Supporting Information

Evolution of a Strategy for Total Synthesis of the Marine Fungal Alkaloid (±)-Communesin F

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General Methods. All non-aqueous reactions were carried out in oven- or flame-dried glassware under an argon atmosphere. All chemicals were purchased from commercial vendors and used as is, unless otherwise specified. Anhydrous tetrahydrofuran (THF) and dichloromethane (CH_2Cl_2) were obtained from a solvent purification system. Reactions were magnetically stirred and monitored by thin layer chromatography (TLC) with 250 μm precoated silica gel plates. Preparative TLC was performed with 500 μm precoated silica gel plates. Flash column chromatography was performed using silica gel (230-400 mesh). Chemical shifts are reported relative to chloroform (δ 7.24), acetonitrile (δ 1.93) , toluene (δ 7.00) and methylene chloride (δ 5.32) for ^{1}H NMR and chloroform (δ 77.0), acetonitrile (δ 1.3), toluene (δ 20.4) and methylene chloride (δ 54.0)) for ^{13}C NMR.

Synthesis of TBS Ether 17b. To a solution of alcohol **16** (507 mg, 1.82 mmol) and imidazole (247 mg, 3.63 mmol) in DMF (5 mL) was added TBSCl (329 mg, 2.18 mmol) in a single portion. The reaction mixture was stirred at rt for 3 h and then diluted with EtOAc (150 mL). The solution was washed with water (3×30 mL) and brine (30 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:10 EtOAc:hexanes) to give the TBS ether **17b** (714 mg, 100%). ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.73 (d, *J* = 7.6 Hz, 1H), 7.56 (d, *J* = 7.2 Hz, 1H), 7.48 (t, *J* = 7.8 Hz, 1H), 4.68 (s, 2H), 0.98 (s, 9H), 0.17 (s, 6H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 154.8, 146.9, 130.5, 129.3, 123.5, 87.4, 70.7, 26.4, 18.8, -4.9; LRMS-ES (*m/z*): $\left[M - NO_2 + H\right]^+$ calcd for $C_{13}H_{21}IOSi$, 348.0; found, 348.1.

Synthesis of Aniline 18b. To a solution of the nitrobenzene **17b** (714 mg, 1.82 mmol) in EtOH (7 mL) and glacial acetic acid (7 mL) was added iron powder (507 mg, 9.08 mmol). The mixture was heated at 60 °C for 4 h and then cooled to rt. The mixture was diluted with water (150 mL) and carefully neutralized with solid Na_2CO_3. The resulting solution was extracted with EtOAc (150 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:5 EtOAc:hexanes) to give the aniline **18b** (2.36 g, 95%) as a colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.16 (t, *J* = 7.7 Hz, 1H), 6.93 (d, *J* = 7.5 Hz, 1H), 6.69 (d, *J* = 7.8 Hz, 1H), 4.63 (s, 2H), 4.18 (bs, 2H), 1.00 (s, 9H), 0.17 (s, 6H). HRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{13}H_{23}NOSiI$, 364.0594; found, 364.0612.

Synthesis of Amide 23b. A mixture of the acid **21** (3.72 g, 11.0 mmol) and $SOCl_2$ (16 mL) was refluxed for 3 h. Excess $SOCl_2$ was removed under reduced pressure and the residue was diluted with CH_2Cl_2 (20 mL) to give a stock solution of acid chloride (0.55 M). To a stirred solution of the aniline **18b** (2.54 g, 7.0 mmol) and (*i*-Pr)$_2$NEt (4.9 mL, 28.1 mmol) in CH_2Cl_2 (50 mL) was added the above solution of the acid chloride (16.5 mL, 0.55 M in CH_2Cl_2, 9.1 mmol)

dropwise at 0 °C. The reaction mixture was warmed to rt and stirred overnight. The mixture was diluted with CH_2Cl_2 (100 mL) and saturated aqueous $NaHCO_3$ (50 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:1:2 EtOAc:CH_2Cl_2:hexanes) to give amide **23b** (3.24 g, 68%). ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.00 (d, *J* = 8.1 Hz, 1H), 7.79 (d, *J* = 6.9 Hz, 1H), 7.71 (s, 1H), 7.55 (t, *J* = 7.5 Hz, 1H), 7.43-7.33 (m, 6H), 7.29-7.20 (m, 3H), 4.53 (s, 2H), 3.71 (d, *J* = 6.2 Hz, 2H), 3.27, 3.07 (ABq, *J* = 16.5 Hz, 2H), 2.93-2.70 (m, 4H), .0.95 (s, 9H), 0.11 (s, 6H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 167.0, 148.3, 144.0, 138.2, 138.1, 137.9, 135.6, 134.3, 131.5, 130.4, 129.4, 129.3, 129.0, 128.8, 127.7, 125.2, 124.1, 121.4, 92.4, 70.5, 61.9, 57.3, 49.2, 26.9, 26.3, 18.8, -4.9; HRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{32}H_{39}N_3O_4SiI$, 684.1755; found, 684.1754.

Synthesis of Ethyl Carbamate 24b. To a stirred solution of amide **23b** (503 mg, 0.735 mmol) in CH_2Cl_2 (10 mL) was added $ClCO_2Et$ (0.084 mL, 0.879 mmol) dropwise at 0 ^{o}C and then the temperature was gradually raised to rt. The mixture was stirred at rt overnight and diluted with saturated aqueous $NaHCO_3$ (30 mL) and CH_2Cl_2 (80 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:2:2 EtOAc:CH_2Cl_2:hexanes) to give the carbamate protected amide **24b** (464 mg, 95%). ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.07 (d, *J* = 8.1 Hz, 1H), 7.76 (dd, *J* = 2.9, 6.5 Hz, 1H), 7.63-7.59 (m, 2H), 7.47 (t, *J* = 7.7 Hz, 1H), 7.39 (d, *J* = 7.1 Hz, 1H), 7.25-7.20 (m, 2H), 4.52 (d, 2H), 4.24-3.72 (m, 6H), 2.79 (m, 1H), 2.65 (m, 1H), 1.30 (br m, 3H), 0.94 (s, 9H), 0.10 (s, 6H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 166.4, 155.6, 148.4, 144.1, 137.7, 137.0, 134.5, 134.4, 131.5, 130.8, 129.8, 129.0, 125.3, 124.4, 121.7, 92.8, 70.5, 62.1, 47.8, 40.3, 26.9, 26.4, 18.8, 15.1; HRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{28}H_{37}N_3O_6SiI$, 666.1496; found, 666.1489.

Synthesis of *N*-Methyl Amide 25b. To a stirred suspension of NaH (183 mg, 60% dispersion in mineral oil, 4.57 mmol) in THF (50 mL) was added a solution of amide **24b** (2.76 g, 4.15 mmol) in THF (10 mL) at 0 °C. The mixture was stirred at 0 °C for 15 min and at rt for 30 min. To the solution was added MeI (0.31 mL, 4.98 mmol) at 0 °C and the mixture was stirred at rt overnight. The reaction mixture was diluted with saturated aqueous $NaHCO_3$ (50 mL) and extracted with EtOAc (150 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:1 EtOAc:hexanes) to give the *N*-methyl amide **25b** (2.46 g, 87%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.84 (d, J = 8.1 Hz, 1H), 7.46 (d, J = 7.5 Hz, 1H), 7.37 (d, J = 7.6 Hz, 1H), 7.20-7.09 (m, 2H), 7.00 (t, 7.8 Hz, 1H), 6.65 (br s, 1H), 4.72 (s, 2H), 4.26-4.17 (m, 4H), 3.64 (br s, 2H), 2.98 (s, 3H), 2.44 (br m, 2H), 1.19 (m, 3H), 1.06 (s, 9H), 0.18 (s, 6H); ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 168.5, 155.3, 149.4, 146.1, 146.0, 134.3, 133.0, 131.9, 129.3, 128.9, 127.6, 127.1, 124.9, 101.1, 70.7, 61.4, 47.9, 40.5, 37.6, 27.5, 26.2, 18.7, 14.9, -5.10, -5.13; HRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{29}H_{39}N_3O_6SiI$, 680.1653; found, 680.1649.

Synthesis of Tetracyclic Enamide 26b. To a solution of *N*-methyl amide **25b** (199 mg, 0.293 mmol) in DMA (4.0 mL) were added $Pd(OAc)_2$ (6.6 mg, 0.029 mmol), PPh_3 (23 mg, 0.088 mmol), *n*-Bu_4NBr (189 mg, 0.586 mmol) and K_2CO_3 (81 mg, 0.586 mmol). The mixture was stirred at 150 °C for 30 min. The catalyst was removed by filtration and washed with EtOAc (200 mL). The filtrate was washed with water (4×30 mL) and brine (30 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:2 EtOAc:hexanes) to give the Heck product **26b** (142 mg, 88%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.79 (s, 1H), 7.19-7.06 (m, 3H), 6.91 (d, J = 7.9 Hz, 1H), 6.76 (t, J = 7.6 Hz, 1H), 6.61 (t, J = 7.7 Hz, 1H), 6.37 (d, J = 7.6 Hz, 1H), 4.98, 4.71 (ABq, J = 12.5 Hz, 2H), 4.32 (ddd, J =

3.8, 12.9, 12.9 Hz, 1H), 4.22-4.06 (m, 3H), 2.95 (s, 3H), 2.64 (ddd, *J* = 4.9, 13.9, 13.9 Hz, 1H), 1.79 (ddd, *J* = 3.5, 3.5, 14.1 Hz, 1H), 1.17 (t, *J* = 7.1 Hz, 3H), 1.06 (s, 9H), 0.26 (s, 3H), 0.21 (s, 3H); ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 177.9, 153.3, 150.8, 144.1, 139.0, 137.7, 132.5, 131.4, 130.5, 129.0, 128.2, 127.1, 124.2, 123.7, 109.1, 107.1, 62.5, 62.0, 50.2, 38.5, 31.3, 26.33, 26.28, 18.7, 14.5, -5.0, -5.1; HRMS-ES (*m/z*): $[M + H]^+$ calcd for $C_{29}H_{38}N_3O_6Si$, 552.2530; found, 552.2500.

Synthesis of *N*-Boc Aniline 29b. To a solution of Heck product **26b** (1.29 g, 2.33 mmol) in THF (60 mL) was added 10% Pd/C (500 mg). The mixture was stirred at rt under a H_2 atmosphere (1 atm) for 9 h. The catalyst was removed by filtration through Celite and the filtrate was concentrated *in vacuo*. The residue was purified by flash column chromatography (1:1 EtOAc:hexanes) to give aniline (1.16 g, 95%). To a stirred solution of the aniline (1.16 g, 2.22 mmol) in THF (50 mL) and H_2O (25 mL) were added K_2CO_3 (4.61 g, 33.36 mmol) and $(Boc)_2O$ (4.85 g, 22.22 mmol). The reaction mixture was stirred at 60 ^oC for 20 h and diluted with EtOAc (200 mL). The organic layer was washed with brine (20 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:3 EtOAc:hexanes) to give the *N*-Boc aniline **29b** (1.22 g, 89%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 8.06 (dd, *J* = 1.1, 8.3 Hz, 1H), 7.52 (br s, 1H), 7.35 (s, 1H), 7.17 (d, *J* = 7.9 Hz, 1H), 6.98 (t, *J* = 7.8 Hz, 1H), 6.87 (m, 1H), 6.66 (dd, *J* = 1.6, 7.8 Hz, 1H), 6.48 (ddd, *J* = 1.2, 7.7, 7.7 Hz, 1H), 6.14 (d, *J* = 7.7 Hz, 1H), 4.87 (s, 2H), 4.16-3.87 (m, 4H), 2.61 (s, 3H), 2.27 (ddd, *J* = 4.5, 9.7, 15.7 Hz, 1H), 1.84 (ddd, *J* = 4.0, 4.0, 14.2 Hz, 1H), 1.49 (s, 9H), 1.01 (t, *J* = 7.1 Hz, 3H), 0.95 (s, 9H), 0.12 (s, 3H), 0.10 (s, 3H); ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 179.2, 153.7, 153.4, 144.3, 138.9, 138.4 131.7, 131.0, 128.6, 128.2, 123.4, 122.2, 122.1, 111.6, 107.5, 79.5,

62.3, 61.8, 51.3, 39.1, 32.2, 28.7, 26.3 26.1, 18.7, 14.6, -5.0, -5.1; HRMS-ES (*m/z*): $[M + H]^+$ calcd for $C_{34}H_{48}N_3O_6Si$, 622.3312; found, 622.3312.

Synthesis of Pentacyclic Aminal 30b. To a stirred solution of *N*-Boc aniline **29b** (124 mg, 0.199 mmol) in THF (10 mL) was added $AlH_3 \cdot Me_2NEt$ (0.60 mL, 0.5 M in toluene, 0.300 mmol) dropwise at 0 °C. After 1 h the mixture was quenched with saturated aqueous Na_2SO_4 (0.6 mL) and then stirred at rt overnight. The mixture was diluted with EtOAc (50 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:5 EtOAc:hexanes) to give aminal **30b** (101 mg, 83%) and unreacted *N*-Boc aniline **29b** (10 mg, 8%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.27 (s, 1H), 7.12 (dd, *J* = 1.3, 7.8 Hz, 1H), 7.00 (dd, *J* = 1.7, 7.4 Hz, 1H), 6.81 (t, *J* = 7.7 Hz, 1H), 6.77 (ddd, *J* = 1.7, 7.6, 7.6 Hz, 1H), 6.72-6.68 (m, 2H), 6.02 (d, *J* = 7.7 Hz, 1H), 5.88 (s, 1H), 4.84, 4.56 (ABq, *J* = 12.7 Hz, 2H), 4.13-4.01 (m, 3H), 3.22 (ddd, *J* = 3.4, 11.1, 13.1 Hz, 1H), 2.92 (s, 3H), 2.24 (ddd, *J* = 3.8, 10.7, 14.5 Hz, 1H), 2.01 (ddd, *J* = 3.4, 5.0 14.3 Hz, 1H), 1.34 (s, 9H), 1.10 (t, *J* = 7.1 Hz, 3H), 0.96 (s, 9H), 0.12 (s, 3H), 0.10 (s, 3H) ; ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 154.7, 153.6, 151.5, 139.5, 137.3, 134.2, 129.4, 128.9, 126.8, 126.6, 125.6, 124.9, 124.3 118.2, 117.3, 104.8, 86.1, 80.9, 62.2, 61.5, 52.1, 40.7, 35.0, 30.9, 28.4, 26.4, 18.8, 14.7, -5.0; HRMS-ES (*m/z*): $[M + H]^+$ calcd for $C_{34}H_{48}N_3O_5Si$, 606.3363; found, 606.3351.

Allylation of Enamide 30b. To a stirred solution of enamide **30b** (81 mg, 0.134 mmol) in THF (5.0 mL) was added *n*-BuLi (0.26 mL, 1.6 M in hexanes, 0.416 mmol) dropwise at -78 °C. After stirring the mixture for 10 min at the same temperature, allyl iodide (0.043 ml, 0.470 mmol) was added. The mixture was warmed gradually to rt. After 15 min at rt, the mixture was diluted with saturated aqueous $NaHCO_3$ (10 mL) and EtOAc (30 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column

chromatography (1:10 to 1:3 EtOAc:hexanes) to give the *C*-allyl product **32** (61 mg, 80%) and *N*-allyl enamine **33** (7 mg, 9%).

***C*-Allyl Product 32**: ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.75 (s, 1H), 7.32 (d, *J* = 8.3 Hz, 1H), 7.06-6.94 (m, 4H), 6.74 (d, *J* = 7.8 Hz, 1H), 6.27 (d, *J* = 7.7 Hz, 1H), 5.64 (m, 1H), 5.51 (s, 1H), 5.0 (d, *J* = 10.0 Hz, 1H), 4.94 (d, *J* = 16.9 Hz, 1H), 4.34 (d, *J* = 13.8 Hz, 1H), 4.09-4.00 (m, 2H), 3.55 (m, 1H), 2.99 (s, 3H), 2.70 (dd, *J* = 8.5, 13.1 Hz, 1H), 2.62 (dd, *J* = 6.5, 13.1 Hz, 1H), 2.38 (ddd, *J* = 4.7, 9.8, 9.8 Hz, 1H), 1.87 (dd, *J* = 5.8, 13.7 Hz, 1H), 1.46 (s, 9H), 0.93 (s, 9H), 0.09 (s, 3H), 0.03 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 165.5, 154.9, 150.9, 140.1, 137.8, 133.0, 132.7, 128.4, 128.3, 127.8, 126.6, 124.0, 122.8, 119.5, 117.1, 106.2, 84.1, 81.8, 63.7, 54.8, 47.7, 43.1, 41.9, 32.1, 29.0, 28.6, 26.4, 18.8, -4.77, -4.82; HRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{34}H_{48}N_3O_3Si$, 574.3465; found, 574.3455.

***N*-Allyl Product 33.** ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.11 (br s, 1H), 7.05-6.87 (m, 4H), 6.65 (d, *J* = 7.7 Hz, 1H), 6.47 (s, 1H), 6.14 (d, *J* = 7.7 Hz, 1H), 5.91 (m, 1H), 5.67 (br s, 1H), 5.28 (dd, *J* = 1.2, 17.1 Hz, 1H), 5.22 (d, *J* = 10.1 Hz, 1H), 4.84, 4.57 (ABq, *J* = 13.8 Hz, 2H), 3.60 (d, *J* = 6.1 Hz, 2H), 3.15 (ddd, *J* = 3.9, 3.9, 11.2 Hz, 1H), 2.93 (s, 3H), 2.90 (m, 1H), 2.25 (m, 2H), 1.50 (s, 9H), 0.97 (s, 9H), 0.12 (s, 6H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 154.9, 151.1, 138.5, 137.1, 135.5, 135.3, 135.1, 130.1, 128.2, 126.5, 125.2, 123.4, 118.3, 116.2, 108.1, 104.1, 87.6, 81.3, 60.9, 58.9, 50.5, 46.2, 34.9, 31.1, 28.8, 26.5, 19.0, -4.8; LRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{34}H_{48}N_3O_3Si$, 574.3; found, 574.3.

Formation of *N,O*-Acetal 34 and Aldehyde 35. To a stirred solution of imine **32** (28.9 mg, 0.050 mmol) in EtOH (3.0 mL) was added diethyl pyrocarbonate (8.9 μL, 0.060 mmol) at rt. After 10 min the solvent was removed under reduced pressure. The crude residue was used for the next step without further purification due to the instability of the compound on column

chromatography. For analytical purposes the two diastereomers of *N,O*-acetal **34** and aldehyde **35** were isolated by preparative TLC (1:5 EtOAc:hexanes). More polar major diastereomer of **34**: ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.11–6.94 (m, 6H), 6.35 (d, *J* = 7.4 Hz, 1H), 5.61 (s, 1H), 5.44 (d, *J* = 7.0 Hz, 1H), 5.48-5.31 (m, 1H), 4.94 (m, 1H), 4.83 (d, *J* = 19.1 Hz, 1H), 4.71 (d, *J* = 12.4 Hz, 0.5H), 4.56 (d, *J* = 13.5 Hz, 0.5H), 4.25 (q, *J* = 7.2 Hz, 2H), 3.95 (d, *J* = 15.8 Hz, 0.5H), 3.83 (d, *J* = 13.0 Hz, 0.5H), 3.71 (d, *J* = 12.9 Hz, 0.5H) 3.61-3.36 (m, 3.5H), 3.05 (s, 3H), 2.76 (m, 1H), 2.40-2.14 (m, 2H), 1.66 (m, 1H), 1.45 (s, 9H), 0.86 (s, 9H), 0.07 (d, *J* = 3.8 Hz, 3H), -0.56 (d, *J* = 19.2 Hz, 3H); HRMS-ES $[M+H]^+$ calcd for $C_{39}H_{58}N_3O_6Si$, 692.4095; found, 692.4081. Less polar minor diastereomer of **34**: ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.05–6.93 (m, 6H), 6.30 (dd, *J* = 3.2, 5.8 Hz, 1H), 5.82 (d, *J* = 4.9 Hz, 1H), 5.53 (d, *J* = 8.7 Hz, 1H), 5.37-5.24 (m, 1H), 4.95-4.85 (m, 2H), 4.69 (d, *J* = 21.3 Hz, 0.5H), 4.54 (d, *J* = 13.7 Hz, 0.5H), 4.28-3.95 (m, 4H), 3.36-3.21 (m, 1H) 3.01 (s, 3H), 2.80-2.70 (m, 2H), 2.54-2.35 (m, 2H), 2.27 (ddd, *J* = 4.9, 13.1, 13.1 Hz, 1H), 1.73 (t, *J* = 11.7 Hz, 1H), 1.45 (s, 9H), 1.32 (ddd, *J* = 6.9, 6.9, 13.9 Hz, 3H), 0.98 (t, *J* = 6.9 Hz, 3H), 0.87 (s, 9H), 0.11 (d, *J* = 4.7 Hz, 3H), 0.06 (d, *J* = 3.5 Hz, 3H); HRMS-ES $[M+H]^+$ calcd for $C_{39}H_{58}N_3O_6Si$, 692.4095; found, 692.4077.

Aldehyde **35**: ^{1}H NMR (400 MHz, $CDCl_3$) δ 10.37 (s, 1H), 7.05-6.92 (m, 4H), 6.76 (br s, 1H), 6.56 (d, *J* = 7.6 Hz, 1H), 6.49 (d, *J* = 7.8 Hz, 1H), 5.63 (s, 1H), 5.27 (br s, 1H), 4.96-4.90 (m, 2H), 4.76-4.59 (m, 1H), 4.39-4.18 (m, 3H), 3.49 (m, 1H), 3.08 (m, 1H), 3.02 (s, 3H), 2.69 (m, 1H), 2.43 (m, 1H), 2.32 (ddd, *J* = 5.0, 13.5, 13.5 Hz, 1H), 1.82 (m, 1H), 1.45 (s, 9H), 1.33 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.5, 156.7, 154.8, 152.0 138.8, 136.9, 135.2, 133.9, 130.3, 129.0, 127.5, 126.7, 125.1, 123.4, 119.4, 118.2, 110.8, 84.3, 82.0, 62.3, 59.6, 45.4, 41.5, 39.8, 35.4, 32.4, 31.9, 28.6, 15.1; HRMS-ES $[M+H]^+$ calcd for $C_{31}H_{38}N_3O_5$, 532.2811; found, 532.2788.

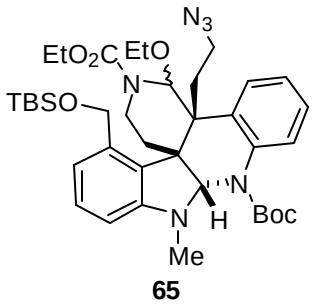
Synthesis of Hydroxy *N,O*-Acetal 36. To a solution of the above crude *N,O*-acetal **34** in dioxane (2.0 mL) and H_2O (1.0 mL) was added NMO (59 mg, 0.504 mmol) at 0 ^oC, followed by OsO_4 (0.01 mL, 4 wt% in H_2O). The mixture was gradually warmed to rt. The mixture was stirred at rt for 6 h and then diluted with saturated aqueous $NaHCO_3$ (10 mL) and EtOAc (20 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The crude residue was dissolved in THF (2.0 mL) and H_2O (1.0 mL), and $NaIO_4$ (108 mg, 0.505 mmol) was added. The mixture was stirred at rt for 2 h and then diluted with saturated aqueous $NaHCO_3$ (10 mL) and EtOAc (20 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The crude residue was dissolved in EtOH (2.0 mL) and $NaBH_4$ (9.5 mg, 0.251 mmol) was added aat 0 ^oC. After 10 min the mixture was quenched with saturated aqueous NH_4Cl (0.5 mL) and then diluted with saturated aqueous $NaHCO_3$ (10 mL) and EtOAc (20 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:1:0.01 EtOAc:hexanes:NEt_3) to give hydroxy *N,O*-acetal **36** (15.7 mg, 45% for 4 steps) as a mixture of diastereomers (2:1) and rearranged diol **37** (8.0 mg, 30%).

***N,O*-Acetal 36**: ^1H NMR (300 MHz, benzene-d_6, 65 ^oC, 2:1 mixture of diastereomers) δ 7.32 (d, *J* = 7.8 Hz, 1H, *major*), 7.22 (d, *J* = 8.0 Hz, 1H, *minor*), 7.01-6.71 (m, 5H, *major and minor*), 6.22 (d, *J* = 7.7 Hz, 1H, *major*), 6.18 (d, *J* = 6.8 Hz, 1H, *minor*), 5.99 (br s, 1H, *minor*), 5.80 (s, 1H, *major*), 5.60 (s, 1H, *minor*), 5.53 (s, 1H, *major*), 5.06 (br s, 1H, *major and minor*), 4.27-3.91 (m, 4H, *major and minor*), 3.58-3.35 (m, 4H, *major and minor*), 3.04 (s, 3H, *major*), 3.01 (s, 3H, *minor*), 2.82 (m, 1H, *minor*), 2.63 (m, 1H, *minor*), 2.29-2.19 (m, 2H, *major*), 2.01-1.88 (m, 2H, *major and minor*), 1.56-1.49 (m, 1H, *major and minor*), 1.35 (s, 9H, *major and minor*), 1.15 (t, *J* = 7.1 Hz, 3H, *major*), 1.11 (t, *J* = 7.2 Hz, 3H, *minor*), 1.02 (s, 9H, *minor*), 0.98-0.94 (m, 3H, *major and minor*), 0.96 (s, 9H, *major*), 0.26 (s, 3H, *minor*), 0.25 (s, 3H, *minor*),

0.08 (s, 3H, *major*), -0.37 (br s, 3H, *major*); LRMS-ES $[M+H]^+$ calcd for $C_{38}H_{58}N_3O_7Si$, 696.4; found, 696.7.

Diol 37: ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 6.90-6.86 (m, 1H), 6.84-6.81 (m, 1H), 6.77 (t, *J* = 7.7 Hz, 1H), 6.70-6.65 (m, 2H), 6.35 (d, *J* = 7.7 Hz, 1H), 6.13 (d, *J* = 7.5 Hz, 1H), 5.50 (s, 1H), 4.84 (d, *J* = 14.2 Hz, 1H), 4.32, 4.21 (ABq, *J* = 12.0 Hz, 2H), 4.20-4.05 (m, 4H), 3.45 (ddd, *J* = 6.1, 6.1, 12.2 Hz, 1H), 3.31 (ddd, *J* = 5.9, 5.9, 11.7 Hz, 1H), 3.15 (ddd, *J* = 6.8, 6.8, 16.8 Hz, 1H), 2.95 (s, 3H), 2.17-2.10 (m, 1H), 2.00-1.84 (m, 2H), 1.47 (ddd, *J* = 2.6, 2.6, 13.5 Hz, 1H), 1.32 (s, 9H), 1.14 (t, *J* = 7.1 Hz, 3H); HRMS-ES $[M+H]^+$ calcd for $C_{30}H_{40}N_3O_6$, 538.2917; found, 538.2910.

Synthesis of Azido *N,O*-Acetal 65. To a solution of hydroxy *N,O*-acetal **36** (15.7 mg, 0.023 mmol), PPh_3 (48 mg, 0.183 mmol) and DPPA (0.04 mL, 0.186 mmol) in THF (1.0 mL) was added DEAD (28 μL, 0.178 mmol) at rt. After 30 min the solvent was removed under reduced pressure and the residue was purified by preparative TLC (1:1:0.01 EtOAc:hexanes:NEt_3) to give the azido *N,O*-acetal **65** (9.8 mg, 60%) as a mixture of diastereomers (1:0.6). ^{1}H NMR (300 MHz, benzene-d_6, 65 °C, 1:0.6 mixture of diastereomers) δ 7.30 (d, *J* = 7.7 Hz, 1H, *major*), 7.22 (dd, *J* = 1.2, 8.0 Hz, 1H, *minor*), 7.06-6.90 (m, 2H, *major and minor*), 6.82-6.68 (m, 3H, *major and minor*), 6.20 (dd, *J* = 1.0, 7.7 Hz, 1H, *major*), 6.16 (dd, *J* = 1.1, 7.7 Hz, 1H, *minor*), 5.99 (br s, 1H, *minor*), 5.76 (s, 1H, *major*), 5.53 (s, 1H, *minor*), 5.45 (s, 1H, *major*), 4.76 (br s, 1H, *major and minor*), 4.28-3.89 (m, 4H, *major and minor*), 3.67-3.35 (m, 3H, *major and minor*), 3.02 (s, 3H, *major*), 2.99 (s, 3H, *minor*), 2.91 (m, 1H, *minor*), 2.75-2.59 (m, 2H, *major*, 1H, *minor*), 2.32-2.18 (m, 2H, *major*), 1.99-1.78 (m, 2H, *major and minor*), 1.48-1.41 (m, 1H, *major and minor*), 1.38 (s, 9H, *major and minor*), 1.20-1.11 (m, 3H, *major*



65

and minor), 1.01 (s, 9H, *minor*), 1.00-0.75 (m, 12H, *major*, 3H, *minor*), 0.25 (s, 3H, *minor*), 0.24 (s, 3H, *minor*), 0.09 (s, 3H, *major*), -0.33 (br s, 3H, *major*); LRMS-ES $[M+Na]^+$ calcd for $C_{38}H_{56}N_6NaO_6Si$, 743.4; found, 743.6.

Preparation of *N*-Boc Amino *N,O*-Acetal 38. To a solution of azido *N,O*-acetal **65** (4.6 mg, 6.4 μmol) in EtOAc (2.0 mL) were added 10% Pd/C (3.0 mg) and Boc_2O (7.0 mg, 32.0 μmol). The mixture was stirred at rt under a H_2 atmosphere (1 atm) for 1 h. The catalyst was removed by filtration through Celite and the filtrate was concentrated *in vacuo*. The residue was purified by preparative TLC (1:3:0.01 EtOAc:hexanes:NEt_3) to give two separable diastereomers of *N*-Boc amino *N,O*-acetal **38** (2.5 mg / 1.1 mg, 49% / 22%; total yield 71%). More polar major diastereomer of **38**: ^{1}H NMR (300 MHz, benzene-d_6, 65 ^{o}C) δ 7.31 (d, J = 8.1 Hz, 1H), 7.02-6.93 (m, 2H), 6.84-6.72 (m, 3H), 6.22 (d, J = 7.7 Hz, 1H), 5.76 (s, 1H), 5.46 (s, 1H), 4.83 (br s, 1H), 4.28-3.89 (m, 5H), 3.71-3.43 (m, 3H), 3.21 (m, 1H), 3.05 (s, 3H), 3.01 (m, 1H), 2.07 (m, 1H), 1.94 (m, 1H), 1.49 (m, 1H), 1.41 (s, 18H), 1.17-1.12 (m, 6H), 0.96 (s, 9H), 0.07 (s, 3H), -0.37 (s, 3H); LRMS-ES $[M+Na]^+$ calcd for $C_{43}H_{66}N_4NaO_8Si$, 817.5; found, 817.7. Less polar minor diastereomer of **38**: ^{1}H NMR (300 MHz, benzene-d_6, 65 ^{o}C) δ 7.22 (d, J = 8.0 Hz, 1H), 7.00-6.91 (m, 2H), 6.77-6.65 (m, 3H), 6.17 (dd, J = 1.0, 7.7 Hz, 1H), 5.97 (br s, 1H), 5.53 (s, 1H), 4.83 (br m, 1H), 4.42-3.95 (m, 5H), 3.43 (t, J = 13.6 Hz, 1H), 3.18 (m, 1H), 3.02 (s, 3H), 2.94-2.79 (m, 2H), 2.66-2.57 (m, 1H), 2.08 (m, 1H), 1.93 (m, 1H), 1.50 (m, 1H), 1.41 (s, 18H), 1.19 (m, 3H), 1.02 (s, 9H), 0.95 (t, J = 7.0 Hz, 3H), 0.26 (s, 3H), 0.25 (s, 3H); LRMS-ES $[M+Na]^+$ calcd for $C_{43}H_{66}N_4NaO_8Si$, 817.5; found, 817.7.

Synthesis of Amide 23c. A mixture of the acid **21** (3.72 g, 11.0 mmol) and $SOCl_2$ (16 mL) was refluxed for 3 h. Excess $SOCl_2$ was removed under reduced pressure and the residue was diluted with CH_2Cl_2 (20 mL) to give a stock solution of acid chloride (0.55 M). To a stirred

solution of aniline **18c** (435 mg, 1.46 mmol) and (*i*-Pr)$_2$NEt (1.0 mL, 5.74 mmol) in CH_2Cl_2 (25 mL) was added the above solution of acid chloride (3.45 mL, 0.55 M in CH_2Cl_2, 1.90 mmol) dropwise at 0 °C. The reaction mixture was warmed to rt and stirred overnight. The mixture was diluted with CH_2Cl_2 (150 mL) and saturated aqueous $NaHCO_3$ (30 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:4 EtOAc:hexanes to 1:2:2 EtOAc:CH_2Cl_2:hexanes) to give the amide **23c** (717 mg, 79%, 91% based on recovered aniline **18c**) and unreacted aniline **18c** (54 mg, 12%). ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.01 (dd, *J* = 1.1, 8.2 Hz, 1H), 7.91 (dd, *J* = 1.3, 8.2 Hz, 1H), 7.78 (s, 1H), 7.56 (ddd, *J* = 1.2, 7.5, 7.5 Hz, 1H), 7.45-7.26 (m, 8H), 7.10 (t, *J* = 8.1 Hz, 1H), 3.74, 3.69 (ABq, *J* = 13.5 Hz, 2H), 3.28, 3.08 (ABq, *J* = 16.4 Hz, 2H), 2.92 (m, 1H), 2.81-2.78 (m 2H), 2.68 (m, 1H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 166.8, 148.3, 140.8, 139.3, 138.1 135.5, 134.3, 131.3, 130.6, 130.2, 129.7, 129.4, 128.9, 127.8, 125.2, 120.6, 98.4, 61.9, 57.5, 49.2, 27.0; HRMS-ES (*m/z*): $\left[M + H\right]^+$ calcd for $C_{25}H_{22}N_3O_3IBr$, 617.9889; found, 617.9904.

Synthesis of Ethyl Carbamate 24c. To a stirred solution of amide **23c** (700 mg, 1.13 mmol) in CH_2Cl_2 (10 mL) was added $ClCO_2Et$ (0.12 mL, 1.26 mmol) dropwise at 0 °C and after 30 min the temperature was gradually raised to rt. The mixture was stirred at rt for 9 h and diluted with saturated aqueous $NaHCO_3$ (10 mL) and CH_2Cl_2 (20 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:3:3 EtOAc:CH_2Cl_2:hexanes) to give the carbamate protected amide **24c** (666 mg, 98%). ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.04 (dd, *J* = 0.9, 8.2 Hz, 1H), 7.80 (dd, *J* = 1.4, 8.2 Hz, 1H), 7.70 (s, 1H), 7.58 (ddd, *J* = 1.2, 7.5, 7.5 Hz, 1H), 7.45 (t, *J* = 7.8 Hz, 1H), 7.35-7.27 (m, 2H), 7.05 (t, *J* = 8.1 Hz, 1H), 4.21-4.10 (m, 4H), 3.83-3.73 (m, 2H), 2.76, 2.60 (ABq, *J* = 16.8 Hz, 2H), 1.22 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 166.4, 155.6, 148.3, 140.5, 138.2,

137.7, 134.6, 134.3, 131.4, 130.6, 130.2, 129.9, 129.1, 125.4, 120.6, 98.5, 62.2, 47.9, 40.2, 26.5, 15.1; HRMS-ES (*m/z*): $[M + NH_4]^+$ calcd for $C_{21}H_{23}N_4O_5BrI$, 616.9897; found, 616.9938.

Synthesis of *N*-Methyl Amide 25c. To a stirred suspension of NaH (16 mg, 60% dispersion in mineral oil, 0.400 mmol) in THF (10 mL) was added a solution of amide **24c** (220 mg, 0.366 mmol) in THF (2 mL) at 0 °C. The mixture was stirred at 0 °C for 15 min and at rt for 30 min. To the solution was added MeI (0.027 mL, 0.434 mmol) at 0 °C and the reaction mixture was stirred at rt overnight. The reaction mixture was diluted with saturated aqueous $NaHCO_3$ (30 mL) and extracted with EtOAc (100 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (2:1 EtOAc:hexanes) to give the *N*-methyl amide **25c** (213 mg, 95%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.72 (d, *J* = 8.2 Hz 1H), 7.22 (d, *J* = 7.5 Hz, 1H), 7.14-7.08 (m, 2H), 6.98 (m, 1H), 6.68 (m, 1H), 6.43 (br s, 1H), 4.13-4.04 (m, 4H), 2.79 (s, 3H), 2.30 (br s, 2H), 1.07 (t, *J* = 7.0 Hz 3H); ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 168.2, 155.2, 149.2, 148.2 133.8, 133.1, 132.0, 131.7, 131.4, 130.2, 129.0, 127.3, 124.8, 106.9, 61.4, 47.7, 40.3, 37.3, 27.0, 14.7; HRMS-ES (*m/z*): $[M + H]^+$ calcd for $C_{22}H_{22}N_3O_5IBr$, 613.9788; found, 613.9805.

Heck Cyclization of Amide 25c. To a solution of *N*-methyl amide **25c** (213 mg, 0.347 mmol) in DMA (7.0 mL) were added $Pd(OAc)_2$ (7.8 mg, 0.035 mmol), PPh_3 (27 mg, 0.104 mmol), *n*-Bu_4NBr (224 mg, 0.694 mmol) and K_2CO_3 (96 mg, 0.694 mmol). The mixture was stirred at 100 °C for 1 h. The catalyst was removed by filtration and washed with EtOAc (200 mL). The filtrate was washed with water (3×20 mL) and brine (20 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:1 to 3:1 EtOAc:hexanes) to give a mixture of Heck product **26c** and pentacyclic Heck product **27** (86 mg,

51%, **26c**:**27** = 1:0.15, 85% based on recovered starting material) and unreacted amide **25c** (86 mg, 40%). For analytical purposes further purification of **26c** and **27** was achieved by careful flash column chromatography (1:10 EtOAc: CH_2Cl_2).

Heck Product 26c: ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.71 (s, 1H), 7.09 (dd, *J* = 1.3, 8.0 Hz, 1H), 7.05 (dd, *J* = 1.3, 7.9 Hz, 1H), 6.79 (ddd, *J* = 1.4, 7.5, 7.5 Hz, 1H), 6.75 (dd, *J* = 1.0, 8.2 Hz, 1H), 6.66-6.61 (m, 2H), 6.23 (dd, *J* = 0.9, 7.7 Hz, 1H), 4.24 (ddd, *J* = 3.9, 12.8, 12.8 Hz, 1H), 4.03 (q, *J* = 7.0 Hz, 2H), 4.01 (m, 1H), 2.84 (s, 3H), 2.82-2.74 (m, 1H), 1.46 (ddd, *J* = 3.1, 3.7, 13.7 Hz, 1H), 1.04 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 176.7, 153.3, 150.8, 146.3, 133.0, 132.6, 132.2, 130.7, 130.1, 129.2, 127.5, 126.9, 123.9, 119.7, 108.5, 107.1, 62.4, 51.1, 38.0, 28.2, 26.3, 14.3; HRMS-ES $[M+H]^+$ calcd for $C_{22}H_{21}BrN_3O_5$, 486.0665; found, 486.0695.

Pentacyclic Heck Adduct 27: ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.48 (s, 1H), 7.42 (dd, *J* = 1.2, 7.9 Hz, 1H), 7.08 (dd, *J* = 1.3, 9.5 Hz, 1H), 6.99-6.89 m, 2H), 6.64 (t, *J* = 7.9 Hz, 1H), 6.16 (d, *J* = 7.2 Hz, 1H), 4.04-3.89 (m, 2H), 3.79 (ddd, *J* = 5.3, 13.3, 13.3 Hz, 1H), 3.40 (dd, *J* = 5.2, 13.1 Hz, 1H), 2.59 (s, 3H), 1.59 (ddd, *J* = 1.2, 5.3, 12.8 Hz, 1H), 1.36 (ddd, *J* = 5.7, 13.5, 13.5 Hz, 1H), 1.06 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (100 MHz, CD_2Cl_2) δ 180.6, 153.2, 148.9, 144.3, 133.3, 131.1, 130.1, 129.9, 129.6, 128.1, 126.1, 126.0, 125.0, 117.1, 108.7, 107.9, 63.2, 48.6, 38.4 (d, *J* = 27.4 Hz), 38.0, 26.7, 14.5; HRMS-ES $[M+H]^+$ calcd for $C_{22}H_{20}N_3O_5$, 406.1403; found, 406.1423.

Preparation of Aniline 28. To a solution of Heck products **26c and 27** (149 mg, 6:1 mixture) in EtOH (6 mL) and H_2O (1.5 mL) was added iron powder (86 mg, 1.54 mmol) and concentrated HCl (12 N, 10 μL). The mixture was stirred at 85 ^{o}C for 2 h and then cooled to rt. The mixture was filtered and the filtrate was concentrated. The residue obtained was diluted with

EtOAc and H_2O. The organic layer was separated and the aqueous layer was extracted with EtOAc. The combined organic phases were dried over Na_2SO_4 and concentrated under reduced pressure. The residue was purified by flash column chromatography (1:5 EtOAc:CH_2Cl_2) to give aniline **28** (103 mg, 84%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.53 (s, 1H), 6.98-6.96 (m, 1H), 6.84 (d, *J* = 8.2 Hz, 1H), 6.68 (t, *J* = 7.6 Hz, 1H), 6.55 (t, *J* = 7.6 Hz, 1H), 6.32 (t, *J* = 7.4 Hz, 1H), 6.17 (d, *J* = 8.0 Hz, 1H), 6.02 (d, *J* = 7.8 Hz, 1H), 4.23-4.18 (m, 2H), 4.02 (q, *J* = 7.1 Hz, 2H), 3.63 (br s, 2H), 2.90-2.79 (m, 1H), 2.64 (s, 3H), 1.54 (ddd, *J* = 3.3, 3.3, 13.9 Hz, 1H), 0.99 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (75 MHz, CD_2Cl_2) δ 179.1, 154.0, 146.0, 131.0, 130.7, 130.11, 130.06, 128.3, 127.2, 123.3, 119.7, 117.5, 115.8, 109.6, 107.7, 62.7, 51.8, 37.7, 28.2, 27.0, 14.8; HRMS-ES $[M+H]^+$ calcd for $C_{22}H_{23}BrN_3O_3$, 456.0925; found, 456.0929.

Synthesis of *N*-Boc Aniline 29c. To a stirred solution of aniline **28** (7.5 mg, 0.016 mmol) in THF (1.0 mL) and H_2O (0.5 mL) were added K_2CO_3 (34.0 mg, 0.246 mmol) and $(Boc)_2O$ (35.8 mg, 0.164 mmol). The reaction mixture was stirred at 60 °C. After 12 h, additional $(Boc)_2O$ (16.8 mg, 0.077 mmol) was added. After another 12 h, the mixture was diluted with EtOAc (30 mL). The organic layer was washed with saturated aqueous $NaHCO_3$ (10 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:10 EtOAc:CH_2Cl_2) to give *N*-Boc aniline **29c** (8.2 mg, 90%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 8.14 (dd, *J* = 1.1, 8.3 Hz, 1H), 7.42 (br s, 2H), 7.06-7.03 (m, 1H), 6.90-6.83 (m, 2H), 6.58-6.49 (m, 2H), 6.00 (d, *J* = 7.8 Hz, 1H), 4.16 (dd, *J* = 3.5, 8.6 Hz, 2H), 4.00 (q, *J* = 7.1 Hz, 2H), 2.78 (ddd, *J* = 8.3, 8.3, 13.8 Hz, 1H), 2.59 (s, 3H), 1.57 (ddd, *J* = 3.6, 3.6, 13.9 Hz, 1H), 1.48 (s, 9H), 0.97 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$, peaks of major rotamer) δ 178.8, 153.8, 153.6, 145.7, 137.5, 131.7, 130.7, 130.4, 129.4, 128.5, 127.7, 127.3, 122.5, 120.8,

119.7, 108.7, 107.9, 80.3, 62.9, 52.2, 38.1, 28.8, 28.4, 27.0, 15.0; HRMS-ES $[M+NH_4]^+$ calcd for $C_{27}H_{35}BrN_4O_5$, 573.1713; found, 573.1730.

Synthesis of Pentacyclic Aminal 30c. To a stirred solution of *N*-Boc aniline **29c** (177 mg, 0.319 mmol) in THF (8 mL) was added $AlH_3 \cdot Me_2NEt$ (0.77 mL, 0.5 M in toluene, 0.385 mmol) dropwise at 0 °C. After 30 min, the temperature was raised to rt. After 2 h, the mixture was quenched with saturated aqueous Na_2SO_4 (0.3 mL) and stirred at rt for 2 h. The mixture was diluted with EtOAc (20 mL), dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:5 to 1:1 EtOAc:hexanes) to give pentacyclic aminal **30c** (116 mg, 67%). ^{1}H NMR (300 MHz, toluene-d_8, 90 °C) δ 7.37 (s, 1H), 7.19 (dd, *J* = 1.6, 7.4 Hz, 1H), 7.10 (dd, *J* = 1.1, 7.8 Hz, 1H), 6.79 (ddd, *J* = 1.7, 7.5, 7.5 Hz, 1H), 6.72 (ddd, *J* = 1.4, 7.3, 7.3 Hz, 1H), 6.46-6.39 (m, 2H), 5.90-5.86 (m, 2H), 4.11 (m, 1H), 4.04 (q, *J* = 7.1 Hz, 2H), 3.32 (ddd, *J* = 3.4, 10.0, 13.4 Hz, 1H), 2.84 (s, 3H), 2.28 (ddd, *J* = 4.1, 10.1, 14.1 Hz, 1H), 1.92 (ddd, *J* = 3.5, 6.1, 14.0 Hz, 1H), 1.32 (s, 9H), 1.03 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (75 MHz, toluene-d_8, 90 °C) δ 154.5, 153.5, 153.0, 138.7, 134.2, 130.6, 129.8, 126.4, 126.3, 126.2, 125.8, 125.1, 122.6, 118.9, 114.3, 85.5, 80.8, 62.0, 53.0, 40.5, 33.8, 30.4, 28.2, 14.4; HRMS-ES $[M+H]^+$ calcd for $C_{27}H_{31}BrN_3O_4$, 540.1498; found, 540.1484.

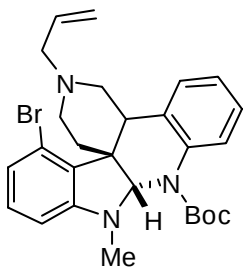
Preparation of Enamine 40. Pentacyclic aminal **30c** (38.2 mg, 0.071 mmol) was dissolved in EtOH (2.0 mL) and 1 N aqueous KOH (2.0 mL) and the mixture was refluxed for 2 h. EtOH was removed under reduced pressure. The residue was diluted with EtOAc (20 mL) and saturated aqueous $NaHCO_3$ (10 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was used for the next step without further purification. ^{1}H NMR (400 MHz, CD_2Cl_2) δ 7.21-7.16 (m, 2H), 7.01-6.96 (m, 2H), 6.77 (t, *J* = 7.9 Hz, 1H), 6.74 (s, 1H), 6.55 (d, *J* = 7.5 Hz, 1H), 6.19 (d, *J* = 7.7 Hz, 1H), 5.80 (s, 1H), 3.89 (br s, 1H), 3.47 (ddd, *J* = 4.6, 4.6, 11.4

Hz, 1H), 3.24 (ddd, *J* = 3.1, 11.0, 11.0 Hz, 1H), 2.95 (s, 3H), 2.39 (ddd, *J* = 3.9, 10.3, 13.8 Hz, 1H), 2.22 (ddd, *J* = 3.2, 4.8, 13.6 Hz, 1H), 1.51 (s, 9H); LRMS-ES $[M+H]^+$ calcd for $C_{24}H_{27}BrN_3O_2$, 468.1; found, 468.2.

Allylation of Enamine 40. The above crude enamine **40** was dissolved in THF (3.0 mL). To the solution was added LDA (0.35 mL, 0.3 M in THF, 0.105 mmol) at -78 ^oC. After 20 min allyl iodide (0.01 mL, 0.109 mmol) was added, and the mixture was gradually warmed to rt. The mixture was diluted with saturated aqueous $NaHCO_3$ (10 mL) and EtOAc (25 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:3 to 1:1 EtOAc:hexanes) to give *C*-allyl product **41** (20.7 mg, 58%) and *N*-allyl enamine **66** (10.5 mg, 29%).

***C*-Allyl Product 41**: ^1H NMR (400 MHz, $CDCl_3$) δ 8.83 (s, 1H), 7.53 (dd, *J* = 3.0, 5.8 Hz, 1H), 7.02-6.96 (m, 3H), 6.73 (t, *J* = 7.9 Hz, 1H), 6.57 (d, *J* = 8.0 Hz, 1H), 6.26 (d, *J* = 7.8 Hz, 1H), 5.71-5.61 (m, 1H), 5.53 (s, 1H), 5.03-4.93 (m, 2H), 4.04 (dd, *J* = 5.3, 18.7 Hz, 1H), 3.61 (ddd, *J* = 4.5, 4.5, 12.5 Hz, 1H), 2.98 (s, 3H), 2.67-2.62 (m, 2H), 2.42 (ddd, *J* = 6.0, 13.3, 13.3 Hz, 1H), 1.93 (dd, *J* = 5.4, 13.7 Hz, 1H), 1.46 (s, 9H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 166.1, 154.9, 153.2, 139.6, 133.0, 132.5, 129.7, 127.2, 126.5, 125.0, 124.9, 123.9, 119.5, 118.9, 106.1, 83.8, 81.9, 55.7, 47.4, 43.0, 42.1, 32.1, 29.0, 28.6; HRMS-ES $[M+H]^+$ calcd for $C_{27}H_{31}BrN_3O_2$, 508.1600; found, 508.1601.

***N*-Allyl Product 66**: ^1H NMR (400 MHz, CD_2Cl_2) δ 7.19-7.15 (m, 2H), 7.00-6.96 (m, 2H), 6.76 (t, *J* = 7.9 Hz, 1H), 6.55 (s, 1H), 6.54 (d, *J* = 8.7 Hz, 1H), 6.19 (d, *J* = 7.7 Hz, 1H), 6.00-5.91 (m, 1H), 5.77 (s, 1H), 5.36-5.22 (m, 2H), 3.69 (d, *J* = 6.0 Hz, 2H), 3.33 (ddd, *J* = 4.5, 4.5, 11.4 Hz, 1H), 2.99 (ddd, *J* = 3.1, 11.2, 11.2 Hz, 1H), 2.95 (s, 3H), 2.43 (ddd, *J* = 3.5, 10.4,



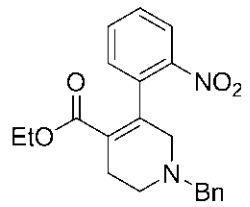
66

13.9 Hz, 1H), 2.23 (ddd, *J* = 3.2, 4.7, 13.6 Hz, 1H), 1.51 (s, 9H); LRMS-ES $[M+H]^+$ calcd for $C_{27}H_{31}BrN_3O_2$, 508.2; found, 508.3.

Formation of *α*-Ethoxy Carbamate 42. To a stirred solution of imine **41** (20.7 mg, 0.041 mmol) in EtOH (1.0 mL) was added diethyl pyrocarbonate (7.2 μL, 0.049 mmol) at rt. After 10 min the solvent was removed under reduced pressure. The crude residue was used for the next step without further purification. ^{1}H NMR (400 MHz, CD_2Cl_2) δ 7.44-7.42 (m, 1H), 7.11 (s, 1H), 7.09 (s, 1H), 7.06-7.00 (m, 2H), 6.72 (t, *J* = 7.8 Hz, 1H), 6.60 (d, *J* = 8.0 Hz, 1H), 6.23 (d, *J* = 7.3 Hz, 1H), 5.75 (s, 1H), 5.61-5.51 (m, 1H), 4.80 (d, *J* = 17.0 Hz, 1H), 4.67 (d, *J* = 10.0 Hz, 1H), 4.27-4.15 (m, 3H), 3.98-3.92 (m, 2H), 3.73 (ddd, *J* = 5.3, 8.2, 13.5 Hz, 1H), 3.24 (dd, *J* = 5.5, 15.0 Hz 1H), 2.95 (s, 3H), 2.65 (dd, *J* = 7.5, 14.9 Hz, 1H), 2.37 (ddd, *J* = 5.3, 8.6 13.9 Hz, 1H), 1.88 (ddd, *J* = 5.2, 6.8, 14.1 Hz, 1H), 1.51 (s, 9H), 1.33 (t, *J* = 7.1 Hz, 3H), 1.26 (t, *J* = 7.0 Hz, 3H); LRMS-ES $[M+H]^+$ calcd for $C_{32}H_{41}BrN_3O_5$, 626.2; found, 626.4.

Synthesis of Hexacyclic Acetal 43. To a solution of the above crude *N,O*-acetal **42** in dioxane (2.0 mL) and H_2O (1.0 mL) was added NMO (47.7 mg, 0.407 mmol) at 0 ^oC, followed by OsO_4 (0.01 mL, 4 wt% in H_2O). The mixture was gradually warmed to rt. The mixture was stirred at rt for 3 h and then diluted with saturated aqueous $Na_2S_2O_3$ (10 mL) and EtOAc (20 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The crude residue was dissolved in THF (2.0 mL) and H_2O (1.0 mL) and $NaIO_4$ (87.0 mg, 0.407 mmol) was added. The mixture was stirred at rt for 1 h and then diluted with saturated aqueous $NaHCO_3$ (10 mL) and EtOAc (20 mL). The organic layer was dried over Na_2SO_4 and concentrated *in vacuo*. The residue was purified by flash column chromatography (1:3 EtOAc:hexanes) to give two separable diastereomers of hexacyclic acetal **43** (7.7 mg and 2.9 mg, 42% for 3 steps). More polar major diastereomer of **43**: ^{1}H NMR (400 MHz, CD_2Cl_2) δ 7.59 (dd, *J* = 3.6, 5.6 Hz, 1H),

7.05-7.02 (m, 3H), 6.99 (s, 1H), 6.77 (t, *J* = 7.9 Hz, 1H), 6.58 (d, *J* = 8.0 Hz, 1H), 6.30 (d, *J* = 7.4 Hz, 1H), 5.55 (s, 1H), 5.26 (dd, *J* = 1.1, 5.3 Hz, 1H), 4.25 (q, *J* = 7.1 Hz, 2H), 3.73 (ddd, *J* = 7.1, 9.7, 14.2 Hz, 1H), 3.60 (ddd, *J* = 4.4, 6.1, 13.0 Hz, 1H), 3.48-3.41 (m, 2H), 2.99 (s, 3H), 2.88 (dd, *J* = 5.4, 13.0 Hz, 1H), 2.46 (ddd, *J* = 4.9, 9.4, 16.9 Hz, 1H), 2.06 (ddd, *J* = 4.3, 6.1, 14.2 Hz, 1H), 1.98 (dd, *J* = 1.2, 13.0 Hz, 1H), 1.51 (s, 9H), 1.33 (t, *J* = 7.1 Hz, 3H), 1.13 (t, *J* = 7.1 Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 157.4, 154.8, 153.5, 138.8, 137.3, 131.1, 129.8, 126.9, 126.2, 124.8, 124.3, 124.2, 118.7, 106.2, 101.5, 85.6, 84.4, 82.0, 62.9, 62.2, 57.1, 48.1, 44.4, 39.8, 32.1, 29.5, 28.6, 15.6, 15.3; HRMS-ES $[M+H]^+$ calcd for $C_{31}H_{39}BrN_3O_6$, 628.2022; found, 628.1996. Less polar minor diastereomer of **43**: ^{1}H NMR (300 MHz, CD_2Cl_2) δ 7.48 (dd, *J* = 3.9, 5.3 Hz, 1H), 7.04 (s, 1H), 7.03-6.99 (m, 3H), 6.70 (t, *J* = 7.9 Hz, 1H), 6.56 (d, *J* = 7.3 Hz, 1H), 6.20 (d, *J* = 7.6 Hz, 1H), 5.61 (br s, 1H), 5.17 (dd, *J* = 1.8, 6.2 Hz, 1H), 4.38-4.24 (m, 2H), 3.86-3.71 (m, 2H), 3.60-3.42 (m, 2H), 2.95 (s, 3H), 2.84-2.71 (m, 2H), 2.35-2.31 (m, 1H), 2.04 (ddd, *J* = 5.6, 5.6, 14.1 Hz, 1H), 1.48 (s, 9H), 1.33 (t, *J* = 7.1 Hz, 3H), 1.20 (t, *J* = 7.1 Hz, 3H); LRMS-ES $[M+H]^+$ calcd for $C_{31}H_{39}BrN_3O_6$, 628.2; found, 628.4.



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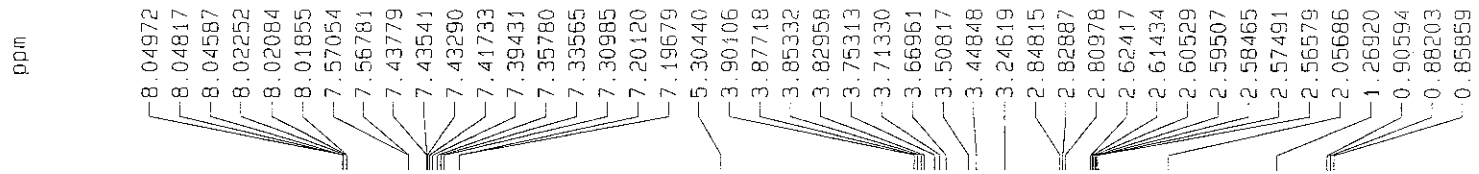

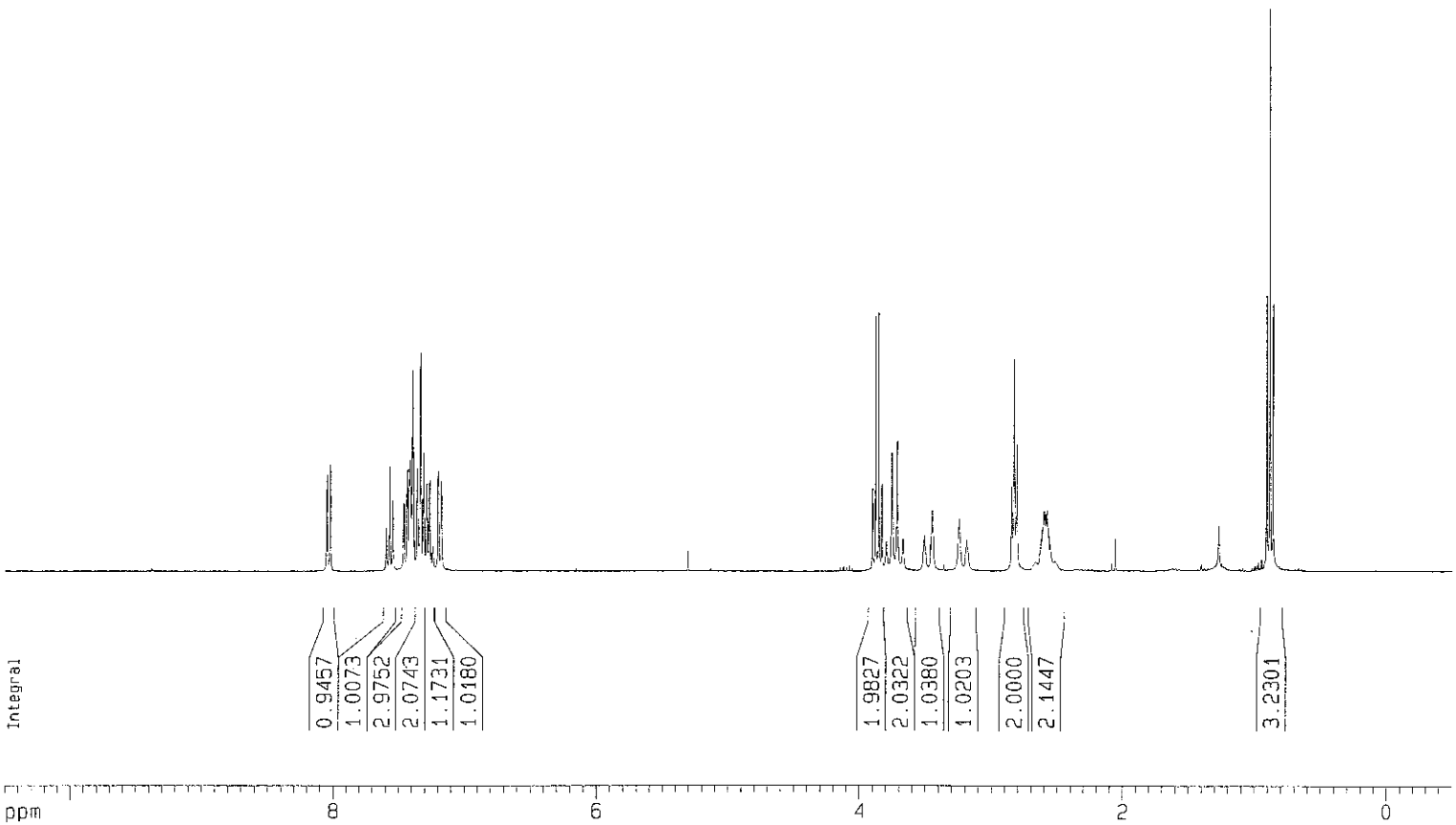


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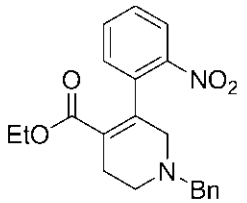

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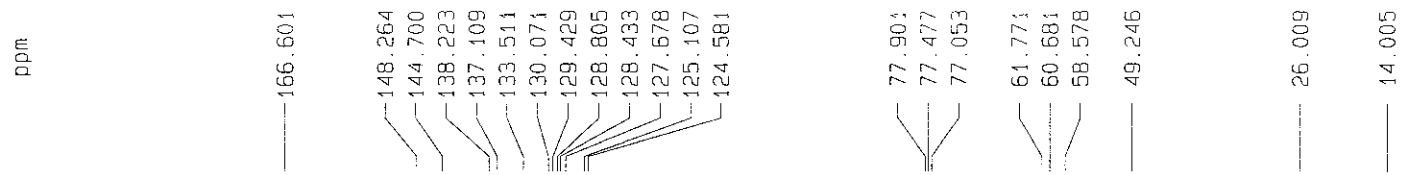

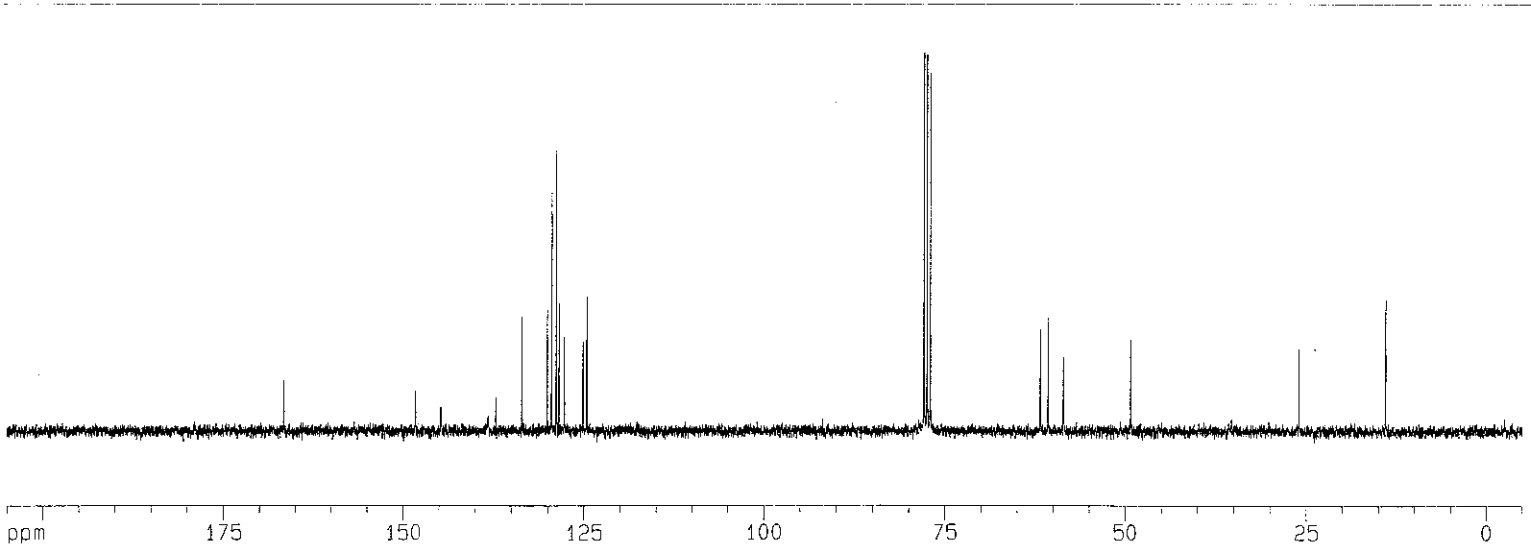

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SFO1 75.4106357 MHz

========== CHANNEL f2 ==========
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1D NMR plot parameters
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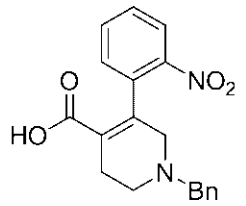

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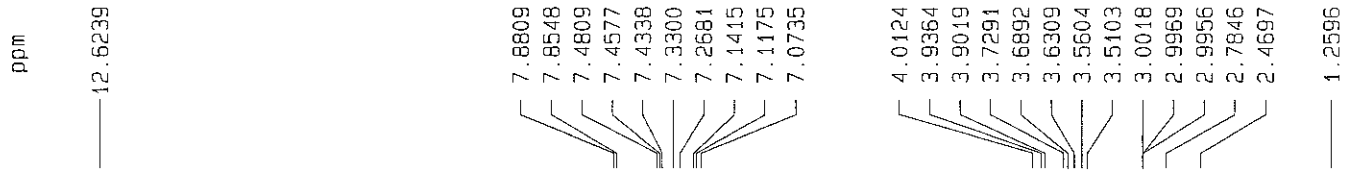

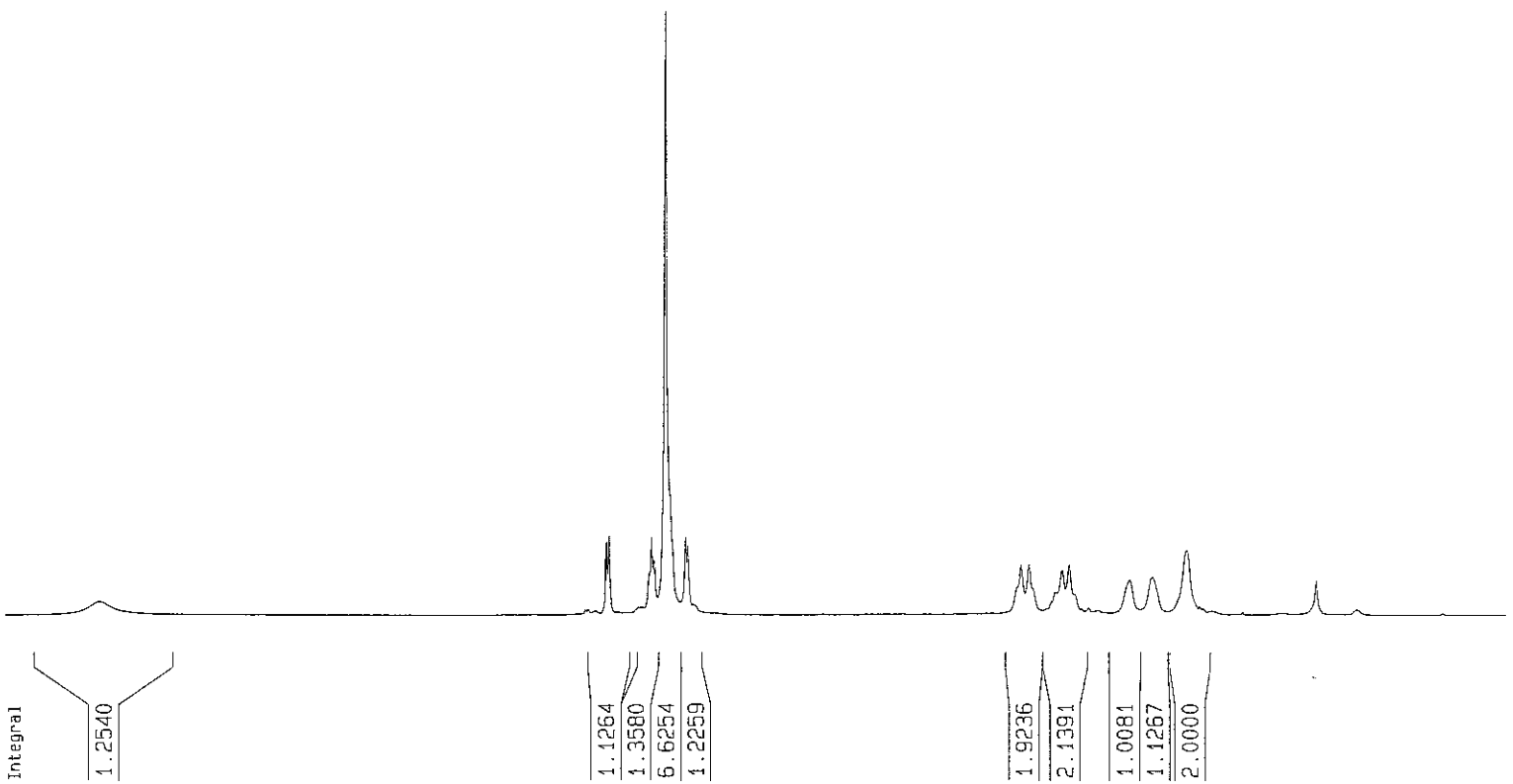

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F2 - Processing parameters

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1D NMR plot parameters

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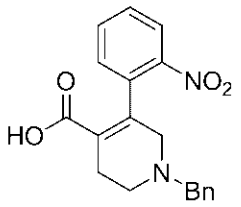

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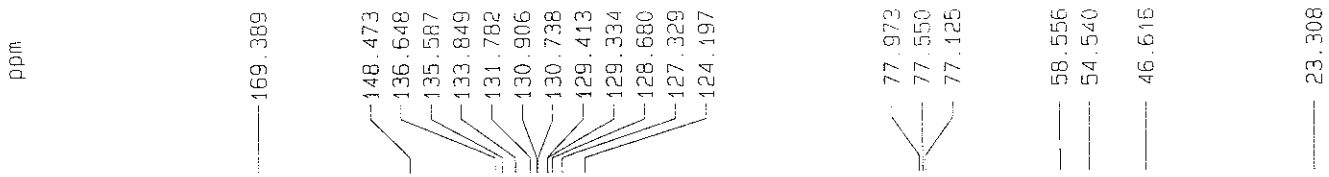

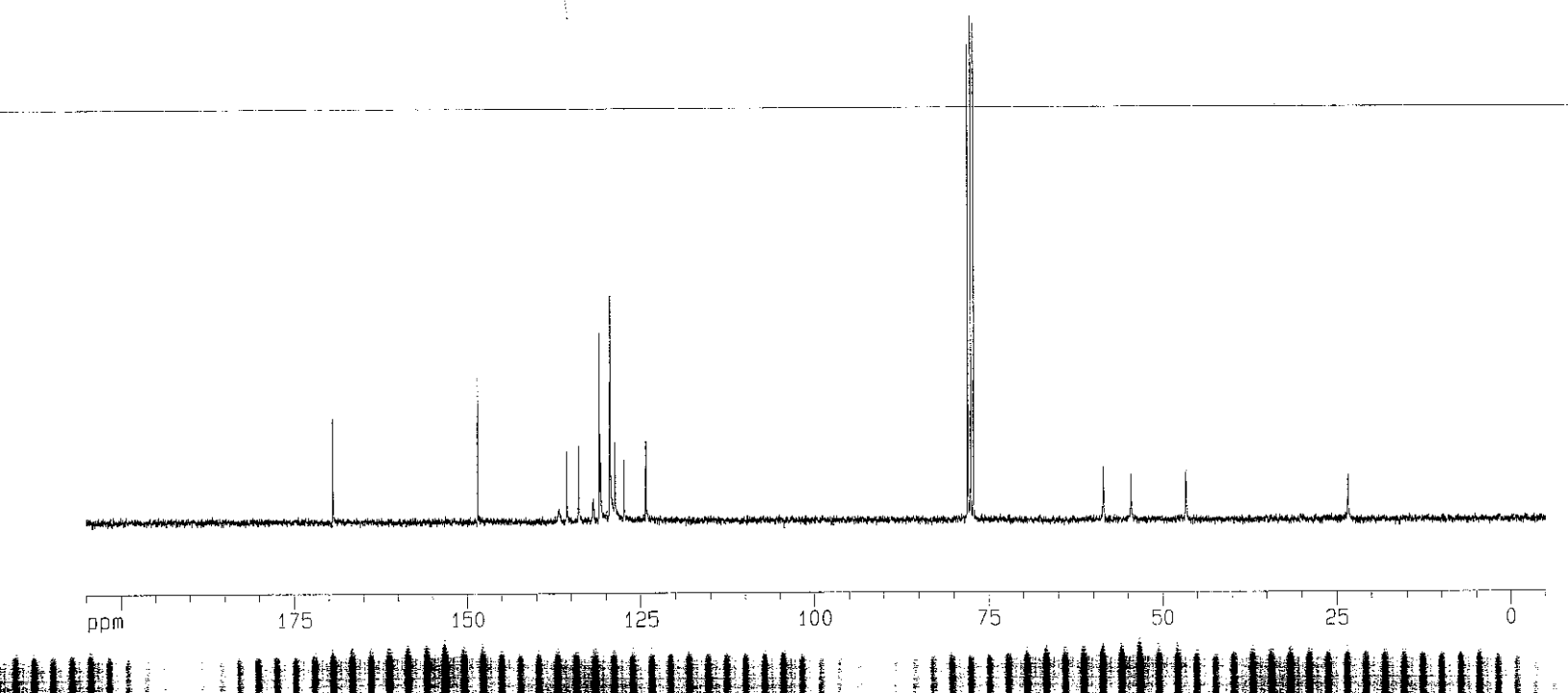

Current Data Parameters

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PROCNO	1

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F2 - Processing parameters

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1D NMR plot parameters

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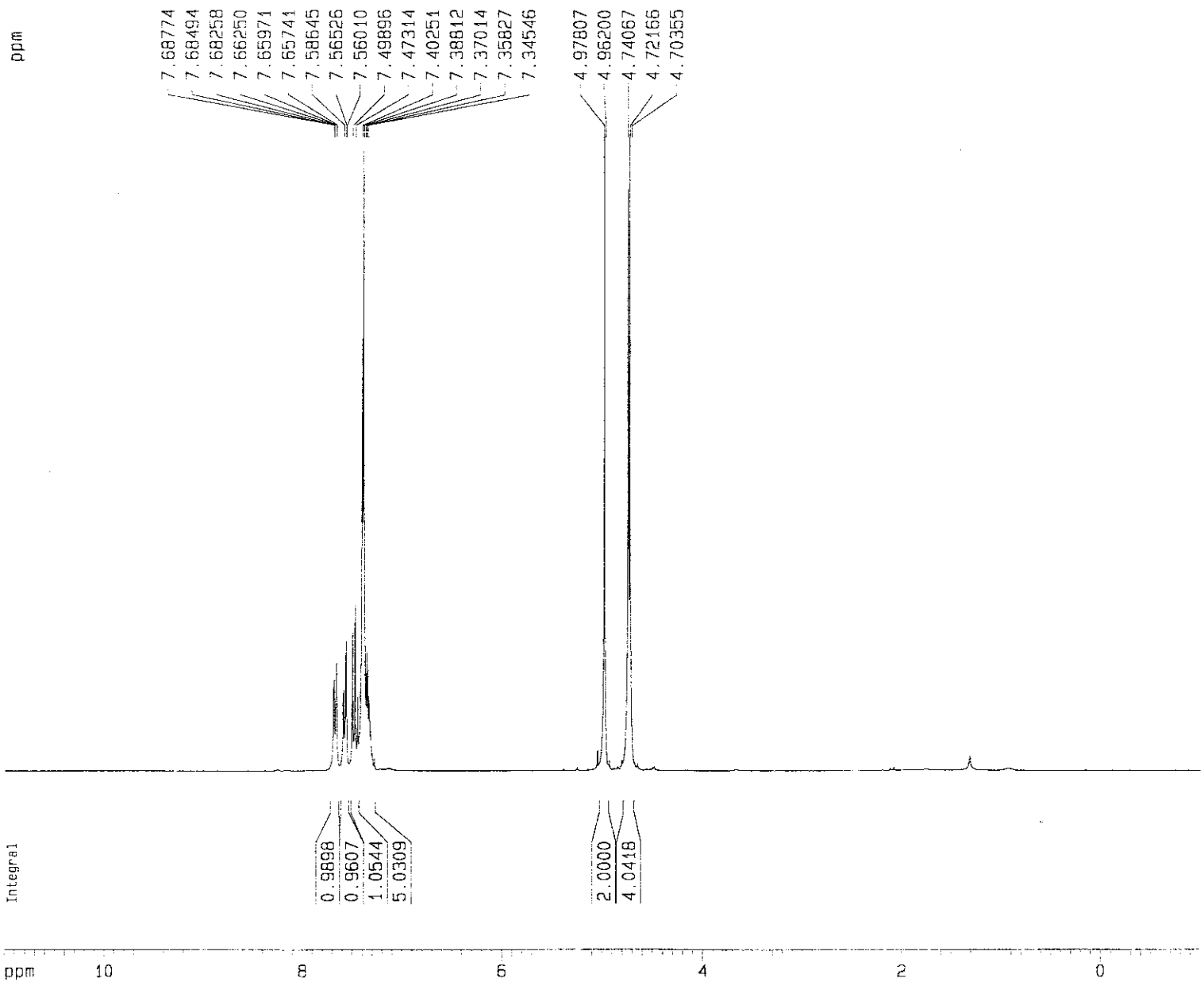
17a

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1D NMR plot parameters
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HZCM         180.07800 Hz/cm
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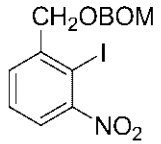
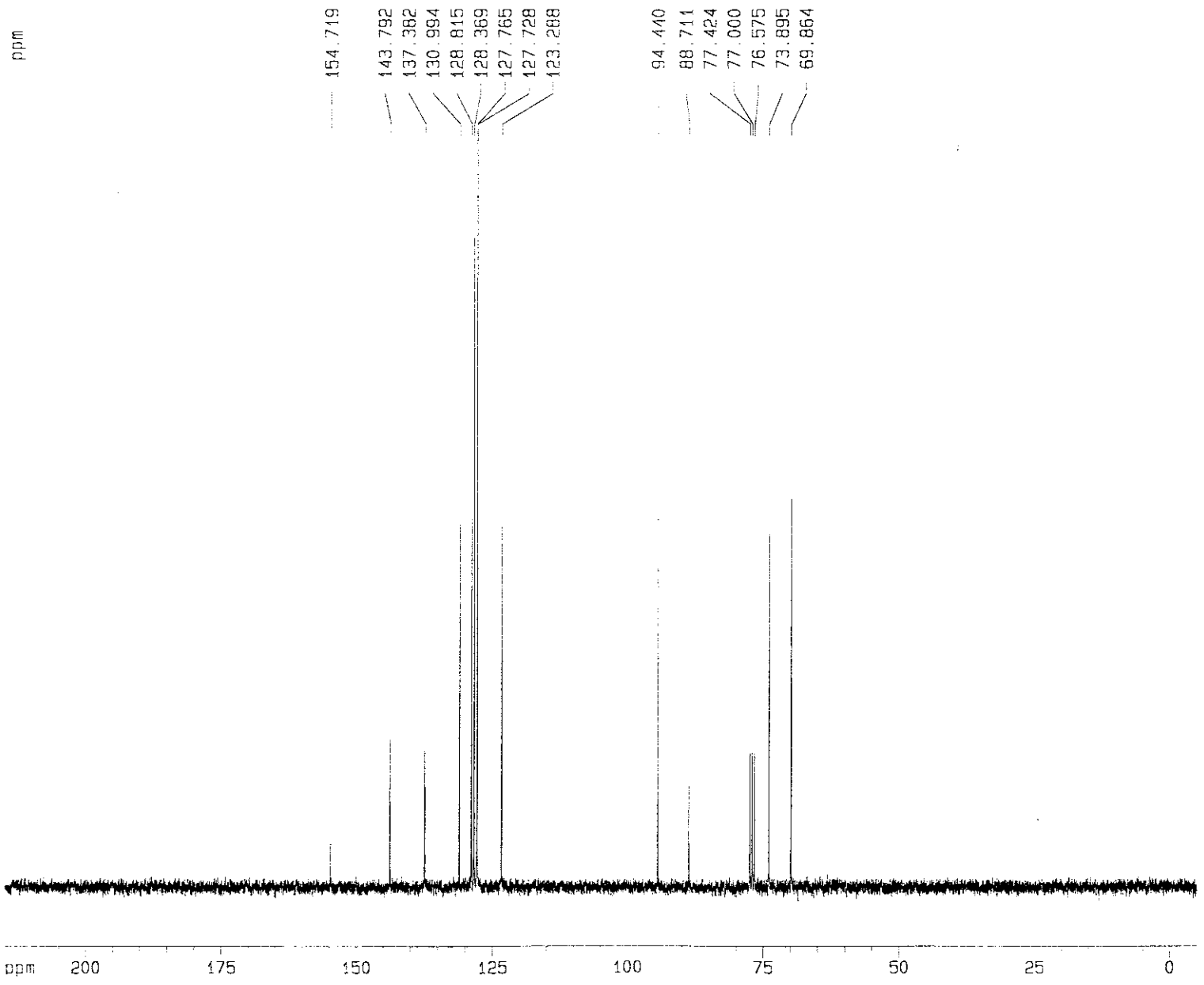


17a




```
Current Data Parameters
NAME          PL-Jun09-09
EXPNO                   2
PROCNO                  1

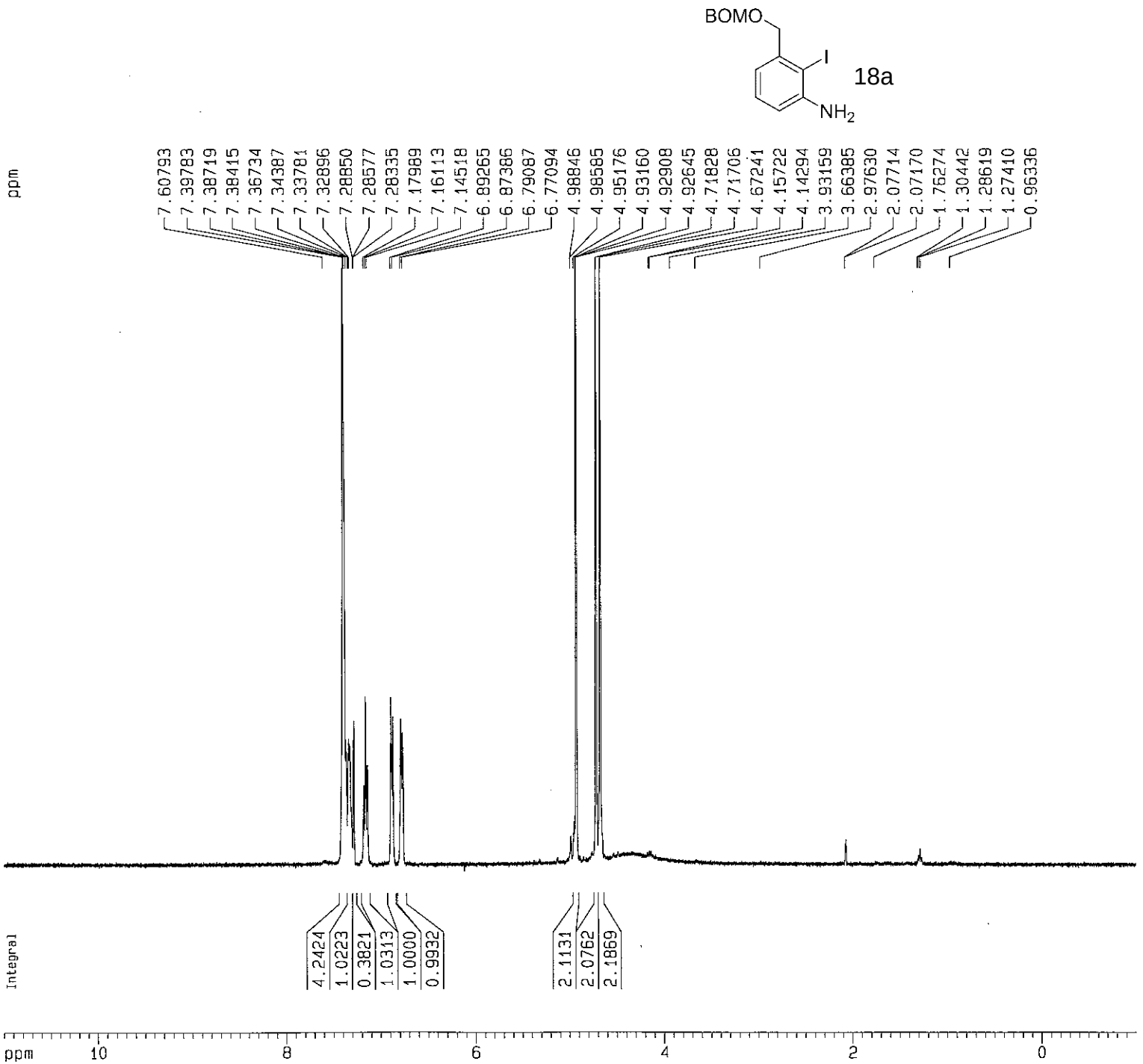
F2 - Acquisition Parameters
Date_            20090609
Time                12.04
INSTRUM             spect
PROBHD     5 mm Multinu
PULPROG            zgpg30
TD                  65536
SOLVENT             CDCl3
NS                     52
DS                      4
SWH             18832.393 Hz
FIDRES          0.287360 Hz
AQ              1.7400308 sec
RG                  16384
DW                 26.550 usec
DE                  6.00 usec
TE                 300.0 K
D1             2.00000000 sec
d11            0.03000000 sec
d12            0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                 11.80 usec
PL1                 0.00 dB
SFO1          75.4760200 MHz

============ CHANNEL f2 ============
CPDPRG2          waltz16
NUC2                1H
PCPD2             110.00 usec
PL2                 0.00 dB
PL12               17.50 dB
PL13               17.50 dB
SFO2         300.1312005 MHz

F2 - Processing parameters
SI                  32768
SF            75.4677635 MHz
WDW                    EM
SSB                     0
LB                   1.00 Hz
GB                      0
PC                   1.40

1D NMR plot parameters
CX                  20.00 cm
F1P               215.000 ppm
F1              16225.57 Hz
F2P                -5.000 ppm
F2               -377.34 Hz
PPMCM            11.00000 ppm/cm
HZCM           830.14545 Hz/cm
```



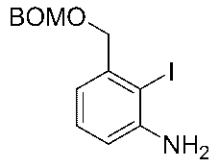

```
Current Data Parameters
NAME          PL-Jun17-09
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_           20090617
Time               17.59
INSTRUM            spect
PROBHD     5 mm BBI 1H-B
PULPROG            zg30
TD                65536
SOLVENT           CDCl3
NS                   16
DS                    2
SWH          8278.146 Hz
FIDRES       0.126314 Hz
AQ           3.9584243 sec
RG               645.1
DW              60.400 usec
DE               6.00 usec
TE              300.0 K
D1           1.00000000 sec

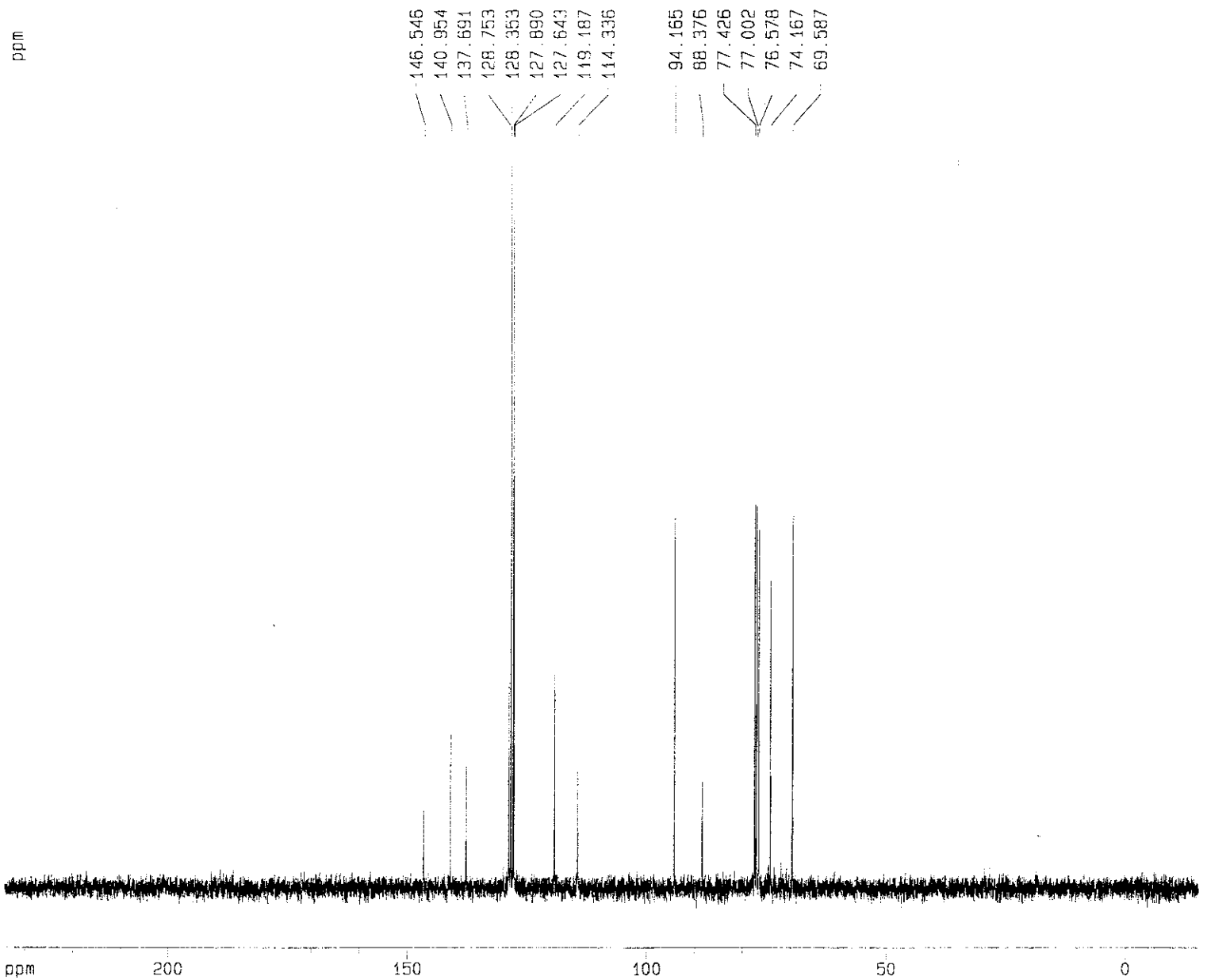
============ CHANNEL f1 =========
NUC1                1H
P1               6.45 usec
PL1              0.00 dB
SFO1       400.1324710 MHz

F2 - Processing parameters
SI                32768
SF         400.1300000 MHz
WDW                  no
SSB                   0
LB               0.00 Hz
GB                    0
PC                 1.00

1D NMR plot parameters
CX               20.00 cm
F1P              11.000 ppm
F1             4401.43 Hz
F2P              -1.000 ppm
F2             -400.13 Hz
PPMCM          0.60000 ppm/cm
HZCM         240.07800 Hz/cm
```



18a




```
Current Data Parameters
NAME          PL-JUN10-09
EXPNO                   2
PROCNO                  1

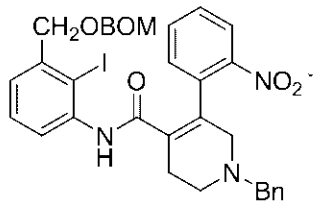
F2 - Acquisition Parameters
Date_            20090510
Time                15.31
INSTRUM             spect
PROBHD     5 mm Multinu
PULPROG           zgpg30
TD                 65536
SOLVENT            CDCl3
NS                   101
DS                     4
SWH            18832.393 Hz
FIDRES         0.287360 Hz
AQ             1.7400308 sec
RG                 13004
DW                26.550 usec
DE                 6.00 usec
TE                300.0 K
D1             2.00000000 sec
d11            0.03000000 sec
d12            0.00002000 sec

============ CHANNEL f1 ============
NUC1                 13C
P1                 11.80 usec
PL1                 0.00 dB
SFO1          75.4760200 MHz

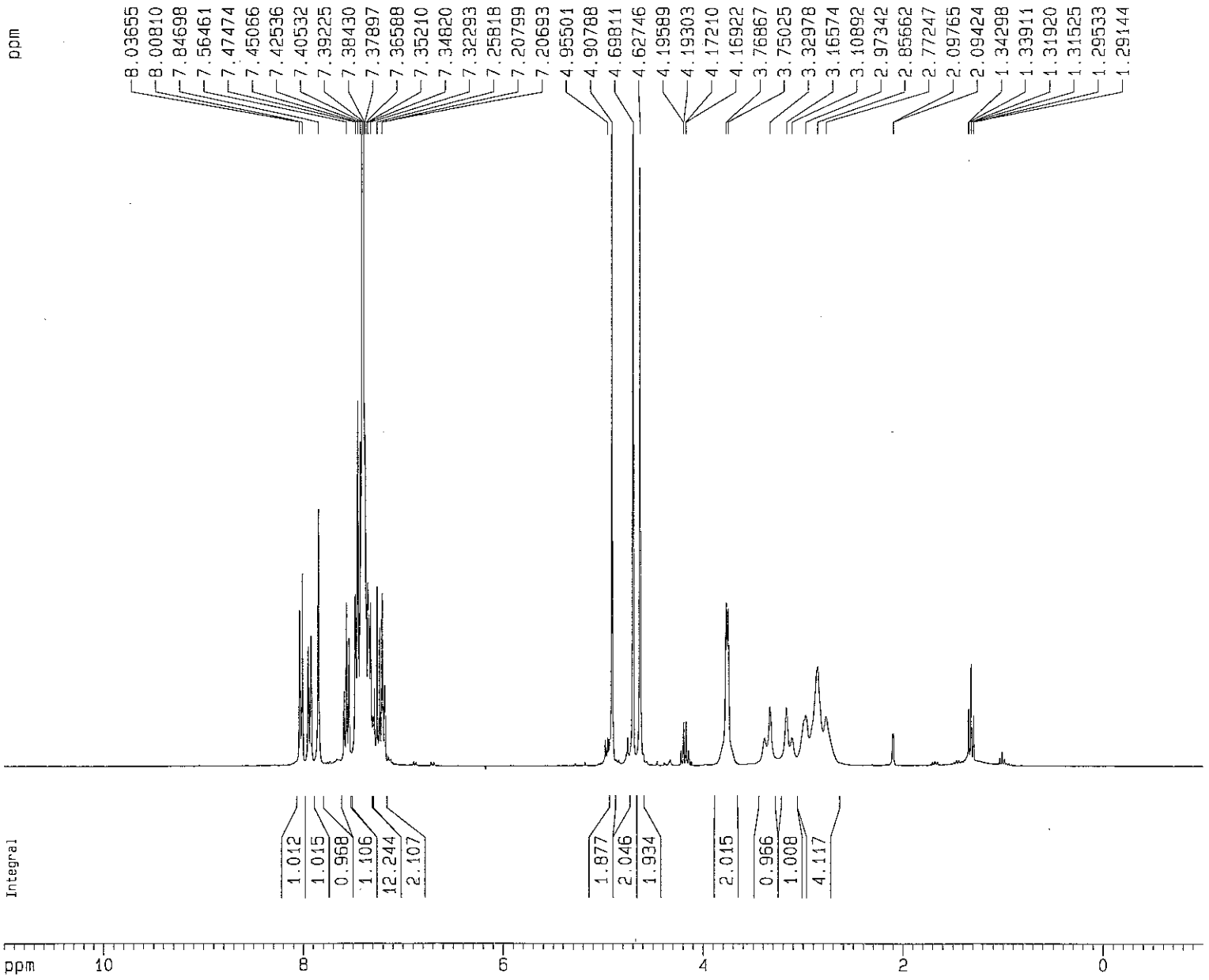
============ CHANNEL f2 ============
CPDPRG2          waltz16
NUC2                1H
PCPD2             110.00 usec
PL2                 0.00 dB
PL12               17.50 dB
PL13               17.50 dB
SFO2         300.1312005 MHz

F2 - Processing parameters
SI                  32768
SF            75.4677606 MHz
WDW                    EM
SSB                    0
LB                  1.00 Hz
GB                     0
PC                  1.40

1D NMR plot parameters
CX                 20.00 cm
F1P              234.213 ppm
F1               17675.52 Hz
F2P              -15.329 ppm
F2               -1156.86 Hz
PPMCM            12.47711 ppm/cm
HZCM           941.61963 Hz/cm
```



23a



Current Data Parameters

NAME	PL-Jun27-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20090627
Time	14.18
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	35.9
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

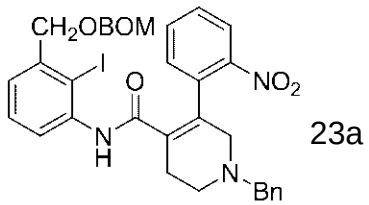
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

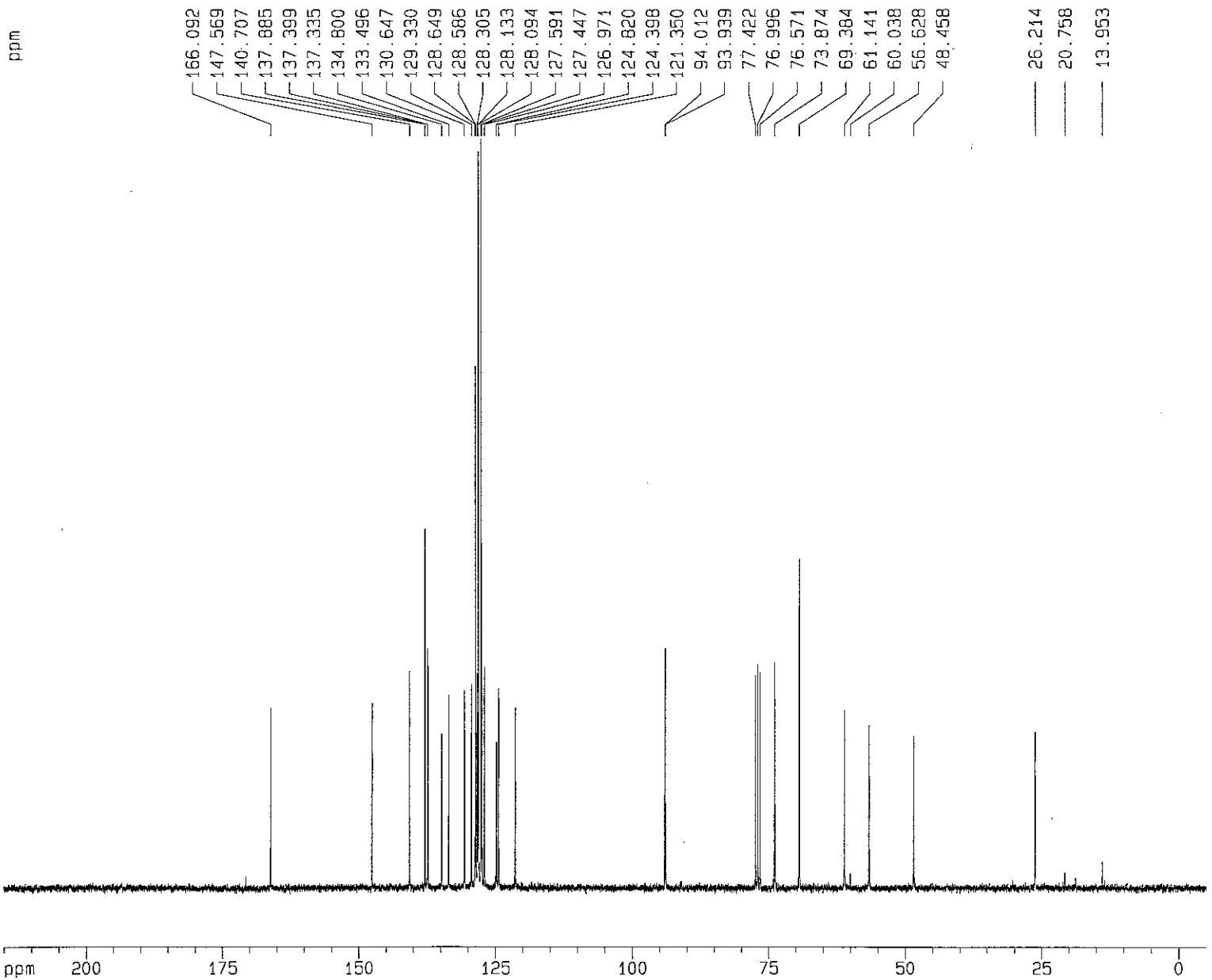
SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



23a




```
Current Data Parameters
NAME          PL-Jun27-09
EXPNO                   2
PROCNO                  1

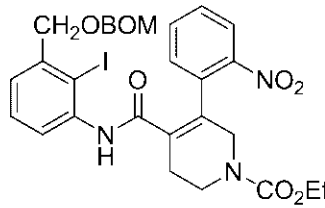
F2 - Acquisition Parameters
Date_              20090627
Time                 14.27
INSTRUM              spect
PROBHD     5 mm GNP 1H/1
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                     154
DS                       4
SWH              18796.992 Hz
FIDRES           0.286819 Hz
AQ               1.7433076 sec
RG                    1024
DW                 26.600 usec
DE                  6.00 usec
TE                 300.0 K
D1              2.00000000 sec
D11             0.03000000 sec
D12             0.00002000 sec

============ CHANNEL f1 ============
NUC1                  13C
P1                  5.40 usec
PL1                -6.00 dB
SF01          75.4106357 MHz

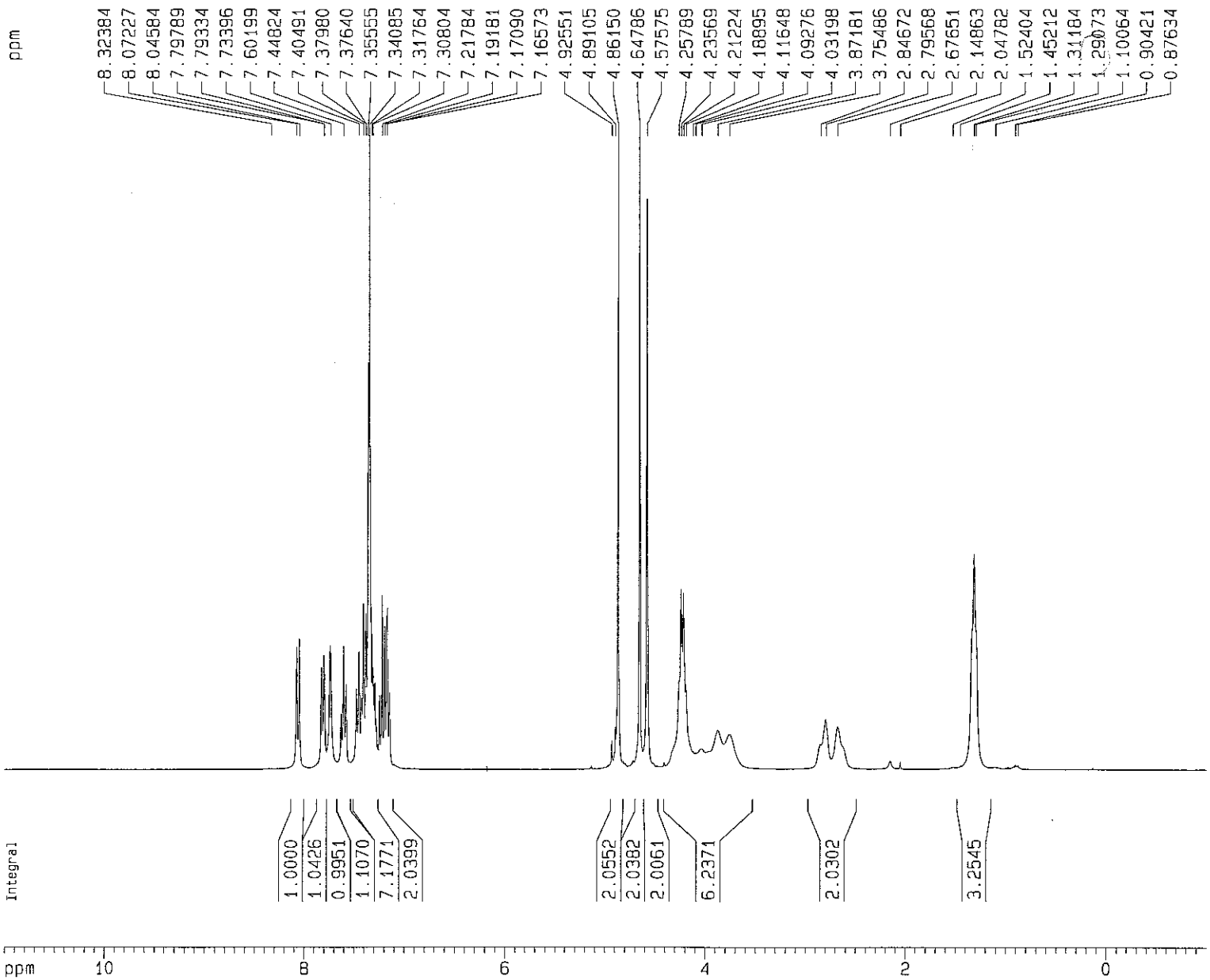
============ CHANNEL f2 ============
CPDPRG2          waltz16
NUC2                  1H
PCPD2             115.00 usec
PL2                 0.00 dB
PL12               20.00 dB
PL13               20.00 dB
SF02         299.8711995 MHz

F2 - Processing parameters
SI                   32768
SF            75.4024044 MHz
WDW                     EM
SSB                      0
LB                    1.00 Hz
GB                       0
PC                    1.40

1D NMR plot parameters
CX                  20.00 cm
F1P               215.000 ppm
F1              16211.52 Hz
F2P                -5.000 ppm
F2               -377.01 Hz
PPMCM           11.00000 ppm/cm
HZCM          829.42645 Hz/cm
```



24a



Current Data Parameters

NAME	PL-Jun29-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20090629
Time	13.51
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	45.3
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

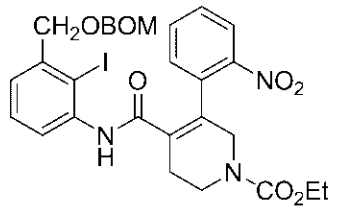
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.6718518 MHz

F2 - Processing parameters

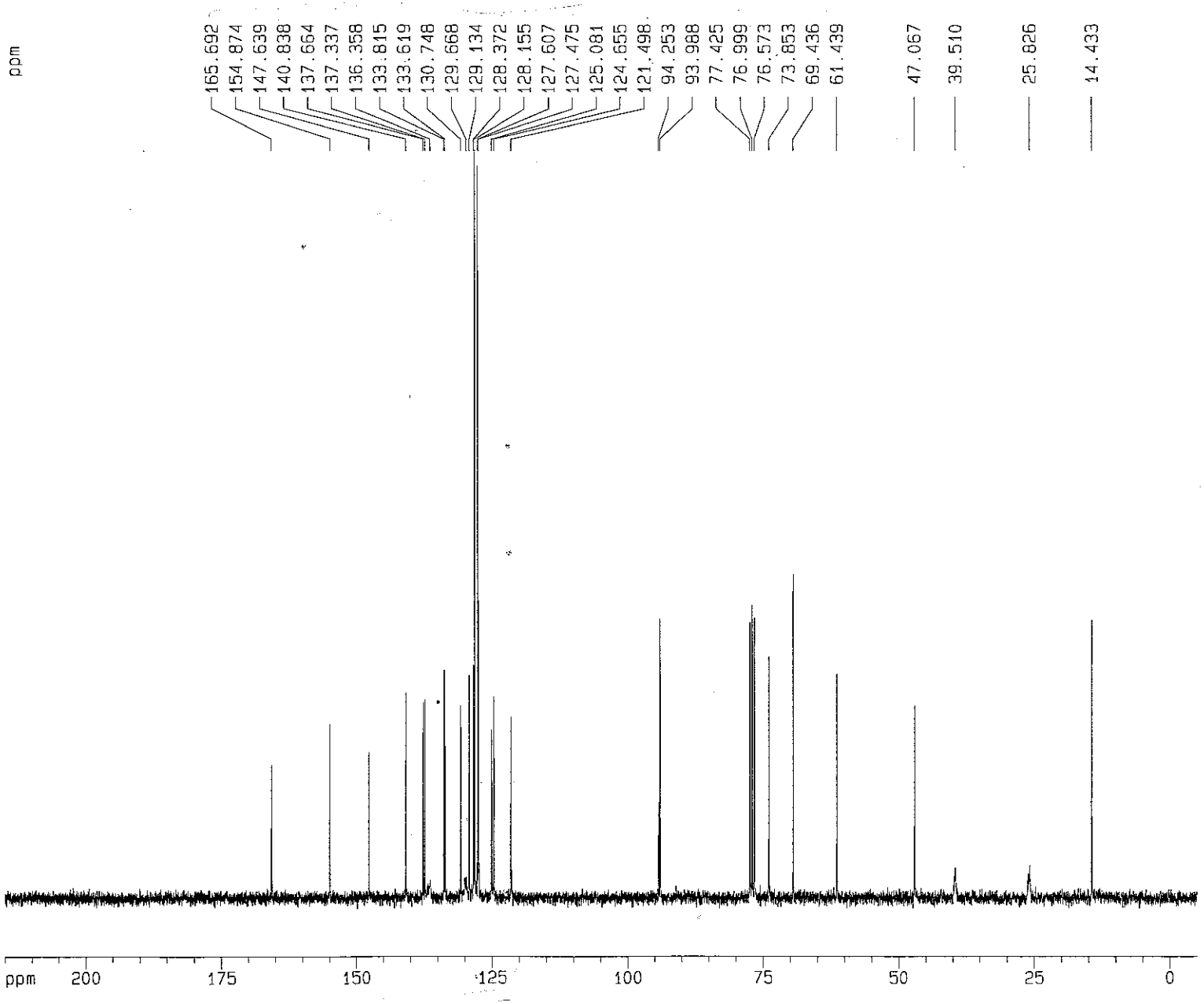
SI	32768
SF	299.6700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



24a




```
Current Data Parameters
NAME          PL-Jun29-09
EXPNO                   2
PROCNO                  1

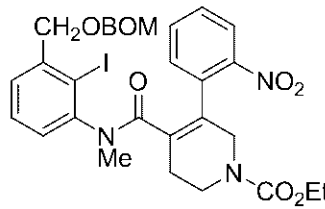
F2 - Acquisition Parameters
Date_          20090629
Time              13.58
INSTRUM           spect
PROBHD     5 mm QNP 1H/1
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                   83
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                 1024
DW              26.600 usec
DE               6.00 usec
TE              300.0 K
D1           2.00000000 sec
D11          0.03000000 sec
D12          0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1               5.40 usec
PL1             -6.00 dB
SFO1         75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2              0.00 dB
PL12            20.00 dB
PL13            20.00 dB
SFO2        299.8711995 MHz

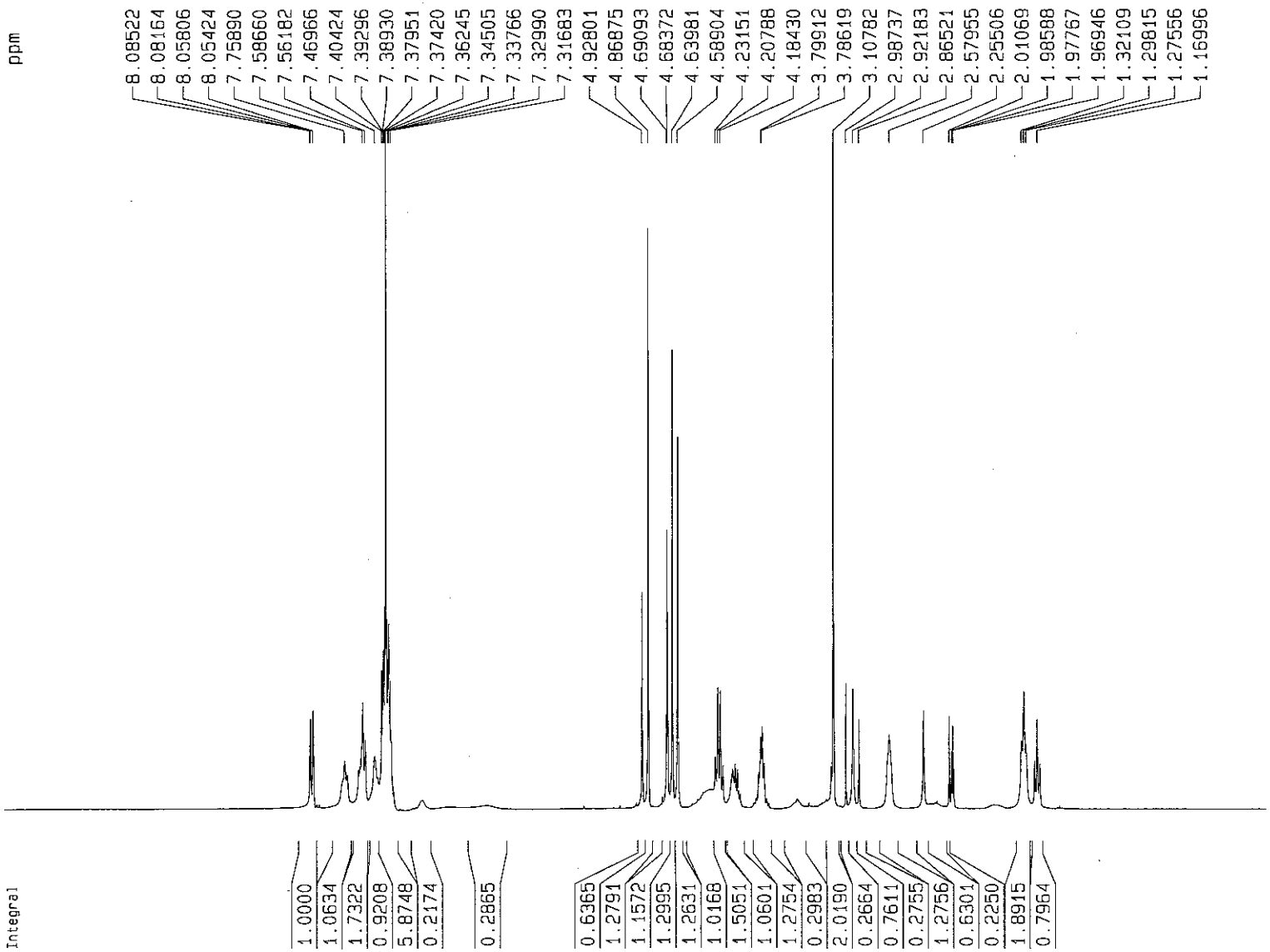
F2 - Processing parameters
SI                32768
SF           75.4023975 MHz
WDW                  EM
SSB                   0
LB                 1.00 Hz
GB                    0
PC                 1.40

1D NMR plot parameters
CX               20.00 cm
F1P             215.000 ppm
F1             16211.52 Hz
F2P             -5.000 ppm
F2              -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM          829.42639 Hz/cm
```



25a

in CD3CN at rt



Current Data Parameters

NAME	PL-Jul15-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20090715
Time	12.54
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CD3CN
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	101.6
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

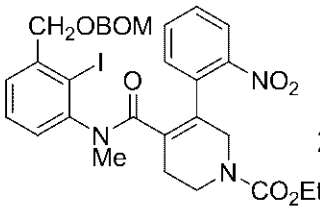
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

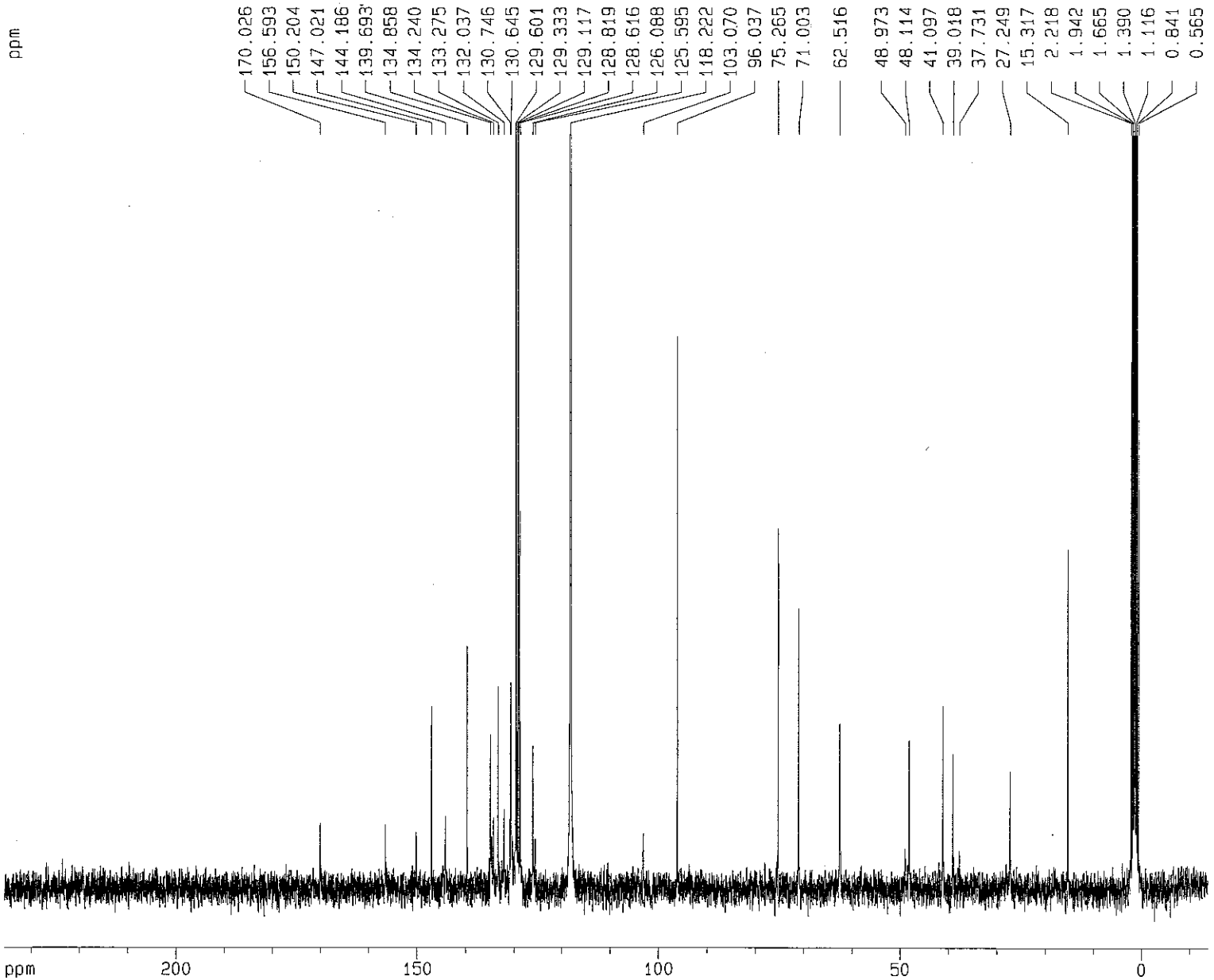
1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



25a

in CD3CN at 65 degree



Current Data Parameters

NAME	PL-Jul15-09
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20090715
Time	13.20
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CD3CN
NS	636
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	512
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

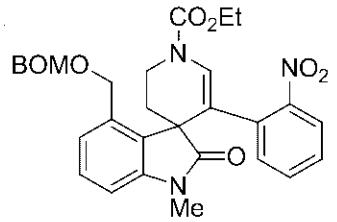
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4022751 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

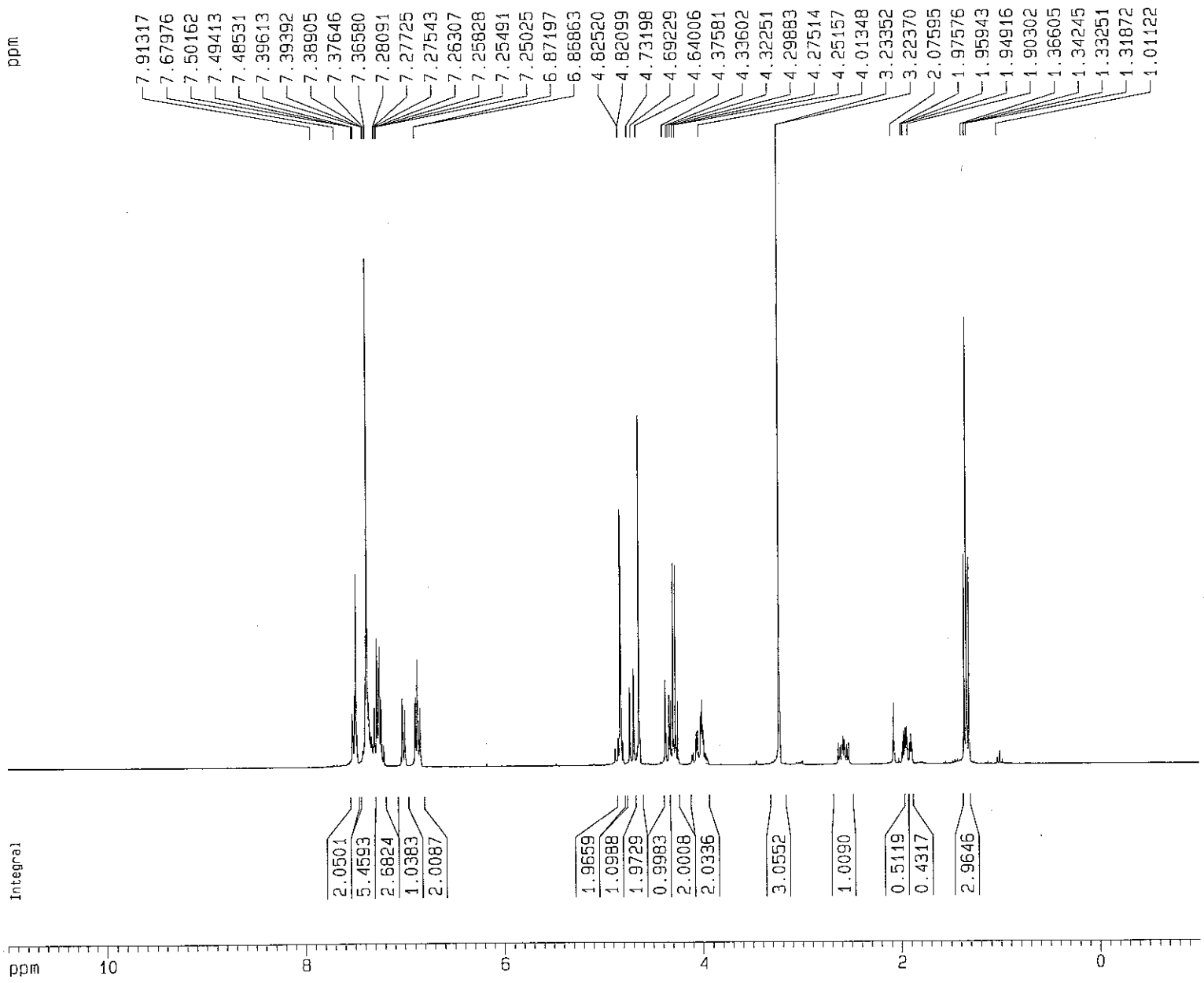
1D NMR plot parameters

CX	20.00 cm
F1P	235.525 ppm
F1	17759.12 Hz
F2P	-13.765 ppm
F2	-1037.88 Hz
PPMCM	12.46447 ppm/cm
HZCM	939.84961 Hz/cm



26a

65 degree in CD3CN



Current Data Parameters

NAME	PL-Jul2-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090712
Time	15.47
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CD3CN
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	143.7
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

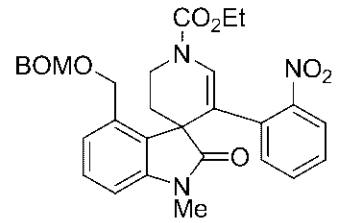
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

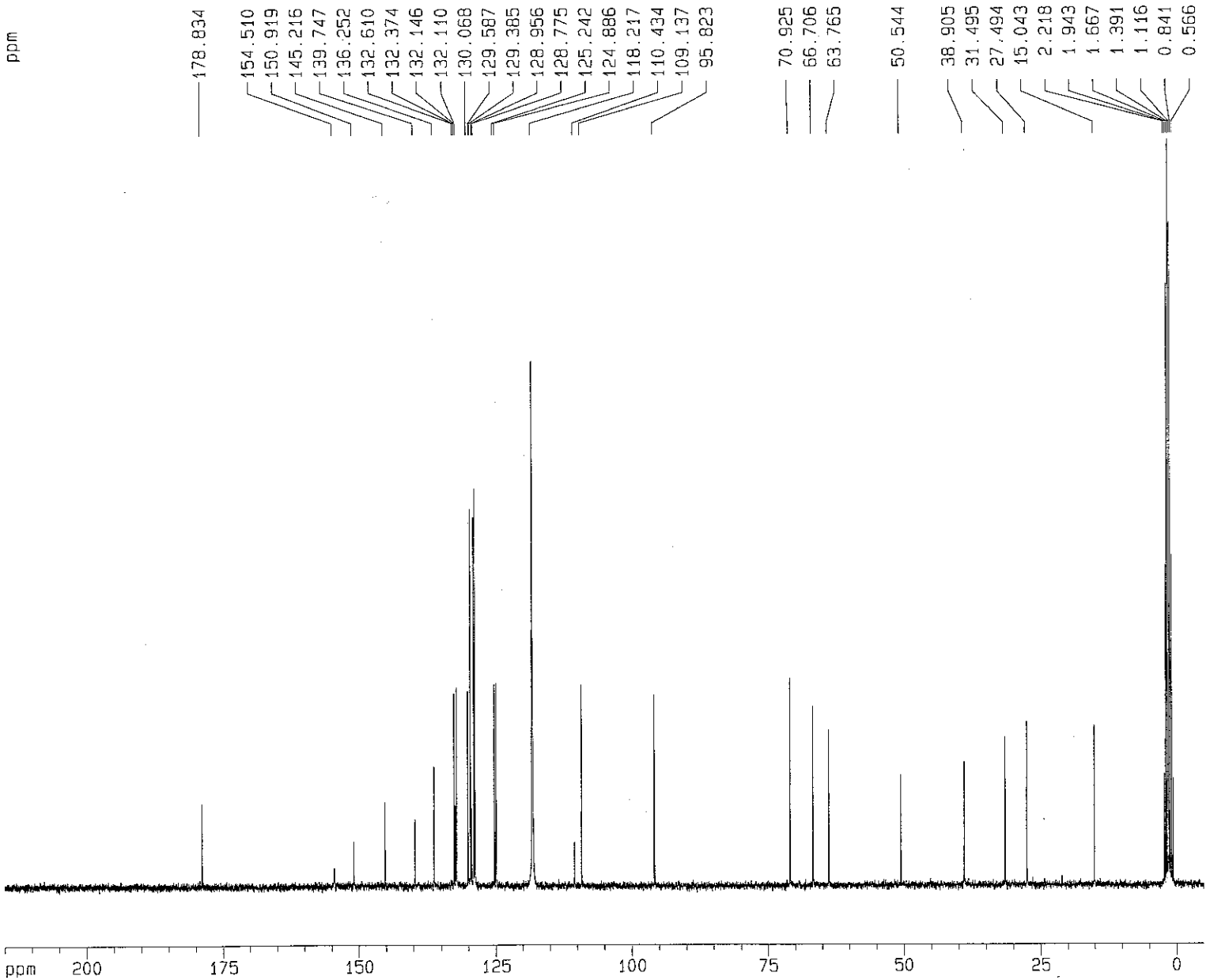
1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



26a

in CD3CN at 65 degree



Current Data Parameters

NAME	PL-Jul14-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090714
Time	15.25
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CD3CN
NS	604
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	4096
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

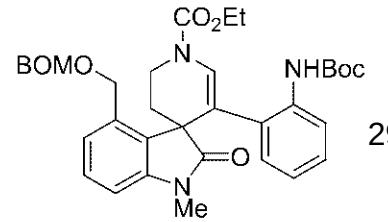
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4022751 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

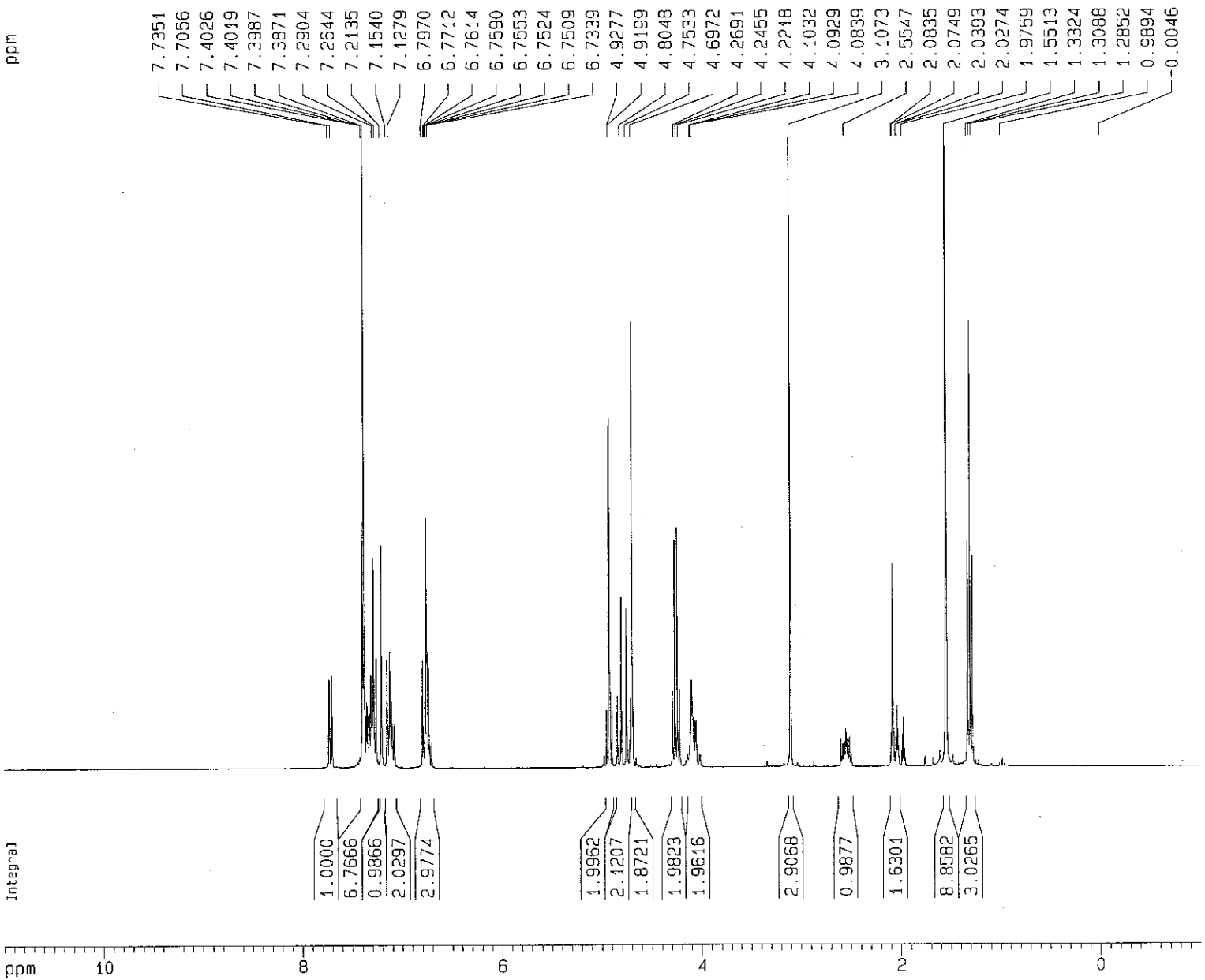
1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.49 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42505 Hz/cm



29a

in CD3CN at 65 degree



Current Data Parameters

NAME	PL-Jul14-09
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20090714
Time	16.26
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CD3CN
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	101.6
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 =========

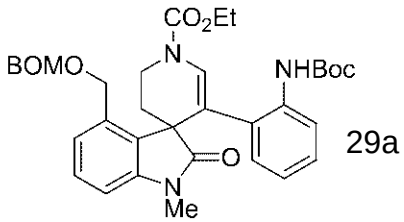
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

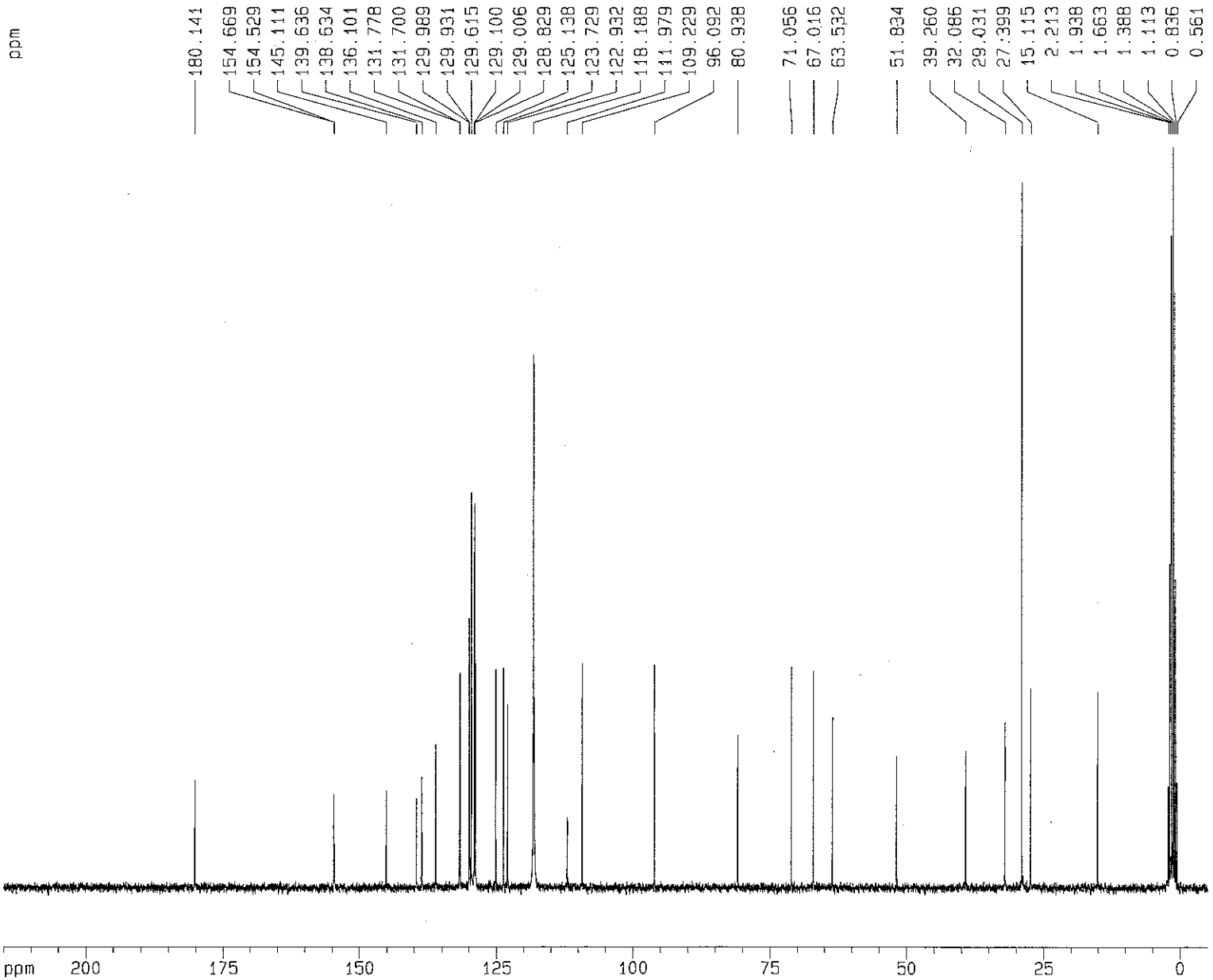
1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



29a

in CD3CN at 65 degree

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Current Data Parameters
NAME          PL-Jul15-09
EXPNO                   1
PROCNO                  1

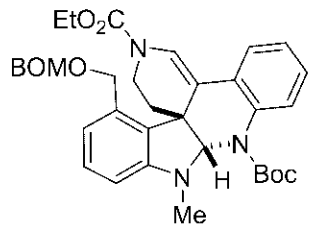
F2 - Acquisition Parameters
Date_           20090715
Time               12.13
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CD3CN
NS                  531
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                  512
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                5.40 usec
PL1              -6.00 dB
SFO1         75.4106357 MHz

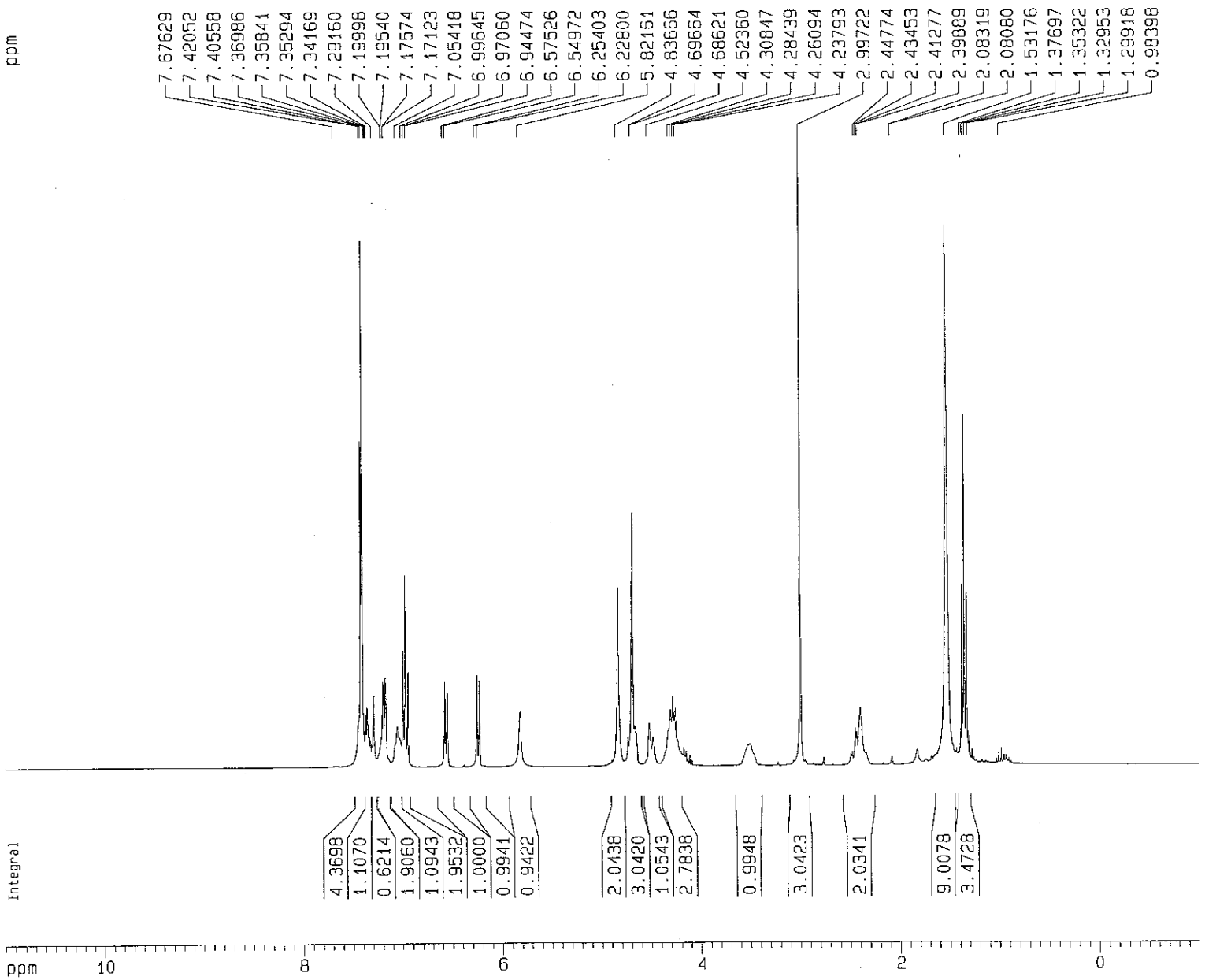
============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2           115.00 usec
PL2               0.00 dB
PL12             20.00 dB
PL13             20.00 dB
SFO2        299.8711995 MHz

F2 - Processing parameters
SI                32768
SF           75.4022757 MHz
WDW                  EM
SSB                   0
LB                 1.00 Hz
GB                    0
PC                 1.40

1D NMR plot parameters
CX                20.00 cm
F1P              215.000 ppm
F1             16211.49 Hz
F2P              -5.000 ppm
F2             -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM          829.42505 Hz/cm
```



30a



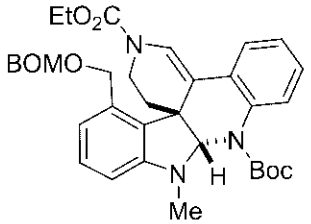

```
Current Data Parameters
NAME          PL-Jul17-09
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_              20090717
Time                  11.28
INSTRUM               spect
PROBHD     5 mm QNP 1H/1
PULPROG               zg30
TD                   65536
SOLVENT              CDCl3
NS                      16
DS                       2
SWH               6172.839 Hz
FIDRES            0.094190 Hz
AQ                5.3084660 sec
RG                      64
DW                 81.000 usec
DE                  6.00 usec
TE                 300.0 K
D1              1.00000000 sec

========== CHANNEL f1 ========
NUC1                    1H
P1                  11.70 usec
PL1                  0.00 dB
SFO1          299.8718518 MHz

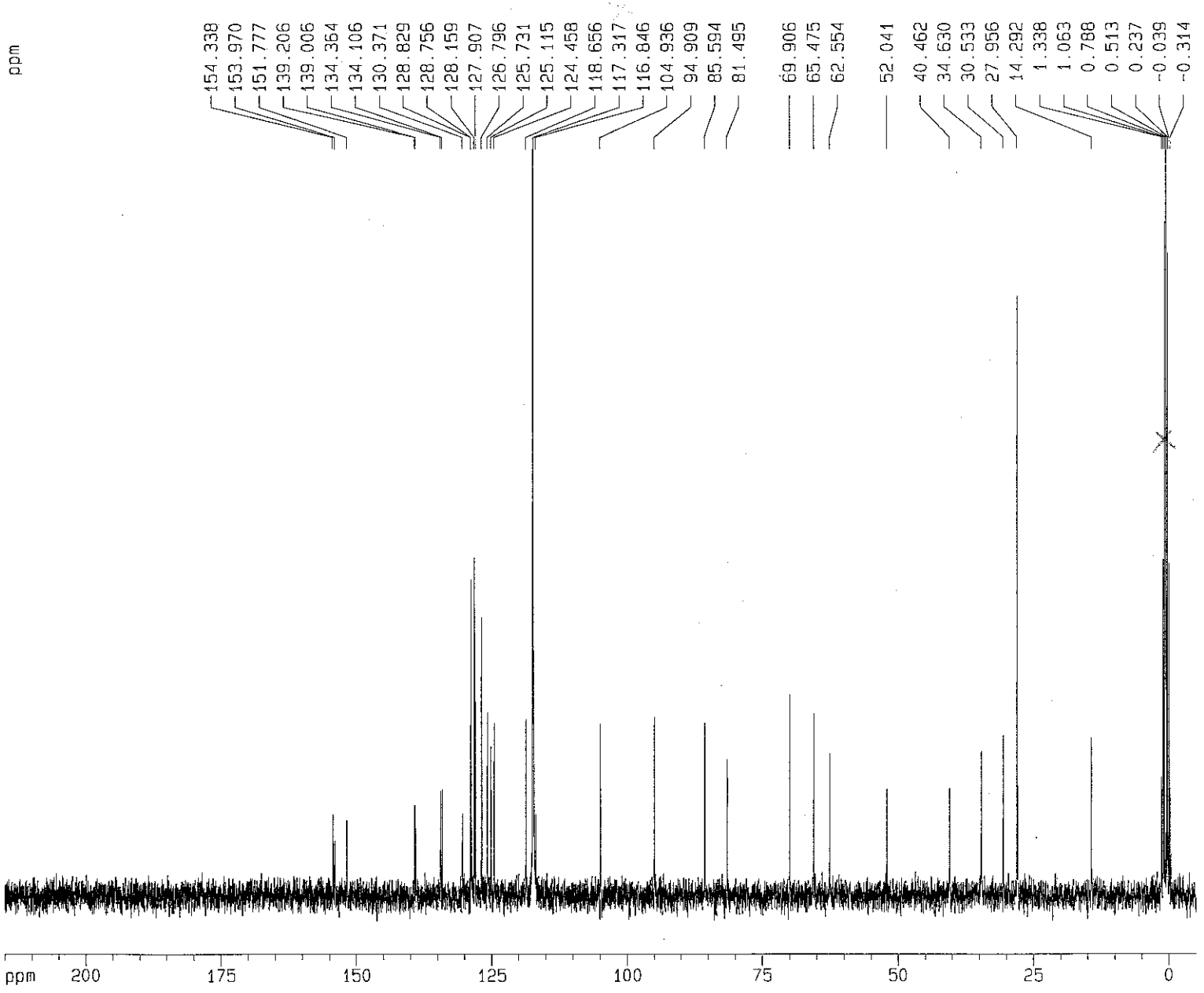
F2 - Processing parameters
SI                      32768
SF            299.8700000 MHz
WDW                     no
SSB                      0
LB                   0.00 Hz
GB                       0
PC                    1.00

1D NMR plot parameters
CX                   20.00 cm
F1P                 11.000 ppm
F1                 3298.57 Hz
F2P                -1.000 ppm
F2                 -299.87 Hz
PPMCM              0.60000 ppm/cm
HZCM             179.92200 Hz/cm
```



30a

in CD3CN at 65 degree



Current Data Parameters

NAME	PL-Jul18-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20090718
Time	15.07
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CD3CN
NS	84
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	2048
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

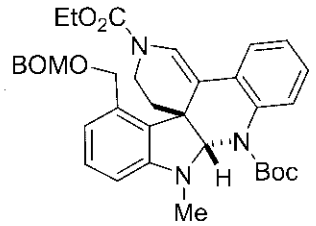
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023410 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

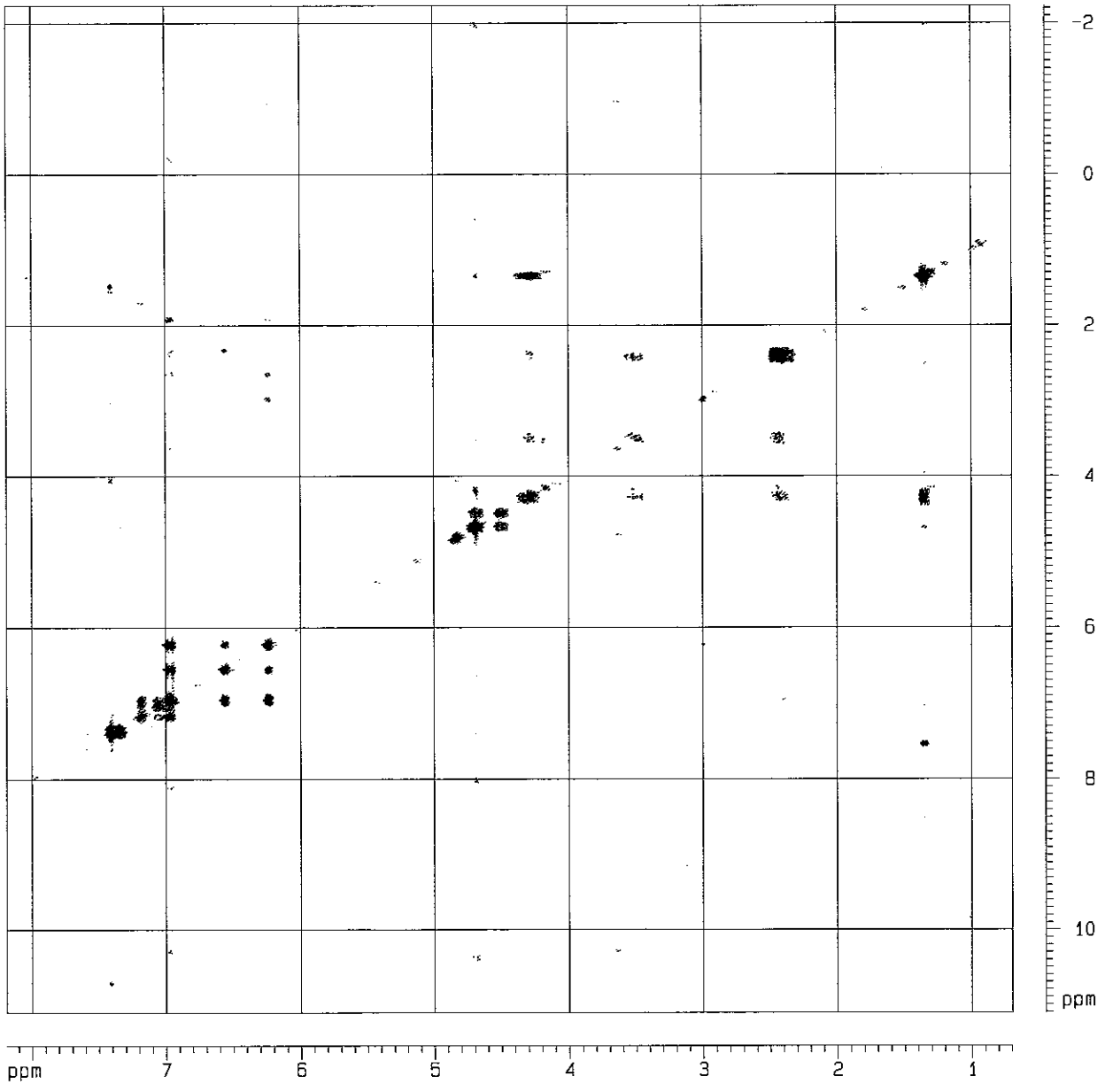
1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.50 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42578 Hz/cm



30a

cosy



Current Data Parameters

NAME	PL-Aug03-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20090802
Time	23.44
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	4
DS	8
SWH	2997.602 Hz
FIDRES	1.463673 Hz
AQ	0.3416564 sec
RG	3251
DW	166.800 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00009360 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.39 usec
P2	14.78 usec
PL1	0.00 dB
SFO1	400.1317774 MHz

========== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

ND0	2
TD	650
SFO1	400.1318 MHz
FIDRES	8.218277 Hz
SW	13.350 ppm

F2 - Processing parameters

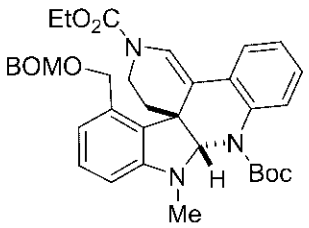
SI	2048
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

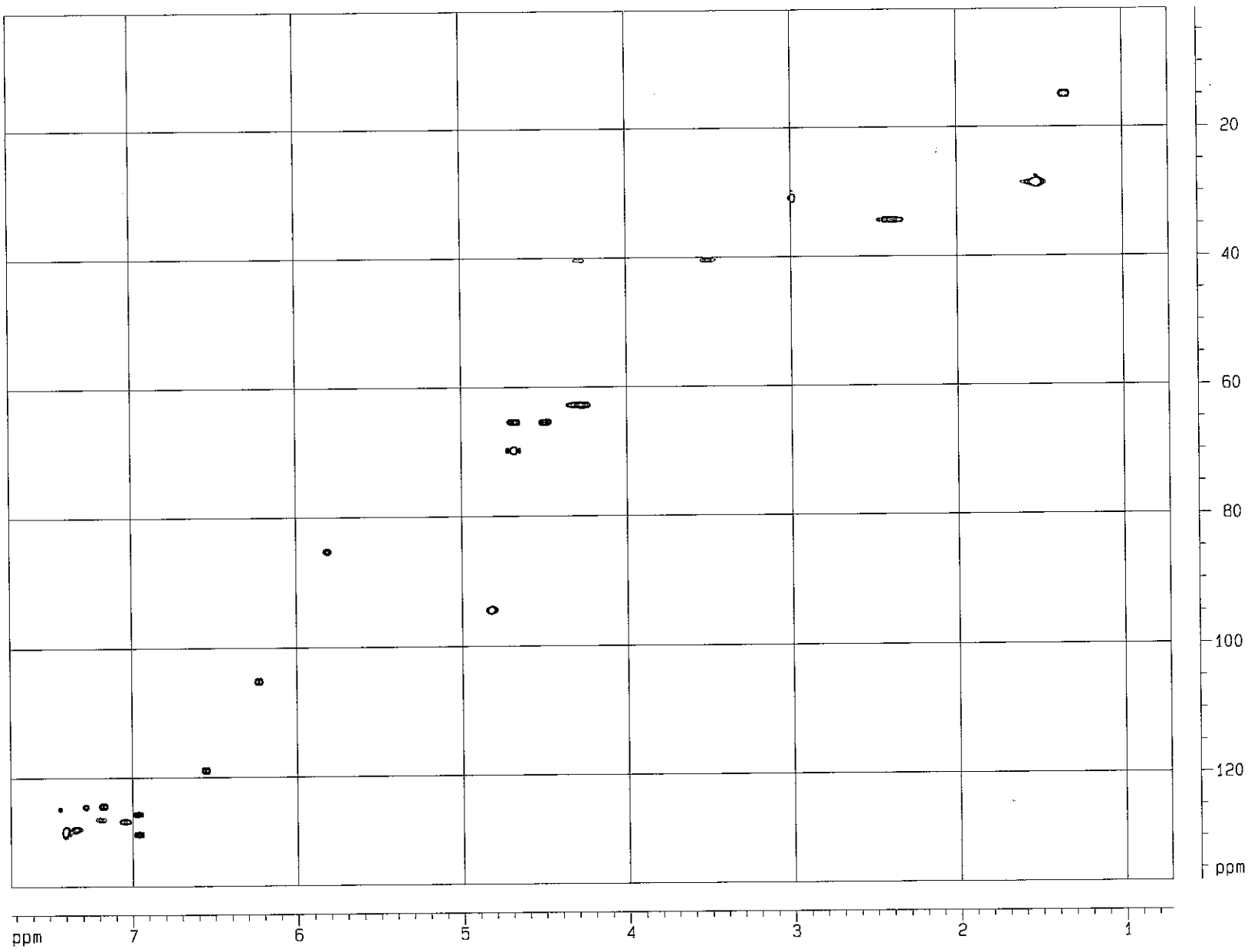
2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.188 ppm
F2LO	3276.18 Hz
F2PHI	0.696 ppm
F2HI	278.58 Hz
F1PLO	11.117 ppm
F1LO	4448.32 Hz
F1PHI	-2.233 ppm
F1HI	-893.56 Hz
F2PPMCM	0.49944 ppm/cm
F2HZCM	199.84015 Hz/cm
F1PPMCM	0.69002 ppm/cm
F1HZCM	356.12537 Hz/cm



30a

HMQC



Current Data Parameters

NAME	PL-Aug03-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090802
Time	23.03
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	inv4gptp
TD	2048
SOLVENT	CDCl3
NS	4
DS	80
SWH	2887.602 Hz
FIDRES	1.463672 Hz
AQ	0.3416564 sec
RG	7266.2
DW	166.600 usec
DE	6.00 usec
TE	300.6 K
CNST2	145.0000000
d0	0.00000300 sec
D1	1.99631298 sec
d2	0.00344828 sec
d4	0.00172414 sec
d11	0.03000000 sec
d13	0.00000500 sec
d16	0.00020000 sec
d20	0.00052414 sec
d21	0.00224428 sec
IN0	0.00001480 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.39 usec
P2	14.78 usec
PL1	0.00 dB
SFO1	400.1317774 MHz

========== CHANNEL f2 ==========

CPDPRG2	garp
NUC2	13C
P3	17.00 usec
P4	34.00 usec
PCPD2	84.00 usec
PL2	-6.00 dB
PL12	6.30 dB
SFO2	100.6202332 MHz

========== GRADIENT CHANNEL ==========

GPNAM1	SINE.100
GPNAM2	SINE.100
GPNAM3	SINE.100
GPX1	17.00 %
GPX2	20.00 %
GPX3	25.00 %
GPY1	17.00 %
GPY2	20.00 %
GPY3	25.00 %
GPZ1	17.00 %
GPZ2	20.00 %
GPZ3	25.00 %
P16	1000.00 usec

F1 - Acquisition parameters

ND0	4
TD	256
SFO1	100.6202 MHz
FIDRES	65.541107 Hz
SW	166.751 ppm

F2 - Processing parameters

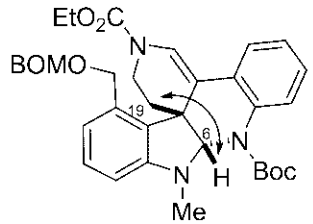
SI	2048
SF	400.1300000 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.00

F1 - Processing parameters

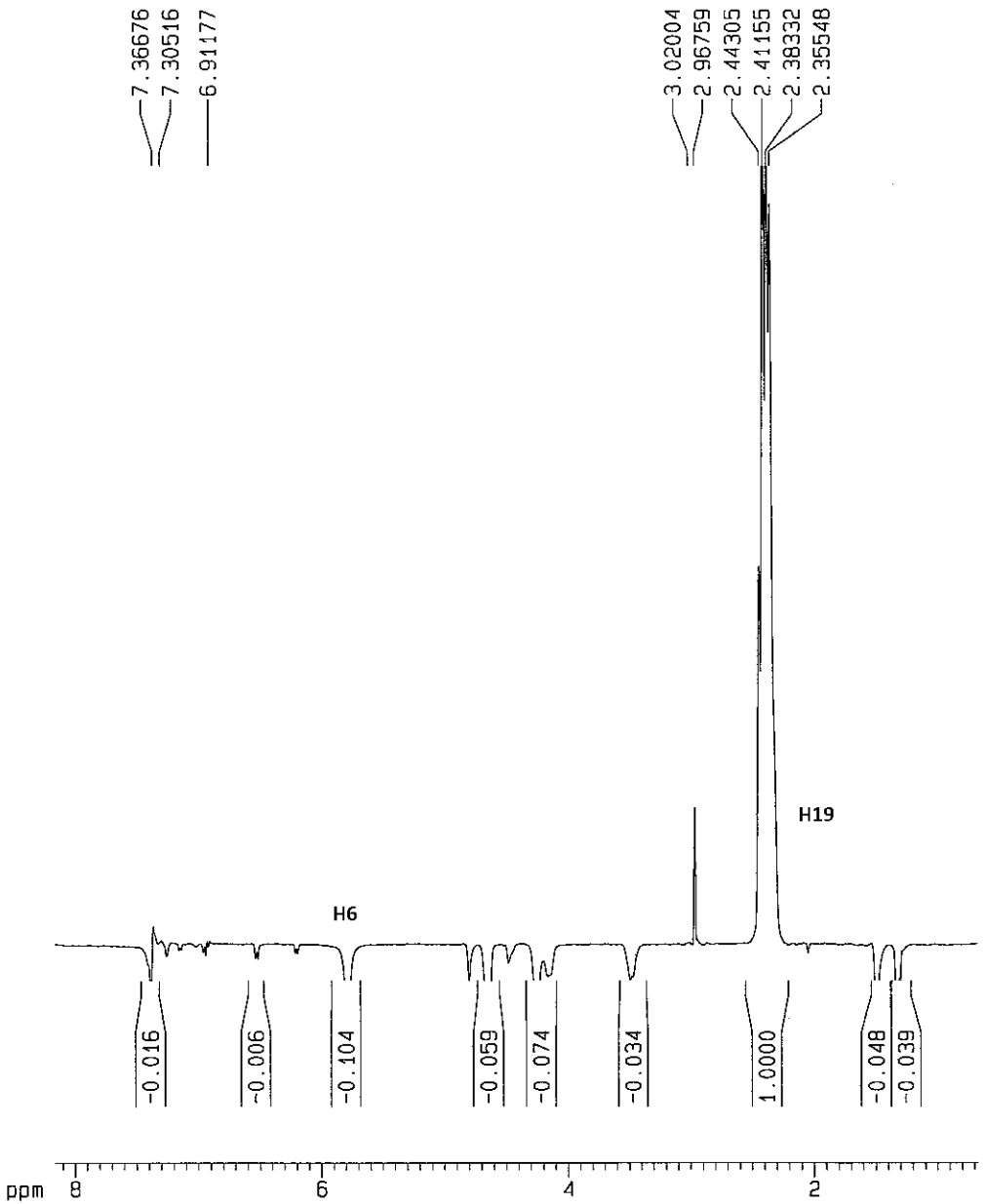
SI	1024
MC2	TPPI
SF	100.6127290 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	20.00 cm
CX1	15.00 cm
F2PLO	7.731 ppm
F2LO	3093.22 Hz
F2PHI	0.726 ppm
F2HI	290.25 Hz
F1PLO	137.121 ppm
F1LO	13796.14 Hz
F1PHI	1.789 ppm
F1HI	179.97 Hz
F2PPMCM	0.35025 ppm/cm
F2HZCM	140.14567 Hz/cm
F1PPMCM	9.02216 ppm/cm
F1HZCM	907.74432 Hz/cm



NOESY 30a




```
Current Data Parameters
NAME          PL-Aug03-09
EXPNO                   4
PROCNO                  6

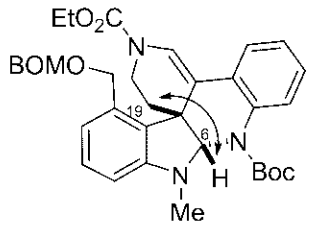
F2 - Acquisition Parameters
Date_            20090803
Time                2.55
INSTRUM            spect
PROBHD    5 mm BBI 1H-B
PULPROG        noesygptp
TD                   2048
SOLVENT             CDCl3
NS                      8
DS                      8
SWH              2997.602 Hz
FIDRES           1.463673 Hz
AQ               0.3416564 sec
RG                   71.8
DW                166.800 usec
DE                  6.00 usec
TE                 300.0 K
d0               0.00000300 sec
D1               4.00000000 sec
D8               0.80000001 sec
D16              0.00020000 sec
d20              0.39880002 sec
INO              0.00012496 sec

============ CHANNEL f1 =============
NUC1                   1H
P1                  7.39 usec
P2                 14.78 usec
PL1                 0.00 dB
SFO1         400.1317774 MHz

============ GRADIENT CHANNEL ========
GPNAM1           sine.100
GPNAM2           sine.100
GPX1                0.00 %
GPX2                0.00 %
GPY1                0.00 %
GPY2                0.00 %
GPZ1               40.00 %
GPZ2              -40.00 %
P16              1000.00 usec

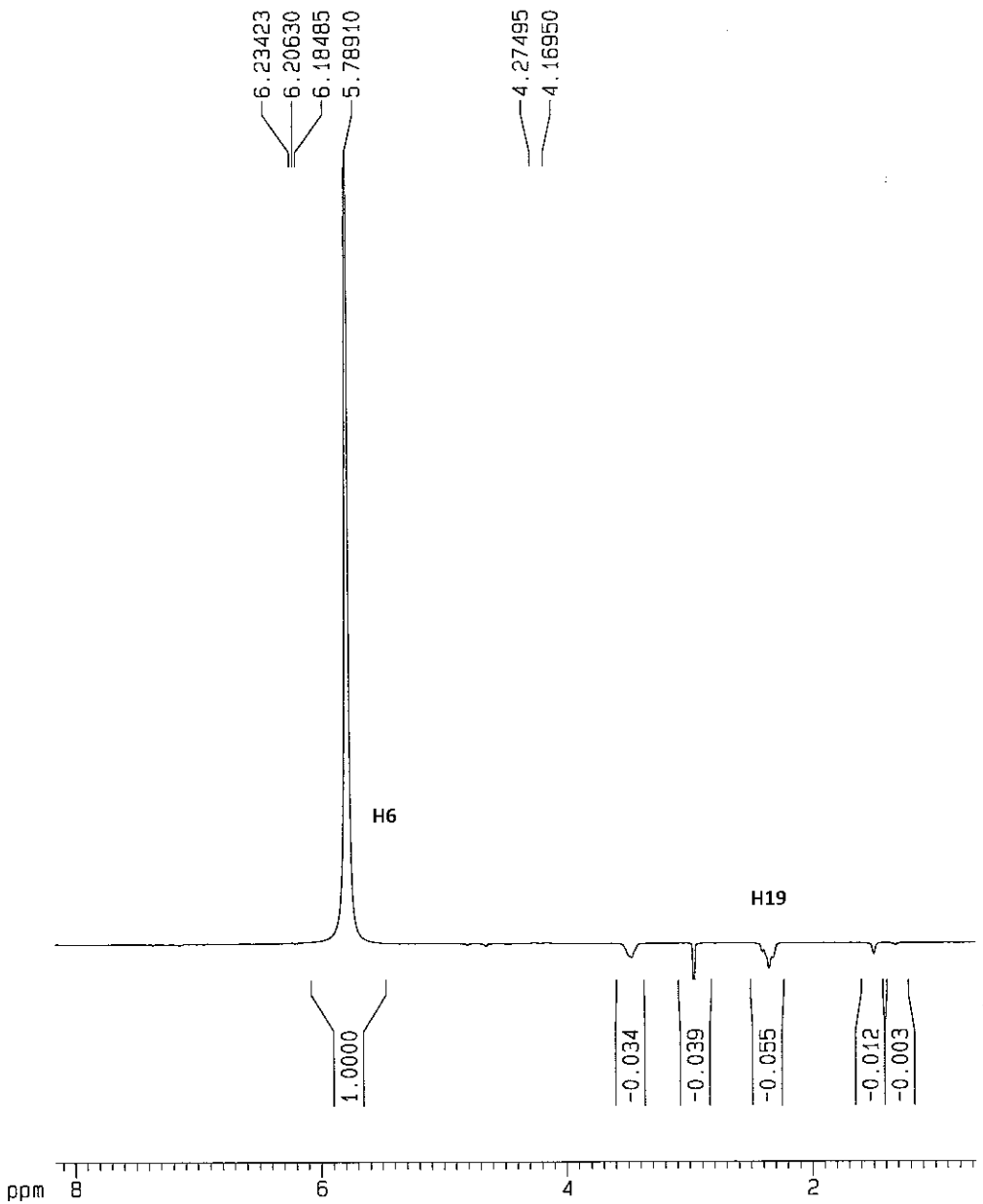
F2 - Processing parameters
SI                   2048
SF           400.1300092 MHz
WDW                QSINE
SSB                     2
LB                  0.00 Hz
GB                      0
PC                   1.00

1D NMR plot parameters
CX                 20.00 cm
F1P                11.000 ppm
F1                4401.43 Hz
F2P                -1.000 ppm
F2                -400.13 Hz
PPMCM              0.60000 ppm/cm
HZCM             240.07800 Hz/cm
```



NOESY

30a




```
Current Data Parameters
NAME         PL-Aug03-09
EXPNO                  4
PROCNO                 2

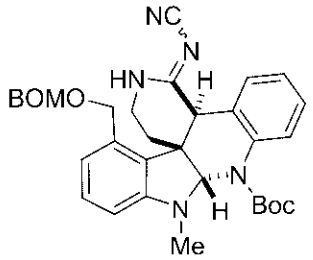
F2 - Acquisition Parameters
Date_           20090803
Time                2.55
INSTRUM            spect
PROBHD     5 mm BBI 1H-B
PULPROG       noesygptp
TD                  2048
SOLVENT           CDCl3
NS                    8
DS                    8
SWH           2997.602 Hz
FIDRES        1.463673 Hz
AQ            0.3416564 sec
RG                 71.8
DW              166.800 usec
DE                6.00 usec
TE               300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
D8            0.80000001 sec
D16           0.00020000 sec
d20           0.39880002 sec
IN0           0.00012496 sec

============ CHANNEL f1 =============
NUC1                  1H
P1                 7.39 usec
P2                14.78 usec
PL1                0.00 dB
SFO1        400.1317774 MHz

============ GRADIENT CHANNEL ========
GPNAM1         sine.100
GPNAM2         sine.100
GPX1               0.00 %
GPX2               0.00 %
GPY1               0.00 %
GPY2               0.00 %
GPZ1              40.00 %
GPZ2             -40.00 %
P16             1000.00 usec

F2 - Processing parameters
SI                 2048
SF          400.1300092 MHz
WDW               QSINE
SSB                   2
LB                 0.00 Hz
GB                    0
PC                 1.00

1D NMR plot parameters
CX                20.00 cm
F1P               11.000 ppm
F1              4401.43 Hz
F2P               -1.000 ppm
F2              -400.13 Hz
PPMCM             0.60000 ppm/cm
HZCM            240.07800 Hz/cm
```



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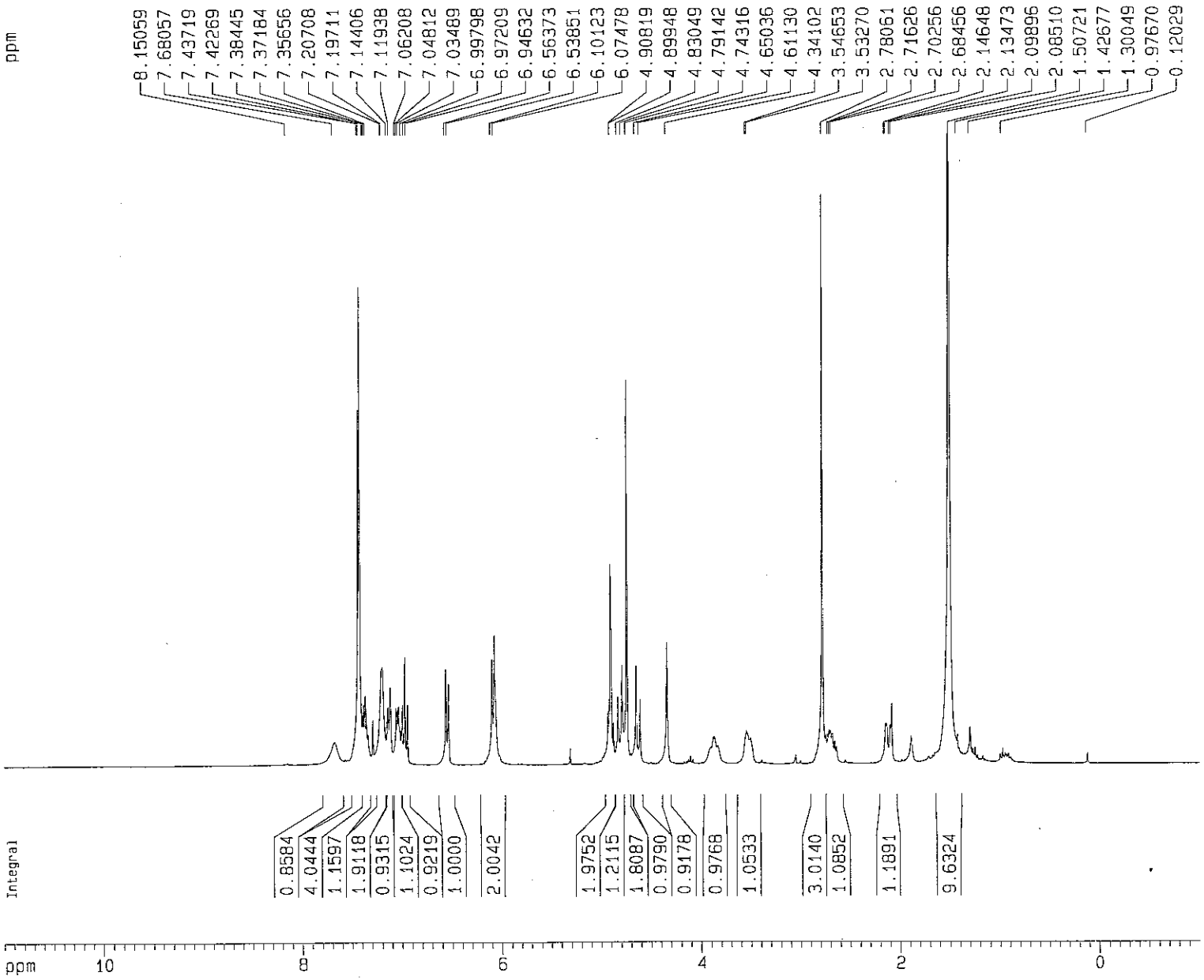


Current Data Parameters

NAME	PL-Jul23-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20090723
Time	12.56
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	114
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

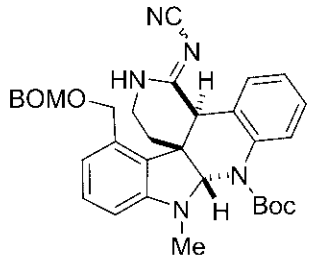
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

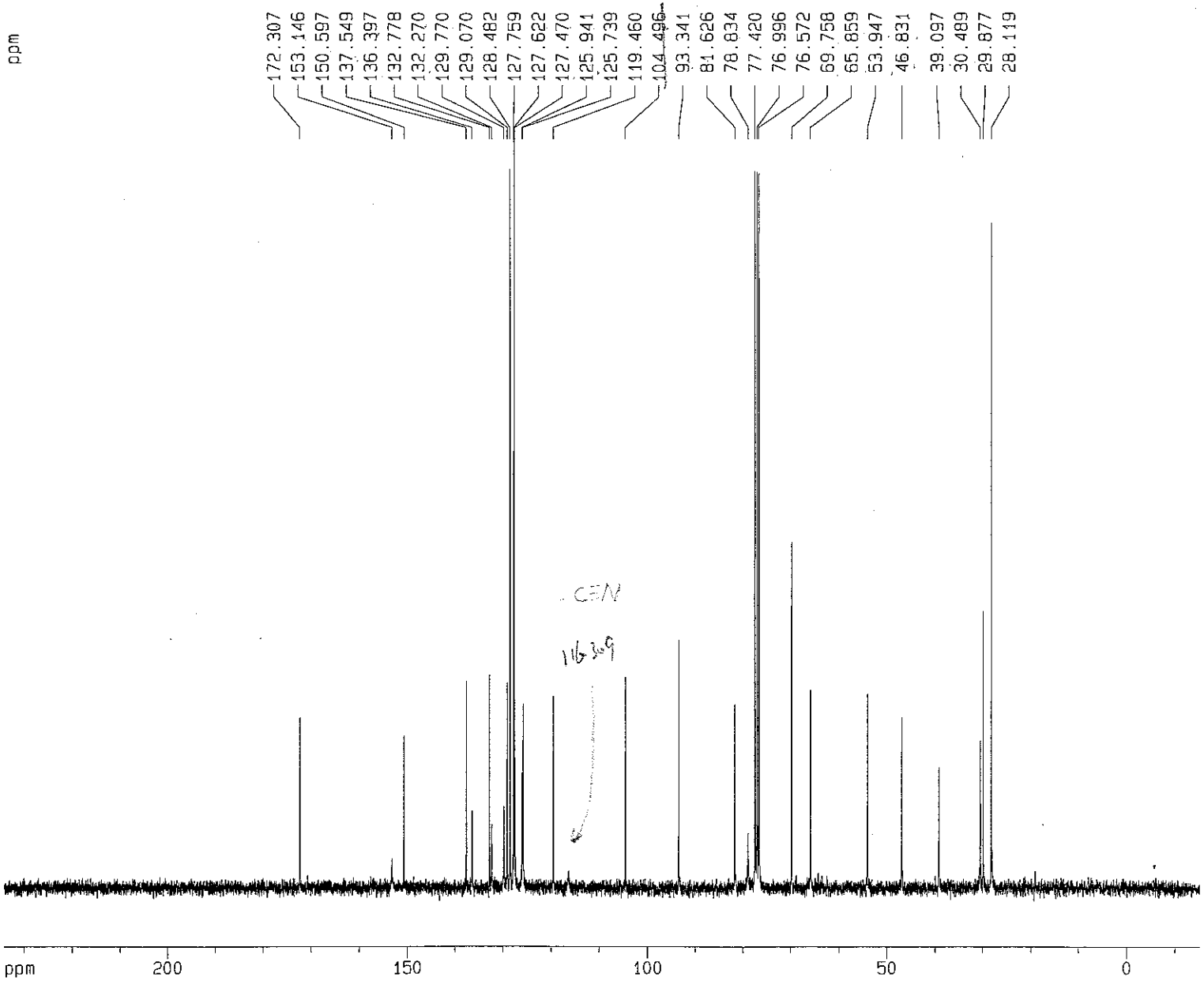
SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



47




```
Current Data Parameters
NAME          PL-Jul23-09
EXPNO                   2
PROCNO                  1

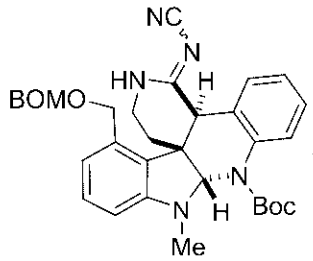
F2 - Acquisition Parameters
Date_           20090723
Time               13.42
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  759
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                 4096
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                5.40 usec
PL1              -6.00 dB
SFO1         75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2              0.00 dB
PL12            20.00 dB
PL13            20.00 dB
SFO2        299.8711995 MHz

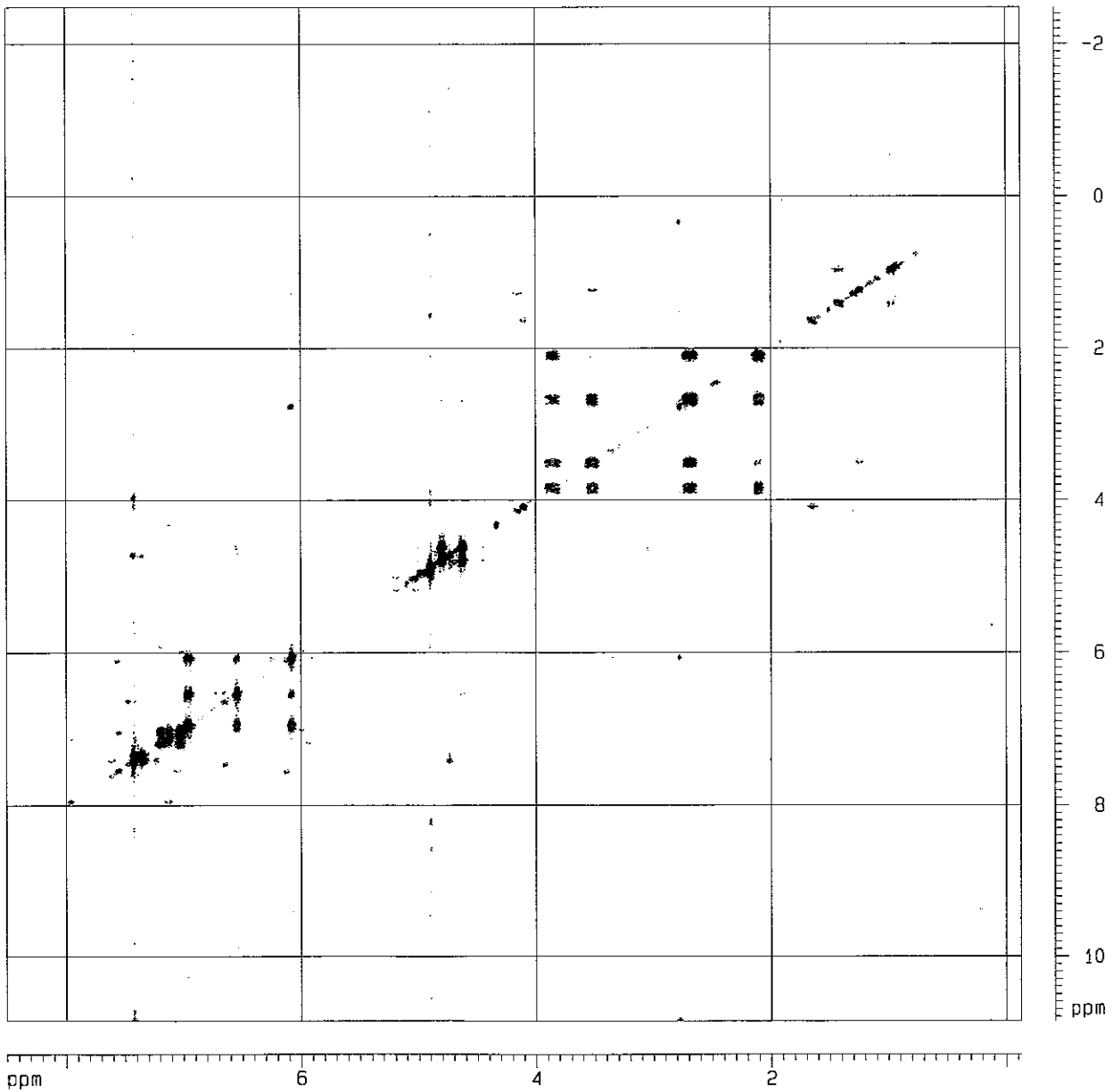
F2 - Processing parameters
SI                 32768
SF           75.4023826 MHz
WDW                   EM
SSB                   0
LB                 1.00 Hz
GB                    0
PC                 1.40

1D NMR plot parameters
CX                20.00 cm
F1P              234.099 ppm
F1             17651.62 Hz
F2P              -15.190 ppm
F2             -1145.37 Hz
PPMCM          12.46445 ppm/cm
HZCM          939.84949 Hz/cm
```



47

COSY



Current Data Parameters

NAME	PL-Aug01-09
EXPNO	8
PROCNO	1

F2 - Acquisition Parameters

Date_	20090802
Time	1.04
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	4
DS	8
SWH	3453.039 Hz
FIDRES	1.686054 Hz
AQ	0.2966004 sec
RG	3649.1
DW	144.800 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
INO	0.00009360 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.50 usec
P2	15.00 usec
PL1	0.00 dB
SFO1	400.1316785 MHz

========== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	650
SFO1	400.1317 MHz
FIDRES	8.218277 Hz
SW	13.350 ppm

F2 - Processing parameters

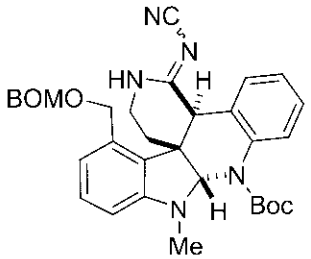
SI	2048
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.505 ppm
F2LO	3403.06 Hz
F2PHI	-0.125 ppm
F2HI	-49.97 Hz
F1PLO	10.865 ppm
F1LO	4347.48 Hz
F1PHI	-2.485 ppm
F1HI	-994.40 Hz
F2PPMCM	0.57532 ppm/cm
F2HZCM	230.20259 Hz/cm
F1PPMCM	0.69002 ppm/cm
F1HZCM	356.12537 Hz/cm



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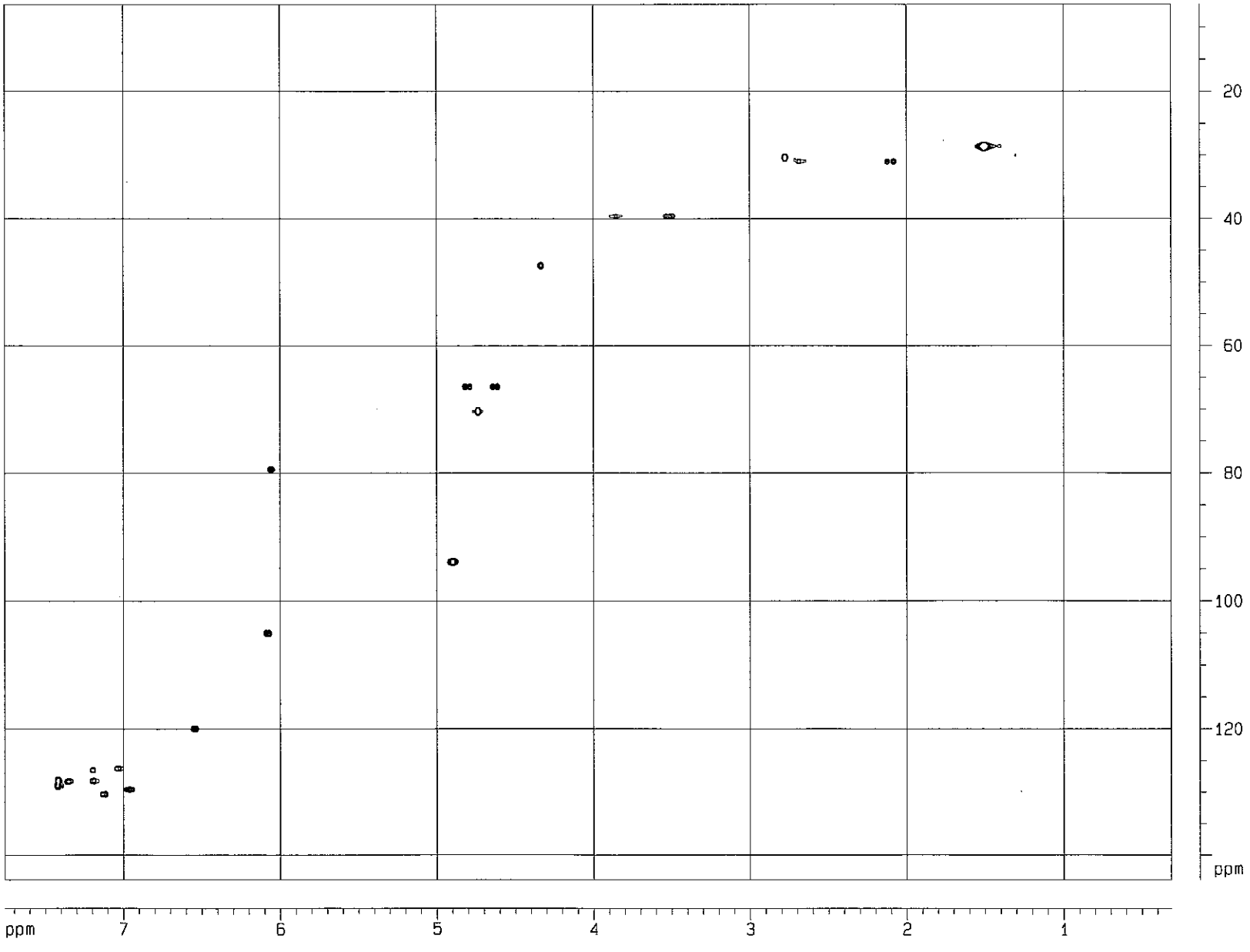
HMQC




```
Current Data Parameters
NAME          PL-Arg01-09
EXPNO                  6
PROCNO                 1

F2 - Acquisition Parameters
Date_          20050801
Time              22.14
INSTRUM           spect
PROBHD    5 mm BBI 1H-B
PULPROG       inv4gptp
TD                2048
SOLVENT           CDCl3
NS                   4
DS                  80
SWH           3453.039 Hz
FIDRES        1.686054 Hz
AQ            0.2965004 sec
RG               3649.1
DW              144.800 usec
DE                6.00 usec
TE              300.0 K
CNST2         145.0000000
d0            0.00000300 sec
D1            1.99631298 sec
d2            0.00344828 sec
d4            0.00172414 sec
d11           0.03000000 sec
d13           0.00000300 sec
D16           0.00020000 sec
d20           0.00052414 sec
d21           0.00224428 sec
IN0           0.00001490 sec

========== CHANNEL f1 ==========
NUC1               1H
P1                7.50 usec
P2               15.00 usec
PL1               0.00 dB
SFO1        400.1316765 MHz

========== CHANNEL f2 ==========
CPDPRG2          garp
NUC2              13C
P3               17.00 usec
P4               34.00 usec
PCPD2            64.00 usec
PL2              -6.00 dB
PL12              6.30 dB
SFO2        100.6202332 MHz

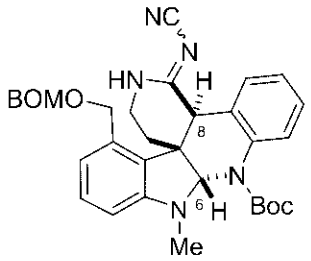
========== GRADIENT CHANNEL =======
GPNAM1          SINE.100
GPNAM2          SINE.100
GPNAM3          SINE.100
GPX1             17.00 %
GPX2             20.00 %
GPX3             25.00 %
GPY1             17.00 %
GPY2             20.00 %
GPY3             25.00 %
GPZ1             17.00 %
GPZ2             20.00 %
GPZ3             25.00 %
P16            1000.00 usec

F1 - Acquisition parameters
NO0                  4
TD                 256
SFO1        100.6202 MHz
FIDRES      65.541107 Hz
SW            166.751 ppm

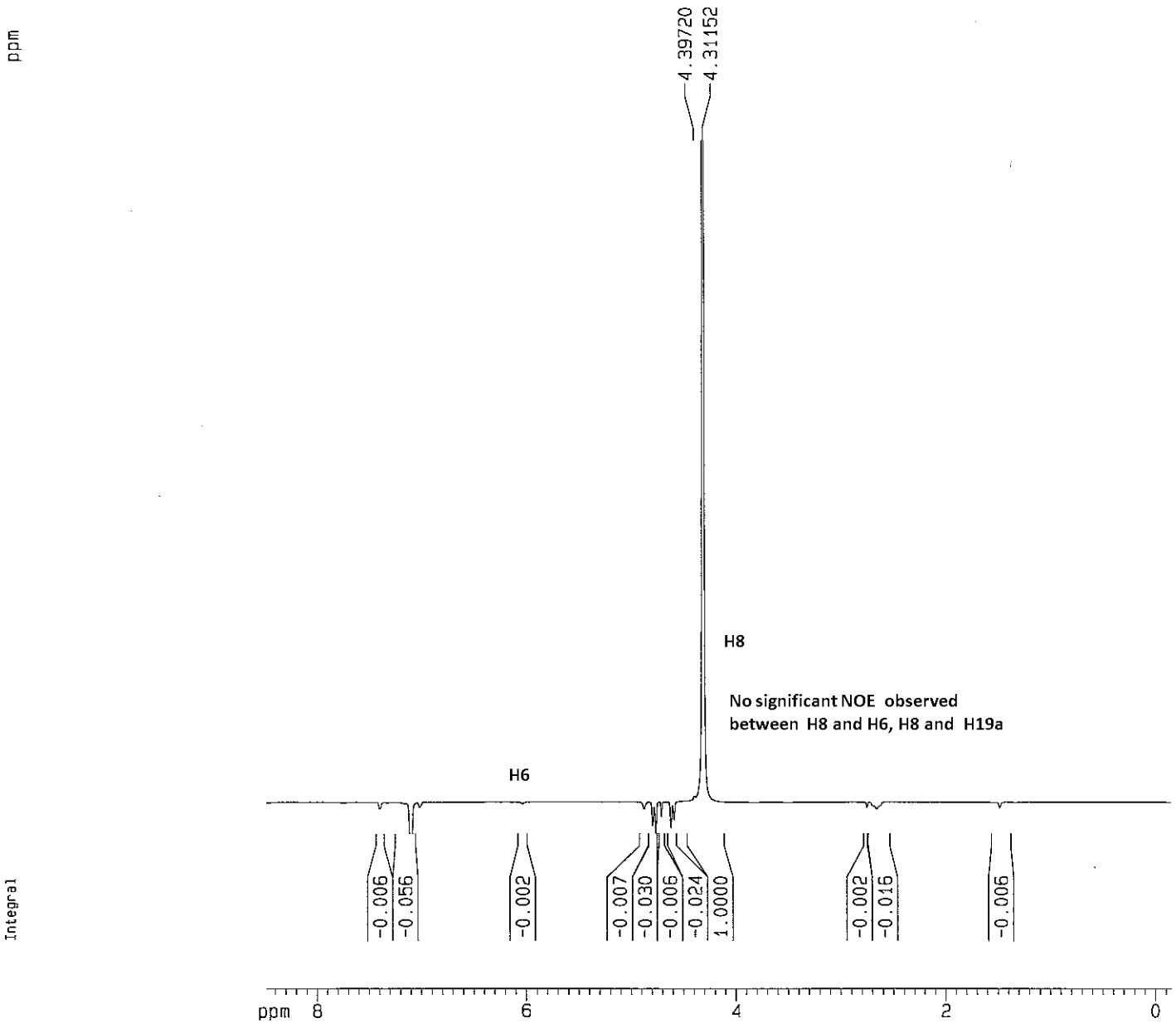
F2 - Processing parameters
SI                2048
SF          400.1300000 MHz
WDW               QSINE
SSB                  2
LB                0.00 Hz
GB                   0
PC                1.00

F1 - Processing parameters
SI                1024
MC2               TPPI
SF          100.6127290 MHz
WDW               QSINE
SSB                  2
LB                0.00 Hz
GB                   0

2D NMR plot parameters
CX2              20.00 cm
CX1              15.00 cm
F2PLO             7.759 ppm
F2LO           3104.63 Hz
F2PHI             0.315 ppm
F2HI            125.37 Hz
F1PLO           143.961 ppm
F1LO          14464.32 Hz
F1PHI             6.349 ppm
F1HI            638.76 Hz
F2PPMCM       0.37229 ppm/cm
F2HZCM        149.98288 Hz/cm
F1PPMCM       8.17415 ppm/cm
F1HZCM        821.03729 Hz/cm
```



NOESY 47




```
Current Data Parameters
NAME         PL-Aug01-09
EXPNO                  9
PROCNO                 2

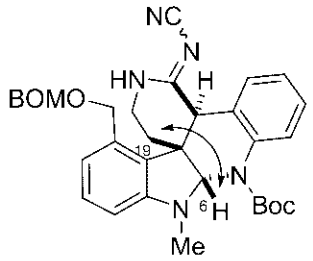
F2 - Acquisition Parameters
Date_           20090802
Time                4.13
INSTRUM            spect
PROBHD     5 mm BBI 1H-B
PULPROG       noesygptp
TD                  2048
SOLVENT             CDCl3
NS                     8
DS                     8
SWH              3453.039 Hz
FIDRES           1.686054 Hz
AQ               0.2966004 sec
RG                    64
DW                144.800 usec
DE                  6.00 usec
TE                300.0 K
d0             0.00000300 sec
D1             4.00000000 sec
DB             0.60000001 sec
D16            0.00020000 sec
d20            0.39880002 sec
IN0            0.00012496 sec

============ CHANNEL f1 =============
NUC1                   1H
P1                  7.50 usec
P2                 15.00 usec
PL1                 0.00 dB
SFO1         400.1316765 MHz

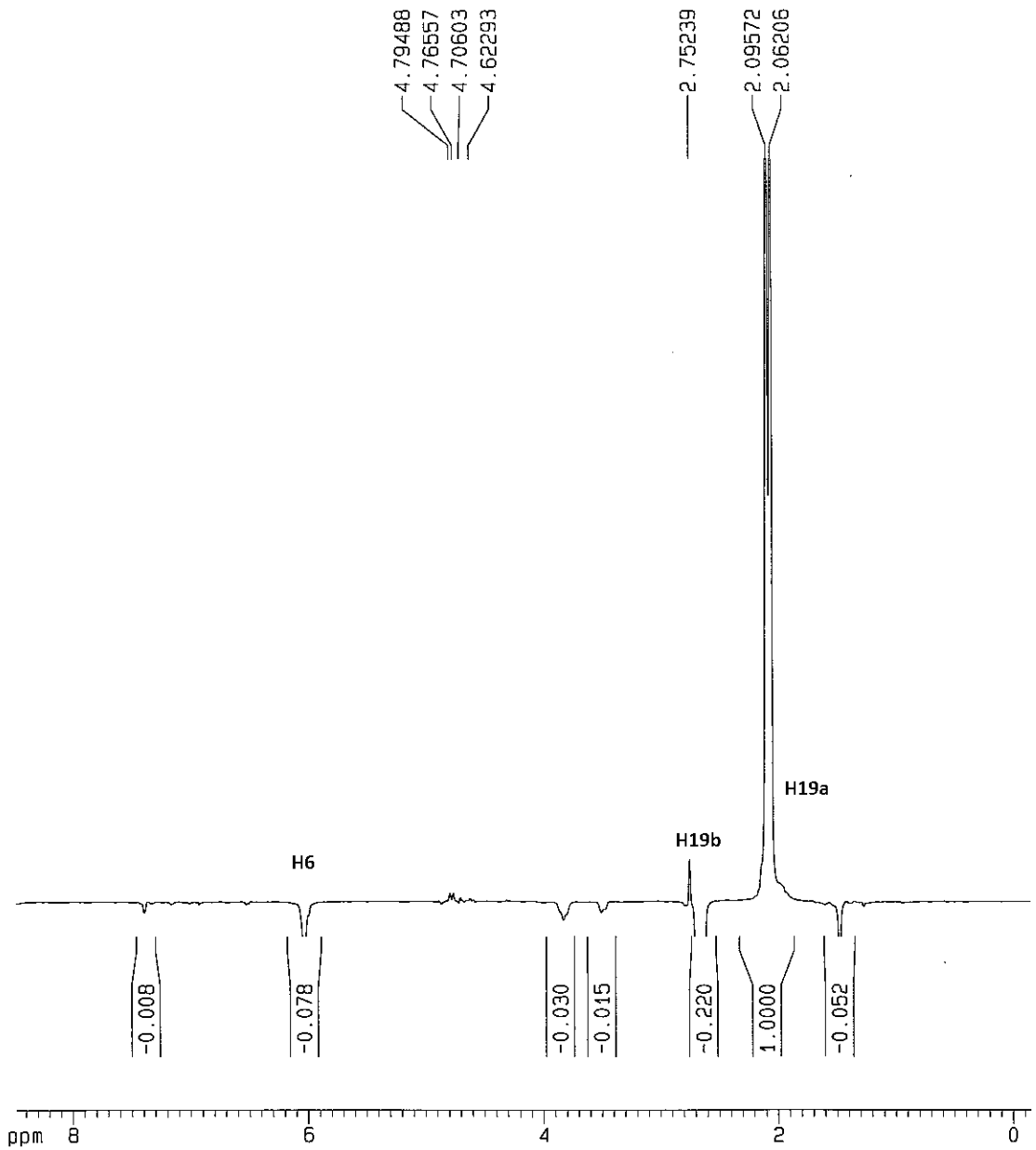
============ GRADIENT CHANNEL ========
GPNAM1           sine.100
GPNAM2           sine.100
GPX1                0.00 %
GPX2                0.00 %
GPY1                0.00 %
GPY2                0.00 %
GPZ1               40.00 %
GPZ2              -40.00 %
P16             1000.00 usec

F2 - Processing parameters
SI                   2048
SF           400.1300092 MHz
WDW                  QSINE
SSB                     2
LB                  0.00 Hz
GB                      0
PC                   1.00

1D NMR plot parameters
CX                 20.00 cm
F1P                11.000 ppm
F1               4401.43 Hz
F2P                -1.000 ppm
F2               -400.13 Hz
PPMCM              0.60000 ppm/cm
HZCM             240.07800 Hz/cm
```



NOESY 47




```
Current Data Parameters
NAME         PL-Aug01-09
EXPNO                  9
PROCNO                 5

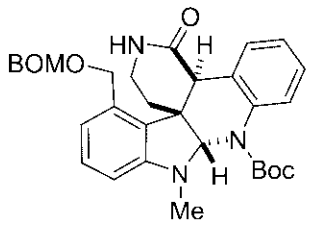
F2 - Acquisition Parameters
Date_           20090802
Time                4.13
INSTRUM            spect
PROBHD    5 mm BBI 1H-B
PULPROG        noesygptp
TD                  2048
SOLVENT            CDCl3
NS                     8
DS                     8
SWH           3453.039 Hz
FIDRES        1.686054 Hz
AQ            0.2966004 sec
RG                    64
DW              144.800 usec
DE                6.00 usec
TE                300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
D8            0.80000001 sec
D16           0.00020000 sec
d20           0.39880002 sec
IN0           0.00012496 sec

============ CHANNEL f1 =============
NUC1                  1H
P1                 7.50 usec
P2                15.00 usec
PL1                0.00 dB
SFO1        400.1316765 MHz

============ GRADIENT CHANNEL ========
GPNAM1          sine.100
GPNAM2          sine.100
GPX1                0.00 %
GPX2                0.00 %
GPY1                0.00 %
GPY2                0.00 %
GPZ1               40.00 %
GPZ2              -40.00 %
P16             1000.00 usec

F2 - Processing parameters
SI                  2048
SF          400.1300092 MHz
WDW                QSINE
SSB                    2
LB                  0.00 Hz
GB                     0
PC                  1.00

1D NMR plot parameters
CX                 20.00 cm
F1P               11.000 ppm
F1              4401.43 Hz
F2P               -1.000 ppm
F2              -400.13 Hz
PPMCM           0.60000 ppm/cm
HZCM          240.07800 Hz/cm
```



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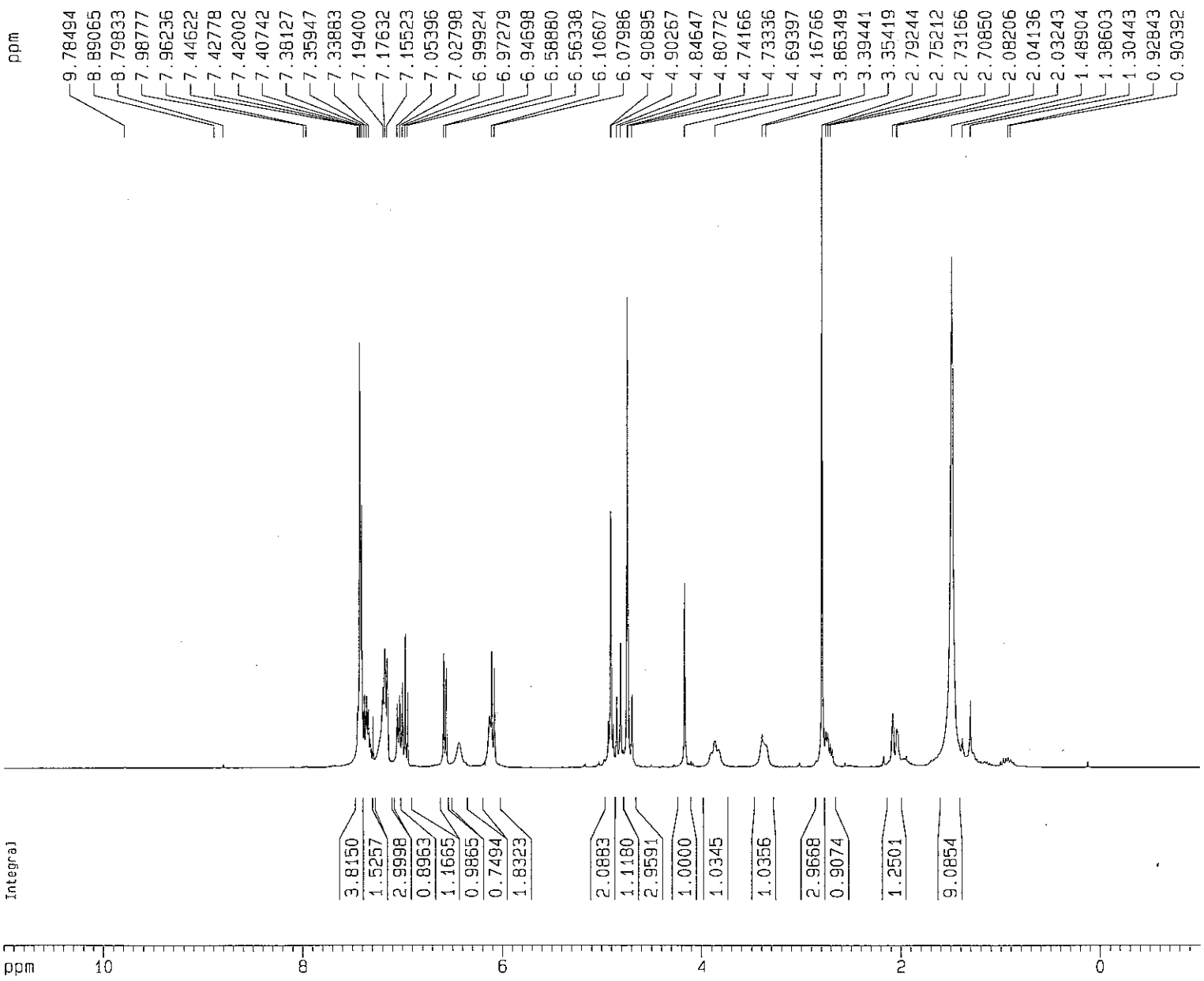


Current Data Parameters

NAME	PL-Jul30-09
EXPNO	6
PROCNO	1

F2 - Acquisition Parameters

Date_	20090730
Time	20.34
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	90.5
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

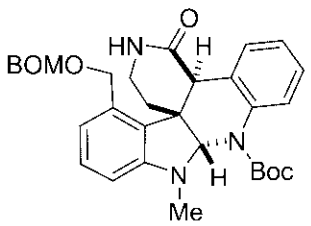
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

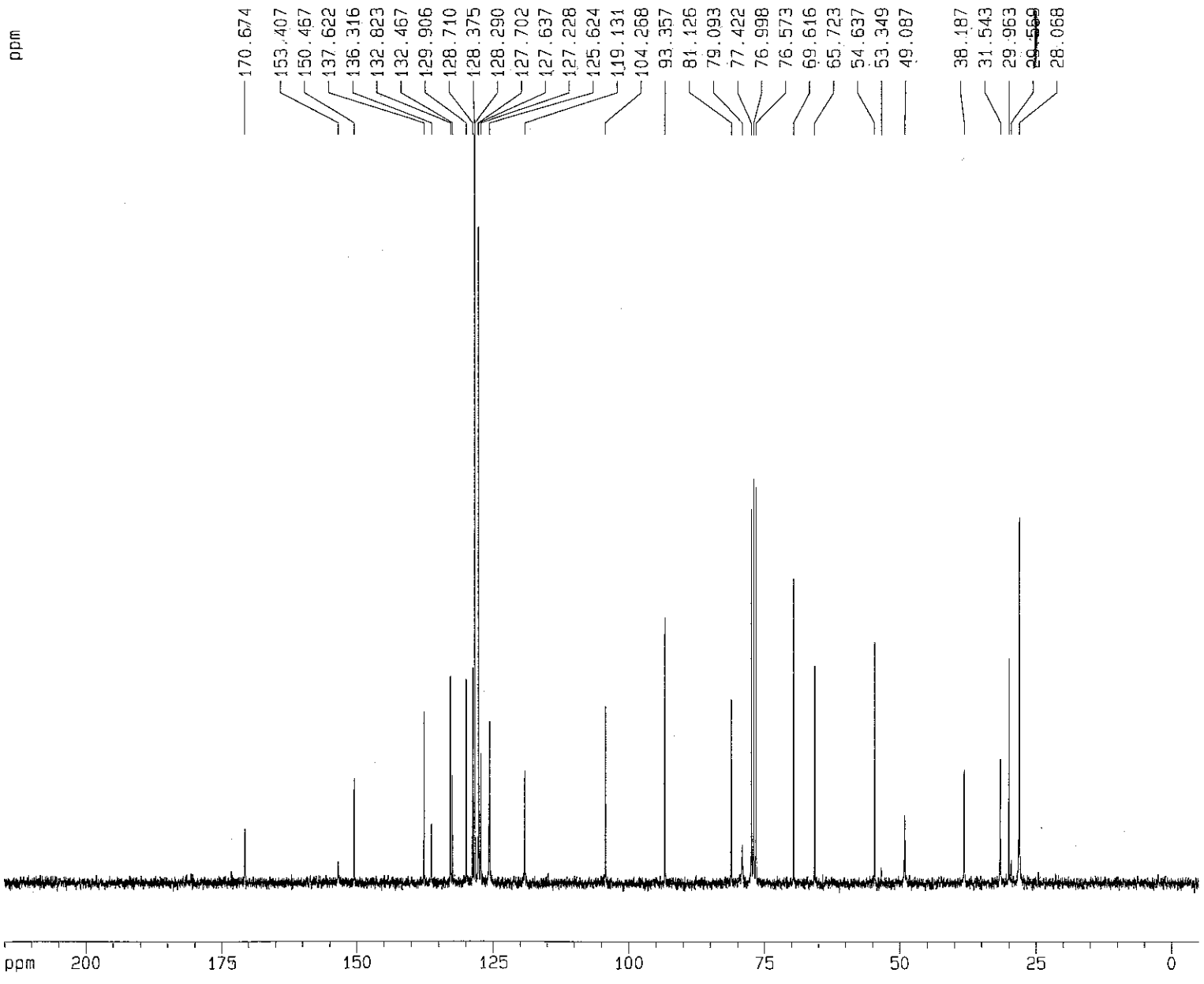
SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



48




```
Current Data Parameters
NAME          PL-Jul24-09
EXPNO                   1
PROCNO                  1

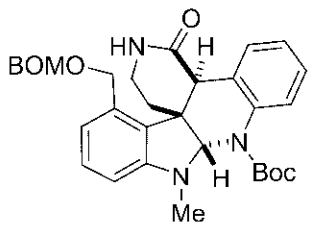
F2 - Acquisition Parameters
Date_           20090724
Time               13.47
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  401
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                812.7
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                5.40 usec
PL1              -6.00 dB
SFO1         75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2               0.00 dB
PL12             20.00 dB
PL13             20.00 dB
SFO2        299.8711995 MHz

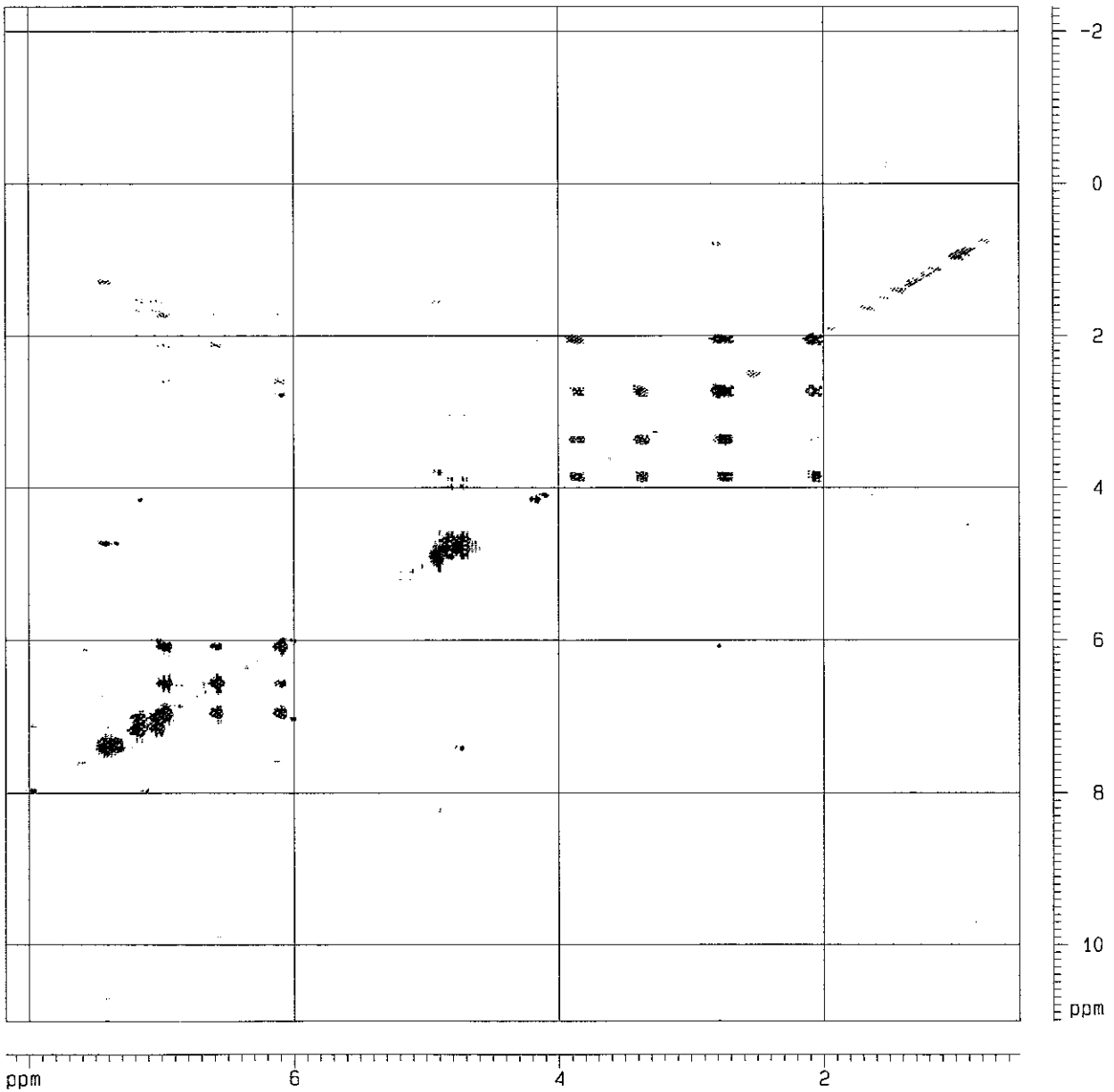
F2 - Processing parameters
SI                32768
SF           75.4023849 MHz
WDW                  EM
SSB                   0
LB                 1.00 Hz
GB                    0
PC                 1.40

1D NMR plot parameters
CX               20.00 cm
F1P             215.000 ppm
F1             16211.51 Hz
F2P              -5.000 ppm
F2             -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM          829.42621 Hz/cm
```



48

cosy



Current Data Parameters

NAME	PL-Aug02-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20090802
Time	12.49
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	4
DS	8
SWH	3063.726 Hz
FIDRES	1.495960 Hz
AQ	0.3342836 sec
RG	4597.6
DW	163.200 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00009360 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.39 usec
P2	14.78 usec
PL1	0.00 dB
SFO1	400.1317398 MHz

========== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

ND0	2
TD	650
SFO1	400.1317 MHz
FIDRES	8.218277 Hz
SW	13.350 ppm

F2 - Processing parameters

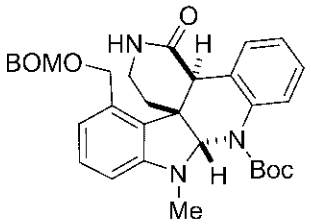
SI	2048
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.176 ppm
F2LO	3271.63 Hz
F2PHI	0.520 ppm
F2HI	207.90 Hz
F1PLO	11.023 ppm
F1LO	4410.71 Hz
F1PHI	-2.327 ppm
F1HI	-931.16 Hz
F2PPMCM	0.51046 ppm/cm
F2HZCM	204.24837 Hz/cm
F1PPMCM	0.89002 ppm/cm
F1HZCM	356.12537 Hz/cm



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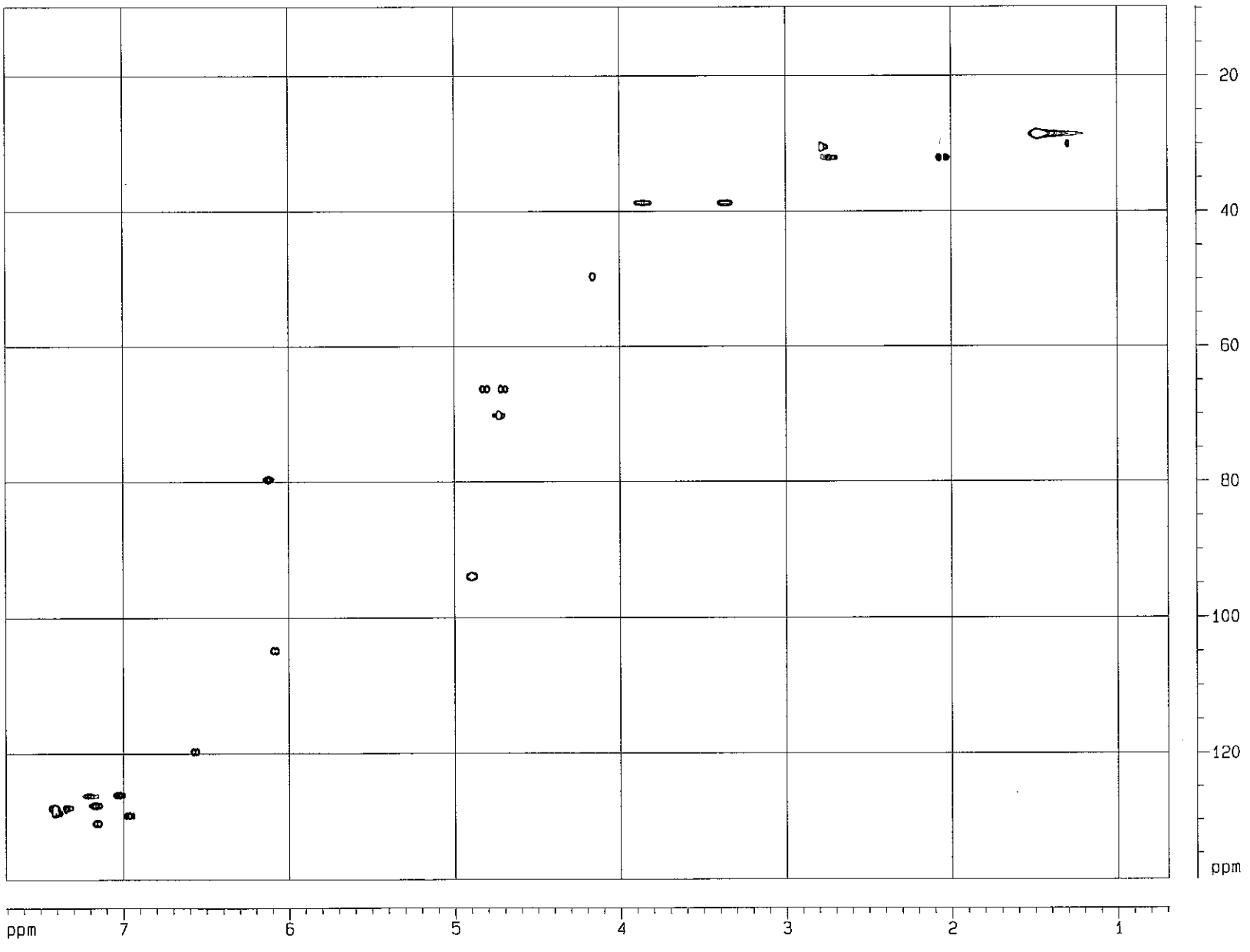
HMQC




```
Current Data Parameters
NAME            PL-Aug02-09
EXPNO                     2
PROCNO                    1

F2 - Acquisition Parameters
Date_          20090802
Time               12.08
INSTRUM             spect
PROBHD   5 mm BBI 1H-B
PULPROG          inv4gptp
TD                 2048
SOLVENT             CDCl3
NS                     4
DS                    60
SWH              3063.726 Hz
FIDRES           1.496960 Hz
AQ               0.3342835 sec
RG                 7298.2
DW                 163.200 usec
DE                   6.00 usec
TE                 300.0 K
CNST2           145.0000000
d0               0.00000300 sec
D1               1.99631298 sec
d2               0.00344828 sec
d4               0.00172414 sec
d11              0.03000000 sec
d13              0.00000300 sec
D16              0.00020000 sec
d20              0.00052414 sec
d21              0.00224426 sec
IN0              0.00001490 sec

========== CHANNEL f1 ==========
NUC1                   1H
P1                   7.39 usec
p2                  14.78 usec
PL1                  0.00 dB
SFO1           400.1317998 MHz

========== CHANNEL f2 ==========
CPDPRG2             garp
NUC2                  13C
P3                 17.00 usec
p4                 34.00 usec
PCPD2              64.00 usec
PL2                -6.00 dB
PL12                6.30 dB
SFO2           100.6202332 MHz

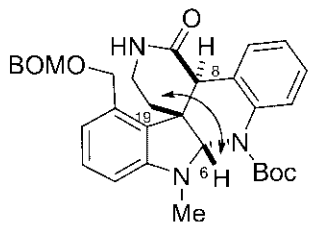
========== GRADIENT CHANNEL ========
GPNAM1          SINE.100
GPNAM2          SINE.100
GPNAM3          SINE.100
GPX1               17.00 %
GPX2               20.00 %
GPX3               25.00 %
GPY1               17.00 %
GPY2               20.00 %
GPY3               25.00 %
GPZ1               17.00 %
GPZ2               20.00 %
GPZ3               25.00 %
P16              1000.00 usec

F1 - Acquisition parameters
ND0                    4
TD                   256
SFO1           100.6202 MHz
FIDRES         65.541907 Hz
SW                166.751 ppm

F2 - Processing parameters
SI                  2048
SF           400.1300000 MHz
WDW                 QSINE
SSB                    2
LB                  0.00 Hz
GB                     0
PC                  1.00

F1 - Processing parameters
SI                  1024
MC2                 TPPI
SF           100.6127290 MHz
WDW                 QSINE
SSB                    2
LB                  0.00 Hz
GB                     0

2D NMR plot parameters
CX2                20.00 cm
CX1                16.00 cm
F2PLO              7.769 ppm
F2LO            3084.63 Hz
F2PHI              0.695 ppm
F2HI             278.21 Hz
F1PLO            138.913 ppm
F1LO            13976.37 Hz
F1PHI              9.769 ppm
F1HI             982.85 Hz
F2PPMCM         0.35955 ppm/cm
F2HZCM          140.32101 Hz/cm
F1PPMCM         8.60950 ppm/cm
F1HZCM          866.23505 Hz/cm
```



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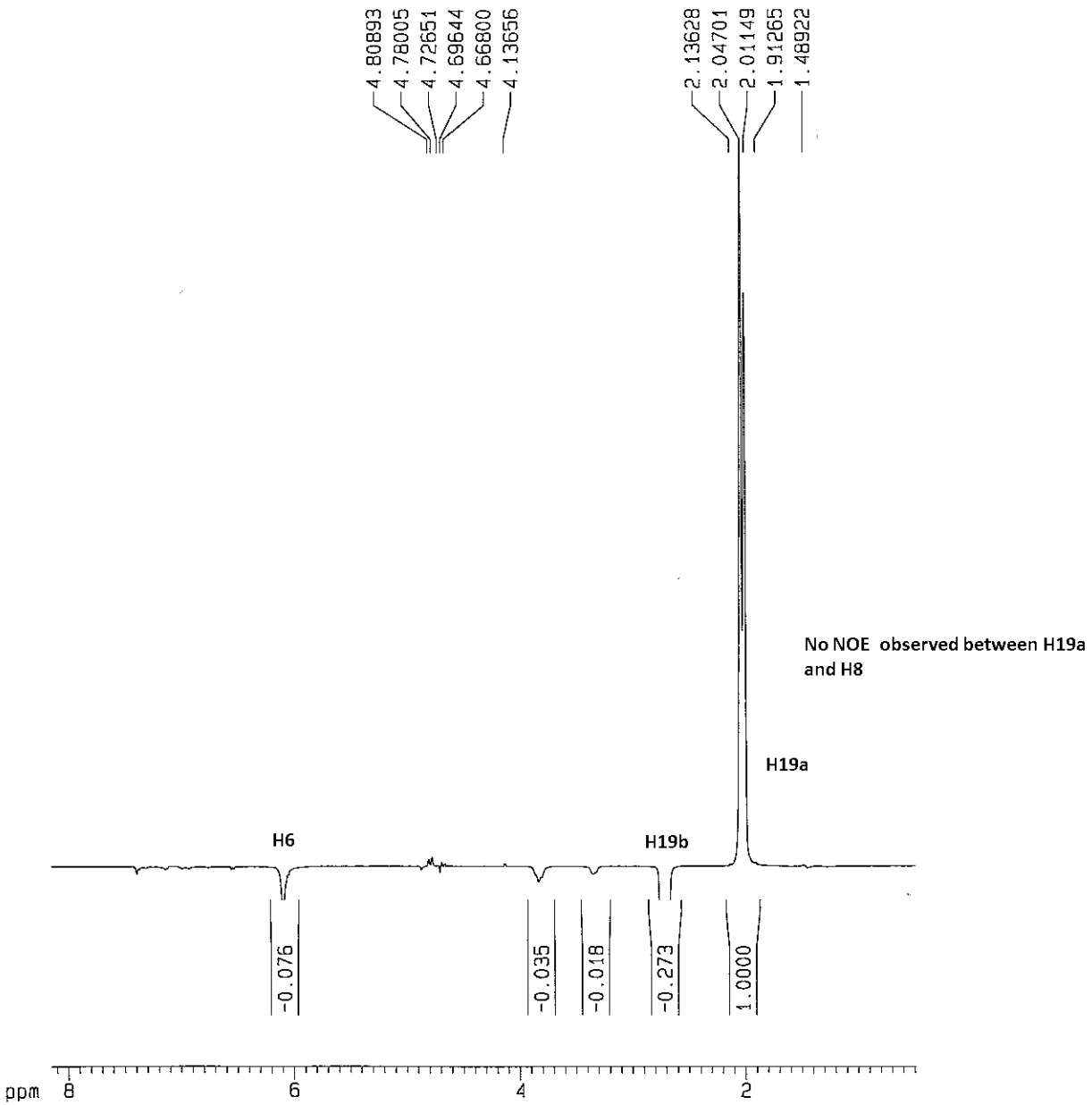


Current Data Parameters
NAME PL-Aug02-09
EXPNO 4
PROCNO 6

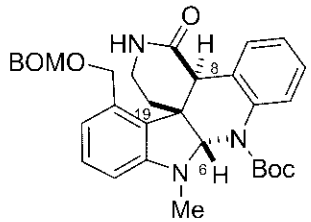
F2 - Acquisition Parameters
Date_ 20090802
Time 16.00
INSTRUM spect
PROBHD 5 mm BBI 1H-B
PULPROG noesygptp
TD 2048
SOLVENT CDCl3
NS 8
DS 8
SWH 3063.726 Hz
FIDRES 1.495960 Hz
AQ 0.3342836 sec
RG 71.8
DW 163.200 usec
DE 6.00 usec
TE 300.0 K
d0 0.00000300 sec
D1 4.00000000 sec
D8 0.60000001 sec
D16 0.00020000 sec
d20 0.39880002 sec
IN0 0.00012496 sec

========== CHANNEL f1 ==========
NUC1 1H
P1 7.39 usec
P2 14.78 usec
PL1 0.00 dB
SFO1 400.1317398 MHz

========== GRADIENT CHANNEL ========
GPNAM1 sine.100
GPNAM2 sine.100
GPX1 0.00 %
GPX2 0.00 %
GPY1 0.00 %
GPY2 0.00 %
GPZ1 40.00 %
GPZ2 -40.00 %
P16 1000.00 usec

F2 - Processing parameters
SI 2048
SF 400.1300092 MHz
WDW GSINE
SSB 2
LB 0.00 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 11.000 ppm
F1 4401.43 Hz
F2P -1.000 ppm
F2 -400.13 Hz
PPMCM 0.60000 ppm/cm
HZCM 240.07800 Hz/cm



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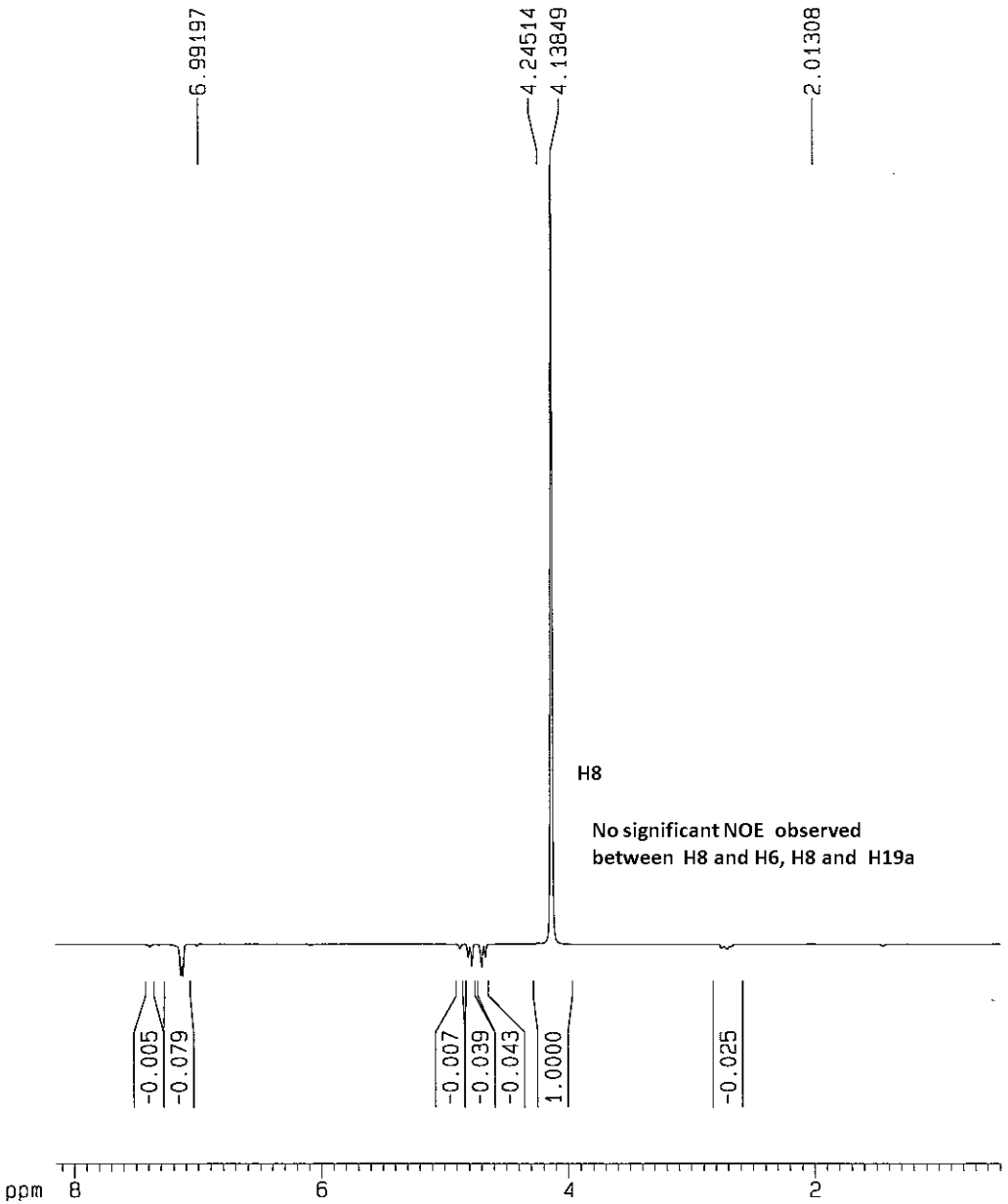



```
Current Data Parameters
NAME        PL-Aug02-09
EXPNO                 4
PROCNO                2

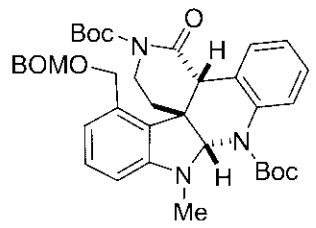
F2 - Acquisition Parameters
Date_          20090802
Time              16.00
INSTRUM           spect
PROBHD    5 mm BBI 1H-B
PULPROG       noesygptp
TD                 2048
SOLVENT           CDCl3
NS                    8
DS                    8
SWH            3063.726 Hz
FIDRES         1.495960 Hz
AQ             0.3342836 sec
RG                 71.6
DW               163.200 usec
DE                 6.00 usec
TE                300.0 K
d0             0.00000300 sec
D1             4.00000000 sec
D8             0.80000001 sec
D16            0.00020000 sec
d20            0.39880002 sec
IN0            0.00012496 sec

============ CHANNEL f1 =============
NUC1                  1H
P1                 7.39 usec
P2                14.78 usec
PL1                0.00 dB
SFO1        400.1317398 MHz

============ GRADIENT CHANNEL ========
GPNAM1          sine.100
GPNAM2          sine.100
GPX1               0.00 %
GPX2               0.00 %
GPY1               0.00 %
GPY2               0.00 %
GPZ1              40.00 %
GPZ2             -40.00 %
P16             1000.00 usec

F2 - Processing parameters
SI                 2048
SF          400.1300092 MHz
WDW               QSINE
SSB                   2
LB                 0.00 Hz
GB                    0
PC                 1.00

1D NMR plot parameters
CX                20.00 cm
F1P               11.000 ppm
F1              4401.43 Hz
F2P               -1.000 ppm
F2              -400.13 Hz
PPMCM             0.60000 ppm/cm
HZCM            240.07800 Hz/cm
```



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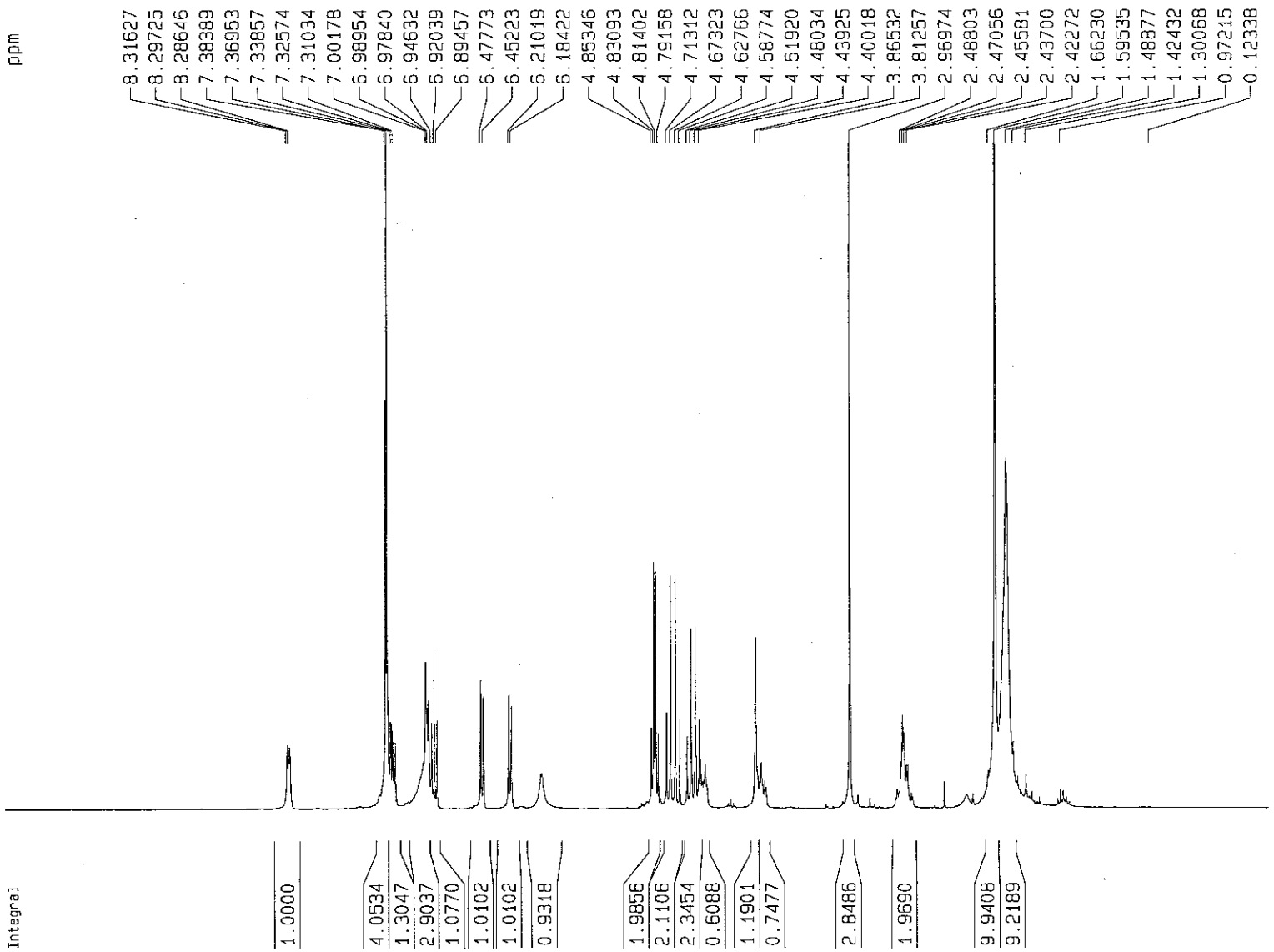
minor



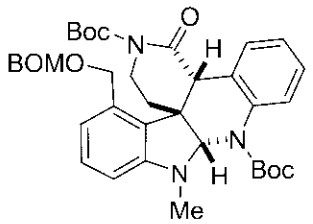
Current Data Parameters
NAME PL-Jul30-09
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090730
Time 15.39
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6172.839 Hz
FIDRES 0.094190 Hz
AQ 5.3084660 sec
RG 64
DW 81.000 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

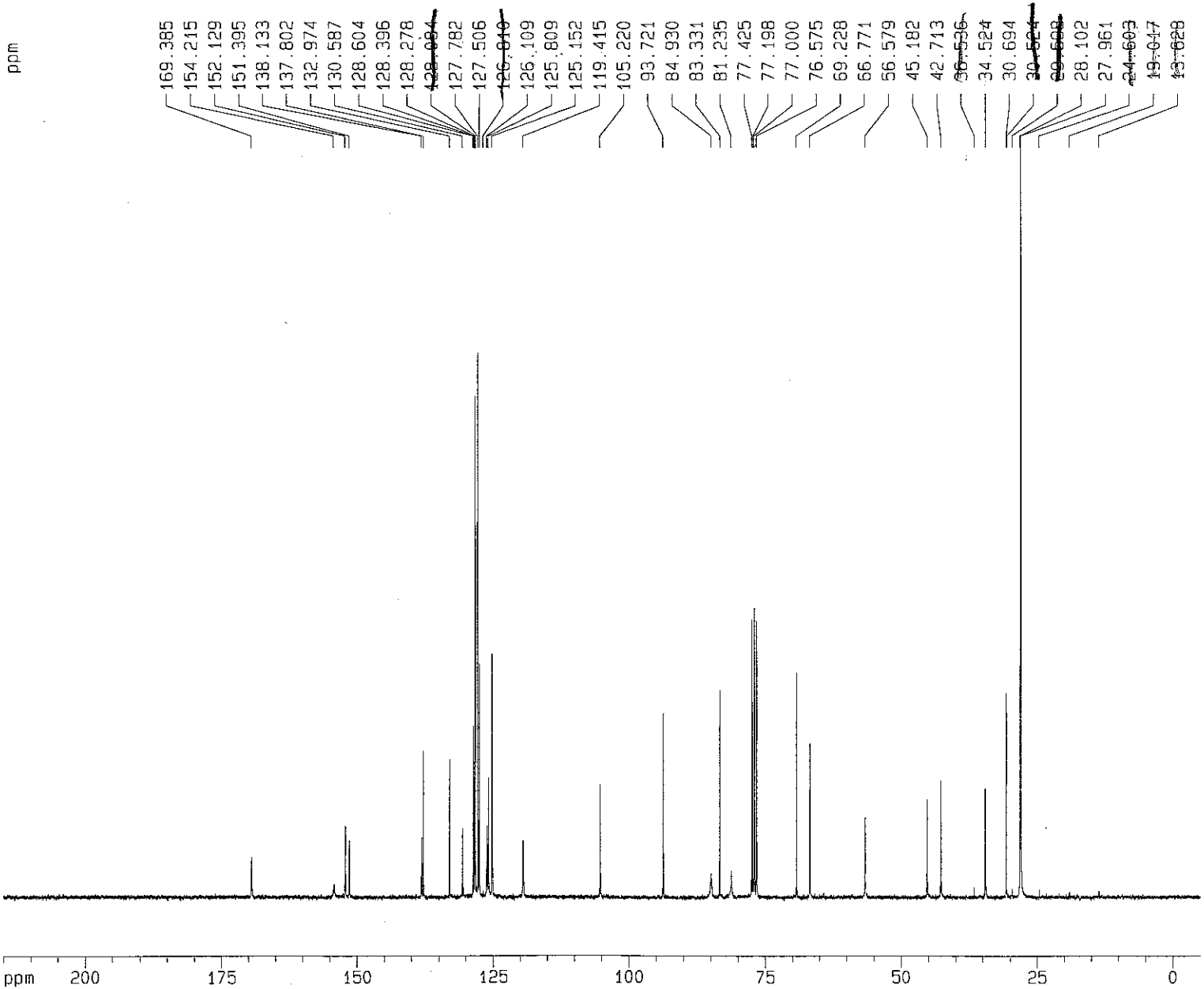
========== CHANNEL f1 ========
NUC1 1H
P1 11.70 usec
PL1 0.00 dB
SFO1 299.8718518 MHz

F2 - Processing parameters
SI 32768
SF 299.8700000 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 11.000 ppm
F1 3298.57 Hz
F2P -1.000 ppm
F2 -299.87 Hz
PPMCM 0.60000 ppm/cm
HZCM 179.92200 Hz/cm



49
minor



Current Data Parameters

NAME	PL-Jul30-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090730
Time	18.03
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	2271
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	812.7
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

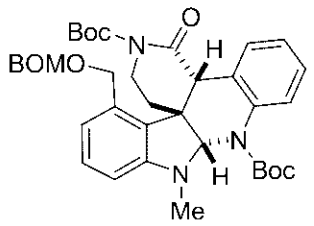
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023820 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.51 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42621 Hz/cm



HMQC

49
minor

INV4GSTP

Current Data Parameters
NAME PL-Aug01-09
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090801
Time 14.22
INSTRUM spect
PROBHD 5 mm BBI 1H-B
PULPROG inv4gptp
TD 2048
SOLVENT CDCl3
NS 4
DS 80
SWH 3453.039 Hz
FIDRES 1.686054 Hz
AQ 0.2956004 sec
RG 7298.2
DW 144.800 usec
DE 6.00 usec
TE 300.0 K
CNST2 145.0000000
d0 0.00000300 sec
D1 1.99834298 sec
d2 0.00344828 sec
d4 0.00172414 sec
d11 0.03000000 sec
d13 0.00000300 sec
D16 0.00020000 sec
d20 0.00052414 sec
d21 0.00224428 sec
IN0 0.00001490 sec

========== CHANNEL f1 ==========
NUC1 1H
P1 7.25 usec
p2 14.50 usec
PL1 0.00 dB
SFO1 400.1318770 MHz

========== CHANNEL f2 ==========
CPDPRG2 garp
NUC2 13C
P3 17.00 usec
p4 34.00 usec
PCPD2 84.00 usec
PL2 -6.00 dB
PL12 6.30 dB
SFO2 100.6202332 MHz

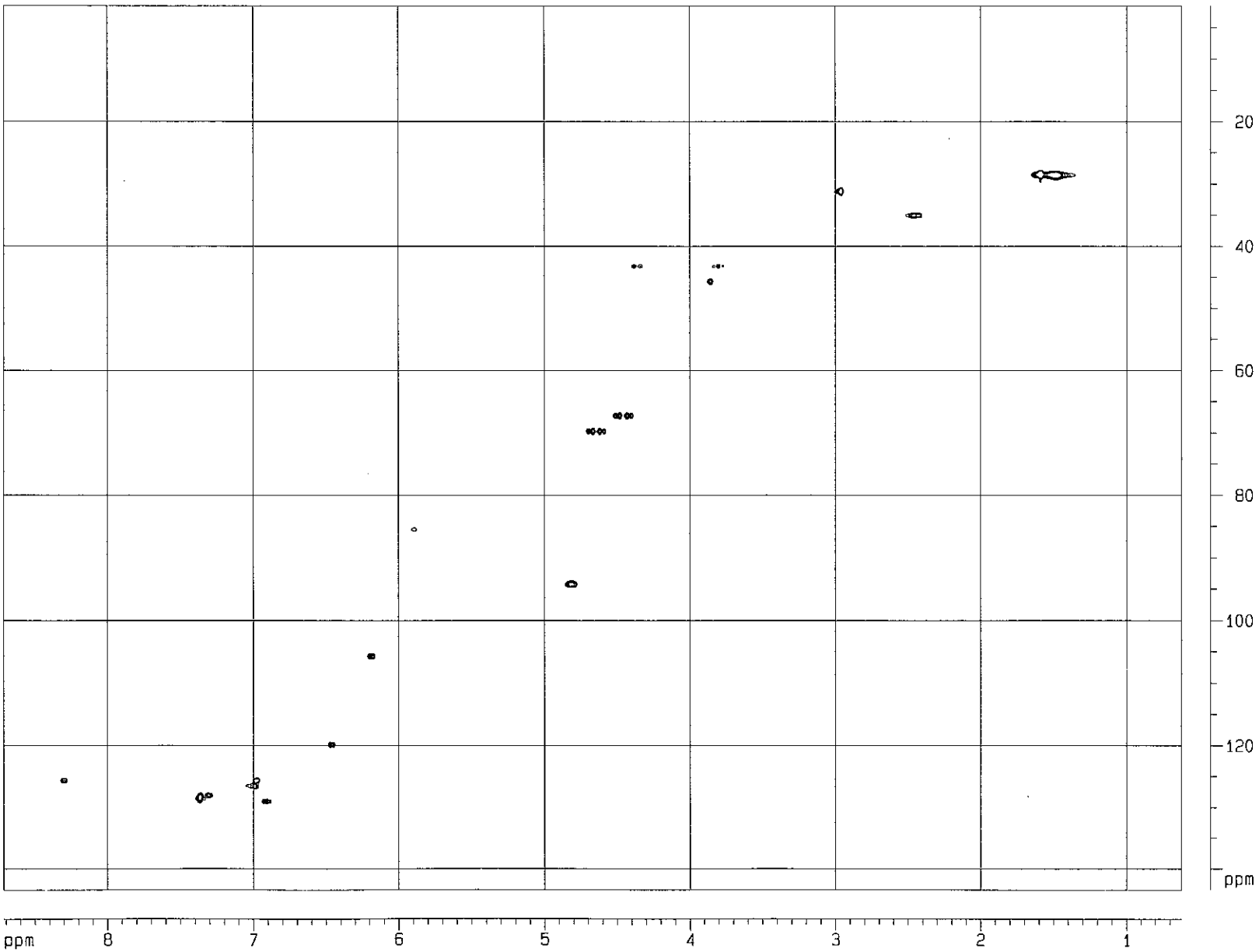
========== GRADIENT CHANNEL ==========
GPNAM1 SINE.100
GPNAM2 SINE.100
GPNAM3 SINE.100
GPX1 17.00 %
GPX2 20.00 %
GPX3 25.00 %
GPY1 17.00 %
GPY2 20.00 %
GPY3 25.00 %
GPZ1 17.00 %
GPZ2 20.00 %
GPZ3 25.00 %
P16 1000.00 usec

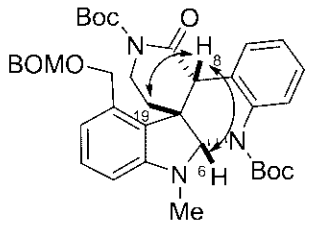
F1 - Acquisition parameters
ND0 4
TD 256
SFO1 100.6202 MHz
FIDRES 65.541167 Hz
SW 165.751 ppm

F2 - Processing parameters
SI 2048
SF 400.1300000 MHz
WDW QSINE
SSB 2
LB 0.00 Hz
GB 0
PC 1.00

F1 - Processing parameters
SI 1024
MC2 TPPI
SF 100.6127290 MHz
WDW QSINE
SSB 2
LB 0.00 Hz
GB 0

2D NMR plot parameters
CX2 20.00 cm
CX1 15.00 cm
F2PLO 6.735 ppm
F2LO 3467.19 Hz
F2PHI 0.821 ppm
F2HI 246.28 Hz
F1PLO 143.473 ppm
F1LO 14435.16 Hz
F1PHI 1.463 ppm
F1HI 147.20 Hz
F2PPMCM 0.40473 ppm/cm
F2HZCM 161.94550 Hz/cm
F1PPMCM 9.46730 ppm/cm
F1HZCM 952.53086 Hz/cm





NOESY

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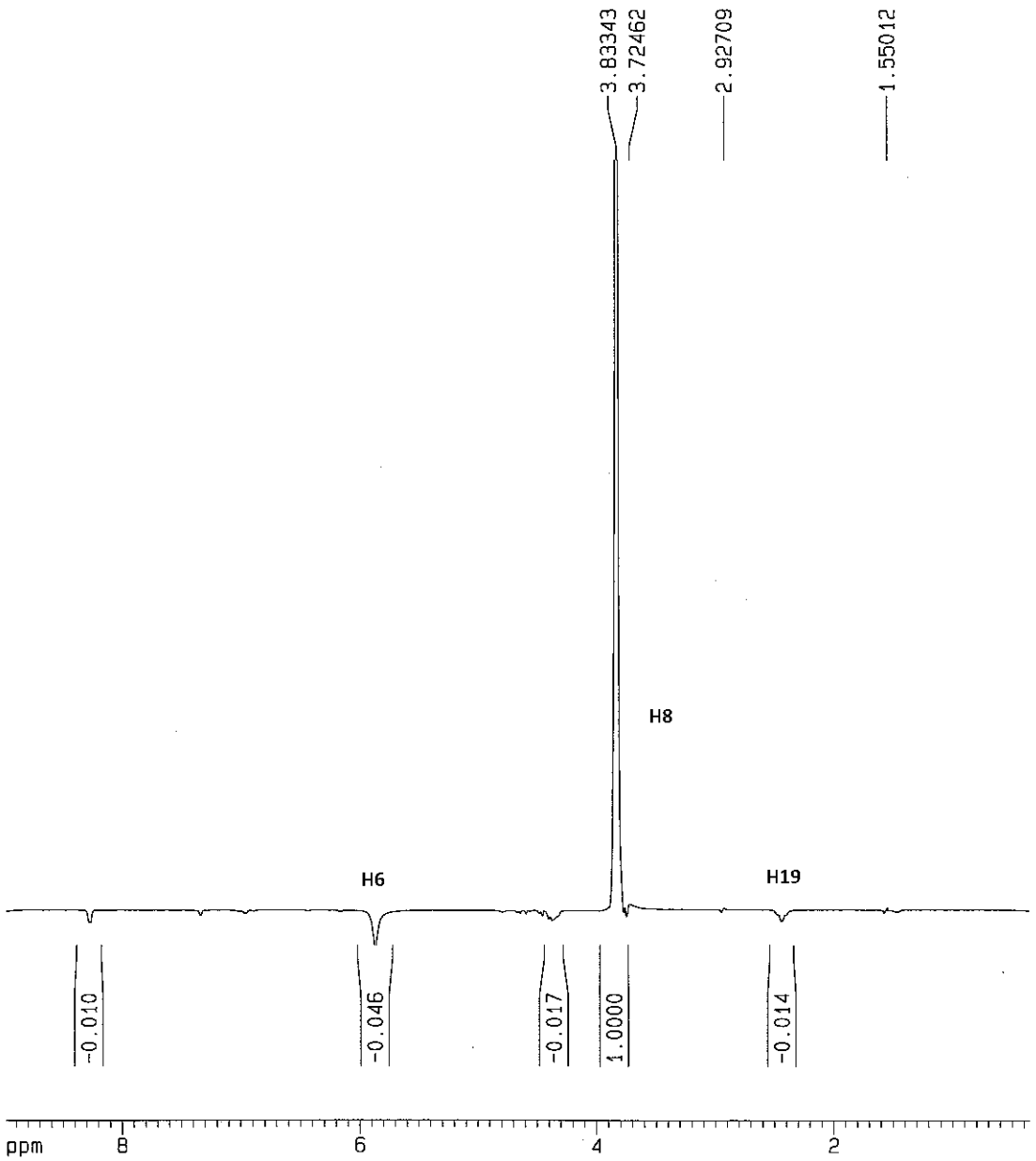
minor




```
Current Data Parameters
NAME         PL-Aug01-09
EXPNO                  3
PROCNO                 6

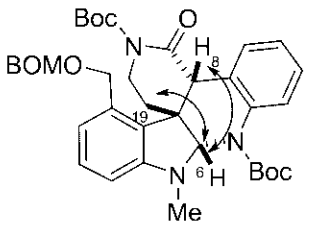
F2 - Acquisition Parameters
Date_           20090801
Time               15.03
INSTRUM            spect
PROBHD    5 mm BBI 1H-B
PULPROG        noesygptp
TD                 2048
SOLVENT           CDCl3
NS                     8
DS                     8
SWH           3453.039 Hz
FIDRES        1.686054 Hz
AQ            0.2966004 sec
RG                    64
DW              144.800 usec
DE                6.00 usec
TE               300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
D8            0.80000001 sec
D16           0.00020000 sec
d20           0.39880002 sec
IN0           0.00012496 sec

============ CHANNEL f1 =============
NUC1                  1H
P1                 7.25 usec
P2                14.50 usec
PL1                0.00 dB
SFO1        400.1318770 MHz

============ GRADIENT CHANNEL ========
GPNAM1          sine.100
GPNAM2          sine.100
GPX1               0.00 %
GPX2               0.00 %
GPY1               0.00 %
GPY2               0.00 %
GPZ1              40.00 %
GPZ2             -40.00 %
P16             1000.00 usec

F2 - Processing parameters
SI                 2048
SF          400.1300092 MHz
WDW               QSINE
SSB                   2
LB                 0.00 Hz
GB                    0
PC                 1.00

1D NMR plot parameters
CX                20.00 cm
F1P               11.000 ppm
F1              4401.43 Hz
F2P               -1.000 ppm
F2              -400.13 Hz
PPMCM             0.60000 ppm/cm
HZCM            240.07800 Hz/cm
```



NOESY

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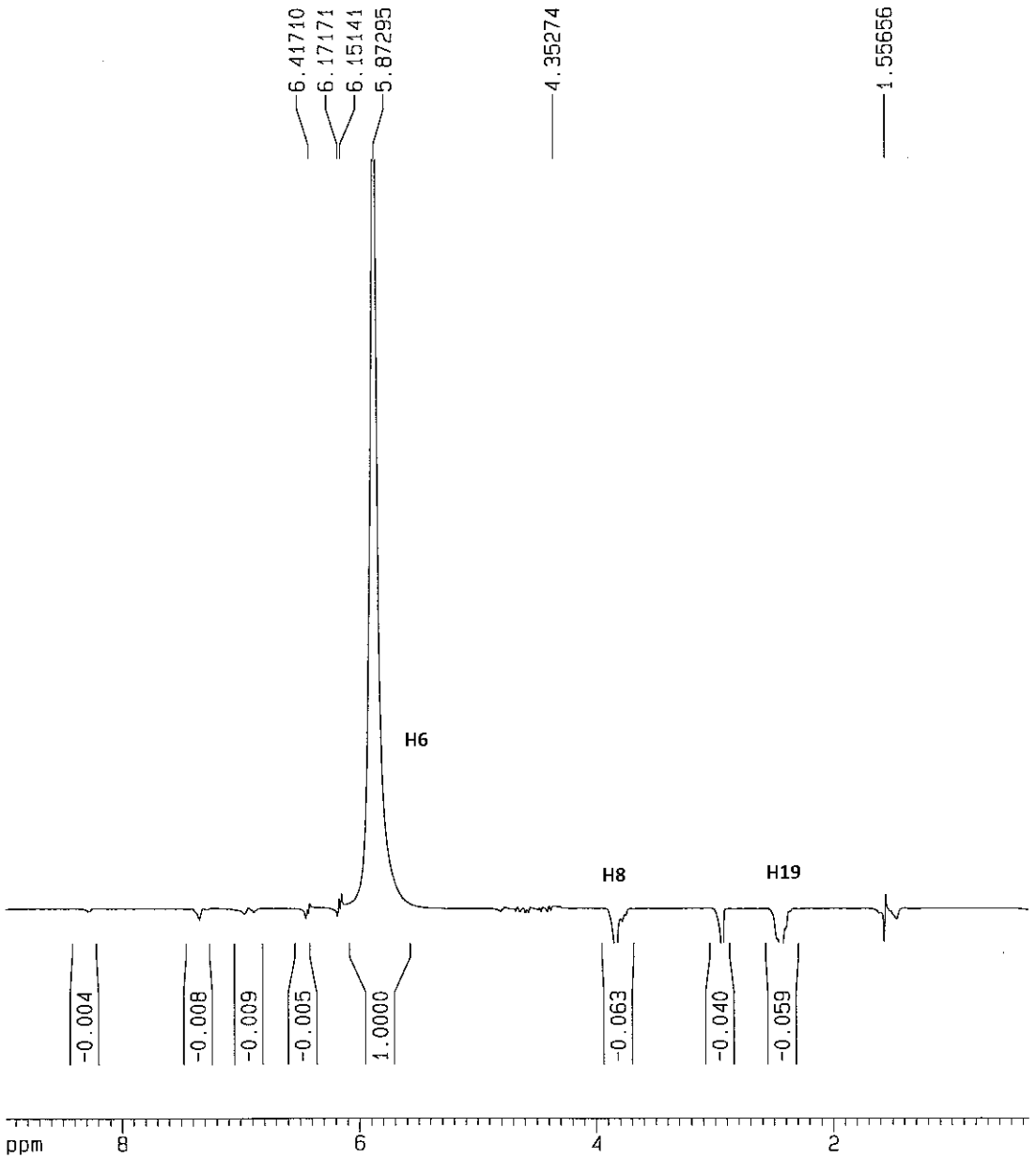
minor




```
Current Data Parameters
NAME         PL-Aug01-09
EXPNO                  3
PROCNO                 2

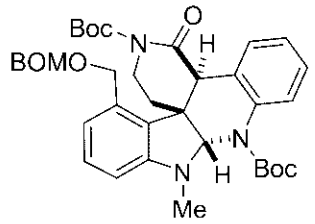
F2 - Acquisition Parameters
Date_           20090801
Time               15.03
INSTRUM            spect
PROBHD    5 mm BBI 1H-B
PULPROG       noesygptp
TD                 2048
SOLVENT           CDCl3
NS                    8
DS                    8
SWH            3453.039 Hz
FIDRES         1.686054 Hz
AQ             0.2966004 sec
RG                   64
DW              144.800 usec
DE                6.00 usec
TE               300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
D8            0.80000001 sec
D16           0.00020000 sec
d20           0.39880002 sec
IN0           0.00012496 sec

============ CHANNEL f1 =============
NUC1                  1H
P1                 7.25 usec
P2                14.50 usec
PL1                0.00 dB
SFO1        400.1318770 MHz

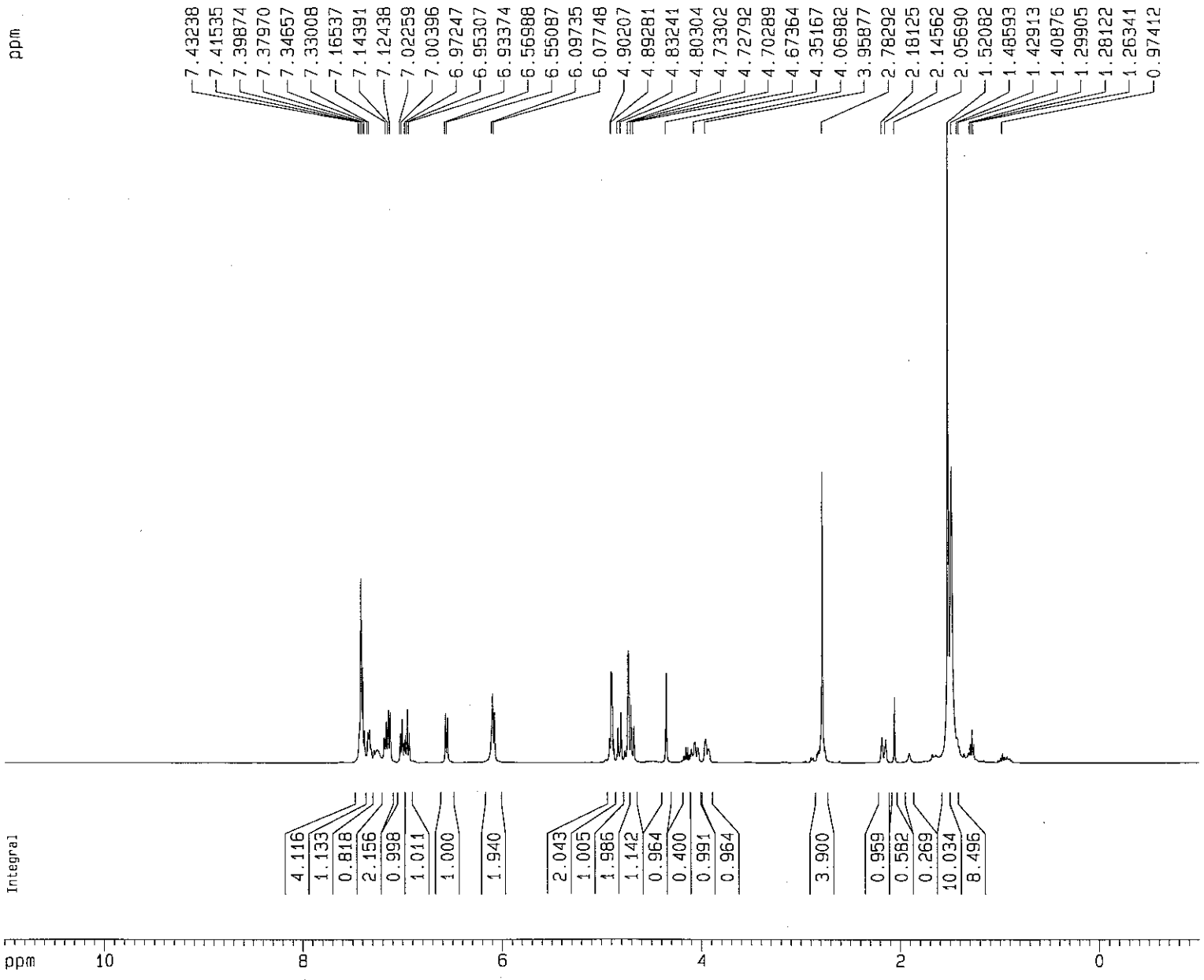
============ GRADIENT CHANNEL ========
GPNAM1          sine.100
GPNAM2          sine.100
GPX1                0.00 %
GPX2                0.00 %
GPY1                0.00 %
GPY2                0.00 %
GPZ1               40.00 %
GPZ2              -40.00 %
P16              1000.00 usec

F2 - Processing parameters
SI                  2048
SF          400.1300092 MHz
WDW                QSINE
SSB                    2
LB                  0.00 Hz
GB                     0

1D NMR plot parameters
CX                 20.00 cm
F1P                11.000 ppm
F1               4401.43 Hz
F2P                -1.000 ppm
F2               -400.13 Hz
PPMCM              0.60000 ppm/cm
HZCM             240.07800 Hz/cm
```



49
major



Current Data Parameters

NAME	PL-Jul29-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090729
Time	13.25
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	8278.146 Hz
FIDRES	0.126314 Hz
AQ	3.9584243 sec
RG	16
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

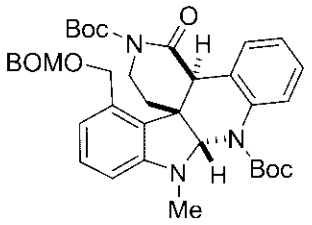
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

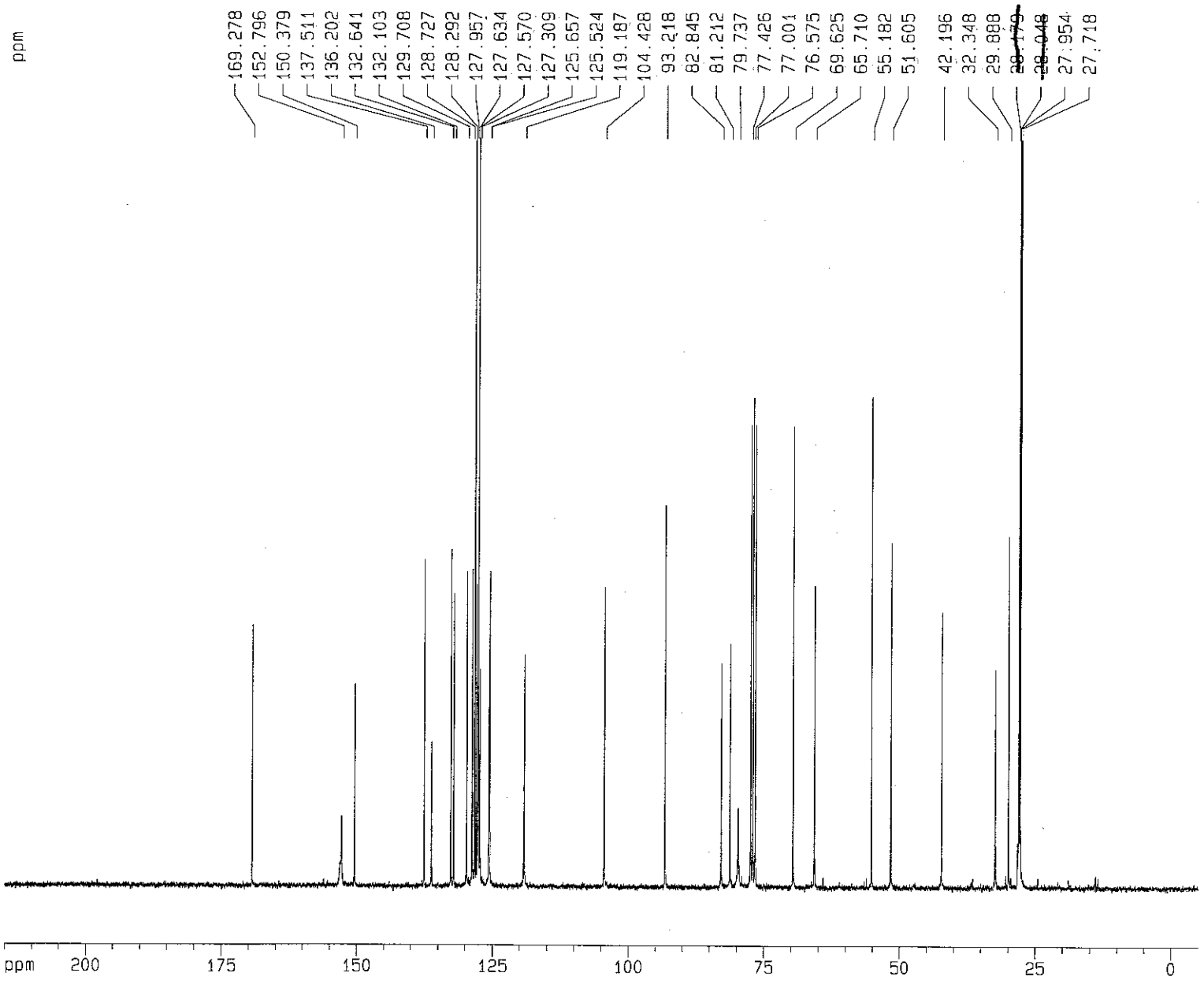
SI	32768
SF	400.1300000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	4401.43 Hz
F2P	-1.000 ppm
F2	-400.13 Hz
PPMCM	0.60000 ppm/cm
HZCM	240.07800 Hz/cm



49
major




```
Current Data Parameters
NAME          PL-Jul30-09
EXPNO                   5
PROCNO                  1

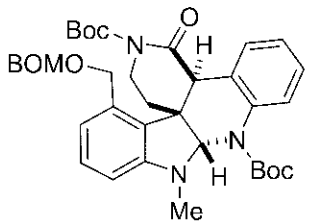
F2 - Acquisition Parameters
Date_           20090730
Time               19.15
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                 1653
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                 4096
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

========== CHANNEL f1 ==========
NUC1                13C
P1                5.40 usec
PL1              -6.00 dB
SF01         75.4106357 MHz

========== CHANNEL f2 ==========
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2              0.00 dB
PL12            20.00 dB
PL13            20.00 dB
SF02        299.8711995 MHz

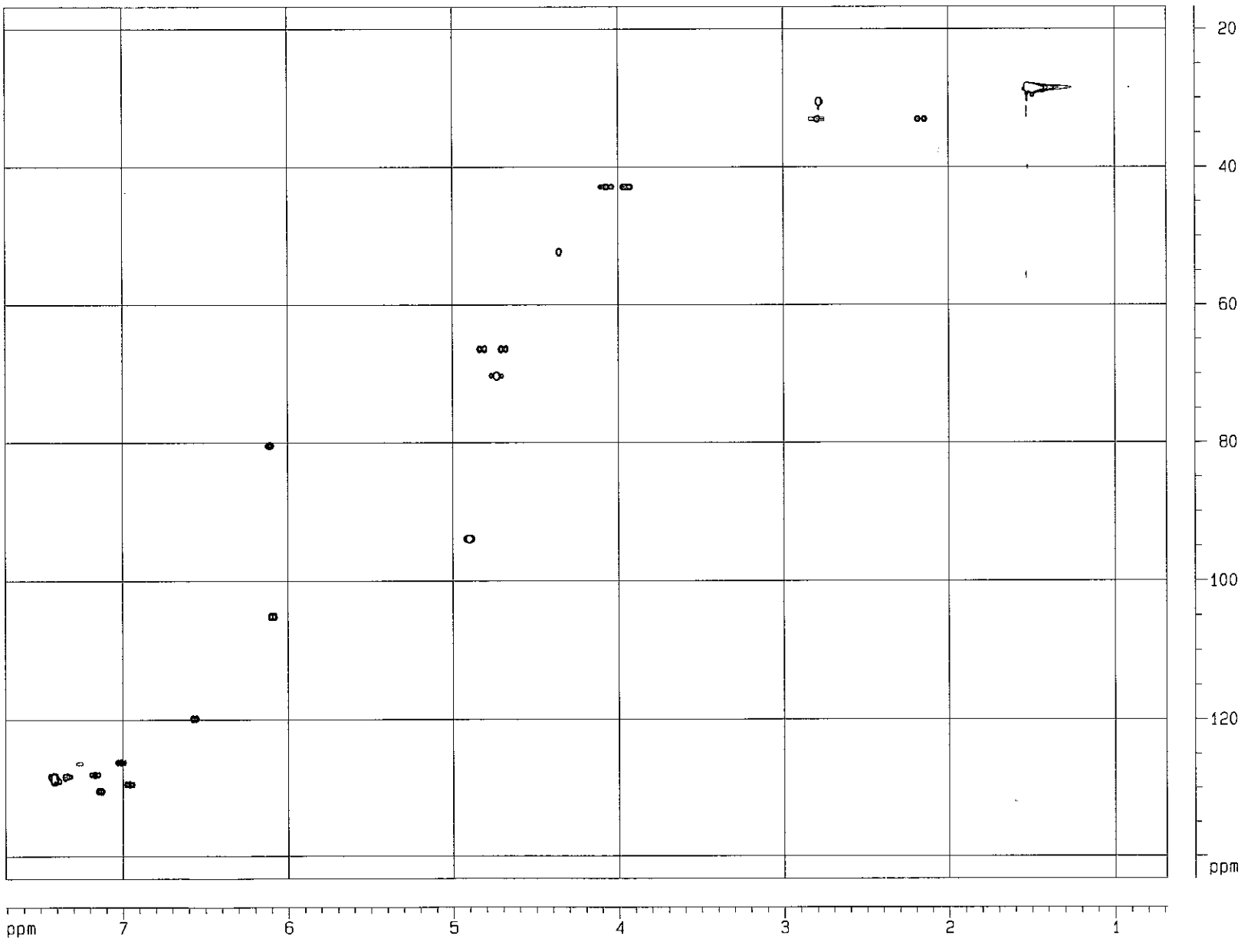
F2 - Processing parameters
SI                 32768
SF           75.4023929 MHz
WDW                   EM
SSB                    0
LB                1.00 Hz
GB                     0
PC                 1.40

1D NMR plot parameters
CX               20.00 cm
F1P             215.000 ppm
F1             16211.51 Hz
F2P              -5.000 ppm
F2              -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM          829.42627 Hz/cm
```



HMQC

49
major




```
                Current Data Parameters
NAME          PL-Jul30-09
EXPNO                  2
PROCNO                 1

      F2 - Acquisition Parameters
Date_          20090731
Time              20.01
INSTRUM           spect
PROBHD     5 mm BBI 1H-B
PULPROG       inv4gptp
TD                2048
SOLVENT           CDCl3
NS                   4
DS                  60
SWH            3063.725 Hz
FIDRES         1.495960 Hz
AQ             0.3342836 sec
RG              3548.1
DW              163.200 usec
DE                6.00 usec
TE              300.0 K
CNST2          145.0000000
d0             0.00000300 sec
D1             1.95631298 sec
d2             0.00344828 sec
d4             0.00172414 sec
d11            0.03000000 sec
d13            0.00000300 sec
D16            0.00020000 sec
d20            0.00052414 sec
d21            0.00224426 sec
DN0            0.00001490 sec

============ CHANNEL f1 =============
NUC1                1H
P1                7.50 usec
p2               14.78 usec
PL1               0.00 dB
SFO1          400.1317534 MHz

============ CHANNEL f2 =============
CPDPRG2           garp
NUC2              13C
P3               17.00 usec
p4               34.00 usec
PCPD2            64.00 usec
PL2              -6.00 dB
PL12              6.30 dB
SFO2          100.6202332 MHz

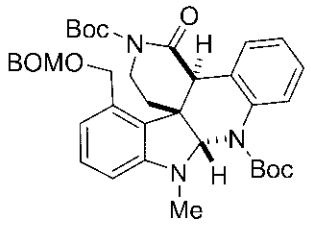
============ GRADIENT CHANNEL ========
GPNAM1          SINE.100
GPNAM2          SINE.100
GPNAM3          SINE.100
GPX1             17.00 %
GPX2             20.00 %
GPX3             25.00 %
GPY1             17.00 %
GPY2             20.00 %
GPY3             25.00 %
GPZ1             17.00 %
GPZ2             20.00 %
GPZ3             25.00 %
P16            1000.00 usec

      F1 - Acquisition parameters
NO0                  4
TD                 256
SFO1          100.6202 MHz
F1RES         65.54107 Hz
SW              166.751 ppm

      F2 - Processing parameters
SI                2048
SF          400.1300000 MHz
WDW               QSINE
SSB                  2
LB                0.00 Hz
GB                   0
PC                1.00

      F1 - Processing parameters
SI                1024
MC2               TPPI
SF          100.6127290 MHz
WDW               QSINE
SSB                  2
LB                0.00 Hz
GB                   0

      2D NMR plot parameters
CX2              20.00 cm
CX1              15.00 cm
F2PLO             7.709 ppm
F2LO           3084.77 Hz
F2PHI             0.688 ppm
F2HI            275.36 Hz
F1PLO           143.310 ppm
F1LO           14418.78 Hz
F1PHI            16.771 ppm
F1HI            1687.42 Hz
F2PPMCM          0.35106 ppm/cm
F2HZCM         140.47063 Hz/cm
F1PPMCM          8.43958 ppm/cm
F1HZCM         848.75732 Hz/cm
```



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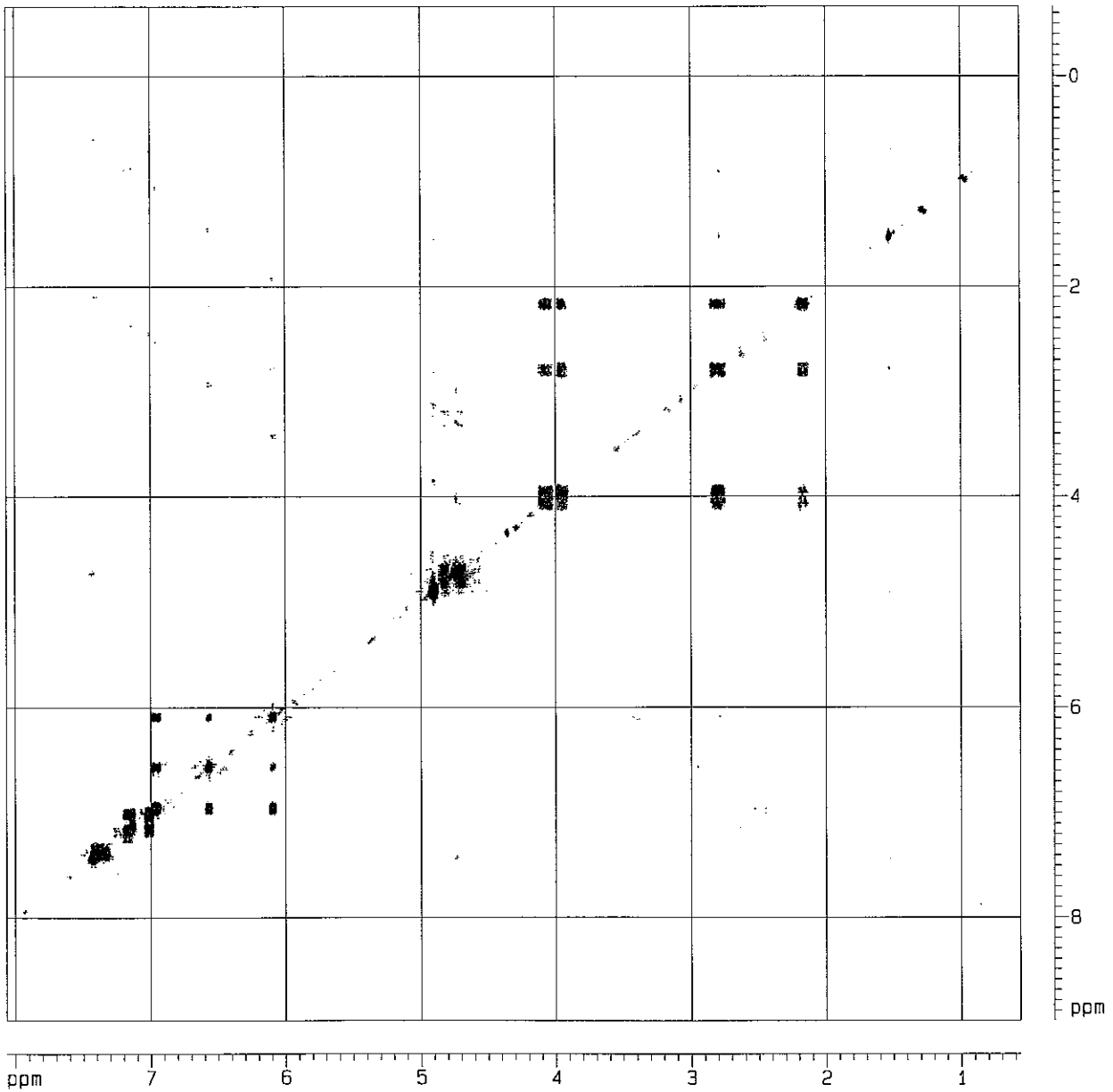


Current Data Parameters

NAME	PL-Jul30-09
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20090731
Time	22.54
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	4
DS	8
SWH	3063.726 Hz
FIDRES	1.495960 Hz
AQ	0.3342836 sec
RG	2896.3
DW	163.200 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00009360 sec

CHANNEL f1

NUC1	1H
P1	7.39 usec
P2	14.78 usec
PL1	0.00 dB
SFO1	400.1317534 MHz

GRADIENT CHANNEL

P16	1000.00 usec

F1 - Acquisition parameters

ND0	2
TD	650
SFO1	400.1318 MHz
FIDRES	8.218277 Hz
SW	13.350 ppm

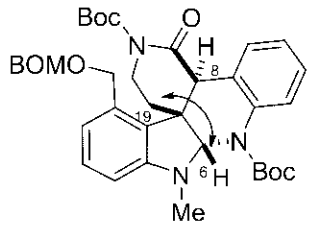
F2 - Processing parameters

SI	2048
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

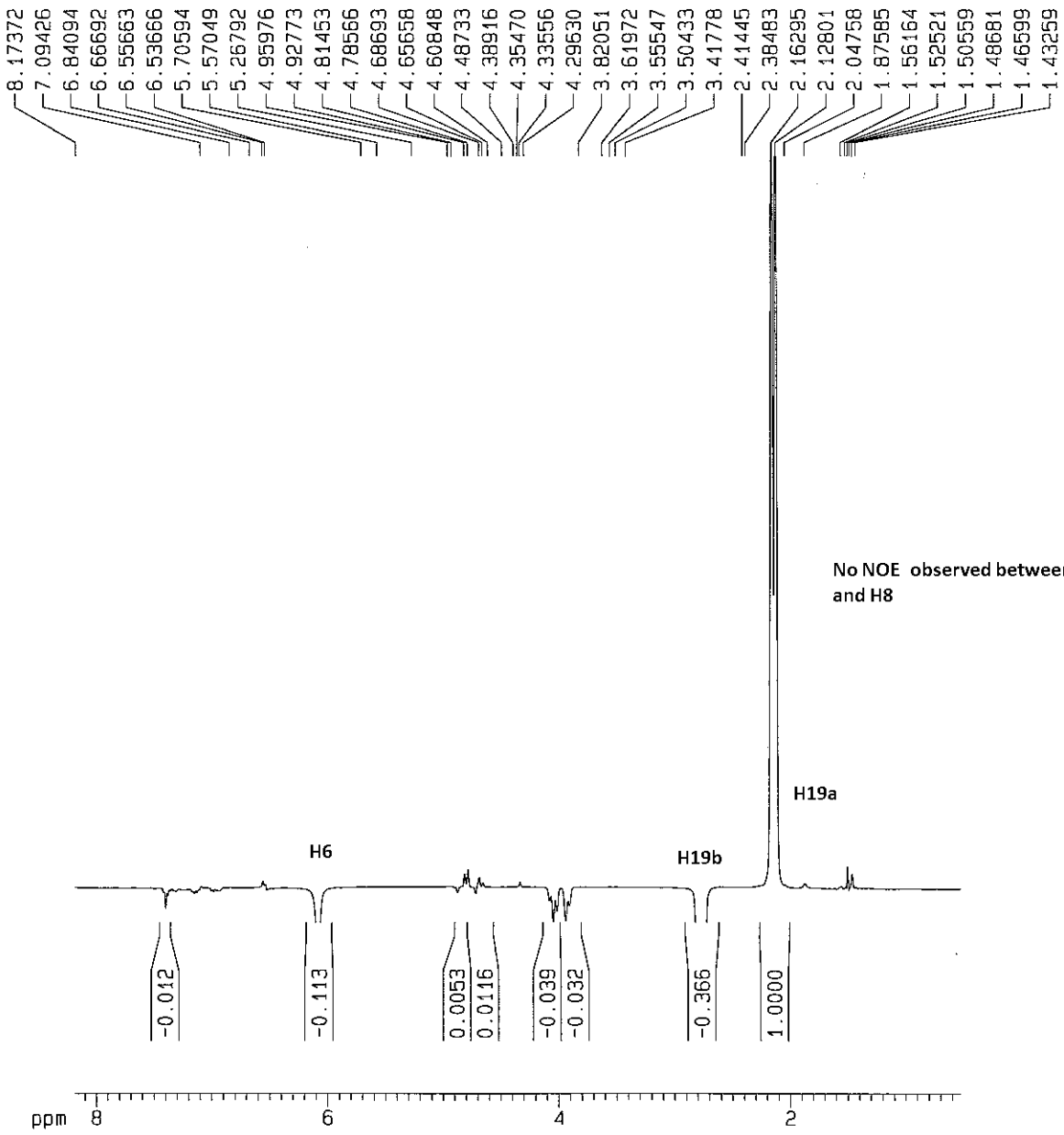
F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.065 ppm
F2LO	3226.89 Hz
F2PHI	0.565 ppm
F2HI	225.99 Hz
F1PLO	8.997 ppm
F1LO	3600.07 Hz
F1PHI	-0.663 ppm
F1HI	-265.49 Hz
F2PPMCM	0.49999 ppm/cm
F2HZCM	200.05969 Hz/cm
F1PPMCM	0.64405 ppm/cm
F1HZCM	257.70398 Hz/cm



49
major




```
Current Data Parameters
NAME        PL-Jul30-09
EXPNO                 5
PROCNO                3

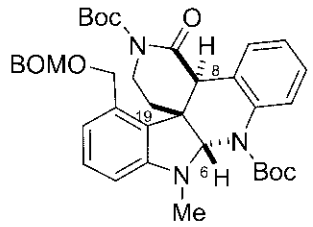
F2 - Acquisition Parameters
Date_          20090801
Time               2.06
INSTRUM           spect
PROBHD    5 mm BBI 1H-B
PULPROG       noesygptp
TD                2048
SOLVENT           CDCl3
NS                   8
DS                   8
SWH           3063.726 Hz
FIDRES        1.495960 Hz
AQ            0.3342836 sec
RG                40.3
DW              163.200 usec
DE                6.00 usec
TE               300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
D8            0.80000001 sec
D16           0.00020000 sec
d20           0.39880002 sec
INO           0.00012496 sec

============ CHANNEL f1 =============
NUC1                 1H
P1                7.39 usec
P2               14.78 usec
PL1               0.00 dB
SFO1        400.1317534 MHz

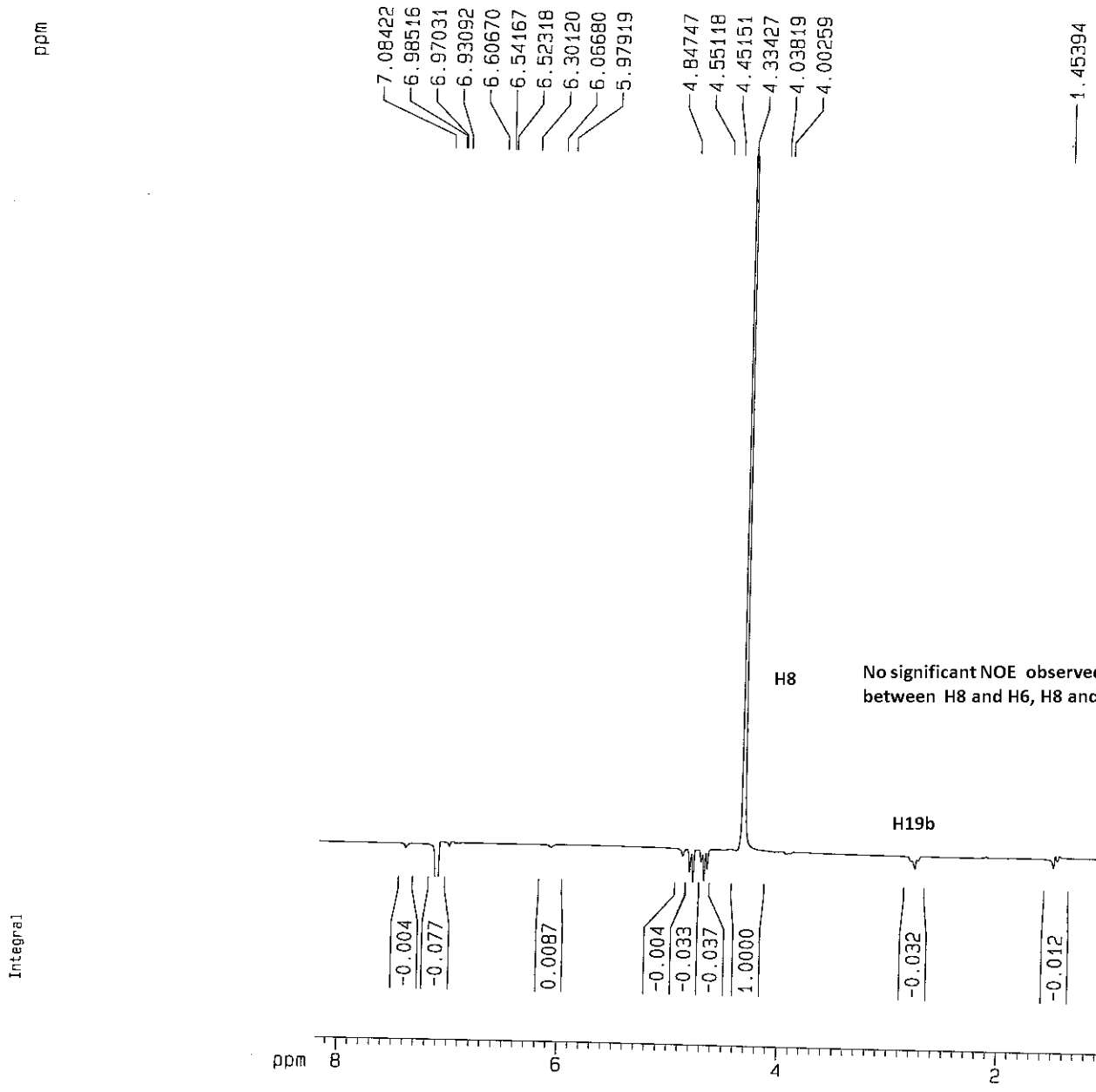
============ GRADIENT CHANNEL ========
GPNAM1         sine.100
GPNAM2         sine.100
GPX1              0.00 %
GPX2              0.00 %
GPY1              0.00 %
GPY2              0.00 %
GPZ1             40.00 %
GPZ2            -40.00 %
P16            1000.00 usec

F2 - Processing parameters
SI                2048
SF          400.1300092 MHz
WDW               QSINE
SSB                  2
LB                0.00 Hz
GB                   0
PC                1.00

1D NMR plot parameters
CX               20.00 cm
F1P              11.000 ppm
F1             4401.43 Hz
F2P              -1.000 ppm
F2             -400.13 Hz
PPMCM            0.60000 ppm/cm
HZCM           240.07800 Hz/cm
```



49
major




```
Current Data Parameters
NAME                  PL-Jul30-09
EXPNO                           5
PROCNO                          2

F2 - Acquisition Parameters
Date_                    20090801
Time                         2.06
INSTRUM                     spect
PROBHD       5 mm BBI 1H-B
PULPROG                 noesygptp
TD                           2048
SOLVENT                     CDCl3
NS                              8
DS                              8
SWH                   3063.726 Hz
FIDRES                1.495960 Hz
AQ                    0.3342836 sec
RG                           40.3
DW                     163.200 usec
DE                       6.00 usec
TE                       300.0 K
d0                    0.00000300 sec
D1                    4.00000000 sec
DB                    0.80000001 sec
D16                   0.00020000 sec
d20                   0.39880002 sec
IN0                   0.00012496 sec

========== CHANNEL f1 ==========
NUC1                         1H
P1                       7.39 usec
P2                      14.78 usec
PL1                      0.00 dB
SFO1                400.1317534 MHz

========== GRADIENT CHANNEL ========
GPNAM1                sine.100
GPNAM2                sine.100
GPX1                     0.00 %
GPX2                     0.00 %
GPY1                     0.00 %
GPY2                     0.00 %
GPZ1                    40.00 %
GPZ2                   -40.00 %
P16                  1000.00 usec

F2 - Processing parameters
SI                           2048
SF                  400.1300092 MHz
WDW                        QSINE
SSB                            2
LB                       0.00 Hz
GB                             0
PC                          1.00

1D NMR plot parameters
CX                      20.00 cm
F1P                    11.000 ppm
F1                    4401.43 Hz
F2P                    -1.000 ppm
F2                    -400.13 Hz
PPMCM                 0.60000 ppm/cm
HZCM                  240.07800 Hz/cm
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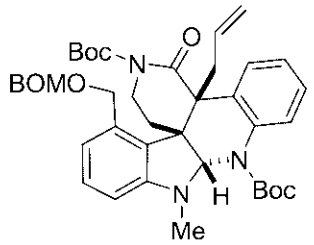
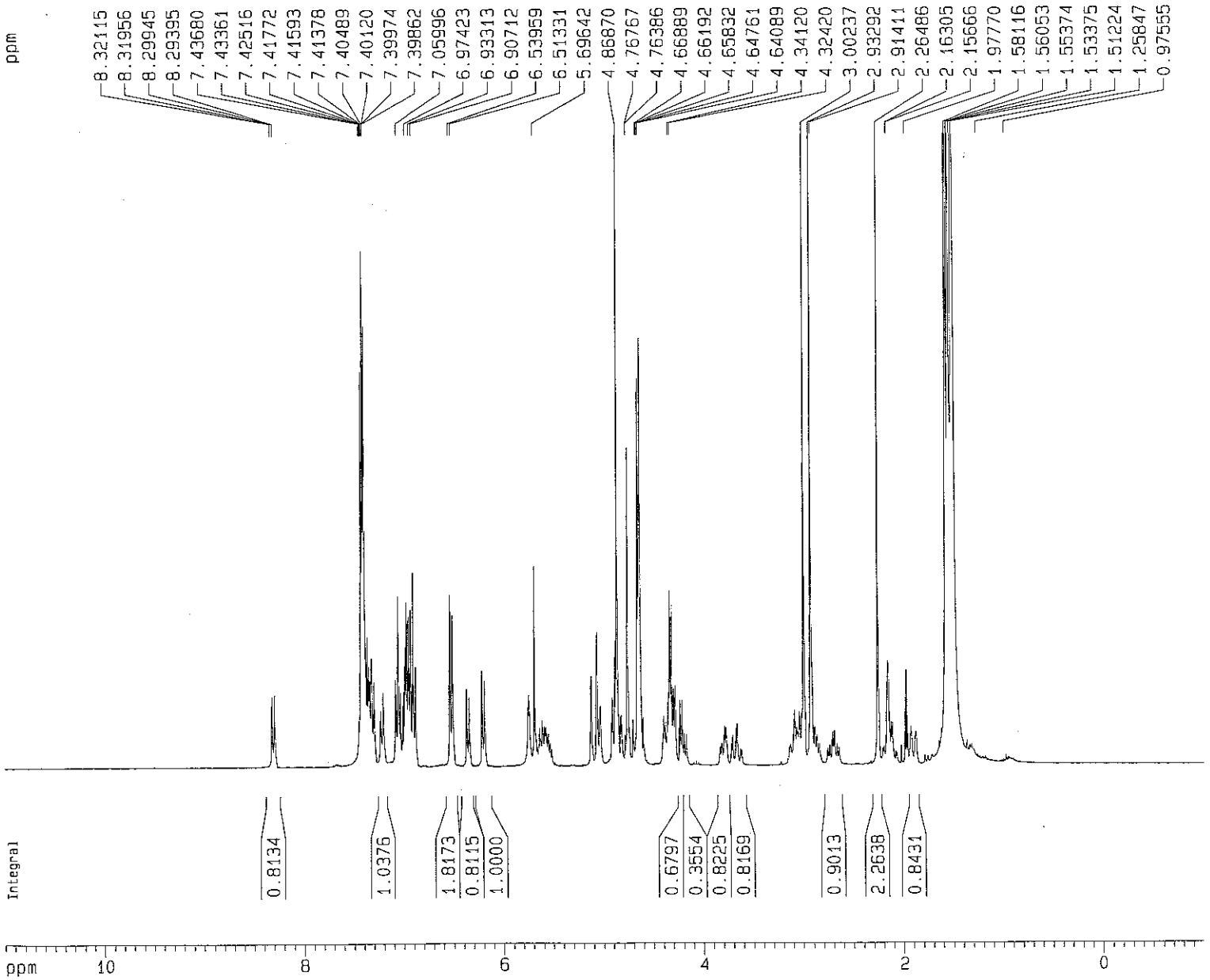


51



Current Data Parameters

NAME	PL-Aug20-09
EXPNO	7
PROCNO	1

F2 - Acquisition Parameters

Date_	20090820
Time	20.10
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CD3CN
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	50.8
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

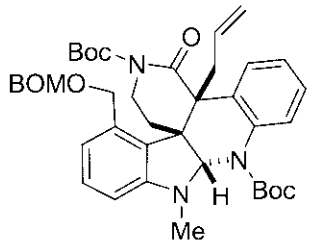
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700000 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92200 Hz/cm



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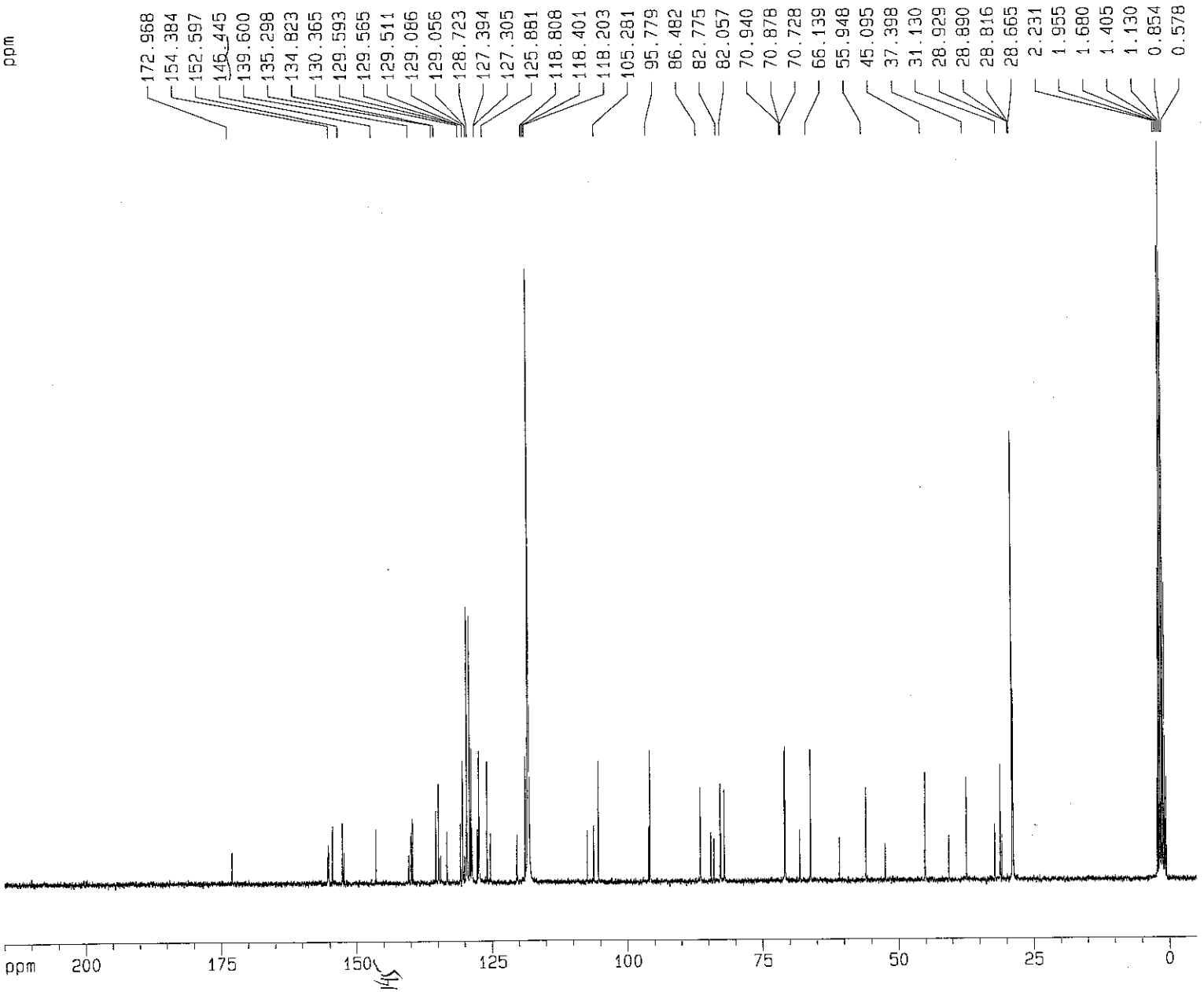
65°C in CD_3CN



Current Data Parameters

NAME	PL-Aug20-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20090820
Time	15.43
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CD3CN
NS	1673
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	512
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

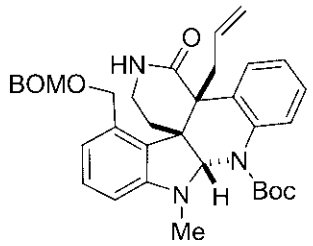
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4022745 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.49 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42505 Hz/cm



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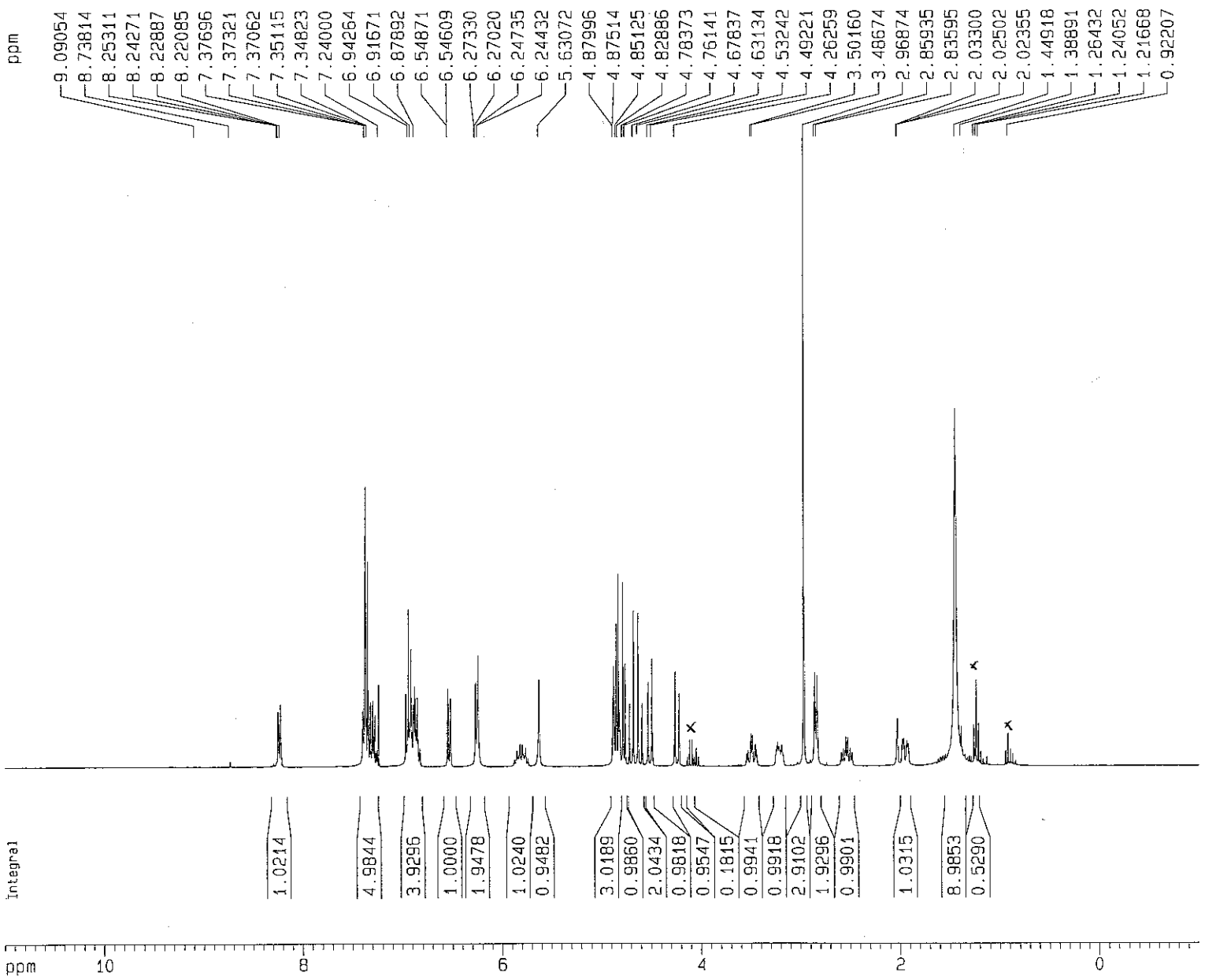


Current Data Parameters

NAME	PL-Aug22-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090822
Time	12.26
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	80.6
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

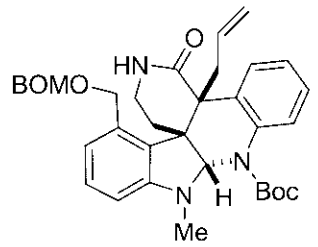
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700159 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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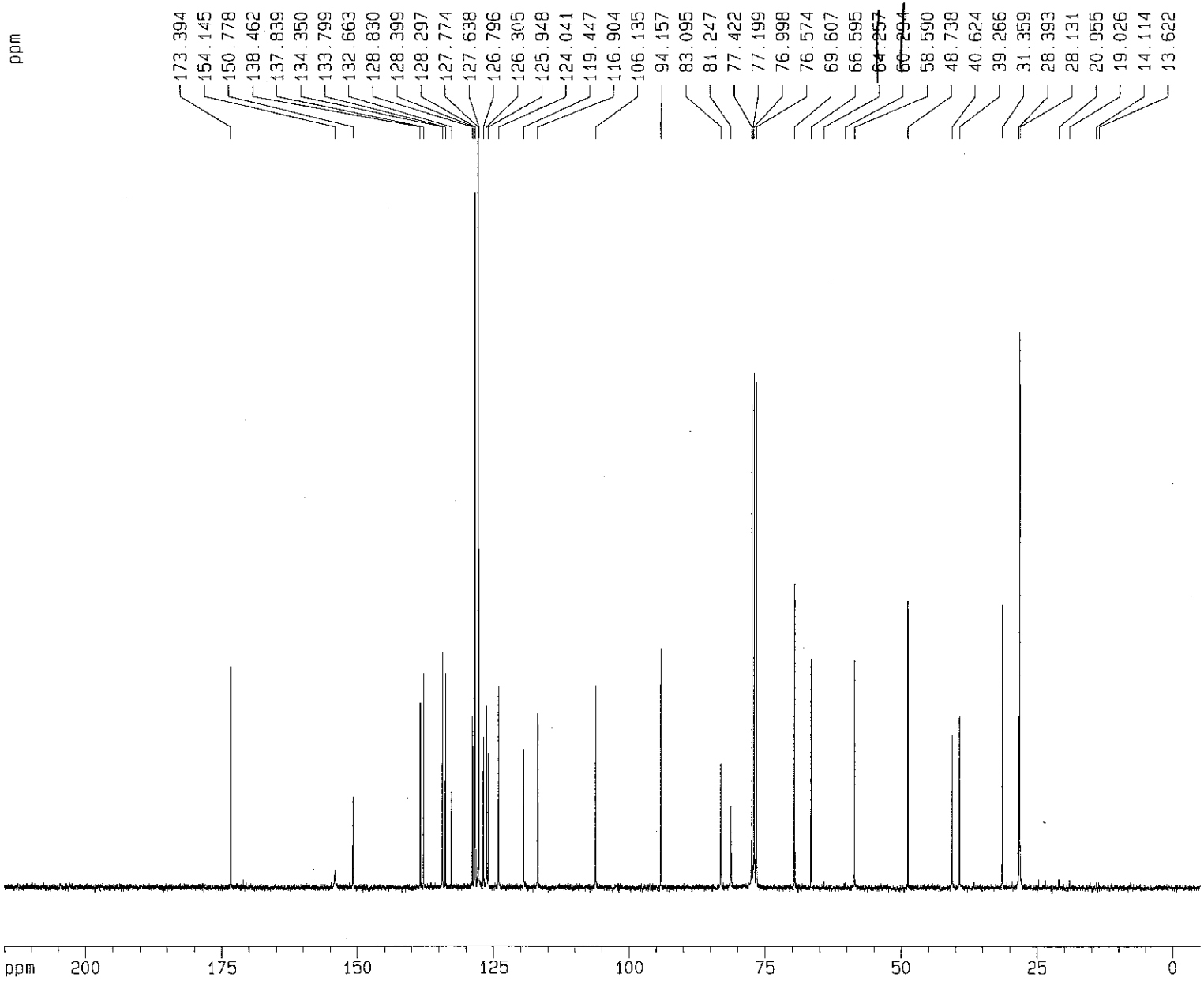


Current Data Parameters

NAME	PL-Aug22-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20090822
Time	13.56
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	1393
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	1024
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

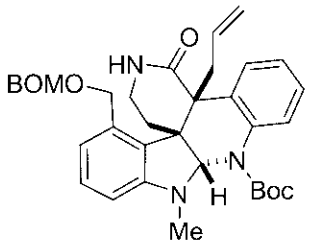
F2 - Processing parameters

SI	32768
SF	75.4023815 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.51 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42621 Hz/cm

PL-IV 209 COSY



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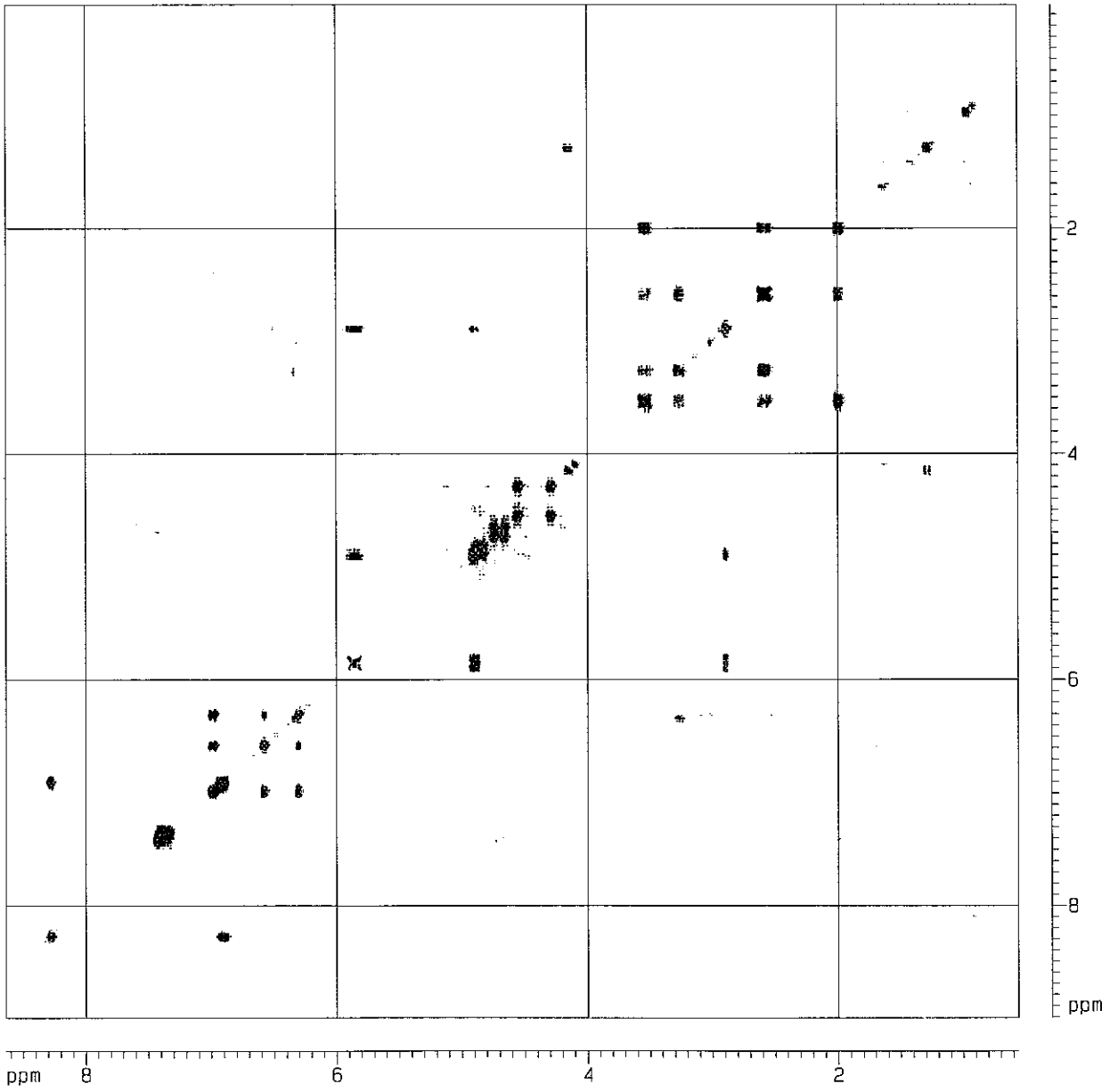
COSY



Current Data Parameters

NAME	PL-Aug22-09
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20090823
Time	0.15
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	4
DS	8
SWH	3324.468 Hz
FIDRES	1.623275 Hz
AQ	0.3080692 sec
RG	3649.1
DW	150.400 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00009360 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.00 usec
P2	14.00 usec
PL1	0.00 dB
SFO1	400.1318738 MHz

========== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

ND0	2
TD	650
SFO1	400.1319 MHz
FIDRES	8.218277 Hz
SW	13.350 ppm

F2 - Processing parameters

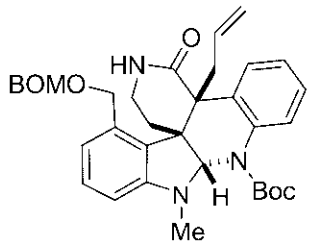
SI	2048
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.638 ppm
F2LO	3456.50 Hz
F2PHI	0.561 ppm
F2HI	224.56 Hz
F1PLO	9.011 ppm
F1LO	3605.75 Hz
F1PHI	0.016 ppm
F1HI	6.24 Hz
F2PPMCM	0.53848 ppm/cm
F2HZCM	215.46277 Hz/cm
F1PPMCM	0.59972 ppm/cm
F1HZCM	239.98729 Hz/cm



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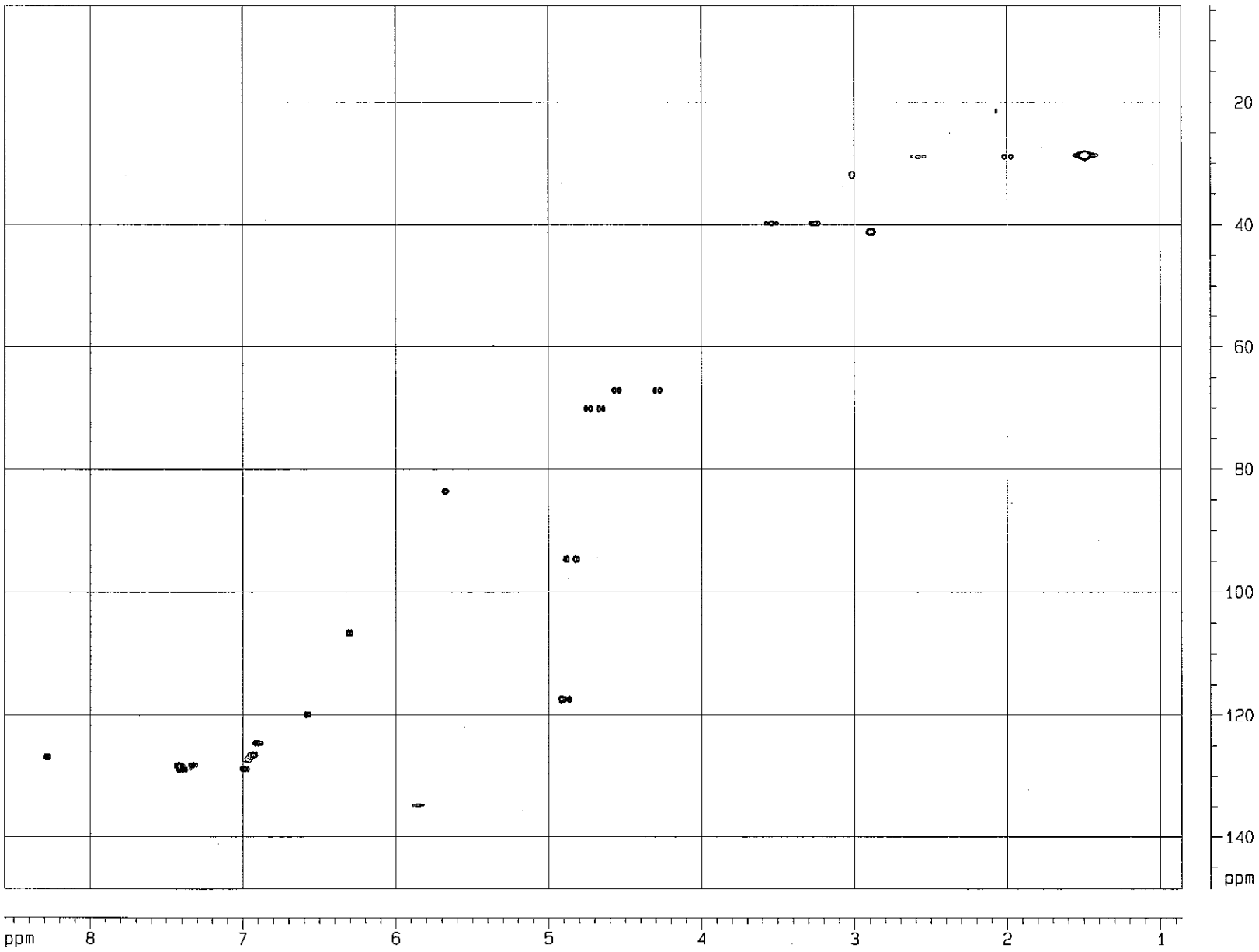
HMQC



Current Data Parameters
NAME PL-Aug22-09
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090822
Time 21.25
INSTRUM spect
PROBHD 5 mm BBI 1H-B
PULPROG 1ev4gptp
TD 2048
SOLVENT CDCl3
NS 4
DS 80
SWH 3324.466 Hz
FIDRES 1.623275 Hz
AQ 0.3080092 sec
RG 7298.2
DW 150.400 usec
DE 6.00 usec
TE 300.0 K
CNST2 145.0000000
d0 0.00000300 sec
D1 1.99631298 sec
d2 0.00344828 sec
d4 0.00172414 sec
d11 0.03000000 sec
d13 0.00000300 sec
D16 0.00020000 sec
d20 0.00052414 sec
d21 0.00224428 sec
IN0 0.00001450 sec

---------- CHANNEL f1 ----------
NUC1 1H
P1 7.00 usec
p2 14.00 usec
PL1 0.00 dB
SFO1 400.1316738 MHz

---------- CHANNEL f2 ----------
CPDPRG2 garp
NUC2 13C
P3 17.00 usec
p4 34.00 usec
PCPD2 64.00 usec
PL2 -6.00 dB
PL12 6.30 dB
SFO2 100.6202332 MHz

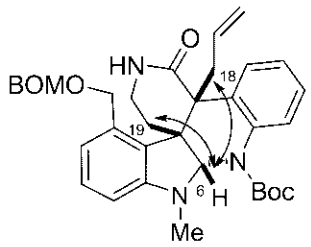
---------- GRADIENT CHANNEL -------
GPNAM1 SINE.100
GPNAM2 SINE.100
GPNAM3 SINE.100
GPX1 17.00 %
GPX2 20.00 %
GPX3 25.00 %
GPY1 17.00 %
GPY2 20.00 %
GPY3 25.00 %
GPZ1 17.00 %
GPZ2 20.00 %
GPZ3 25.00 %
P16 1000.00 usec

F1 - Acquisition parameters
ND0 4
TD 256
SFO1 100.6292 MHz
FIDRES 65.541107 Hz
SW 166.751 ppm

F2 - Processing parameters
SI 2048
SF 400.1300000 MHz
WDW QSINE
SSB 2
LB 0.00 Hz
GB 0
PC 1.00

F1 - Processing parameters
SI 1024
MC2 TPPI
SF 100.6127290 MHz
WDW QSINE
SSB 2
LB 0.00 Hz
GB 0

2D NMR plot parameters
CX2 20.00 cm
CX1 15.00 cm
F2PLO 8.561 ppm
F2LO 3425.66 Hz
F2PHI 0.861 ppm
F2HI 344.58 Hz
F1PLO 148.064 ppm
F1LO 14959.49 Hz
F1PHI 4.232 ppm
F1HI 425.75 Hz
F2PPMCM 0.38600 ppm/cm
F2HZCM 154.64684 Hz/cm
F1PPMCM 5.63015 ppm/cm
F1HZCM 566.91614 Hz/cm



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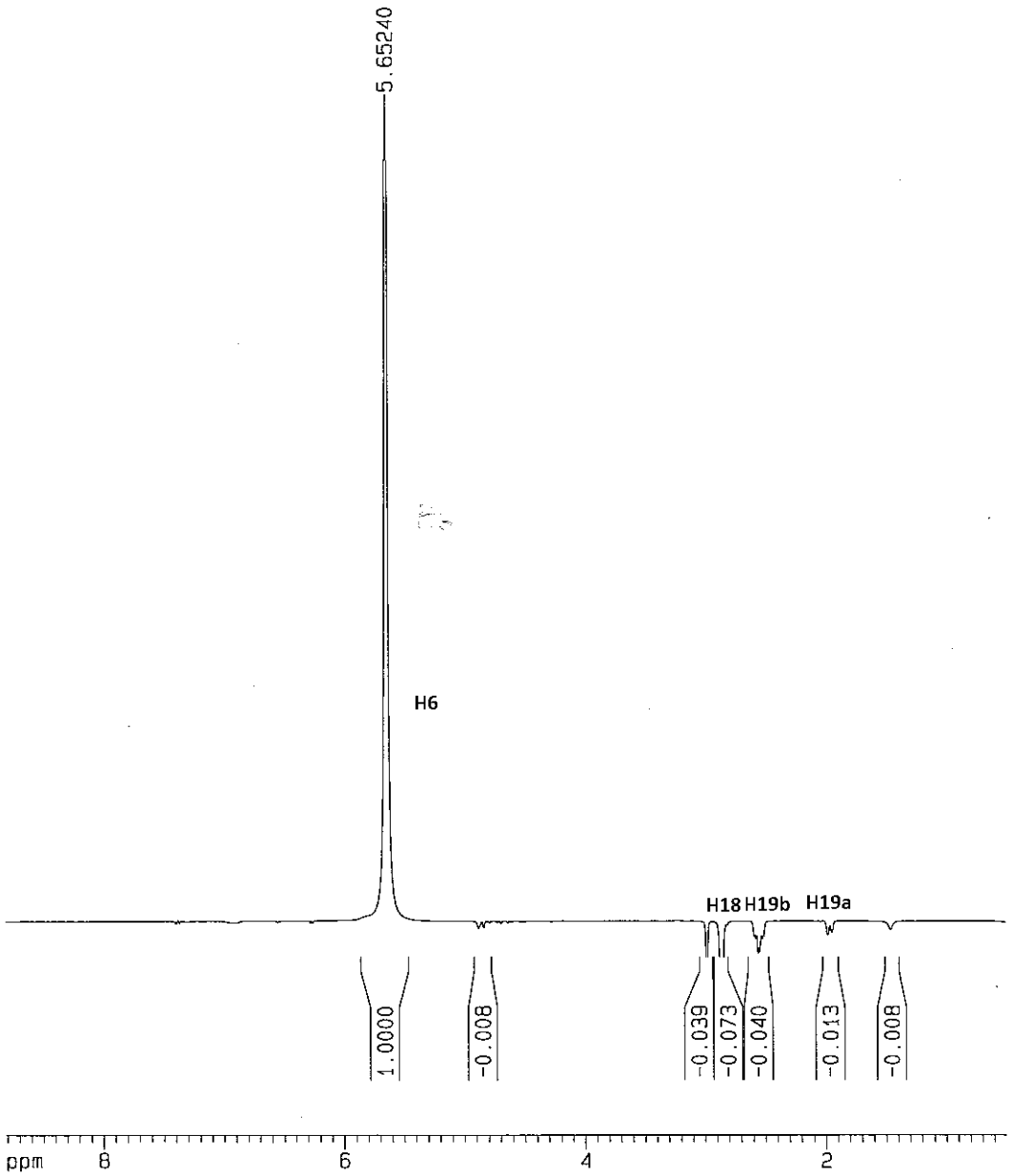


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Current Data Parameters
NAME         PL-Aug22-09
EXPNO                  5
PROCNO                 5

F2 - Acquisition Parameters
Date_           20090823
Time                3.25
INSTRUM            spect
PROBHD    5 mm BBI 1H-B
PULPROG       noesygptp
TD                  2048
SOLVENT             CDCl3
NS                     8
DS                     8
SWH           3324.468 Hz
FIDRES        1.623275 Hz
AQ            0.3080692 sec
RG                    64
DW              150.400 usec
DE                6.00 usec
TE                300.0 K
d0            0.00000300 sec
D1            4.00000000 sec
D8            0.80000001 sec
D16           0.00020000 sec
d20           0.39880002 sec
IN0           0.00012496 sec

============ CHANNEL f1 =============
NUC1                  1H
P1                 7.00 usec
P2                14.00 usec
PL1                0.00 dB
SFO1        400.1318738 MHz

============ GRADIENT CHANNEL ========
GPNAM1          sine.100
GPNAM2          sine.100
GPX1               0.00 %
GPX2               0.00 %
GPY1               0.00 %
GPY2               0.00 %
GPZ1              40.00 %
GPZ2             -40.00 %
P16            1000.00 usec

F2 - Processing parameters
SI                  2048
SF          400.1300092 MHz
WDW                GSINE
SSB                    2
LB                 0.00 Hz
GB                     0
PC                  1.00

1D NMR plot parameters
CX                20.00 cm
F1P               11.000 ppm
F1              4401.43 Hz
F2P               -1.000 ppm
F2              -400.13 Hz
PPMCM             0.60000 ppm/cm
HZCM            240.07800 Hz/cm
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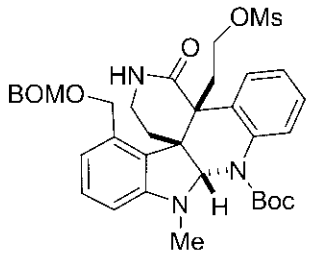

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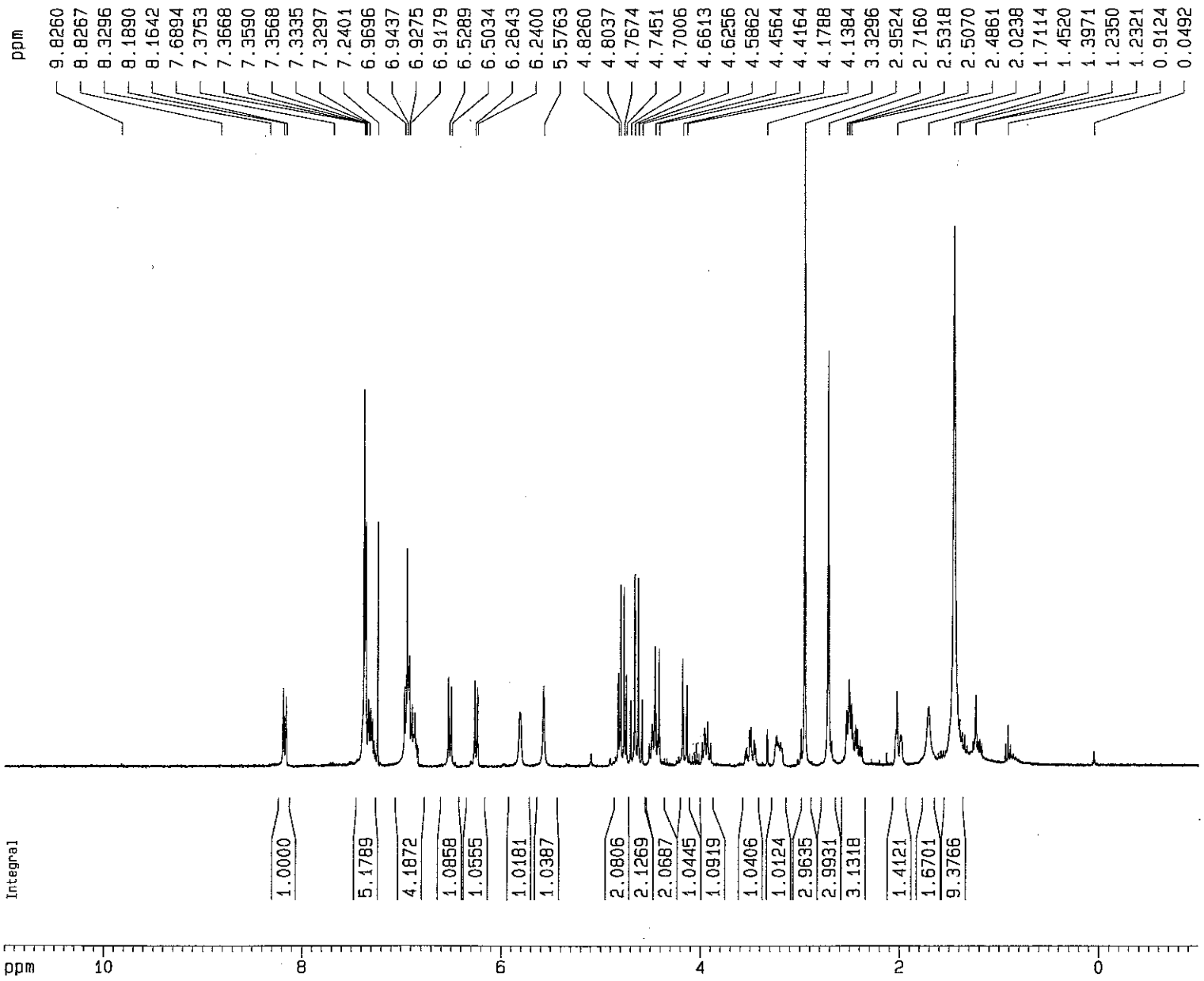


Current Data Parameters

NAME	PL-Aug26-2009
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20090826
Time	9.57
INSTRUM	spect
PROBHD	5 mm Multinu
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	362
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

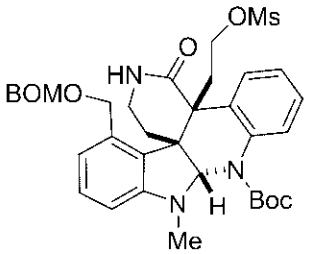
NUC1	1H
P1	9.60 usec
PL1	-6.00 dB
SFO1	300.1318534 MHz

F2 - Processing parameters

SI	32768
SF	300.1300124 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3301.43 Hz
F2P	-1.000 ppm
F2	-300.13 Hz
PPMCM	0.60000 ppm/cm
HZCM	180.07800 Hz/cm



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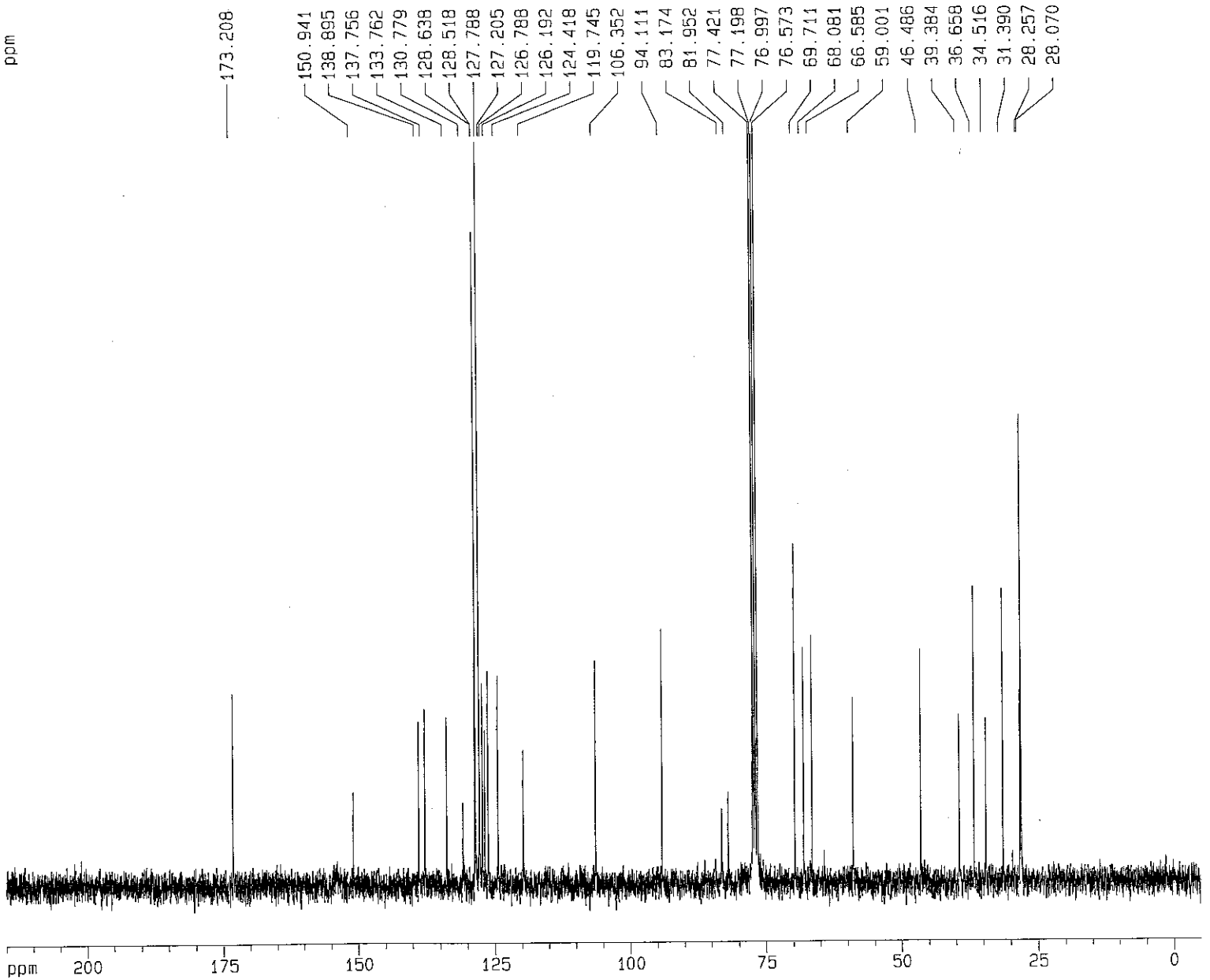


Current Data Parameters

NAME	PL-Aug26-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20090826
Time	10.51
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	1405
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	512
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

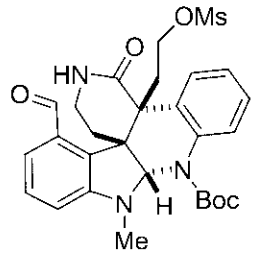
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023769 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.51 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42615 Hz/cm



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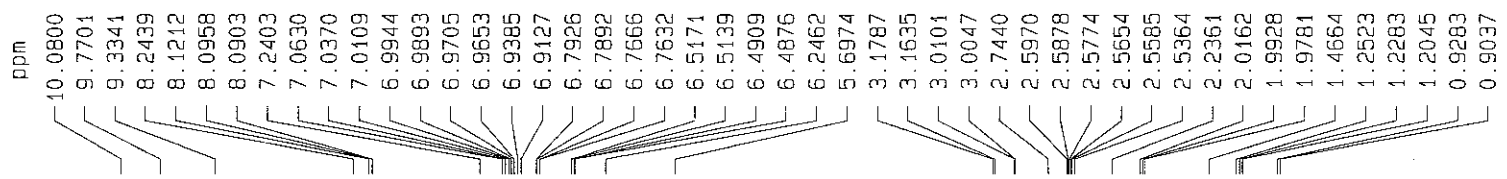
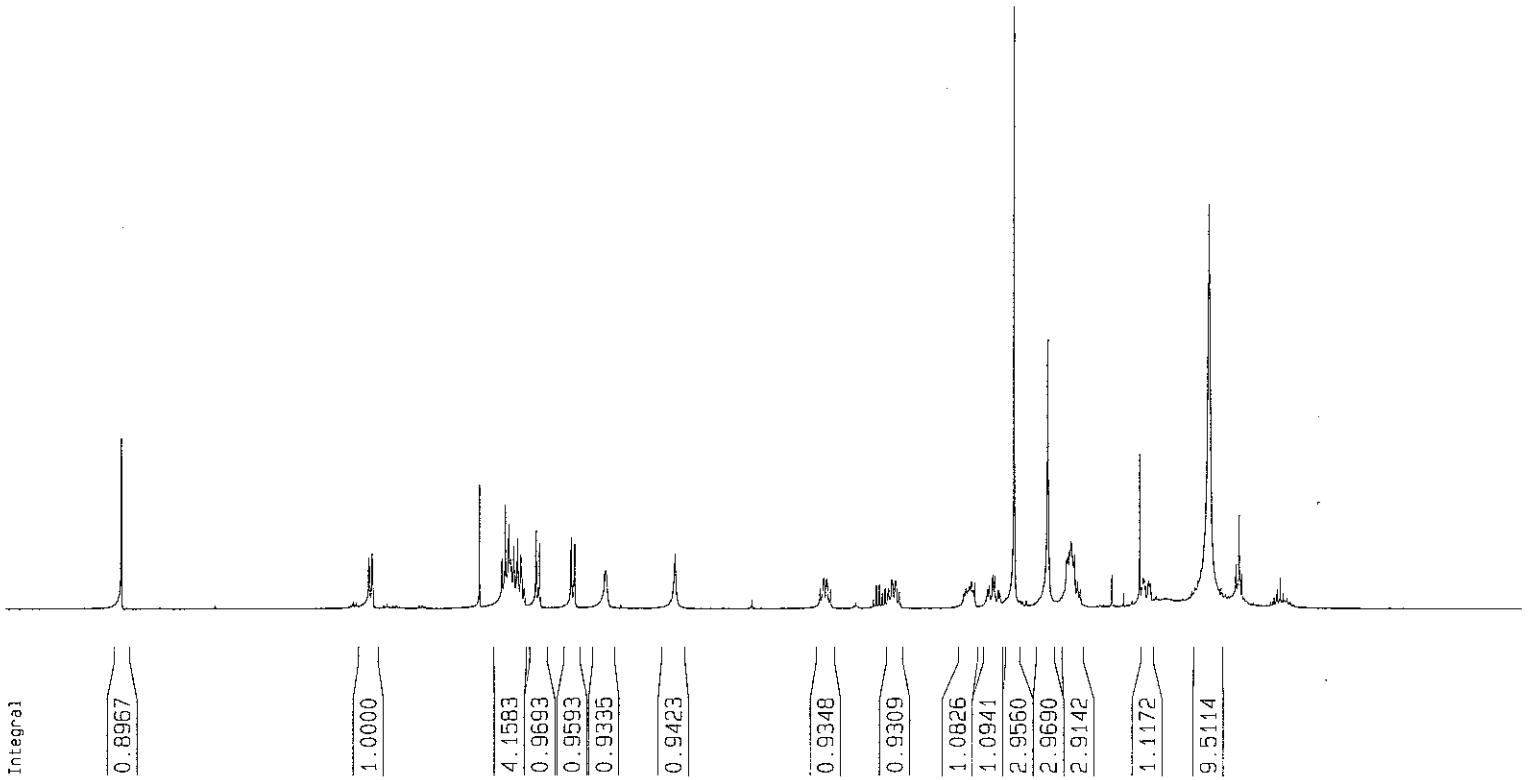




Current Data Parameters

NAME	PL-Oct24-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20091024
Time	12.37
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	181
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

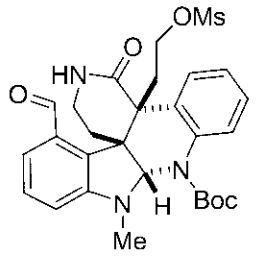
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700157 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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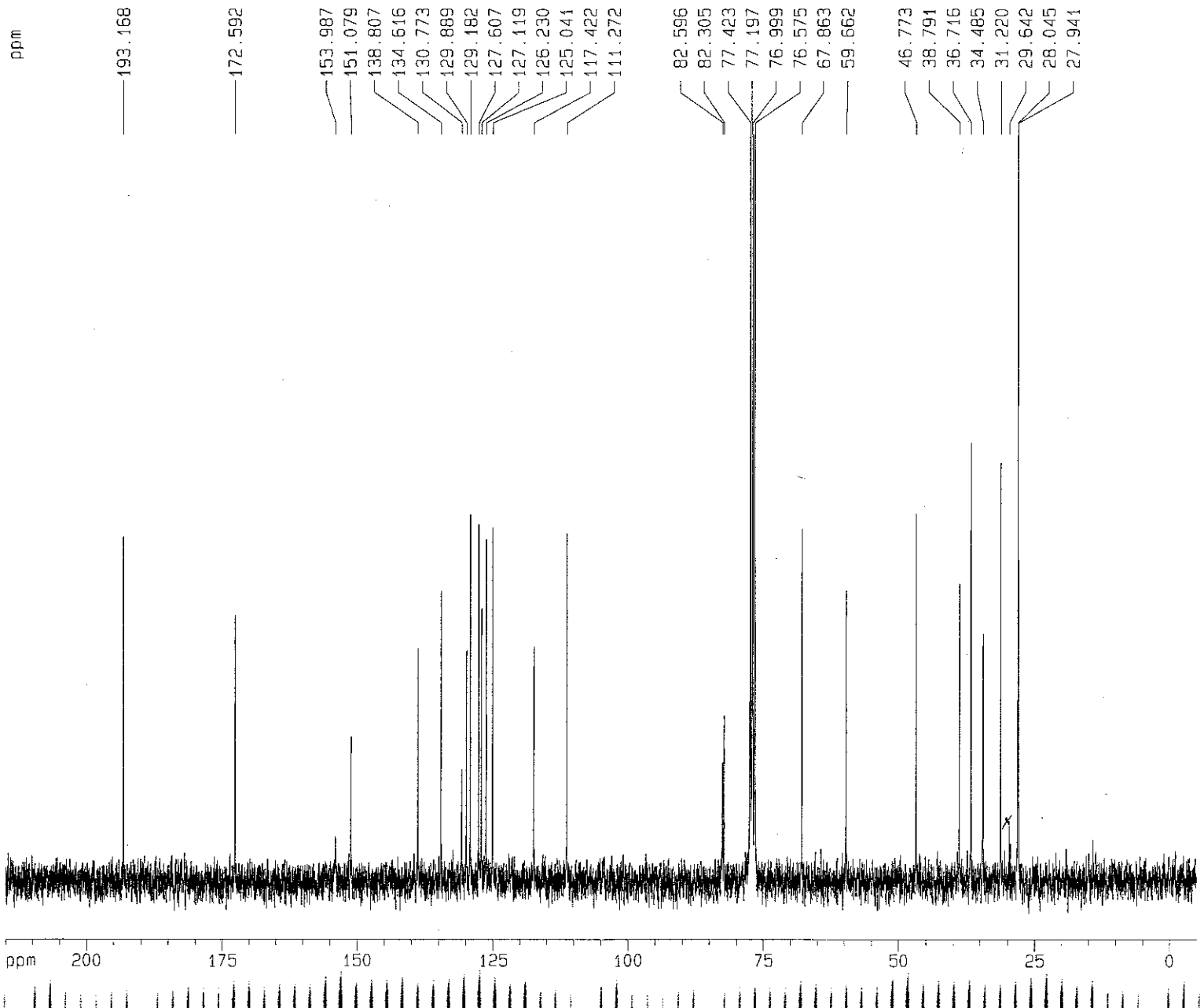


Current Data Parameters

NAME	PL-Oct24-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20091024
Time	13.43
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	991
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	4096
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SF01	75.4106357 MHz

========== CHANNEL f2 ==========

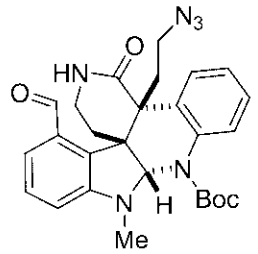
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SF02	299.8711995 MHz

F2 - Processing parameters

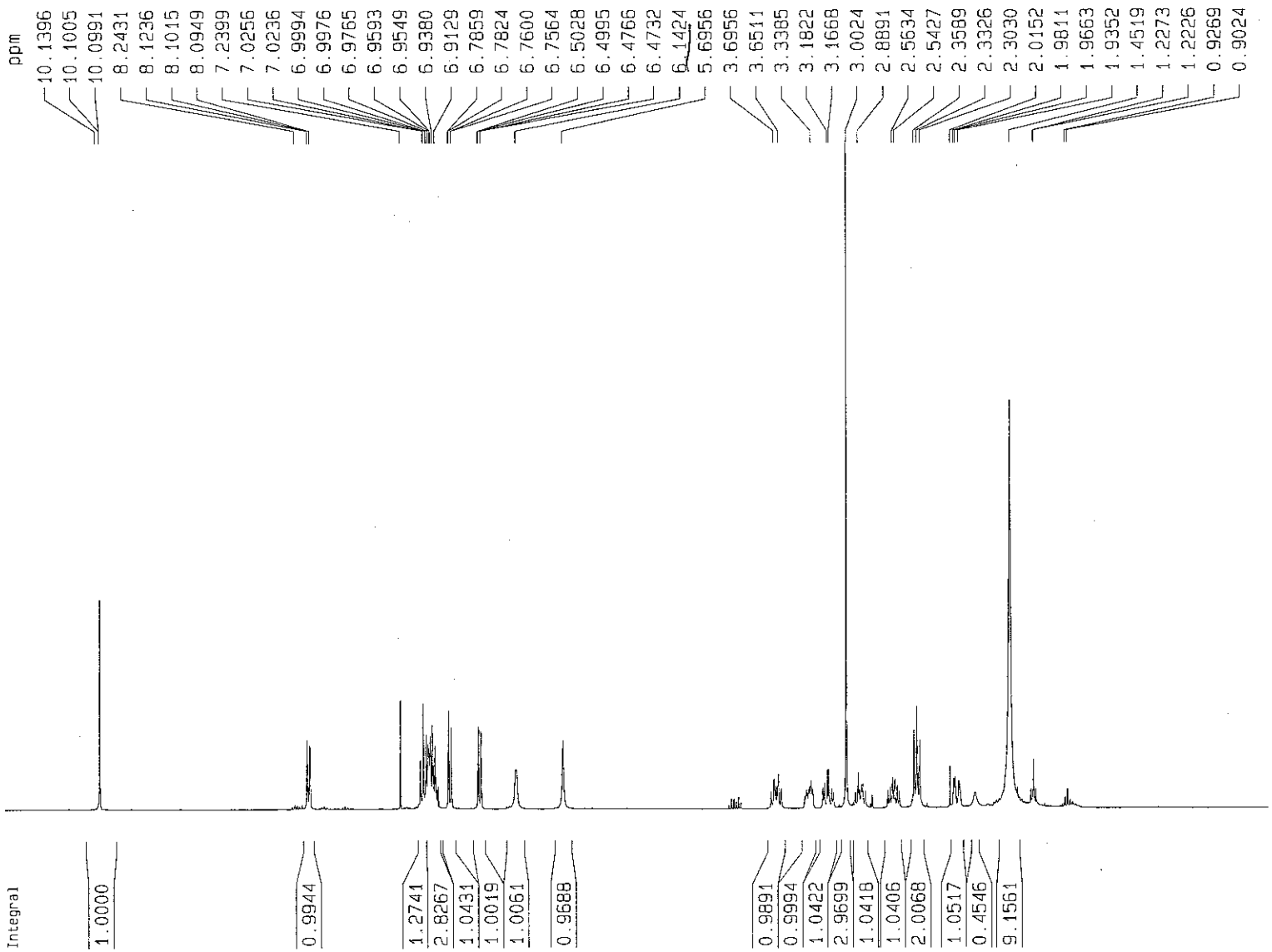
SI	32768
SF	75.4023775 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.51 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42615 Hz/cm



55



Current Data Parameters

NAME	PL-Oct28-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20091028
Time	12.23
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	181
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

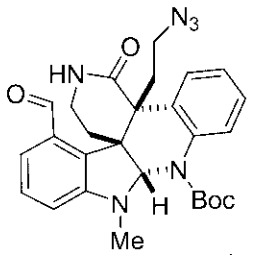
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700161 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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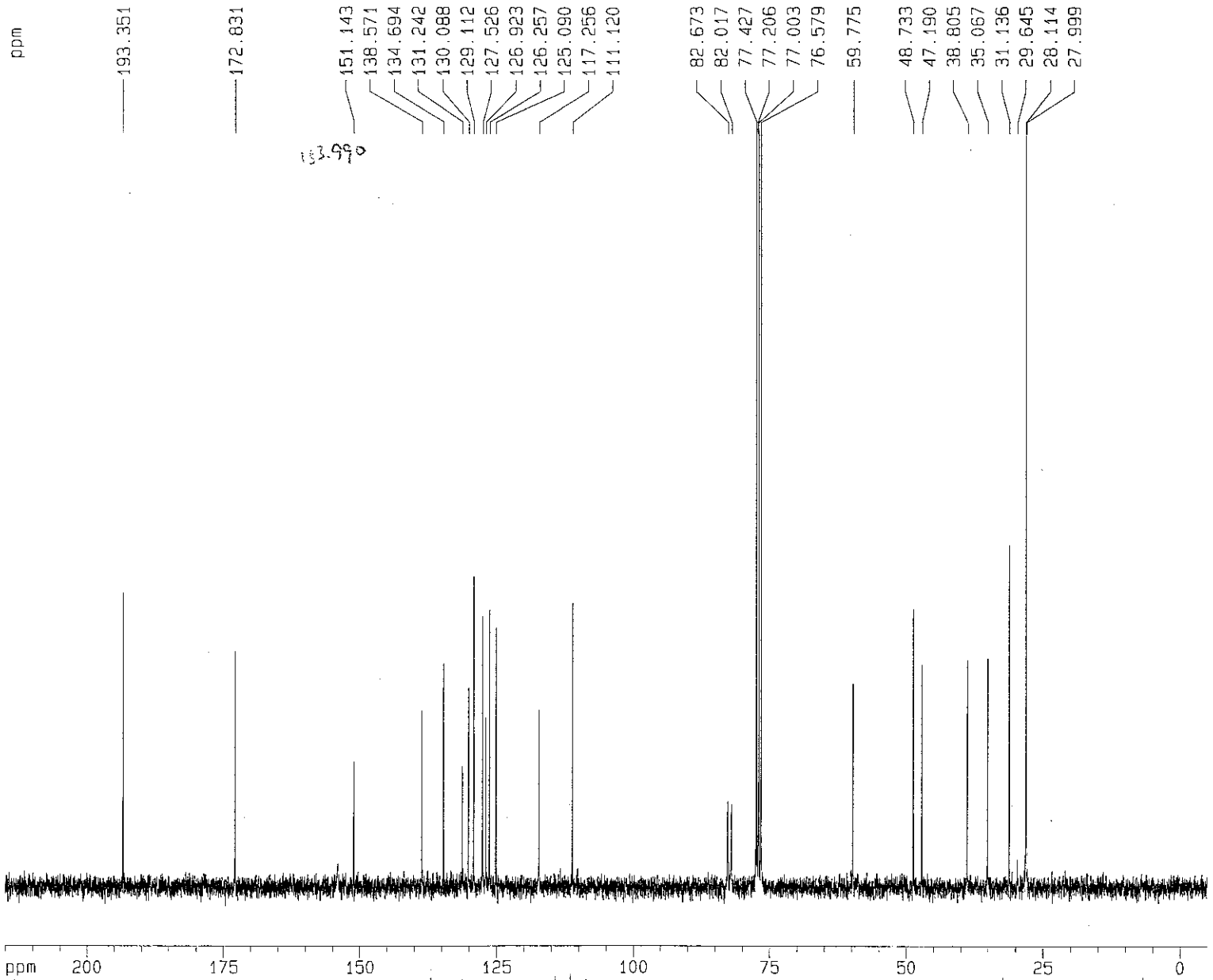



```
Current Data Parameters
NAME          PL-Oct28-09
EXPNO                   2
PROCNO                  1

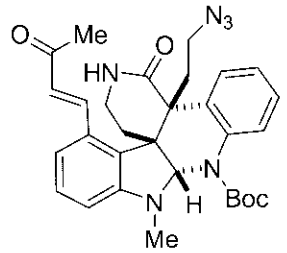
F2 - Acquisition Parameters
Date_           20091028
Time               12.31
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  540
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                  512
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                5.40 usec
PL1              -6.00 dB
SFO1         75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2              0.00 dB
PL12            20.00 dB
PL13            20.00 dB
SFO2        299.8711995 MHz

F2 - Processing parameters
SI                32768
SF           75.4023775 MHz
WDW                  EM
SSB                   0
LB                 1.00 Hz
GB                    0
PC                 1.40

1D NMR plot parameters
CX                20.00 cm
F1P              215.000 ppm
F1              16211.51 Hz
F2P              -5.000 ppm
F2              -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM          829.42615 Hz/cm
```



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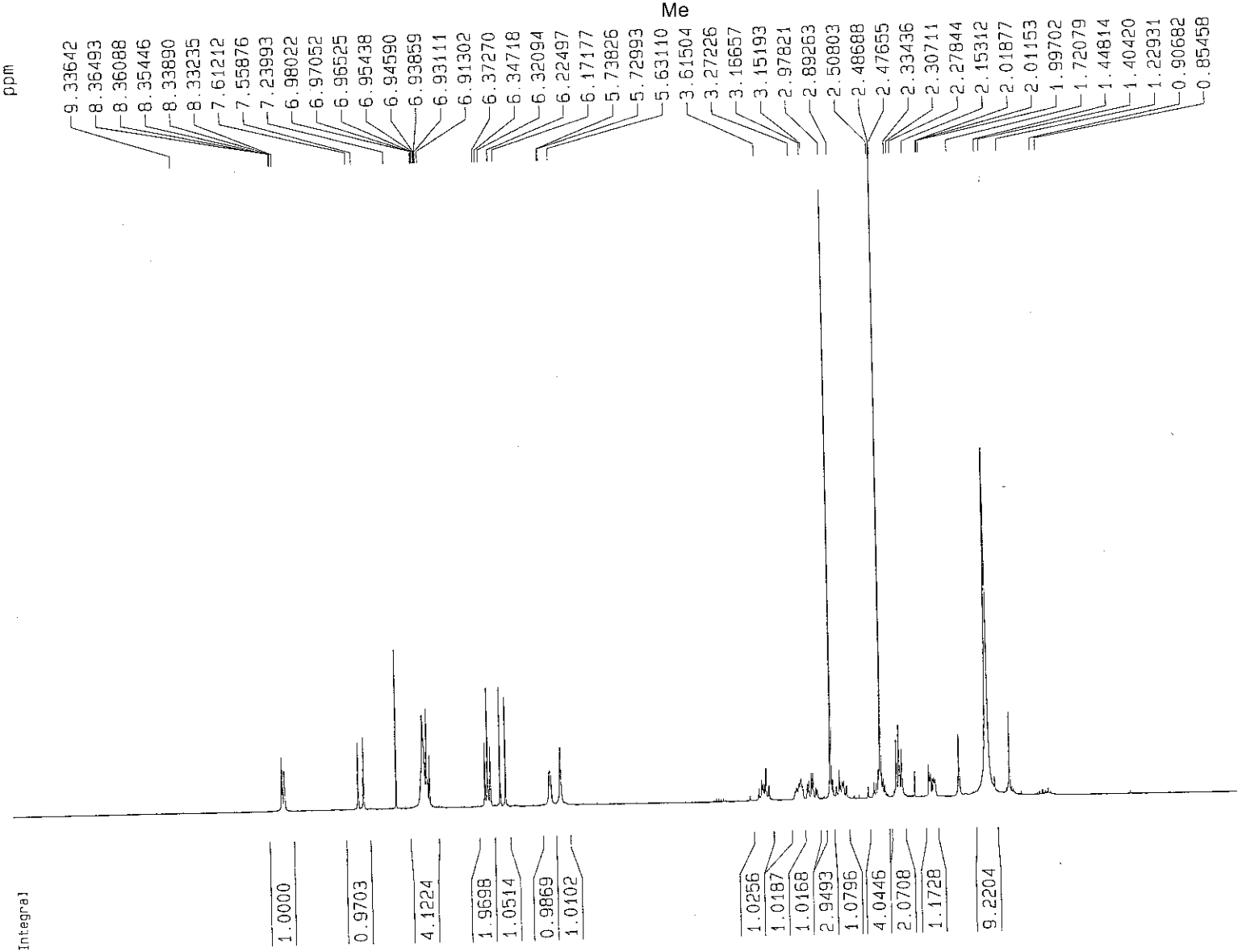


Current Data Parameters

NAME	PL-Oct29-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20091029
Time	18.49
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084650 sec
RG	203.2
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

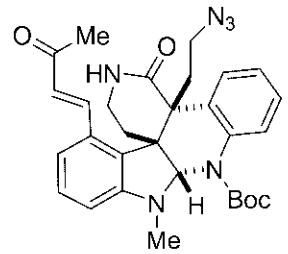
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700161 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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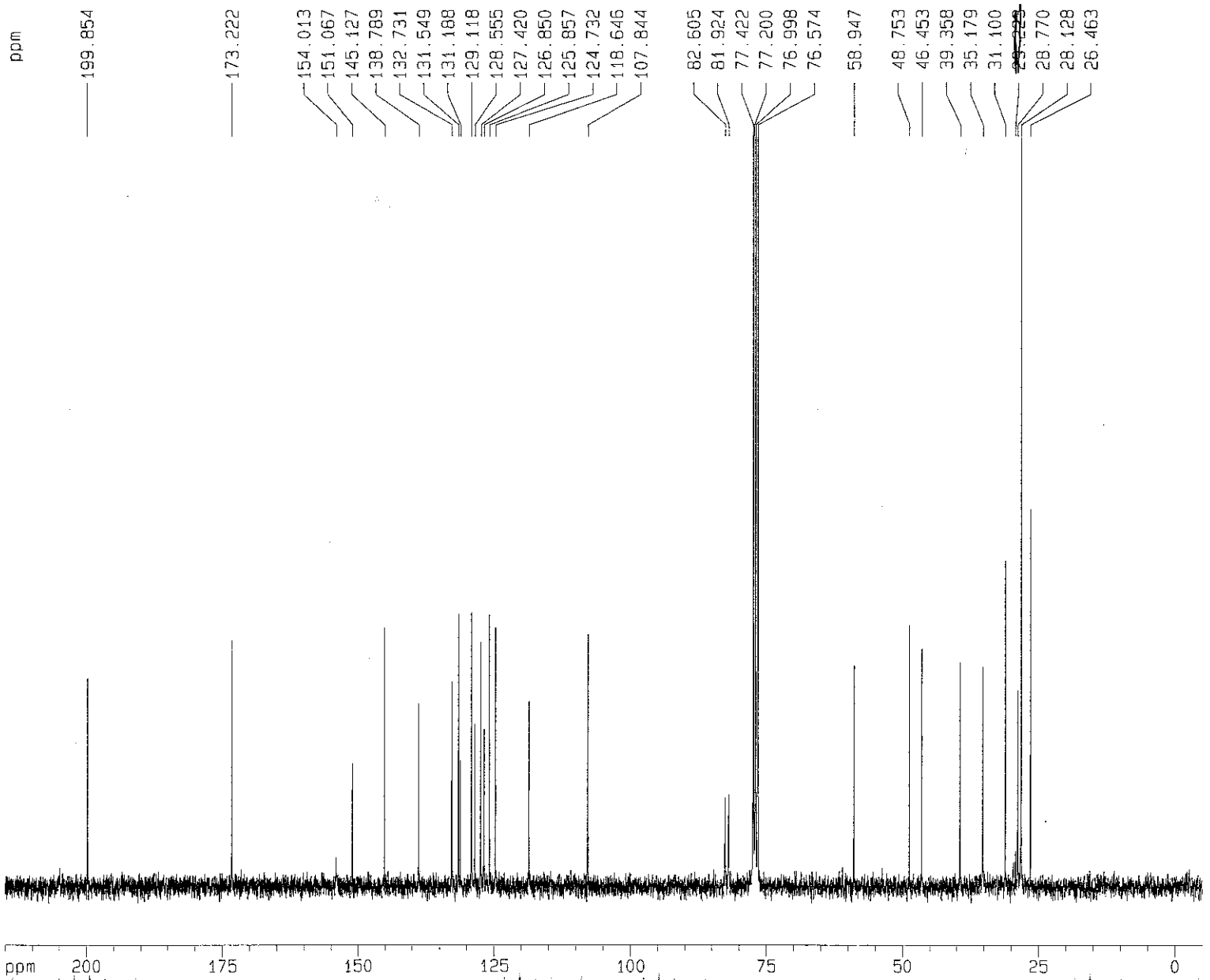



```
Current Data Parameters
NAME          PL-Oct29-09
EXPNO                   4
PROCNO                  1

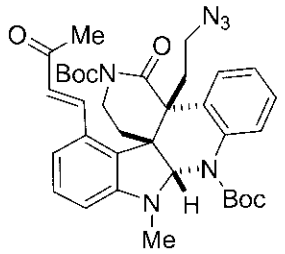
F2 - Acquisition Parameters
Date_           20091029
Time               18.55
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                 1230
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                 4096
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                 5.40 usec
PL1               -6.00 dB
SFO1         75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2            115.00 usec
PL2                0.00 dB
PL12              20.00 dB
PL13              20.00 dB
SFO2        299.8711995 MHz

F2 - Processing parameters
SI                 32768
SF           75.4023769 MHz
WDW                   EM
SSB                    0
LB                  1.00 Hz
GB                     0
PC                  1.40

1D NMR plot parameters
CX                 20.00 cm
F1P               215.000 ppm
F1              16211.51 Hz
F2P                -5.000 ppm
F2               -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM          829.42615 Hz/cm
```



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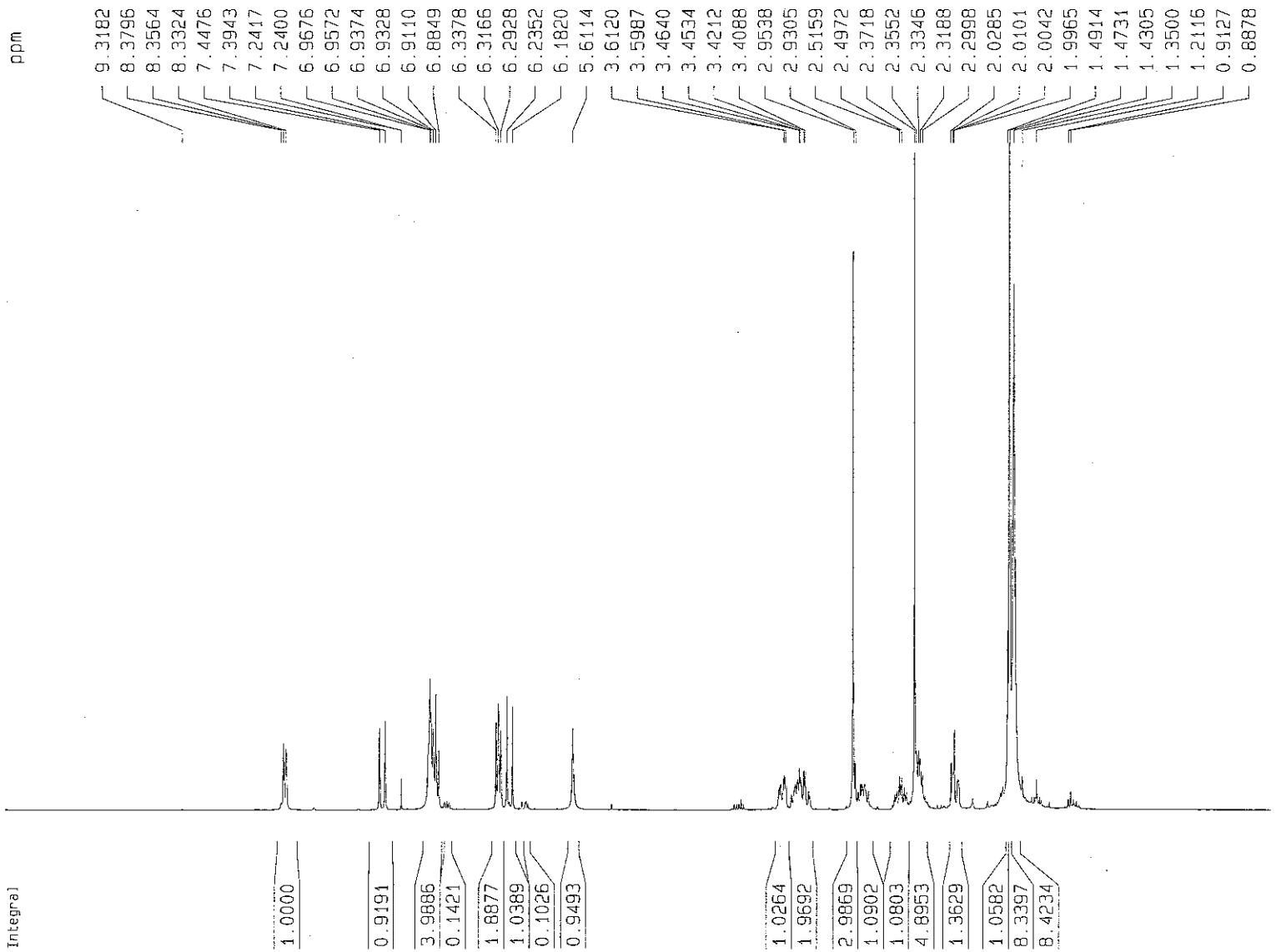


Current Data Parameters

NAME	PL-Nov01-09
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20091101
Time	12.50
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	80.6
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

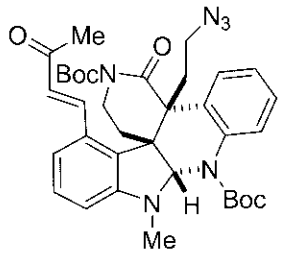
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

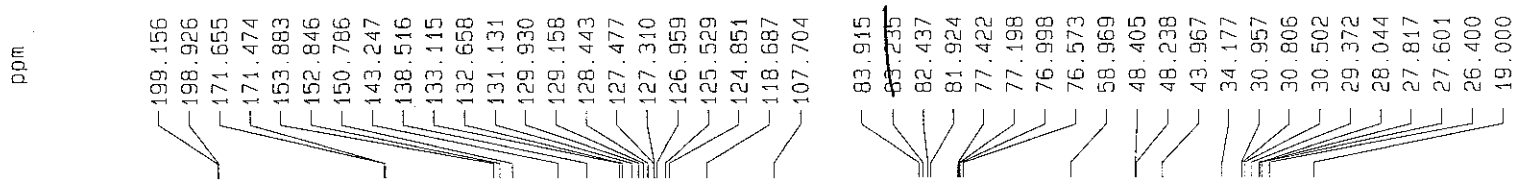
SI	32768
SF	299.8700157 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

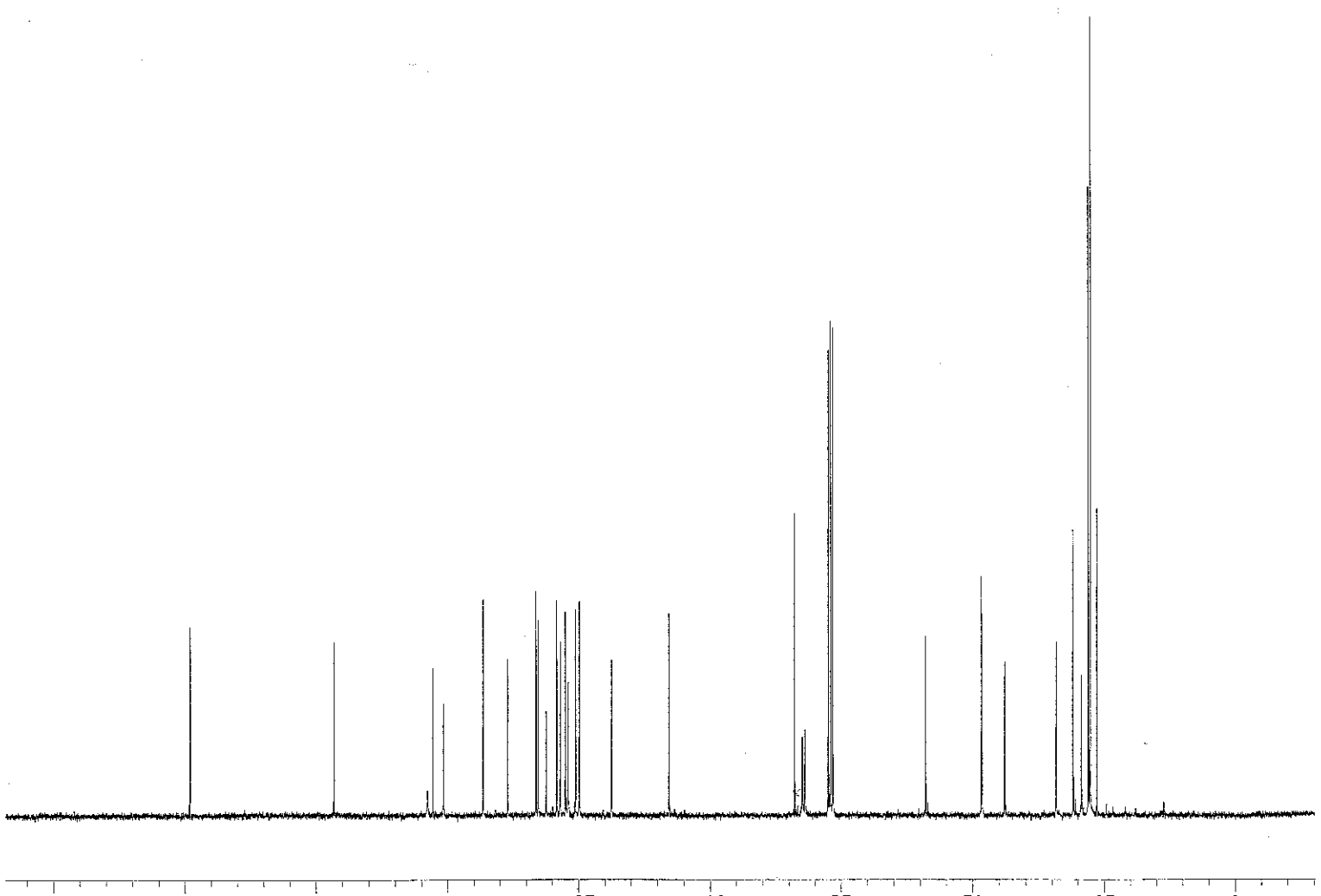
1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



57






```
Current Data Parameters
NAME          PL-Nov01-09
EXPNO                   4
PROCNO                  1

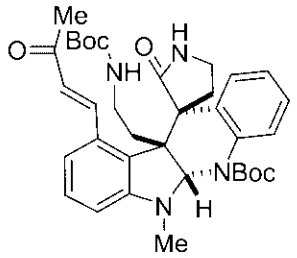
F2 - Acquisition Parameters
Date_          20091101
Time              12.57
INSTRUM           spect
PROBHD    5 mm QNP 1H/1
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                 1028
DS                    4
SWH          18796.992 Hz
FIDRES        0.286819 Hz
AQ           1.7433076 sec
RG                 4096
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1           2.00000000 sec
D11          0.03000000 sec
D12          0.00002000 sec

============ CHANNEL f1 ============
NUC1                13C
P1                 5.40 usec
PL1               -6.00 dB
SFO1         75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2               0.00 dB
PL12             20.00 dB
PL13             20.00 dB
SFO2        299.6711995 MHz

F2 - Processing parameters
SI                 32768
SF          75.4023815 MHz
WDW                   EM
SSB                    0
LB                  1.00 Hz
GB                     0
PC                  1.40

1D NMR plot parameters
CX                 20.00 cm
F1P               234.114 ppm
F1              17652.77 Hz
F2P               -15.175 ppm
F2              -1144.22 Hz
PPMCM           12.46445 ppm/cm
HZCM          939.94949 Hz/cm
```



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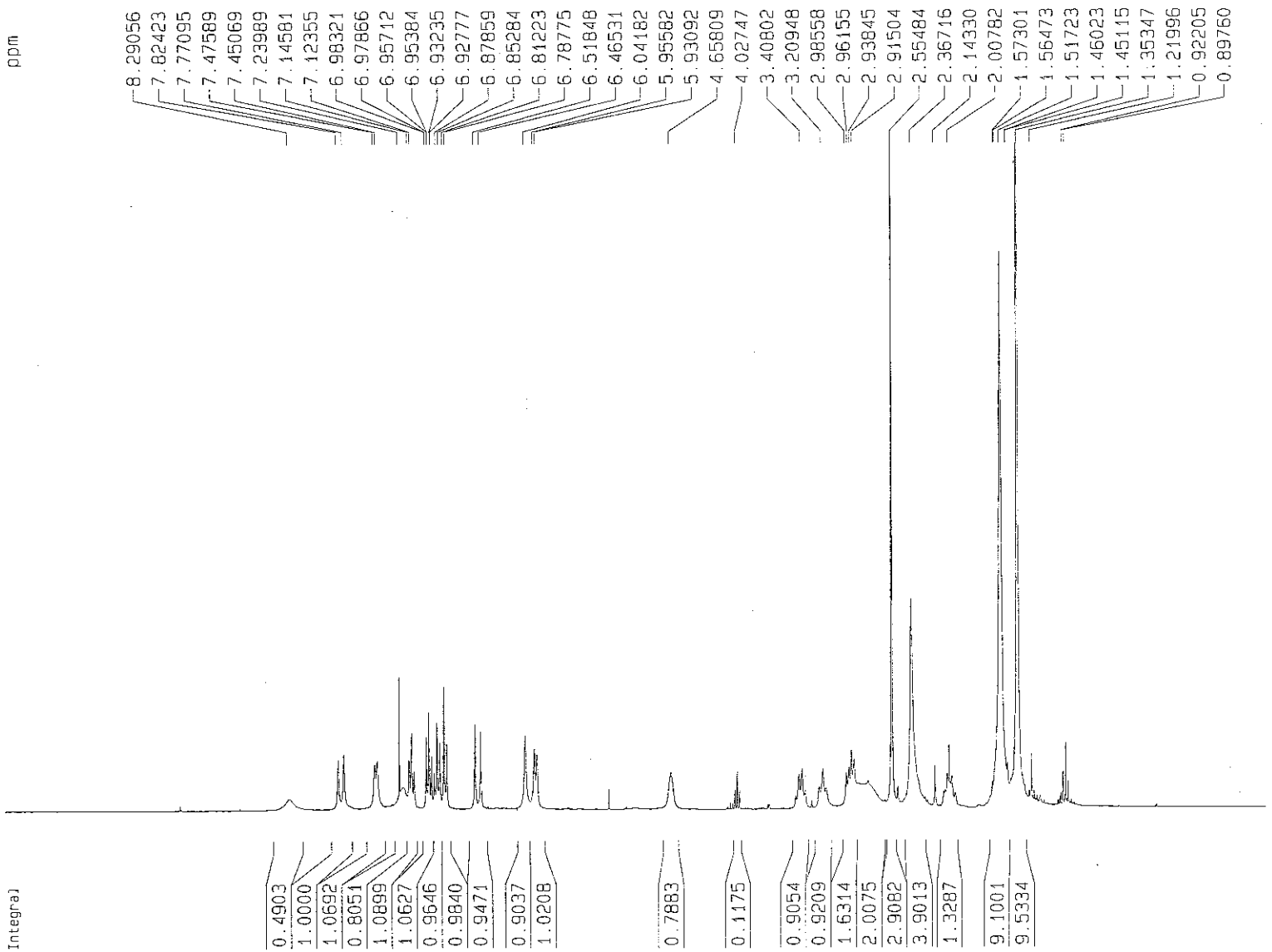


Current Data Parameters

NAME	PL-Nov03-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20091103
Time	17.33
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3064660 sec
RG	80.6
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

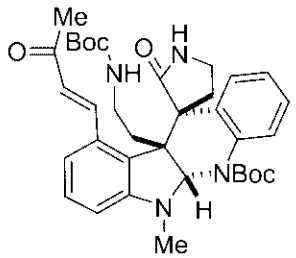
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718516 MHz

F2 - Processing parameters

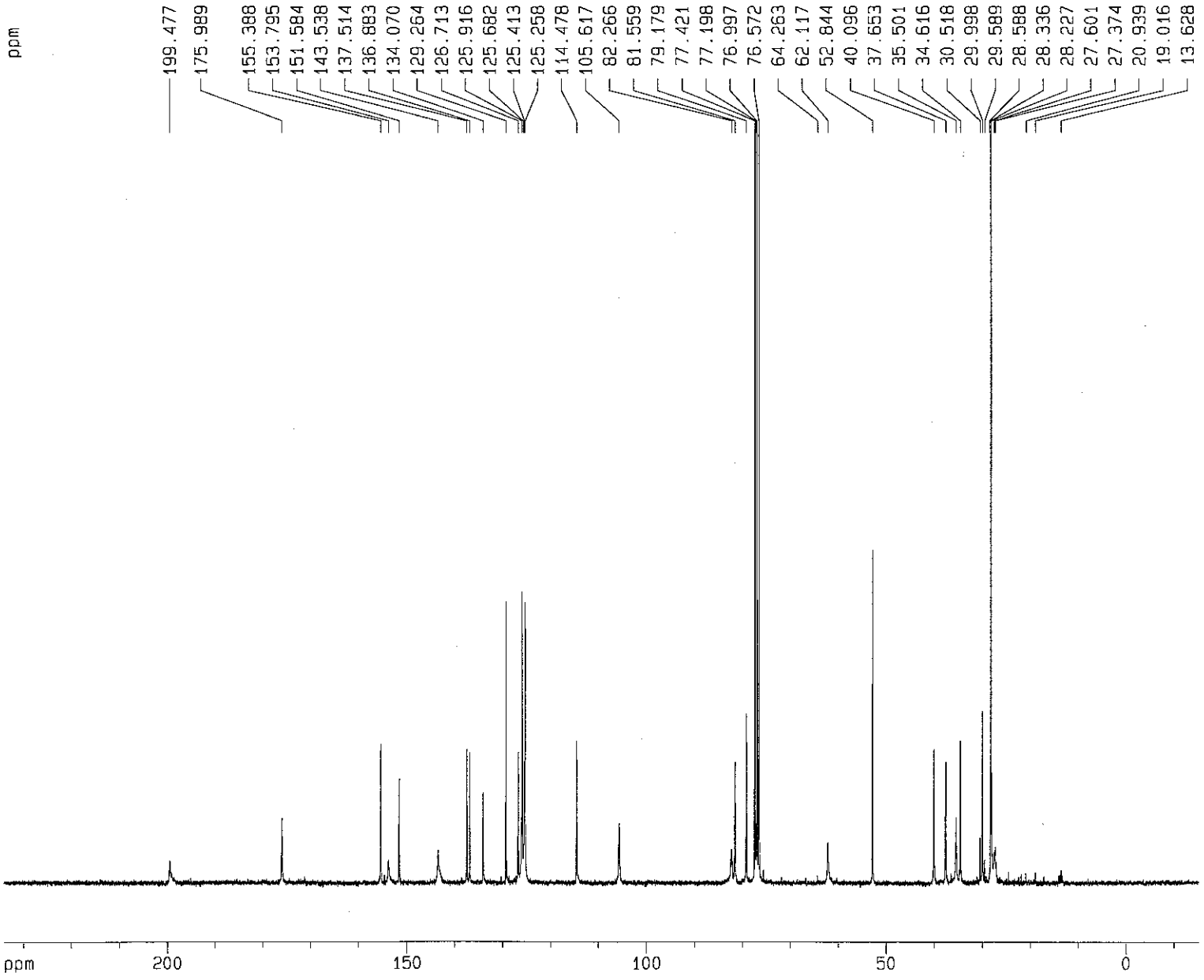
SI	32768
SF	299.8700159 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



58




```
Current Data Parameters
NAME          PL-Nov03-09
EXPNO                   5
PROCNO                  1

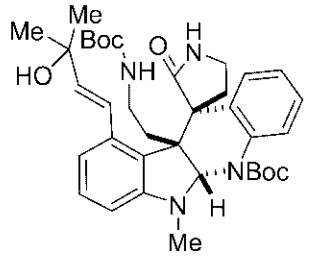
F2 - Acquisition Parameters
Date_           20091103
Time               21.26
INSTRUM            spect
PROBHD     5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                12000
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                 4096
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

========== CHANNEL f1 ==========
NUC1                13C
P1                5.40 usec
PL1               -6.00 dB
SFO1          75.4106357 MHz

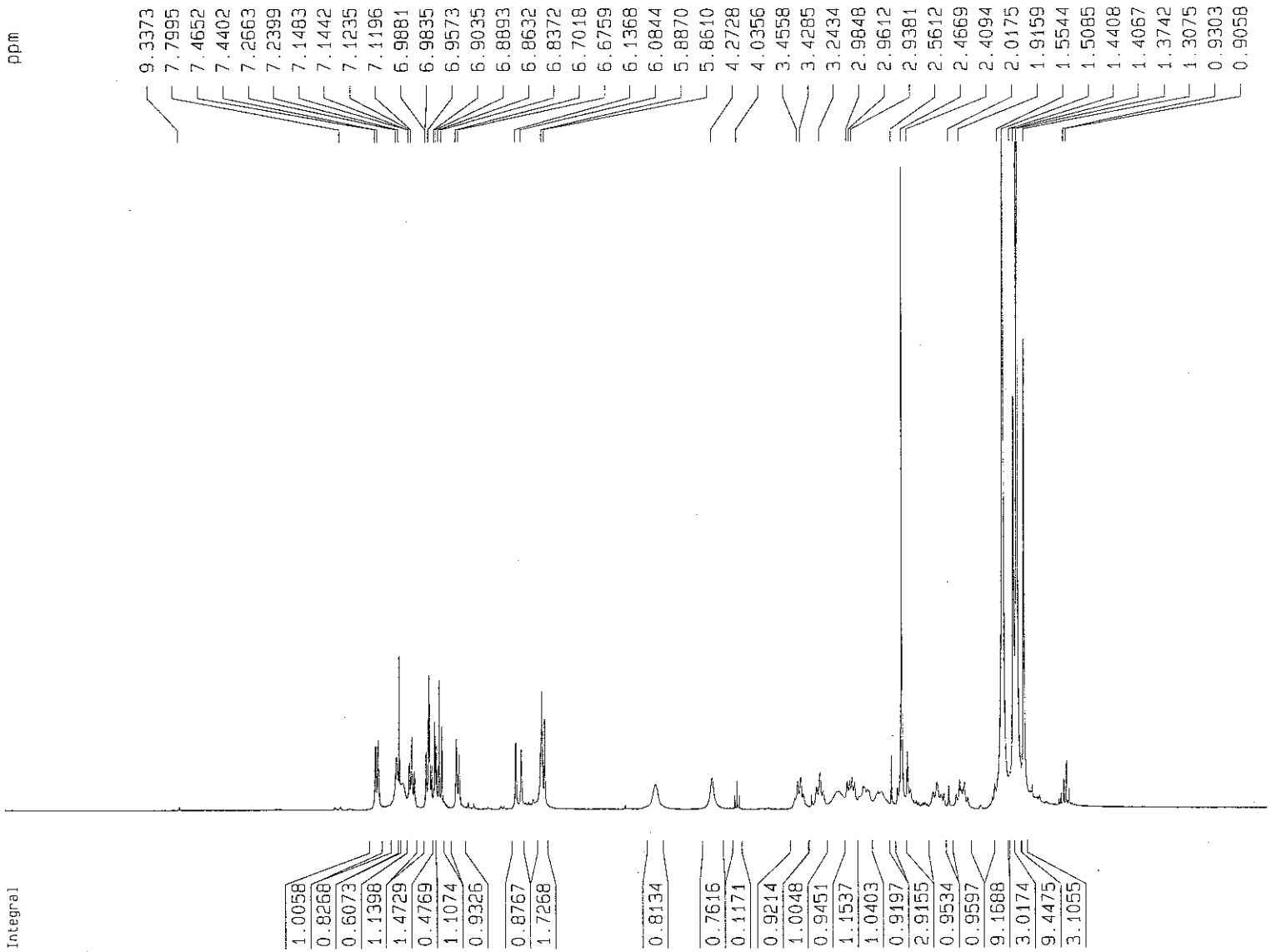
========== CHANNEL f2 ==========
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2               0.00 dB
PL12             20.00 dB
PL13             20.00 dB
SFO2         299.8711995 MHz

F2 - Processing parameters
SI                 32768
SF          75.4023809 MHz
WDW                   EM
SSB                    0
LB                1.00 Hz
GB                     0
PC                 1.40

1D NMR plot parameters
CX                20.00 cm
F1P              234.122 ppm
F1              17653.34 Hz
F2P              -15.167 ppm
F2              -1143.65 Hz
PPMCM           12.46446 ppm/cm
HZCM           939.84961 Hz/cm
```



59



Current Data Parameters

NAME	PL-Nov06-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20091106
Time	11.53
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	114
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

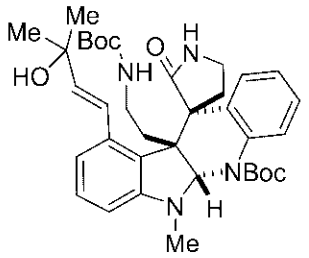
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

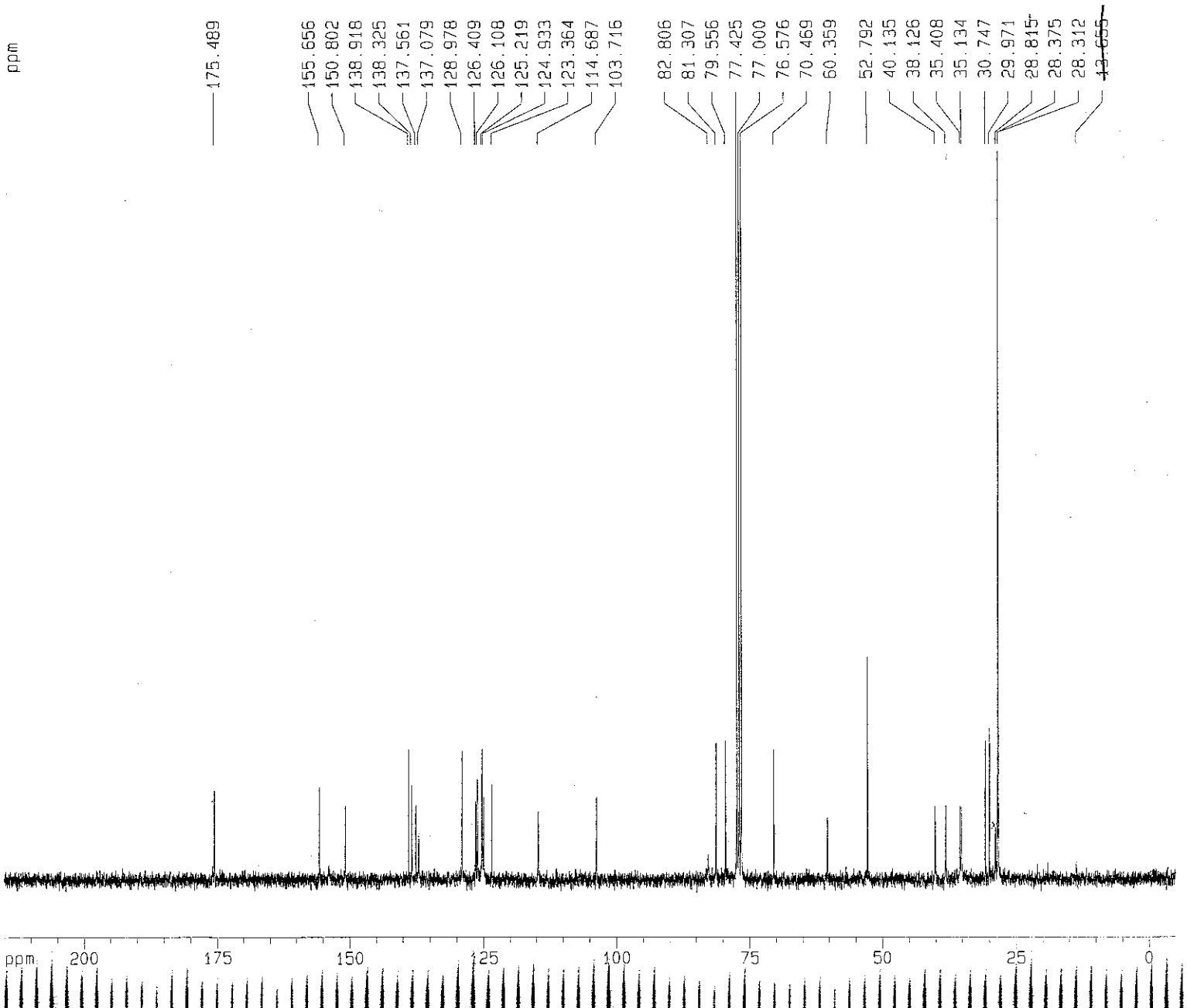
SI	32768
SF	299.8700159 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



59



Current Data Parameters
NAME PL-Nov06-09
EXPNO 2
PROCNO 1

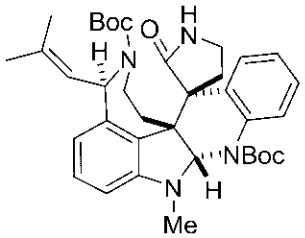
F2 - Acquisition Parameters
Date_ 20091106
Time 12.01
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 411
DS 4
SWH 18796.992 Hz
FIDRES 0.286819 Hz
AQ 1.7433076 sec
RG 4096
DW 26.600 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
D11 0.03000000 sec
D12 0.00002000 sec

========== CHANNEL f1 ==========
NUC1 13C
P1 5.40 usec
PL1 -6.00 dB
SFO1 75.4106357 MHz

========== CHANNEL f2 ==========
CPDPRG2 waltz16
NUC2 1H
PCPD2 115.00 usec
PL2 0.00 dB
PL12 20.00 dB
PL13 20.00 dB
SFO2 299.8711995 MHz

F2 - Processing parameters
SI 32768
SF 75.4023798 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 20.00 cm
F1P 215.000 ppm
F1 16211.51 Hz
F2P -5.000 ppm
F2 -377.01 Hz
PPMCM 11.00000 ppm/cm
HZCM 829.42621 Hz/cm



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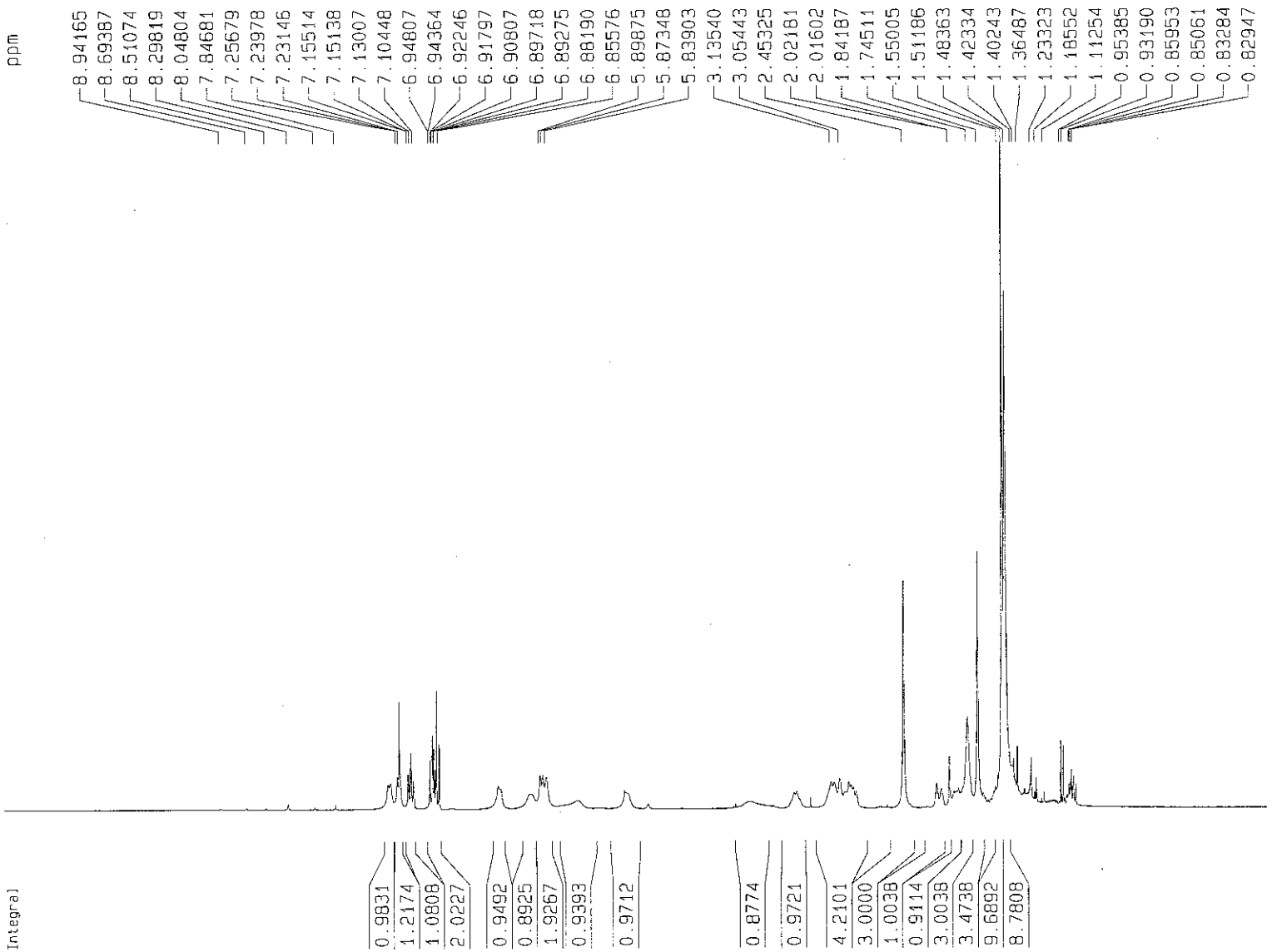


Current Data Parameters

NAME	PL-Nov07-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20091107
Time	11.50
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	128
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

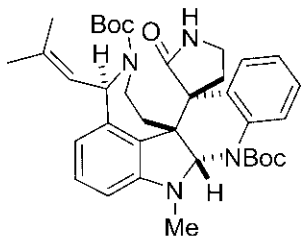
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718516 MHz

F2 - Processing parameters

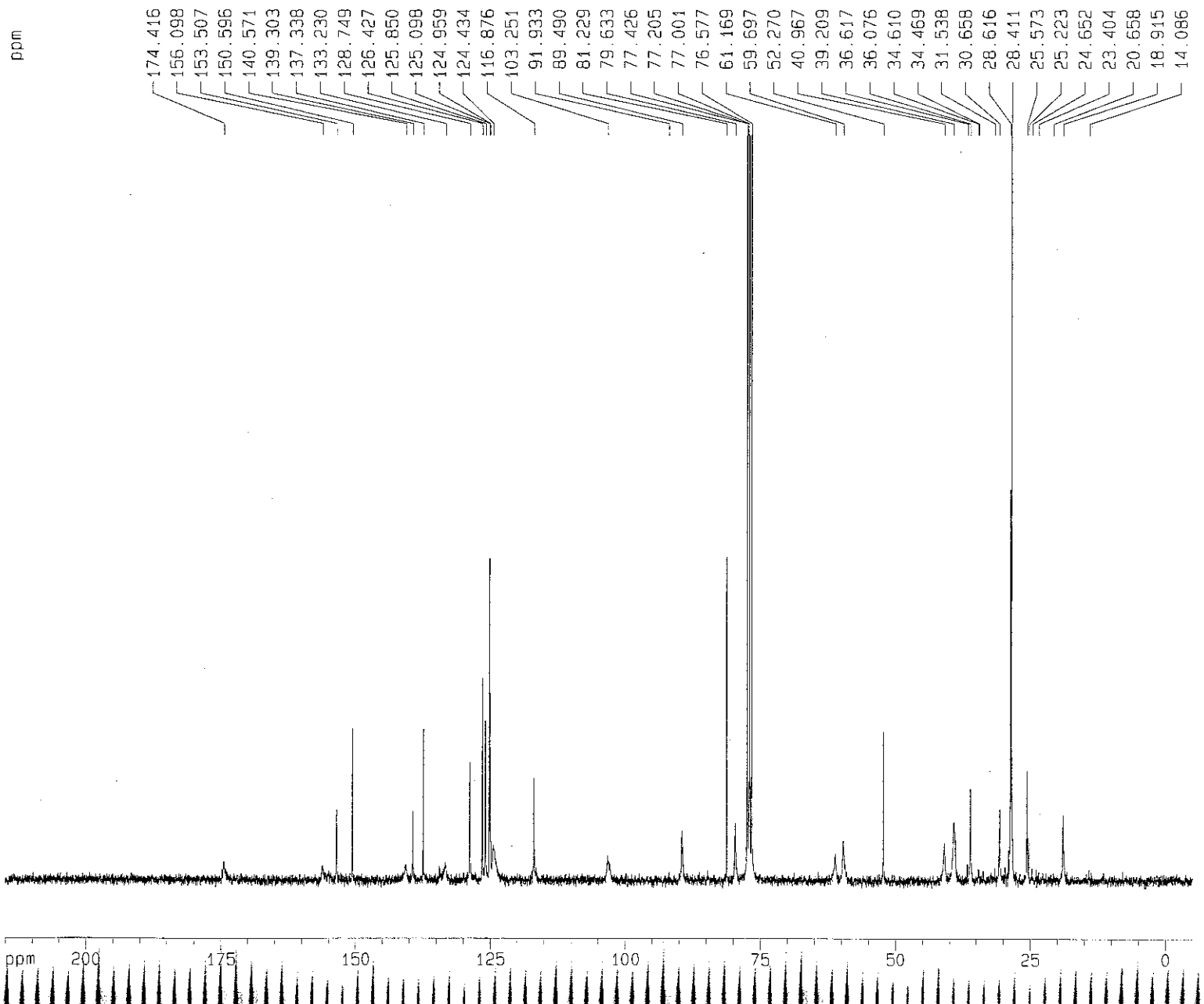
SI	32768
SF	299.8700161 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



61




```
Current Data Parameters
NAME          PL-Nov07-09
EXPNO                   3
PROCNO                  1

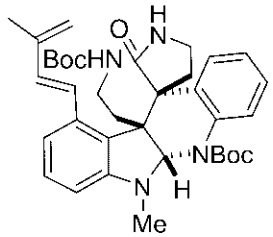
F2 - Acquisition Parameters
Date_              2009107
Time                 13.18
INSTRUM              spect
PROBHD    5 mm GNP 1H/1
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                    6686
DS                       4
SWH             18796.992 Hz
FIDRES          0.286819 Hz
AQ              1.7433076 sec
RG                    1024
DW                26.600 usec
DE                 6.00 usec
TE                300.0 K
D1             2.00000000 sec
D11            0.03000000 sec
D12            0.00002000 sec

========== CHANNEL f1 ==========
NUC1                  13C
P1                  5.40 usec
PL1                -6.00 dB
SF01          75.4106357 MHz

========== CHANNEL f2 ==========
CPDPRG2          waltz16
NUC2                  1H
PCPD2             115.00 usec
PL2                0.00 dB
PL12              20.00 dB
PL13              20.00 dB
SF02         299.8711995 MHz

F2 - Processing parameters
SI                   32768
SF            75.4023775 MHz
WDW                     EM
SSB                      0
LB                  1.00 Hz
GB                       0
PC                    1.40

1D NMR plot parameters
CX                  20.00 cm
F1P               215.000 ppm
F1                16211.51 Hz
F2P                -5.000 ppm
F2                -377.01 Hz
PPMCM          11.00000 ppm/cm
HZCM           1819.42615 Hz/cm
```



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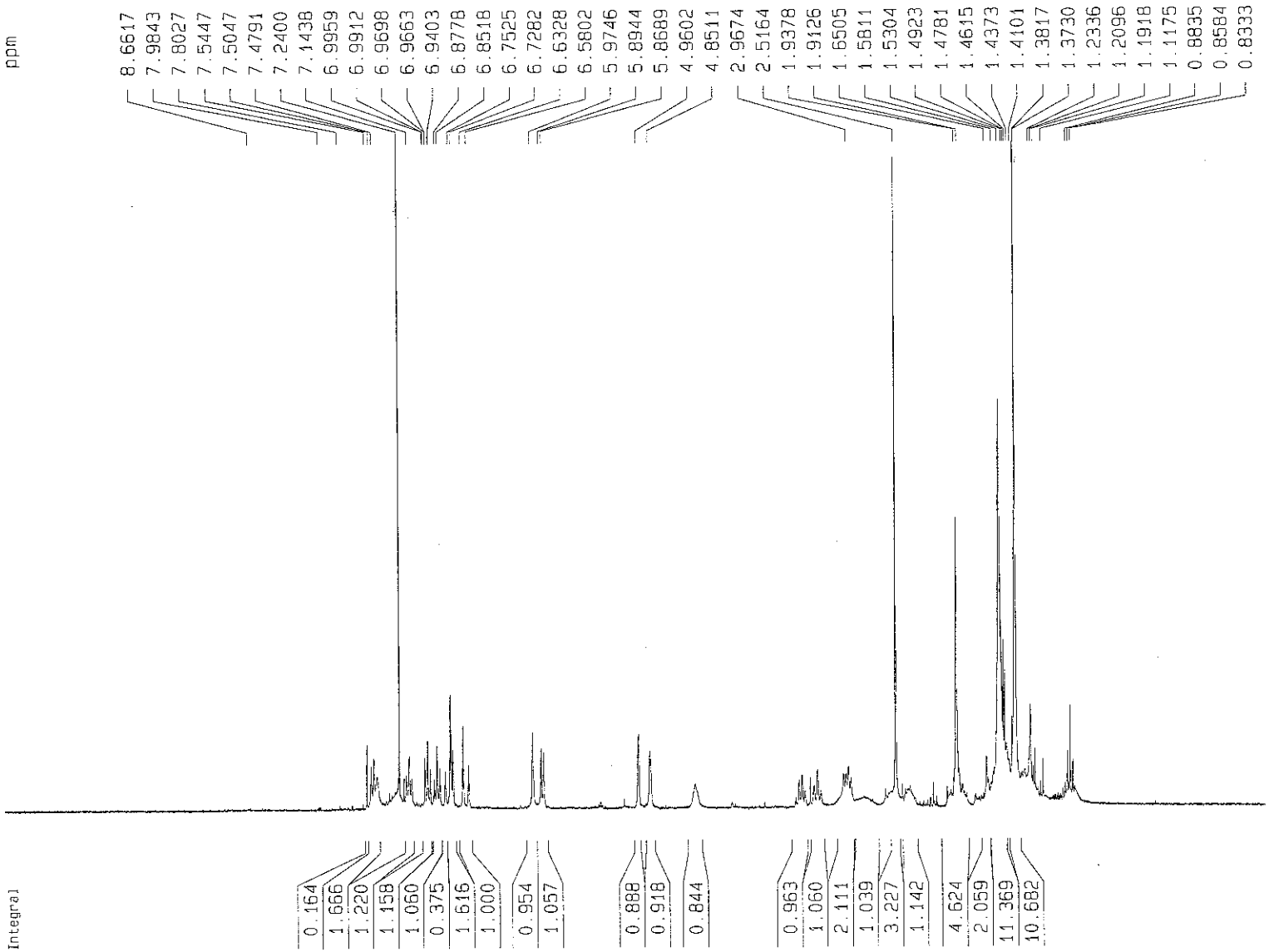


Current Data Parameters

NAME	PL-Nov07-09
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20091107
Time	21.02
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	406.4
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

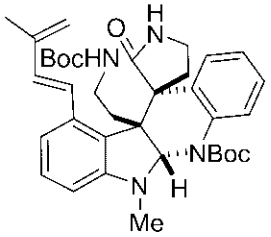
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700161 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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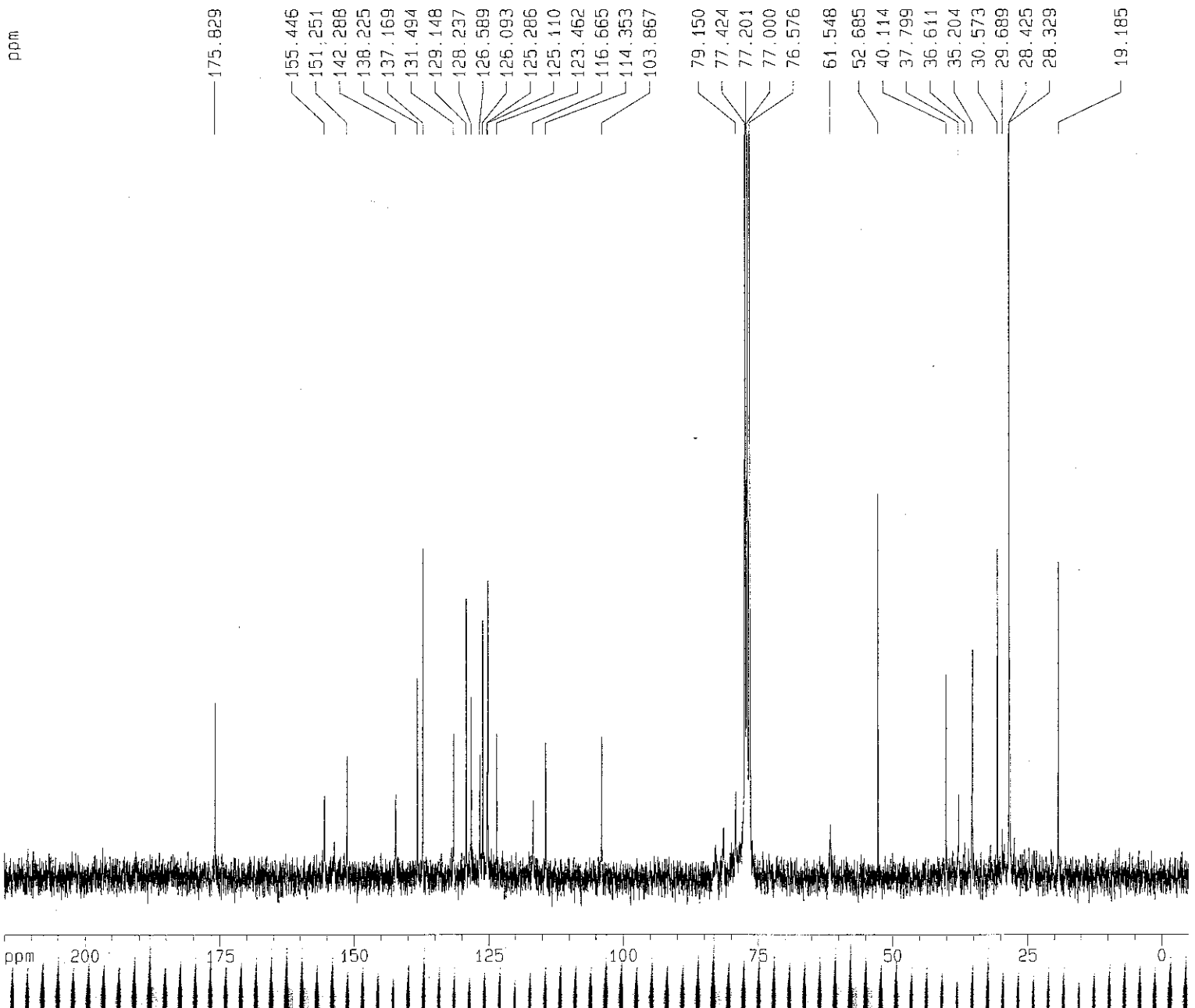


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Current Data Parameters
NAME          PL-Nov07-09
EXPNO                   6
PROCNO                  1

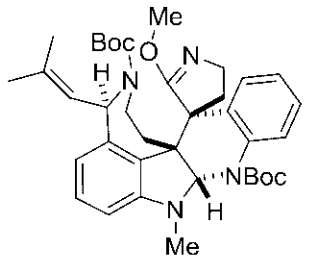
F2 - Acquisition Parameters
Date_            20091107
Time                21.12
INSTRUM             spect
PROBHD    5 mm QNP 1H/1
PULPROG            zgpg30
TD                  65536
SOLVENT             CDCl3
NS                  12293
DS                      4
SWH           18796.992 Hz
FIDRES         0.286819 Hz
AG             1.7433076 sec
RG                   2048
DW                 26.600 usec
DE                  6.00 usec
TE                 300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

============ CHANNEL f1 ============
NUC1                 13C
P1                  5.40 usec
PL1                -6.00 dB
SFO1          75.4106357 MHz

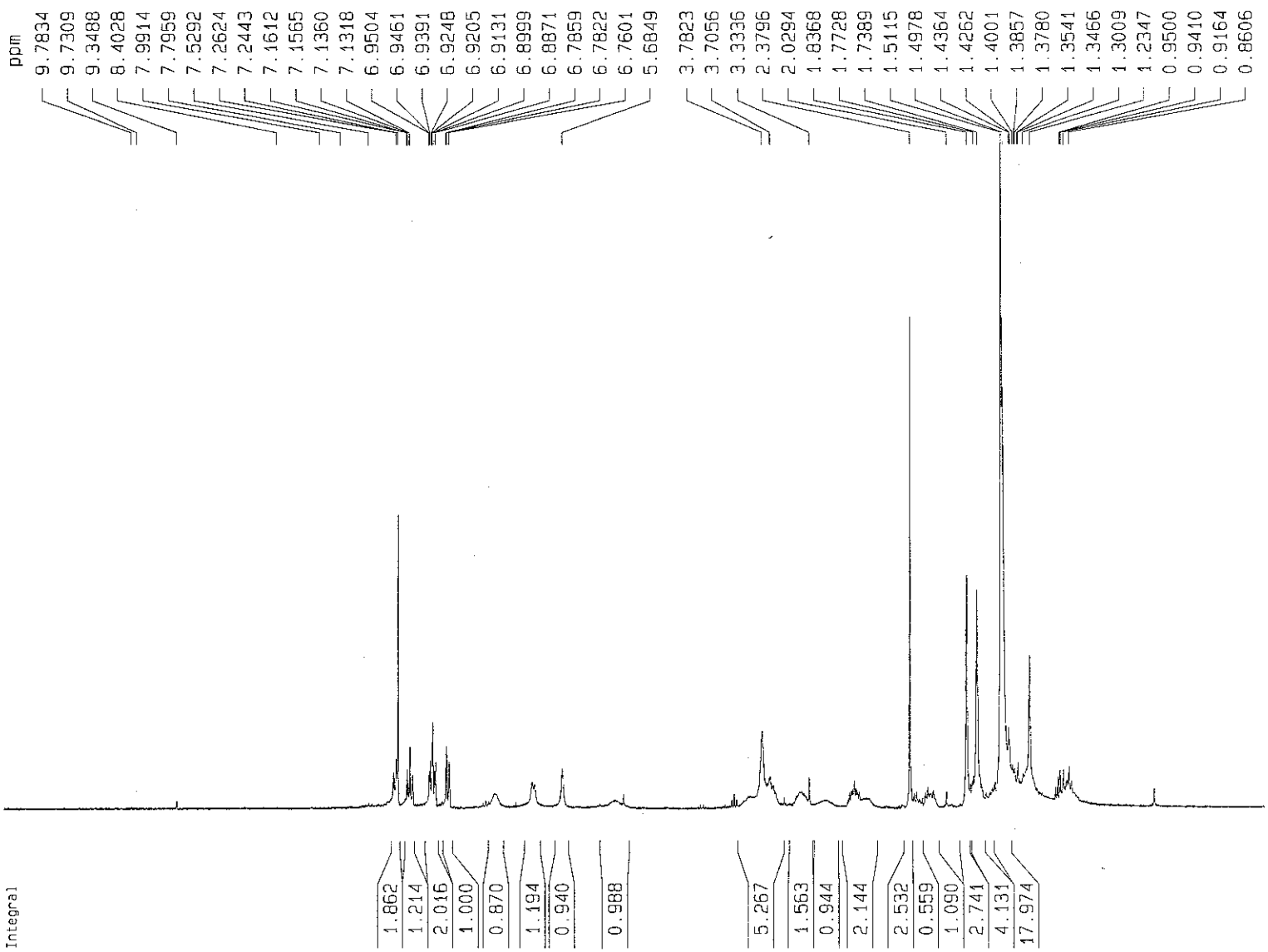
============ CHANNEL f2 ============
CPDPRG2          waltz16
NUC2                 1H
PCPD2             115.00 usec
PL2                 0.00 dB
PL12               20.00 dB
PL13               20.00 dB
SFO2         299.8711995 MHz

F2 - Processing parameters
SI                  32768
SF            75.4023746 MHz
WDW                    EM
SSB                     0
LB                   1.00 Hz
GB                      0
PC                   1.40

1D NMR plot parameters
CX                  20.00 cm
F1P                215.000 ppm
F1               16211.51 Hz
F2P                 -5.000 ppm
F2                -377.01 Hz
PPMCM             11.00000 ppm/cm
HZCM            829.42610 Hz/cm
```



62



Current Data Parameters

NAME	PL-Nov09-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20091109
Time	10.41
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	322.5
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

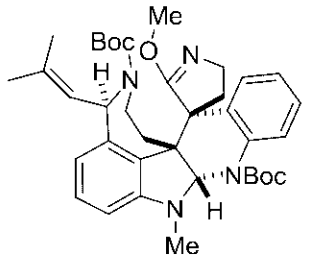
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

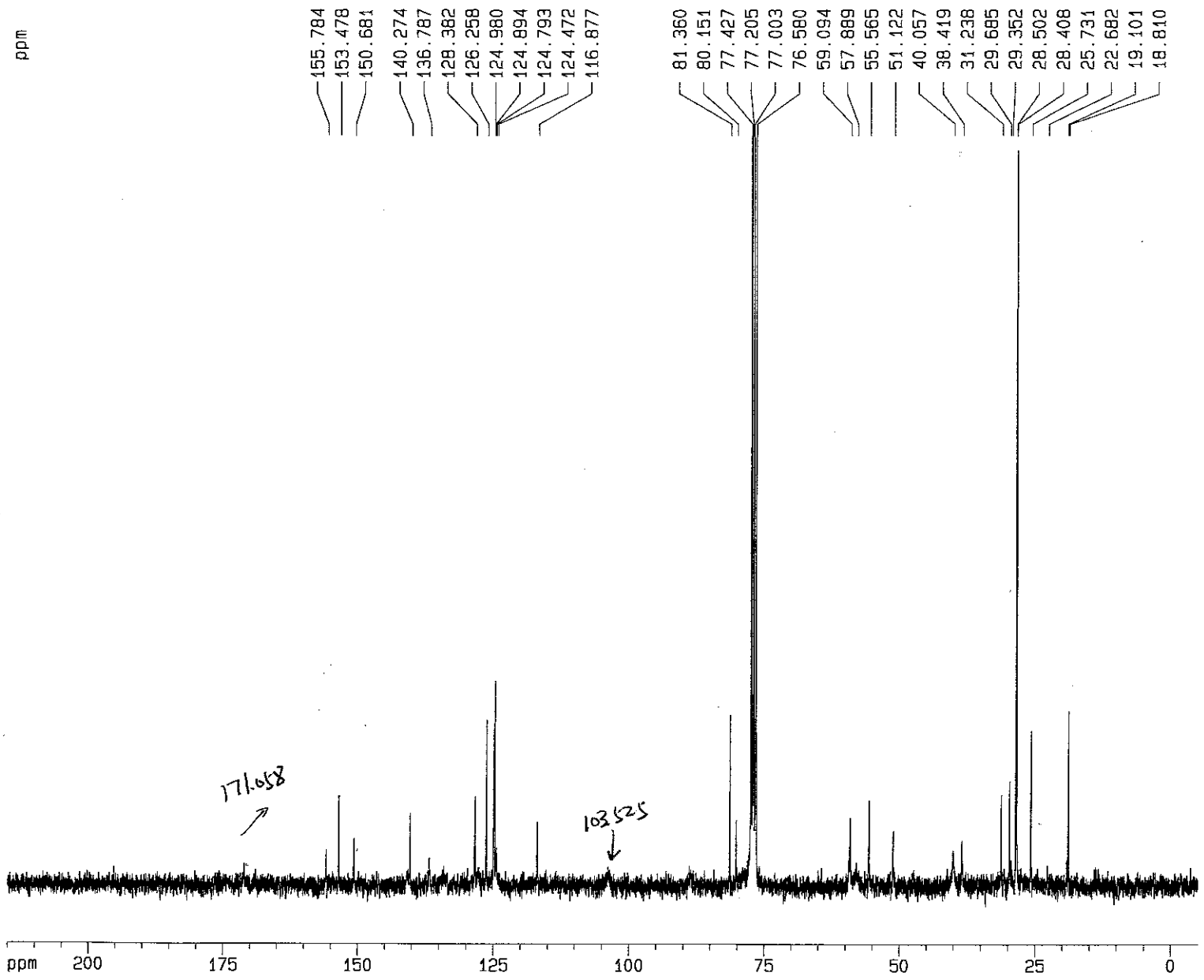
SI	32768
SF	299.8700148 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



62



Current Data Parameters

NAME	PL-Nov09-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20091108
Time	22.43
INSTRUM	spect
PROBHD	5 mm Multinu
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	10949
DS	4
SWH	18832.393 Hz
FIDRES	0.287360 Hz
AQ	1.7400308 sec
RG	16384
DW	26.550 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
d11	0.03000000 sec
d12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	11.80 usec
PL1	0.00 dB
SFO1	75.4760200 MHz

========== CHANNEL f2 ==========

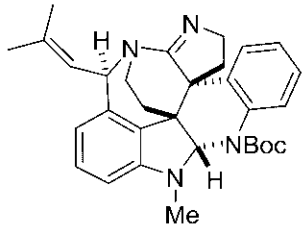
CPDPRG2	waltz16
NUC2	1H
PCPD2	110.00 usec
PL2	0.00 dB
PL12	17.50 dB
PL13	17.50 dB
SFO2	300.1312005 MHz

F2 - Processing parameters

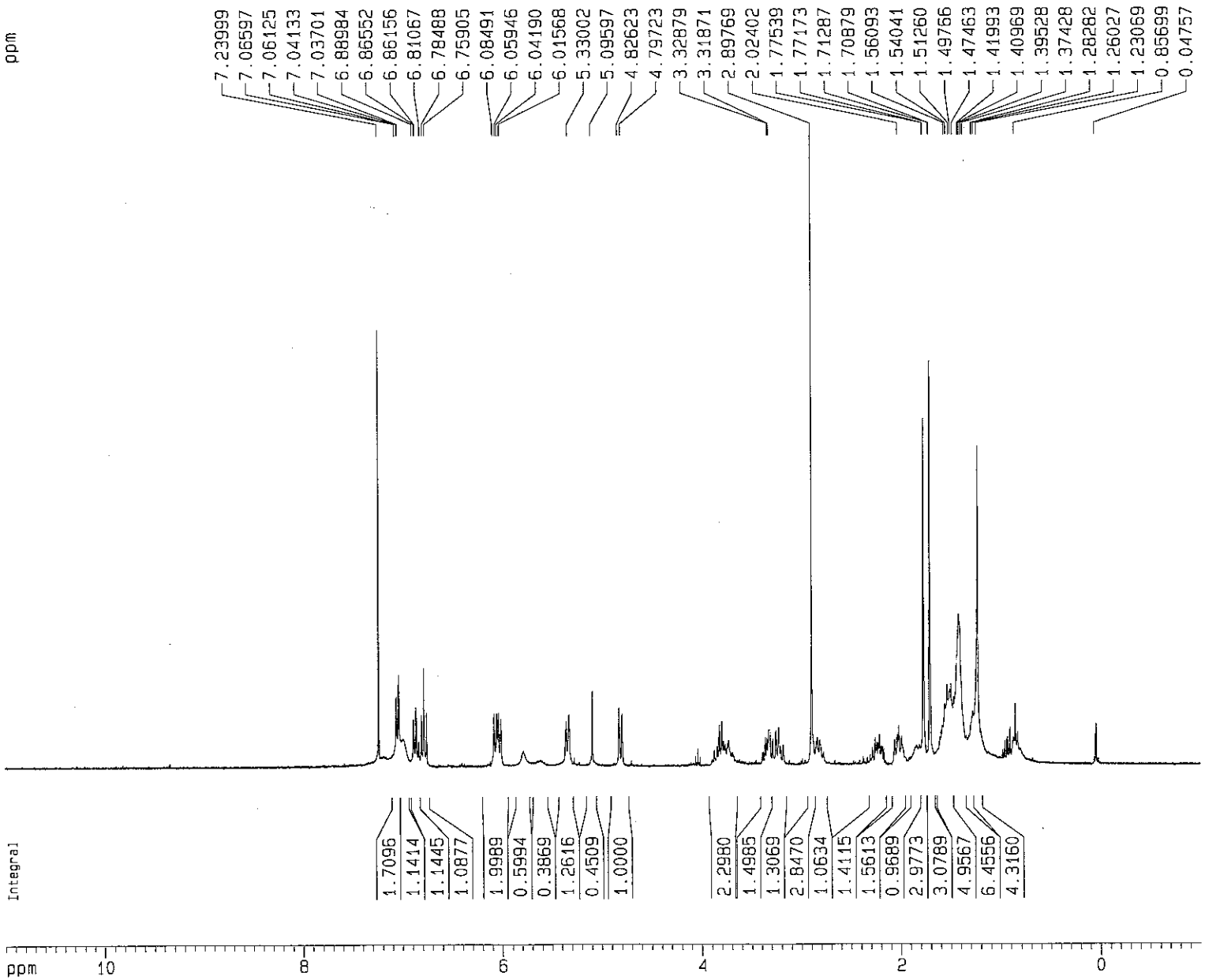
SI	32768
SF	75.4677509 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16225.57 Hz
F2P	-5.000 ppm
F2	-377.34 Hz
PPMCM	11.00000 ppm/cm
HZCM	830.14526 Hz/cm



63



Current Data Parameters

NAME	PL-Nov12-09
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20091112
Time	20.18
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	228.1
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

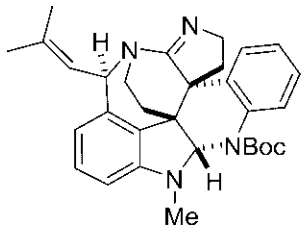
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700161 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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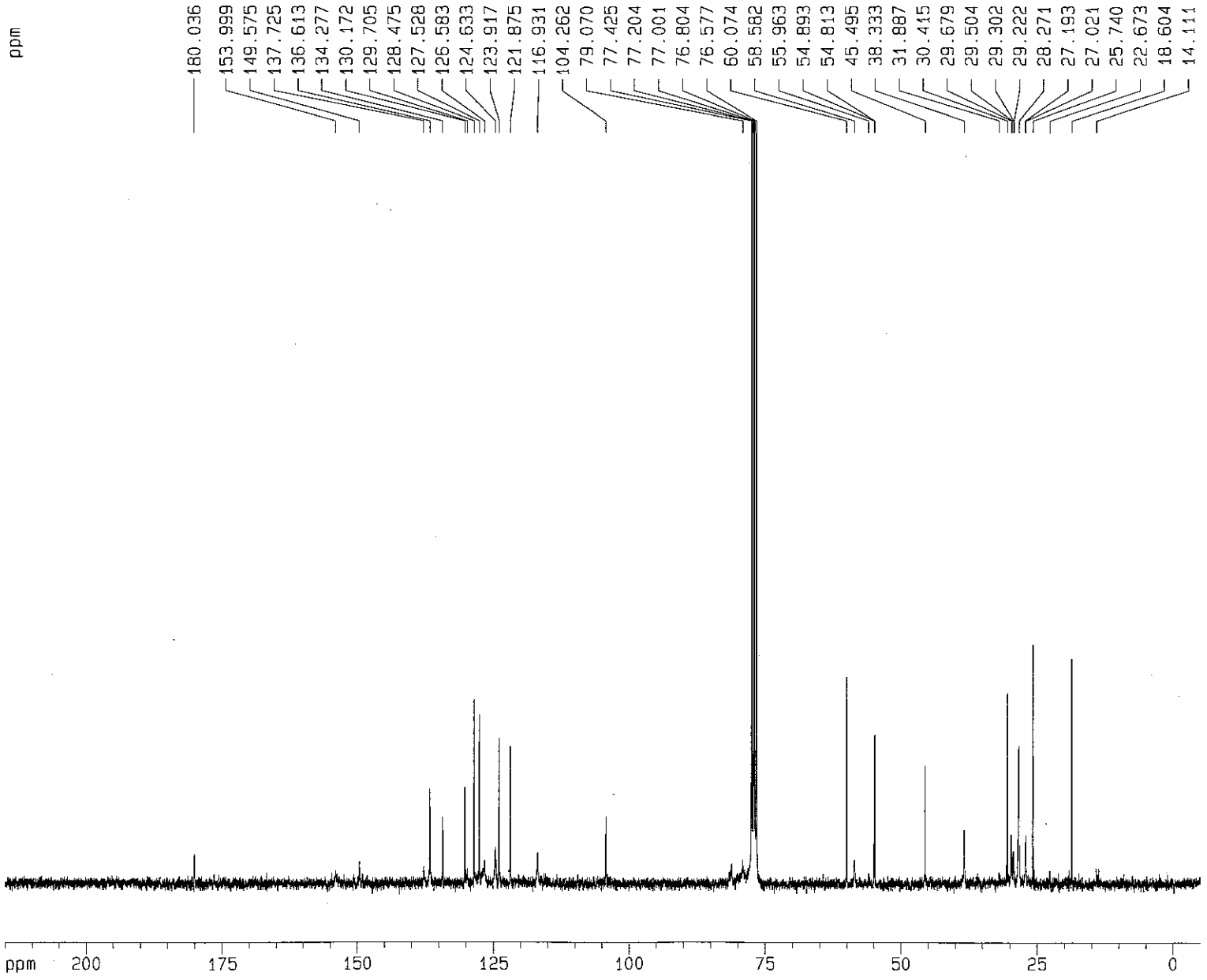


Current Data Parameters

NAME	PL-Nov12-09
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20091112
Time	21.29
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	11367
DS	4
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	1024
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

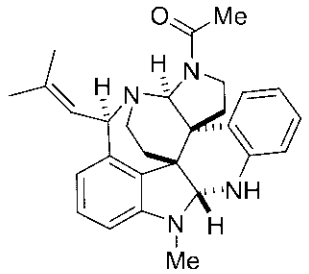
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

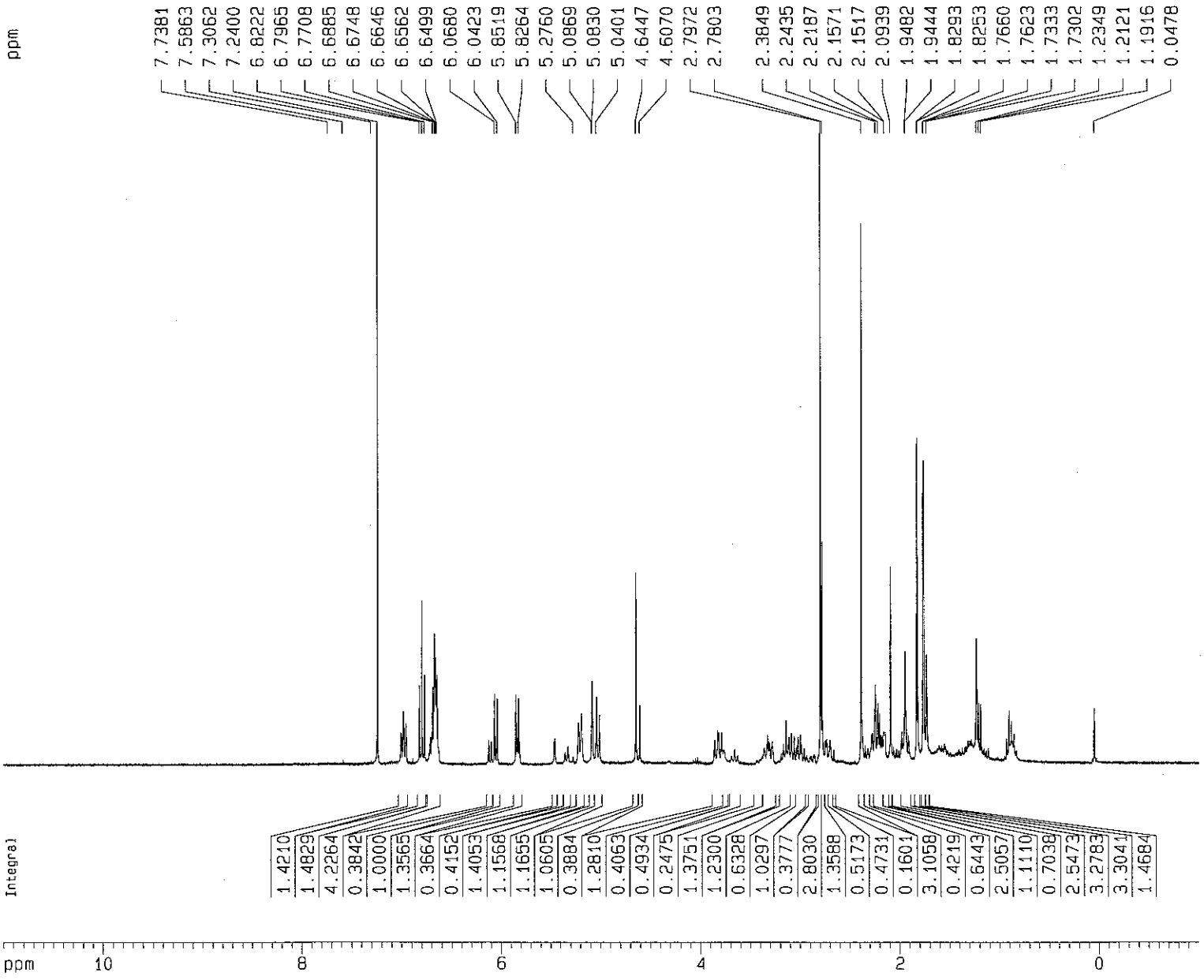
SI	32768
SF	75.4023752 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	215.000 ppm
F1	16211.51 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	11.00000 ppm/cm
HZCM	829.42615 Hz/cm



8



Current Data Parameters

NAME	PL-Nov14-09
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20091114
Time	18.50
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	32
DS	2
SWH	6172.839 Hz
FIDRES	0.094190 Hz
AQ	5.3084660 sec
RG	574.7
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

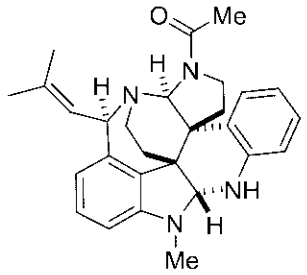
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700161 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	11.000 ppm
F1	3298.57 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.60000 ppm/cm
HZCM	179.92201 Hz/cm



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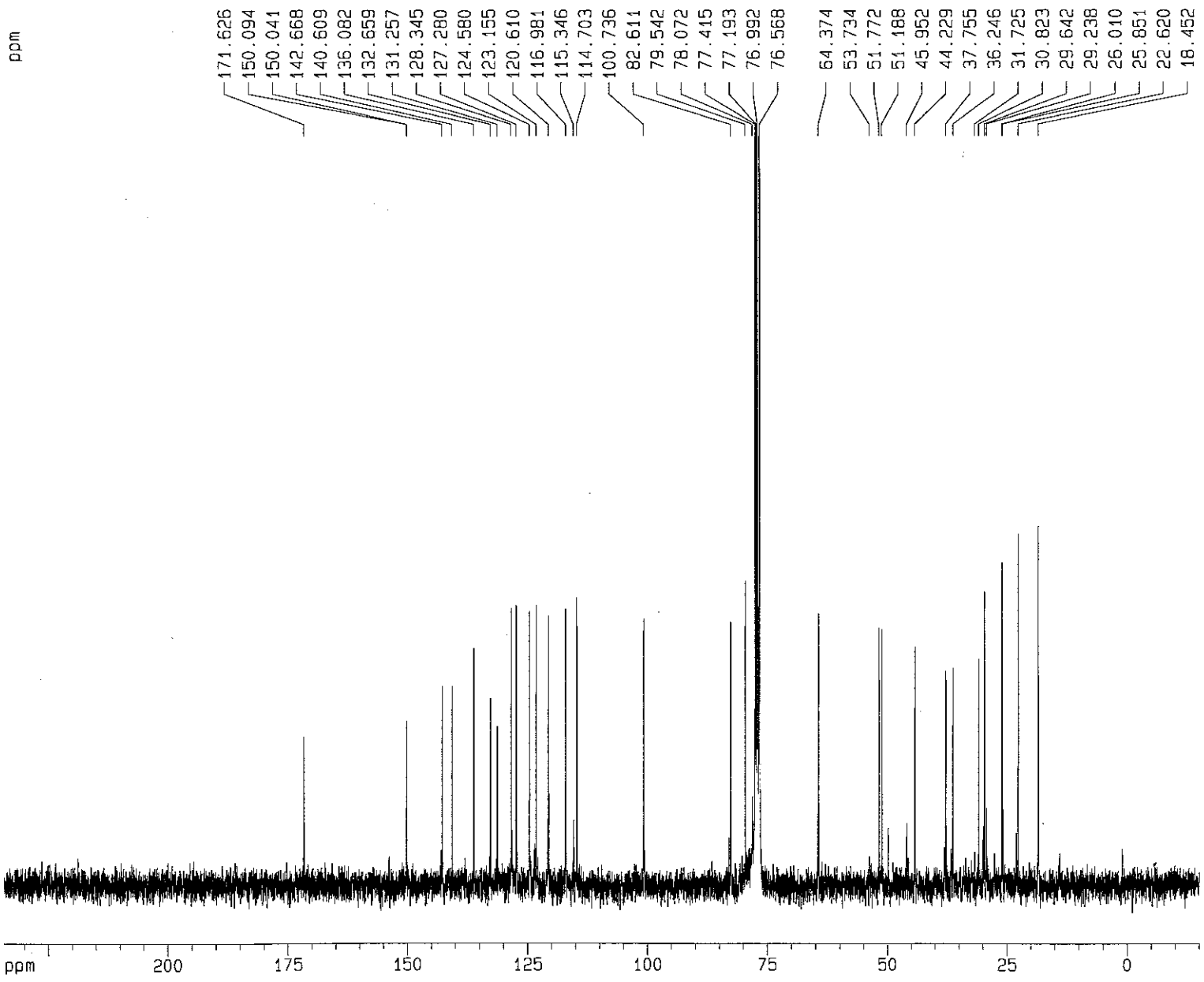


```
Current Data Parameters
NAME          PL-Nov14-09
EXPNO                   2
PROCNO                  1

F2 - Acquisition Parameters
Date_          20091114
Time              19.05
INSTRUM           spect
PROBHD    5 mm QNP 1H/1
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                15824
DS                    4
SWH           18796.992 Hz
FIDRES        0.286819 Hz
AQ            1.7433076 sec
RG                 2048
DW               26.600 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
D12           0.00002000 sec

========== CHANNEL f1 ==========
NUC1                13C
P1                5.40 usec
PL1              -6.00 dB
SFO1         75.4106357 MHz

========== CHANNEL f2 ==========
CPDPRG2         waltz16
NUC2                1H
PCPD2          115.00 usec
PL2              0.00 dB
PL12            20.00 dB
PL13            20.00 dB
SFO2        299.8711995 MHz

F2 - Processing parameters
SI                 32768
SF           75.4023752 MHz
WDW                   EM
SSB                    0
LB                1.00 Hz
GB                     0
PC                  1.40

1D NMR plot parameters
CX                20.00 cm
F1P              234.198 ppm
F1              17659.08 Hz
F2P              -15.091 ppm
F2              -1137.91 Hz
PPMCM          12.46446 ppm/cm
HZCM          939.84961 Hz/cm
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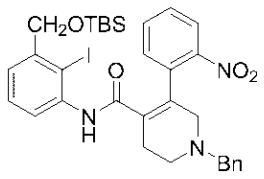
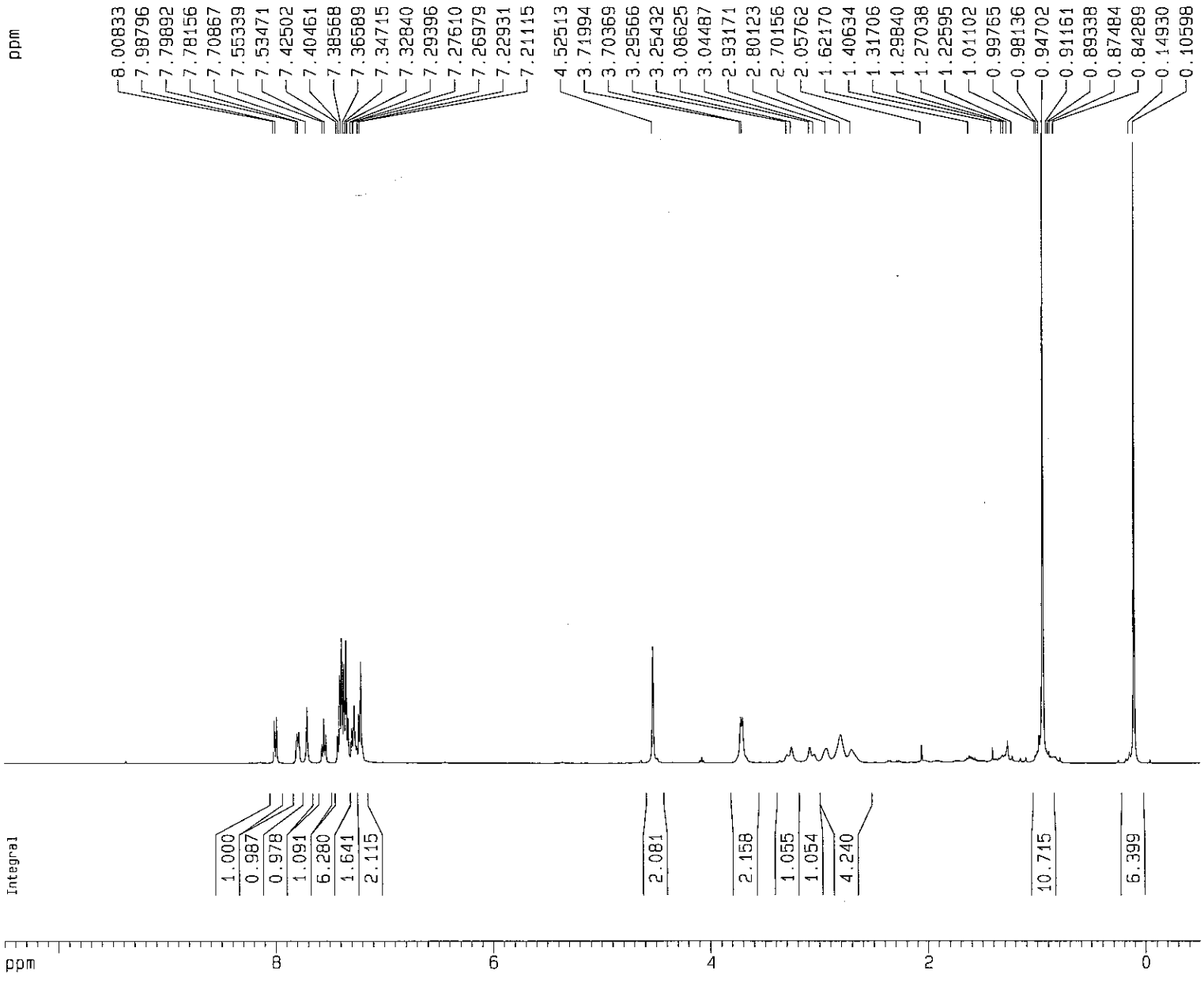


23b



Current Data Parameters

NAME	Dec17-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20071217
Time	13.04
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	14
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	128
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

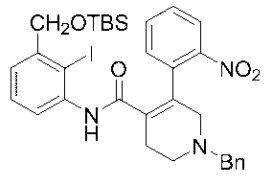
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SF01	400.1324710 MHz

F2 - Processing parameters

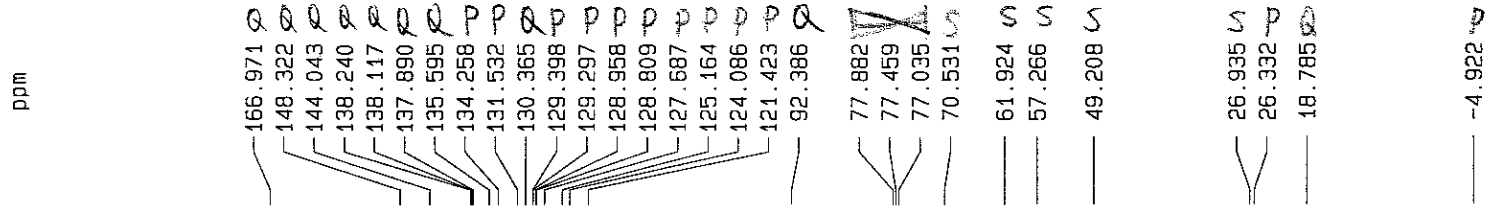
SI	32768
SF	400.1300054 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

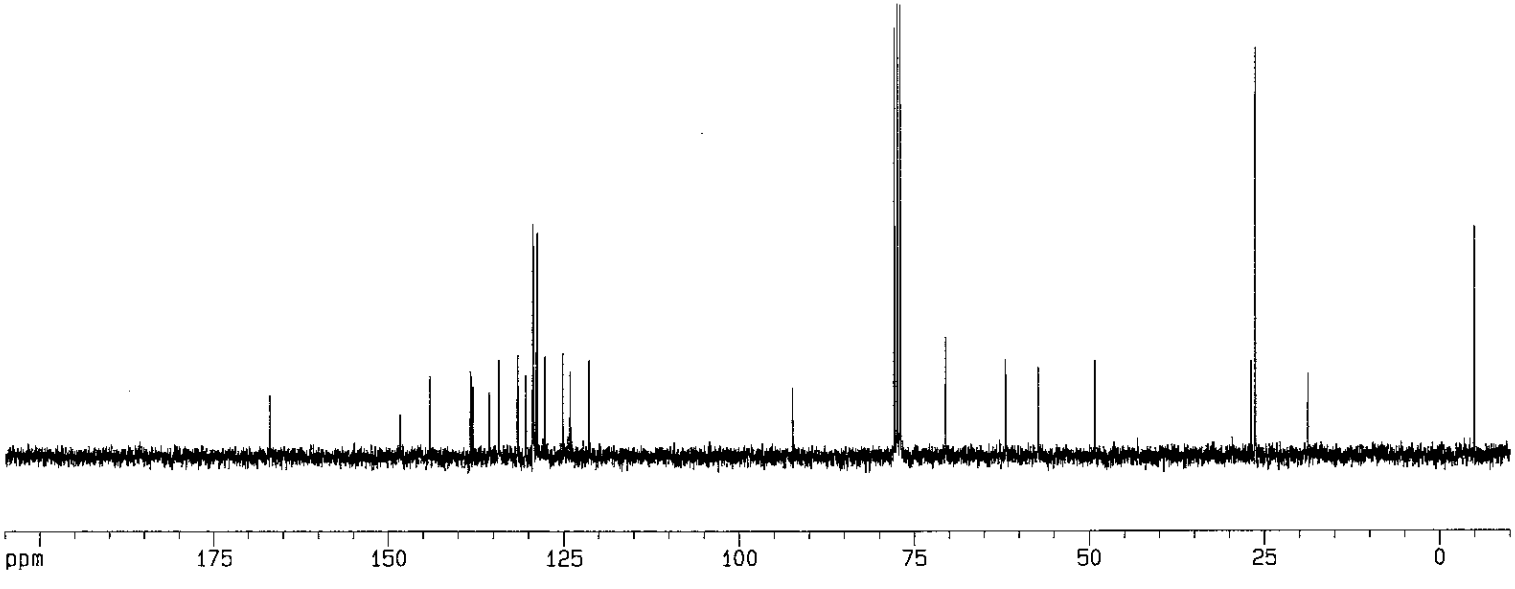
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



23b





Current Data Parameters

NAME	1029-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20071029
Time	13.34
INSTRUM	spect
PROBHD	5 mm Multinu
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	196
DS	2
SWH	18832.393 Hz
FIDRES	0.287360 Hz
AQ	1.7400308 sec
RG	13004
DW	26.550 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
d11	0.03000000 sec
d12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	11.80 usec
PL1	0.00 dB
SFO1	75.4760200 MHz

========== CHANNEL f2 ==========

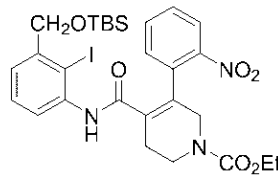
CPDPRG2	waltz16
NUC2	1H
PCPD2	110.00 usec
PL2	0.00 dB
PL12	17.50 dB
PL13	17.50 dB
SFO2	300.1312005 MHz

F2 - Processing parameters

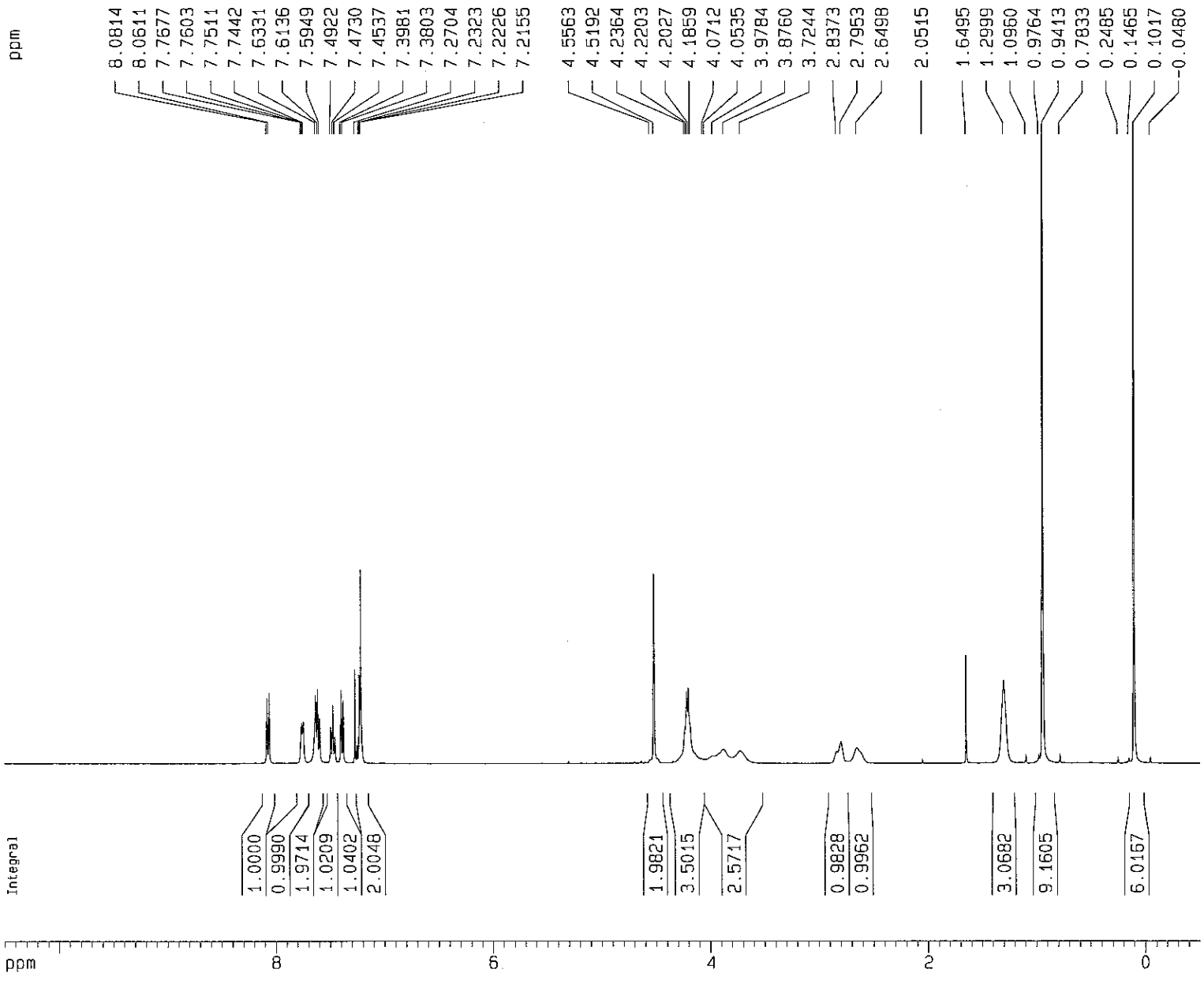
SI	32768
SF	75.4677190 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15470.88 Hz
F2P	-10.000 ppm
F2	-754.68 Hz
PPMCM	10.75000 ppm/cm
HZCM	811.27802 Hz/cm



24b



Current Data Parameters

NAME	Jan17-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080117
Time	14.21
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	21
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	812.7
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 =========

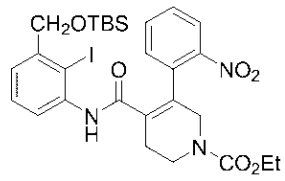
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

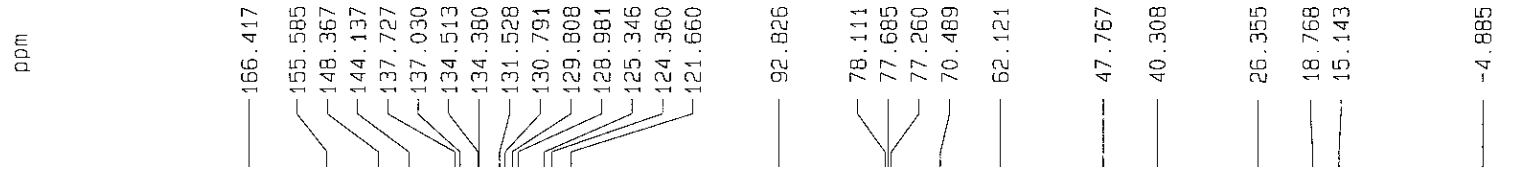
SI	32768
SF	400.1300051 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

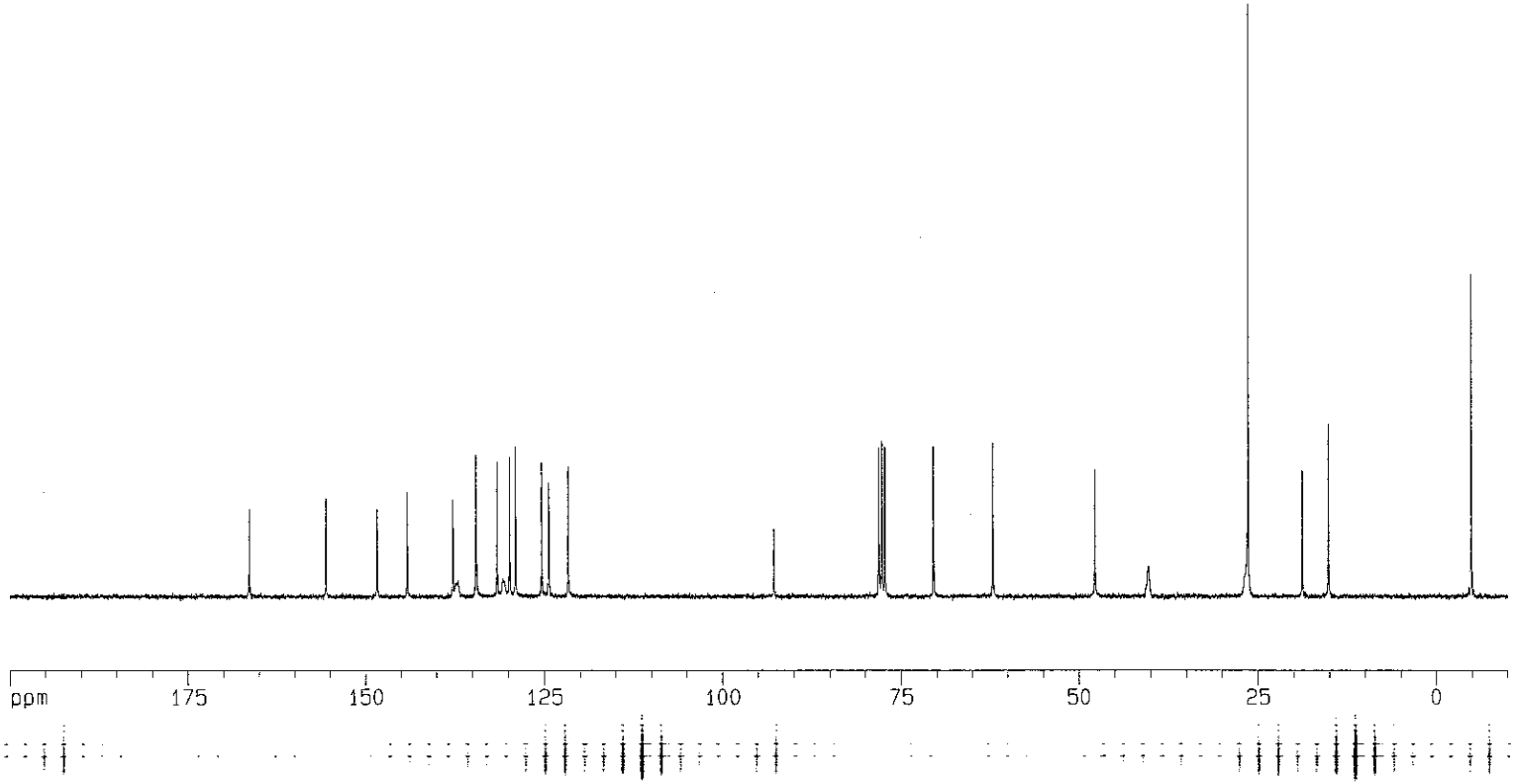
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



24b





Current Data Parameters

NAME	Jan17-SJH
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20080117
Time	19.45
INSTRUM	spect
PROBHD	5 mm CNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	512
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	1024
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

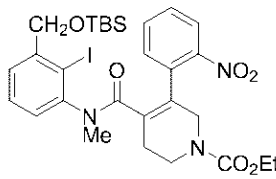
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023410 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

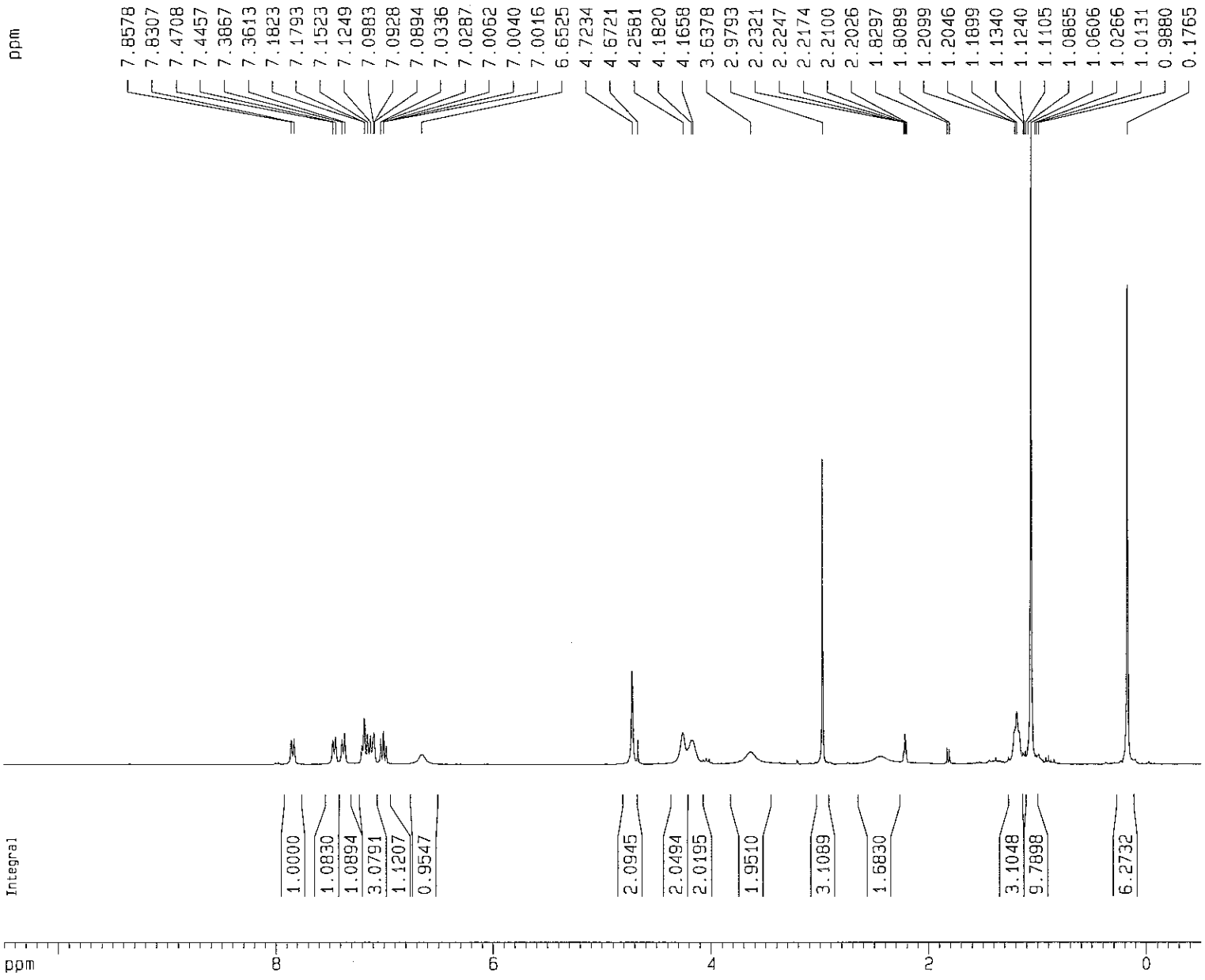
1D NMR plot parameters

CX	20.00 cm
F1P	200.000 ppm
F1	15080.47 Hz
F2P	-10.000 ppm
F2	-754.02 Hz
PPMCM	10.50000 ppm/cm
HZCM	791.72461 Hz/cm



in tol at 90 oC

25b



Current Data Parameters

NAME	1031-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20071031
Time	12.31
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	10
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	161.3
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

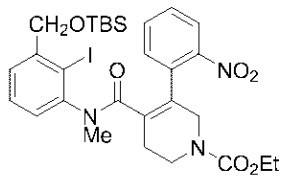
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8702999 MHz

F2 - Processing parameters

SI	32768
SF	299.8684997 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

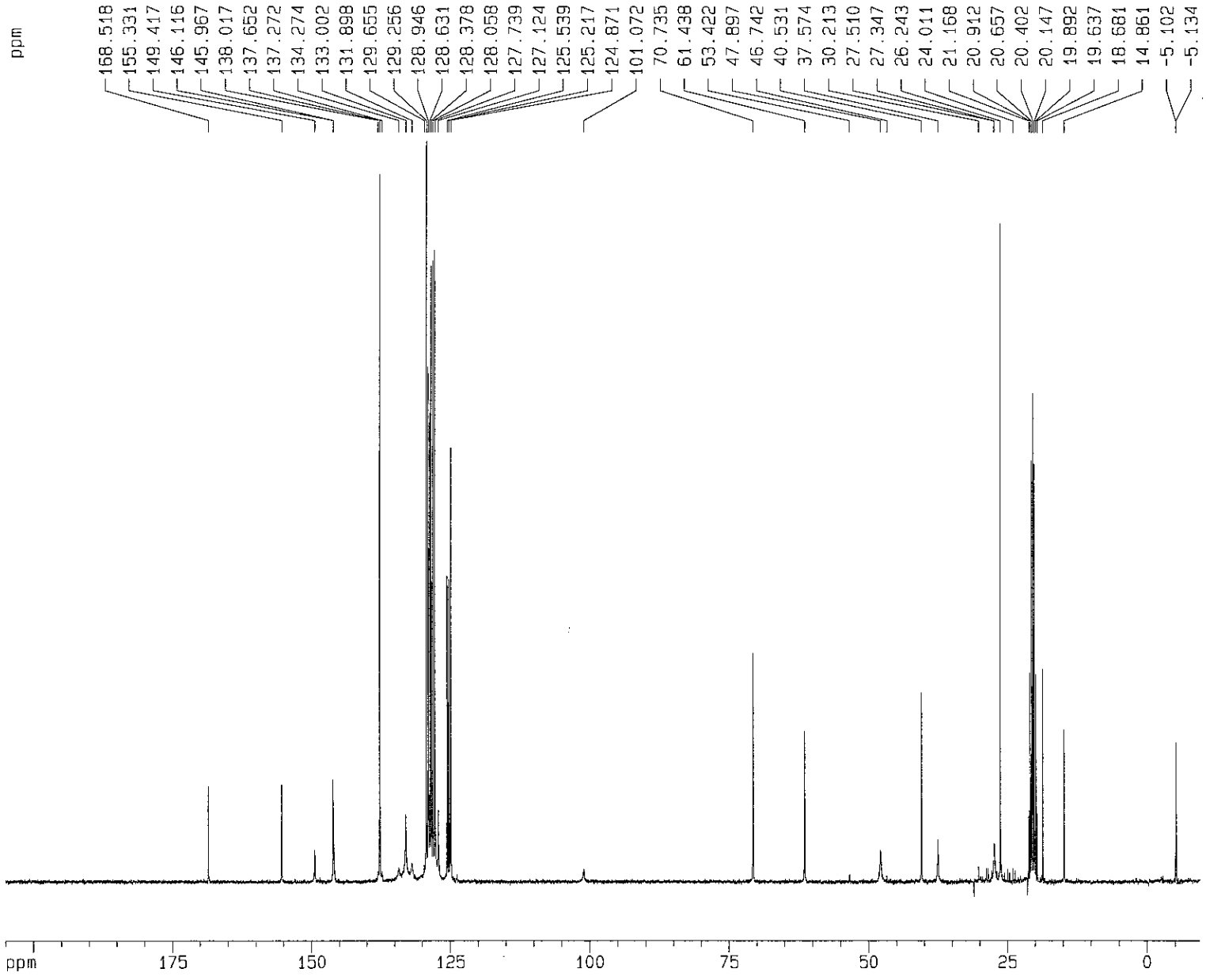
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.62 Hz
F2P	-0.500 ppm
F2	-149.93 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92767 Hz/cm



in tol at 90 oC

25b



Current Data Parameters

NAME	1101-SJH
EXPNO	6
PROCNO	1

F2 - Acquisition Parameters

Date_	20071101
Time	19.28
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	Tol
NS	10240
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	2048
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

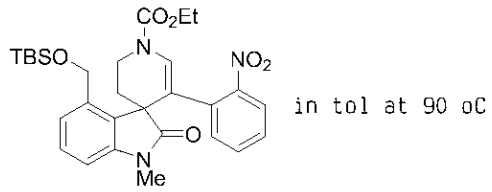
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4019494 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

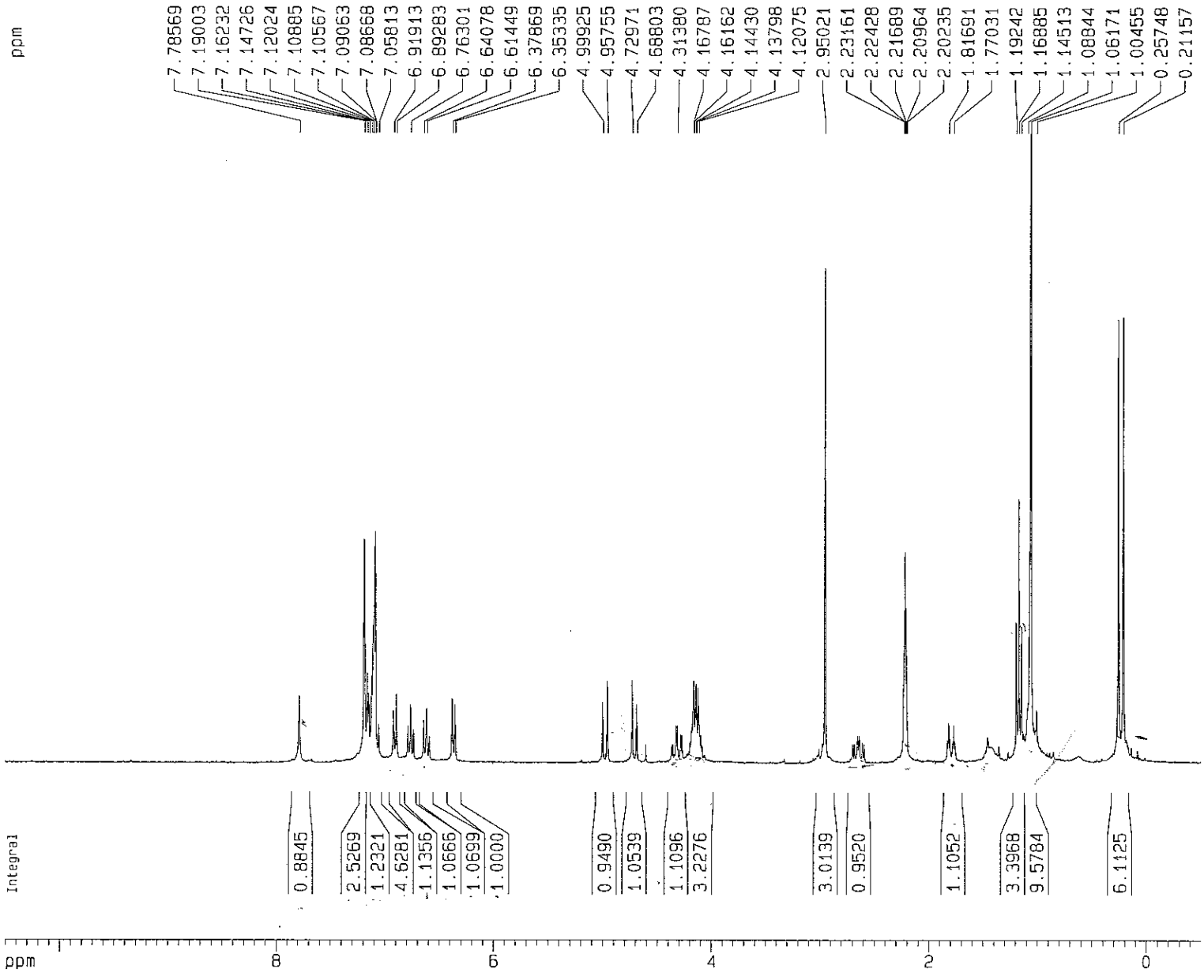
1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15457.40 Hz
F2P	-10.000 ppm
F2	-754.02 Hz
PPMCM	10.75000 ppm/cm
HZCM	810.57092 Hz/cm



in tol at 90 oC

26b



Current Data Parameters

NAME	1101-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20071101
Time	13.32
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	812.7
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

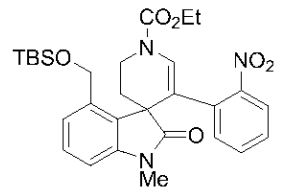
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8702999 MHz

F2 - Processing parameters

SI	32768
SF	299.8684992 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

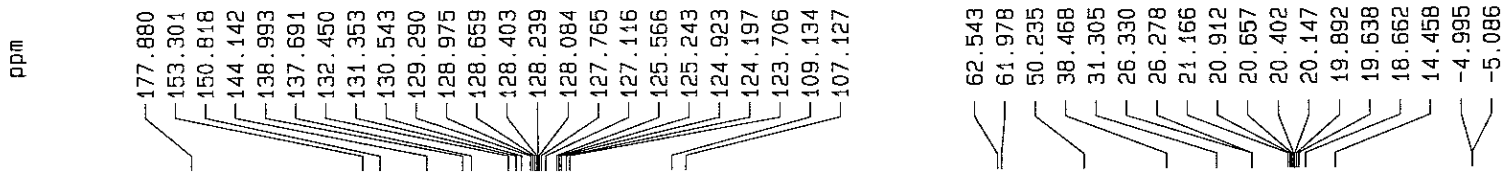
1D NMR plot parameters

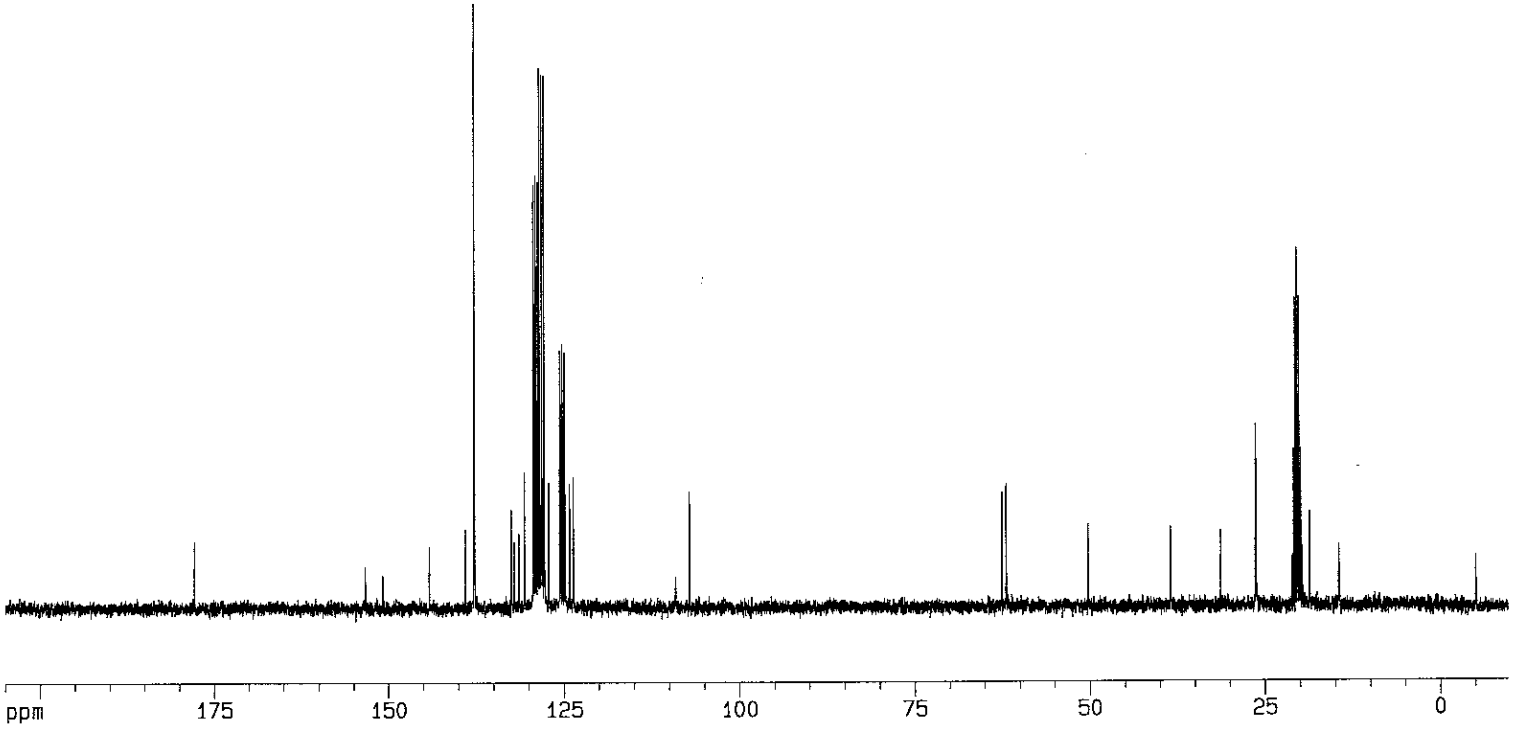
CX	20.00 cm
F1P	10.500 ppm
F1	3148.62 Hz
F2P	-0.500 ppm
F2	-149.93 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92767 Hz/cm



in tol at 90 oC 13C

26b






```
Current Data Parameters
NAME                  1102-SJH
EXPNO                        3
PROCNO                       1

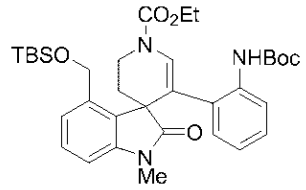
F2 - Acquisition Parameters
Date_                 20071102
Time                     14.59
INSTRUM                  spect
PROBHD     5 mm Multinu
PULPROG                zgpg30
TD                        65536
SOLVENT                    Tol
NS                         545
DS                           2
SWH                18832.393 Hz
FIDRES             0.287360 Hz
AQ                 1.7400308 sec
RG                    11585.2
DW                   26.550 usec
DE                    6.00 usec
TE                   300.0 K
D1                 2.00000000 sec
d11                0.03000000 sec
d12                0.00002000 sec

============ CHANNEL f1 ============
NUC1                      13C
P1                   11.80 usec
PL1                   0.00 dB
SFO1               75.4760200 MHz

============ CHANNEL f2 ============
CPDPRG2                waltz16
NUC2                       1H
PCPD2                110.00 usec
PL2                   0.00 dB
PL12                 17.50 dB
PL13                 17.50 dB
SFO2              300.1312005 MHz

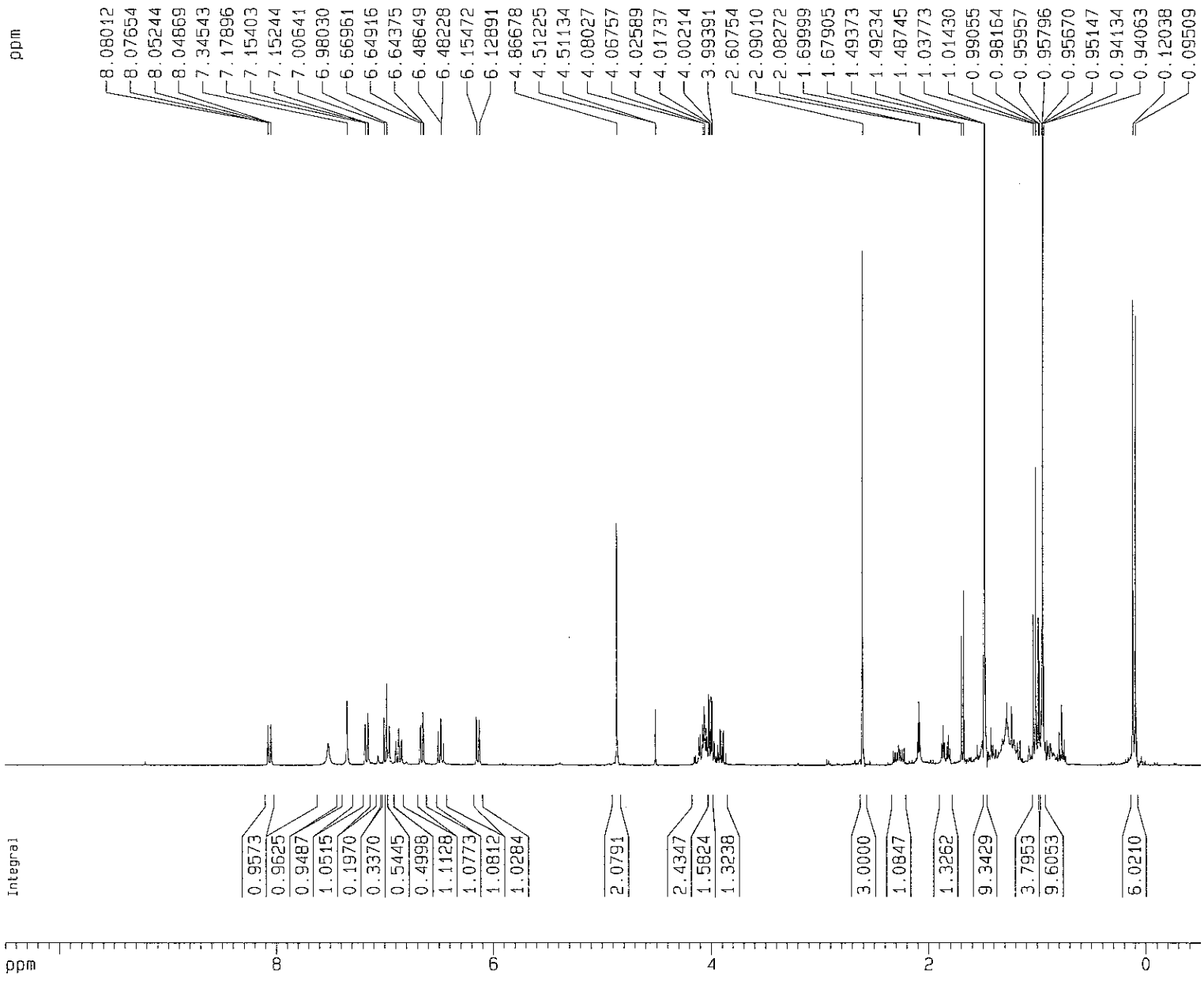
F2 - Processing parameters
SI                        32768
SF                 75.4673292 MHz
WDW                          EM
SSB                           0
LB                     1.00 Hz
GB                            0
PC                         1.40

1D NMR plot parameters
CX                    20.00 cm
F1P                  205.000 ppm
F1                 15470.80 Hz
F2P                 -10.000 ppm
F2                  -754.67 Hz
PPMCM               10.75000 ppm/cm
HZCM               811.27380 Hz/cm
```



in tol at 90 oC

29b



Current Data Parameters

NAME	1117-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20071117
Time	12.30
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	8
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	228.1
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

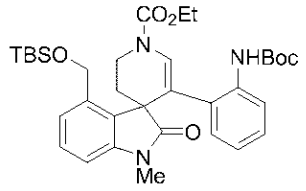
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8697001 MHz

F2 - Processing parameters

SI	32768
SF	299.8685375 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

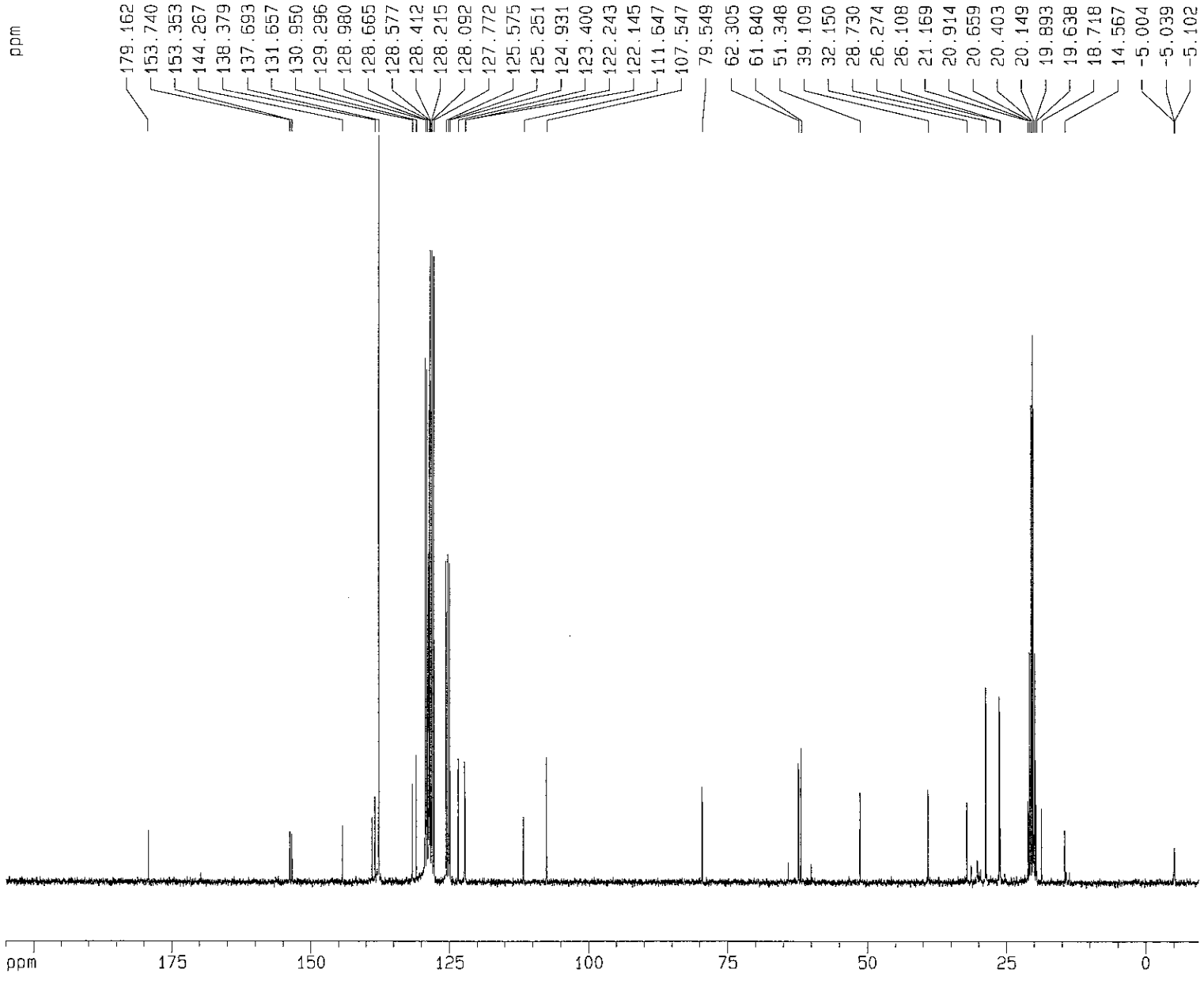
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.62 Hz
F2P	-0.500 ppm
F2	-149.93 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92769 Hz/cm



in tol at 90 oC 13C

29b



Current Data Parameters

NAME	1117-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20071117
Time	12.37
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	Tol
NS	3072
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	1448.2
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

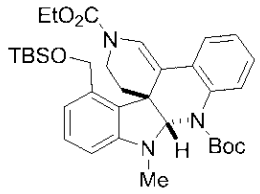
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4019523 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

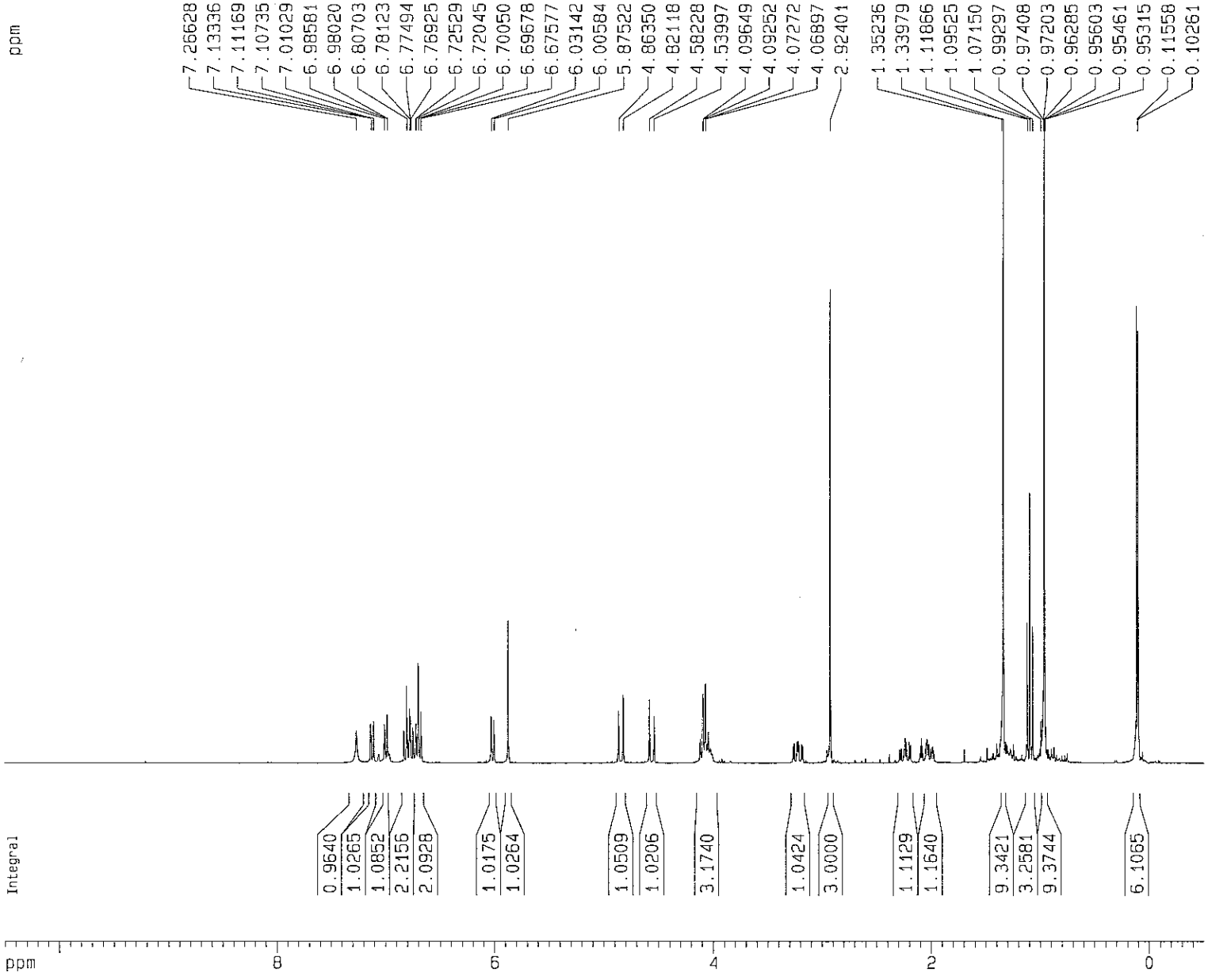
1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15457.40 Hz
F2P	-10.000 ppm
F2	-754.02 Hz
PPMCM	10.75000 ppm/cm
HZCM	810.57098 Hz/cm



in tol at 90 oC

30b



Current Data Parameters

NAME	1123-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20071124
Time	20.49
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	8
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	128
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

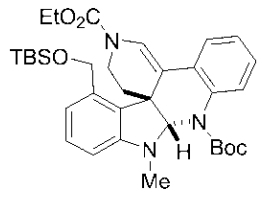
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SF01	299.8700000 MHz

F2 - Processing parameters

SI	32768
SF	299.8685371 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.62 Hz
F2P	-0.500 ppm
F2	-149.93 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92769 Hz/cm

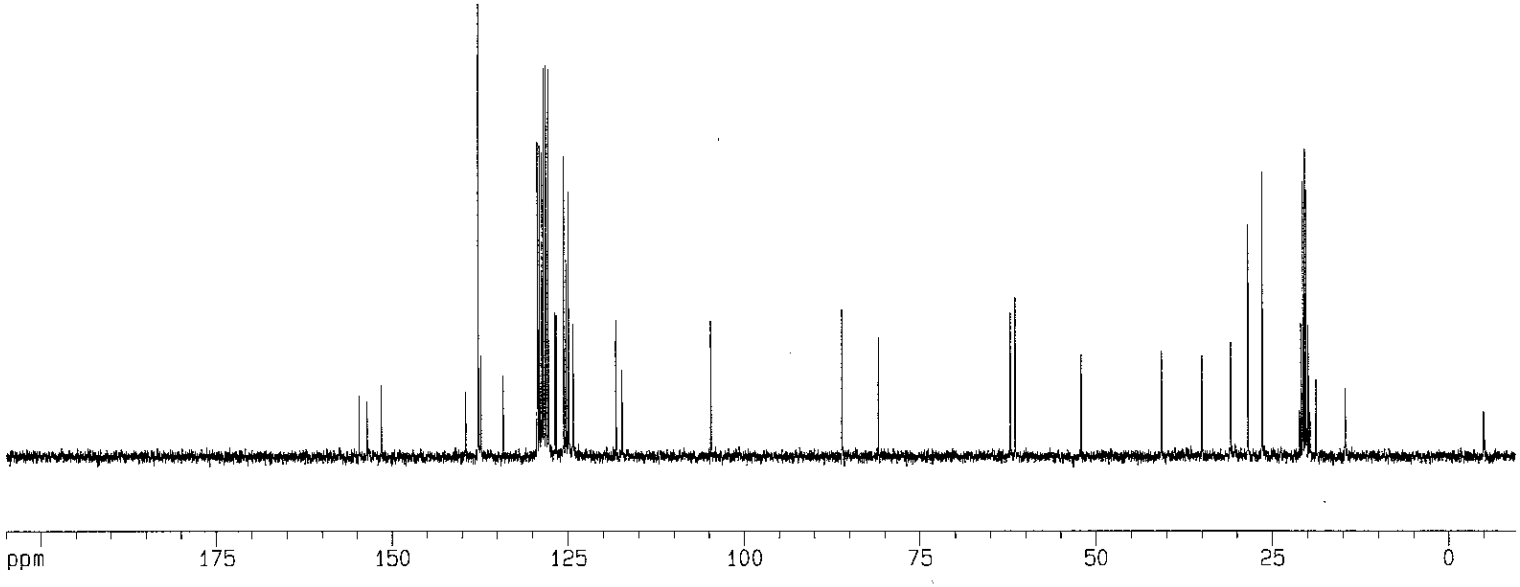


in tol at 90 oC 13C

30b

ppm

154.684 153.558 151.530 139.472 137.669 137.295 134.151 129.353 129.281 128.965 128.919 128.650 128.397 128.077 127.758 126.841 126.623 125.575 125.238 124.924 124.267 118.205 117.338 104.772 86.087 80.888 62.176 61.481 52.123 40.692 34.960 30.898 28.437 26.388 21.170 20.912 20.658 20.403 20.148 19.893 19.638 18.793 14.699 -5.003



Current Data Parameters

NAME	1123-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20071124
Time	21.01
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	Tol
NS	344
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	2048
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

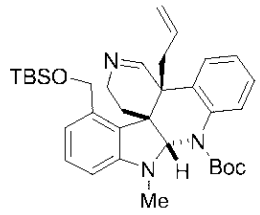
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

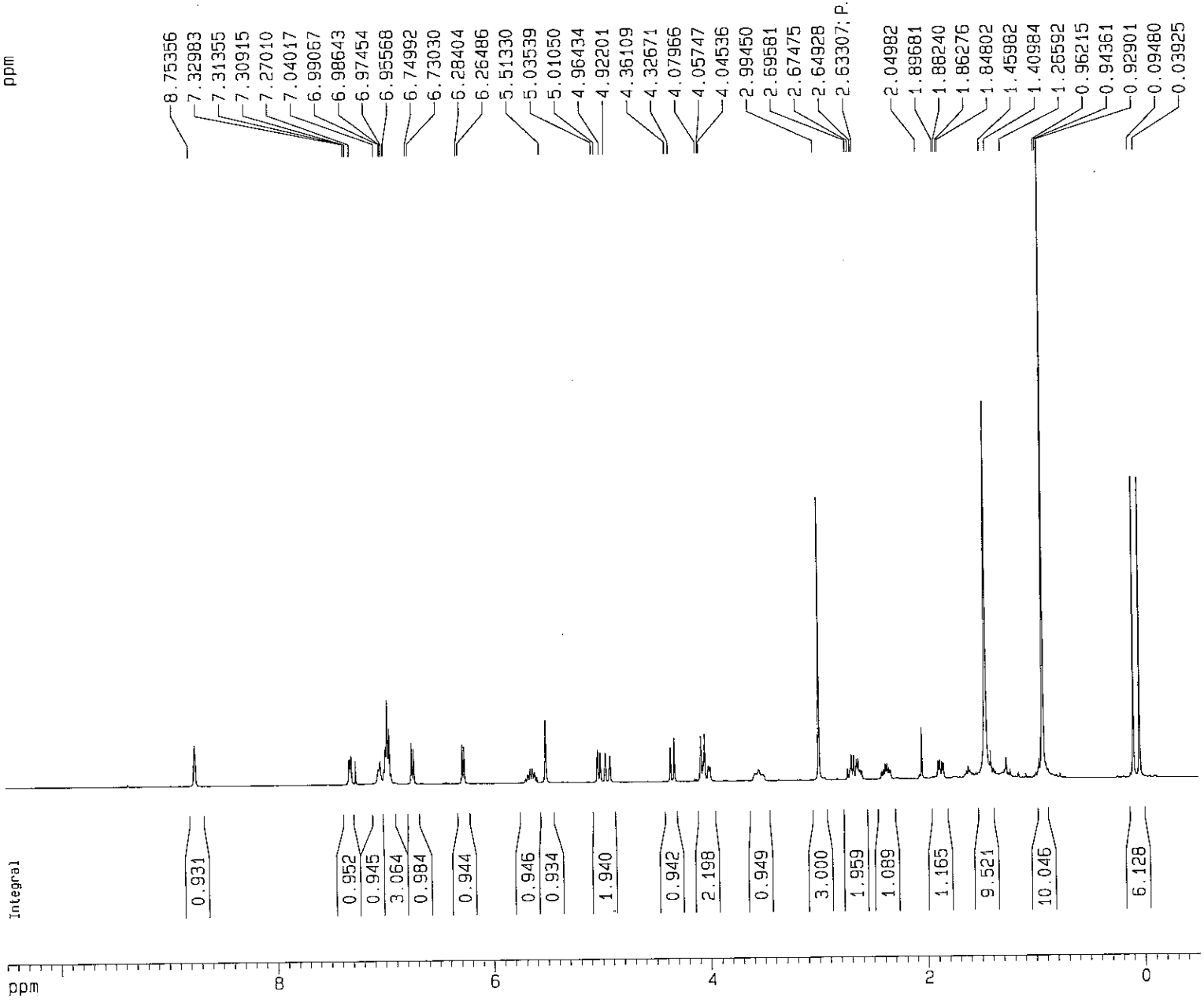
SI	32768
SF	75.4019540 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15457.40 Hz
F2P	-10.000 ppm
F2	-754.02 Hz
PPMCM	10.75000 ppm/cm
HZCM	810.57098 Hz/cm



32



Current Data Parameters

NAME	Dec20-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20071220
Time	19.22
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg
TD	49668
SOLVENT	CDCl3
NS	1
DS	0
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	20.2
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

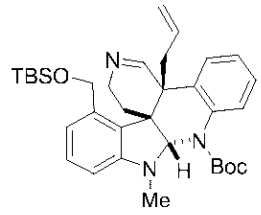
NUC1	1H
P1	7.53 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

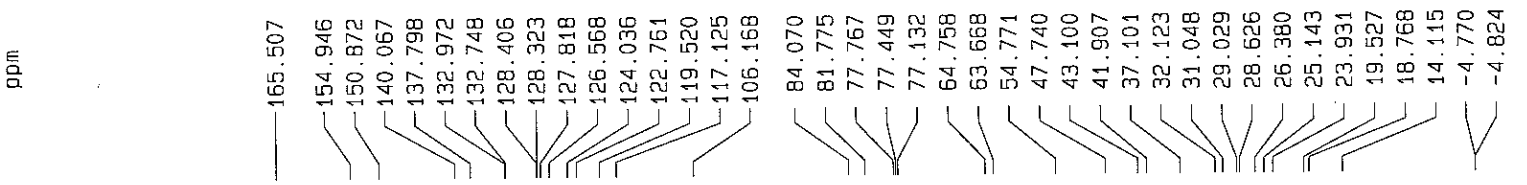
SI	32768
SF	400.1300054 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

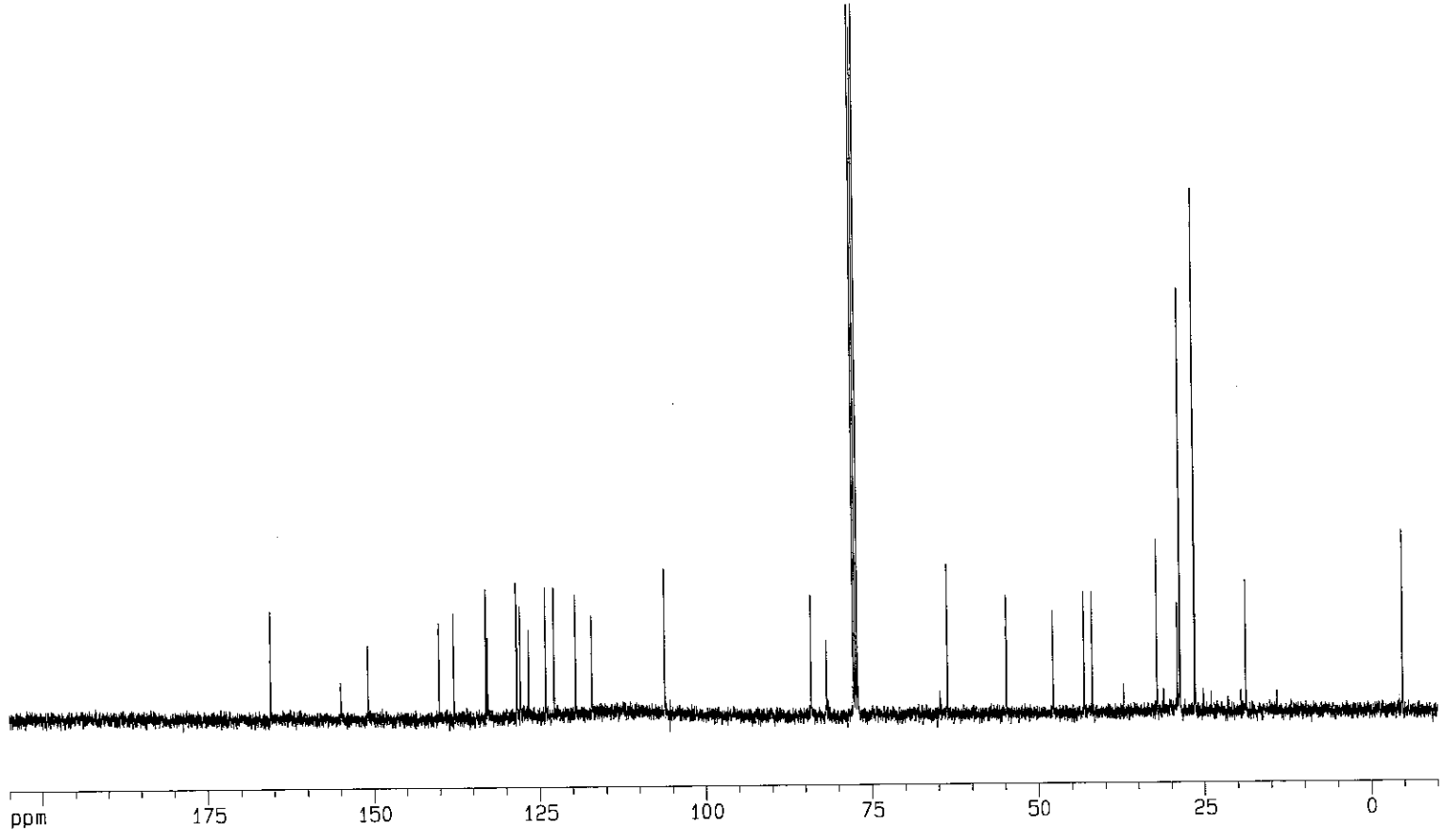
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



32





Current Data Parameters

NAME	Dec20-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20071220
Time	21.17
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	1536
DS	2
SWH	25125.629 Hz
FIDRES	0.383387 Hz
AQ	1.3042164 sec
RG	8192
DW	19.900 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
d11	0.03000000 sec
d12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	16.35 usec
PL1	-6.00 dB
SFO1	100.6237959 MHz

========== CHANNEL f2 ==========

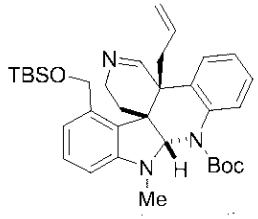
CPDPRG2	waltz16
NUC2	1H
PCPD2	114.00 usec
PL2	0.00 dB
PL12	24.00 dB
PL13	24.00 dB
SFO2	400.1316005 MHz

F2 - Processing parameters

SI	32768
SF	100.6127290 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

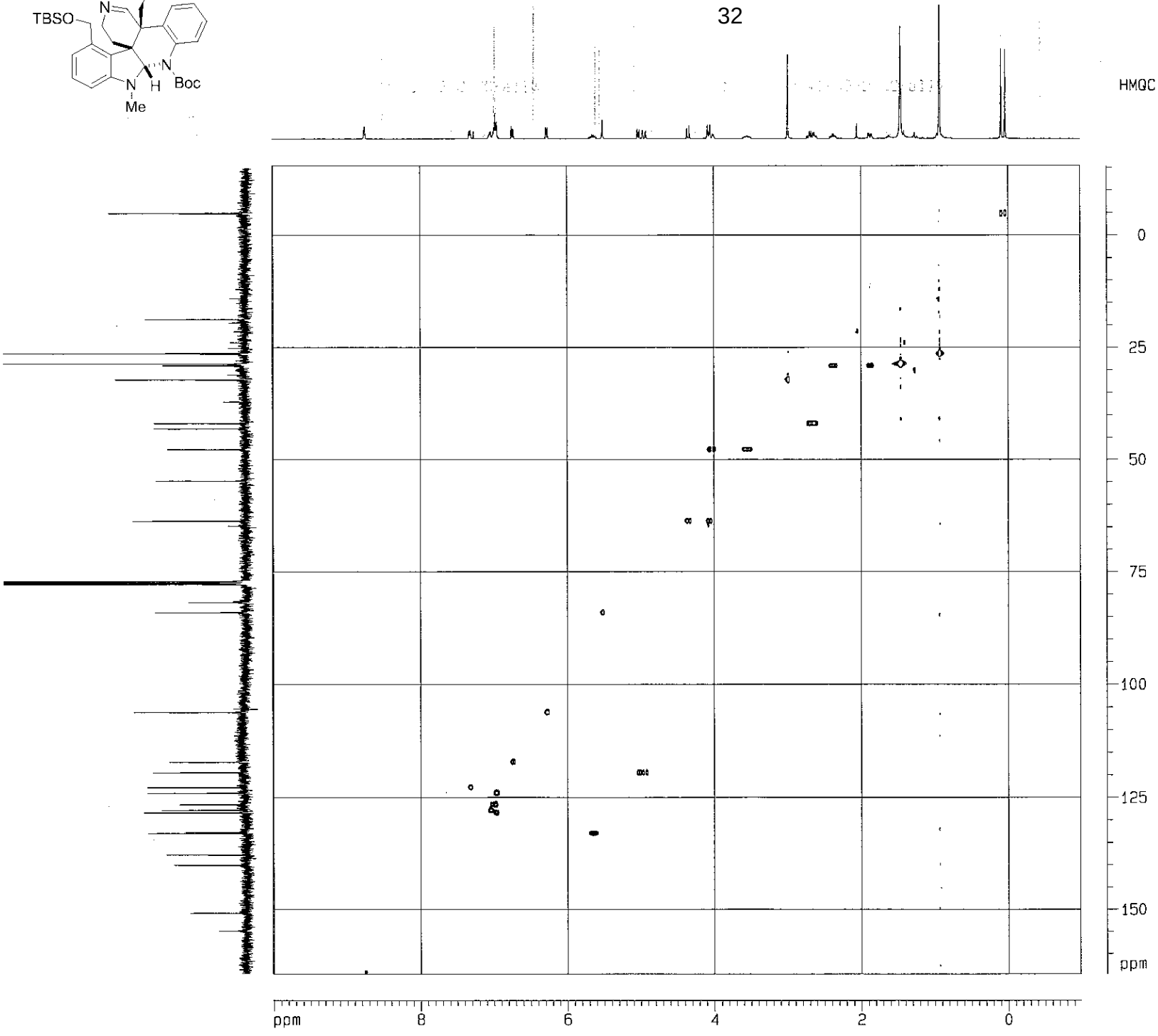
1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	20625.61 Hz
F2P	-10.000 ppm
F2	-1006.13 Hz
PPMCM	10.75000 ppm/cm
HZCM	1081.58691 Hz/cm



32

HMQC



Current Data Parameters

NAME	Dec20-5JH
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20071220
Time	21.48
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	inv4gptp
TD	2048
SOLVENT	CDCl3
NS	8
DS	80
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	16384
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
CNST2	145.0000000
d0	0.00000300 sec
d1	1.99631298 sec
d2	0.00344828 sec
d4	0.00172414 sec
d11	0.03000000 sec
d13	0.00000300 sec
d16	0.00020000 sec
d20	0.00052414 sec
d21	0.00224428 sec
IN0	0.00001300 sec

CHANNEL f1

NUC1	1H
P1	7.53 usec
P2	15.06 usec
PL1	0.00 dB
SFO1	400.1318130 MHz

CHANNEL f2

CPDPRG2	garp
NUC2	13C
P3	17.00 usec
P4	34.00 usec
PCPD2	84.00 usec
PL2	-6.00 dB
PL12	8.30 dB
SFO2	100.6202332 MHz

GRADIENT CHANNEL

GPNAM1	SINE.100
GPNAM2	SINE.100
GPNAM3	SINE.100
GPX1	17.00 %
GPX2	20.00 %
GPX3	25.00 %
GPY1	17.00 %
GPY2	20.00 %
GPY3	25.00 %
GPZ1	17.00 %
GPZ2	20.00 %
GPZ3	25.00 %
P16	1000.00 usec

F1 - Acquisition parameters

ND0	4
TD	256
SFO1	100.6202 MHz
FIDRES	70.765396 Hz
SW	160.043 ppm

F2 - Processing parameters

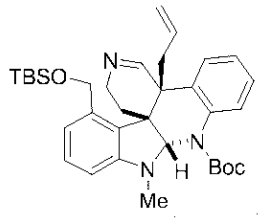
SI	2048
SF	400.1300054 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	100.6127290 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	10.017 ppm
F2LO	4008.87 Hz
F2PH1	-0.985 ppm
F2H1	-393.15 Hz
F1PLO	164.533 ppm
F1LO	16562.16 Hz
F1PH1	-15.443 ppm
F1H1	-1553.76 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42732 Hz/cm
F1PPMCM	12.00374 ppm/cm
F1HZCM	1207.72848 Hz/cm



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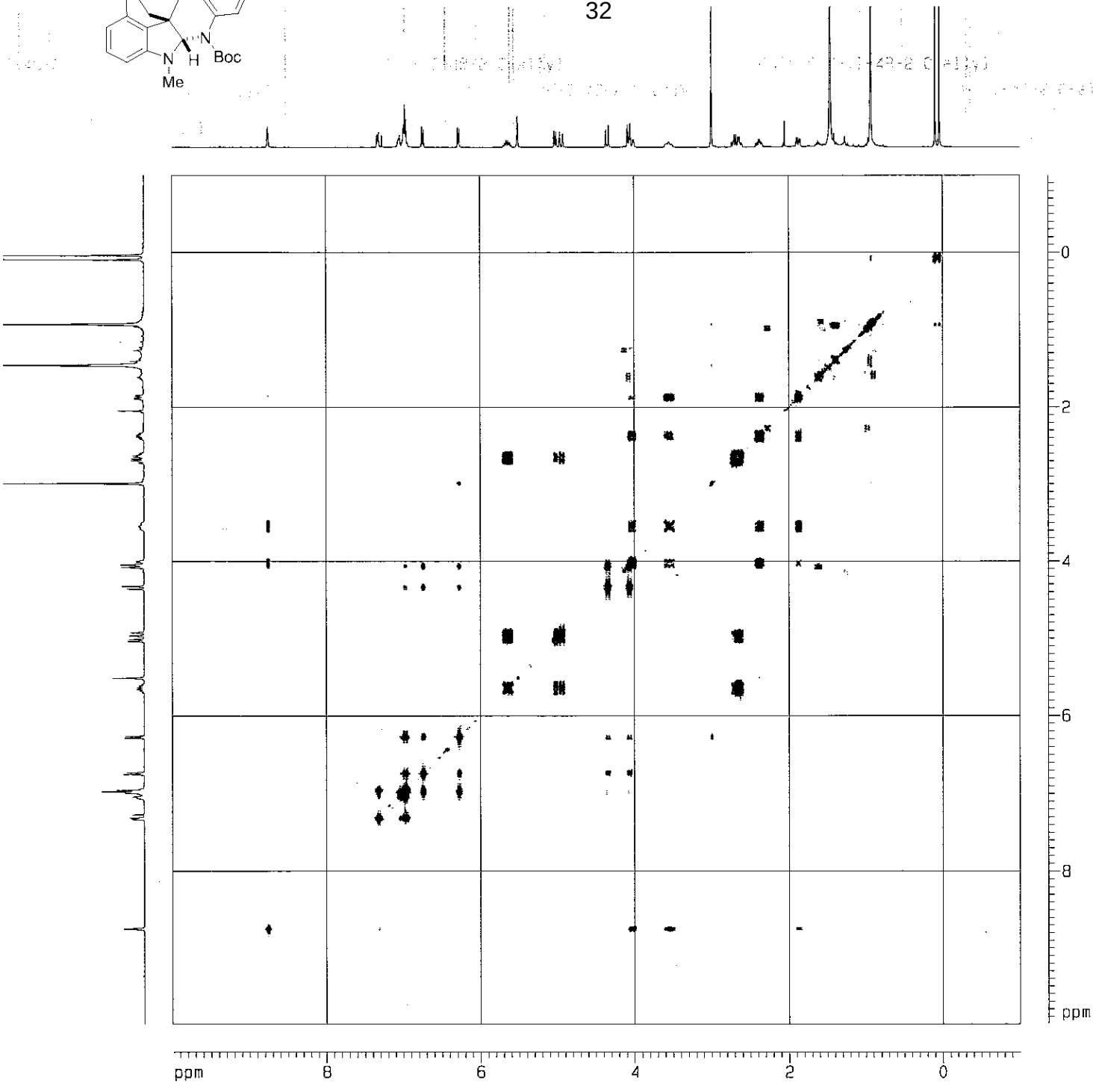
COSY



Current Data Parameters

NAME	Dec20-SJH
EXPNO	8
PROCNO	1

F2 - Acquisition Parameters

Date_	20071221
Time	9.03
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	4
DS	8
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	456.1
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
D0	0.02500000 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00011360 sec

============ CHANNEL f1 ============

NUC1	1H
P1	7.53 usec
P2	15.05 usec
PL1	0.00 dB
SFO1	400.1318005 MHz

============ GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	650
SFO1	400.1318 MHz
FIDRES	6.771398 Hz
SW	11.000 ppm

F2 - Processing parameters

SI	2048
SF	400.1300054 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

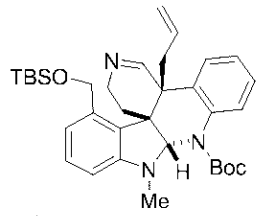
F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300054 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	10.000 ppm
F2LO	4001.30 Hz
F2PHI	-1.000 ppm
F2HI	-400.13 Hz
F1PLO	10.000 ppm
F1LO	4001.30 Hz
F1PHI	-1.000 ppm
F1HI	-400.13 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42868 Hz/cm
F1PPMCM	0.73333 ppm/cm
F1HZCM	293.42868 Hz/cm

HMBC



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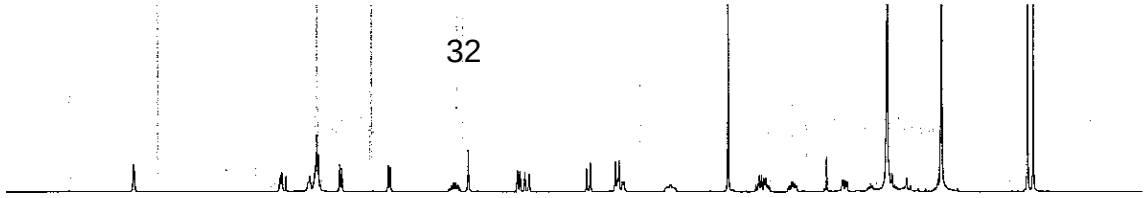
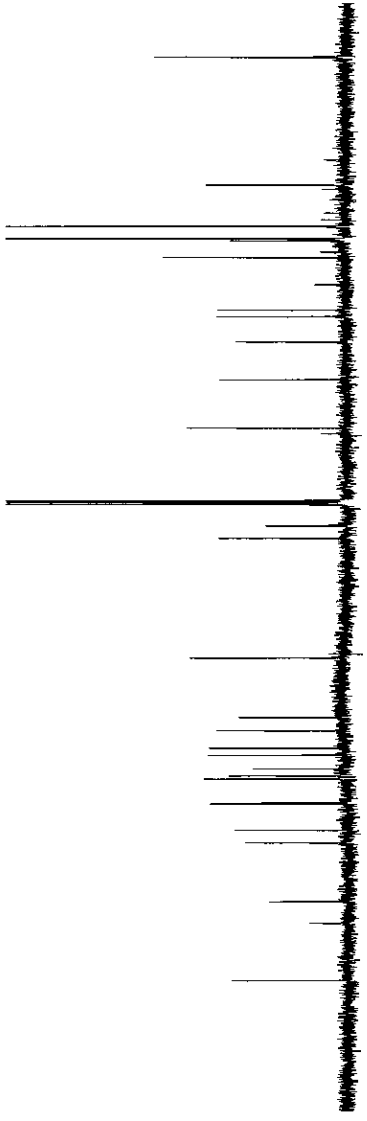
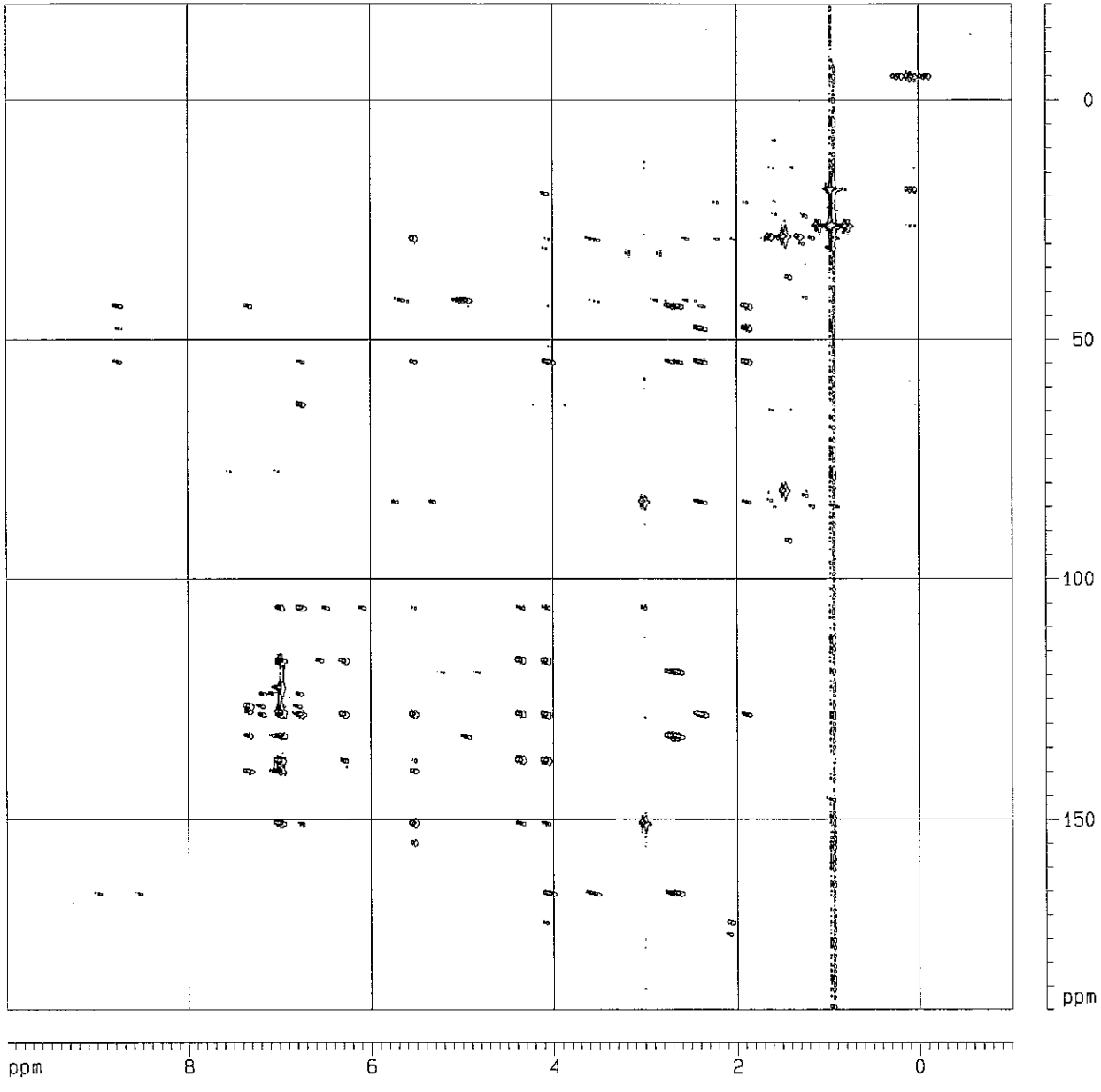






Current Data Parameters

NAME	Dec20-SJH
EXPNO	6
PROCNO	1

F2 - Acquisition Parameters

Date_	20071220
Time	23.07
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	inv4gslplrnd
TD	2048
SOLVENT	CDCl3
NS	16
DS	16
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	2192
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
CNST2	145.0000000
d0	0.00000300 sec
D1	1.50000000 sec
d2	0.00344828 sec
D8	0.08500000 sec
d13	0.00000300 sec
D16	0.00020000 sec
IN0	0.00002368 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.53 usec
p2	15.06 usec
PL1	0.00 dB
SFO1	400.1316006 MHz

========== CHANNEL f2 ==========

NUC2	13C
P3	17.00 usec
PL2	-6.00 dB
SFO2	100.6212611 MHz

========== GRADIENT CHANNEL ==========

P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	512
SFO1	100.6213 MHz
FIDRES	41.270470 Hz
SW	210.000 ppm

F2 - Processing parameters

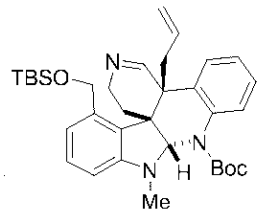
SI	2048
SF	400.1300054 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	QF
SF	100.6127290 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	9.987 ppm
F2LO	3995.90 Hz
F2PHI	-1.013 ppm
F2HI	-405.51 Hz
F1PLO	190.009 ppm
F1LO	19117.32 Hz
F1PHI	-20.009 ppm
F1HI	-2013.16 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42722 Hz/cm
F1PPMCM	14.00120 ppm/cm
F1HZCM	1408.69885 Hz/cm



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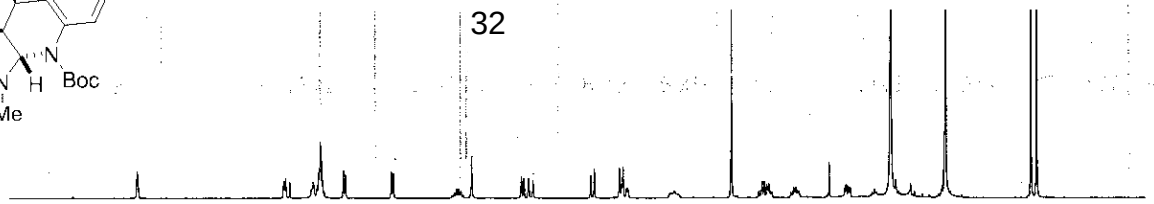
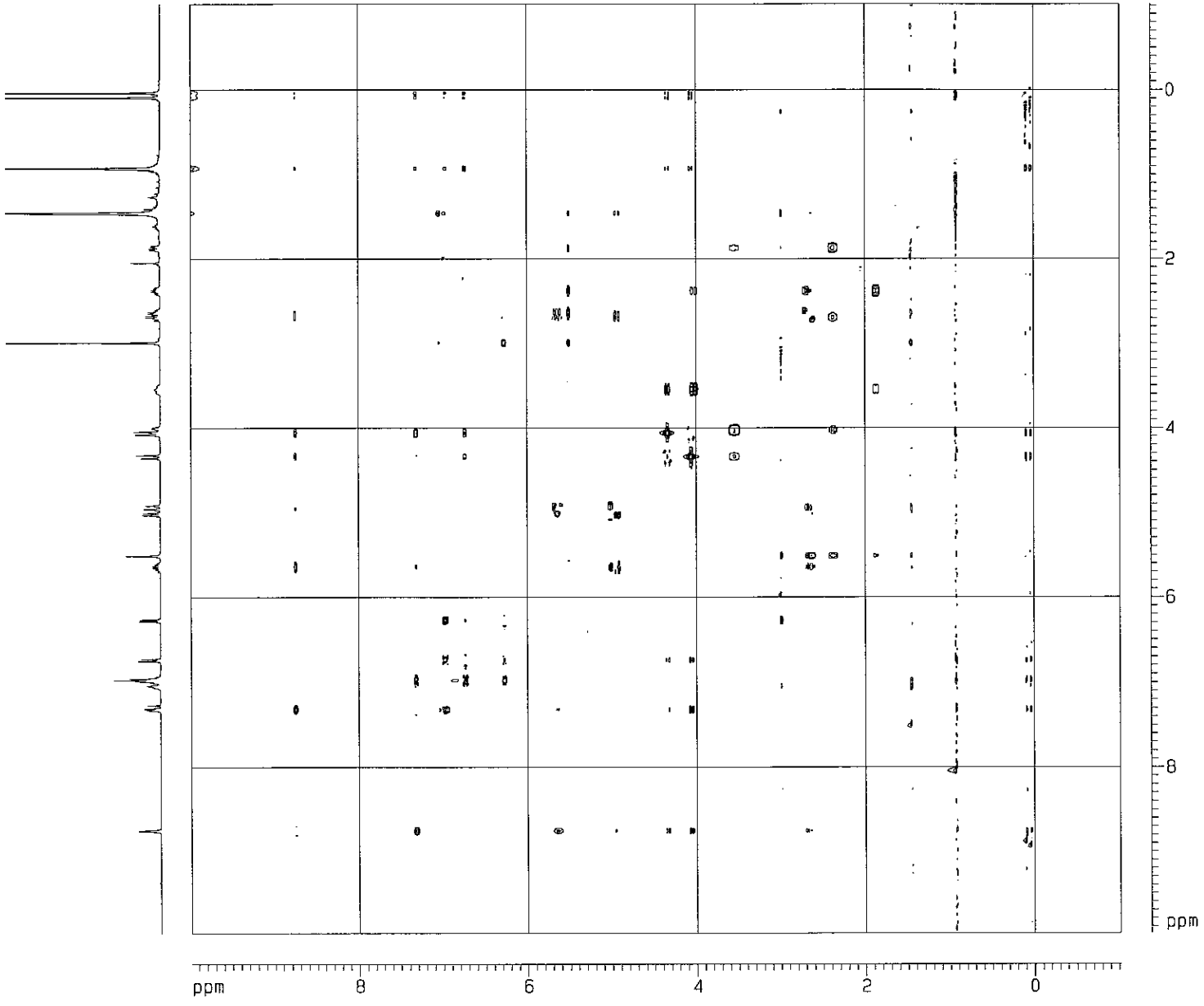
NOESY





Current Data Parameters

NAME	Dec20-5JH
EXPNO	7
PROCNO	1

F2 - Acquisition Parameters

Date_	20071221
Time	3.16
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	noesygptp
TD	2048
SOLVENT	CDCl3
NS	8
DS	8
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	40.3
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
d0	0.00000300 sec
D1	4.00000000 sec
D8	0.80000001 sec
D16	0.00020000 sec
d20	0.39880002 sec
IN0	0.00011360 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.53 usec
P2	15.06 usec
PL1	0.00 dB
SFO1	400.1318006 MHz

========== GRADIENT CHANNEL ========

GPNAM1	sine.100
GPNAM2	sine.100
GPX1	0.00 %
GPX2	0.00 %
GPY1	0.00 %
GPY2	0.00 %
GPZ1	40.00 %
GPZ2	-40.00 %
P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	512
SFO1	400.1318 MHz
FIDRES	8.596501 Hz
SW	11.000 ppm

F2 - Processing parameters

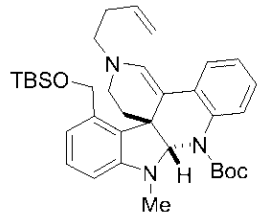
SI	2048
SF	400.1300054 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300054 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	9.967 ppm
F2LO	3995.90 Hz
F2PHI	-1.013 ppm
F2HI	-405.51 Hz
F1PLO	9.987 ppm
F1LO	3995.90 Hz
F1PHI	-1.013 ppm
F1HI	-405.51 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42722 Hz/cm
F1PPMCM	0.73333 ppm/cm
F1HZCM	293.42722 Hz/cm



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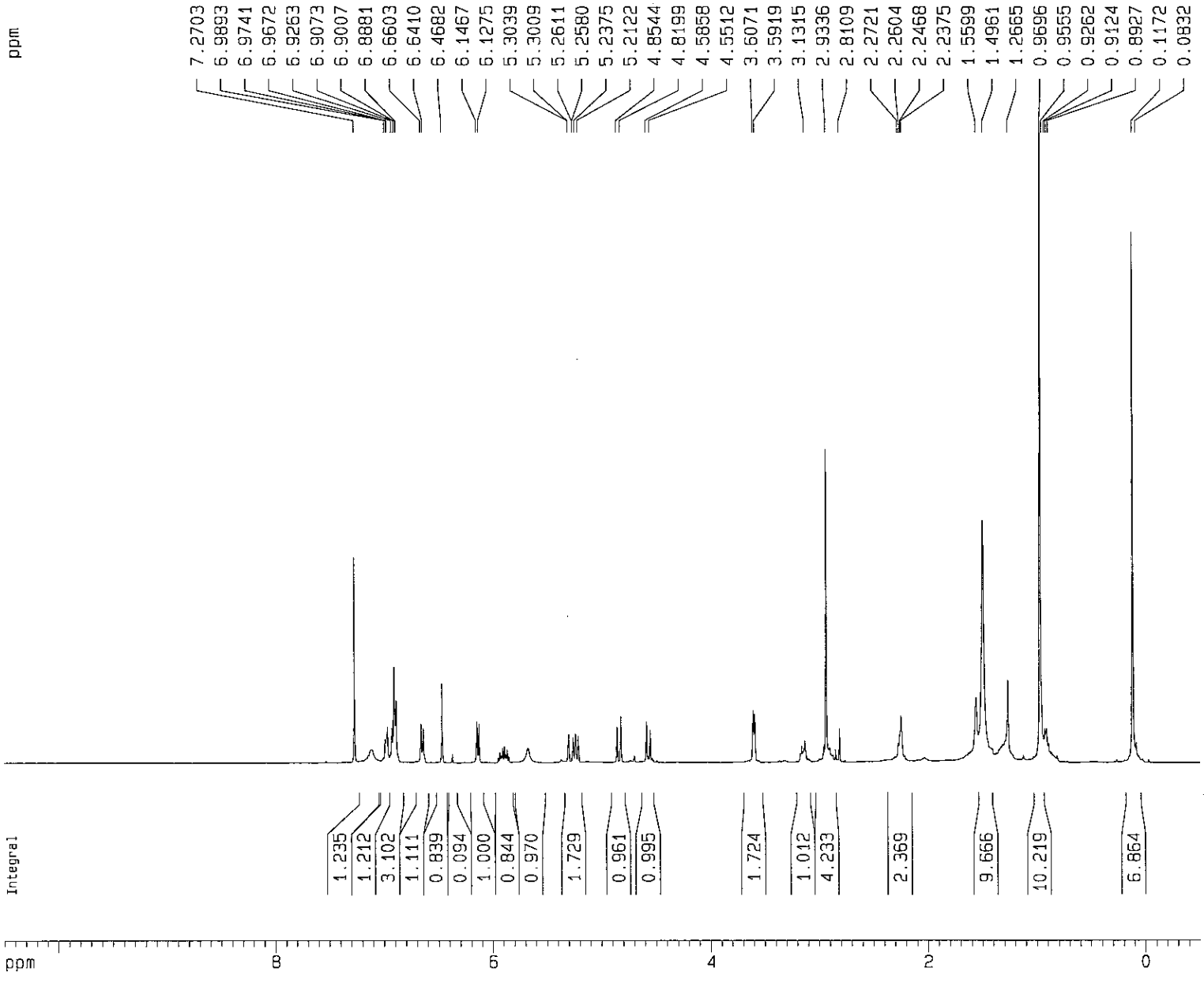


Current Data Parameters

NAME	Dec20-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20071220
Time	19.02
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	17
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	406.4
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 =========

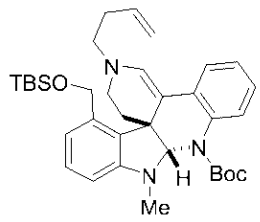
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300054 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



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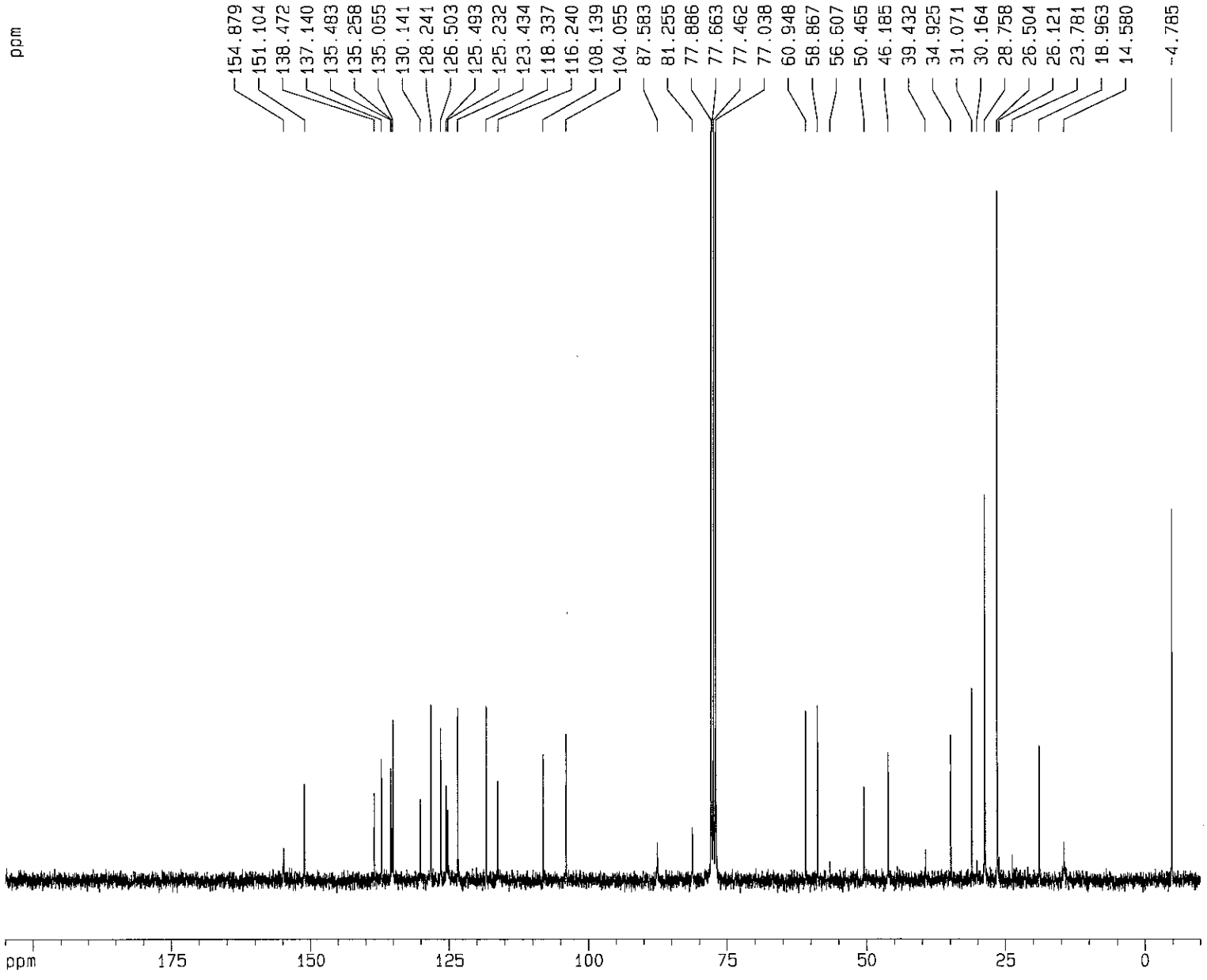


```
Current Data Parameters
NAME                  May31-SJH
EXPNO                         2
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20080531
Time                      10.22
INSTRUM                   spect
PROBHD     5 mm GNP 1H/1
PULPROG                 zgpg30
TD                         65536
SOLVENT                  CDCl3
NS                          1324
DS                             2
SWH                 18796.992 Hz
FIDRES              0.286819 Hz
AQ                  1.7433075 sec
RG                           512
DW                    26.600 usec
DE                     6.00 usec
TE                     300.0 K
D1                  2.00000000 sec
D11                 0.03000000 sec
D12                 0.00002000 sec

============ CHANNEL f1 ============
NUC1                         13C
P1                      5.40 usec
PL1                     -6.00 dB
SFO1                75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2                 waltz16
NUC2                         1H
PCPD2                  115.00 usec
PL2                     0.00 dB
PL12                   20.00 dB
PL13                   20.00 dB
SFO2                299.8711995 MHz

F2 - Processing parameters
SI                           32768
SF                  75.4023410 MHz
WDW                             EM
SSB                              0
LB                      1.00 Hz
GB                               0
PC                            1.40

1D NMR plot parameters
CX                     20.00 cm
F1P                   205.000 ppm
F1                  15457.48 Hz
F2P                   -10.000 ppm
F2                   -754.02 Hz
PPMCM                 10.75000 ppm/cm
HZCM                810.57520 Hz/cm
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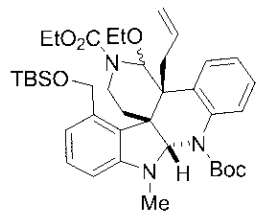
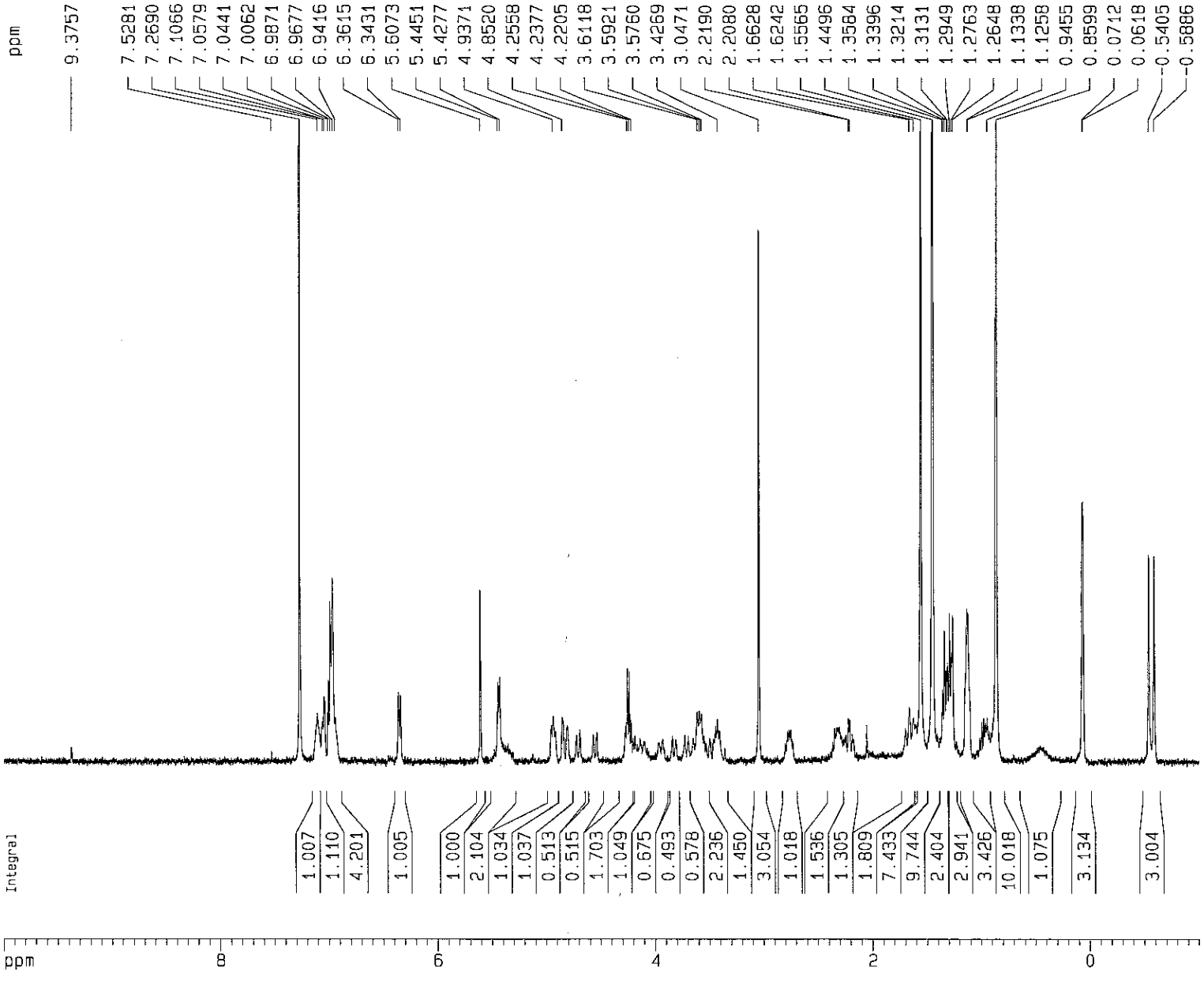


more polar
major diastereomer

34



Current Data Parameters

NAME	1124-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20071125
Time	13.29
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	71
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	4096
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

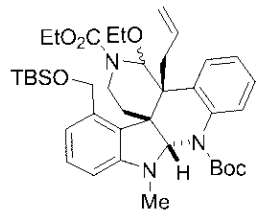
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300046 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

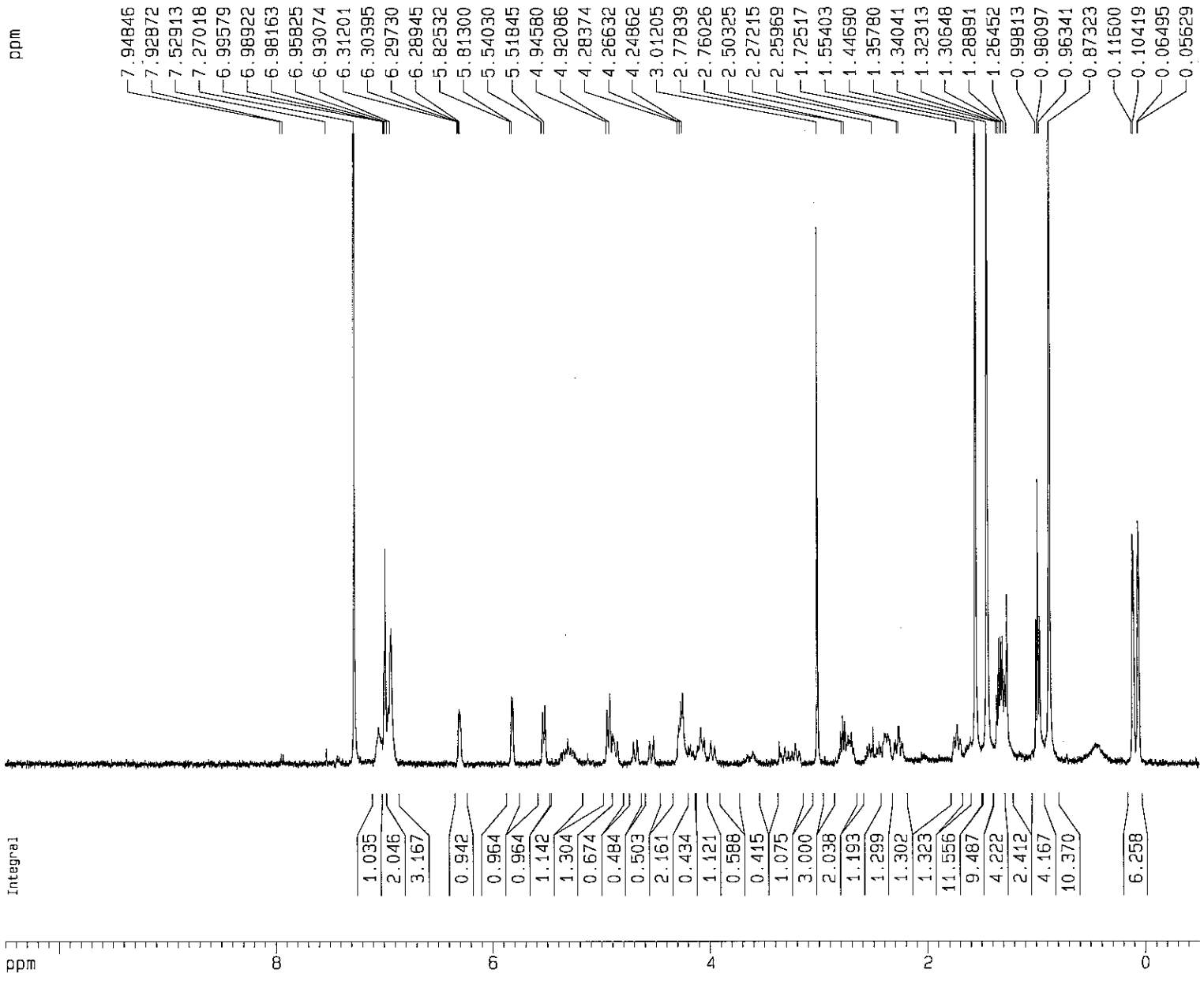
1D NMR plot parameters

CX	20.00 cm
F1P	10.000 ppm
F1	4001.30 Hz
F2P	-1.000 ppm
F2	-400.13 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



34

less polar
minor diastereomer



Current Data Parameters

NAME	1124-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20071125
Time	13.15
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	128
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	2580.3
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

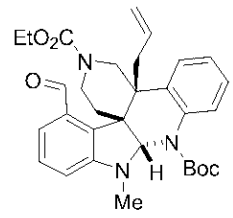
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300046 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



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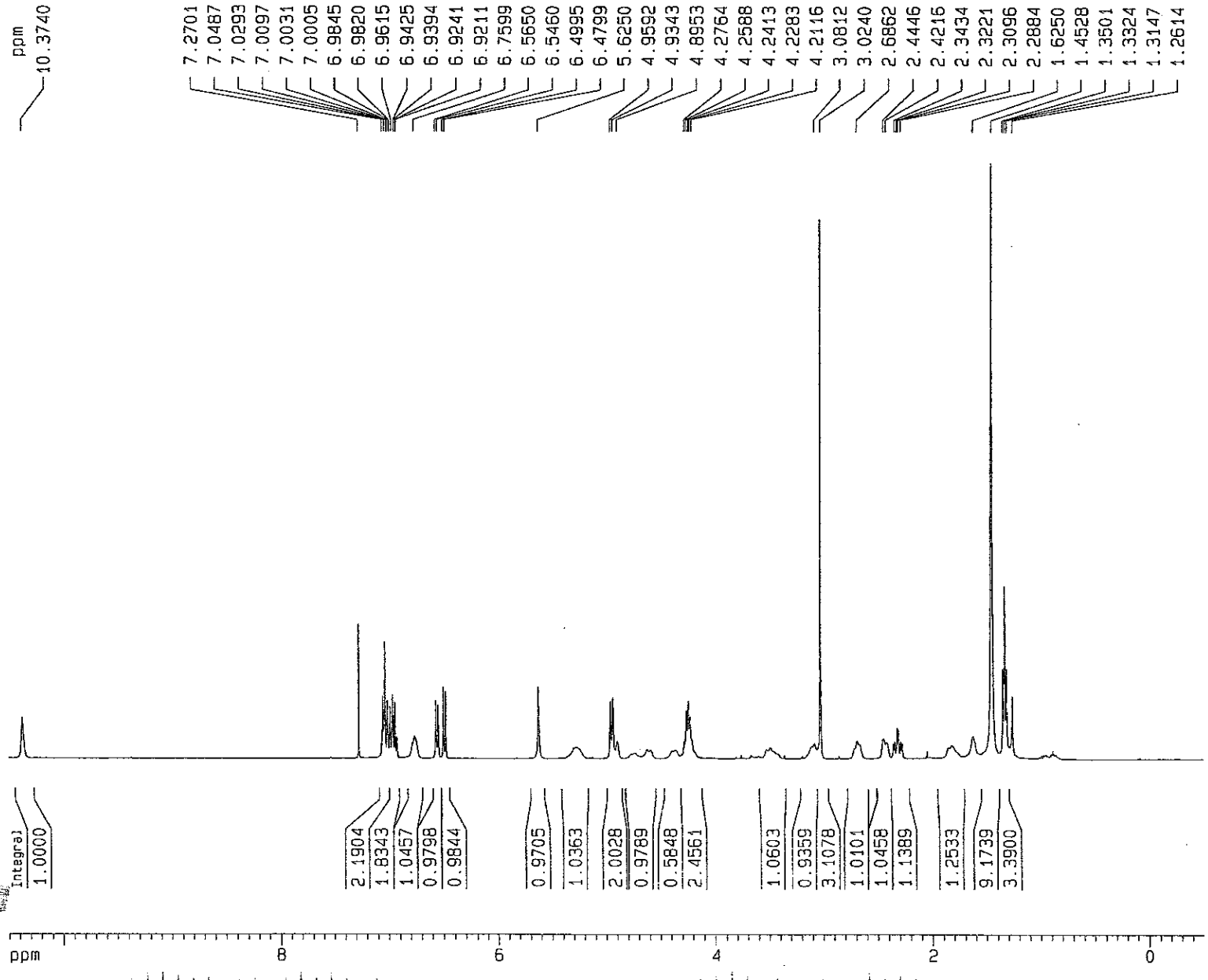


Current Data Parameters

NAME	0910-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20070910
Time	16.24
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	8
DS	0
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	35.9
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

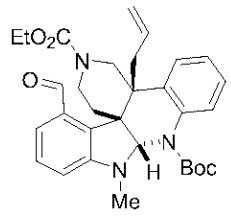
NUC1	1H
P1	7.15 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300051 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



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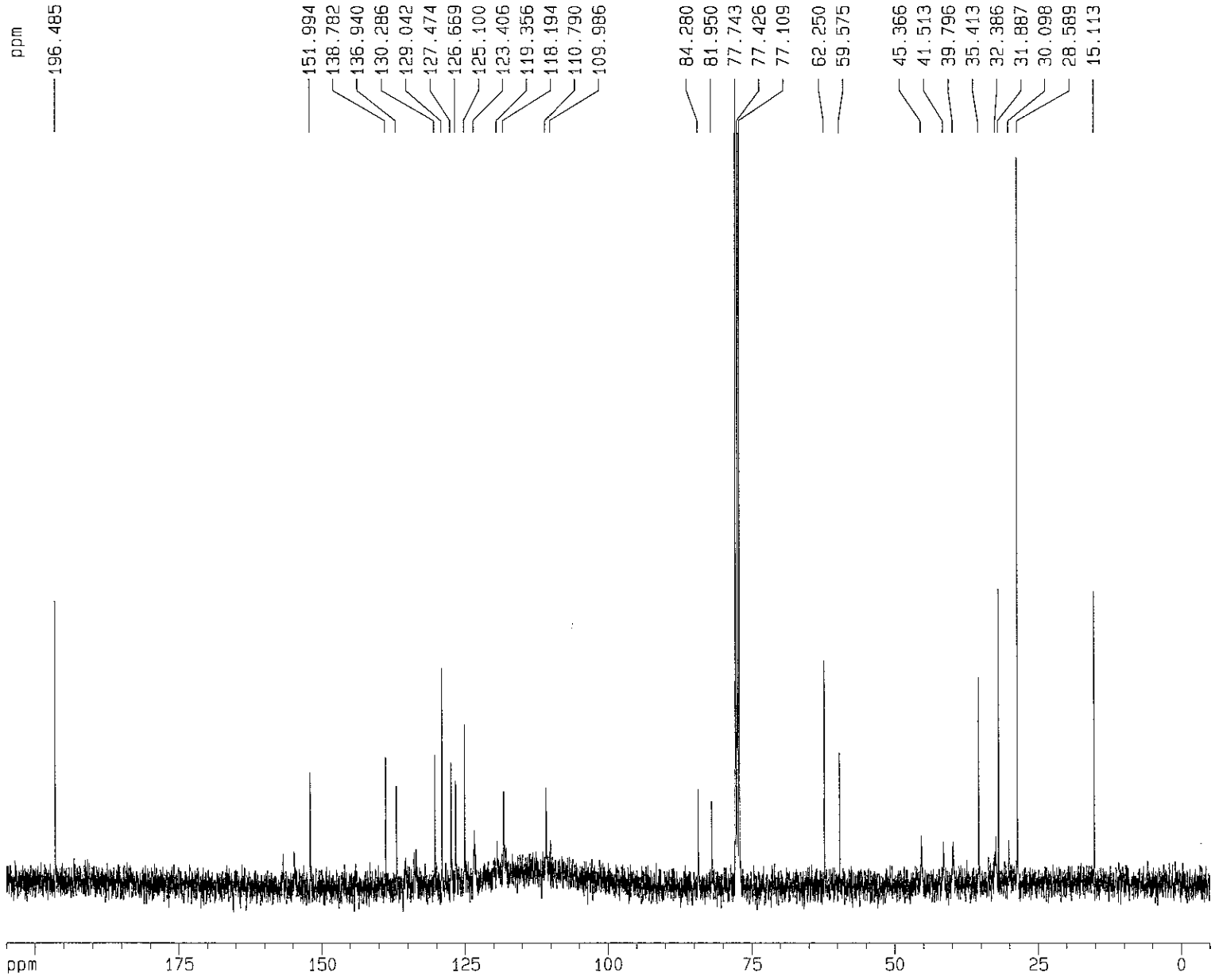


```
Current Data Parameters
NAME                  0910-SJH
EXPNO                        2
PROCNO                       1

F2 - Acquisition Parameters
Date_                 20070910
Time                     16.54
INSTRUM                  spect
PROBHD     5 mm BBI 1H-B
PULPROG                 zgpg30
TD                       65536
SOLVENT                  CDCl3
NS                        3072
DS                           2
SWH                25125.629 Hz
FIDRES              0.383387 Hz
AQ                  1.3042164 sec
RG                       16384
DW                    19.900 usec
DE                     6.00 usec
TE                     300.0 K
D1                 2.00000000 sec
d11                0.03000000 sec
d12                0.00002000 sec

========== CHANNEL f1 ==========
NUC1                       13C
P1                     16.35 usec
PL1                    -6.00 dB
SFO1              100.6237959 MHz

========== CHANNEL f2 ==========
CPDPRG2                waltz16
NUC2                       1H
PCPD2                 114.00 usec
PL2                     0.00 dB
PL12                   24.00 dB
PL13                   24.00 dB
SFO2              400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF                100.6127290 MHz
WDW                          EM
SSB                           0
LB                     1.00 Hz
GB                            0
PC                     1.40

1D NMR plot parameters
CX                    20.00 cm
F1P                  205.000 ppm
F1                 20625.61 Hz
F2P                   -5.000 ppm
F2                  -503.06 Hz
PPMCM                10.50000 ppm/cm
HZCM               1056.43372 Hz/cm
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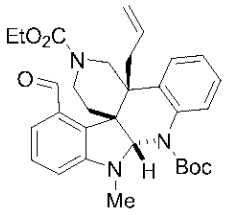
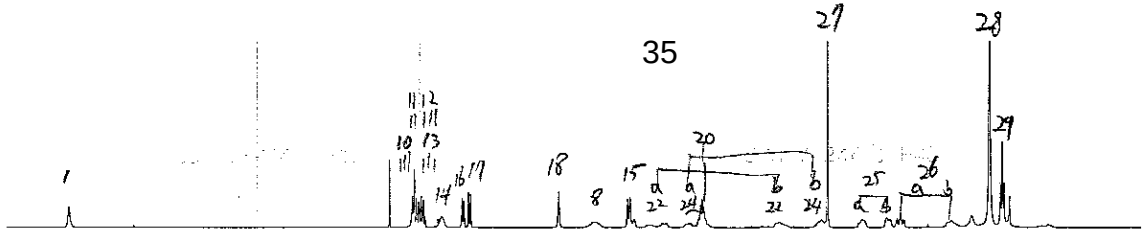
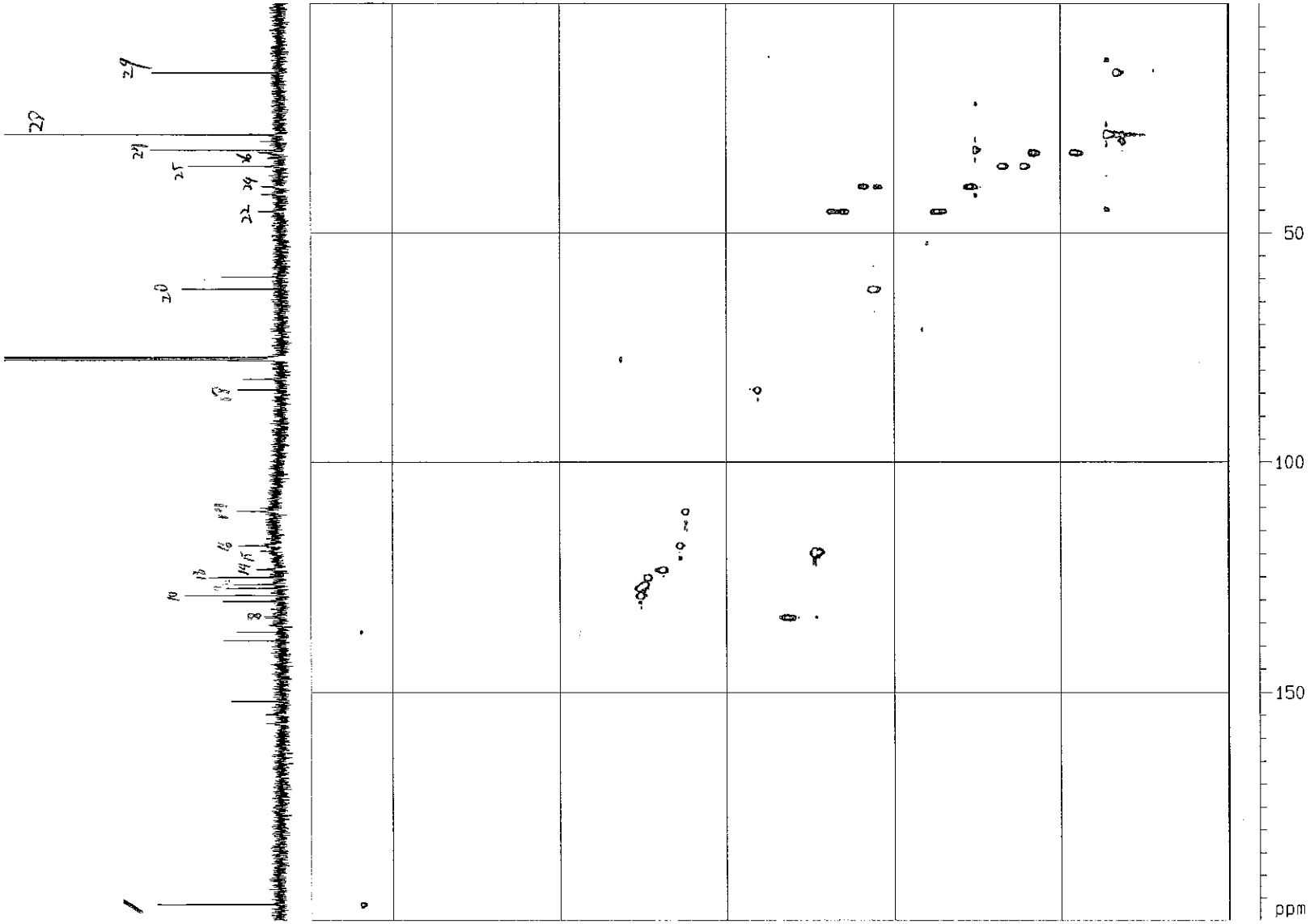


35

HMQC





Current Data Parameters

NAME	0910-SJH
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20070910
Time	20.42
INSTRUM	spect
PROBHD	5 mm BBT 1H-B
PULPROG	inv4gpto
TD	2048
SOLVENT	CDCl3
NS	8
DS	60
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	23170.5
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
CNST2	145.0000000
d0	0.00000306 sec
D1	1.99831298 sec
d2	0.00344828 sec
d4	0.00172414 sec
d11	0.03000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00052414 sec
d21	0.00224428 sec
IN0	0.00001243 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	6.45 usec
p2	12.90 usec
PL1	9.00 dB
SFO1	400.1322097 MHz

========== CHANNEL f2 ==========

CPDPRG2	waltz16
NUC2	13C
P3	17.00 usec
p4	34.00 usec
PCPD2	64.00 usec
PL2	-6.00 dB
PL12	8.30 dB
SFO2	100.6227903 MHz

========== GRADIENT CHANNEL ==========

GPNAM1	SINE.100
GPNAM2	SINE.100
GPNAM3	SINE.100
GPX1	17.00 %
GPX2	20.00 %
GPX3	25.00 %
GPY1	17.00 %
GPY2	20.00 %
GPY3	25.00 %
GPZ1	17.00 %
GPZ2	20.00 %
GPZ3	25.00 %
P16	1000.00 usec

F1 - Acquisition parameters

ND0	4
TD	256
SFO1	100.6228 MHz
FIDRES	78.596581 Hz
SW	139.562 ppm

F2 - Processing parameters

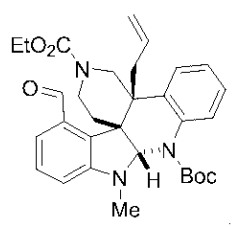
SI	2048
SF	400.1300051 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

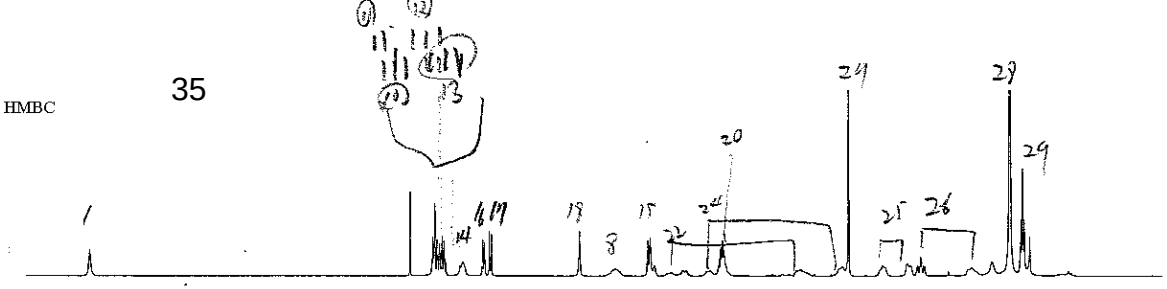
F1 - Processing parameters

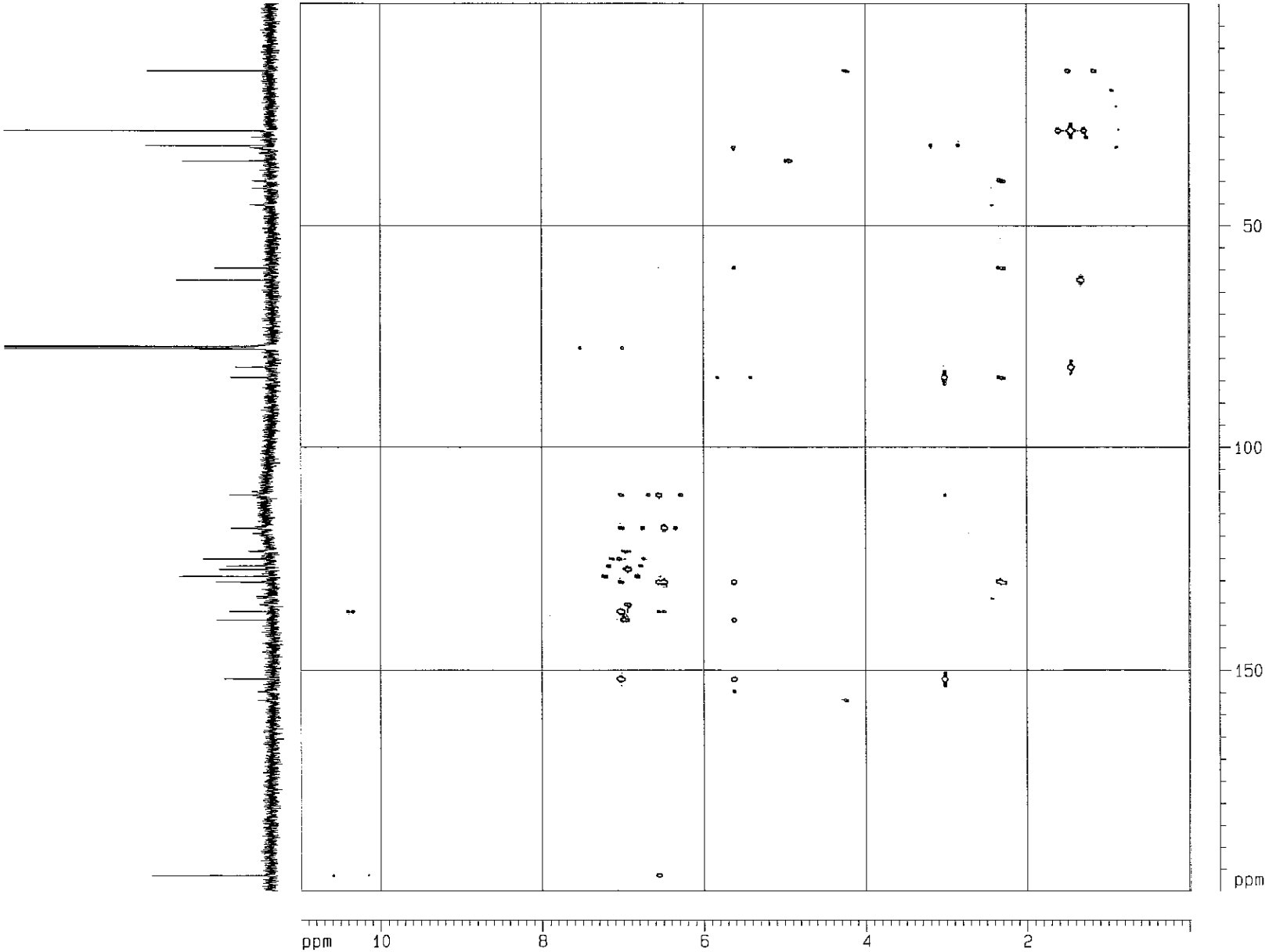
SI	1024
MC2	TPPI
SF	100.6127290 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	10.987 ppm
F2LO	4396.25 Hz
F2PHI	-0.013 ppm
F2HI	-5.12 Hz
F1PLO	199.991 ppm
F1LO	20121.84 Hz
F1PHI	0.009 ppm
F1HI	0.92 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42722 Hz/cm
F1PPMCM	13.33213 ppm/cm
F1HZCM	1341.38159 Hz/cm







Current Data Parameters

NAME	0910-SJH
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20070910
Time	22.00
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	inv4gslplrnd
TD	2048
SOLVENT	CDCl3
NS	16
DS	16
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	15384
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
CNST2	145.0000000
d0	0.00000300 sec
D1	1.50000000 sec
d2	0.00344828 sec
D6	0.08500000 sec
d13	0.00000300 sec
D16	0.00020000 sec
IN0	0.00002485 sec

CHANNEL f1

NUC1	1H
P1	6.45 usec
p2	12.90 usec
PL1	0.00 dB
SFO1	400.1322007 MHz

CHANNEL f2

NUC2	13C
P3	17.00 usec
PL2	-6.00 dB
SFO2	100.6227903 MHz

GRADIENT CHANNEL

P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	512
SFO1	100.6228 MHz
FIDRES	39.298290 Hz
SW	199.982 ppm

F2 - Processing parameters

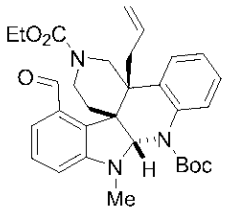
SI	2048
SF	400.1300053 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	QF
SF	100.6127290 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	10.987 ppm
F2LO	4396.29 Hz
F2PHI	-0.013 ppm
F2HI	-5.12 Hz
F1PLO	199.931 ppm
F1LO	20121.64 Hz
F1PHI	0.009 ppm
F1HI	0.92 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42722 Hz/cm
F1PPMCM	13.33213 ppm/cm
F1HZCM	1341.38159 Hz/cm



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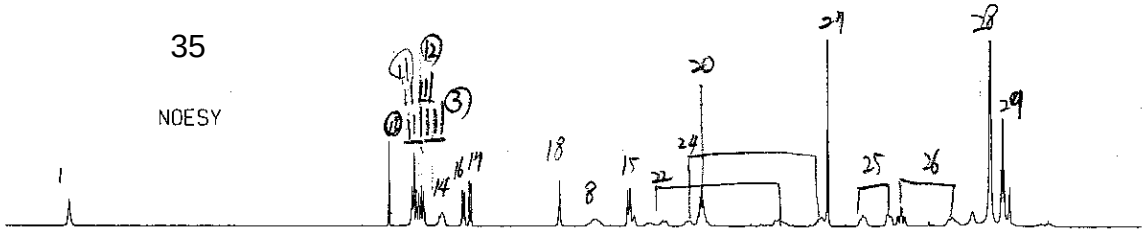
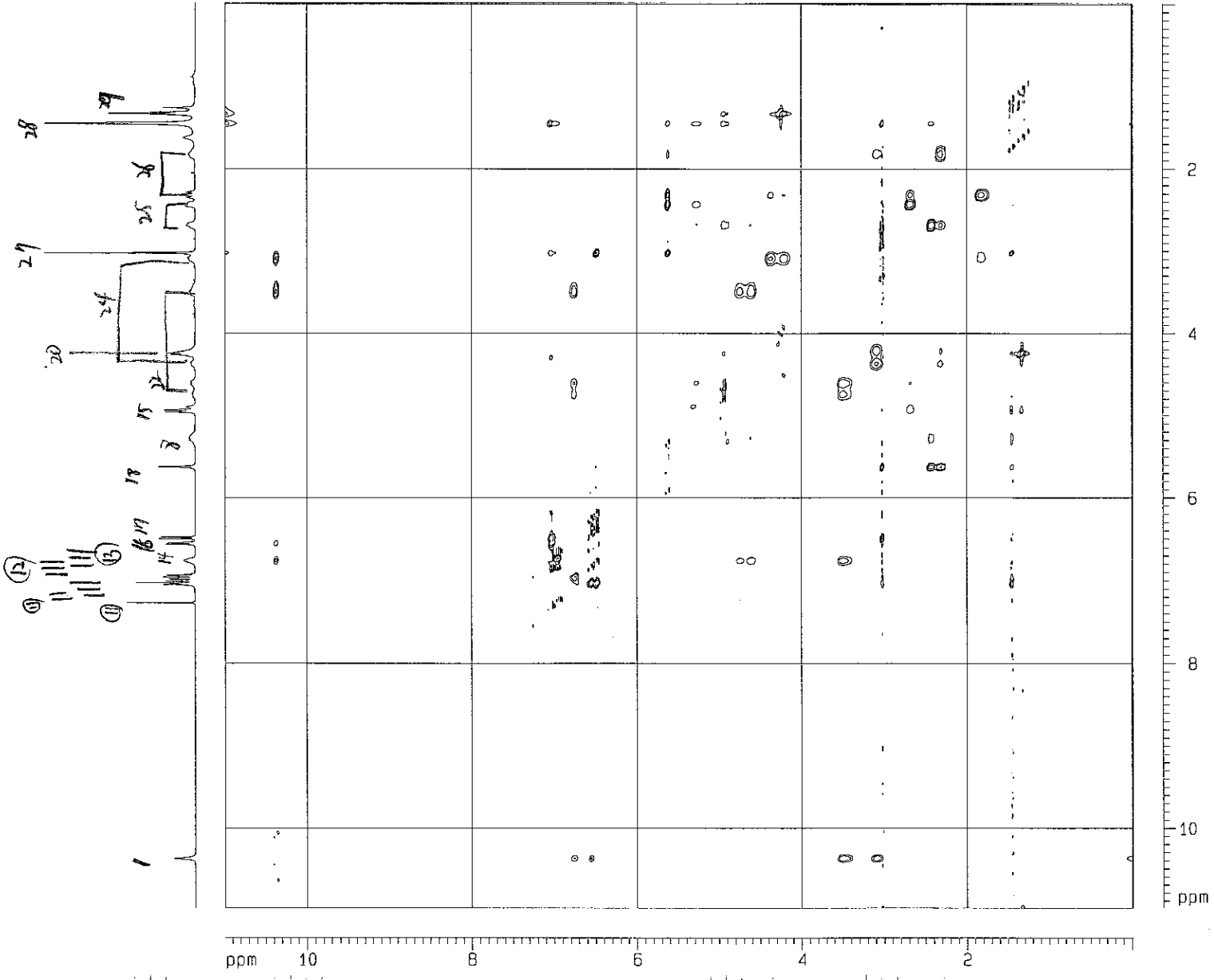
NOESY





Current Data Parameters

NAME	0810-SJH
EXPNO	8
PROCNO	1

F2 - Acquisition Parameters

Date_	20070911
Time	2.10
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	noesygptp
TD	2048
SOLVENT	CDCl3
NS	10
DS	8
SWH	4401.409 Hz
FIDRES	2.149125 Hz
AQ	0.2327028 sec
RG	90.5
DW	113.600 usec
DE	6.00 usec
TE	300.0 K
d0	0.00000300 sec
D1	4.00000000 sec
D8	0.80000001 sec
D16	0.00020000 sec
d20	0.39880002 sec
INO	0.00011360 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	6.45 usec
P2	12.90 usec
PL1	0.00 dB
SFO1	400.1322007 MHz

========== GRADIENT CHANNEL ========

GPNAM1	sine.100
GPNAM2	sine.100
GPX1	0.00 %
GPX2	0.00 %
GPY1	0.00 %
GPY2	0.00 %
GPZ1	40.00 %
GPZ2	-40.00 %
P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	512
SFO1	400.1322 MHz
FIDRES	8.596501 Hz
SW	11.000 ppm

F2 - Processing parameters

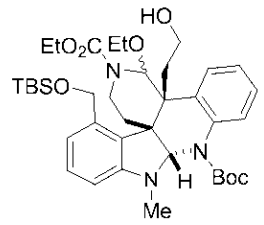
SI	2048
SF	400.1300051 MHz
WDW	GSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300051 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

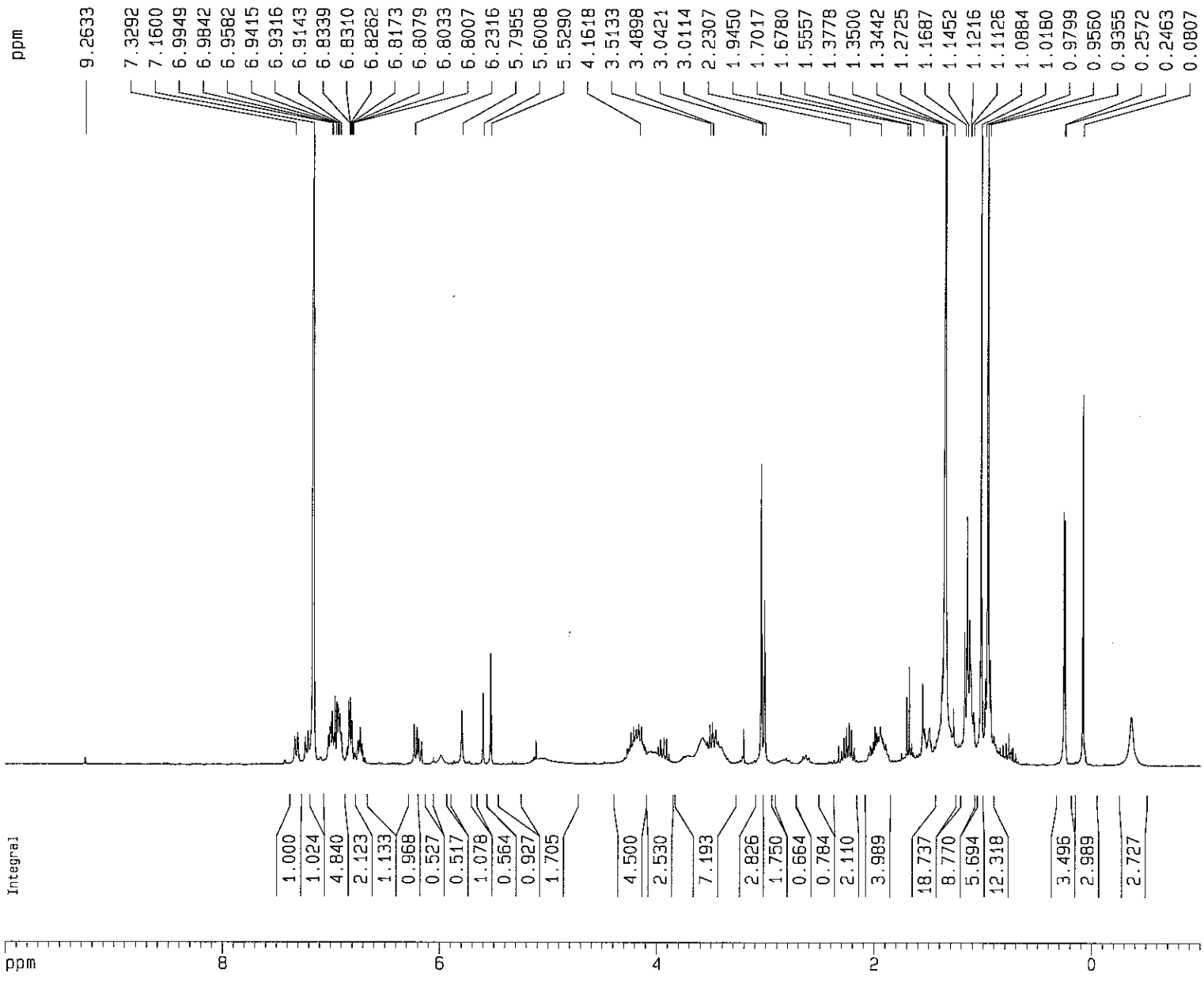
2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	10.987 ppm
F2LO	4396.29 Hz
F2PHI	-0.013 ppm
F2HI	-5.12 Hz
F1PLO	10.987 ppm
F1LO	4396.29 Hz
F1PHI	-0.013 ppm
F1HI	-5.12 Hz
F2PPMCM	0.73333 ppm/cm
F2HZCM	293.42722 Hz/cm
F1PPMCM	0.73333 ppm/cm
F1HZCM	293.42722 Hz/cm



2:1 mixture of diastereomers

36



Current Data Parameters

NAME	Jun16-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080616
Time	12.38
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	C6D6
NS	17
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	362
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

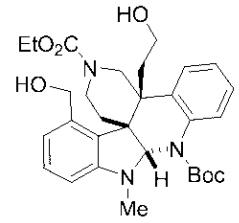
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700355 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

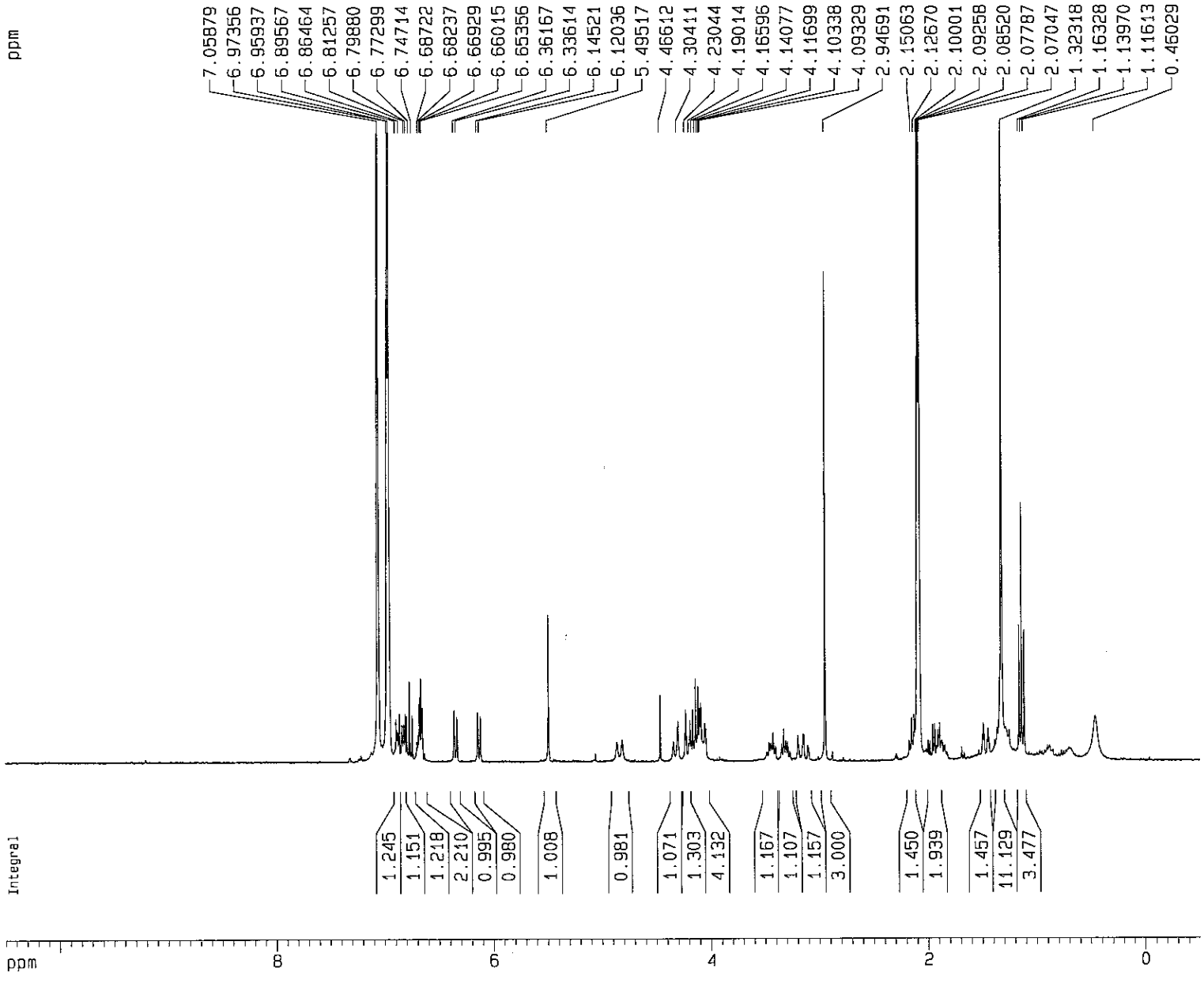
1D NMR plot parameters

CX	20.00 cm
F1P	10.000 ppm
F1	2998.70 Hz
F2P	-1.000 ppm
F2	-299.87 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



in tol at 90 oC

37



Current Data Parameters

NAME	Jun06-SJH
EXPNO	10
PROCNO	1

F2 - Acquisition Parameters

Date_	20080606
Time	22.22
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	65
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	1625.5
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

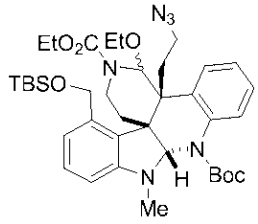
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700136 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

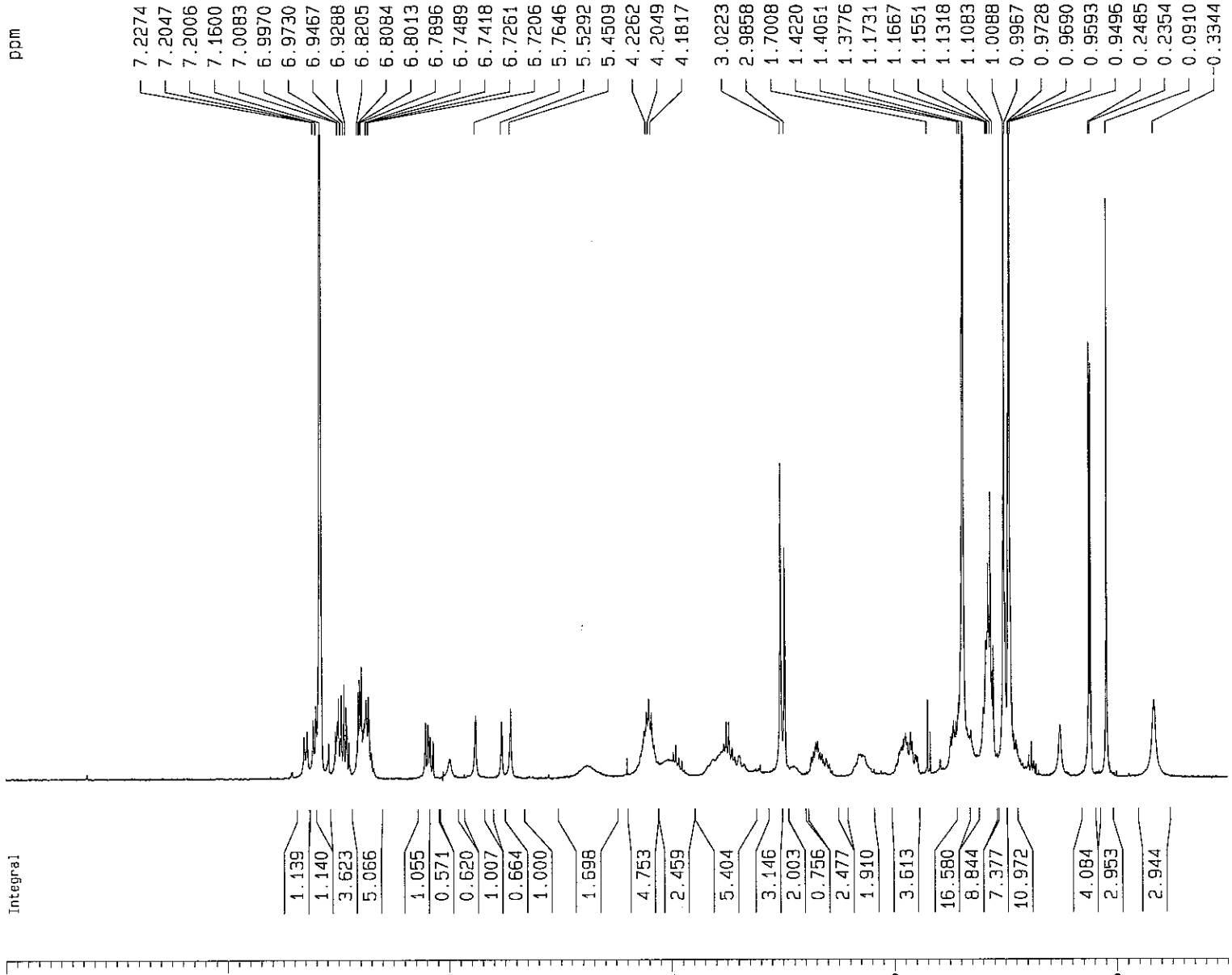
CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



1:0.6 mixture of diastereomers

in benzene at 65 oC

65



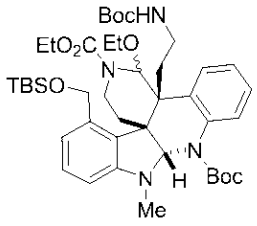

```
Current Data Parameters
NAME                  Jun17-SJH
EXPNO                         1
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20080617
Time                      14.10
INSTRUM                   spect
PROBHD     5 mm QNP 1H/1
PULPROG                   zg30
TD                       37036
SOLVENT                   C6D6
NS                          13
DS                           2
SWH                 6172.839 Hz
FIDRES              0.166671 Hz
AQ                  2.9999659 sec
RG                         362
DW                     81.000 usec
DE                      6.00 usec
TE                     300.0 K
D1                  1.00000000 sec

============ CHANNEL f1 =========
NUC1                       1H
P1                      11.70 usec
PL1                      0.00 dB
SFO1              299.8718518 MHz

F2 - Processing parameters
SI                        32768
SF                  299.8700355 MHz
WDW                          EM
SSB                           0
LB                       0.30 Hz
GB                            0
PC                         1.00

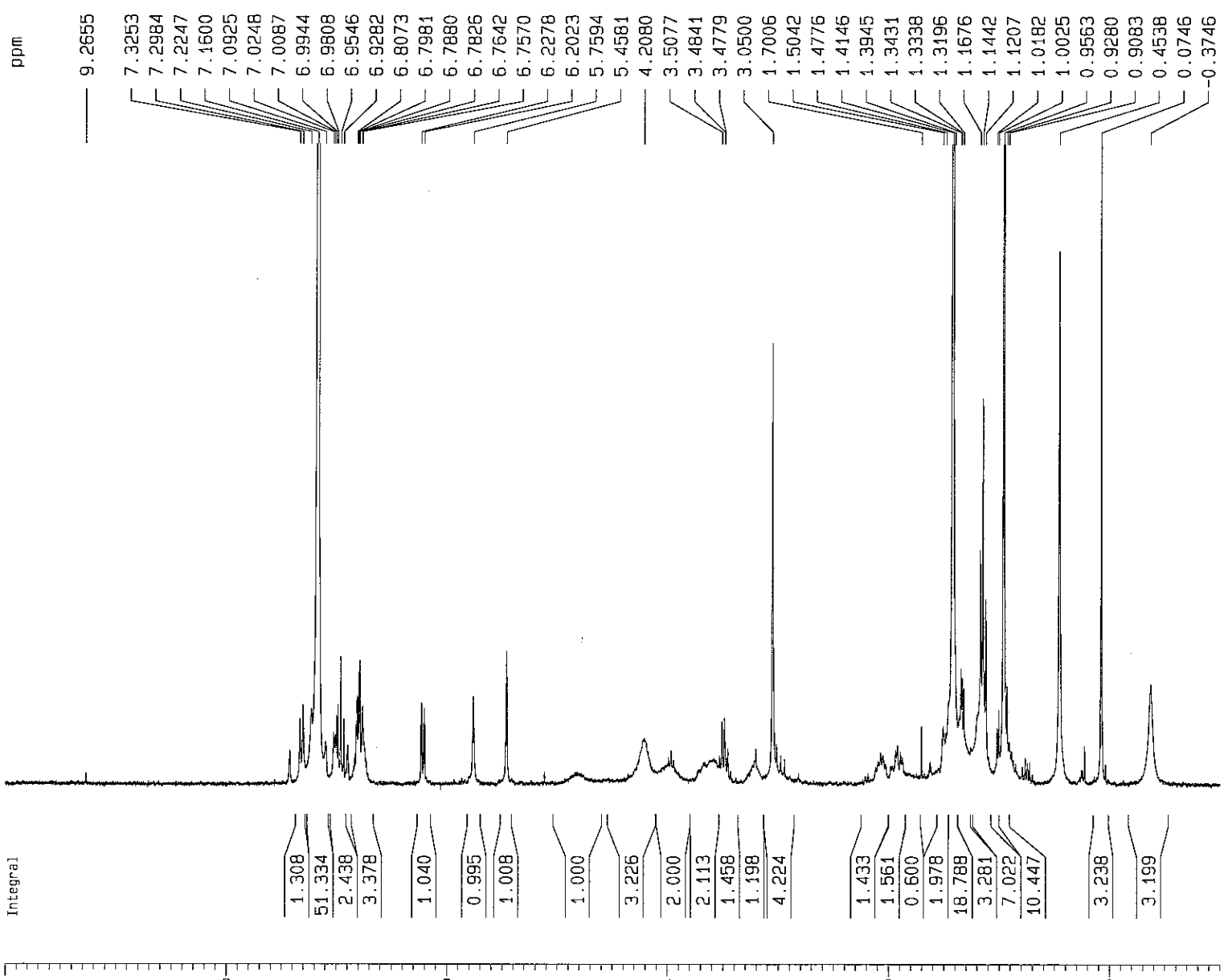
1D NMR plot parameters
CX                      20.00 cm
F1P                    10.000 ppm
F1                    2998.70 Hz
F2P                    -1.000 ppm
F2                    -299.87 Hz
PPMCM                 0.55000 ppm/cm
HZCM                164.92851 Hz/cm
```



more polar
major diastereomer

in benzene-d6 at 65 oC

38



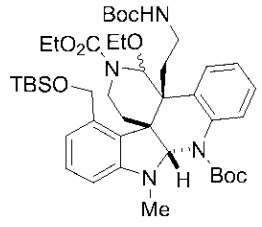
Current Data Parameters
NAME Jun18-SJH
EXPNO 3
PROCNO 1

F2 - Acquisition Parameters
Date_ 20080618
Time 11.12
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 37036
SOLVENT C6D6
NS 51
DS 2
SWH 6172.839 Hz
FIDRES 0.166671 Hz
AQ 2.9999659 sec
RG 1149.4
DW 81.000 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

========== CHANNEL f1 ========
NUC1 1H
P1 11.70 usec
PL1 0.00 dB
SFO1 299.8718518 MHz

F2 - Processing parameters
SI 32768
SF 299.8700355 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

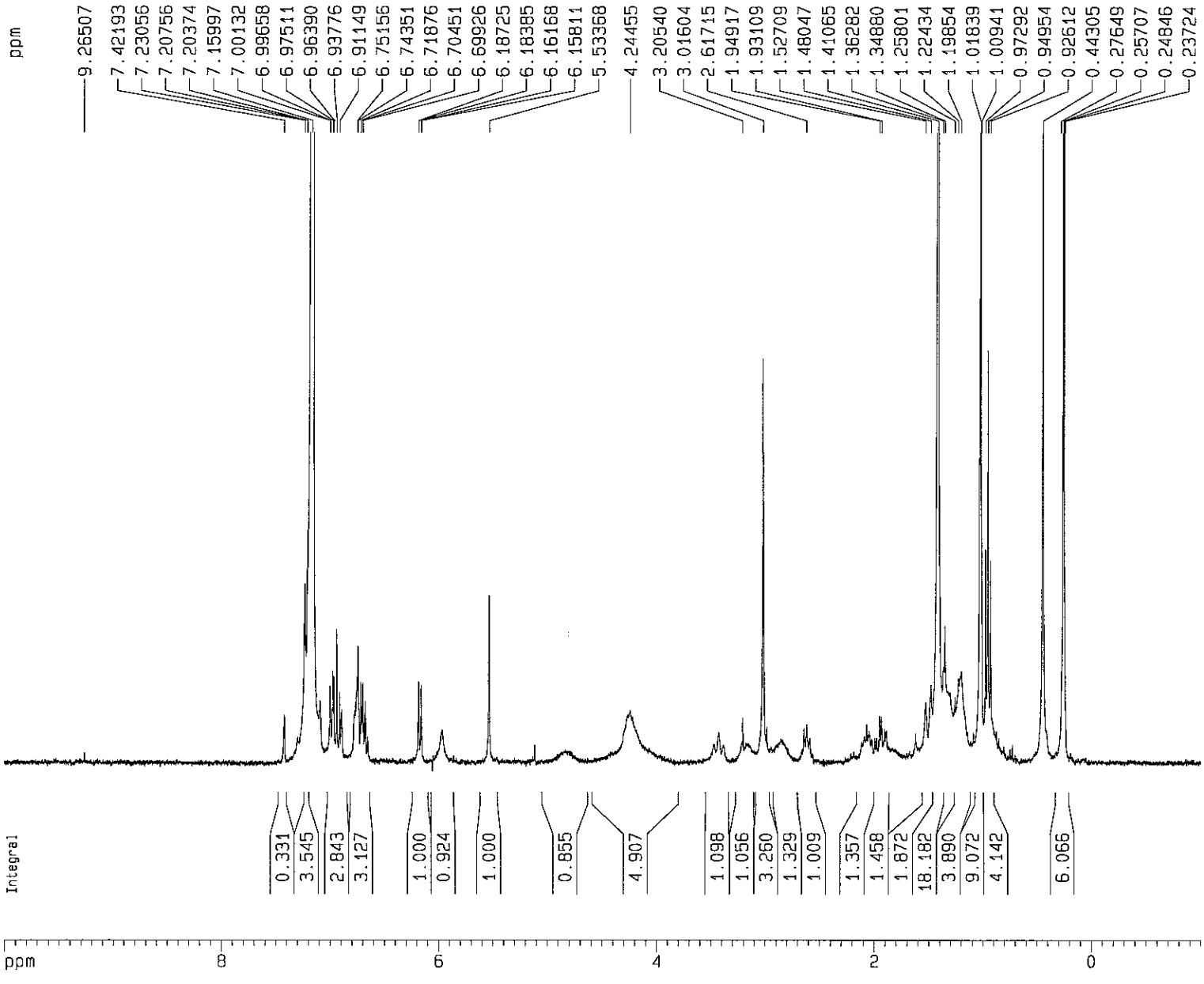
1D NMR plot parameters
CX 20.00 cm
F1P 10.000 ppm
F1 2998.70 Hz
F2P -1.000 ppm
F2 -299.87 Hz
PPMCM 0.55000 ppm/cm
HZCM 164.92851 Hz/cm



less polar
minor diastereomer

in benzene-d6 at 65 oC

38



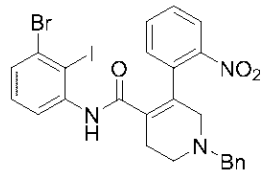

```
Current Data Parameters
NAME                  Jun18-SJH
EXPNO                         1
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20080618
Time                      10.51
INSTRUM                   spect
PROBHD     5 mm QNP 1H/1
PULPROG                   zg30
TD                       37036
SOLVENT                   C6D6
NS                          75
DS                           2
SWH                  6172.839 Hz
FIDRES               0.166671 Hz
AQ                   2.9999659 sec
RG                      1149.4
DW                     81.000 usec
DE                      6.00 usec
TE                     300.0 K
D1                   1.00000000 sec

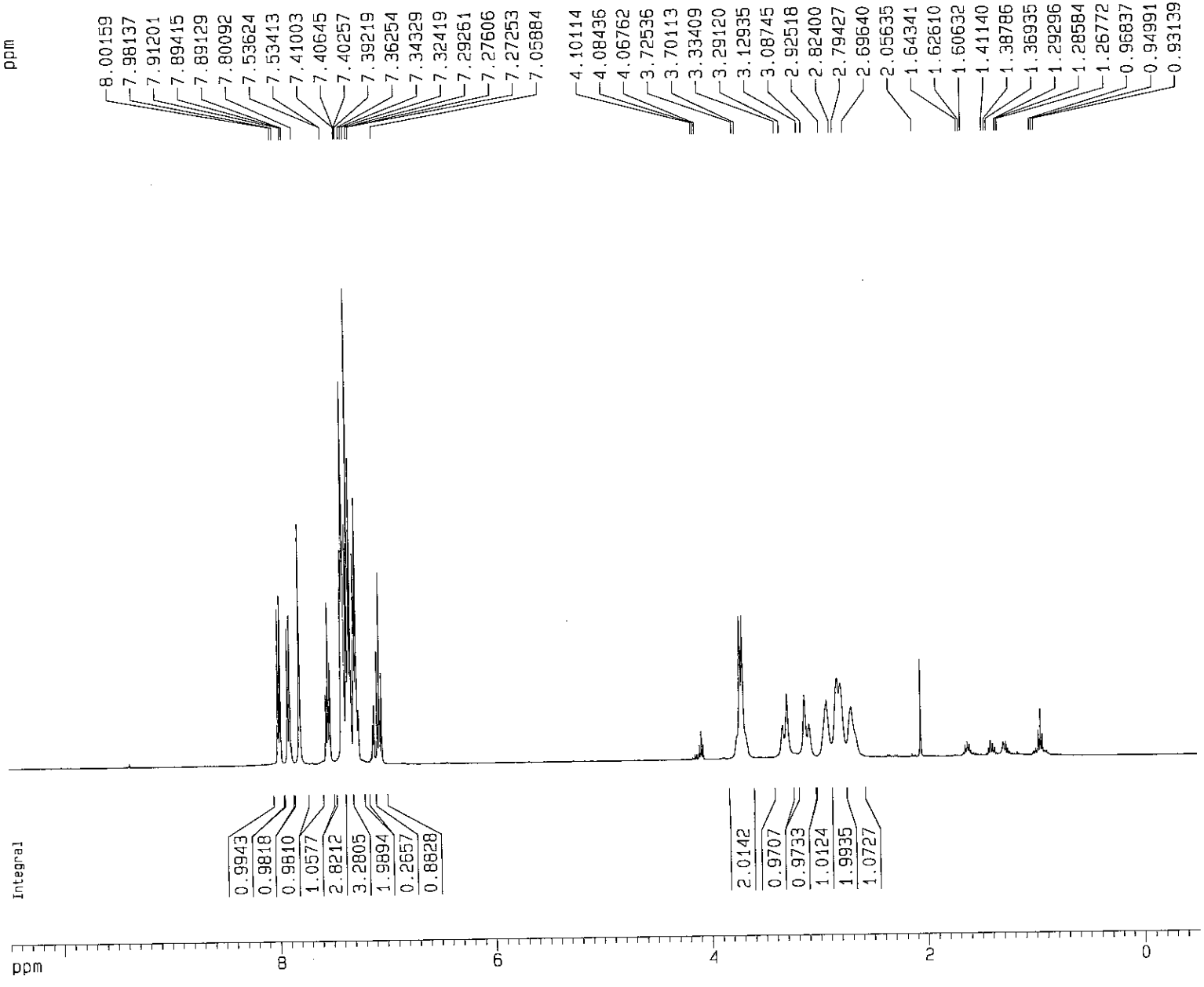
============ CHANNEL f1 =========
NUC1                        1H
P1                     11.70 usec
PL1                     0.00 dB
SFO1               299.8718518 MHz

F2 - Processing parameters
SI                       32768
SF                 299.8700355 MHz
WDW                         EM
SSB                          0
LB                      0.30 Hz
GB                           0
PC                        1.00

1D NMR plot parameters
CX                      20.00 cm
F1P                    10.000 ppm
F1                     2998.70 Hz
F2P                    -1.000 ppm
F2                     -299.87 Hz
PPMCM                  0.55000 ppm/cm
HZCM                 164.92851 Hz/cm
```



23c



Current Data Parameters

NAME	Jan16-SJH
EXPNO	9
PROCNO	1

F2 - Acquisition Parameters

Date_	20080116
Time	22.35
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	4
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	64
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

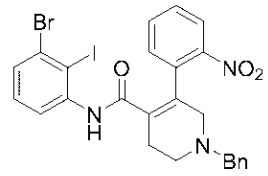
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

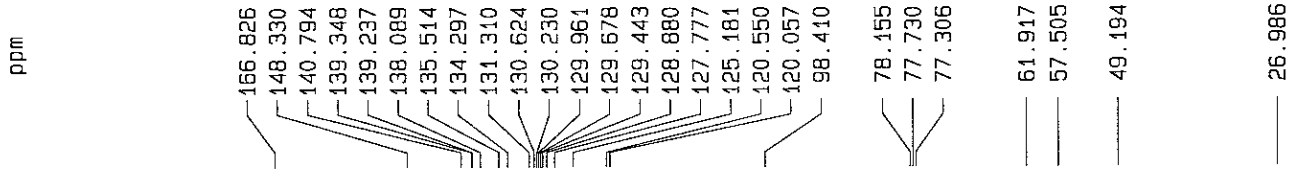
SI	32768
SF	400.1300054 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

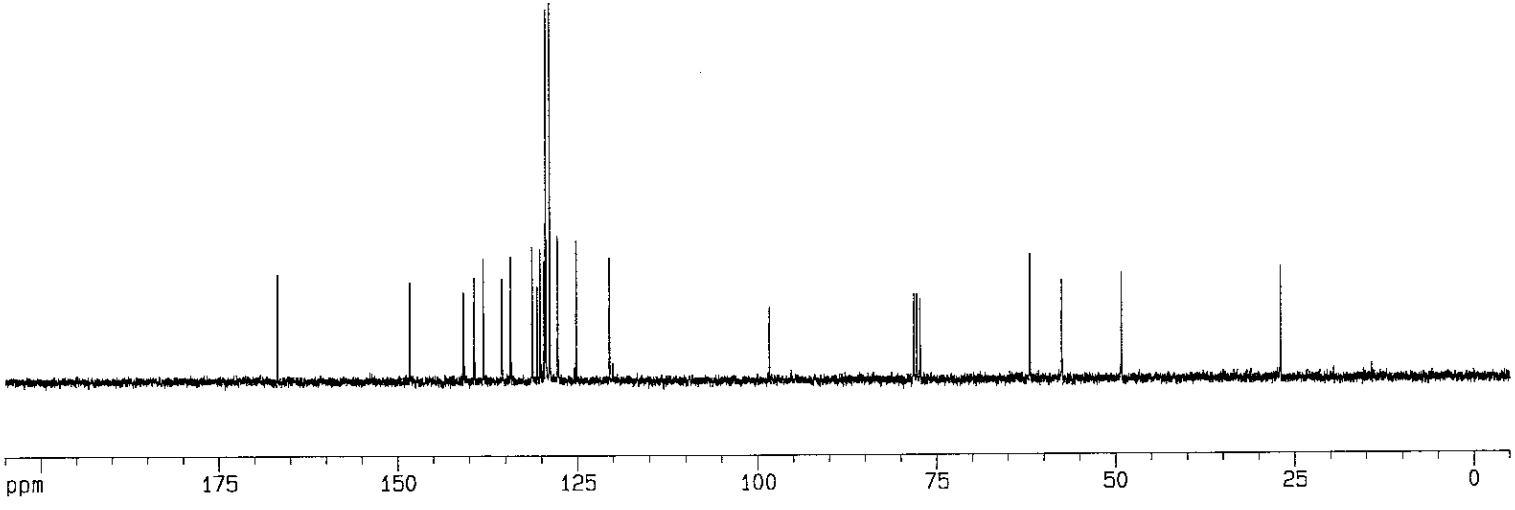
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



23c






```
Current Data Parameters
NAME                  Jan16-SJH
EXPNO                         1
PROCNO                        1

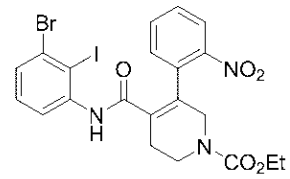
F2 - Acquisition Parameters
Date_                  20080116
Time                      23.34
INSTRUM                   spect
PROBHD      5 mm Multinu
PULPROG                 zgpg30
TD                         65536
SOLVENT                   CDCl3
NS                            28
DS                             2
SWH                 18832.393 Hz
FIDRES              0.287360 Hz
AQ                  1.7400308 sec
RG                        16384
DW                     26.550 usec
DE                      6.00 usec
TE                      300.0 K
D1                  2.00000000 sec
d11                 0.03000000 sec
d12                 0.00002000 sec

============ CHANNEL f1 ============
NUC1                        13C
P1                       11.80 usec
PL1                       0.00 dB
SFO1                75.4760200 MHz

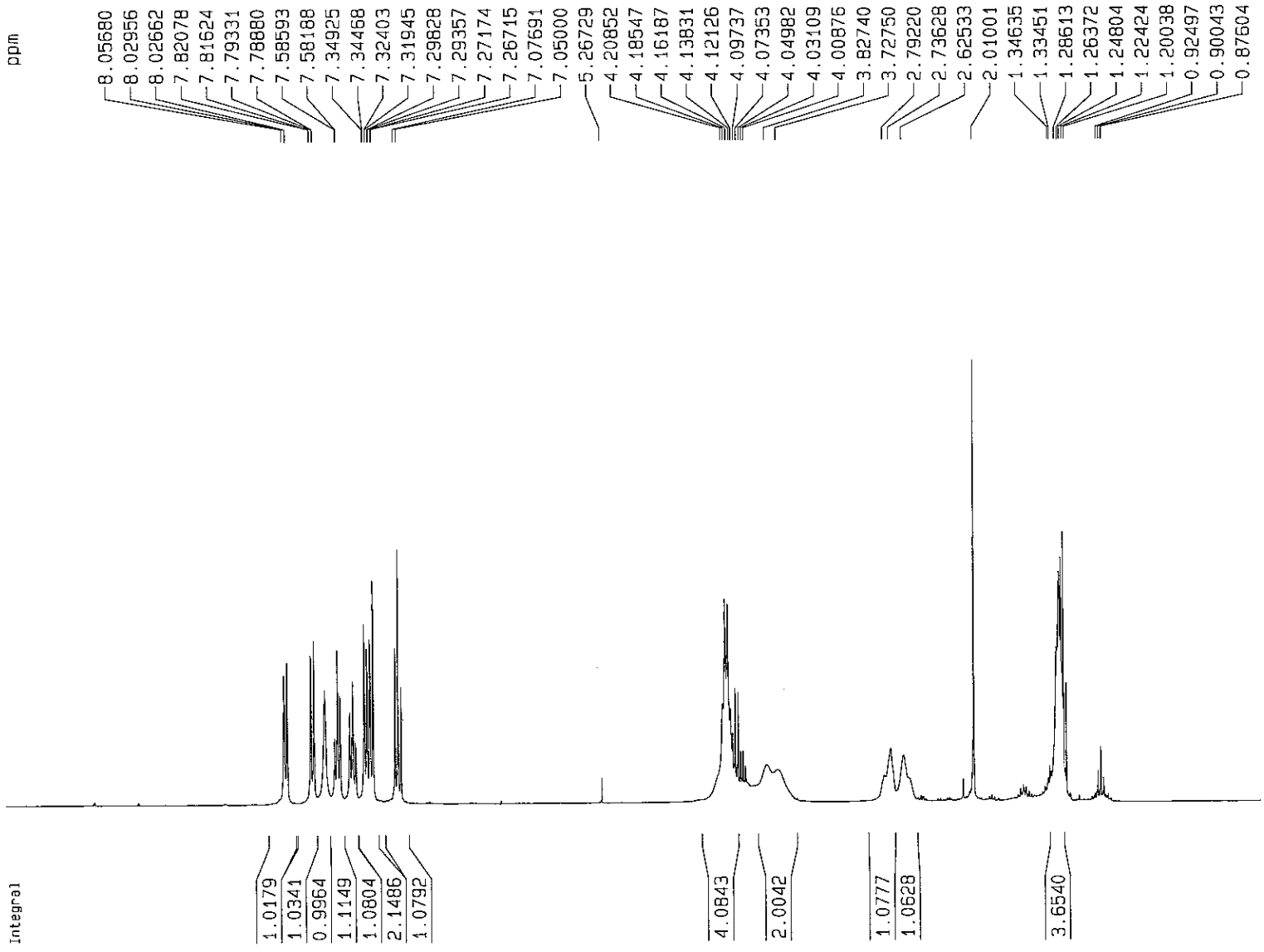
============ CHANNEL f2 ============
CPDPRG2                 waltz16
NUC2                        1H
PCPD2                   110.00 usec
PL2                       0.00 dB
PL12                     17.50 dB
PL13                     17.50 dB
SFO2               300.1312005 MHz

F2 - Processing parameters
SI                         32768
SF                  75.4677190 MHz
WDW                           EM
SSB                            0
LB                        1.00 Hz
GB                             0
PC                         1.40

1D NMR plot parameters
CX                       20.00 cm
F1P                     205.000 ppm
F1                    15470.88 Hz
F2P                      -5.000 ppm
F2                     -377.34 Hz
PPMCM                 10.50000 ppm/cm
HZCM                 792.41107 Hz/cm
```



24c



Current Data Parameters

NAME	Mar02-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080302
Time	10.34
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	CDCl3
NS	6
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	90.5
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 =========

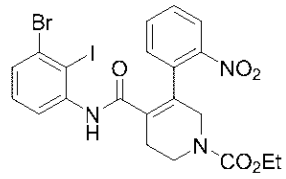
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

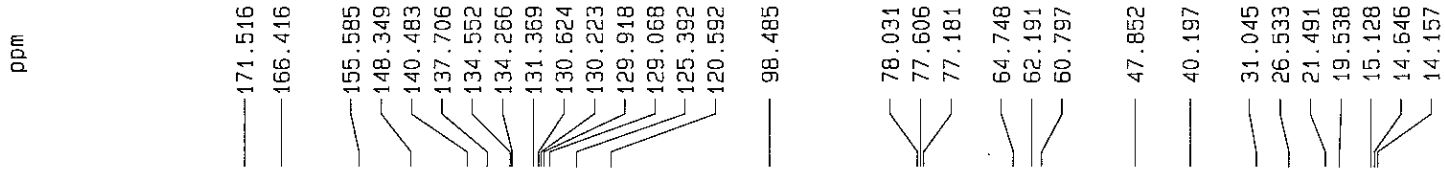
SI	32768
SF	299.8700067 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

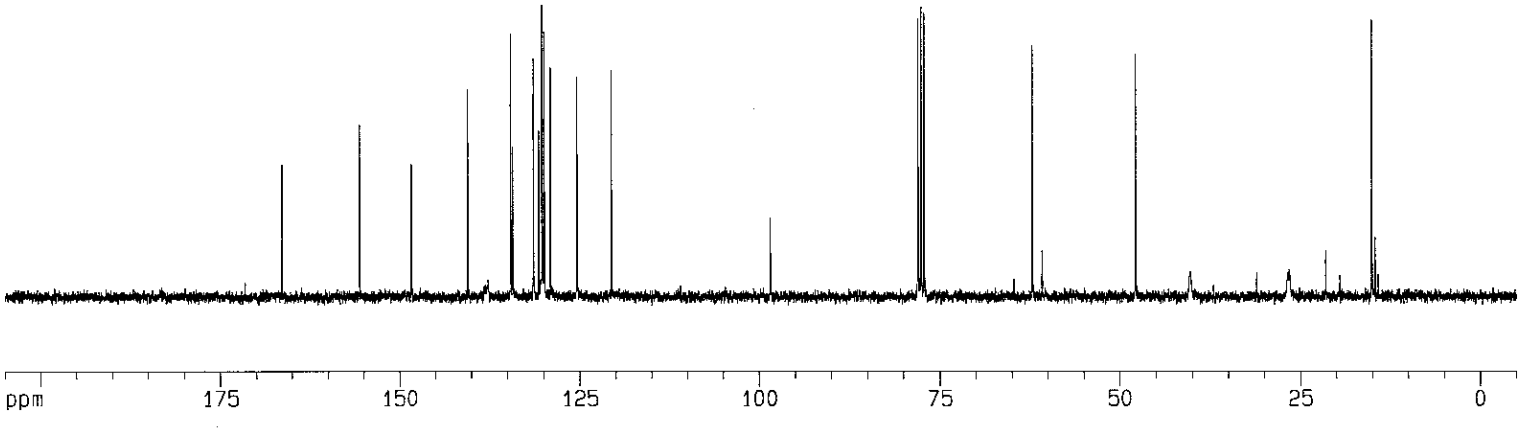
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.93 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92850 Hz/cm



24c





Current Data Parameters

NAME	Mar02-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20080302
Time	10.38
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	130
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	512
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

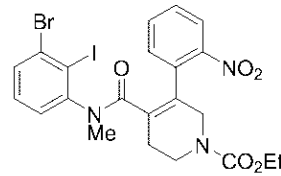
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023410 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

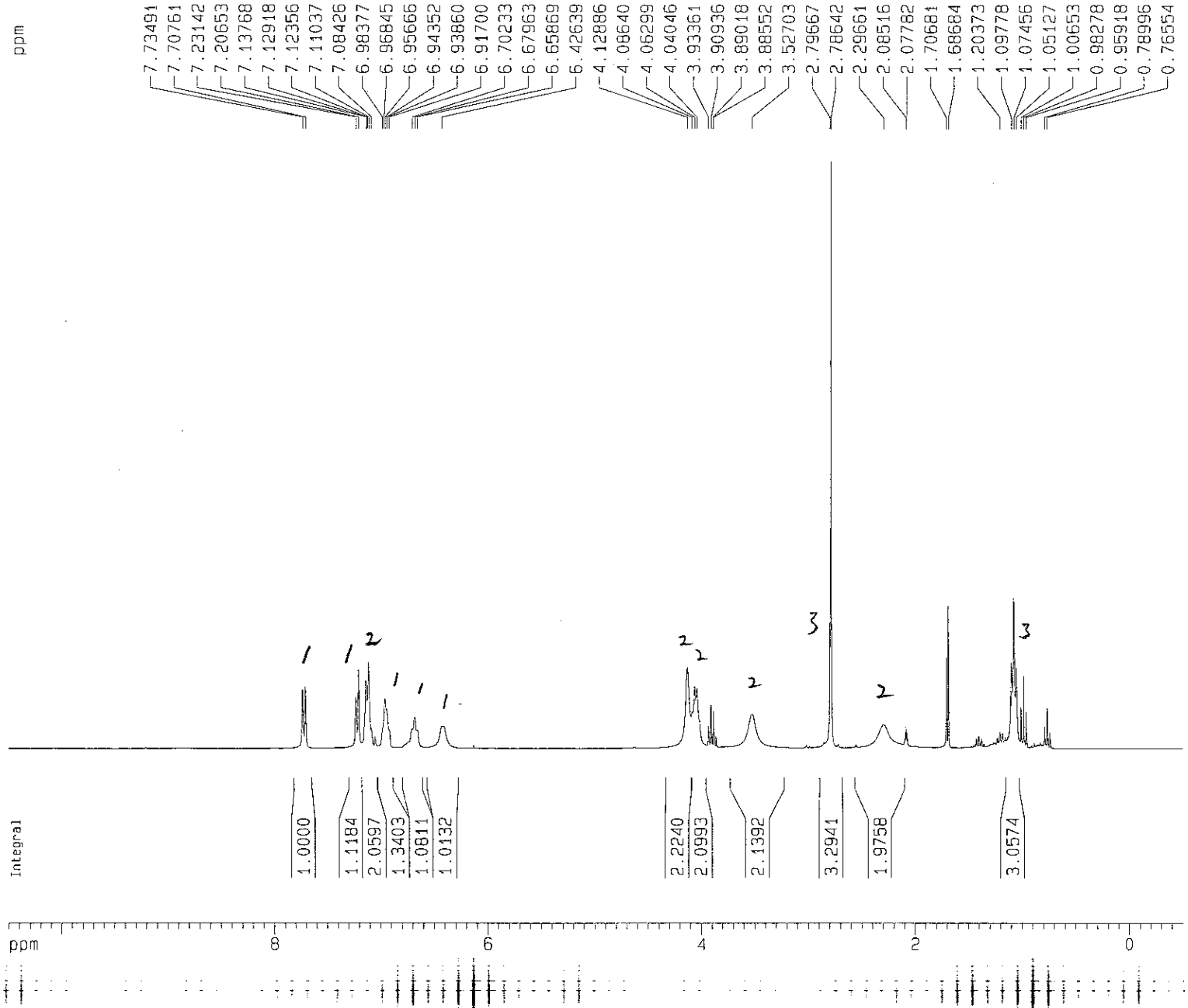
1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15457.48 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	10.50000 ppm/cm
HZCM	791.72461 Hz/cm



in tol at 90 oC 1H

25c



Current Data Parameters

NAME	Jan19-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20080119
Time	10.26
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	16
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	114
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

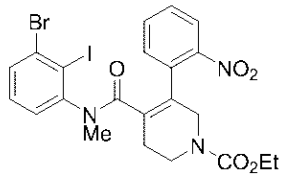
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700136 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



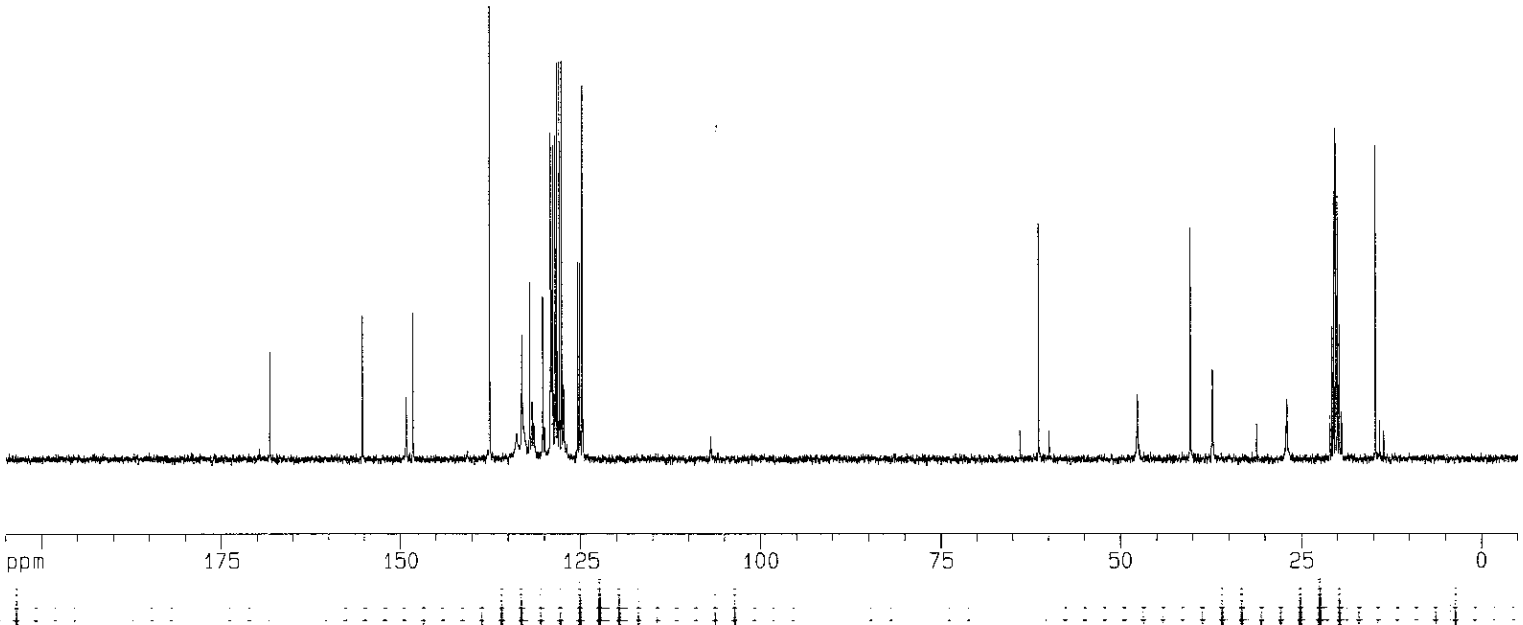
in tol at 90 oC 13C

25c

ppm

169.631 168.190 155.224 149.150 148.168 137.504 133.057 131.981 131.657 131.361 130.171 129.103 128.978 128.787 128.473 128.217 127.899 127.579 127.294 125.372 125.050 124.759 106.932

63.972 61.400 59.866 47.660 40.328 37.266 31.153 26.998 21.015 20.761 20.506 20.251 19.996 19.740 19.484 19.352 14.718 14.172 13.543



Current Data Parameters

NAME	Jan19-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20080119
Time	10.29
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	Tol
NS	1121
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	8192
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

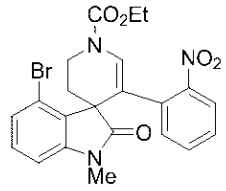
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023410 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

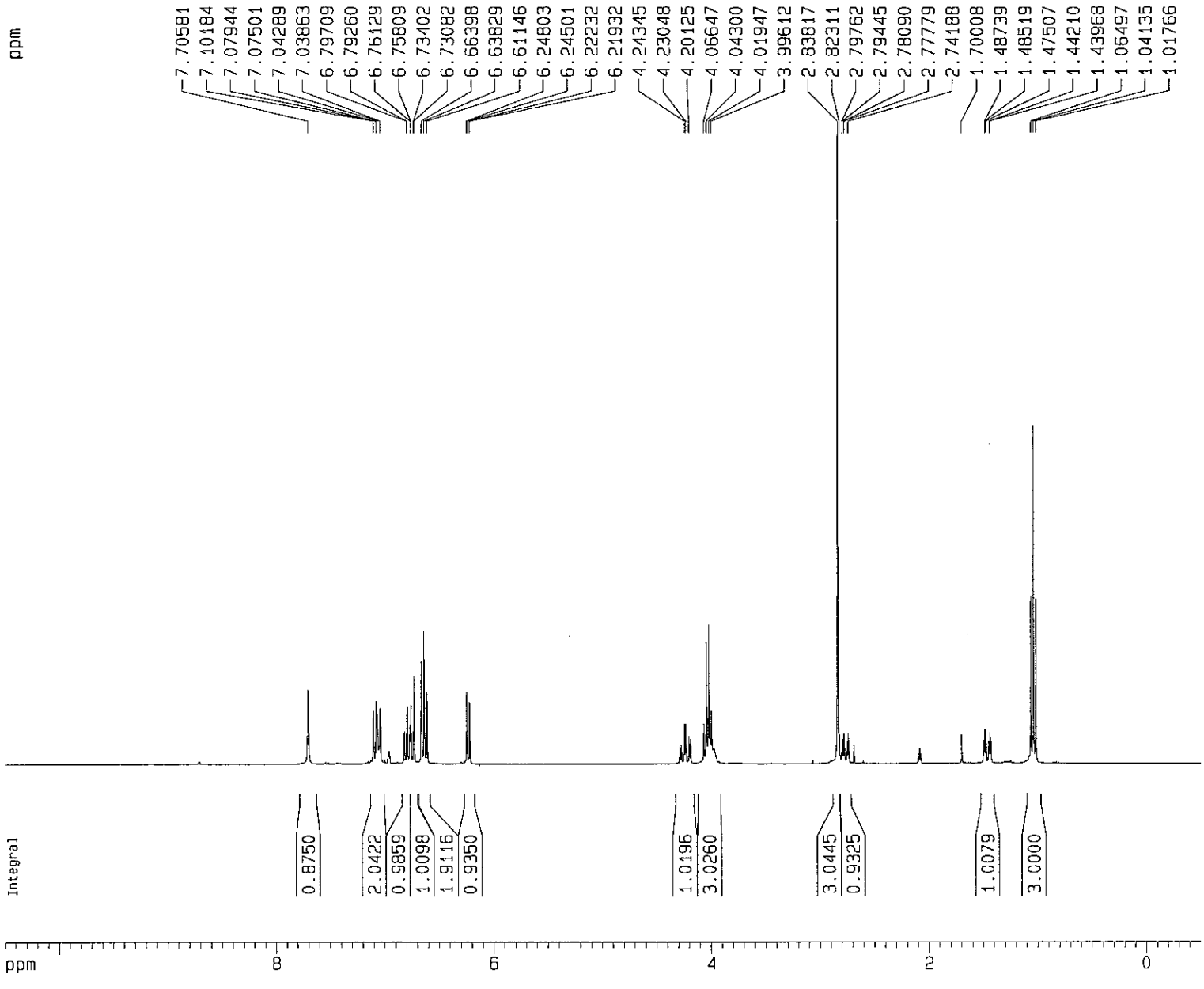
1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15457.48 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	10.50000 ppm/cm
HZCM	791.72461 Hz/cm



in Tol at 90 oC 1H

26c



Current Data Parameters

NAME	Mar27-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20080327
Time	8.24
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	8
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	57
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

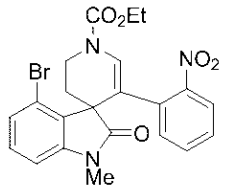
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700134 MHz
WDW	no
SSB	0
LB	0.00 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



in Tol at 90 oC 13C

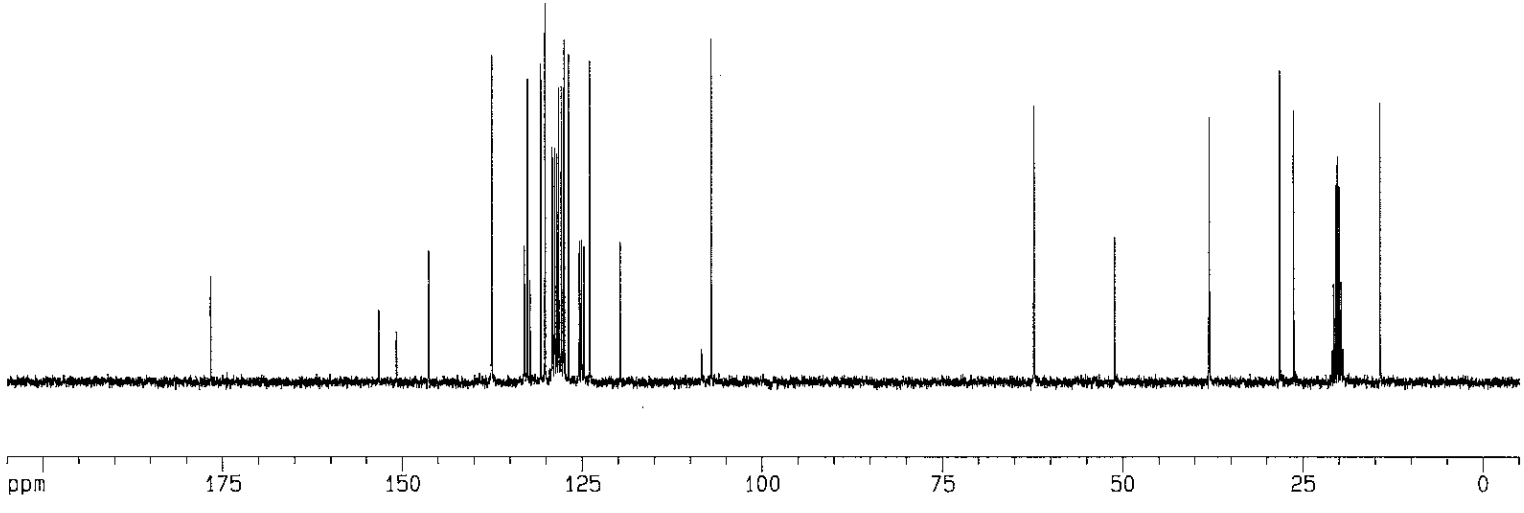
26c

ppm

176.655 153.280 150.799 146.295 137.510 133.008 132.577 130.686 130.114 129.177 129.103 128.789 128.473 128.219 127.899 127.579 127.461 126.853 125.372 125.049 124.728 123.909 119.704 108.474 107.095

62.365 51.132

38.040 28.223 26.293 21.005 20.750 20.493 20.239 19.984 19.727 19.475 14.344




```
Current Data Parameters
NAME                  Mar27-SJH
EXPNO                         3
PROCNO                        1

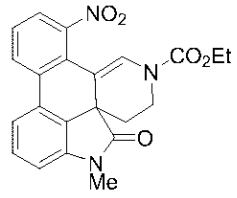
F2 - Acquisition Parameters
Date_                  20080327
Time                       8.34
INSTRUM                   spect
PROBHD     5 mm QNP 1H/1
PULPROG                 zgpg30
TD                       65536
SOLVENT                    Tol
NS                         234
DS                           2
SWH                18796.992 Hz
FIDRES              0.286819 Hz
AQ                  1.7433076 sec
RG                        4096
DW                      26.600 usec
DE                       6.00 usec
TE                      300.0 K
D1                  2.00000000 sec
D11                 0.03000000 sec
D12                 0.00002000 sec

============ CHANNEL f1 ============
NUC1                       13C
P1                        5.40 usec
PL1                      -6.00 dB
SFO1                75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2                waltz16
NUC2                       1H
PCPD2                   115.00 usec
PL2                       0.00 dB
PL12                     20.00 dB
PL13                     20.00 dB
SFO2               299.8711995 MHz

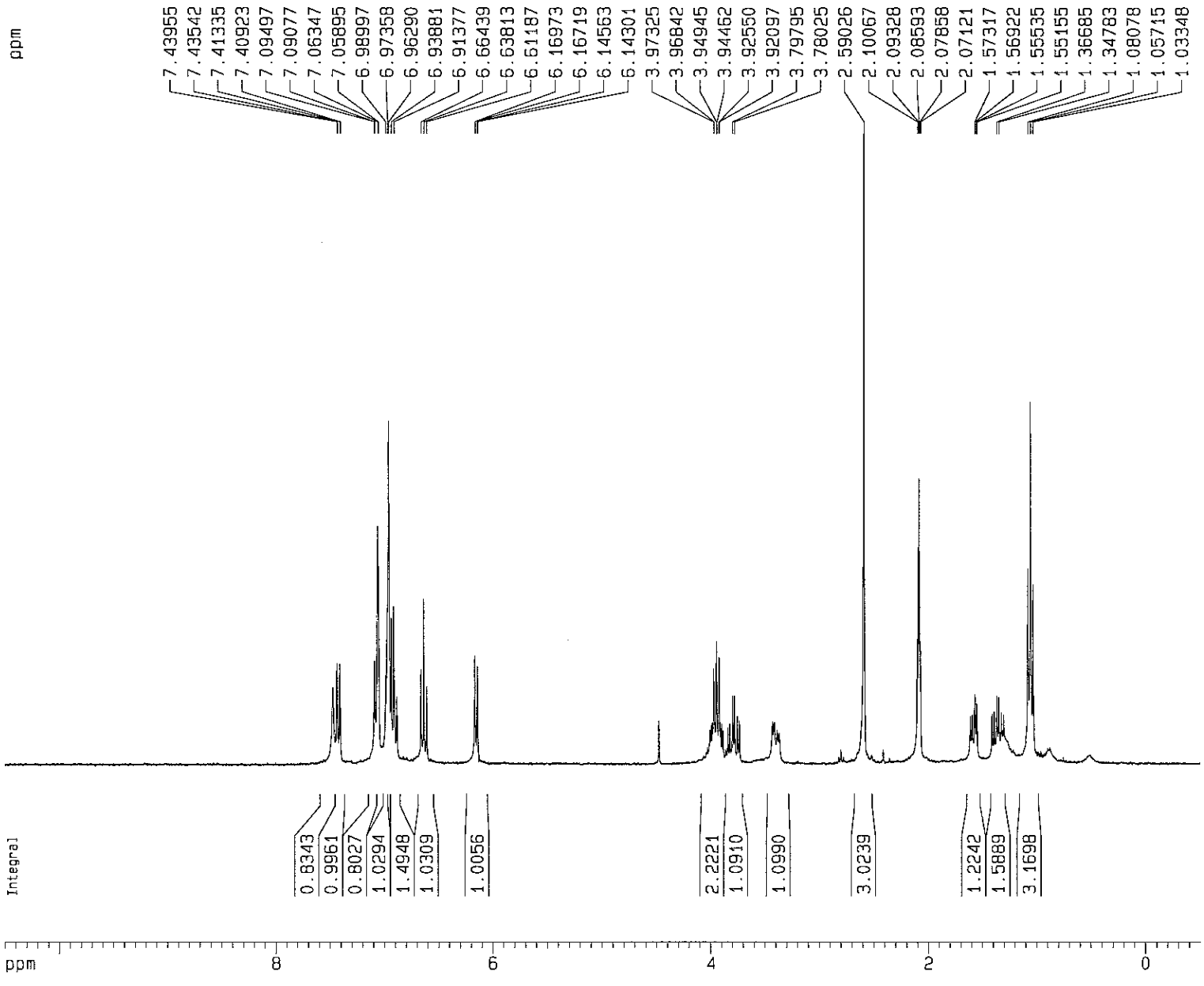
F2 - Processing parameters
SI                        32768
SF                  75.4023410 MHz
WDW                          EM
SSB                           0
LB                         1.00 Hz
GB                            0
PC                         1.40

1D NMR plot parameters
CX                        20.00 cm
F1P                      205.000 ppm
F1                     15457.48 Hz
F2P                      -5.000 ppm
F2                     -377.01 Hz
PPMCM                  10.50000 ppm/cm
HZCM                  791.72461 Hz/cm
```



in tol at 90 oC

27



Current Data Parameters

NAME	Mar27-SJH
EXPNO	10
PROCNO	1

F2 - Acquisition Parameters

Date_	20080327
Time	15.32
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	4
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	645.1
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 =========

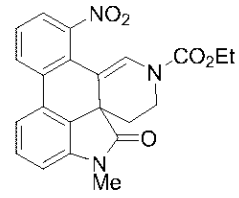
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

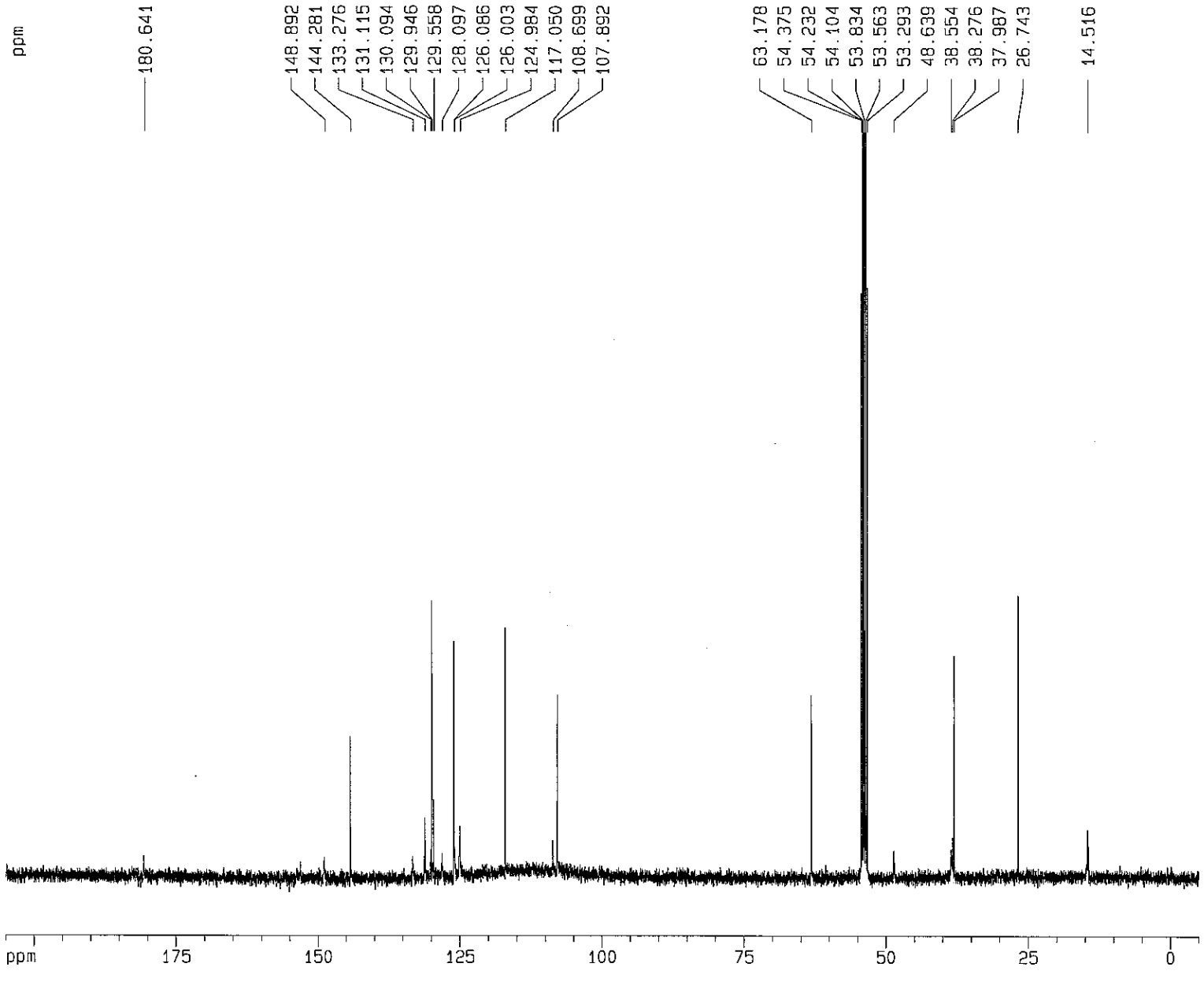
SI	32768
SF	299.8700134 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



27




```
Current Data Parameters
NAME                  May07-SJH
EXPNO                         2
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20080507
Time                      21.43
INSTRUM                   spect
PROBHD     5 mm BBI 1H-B
PULPROG                 zgpg30
TD                         65536
SOLVENT                  CD2Cl2
NS                         3072
DS                            2
SWH                  25125.629 Hz
FIDRES               0.383387 Hz
AQ                   1.3042164 sec
RG                        16384
DW                       19.900 usec
DE                        6.00 usec
TE                       300.0 K
D1                   2.00000000 sec
d11                  0.03000000 sec
d12                  0.00002000 sec

========== CHANNEL f1 ==========
NUC1                        13C
P1                        16.35 usec
PL1                       -6.00 dB
SFO1                100.6237959 MHz

========== CHANNEL f2 ==========
CPDPRG2                 waltz16
NUC2                        1H
PCPD2                    114.00 usec
PL2                       0.00 dB
PL12                     24.00 dB
PL13                     24.00 dB
SFO2                400.1316005 MHz

F2 - Processing parameters
SI                         32768
SF                  100.6127290 MHz
WDW                           EM
SSB                            0
LB                        1.00 Hz
GB                             0
PC                         1.40

1D NMR plot parameters
CX                        20.00 cm
F1P                      205.000 ppm
F1                     20625.61 Hz
F2P                       -5.000 ppm
F2                      -503.06 Hz
PPMCM                  10.50000 ppm/cm
HZCM                1056.43372 Hz/cm
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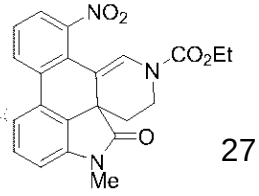
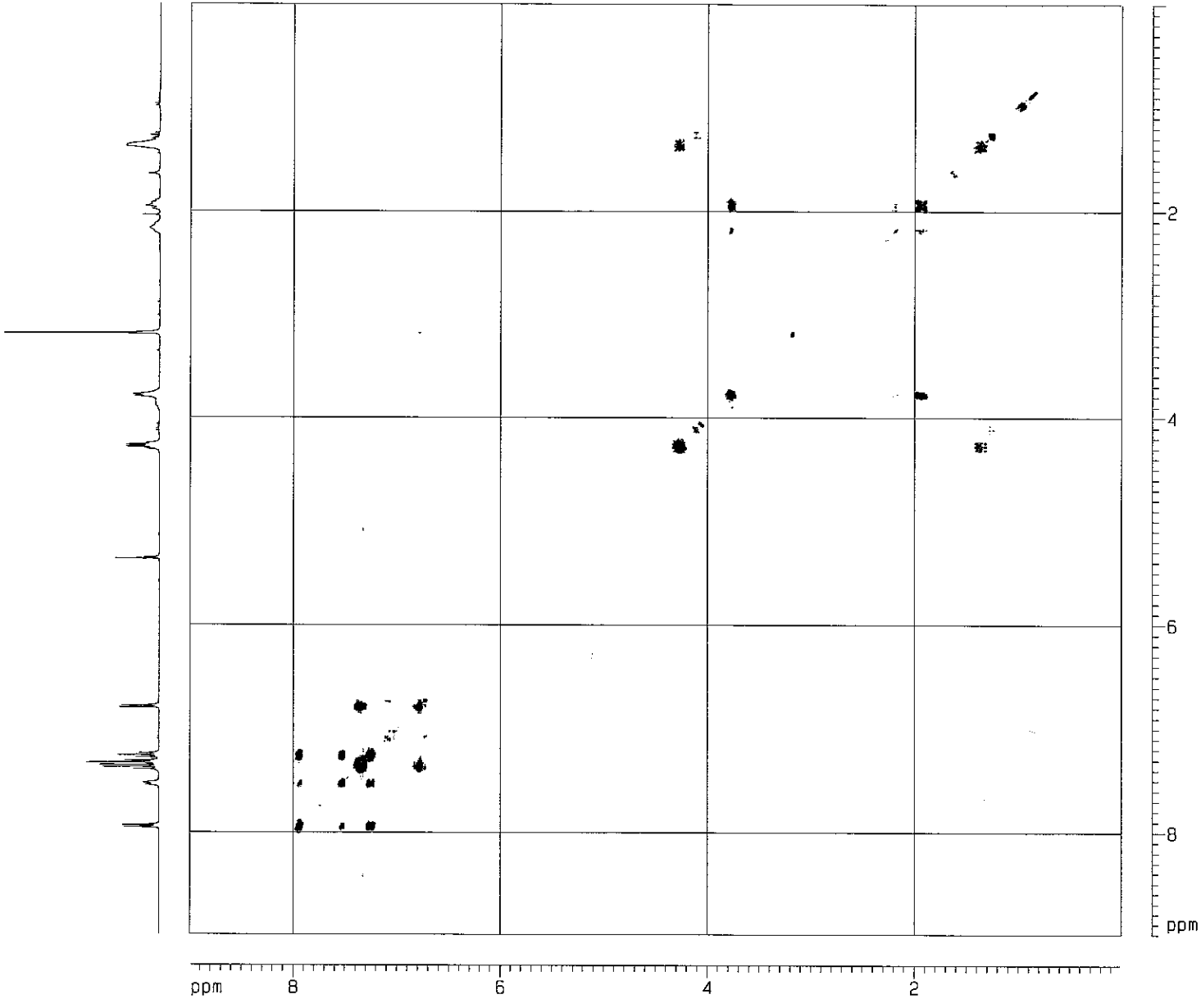


27

COSY



Current Data Parameters

NAME	May07-SJH
EXPNO	6
PROCNO	1

F2 - Acquisition Parameters

Date_	20080508
Time	5.15
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CD2Cl2
NS	4
DS	8
SWH	3591.954 Hz
FIDRES	1.753884 Hz
AQ	0.2851316 sec
RG	645
DW	139.200 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00013884 sec

======== CHANNEL f1 ========

NUC1	1H
P1	7.05 usec
P2	14.10 usec
PL1	0.00 dB
SFO1	400.1318005 MHz

======== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	650
SFO1	400.1318 MHz
FIDRES	5.540512 Hz
SW	9.000 ppm

F2 - Processing parameters

SI	2048
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300000 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

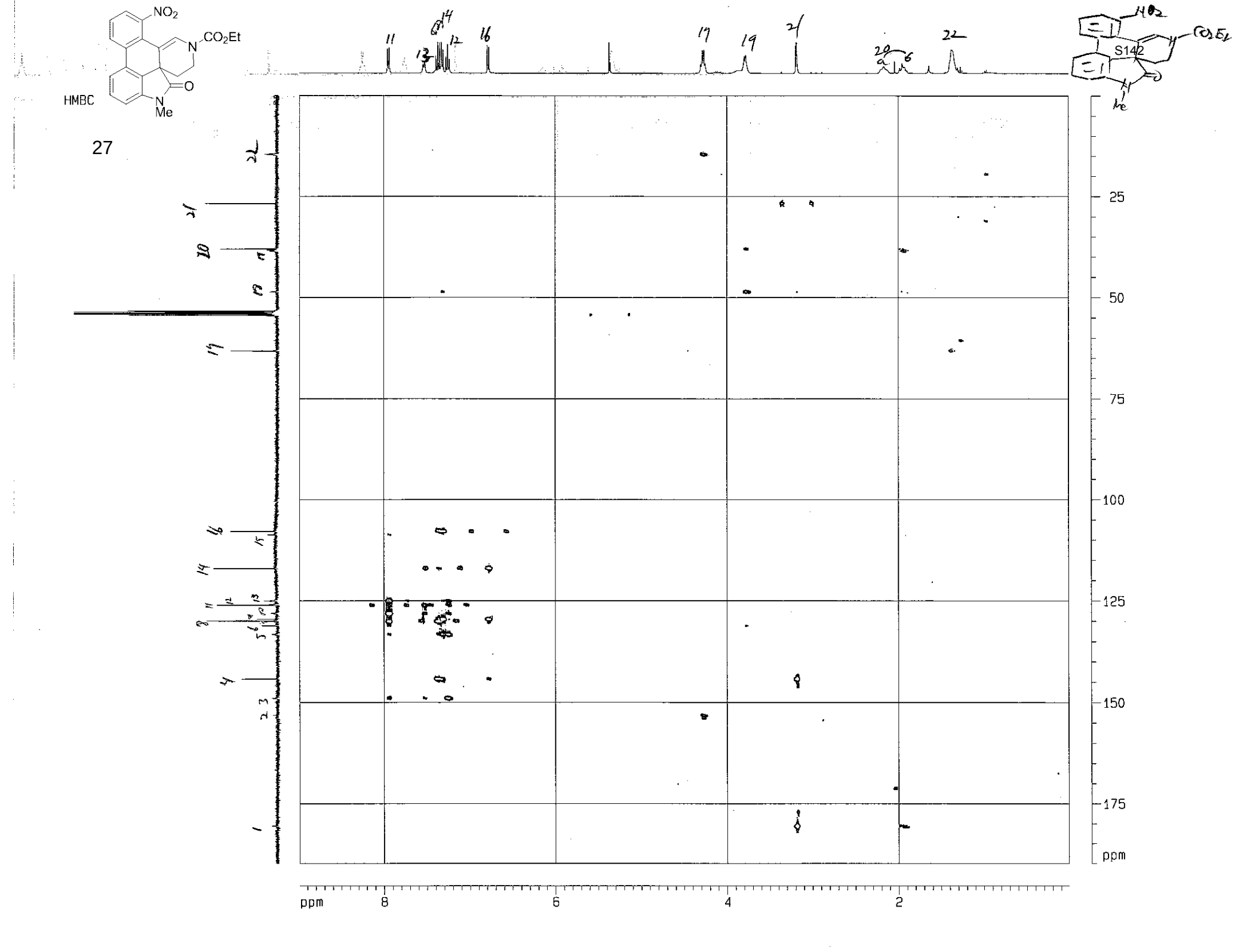
2D NMR plot parameters

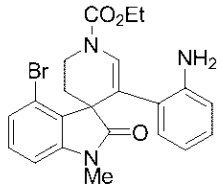
CX2	15.00 cm
CX1	15.00 cm
F2PLO	9.000 ppm
F2LO	3601.17 Hz
F2PHI	0.000 ppm
F2HI	0.00 Hz
F1PLO	9.000 ppm
F1LO	3601.17 Hz
F1PHI	0.000 ppm
F1HI	0.00 Hz
F2PPMCM	0.60000 ppm/cm
F2HZCM	240.07800 Hz/cm
F1PPMCM	0.60000 ppm/cm
F1HZCM	240.07800 Hz/cm

NO2
CO2Et
N
O
N
Me

HMBC

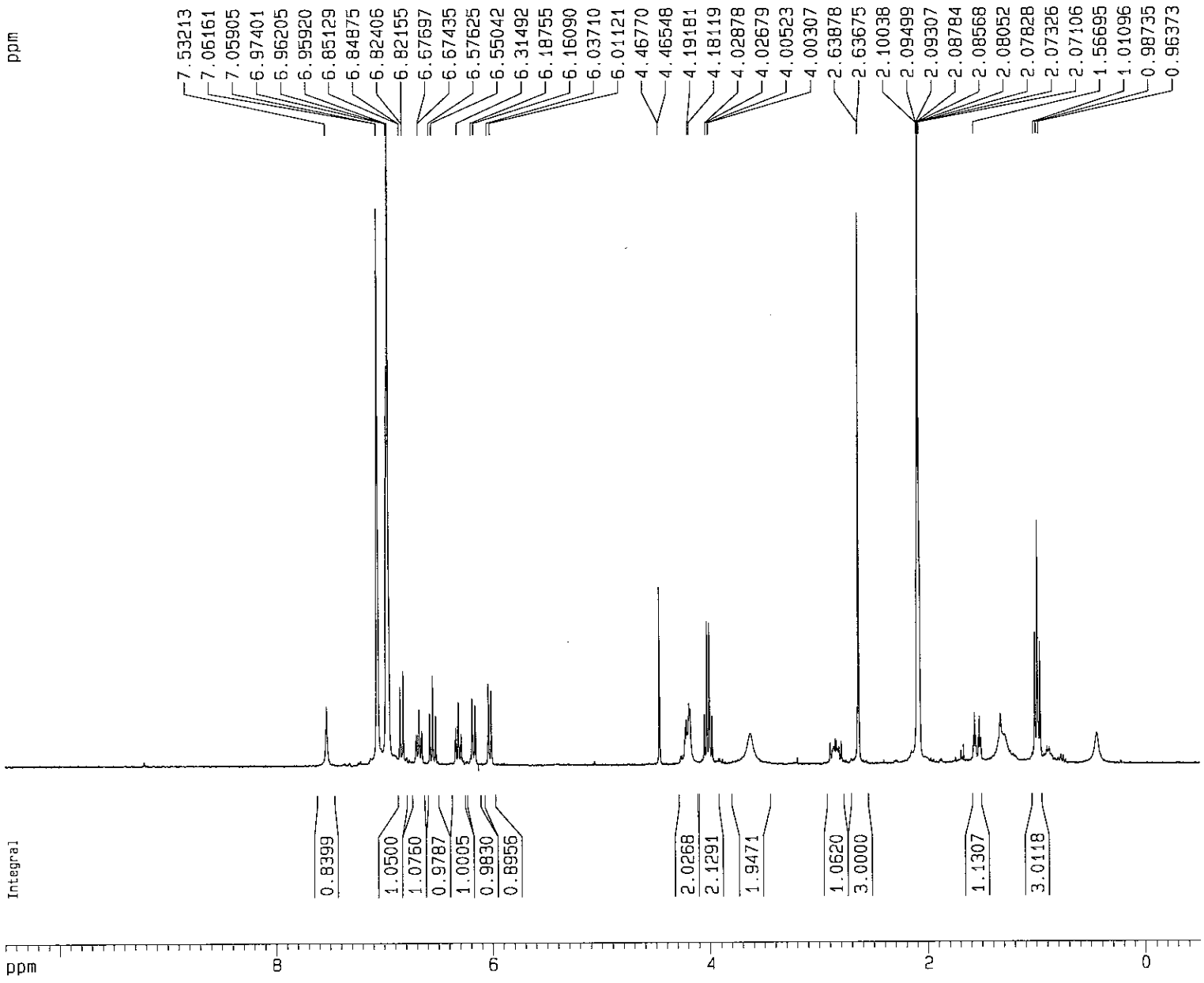
27


11
13
14
12
16
17
19
21
20
22
S142
ppm
8
6
4
2
25
50
75
100
125
150
175
ppm



in tol at 90 oC

28



Current Data Parameters

NAME	Mar27-SJH
EXPNO	6
PROCNO	1

F2 - Acquisition Parameters

Date_	20080327
Time	14.58
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	31
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	812.7
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

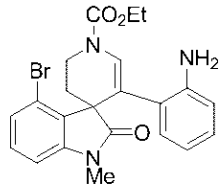
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

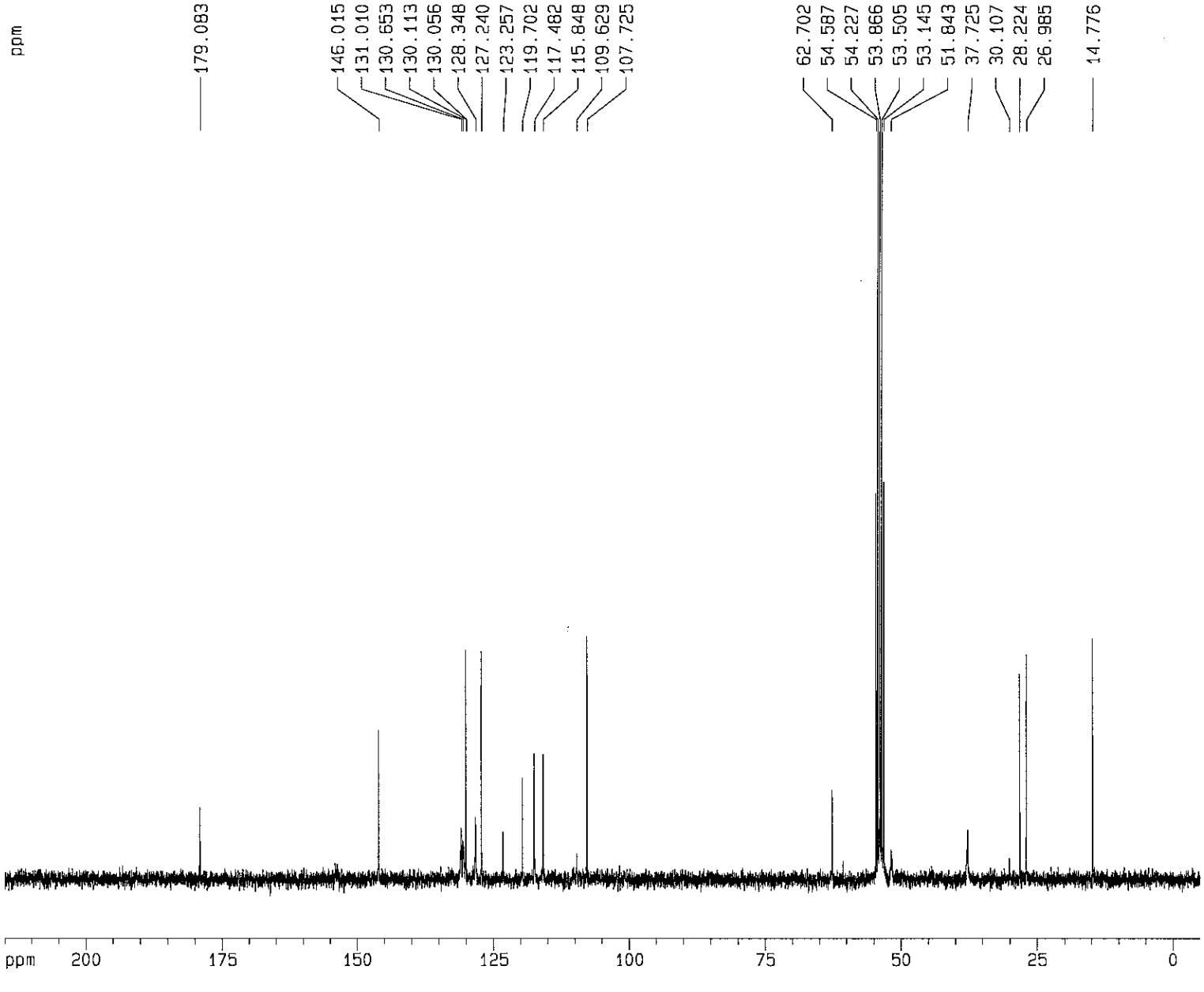
SI	32768
SF	299.8700134 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



28




```
Current Data Parameters
NAME                  Apr04-SJH
EXPNO                        10
PROCNO                        1

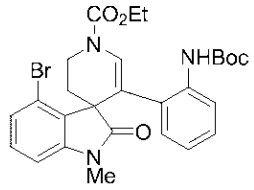
F2 - Acquisition Parameters
Date_                  20080403
Time                      21.18
INSTRUM                   spect
PROBHD     5 mm GNP 1H/1
PULPROG                 zgpg30
TD                       65536
SOLVENT                  CD2Cl2
NS                         1008
DS                            2
SWH                18796.992 Hz
FIDRES              0.286819 Hz
AQ                  1.7433076 sec
RG                         1024
DW                    26.600 usec
DE                     6.00 usec
TE                     300.0 K
D1                 2.00000000 sec
D11                0.03000000 sec
D12                0.00002000 sec

============ CHANNEL f1 ============
NUC1                       13C
P1                     5.40 usec
PL1                    -6.00 dB
SF01               75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2                waltz16
NUC2                       1H
PCPD2                115.00 usec
PL2                    0.00 dB
PL12                  20.00 dB
PL13                  20.00 dB
SF02              299.8711995 MHz

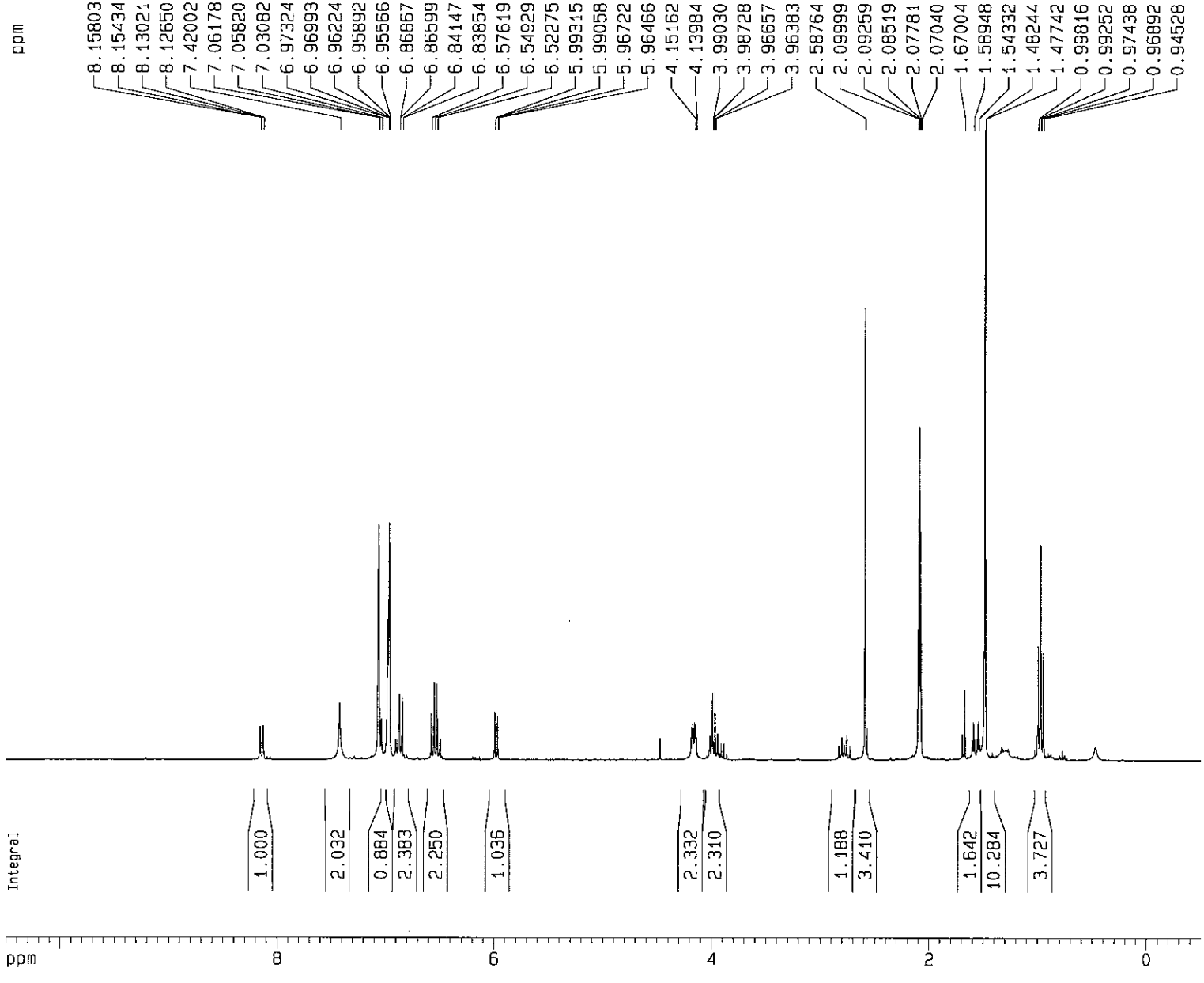
F2 - Processing parameters
SI                         32768
SF                 75.4023410 MHz
WDW                           EM
SSB                            0
LB                      1.00 Hz
GB                             0
PC                          1.40

1D NMR plot parameters
CX                     20.00 cm
F1P                   215.000 ppm
F1                  16211.50 Hz
F2P                    -5.000 ppm
F2                   -377.01 Hz
PPMCM                 11.00000 ppm/cm
HZCM                829.42578 Hz/cm
```



in tol at 90 oC 1H

29c



Current Data Parameters

NAME	Apr01-SJH
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date_	20080401
Time	8.23
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	11
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	512
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

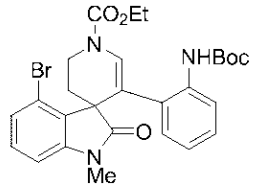
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

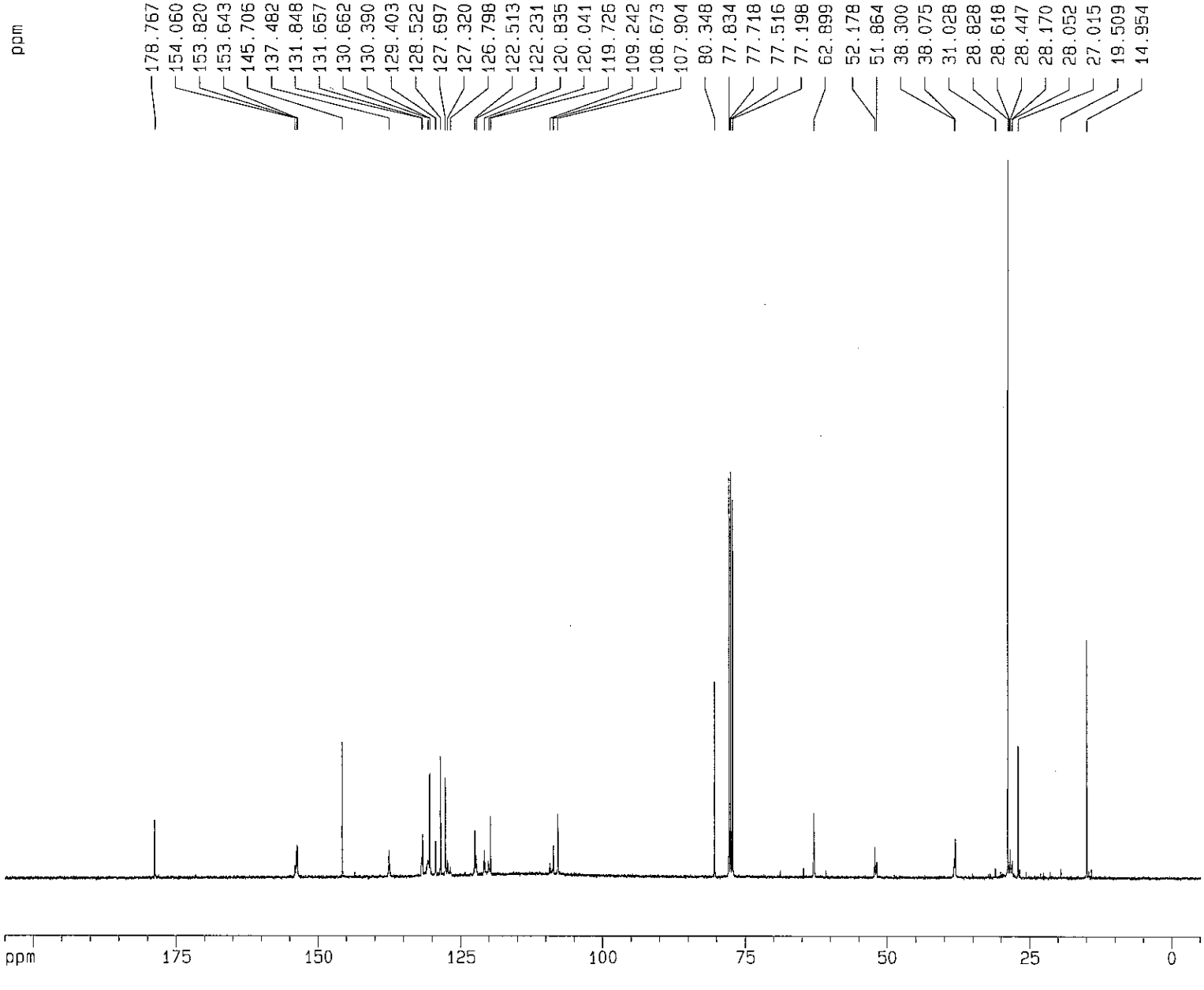
SI	32768
SF	299.8700136 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



29c



Current Data Parameters

NAME	May08-SJH
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20080509
Time	22.16
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	8192
DS	2
SWH	25125.629 Hz
FIDRES	0.383387 Hz
AQ	1.3042164 sec
RG	16384
DW	19.900 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
d11	0.03000000 sec
d12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	16.35 usec
PL1	-6.00 dB
SFO1	100.6237959 MHz

========== CHANNEL f2 ==========

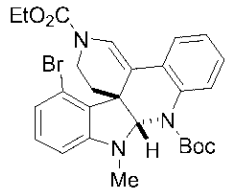
CPDPRG2	waltz16
NUC2	1H
PCPD2	114.00 usec
PL2	0.00 dB
PL12	24.00 dB
PL13	24.00 dB
SFO2	400.1316005 MHz

F2 - Processing parameters

SI	32768
SF	100.6127290 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

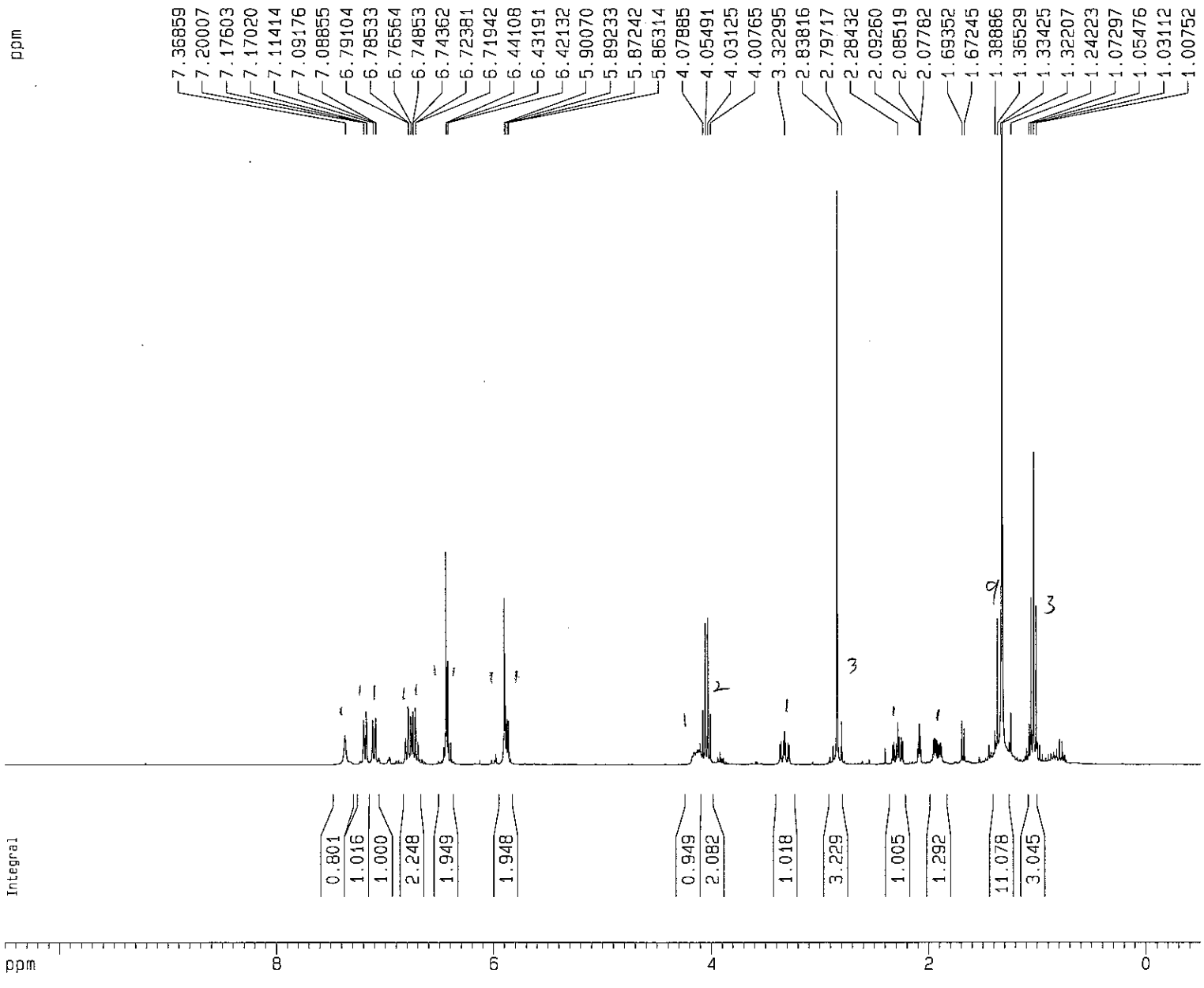
1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	20625.61 Hz
F2P	-5.000 ppm
F2	-503.06 Hz
PPMCM	10.50000 ppm/cm
HZCM	1056.43372 Hz/cm



in tol at 90 oC 1H

30c



Current Data Parameters

NAME	Apr04-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20080403
Time	20.32
INSTRUM	spect
PROBHD	5 mm GNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	Tol
NS	19
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	161.3
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

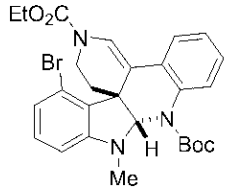
NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700136 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

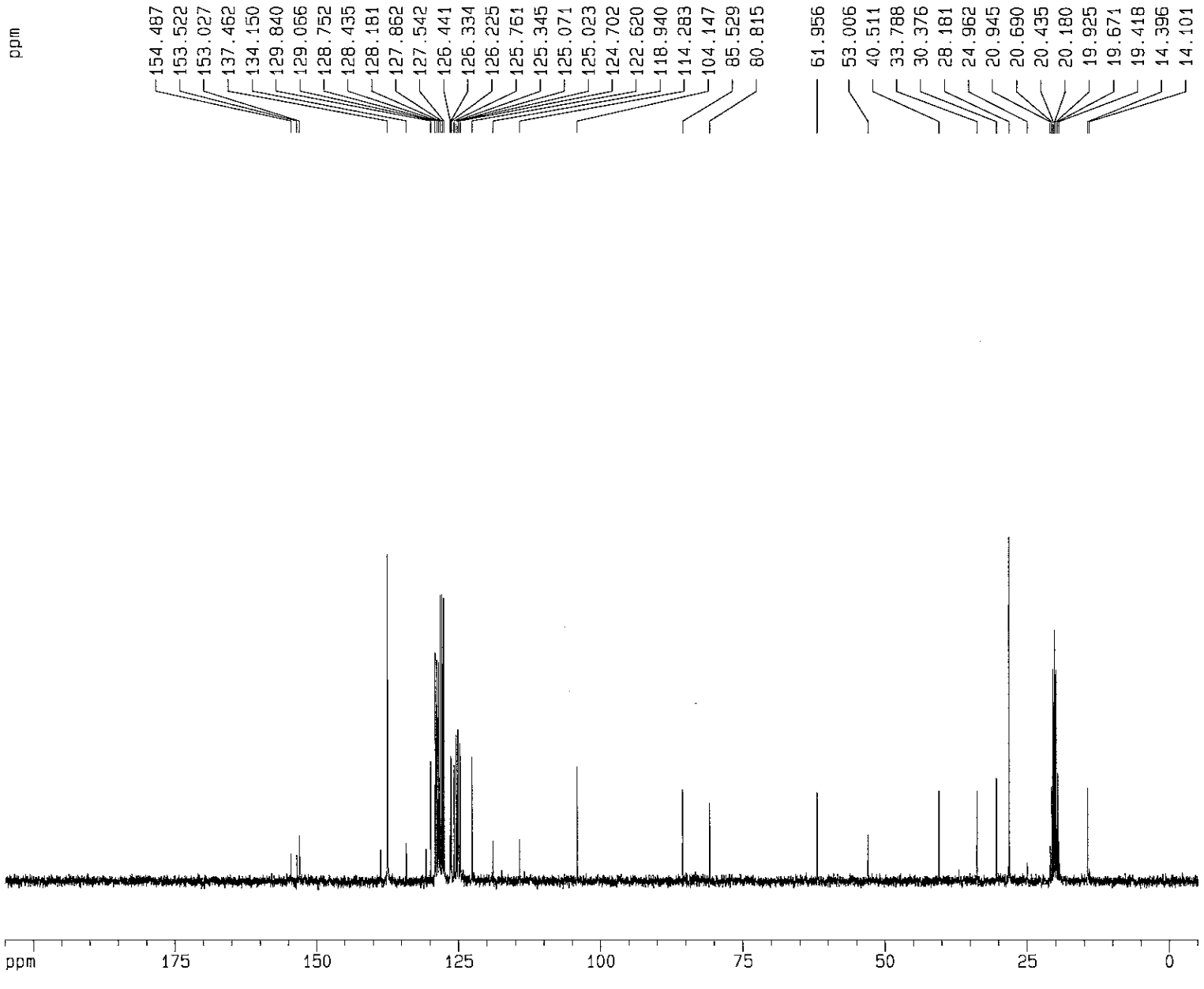
1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.94 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92851 Hz/cm



in tol at 90 oC 13C

30c




```
Current Data Parameters
NAME                  Apr04-SJH
EXPNO                         4
PROCNO                        1

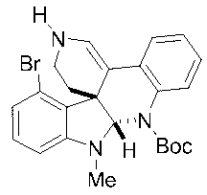
F2 - Acquisition Parameters
Date_                  20080403
Time                      20.36
INSTRUM                   spect
PROBHD     5 mm QNP 1H/1
PULPROG                 zgpg30
TD                         65536
SOLVENT                      Tol
NS                           251
DS                             2
SWH                  18796.992 Hz
FIDRES               0.286819 Hz
AQ                   1.7433076 sec
RG                          4096
DW                      26.600 usec
DE                       6.00 usec
TE                       300.0 K
D1                  2.00000000 sec
D11                 0.03000000 sec
D12                 0.00002000 sec

============ CHANNEL f1 ============
NUC1                         13C
P1                       5.40 usec
PL1                     -6.00 dB
SFO1                75.4106357 MHz

============ CHANNEL f2 ============
CPDPRG2                 waltz16
NUC2                         1H
PCPD2                  115.00 usec
PL2                      0.00 dB
PL12                    20.00 dB
PL13                    20.00 dB
SFO2               299.8711995 MHz

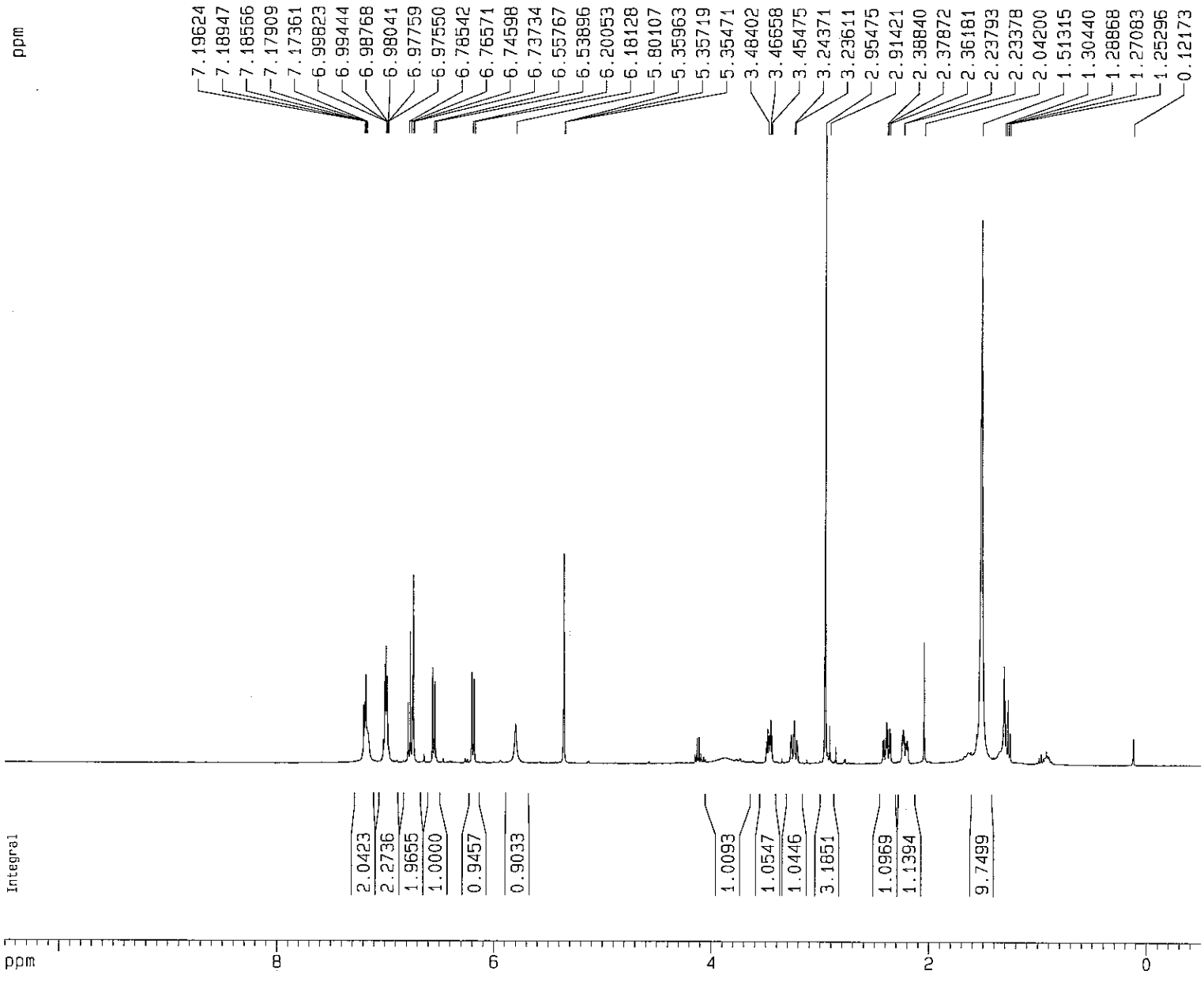
F2 - Processing parameters
SI                         32768
SF                  75.4023410 MHz
WDW                           EM
SSB                            0
LB                        1.00 Hz
GB                             0
PC                          1.40

1D NMR plot parameters
CX                       20.00 cm
F1P                     205.000 ppm
F1                    15457.48 Hz
F2P                      -5.000 ppm
F2                     -377.01 Hz
PPMCM                 10.50000 ppm/cm
HZCM                  791.72461 Hz/cm
```



Crude in CD2Cl2

40



Current Data Parameters

NAME	Apr8-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080408
Time	9.01
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CD2Cl2
NS	16
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	287.4
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

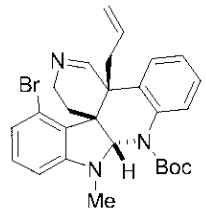
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



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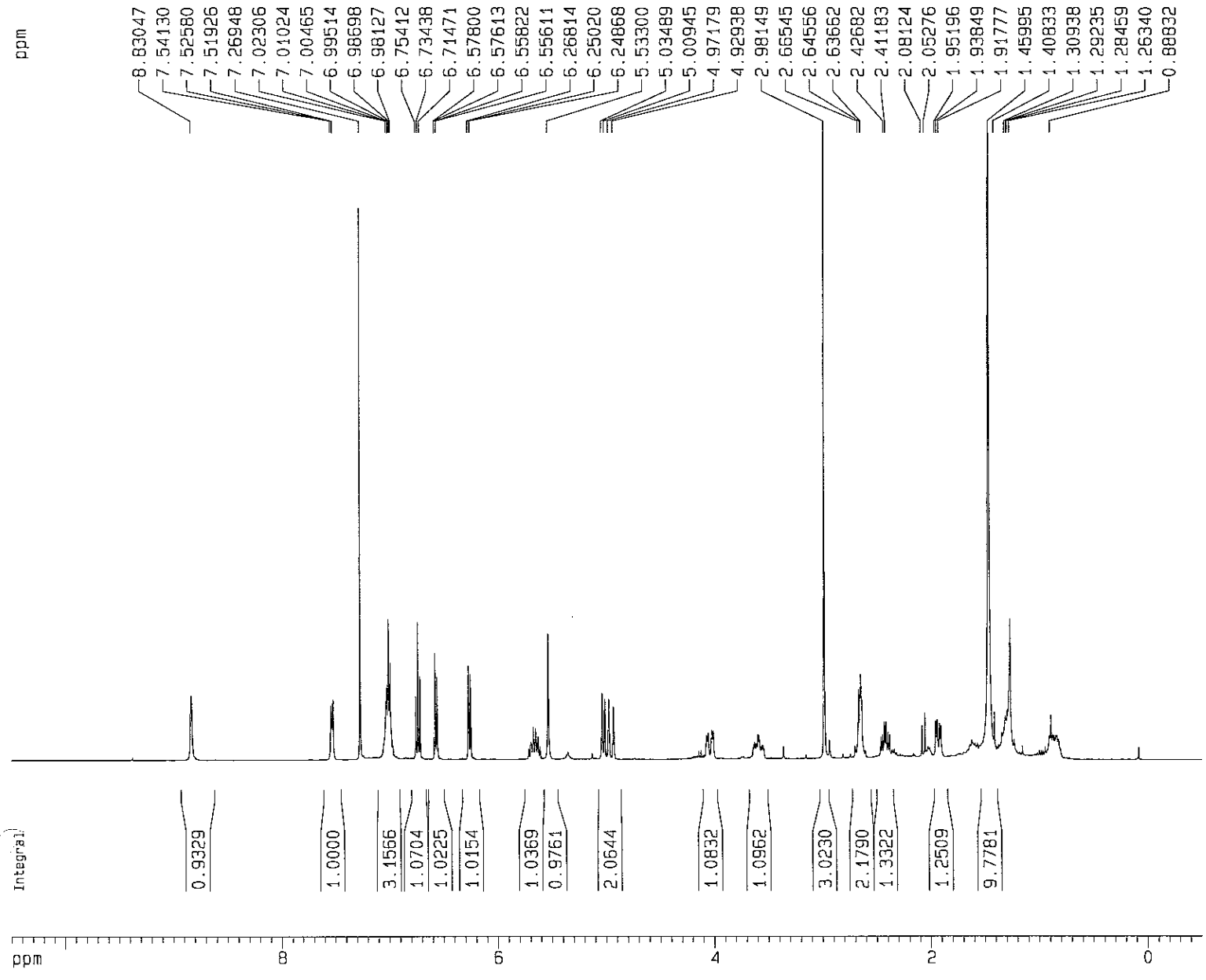


Current Data Parameters

NAME	Apr25-SJH
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20080425
Time	10.08
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CDCl3
NS	21
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	322.5
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

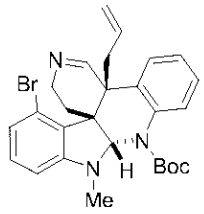
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300051 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



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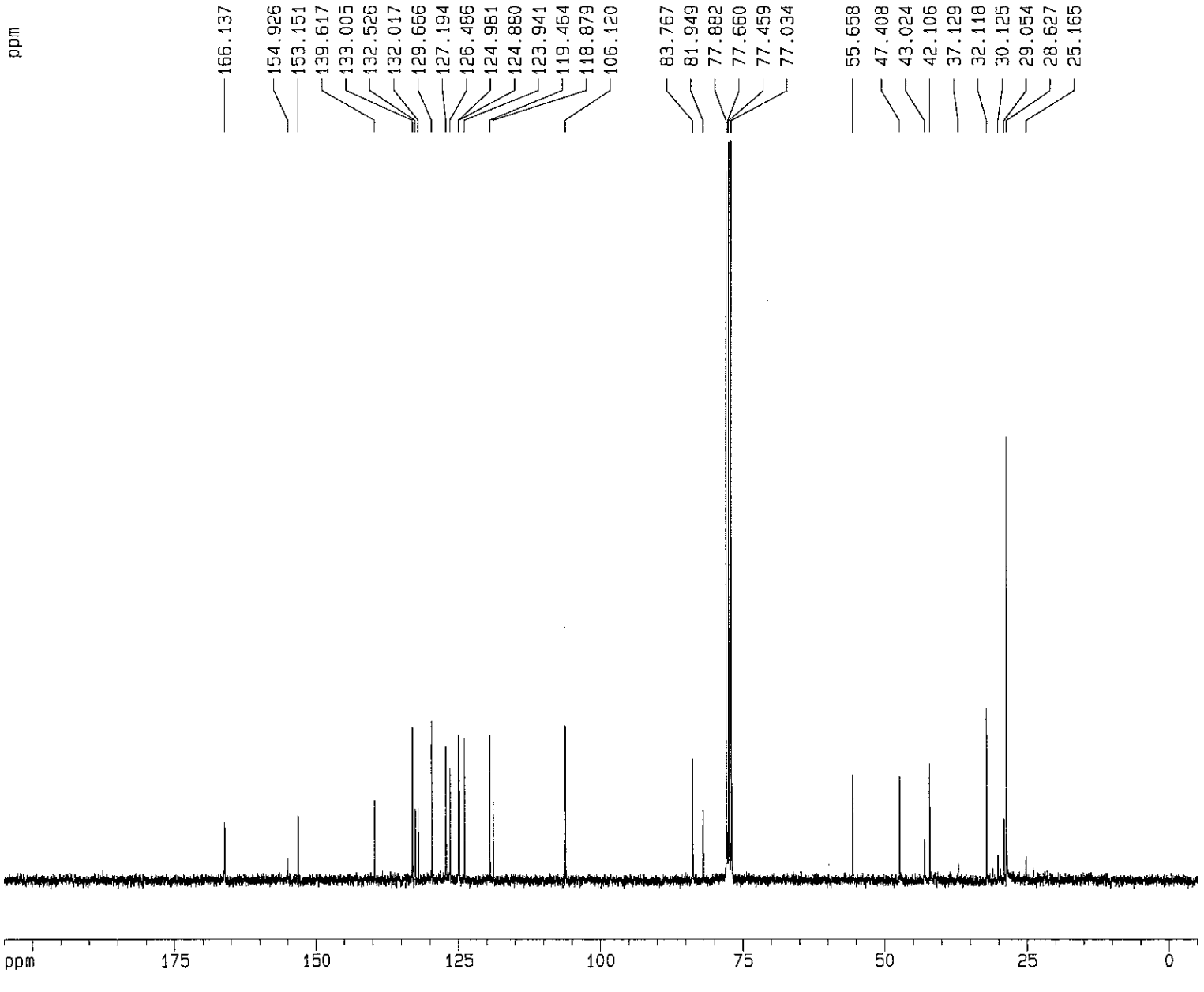


Current Data Parameters

NAME	May22-SJH
EXPNO	4
PROCNO	1

F2 - Acquisition Parameters

Date_	20080522
Time	14.46
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	1126
DS	2
SWH	18796.992 Hz
FIDRES	0.286819 Hz
AQ	1.7433076 sec
RG	512
DW	26.600 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
D11	0.03000000 sec
D12	0.00002000 sec

========== CHANNEL f1 ==========

NUC1	13C
P1	5.40 usec
PL1	-6.00 dB
SFO1	75.4106357 MHz

========== CHANNEL f2 ==========

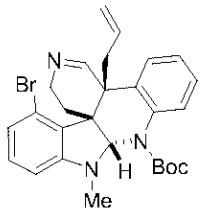
CPDPRG2	waltz16
NUC2	1H
PCPD2	115.00 usec
PL2	0.00 dB
PL12	20.00 dB
PL13	20.00 dB
SFO2	299.8711995 MHz

F2 - Processing parameters

SI	32768
SF	75.4023410 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

1D NMR plot parameters

CX	20.00 cm
F1P	205.000 ppm
F1	15457.48 Hz
F2P	-5.000 ppm
F2	-377.01 Hz
PPMCM	10.50000 ppm/cm
HZCM	791.72461 Hz/cm



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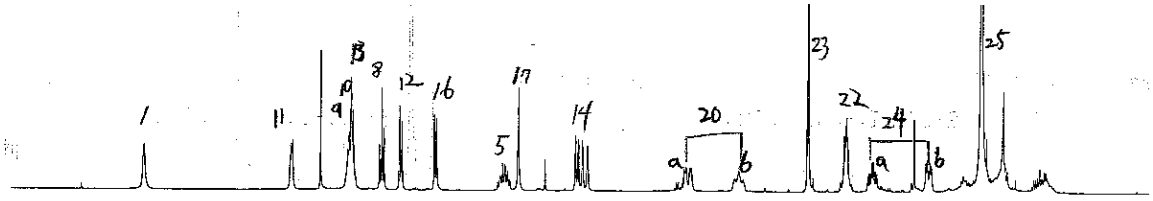
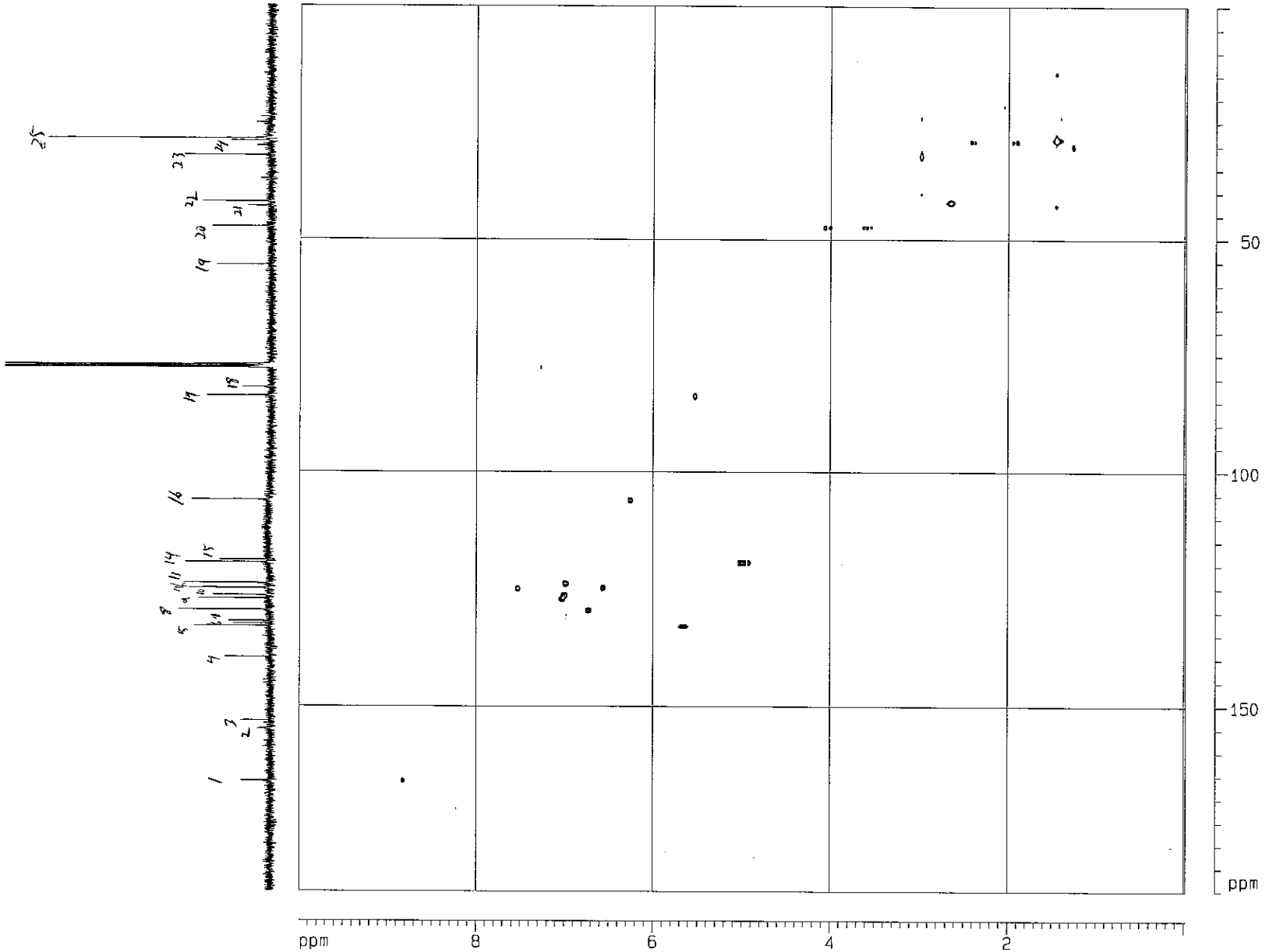




HMQC

Current Data Parameters

NAME	May23-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20080523
Time	22.34
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	inv4gptp
TD	2048
SOLVENT	CDCl3
NS	8
DS	80
SWH	4006.410 Hz
FIDRES	1.958295 Hz
AQ	0.2556404 sec
RG	14595.5
DW	124.800 usec
DE	6.00 usec
TE	300.0 K
CNST2	145.0000000
d0	0.00000300 Sec
D1	1.98531298 sec
d2	0.00344828 sec
d4	0.00172414 sec
d11	0.03000000 sec
d13	0.00000300 sec
D16	0.00020000 Sec
d20	0.00052414 sec
d21	0.00224428 sec
INO	0.00001308 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	6.45 usec
p2	12.90 usec
PL1	0.00 dB
SFO1	400.1320007 MHz

========== CHANNEL f2 ==========

CPDPRG2	garp
NUC2	13C
P3	17.00 usec
P4	34.00 usec
PCPD2	84.00 usec
PL2	-6.00 dB
PL12	5.30 dB
SFO2	100.6228372 MHz

========== GRADIENT CHANNEL ==========

GPNAM1	SINE.100
GPNAM2	SINE.100
GPNAM3	SINE.100
GPX1	17.00 %
GPX2	20.00 %
GPX3	25.00 %
GPY1	17.00 %
GPY2	20.00 %
GPY3	25.00 %
GPZ1	17.00 %
GPZ2	20.00 %
GPZ3	25.00 %
P16	1000.00 usec

F1 - Acquisition parameters

ND0	4
TD	256
SFO1	100.6223 MHz
FIDRES	74.689293 Hz
SW	190.022 ppm

F2 - Processing parameters

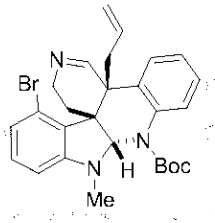
SI	2048
SF	400.1300054 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	100.6127290 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	9.983 ppm
F2LO	3998.47 Hz
F2PHI	-0.020 ppm
F2HI	-7.95 Hz
F1PLO	190.020 ppm
F1LO	19118.44 Hz
F1PHI	-0.020 ppm
F1HI	-3.82 Hz
F2PPMCM	0.66752 ppm/cm
F2HZCM	267.09402 Hz/cm
F1PPMCM	12.66934 ppm/cm
F1HZCM	1274.69727 Hz/cm



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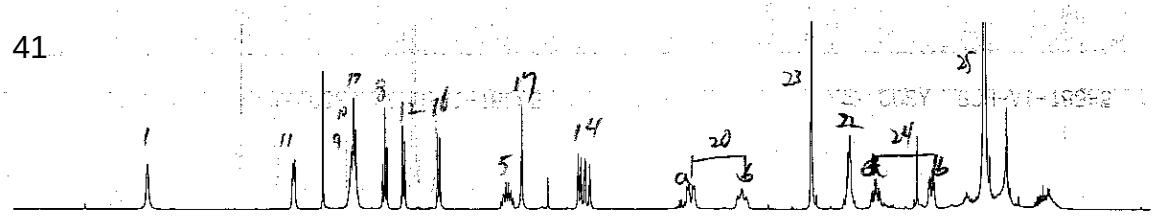
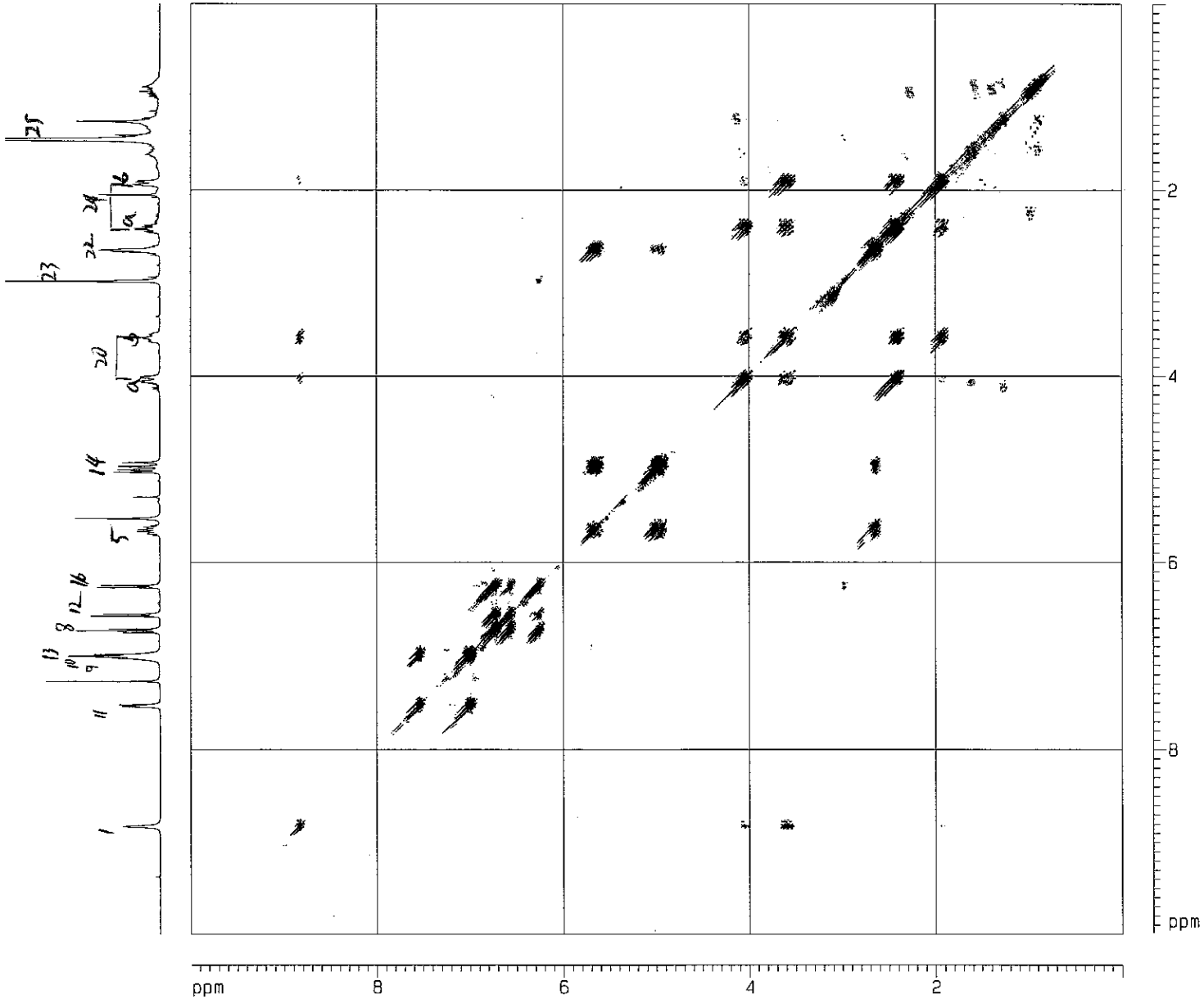
COSY





Current Data Parameters

NAME	May23-SJH
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20080525
Time	17.21
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	6
DS	8
SWH	4006.410 Hz
FIDRES	1.956255 Hz
AQ	0.2556404 sec
RG	812.75
DW	124.800 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00012495 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	6.45 usec
P2	12.90 usec
PL1	0.00 dB
SFO1	400.1320007 MHz

========== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

ND0	2
TD	650
SFO1	400.132 MHz
FIDRES	6.155693 Hz
SW	10.000 ppm

F2 - Processing parameters

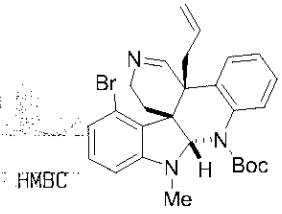
SI	2048
SF	400.1300054 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300054 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	10.000 ppm
F2LO	4001.30 Hz
F2PHI	0.000 ppm
F2HI	0.00 Hz
F1PLO	10.000 ppm
F1LO	4001.30 Hz
F1PHI	0.000 ppm
F1HI	0.00 Hz
F2PPMCM	0.66667 ppm/cm
F2HZCM	266.75333 Hz/cm
F1PPMCM	0.66667 ppm/cm
F1HZCM	266.75333 Hz/cm



HMBC

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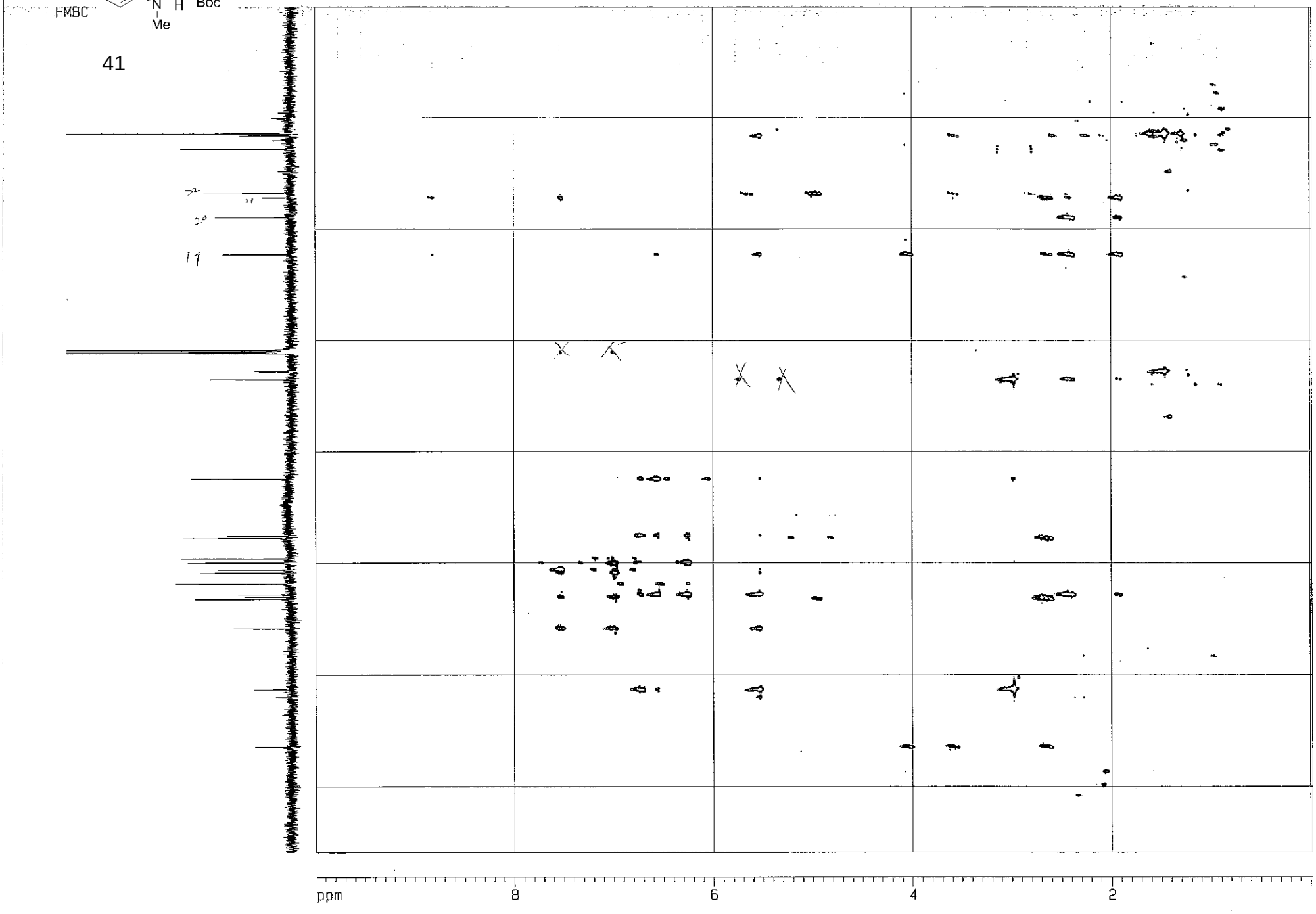

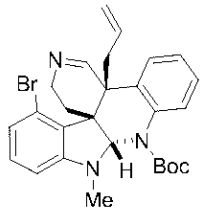

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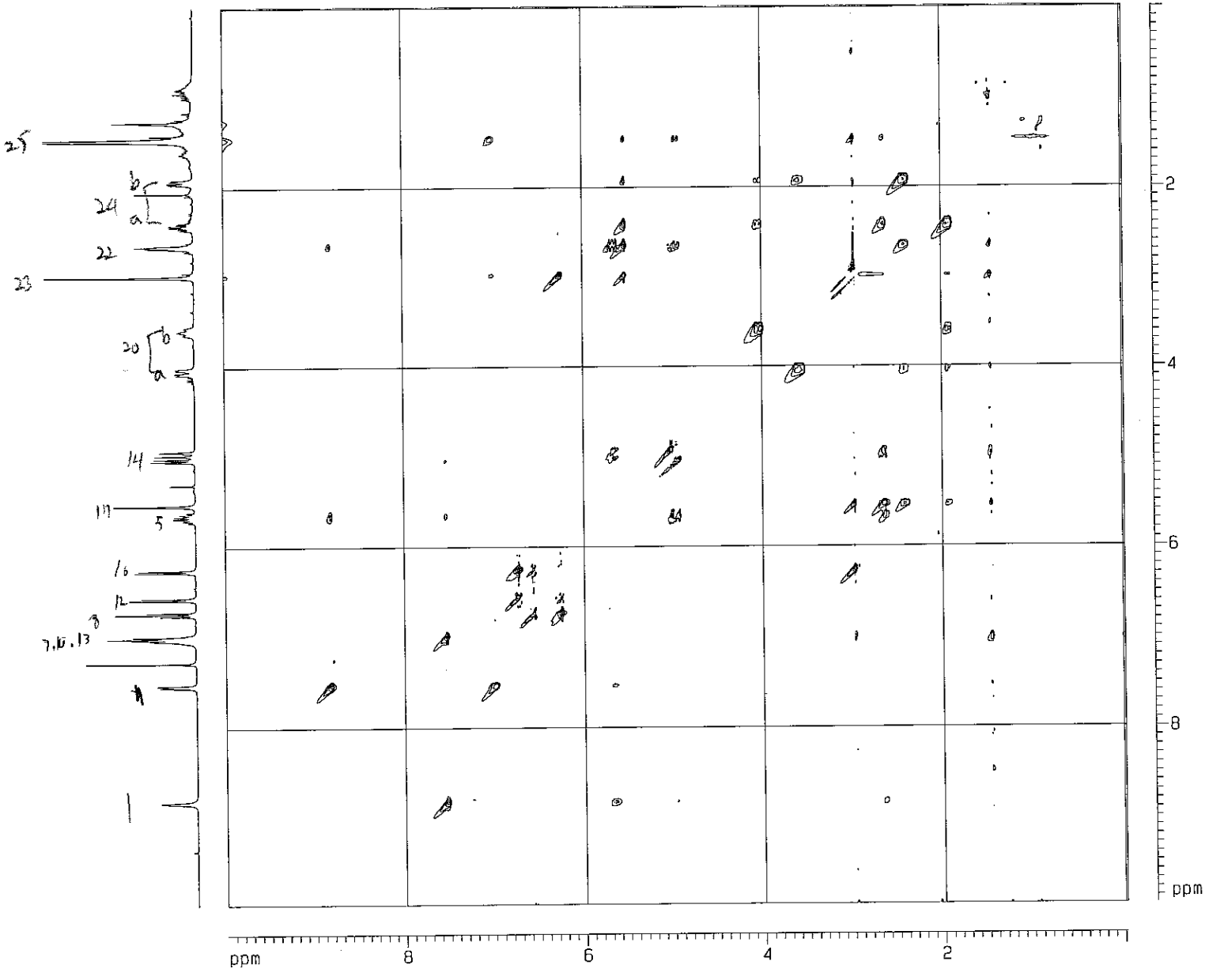
NOESY



Current Data Parameters

NAME	May23-SJH
EXPNO	6
PROCNO	1

F2 - Acquisition Parameters

Date_	20080525
Time	22.02
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	noesygptp
TD	2048
SOLVENT	CDCl3
NS	12
DS	8
SWH	4006.410 Hz
FIDRES	1.956255 Hz
AQ	0.2556404 sec
RG	22.6
DW	124.800 usec
DE	6.00 usec
TE	300.0 K
d0	0.00000300 sec
d1	4.00000000 sec
DB	0.80000001 sec
D16	0.00020000 sec
d20	0.39880002 sec
IN0	0.00012496 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	8.45 usec
P2	12.90 usec
PL1	0.00 dB
SF01	400.1320007 MHz

========== GRADIENT CHANNEL ========

GPNAM1	sine.100
GPNAM2	sine.100
GPX1	0.00 %
GPX2	0.00 %
GPY1	0.00 %
GPY2	0.00 %
GPZ1	40.00 %
GPZ2	-40.00 %
P16	1000.00 usec

F1 - Acquisition parameters

ND0	2
TD	512
SF01	400.132 MHz
FIDRES	7.814845 Hz
SW	10.000 ppm

F2 - Processing parameters

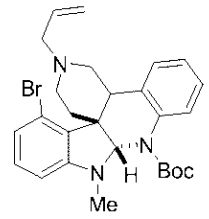
SI	2048
SF	400.1300054 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300054 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	9.993 ppm
F2LO	3998.47 Hz
F2PHI	-0.020 ppm
F2HI	-7.95 Hz
F1PLO	9.986 ppm
F1LO	3995.86 Hz
F1PHI	-0.013 ppm
F1HI	-5.34 Hz
F2PPMCM	0.66752 ppm/cm
F2HZCM	267.09402 Hz/cm
F1PPMCM	0.66665 ppm/cm
F1HZCM	266.74667 Hz/cm



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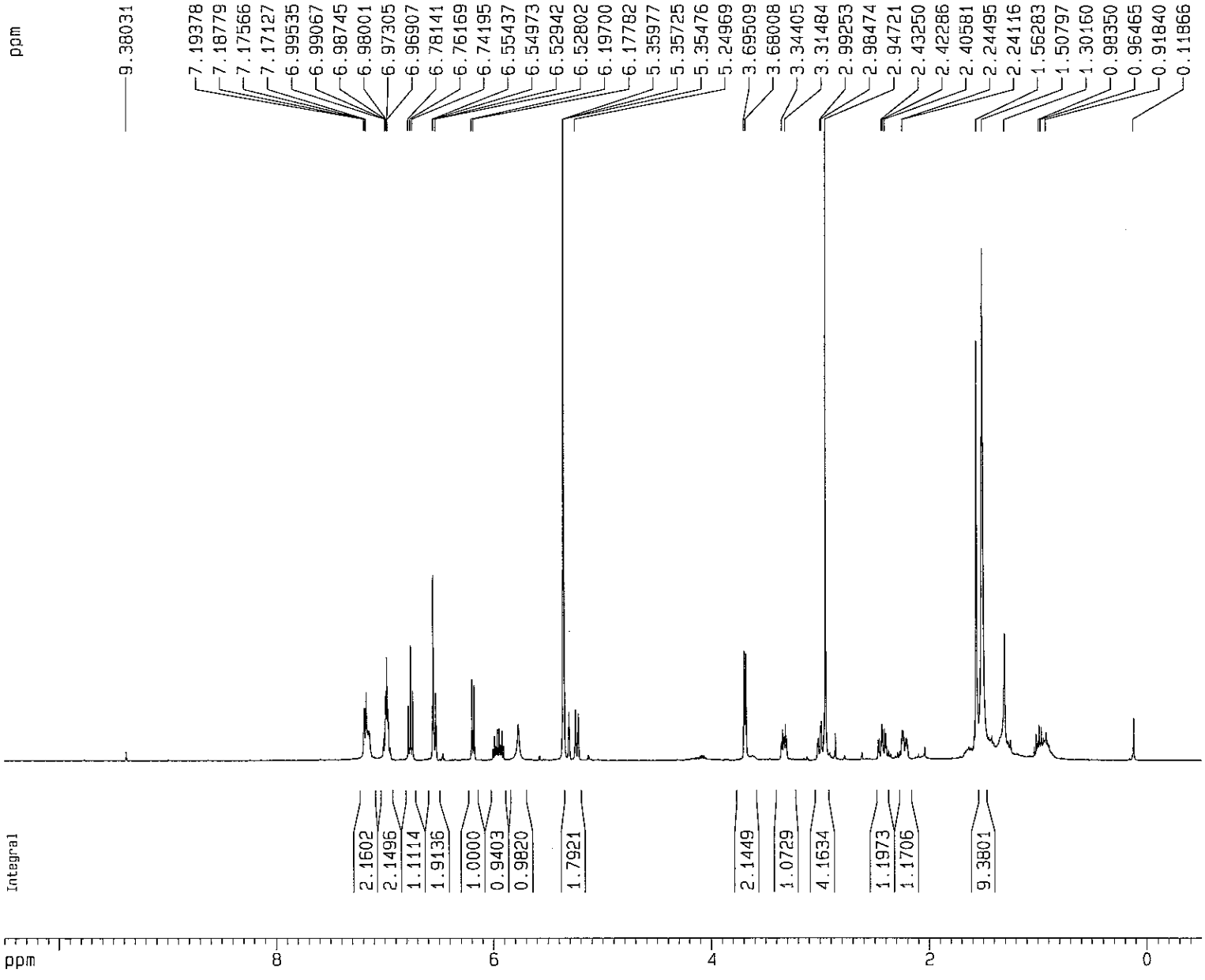


Current Data Parameters

NAME	Apr09-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080409
Time	16.26
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CD2Cl2
NS	26
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	512
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

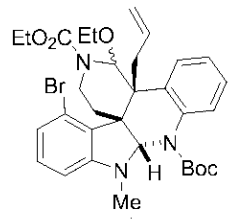
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



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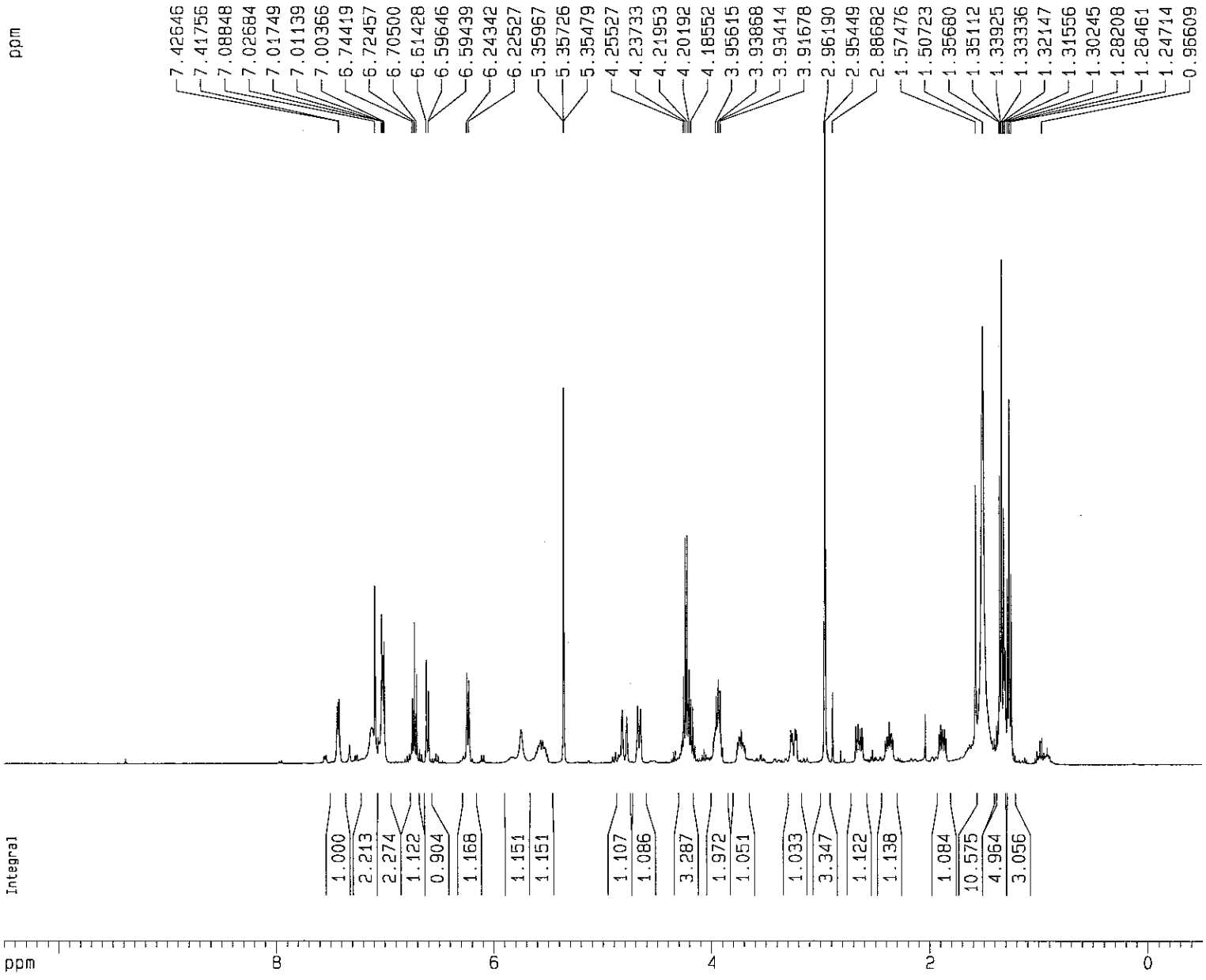


Current Data Parameters

NAME	Apr10-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080410
Time	9.09
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	zg30
TD	49668
SOLVENT	CD2Cl2
NS	15
DS	2
SWH	8278.146 Hz
FIDRES	0.166670 Hz
AQ	2.9999971 sec
RG	203.2
DW	60.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

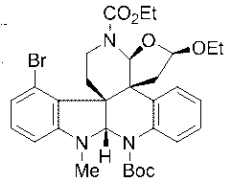
NUC1	1H
P1	6.45 usec
PL1	0.00 dB
SFO1	400.1324710 MHz

F2 - Processing parameters

SI	32768
SF	400.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	4201.37 Hz
F2P	-0.500 ppm
F2	-200.07 Hz
PPMCM	0.55000 ppm/cm
HZCM	220.07150 Hz/cm



more polar
major diastereomer

HMBC

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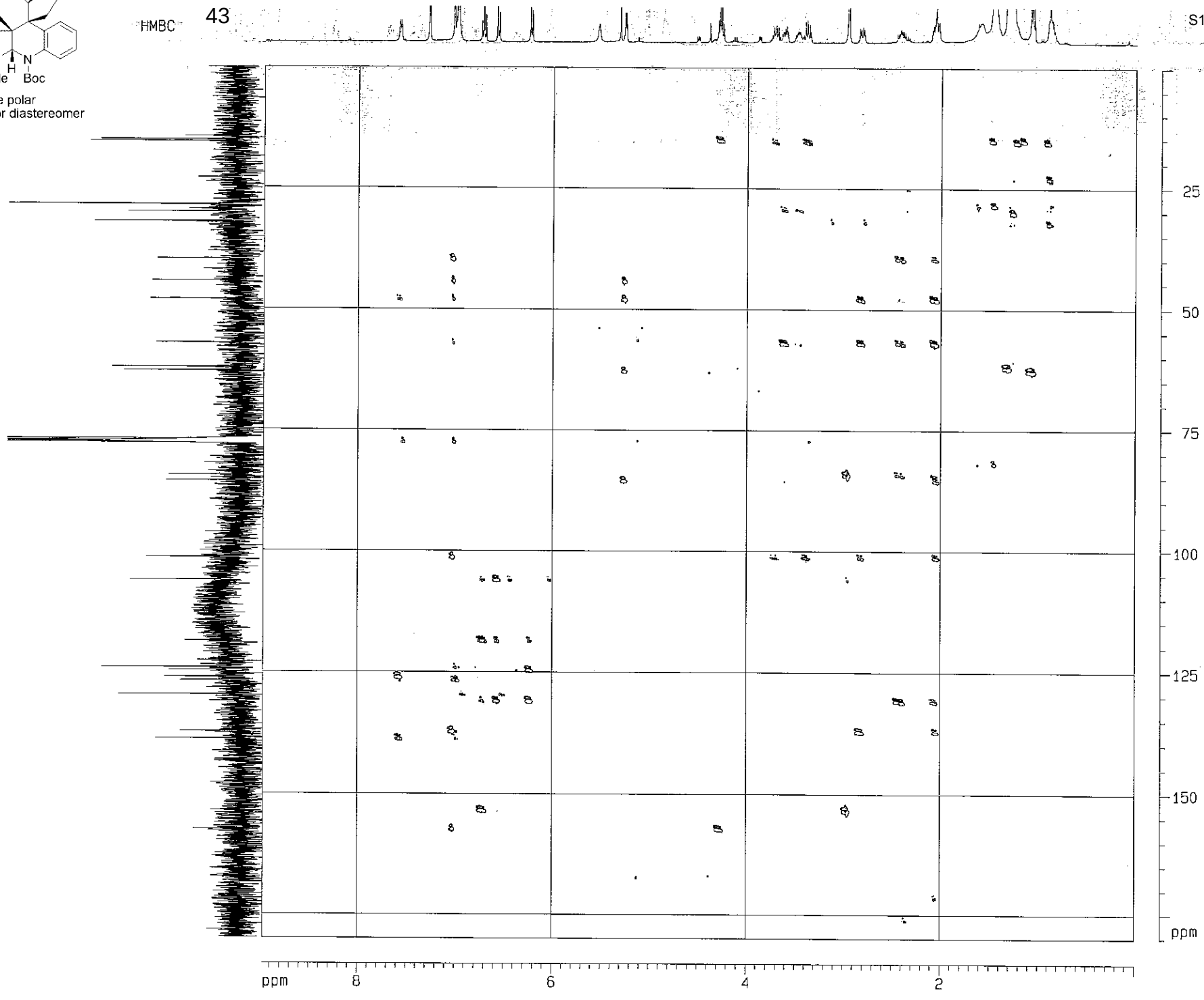

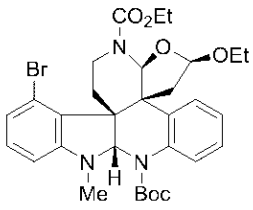

more polar
major diastereomer

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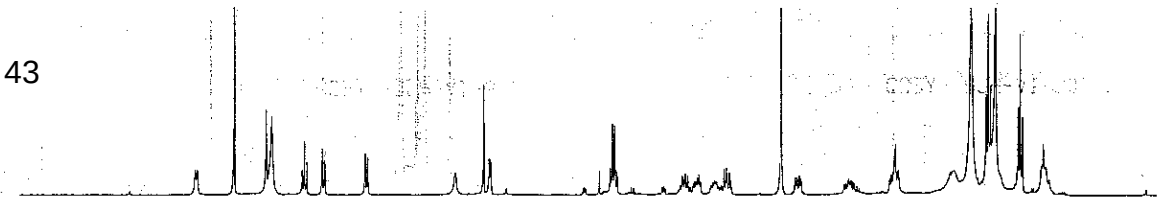
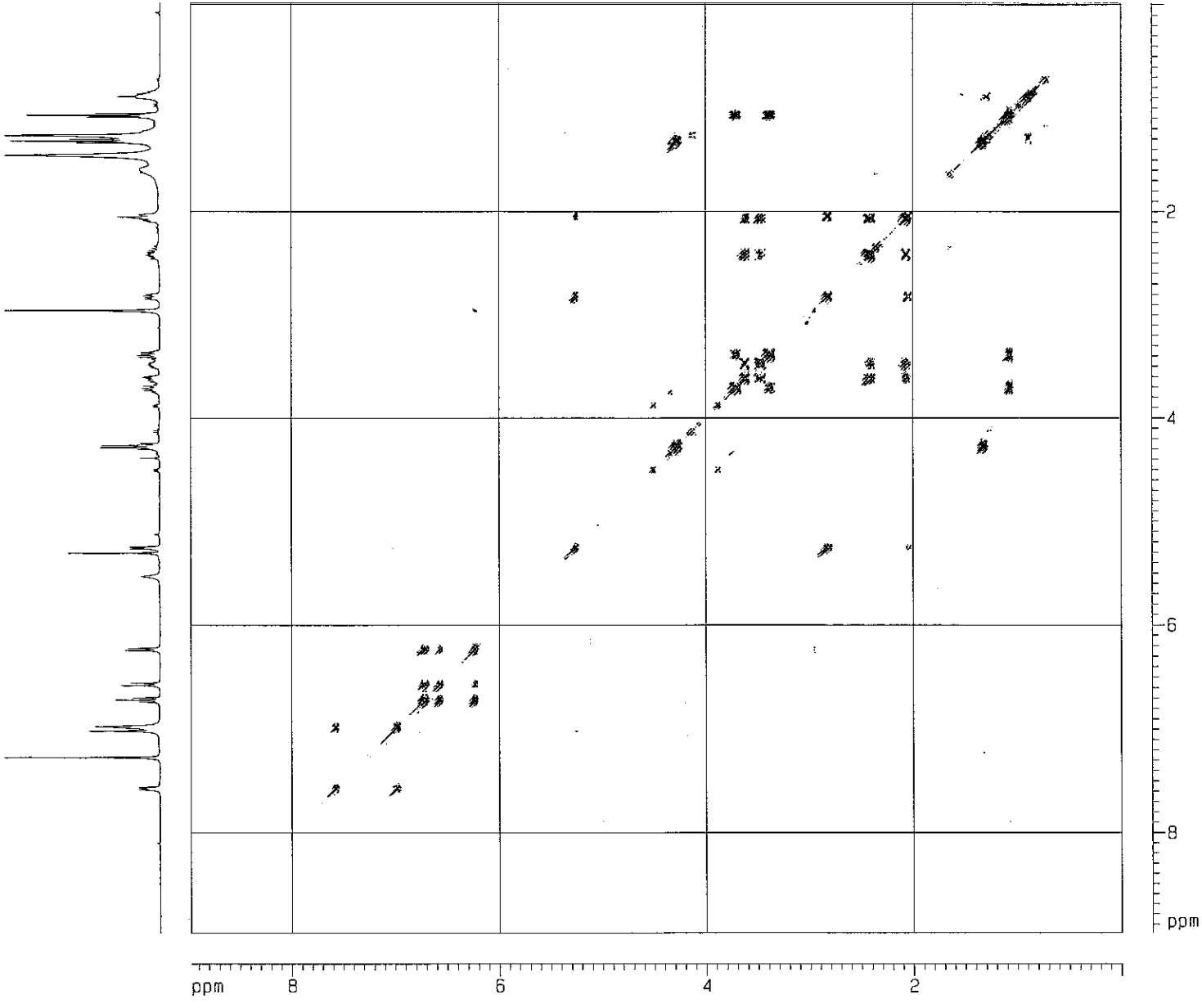
COSY





Current Data Parameters

NAME	May28-SJH
EXPNO	5
PROCNO	1

F2 - Acquisition Parameters

Date_	20080529
Time	5.29
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	ajb.cosygsmftp
TD	2048
SOLVENT	CDCl3
NS	6
DS	8
SWH	3591.954 Hz
FIDRES	1.753884 Hz
AQ	0.2851316 sec
RG	1625.5
DW	139.200 usec
DE	6.00 usec
TE	300.0 K
D0	0.00000300 sec
D1	4.00000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00120300 sec
IN0	0.00013884 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.15 usec
P2	14.30 usec
PL1	0.00 dB
SFO1	400.1318006 MHz

========== GRADIENT CHANNEL =======

P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	650
SFO1	400.1318 MHz
FIDRES	5.540512 Hz
SW	9.000 ppm

F2 - Processing parameters

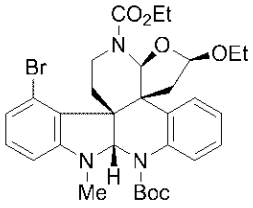
SI	2048
SF	400.1300056 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0
PC	1.40

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300056 MHz
WDW	SINE
SSB	0
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.974 ppm
F2LO	3590.92 Hz
F2PHI	-0.003 ppm
F2HI	-1.03 Hz
F1PLO	8.986 ppm
F1LO	3595.61 Hz
F1PHI	-0.014 ppm
F1HI	-5.72 Hz
F2PPMCM	0.59846 ppm/cm
F2HZCM	239.46361 Hz/cm
F1PPMCM	0.60003 ppm/cm
F1HZCM	240.08882 Hz/cm



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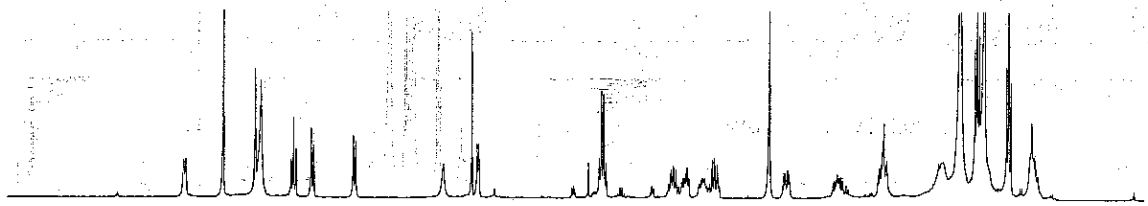
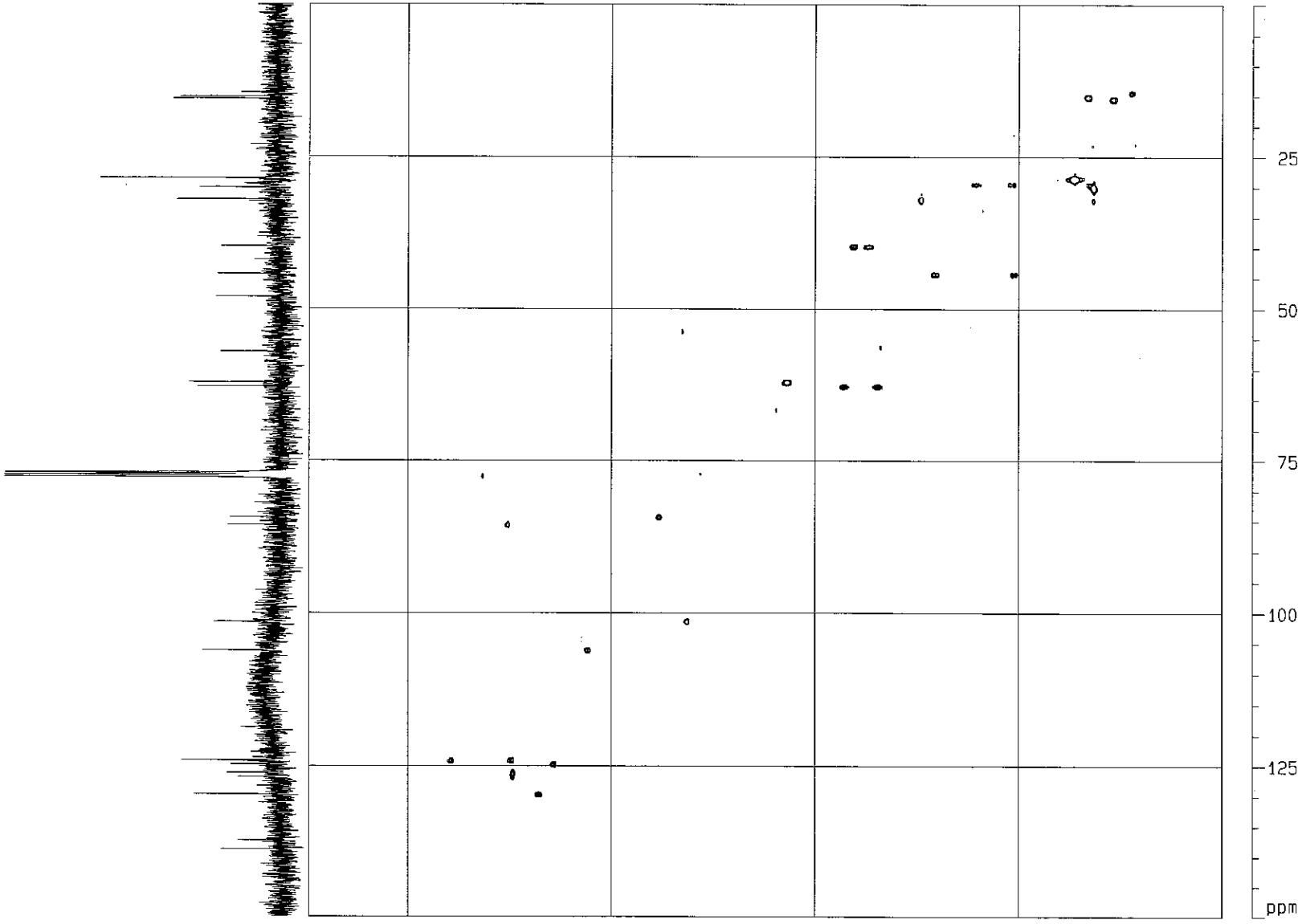
more polar
major diastereomer





HMQC

Current Data Parameters

NAME	May29-SJH
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

Date_	20060528
Time	20.26
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	invAgpto
TD	2048
SOLVENT	CDCl3
NS	16
DS	80
SWH	3591.954 Hz
FIDRES	1.753884 Hz
AQ	0.2851316 sec
RG	29193
DW	139.200 usec
DE	6.00 usec
TE	300.0 K
CNST2	145.0000000
d0	0.00000300 sec
D1	1.99631298 sec
d2	0.00344929 sec
d4	0.00172414 sec
d11	0.03000000 sec
d13	0.00000300 sec
D16	0.00020000 sec
d20	0.00052414 sec
d21	0.00224428 sec
IN0	0.00001656 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.15 usec
p2	14.30 usec
PL1	0.00 dB
SFO1	400.1318005 MHz

========== CHANNEL f2 ==========

CPDPRG2	garp
NUC2	13C
P3	17.00 usec
p4	34.00 usec
PCPD2	64.00 usec
PL2	-6.00 dB
PL12	6.30 dB
SFO2	100.6202750 MHz

========== GRADIENT CHANNEL =======

GPNAM1	STNE.100
GPNAM2	STNE.100
GPNAM3	STNE.100
GPX1	17.00 %
GPX2	20.00 %
GPX3	25.00 %
GPY1	17.00 %
GPY2	20.00 %
GPY3	25.00 %
GPZ1	17.00 %
GPZ2	20.00 %
GPZ3	25.00 %
P16	1000.00 usec

F1 - Acquisition parameters

ND0	4
TD	256
SFO1	100.6203 MHz
FIDRES	59.662265 Hz
SW	150.013 ppm

F2 - Processing parameters

SI	2048
SF	400.1300056 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.40

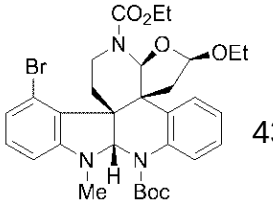
F1 - Processing parameters

SI	1024
MC2	TPPI
SF	100.6127290 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.974 ppm
F2LO	3590.98 Hz
F2PHI	-0.003 ppm
F2HI	-1.03 Hz
F1PLO	150.012 ppm
F1LO	15093.13 Hz
F1PHI	-0.012 ppm
F1HI	-1.21 Hz
F2PPMCM	0.59848 ppm/cm
F2HZCM	239.46354 Hz/cm
F1PPMCM	10.00161 ppm/cm
F1HZCM	1006.28331 Hz/cm

NOESY



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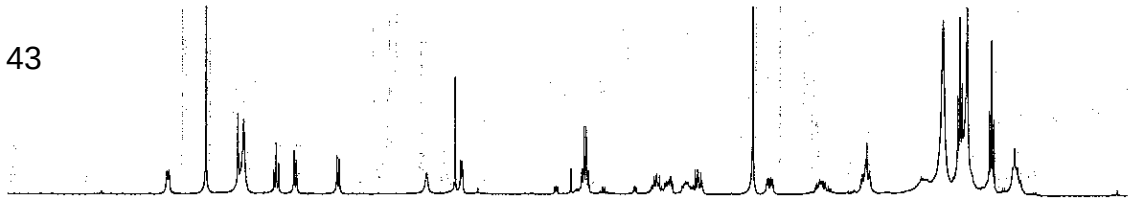
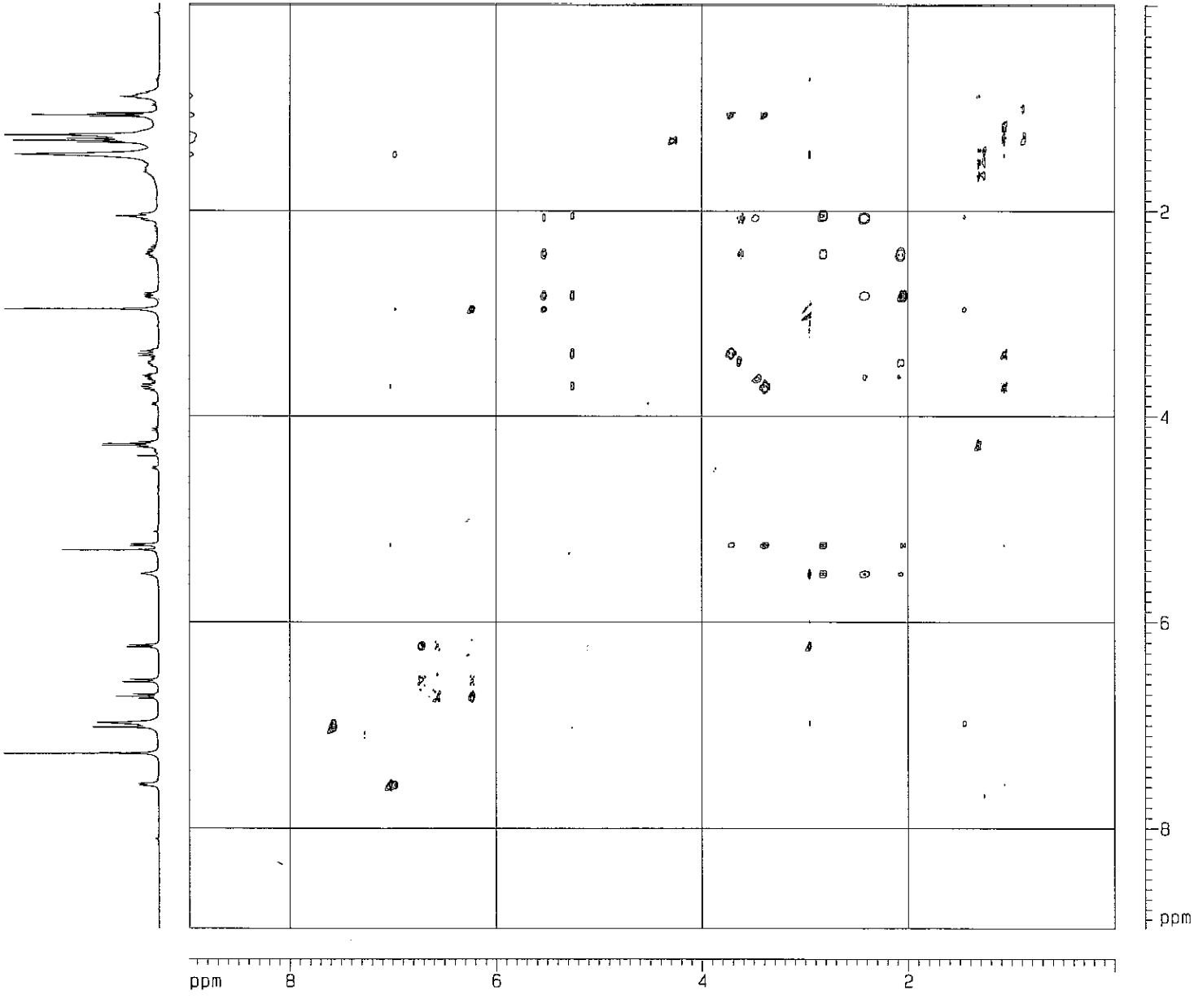
more polar
major diastereomer





Current Data Parameters

NAME	May28-SJH
EXPNO	7
PROCNO	1

F2 - Acquisition Parameters

Date_	20080529
Time	21.20
INSTRUM	spect
PROBHD	5 mm BBI 1H-B
PULPROG	noesygptp
TD	2048
SOLVENT	CDCl3
NS	16
DS	8
SWH	3591.954 Hz
FIDRES	1.753884 Hz
AQ	0.2851316 sec
RG	50.64
DW	139.200 usec
DE	6.00 usec
TE	300.0 K
d0	0.00000300 sec
D1	4.00000000 sec
D8	0.80000001 sec
D16	0.00020000 sec
d20	0.39880002 sec
IN0	0.00013884 sec

========== CHANNEL f1 ==========

NUC1	1H
P1	7.15 usec
P2	14.30 usec
PL1	0.00 dB
SF01	400.1318006 MHz

========== GRADIENT CHANNEL =======

GPNAM1	sine.100
GPNAM2	sine.100
GPX1	0.00 %
GPX2	0.00 %
GPY1	0.00 %
GPY2	0.00 %
GPZ1	40.00 %
GPZ2	-40.00 %
P16	1000.00 usec

F1 - Acquisition parameters

NDO	2
TD	512
SF01	400.1318 MHz
FIDRES	7.033853 Hz
SW	9.000 ppm

F2 - Processing parameters

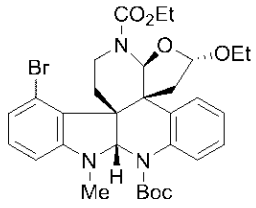
SI	2048
SF	400.1300051 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0
PC	1.00

F1 - Processing parameters

SI	1024
MC2	TPPI
SF	400.1300051 MHz
WDW	QSINE
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CX2	15.00 cm
CX1	15.00 cm
F2PLO	8.976 ppm
F2LO	3591.43 Hz
F2PHI	-0.001 ppm
F2HI	-0.52 Hz
F1PLO	8.997 ppm
F1LO	3596.12 Hz
F1PHI	-0.013 ppm
F1HI	-5.21 Hz
F2PPMCM	0.59846 ppm/cm
F2HZCM	239.46361 Hz/cm
F1PPMCM	0.60003 ppm/cm
F1HZCM	240.08882 Hz/cm



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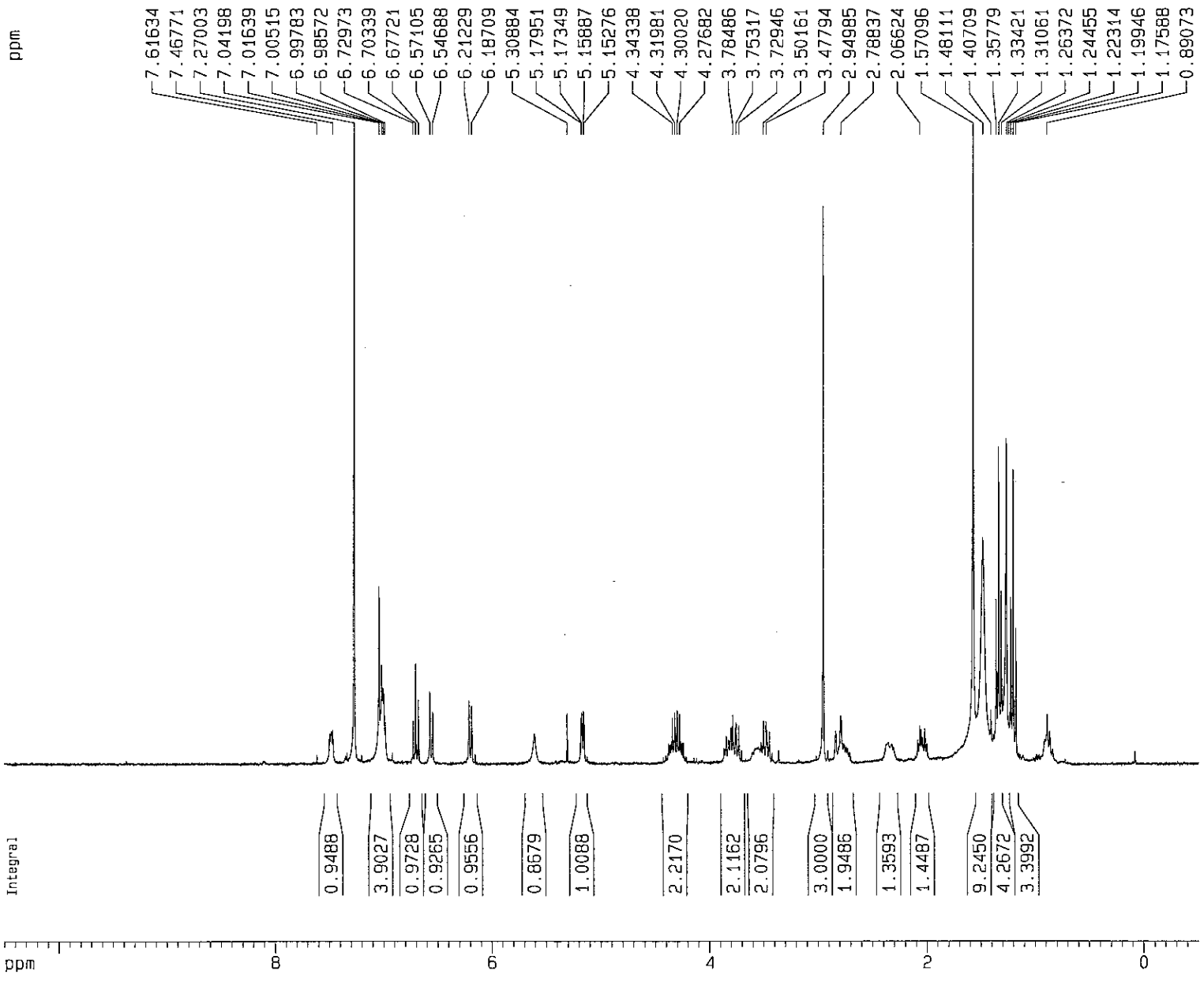
minor



Current Data Parameters

NAME	May27-SJH
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20080527
Time	22.20
INSTRUM	spect
PROBHD	5 mm QNP 1H/1
PULPROG	zg30
TD	37036
SOLVENT	CDCl3
NS	17
DS	2
SWH	6172.839 Hz
FIDRES	0.166671 Hz
AQ	2.9999659 sec
RG	812.7
DW	81.000 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec

========== CHANNEL f1 ========

NUC1	1H
P1	11.70 usec
PL1	0.00 dB
SFO1	299.8718518 MHz

F2 - Processing parameters

SI	32768
SF	299.8700069 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	20.00 cm
F1P	10.500 ppm
F1	3148.64 Hz
F2P	-0.500 ppm
F2	-149.93 Hz
PPMCM	0.55000 ppm/cm
HZCM	164.92850 Hz/cm