Supplementary Information

Nickel/Briphos-Catalyzed Transamidation of Unactivated Tertiary Amides

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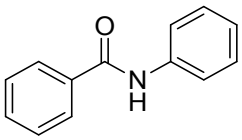
Content

General Experimental Procedure

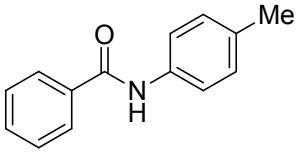
N-methyl-*N*-phenylbenzamide (0.2 mmol), Primary Amine (0.4 mmol), $NiCl_2$ (0.02 mmol), Briphos (0.02 mmol), Mn (1.0 mmol), TMSCl (0.4 mmol) and *N*-Methylpyrrolidone (1 mL) was added into a clean and dried glass vial under aerobic condition. The suspension was stirred for 12 h at 160 °C. After cooling, the reaction mixture was diluted with 30 mL EtOAc and 30 mL water. The organic layer was extracted and dried over anhydrous $MgSO_4$. Evaporation of the solvent under reduced pressure provided the crude product, which was purified by column chromatography (25% ethyl acetate in hexane) to afford the final product.

***N*-phenylbenzamide (3aa)[1]**



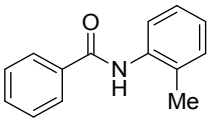
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3aa** (34 mg, 87 %). White solid. Mp. 162 - 163 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.81 – 7.76 (m, 3H), 7.58 (d, *J* = 7.9 Hz, 2H), 7.48 (m, 1H), 7.44 – 7.41 (m, 2H), 7.32 – 7.29 (m, 2H), 7.09 (t, *J* = 7.4 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.8, 137.9, 135.0, 131.8, 129.1, 128.8, 127.0, 124.6, 120.2; MS (EI) m/z: 197 (M^+).

***N*-(*p*-tolyl)benzamide (3ab)[2]**



N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and *p*-toluidine (43 mg, 0.4 mmol) provided **3ab** (35 mg, 82 %). White solid. Mp. 156 - 157 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.88 – 7.86 (m, 2H), 7.78 (s, 1H), 7.57 – 7.52 (m, 3H), 7.51 – 7.48 (m, 2H), 7.19 (d, *J* = 8.0 Hz, 2H), 2.35 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.6, 135.3, 135.1, 134.3, 131.8, 129.6, 128.8, 127.0, 120.2, 20.9; MS (EI) m/z: 211 (M^+).

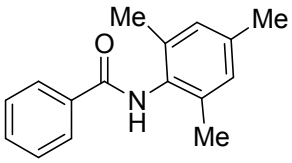
***N*-(*o*-tolyl)benzamide (3ac)[2]**



N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and *o*-toluidine (43 mg, 0.4 mmol) provided **3ac**

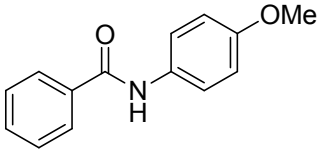
(33 mg, 77 %). White solid. Mp. 143 - 144 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.89 (d, *J* = 7.9 Hz, 1H), 7.82 (d, *J* = 7.3 Hz, 2H), 7.61 (s, 1H), 7.50 (m, 1H), 7.45 – 7.42 (m, 2H), 7.21 (m, 1H), 7.17 (m, 1H), 7.05 (td, *J* = 7.5 Hz, 0.9 Hz, 1H), 2.27 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.4, 135.4, 134.7, 131.5, 130.3, 129.1, 128.5, 126.8, 126.6, 125.1, 122.9, 17.5; MS (EI) m/z: 211 (M^+).

***N*-mesitylbenzamide (3ad)[8]**



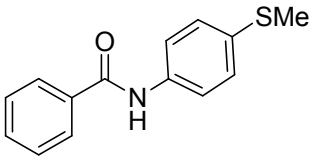
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and 2,4,6-trimethylaniline (54 mg, 0.4 mmol) provided **3ad** (25 mg, 53 %). White solid. Mp. 204 - 205 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.85 – 7.84 (m, 2H), 7.49 (t, *J* = 7.4 Hz, 1H), 7.44 – 7.41 (m, 2H), 7.25 (s, 1H), 6.87 (s, 2H), 2.23 (s, 3H), 2.17 (s, 6H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 166.0, 137.1, 135.3, 134.6, 131.7, 131.1, 129.0, 128.7, 127.2, 20.9, 18.4; MS (EI) m/z: 239 (M^+).

***N*-(4-Methoxyphenyl)benzamide (3ae)[2]**



N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and 4-methoxyaniline (49 mg, 0.4 mmol) provided **3ae** (35 mg, 78 %). Yellow solid. Mp. 159 - 160 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.79 – 7.78 (m, 2H), 7.72 (s, 1H), 7.47 – 7.45 (m, 3H), 7.40 (t, *J* = 7.5 Hz, 2H), 6.84 – 6.81 (m, 2H), 3.74 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.7, 156.6, 135.0, 131.7, 131.0, 128.7, 127.0, 122.1, 114.2, 55.5; MS (EI) m/z: 227 (M^+).

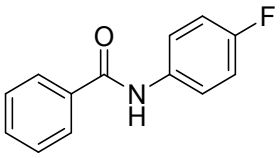
***N*-(4-(methylthio)phenyl)benzamide (3af)[2]**



N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and 4-(methylthio)aniline (56 mg, 0.4 mmol) provided **3af** (38 mg, 79 %). Purple solid. Mp. 179 - 180 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.80 – 7.78 (m, 2H), 7.75 (s, 1H), 7.52 – 7.47 (m, 3H), 7.42 (t, *J* = 7.5 Hz, 2H), 7.22 – 7.21 (m, 2H), 2.42 (s, 3H);

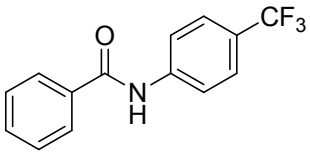
^{13}C NMR (126 MHz, $CDCl_3$) δ 165.6, 135.5, 134.8, 134.0, 131.9, 128.8, 128.0, 127.0, 120.8, 16.7; MS (EI) m/z: 243 (M^+).

***N*-(4-fluorophenyl)benzamide (3ag)[3]**



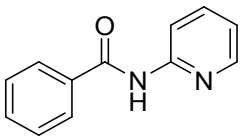
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and 4-fluoroaniline (44 mg, 0.4 mmol) provided **3ag** (30 mg, 69 %). White solid. Mp. 185 - 186 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.80 – 7.78 (m, 2H), 7.73 (s, 1H), 7.54 – 7.47 (m, 3H), 7.44 – 7.41 (m, 2H), 7.02 – 6.98 (m, 2H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.7, 159.5 (d, $J_{C\text{-}F}$ = 244.4 Hz), 134.7, 133.9 (d, $J_{C\text{-}F}$ = 2.5 Hz), 132.0, 128.9, 127.0, 122.0 (d, $J_{C\text{-}F}$ = 8.8 Hz), 115.8 (d, $J_{C\text{-}F}$ = 22.7 Hz); MS (EI) m/z: 215 (M^+).

***N*-(4-(trifluoromethyl)phenyl)benzamide (3ah)[7]**



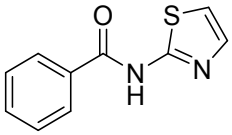
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and 4-(trifluoromethyl)aniline (64 mg, 0.4 mmol) provided **3ah** (33 mg, 63 %). White solid. Mp. 207 - 208 °C. ^{1}H NMR (500 MHz, DMSO-d^6) δ 10.57 (s, 1H), 8.02 (d, *J* = 8.5 Hz, 2H), 7.97 – 7.96 (m, 2H), 7.71 (d, *J* = 8.6 Hz, 2H), 7.61 (t, *J* = 7.4 Hz, 1H), 7.56 – 7.53 (m, 2H); ^{13}C NMR (126 MHz, DMSO-d^6) δ 166.5, 143.3, 134.6, 132.4, 128.9, 128.2, 126.4 (q, $J_{C\text{-}F}$ = 3.8 Hz), 125.9 (q, $J_{C\text{-}F}$ = 219.2 Hz), 123.9 (d, $J_{C\text{-}F}$ = 21.4 Hz), 120.5; MS (EI) m/z: 265 (M^+).

***N*-(pyridin-2-yl)benzamide (3ai)[2]**



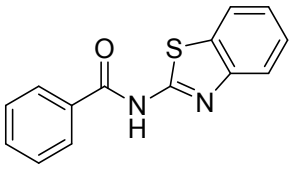
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and pyridin-2-amine (38 mg, 0.4 mmol) provided **3ai** (29 mg, 74 %). White solid. Mp. 83 - 84 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 9.07 (s, 1H), 8.38 (d, *J* = 8.4 Hz, 1H), 8.15 (s, 1H), 7.89 – 7.88 (m, 2H), 7.72 (m, 1H), 7.50 (t, *J* = 7.4 Hz, 1H), 7.44 – 7.41 (m, 2H), 7.01 (dd, *J* = 6.8 Hz, 5.3 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.9, 151.5, 147.0, 139.1, 134.1, 132.4, 128.8, 127.4, 119.9, 114.5; MS (EI) m/z: 198 (M^+).

***N*-(thiazol-2-yl)benzamide (3aj)[4]**



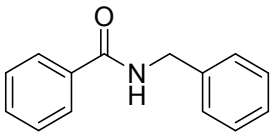
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and thiazol-2-amine (40 mg, 0.4 mmol) provided **3aj** (29 mg, 72 %). White solid. Mp. 149 - 150 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.97 – 7.96 (m, 2H), 7.56 (t, *J* = 7.5 Hz, 1H), 7.47 – 7.44 (m, 2H), 6.93 (d, *J* = 3.7 Hz, 1H), 6.87 (d, *J* = 3.6 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.8, 160.4, 136.6, 132.7, 132.6, 128.8, 128.1, 113.4; MS (EI) m/z: 204 (M^+).

***N*-(benzo[*d*]thiazol-2-yl)benzamide (3ak)[5]**



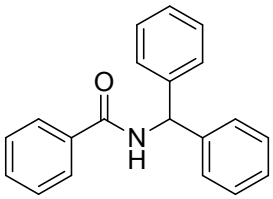
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and benzo[*d*]thiazol-2-amine (60 mg, 0.4 mmol) provided **3ak** (36 mg, 71 %). White solid. Mp. 187 - 188 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 8.03 (dd, *J* = 8.4 Hz, 1.2 Hz, 2H), 7.86 (dd, *J* = 7.8 Hz, 0.8 Hz, 1H), 7.56 (m, 1H), 7.43 – 7.39 (m, 2H), 7.30 (m, 1H), 7.27 – 7.20 (m, 2H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 166.1, 160.1, 147.1, 133.1, 131.9, 131.6, 129.0, 128.1, 126.2, 124.1, 121.4, 120.4; MS (EI) m/z: 254 (M^+).

***N*-benzylbenzamide (3al)[3]**



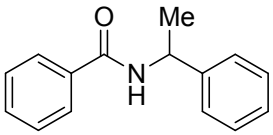
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and phenylmethanamine (43 mg, 0.4 mmol) provided **3al** (27 mg, 65 %). White oil. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.72 (m, 2H), 7.43 (m, 1H), 7.37 – 7.34 (m, 2H), 7.29 – 7.28 (m, 4H), 7.23 (m, 1H), 6.36 (s, 1H), 4.58 (d, *J* = 5.6 Hz, 2H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 167.3, 138.1, 134.4, 131.6, 128.8, 128.6, 127.9, 127.6, 126.9, 44.2; MS (EI) m/z: 211 (M^+).

***N*-benzhydrylbenzamide (3am)[10]**



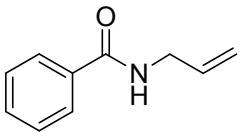
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and diphenylmethanamine (73 mg, 0.4 mmol) provided **3am** (24 mg, 42 %). White solid. Mp. 176 - 177 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.74 – 7.72 (m, 2H), 7.42 (m, 1H), 7.36 – 7.32 (m, 2H), 7.28 – 7.18 (m, 10H), 6.67 (d, *J* = 7.5 Hz, 1H), 6.37 (d, *J* = 7.8 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 166.5, 141.5, 134.2, 131.7, 128.8, 128.6, 127.6, 127.5, 127.1, 57.5; MS (EI) m/z: 287 (M^+).

_N_-(1-phenylethyl)benzamide (3an)[9]



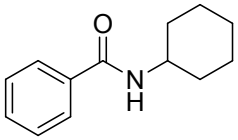
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and 1-phenylethanamine (48 mg, 0.4 mmol) provided **3an** (20 mg, 45 %). White solid. Mp. 125 - 126 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.70 – 7.68 (m, 2H), 7.41 (m, 1H), 7.34 – 7.30 (m, 4H), 7.28 – 7.25 (m, 2H), 7.20 (m, 1H), 6.39 (d, *J* = 6.4 Hz, 1H), 5.25 (m, 1H), 1.52 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 166.6, 143.1, 134.6, 131.5, 128.7, 128.6, 127.5, 126.9, 126.3, 49.2, 21.7; MS (EI) m/z: 225 (M^+).

_N_-allylbenzamide (3ao)[6]



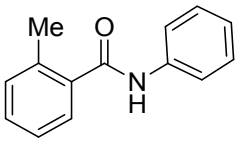
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and prop-2-en-1-amine (23 mg, 0.4 mmol) provided **3ao** (13 mg, 39 %). White oil. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.72 – 7.70 (m, 2H), 7.36 (m, 1H), 7.28 – 7.25 (m, 2H), 6.93 (s, 1H), 5.79 (ddt, *J* = 17.1 Hz, 10.3 Hz, 5.6 Hz, 1H), 5.11 (dq, *J* = 17.2 Hz, 1.6 Hz, 1H), 5.02 (dq, *J* = 10.3 Hz, 1.3 Hz, 1H), 3.93 (tdd, *J* = 5.7 Hz, 1.5 Hz, 1.5 Hz, 2H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 167.4, 134.2, 134.0, 131.2, 128.2, 126.9, 116.1, 42.2; MS (EI) m/z: 161 (M^+).

***N*-cyclohexylbenzamide (3ap)[2]**



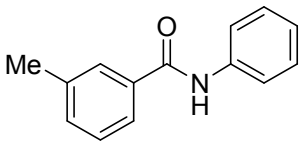
N-methyl-*N*-phenylbenzamide (42 mg, 0.2 mmol) and cyclohexanamine (40 mg, 0.4 mmol) provided **3ap** (17 mg, 41 %). White solid. Mp. 150 - 152 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.69 – 7.67 (m, 2H), 7.41 (m, 1H), 7.36 – 7.33 (m, 2H), 5.94 (s, 1H), 3.91 (m, 1H), 1.98 – 1.94 (m, 2H), 1.68 (dt, *J* = 13.9 Hz, 3.8 Hz, 2H), 1.58 (dt, *J* = 13 Hz, 3.8 Hz, 1H), 1.40 – 1.31 (m, 2H), 1.21 – 1.08 (m, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 166.7, 135.0, 131.2, 128.5, 126.8, 48.7, 33.2, 25.6, 24.9; MS (EI) m/z: 203 (M^+).

2-methyl-*N*-phenylbenzamide (3ba)[1]



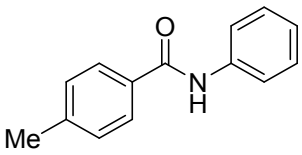
N,2-dimethyl-*N*-phenylbenzamide (45 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ba** (27 mg, 65 %). White solid. Mp. 126 - 127 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.54 (d, *J* =7.6 Hz, 2H), 7.45 (s, 1H), 7.39 (d, *J* = 7.5 Hz, 1H), 7.30 – 7.27 (m, 3H), 7.19 – 7.15 (m, 2H), 7.08 (t, *J* = 7.5 Hz, 1H), 2.42 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 168.1, 138.0, 136.4, 131.3, 130.3, 129.1, 126.6, 125.9, 124.6, 119.9, 19.8; MS (EI) m/z: 211 (M^+).

3-methyl-*N*-phenylbenzamide (3ca)[14]



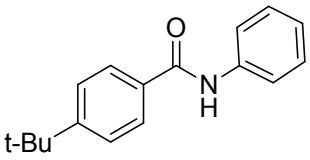
N,3-dimethyl-*N*-phenylbenzamide (45 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ca** (33 mg, 79 %). White solid. Mp. 128 - 129 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.83 (s, 1H), 7.60 (s, 1H), 7.57 – 7.56 (m, 3H), 7.30 – 7.27 (m, 4H), 7.07 (t, *J* = 7.4 Hz, 1H), 2.34 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 166.0, 138.7, 138.0, 135.0, 132.6, 129.1, 128.6, 127.8, 124.5, 124.0, 120.2, 21.4; MS (EI) m/z: 211 (M^+).

4-methyl-*N*-phenylbenzamide (3da)[1]



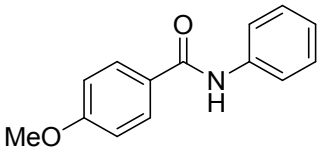
N,4-dimethyl-*N*-phenylbenzamide (45 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3da** (31 mg, 73 %). White solid. Mp. 145 - 146 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.70 (d, *J* = 7.7 Hz, 3H), 7.57 (d, *J* = 8.0 Hz, 2H), 7.30 (t, *J* = 7.6 Hz, 2H), 7.22 (d, *J* = 7.8 Hz, 2H), 7.08 (t, *J* = 7.2 Hz, 1H), 2.36 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.6, 142.4, 138.0, 132.1, 129.4, 129.1, 127.0, 124.4, 120.1, 21.5; MS (EI) m/z: 211 (M^+).

4-(*tert*-butyl)-*N*-phenylbenzamide (3ea)[13]



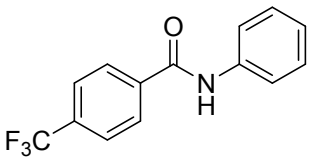
4-(*tert*-butyl)-*N*-methyl-*N*-phenylbenzamide (53 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ea** (35 mg, 70 %). White solid. Mp. 125 - 126 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.75 – 7.73 (m, 3H), 7.57 (d, *J* = 7.9 Hz, 2H), 7.43 (d, *J* = 8.3 Hz, 2H), 7.30 (t, *J* = 7.8 Hz, 2H), 7.08 (t, *J* = 7.4 Hz, 1H), 1.28 (s, 9H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.7, 155.4, 138.1, 132.1, 129.1, 126.9, 125.7, 124.4, 120.2, 35.0, 31.2; MS (EI) m/z: 253 (M^+).

4-methoxy-*N*-phenylbenzamide (3fa)[1]



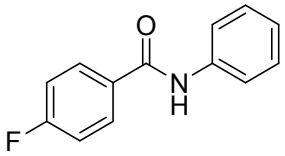
4-methoxy-*N*-methyl-*N*-phenylbenzamide (48 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3fa** (34 mg, 74 %). White solid. Mp. 168 - 170 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.77 (d, *J* = 8.1 Hz, 2H), 7.69 (s, 1H), 7.56 (d, *J* = 7.8 Hz, 2H), 7.29 (t, *J* = 7.7 Hz, 2H), 7.07 (t, *J* = 7.3 Hz, 1H), 6.90 (d, *J* = 8.6 Hz, 2H), 3.80 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.2, 162.5, 138.1, 129.1, 128.9, 127.1, 124.3, 120.1, 114.0, 55.5; MS (EI) m/z: 227 (M^+).

***N*-phenyl-4-(trifluoromethyl)benzamide (3ga)[12]**



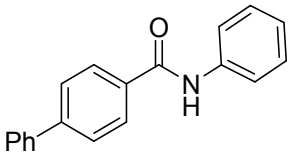
N-methyl-*N*-phenyl-4-(trifluoromethyl)benzamide (56 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ga** (41 mg, 77 %). White solid. Mp. 207 - 208 °C. ^{1}H NMR (500 MHz, DMSO-d^6) δ 10.45 (s, 1H), 8.14 (d, J = 8.1 Hz, 2H), 7.90 (d, J = 8.2 Hz, 2H), 7.78 – 7.77 (m, 2H), 7.38 – 7.35 (m, 2H), 7.12 (t, J = 7.4 Hz, 1H); ^{13}C NMR (126 MHz, DMSO-d^6) δ 164.8, 139.3, 139.2, 131.8 (d, $J_{C\text{-}F}$ = 32.8 Hz), 129.1, 129.0, 125.8 (q, $J_{C\text{-}F}$ = 3.8 Hz), 125.5 (q, $J_{C\text{-}F}$ = 273.4 Hz), 124.5, 120.9; MS (EI) m/z: 265 (M^+).

4-fluoro-*N*-phenylbenzamide (3ha)[11]



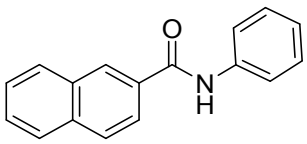
4-fluoro-*N*-methyl-*N*-phenylbenzamide (46 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ha** (35 mg, 82 %). White solid. Mp. 187 - 188 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.82 (dd, J = 8.6 Hz, 5.3 Hz, 2H), 7.69 (s, 1H), 7.55 (d, J = 7.9 Hz, 2H), 7.31 (t, J = 7.9 Hz, 2H), 7.10 (t, J = 8.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.1 (d, $J_{C\text{-}F}$ = 253.3 Hz), 164.9, 137.9, 131.3 (d, $J_{C\text{-}F}$ = 3.8 Hz), 129.6 (d, $J_{C\text{-}F}$ = 8.8 Hz), 129.4, 125.0, 120.5, 116.1 (d, $J_{C\text{-}F}$ = 22.7 Hz); MS (EI) m/z: 215 (M^+).

***N*-phenyl-[1,1'-biphenyl]-4-carboxamide (3ia)[13]**



N-methyl-*N*-phenyl-[1,1'-biphenyl]-4-carboxamide (57 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ia** (44 mg, 81 %). White solid. Mp. 227 - 228 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.90 – 7.88 (m, 2H), 7.78 (s, 1H), 7.65 (d, J = 8.3 Hz, 2H), 7.61 – 7.56 (m, 4H), 7.43 – 7.40 (m, 2H), 7.36 – 7.31 (m, 3H), 7.10 (t, J = 7.4 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.4, 144.7, 139.9, 137.9, 133.6, 129.1, 129.0, 128.1, 127.6, 127.5, 127.2, 124.6, 120.2; MS (EI) m/z: 273 (M^+).

***N*-phenyl-2-naphthamide (3ja)[1]**



N-methyl-*N*-phenyl-2-naphthamide (52 mg, 0.2 mmol) and Aniline (37 mg, 0.4 mmol) provided **3ja** (34 mg, 69 %). White solid. Mp. 166 - 169 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 8.32 (s, 1H), 7.90 – 7.83 (m, 5H), 7.63 (d, *J* = 7.8 Hz, 2H), 7.55 – 7.49 (m, 2H), 7.35 – 7.32 (m, 2H), 7.11 (t, *J* = 7.4 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 165.8, 138.0, 134.9, 132.6, 132.2, 129.2, 129.0, 128.8, 127.9, 127.8, 127.5, 127.0, 124.6, 123.5, 120.2; MS (EI) m/z: 247 (M^+).

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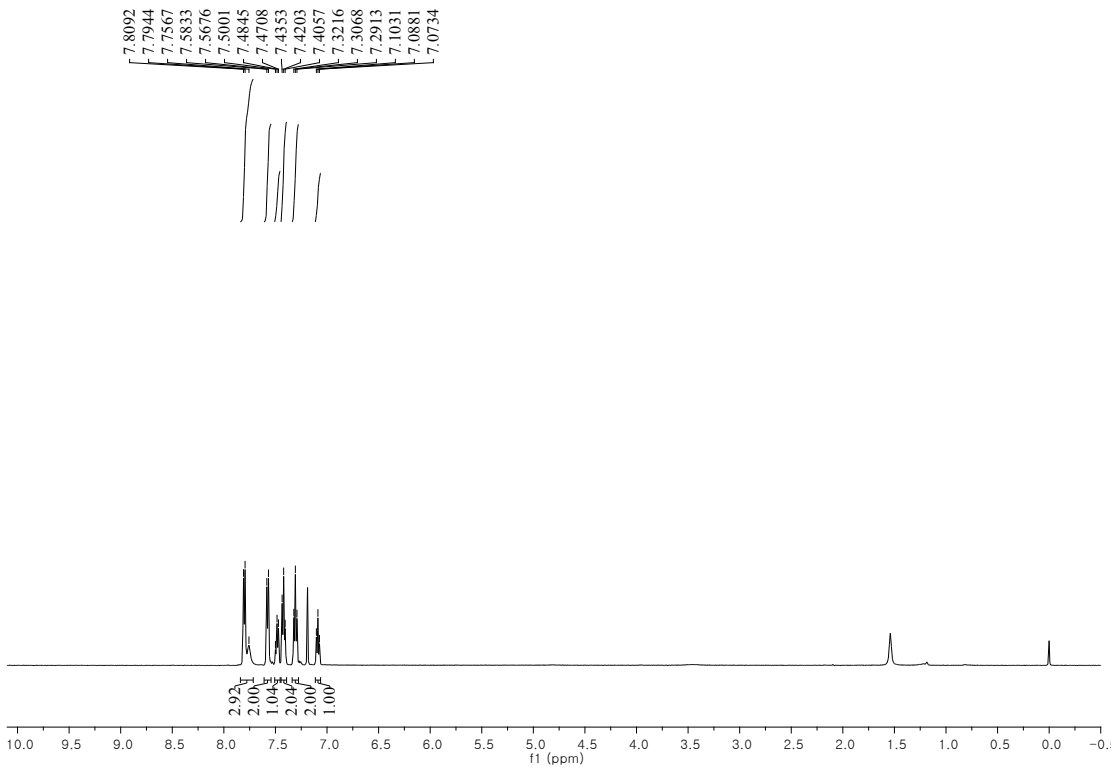
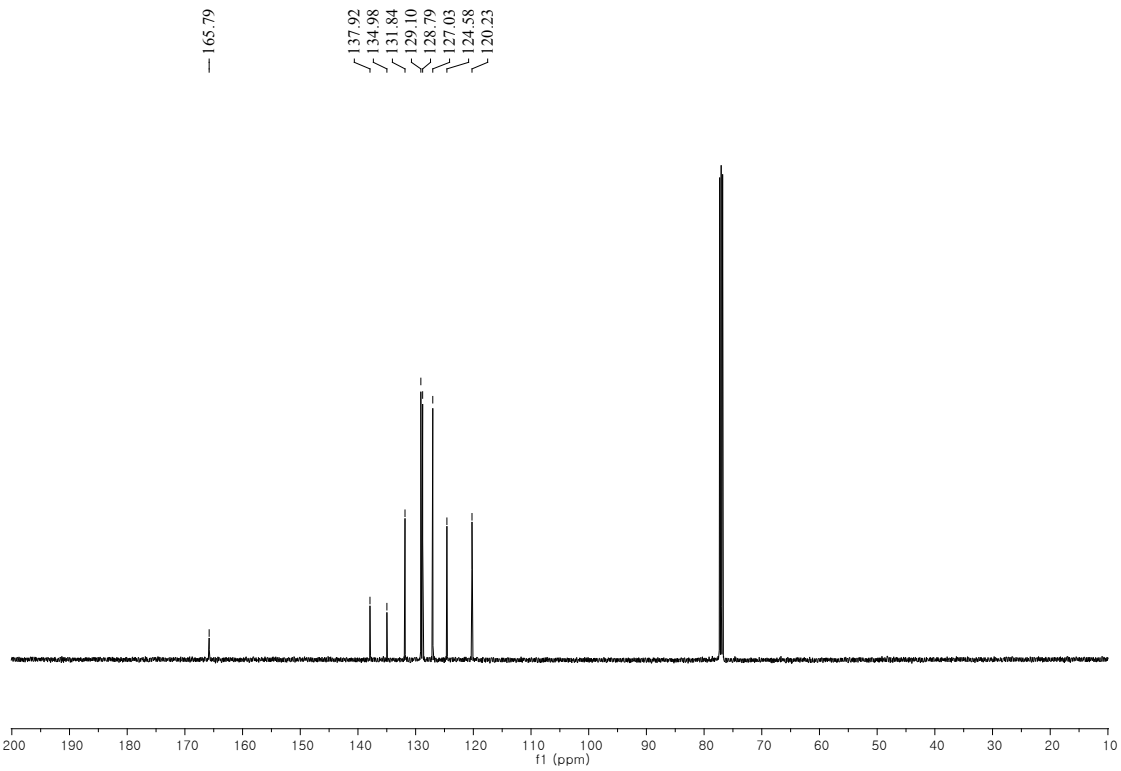
N-phenylbenzamide (3aa)

^{1}H NMR

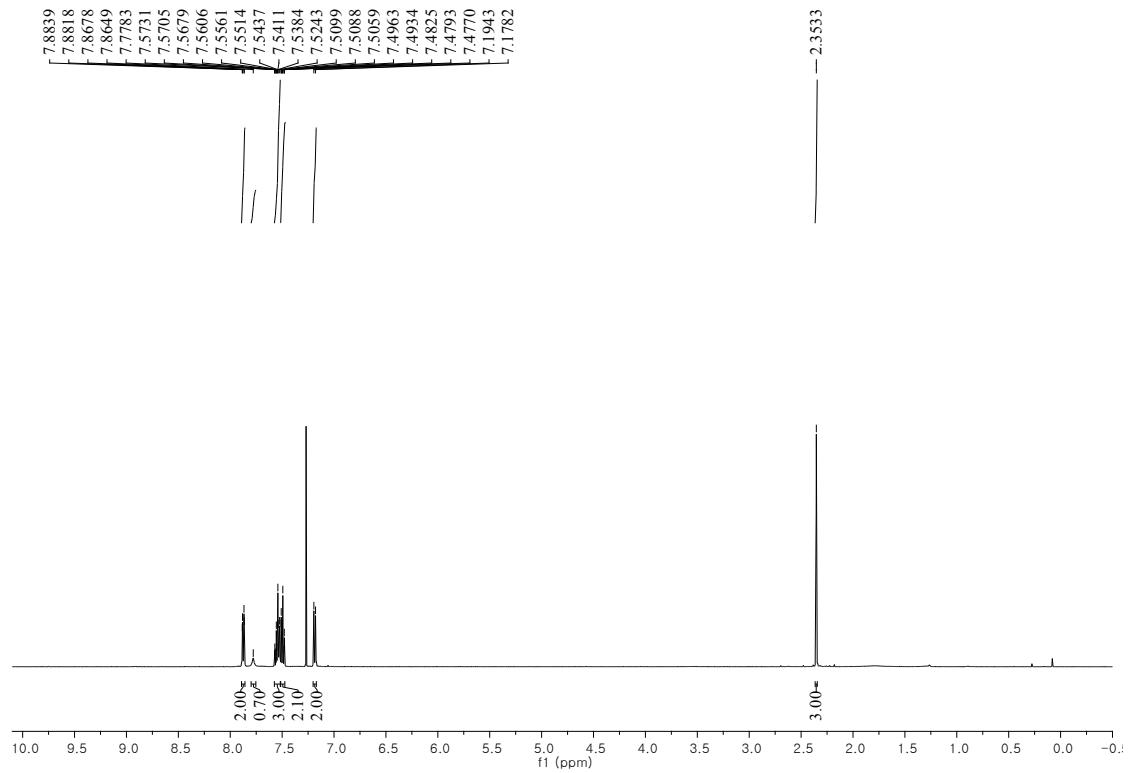


^{13}C NMR

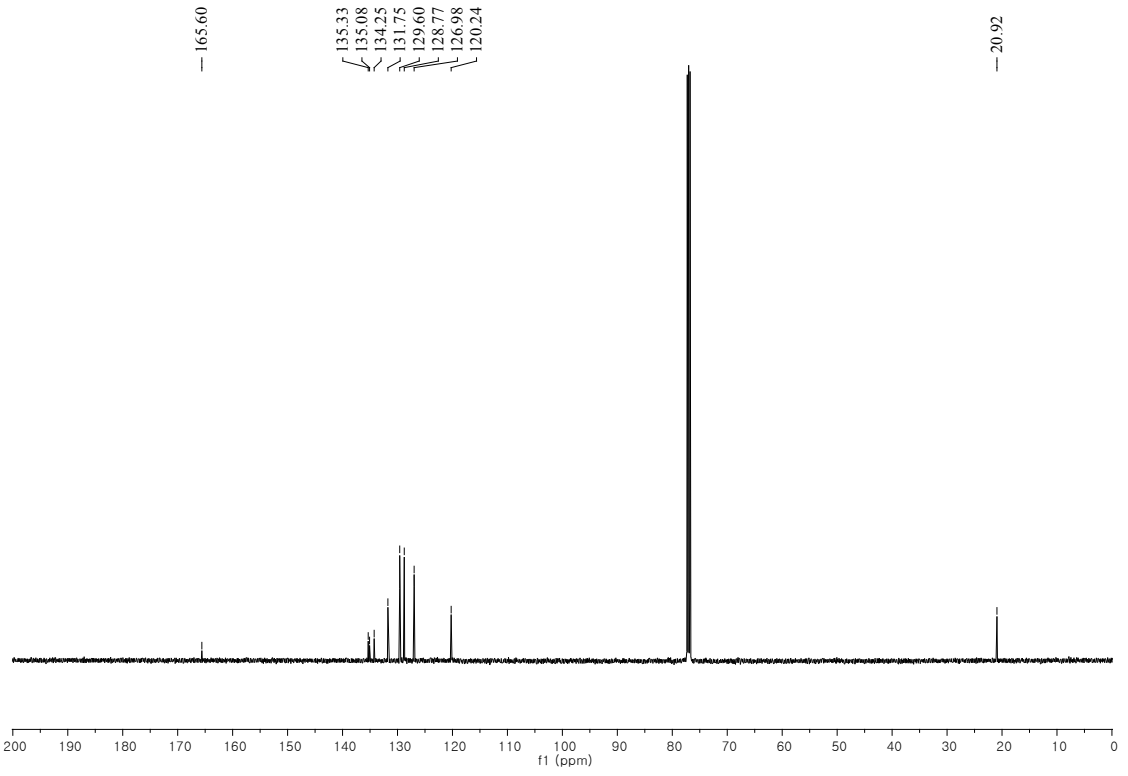


N-(*p*-tolyl)benzamide (3ab)

^{1}H NMR

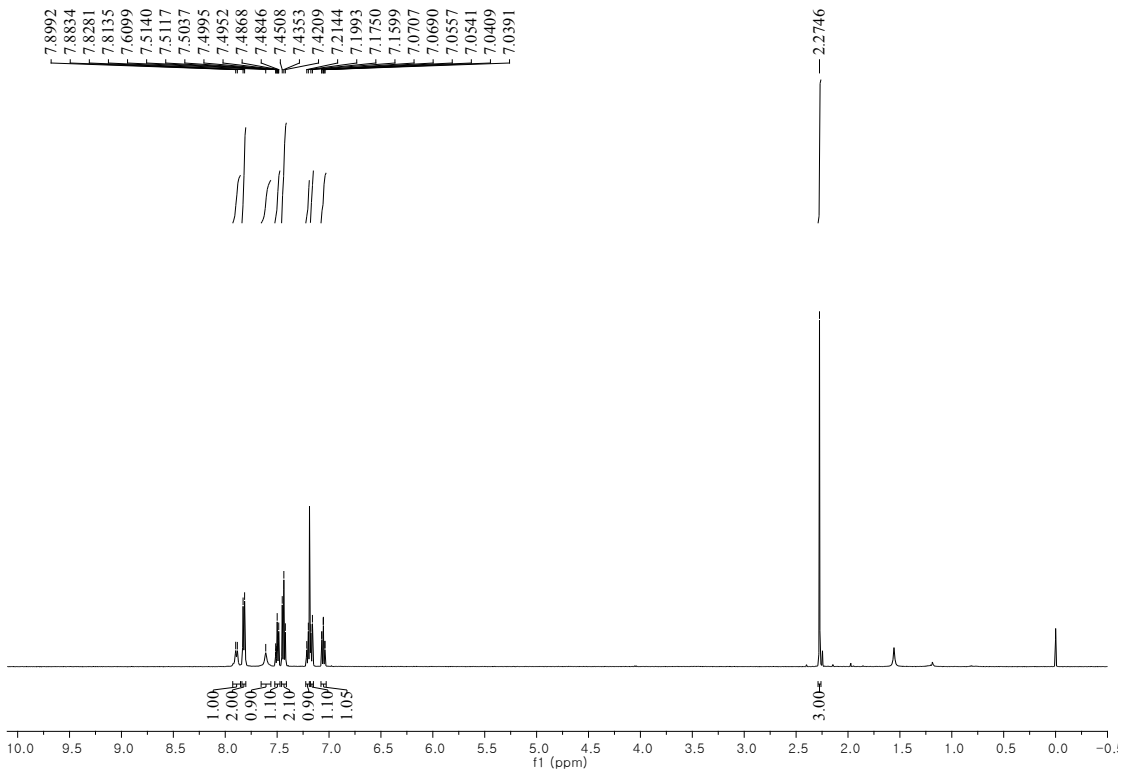


^{13}C NMR

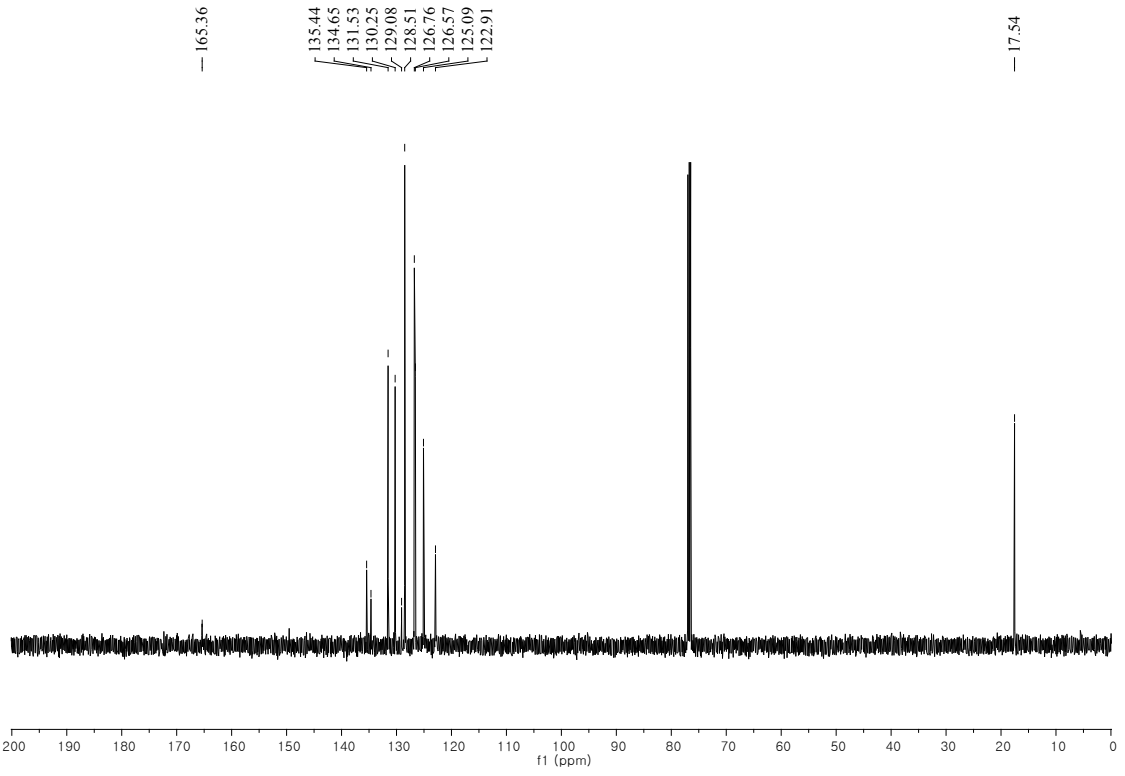


N-(*o*-tolyl)benzamide (3ac)

^{1}H NMR

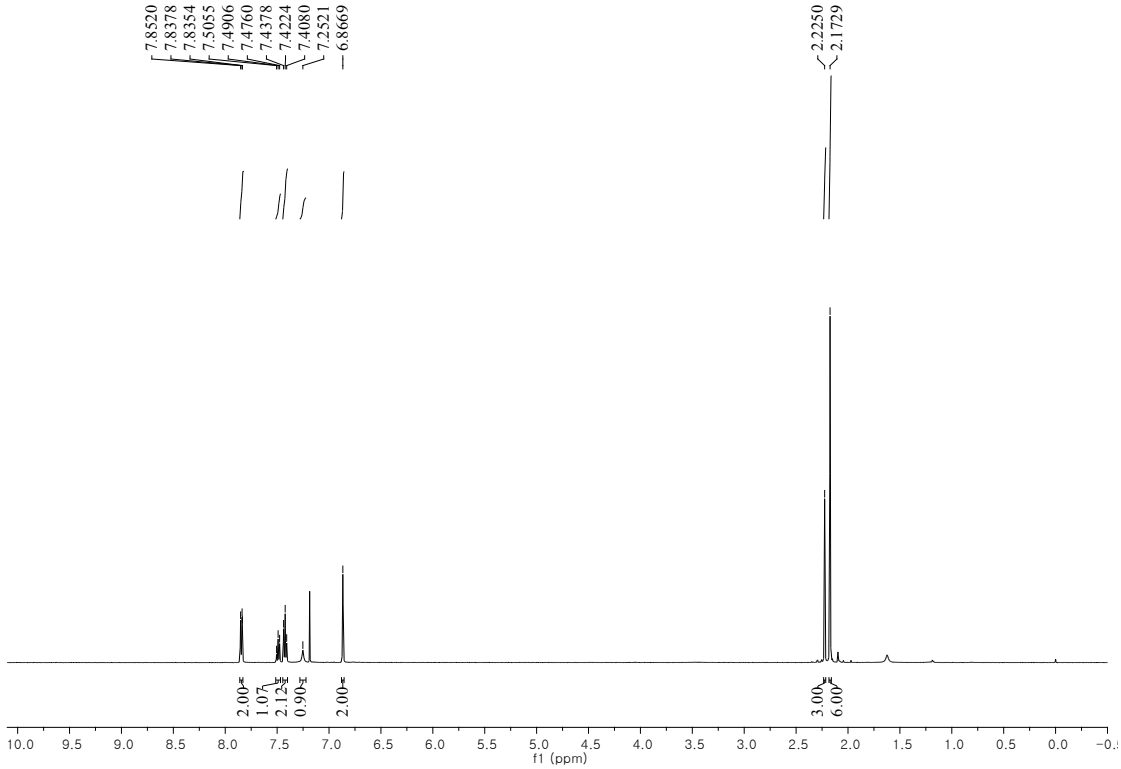


^{13}C NMR

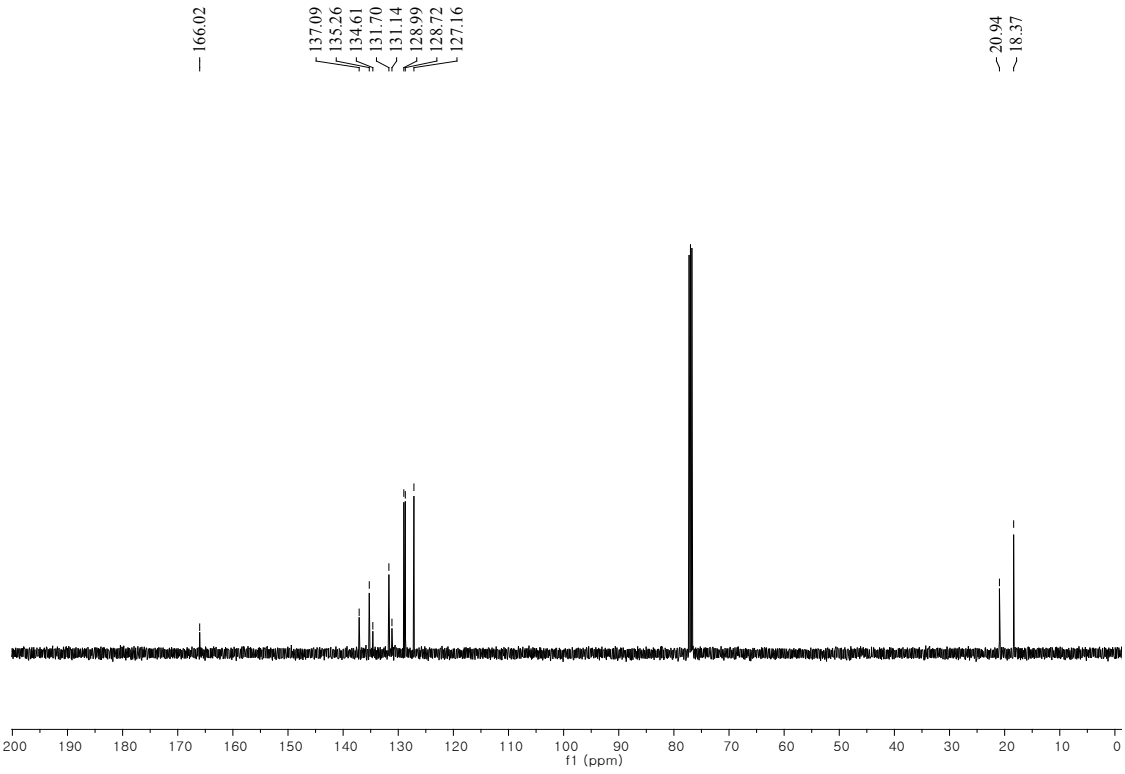


N-mesitylbenzamide (3ad)

^{1}H NMR

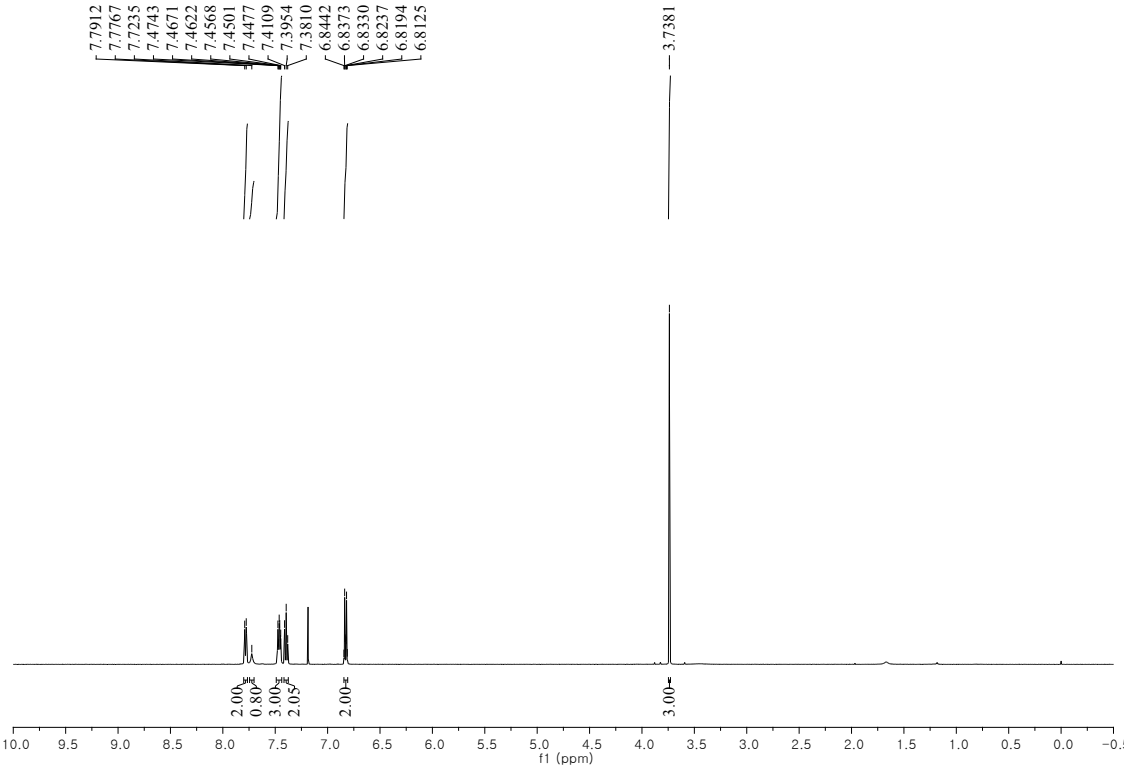


^{13}C NMR

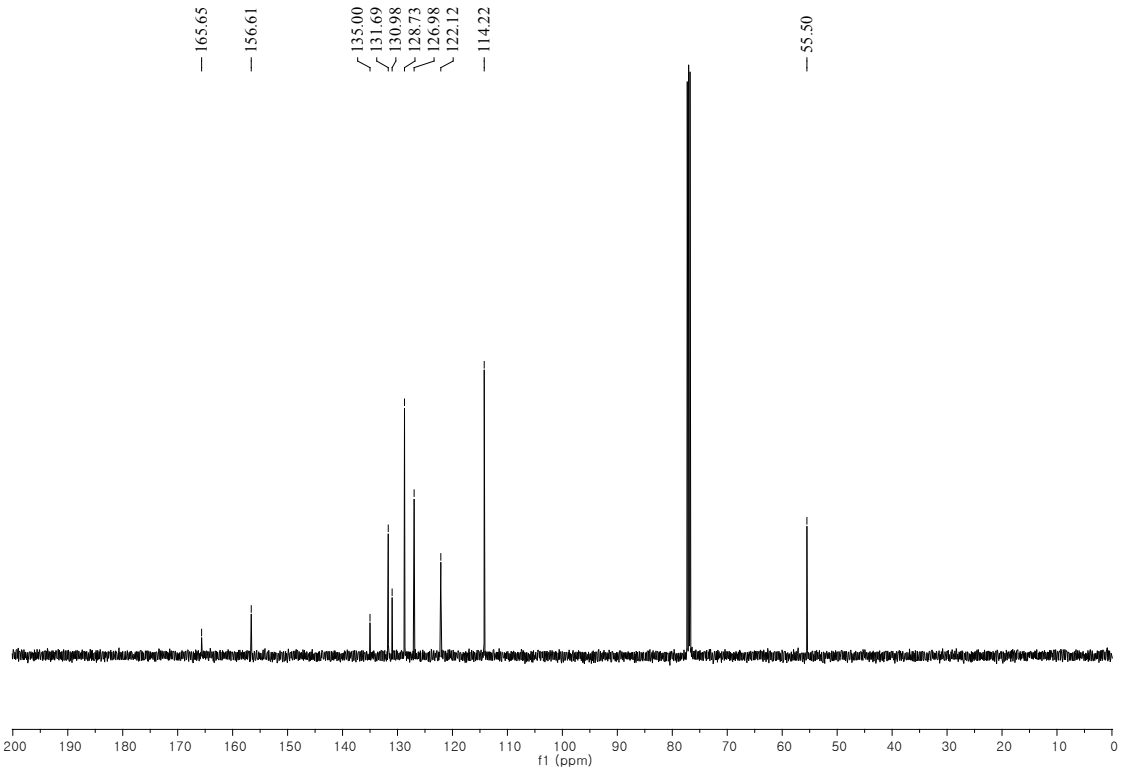


N-(4-Methoxyphenyl)benzamide (3ae)

^{1}H NMR

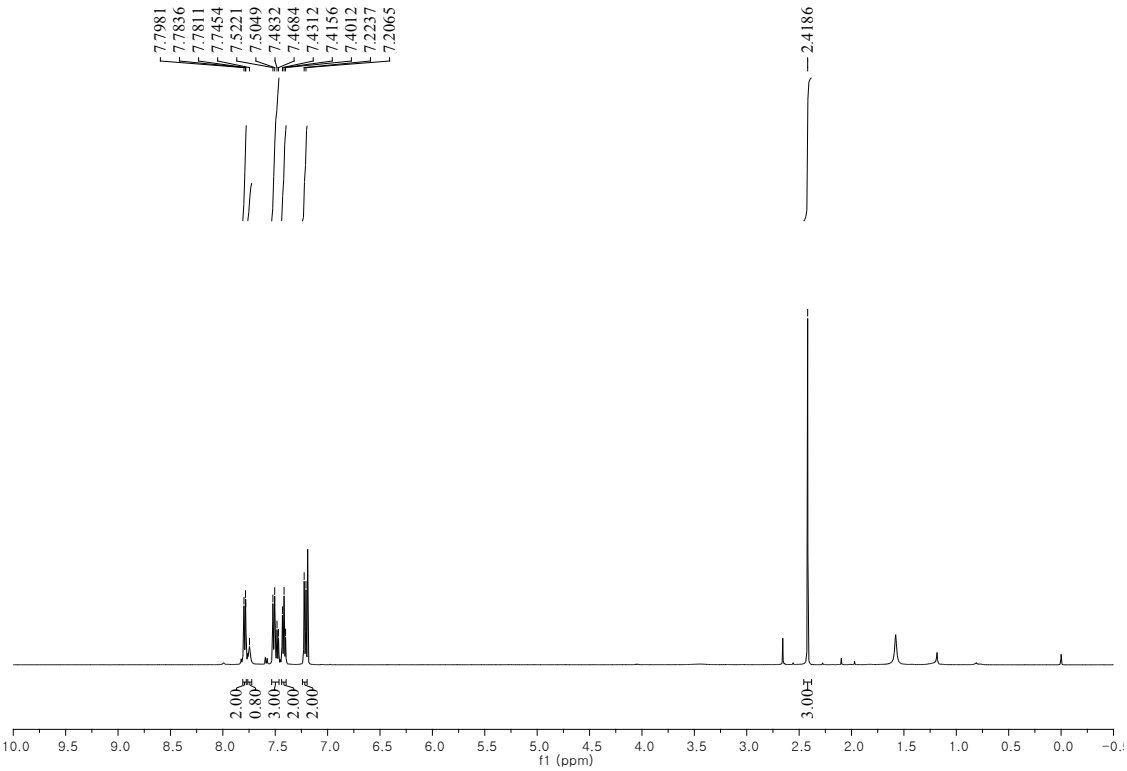


^{13}C NMR

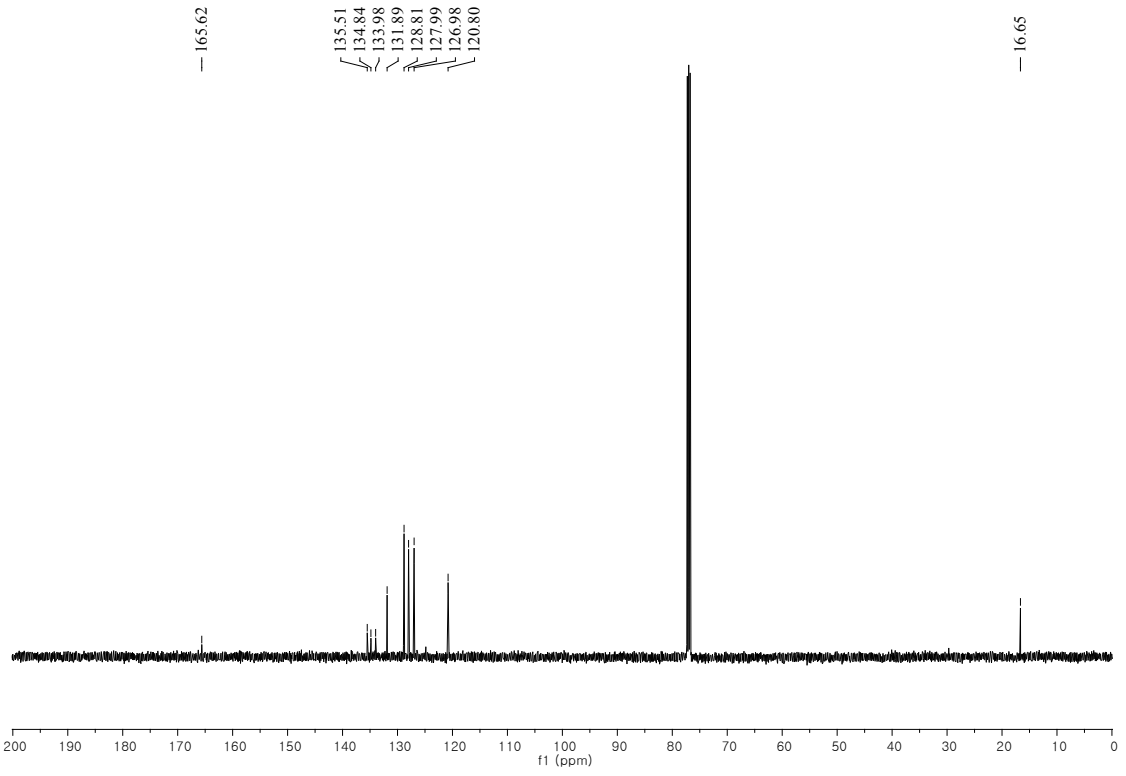


N-(4-(methylthio)phenyl)benzamide (3af)

^{1}H NMR

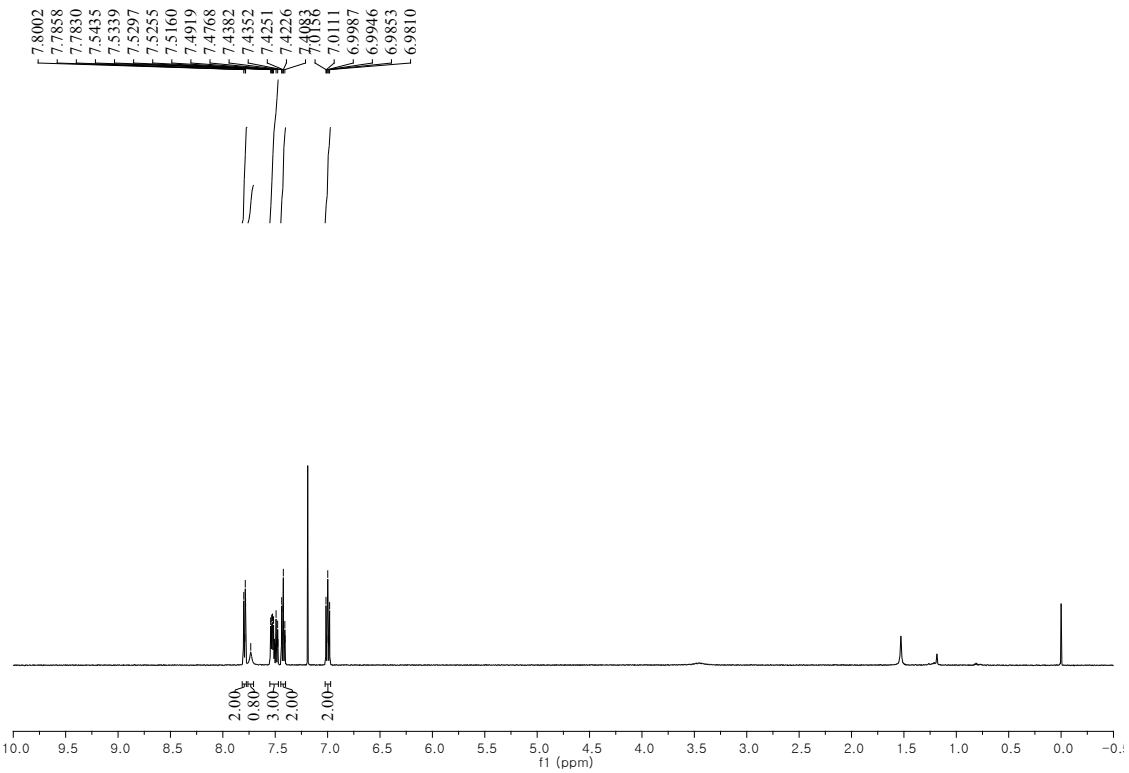


^{13}C NMR

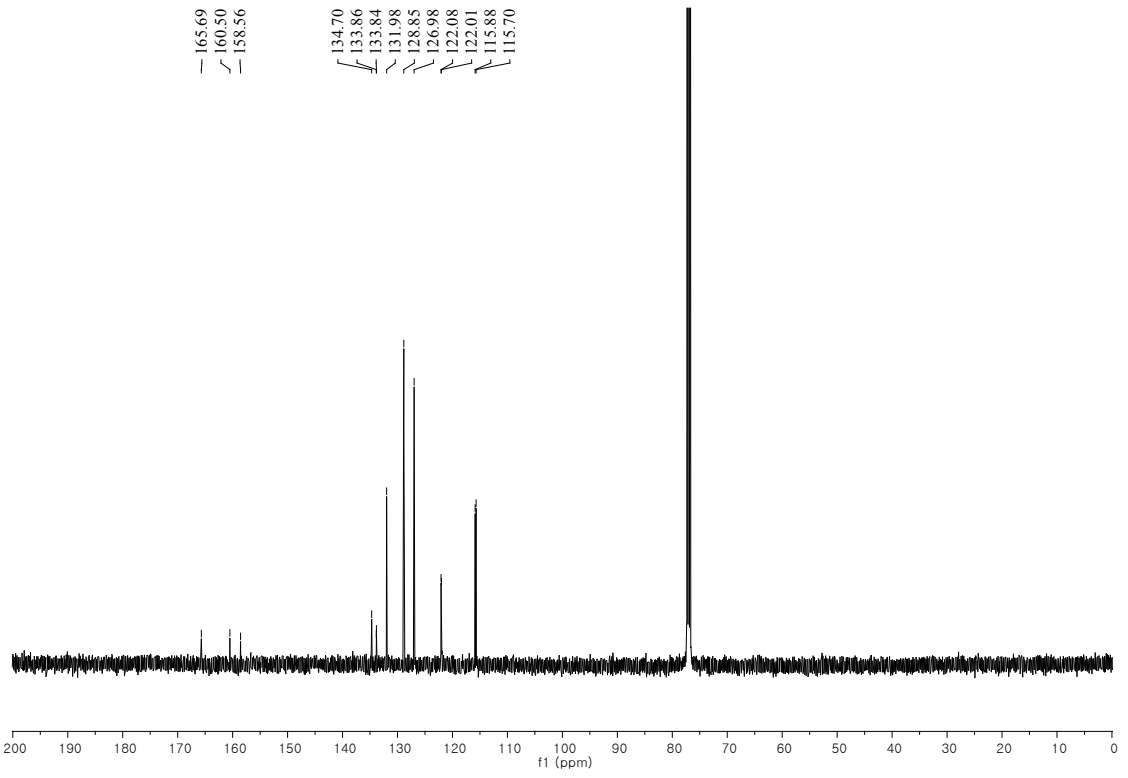


N-(4-fluorophenyl)benzamide (3ag)

^{1}H NMR

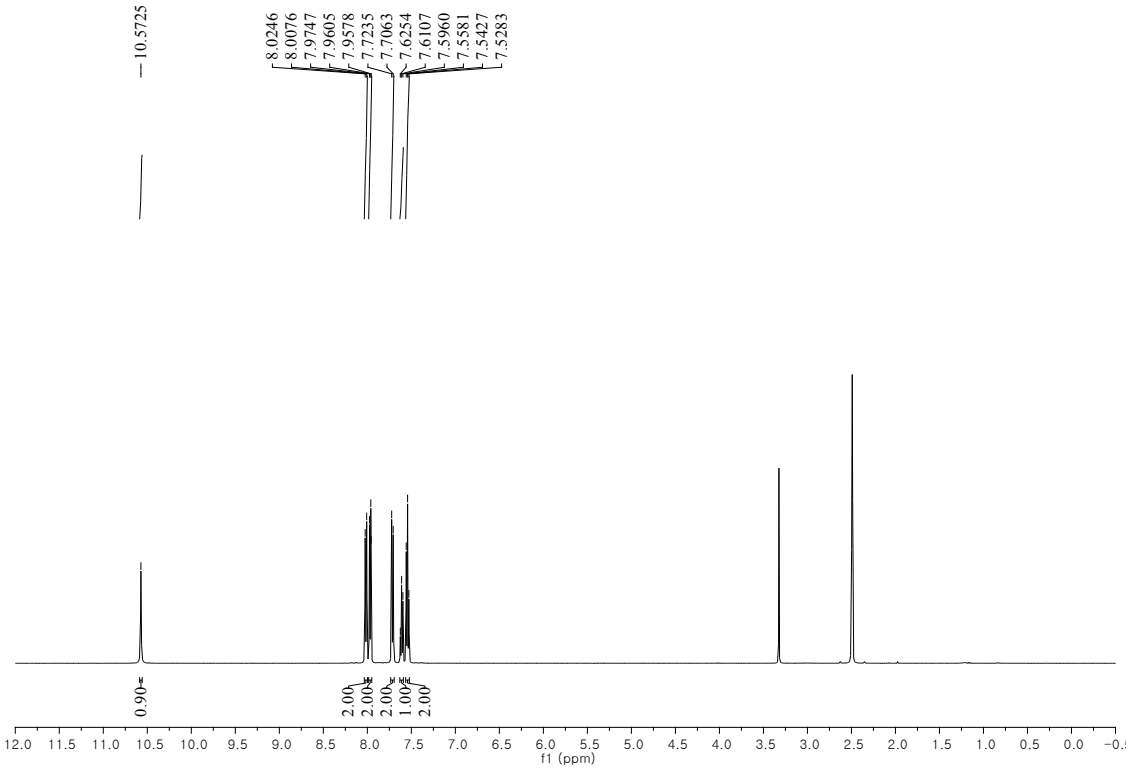


^{13}C NMR

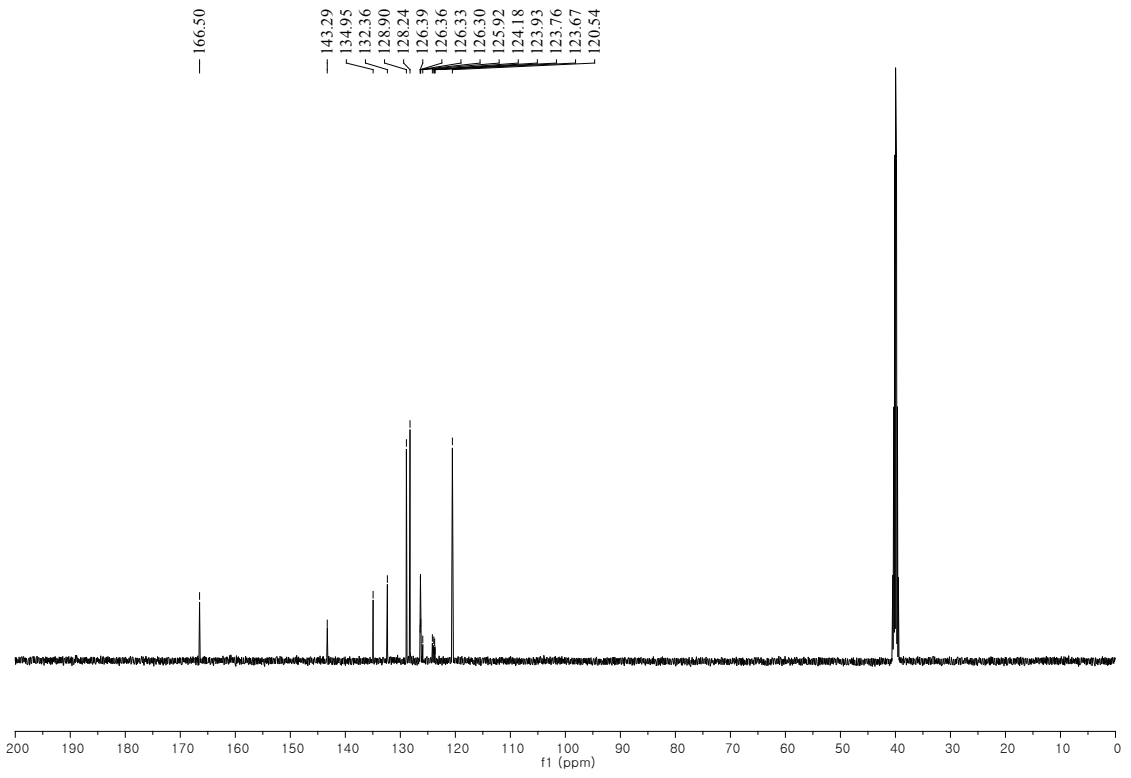


N-(4-(trifluoromethyl)phenyl)benzamide (3ah)

^{1}H NMR

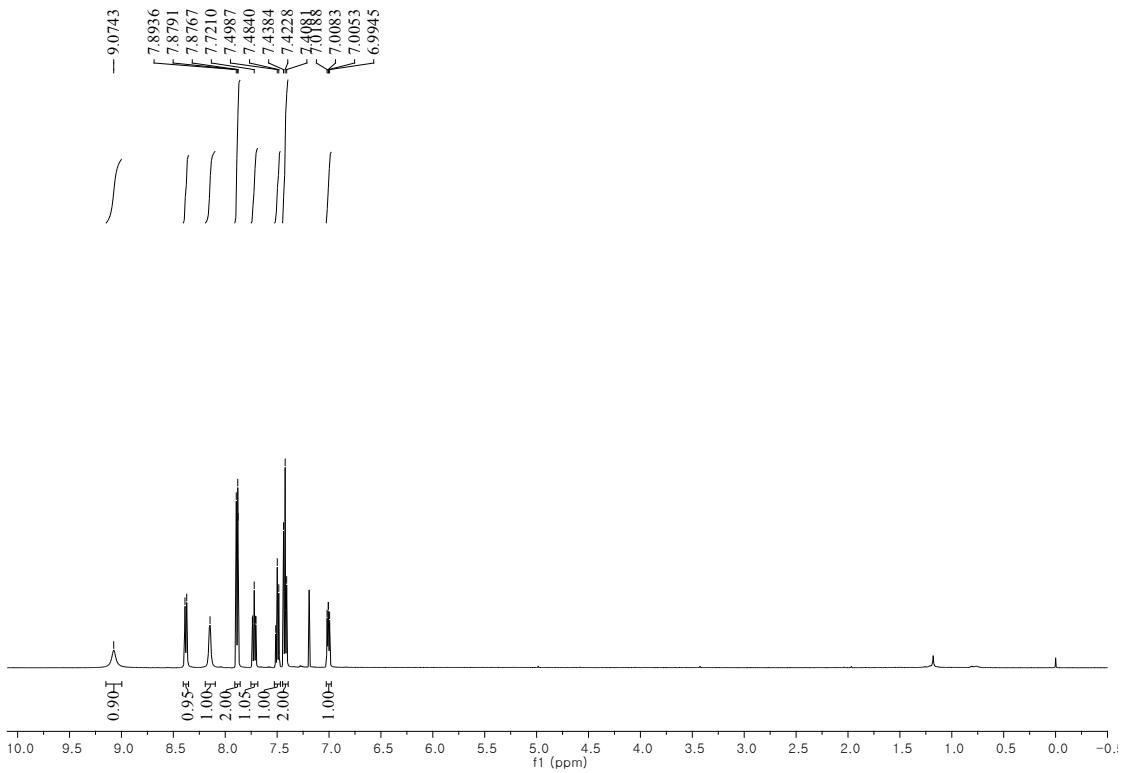


^{13}C NMR

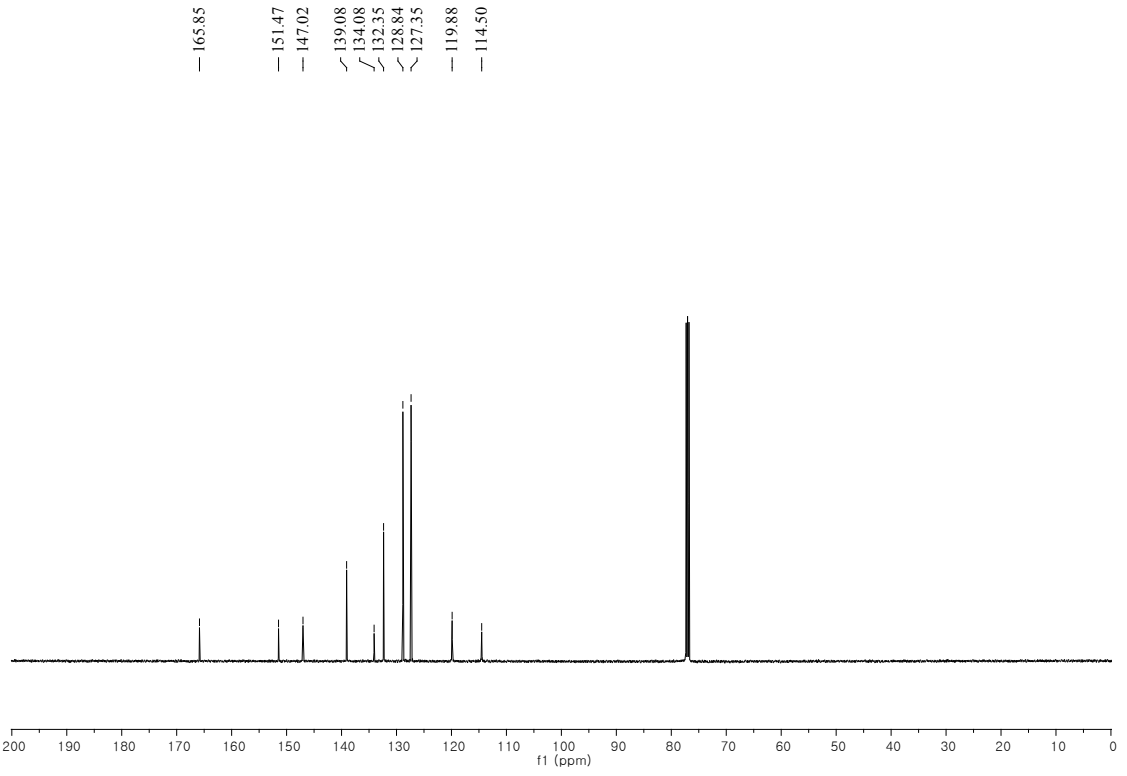


N-(pyridin-2-yl)benzamide (3ai)

^{1}H NMR

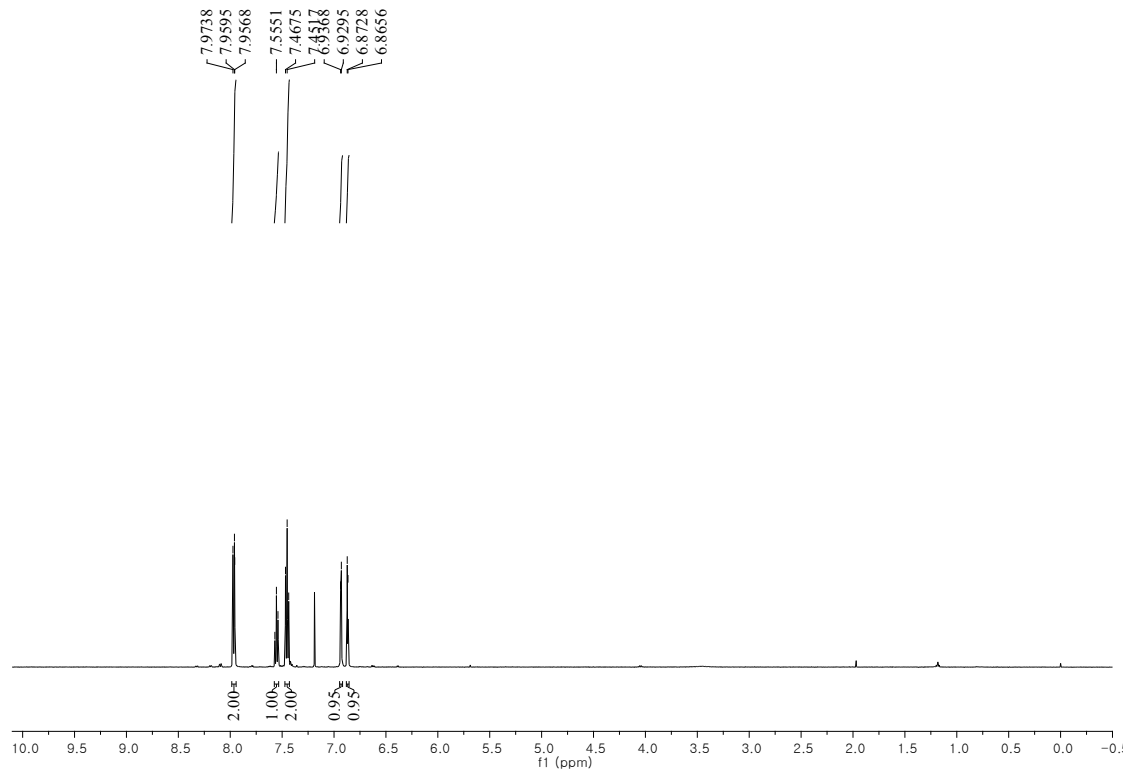


^{13}C NMR

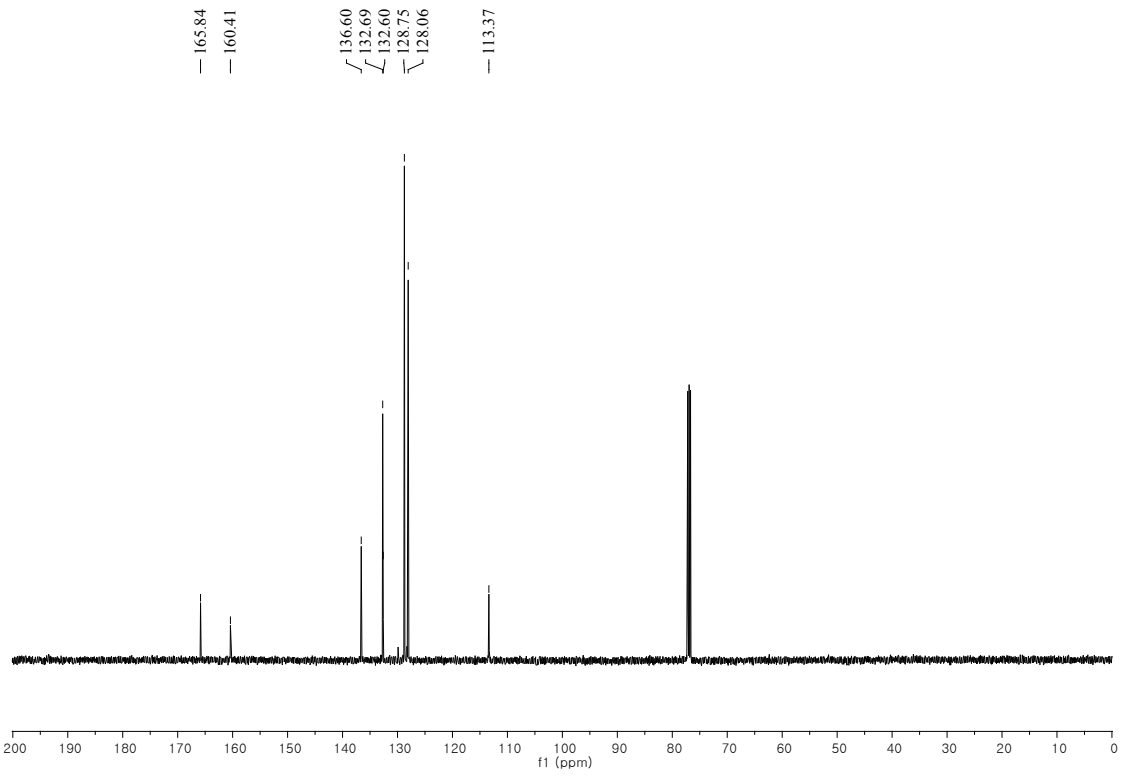


N-(thiazol-2-yl)benzamide (3aj)

^{1}H NMR

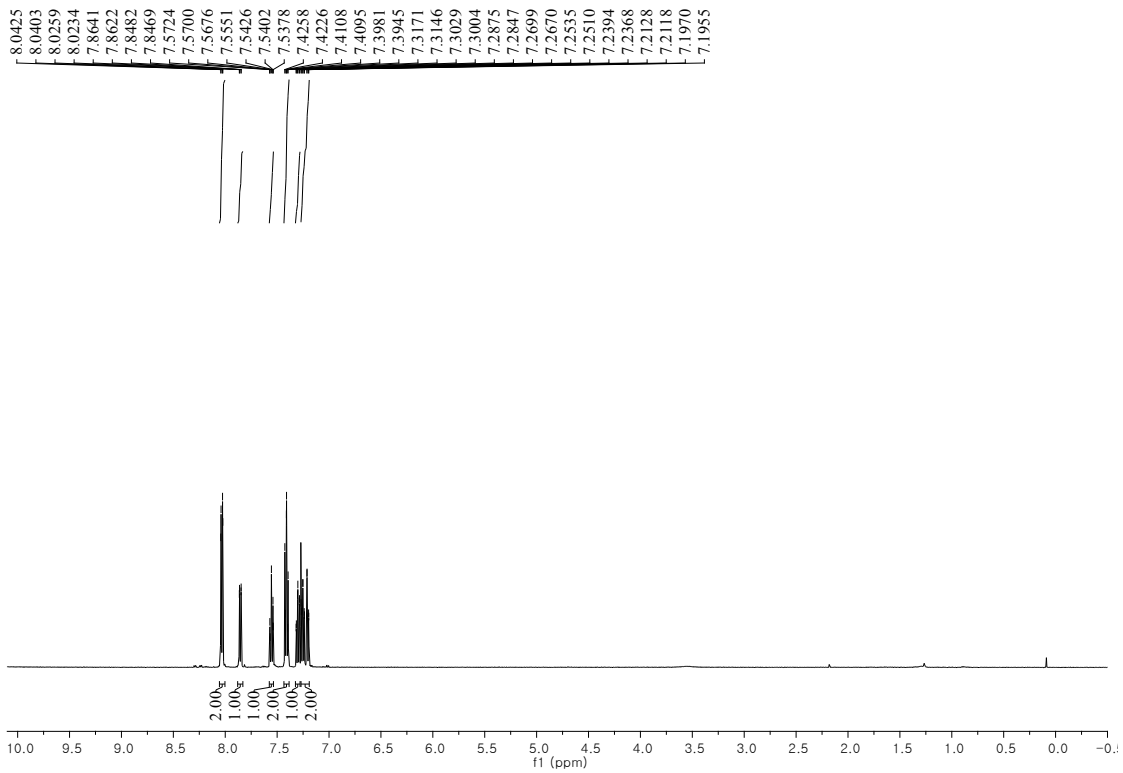


^{13}C NMR

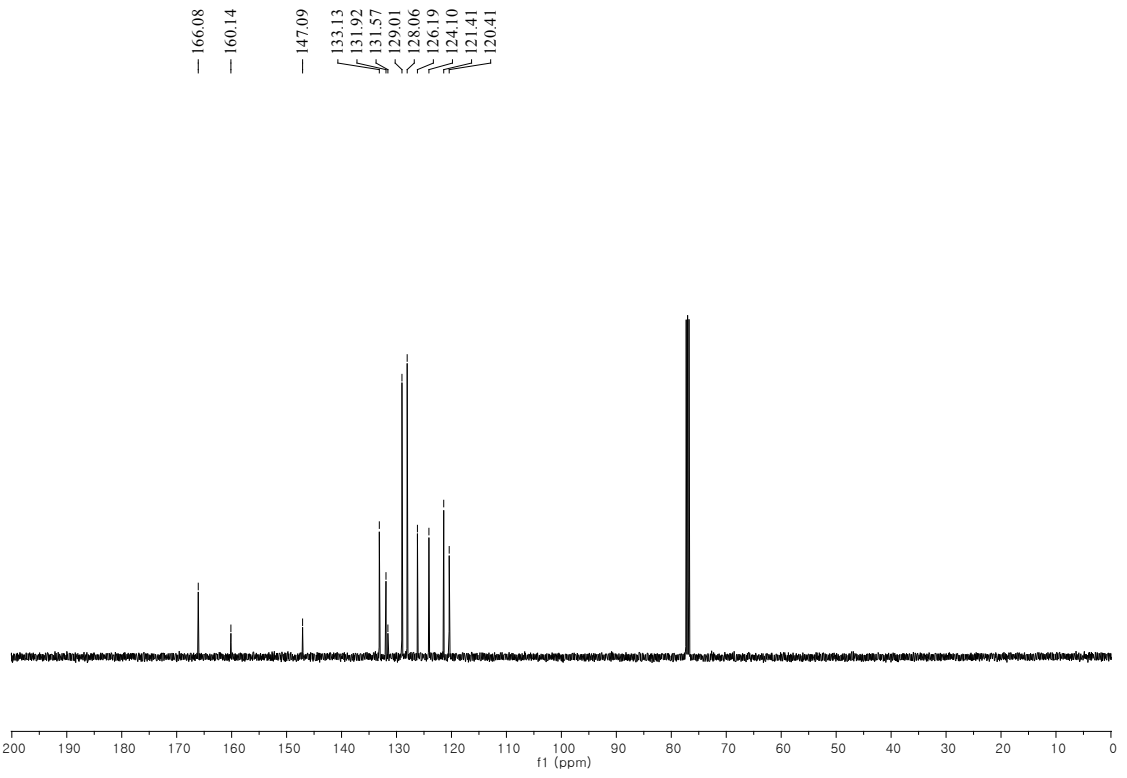


N-(benzo[*d*]thiazol-2-yl)benzamide (3ak)

^{1}H NMR

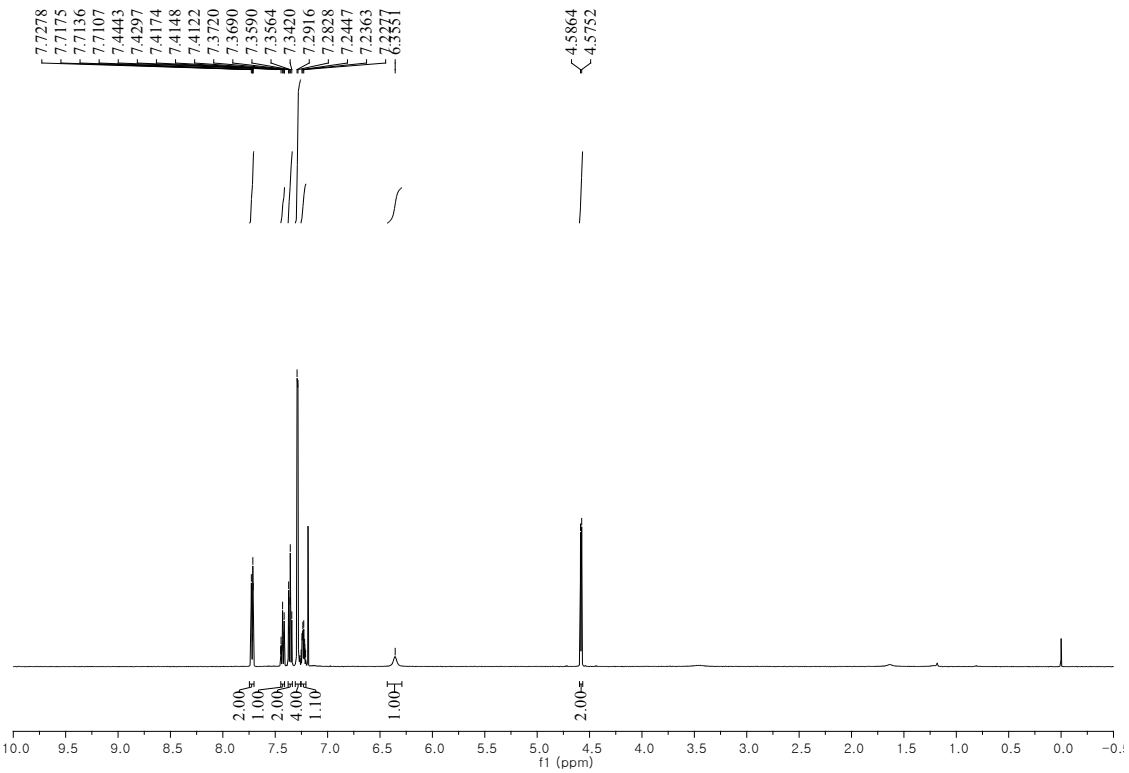


^{13}C NMR

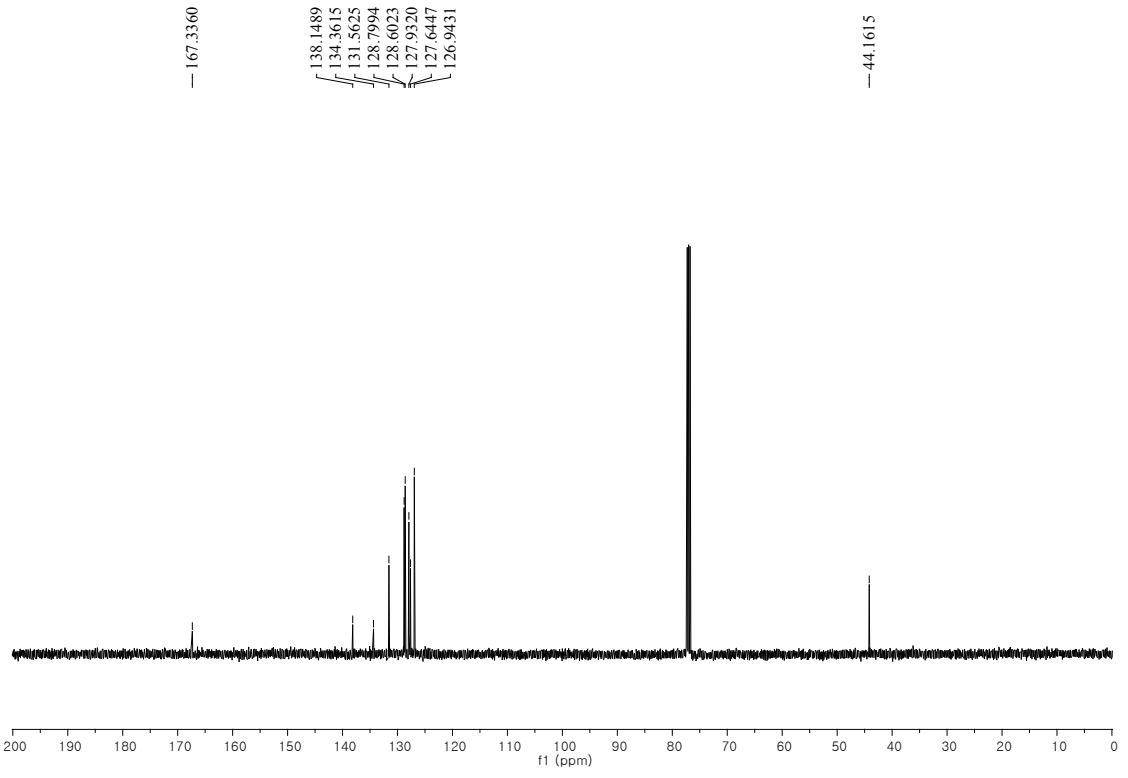


N-benzylbenzamide (3al)

^{1}H NMR

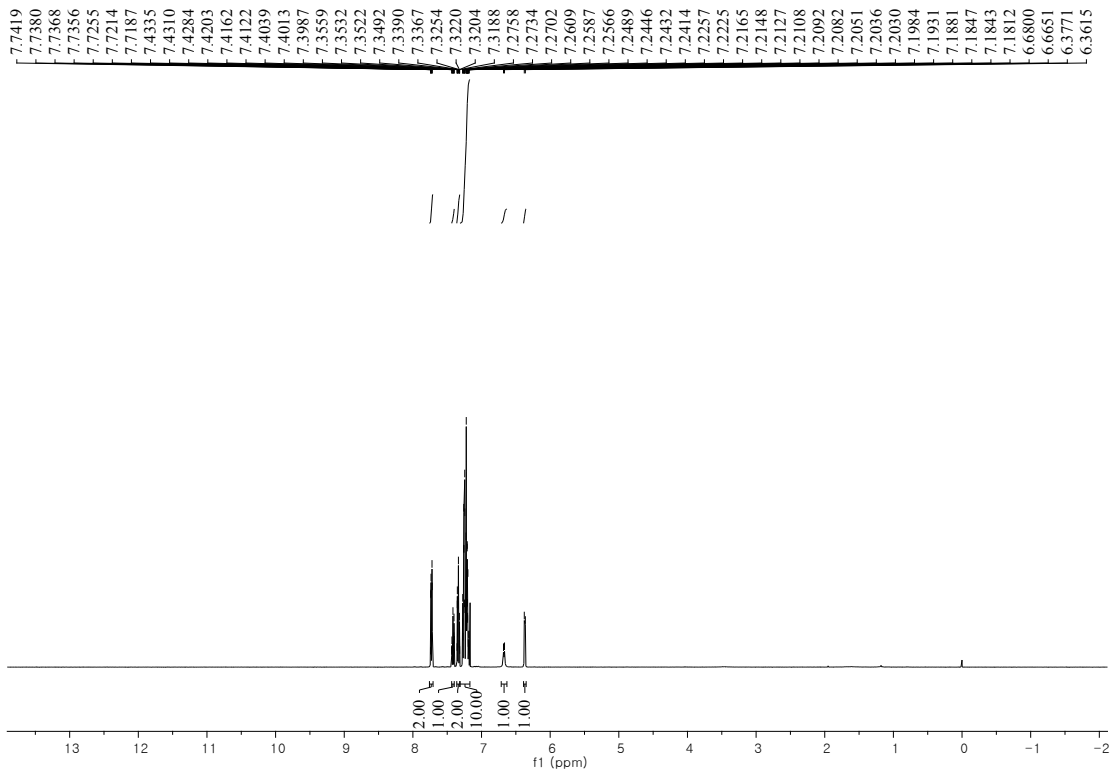


^{13}C NMR

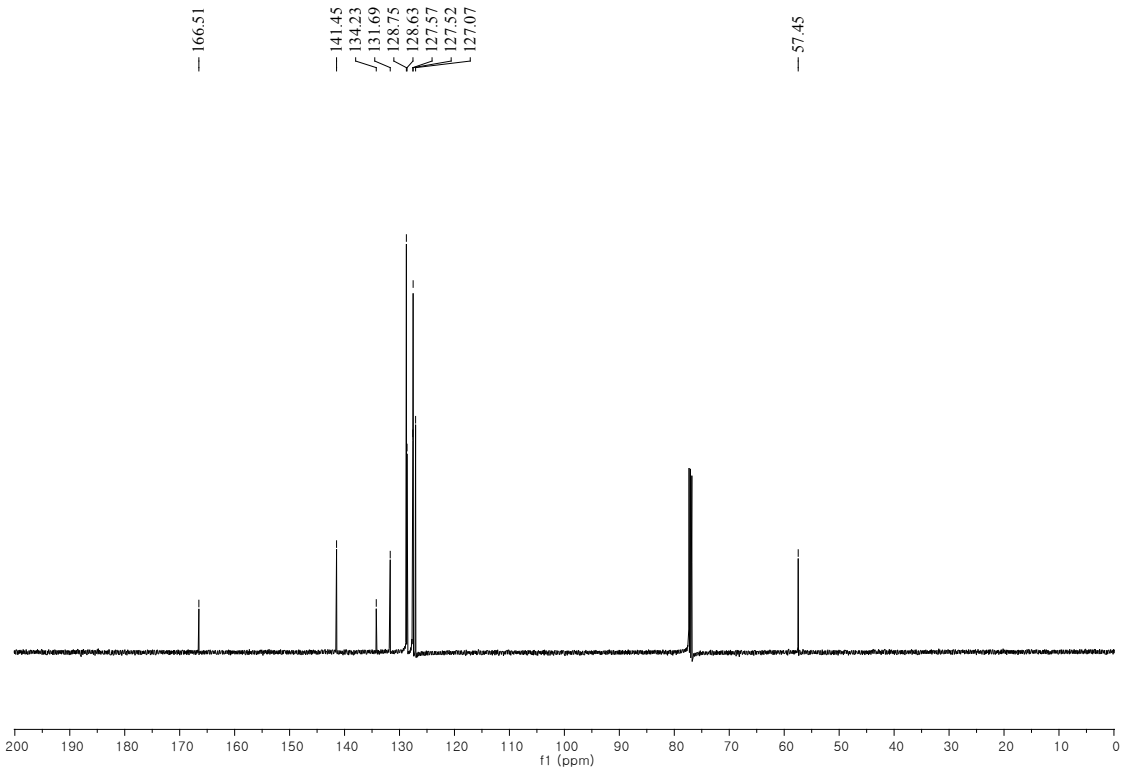


N-benzhydrylbenzamide (3am)

^{1}H NMR

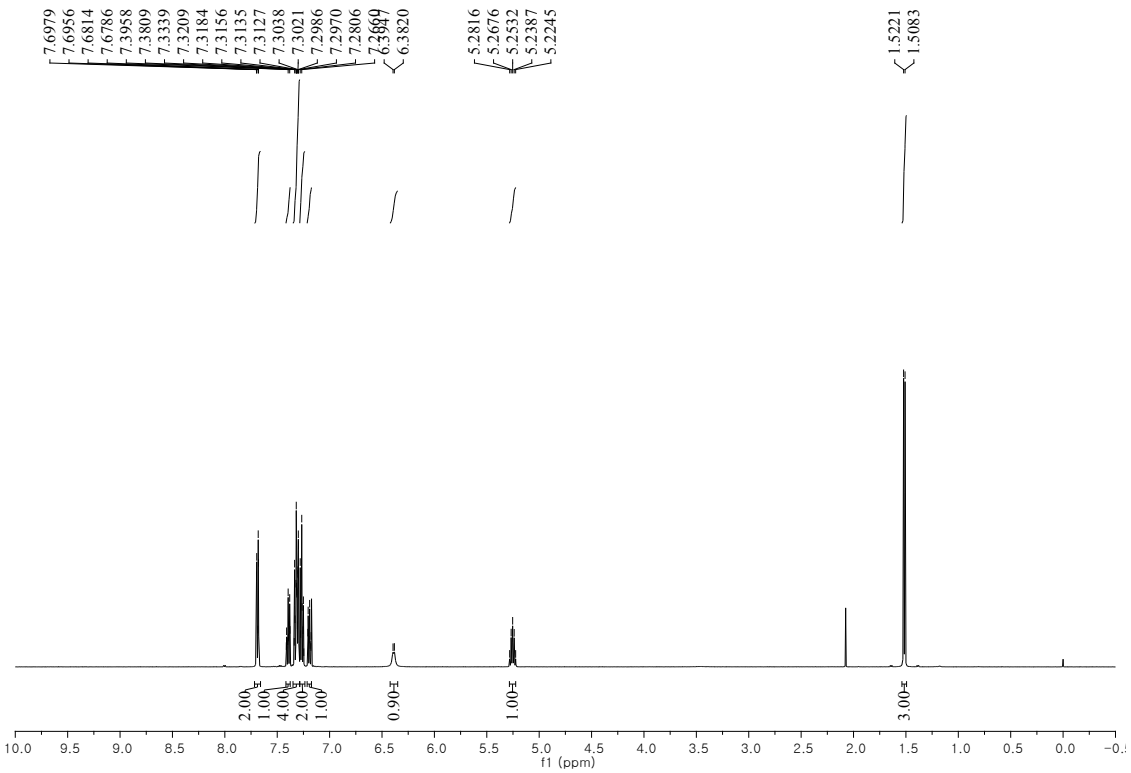


^{13}C NMR

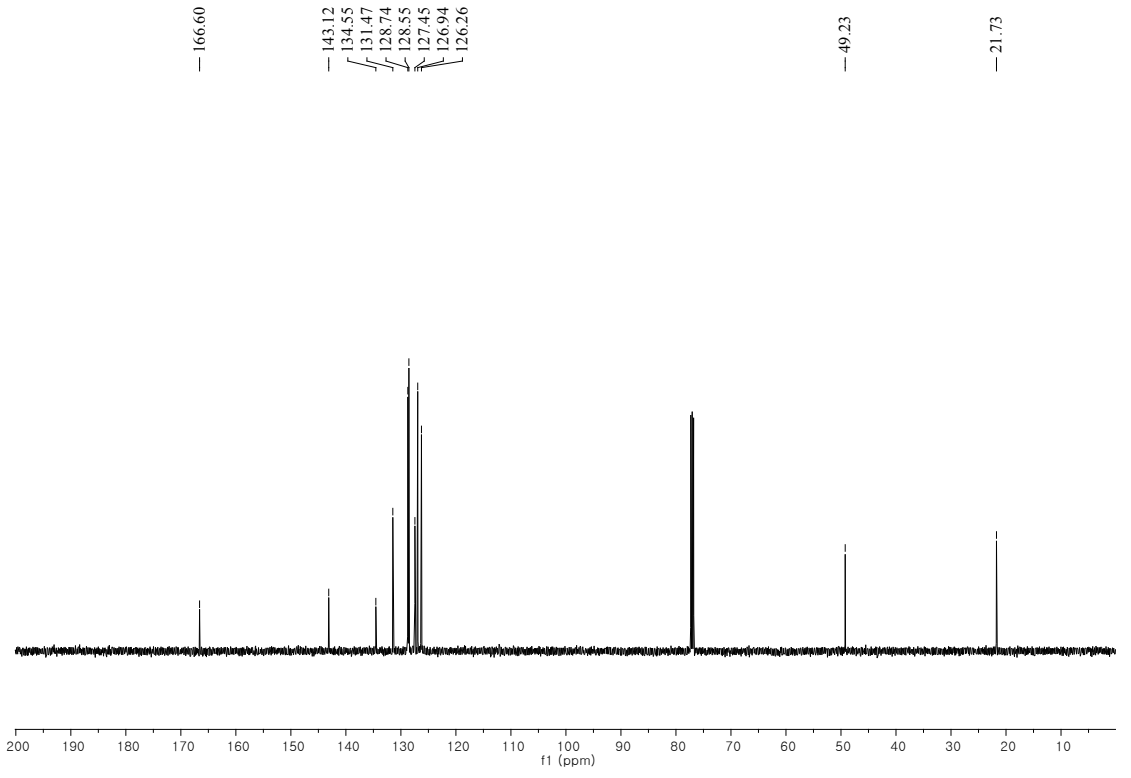


N-(1-phenylethyl)benzamide (3an)

^{1}H NMR

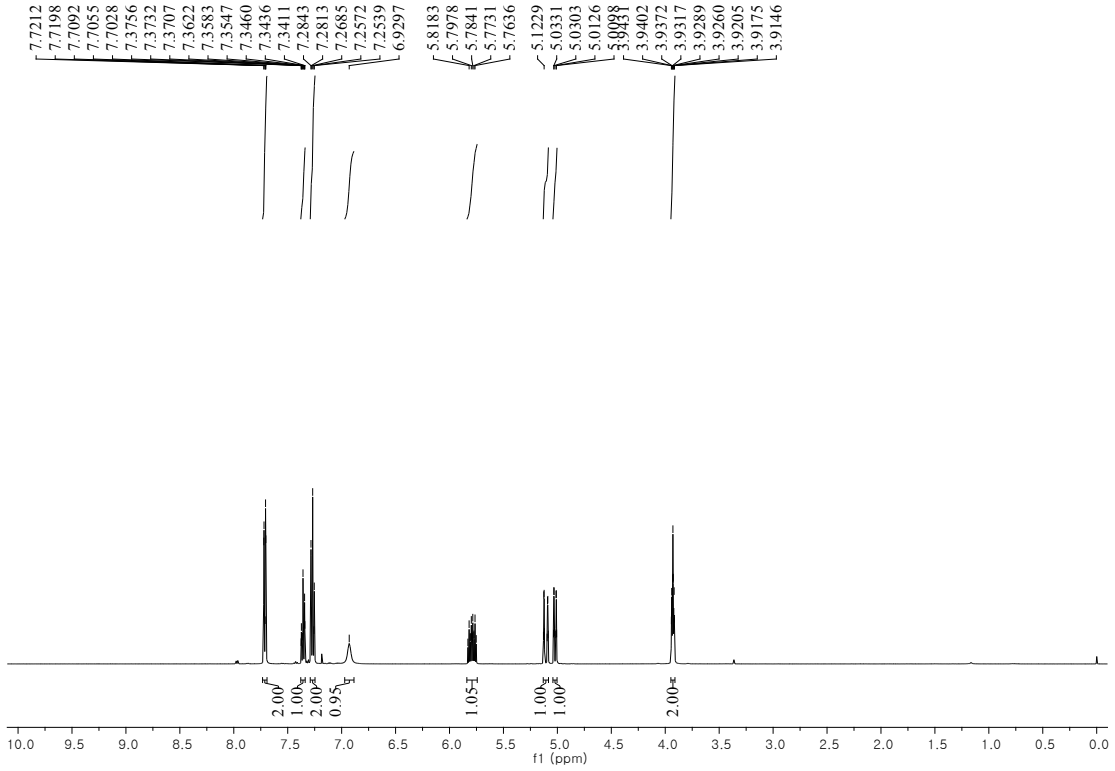


^{13}C NMR

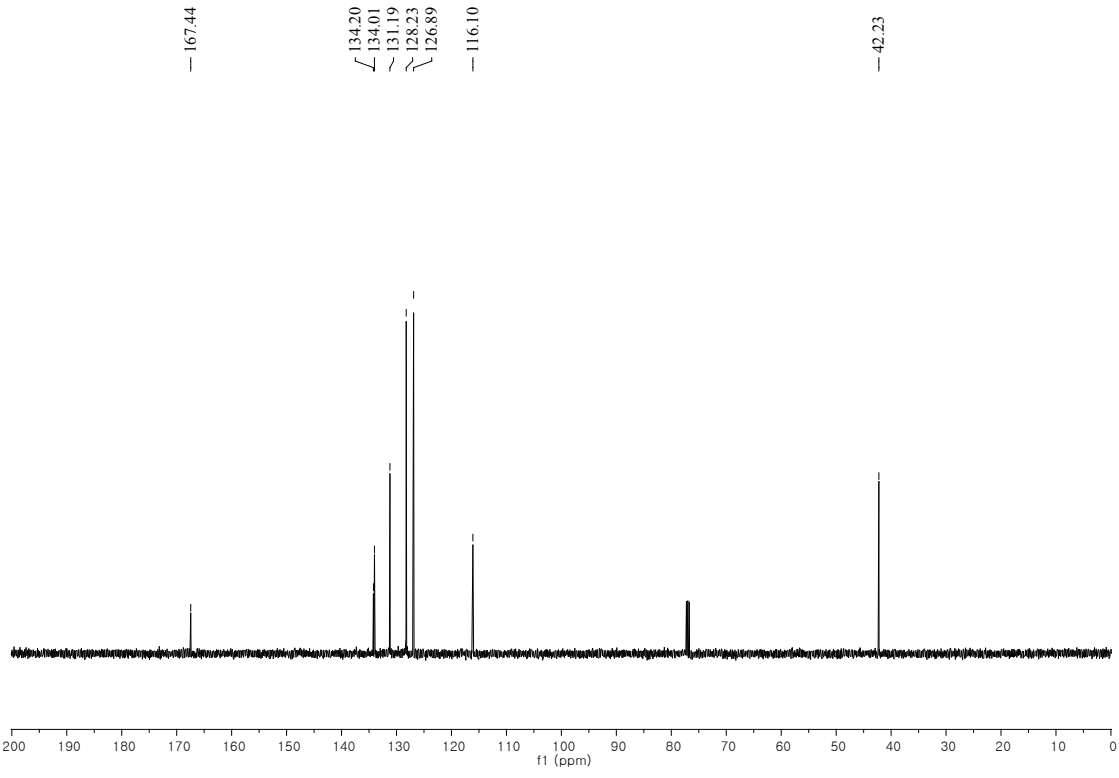


N-allylbenzamide (3ao)

^{1}H NMR

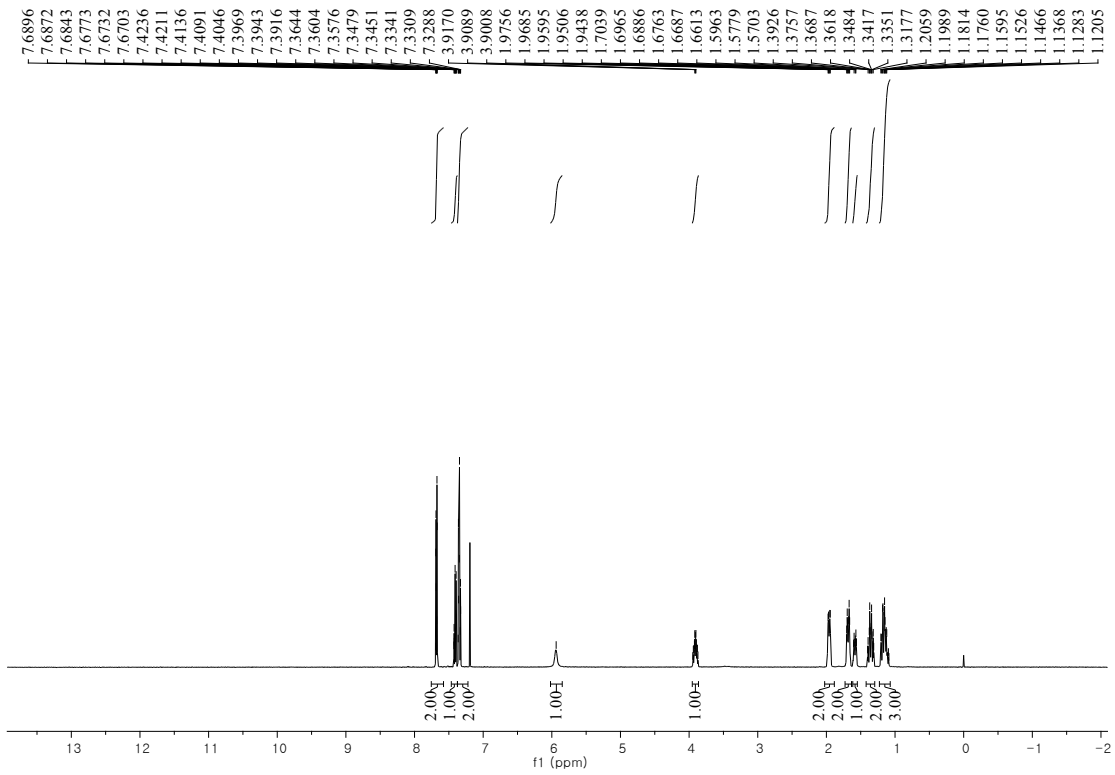


^{13}C NMR

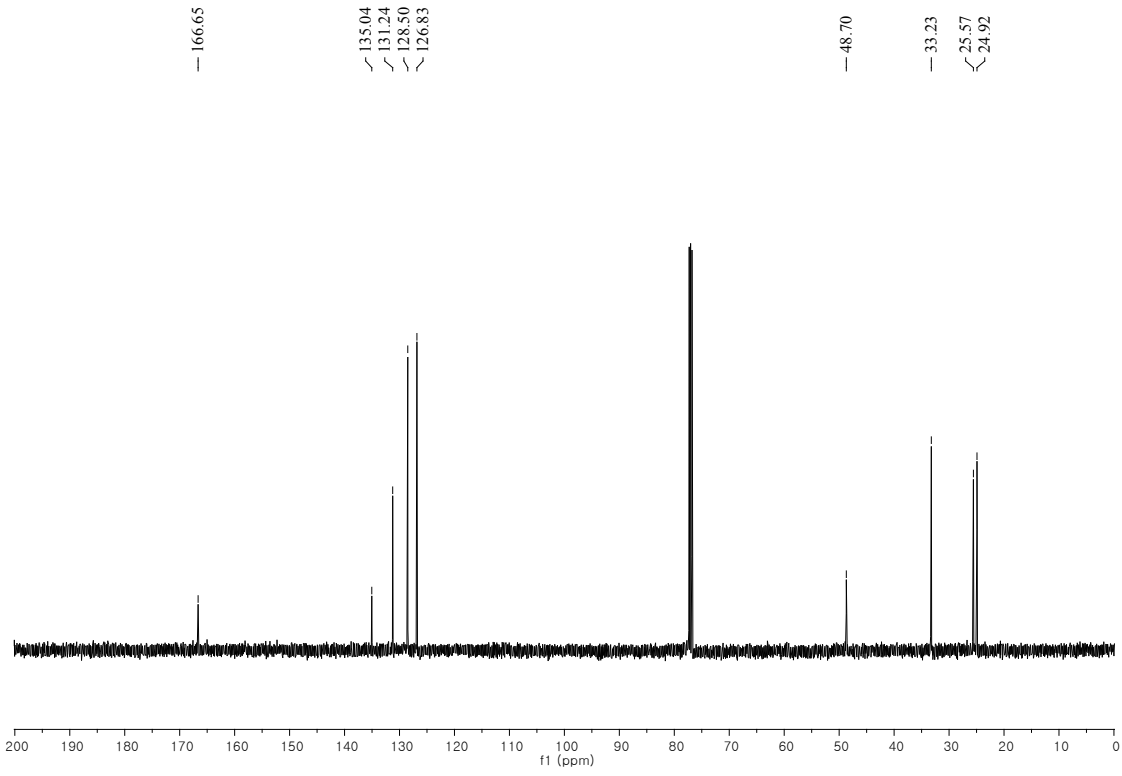


N-cyclohexylbenzamide (3ap)

^{1}H NMR

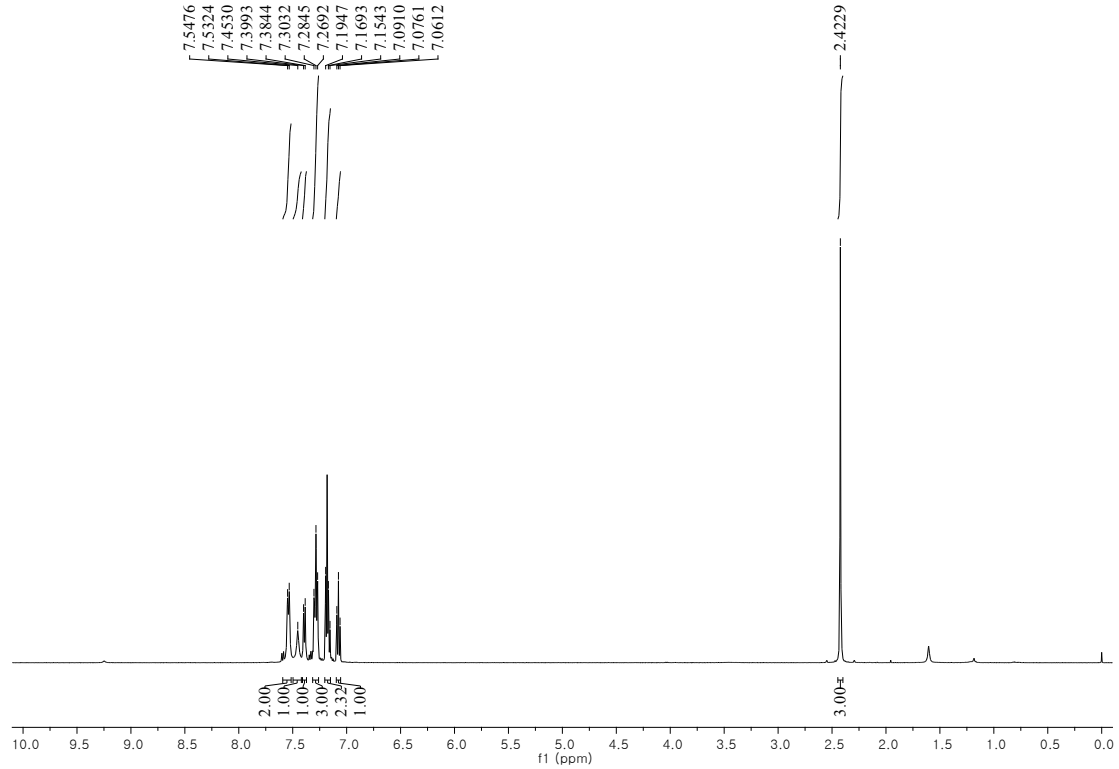


^{13}C NMR

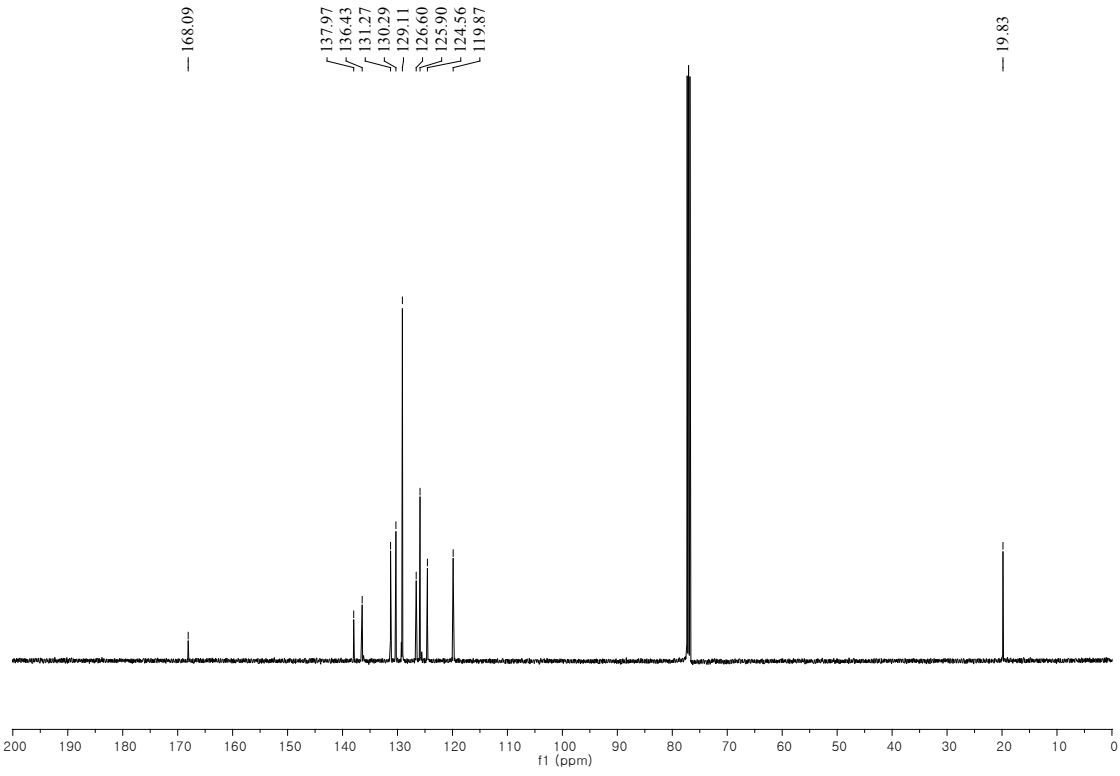


2-methyl-*N*-phenylbenzamide (3ba)

^{1}H NMR

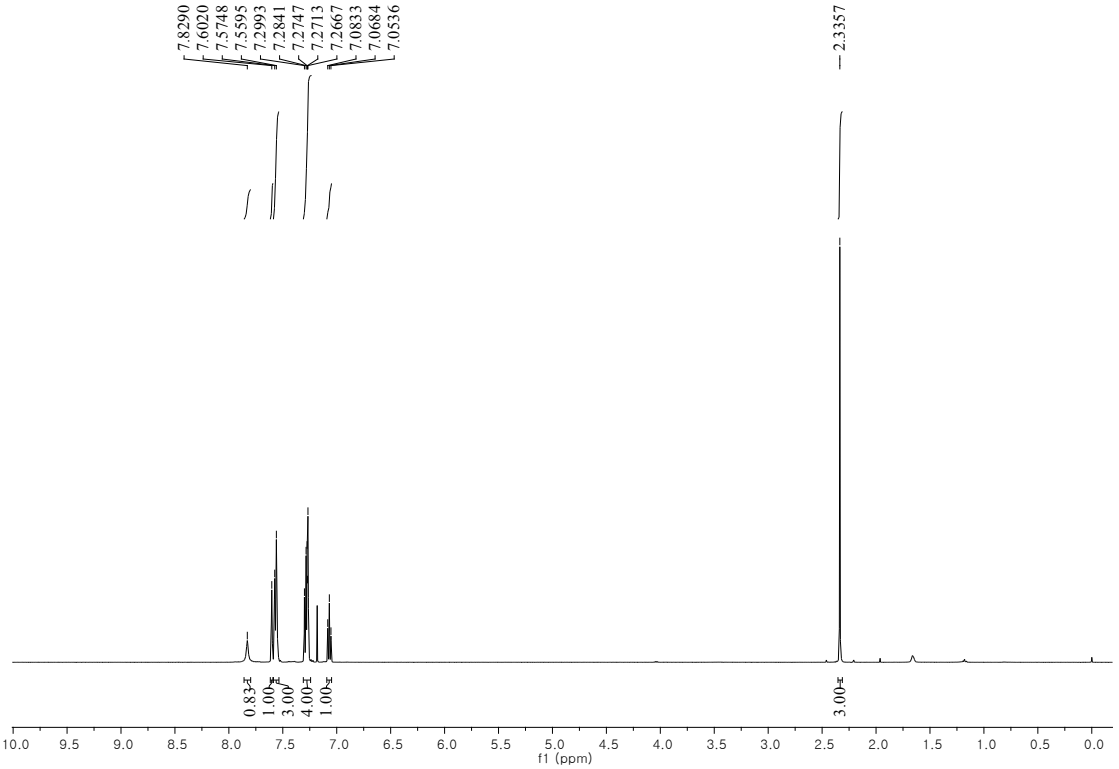


^{13}C NMR

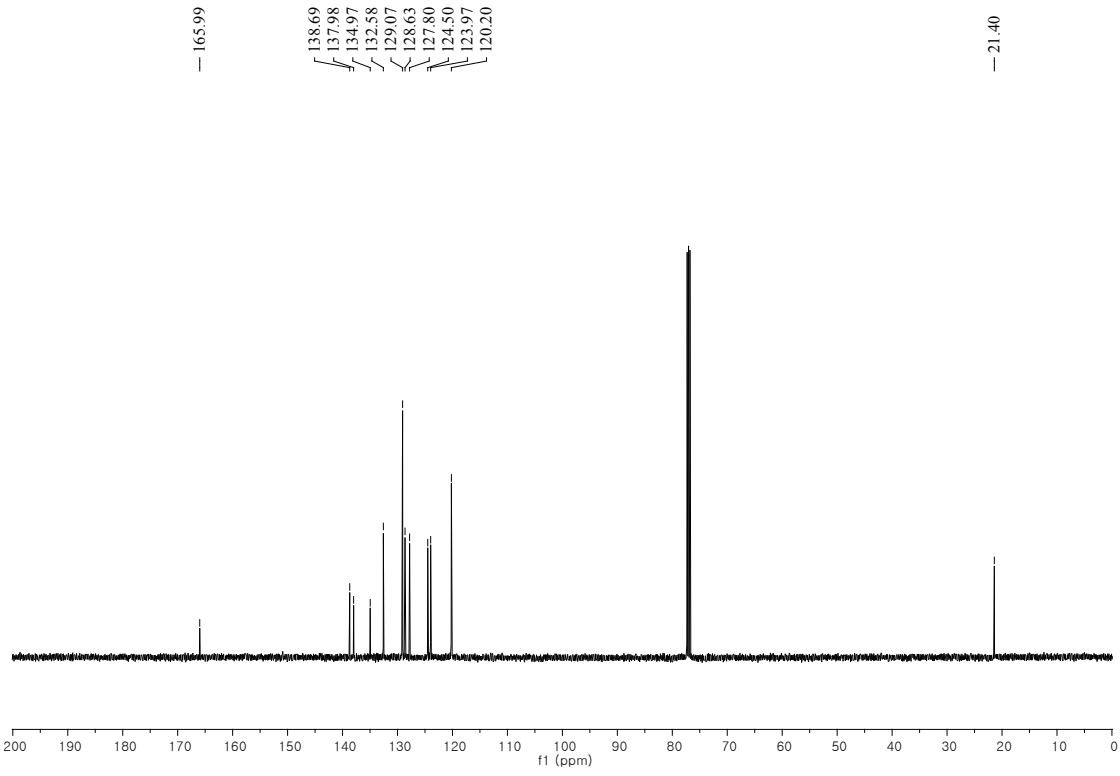


3-methyl-*N*-phenylbenzamide (3ca)

^{1}H NMR

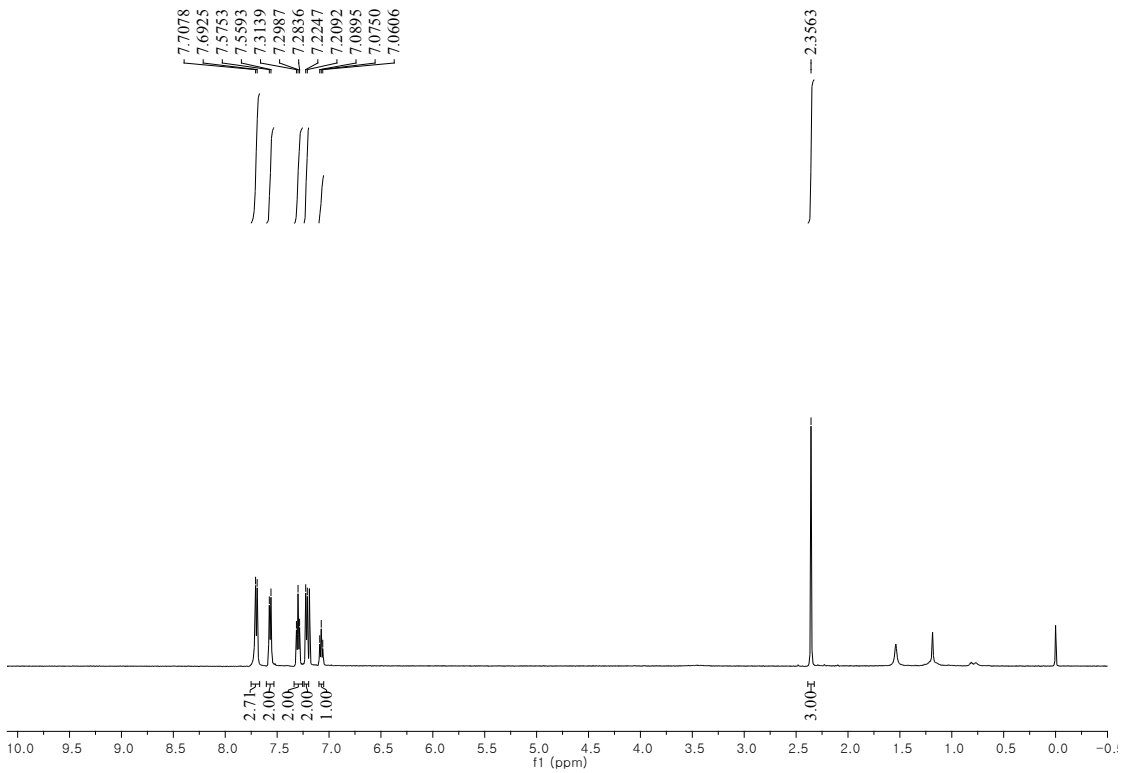


^{13}C NMR

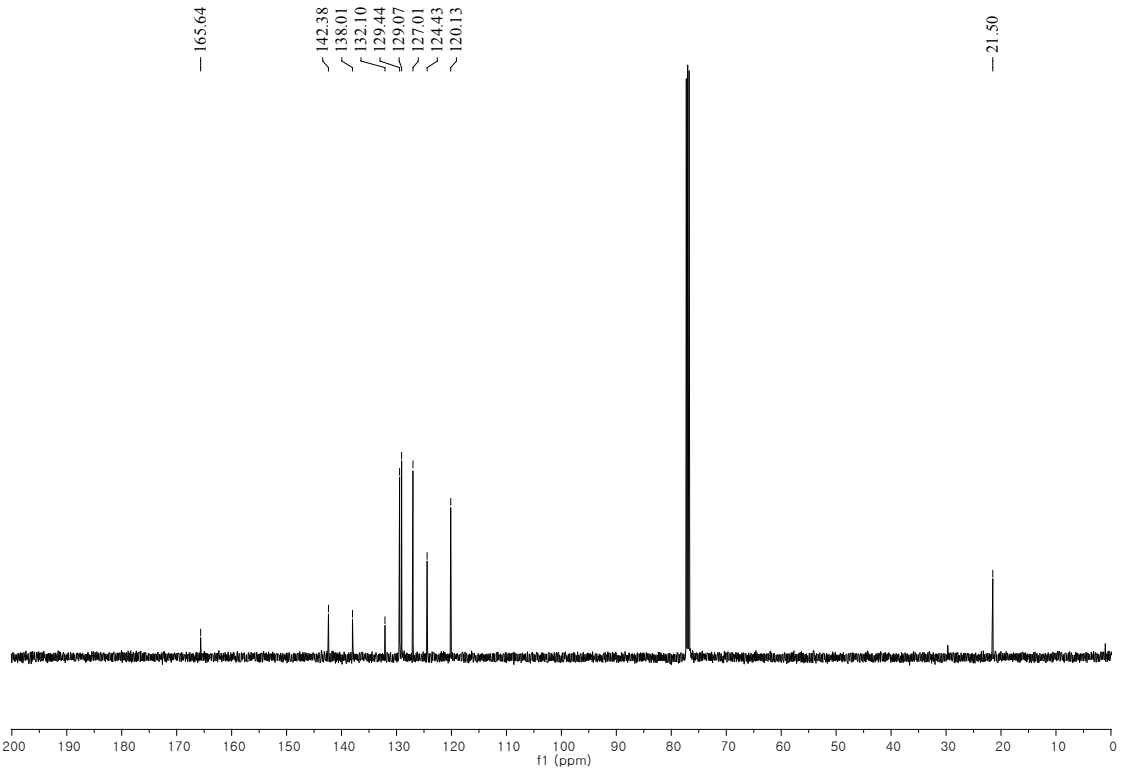


4-methyl-*N*-phenylbenzamide (3da)

^{1}H NMR

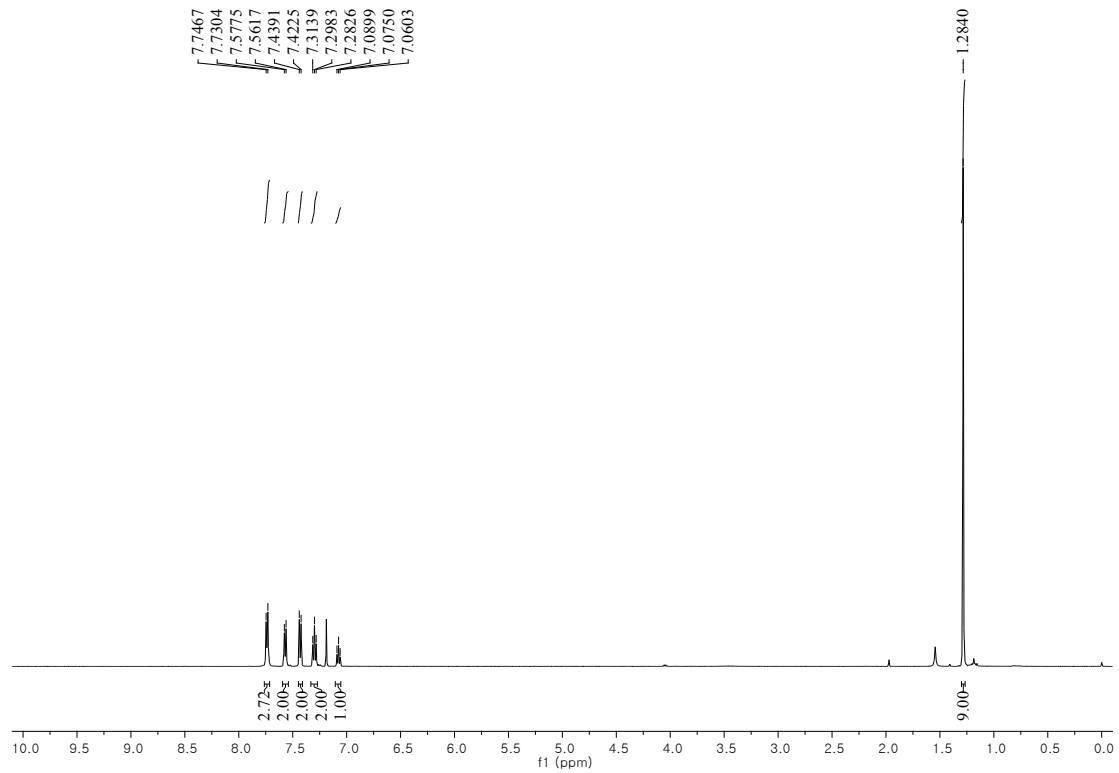


^{13}C NMR

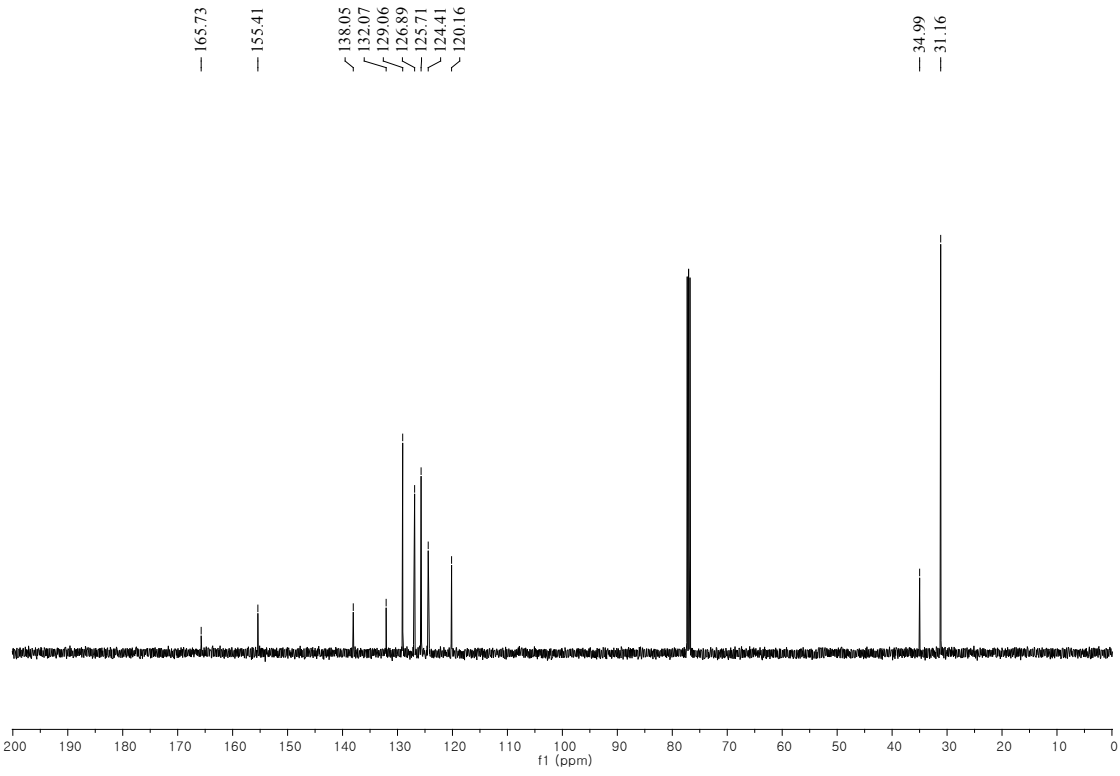


4-(*tert*-butyl)-*N*-phenylbenzamide (3ea)

^{1}H NMR

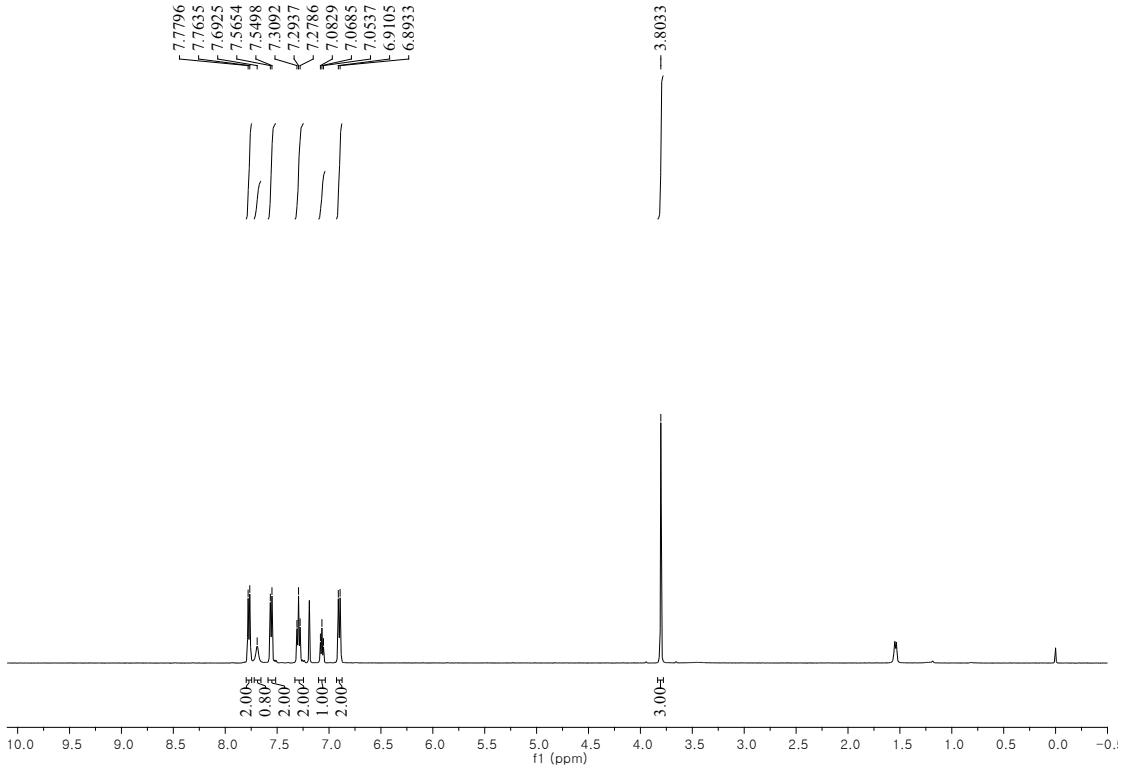


^{13}C NMR

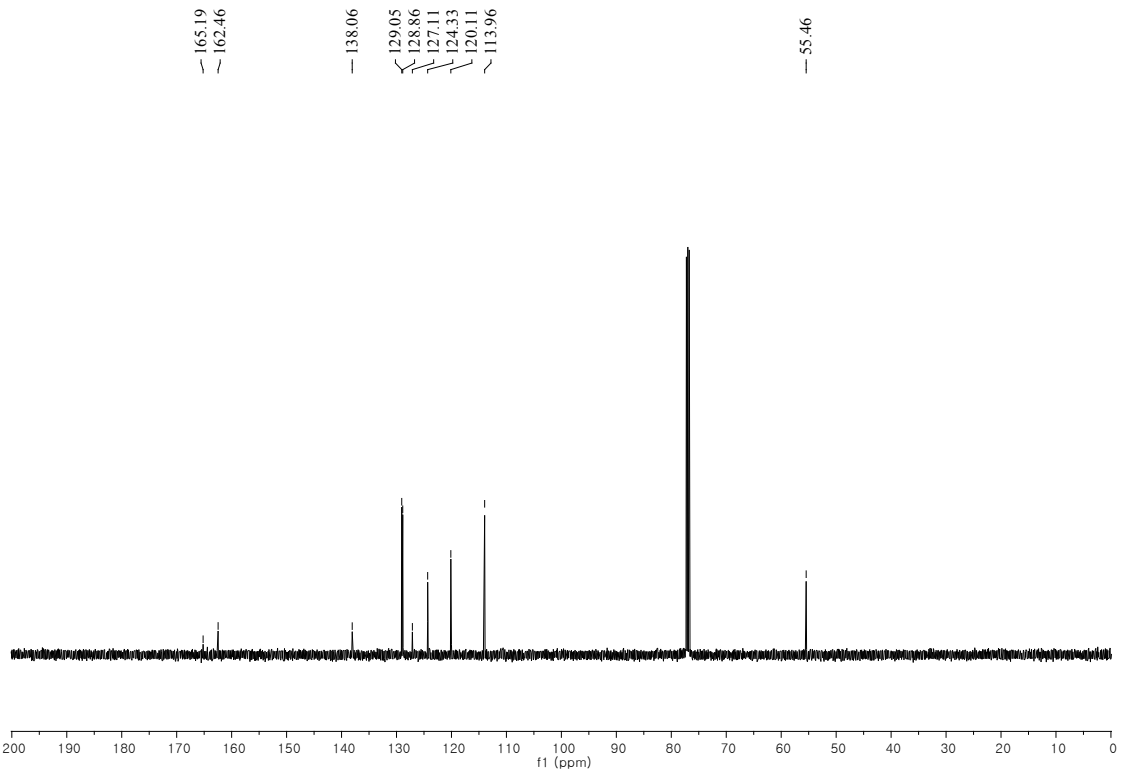


4-methoxy-*N*-phenylbenzamide (3fa)

^{1}H NMR

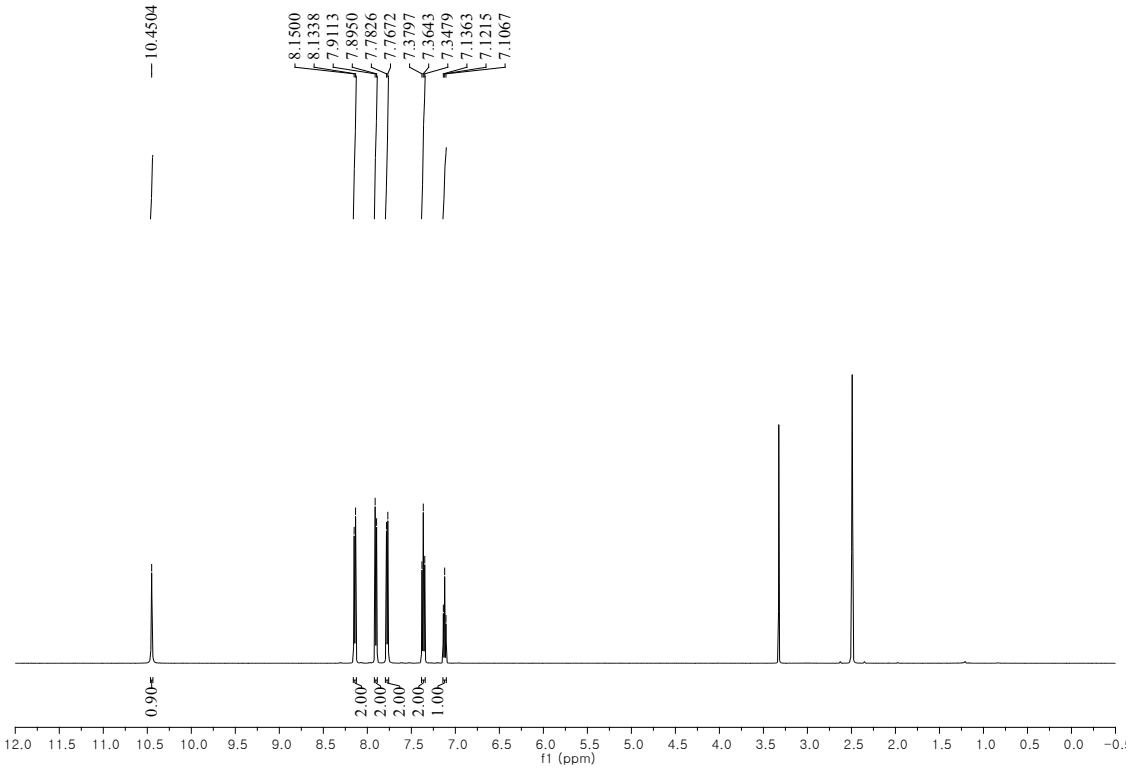


^{13}C NMR

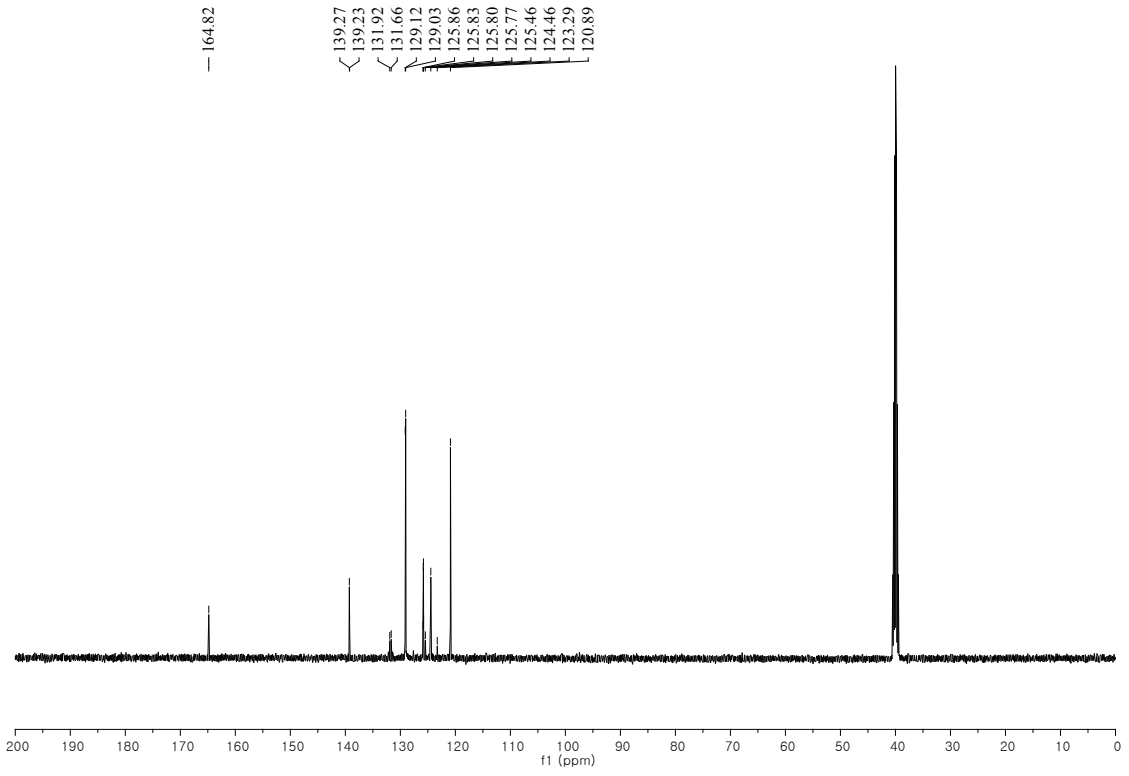


N-phenyl-4-(trifluoromethyl)benzamide (3ga)

^{1}H NMR

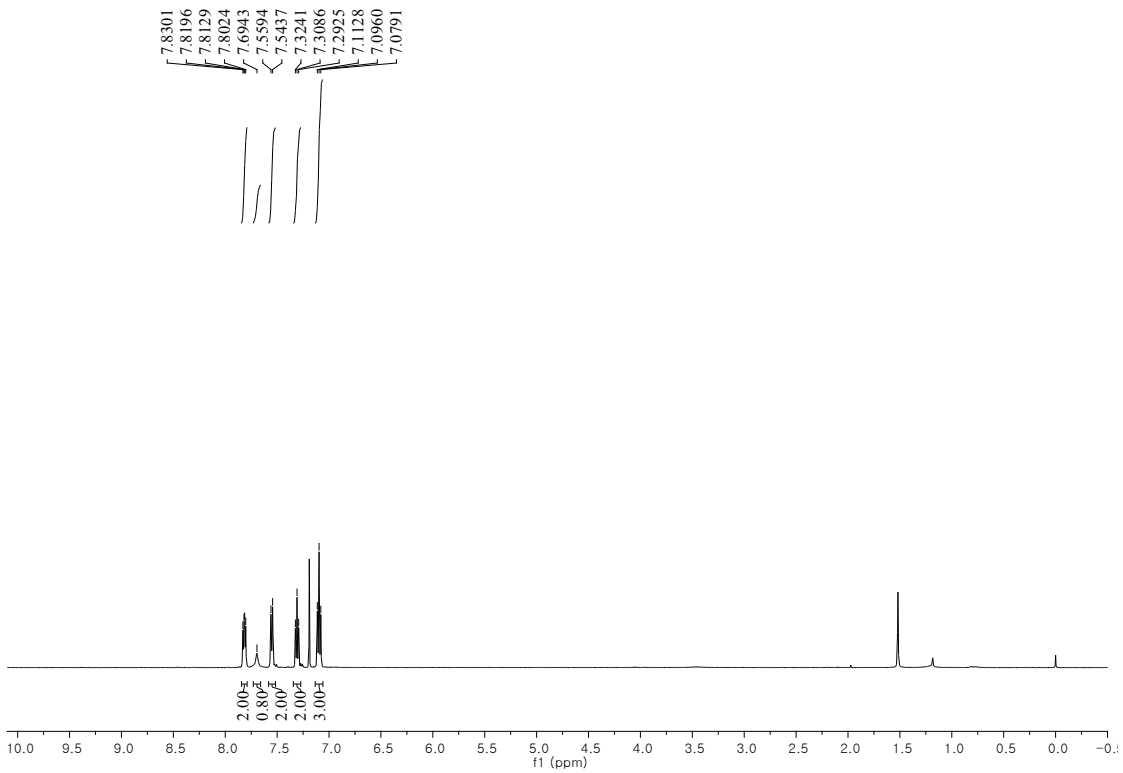


^{13}C NMR

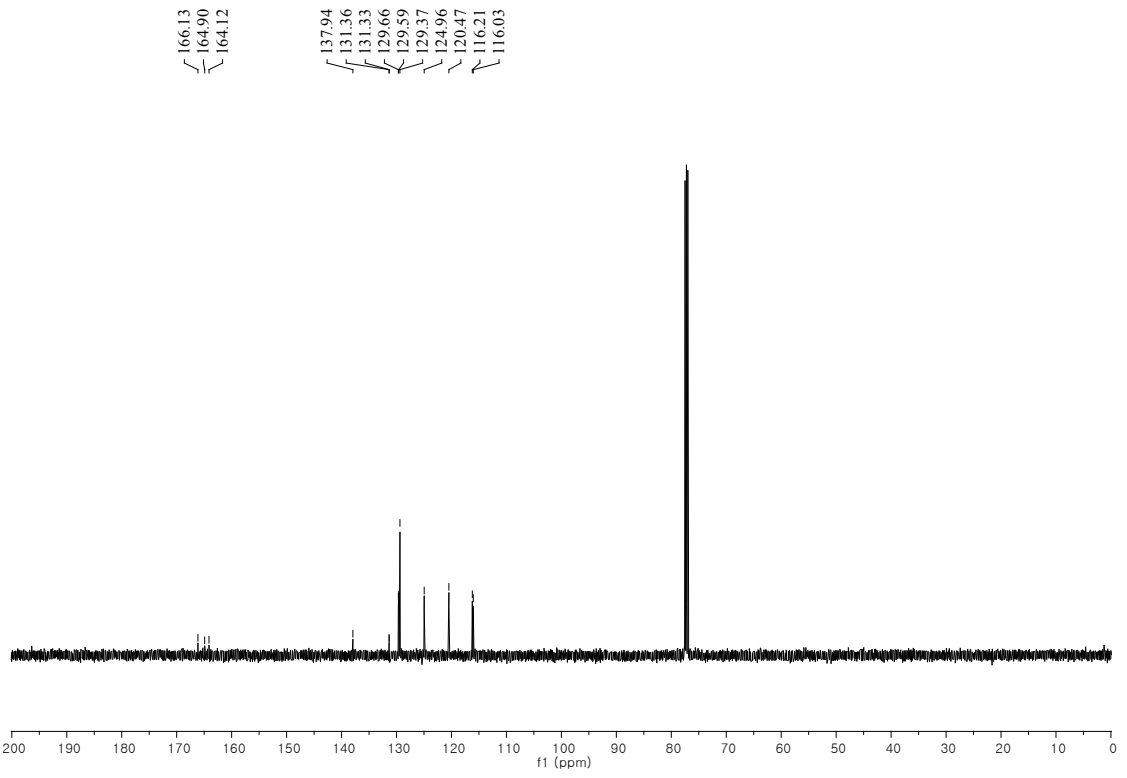


4-fluoro-*N*-phenylbenzamide (3ha)

^{1}H NMR

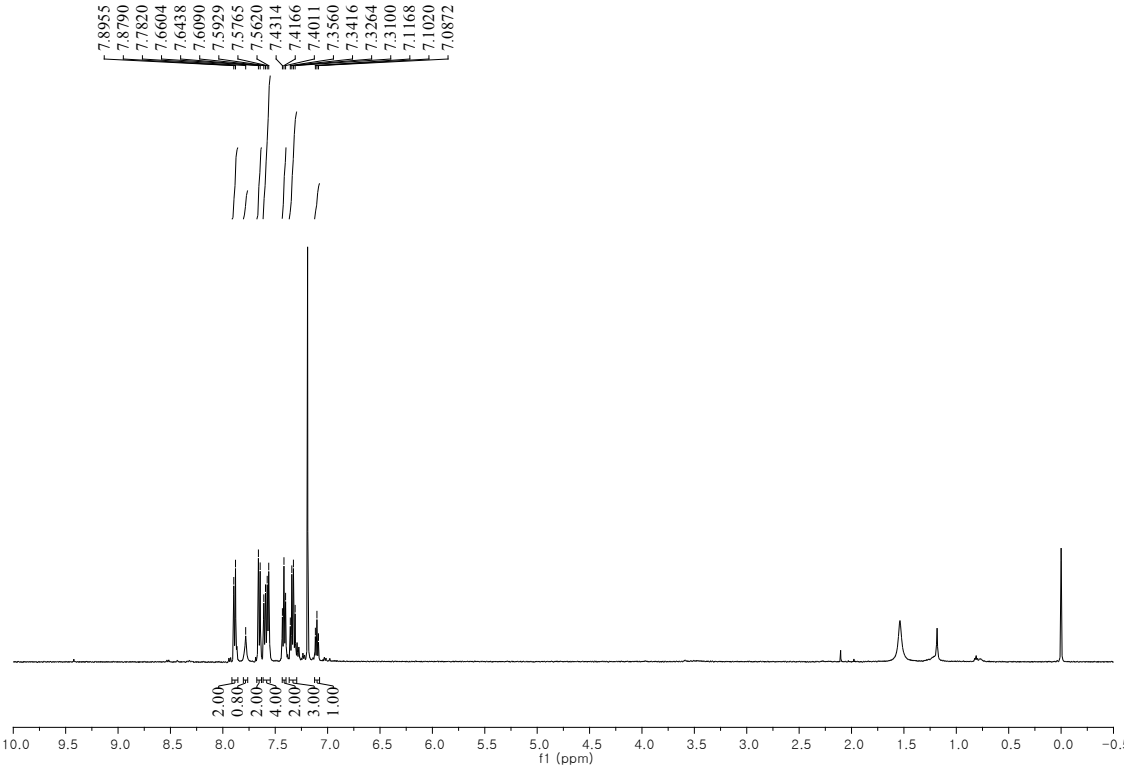


^{13}C NMR

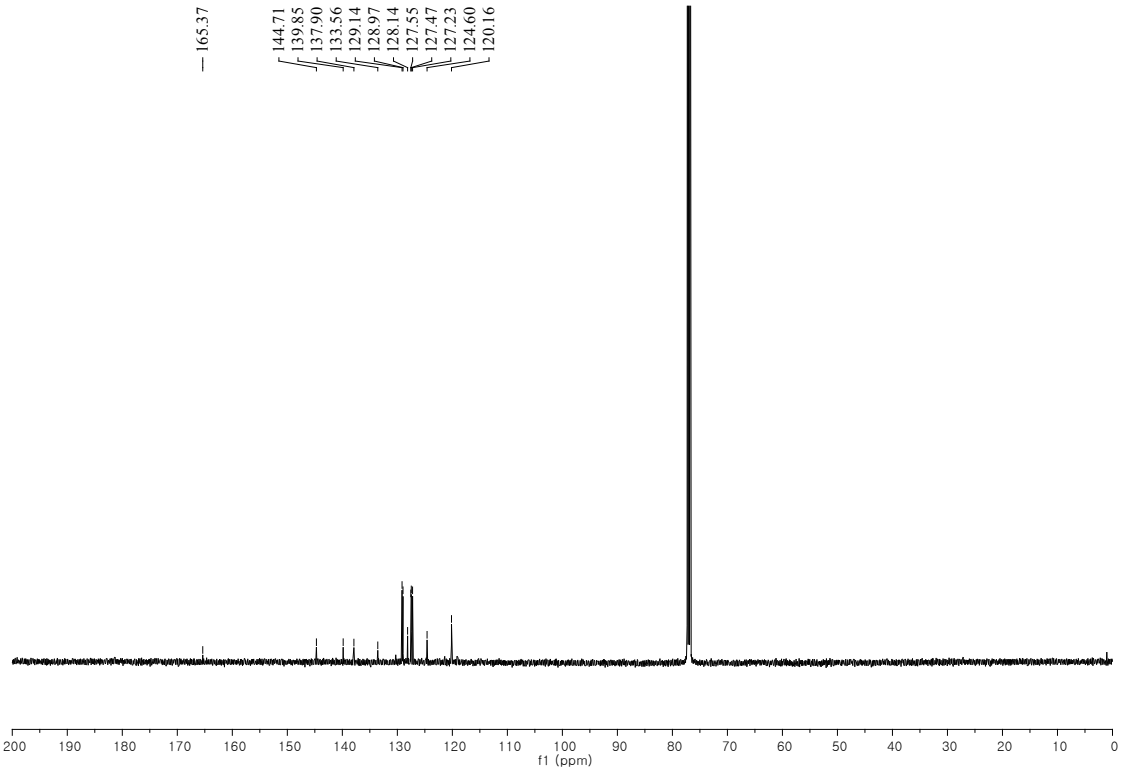


N-phenyl-[1,1'-biphenyl]-4-carboxamide (3ia)

^{1}H NMR

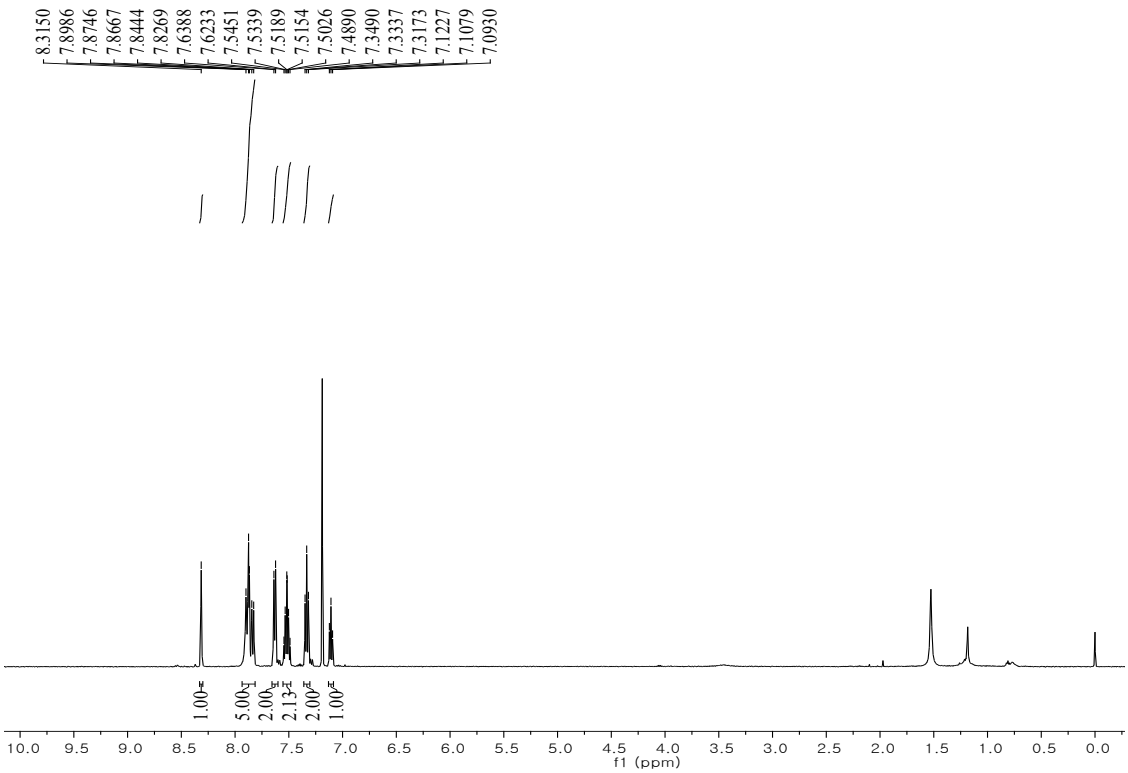


^{13}C NMR



N-phenyl-2-naphthamide (3ja)

^{1}H NMR



^{13}C NMR