Electronic Supplementary Material (ESI) for Chemical Communications

Supporting Information for

Highly efficient construction of spirocyclic chromanone-pyrrolidines *via* Cu(I)/TF-BiphamPhos-catalyzed asymmetric 1,3-dipolar cycloaddition

Tang-Lin Liu, Zhao-Lin He, and Chun-Jiang Wang*

E-mail: cjwang@whu.edu.cn

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General Remarks.

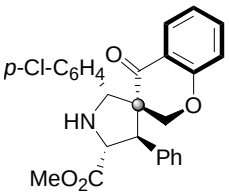
^{1}H NMR spectra were recorded on a VARIAN Mercury 300 MHz spectrometer in chloroform-d. Chemical shifts are reported in ppm with the internal TMS signal at 0.0 ppm as a standard. The data are reported as (s = single, d = double, t = triple, q = quartet, m = multiple or unresolved, brs = broad single, coupling constant(s) in Hz, integration). ^{13}C NMR spectra were recorded on a VARIAN Mercury 75 MHz spectrometer in chloroform-d. Chemical shifts are reported in ppm with the internal chloroform signal at 77.0 ppm as a standard. Commercially obtained reagents were used without further purification. All reactions were monitored by TLC with silica gel-coated plates. Diastereomeric ratios were determined from crude ^{1}H NMR or HPLC analysis. Enantiomeric excesses were determined by HPLC, using a chiralcel AD-H column, a chiralpak AS-H column with hexane and *i*-PrOH as solvents. Ligands **L1** and **L2** were prepared according to the literature procedure reported by us.[1] (*E*)-3-Alkylidene chroman-4-ones were prepared according to the literature procedure.[2] The racemic adducts were attained by using AgOAc/(±)-TF-BiphamPhos as the catalyst. The absolute (2'*R*,3*R*,4'*R*,5'*R*)-**3aa** achieved by AgOAc/(*S*)-TF-BiphamPhos was determined unequivocally according to the X-ray diffraction analysis, and those of other adducts were deduced on the basis of these results.

General Procedure for racemic 1,3-Dipolar Cycloaddition of Azomethine Ylides with (*E*)-3-Alkylidene chroman-4-ones Catalyzed by AgOAc/(±)-TF-BiphamPhos Complex.

Under argon atmosphere, (±)-TF-BiphamPhos (4.6 mg, 0.0072 mmol) and AgOAc (1.0 mg, 0.006 mmol) were dissolved in 2 mL DCM, and stirred at room temperature for about 1h. Then, imine substrate (0.4 mmol), Et_3N (0.03 mmol) and (*E*)-3-alkylidene chroman-4-ones (0.2 mmol) were added sequentially. Once starting material was consumed (monitored by TLC), the organic solvent was removed and the residue was purified by column chromatography to give the cycloadduct, which was used as the racemic sample for the chiral HPLC analysis.

General Procedure for Asymmetric 1,3-Dipolar Cycloaddition of Azomethine Ylides with (*E*)-3-Alkylidene chroman-4-ones Catalyzed by AgOAc/(*S*)-TF-BiphamPhos Complex.

Under argon atmosphere (*S*)-TF-BiphamPhos **L5** (5.8 mg, 0.0072 mmol) and $Cu(CH_3CN)_4BF_4$ (2.0 mg, 0.006 mmol) were dissolved in 2 mL DCM, and stirred at room temperature for about 1h. Then, imine substrate (0.4 mmol), Et_3N (0.03 mmol) and (*E*)-3-alkylidene chroman-4-ones (0.2 mmol) were added sequentially. Once starting material was consumed (monitored by TLC), the mixture was filtered through celite and the filtrate was concentrated to dryness. The product purified by column chromatography to give the corresponding cycloaddition product, which was then directly analyzed by chiral HPLC to determine the enantiomeric excess.

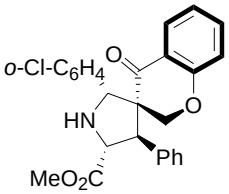


(3aa)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-chlorophenyl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 85% yield. m.p. 60-62 °C; $[\alpha]^{25}_D$ = +91.3 (*c* 1.08, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.46 (d, *J* = 8.1 Hz, 1H), 7.32-7.26 (m, 6H), 7.10 (d, *J* = 8.7 Hz, 2H), 6.97 (d, *J* = 8.1 Hz, 2H), 6.78 (t, *J* = 7.5 Hz, 1H), 6.66 (d, *J* = 8.7 Hz, 1H), 4.84 (s, 1H), 4.53 (d, *J* = 8.1 Hz, 1H), 4.38 (d, *J* = 8.4 Hz, 1H), 4.16 (d, *J* = 12.0 Hz, 1H), 3.84 (d, *J* = 11.7 Hz, 1H), 3.78 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.59, 173.49, 160.42, 136.97, 136.35, 135.84, 133.67, 129.34, 128.95, 128.74, 127.99, 127.86, 127.38, 121.43, 121.26, 117.17, 73.26, 69.79, 59.66, 53.63, 52.71, 51.93; IR (KBr) ν 3677, 3622, 3019, 2977, 2400, 1734, 1606, 1520, 1477, 1415, 1216, 1046, 928, 757, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 91% ee (Chiralcel AS-H, *i*-propanol/hexane = 10/90, flow rate

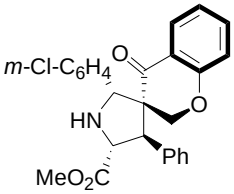
1.0 mL/min, λ = 220 nm); t_r = 21.75 and 38.18 min.



(3ba)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(2-chlorophenyl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 81% yield. m.p. 99-100 °C; $[\alpha]^{25}_D$ = +33.8 (*c* 1.24, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.53 (d, *J* = 7.5 Hz, 1H), 7.37-7.19 (m, 7H), 7.07-6.93 (m, 3H), 6.75 (d, *J* = 7.5 Hz, 1H), 6.63 (d, *J* = 8.4 Hz, 1H), 5.51 (s, 1H), 4.52 (d, *J* = 7.5 Hz, 1H), 4.42 (d, *J* = 7.5 Hz, 1H), 4.18 (d, *J* = 12.0 Hz, 1H), 3.87 (d, *J* = 12.0 Hz, 1H), 3.80 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.83, 173.21, 160.67, 136.55, 135.49, 133.83, 129.05, 128.62, 127.65, 126.81, 126.37, 120.89, 117.06, 72.41, 64.87, 64.50, 59.50, 52.50; IR (KBr) ν 3678, 3621, 3020, 2978, 2400, 1733, 1606, 1521, 1478, 1416, 1217, 1046, 928, 757, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 89% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 11.94 and 23.73 min.

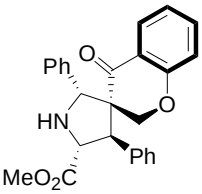


(3ca)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(3-chlorophenyl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 87% yield. m.p. 56-58 °C; $[\alpha]^{25}_D$ = +92.3 (*c* 0.73, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.48 (dd, *J* = 1.5Hz, 8.1 Hz, 1H), 7.32-7.23 (m, 7H), 7.12-7.07 (m,

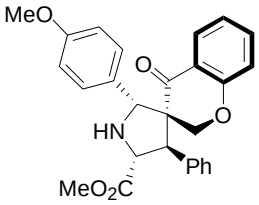
2H), 6.96-6.94 (m, 2H), 6.77 (d, *J* = 7.5 Hz, 1H), 6.68 (d, *J* = 8.4 Hz, 1H), 4.81 (s, 1H), 4.54 (d, *J* = 8.1 Hz, 1H), 4.38 (d, *J* = 8.4 Hz, 1H), 4.16 (d, *J* = 11.7 Hz, 1H), 3.83 (d, *J* = 11.7 Hz, 1H), 3.79 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.25, 173.11, 160.15, 140.12, 136.12, 135.65, 133.49, 128.93, 128.73, 128.50, 128.30, 127.81, 127.65, 127.11, 125.71, 121.17, 116.92, 72.96, 69.79, 64.13, 59.37, 52.51, 51.53; IR (KBr) ν 3680, 3619, 3018, 2978, 2399, 1734, 1606, 1521, 1478, 1416, 1216, 1047, 928, 757, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 89% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 11.23 and 23.05 min.



(3da)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 4-oxo-2',4'-diphenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

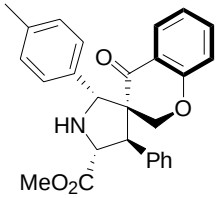
The title compound was prepared according to the general procedure as described above in 85% yield. m.p. 128-130 ^{o}C; $[\alpha]^{25}_{D}$ = +119.0 (*c* 1.15, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.44 (d, *J* = 7.5 Hz, 1H), 7.34-7.14 (m, 8H), 7.00-6.99 (m, 3H), 6.74-6.62 (m, 2H), 4.85 (s, 1H), 4.54 (d, *J* = 8.1 Hz, 1H), 4.37 (d, *J* = 8.1 Hz, 1H), 4.18 (d, *J* = 12.0 Hz, 1H), 3.83 (d, *J* = 11.4 Hz, 1H), 3.78 (s, 3H), 2.90 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.74, 173.34, 160.30, 137.89, 136.43, 135.37, 138.71, 128.56, 127.79, 127.71, 127.59, 127.13, 121.17, 120.96, 16.94, 76.32, 73.21, 70.76, 64.34, 59.60, 52.50, 52.26; IR (KBr) ν 3682, 3625, 3020, 2980, 2400, 1735, 1610, 1518, 1476, 1420, 1223, 1046, 928, 757, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 90% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 16.76 and 49.71 min.



(3ea)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-methoxyphenyl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 90% yield. m.p. 59-61 ^{o}C; $[\alpha]^{25}_{D}$ = +132.9 (*c* 1.04, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.49 (d, *J* = 7.8 Hz, 1H), 7.36-7.23 (m, 8H), 7.09 (d, *J* = 8.1 Hz, 1H), 6.77 (d, *J* = 7.5 Hz, 1H), 6.68 (d, *J* = 8.1 Hz, 1H), 6.56 (d, *J* = 8.1 Hz, 1H), 4.85 (s, 1H), 4.55 (d, *J* = 8.7 Hz, 1H), 4.38 (d, *J* = 8.4 Hz, 1H), 4.20 (d, *J* = 11.4 Hz, 1H), 3.89 (d, *J* = 12.9 Hz, 1H), 3.80 (s, 3H), 3.67 (s, 3H), 2.85 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.44, 172.95, 159.83, 158.55, 135.99, 134.91, 129.51, 128.46, 128.24, 128.12, 126.71, 120.76, 120.54, 116.49, 112.64, 72.74, 69.68, 63.71, 58.97, 54.69, 52.04, 51.73; IR (KBr) ν 3682, 3621, 3020, 2976, 2400, 1736, 1688, 1606, 1523, 1478, 1425, 1216, 1047, 929, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 26.92 and 60.81 min.

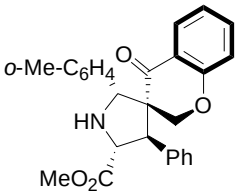


(3fa)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 4-oxo-4'-phenyl-2'-*p*-tolylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 86% yield. m.p. 137-140 ^{o}C; $[\alpha]^{25}_{D}$ = +129.9 (*c* 1.44, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.44 (d, *J* = 8.1 Hz, 1H), 7.32-7.20 (m, 6H), 7.01 (d, *J* =

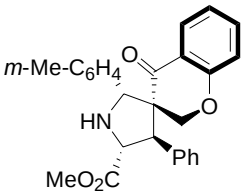
7.8 Hz, 2H), 6.81 (d, *J* = 7.8 Hz, 2H), 6.73 (d, *J* = 7.5 Hz, 1H), 6.65 (d, *J* = 8.1 Hz, 1H), 4.83 (s, 1H), 4.52 (d, *J* = 8.7 Hz, 1H), 4.37 (d, *J* = 8.4 Hz, 1H), 4.19 (d, *J* = 12.0 Hz, 1H), 3.83 (d, *J* = 12.0 Hz, 1H), 3.77 (s, 3H), 2.13 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.18, 173.32, 160.23, 137.36, 136.33, 135.20, 134.80, 128.59, 128.50, 128.30, 127.52, 127.09, 121.14, 120.83, 116.87, 73.01, 70.28, 64.13, 53.37, 52.40, 52.16, 20.82; IR (KBr) ν 3683, 3620, 3020, 2979, 2399, 1735, 1607, 1523, 1479, 1416, 1219, 1047, 929, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 89% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 11.37 and 44.17 min.



(3ga)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 4-oxo-4'-phenyl-2'-*o*-tolylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

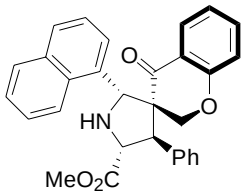
The title compound was prepared according to the general procedure as described above in 95% yield. m.p. 131-134 ^{o}C; $[\alpha]^{25}_{D}$ = +64.2 (*c* 1.28, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.46 (d, *J* = 7.8 Hz, 1H), 7.36-7.26 (m, 4H), 7.20-7.15 (m, 2H), 6.94 (d, *J* = 7.2 Hz, 1H), 6.87 (t, *J* = 7.2 Hz, 1H), 6.79 (t, *J* = 7.5 Hz, 1H), 6.71 (t, *J* = 7.5 Hz, 1H), 6.60 (d, *J* = 8.4 Hz, 1H), 5.16 (s, 1H), 4.59 (d, *J* = 8.4 Hz, 1H), 4.37 (d, *J* = 8.4 Hz, 1H), 4.13 (d, *J* = 12.0 Hz, 1H), 3.81 (d, *J* = 12.0 Hz, 1H), 3.78 (s, 3H), 2.81 (brs, 1H), 2.26 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 173.05, 160.19, 136.49, 136.30, 135.23, 130.08, 128.74, 128.52, 127.62, 127.41, 127.22, 127.09, 125.78, 121.00, 116.63, 73.30, 65.72, 64.32, 59.89, 53.07, 52.52, 19.33; IR (KBr) ν 3680, 3619, 3019, 2977, 2400, 1735, 1609, 1524, 1478, 1415, 1216, 1046, 928, 757, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 89% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 10.51 and 12.82 min.



(3ha)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 4-oxo-4'-phenyl-2'-*m*-tolylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 94% yield. m.p. 141-144 ^{o}C; $[\alpha]^{25}_{D}$ = +103.7 (*c* 1.46, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.43 (dd, *J* = 1.8 Hz, 8.1 Hz, 1H), 7.33-7.19 (m, 6H), 6.99-6.88 (m, 3H), 6.78 (d, *J* = 7.5 Hz, 1H), 6.72 (t, *J* = 7.5 Hz, 1H), 6.64 (d, *J* = 8.7 Hz, 1H), 4.81 (s, 1H), 4.53 (d, *J* = 8.7 Hz, 1H), 4.37 (d, *J* = 8.1 Hz, 1H), 4.17 (d, *J* = 12.0 Hz, 1H), 3.81 (d, *J* = 12.0 Hz, 1H), 3.77 (s, 3H), 2.89 (brs, 1H), 2.08 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.56, 173.16, 160.24, 137.60, 137.14, 136.36, 135.18, 128.61, 128.54, 128.39, 127.60, 127.50, 127.04, 124.69, 121.25, 120.80, 116.75, 73.07, 70.66, 64.19, 59.57, 52.38, 52.11, 21.00; IR (KBr) ν 3679, 3619, 3021, 2978, 2401, 1735, 1606, 1520, 1477, 1415, 1217, 1046, 928, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 89% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 9.83 and 21.72 min.

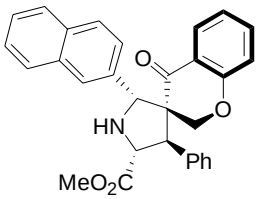


(3ia)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(naphthalen-1-yl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 93% yield. m.p. 178-181 ^{o}C; $[\alpha]^{25}_{D}$ = -68.4 (*c* 1.82, $CHCl_3$); ^{1}H NMR

($CDCl_3$, TMS, 300 MHz) δ 8.03 (d, *J* = 8.7 Hz, 1H), 7.56-7.43 (m, 3H), 7.36-7.15 (m, 8H), 7.07 (d, *J* = 8.1 Hz, 1H), 6.81 (d, *J* = 7.5 Hz, 1H), 6.37 (t, *J* = 7.5 Hz, 1H), 6.19 (d, *J* = 8.1 Hz, 1H), 5.76 (s, 1H), 4.65 (d, *J* = 9.3 Hz, 1H), 4.41 (d, *J* = 8.7 Hz, 1H), 4.29 (d, *J* = 11.7 Hz, 1H), 3.73 (d, *J* = 12.0 Hz, 1H), 3.66 (s, 3H), 2.84 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.11, 173.16, 160.02, 135.87, 134.67, 134.56, 133.14, 130.94, 128.59, 128.17, 127.52, 126.55, 125.80, 125.26, 124.95, 124.81, 122.75, 120.84, 120.61, 116.41, 73.82, 63.61, 63.46, 60.21, 52.38, 51.76; IR (KBr) ν 3683, 3621, 3019, 2980, 2400, 1736, 1686, 1606, 1517, 1478, 1425, 1215, 1040, 928, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 90% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 20.91 and 40.67 min.

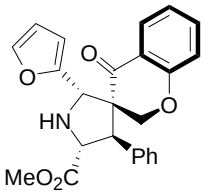


(3ja)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(naphthalen-2-yl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 83% yield. m.p. 107-110 ^oC; $[\alpha]^{25}_D$ = +73.4 (*c* 1.21, $CHCl_3$); ^1H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.64-7.61 (m, 3H), 7.53 (d, *J* = 15.4 Hz, 1H), 7.39-7.29 (m, 9H), 7.10 (t, *J* = 8.1 Hz, 1H), 6.63 (d, *J* = 8.1 Hz, 1H), 6.57 (d, *J* = 7.5 Hz, 1H), 5.06 (s, 1H), 4.68 (d, *J* = 8.7 Hz, 1H), 4.66 (d, *J* = 8.7 Hz, 1H), 4.29 (d, *J* = 12.0 Hz, 1H), 3.90 (d, *J* = 12.0 Hz, 1H), 3.84 (s, 3H), 2.95 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 188.80, 168.84, 155.69, 131.81, 128.34, 128.10, 124.25, 124.13, 123.34, 123.13, 122.93, 122.75, 122.54, 121.28, 120.95, 116.66, 116.42, 112.31, 68.57, 66.01, 59.74, 55.27, 48.07, 47.51; IR (KBr) ν 3681, 3620, 3020, 2979, 2400, 1737, 1680, 1616, 1514, 1478, 1425, 1216, 1046, 928, 759, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 86% ee (Chiralcel AD-H,

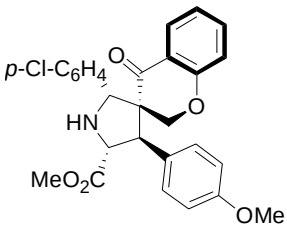
i-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 21.06 and 57.83 min.



(3ka)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(furan-2-yl)-4-oxo-4'-phenylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 86% yield. m.p. 69-72 °C; $[\alpha]^{25}_D$ = +129.0 (*c* 1.15, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.67 (dd, *J* = 1.5 Hz, 7.8 Hz, 1H), 7.35-7.27 (m, 6H), 7.04 (d, *J* = 1.6 Hz, 1H), 6.86 (d, *J* = 6.6 Hz, 1H), 6.76 (d, *J* = 8.4 Hz, 1H), 6.11 (d, *J* = 3.0 Hz, 1H), 6.02-6.01 (m, 1H), 4.89 (s, 1H), 4.52 (d, *J* = 7.5 Hz, 1H), 4.32 (d, *J* = 8.1 Hz, 1H), 4.20 (d, *J* = 12.0 Hz, 1H), 3.85 (d, *J* = 12.0 Hz, 1H), 3.76 (s, 3H), 3.06 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.00, 173.15, 160.57, 150.72, 141.90, 136.41, 135.51, 128.71, 128.58, 127.62, 127.30, 121.13, 120.59, 117.14, 110.04, 108.59, 72.33, 64.39, 63.42, 58.83, 52.55, 51.78; IR (KBr) ν 3680, 3621, 3019, 2981, 2400, 1737, 1687, 1609, 1513, 1478, 1425, 1214, 1040, 928, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 90% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 13.61 and 57.64 min.

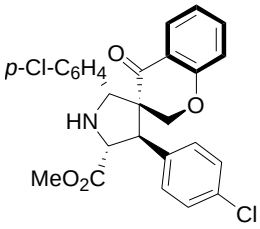


(3ab)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-chlorophenyl)-4'-(4-methoxyphenyl)-4-oxospiro-

[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 88% yield. $[\alpha]^{25}_{D}$ = +58.4 (*c* 1.40, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.45 (d, *J* = 7.5 Hz, 1H), 7.30-7.22 (m, 3H), 7.09 (d, *J* = 8.7 Hz, 2H), 6.97 (d, *J* = 8.1 Hz, 2H), 6.86 (d, *J* = 8.1 Hz, 2H), 6.78 (t, *J* = 7.2 Hz, 1H), 6.67 (d, *J* = 8.7 Hz, 1H), 4.82 (s, 1H), 4.49 (d, *J* = 7.2 Hz, 1H), 4.32 (d, *J* = 6.6 Hz, 1H), 4.19 (d, *J* = 12.0 Hz, 1H), 3.85 (d, *J* = 13.2 Hz, 1H), 3.78 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.41, 173.29, 160.19, 158.89, 136.82, 135.60, 133.40, 130.86, 129.52, 129.06, 127.77, 127.12, 121.17, 121.04, 116.96, 114.01, 72.94, 69.37, 64.11, 59.46, 55.15, 52.50, 50.99; IR (KBr) ν 3680, 3621, 3019, 2979, 2400, 1735, 1685, 1606, 1517, 1478, 1426, 1215, 1044, 929, 758, 668 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 92% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 22.85 and 39.31 min.

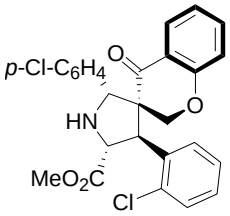


(3ac)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2',4'-bis(4-chlorophenyl)-4-oxospiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 95% yield. m.p. 60-62 °C; $[\alpha]^{25}_{D}$ = +103.2 (*c* 1.10, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.46 (d, *J* = 7.8 Hz, 1H), 7.28-7.22 (m, 5H), 7.09 (d, *J* = 8.1 Hz, 2H), 6.98 (d, *J* = 8.1 Hz, 2H), 6.86 (d, *J* = 8.1 Hz, 2H), 6.78 (m, 1H), 6.68 (d, *J* = 8.1 Hz, 1H), 4.82 (s, 1H), 4.49 (d, *J* = 8.4 Hz, 1H), 4.35 (m, 1H), 4.19 (d, *J* = 12.0 Hz, 1H), 3.85 (d, *J* = 11.7 Hz, 1H), 3.78 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 191.93, 172.92, 160.20, 136.89, 135.76, 134.45, 133.57, 129.89, 129.12, 128.88, 127.85, 127.24, 121.35, 121.04, 117.00, 72.80, 69.12, 63.63, 52.10, 50.68, 29.84; IR (KBr) ν 3683, 3621, 302, 2980, 2400, 1736, 1606, 1517, 1478, 1425, 1215, 1040, 928,

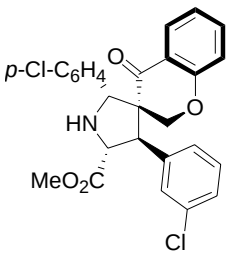
758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralcel AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 220 nm); t_r = 41.15 and 48.18 min.



(3ad)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 4'-(2-chlorophenyl)-2'-(4-chlorophenyl)-4-oxospiro-[chroman-3,3'-pyrrolidine]-5'-carboxylate

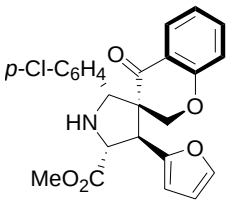
The title compound was prepared according to the general procedure as described above in 87% yield. m.p. 146-148 ^oC; $[\alpha]^{25}_D$ = +85.7 (*c* 1.68, $CHCl_3$); ^1H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.62 (t, *J* = 11.1 Hz, 2H), 7.47 (t, *J* = 7.2 Hz, 2H), 7.29 (d, *J* = 7.2 Hz, 1H), 7.27-7.17 (m, 3H), 6.93 (t, *J* = 8.4 Hz, 1H), 6.78 (t, *J* = 7.5 Hz, 1H), 6.45 (d, *J* = 8.1 Hz, 1H), 4.93 (d, *J* = 4.5 Hz, 1H), 4.75 (d, *J* = 6.9 Hz, 1H), 4.23 (s, 1H), 4.12 (d, *J* = 11.7 Hz, 1H), 3.93 (s, 3H), 3.86 (d, *J* = 11.7 Hz, 1H), 3.08 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 193.69, 173.79, 160.35, 136.68, 135.74, 135.35, 134.81, 133.79, 130.24, 129.49, 129.10, 127.89, 127.25, 121.35, 120.84, 117.12, 73.00, 66.90, 58.39, 52.97, 49.70; IR (KBr) ν 3679, 3620, 3018, 2983, 2403, 1736, 1683, 1606, 1513 1473, 1425, 1215, 1040, 929, 758, 668 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 92% ee (Chiralcel AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 220 nm); t_r = 11.47 and 43.77 min.



(3ae)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 4'-(3-chlorophenyl)-2'-(4-chlorophenyl)-4-oxospiro-[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 88% yield. m.p. 66-68 ^{o}C; $[\alpha]^{25}_{D}$ = +110.3 (*c* 0.76, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.38 (d, *J* = 7.5 Hz, 1H), 7.24-7.02 (m, 5H), 7.01 (d, *J* = 8.1 Hz, 2H), 6.90 (d, *J* = 8.1 Hz, 2H), 6.72 (d, *J* = 7.5 Hz, 1H), 6.61 (t, *J* = 7.8 Hz, 1H), 4.76 (s, 1H), 4.50 (d, *J* = 8.1 Hz, 1H), 4.26 (d, *J* = 8.4 Hz, 1H), 4.13 (d, *J* = 12.0 Hz, 1H), 3.77 (d, *J* = 12.0 Hz, 1H), 3.75 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.18, 173.06, 160.37, 138.39, 136.81, 135.98, 134.84, 133.77, 130.19, 129.34, 128.83, 128.03, 127.43, 126.96, 121.55, 121.15, 117.20, 73.00, 69.60, 63.98, 59.61, 52.81, 51.23; IR (KBr) ν 3680, 3620, 3020, 2981, 2400, 1735, 1685, 1605, 1515, 1477, 1425, 1215, 1039, 929, 759, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 91% ee (Chiralcel AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 220 nm); t_r = 20.98 and 46.34 min.

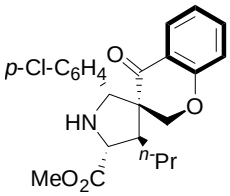


(3af)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-chlorophenyl)-4'-(furan-2-yl)-4-oxospiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 89% yield. m.p. 146-148 ^{o}C; $[\alpha]^{25}_{D}$ = +115.3 (*c* 0.66, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.49 (d, *J* = 7.5 Hz, 1H), 7.40 (s, 1H), 7.29 (t, *J* = 7.5 Hz, 1H), 7.06 (d, *J* = 8.1 Hz, 2H), 6.96 (d, *J* = 8.4 Hz, 2H), 6.80 (t, *J* = 7.8 Hz, 1H), 6.69 (d, *J* = 8.7 Hz, 1H), 6.32 (s, 1H), 6.25 (s, 1H), 4.84 (s, 1H), 4.57 (d, *J* = 8.4 Hz, 1H), 4.40-4.35 (m, 2H), 3.98 (d, *J* = 12.0 Hz, 1H), 3.80 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.03, 172.81, 160.54, 150.31, 142.69, 136.64, 135.90, 133.64, 129.22, 127.93, 127.33, 121.47, 121.11, 117.25, 110.68, 109.20, 72.37, 69.55, 62.74, 60.29,

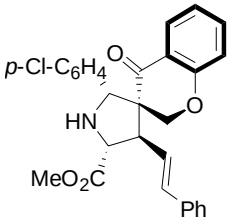
52.71, 45.51; IR (KBr) ν 3680, 3620, 3019, 2980, 2399, 1736, 1606, 1519, 1478, 1425, 1215, 1040, 928, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 91% ee (Chiralcel AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 220 nm); t_r = 17.72 and 33.19 min.



(3ag)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-chlorophenyl)-4-oxo-4'-propylspiro[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 75% yield. $[\alpha]^{25}_D$ = +86.7 (*c* 0.72, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.46 (d, *J* = 8.4 Hz, 1H), 7.37 (t, *J* = 7.5 Hz, 1H), 6.98 (s, 4H), 6.87-6.83 (m, 2H), 4.74 (s, 1H), 4.48 (d, *J* = 11.1 Hz, 2H), 3.86 (s, 3H), 3.71 (d, *J* = 9.0 Hz, 1H), 3.29 (q, *J* = 8.4 Hz, 1H), 2.24 (brs, 1H), 1.55-1.49 (m, 2H), 1.34-1.21 (m, 1H), 0.89 (t, *J* = 6.6 Hz, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 191.90, 173.97, 160.29, 137.93, 135.66, 133.27, 128.99, 127.75, 127.42, 121.41, 121.20, 117.17, 70.93, 67.53, 64.81, 59.15, 52.37, 45.47, 29.79, 21.28, 14.17; IR (KBr) ν 3682, 3621, 3020, 2976, 2400, 1736, 1688, 1606, 1523, 1478, 1425, 1216, 1047, 929, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 7.35 and 11.10 min.

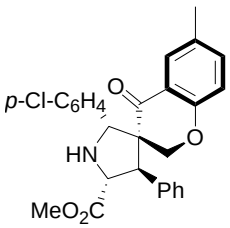


(3ah)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-chlorophenyl)-4-oxo-4'-styrylspiro[chroman-

3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 88% yield. m.p. 133-134 ^{o}C; $[\alpha]^{25}_{D}$ = +159.3 (*c* 1.28, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.45 (dd, *J* = 1.5 Hz, 7.8 Hz, 1H), 7.36-7.20 (m, 6H), 7.05-6.97 (m, 4H), 6.81-6.78 (m, 2H), 6.62 (d, *J* = 15.9 Hz, 1H), 6.05 (dd, *J* = 8.7 Hz, 15.3 Hz, 1H), 4.80 (s, 1H), 4.57 (d, *J* = 11.4 Hz, 1H), 4.43 (d, *J* = 12.0 Hz, 1H), 4.10 (t, *J* = 9.0 Hz, 1H), 3.99 (d, *J* = 9.3 Hz, 1H), 3.81 (s, 3H), 2.54 (brs, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 191.47, 173.04, 160.29, 137.29, 136.37, 135.70, 134.75, 133.46, 128.95, 128.53, 127.86, 127.26, 126.37, 123.23, 121.39, 121.21, 117.11, 71.71, 68.26, 64.20, 60.66, 52.41, 49.64; IR (KBr) ν 3681, 3618, 3019, 2979, 2400, 1736, 1686, 1606, 1517, 1478, 1425, 1215, 1040, 928, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 93% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 17.88 and 34.69 min.

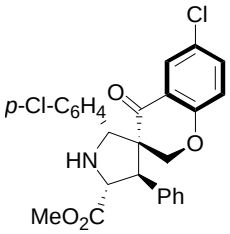


(3ai)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 2'-(4-chlorophenyl)-6-methyl-4-oxo-4'-phenylspiro-[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 95% yield. m.p. 206-208 ^{o}C; $[\alpha]^{25}_{D}$ = +121.4 (*c* 1.01, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.31-7.26 (m, 6H), 7.10 (d, *J* = 8.1 Hz, 3H), 6.99 (d, *J* = 8.7 Hz, 2H), 6.57 (d, *J* = 8.1 Hz, 1H), 4.84 (s, 1H), 4.52 (d, *J* = 8.7 Hz, 1H), 4.39 (d, *J* = 8.7 Hz, 1H), 4.15 (d, *J* = 12.0 Hz, 1H), 3.80 (d, *J* = 12.0 Hz, 1H), 3.78 (s, 3H), 2.16 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.57, 173.27, 158.35, 136.74, 136.08, 133.43, 130.71, 129.15, 128.70, 128.50, 127.80, 127.61, 126.70, 120.68, 116.77, 72.99, 69.40, 63.97, 59.59, 52.53, 51.70, 20.19; IR (KBr) ν 3681, 3621, 3021, 2977,

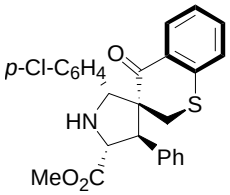
2400, 1735, 1521, 1476, 1424, 1215, 1047, 929, 773, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 93% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 15.56 and 21.28 min.



(3aj)

(2'*R*,3*R*,4'*R*,5'*R*)-methyl 6-chloro-2'-(4-chlorophenyl)-4-oxo-4'-phenylspiro-[chroman-3,3'-pyrrolidine]-5'-carboxylate

The title compound was prepared according to the general procedure as described above in 87% yield. $[\alpha]^{25}_D$ = +105.6 (*c* 1.12, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.45 (d, *J* = 2.4 Hz, 1H), 7.33-7.20 (m, 7H), 7.11-7.05 (m, 4H), 6.63 (d, *J* = 9.0 Hz, 1H), 4.87 (s, 1H), 4.52-4.45 (m, 2H), 4.20 (d, *J* = 12.0 Hz, 1H), 3.82 (d, *J* = 14.4 Hz, 1H), 3.79 (s, 3H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 191.45, 172.77, 158.74, 135.65, 134.01, 129.12, 128.86, 128.48, 128.06, 127.89, 126.86, 126.36, 118.80, 73.06, 69.50, 64.03, 59.20, 52.76, 51.76; IR (KBr) ν 3682, 3620, 3020, 2978, 2429, 2400, 1736, 1523, 1479, 1428, 1219, 1043, 929, 773, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 93% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 14.90 and 17.95 min.



(3ak)

(2*R*,3*S*,4*R*,5*R*)-methyl 2-(4-chlorophenyl)-4'-oxo-4-phenylspiro[pyrrolidine-3,3'-

thiochroman]-5-carboxylate

The title compound was prepared according to the general procedure as described above in 93% yield. $[\alpha]^{25}_{D}$ = +124.3 (*c* 1.06, $CHCl_3$); ^{1}H NMR ($CDCl_3$, TMS, 300 MHz) δ 7.58 (d, *J* = 8.1 Hz, 1H), 7.36-7.16 (m, 9H), 7.01-6.93 (m, 3H), 5.17 (s, 1H), 4.78 (d, *J* = 7.2 Hz, 1H), 4.40 (d, *J* = 12.0 Hz, 1H), 3.71 (s, 3H), 3.04 (d, *J* = 13.8 Hz, 1H), 2.85 (d, *J* = 14.7 Hz, 1H); ^{13}C NMR ($CDCl_3$, TMS, 75 MHz) δ 192.76, 173.19, 139.76, 138.06, 135.37, 133.42, 132.90, 130.62, 130.40, 129.39, 129.06, 128.45, 127.78, 127.53, 126.30, 124.67, 66.53, 62.12, 60.15, 53.48, 52.51, 34.28; IR (KBr) ν 3683, 3621, 3019, 2980, 2400, 1736, 1686, 1606, 1517, 1478, 1425, 1215, 1040, 928, 758, 669 cm^{-1}. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min, λ = 220 nm); t_r = 12.40 and 22.69 min.

X-ray Crystal Structures of (2'*R*,3*R*,4'*R*,5'*R*)-3aa

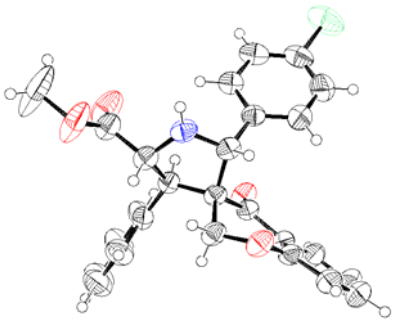


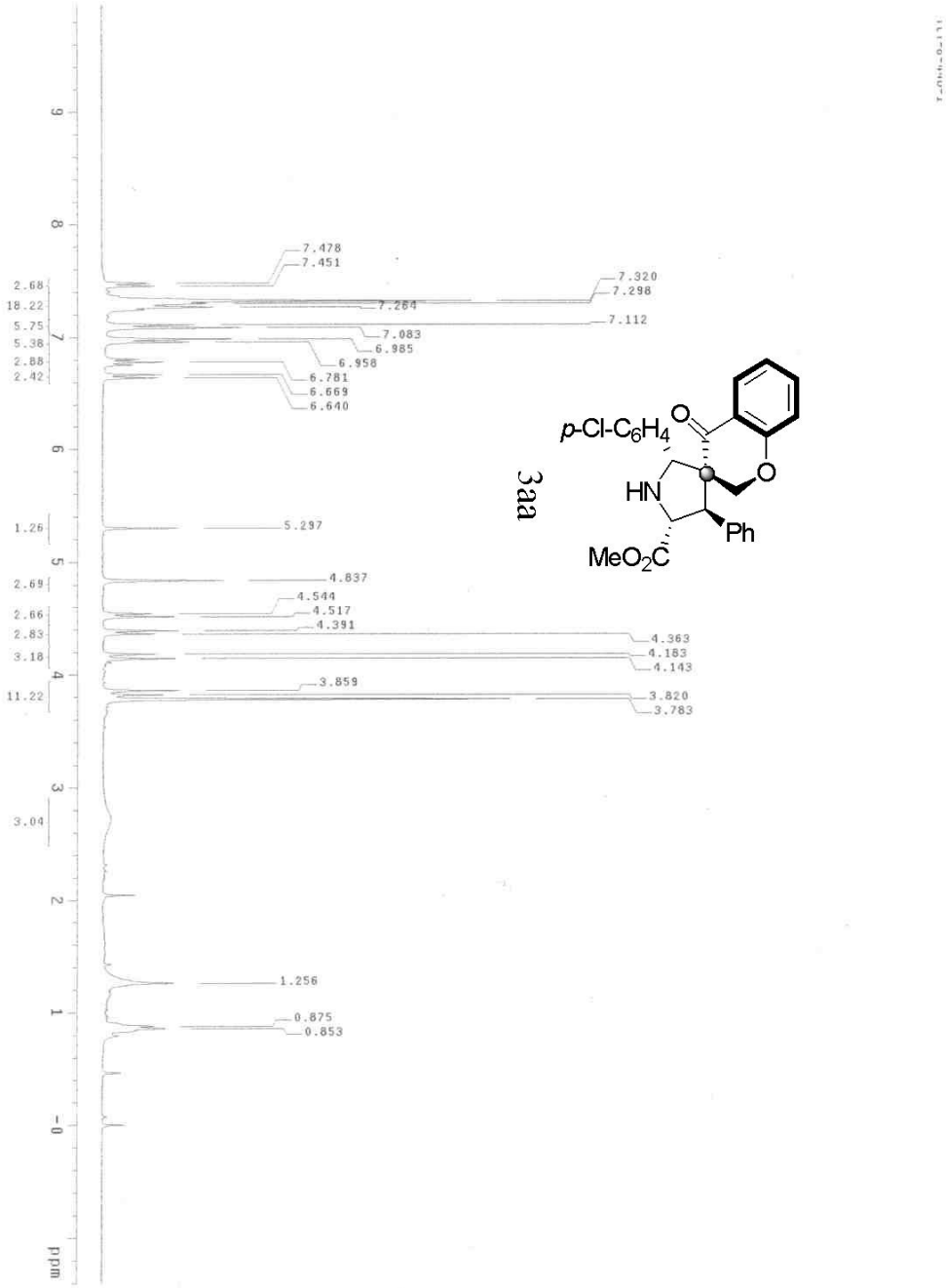
Figure 2. X-ray structure of (2'*R*,3*R*,4'*R*,5'*R*)-**3aa**.

For (2'*R*,3*R*,4'*R*,5'*R*)-**3aa**: $C_{26}H_{22}ClNO_4$, M_r = 447.90, *T* = 293 K, Orthorhombic, space group $P2_12_12_1$, *a* = 9.960(9), *b* = 12.124(11), *c* = 18.738(16) Å, *V* = 2263(3) $Å^3$, *Z* = 4, 4436 reflections measured, 2920 unique (R_{int} = 0.0503) which were used in all caclculations. The final wR_2 = 0.1037(all data), Flack χ = -0.10(10). CCDC 828929 (**3aa**).

References

[1] C.-J. Wang, G. Liang, Z-Y. Xue, F. Gao, *J. Am. Chem. Soc*. **2008**, *130*, 17250.

[2] (a) K. M.Dawood, T. Fuchigami, *J. Org. Chem.*, **2001**, *66*, 7691. (b) D. Basavaiah, M. Bakthadoss, S. Pandiaraju, *chem.commun.*, **1998,** 1639. (c) S. H. Kim, S. H. Kim, J. N. Kim, *Bull. Korean Chem. Soc.* **2008**, *29*, 2039.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7.451
7.320
7.298
7.264
7.112
7.083
6.985
6.958
6.781
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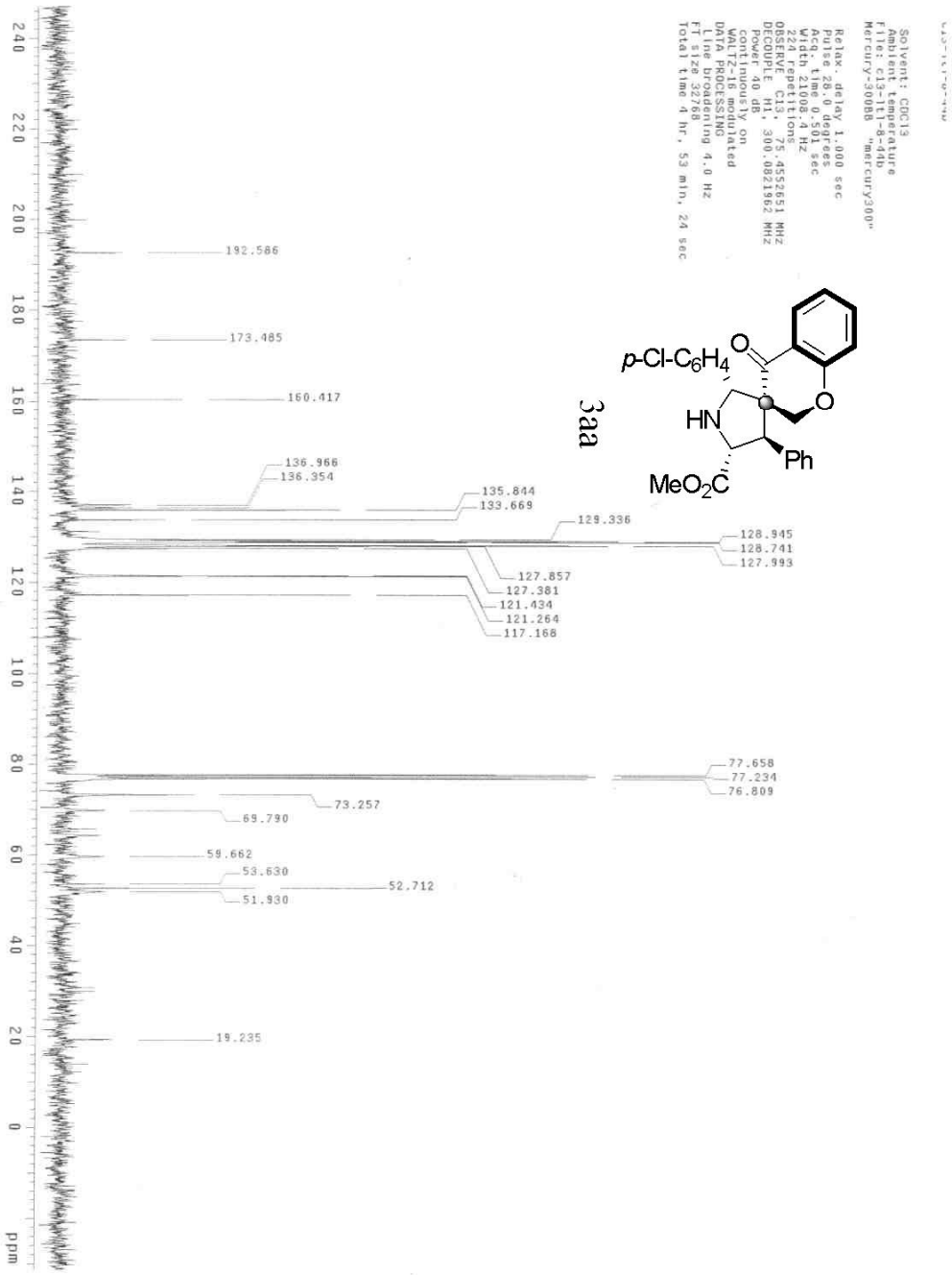
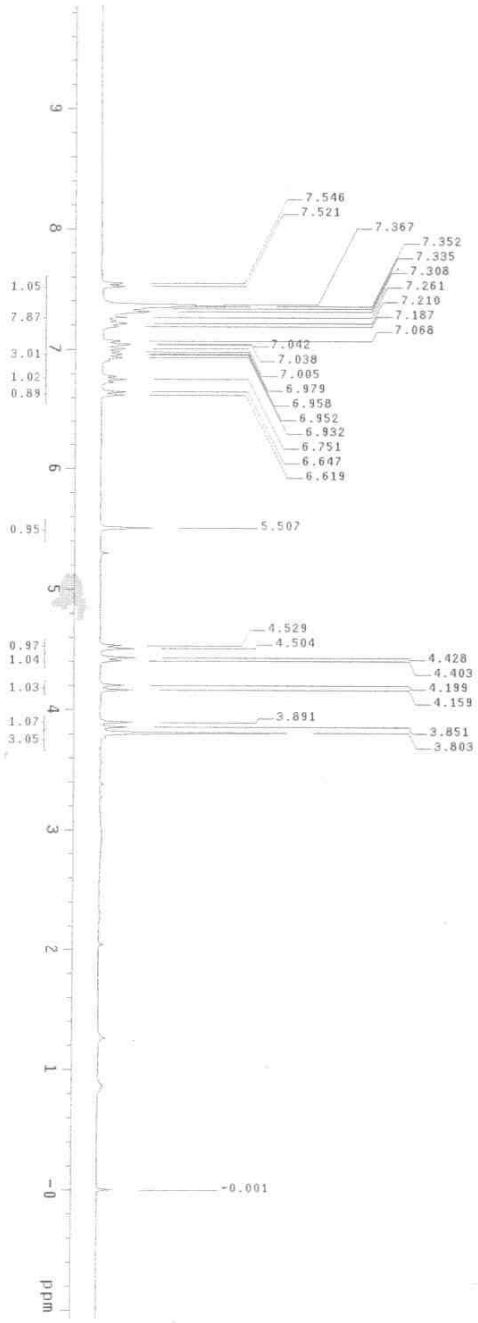
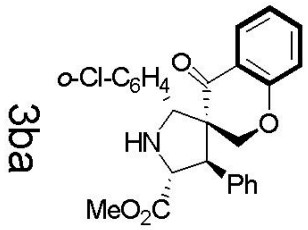
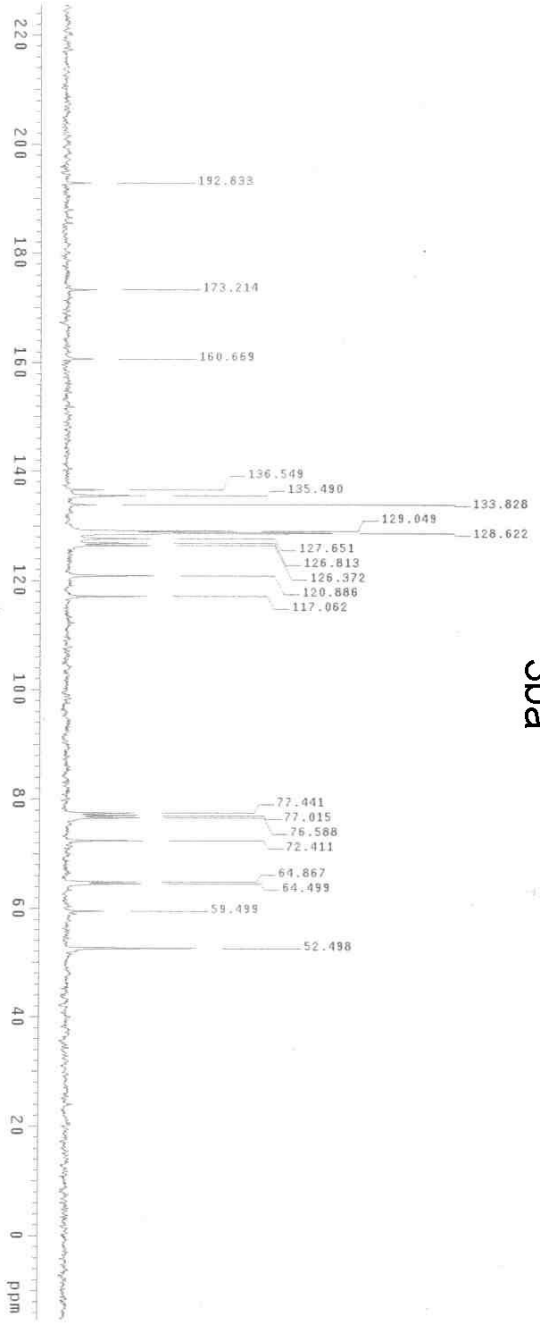
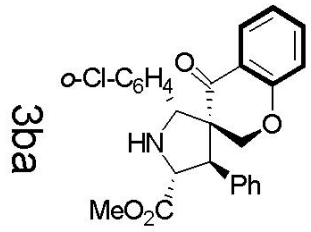
5.297
4.837
4.544
4.517
4.391
4.363
4.183
4.143
3.859
3.820
3.783
1.256
0.875
0.853
2.68
18.22
5.75
5.38
2.88
2.42
1.26
2.69
2.66
2.83
3.18
11.22
3.04
ppm
p-Cl-C6H4
HN
Ph
MeO2C
3aa


192.586
173.485
160.417
136.966
136.354
135.844
133.669
129.336
128.945
128.741
127.993
127.857
127.381
121.434
121.264
117.168
77.658
77.234
76.809
73.257
69.790
59.662
53.630
52.712
51.930
19.235
ppm
3aa
p-Cl-C6H4
HN
Ph
MeO2C

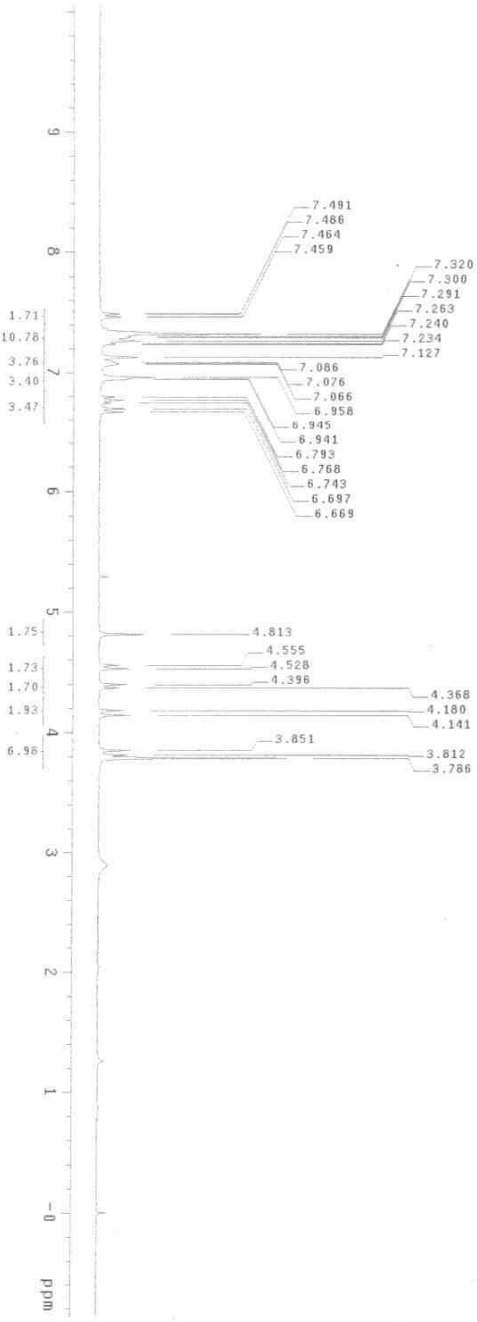

7.546
7.521
7.367
7.352
7.335
7.308
7.261
7.210
7.187
7.068
7.042
7.038
7.005
6.979
6.958
6.952
6.932
6.751
6.647
6.619
5.507
4.529
4.504
4.428
4.403
4.199
4.159
3.891
3.851
3.803
-0.001
1.05
7.87
3.01
1.02
0.89
0.95
0.97
1.04
1.03
1.07
3.05
ppm


3ba
o-Cl-C6H4
HN
Ph
MeO2C

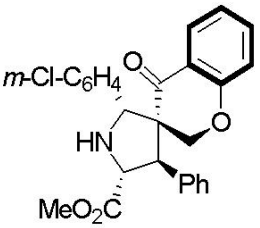

192.633
173.214
160.669
136.549
135.490
133.828
129.049
128.622
127.651
126.813
126.372
120.886
117.062
77.441
77.015
76.588
72.411
64.867
64.499
59.499
52.498
220
200
180
160
140
120
100
80
60
40
20
0
ppm

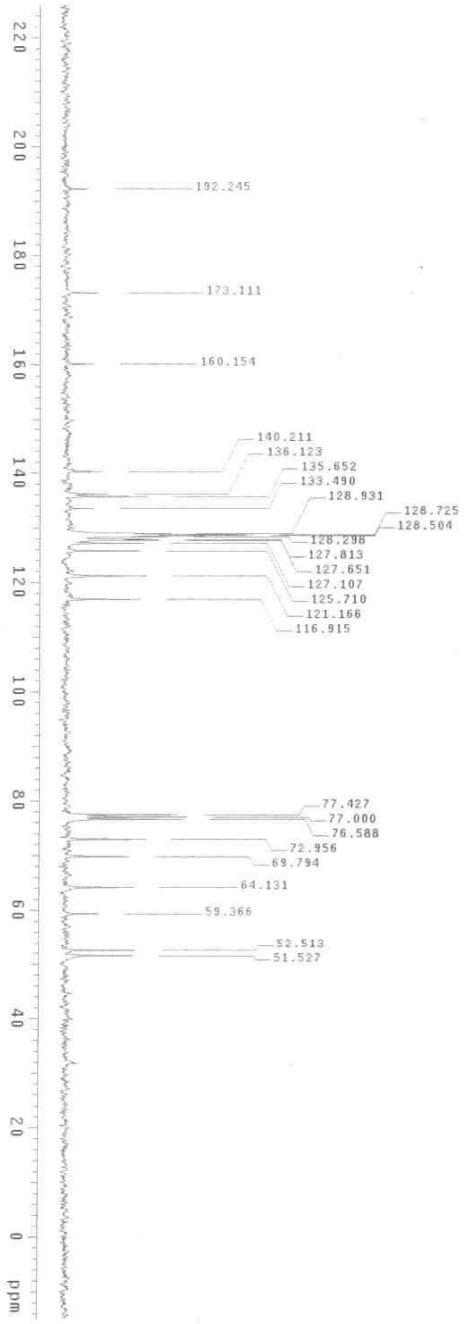

o-Cl-C6H4
O
O
HN
Ph
MeO2C

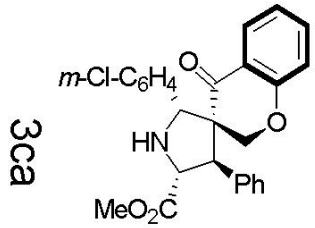
3ba


7.491
7.486
7.464
7.459
7.320
7.300
7.291
7.263
7.240
7.234
7.127
7.086
7.076
7.066
6.958
6.945
6.941
6.793
6.768
6.743
6.697
6.669
4.813
4.555
4.528
4.396
4.368
4.180
4.141
3.851
3.812
3.786
1.71
10.78
3.76
3.40
3.47
1.75
1.73
1.70
1.93
6.98
ppm

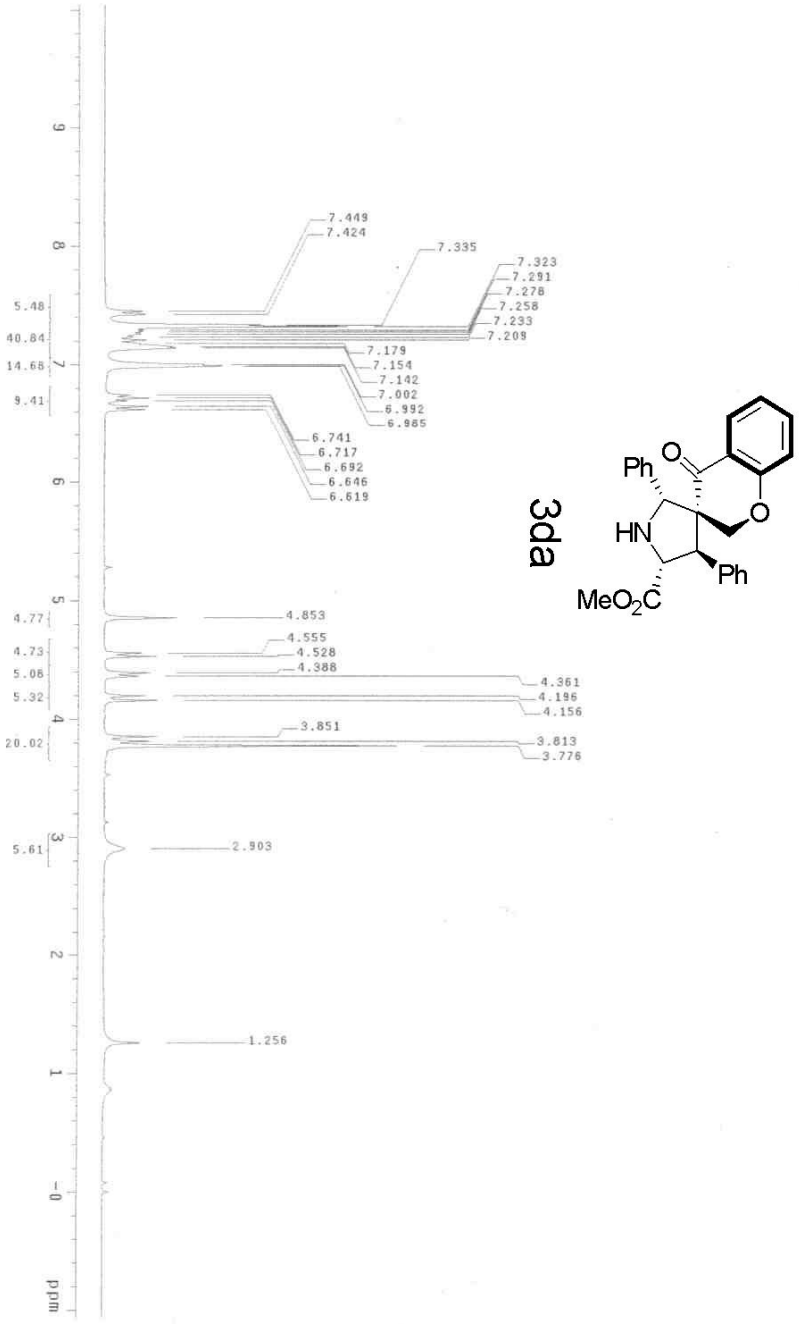
3ca

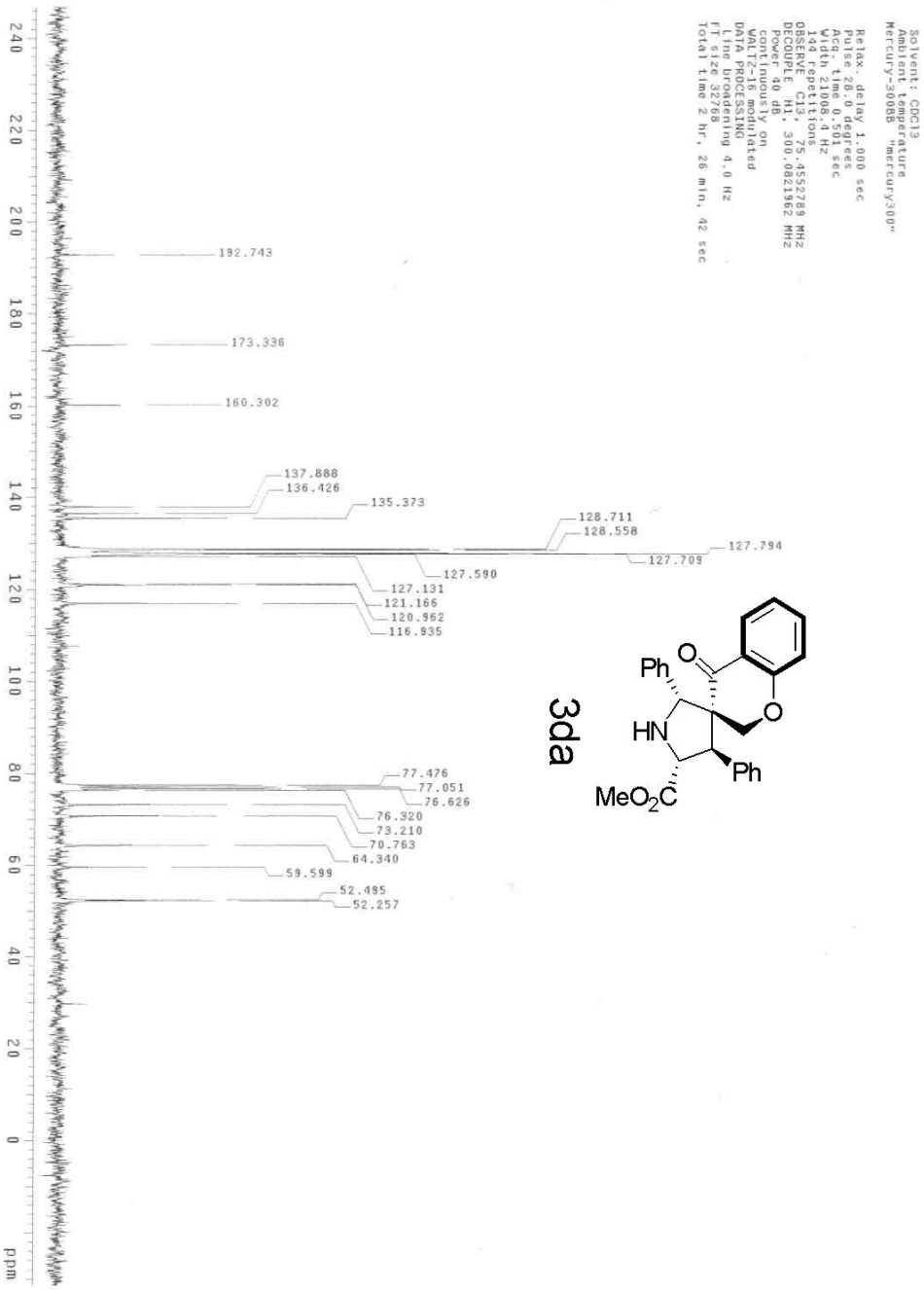

m-Cl-C6H4
O
HN
O
Ph
MeO2C

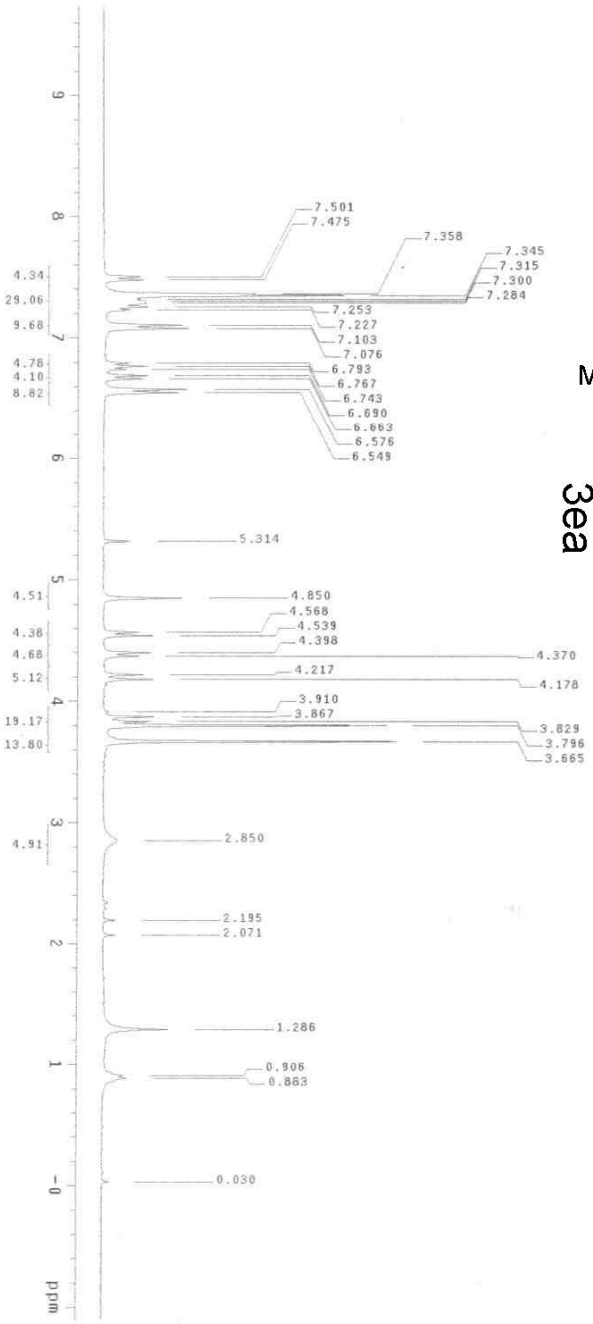

192.245
173.111
160.154
140.211
136.123
135.652
133.490
128.931
128.725
128.504
128.298
127.813
127.651
127.107
125.710
121.166
116.915
77.427
77.000
76.588
72.956
69.794
64.131
59.366
52.513
51.527
220
200
180
160
140
120
100
80
60
40
20
0
ppm

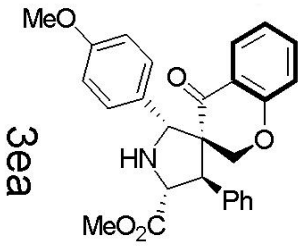

m-Cl-C6H4
O
HN
O
Ph
MeO2C

3ca

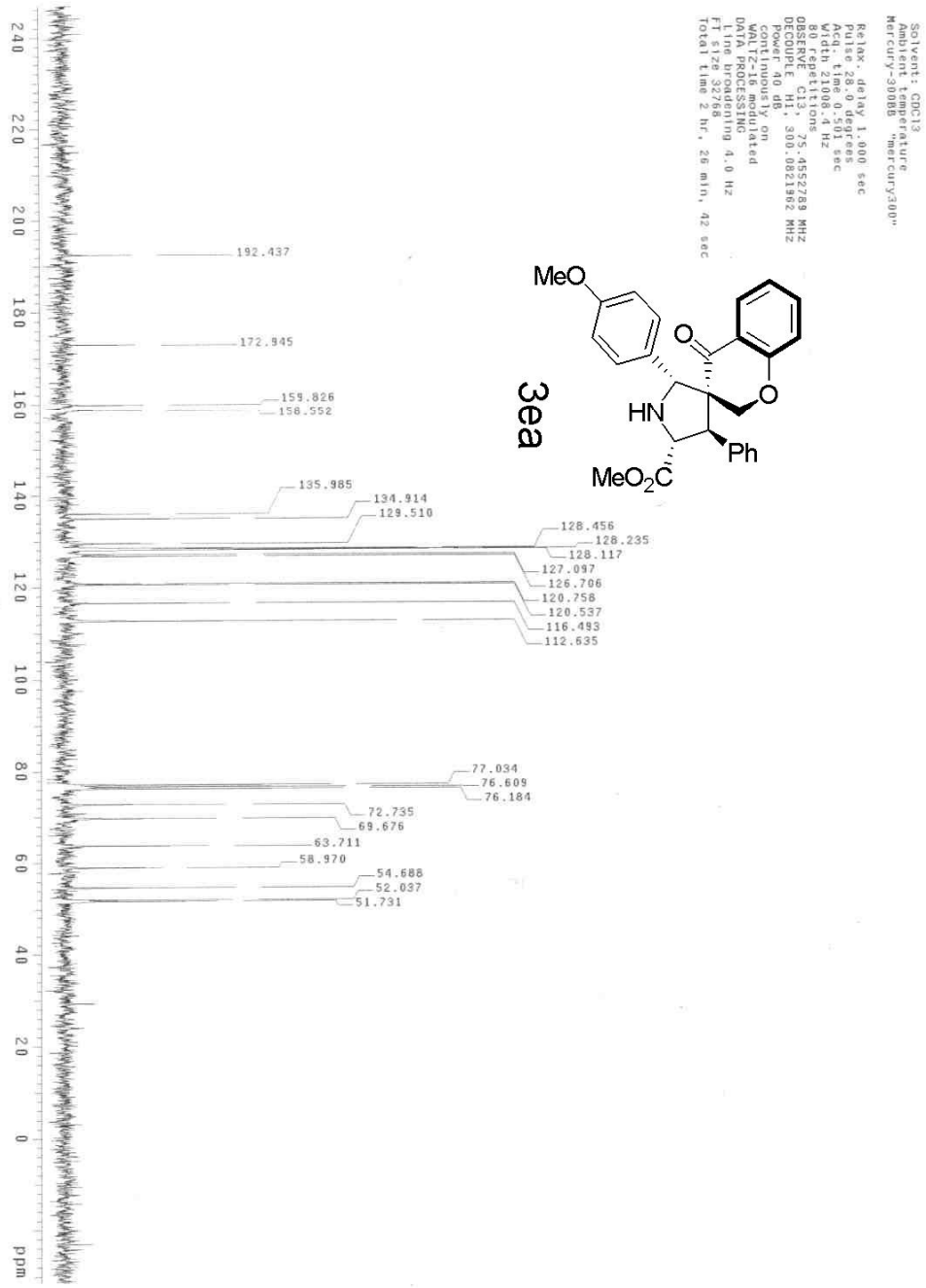

7.449
7.424
7.335
7.323
7.291
7.278
7.258
7.233
7.209
7.179
7.154
7.142
7.002
6.992
6.985
6.741
6.717
6.692
6.646
6.619
4.853
4.555
4.528
4.388
4.361
4.196
4.156
3.851
3.813
3.776
2.903
1.256
5.48
40.84
14.68
9.41
4.77
4.73
5.08
5.32
20.02
5.61
ppm
3da
Ph
O
HN
O
Ph
MeO2C

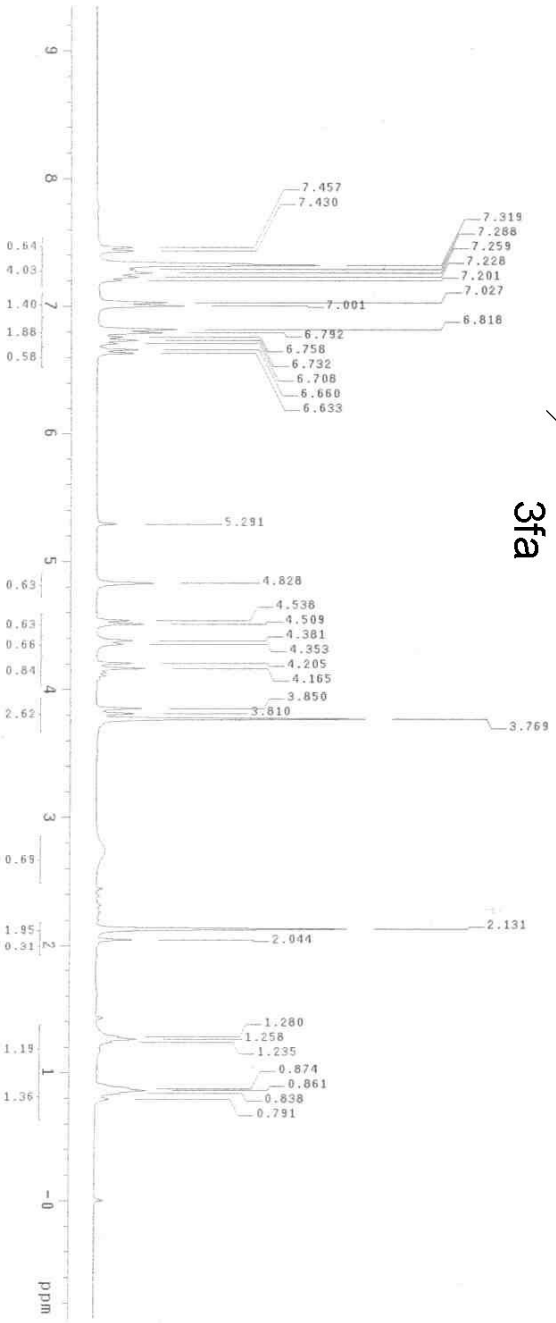

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.501 sec
Width 21008.4 Hz
144 repetitions
OBSERVE C13, 75.455289 MHz
DECOUPLE H1, 300.082192 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 2 hr, 26 min, 42 sec
192.743
173.336
160.302
137.888
136.426
135.373
128.711
128.558
127.794
127.709
127.590
127.131
121.166
120.962
116.935
77.476
77.051
76.626
76.320
73.210
70.763
64.340
59.599
52.495
52.257
240
220
200
180
160
140
120
100
80
60
40
20
0
ppm
3da
Ph
O
HN
O
Ph
MeO2C

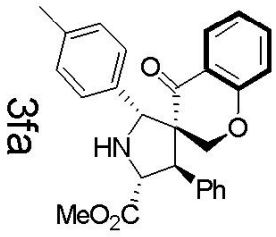

7.501
7.475
7.358
7.345
7.315
7.300
7.284
7.253
7.227
7.103
7.076
6.793
6.767
6.743
6.690
6.663
6.576
6.549
5.314
4.850
4.568
4.539
4.398
4.370
4.217
4.178
3.910
3.867
3.829
3.796
3.665
2.850
2.195
2.071
1.286
0.906
0.883
0.030
4.34
29.06
9.68
4.78
4.10
8.82
4.51
4.36
4.68
5.12
19.17
13.80
4.91
ppm

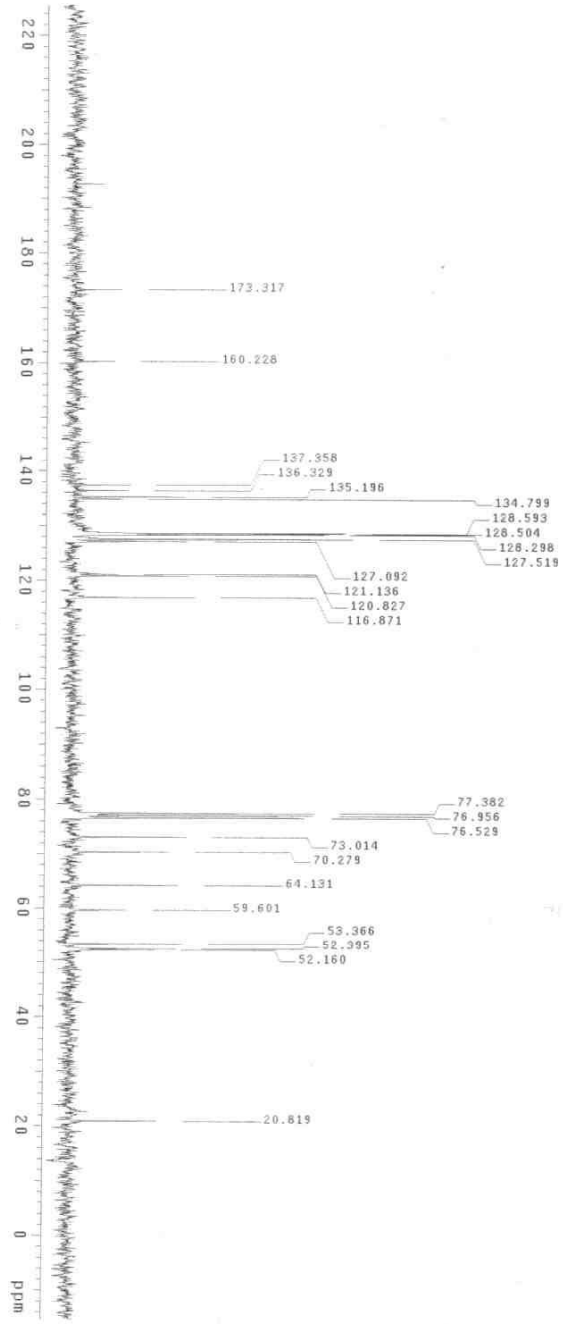

MeO
O
O
HN
Ph
MeO2C

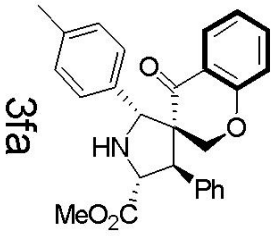
3ea

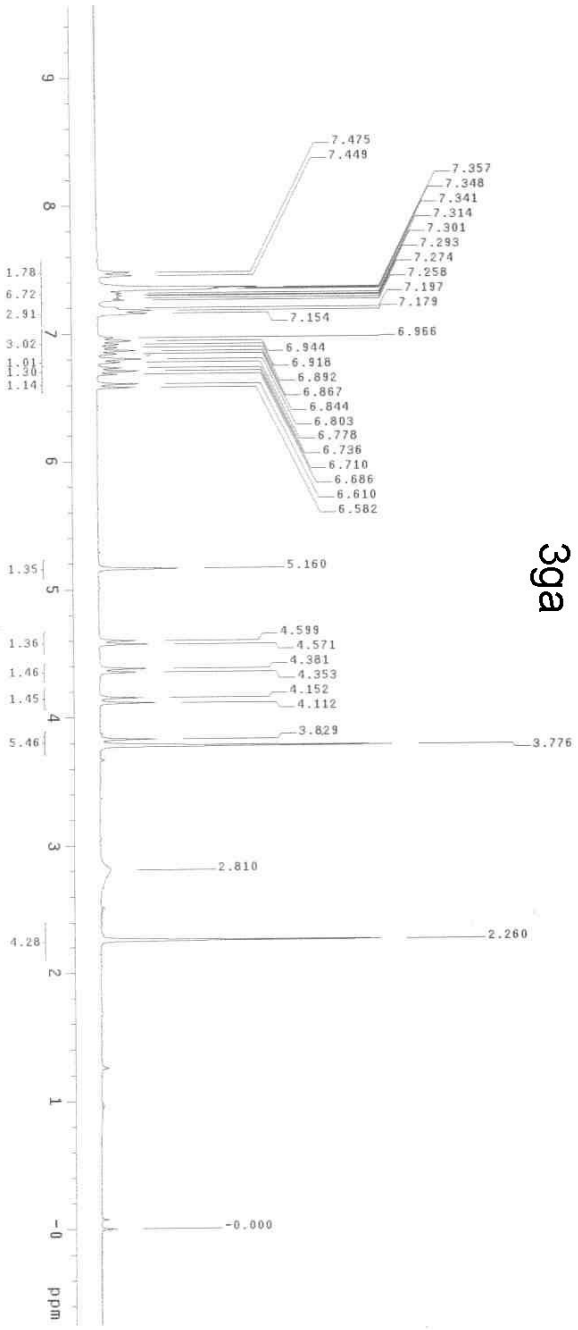

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.501 sec
Width 21008.4 Hz
80 repetitions
OBSERVE C13, 75.4552789 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 2 hr, 26 min, 42 sec
MeO
O
O
HN
Ph
MeO2C
3ea
192.437
172.945
159.826
158.552
135.985
134.914
129.510
128.456
128.235
128.117
127.097
126.706
120.758
120.537
116.493
112.635
77.034
76.609
76.184
72.735
69.676
63.711
58.970
54.688
52.037
51.731
240
220
200
180
160
140
120
100
80
60
40
20
0
ppm

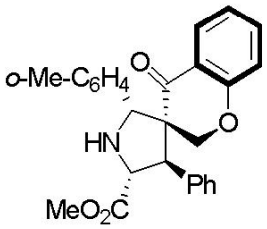

7.457
7.430
7.319
7.288
7.259
7.228
7.201
7.027
7.001
6.818
6.792
6.758
6.732
6.708
6.660
6.633
5.291
4.828
4.538
4.509
4.381
4.353
4.205
4.165
3.850
3.810
3.769
2.131
2.044
1.280
1.258
1.235
0.874
0.861
0.838
0.791
0.64
4.03
1.40
1.88
0.58
0.63
0.63
0.66
0.84
2.62
0.69
1.95
0.31
1.19
1.36
ppm


3fa
O
O
HN
Ph
MeO2C

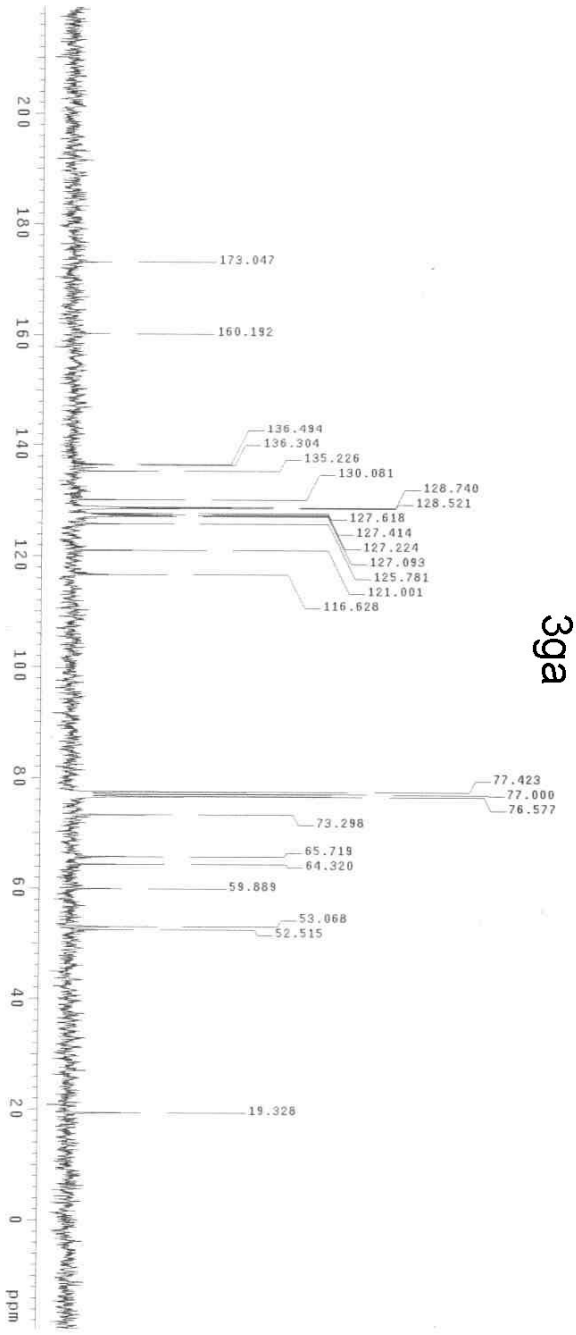

c13-1t1-9-30a
Archive directory: /export/home/wu/vnmrsys/data
Sample directory:
File: CARBON
Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 18115.2 Hz
1524 repetitions
OBSERVE C13, 75.4552871 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 1 hr, 27 min, 30 sec
173.317
160.228
137.358
136.329
135.196
134.799
128.593
128.504
128.298
127.519
127.092
121.136
120.827
116.871
77.382
76.956
76.529
73.014
70.279
64.131
59.601
53.366
52.395
52.160
20.819
220
200
180
160
140
120
100
80
60
40
20
0
ppm

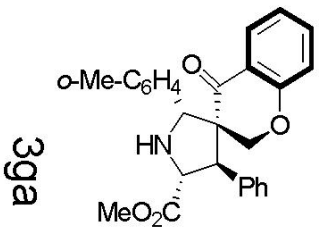

3fa
O
O
HN
Ph
MeO2C


111-11-13a
7.475
7.449
7.357
7.348
7.341
7.314
7.301
7.293
7.274
7.258
7.197
7.179
7.154
6.966
6.944
6.918
6.892
6.867
6.844
6.803
6.778
6.736
6.710
6.686
6.610
6.582
5.160
4.599
4.571
4.381
4.353
4.152
4.112
3.829
3.776
2.810
2.260
-0.000
1.78
6.72
2.91
3.02
1.01
1.20
1.14
1.35
1.36
1.46
1.45
5.46
4.28
ppm

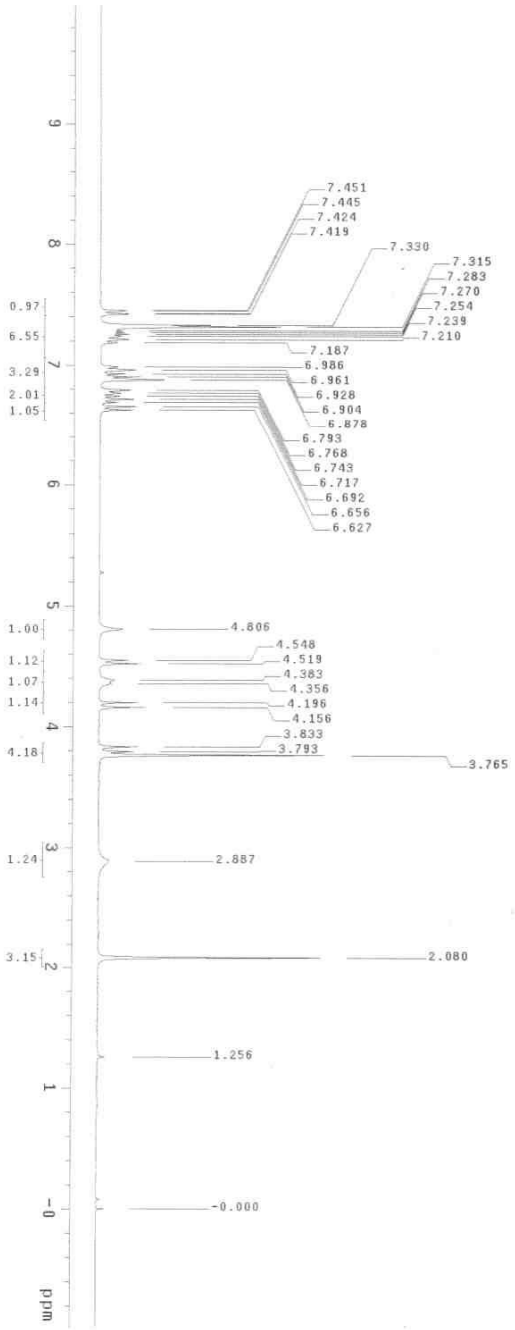

o-Me-C6H4
O
HN
O
Ph
MeO2C

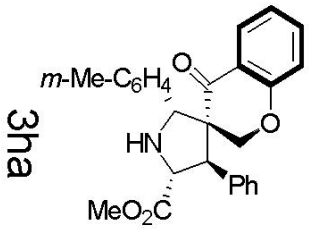
3ga


Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 1.000 sec
Width 18018.0 Hz
192 repetitions
OBSERVE C13, 75.4552853 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 4 hr, 49 min, 35 sec
173.047
160.192
136.494
136.304
135.226
130.081
128.740
128.521
127.618
127.414
127.224
127.093
125.781
121.001
116.628
77.423
77.000
76.577
73.298
65.719
64.320
59.889
53.068
52.515
19.328
200
180
160
140
120
100
80
60
40
20
0
ppm

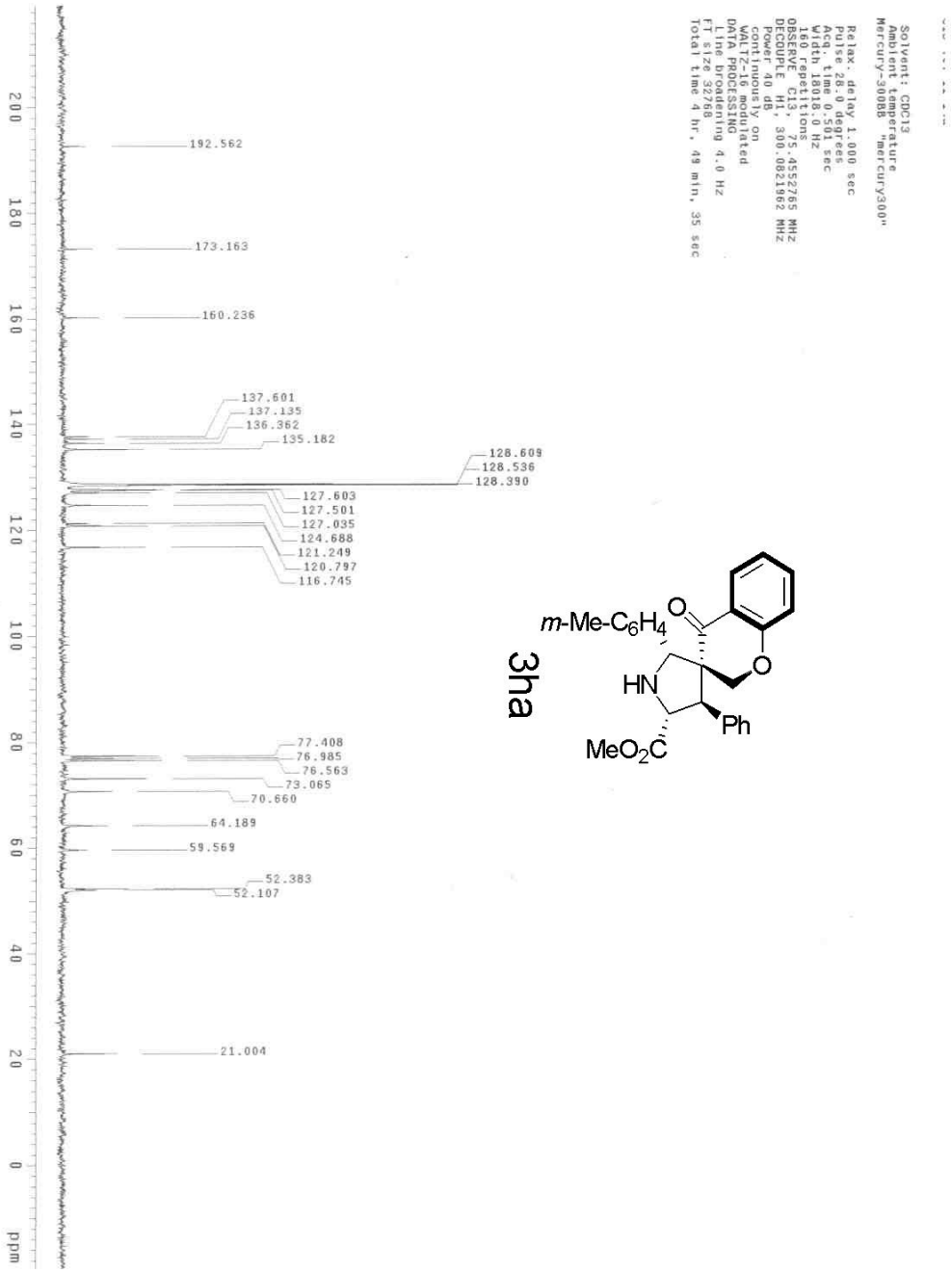

o-Me-C6H4
O
HN
O
Ph
MeO2C

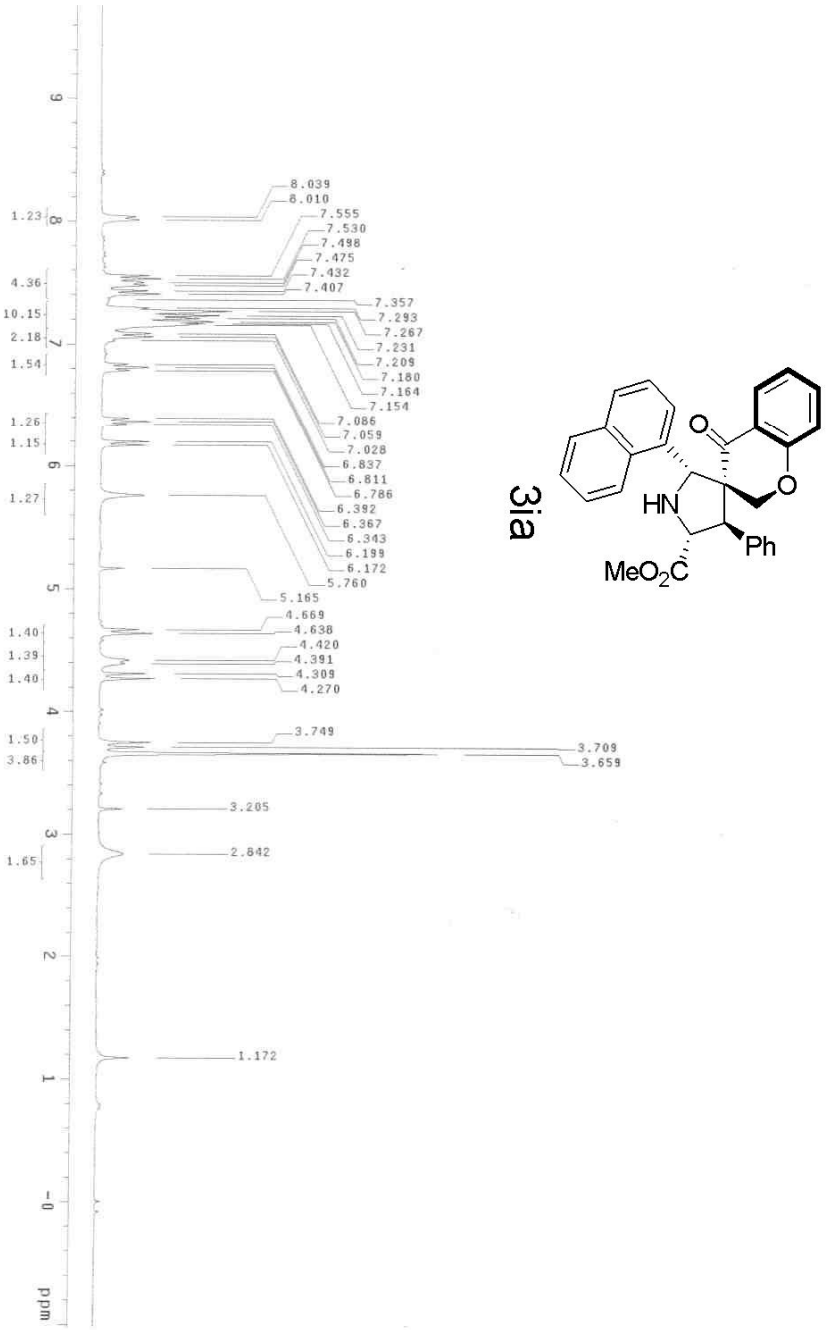
3ga

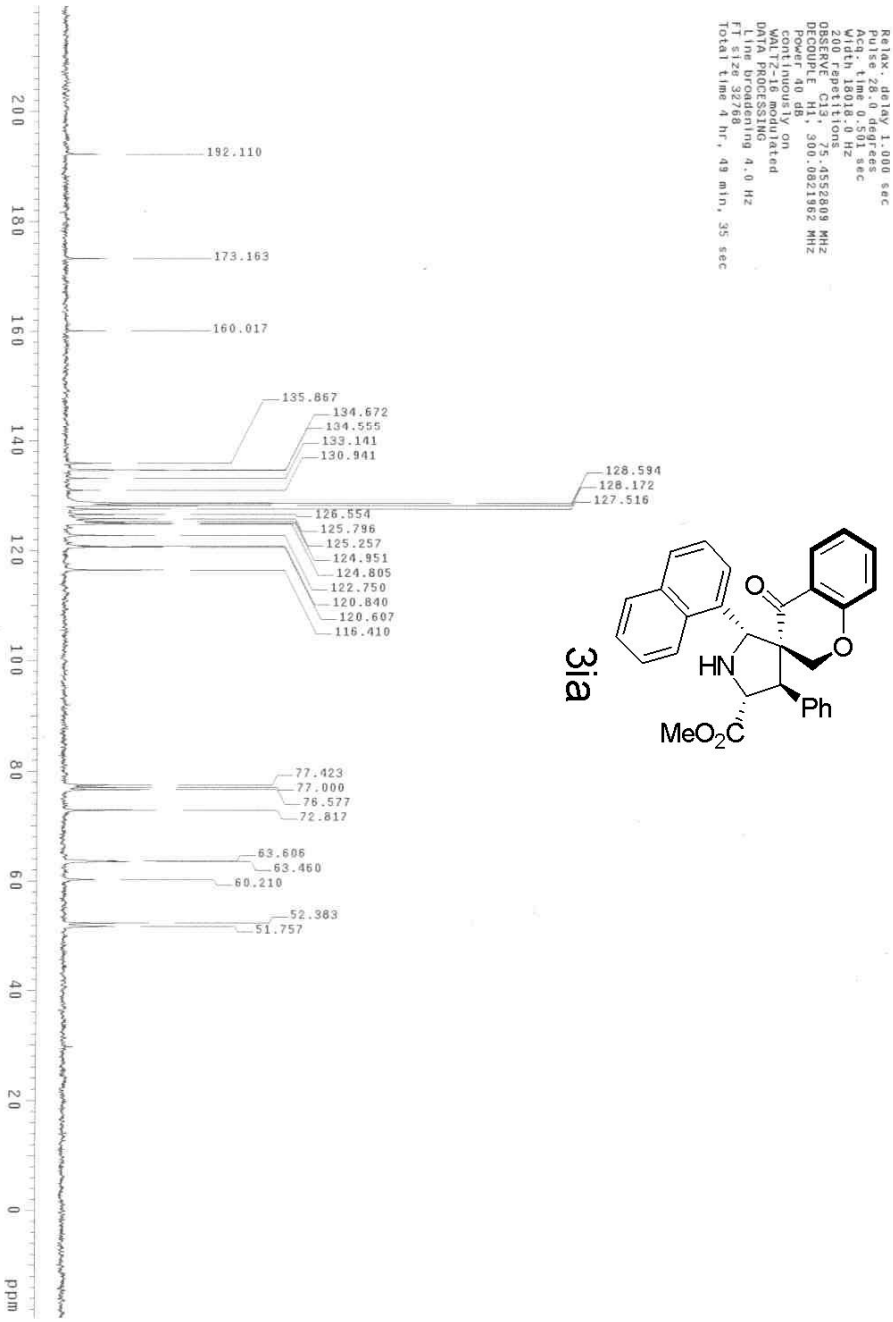

7.451
7.445
7.424
7.419
7.330
7.315
7.283
7.270
7.254
7.239
7.210
7.187
6.986
6.961
6.928
6.904
6.878
6.793
6.768
6.743
6.717
6.692
6.656
6.627
4.806
4.548
4.519
4.383
4.356
4.196
4.156
3.833
3.793
3.765
2.887
2.080
1.256
-0.000
0.97
6.55
3.29
2.01
1.05
1.00
1.12
1.07
1.14
4.18
1.24
3.15
ppm

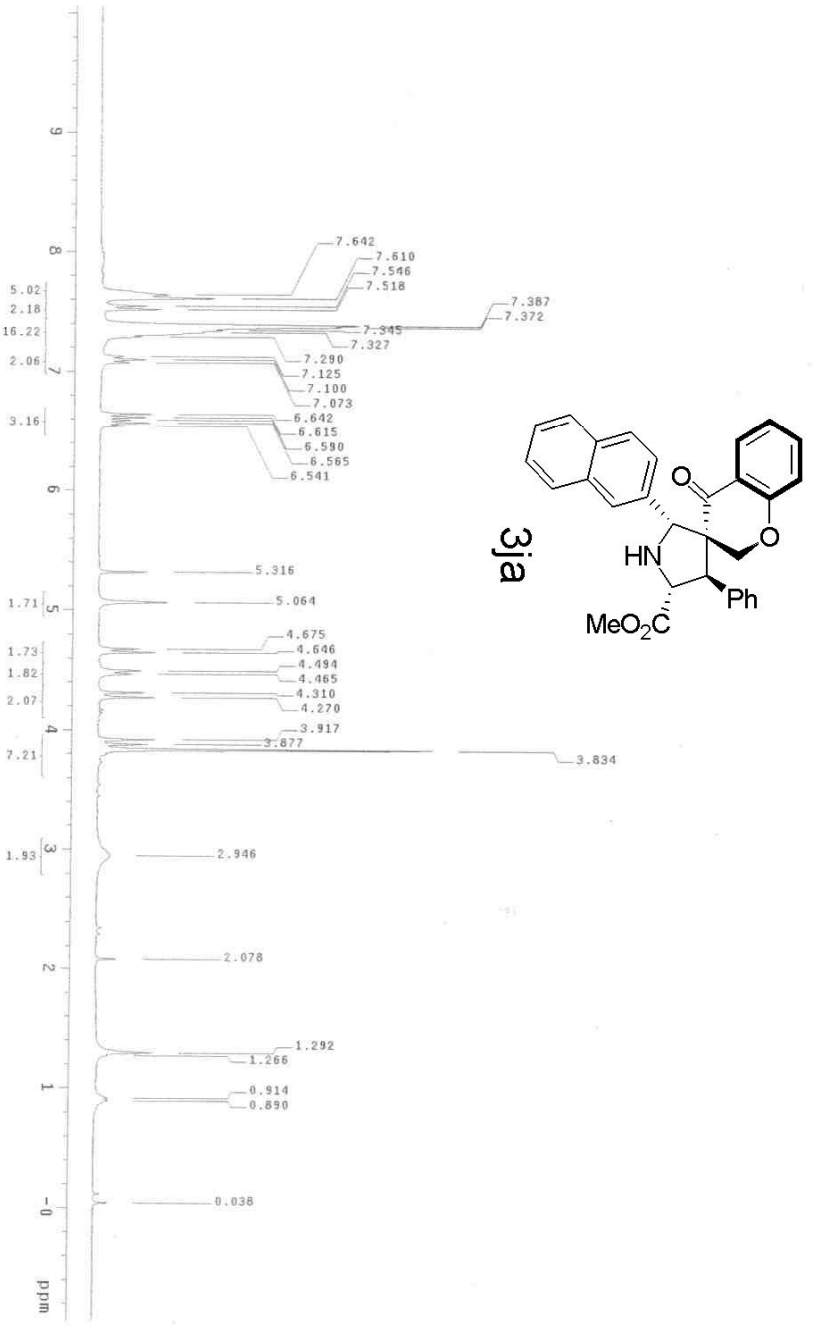

m-Me-C6H4
O
HN
O
Ph
MeO2C

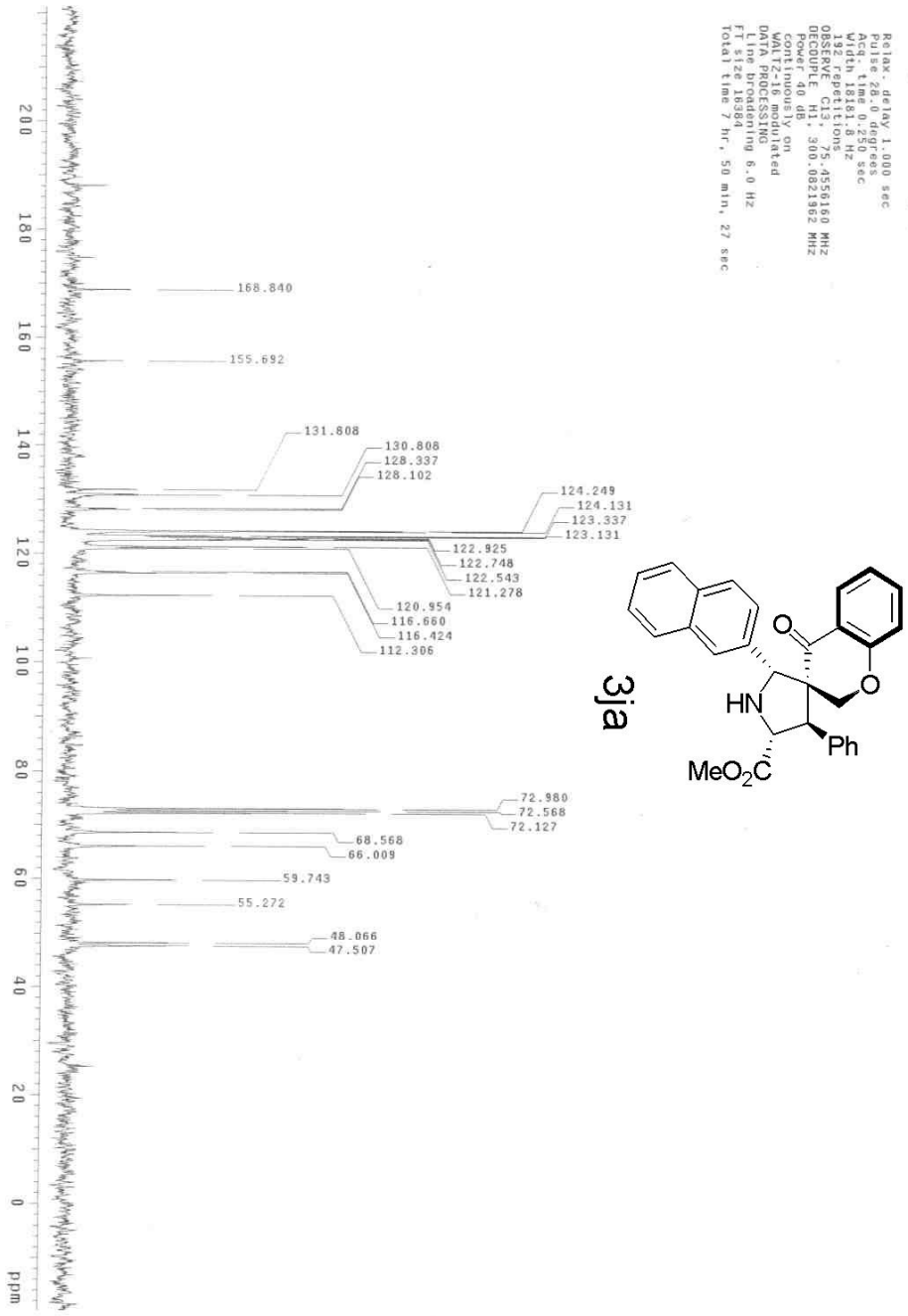
3ha

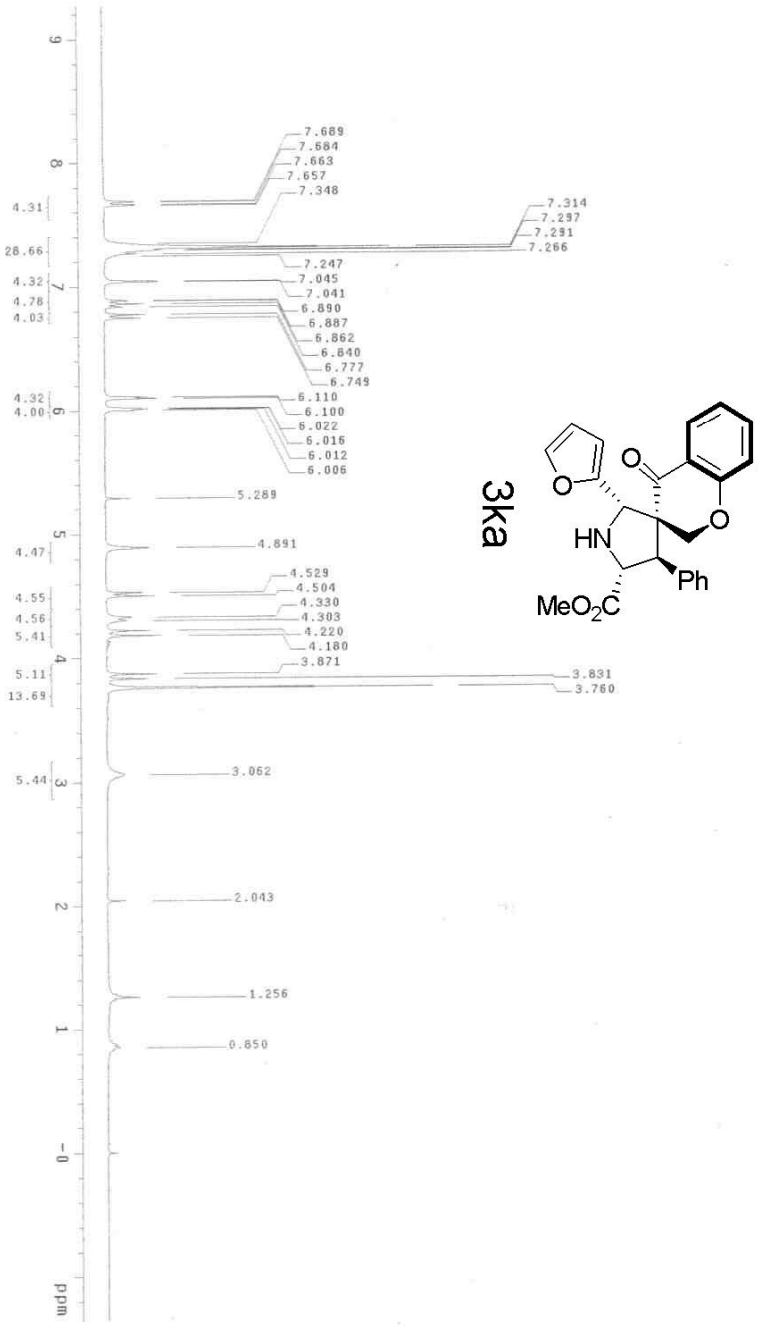

Solvent: CDCl3
Ambient temperature
Mercury-300B "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.501 sec
Width 18018.0 Hz
160 repetitions
OBSERVE C13, 75.4552765 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 4 hr, 49 min, 35 sec
192.562
173.163
160.236
137.601
137.135
136.362
135.182
128.609
128.536
128.390
127.603
127.501
127.035
124.688
121.249
120.797
116.745
77.408
76.985
76.563
73.065
70.660
64.189
59.569
52.383
52.107
21.004
200
180
160
140
120
100
80
60
40
20
0
ppm
3ha
m-Me-C6H4
O
HN
O
Ph
MeO2C

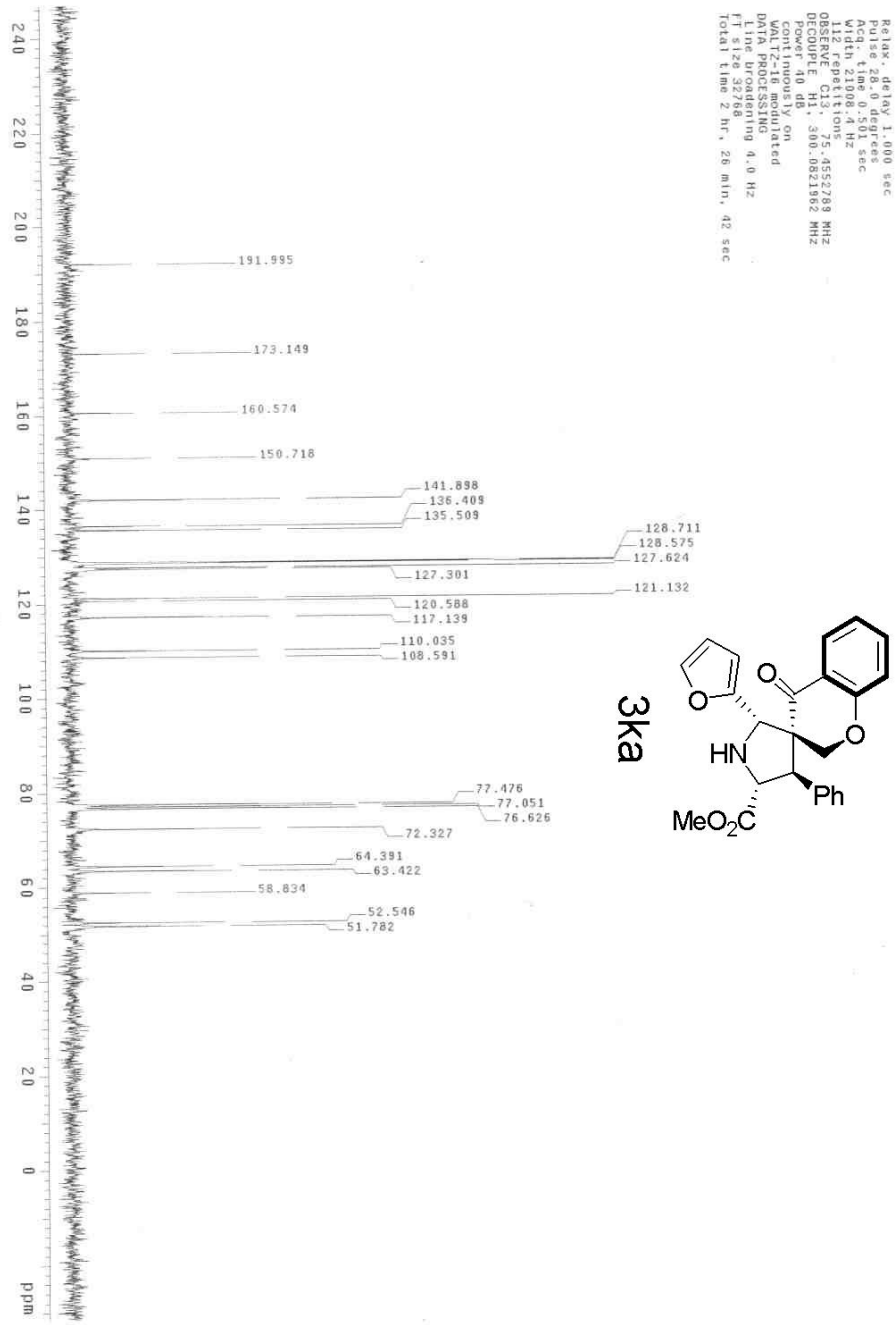

8.039
8.010
7.555
7.530
7.498
7.475
7.432
7.407
7.357
7.293
7.267
7.231
7.209
7.180
7.164
7.154
7.086
7.059
7.028
6.837
6.811
6.786
6.392
6.367
6.343
6.199
6.172
5.760
5.165
4.669
4.638
4.420
4.391
4.309
4.270
3.749
3.709
3.659
3.205
2.842
1.172
1.23
4.36
10.15
2.18
1.54
1.26
1.15
1.27
1.40
1.39
1.40
1.50
3.86
1.65
ppm
3ia
HN
O
O
Ph
MeO2C

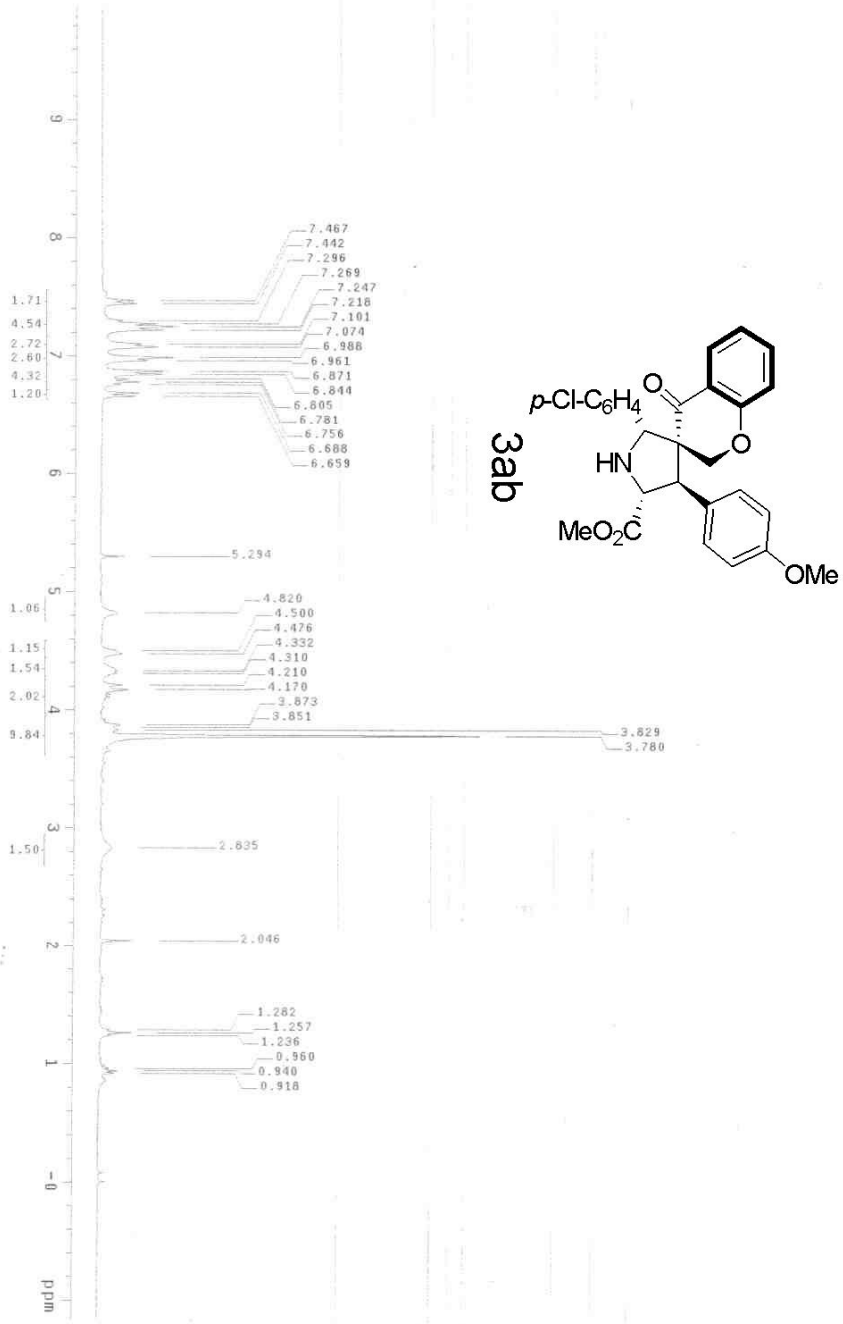

192.110
173.163
160.017
135.867
134.672
134.555
133.141
130.941
128.594
128.172
127.516
126.554
125.796
125.257
124.951
124.805
122.750
120.840
120.607
116.410
77.423
77.000
76.577
72.817
63.606
63.460
60.210
52.383
51.757
ppm
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.911 sec
Width 18018.0 Hz
200 repetitions
OBSERVE C13, 75.4552809 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 4 hr, 49 min, 35 sec
3ia
HN
O
O
Ph
MeO2C

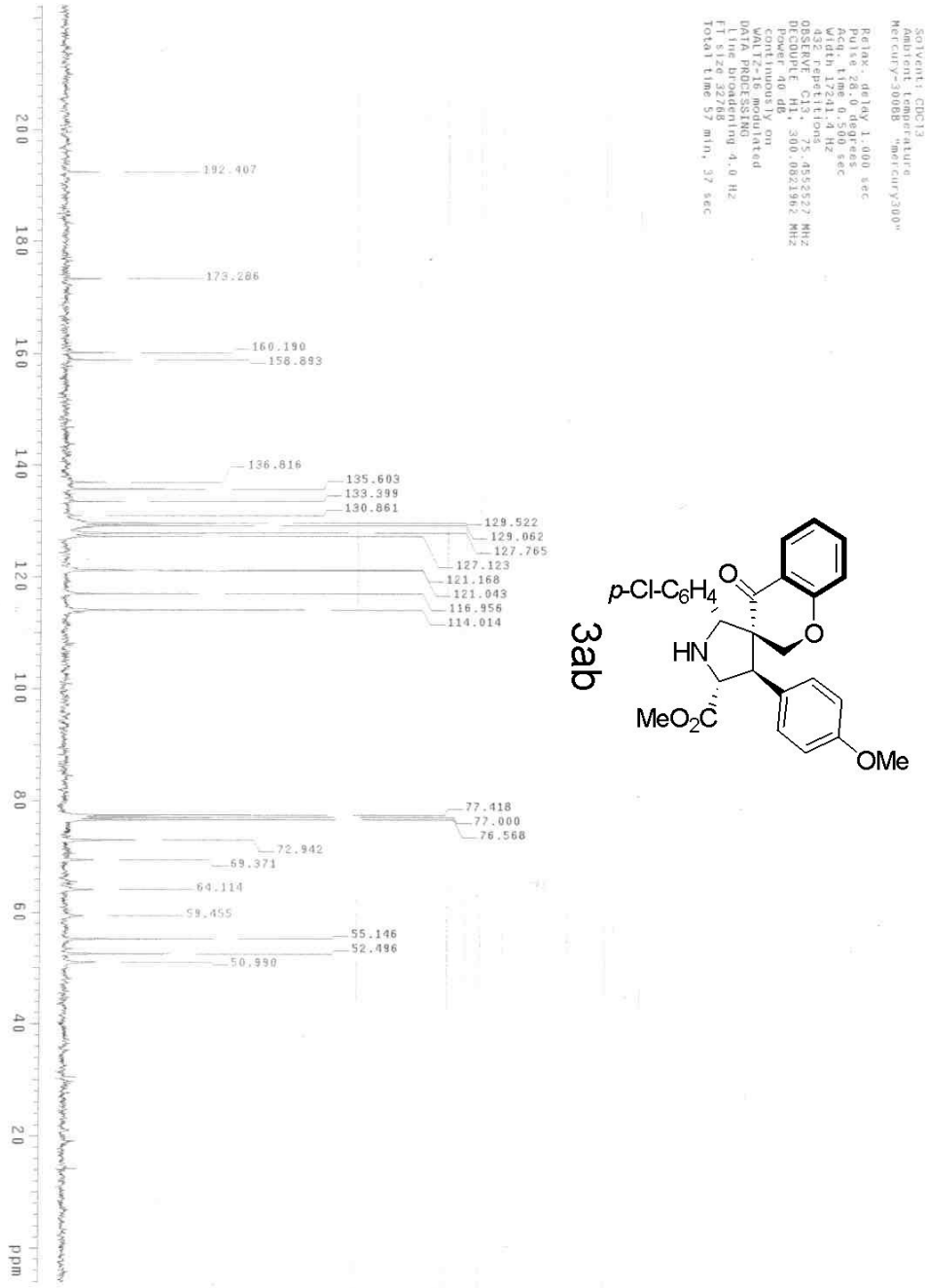

7.642
7.610
7.546
7.518
7.387
7.372
7.345
7.327
7.290
7.125
7.100
7.073
6.642
6.615
6.590
6.565
6.541
5.316
5.064
4.675
4.646
4.494
4.465
4.310
4.270
3.917
3.877
3.834
2.946
2.078
1.292
1.266
0.914
0.890
0.038
5.02
2.18
16.22
2.06
3.16
1.71
1.73
1.82
2.07
7.21
1.93
ppm
3ja
HN
O
O
Ph
MeO2C

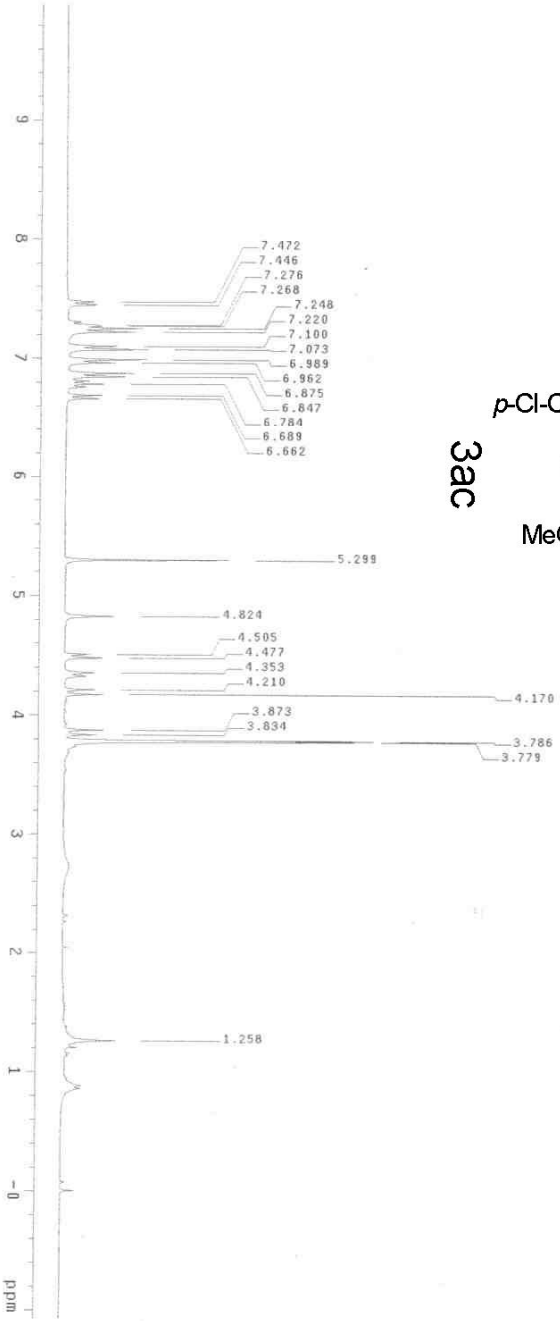

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 1.000 sec
Width 18818.8 Hz
192 repetitions
OBSERVE C13, 75.4556160 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 6.0 Hz
FT size 16384
Total time 7 hr, 50 min, 27 sec
168.840
155.692
131.808
130.808
128.337
128.102
124.249
124.131
123.337
123.131
122.925
122.748
122.543
121.278
120.954
116.660
116.424
112.306
72.980
72.568
72.127
68.568
66.009
59.743
55.272
48.066
47.507
200
180
160
140
120
100
80
60
40
20
0
ppm
3ja
O
O
HN
Ph
MeO2C

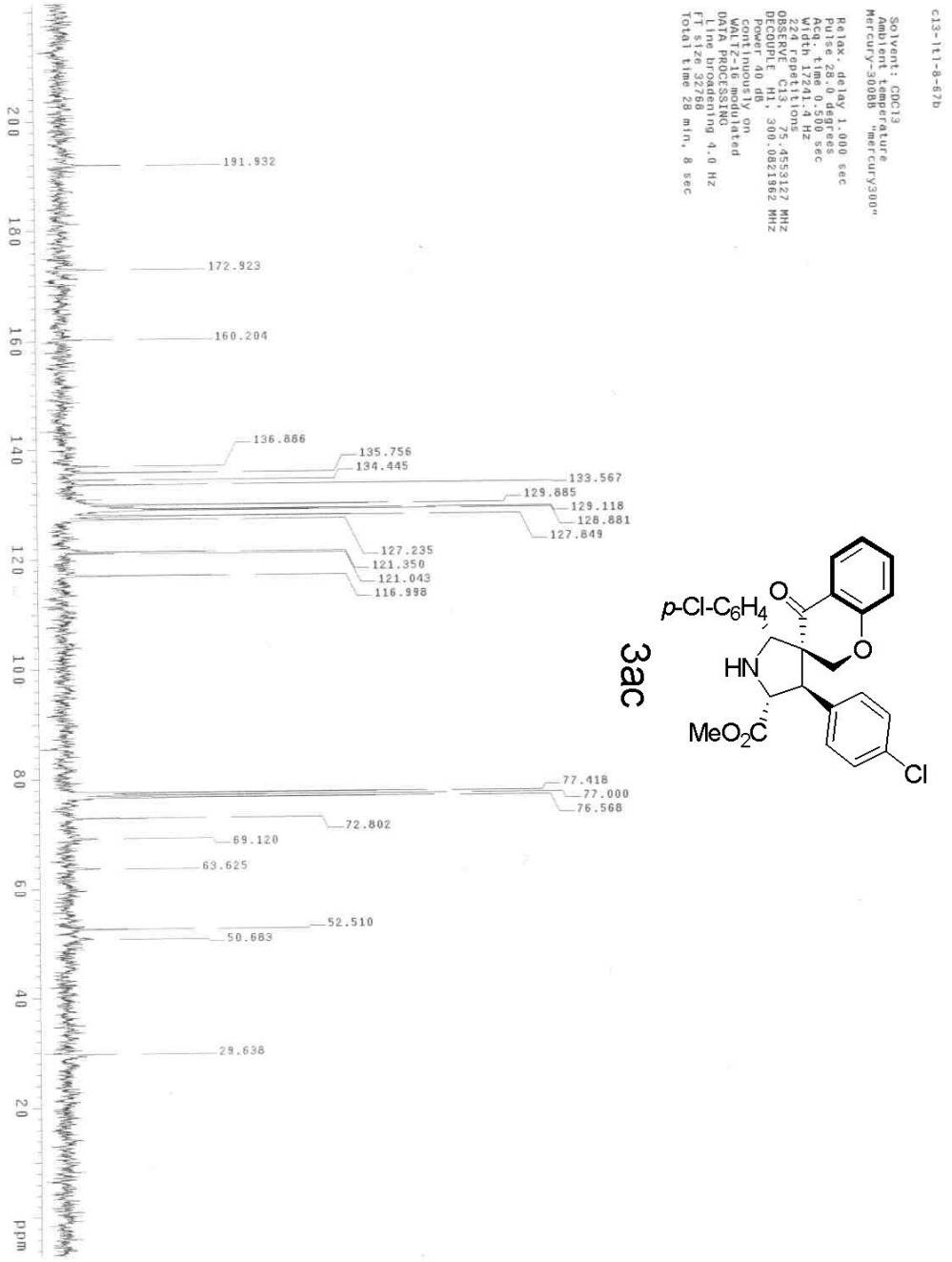

7.689
7.684
7.663
7.657
7.348
7.314
7.297
7.281
7.266
7.247
7.045
7.041
6.890
6.887
6.862
6.840
6.777
6.749
6.110
6.100
6.022
6.016
6.012
6.006
5.289
4.891
4.529
4.504
4.330
4.303
4.220
4.180
3.871
3.831
3.760
3.062
2.043
1.256
0.850
4.31
28.66
4.32
4.78
4.03
4.32
4.00
4.47
4.55
4.56
5.41
5.11
13.69
5.44
ppm
3ka
HN
Ph
MeO2C

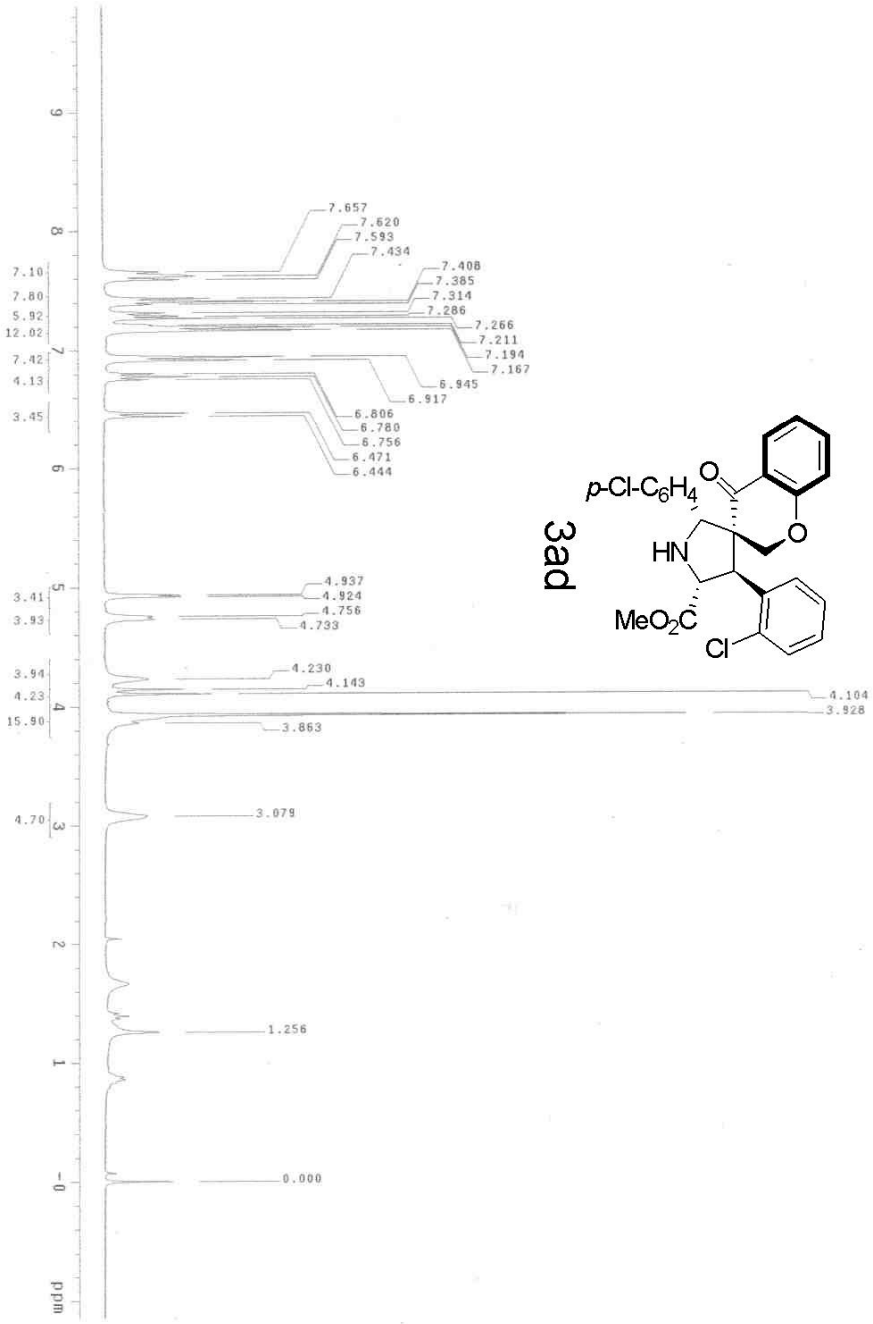

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.501 sec
Width 21008.4 Hz
112 repetitions
OBSERVE C13, 75.4552789 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 2 hr, 26 min, 42 sec
191.995
173.149
160.574
150.718
141.898
136.409
135.509
128.711
128.575
127.624
127.301
121.132
120.588
117.139
110.035
108.591
77.476
77.051
76.626
72.327
64.391
63.422
58.834
52.546
51.782
240
220
200
180
160
140
120
100
80
60
40
20
0
ppm
3ka
O
O
HN
O
Ph
MeO2C

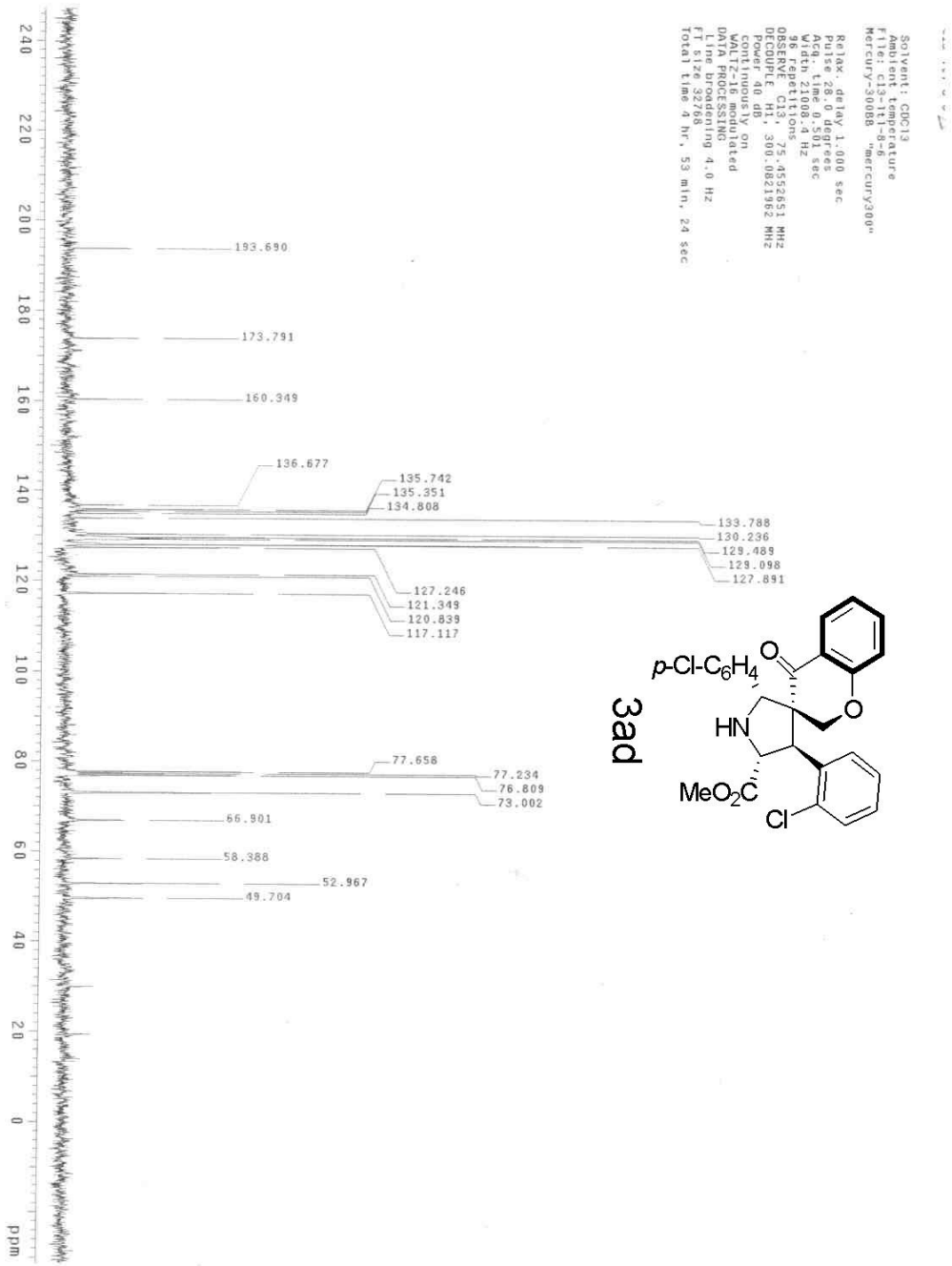

7.467
7.442
7.296
7.269
7.247
7.218
7.101
7.074
6.988
6.961
6.871
6.844
6.805
6.781
6.756
6.688
6.659
5.294
4.820
4.500
4.476
4.332
4.310
4.210
4.170
3.873
3.851
3.829
3.780
2.635
2.046
1.282
1.257
1.236
0.960
0.940
0.918
1.71
4.54
2.72
2.60
4.32
1.20
1.06
1.15
1.54
2.02
9.84
1.50
ppm
p-Cl-C6H4
HN
MeO2C
OMe
3ab

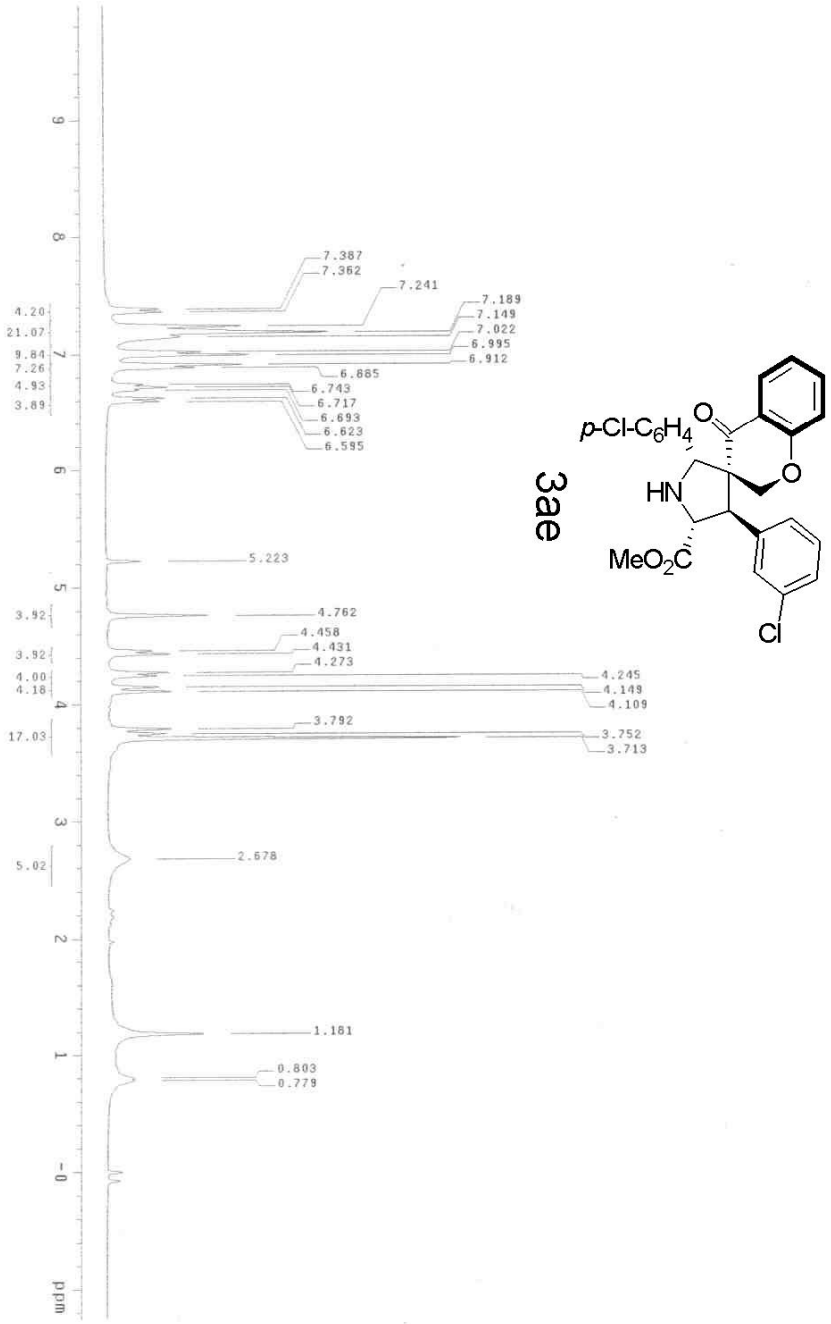

c13-jtl-8-64a
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 12241.6 Hz
432 repetitions
OBSERVE C13, 75.4552527 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 57 min, 37 sec
192.407
173.286
160.190
158.893
136.816
135.603
133.399
130.861
129.522
129.062
127.765
127.123
121.168
121.043
116.956
114.014
77.418
77.000
76.568
72.942
69.371
64.114
59.455
55.146
52.496
50.990
200
180
160
140
120
100
80
60
40
20
ppm
3ab
p-Cl-C6H4
O
HN
O
MeO2C
OMe

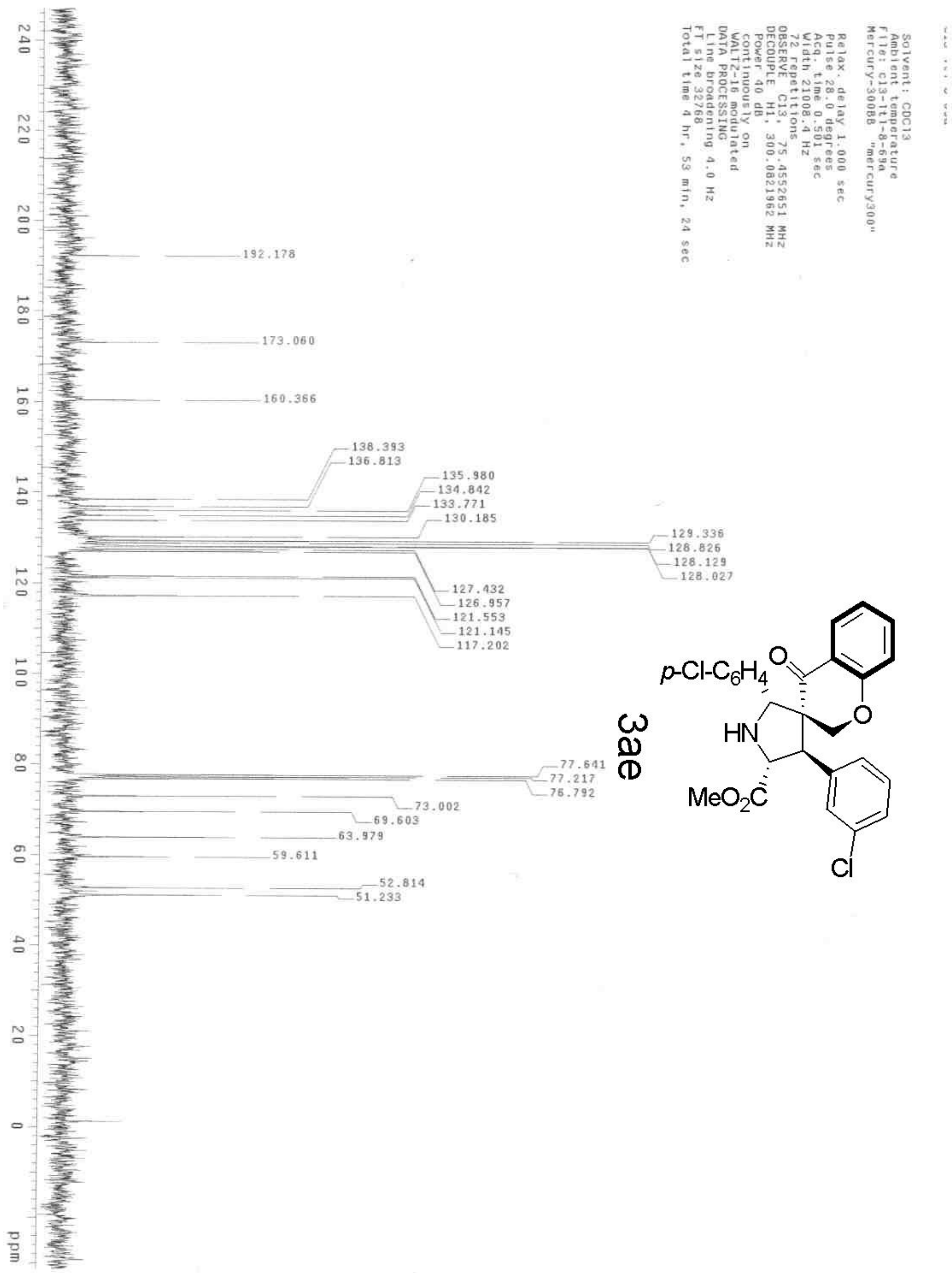

7.472
7.446
7.276
7.268
7.248
7.220
7.100
7.073
6.989
6.962
6.875
6.847
6.784
6.689
6.662
5.299
4.824
4.505
4.477
4.353
4.210
4.170
3.873
3.834
3.786
3.779
1.258
ppm
3ac
p-Cl-C6H4
O
HN
O
MeO2C
Cl


c13-1t1-8-67b
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 17241.4 Hz
22 repetitions
OBSERVE C13, 75.4553127 MHz
DECOUPLE H1, 300.0821862 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 28 min, 8 sec
191.932
172.923
160.204
136.886
135.756
134.445
133.567
129.885
129.118
128.881
127.849
127.235
121.350
121.043
116.998
77.418
77.000
76.568
72.802
69.120
63.625
52.510
50.683
29.638
200
180
160
140
120
100
80
60
40
20
ppm
3ac
p-Cl-C6H4
O
HN
O
MeO2C
Cl

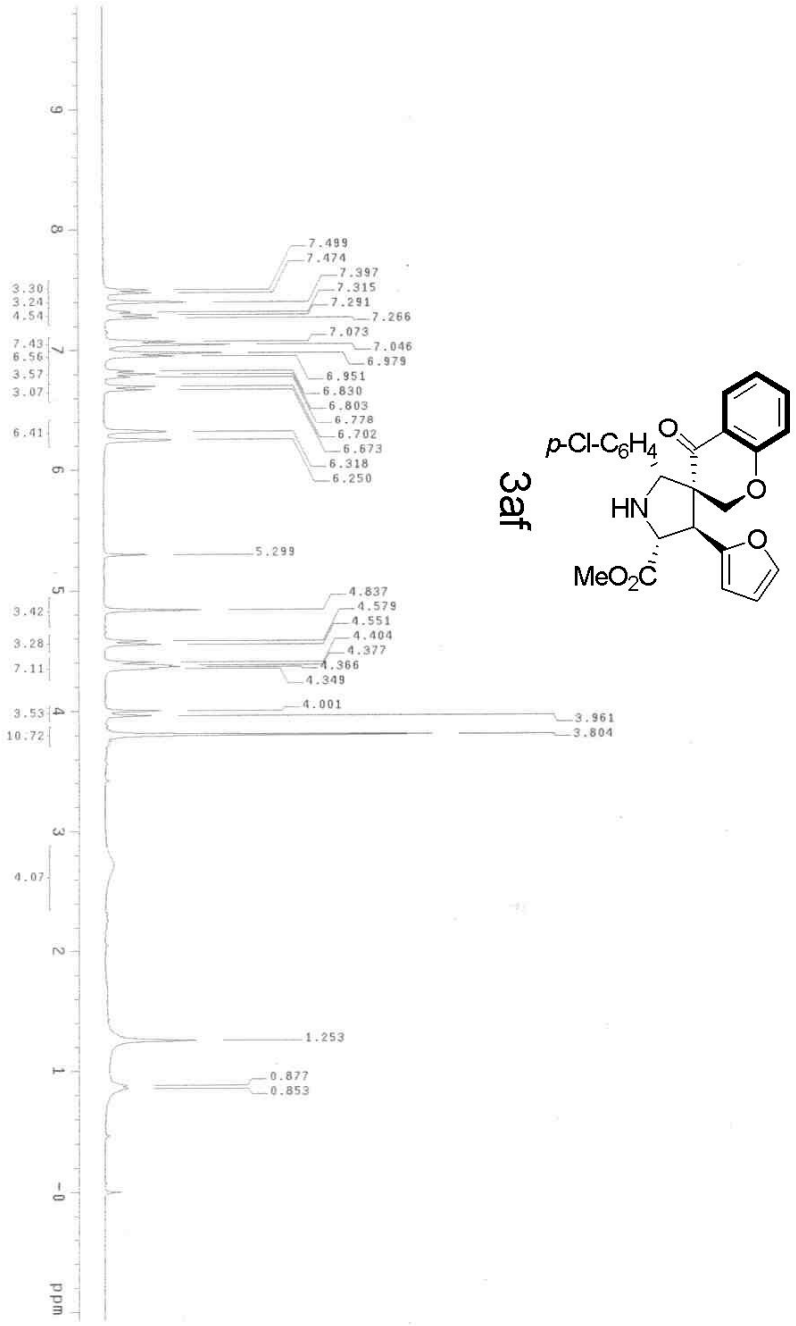

7.657
7.620
7.593
7.434
7.408
7.385
7.314
7.286
7.266
7.211
7.194
7.167
6.945
6.917
6.806
6.780
6.756
6.471
6.444
4.937
4.924
4.756
4.733
4.230
4.143
4.104
3.928
3.863
3.079
1.256
0.000
7.10
7.80
5.92
12.02
7.42
4.13
3.45
3.41
3.93
3.94
4.23
15.90
4.70
ppm
3ad
p-Cl-C6H4
HN
MeO2C
Cl

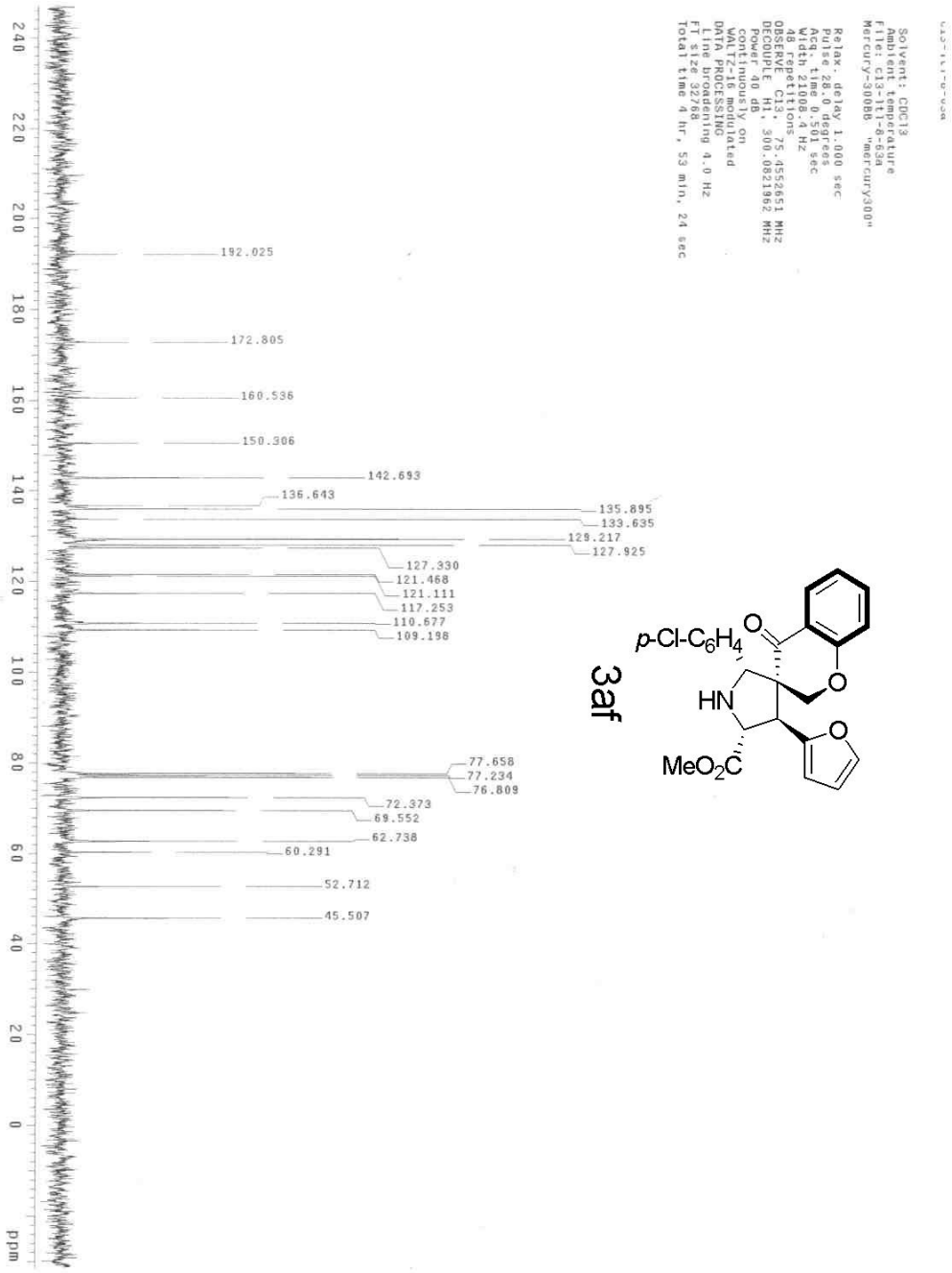

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.501 sec
Width 21008.4 Hz
96 repetitions
OBSERVE C13, 75.4552651 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 4 hr, 53 min, 24 sec
193.690
173.791
160.349
136.677
135.742
135.351
134.808
133.788
130.236
129.489
129.098
127.891
127.246
121.349
120.839
117.117
77.658
77.234
76.809
73.002
66.901
58.388
52.967
49.704
ppm
3ad
p-Cl-C6H4
HN
MeO2C
Cl

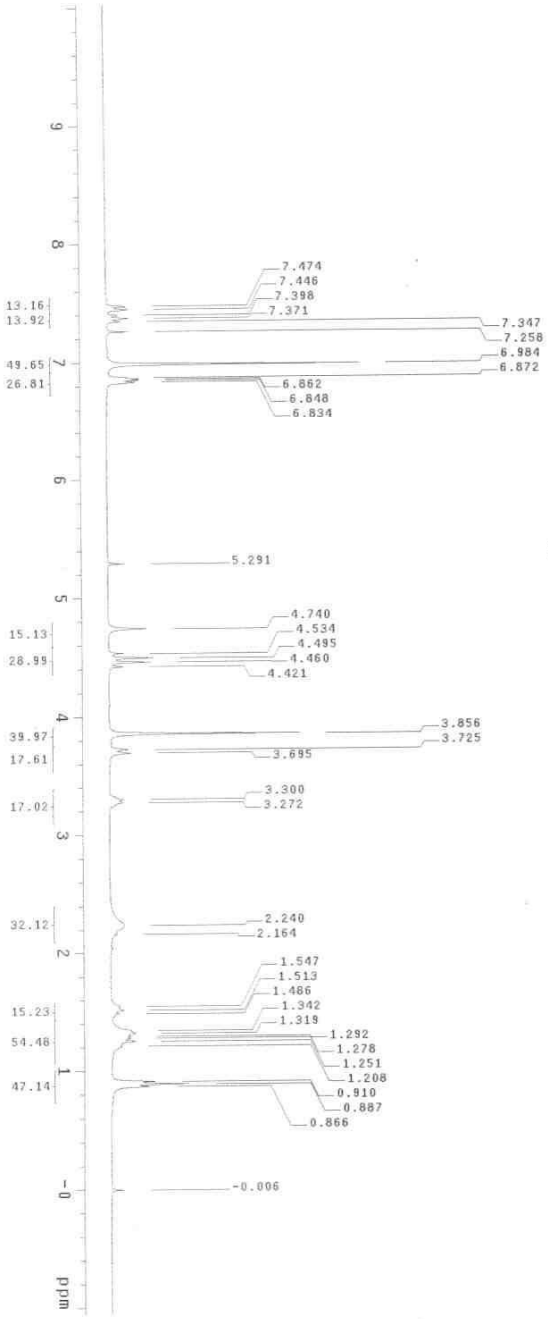

7.387
7.362
7.241
7.189
7.149
7.022
6.995
6.912
6.885
6.743
6.717
6.693
6.623
6.585
5.223
4.762
4.458
4.431
4.273
4.245
4.149
4.109
3.792
3.752
3.713
2.678
1.181
0.803
0.779
4.20
21.07
9.84
7.26
4.93
3.89
3.92
3.92
4.00
4.18
17.03
5.02
ppm
3ae
p-Cl-C6H4
O
HN
MeO2C
Cl

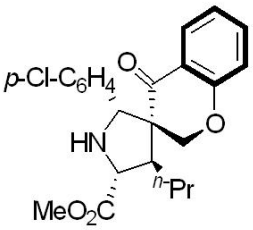

192.178
173.060
160.366
138.393
136.813
135.980
134.842
133.771
130.185
129.336
128.826
128.129
128.027
127.432
126.957
121.553
121.145
117.202
77.641
77.217
76.792
73.002
69.603
63.979
59.611
52.814
51.233
ppm
p-Cl-C6H4
O
HN
MeO2C
Cl

3ae

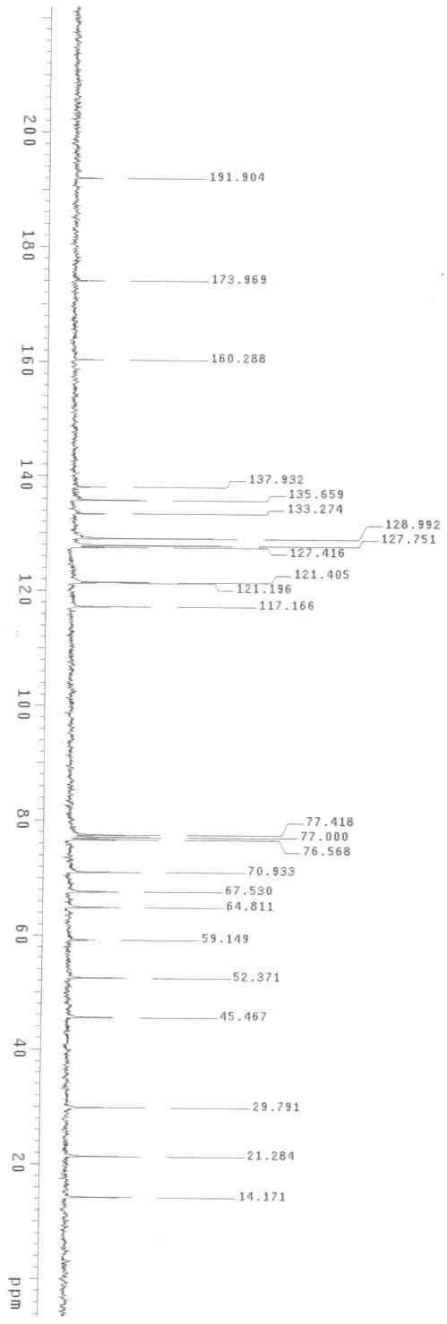

ttl-8-634-1
7.499
7.474
7.397
7.315
7.291
7.266
7.073
7.046
6.979
6.951
6.830
6.803
6.778
6.702
6.673
6.318
6.250
5.299
4.837
4.579
4.551
4.404
4.377
4.366
4.349
4.001
3.961
3.804
1.253
0.877
0.853
3.30
3.24
4.54
7.43
6.56
3.57
3.07
6.41
3.42
3.28
7.11
3.53
10.72
4.07
ppm
3af
p-Cl-C6H4
HN
MeO2C


192.025
172.805
160.536
150.306
142.693
136.643
135.895
133.635
129.217
127.925
127.330
121.468
121.111
117.253
110.677
109.198
77.658
77.234
76.809
72.373
69.552
62.738
60.291
52.712
45.507
ppm
3af
p-Cl-C6H4
HN
MeO2C


7.474
7.446
7.398
7.371
7.347
7.258
6.984
6.872
6.862
6.848
6.834
5.291
4.740
4.534
4.495
4.460
4.421
3.856
3.725
3.695
3.300
3.272
2.240
2.164
1.547
1.513
1.486
1.342
1.319
1.292
1.278
1.251
1.208
0.910
0.887
0.866
-0.006
13.16
13.92
49.65
26.81
15.13
28.99
39.97
17.61
17.02
32.12
15.23
54.48
47.14
ppm


p-Cl-C6H4
O
HN
O
n-Pr
MeO2C

3ag

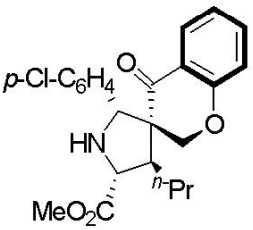


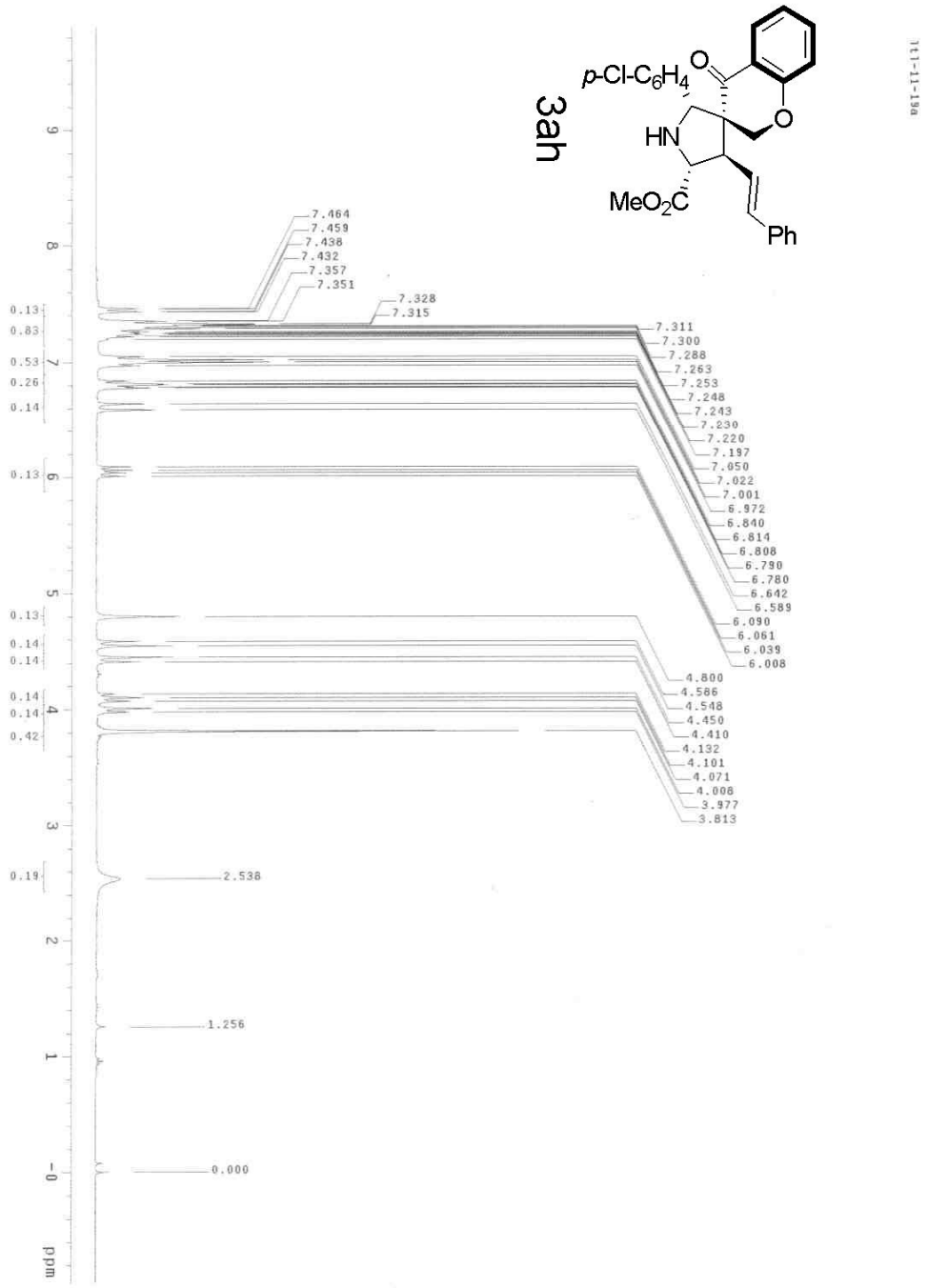
c13-tt1-11-29a

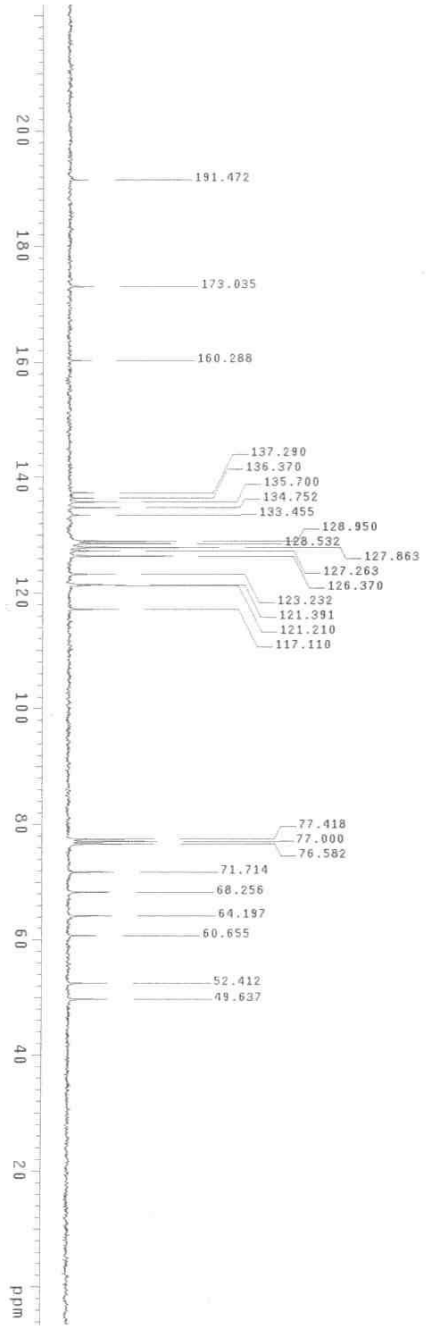
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"

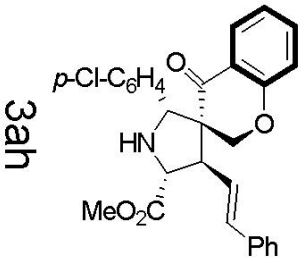
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.501 sec
Width 17241.4 Hz
2000 repetitions
OBSERVE C13, 75.4552791 MHz
DECOUPLE H1, 300.0821982 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 2 hr, 24 min, 8 sec

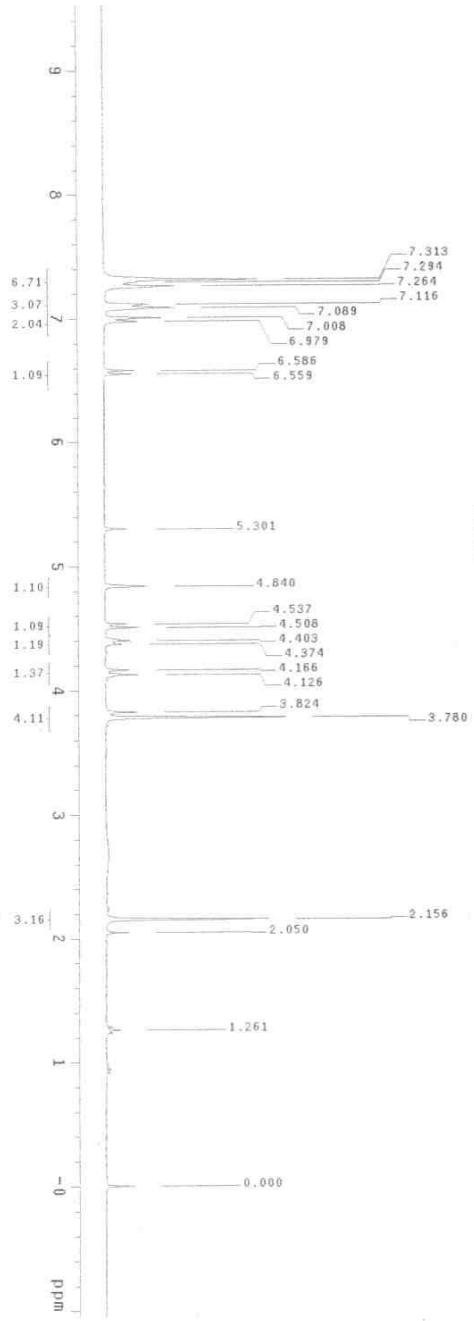
3ag

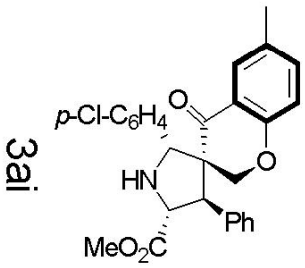


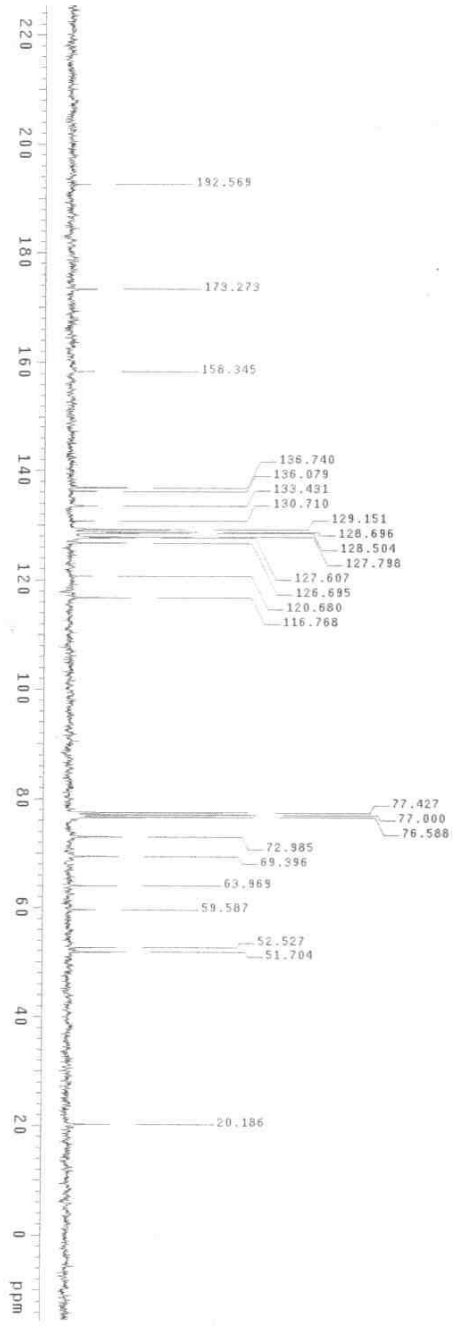

3ah
p-Cl-C6H4
HN
MeO2C
Ph
ttt-11-19a
7.464
7.459
7.438
7.432
7.357
7.351
7.328
7.315
7.311
7.300
7.288
7.263
7.253
7.248
7.243
7.230
7.220
7.197
7.050
7.022
7.001
6.972
6.840
6.814
6.808
6.790
6.780
6.642
6.589
6.090
6.061
6.039
6.008
4.800
4.586
4.548
4.450
4.410
4.132
4.101
4.071
4.006
3.977
3.813
2.538
1.256
0.000
ppm


191.472
173.035
160.288
137.290
136.370
135.700
134.752
133.455
128.950
128.532
127.863
127.263
126.370
123.232
121.391
121.210
117.110
77.418
77.000
76.582
71.714
68.256
64.197
60.655
52.412
49.637
200
180
160
140
120
100
80
60
40
20
ppm

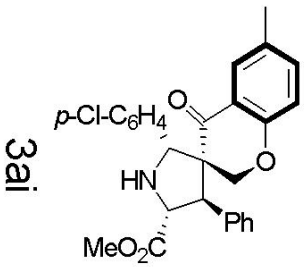

3ah
p-Cl-C6H4
O
HN
O
MeO2C
Ph

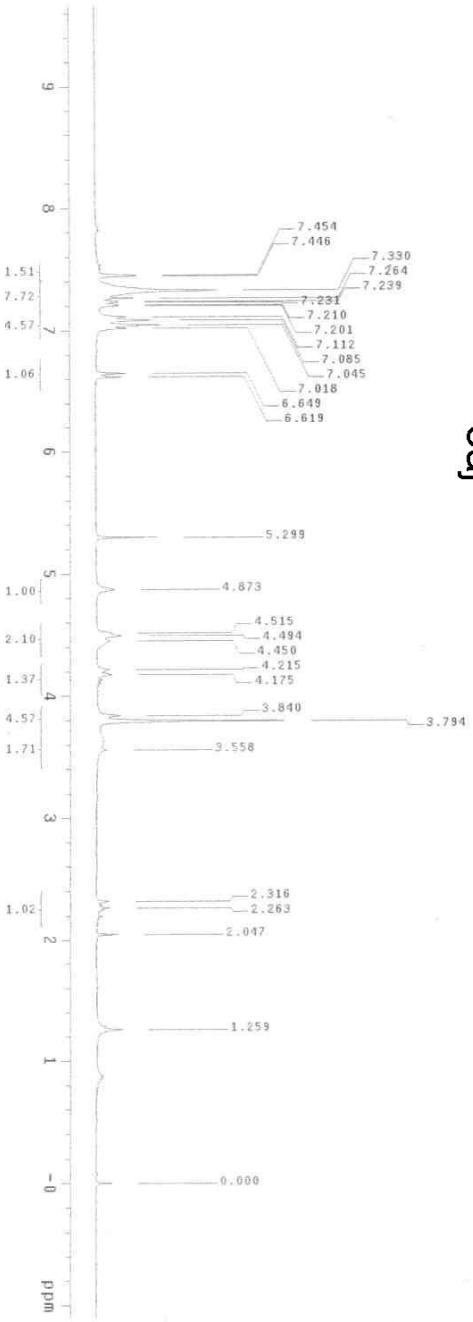

ttl-9-39a
Archive directory: /export/home/wu/vnmrsys/data
Sample directory:
File: PROTON
Pulse Sequence: s2pul
7.313
7.294
7.264
7.116
7.089
7.008
6.979
6.586
6.559
5.301
4.840
4.537
4.508
4.403
4.374
4.166
4.126
3.824
3.780
2.156
2.050
1.261
0.000
6.71
3.07
2.04
1.09
1.10
1.09
1.19
1.37
4.11
3.16
ppm


3ai
p-Cl-C6H4
O
HN
O
Ph
MeO2C

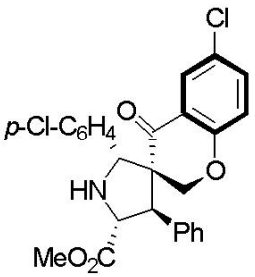

192.569
173.273
158.345
136.740
136.079
133.431
130.710
129.151
128.696
128.504
127.798
127.607
126.695
120.680
116.768
77.427
77.000
76.588
72.985
69.396
63.969
59.587
52.527
51.704
20.186
220
200
180
160
140
120
100
80
60
40
20
0
ppm

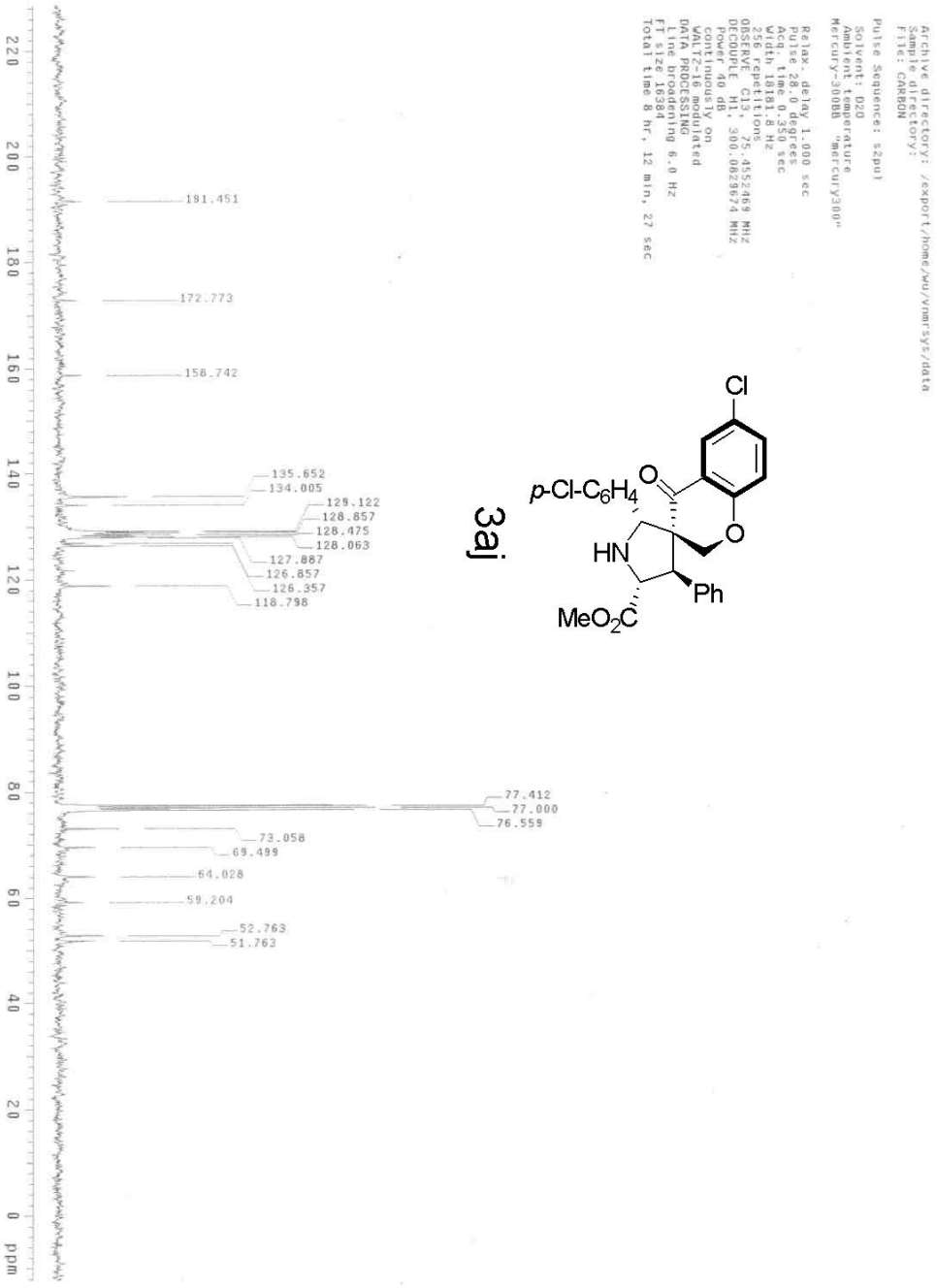

c13-111-9-36a
Archive directory: /export/home/wu/vnmrsys/data
Sample directory:
File: CARBON
Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 0.500 sec
Width 18181.8 Hz
128 repetitions
OBSERVE C13, 75.455949 MHz
DECOUPLE H1, 300.082962 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 1 hr, 27 min, 30 sec

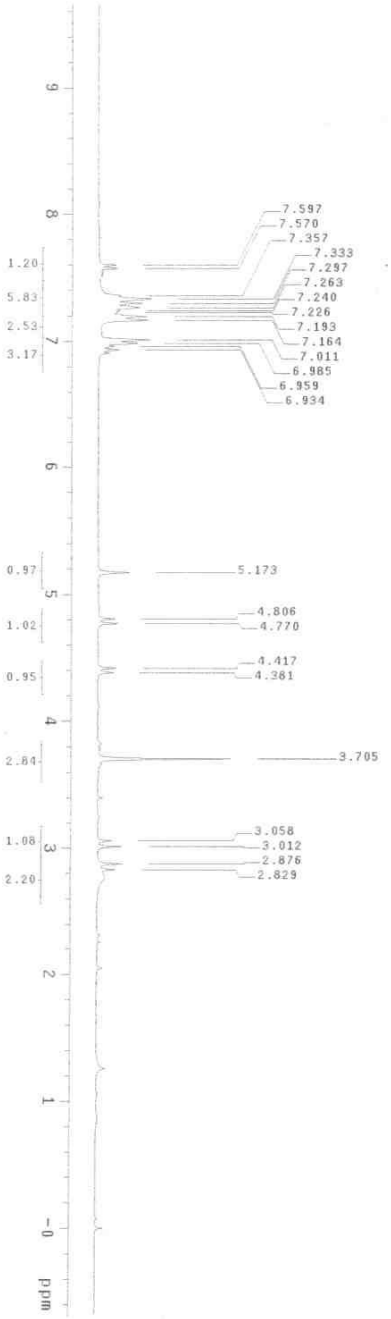

3ai
p-Cl-C6H4
O
HN
O
Ph
MeO2C

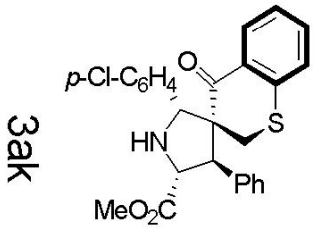

7.454
7.446
7.330
7.264
7.239
7.231
7.210
7.201
7.112
7.085
7.045
7.018
6.649
6.619
5.299
4.873
4.515
4.494
4.450
4.215
4.175
3.840
3.794
3.558
2.316
2.263
2.047
1.259
0.000
ppm

3aj.

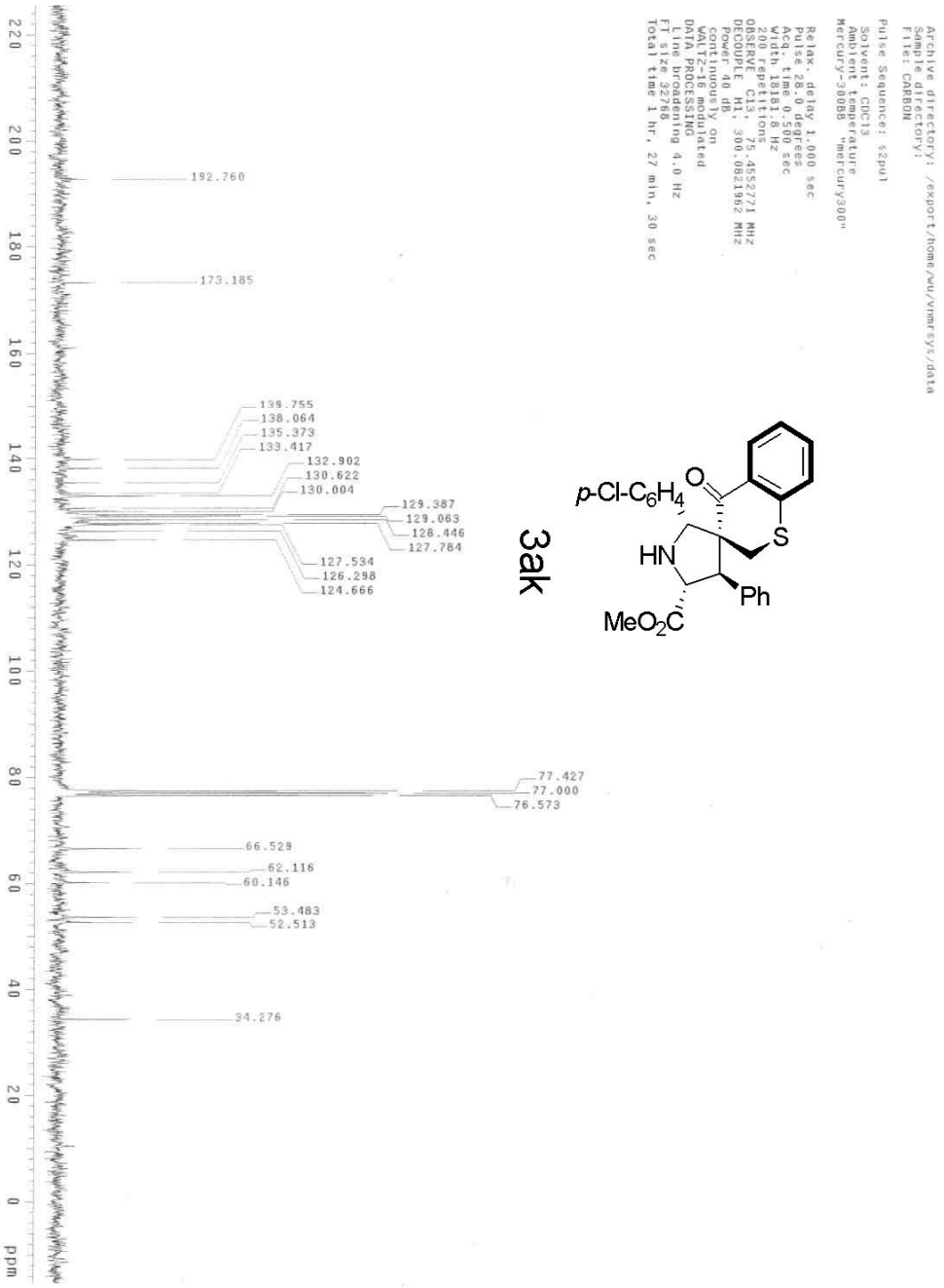

Cl
p-Cl-C6H4
O
HN
O
Ph
MeO2C


Archive directory: /export/home/wu/vnmrsys/data
Sample directory:
File: CARBON
Pulse Sequence: s2pul
Solvent: D2O
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.853 sec
Width 18181.8 Hz
256 repetitions
OBSERVE C13, 75.452469 MHz
DECOUPLE H1, 300.0029674 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 6.0 Hz
FT size 16384
Total time 8 hr, 12 min, 27 sec
191.451
172.773
158.742
135.652
134.005
129.122
128.857
128.475
128.063
127.887
126.857
126.357
118.798
77.412
77.000
76.559
73.058
69.489
64.028
59.204
52.763
51.763
220
200
180
160
140
120
100
80
60
40
20
0
ppm
3aj
Cl
p-Cl-C6H4
O
HN
O
Ph
MeO2C



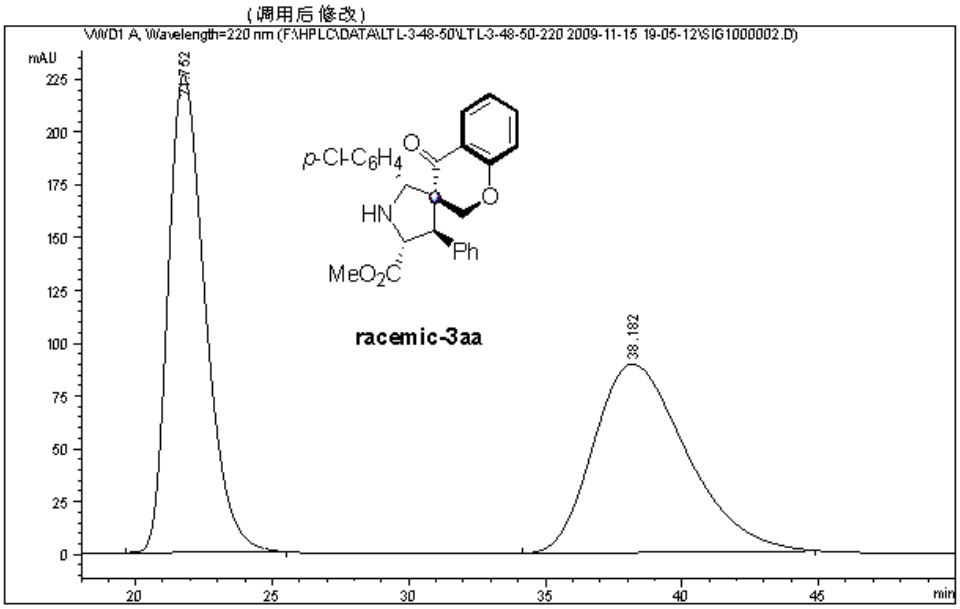


Archive directory: /export/home/xu/vnmrsys/data
Sample directory:
File: PROTON
Pulse Sequence: s2pul


Archive directory: /export/home/wu/vnmrsys/data
Sample directory:
File: CARBON
Pulse Sequence: s2pul
Solvent: cdcl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 18161.8 Hz
200 repetitions
OBSERVE C13, 75.4552771 MHz
DECOUPLE H1, 300.0821962 MHz
Power 40 dB
continuously on
WALTZ16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 1 hr, 27 min, 30 sec
192.760
173.185
139.755
138.064
135.373
133.417
132.902
130.622
130.004
129.387
129.063
128.446
127.784
127.534
126.298
124.666
77.427
77.000
76.573
66.529
62.116
60.146
53.483
52.513
34.276
ppm
3ak
p-Cl-C6H4
O
S
HN
Ph
MeO2C

数据文件: F:\HPLC\DATA\LTL-3-48-50\LTL-3-48-50-220 2009-11-15 19-05-12\SIG1000002.D
样品名称: LTL-3-48

操作者 : DXQ 序列行 : 2
仪器 : Instrument 1 位置 : 样品瓶 12
进样日期 : 2009-11-16 12:07:29 下午 进样次数 : 1
进样量 : 5 µl
采集方法 : D:\LC\LTL\data\LTL-3-48-50\LTL-3-48-50-220 2009-11-15 19-05-12\ASH-10-90-10ML-220NM-60MIN.M
最后修改 : 2009-11-16 10:41:50 上午 : DXQ
分析方法 : F:\HPLC\DATA\LTL-3-48-50\LTL-3-48-50-220 2009-11-15 19-05-12\SIG1000002.D\DA.M (ASH-10-90-10ML-220NM-60MIN.M)
最后修改 : 2011-1-24 10:54:02 下午
(调用后修改)



面积百分比报告

排序 : 信号
乘积因子 : 1.0000
稀释因子 : 1.0000
内标使用乘积因子和稀释因子

信号 1: VWD1 A, Wavelength=220 nm

峰 #	保留时间 [min]	类型	峰宽 [min]	峰面积 mAU *s	峰高 [mAU]	峰面积 %
1	21.752	BB	1.4485	2.13104e4	226.52090	50.1892
2	38.182	BB	3.2848	2.11498e4	89.33236	49.8108
总量 :				4.24602e4	315.85326	

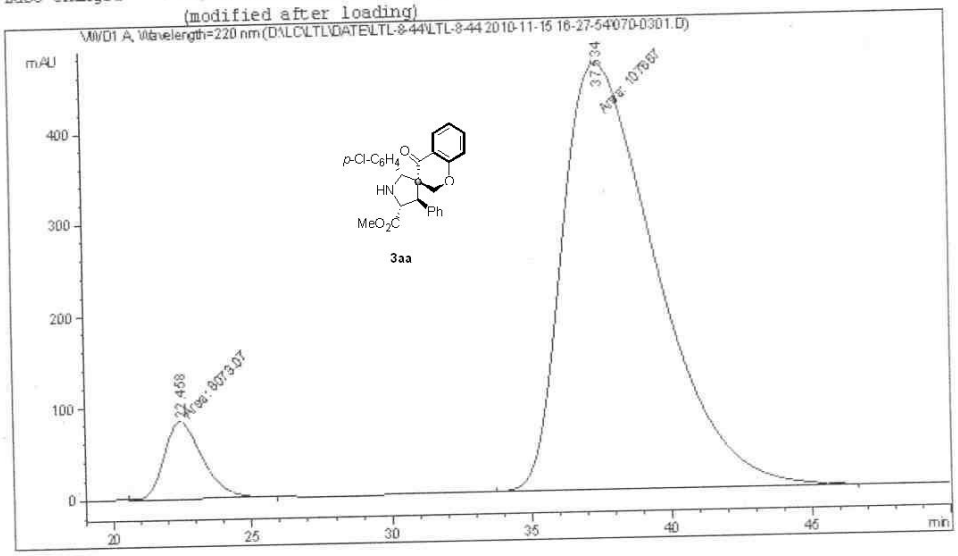
*** 报告结束 ***

仪器 1 2011-1-24 10:54:14 下午 页1/1

Data File D:\LC\LTL\DATE\LTL-8-44\LTL-8-44 2010-11-15 16-27-54\070-0301.D
Sample Name: LTL-8-44B

Acq. Operator : DXQ
Acq. Instrument : Instrument 1
Injection Date : 11/15/2010 5:32:04 PM
Seq. Line : 3
Location : Vial 70
Inj : 1
Inj Volume : 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-44\LTL-8-44 2010-11-15 16-27-54\ASH-10-90-1ML-220NM-50MIN.M
Last changed : 8/30/2010 8:44:32 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-44\LTL-8-44 2010-11-15 16-27-54\070-0301.D\DA.M (ASH-10-90-1ML-220NM-50MIN.M)
Last changed : 11/19/2010 2:37:26 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	22.458	MM	1.6156	8073.06641	83.28065	6.9752
2	37.534	MM	3.8536	1.07667e5	465.64847	93.0248
Totals :				1.15740e5	548.92912	

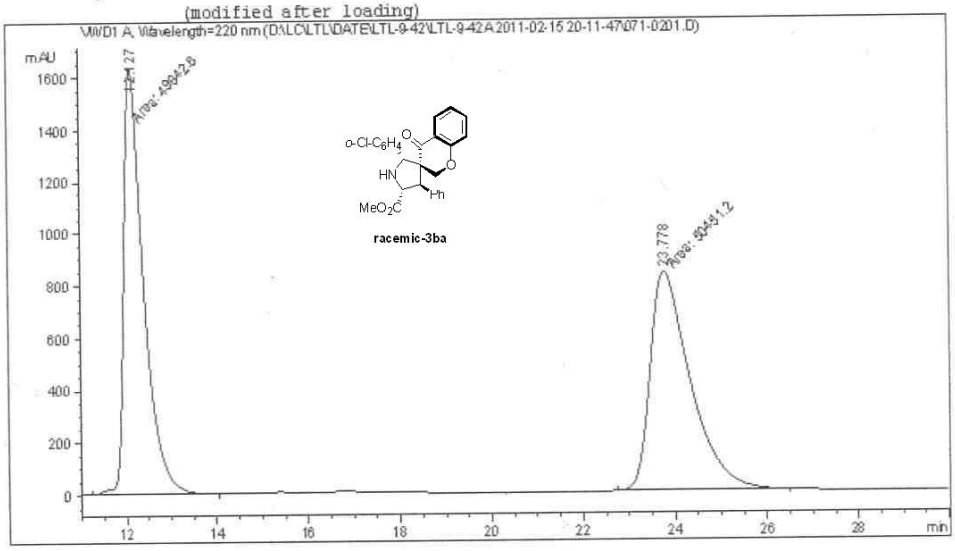
Instrument 1 11/19/2010 2:37:31 PM THL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-9-42\LTL-9-42A 2011-02-15 20-11-47\071-0201.D
Sample Name: LTL-9-42A

Acq. Operator	: LTL	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 71
Injection Date	: 2/15/2011 8:24:04 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-42\LTL-9-42A 2011-02-15 20-11-47\ADH-30-70-1ML-220NM-70MIN.M
Last changed : 2/15/2011 10:56:36 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-9-42\LTL-9-42A 2011-02-15 20-11-47\071-0201.D\DA.M (ADH-30-70-1ML-220NM-70MIN.M)
Last changed : 2/16/2011 10:27:14 AM by LTL
(modified after loading)



Area Percent Report

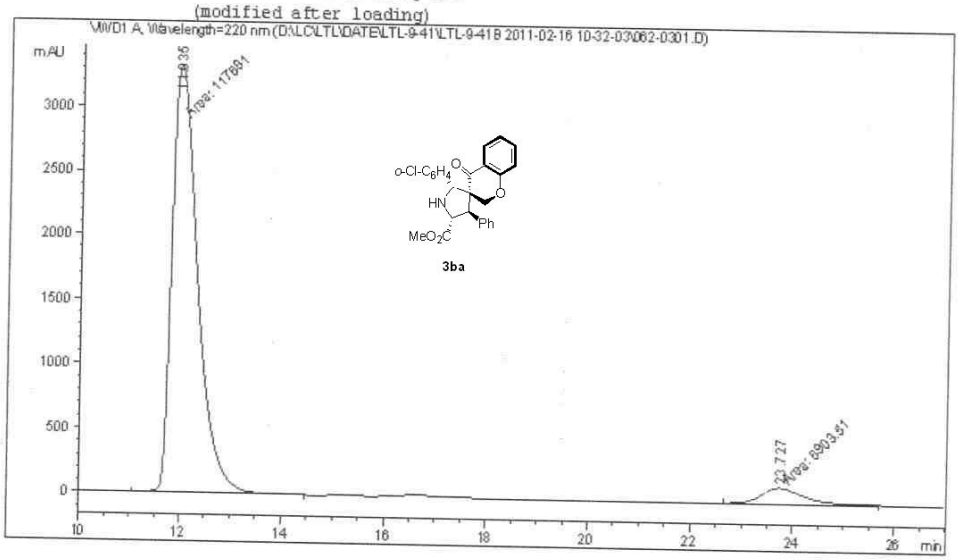
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	12.127	MM	0.5095	4.98426e4	1630.31836	49.6966
2	23.778	MM	1.0098	5.04512e4	832.65930	50.3034
Totals :				1.00294e5	2462.97766	

Data File D:\LC\LTL\DATE\LTL-9-41\LTL-9-41B 2011-02-16 10-32-03\062-0301.D
Sample Name: LTL-9-42B

Acq. Operator	: LTL	Seq. Line	: 3
Acq. Instrument	: Instrument 1	Location	: Vial 62
Injection Date	: 2/16/2011 11:31:21 AM	Inj	: 1
		Inj Volume	: 5 µl
Acq. Method	: D:\LC\LTL\DATE\LTL-9-41\LTL-9-41B 2011-02-16 10-32-03\ADH-30-70-1ML-220NM-30MIN.M		
Last changed	: 1/22/2011 10:59:12 AM by THL-7-95-97		
Analysis Method	: D:\LC\LTL\DATE\LTL-9-41\LTL-9-41B 2011-02-16 10-32-03\062-0301.D\DA.M (ADH-30-70-1ML-220NM-30MIN.M)		
Last changed	: 2/16/2011 2:45:55 PM by LTL (modified after loading)		



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	11.935	MM	0.5926	1.17681e5	3309.99829	94.4588
2	23.727	MM	0.9442	6903.51270	121.86088	5.5412
Totals :				1.24584e5	3431.85917	

Instrument 1 2/16/2011 2:45:59 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\061-0201.D
Sample Name: LTL-9-41A

```
=====================================================================
Acq. Operator   : LTL                          Seq. Line :   2
Acq. Instrument : Instrument 1                  Location : Vial 61
Injection Date  : 6/9/2011 12:22:48 PM             Inj :   1
                                               Inj Volume : 5 µl
Acq. Method     : D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\ADH-30-70-1ML-
                  220NM-50MIN-NOT.M
Last changed    : 6/9/2011 12:11:29 PM by hzl
Analysis Method : D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\061-0201.D\DA.M (
                  ADH-30-70-1ML-220NM-50MIN-NOT.M)
Last changed    : 6/13/2011 9:51:14 PM by LTL
                  (modified after loading)
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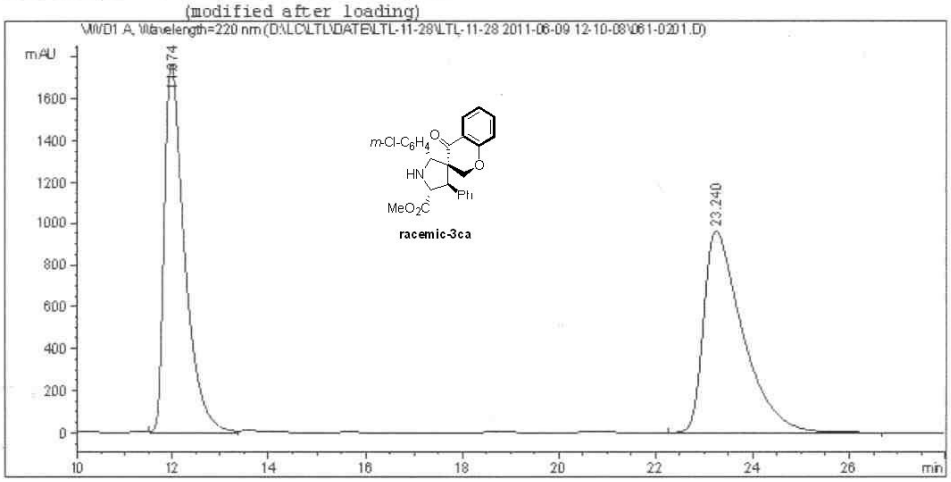



```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1  11.974 VV    0.4413 5.22811e4  1766.84814  49.5387
   2  23.240 BB    0.8209 5.32548e4   959.32581  50.4613

Totals :                  1.05536e5  2726.17395

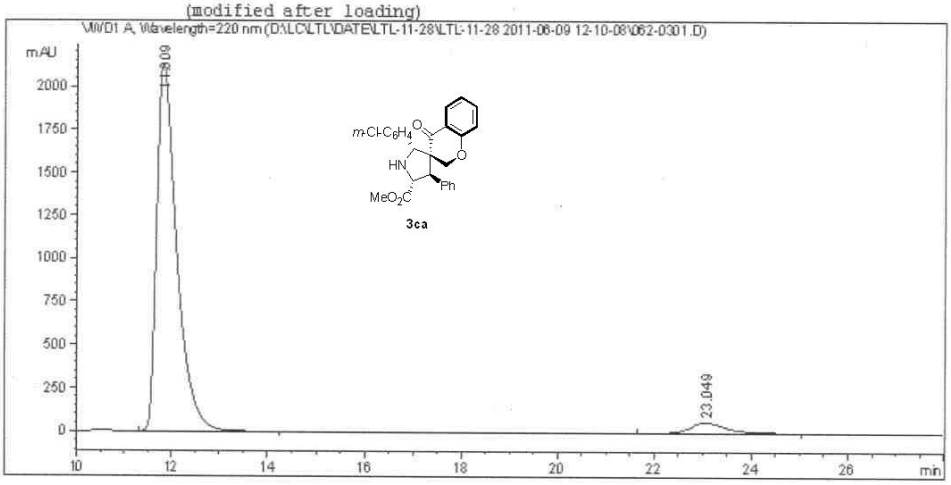
=====================================================================
                        *** End of Report ***
```

Instrument 1 6/13/2011 9:51:18 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\062-0301.D
Sample Name: LTL-11-28A

Acq. Operator	: LTL	Seq. Line	: 3
Acq. Instrument	: Instrument 1	Location	: Vial 62
Injection Date	: 6/9/2011 1:14:36 PM	Inj	: 1
		Inj Volume	: 5 µl
Acq. Method	: D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\ADH-30-70-1ML-220NM-50MIN-NOT.M		
Last changed	: 6/9/2011 12:11:29 PM by hzl		
Analysis Method	: D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\062-0301.D\DA.M (ADH-30-70-1ML-220NM-50MIN-NOT.M)		
Last changed	: 6/13/2011 9:51:37 PM by LTL (modified after loading)		



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

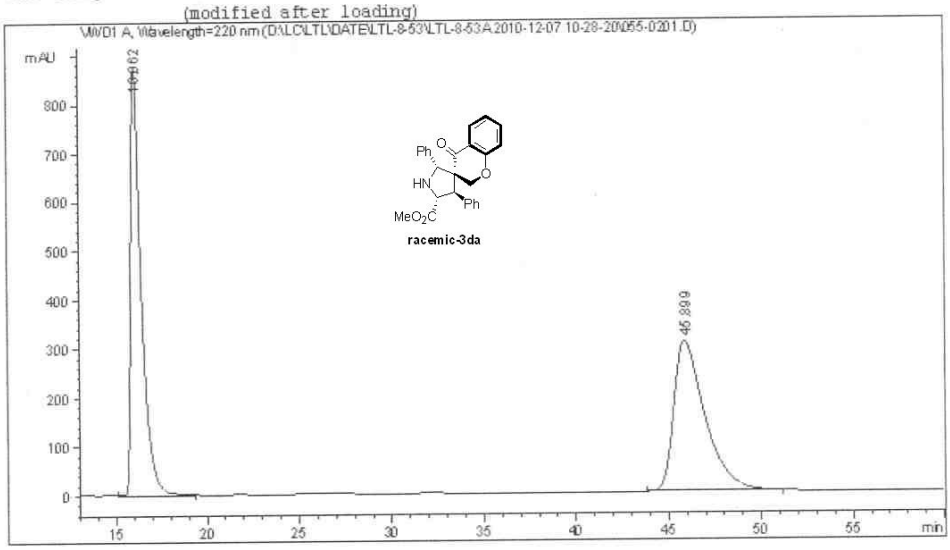
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	11.809	BB	0.4324	6.21266e4	2136.55786	95.2202
2	23.049	BB	0.7556	3118.56201	61.55494	4.7798
Totals :				6.52451e4	2198.11280	

*** End of Report ***

Data File D:\LC\LTL\DATE\LTL-8-53\LTL-8-53A 2010-12-07 10-28-20\055-0201.D
Sample Name: LTL-8-53A

Acq. Operator	: THL	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 55
Injection Date	: 12/7/2010 10:40:48 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-53\LTL-8-53A 2010-12-07 10-28-20\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-53\LTL-8-53A 2010-12-07 10-28-20\055-0201.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 12/7/2010 7:05:30 PM by THL
(modified after loading)



Area Percent Report

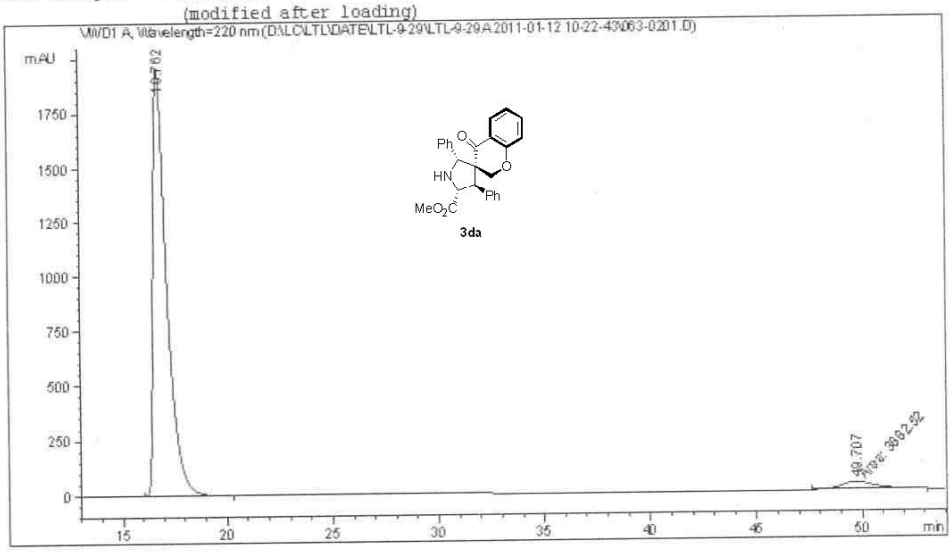
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	16.062	VB	0.6031	3.56487e4	873.00519	49.9184
2	45.899	BB	1.7280	3.57653e4	307.55499	50.0816
Totals :				7.14140e4	1180.56018	

Data File D:\LC\LTL\DATE\LTL-9-29\LTL-9-29A 2011-01-12 10-22-43\063-0201.D
Sample Name: LTL-9-29A

Acq. Operator : thl
Acq. Instrument : Instrument 1
Injection Date : 1/12/2011 10:35:10 AM
Seq. Line : 2
Location : Vial 63
Inj : 1
Inj Volume : 5 µl
Acq. Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29A 2011-01-12 10-22-43\ADH-30-70-1ML-220NM-60MIN.M
Last changed : 12/7/2010 3:06:41 PM by THL
Analysis Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29A 2011-01-12 10-22-43\063-0201.D\DA.M (ADH-30-70-1ML-220NM-60MIN.M)
Last changed : 1/24/2011 4:53:15 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

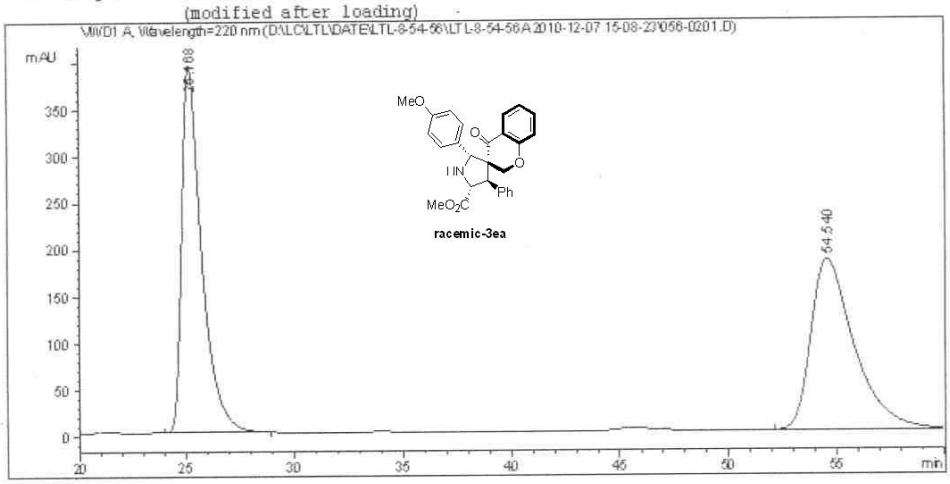
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	16.762	BB	0.6723	8.82917e4	1955.83447	95.7878
2	49.707	MM	1.9543	3882.52197	33.11037	4.2122
Totals :				9.21742e4	1988.94485	

Data File D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\056-0201.D
Sample Name: LTL-8-54A

Acq. Operator	: THL	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 56
Injection Date	: 12/7/2010 3:21:00 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 12/7/2010 4:19:09 PM by THL
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\056-0201.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 12/7/2010 7:03:27 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

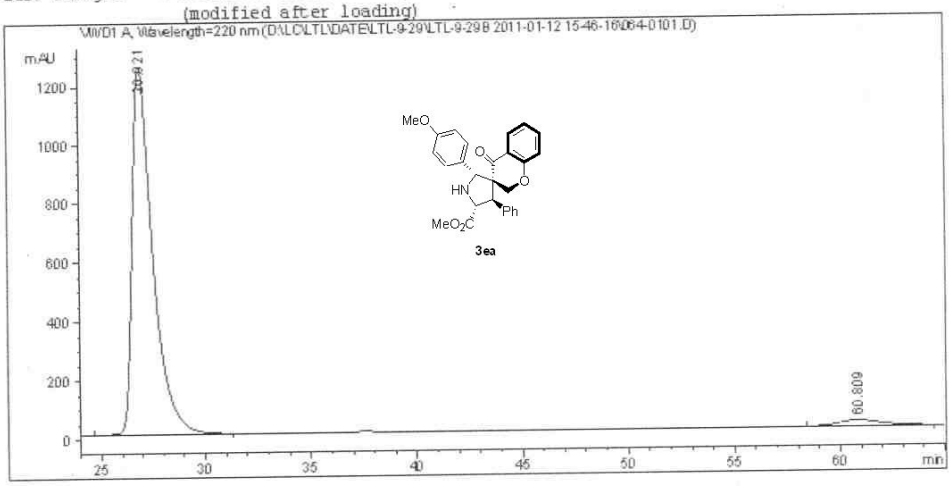
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	25.168	BB	0.9595	2.53876e4	392.71057	49.9668
2	54.540	BBA	2.0516	2.54214e4	182.84471	50.0332
Totals :				5.08090e4	575.55528	

*** End of Report ***

Data File D:\LC\LTL\DATE\LTL-9-29\LTL-9-29B 2011-01-12 15-46-16\064-0101.D
Sample Name: LTL-9-29B

Acq. Operator : DXQ
Seq. Line : 1
Acq. Instrument : Instrument 1
Location : Vial 64
Injection Date : 1/12/2011 3:47:39 PM
Inj : 1
Inj Volume : 5 µl
Acq. Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29B 2011-01-12 15-46-16\ADH-30-70-1ML-220NM-60MIN.M
Last changed : 1/12/2011 4:27:17 PM by DXQ
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29B 2011-01-12 15-46-16\064-0101.D\DA.M (ADH-30-70-1ML-220NM-60MIN.M)
Last changed : 1/24/2011 5:23:26 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	26.921	BB	1.0181	8.55990e4	1251.12134	96.9249
2	60.809	BB	1.8770	2715.79858	19.20364	3.0751
Totals :				8.83148e4	1270.32498	

*** End of Report ***

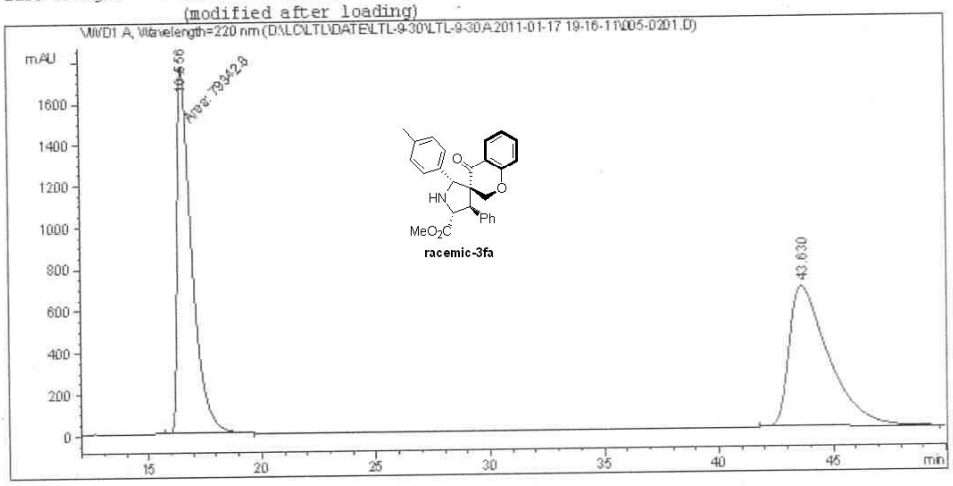
Instrument 1 1/24/2011 5:23:30 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-9-30\LTL-9-30A 2011-01-17 19-16-11\005-0201.D
Sample Name: LTL-9-30A

Acq. Operator	: LYY	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 5
Injection Date	: 1/17/2011 7:28:35 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-30\LTL-9-30A 2011-01-17 19-16-11\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 1/17/2011 8:15:20 PM by LYY
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-9-30\LTL-9-30A 2011-01-17 19-16-11\005-0201.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 1/24/2011 5:06:58 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	16.556	MM	0.7480	7.93428e4	1767.99084	49.4192
2	43.630	BB	1.7742	8.12076e4	676.02759	50.5808
Totals :				1.60550e5	2444.01843	

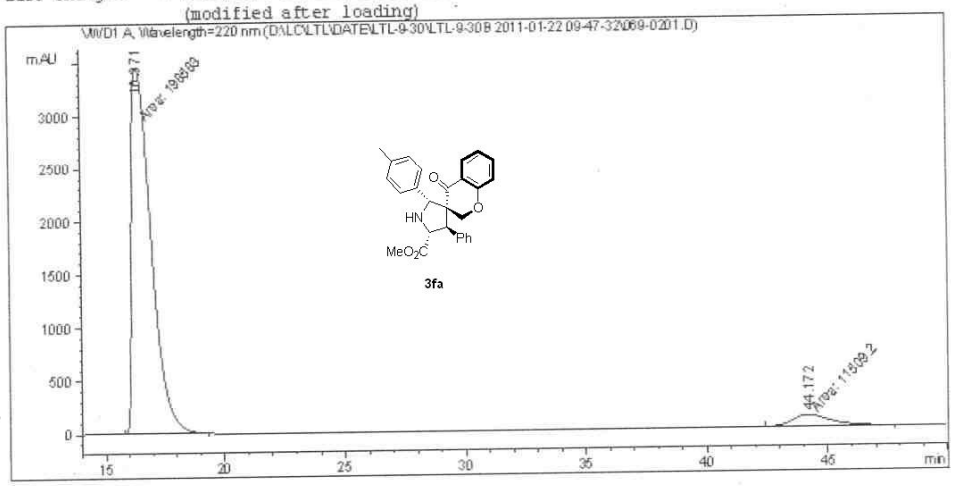
*** End of Report ***

Instrument 1 1/24/2011 5:07:02 PM LTL Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-9-30\LTL-9-30B 2011-01-22 09-47-32\069-0201.D
Sample Name: LTL-9-30B

Acq. Operator	: THL-7-95-97	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 69
Injection Date	: 1/22/2011 10:05:00 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-30\LTL-9-30B 2011-01-22 09-47-32\ADH-30-70-1ML-220NM-60MIN.M
Last changed : 1/22/2011 10:53:50 AM by THL-7-95-97
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-9-30\LTL-9-30B 2011-01-22 09-47-32\069-0201.D\DA.M (ADH-30-70-1ML-220NM-60MIN.M)
Last changed : 1/24/2011 5:08:31 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	16.371	MM	0.9566	1.98583e5	3459.97070	94.5218
2	44.172	MM	1.8286	1.15092e4	104.90173	5.4782
Totals :				2.10092e5	3564.87243	

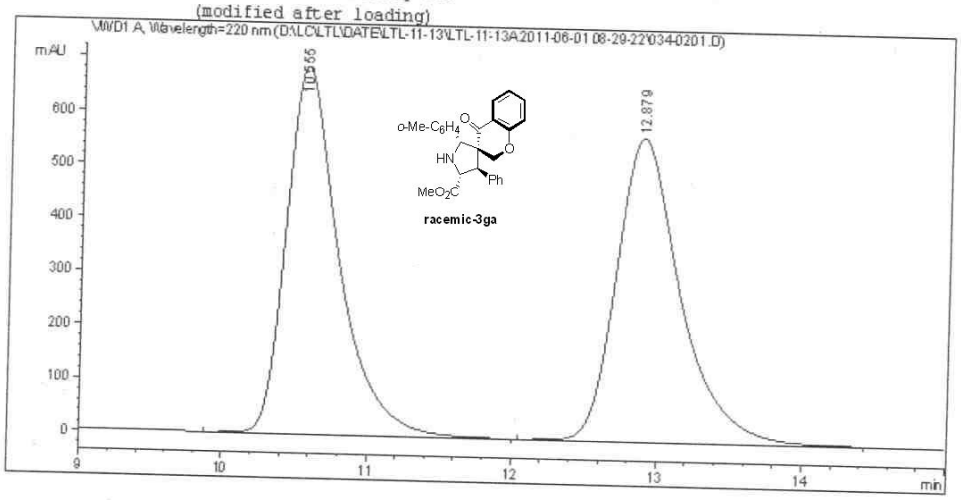
*** End of Report ***

Instrument 1 1/24/2011 5:08:35 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-13\LTL-11-13A 2011-06-01 08-29-22\034-0201.D
Sample Name: LTL-11-13A

Acq. Operator : LTL
Acq. Instrument : Instrument 1
Injection Date : 6/1/2011 8:41:57 AM
Seq. Line : 2
Location : Vial 34
Inj : 1
Inj Volume : 5 µl
Acq. Method : D:\LC\LTL\DATE\LTL-11-13\LTL-11-13A 2011-06-01 08-29-22\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-11-13\LTL-11-13A 2011-06-01 08-29-22\034-0201.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 6/1/2011 3:20:14 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	10.555	VB	0.3760	1.73337e4	686.65393	50.0591
2	12.879	BB	0.4580	1.72928e4	566.58771	49.9409
Totals :				3.46265e4	1253.24164	

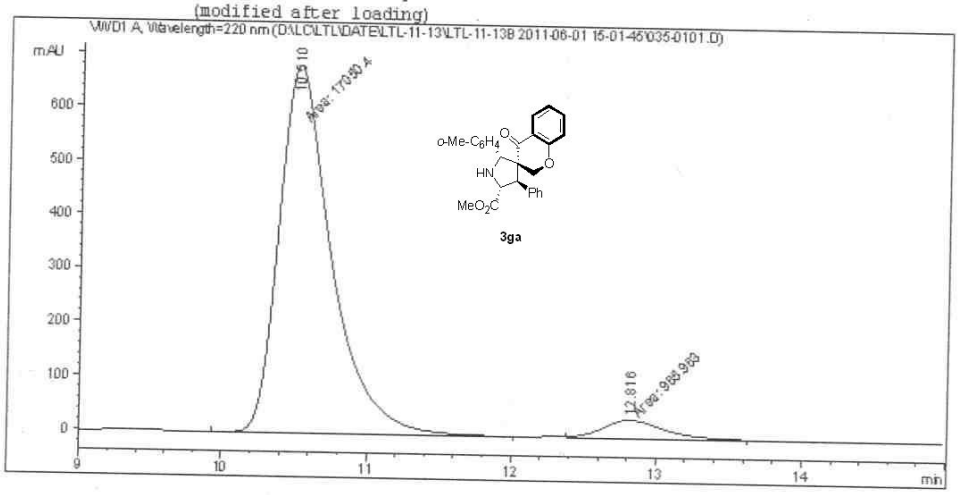
*** End of Report ***

Instrument 1 6/1/2011 3:20:18 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-13\LTL-11-13B 2011-06-01 15-01-45\035-0101.D
Sample Name: LTL-11-13B

Acq. Operator : LTL
Acq. Instrument : Instrument 1
Injection Date : 6/1/2011 3:03:17 PM
Seq. Line : 1
Location : Vial 35
Inj : 1
Inj Volume : 5 µl
Acq. Method : D:\LC\LTL\DATE\LTL-11-13\LTL-11-13B 2011-06-01 15-01-45\ADH-30-70-1ML-220NM-25MIN.M
Last changed : 6/1/2011 3:16:55 PM by LTL
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-11-13\LTL-11-13B 2011-06-01 15-01-45\035-0101.D\DA.M (ADH-30-70-1ML-220NM-25MIN.M)
Last changed : 6/1/2011 3:19:45 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	10.510	MM	0.4163	1.70504e4	682.63660	94.6384
2	12.816	MM	0.4792	965.96259	33.59390	5.3616
Totals :				1.80164e4	716.23050	

*** End of Report ***

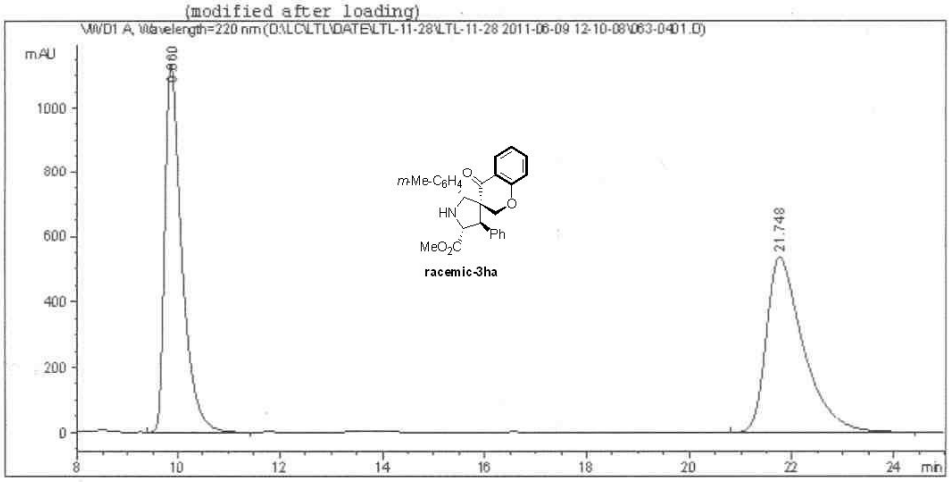
Instrument 1 6/1/2011 3:19:50 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\063-0401.D
Sample Name: LTL-11-14A

Acq. Operator	: LTL	Seq. Line	: 4
Acq. Instrument	: Instrument 1	Location	: Vial 63
Injection Date	: 6/9/2011 2:06:07 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\ADH-30-70-1ML-220NM-40MIN-NOT.M
Last changed : 6/9/2011 2:30:27 PM by LTL (modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\063-0401.D\DA.M (ADH-30-70-1ML-220NM-40MIN-NOT.M)
Last changed : 6/13/2011 9:52:05 PM by LTL (modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	9.860	VB	0.3486	2.67065e4	1135.79907	49.7768
2	21.748	BB	0.7475	2.69460e4	536.53448	50.2232
Totals :				5.36525e4	1672.33356	

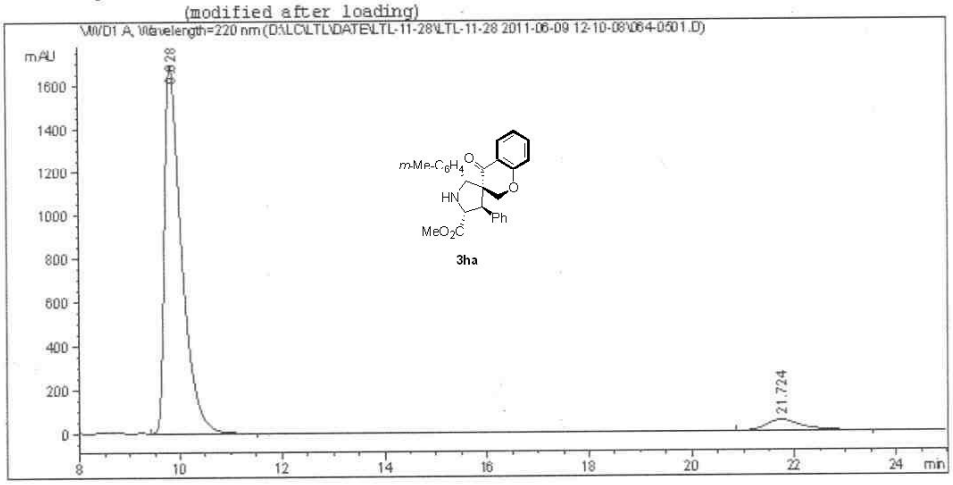
*** End of Report ***

Instrument 1 6/13/2011 9:52:09 PM LTL

Data File D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\064-0501.D
Sample Name: LTL-11-28B

Acq. Operator	: LTL	Seq. Line	: 5
Acq. Instrument	: Instrument 1	Location	: Vial 64
Injection Date	: 6/9/2011 2:34:41 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\ADH-30-70-1ML-220NM-40MIN-NOT.M
Last changed : 6/9/2011 2:33:21 PM by LTL (modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-11-28\LTL-11-28 2011-06-09 12-10-08\064-0501.D\DA.M (ADH-30-70-1ML-220NM-40MIN-NOT.M)
Last changed : 6/13/2011 9:52:36 PM by LTL (modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

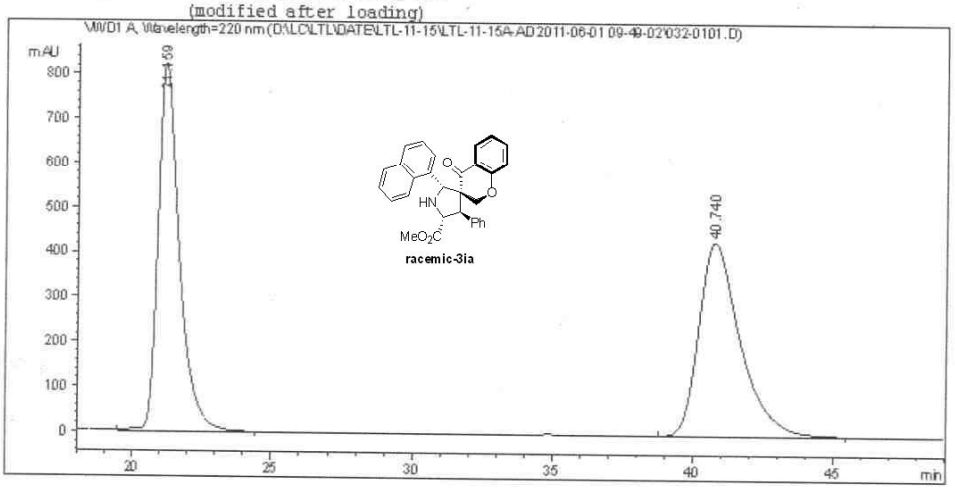
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	9.828	VB	0.3489	3.99175e4	1695.51526	94.4627
2	21.724	BB	0.7175	2339.90234	48.84929	5.5373
Totals :				4.22574e4	1744.36454	

*** End of Report ***

Instrument 1 6/13/2011 9:52:40 PM LTL Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-15\LTL-11-15A-AD 2011-06-01 09-49-02\032-0101.D
Sample Name: LTL-11-15A

Acq. Operator	: LTL	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 32
Injection Date	: 6/1/2011 9:50:41 AM	Inj	: 1
		Inj Volume	: 5 µl
Acq. Method	: D:\LC\LTL\DATE\LTL-11-15\LTL-11-15A-AD 2011-06-01 09-49-02\ADH-30-70-1ML-220NM-80MIN.M		
Last changed	: 6/1/2011 10:36:50 AM by LTL (modified after loading)		
Analysis Method	: D:\LC\LTL\DATE\LTL-11-15\LTL-11-15A-AD 2011-06-01 09-49-02\032-0101.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)		
Last changed	: 6/1/2011 3:21:14 PM by LTL (modified after loading)		



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	21.159	BB	0.7944	4.38642e4	821.92499	50.1692
2	40.740	BB	1.5097	4.35683e4	430.54077	49.8308
Totals :				8.74325e4	1252.46576	

*** End of Report ***

Instrument 1 6/1/2011 3:21:18 PM LTL

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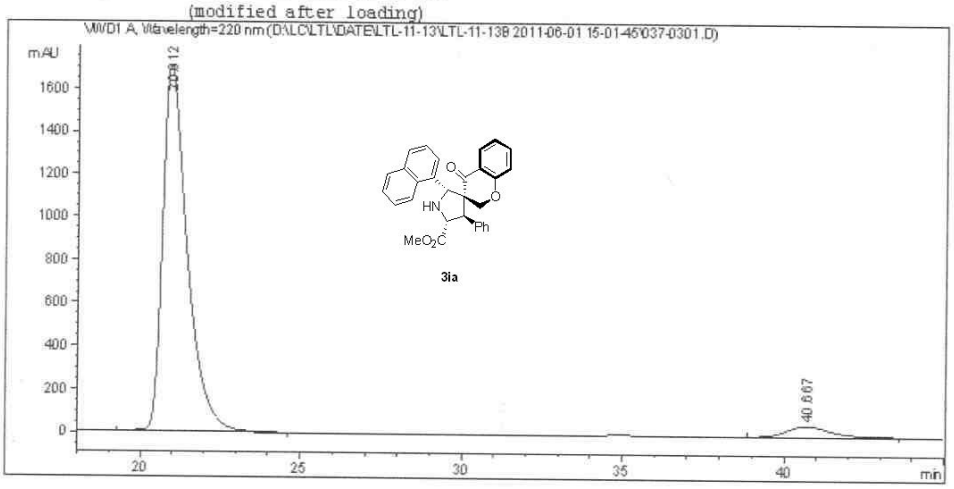
Data File D:\LC\LTL\DATE\LTL-11-13\LTL-11-13B 2011-06-01 15-01-45\037-0301.D
Sample Name: LTL-11-15B

Acq. Operator	: LTL	Seq. Line	: 3
Acq. Instrument	: Instrument 1	Location	: Vial 37
Injection Date	: 6/1/2011 4:01:38 PM	Inj	: 1
		Inj Volume	: 5 µl
Acq. Method	: D:\LC\LTL\DATE\LTL-11-13\LTL-11-13B 2011-06-01 15-01-45\ADH-30-70-1ML-220NM-50MIN.M		
Last changed	: 11/29/2010 10:38:15 AM by THL		
Analysis Method	: D:\LC\LTL\DATE\LTL-11-13\LTL-11-13B 2011-06-01 15-01-45\037-0301.D\DA.M (ADH-30-70-1ML-220NM-50MIN.M)		
Last changed	: 6/1/2011 4:52:29 PM by LTL (modified after loading)		



Area Percent Report

Sorted By	:	Signal
Multiplier	:	1.0000
Dilution	:	1.0000

Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	20.912	BB	0.8020	9.24083e4	1710.70728	94.9949
2	40.667	BB	1.4488	4868.79541	50.66391	5.0051
Totals :				9.72771e4	1761.37119	

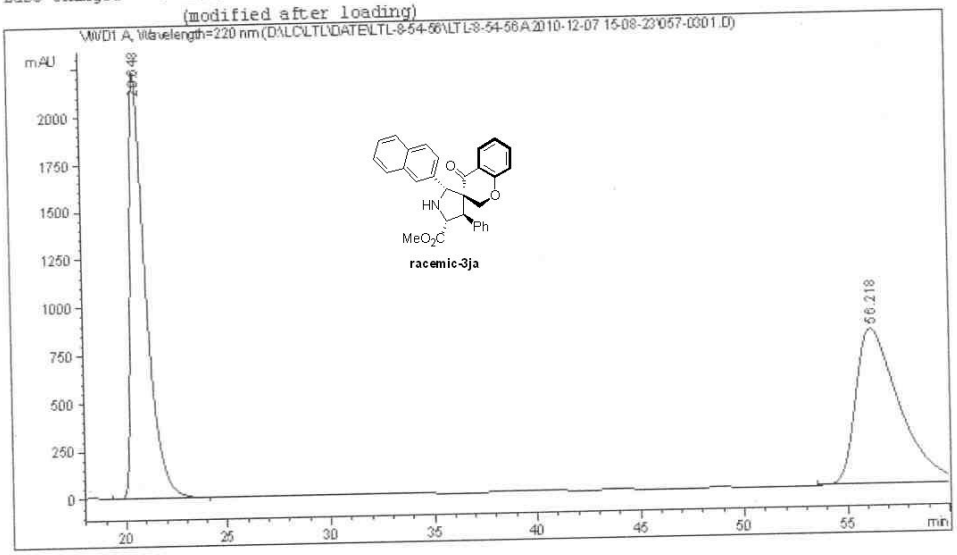
*** End of Report ***

Instrument 1 6/1/2011 4:52:33 PM LTL

Data File D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\057-0301.D
Sample Name: LTL-8-56A

Acq. Operator : THL
Acq. Instrument : Instrument 1
Injection Date : 12/7/2010 4:22:53 PM
Seq. Line : 3
Location : Vial 57
Inj : 1
Inj Volume : 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\ADH-30-70-1ML-220NM-60MIN.M
Last changed : 12/7/2010 3:06:41 PM by THL
Analysis Method : D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\057-0301.D\DA.M (ADH-30-70-1ML-220NM-60MIN.M)
Last changed : 12/7/2010 7:02:41 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	20.648	VB	0.8054	1.20859e5	2230.42065	50.2322
2	56.218	BBA	2.1804	1.19742e5	814.13837	49.7678
Totals :				2.40601e5	3044.55902	

Instrument 1 12/7/2010 7:02:45 PM THL

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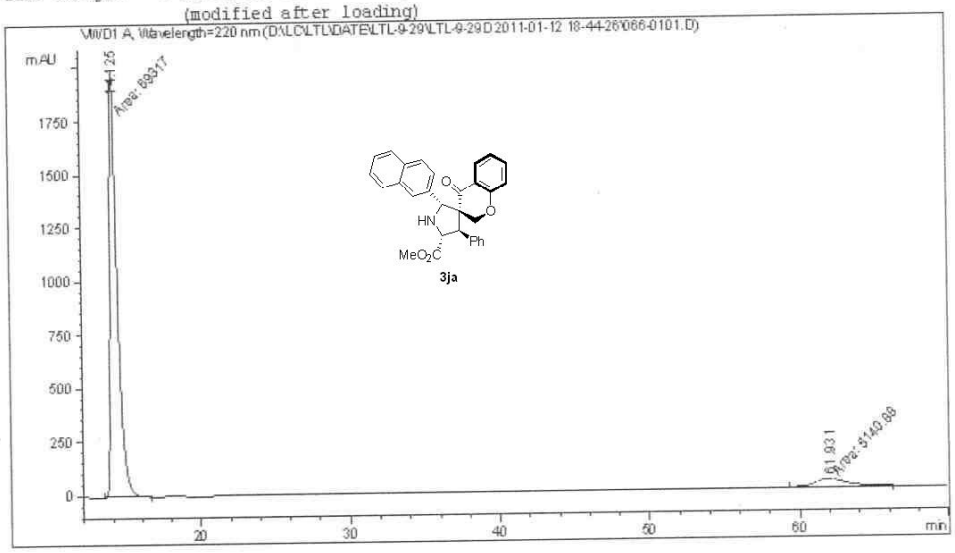
Data File D:\LC\LTL\DATE\LTL-9-29\LTL-9-29D 2011-01-12 18-44-26\066-0101.D
Sample Name: LTL-9-29D

Acq. Operator	: DXQ	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 66
Injection Date	: 1/12/2011 6:46:04 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29D 2011-01-12 18-44-26\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29D 2011-01-12 18-44-26\066-0101.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 1/24/2011 4:55:59 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	14.125	MM	0.5796	6.93170e4	1993.36377	93.0956
2	61.931	MM	2.4289	5140.88037	35.27583	6.9044
Totals :				7.44578e4	2028.63960	

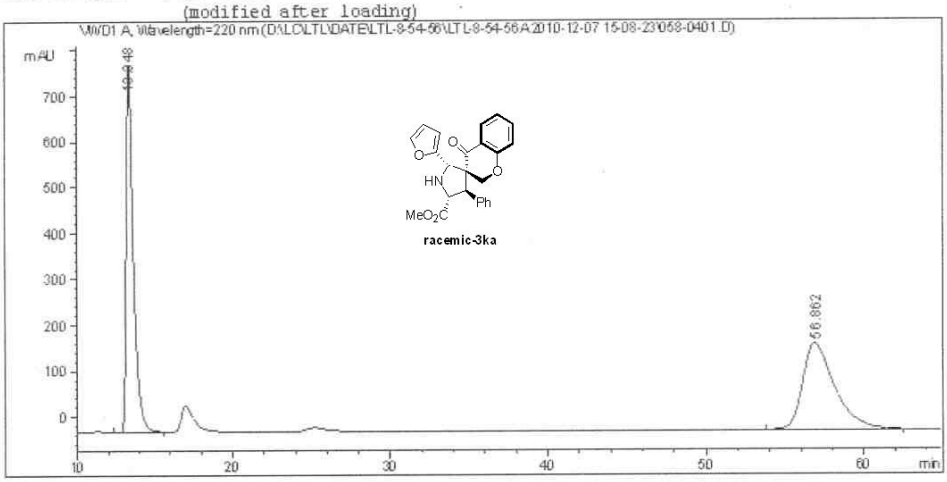
Instrument 1 1/24/2011 4:56:03 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\058-0401.D
Sample Name: LTL-8-55A

Acq. Operator	: THL	Seq. Line	: 4
Acq. Instrument	: Instrument 1	Location	: Vial 58
Injection Date	: 12/7/2010 5:24:08 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\ADH-30-70-1ML-220NM-60MIN.M
Last changed : 12/7/2010 5:29:53 PM by THL
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-8-54-56\LTL-8-54-56A 2010-12-07 15-08-23\058-0401.D\DA.M (ADH-30-70-1ML-220NM-60MIN.M)
Last changed : 12/7/2010 7:04:36 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

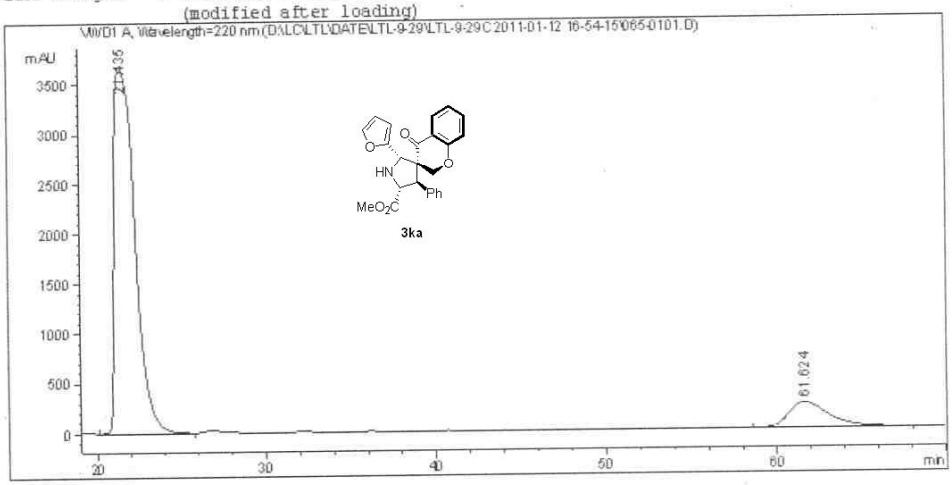
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	13.348	BB	0.4798	2.60438e4	801.07672	49.6298
2	56.862	BB	2.0802	2.64323e4	187.64384	50.3702
Totals :				5.2476le4	988.72057	

*** End of Report ***

Data File D:\LC\LTL\DATE\LTL-9-29\LTL-9-29C 2011-01-12 16-54-15\065-0101.D
Sample Name: LTL-9-29C

Acq. Operator : DXQ
Acq. Instrument : Instrument 1
Injection Date : 1/12/2011 4:55:36 PM
Seq. Line : 1
Location : Vial 65
Inj : 1
Inj Volume : 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29C 2011-01-12 16-54-15\ADH-30-70-1ML-220NM-60MIN.M
Last changed : 1/12/2011 5:28:48 PM by DXQ
(modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-9-29\LTL-9-29C 2011-01-12 16-54-15\065-0101.D\DA.M (ADH-30-70-1ML-220NM-60MIN.M)
Last changed : 1/24/2011 5:24:14 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	21.435	VB	1.0236	3.18022e5	3682.40796	88.8348
2	61.624	BB	2.3637	3.99707e4	250.91745	11.1652
Totals :				3.57993e5	3933.32541	

*** End of Report ***

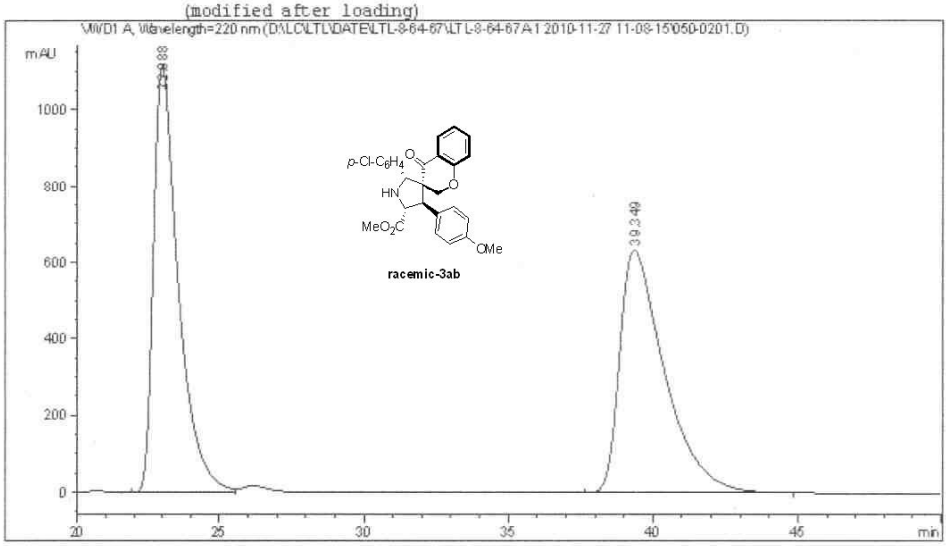
Instrument 1 1/24/2011 5:24:17 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-64-67\LTL-8-64-67A-1 2010-11-27 11-08-15\050-0201.D
Sample Name: LTL-8-64A

Acq. Operator	: LTL	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 50
Injection Date	: 11/27/2010 11:20:46 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-64-67\LTL-8-64-67A-1 2010-11-27 11-08-15\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-64-67\LTL-8-64-67A-1 2010-11-27 11-08-15\050-0201.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 11/27/2010 2:34:39 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

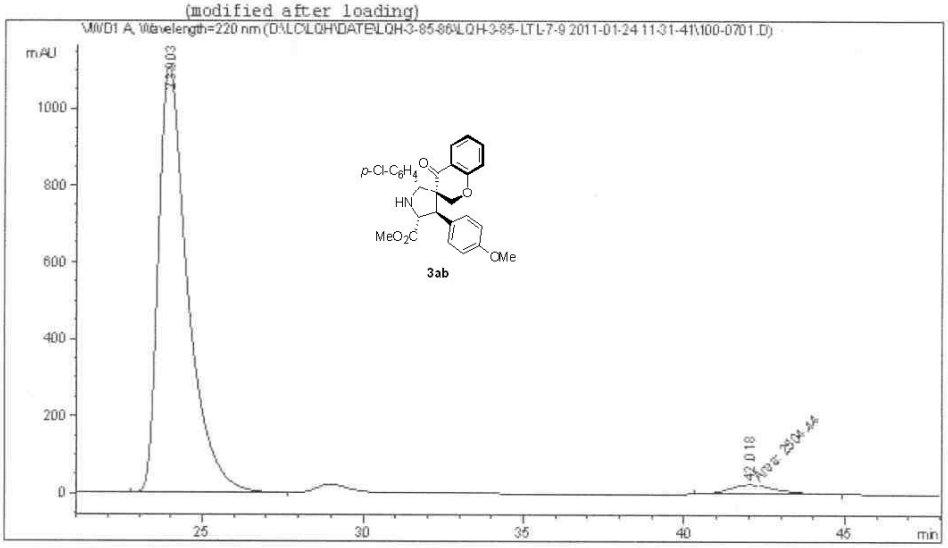
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	22.988	BV	0.8982	6.75650e4	1114.21472	49.8881
2	39.349	BB	1.5892	6.78681e4	633.45526	50.1119
Totals :				1.35433e5	1747.66998	

Instrument 1 11/27/2010 2:34:43 PM LTL

Data File D:\LC\LQH\DATE\LQH-3-85-86\LQH-3-85-LTL-7-9 2011-01-24 11-31-41\100-0701.D
Sample Name: LTL-8-64B

Acq. Operator	: LTL	Seq. Line	: 7
Acq. Instrument	: Instrument 1	Location	: Vial 100
Injection Date	: 1/24/2011 2:21:31 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LQH\DATE\LQH-3-85-86\LQH-3-85-LTL-7-9 2011-01-24 11-31-41\ADH-30-70-1ML-220NM-50MIN.M
Last changed : 11/29/2010 10:38:15 AM by THL
Analysis Method : D:\LC\LQH\DATE\LQH-3-85-86\LQH-3-85-LTL-7-9 2011-01-24 11-31-41\100-0701.D\DA.M (ADH-30-70-1ML-220NM-50MIN.M)
Last changed : 1/24/2011 3:12:49 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

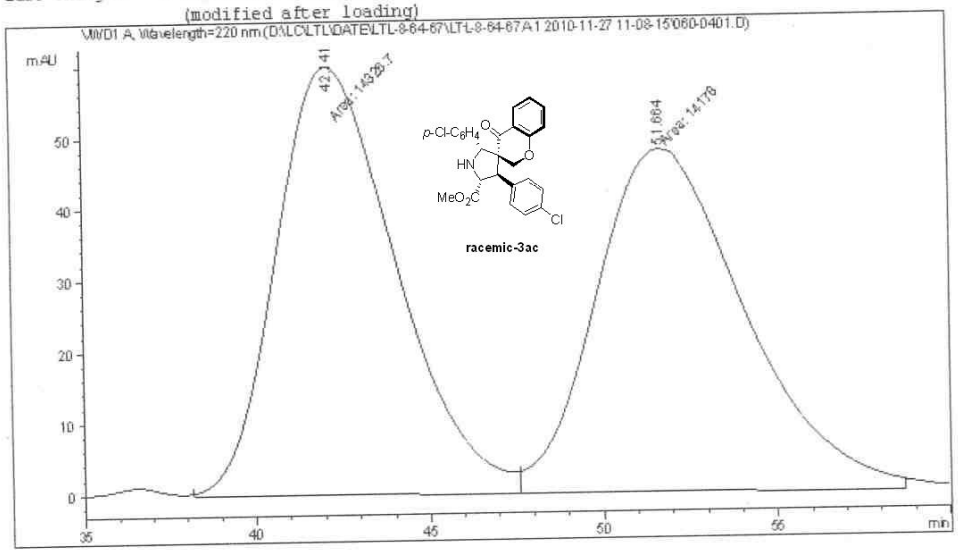
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	23.903	BB	0.9536	7.14252e4	1109.23816	96.6124
2	42.018	MM	1.7217	2504.43726	24.24403	3.3876
Totals :				7.39296e4	1133.48219	

Instrument 1 1/24/2011 3:12:53 PM LTL

Data File D:\LC\LTL\DATE\LTL-8-64-67\LTL-8-64-67A-1 2010-11-27 11-08-15\060-0401.D
Sample Name: LTL-8-67A

Acq. Operator	: LTL	Seq. Line	: 4
Acq. Instrument	: Instrument 1	Location	: Vial 60
Injection Date	: 11/27/2010 12:53:28 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-64-67\LTL-8-64-67A-1 2010-11-27 11-08-15\ASH-10-90-1ML-220NM-60MIN.M
Last changed : 8/30/2010 5:07:19 PM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-64-67\LTL-8-64-67A-1 2010-11-27 11-08-15\060-0401.D\DA.M (ASH-10-90-1ML-220NM-60MIN.M)
Last changed : 11/27/2010 2:34:10 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	42.141	MF	3.9815	1.43267e4	59.97124	50.2608
2	51.664	FM	4.9204	1.41780e4	48.02431	49.7392

Totals : 2.85047e4 107.99556

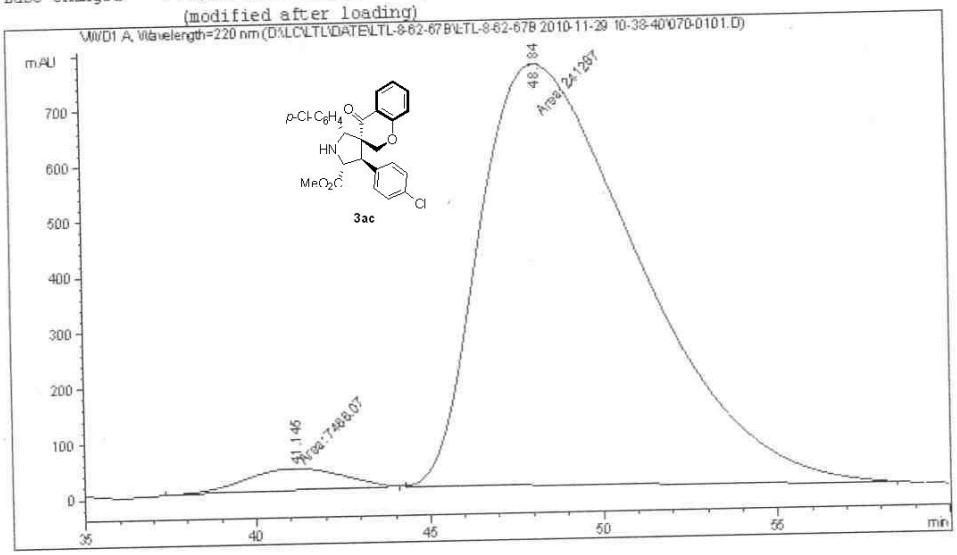
Instrument 1 11/27/2010 2:34:15 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\070-0101.D
Sample Name: LTL-8-67B

Acq. Operator : THL
Acq. Instrument : Instrument 1
Injection Date : 11/29/2010 10:40:14 AM
Seq. Line : 1
Location : Vial 70
Inj : 1
Inj Volume : 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\ASH-10-90-1ML-220NM-60MIN.M
Last changed : 8/30/2010 5:07:19 PM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\070-0101.D\DA.M (ASH-10-90-1ML-220NM-60MIN.M)
Last changed : 11/29/2010 12:15:15 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	41.145	MM	3.1896	7466.06641	39.01257	3.0014
2	48.184	MM	5.2990	2.41287e5	758.91125	96.9986
Totals :				2.48754e5	797.92382	

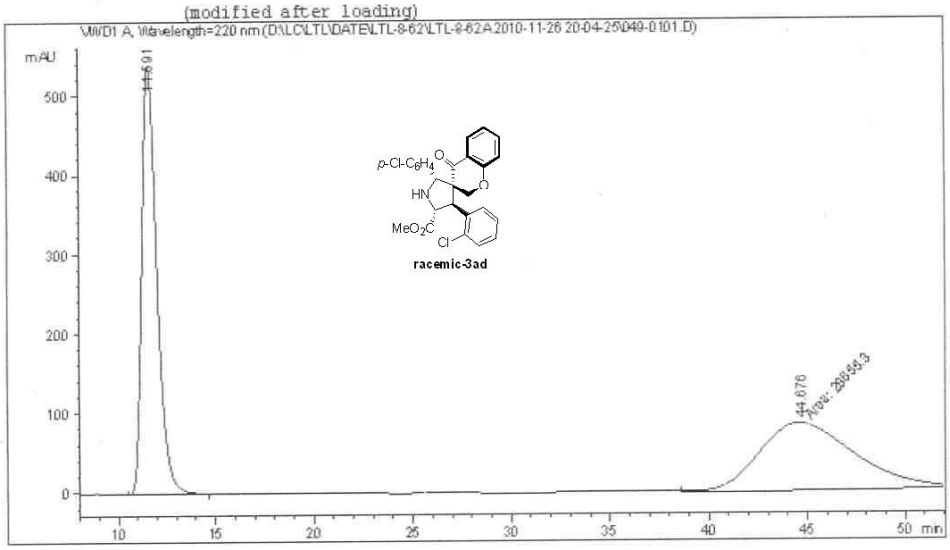
Instrument 1 11/29/2010 12:15:19 PM THL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-62\LTL-8-62A 2010-11-26 20-04-25\049-0101.D
Sample Name: LTL-8-62A

Acq. Operator	: LTL	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 49
Injection Date	: 11/26/2010 8:06:11 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-62\LTL-8-62A 2010-11-26 20-04-25\ASH-10-90-1ML-220NM.M
Last changed : 6/25/2010 8:30:46 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-62\LTL-8-62A 2010-11-26 20-04-25\049-0101.D\DA.M (ASH-10-90-1ML-220NM.M)
Last changed : 11/29/2010 10:32:58 AM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	11.591	BB	0.8235	2.89142e4	536.81030	50.2248
2	44.676	MM	5.6289	2.86553e4	84.84644	49.7752

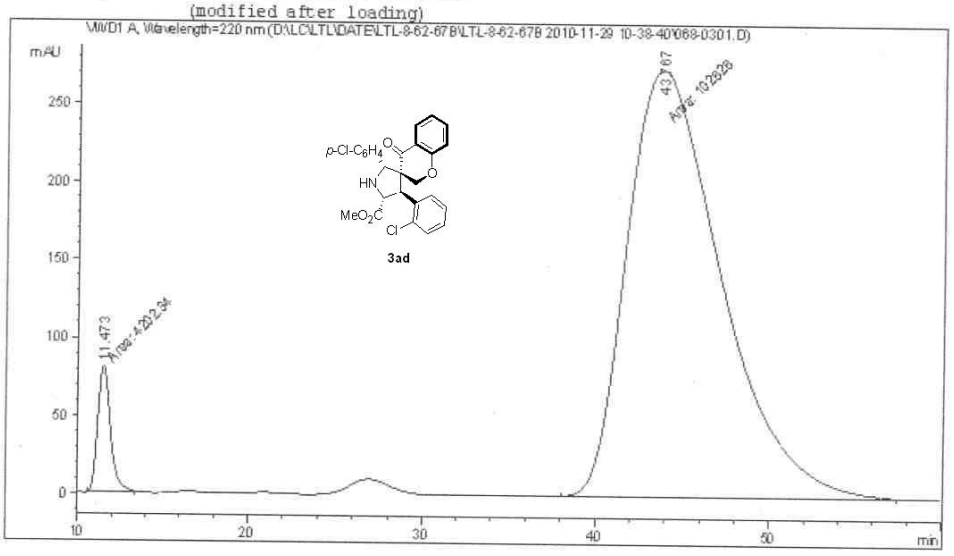
Totals : 5.75695e4 621.65675

Instrument 1 11/29/2010 10:33:02 AM THL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\068-0301.D
Sample Name: LTL-8-62B

```
Acq. Operator   : THL                          Seq. Line :   3
Acq. Instrument : Instrument 1                  Location : Vial 68
Injection Date  : 11/29/2010 12:43:17 PM           Inj :   1
                                                Inj Volume : 5 µl
Acq. Method     : D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\ASH-10-90-
                  1ML-220NM-60MIN.M
Last changed    : 8/30/2010 5:07:19 PM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\068-0301.D\
                  DA.M (ASH-10-90-1ML-220NM-60MIN.M)
Last changed    : 11/29/2010 3:00:02 PM by THL
                  (modified after loading)
```




```
                          Area Percent Report

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]     %
----|-------|----|-------|----------|----------|--------|
   1  11.473 MM    0.8651 4202.33887   80.96225   3.9337
   2  43.767 MM    6.2674 1.02626e5   272.90829  96.0663

Totals :                  1.06828e5   353.87054
```

Instrument 1 11/29/2010 3:00:07 PM THL

Page 1 of 1

a File D:\LC\LTL\DATE\LTL-8-69\LTL-8-69A 2010-12-01 17-20-12\033-0201.D
mple Name: LTL-8-69A

```
==========================================================================
Acq. Operator   : dxq                          Seq. Line :   2
Acq. Instrument : Instrument 1                  Location : Vial 33
Injection Date  : 12/1/2010 5:32:38 PM               Inj :   1
                                               Inj Volume : 5 µl
Acq. Method     : D:\LC\LTL\DATE\LTL-8-69\LTL-8-69A 2010-12-01 17-20-12\ASH-10-90-1ML-220NM.
                  M
Last changed    : 12/1/2010 6:26:02 PM by dxq
                  (modified after loading)
Analysis Method : D:\LC\LTL\DATE\LTL-8-69\LTL-8-69A 2010-12-01 17-20-12\033-0201.D\DA.M (
                  ASH-10-90-1ML-220NM.M)
Last changed    : 12/1/2010 6:35:40 PM by dxq
                  (modified after loading)
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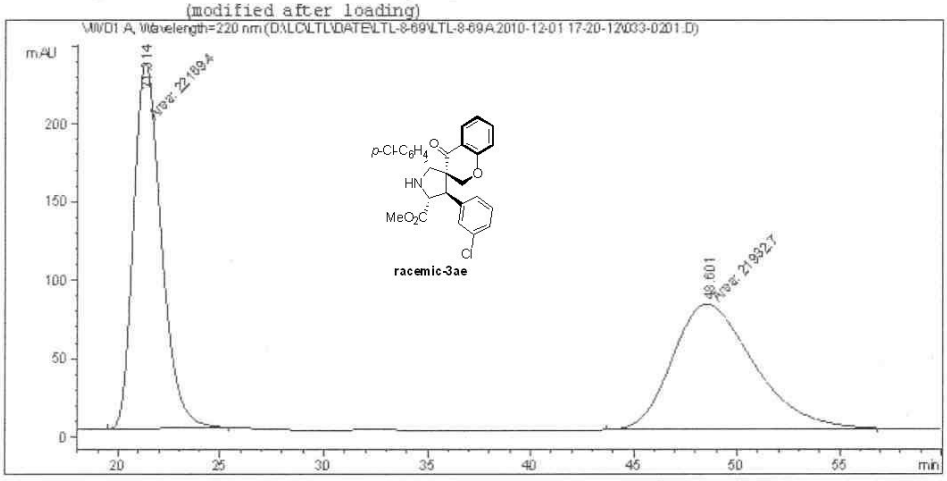



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|-------|
   1  21.314 MM    1.5798 2.21694e4   233.88683  50.2684
   2  48.601 MM    4.5950 2.19327e4    79.55257  49.7316

Totals :                 4.41022e4   313.43939

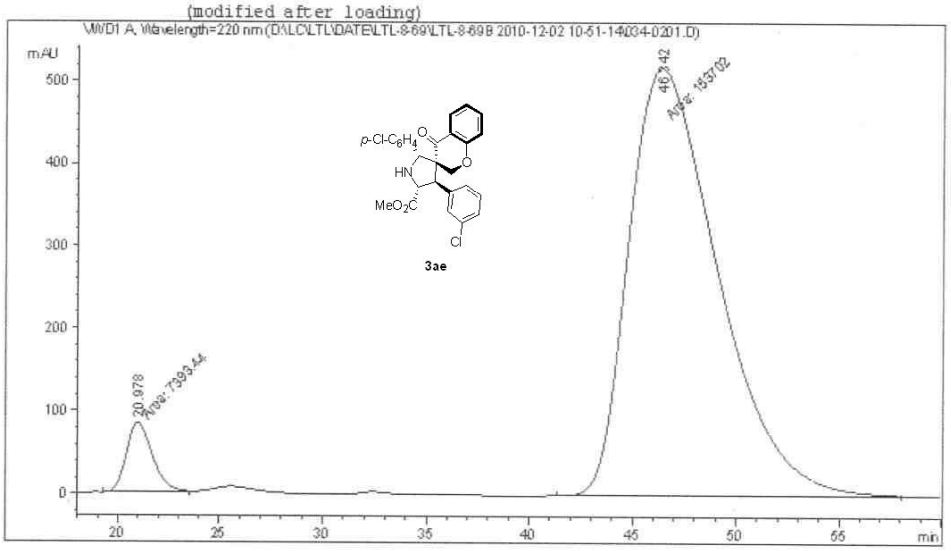

==========================================================================
                        *** End of Report ***
```

trument 1 12/1/2010 6:35:44 PM dxq Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-69\LTL-8-69B 2010-12-02 10-51-14\034-0201.D
Sample Name: LTL-8-69B

Acq. Operator	: dxq	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 34
Injection Date	: 12/2/2010 11:03:40 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-69\LTL-8-69B 2010-12-02 10-51-14\ASH-10-90-1ML-220NM-60MIN.M
Last changed : 8/30/2010 5:07:19 PM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-69\LTL-8-69B 2010-12-02 10-51-14\034-0201.D\DA.M (ASH-10-90-1ML-220NM-60MIN.M)
Last changed : 12/2/2010 2:56:25 PM by dxq
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	20.978	MM	1.4846	7393.44287	83.00124	4.5895
2	46.342	MM	4.9574	1.53702e5	516.74640	95.4105
Totals :				1.61095e5	599.74764	

Instrument 1 12/2/2010 2:56:28 PM dxq

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-63\LTL-8-63A 2010-11-26 19-05-07\048-0201.D
Sample Name: LTL-8-63A

```
==================================================================
Acq. Operator   : LTL                          Seq. Line :   2
Acq. Instrument : Instrument 1                  Location : Vial 48
Injection Date  : 11/26/2010 7:17:53 PM            Inj :   1
                                                Inj Volume : 5 µl
Acq. Method     : D:\LC\LTL\DATE\LTL-8-63\LTL-8-63A 2010-11-26 19-05-07\ASH-10-90-1ML-220NM.
                  M
Last changed    : 6/25/2010 8:30:46 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-63\LTL-8-63A 2010-11-26 19-05-07\048-0201.D\DA.M (
                  ASH-10-90-1ML-220NM.M)
Last changed    : 11/26/2010 8:05:17 PM by LTL
                  (modified after loading)
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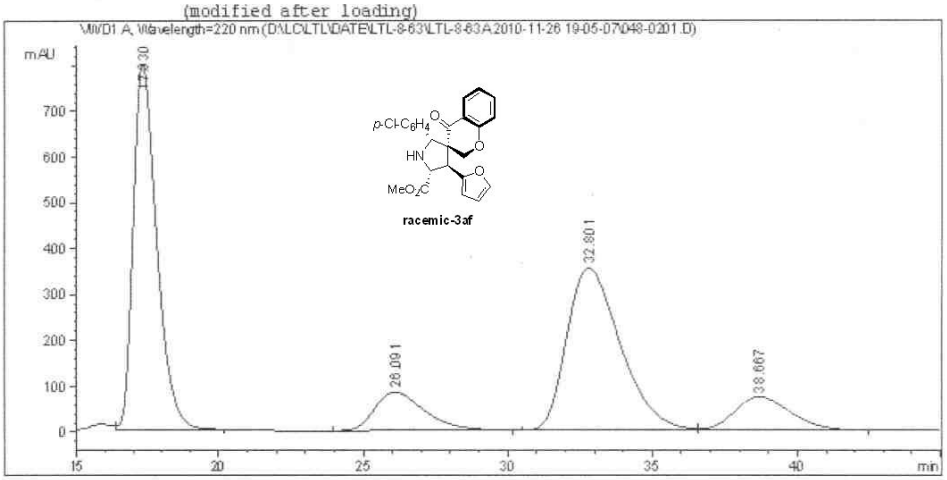


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==================================================================
                        Area Percent Report
==================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s    [mAU   ]     %
----|------|----|-------|----------|----------|--------|
   1  17.330 VB    0.8790 4.59989e4   800.02161  41.1901
   2  26.091 BB    1.8151 1.01273e4    84.29545   9.0685
   3  32.801 BB    2.0108 4.56125e4   353.46030  40.8440
   4  38.667 BB    2.0505 9936.04102   72.16003   8.8973

Totals :                 1.11675e5  1309.93738


==================================================================
                        *** End of Report ***
```

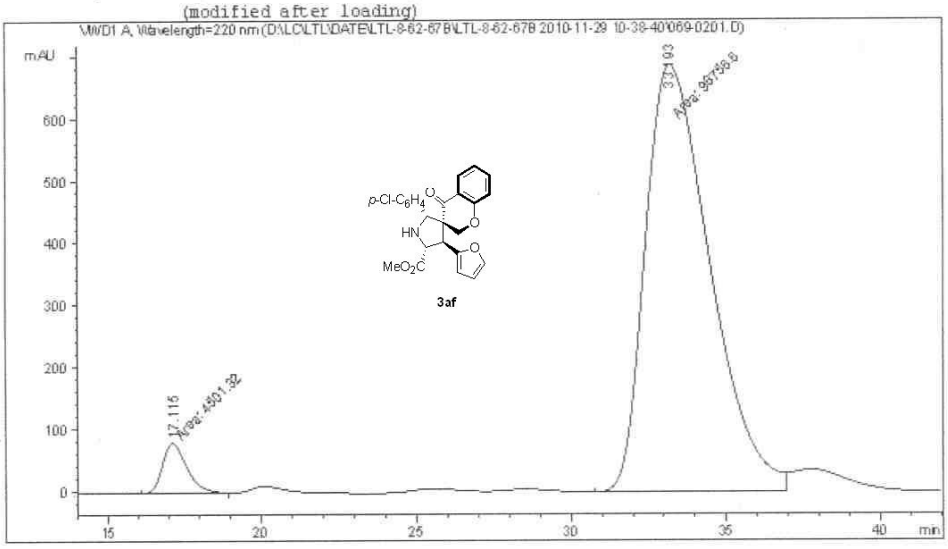
Instrument 1 11/26/2010 8:05:22 PM LTL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\069-0201.D
Sample Name: LTL-8-63B

Acq. Operator	: THL	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 69
Injection Date	: 11/29/2010 11:41:40 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\ASH-10-90-1ML-220NM-60MIN.M
Last changed : 8/30/2010 5:07:19 PM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-8-62-67B\LTL-8-62-67B 2010-11-29 10-38-40\069-0201.D\DA.M (ASH-10-90-1ML-220NM-60MIN.M)
Last changed : 11/29/2010 2:56:25 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	17.115	MM	0.9318	4501.31982	80.51328	4.3593
2	33.193	MF	2.3975	9.87566e4	686.52856	95.6407

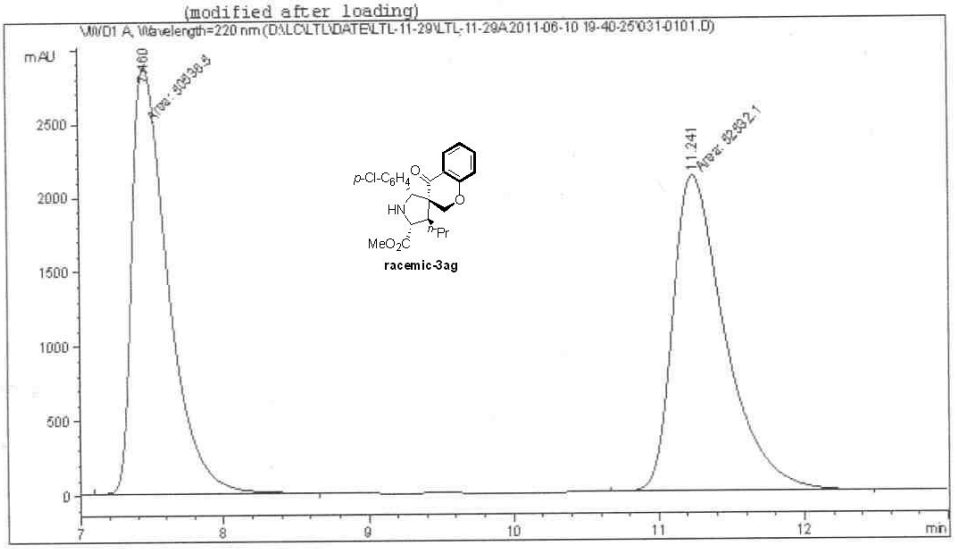
Totals : 1.03258e5 767.04184

Instrument 1 11/29/2010 2:56:29 PM THL

Data File D:\LC\LTL\DATE\LTL-11-29\LTL-11-29A 2011-06-10 19-40-25\031-0101.D
Sample Name: LTL-11-29A

Acq. Operator	: LTL	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 31
Injection Date	: 6/10/2011 7:41:59 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-11-29\LTL-11-29A 2011-06-10 19-40-25\ADH-30-70-1ML-220NM-50MIN-NOT.M
Last changed : 6/9/2011 12:11:29 PM by hzl
Analysis Method : D:\LC\LTL\DATE\LTL-11-29\LTL-11-29A 2011-06-10 19-40-25\031-0101.D\DA.M (ADH-30-70-1ML-220NM-50MIN-NOT.M)
Last changed : 6/10/2011 9:16:06 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	7.460	MM	0.2940	5.05365e4	2864.96631	49.0319
2	11.241	MM	0.4130	5.25321e4	2120.15552	50.9681
Totals :				1.03069e5	4985.12183	

Instrument 1 6/10/2011 9:16:10 PM THL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-29\LTL-11-29B 2011-06-10 21-33-54\034-0101.D
Sample Name: LTL-11-29B

```
==================================================================
Acq. Operator   : LTL                          Seq. Line :   1
Acq. Instrument : Instrument 1                  Location : Vial 34
Injection Date  : 6/10/2011 9:35:23 PM             Inj :   1
                                               Inj Volume : 5 µl
Acq. Method     : D:\LC\LTL\DATE\LTL-11-29\LTL-11-29B 2011-06-10 21-33-54\ADH-30-70-1ML-
                  220NM-40MIN-NOT.M
Last changed    : 6/9/2011 12:11:50 PM by hzl
Analysis Method : D:\LC\LTL\DATE\LTL-11-29\LTL-11-29B 2011-06-10 21-33-54\034-0101.D\DA.M (
                  ADH-30-70-1ML-220NM-40MIN-NOT.M)
Last changed    : 6/10/2011 9:48:50 PM by LTL
                  (modified after loading)
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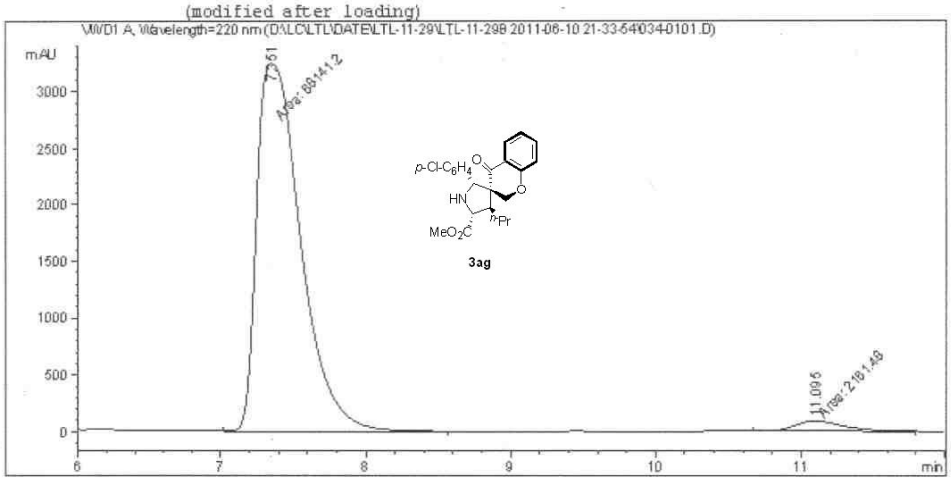



```
==================================================================
                        Area Percent Report
==================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=220 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]  mAU   *s   [mAU   ]      %
----|-------|----|-------|----------|----------|--------|
   1   7.351 MM    0.3504 6.81412e4  3241.05688  96.9255
   2  11.095 MM    0.3925 2161.48486   91.78539   3.0745

Totals :                  7.03027e4  3332.84227

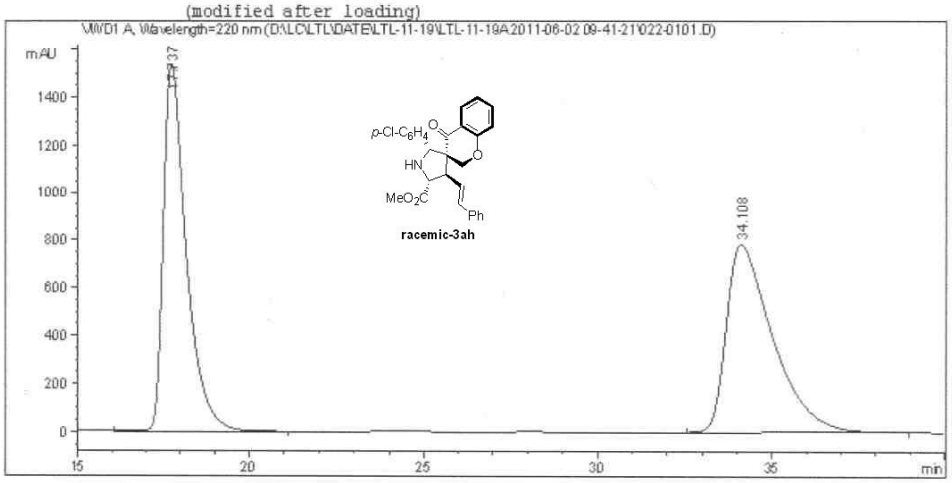
==================================================================
                        *** End of Report ***
```

Instrument 1 6/10/2011 9:48:54 PM LTL Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-19\LTL-11-19A 2011-06-02 09-41-21\022-0101.D
Sample Name: LTL-11-19

Acq. Operator	: LTL	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 22
Injection Date	: 6/2/2011 9:43:03 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-11-19\LTL-11-19A 2011-06-02 09-41-21\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-11-19\LTL-11-19A 2011-06-02 09-41-21\022-0101.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 6/3/2011 4:31:05 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	17.737	VB	0.6916	7.16663e4	1539.65735	49.7176
2	34.108	BB	1.3716	7.24803e4	782.70056	50.2824
Totals :				1.44147e5	2322.35791	

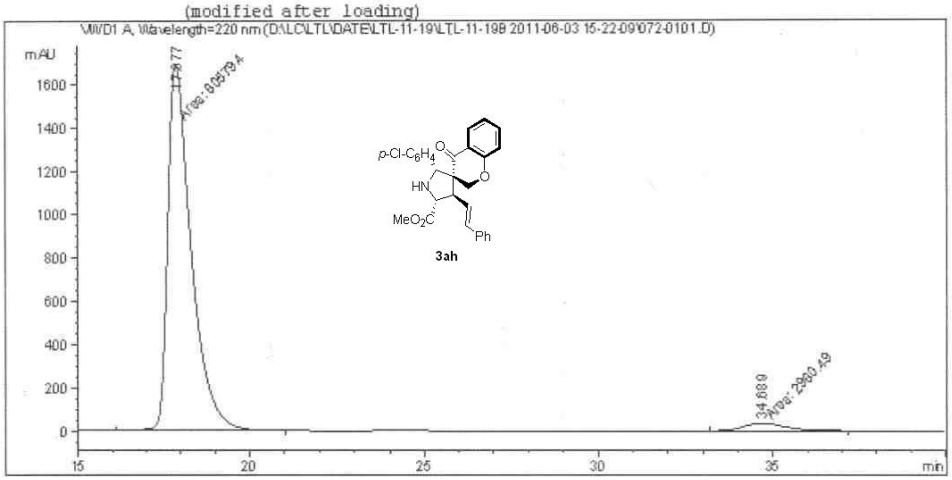
*** End of Report ***

Instrument 1 6/3/2011 4:31:10 PM THL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-11-19\LTL-11-19B 2011-06-03 15-22-09\072-0101.D
Sample Name: LTL-11-19B

Acq. Operator : LTL Seq. Line : 1
Acq. Instrument : Instrument 1 Location : Vial 72
Injection Date : 6/3/2011 3:23:32 PM Inj : 1
Inj Volume : 5 µl
Acq. Method : D:\LC\LTL\DATE\LTL-11-19\LTL-11-19B 2011-06-03 15-22-09\ADH-30-70-1ML-220NM-40MIN.M
Last changed : 4/22/2011 4:36:32 PM by HZL
Analysis Method : D:\LC\LTL\DATE\LTL-11-19\LTL-11-19B 2011-06-03 15-22-09\072-0101.D\DA.M (ADH-30-70-1ML-220NM-40MIN.M)
Last changed : 6/3/2011 4:30:09 PM by THL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	17.877	MM	0.7916	8.05794e4	1696.56726	96.4331
2	34.689	MM	1.3949	2980.48950	35.61176	3.5669
Totals :				8.35599e4	1732.17902	

*** End of Report ***

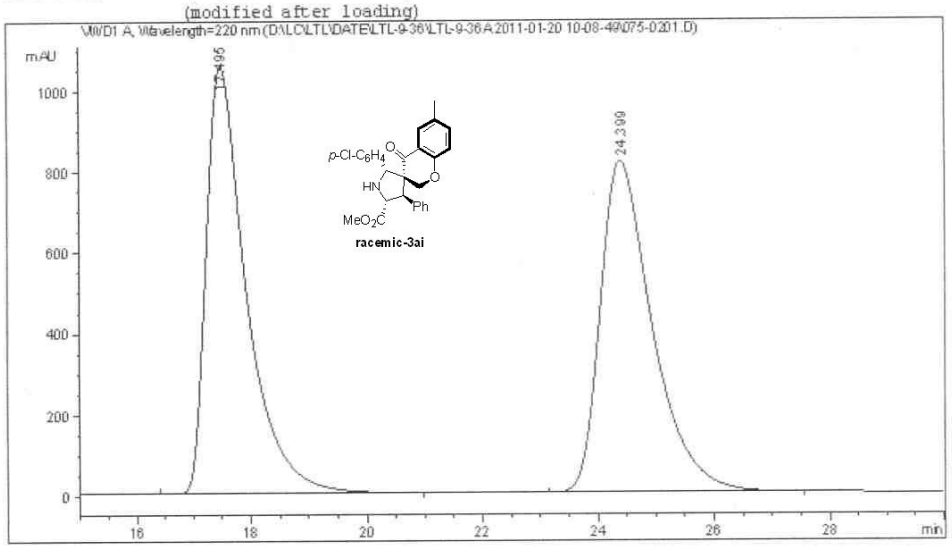
Instrument 1 6/3/2011 4:30:13 PM THL

Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-9-36\LTL-9-36A 2011-01-20 10-08-49\075-0201.D
Sample Name: LTL-9-36A

Acq. Operator	: THL	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 75
Injection Date	: 1/20/2011 10:21:18 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-36\LTL-9-36A 2011-01-20 10-08-49\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-9-36\LTL-9-36A 2011-01-20 10-08-49\075-0201.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 1/24/2011 5:02:35 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

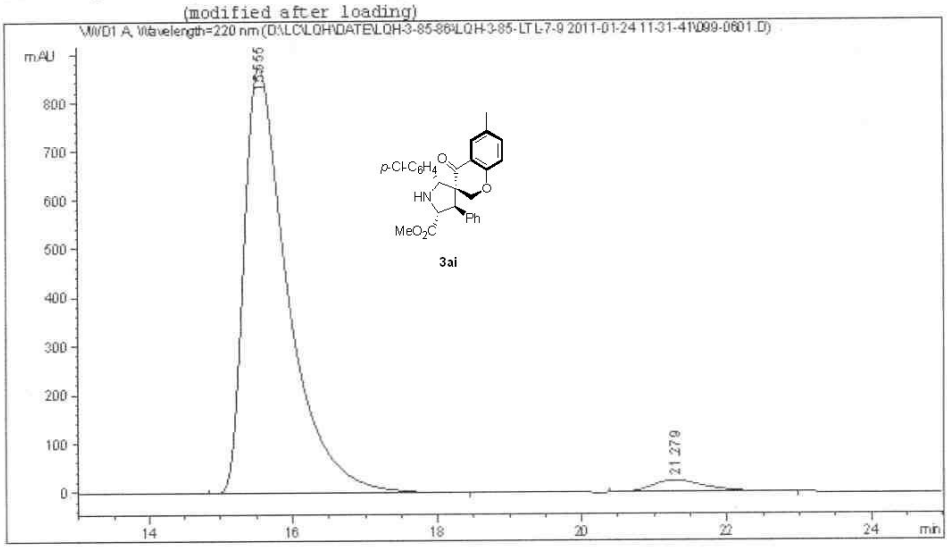
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	17.495	VB	0.7189	5.09878e4	1053.68652	50.0661
2	24.399	BB	0.9350	5.08531e4	819.56921	49.9339
Totals :				1.01841e5	1873.25574	

Data File D:\LC\LQH\DATE\LQH-3-85-86\LQH-3-85-LTL-7-9 2011-01-24 11-31-41\099-0601.D
Sample Name: LTL-9-36B

Acq. Operator	: LTL	Seq. Line	: 6
Acq. Instrument	: Instrument 1	Location	: Vial 99
Injection Date	: 1/24/2011 1:49:48 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LQH\DATE\LQH-3-85-86\LQH-3-85-LTL-7-9 2011-01-24 11-31-41\ADH-30-70-1ML-220NM-30MIN.M
Last changed : 1/22/2011 10:59:12 AM by THL-7-95-97
Analysis Method : D:\LC\LQH\DATE\LQH-3-85-86\LQH-3-85-LTL-7-9 2011-01-24 11-31-41\099-0601.D\DA.M (ADH-30-70-1ML-220NM-30MIN.M)
Last changed : 1/24/2011 3:13:10 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

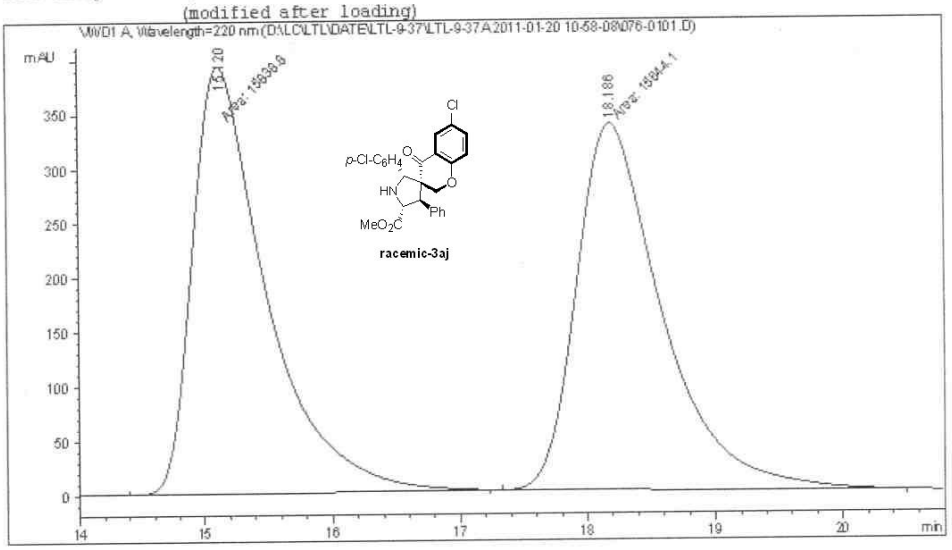
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	15.555	BB	0.6194	3.67809e4	876.09912	96.5654
2	21.279	BB	0.7821	1308.20422	24.89078	3.4346
Totals :				3.80891e4	900.98990	

Instrument 1 1/24/2011 3:13:15 PM LTL

Data File D:\LC\LTL\DATE\LTL-9-37\LTL-9-37A 2011-01-20 10-58-08\076-0101.D
Sample Name: LTL-9-37A

Acq. Operator	: THL	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 76
Injection Date	: 1/20/2011 10:59:55 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-37\LTL-9-37A 2011-01-20 10-58-08\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-9-37\LTL-9-37A 2011-01-20 10-58-08\076-0101.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 1/24/2011 5:04:29 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

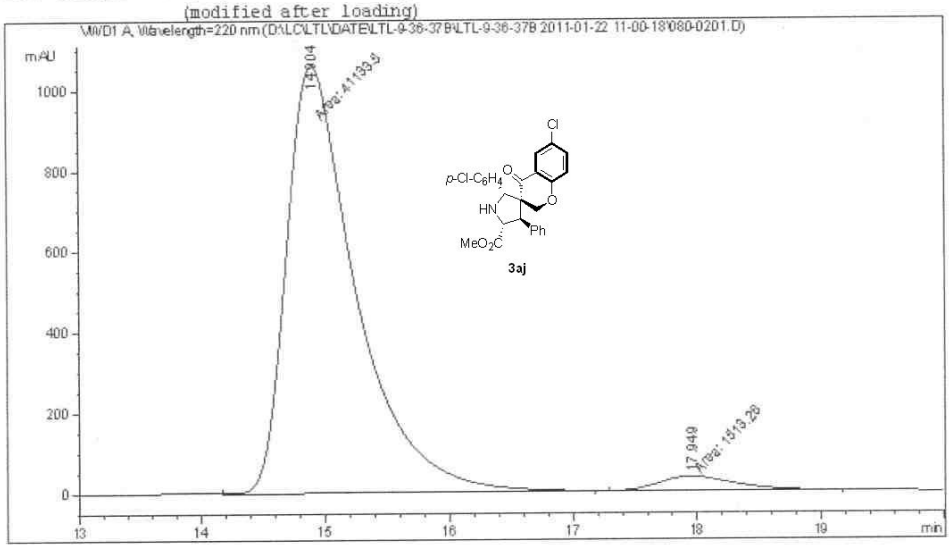
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	15.120	MM	0.6737	1.58388e4	391.83405	50.3093
2	18.186	MM	0.7741	1.56441e4	336.82358	49.6907
Totals :				3.14829e4	728.65762	

Data File D:\LC\LTL\DATE\LTL-9-36-37B\LTL-9-36-37B 2011-01-22 11-00-18\080-0201.D
Sample Name: LTL-9-37B

Acq. Operator	: THL-7-95-97	Seq. Line	: 2
Acq. Instrument	: Instrument 1	Location	: Vial 80
Injection Date	: 1/22/2011 11:33:18 AM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-36-37B\LTL-9-36-37B 2011-01-22 11-00-18\ADH-30-70-1ML-220NM-30MIN.M
Last changed : 1/22/2011 10:59:12 AM by THL-7-95-97
Analysis Method : D:\LC\LTL\DATE\LTL-9-36-37B\LTL-9-36-37B 2011-01-22 11-00-18\080-0201.D\DA.M (ADH-30-70-1ML-220NM-30MIN.M)
Last changed : 1/24/2011 4:58:15 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

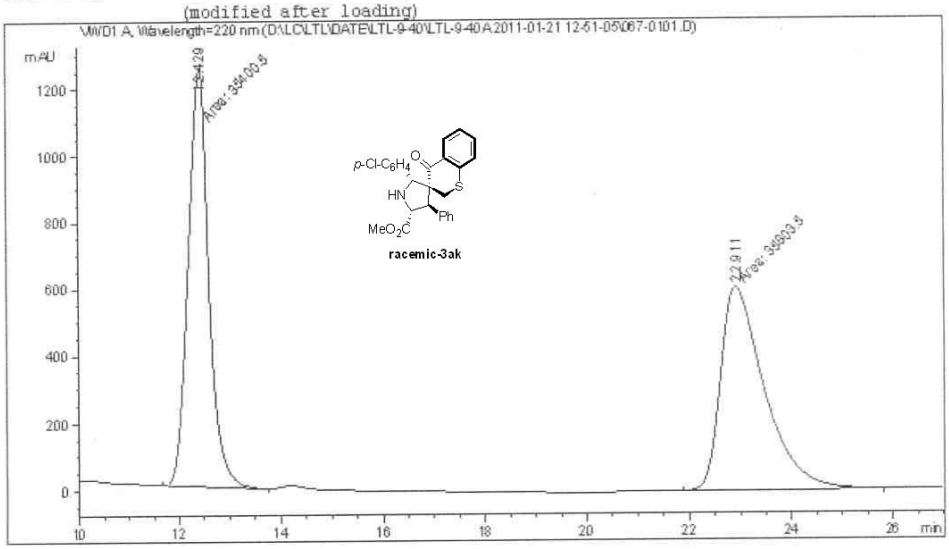
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	14.904	MM	0.6476	4.11335e4	1058.60535	96.4516
2	17.949	MM	0.7012	1513.26123	35.96942	3.5484
Totals :				4.26467e4	1094.57477	

Data File D:\LC\LTL\DATE\LTL-9-40\LTL-9-40A 2011-01-21 12-51-05\067-0101.D
Sample Name: LTL-9-40A

Acq. Operator	: THL-7-95-97	Seq. Line	: 1
Acq. Instrument	: Instrument 1	Location	: Vial 67
Injection Date	: 1/21/2011 12:52:36 PM	Inj	: 1
		Inj Volume	: 5 µl

Acq. Method : D:\LC\LTL\DATE\LTL-9-40\LTL-9-40A 2011-01-21 12-51-05\ADH-30-70-1ML-220NM-80MIN.M
Last changed : 11/27/2010 11:06:07 AM by LTL
Analysis Method : D:\LC\LTL\DATE\LTL-9-40\LTL-9-40A 2011-01-21 12-51-05\067-0101.D\DA.M (ADH-30-70-1ML-220NM-80MIN.M)
Last changed : 1/24/2011 5:05:26 PM by LTL
(modified after loading)



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

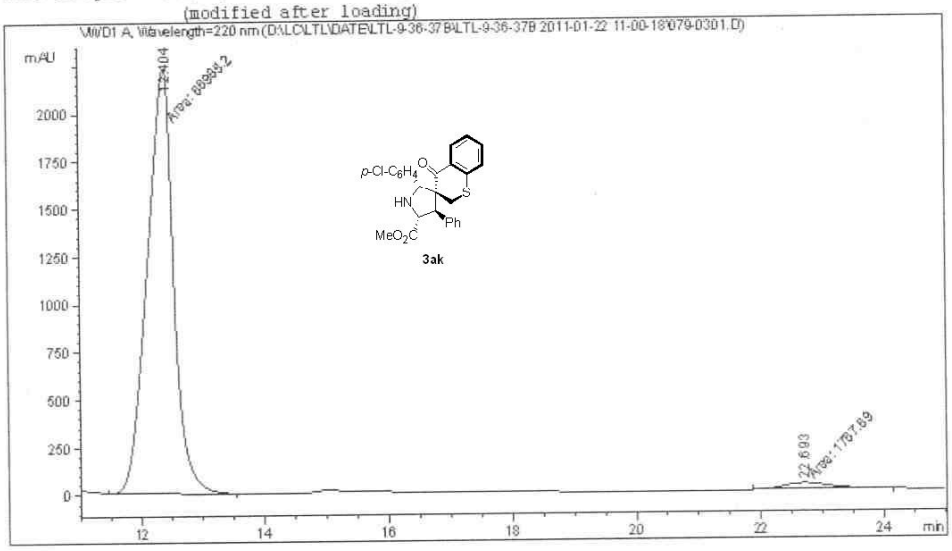
Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	12.429	MM	0.4706	3.54005e4	1253.84875	49.7170
2	22.911	MM	0.9849	3.58035e4	605.87762	50.2830
Totals :				7.12040e4	1859.72638	

Instrument 1 1/24/2011 5:05:30 PM LTL Page 1 of 1

Data File D:\LC\LTL\DATE\LTL-9-36-37B\LTL-9-36-37B 2011-01-22 11-00-18\079-0301.D
Sample Name: LTL-9-40B

Acq. Operator	: THL-7-95-97	Seq. Line	: 3
Acq. Instrument	: Instrument 1	Location	: Vial 79
Injection Date	: 1/22/2011 12:04:54 PM	Inj	: 1
		Inj Volume	: 5 µl
Acq. Method	: D:\LC\LTL\DATE\LTL-9-36-37B\LTL-9-36-37B 2011-01-22 11-00-18\ADH-30-70-1ML-220NM-30MIN.M		
Last changed	: 1/22/2011 10:59:12 AM by THL-7-95-97		
Analysis Method	: D:\LC\LTL\DATE\LTL-9-36-37B\LTL-9-36-37B 2011-01-22 11-00-18\079-0301.D\DA.M (ADH-30-70-1ML-220NM-30MIN.M)		
Last changed	: 1/24/2011 4:58:58 PM by LTL (modified after loading)		



Area Percent Report

Sorted By	:	Signal
Multiplier	:	1.0000
Dilution	:	1.0000

Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	12.404	MM	0.5008	6.69852e4	2229.08105	97.4289
2	22.693	MM	0.8975	1767.69250	32.82574	2.5711
Totals :				6.87529e4	2261.90680	

Instrument 1 1/24/2011 4:59:01 PM LTL

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