

Electronic Supplementary Information (ESI)

Synthesis and cytotoxic activities of novel hybrid compounds of imidazole scaffold-based 2-substituted benzofurans

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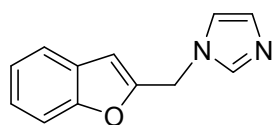
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1. General Experimental

Melting points were obtained on a XT-4 melting-point apparatus and were uncorrected. Proton nuclear magnetic resonance ($^1\text{H-NMR}$) spectra were recorded on a Bruker Avance 300 spectrometer at 300 MHz. Carbon-13 nuclear magnetic resonance ($^{13}\text{C-NMR}$) was recorded on Bruker Avance 300 spectrometer at 75 MHz. Chemical shifts are reported as δ values in parts per million (ppm) relative to tetramethylsilane (TMS) for all recorded NMR spectra. Low-resolution Mass spectra were recorded on a VG Auto Spec-3000 magnetic sector MS spectrometer. High Resolution Mass spectra were taken on AB QSTAR Pulsar mass spectrometer. Element Analyses were taken on Vario EL III Elementar analyzer.

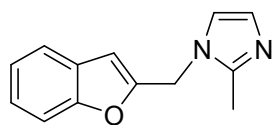
Silica gel (200–300 mesh) for column chromatography and silica GF₂₅₄ for TLC were produced by Qingdao Marine Chemical Company (China). All air- or moisture-sensitive reactions were conducted under an argon atmosphere. Starting materials and reagents used in reactions were obtained commercially from Acros, Aldrich, Fluka and were used without purification, unless otherwise indicated.

2. Analytical Data of Compound 4-24



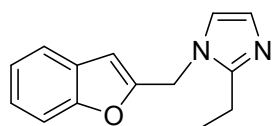
4

White powder, yield 76%, mp 71–73 °C (CHCl₃). ¹H NMR (300 MHz, CDCl₃) δ 7.62(1H, s), 7.54 (1H, dd, *J* = 7.3, 1.0 Hz), 7.44 (1H, d, *J* = 7.8 Hz), 7.32-7.23(2H, m), 7.23(1H, s), 7.02(1H, s), 6.63(1H, s), 5.21(2H, s). ¹³C NMR (75 MHz, CDCl₃) δ 155.29 (C), 151.72 (C), 137.40 (CH), 129.92 (CH), 127.81 (CH), 125.03 (CH), 123.28 (CH), 121.35 (CH), 119.30 (CH), 111.45 (CH), 105.58 (CH), 44.22 (CH₂). HR-ESI-MS *m/z* Calcd for C₁₂H₁₀N₂O 198.0793, Found 198.0757.



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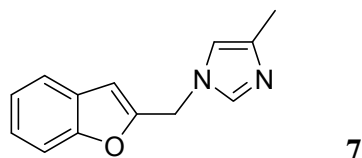
White powder, yield 72%, mp 76–78 °C (CHCl₃). ¹H NMR (300 MHz, CDCl₃) δ 7.53 (1H, dd, *J* = 7.2, 1.3 Hz), 7.44 (1H, d, *J* = 7.6 Hz), 7.29-7.22 (2H, m), 6.94 (2H, s), 6.52 (1H, s), 5.13 (2H, s), 2.47 (3H, s). ¹³C NMR (75 MHz, CDCl₃) δ 155.26 (C), 152.17 (C), 144.95 (C), 127.69 (CH), 124.88 (CH), 123.26 (CH), 121.27 (CH), 119.75 (CH), 111.43 (CH), 105.01 (CH), 43.58 (CH₂), 13.14 (CH₃). HR-ESI-MS *m/z* Calcd for C₁₃H₁₂N₂O 212.0950, Found 212.0919.



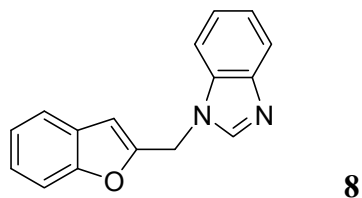
6

Yellow oil, yield 83%. ¹H NMR (300 MHz, CDCl₃) δ 7.52 (1H, dd, *J* = 7.3, 1.1 Hz), 7.43 (1H, d, *J* = 7.6 Hz), 7.29-7.22 (2H, m), 6.98 (1H, s), 6.93 (1H, s), 6.52 (1H, s),

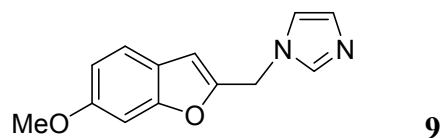
5.14 (2H, s), 2.78 (2H, q, $J = 15.0$ Hz), 1.36 (3H, t, $J = 7.5$ Hz). ^{13}C NMR (75 MHz, CDCl_3) δ 155.13 (C), 152.21 (C), 149.43 (C), 127.61 (CH), 124.76 (CH), 123.15 (CH), 121.16 (CH), 119.57 (CH), 111.32 (CH), 104.90 (CH), 43.09 (CH_2), 20.12 (CH_2), 11.99 (CH_3). HR-ESI-MS m/z Calcd for $\text{C}_{14}\text{H}_{14}\text{N}_2\text{O}$ 226.1106, Found 226.1075.



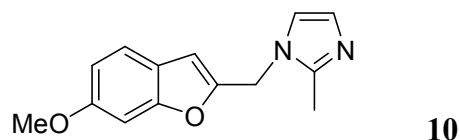
Brown oil, yield 54%. ^1H NMR (300 MHz, CDCl_3) δ 7.46-7.33 (3H, m), 7.20-7.13 (2H, m), 6.70, 6.63 (1H, s), 6.63, 6.42 (1H, s), 5.03 (2H, s), 2.13 (3H, s). ^{13}C NMR (75 MHz, CDCl_3) δ 155.19 (C), 151.96 (C), 138.85 (C), 136.46 (CH), 127.81 (CH), 124.88 (CH), 123.18 (CH), 121.25 (CH), 115.67 (CH), 111.38 (CH), 105.36 (CH), 44.06 (CH_2), 13.71 (CH_3). HR-ESI-MS m/z Calcd for $\text{C}_{13}\text{H}_{12}\text{N}_2\text{O}$ 212.0950, Found 212.0907.



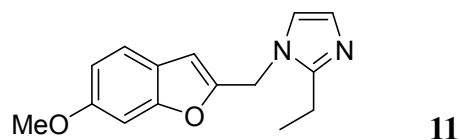
White powder, yield 78%, mp 128–130 °C (CHCl_3). ^1H NMR (300 MHz, CDCl_3) δ 7.96 (1H, s), 7.84-7.81 (1H, m), 7.47-7.37 (3H, m), 7.28-7.17 (4H, m), 6.56 (1H, s), 5.32 (2H, s). ^{13}C NMR (75 MHz, CDCl_3) δ 155.08 (C), 151.07 (C), 143.82 (C), 143.02 (CH), 133.66 (C), 127.69 (C), 124.86 (CH), 123.24 (CH), 122.42 (CH), 121.20 (CH), 120.47 (CH), 111.32 (CH), 109.77 (CH), 105.51 (CH), 42.18 (CH_2). HR-ESI-MS m/z Calcd for $\text{C}_{16}\text{H}_{12}\text{N}_2\text{O}$ 248.0950, Found 248.0944. Anal. Calcd for $\text{C}_{16}\text{H}_{12}\text{N}_2\text{O}$: C, 77.40; H, 4.87; N, 11.28. Found: C, 77.33; H, 4.86; N, 10.95.



Yellow oil, yield 75%. ^1H NMR (300 MHz, CDCl_3) δ 7.45(1H, s), 7.27 (1H, d, $J = 8.6$ Hz), 6.95 (1H, s), 6.89 (1H, s), 6.84 (1H, d, $J = 1.7$ Hz), 6.75 (1H, dd, $J = 8.6, 2.2$ Hz), 6.45 (1H, s), 5.02 (2H, s), 3.69 (3H, s). ^{13}C NMR (75 MHz, CDCl_3) δ 158.39 (C), 156.21 (C), 150.50 (C), 137.17 (CH), 129.47 (CH), 121.33 (CH), 120.86 (C), 119.18 (CH), 112.27 (CH), 105.47 (CH), 95.88 (CH), 55.65 (CH_3), 44.00 (CH_2). HR-ESI-MS m/z Calcd for $\text{C}_{13}\text{H}_{12}\text{N}_2\text{O}_2$ 228.0899, Found 228.0863.

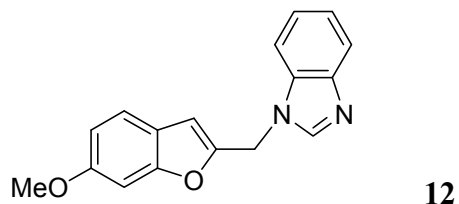


Brown oil, yield 71%. ^1H NMR (300 MHz, CDCl_3) δ 7.29 (1H, d, $J = 8.5$ Hz), 6.88 (1H, d, $J = 2.0$ Hz), 6.85-6.83 (2H, m), 6.78 (1H, dd, $J = 8.5, 2.0$ Hz), 6.40 (1H, s), 4.99 (2H, s), 3.74(3H, s), 2.38(3H, s). ^{13}C NMR (75 MHz, CDCl_3) δ 158.34 (C), 156.18 (C), 150.88 (C), 144.74 (C), 127.35 (CH), 121.21 (CH), 120.92 (C), 119.54 (CH), 112.21 (CH), 104.85 (CH), 95.95 (CH), 55.70 (CH_3), 43.39 (CH_2), 12.96 (CH_3). HR-ESI-MS m/z Calcd for $\text{C}_{14}\text{H}_{14}\text{N}_2\text{O}_2$ 242.1055, Found 242.1019

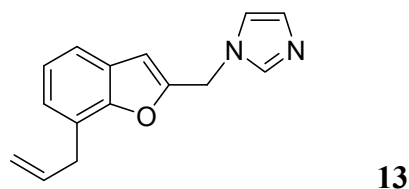


Brown oil, yield 80%. ^1H NMR (300 MHz, CDCl_3) δ 7.28 (1H, d, $J = 8.5$ Hz), 6.87 (2H, s), 6.82 (1H, d, $J = 1.2$ Hz), 6.77 (1H, dd, $J = 8.5, 1.2$ Hz), 6.39 (1H, s), 5.00 (2H, s), 3.73 (3H, s), 2.69 (2H, q, $J = 15.0$ Hz), 1.27 (3H, t, $J = 7.5$ Hz). ^{13}C NMR (75 MHz, CDCl_3) δ 158.30 (C), 156.15 (C), 151.01 (C), 149.33 (C), 127.35 (CH), 121.20 (CH), 120.93 (C), 119.46 (CH), 112.19 (CH), 104.86 (CH), 95.93 (CH), 55.69 (CH_3),

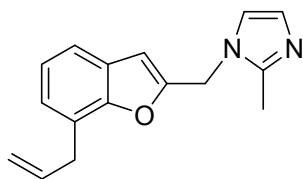
43.00 (CH₂), 20.06 (CH₂), 11.97 (CH₃). HR-ESI-MS *m/z* Calcd for C₁₅H₁₆N₂O₂ 256.1212, Found 256.1178.



Brown oil, yield 70%. ¹H NMR (300 MHz, CDCl₃) δ 8.03 (1H, s), 7.76-7.73 (1H, m), 7.43-7.40 (1H, m), 7.30 (1H, d, *J* = 8.6 Hz), 7.26-7.21 (2H, m), 7.19 (1H, s), 6.87 (1H, d, *J* = 1.8 Hz), 6.78 (1H, dd, *J* = 8.6, 2.1 Hz), 6.54 (1H, s), 5.42 (2H, s), 3.83 (3H, s). ¹³C NMR (75 MHz, CDCl₃) δ 158.43 (C), 156.22 (C), 149.88 (C), 143.76 (C), 142.94 (CH), 123.25 (CH), 122.44 (CH), 121.29 (CH), 120.87 (C), 120.47 (CH), 112.35 (CH), 109.76 (CH), 105.59 (CH), 95.93 (CH), 55.70 (CH₃), 42.33 (CH₂). HR-ESI-MS *m/z* Calcd for C₁₇H₁₄N₂O₂ 278.1055, Found 278.1018.

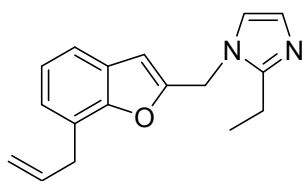


Brown oil, yield 80%. ¹H NMR (300 MHz, CDCl₃) δ 7.55 (1H, s), 7.31 (1H, d, *J* = 7.5 Hz), 7.13-7.02 (3H, m), 6.96 (1H, s), 6.55 (1H, s), 6.00-5.89 (1H, m), 5.16 (2H, s), 5.09-5.01 (2H, m), 3.55 (2H, d, *J* = 6.6 Hz). ¹³C NMR (75 MHz, CDCl₃) δ 153.73 (C), 151.38 (C), 137.29 (CH), 135.62 (CH), 129.80 (CH), 127.50 (C), 124.95 (CH), 123.85 (CH), 123.39 (C), 119.22 (CH), 116.35 (CH₂), 105.71 (CH), 44.19 (CH₂), 33.77 (CH₂). HR-ESI-MS *m/z* Calcd for C₁₅H₁₄N₂O 238.1106, Found 238.1084.



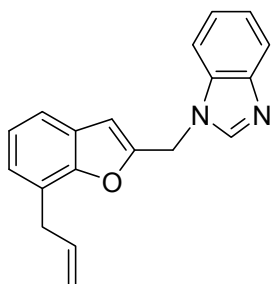
14

Brown oil, yield 73%. ^1H NMR (300 MHz, CDCl_3) δ 7.29 (1H, d, $J = 7.5$ Hz), 7.10-7.00 (2H, m), 6.84 (2H, s), 5.99-5.90 (1H, m), 5.08-4.99 (2H, m), 5.03 (2H, s), 3.53 (2H, d, $J = 6.2$ Hz), 2.39 (3H, s). ^{13}C NMR (75 MHz, CDCl_3) δ 153.65 (C), 151.77 (C), 144.83 (C), 135.63 (CH), 127.54 (C), 127.34 (CH), 124.79 (CH), 123.77 (C), 123.36 (CH), 119.63 (CH), 119.15 (CH), 116.36 (CH_2), 105.13 (CH), 43.48 (CH_2), 33.81 (CH_2), 12.92 (CH_3). HR-ESI-MS m/z Calcd for $\text{C}_{16}\text{H}_{16}\text{N}_2\text{O}$ 252.1263, Found 252.1221.



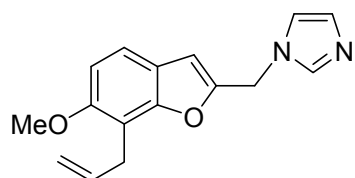
15

Brown oil, yield 78%. ^1H NMR (300 MHz, CDCl_3) δ 7.37 (1H, d, $J = 7.3$ Hz), 7.23-7.09 (2H, m), 6.96-6.93 (3H, m), 6.52 (1H, s), 6.09-5.96 (2H, m), 5.16-5.08 (2H, m), 5.14 (2H, s), 3.62 (2H, d, $J = 6.2$ Hz), 2.78 (3H, t, $J = 7.5$ Hz). ^{13}C NMR (75 MHz, CDCl_3) δ 153.64 (C), 151.82 (C), 149.42 (C), 135.62 (CH), 127.53 (C), 127.27 (CH), 124.80 (CH), 123.77 (C), 123.37 (CH), 121.16 (CH), 119.62 (CH), 119.15 (CH), 116.34 (CH), 105.19 (CH_2), 43.13 (CH_2), 33.80 (CH_2), 21.74 (CH_2), 12.07 (CH_3). HR-ESI-MS m/z Calcd for $\text{C}_{17}\text{H}_{18}\text{N}_2\text{O}$ 266.1419, 266.1395.



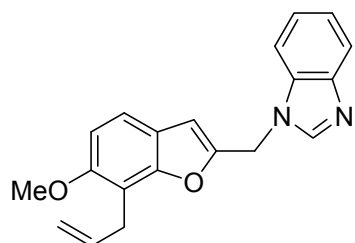
16

Yellow powder, yield 70%, mp 48–50 °C. ^1H NMR (300 MHz, CDCl_3) δ 7.92(1H, s), 7.76–7.73 (1H, m), 7.41–7.39 (1H, m), 7.28–7.20 (3H, m), 7.06–6.99 (2H, m), 6.52 (1H, s), 5.96–5.85 (1H, m), 5.34 (2H, s), 5.05–4.97(2H, dd, $J = 15.3, 8.4$ Hz), 3.51 (2H, d, $J = 6.3$ Hz). ^{13}C NMR (75 MHz, CDCl_3) δ 153.69 (C), 150.86 (C), 143.85 (C), 142.96 (CH), 135.60 (CH), 133.74 (C), 127.51 (C), 124.93 (CH), 123.85 (C), 123.41 (CH), 123.25 (CH), 122.44 (CH), 120.52 (CH), 119.21 (CH), 116.38 (CH₂), 109.82 (CH), 105.81 (CH), 42.35 (CH₂), 33.81 (CH₂). HR-ESI-MS m/z Calcd for $\text{C}_{19}\text{H}_{16}\text{N}_2\text{O}$ 288.1263, Found 288.1259.



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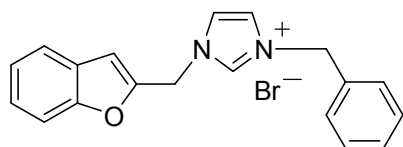
Brown oil, yield 74%. ^1H NMR (300 MHz, CDCl_3) δ 7.59 (1H, s), 7.30 (1H, d, $J = 8.6$ Hz), 7.05 (1H, s), 6.99 (1H, s), 6.85 (1H, d, $J = 8.6$ Hz), 6.52 (1H, s), 6.05–5.96 (1H, m), 5.13 (2H, s), 5.06 (1H, d, $J = 1.3$ Hz), 4.98 (1H, d, $J = 10.3$ Hz), 3.84 (3H, s), 3.58 (2H, d, $J = 6.2$ Hz). ^{13}C NMR (75 MHz, CDCl_3) δ 155.44 (C), 154.80 (C), 150.80 (C), 137.15 (CH), 135.67 (CH), 129.31 (CH), 121.28 (C), 119.26 (CH), 118.71 (CH), 115.07 (CH₂), 112.08 (C), 108.19 (CH), 105.55 (CH), 56.66 (CH₃), 44.12 (CH₂), 27.86 (CH₂). HR-ESI-MS m/z Calcd for $\text{C}_{16}\text{H}_{16}\text{N}_2\text{O}_2$ 268.1212, Found 268.1991.



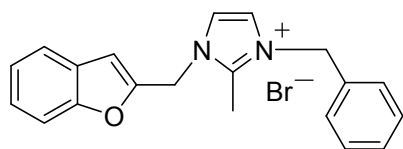
18

White powder, yield 68%, mp 118–120 °C (CHCl_3). ^1H NMR (300 MHz, CDCl_3) δ 7.99 (1H, s), 7.83–7.80 (1H, m), 7.50–7.47 (1H, m), 7.30 (2H, s), 7.29–7.26 (1H, m),

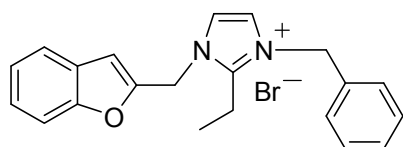
6.85-6.82 (1H, d, $J = 8.6$ Hz), 6.52 (1H, s), 6.03-5.94 (1H, m), 5.37 (2H, m), 5.05-4.94 (2H, m), 3.83 (3H, s), 3.58 (2H, d, $J = 6.2$ Hz). ^{13}C NMR (75 MHz, CDCl_3) δ 155.44 (C), 154.78 (C), 150.35 (C), 143.80 (C), 142.94 (CH), 135.66 (CH), 133.75 (C), 123.19 (CH), 122.39 (CH), 121.30 (C), 120.43 (CH), 118.65 (CH), 115.10 (CH_2), 112.15 (C), 109.89 (CH), 108.18 (CH), 105.58 (CH), 56.69 (CH_3), 42.35 (CH_2), 27.93 (CH_2). HR-ESI-MS m/z Calcd for $\text{C}_{20}\text{H}_{18}\text{N}_2\text{O}_2$ 318.1368, Found 318.1353.



White powder, yield 90%, mp 176–178 °C (MeOH). ^1H NMR (300 MHz, MeOD) δ 9.42 (1H, s), 7.77 (1H, s), 7.48-7.41 (6H, m), 7.33-7.25 (2H, m), 7.13 (1H, s), 5.72 (2H, s), 5.48 (2H, s). ^{13}C NMR (75 MHz, MeOD) δ 156.88 (C), 150.55 (C), 137.76 (CH), 135.12 (C), 130.49 (CH), 129.89 (CH), 129.03 (C), 126.72 (CH), 124.60 (CH), 124.27 (CH), 122.92 (CH), 112.36 (CH), 109.23 (CH), 54.40 (CH_2), 47.38 (CH_2). HR-ESI-MS m/z Calcd for $\text{C}_{19}\text{H}_{17}\text{N}_2\text{O}$ $[\text{M}-\text{Br}]^+$ 289.1335, Found 289.1325.

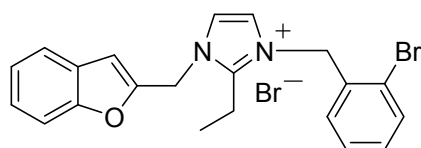


White powder, yield 92%, mp 175–177 °C (MeOH). ^1H NMR (300 MHz, MeOD) δ 6.38 (1H, s), 6.30-6.24 (2H, m), 6.14-5.91 (8H, m), 5.78 (1H, s), 4.35(2H, s), 4.13(2H, s), 1.49(3H, s). ^{13}C NMR (75 MHz, MeOD) δ 155.41 (C), 149.31 (C), 145.12 (C), 133.53 (C), 129.08 (CH), 128.75 (CH), 127.80 (CH), 127.62 (C), 125.23 (CH), 123.20 (CH), 121.89 (CH), 121.46 (CH), 110.92 (CH), 107.37 (CH), 51.71 (CH_2), 44.97 (CH_2), 9.35 (CH_3). HR-ESI-MS m/z Calcd for $\text{C}_{20}\text{H}_{19}\text{N}_2\text{O}$ 303.1492, Found 303.1486.



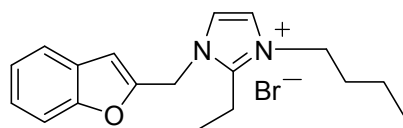
21

White powder, yield 88%, mp 179–181 °C (MeOH). ^1H NMR (300 MHz, MeOD) δ 7.59 (1H, d, $J = 2.2$ Hz), 7.53 (1H, d, $J = 8.6$ Hz), 7.46 (1H, d, $J = 2.2$ Hz), 7.35-7.31 (4H, m), 7.25-7.23 (3H, m), 7.14 (1H, s), 6.99 (1H, s), 5.57 (2H, s), 5.37 (2H, s), 3.21 (2H, q, $J = 15.0$ Hz), 1.05 (3H, t, $J = 7.5$ Hz). ^{13}C NMR (75 MHz, MeOD) δ 155.37 (C), 149.32 (C), 148.78 (C), 133.85 (C), 129.08 (CH), 128.77 (CH), 127.75 (CH), 125.29 (CH), 123.24 (CH), 122.23 (CH), 121.92 (CH), 121.48 (CH), 110.90 (CH), 107.59 (CH), 51.58 (CH₂), 44.83 (CH₂), 16.89 (CH₂), 10.33 (CH₃). HR-ESI-MS m/z Calcd for C₂₁H₂₁N₂O [M-Br]⁺ 317.1648, Found 310.1641.



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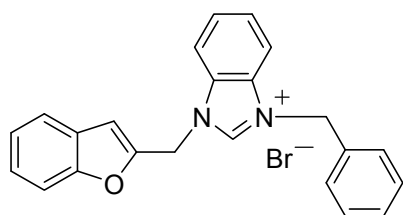
White powder, yield 85%, mp 219–221 °C (MeOH). ^1H NMR (300 MHz, MeOD) δ 7.76 (1H, d, $J = 2.2$ Hz), 7.66-7.60 (2H, m), 7.49-7.46 (2H, m), 7.39-7.29 (4H, m), 7.23-7.20 (1H, m), 7.18 (1H, s), 5.77 (2H, s), 5.55 (2H, s), 3.33 (2H, q, $J = 15.0$ Hz), 1.23 (3H, t, $J = 7.5$ Hz). ^{13}C NMR (75 MHz, MeOD) δ 156.77 (C), 150.76 (C), 150.41 (C), 134.85 (CH), 133.95 (C), 132.52 (CH), 132.29 (CH), 130.96 (CH), 129.91 (CH), 129.04 (C), 126.77 (CH), 124.73 (C), 123.53 (CH), 123.27 (CH), 122.98 (CH), 112.37 (CH), 109.07 (CH), 53.23 (CH₂), 46.43 (CH₂), 18.61 (CH₂), 11.86 (CH₃). HR-ESI-MS m/z Calcd for C₂₁H₂₀BrN₂O [M-Br]⁺ 395.0754, Found 395.0742.



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White powder, yield 75%, mp 145–147 °C (MeOH). ^1H NMR (300 MHz, MeOD) δ

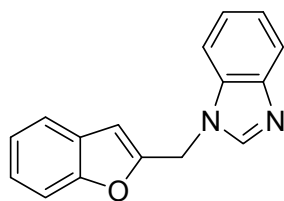
7.69-7.64 (3H, m), 7.48 (1H, d, $J = 8.3$ Hz), 7.36-7.28 (2H, m), 7.12 (1H, s), 5.68 (2H, s), 4.22 (2H, q, $J = 15.0$ Hz), 1.93-1.83 (2H, m), 1.51-1.38 (2H, m), 1.33 (3H, t, $J = 7.5$ Hz), 1.01 (3H, t, $J = 7.5$ Hz). ^{13}C NMR (75 MHz, MeOD) δ 156.80 (C), 150.76 (C), 149.68 (C), 128.99 (C), 126.64 (CH), 124.61 (CH), 123.24 (CH), 122.91 (CH), 122.80 (CH), 112.22 (CH), 108.77 (CH), 48.75 (CH₂), 33.11 (CH₂), 20.66 (CH₂), 17.95 (CH₂), 13.89 (CH₃), 12.02 (CH₃). HR-ESI-MS m/z Calcd for C₁₈H₂₃N₂O [M-Br]⁺ 283.1805, Found 283.1794.



24

White powder, yield 89%, mp 218–220 °C (MeOH). ^1H NMR (300 MHz, MeOD) δ 8.39 (1H, s), 6.60 (1H, d, $J = 7.6$ Hz), 6.37 (1H, d, $J = 7.6$ Hz), 6.19-6.10 (3H, m), 6.01-5.91 (6H, m), 5.80-5.73 (2H, m), 5.70 (s, 1H), 4.52 (s, 2H), 4.27 (s, 2H). ^{13}C NMR (75 MHz, MeOD) δ 148.74 (C), 142.01 (C), 133.02 (C), 131.42 (C), 129.04 (CH), 128.91 (CH), 128.04 (CH), 127.57 (C), 127.20 (CH), 127.09 (CH), 125.19 (CH), 123.12 (CH), 121.37 (CH), 113.67 (CH), 113.48 (CH), 110.81 (CH), 107.80 (CH), 50.77 (CH₂), 43.86 (CH₂). HR-ESI-MS m/z Calcd for C₂₃H₁₉N₂O [M-Br]⁺ 339.1492, Found 339.1483. Anal. Calcd for C₂₃H₁₉BrN₂O: C, 65.88; H, 4.57; N, 6.68. Found: C, 66.29; H, 4.57; N, 6.31.

Compound 8 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)

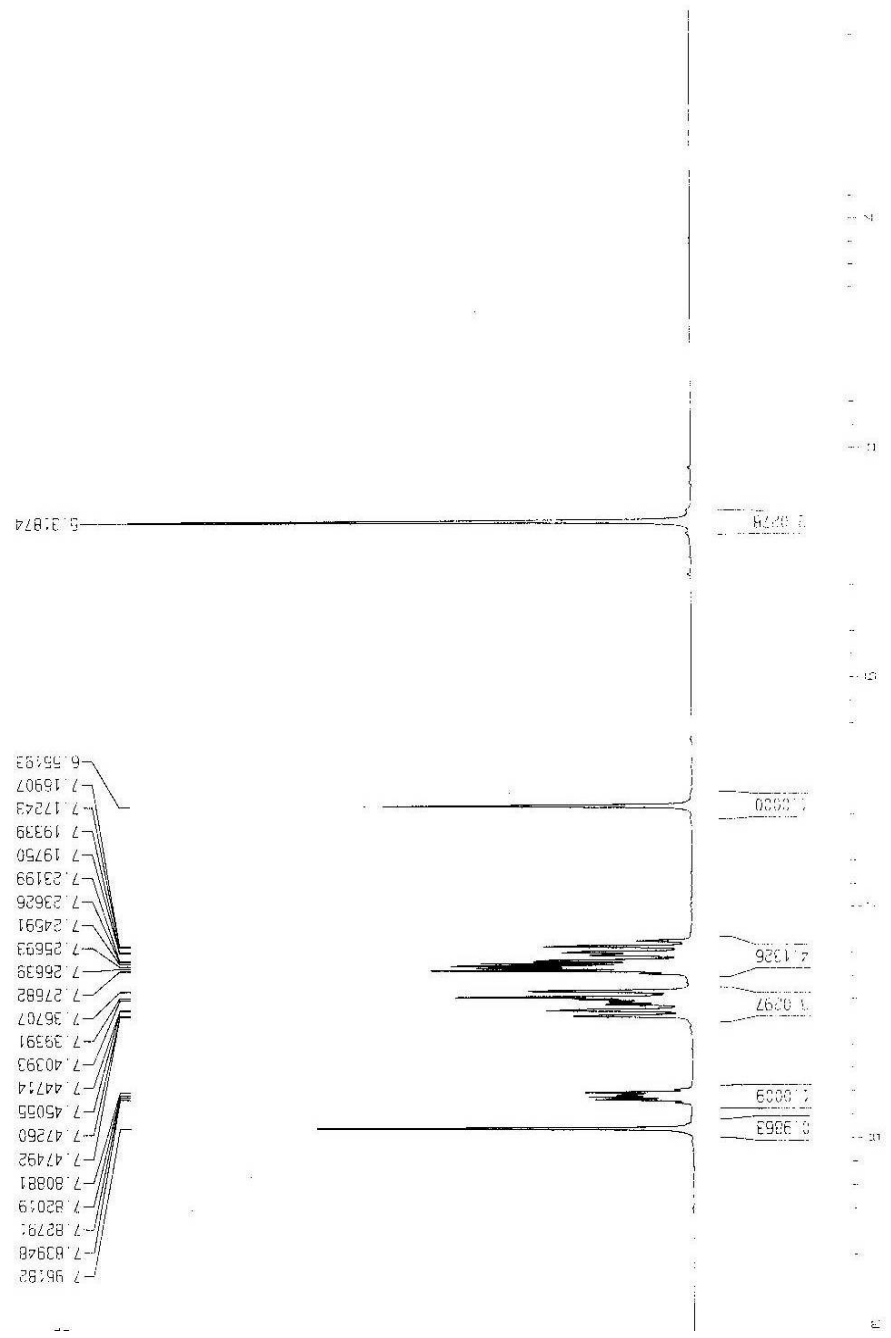


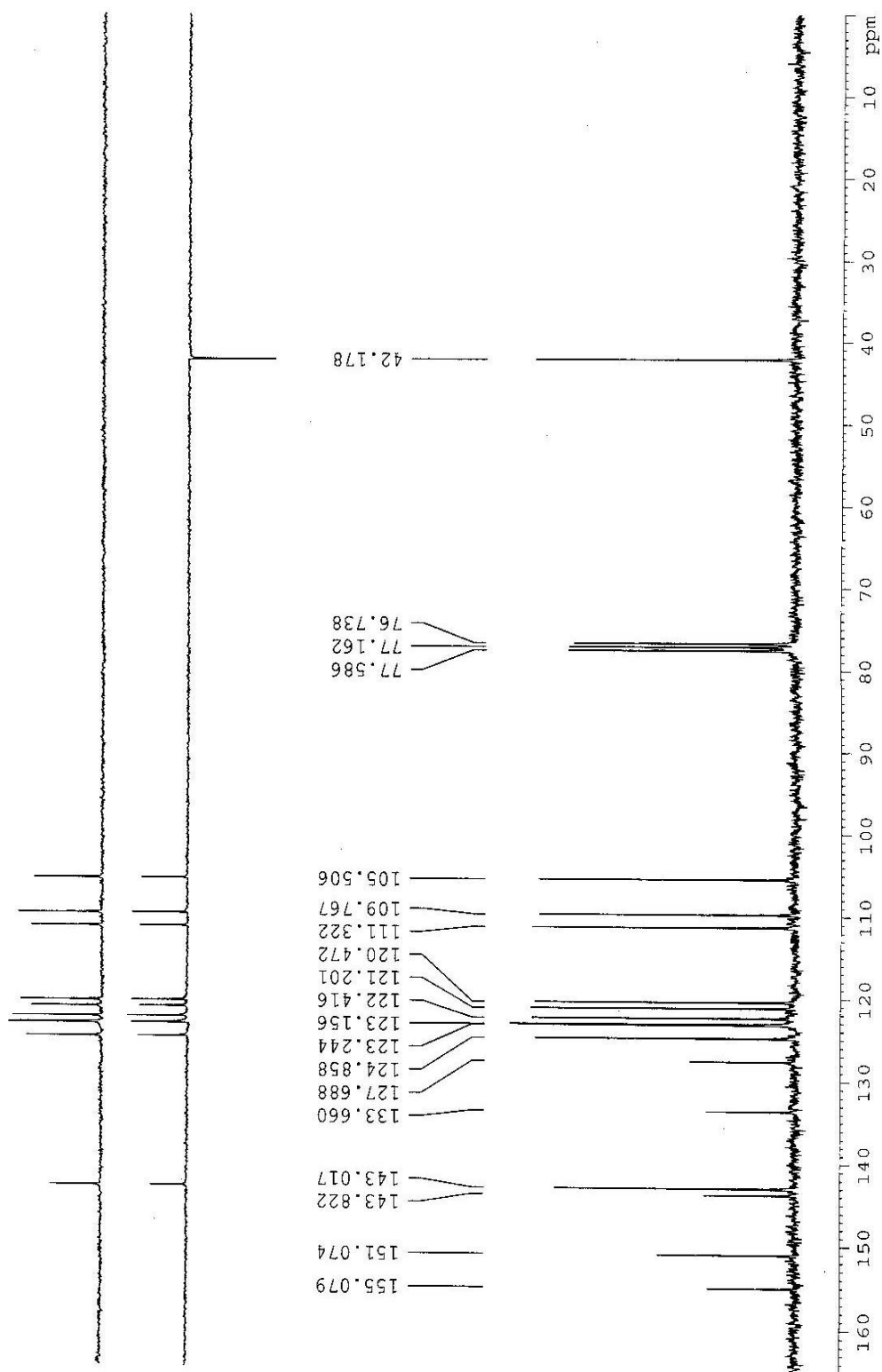
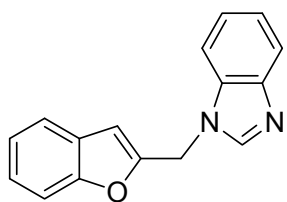
Current data Parameters
Name: 48
EXPNO: 1
PROCNO: 1

F2 - Acquisition Parameters
Date_ : 20081229
Time : 10.06
INSTRUM : av300
PROBHD : 5 mm QNP 1H/13
TD : 65536
SOLVENT : CDCl3
AQ : 8
RG : 1
SWH : 4789.272 Hz
FIDRES : 0.073078 Hz
AQRES : 6.8420046 sec
RG : 90.5
DM : 104.400 usec
DE : 6.00 usec
TE : 295.2 K
SI : 1.00000000 sec
SCANS : 0.00000000 sec
SFO1 : 300.1321009 MHz
NUC1 : ^1H
P1 : 8.00 usec
PL1 : -2.00 dB
SFO2 : 300.1321009 MHz

F2 - Processing parameters
SI : 32768
SF : 300.1300217 MHz
WDW : EM
SSB : 0
LB : 0.30 Hz
GB : 0
PC : 1.00

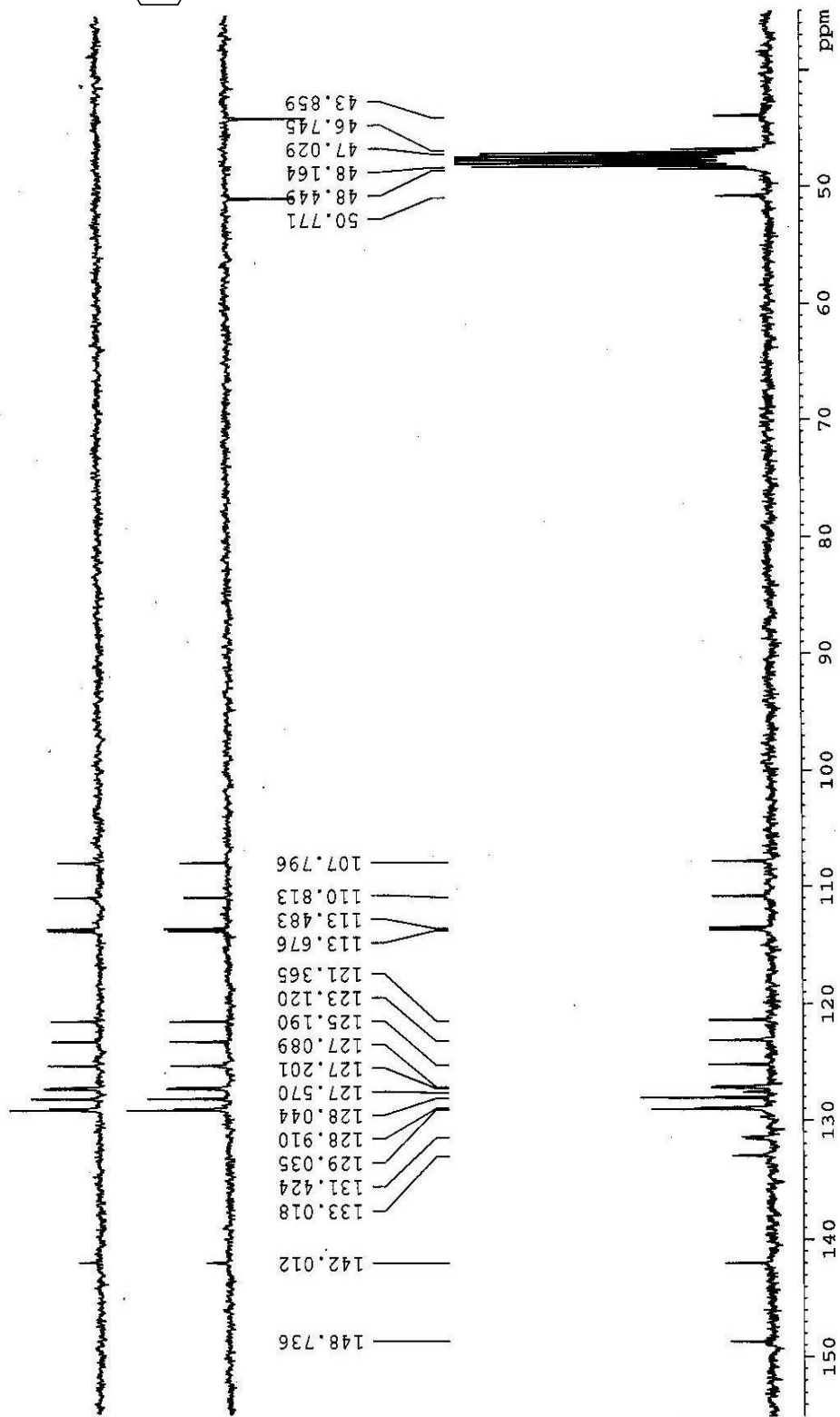
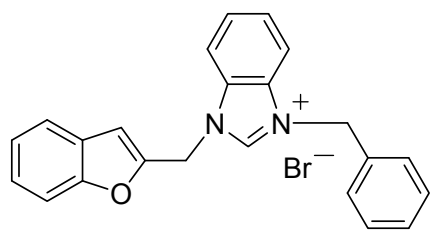
1D 1H NMR parameters
CX : 23.00 cm
CY : 12.50 cm
Z1 : 8.014 cm
Z2 : 2675.23 Hz
Z3 : 1.066 cm
Z4 : 228.30 cm
Z5 : 1.250 cm
Z6 : 2.250 cm



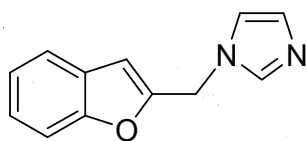


Compound 24 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)





Compound 4 ¹H NMR (300 MHz) and ¹³C NMR (75 MHz)



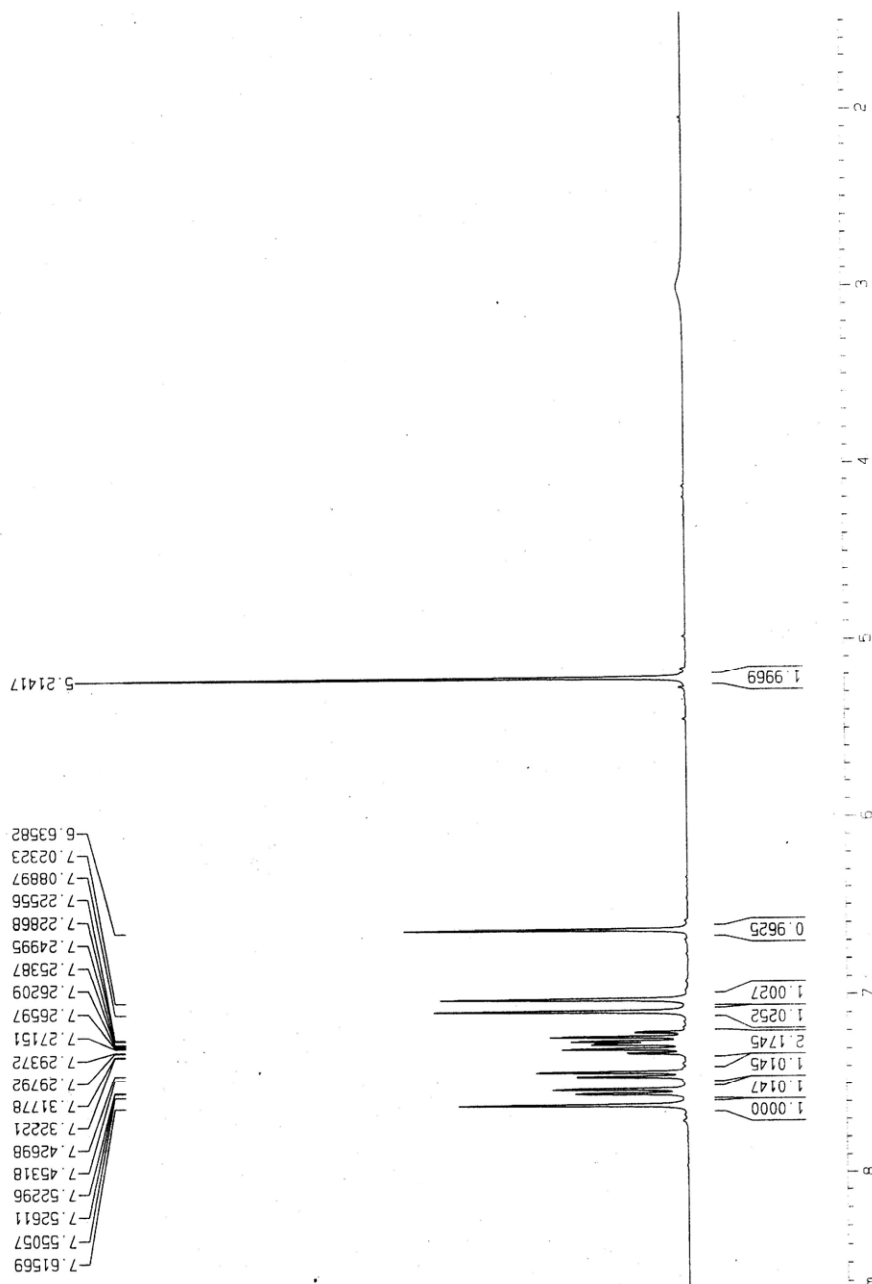
Current Data Parameters
NAME swj
EXPNO 52
PROCNO 1

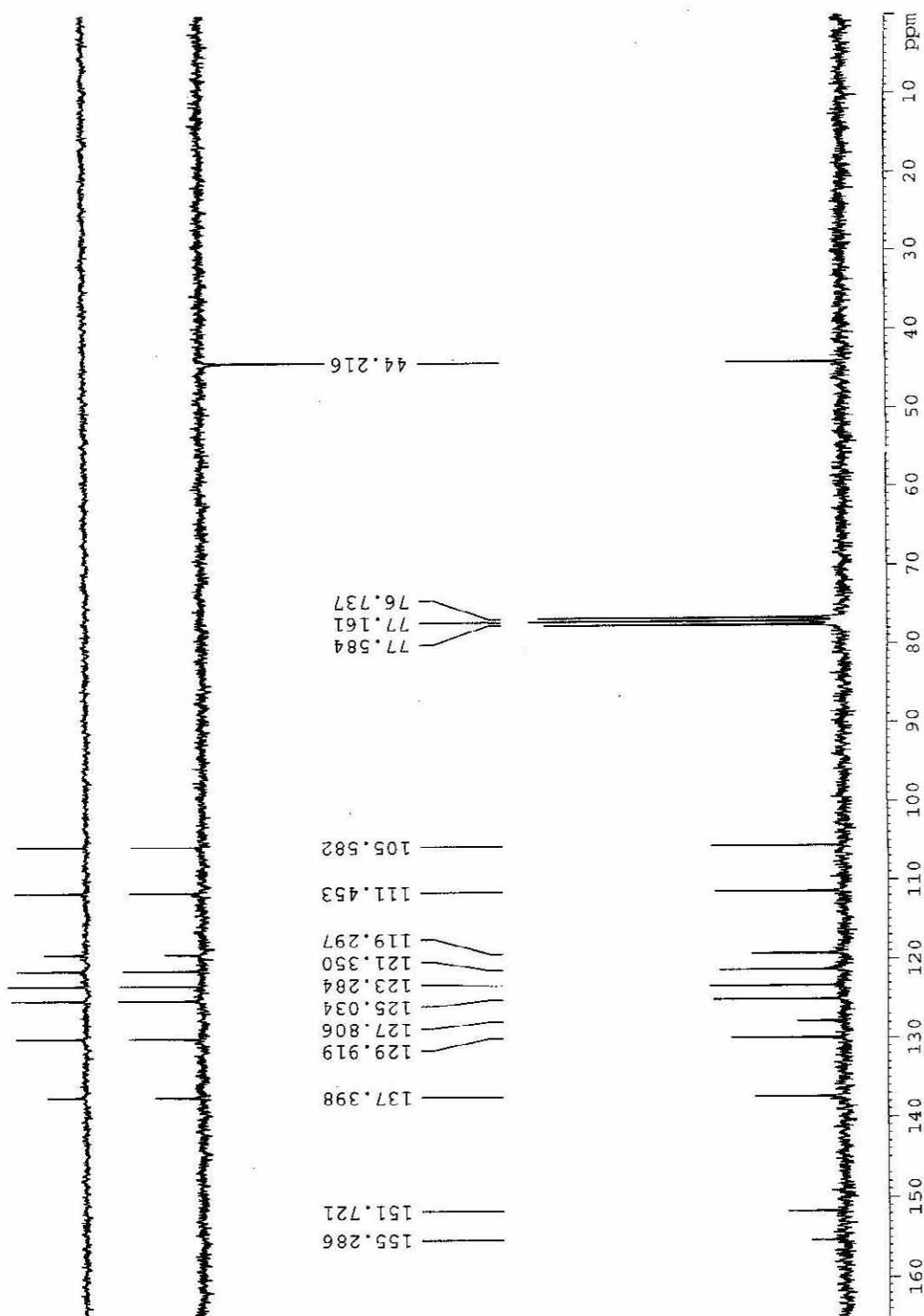
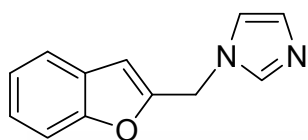
F2 - Acquisition Parameters
Date_ 20081229
Time 10.25
INSTRUM av300
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 10
DS 1
SWH 4789.272 Hz
FIDRES 0.073078 Hz
AQ 6.842086 sec
RG 256
DM 104.400 usec
DE 6.00 usec
TE 295.7 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCMRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 8.60 usec
PL1 -2.00 dB
SFO1 300.1321009 MHz

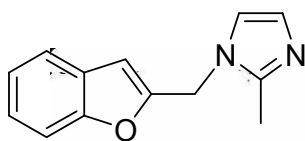
F2 - Processing parameters
SI 32768
SF 300.1300116 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 23.00 cm
CY 12.50 cm
FIP 8.743 ppm
F1 2624.06 Hz
F2P 1.442 ppm
F2 432.85 Hz
APPCM 0.31743 ppm/cm
-32CM 95.26992 Hz/cm





Compound 5 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



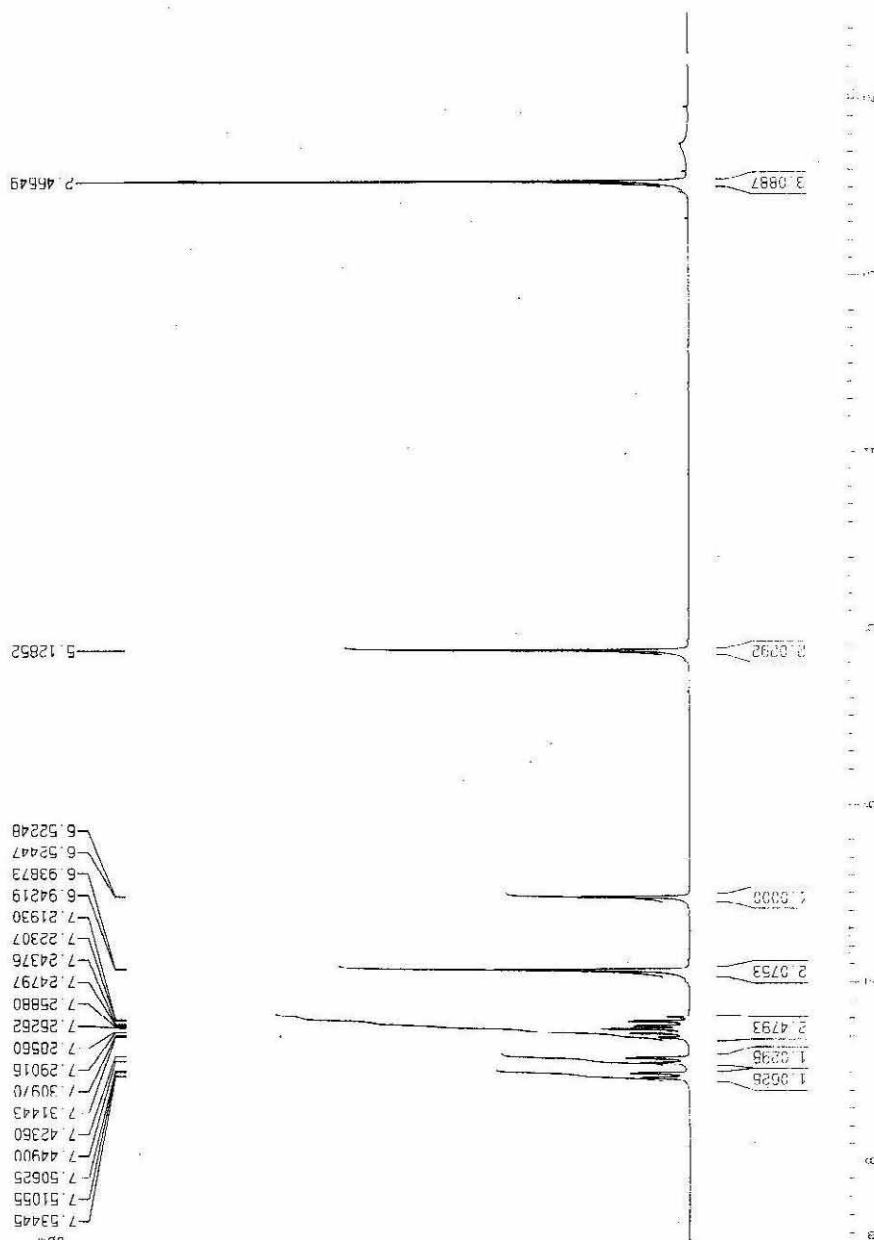
Current Data Parameters
 NAME SW1
 EXPRO 60
 PROCG 1

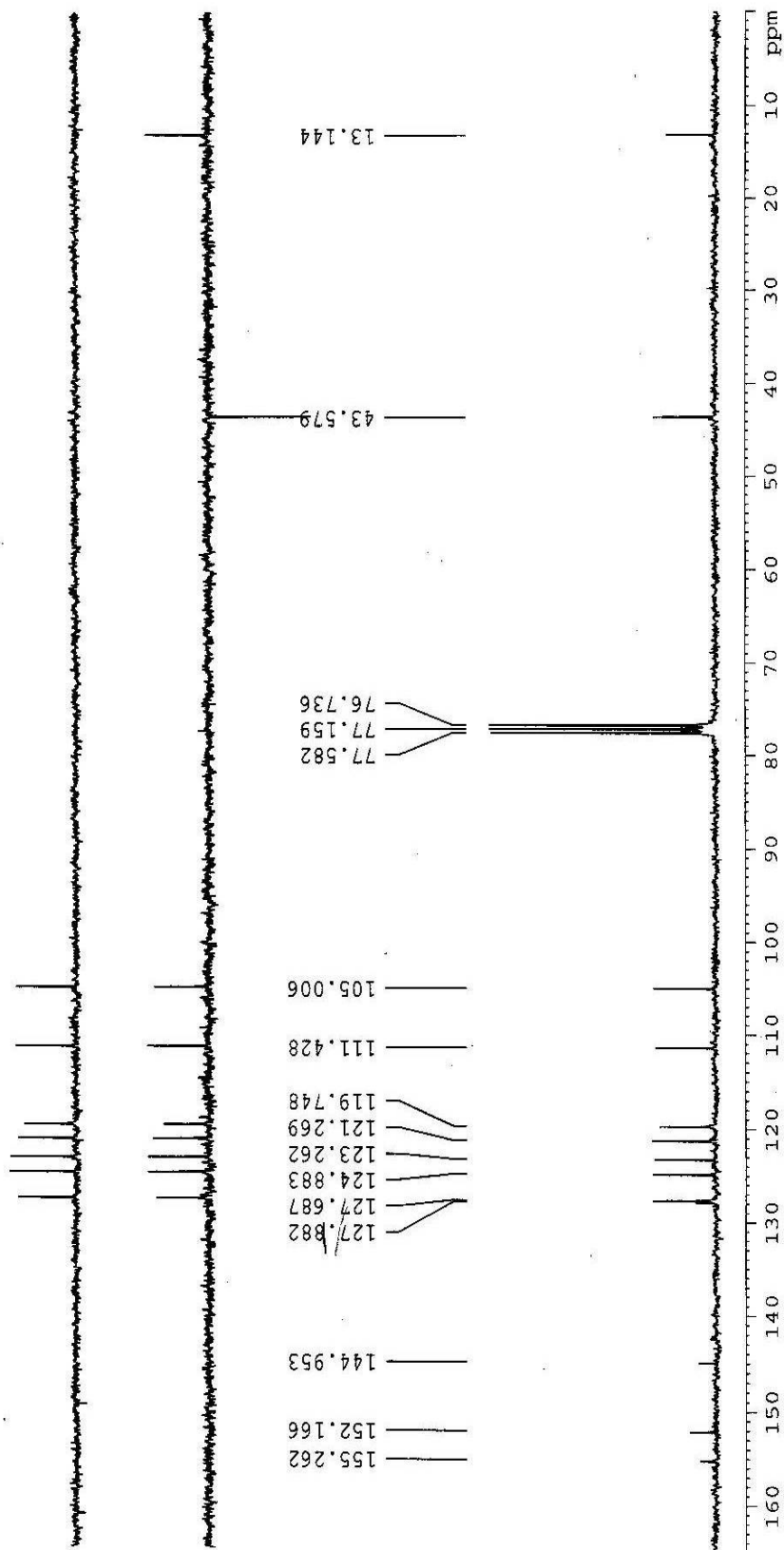
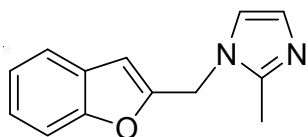
F2 - Acquisition Parameters
 Date_ 20081230
 Time_ 12.38
 INSTRM av300
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TO ES336
 SOLVENT CDCl3
 NS 16
 DS 1
 SS 4785.272 Hz
 SMH 0.073078 Hz
 FIDRES 6.8440086 sec
 AQ 287.4
 DM 104.400 usec
 DE 6.00 usec
 TE 298.2 K
 D1 1.0000000 sec
 ACQRES 0.0000000 sec
 MCURK 0.0100000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 6.50 usec
 PL1 -2.00 dB
 SFO 300.1321005 MHz

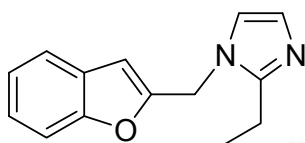
F2 - Processing parameters
 SI 32768
 SF 300.1300115 MHz
 EQ EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

ID NMR plot parameters
 CX 23.00 cm
 CY 12.50 cm
 FID 8.542 ppm
 F1 2593.63 Hz
 F2 4.586 ppm
 GZ 482.23 Hz
 HZ 300.1300115 MHz
 PC 23.00 cm





Compound 6 ¹H NMR (300 MHz) and ¹³C NMR (75 MHz)



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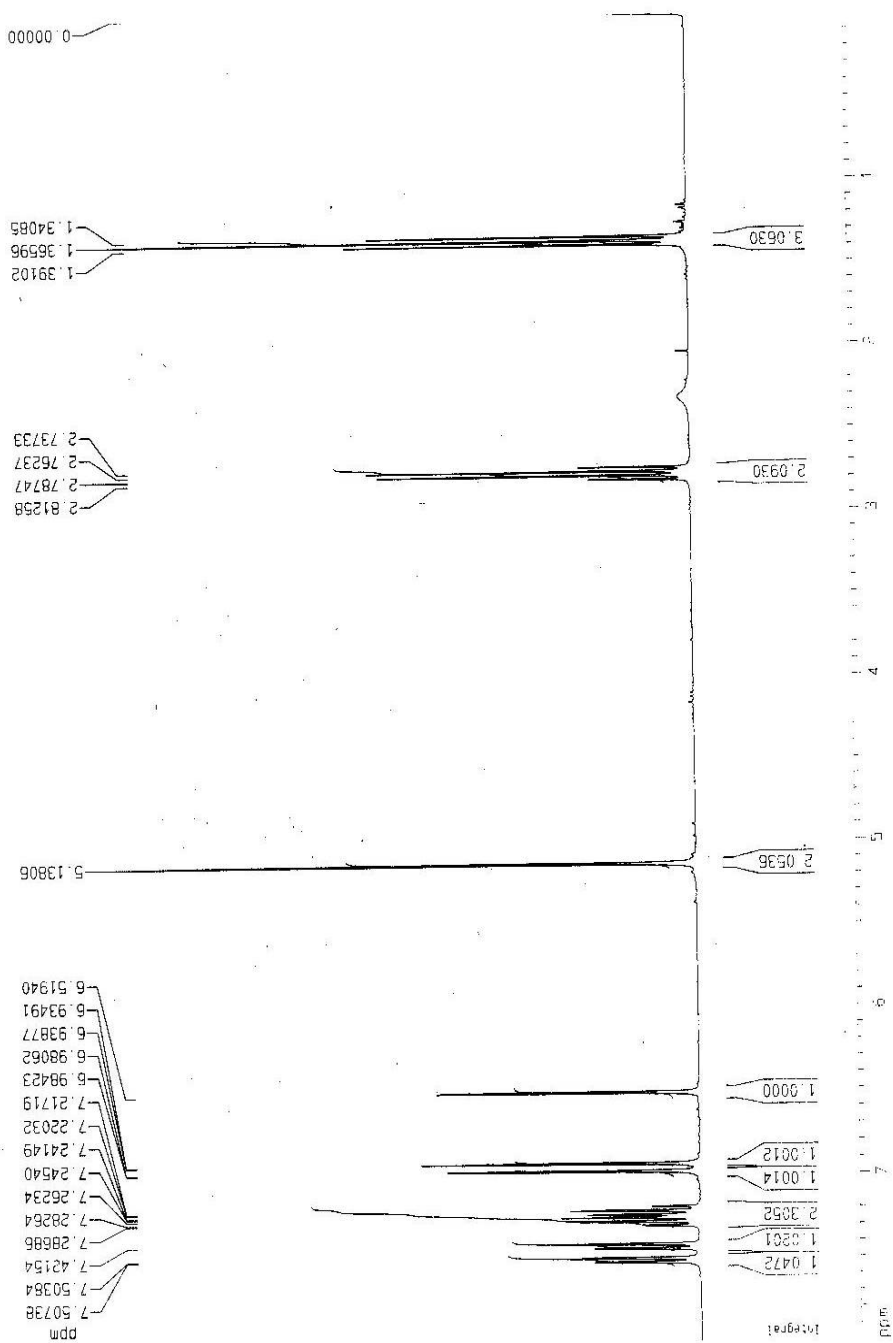
Current Data Parameters
NAME          SW1      5W1
EXPNO        56
PROCNO       1

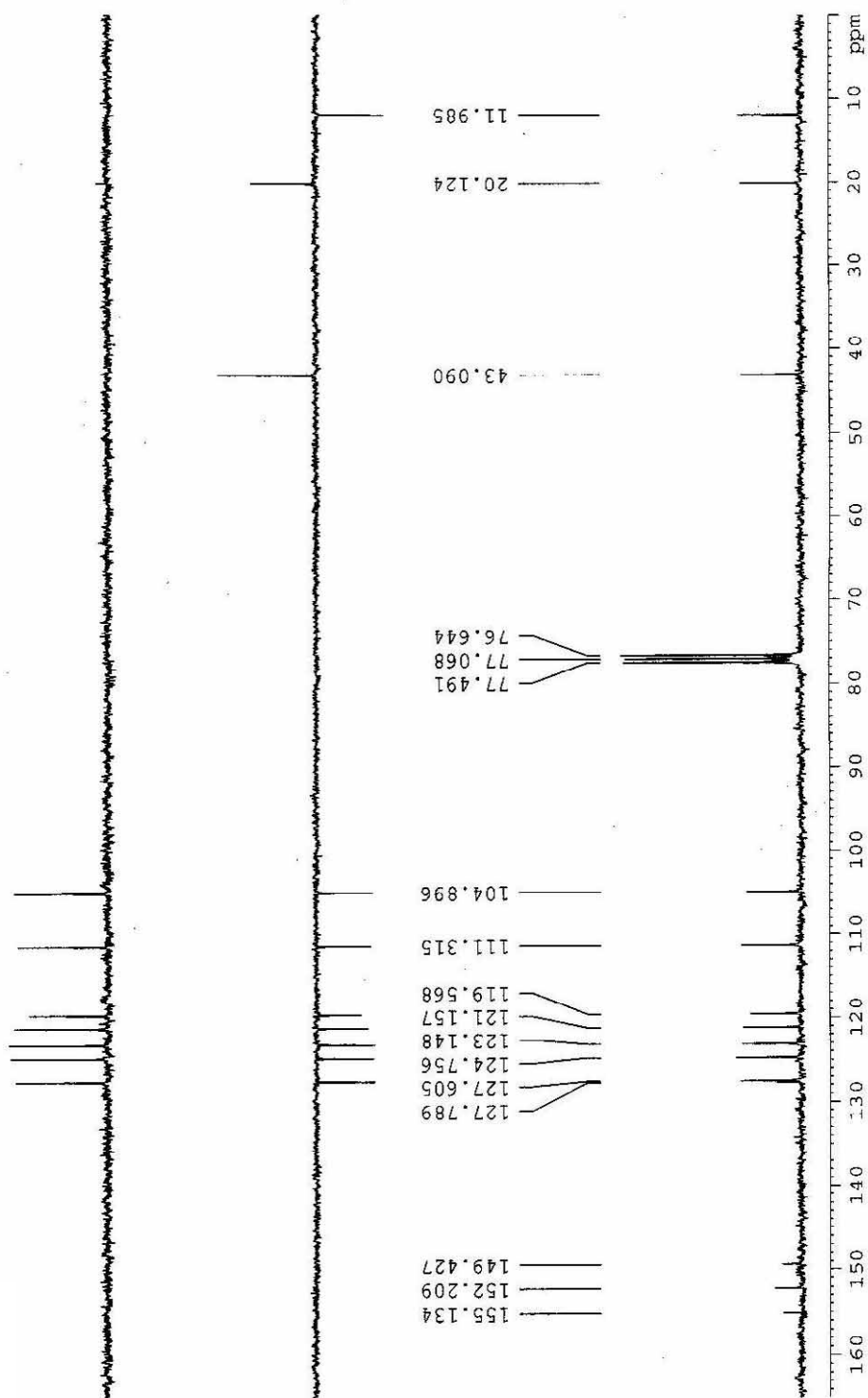
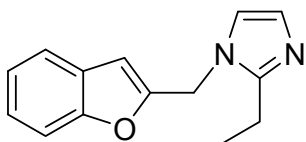
F2 - Acquisition Parameters
Date_         20081230
Time          10.03
INSTRUM      SPC300
PROBHD       5 mm QNP 1H/13
PULPROG      zgpg30
TD           65536
SOLVENT      CDCl3
NS           16
DS           1
SFO          4789.272 Hz
SHH          0.073078 Hz
FIDRES      6.8420086 sec
AQ          287.4
RG          104.400 usec
DE          5.00 usec
TE          298.2 K
JE          1.00000000 sec
JT          0.00000000 sec
MCHEST
MCNMRK      0.01500000 sec

===== CHANNEL f1 =====
NUC1        1H
P1          8.60 usec
PL1         -2.00 dB
SFO1       300.1321009 MHz

F2 - Processing parameters
SI          32768
SF         300.1300113 MHz
WDW         EM
SSB         0
LB         0.30 Hz
GB         0
BB         1.00
-FC

1D NMR plot parameters
CX         23.00 cm
CY         12.50 cm
F1F        8.008 ppm
F1         2401.04 Hz
ZG         0.000 ppm
ZC         0.06 Hz
=====
NAME          0.34165 ppm
PROCNO       104
=====
    
```

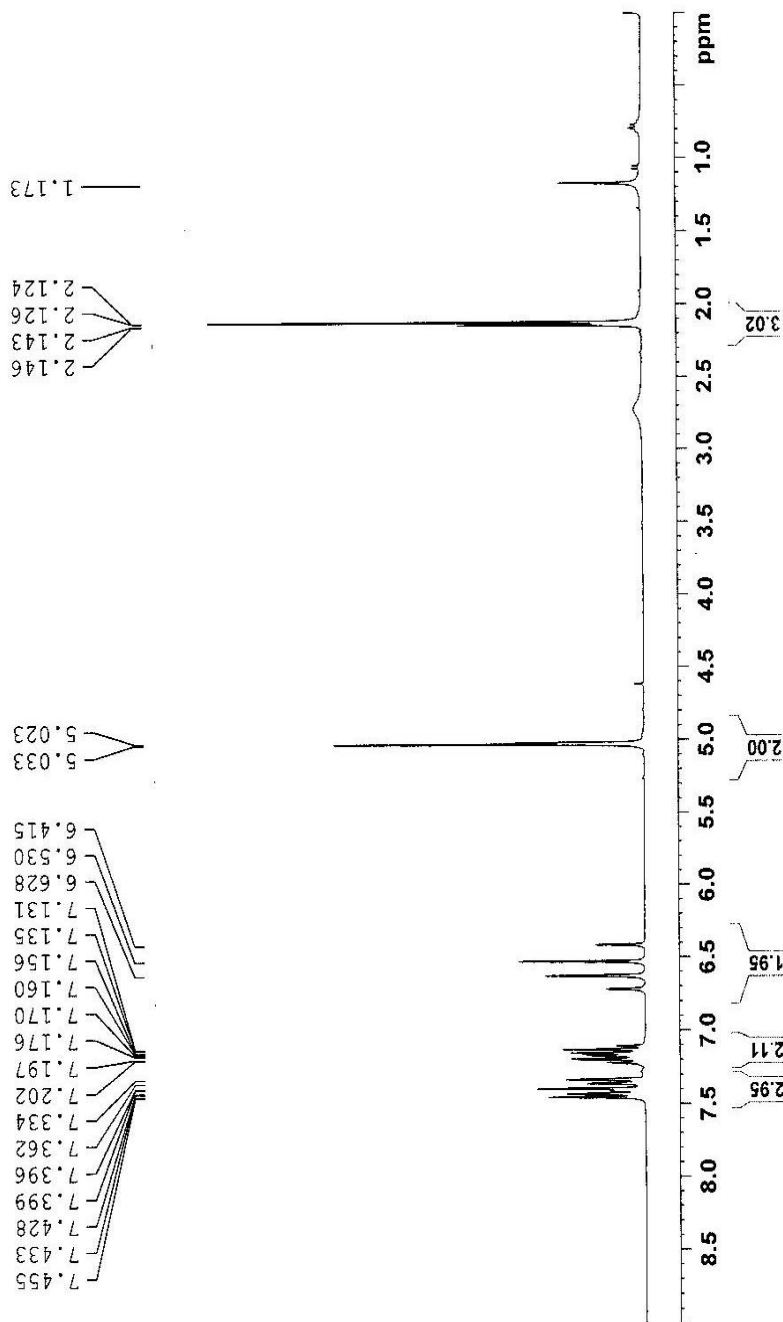
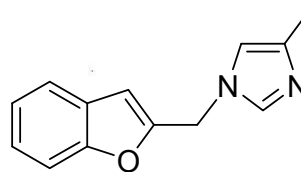


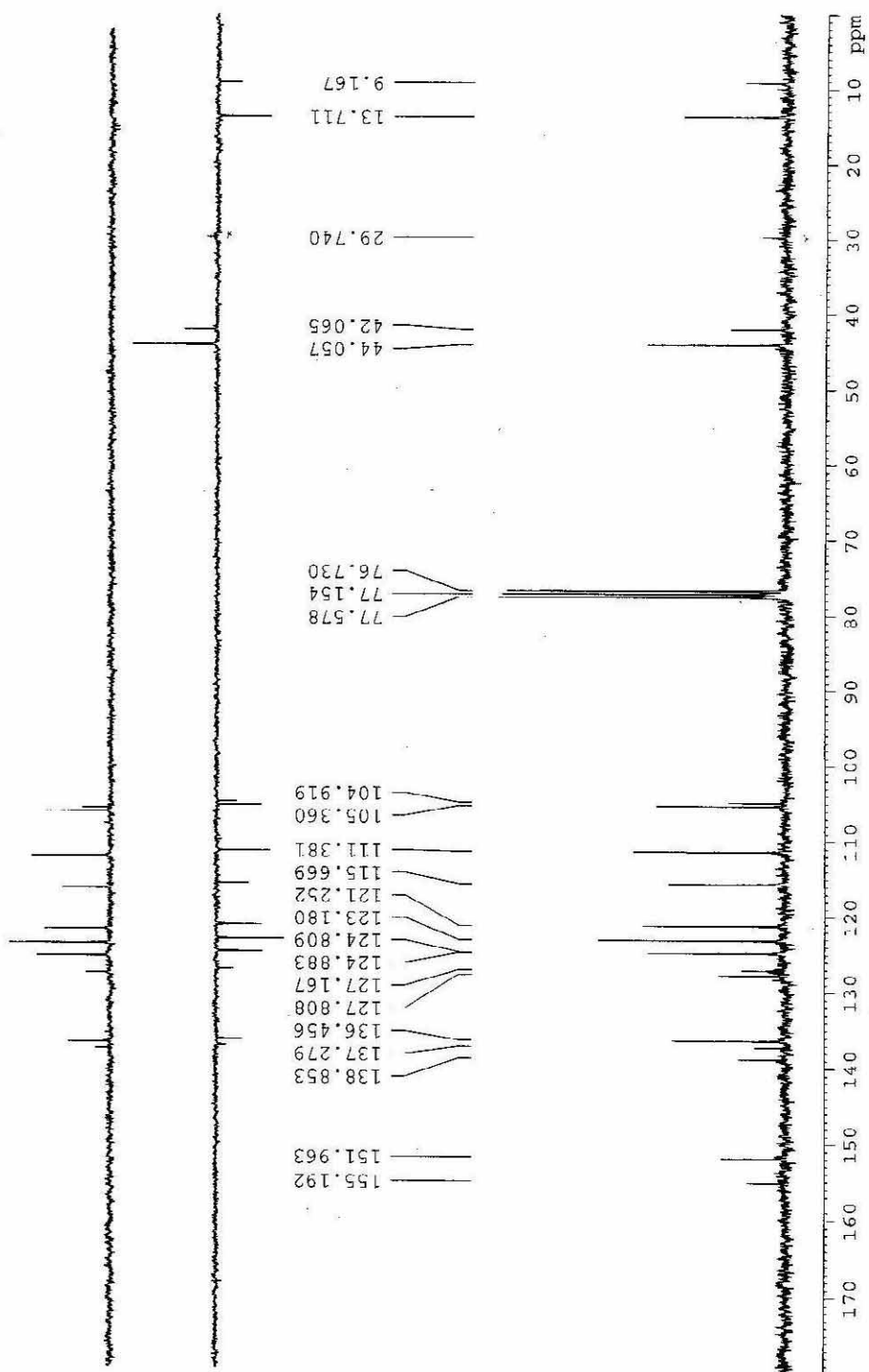
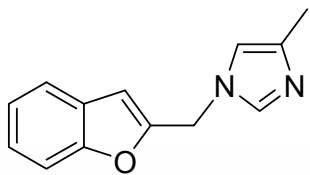


Compound 7 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)

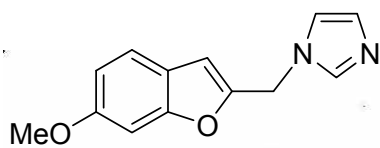


Current Data Parameters
EXPNO 2
PROCNO 1
F2 - Acquisition Parameters
Date_ 20090723
Time 0.39
INSTRUM mv300
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
AQ 0.5516
RG 327.5
AS 16
US 4798.272 Hz
FS 0.021078 Hz
AQ 6.8420048 sec
RG 327.5
DM 104.900 usec
DE 255.0 K
TE 300.2 K
D1 1.0000000 sec
DELTA 0.0000000 sec
PC 0.0150000 sec
MCORR1 0.0150000 sec
----- CHANNEL f1 -----
NUC1 13C
P1 8.00 usec
PL1 0.00 dB
SFO1 300.1320000 MHz
F2 - Processing parameters
SI 32768
SF 300.1320000 MHz
WDW EM
SSB 0
GB 0
PC 1.00





Compound 9 ¹H NMR (300 MHz) and ¹³C NMR (75 MHz)



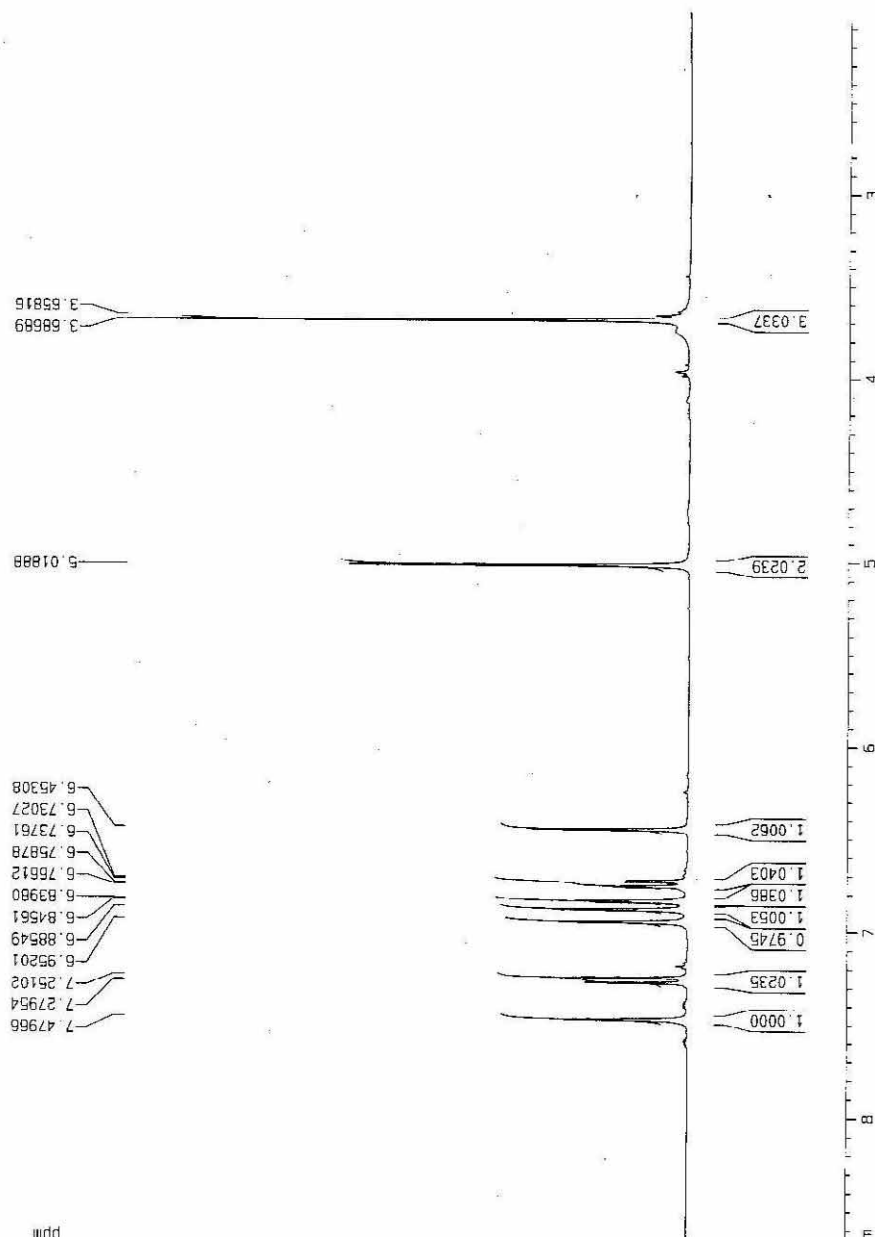
Current Data Parameters
 NAME SW 170
 EXPNO 1
 PROCNO 1

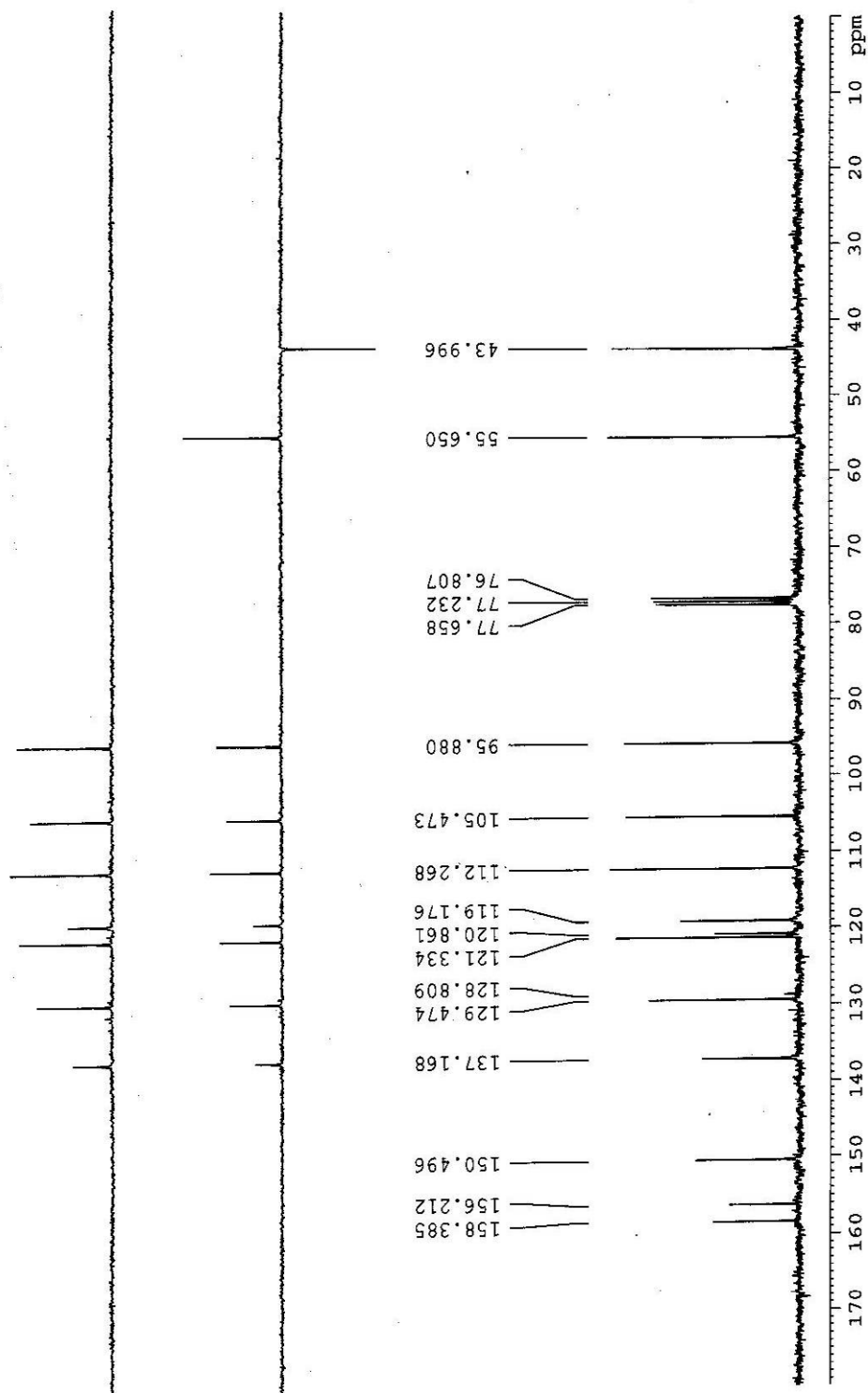
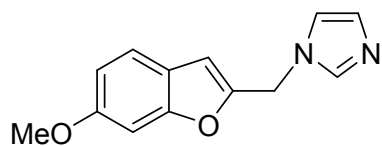
F2 - Acquisition Parameters
 Date_ 20090609
 Time 8.59
 INSTRUM av300
 PROBHD 5 mm QNP 1H/13
 PULPROG zgpg30
 TD 65536
 SOLVENT DMS-D3
 NS 16
 DS 1
 SWH 4785.272 Hz
 FIDRES 0.073078 Hz
 AQ 6.6420086 sec
 RG 64
 DM 104.400 usec
 DE 5.00 usec
 TE 296.0 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCPRK 0.0150000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 9.60 usec
 PL1 -2.00 dB
 SFO1 300.1321019 MHz

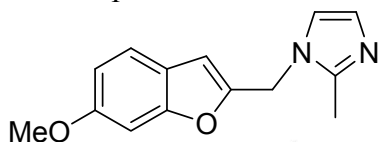
F2 - Processing parameters
 SI 32766
 SF 300.1302270 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 23.00 CF
 CY 12.50 CF
 F1P 61.737 ppm
 F1 2622.24 Hz
 F2P 2.007 ppm
 F2 602.46 Hz
 PPMCK 0.29259 ppm/cm
 HZCK 87.81630 Hz/cm





Compound 10 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



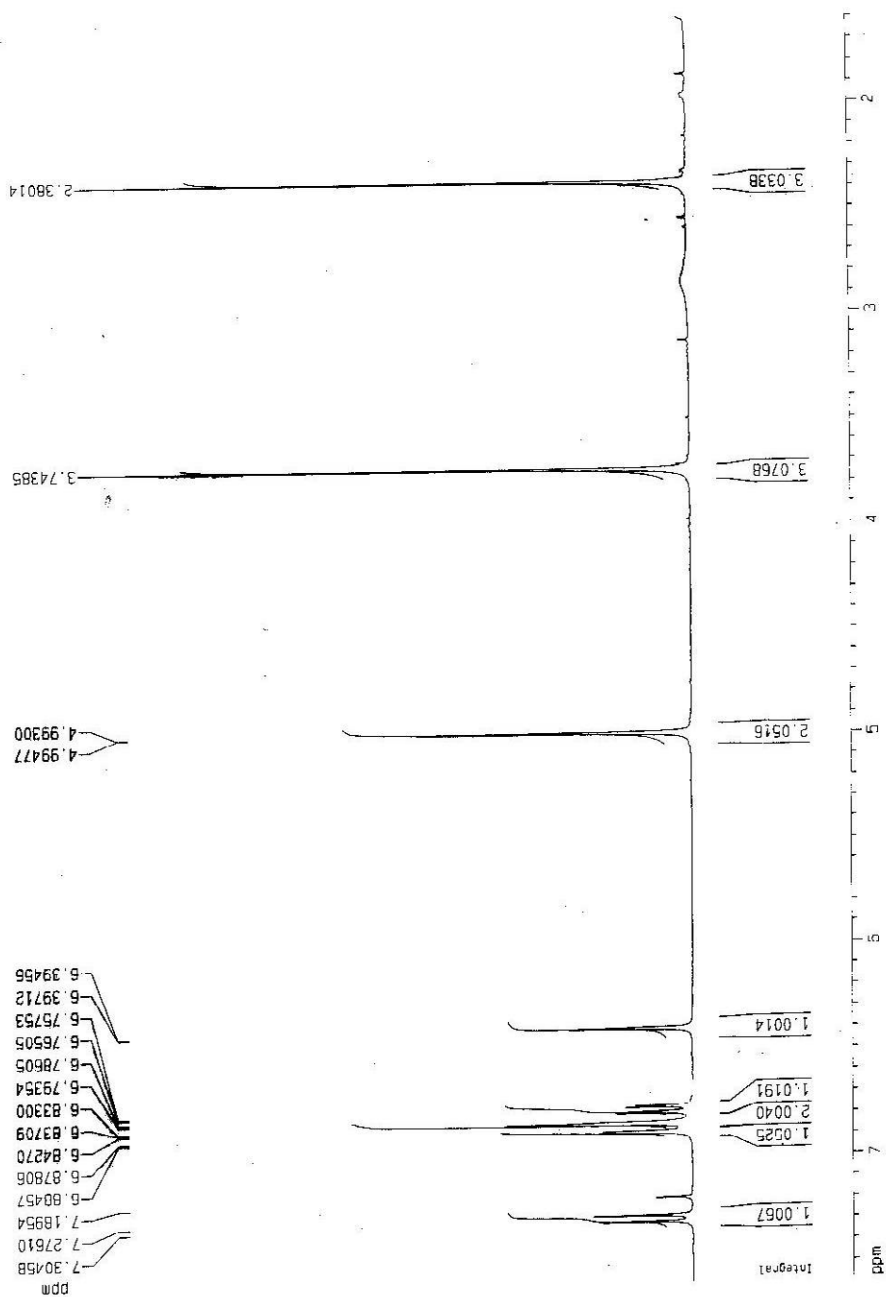
Current Data Parameters
 NAME 5M1
 EXPNO 227
 PROCNO 1

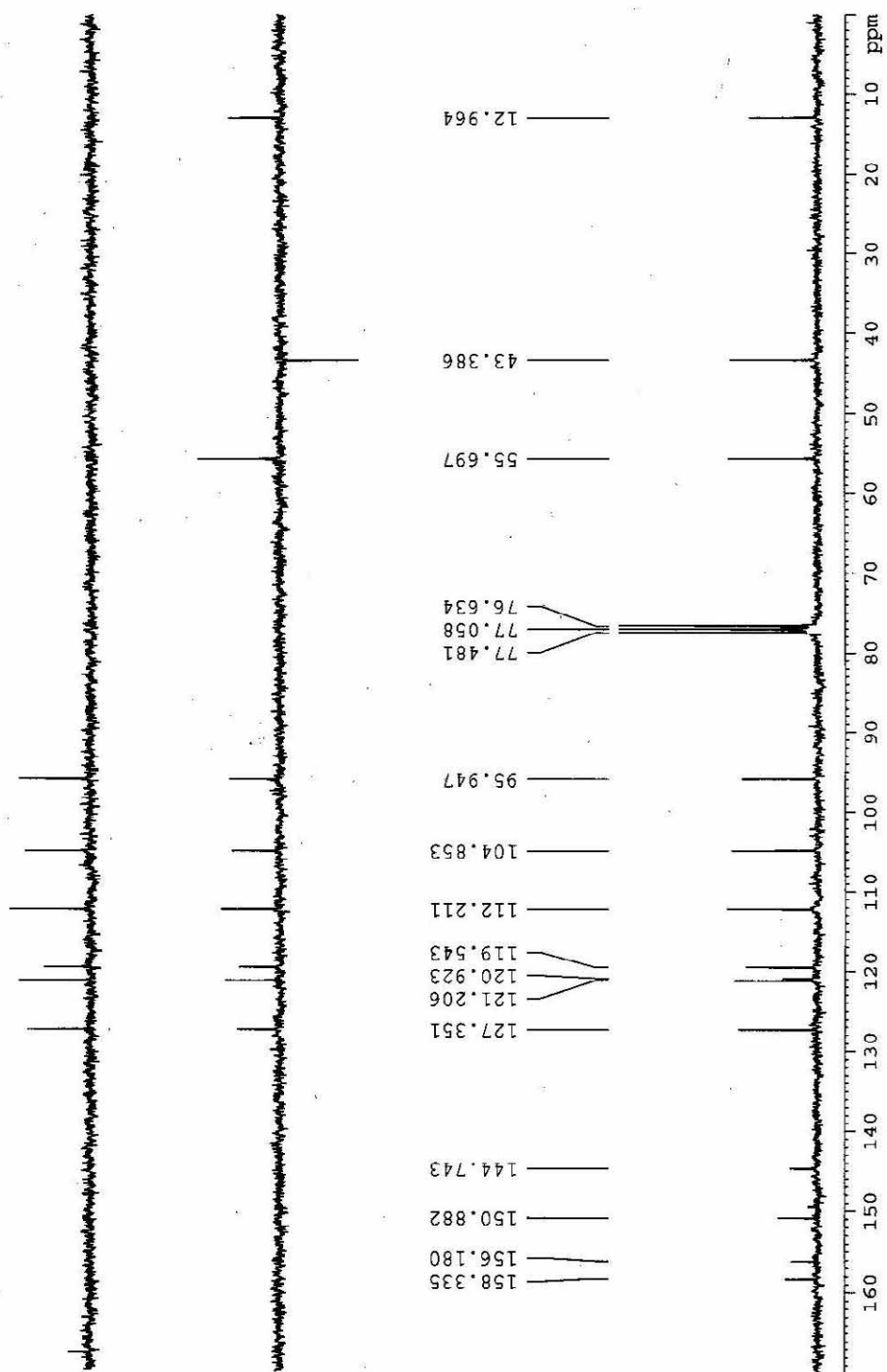
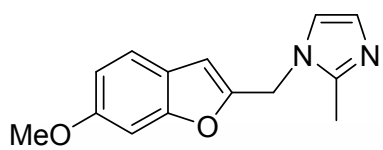
F2 - Acquisition Parameters
 Date_ 20090622
 Time 10.41
 INSTRUM av300
 PROBHD 5 mm QNP 1H/13
 PULPROG zgpg30
 TO 55536
 SOLVENT CDCl3
 NS 16
 DS 4
 SWH 4789.272 Hz
 FIDRES 0.0773078 Hz
 AQ 6.8420086 sec
 RG 161.3
 DM 104.400 usec
 DE 6.00 usec
 TE 300.5 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCMRK 0.0150000 sec

===== CHANNEL f1 =====
 NUC1 ^1H
 P1 8.60 usec
 PL1 -2.00 dB
 SFO1 300.1321009 MHz

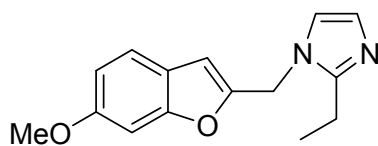
F2 - Processing parameters
 SI 32768
 SF 300.1300271 MHz
 HDW 0
 EN 0
 SSB 0
 B 0.30 Hz
 GB 0
 PC 1.00

ID NMR plot parameters
 CX 21.00 cm
 CY 12.50 cm
 FIP 7.587 ppm
 F1 2277.23 Hz
 F2P 1.598 ppm
 F2 479.71 Hz
 PPMCM 0.25040 ppm/cm
 HZCM 76.15296 Hz/cm





Compound 11 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



Current Data Parameters
 NAME SWJ
 EXPNO 221
 PROCNO 1

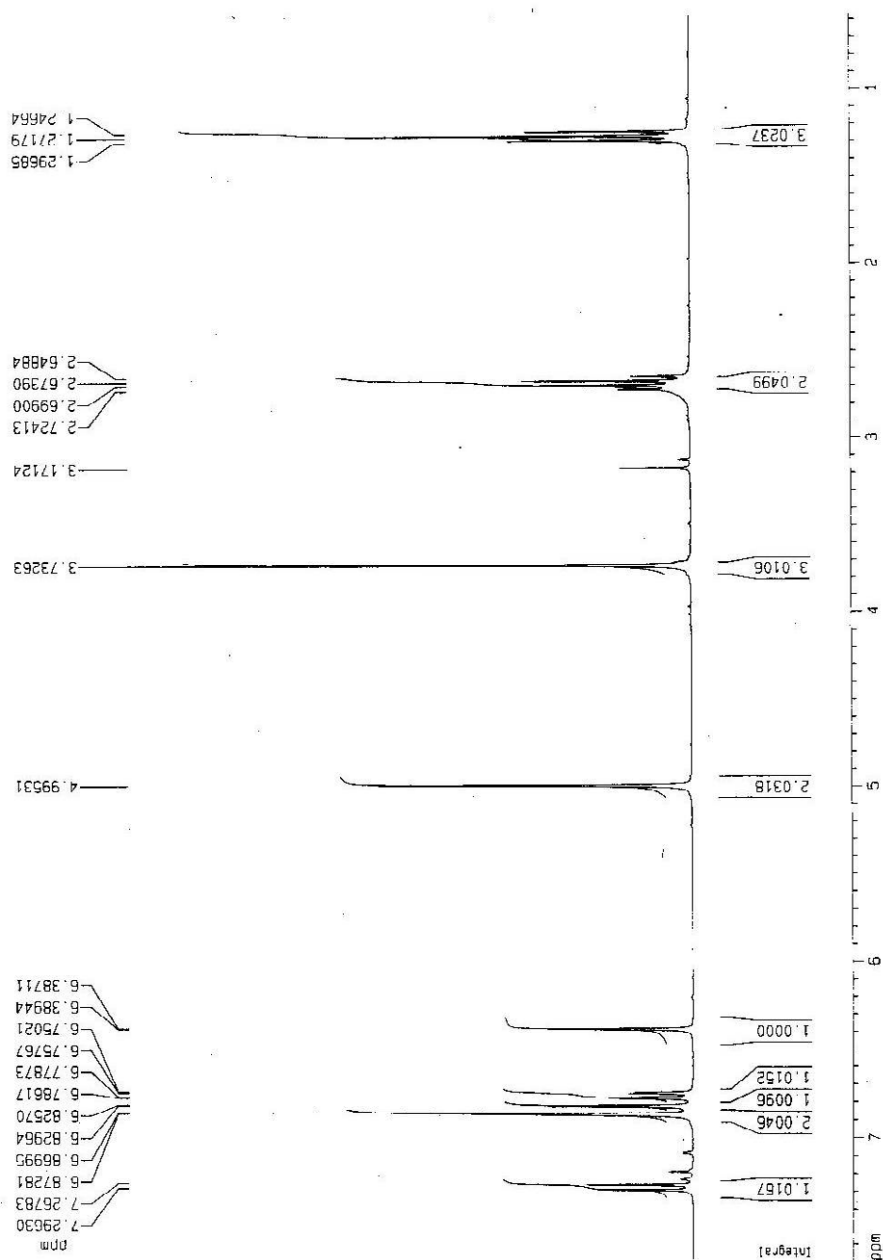
F2 - Acquisition Parameters
 Date_ 20090622
 Time_ 10.13
 INSTRUM 400
 PROBHD 5 mm QNP 1H/13
 PULPROG zgpg
 TC 65536
 SCLVNT CDCl3
 NE 16

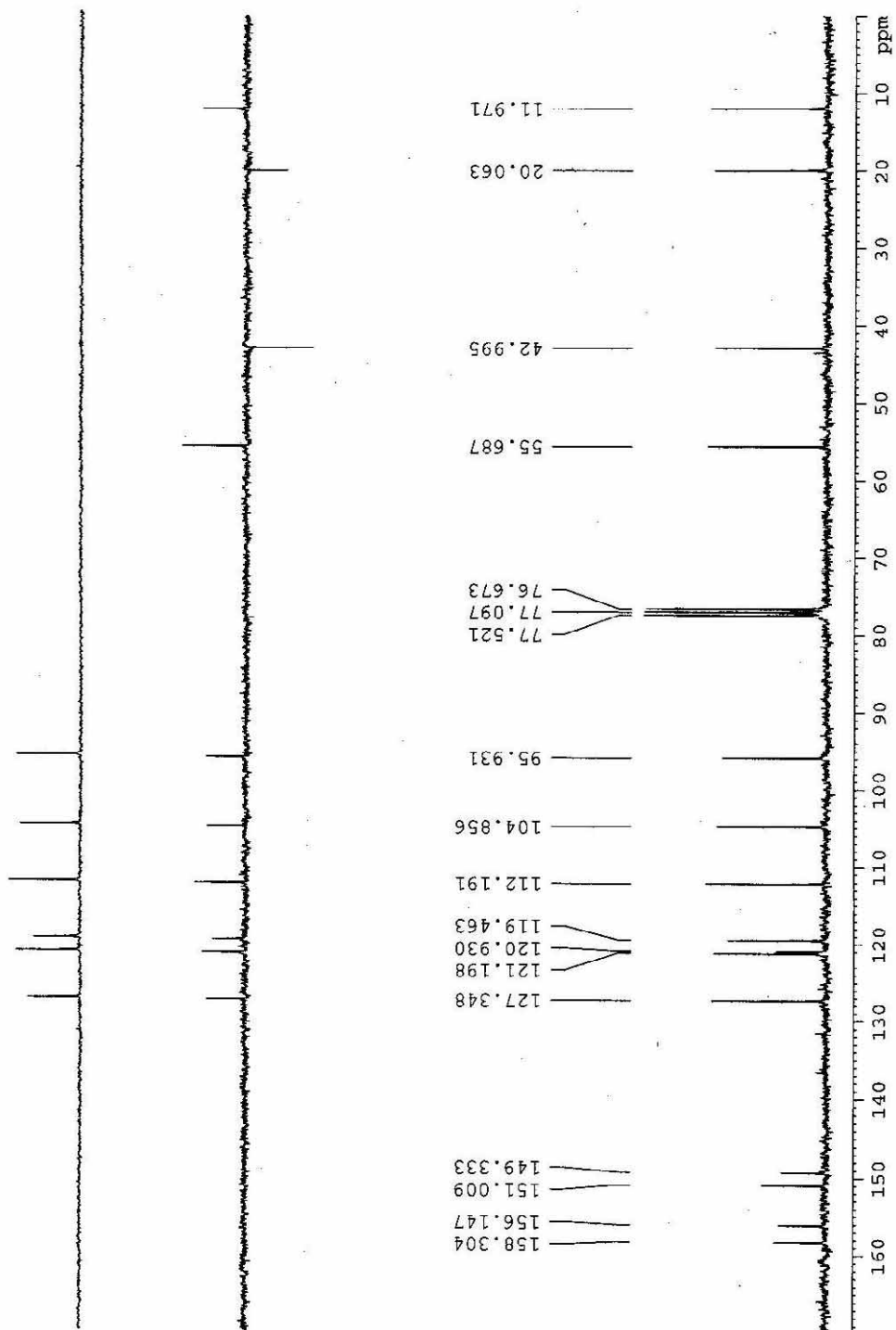
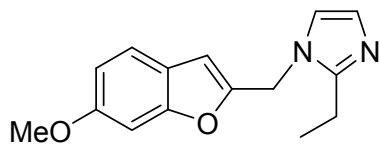
DE 1
 SWH 4789.272 Hz
 FIDRES 0.073078 Hz
 AQ 6.8423086 sec
 RG 114
 DM 104.400 usec
 DE 5.00 usec
 TE 300.4 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWFK 0.01500000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 8.60 usec
 PL1 -2.00 dB
 SF01 300.1321009 MHz

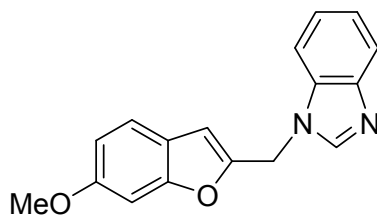
F2 - Processing parameters
 S 32758
 SF 300.1300209 MHz
 NDW 0
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 23.00 cm
 CY 12.50 cm
 FIDP 7.695 ppm
 F1 230659 Hz
 F2 0.571 ppm
 F2 171.33 Hz
 PPMHM 0.30576 ppm/cm
 FZCM 52.96794 Hz/cm





Compound 12 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



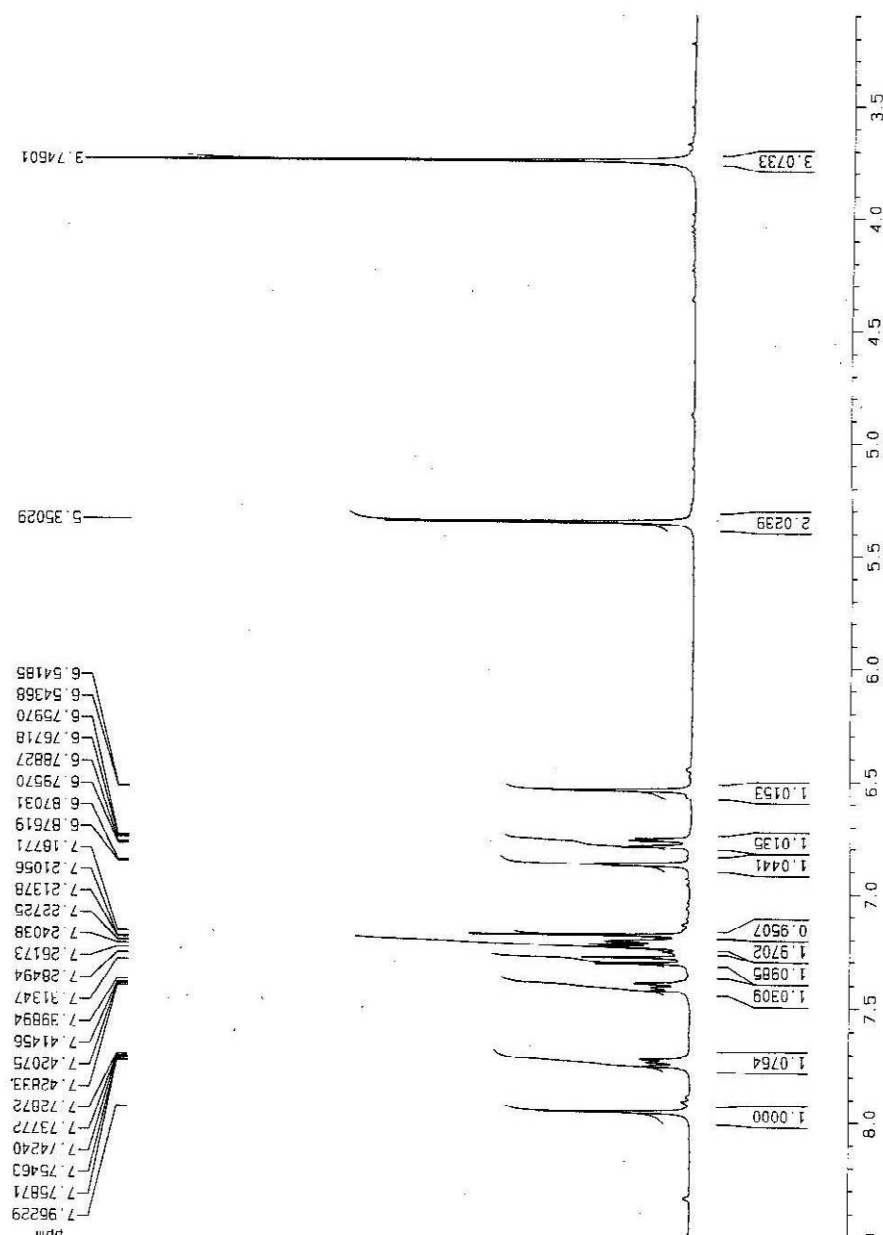
Current Data Parameters
NAME av3
EXPNO 165
PROCNO 1

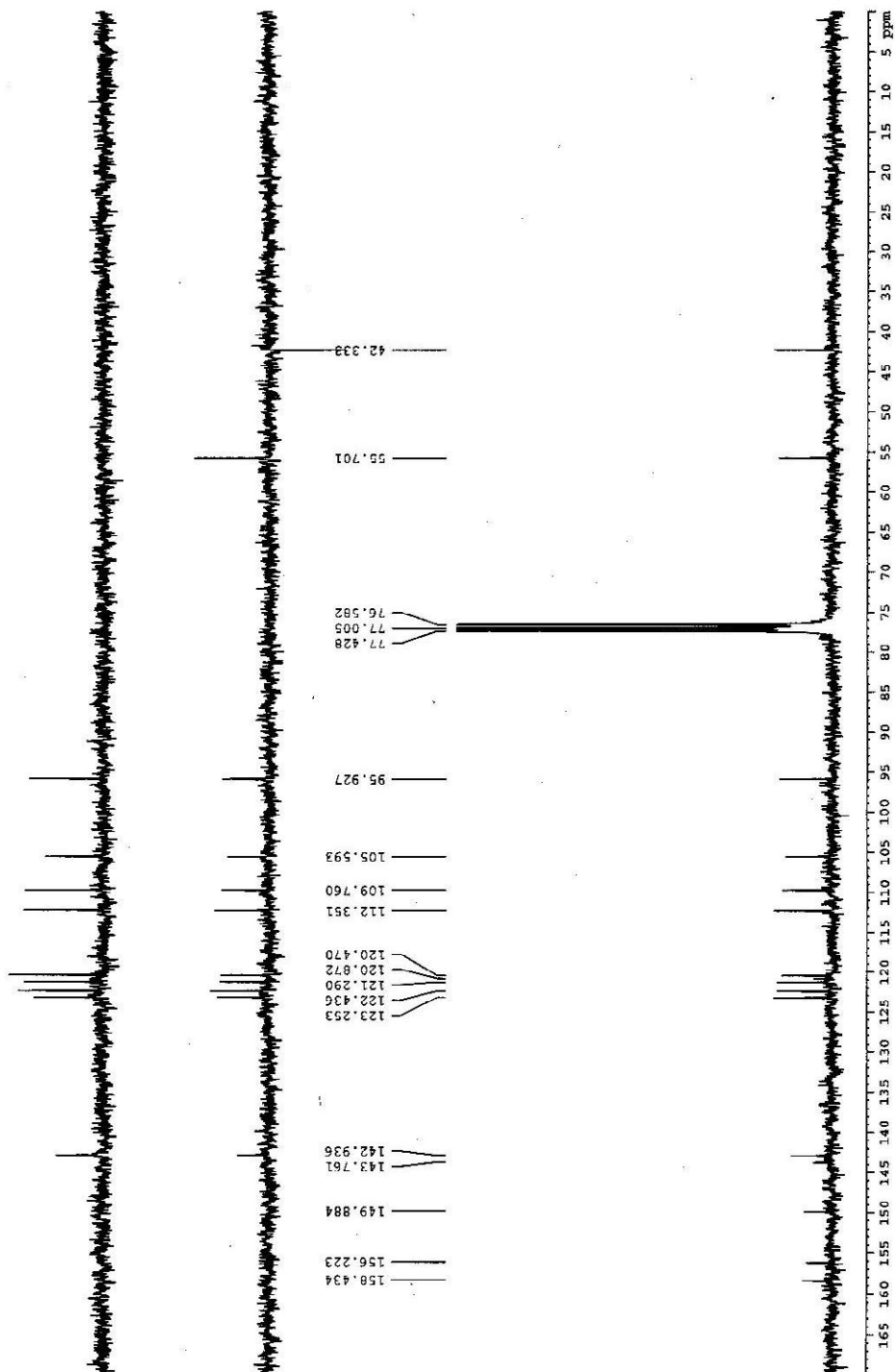
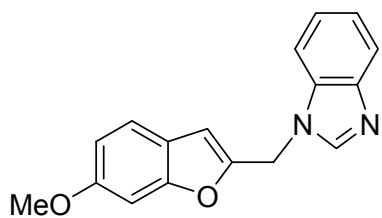
F2 - Acquisition Parameters
Date_ 20090611
Time 11.01
INSTRUM av300
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 1
SWH 4769.272 Hz
FIDRES 0.073078 Hz
AQ 6.8420086 sec
RG 406.4
DM 104.400 USEC
DE 6.00 USEC
TE 297.1 K
D1 1.00000000 sec
ACREST 0.00000000 sec
MCPRK 0.01500000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 8.60 USEC
PL1 -2.00 DB
SFO1 300.1321009 MHz

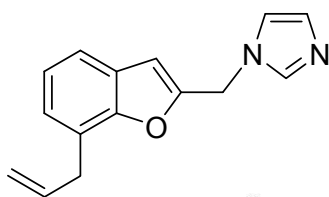
F2 - Processing parameters
SI 32768
SF 300.1300278 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

ID NMR plot parameters
CX 23.00 cm
CY 12.50 cm
F1P B.558 ppm
F1 2580.50 Hz
F2P 3.097 ppm
F2 529.60 Hz
PRM1 0.23315 ppm/cm
HZCM 71.77825 Hz/cm





Compound 13 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



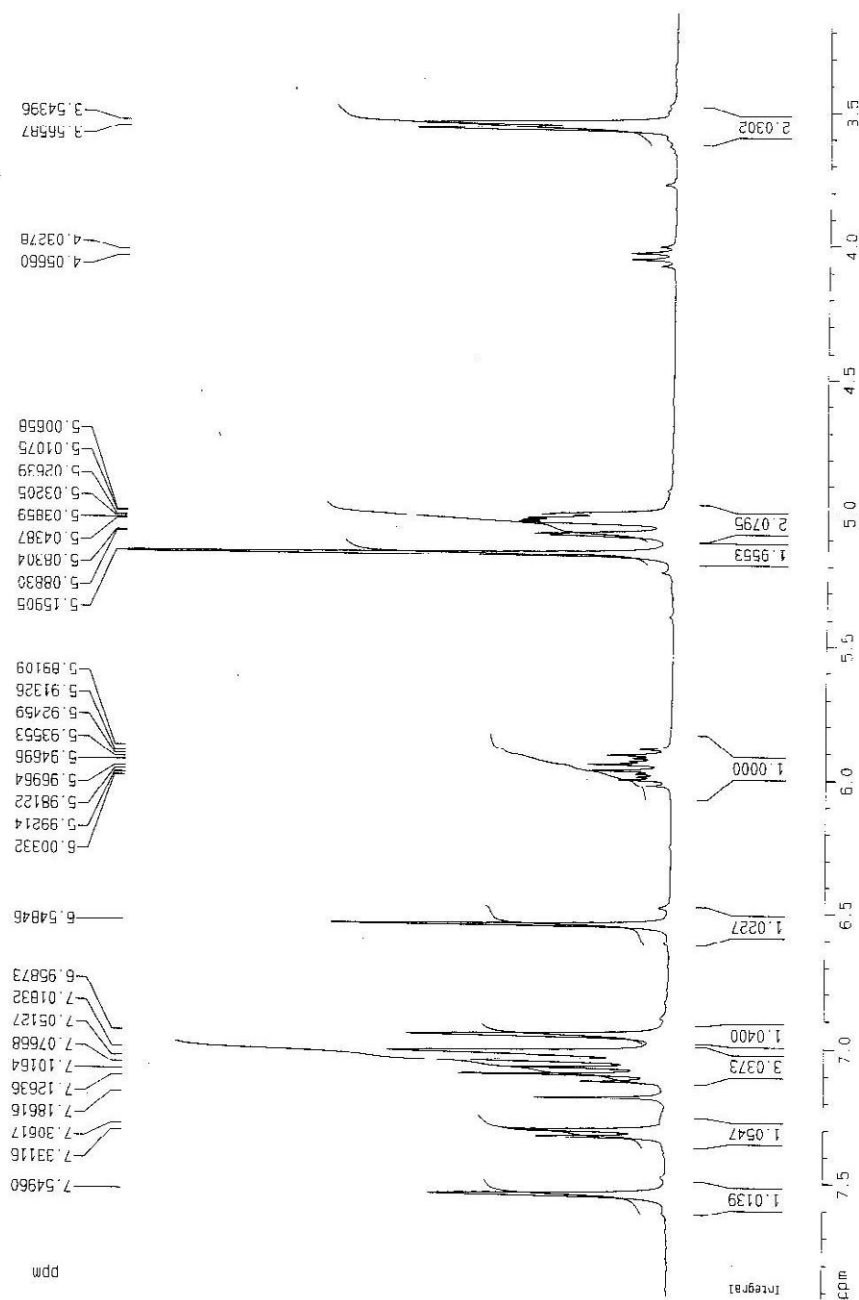
Current Data Parameters
 NAME: SW1
 EXPNO: 64
 PROCNO: 1

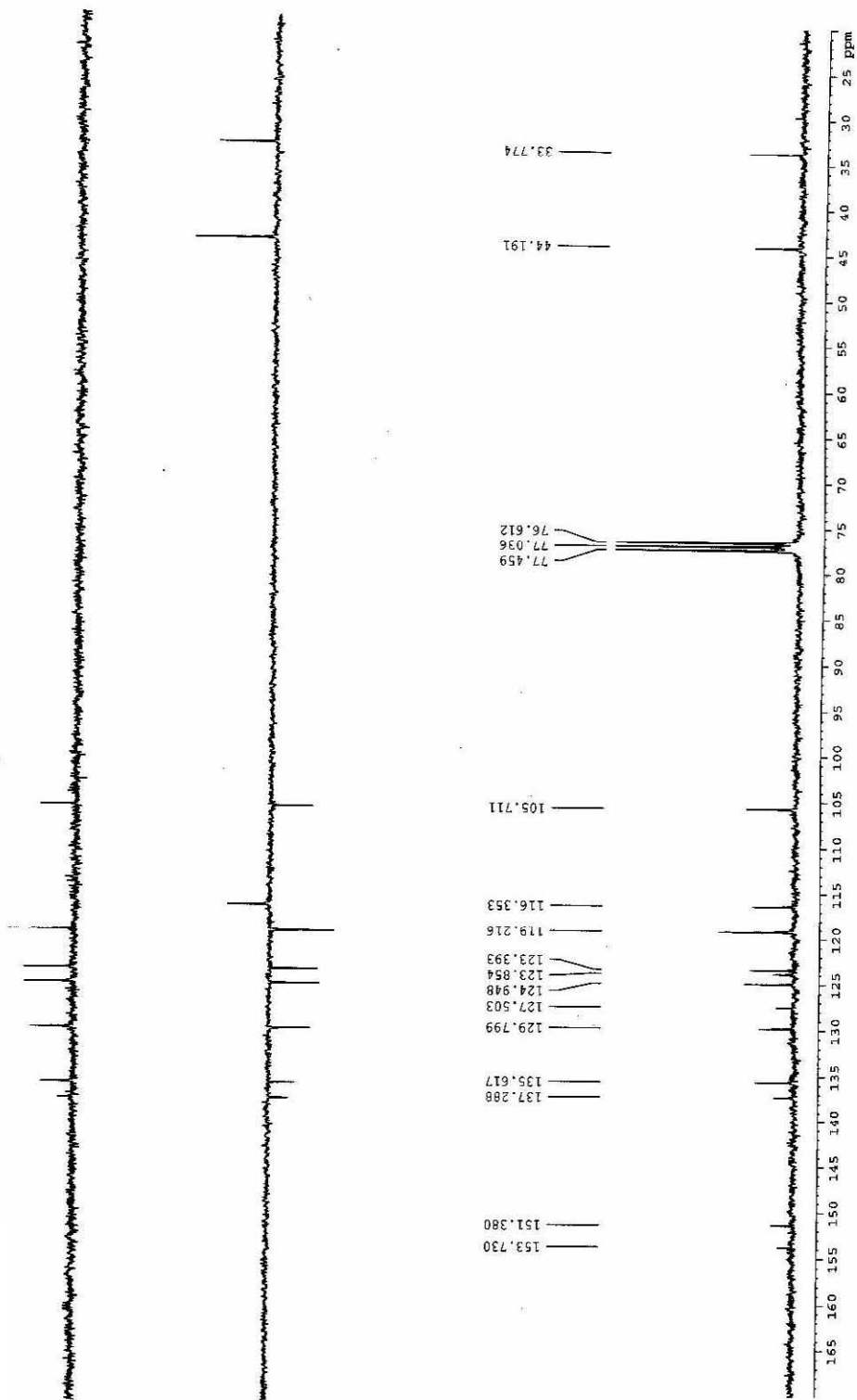
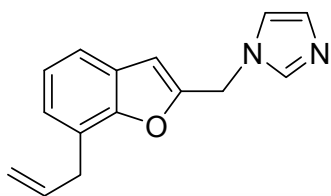
F2 - Acquisition Parameters
 Date_: 20091209
 Time: 12.26
 INSTRUM: av300
 PROBHD: 5 mm QNP 1H/13
 PULPROG: zg30
 TD: 65536
 SOLVENT: CDCl3
 NS: 16
 DS: 1
 SWH: 4789.272 Hz
 FIDRES: 0.073078 Hz
 AQ: 6.842086 Sec
 RG: 256
 OB: 104.400 usec
 DE: 6.00 usec
 TE: 295.5 K
 D1: 1.0000000 Sec
 MCBST: 0.6000000 Sec
 PCPRG: 0.01500000 Sec

***** CHANNEL f1 *****
 NUC1: 1H
 P1: 8.60 usec
 PL1: -2.00 dB
 SFO: 300.1321009 MHz

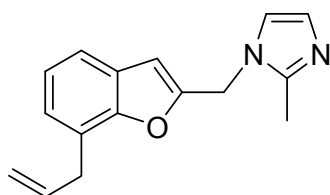
F2 - Processing parameters
 SI: 32768
 SF: 300.1300282 MHz
 WDW: EM
 SSB: 0
 LB: 0.30 Hz
 GB: 0
 PC: 1.00

1D NMR plot parameters
 CX: 23.00 cm
 CY: 12.50 cm
 F1P: 7.960 ppm
 F1: 2375.99 Hz
 F2P: 3.135 ppm
 F2: 940.77 Hz
 PPM0: 0.20806 ppm/cm
 L2L: 62.44404 Hz/cm

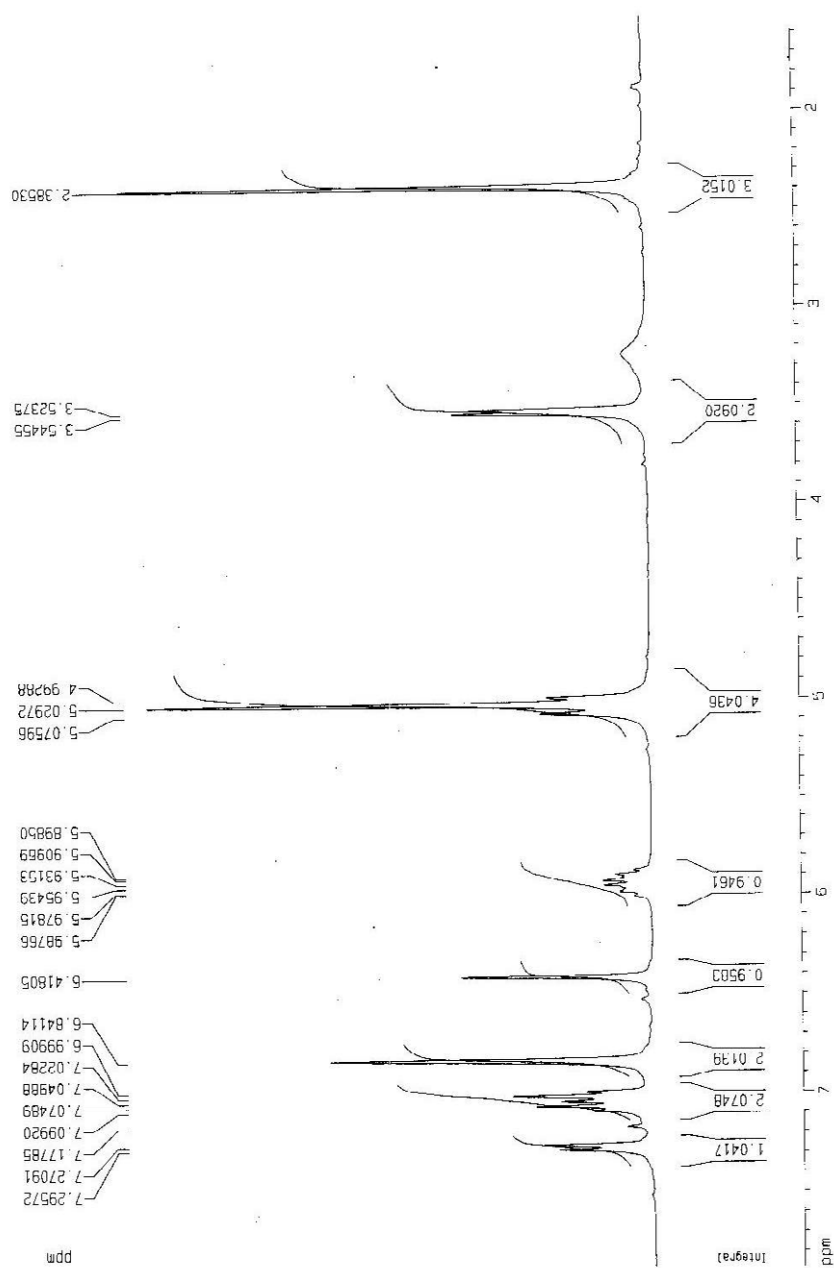


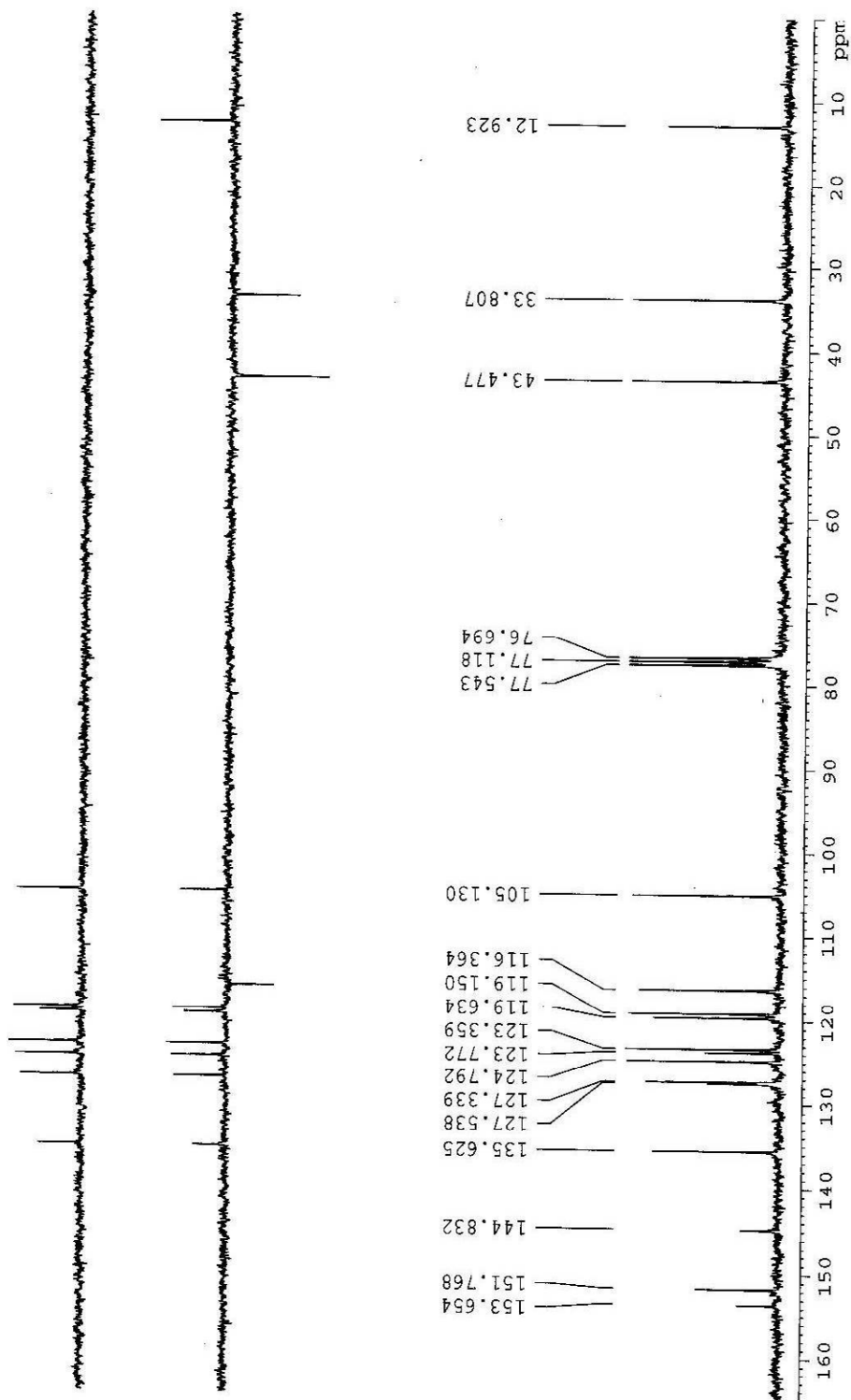
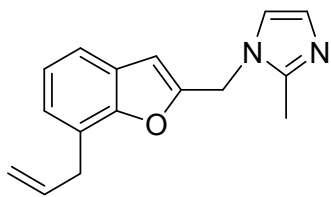


Compound 14 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)

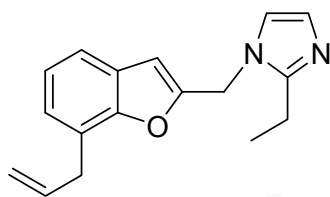


Current: Data Parameters
 NAME: 7B
 EXPNO: 1
 PROCNO: 1
 F2 - Acquisition Parameters
 Date_ : 20100115
 Time : 23.08
 INSTRUM : avco
 PROBHD : 5 mm QNP 1H/13
 PULPROG : zgpg30
 TD : 65536
 SOLVENT : CDCl3
 NS : 16
 DS : 1
 SWH : 4789.272 Hz
 FIDRES : 0.073078 Hz
 AQ : 6.8420086 sec
 RG : 101.5
 DQ : 104.400 usec
 DE : 6.400 usec
 TE : 298.3 K
 D1 : 0.0300000 sec
 ACQRES : 0.0000000 sec
 MCWPRG : 0.01500000 sec
 ===== CHANNEL f1 =====
 NUC1 : 1H
 P1 : 8.60 usec
 PL1 : -2.00 dB
 SF01 : 300.1321009 MHz
 F2 - Processing parameters
 SI : 32768
 SF : 300.1300505 MHz
 WDW : EM
 SSB : 0
 LB : 0.30 Hz
 GB : 0
 PC : 1.00
 1D NMR plot parameters
 CX : 23.00 cm
 CY : 12.50 cm
 F1 : 7.852 ppm
 F2 : 2355.62 Hz
 ZP : 1.915 ppm
 Z2 : 254.21 Hz
 PRGM : 0.27690 ppm/cm
 FZCM : 93.10482 Hz/cm





Compound 15 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



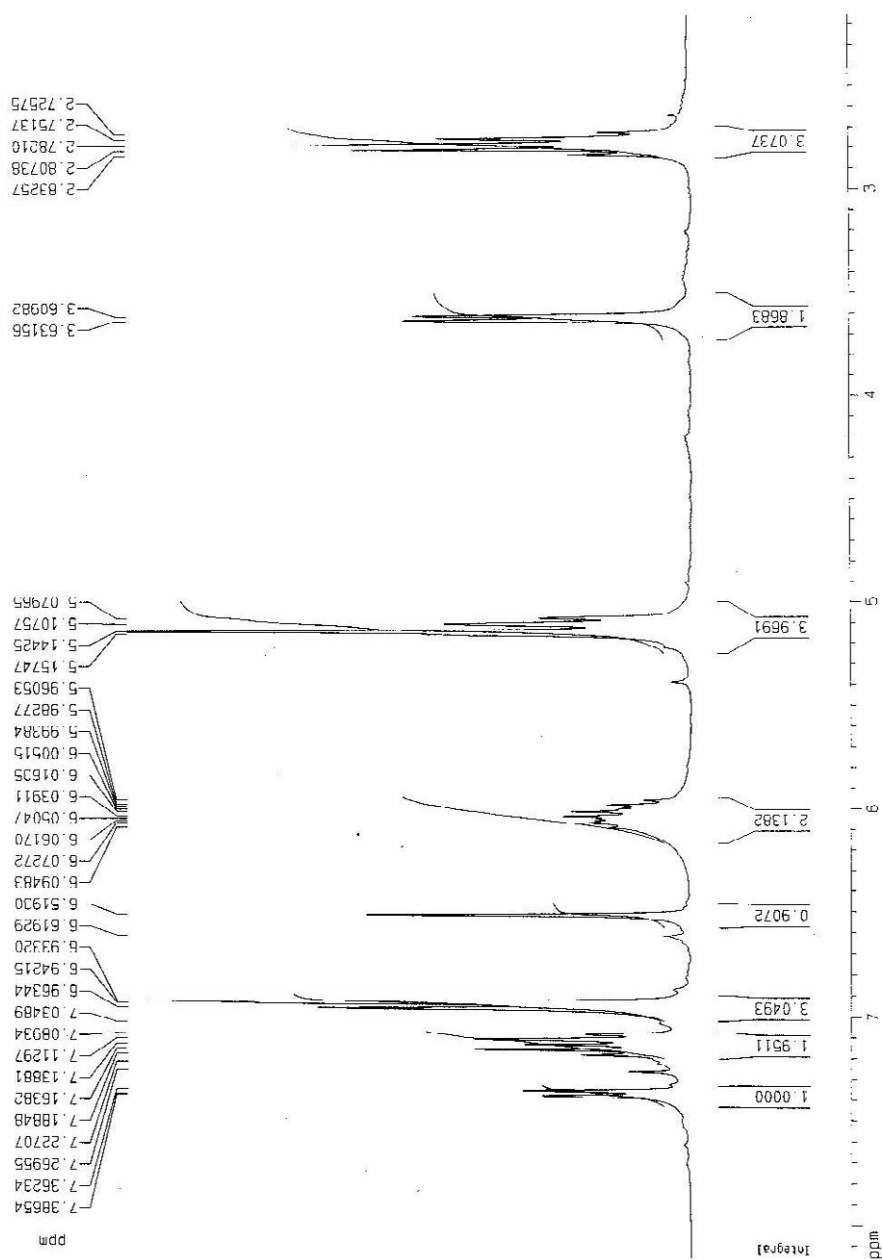
Current Data Parameters
 NAME swj
 EXPNO 75
 PROCNO 1

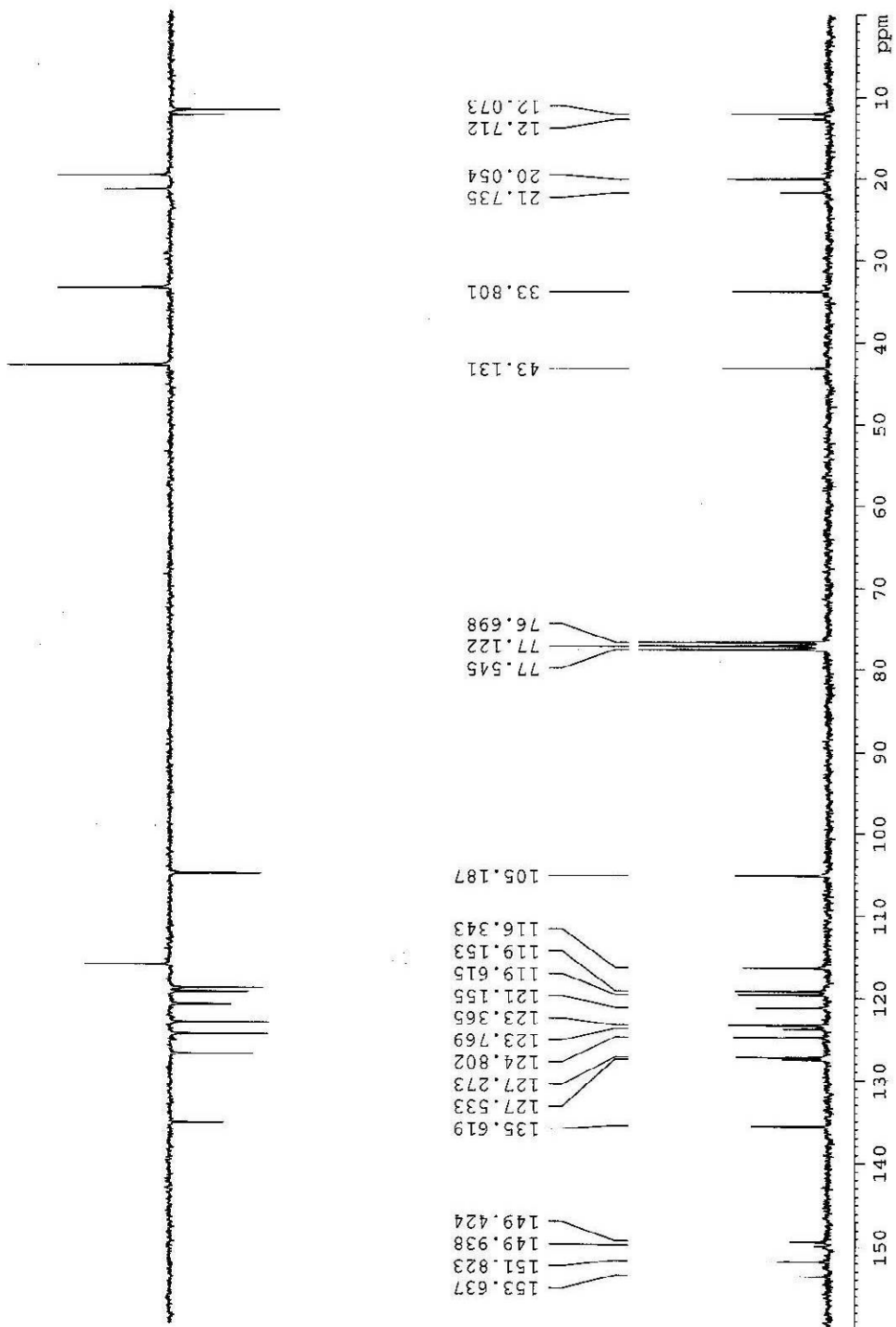
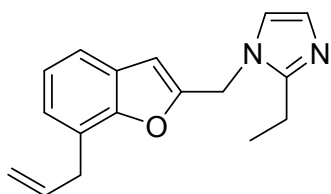
F2 - Acquisition Parameters
 Date_ 20091230
 Time 12.30
 INSTRUM er300
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 16
 DS 1
 SMH 4789.272 Hz
 FIDRES 0.073078 Hz
 AQ 6.8420085 sec
 RG 30.6
 DM 104.400 usec
 DE 5.00 usec
 TE 295.3 K
 O1 1.00000000 sec
 ACQRES 0.00000000 sec
 NUC1 13C
 CHANNEL f1

===== CHANNEL f1 =====
 NUC1 13C
 P1 8.60 usec
 PL1 -2.00 dB
 SFO1 300.1321009 MHz

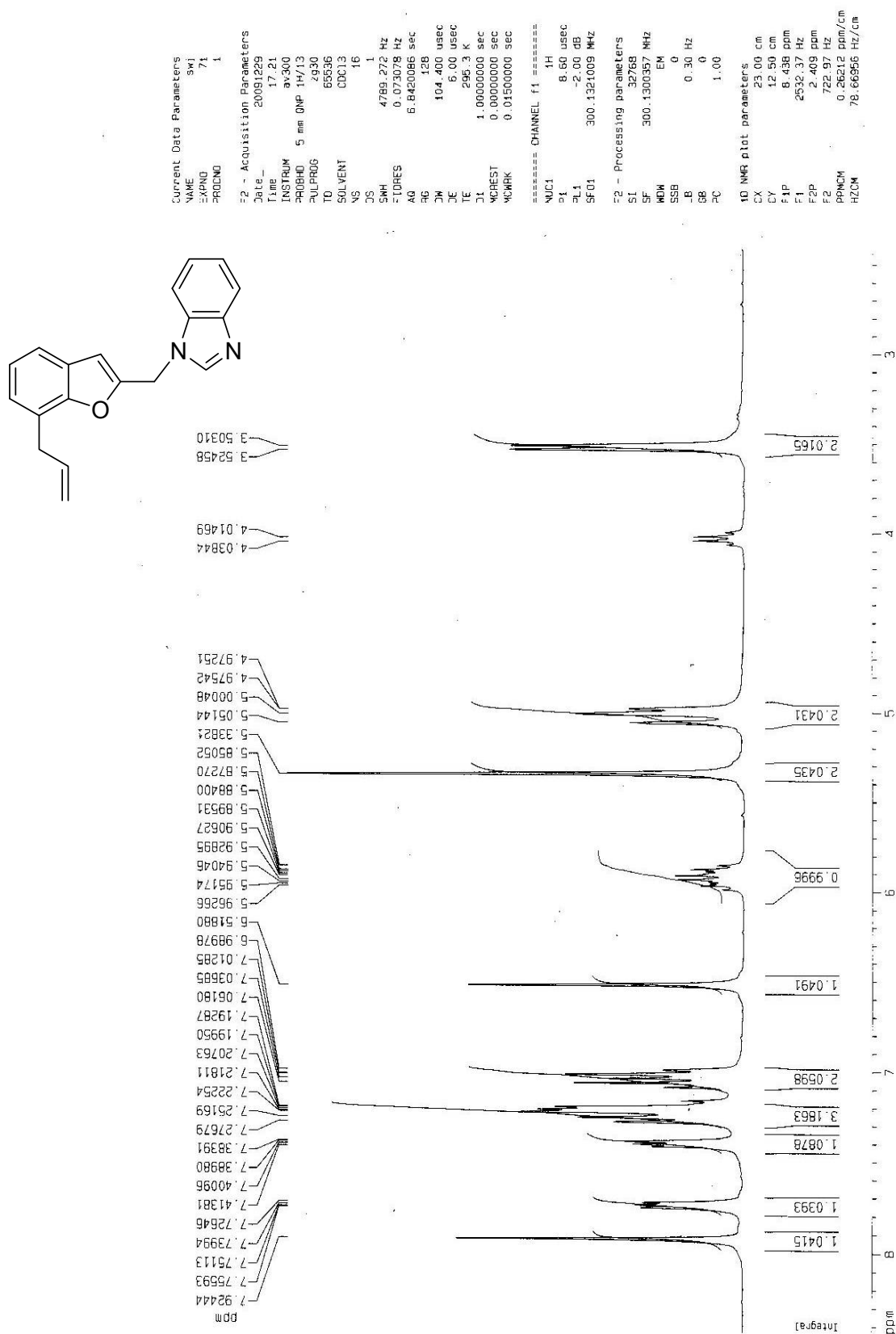
F2 - Processing parameters
 S1 32768
 SF 300.1300029 MHz
 MDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

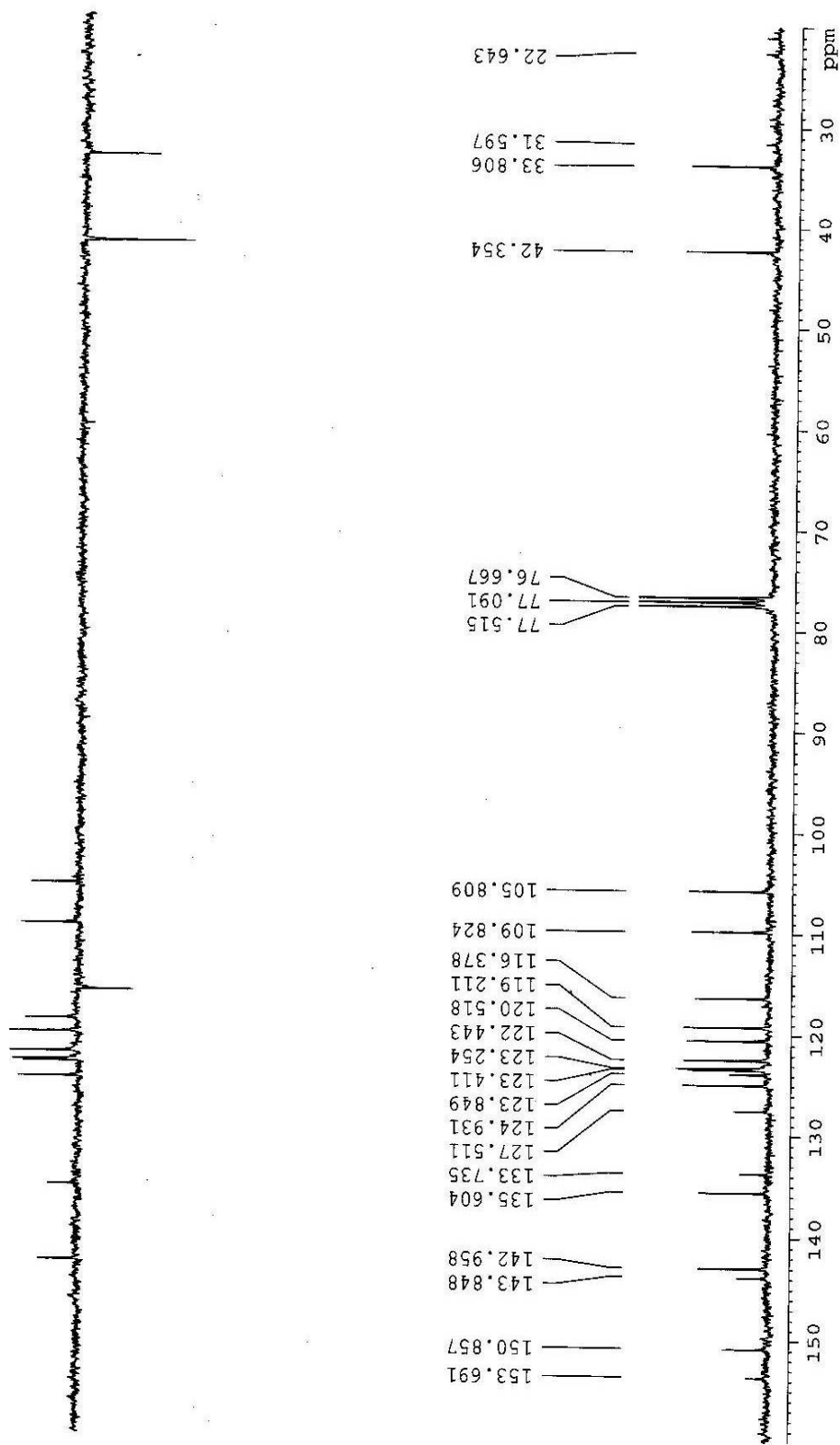
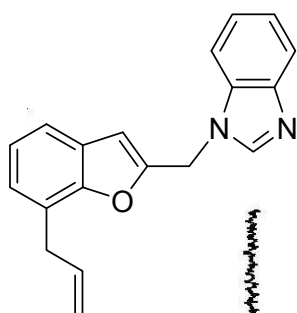
1D NMR plot parameters
 CX 23.00 cm
 CY 12.50 cm
 F1 8.158 ppm
 F2P 2448.59 Hz
 F2 2.155 ppm
 F2P 647.22 Hz
 PRGM 0.25065 ppm/cm
 HCN 78.32045 Hz/cm





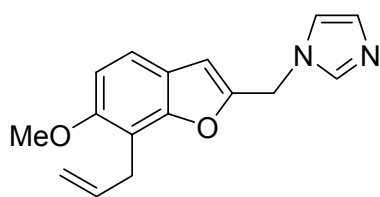
Compound 16 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)





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Compound 17 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



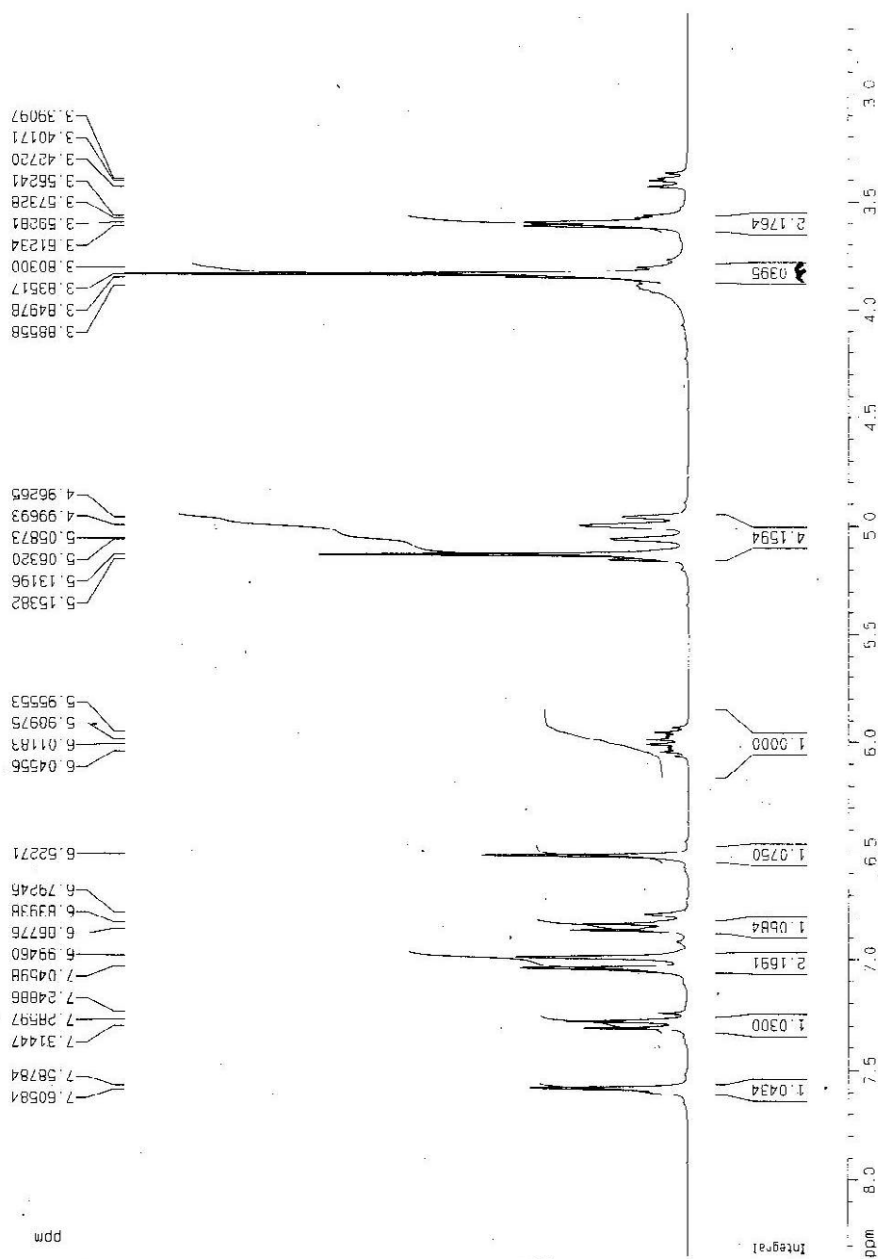
Current Data Parameters
 NAME SWH
 EXPNO 90
 PROCNO 1

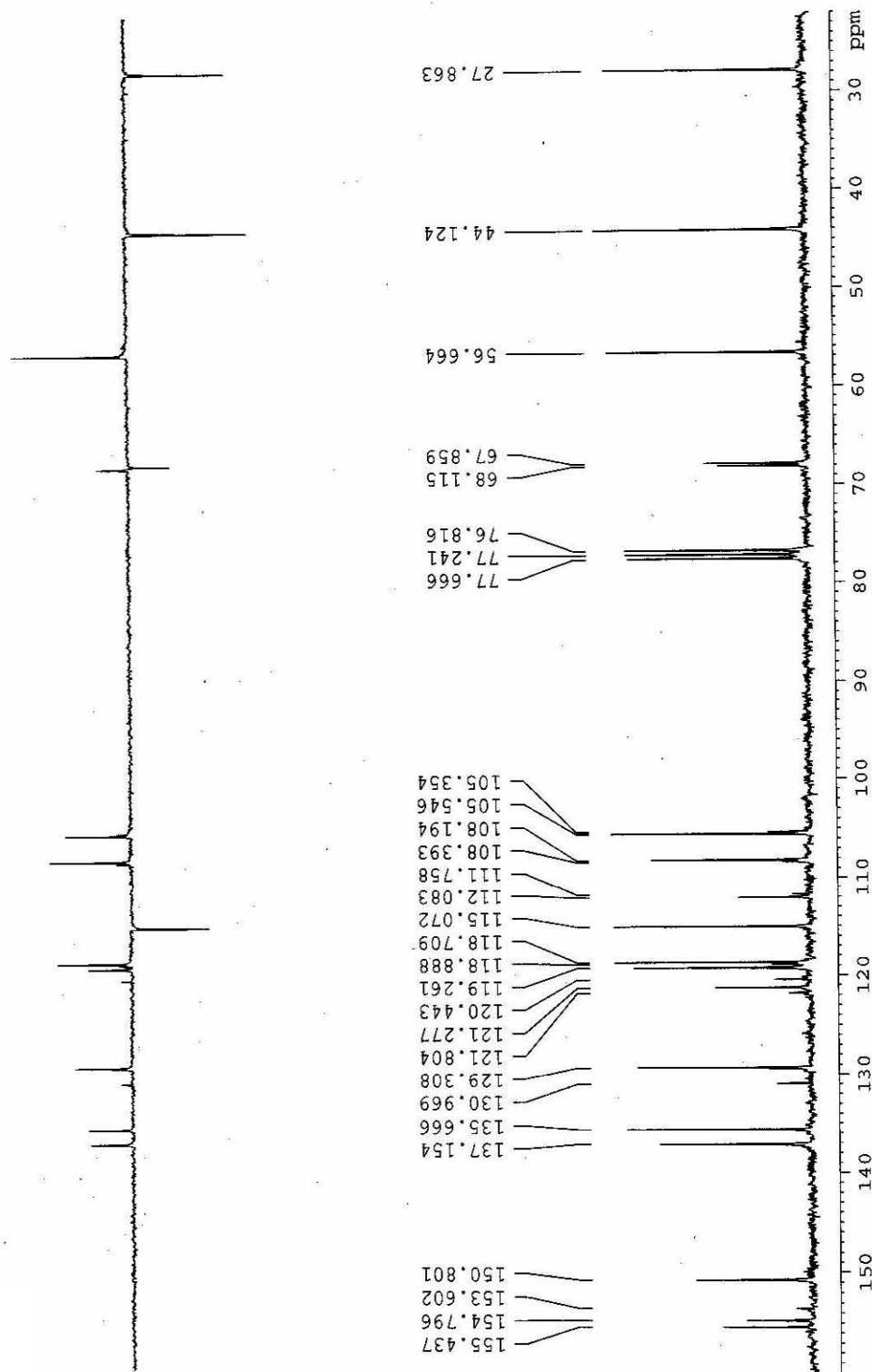
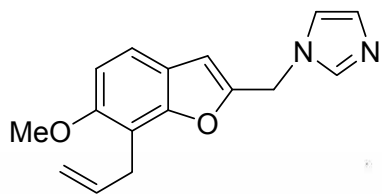
F2 - Acquisition Parameters
 Date_ 20100329
 Time 9:37
 INSTRUM ac300
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TO 65536
 SOLVENT CDCl3
 NS 16
 DS 1
 SMH 4789.272 Hz
 FIDRES 0.077078 Hz
 AQ 6.8420065 sec
 RG 50.0 B
 DW 104.400 usec
 DE 5.00 usec
 TE 297.0 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCWPRK 0.0150000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 8.60 usec
 PL1 -2.00 dB
 SF01 300.1321093 MHz

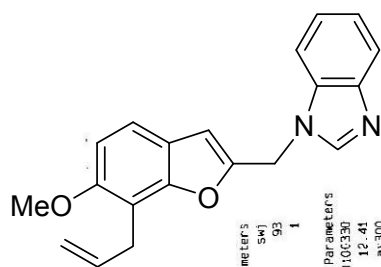
F2 - Processing parameters
 SI 32768
 SF 300.1295993 MHz
 EQ
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CY 23.00 cm
 CX 12.50 cm
 FJP 8.351 ppm
 F1 2506.47 Hz
 F2 2.627 ppm
 F7B 58 Hz
 PPMOH 0.24886 ppm/cm
 HzOH 74.68092 Hz/cm

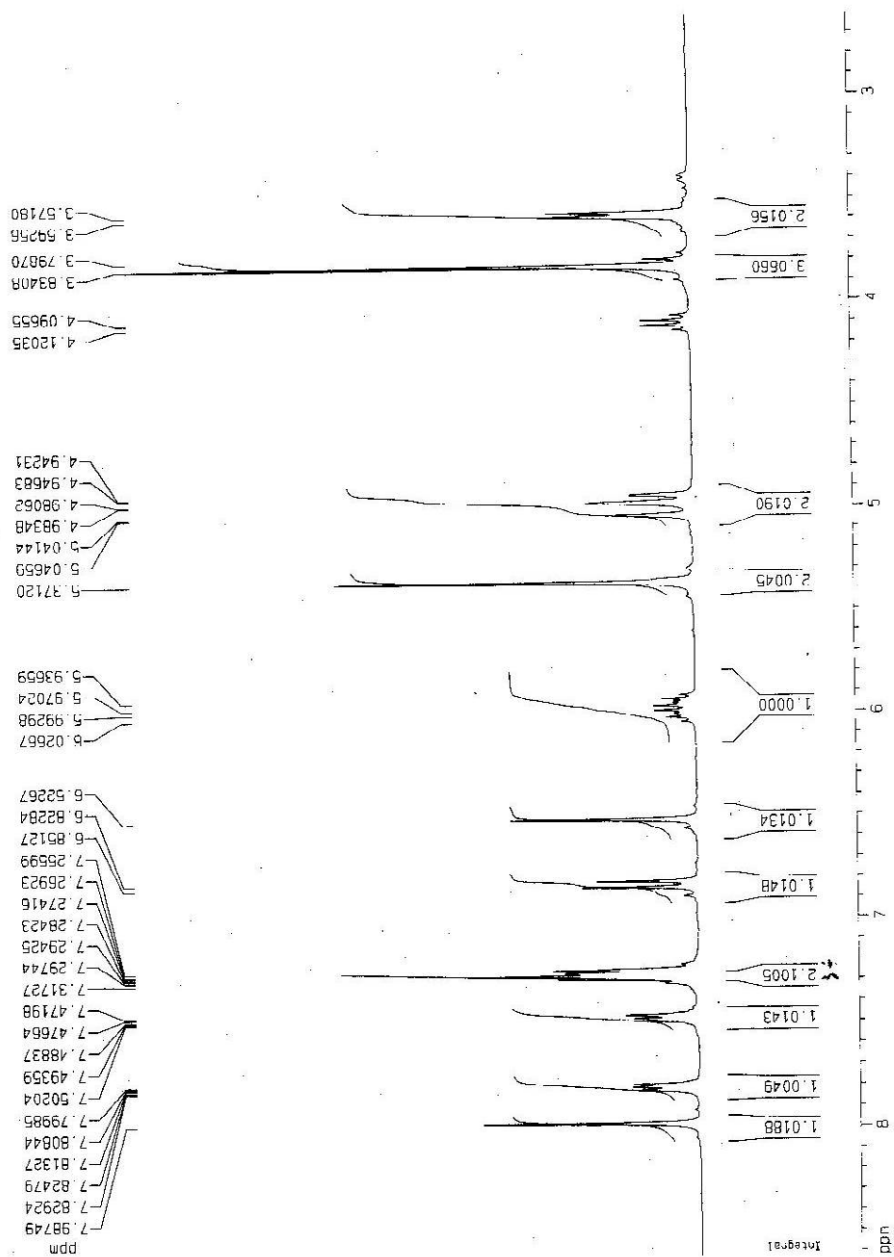


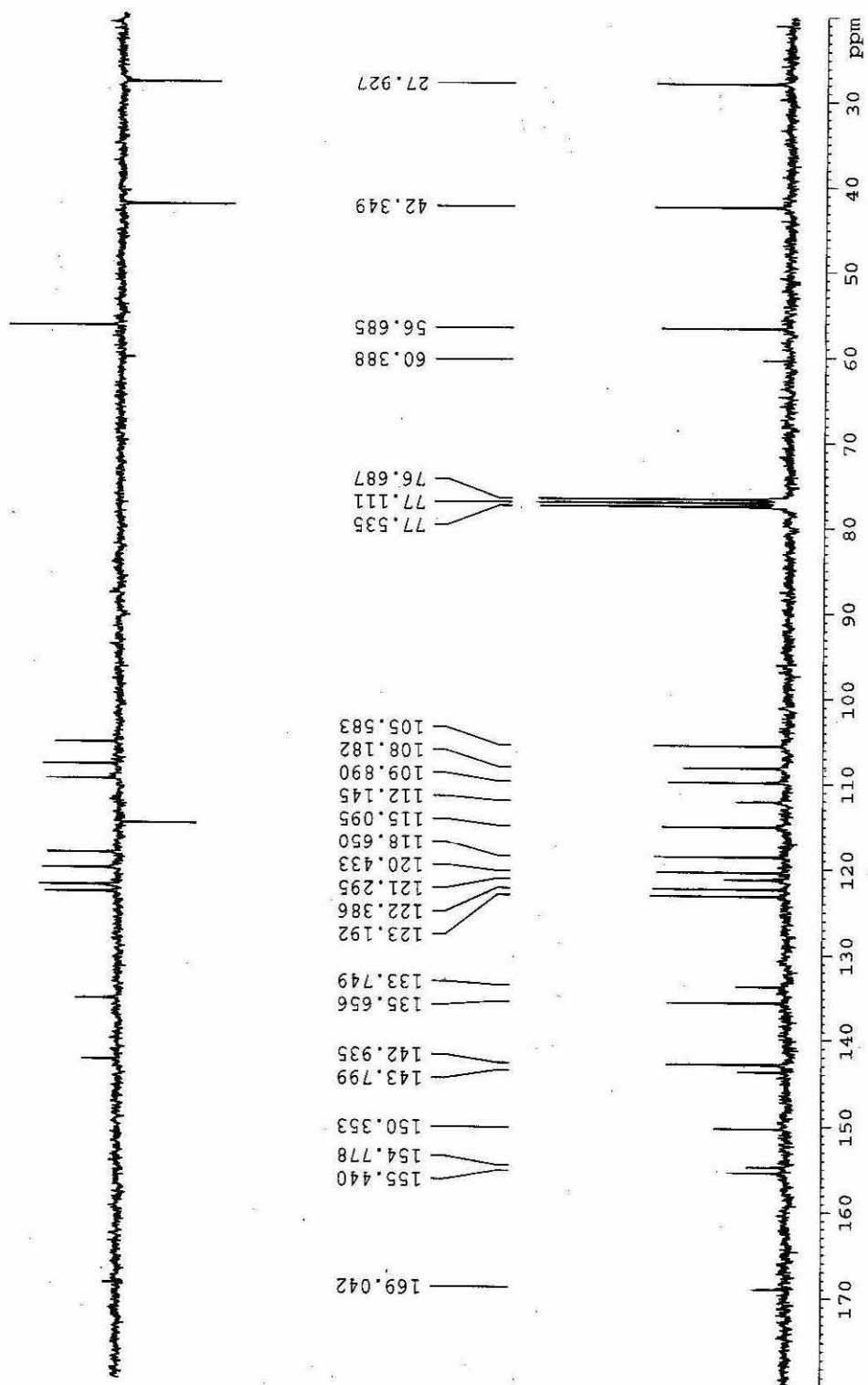
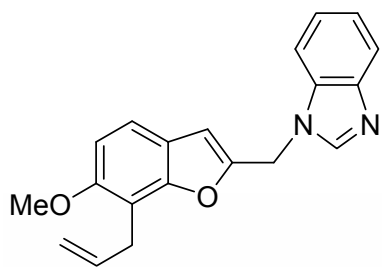


Compound 18 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)

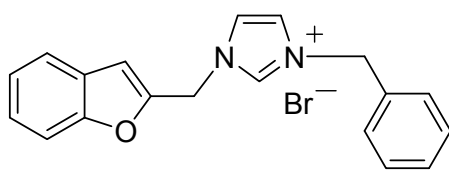


Current Data Parameters
 NAME sw1
 EXPNO 93
 PROCNO 1
 F2 - Acquisition Parameters
 Date_ 20100330
 Time 12.41
 INSTRUM av300
 PRBHD 5 mm QNP 1H/13
 PULPROG zg30
 TO 69536
 SOLVENT CDCl3
 NS 16
 DS 1
 SWH 4789.272 Hz
 FIDRES 0.077078 Hz
 AQ 6.8423086 sec
 RE 101.6
 DE 104.400 usec
 TE 296.3 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCNFK 0.0150000 sec
 ===== CHANNEL f1 =====
 NUC1 1H
 P1 8.60 usec
 PL1 -2.00 dB
 SFO1 300.1321009 MHz
 F2 - Processing parameters
 SI 32768
 SF 300.1360063 MHz
 EN
 OB 0
 LB 0.30 Hz
 GC 3
 PC 1.00
 10 NMR plot parameters
 CX 23.00 cm
 CY 12.50 cm
 CZ 8.626 cm
 F1 2589.01 Hz
 F2 2.613 ppm
 F3 784.36 Hz
 GAMMA 0.26143 ppm/cm
 MZM 78.46319 Hz/cm





Compound 19 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



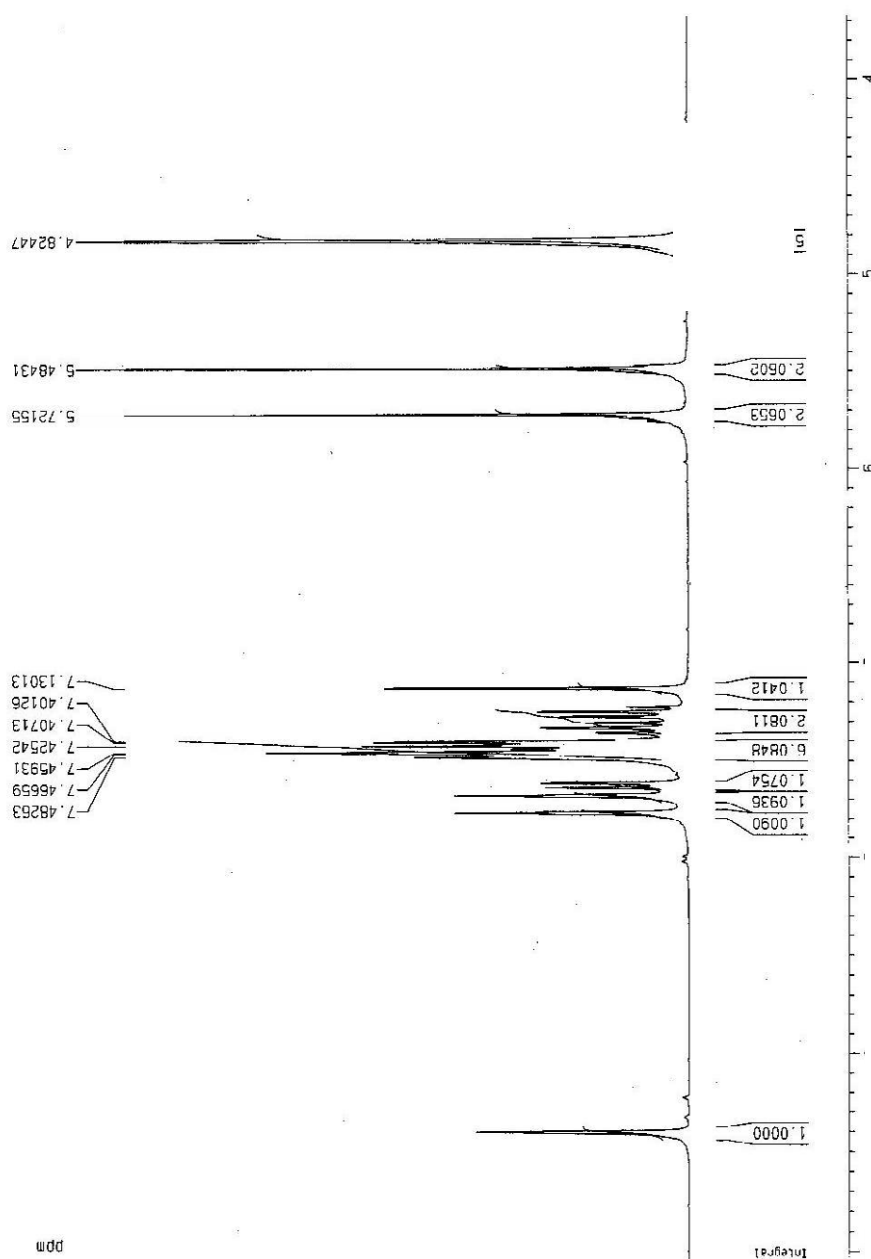
Current Data Parameters
 NAME swi
 EXPNO 236
 PROCNO 1

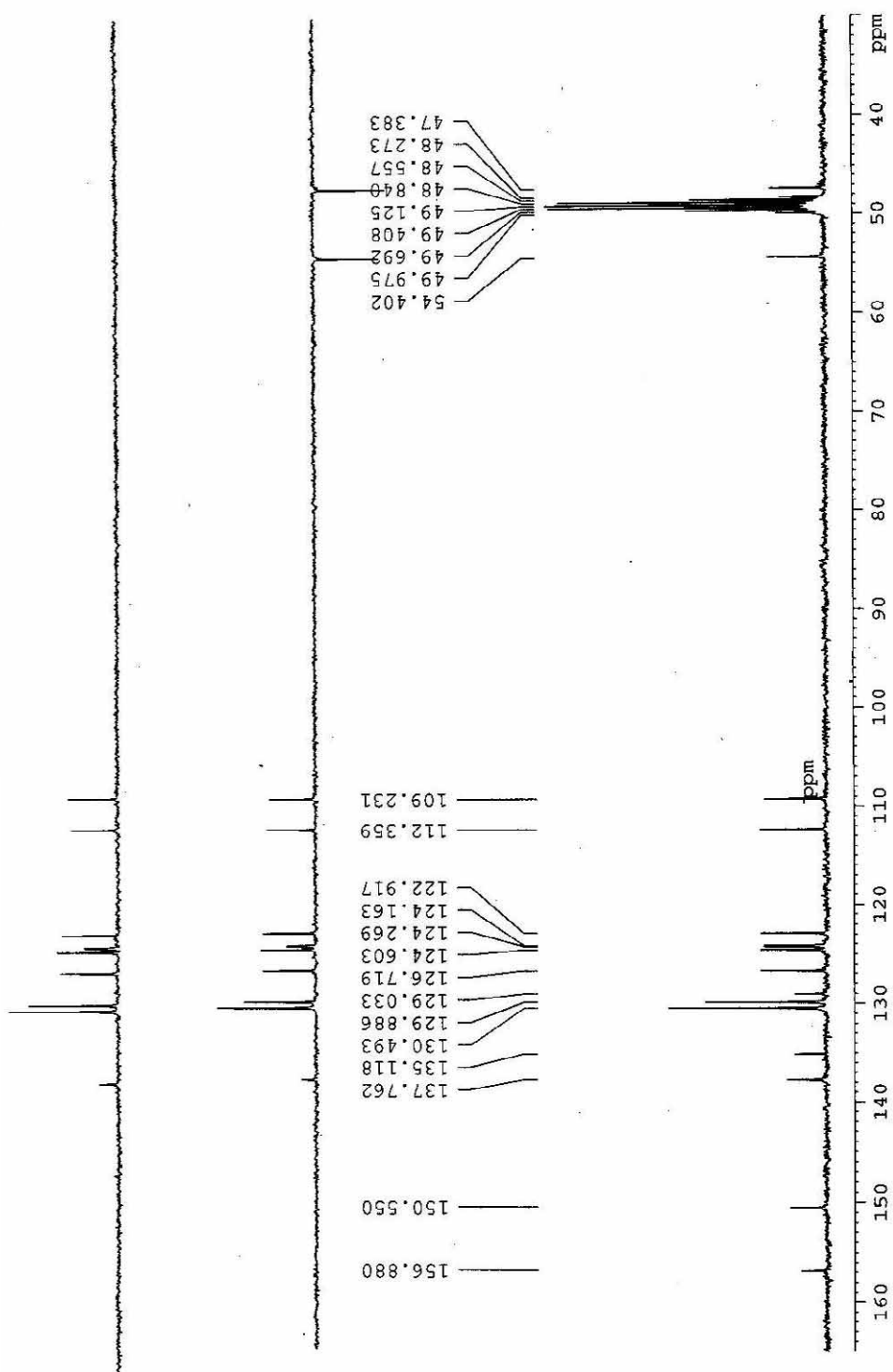
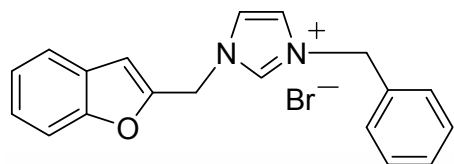
F2 - Acquisition Parameters
 Date_ 20090823
 Time 9.53
 INSTRUM av300
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TO 65535
 SOLVENT MeOD
 NS 16
 DS 1
 SWH 4789.272 Hz
 FIDRES 0.073078 Hz
 AQ 6.842086 sec
 RG 50.5
 DM 104.400 usec
 DE 6.00 usec
 TE 298.3 K
 D1 1.00000000 sec
 ACQRES 0.00000000 sec
 MCWRR 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 8.60 usec
 PL1 -2.00 dB
 SFO1 300.1321009 MHz

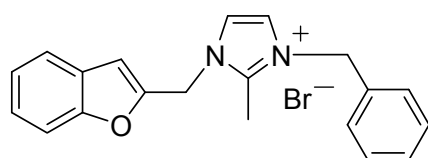
F2 - Processing parameters
 SI 32768
 SF 300.1300000 MHz
 MDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

^{13}C NMR p.p.m. parameters
 CA 23.00 cm
 CY 12.50 cm
 F1P 10.053 ppm
 F1 3017.31 Hz
 F2P 3.674 ppm
 F2 1102.69 Hz
 PPMCH 0.2736 ppm/cm
 HZCM 83.24425 Hz/cm





Compound 20 ¹H NMR (300 MHz) and ¹³C NMR (75 MHz)



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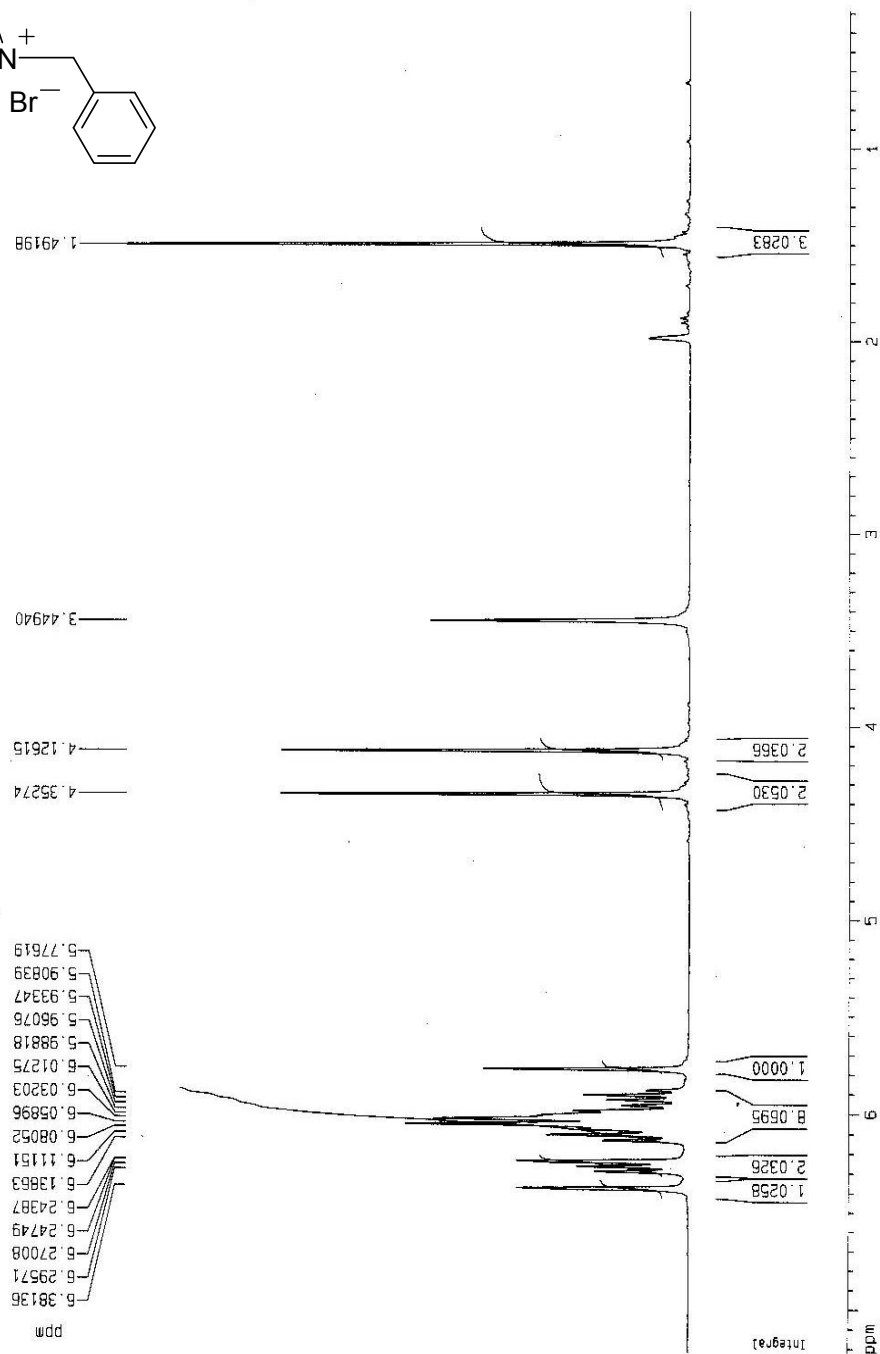
Current Data Parameters
NAME          SW1
EXPNO        223
PROCNO       1

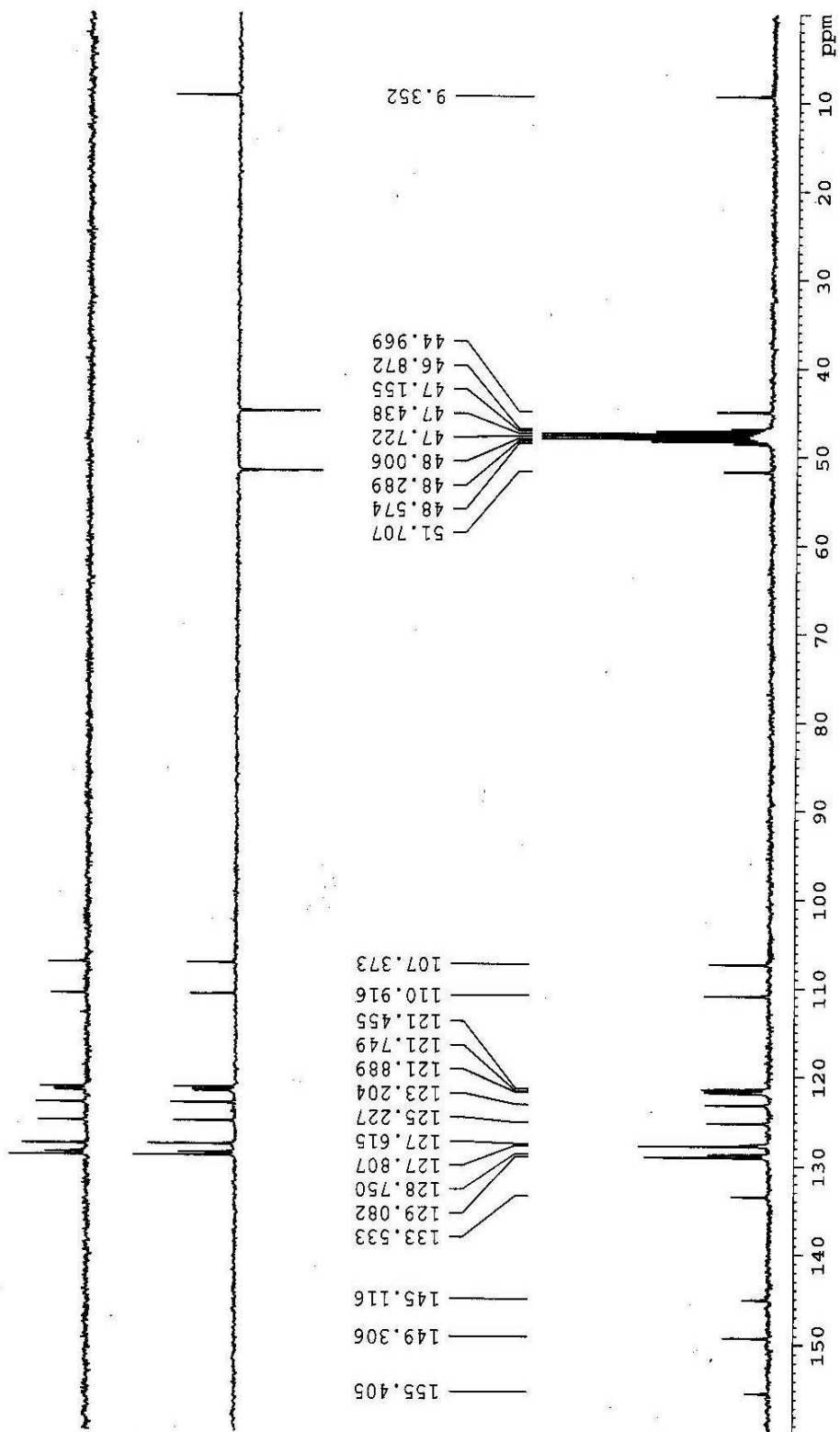
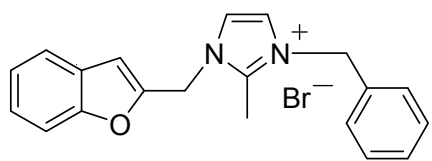
F2 - Acquisition Parameters
Date_        20090622
Time         12.34
INSTRUM      zg300
PROBHD       5 mm QNP 1H/13
PULPROG      zg30
SOLVENT      MeOD
NS           9
DS           1
SWH          4785.272 Hz
FIDRES       0.073078 Hz
AQ           61.6420086 sec
RG           80.6
DM           104.400 usec
DE           6.00 usec
TE           300.7 K
O1           1.00000000 sec
ADPREST      0.00000000 sec
MCPRK        0.01500000 sec

===== CHANNEL f1 =====
NUC1          1H
P1            8.60 usec
PL1          -2.00 dB
SFO1         300.1321009 MHz

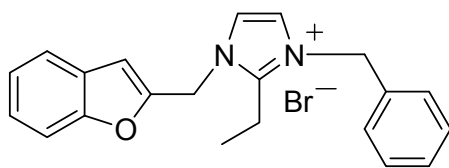
F2 - Processing parameters
SI           32768
SF          300.1299660 MHz
WDW          EM
SSB          0
LB           0.30 Hz
GB           0
PC           1.00

1D NMR plot parameters
CX          23.00 cm
CY          12.50 cm
FIDP        7.2023 cm
F1          2167.79 Hz
F2          0.288 ppm
F3          85.50 Hz
P1MCM       0.30165 ppm/cm
MCMZ        90.53445 Hz/cm
    
```





Compound 21 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



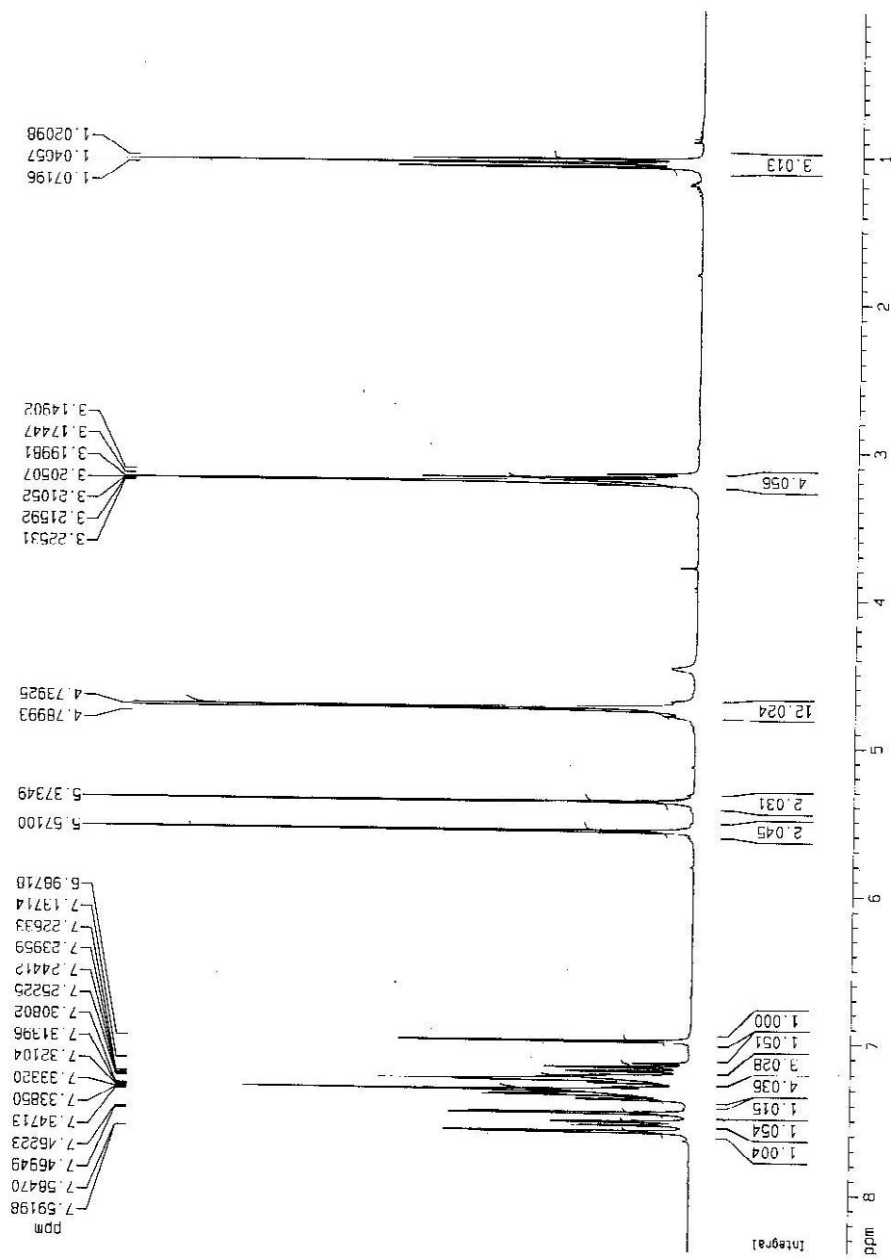
Current Data Parameters
 NAME: 541
 EXPNO: 199
 PROCNO: 1

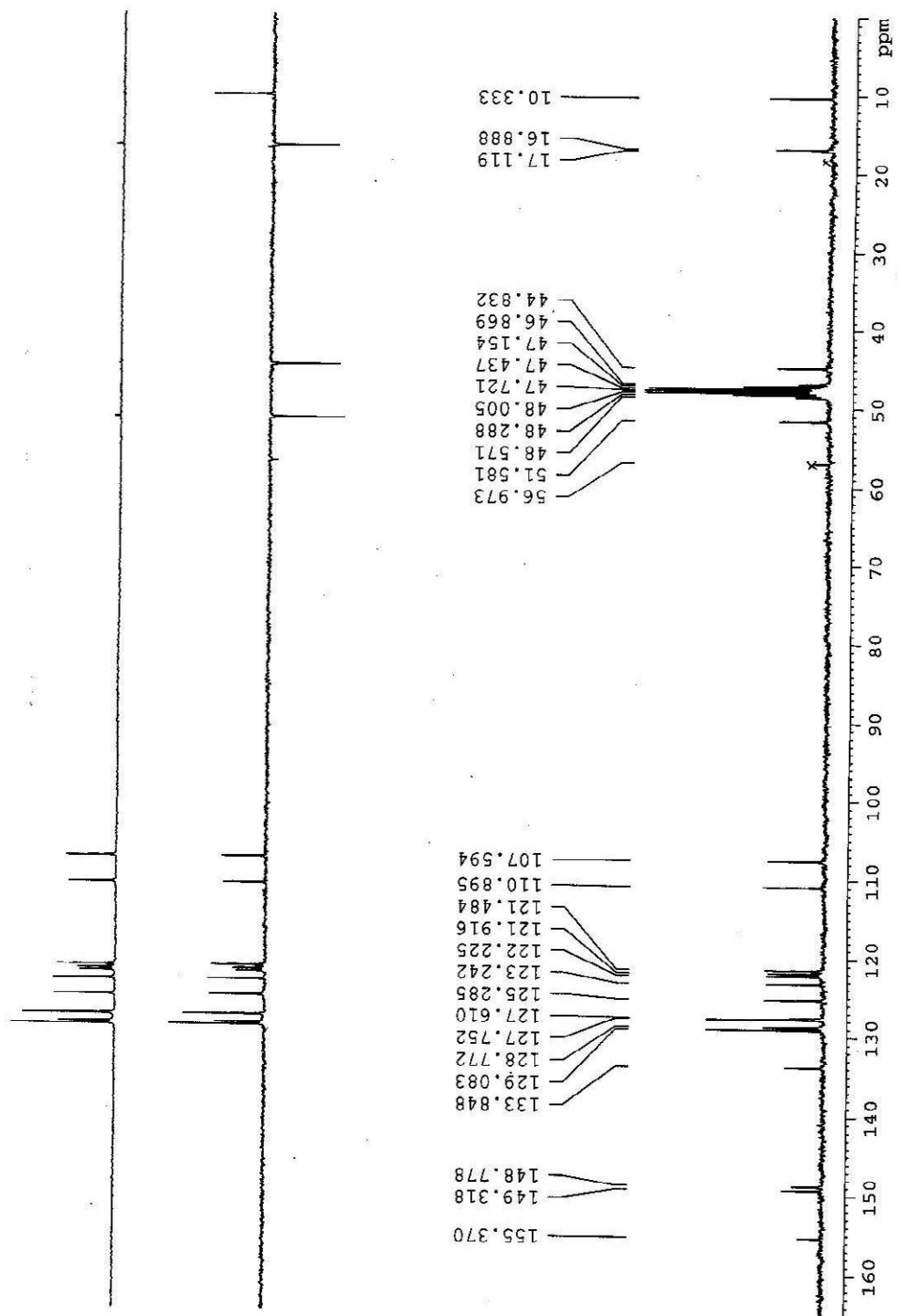
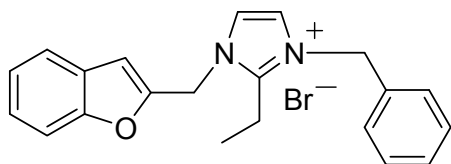
F2 - Acquisition Parameters
 Date_: 20090516
 Time: 11.14
 INSTRUM: av300
 PROBHD: 5 mm QNP 1H/13
 PULPROG: zg30
 TD: 65536
 SOLVENT: MeOD
 NS: 16
 DS: 1
 SWH: 4789.272 Hz
 FIDRES: 0.073078 Hz
 AQ: 6.342008 sec
 RG: 256
 DM: 104.400 usec
 DE: 6.00 usec
 TE: 298.2 K
 D1: 1.0000000 sec
 MCREST: 0.0000000 sec
 MCWPRG: 0.01500000 sec

===== CHANNEL f1 =====
 NUC1: 1H
 P1: 8.60 usec
 PL1: -2.00 dB
 SFO: 300.1351009 MHz

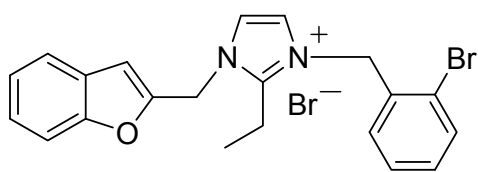
F2 - Processing parameters
 SI: 32758
 SF: 300.1300352 MHz
 WDW: EM
 SSB: 0
 LB: 0.30 Hz
 GB: 0
 PC: 1.00

1D NMR plot parameters
 CX: 23.00 cm
 CY: 12.50 cm
 F1P: 8.388 ppm
 F1: 2517.48 Hz
 F2P: 0.009 ppm
 F2: 2.84 Hz
 PPMCM: 0.36428 ppm/cm
 HZCM: 109.33219 Hz/cm





Compound 22 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



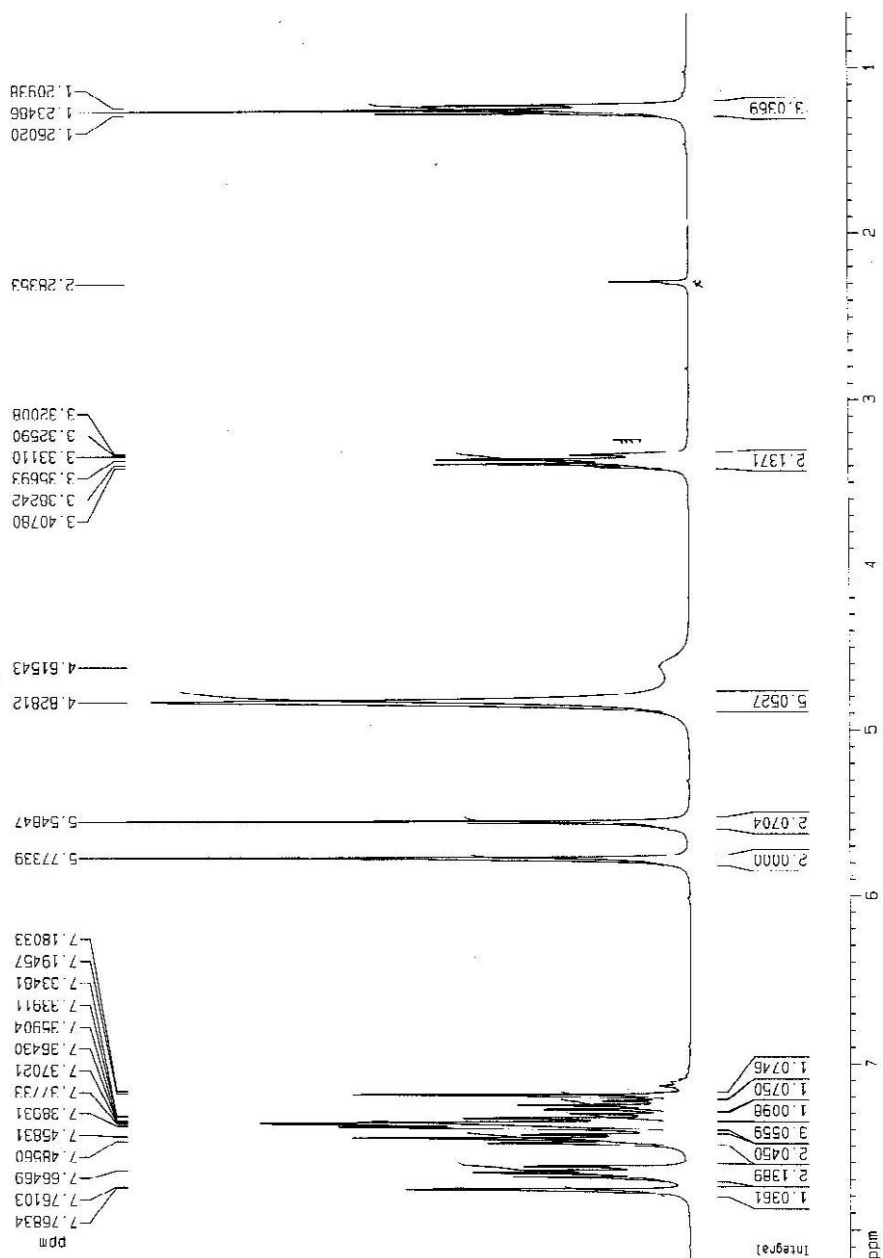
Current Data Parameters
 NAME sw1
 EXPNO 206
 PROCNO 1

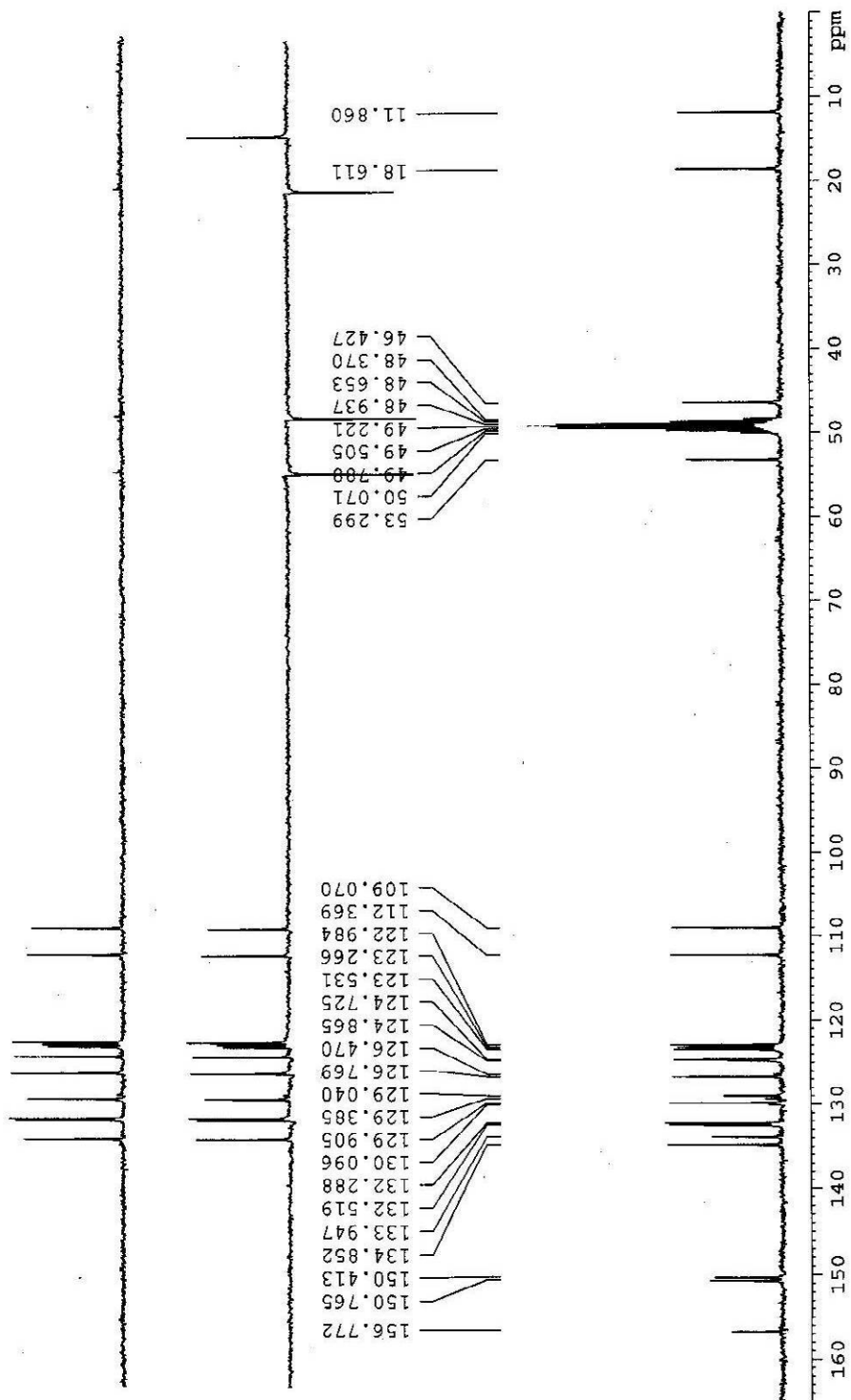
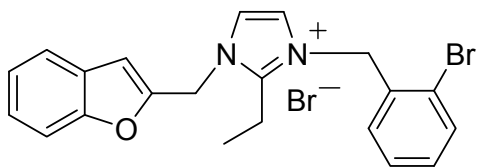
Date_ 20090617
 Time_ 12.42
 INSTRUM av300
 PROBHD 5 mm QNP 1H/13
 PULPROG zgpg30
 TC 68536
 SOLVENT MeOD
 NS 16
 DS 1
 SH 4789.272 Hz
 FIDRES 0.073078 Hz
 AQ 6.8425066 sec
 RG 50.8
 DM 104.400 usec
 DE 6.00 usec
 TE 299.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWFK 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 ^1H
 P1 8.60 usec
 PL1 -2.00 dB
 SFO1 300.1321009 MHz

F2 - Processing parameters
 SI 300.1300000 MHz
 SF 52768
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

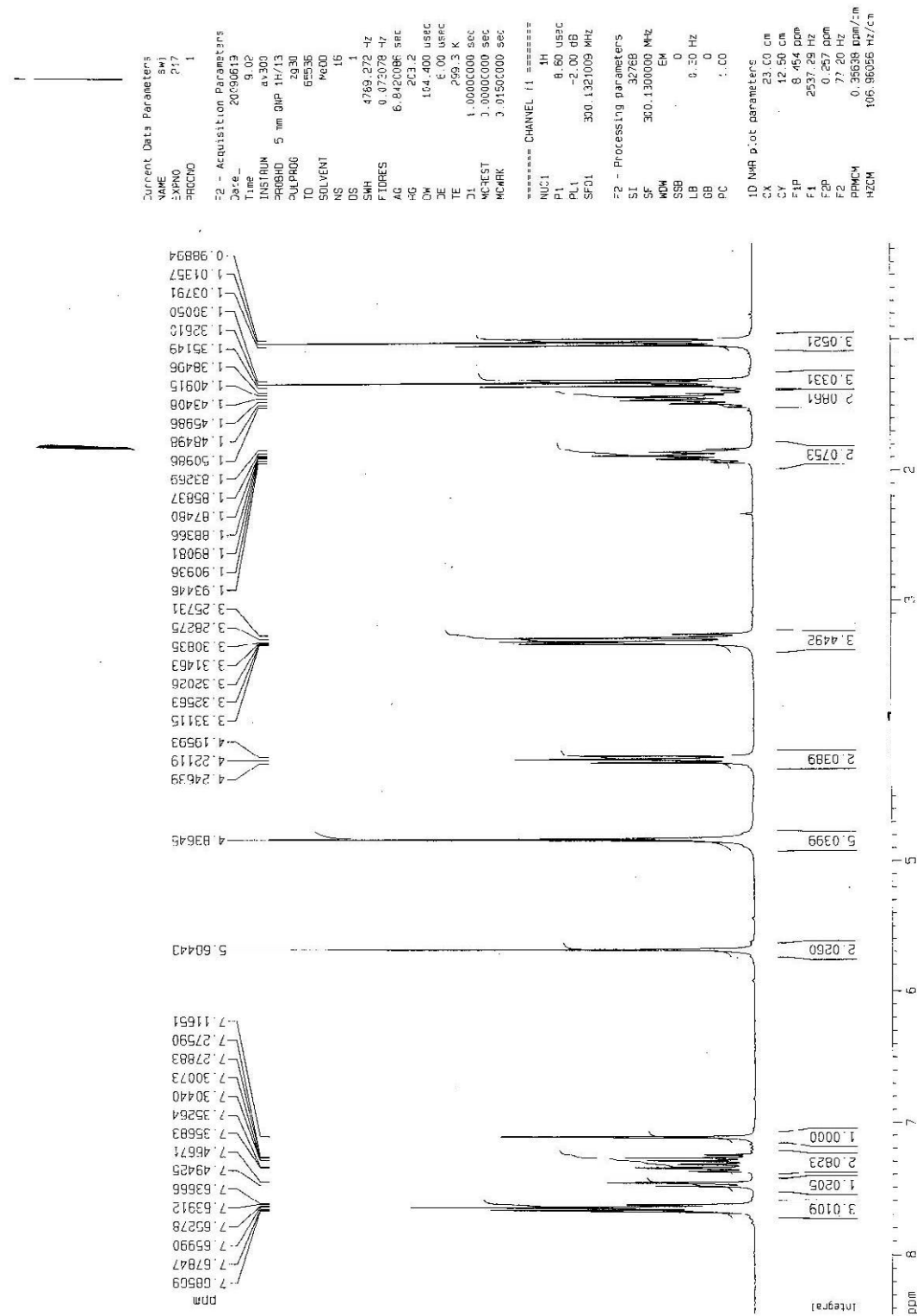
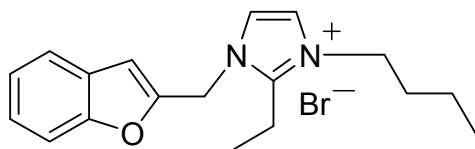
ID NMR plot parameters
 CX 23.00 cm
 CY 2.50 cm
 FIP 8.17C ppm
 F1 2452.05 Hz
 F2P 0.663 ppm
 F2 198.89 Hz
 PPMCM 0.32640 ppm/cm
 HZCM 97.96349 Hz/cm





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Compound 23 ^1H NMR (300 MHz) and ^{13}C NMR (75 MHz)



Current Data Parameters
 NAME sw1
 EXPNO 217
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090615
 Time 9.02
 INSTRUM av300
 PROBHD 5 mm QNP 1H/13
 PULPROG zg30
 TO 65536
 SOLVENT MeOD
 NS 16
 DS 1
 SWH 4769.272 Hz
 FIDRES 0.072078 Hz
 AQ 6.8420086 sec
 RG 233.2
 DM 164.400 usec
 DE 6.00 usec
 TE 299.3 K
 D1 1.0000000 sec
 MC1EST 3.0000000 sec
 MC1MRK 3.0150000 sec

===== CHANNEL f1 =====
 NUC1 ^1H
 P1 8.60 usec
 PL1 -2.00 dB
 SF01 300.1321009 MHz

F2 - Processing parameters
 S1 32788
 SF 300.1300000 MHz
 MDM EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 23.00 cm
 CY 12.50 cm
 ZP 8.454 DDM
 F1 2537.29 Hz
 F2 0.257 ppm
 FZ 77.20 Hz
 PPMCM 0.35638 ppm/cm
 HZCM 106.96056 Hz/cm

