Supporting Information

Kinetic Resolution of 4-Substituted-3,4-dihydrocoumarins via Pd-Catalyzed Asymmetric Allylic Alkylation Reaction: Enantioselective Synthesis of *trans*-3,4-Disubstituted-3,4-dihydrocoumarins

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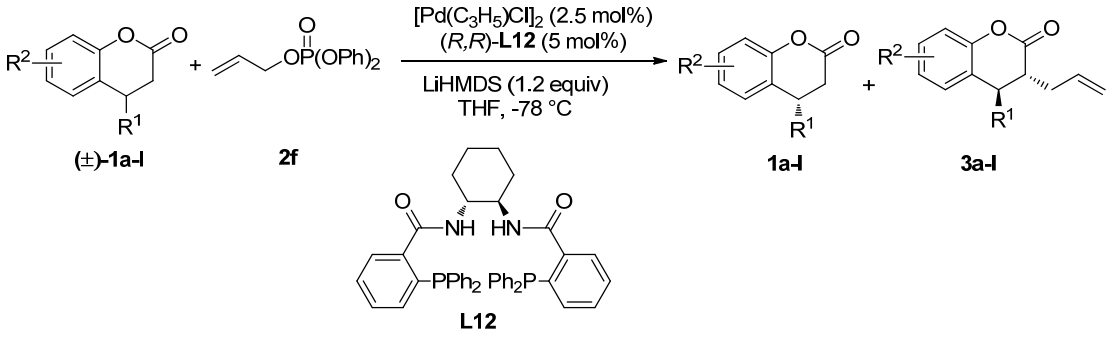
1. General Methods.

The reactions were carried out in flame-dried glassware under a dry argon atmosphere. All solvents were purified by using standard methods prior to use. Commercially available reagents were used without further purification. ^{1}H and ^{13}C NMR spectra were recorded on a NMR instrument operated at 300, 400 MHz respectively. Chemical shifts are reported in ppm from tetramethylsilane with the solvent resonance as the internal standard ($CDCl_3$: δ 7.26 ppm). Data are reported as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, br = broad, m = multiplet or unresolved), coupling constants (Hz), and integration. ^{13}C NMR spectra were recorded on a NMR instrument operated at 75, 100 MHz respectively with complete proton decoupling. Chemical shifts are reported in ppm from tetramethylsilane with the solvent resonance as the internal standard ($CDCl_3$: δ 77.0 ppm). Infrared spectra were recorded from thin films of pure samples. MS and HRMS were measured in EI or ESI mode and the mass analyzer of the HRMS was TOF. Thin layer chromatography was performed on pre-coated glass back plates and visualized with UV light at 254 nm. Flash column chromatography was performed on silica gel. Enantiomer ratios were determined by chiral HPLC analysis in comparison with authentic racemic materials.

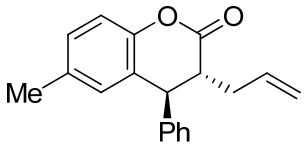
2. Experimental Procedure and Characterization of Product for Table 2



General Experimental Procedure for Table 2.

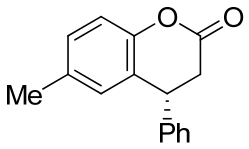
1 (0.2 mmol) and THF (1.0 mL) were added into a dry Schlenk tube. LiHMDS (1.0 M in THF, 0.24 mL, 0.24 mmol) was added dropwise and stirred for 30 min at -78 °C. In

a separated flask, $[Pd(C_3H_5)Cl]_2$ (1.8 mg, 0.005 mmol) and ligand (*R*,*R*)- **L12** (6.9 mg, 0.010 mmol) were dissolved in THF (1.0 mL) and stirred at room temperature for 30 min. Then the in-situ generated catalyst was added to the enolate solution. The allyl phosphate **2f** (0.1 mmol) was then added and the resulted mixture was stirred for c.a. 12 hours (TLC monitored) at -78 °C. After the reaction completed, the reaction mixture was quenched by NH_4Cl (aq) (2 mL) and extracted with ethyl ether (3 × 5 mL). The organic layer was combined, dried (anhydrous Na_2SO_4), filtered and concentrated in vacuo to afford a crude oil. The *anti/syn* ratio was determined by crude ^1H NMR. Purification by chromatography on silica gel (*vide infra*) provided the desired product and recovered substrate, and enantioselectivity was determined by chiral HPLC.



3a

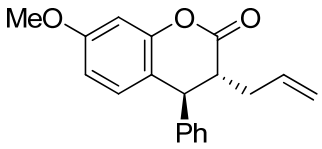
(*3R,4S*)-3-allyl-6-methyl-4-phenylchroman-2-one (**3a):** 46% yield (25.6 mg), dr >30/1, ee: 89%; $[\alpha]_D^{23}$ = 74.8 (c = 1.00 in $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$): δ 2.24-2.43 (m, 5H), 3.01 (q, *J* = 6.4 Hz, 1H), 4.11 (d, *J* = 6.8 Hz, 1H), 4.98-5.14 (m, 2H), 5.78-5.89 (m, 1H), 6.71 (s, 1H), 6.97-7.10 (m, 4H), 7.25-7.35 (m, 3H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 20.7, 33.5, 44.9, 46.6, 116.4, 118.7, 124.2, 127.4, 127.8, 127.9, 129.0, 129.2, 129.5, 133.6, 134.3, 140.4, 149.0, 169.6; HRMS for $C_{19}H_{19}O_2$ $(M + H)^+$: 279.1385; Found: 279.1375; IR (film): 2921 (w), 1765 (s), 1494 (s), 1242 (m), 1143 (s), 915 (m), 815 (m), 699 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 98/2, Flow rate = 0.7 mL/min, 214 nm) t_R = 12.38 min, 13.16 min.



1a

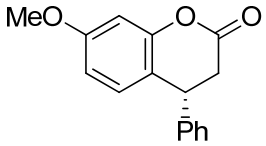
(*R*)-6-methyl-4-phenylchroman-2-one (1a): 49% yield (23.3 mg), ee: 75%; $[\alpha]_D^{23}$ =

-6.6 (c = 0.98 in $CHCl_3$); HPLC: (Chiralpak OJ-H, hexane/2-propanol = 90/10, Flow rate = 0.7 mL/min, 214 nm) t_R = 17.48 min, 19.76 min.



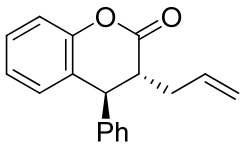
3b

(*3R,4S*)-3-allyl-7-methoxy-4-phenylchroman-2-one (3b): 46% yield (27.1 mg), dr >30/1, ee: 92%; $[\alpha]_D^{23}$ = 81.6 (c = 0.87 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.27-2.44 (m, 2H), 3.01 (t, *J* = 6.8 Hz, 1H), 3.81 (s, 3H), 4.09 (d, *J* = 7.2 Hz, 1H), 4.97-5.14 (m, 2H), 5.79-5.89 (m, 1H), 6.61-6.68 (m, 2H), 6.78 (d, *J* = 8.4 Hz, 1H), 7.08-7.10 (m, 2H), 7.25-7.35 (m, 3H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 33.4, 44.2, 46.6, 55.5, 102.0, 110.8, 116.6, 118.7, 127.4, 127.9, 129.0, 129.7, 133.6, 140.6, 151.8, 159.9, 169.1; HRMS for $C_{19}H_{19}O_3$ $(M + H)^+$: 295.1334; Found: 295.1331; IR (film): 2952 (w), 1763 (s), 1623 (m), 1505 (m), 1146 (s), 1101 (s), 1031 (m), 699 (m) cm^{-1}; HPLC: (Chiralpak IC, hexane/2-propanol = 90/10, Flow rate = 0.7 mL/min, 214 nm) t_R = 13.24 min, 14.04 min.



1b

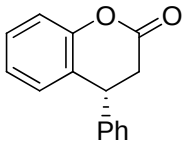
(*R*)-7-methoxy-4-phenylchroman-2-one (1b): 43% yield (21.9 mg), ee: 76%; $[\alpha]_D^{23}$ = -14.0 (c = 0.89 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.7 mL/min, 214 nm) t_R = 17.66 min, 19.44 min.



3c

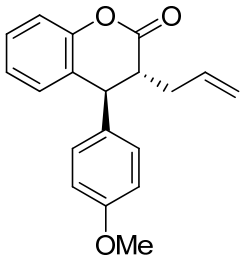
(*3R,4S*)-3-allyl-4-phenylchroman-2-one (3c): 50% yield (26.4 mg), dr >30/1, ee: 87%; $[\alpha]_D^{23}$ = 98.8 (c = 0.72 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.27-2.46 (m,

2H), 3.05 (t, *J* = 6.4 Hz, 1H), 4.16 (d, *J* = 7.2 Hz, 1H), 4.97-5.14 (m, 2H), 5.79-5.89 (m, 1H), 6.90 (d, *J* = 8.4 Hz, 1H), 7.05-7.13 (m, 4H), 7.26-7.36 (m, 4H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 33.2, 44.8, 46.3, 116.6, 118.8, 124.7, 124.8, 127.5, 128.0, 128.7, 129.0, 129.1, 133.5, 140.1, 151.0, 169.4; HRMS for $C_{18}H_{17}O_2$ $(M + H)^+$: 265.1229; Found: 265.1226; IR (film): 3064 (w), 1763 (s), 1454 (m), 1220 (m), 1149 (s), 915 (m), 754 (s), 699 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 98/2, Flow rate = 0.6 mL/min, 214 nm) t_R = 19.42 min, 27.72 min.



1c

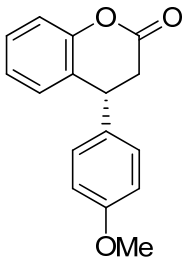
(*R*)-4-phenylchroman-2-one (1c): 45% yield (20.2 mg), ee: 79%; $[\alpha]_D^{23}$ = -30.8 (c = 0.87 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 99/1, Flow rate = 0.5 mL/min, 214 nm) t_R = 36.50 min, 39.46 min.



3d

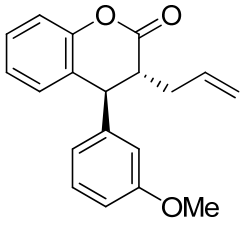
(*3R,4S*)-3-allyl-4-(4-methoxyphenyl)chroman-2-one (38d): 46% yield (27.1 mg), dr >30/1, ee: 90%; $[\alpha]_D^{23}$ = 75.0 (c = 1.28 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.25-2.45 (m, 2H), 3.00 (t, *J* = 6.4 Hz, 1H), 3.79 (s, 3H), 4.10 (d, *J* = 7.6 Hz, 1H), 4.96-5.13 (m, 2H), 5.79-5.89 (m, 1H), 6.86-6.90 (m, 3H), 7.00-7.11 (m, 4H), 7.26-7.30 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 33.1, 44.0, 46.4, 55.2, 114.4, 116.6, 118.6, 124.6, 125.3, 128.6, 129.0, 129.1, 132.0, 133.6, 151.0, 158.9, 169.5; HRMS for $C_{19}H_{19}O_3$ $(M + H)^+$: 295.1334; Found: 295.1329; IR (film): 2933 (w), 1764 (s), 1511 (s), 1248 (m), 1221 (m), 1178 (s), 1030 (m), 756 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 98/2, Flow rate = 0.6 mL/min, 214 nm) t_R = 33.92 min,

63.47 min.



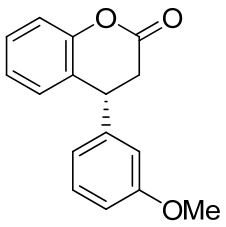
1d

(*R*)-4-(4-methoxyphenyl)chroman-2-one (1d): 33% yield (16.8 mg), ee: 43%; $[\alpha]_D^{23}$ = -8.28 (c = 0.56 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 99/1, Flow rate = 0.5 mL/min, 214 nm) t_R = 64.87 min, 71.55 min.



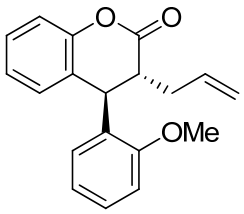
3e

(*3R,4S*)-3-allyl-4-(3-methoxyphenyl)chroman-2-one (3e): 43% yield (25.3 mg), dr >30/1, ee: 87%; $[\alpha]_D^{23}$ = 87.8 (c = 0.96 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.28-2.45 (m, 2H), 3.40 (t, *J* = 6.4 Hz, 1H), 3.77 (s, 3H), 4.13 (d, *J* = 7.6 Hz, 1H), 4.98-5.14 (m, 2H), 5.79-5.90 (m, 1H), 6.63-6.70 (m, 2H), 6.80-6.83 (m, 1H), 6.90 (d, *J* = 7.6 Hz, 1H), 7.05-7.12 (m, 2H), 7.24-7.31 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 33.2, 44.7, 46.2, 55.2, 112.4, 114.1, 116.6, 118.8, 120.2, 124.7, 128.7, 129.1, 130.1, 133.6, 141.7, 151.0, 160.0, 169.3; HRMS for $C_{19}H_{19}O_3$ $(M + H)^+$: 295.1334; Found: 295.1314; IR (film): 2960 (w), 1766 (s), 1487 (m), 1454 (m), 1223 (m), 1155 (s), 1041 (m), 757 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 95/5, Flow rate = 0.7 mL/min, 214 nm) t_R = 15.84 min, 23.38 min.



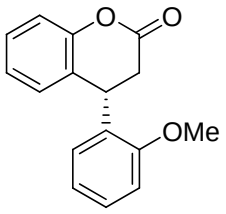
1e

(*R*)-4-(3-methoxyphenyl)chroman-2-one (1e): 48% yield (24.4 mg), ee: 76%; $[\alpha]_D^{23}$ = -20.8 (c = 1.01 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.7 mL/min, 214 nm) t_R = 16.74 min, 17.74 min.



3f

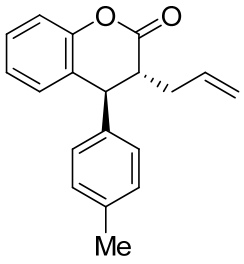
(*3R,4S*)-3-allyl-4-(2-methoxyphenyl)chroman-2-one (3f): 51% yield (30.0 mg), dr >30/1, ee: 76%; $[\alpha]_D^{23}$ = 84.2 (c = 1.12 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.28-2.45 (m, 2H), 3.04 (q, *J* = 6.0 Hz, 1H), 3.77 (s, 3H), 4.13 (d, *J* = 7.6 Hz, 1H), 4.98-5.14 (m, 2H), 5.79-5.90 (m, 1H), 6.63-6.70 (m, 2H), 6.80-6.83 (m, 1H), 6.90 (d, *J* = 7.6 Hz, 1H), 7.05-7.12 (m, 2H), 7.24-7.31 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 33.2, 44.8, 46.2, 55.2, 112.4, 114.071, 116.6, 118.8, 120.2, 124.687, 128.7, 129.2, 130.1, 133.6, 141.7, 151.0, 160.0, 169.3; HRMS for $C_{19}H_{19}O_3$ $(M + H)^+$: 295.1334; Found: 295.1318; IR (film): 2938 (w), 1763 (s), 1488 (m), 1455 (m), 1221 (m), 1149 (s), 1025 (m), 750 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 98/2, Flow rate = 0.6 mL/min, 214 nm) t_R = 19.24 min, 20.63 min.



1f

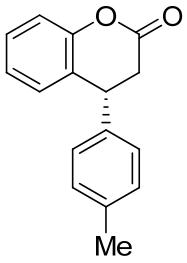
(*R*)-4-(2-methoxyphenyl)chroman-2-one (1f): 42% yield (21.4 mg), ee: 91%; $[\alpha]_D^{23}$

= -46.2 (c = 1.10 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.7 mL/min, 214 nm) t_R = 13.13 min, 15.34 min.



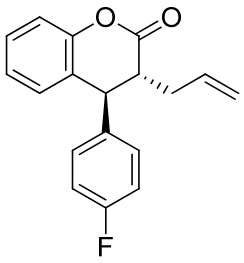
3g

(*3R,4S*)-3-allyl-4-p-tolylchroman-2-one (3g): 48% yield (26.7 mg), dr >30/1, ee: 80%; $[\alpha]_D^{23}$ = 81.3 (c = 1.18 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.26-2.45 (m, 5H), 3.02 (q, *J* = 6.4 Hz, 1H), 4.12 (d, *J* = 6.0 Hz, 1H), 4.97-5.13 (m, 2H), 5.79-5.89 (m, 1H), 6.88 (d, *J* = 7.6 Hz, 1H), 6.97-7.15 (m, 6H), 7.25-7.30 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 21.0, 33.1, 44.4, 46.3, 116.6, 118.7, 124.6, 125.1, 127.8, 128.6, 129.1, 129.7, 133.6, 137.0, 137.2, 151.0, 169.5; HRMS for $C_{19}H_{19}O_2$ $(M + H)^+$: 279.1385; Found: 279.1385; IR (film): 2962 (w), 1767 (m), 1455 (m), 1259 (s), 1092 (s), 1018 (s), 796 (s), 757 (m) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 98/2, Flow rate = 0.7 mL/min, 214 nm) t_R = 13.28 min, 17.45 min.



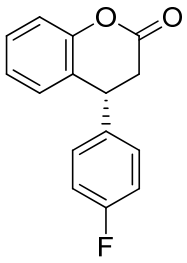
1g

(*R*)-4-p-tolylchroman-2-one (1g): 42% yield (20.0 mg), ee: 94%; $[\alpha]_D^{23}$ = -34.3 (c = 0.76 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.7 mL/min, 214 nm) t_R = 11.54 min, 12.51 min.



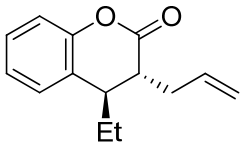
3h

(*3R,4S*)-3-allyl-4-(4-fluorophenyl)chroman-2-one (**3h):** 44% yield (24.8 mg), dr >30/1, ee: 82%; $[\alpha]_D^{23}$ = 68.0 (c = 1.14 in $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$): δ 2.26-2.45 (m, 2H), 3.00 (q, *J* = 6.4 Hz, 1H), 4.15 (d, *J* = 6.0 Hz, 1H), 4.96-5.14 (m, 2H), 5.78-5.88 (m, 1H), 6.89 (d, *J* = 7.6 Hz, 1H), 7.00-7.13 (m, 6H), 7.26-7.33 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 33.2, 44.0, 46.4, 115.9 (d, $J_{C,F}$ = 21.3 Hz), 116.7, 118.9, 124.6, 128.9, 129.0, 129.5 (d, $J_{C,F}$ = 8.0 Hz), 133.4, 135.8 (d, $J_{C,F}$ = 3.5 Hz), 151.0, 160.8 (d, $J_{C,F}$ = 245.6 Hz), 169.1; ^{19}F NMR (376 MHz, $CDCl_3$): δ -114.7; HRMS for $C_{18}H_{15}FO_2$ $(M + H)^+$: 284.1134; Found: 284.1135; IR (film): 3077 (w), 1766 (s), 1509 (s), 1455 (m), 1224 (s), 1149 (s), 917 (m), 756 (s) cm^{-1}; HPLC: (Chiralpak AS-H, hexane/2-propanol = 98/2, Flow rate = 0.5 mL/min, 214 nm) t_R = 29.45 min, 48.53 min.



1h

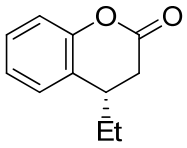
(*R*)-4-(4-fluorophenyl)chroman-2-one (1h): 46% yield (22.3 mg), ee: 90%; $[\alpha]_D^{23}$ = -11.0 (c = 0.91 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.6 mL/min, 214 nm) t_R = 20.23 min, 20.99 min.



3i

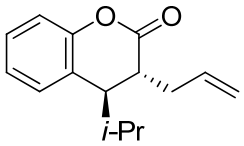
(*3R,4R*)-3-allyl-4-ethylchroman-2-one (3i): 47% yield (20.3 mg), dr >30/1, ee: 90%;

$[\alpha]_D^{23}$ = 76.6 (c = 0.86 in $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$): δ 0.91 (t, *J* = 7.2 Hz, 3H), 1.51-1.66 (m, 2H), 2.06-2.13 (m, 1H), 2.28-2.34 (m, 1H), 2.70 (t, *J* = 8.0 Hz, 1H), 2.85-2.89 (m, 1H), 4.94-5.10 (m, 2H), 5.67-5.78 (m, 1H), 7.04-7.15 (m, 3H), 7.25-7.29 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 11.2, 28.4, 34.3, 41.6, 45.0, 116.6, 118.3, 124.4, 124.5, 128.2, 129.3, 133.7, 150.5, 170.2; HRMS for $C_{19}H_{19}O_2$ $(M + H)^+$: 217.1229; Found: 217.1224; IR (film): 2965 (w), 1768 (m), 1487 (m), 1455 (m), 1219 (s), 1158 (s), 915 (m), 756 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 99/1, Flow rate = 0.5 mL/min, 214 nm) t_R = 14.87 min, 15.39 min.



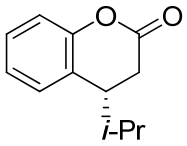
1i

(*S*)-4-ethylchroman-2-one (1i): 51% yield (18.0 mg); ee: 75%; $[\alpha]_D^{23}$ = -31.5 (c = 1.09 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.5 mL/min, 214 nm) t_R = 12.62 min, 13.61 min.



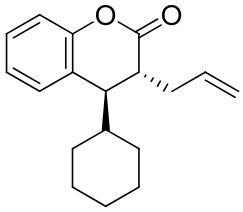
3j

(*3R,4R*)-3-allyl-4-isopropylchroman-2-one (3j): 44% yield (20.3 mg), dr >30/1, ee: 76%; $[\alpha]_D^{23}$ = 59.7 (c = 0.62 in $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$): δ 0.86 (d, *J* = 6.8 Hz, 3H), 0.95 (d, *J* = 6.8 Hz, 3H), 1.73-1.82 (m, 1H), 2.00-2.08 (m, 1H), 2.28-2.34 (m, 1H), 2.57 (d, *J* = 6.8 Hz, 1H), 2.96 (t, *J* = 6.8 Hz, 1H), 4.94-5.10 (m, 2H), 5.65-5.76 (m, 1H), 7.03 (d, *J* = 8.0 Hz, 1H), 7.11-7.13 (m, 2H), 7.25-7.30 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 19.6, 20.1, 32.9, 35.0, 42.6, 46.7, 116.5, 118.4, 123.3, 124.2, 128.3, 130.3, 133.7, 150.8, 170.6; HRMS for $C_{15}H_{19}O_2$ $(M + H)^+$: 231.1385; Found: 231.1382; IR (film): 2961 (w), 1764 (s), 1487 (m), 1455 (m), 1219 (s), 1158 (s), 915 (m), 757 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 99/1, Flow rate = 0.6 mL/min, 214 nm) t_R = 10.07 min, 10.64 min.



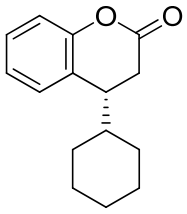
1j

(*R*)-4-isopropylchroman-2-one (1j): 44% yield (16.7 mg), ee: 64%; $[\alpha]_D^{23}$ = -19.6 (c = 1.09 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 95/5, Flow rate = 0.7 mL/min, 214 nm) t_R = 8.11 min, 9.14 min.



3k

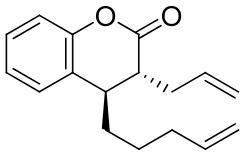
(*3R,4R*)-3-allyl-4-cyclohexylchroman-2-one (3k): 48% yield (25.9 mg), dr >30/1, ee: 74%; $[\alpha]_D^{23}$ = 63.3 (c = 1.15 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 0.92-1.18 (m, 5H), 1.38-1.80 (m, 7H), 1.99-2.07 (m, 1H), 2.27-2.33 (m, 1H), 2.61 (d, *J* = 6.8 Hz, 1H), 2.98 (t, *J* = 8.0 Hz, 1H), 4.93-5.09 (m, 2H), 5.65-5.75 (m, 1H), 7.03-7.11 (m, 3H), 7.25-7.29 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 26.0, 26.1, 26.2, 29.9, 30.4, 34.9, 42.4, 42.5, 46.1, 116.4, 118.3, 123.3, 124.1, 128.2, 130.3, 133.8, 150.8, 170.7; HRMS for $C_{18}H_{23}O_2$ $(M + H)^+$: 271.1698; Found: 271.1692; IR (film): 2924 (m), 2852 (w), 1764 (s), 1486 (m), 1454 (m), 1217 (s), 1154 (s), 915 (m), 756 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 99/1, Flow rate = 0.6 mL/min, 214 nm) t_R = 8.63 min, 10.28 min.



1k

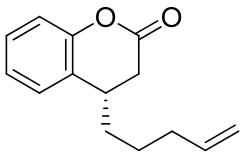
(*R*)-4-cyclohexylchroman-2-one (1k): 52% yield (23.9 mg), ee: 67%; $[\alpha]_D^{23}$ = -23.2

(c = 1.08 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 99/1, Flow rate = 0.6 mL/min, 214 nm) t_R = 18.54 min, 26.06 min.



3l

(*3R,4R*)-3-allyl-4-(pent-4-enyl)chroman-2-one (3l): 50% yield (25.6 mg), dr >30/1, ee: 60%; $[\alpha]_D^{23}$ = 67.4 (c = 0.78 in $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.35-1.56 (m, 4H), 1.99-2.11 (m, 3H), 2.27-2.34 (m, 1H), 2.79-2.87 (m, 2H), 4.92-5.10 (m, 4H), 4.66-5.78 (m, 2H), 7.04-7.14 (m, 3H), 7.25-7.29 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 25.9, 33.4, 34.2, 34.8, 39.9, 45.2, 115.0, 116.7, 118.3, 124.4, 124.6, 128.3, 129.2, 133.6, 138.0, 150.4, 170.1; HRMS for $C_{17}H_{21}O_2$ $(M + H)^+$: 257.1542; Found: 257.1540; IR (film): 2930 (w), 1767 (s), 1487 (m), 1456 (m), 1218 (m), 1153 (s), 913 (s), 757 (s) cm^{-1}; HPLC: (Chiralpak OJ-H, hexane/2-propanol = 98/2, Flow rate = 0.5 mL/min, 214 nm) t_R = 11.29 min, 13.37 min.

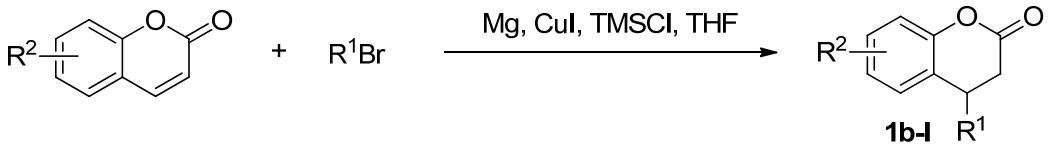


1l

(*S*)-4-(pent-4-enyl)chroman-2-one (1l): 44% yield (19.1 mg), ee: 70%; $[\alpha]_D^{23}$ = -35.3 (c = 0.78 in $CHCl_3$); HPLC: (Chiralpak AD-H, hexane/2-propanol = 99/1, Flow rate = 0.6 mL/min, 214 nm) t_R = 18.56 min, 19.91 min.

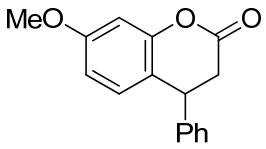
3. Synthesis of Substrate

The 6-methyl-4-phenylchroman-2-one (**1a**) was commercially available without further purification. The other substrates (**1b-1l**) were synthesized according to the literature procedures [1].



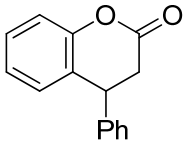
General experimental procedure fo preparation of substrates: The R^1Br (24 mmol) was added so slowly to a mixture of Mg (0.60 g, 25 mmol) in THF (20 mL) that the mixture was kept mild refluxing. After addition, the mixture was stirred for 1 h.

To a solution of cuprous iodide (2.29 g, 12 mmol) in THF (15 mL) was added a solution of above Grignard reagent (24 mmol) at -10 °C. The reaction solution was stirred for 30 min under this temperature. After the reaction was cooled to -78 °C, a solution of TMSCl (3.1 mL, 24 mmol) and coumarin (5 mmol) was added dropwise and the resulting mixture was stirred for 4 h. Then an aqueous saturated solution of NH_4Cl (40 mL) was added dropwise and the resulting mixture was stirred for 10 min. The aqueous phase was extracted with diethyl ether (20 mL × 3). The combined organic phases were dried over anhydrous Na_2SO_4 and concentrated *in vacuum*. The crude residue was purified by chromatography on silica gel (petroleum ether/EtOAc = 5/1) to give the products **1**.



1b

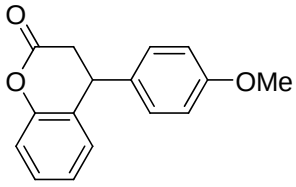
1b: 46% yield; ^1H NMR (400 MHz, $CDCl_3$): δ 2.95-3.08 (m, 2H), 3.79 (s, 3H), 4.26 (t, *J* = 6.4 Hz, 1H), 6.62-6.68 (m, 2H), 6.85 (d, *J* = 8.8 Hz, 1H), 7.13-7.16 (m, 2H), 7.25-7.36 (m, 3H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 37.2, 40.0, 55.5, 102.4, 110.6, 117.5, 127.4, 127.5, 128.8, 129.0, 140.7, 152.4, 159.9, 167.6.



1c

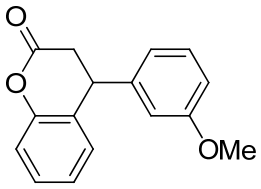
1c: 49% yield; ^1H NMR (400 MHz, $CDCl_3$): δ 2.99-3.11 (m, 2H), 4.33 (t, *J* = 6.8 Hz,

1H), 6.97 (d, J = 7.6 Hz, 1H), 7.06-7.17 (m, 4H), 7.25-7.37 (m, 4H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 37.0, 40.6, 117.1, 124.6, 125.7, 127.5, 127.6, 128.3, 128.8, 129.1, 140.2, 151.6.



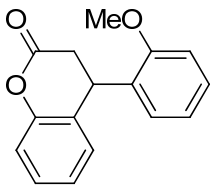
1d

1d: ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.94-3.07 (m, 2H), 3.78 (s, 3H), 4.27 (t, J = 6.0 Hz, 1H), 6.85-6.89 (m, 2H), 6.97 (d, J = 7.6 Hz, 1H), 7.06-7.12 (m, 4H), 7.25-7.31 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 37.1, 39.8, 55.2, 114.4, 117.0, 124.6, 128.2, 128.6, 128.6, 132.1, 151.6, 158.9, 167.7.



1e

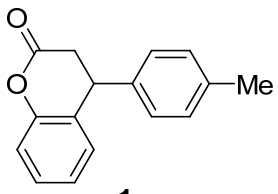
1e: 80% yield; ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.98-3.10 (m, 2H), 3.77 (s, 3H), 4.30 (t, J = 6.8 Hz, 1H), 6.69-6.70 (m, 1H), 6.74 (d, J = 7.6 Hz, 1H), 6.81-6.84 (m, 1H), 6.99-7.14 (m, 3H), 7.25-7.32 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 36. 9, 40.6, 55.2, 112.6, 113.6, 117.1, 119.8, 124.6, 125.6, 128.3, 128.8, 130.2, 141.8, 151.6, 167.6.



1f

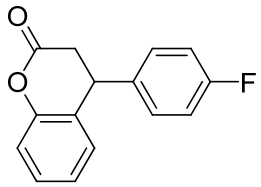
1f: 75% yield; ^{1}H NMR (400 MHz, $CDCl_3$): δ 2.95 (dd, J = 16.4, 6.8 Hz, 1H), 3.07 (dd, J = 16.0, 6.4 Hz, 1H), 3.82 (s, 3H), 4.66 (t, J = 6.0 Hz, 1H), 6.84-7.02 (m, 3H), 7.03-7.13 (m, 3H), 7.22-7.30 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 35.0, 35.4,

55.0, 110.6, 116.9, 120.8, 124.4, 124.8, 128.2, 128.4, 128.4, 128.7, 152.0, 156.7, 168.0; HRMS for $C_{16}H_{15}O_3$ $(M + H)^+$: 255.1021; Found: 255.1016; IR (film): 2913 (w), 1760 (s), 1607 (m), 1485 (m), 1206 (s), 1047 (s), 795 (m), 756 (s) cm^{-1}.



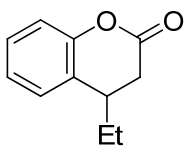
1g

1g: 83% yield; ^1H NMR (400 MHz, $CDCl_3$): δ 2.32 (s, 3H), 2.95-3.06 (m, 2H), 4.27 (t, *J* = 7.2 Hz, 1H), 6.95 (d, *J* = 7.6 Hz, 1H), 7.02-7.15 (m, 6H), 7.24-7.29 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 20.9, 36.9, 40.2, 117.0, 124.5, 126.0, 127.3, 128.2, 128.6, 129.7, 137.2, 137.2, 151.6, 167.7.



1h

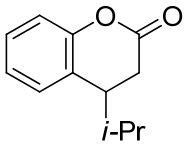
1h: 25% yield; ^1H NMR (400 MHz, $CDCl_3$): δ 2.94-3.08 (m, 2H), 4.32 (t, *J* = 6.4 Hz, 1H), 6.96-7.14 (m, 7H), 7.28 (t, *J* = 7.6 Hz, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 37.0, 39.8, 115.8 (d, $J_{C,F}$ = 21.3 Hz), 117.0, 124.6, 125.4, 128.1, 128.8, 129.0 (d, $J_{C,F}$ = 7.9 Hz), 135.9 (d, $J_{C,F}$ = 31.1 Hz), 151.5, 160.7 (d, $J_{C,F}$ = 245.1 Hz), 167.3; ^{19}F NMR (376 MHz, $CDCl_3$): δ -114.5.



1i

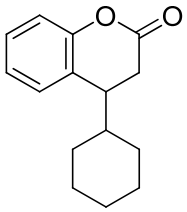
1i: 49% yield; ^1H NMR (400 MHz, $CDCl_3$): δ 0.94 (t, *J* = 7.2 Hz, 3H), 1.55-1.70 (m, 2H), 2.73-2.94 (m, 3H), 7.04 (d, *J* = 8.4 Hz, 1H), 7.09-7.13 (m, 1H), 7.18-7.20 (m, 1H), 7.24-7.28 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 11.0, 27.4, 34.3, 36.4, 116.9,

124.2, 126.4, 127.8, 128.1, 151.2, 168.4.



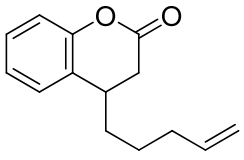
1j

1j: 79% yield; ^{1}H NMR (400 MHz, $CDCl_3$): δ 0.91 (d, J = 6.8 Hz, 3H), 0.96 (d, J = 6.8 Hz, 3H), 1.82-1.90 (m, 1H), 2.71-2.78 (m, 2H), 2.87-2.94 (m, 1H), 7.05 (d, J = 8.0 Hz, 1H), 7.09-7.13 (m, 1H), 7.16-7.18 (m, 1H), 7.24-7.29 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 19.1, 20.1, 32.0, 32.2, 41.7, 117.0, 124.0, 125.4, 128.2, 128.9, 151.6, 168.9.



1k

1k: 72% yield; ^{1}H NMR (400 MHz, $CDCl_3$): δ 0.94-1.03 (m, 5H), 1.10-1.20 (m, 1H), 1.42-1.82 (m, 5H), 2.69-2.79 (m, 2H), 2.93-2.97 (m, 1H), 7.04-7.16 (m, 3H), 7.24-7.28 (m, 1H); ^{13}C NMR (100 MHz, $CDCl_3$): δ 26.0, 26.1, 26.1, 29.5, 30.5, 32.2, 41.1, 41.7, 117.0, 123.9, 125.5, 128.1, 129.1, 151.5, 169.0; HRMS for $C_{15}H_{19}O_2$ $(M + H)^+$: 231.1385; Found: 231.1381; IR (film): 2924 (m), 2852 (w), 1756 (s), 1453 (m), 1217 (m), 1171 (s), 913 (w), 749 (s) cm^{-1}.



1l

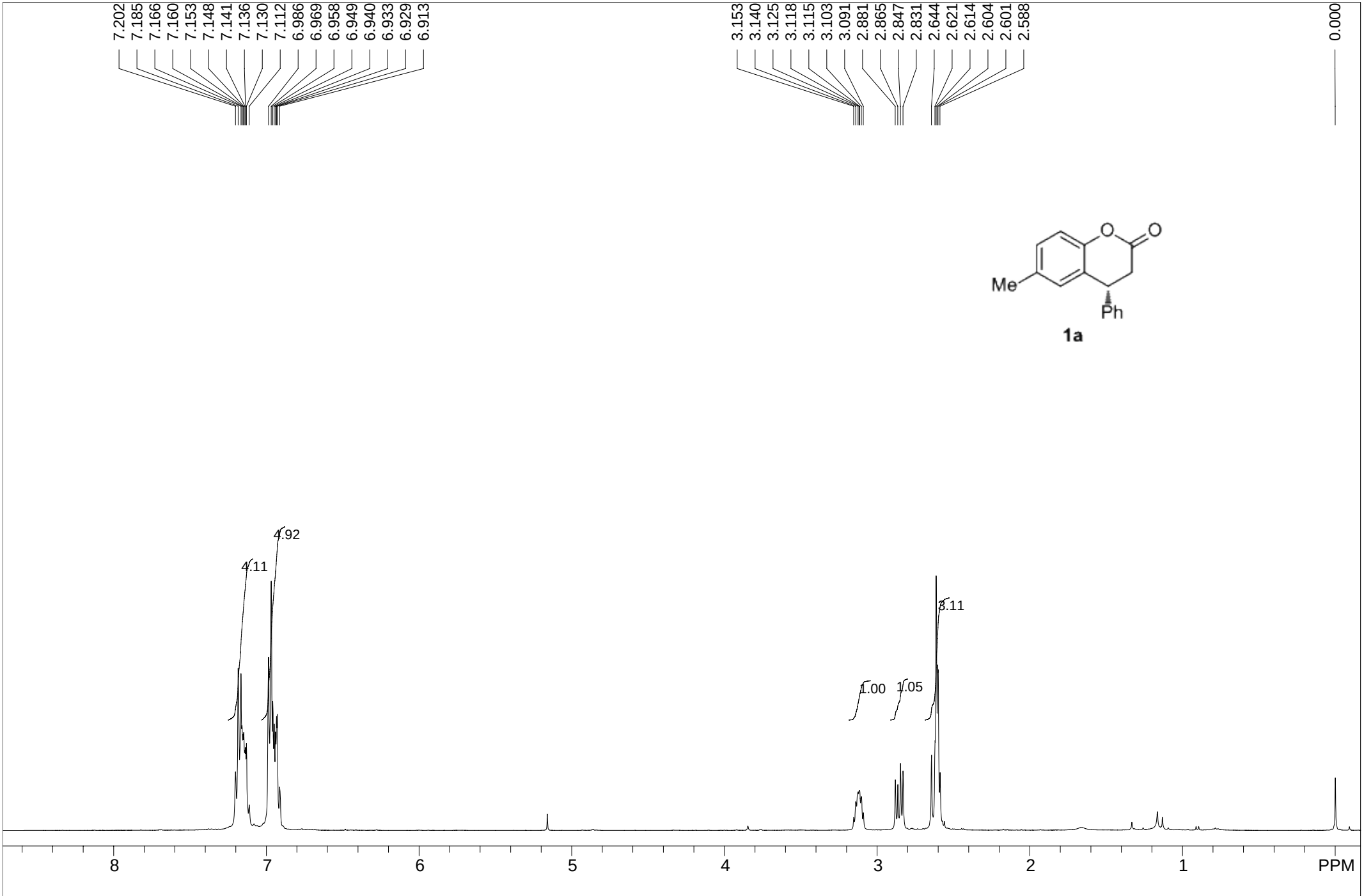
1l: 73% yield; ^{1}H NMR (400 MHz, $CDCl_3$): δ 1.36-1.69 (m, 4H), 2.03-2.09 (m, 2H), 2.73-2.86 (m, 2H), 2.96-3.02 (m, 1H), 4.94-5.01 (m, 2H), 5.70-5.80 (m, 1H), 7.05 (d, J = 8.4 Hz, 1H), 7.09-7.13 (m, 1H), 7.17-7.19 (m, 1H), 7.24-7.28 (m, 1H); ^{13}C NMR

(100 MHz, $CDCl_3$): δ 25.8, 33.4, 34.0, 34.7, 35.0, 115.0, 117.1, 124.3, 126.6, 127.8, 128.2, 137.9, 151.2, 168.4; HRMS for $C_{14}H_{17}O_2$ $(M + H)^+$: 217.1229; Found: 217.1225; IR (film): 2929 (w), 1767 (s), 1487 (m), 1455 (m), 1216 (m), 1144 (s), 910 (m), 755 (s) cm^{-1}.

4. Reference

1. A. S. Kireev, O. N.Nadein, V. J. Agustin, N. E.Bush, A. Evidente, M. Manpadi, M. A. Ogasawara, S. K. Rastogi, S. Rogeli, S. T. Shors, A. Kornienko, *J. Org. Chem.*, 2006, **71**, 5694.

5. 1H- and 13C-NMR and HPLC Spectra of Compounds 1 and 3



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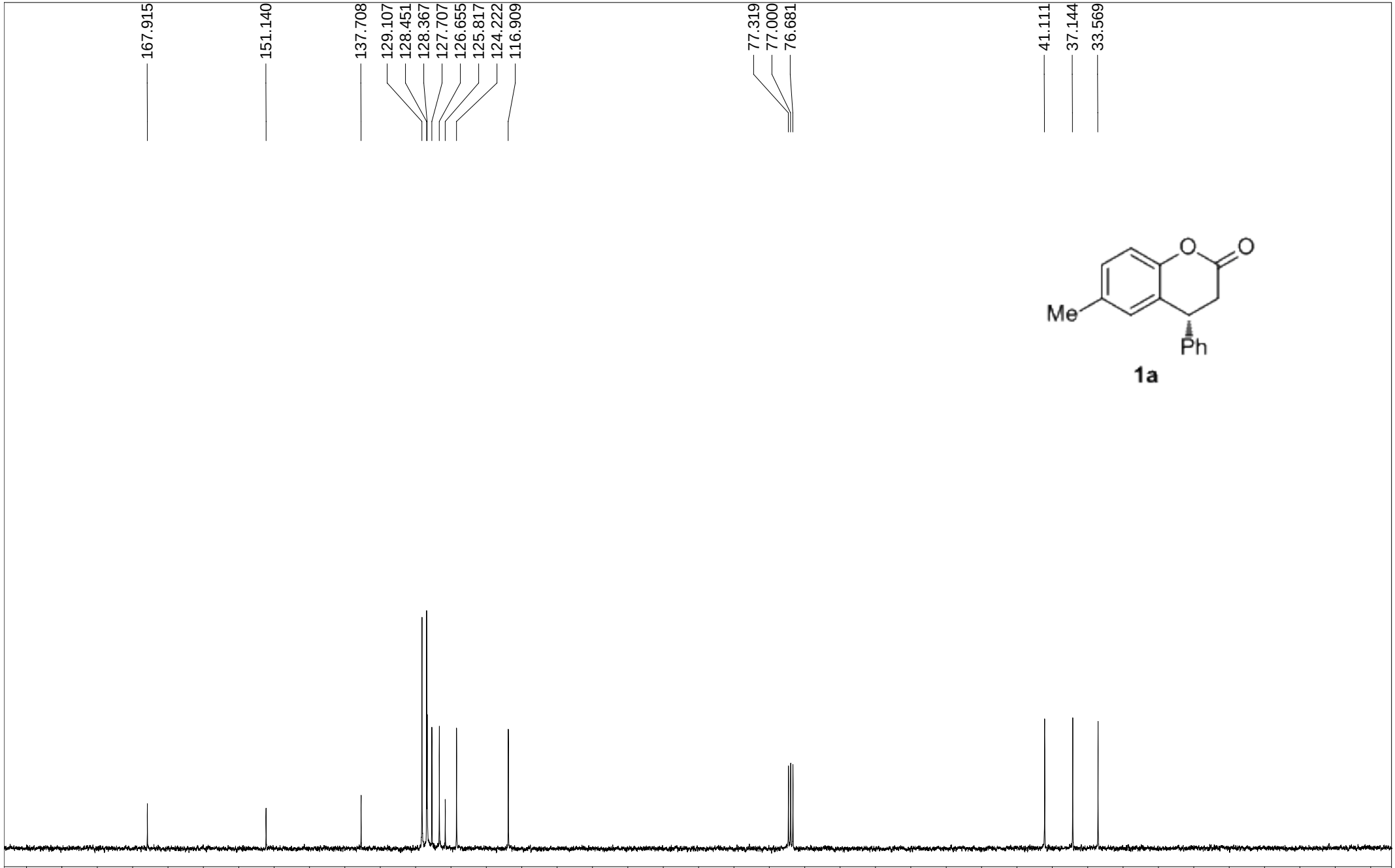

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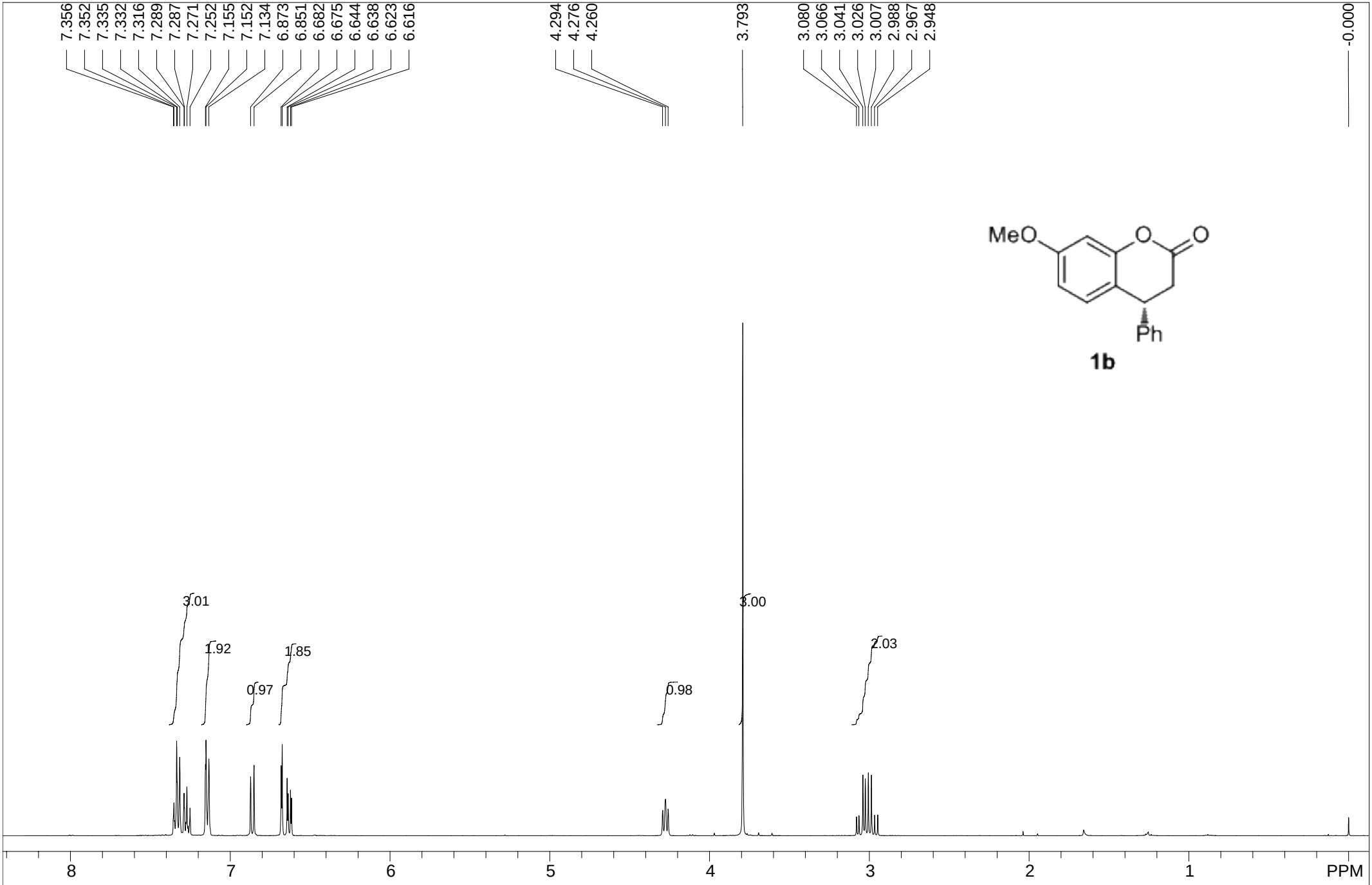

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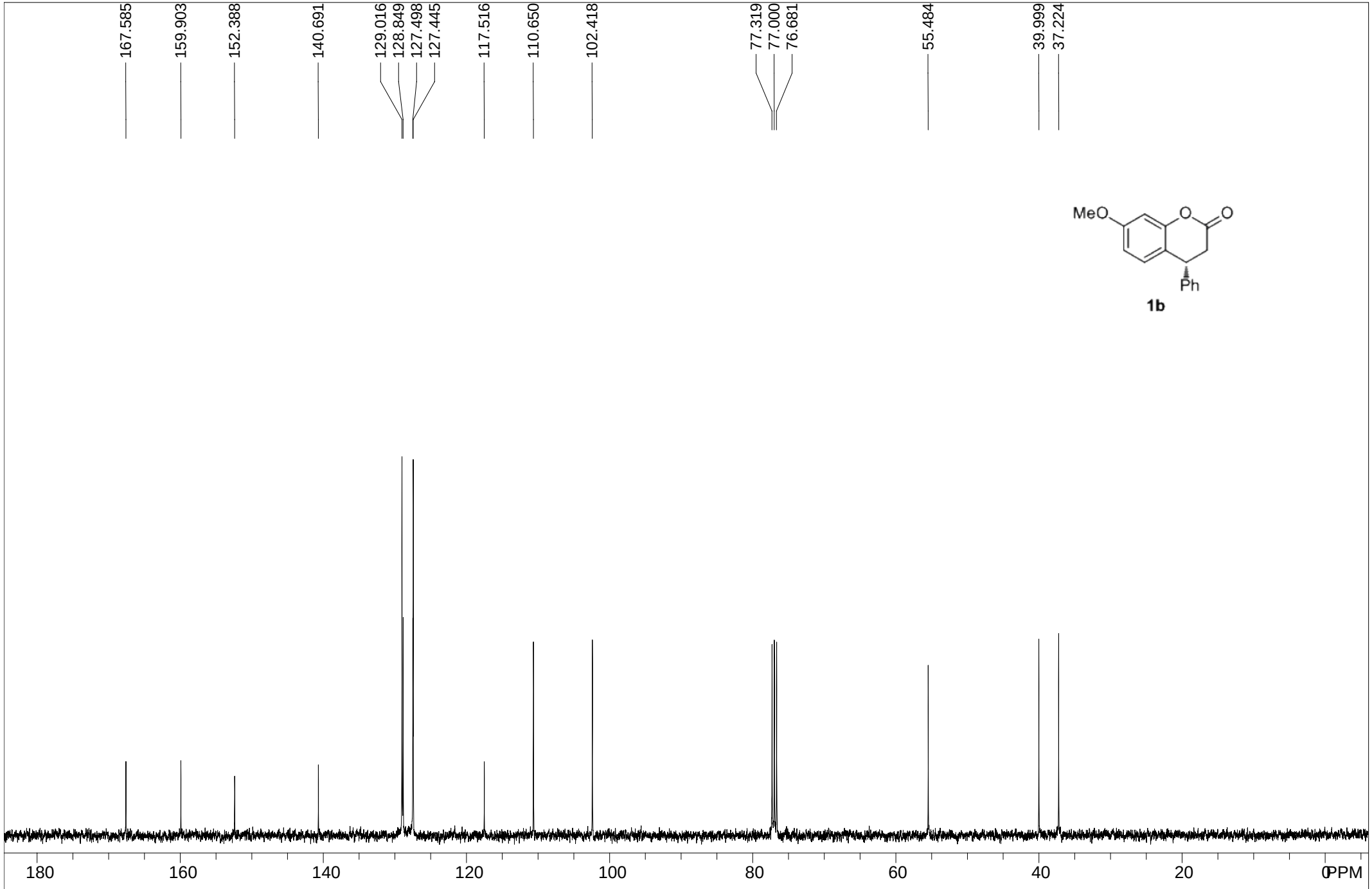
USER: -- DATE: Sep 2 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2795.0		PTS1d: 21552 , 32768
EX: s2pul		PW: 6.8 us	PD: 1.0 sec	NA: 8	LB: 0.0	Nuts - $lxh-17-67-h.fid



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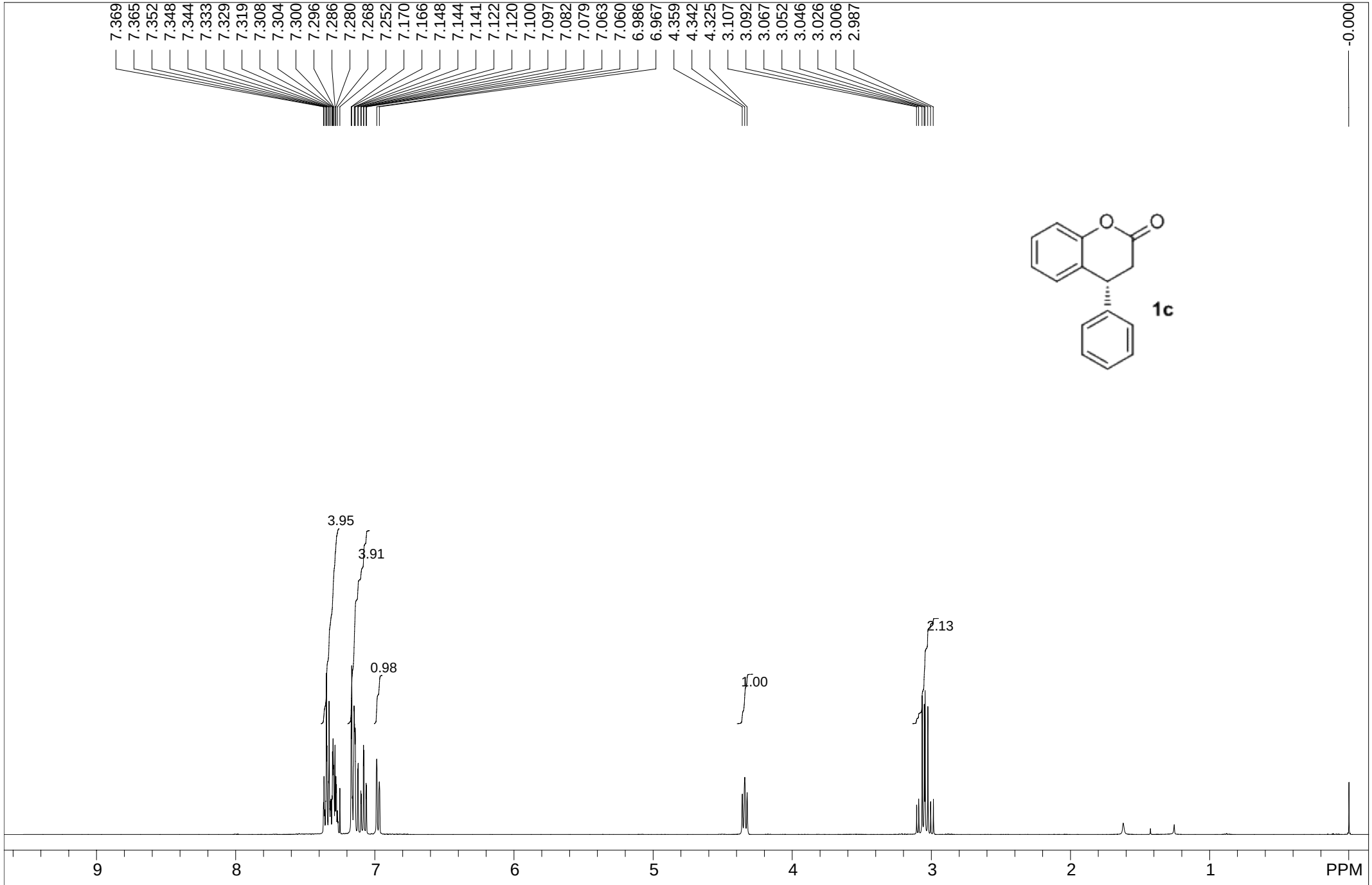
USER: -- DATE: Sep 2 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11048.0		PTS1d: 37500 , 65536
EX: s2pul		PW: 4.9 us	PD: 1.0 sec	NA: 28	LB: 2.0	Nuts - $lxh-17-67-c.fid



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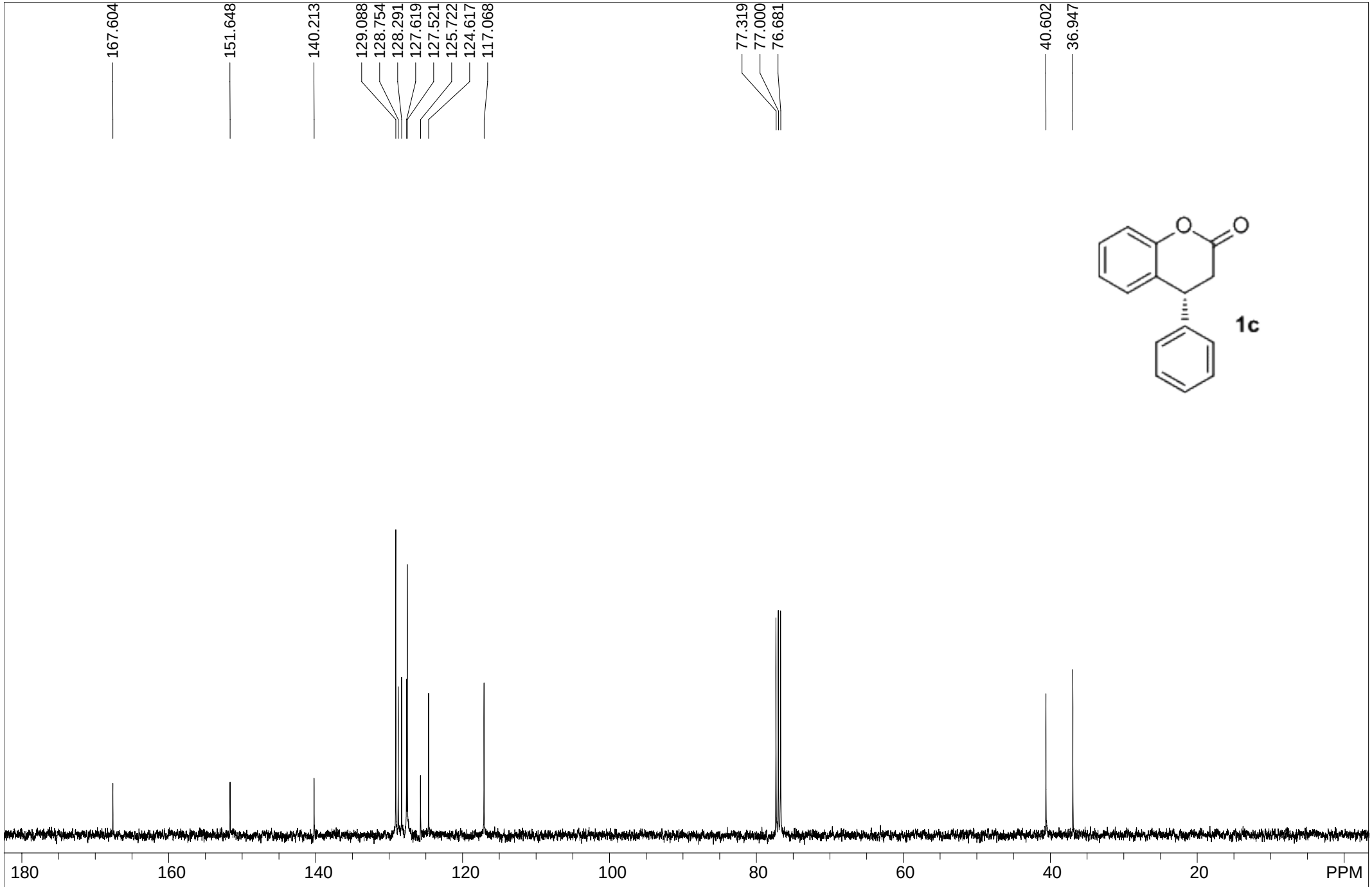
USER: -- DATE: Sep 18 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2795.0		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-63-h.fid



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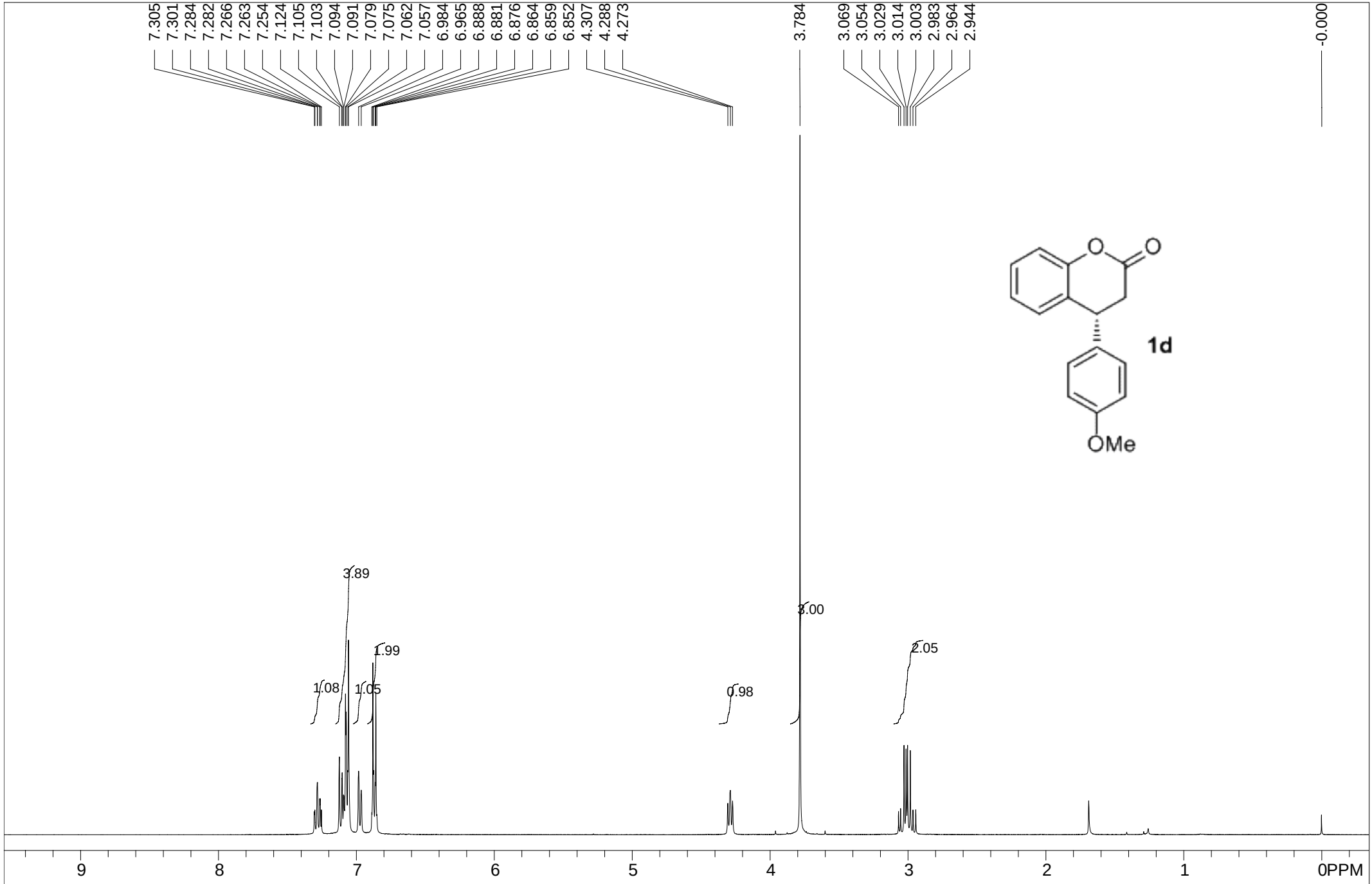
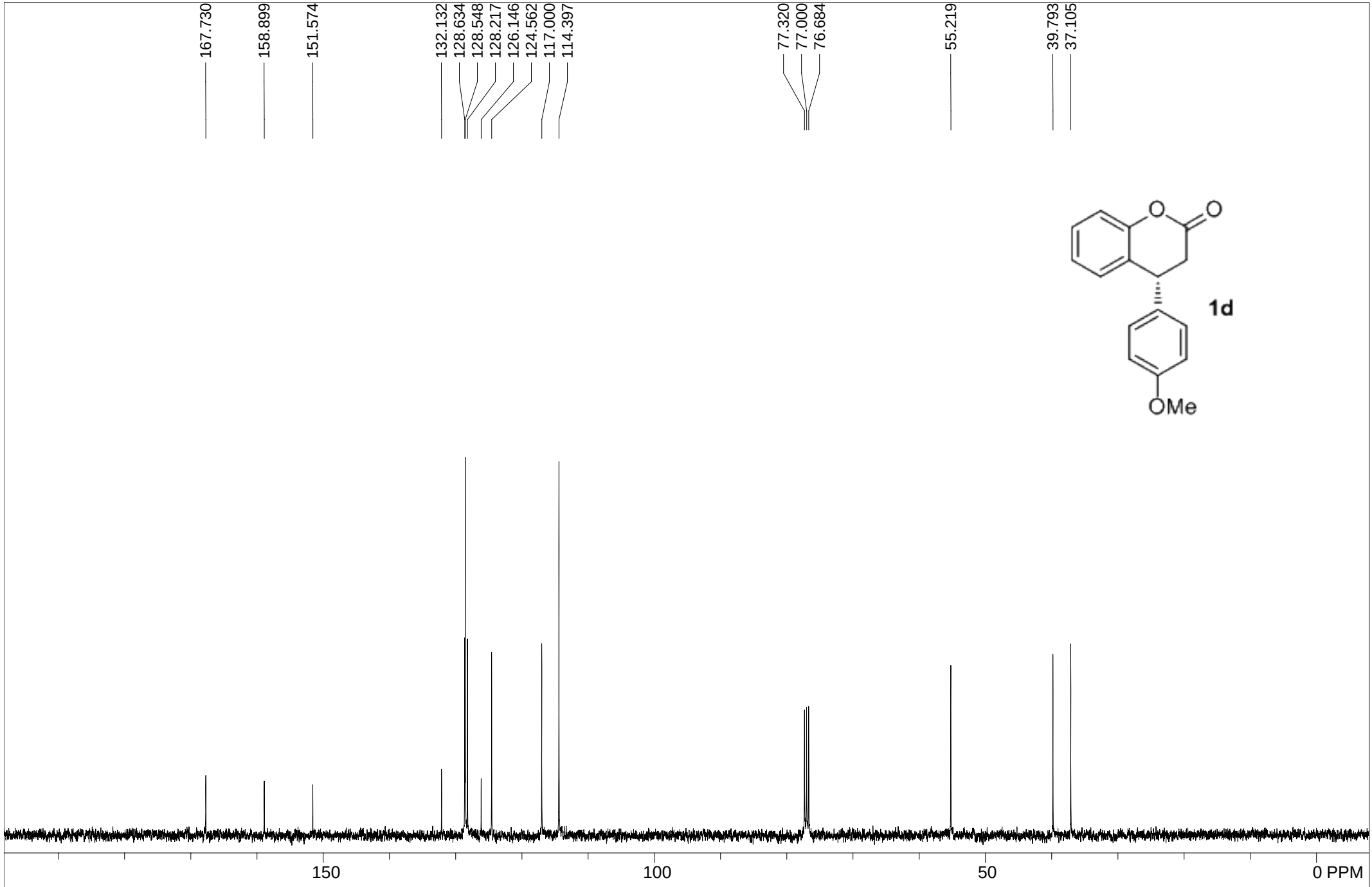
USER: -- DATE: Sep 18 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11049.9		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 48	LB: 2.0		Nuts - $lxh-17-63-c.fid



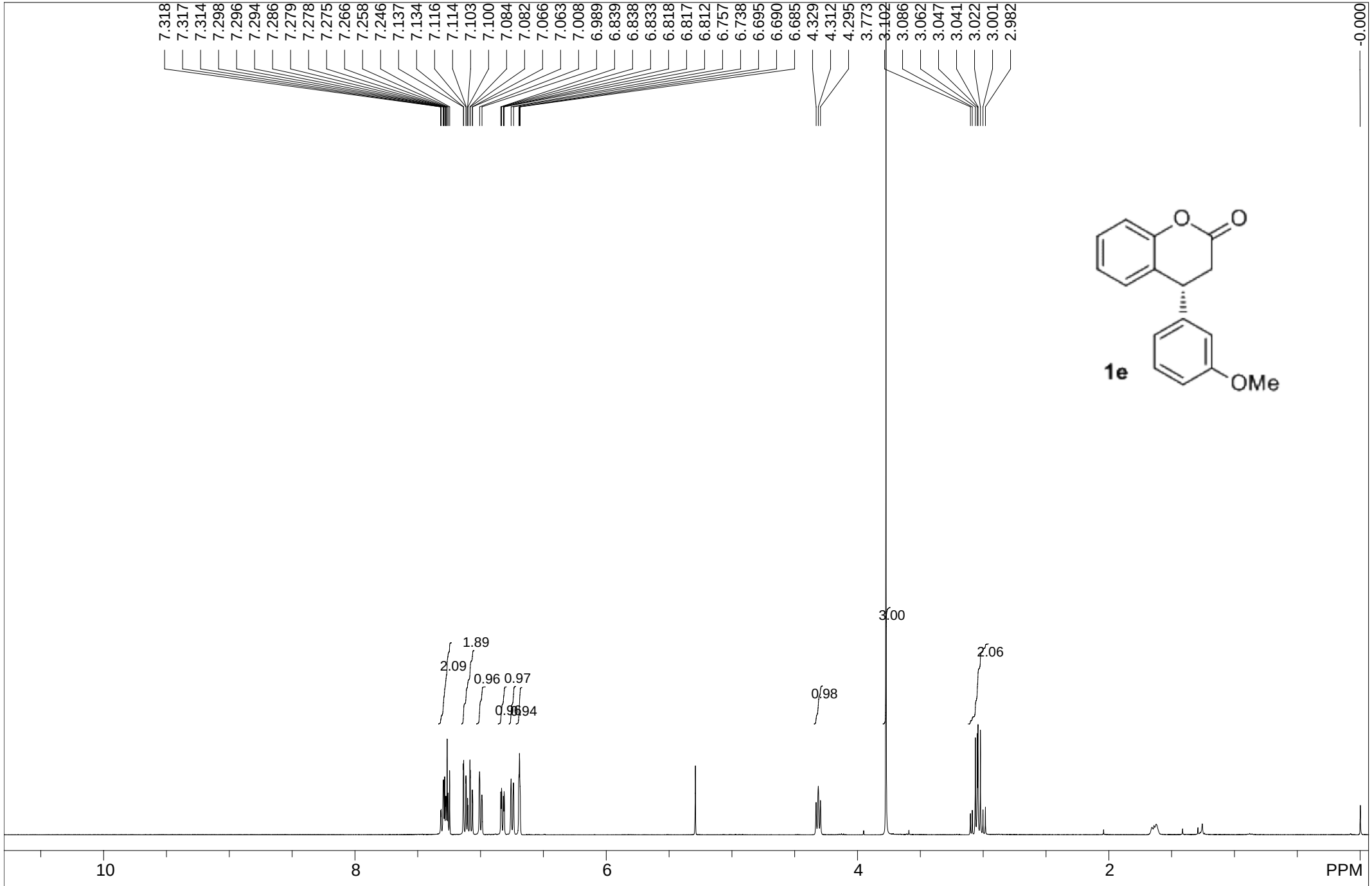
Std proton;blank line USER: -- DATE: Aug 23 2013

F1: 400.032	F2: 100.597	SW1: 7225		OF1: 2805.9		PTS1d: 21675 , 32768
EX: s2pul		PW: 10.0 us	PD: 1.0 sec	NA: 4	LB: 0.0	Nuts - $lxh-17-57-h.fid



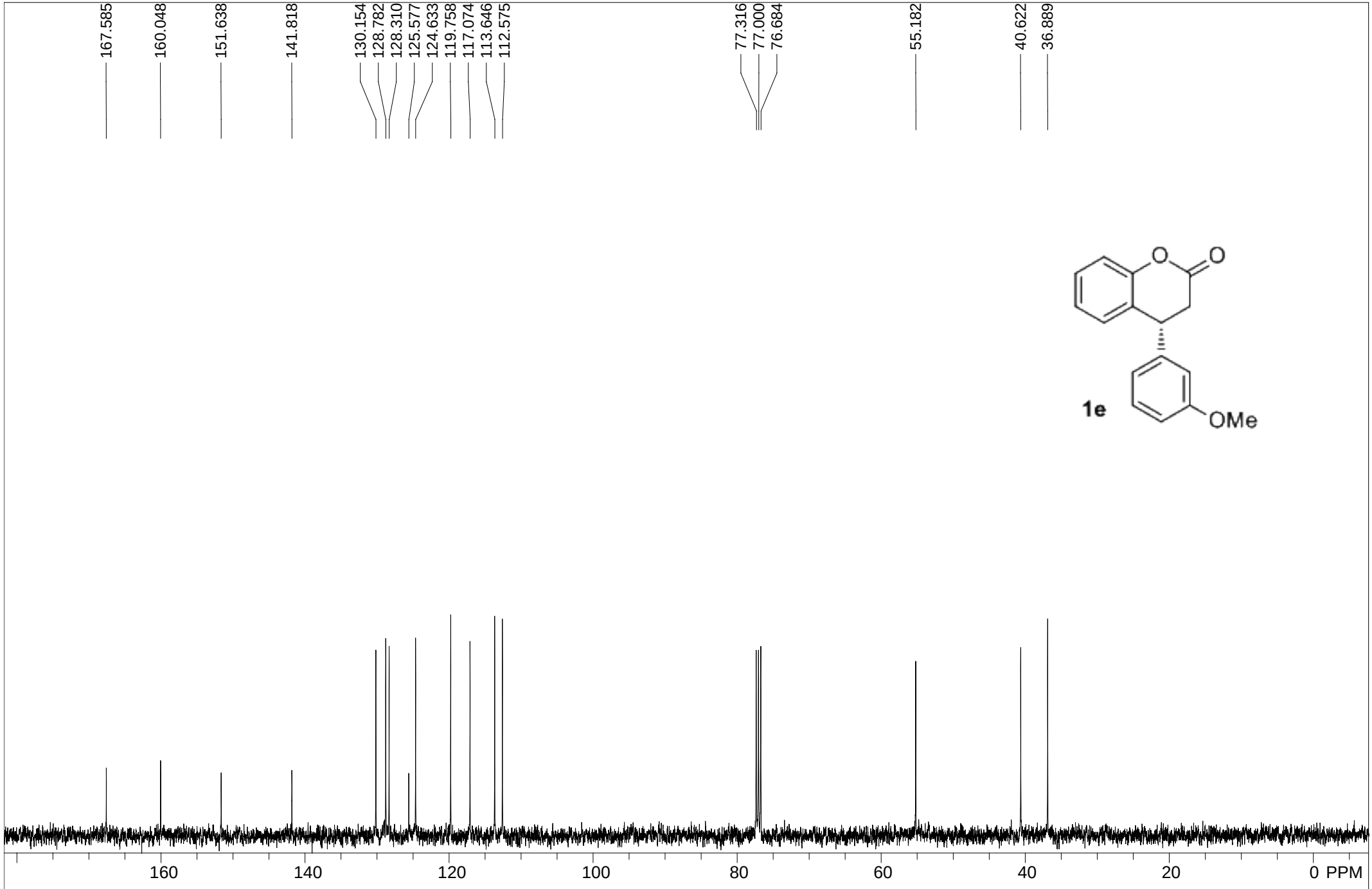
Std carbon;blank line USER: -- DATE: Aug 23 2013

F1: 100.598	F2: 400.031	SW1: 24510		OF1: 10555.6		PTS1d: 36765 , 65536	
EX: s2pul		PW: 9.5 us	PD: 1.0 sec	NA: 36	LB: 2.0		Nuts - $lxh-17-57-c.fid



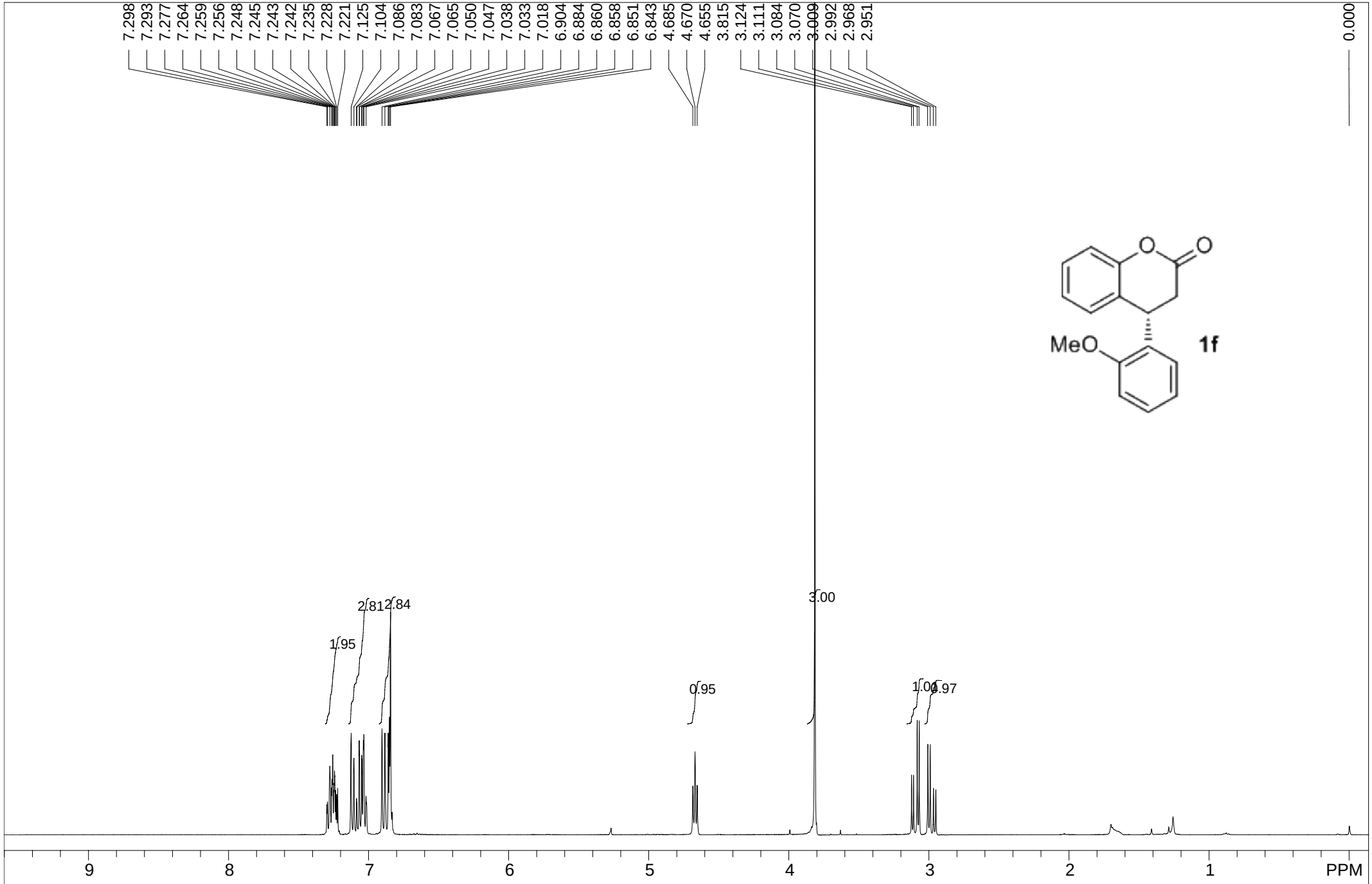
Std proton;blank line USER: -- DATE: Aug 23 2013

F1: 400.032	F2: 100.597	SW1: 7225		OF1: 2807.6		PTS1d: 21675 , 32768	
EX: s2pul		PW: 10.0 us	PD: 1.0 sec	NA: 12	LB: 0.0		Nuts - $lxh-17-60-h.fid



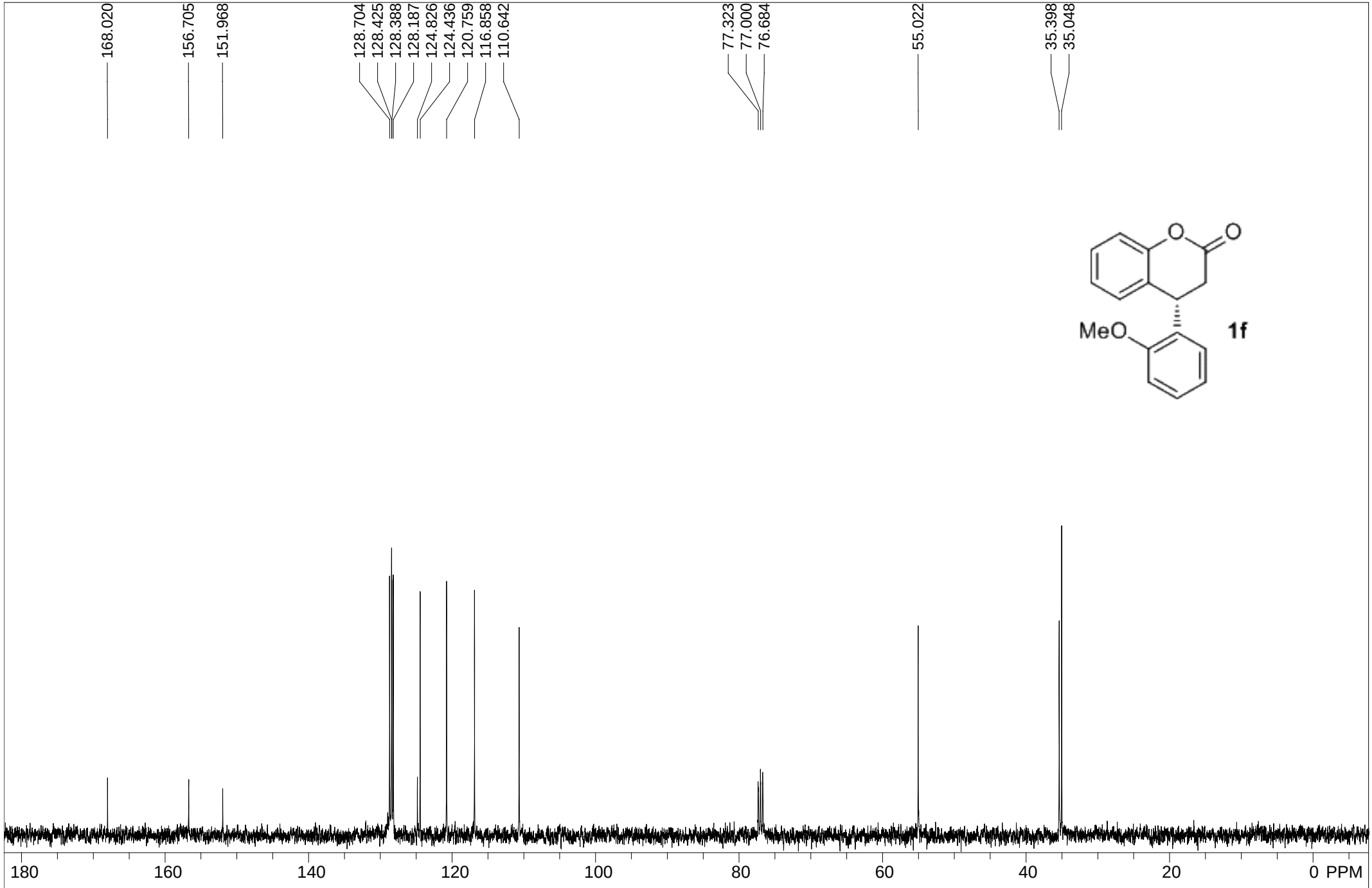
Std carbon;blank line USER: -- DATE: Aug 23 2013

F1: 100.598	F2: 400.031	SW1: 24510		OF1: 10559.4		PTS1d: 36765 , 65536
EX: s2pul		PW: 9.5 us	PD: 1.0 sec	NA: 52	LB: 2.0	Nuts - $lxh-17-60-c.fid



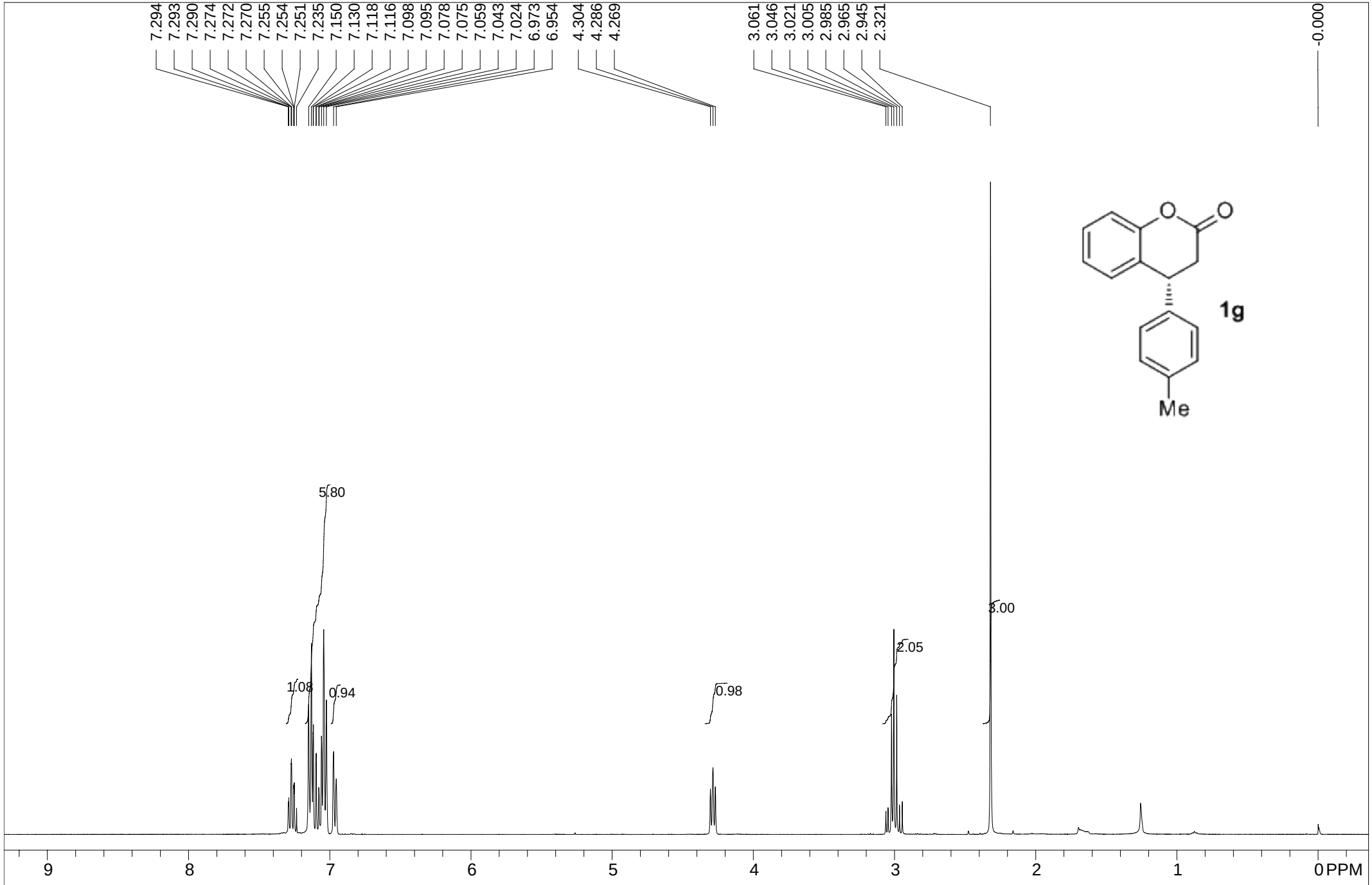
Std proton;blank line USER: -- DATE: Aug 25 2013

F1: 400.032	F2: 100.597	SW1: 7225		OF1: 2802.8		PTS1d: 21675 , 32768
EX: s2pul		PW: 10.0 us	PD: 1.0 sec	NA: 8	LB: 0.0	Nuts - $lxh-17-61-h.fid



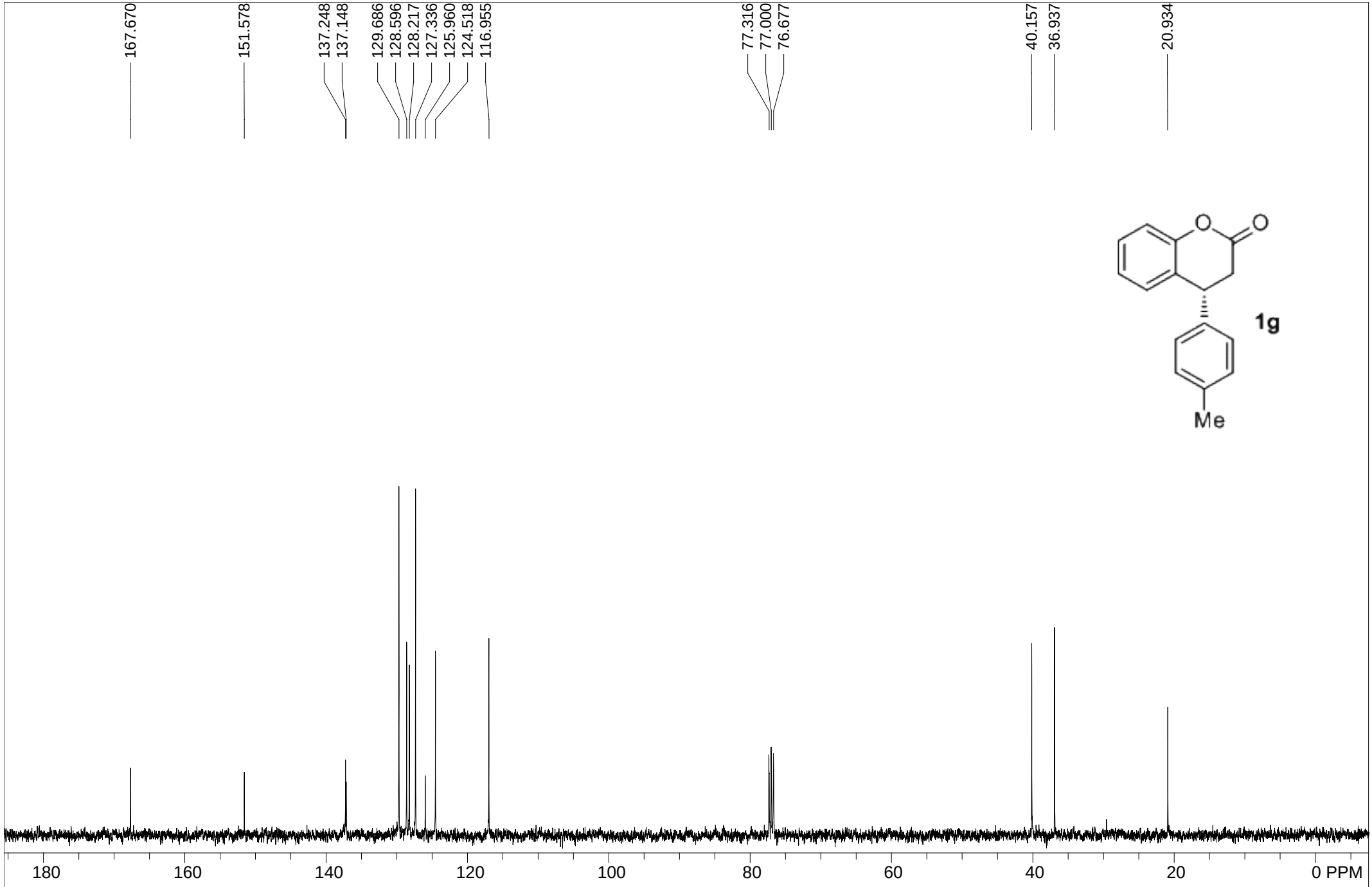
Std carbon;blank line USER: -- DATE: Aug 25 2013

F1: 100.598	F2: 400.031	SW1: 24510		OF1: 10552.6		PTS1d: 36765 , 65536	
EX: s2pul		PW: 9.5 us	PD: 1.0 sec	NA: 20	LB: 2.0		Nuts - $lxh-17-61-c.fid



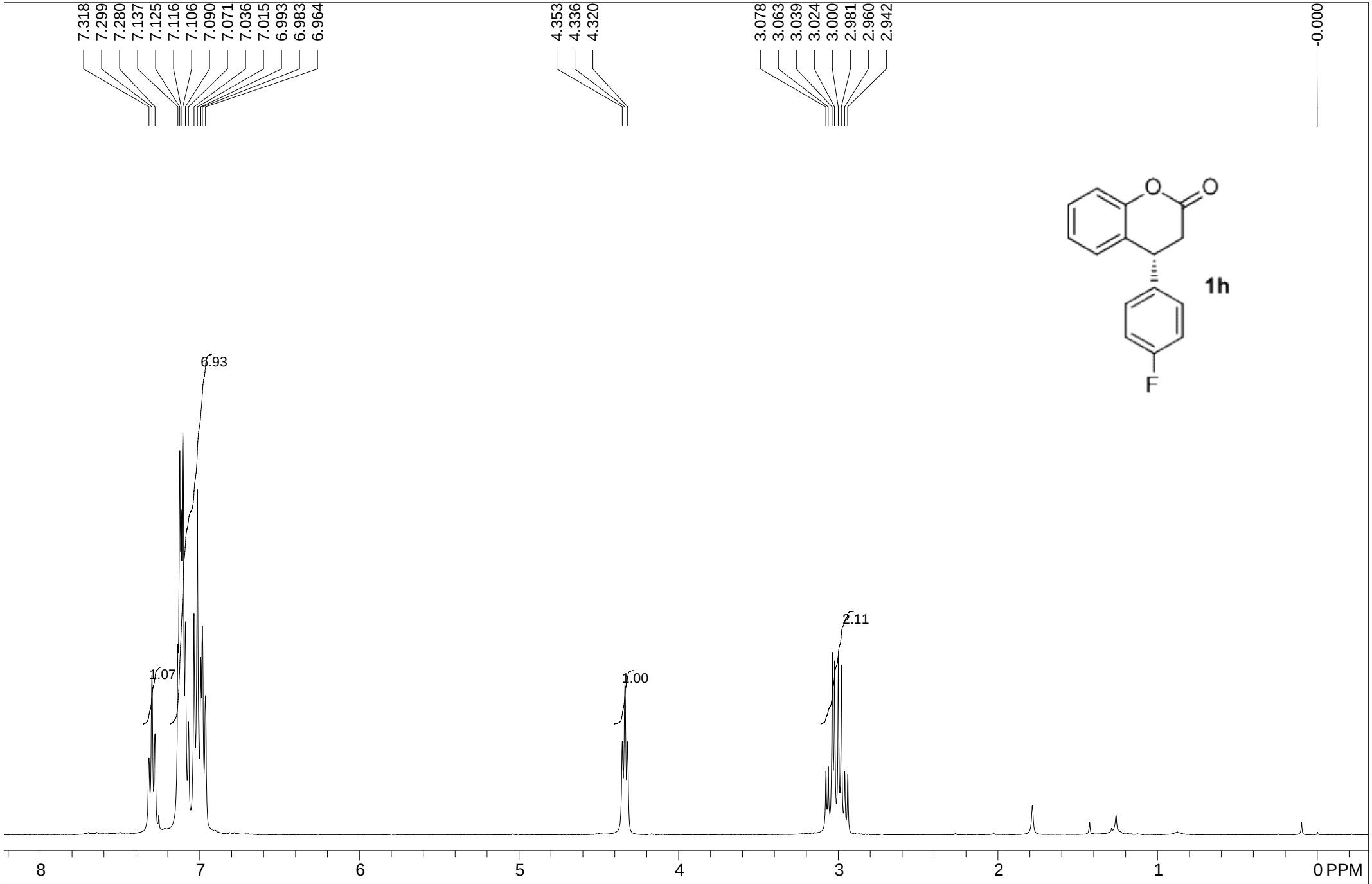
Std proton;blank line USER: -- DATE: Aug 23 2013

F1: 400.032	F2: 100.597	SW1: 7225		OF1: 2798.4		PTS1d: 21675 , 32768	
EX: s2pul		PW: 10.0 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-58-h.fid



Std carbon;blank line USER: -- DATE: Aug 23 2013

F1: 100.598	F2: 400.031	SW1: 24510		OF1: 10551.1		PTS1d: 36765 , 65536	
EX: s2pul		PW: 9.5 us	PD: 1.0 sec	NA: 20	LB: 2.0		Nuts - $lxh-17-58-c.fid



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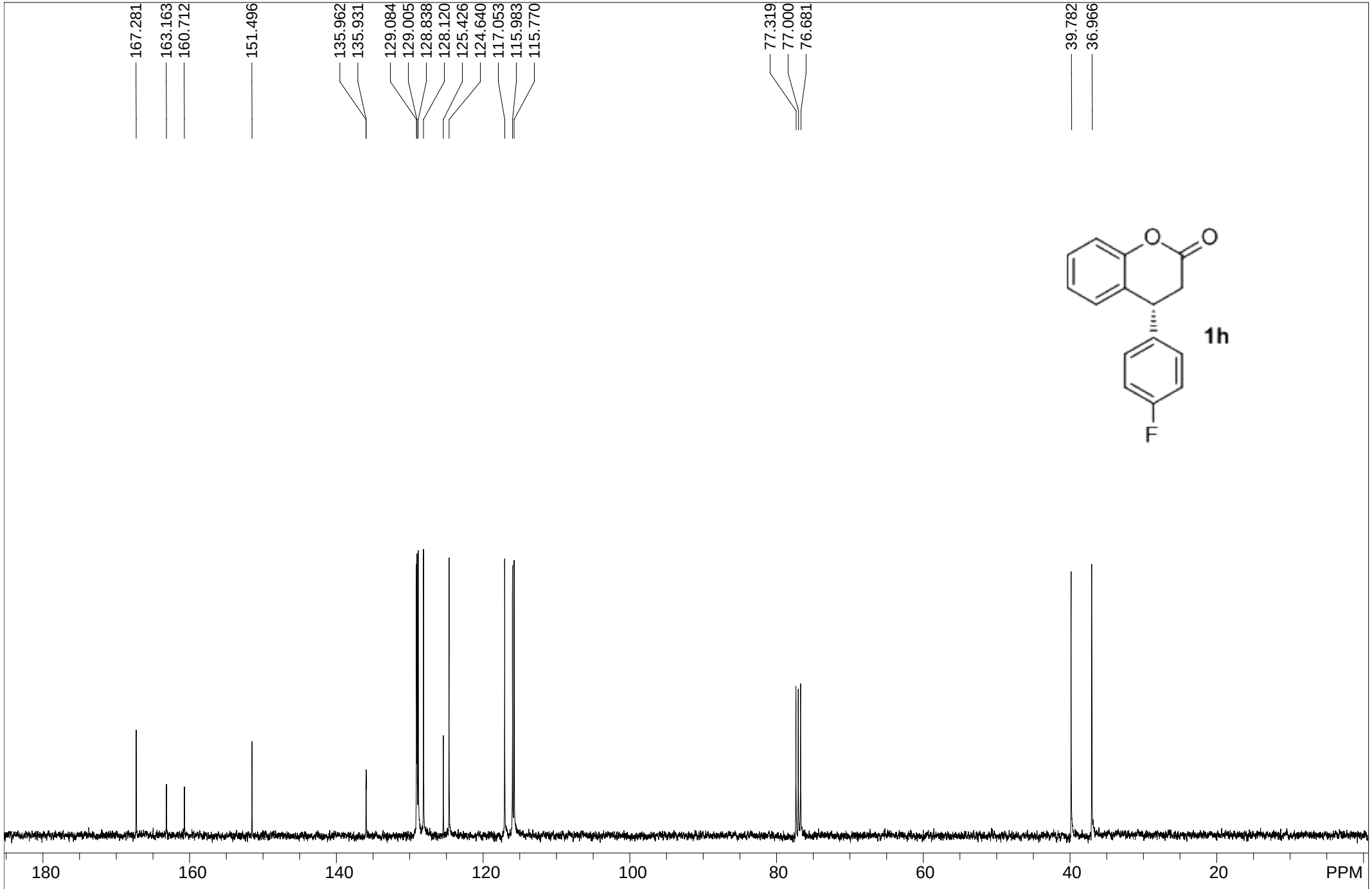
USER: -- DATE: Sep 30 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2797.4		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-95-h.fid



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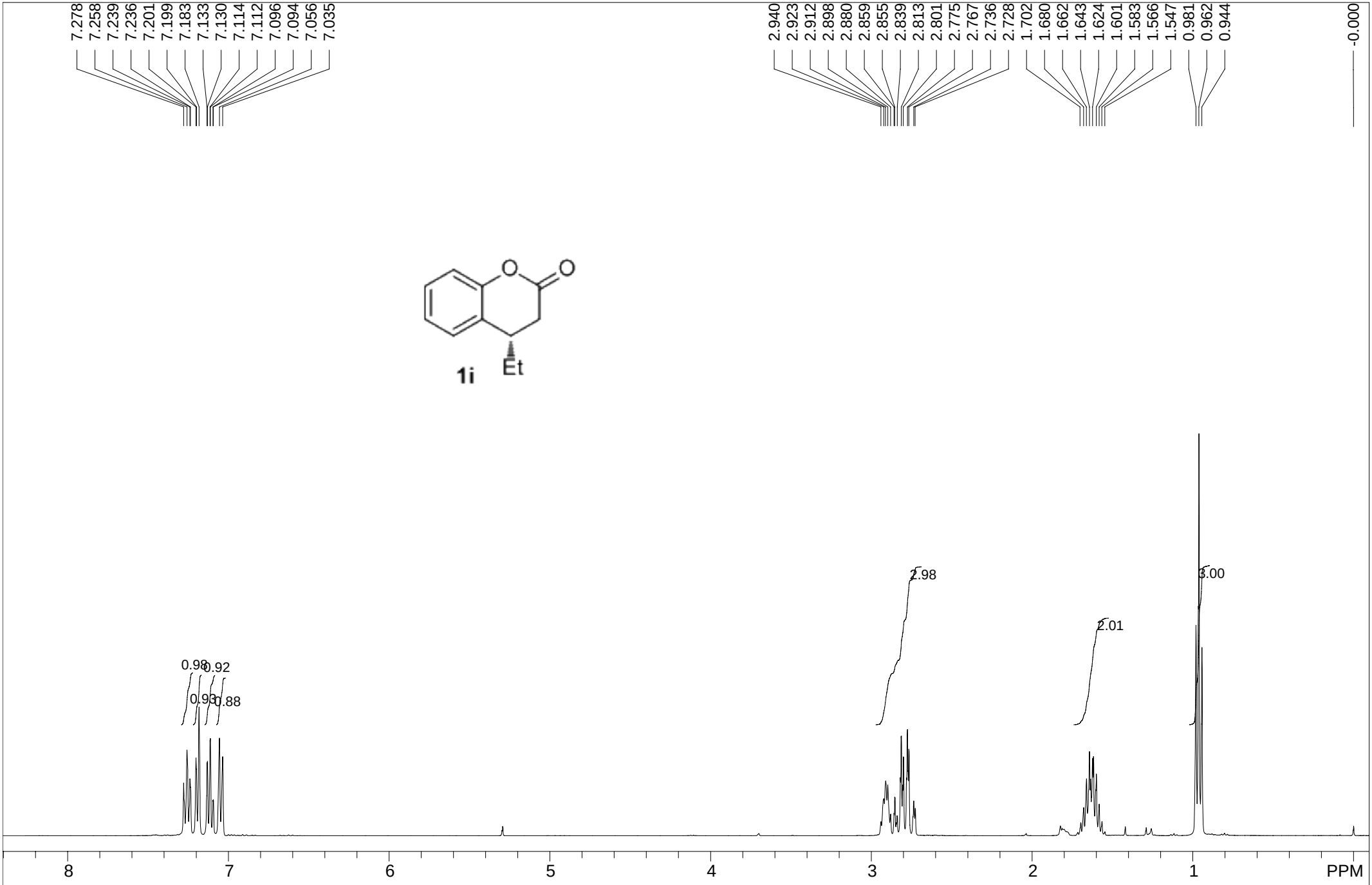
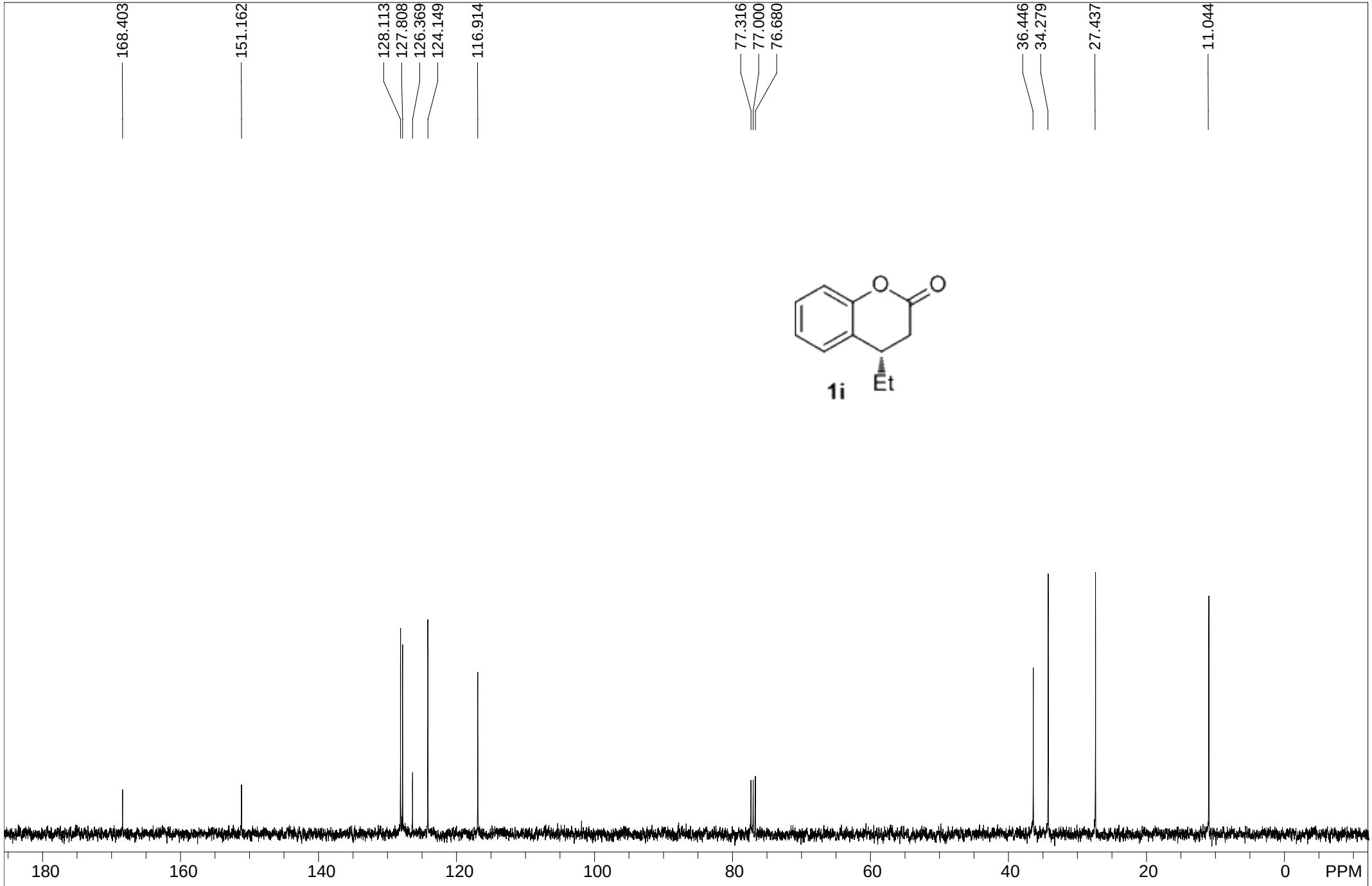
USER: -- DATE: Sep 30 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11041.1		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 40	LB: 2.0		Nuts - $lxh-17-95-c.fid



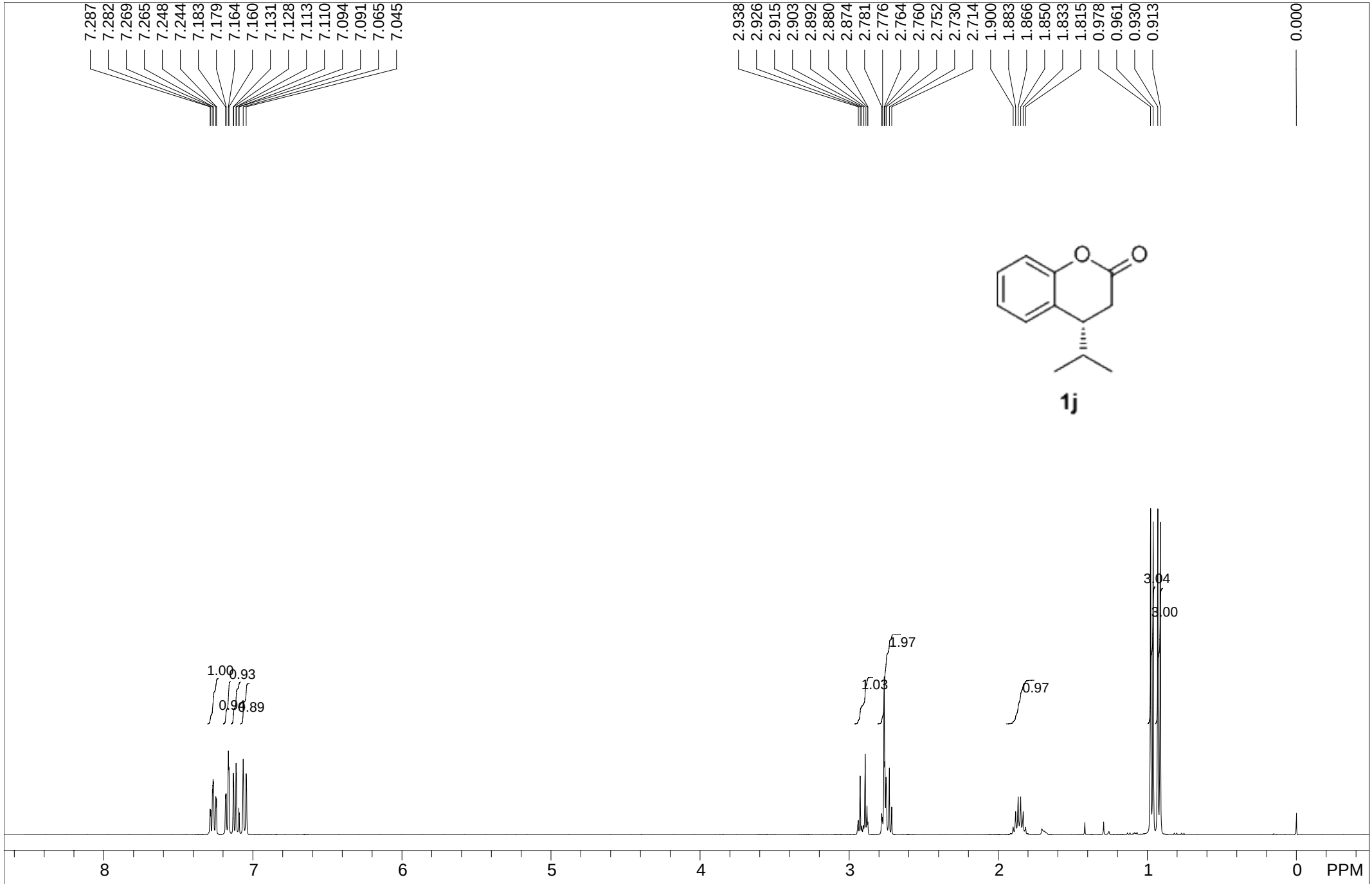
Std proton;blank line USER: -- DATE: Aug 25 2013

F1: 400.032	F2: 100.597	SW1: 7225		OF1: 2816.2		PTS1d: 21675 , 32768	
EX: s2pul		PW: 10.0 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-62-h.fid



Std carbon;blank line USER: -- DATE: Aug 25 2013

F1: 100.598	F2: 400.031	SW1: 24510		OF1: 10551.9		PTS1d: 36765 , 65536	
EX: s2pul		PW: 9.5 us	PD: 1.0 sec	NA: 12	LB: 2.0		Nuts - $lxh-17-62-c.fid



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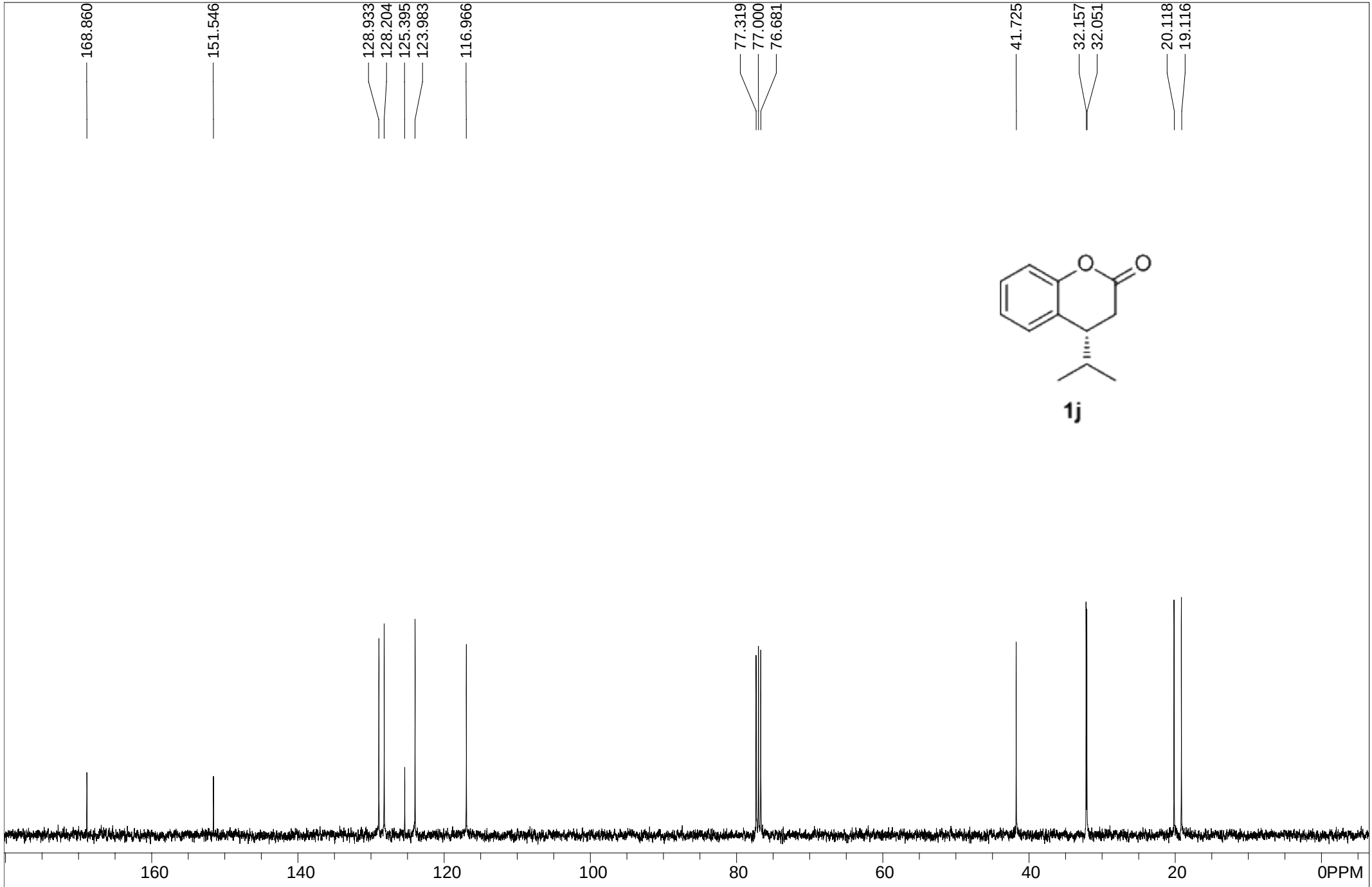
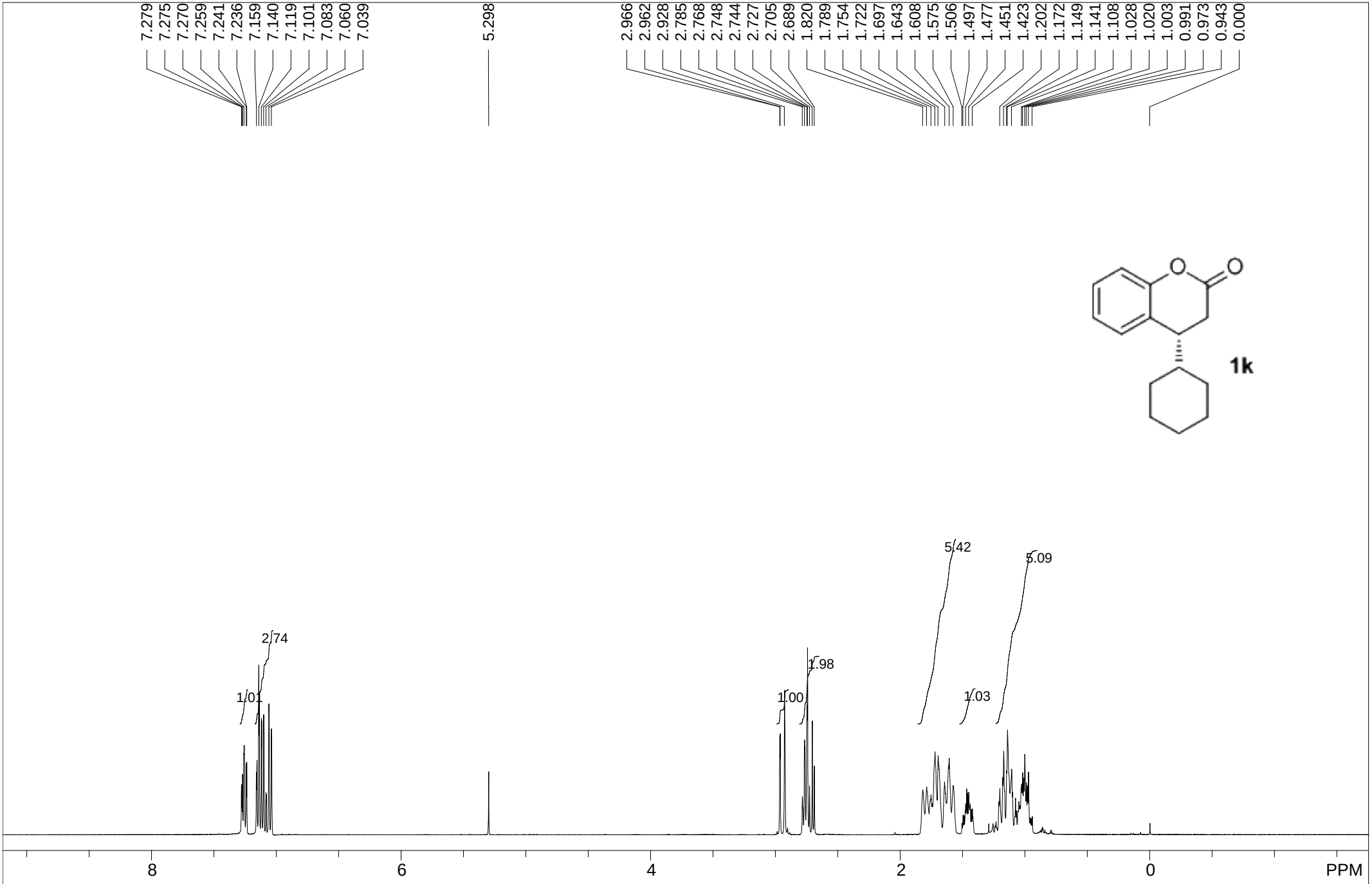
USER: -- DATE: Sep 2 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2803.1		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.8 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-71-h.fid



;blank line USER: -- DATE: Sep 2 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11049.9		PTS1d: 37500 , 65536	
EX: s2pul		PW: 4.9 us	PD: 1.0 sec	NA: 36	LB: 2.0		Nuts - $lxh-17-71-c.fid



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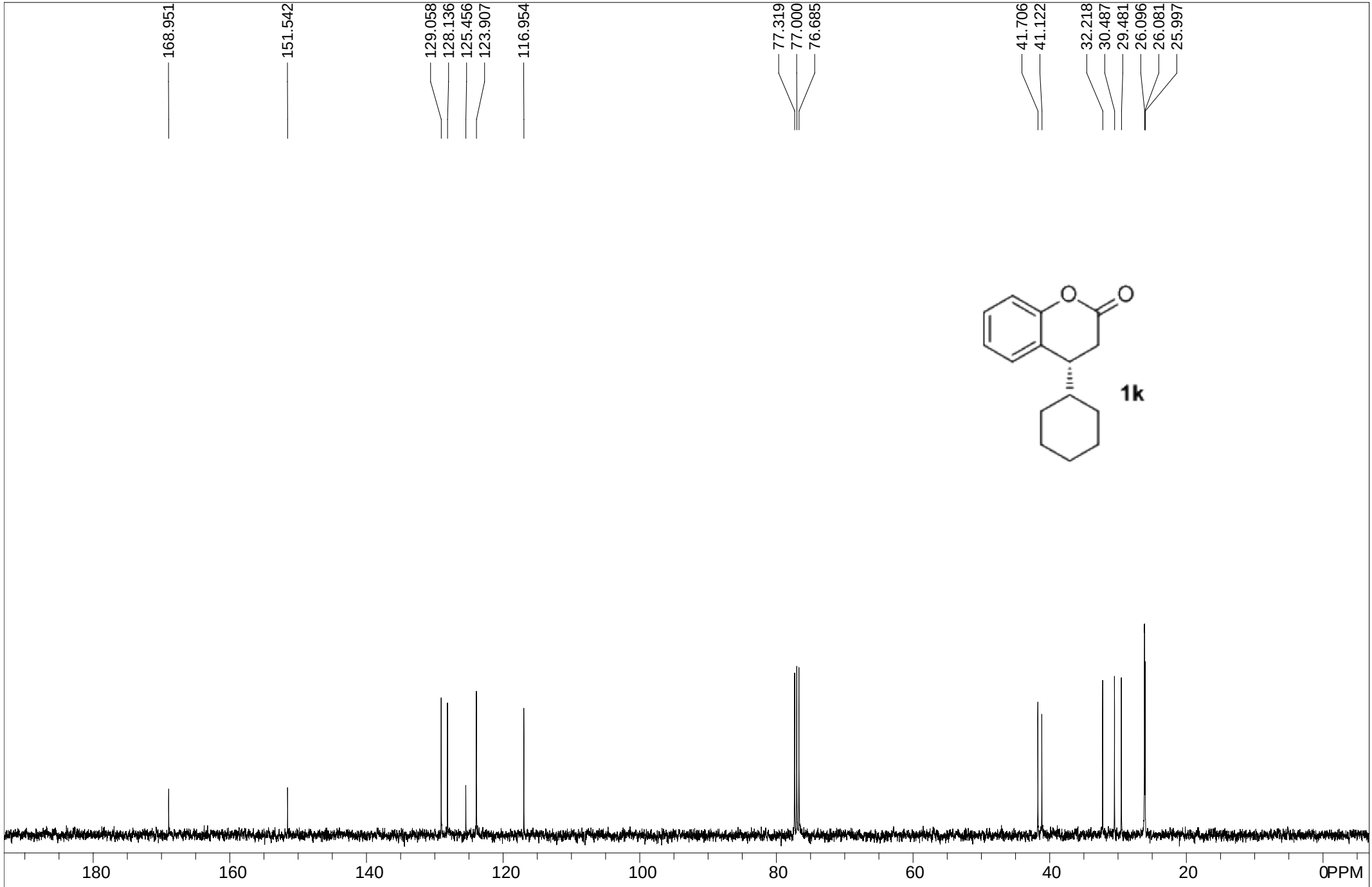
USER: -- DATE: Aug 29 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2802.5		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.8 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-69-h.fid



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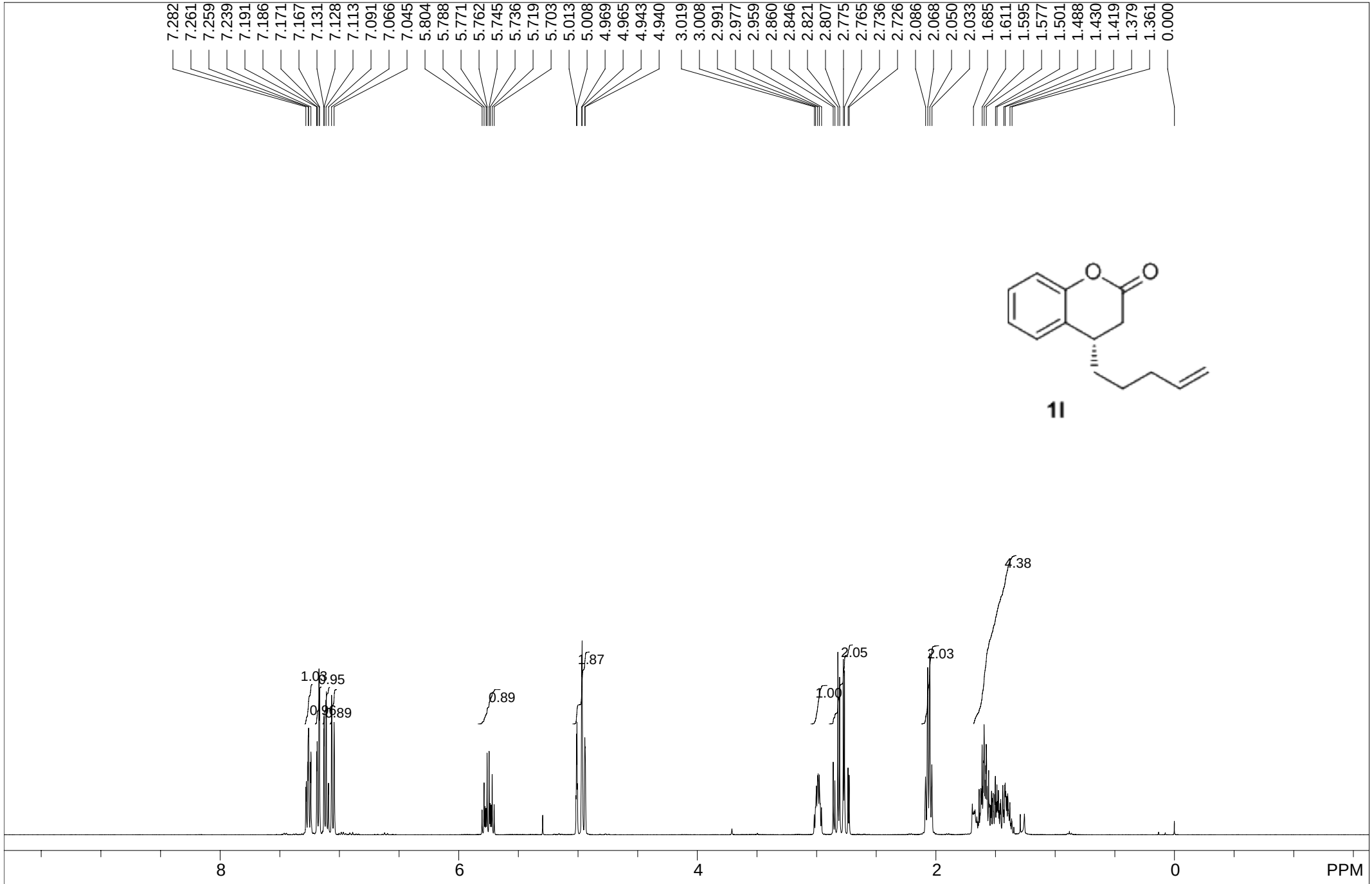
USER: -- DATE: Aug 29 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11051.0		PTS1d: 37500 , 65536	
EX: s2pul		PW: 4.9 us	PD: 1.0 sec	NA: 20	LB: 2.0		Nuts - $lxh-17-69-c.fid



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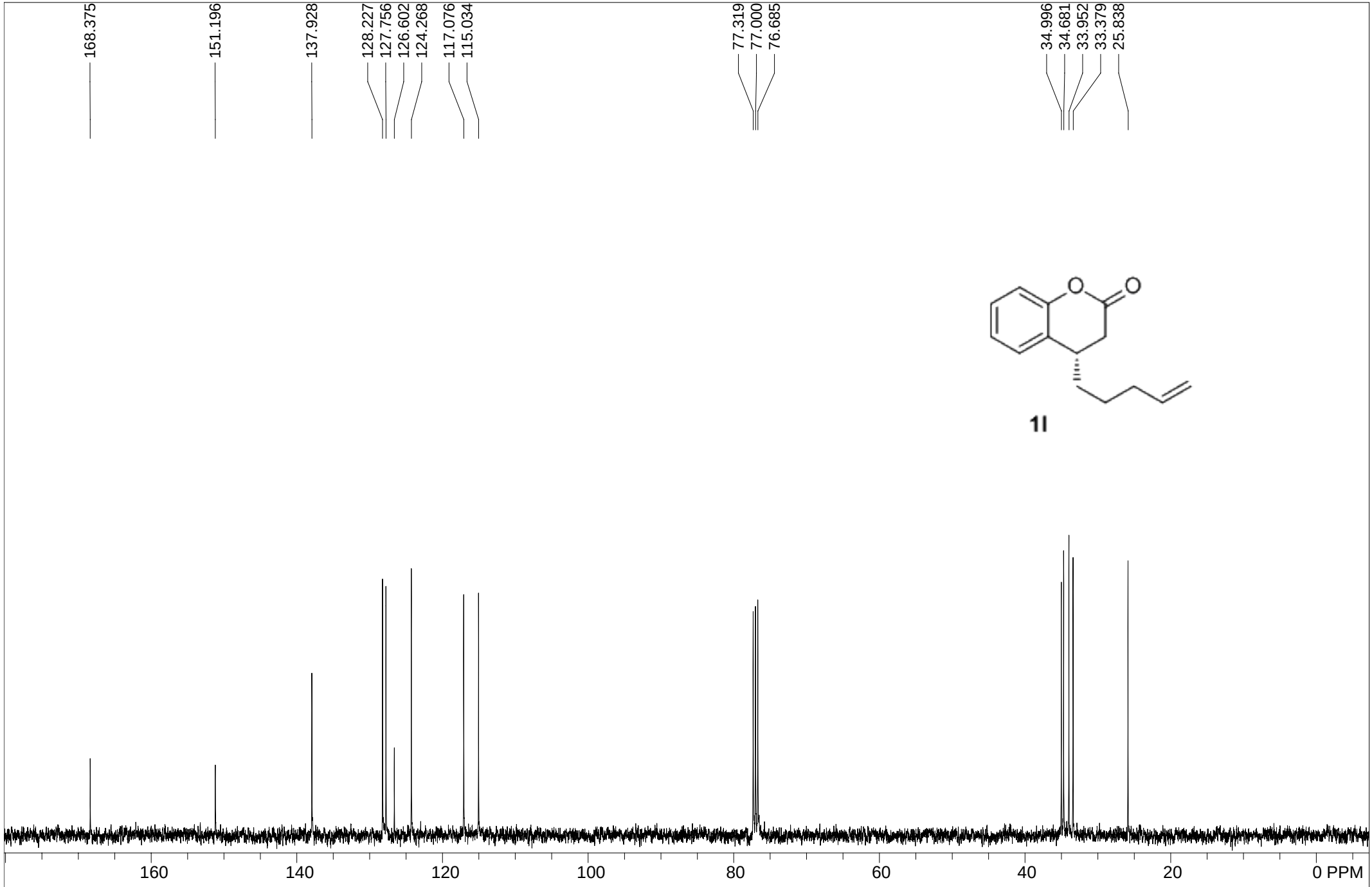
USER: -- DATE: Aug 29 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2801.4		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.8 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-68-h.fid



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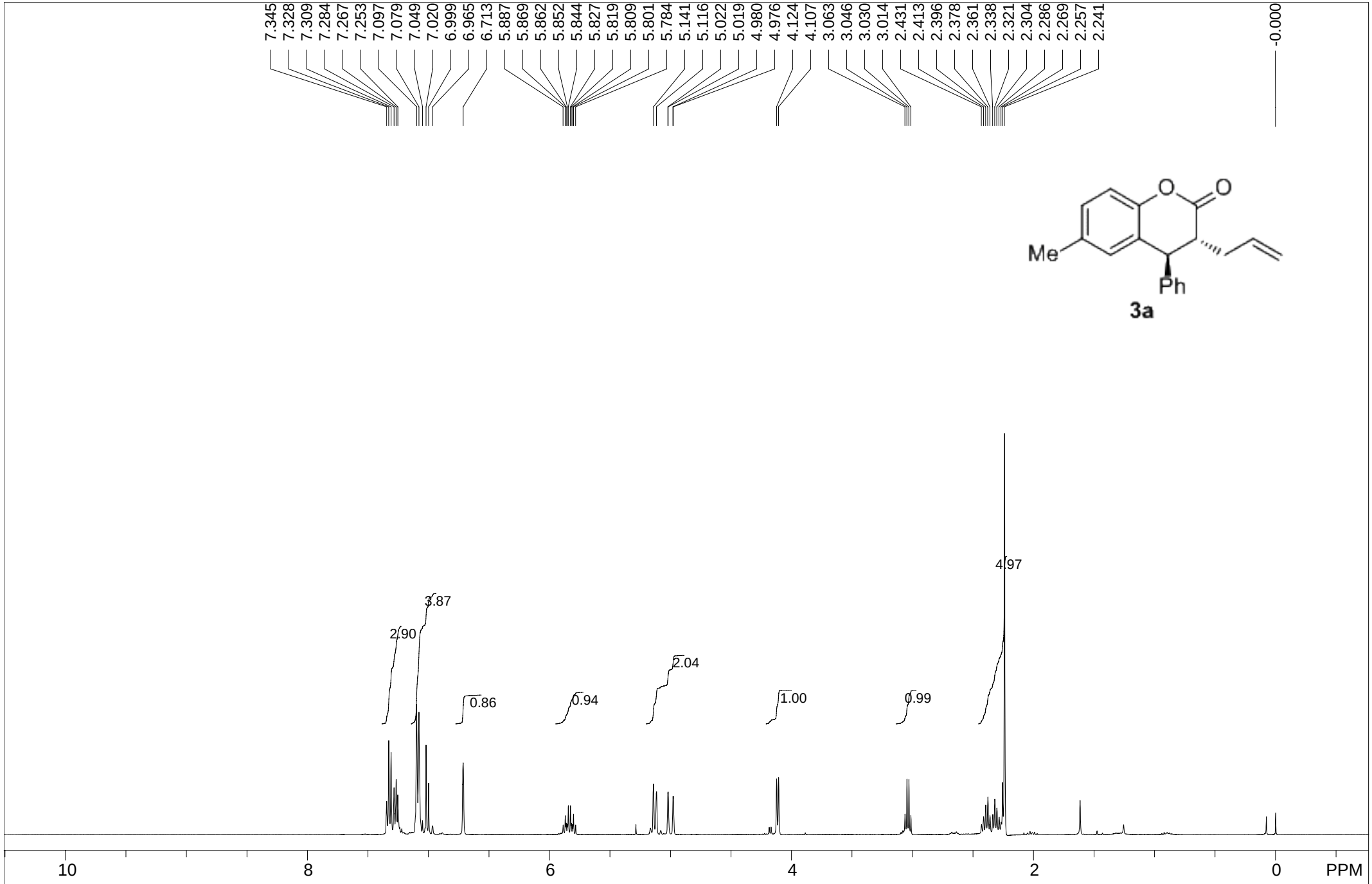
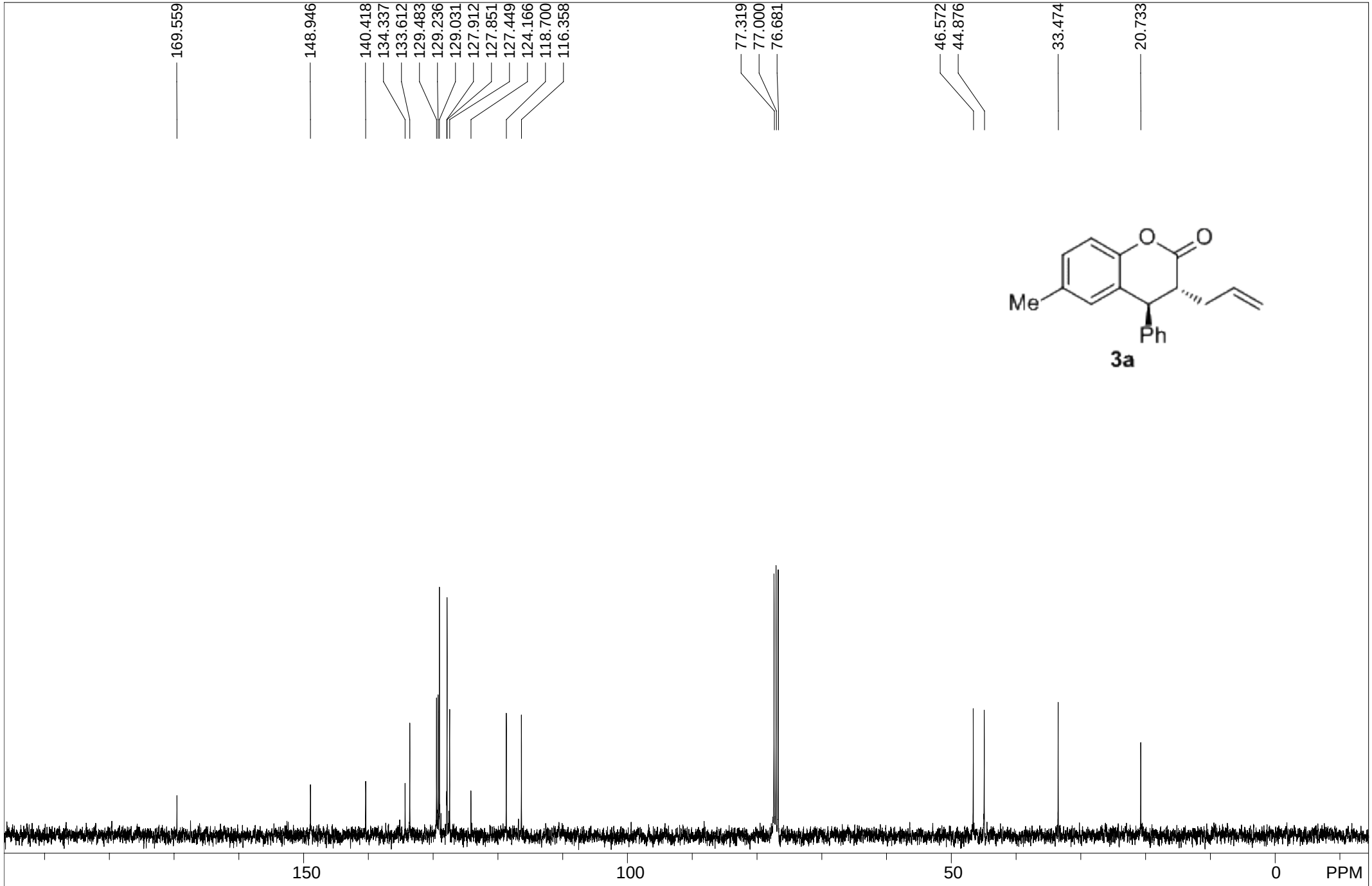
USER: -- DATE: Aug 29 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11051.0		PTS1d: 37500 , 65536
EX: s2pul		PW: 4.9 us	PD: 1.0 sec	NA: 36	LB: 2.0	Nuts - $lxh-17-68-c.fid



DSDA USER: -- DATE: May 31 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2796.1		PTS1d: 23707 , 32768
EX: s2pul		PW: 7.8 us	PD: 1.0 sec	NA: 8	LB: 0.0	Nuts - $lxh-17-1a-1-h.fid



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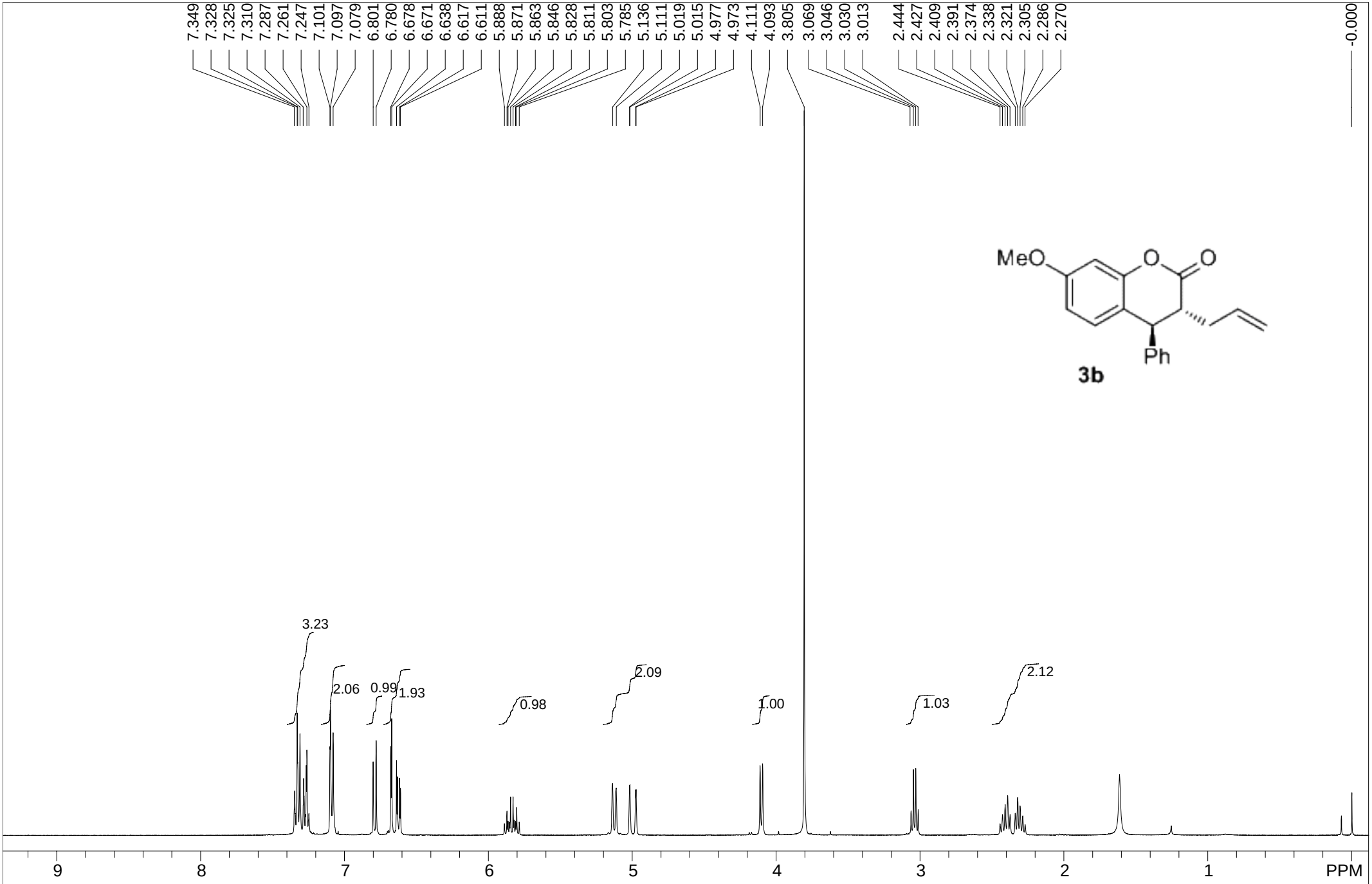
USER: -- DATE: May 31 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11051.0		PTS1d: 40000 , 65536	
EX: s2pul		PW: 7.5 us	PD: 1.0 sec	NA: 28	LB: 2.0		Nuts - $lxh-17-1a-1-c.fid



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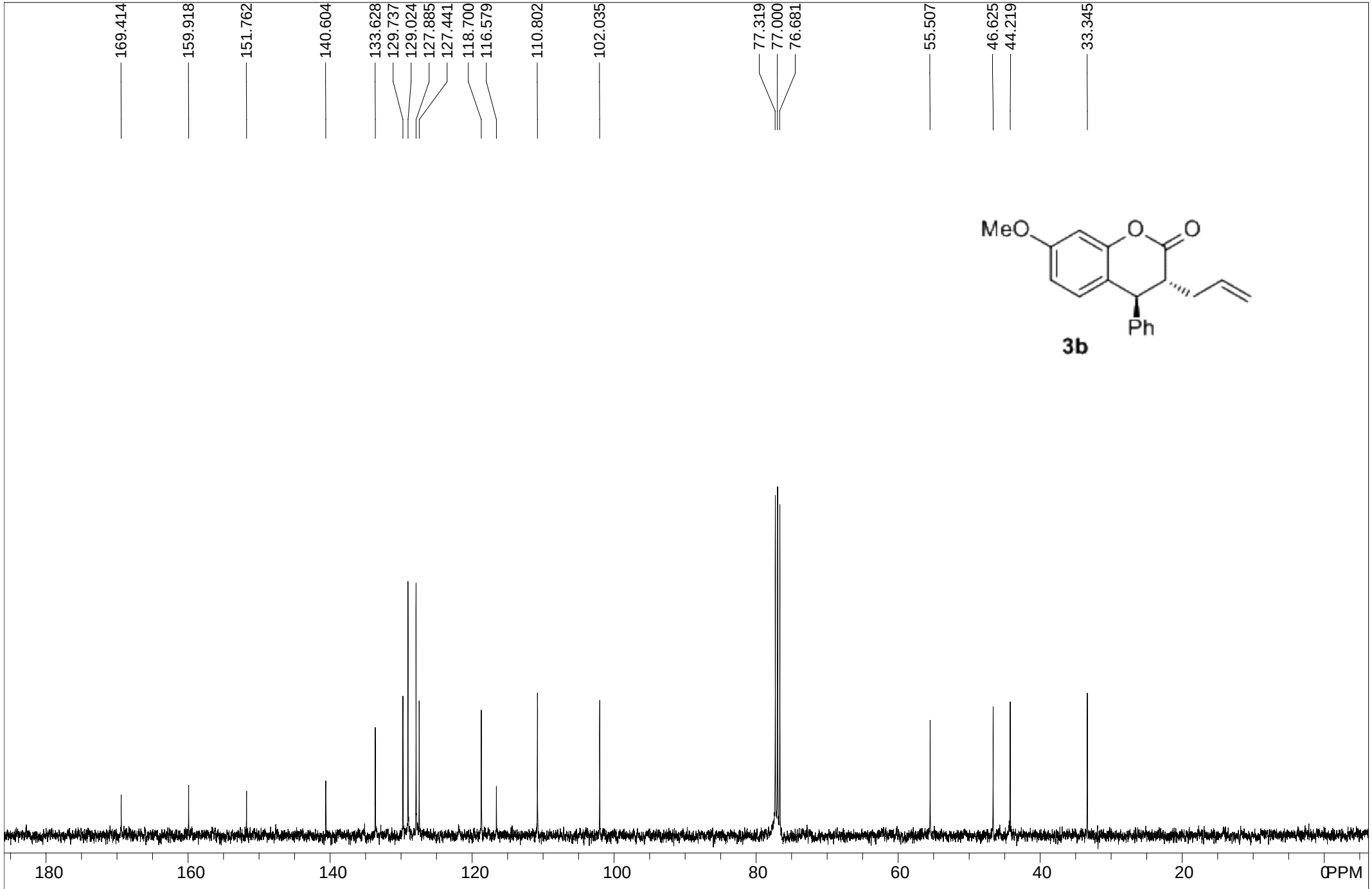
USER: -- DATE: Sep 23 2013

F1: 399.723	F2: 100.519	SW1: 8013		OF1: 3198.5		PTS1d: 24038 , 32768
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0	Nuts - $lxh-17-72-1-h.fid



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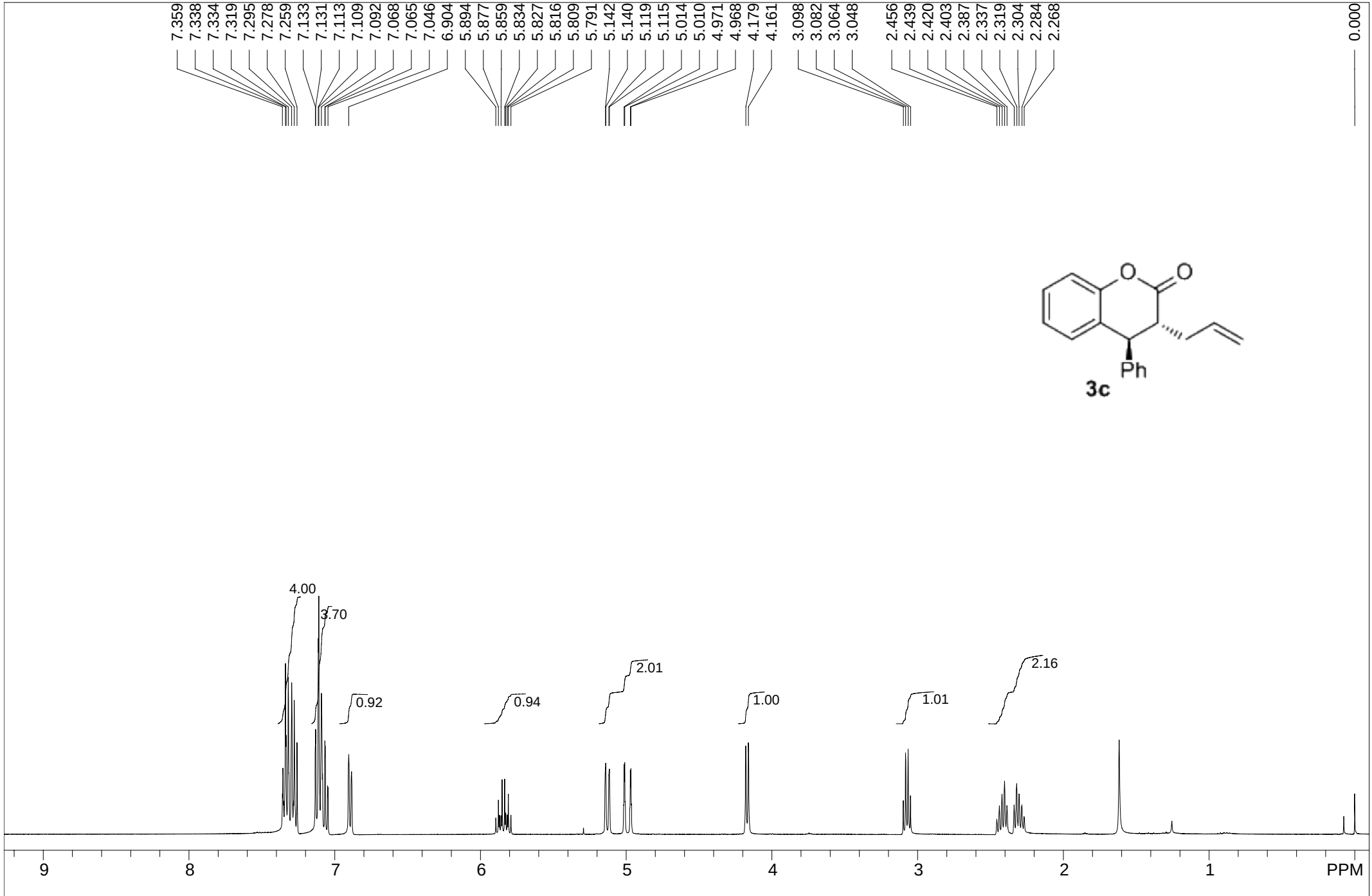
USER: -- DATE: Sep 23 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11053.7		PTS1d: 37500 , 65536
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 192	LB: 2.0	Nuts - $lxh-17-72-1-c.fid



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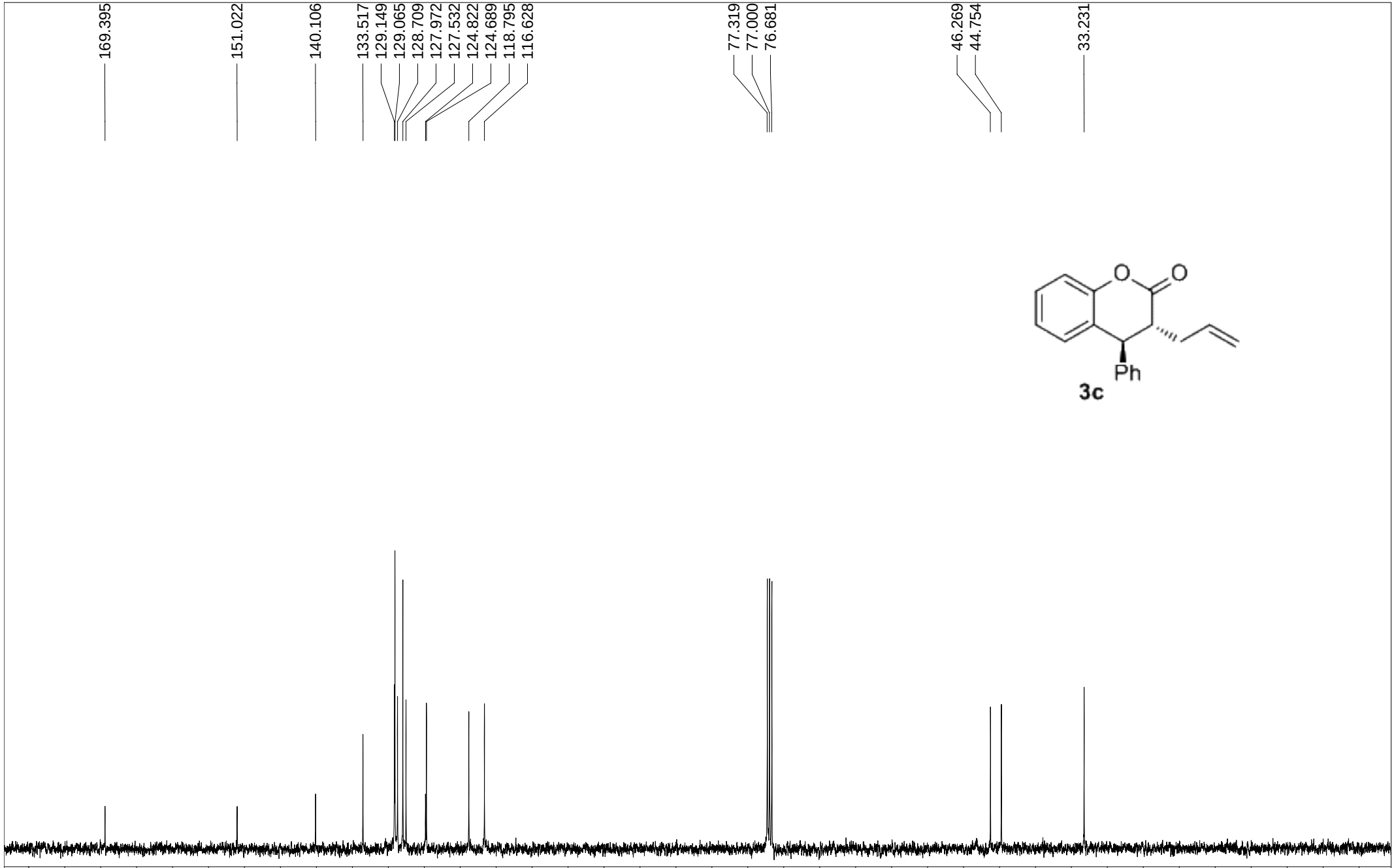
USER: -- DATE: Sep 23 2013

F1: 399.723	F2: 100.519	SW1: 8013		OF1: 3197.5		PTS1d: 24038 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-82-1-h.fid



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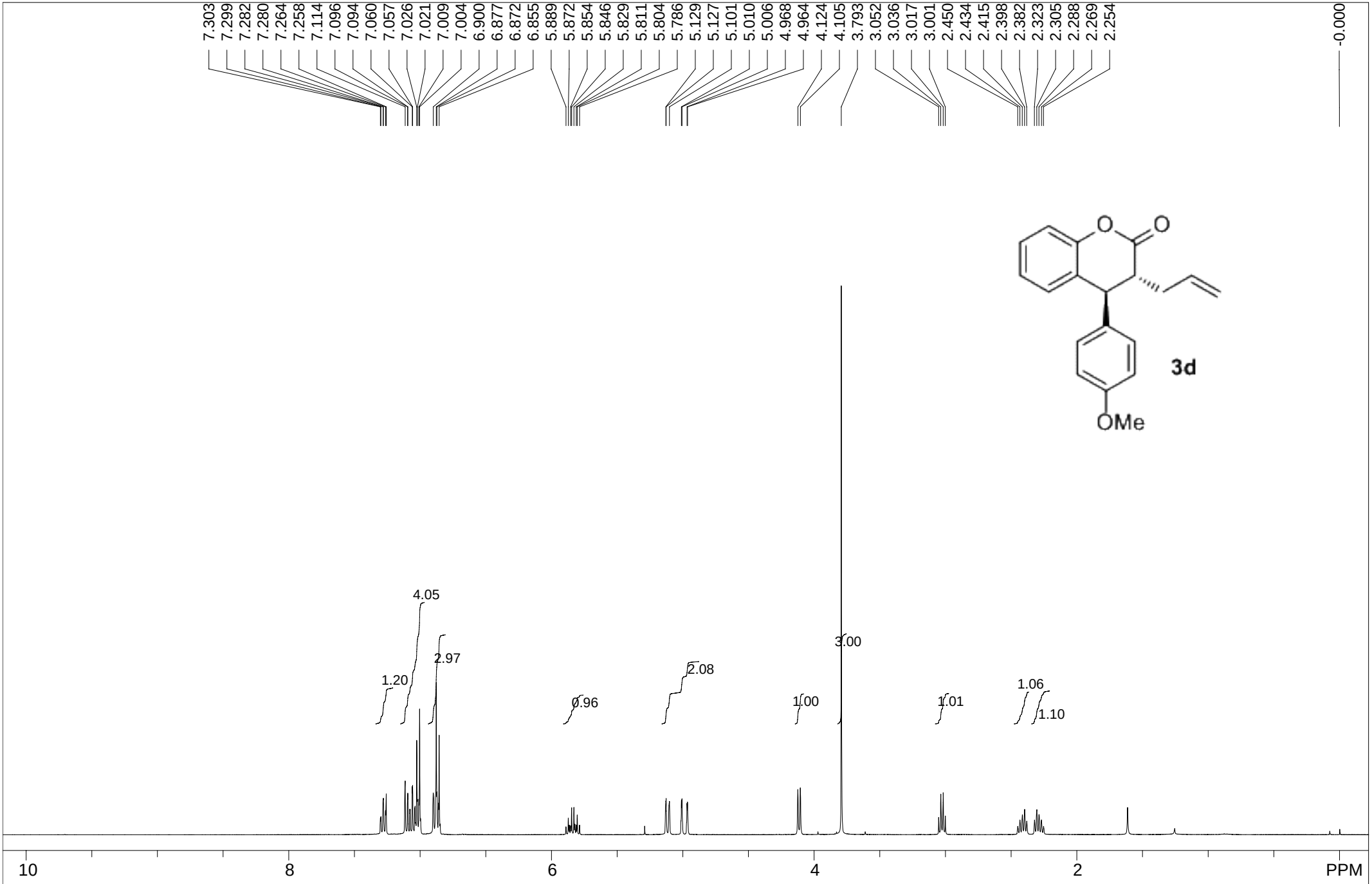
USER: -- DATE: Sep 23 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11052.6		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 120	LB: 2.0		Nuts - $lxh-17-82-1-c.fid



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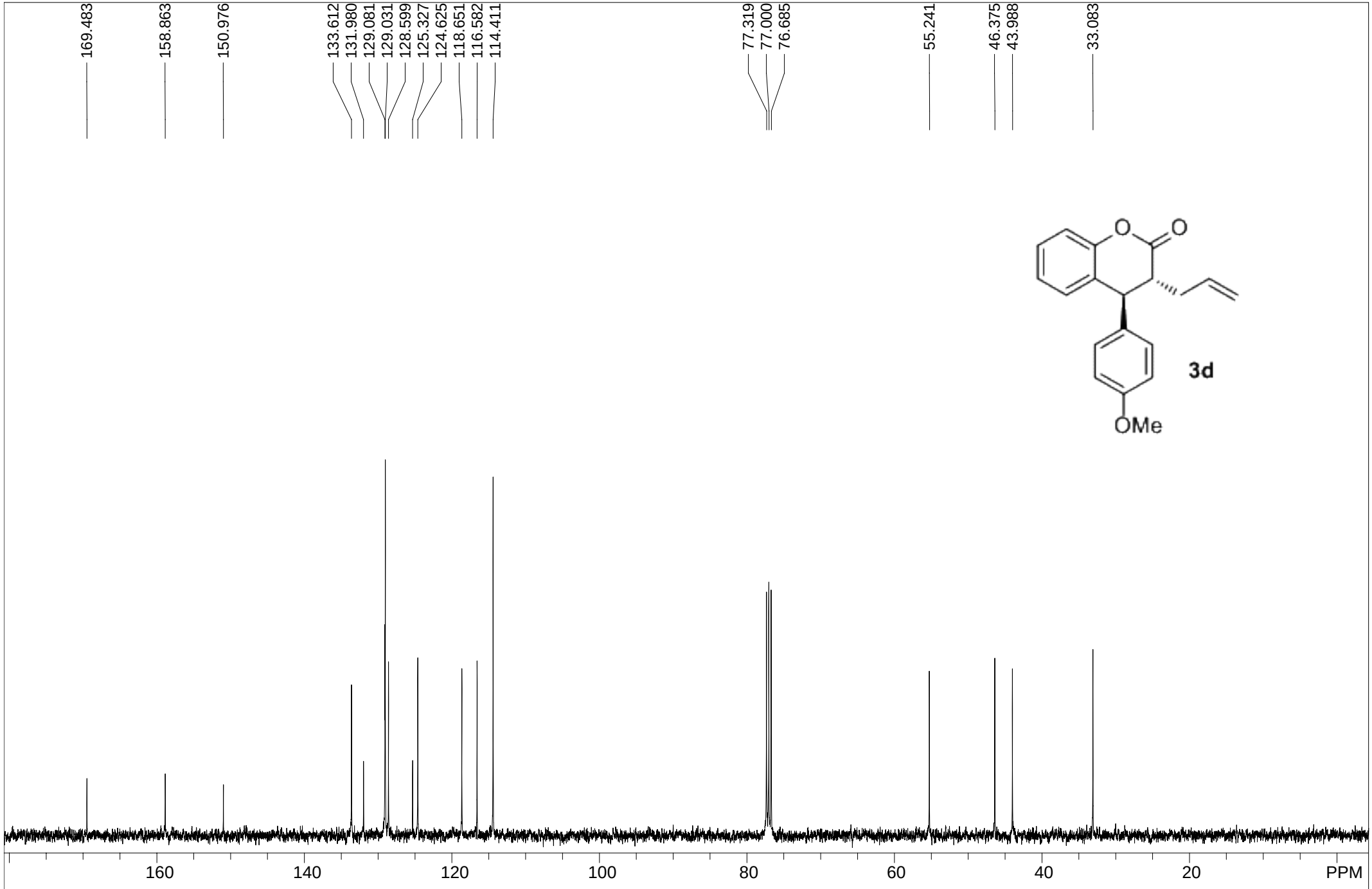
USER: -- DATE: Sep 29 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2797.6		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-74-1-h.fid



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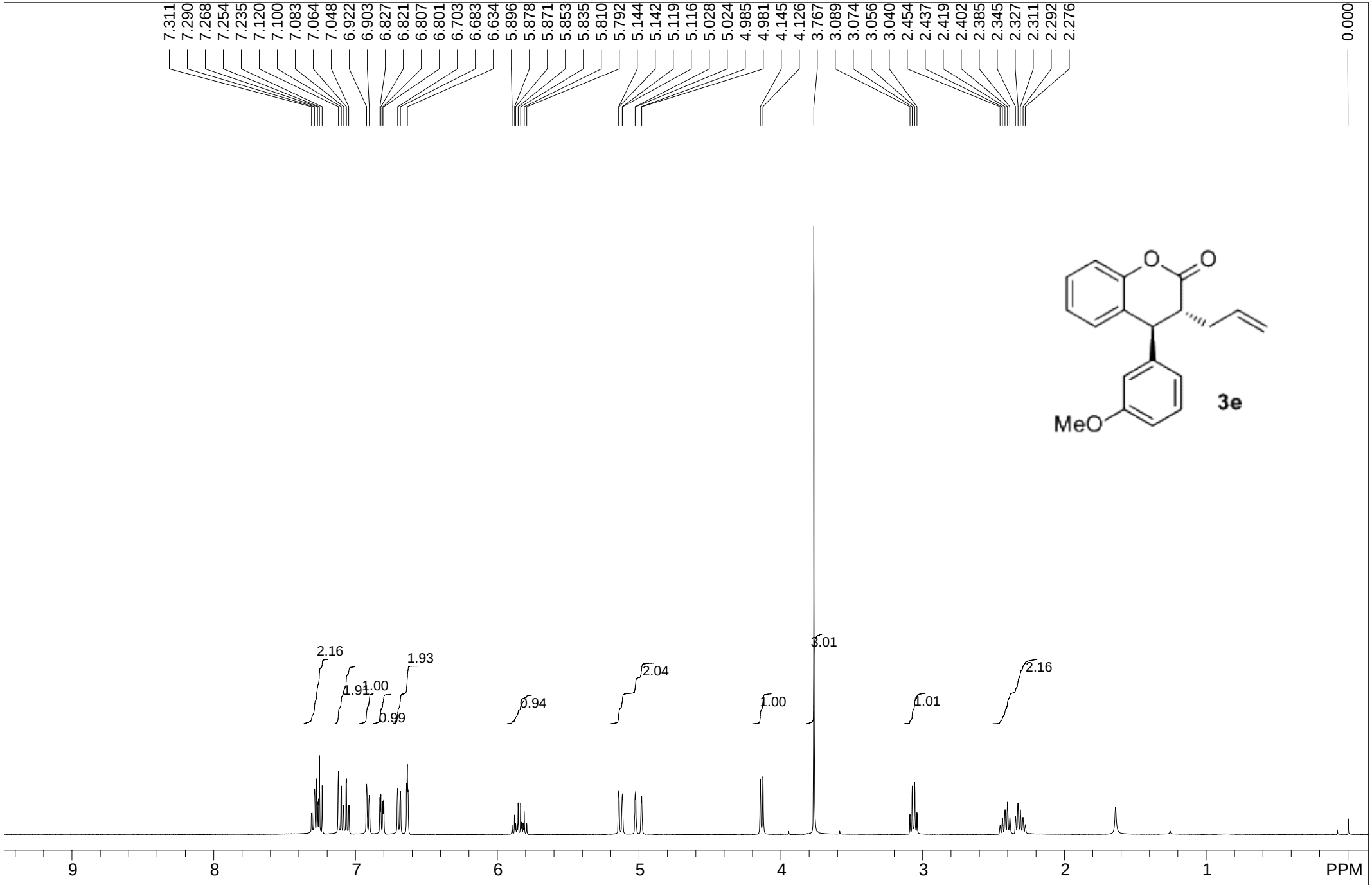
USER: -- DATE: Sep 29 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11052.9		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 88	LB: 2.0		Nuts - $lxh-17-74-1-c.fid



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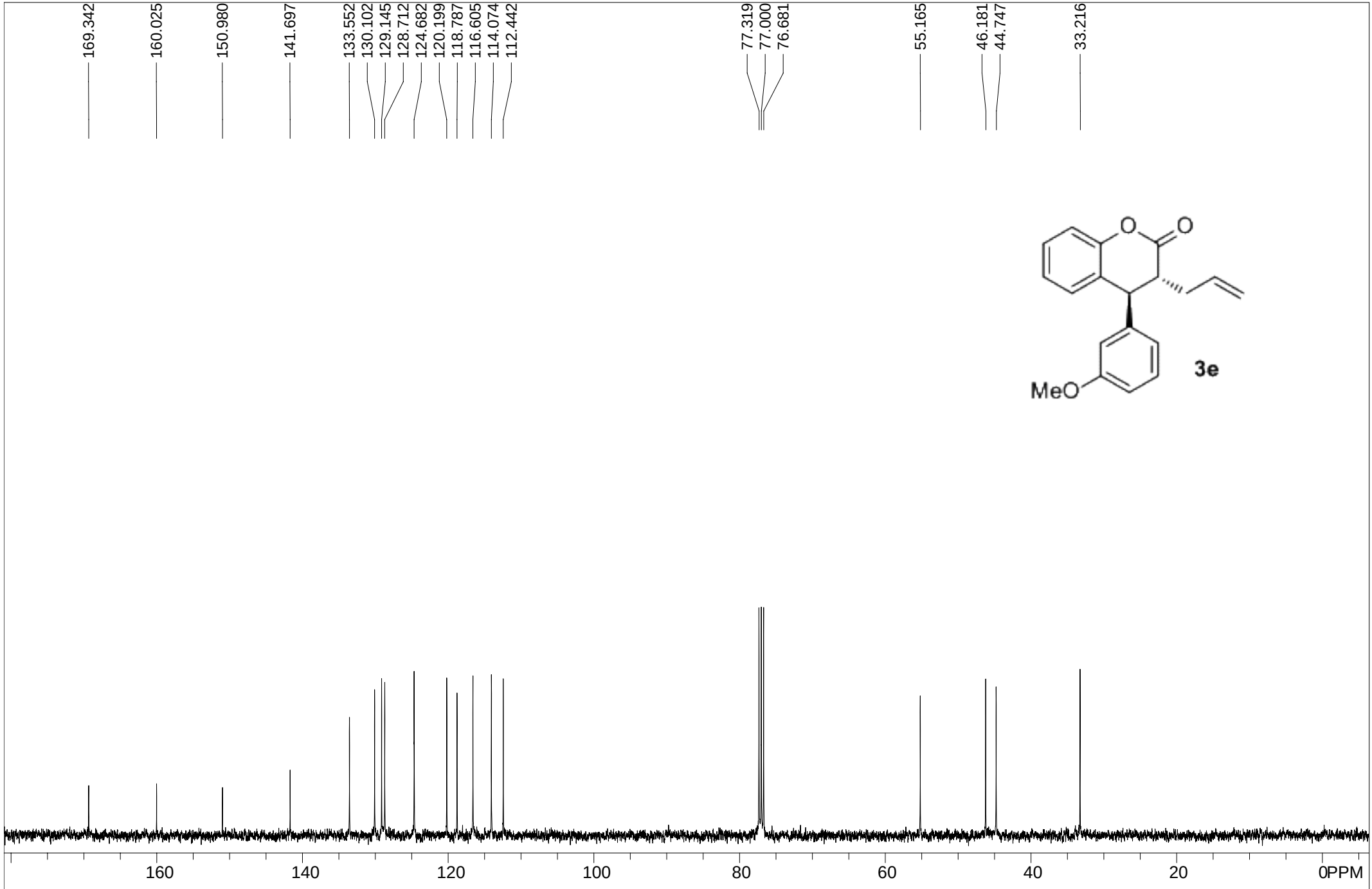
USER: -- DATE: Sep 23 2013

F1: 399.723	F2: 100.519	SW1: 8013		OF1: 3198.0		PTS1d: 24038 , 32768
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0	Nuts - $lxh-17-78-1-h.fid



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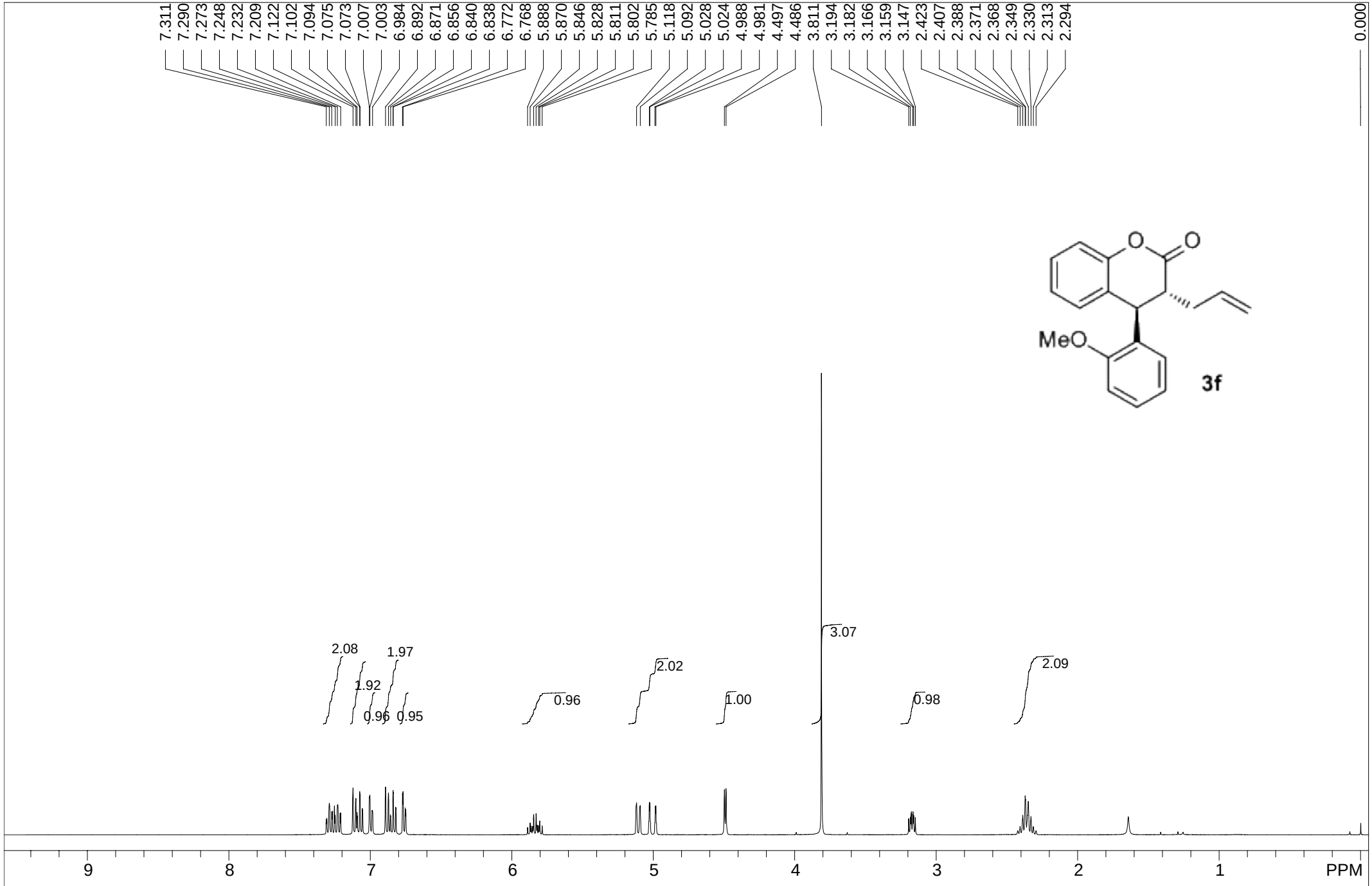
USER: -- DATE: Sep 23 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11051.8		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 88	LB: 2.0		Nuts - $lxh-17-78-1-c.fid



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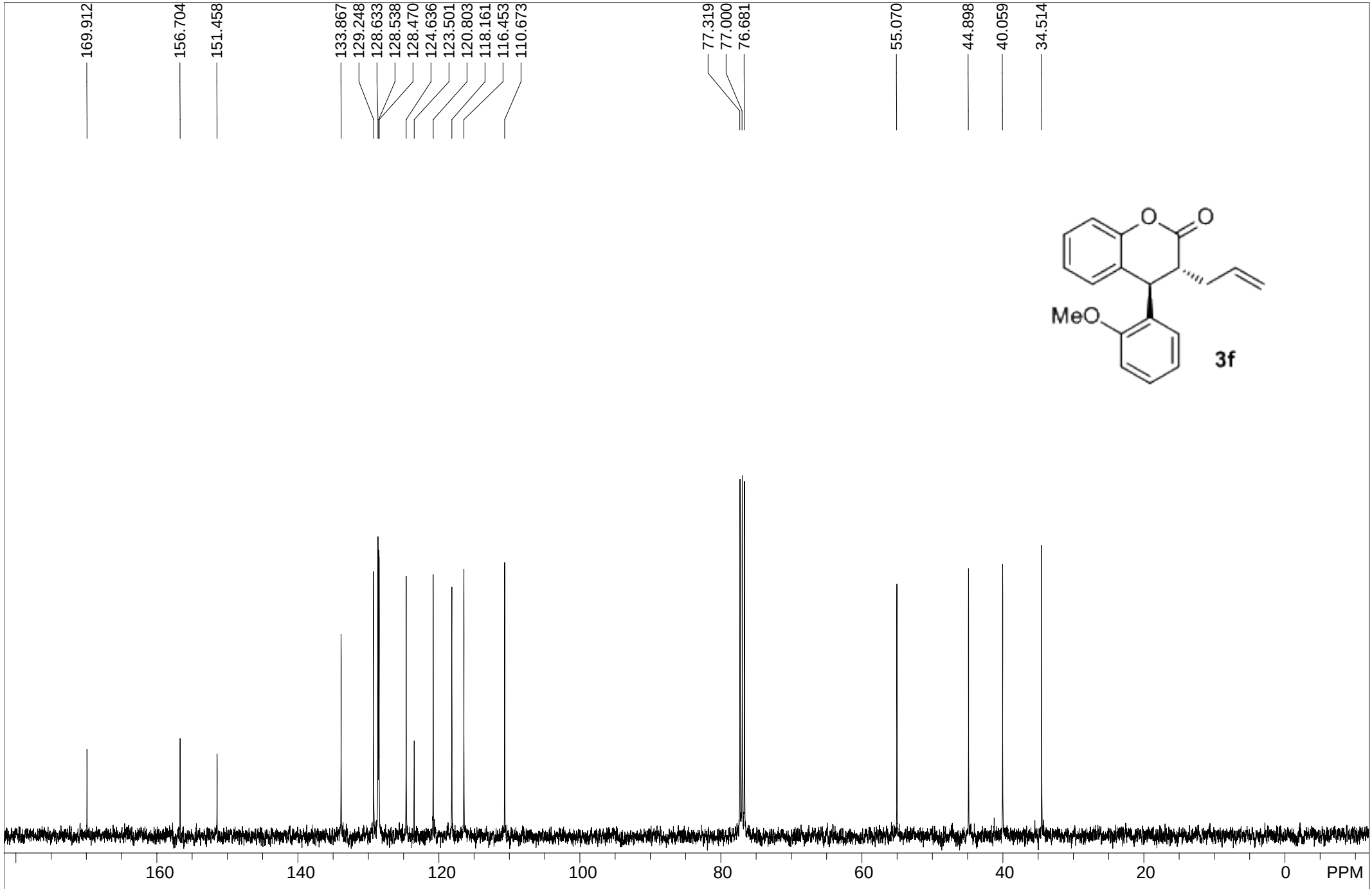
USER: -- DATE: Sep 23 2013

F1: 399.723	F2: 100.519	SW1: 8013		OF1: 3196.0		PTS1d: 24038 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-80-1-h.fid



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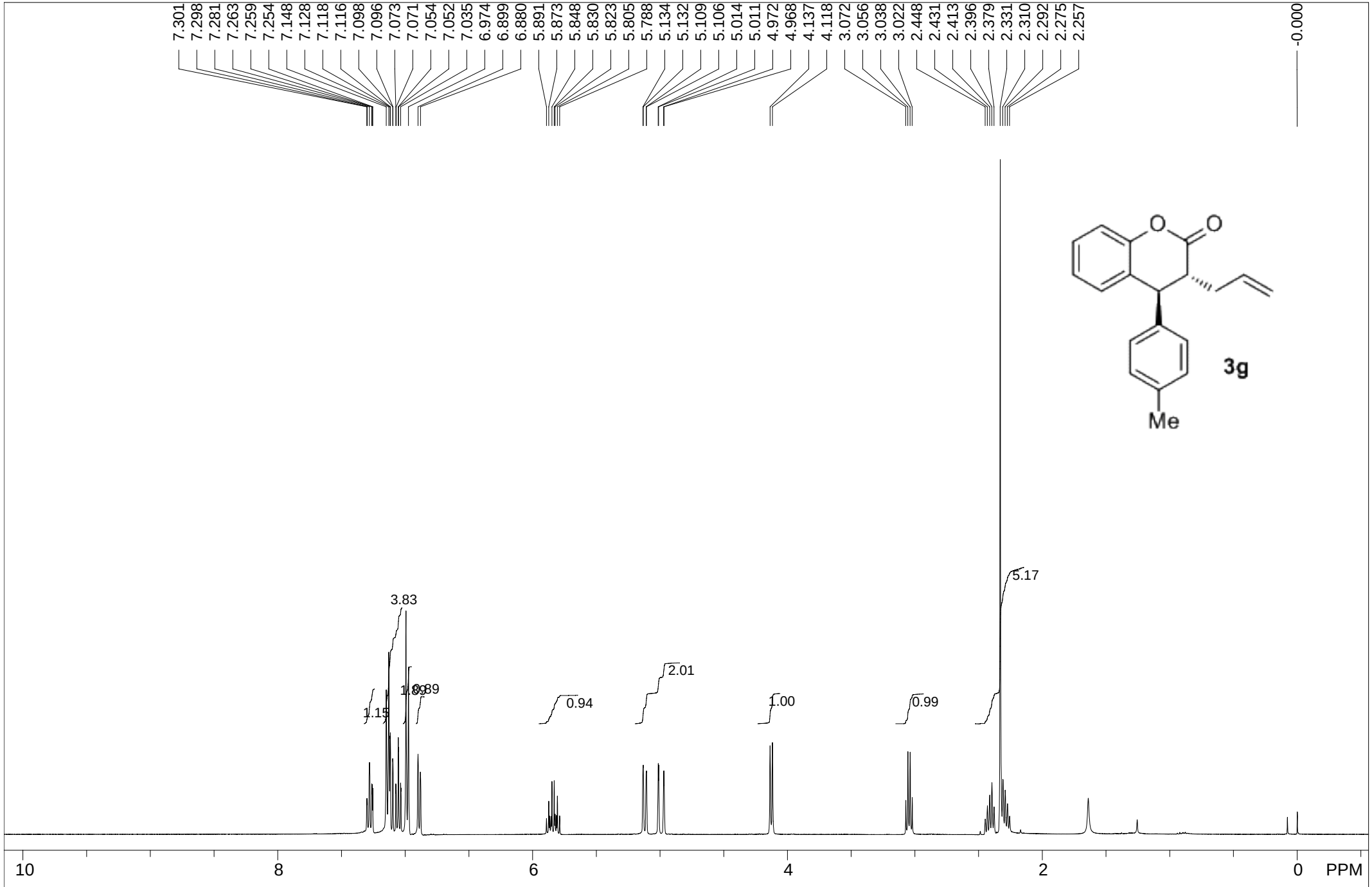
USER: -- DATE: Sep 23 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11050.6		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 76	LB: 2.0		Nuts - $lxh-17-80-1-c.fid



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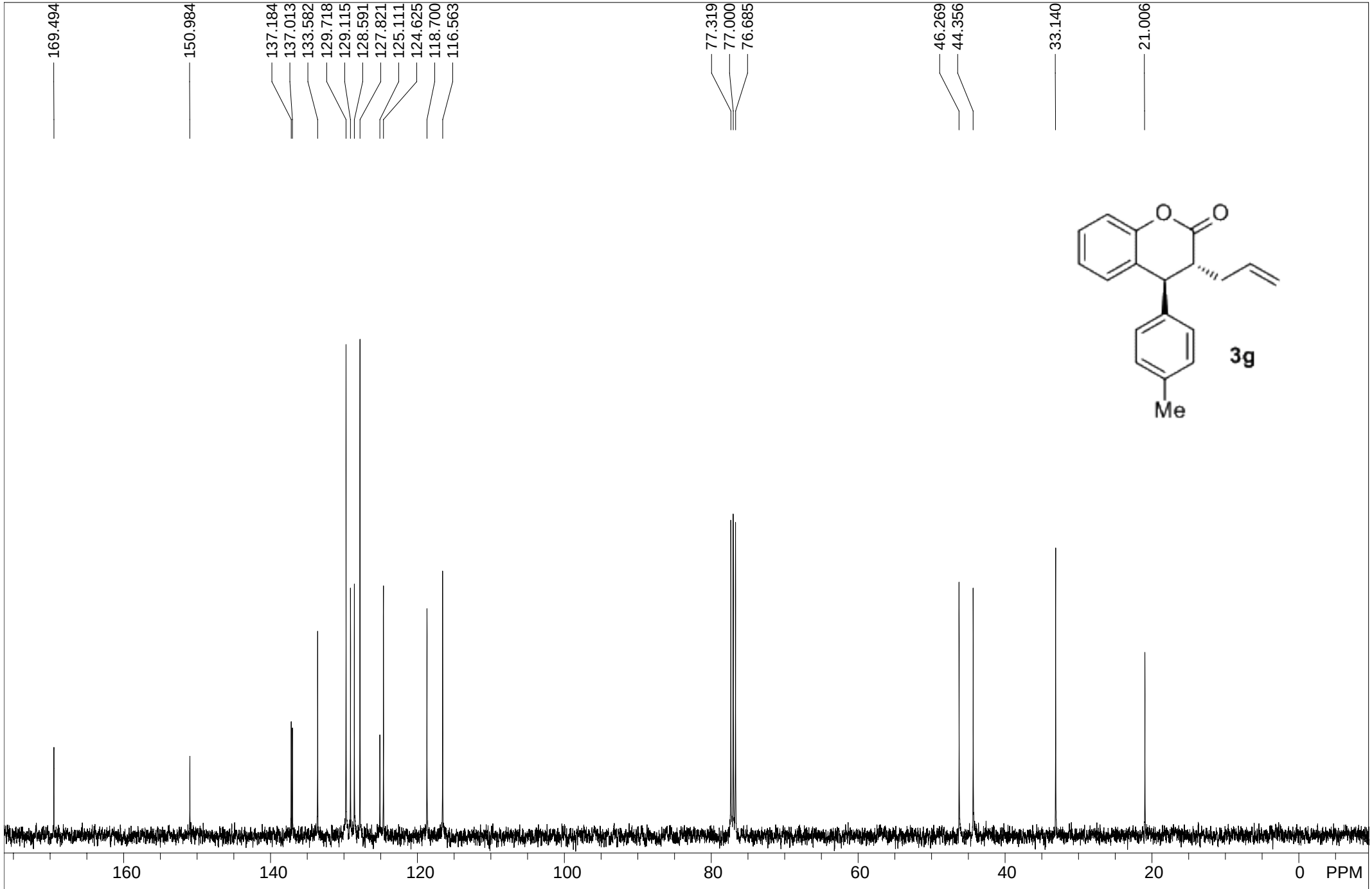
USER: -- DATE: Sep 22 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2796.1		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-76-1-h.fid



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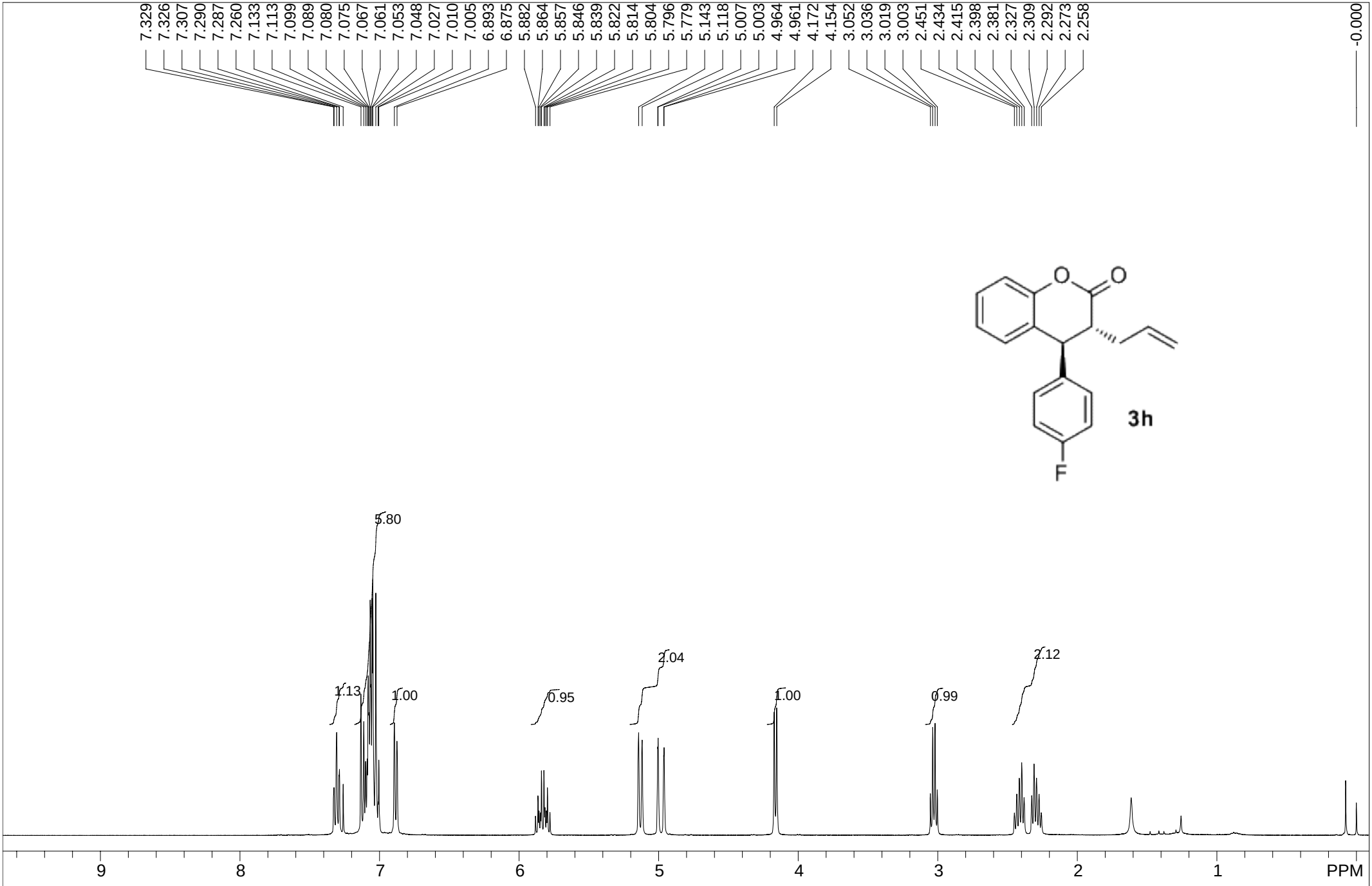
USER: -- DATE: Sep 22 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11051.0		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 68	LB: 2.0		Nuts - $lxh-17-76-1-c.fid



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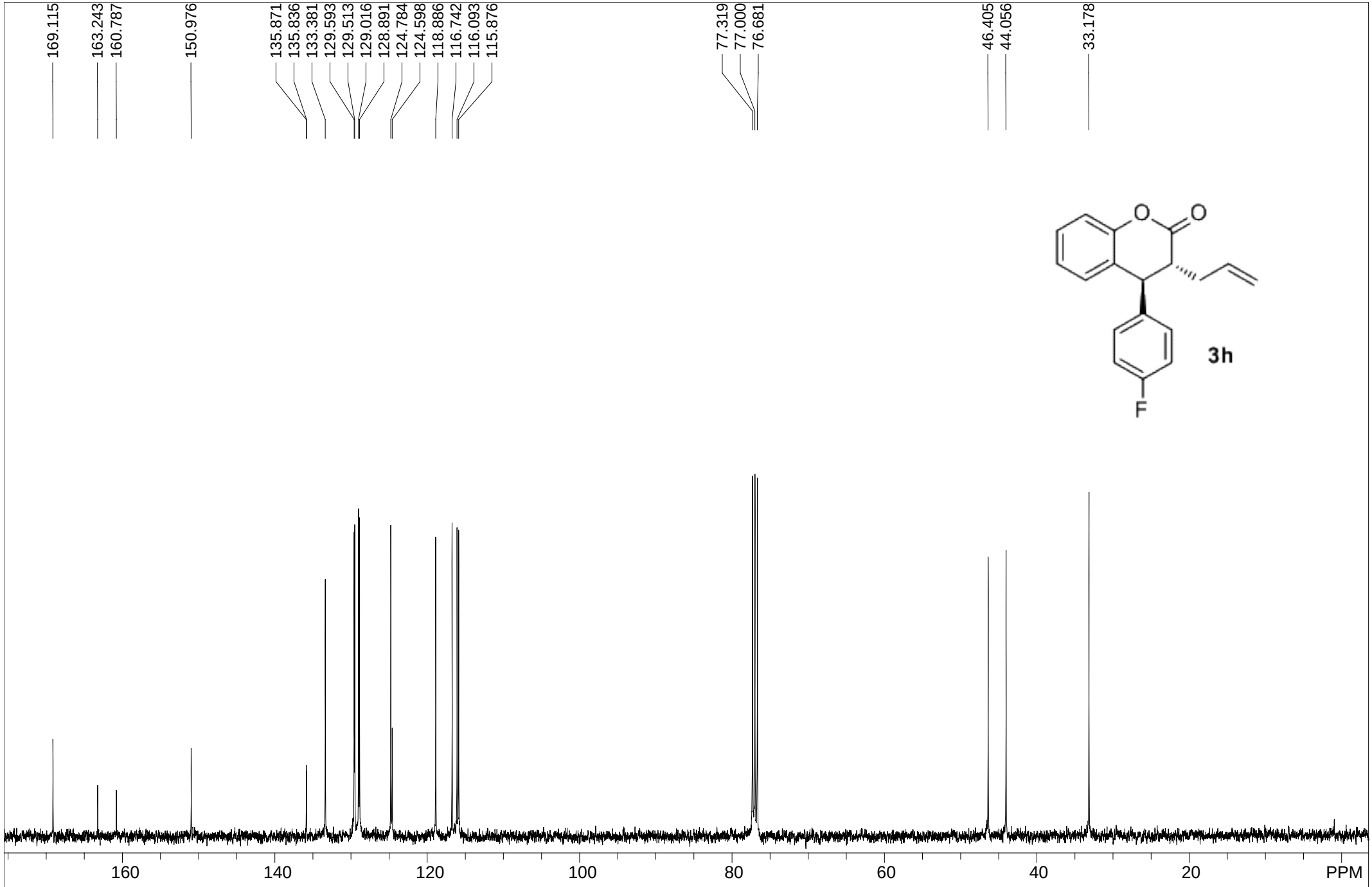
USER: -- DATE: Oct 8 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2798.5		PTS1d: 21552 , 32768
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0	Nuts - $lxh-17-100-1-h.fid



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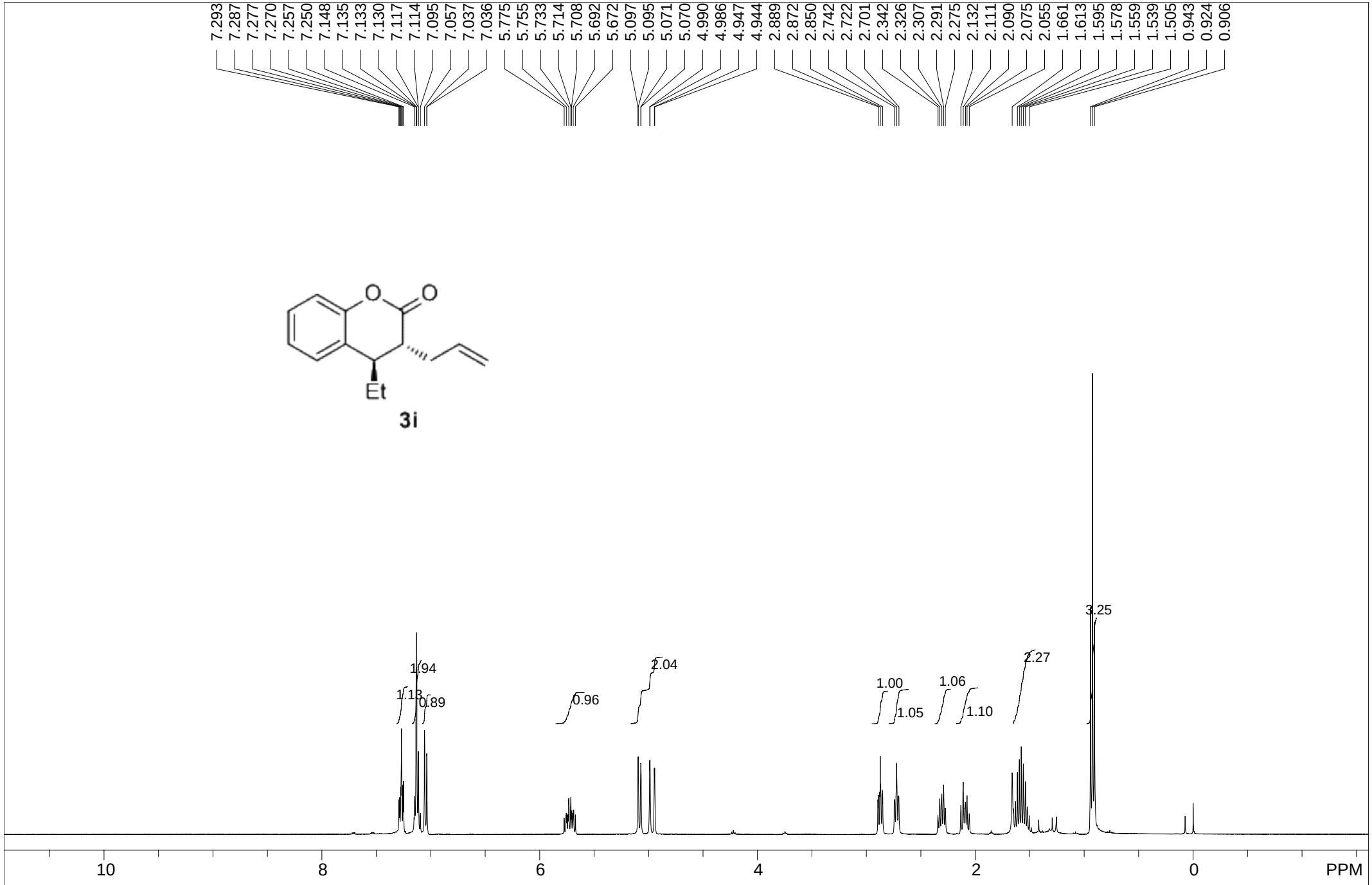
USER: -- DATE: Oct 8 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11053.3		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 240	LB: 2.0		Nuts - $lxh-17-100-c.fid



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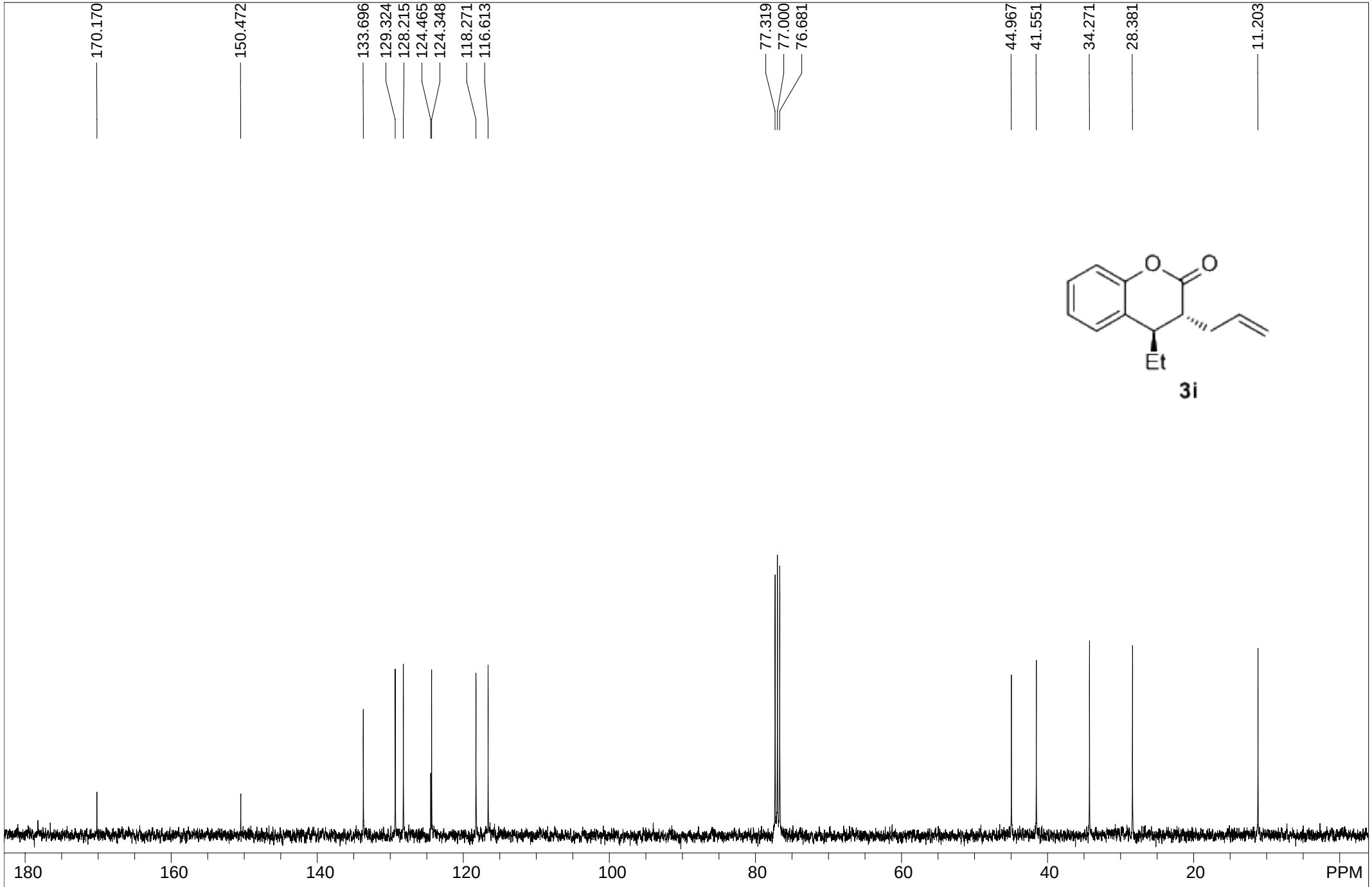
F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2802.2		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-90-1-h.fid



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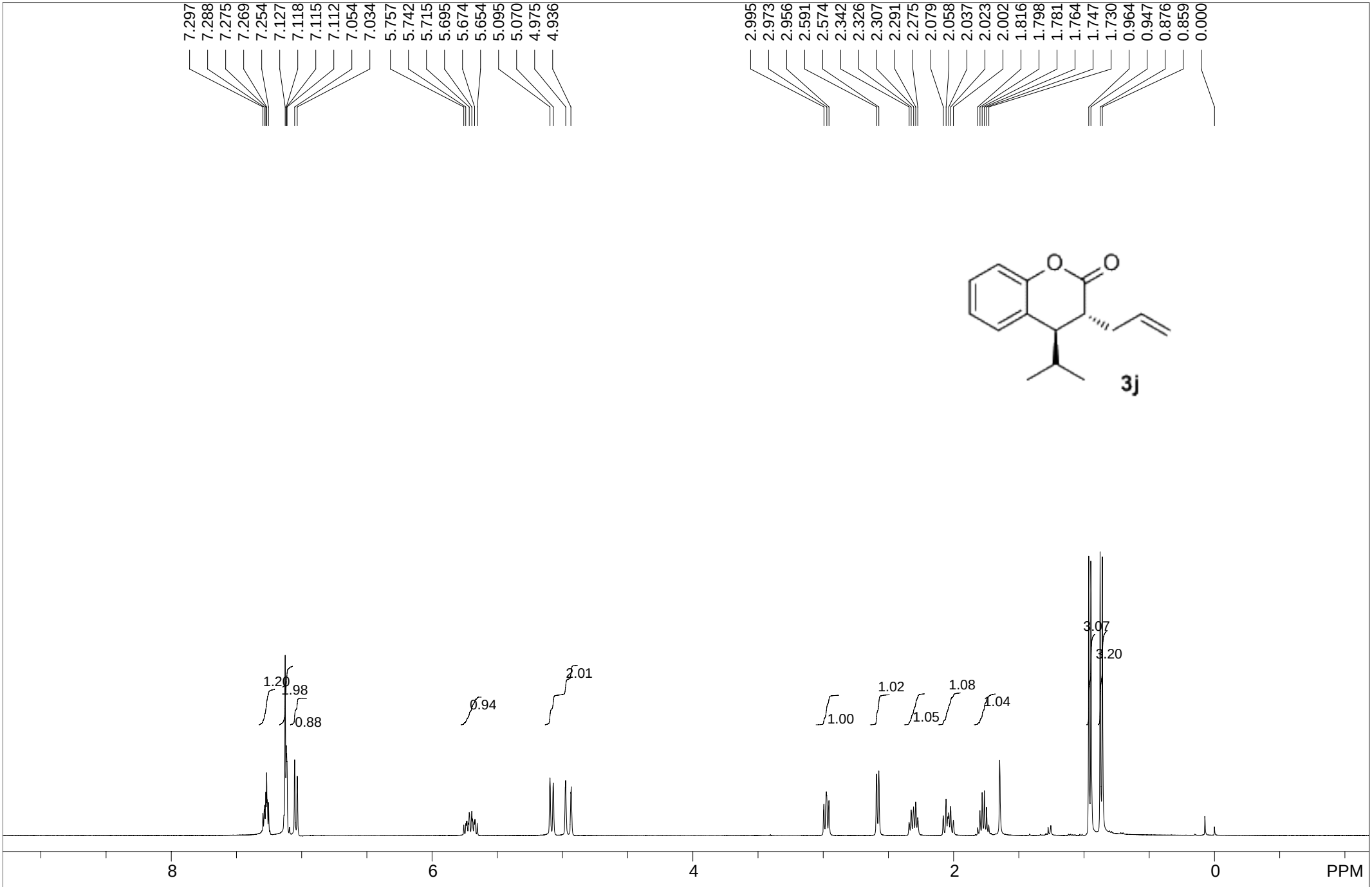
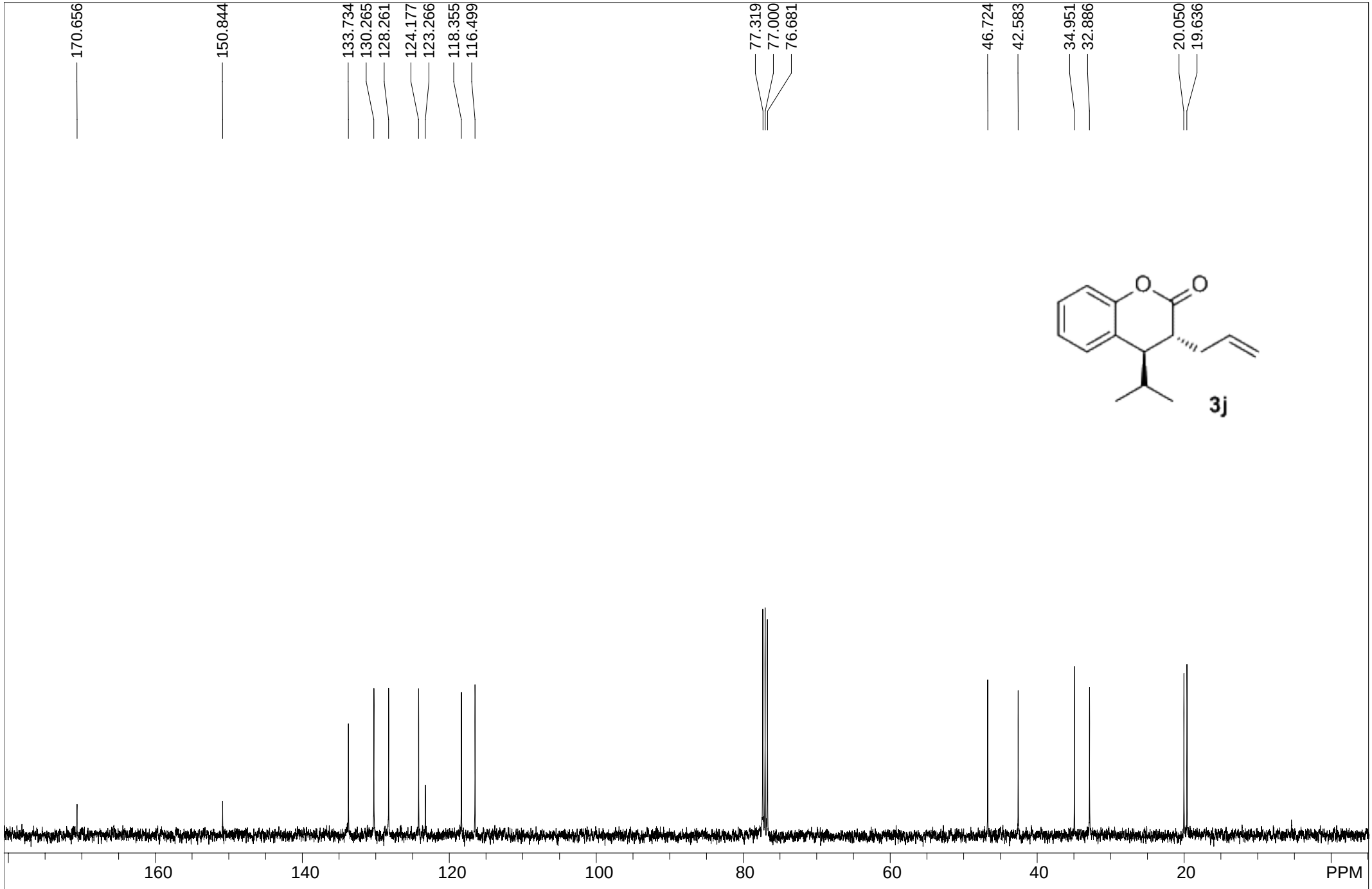
USER: -- DATE: Sep 22 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11052.9		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 72	LB: 2.0		Nuts - $lxh-17-90-1-c.fid



H1 autocalibration done on Sep 16, 2013 USER: -- DATE: Sep 17 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2801.8		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-86-1-h.fid



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USER: -- DATE: Sep 17 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11053.3		PTS1d: 37500 , 65536	
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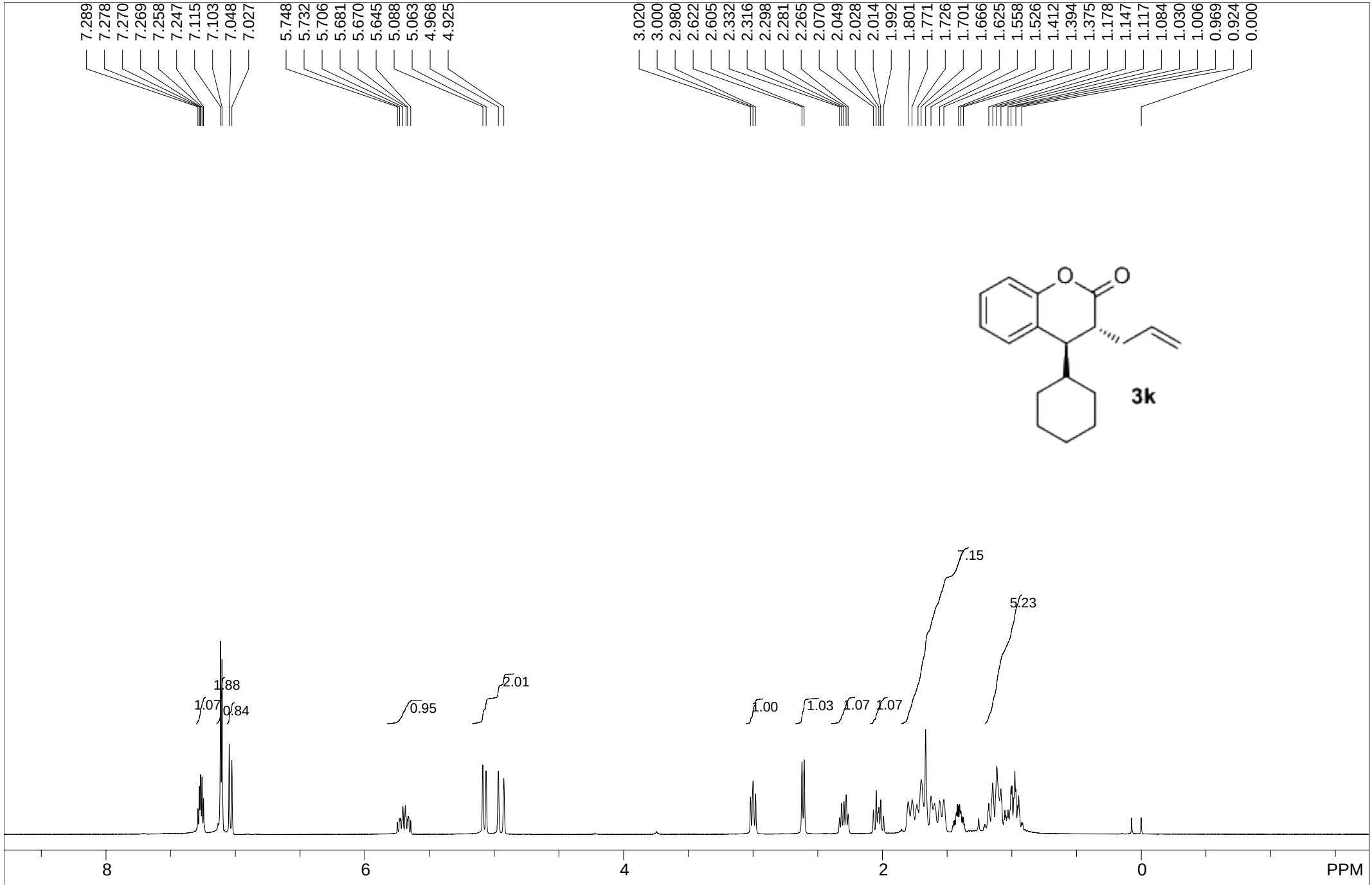

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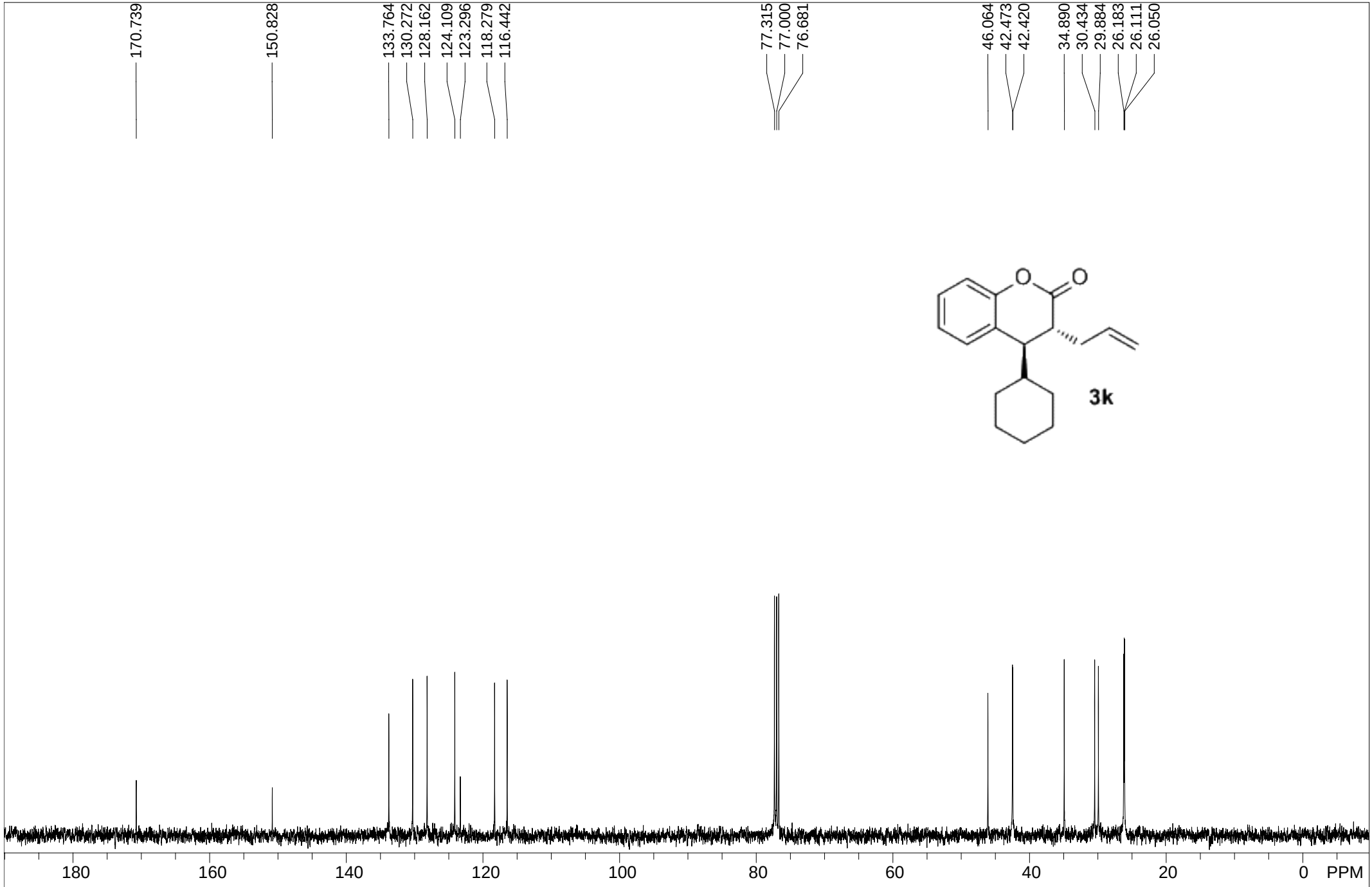
USER: -- DATE: Sep 22 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2802.9		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-92-1-h.fid



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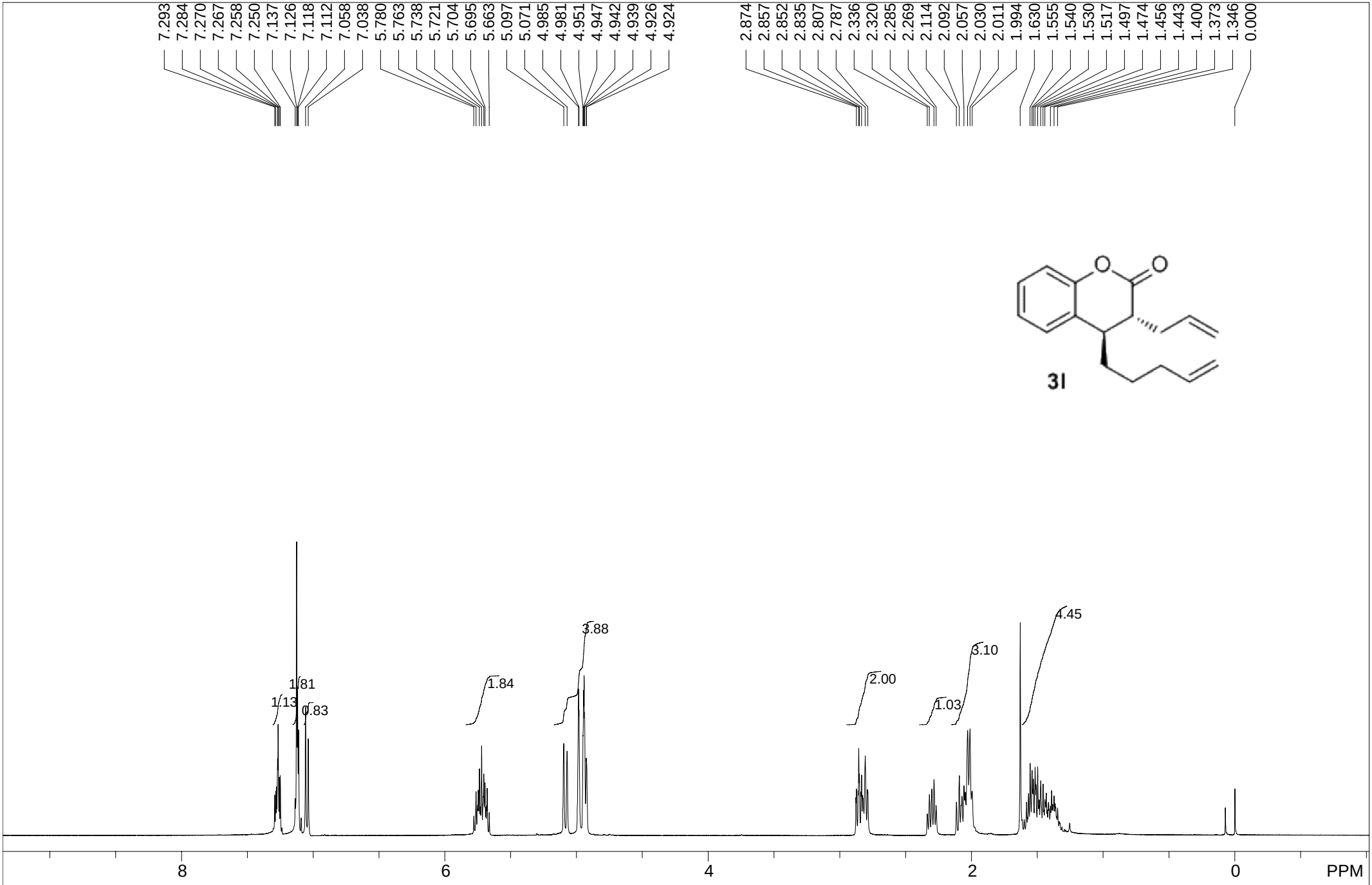
USER: -- DATE: Sep 22 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11052.2		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 48	LB: 2.0		Nuts - $lxh-17-92-1-c.fid



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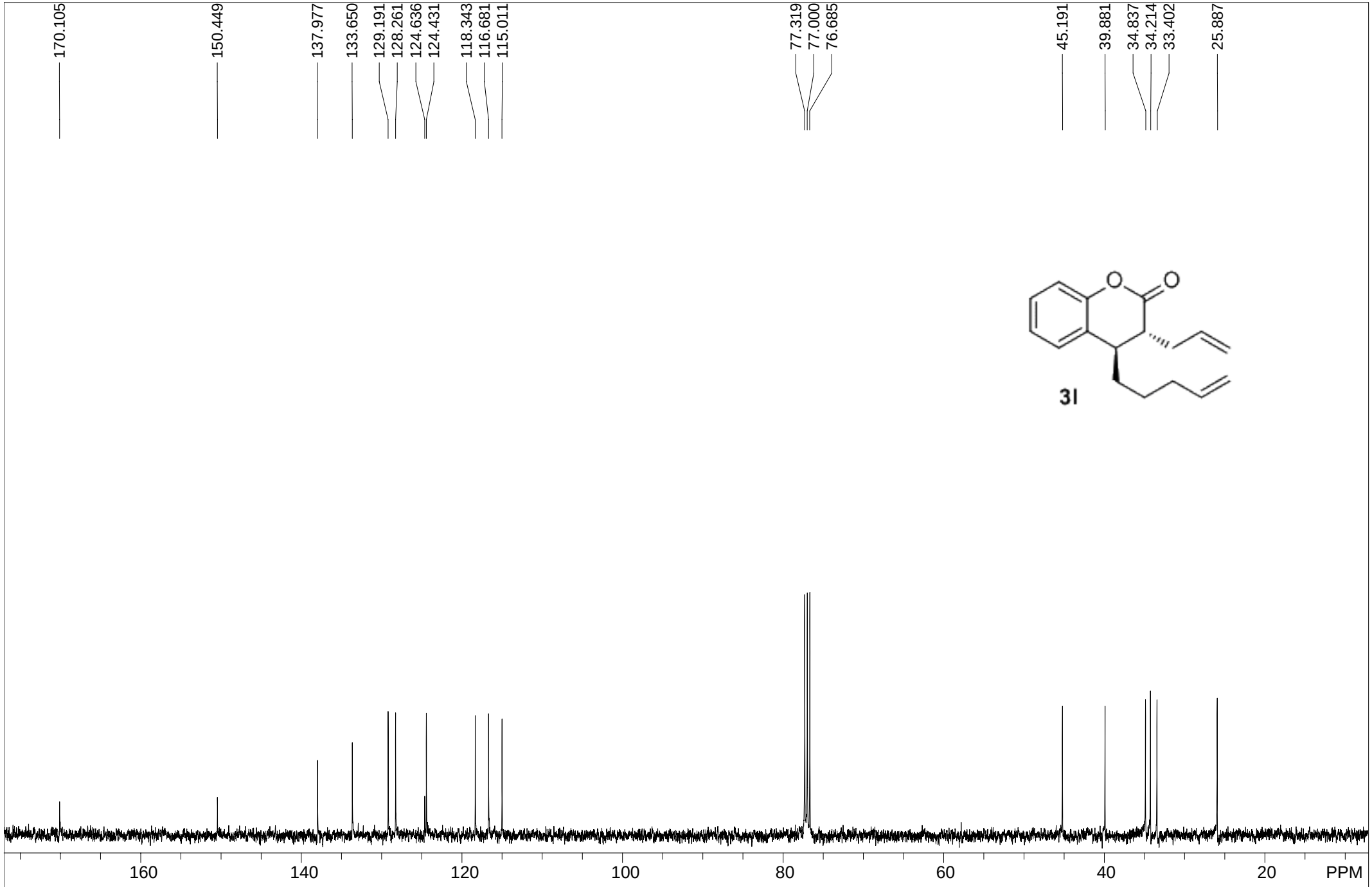
USER: -- DATE: Sep 22 2013

F1: 399.723	F2: 100.519	SW1: 7184		OF1: 2800.9		PTS1d: 21552 , 32768	
EX: s2pul		PW: 6.3 us	PD: 1.0 sec	NA: 8	LB: 0.0		Nuts - $lxh-17-88-1-h.fid



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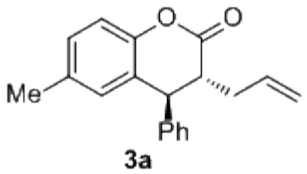
USER: -- DATE: Sep 22 2013

F1: 100.521	F2: 399.722	SW1: 25000		OF1: 11053.7		PTS1d: 37500 , 65536	
EX: s2pul		PW: 7.2 us	PD: 1.0 sec	NA: 80	LB: 2.0		Nuts - $lxh-17-88-1-c.fid

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-3-rac.lcd

Acquired by	: Admin
Sample Name	: LXH-17-3-rac
method	:OJ-H,98/2,0.7,214
Injection Volume	: 2.5 uL
Data File Name	: lxh-17-3-rac.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2014-5-27 16:18:55
Data Processed	: 2014-5-27 16:49:06

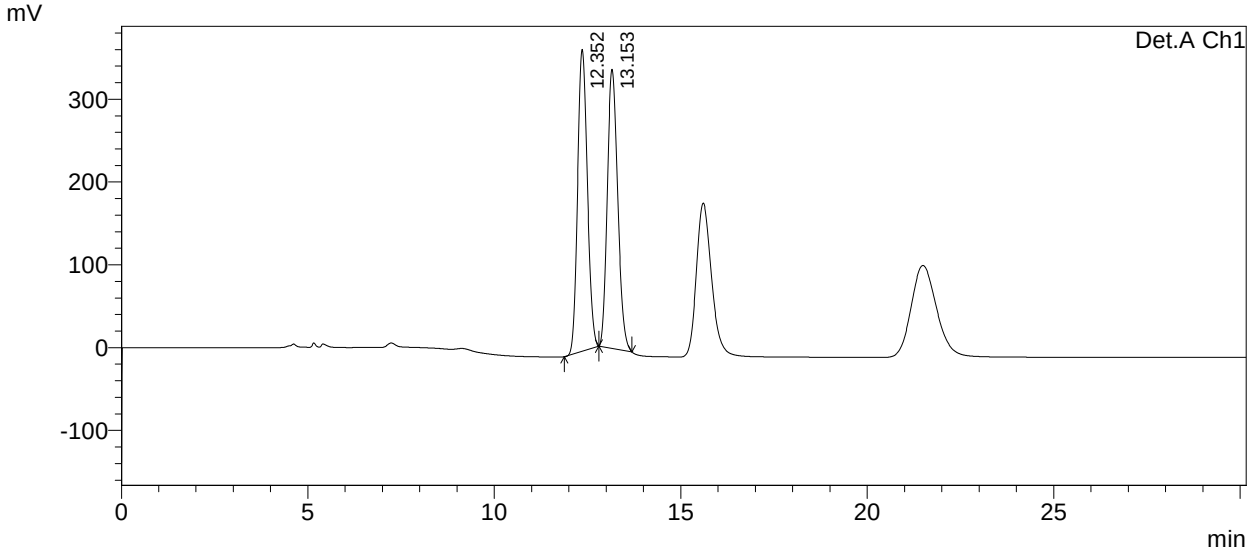


3a

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-3-rac.lcd



1 Det.A Ch1/214nm

PeakTable

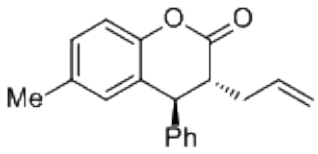
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	12.352	6614259	364625	50.228
2	13.153	6554289	337099	49.772
Total		13168548	701723	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-65-1.lcd

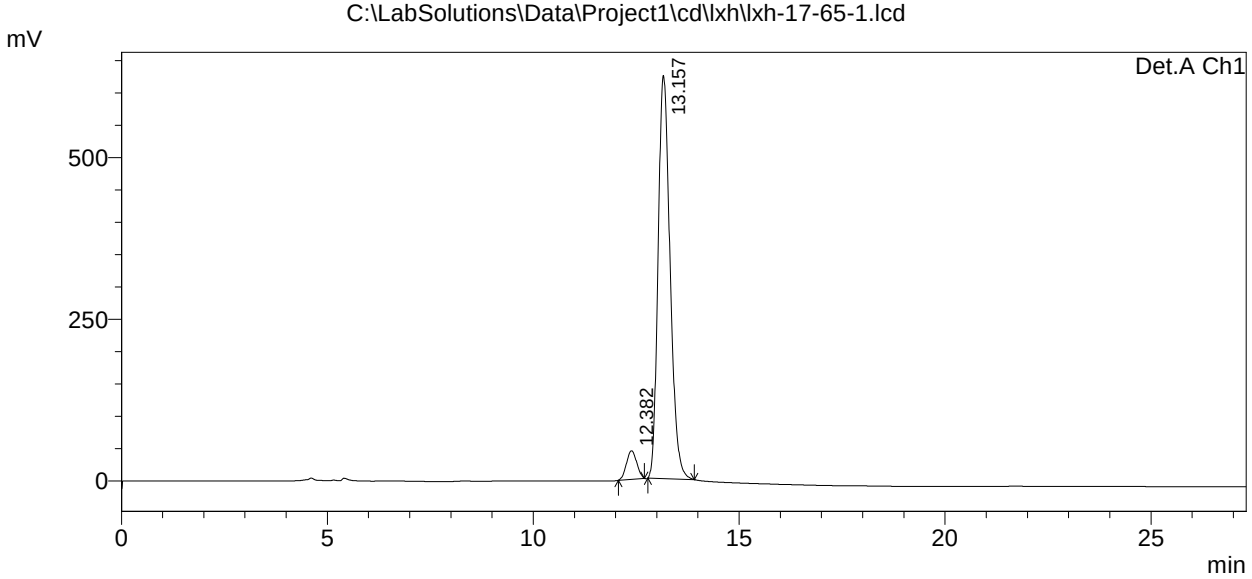
Acquired by	: Admin
Sample Name	: LXH-17-65-1
method	:OJ-H, 98/2, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: lxh-17-65-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2014-5-27 16:50:59
Data Processed	: 2014-5-27 17:18:18



3a

<Chromatogram>

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-65-1.lcd



1 Det.A Ch1/214nm

PeakTable

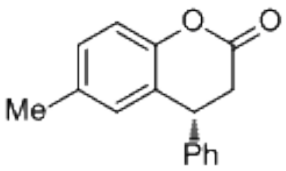
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	12.382	760826	43985	5.700
2	13.157	12586092	623470	94.300
Total		13346918	667455	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-65-2-rac.lcd

Acquired by	: Admin
Sample Name	: LXH-17-65-2-rac
method	:OJ-H, 90/10, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: lxh-17-65-2-rac.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2014-5-27 14:35:24
Data Processed	: 2014-5-27 15:05:24

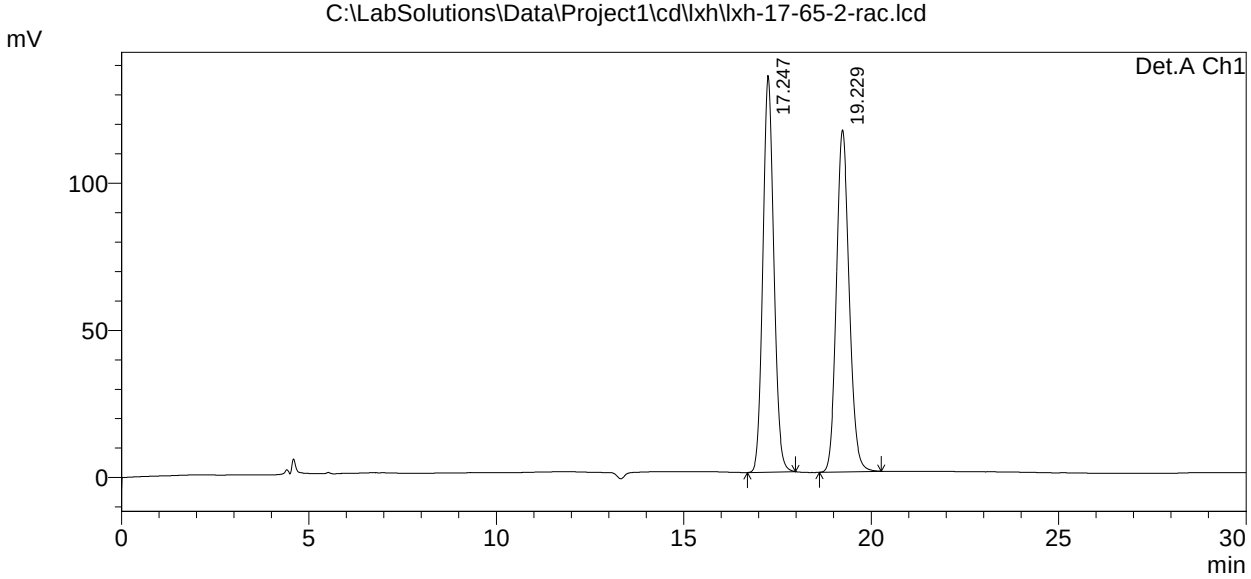


1a

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-65-2-rac.lcd



1 Det.A Ch1/214nm

PeakTable

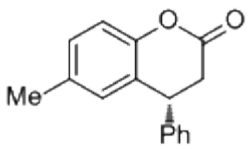
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	17.247	2742967	134791	49.874
2	19.229	2756778	116260	50.126
Total		5499745	251051	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-65-2.lcd

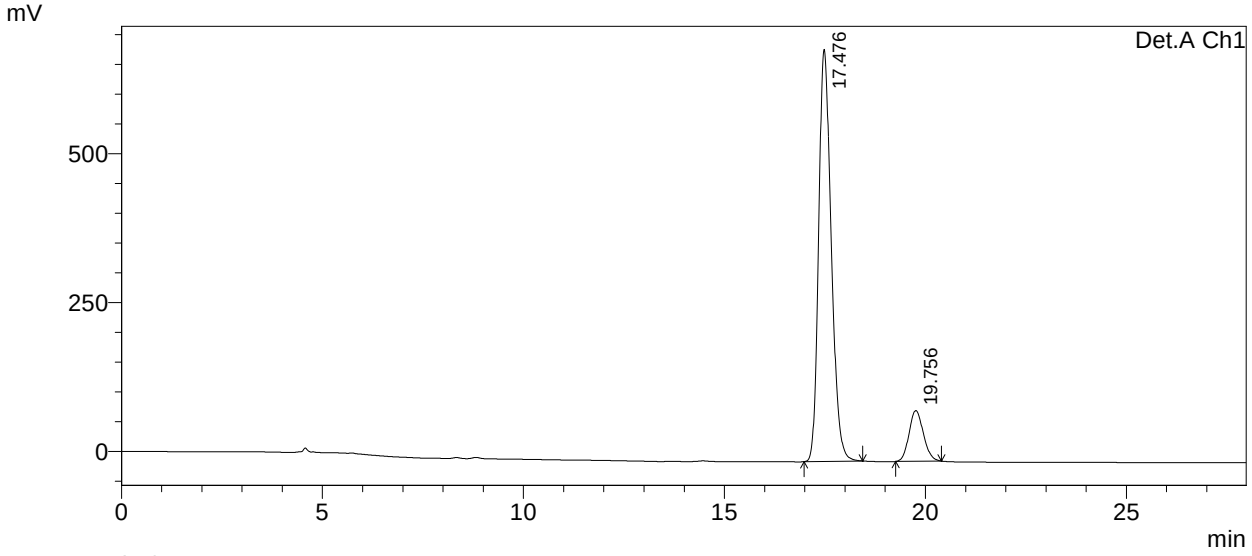
Acquired by	: Admin
Sample Name	: lxh-17-65-2
method	:OJ-H, 90/10, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-65-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-8-28 19:43:26
Data Processed	: 2013-9-23 14:17:16



1a

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-65-2.lcd



1 Det.A Ch1/214nm

PeakTable

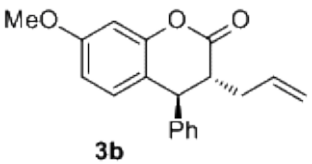
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	17.476	15056443	691552	87.680
2	19.756	2115692	85117	12.320
Total		17172135	776669	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-72\17-72-1-rac\17-72-1-rac11.lcd

Acquired by	: Admin
Sample Name	: lxh-17-72-1-rac11
method	:IC, 90/10, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-72-1-rac11.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-29 13:54:31
Data Processed	: 2013-9-29 14:36:18

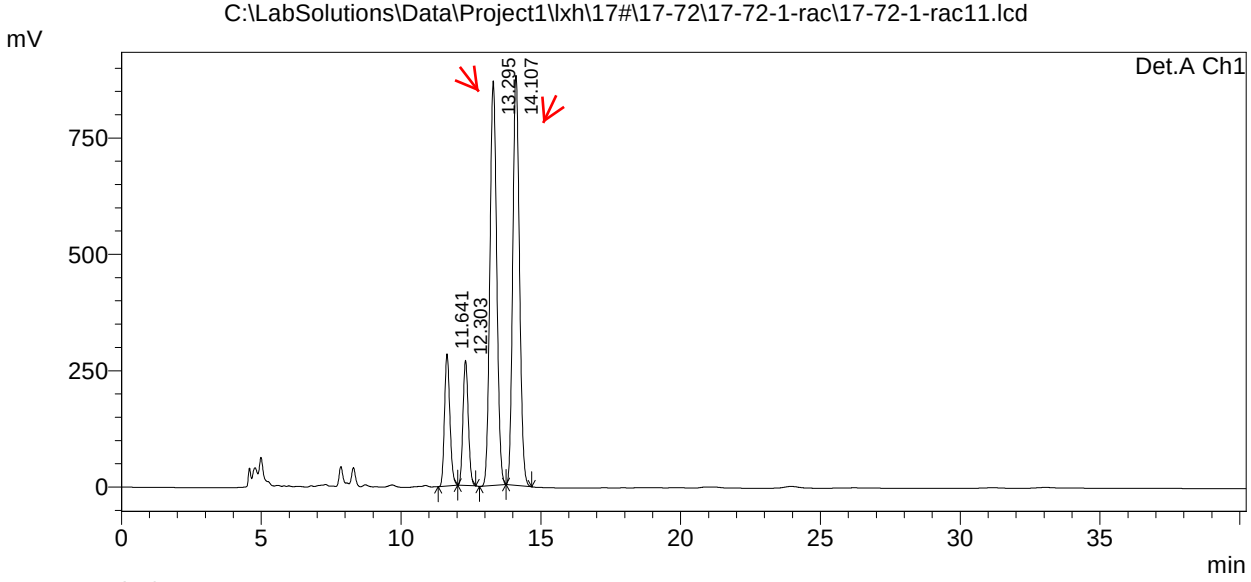


3b

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-72\17-72-1-rac\17-72-1-rac11.lcd



1 Det.A Ch1/214nm

PeakTable

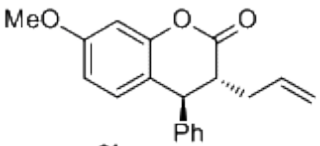
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	11.641	3791490	284154	10.296
2	12.303	3549176	269033	9.638
3	13.295	14741893	869348	40.034
4	14.107	14740669	881032	40.031
Total		36823228	2303567	100.000

==== Shimadzu LCsolution Analysis Report ====

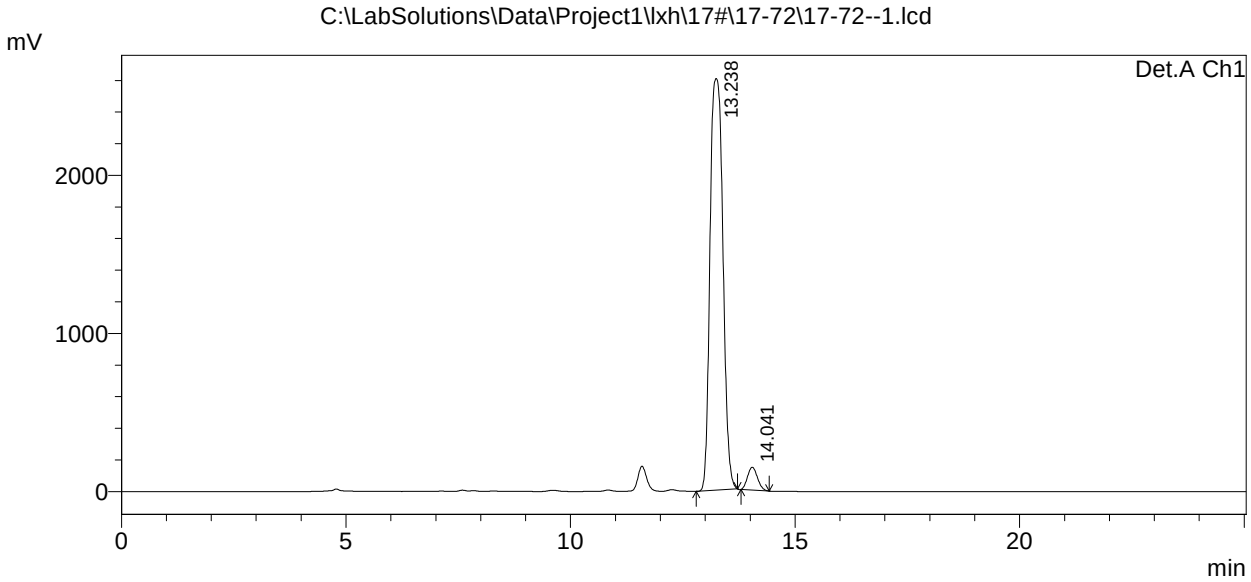
C:\LabSolutions\Data\Project1\lxh\17#\17-72\17-72--1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-72--1
method	:IC, 90/10, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-72--1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-29 15:19:07
Data Processed	: 2013-9-29 15:45:45



3b

<Chromatogram>



1 Det.A Ch1/214nm

PeakTable

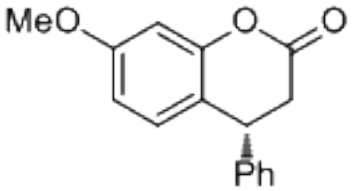
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	13.238	51898563	2604584	95.930
2	14.041	2202155	143938	4.070
Total		54100718	2748522	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-72\17-72-2-rac\17-72-2-rac1.lcd

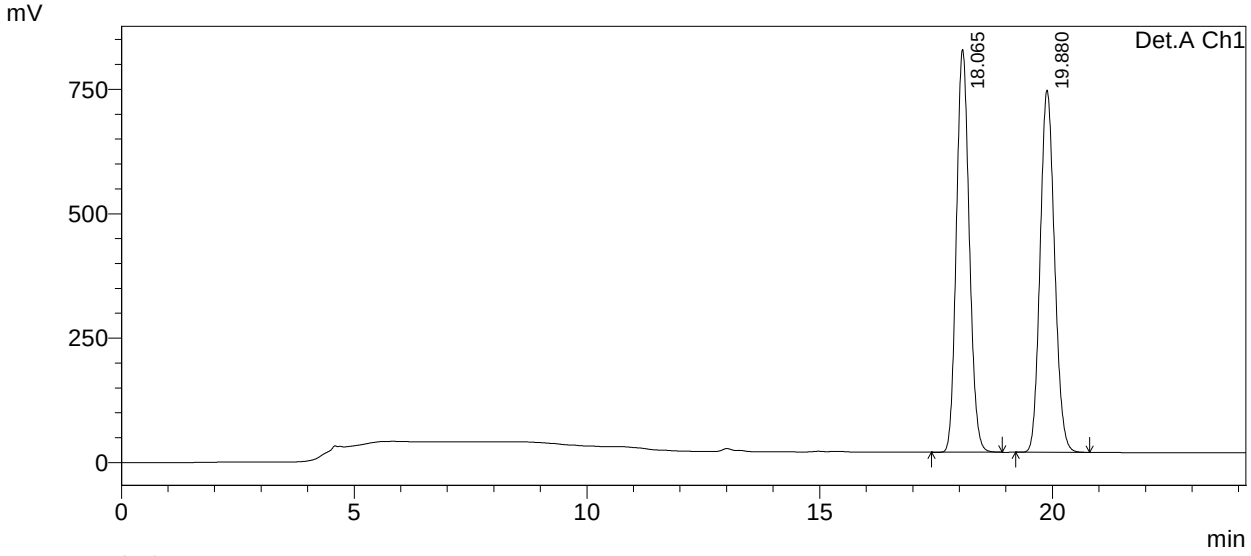
Acquired by	: Admin
Sample Name	: lxh-17-72-2-rac1
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-72-2-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-16 13:49:28
Data Processed	: 2013-9-16 14:14:31



1b
(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-72\17-72-2-rac\17-72-2-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

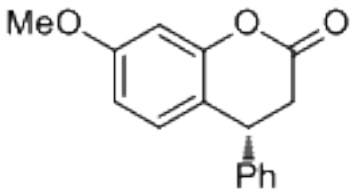
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	18.065	15592038	809510	49.838
2	19.880	15693669	728235	50.162
Total		31285706	1537744	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-72\17-72--2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-72-2.
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-72--2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-26 14:23:02
Data Processed	: 2013-9-26 14:52:48



1b

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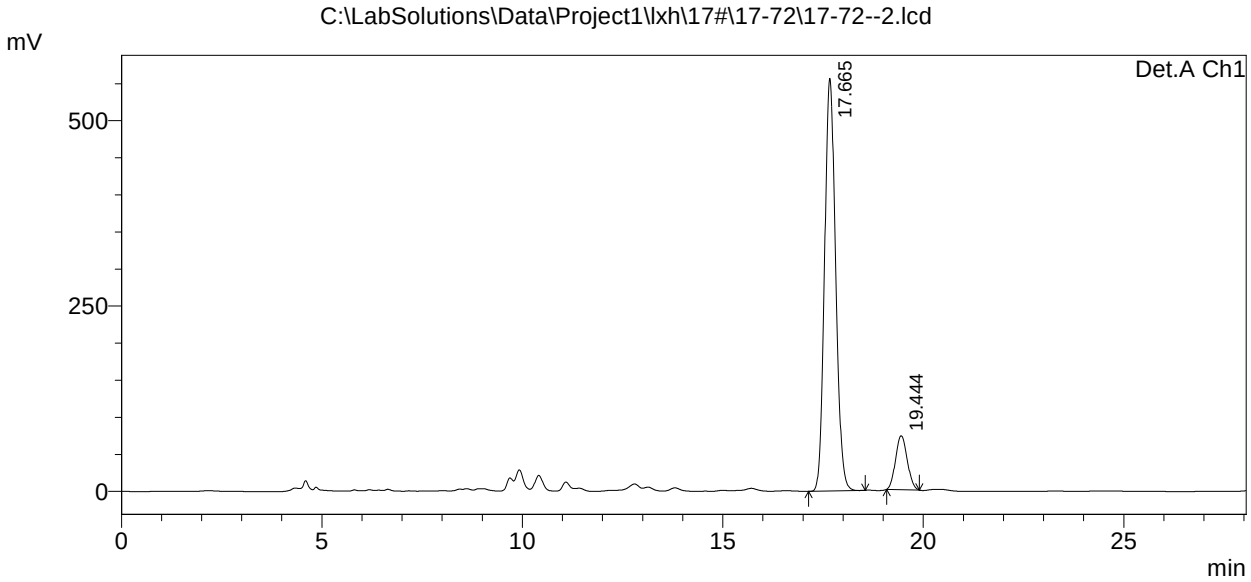


1 Det.A Ch1/214nm

PeakTable

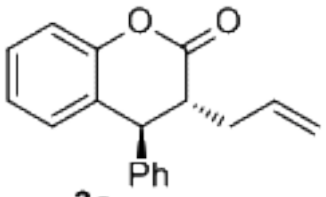
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	17.665	10681981	556299	87.891
2	19.444	1471638	72685	12.109
Total		12153619	628984	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-82\17-82-1-rac\17-82-1-rac1.lcd

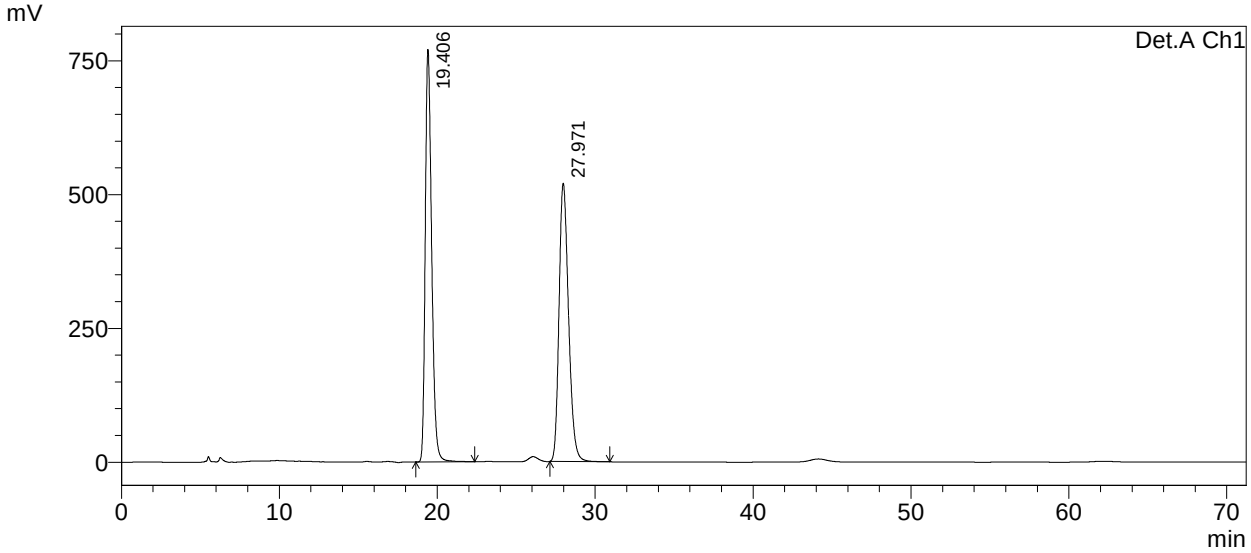
Acquired by	: Admin
Sample Name	: lxh-17-82-1-rac1
method	:OJ-H, 98/2, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-82-1-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-27 21:19:32
Data Processed	: 2013-9-27 22:32:37



3c
(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-82\17-82-1-rac\17-82-1-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

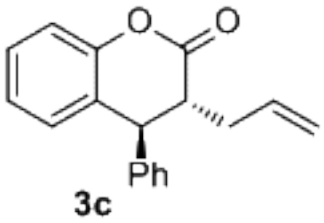
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	19.406	21703228	770881	49.952
2	27.971	21744837	520234	50.048
Total		43448065	1291115	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-82\17-82-1.lcd

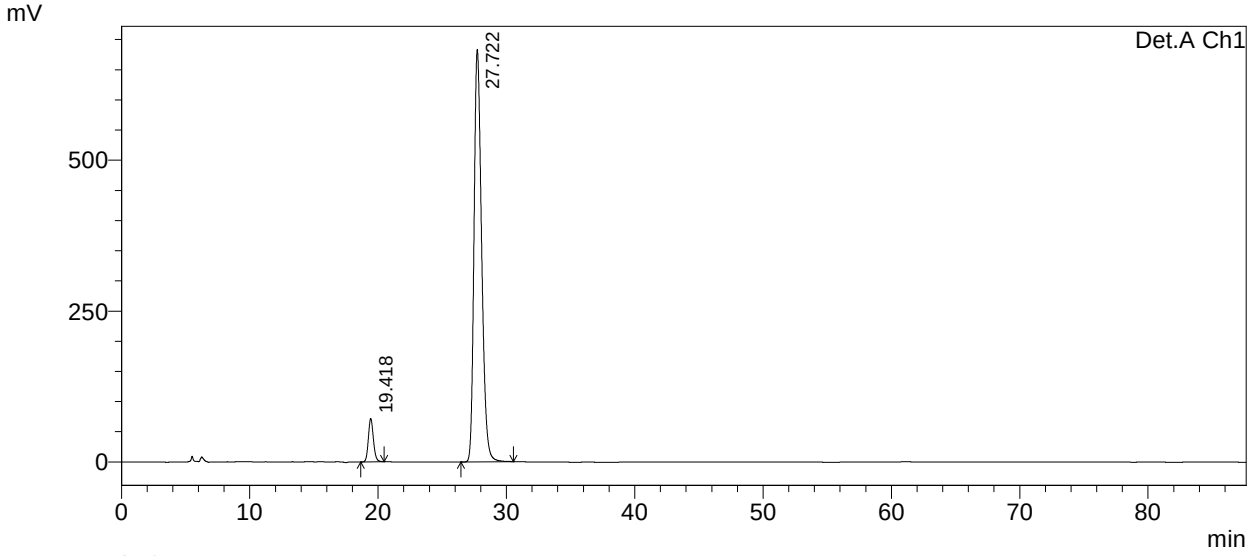
Acquired by	: Admin
Sample Name	: lxh-17-82-1
method	:OJ-H, 98/2, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-82-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-27 22:38:44
Data Processed	: 2013-9-28 13:15:24



3c

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-82\17-82-1.lcd



1 Det.A Ch1/214nm

PeakTable

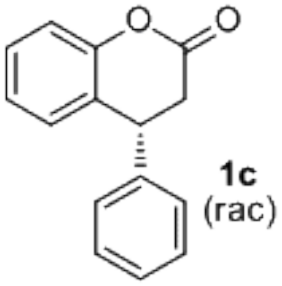
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	19.418	1964405	71905	6.508
2	27.722	28217989	683534	93.492
Total		30182394	755439	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-82\17-82-2-rac\17-82-2-rac4.lcd

Acquired by	: Admin
Sample Name	: lxh-17-82-2-rac4
method	:AD-H, 99/1, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-82-2-rac4.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-26 17:06:16
Data Processed	: 2013-9-26 18:06:06



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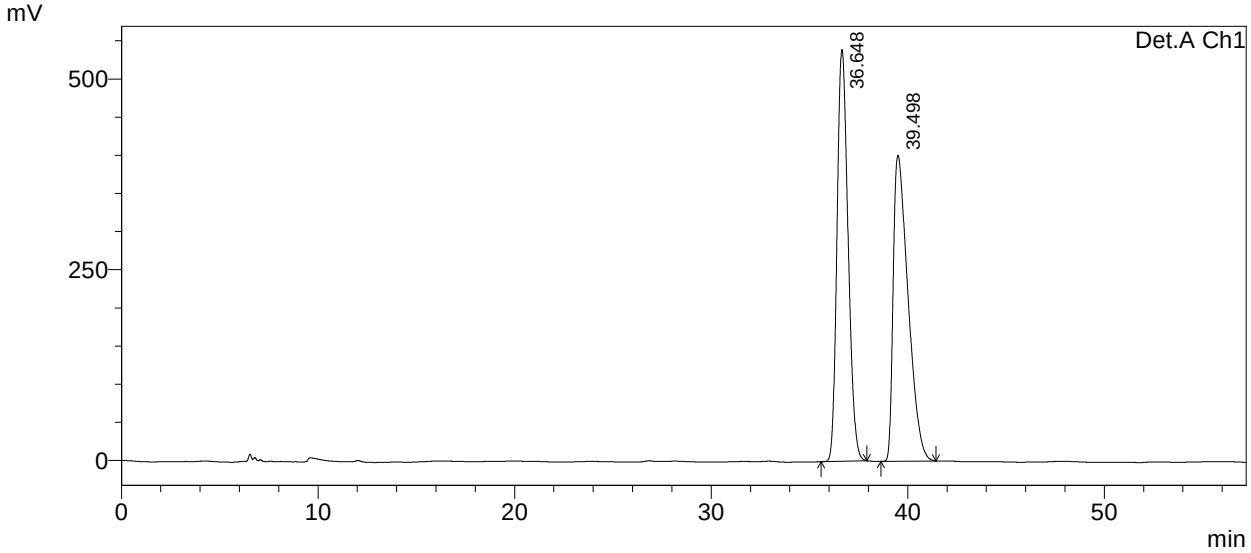


1 Det.A Ch1/214nm

PeakTable

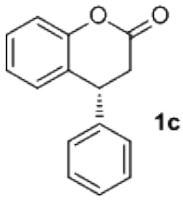
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	36.648	21106051	539728	50.034
2	39.498	21077617	401220	49.966
Total		42183669	940948	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-82\17-82-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-82-2
method	:AD-H, 99/1, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-82-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-26 16:18:09
Data Processed	: 2013-9-26 17:05:05



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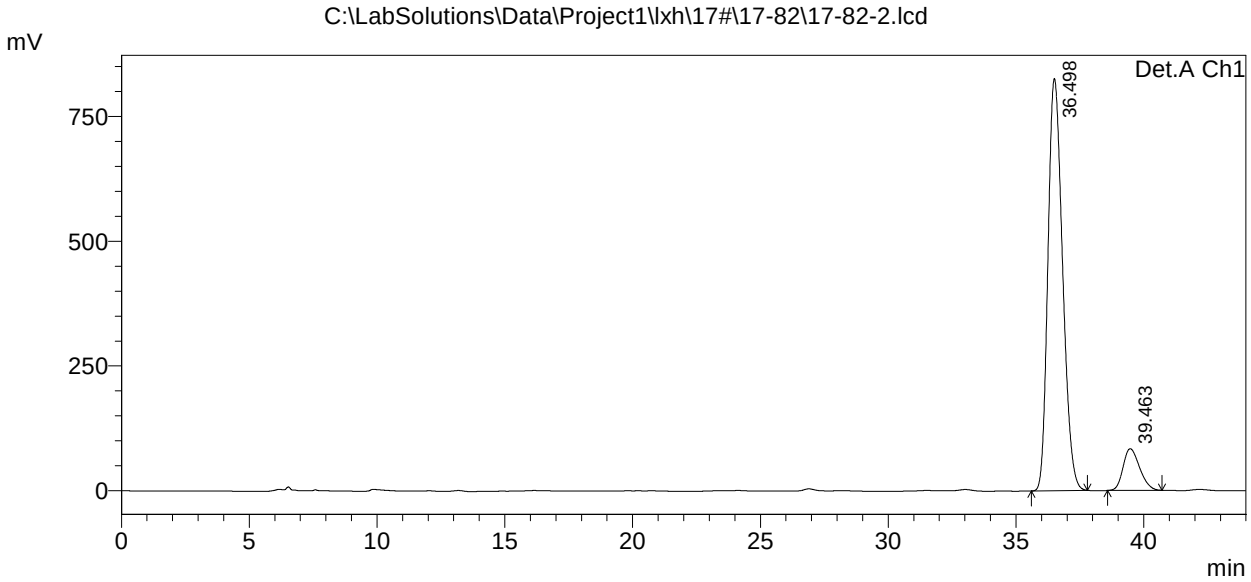


1 Det.A Ch1/214nm

PeakTable

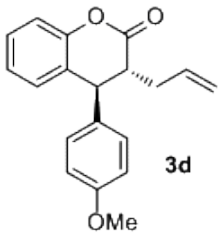
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	36.498	32863667	826326	89.696
2	39.463	3775356	83665	10.304
Total		36639022	909990	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-74\17-74-1-rac\17-74-1-rac1.lcd

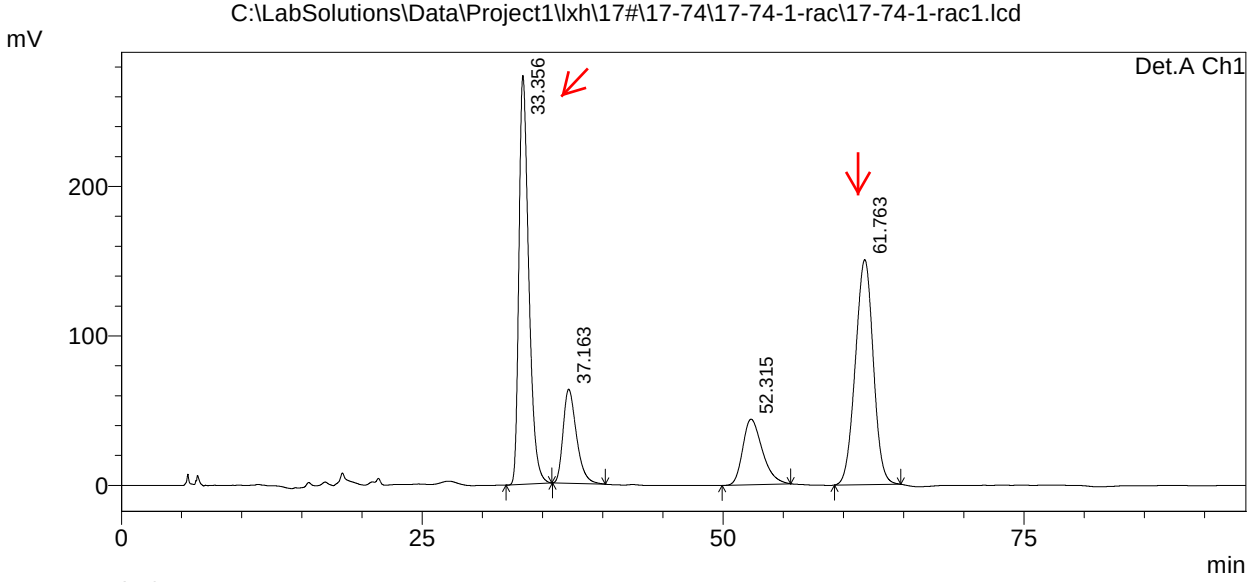
Acquired by	: Admin
Sample Name	: lxh-17-74-1-rac1
method	:OJ-H, 98/2, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-74-1-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-27 16:48:58
Data Processed	: 2013-9-27 18:27:18



(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-74\17-74-1-rac\17-74-1-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

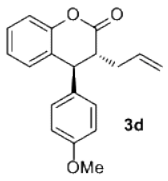
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	33.356	15546963	273591	37.906
2	37.163	4877881	63014	11.893
3	52.315	4964129	43879	12.103
4	61.763	15626050	150571	38.098
Total		41015023	531054	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-74\17-74-1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-74-1.
method	:OJ-H, 98/2, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-74-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-27 20:00:32
Data Processed	: 2013-9-27 21:10:14



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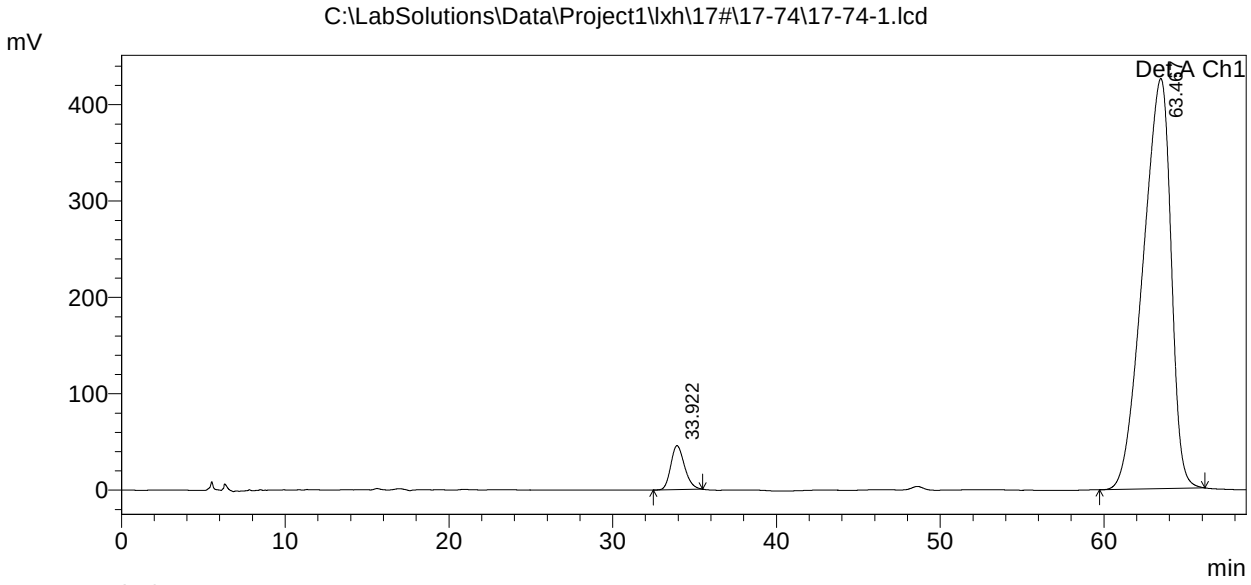


1 Det.A Ch1/214nm

PeakTable

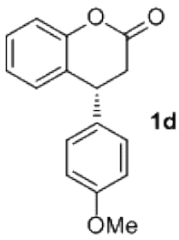
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	33.922	2663862	45620	4.988
2	63.467	50738605	425760	95.012
Total		53402467	471380	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-74\17-74-2-rac\17-74-2-rac3.lcd

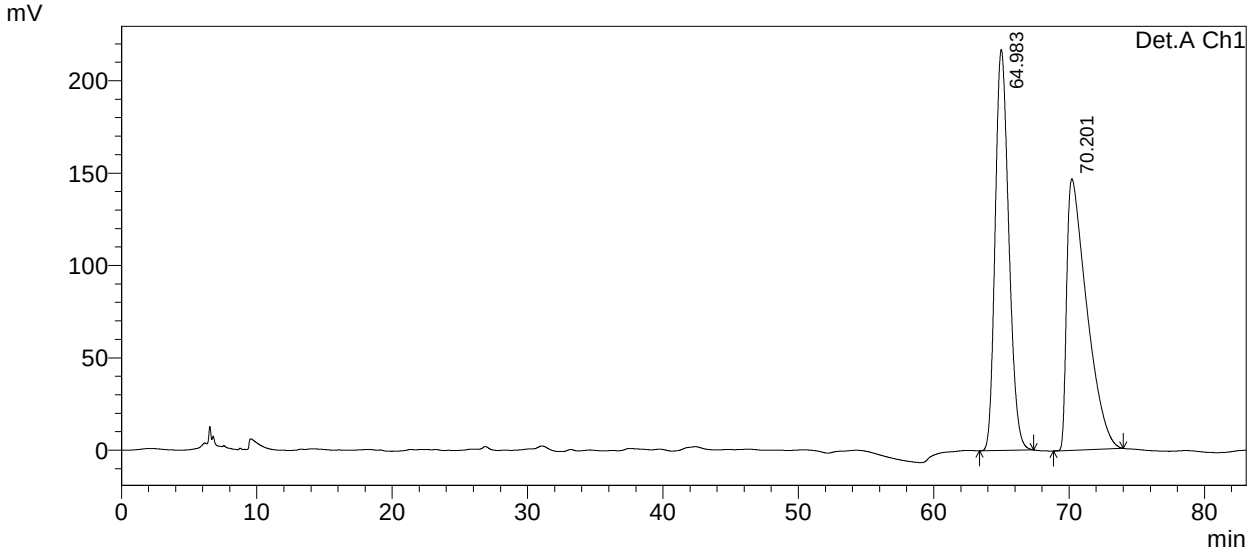
Acquired by	: Admin
Sample Name	: lxh-17-74-2-rac3
method	:AD-H, 99/1, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-74-2-rac3.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-26 19:33:01
Data Processed	: 2013-9-26 20:57:01



(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-74\17-74-2-rac\17-74-2-rac3.lcd



1 Det.A Ch1/214nm

PeakTable

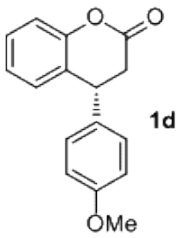
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	64.983	15196047	217130	50.056
2	70.201	15162133	146961	49.944
Total		30358180	364092	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-74\17-74-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-74-2
method	:AD-H, 99/1, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-74-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-26 21:02:10
Data Processed	: 2013-9-26 22:23:59



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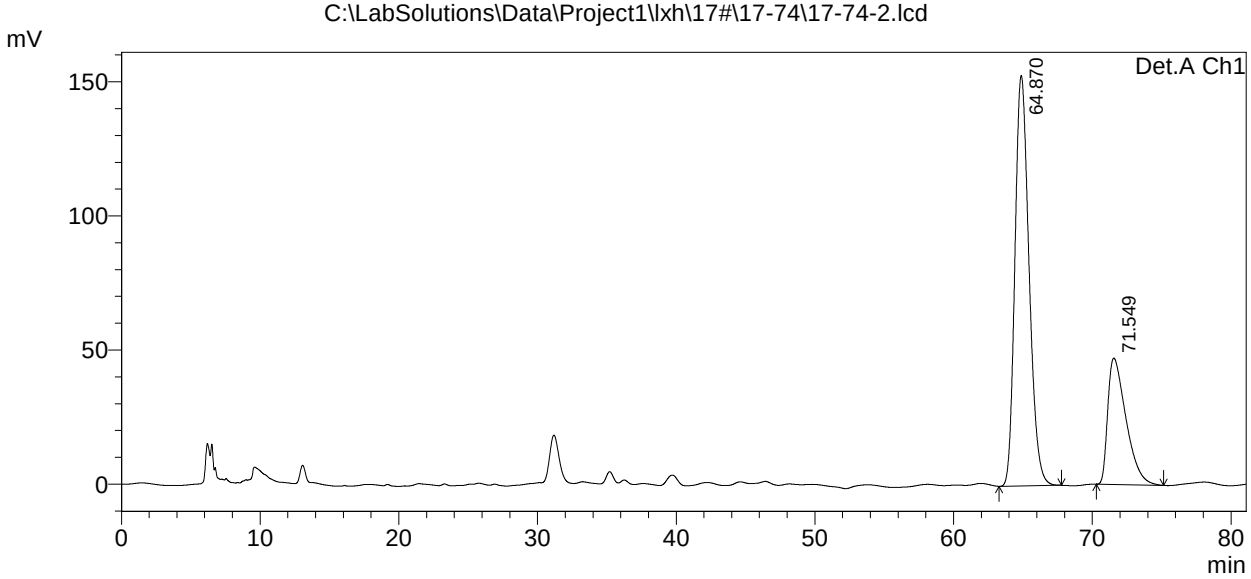


1 Det.A Ch1/214nm

PeakTable

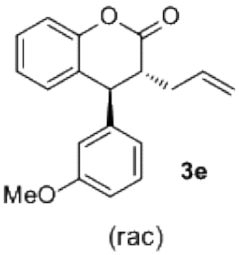
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	64.870	10824219	153084	71.494
2	71.549	4315769	47160	28.506
Total		15139988	200244	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-1-rac\17-78-1-rac2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-78-1-rac2
method	:OJ-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-78-1-rac2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-22 22:03:27
Data Processed	: 2013-9-23 14:08:10

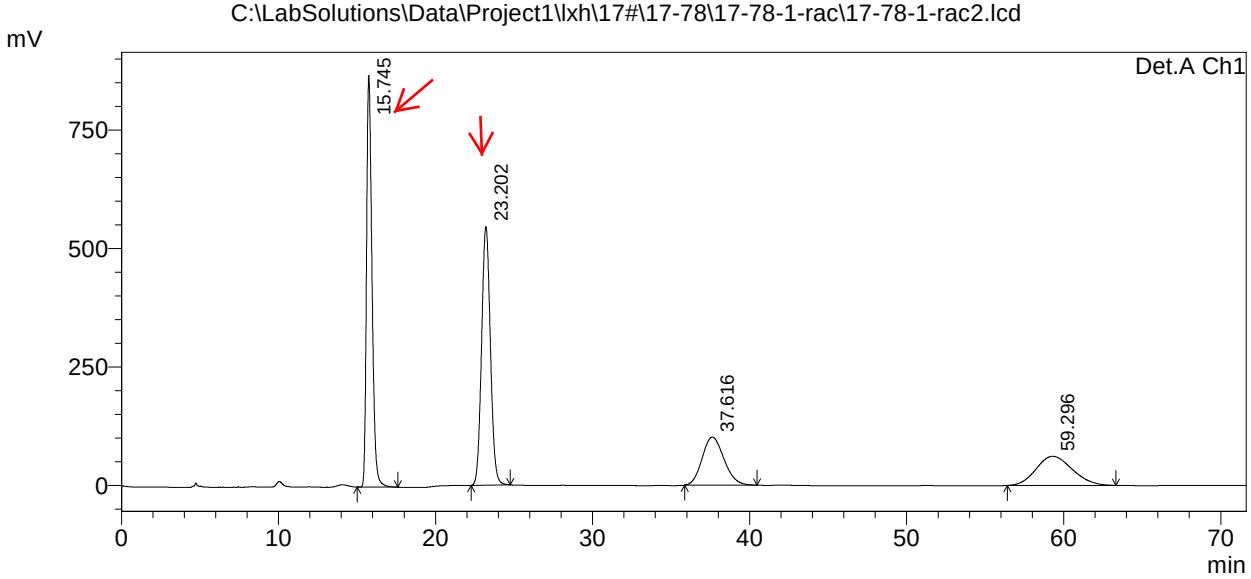


3e

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-1-rac\17-78-1-rac2.lcd



1 Det.A Ch1/214nm

PeakTable

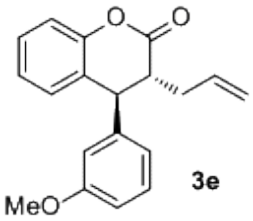
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	15.745	21018607	868769	33.919
2	23.202	21263481	546027	34.315
3	37.616	9827106	101652	15.859
4	59.296	9857196	61513	15.907
Total		61966390	1577962	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-1.lcd

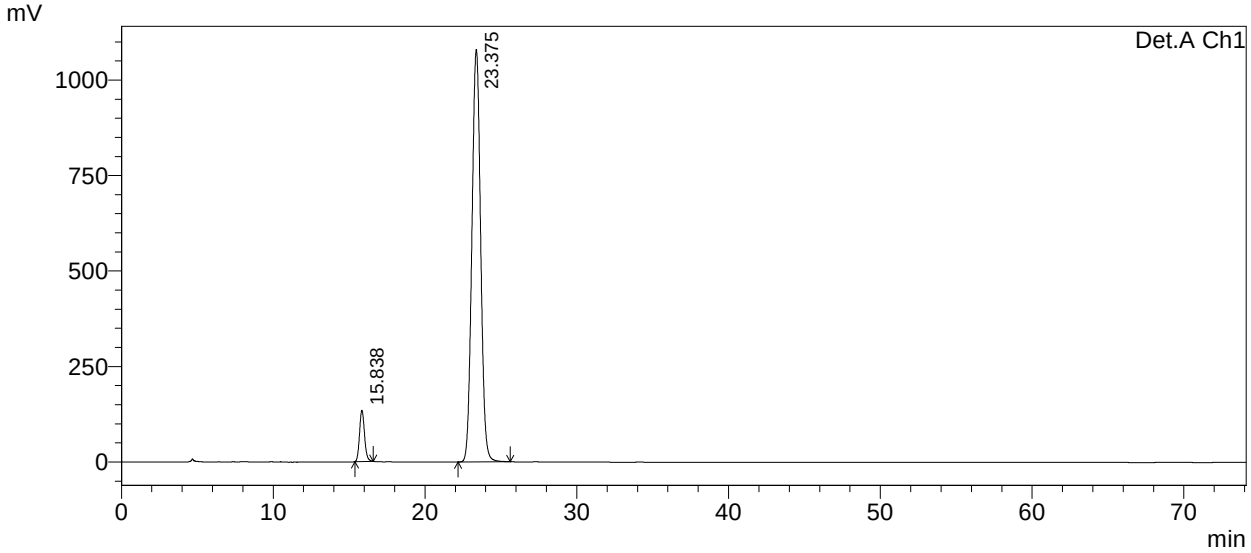
Acquired by	: Admin
Sample Name	: lxh-17-78-1
method	:OJ-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-78-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-23 9:00:53
Data Processed	: 2013-9-23 14:10:22



3e

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-1.lcd



1 Det.A Ch1/214nm

PeakTable

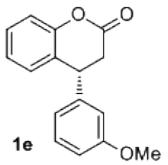
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	15.838	3068141	134075	6.628
2	23.375	43219666	1079659	93.372
Total		46287807	1213734	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-2-rac\17-78-2-rac1.lcd

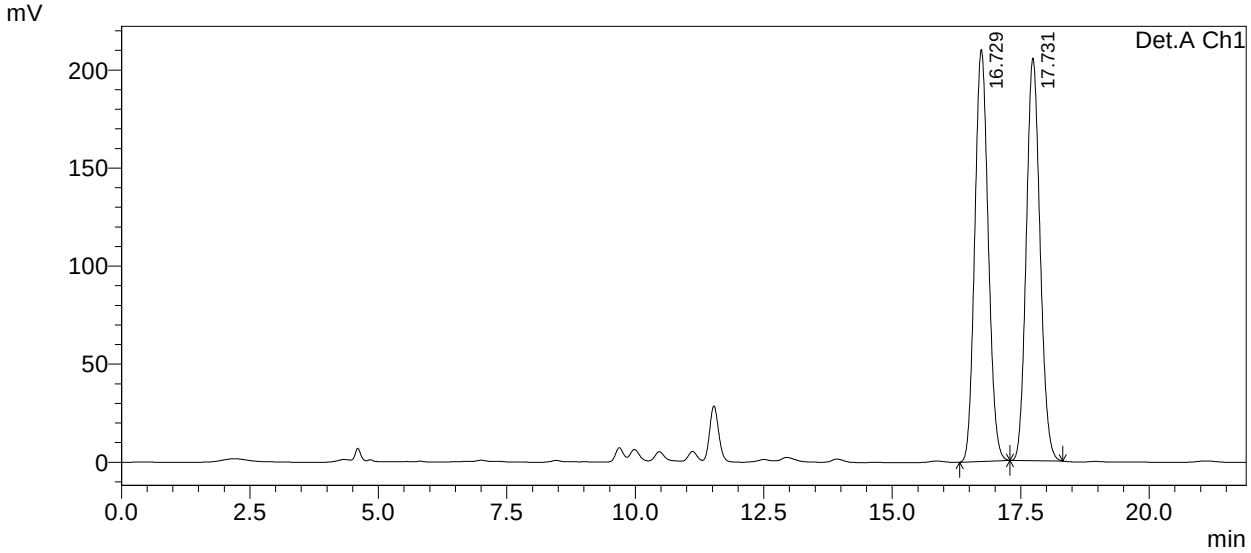
Acquired by	: Admin
Sample Name	: lxh-17-78-2-rac1
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-78-2-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-15 21:43:40
Data Processed	: 2013-9-15 22:06:40



(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-2-rac\17-78-2-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

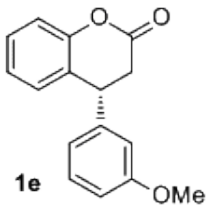
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	16.729	3835171	210148	49.948
2	17.731	3843115	205423	50.052
Total		7678285	415571	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-78-2
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-78-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-15 22:09:46
Data Processed	: 2013-9-15 22:30:38



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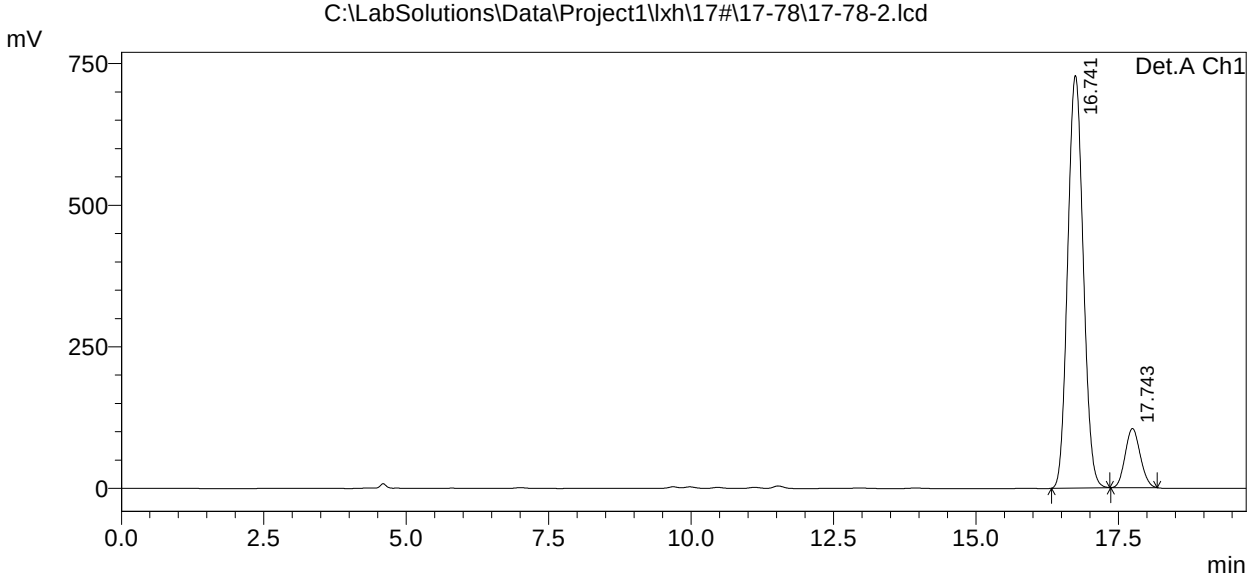
C:\LabSolutions\Data\Project1\lxh\17#\17-78\17-78-2.lcd



1 Det.A Ch1/214nm

PeakTable

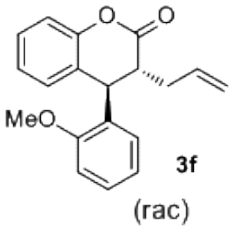
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	16.741	13805266	728391	87.806
2	17.743	1917261	104497	12.194
Total		15722527	832888	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-1-rac\17-80-1-rac2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-80-1-rac2
method	:OJ-H, 98/2, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-80-1-rac2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-23 15:01:16
Data Processed	: 2013-9-23 16:07:36



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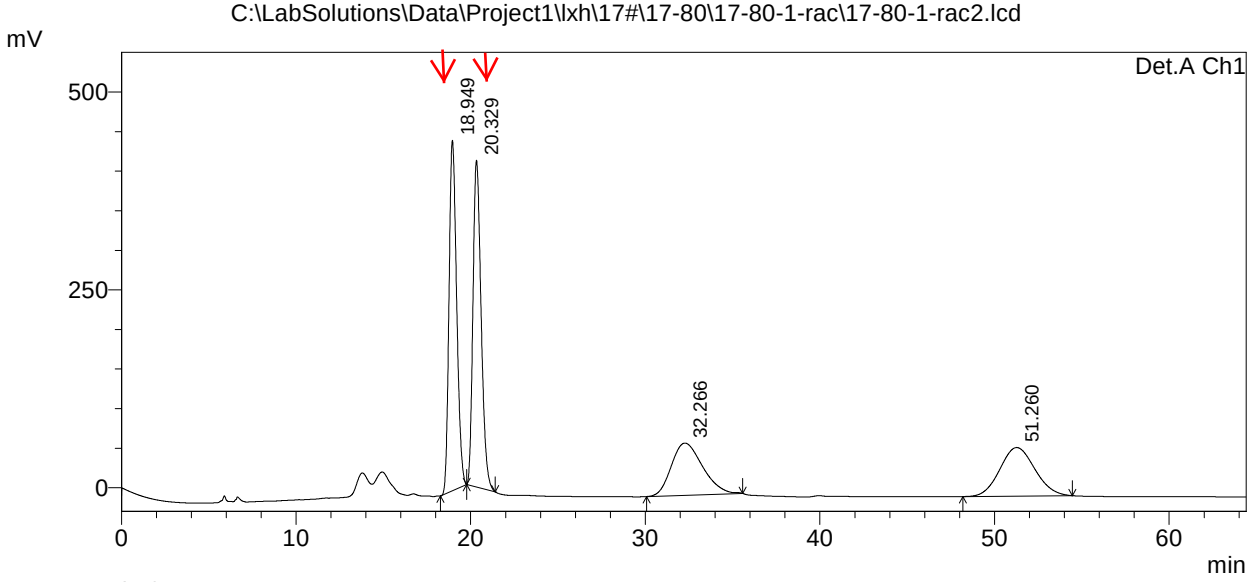
C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-1-rac\17-80-1-rac2.lcd



1 Det.A Ch1/214nm

PeakTable

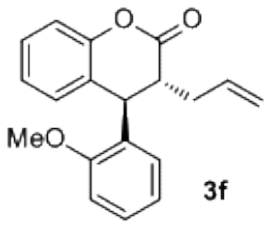
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	18.949	13457260	442766	30.813
2	20.329	13428375	412826	30.747
3	32.266	8218258	66023	18.817
4	51.260	8570312	61426	19.623
Total		43674206	983042	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-80-1
method	:OJ-H, 98/2, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-80-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-27 15:50:26
Data Processed	: 2013-9-27 16:47:31



3f

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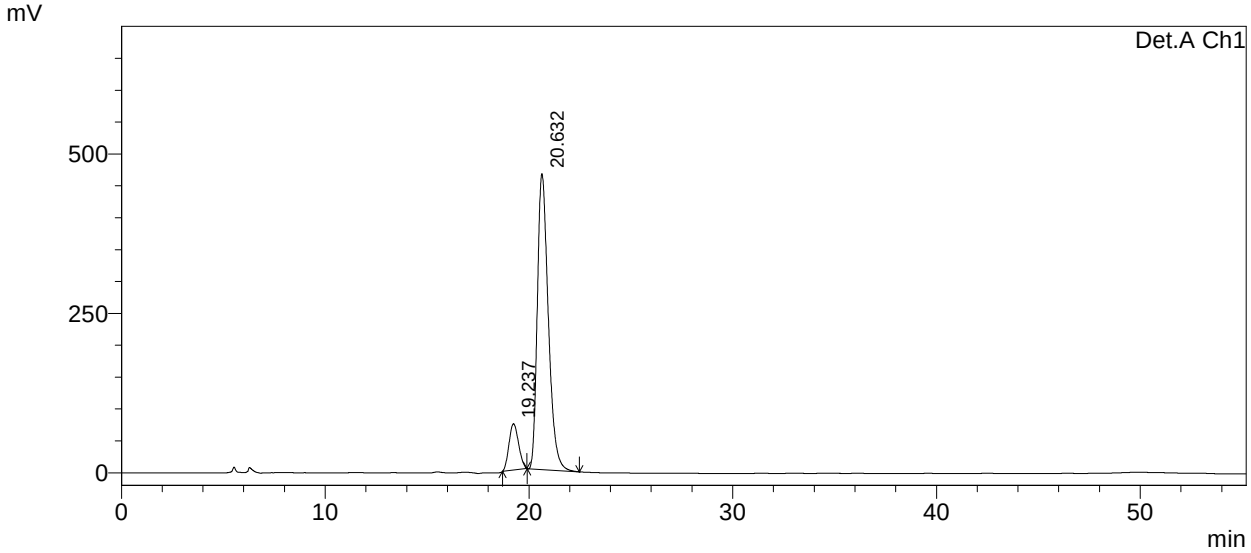
C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-1.lcd



1 Det.A Ch1/214nm

PeakTable

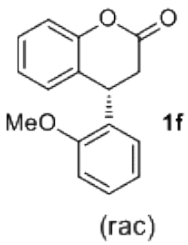
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	19.237	2372538	72772	12.011
2	20.632	17380747	464615	87.989
Total		19753285	537387	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-2-rac\17-80-2-rac1.lcd

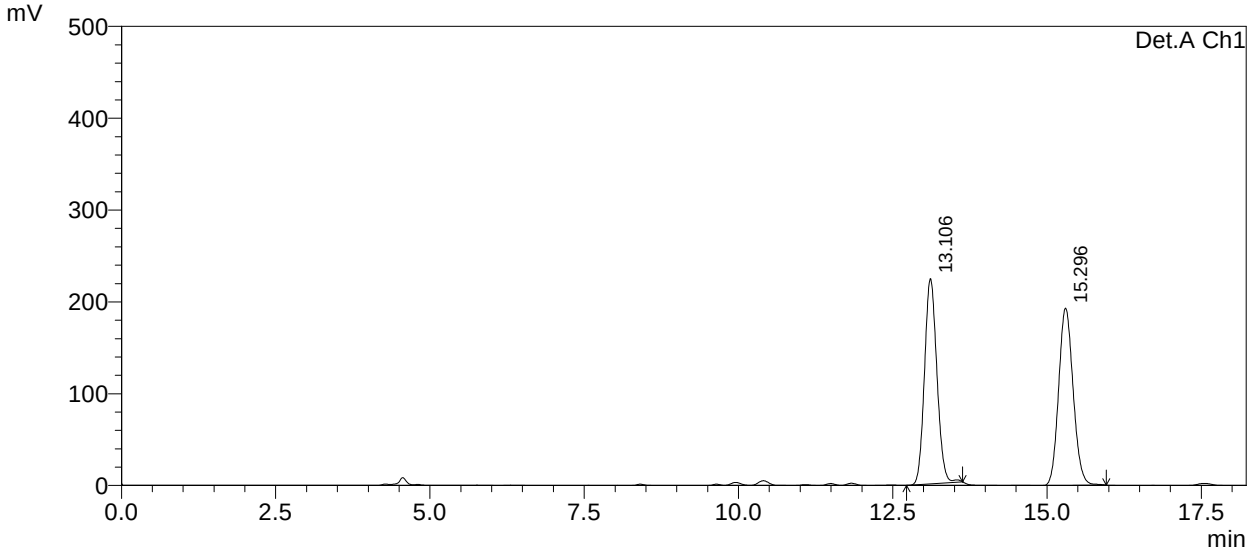
Acquired by	: Admin
Sample Name	: lxh-17-80-2-rac1
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-80-2-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-16 9:13:08
Data Processed	: 2013-9-16 9:34:04



(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-2-rac\17-80-2-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

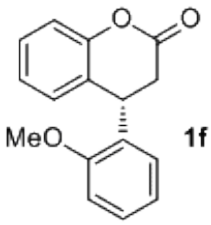
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	13.106	3130287	223859	49.720
2	15.296	3165519	193390	50.280
Total		6295806	417249	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-80-2
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-80-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-16 9:38:34
Data Processed	: 2013-9-16 10:12:46



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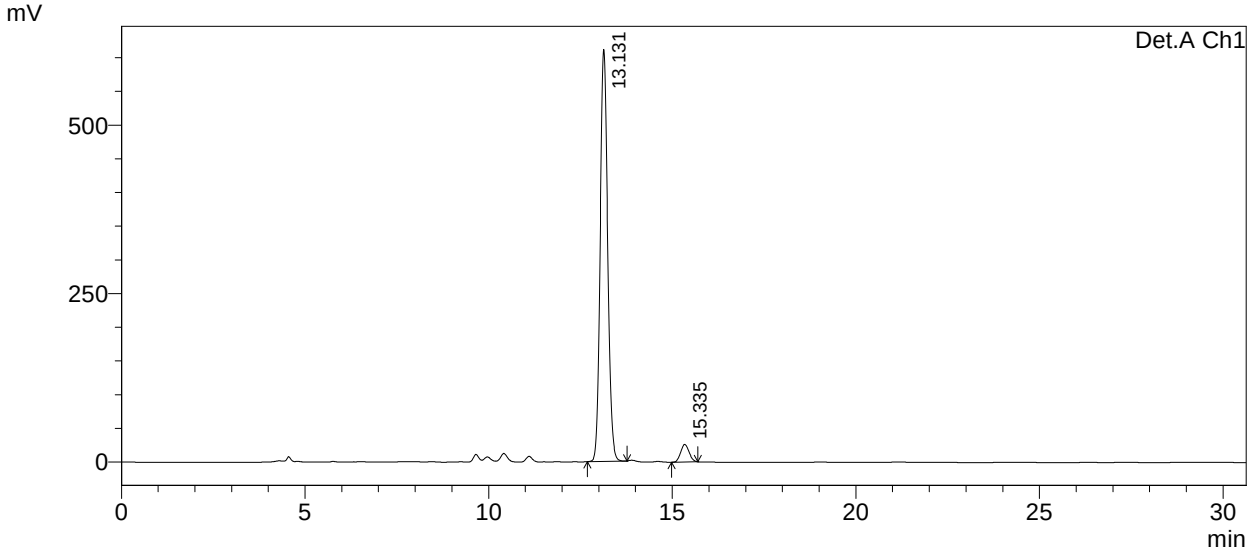
C:\LabSolutions\Data\Project1\lxh\17#\17-80\17-80-2.lcd



1 Det.A Ch1/214nm

PeakTable

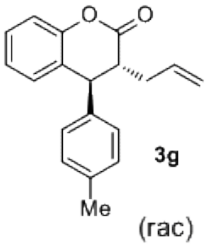
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	13.131	8655686	611301	95.379
2	15.335	419364	26267	4.621
Total		9075050	637568	100.000

==== Shimadzu LCsolution Analysis Report ====

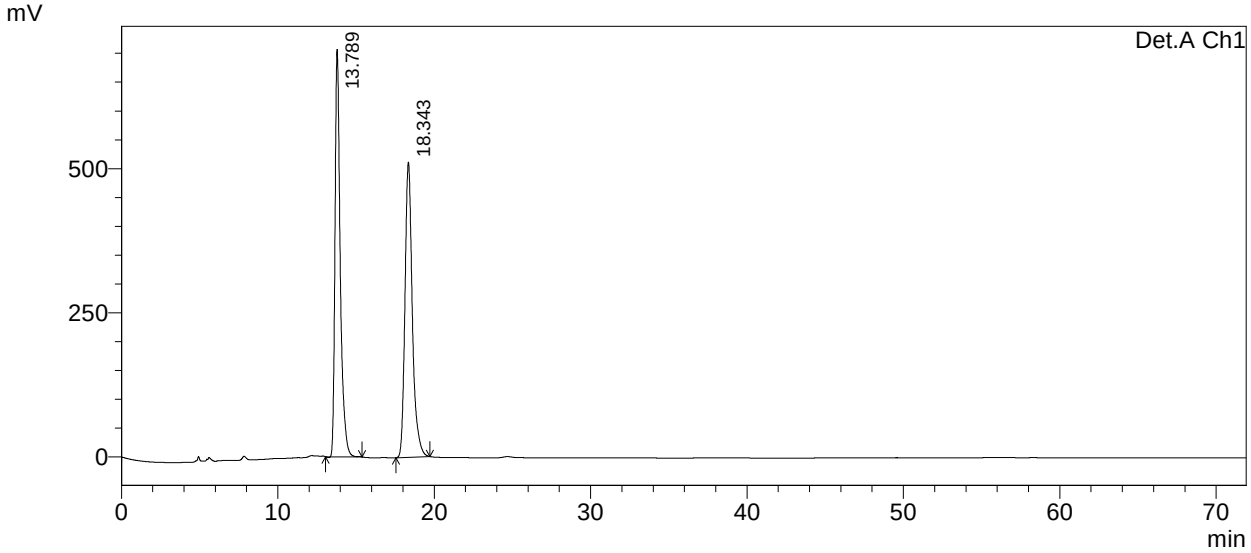
C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-1-rac\17-76-1-rac2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-76-1-rac2
method	:OJ-H, 98/2, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-76-1-rac2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-23 21:20:50
Data Processed	: 2013-9-23 22:34:32



<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-1-rac\17-76-1-rac2.lcd



1 Det.A Ch1/214nm

PeakTable

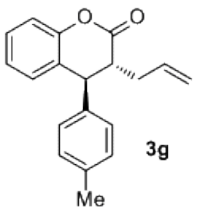
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	13.789	16565836	706618	49.746
2	18.343	16735185	512205	50.254
Total		33301021	1218823	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-76-1
method	:OJ-H, 98/2, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-76-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-24 14:10:30
Data Processed	: 2013-9-24 15:13:15



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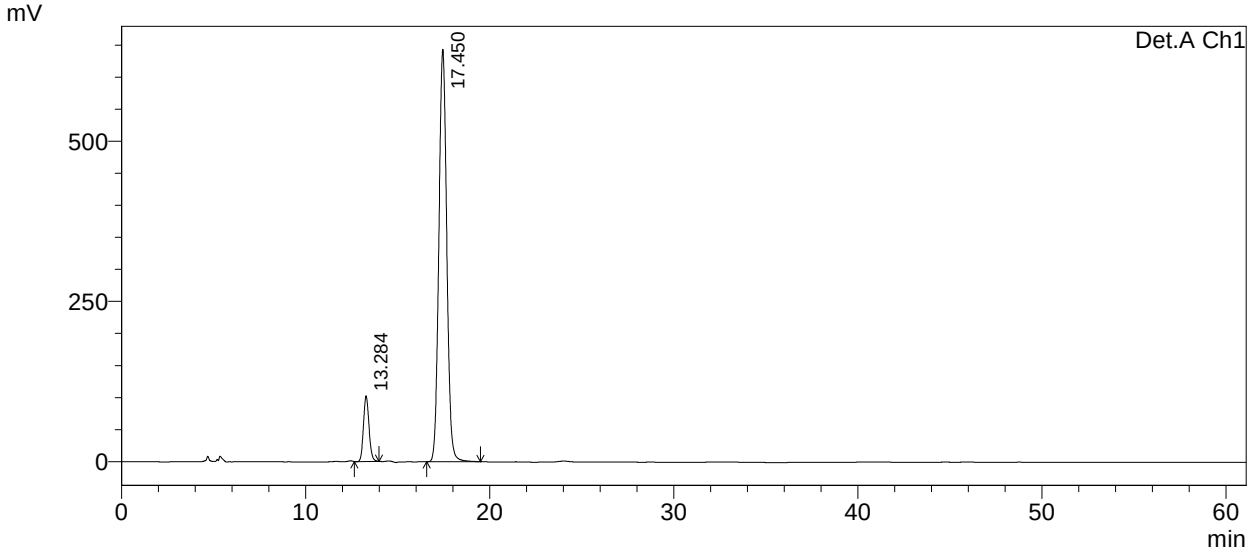
C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-1.lcd



1 Det.A Ch1/214nm

PeakTable

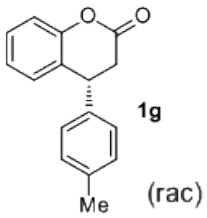
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	13.284	2129240	102408	9.969
2	17.450	19230367	643595	90.031
Total		21359608	746002	100.000

==== Shimadzu LCsolution Analysis Report ====

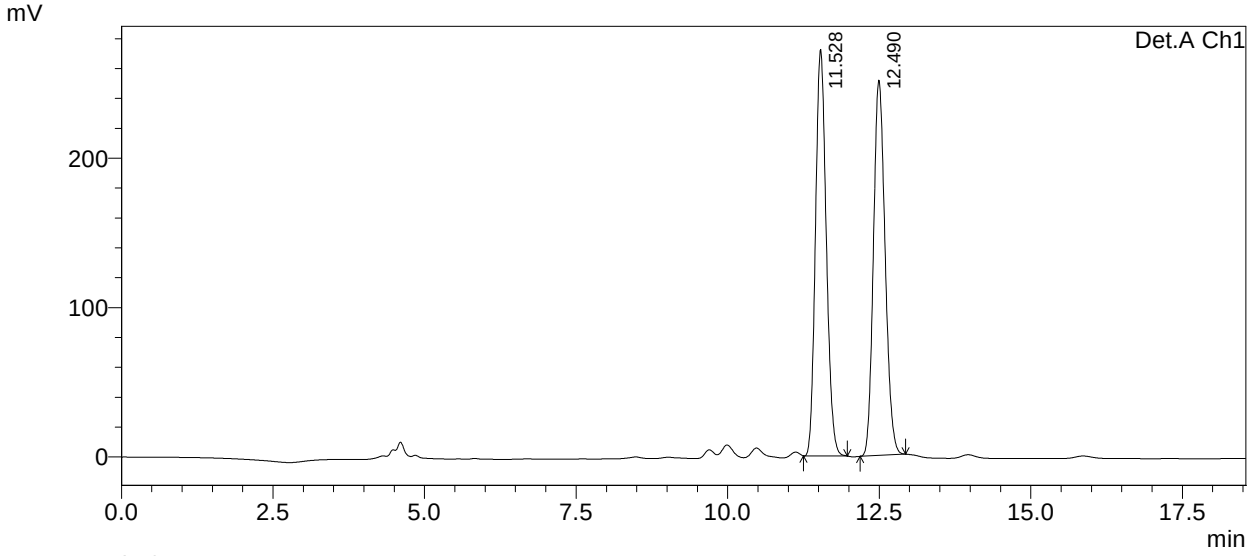
C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-2-rac\17-76-2-rac3.lcd

Acquired by	: Admin
Sample Name	: lxh-17-76-2-rac3
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-76-2-rac3.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-15 20:51:34
Data Processed	: 2013-9-15 21:11:46



<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-2-rac\17-76-2-rac3.lcd



1 Det.A Ch1/214nm

PeakTable

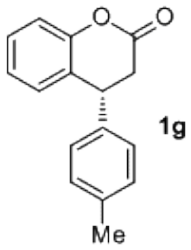
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	11.528	3376238	272161	50.010
2	12.490	3374941	251328	49.990
Total		6751178	523489	100.000

==== Shimadzu LCsolution Analysis Report ====

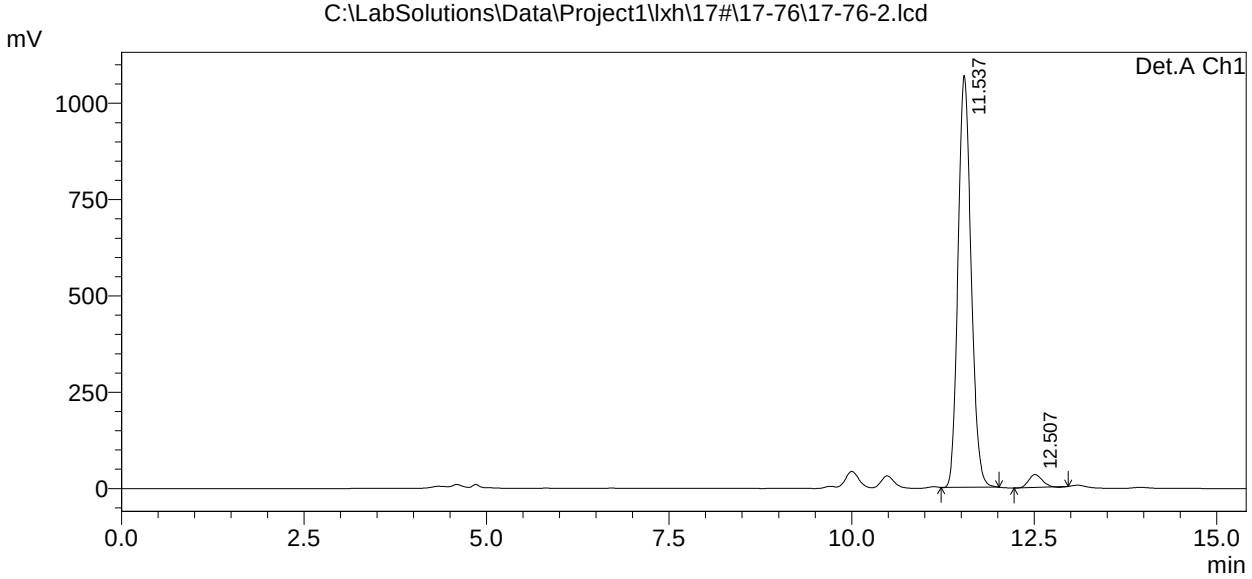
C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-76-2
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-76-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-15 21:17:02
Data Processed	: 2013-9-15 21:34:20



<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-76\17-76-2.lcd



1 Det.A Ch1/214nm

PeakTable

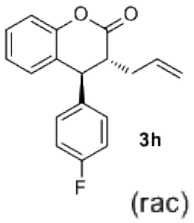
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	11.537	13296821	1069473	96.971
2	12.507	415403	33337	3.029
Total		13712223	1102810	100.000

==== Shimadzu LCsolution Analysis Report ====

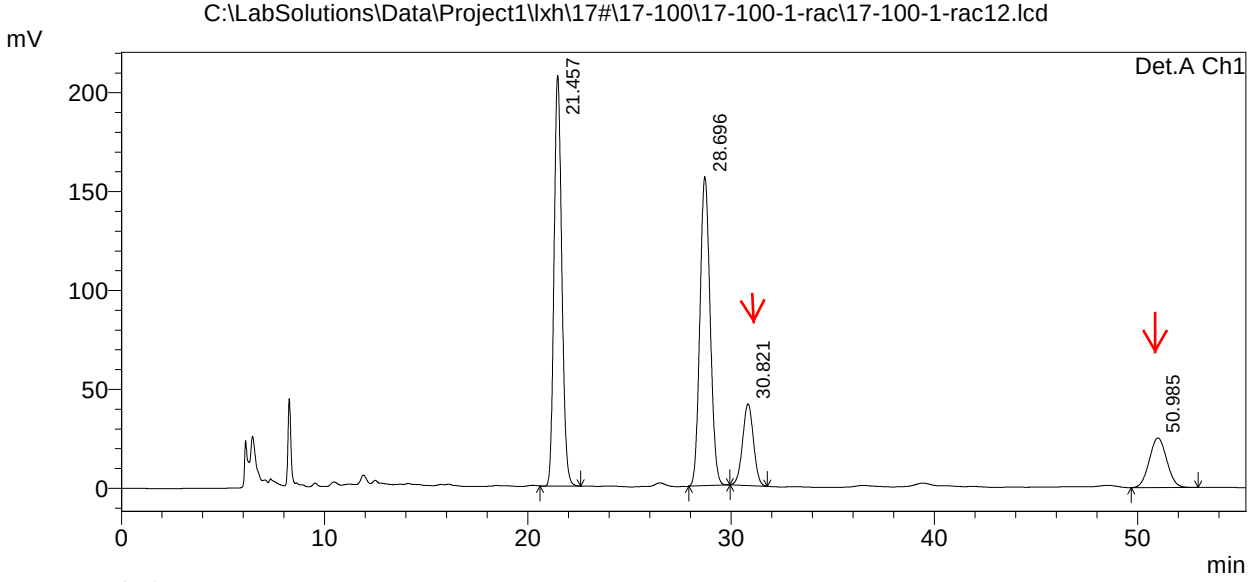
C:\LabSolutions\Data\Project1\lxh\17#\17-100\17-100-1-rac\17-100-1-rac12.lcd

Acquired by	: Admin
Sample Name	: lxh-17-100-1-rac12
method	:AS-H, 98/2, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-100-1-rac12.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-10-8 14:19:43
Data Processed	: 2013-10-8 15:17:09



<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-100\17-100-1-rac\17-100-1-rac12.lcd



1 Det.A Ch1/214nm

PeakTable

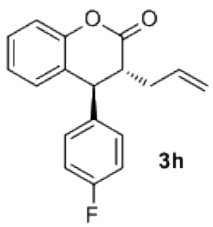
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	21.457	5511236	207610	39.336
2	28.696	5467422	156257	39.023
3	30.821	1535118	41295	10.957
4	50.985	1496882	25103	10.684
Total		14010659	430266	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-100\17-100-1.lcd

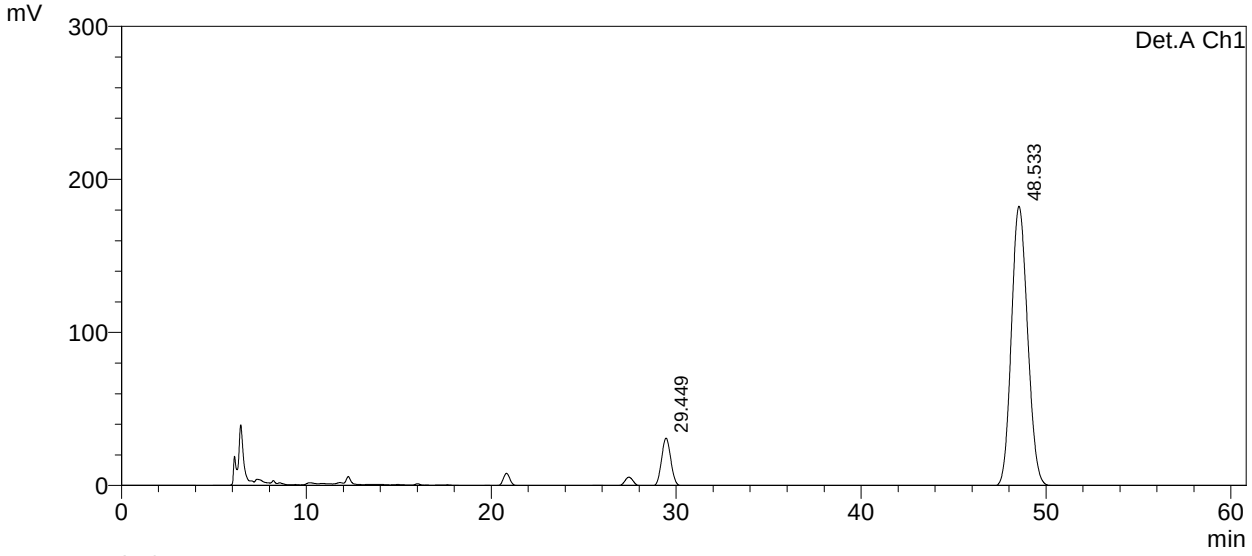
Acquired by	: Admin
Sample Name	: lxh-17-100-1
method	:AS-H, 98/2, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-100-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-10-8 15:20:20
Data Processed	: 2013-10-8 16:22:19



3h

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-100\17-100-1.lcd



1 Det.A Ch1/214nm

PeakTable

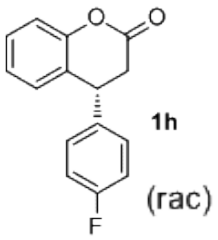
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	29.449	1113858	31585	9.051
2	48.533	11192965	183361	90.949
Total		12306823	214946	100.000

==== Shimadzu LCsolution Analysis Report ====

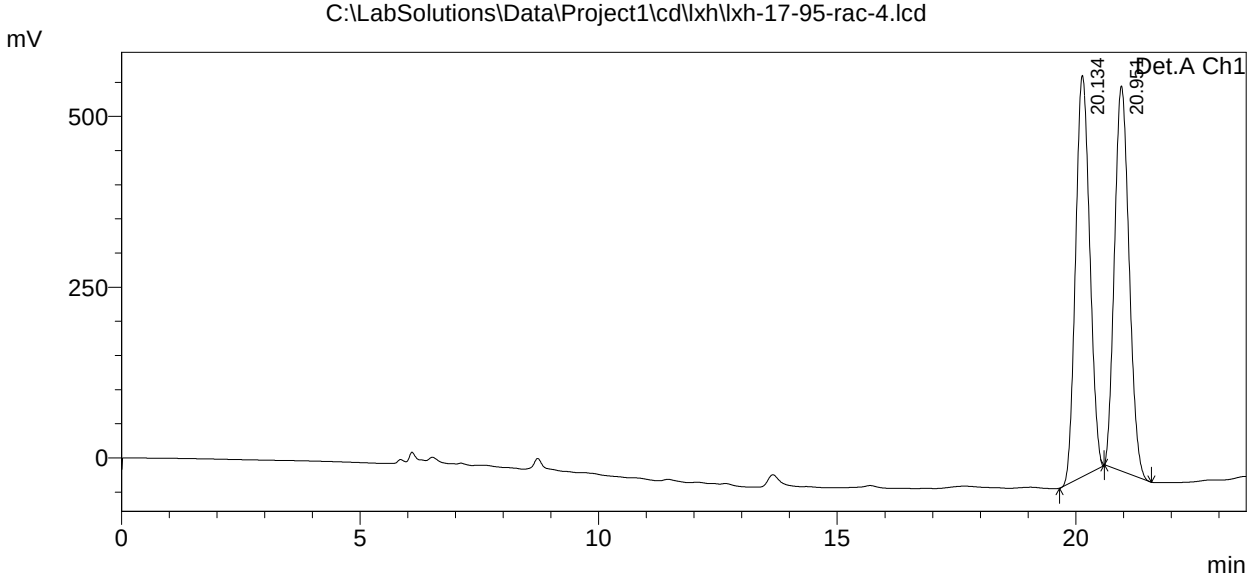
C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-95-rac-4.lcd

Acquired by	: Admin
Sample Name	: LXH-17-95-rac-4
method	:AD-H,95/5,0.5,214
Injection Volume	: 2.5 uL
Data File Name	: lxh-17-95-rac-4.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2014-5-27 9:38:58
Data Processed	: 2014-5-27 10:02:33



<Chromatogram>

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-95-rac-4.lcd



1 Det.A Ch1/214nm

PeakTable

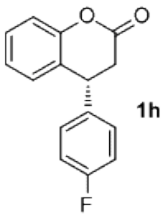
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	20.134	12112409	587367	50.297
2	20.951	11969177	563525	49.703
Total		24081586	1150891	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\cd\lxh\lxh-17-100-2.lcd

Acquired by	: Admin
Sample Name	: LXH-17-100-2
method	:AD-H,95/5,0.5,214
Injection Volume	: 2.5 uL
Data File Name	: lxh-17-100-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2014-5-27 10:03:52
Data Processed	: 2014-5-27 10:36:36



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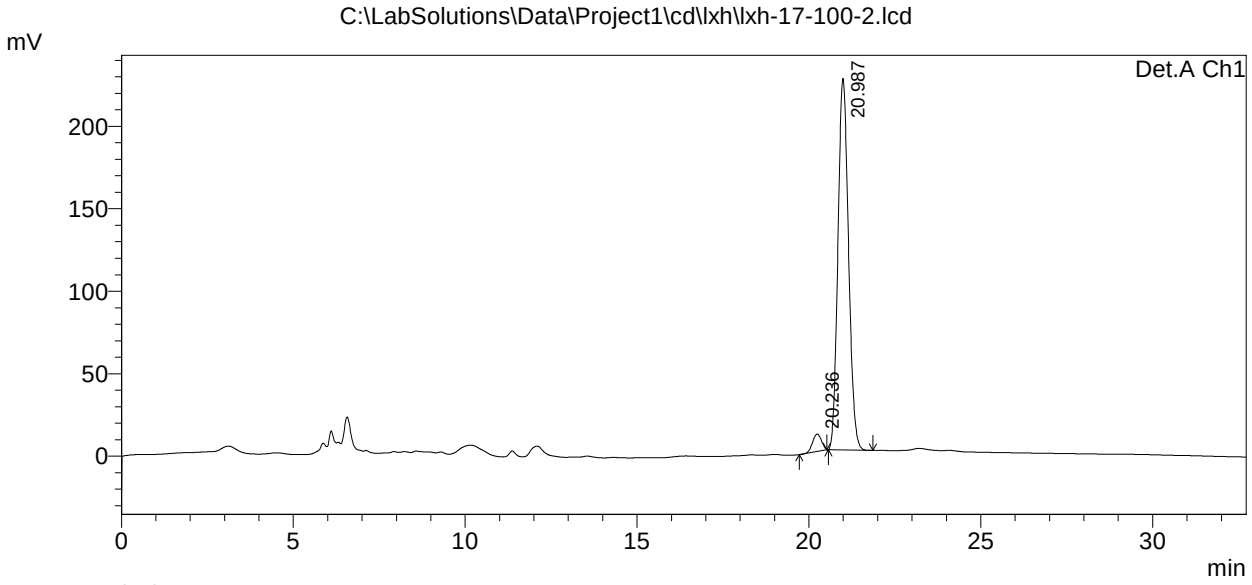


1 Det.A Ch1/214nm

PeakTable

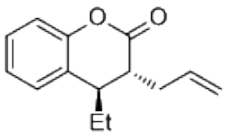
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	20.236	187300	10485	3.743
2	20.987	4816292	225254	96.257
Total		5003592	235739	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-1-rac\17-90-1-rac3.lcd

Acquired by	: Admin
Sample Name	: lxh-17-90-1-rac3
method	:OJ-H, 99/1, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-90-1-rac3.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-24 19:41:17
Data Processed	: 2013-9-25 10:11:39

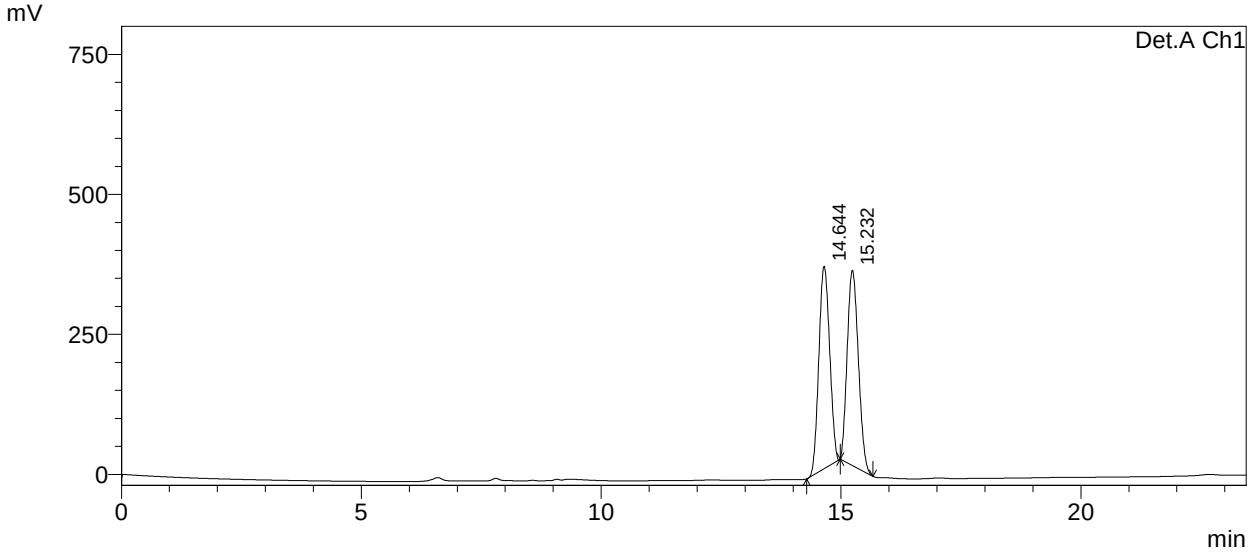


3i

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-1-rac\17-90-1-rac3.lcd



1 Det.A Ch1/214nm

PeakTable

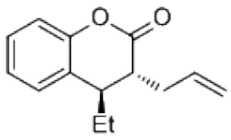
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	14.644	5659606	361779	50.141
2	15.232	5627719	348451	49.859
Total		11287326	710230	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-1.lcd

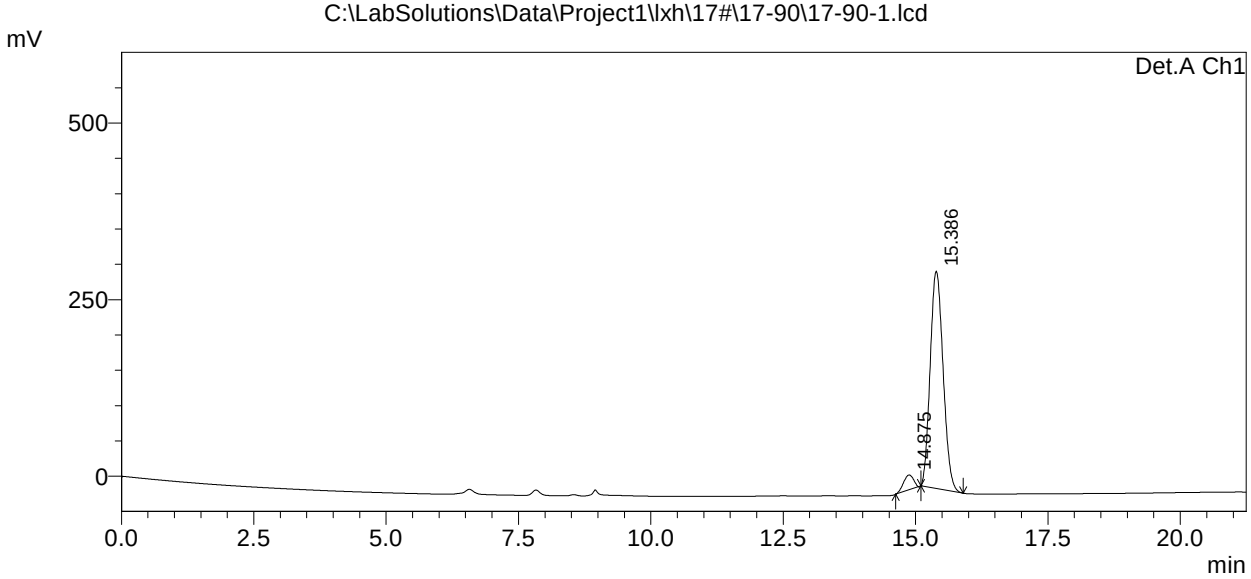
Acquired by	: Admin
Sample Name	: lxh-17-90-1
method	:OJ-H, 99/1, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-90-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-25 15:42:41
Data Processed	: 2013-9-25 16:05:37



3i

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-1.lcd



1 Det.A Ch1/214nm

PeakTable

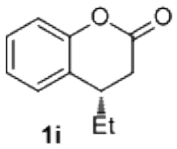
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	14.875	272474	20893	4.967
2	15.386	5213189	307702	95.033
Total		5485663	328595	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-2-rac\17-90-2-rac2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-90-2-rac2
method	:AD-H, 95/5, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-90-2-rac2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-17 22:39:05
Data Processed	: 2013-9-17 22:57:40



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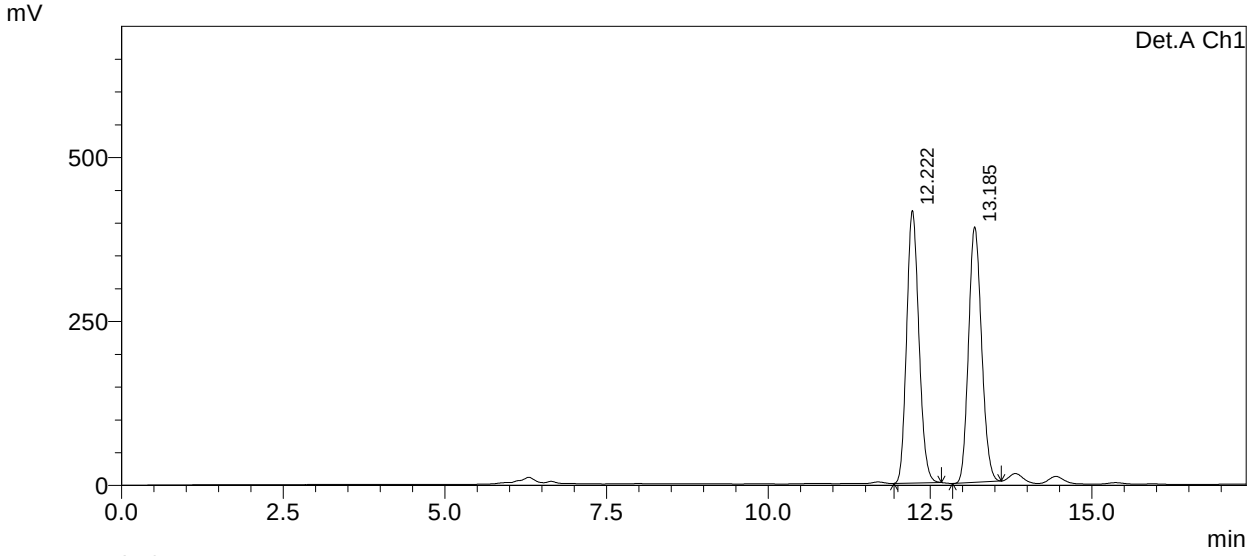
(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-2-rac\17-90-2-rac2.lcd



1 Det.A Ch1/214nm

PeakTable

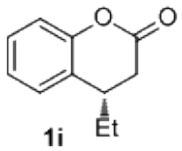
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	12.222	5477672	415664	50.039
2	13.185	5469125	389859	49.961
Total		10946797	805523	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-90-2
method	:AD-H, 95/5, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-90-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-18 9:09:15
Data Processed	: 2013-9-18 9:26:32



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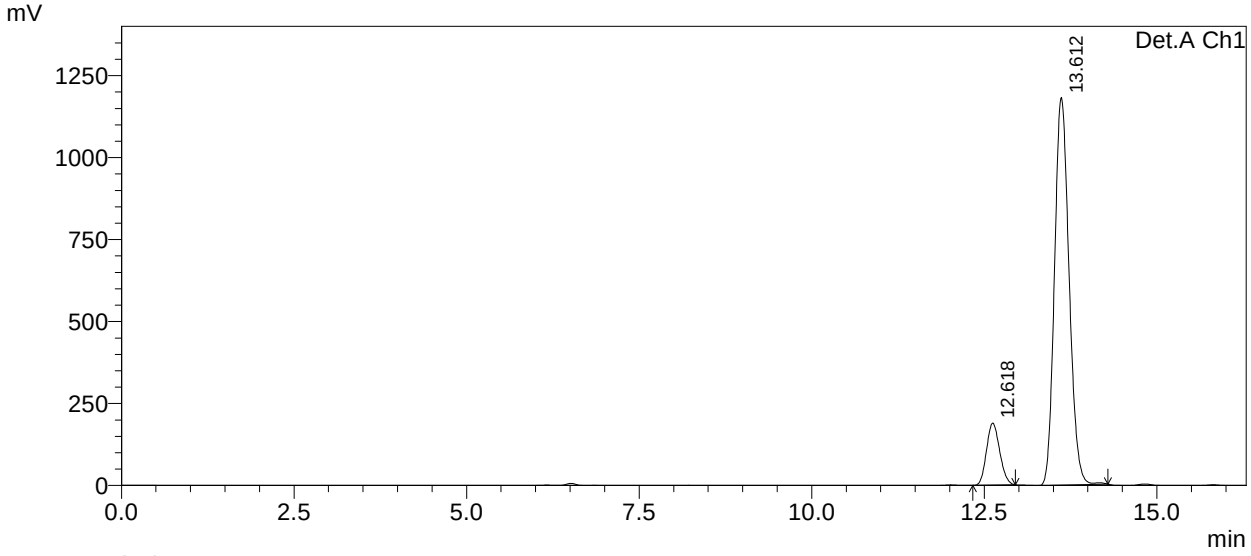
<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-90\17-90-2.lcd



1 Det.A Ch1/214nm

PeakTable

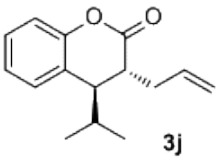
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	12.618	2523212	189521	12.658
2	13.612	17410570	1183292	87.342
Total		19933782	1372813	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-1-rac\17-86-1-rac2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-86-1-rac2
method	:OJ-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-86-1-rac2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-25 16:54:11
Data Processed	: 2013-9-25 17:52:57

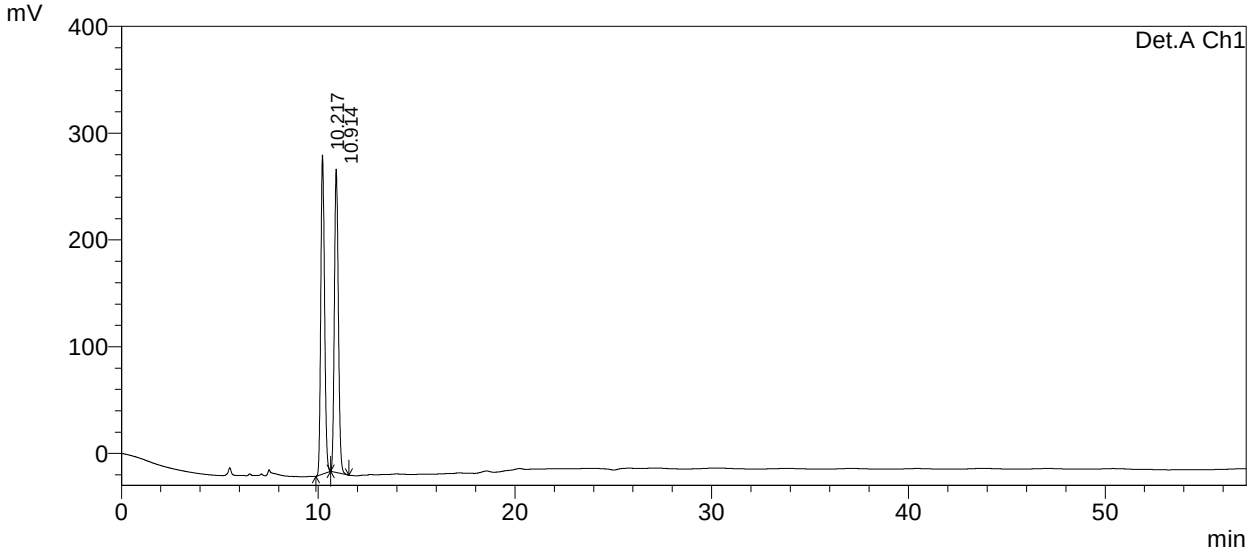


3j

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-1-rac\17-86-1-rac2.lcd



1 Det.A Ch1/214nm

PeakTable

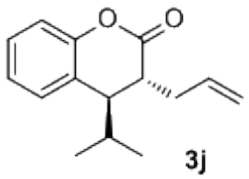
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	10.217	3956679	298771	49.946
2	10.914	3965269	284144	50.054
Total		7921947	582915	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-86-1
method	:OJ-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-86-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-25 18:01:26
Data Processed	: 2013-9-25 18:32:32



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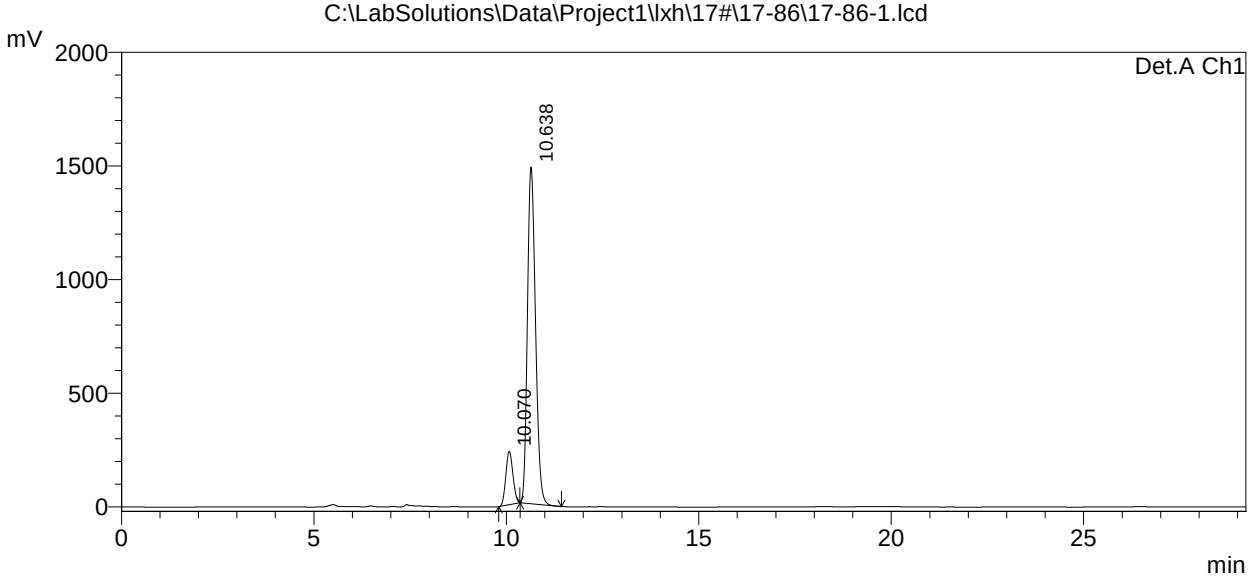
<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-1.lcd



1 Det.A Ch1/214nm

PeakTable

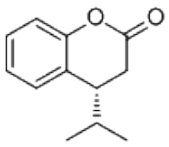
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	10.070	3013794	235101	12.208
2	10.638	21673525	1482443	87.792
Total		24687319	1717545	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-2-rac\17-86-2-rac1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-86-2-rac1
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-86-2-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-16 22:53:27
Data Processed	: 2013-9-16 23:13:04

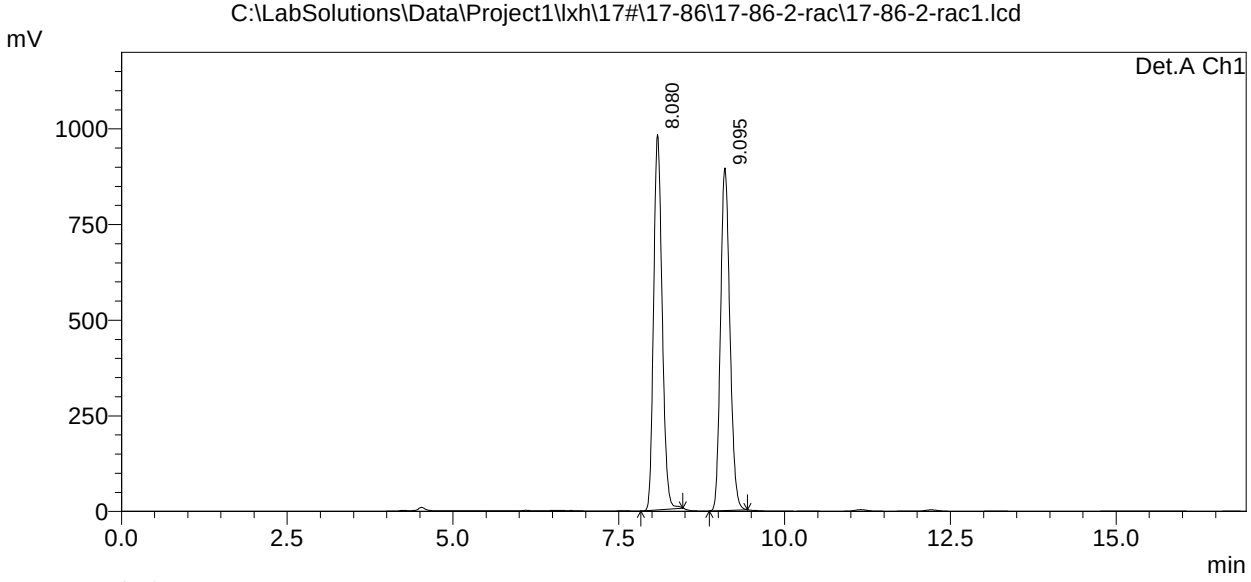


1j

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-2-rac\17-86-2-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

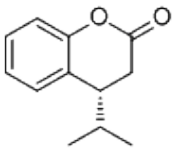
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	8.080	8769048	980992	49.856
2	9.095	8819810	895807	50.144
Total		17588857	1876799	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-2.lcd

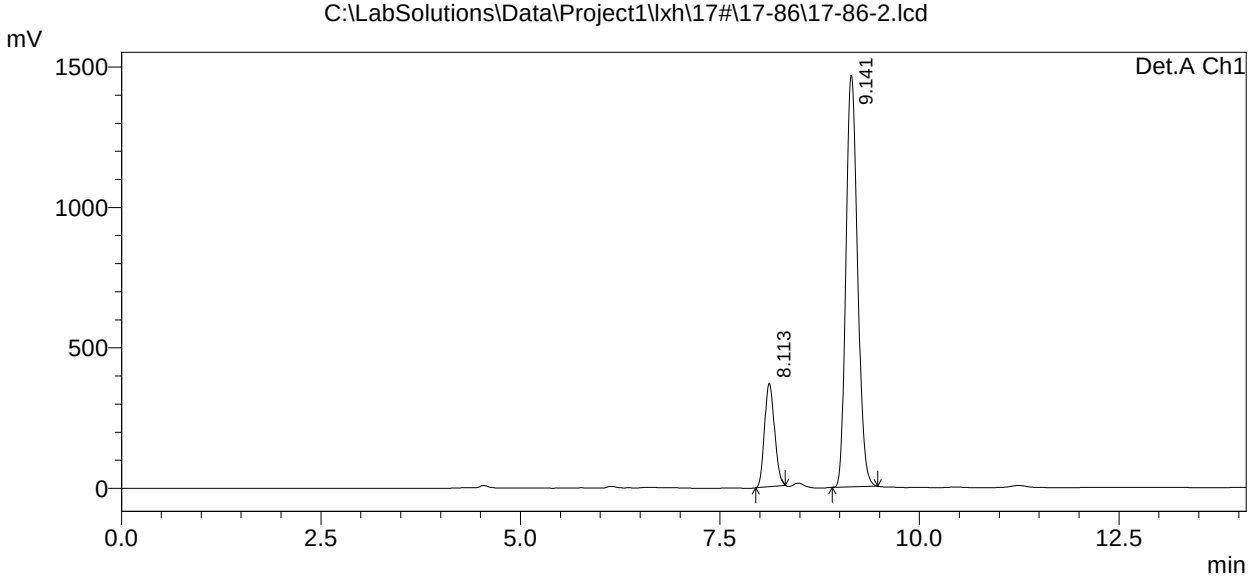
Acquired by	: Admin
Sample Name	: lxh-17-86-2
method	:AD-H, 95/5, 0.7, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-86-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-17 14:37:26
Data Processed	: 2013-9-17 14:52:30



1j

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-86\17-86-2.lcd



1 Det.A Ch1/214nm

PeakTable

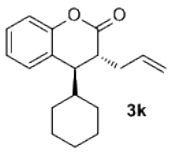
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	8.113	3210893	368685	17.769
2	9.141	14859232	1464910	82.231
Total		18070125	1833595	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-1-rac\17-92-1-rac1.lcd

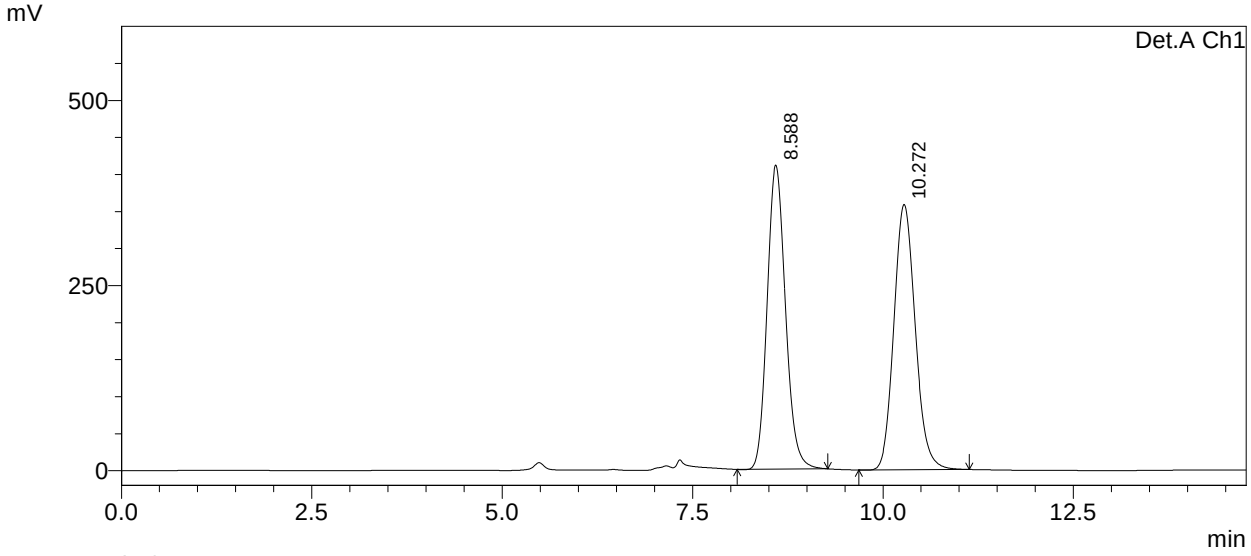
Acquired by	: Admin
Sample Name	: lxh-17-92-1-rac1
method	:OJ-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-92-1-rac1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-25 19:30:30
Data Processed	: 2013-9-25 19:46:28



(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-1-rac\17-92-1-rac1.lcd



1 Det.A Ch1/214nm

PeakTable

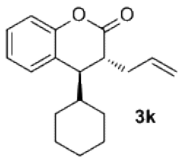
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	8.588	6903289	411037	49.732
2	10.272	6977735	358384	50.268
Total		13881024	769421	100.000

==== Shimadzu LCsolution Analysis Report ====

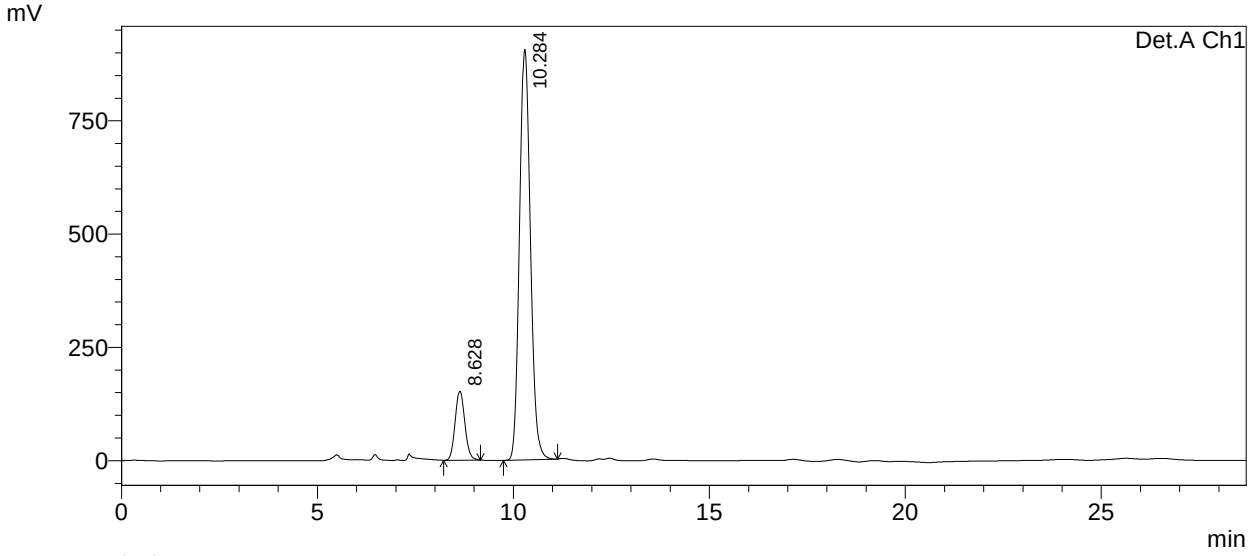
C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-1.lcd

Acquired by	: Admin
Sample Name	: lxh-17-92-1
method	:OJ-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-92-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-25 19:48:21
Data Processed	: 2013-9-25 20:17:59



<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-1.lcd



1 Det.A Ch1/214nm

PeakTable

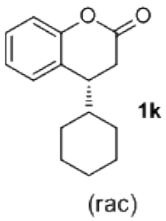
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	8.628	2602699	152156	12.916
2	10.284	17548066	905909	87.084
Total		20150765	1058065	100.000

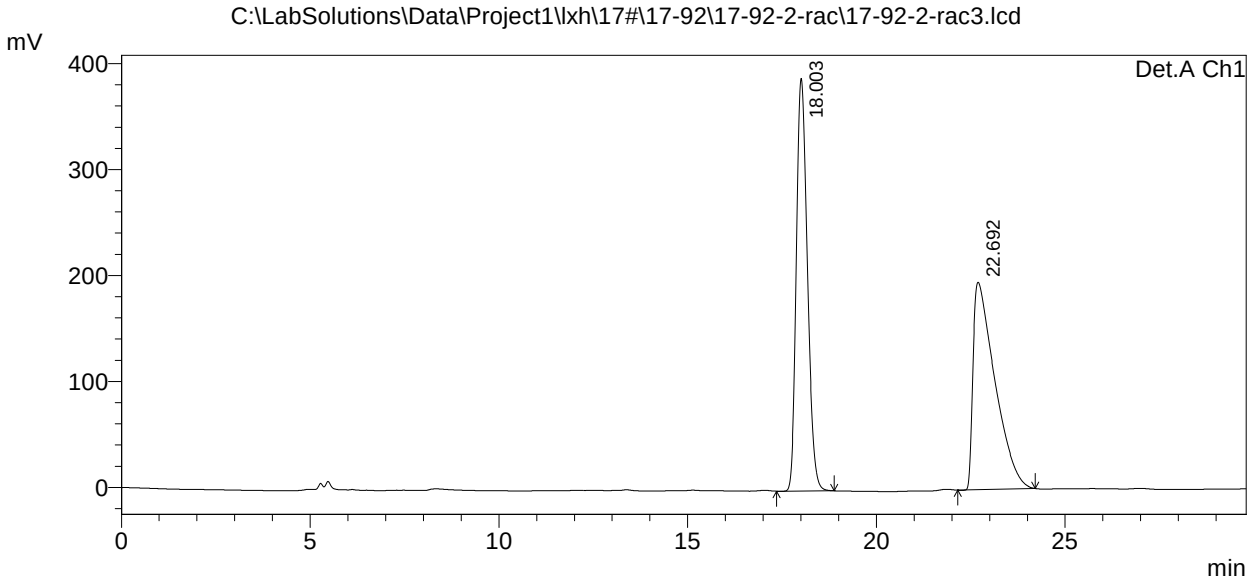
==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-2-rac\17-92-2-rac3.lcd

Acquired by	: Admin
Sample Name	: lxh-17-92-2-rac3
method	:AD-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-92-2-rac3.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-17 10:40:05
Data Processed	: 2013-9-17 11:10:45



<Chromatogram>



1 Det.A Ch1/214nm

PeakTable

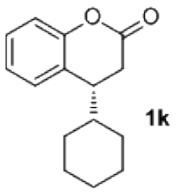
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	18.003	7881406	389493	49.961
2	22.692	7893737	195914	50.039
Total		15775143	585407	100.000

==== Shimadzu LCsolution Analysis Report ====

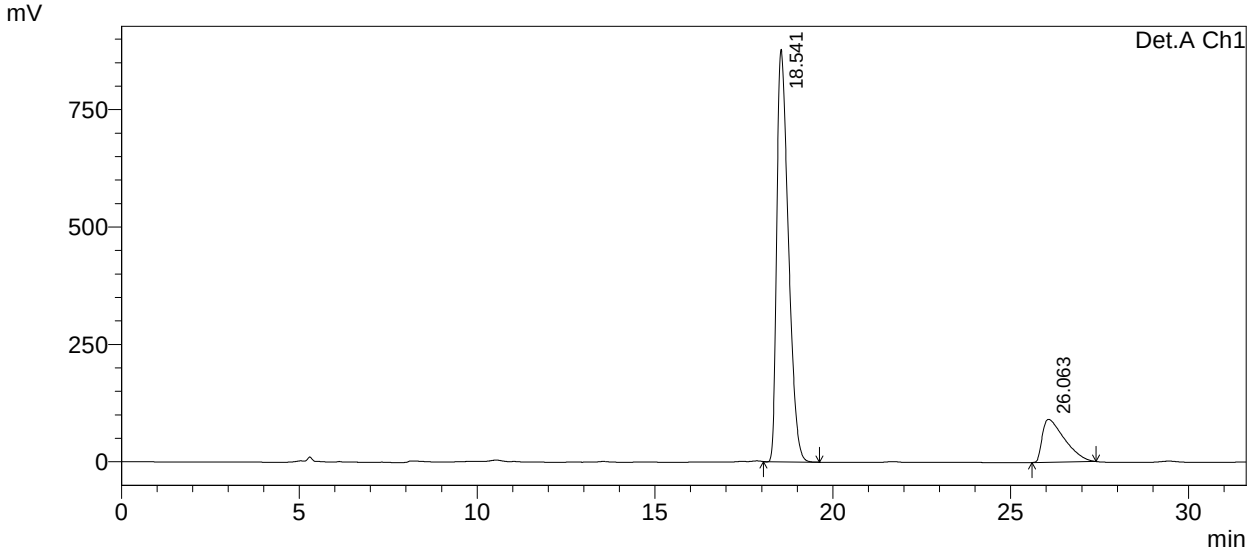
C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-92-2
method	:AD-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-92-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-17 13:42:48
Data Processed	: 2013-9-17 14:15:27



<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-92\17-92-2.lcd



1 Det.A Ch1/214nm

PeakTable

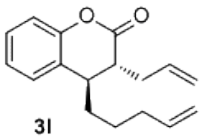
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	18.541	19933262	878190	83.378
2	26.063	3973867	91430	16.622
Total		23907130	969620	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-1-rac\17-88-1-rac2.lcd

Acquired by	: Admin
Sample Name	: lxh-17-88-1-rac2
method	:OJ-H, 98/2, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-88-1-rac2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-24 16:33:39
Data Processed	: 2013-9-24 17:25:00

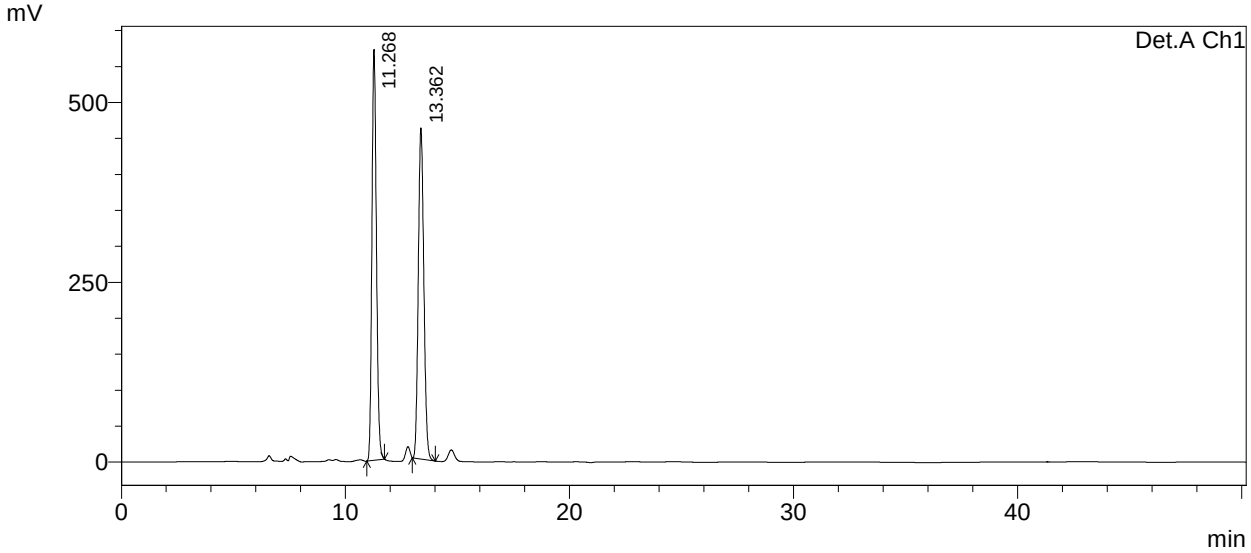


3l

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-1-rac\17-88-1-rac2.lcd



1 Det.A Ch1/214nm

PeakTable

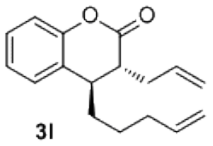
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	11.268	7994547	571345	50.247
2	13.362	7915791	460601	49.753
Total		15910338	1031947	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-1.lcd

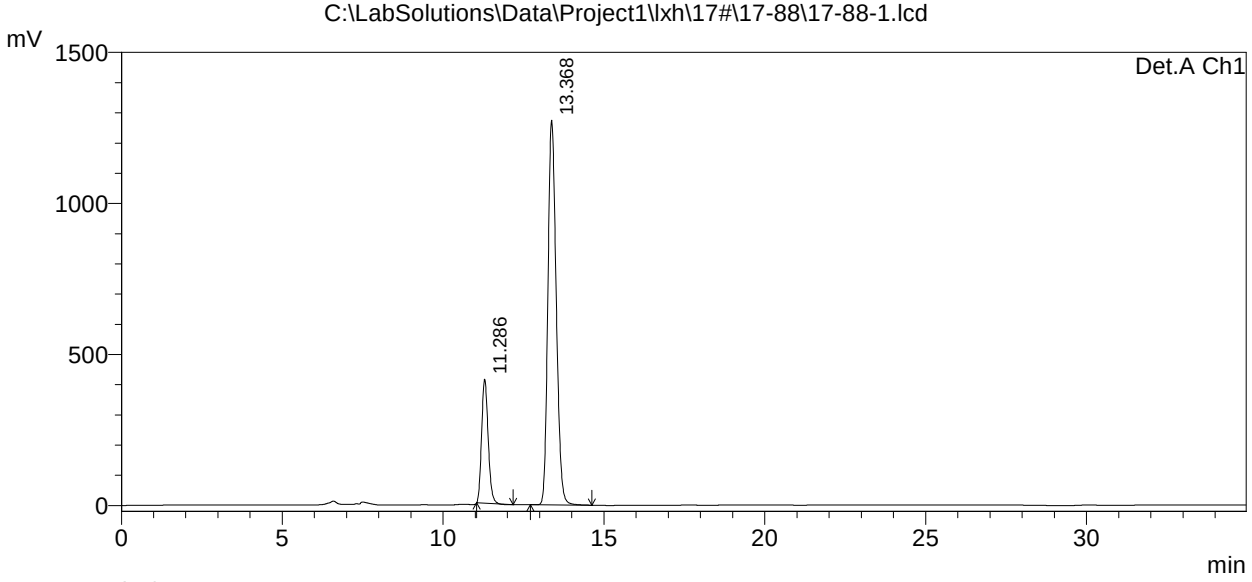
Acquired by	: Admin
Sample Name	: lxh-17-88-1
method	:OJ-H, 98/2, 0.5, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-88-1.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-24 17:27:11
Data Processed	: 2013-9-24 18:07:49



3l

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-1.lcd



1 Det.A Ch1/214nm

PeakTable

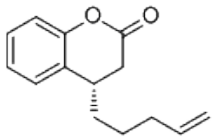
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	11.286	5794111	410679	20.165
2	13.368	22940036	1273462	79.835
Total		28734147	1684141	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-2-rac\17-88-2-rac3.lcd

Acquired by	: Admin
Sample Name	: lxh-17-88-2-rac3
method	:AD-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-88-2-rac3.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-17 16:37:00
Data Processed	: 2013-9-17 17:23:37

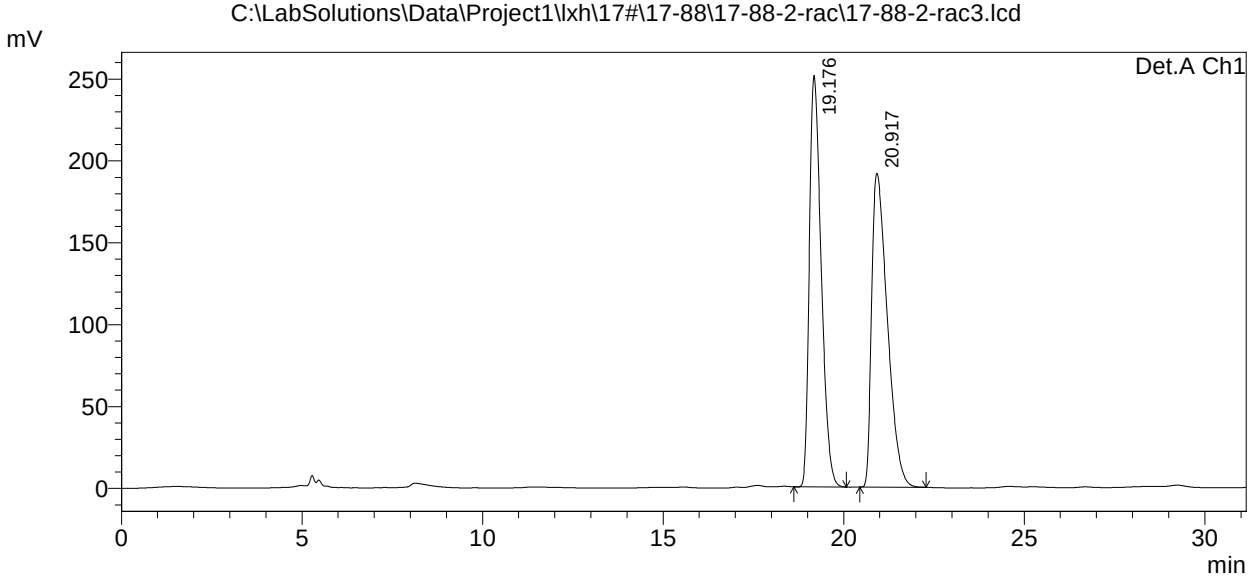


1l

(rac)

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-2-rac\17-88-2-rac3.lcd



1 Det.A Ch1/214nm

PeakTable

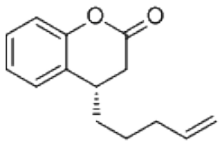
Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	19.176	5734110	251301	49.755
2	20.917	5790537	191575	50.245
Total		11524647	442876	100.000

==== Shimadzu LCsolution Analysis Report ====

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-2.lcd

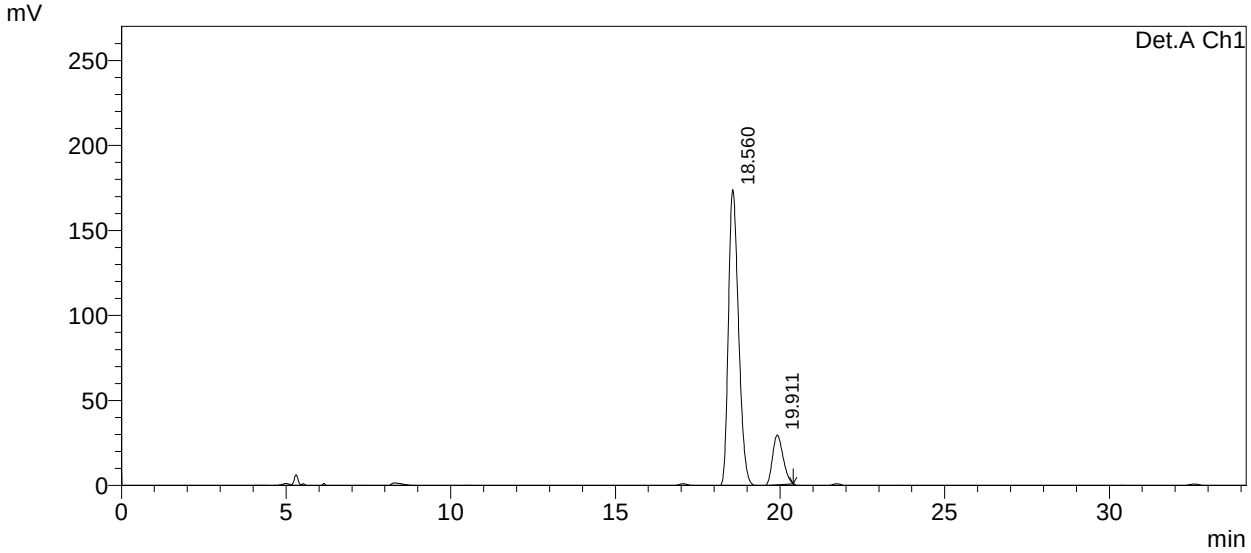
Acquired by	: Admin
Sample Name	: lxh-17-88-2
method	:AD-H, 99/1, 0.6, 214
Injection Volume	: 2.5 uL
Data File Name	: 17-88-2.lcd
Method File Name	: 222.lcm
Report File Name	: 1.lcr
Data Acquired	: 2013-9-17 20:27:02
Data Processed	: 2013-9-17 21:04:15



1l

<Chromatogram>

C:\LabSolutions\Data\Project1\lxh\17#\17-88\17-88-2.lcd



1 Det.A Ch1/214nm

PeakTable

Detector A Ch1 214nm

Peak#	Ret. Time	Area	Height	Area %
1	18.560	3753939	174649	85.139
2	19.911	655260	29361	14.861
Total		4409199	204010	100.000