Supporting Information

A highly efficient ultrasound-promoted synthesis of 2,3-disubstituted benzo[*b*]furans *via* intramolecular C-C bond formation in ionic liquid[bmim]BF_4 at room temperature

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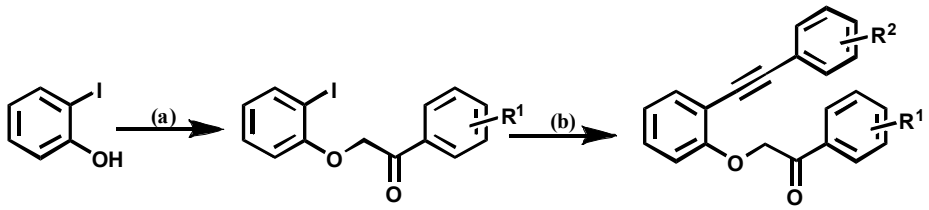
General Considerations

Reagent grade solvents were used for extraction and column chromatography. All the reagents and chemicals were purchased from Sigma–Aldrich and Merck and were used directly without further purification. The progress of reactions was checked by analytical thin-layer chromatography (TLC, Merck silica gel 60 F-254 plates). The plates were visualized first with UV illumination followed by iodine. Column chromatography was performed using silica gel (100-200 mesh). The solvent compositions reported for all chromatographic separations are on a volume/volume (v/v) basis. ^{1}H-NMR spectra were recorded at either 200 or 300 MHz and are reported in parts per million (ppm) on the δ scale relative to tetramethylsilane as an internal standard.^{13}C-NMR spectra were recorded at either 50 or 75 MHz and are reported in parts per million (ppm) on the δ scale relative to $CDCl_3$ (δ 77.00). Mass spectra were obtained using JEOL SX-102 (ESI) instrument. Melting points were determined on a Mel Temp II melting point apparatus and are uncorrected.

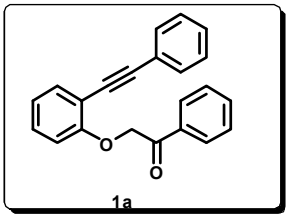
Experimental procedure

General procedure for the synthesis of compounds 1a-q



1a-q

Scheme 1(a) K_2CO_3, dry acetone, phenacyl bromide derivatives, reflux, 2-3hr (b) $Pd(PPh_3)_2Cl_2$, CuI, Et_3N, room temperature, 3 hr.

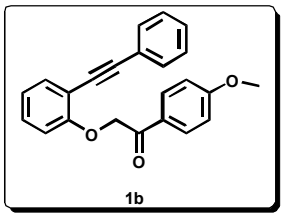


1a

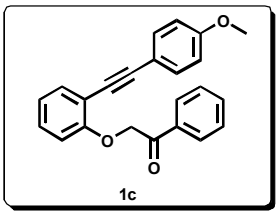
1-phenyl 2-(2-(phenylethynyl) phenoxy) ethanone **(1a)**[1]

To a solution of 2-(2-iodophenoxy)-1-phenylethanone (3.40g,10mmole) in 20 ml of Et_3N $Pd(PPh_3)_2Cl_2$ (2 mole %) and CuI (1mole %) were added and reaction mixture was stirred at room temperature under N_2 atmosphere for 10 minutes. Phenyl acetylene (1.3 ml, 12 mmole)

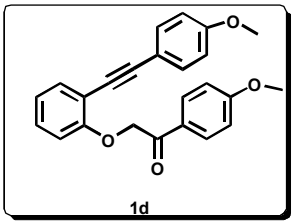
was then added drop wise and stirring was continued at rt for 3 hr. Progress of the reaction was monitored by TLC. After completion, it was quenched with aqueous NH_4Cl solution, extracted with EtOAc, dried over Na_2SO_4 and concentrated under reduced pressure to afford dark brown solid. The crude product was purified by silica gel column chromatography (EtOAc/hexane) to afford the pure compound **1a** as white solid (2.4 g, (80%), mp 65-66^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.11-8.08 (d, J=7.2 Hz, 2H),7.60-7.46 (m, 6H), 7.34-7.32 (m,4H), 7.03-6.98 (t, J=6.8 Hz, 1H), 6.91-6.88 (d, J=8.3 Hz,1H), 5.36 (s,CH_2, 2H). ESI-MS: (m/z) = 313 $[M+H]^+$.



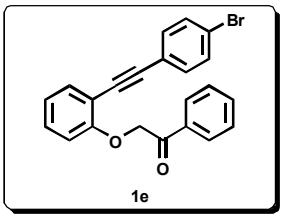
1-(4-methoxyphenyl)-2-(2-(phenylethynyl)phenoxy) ethanone **(1b).**Yellow oil; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.13-8.10 (d, J=8.8Hz, 2H), 7.54-7.46 (m, 3H), 7.34-7.25 (m, 4H), 7.02-6.97 (t, J=7.0 Hz, 1H), 6.93-6.88 (m, 3H), 5.28 (s, CH_2, 2H), 3.82 (s, OCH_3, 3H). ESI-MS: (m/z) = 343 $[M+H]^+$.



2-(2-((4-methoxyphenyl) ethynyl) phenoxy)-1-phenyl ethanone **(1c)**. Yellow oil; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.13-8.10 (d, J=8.8 Hz, 2H), 7.54-7.46 (m, 3H), 7.34-7.25 (m, 4H),7.02-6.97 (t, J=7.0Hz, 1H), 6.93-6.88 (m, 3H), 5.28 (s, CH_2, 2H), 3.82 (s, OCH_3, 3H). ESI-MS: (m/z) = 343 $[M+H]^+$.

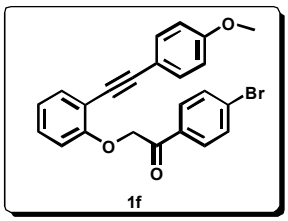


1-(4-methoxyphenyl)-2-(2-((4-methoxyphenyl) ethynyl)phenoxy) ethanone **(1d).** White solid: mp 98-99 ^{0}C; ^{1}HNMR(300 MHz, $CDCl_3$) δ 8.13-8.10 (d, J=8.8Hz, 2H), 7.51-7.49 (d, J=7.2 Hz, 1H), 7.42-7.39 (d, J=8.7 Hz, 2H), 7.26-7.24 (d, J=7.2 Hz, 1H), 7.01-6.85 (m, 6H), 5.27 (s, CH_2, 2H), 3.84 (s, OCH_3, 6H). ESI-MS: (m/z) = 373 $[M+H]^+$



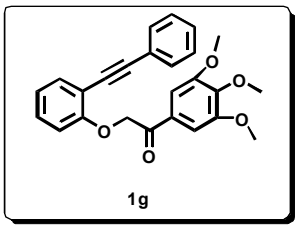
1e

2-(2-((4-bromophenyl)ethynyl)phenoxy)-1-phenyl ethanone **(1e).** White solid: mp 74-75 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.00-7.97 (d, J=6.9 Hz, 2H), 7.60-7.58 (d, J=7.3 Hz, 2H),7.54-7.52 (d, J=6.1 Hz, 1H), 7.44-7.29 (m, 6H), 7.02-6.99 (d, J=7.4 Hz, 1H), 6.91-6.88 (d, J=7.9 Hz, 1H), 5.27 (s, CH_2, 2H). ESI-MS: (m/z) =391 $[M+H]^+$



1f

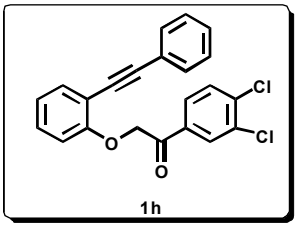
1-(4-bromophenyl)-2-(2-((4-methoxyphenyl)ethynyl)phenoxy) ethanone **(1f).** Colourless oil; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.99-7.97 (d, J=6.9 Hz, 2H), 7.60-7.57 (d, J=8.6 Hz, 2H), 7.52-7.50 (d, J=6.0 Hz, 1H),7.37-7.35 (d, J=6.9 Hz, 2H), 7.30-7.24 (m, 1H), 7.03-6.97 (m, 1H), 6.89-6.87 (d, J=6.9 Hz, 3H), 5.28 (s, CH_2, 2H), 3.85 (s, OCH_3, 3H). ESI-MS: (m/z) = 421 $[M+H]^+$



1g

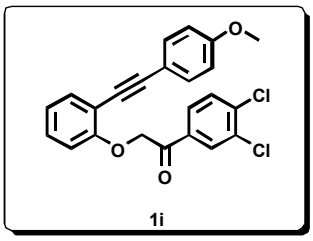
2-(2-(phenylethynyl) phenoxy)-1-(3,4,5-trimethoxyphenyl) ethanone **(1g).** White solid: mp 91-92 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.54-7.52 (d, J=7.5 Hz, 1H), 7.45-7.41 (m, 2H), 7.36-7.34 (d, J=6.6 Hz, 2H), 7.33-7.29 (m, 4H), 7.03-6.98 (t, J=7.5 Hz, 1H), 6.92-6.89 (d,

J=8.2 Hz, 1H), 5.29 (s, CH_2, 2H), 3.91 (s, OCH_3, 3H), 3.88 (s, OCH_3, 6H). ESI-MS: (m/z) = 403 $[M+H]^+$



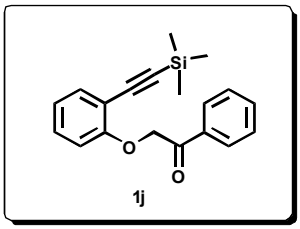
1h

1-(3,4-dichlorophenyl)-2-(2-(phenylethynyl)phenoxy) ethanone**(1h).**Yellow oil; ^1H NMR (300 MHz, $CDCl_3$) δ 7.73 (s, 2H), 7.49-7.43 (m, 2H), 7.30-7.22 (m, 2H), 7.20-7.16 (m, 2H), 6.91-6.87 (t, J=6.9 Hz, 2H), 6.75-6.72 (d, J=8.2 Hz, 2H), 4.73 (s, CH_2, 2H). ESI-MS: (m/z) = 381$[M+H]^+$



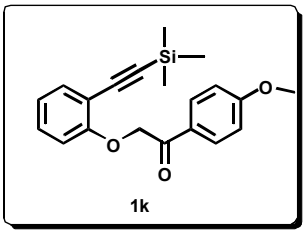
1i

1-(3,4-dichlorophenyl)-2-(2-((4-methoxyphenyl)ethynyl)phenoxy) ethanone **(1i).** Yellow oil; ^1H NMR (300 MHz, $CDCl_3$) δ 7.77 (s, 1H), 7.50-7.43 (m, 4H), 7.30-7.28 (d, J=8.2 Hz, 1H), 7.22 (s, 1H), 6.94-6.86 (m, 3H), 6.77-6.74 (d, J=8.2 Hz, 1H), 4.77 (s, CH_2, 2H), 3.80 (s, OCH_3, 3H). ESI-MS: (m/z) = 411 $[M+H]^+$



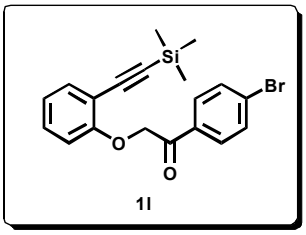
1j

1-phenyl-2-(2-((trimethylsilyl)ethynyl)phenoxy) ethanone **(1j).** Colourless oil; ^1H NMR (300 MHz, $CDCl_3$) δ 8.07 (s, 2H), 7.62-7.50 (m, 3H), 7.25-6.90 (m, 2H), 6.87-6.76 (m, 2H), 5.32 (s, CH_2, 2H), 0.23 (s, CH_3, 9H). ESI-MS: (m/z) = 237 $[M+H]^+$



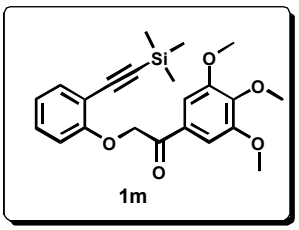
1k

1-(4-methoxyphenyl)-2-(2-((trimethylsilyl)ethynyl)phenoxy) ethanone **(1k).** White solid: mp 79-80 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.10-8.07 (d, J=8.9 Hz, 2H), 7.46-7.7.44 (d, J=7.6 Hz, 1H), 7.27-7.24 (d, J=7.6 Hz, 1H), 6.98-6.95 (d, 8.9 Hz, 3H), 6.87-6.84 (m, J=8.3 Hz, 1H), 5.25 (s, CH_2, 2H), 3.89 (s, OCH_3, 3H), 0.24 (s,CH_3, 9H). ESI-MS: (m/z) = 267 $[M+H]^+$.



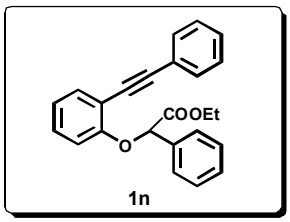
1l

1-(4-bromophenyl)-2-(2-((trimethylsilyl)ethynyl)phenoxy) ethanone **(1l).** Off white solid: mp 85-86 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.98-7.95 (d, J=8.4 Hz, 2H), 7.65-7.63 (d, J=8.5 Hz, 2H), 7.47-7.45 (d, J=7.6 Hz, 1H), 7.29-7.24 (m, 1H), 6.99-6.94 (t, J=7.5 Hz, 1H), 6.87-6.84 (d, J=8.3 Hz, 1H), 5.24 (s, CH_2, 2H), 0.23 (s, CH_3, 9H). ESI-MS: (m/z) = 315 $[M+H]^+$.



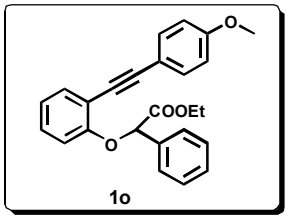
1m

1-(3,4,5-trimethoxyphenyl)-2-(2-((trimethylsilyl)ethynyl)phenoxy) ethanone **(1m).** Light yellow solid: mp 74-76 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.48-7.45 (d, J=7.2 Hz,1H), 7.38 (s, 2H), 7.28-7.23 (t, J=7.6 Hz,1H), 6.97-7.92 (t, J=7.4 Hz, 1H), 6.86-6.84 (d, J=8.4 Hz, 1H), 5.24 (s, CH_2, 2H), 3.93 (s, OCH_3, 9H), 0.21 (s, CH_3, 9H). ESI-MS: (m/z) = 327 $[M+H]^+$.



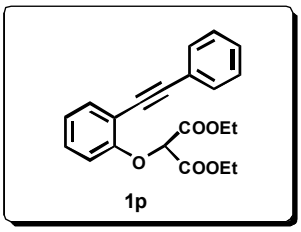
1n

Ethyl 2-phenyl-2-(2-(phenylethynyl)phenoxy) acetate **(1n).**Yellow solid: mp 70-71 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.74-7.72 (d, J=7.4 Hz, 2H), 7.56-7.53 (d, J=7.5 Hz, 3H), 7.41-7.35 (m, 7H), 7.04-6.99 (t, J=7.5 Hz, 1H), 6.92-6.89 (d, J=8.4 Hz, 1H), 5.78 (s, CH, 1H), 4.24-4.17 (m, CH_2, 2H), 1.23-1.18 (t, J=7.1 Hz, CH_3, 3H). ESI-MS: (m/z) = 357 $[M+H]^+$.



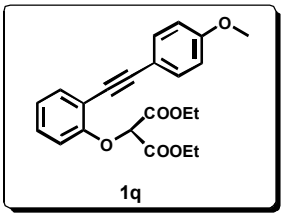
1o

Ethyl 2-(2-((4-methoxyphenyl)ethynyl)phenoxy)-2-phenyl acetate **(1o).**Off white solid: mp 76-77 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.73-7.71 (d, J=5.5 Hz, 2H), 7.53-7.44 (m, 6H), 7.39-7.28 (m, 1H), 7.03-7.01 (m, 1H), 6.90-6.88 (d, J=7.4 Hz, 3H), 5.78 (s, CH, 1H), 4.24-4.17 (m, CH_2, 2H), 3.86 (s, OCH_3, 3H), 1.23-1.20 (t, J=5.5 Hz, CH_3, 3H). ESI-MS: (m/z) = 387 $[M+H]^+$



1p

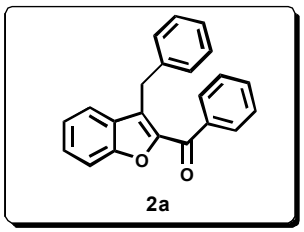
Diethyl 2-(2-(phenylethynyl)phenoxy) malonate **(1p).** Brown solid: mp 60-61 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.58-7.55 (m, 3H), 7.36-7.10 (m, 4H), 7.08-7.02 (m, 2H), 5.40 (s, CH, 1H), 4.35-4.28 (m, CH_2, 4H), 1.31-1.26 (t, J=7.4 Hz, CH_3, 6H). ESI-MS: (m/z) =353$[M+H]^+$



1q

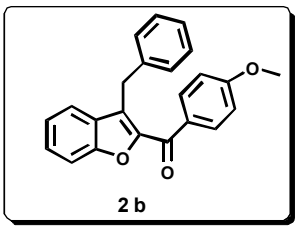
Diethyl 2-(2-((4-methoxyphenyl)ethynyl)phenoxy) malonate **(1q).** Brown solid: mp 69-71^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.54-7.50 (m, 3H), 7.26-7.24 (d, J=6.6 Hz, 1H), 7.10-7.02 (m, 2H), 6.91-6.88 (d, J=8.7 Hz, 2H), 5.41 (s, CH, 1H), 4.33-4.26 (m, CH_2, 4H), 3.85 (s, OCH_3, 3H), 1.32-1.27 (t, J=7.1 Hz, CH_3, 6H). ESI-MS: (m/z) =383 $[M+H]^+$

Characterization data of 2,3-disubstituted benzo[*b*]furans 2a-q



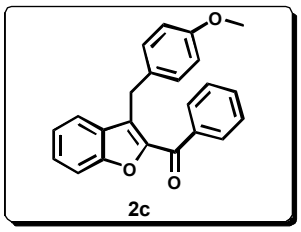
2a

(3-Benzylbenzofuran-2-yl) phenyl methanone **(2a).** White solid: mp 110-111 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.15-8.13 (d, J=7.1Hz, 2H), δ 7.66-7.48 (m, 6H), 7.40-7.38 (d, J=7.1Hz, 2H), 7.31-7.18 (m, 4H), 4.57 (s, CH_2, 2H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 185.9, 154.5, 148.4, 139.7, 137.8, 132.8, 129.2, 128.8, 128.6, 128.5, 128.4, 128.2, 126.4, 123.6, 122.2, 112.4, 30.5. IR (KBr , cm^{-1}): 1641, 1550, 1262, 1218, 1018, 769. ESI-MS: (m/z) = 313 $[M+H]^{+}$.



2 b

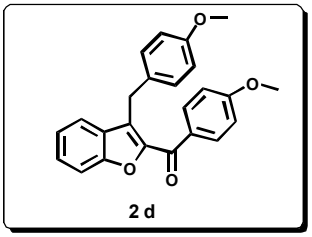
(3-Benzylbenzofuran-2-yl) (4-methoxyphenyl) methanone **(2b).** White solid: mp 78-80 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.22-8.19 (d, J=8.8 Hz, 2H), 7.59-7.56 (d, J=9.2 Hz, 2H), 7.49-7.44 (t, J=7.8Hz, 1H), 7.40-7.38 (d, J=7.0 Hz, 2H), 7.31-7.26 (t, J=7.6 Hz, 4H), 7.05-7.02 (d, J=8.8 Hz, 2H), 4.56 (s, CH_2, 2H), 3.93 (s, OCH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.2, 163.5, 154.3, 148.8, 139.3, 132.5, 128.8, 128.5, 127.9, 126.4, 123.5, 122.1, 113.7, 112.2, 55.5, 30.5. IR (KBr, cm^{-1}): 1635, 1218, 1166, 1068, 769. ESI-MS: (m/z) = 343 $[M+H]^{+}$.



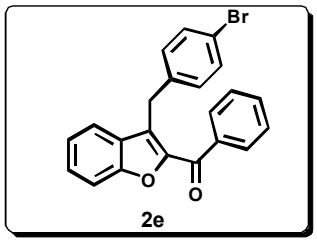
2c

(3-(4-Methoxybenzyl) benzofuran-2-yl)phenyl methanone **(2c)**.White solid: mp 115-116 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.15-8.13 (d, J=7.2 Hz, 2H), 7.64-7.45 (m, 6H), 7.33-7.26 (m, 3H), 6.84-6.82 (d, J=8.4 Hz, 2H), 4.50 (s, CH_2, 2H), 3.78 (s, OCH_3, 3H). ^{13}C NMR (50 MHz,

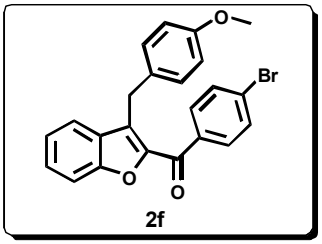
$CDCl_3$), δ 185.8, 158.1, 154.5, 148.2, 137.7, 132.7, 131.2, 130.9, 129.8, 128.3, 128.0, 123.4, 122.1, 113.9, 112.3, 55.2, 31.9, 29.7, 22.7. IR (KBr, cm^{-1}): 1642, 1511, 1217, 1065, 766. ESI-MS: (m/z) = 343 $[M+H]^+$



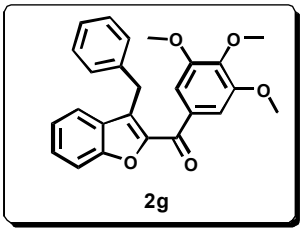
(3-(4-Methoxybenzyl) benzofuran-2-yl (4-methoxyphenyl) methanone **(2d).** White solid: mp 101-102 ^0C; ^1H NMR (300 MHz, $CDCl_3$) δ 8.21-8.19 (d, J=8.8 Hz, 2H), 7.70-7.55 (t, J=7.1 Hz, 2H), 7.49-7.44 (t, J=7.4 Hz, 1H), 7.33-7.25 (m, 3H), 7.05-7.02 (d, J= 8.8 Hz, 2H), 6.84-6.81 (d, J=8.5 Hz, 2H), 4.49 (s, CH_2, 2H), 3.93 (s, OCH_3, 3H), 3.77 (s, OCH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.2, 163.5, 158.1, 154.3, 148.6, 132.4, 131.4, 129.7, 127.8, 123.4, 122.1, 113.9, 112.2, 55.5, 55.2, 29.6. IR (KBr, cm^{-1}): 1727, 1597, 1257, 1029, 769. ESI-MS: (m/z) = 373 $[M+H]^+$



(3-(4-bromobenzyl)benzofuran-2-yl)(phenyl methanone **(2e).** White solid: mp 102-103 ^0C; ^1H NMR (300 MHz, $CDCl_3$) δ 8.05-8.02 (d, J=8.5 Hz, 2H), 7.71-7.68 (d, J=8.5 Hz, 2H), 7.62-7.47 (m, 3H), 7.40-7.38 (d, J=7.0 Hz, 2H), 7.32-7.22 (m, 4H), 4.58 (s, CH_2, 2H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.5, 154.5, 148.1, 139.0, 136.4, 131.7, 131.5, 128.7 128.6, 128.4, 126.5, 123.7, 122.2, 112.3, 30.5. IR (KBr, cm^{-1}): 1636, 1553, 1288, 1070, 746. ESI-MS: (m/z) =391 $[M+H]^+$

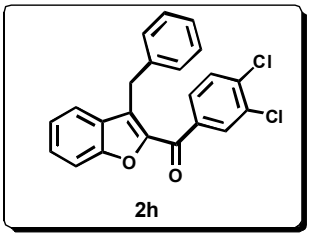


(4-Bromophenyl) (3-(4-methoxy benzyl) benzofuran- 2-yl) methanone **(2f)**. White solid: mp 128-130 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.04- 8.01 (d, J=8.5 Hz, 2H), 7.71-7.68 (d, J=8.5 Hz, 2H), 7.62-7.47 (m, 3H), 7.32-7.30 (d, J=8.4 Hz, 3H), 6.85-6.82 (d, J=8.5 Hz, 2H), 4.50 (s, CH_2, 2H), 3.78 (s, OCH_3, 3H). ^{13}C NMR (50MHz, $CDCl_3$) δ 184.5, 158.2, 154.5, 147.9, 136.4, 131.6, 131.4, 131.1, 130.3, 129.7, 128.4, 123.6, 122.2, 114.0, 112.3, 55.2, 29.7. IR (KBr, cm^{-1}): 1641, 1217, 1031, 928, 767. ESI-MS: (m/z) = 421 [M+H].$^{+}$



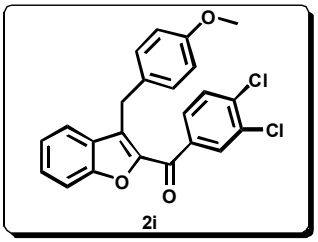
2g

(3-Benzylbenzofuran-2-yl) (3,4,5-trimethoxyphenyl) methanone **(2g).** White solid: mp 103-104 ^{0}C; ^{1}H NMR (300MHz, $CDCl_3$), δ 7.63-7.45 (m, 5H), 7.40-7.38 (d, J=7.0 Hz, 2H), 7.32-7.27 (m, 4H) 4.5 (s, CH_2, 2H), 3.98 (s, OCH_3, 3H), 3.93 (s, OCH_3, 6H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.4, 154.4, 152.9, 148.4, 142.5, 139.1, 132.6, 129.1, 128.7, 128.5, 126.4, 123.6, 122.2, 112.2, 107.6, 61.0, 56.3, 30.5. IR (KBr, cm^{-1}): 1632, 1232, 1127, 994, 745. ESI-MS: (m/z) = 403 [M+H].$^{+}$



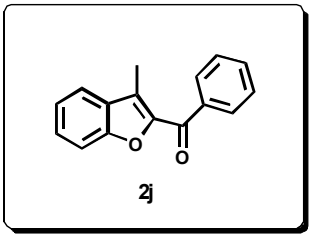
2h

(3-Benzylbenzofuran-2-yl) (3,4-dichlorophenyl) methanone **(2h).** White solid: mp 111-112 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.27 (s, 1H), 8.04-8.01 (m, 1H), 7.65-7.52 (m, 4H), 7.39-7.22 (m, 6H), 4.58 (s, CH_2, 2H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 182.9, 154.5, 147.7, 138.9, 137.2, 132.9, 131.9, 130.5, 129.0, 128.7, 128.6, 128.3, 126.5, 123.8, 122.3, 112.4, 30.5. IR (KBr, cm^{-1}): 1631, 1293, 1022, 896, 740. ESI-MS: (m/z) = 381[M+H].$^{+}$



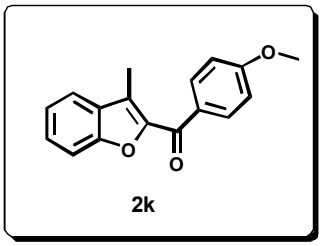
2i

(3,4-Dichlorophenyl) (3-(4-methoxybenzyl) benzofuran-2-yl) methanone **(2i).** White solid: mp 126-128 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.26 (s, 1H), 8.03-8.00 (m, 1H), 7.64-7.49 (m, 4H), 7.31-7.29 (m, 3H), 6.85-6.82 (d, J= 8.6 Hz, 2H), 4.5 (s, CH_2, 2H), 3.78 (s, OCH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 182.9, 158.2, 154.5, 147.6, 137.2, 132.9, 131.9, 130.9, 130.4, 129.7, 129.0, 128.6, 128.3, 123.8, 122.3, 114.0, 112.9, 55.2, 29.7. IR (KBr, cm^{-1}): 1623, 1547, 1295, 1253, 1031,906, 744. ESI-MS: (m/z) = 411 $[M+H]^+$.



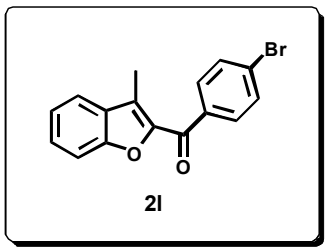
2j

(3-Methyl benzofuran-2-yl)phenyl methanone **(2j)**.Colourless oil; ^{1}H NMR (300MHz, $CDCl_3$) δ 8.13-8.10 (d, J=7.1 Hz, 2H), 7.75-7.72 (d, J=7.8 Hz, 1H), 7.64-7.50 (m, 5H), 7.39-7.34 (t, J=6.7 Hz, 1H), 2.67 (s, CH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 185.9, 154.3, 148.3, 138.4, 137.9, 132.6, 129.8, 129.2, 128.3, 128.2, 126.9, 124.0, 123.3, 121.4, 112.2, 30.2, 10.0. IR (neat, cm^{-1}): 2925, 1641, 1565, 1219, 936, 769. ESI-MS: (m/z) = 237 $[M+H]^+$.



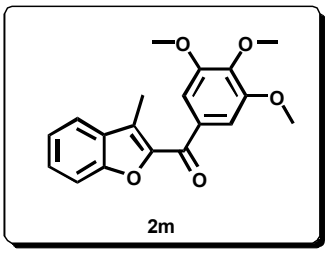
2k

(4-Methoxyphenyl) (3-methylbenzofuran-2-yl) methanone **(2k).** White solid: mp 77-78 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.20-8.17 (d, J=8.8 Hz, 2H), 7.73-7.71 (d, J=7.7 Hz, 1H), 7.58-7.50 (m, 2H), 7.38-7.33 (t, J=7.1 Hz, 1H), 7.05-7.02 (d, J=8.8 Hz, 2H), 3.93 (s, OCH_3 , 3H), 2.66 (s, CH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.4, 163.3, 154.1, 148.6, 132.3, 130.5, 129.3, 127.9, 126.1, 123.2, 121.3, 113.6, 112.1, 55.5, 10.0. IR (KBr, cm^{-1}): 2923, 1637, 1508, 1258, 1029, 841, 770. ESI-MS: (m/z) = 267 $[M+H]^+$.



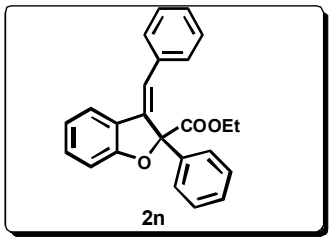
2l

(3-Bromobenzyl) (3-methylbenzofuran-2-yl) methanone **(2l).** White solid: mp 92-94 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.03-8.00 (d, J=8.5 Hz, 2H), 7.45-7.68 (m, 3H), 7.57- 7.53 (t, J=7.5Hz, 2H), 7.40-7.32 (m, 1H), 2.68 (s, CH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.5, 154.3, 148.0, 136.5, 131.6, 131.3, 129.1, 128.4, 127.7, 123.5, 121.5, 112.2, 10.0. IR (KBr, cm^{-1}): 2926, 1637, 1281, 1069, 769. ESI-MS: (m/z) = 315 $[M+H]^{+}$



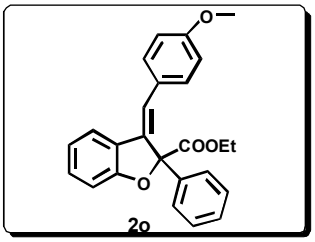
2m

(3-Methylbenzofuran-2-yl) (3,4,5-trimethoxyphenyl) methanone **(2m).** White solid: mp 103-104 ^{0}C; ^{1}H NMR (300MHz, $CDCl_3$) δ 7.75-7.73 (d, J=7.7 Hz, 1H), 7.58-7.45 (m, 2H), 7.40-7.35 (m, 3H), 3.98 (s, OCH_3, 3H), 3.95 (s, OCH_3, 6H), 2.66 (s, CH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 184.5, 154.2, 152.9, 148.3, 142.4, 132.7, 129.2, 128.2, 126.8, 123.4, 121.4, 112.1, 107.5, 61.0, 56.3, 10.1. IR (KBr, cm^{-1}): 2929, 1644, 1233, 1116, 995, 757. ESI-MS: (m/z) = 327 $[M+H]^{+}$

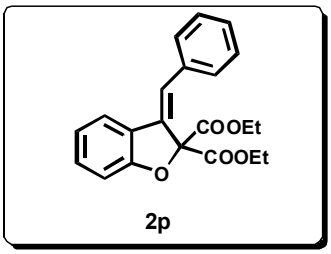


2n

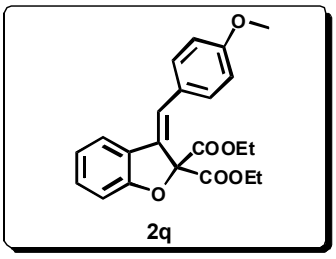
Ethyl-3-benzylidine-2-phenyl, 2,3-dihydrobenzofuran-2-carboxylate **(2n)** Semisolid; ^{1}H NMR (300MHz, $CDCl_3$) δ 7.62-7.60 (d, J=6.0Hz, 2H), 7.37-7.16(m, 10H), 7.03-7.01(d, J=7.4 Hz, 1H), 6.92-6.90 (d, J=8.00 Hz, 1H), 4.17-4.0(m, 2H), 1.01-0.96 (t, J=7.0 Hz, 3H). ^{13}C NMR (50MHz, $CDCl_3$) δ 168.5, 159.7, 137.1, 135.8, 134.8, 129.7, 128.8, 128.3, 128.0, 127.6, 123.2, 121.6, 120.2, 110.7, 93.3, 63.3, 29.8, 13.7. IR (neat, cm^{-1}): 2133, 1642, 1464, 1218, 1025, 769. ESI-MS: (m/z) = 357 $[M+H]^{+}$



Ethyl 3-(4-methoxybenzylidine)-2-phenyl 2,3-dihydrobenzofuran-2-carboxylate **(2o).** White solid: mp 95-96 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.64-7.61 (m, 3H), 7.58-7.55 (d, J= 7.6 Hz, 3H), 7.38-7.20 (m, 4H), 7.03-6.99 (t, J=7.4 Hz, 1H), 6.90-6.87 (d, J=8.0 Hz, 1H), 6.71-6.68 (d, J=8.7 Hz, 2H), 4.19-4.11 (m, CH_2, 2H), 3.76 (s, OCH_3, 3H), 1.05-1.00 (t, J=7.0 Hz, CH_3, 3H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 168.7, 159.5, 159.1, 131.4, 129.9, 129.1, 128.8, 128.3, 122.8, 121.5, 119.8, 113.4, 110.5, 93.3, 62.2, 55.2, 29.7, 22.7, 13.7. IR (KBr, cm^{-1}): 2359, 1640, 1464, 1219, 1028, 769. ESI-MS: (m/z) = 387 $[M+H]^+$.



Diethyl 3-benzylidine benzofuran 2,2 (3H)-dicarboxylate **(2p).** Colourless oil; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.79-7.54 (m, 3H), 7.47-7.44 (t, J=7.2 Hz, 1H), 7.31-7.22 (m, 6H), 4.52-4.46 (m, CH_2, 4H), 1.45-1.43 (t, J=7.1 Hz, CH_3, 6H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 160.4, 154.6, 141.2, 139.0, 128.6, 128.5, 127.7, 126.4, 123.3, 121.8, 112.3, 61.3, 29.7, 14.4. IR (neat, cm^{-1}): 2309, 2109, 1726, 1626, 1457, 1257, 1030, 771. ESI-MS: (m/z) = 353 $[M+H]^+$.



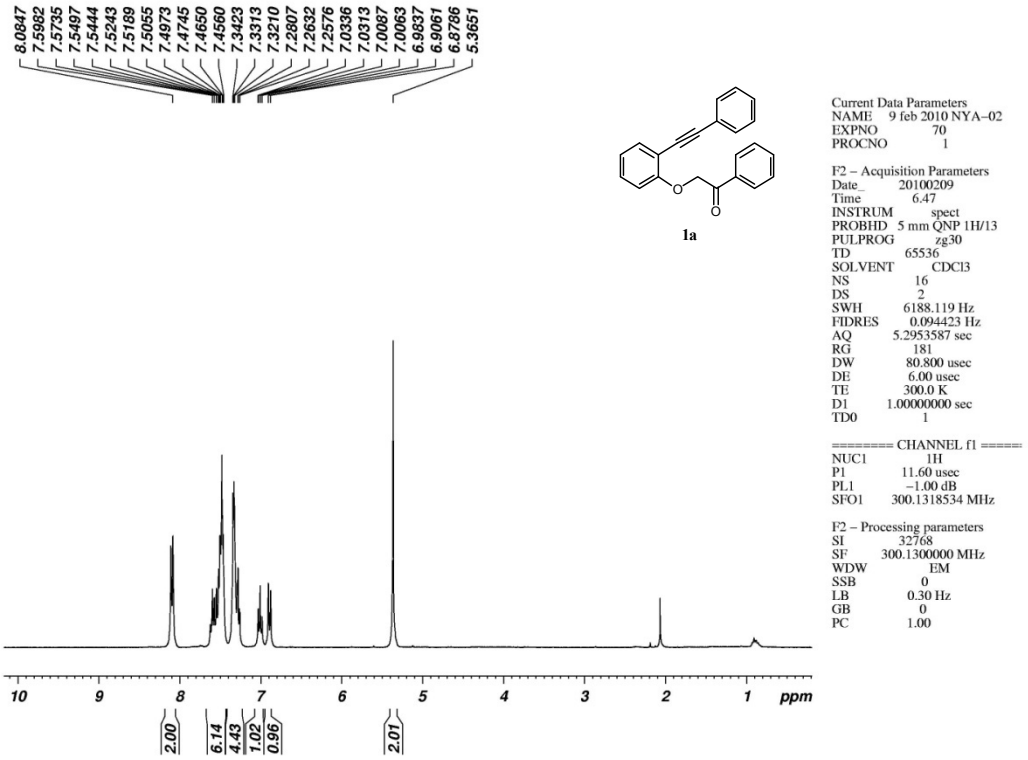
Diethyl 3-(4-methoxybenzylidine) benzofuran 2,2-(3H) dicarboxylate **(2q).** Colourless oil; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.59-7.46 (m, 2H), 7.45.7.41 (t, J=7.3 Hz, 1H), 7.26-7.23 (m, 4H), 6.84-6.81 (d, J=8.5 Hz, 2H), 4.53-4.45 (m ,CH_2, 4H), 3.78 (s, OCH_3, 3H), 1.45-1.43 (t, J=7.0Hz, CH_3, 6H). ^{13}C NMR (50 MHz, $CDCl_3$) δ 158.2, 154.6, 131.0, 129.5, 128.5, 127.7, 123.3, 121.8, 113.9, 112.3, 61.3, 55.2, 29.7, 14.4. IR (neat, cm^{-1}): 2360, 1717, 1615, 1457, 1292, 1032, 749. 383. ESI-MS: (m/z) =383 $[M+H]^+$.

Synthesis of (3-benzyl-6-methoxy-2,3-dihydrobenzofuran-2-yl)(phenyl) methanone 4

To a mixture of 2-(5-methoxy-2-styrylphenoxy)-1-phenylethanone (0.5mmol) in 0.6 ml of (bmim)BF_4, anhydrous potassium phosphate (0.75 mmol) was added and the reaction mixture was kept under sonication for 4 hr. After completion of reaction, the product was extracted with anhydrous diethyl ether (50mlx3), dried over Na_2SO_4 and concentrated at reduced pressure to give a brown residue. The crude product was purified through column chromatography using hexane/EtOAc (25:1) to afford **4** as off white solid (80%), mp 105-107 ^{0}C; ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.65 (d, J = 7.17 Hz, 2H), 7.63-7.51 (m, 1H), 7.37-7.30 (m, 5H) 7.25-7.23 (m, 2H), 6.80 (d, J =8.16 Hz, 1H), 6.55(d, J =2.04 Hz, 1H), 6.42 (dd, J = 8.19, 2.19 Hz, 1H), 5.68 (d, J= 3.84 Hz, CH, 1H), 3.93-3.87(m, CH, 1H),3.79 (s, OCH_3, 3H), 3.13-2.99 (m, CH_2, 2H). ^{13}C NMR ($CDCl_3$, 50 MHZ) ,δ 195.55, 160.89, 160.52, 138.40, 134.11, 133.40, 129.53, 128.82, 128.61, 126.81, 124.82, 120.60, 106.98, 96.32, 87.44, 55.48, 46.41, 42.03. IR (KBr, cm^{-1}); 3317, 2967, 1684, 1622, 1495, 1338, 1146, 1105 969, 835, 748. ESI-MS (m /z) = 345 $[M+H]^+$ and 5-methoxy-2-styrylphenol **5** as white solid **(**15%**),** mp 118-119 ^{0}C; ^{1}H NMR (300 MHz, DMSO-d_6) δ 9.84 (brs, OH, 1H), 7.51-7.49 (m, 3H), 7.37-7.31 (m, 3H), 7.23-7.18 (m, 1H), 7.09-7.03 (d, J=16.50Hz, 1H), 6.45-6.42 (d,7.41 Hz, 1H), 3.72 (s, OCH_3, 3H).

References

[1] J. Hu, L.Y. Wu, X.C. Wang, Y.Y. Hu, Y.N. Niu,X.Y. Liu, S.Yang, Y.M. Liang, *Adv. Synth. Catal.* **2010,** 352, 351.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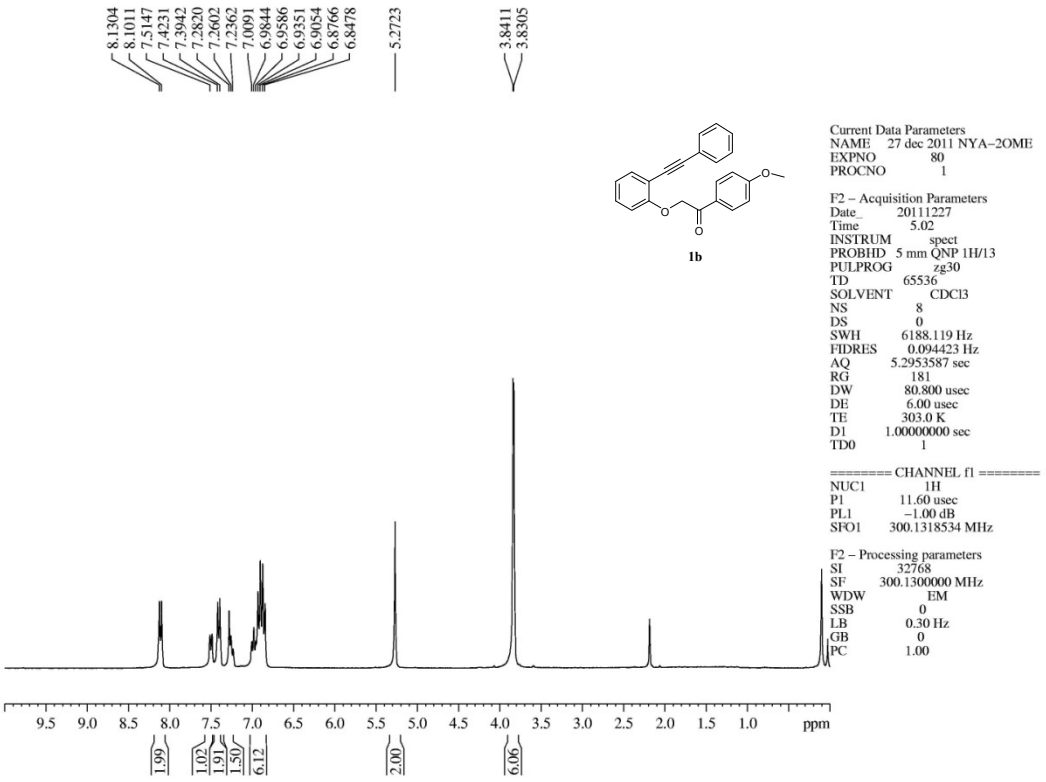
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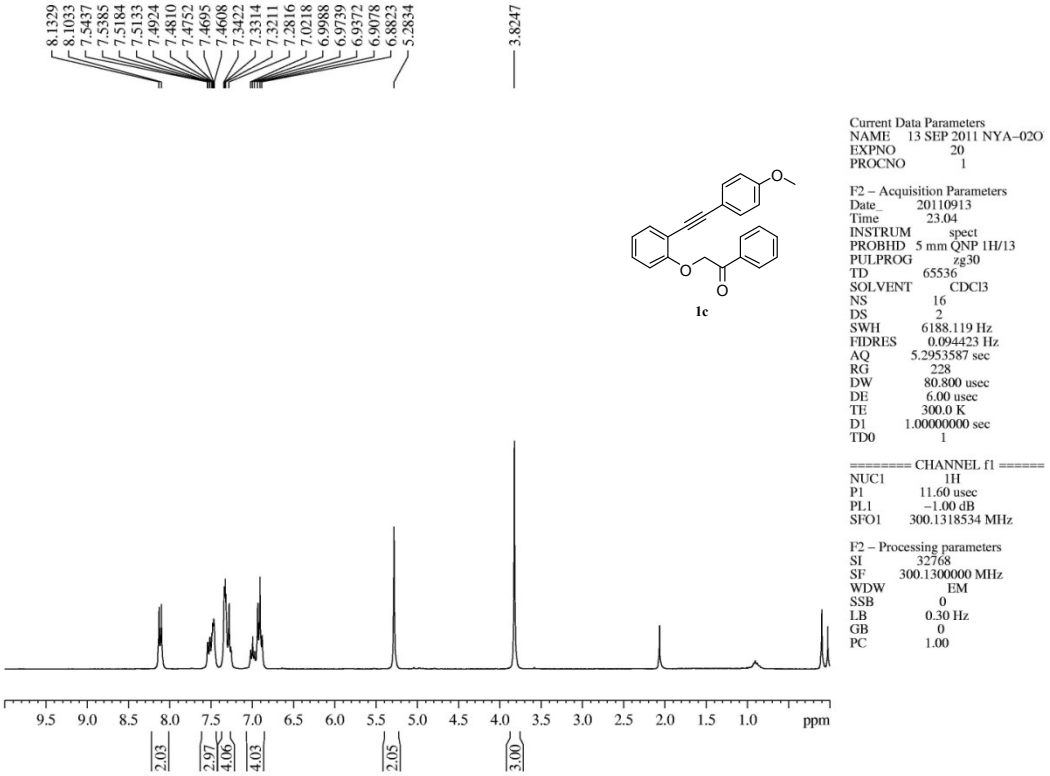
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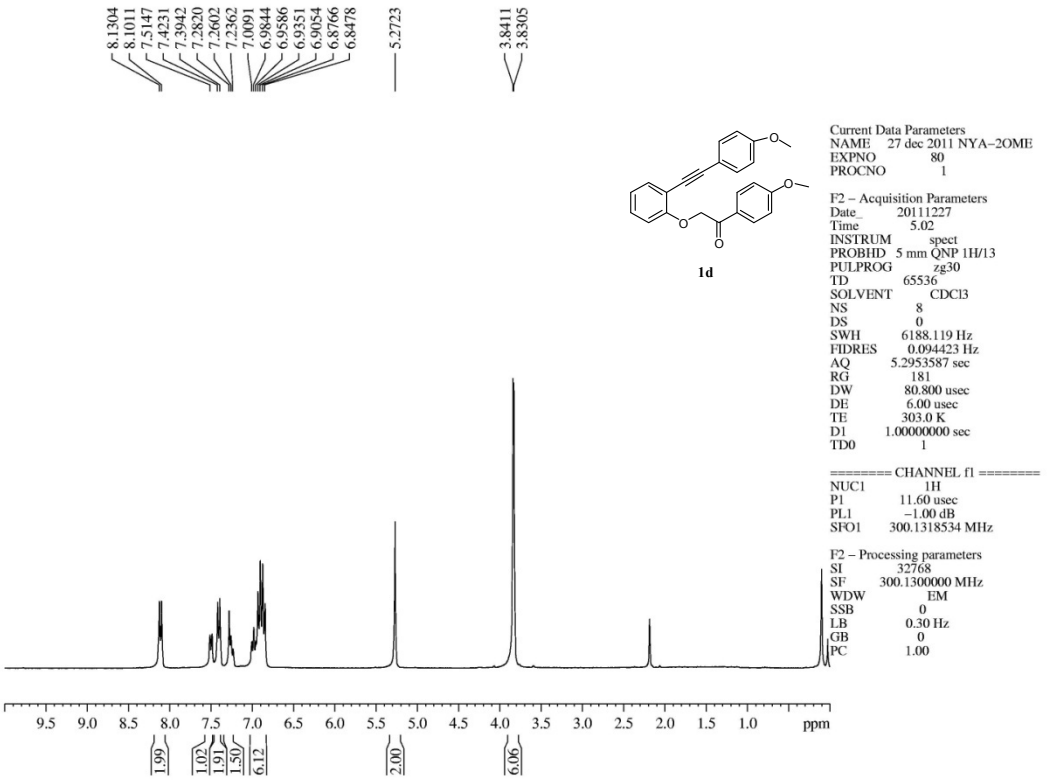
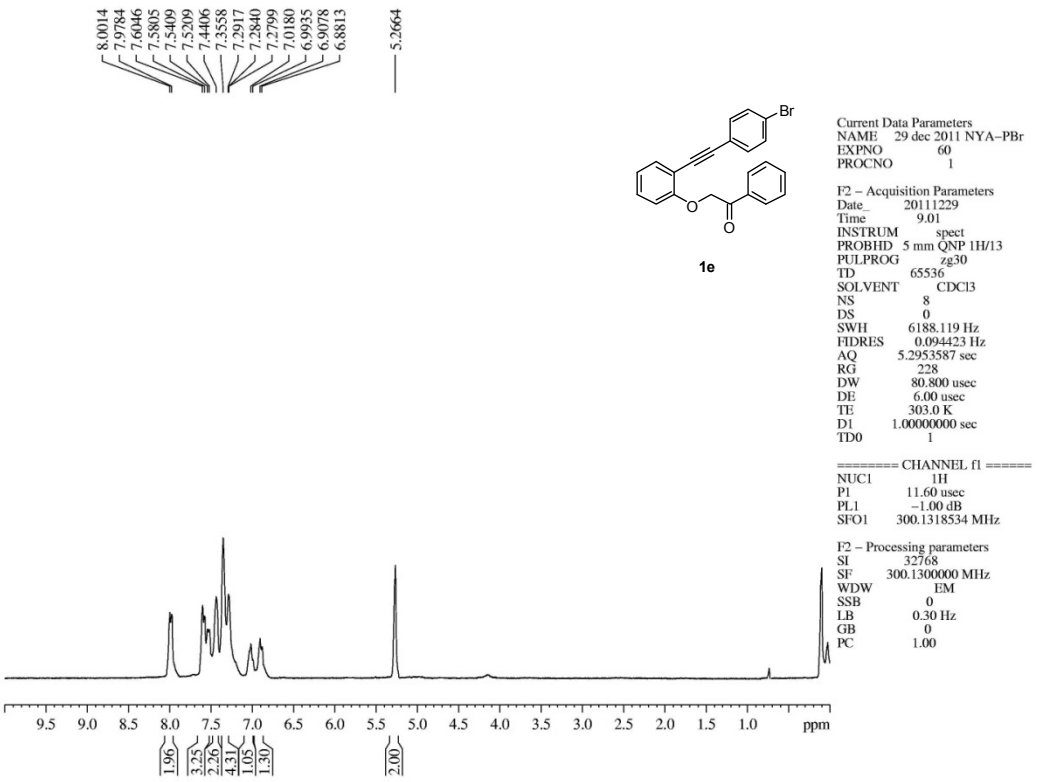
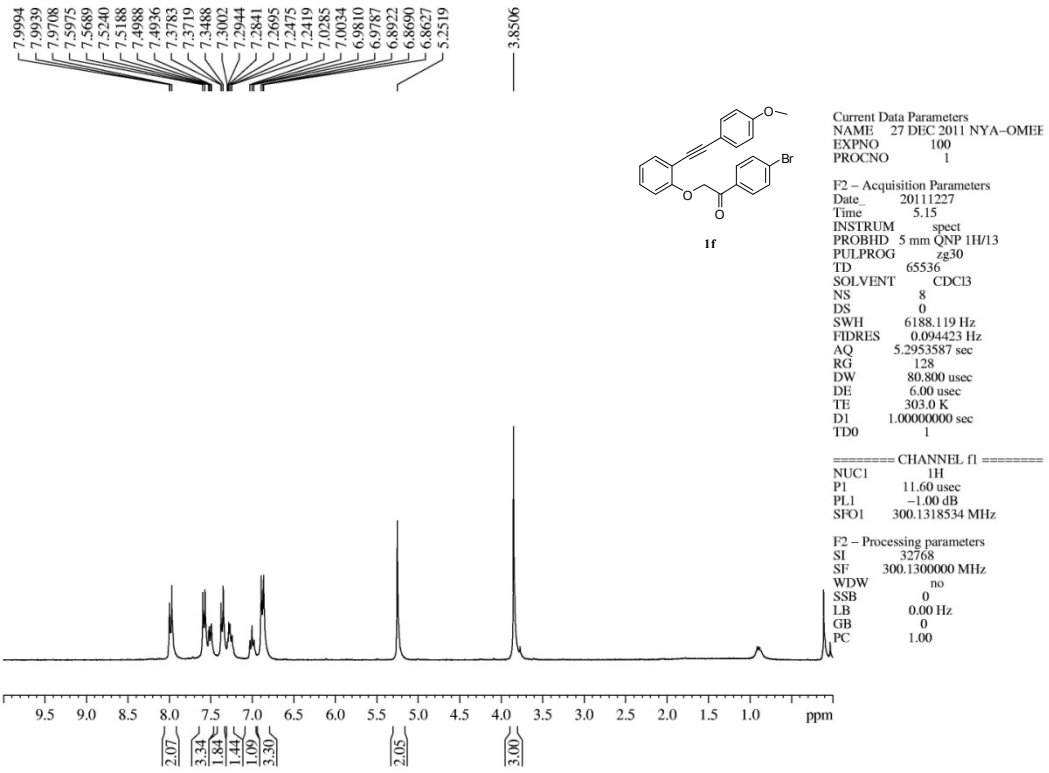
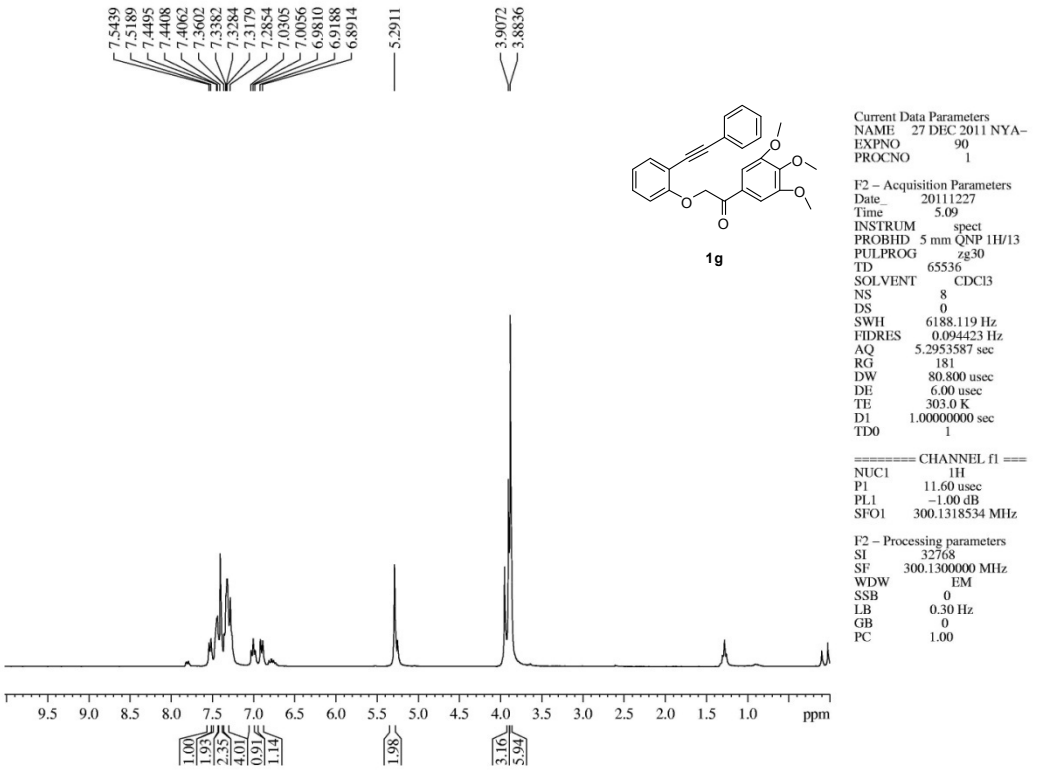
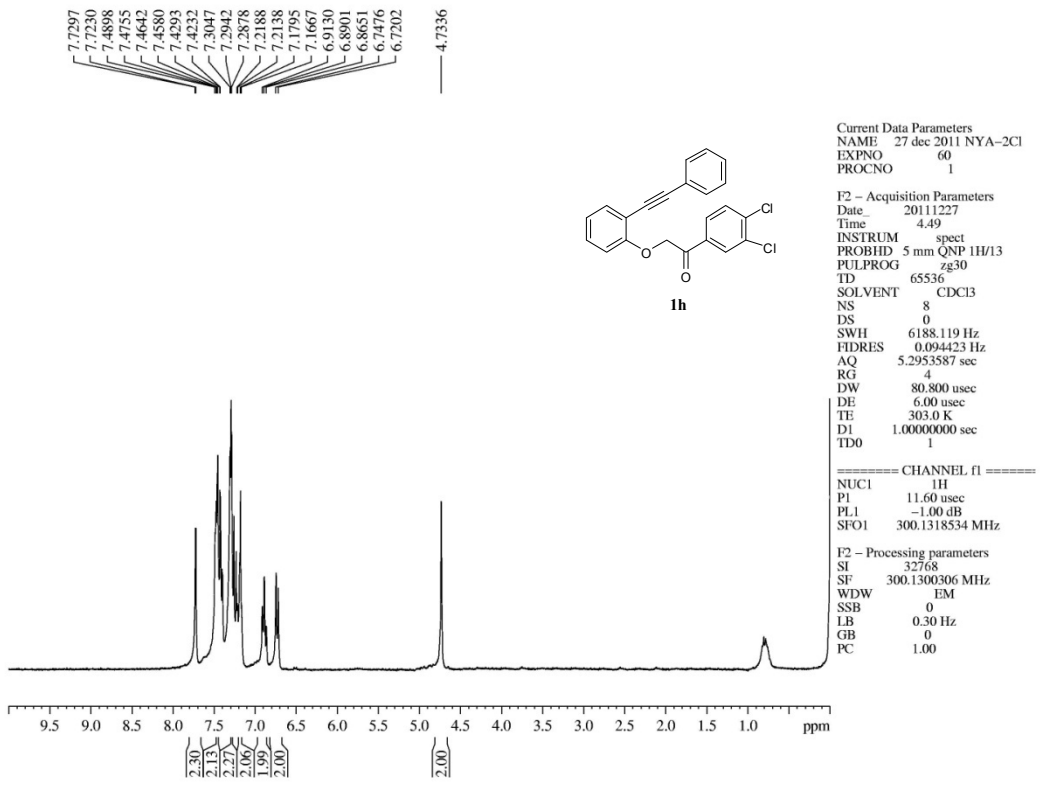
7.3314
7.3211
7.2816
7.0218
6.9988
6.9739
6.9372
6.9078
6.8823
5.2834
3.8247
1c
Current Data Parameters
NAME 13 SEP 2011 NYA–02O
EXPNO 20
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110913
Time 23.04
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.03
2.97
4.06
4.03
2.05
3.00

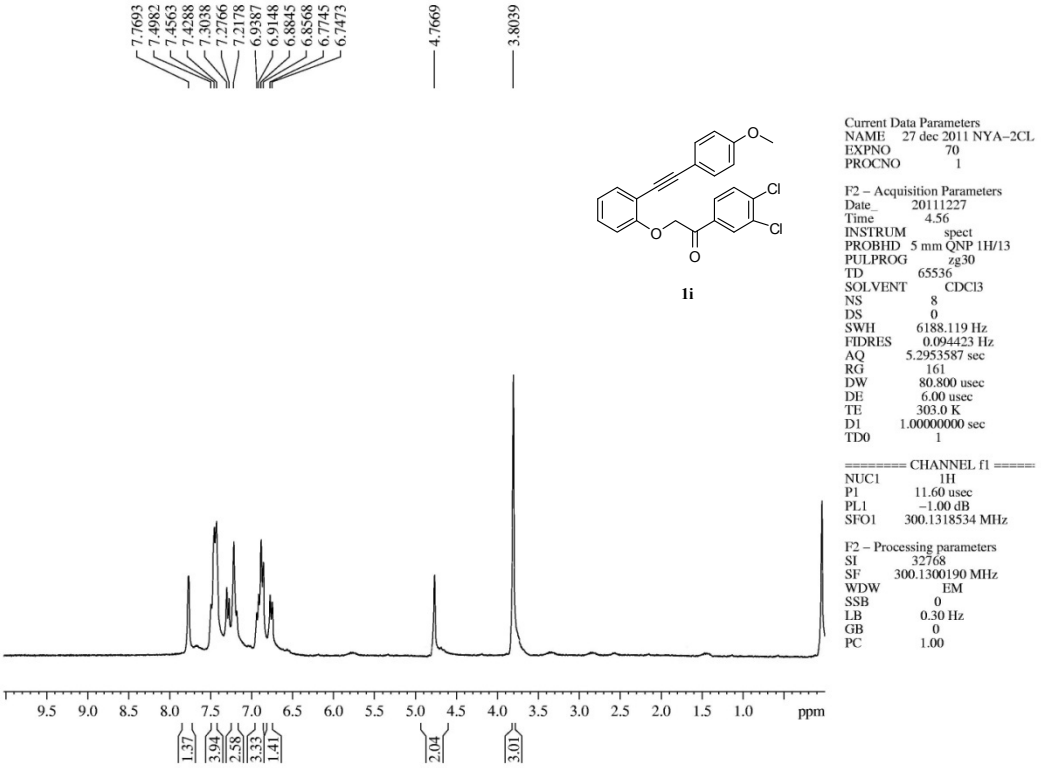

8.1304
8.1011
7.5147
7.4231
7.3942
7.2820
7.2602
7.2362
7.0091
6.9844
6.9586
6.9351
6.9054
6.8766
6.8478
5.2723
3.8411
3.8305
1d
Current Data Parameters
NAME 27 dec 2011 NYA–2OME
EXPNO 80
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111227
Time 5.02
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 181
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
1.99
1.02
1.91
1.50
6.12
2.00
6.06

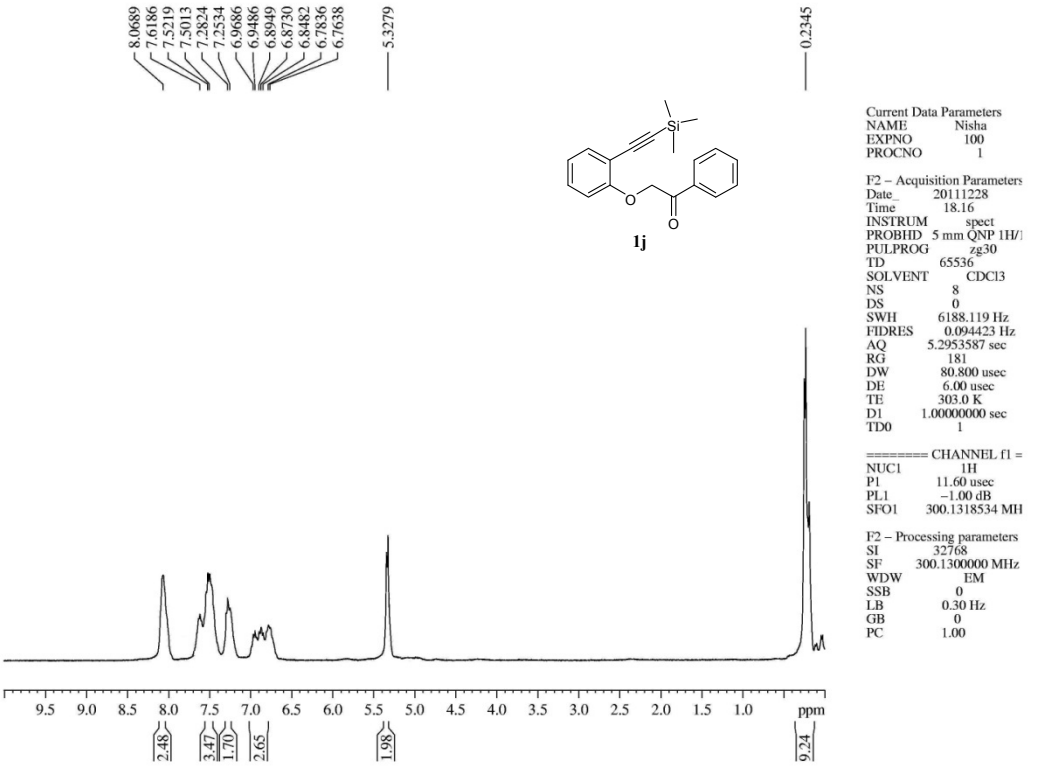

8.0014
7.9784
7.6046
7.5805
7.5409
7.5209
7.4406
7.3558
7.2917
7.2840
7.2799
7.0180
6.9935
6.9078
6.8813
5.2664
Br
O
O
1e
Current Data Parameters
NAME 29 dec 2011 NYA–PBr
EXPNO 60
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111229
Time 9.01
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
1.96
3.25
2.26
4.31
1.05
1.30
2.00

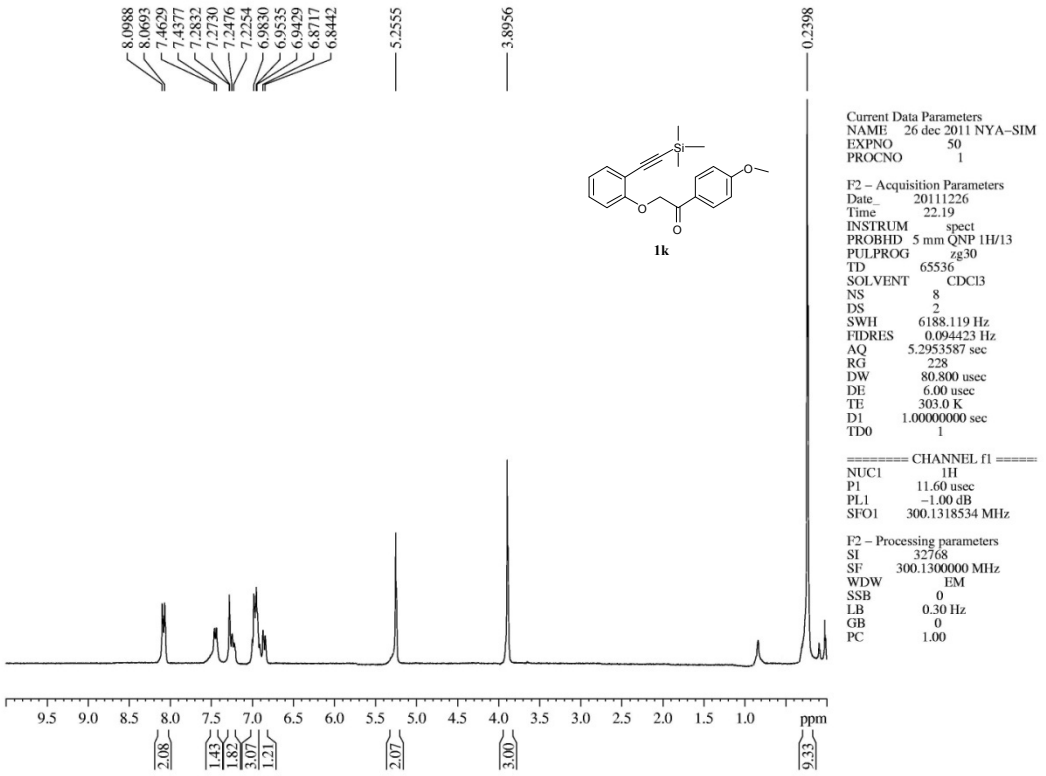

7.9994
7.9939
7.9708
7.5975
7.5689
7.5240
7.5188
7.4988
7.4936
7.3783
7.3719
7.3488
7.3002
7.2944
7.2841
7.2695
7.2475
7.2419
7.0285
7.0034
6.9810
6.9787
6.8922
6.8690
6.8627
5.2519
3.8506
O
Br
O
O
1f
Current Data Parameters
NAME 27 DEC 2011 NYA–OMEE
EXPNO 100
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111227
Time 5.15
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 128
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.07
3.34
1.84
1.44
1.09
3.30
2.05
3.00

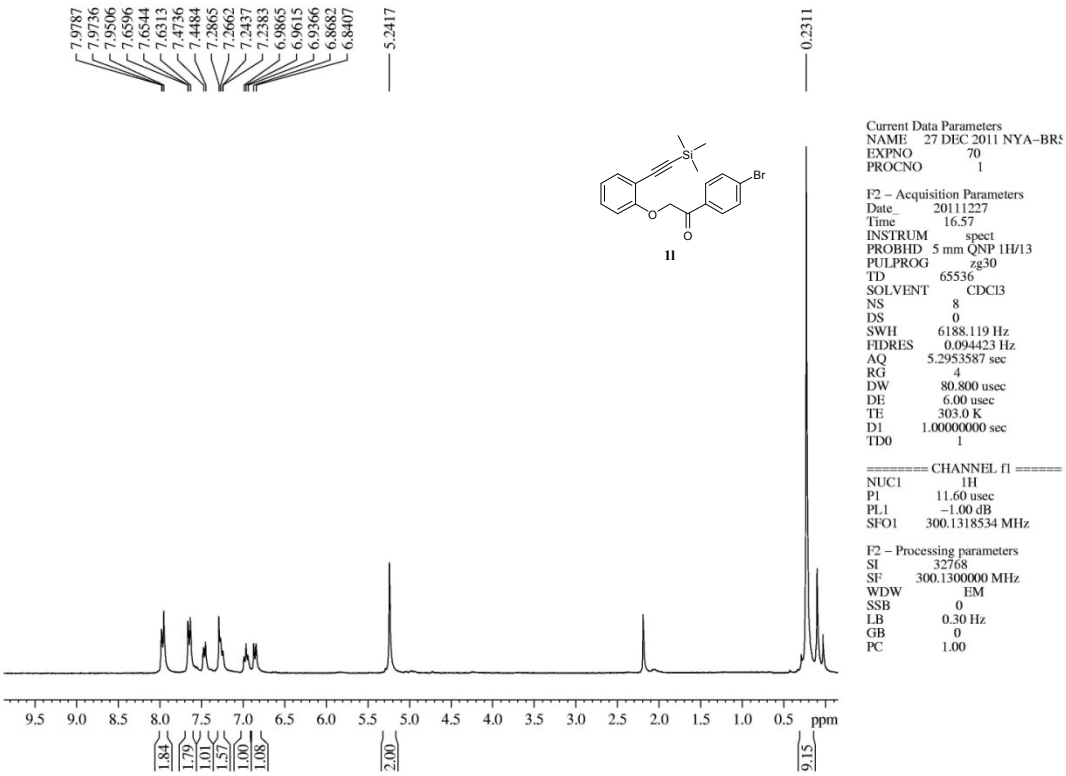


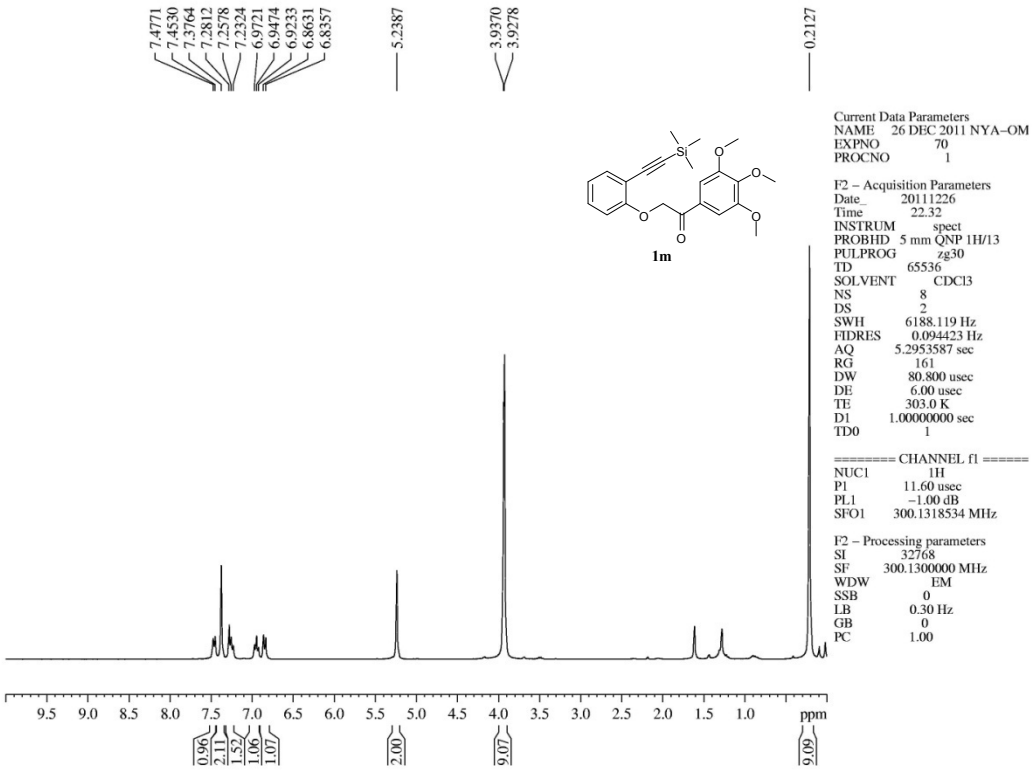


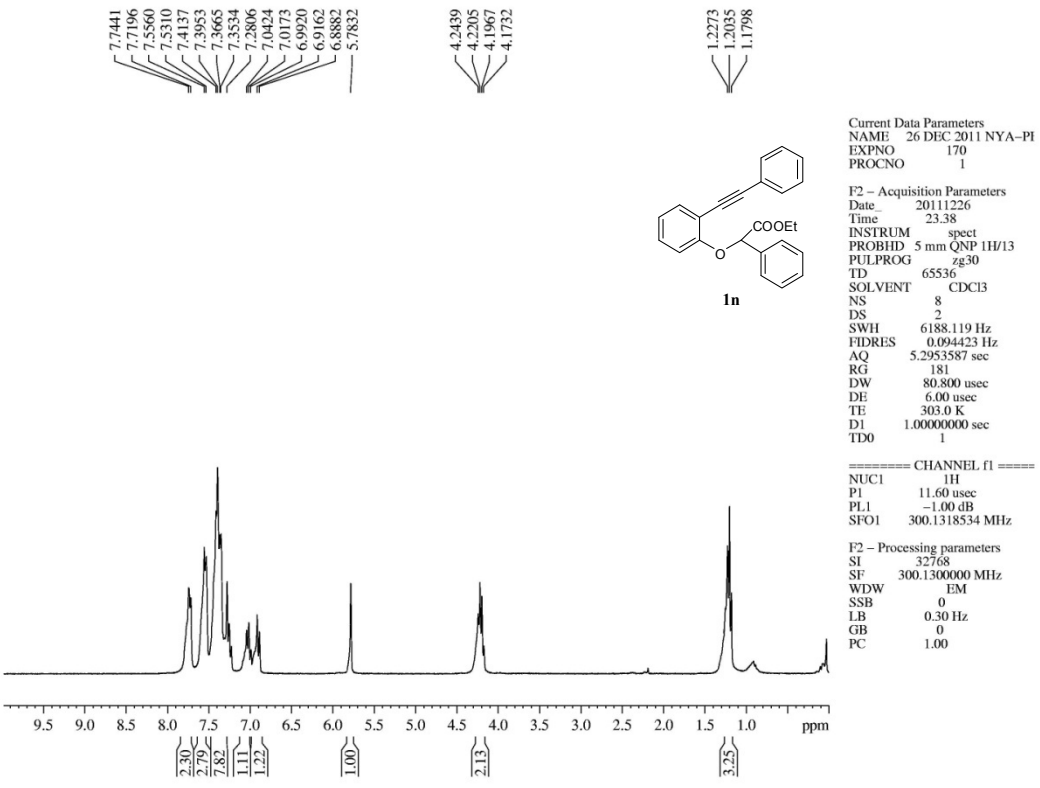

7.7693
7.4982
7.4563
7.4288
7.3038
7.2766
7.2178
6.9387
6.9148
6.8845
6.8568
6.7745
6.7473
4.7669
3.8039
Cl
Cl
O
O
O
1i
Current Data Parameters
NAME 27 dec 2011 NYA−2CL
EXPNO 70
PROCNO 1
F2 − Acquisition Parameters
Date_ 20111227
Time 4.56
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 161
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 − Processing parameters
SI 32768
SF 300.1300190 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
1.37
3.94
2.58
3.33
1.41
2.04
3.01

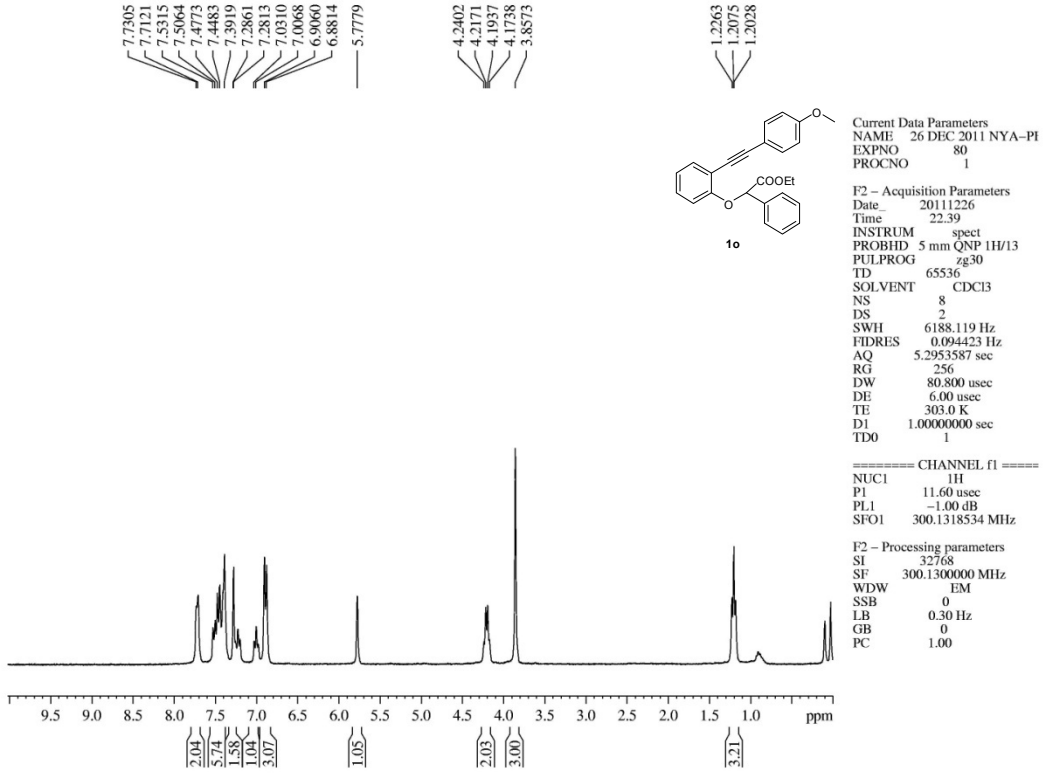

8.0689
7.6186
7.5219
7.5013
7.2824
7.2534
6.9686
6.9486
6.8949
6.8730
6.8482
6.7836
6.7638
5.3279
0.2345
Si
O
O
1j
Current Data Parameters
NAME Nisha
EXPNO 100
PROCNO 1
F2 − Acquisition Parameters
Date_ 20111228
Time 18.16
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 181
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MH
F2 − Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.48
3.47
1.70
2.65
1.98
9.24

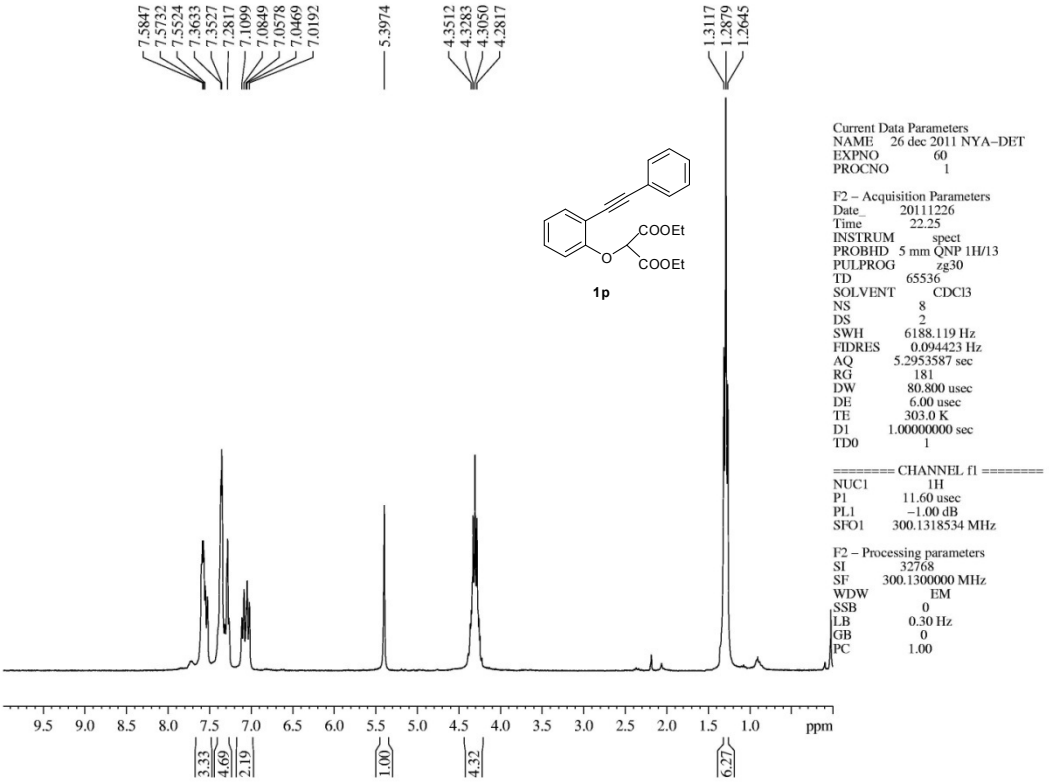

8.0988
8.0693
7.4629
7.4377
7.2832
7.2730
7.2476
7.2254
6.9830
6.9535
6.9429
6.8717
6.8442
5.2555
3.8956
0.2398
Si
O
O
O
1k
Current Data Parameters
NAME 26 dec 2011 NYA–SIM
EXPNO 50
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111226
Time 22.19
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.08
1.43
1.82
3.07
1.21
2.07
3.00
9.33

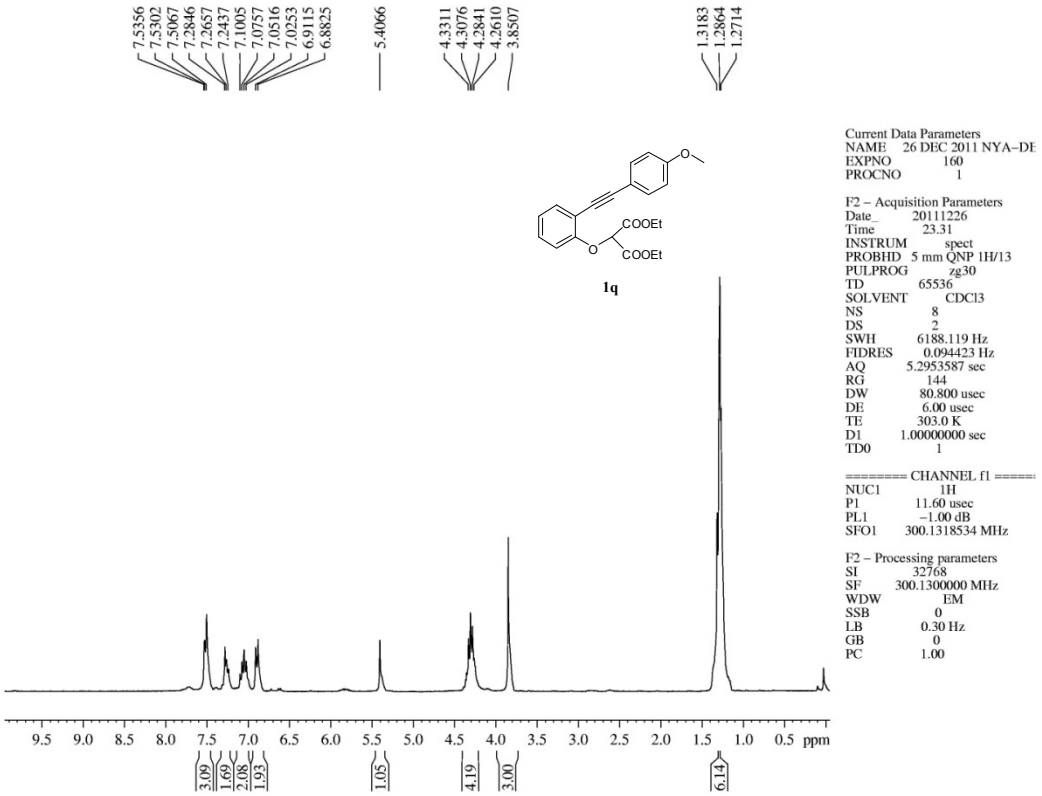

7.9787
7.9736
7.9506
7.6596
7.6544
7.6313
7.4736
7.4484
7.2865
7.2662
7.2437
7.2383
6.9865
6.9615
6.9366
6.8682
6.8407
5.2417
0.2311
Si
Br
O
O
1l
Current Data Parameters
NAME 27 DEC 2011 NYA–BRS
EXPNO 70
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111227
Time 16.57
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 4
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.84
1.79
1.01
1.57
1.00
1.08
2.00
9.15


7.4771
7.4530
7.3764
7.2812
7.2578
7.2324
6.9721
6.9474
6.9233
6.8631
6.8357
5.2387
3.9370
3.9278
0.2127
Si
O
O
O
O
O
1m
Current Data Parameters
NAME 26 DEC 2011 NYA-OM
EXPNO 70
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111226
Time 22.32
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 161
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
0.96
2.11
1.52
1.06
1.07
2.00
9.07
9.09


7.7441
7.7196
7.5560
7.5310
7.4137
7.3953
7.3665
7.3534
7.2806
7.0424
7.0173
6.9920
6.9162
6.8882
5.7832
4.2439
4.2205
4.1967
4.1732
1.2273
1.2035
1.1798
COOEt
O
1n
Current Data Parameters
NAME 26 DEC 2011 NYA-PI
EXPNO 170
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111226
Time 23.38
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 181
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.30
2.79
7.82
1.11
1.22
1.00
2.13
3.25


7.7305
7.7121
7.5315
7.5064
7.4773
7.4483
7.3919
7.2861
7.2813
7.0310
7.0068
6.9060
6.8814
5.7779
4.2402
4.2171
4.1937
4.1738
3.8573
1.2263
1.2075
1.2028
COOEt
1o
Current Data Parameters
NAME 26 DEC 2011 NYA–PI
EXPNO 80
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111226
Time 22.39
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.04
5.74
1.58
1.04
3.07
1.05
2.03
3.00
3.21


7.5847
7.5732
7.5524
7.3633
7.3527
7.2817
7.1099
7.0849
7.0578
7.0469
7.0192
5.3974
4.3512
4.3283
4.3050
4.2817
1.3117
1.2879
1.2645
COOEt
COOEt
1p
Current Data Parameters
NAME 26 dec 2011 NYA–DET
EXPNO 60
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111226
Time 22.25
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 181
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
3.33
4.69
2.19
1.00
4.32
6.27

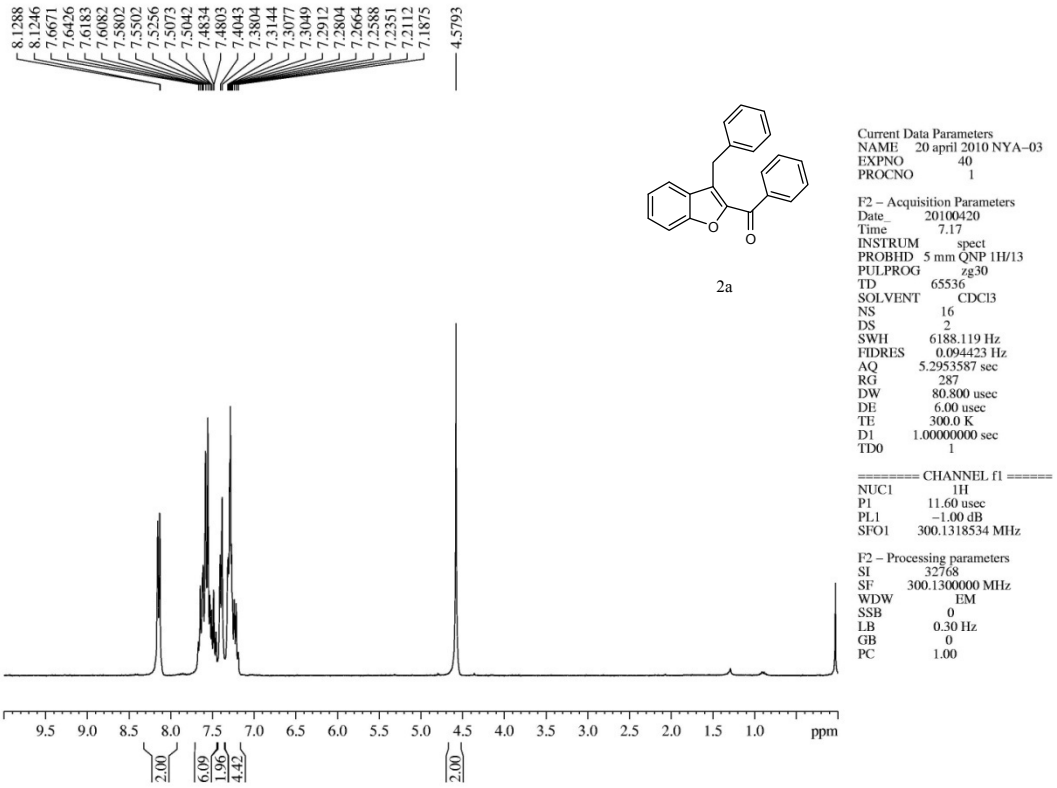


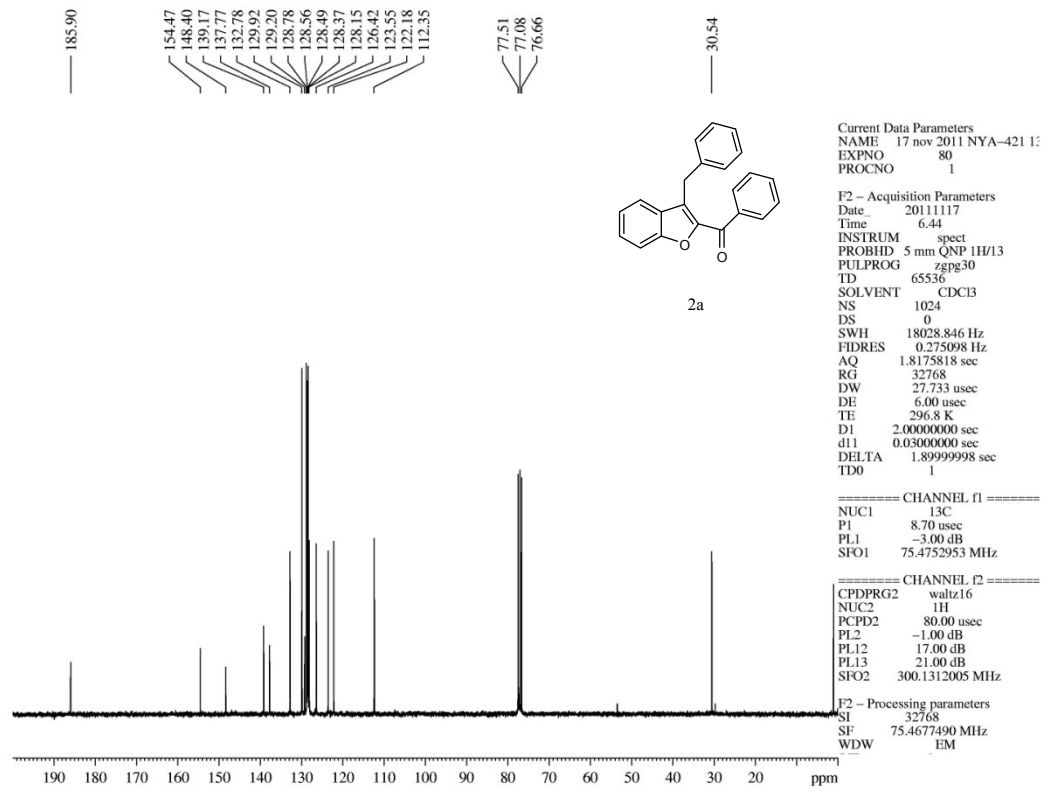
Current Data Parameters
NAME 26 DEC 2011 NYA–DE
EXPNO 160
PROCNO 1

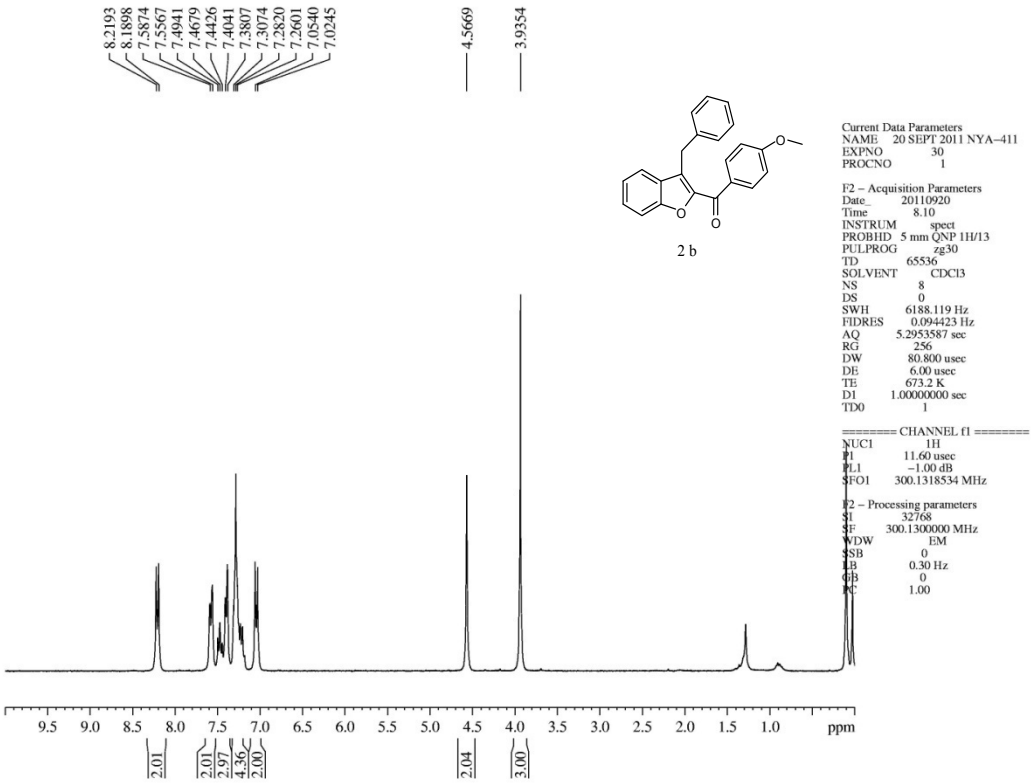
F2 – Acquisition Parameters
Date_ 20111226
Time 23.31
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 144
DW 80.800 usec
DE 6.00 usec
TE 303.0 K
D1 1.00000000 sec
TD0 1

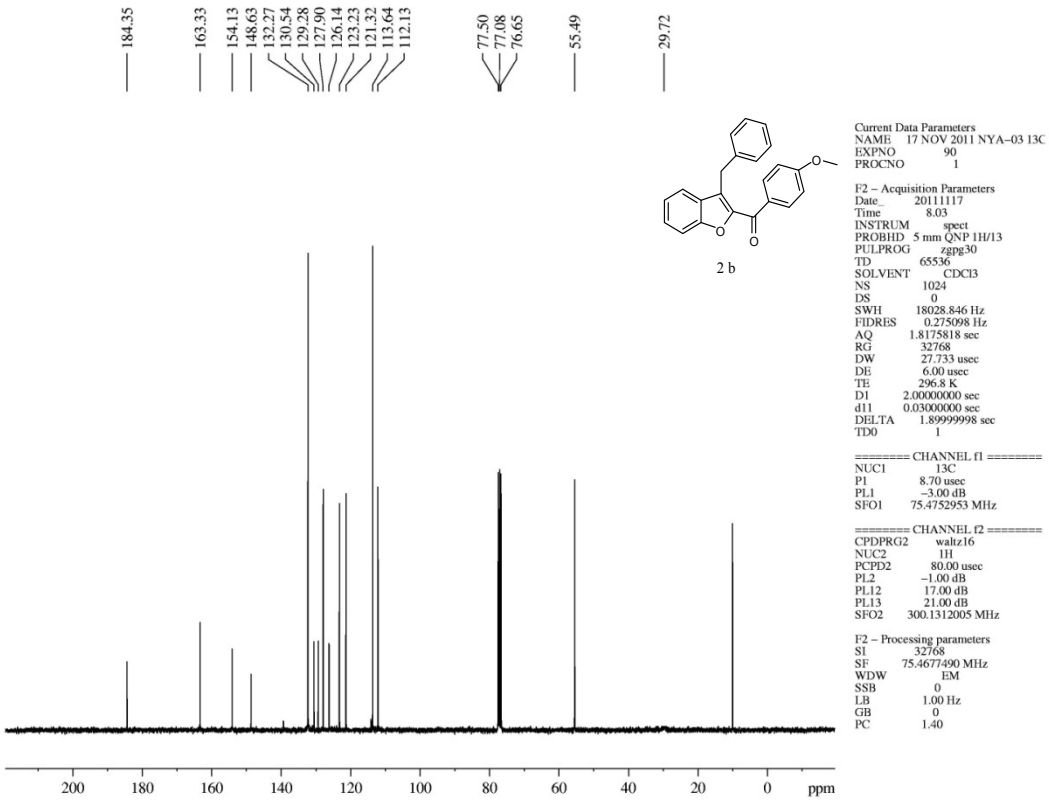
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz

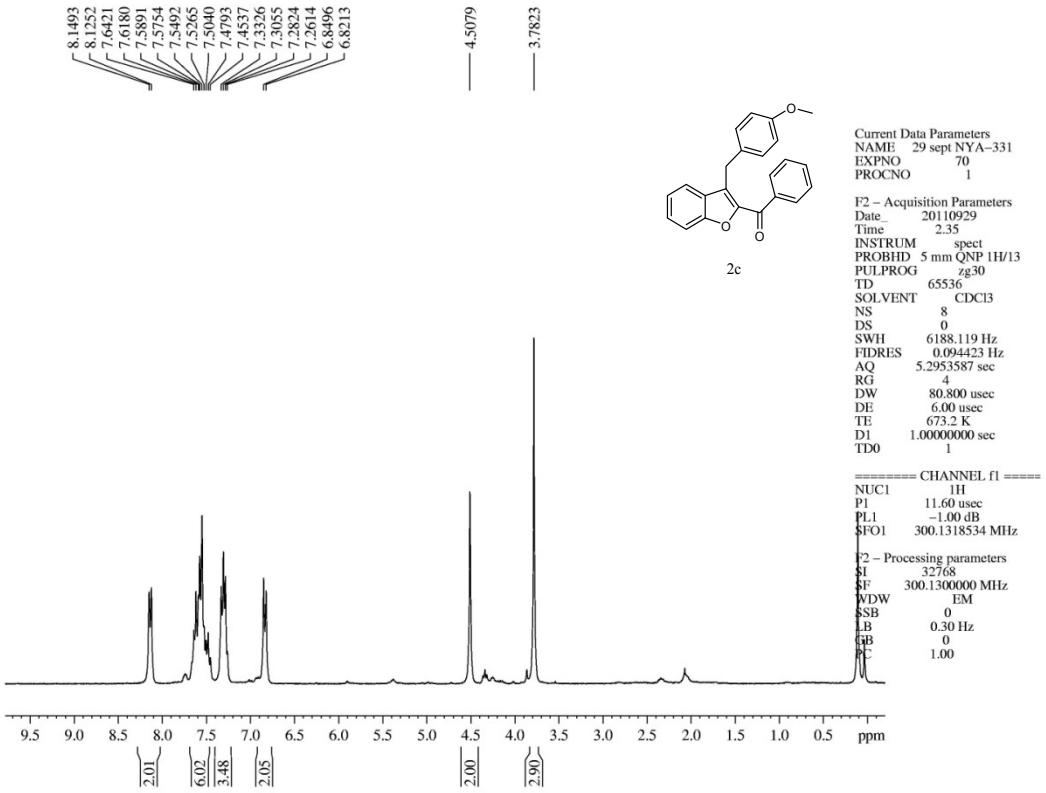
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

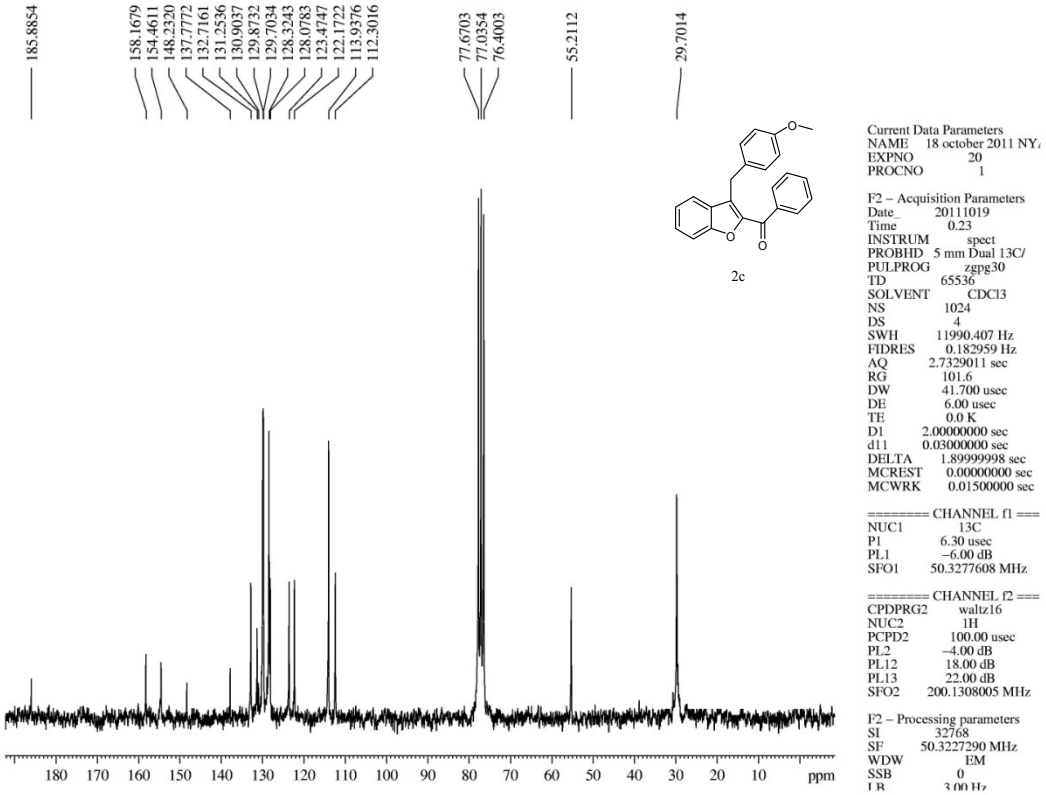

8.1288
8.1246
7.6671
7.6426
7.6183
7.6082
7.5802
7.5502
7.5256
7.5073
7.5042
7.4834
7.4803
7.4043
7.3804
7.3144
7.3077
7.3049
7.2912
7.2804
7.2664
7.2588
7.2351
7.2112
7.1875
4.5793
2a
Current Data Parameters
NAME 20 april 2010 NYA–03
EXPNO 40
PROCNO 1
F2 – Acquisition Parameters
Date_ 20100420
Time 7.17
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 287
DW 80.800 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.00
6.09
1.96
4.42
2.00

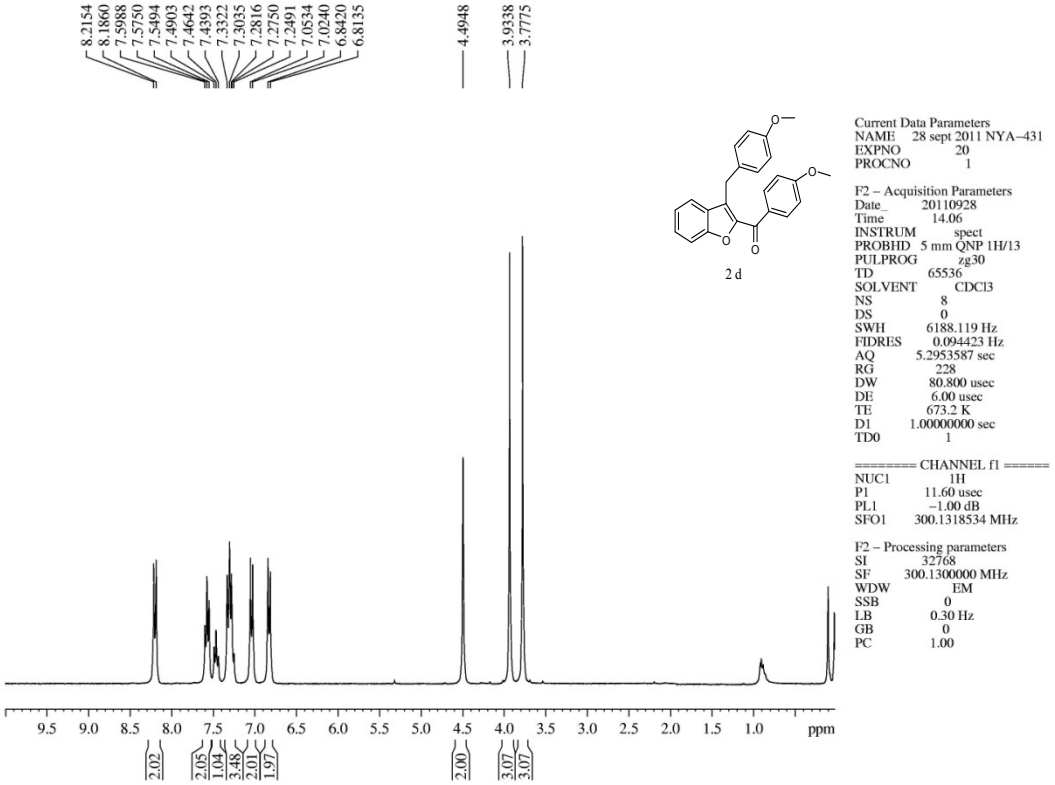

185.90
154.47
148.40
139.17
137.77
132.78
129.92
129.20
128.78
128.56
128.49
128.37
128.15
126.42
123.55
122.18
112.35
77.51
77.08
76.66
30.54
2a
Current Data Parameters
NAME 17 nov 2011 NYA–421 13
EXPNO 80
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111117
Time 6.44
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 0
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 32768
DW 27.733 usec
DE 6.00 usec
TE 296.8 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.70 usec
PL1 –3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 –1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz
F2 – Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm

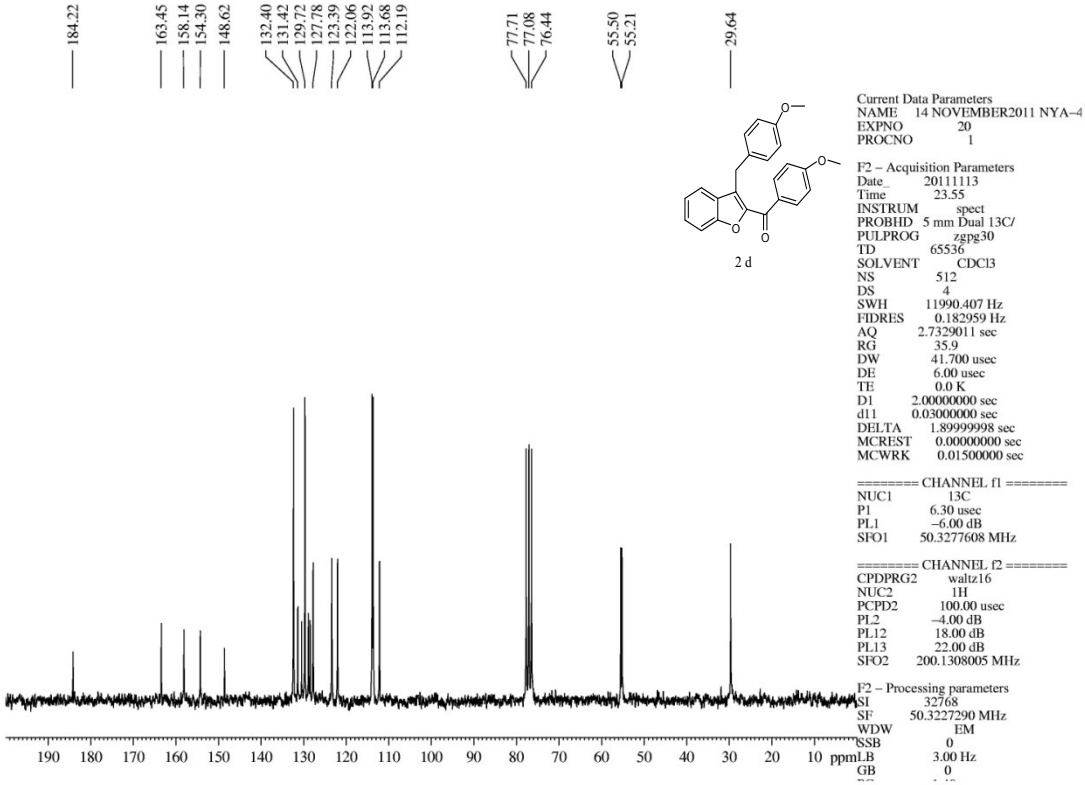

8.2193
8.1898
7.5874
7.5567
7.4941
7.4679
7.4426
7.4041
7.3807
7.3074
7.2820
7.2601
7.0540
7.0245
4.5669
3.9354
2 b
Current Data Parameters
NAME 20 SEPT 2011 NYA–411
EXPNO 30
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110920
Time 8.10
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.01
2.01
2.97
4.36
2.00
2.04
3.00

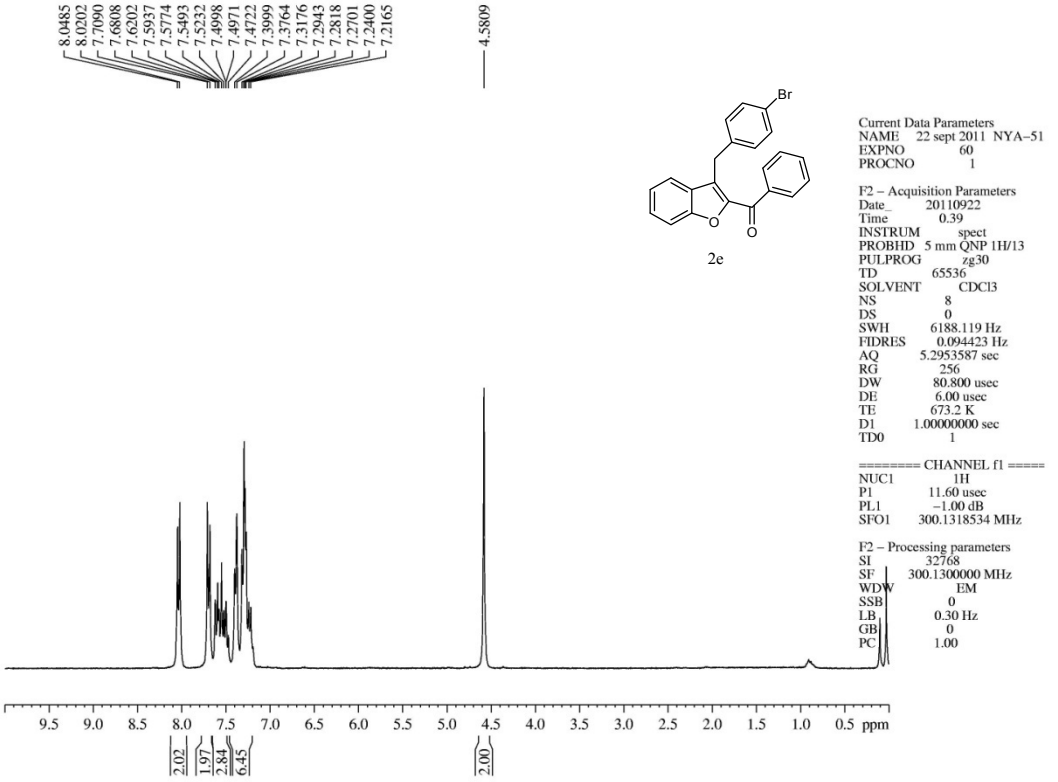

184.35
163.33
154.13
148.63
132.27
130.54
129.28
127.90
126.14
123.23
121.32
113.64
112.13
77.50
77.08
76.65
55.49
29.72
2 b
Current Data Parameters
NAME 17 NOV 2011 NYA–03 13C
EXPNO 90
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111117
Time 8.03
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 0
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 32768
DW 27.733 usec
DE 6.00 usec
TE 296.8 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.70 usec
PL1 –3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 –1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz
F2 – Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 180 160 140 120 100 80 60 40 20 0 ppm

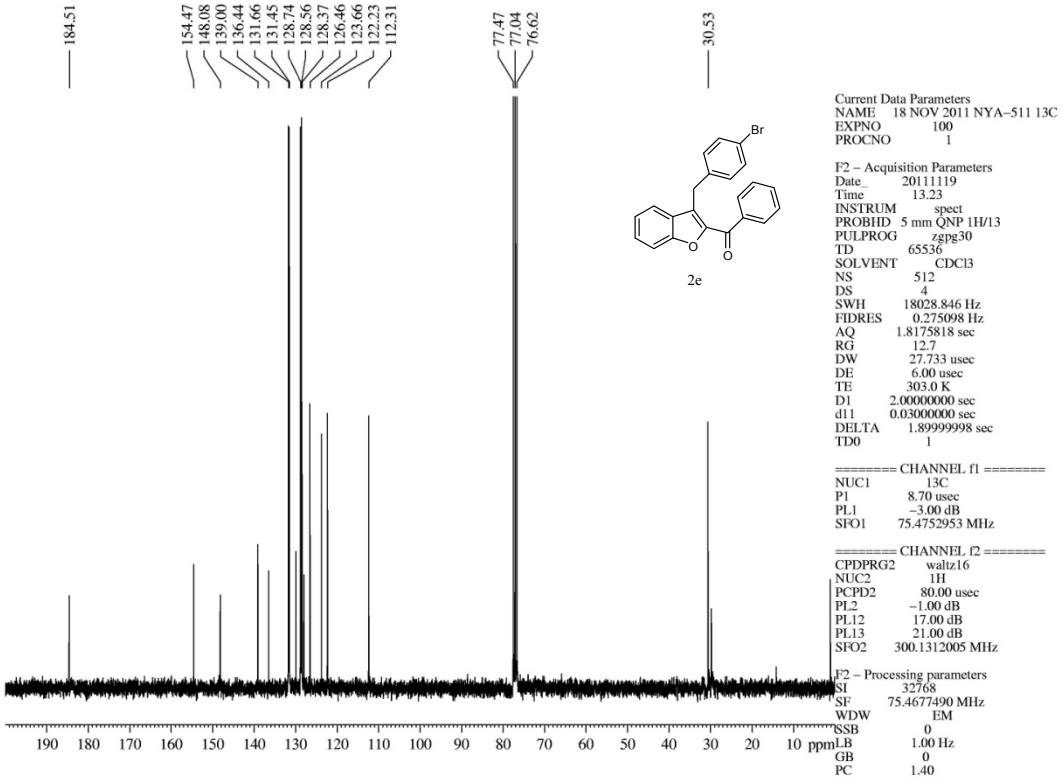

8.1493
8.1252
7.6421
7.6180
7.5891
7.5754
7.5492
7.5265
7.5040
7.4793
7.4537
7.3326
7.3055
7.2824
7.2614
6.8496
6.8213
4.5079
3.7823
2c
Current Data Parameters
NAME 29 sept NYA−331
EXPNO 70
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110929
Time 2.35
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 4
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
2.01
6.02
3.48
2.05
2.00
2.90

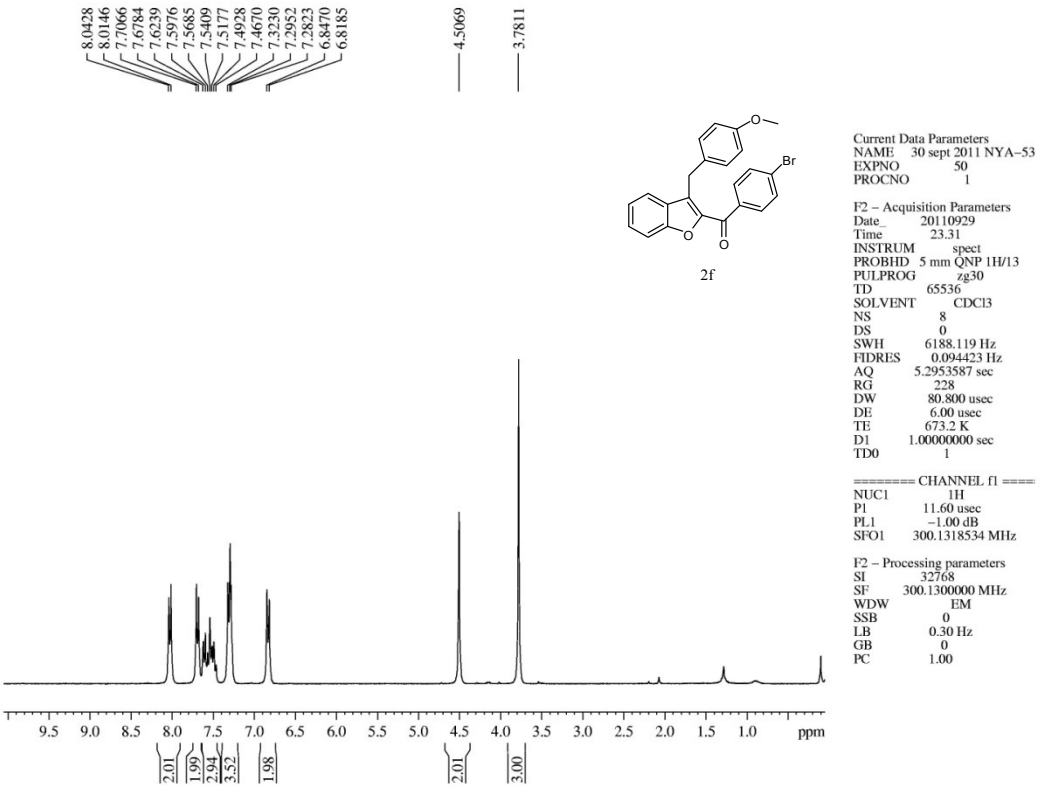

185.8854
158.1679
154.4611
148.2320
137.7772
132.7161
131.2536
130.9037
129.8732
129.7034
128.3243
128.0783
123.4747
122.1722
113.9376
112.3016
77.6703
77.0354
76.4003
55.2112
29.7014
2c
Current Data Parameters
NAME 18 october 2011 NY
EXPNO 20
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111019
Time 0.23
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 101.6
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ===
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ===
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0
LB 3.00 Hz
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

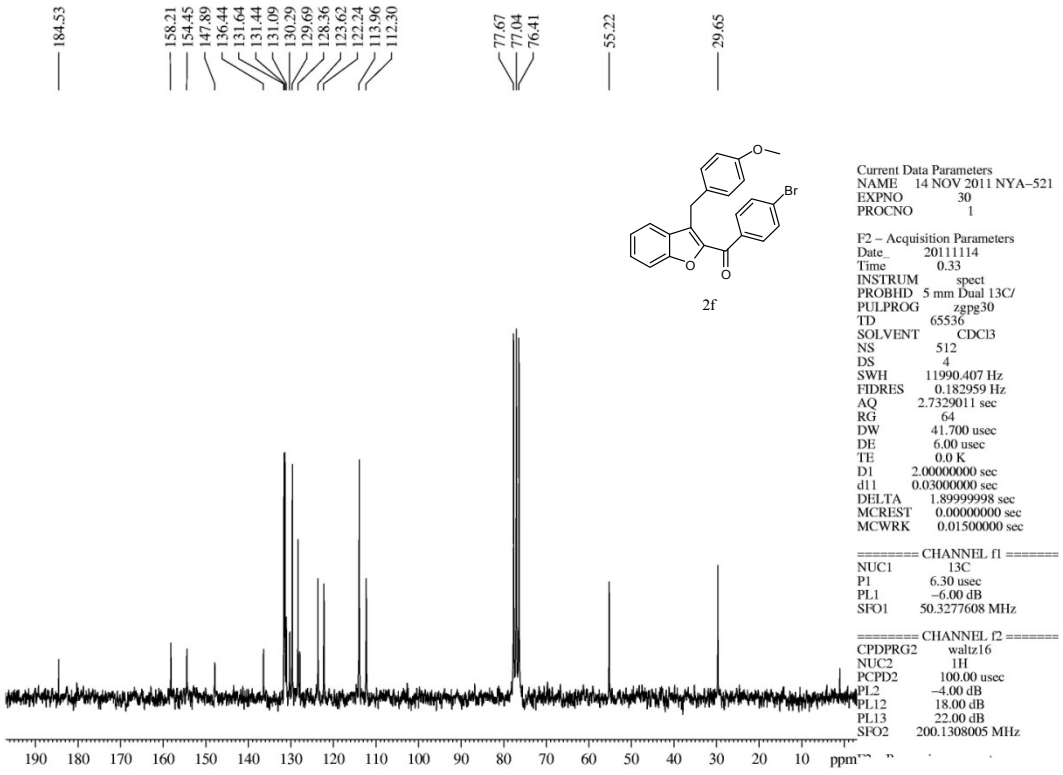

8.2154
8.1860
7.5988
7.5750
7.5494
7.4903
7.4642
7.4393
7.3322
7.3035
7.2816
7.2750
7.2491
7.0534
7.0240
6.8420
6.8135
4.4948
3.9338
3.7775
2 d
Current Data Parameters
NAME 28 sept 2011 NYA−431
EXPNO 20
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110928
Time 14.06
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.02 2.05 1.04 3.48 2.01 1.97 2.00 3.07 3.07

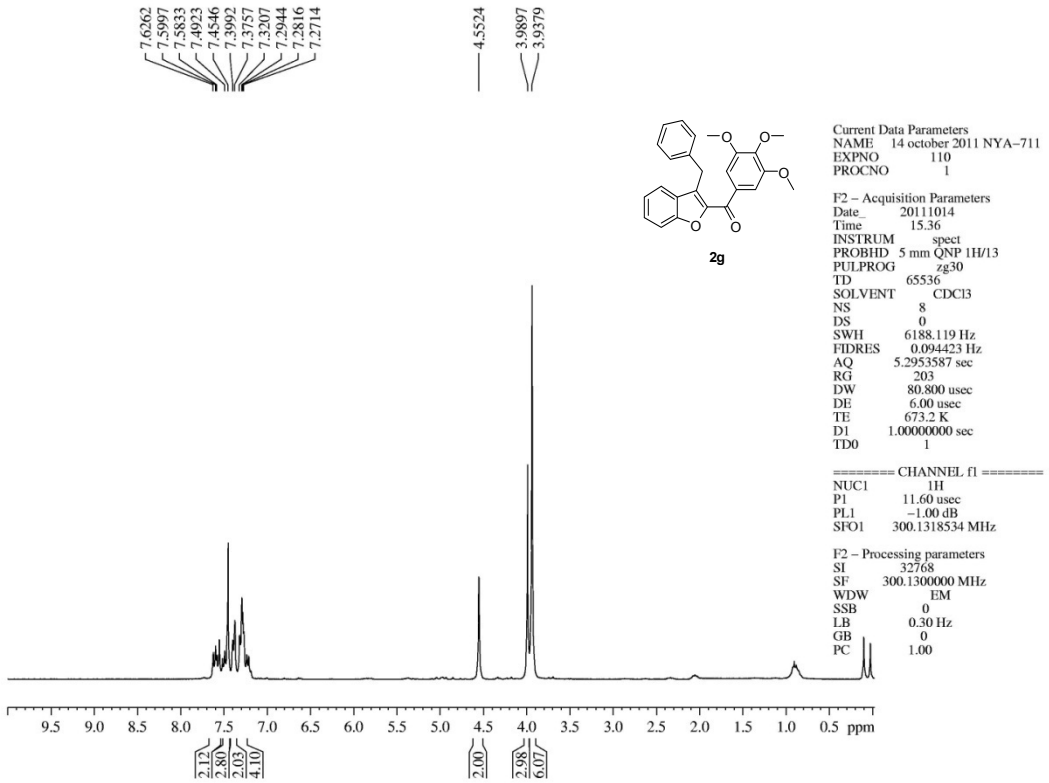

184.22
163.45
158.14
154.30
148.62
132.40
131.42
129.72
127.78
123.39
122.06
113.92
113.68
112.19
77.71
77.08
76.44
55.50
55.21
29.64
2 d
Current Data Parameters
NAME 14 NOVEMBER2011 NYA−4
EXPNO 20
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111113
Time 23.55
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 35.9
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

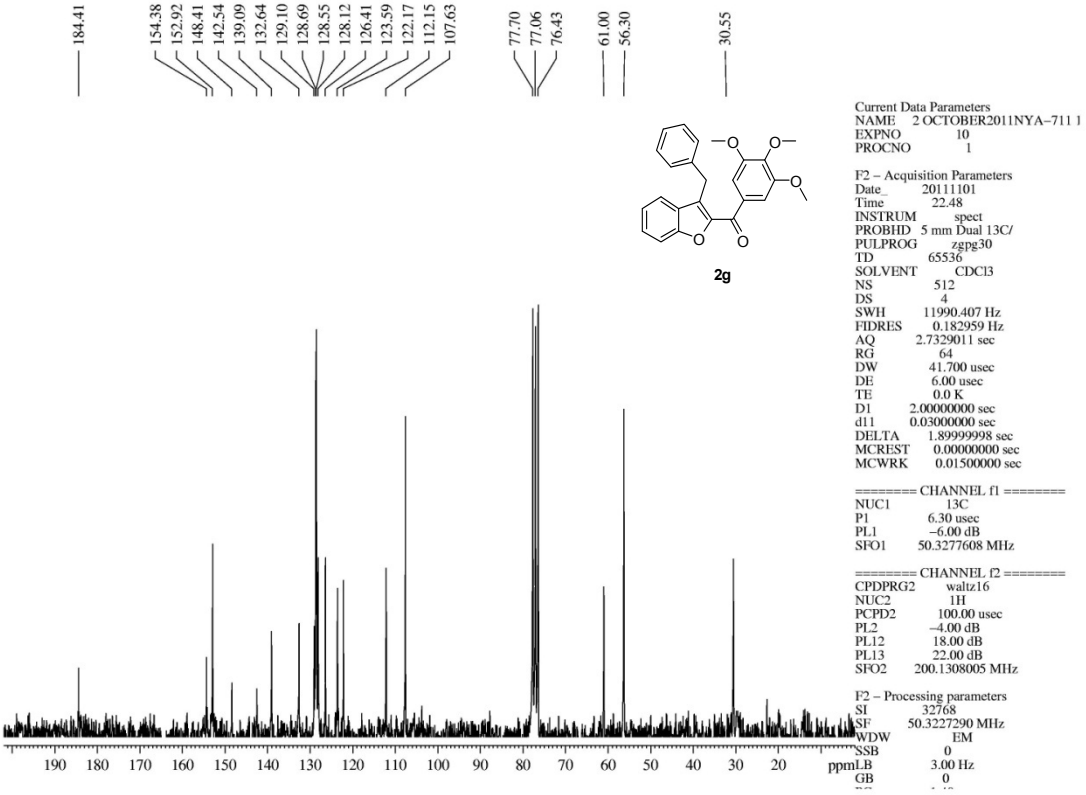

8.0485
8.0202
7.7090
7.6808
7.6202
7.5937
7.5774
7.5493
7.5232
7.4998
7.4971
7.4722
7.3999
7.3764
7.3176
7.2943
7.2818
7.2701
7.2400
7.2165
4.5809
Br
O
O
2e
Current Data Parameters
NAME 22 sept 2011 NYA–51
EXPNO 60
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110922
Time 0.39
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
2.02
1.97
2.84
6.45
2.00

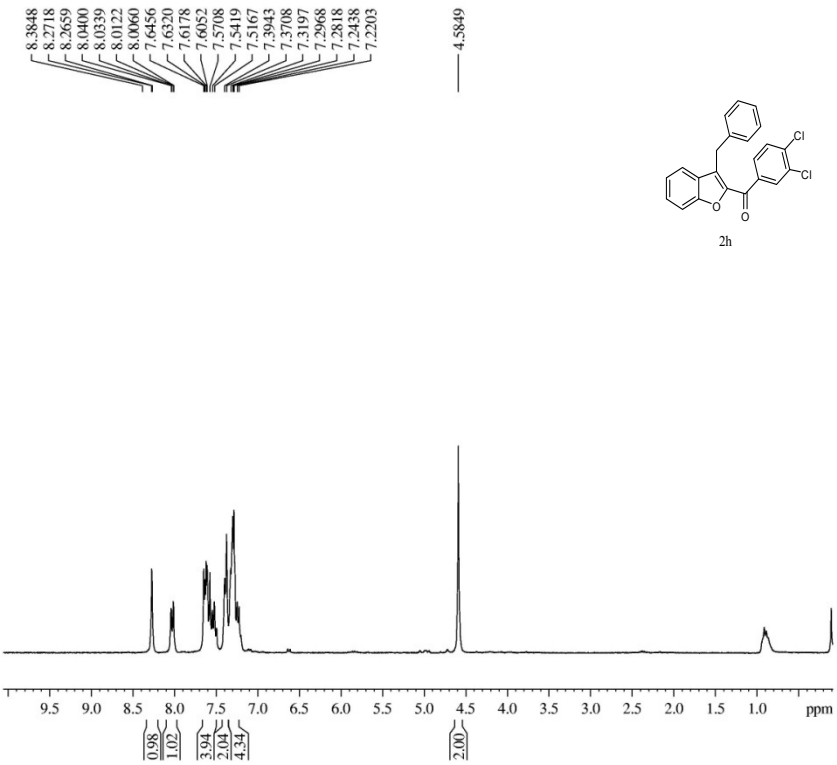

184.51
154.47
148.08
139.00
136.44
131.66
131.45
128.74
128.56
128.37
126.46
123.66
122.23
112.31
77.47
77.04
76.62
30.53
Br
O
O
2e
Current Data Parameters
NAME 18 NOV 2011 NYA–511 13C
EXPNO 100
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111119
Time 13.23
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 12.7
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.70 usec
PL1 –3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 –1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz
F2 – Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm


8.0428
8.0146
7.7066
7.6784
7.6239
7.5976
7.5685
7.5409
7.5177
7.4928
7.4670
7.3230
7.2952
7.2823
6.8470
6.8185
4.5069
3.7811
Br
O
O
2f
Current Data Parameters
NAME 30 sept 2011 NYA–53
EXPNO 50
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110929
Time 23.31
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ====
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.01
1.99
2.94
3.52
1.98
2.01
3.00


184.53
158.21
154.45
147.89
136.44
131.64
131.44
131.09
130.29
129.69
128.36
123.62
122.24
113.96
112.30
77.67
77.04
76.41
55.22
29.65
Br
O
O
2f
Current Data Parameters
NAME 14 NOV 2011 NYA–521
EXPNO 30
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111114
Time 0.33
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 64
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 –6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 –4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm


7.6262
7.5997
7.5833
7.4923
7.4546
7.3992
7.3757
7.3307
7.2944
7.2816
7.2714
4.5524
3.9897
3.9379
2g
Current Data Parameters
NAME 14 october 2011 NYA−711
EXPNO 110
PROCNO 1
F2 − Acquisition Parameters
Date_ 20111014
Time 15.36
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 203
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 − Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
2.12
2.80
2.03
4.10
2.00
2.98
6.07


184.41
154.38
152.92
148.41
142.54
139.09
132.64
129.10
128.69
128.55
128.12
126.41
123.59
122.17
112.15
107.63
77.70
77.06
76.43
61.00
56.30
30.55
2g
Current Data Parameters
NAME 2 OCTOBER2011NYA−711 1
EXPNO 10
PROCNO 1
F2 − Acquisition Parameters
Date_ 20111101
Time 22.48
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 64
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 − Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm

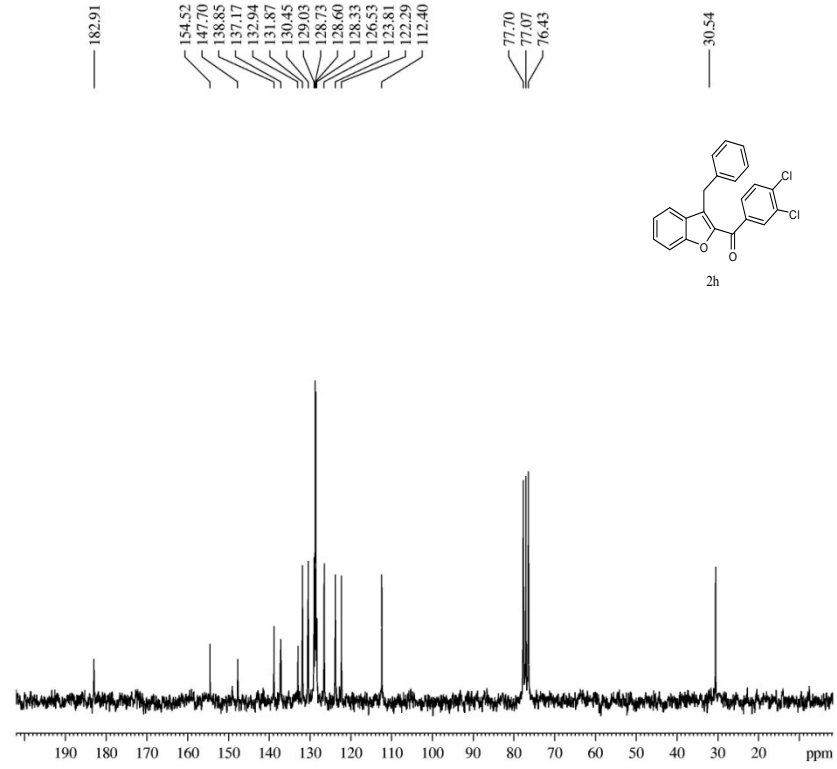


Current Data Parameters
NAME ny
EXPNO 50
PROCNO 1

F2 – Acquisition Parameters
Date_ 20111020
Time 14.43
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ==
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz

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



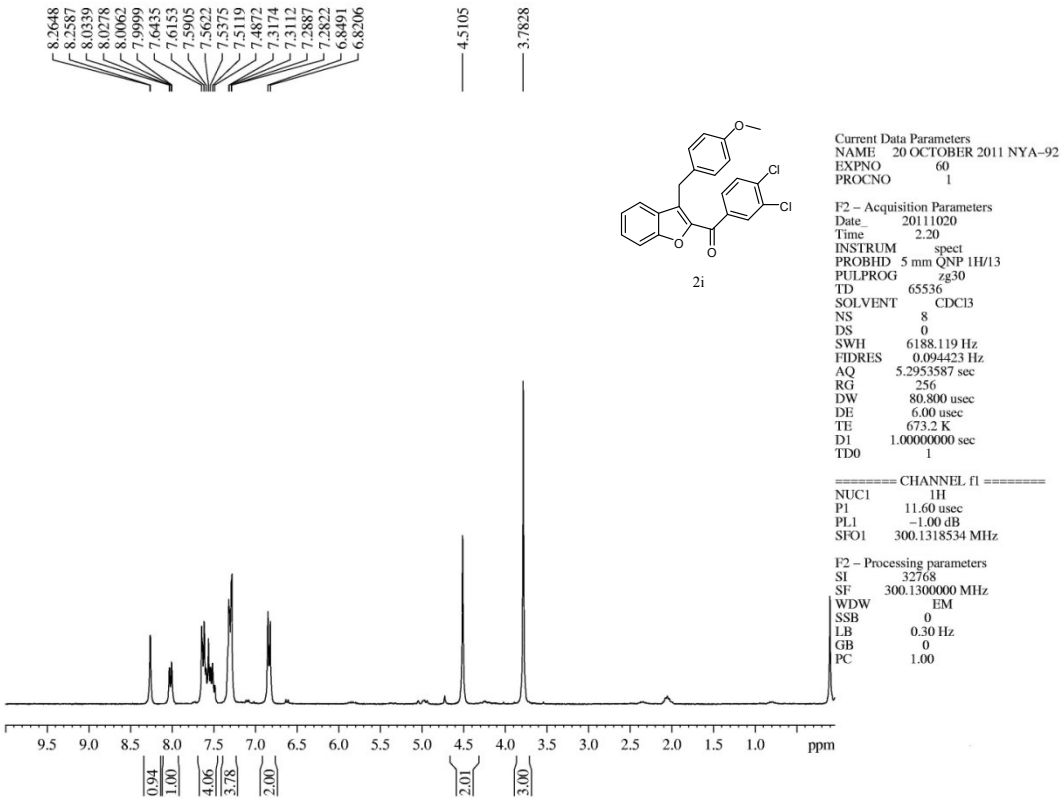
Current Data Parameters
NAME 9 November 2011 NYA−
EXPNO 30
PROCNO 1

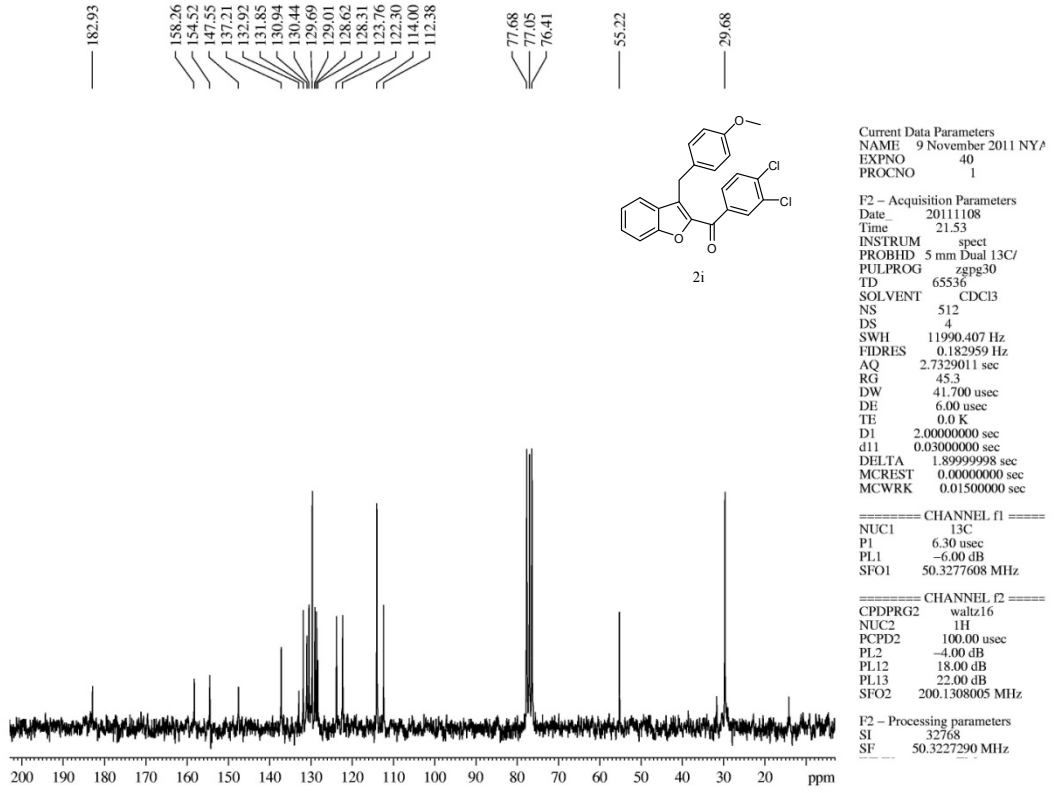
F2 – Acquisition Parameters
Date_ 20111108
Time 21.24
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 40.3
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

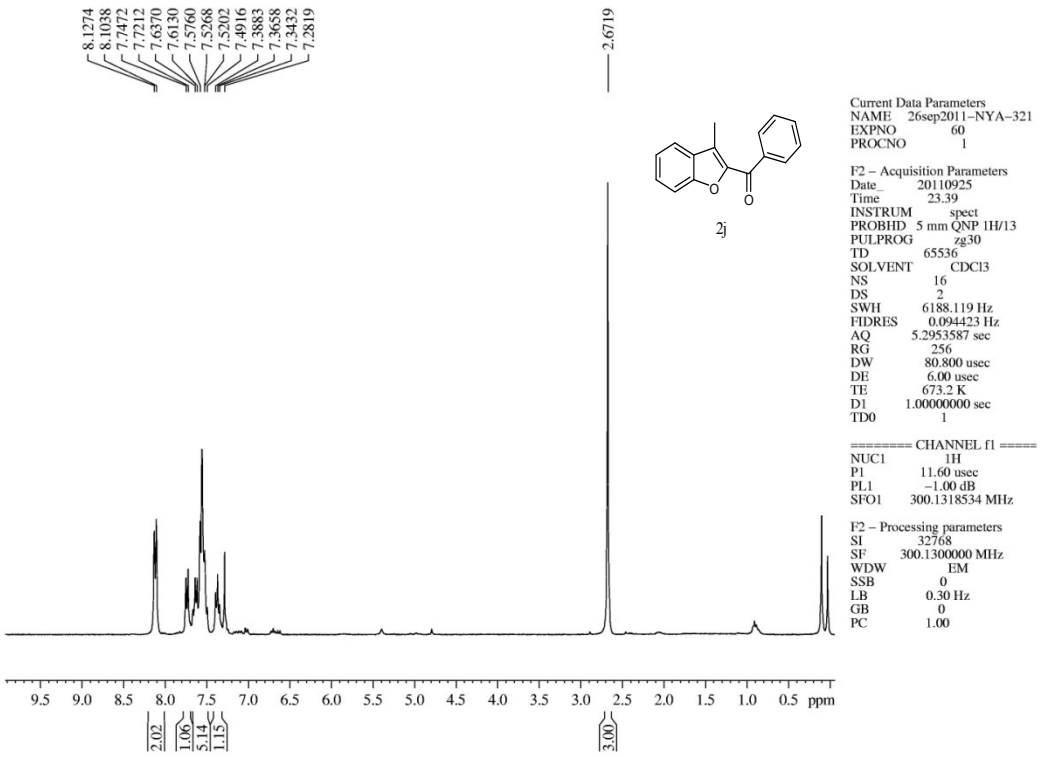
======== CHANNEL f1 ======
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz

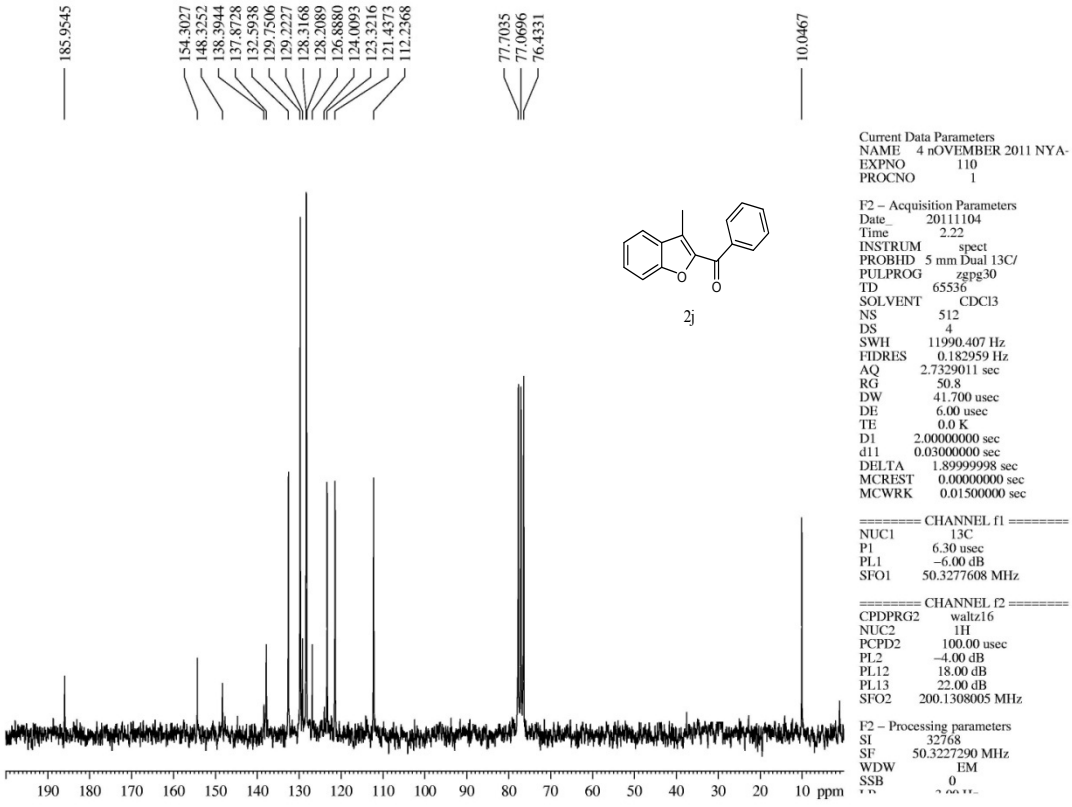
======== CHANNEL f2 ======
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

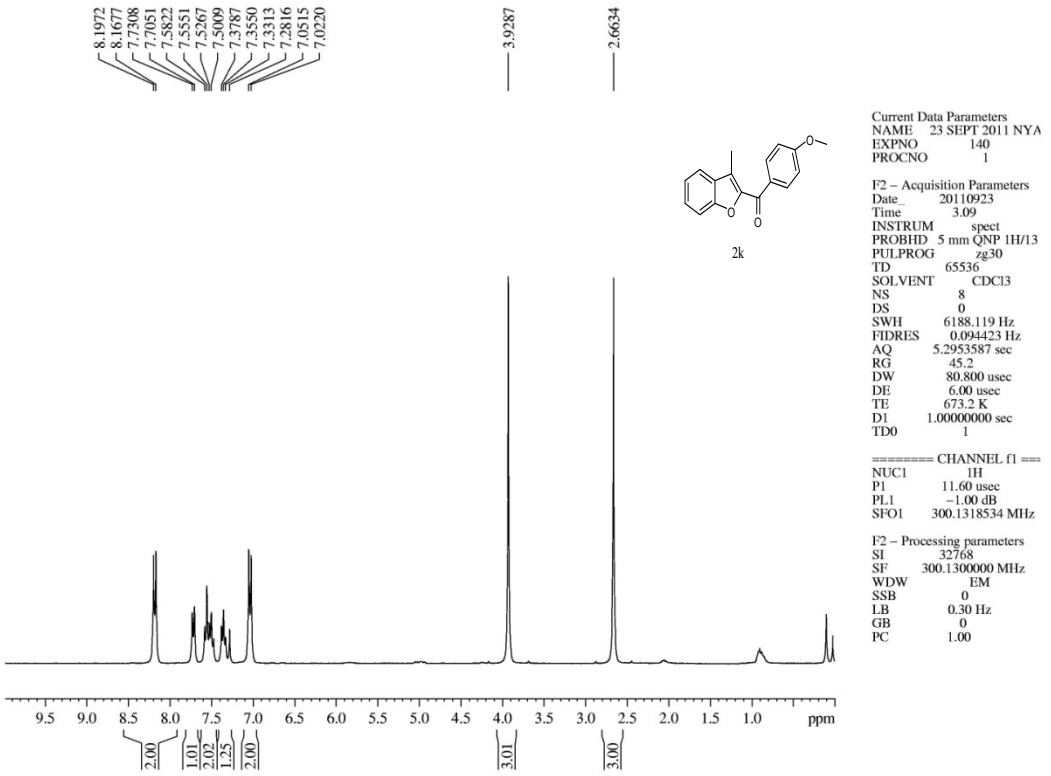
F2 – Processing parameters
SI 32768

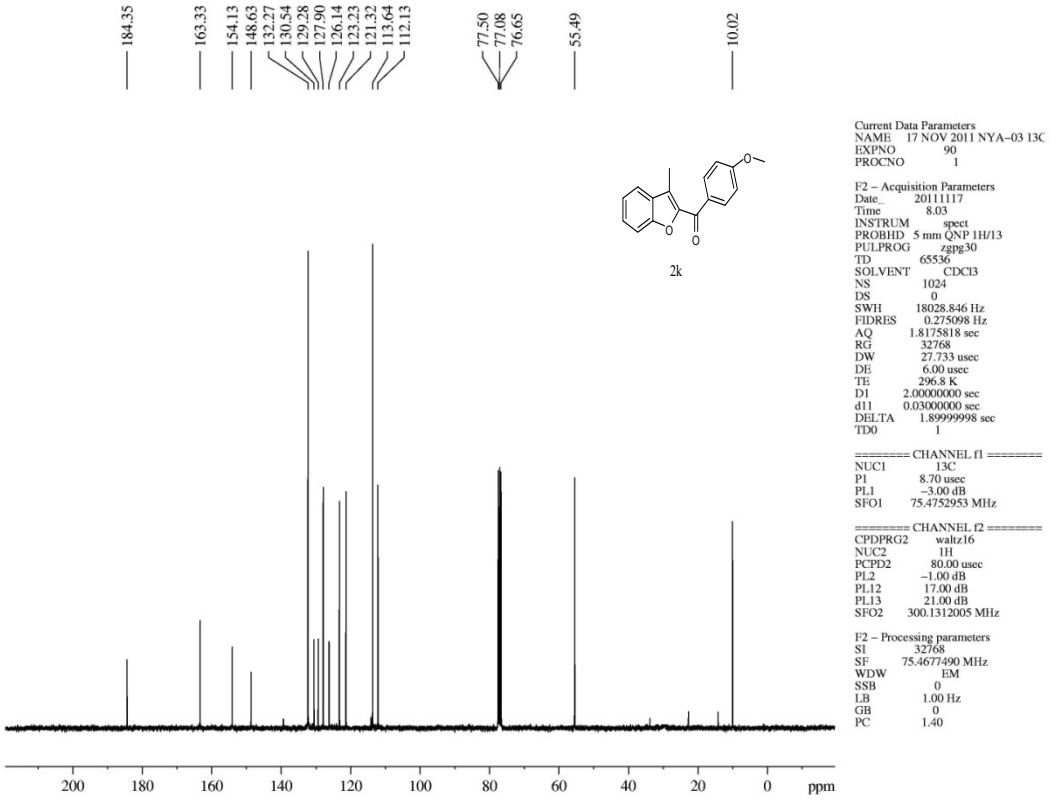

8.2648
8.2587
8.0339
8.0278
8.0062
7.9999
7.6435
7.6153
7.5905
7.5622
7.5375
7.5119
7.4872
7.3174
7.3112
7.2887
7.2822
6.8491
6.8206
4.5105
3.7828
2i
Current Data Parameters
NAME 20 OCTOBER 2011 NYA-92
EXPNO 60
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111020
Time 2.20
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
0.94
1.00
4.06
3.78
2.00
2.01
3.00

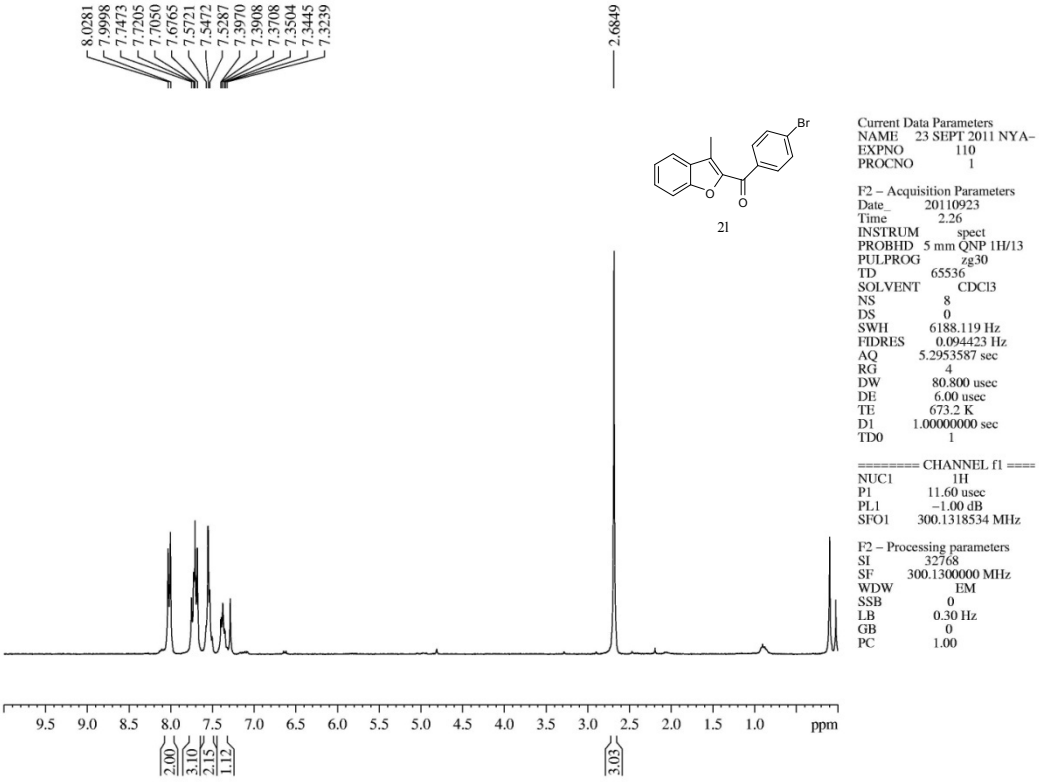

182.93
158.26
154.52
147.55
137.21
132.92
131.85
130.94
130.44
129.69
129.01
128.62
128.31
123.76
122.30
114.00
112.38
77.68
77.05
76.41
55.22
29.68
2i
Current Data Parameters
NAME 9 November 2011 NYA
EXPNO 40
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111108
Time 21.53
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 45.3
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 =====
NUC1 13C
P1 6.30 usec
PL1 -6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm

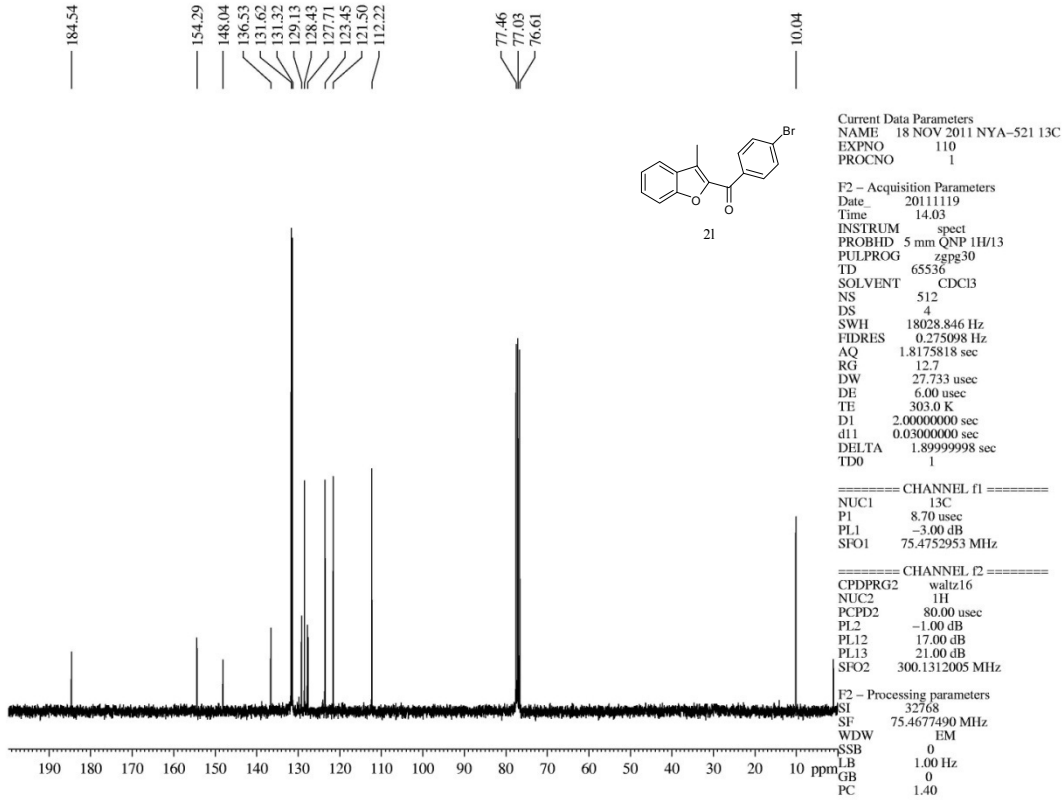

8.1274
8.1038
7.7472
7.7212
7.6370
7.6130
7.5760
7.5268
7.5202
7.4916
7.3883
7.3658
7.3432
7.2819
2.6719
2j
Current Data Parameters
NAME 26sep2011–NYA–321
EXPNO 60
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110925
Time 23.39
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =====
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
2.02
1.06
5.14
1.15
3.00

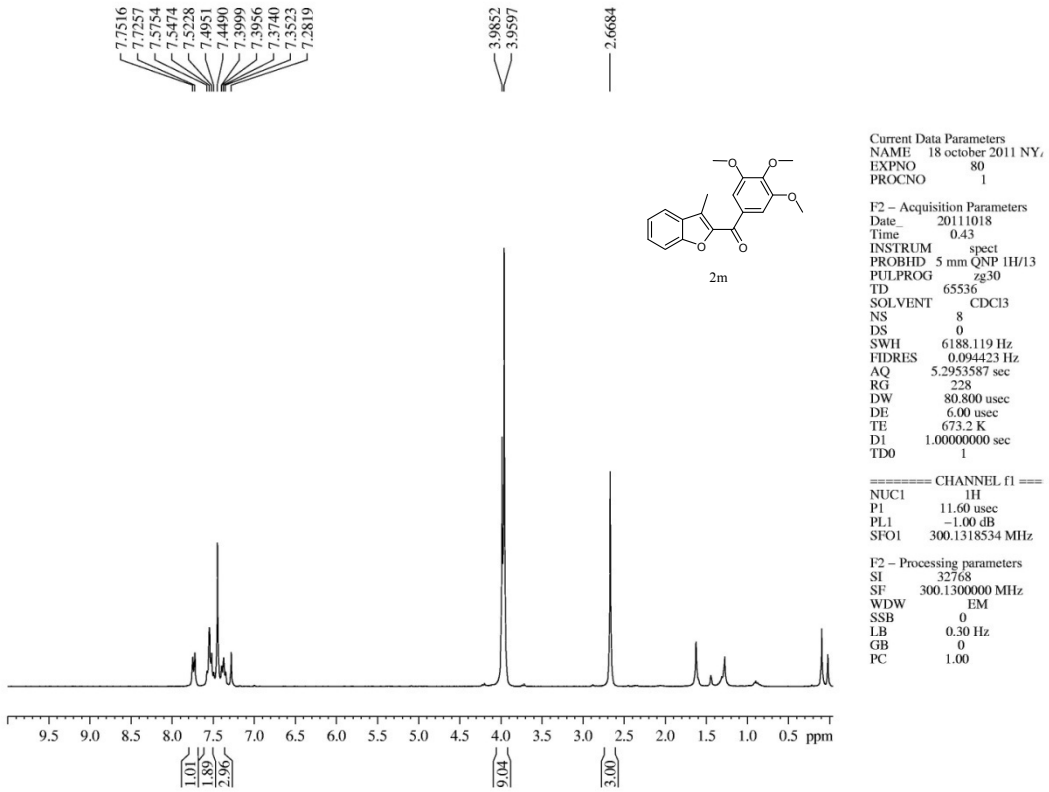

185.9545
154.3027
148.3252
138.3944
137.8728
132.5938
129.7506
129.2227
128.3168
128.2089
126.8880
124.0093
123.3216
121.4373
112.2368
77.7035
77.0696
76.4331
10.0467
2j
Current Data Parameters
NAME 4 nOVEMBER 2011 NYA-
EXPNO 110
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111104
Time 2.22
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 50.8
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 –6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 –4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

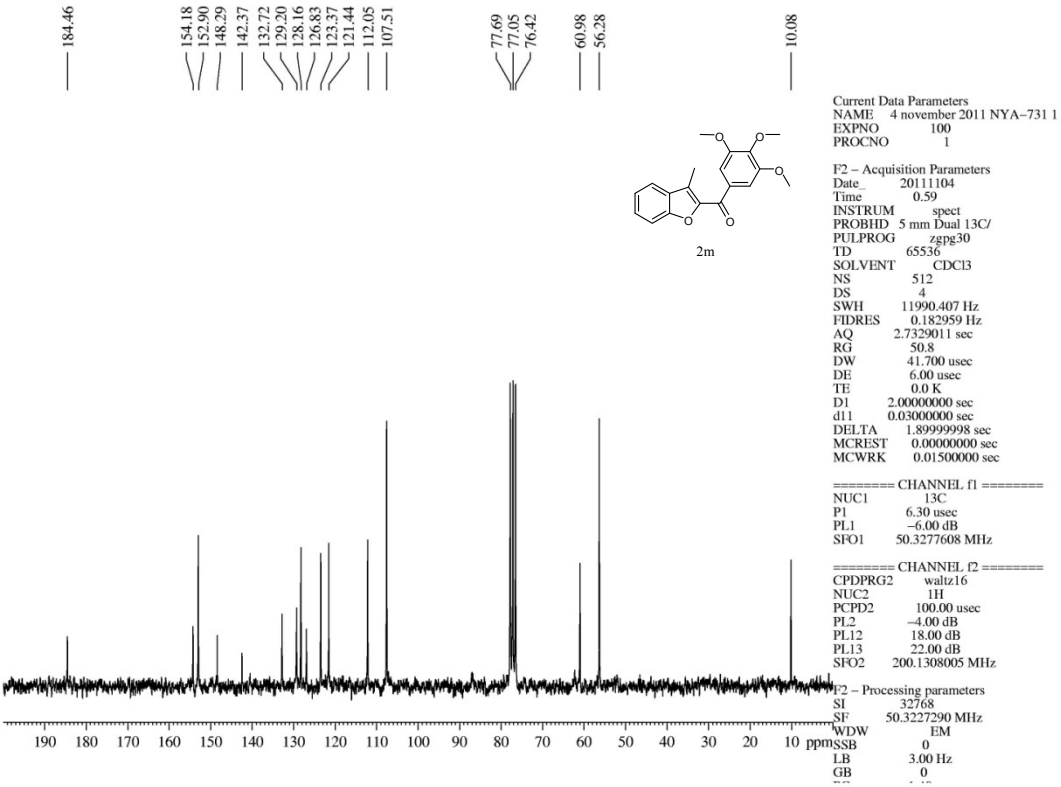

8.1972
8.1677
7.7308
7.7051
7.5822
7.5551
7.5267
7.5009
7.3787
7.3550
7.3313
7.2816
7.0515
7.0220
3.9287
2.6634
2k
Current Data Parameters
NAME 23 SEPT 2011 NYA
EXPNO 140
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110923
Time 3.09
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 45.2
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ===
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.00
1.01
2.02
1.25
2.00
3.01
3.00

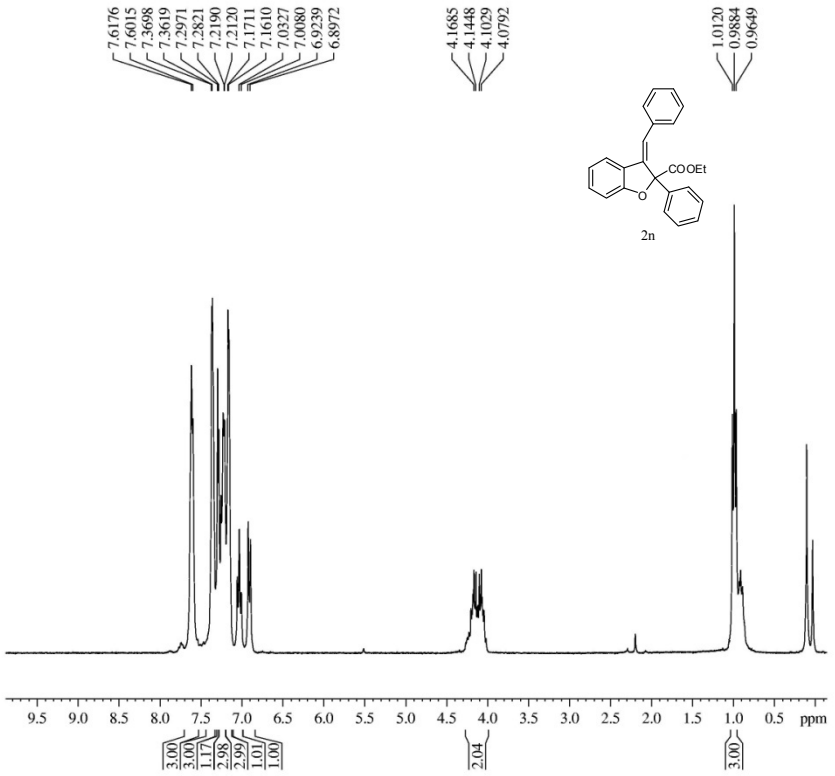

184.35
163.33
154.13
148.63
132.27
130.54
129.28
127.90
126.14
123.23
121.32
113.64
112.13
77.50
77.08
76.65
55.49
10.02
2k
Current Data Parameters
NAME 17 NOV 2011 NYA–03 13C
EXPNO 90
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111117
Time 8.03
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 0
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 32768
DW 27.733 usec
DE 6.00 usec
TE 296.8 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.70 usec
PL1 −3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 −1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz
F2 – Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 180 160 140 120 100 80 60 40 20 0 ppm


8.0281
7.9998
7.7473
7.7205
7.7050
7.6765
7.5721
7.5472
7.5287
7.3970
7.3908
7.3708
7.3504
7.3445
7.3239
2.6849
Br
O
O
21
Current Data Parameters
NAME 23 SEPT 2011 NYA–
EXPNO 110
PROCNO 1
F2 – Acquisition Parameters
Date_ 20110923
Time 2.26
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 4
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ====
NUC1 1H
P1 11.60 usec
PL1 –1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.00
3.10
2.15
1.12
3.03


184.54
154.29
148.04
136.53
131.62
131.32
129.13
128.43
127.71
123.45
121.50
112.22
77.46
77.03
76.61
10.04
Br
O
O
21
Current Data Parameters
NAME 18 NOV 2011 NYA–521 13C
EXPNO 110
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111119
Time 14.03
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 12.7
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.70 usec
PL1 –3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 –1.00 dB
PL12 17.00 dB
PL13 21.00 dB
SFO2 300.1312005 MHz
F2 – Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm


7.7516
7.7257
7.5754
7.5474
7.5228
7.4951
7.4490
7.3999
7.3956
7.3740
7.3523
7.2819
3.9852
3.9597
2.6684
2m
Current Data Parameters
NAME 18 october 2011 NY
EXPNO 80
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111018
Time 0.43
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ===
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.01
1.89
2.96
9.04
3.00


184.46
154.18
152.90
148.29
142.37
132.72
129.20
128.16
126.83
123.37
121.44
112.05
107.51
77.69
77.05
76.42
60.98
56.28
10.08
2m
Current Data Parameters
NAME 4 november 2011 NYA−731 1
EXPNO 100
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111104
Time 0.59
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 50.8
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

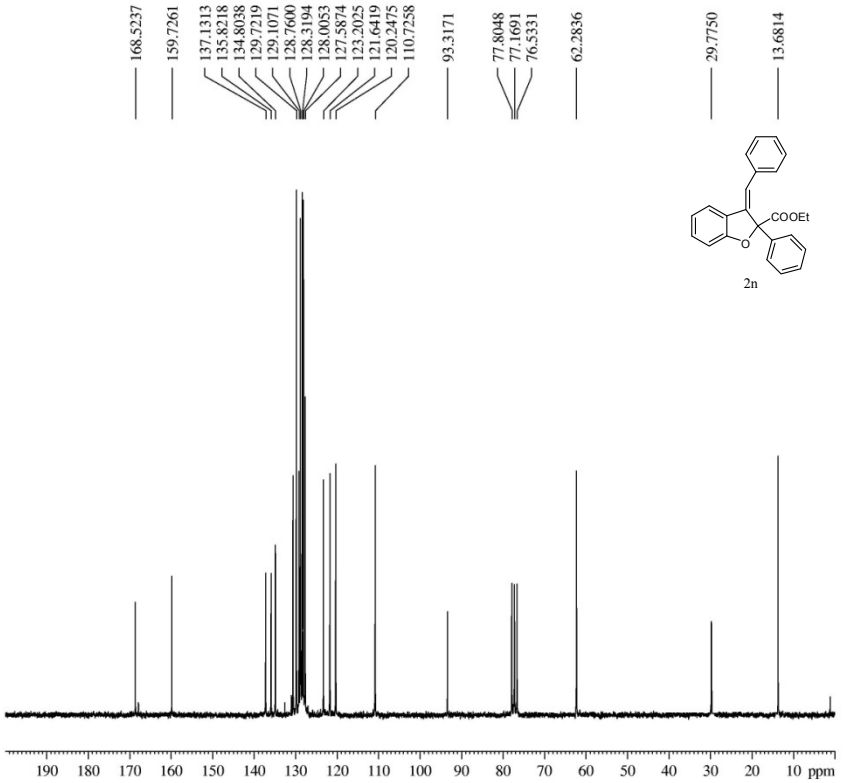


Current Data Parameters
NAME 5 october 2011 NY/
EXPNO 40
PROCNO 1

F2 – Acquisition Parameters
Date_ 20111005
Time 7.20
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 181
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ===
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz

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



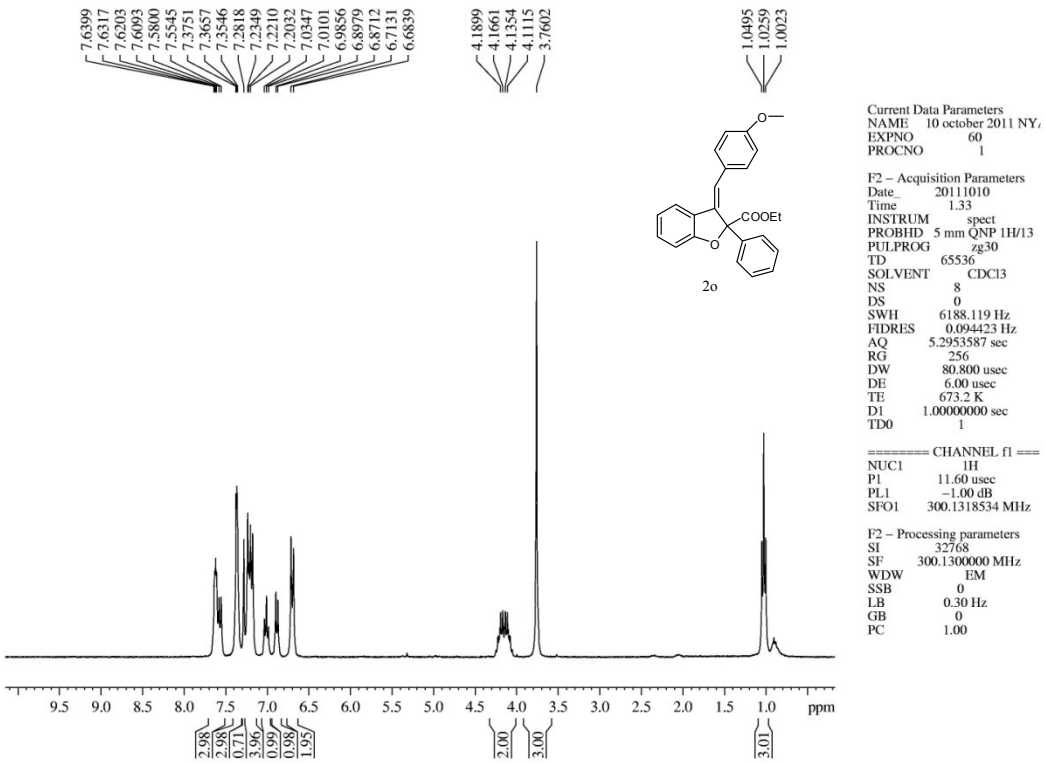
Current Data Parameters
NAME 8 November 2011 N`
EXPNO 50
PROCNO 1

F2 – Acquisition Parameters
Date_ 20111108
Time 5.03
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 50.8
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

======== CHANNEL f1 ===
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz

======== CHANNEL f2 ===
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM

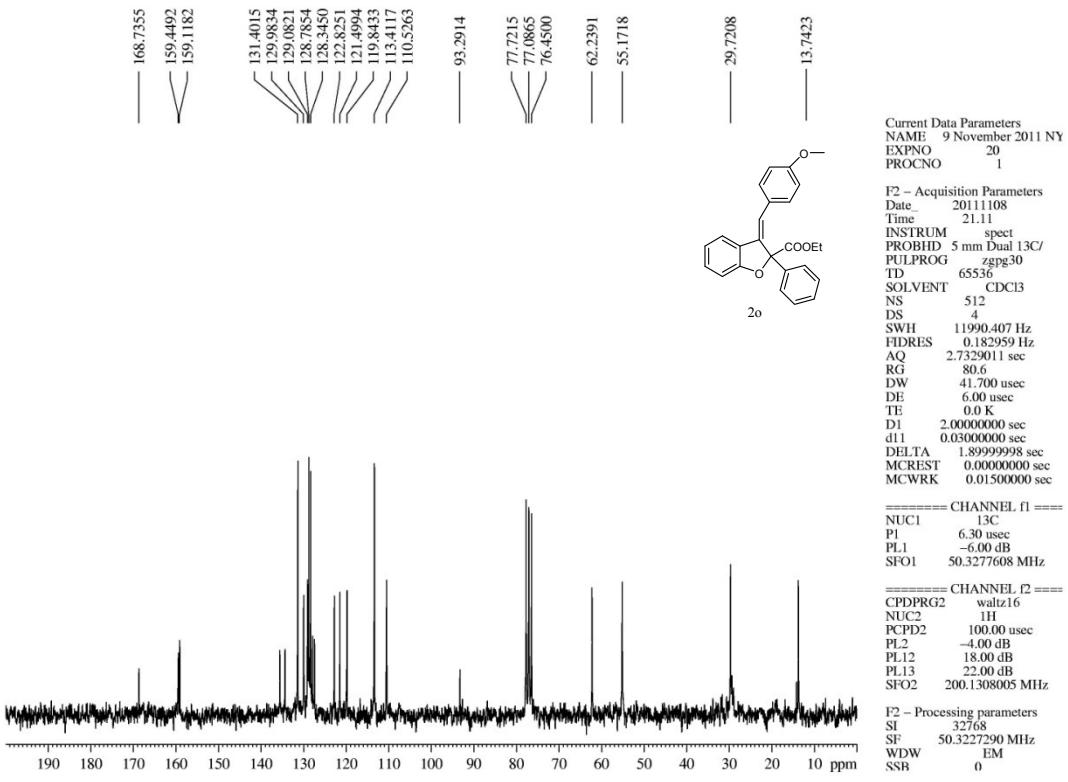


Current Data Parameters
NAME 10 october 2011 NY/
EXPNO 60
PROCNO 1

F2 – Acquisition Parameters
Date_ 20111010
Time 1.33
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 256
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ===
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz

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



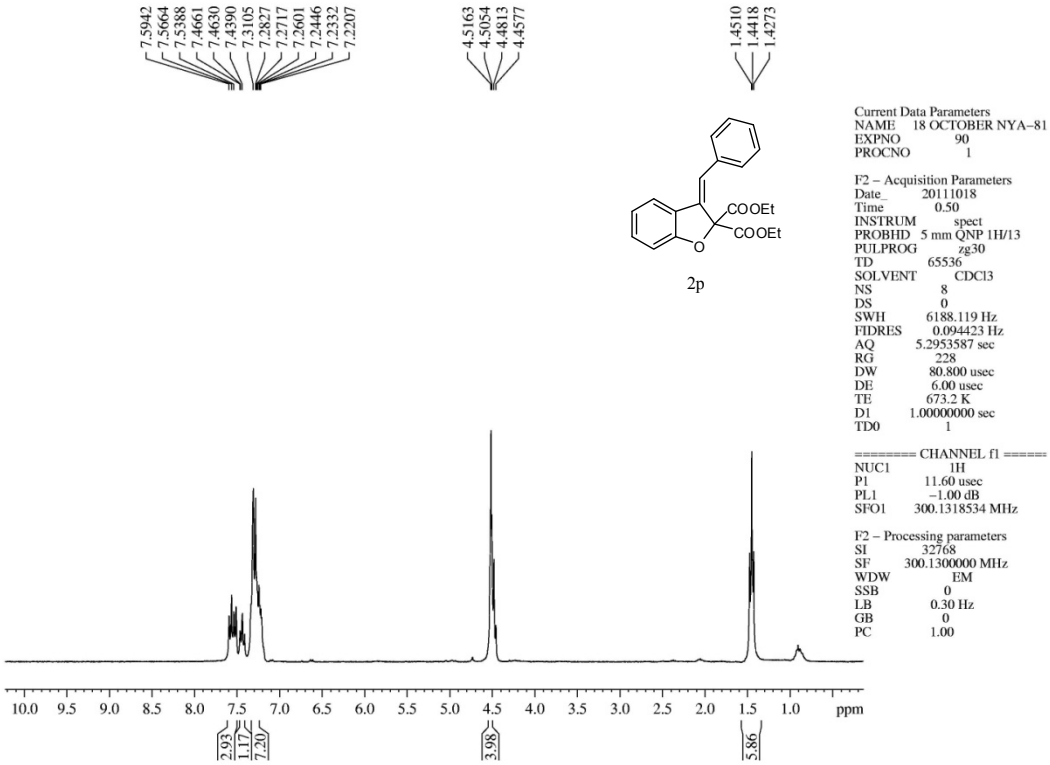
Current Data Parameters
NAME 9 November 2011 NY
EXPNO 20
PROCNO 1

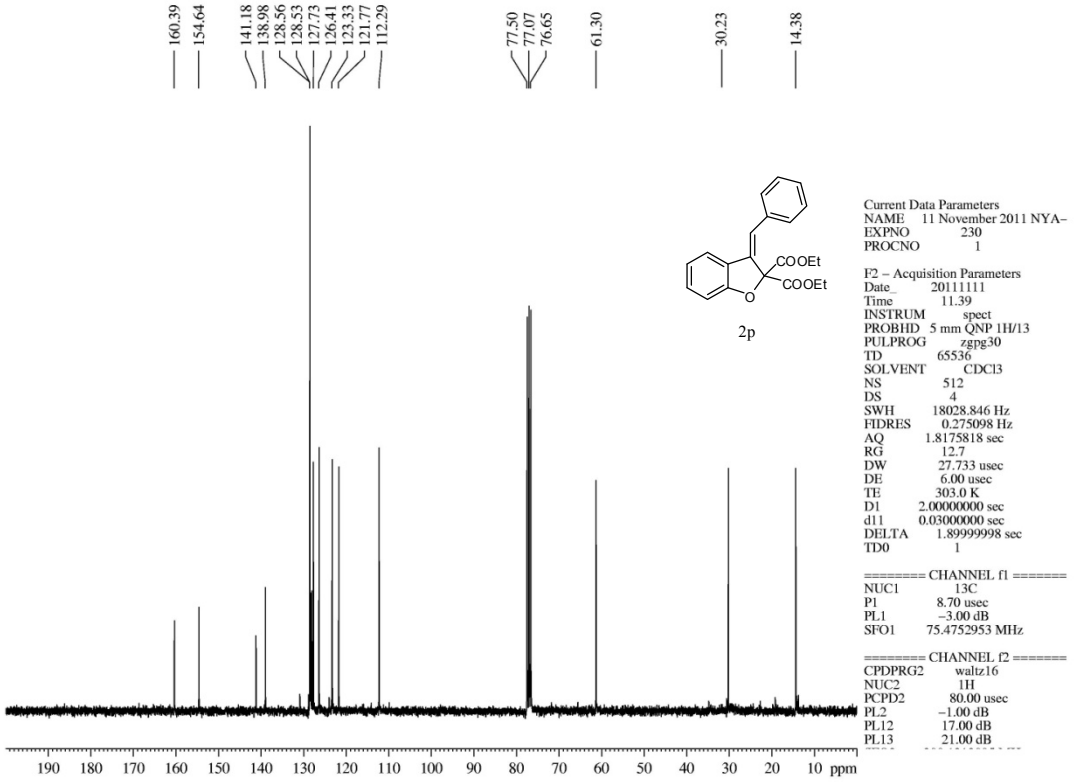
F2 – Acquisition Parameters
Date_ 20111108
Time 21.11
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 80.6
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

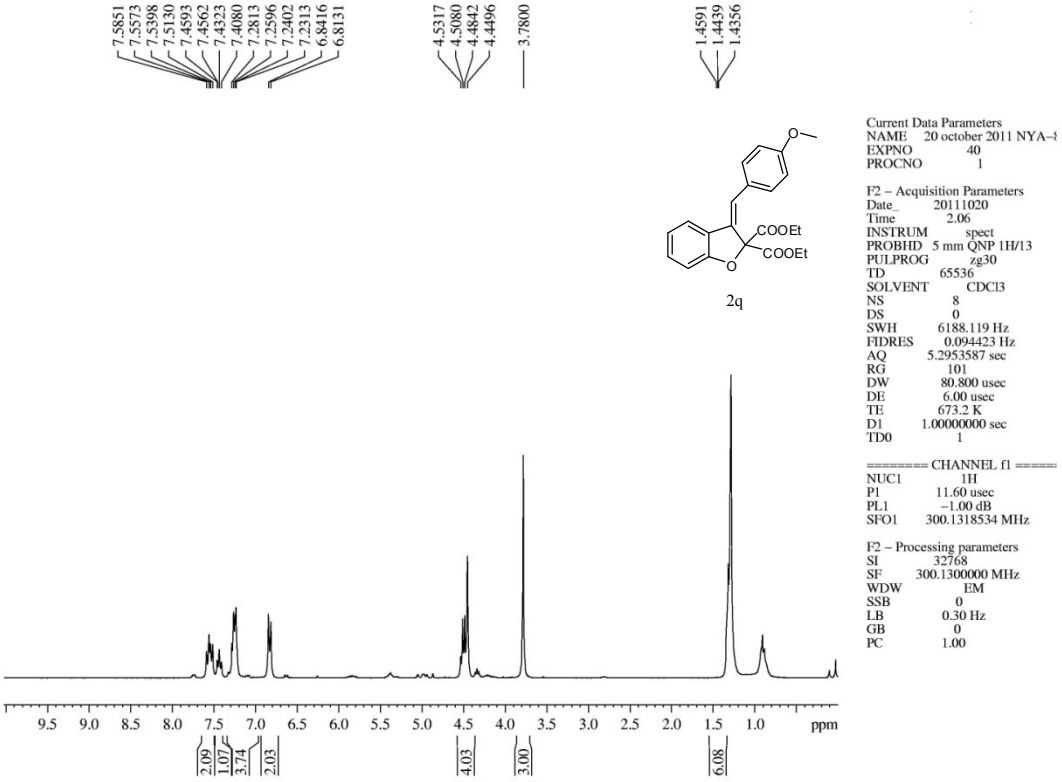
======== CHANNEL f1 ====
NUC1 13C
P1 6.30 usec
PL1 −6.00 dB
SFO1 50.3277608 MHz

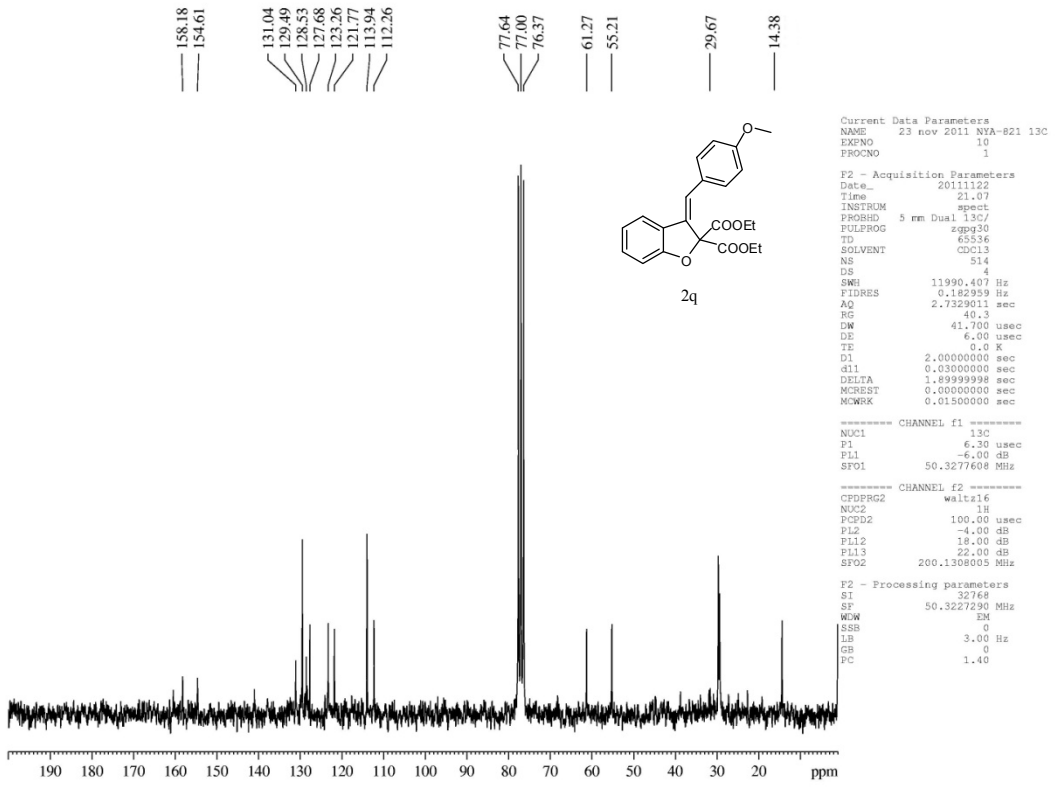
======== CHANNEL f2 ====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 −4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz

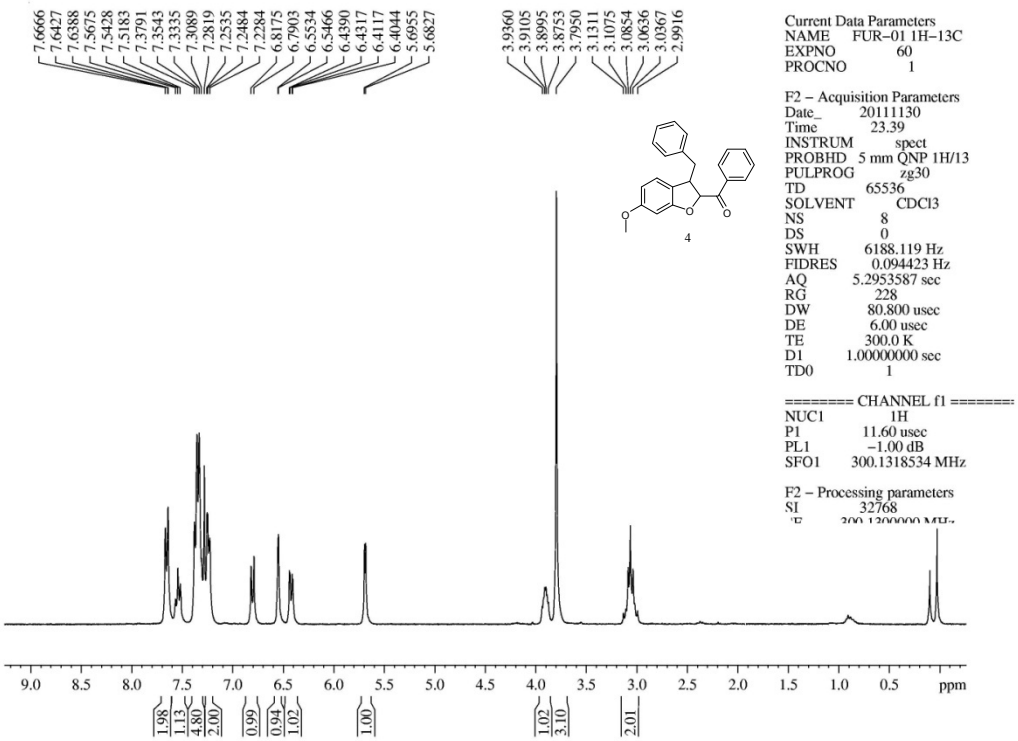
F2 – Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0

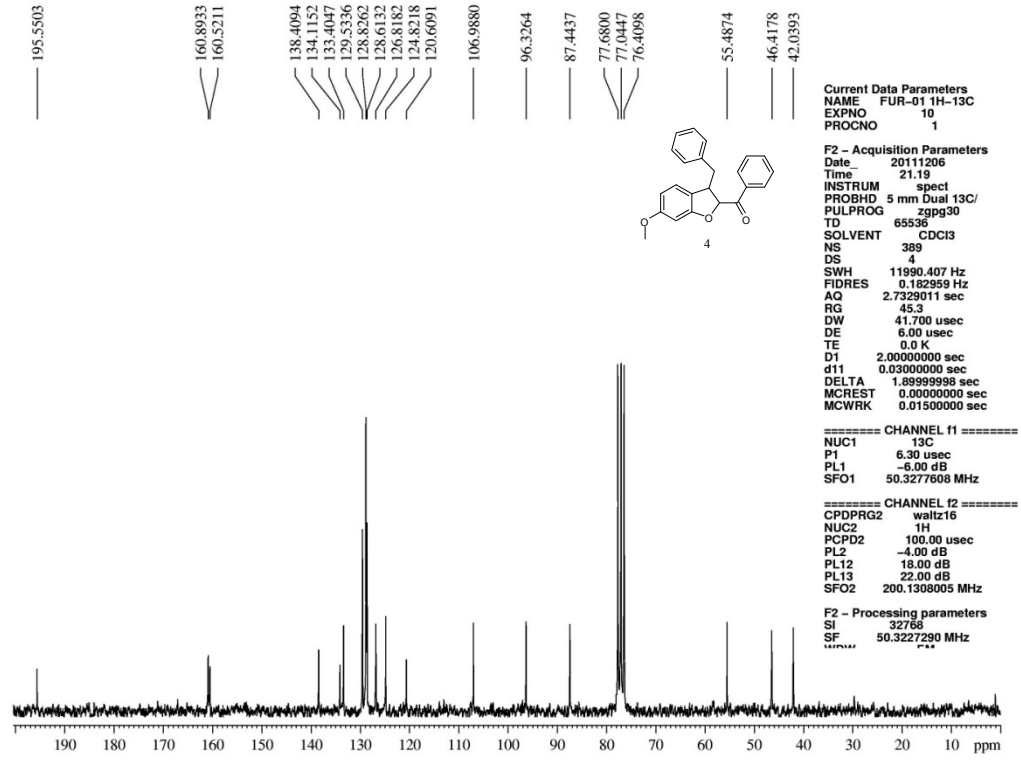

7.5942
7.5664
7.5388
7.4661
7.4630
7.4390
7.3105
7.2827
7.2717
7.2601
7.2446
7.2332
7.2207
4.5163
4.5054
4.4813
4.4577
1.4510
1.4418
1.4273
COOEt
COOEt
O
2p
Current Data Parameters
NAME 18 OCTOBER NYA–81
EXPNO 90
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111018
Time 0.50
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.93
1.17
7.20
3.98
5.86


160.39
154.64
141.18
138.98
128.56
128.53
127.73
126.41
123.33
121.77
112.29
77.50
77.07
76.65
61.30
30.23
14.38
COOEt
COOEt
O
2p
Current Data Parameters
NAME 11 November 2011 NYA–
EXPNO 230
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111111
Time 11.39
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.275098 Hz
AQ 1.8175818 sec
RG 12.7
DW 27.733 usec
DE 6.00 usec
TE 303.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 8.70 usec
PL1 −3.00 dB
SFO1 75.4752953 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 −1.00 dB
PL12 17.00 dB
PL13 21.00 dB
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm


7.5851
7.5573
7.5398
7.5130
7.4593
7.4562
7.4323
7.4080
7.2813
7.2596
7.2402
7.2313
6.8416
6.8131
4.5317
4.5080
4.4842
4.4496
3.7800
1.4591
1.4439
1.4356
COOEt
COOEt
2q
Current Data Parameters
NAME 20 october 2011 NYA-8
EXPNO 40
PROCNO 1
F2 – Acquisition Parameters
Date_ 20111020
Time 2.06
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 101
DW 80.800 usec
DE 6.00 usec
TE 673.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ======
NUC1 1H
P1 11.60 usec
PL1 −1.00 dB
SFO1 300.1318534 MHz
F2 – Processing parameters
SI 32768
SF 300.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm
2.09
1.07
3.74
2.03
4.03
3.00
6.08


158.18
154.61
131.04
129.49
128.53
127.68
123.26
121.77
113.94
112.26
77.64
77.00
76.37
61.27
55.21
29.67
14.38
COOEt
COOEt
2q
Current Data Parameters
NAME 23 nov 2011 NYA-821 13C
EXPNO 10
PROCNO 1
F2 - Acquisition Parameters
Date_ 20111122
Time 21.07
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 514
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 40.3
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 -6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 - Processing parameters
SI 32768
SF 50.3227290 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm


7.6666
7.6427
7.6388
7.5675
7.5428
7.5183
7.3791
7.3543
7.3335
7.3089
7.2819
7.2535
7.2484
7.2284
6.8175
6.7903
6.5534
6.5466
6.4390
6.4317
6.4117
6.4044
6.6955
5.6827
3.9360
3.9105
3.8995
3.8753
3.7950
3.1311
3.1075
3.0854
3.0636
3.0367
2.9916
4
Current Data Parameters
NAME FUR-01 1H-13C
EXPNO 60
PROCNO 1
F2 - Acquisition Parameters
Date_ 20111130
Time 23.39
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 6188.119 Hz
FIDRES 0.094423 Hz
AQ 5.2953587 sec
RG 228
DW 80.800 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 11.60 usec
PL1 -1.00 dB
SFO1 300.1318534 MHz
F2 - Processing parameters
SI 32768
9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.98
1.13
4.80
2.00
0.99
0.94
1.02
1.00
1.02
3.10
2.01


195.5503
160.8933
160.5211
138.4094
134.1152
133.4047
129.5336
128.8262
128.6132
126.8182
124.8218
120.6091
106.9880
96.3264
87.4437
77.6800
77.0447
76.4098
55.4874
46.4178
42.0393
4
Current Data Parameters
NAME FUR-01 1H-13C
EXPNO 10
PROCNO 1
F2 - Acquisition Parameters
Date_ 20111206
Time 21.19
INSTRUM spect
PROBHD 5 mm Dual 13C/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 389
DS 4
SWH 11990.407 Hz
FIDRES 0.182959 Hz
AQ 2.7329011 sec
RG 45.3
DW 41.700 usec
DE 6.00 usec
TE 0.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 6.30 usec
PL1 -6.00 dB
SFO1 50.3277608 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -4.00 dB
PL12 18.00 dB
PL13 22.00 dB
SFO2 200.1308005 MHz
F2 - Processing parameters
SI 32768
SF 50.3227290 MHz
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm