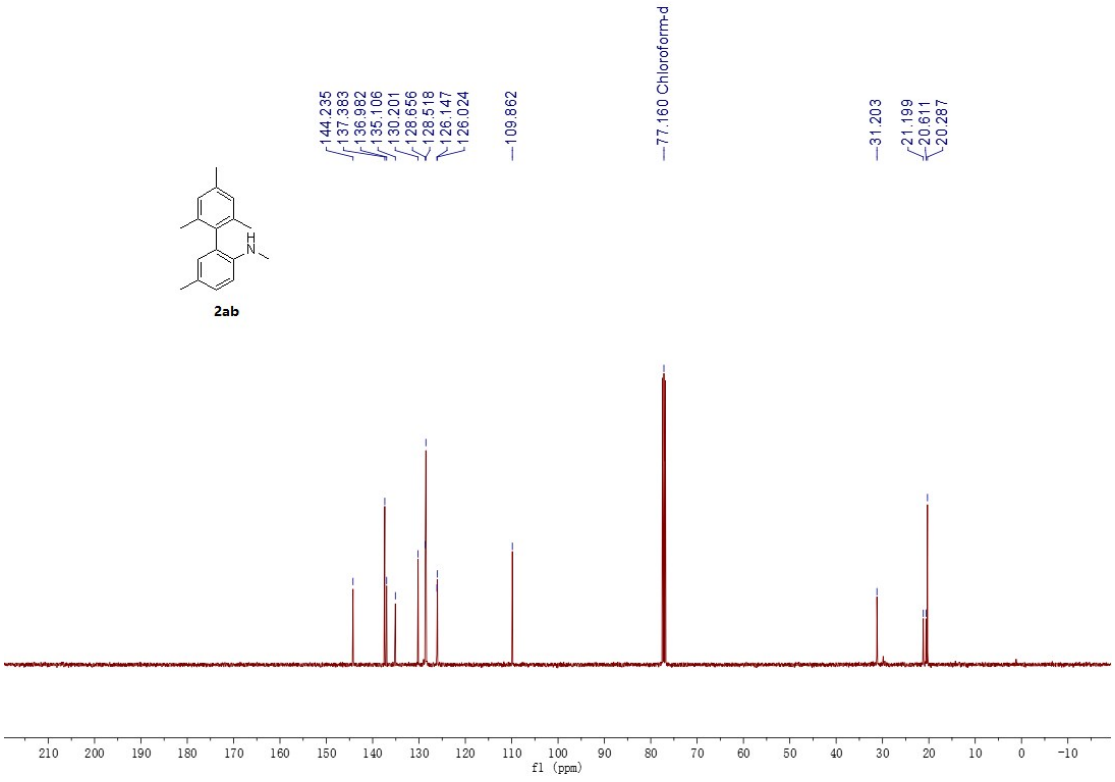
2.02
0.96
1.02
1.03
3.16
3.00
3.01
6.00
f1 (ppm)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137.383
136.982
135.106
130.201
128.656
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126.024
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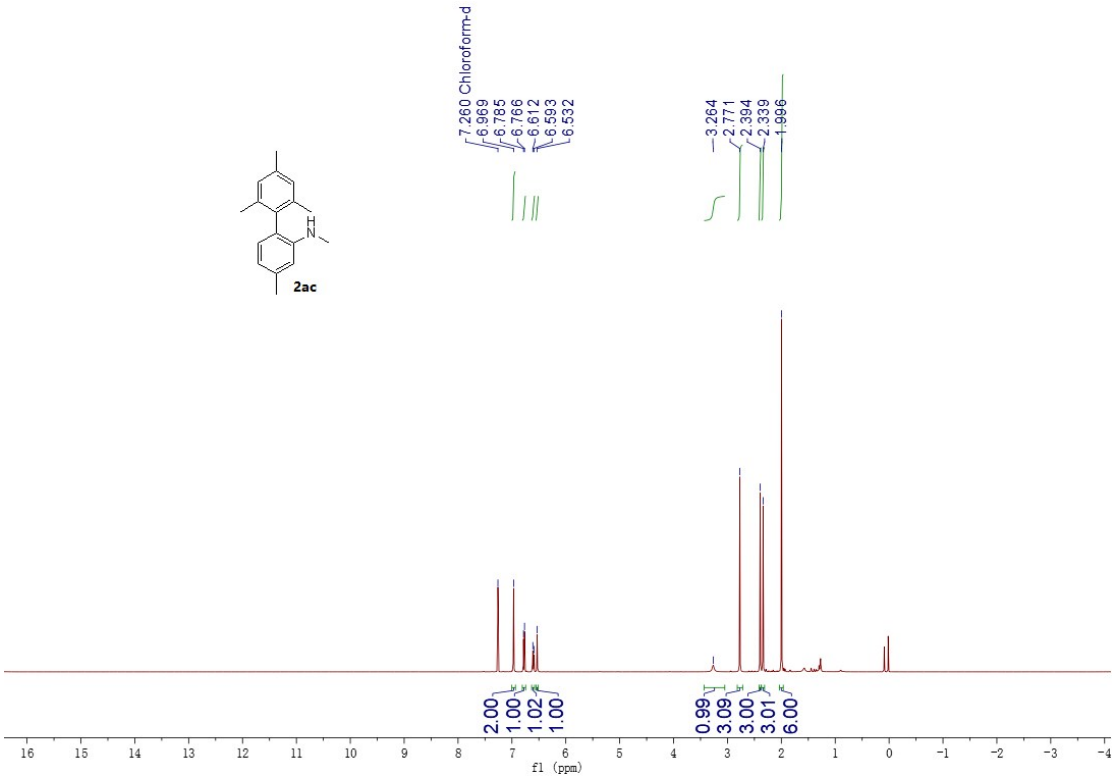
21.199
20.611
20.287
2ab
f1 (ppm)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6.612
6.593
6.532
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2.771
2.394
2.339
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2ac
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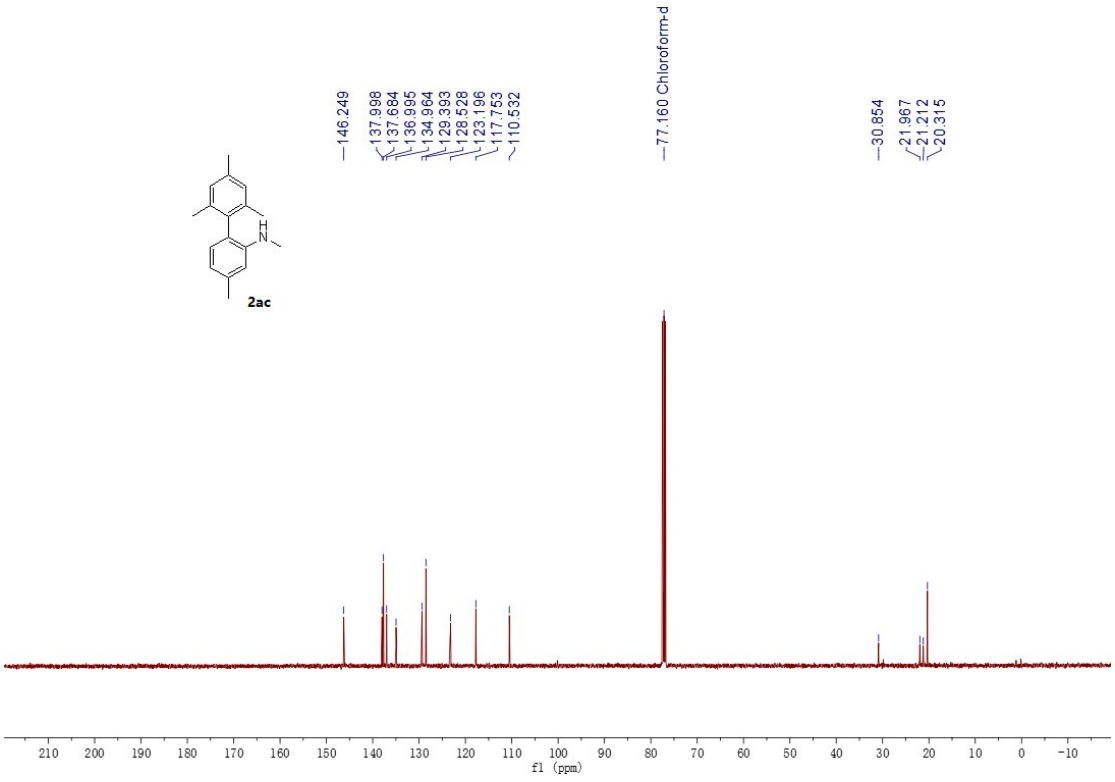
1.00
1.02
1.00
0.99
3.09
3.00
3.01
6.00
f1 (ppm)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137.684
136.995
134.964
129.393
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117.753
110.532
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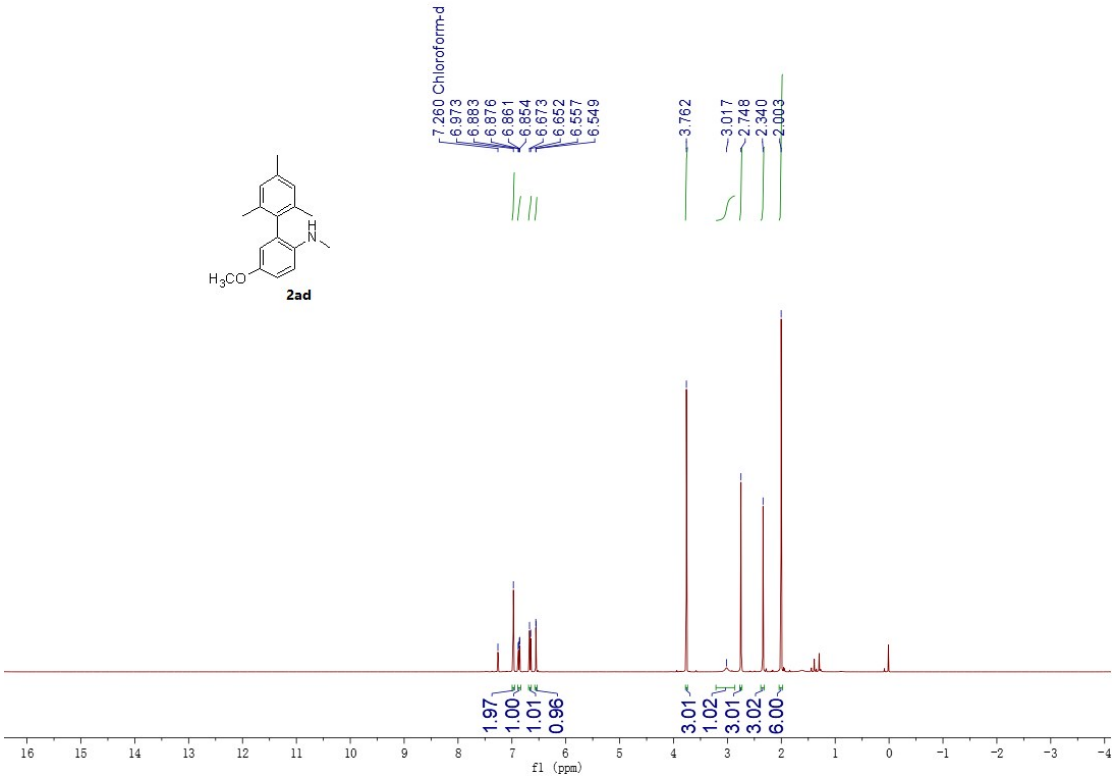
21.967
21.212
20.315
2ac
f1 (ppm)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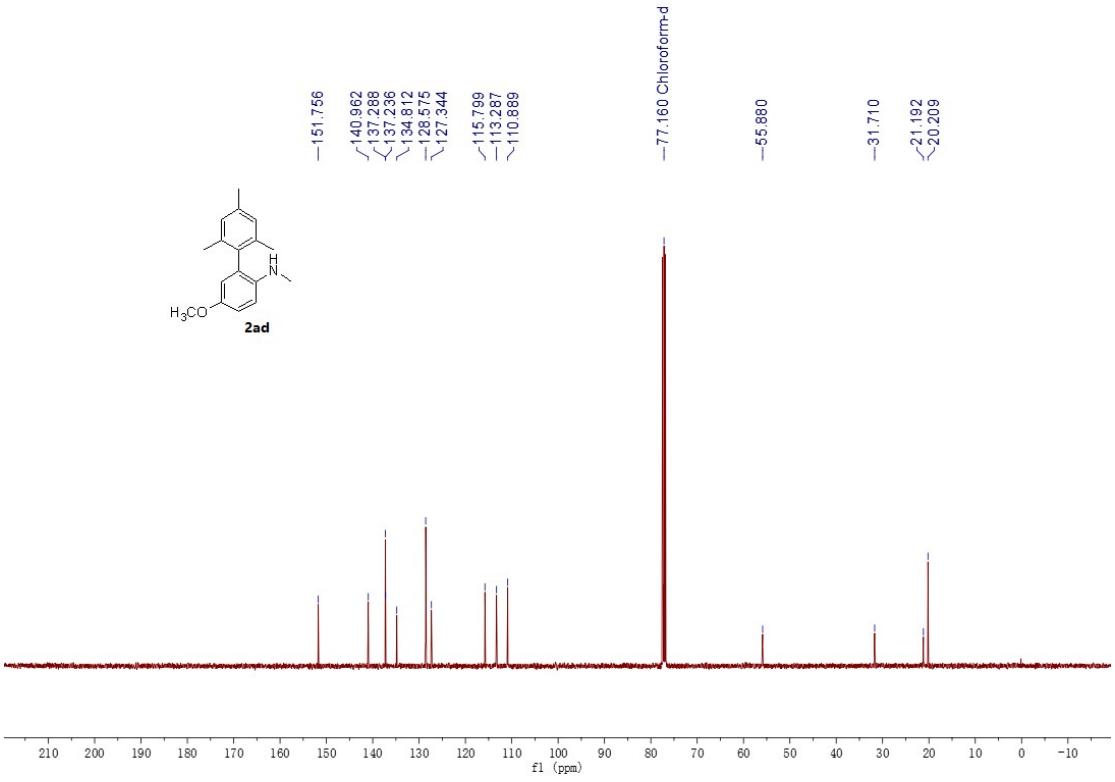
6.876
6.861
6.854
6.673
6.652
6.557
6.549
3.762
3.017
2.748
2.340
2.003
2ad
1.97
1.00
1.01
0.96
3.01
1.02
3.01
3.02
6.00
f1 (ppm)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134.812
128.575
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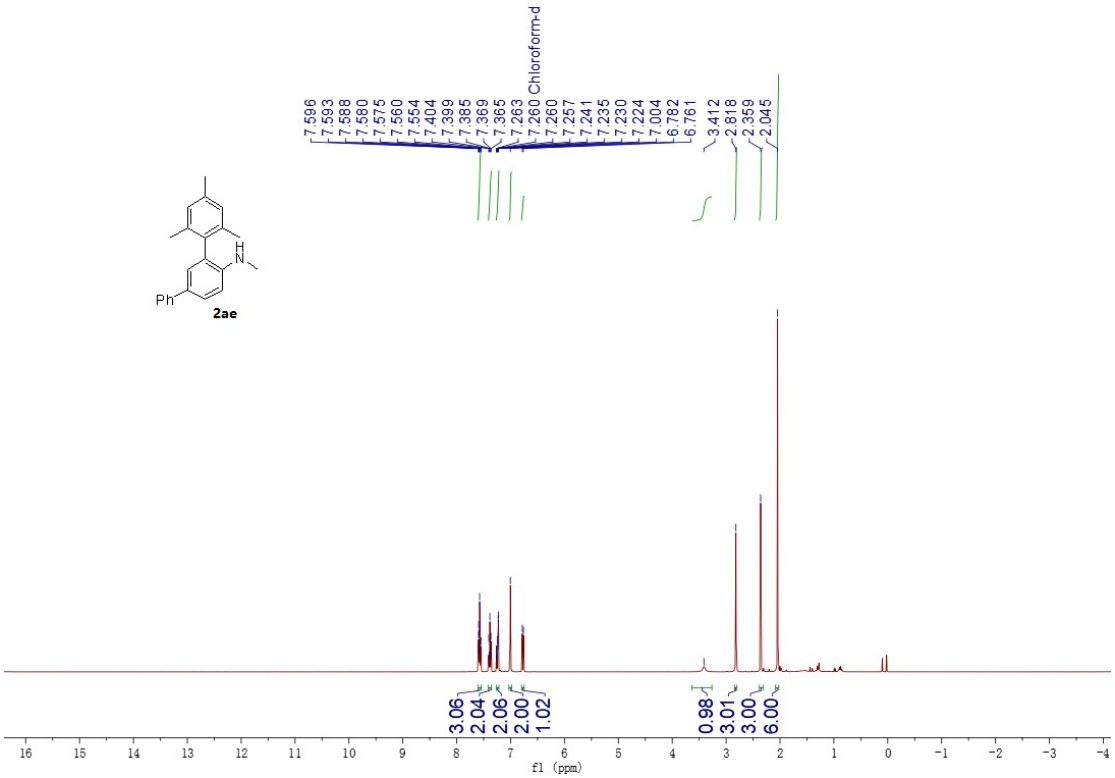
21.192
20.209
2ad
f1 (ppm)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7.580
7.575
7.560
7.554
7.404
7.399
7.385
7.369
7.365
7.263
7.260 Chloroform-d
7.260
7.257
7.241
7.235
7.230
7.224
7.004
6.782
6.761
3.412
2.818
2.359
2.045
Ph
NH
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2.00
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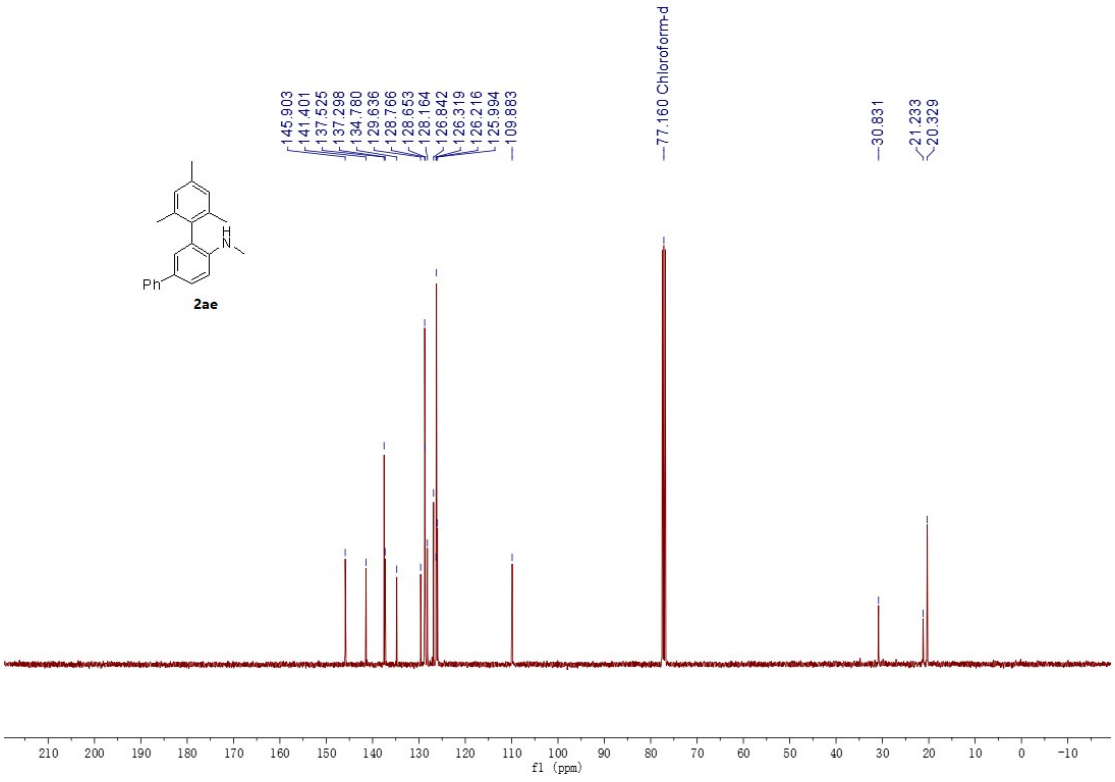
3.00
6.00
f1 (ppm)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129.636
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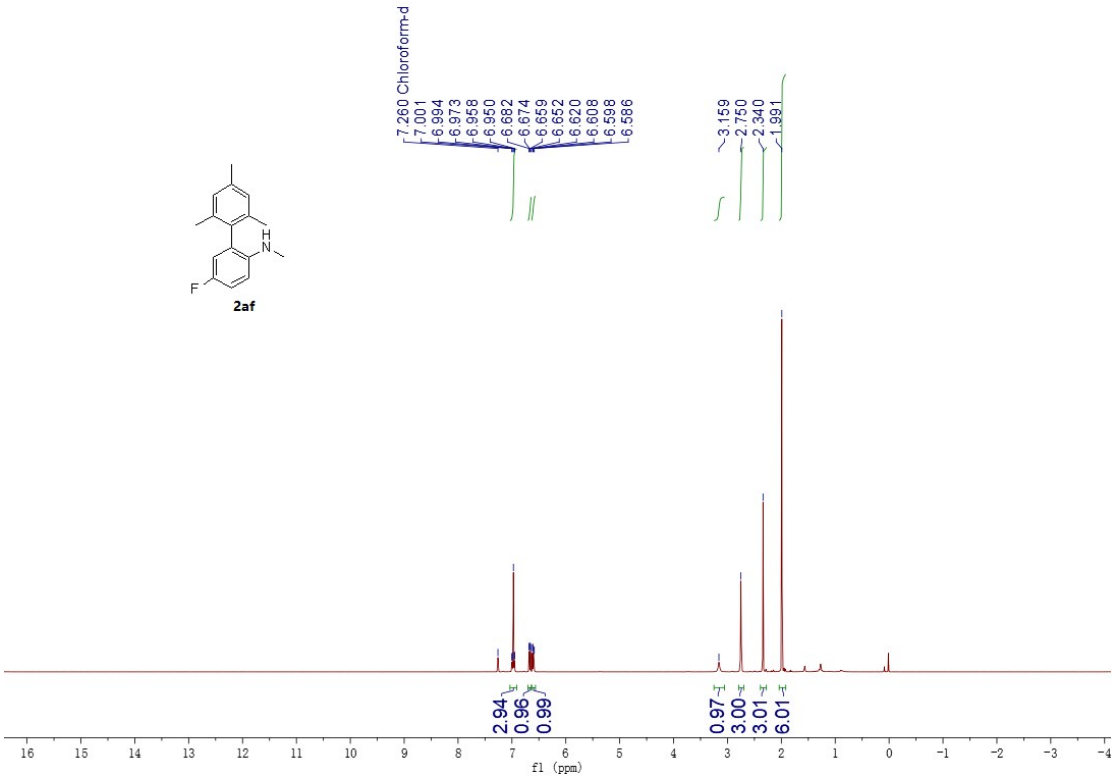
Ph
NH
2ae
f1 (ppm)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6.608
6.598
6.586
3.159
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2af
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3.00
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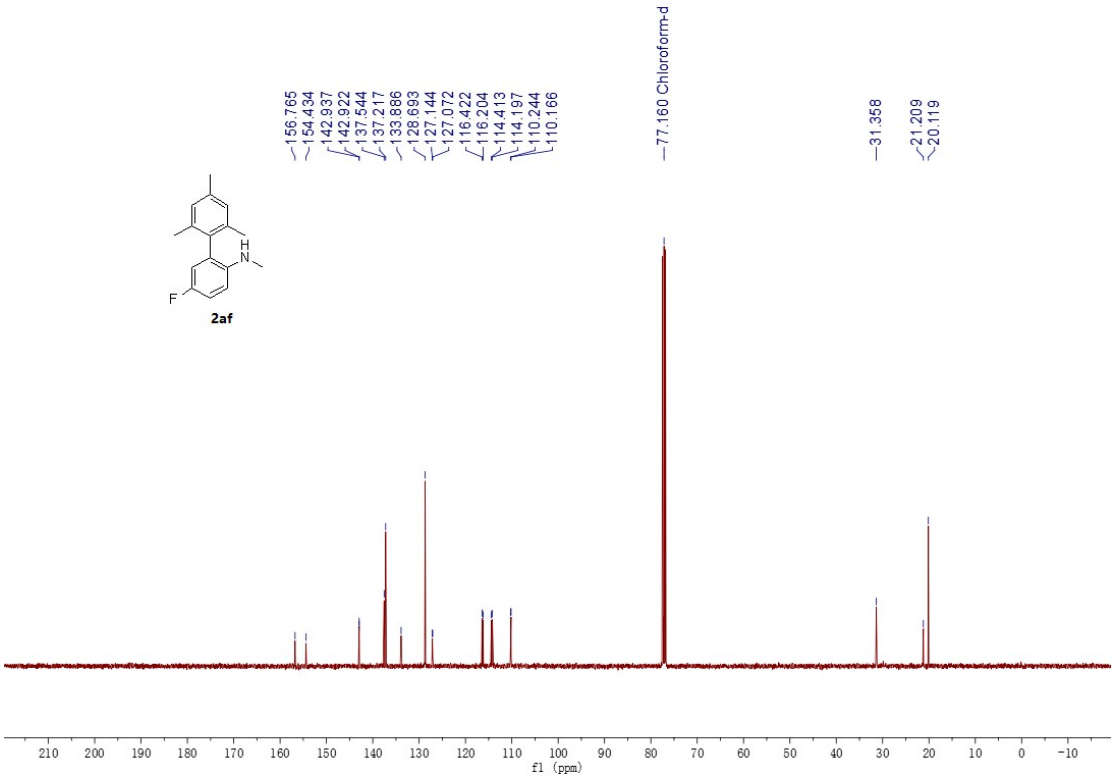
6.01
f1 (ppm)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127.072
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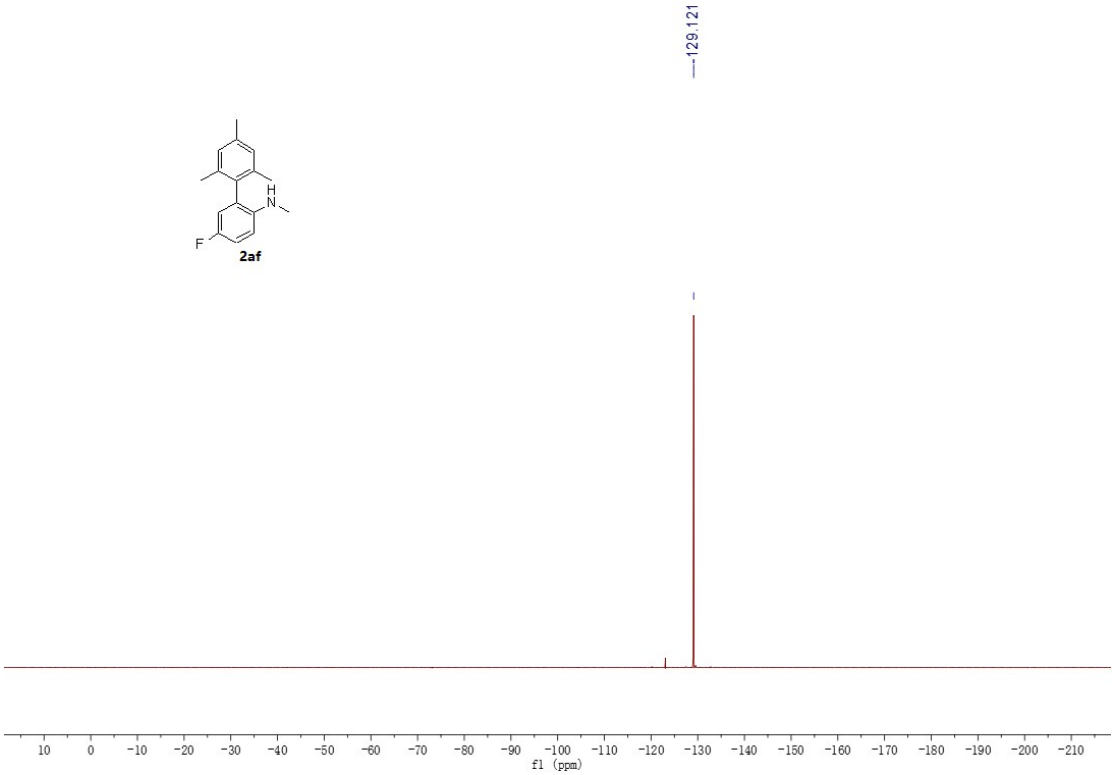
f1 (ppm)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2af
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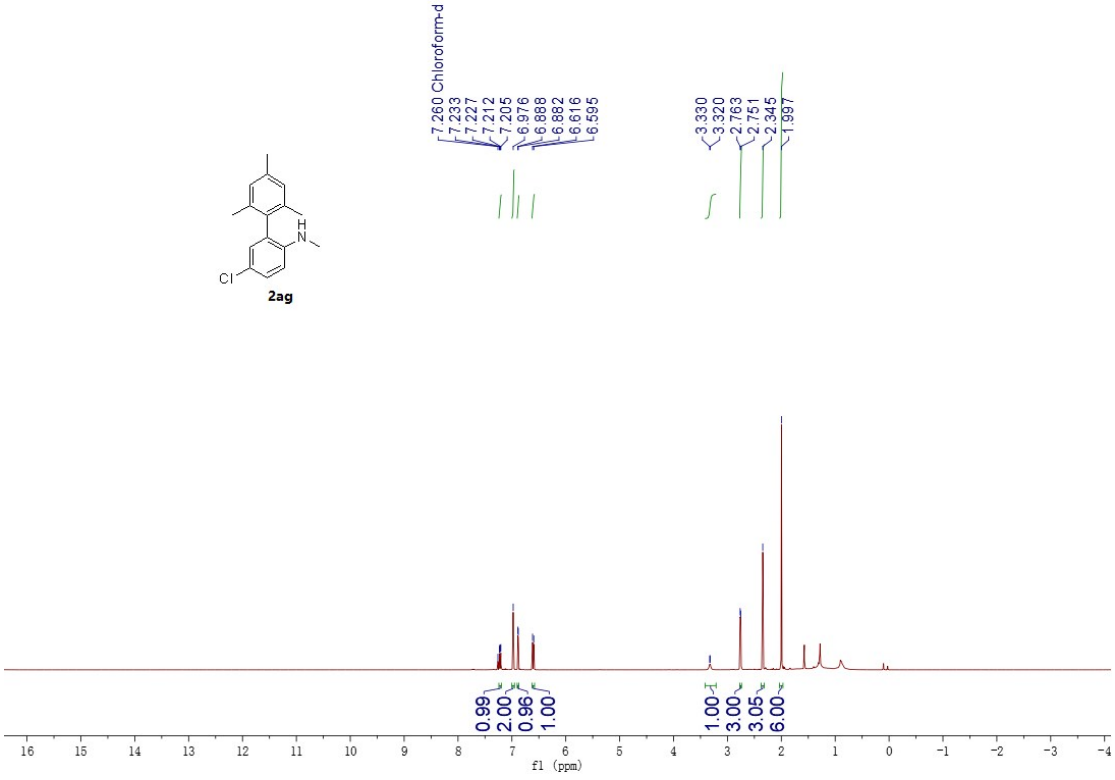
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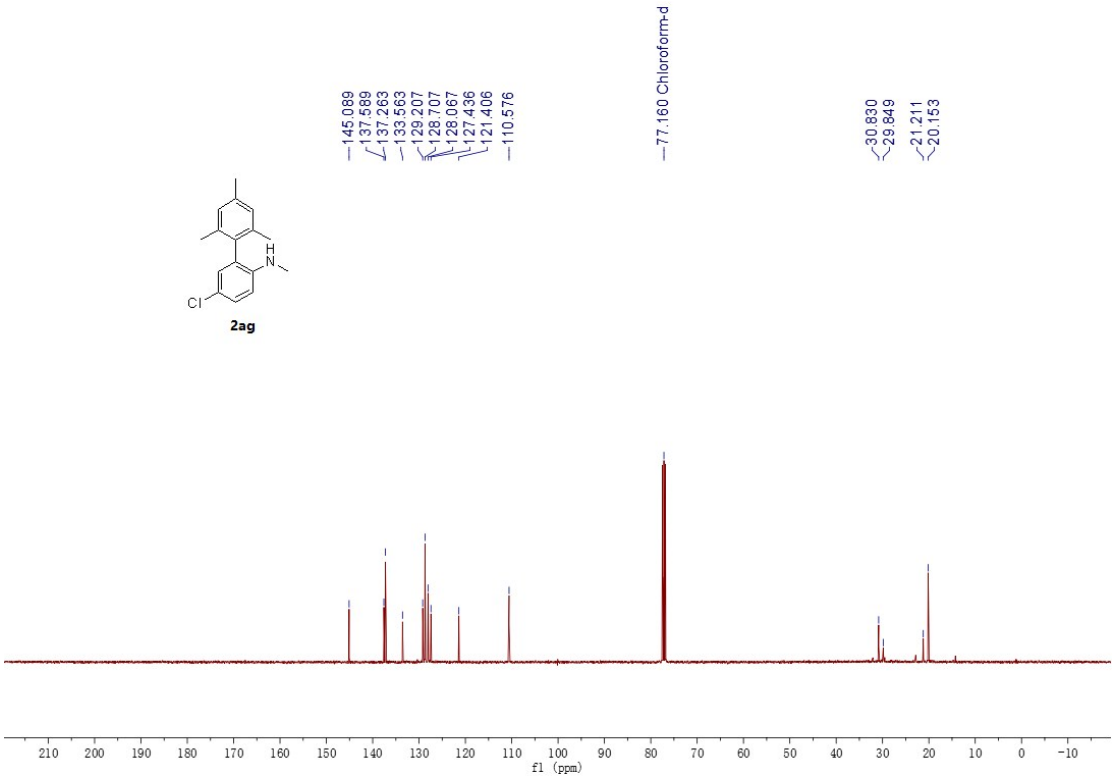
2.763
2.751
2.345
1.997
Cl
2ag
0.99
2.00
0.96
1.00
1.00
3.00
3.05
6.00
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4
f1 (ppm)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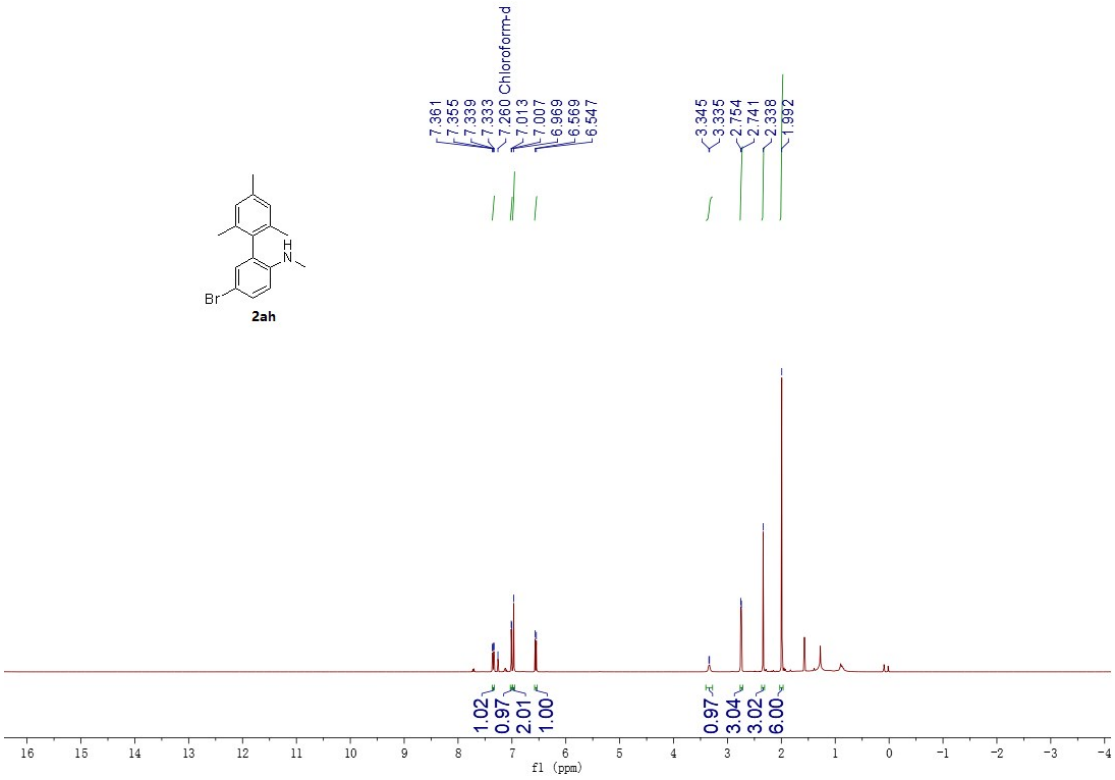
137.589
137.263
133.563
129.207
128.707
128.067
127.436
121.406
110.576
77.160 Chloroform-d
30.830
29.849
21.211
20.153
Cl
2ag
f1 (ppm)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7.355
7.339
7.333
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7.013
7.007
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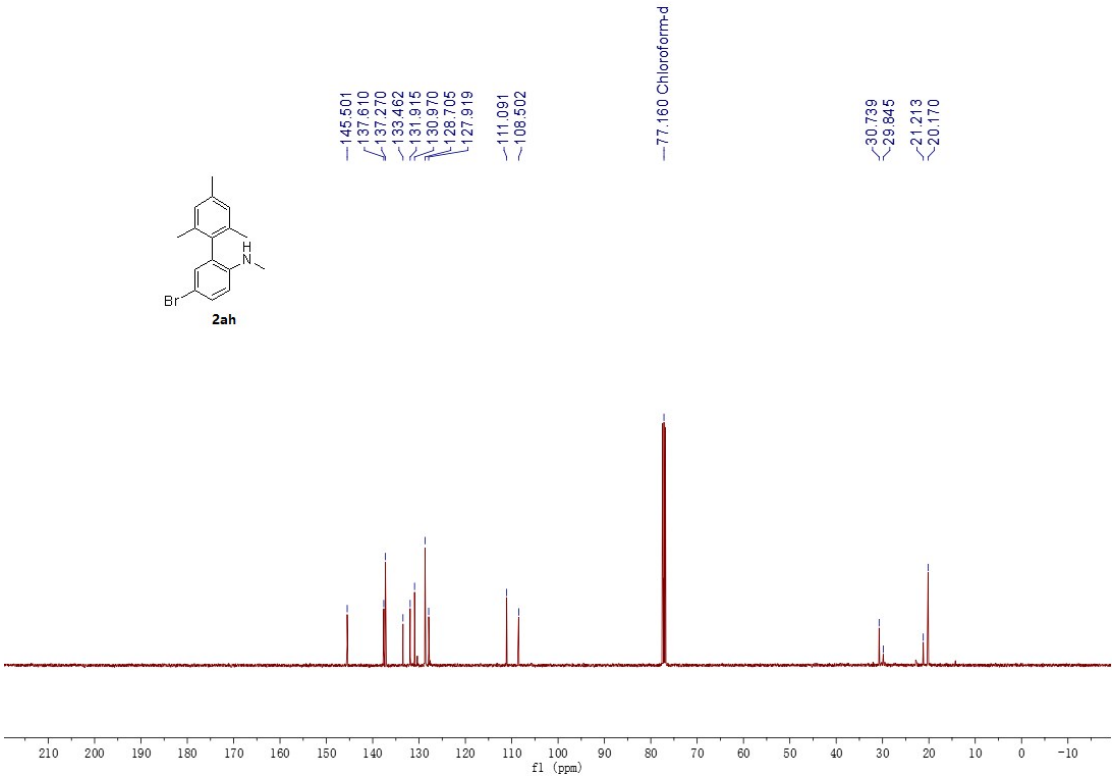
6.569
6.547
3.345
3.335
2.754
2.741
2.338
1.992
Br
2ah
1.02
0.97
2.01
1.00
0.97
3.04
3.02
6.00
f1 (ppm)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137.270
133.462
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130.970
128.705
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111.091
108.502
77.160 Chloroform-d
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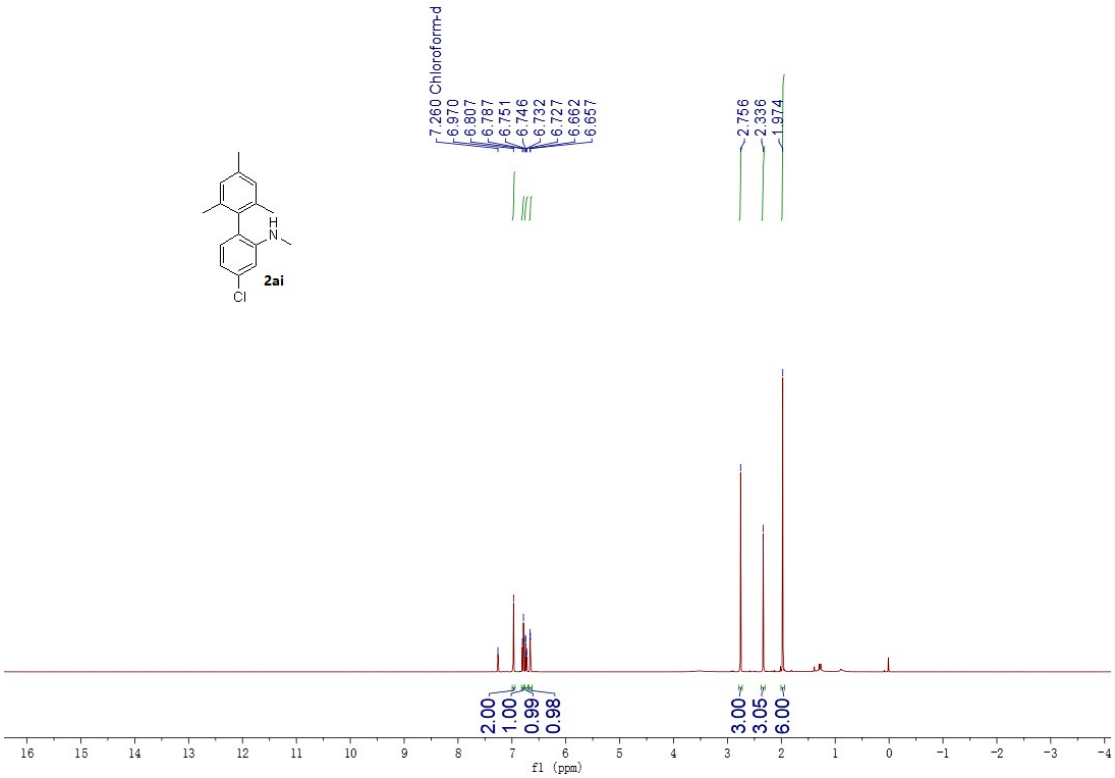
21.213
20.170
Br
2ah
f1 (ppm)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6.751
6.746
6.732
6.727
6.662
6.657
2.756
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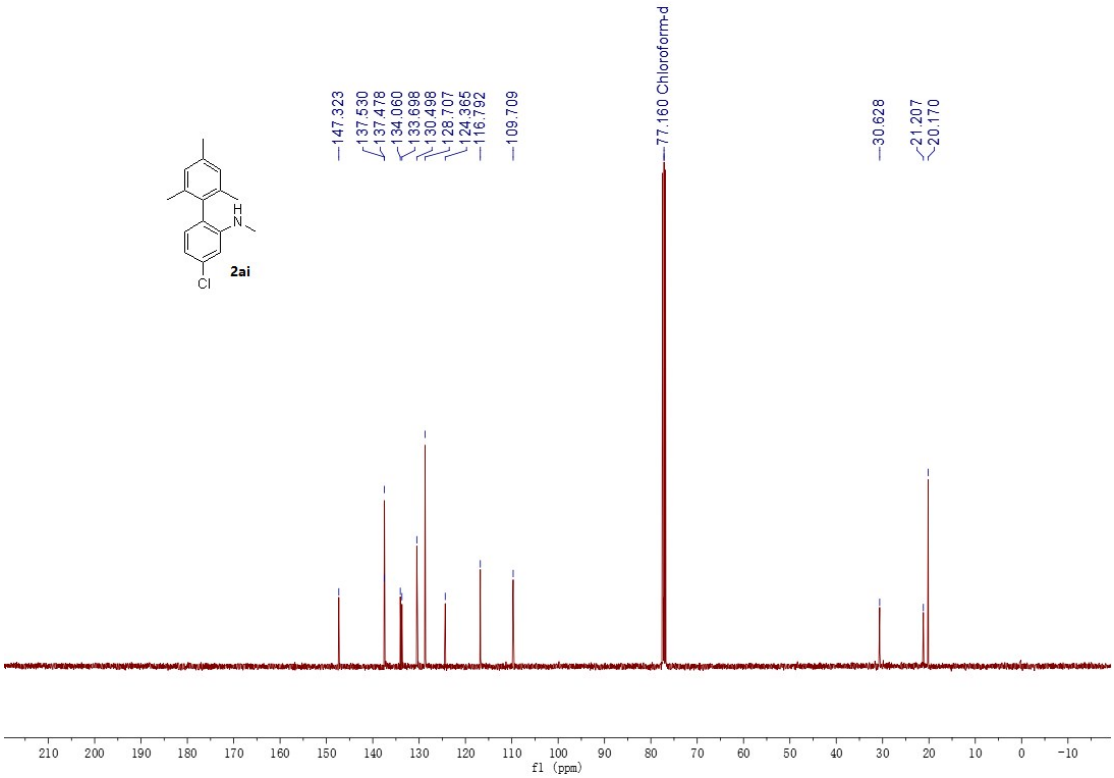
Cl
2ai
2.00
1.00
0.99
0.98
3.00
3.05
6.00
f1 (ppm)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137.478
134.060
133.698
130.498
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116.792
109.709
77.160 Chloroform-d
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21.207
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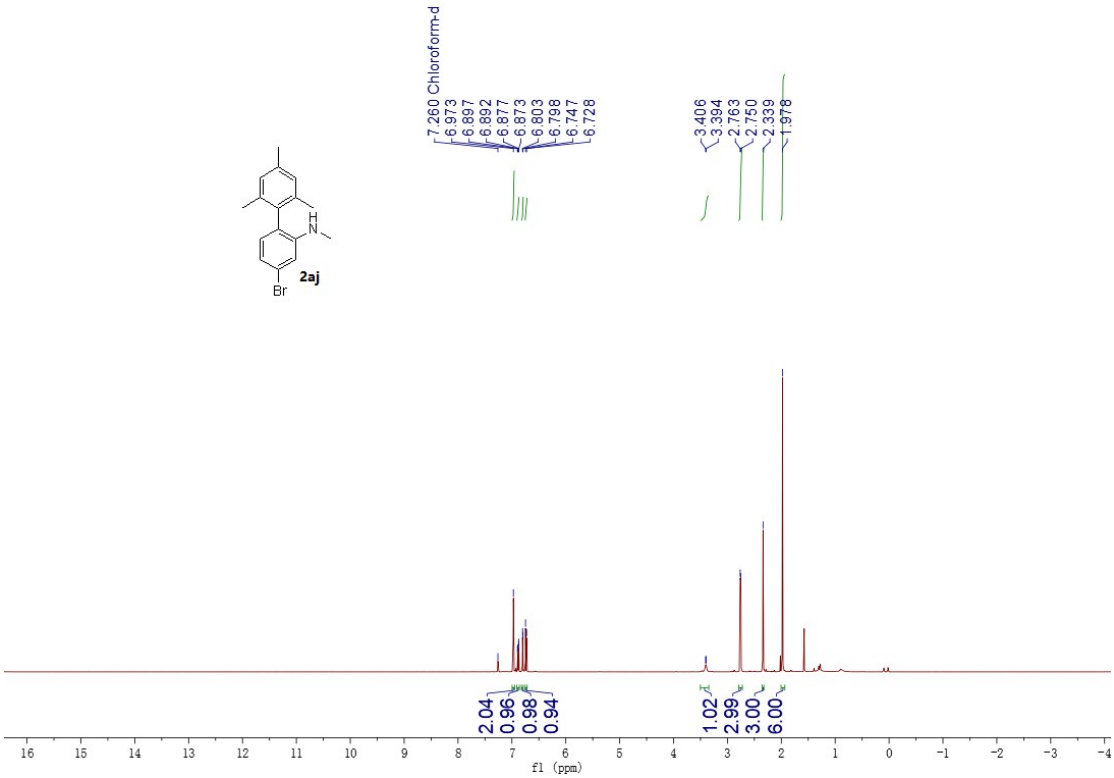
2ai
Cl
f1 (ppm)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6.877
6.873
6.803
6.798
6.747
6.728
3.406
3.394
2.763
2.750
2.339
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Br
2.04
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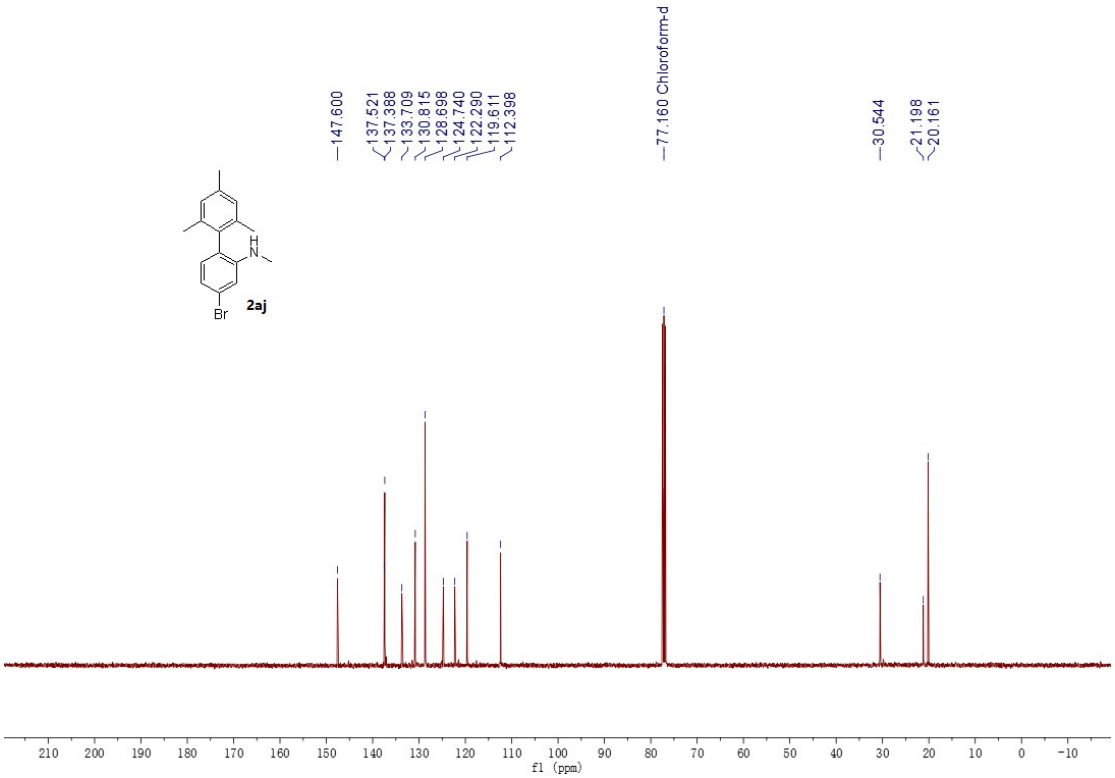
0.98
0.94
1.02
2.99
3.00
6.00
f1 (ppm)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137.521
137.388
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128.698
124.740
122.290
119.611
112.398
77.160 Chloroform-d
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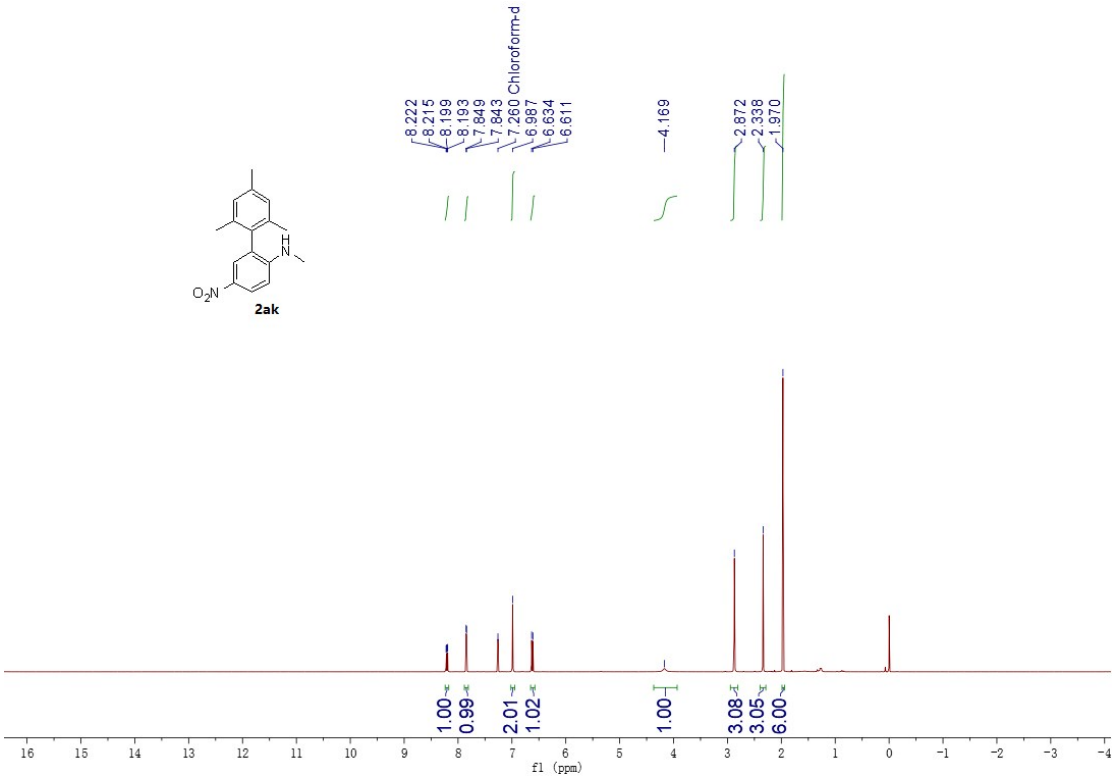
21.198
20.161
Br
2aj
f1 (ppm)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8.215
8.199
8.193
7.849
7.843
7.260 Chloroform-d
6.987
6.634
6.611
4.169
2.872
2.338
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O2N
2ak
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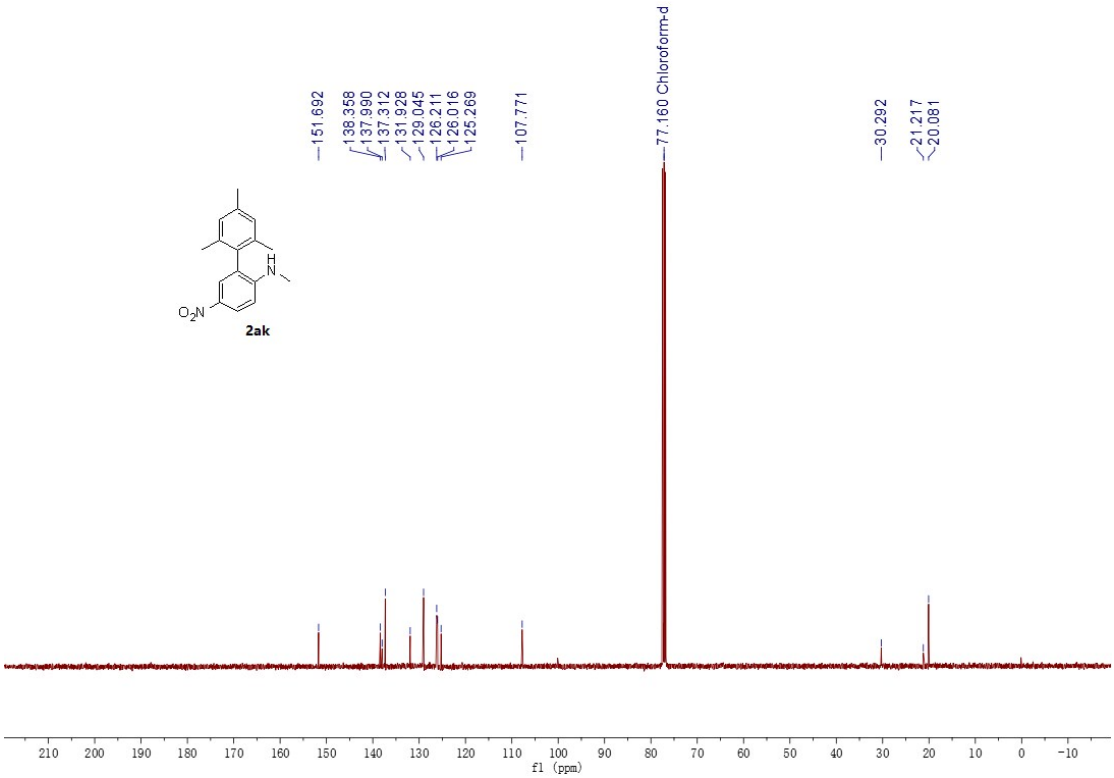
2.01
1.02
1.00
3.08
3.05
6.00
f1 (ppm)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137.312
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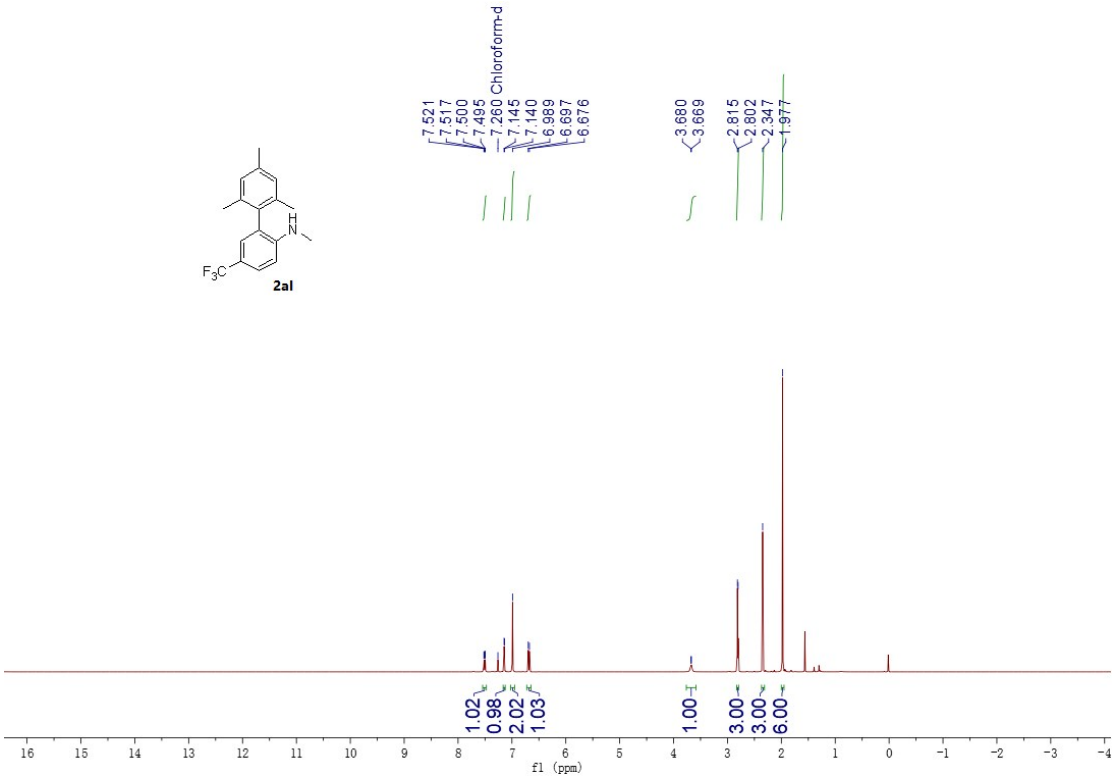
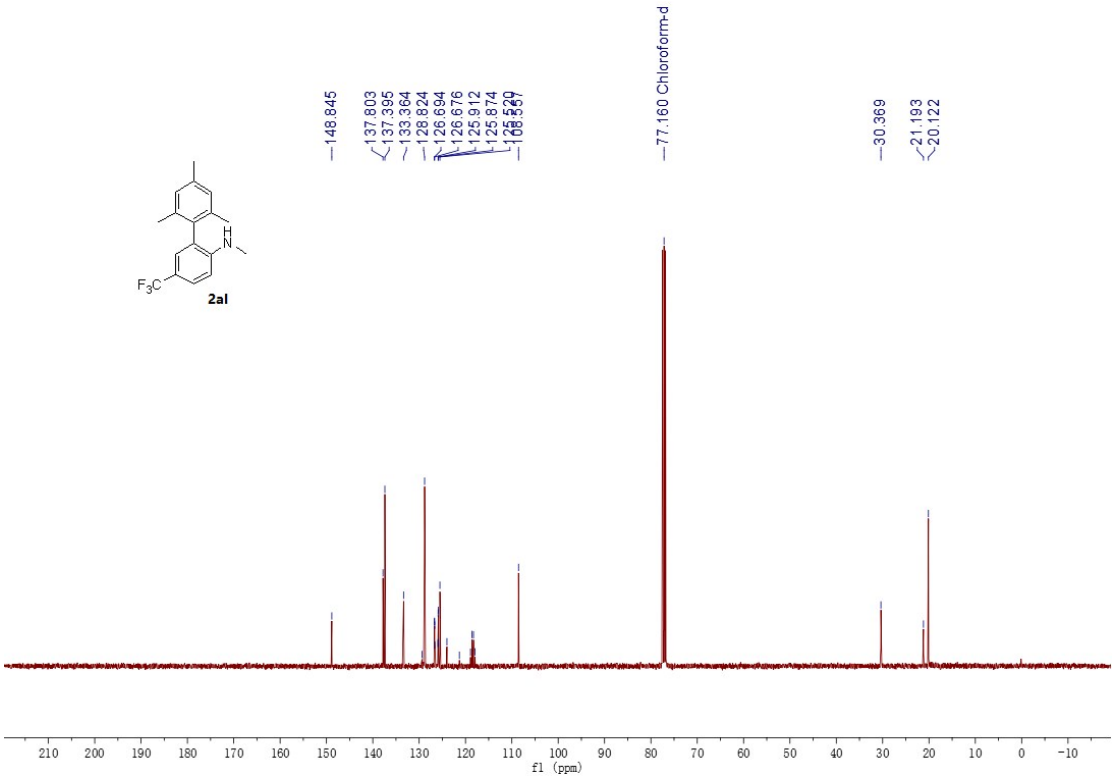
126.016
125.269
107.771
77.160 Chloroform-d
30.292
21.217
20.081
2ak
f1 (ppm)


7.521
7.517
7.500
7.495
7.260 Chloroform-d
7.145
7.140
6.989
6.697
6.676
3.680
3.669
2.815
2.802
2.347
1.977
2al
1.02
0.98
2.02
1.03
1.00
3.00
3.00
6.00
f1 (ppm)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137.803
137.395
133.364
128.824
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125.912
125.874
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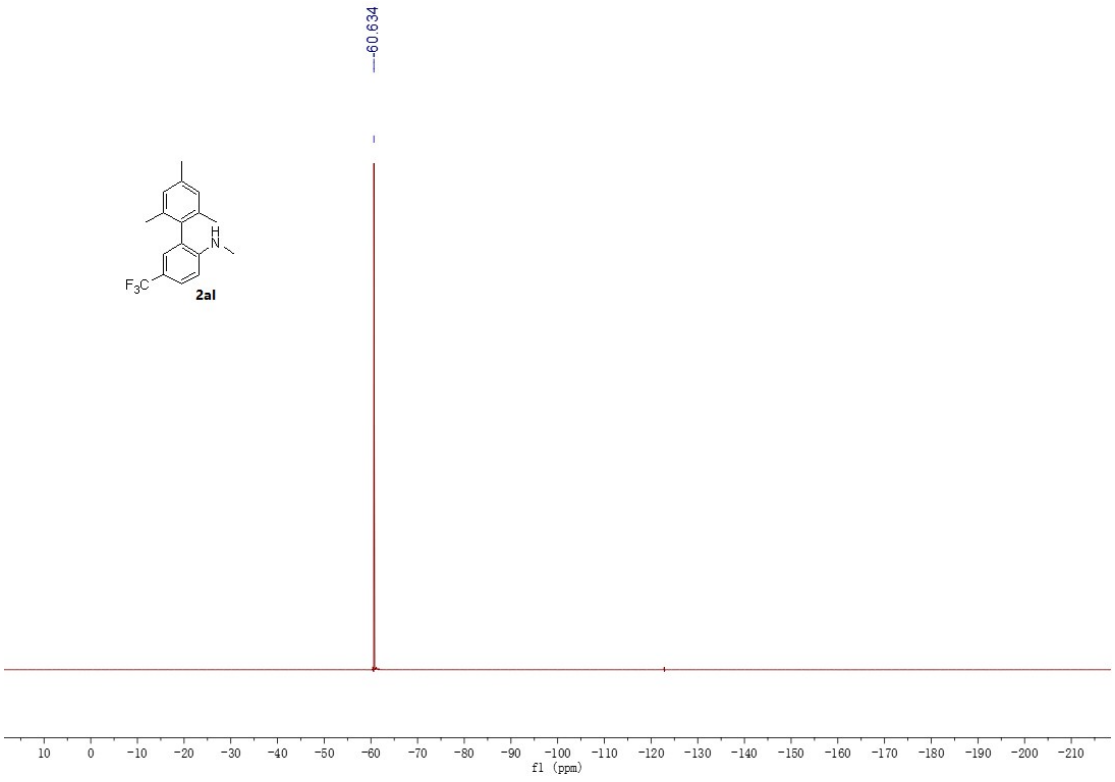
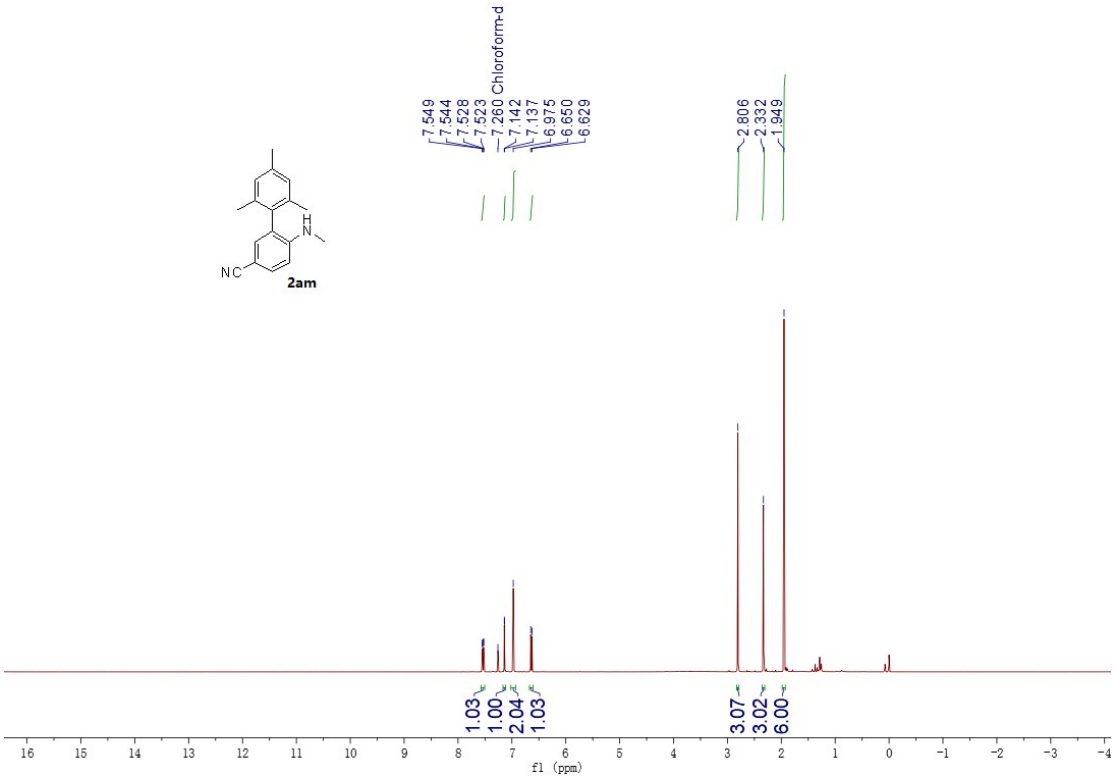
21.193
20.122
2al
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)


60.634
2al
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)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7.544
7.528
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7.142
7.137
6.975
6.650
6.629
2.806
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1.949
NC
2am
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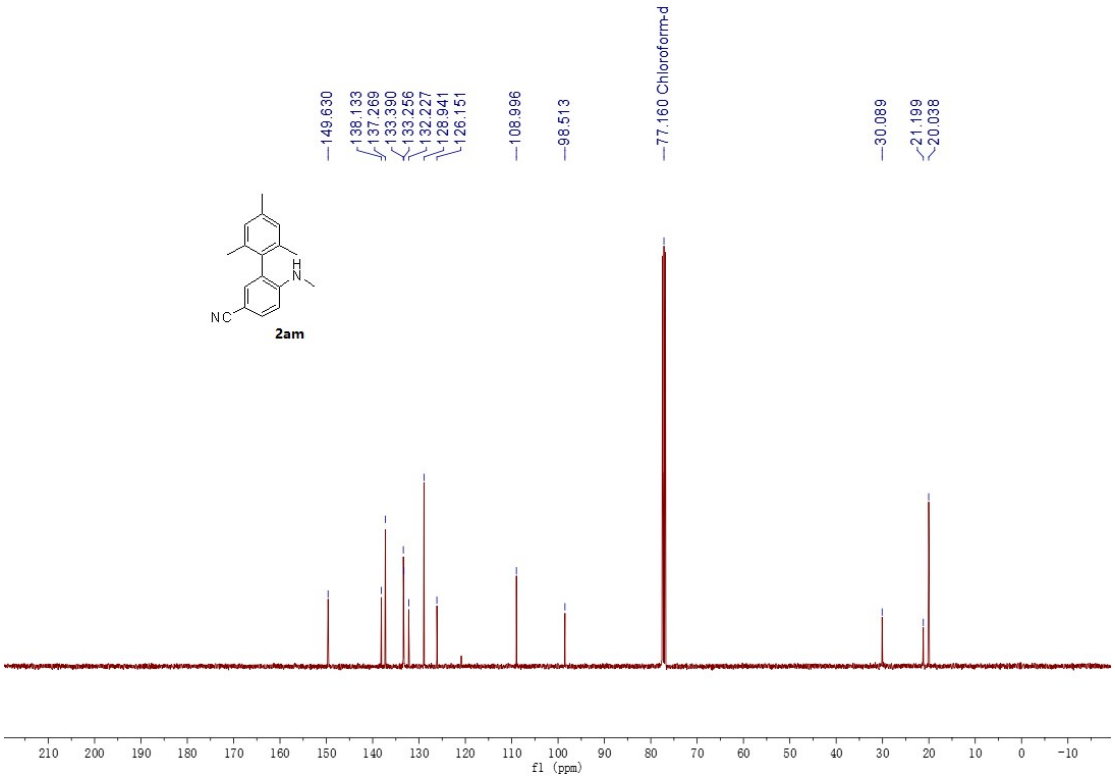
1.00
2.04
1.03
3.07
3.02
6.00
f1 (ppm)


149.630
138.133
137.269
133.390
133.256
132.227
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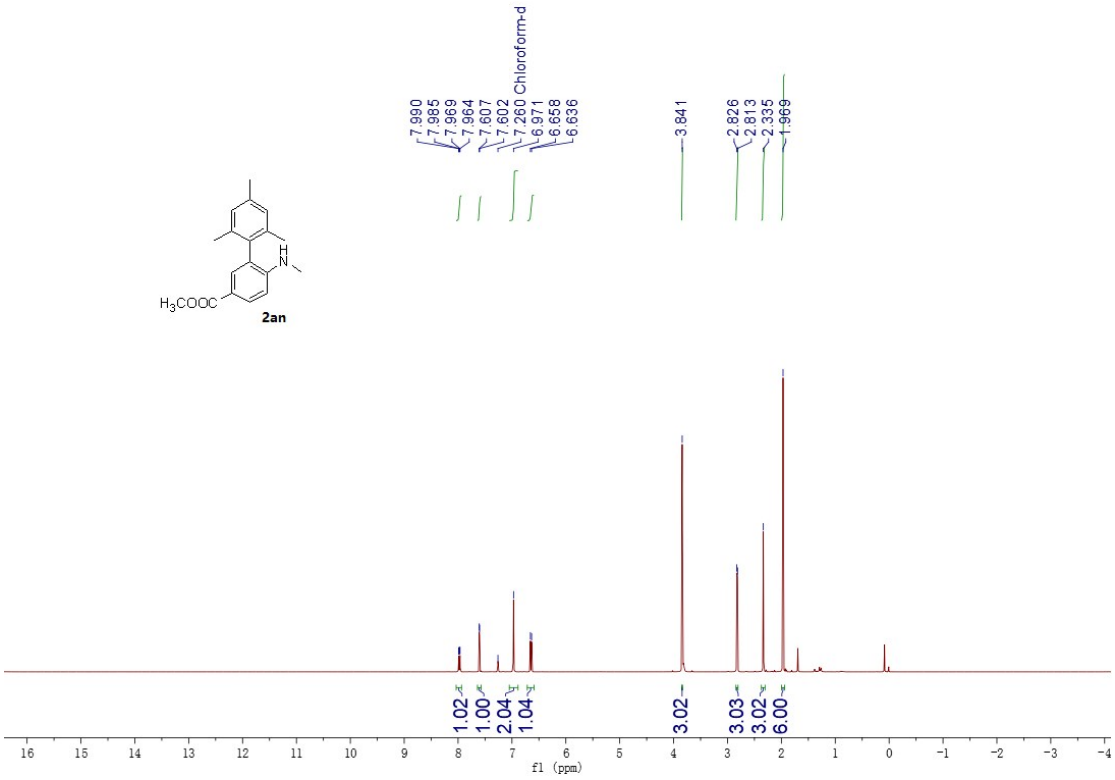
108.996
98.513
77.160 Chloroform-d
30.089
21.199
20.038
NC
2am
f1 (ppm)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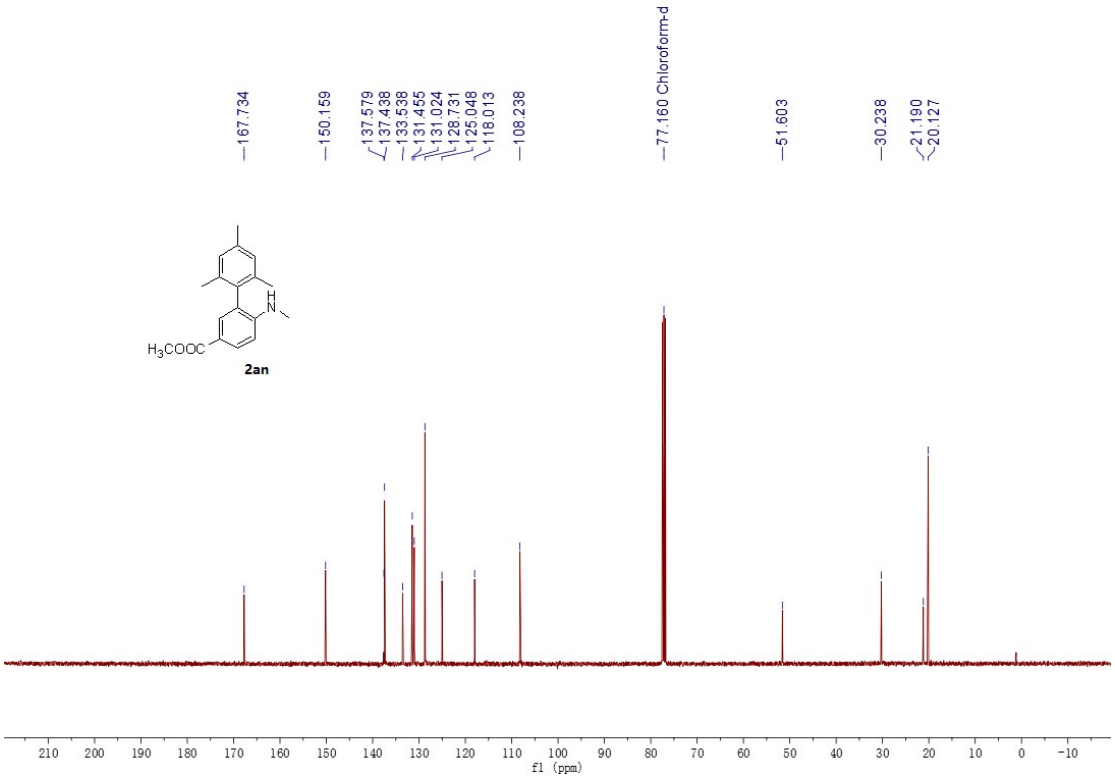
7.985
7.969
7.964
7.607
7.602
7.260 Chloroform-d
6.971
6.658
6.636
3.841
2.826
2.813
2.335
1.969
H3COOC
2an
1.02
1.00
2.04
1.04
3.02
3.03
3.02
6.00
f1 (ppm)


167.734
150.159
137.579
137.438
133.538
131.455
131.024
128.731
125.048
118.013
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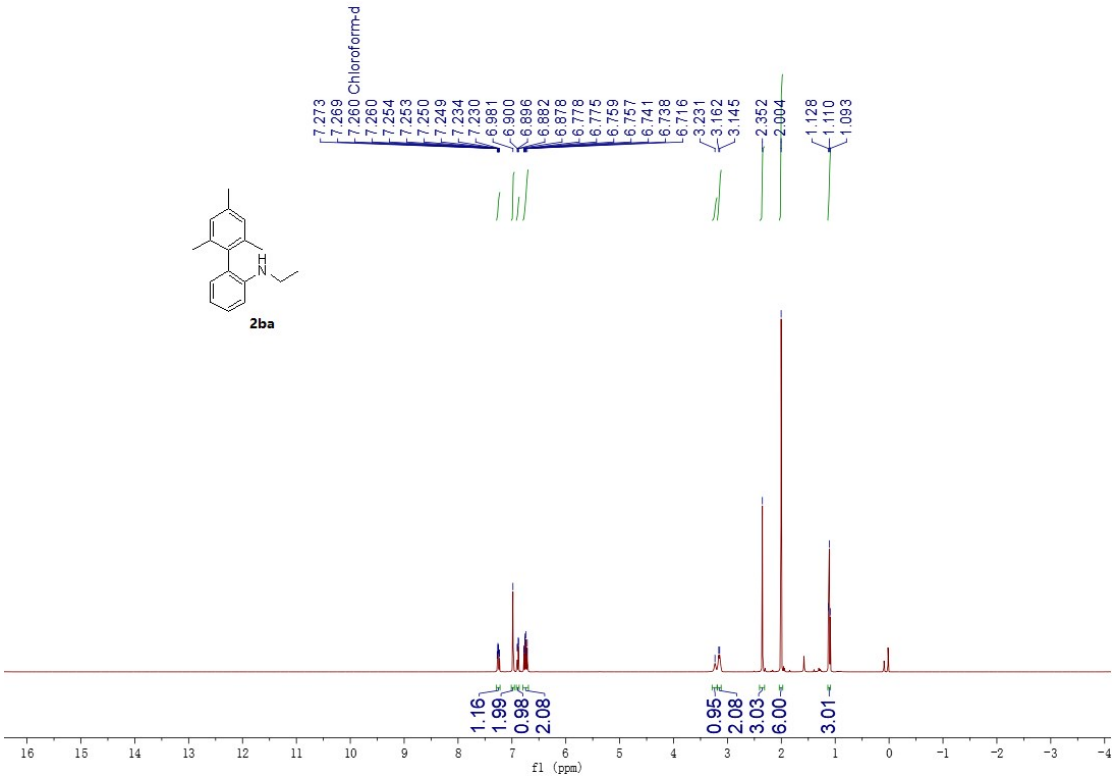
77.160 Chloroform-d
51.603
30.238
21.190
20.127
H3COOC
2an
f1 (ppm)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7.260
7.254
7.253
7.250
7.249
7.234
7.230
6.981
6.900
6.896
6.882
6.878
6.778
6.775
6.759
6.757
6.741
6.738
6.716
3.231
3.162
3.145
2.352
2.004
1.128
1.110
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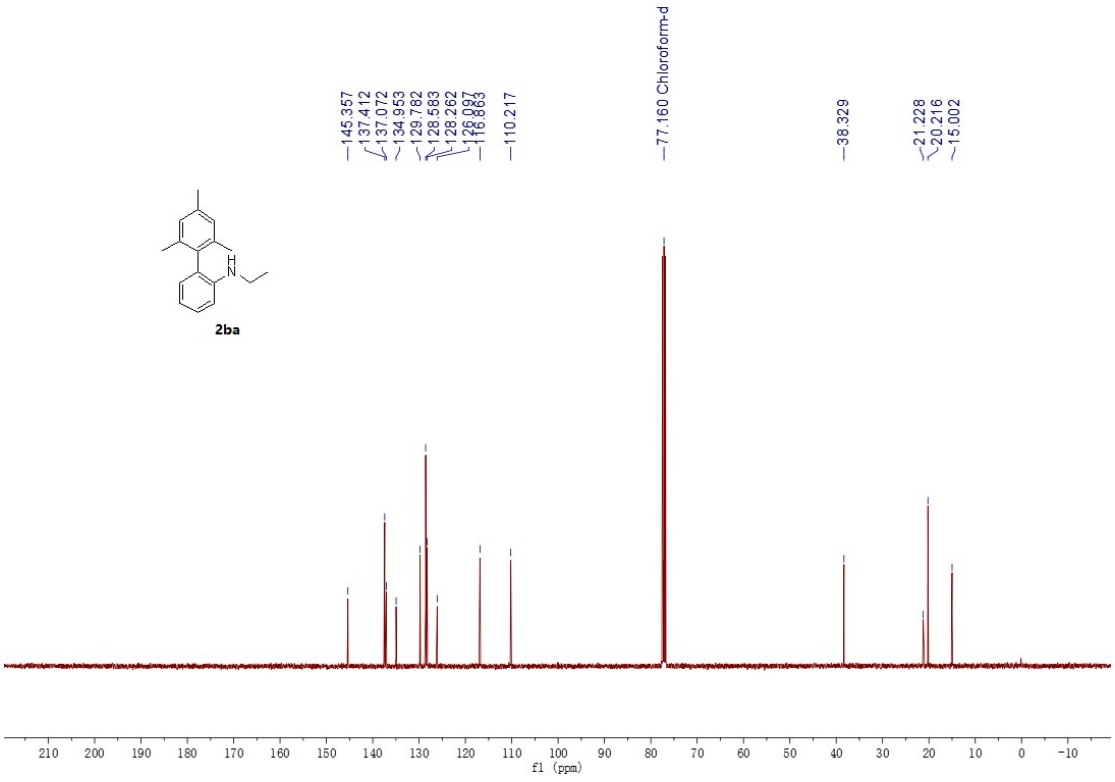
1.99
0.98
2.08
0.95
2.08
3.03
6.00
3.01
f1 (ppm)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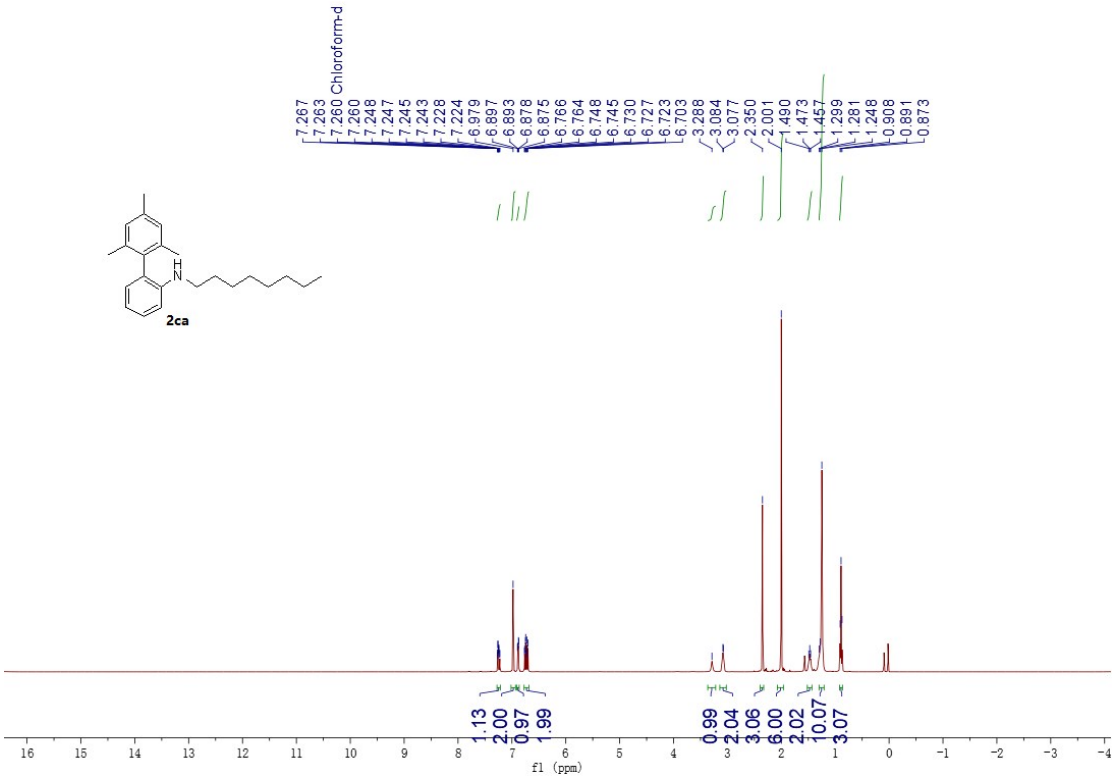
2ba
f1 (ppm)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7.247
7.245
7.243
7.228
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6.897
6.893
6.878
6.875
6.766
6.764
6.748
6.745
6.730
6.727
6.723
6.703
3.288
3.084
3.077
2.350
2.001
1.490
1.473
1.457
1.299
1.281
1.248
0.908
0.891
0.873
2ca
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3.07
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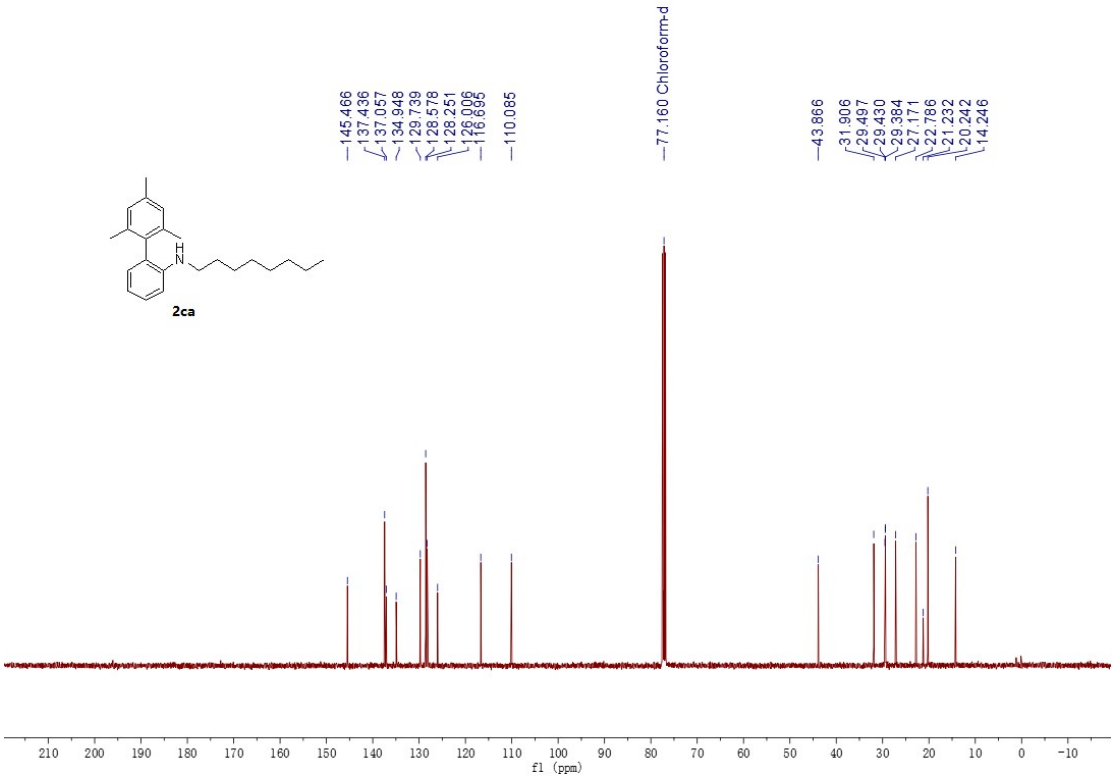
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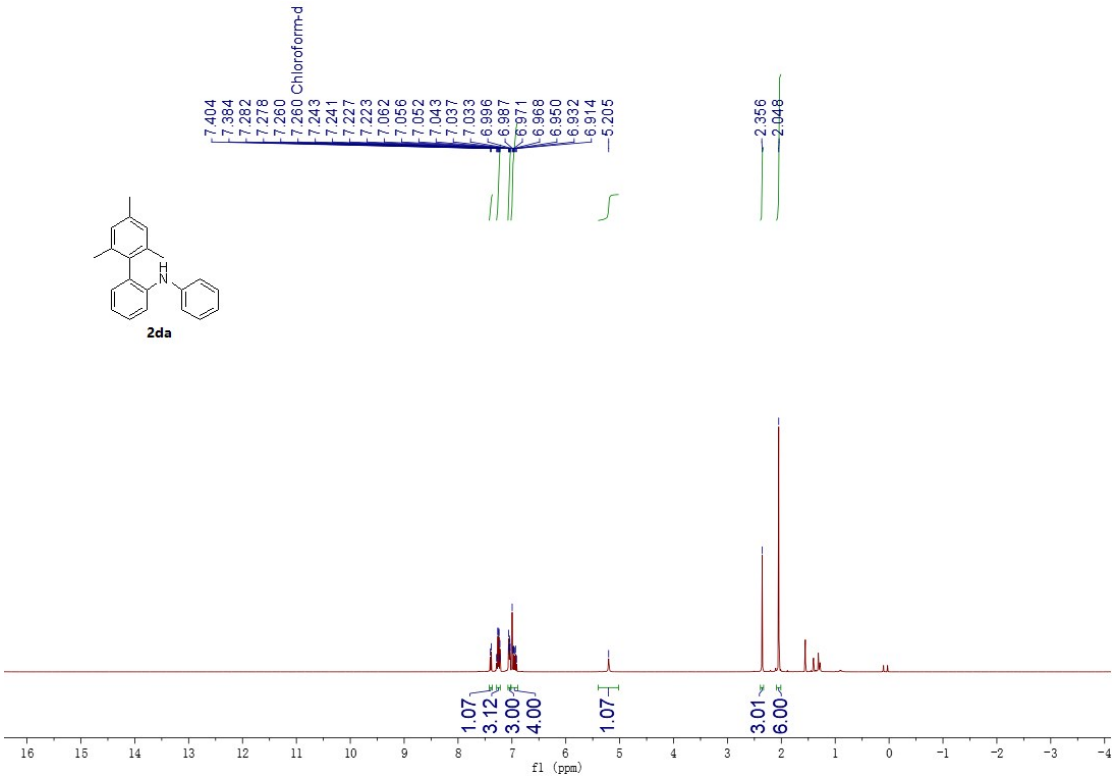
f1 (ppm)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7.043
7.037
7.033
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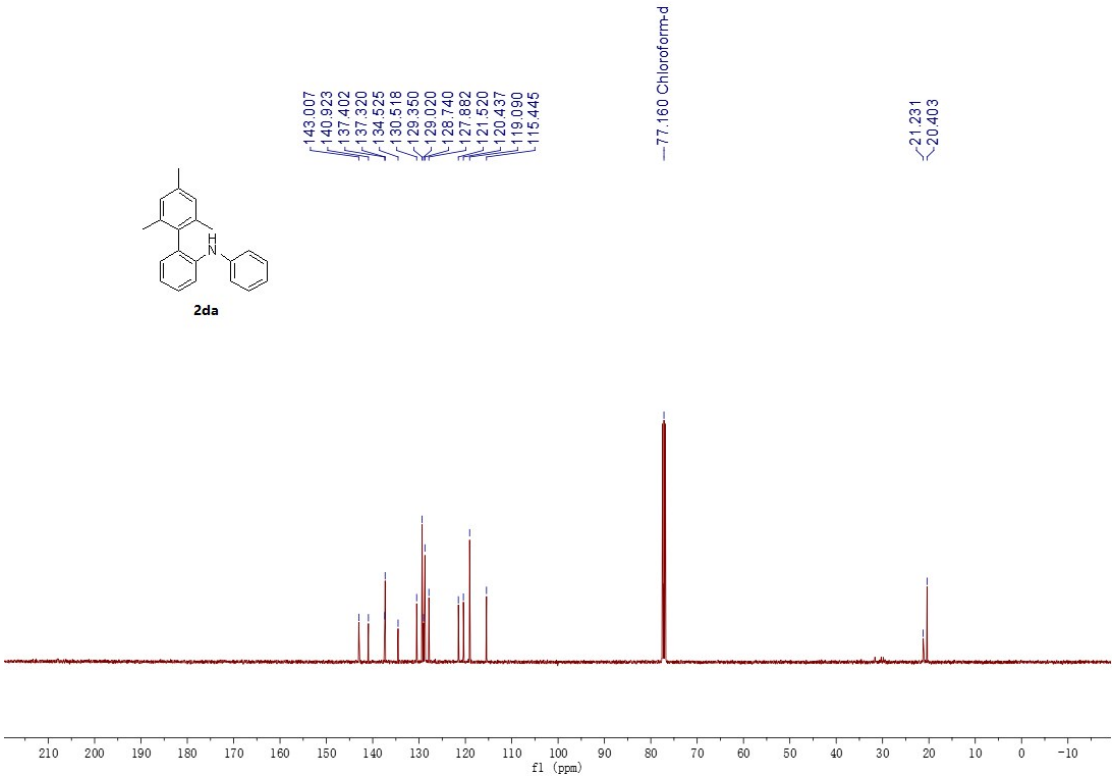
6.00
f1 (ppm)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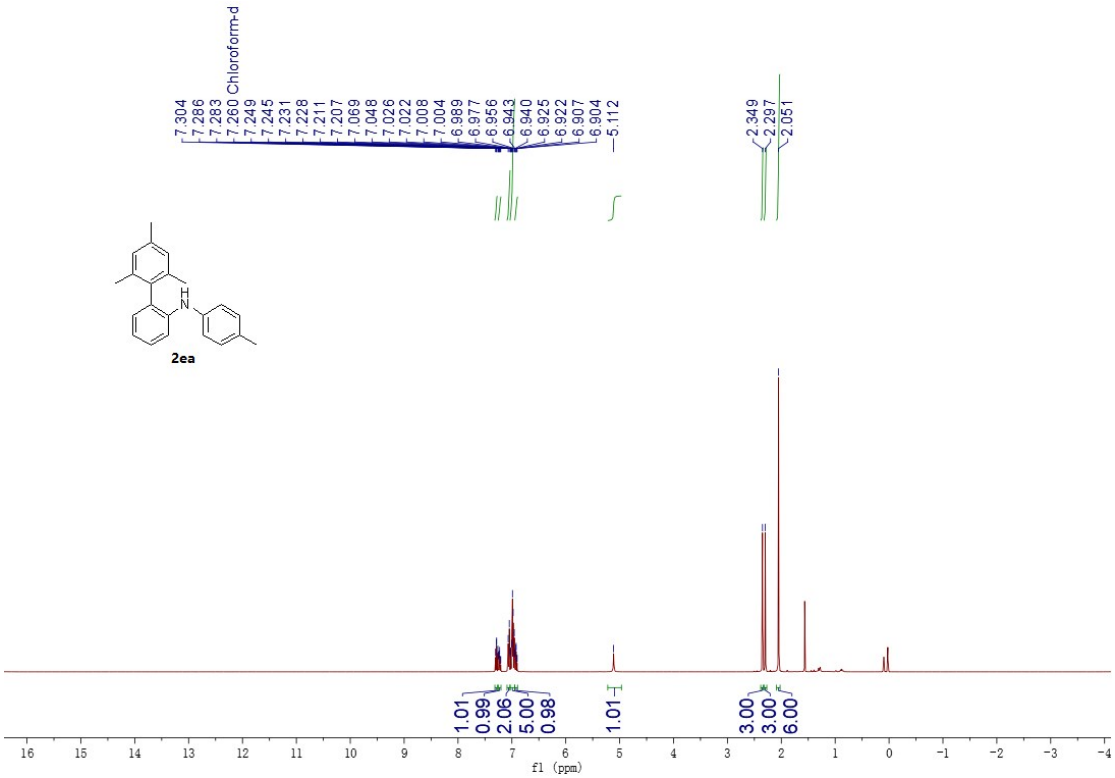
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7.022
7.008
7.004
6.989
6.977
6.956
6.943
6.940
6.925
6.922
6.907
6.904
5.112
2.349
2.297
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2ea
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5.00
0.98
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3.00
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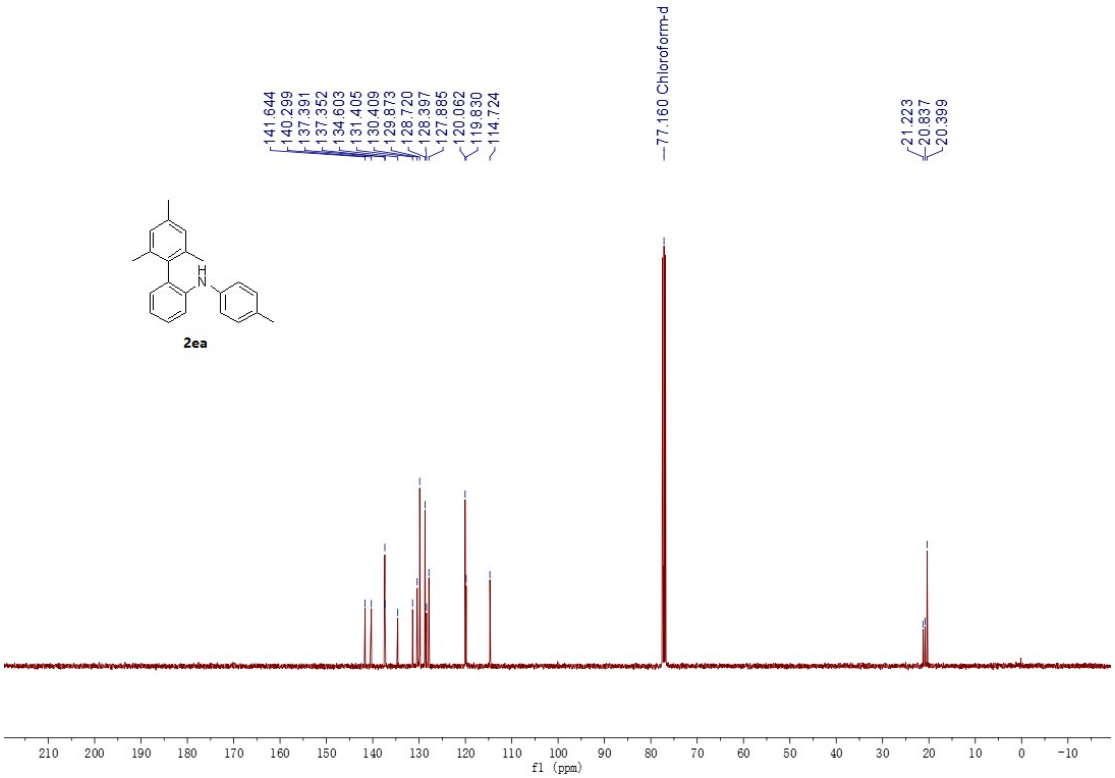
6.00
f1 (ppm)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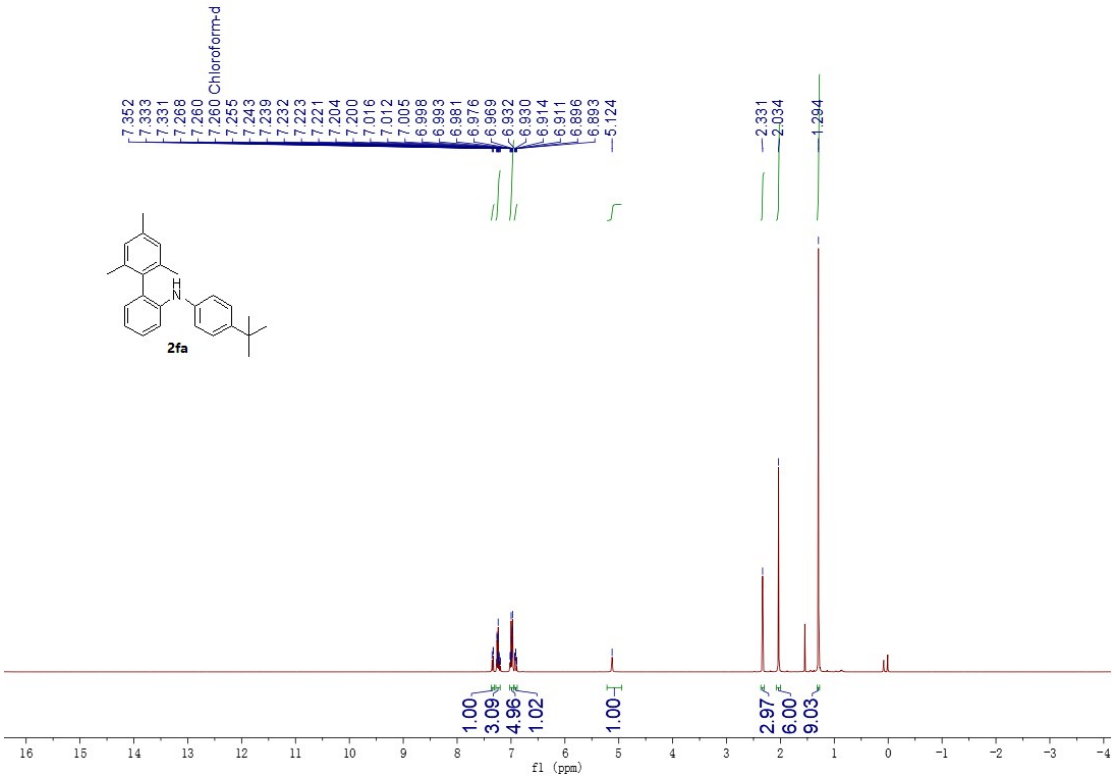
f1 (ppm)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7.232
7.223
7.221
7.204
7.200
7.016
7.012
7.005
6.998
6.993
6.981
6.976
6.969
6.932
6.930
6.914
6.911
6.896
6.893
5.124
2.331
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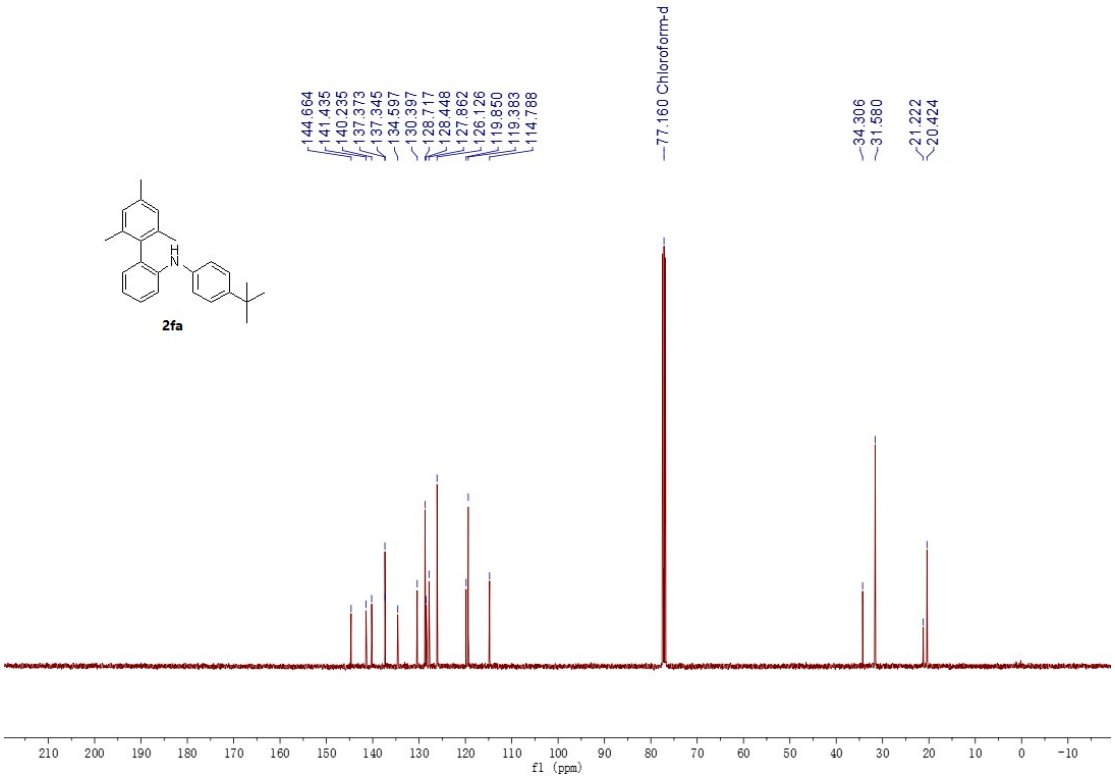
9.03
f1 (ppm)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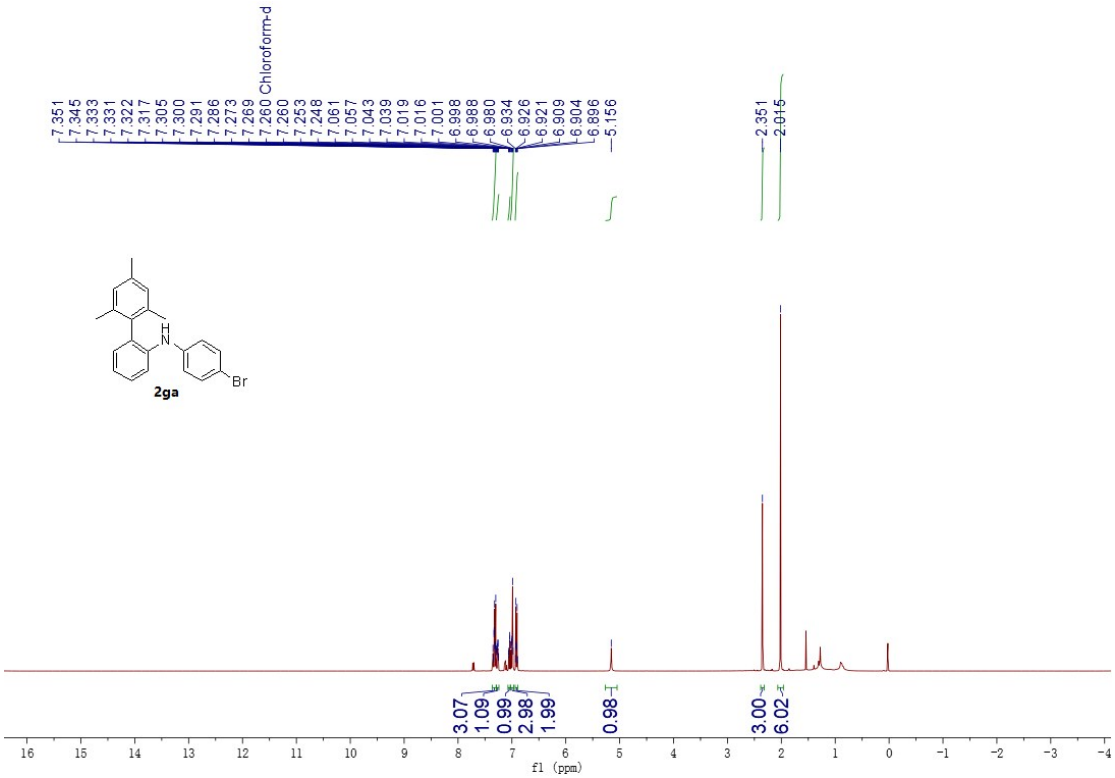
f1 (ppm)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7.269
Chloroform-d
7.260
7.260
7.253
7.248
7.061
7.057
7.043
7.039
7.019
7.016
7.001
6.998
6.988
6.980
6.934
6.926
6.921
6.909
6.904
6.896
5.156
2.351
2.015
2ga
Br
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1.09
0.99
2.98
1.99
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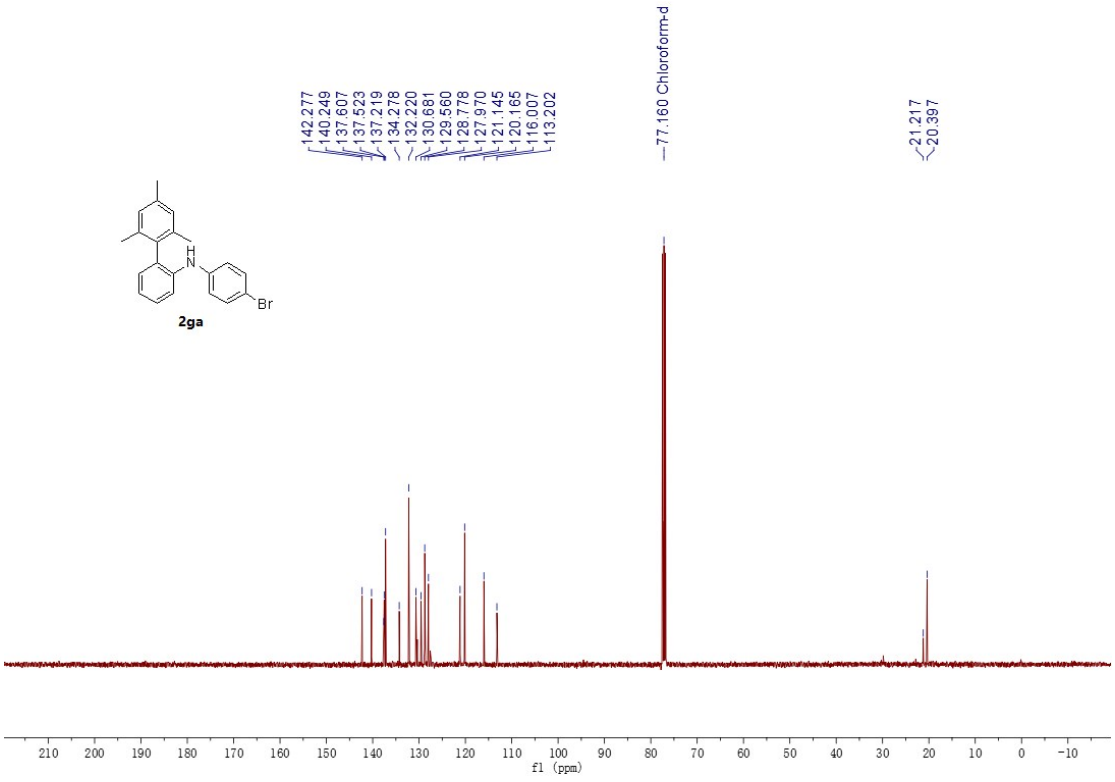
6.02
f1 (ppm)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130.681
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128.778
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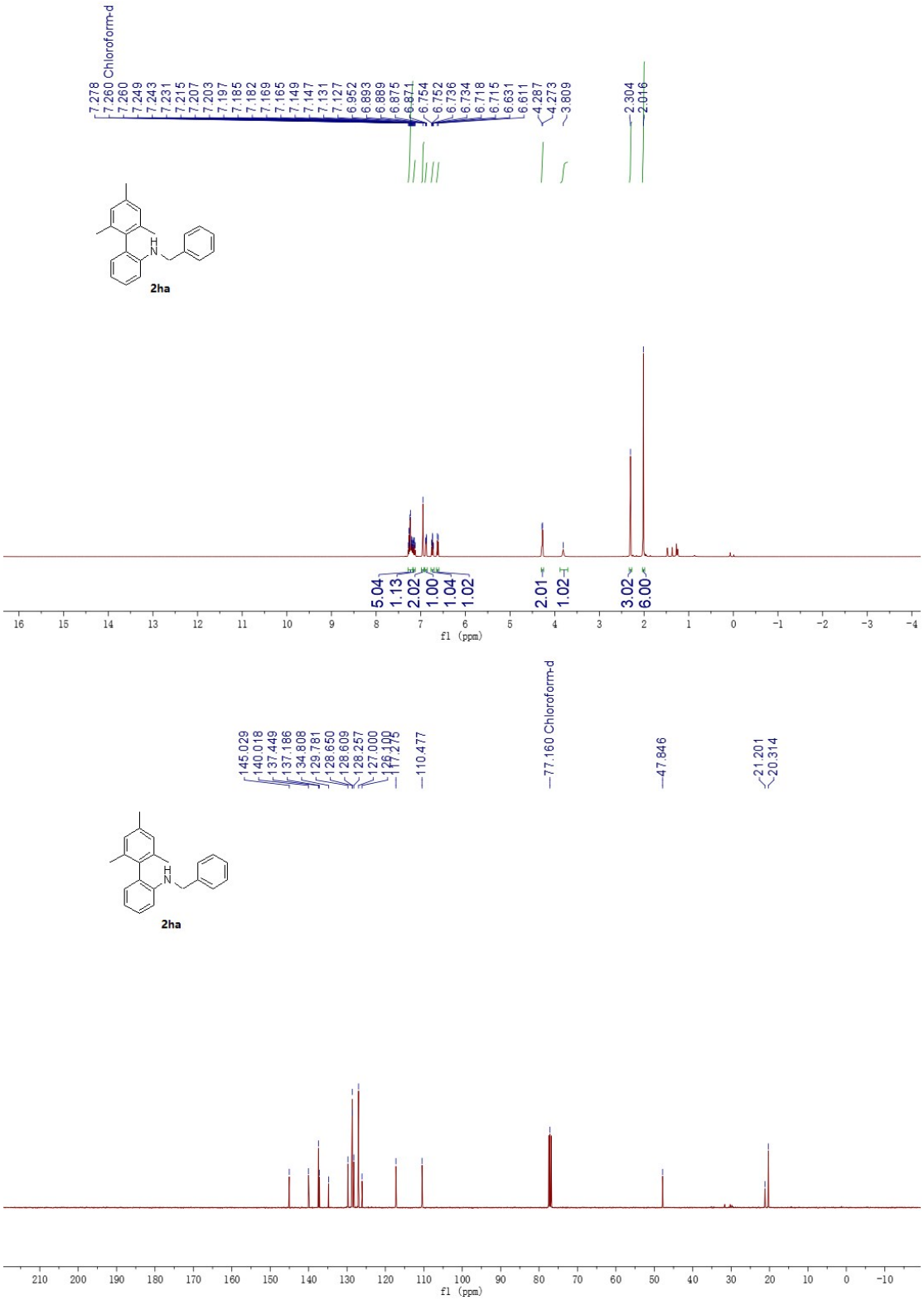
116.007
113.202
77.160
Chloroform-d
21.217
20.397
2ga
Br
f1 (ppm)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7.260 Chloroform-d
7.260
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7.165
7.149
7.147
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7.127
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6.893
6.889
6.875
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6.752
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6.631
6.611
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4.273
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2.304
2.016
2ha
5.04
1.13
2.02
1.00
1.04
1.02
2.01
1.02
3.02
6.00
f1 (ppm)
145.029
140.018
137.449
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128.609
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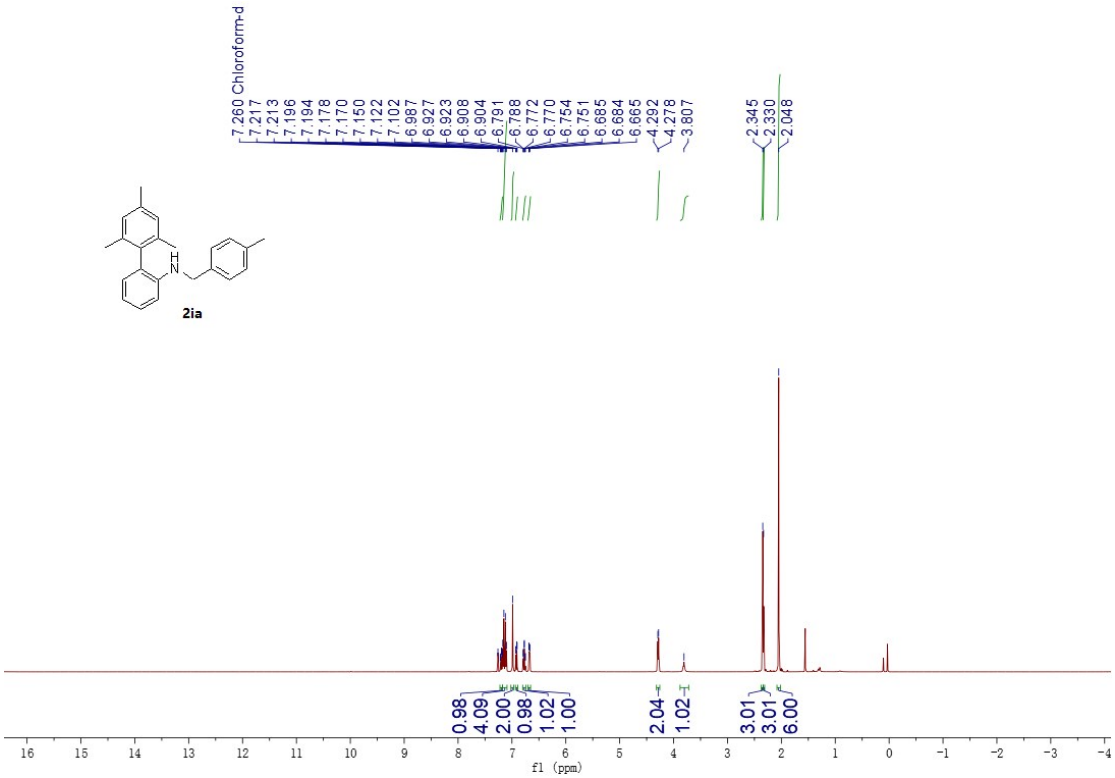
f1 (ppm)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6.904
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6.788
6.772
6.770
6.754
6.751
6.685
6.684
6.665
4.292
4.278
3.807
2.345
2.330
2.048
2ia
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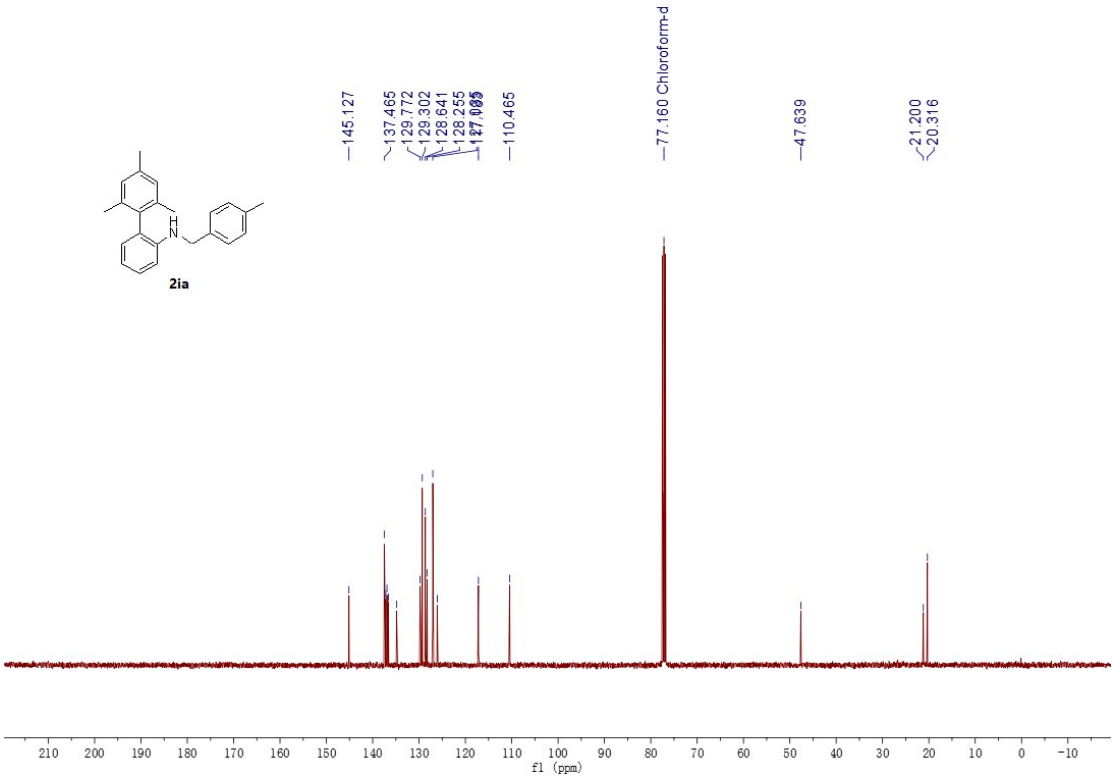
4.09
2.00
0.98
1.02
1.00
2.04
1.02
3.01
3.01
6.00
f1 (ppm)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77.160 Chloroform-d
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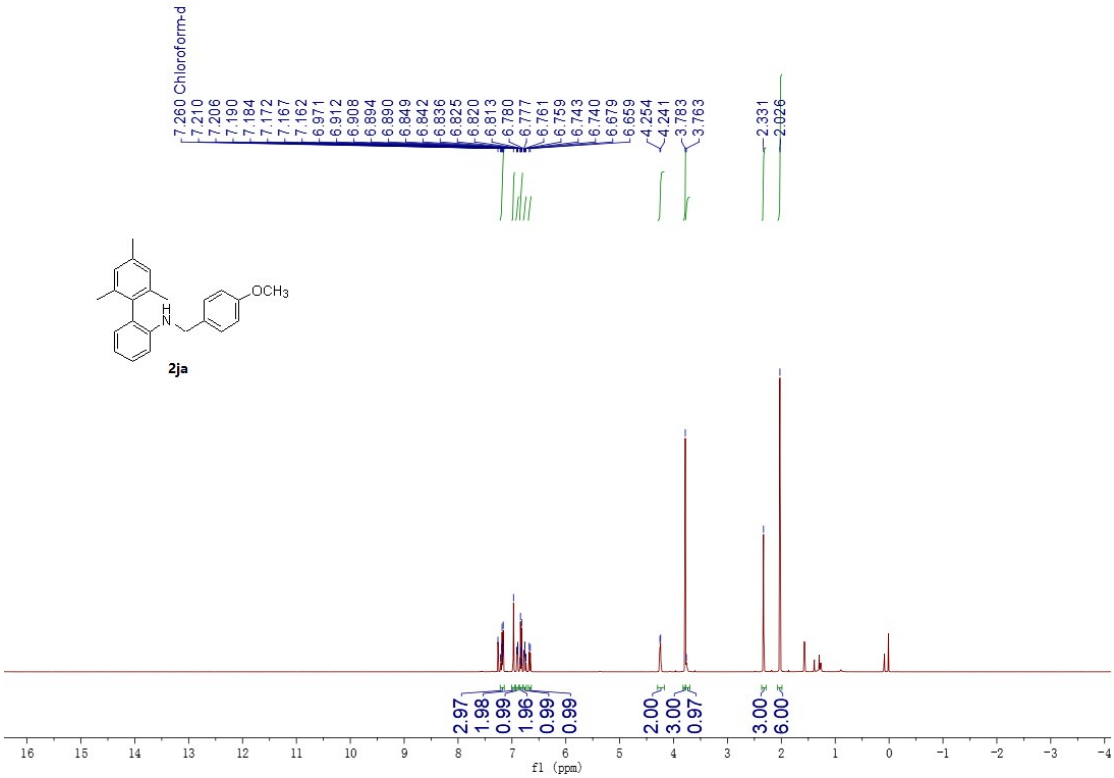
f1 (ppm)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6.908
6.894
6.890
6.849
6.842
6.836
6.825
6.820
6.813
6.780
6.777
6.761
6.759
6.743
6.740
6.679
6.659
4.254
4.241
3.783
3.763
2.331
2.026
OCH3
H
N
2ja
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3.00
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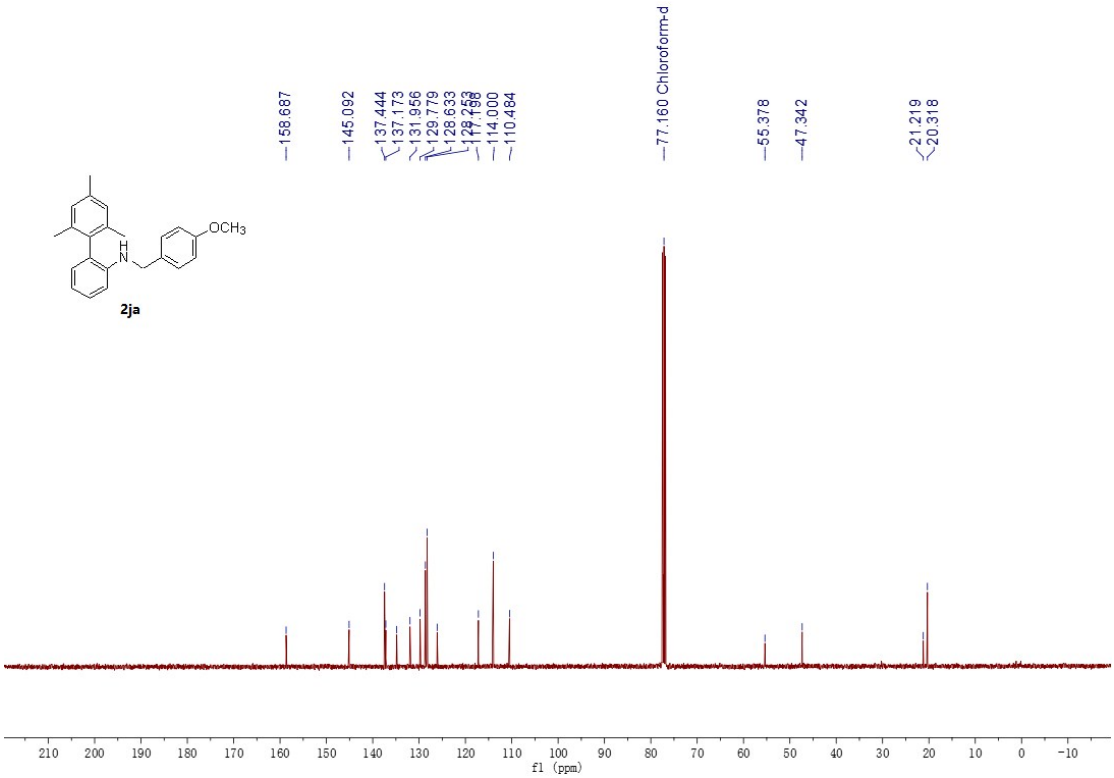
6.00
f1 (ppm)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OCH3
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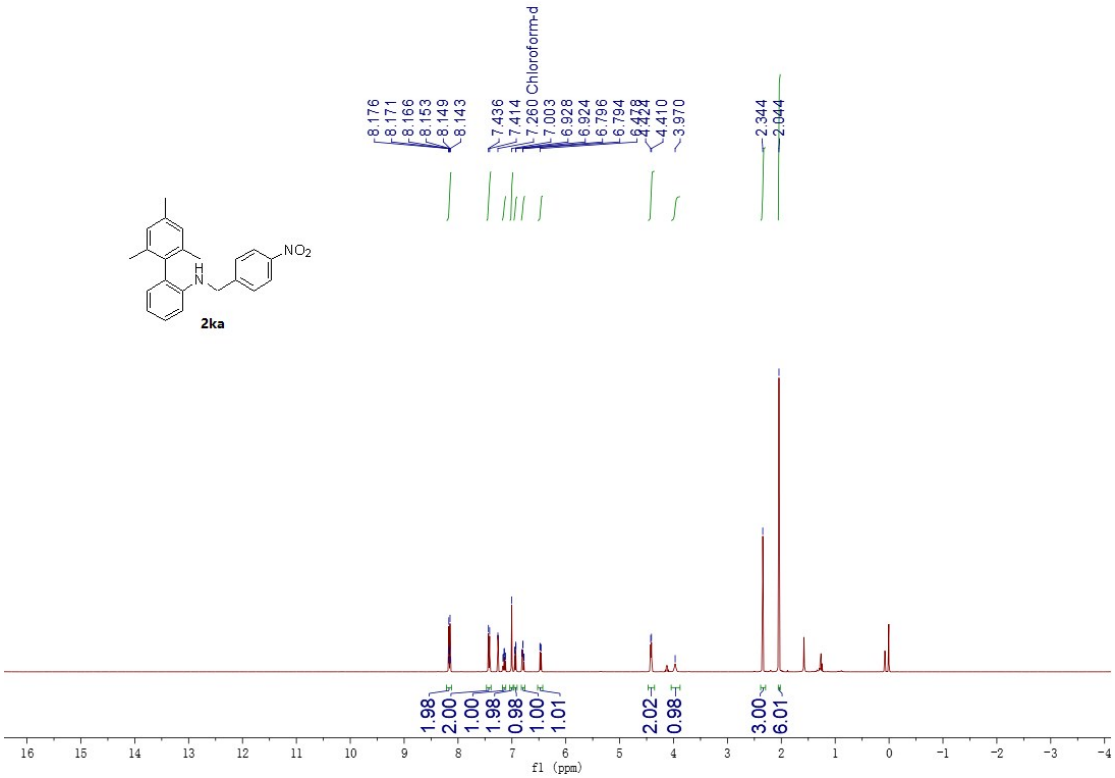
N
2ja
f1 (ppm)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6.924
6.796
6.794
4.424
4.410
3.970
2.344
2.044
NO2
H
N
2ka
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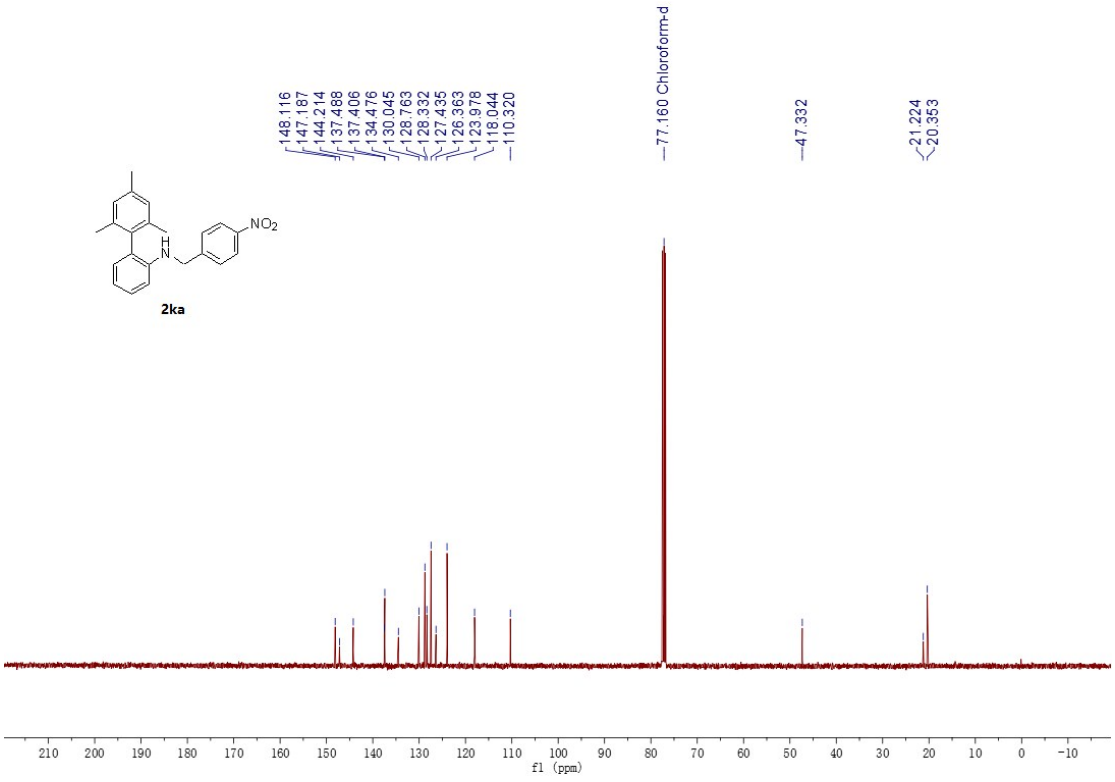
2.00
1.00
1.98
0.98
1.00
1.01
2.02
0.98
3.00
6.01
f1 (ppm)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128.763
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126.363
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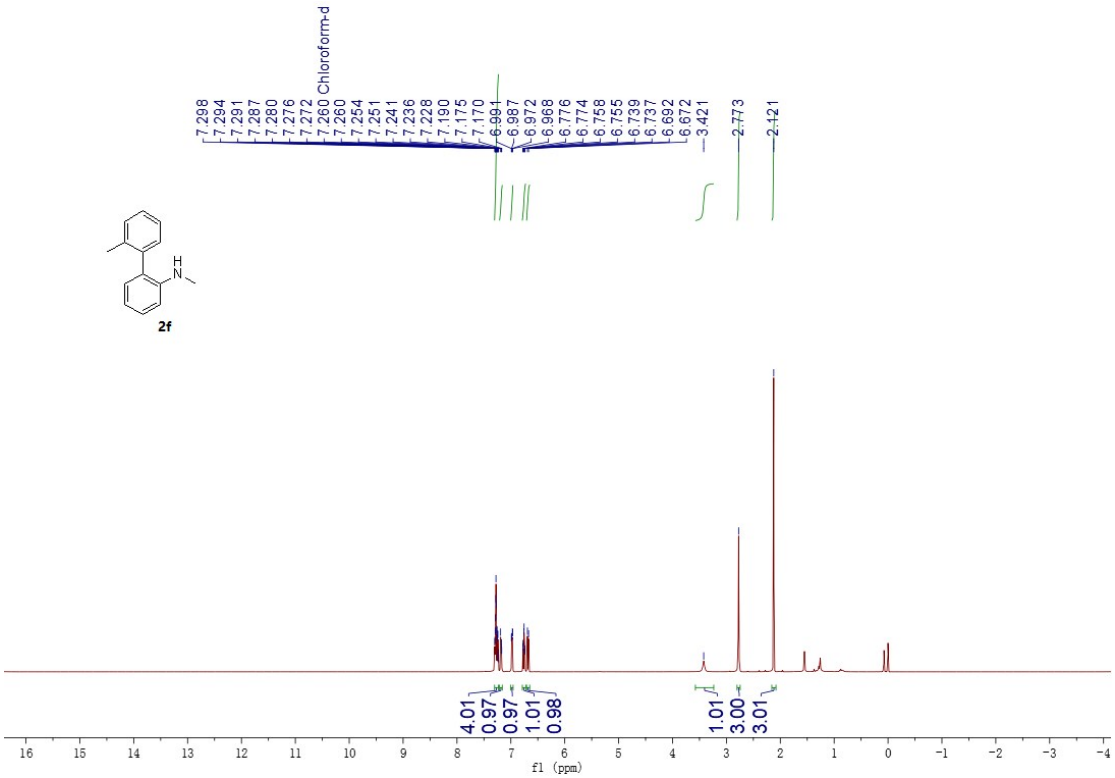
110.320
77.160 Chloroform-d
47.332
21.224
20.353
NO2
H
N
2ka
f1 (ppm)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7.291
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7.272
7.260 Chloroform-d
7.260
7.254
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7.241
7.236
7.228
7.190
7.175
7.170
6.991
6.987
6.972
6.968
6.776
6.774
6.758
6.755
6.739
6.737
6.692
6.672
3.421
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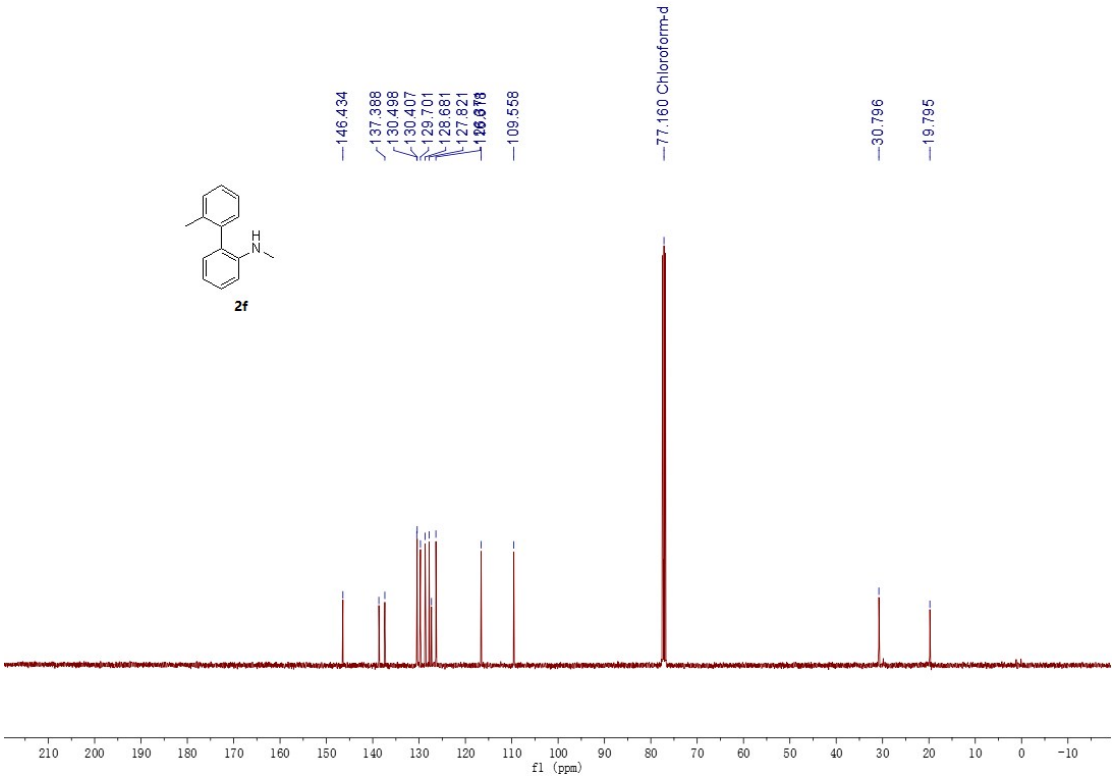
0.97
1.01
0.98
1.01
3.00
3.01
f1 (ppm)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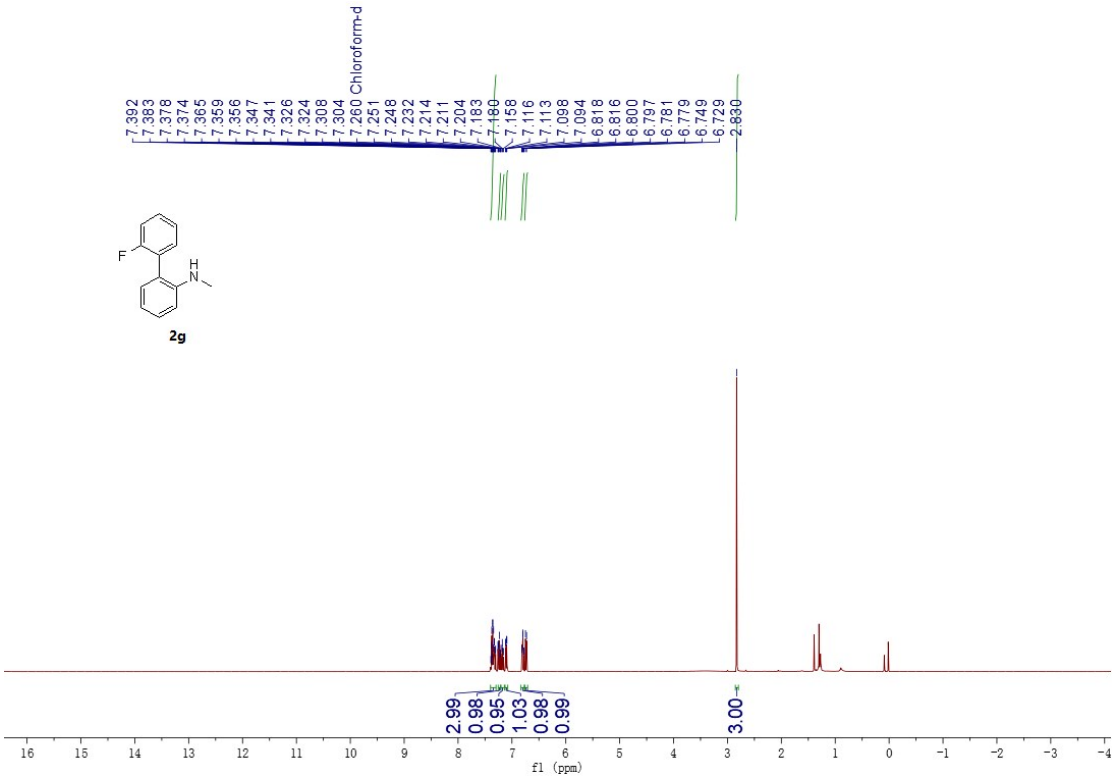
f1 (ppm)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7.324
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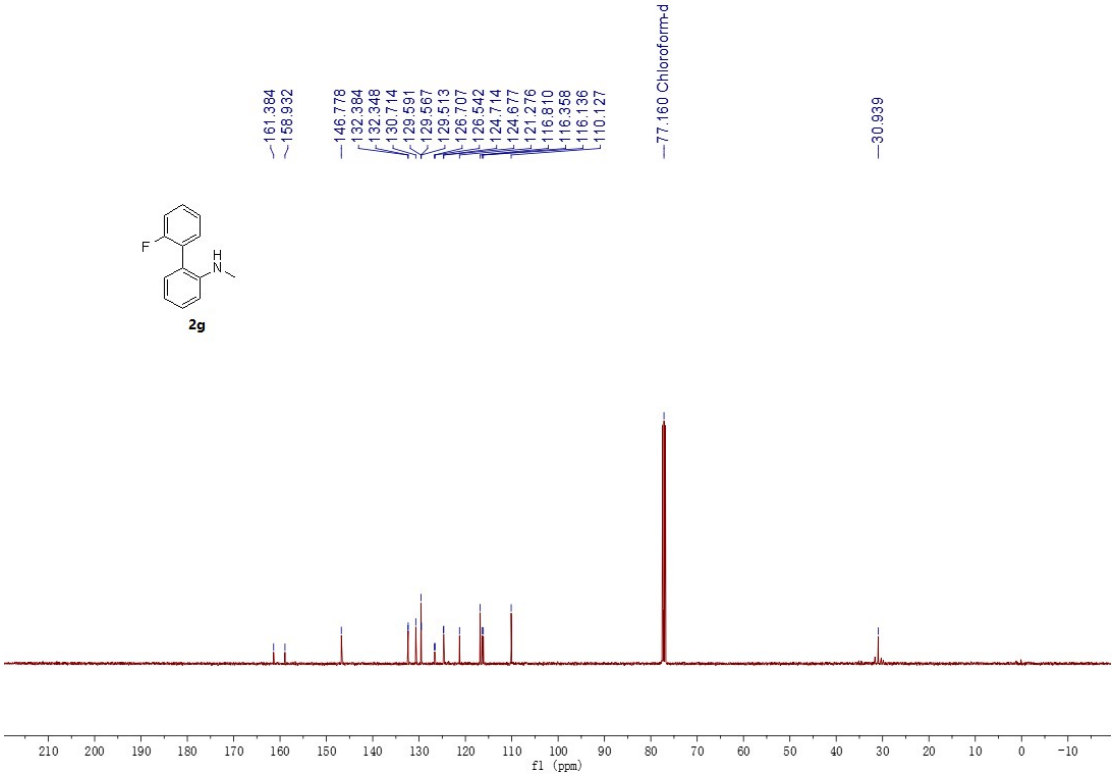
7.304
Chloroform-d
7.260
7.251
7.248
7.232
7.214
7.211
7.204
7.183
7.180
7.158
7.116
7.113
7.098
7.094
6.818
6.816
6.800
6.797
6.781
6.779
6.749
6.729
2.830
F
H
N
2g
2.99
0.98
0.95
1.03
0.98
0.99
3.00
f1 (ppm)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129.591
129.567
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124.677
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116.136
110.127
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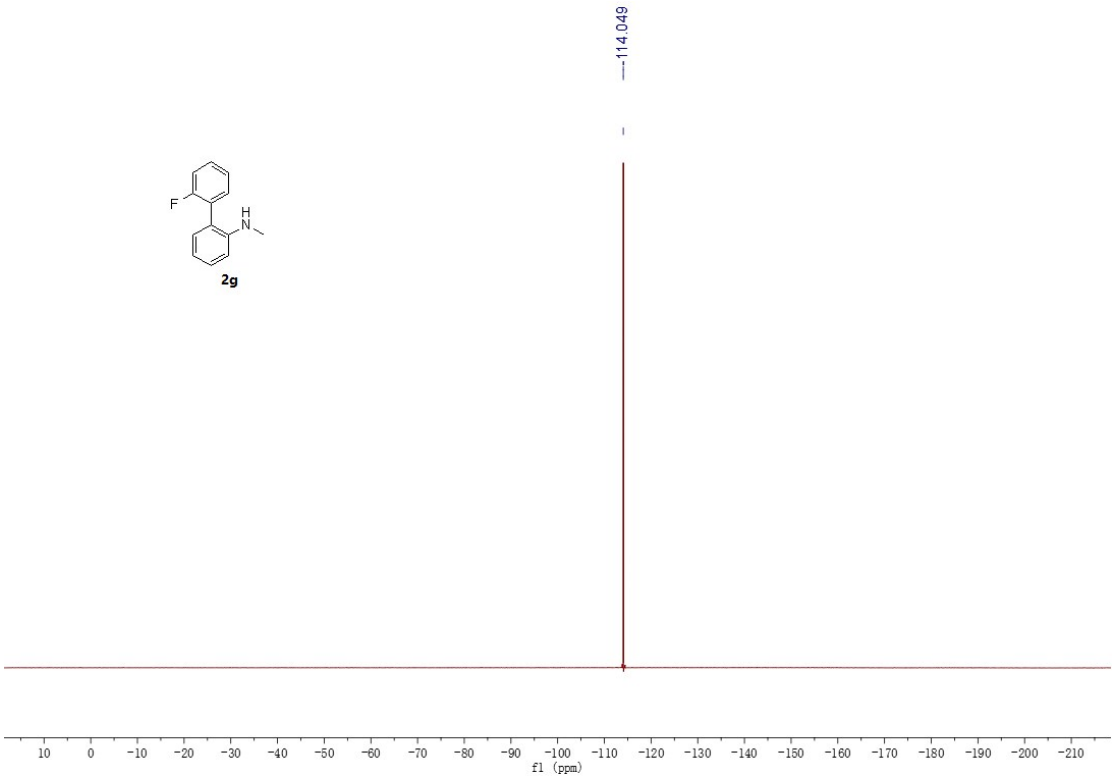
Chloroform-d
30.939
F
H
N
2g
f1 (ppm)


F
H
N
2g
-114.049
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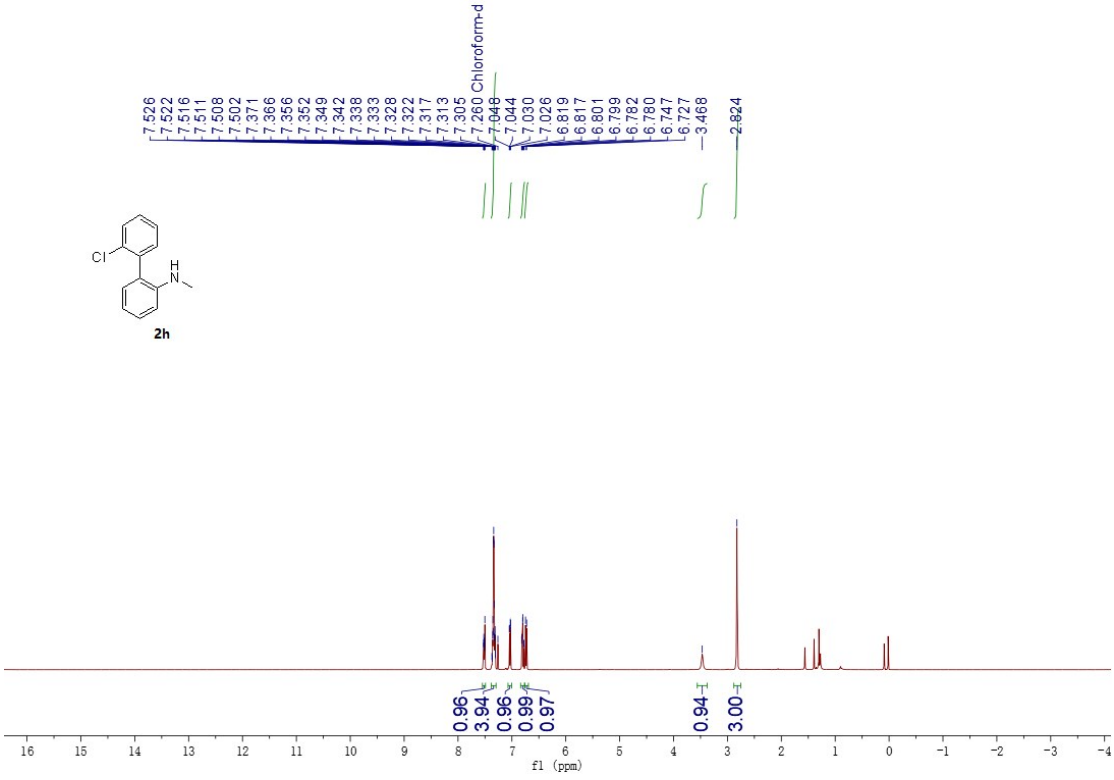
f1 (ppm)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7.511
7.508
7.502
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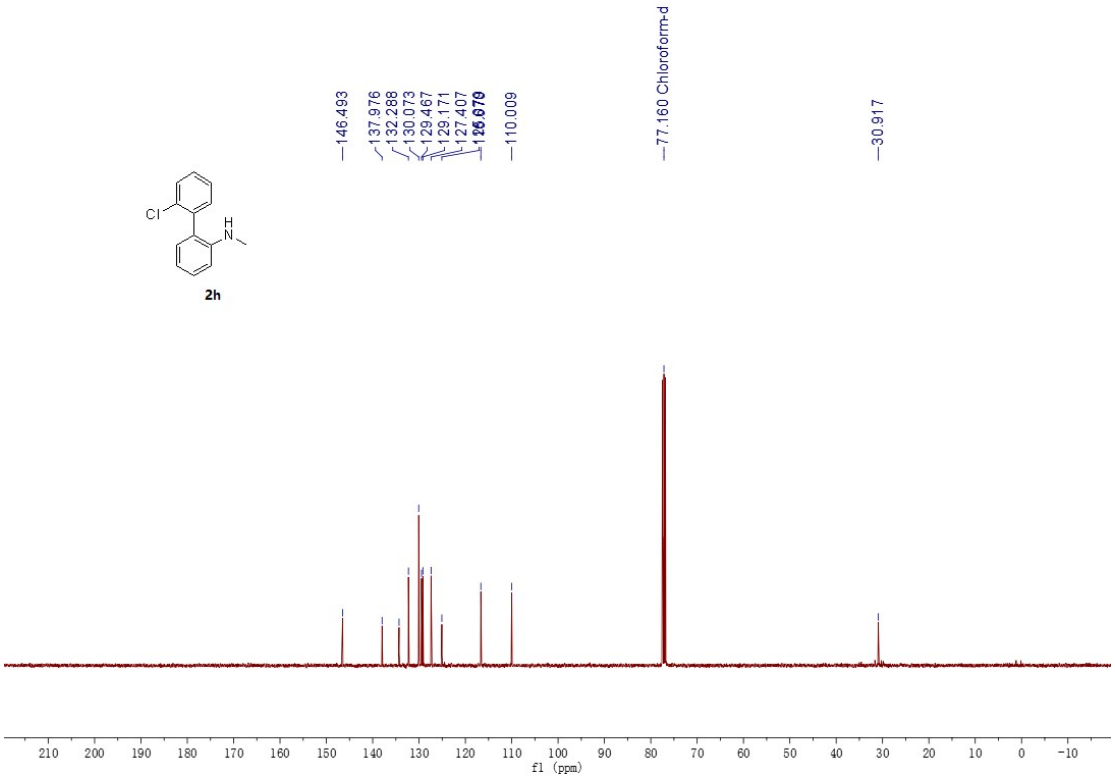
7.366
7.356
7.352
7.349
7.342
7.338
7.333
7.328
7.322
7.317
7.313
7.305
7.260 Chloroform-d
7.048
7.044
7.030
7.026
6.819
6.817
6.801
6.799
6.782
6.780
6.747
6.727
3.468
2.824
Cl
H
N
2h
0.96
3.94
0.96
0.99
0.97
0.94
3.00
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4
f1 (ppm)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132.288
130.073
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129.171
127.407
125.670
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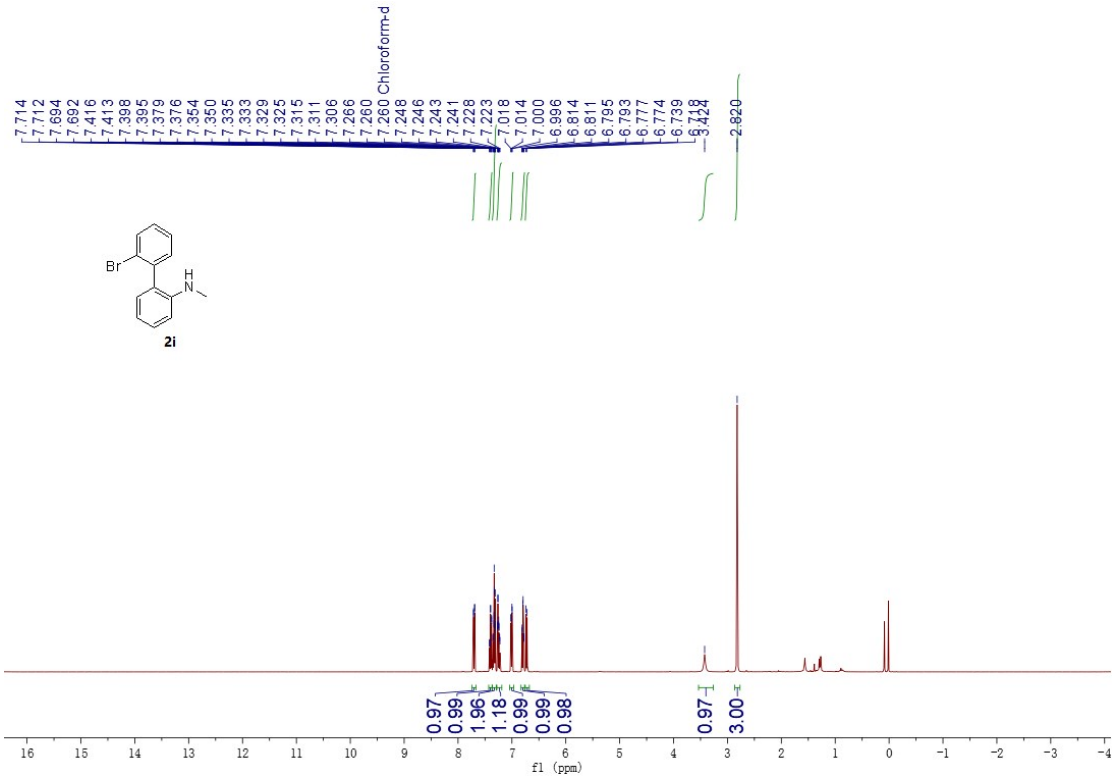
77.160 Chloroform-d
30.917
Cl
H
N
2h
f1 (ppm)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7.694
7.692
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7.413
7.398
7.395
7.379
7.376
7.354
7.350
7.335
7.333
7.329
7.325
7.315
7.311
7.306
7.266
7.260 Chloroform-d
7.248
7.246
7.243
7.241
7.228
7.223
7.018
7.014
7.000
6.996
6.814
6.811
6.795
6.793
6.777
6.774
6.739
3.424
2.820
Br
H
N
2i
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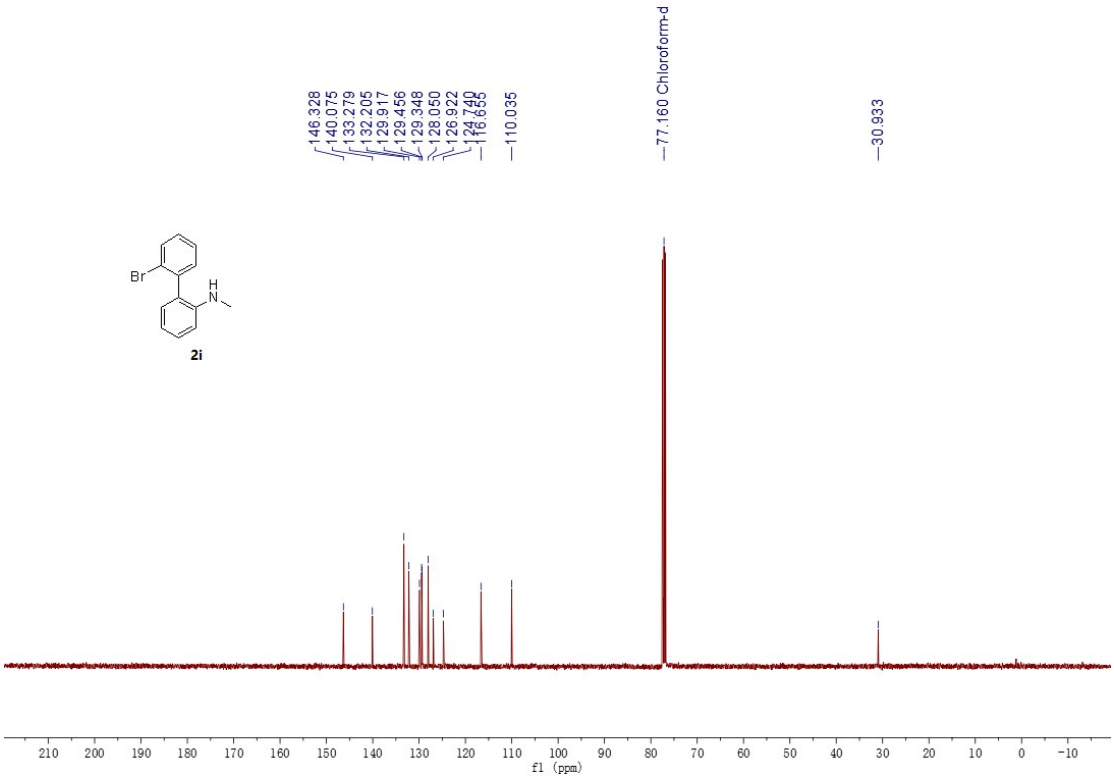
0.99
1.96
1.18
0.99
0.99
0.98
0.97
3.00
f1 (ppm)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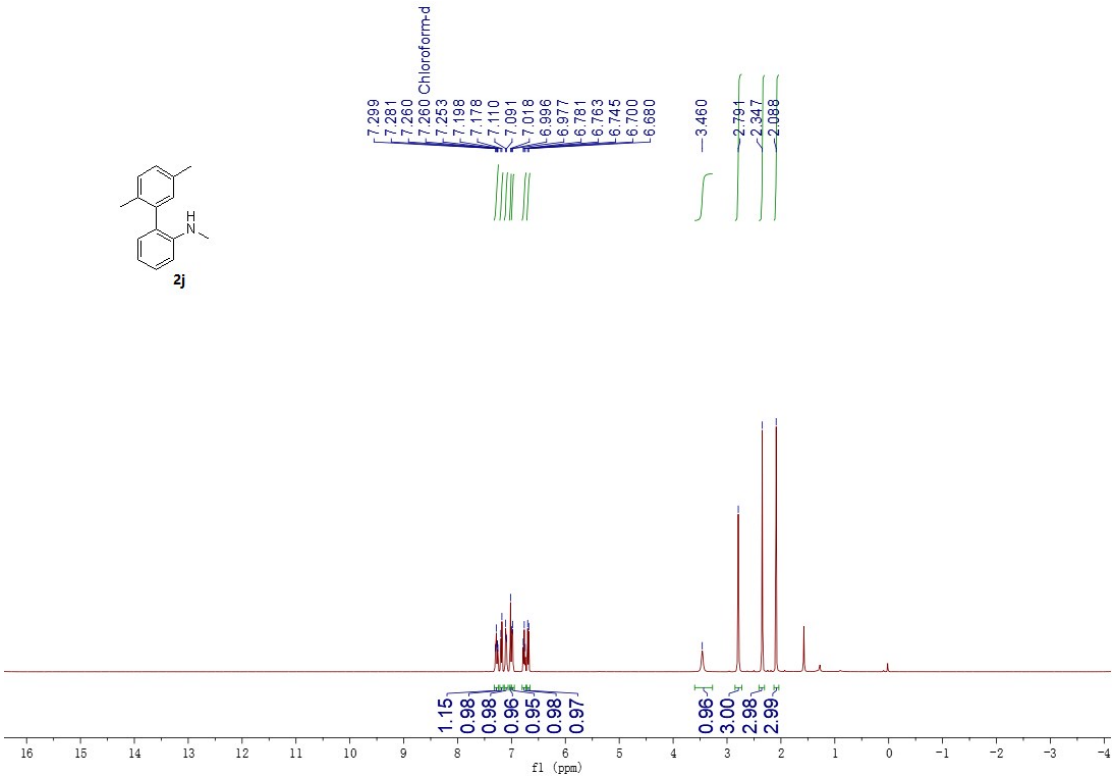
140.075
133.279
132.205
129.917
129.456
129.348
128.050
126.922
124.740
116.655
110.035
77.160 Chloroform-d
30.933
Br
H
N
2i
f1 (ppm)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7.260
7.260 Chloroform-d
7.253
7.198
7.178
7.110
7.091
7.018
6.996
6.977
6.781
6.763
6.745
6.700
6.680
3.460
2.791
2.347
2.088
H
N
2j
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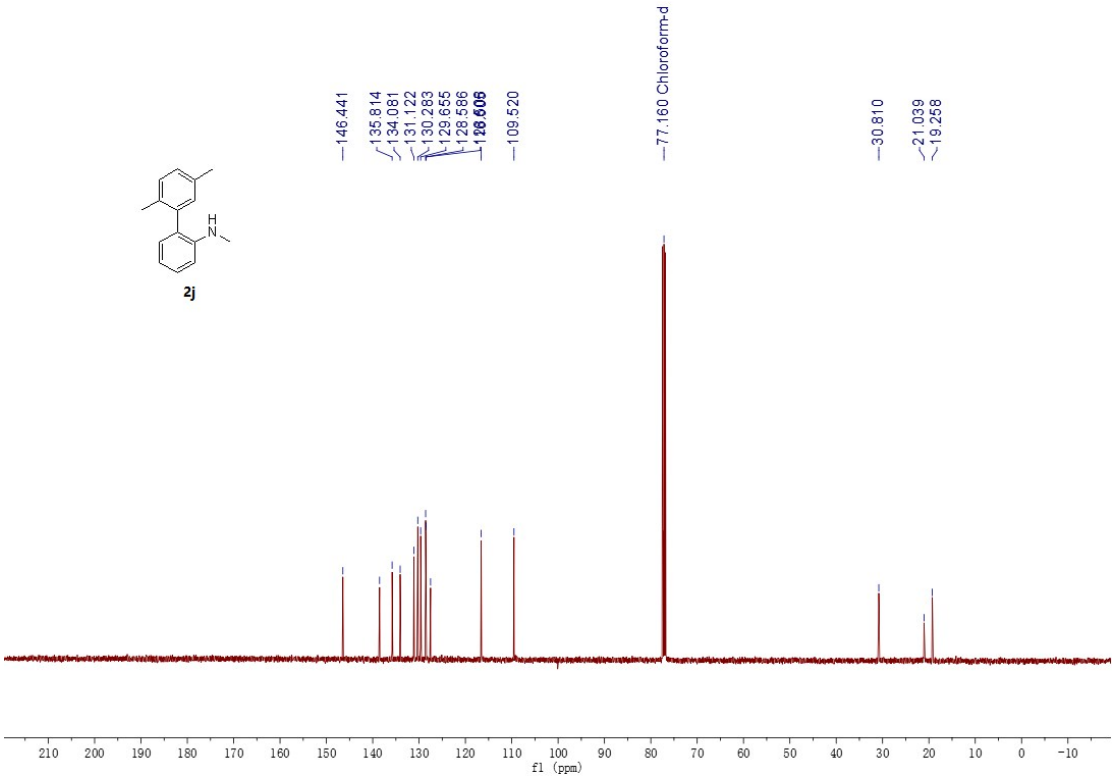
0.98
0.96
0.95
0.98
0.97
0.96
3.00
2.98
2.99
f1 (ppm)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128.586
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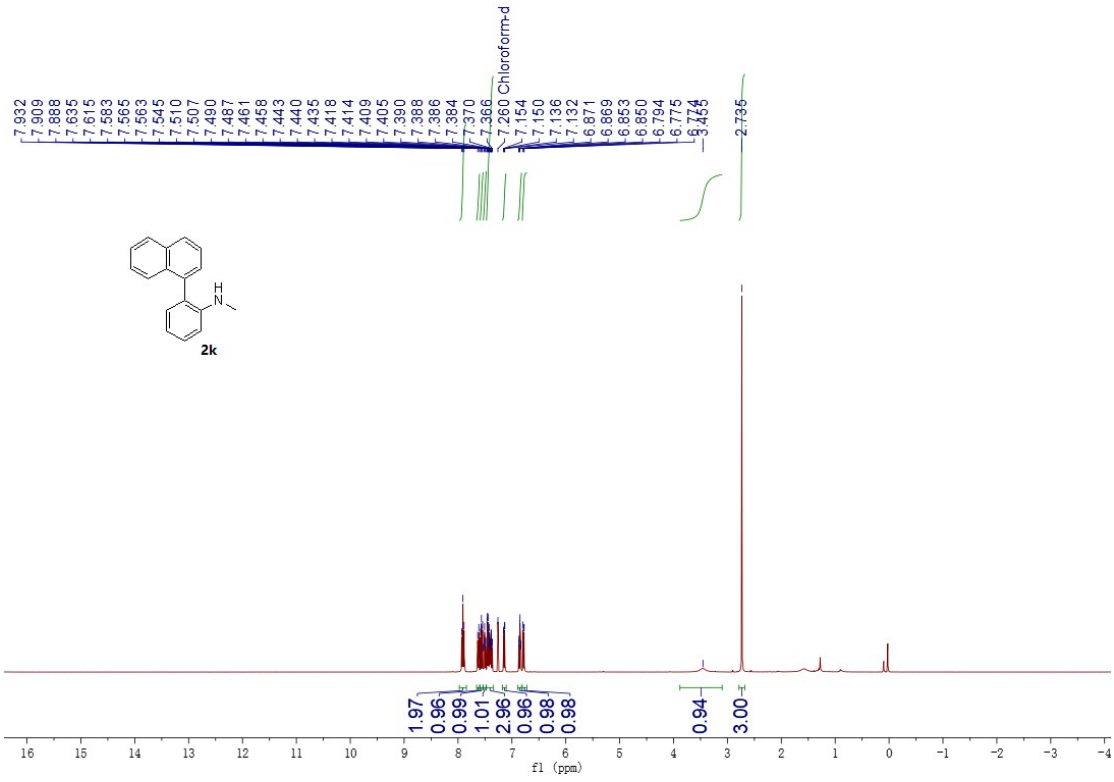
30.810
21.039
19.258
2j
f1 (ppm)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7.458
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7.440
7.435
7.418
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7.405
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7.386
7.384
7.370
7.366
7.260 Chloroform-d
7.154
7.150
7.136
7.132
6.871
6.869
6.853
6.850
6.794
6.775
3.455
2.735
2k
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0.99
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0.98
0.98
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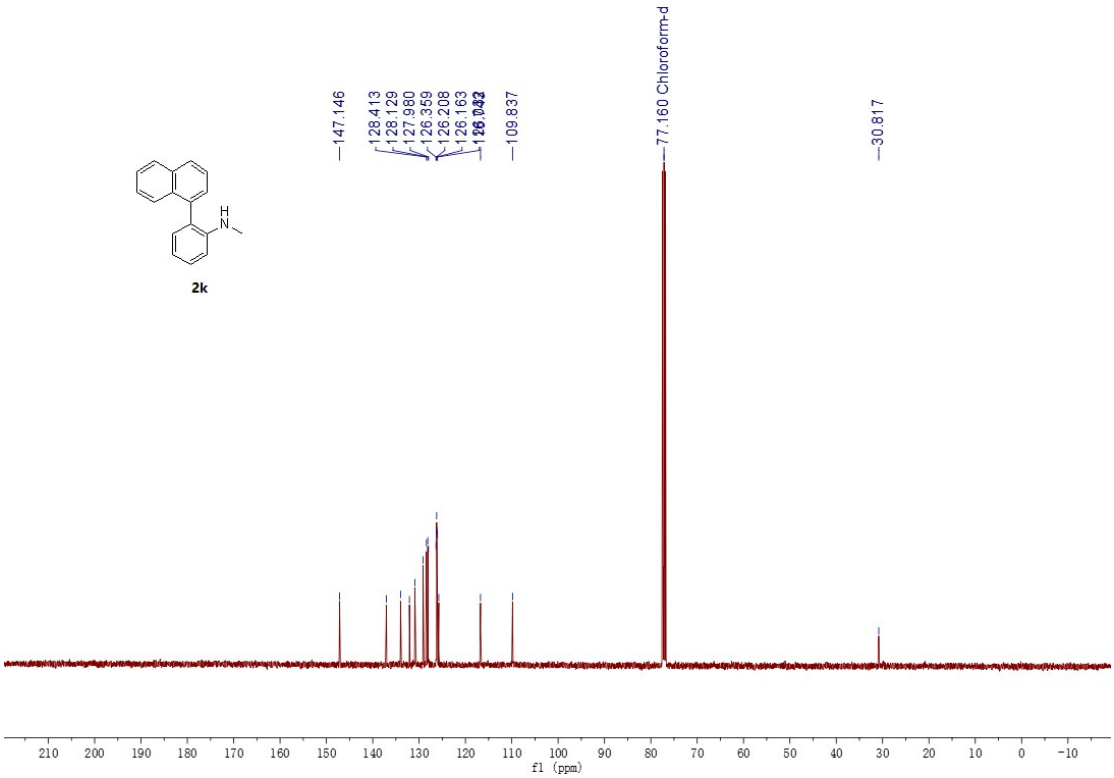
f1 (ppm)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126.208
126.163
109.837
77.160 Chloroform-d
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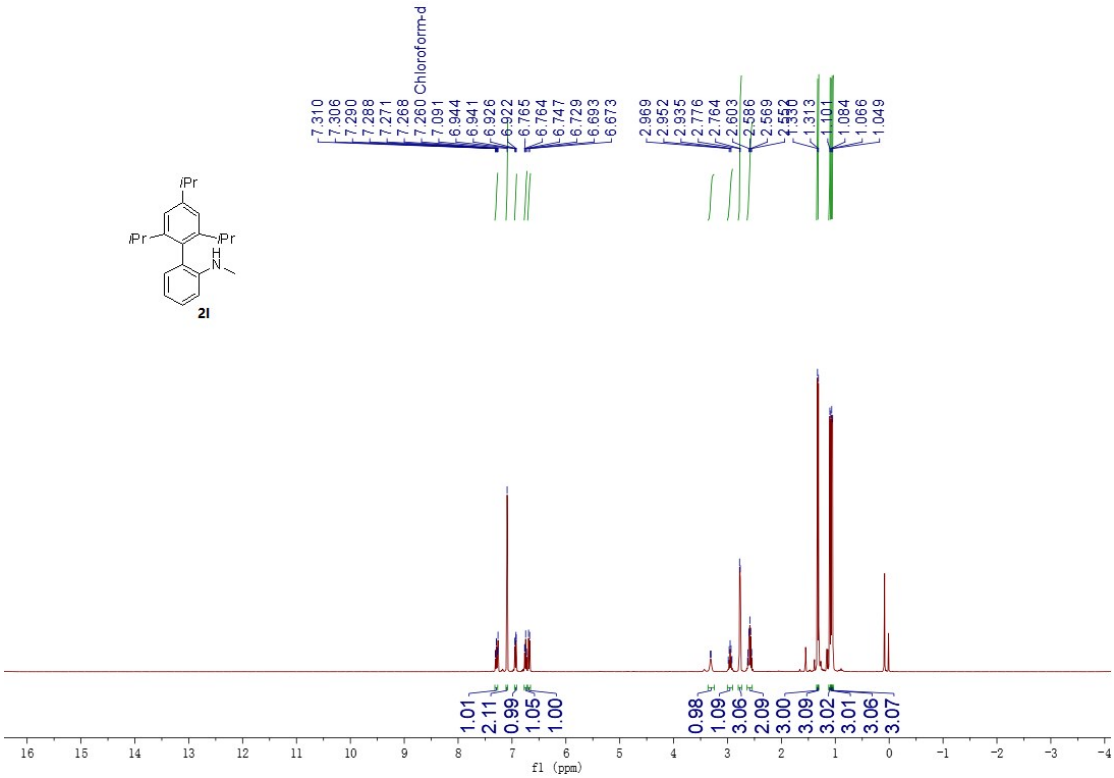
2k
f1 (ppm)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6.922
6.765
6.764
6.747
6.729
6.693
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2.935
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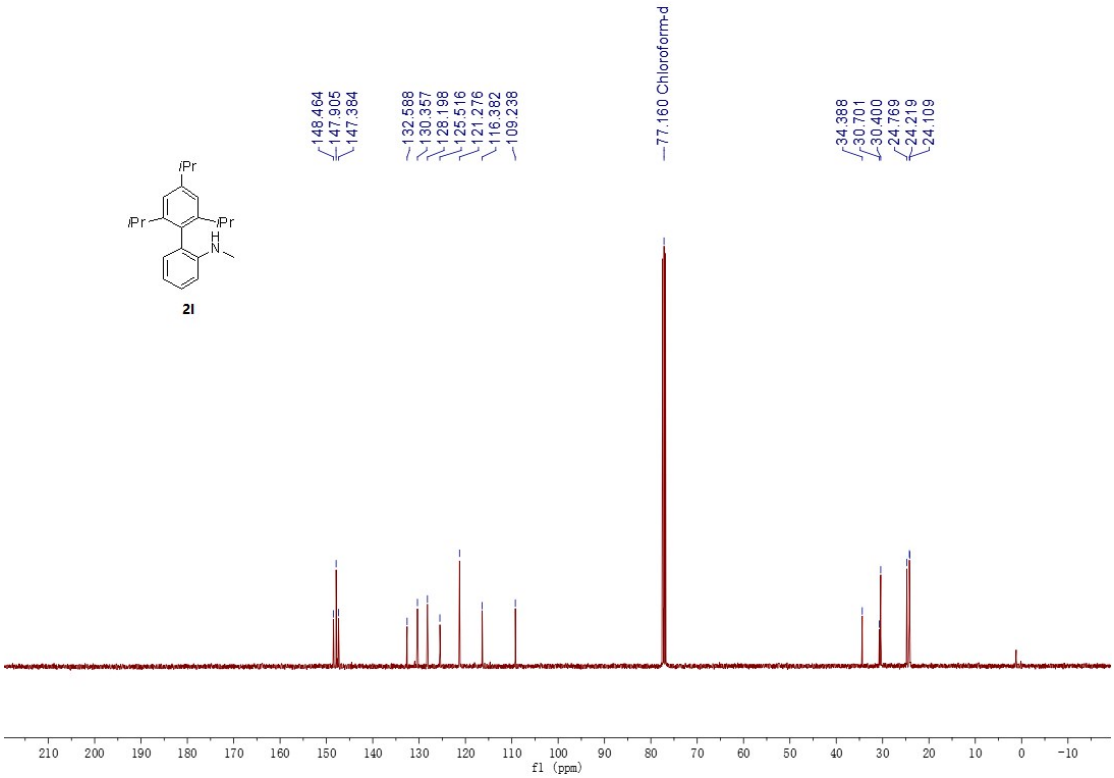
2.603
2.586
2.569
2.552
1.313
1.101
1.084
1.066
1.049
iPr
iPr
iPr
2l
1.01
2.11
0.99
1.05
1.00
0.98
1.09
3.06
2.09
3.00
3.09
3.02
3.01
3.06
3.07
f1 (ppm)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121.276
116.382
109.238
77.160 Chloroform-d
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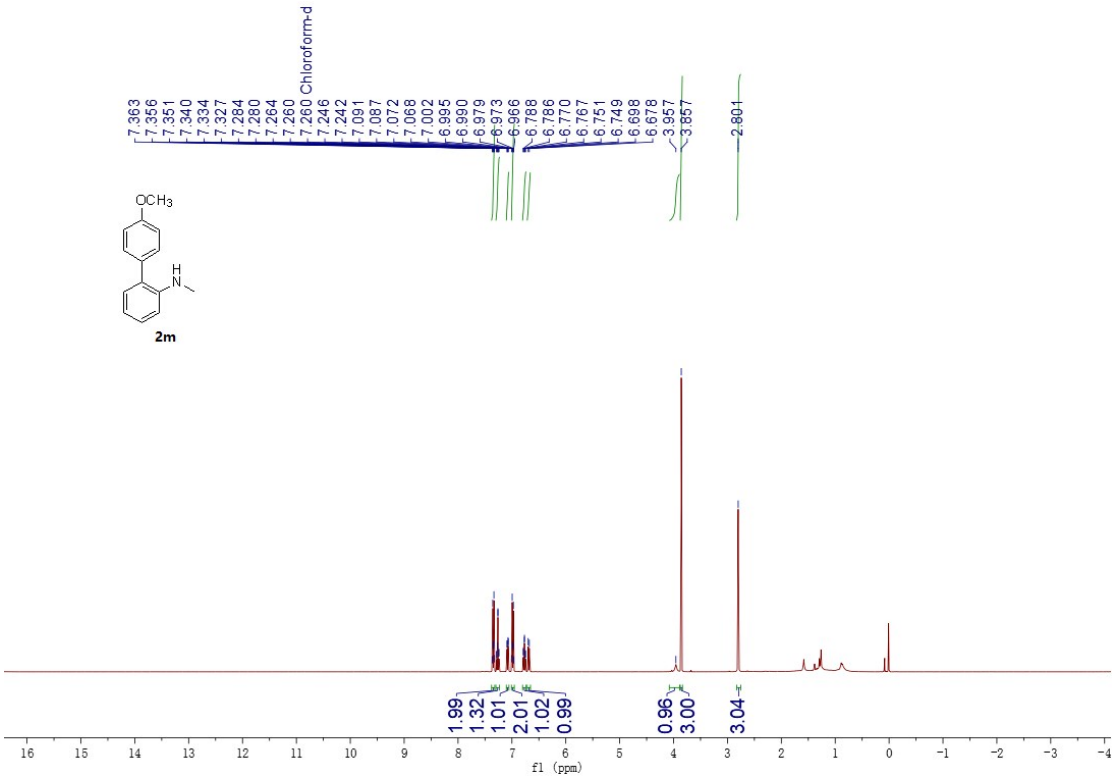
30.400
24.769
24.219
24.109
iPr
iPr
iPr
NH
2l
f1 (ppm)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7.284
7.280
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7.260
7.260 Chloroform-d
7.246
7.242
7.091
7.087
7.072
7.068
7.002
6.995
6.990
6.979
6.973
6.966
6.788
6.786
6.770
6.767
6.751
6.749
6.698
6.678
3.957
3.857
2.801
OCH3
NH
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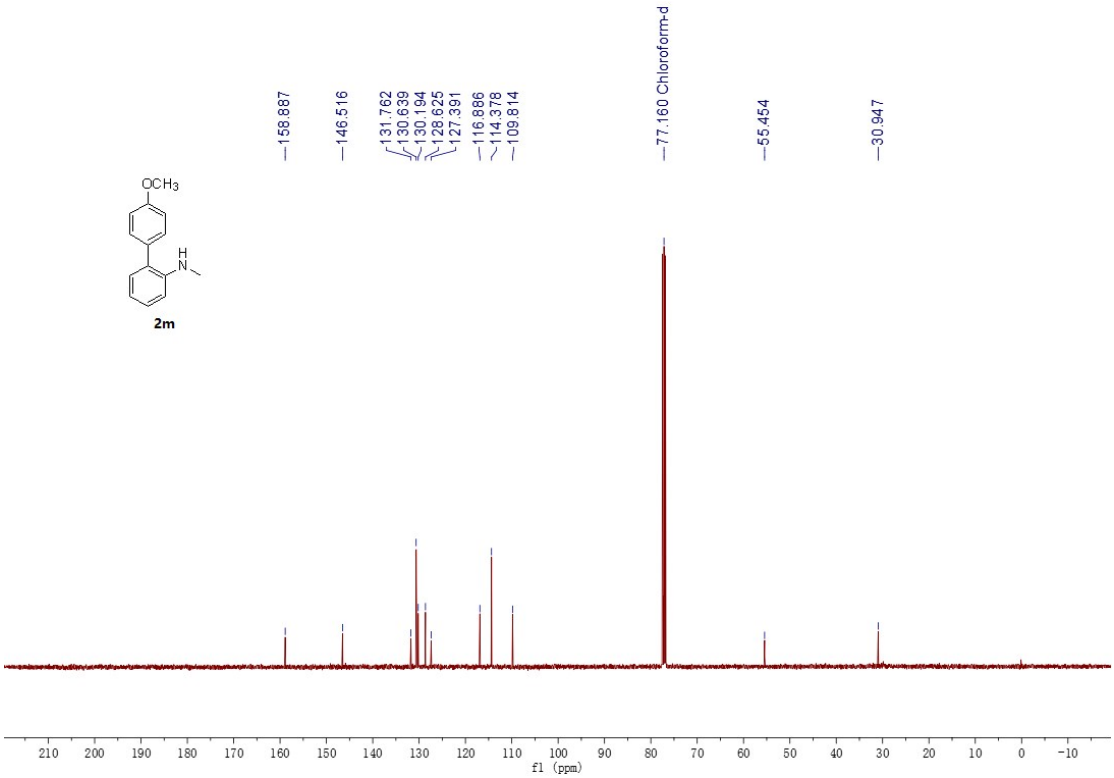
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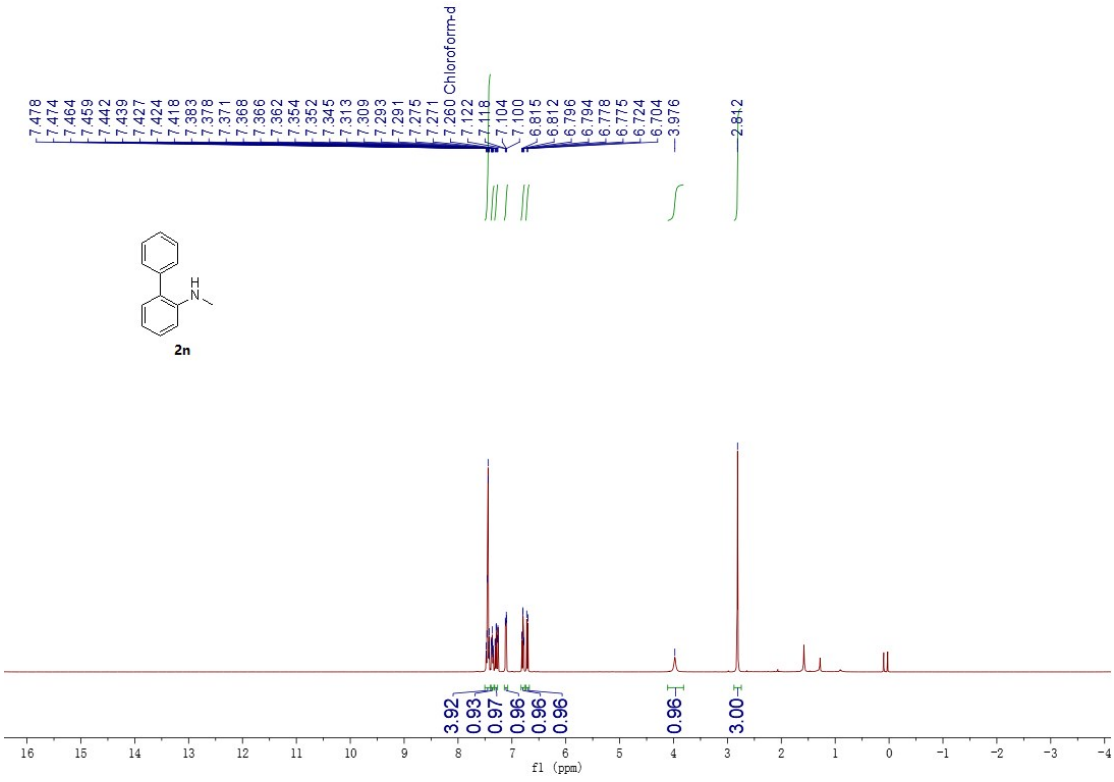
OCH3
H
N
2m
f1 (ppm)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7.366
7.362
7.354
7.352
7.345
7.313
7.309
7.293
7.291
7.275
7.271
7.260 Chloroform-d
7.122
7.118
7.104
7.100
6.815
6.812
6.796
6.794
6.778
6.775
6.724
6.704
3.976
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H
N
2n
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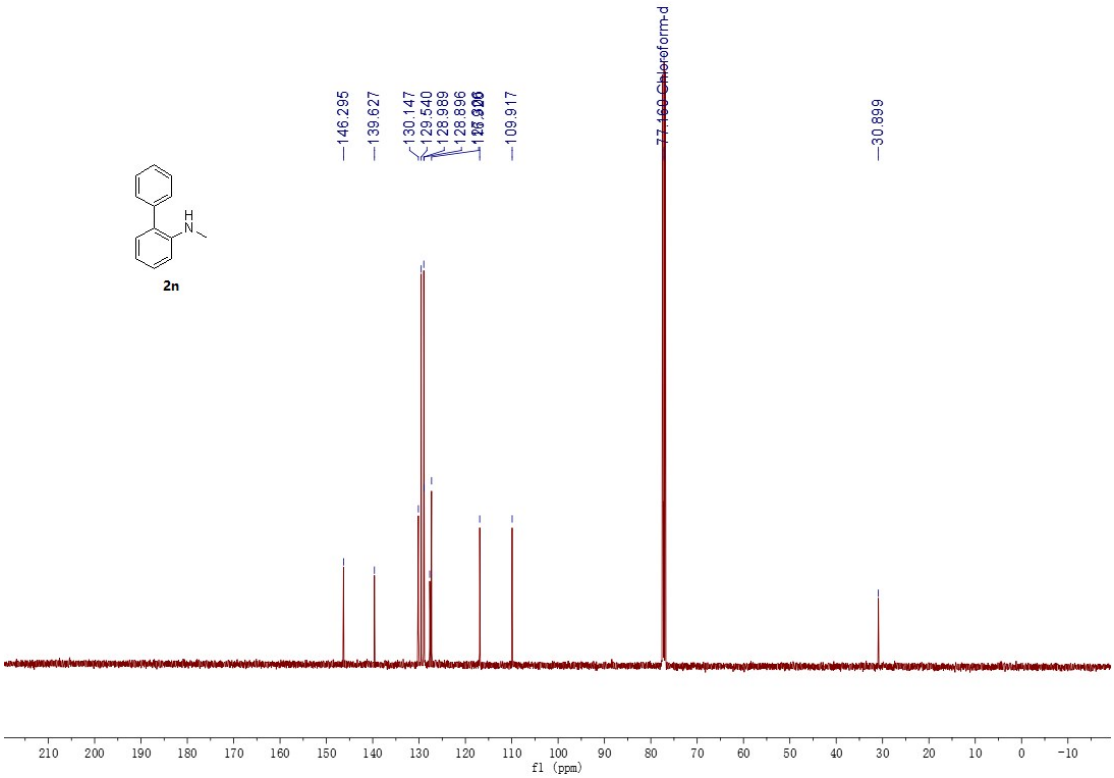
0.96
0.96
0.96
3.00
f1 (ppm)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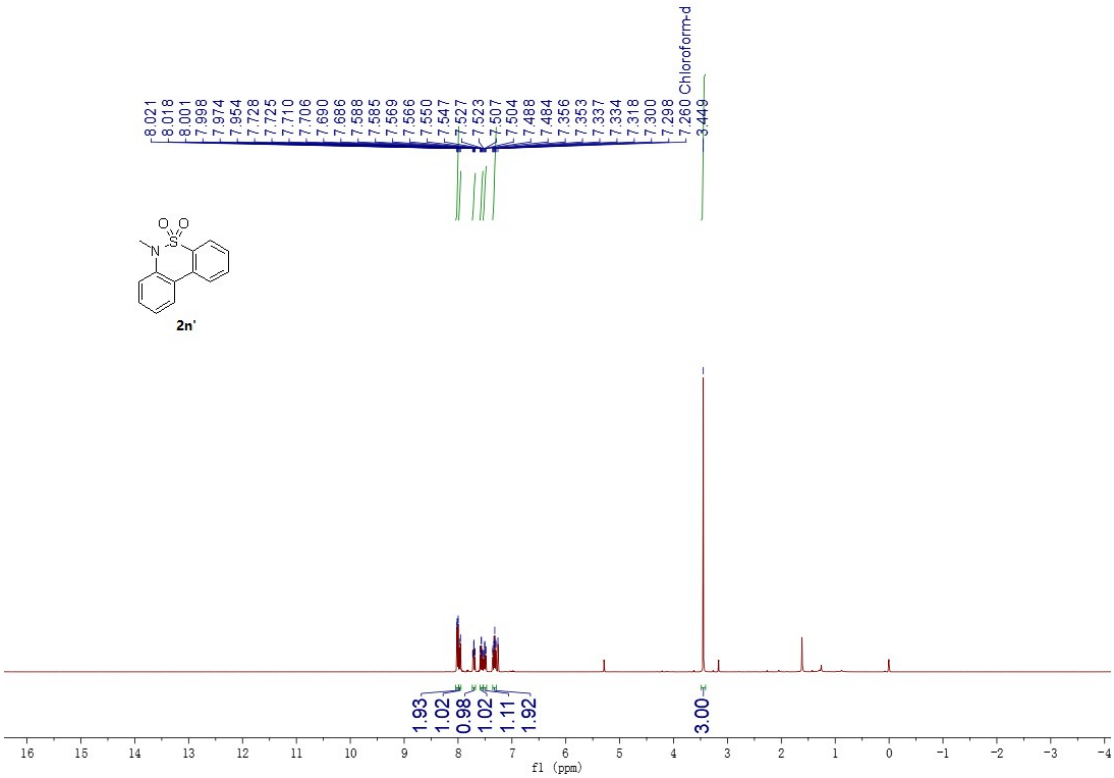
f1 (ppm)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7.588
7.585
7.569
7.566
7.550
7.547
7.527
7.523
7.507
7.504
7.488
7.484
7.356
7.353
7.337
7.334
7.318
7.300
7.298
7.260 Chloroform-d
3.449
2n'
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1.02
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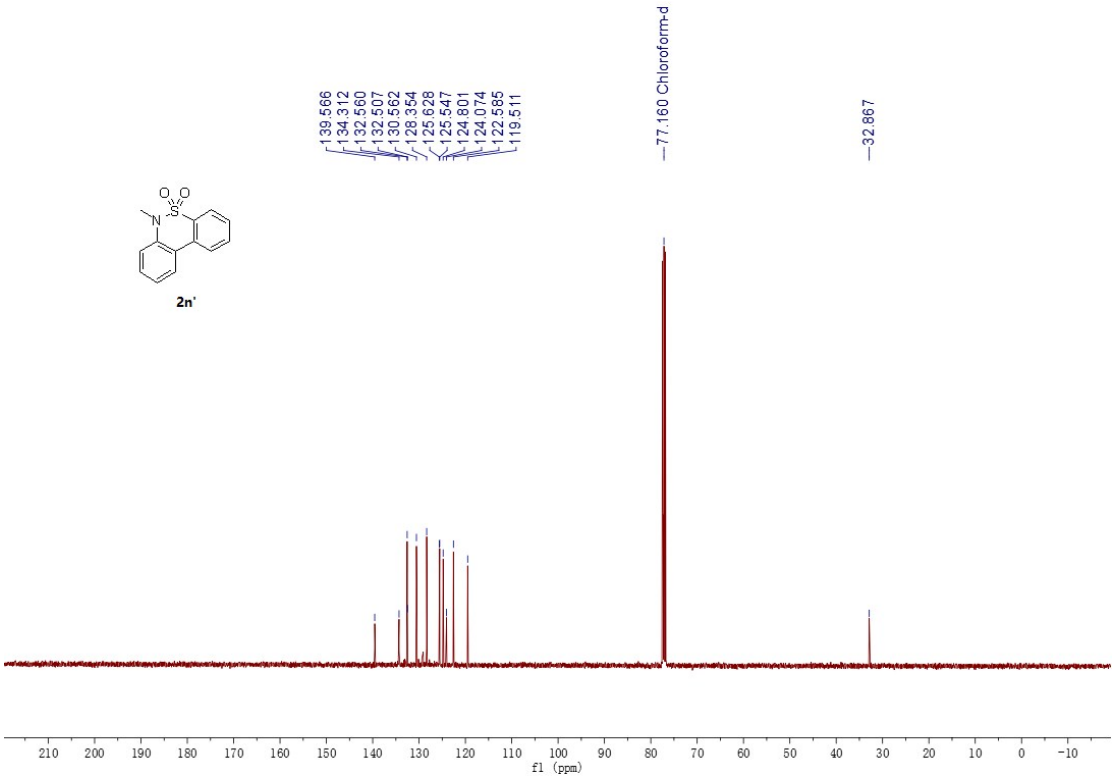
1.02
1.11
1.92
3.00
f1 (ppm)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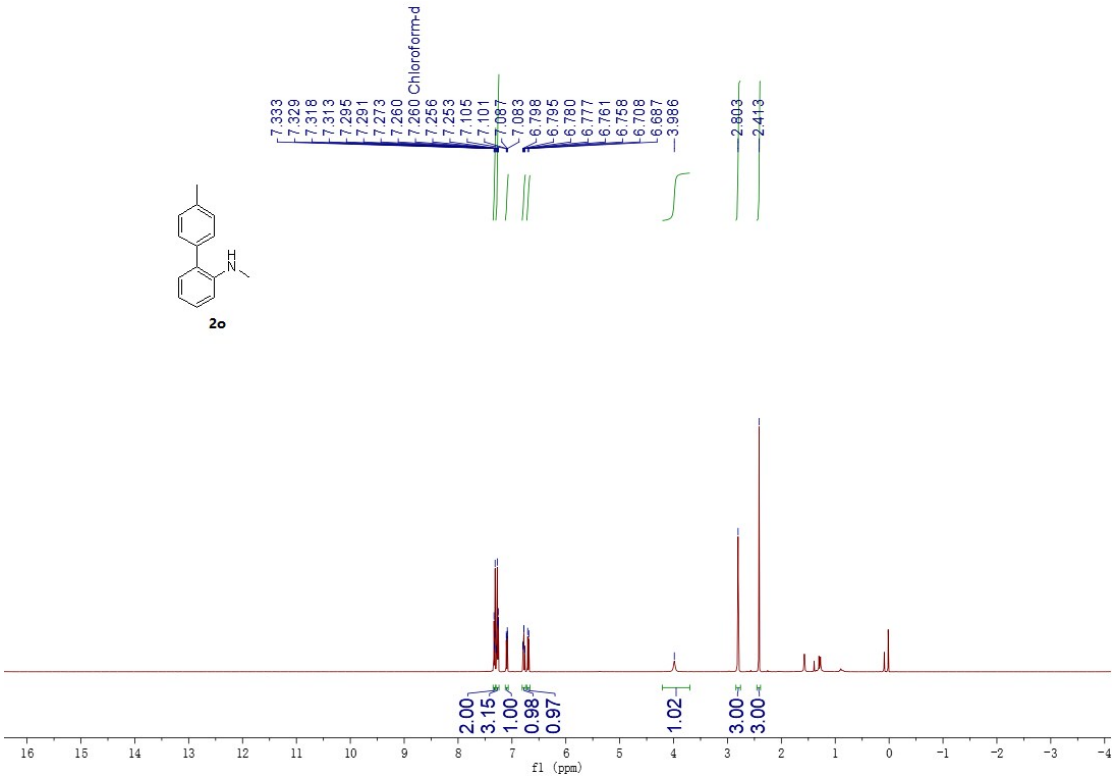
2n'
f1 (ppm)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7.260 Chloroform-d
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7.087
7.083
6.798
6.795
6.780
6.777
6.761
6.758
6.708
6.687
3.986
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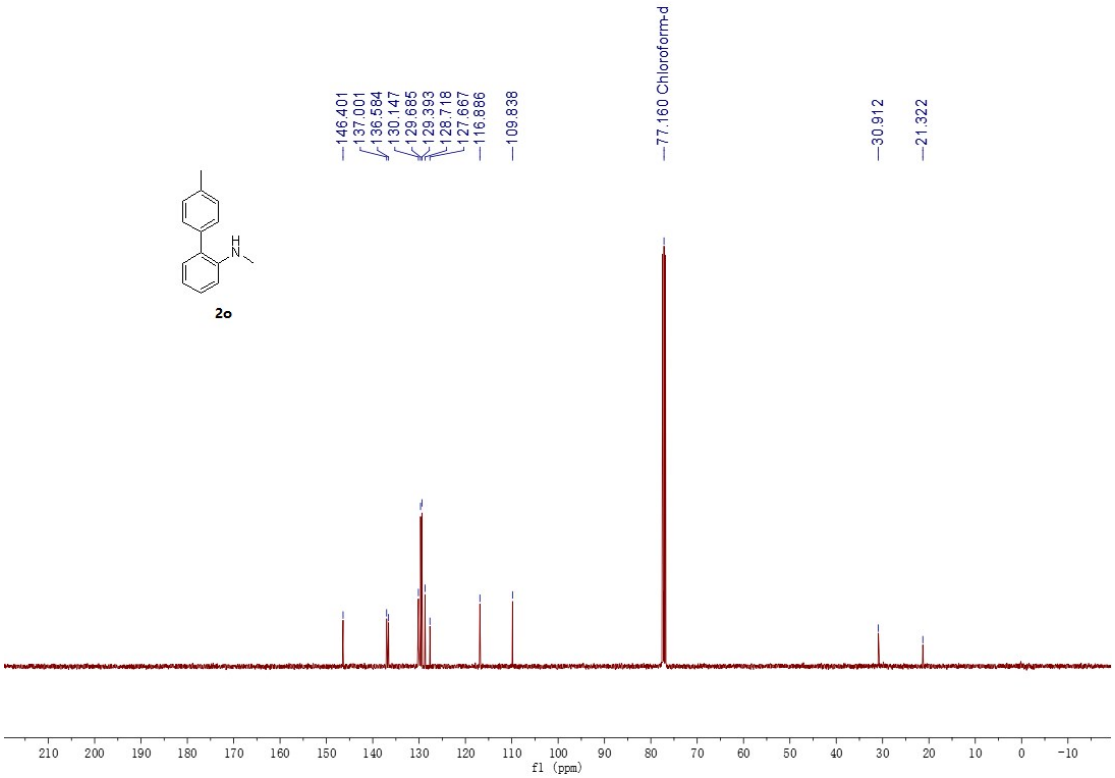
3.00
f1 (ppm)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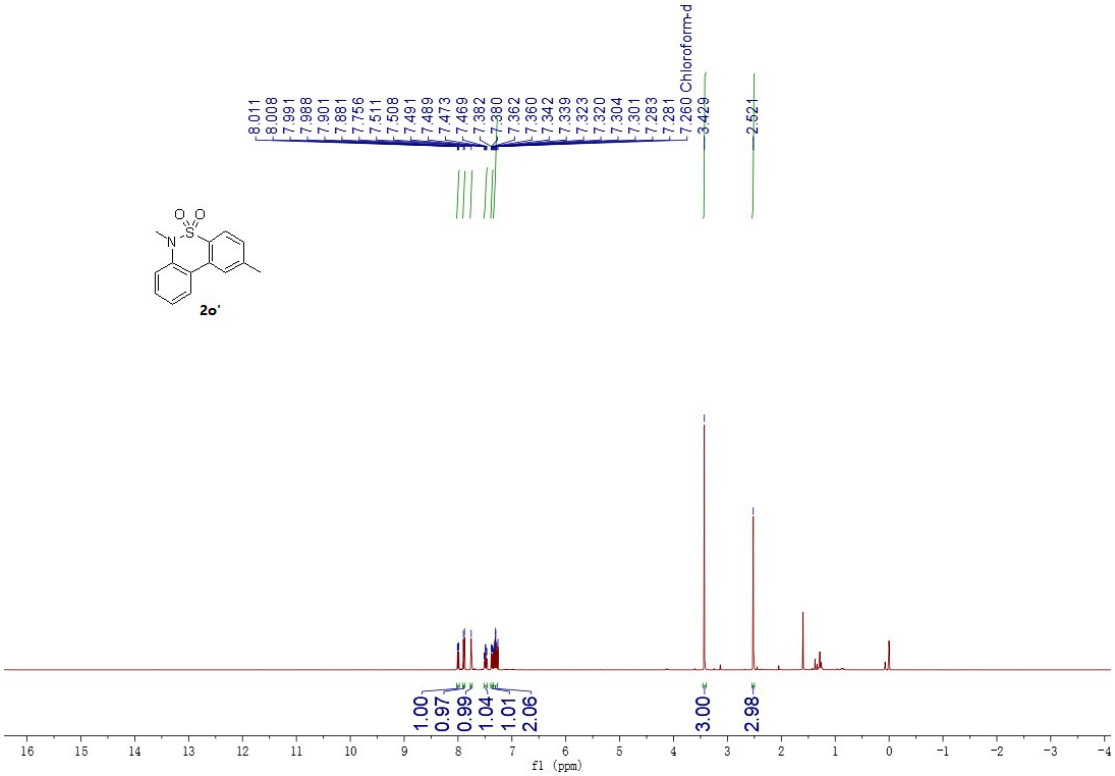
109.838
77.160 Chloroform-d
30.912
21.322
2o
f1 (ppm)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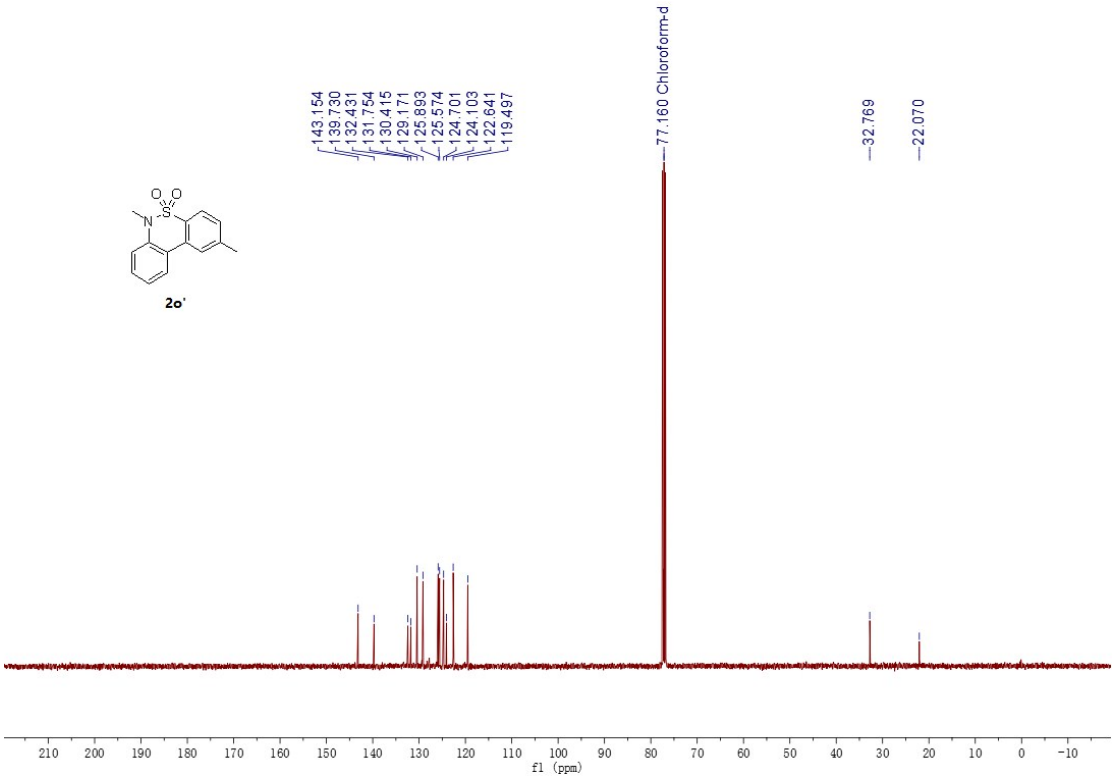
8.008
7.991
7.988
7.901
7.881
7.756
7.511
7.508
7.491
7.489
7.473
7.469
7.382
7.380
7.362
7.360
7.342
7.339
7.323
7.320
7.304
7.301
7.283
7.281
7.260 Chloroform-d
3.429
2.521
2o'
1.00
0.97
0.99
1.04
1.01
2.06
3.00
2.98
f1 (ppm)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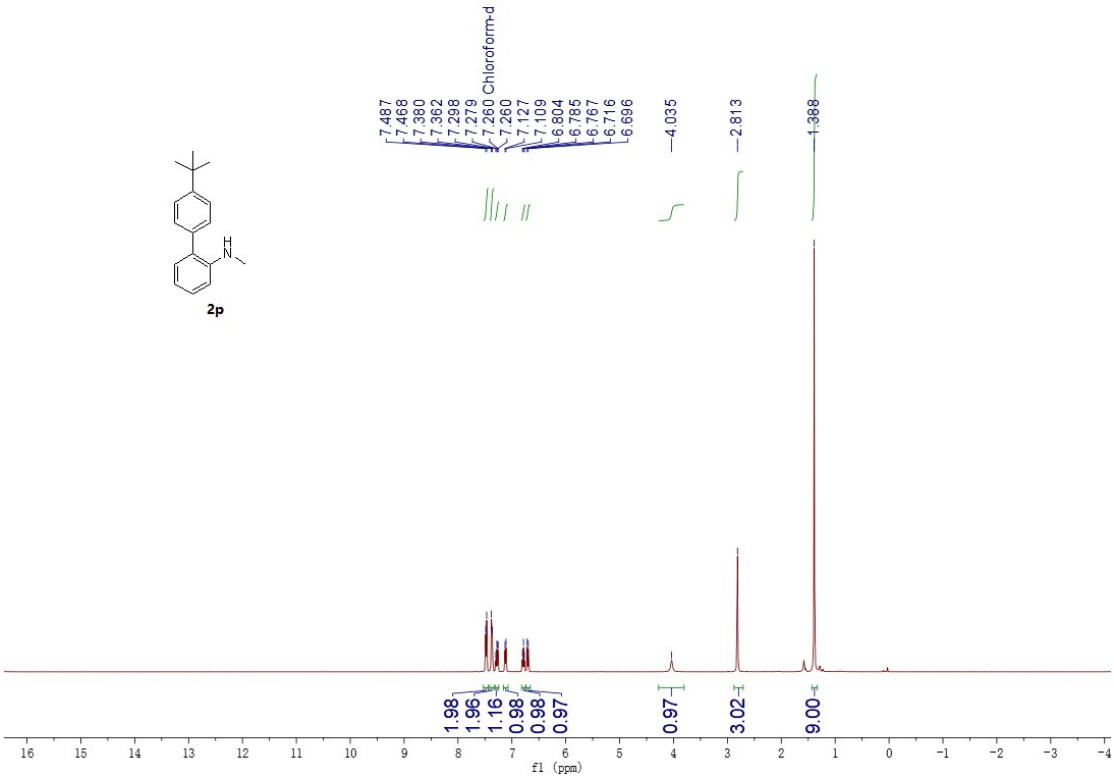
132.431
131.754
130.415
129.171
125.893
125.574
124.701
124.103
122.641
119.497
77.160 Chloroform-d
32.769
22.070
2o'
f1 (ppm)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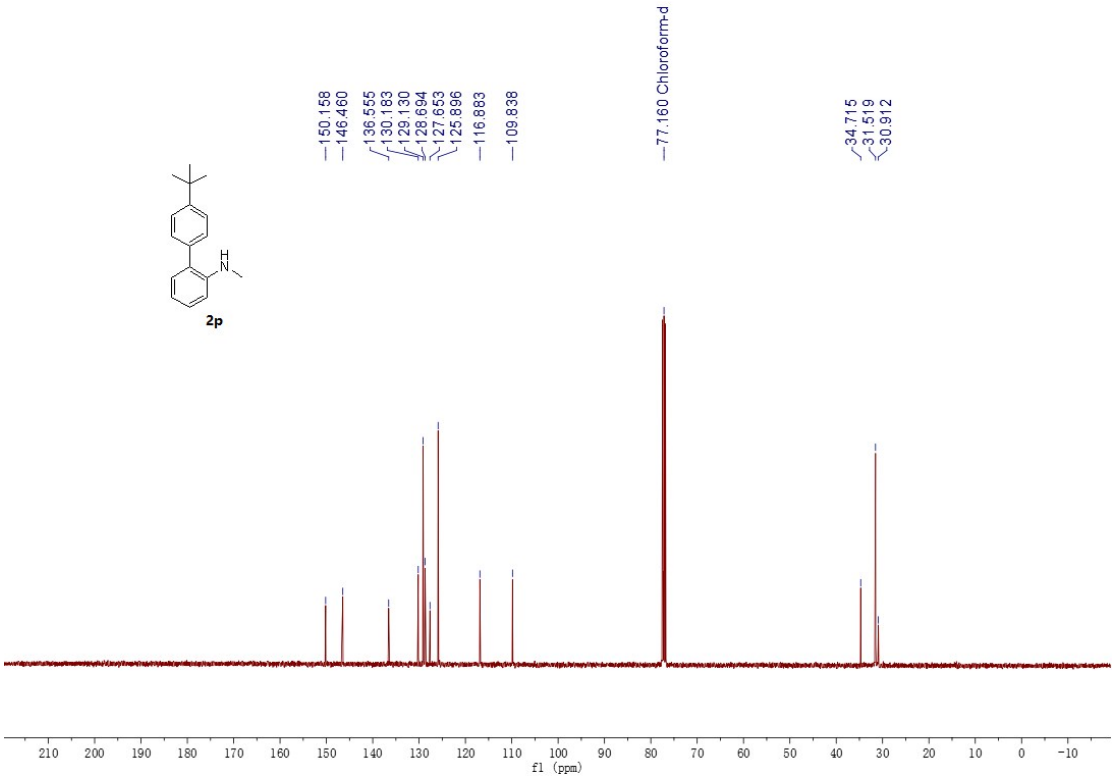
7.468
7.380
7.362
7.298
7.279
7.260 Chloroform-d
7.260
7.127
7.109
6.804
6.785
6.767
6.716
6.696
4.035
2.813
1.388
2p
1.98
1.96
1.16
0.98
0.98
0.97
0.97
3.02
9.00
f1 (ppm)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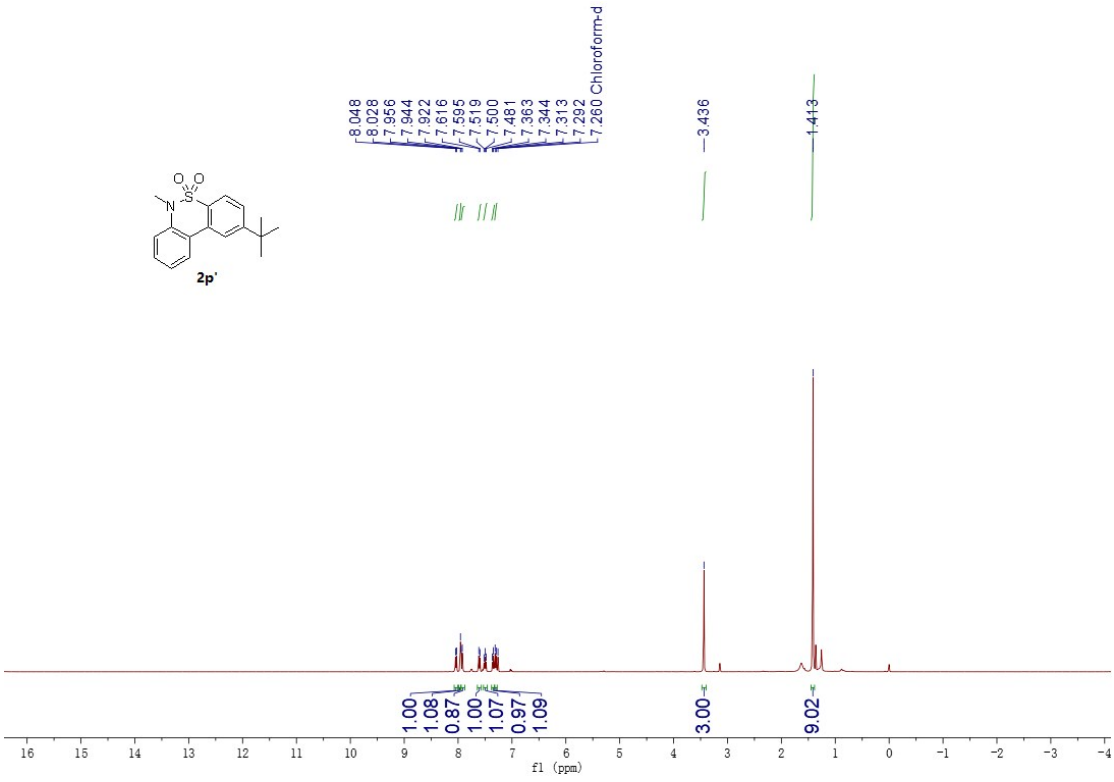
146.460
136.555
130.183
129.130
128.694
127.653
125.896
116.883
109.838
77.160 Chloroform-d
34.715
31.519
30.912
2p
f1 (ppm)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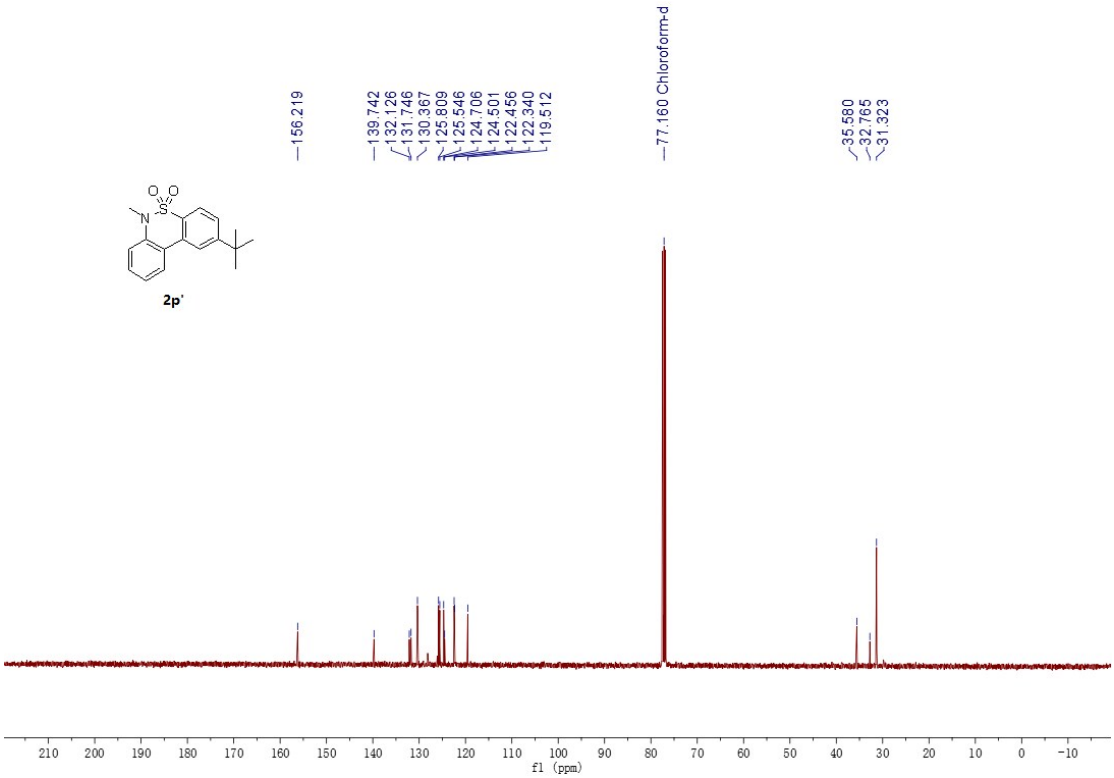
7.956
7.944
7.922
7.616
7.595
7.519
7.500
7.481
7.363
7.344
7.313
7.292
7.260 Chloroform-d
3.436
1.413
2p'
1.00
1.08
0.87
1.00
1.07
0.97
1.09
3.00
9.02
f1 (ppm)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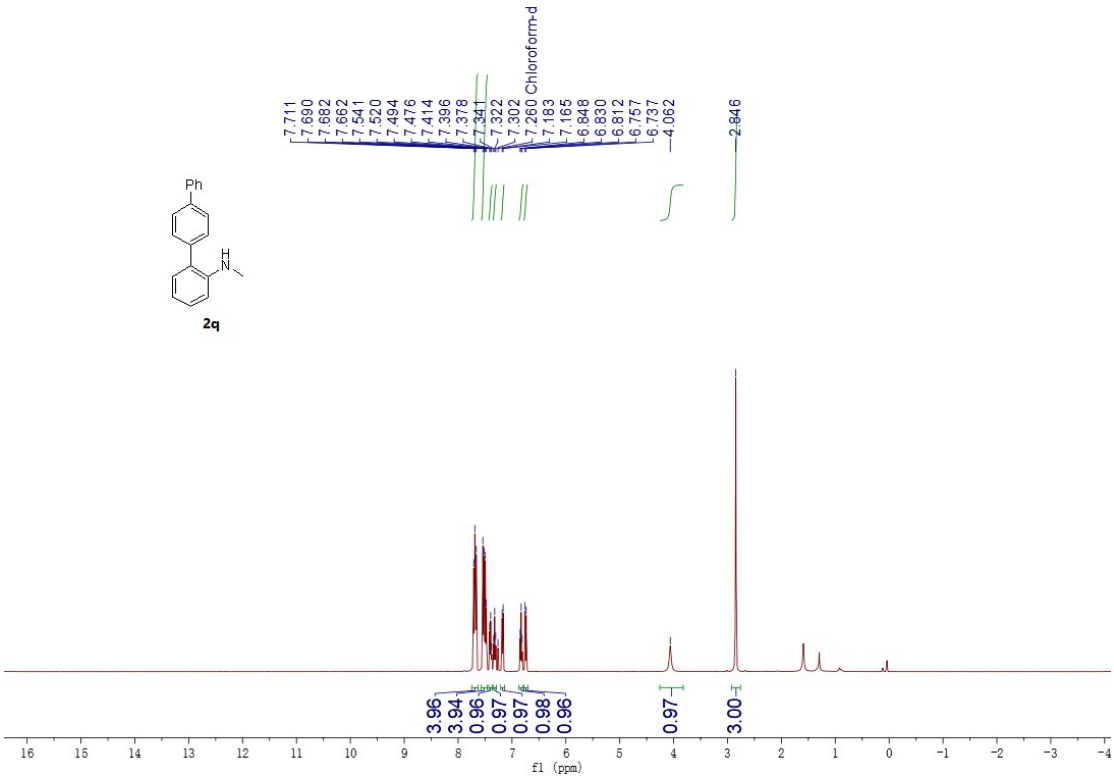
139.742
132.126
131.746
130.367
125.809
125.546
124.706
124.501
122.456
122.340
119.512
77.160 Chloroform-d
35.580
32.765
31.323
2p'
f1 (ppm)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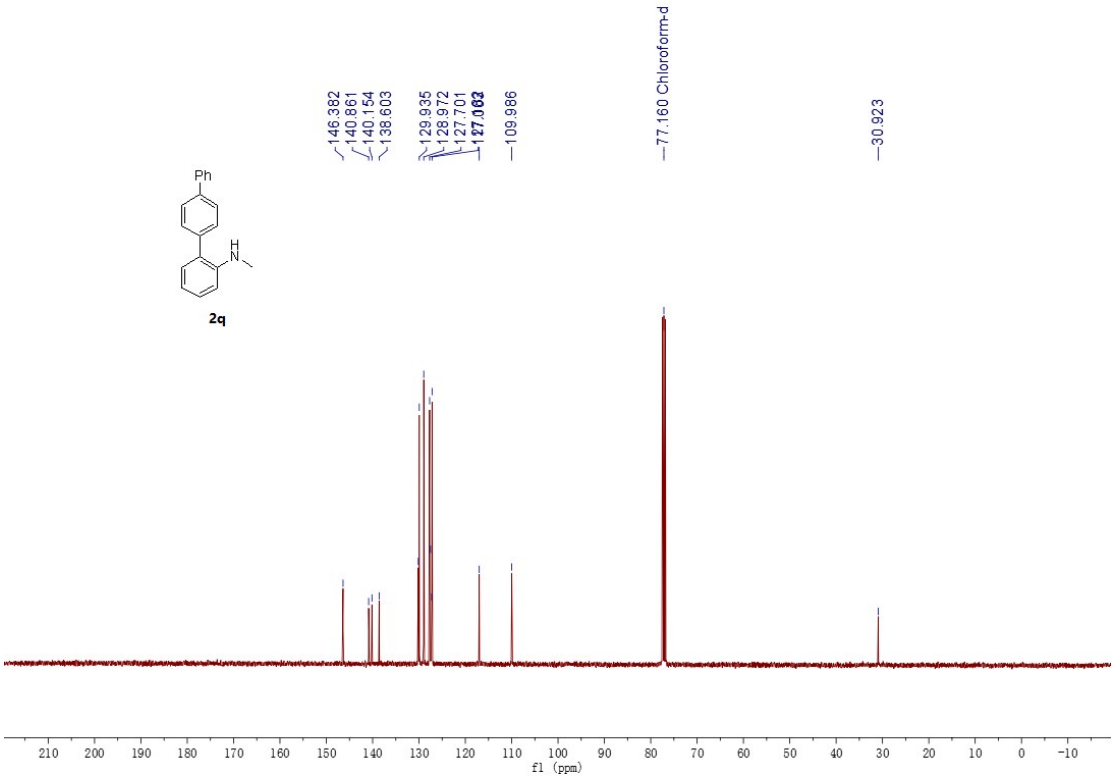
7.690
7.682
7.662
7.541
7.520
7.494
7.476
7.414
7.396
7.378
7.341
7.322
7.302
7.260 Chloroform-d
7.183
7.165
6.848
6.830
6.812
6.757
6.737
4.062
2.846
Ph
2q
3.96
3.94
0.96
0.97
0.97
0.98
0.96
0.97
3.00
f1 (ppm)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140.861
140.154
138.603
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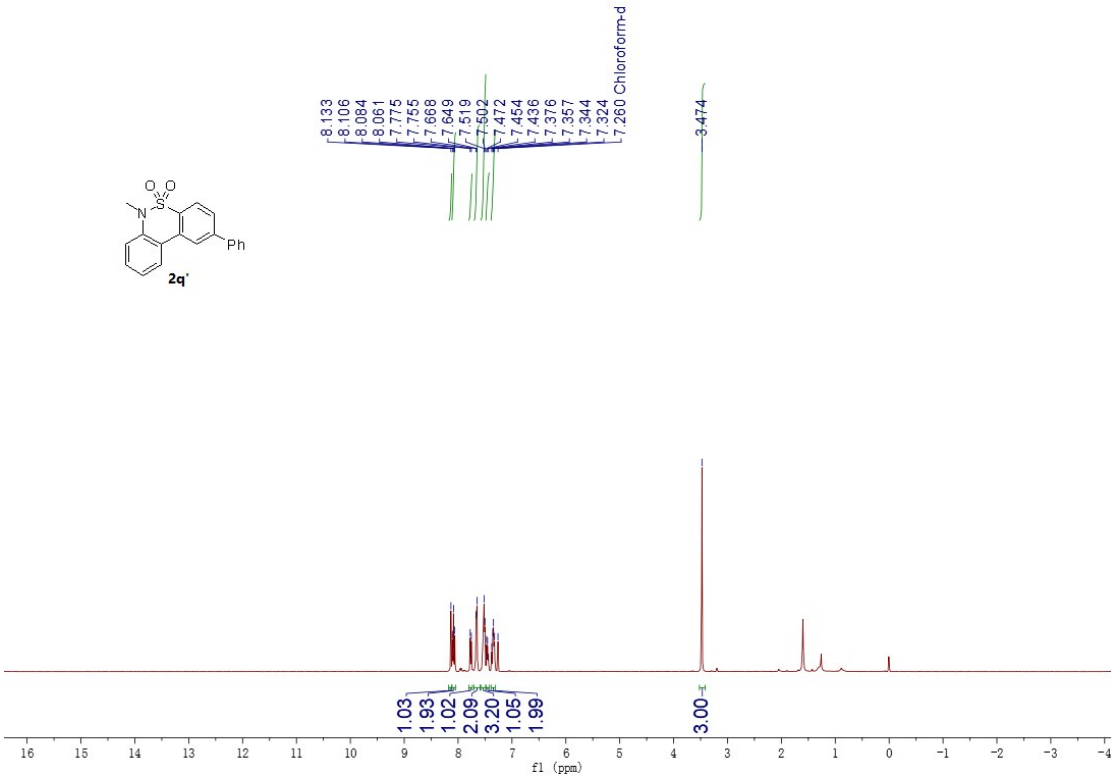
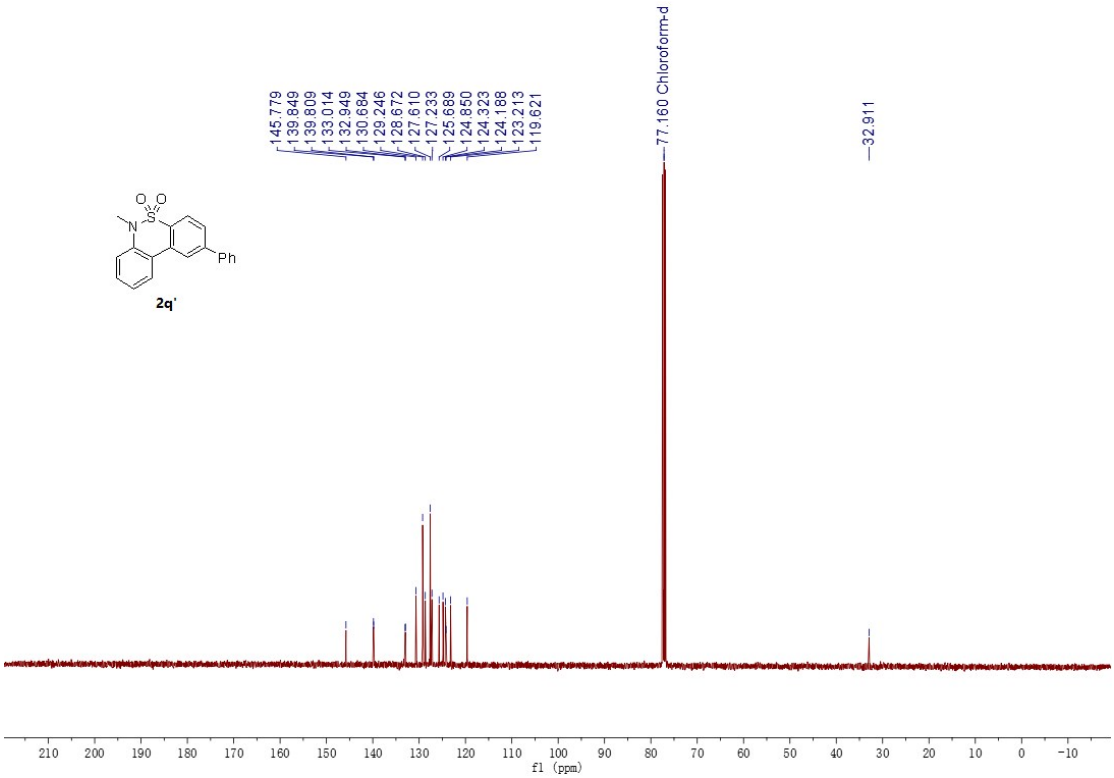
127.701
109.986
77.160 Chloroform-d
30.923
Ph
H
N
2q
f1 (ppm)


8.133
8.106
8.084
8.061
7.775
7.755
7.668
7.649
7.519
7.502
7.472
7.454
7.436
7.376
7.357
7.344
7.324
7.260 Chloroform-d
3.474
O
O
S
N
Ph
2q'
1.03
1.93
1.02
2.09
3.20
1.05
1.99
3.00
f1 (ppm)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139.809
133.014
132.949
130.684
129.246
128.672
127.610
127.233
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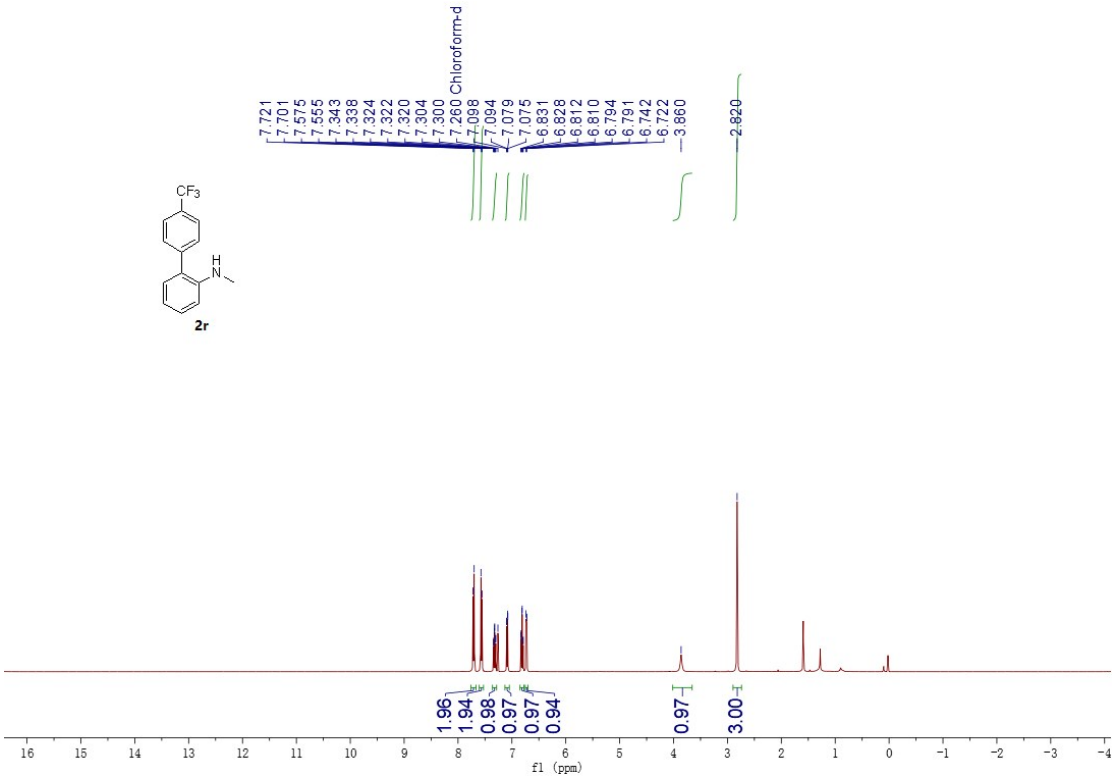
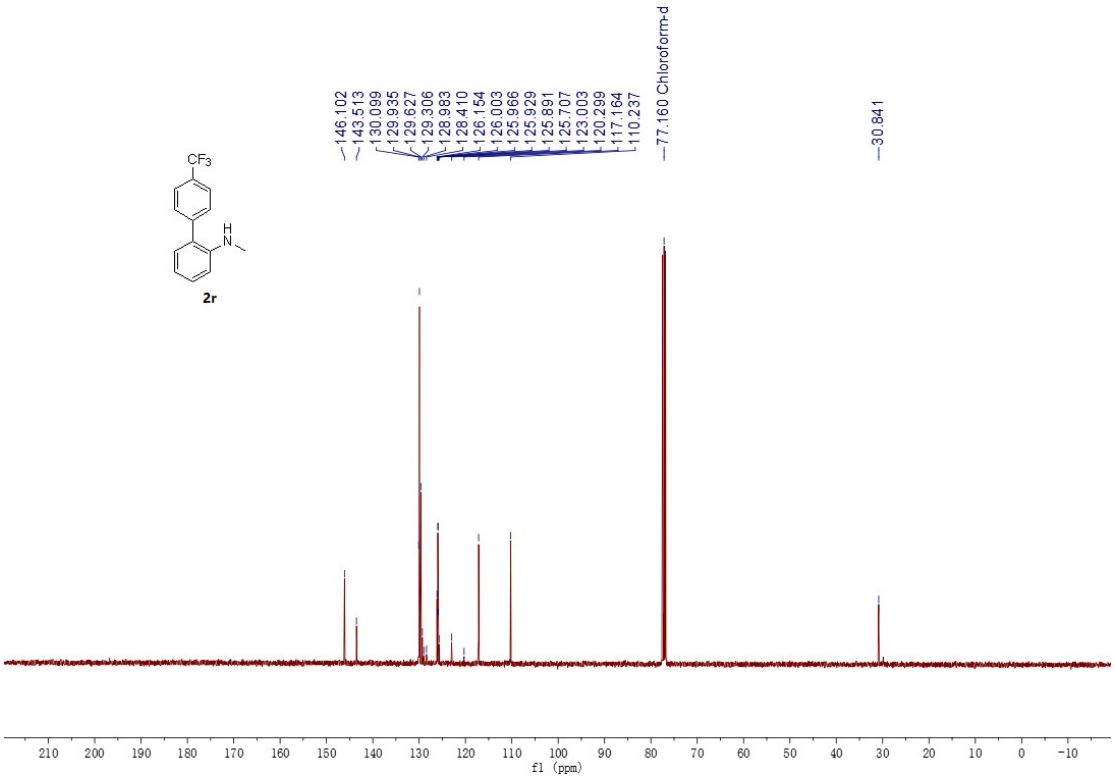
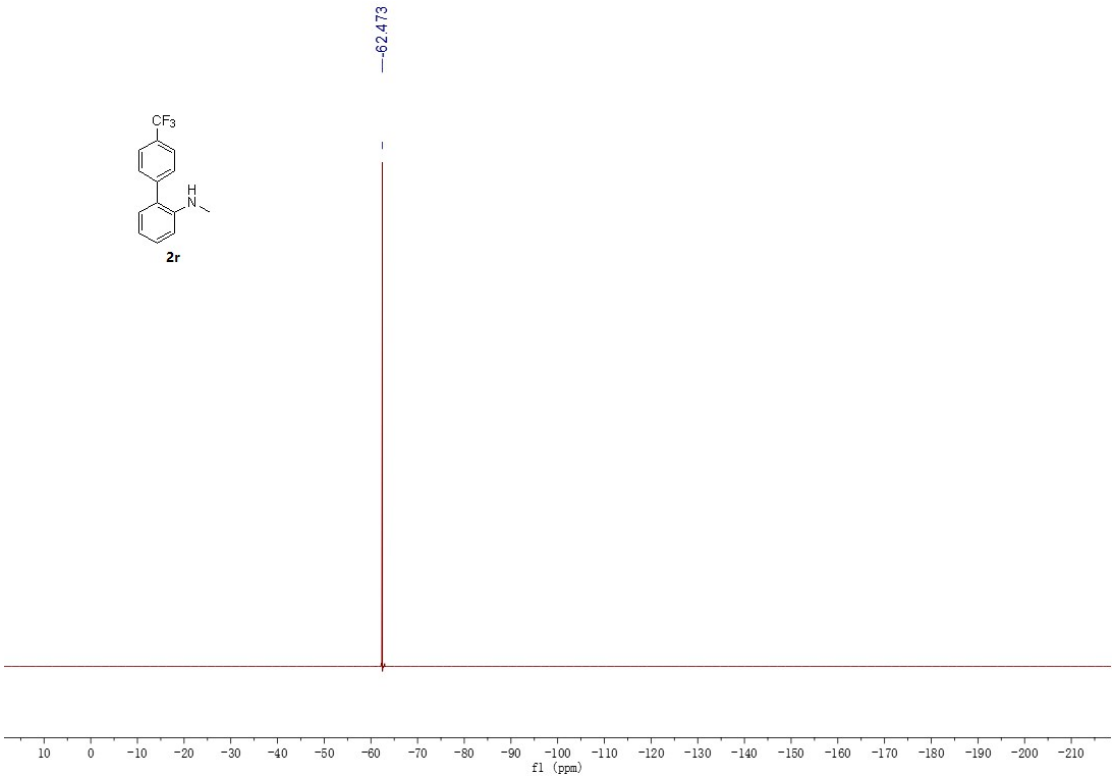
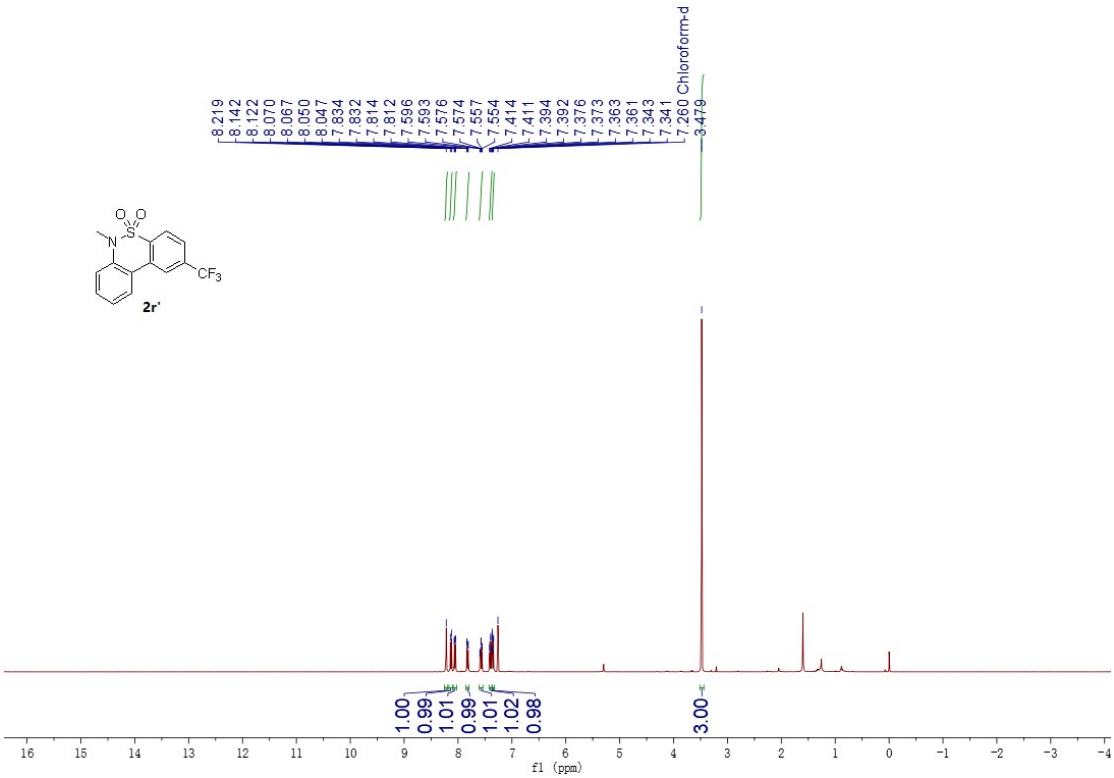
124.850
124.323
124.188
123.213
119.621
77.160 Chloroform-d
32.911
Ph
2q'
f1 (ppm)


7.721
7.701
7.575
7.555
7.343
7.338
7.324
7.322
7.320
7.304
7.300
7.260 Chloroform-d
7.098
7.094
7.079
7.075
6.831
6.828
6.812
6.810
6.794
6.791
6.742
6.722
3.860
2.820
CF3
H
N
2r
1.96
1.94
0.98
0.97
0.97
0.94
0.97
3.00
f1 (ppm)


146.102
143.513
130.099
129.935
129.627
129.306
128.983
128.410
126.154
126.003
125.966
125.929
125.891
125.707
123.003
120.299
117.164
110.237
77.160 Chloroform-d
30.841
CF3
H
N
2r
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)


-62.473
CF3
H
N
2r
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)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8.142
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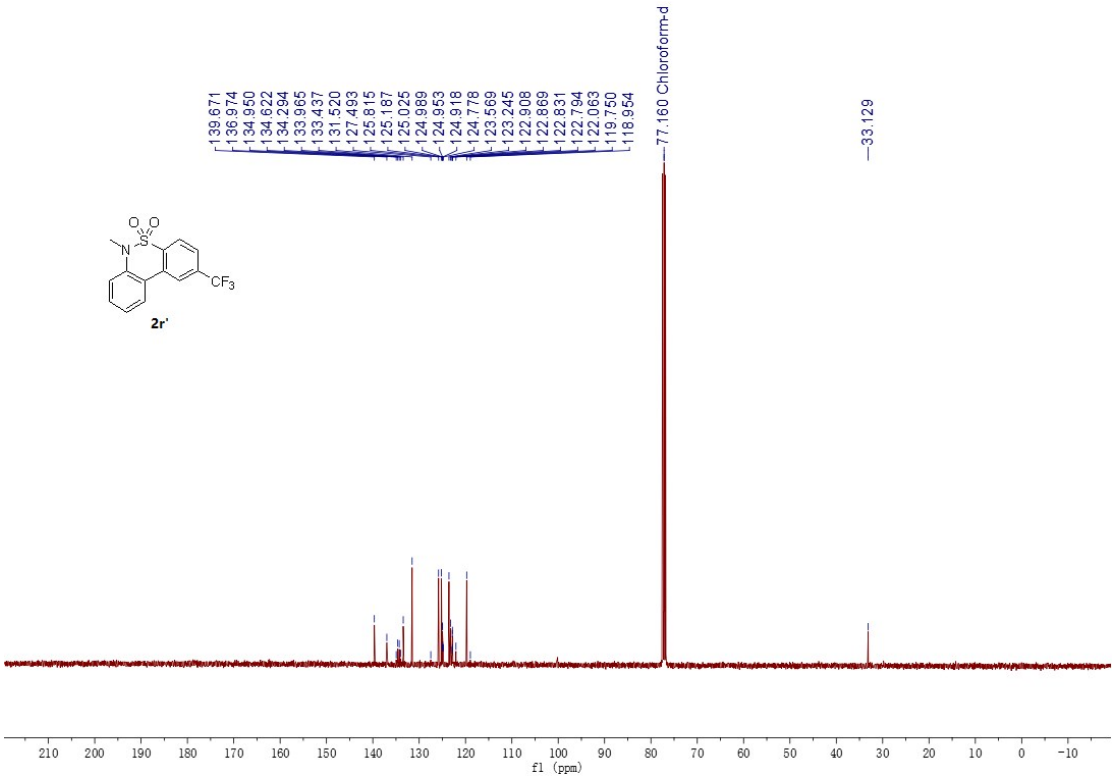
8.070
8.067
8.050
8.047
7.834
7.832
7.814
7.812
7.596
7.593
7.576
7.574
7.557
7.554
7.414
7.411
7.394
7.392
7.376
7.373
7.363
7.361
7.343
7.341
7.260 Chloroform-d
3.479
CF3
2r'
1.00
0.99
1.01
0.99
1.01
1.02
0.98
3.00
f1 (ppm)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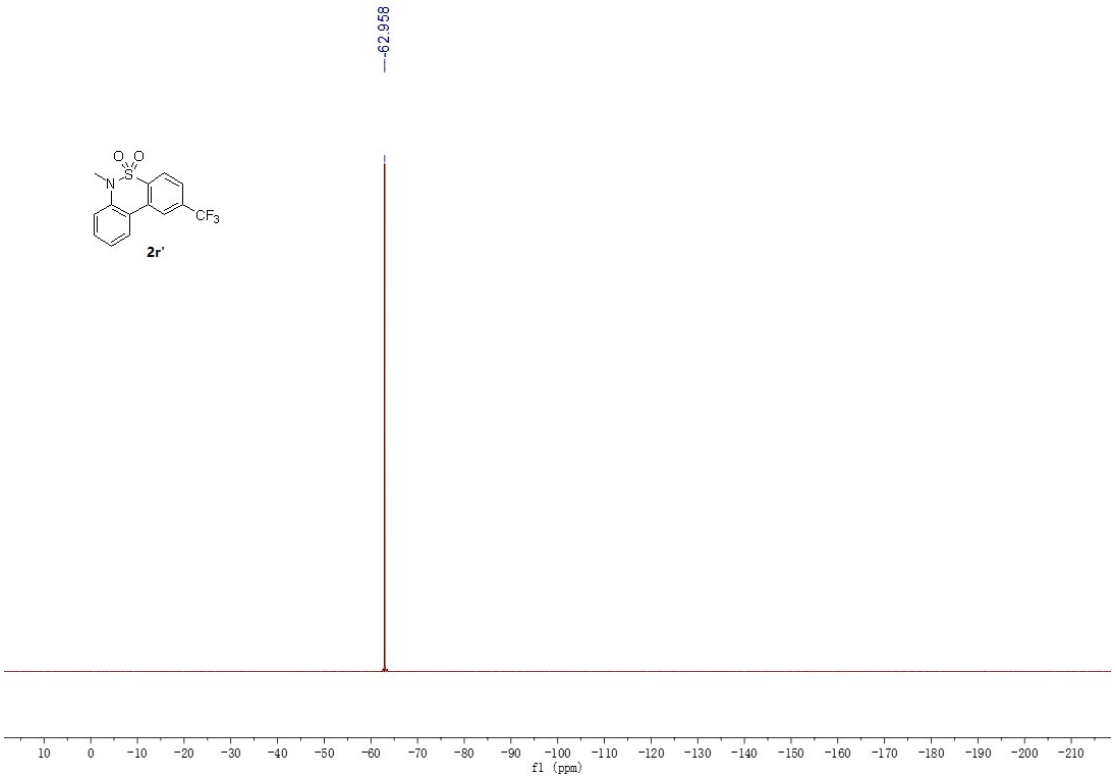
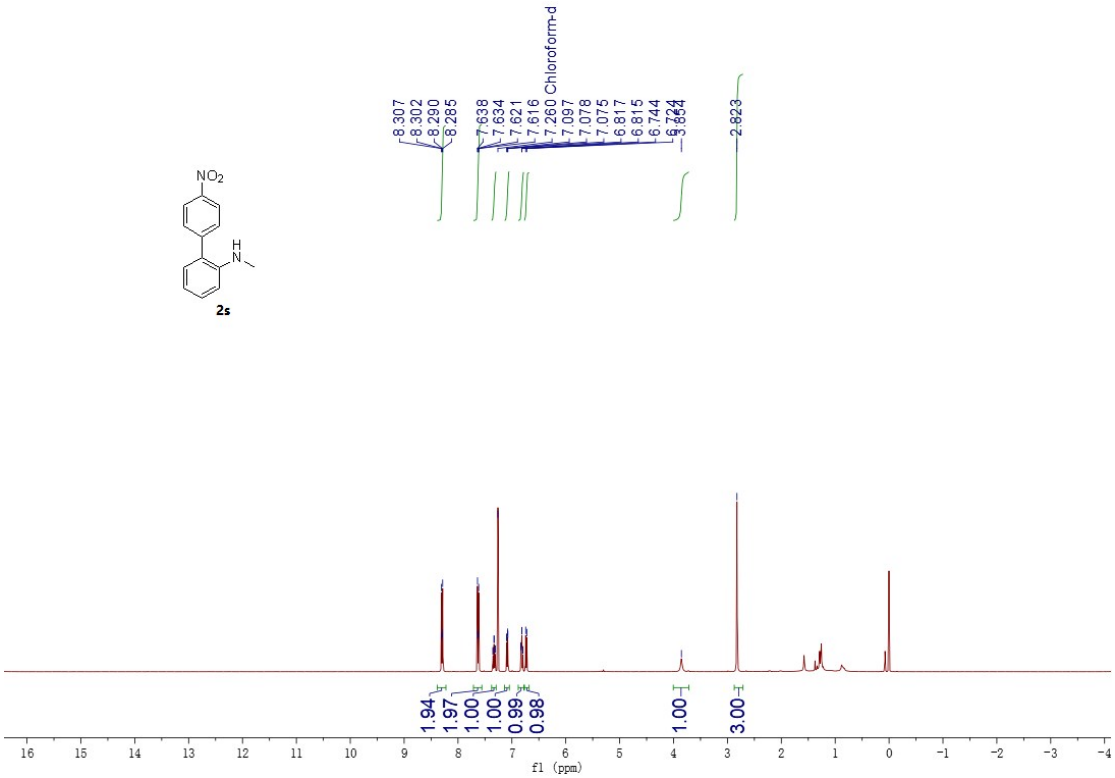
134.622
134.294
133.965
133.437
131.520
127.493
125.815
125.187
125.025
124.989
124.953
124.918
124.778
123.569
123.245
122.908
122.869
122.831
122.794
122.063
119.750
118.954
77.160 Chloroform-d
33.129
CF3
2r'
f1 (ppm)


-62.958
2r'
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)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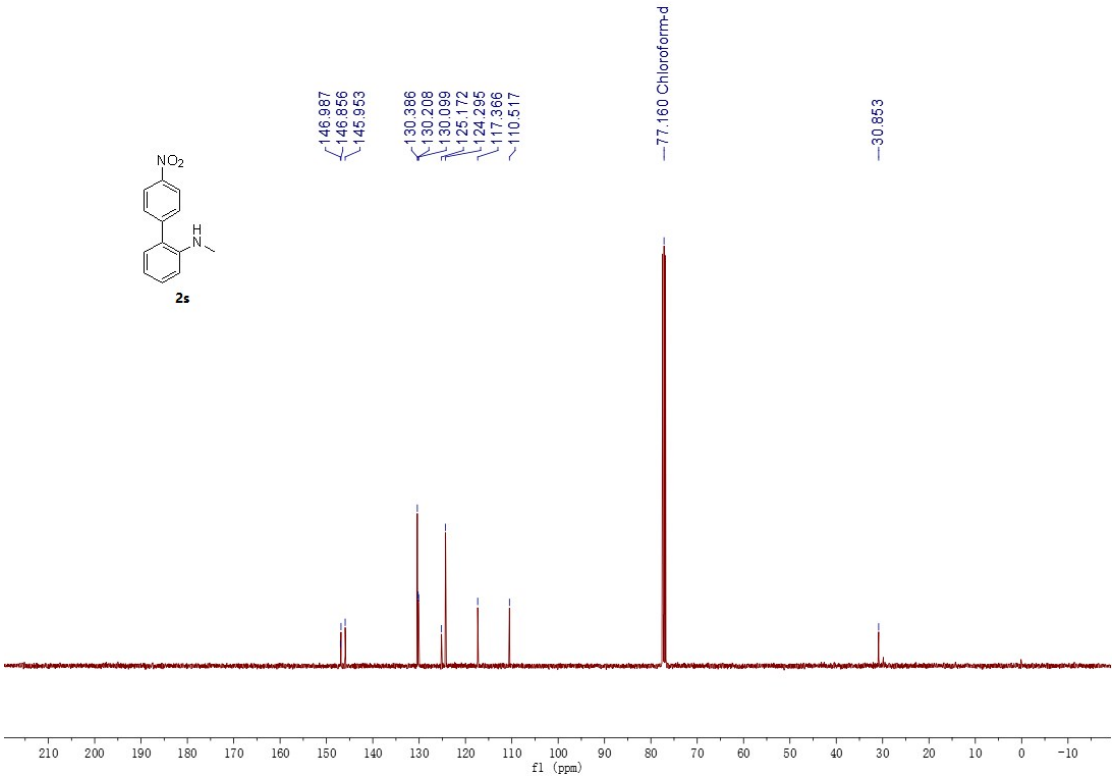
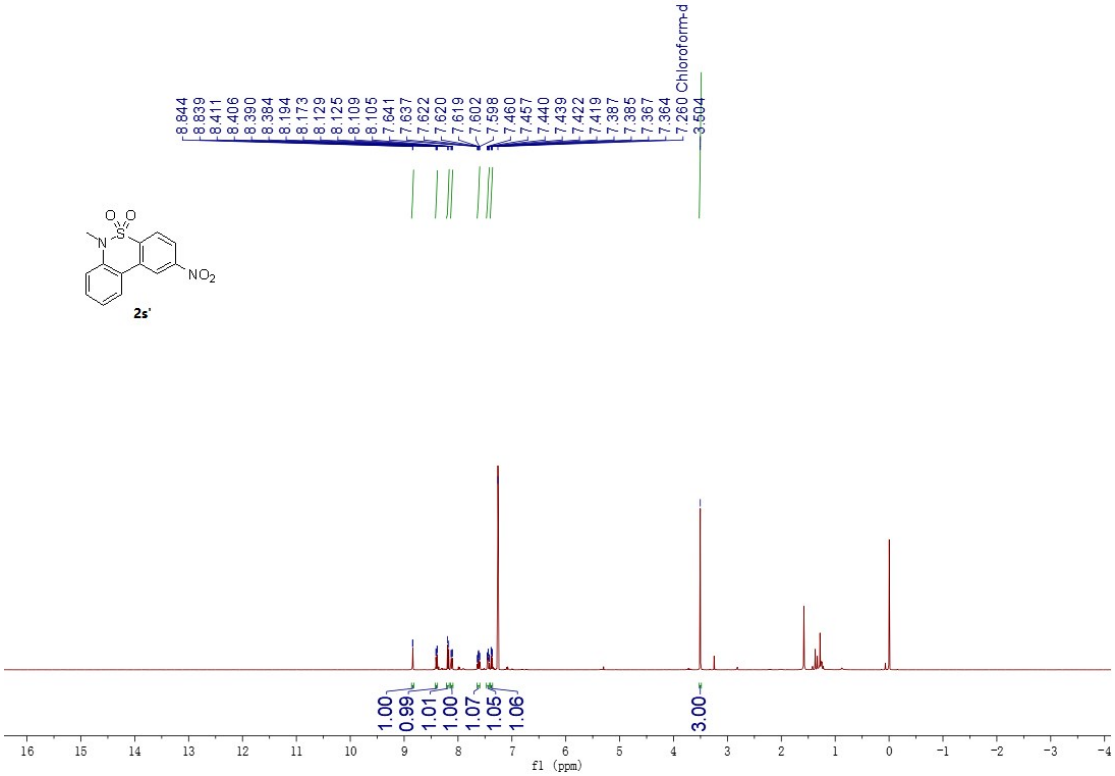
8.302
8.290
8.285
7.638
7.634
7.621
7.616
7.260 Chloroform-d
7.097
7.078
7.075
6.817
6.815
6.744
6.724
3.824
2.823
2s
1.94
1.97
1.00
1.00
0.99
0.98
1.00
3.00
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4
f1 (ppm)


146.987
146.856
145.953
130.386
130.208
130.099
125.172
124.295
117.366
110.517
77.160 Chloroform-d
30.853
NO2
H
N
2s
f1 (ppm)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8.194
8.173
8.129
8.125
8.109
8.105
7.641
7.637
7.622
7.620
7.619
7.602
7.598
7.460
7.457
7.440
7.439
7.422
7.419
7.387
7.385
7.367
7.364
7.260 Chloroform-d
3.504
O
O
S
N
NO2
2s'
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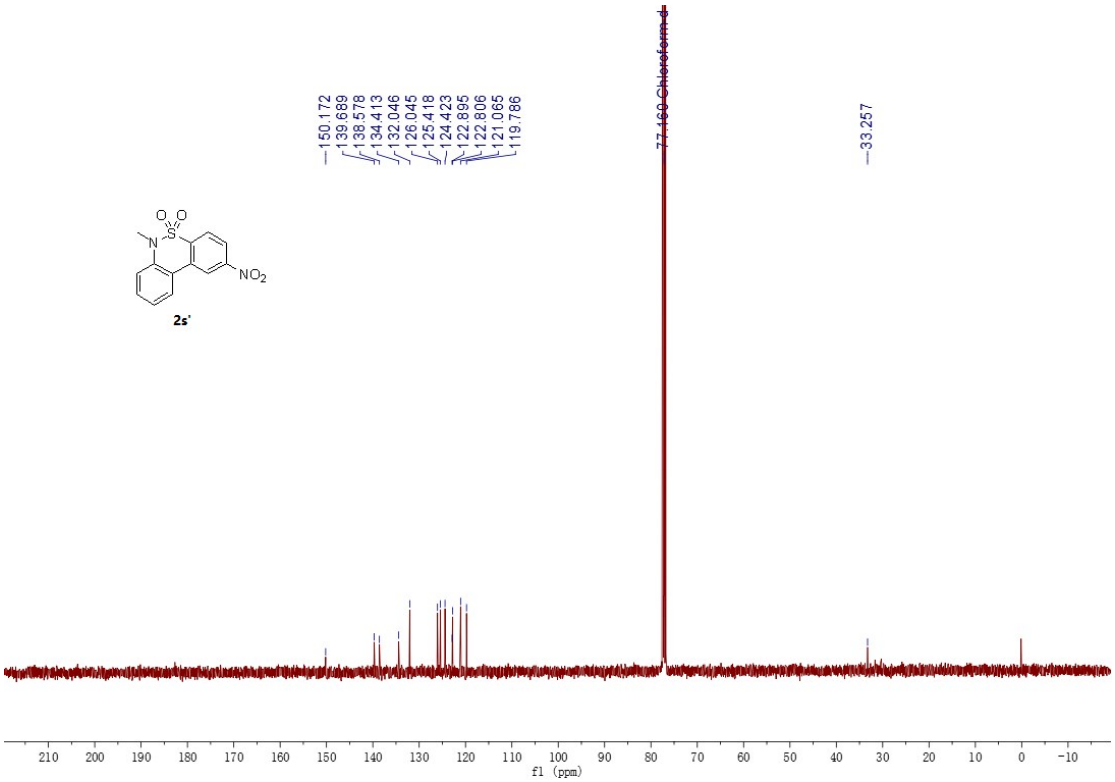
1.01
1.00
1.07
1.05
1.06
3.00
f1 (ppm)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138.578
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132.046
126.045
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122.895
122.806
121.065
119.786
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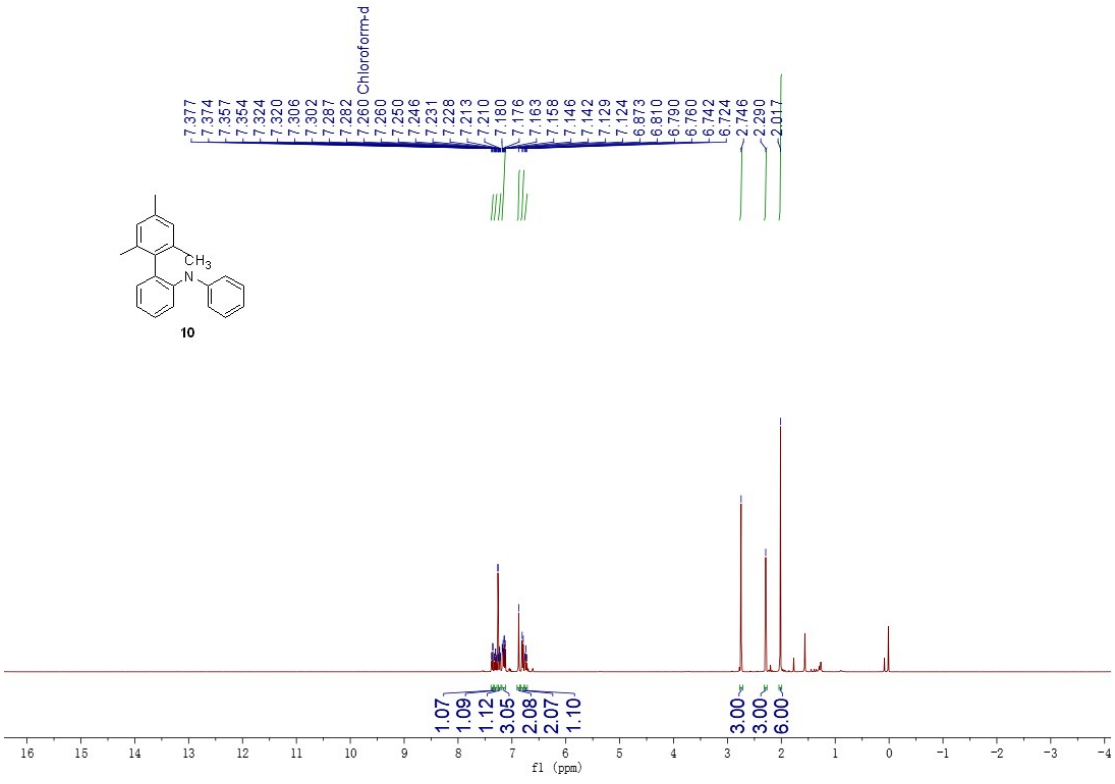
33.257
2s'
f1 (ppm)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7.320
7.306
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7.287
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7.260 Chloroform-d
7.260
7.250
7.246
7.231
7.228
7.213
7.210
7.180
7.176
7.163
7.158
7.146
7.142
7.129
7.124
6.873
6.810
6.790
6.760
6.742
6.724
2.746
2.290
2.017
10
1.07
1.09
1.12
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2.08
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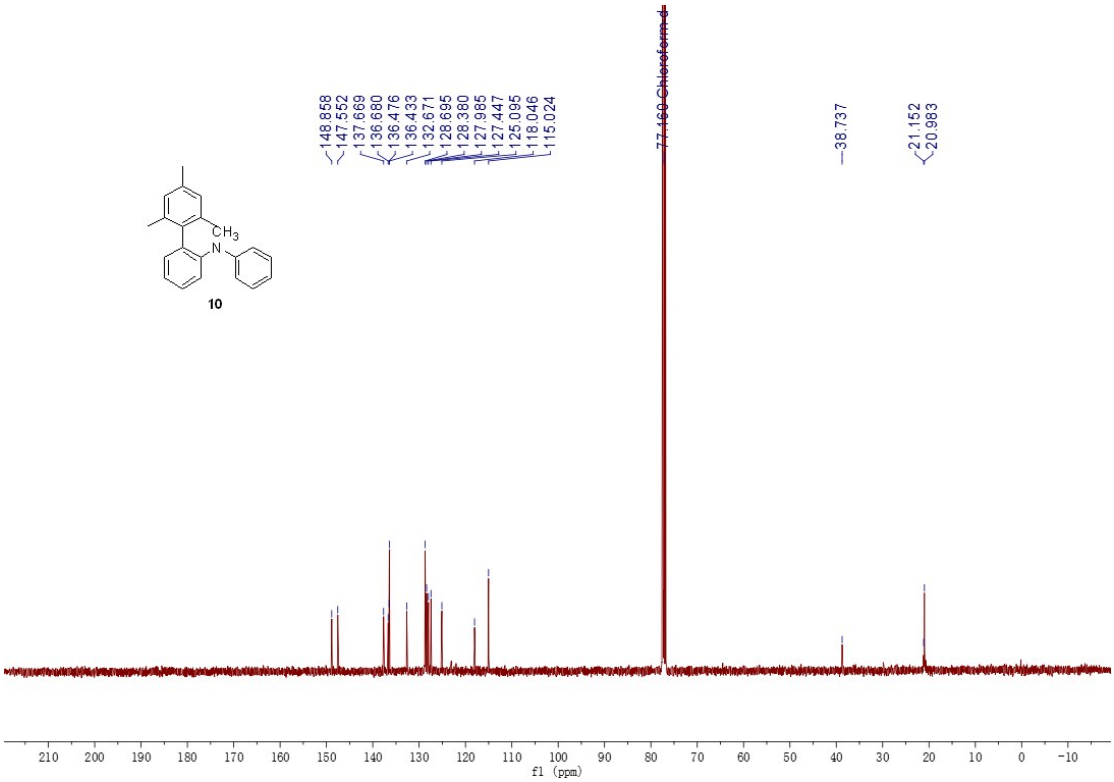
1.10
3.00
3.00
6.00
f1 (ppm)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128.695
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127.447
125.095
118.046
115.024
77.160 Chloroform-d
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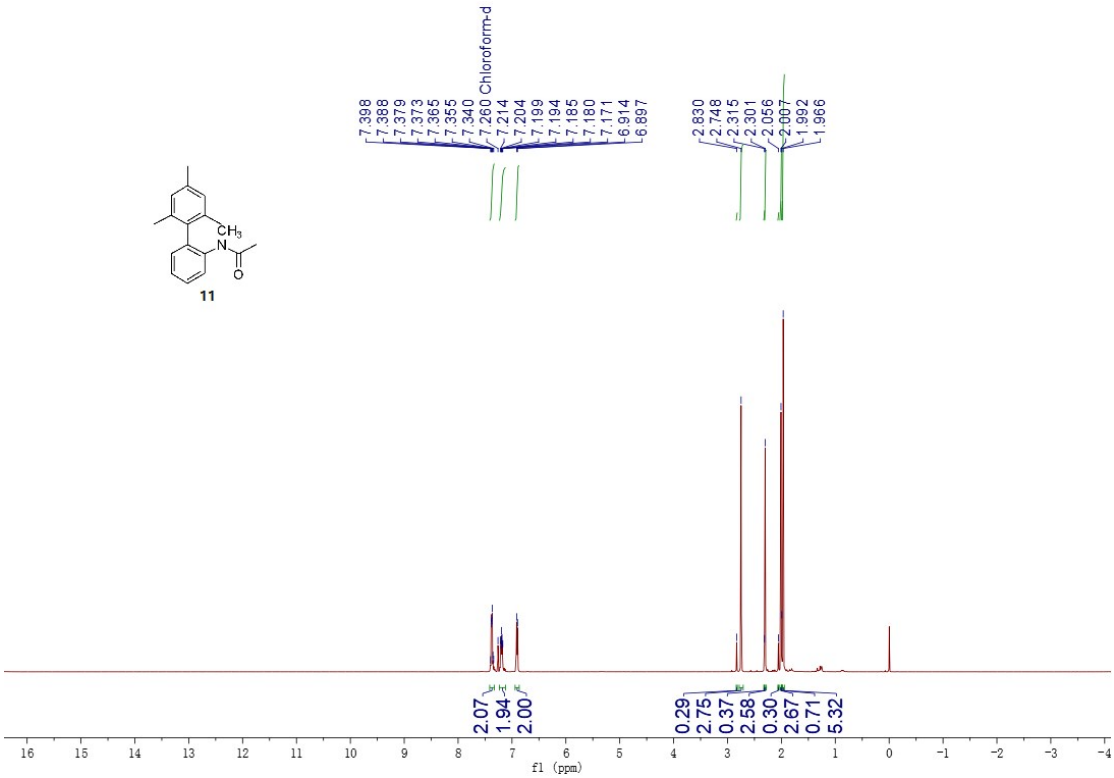
20.983
CH3
N
10
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)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7.355
7.340
7.260 Chloroform-d
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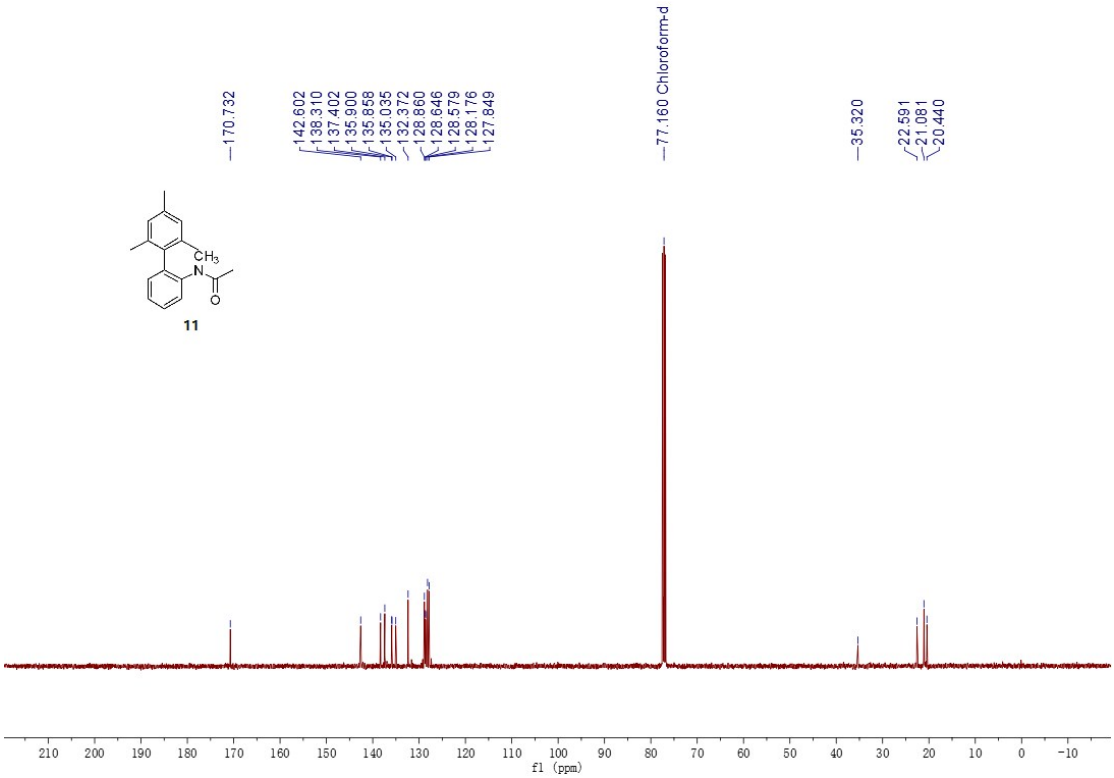
7.194
7.185
7.180
7.171
6.914
6.897
2.830
2.748
2.315
2.301
2.056
2.007
1.992
1.966
CH3
N
O
11
2.07
1.94
2.00
0.29
2.75
0.37
2.58
0.30
2.67
0.71
5.32
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4
f1 (ppm)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137.402
135.900
135.858
135.035
132.372
128.860
128.646
128.579
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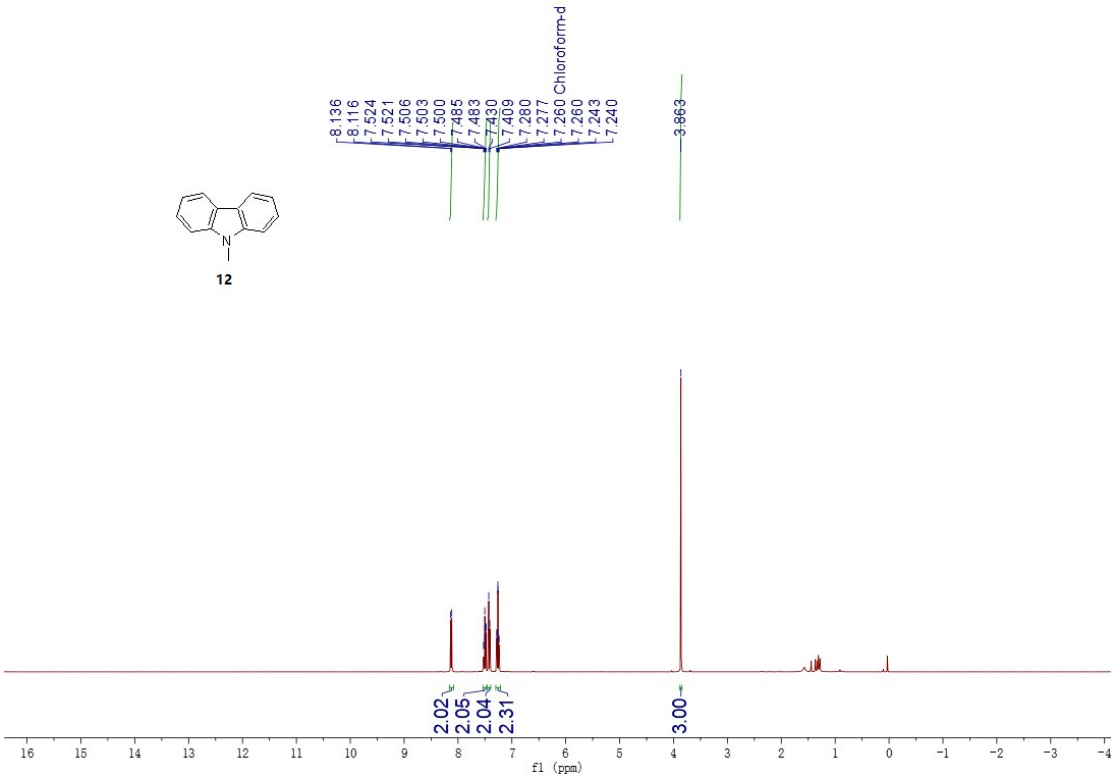
127.849
77.160 Chloroform-d
35.320
22.591
21.081
20.440
CH3
N
O
11
f1 (ppm)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7.521
7.506
7.503
7.500
7.485
7.483
7.430
7.409
7.280
7.277
7.260 Chloroform-d
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7.240
3.863
N
12
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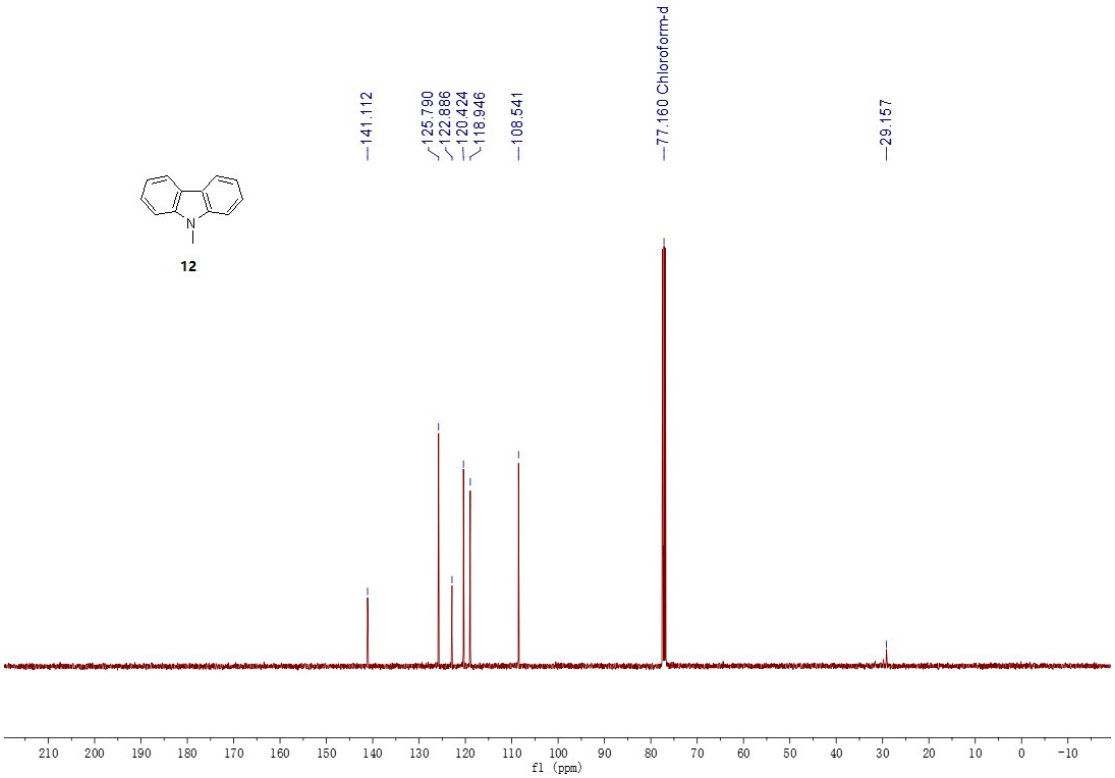
2.04
2.31
3.00
f1 (ppm)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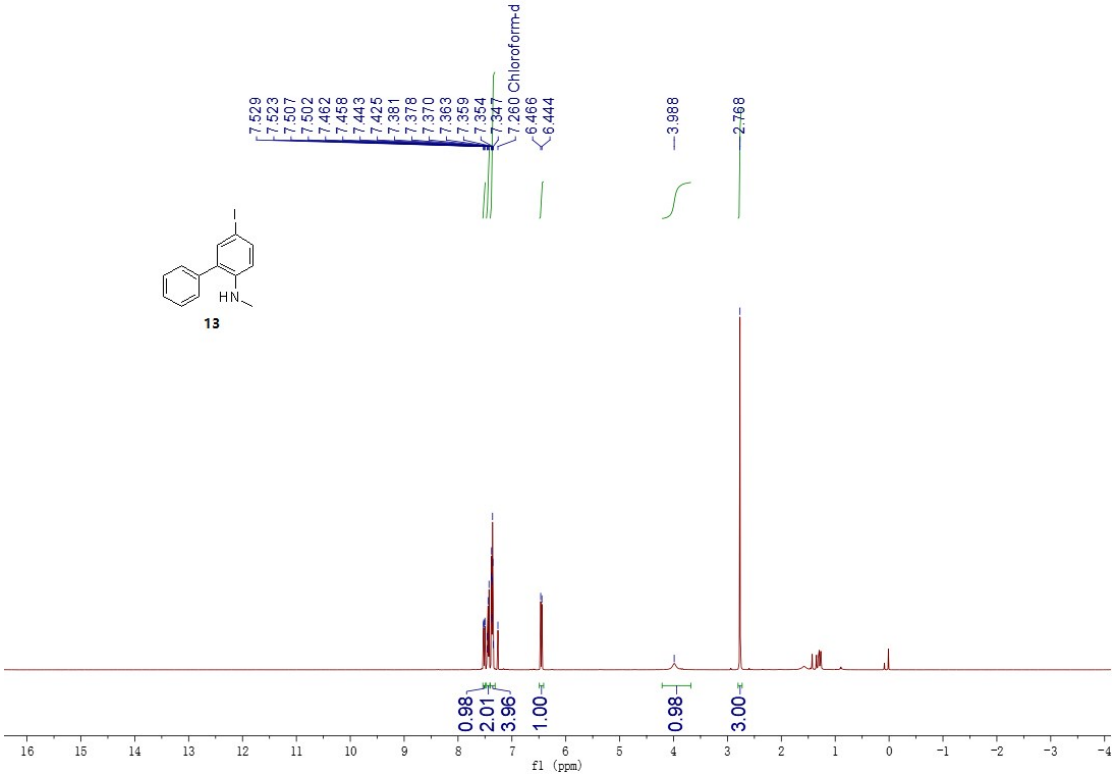
12
f1 (ppm)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7.458
7.443
7.425
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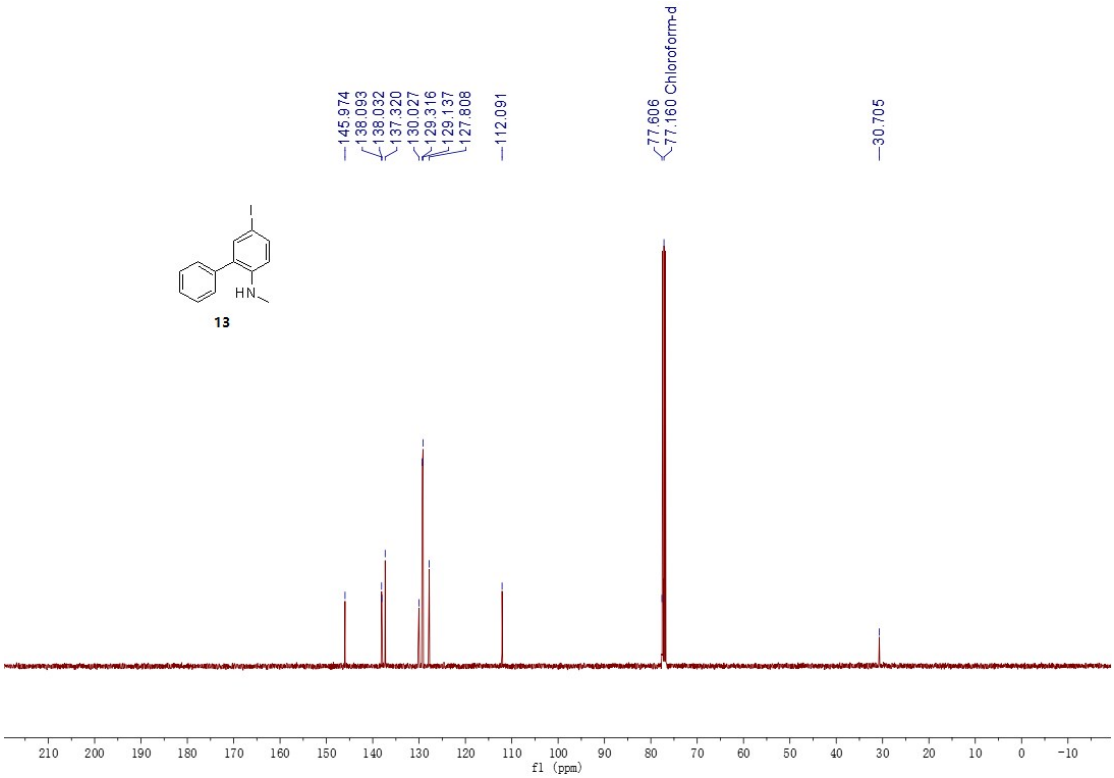
7.378
7.370
7.363
7.359
7.354
7.347
7.260 Chloroform-d
6.466
6.444
3.988
2.768
13
0.98
2.01
3.96
1.00
0.98
3.00
f1 (ppm)


145.974
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138.032
137.320
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129.137
127.808
112.091
77.606
77.160 Chloroform-d
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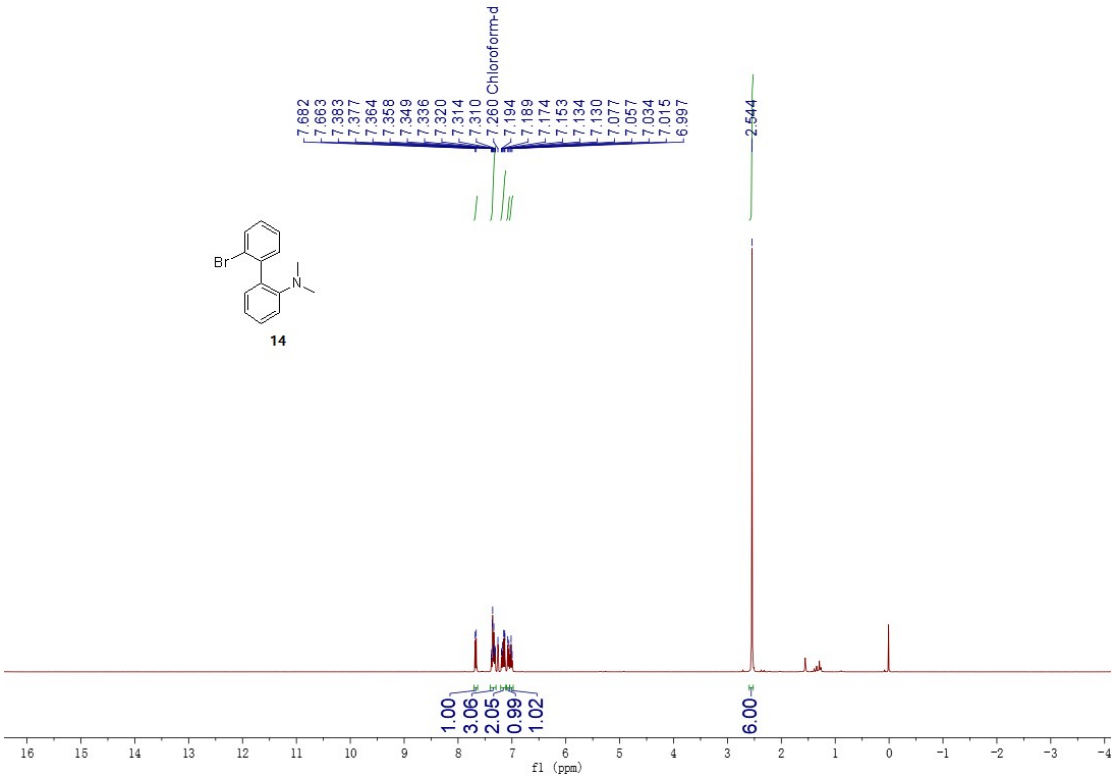
I
HN
13
f1 (ppm)


7.682
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7.364
7.358
7.349
7.336
7.320
7.314
7.310
7.260 Chloroform-d
7.194
7.189
7.174
7.153
7.134
7.130
7.077
7.057
7.034
7.015
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Br
N
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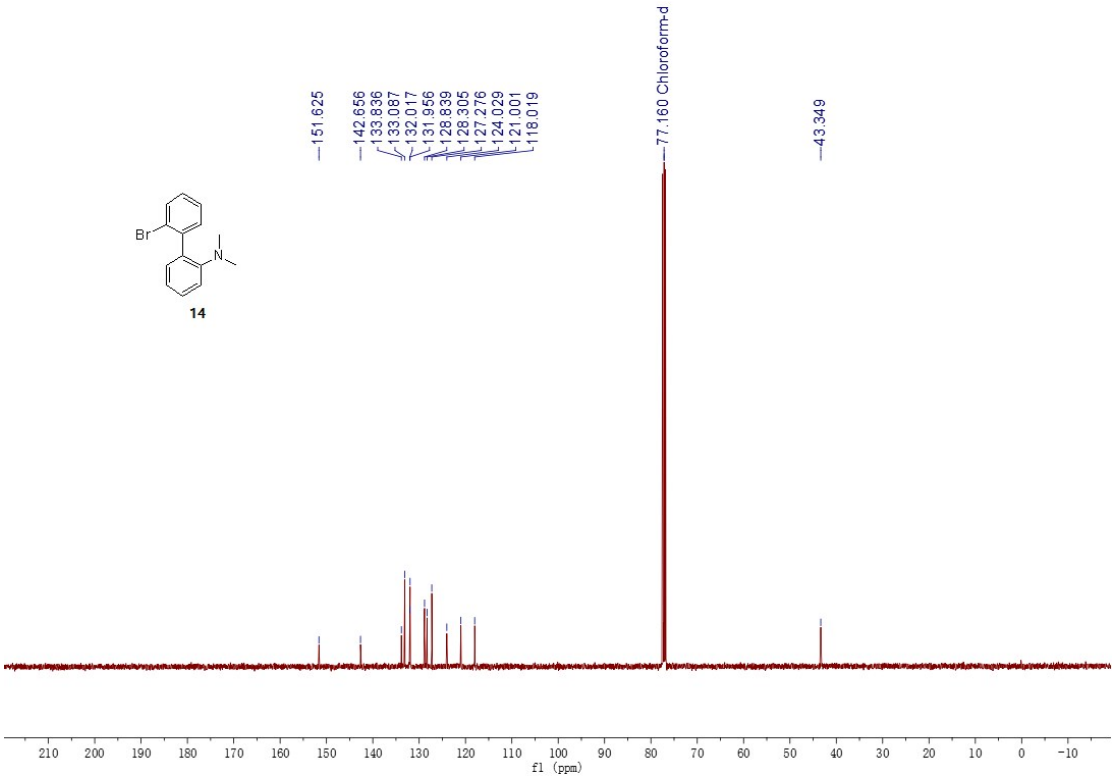
1.02
6.00
f1 (ppm)


151.625
142.656
133.836
133.087
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128.839
128.305
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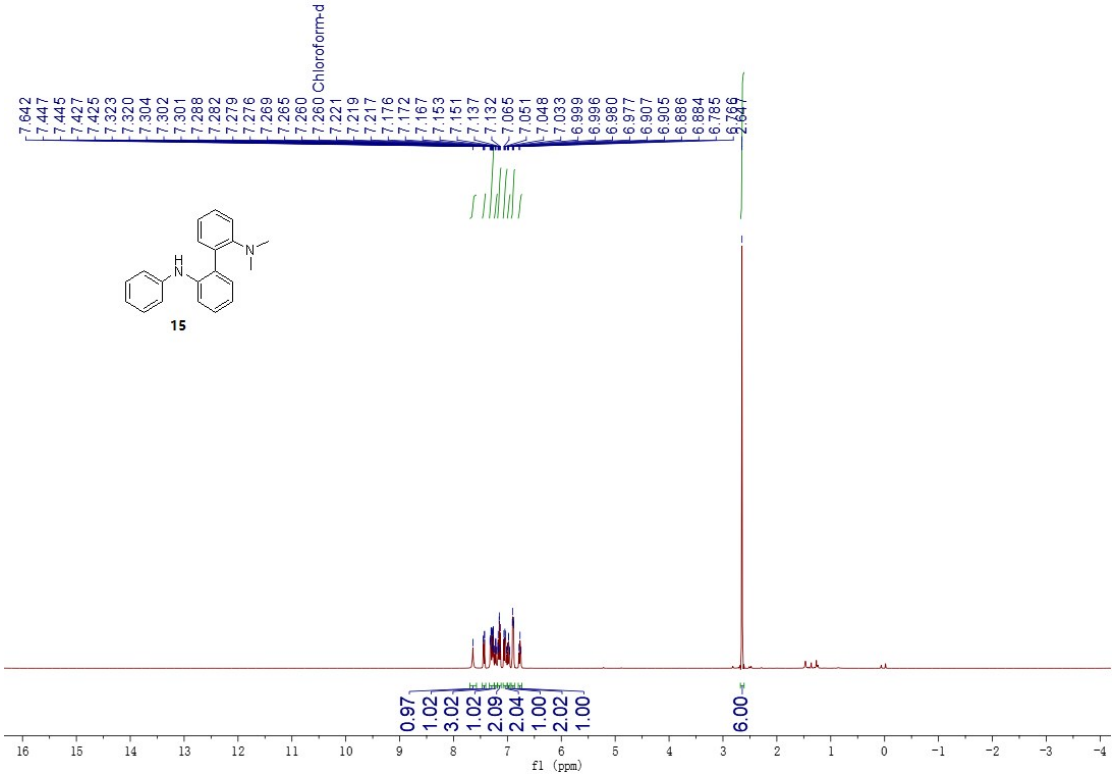
121.001
118.019
77.160 Chloroform-d
43.349
Br
N
14
f1 (ppm)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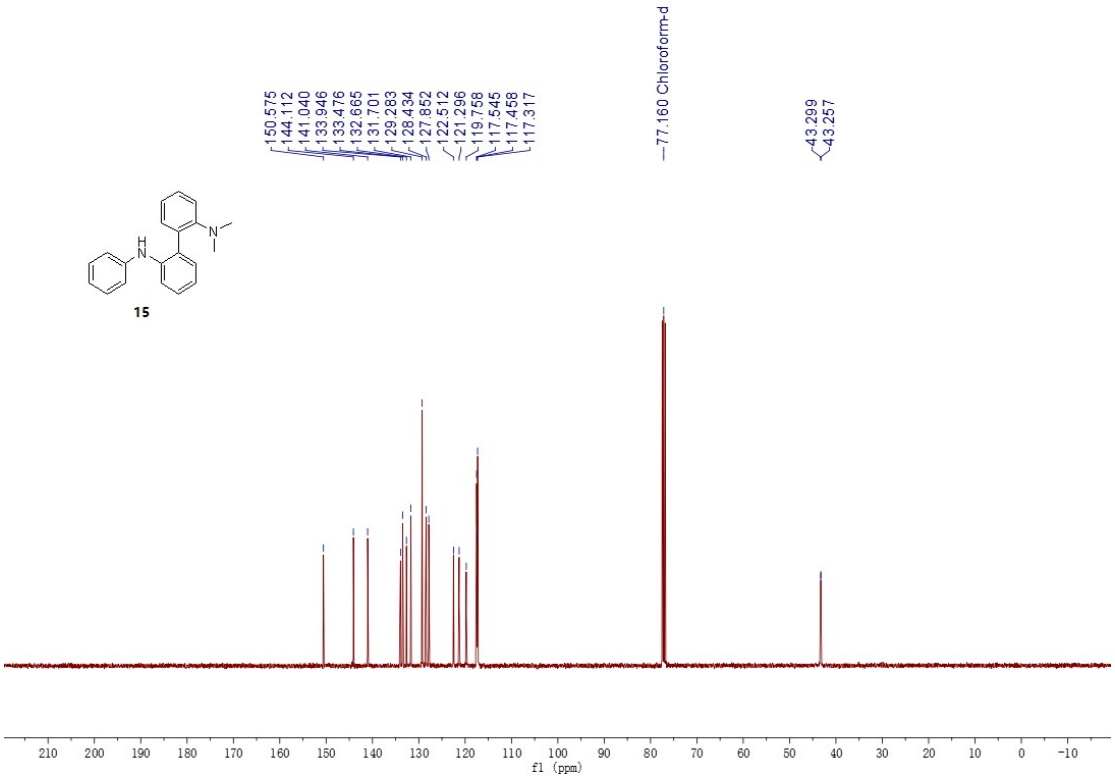
7.447
7.445
7.427
7.425
7.323
7.320
7.304
7.302
7.301
7.288
7.282
7.279
7.276
7.269
7.265
7.260
7.260 Chloroform-d
7.221
7.219
7.217
7.176
7.172
7.167
7.153
7.151
7.137
7.132
7.065
7.051
7.048
7.033
6.999
6.996
6.980
6.977
6.907
6.905
6.886
6.884
6.785
6.769
2.647
H
N
N
15
0.97
1.02
3.02
1.02
2.09
2.04
1.00
2.02
1.00
6.00
f1 (ppm)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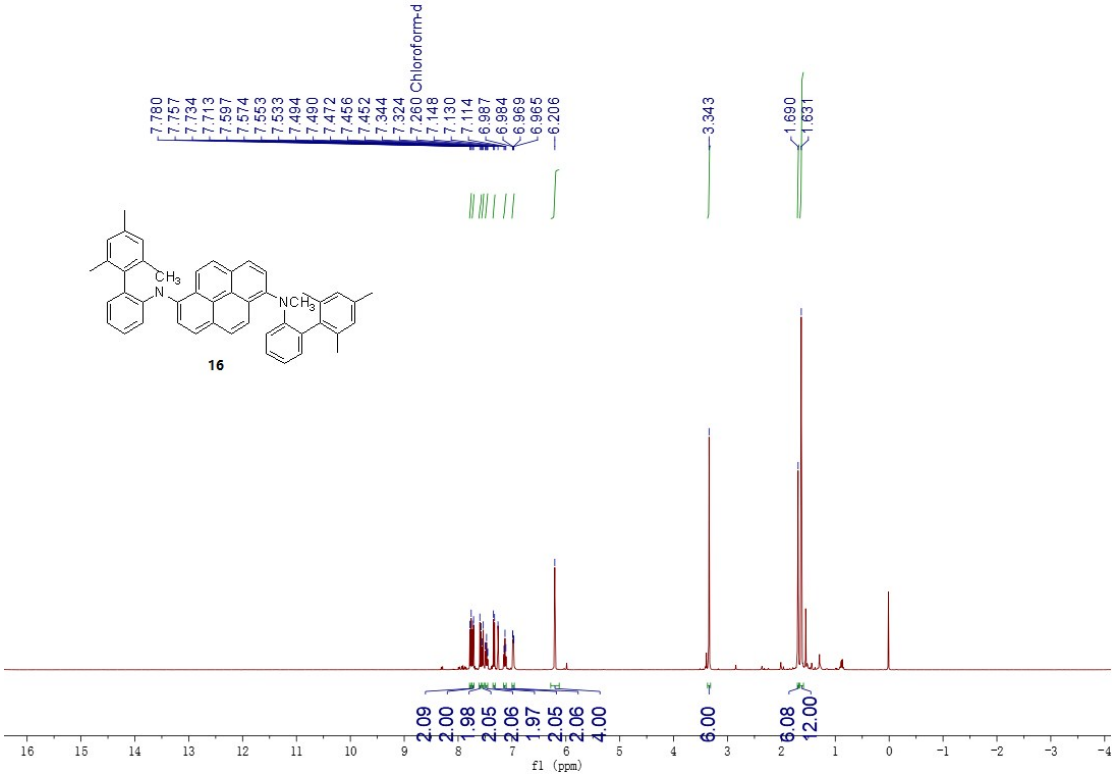
144.112
141.040
133.946
133.476
132.665
131.701
129.283
128.434
127.852
122.512
121.296
119.758
117.545
117.458
117.317
77.160 Chloroform-d
43.299
43.257
15
f1 (ppm)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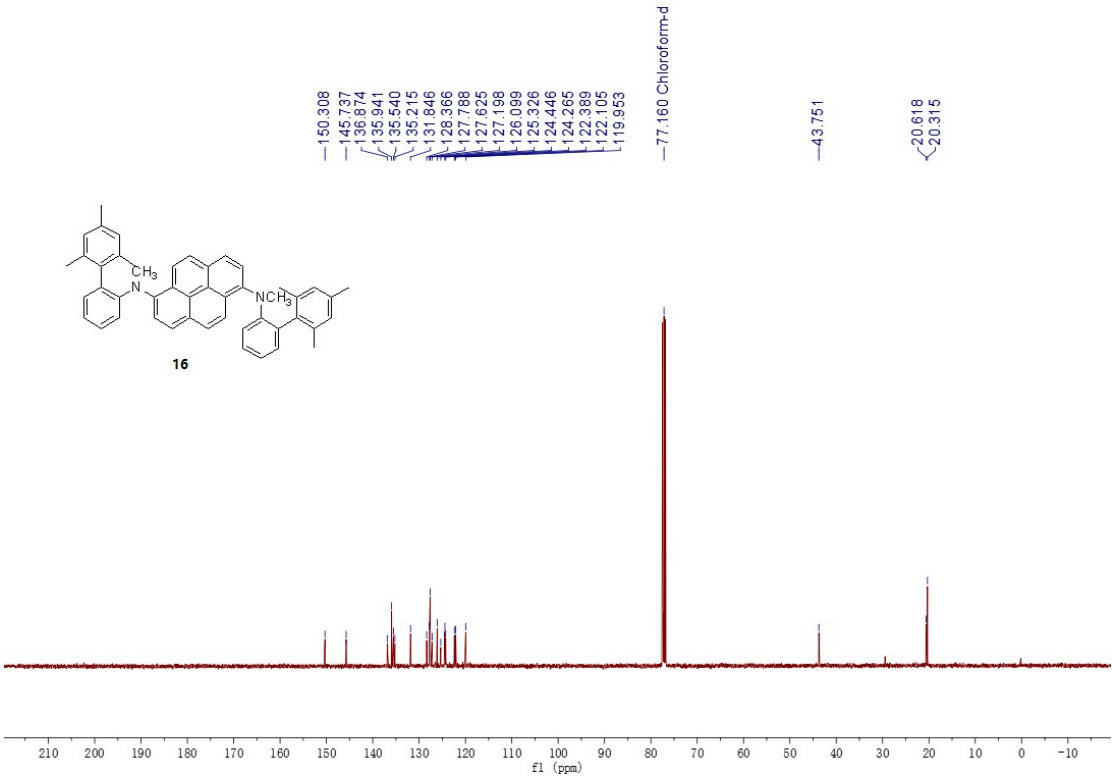
7.757
7.734
7.713
7.597
7.574
7.553
7.533
7.494
7.490
7.472
7.456
7.452
7.344
7.324
7.260 Chloroform-d
7.148
7.130
7.114
6.987
6.984
6.969
6.965
6.206
3.343
1.690
1.631
16
2.09
2.00
1.98
2.05
2.06
1.97
2.05
2.06
4.00
6.00
6.08
12.00
f1 (ppm)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136.874
135.941
135.540
135.215
131.846
128.366
127.788
127.625
127.198
126.099
125.326
124.446
124.265
122.389
122.105
119.953
77.160 Chloroform-d
43.751
20.618
20.315
16
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)