General. All commercially available reagents were used without further purification. All solvents were used after distillation. Tetrahydrofuran (THF) were refluxed over and distilled from sodium-benzophenone ketyl. Dimethylformamide (DMF) and dimethyl sulfoxide (DMSO) were distilled from CaH_2 under reduced pressure. Preparative separation was performed by column chromatography on silica gel. ^{1}H NMR and ^{13}C NMR spectra were recorded on a 400MHz and 750 MHz spectrometer and chemical shifts were represented as δ-values relative to the internal standard TMS. IR spectra were recorded on a FT-IR Spectrometer. High-resolution mass spectra (HRMS) were measured on a ESI-TOF MS.

(3Z,5E)-6-[(1'S,2'R,4'S)-1',2'-epoxy-4'-Hydroxy-2',6',6'-trimethylcyclohex-1'-yl]-4-methoxycarbonylhexa-3,5-dien-1-yne (12). To a solution of dibromide **11** (684 mg, 1.21 mmol) in THF (12.1 mL) was added tetra-*n*-butylammonium fluoride (7.27 mL, 1.0 M solution in THF) at room temperature. After being stirred for 2 h at 55 ºC, the reaction mixture was poured into a saturated aqueous NH_4Cl solution, and then extracted with ethyl acetate. The organic layers were combined, washed with brine, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by silica gel column chromatography (from 10% to 50% ethyl acetate in hexane) afforded alkyne **12** (144 mg, 41%): $[\alpha]^{23}_D$ –64.7 (c 0.95, $CHCl_3$); IR (neat, cm^{-1}) 3424, 3291, 2961, 2782, 2097, 1782, 1578, 1437, 1375, 1229, 1159, 1049, 974; ^{1}H NMR ($CDCl_3$, 400 MHz) δ 6.24 (s, 2H), 5.83 (d, *J* =2.7 Hz, 1H), 3.88 (m, 1H), 3.85 (s, 3H), 3.41 (d, *J* =2.8 Hz, 1H), 2.36 (dd, *J* =14.2, 4.5 Hz, 1H), 1.63-1.57 (m, 2H), 1.22 (dd, *J* =12.8, 11.0 Hz, 1H), 1.18 (s, 3H), 1.12 (s, 3H), 0.96 (s, 3H); ^{13}C NMR ($CDCl_3$, 100 MHz) δ 166.8, 143.4, 132.2, 129.1, 113.4, 87.3, 80.4, 70.3, 67.7, 64.3, 52.4, 47.3, 41.1, 35.6, 29.6, 25.1, 20.1; ESI-HRMS m/z Calcd for $C_{17}H_{22}O_4$ $(M+Na)^+$ 313.1416, found 313.1413.

(2E,6Z,8E)-9-[(1'S,2'R,4'S)-1',2'-Epoxy-4'-hydroxy-2',6',6'-trimethylcyclohex-1'-yl]-7-methoxycarbonyl-3-methylnona-2,6,8-trien-4-yn-1-ol (12'). To a solution of vinyl iodide **13** (174 mg, 0.878 mmol), tetrakis(triphenylphosphine)palladium (41 mg, 0.035 mmol) and triethylamine (0.15 mL, 1.05 mmol) in THF (2.2 mL) was added a solution of alkyne **12** (102 mg, 0.35 mmol) in THF (0.6 mL) and CuI (7 mg, 0.035 mmol). After being stirred for 40 min at room temperature, the reaction mixture was poured into a saturated aqueous NH_4Cl solution, and then the resulting mixture was extracted with ethyl acetate. The organic layers were combined, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by silica gel column chromatography (from 50% to 70% ethyl acetate in hexane) afforded diol **12'** (83 mg, 66%): $[\alpha]^{23}_D$ –77.9 (c 0.62, $CHCl_3$); IR (neat, cm^{-1}) 3395, 2962, 2930, 1722, 1437, 1379, 1219, 1157, 1047; ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.26 (s, 2H), 6.03 (td, *J* =6.4, 1.4 Hz, 1H), 6.00 (s, 1H), 4.26 (d, *J*

=6.6 Hz, 2H), 3.88 (m, 1H), 3.86 (s, 3H), 2.37 (ddd, *J* =14.2, 5.0, 1.6 Hz, 1H), 1.86 (s, 3H), 1.66-1.57 (m, 2H), 1.25-1.20 (m, 1H), 1.19 (s, 3H), 1.14 (s, 3H), 0.97 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 166.9, 140.7, 137.4, 131.0, 129.5, 121.0, 115.1, 102.1, 85.3, 70.4, 67.7, 64.5, 59.6, 52.2, 47.4, 41.2, 35.6, 29.7, 25.1, 20.1, 17.7; ESI-HRMS m/z Calcd for $C_{21}H_{28}O_5$ $(M+Na)^+$ 383.1834, found 383.1846.

Acetylene Methyl Ester Derivative (2). To a solution of diol **12'** (30 mg, 0.08 mmol) in diethyl ether (0.8 mL) was added manganese dioxide (499 mg) at room temperature. After being stirred at the same temperature for 10 min, the reaction mixture was filtered through a pad of Celite. The solvents were removed *in vacuo* to afford crude aldehyde **6**, which was used to the next reaction without further purification.

To a solution of the sulfone **4** (40 mg, 0.083 mmol) and crude aldehyde **6** in THF (2 mL) was added dropwise sodium bis(trimethylsilyl)amide (1.0M in THF, 0.32 mL, 0.32 mmol) at -78 ºC in the dark. After being stirred for 5 min at the same temperature, the reaction mixture was poured into water, and then extracted with diethyl ether. The organic layers were combined, washed with brine, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by short silica gel column chromatography (from 30% to 60% ethyl acetate in hexane) in the dark afforded a mixture of all-*trans*-peridinin derivative **2** and its cis-isomer (34 mg, 63%) as a red film. A solution of a mixture of peridinin derivative **2** in benzene was left at room temperature under fluorescent light. After 8 days, the separation by preparative HPLC [column: Develosil CN-UG (0.6 x 25 cm); mobile phase: acetone / *n*-hexane = 1/6; flow rate: 2 mL / min.; UVdetect: 410 nm; retention time: (all-*trans*-isomer **2-1**) 40 min., (13Z-isomer **2-2**) 41 min.] in the dark gave crude peridinin derivative **2**, which was further purified by preparative HPLC [column: YMC Carotenoid C30 (10 x 250 mm); reverse phase: acetonitrile / methanol / water = 87 / 10 / 3; flow rate: 2 mL / min.; UVdetect: 410 nm; retention time: (all-*trans*-isomer) 15 min] in the dark, afforded the desired optically active peridinin derivative **2-1** as a orange powder: 13E-isomer **2-1**; IR (neat, cm^{-1}) 3505, 2929, 2161, 1931, 1713, 1437, 1363, 1223, 1161, 1032; ^{1}H NMR (750 MHz, $CDCl_3$) δ 6.58 (dd, *J* =14.2, 11.9 Hz, 1H), 6.49 (d, *J* =11.4 Hz, 1H), 6.46 (dd, *J* =13.2, 13.2 Hz, 1H), 6.41 (dd, *J* =12.9, 12.9 Hz, 1H), 6.32 (dd, *J* =14.3, 11.0 Hz, 1H), 6.27 (s, 2H), 6.08 (d, *J* =11.8 Hz, 1H), 6.07 (s, 1H), 6.04 (s, 1H), 5.38 (m, 1H), 3.89 (m, 1H), 3.87 (s, 3H), 2.37 (dd, *J* =14.1, 4.8 Hz, 1H), 2.28 (dd, *J* =10.7 Hz, 1H), 2.04 (s, 3H), 1.99 (m, 1H), 1.96 (s, 3H), 1.79 (s, 3H), 1.63 (m, 2H), 1.50 (dd, *J* =12.0, 12.0 Hz, 1H), 1.42 (m, 1H), 1.38 (s, 3H), 1.35 (s, 3H), 1.34 (m, 1H), 1.20 (s, 3H), 1.14 (s, 3H), 1.07 (s, 3H), 0.97 (s, 3H); ^{13}C NMR (188 MHz, $CDCl_3$) δ 202.5, 170.4, 166.6, 137.8, 135.9, 132.7, 131.3, 130.3, 129.4, 128.0, 127.8, 117.7, 117.6, 115.4, 103.3, 87.6, 81.0, 72.7, 67.9, 67.6, 64.2, 51.6, 46.6, 45.4, 45.2, 40.9, 35.8, 35.3, 32.1, 29.4, 24.9, 21.4, 19.9, 17.5, 14.0 ; ESI-HRMS m/z Calcd for $C_{40}H_{52}O_7$ $(M+Na)^+$ 667.3611, found 667.3609; 13Z-isomer

2-2; ^{1}H NMR (750 MHz, $CDCl_3$) δ 6.93 (d, *J* =9.7 Hz, 1H), 6.71 (dd, *J* =14.2, 9.8 Hz, 1H), 6.59 (dd, *J* =14.1, 11.6 Hz, 1H), 6.28 (s, 1H), 6.20 (m, 2H), 6.11 (d, *J* =11.4 Hz, 1H), 6.08 (s, 1H), 6.05 (s, 1H), 5.38 (m, 1H), 3.90 (m, 1H), 3.88 (s, 3H), 2.38 (ddd, *J* =14.5, 4.8, 1.4 Hz, 1H), 2.28 (m, 1H), 2.04 (s, 3H), 1.99 (m, 1H), 1.96 (s, 3H), 1.80 (s, 3H), 1.64 (m, 2H), 1.50 (dd, *J* =11.7, 11.7 Hz, 1H), 1.40 (m, 1H), 1.38 (s, 3H), 1.35 (s, 3H), 1.25 (m, 1H), 1.20 (s, 3H), 1.15 (s, 3H), 1.07 (s, 3H), 0.98 (s, 3H); ^{13}C NMR (188 MHz, $CDCl_3$) δ 202.6, 170.4, 166.6, 139.4, 134.0, 132.5, 132.0, 131.9, 130.5, 128.0, 127.6, 124.1, 119.0, 117.6, 115.3, 105.0, 103.3, 72.7, 70.1, 67.9, 67.4, 64.2, 51.8, 47.0, 45.4, 45.2, 40.9, 35.8, 35.3, 32.1, 31.3, 30.3, 30.1, 24.9, 21.4, 19.9, 17.2, 14.0.

(1Z,3Z,5E)-6-[(1'S,2'R,4'S)-4'-*tert*-Butyldimethylsiloxy-1',2'-epoxy-2',6',6'-trimethylcyclohex-1'-yl] -1-bromo-4-methoxycarbonyl-hexa-1,3,5-triene (15). To a suspension of bromomethyltriphenylphosphonium bromide (2.02 g, 4.63 mmol) in THF (7.72 mL) was added dropwise sodium bis(trimethylsilyl)amide (1.0M in THF, 4.32 mL, 4.32 mmol) at -30 ºC. After the mixture was stirred for 5 min at -30 ºC, a solution of γ-hydroxybutenolide **9** (609 mg, 1.54 mmol) and diisopropylethylamine (0.81 mL, 4.63 mmol) in DMF (7.72 mL) was added. After being stirred for 15 min at room temperature, methyl iodide (0.57 mL, 9.26 mmol) was added. After being stirred for 15 min at the same temperature, the reaction mixture was poured into water, and then extracted with ethyl acetate. The organic layers were combined, washed with brine, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by silica gel column chromatography (from 5% to 10% ethyl acetate in hexane) afforded triene bromide **15** (511 mg, 69%) as a mixture of E and Z isomer: Z-isomer $[\alpha]_D^{23}$ -35.7 (c 0.76, $CHCl_3$); IR (neat, cm^{-1}) 2957, 2930, 2858, 1726, 1462, 1381, 1257, 1151, 1078; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.18 (dd, *J* =11.0, 7.1 Hz, 1H), 6.77 (d, *J* =11.2 Hz, 1H), 6.46 (d, *J* =7.4, 0.9 Hz, 1H), 6.31 (d, *J* =15.8 Hz, 1H), 6.24 (d, *J* =15.8 Hz, 1H), 3.84 (s, 3H), 3.83 (m, 1H), 2.25 (m, 1H), 1.64 (dd, *J* =14.4, 8.2 Hz, 1H), 1.51 (m, 1H), 1.26 (m, 1H),1.19 (s, 3H), 1.13 (s, 3H), 0.97 (s, 3H), 0.88 (s, 9H), 0.07 (s, 6H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 167.6, 134.1, 131.0, 130.9, 130.5, 129.2, 114.9, 70.6, 67.5, 65.0, 52.3, 47.4, 41.7, 35.5, 29.6, 26.2, 25.3, 20.4, 18.5, -4.4 ;ESI-HRMS m/z Calcd for $C_{23}H_{37}BrO_4Si$ $(M+Na)^+$ 507.1542, found 507.1530; E-isomer ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.30 (dd, *J* =13.5, 11.9 Hz, 1H), 6.63 (d, *J*=14.2 Hz, 1H), 6.31 (d, *J* =11.9 Hz, 1H), 6.22 (d, *J*=15.6 Hz, 1H), 6.18 (d, *J* =15.6 Hz, 1H), 3.84 (s, 3H), 3.83 (m, 1H), 2.24 (m, 1H), 1.64 (m, 1H), 1.50 (m, 1H), 1.26 (m, 1H),1.17 (s, 3H), 1.12 (s, 3H), 0.95 (s, 3H), 0.88 (s, 9H), 0.04 (s, 6H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 167.3, 134.6, 133.7, 133.4, 131.6, 130.2, 116.1, 70.7, 67.6, 65.0, 52.2, 47.3, 41.7, 35.5, 29.6, 26.2, 25.3, 20.4, 18.5, -4.4.

(2E,4E,6E,8E)-9-[(1'S,2'R,4'S)-4'-*tert*-Butyldimethylsiloxy-1',2'-epoxy-2',6',6'-trimethylcyclohex-1'-yl]-7-methoxycarbonyl-3-methylnona-2,4,6,8-tetraen-1-ol (17). To a solution of triene bromide **15** (178 mg, 0.37 mmol) and vinylstannane **16** (398 mg, 1.10 mmol) in DMSO (1.84 mL) was added bis(acetonitrile)dichloropalladium(II) (5 mg, 0.02 mmol) and lithium chloride (31 mg, 0.73 mmol). After being stirred for 30 min at 60 ºC, the reaction mixture was poured into water, and then extracted with ethyl acetate. The organic layers were combined, washed with brine, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by silica gel column chromatography (from 10% to 30% ethyl acetate in hexane) afforded coupling product **17** (87 mg, 50%): $[\alpha]_D^{23}$ -18.7 (c 1.05, $CHCl_3$); IR (neat, cm^{-1}) 3449, 2957, 2930, 2858, 1714, 1597, 1435, 1363, 1228, 1084; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.19 (d, *J* =11.2, 1H), 6.66 (dd, *J* =15.1, 11.2, 1H), 6.59 (d, *J* =15.1, 1H), 6.50 (d, *J* =15.8 Hz, 1H), 6.46 (d, *J* =15.8, 1H), 5.85 (t, *J* =6.9 Hz, 1H), 4.34 (m, 2H), 3.85 (m, 1H), 3.78 (s, 3H), 2.26 (dd, *J* =14.2, 5.1 Hz, 1H), 1.84 (s, 3H), 1.67 (m, 1H), 1.55 (m, 1H), 1.26 (m, 1H), 1.24 (s, 3H), 1.17 (s, 3H) , 1.01 (s, 3H), 0.88 (s, 9H) , 0.05 (s, 6H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 168.0, 144.8, 139.4, 136.0, 135.4, 132.0, 127.5, 124.9, 123.4, 71.0, 67.5, 65.0, 59.7, 52.1, 47.3, 41.7, 35.4, 29.8, 26.2, 25.3, 20.4, 18.4, 12.9, -4.5; ESI-HRMS m/z Calcd for $C_{27}H_{44}O_5Si$ $(M+Na)^+$ 499.2856, found 499.2845; 9'Z-isomer ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.91 (dd, *J* =15.4, 11.9, 1H), 6.53 (d, *J* =11.7, 1H), 6.47 (d, *J* =15.6, 1H), 6.26 (d, *J* =15.5 Hz, 1H), 6.14 (d, *J* =15.6, 1H), 5.81 (t, *J* =6.9 Hz, 1H), 4.40 (m, 2H), 3.85 (m, 1H), 3.84 (s, 3H), 2.24 (dd, *J* =14.2, 5.1 Hz, 1H), 1.84 (s, 3H), 1.65 (m, 1H), 1.55 (m, 1H), 1.26 (m, 1H), 1.24 (s, 3H), 1.17 (s, 3H) , 1.01 (s, 3H), 0.88 (s, 9H) , 0.05 (s, 6H).

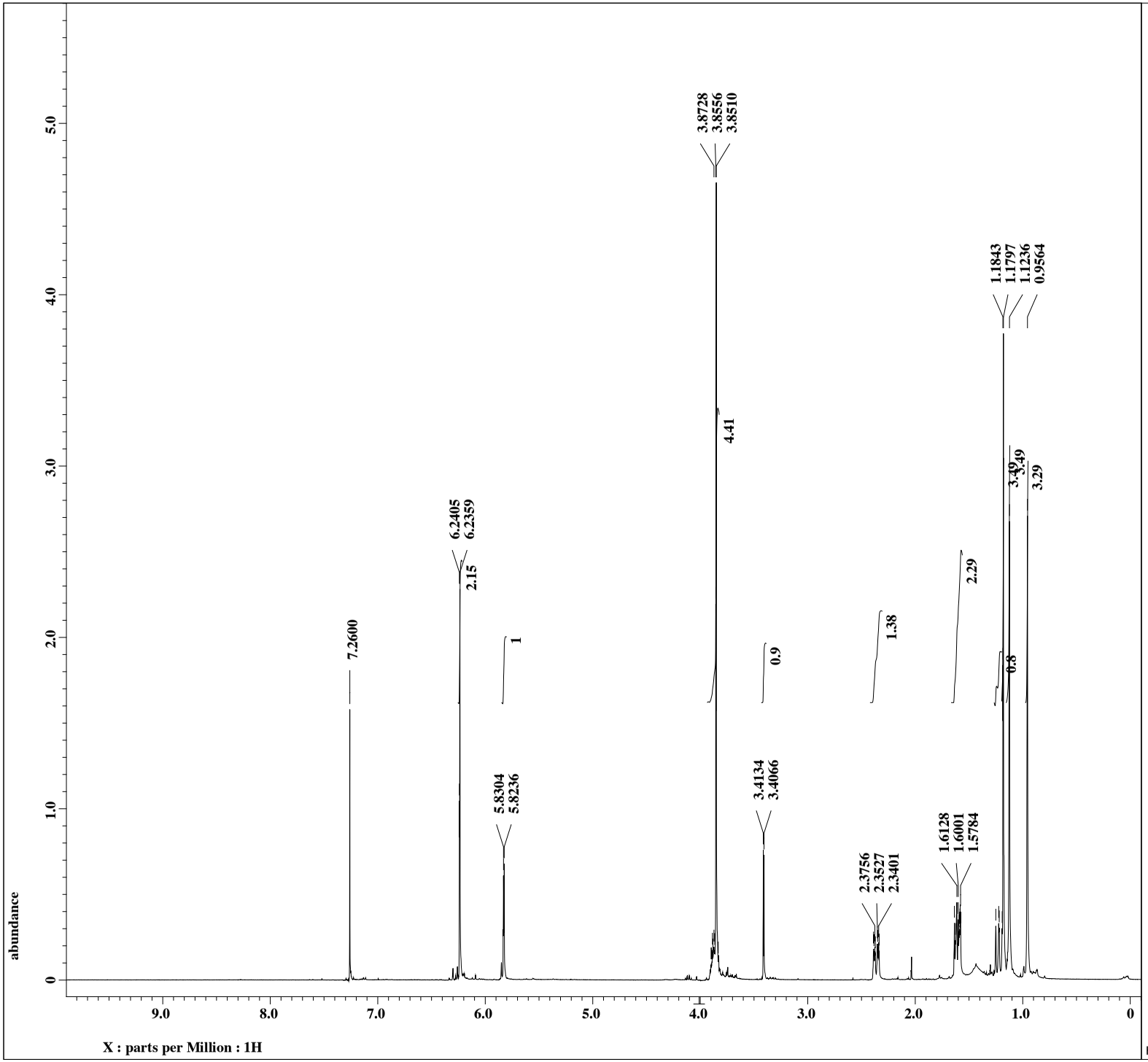
(2E,4E,6E,8E)-9-[(1'S,2'R,4'S)-1',2'-Epoxy-4'-hydroxy-2',6',6'-trimethylcyclohex-1'-yl]-7-methoxycarbonyl-3-methylnona-2,4,6,8-tetraen-1-ol (17'). To a solution of tetraene alcohol **17** (45 mg, 0.09 mmol) in THF (1 mL) was added tetra-*n*-butylammonium fluoride (1.0M in THF, 0.24 mL, 0.24 mmol) at 45 ºC. After being stirred for 3 h at the same temperature, the reaction mixture was poured into a saturated aqueous NH_4Cl solution, and then extracted with diethyl ether. The organic layers were combined, washed with brine, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by short silica gel column chromatography (from 50% to 70% ethyl acetate in hexane) afforded tetraene diol **17'** (22 mg, 65%); $[\alpha]_D^{24}$ –21.5 (c 0.61, $CHCl_3$); IR (neat, cm^{-1}) 3427, 2959, 1713, 1597, 1437, 1375, 1238, 1047, 974, 758; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.19 (d, *J* =11.0, 1H), 6.67 (dd, *J* =15.1, 11.0, 1H), 6.59 (d, *J* =15.1, 1H), 6.48 (s, 2H), 5.85 (t, *J* =6.9 Hz, 1H), 4.33 (d, *J* =6.8 Hz, 2H), 3.90 (m, 1H), 3.78 (s, 3H), 2.39 (ddd, *J* =14.2, 5.4, 1.8 Hz, 1H), 1.83 (s, 3H), 1.64 (m, 2H), 1.25 (m, 1H), 1.25 (s, 3H), 1.18 (s, 3H) , 1.02 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 168.0, 144.8, 139.5, 136.2, 135.2, 131.8, 127.5, 125.1, 123.6, 70.8, 67.5, 64.6, 59.9, 52.2, 47.4, 41.2, 35.6, 29.9, 25.2, 20.2, 13.0; ESI-HRMS m/z Calcd for $C_{21}H_{30}O_5$

$(M+Na)^+$ 385.1991, found 385.1986.

9'E-Olefin methyl ester derivative (3). To a solution of **17'** (24 mg, 0.067 mmol) in diethyl ether (0.66 mL) was added manganese dioxide (0.397 g) at room temperature. After being stirred at the same temperature for 5 min, the reaction mixture was filtered through a pad of Celite. The solvents were removed *in vacuo* to afford crude aldehyde **7**, which was used to the next reaction without further purification.

To a solution of the sulfone **4** (34 mg, 0.067 mmol) and aldehyde **7** in THF (1.56 mL) was added dropwise sodium bis(trimethylsilyl)amide (1.0M in THF, 0.31 mL, 0.31 mmol) at -78 ºC in the dark. After being stirred for 5 min at the same temperature, the reaction mixture was poured into water, and then extracted with diethyl ether. The organic layers were combined, washed with brine, dried over $MgSO_4$, filtered and concentrated *in vacuo*. Purification by short silica gel column chromatography (from 30% to 60% ethyl acetate in hexane) in the dark afforded a mixture of peridinin derivative **3** (20 mg, 46%) as a red film. A solution of a mixture of peridinin derivative **3** in benzene was left at room temperature under fluorescent light. After 5 days, the separation by preparative HPLC [column: Develosil CN-UG (0.6 x 25 cm); mobile phase: acetone / *n*-hexane = 1/6; flow rate: 2 mL / min.; UVdetect: 430 nm; retention time: (13Z, 9'E)-isomer **3-1** 35 min., (13E, 9'E)-isomer **3-2** 37 min.] in the dark gave crude peridinin derivative **3**, which was further purified by preparative HPLC [column: YMC Carotenoid C30 (10 x 250 mm); reverse phase: acetonitrile / methanol / water = 87 / 10 / 3; flow rate: 2 mL / min.; UVdetect: 430 nm; retention time: (13E, 9'E)-derivative 31 min] in the dark, afforded the optically active 9'E-olefin methyl ester peridinin derivative **3-2** as a red powder: (13E, 9'E)-isomer **3-2**: IR (neat, cm^{-1}) 3433, 2926, 2855, 1929, 1711, 1437, 1364, 1246, 1163, 1032; ^1H NMR (750 MHz, $CDCl_3$) δ 7.24 (d, *J* =11.7 Hz, 1H), 6.72 (dd, *J* =15.1, 11.7 Hz, 1H), 6.65 (d, *J* =15.4 Hz, 1H), 6.59 (m, 2H), 6.53 (d, *J* =15.8 Hz, 1H), 6.50 (d, *J* =16.0 Hz, 1H), 6.47 (dd, *J* =14.4, 11.3 Hz, 1H), 6.37 (dd, *J* =14.4, 11.0 Hz, 1H), 6.32 (d, *J* =11.0 Hz, 1H), 6.10 (d, *J* =11.3 Hz, 1H), 6.05 (s, 1H), 5.38 (m, 1H), 3.93 (m, 1H), 3.78 (s, 3H), 2.41 (dd, *J* =14.7, 4.5 Hz, 1H), 2.29 (m, 1H), 2.04 (s, 3H), 1.99 (m, 1H), 1.95 (s, 3H), 1.80 (s, 3H), 1.66 (m, 2H), 1.50 (m, 1H), 1.42 (m, 1H), 1.38 (s, 3H), 1.35 (s, 3H), 1.26 (m, 1H), 1.25 (s, 3H), 1.20 (s, 3H), 1.07 (s, 3H), 1.03 (s, 3H); ^{13}C NMR (188 MHz, $CDCl_3$) δ 202.6, 170.7, 167.9, 139.6, 136.3, 136.1, 133.0, 131.1, 128.9, 127.9, 127.6, 126.2, 125.0, 123.0, 120.9, 117.3, 103.3, 80.4, 77.5, 67.1, 64.3, 51.8, 47.2, 45.4, 45.2, 41.0, 35.8, 31.9, 31.2, 29.3, 29.2, 25.0, 21.4, 20.0, 14.1, 14.0; ESI-HRMS m/z Calcd for $C_{40}H_{54}O_7$ $(M+Na)^+$ 669.3767, found 669.3758; (13Z, 9'E)-isomer **3-1**: ^1H NMR (750 MHz, $CDCl_3$) δ 7.25 (d, *J* =11.7 Hz, 1H), 6.75 (m, 3H), 6.71 (d, *J* =14.7 Hz, 1H), 6.60 (dd, *J* =14.1, 11.7 Hz, 1H), 6.51 (s, 1H), 6.38 (dd, *J* =11.7, 11.7 Hz, 1H), 6.25 (dd, *J* =11.3, 11.3 Hz, 1H), 6.15 (d, *J* =11.7 Hz, 1H), 6.06 (s, 1H),

5.38 (m, 1H), 3.93 (m, 1H), 3.78 (s, 3H), 2.41 (ddd, J =14.1, 5.7, 1.0 Hz, 1H), 2.28 (m, 1H), 2.04 (s, 3H), 2.00 (m, 1H), 1.95 (s, 3H), 1.80 (s, 3H), 1.66 (m, 2H), 1.50 (m, 1H), 1.42 (m, 1H), 1.39 (s, 3H), 1.36 (s, 3H), 1.29 (m, 1H), 1.27 (s, 3H), 1.20 (s, 3H), 1.07 (s, 3H), 1.03 (s, 3H); ^{13}C NMR (188 MHz, $CDCl_3$) δ 202.8, 179.1, 174.8, 167.8, 145.5, 143.5, 139.4, 136.0, 131.9, 131.7, 131.3, 130.7, 128.1, 127.8, 127.3, 124.8, 124.0, 117.2, 103.3, 72.7, 70.6, 68.0, 64.3, 47.1, 45.4, 45.2, 41.0, 35.8, 31.9, 31.2, 29.3, 29.1, 21.4, 20.0, 14.1, 12.5.

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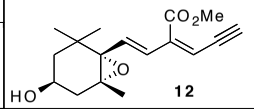
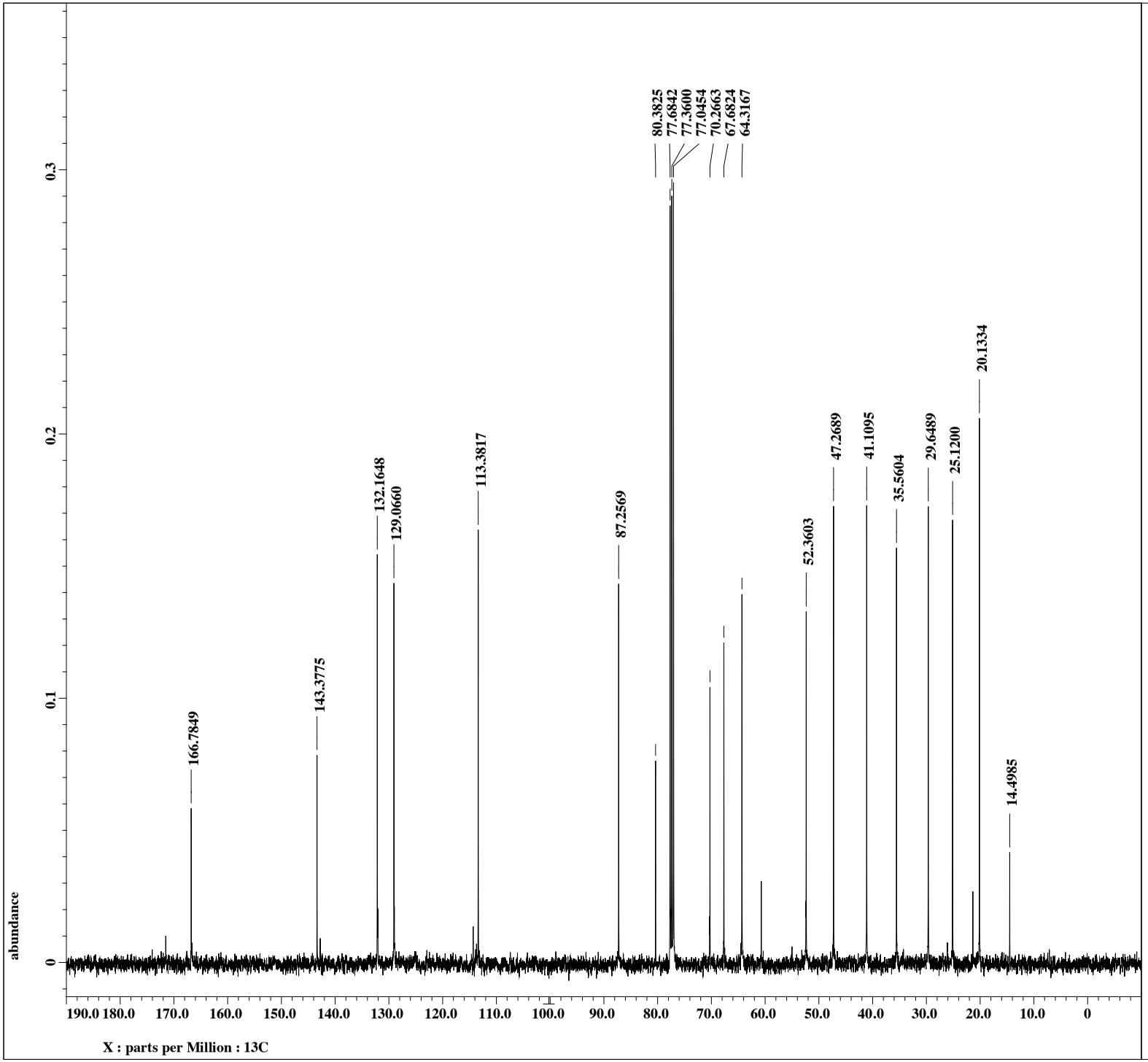
Recvr_gain        = 34
Relaxation_delay  = 1[s]
Repetition_time   = 3.18365952[s]
Temp_get          = 24.6[dC]
```



12

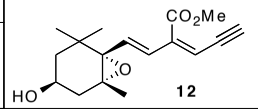



```
Filename          = a2-alkyne-ester-13C-3
Author            = delta
Experiment        = single_pulse_dec
Sample_id         = S#354684
Solvent           = CHLOROFORM-D
Creation_time     = 11-DEC-2009 09:01:37
Revision_time     = 12-DEC-2009 18:16:51
Current_time      = 12-DEC-2009 18:17:12

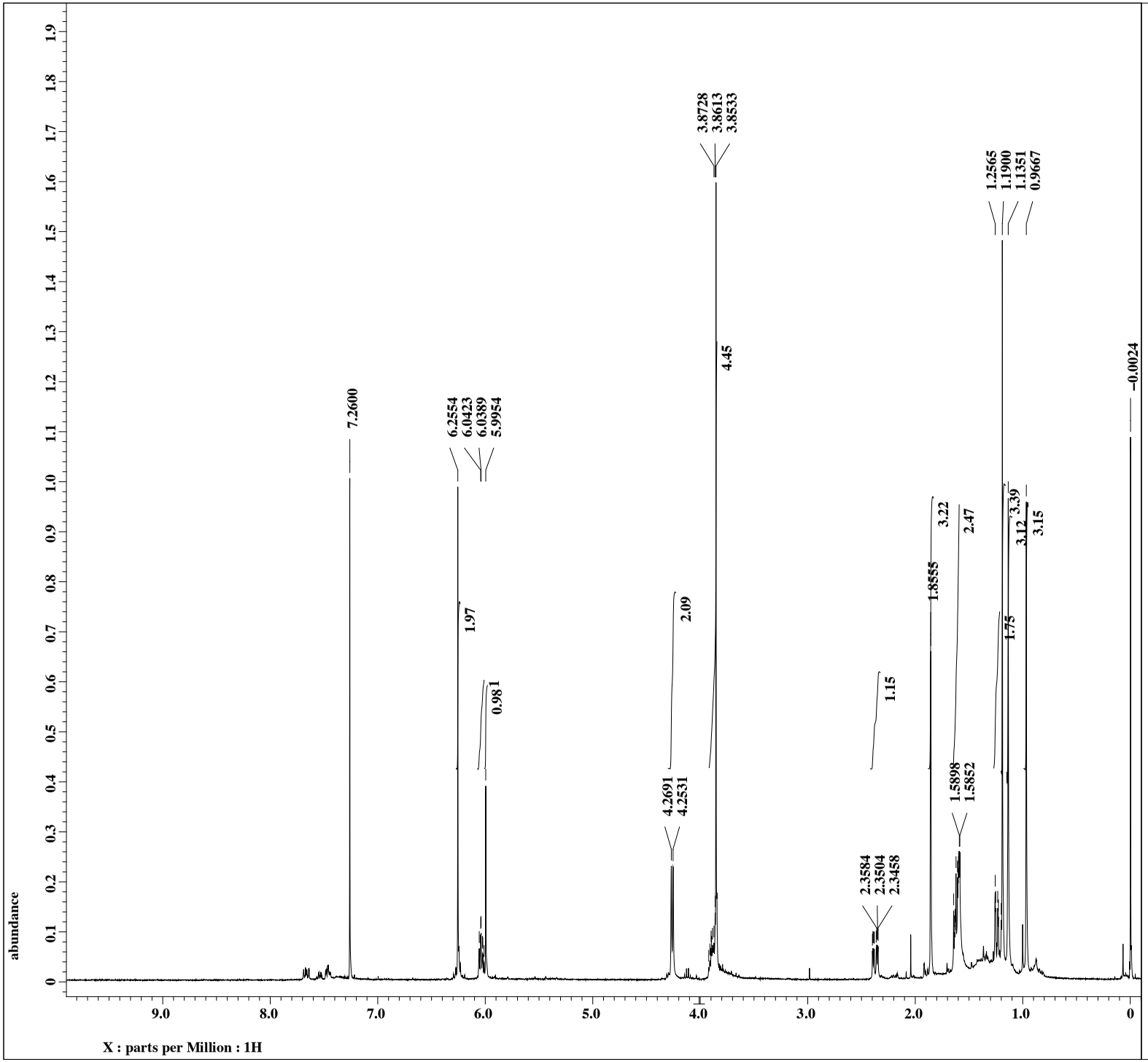
Comment           = single pulse decouple
Data_format       = 1D COMPLEX
Dim_size          = 26214
Dim_title         = 13C
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 1.04333312[s]
X_domain          = 13C
X_freq            = 100.52530333[MHz]
X_offset          = 100[ppm]
X_points          = 32768
X_prescans        = 4
X_resolution      = 0.95846665[Hz]
X_sweep           = 31.40703518[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 153
Total_scans       = 153

X_90_width        = 9.2[us]
X_acq_time        = 1.04333312[s]
X_angle           = 45[deg]
X_atn             = 6.6[dB]
X_pulse           = 4.6[us]
Irr_atn_dec       = 22.2[dB]
Irr_atn_noe       = 22.2[dB]
Irr_noise         = WALTZ
Decoupling        = TRUE
Initial_wait      = 1[s]
Noe               = TRUE
Noe_time          = 5[s]
Recvr_gain        = 50
Relaxation_delay  = 5[s]
Repetition_time   = 6.04333312[s]
Temp_get          = 24.1[dC]
```



12

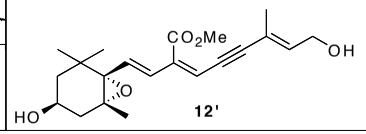



```
Filename          = a2-alcohol-ester-1H-4
Author            = delta
Experiment        = single_pulse.ex2
Sample_id         = 1
Solvent           = CHLOROFORM-D
Creation_time     =  5-DEC-2009 11:32:21
Revision_time     = 12-DEC-2009 14:36:43
Current_time      = 12-DEC-2009 14:38:08

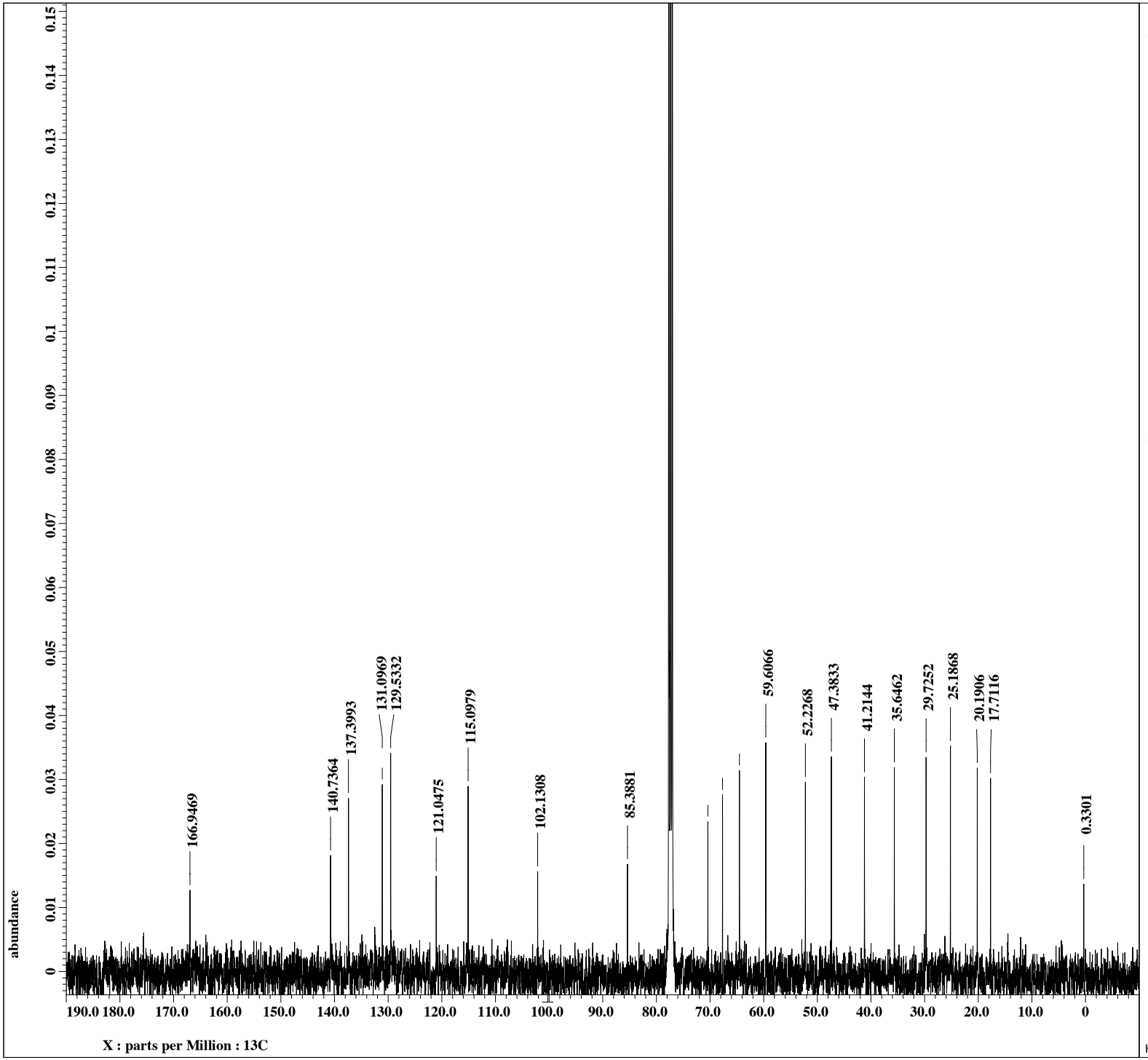
Comment           = single_pulse
Data_format       = 1D COMPLEX
Dim_size          = 13107
Dim_title         = 1H
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 2.18365952[s]
X_domain          = 1H
X_freq            = 399.78219838[MHz]
X_offset          = 4[ppm]
X_points          = 16384
X_prescans        = 1
X_resolution      = 0.45794685[Hz]
X_sweep           = 7.5030012[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Tri_domain        = 1H
Tri_freq          = 399.78219838[MHz]
Tri_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 8
Total_scans       = 8

X_90_width        = 10.5[us]
X_acq_time        = 2.18365952[s]
X_angle           = 45[deg]
X_atn             = 1.4[dB]
X_pulse           = 5.25[us]
Irr_mode          = Off
Tri_mode          = Off
Dante_presat      = FALSE
Initial_wait      = 1[s]
Recvr_gain        = 38
Relaxation_delay  = 1[s]
Repetition_time   = 3.18365952[s]
Temp_get          = 25.6[dC]
```



12'

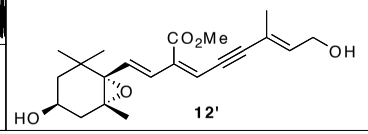



```
Filename          = a2-alcohol-ester-13C-
Author            = delta
Experiment        = single_pulse_dec
Sample_id         = S#456123
Solvent           = CHLOROFORM-D
Creation_time     =  5-DEC-2009 12:34:50
Revision_time     = 12-DEC-2009 18:14:14
Current_time      = 12-DEC-2009 18:15:05

Comment           = single pulse decouple
Data_format       = 1D COMPLEX
Dim_size          = 26214
Dim_title         = 13C
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

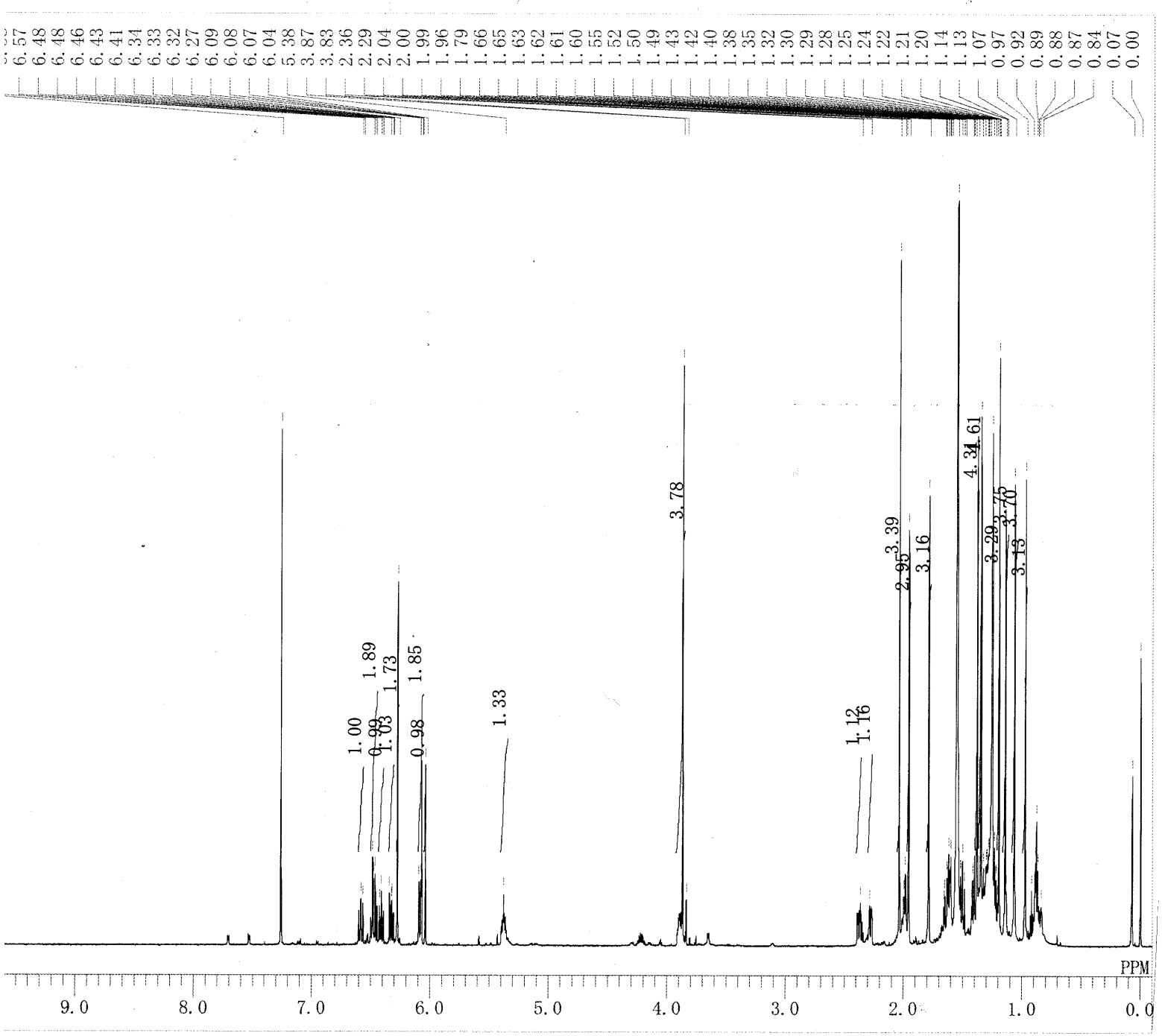
Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 1.04333312[s]
X_domain          = 13C
X_freq            = 100.52530333[MHz]
X_offset          = 100[ppm]
X_points          = 32768
X_prescans        = 4
X_resolution      = 0.95846665[Hz]
X_sweep           = 31.40703518[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Clipped           = TRUE
Mod_return        = 1
Scans             = 584
Total_scans       = 584

X_90_width        = 9.2[us]
X_acq_time        = 1.04333312[s]
X_angle           = 45[deg]
X_atn             = 6.6[dB]
X_pulse           = 4.6[us]
Irr_atn_dec       = 22.2[dB]
Irr_atn_noe       = 22.2[dB]
Irr_noise         = WALTZ
Decoupling        = TRUE
Initial_wait      = 1[s]
Noe               = TRUE
Noe_time          = 5[s]
Recvr_gain        = 58
Relaxation_delay  = 5[s]
Repetition_time   = 6.04333312[s]
Temp_get          = 26.2[dC]
```

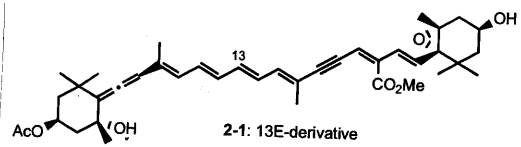


12'

sum750_03.1.1



DFILE 1r
COMNT katsum750_03.1.1
DATIM Thu Jul 26 16:43:36 2007
OBNUC 1H
EXMOD zg30
OBFRQ 750.13 MHz
OBSET 3.60 KHz
OBFIN 0.62 Hz
POINT 32768
FREQU 11261.26 Hz
SCANS 16
ACQTM 2.9098 sec
PD 1.0000 sec
PW1 10.00 usec
IRNUC
CTEMP 26.9 c
SLVNT CDCl3
EXREF 7.26 ppm
BF 0.30 Hz
RGAIN 64



2-1: 13E-derivative

tsum750_03.1000.1
ridinin Derivative 15E-A-2 /CDCl3 /298K(TE=300.5)
C{1H} 1Pulse with CPD (zgpg30):CPTCI-Z

202.563
202.544
170.400
166.638
135.857
132.692
132.678
131.287
130.315
128.013
118.066
117.708
117.597
115.396
103.272
87.617
81.021
77.404
77.374
77.353
77.339
77.322
77.307
77.178
77.009
76.839
76.729
76.692
72.682
70.131
67.947
67.674
64.214
51.802
51.578
47.648
47.086
46.598
45.411
45.221
40.909
35.784
35.346
33.743
32.059
31.930
31.275
29.708
29.686
29.666
29.412
29.173
28.931
28.917
28.677

Current Data Parameters
NAME katsum750_03
EXPNO 1000
PROCNO 1

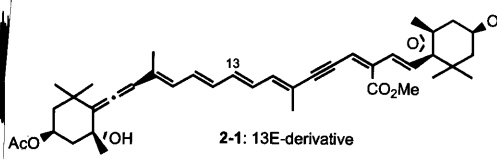
F2 - Acquisition Parameters
Date_ 20070724
Time 5.52
INSTRUM spect
PROBHD 5 mm CPTCI 1H-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 4096
DS 4
SWH 45045.047 Hz
FIDRES 0.687333 Hz
AQ 0.7274996 sec
RG 4096
DW 11.100 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

======== CHANNEL f1 ========
NUC1 13C
P1 15.00 usec
PL1 -4.90 dB
SFO1 188.6392006 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 16.80 dB
PL13 16.80 dB
SFO2 750.1330005 MHz

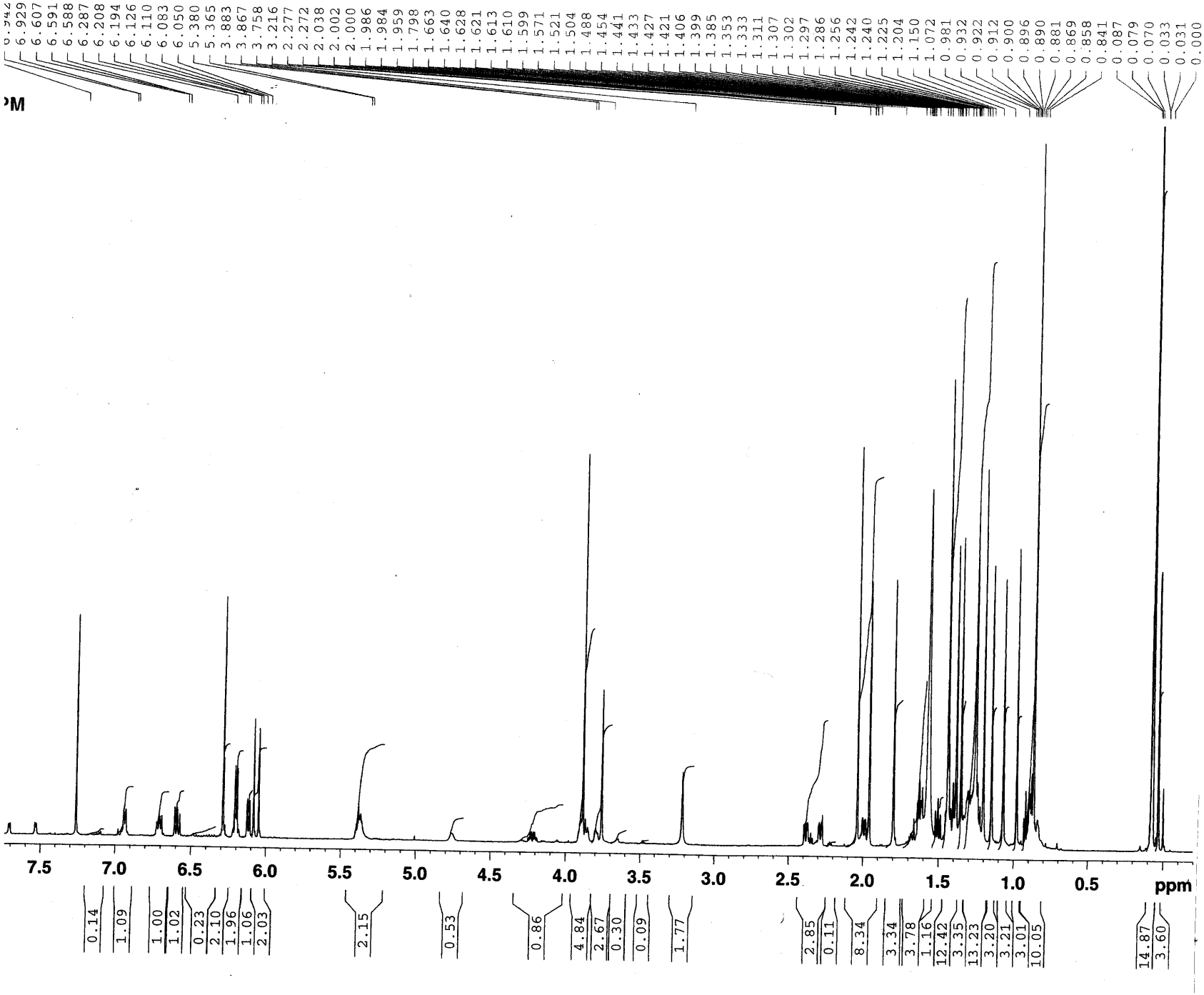
F2 - Processing parameters
SI 32768
SF 188.6203390 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 0.00

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm



2-1: 13E-derivative

ridinin Derivative 15Z-A-2 /CDCl3 /298K(TE=300.5)
1Pulse (zg30):CPTCI-Z



Current Data Parameters

NAME	katsum750_04
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

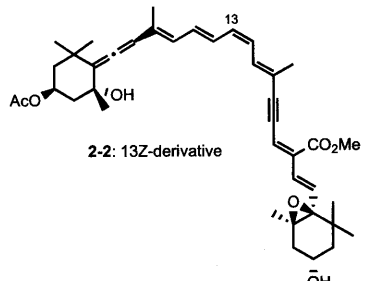
Date_	20070724
Time	14.43
INSTRUM	spect
PROBHD	5 mm CPTCI 1H-
PULPROG	zg30
TD	65536
SOLVENT	CDCl3
NS	16
DS	4
SWH	11261.262 Hz
FIDRES	0.171833 Hz
AQ	2.9098485 sec
RG	64
DW	44.400 usec
DE	6.00 usec
TE	300.0 K
D1	1.00000000 sec
MCREST	0.00000000 sec
MCWRK	0.01500000 sec

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

NUC1	1H
P1	10.00 usec
PL1	-3.00 dB
SFO1	750.1336006 MHz

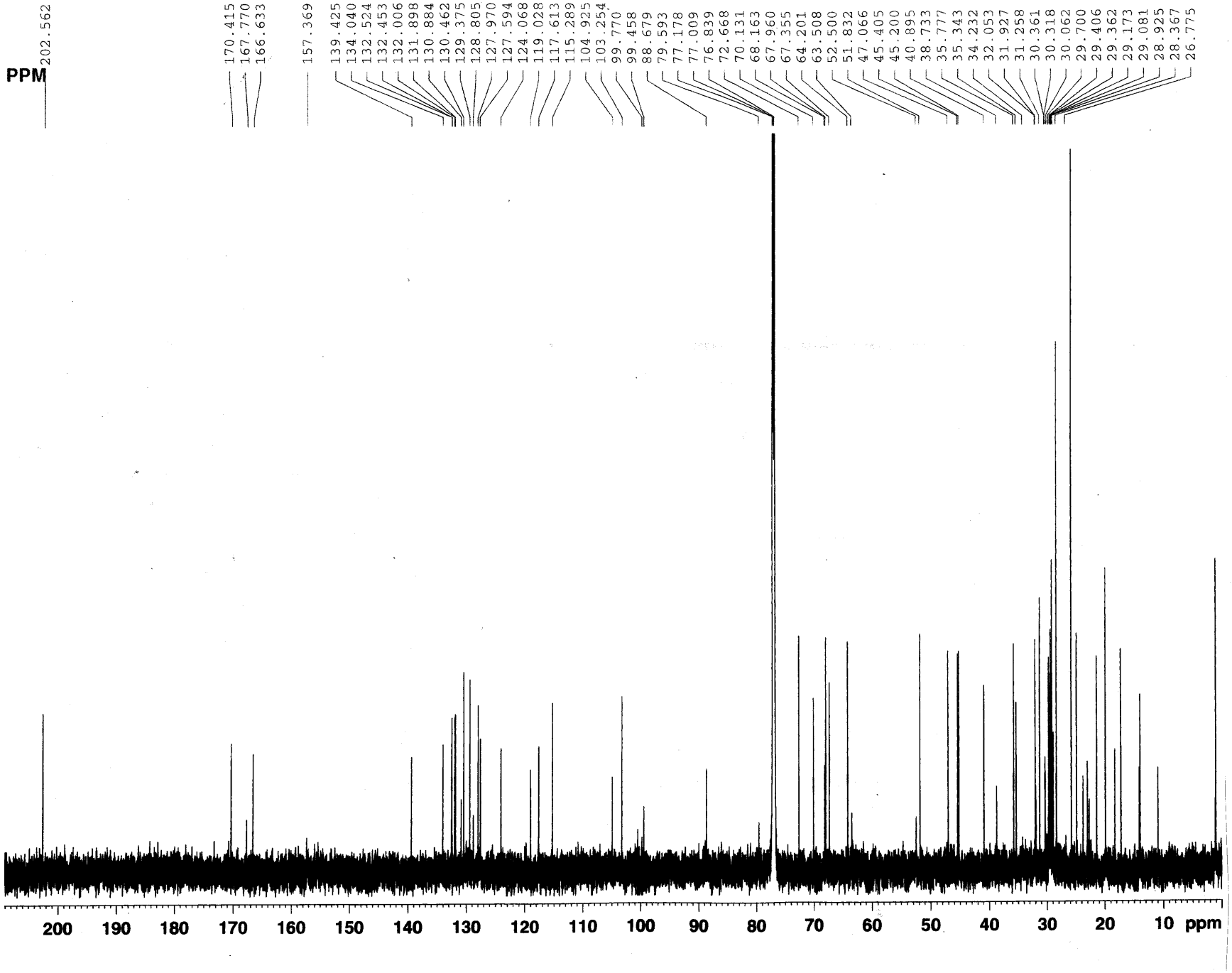
F2 - Processing parameters

SI	32768
SF	750.1300165 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	0.10



2-2: 13Z-derivative

Peridinin Derivative 15Z-A-2 /CDCl3 /298K(TE=300.5)
13C{1H} 1Pulse with CPD (zgpg30):CPTCI-Z



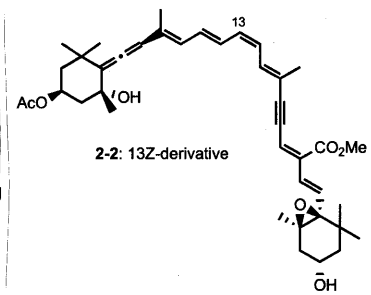

```
Current Data Parameters
NAME          katsum750_04
EXPNO               1000
PROCNO                 1

F2 - Acquisition Parameters
Date_           20070725
Time                2.51
INSTRUM            spect
PROBHD   5 mm CPTCI 1H-
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                 4096
DS                    4
SWH           45045.047 Hz
FIDRES         0.687333 Hz
AQ             0.7274996 sec
RG                16384
DW               11.100 usec
DE                6.00 usec
TE               300.0 K
D1            2.00000000 sec
d11           0.03000000 sec
DELTA         1.89999998 sec
MCREST        0.00000000 sec
MCWRK         0.01500000 sec

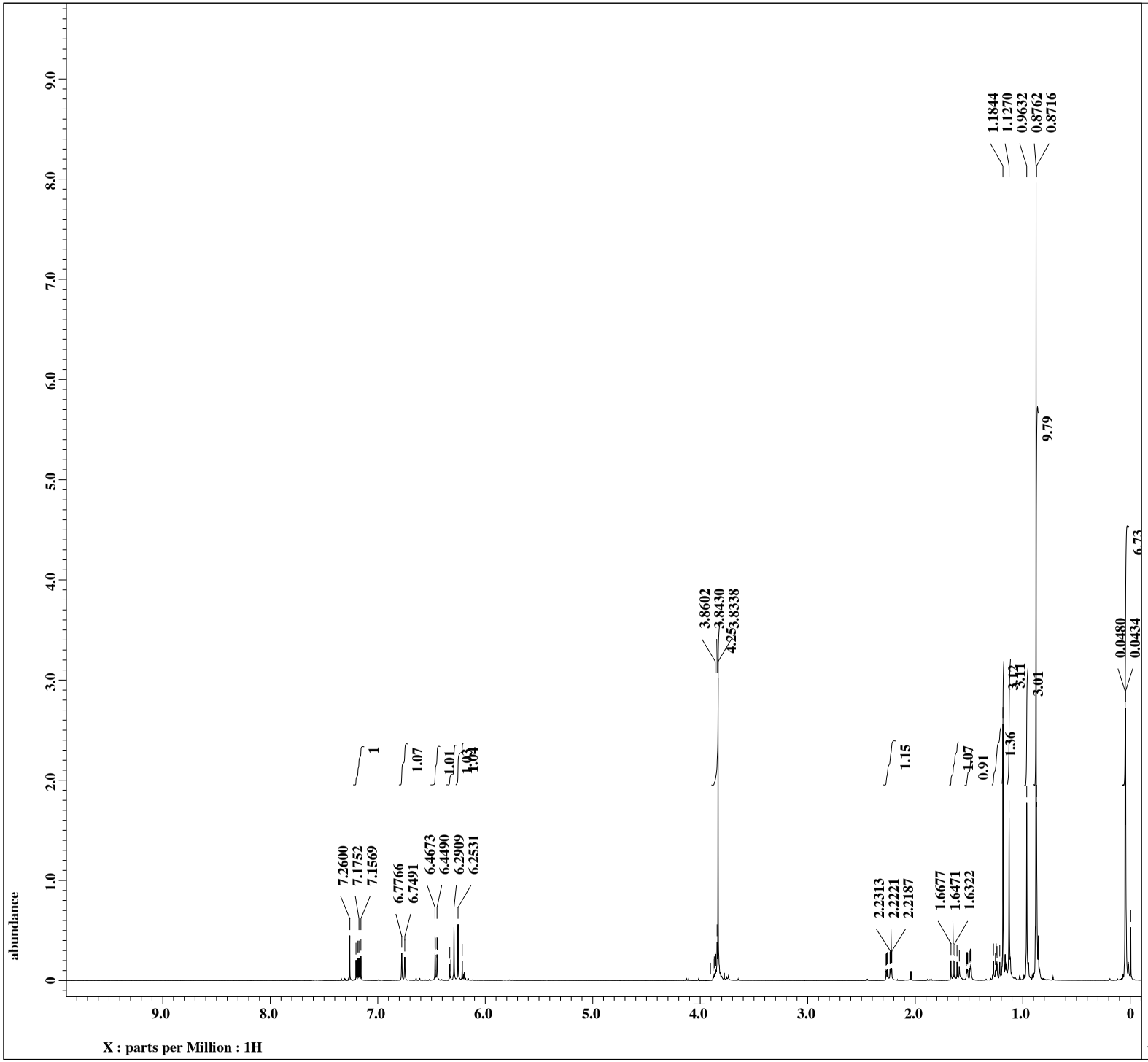
======== CHANNEL f1 ========
NUC1                13C
P1               15.00 usec
PL1              -4.90 dB
SFO1        188.6392006 MHz

======== CHANNEL f2 ========
CPDPRG2         waltz16
NUC2                1H
PCPD2           100.00 usec
PL2             120.00 dB
PL12             16.80 dB
PL13             16.80 dB
SFO2        750.1330005 MHz

F2 - Processing parameters
SI                 32768
SF          188.6203403 MHz
WDW                EM
SSB                 0
LB               1.00 Hz
GB                  0
PC               1.00
```



2-2: 13Z-derivative

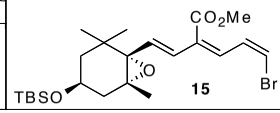


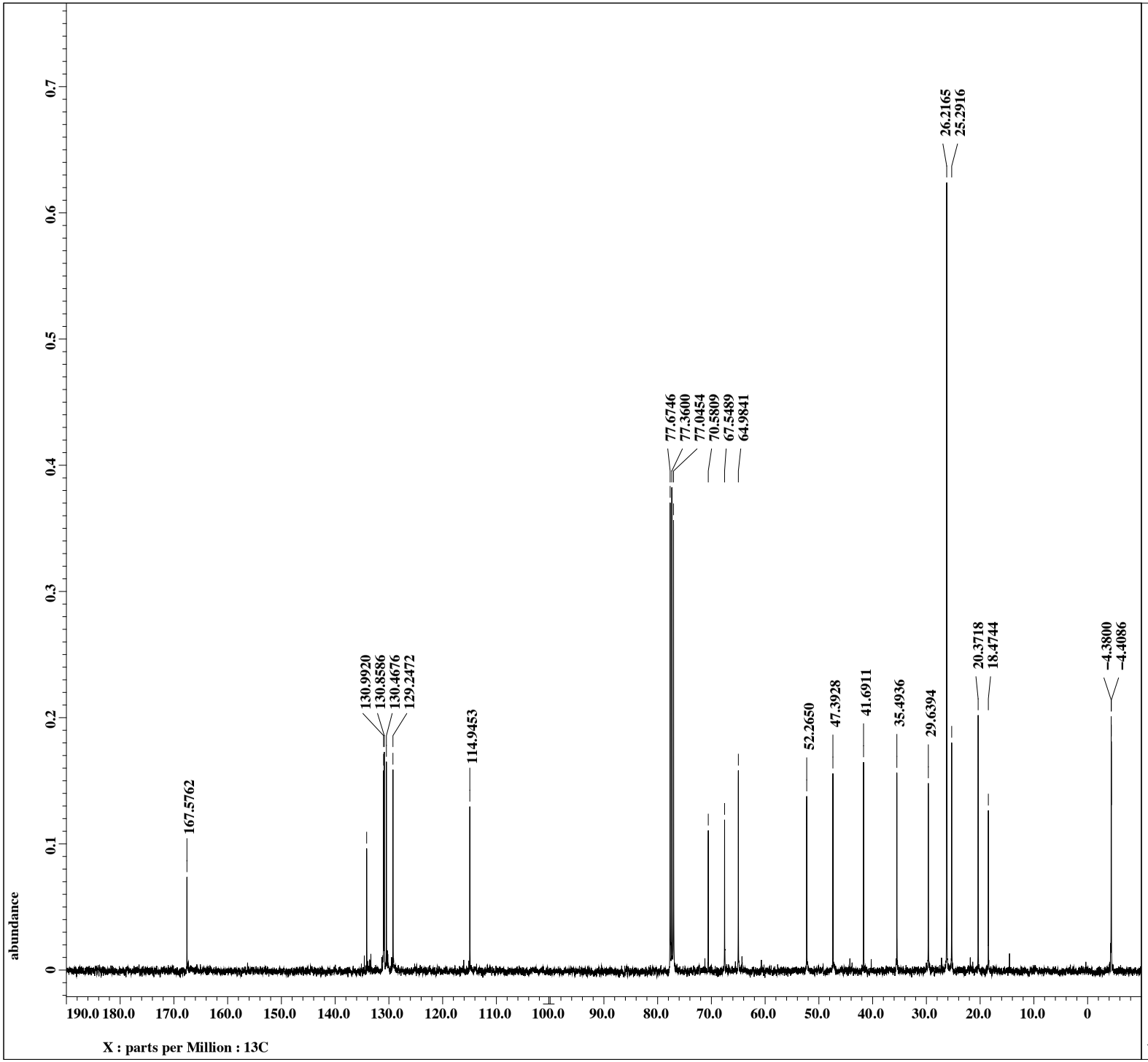

```
Filename          = a3-cis-bromide-1H-4.j
Author            = delta
Experiment        = single_pulse.ex2
Sample_id         = 1
Solvent           = CHLOROFORM-D
Creation_time     =  7-DEC-2009 20:19:01
Revision_time     = 12-DEC-2009 14:48:06
Current_time      = 12-DEC-2009 14:48:39

Comment           = single_pulse
Data_format       = 1D COMPLEX
Dim_size          = 13107
Dim_title         = 1H
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 2.18365952[s]
X_domain          = 1H
X_freq            = 399.78219838[MHz]
X_offset          = 4[ppm]
X_points          = 16384
X_prescans        = 1
X_resolution      = 0.45794685[Hz]
X_sweep           = 7.5030012[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Tri_domain        = 1H
Tri_freq          = 399.78219838[MHz]
Tri_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 8
Total_scans       = 8

X_90_width        = 10.5[us]
X_acq_time        = 2.18365952[s]
X_angle           = 45[deg]
X_atn             = 1.4[dB]
X_pulse           = 5.25[us]
Irr_mode          = Off
Tri_mode          = Off
Dante_presat      = FALSE
Initial_wait      = 1[s]
Recvr_gain        = 30
Relaxation_delay  = 1[s]
Repetition_time   = 3.18365952[s]
Temp_get          = 24[dC]
```



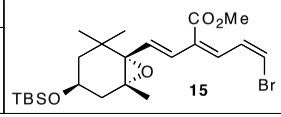


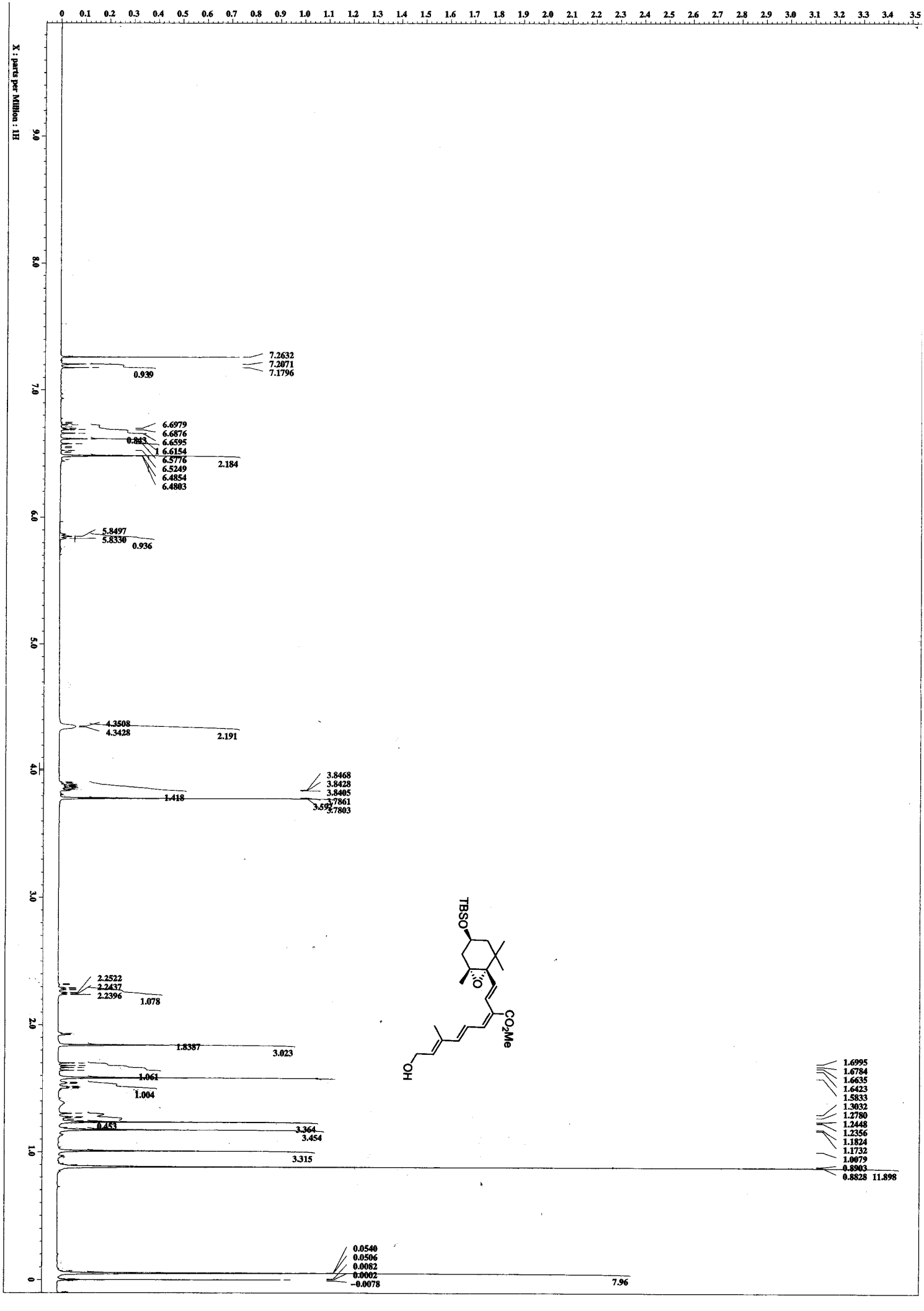

```
Filename          = a3-cis-bromide-13C-3.
Author            = delta
Experiment        = single_pulse_dec
Sample_id         = S#435638
Solvent           = CHLOROFORM-D
Creation_time     =  8-DEC-2009 11:22:43
Revision_time     = 12-DEC-2009 18:17:33
Current_time      = 12-DEC-2009 18:17:59

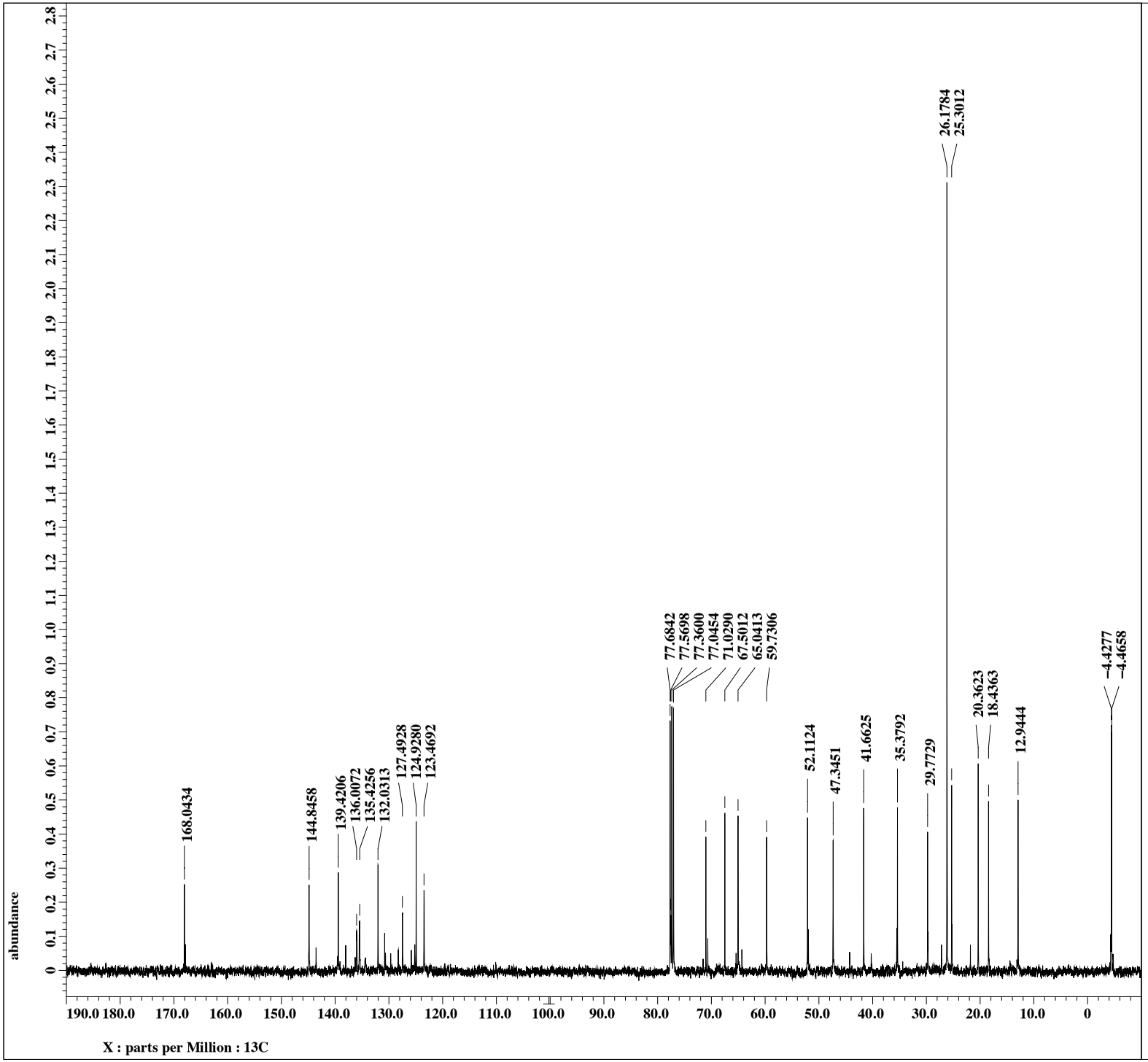
Comment           = single pulse decouple
Data_format       = 1D COMPLEX
Dim_size          = 26214
Dim_title         = 13C
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 1.04333312[s]
X_domain          = 13C
X_freq            = 100.52530333[MHz]
X_offset          = 100[ppm]
X_points          = 32768
X_prescans        = 4
X_resolution      = 0.95846665[Hz]
X_sweep           = 31.40703518[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 213
Total_scans       = 213

X_90_width        = 9.2[us]
X_acq_time        = 1.04333312[s]
X_angle           = 45[deg]
X_atn             = 6.6[dB]
X_pulse           = 4.6[us]
Irr_atn_dec       = 22.2[dB]
Irr_atn_noe       = 22.2[dB]
Irr_noise         = WALTZ
Decoupling        = TRUE
Initial_wait      = 1[s]
Noe               = TRUE
Noe_time          = 5[s]
Recvr_gain        = 52
Relaxation_delay  = 5[s]
Repetition_time   = 6.04333312[s]
Temp_get          = 24.9[dC]
```




X : parts per Million : 1H
7.2632
7.2071
7.1796
0.939
6.6979
6.6876
6.6595
6.6154
6.5776
6.5249
6.4854
6.4803
2.184
5.8497
5.8330
0.936
4.3508
4.3428
2.191
3.8468
3.8428
3.8405
3.7861
3.7803
1.418
2.2522
2.2437
2.2396
1.078
1.8387
3.023
1.061
1.004
0.453
3.364
3.454
3.315
1.6995
1.6784
1.6635
1.6423
1.5833
1.3032
1.2780
1.2448
1.2356
1.1824
1.1732
1.0079
0.8903
0.8828
11.898
0.0540
0.0506
0.0082
0.0002
-0.0078
7.96
TBSO
O
CO2Me
OH

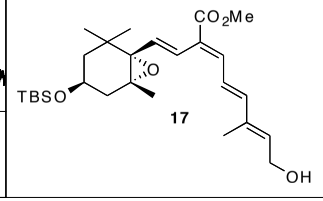



```
Filename          = a3-tetraene-alcohol-1
Author            = delta
Experiment        = single_pulse_dec
Sample_id         = S#705366
Solvent           = CHLOROFORM-D
Creation_time     =  8-DEC-2009 18:37:37
Revision_time     = 12-DEC-2009 18:19:37
Current_time      = 12-DEC-2009 18:20:13

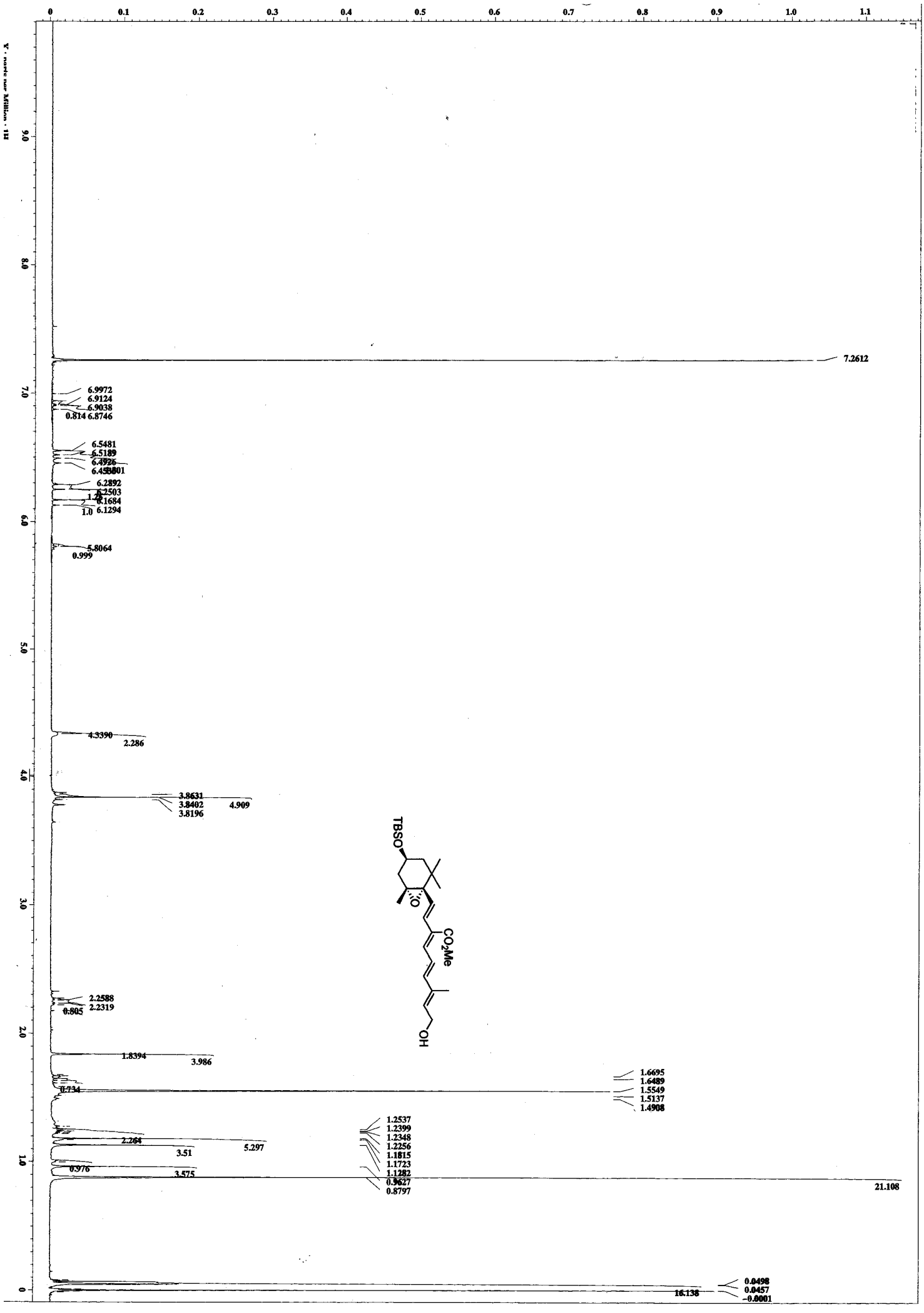
Comment           = single pulse decouple
Data_format       = 1D COMPLEX
Dim_size          = 26214
Dim_title         = 13C
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 1.04333312[s]
X_domain          = 13C
X_freq            = 100.52530333[MHz]
X_offset          = 100[ppm]
X_points          = 32768
X_prescans        = 4
X_resolution      = 0.95846665[Hz]
X_sweep           = 31.40703518[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Clipped           = TRUE
Mod_return        = 1
Scans             = 69
Total_scans       = 69

X_90_width        = 9.2[us]
X_acq_time        = 1.04333312[s]
X_angle           = 45[deg]
X_atn             = 6.6[dB]
X_pulse           = 4.6[us]
Irr_atn_dec       = 22.2[dB]
Irr_atn_noe       = 22.2[dB]
Irr_noise         = WALTZ
Decoupling        = TRUE
Initial_wait      = 1[s]
Noe               = TRUE
Noe_time          = 5[s]
Recvr_gain        = 60
Relaxation_delay  = 5[s]
Repetition_time   = 6.04333312[s]
Temp_get          = 24.9[dC]
```



17

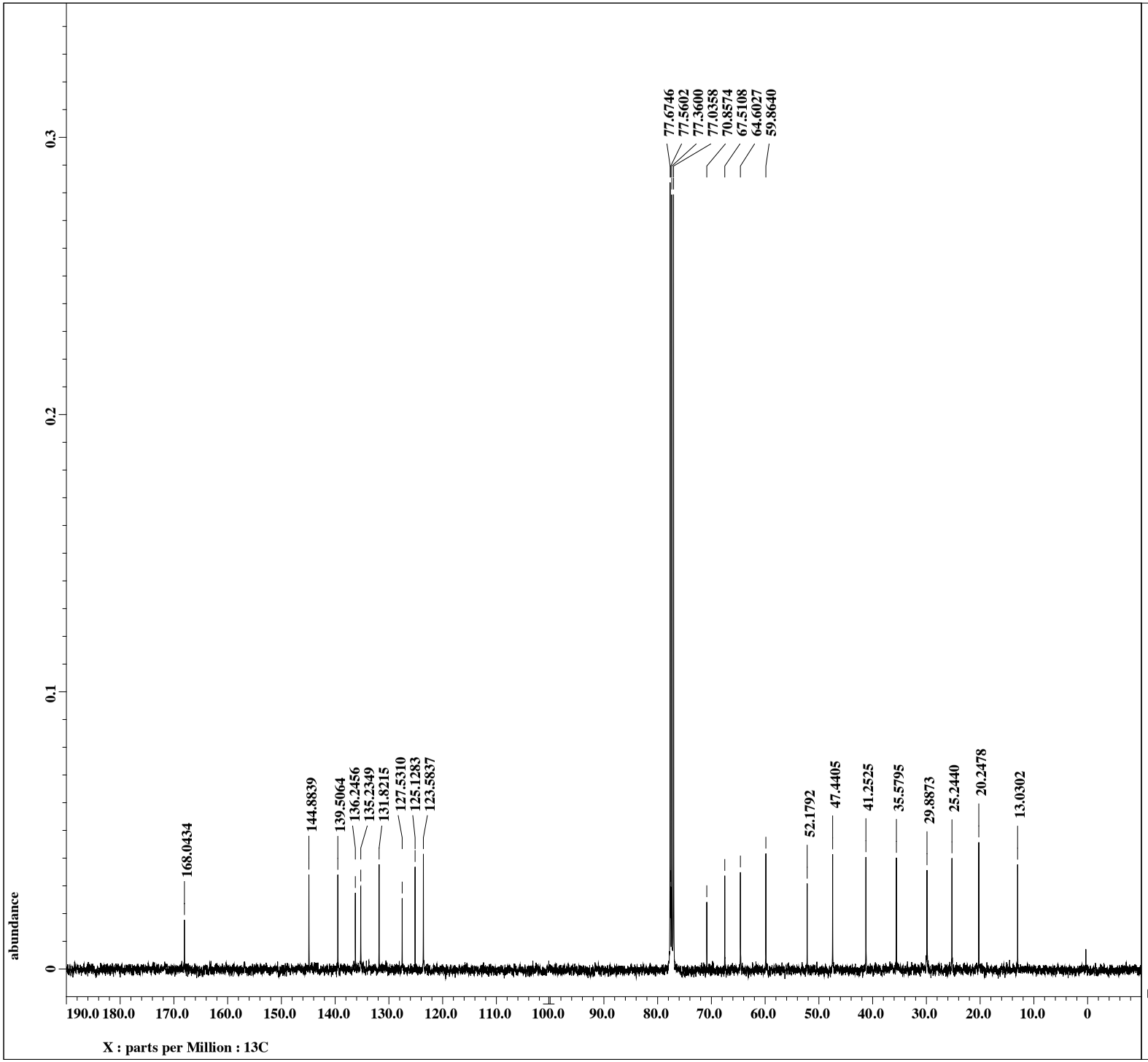

7.2612
6.9972
6.9124
6.9038
0.814 6.8746
6.5481
6.5189
6.4926
6.2892
6.2503
6.1684
1.0 6.1294
5.8064
0.999
4.3390
2.286
3.8631
3.8402
3.8196
4.909
2.2588
2.2319
0.805
1.8394
3.986
1.6695
1.6489
1.5549
1.5137
1.4908
0.734
1.2537
1.2399
1.2348
1.2256
1.1815
1.1723
1.1282
0.9627
0.8797
2.264
3.51
5.297
0.976
3.575
21.108
16.138
0.0498
0.0457
-0.0001
TBSO
O
CO2Me
OH

```
Filename              = a3-9'E-diol-1H-4.jdf
Author                = delta
Experiment            = single_pulse.ex2
Sample_id             = 1
Solvent               = CHLOROFORM-D
Creation_time         =  8-JAN-2010 14:48:06
Revision_time         =  9-JAN-2010 14:46:51
Current_time          =  9-JAN-2010 14:47:10

Comment               = single_pulse
Data_format           = 1D COMPLEX
Dim_size              = 13107
Dim_title             = 1H
Dim_units             = [ppm]
Dimensions            = X
Site                  = ECX400M
Spectrometer          = DELTA2_NMR

Field_strength        =  9.389766[T] (400[MHz]
X_acq_duration        =  2.18365952[s]
X_domain              = 1H
X_freq                =  399.78219838[MHz]
X_offset              =  4[ppm]
X_points              =  16384
X_prescans            =  1
X_resolution          =  0.45794685[Hz]
X_sweep               =  7.5030012[kHz]
Irr_domain            = 1H
Irr_freq              =  399.78219838[MHz]
Irr_offset            =  5[ppm]
Tri_domain            = 1H
Tri_freq              =  399.78219838[MHz]
Tri_offset            =  5[ppm]
Clipped               = FALSE
Mod_return            =  1
Scans                 =  8
Total_scans           =  8

X_90_width            =  10.5[us]
X_acq_time            =  2.18365952[s]
X_angle               =  45[deg]
X_atn                 =  1.4[dB]
X_pulse               =  5.25[us]
Irr_mode              = Off
Tri_mode              = Off
Dante_presat          = FALSE
Initial_wait          =  1[s]
Recvr_gain            =  34
Relaxation_delay      =  1[s]
Repetition_time       =  3.18365952[s]
Temp_get              =  23.7[dC]
```

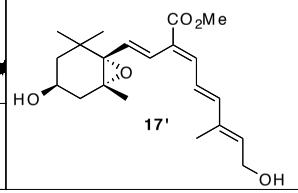


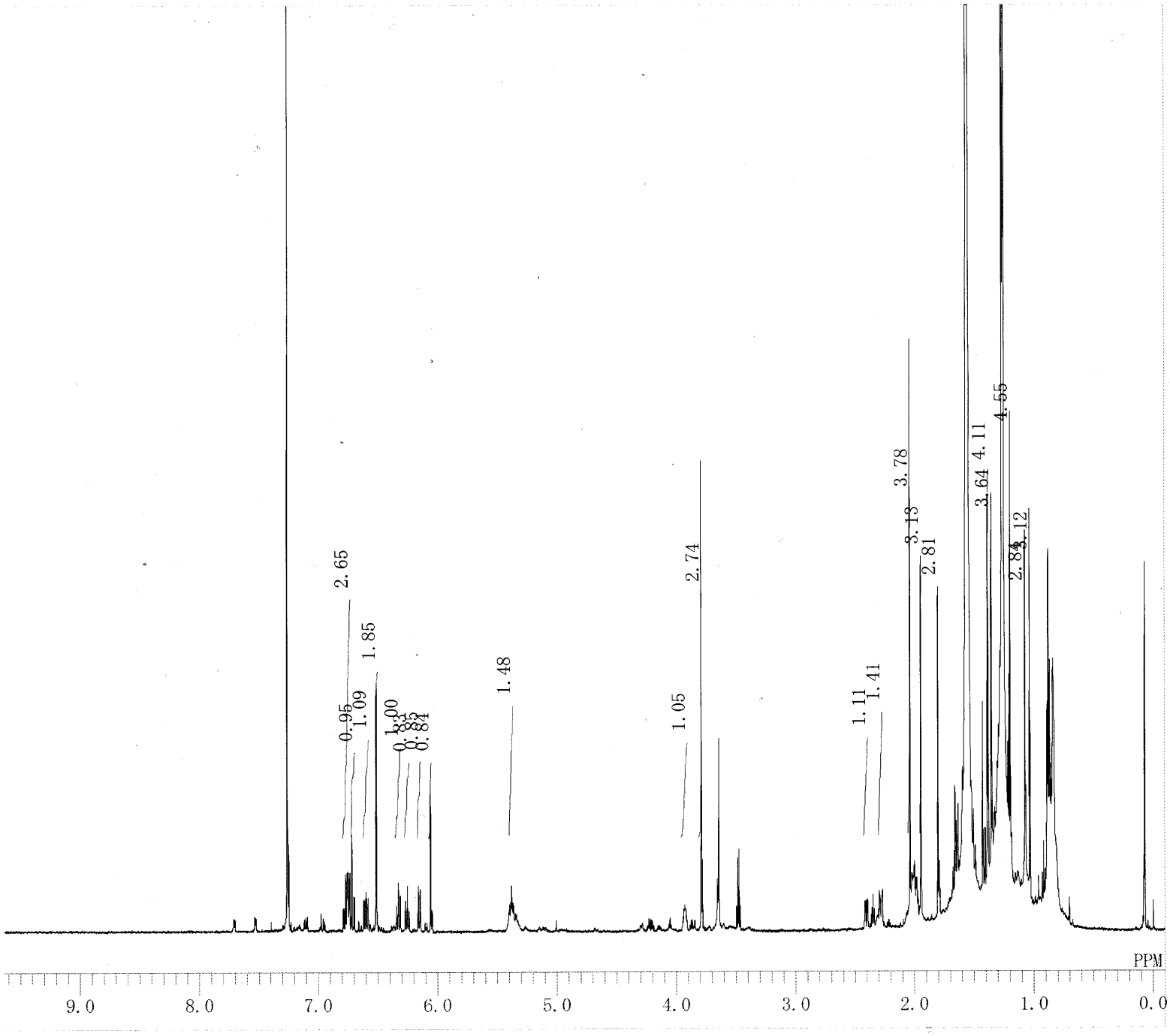

```
Filename          = a3-9'E-diol-13C-3.jdf
Author            = delta
Experiment        = single_pulse_dec
Sample_id         = S#581989
Solvent           = CHLOROFORM-D
Creation_time     =  8-JAN-2010 15:42:17
Revision_time     =  9-JAN-2010 14:37:58
Current_time      =  9-JAN-2010 14:40:01

Comment           = single pulse decouple
Data_format       = 1D COMPLEX
Dim_size          = 26214
Dim_title         = 13C
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX400M
Spectrometer      = DELTA2_NMR

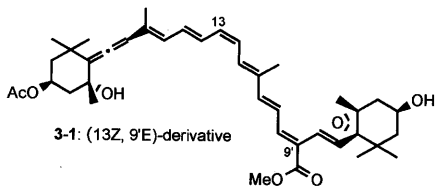
Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 1.04333312[s]
X_domain          = 13C
X_freq            = 100.52530333[MHz]
X_offset          = 100[ppm]
X_points          = 32768
X_prescans        = 4
X_resolution      = 0.95846665[Hz]
X_sweep           = 31.40703518[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 388
Total_scans       = 388

X_90_width        = 9.2[us]
X_acq_time        = 1.04333312[s]
X_angle           = 45[deg]
X_atn             = 6.6[dB]
X_pulse           = 4.6[us]
Irr_atn_dec       = 22.2[dB]
Irr_atn_noe       = 22.2[dB]
Irr_noise         = WALTZ
Decoupling        = TRUE
Initial_wait      = 1[s]
Noe               = TRUE
Noe_time          = 5[s]
Recvr_gain        = 50
Relaxation_delay  = 5[s]
Repetition_time   = 6.04333312[s]
Temp_get          = 23.4[dC]
```

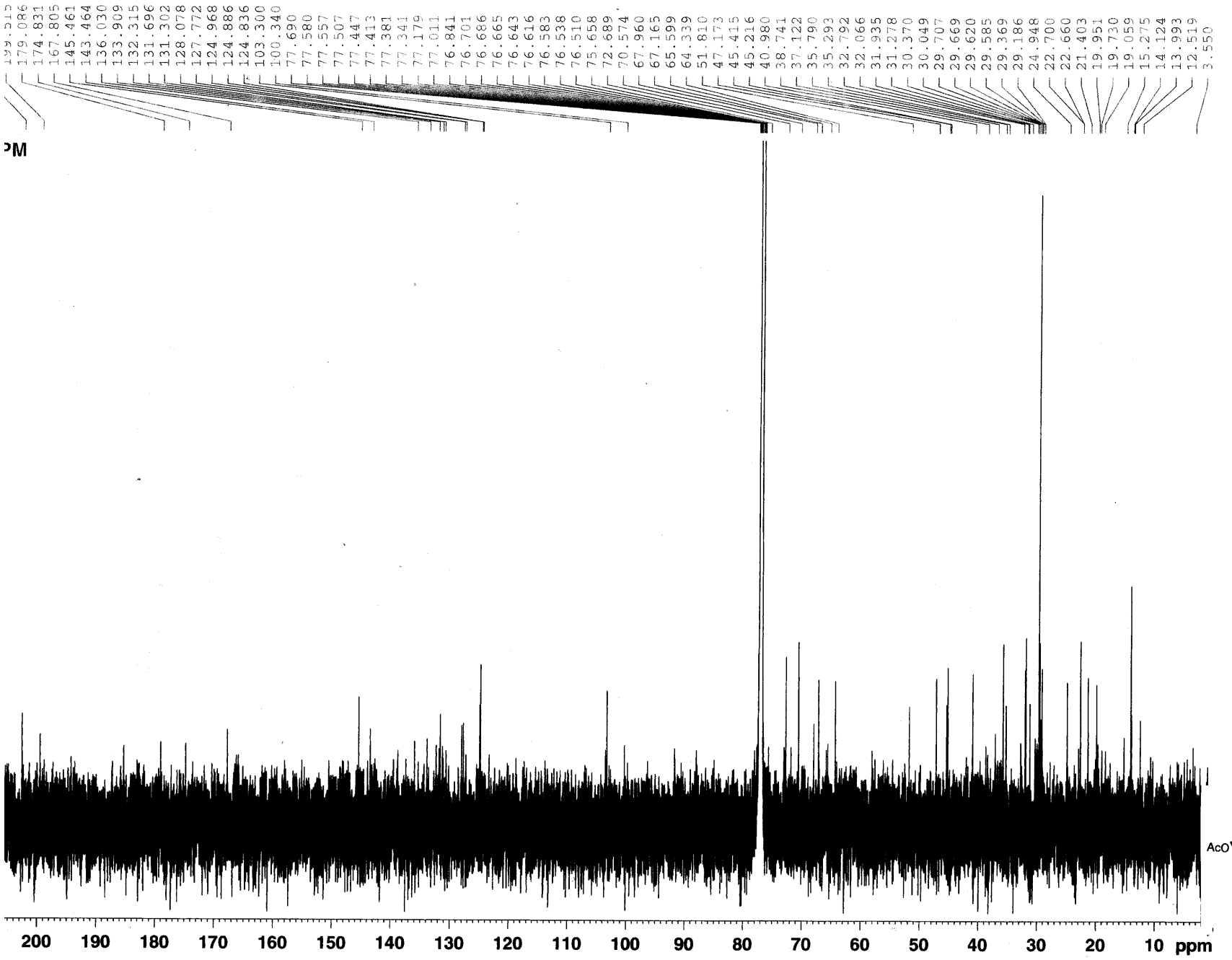




DFILE	1r
COMNT	katsum750_08.1.1
DATIM	Thu Aug 23 14:36:01 2007
OBNUC	1H
EXMOD	zg30
OBFRQ	750.13 MHz
OBSET	3.60 KHz
OBFIN	0.62 Hz
POINT	32768
FREQU	11261.26 Hz
SCANS	16
ACQTM	2.9098 sec
PD	1.0000 sec
PW1	9.85 usec
IRNUC	
CTEMP	26.9 c
SLVNT	CDCl3
EXREF	7.26 ppm
BF	0.30 Hz
RGAIN	64



3-1: (13Z, 9'E)-derivative



Current Data Parameters

NAME	katsum750_08
EXPNO	2000
PROCNO	1

F2 - Acquisition Parameters

Date_	20070805
Time	23.53
INSTRUM	spect
PROBHD	5 mm CPTCI 1H-
PULPROG	zgpg30
TD	65402
SOLVENT	CDCl3
NS	4096
DS	4
SWH	45045.047 Hz
FIDRES	0.688741 Hz
AQ	0.7260122 sec
RG	16384
DW	11.100 usec
DE	6.00 usec
TE	300.0 K
D1	2.00000000 sec
d11	0.03000000 sec
DELTA	1.89999998 sec
MCREST	0.00000000 sec
MCWRK	0.01500000 sec

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

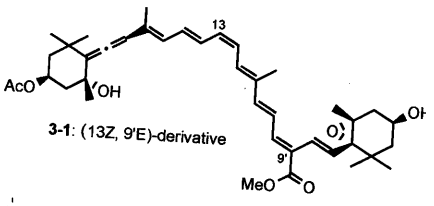
NUC1	13C
P1	15.00 usec
PL1	-4.90 dB
SFO1	188.6392006 MHz

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

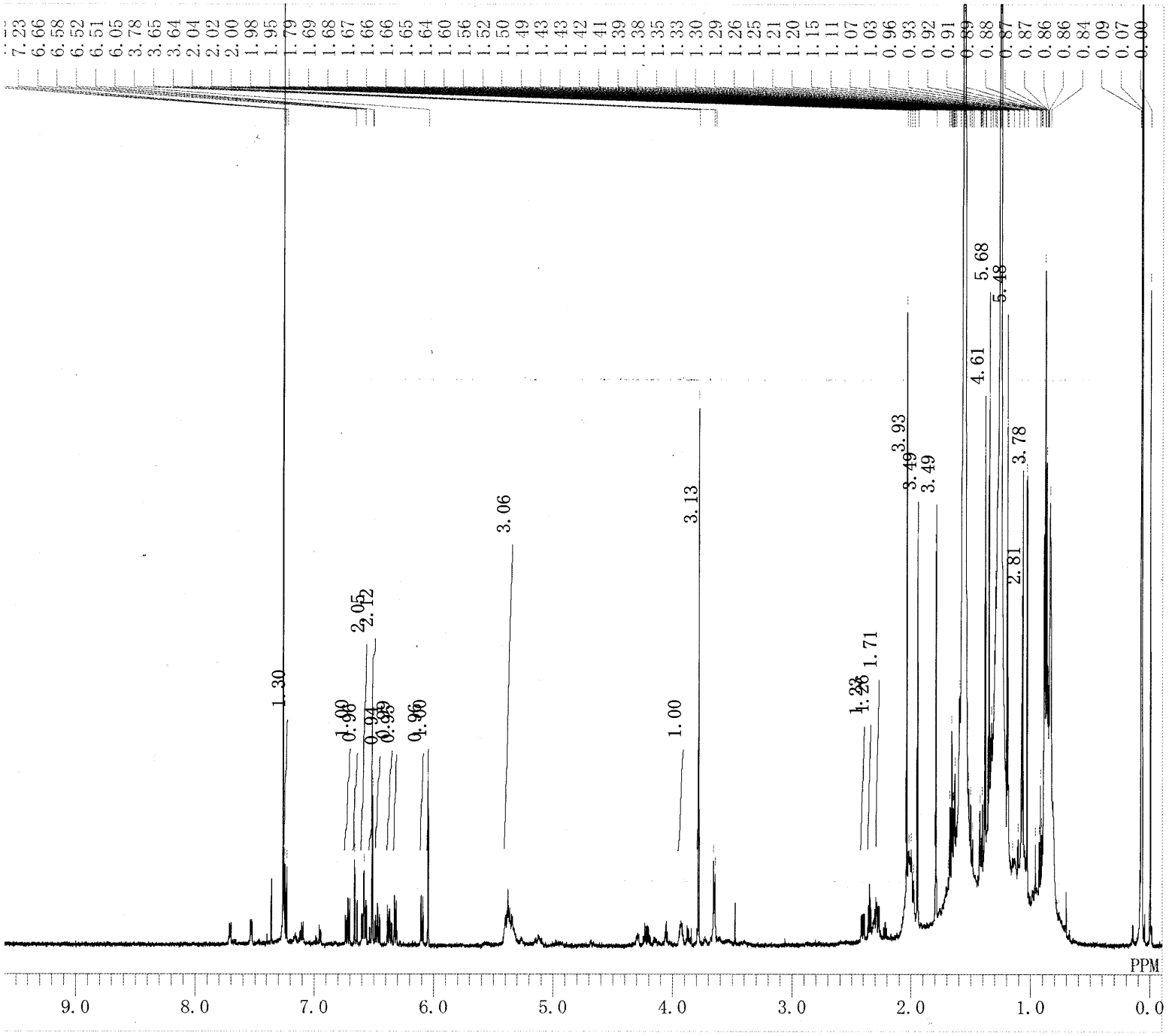
CPDPRG2	waltz16
NUC2	1H
PCPD2	100.00 usec
PL2	120.00 dB
PL12	16.95 dB
PL13	16.95 dB
SFO2	750.1330005 MHz

F2 - Processing parameters

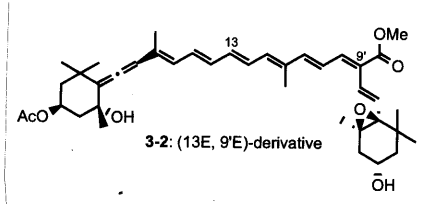
SI	32768
SF	188.6203390 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	0.01



3-1: (13Z, 9'E)-derivative



DFILE 1r
COMNT katsum750_07.1.1
DATIM Fri Aug 17 15:41:48 2007
OBNUC 1H
EXMOD zg30
OBFRQ 750.13 MHz
OBSET 3.60 KHz
OBFIN 0.62 Hz
POINT 32768
FREQU 11261.26 Hz
SCANS 16
ACQTM 2.9098 sec
PD 1.0000 sec
PW1 9.85 usec
IRNUC
CTEMP 26.9 c
SLVNT CDCl3
EXREF 7.26 ppm
BF 0.30 Hz
RGAIN 32



3-2: (13E, 9'E)-derivative

:sum750_07.1000.1
Z,15'E)-(A-3) /CDCl3 /298K(TE=300.5)
C{1H} 1Pulse with CPD (zgpg30):CPTCI-Z

201.708
191.568
186.864
182.264
168.555
167.798
158.542
146.787
139.631
136.255
133.030
131.182
130.882
128.952
128.523
128.133
127.941
127.738
127.612
127.307
126.154
124.950
122.964
103.316
80.472
77.500
77.178
77.009
76.839
72.684
70.584
68.162
67.958
67.157
64.339
63.759
54.106
51.773
47.173
45.410
45.217
43.378
40.978
40.783
35.287
32.060
31.928
31.269
30.361
30.048
29.702
29.663
29.577
29.363
29.246
29.173
28.924
27.093
24.939
23.749
22.986
22.693
21.398
19.945
19.728
14.120
13.965
12.803
10.961
1.224
1.026
-0.004
-3.675
-5.218
-5.445
-6.960

Current Data Parameters
NAME katsum750_07
EXPNO 1000
PROCNO 1

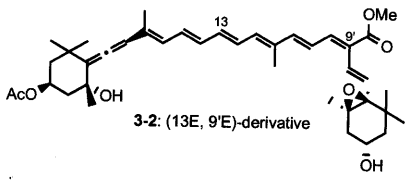
F2 - Acquisition Parameters
Date_ 20070803
Time 23.23
INSTRUM spect
PROBHD 5 mm CPTCI 1H-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 4096
DS 4
SWH 45045.047 Hz
FIDRES 0.687333 Hz
AQ 0.7274996 sec
RG 16384
DW 11.100 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

======== CHANNEL f1 ========
NUC1 13C
P1 15.00 usec
PL1 -4.90 dB
SFO1 188.6392006 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 16.95 dB
PL13 16.95 dB
SFO2 750.1330005 MHz

F2 - Processing parameters
SI 32768
SF 188.6203403 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 0.30

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm



3-2: (13E, 9'E)-derivative