

**Supplementary Information for**  
**Total Synthesis of (±)-Hedychenone: Trimethyldecalin Terpene Systems via**  
**Stepwise Allenolate Diene Cycloaddition**

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## Supporting Information

### Total Synthesis of (±)-Hedychenone: Trimethyldecalin Terpene Systems via Stepwise Allenolate Diene Cycloaddition

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**General Experimental.** All  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra were obtained on a Bruker ARX-400 spectrometer operating at 400.132 MHz and at 100.625 MHz, respectively. All  $^1\text{H}$  and  $^{13}\text{C}$  NMR data were reported in parts per million (d) downfield from tetramethylsilane. Coupling constants are reported in hertz (Hz), with the following abbreviations used: s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet. When appropriate, the multiplicities are preceded with br., indicating that the signal is broad. Thin-layer chromatography (TLC) was carried out using Baker Si250F<sub>254</sub> silica gel plates and visualization was facilitated by the use of ultraviolet light, anisaldehyde stain, and permanganate stain methods. Flash column chromatography was performed using E. Merck silica gel 60 (230-400 mesh) with compressed air as the source. All solvent mixtures used are indicated as volume/volume. The following solvents were dried and distilled from the indicated drying agent under an argon atmosphere: tetrahydrofuran (THF) and diethyl ether (ether) from sodium benzophenone ketyl radical; dichloromethane, benzene, and triethylamine from calcium hydride; diisopropylamine from sodium hydroxide; methanol from magnesium methoxide. All other solvents and reagents were purified and dried before use as necessary by standard technique. All reactions were performed under an argon atmosphere unless otherwise noted.

**2,2,6-Trimethylcyclohexanone, 6a.** A 2 M solution of *n*-butyllithium in pentane (104 mL, 1.06 eq) was added dropwise to a solution of freshly distilled diisopropylamine (33.3 mL, 1.24 eq) in dry THF (250 mL) under Dry Ice/acetone cooling conditions. This solution was cooled in ice and stirred for 40 min. A solution of 2,6-dimethylcyclohexanone (24.7 g, 196 mmol) in dry THF (50 mL) was added to the lithium diisopropylamide (LDA) solution over 30 min under Dry Ice/acetone cooling conditions and reaction mixture was stirred for 1.5 h under the same conditions. Methyl iodide (18.3 mL, 1.5 eq) was added dropwise to the reaction mixture under the same conditions and stirred for 1 h. The mixture was allowed to warm to room temperature and stirred overnight. The reaction mixture was poured into a mixture of saturated ammonium chloride solution (500 mL), water (50 mL) and ether (250 mL) with vigorous stirring.

The layers were separated and the aqueous layer was added to ether (250 mL) and extracted. The organic layers were combined, washed with saturated sodium chloride solution (250 mL), dried over anhydrous sodium sulfate, filtered, and evaporated in vacuo. The residue was distilled (84-85 °C/16 mmHg) to afford 2,2,6-trimethylcyclohexanone (25.26 g, 92.0%) as a colorless oil. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>) δ 2.64 (1H, m), 2.06 (1H, m), 1.89 (1H, m), 1.78 (1H, m), 1.65 (1H, m), 1.58 (1H, m), 1.33 (1H, m), 1.18 (3H, s), 1.04 (3H, s), 0.99 (3H, d, *J* = 6.5 Hz). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>) δ 217.4, 45.2, 41.8, 40.8, 36.8, 25.7, 25.3, 21.6, 15.0.

**2,2,6-Trimethylcyclohexanone Hydrazone, 6b.** Triethylamine (30 mL, 1.5 eq) and hydrazine monohydrate (124 mL, 17.9 eq) were added to a solution of 2,2,6-trimethylcyclohexanone **6a** (20.0 g, 143 mmol) in absolute ethanol (100 mL) and the mixture was refluxed for 3 d. After evaporation of ethanol in vacuo, the residue (*ca.* 130 g) was extracted with ether (120 mL x 3). The organic layers were combined, dried over anhydrous sodium sulfate, and evaporated in vacuo. The crystalline residue (*ca.* 24 g) was recrystallized from hexane (20 mL) to afford the hydrazone (18.80 g, 85.4%) as colorless needles. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>) δ 4.98 (2H, br. s), 2.99 (1H, m), 1.78 (1H, m), 1.40-1.69 (5H, m), 1.17 (3H, d, *J* = 7.5 Hz), 1.13 (3H, s), 1.12 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>) δ 162.4, 40.4, 37.6, 31.7, 29.5, 28.9, 26.5, 17.4, 17.2.

**1,3,3-Trimethyl-2-iodocyclohexene (7).** A solution of iodine (13.82 g, 2.1 eq) in dry ether (80 mL) was added dropwise to a solution of 2,2,6-trimethylcyclohexanone hydrazone **6b** (4.0 g, 25.9 mmol) and 1,5-diazabicyclo[4.3.0]-5-nonene (DBN, 20.2 mL, 6.35 eq) in dry ether (80 mL). After the reaction stirred for 3.5 h, saturated sodium bicarbonate solution (80 mL) was added. The layers were separated and the aqueous layer was extracted with ether (160 mL). The organic layers were combined, dried over anhydrous sodium sulfate, filtered, and evaporated in vacuo. Dry benzene (80 mL) and DBN (1.6 mL, 0.5 eq) were added to the residue and the mixture was refluxed for 2 h. After cooling to room temperature, ether (160 mL) was added and the solution was washed with 1 M sodium thiosulfate solution (3 x 80 mL). The organic layer was dried over anhydrous sodium sulfate, evaporated in vacuo, and the residue was chromatographed through silica gel (40 g, pentane) to afford **7a** (5.53 g, 85.2%) as a colorless oil. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>) δ 2.12 (2H, t, *J* = 6.2 Hz), 1.87 (3H, s), 1.60-1.75 (4H, m), 1.09 (6H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>) δ 137.7, 117.4, 39.6, 37.9, 33.7, 31.6, 31.1, 19.4.

**$\alpha$ ,2,6,6-Tetramethylcyclohexenemethanol (7a).** A 1.6 M solution of *t*-butyllithium in pentane (30.5 mL, 2.1 eq) was added dropwise to a solution of **7** (5.82 g, 23.3 mmol) in dry ether (116 mL) under Dry Ice/acetone cooling conditions and stirred for 1 h. Freshly distilled acetaldehyde (13.6 mL, 10.5 eq) was added dropwise to the mixture and the mixture was stirred for 2 h under the same conditions. The reaction was quenched by adding of saturated ammonium chloride solution (116 mL), water (23 mL), and ether (116 mL). The layers were separated and the aqueous layer was added to ether (116 mL) and extracted. The organic layers were combined, dried over anhydrous sodium sulfate, filtered, and then evaporated in vacuo. The residue was chromatographed through silica gel (60 g, pentane/ether = 6/1) to afford **7a** (3.53 g, 90.2%) as colorless crystals. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>)  $\delta$  4.51 (1H, q, *J* = 6.6 Hz), 1.93 (2H, m), 1.86 (3H, s), 1.55 (2H, m), 1.42 (2H, m), 1.41 (3H, d, *J* = 6.6 Hz), 1.09 (3H, s), 0.98 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>)  $\delta$  141.2, 130.8, 39.9, 34.5, 34.0, 28.6, 27.9, 23.0, 20.9, 19.3.

**2-Acetyl-1,1,3-trimethylcyclohexene (7b).** 4-Methylmorpholine N-oxide (NMO, 4.20 g, 1.5 eq), 4 Å molecular sieves (12 g), and tetra-*n*-propylammonium perruthenate (TPAP, 192 mg, 2.3 mol%) were added successively to a solution of **7a** (4.00 g, 23.8 mmol) in dry dichloromethane (48 mL) at room temperature. The reaction mixture was stirred for 2 h under water bath cooling conditions to keep around 25 °C and then filtered through silica gel (10 g). The filtrate was evaporated in vacuo and the residue was chromatographed through silica gel (40 g, dichloromethane) to afford **7b** (3.88 g, 98.2%) as a colorless oil. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>)  $\delta$  2.28 (3H, s), 1.95 (2H, t, *J* = 6.5 Hz), 1.65 (2H, m), 1.58 (3H, s), 1.43 (2H, m), 1.07 (6H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>)  $\delta$  210.1, 143.6, 128.5, 38.8, 33.4, 33.2, 31.1, 28.5, 20.8, 18.8.

**1-(1,1-Dimethylethyl(dimethyl)silyloxy)ethenyl-2,6,6-trimethylcyclohexene (2).** Triethylamine (1.31 mL, 3.0 eq) was added to a solution of **7b** (0.52 g, 3.1 mmol) in dry THF (10 mL) under Dry Ice/acetone cooling conditions. TBSOTf (1.44 mL, 2 eq) was added dropwise under the same conditions. The mixture was allowed to warm to room temperature and stirred for 2 h. The reaction was quenched by adding saturated sodium bicarbonate solution (30 mL) and pentane (40 mL). The layers were separated and the organic layer was washed with water (3 x 30 mL). The aqueous layers were combined and extracted with pentane (40 mL). The organic layers were combined and dried over anhydrous magnesium sulfate, filtered, and evaporated in vacuo to yield a colorless oil as a crude product. The crude product was distilled (113 °C/0.8 mmHg) to afford **2** (871 mg, 99.2%) as a clear oil. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>)  $\delta$  4.25 (1H, s), 3.87 (1H, s), 1.94 (2H,

t,  $J = 6.4$  Hz), 1.66 (3H, s), 1.58-1.66 (2H, m), 1.40-1.44 (2H, m), 1.04 (6H, s), 0.91 (9H, s), 0.19 (6H, s).  $^{13}\text{C}$ -NMR (100 MHz,  $\text{CDCl}_3$ )  $\delta$  156.4, 138.8, 129.6, 92.9, 39.3, 33.2, 31.6, 29.0, 25.7, 21.3, 19.2, 18.1, -4.6.

( $\pm$ ) Ethyl (1*R*,8*aS*)-4-[1,1-Dimethylethyl(dimethyl)silyloxy]-5,5,8*a*-trimethyl-2-methylene-1,2,3,5,6,7,8,8*a*-octahydro-1-naphthalenecarboxylate (**4x**), ( $\pm$ ) Ethyl (1*R*\*,8*aR*\*)-4-[1,1-Dimethylethyl(dimethyl)silyloxy]-5,5,8*a*-trimethyl-2-methylene-1,2,3,5,6,7,8,8*a*-octahydro-1-naphthalenecarboxylate (**4n**), and ( $\pm$ ) Ethyl 2-[3-[1,1-Dimethylethyl(dimethyl)silyloxy]-3-(2,6,6-trimethyl-1-cyclohexenyl)cyclobutylidene]acetate (**5**). The diene **2** (1.45 g, 5.17 mmol), the allenolate **3** (1.45 g, 2.5 eq), and hydroquinone (5 mg) were added to a sealed tube. The tube was heated in an oil bath at 110 °C for 14 d. The tube was cooled to room temperature and the reaction mixture was chromatographed through silica gel (75 g, pentane/ether = 100/1-50/1) to afford a 2:1 mixture of **4x** and **4n** (718 mg, 35.4%) as a colorless oil and the cyclobutane **5** (184 mg, 9.1%) as a colorless oil. Analytical samples of **4x** and **4n** were prepared by silica gel column chromatographic separation (silica gel 5 g, pentane/ether = 200/0 to 200/1) by use of a small amount of the mixture of **4x** and **4n**.

Exo [4+2] cycloadduct, **4x**.  $^1\text{H}$ -NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  4.91 (1H, m), 4.82 (1H, s), 4.14 (2H, q,  $J = 7.2$  Hz), 3.07 (1H, m), 3.06 (1H, m), 2.86 (1H, d,  $J = 19.6$  Hz), 1.15-1.70 (6H, m), 1.25 (3H, t,  $J = 7.2$  Hz), 1.24 (3H, s), 1.20 (3H, s), 1.19 (3H, s), 0.95 (9H, s), 0.20 (3H, s), 0.19 (3H, s).  $^{13}\text{C}$ -NMR (100 MHz,  $\text{CDCl}_3$ )  $\delta$  172.1, 142.2, 139.9, 126.6, 108.6, 59.8, 59.7, 40.3, 39.4, 38.6, 34.7, 33.7, 29.9, 29.7, 26.4, 22.8, 18.7, 16.9, 14.3, -2.3, -2.5. IR (neat) 2931, 2860, 1736, 1654, 1626, 1473, 1464, 1375, 1321, 1254, 1202, 1161, 1067, 1043, 837, 779 ( $\text{cm}^{-1}$ ).

Endo [4+2] cycloadduct **4n**.  $^1\text{H}$ -NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  4.92 (1H, m), 4.89 (1H, m), 4.09 (2H, m), 3.22 (1H, m), 2.85 (1H, s), 2.79 (1H, d,  $J = 19.3$  Hz), 1.26 (3H, s), 1.22 (3H, s), 1.15-1.70 (6H, m), 0.97 (9H, s), 0.22 (6H, s).  $^{13}\text{C}$ -NMR (100 MHz,  $\text{CDCl}_3$ )  $\delta$  171.8, 142.7, 140.4, 121.2, 112.4, 62.0, 60.0, 40.3, 38.7, 37.8, 34.0, 33.6, 30.3, 29.81, 29.78, 26.4, 18.7, 17.3, 14.3, -2.1, -2.6.

[2+2] cycloadduct **5**.  $^1\text{H}$ -NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  5.67 (1H, m), 4.16 (2H, q,  $J = 7.2$  Hz), 3.68 (1H, br. d,  $J = 17.8$  Hz), 3.42 (2H, m), 3.09 (1H, br. d,  $J = 17.8$  Hz), 1.96 (2H, t,  $J = 6.3$  Hz), 1.66 (3H, s), 1.53-1.59 (2H, m), 1.35-1.40 (2H, m), 1.28 (3H, t,  $J = 7.2$  Hz), 1.15 (3H, s), 1.14 (3H, s), 0.84 (9H, s), 0.08 (3H, s), 0.07 (3H, s).  $^{13}\text{C}$ -NMR (100

MHz, CDCl<sub>3</sub>)  $\delta$  166.5, 162.3, 140.8, 132.5, 112.6, 78.7, 59.6, 43.5, 34.3, 34.2, 29.0, 28.9, 26.1, 25.6, 21.9, 19.6, 18.8, 18.3, 14.4, -2.7, -2.8.

**( $\pm$ ) (1*R*,8*aR*)-4-[1,1-Dimethylethyl(dimethyl)silyloxy]-5,5,8*a*-trimethyl-2-methyl-ene-1,2,3,5,6,7,8,8*a*-octahydro-1-naphthalenemethanol (9*n*) and ( $\pm$ ) (1*R*,8*aS*)-4-[1,1-Dimethylethyl(dimethyl)silyloxy]-5,5,8*a*-trimethyl-2-methylene-1,2,3,5,6,7,8,8*a*-octahydro-1-naphthalenemethanol (9*x*).** A solution of 1 *M* diisobutylaluminum hydride (DIBAL) in hexane (6.0 mL, 3.3 eq) was added dropwise to a solution of 2:1 mixture of **4x** and **4n** (710 mg, 1.8 mmol) in dry dichloromethane (14 mL) under Dry Ice/acetone cooling conditions. Reaction mixture was stirred for 1h and 50% sodium hydroxide solution (1.0 mL) was added dropwise. The mixture was allowed to warm to room temperature. After stirring for 30 min, the solution was filtered through Celite. The filtrate was evaporated in vacuo and the residue was chromatographed through silica gel (80 g, deactivated by triethylamine, pentane/ether = 50/4 then 7/1) to afford **9n** (207 mg, 32.7%) as colorless needles and **9x** (404 mg, 63.7%).

Endo product **9n**: <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>)  $\delta$  5.05 (1H, m), 4.89 (1H, m), 3.85 (2H, m), 3.03 (1H, m), 2.81 (1H, d, *J* = 18.1 Hz), 2.21 (1H, m), 1.60-1.78 (4H, m), 1.38-1.49 (2H, m), 1.24 (3H, s), 1.22 (3H, s), 0.97 (9H, s), 0.89 (3H, s), 0.22 (3H, s), 0.20 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>)  $\delta$  143.4, 142.1, 123.3, 112.3, 60.6, 58.1, 40.6, 37.3, 36.8, 33.6, 33.5, 31.0, 30.1, 29.6, 26.4, 18.6, 17.4, -2.3, -2.5.

Endo product **9x**: <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>)  $\delta$  4.99 (1H, m), 4.89 (1H, m), 3.77 (1H, m), 3.42 (1H, t, *J* = 10.2 Hz), 2.97 (1H, dt, *J* = 19.8, 2.5 Hz), 2.82 (1H, d, *J* = 19.8 Hz), 2.01 (1H, dd, *J* = 10.2, 4.9 Hz), 1.50-1.72 (4H, m), 1.22 (3H, s), 1.20 (3H, s), 1.15-1.35 (2H, m), 0.96 (9H, s), 0.21 (3H, s), 0.20 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>)  $\delta$  143.3, 142.8, 126.6, 106.9, 59.0, 55.3, 42.4, 38.4, 37.3, 33.9, 33.5, 30.1, 28.6, 26.5, 22.8, 18.7, 16.7, -2.1, -2.6.

**( $\pm$ ) (1*R*,8*aS*)-4-[1,1-Dimethylethyl(dimethyl)silyloxy]-5,5,8*a*-trimethyl-2-methylene-1,2,3,5,6,7,8,8*a*-octahydro-1-naphthalenecarbaldehyde (9*a*).** Dess-Martin periodinane (DMP, 1.27 g, 1.5 eq) was added to a solution of **9x** (700 mg, 2.0 mmol) in dry dichloromethane (28 mL) at room temperature, successively. The reaction mixture was stirred for 1 h under water bath cooling conditions to keep the temperature around 25 °C. Ether (28 mL), a 1M solution of sodium thiosulfate (14 mL), and saturated sodium bicarbonate solution (14 mL) were added successively to the reaction mixture. The layers

were separated and the organic layer was washed with saturated sodium bicarbonate solution (14 mL) and water (14 mL). The organic layer was dried over anhydrous sodium sulfate, filtered, and then evaporated in vacuo. The residue obtained here was chromatographed through silica gel (60 g, pentane/ether = 40/1) to afford **9a** (481 mg, 69.1%) as colorless needles. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>) δ 9.84 (1H, d, *J* = 5.0 Hz), 5.02 (1H, m), 4.64 (1H, m), 3.05 (1H, m), 2.92 (1H, dd, *J* = 19.7, 0.7 Hz), 2.74 (1H, m), 1.52-1.69 (4H, m), 1.42 (1H, m), 1.28 (3H, s), 1.25 (3H, s), 1.22 (3H, s), 1.20-1.30 (1H, m), 0.97 (9H, s), 0.22 (3H, s), 0.21 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>) δ 205.4, 142.8, 140.8, 126.0, 109.8, 64.4, 40.1, 39.5, 38.5, 36.0, 33.8, 29.9, 29.8, 26.4, 23.9, 19.0, 17.0, -2.35, -2.44.

**1,2,3,5,6,7,8,8a-octahydronaphthalen-1-yl)methanol, 9b.** A solution of 2 *M* *n*-butyllithium in pentane (0.10 mL, 2 eq) was added to a slurry of furylmethyltriphenylphosphonium chloride (**10**, 84 mg, 2.2 eq.) in dry THF (1 mL) under Dry Ice/acetone cooling conditions. The resulting slurry was stirred for 2 h under Dry Ice/acetone cooling conditions. A solution of **9a** (34 mg, 97 μmol) in dry THF (1 mL) was added dropwise to the reaction mixture. The resulting slurry was stirred for 2 h under Dry Ice/acetone cooling conditions and for additional 1 h under ice cooling conditions. Water (2 mL) and ether (4 mL) were added to reaction mixture, successively. The layers were separated and the aqueous layer was extracted with ether (4 mL x 2). The organic layers were combined and dried over anhydrous sodium sulfate, filtered, and then evaporated in vacuo. The crude product was chromatographed through silica gel (5 g, pentane/ether = 100/1 to 50/1) to afford **9b** (15 mg, 37.3%) as a colorless oil and to recover **9a** (4 mg, 11.8%) as a colorless oil. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>) δ 7.34-7.37 (2H, m), 6.56 (1H, dd, *J* = 1.2, 0.8 Hz), 6.23 (1H, d, *J* = 15.7 Hz), 5.95 (1H, dd, *J* = 15.7, 9.8 Hz), 4.86 (1H, d, *J* = 1.6 Hz), 4.70 (1H, dd, *J* = 4.0, 1.6 Hz), 3.09 (1H, m), 2.91 (1H, d, *J* = 9.6 Hz), 2.69 (1H, dd, *J* = 9.8, 1.0 Hz), 1.51-1.69 (4H, m), 1.27 (3H, s), 1.23 (3H, s), 1.17-1.32 (2H, m), 1.00 (3H, s), 0.98 (9H, s), 0.20 (3H, s), 0.19 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>) δ 146.1, 143.3, 142.4, 139.7, 128.4, 126.7, 124.5, 108.2, 107.6, 57.6, 40.5, 39.4, 38.7, 36.2, 34.0, 29.9, 29.7, 26.5, 26.5, 22.8, 18.7, 17.1, -2.3.

**(±) (4*S*,4*aR*,8*aS*)-4-((*E*)-2-(Furan-3-yl)ethenyl)-3,4*a*,8,8-tetramethyl-4*a*,5,6,7,8,8*a*-hexahydronaphthalen-1(4*H*)-one, (±)-Hedychenone (1).** The silyl ether **9b** (12 mg, 29 μmol) was dissolved in dry THF (0.2 mL) and a solution of 1 *M* tetra *n*-butylammonium fluoride in THF (58 mL, 2 eq) was added under ice cooling conditions. The solution was stirred for 45 min under ice cooling conditions. Saturated sodium bicarbonate (1 mL) and

ether (2 mL) were added to reaction mixture, successively. The layers were separated and aqueous layer was extracted with ether (2 mL x 3). The organic layers were combined and dried over anhydrous magnesium sulfate, filtered, and then evaporated in vacuo. The crude product was chromatographed through silica gel (1.5 g, pentane/dichloromethane = 50/50 then 0/100) to afford **1** (7 mg, 80.7%) as colorless needles. <sup>1</sup>H-NMR (400 MHz, CDCl<sub>3</sub>) δ 7.43 (1H, m), 7.38 (1H, m), 6.53 (1H, m), 6.36 (*J* = 15.6 Hz), 5.86 (1H, q, *J* = 1.4 Hz), 5.77 (1H, dd, *J* = 15.6, 10.1 Hz), 2.91 (1H, d, *J* = 10.1 Hz), 2.09 (1H, s), 1.79 (3H, t, *J* = 1.4 Hz), 1.35-1.70 (4H, m), 1.10-1.27 (2H, m), 1.19 (3H, s), 1.15 (3H, s), 0.97 (3H, s). <sup>13</sup>C-NMR (100 MHz, CDCl<sub>3</sub>) δ 199.9, 157.2, 143.6, 140.2, 128.1, 126.0, 124.6, 123.8, 107.4, 63.4, 61.3, 43.3, 42.7, 40.2, 33.6, 32.5, 23.0, 21.7, 18.1, 15.7.

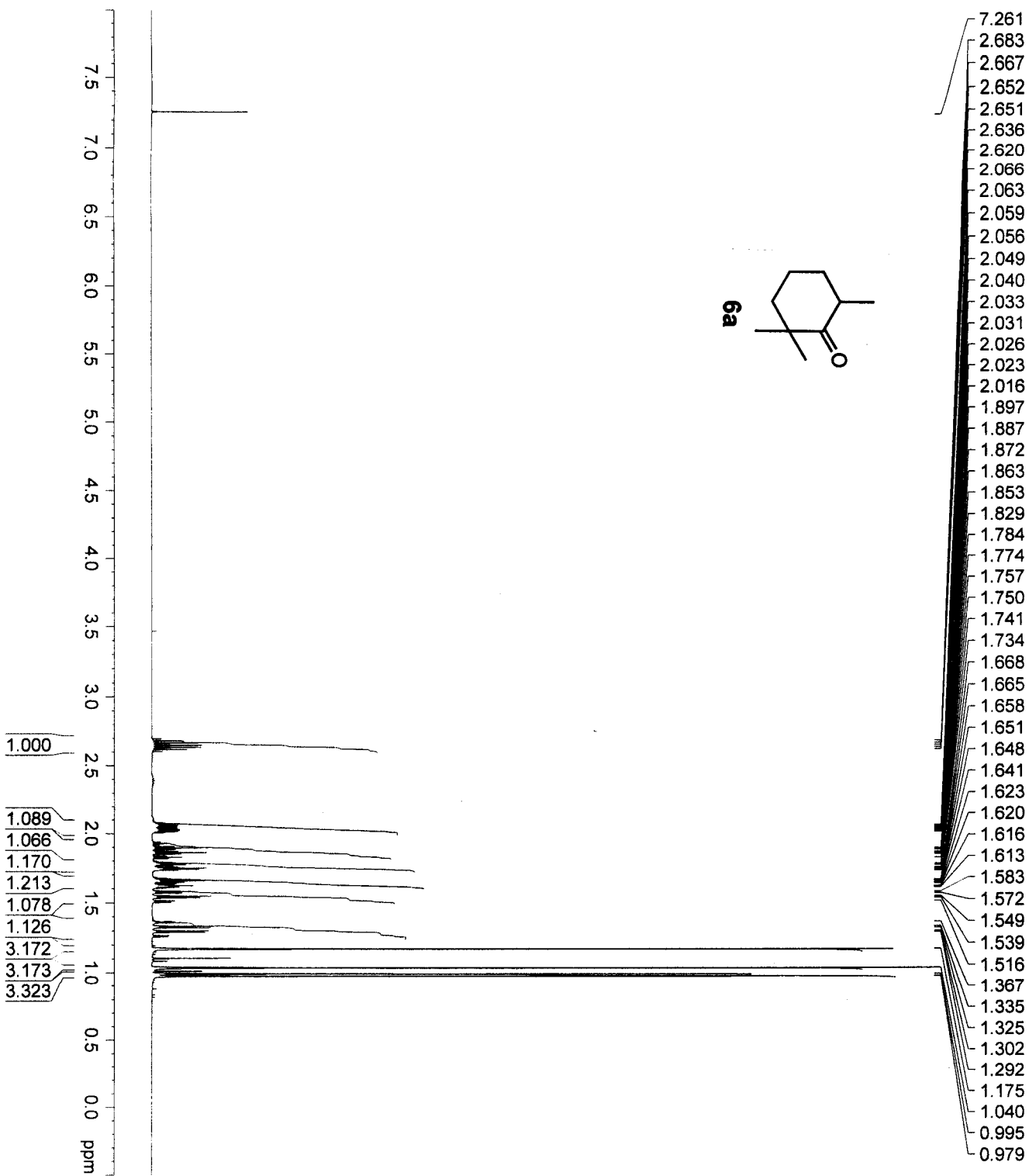
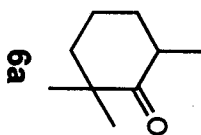


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PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060804  
Time 17.08

INSTRUM air400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30

TD 65536  
SOLVENT CDCl3  
NS 128

DS 0  
SWH 27777.777 Hz  
FIDRES 0.42385 Hz  
AQ 1.1796980 sec

RG 16384  
DW 18.000 usec  
DE 25.71 usec

TE 300.0 K  
D12 0.0000200 sec  
D15 23.50 dB

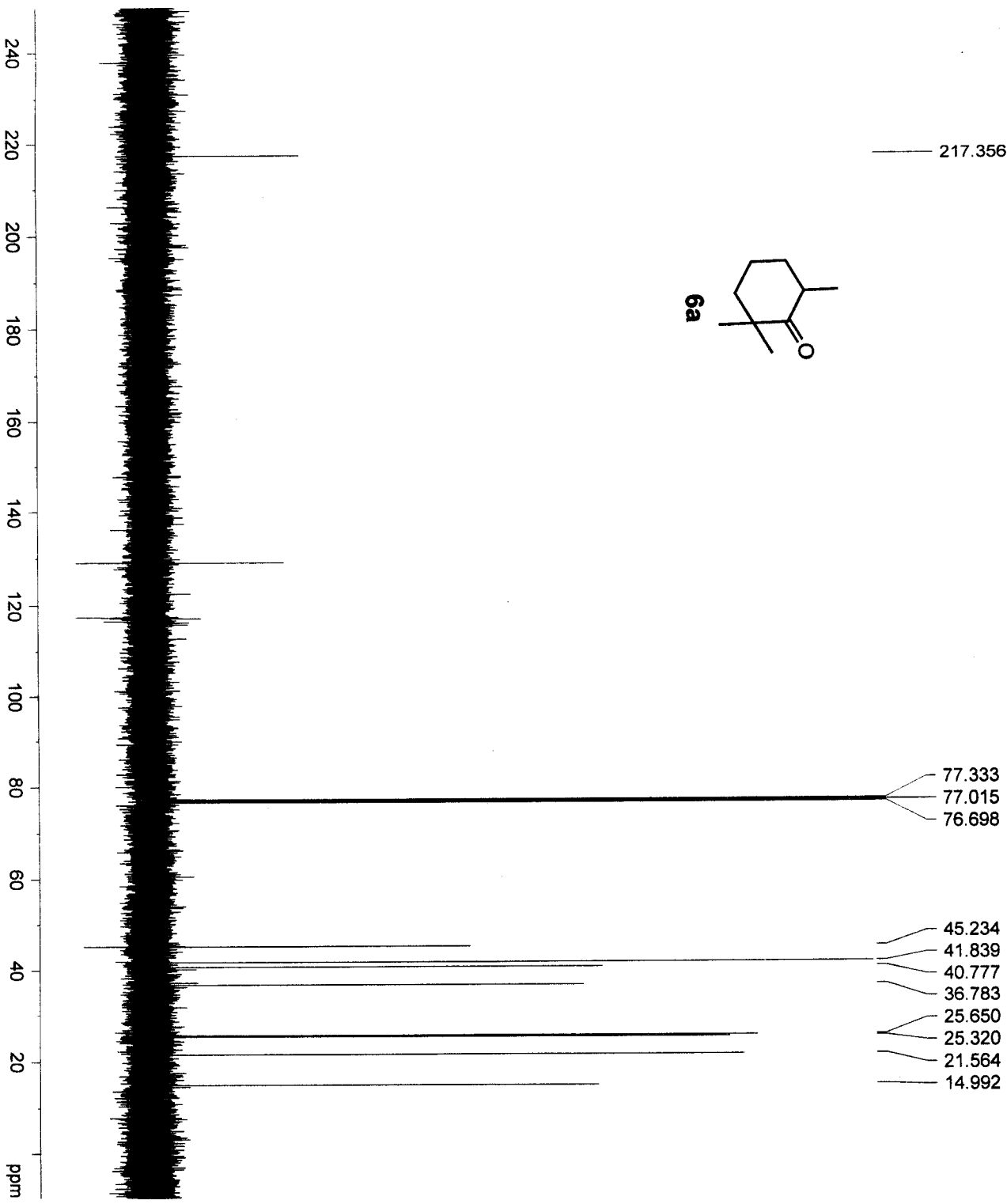
CPDPRG waltz16  
P31 100.00 usec  
D1 2.0000000 sec

P1 8.25 usec  
SFO1 100.6248445 MHz  
NUCLEUS 13C  
D11 0.0300000 sec

F2 - Processing parameters  
SI 65536  
SF 100.6127710 MHz

WDW no  
SSB 0  
LB 0.00 Hz

GB 0  
PC 1.40



EXPNO 51  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060804

Time 18.31  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30

TD 65536  
SOLVENT CDCl3

NS 8  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz

AQ 4.0632820 sec  
RG 180  
DW 62.000 usec  
DE 88.57 usec

TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec

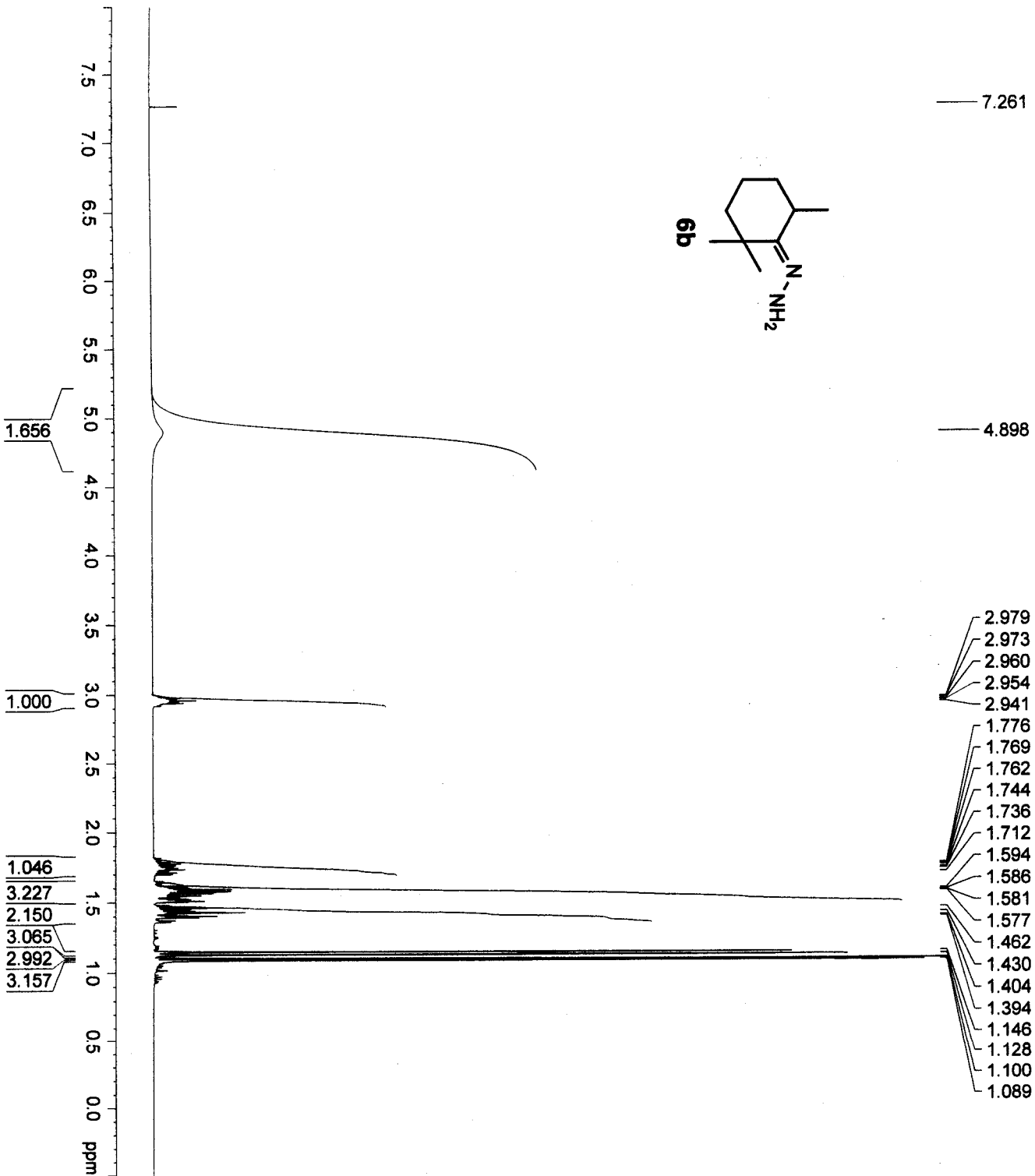
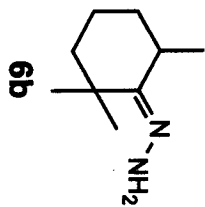
SFO1 400.1324008 MHz  
NUCLEUS 1H

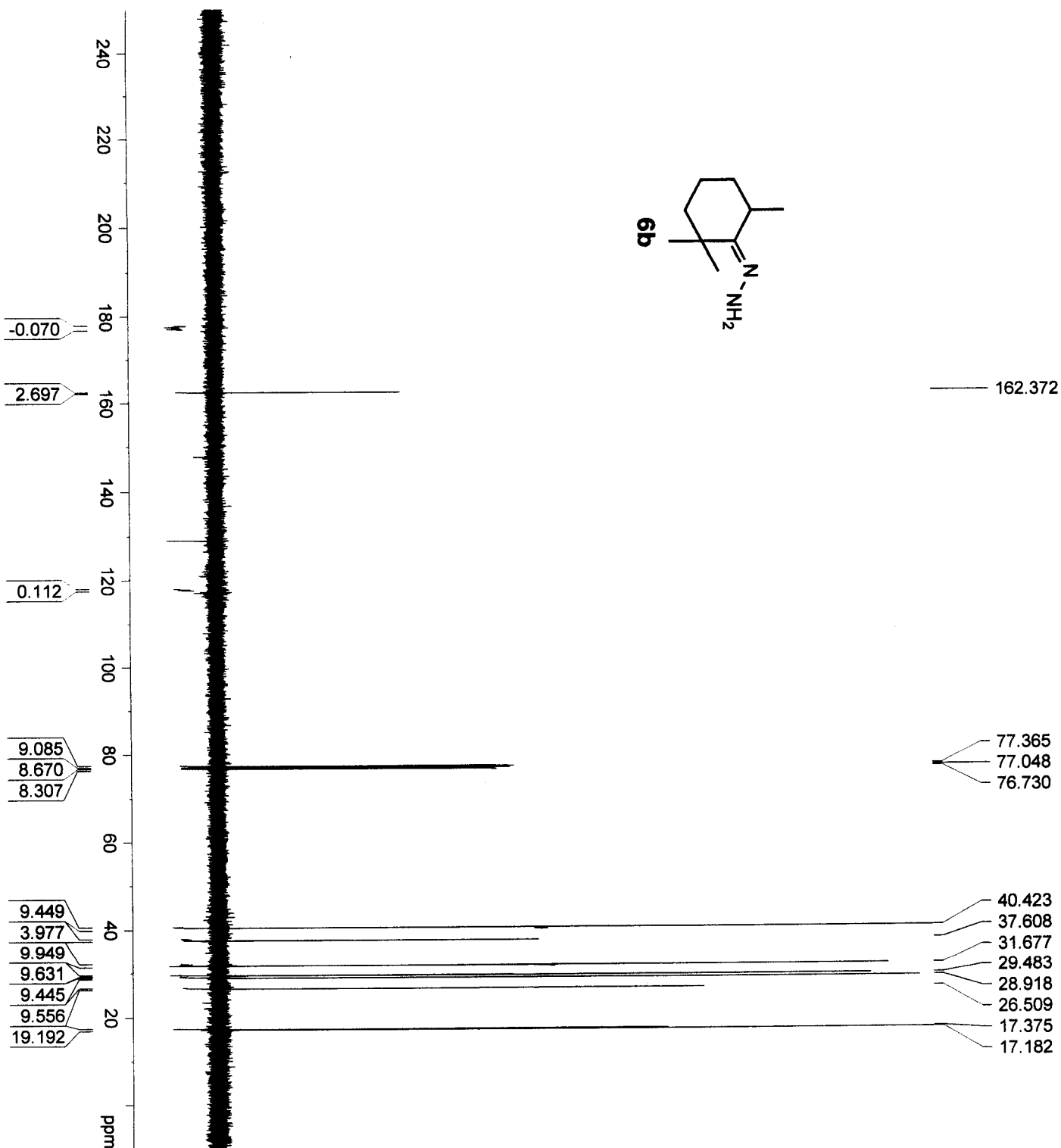
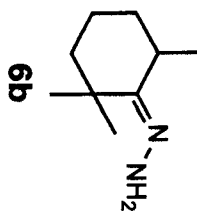
F2 - Processing parameters  
SI 65536  
SF 400.1300173 M

WDW no  
SSB 0  
LB 0.00 Hz

GB 0  
PC 1.00

S11





Current Data Parameters  
 NAME Aug04-2006  
 EXPNO 52  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060804  
 Time 18.38  
 INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 128  
 DS 0  
 SWH 27777.777 Hz  
 FIDRES 0.423855 Hz  
 AQC 1.1796980 sec  
 RG 16384  
 DW 18.000 usec  
 DE 25.71 usec  
 TE 300.0 K  
 D12 0.0000200 sec  
 DL5 23.50 dB  
 CPDPRG waltz16  
 P31 100.00 usec  
 D1 2.0000000 sec  
 P1 8.25 usec  
 SFO1 100.6248445 MHz  
 NUCLEUS 13C  
 D11 0.0300000 sec

F2 - Processing parameters  
 SI 65536  
 SF 100.6127710 MHz  
 WDW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.40

# Current Data Parameters

NAME EXPNO 1  
 PROCNO 1  
 Date\_ 20060804  
 Time 19.58

F2 - Acquisition Parameters  
 INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zg30

TD 65536  
 SOLVENT CDCl3  
 NS 8  
 DS 0

SWH 8064.516 Hz  
 FIDRES 0.123055 Hz  
 AQ 4.0632820 sec

RG 180  
 DW 62.000 usec  
 DE 88.57 usec

TE 300.0 K  
 D1 2.00000000 sec  
 P1 7.50 usec

SFO1 400.1324008 MHz  
 NUCLEUS 1H

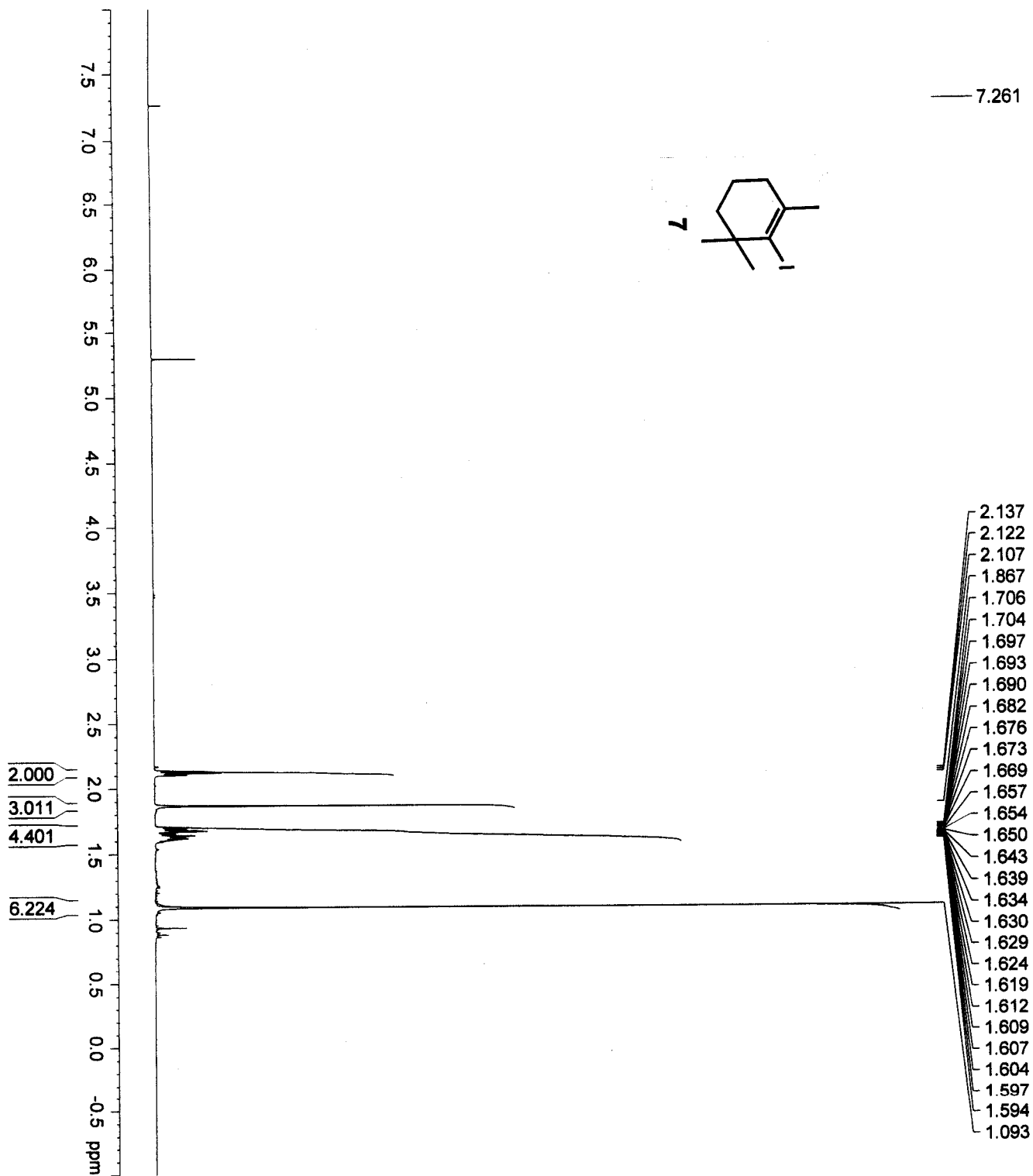
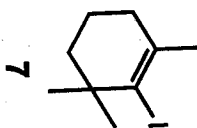
F2 - Processing parameters  
 SI 65536  
 SF 400.1300173 MHz

WDW no  
 SSB 0  
 LB 0.00 Hz

GB 0  
 PC 1.00

S13

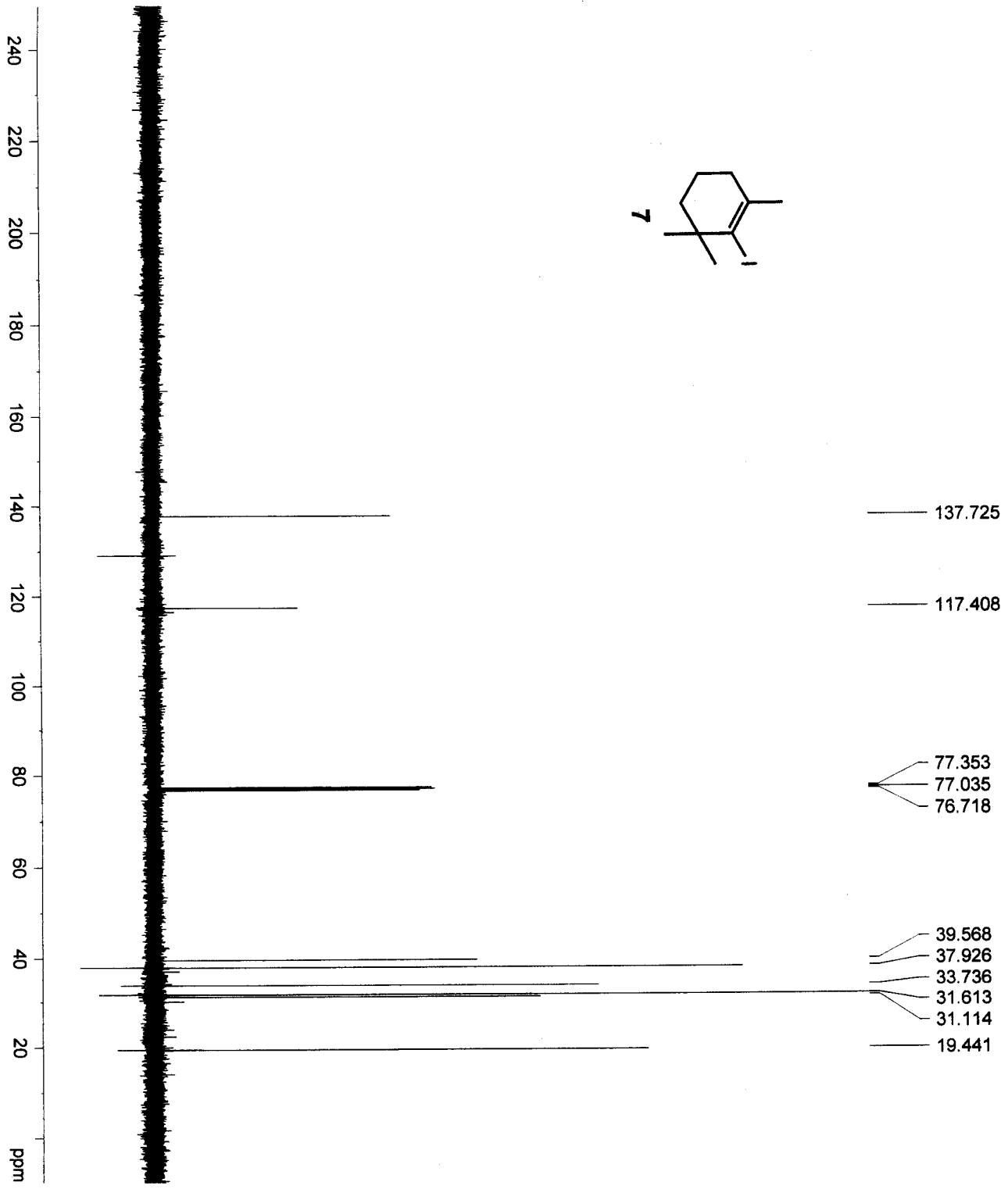
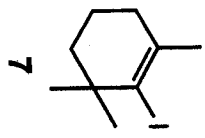
7.261



Current Data Parameters  
 NAME Aug04-2006  
 EXPNO 62  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060804  
 Time 20.06  
 INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 128  
 DS 0  
 SWH 2777.777 Hz  
 FIDRES 0.423855 Hz  
 AQ 1.1796980 sec  
 RG 16384  
 DW 18.000 usec  
 DE 25.71 usec  
 TE 300.0 K  
 D12 0.0000200 sec  
 DL5 23.50 dB  
 CPDPRG waltz16  
 P31 100.00 usec  
 D1 2.00000000 sec  
 P1 8.25 usec  
 SFO1 100.6248445 MHz  
 NUCLEUS 13C  
 D11 0.03000000 sec

F2 - Processing parameters  
 SI 65536  
 SF 100.6127710 MHz  
 WDW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.40

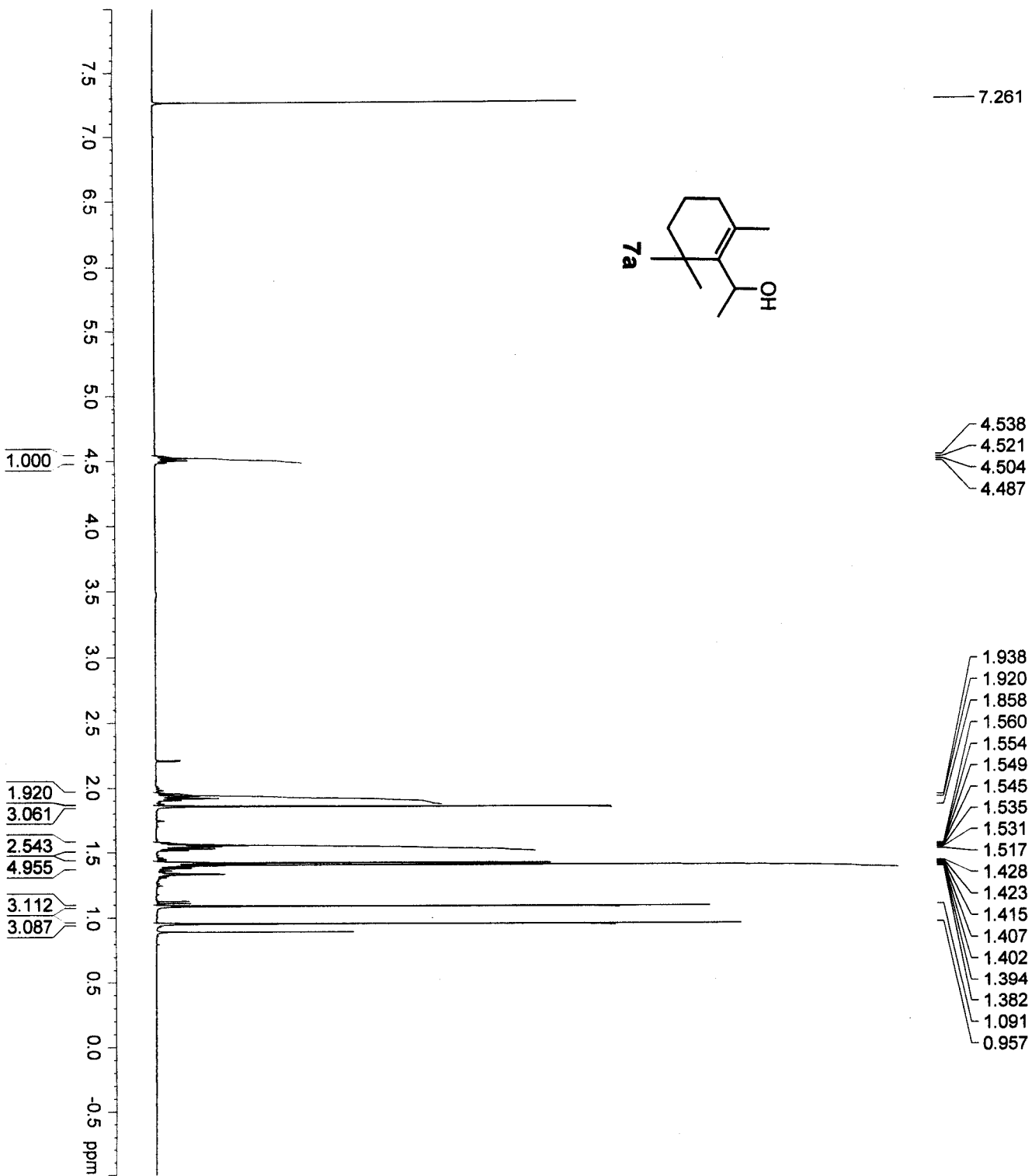


Current Data Parameters  
 NAME May09-2006  
 EXPNO 30  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060509  
 Time 19.41  
 INSTRUM air400  
 PROBHD 5 mm QNP 1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 0  
 SWH 8064.516 Hz  
 FIDRES 0.123055 Hz  
 AQ 4.0632820 sec  
 RG 2048  
 DW 62.000 usec  
 DE 88.57 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 P1 7.50 usec  
 SFO1 400.1324008 MHz  
 NUCLEUS 1H

F2 - Processing parameters  
 SI 65536  
 SF 400.1300173 MI  
 WDW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.00

S15



Current Data Parameters  
 NAME Aug04-2006  
 EXPNO 32  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060804  
 Time 16.53

INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zgpg30

TD 65536  
 SOLVENT CDCl3

NS 128  
 DS 0

SWH 2777.777 Hz  
 FIDRES 0.42385 Hz

AQ 1.1796980 sec  
 RG 32768

DW 18.000 usec  
 DE 25.71 usec

TE 300.0 K  
 D12 0.0000200 sec

DL5 23.50 dB  
 CPDPRG waltz16

P31 100.00 usec  
 D1 2.00000000 sec

P1 8.25 usec  
 SFO1 100.6248445 MHz

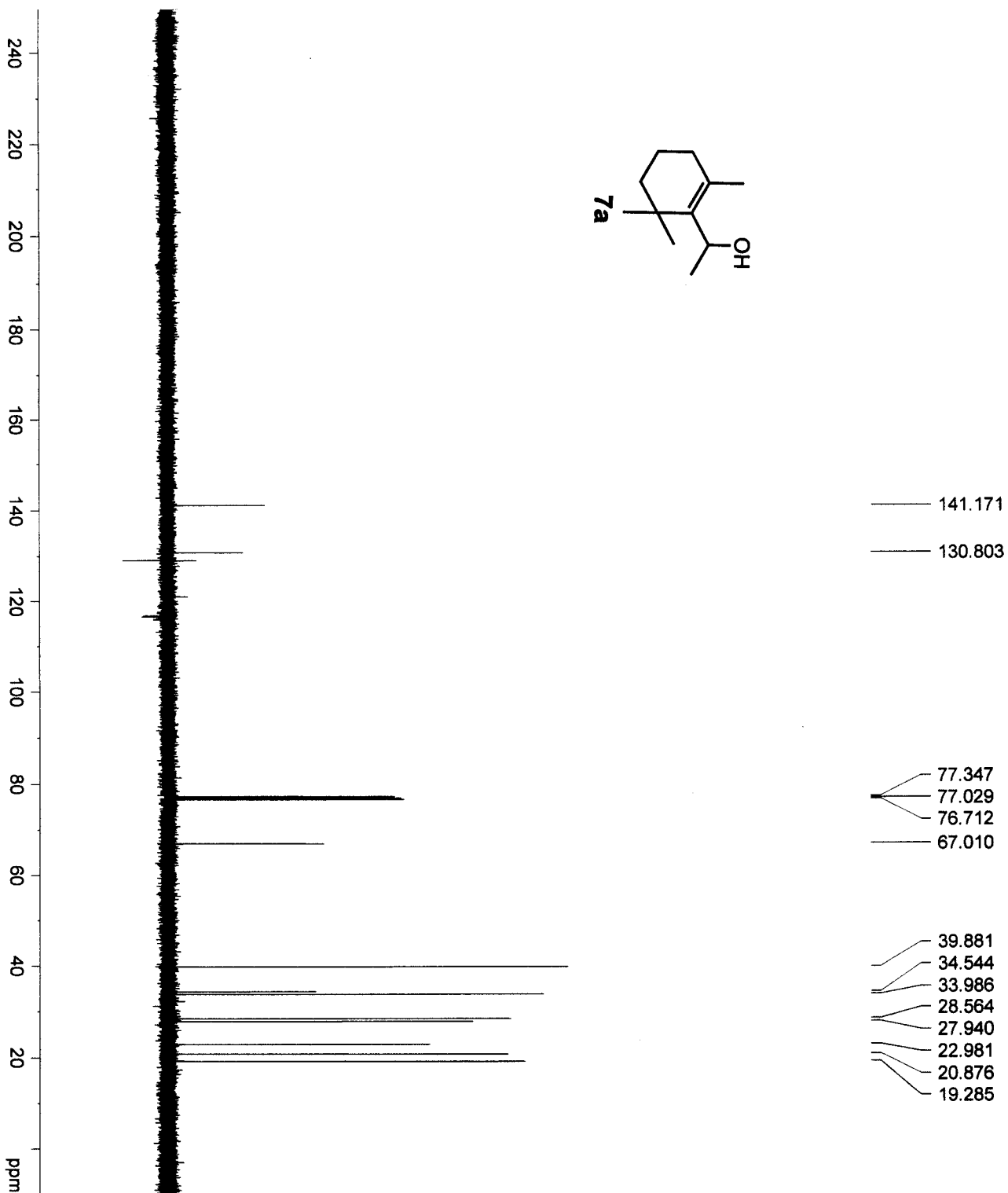
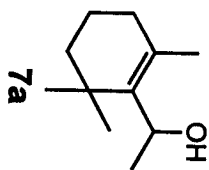
NUCLEUS 13C  
 D11 0.0300000 sec

F2 - Processing parameters  
 SI 65536

SF 100.6127710 MHz  
 WDW no

SSB 0  
 LB 0.00 Hz

GB 0  
 PC 1.40



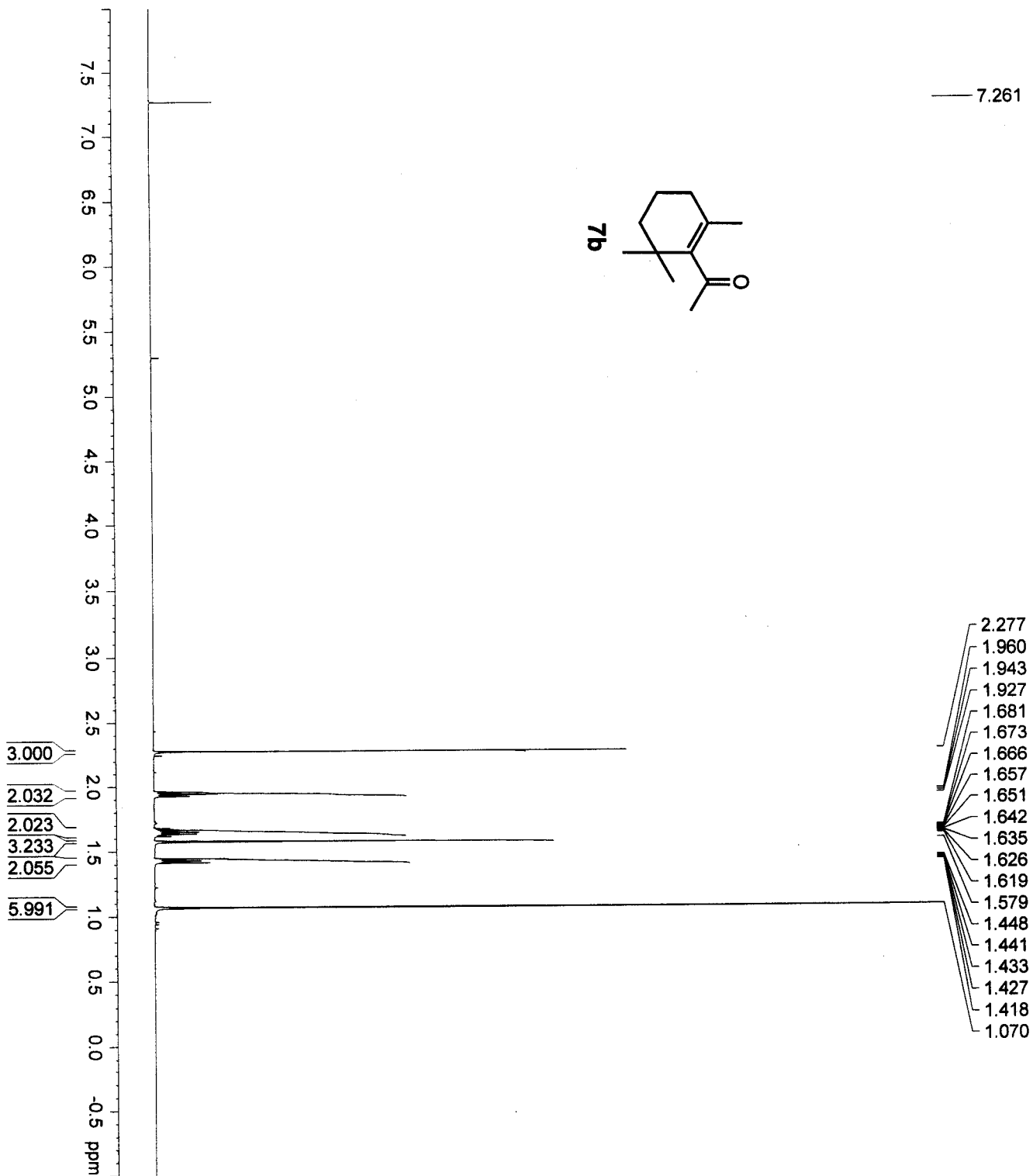


Current Data Parameters  
 NAME Aug04-2006  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060804  
 Time 11.30  
 INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 0  
 SWH 8064.516 Hz  
 FIDRES 0.123055 Hz  
 AQ 4.0632820 sec  
 RG 1024  
 DW 62.000 usec  
 DE 88.57 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 P1 7.50 usec  
 SFO1 400.1324008 MHz  
 NUCLEUS 1H

F2 - Processing parameters  
 SI 65536  
 SF 400.1300173 MHz  
 WDW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.00

S17



Current Data Parameters

NAME Aug04-2006

EXPNO 11

PROCNO 1

F2 - Acquisition Parameters

Date\_ 20060804

Time 11.37

INSTRUM arx400

PROBHD 5 mm QNP 1H

PULPROG zgpg30

TD 65536

SOLVENT CDCl3

NS 128

DS 0

SWH 2777.777 Hz

FIDRES 0.42385 Hz

AQ 1.1796980 sec

RG 32768

DW 18.000 usec

DE 25.71 usec

TE 300.0 K

D12 0.0000200 sec

DL5 23.50 dB

CPDPRG waltz16

P31 100.00 usec

D1 2.00000000 sec

P1 8.25 usec

SFO1 100.6248445 MHz

NUCLEUS 13C

D11 0.03000000 sec

F2 - Processing parameters

SI 65536

SF 100.6127710 MHz

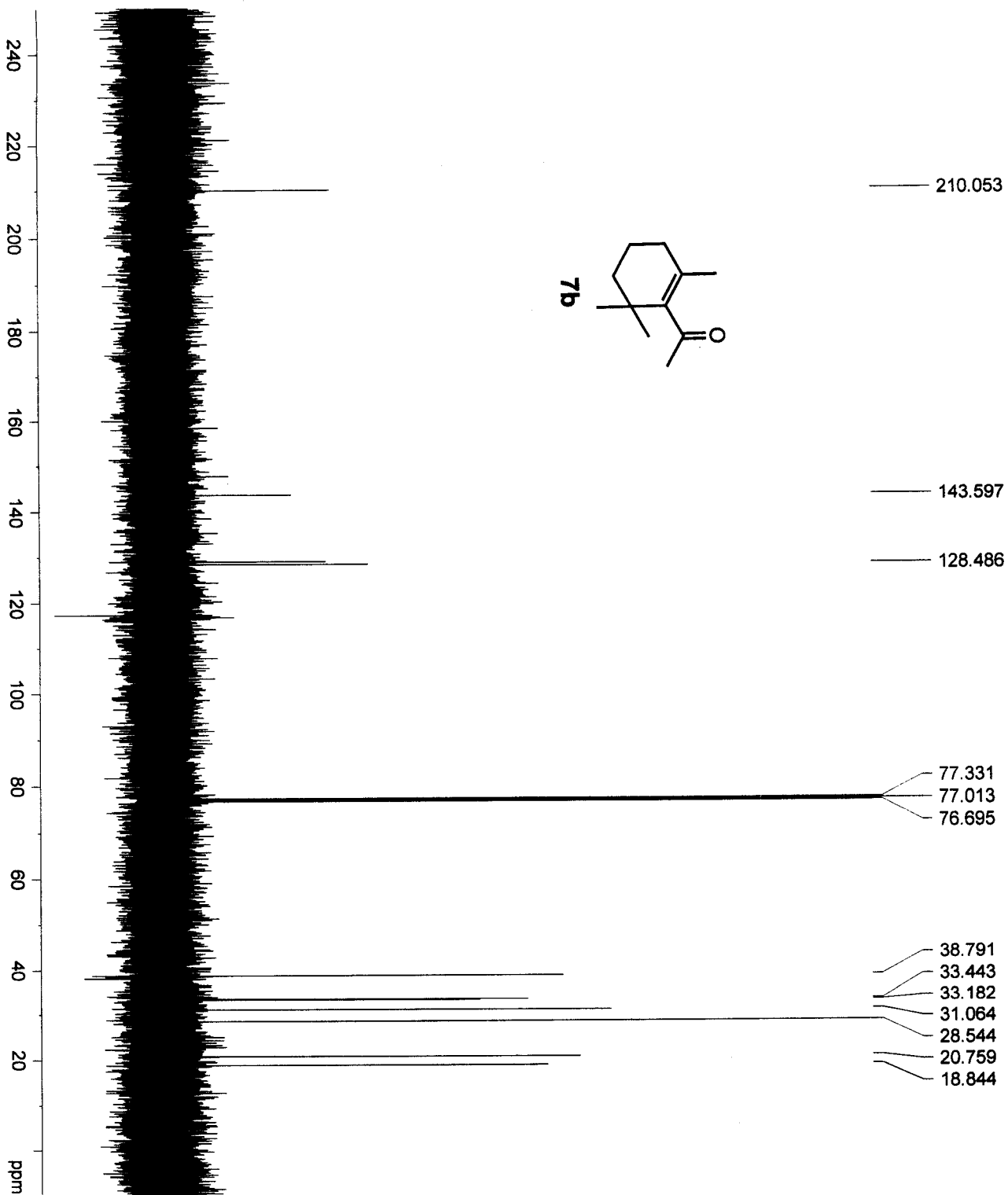
WDW no

SSB 0

LB 0.00 Hz

GB 0

PC 1.40

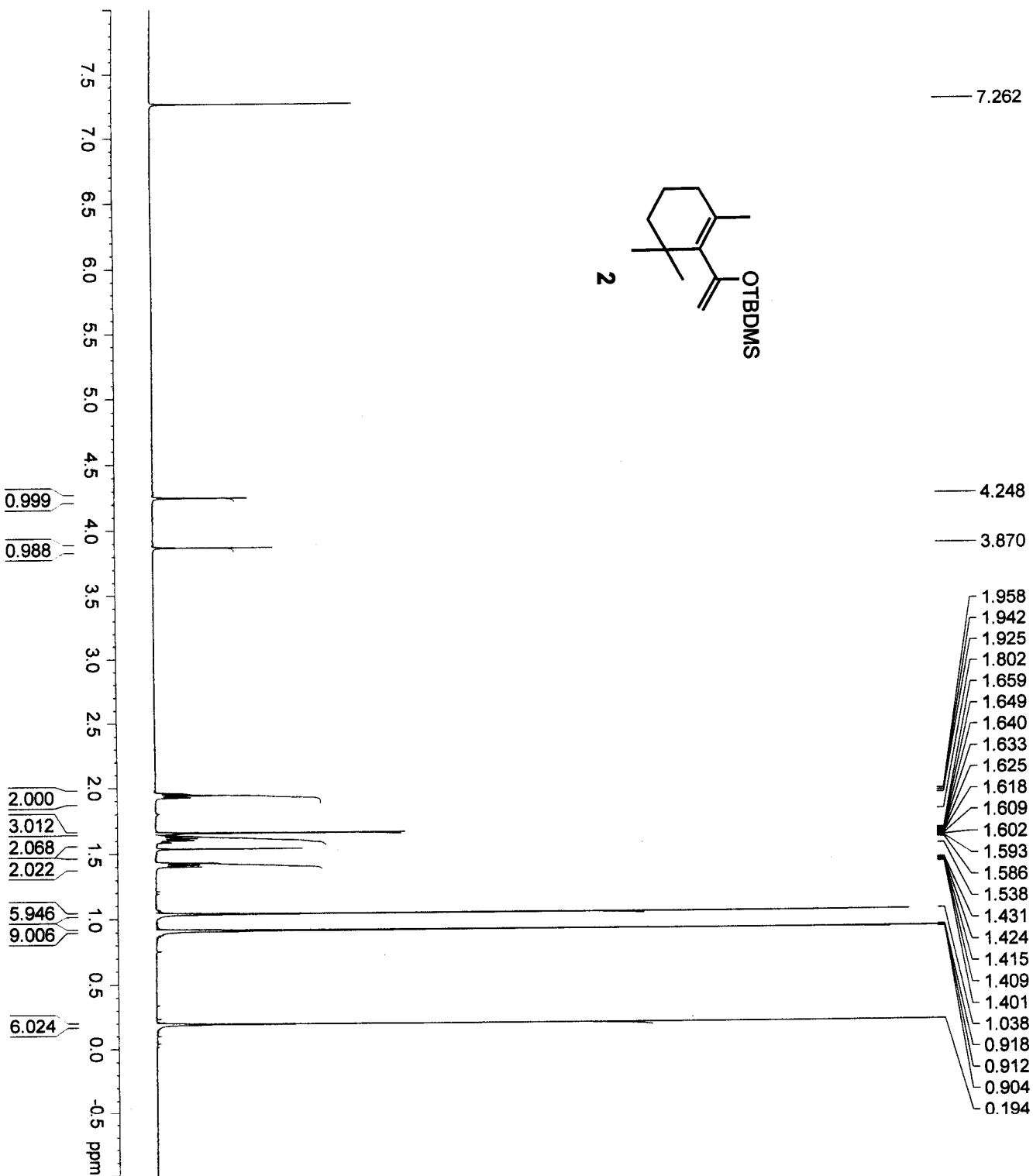
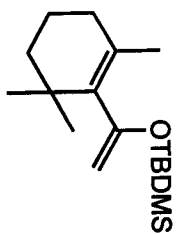


Current Data Parameters  
NAME Jul11-2006  
EXPNO 41  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060711  
Time 19:54  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz  
AQ 4.0632820 sec  
RG 2048  
DW 62.000 usec  
DE 88.57 usec  
TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec  
SFO1 400.1324008 MHz  
NUCLEUS 1H

F2 - Processing parameters  
SI 65536  
SF 400.1300173 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.00

19



Current Data Parameters  
NAME Jul20-2006  
EXPNO 30  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060720  
Time 19.45

INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30

TD 65536  
SOLVENT CDCl3

NS 128

DS 0

SWH 2777.777 Hz

FIDRES 0.423855 Hz

AQ 1.1796980 sec

RG 32768

DW 18.000 usec

DE 25.71 usec

TE 300.0 K

D12 0.0000200 sec

DL5 23.50 dB

CPDPRG waltz16

P31 100.00 usec

D1 2.00000000 sec

P1 8.25 usec

SFO1 100.6248445 MHz

NUCLEUS 13C

D11 0.03000000 sec

F2 - Processing parameters

SI 65536

SF 100.6127710 MHz

WDW no

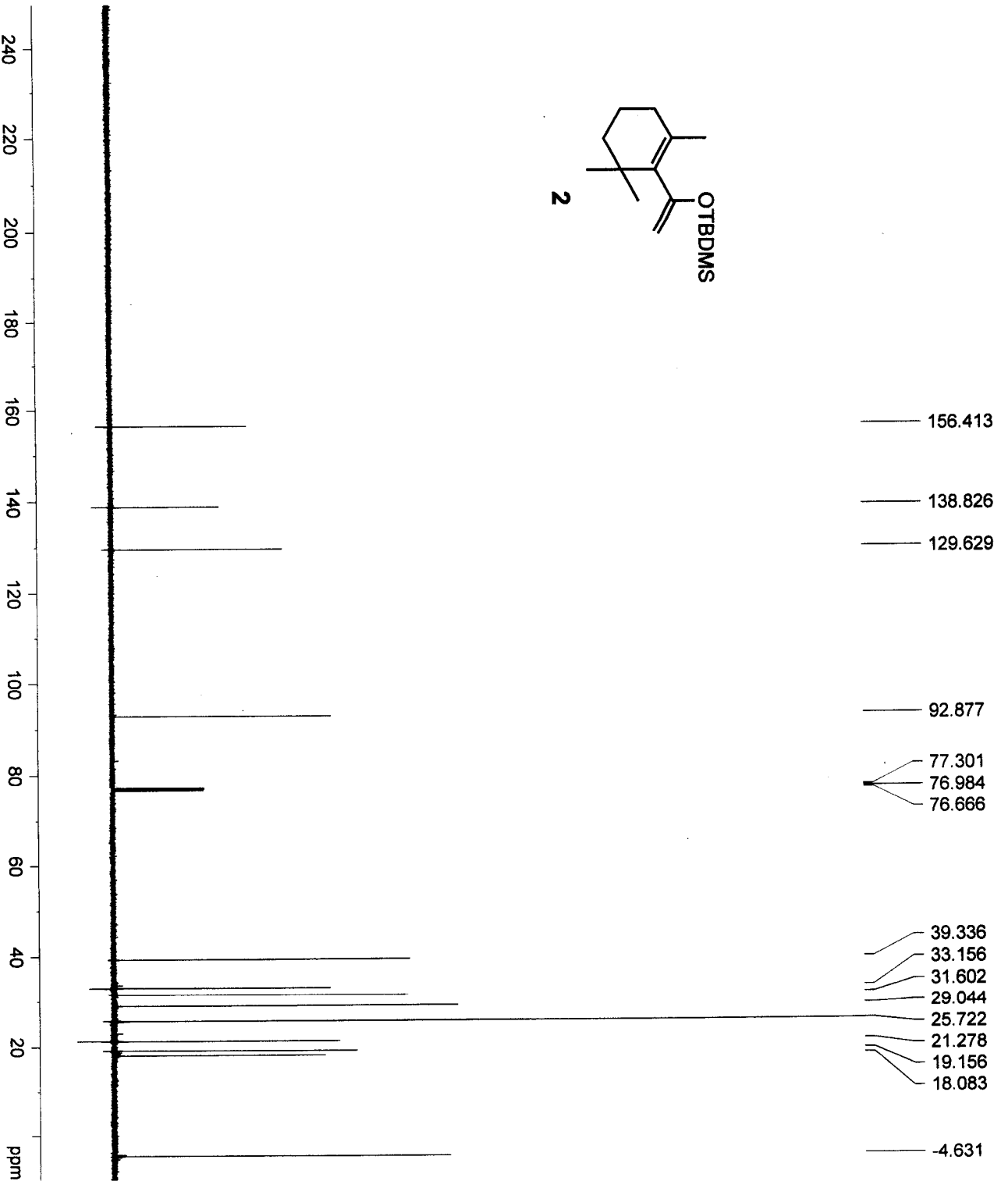
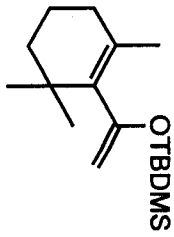
SSB 0

LB 0.00 Hz

GB 0

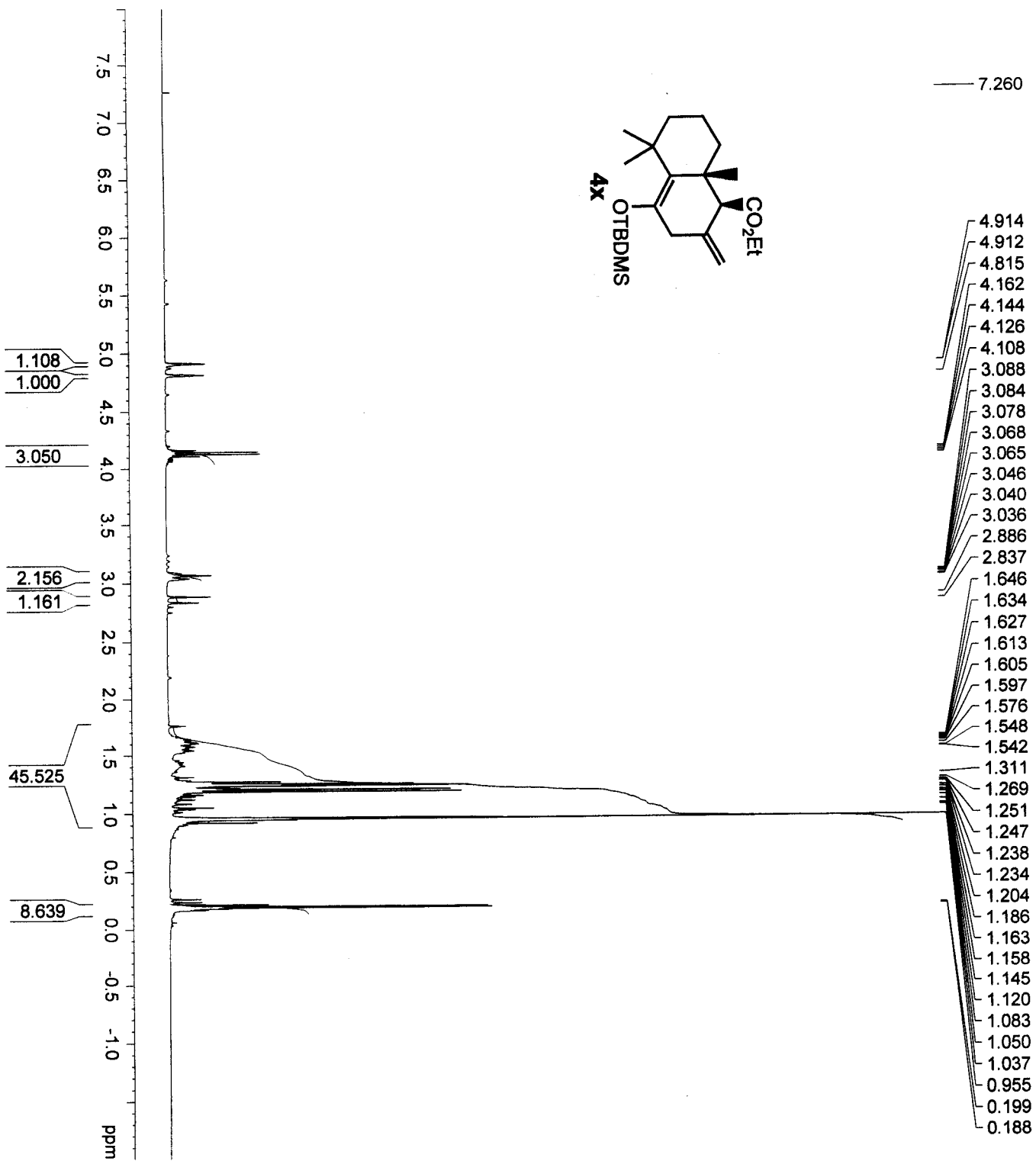
PC 1.40

S20



```
Current Data Parameters
NAME          Jul28-2006
EXPNO         10
PROCNO        1
```

F2 - Acquisition Parameters	
Date_	20060728
Time	8.11
INSTRUM	arx400
PROBHD	5 mm QNP 1H
PULPROG	zg30
TD	65536
SOLVENT	CDC13
NS	8
DS	0
SWH	8064.516 Hz
FIDRES	0.123055 Hz
AQ	4.0632820 sec
RG	64
DW	62.000 usec
DE	88.57 usec
TE	300.0 K
D1	2.00000000 sec
P1	7.50 usec
SFO1	400.1324008 MHz
NUCLEUS	1H
F2 - Processing parameters	
SI	65536
SF	400.1300173 MI
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



Current Data Parameters  
NAME Jul28-2006  
EXPNO 11  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060728  
Time\_ 8.19

INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zgdc30

TD 65536  
SOLVENT CDCI3

NS 128  
DS 0

SWH 2777.777 Hz  
FIDRES 0.423855 Hz

AQ 1.1796980 sec  
RG 32768

DW 18.000 usec  
DE 25.71 usec

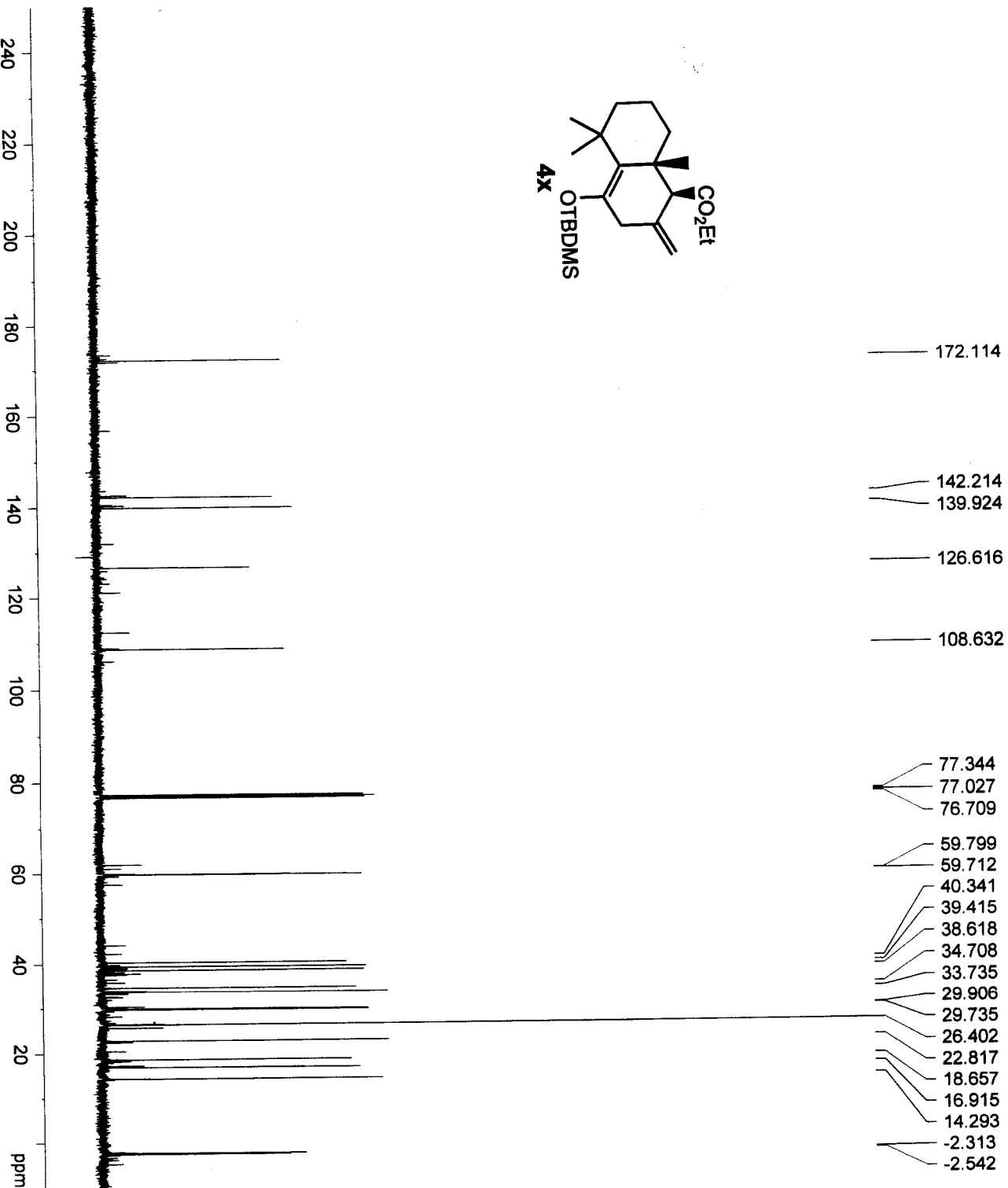
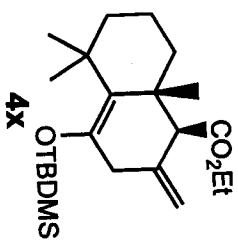
TE 300.0 K  
D12 0.000200 sec

DL5 23.50 dB  
CPDPRG waltz16

P31 100.00 usec  
P1 2.0000000 sec

SFO1 8.25 usec  
NUCLEUS 100.6248445 MHz  
D11 0.0300000 sec

F2 - Processing parameters  
SI 65536  
SF 100.6127710 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

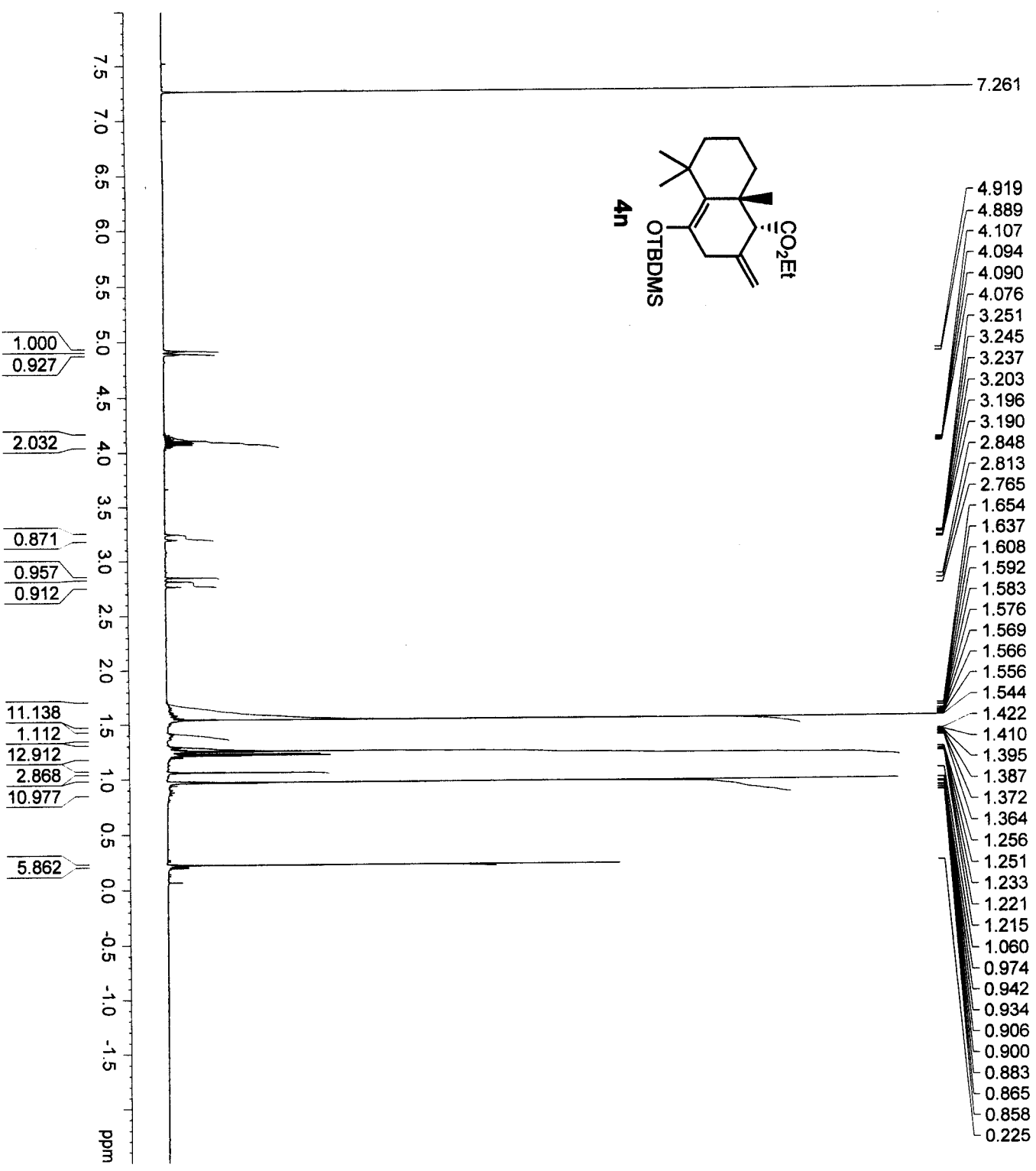


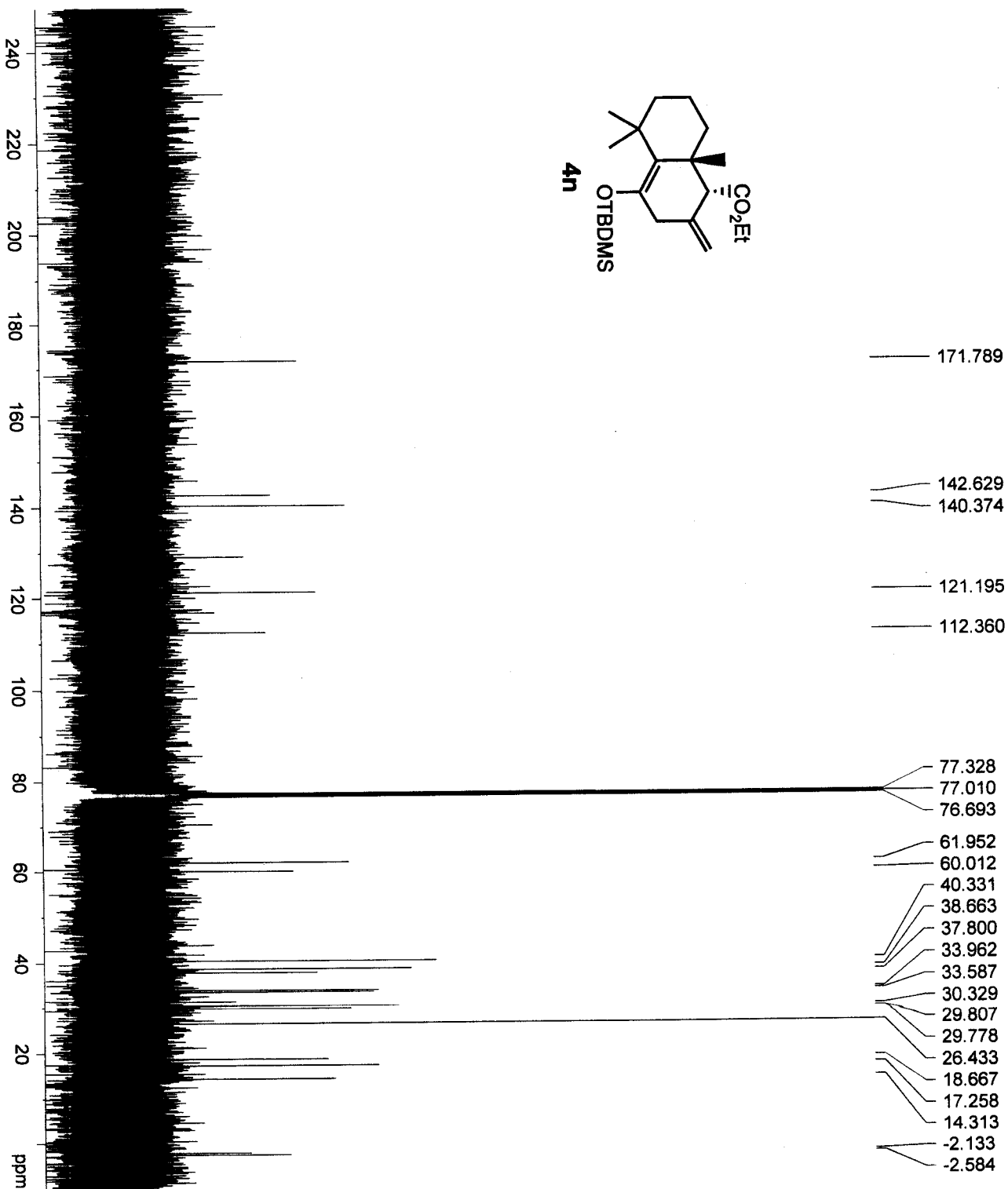
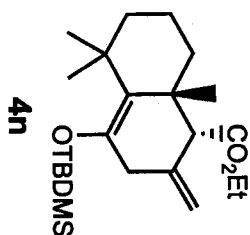
Current Data Parameters  
NAME May27-2006  
EXPNO 20  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060527  
Time 14.53  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 64  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz  
AQ 4.0632820 sec  
RG 5700  
DW 62.000 usec  
DE 88.57 usec  
TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec  
SFO1 400.1324008 MHz  
NUCLEUS 1H

F2 - Processing parameters  
SI 65536  
SF 400.1300173 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.00

S23





Current Data Parameters  
 NAME Aug04-2006  
 EXPNO 71  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060804  
 Time\_ 21.22  
 INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 8192  
 DS 0  
 SWH 2777.777 Hz  
 FIDRES 0.42385 Hz  
 AQ 1.1796980 sec  
 RG 22800  
 DW 18.000 usec  
 DE 25.71 usec  
 TE 300.0 K  
 D12 0.0000200 sec  
 DL5 23.50 dB  
 CPDPRG waltz16  
 P31 100.00 usec  
 D1 2.0000000 sec  
 P1 8.25 usec  
 SFO1 100.6248445 M  
 NUCLEUS 13C  
 D11 0.0300000 sec

F2 - Processing parameters  
 SI 65536  
 SF 100.6127710 MHz  
 WDW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.40

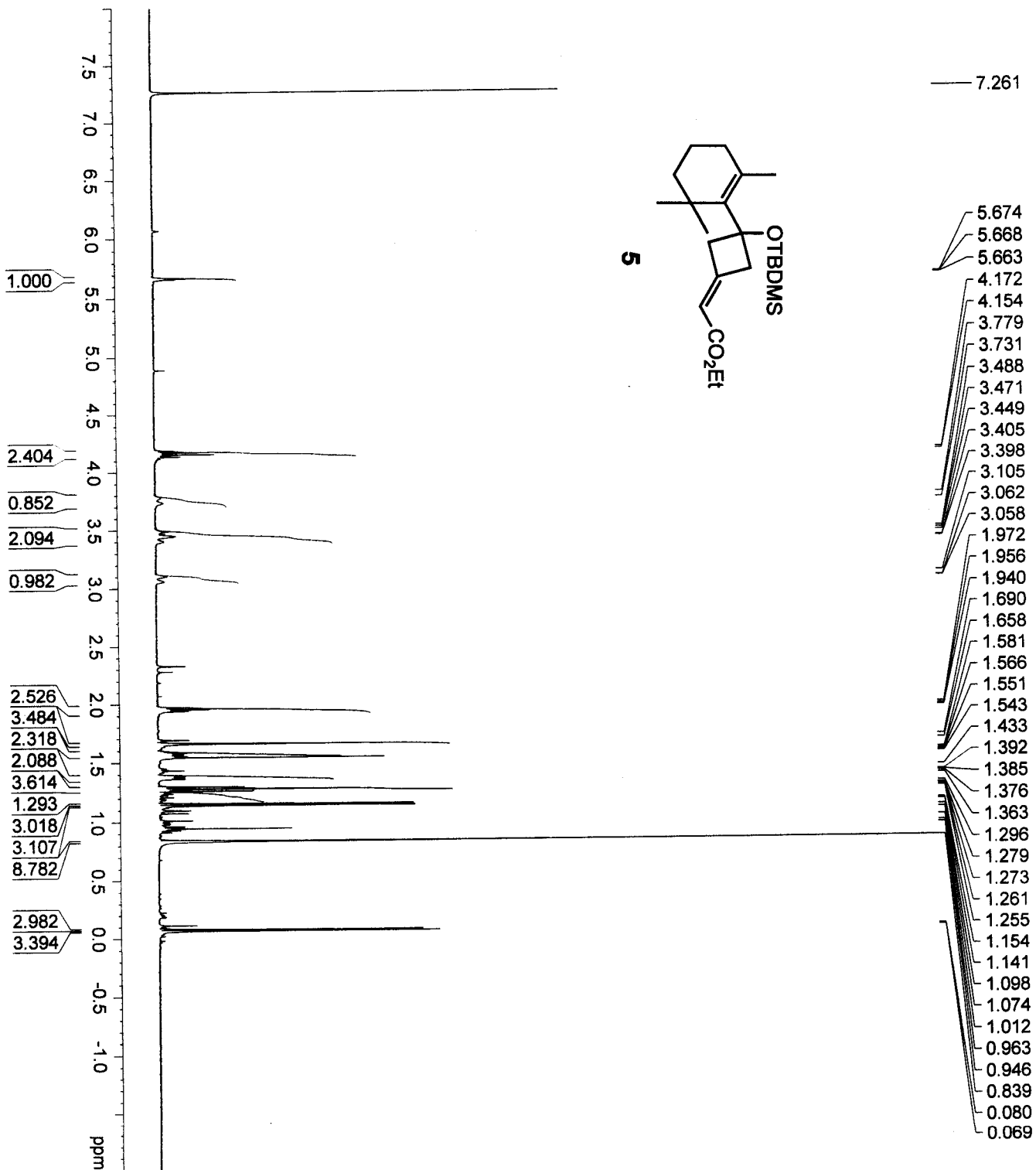
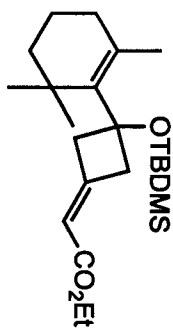


Current Data Parameters  
NAME Jun16-2006  
EXPNO 21  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060616  
Time 9:05  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz  
AQ 4.0632820 sec  
RG 2048  
DW 62.000 usec  
DE 88.57 usec  
TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec  
SFO1 400.1324008 MHz  
NUCLEUS 1H

F2 - Processing parameters  
SI 65536  
SF 400.1300173 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.00

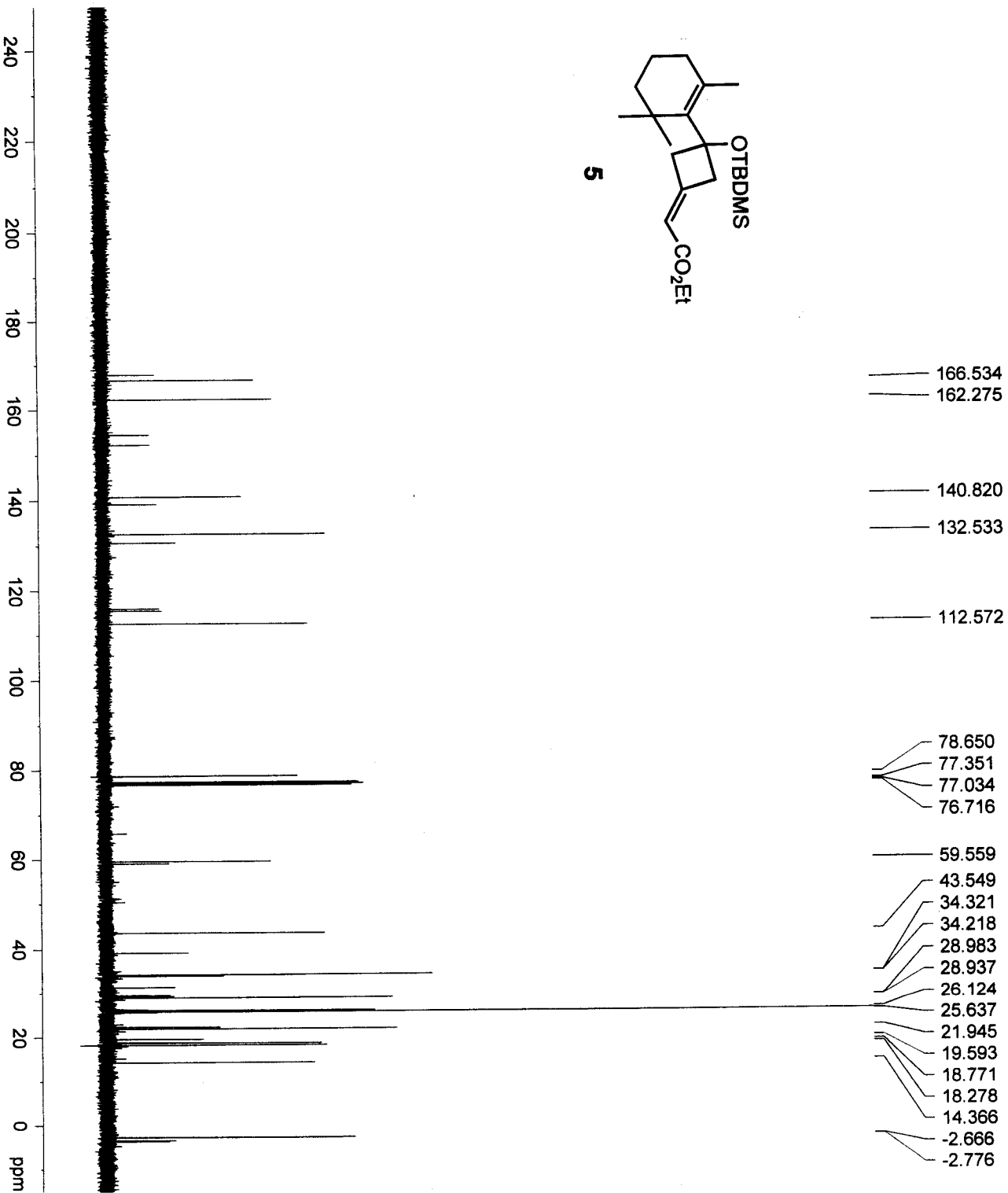
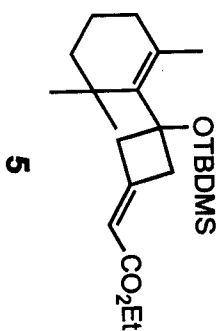
S25



Current Data Parameters  
NAME Jul20-2006  
EXPNO 20  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060720  
Time 19.32  
INSTRUM ark400  
PROBHD 5 mm QNP 1H  
PULPROG zgpgc30  
TD 65536  
SOLVENT CDCl3  
NS 128  
DS 0  
SWH 2777.777 Hz  
FIDRES 0.423855 Hz  
AQ 1.176980 sec  
RG 32768  
DW 18.000 usec  
DE 25.71 usec  
TE 300.0 K  
D12 0.000200 sec  
DL5 23.50 dB  
CPDPRG waltz16  
P31 100.00 usec  
D1 2.00000000 sec  
P1 8.25 usec  
SFO1 100.6248445 MHz  
NUCLEUS 13C  
D11 0.03000000 sec

F2 - Processing parameters  
SI 65536  
SF 100.6127710 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.40

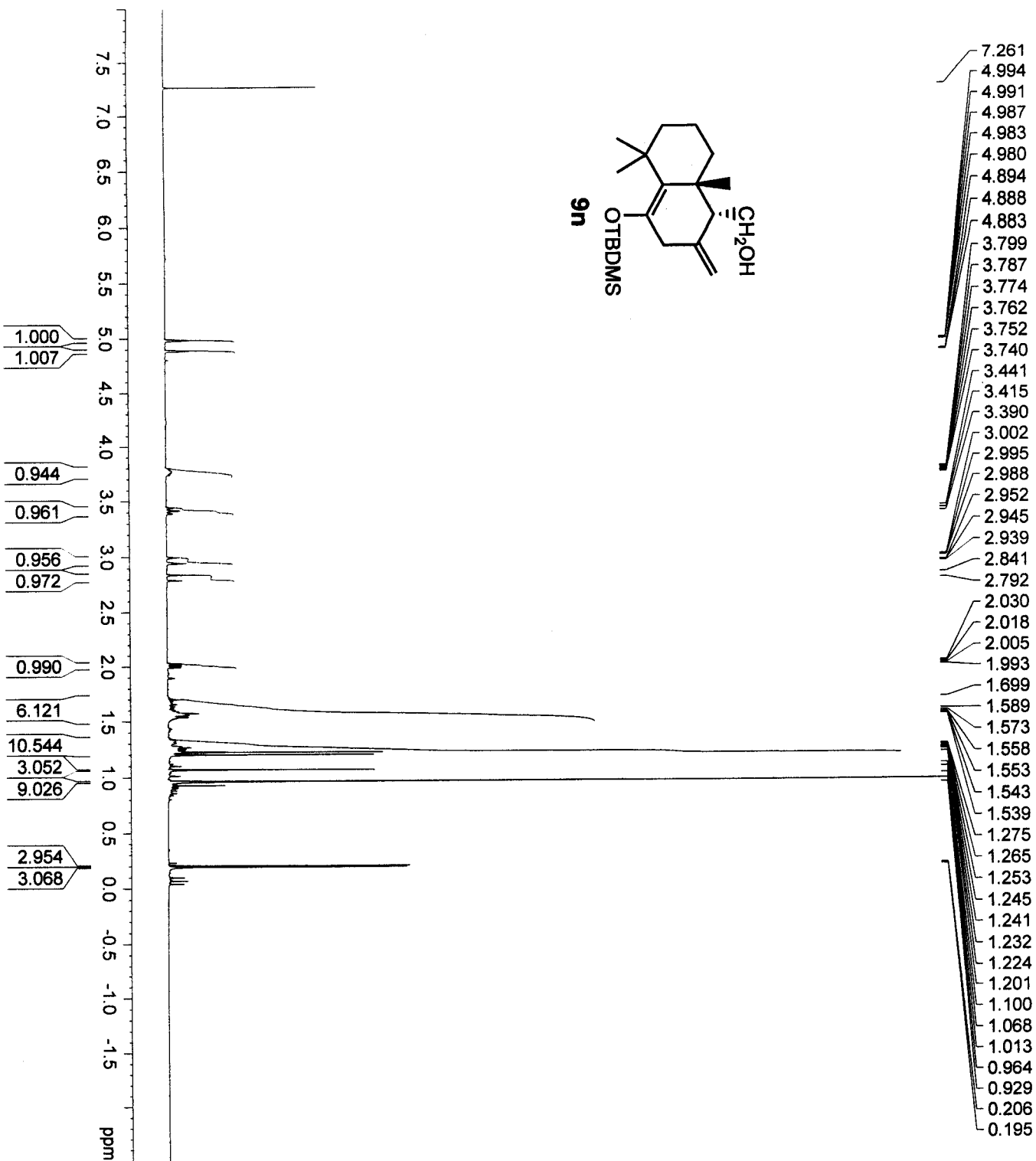
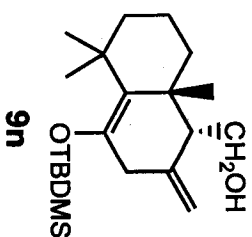


Current Data Parameters  
NAME May/31-2006  
EXPNO 30  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060531  
Time 9.02  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz  
AQ 4.0632820 sec  
RG 1024  
DW 62.000 usec  
DE 88.57 usec  
TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec  
SFO1 400.1324008 MHz  
NUCLEUS 1H

F2 - Processing parameters  
SI 65536  
SF 400.1300173 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.00

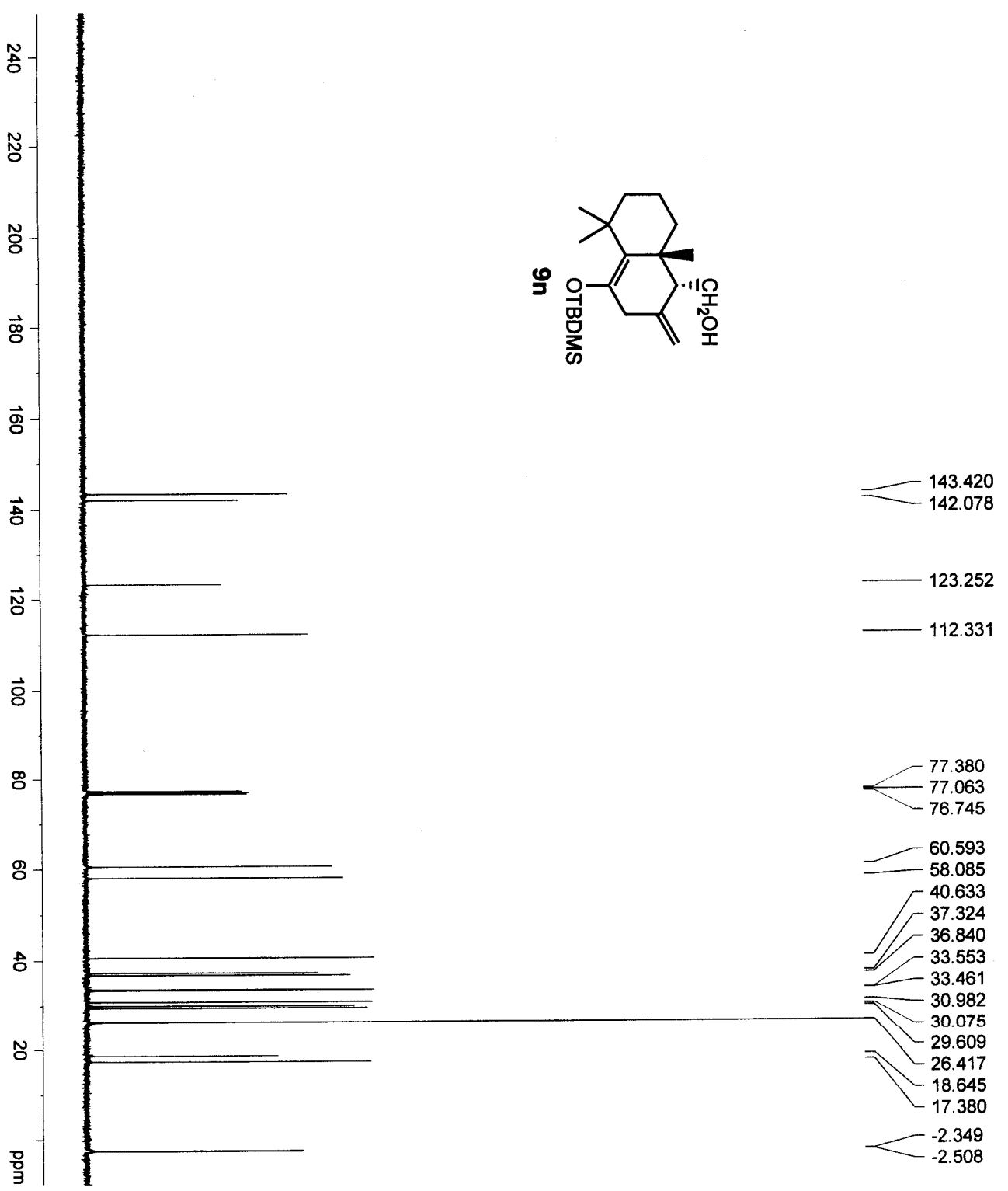
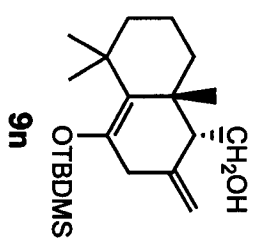
S27



Current Data Parameters  
NAME Jul21-2006  
EXPNO 30  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060721  
Time 11.49  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 128  
DS 0  
SWH 2777.777 Hz  
FIDRES 0.42385 Hz  
AQ 1.1796980 sec  
RG 32768  
DW 18.000 usec  
DE 25.71 usec  
TE 300.0 K  
D12 0.000200 sec  
DL5 23.50 dB  
CPDPRG waltz16  
P31 100.00 usec  
D1 2.0000000 sec  
P1 8.25 usec  
SFO1 100.6248445 MHz  
NUCLEUS 13C  
D11 0.0300000 sec

F2 - Processing parameters  
SI 65536  
SF 100.6127710 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

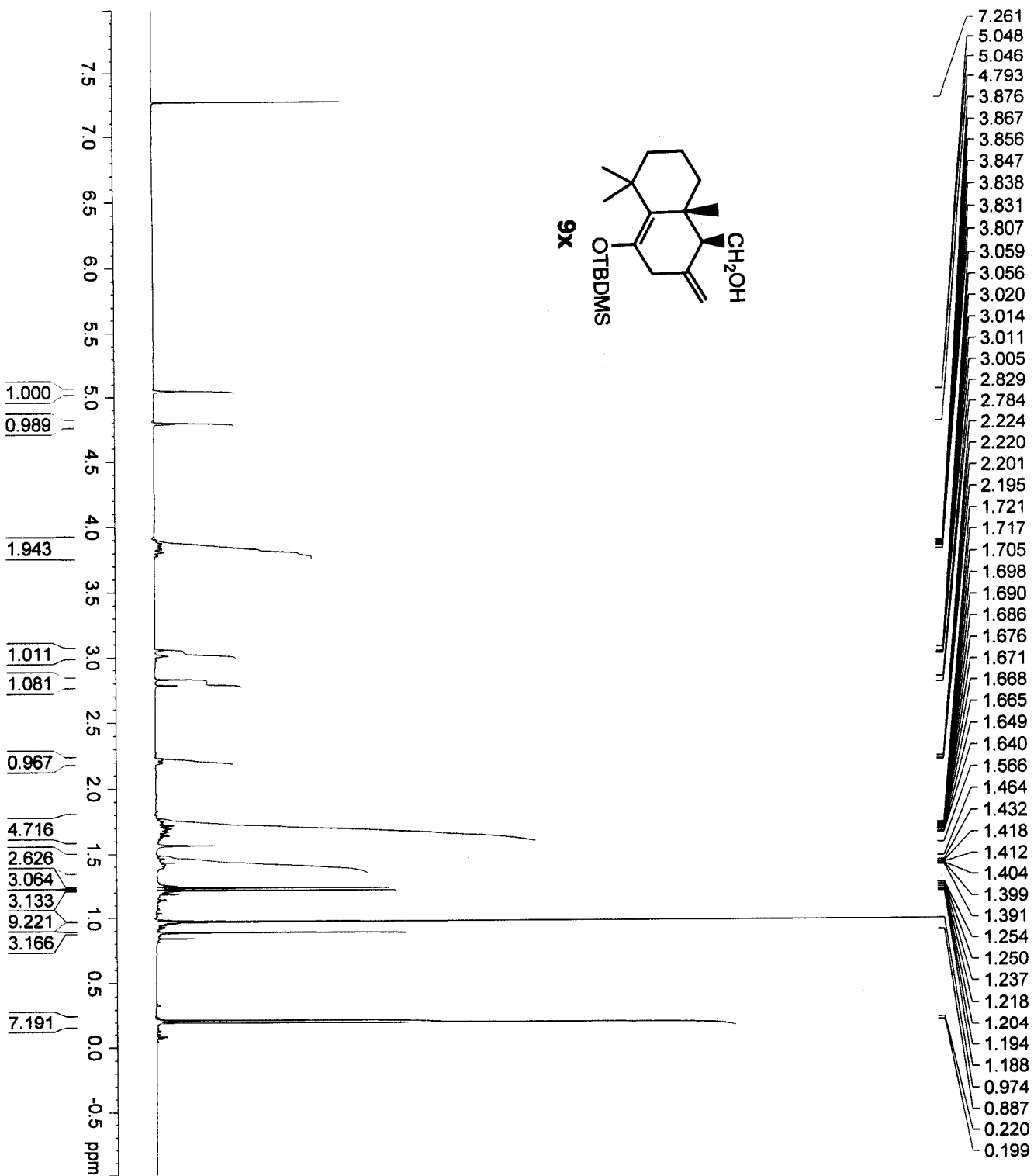
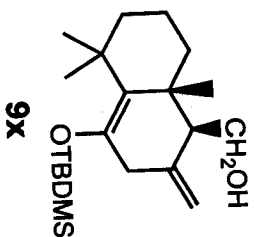


Current Data Parameters  
 NAME May30-2006  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060530  
 Time 20.13  
 INSTRUM arx400  
 PROBHD 5 mm QNP 1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 0  
 SWH 8064.516 Hz  
 FIDRES 0.123055 Hz  
 AQ 4.0632820 sec  
 RG 1024  
 DW 62.000 usec  
 DE 88.57 usec  
 TE 300.0 K  
 D1 2.00000000 sec  
 P1 7.50 usec  
 SFO1 400.1324008 MHz  
 NUCLEUS 1H

F2 - Processing parameters  
 SI 65536  
 SF 400.1300173 MHz  
 WDW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.00

S29



# Current Data Parameters

NAME  
EXPNO  
PROCNO

20  
1

F2 - Acquisition Parameters  
Date\_ 20060721  
Time 10.24

INSTRUM air400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30

TD 65536  
SOLVENT CDCl3

NS 128  
DS 0

SWH 2777.777 Hz  
FIDRES 0.423855 Hz

AQ 1.1796980 sec  
RG 32768

DW 18.000 usec  
DE 25.71 usec

TE 300.0 K  
D12 0.000200 sec

DL5 23.50 dB  
CPDPRG waltz16

P31 100.00 usec  
D1 2.00000000 sec

P1 8.25 usec  
SFO1 100.6248445 MHz

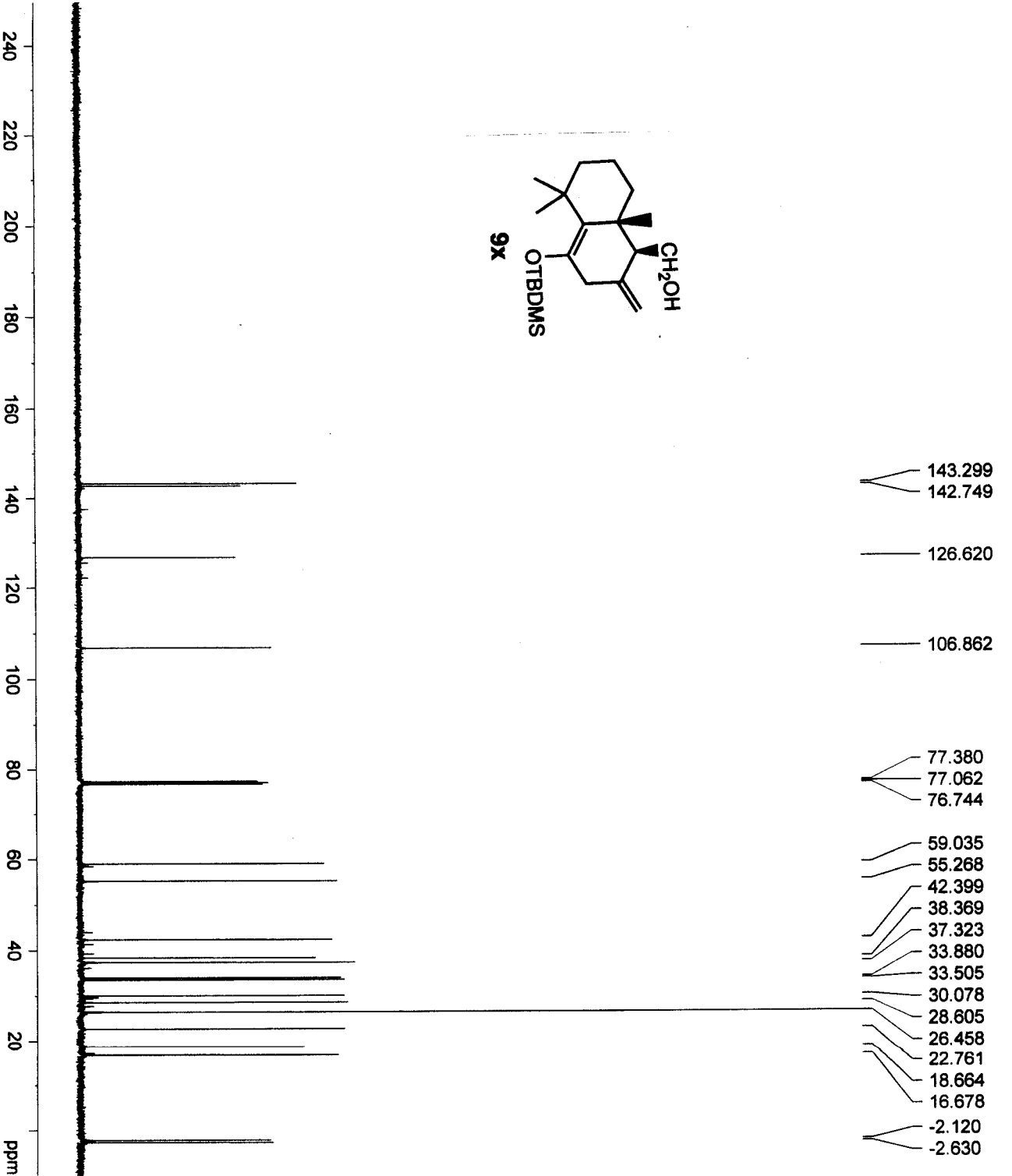
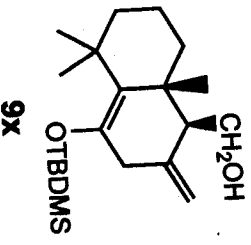
NUCLEUS 13C  
D11 0.0300000 sec

F2 - Processing parameters  
SI 65536

SF 100.6127710 MHz  
WDW EM

SSB 0  
LB 1.00 Hz

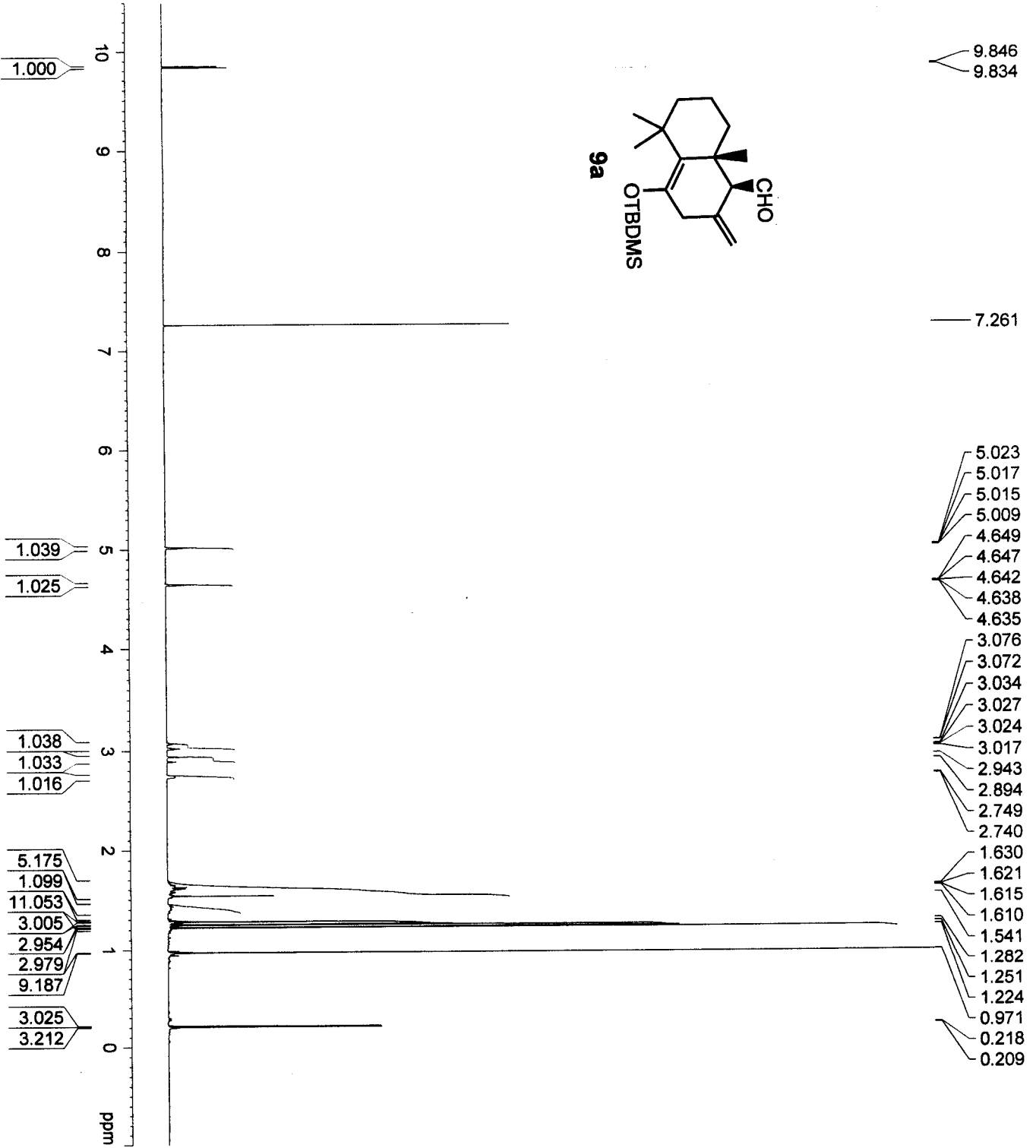
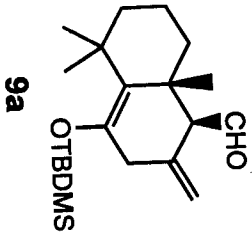
GB 0  
PC 1.40



Current Data Parameters  
NAME Jun22-2006  
EXPNO 10  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060622  
Time 9.26  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz  
AQ 4.0632820 sec  
RG 2048  
DW 62.000 usec  
DE 88.57 usec  
TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec  
SFO1 400.1324008 MHz  
NUCLEUS 1H  
F2 - Processing parameters  
SI 65536  
SF 400.1300173 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.00

S31



Current Data Parameters  
NAME Jul21-2006  
EXPNO 40  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060721  
Time 12.06

INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 128  
DS 0

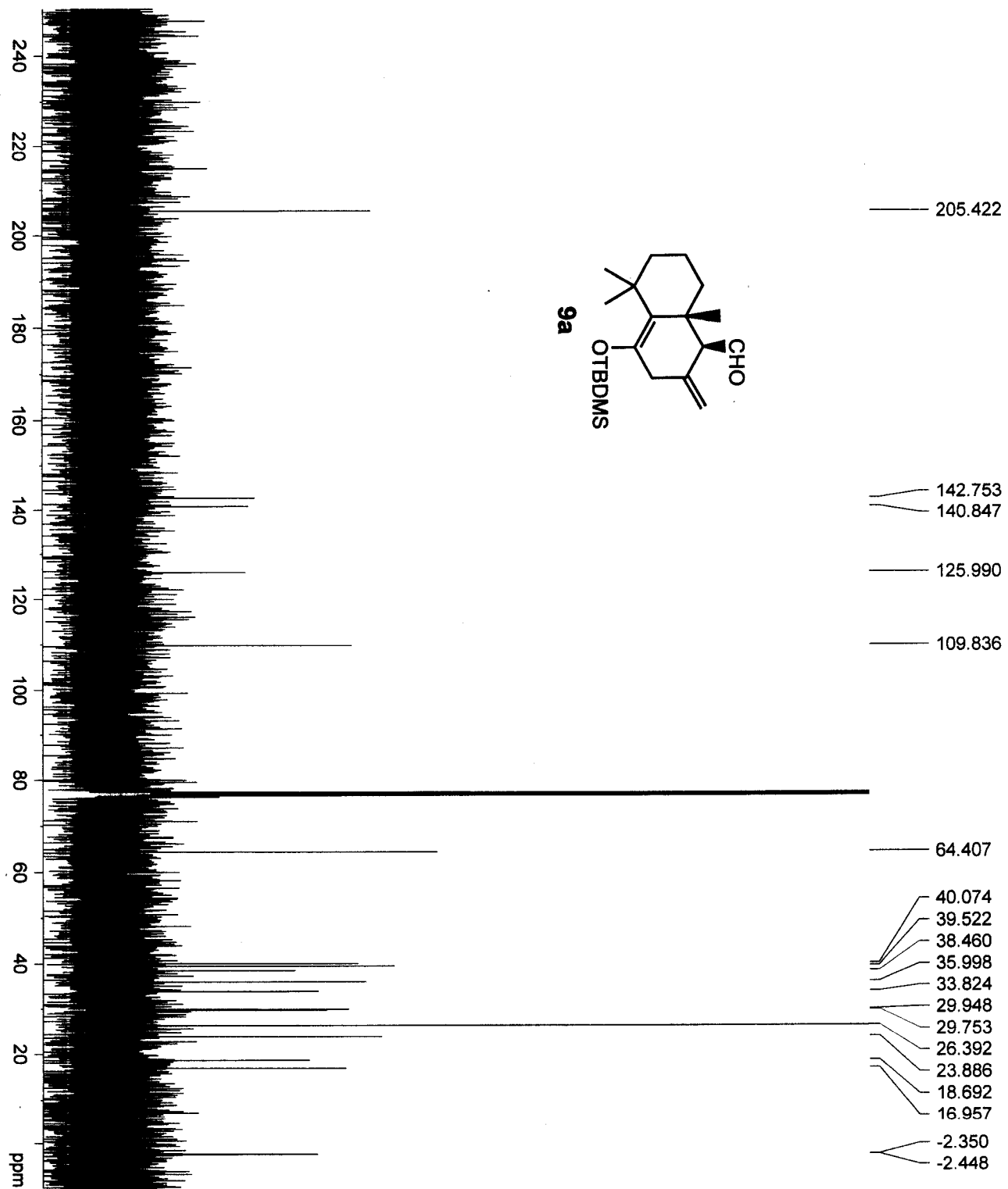
SWH 2777.777 Hz  
FIDRES 0.42385 Hz  
AQ 1.1796980 sec  
RG 22800  
DW 18.000 usec  
DE 25.71 usec  
TE 300.0 K

D12 0.0000200 sec  
DL5 23.50 dB  
CPDPRG waltz16  
P31 100.00 usec  
P1 2.00000000 sec

SFO1 100.6248445  
NUCLEUS 13C  
D11 0.03000000 s  
S32

F2 - Processing parameters

SI 65536  
SF 100.6127710 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.20



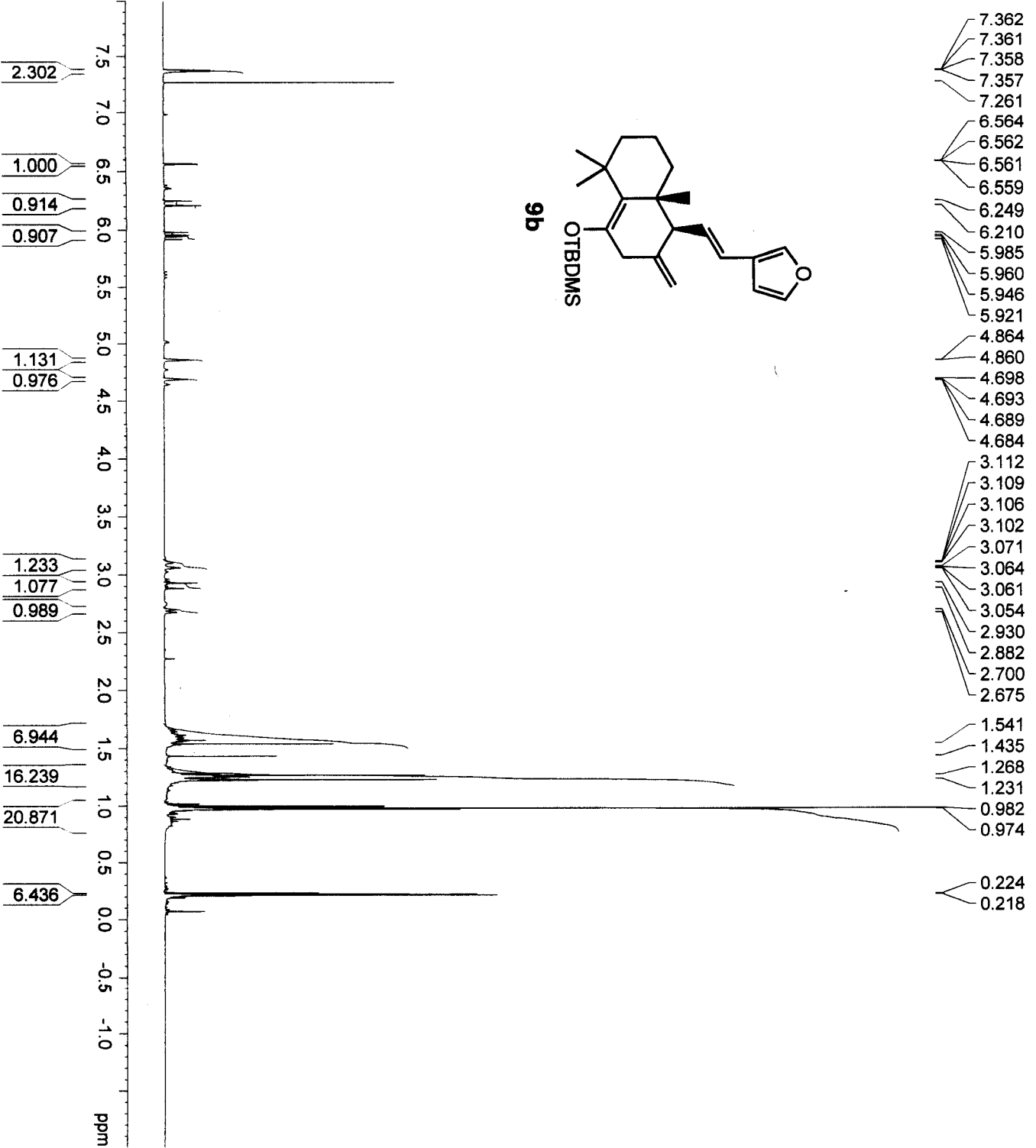


Current Data Parameters  
NAME Jun28-2006  
EXPNO 10  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20060628  
Time 11.51  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 16  
DS 0  
SWH 8064.516 Hz  
FIDRES 0.123055 Hz  
AQ 4.0632820 sec  
RG 715  
DW 62.000 usec  
DE 88.57 usec  
TE 300.0 K  
D1 2.00000000 sec  
P1 7.50 usec  
SFO1 400.1324008 MHz  
NUCLEUS 1H

F2 - Processing parameters  
SI 65536  
SF 400.1300173 M  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.00

S33



# Current Data Parameters

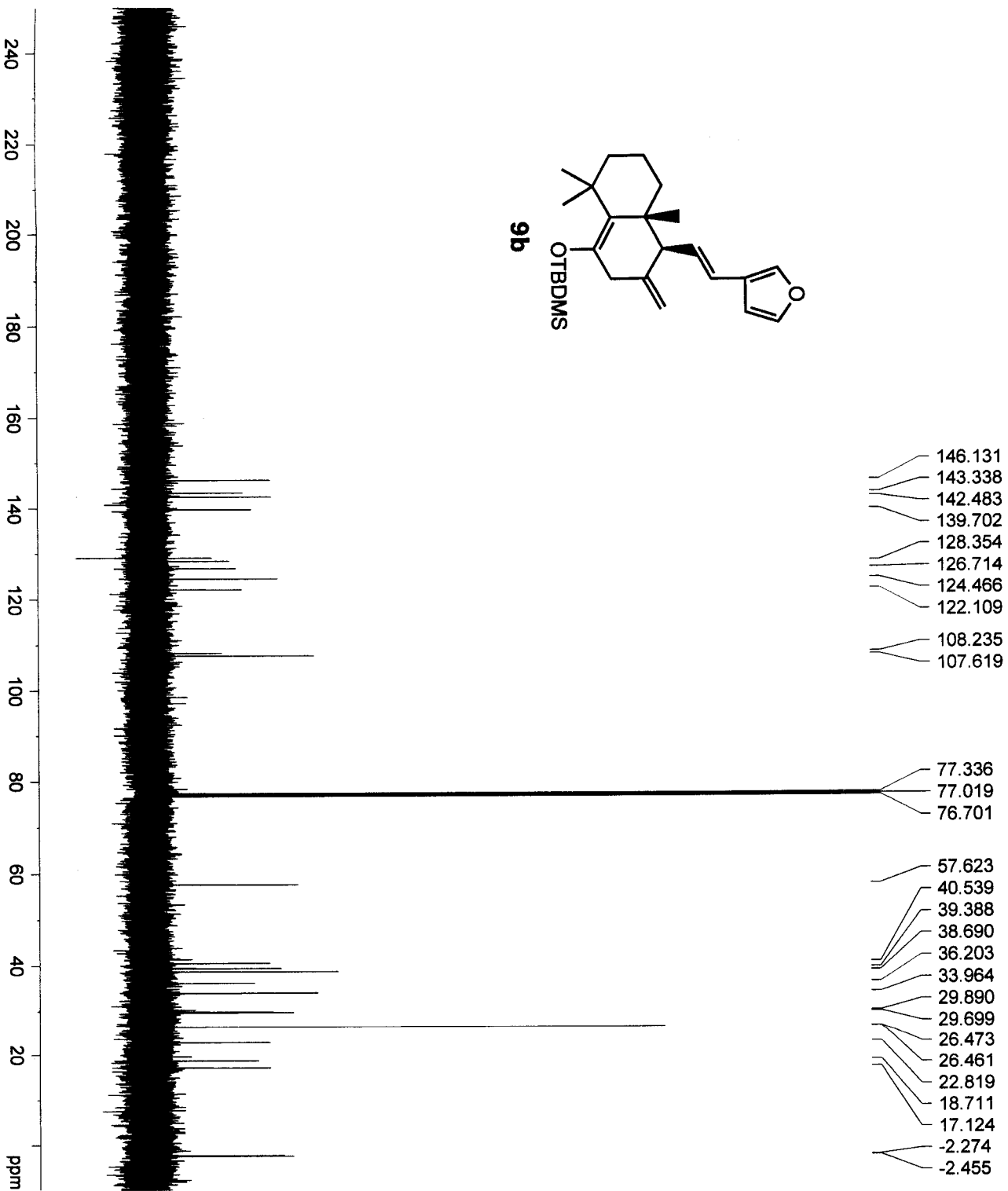
NAME Jun28-2006  
EXPNO 11  
PROCNO 1

## F2 - Acquisition Parameters

Date\_ 20060628  
Time 12.06  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 256  
DS 0  
SWH 2777.777 Hz  
FIDRES 0.423855 Hz  
AQ 1.1796980 sec  
RG 32768  
DW 18.000 usec  
DE 25.71 usec  
TE 300.0 K  
D12 0.0000200 sec  
DL5 23.50 dB  
CPDPRG waltz16  
P31 100.00 usec  
D1 2.0000000 sec  
P1 8.25 usec  
SFO1 100.6248445 MHz  
NUCLEUS 13C  
D11 0.03000000 sec

## F2 - Processing parameters

SI 65536  
SF 100.6127710 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.40

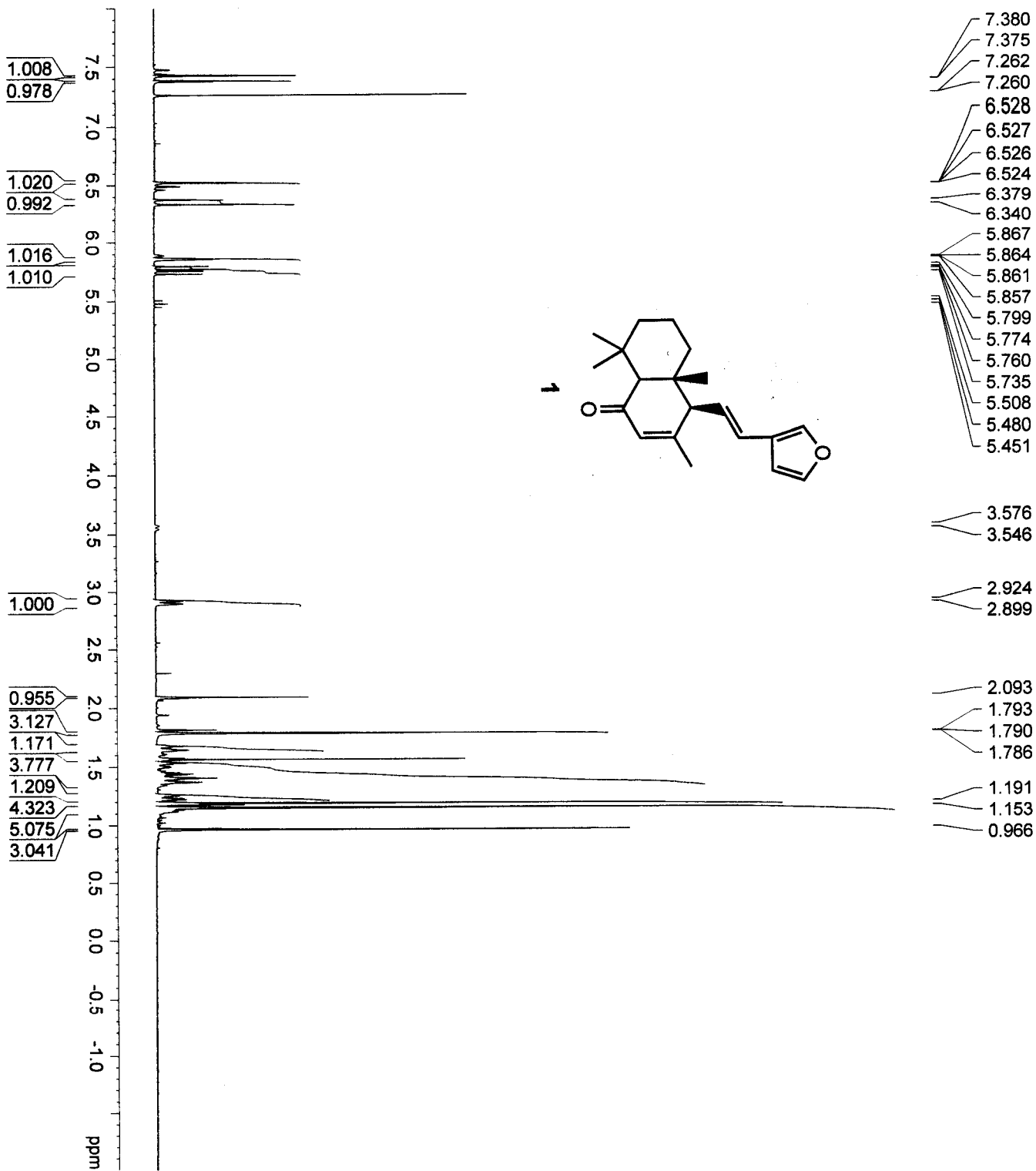


Current Data Parameters  
 NAME Jul12-2006  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20060712  
 Time 19.12  
 INSTRUM air400  
 PROBHD 5 mm QNP 1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 0  
 SWH 8064.516 Hz  
 FIDRES 0.123055 Hz  
 AQ 4.0632820 sec  
 RG 2048  
 DW 62.000 usec  
 DE 88.57 usec  
 TE 300.0 K  
 D1 2.0000000 sec  
 P1 7.50 usec  
 SFO1 400.1324008 MHz  
 NUCLEUS 1H

F2 - Processing parameters  
 SI 65536  
 SF 400.1300173 MHz  
 WDWH no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.00

S35



# Current Data Parameters

NAME Jul12-2006  
EXPNO 11  
PROCNO 1

## F2 - Acquisition Parameters

Date\_ 20060712  
Time 19.27  
INSTRUM arx400  
PROBHD 5 mm QNP 1H  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 256  
DS 0  
SWH 27777.777 Hz  
FIDRES 0.42385 Hz  
AQ 1.1796980 sec  
RG 32768  
DW 18.000 usec  
DE 25.71 usec  
TE 300.0 K  
D12 0.000200 sec  
DL5 23.50 dB  
CPDPRG waltz16  
P31 100.00 usec  
D1 2.0000000 sec  
P1 8.25 usec  
SFO1 100.6248445  
NUCLEUS 13C  
D11 0.0300000 sec

## F2 - Processing parameters

SI 65536  
SF 100.6127710 MHz  
WDW no  
SSB 0  
LB 0.00 Hz  
GB 0  
PC 1.40

