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Supporting Information

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**Fine-tunable Organocatalysts Bearing Multiple Hydrogen Bonding
Donors for Construction of Adjacent Quaternary and Tertiary
Stereocenters *via* a Michael Reaction**

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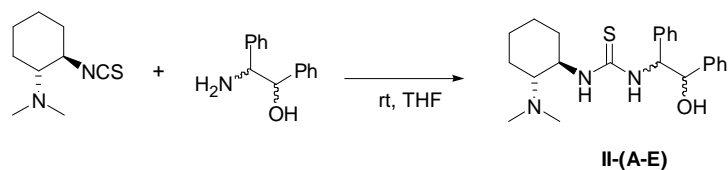
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General Remarks.

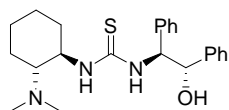
^1H NMR spectra were recorded on a VARIAN Mercury 300 MHz spectrometer in chloroform- d_3 . Chemical shifts are reported in ppm with the internal TMS signal at 0.0 ppm as a standard. The data are reported as (s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet or unresolved, brs = broad singlet, coupling constant(s) in Hz, integration). ^{13}C NMR spectra were recorded on a VARIAN Mercury 75 MHz spectrometer in chloroform- d_3 . 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 ^1H NMR or HPLC analysis. Enantiomeric ratios were determined by HPLC, using a chiralpak AS-H column, a chiralpak AD-H column or a chiralcel OD-H column with hexane and *i*-PrOH as solvents. The absolute configurations of the known products were assigned by HPLC and optical rotation comparisons with the reported data,¹ and those of other adducts were deduced on the basis of those results.

(1*S*,2*S*)-2-amino-1,2-diphenylethanol,² (1*R*,2*R*)-2-amino-1,2-diphenylethanol², and (1*R*,2*S*)-2-methoxy-1,2-diphenylethanamine,³ were prepared by the reported synthetic methods. All the physical and spectroscopic data are consistent with those reported in the literature.^{2,3}

General Procedure for the Synthesis of Organocatalysts II (A-G)



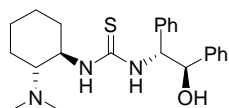
To a solution of corresponding 2-amino-1,2-diphenylethanol (1 mmol) in anhydrous THF (10 mL) was added (1*R*,2*R*)-2-isothiocyanato-*N,N*-dimethylcyclohexanamine (194 mg, 1.05 mmol) at room temperature. The solution was stirred overnight. TLC analysis indicated completion of the reaction. The reaction mixture was concentrated *in vacuo*. The residue was purified by flash silica gel chromatography.



1-((1*R*,2*R*)-2-(dimethylamino)cyclohexyl)-3-((1*S*,2*S*)-2-hydroxy-1,2-diphenylethyl)thiourea (II-A)

The pure product was obtained as a white solid in 93% yield.

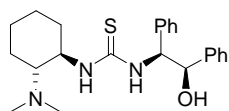
Mp. 120-122°C; $[\alpha]_D^{25} -11.3$ (*c* 0.76, CHCl₃); IR (KBr) ν 3322, 3220, 3074, 2961, 2941, 2699, 2653, 1524 cm⁻¹; ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.07 (m, 1H), 1.26-1.32 (m, 3H), 1.66 (m, 1H), 1.79-1.84 (m, 1H), 1.89-1.93 (m, 1H), 2.10 (m, 1H), 2.86 (s, 6H), 3.34-3.41 (m, 1H), 4.73-4.76 (m, 1H), 5.08 (d, *J* = 8.7 Hz, 1H), 5.70-5.76 (m, 1H), 7.13-7.36 (m, 10H), 7.68 (d, *J* = 9.6 Hz, 1H), 9.21 (br, 1H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 8.50, 22.82, 23.80, 24.15, 32.48, 53.23, 65.55, 67.50, 78.16, 126.44, 126.97, 127.28, 127.72, 127.92, 129.01, 139.02, 140.68, 182.60; HRMS Calcd. for C₂₃H₃₂N₃OS: 398.2266, found: 398.2261.



1-((1*R*,2*R*)-2-(dimethylamino)cyclohexyl)-3-((1*R*,2*R*)-2-hydroxy-1,2-diphenylethyl)thiourea (II-B)

The pure product was obtained as a white solid in 91% yield.

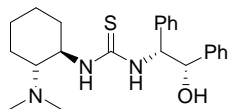
Mp. 74-76 °C; $[\alpha]_D^{25} +34.7$ (*c* 1.04, CHCl₃); IR (KBr) ν 3421, 3062, 2934, 2860, 1708, 1524, 1384 cm⁻¹; ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.27-1.35 (m, 4H), 1.66 (m, 1H), 1.84-1.90 (m, 2H), 2.10 (m, 1H), 2.52 (s, 6H), 3.01-3.04 (m, 1H), 4.30 (m, 1H), 4.98 (d, *J* = 5.1 Hz, 1H), 5.67 (m, 1H), 7.21-7.32 (m, 10H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 21.74, 24.27, 24.44, 32.71, 39.40, 39.84, 55.16, 63.83, 66.24, 125.81, 126.47, 127.28, 127.51, 128.18, 128.33, 128.59, 140.93; HRMS Calcd. for C₂₃H₃₂N₃OS: 398.2266, found: 398.2261.



1-((1*R*,2*R*)-2-(dimethylamino)cyclohexyl)-3-((1*S*,2*R*)-2-hydroxy-1,2-diphenylethyl)thiourea (II-C)

The pure product was obtained as a white solid in 96% yield.

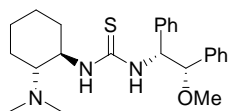
Mp. 65-67 °C; $[\alpha]_D^{25} -45.3$ (*c* 1.22, CHCl₃); IR (KBr) ν 3366, 3058, 2941, 2862, 2714, 1536, 1384, 706 cm⁻¹; ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.27-1.43 (m, 4H), 1.77 (m, 1H), 1.94 (m, 2H), 2.18 (m, 1H), 2.84 (m, 6H), 2.38 (m, 1H), 4.78 (m, 1H), 5.51 (m, 1H), 5.80 (m, 1H), 7.14-7.15 (m, 10H), 7.90 (br, 1H), 8.18 (br, 1H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 8.88, 23.34, 24.13, 24.51, 32.76, 46.09, 53.28, 64.65, 68.08, 126.50, 126.99, 127.33, 127.74, 127.84, 129.17, 136.60, 141.27, 182.03; HRMS Calcd. for C₂₃H₃₂N₃OS: 398.2266, found: 398.2261.



1-((1*R*,2*R*)-2-(dimethylamino)cyclohexyl)-3-((1*R*,2*S*)-2-hydroxy-1,2-diphenylethyl)thiourea (II-D)

The pure product was obtained as a white solid in 98% yield.

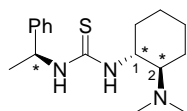
Mp. 64-66 °C; $[\alpha]_D^{25} +70.0$ (*c* 0.26, CHCl₃); IR (KBr) ν 3415, 3061, 3030, 2933, 2859, 1540, 1384, 703 cm⁻¹; ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.15-1.26 (m, 4H), 1.62 (m, 1H), 1.80-1.83 (m, 2H), 2.18-2.20 (m, 1H), 2.24 (s, 6H), 2.31-2.34 (m, 1H), 3.70 (m, 1H), 5.17 (m, 1H), 5.44 (m, 1H), 6.99-7.01 (m, 2H), 7.08 (m, 2H), 7.18-7.25 (m, 6H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 22.37, 22.90, 24.79, 25.17, 33.06, 40.61, 56.66, 64.25, 67.16, 126.89, 127.22, 127.84, 127.94, 128.26, 128.43, 136.99, 140.16, 181.84; HRMS Calcd. for C₂₃H₃₂N₃OS: 398.2266, found: 398.2261.



1-((1R,2R)-2-(dimethylamino)cyclohexyl)-3-((1R,2S)-2-methoxy-1,2-diphenylethyl)thiourea (II-E)

The pure product was obtained as a white solid in 96% yield.

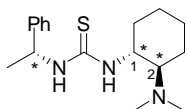
Mp. 62-64 °C; $[\alpha]_D^{25} +57.8$ (*c* 1.02, CHCl₃); IR (KBr) ν 3423, 3029, 2931, 2858, 2826, 2787, 1533, 1384, 1103M 702 cm⁻¹; ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.18-1.26 (m, 4H), 1.60-1.64 (m, 1H), 1.77-1.87 (m, 2H), 2.14-2.22 (m, 1H), 2.31 (s, 6H), 2.35-2.38 (m, 1H), 3.29 (s, 3H), 3.69 (m, 1H), 4.71 (m, 1H), 5.21 (m, 1H), 6.61 (m, 1H), 6.97-6.99 (m, 4H), 7.16-7.31 (m, 6H), 7.50-7.52 (m, 1H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 22.41, 24.72, 25.19, 33.02, 39.94, 40.62, 56.70, 57.51, 63.77, 67.27, 85.82, 127.63, 127.77, 128.03, 128.23, 128.74, 129.02, 136.98, 182.1; HRMS Calcd. for C₂₄H₃₄N₃OS: 412.2423, found: 412.2417.



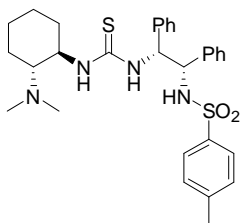
1-((1R,2R)-2-(dimethylamino)cyclohexyl)-3-((S)-1-phenylethyl)thiourea (II-F)

$[\alpha]_D^{25} +16.0$ (*c* 1.18, CHCl₃); IR (KBr) ν 3266, 3029, 2931, 2858, 2787, 1540, 1384, 1355, 699 cm⁻¹; ¹H NMR (CDCl₃, TMS, 300 MHz) δ 0.96-1.16 (m, 4H), 1.21-1.29 (m, 1H),

1.48 (d, $J = 6.6$ Hz, 3H), 1.63-1.75 (m, 2H), 1.83 (s, 6H), 2.21-2.27 (m, 1H), 2.72 (m, 1H), 3.52 (m, 1H), 4.88 (m, 1H), 6.45 (m, 1H), 7.28-7.34 (m, 5H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 21.78, 23.85, 24.66, 25.31, 32.93, 39.65, 53.89, 56.33, 66.97, 126.12, 127.69, 129.04, 143.17, 181.86; HRMS Calcd. for $\text{C}_{17}\text{H}_{27}\text{N}_3\text{S}$: 305.1926, found: 305.1921;



1-((1*R*,2*R*)-2-(dimethylamino)cyclohexyl)-3-((*R*)-1-phenylethyl)thiourea (**II-G**)
 Mp. 110 °C; $[\alpha]_{\text{D}}^{25}$ -6.0 (c 0.2, CHCl_3); IR (KBr) ν 3352, 3288, 2971, 2933, 2860, 2849, 1631, 1535, 1489, 1497, 1384, 689 cm^{-1} ; ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 1.06-1.26 (m, 4H), 1.49 (d, $J = 6.6$ Hz, 3H), 1.57-1.61 (m, 1H), 1.73-1.83 (m, 2H), 2.15 (m, 1H), 2.21 (s, 6H), 2.35 (m, 1H), 3.55 (m, 1H), 5.09 (m, 1H), 6.30 (m, 1H), 7.24-7.32 (m, 5H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 22.34, 22.86, 24.69, 25.08, 33.06, 40.51, 53.86, 56.51, 67.48, 126.32, 127.63, 128.91, 143.17, 181.47; HRMS Calcd. for $\text{C}_{17}\text{H}_{27}\text{N}_3\text{S}$: 305.1926, found: 305.1928;



***N*-((1*R*,2*R*)-2-(3-((1*R*,2*S*)-2-(dimethylamino)cyclohexyl)thioureido)-1,2-diphenylethyl)-4-methylbenzenesulfonamide (**I-E**)**

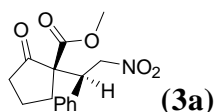
The pure product was obtained as a white solid in 78% yield.

Mp. 75-76 °C; $[\alpha]_{\text{D}}^{25}$ +57.0 (c 0.74, CHCl_3); IR (KBr) ν 3360, 2932, 2859, 1540, 1454, 1383, 1329, 1159, 1089, 702 cm^{-1} ; ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 1.11-1.35 (m, 4H), 1.68-1.87 (m, 3H), 2.25 (s, 6H), 2.31 (s, 1H), 2.25-2.47 (m, 2H), 3.71 (s, 1H), 4.88 (s,

1H), 5.68 (s, 1H), 6.71 (d, $J = 8.1$ Hz, 2H), 6.81 (d, $J = 7.2$ Hz, 2H), 6.86-7.21 (m, 8H), 7.40 (d, $J = 8.1$ Hz, 2H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 21.68, 22.56, 24.80, 25.28, 32.94, 40.88, 56.66, 62.40, 62.72, 66.84, 127.36, 127.56, 127.70, 127.87, 128.11, 128.50, 129.56, 136.46, 136.65, 137.10, 143.45, 181.96.

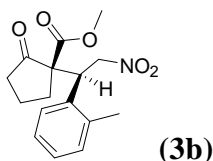
General procedure for asymmetric Michael addition of α -substituted β -ketoesters and Nitroolefins catalyzed organocatalysts II-D

The catalyst (5.0 mg, 0.0126 mmol) was added to a vial containing α -substituted β -ketoester (0.1258 mmol) and nitroolefin (0.252 mmol) in dichloromethane (0.2-0.6 mL) at -45°C , TLC analysis indicated completion of the reaction after about 12-20h. Then the reaction mixture was concentrated *under vacuum* to obtain the crude product. The crude product was purified by flash silica gel chromatography to afford the product.



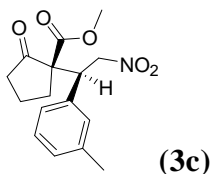
Methyl 1-(2-nitro-1-phenylethyl)-2-oxocyclopentanecarboxylate (table 3, entry 1):

The title compound was prepared according to the general procedure as described above in 98% yield. $[\alpha]_{\text{D}}^{25} -34.8$ (c 0.88, CHCl_3); ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 1.81-2.10 (m, 4H), 2.32-2.42 (m, 2H), 3.77 (s, 3H), 4.10 (dd, $J = 3.6$ Hz and 10.2 Hz, 1H), 5.03 (dd, $J = 10.8$ and 13.8 Hz, 1H), 5.18 (dd, $J = 4.5$ and 14.1 Hz, 1H), 7.24-7.33 (m, 5H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 19.58, 31.35, 38.18, 46.38, 53.30, 62.68, 76.64, 128.59, 129.09, 129.53, 135.45, 170.04, 212.51; dr = 98:2 (determined by integration of ^1H NMR of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 18.1$ min, $t_{\text{major}} = 26.5$ min (major diastereomer); (minor diastereomers) 14.8, 24.1 min.



Methyl 1-(2-nitro-1-*o*-tolylethyl)-2-oxocyclopentanecarboxylate (table 3, entry 3)

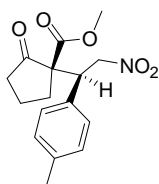
The title compound was prepared according to the general procedure as described above in 97% yield. $[\alpha]_{\text{D}}^{25} +1.6$ (*c* 0.78, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.95-2.05 (m, 3H), 2.09-2.21 (m, 1H), 2.36-2.38 (m, 2H), 2.41 (s, 3H), 3.75 (s, 3H), 4.38 (dd, $J = 3.6$ and 11.1 Hz, 1H), 4.96 (dd, $J = 10.8$ and 13.2 Hz, 1H), 5.27 (dd, $J = 3.6$ and 13.2 Hz, 1H), 7.09-7.18 (m, 3H), 7.27-7.32 (m, 1H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 19.70, 20.37, 32.04, 38.20, 39.93, 40.74, 53.29, 62.77, 126.80, 127.05, 128.26, 131.53, 134.87, 138.25, 170.32, 212.57; HRMS Calcd. for $\text{C}_{16}\text{H}_{19}\text{NO}_5\text{Na}$: 328.1161, found: 328.1169; dr = 93:7 (determined by integration of $^1\text{H NMR}$ of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 3/97, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 35.0$ min, $t_{\text{major}} = 46.0$ min (major diastereomer); (minor diastereomers) 24.4, 33.2 min.



Methyl 1-(2-nitro-1-*m*-tolylethyl)-2-oxocyclopentanecarboxylate (table 3, entry 4)

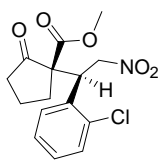
The title compound was prepared according to the general procedure as described above in 95% yield. $[\alpha]_{\text{D}}^{25} -25.9$ (*c* 0.82, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.71-2.10 (m, 4H), 2.32 (s, 3H), 2.35-2.52 (m, 2H), 3.76 (s, 3H), 4.04 (d, $J = 3.6$ and 11.1 Hz, 1H), 5.00 (d, $J = 11.1$ and 13.8 Hz, 1H), 5.16 (d, $J = 3.9$ and 13.2 Hz, 1H), 7.02-7.10 (m, 3H), 7.16-7.27 (m, 1H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 19.60, 21.75, 31.31, 38.23, 46.30, 53.29, 62.66, 76.69, 126.32, 128.93, 129.35, 130.34, 135.34, 138.72, 170.03, 212.62; HRMS Calcd. for $\text{C}_{16}\text{H}_{19}\text{NO}_5$: 305.1263, found: 305.1249; dr = 98:2 (determined by

integration of ^1H NMR of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 3/97, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 29.3$ min, $t_{\text{major}} = 41.6$ min (major diastereomer); (minor diastereomers) 23.2, 34.0 min.



Methyl 1-(2-nitro-1-*p*-tolylethyl)-2-oxocyclopentanecarboxylate (table 3, entry 5)

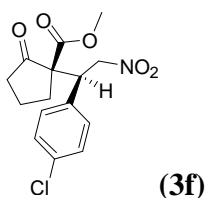
The title compound was prepared according to the general procedure as described above in 91% yield. $[\alpha]_{\text{D}}^{25} -48.1$ (*c* 0.52, CHCl_3); ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 1.77-2.07 (m, 4H), 2.30 (s, 3H), 2.34-2.52 (m, 2H), 3.76 (s, 3H), 4.07 (dd, $J = 3.6$ and 10.8 Hz, 1H), 4.99 (dd, $J = 11.1$ and 13.2 Hz, 1H), 5.13 (d, $J = 4.5$ and 13.2 Hz, 1H), 7.08-7.14 (m, 4H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 19.61, 21.29, 31.18, 38.26, 46.03, 53.31, 62.74, 76.68, 129.35, 129.78, 132.20, 138.36, 170.074, 212.64; HRMS Calcd. for $\text{C}_{16}\text{H}_{19}\text{NO}_5$: 305.1263, found: 305.1269; dr = 98:2 (determined by integration of ^1H NMR of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 3/97, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 28.9$ min, $t_{\text{major}} = 27.3$ min (major diastereomer); (minor diastereomers) 22.5, 32.4 min.



Methyl 1-(1-(2-chlorophenyl)-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 6)

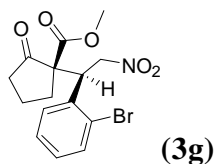
The title compound was prepared according to the general procedure as described above in 95% yield. $[\alpha]_{\text{D}}^{25} +8.2$ (*c* 0.50, CHCl_3); ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 1.89-1.98

(m, 2H), 2.05-2.13 (m, 1H), 2.25-2.28 (m, 1H), 2.47-2.52 (m, 2H), 3.75 (s, 3H), 4.53 (dd, $J = 3.6$ and 11.1 Hz, 1H), 5.10 (dd, $J = 10.8$ and 13.8 Hz, 1H), 5.48 (dd, $J = 3.9$ and 14.7 Hz, 1H), 7.20-7.29 (m, 2H), 7.37-7.41 (m, 1H), 7.50-7.52 (m, 1H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 19.54, 33.06, 38.11, 41.14, 53.20, 62.39, 76.88, 112.63, 127.92, 129.06, 129.64, 130.39, 134.81, 170.07, 212.86; HRMS Calcd. for $\text{C}_{15}\text{H}_{16}\text{ClNO}_5\text{Na}$: 348.0615, found: 348.0609; dr = 97:3 (determined by integration of ^1H NMR of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 3/97, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 31.2$ min, $t_{\text{major}} = 32.4$ min (major diastereomer); (minor diastereomers) 27.0, 52.3 min.



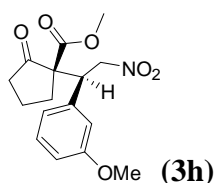
Methyl 1-(1-(4-chlorophenyl)-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 7)

The title compound was prepared according to the general procedure as described above in 90% yield. $[\alpha]_{\text{D}}^{25} -34.9$ (c 0.50, CHCl_3); ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 1.82-1.99 (m, 3H), 2.05-2.13 (m, 1H), 2.35-2.45 (m, 2H), 3.76 (s, 3H), 4.04 (dd, $J = 3.9$ and 10.8 Hz, 1H), 4.94-5.02 (m, 1H), 5.15 (dd, $J = 3.9$ and 13.8 Hz, 1H), 7.22 (d, $J = 7.8$ Hz, 2H), 7.29 (d, $J = 7.8$ Hz, 2H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 19.58, 31.56, 38.12, 45.78, 53.40, 62.50, 76.45, 129.31, 130.95, 134.02, 134.64, 169.98, 212.38; HRMS Calcd. for $\text{C}_{15}\text{H}_{16}\text{ClNO}_5$: 325.0717, found: 325.0720; dr = 98:2 (determined by integration of ^1H NMR of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 23.8$ min, $t_{\text{major}} = 42.5$ min (major diastereomer); (minor diastereomers) 19.1, 32.5 min.



Methyl 1-(1-(2-bromophenyl)-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 8).

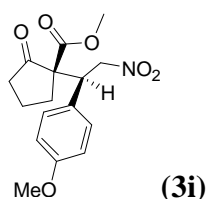
The title compound was prepared according to the general procedure as described above in 94% yield. $[\alpha]_D^{25}$ 19.78 (*c* 0.84, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.91-2.15 (m, 2H), 2.17-2.27 (m, 2H), 2.47-2.53 (m, 2H), 3.75 (s, 3H), 4.48-4.54 (dd, *J* = 3.6 and 10.8 Hz, 1H), 5.03-5.11 (dd, *J* = 10.8 and 13.8 Hz, 1H), 5.46-5.52 (dd, *J* = 10.8 and 13.8 Hz, 1H), 7.12-7.17 (m, 1H), 7.12-7.17 (m, 1H), 7.27-7.34 (m, 1H), 7.50-7.59 (m, 2H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 19.63, 33.19, 38.11, 44.03, 45.17, 53.23, 62.34, 127.01, 128.58, 129.14, 129.93, 133.82, 136.62, 170.63, 212.86; HRMS Calcd. for $\text{C}_{15}\text{H}_{16}\text{BrNO}_5\text{Na}$: 392.0110, found: 392.0104; dr = 97:3 (determined by integration of $^1\text{H NMR}$ of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel AD-H, *i*-propanol/hexane = 5/95, flow rate 1 mL/min, λ = 220 nm): t_{minor} = 12.9 min, t_{major} = 16.4 min (major diastereomer); (minor diastereomers) 21.2, 22.3 min.



Methyl 1-(1-(3-methoxyphenyl)-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 9)

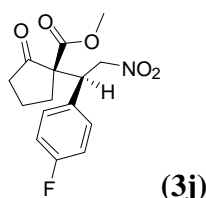
The title compound was prepared according to the general procedure as described above in 94% yield. $[\alpha]_D^{25}$ -29.0 (*c* 0.20, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.82-2.08 (m, 4H), 2.33-2.41 (m, 2H), 3.76 (s, 3H), 3.78 (s, 3H), 4.05 (dd, *J* = 3.6 and 10.8 Hz, 1H), 5.00 (dd, *J* = 11.1 and 13.2 Hz, 1H), 5.15 (dd, *J* = 3.6 and 14.1 Hz, 1H), 6.80-6.83 (m, 3H), 7.20-7.25 (m, 1H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 17.04, 28.76, 35.67, 43.73, 50.78,

52.87, 60.03, 74.05, 111.06, 113.06, 119.02, 127.48, 134.40, 157.33, 167.47, 210.05; HRMS Calcd. for C₁₆H₁₉NO₆: 321.1212 , found: 321.1213; dr = 96:4 (determined by integration of ¹H NMR of the crude product); 98% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 3/97, flow rate 1 mL/min, λ = 220 nm): t_{minor} = 58.4 min, t_{major} = 76.0 min (major diastereomer); (minor diastereomers) 49.4, 52.8 min.



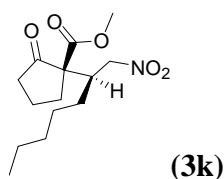
Methyl 1-(1-(4-methoxyphenyl)-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 10)

The title compound was prepared according to the general procedure as described above in 91% yield. [α]_D²⁵ -13.0 (*c* 0.26, CHCl₃); ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.79-2.06 (m, 4H), 2.32-2.43 (m, 2H), 3.75 (s, 3H), 3.77 (s, 3H), 4.06 (dd, *J* = 4.2 and 11.1 Hz, 1H), 4.96 (dd, *J* = 11.1 and 13.2 Hz, 1H), 5.11 (dd, *J* = 4.2 and 13.2 Hz, 1H), 6.83 (d, *J* = 8.7 Hz, 2H), 7.17 (d, *J* = 8.7 Hz, 2H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 17.07, 28.53, 35.70, 43.12, 50.75, 52.87, 62.26, 74.17, 111.81, 124.47, 128.08, 157.01, 167.56, 210.16; HRMS Calcd. for C₁₆H₁₉NO₆: 321.1212 , found: 321.1219; dr = 94:6 (determined by integration of ¹H NMR of the crude product); 97% ee (major diastereomer), HPLC (Chiralcel AS-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, λ = 220 nm): t_{minor} = 42.6 min, t_{major} = 30.8 min (major diastereomer); (minor diastereomers) 26.6, 57.6 min.



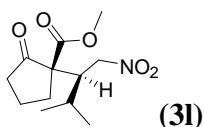
Methyl 1-(1-(4-fluorophenyl)-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 11)

The title compound was prepared according to the general procedure as described above in 89% yield. $[\alpha]_D^{25}$ -19.2 (*c* 0.66, CHCl₃); ¹H NMR (CDCl₃, TMS, 300 MHz) δ 1.84-2.08 (m, 4H), 2.35-2.41 (m, 2H), 3.76 (s, 3H), 4.07 (dd, *J* = 3.6 and 11.1 Hz, 1H), 4.98 (dd, *J* = 11.1 and 13.8 Hz, 1H), 5.15 (dd, *J* = 3.6 and 13.2 Hz, 1H), 6.98-7.04 (m, 2H), 7.24-7.28 (m, 2H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 19.60, 31.46, 38.17, 45.66, 53.40, 62.62, 76.63, 116.08 (*J* = 21.8 Hz), 131.31 (*J* = 8.0 Hz), 161.07, 164.36, 170.04, 212.53; HRMS Calcd. for C₁₅H₁₆FNO₅: 309.1013, found: 309.1024; dr = 97:3 (determined by integration of ¹H NMR of the crude product); 99% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, λ = 220 nm): *t*_{minor} = 20.2 min, *t*_{major} = 39.7 min (major diastereomer); (minor diastereomers) 26.2, 30.1 min.



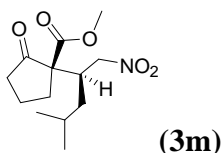
Methyl 1-(1-nitroheptan-2-yl)-2-oxocyclopentanecarboxylate (table 3, entry 12)

The title compound was prepared according to the general procedure as described above in 89% yield. $[\alpha]_D^{25}$ -43.4 (*c* 0.86, CHCl₃); ¹H NMR (CDCl₃, TMS, 300 MHz) δ 0.85-0.87 (m, 3H), 1.27-1.45 (m, 9H), 1.91-2.08 (m, 2H), 2.25-2.49 (m, 2H), 2.57-2.63 (m, 1H), 2.82-2.85 (m, 1H), 3.71 (s, 3H), 4.38 (dd, *J* = 6.0 and 14.7 Hz, 1H), 4.87 (dd, *J* = 4.8 and 13.8 Hz, 1H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 14.15, 19.64, 22.60, 27.49, 30.37, 31.18, 31.81, 38.50, 40.93, 53.03, 63.17, 76.57, 170.08, 213.58; HRMS Calcd. for C₁₄H₂₃NO₅Na: 308.1474, found: 308.1469; dr = 96:4 (determined by integration of ¹H NMR of the crude product); 94% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 5/95, flow rate 1 mL/min, λ = 215 nm): *t*_{minor} = 12.1 min, *t*_{major} = 16.8 min (major diastereomer); (minor diastereomers) 13.5, 15.5 min.



Methyl 1-(3-methyl-1-nitrobutan-2-yl)-2-oxocyclopentanecarboxylate (table 3, entry 13)

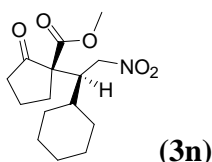
The title compound was prepared according to the general procedure as described above in 93% yield. $[\alpha]_D^{25}$ -17.0 (*c* 0.40, CHCl₃); ¹H NMR (CDCl₃, TMS, 300 MHz) δ 0.86 (d, *J* = 6.6 Hz, 1H), 0.94 (d, *J* = 7.2 Hz, 1H), 1.94-2.04 (m, 4H), 2.40-2.45 (m, 2H), 2.70-2.72 (m, 1H), 2.79-2.83 (m, 1H), 3.70 (s, 3H), 4.51 (dd, *J* = 6.6 and 15.3 Hz, 1H), 5.16 (dd, *J* = 3.6 and 14.7 Hz, 1H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 18.06, 19.49, 22.75, 28.91, 32.42, 38.12, 45.52, 53.02, 62.38, 73.38, 169.93, 212.99; HRMS Calcd. for C₁₂H₁₉NO₅Na: 280.1161, found: 280.1156; dr = 97:3 (determined by integration of ¹H NMR of the crude product); 90% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 5/95, flow rate 1 mL/min, λ = 215 nm): *t*_{minor} = 13.5 min, *t*_{major} = 15.2 min (major diastereomer); (minor diastereomers) 19.3, 36.1 min.



Methyl 1-(4-methyl-1-nitropentan-2-yl)-2-oxocyclopentanecarboxylate (table 3, entry 14)

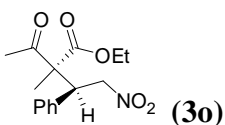
The title compound was prepared according to the general procedure as described above in 92% yield. $[\alpha]_D^{25}$ -54.0 (*c* 0.16, CHCl₃); ¹H NMR (CDCl₃, TMS, 300 MHz) δ 0.91 (d, *J* = 6.0 Hz, 3H), 0.95 (d, *J* = 6.6 Hz, 3H), 0.99-1.03 (m, 1H), 1.41-1.59 (m, 2H), 1.91-2.09 (m, 3H), 2.27-2.49 (m, 2H), 2.58-2.64 (m, 1H), 2.91-2.95 (m, 1H), 3.71 (s, 3H), 4.33 (dd, *J* = 4.2 and 14.7 Hz, 1H), 4.90 (dd, *J* = 5.7 and 14.4 Hz, 1H); ¹³C NMR (CDCl₃, TMS, 75 MHz) δ 19.62, 21.34, 23.97, 25.92, 31.27, 38.55, 38.62, 39.64, 53.00, 63.21, 68.19, 170.14, 213.52; HRMS Calcd. for C₁₃H₂₁NO₅Na: 294.1317, found: 294.1312; dr = 97:3 (determined by integration of ¹H NMR of the crude product); 94% ee (major

diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{minor} = 7.7$ min, $t_{major} = 11.4$ min (major diastereomer); (minor diastereomers) 8.3, 9.7 min.



Methyl 1-(1-cyclohexyl-2-nitroethyl)-2-oxocyclopentanecarboxylate (table 3, entry 15)

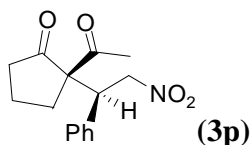
The title compound was prepared according to the general procedure as described above in 89% yield. $[\alpha]_D^{25} -34.4$ (*c* 0.82, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 0.98-1.20 (m, 6H), 1.47-1.70 (m, 5H), 2.00-2.01 (m, 3H), 2.37-2.42 (m, 2H), 2.64-2.73 (m, 2H), 3.66 (s, 3H), 4.53 (dd, $J = 5.7$ and 14.7 Hz, 1H), 5.06 (dd, $J = 3.9$ and 15.6 Hz, 1H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 19.48, 26.10, 26.73, 27.02, 28.80, 32.40, 33.00, 38.10, 39.54, 45.30, 52.98, 62.29, 74.01, 170.18, 213.18; HRMS Calcd. for $\text{C}_{15}\text{H}_{23}\text{NO}_5\text{Na}$: 320.1474, found: 320.1469; dr = 97:3 (determined by integration of $^1\text{H NMR}$ of the crude product); 90% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 5/95, flow rate 1 mL/min, $\lambda = 215$ nm): $t_{minor} = 12.0$ min, $t_{major} = 12.6$ min (major diastereomer); (minor diastereomers) 10.1, 15.7 min.



Ethyl 2-acetyl-2-methyl-4-nitro-3-phenylbutanoate

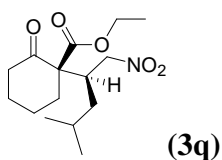
The title compound was prepared according to the general procedure as described above in 90% yield. $[\alpha]_D^{25} -34.3$ (*c* 0.60, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.19 (t, $J = 8.7$ Hz, 3H), 1.44 (s, 3H), 2.12 (s, 3H), 4.04-4.15 (m, 2H), 4.25 (m, 1H), 4.96 (d, $J = 6.6$ Hz, 2H), 7.14-7.22 (m, 2H), 7.28 (m, 3H); dr = 85:15 (determined by integration of $^1\text{H NMR}$ of the crude product); 92% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{minor} = 13.7$ min, $t_{major} = 19.8$

min (major diastereomer); (minor diastereomers) 12.3, 31.3 min.



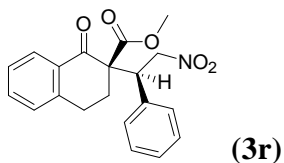
2-Acetyl-2-(2-nitro-1-phenylethyl)cyclopentanone

The title compound was prepared according to the general procedure as described above in 96% yield. $[\alpha]_D^{25} +41.8$ (*c* 0.50, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.65-1.80 (m, 3H), 1.93-2.03 (m, 1H), 2.15-2.28 (m, 1H), 2.34 (s, 3H), 2.56-2.61 (m, 1H), 4.40 (dd, $J = 3.9$ and 11.7 Hz, 1H), 4.50 (dd, $J = 3.9$ and 13.2 Hz, 1H), 4.87 (t, $J = 11.7$ Hz, 1H), 7.20-7.32 (m, 5H); dr = 96:4 (determined by integration of $^1\text{H NMR}$ of the crude product); 96% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 20/80, flow rate 1 mL/min, $\lambda = 220$ nm): $t_{\text{minor}} = 15.7$ min, $t_{\text{major}} = 69.6$ min (major diastereomer); (minor diastereomers) 19.7, 31.3 min.



Ethyl 1-(4-methyl-1-nitropentan-2-yl)-2-oxocyclohexanecarboxylate

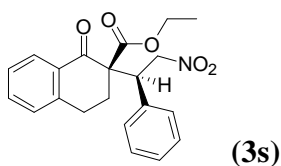
The title compound was prepared according to the general procedure as described above in 89% yield. $[\alpha]_D^{25} +30.8$ (*c* 0.32, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 0.88-1.00 (m, 6H), 1.12-1.20 (m, 1H), 1.25-1.32 (m, 3H), 1.38-1.71 (m, 5H), 1.83 (m, 1H), 1.99 (m, 1H), 2.46-2.56 (m, 3H), 2.90-2.92 (m, 1H), 4.22 (q, $J = 7.2$ Hz, 2H), 4.30 (dd, $J = 5.1$ and 14.7 Hz, 1H), 4.53 (dd, $J = 4.5$ and 14.7 Hz, 1H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 14.27, 21.45, 22.42, 23.98, 26.16, 27.37, 34.20, 39.05, 40.11, 41.38, 62.09, 64.60, 78.17; dr = 99:1 (determined by integration of $^1\text{H NMR}$ of the crude product); 92% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 0.8 mL/min, $\lambda = 215$ nm): $t_{\text{minor}} = 20.7$ min, $t_{\text{major}} = 11.3$.



Methyl

1,2,3,4-tetrahydro-2-(2-nitro-1-phenylethyl)-1-oxonaphthalene-2-carboxylate

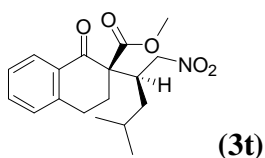
The title compound was prepared according to the general procedure as described above in 90% yield. $[\alpha]_D^{25} +53.0$ (*c* 0.88, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.99-2.08 (m, 1H), 2.32-2.46 (m, 1H), 2.95-2.99 (m, 2H), 3.65 (s, 3H), 4.21 (dd, *J* = 3.6 and 10.2 Hz, 1H), 5.06 (dd, *J* = 10.2 and 13.2 Hz, 1H), 5.16 (dd, *J* = 4.5 and 13.8 Hz, 1H), 7.20 (d, *J* = 7.5 Hz, 1H), 7.28-7.38 (m, 6H), 7.52 (t, *J* = 7.2 Hz, 1H), 8.05 (d, *J* = 8.1 Hz, 1H); $^{13}\text{C NMR}$ (CDCl_3 , TMS, 75 MHz) δ 25.77, 30.99, 47.35, 53.02, 59.95, 78.09, 127.32, 128.50, 128.68, 128.89, 128.98, 129.59, 130.08, 134.34, 136.10, 142.72, 170.48, 194.45; *dr* = 98:2 (determined by integration of $^1\text{H NMR}$ of the crude product); 98% *ee* (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, $\lambda = 254$ nm): $t_{\text{minor}} = 40.3$ min, $t_{\text{major}} = 83.0$ min (major diastereomer); (minor diastereomers) 27.5, 48.2 min.



Ethyl 1,2,3,4-tetrahydro-2-(2-nitro-1-phenylethyl)-1-oxonaphthalene-2-carboxylate

The title compound was prepared according to the general procedure as described above in 90% yield. $[\alpha]_D^{25} +43.7$ (*c* 0.72, CHCl_3); $^1\text{H NMR}$ (CDCl_3 , TMS, 300 MHz) δ 1.10 (t, *J* = 6.6 Hz, 3H), 2.04-2.05 (m, 1H), 2.38-2.42 (m, 1H), 2.94-2.99 (m, 2H), 4.10 (q, *J* = 6.6 Hz, 1H), 4.19 (dd, *J* = 4.5 and 11.1 Hz, 1H), 5.08 (dd, *J* = 10.2 and 14.1 Hz, 1H), 5.15 (dd, *J* = 3.9 and 14.0 Hz, 1H), 7.20 (d, *J* = 7.2 Hz, 1H), 7.28-7.37 (m, 6H), 7.46 (t, *J* = 7.2 Hz, 1H),

8.04 (d, $J = 6.6$ Hz, 1H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 14.06, 25.80, 31.16, 47.47, 59.79, 62.22, 78.17, 127.26, 128.47, 128.56, 128.83, 128.93, 130.14, 132.02, 134.20, 136.19, 142.59, 169.87, 194.68; HRMS Calcd. for $\text{C}_{21}\text{H}_{21}\text{NO}_5\text{Na}$: 390.1317, found: 390.1312; dr = 99:1 (determined by integration of ^1H NMR of the crude product); 98% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 20/80, flow rate 1 mL/min, $\lambda = 254$ nm): $t_{\text{minor}} = 10.0$ min, $t_{\text{major}} = 21.5$ min (major diastereomer); (minor diastereomers) 11.3, 24.7 min.



Methyl1,2,3,4-tetrahydro-2-(4-methyl-1-nitropentan-2-yl)-1-oxonaphthalene-2-carbonyl-o-xylate

The title compound was prepared according to the general procedure as described above in 93% yield. $[\alpha]_{\text{D}}^{25} +3.40$ (c 0.34, CHCl_3); ^1H NMR (CDCl_3 , TMS, 300 MHz) δ 0.86-0.98 (m, 6H), 1.13-1.29 (m, 2H), 1.58-1.61 (m, 1H), 2.18-2.28 (m, 1H), 2.52-2.59 (m, 1H), 2.93-3.06 (m, 2H), 3.22-3.24 (m, 1H), 3.66 (s, 3H), 4.39 (dd, $J = 3.9$ and 14.4 Hz, 1H), 4.69 (dd, $J = 4.8$ and 14.7 Hz, 1H), 7.23 (m, 1H), 7.33 (m, 1H), 7.50 (m, 1H), 8.05 (d, $J = 7.8$ Hz, 1H); ^{13}C NMR (CDCl_3 , TMS, 75 MHz) δ 21.31, 24.11, 26.03, 26.22, 29.07, 38.63, 40.40, 52.97, 61.09, 76.83, 127.29, 128.44, 128.99, 132.29, 134.15, 142.67, 171.28, 194.44; HRMS Calcd. for $\text{C}_{18}\text{H}_{23}\text{NO}_5\text{Na}$: 356.1474, found: 356.1469; dr = 96:4 (determined by integration of ^1H NMR of the crude product); 95% ee (major diastereomer), HPLC (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1 mL/min, $\lambda = 254$ nm): $t_{\text{minor}} = 9.7$ min, $t_{\text{major}} = 14.1$ min (major diastereomer); (minor diastereomers) 8.0, 12.7 min.

References

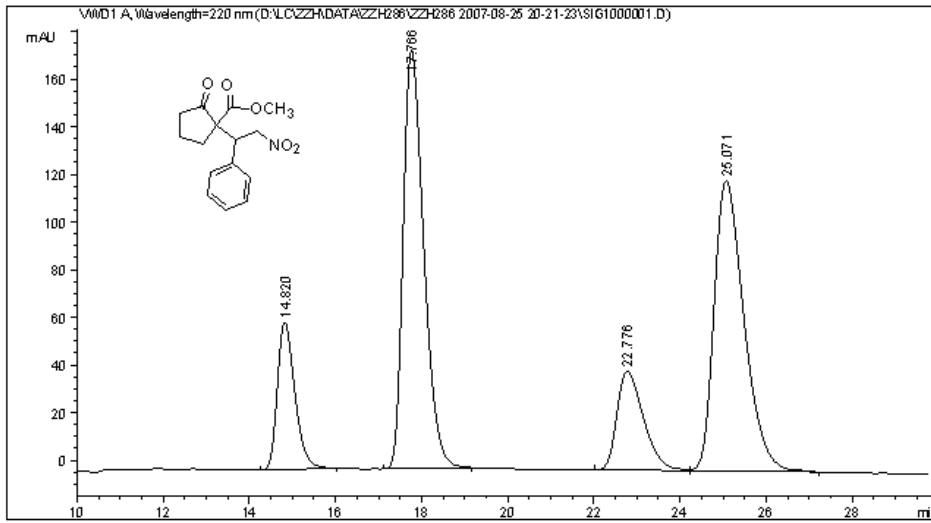
1. a) F. Wu, R. Hong, J. Khan, X. Liu, L. Deng, *Angew. Chem. Int. Ed.* **2006**, *45*, 4301; b)

1. T. Okino, Y. Hoashi, T. Furukawa, X. Xu, Y. Takemoto, *J. Am. Chem. Soc.* **2005**, *127*, 119.
2. J. Weijlard, K. Pfister, E. F. Swanezy, C. A. Robinson, M. Tishler, *J. Am. Chem. Soc.* **1951**, *73*, 1216.
3. L. Zhou, Z. Wang, S. Wei, J. Sun, *Chem. Commun.* **2007**, 2977.

Data File D:\LC\ZZH\DATA\ZZH286\ZZH286 2007-08-25 20-21-23\SIG1000001.D
 Sample Name: zzh286-R

```

=====
Acq. Operator   : ZZH                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 6
Injection Date  : 8/26/2007 11:22:45 AM    Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\data\ZZH286\ZZH286 2007-08-25 20-21-23\ODH-10-90-1ML-220MM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH286\ZZH286 2007-08-25 20-21-23\SIG1000001.D\DA.M (ODH-10-90-1ML-220MM-100MIN.M)
Last changed    : 3/6/2008 6:56:29 PM by zhang zhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-100MIN.M
  
```



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

```

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

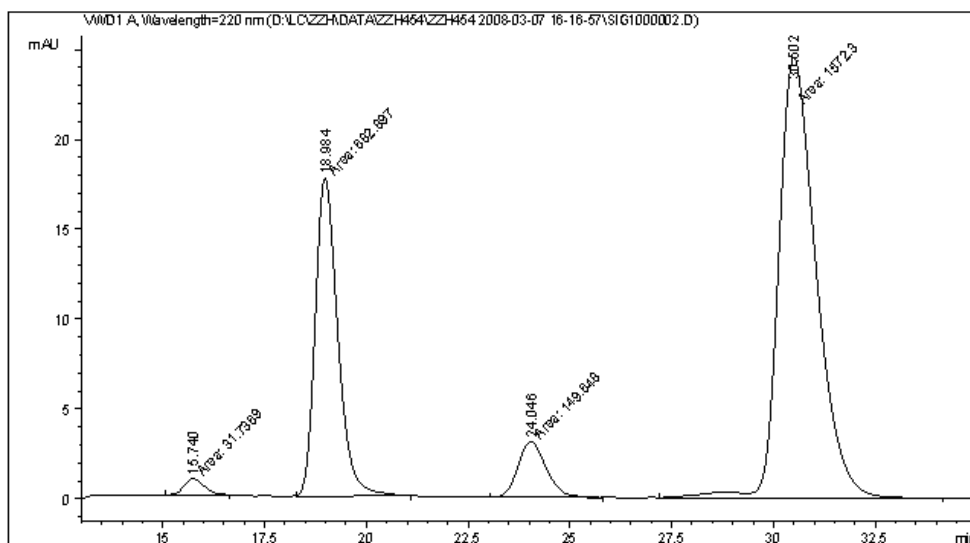
Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	14.820	BB	0.4324	1745.20007		61.87747	11.4617
2	17.766	BB	0.5115	5816.26611		175.67371	38.1987
3	22.776	BB	0.6591	1783.63281		41.58594	11.7141
4	25.071	BB	0.7456	5881.24854		121.74966	38.6255

Totals : 1.52263e4 400.88678

Data File D:\LC\ZZH\DATA\ZZH454\ZZH454 2008-03-07 16-16-57\SIG1000002.D
Sample Name: zzh454

```
=====
Acq. Operator   : zhang zhihai                      Seq. Line :    2
Acq. Instrument : Instrument 1                      Location  : Vial 31
Injection Date  : 3/7/2008 12:44:57 AM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH454\ZZH454 2008-03-07 16-16-57\ODH-10-90-1ML-220NM-45MIN.M
Last changed    : 11/16/2007 11:38:34 AM by liang gang
Analysis Method : D:\LC\ZZH\DATA\ZZH454\ZZH454 2008-03-07 16-16-57\SIG1000002.D\DA.M (ODH-10-90-
1ML-220NM-45MIN.M)
Last changed    : 4/29/2008 8:49:12 PM by dxq
                (modified after loading)
Method Info     : ODH-10-90-1ML-220NM-45MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	15.740	MM	0.5822	31.73686	9.08512e-1	1.3025
2	18.984	MM	0.6430	682.89661	17.70130	28.0268
3	24.046	MM	0.8083	149.64812	3.08554	6.1417
4	30.502	MM	1.0677	1572.30420	24.54339	64.5290

Totals : 2436.58579 46.23874

=====
Instrument 1 4/29/2008 8:49:14 PM dxq

Page 1 of 1

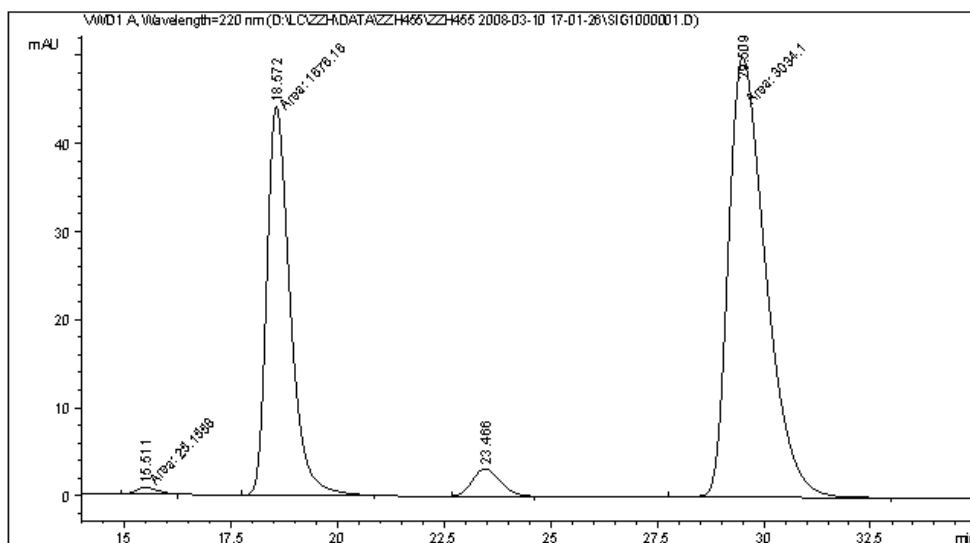
Catalyst: (1R,2R,1'R,2'R)-II-E

rt, 4 h, 96% yield, 92:8 (d.r.), 37% ee

Data File D:\LC\ZZH\DATA\ZZH455\ZZH455 2008-03-10 17-01-26\SIG1000001.D
 Sample Name: zzh455b

```

=====
Acq. Operator   : zhangzhihai           Seq. Line :    1
Acq. Instrument : Instrument 1          Location  : Vial 32
Injection Date  : 3/10/2008 1:02:58 AM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH454\ZZH455 2008-03-10 17-01-26\ODH-10-90-1ML-220NM-45MIN.M
Last changed    : 11/16/2007 11:38:34 AM by liang gang
Analysis Method : D:\LC\ZZH\DATA\ZZH455\ZZH455 2008-03-10 17-01-26\SIG1000001.D\DA.M (ODH-10-90-
1ML-220NM-45MIN.M)
Last changed    : 4/29/2008 8:50:38 PM by dxq
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220NM-45MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	4.367	VB	0.1262	17.32204	1.88413	0.3538
2	15.511	MM	0.5702	25.15582	7.35333e-1	0.5139
3	18.572	MM	0.6326	1676.16431	44.16296	34.2400
4	23.466	BB	0.6593	142.59102	3.13162	2.9128
5	29.509	MM	1.0122	3034.10352	49.96008	61.9795

Totals : 4895.33670 99.87412

Instrument 1 4/29/2008 8:50:40 PM dxq

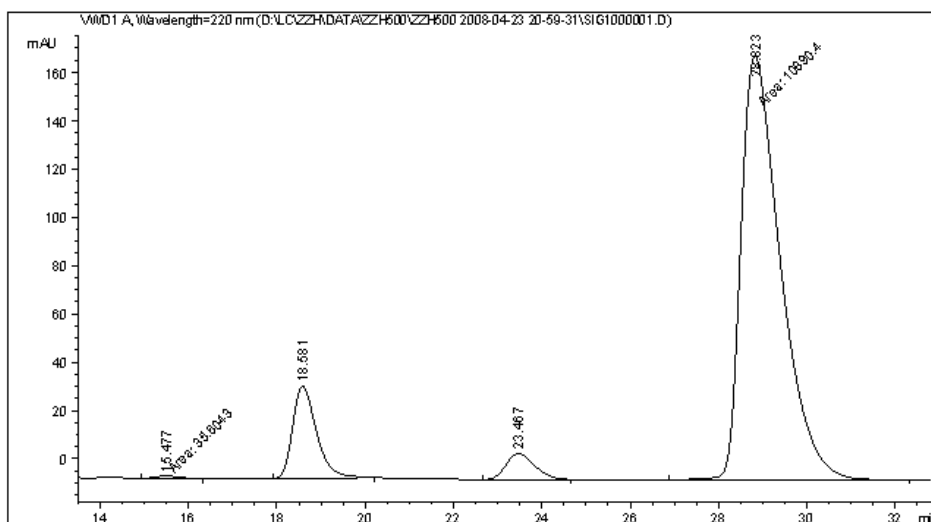
Page 1 of 2

Catalyst: (1*R*,2*R*,1'*R*,2'*R*)-II-E

-45 °C, 20 h, 90% yield, 96:4 (d.r.), 29%ee

Data File D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 20-59-31\SIG1000001.D
Sample Name: zzh500a

```
=====
Acq. Operator   : zhang zhihai           Seq. Line : 1
Acq. Instrument : Instrument 1           Location  : Vial 65
Injection Date  : 4/23/2008 9:01:13 PM   Inj       : 1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\data\ZZH500\ZZH500 2008-04-23 20-59-31\ODH-10-90-1ML-220MM-35MIN.M
Last changed    : 12/20/2007 12:13:59 AM
Analysis Method : D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 20-59-31\SIG1000001.D\DA.M (ODH-10-90-
1ML-220MM-35MIN.M)
Last changed    : 4/24/2008 7:03:18 PM by XZY
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-35MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	15.477	MM	0.5835	35.60428		1.01703	0.2772
2	18.581	BB	0.5745	1426.86768		38.16568	11.1104
3	23.467	BB	0.7070	489.81165		10.79471	3.8139
4	28.823	MM	1.0335	1.08904e4		175.61893	84.7984

Totals : 1.28426e4 225.59634

Instrument 1 4/24/2008 7:03:21 PM XZY

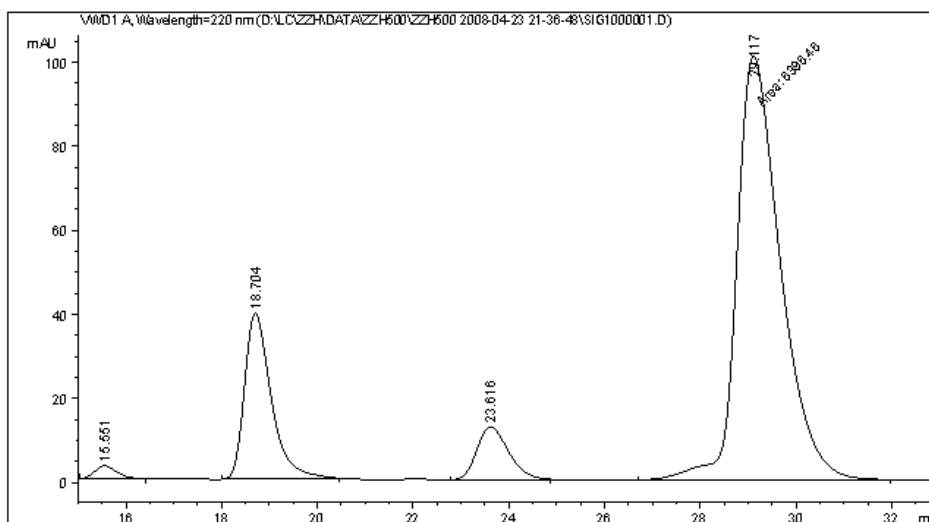
Page 1 of 1

Catalyst: (1*R*,2*R*,*R*)-II-G

-45 °C, 20 h, 88% yield, 96:4 (d.r.), 76% ee

Data File D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 21-36-48\SIG1000001.D
Sample Name: zzh500b

```
=====
Acq. Operator   : zhang zhihai           Seq. Line : 1
Acq. Instrument : Instrument 1           Location  : Vial 66
Injection Date  : 4/23/2008 9:38:17 PM   Inj       : 1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\data\ZZH500\ZZH500 2008-04-23 21-36-48\ODH-10-90-1ML-220MM-35MIN.M
Last changed   : 12/20/2007 12:13:59 AM
Analysis Method: D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 21-36-48\SIG1000001.D\DA.M (ODH-10-90-1ML-220MM-35MIN.M)
Last changed   : 4/24/2008 7:04:56 PM by XZY
                (modified after loading)
Method Info    : ODH-10-90-1ML-220MM-35MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	15.551	BB	0.4995	103.70972	3.13482	1.2034	
2	18.704	BB	0.5918	1537.18066	39.42273	17.8371	
3	23.616	BB	0.7145	580.53552	12.54644	6.7364	
4	29.117	MM	1.0561	6396.46094	100.94195	74.2231	

Totals : 8617.88685 156.04594

=====
Instrument 1 4/24/2008 7:04:58 PM XZY

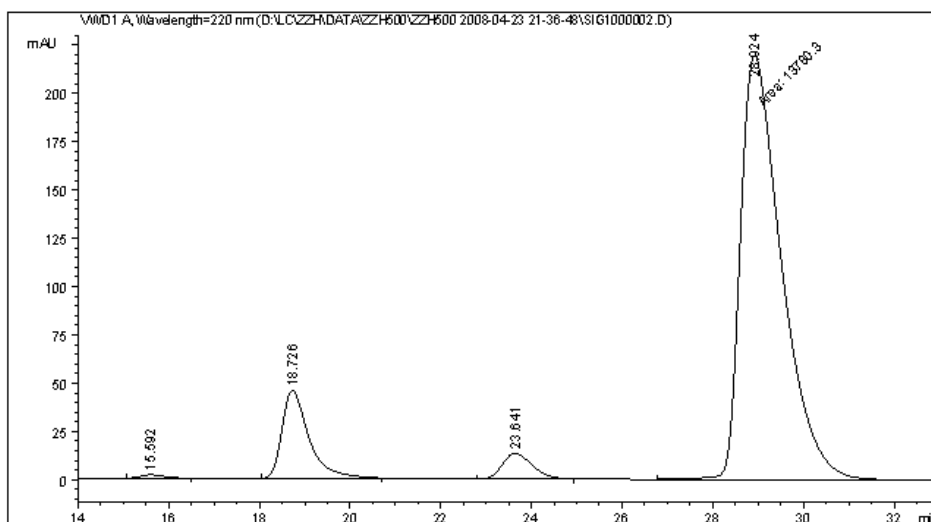
Page 1 of 1

Catalyst: (1R,2R,R)-II-G

rt, 4 h, 92% yield, 92:8 (d.r.), 61%ee

Data File D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 21-36-48\SIG1000002.D
Sample Name: zzh500c

```
=====
Acq. Operator   : zhang zhihai           Seq. Line : 2
Acq. Instrument : Instrument 1           Location  : Vial 67
Injection Date  : 4/23/2008 10:14:59 PM Inj       : 1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\data\ZZH500\ZZH500 2008-04-23 21-36-48\ODH-10-90-1ML-220MM-35MIN.M
Last changed    : 12/20/2007 12:13:59 AM
Analysis Method : D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 21-36-48\SIG1000002.D\DA.M (ODH-10-90-
1ML-220MM-35MIN.M)
Last changed    : 4/24/2008 7:05:55 PM by XZY
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-35MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	15.592	BB	0.5339	61.26777		1.74918	0.3751
2	18.726	BB	0.6204	1881.59131		45.53122	11.5184
3	23.641	BB	0.7033	612.38007		13.33288	3.7488
4	28.924	MM	1.0472	1.37803e4		219.31842	84.3577

Totals : 1.63355e4 279.93170

Instrument 1 4/24/2008 7:05:57 PM XZY

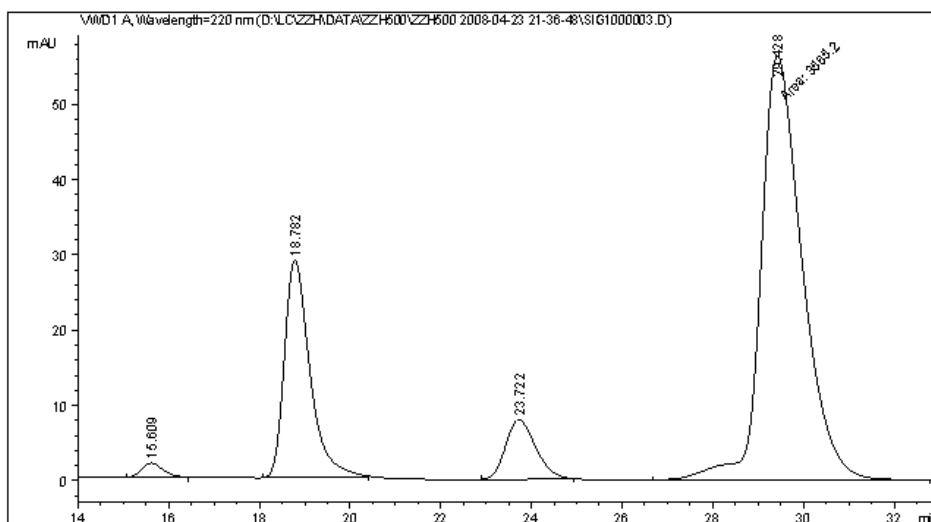
Page 1 of 1

Catalyst: (1R,2R,S)-II-F

-45 °C, 20 h, 92% yield, 96:4 (d.r.), 76%ee

Data File D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 21-36-48\SIG1000003.D
Sample Name: zzh500d

```
=====
Acq. Operator   : zhang zhihai           Seq. Line :    3
Acq. Instrument : Instrument 1           Location  : Vial 68
Injection Date  : 4/23/2008 10:51:41 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\data\ZZH500\ZZH500 2008-04-23 21-36-48\ODH-10-90-1ML-220MM-35MIN.M
Last changed   : 12/20/2007 12:13:59 AM
Analysis Method: D:\LC\ZZH\DATA\ZZH500\ZZH500 2008-04-23 21-36-48\SIG1000003.D\DA.M (ODH-10-90-
1ML-220MM-35MIN.M)
Last changed   : 4/24/2008 7:06:39 PM by XZY
                (modified after loading)
Method Info    : ODH-10-90-1ML-220MM-35MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	15.609	BB	0.5081	63.55117	1.89340	1.2397	
2	18.782	BB	0.5955	1131.03723	28.86452	22.0639	
3	23.722	BB	0.7112	366.39771	7.92462	7.1476	
4	29.428	MM	1.0537	3565.20410	56.39287	69.5488	

Totals : 5126.19021 95.07541

Instrument 1 4/24/2008 7:06:41 PM XZY

Page 1 of 1

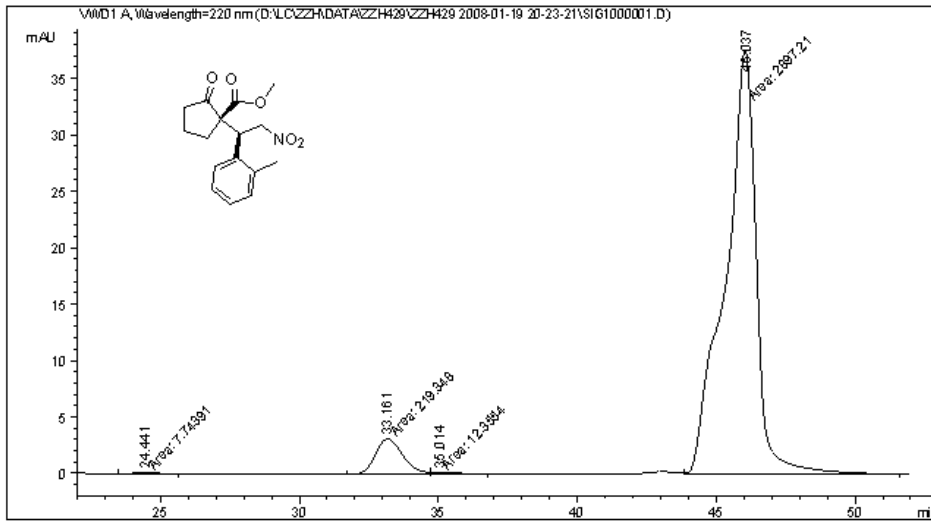
Catalyst: (1R,2R,S)-II-F

rt, 4 h, 93% yield, 91:9 (d.r.), 51%ee

Data File D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-19 20-23-21\SIG1000001.D
 Sample Name: zzh429a

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 75
Injection Date  : 1/19/2008 8:24:51 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-19 20-23-21\ODH-3-97-1ML-220NM-80MIN.M
Last changed    : 1/19/2008 5:15:37 PM
Analysis Method : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-19 20-23-21\SIG1000001.D\DA.M (ODH-3-97-
1ML-220NM-80MIN.M)
Last changed    : 3/6/2008 7:38:52 PM by zhang zhihai
                (modified after loading)
Method Info     : ODH-3-97-1ML-220NM-80MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

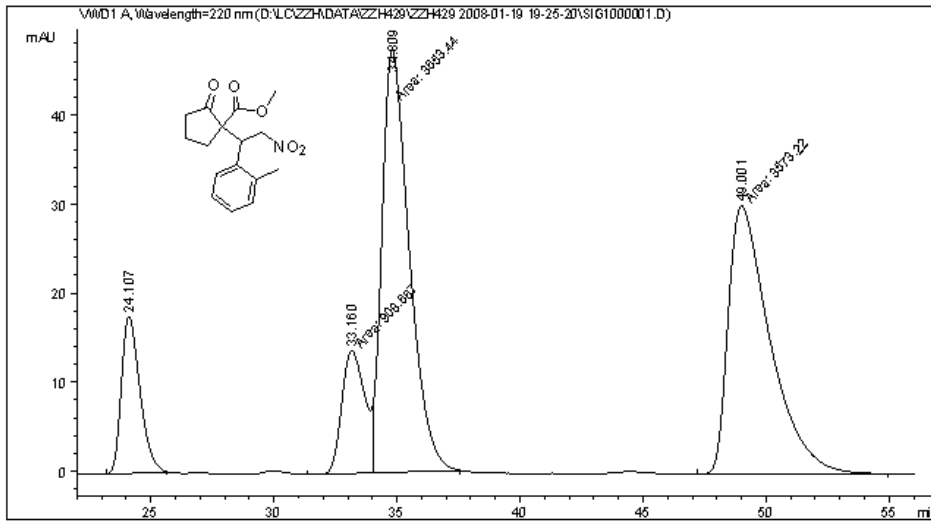
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	24.441	MM	1.0990	7.74391	1.17442e-1	0.2469	
2	33.161	MF	1.1595	219.34799	3.15293	6.9930	
3	35.014	FM	1.0911	12.35543	1.88733e-1	0.3939	
4	46.037	MM	1.2855	2897.21362	37.56355	92.3662	

Totals : 3136.66095 41.02265

Data File D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-19 19-25-20\SIG1000001.D
 Sample Name: zzh429a-r

```

=====
Acq. Operator   : zhihai zhang                Seq. Line :    1
Acq. Instrument : Instrument 1                 Location  : Vial 74
Injection Date  : 1/19/2008 7:26:52 PM       Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-19 19-25-20\ODH-3-97-1ML-220NM-80MIN.M
Last changed    : 1/19/2008 5:15:37 PM
Analysis Method : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-19 19-25-20\SIG1000001.D\DA.M (ODH-3-97-
1ML-220NM-80MIN.M)
Last changed    : 3/6/2008 7:35:36 PM by zhang zhihai
                (modified after loading)
Method Info     : ODH-3-97-1ML-220NM-80MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

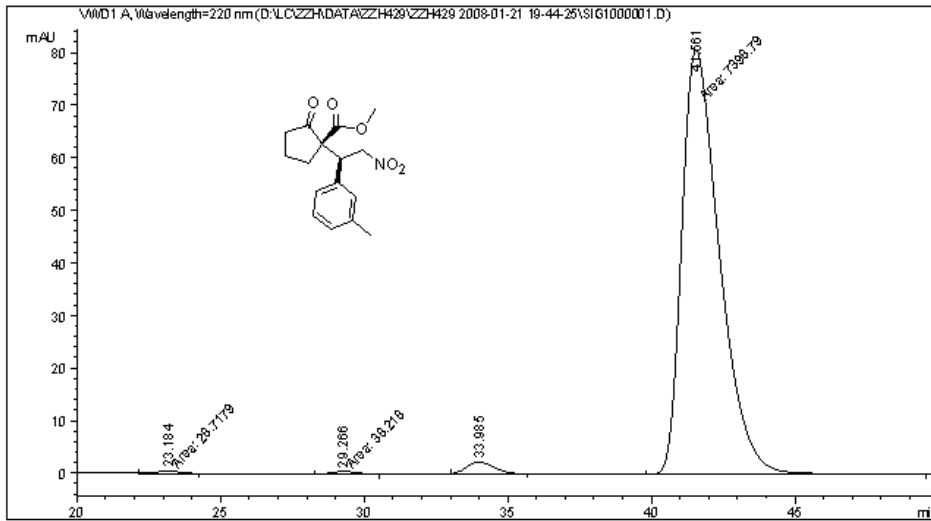
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	24.107	BB	0.8085	924.11462	17.61819	10.2006	
2	33.160	MF	1.1002	908.66687	13.76462	10.0300	
3	34.809	FM	1.2842	3653.44263	47.41711	40.3274	
4	49.001	MM	1.9761	3573.22339	30.13738	39.4420	

Totals : 9059.44751 108.93730

Data File D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-21 19-44-25\SIG1000001.D
 Sample Name: zzh429b

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 77
Injection Date  : 1/21/2008 7:45:58 PM  Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-21 19-44-25\ODH-3-97-1ML-220NM-100MIN.M
Last changed   : 12/28/2007 4:07:03 PM by zhihai zhang
Analysis Method: D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-21 19-44-25\SIG1000001.D\DA.M (ODH-3-97-1ML-220NM-100MIN.M)
Last changed   : 3/6/2008 7:44:40 PM by zhang zhihai
                (modified after loading)
Method Info    : ODH-3-97-1ML-220NM-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

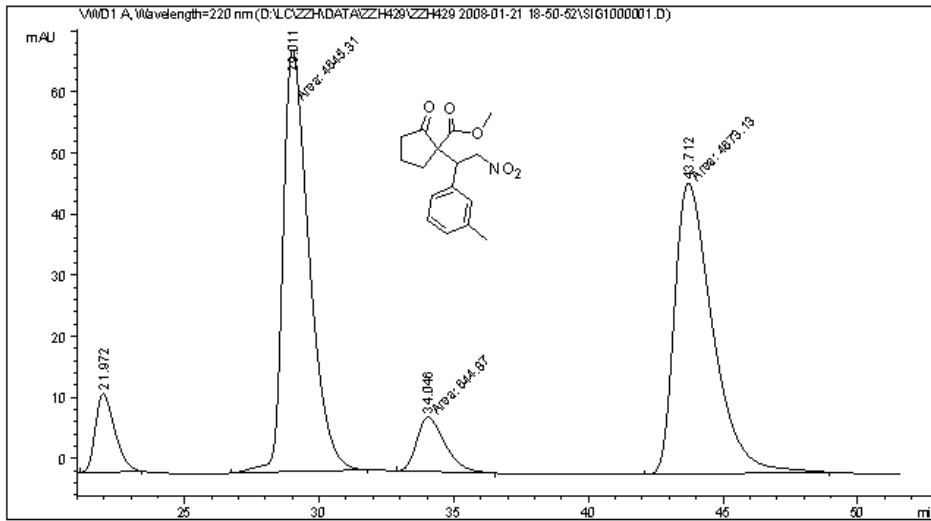
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	23.184	MM	0.9274	28.71795	5.16078e-1	0.3767	
2	29.266	MM	1.1303	38.21803	5.63547e-1	0.5013	
3	33.985	BE	0.8760	157.76106	2.29568	2.0694	
4	41.561	MM	1.5264	7398.78711	80.78724	97.0526	

Totals : 7623.48415 84.16254

Data File D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-21 18-50-52\SIG1000001.D
 Sample Name: zzh429b-r

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 76
Injection Date  : 1/21/2008 6:52:38 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-21 18-50-52\ODH-3-97-1ML-220NM-100MIN.M
Last changed    : 12/28/2007 4:07:03 PM by zhihai zhang
Analysis Method : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-21 18-50-52\SIG1000001.D\DA.M (ODH-3-97-
1ML-220NM-100MIN.M)
Last changed    : 3/6/2008 7:41:58 PM by zhang zhihai
                 (modified after loading)
Method Info     : ODH-3-97-1ML-220NM-100MIN
  
```



Area Percent Report

```

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

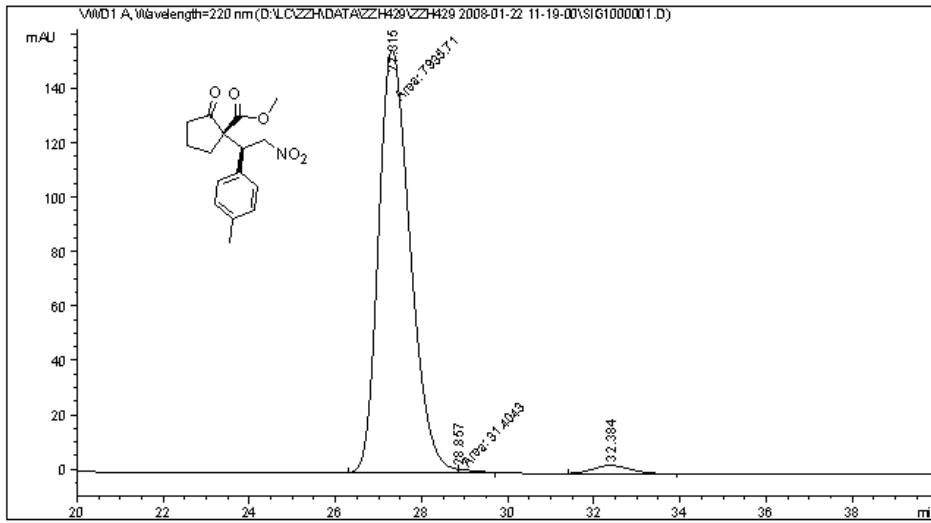
Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	21.972	BB	0.7615	641.25989	12.75035	6.0470	
2	29.011	MM	1.1222	4645.30908	68.98936	43.8048	
3	34.046	MM	1.2136	644.87018	8.85601	6.0811	
4	43.712	MM	1.6373	4673.13135	47.56610	44.0671	

Totals : 1.06046e4 138.16381

Data File D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-22 11-19-00\SIG1000001.D
Sample Name: zzh429c

```
=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 79
Injection Date  : 1/22/2008 11:20:57 AM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-22 11-19-00\ASH-3-97-220MM-1ML-50MIN.M
Last changed    : 1/22/2008 11:18:35 AM by zhihai zhang
Analysis Method : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-22 11-19-00\SIG1000001.D\DA.M (ASH-3-97-
                220MM-1ML-50MIN.M)
Last changed    : 3/6/2008 7:52:07 PM by zhang zhihai
                (modified after loading)
Method Info     : ASH-3-97-220MM-1ML-50MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	27.315	MF	0.8520	7935.71387	155.24149	97.4025
2	28.857	FM	0.4208	31.40431	1.24382	0.3855
3	32.384	BE	0.7487	180.21944	2.97625	2.2120

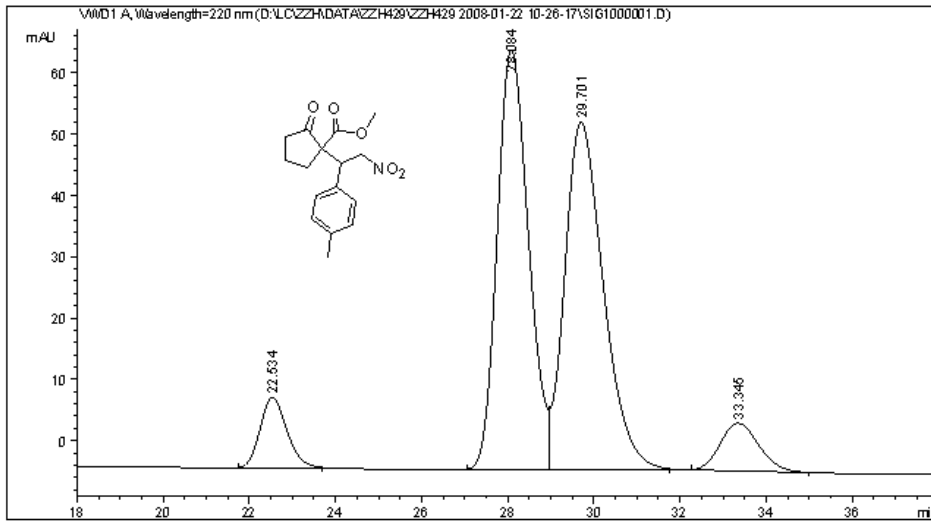
Totals : 8147.33761 159.46156

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

Data File D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-22 10-26-17\SIG1000001.D
 Sample Name: zzh429c-r

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 78
Injection Date  : 1/22/2008 10:28:10 AM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-22 10-26-17\ASH-3-97-220MM-1ML-180MIN.M
Last changed    : 1/22/2008 10:24:20 AM by zhihai zhang
Analysis Method : D:\LC\ZZH\DATA\ZZH429\ZZH429 2008-01-22 10-26-17\SIG1000001.D\DA.M (ASH-3-97-
                220MM-1ML-180MIN.M)
Last changed    : 3/6/2008 7:47:01 PM by zhang zhihai
                (modified after loading)
Method Info     : ASH-3-97-220MM-1ML-180MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

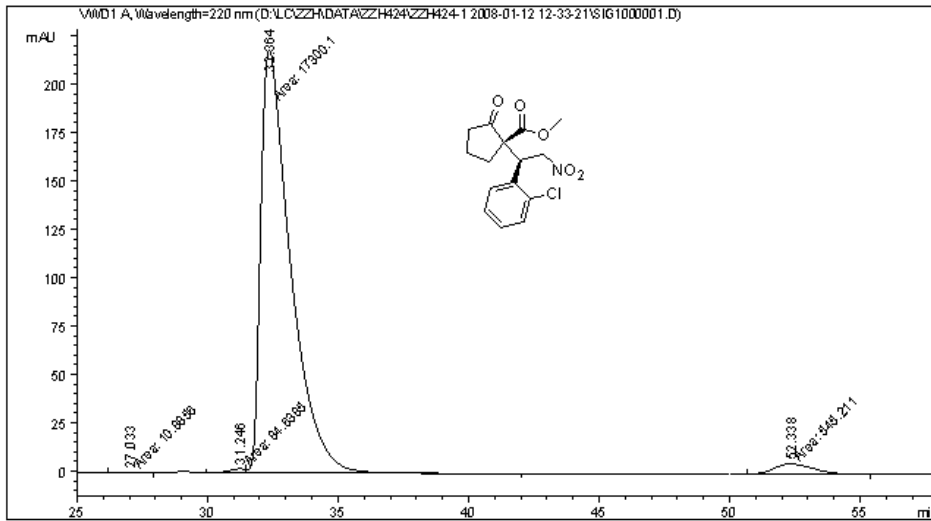
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	22.534	BB	0.6687	494.64746	11.44632	6.2057	
2	28.084	BV	0.7868	3452.83179	68.41744	43.3182	
3	29.701	VB	0.9564	3535.47363	56.67347	44.3550	
4	33.345	BB	0.9502	487.90179	7.77846	6.1211	

Totals : 7970.85468 144.31569

Data File D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 12-33-21\SIG1000001.D
 Sample Name: zzh424a

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 42
Injection Date  : 1/12/2008 12:34:47 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 12-33-21\ODH-3-97-1ML-220NM-100MIN.M
Last changed   : 12/28/2007 4:07:03 PM by zhihai zhang
Analysis Method : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 12-33-21\SIG1000001.D\DA.M (ODH-3-97-1ML-220NM-100MIN.M)
Last changed   : 3/12/2008 7:55:00 PM by zhangzhihai
                (modified after loading)
Method Info    : ODH-3-97-1ML-220NM-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

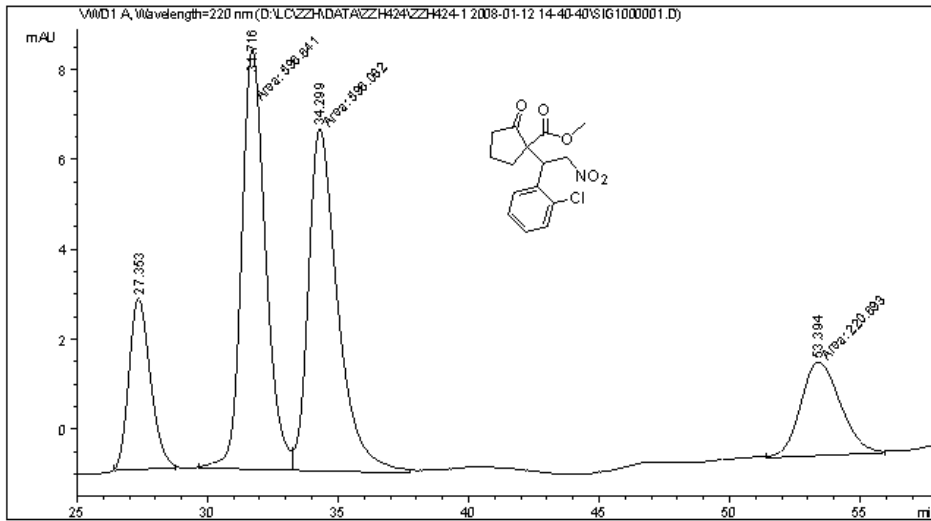
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	27.033	MM	0.8988	10.88561	2.01847e-1	2.01847	0.0607
2	31.246	MF	0.7079	84.63852	1.99281	1.99281	0.4718
3	32.364	FM	1.3194	1.73001e4	218.53439	218.53439	96.4286
4	52.338	MM	1.7296	545.21149	5.25380	5.25380	3.0389

Totals : 1.79408e4 225.98285

Data File D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 14-40-40\SIG1000001.D
 Sample Name: zzh424a-r

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 41
Injection Date  : 1/12/2008 2:42:03 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 14-40-40\ODH-3-97-1ML-220NM-100MIN.M
Last changed   : 12/28/2007 4:07:03 PM by zhihai zhang
Analysis Method : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 14-40-40\SIG1000001.D\DA.M (ODH-3-97-1ML-220NM-100MIN.M)
Last changed   : 3/12/2008 7:51:53 PM by zhangzhihai
                (modified after loading)
Method Info    : ODH-3-97-1ML-220NM-100MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

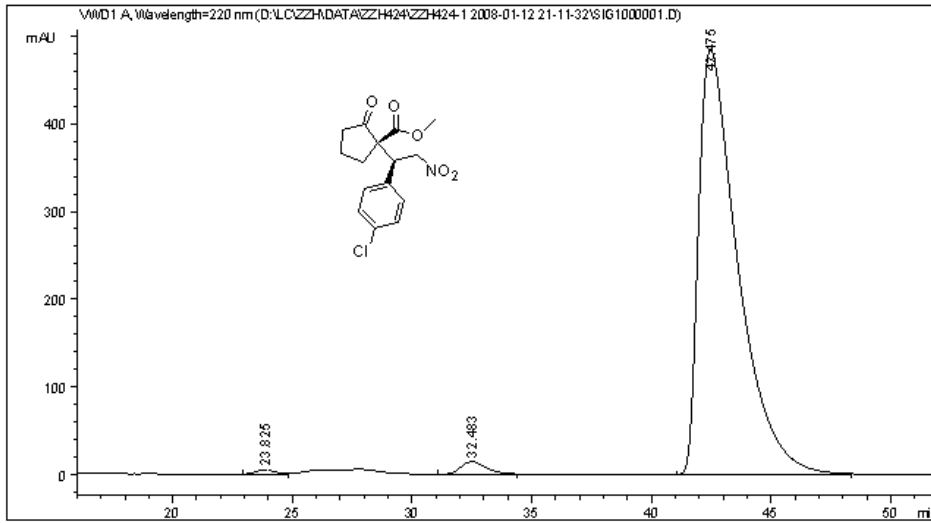
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	27.353	BB	0.8144	217.25523	3.79836	13.3231	
2	31.716	MF	1.0658	596.64075	9.33024	36.5887	
3	34.299	FM	1.3076	596.08154	7.59775	36.5544	
4	53.394	MM	1.7709	220.69295	2.07706	13.5339	

Totals : 1630.67047 22.80341

Data File D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 21-11-32\SIG1000001.D
 Sample Name: zzh424c

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 46
Injection Date  : 1/12/2008 9:13:01 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 21-11-32\ODH-10-90-1ML-220NM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 21-11-32\SIG1000001.D\DA.M (ODH-10-90-1ML-220NM-100MIN.M)
Last changed    : 3/12/2008 8:10:54 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220NM-100MIN.M
=====
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

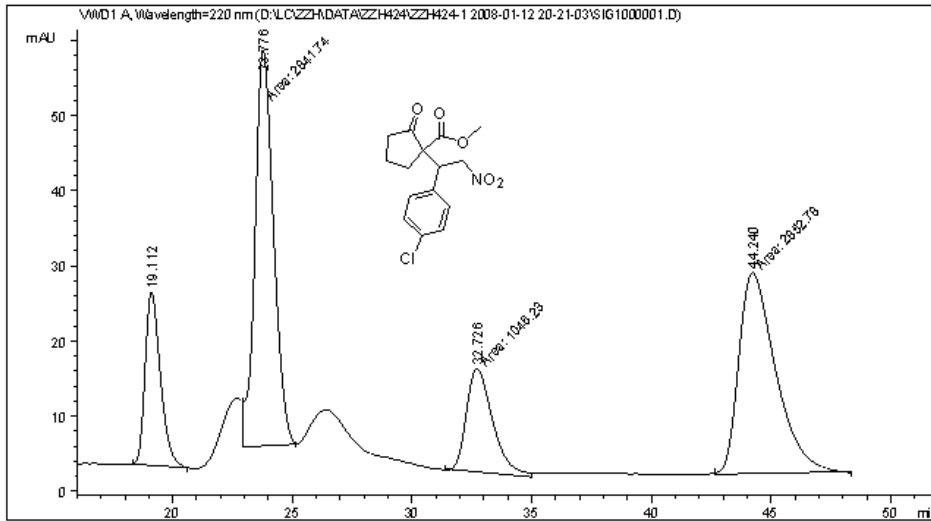
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	23.825	BV	0.8102	273.91534	5.12280	0.4862
2	32.483	VB	1.0839	1017.71436	14.07389	1.8063
3	42.475	BB	1.6955	5.50502e4	483.41348	97.7075

Totals : 5.63419e4 502.61018

Data File D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 20-21-03\SIG1000001.D
 Sample Name: zzh424c-r

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 45
Injection Date  : 1/12/2008 8:22:37 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 20-21-03\ODH-10-90-1ML-220NM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH424\ZZH424-1 2008-01-12 20-21-03\SIG1000001.D\DA.M (ODH-10-90-1ML-220NM-100MIN.M)
Last changed    : 3/12/2008 8:08:34 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220NM-100MIN.M
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

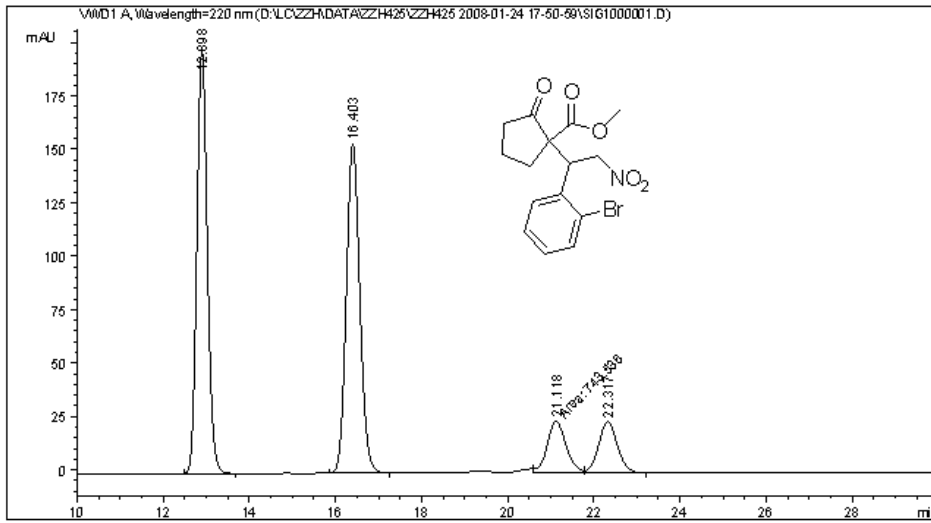
Peak #	RetTime [min]	Type	Width [min]	Area mAU*s	Height [mAU]	Area %
1	19.112	BB	0.6769	1023.73932	23.04885	13.1849
2	23.776	MM	0.8985	2841.73730	52.71241	36.5991
3	32.726	MM	1.2736	1046.23450	13.69123	13.4746
4	44.240	MM	1.7796	2852.78271	26.71803	36.7414

Totals : 7764.49384 116.17053

Data File D:\LC\ZZH\DATA\ZZH425\ZZH425 2008-01-24 17-50-59\SIG1000001.D
 Sample Name: zzh425a-r-2

```

=====
Acq. Operator   : zhang zhihai           Seq. Line : 1
Acq. Instrument : Instrument 1           Location  : Vial 66
Injection Date  : 1/24/2008 1:52:36 AM   Inj       : 1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH425\ZZH425 2008-01-24 17-50-59\ADH-5-95-220MM-1ML-100MIN.M
Last changed    : 1/24/2008 1:49:18 AM by liang gang
Analysis Method : D:\LC\ZZH\DATA\ZZH425\ZZH425 2008-01-24 17-50-59\SIG1000001.D\DA.M (ADH-5-95-
                220MM-1ML-100MIN.M)
Last changed    : 3/18/2008 9:38:15 PM by zhihai zhang
                (modified after loading)
Method Info     : ADH-5-95-220MM-1ML-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

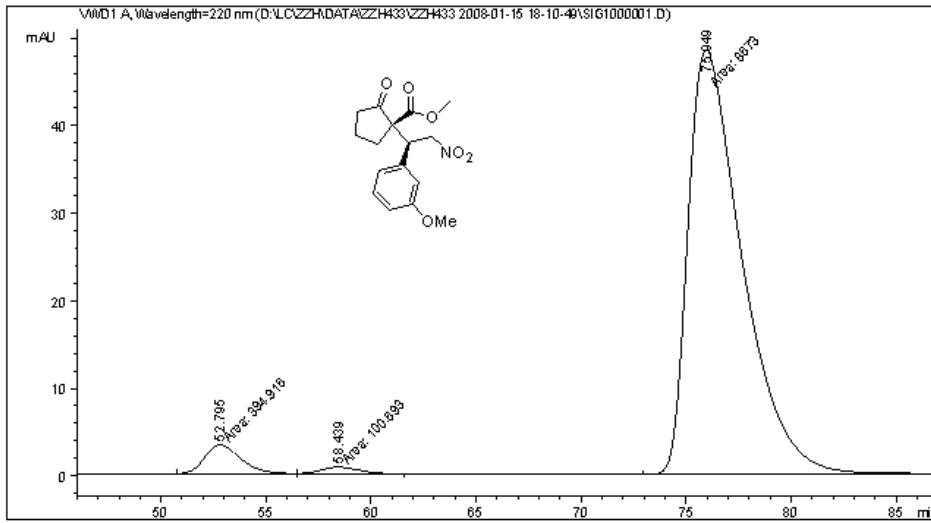
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	12.898	BB	0.2609	3349.21265	198.49329	40.9626	
2	16.403	BB	0.3369	3355.92236	154.21848	41.0446	
3	21.118	FM	0.5090	743.53644	24.34831	9.0938	
4	22.317	VB	0.4720	727.60187	23.87916	8.8989	

Totals : 8176.27332 400.93923

Data File D:\LC\ZZH\DATA\ZZH433\ZZH433 2008-01-15 18-10-49\SIG1000001.D
 Sample Name: zzh433b

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 59
Injection Date  : 1/15/2008 6:12:18 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH433\ZZH433 2008-01-15 18-10-49\ODH-3-97-1ML-220NM-100MIN.M
Last changed   : 12/28/2007 4:07:03 PM by zhihai zhang
Analysis Method: D:\LC\ZZH\DATA\ZZH433\ZZH433 2008-01-15 18-10-49\SIG1000001.D\DA.M (ODH-3-97-1ML-220NM-100MIN.M)
Last changed   : 3/12/2008 8:26:41 PM by zhangzhihai
                (modified after loading)
Method Info    : ODH-3-97-1ML-220NM-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	52.795	MF	2.0057	394.91638	3.28154	4.3073	
2	58.439	FM	2.1203	100.69296	7.91488e-1	1.0982	
3	75.949	MM	2.9832	8672.99805	48.45408	94.5945	

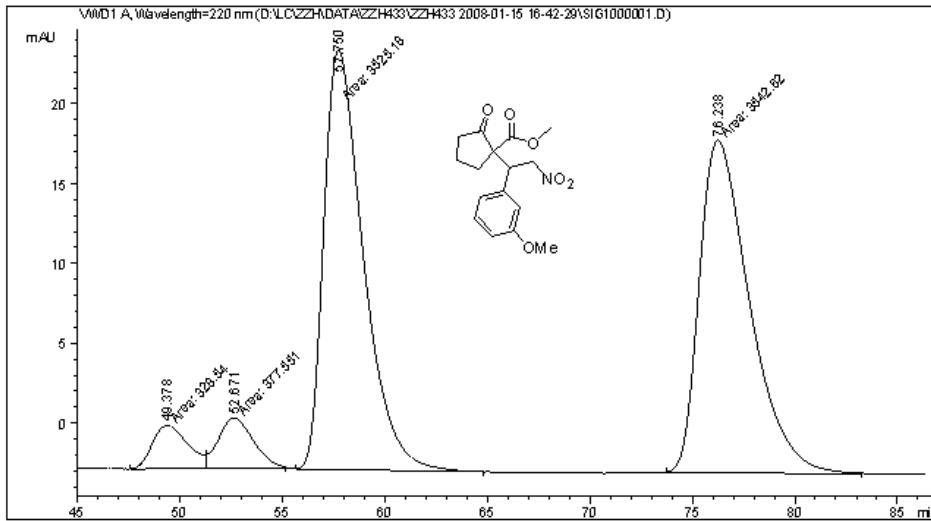
Totals : 9168.60739 52.52711

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

Data File D:\LC\ZZH\DATA\ZZH433\ZZH433 2008-01-15 16-42-29\SIG1000001.D
 Sample Name: zzh433b-r

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 58
Injection Date  : 1/15/2008 4:44:07 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH433\ZZH433 2008-01-15 16-42-29\ODH-3-97-1ML-220NM-100MIN.M
Last changed   : 12/28/2007 4:07:03 PM by zhihai zhang
Analysis Method : D:\LC\ZZH\DATA\ZZH433\ZZH433 2008-01-15 16-42-29\SIG1000001.D\DA.M (ODH-3-97-1ML-220NM-100MIN.M)
Last changed   : 3/12/2008 8:23:36 PM by zhangzhihai
                (modified after loading)
Method Info    : ODH-3-97-1ML-220NM-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

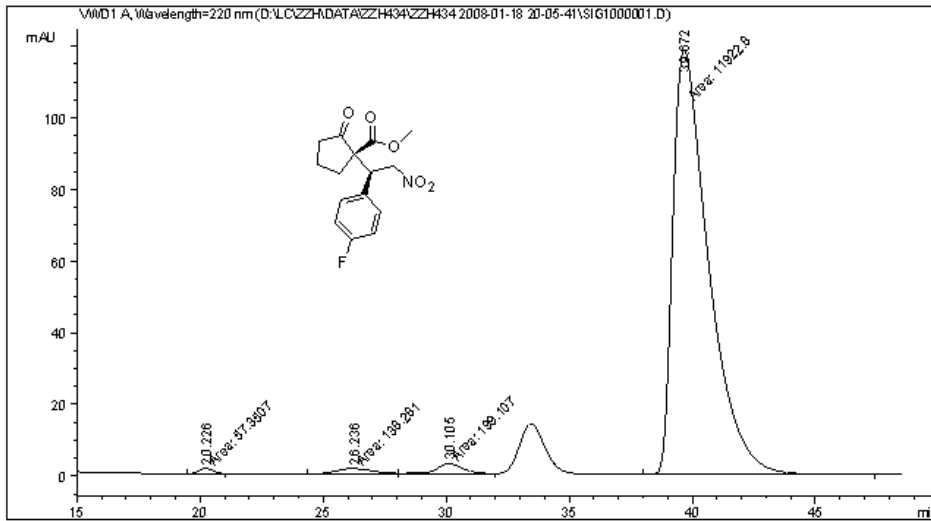
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area %	Height [mAU]
1	49.378	MF	2.0245	328.53976	4.2262	2.70470
2	52.671	FM	1.9822	377.55148	4.8567	3.17446
3	57.750	MM	2.2343	3525.17676	45.3464	26.29628
4	76.238	MM	2.8345	3542.61987	45.5708	20.83043

Totals : 7773.88788 53.00587

Data File D:\LC\ZZH\DATA\ZZH434\ZZH434 2008-01-18 20-05-41\SIG1000001.D
 Sample Name: zzh4434a

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 70
Injection Date  : 1/18/2008 8:07:14 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH434\ZZH434 2008-01-18 20-05-41\ODH-10-90-1ML-220MM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH434\ZZH434 2008-01-18 20-05-41\SIG1000001.D\DA.M (ODH-10-90-
1ML-220MM-100MIN.M)
Last changed    : 3/12/2008 8:47:59 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-100MIN.M
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

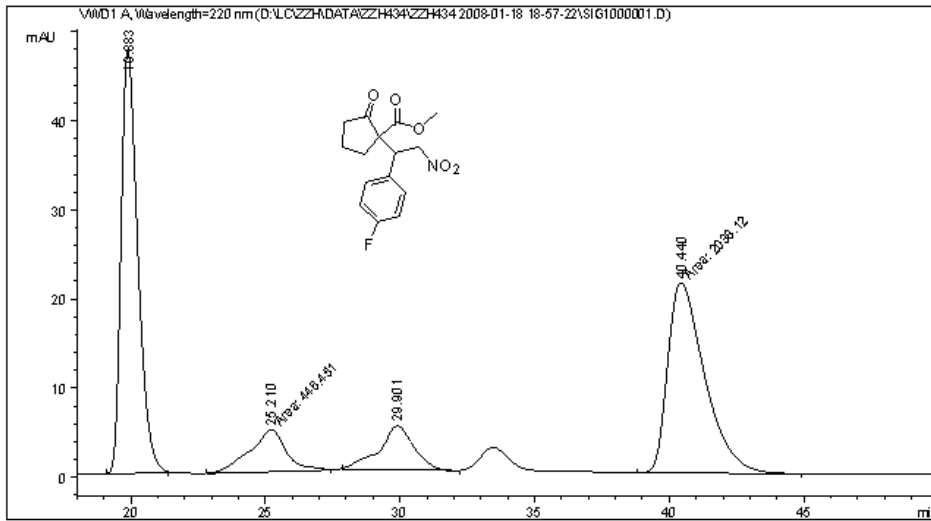
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	20.226	MM	0.6620	57.35073	1.44392	0.4656	
2	26.236	MM	1.6139	138.28090	1.42804	1.1226	
3	30.105	MM	1.2033	199.10730	2.75790	1.6164	
4	39.672	MM	1.6765	1.19228e4	118.52807	96.7953	

Totals : 1.23176e4 124.15793

Data File D:\LC\ZZH\DATA\ZZH434\ZZH434 2008-01-18 18-57-22\SIG1000001.D
 Sample Name: zzh4434a-r

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 69
Injection Date  : 1/18/2008 6:58:51 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH434\ZZH434 2008-01-18 18-57-22\ODH-10-90-1ML-220MM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH434\ZZH434 2008-01-18 18-57-22\SIG1000001.D\DA.M (ODH-10-90-
1ML-220MM-100MIN.M)
Last changed    : 3/12/2008 8:38:51 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-100MIN.M
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

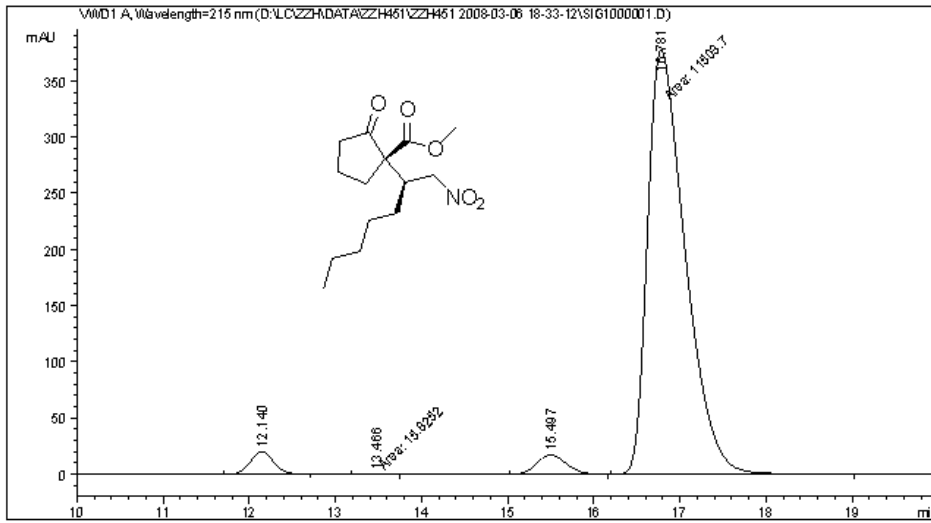
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area %	Height [mAU]
1	19.883	BB	0.6627	2047.46436	41.1610	47.52822
2	25.210	MM	1.5662	446.45120	8.9752	4.75093
3	29.901	BB	1.1787	442.24850	8.8907	4.92491
4	40.440	MM	1.5924	2038.11511	40.9731	21.33108

Totals : 4974.27917 78.53514

Data File D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 18-33-12\SIG1000001.D
 Sample Name: zzh451a-2

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 62
Injection Date  : 3/6/2008 6:34:44 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 18-33-12\ODH-95-5-215MM-08ML-100MIN.M
Last changed    : 3/6/2008 4:40:20 PM by zhang zhihai
Analysis Method : D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 18-33-12\SIG1000001.D\DA.M (ODH-95-5-
                215MM-08ML-100MIN.M)
Last changed    : 3/12/2008 9:04:01 PM by zhangzhihai
                (modified after loading)
Method Info     : ODH-95-5-215MM-08ML-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=215 nm

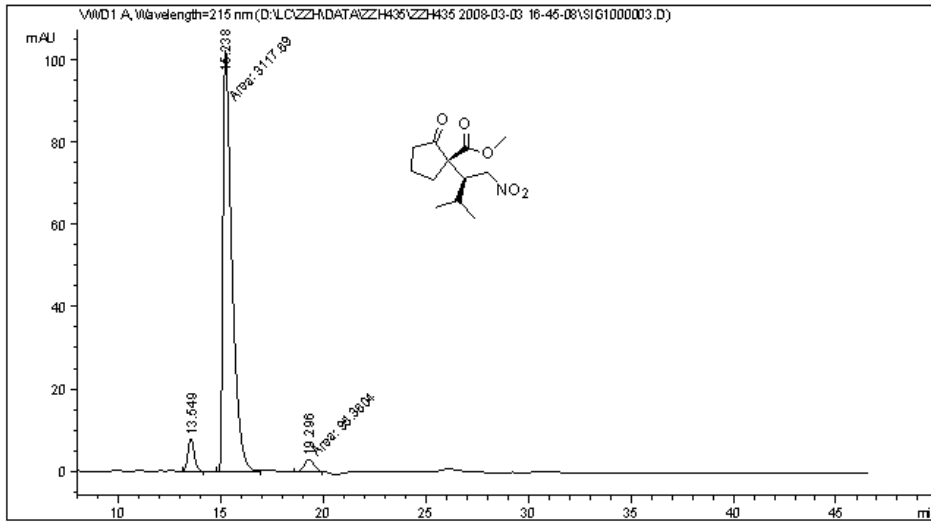
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	12.140	BB	0.2934	382.69528		20.23791	3.1056
2	13.466	MM	0.3255	15.82524		8.10234e-1	0.1284
3	15.497	BB	0.3776	420.39365		17.42356	3.4116
4	16.781	MM	0.5072	1.15037e4		377.99680	93.3544

Totals : 1.23226e4 416.46850

Data File D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-03-03 16-45-08\SIG1000003.D
 Sample Name: zzh435b

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    3
Acq. Instrument : Instrument 1           Location  : Vial 63
Injection Date  : 3/3/2008 6:54:52 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\liang\data\LG-3-107\ZZH435 2008-03-03 16-45-08\ODH-5-95-1ML-215MM-100MIN.M
Last changed   : 3/1/2008 2:41:51 PM by liang gang
Analysis Method : D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-03-03 16-45-08\SIG1000003.D\DA.M (ODH-5-95-1ML-215MM-100MIN.M)
Last changed   : 3/12/2008 9:15:28 PM by zhangzhihai
                (modified after loading)
Method Info    : ODH-5-95-1ML-215MM-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=215 nm

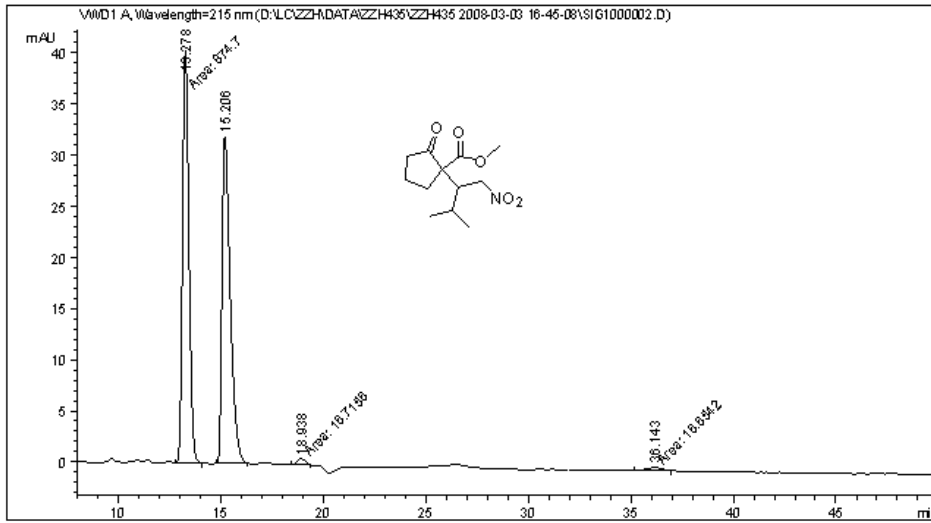
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	13.549	BB	0.3390	170.88608	7.83195	5.0499
2	15.238	MF	0.5070	3117.68530	102.48080	92.1320
3	19.296	MM	0.5327	95.36041	2.98329	2.8180

Totals : 3383.93179 113.29605

Data File D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-03-03 16-45-08\SIG1000002.D
 Sample Name: zzh435br

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    2
Acq. Instrument : Instrument 1           Location  : Vial 62
Injection Date  : 3/3/2008 5:13:15 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\liang\data\LG-3-107\ZZH435 2008-03-03 16-45-08\ODH-5-95-1ML-215MM-100MIN.M
Last changed    : 3/1/2008 2:41:51 PM by liang gang
Analysis Method : D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-03-03 16-45-08\SIG1000002.D\DA.M (ODH-5-95-1ML-215MM-100MIN.M)
Last changed    : 3/12/2008 9:06:53 PM by zhangzhihai
                                           (modified after loading)
Method Info     : ODH-5-95-1ML-215MM-100MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=215 nm

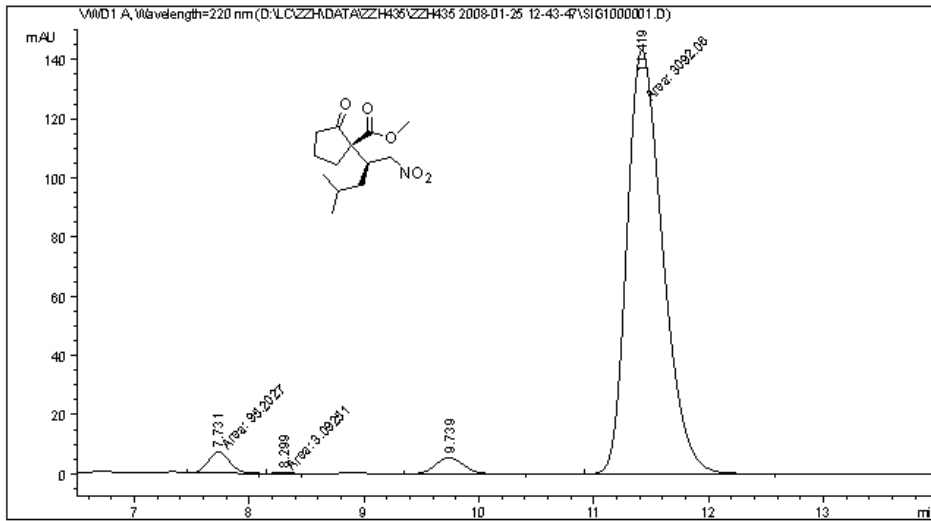
Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	13.278	MM	0.3609	874.70001	40.39830	48.5536
2	15.206	BB	0.4222	893.44543	31.96476	49.5941
3	18.938	MM	0.4902	16.71561	5.68363e-1	0.9279
4	36.143	MM	0.8560	16.65420	3.24252e-1	0.9245

Totals : 1801.51526 73.25568

Data File D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-01-25 12-43-47\SIG1000001.D
 Sample Name: zzh435c

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 44
Injection Date  : 1/25/2008 12:45:32 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-01-25 12-43-47\ODH-10-90-1ML-220MM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-01-25 12-43-47\SIG1000001.D\DA.M (ODH-10-90-
1ML-220MM-100MIN.M)
Last changed    : 3/12/2008 9:21:25 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-100MIN.M
=====
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

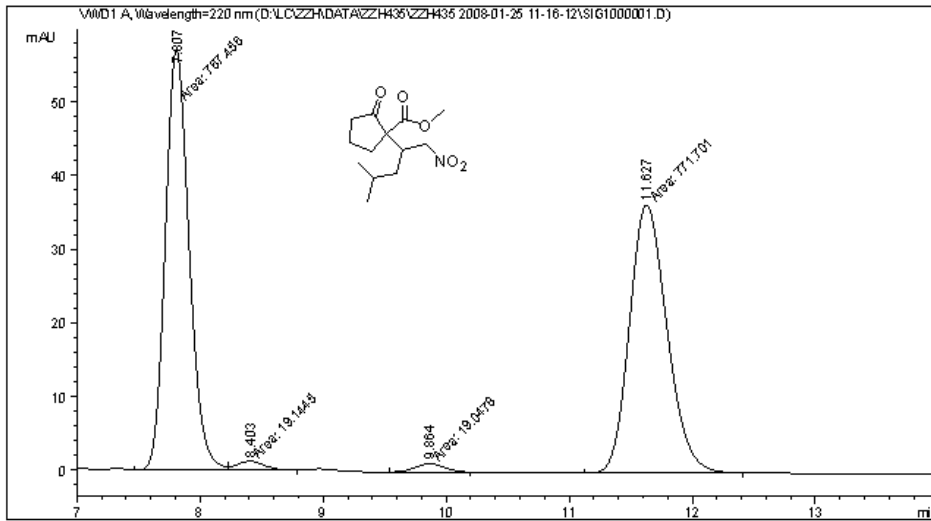
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	7.731	MM	0.2177	95.20272	7.28926	2.8975	
2	8.299	MM	0.1608	3.09251	3.20459e-1	0.0941	
3	9.739	VB	0.2669	95.28423	5.56109	2.9000	
4	11.419	MM	0.3594	3092.06055	143.39651	94.1083	

Totals : 3285.64000 156.56732

Data File D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-01-25 11-16-12\SIG1000001.D
 Sample Name: zzh435c-r

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 43
Injection Date  : 1/25/2008 11:17:39 AM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-01-25 11-16-12\ODH-10-90-1ML-220MM-100MIN.M
Last changed    : 8/11/2007 3:55:24 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH435\ZZH435 2008-01-25 11-16-12\SIG1000001.D\DA.M (ODH-10-90-
1ML-220MM-100MIN.M)
Last changed    : 3/12/2008 9:18:23 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-220MM-100MIN.M
  
```



Area Percent Report

```

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

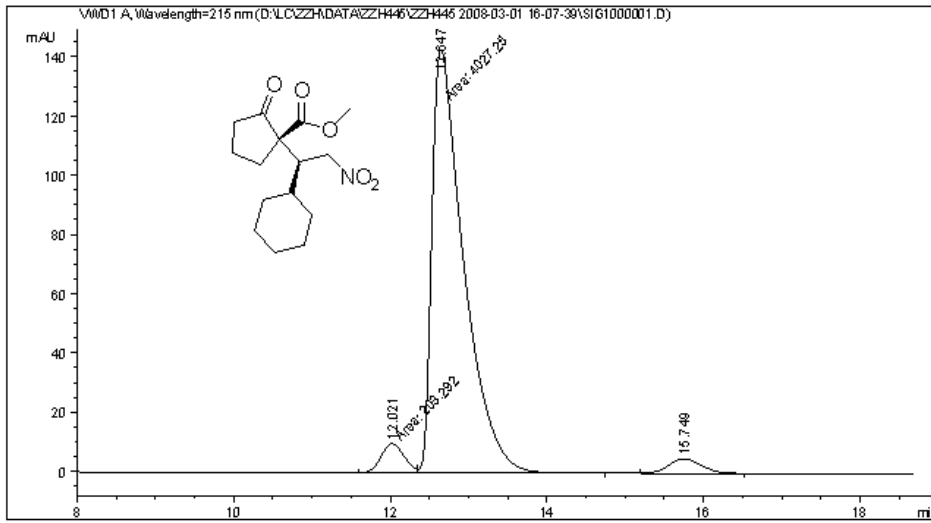
Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	7.807	MF	0.2239	767.45636	57.13447	48.6548	
2	8.403	FM	0.2630	19.14453	1.21317	1.2137	
3	9.864	MM	0.2808	19.04780	1.13062	1.2076	
4	11.627	MM	0.3530	771.70087	36.43890	48.9239	

Totals : 1577.34956 95.91716

Data File D:\LC\ZZH\DATA\ZZH445\ZZH445 2008-03-01 16-07-39\SIG1000001.D
Sample Name: zzh445a

```
=====
Acq. Operator   : zhang zhihai                      Seq. Line :    1
Acq. Instrument : Instrument 1                      Location  : Vial 62
Injection Date  : 3/1/2008 12:09:06 AM             Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH445\ZZH445 2008-03-01 16-07-39\ODH-5-95-1ML-215NM-100MIN.M
Last changed   : 2/29/2008 10:41:51 PM by liang gang
Analysis Method: D:\LC\ZZH\DATA\ZZH445\ZZH445 2008-03-01 16-07-39\SIG1000001.D\DA.M (ODH-5-95-1ML-215NM-100MIN.M)
Last changed   : 3/18/2008 9:55:47 PM by zhihai zhang
                (modified after loading)
Method Info    : ODH-5-95-1ML-215NM-100MIN
=====
```



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

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

Signal 1: WVD1 A, Wavelength=215 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	12.021	MF	0.3431	203.29163		9.87638	4.6453
2	12.647	FM	0.4696	4027.24878		142.92130	92.0242
3	15.749	BE	0.4614	145.75060		4.92946	3.3305

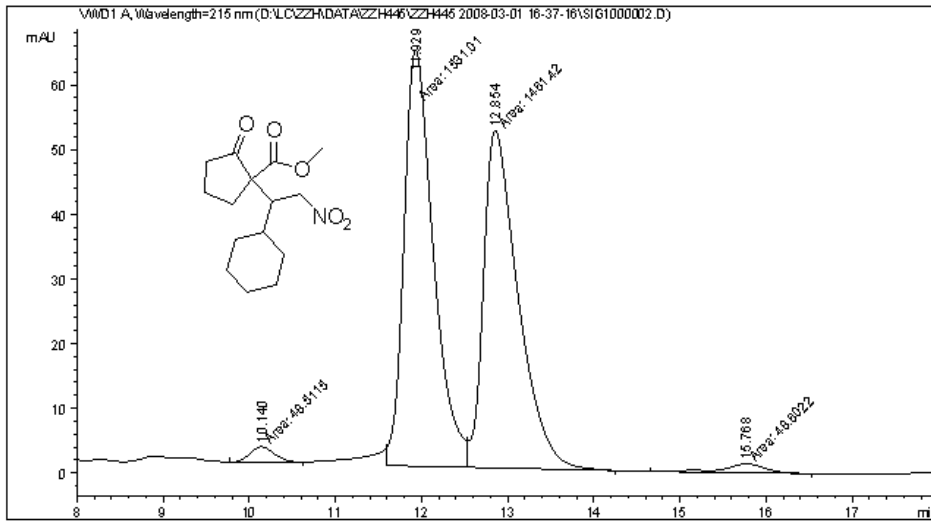
Totals : 4376.29100 157.72714

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

Data File D:\LC\ZZH\DATA\ZZH445\ZZH445 2008-03-01 16-37-16\SIG1000002.D
 Sample Name: zzh445b

```

=====
Acq. Operator   : zhang zhihai                      Seq. Line :    2
Acq. Instrument : Instrument 1                      Location  : Vial 61
Injection Date  : 3/1/2008 1:05:17 AM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH445\ZZH445 2008-03-01 16-37-16\ODH-5-95-1ML-215NM-100MIN.M
Last changed    : 2/29/2008 10:41:51 PM by liang gang
Analysis Method : D:\LC\ZZH\DATA\ZZH445\ZZH445 2008-03-01 16-37-16\SIG1000002.D\DA.M (ODH-5-95-1ML-215NM-100MIN.M)
Last changed    : 3/18/2008 9:51:46 PM by zhihai zhang
                  (modified after loading)
Method Info     : ODH-5-95-1ML-215NM-100MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=215 nm

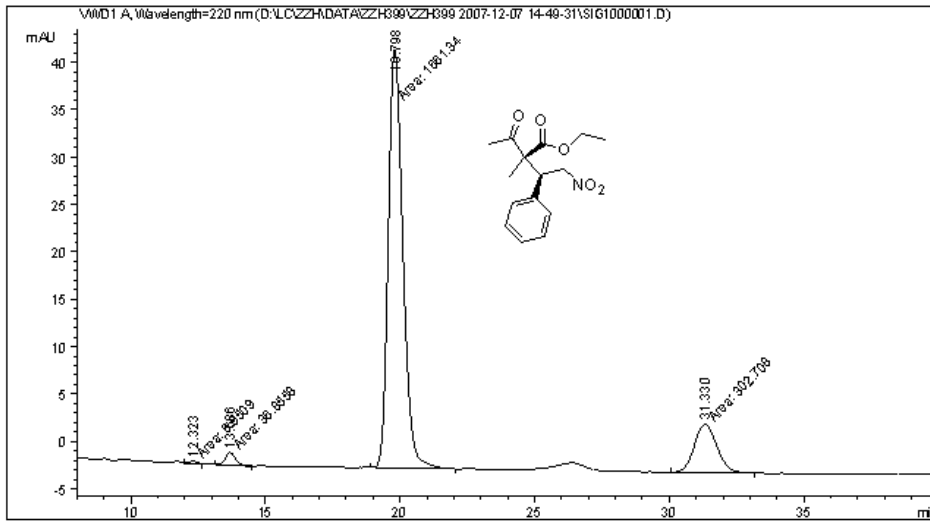
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	10.140	MM	0.3346	48.51151	2.41643	1.5702	
2	11.929	FM	0.3961	1531.01208	64.41458	49.5545	
3	12.854	FM	0.4669	1461.42395	52.16437	47.3022	
4	15.768	MM	0.5923	48.60223	1.36768	1.5731	

Totals : 3089.54978 120.36307

Data File D:\LC\ZZH\DATA\ZZH399\ZZH399 2007-12-07 14-49-31\SIG1000001.D
 Sample Name: zzh399c

```

=====
Acq. Operator   : zzh                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 55
Injection Date  : 12/8/2007 6:51:01 AM     Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\data\ZZH399\ZZH399 2007-12-07 14-49-31\ODH-10-90-09ML-220NM-100MIN.M
Last changed    : 12/4/2007 12:36:08 AM by zzh
Analysis Method : D:\LC\ZZH\DATA\ZZH399\ZZH399 2007-12-07 14-49-31\SIG1000001.D\DA.M (ODH-10-90-
09ML-220NM-100MIN.M)
Last changed    : 3/12/2008 9:33:07 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-09ML-220NM-100MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

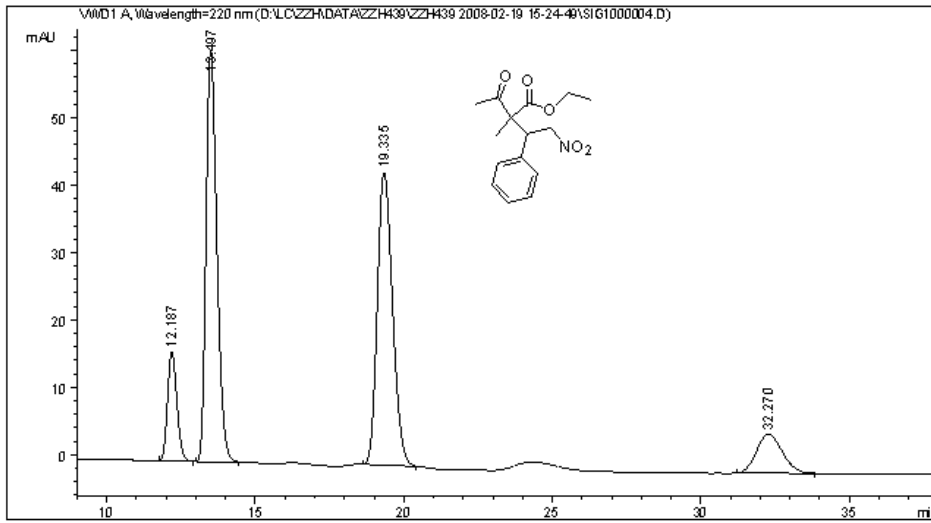
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	12.323	FM	0.4048	6.95090	2.86205e-1	0.3462	
2	13.686	MM	0.4603	36.85584	1.33446	1.8356	
3	19.798	MM	0.6279	1661.33545	44.09757	82.7420	
4	31.330	MM	0.9867	302.70840	5.11328	15.0762	

Totals : 2007.85059 50.83152

Data File D:\LC\ZZH\DATA\ZZH439\ZZH439 2008-02-19 15-24-49\SIG1000004.D
 Sample Name: zzh439c

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    4
Acq. Instrument : Instrument 1           Location  : Vial 74
Injection Date  : 2/19/2008 5:15:43 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH439\ZZH439 2008-02-19 15-24-49\ODH-10-90-09ML-220NM-60MIN.M
Last changed    : 2/19/2008 3:23:50 PM by zhang zhihai
Analysis Method : D:\LC\ZZH\DATA\ZZH439\ZZH439 2008-02-19 15-24-49\SIG1000004.D\DA.M (ODH-10-90-
09ML-220NM-60MIN.M)
Last changed    : 3/12/2008 9:28:26 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-09ML-220NM-60MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

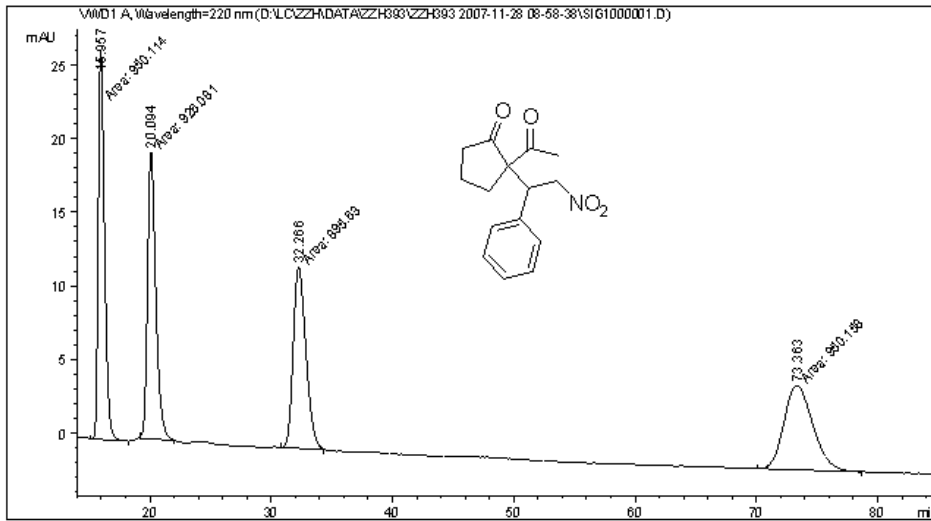
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	12.187	BB	0.3419	359.67661	16.30047	16.30047	9.4518
2	13.497	BB	0.3914	1547.84827	61.14731	61.14731	40.6753
3	19.335	BB	0.5531	1545.78406	43.48376	43.48376	40.6211
4	32.270	BB	0.9083	352.06293	5.78283	5.78283	9.2517

Totals : 3805.37186 126.71436

Data File D:\LC\ZZH\DATA\ZZH393\ZZH393 2007-11-28 08-58-38\SIG1000001.D
 Sample Name: zh393a-r

```

=====
Acq. Operator   : zzh                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 11
Injection Date  : 11/28/2007 9:00:00 AM    Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\data\ZZH393\ZZH393 2007-11-28 08-58-38\ODH-20-80-1ML-220MM-100MIN.M
Last changed    : 8/10/2007 12:03:16 PM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH393\ZZH393 2007-11-28 08-58-38\SIG1000001.D\DA.M (ODH-20-80-1ML-220MM-100MIN.M)
Last changed    : 12/6/2007 5:21:25 PM by zzh
                 (modified after loading)
Method Info     : ODH-20-80-1ML-220MM-100MIN
  
```



Area Percent Report

```

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

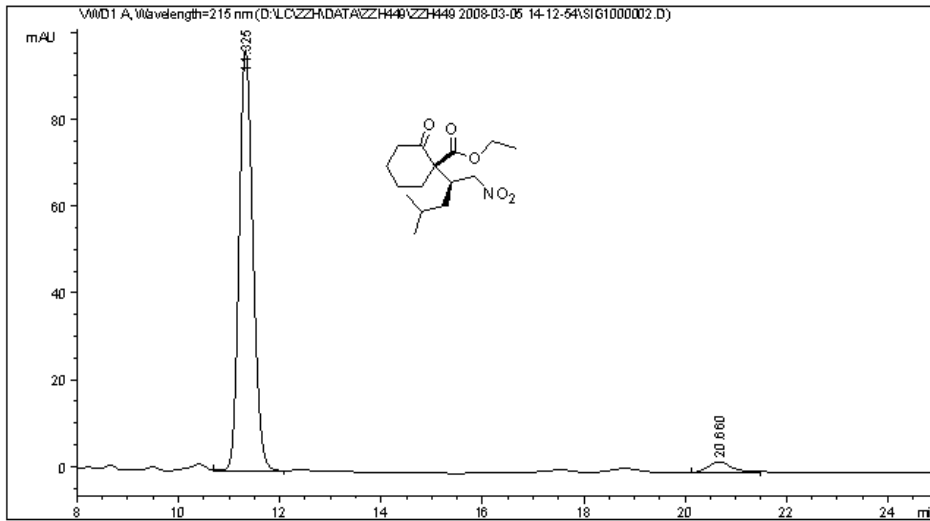
Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	15.957	MM	0.5977	950.11414	26.49490	25.5271	
2	20.094	MM	0.7911	926.08112	19.50961	24.8814	
3	32.266	MM	1.2123	895.62970	12.31298	24.0632	
4	73.363	MM	2.7602	950.15771	5.73724	25.5283	

Totals : 3721.98267 64.05473

Data File D:\LC\ZZH\DATA\ZZH449\ZZH449 2008-03-05 14-12-54\SIG1000002.D
Sample Name: zzh449a

```
=====
Acq. Operator   : zhang zhihai                      Seq. Line :    2
Acq. Instrument : Instrument 1                      Location  : Vial 61
Injection Date  : 3/5/2008 2:40:55 PM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH449\ZZH449 2008-03-05 14-12-54\ODH-90-10-08ML-215NM-120MIN.M
Last changed   : 3/3/2008 3:15:27 PM by zhang zhihai
Analysis Method : D:\LC\ZZH\DATA\ZZH449\ZZH449 2008-03-05 14-12-54\SIG1000002.D\DA.M (ODH-90-10-08ML-215NM-120MIN.M)
Last changed   : 3/13/2008 9:30:48 AM by zhangzhihai
                (modified after loading)
Method Info    : ODH-90-10-08ML-215NM-120min
=====
```



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

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

Signal 1: WVD1 A, Wavelength=215 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	11.325	VB	0.2968	1850.79797		97.02457	96.0559
2	20.660	BB	0.4702	75.99490		2.42660	3.9441

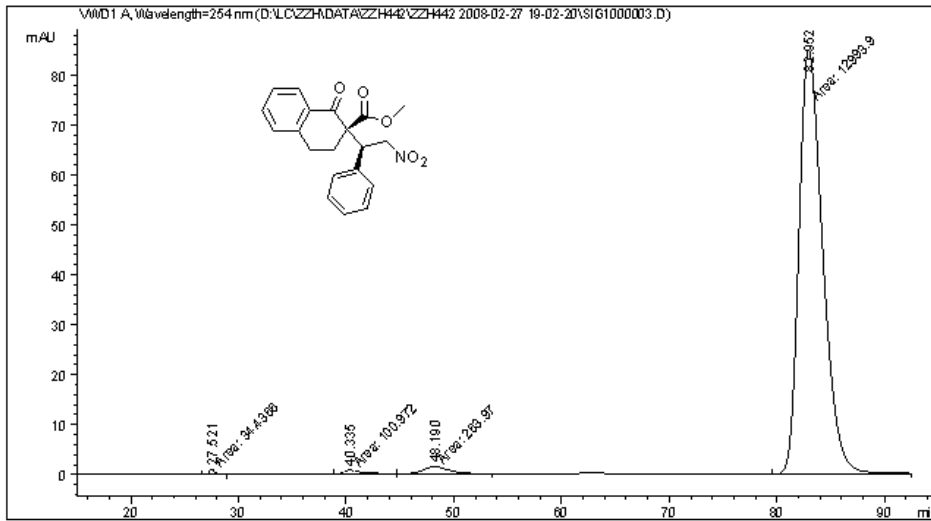
Totals : 1926.79287 99.45117

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

Data File D:\LC\ZZH\DATA\ZZH442\ZZH442 2008-02-27 19-02-20\SIG1000003.D
 Sample Name: zzh442b-a

```

=====
Acq. Operator   : liang gang                Seq. Line :    3
Acq. Instrument : Instrument 1              Location  : Vial 53
Injection Date  : 2/27/2008 8:02:05 PM     Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH442\ZZH442 2008-02-27 19-02-20\ODH-90-10-05ML-254NM.M
Last changed   : 12/25/2007 4:37:35 PM by ZHIHAI ZHANG
Analysis Method : D:\LC\ZZH\DATA\ZZH442\ZZH442 2008-02-27 19-02-20\SIG1000003.D\DA.M (ODH-90-10-05ML-254NM.M)
Last changed   : 3/13/2008 9:26:11 AM by zhangzhihai
                (modified after loading)
Method Info    : ODH-90-10-05ML-254NM
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=254 nm

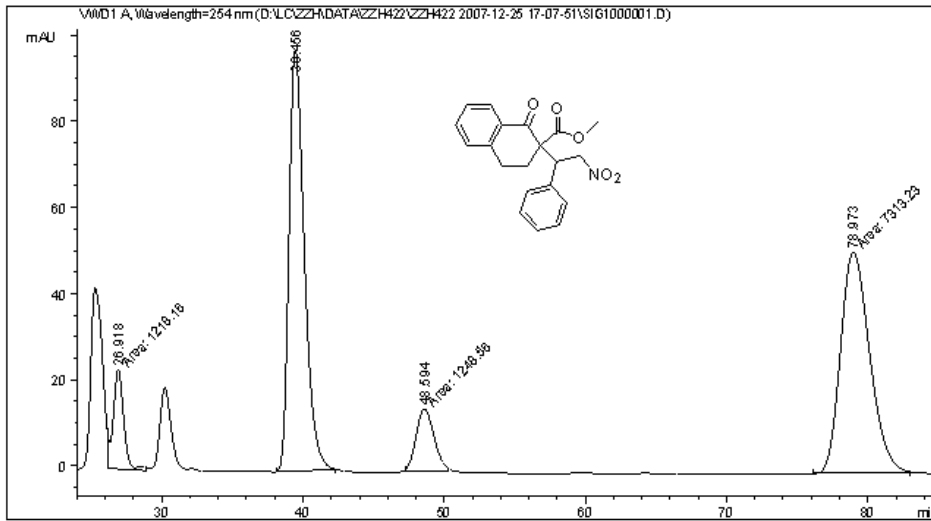
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	27.521	MM	0.5555	34.43665		1.03321	0.2571
2	40.335	MM	2.2183	100.97226		7.58645e-1	0.7539
3	48.190	MM	2.9710	263.97000		1.48081	1.9709
4	82.952	MM	2.5513	1.29939e4		84.88254	97.0181

Totals : 1.33932e4 88.15520

Data File D:\LC\ZZH\DATA\ZZH422\ZZH422 2007-12-25 17-07-51\SIG1000001.D
 Sample Name: ZZH422-R

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 43
Injection Date  : 12/25/2007 5:09:17 PM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH422\ZZH422 2007-12-25 17-07-51\ODH-90-10-05ML-254NM.M
Last changed    : 12/25/2007 4:37:35 PM by ZHIHAI ZHANG
Analysis Method : D:\LC\ZZH\DATA\ZZH422\ZZH422 2007-12-25 17-07-51\SIG1000001.D\DA.M (ODH-90-10-05ML-254NM.M)
Last changed    : 3/12/2008 9:54:01 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-90-10-05ML-254NM
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=254 nm

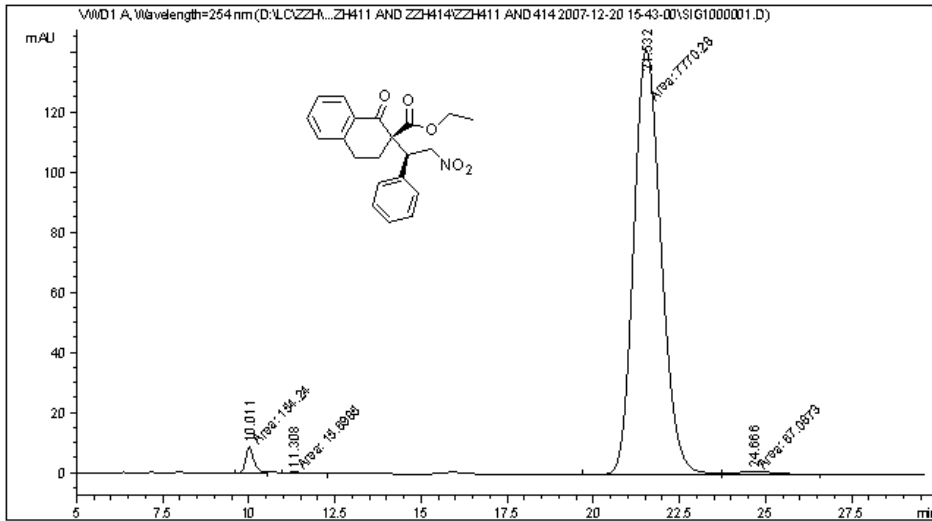
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	26.918	MM	0.8806	1218.15820	23.05609	23.05609	7.1067
2	39.456	BB	1.1532	7361.05469	97.80840	97.80840	42.9441
3	48.594	MM	1.4538	1248.55908	14.31387	14.31387	7.2840
4	78.973	MM	2.3778	7313.23389	51.26121	51.26121	42.6651

Totals : 1.71410e4 186.43958

Data File D:\LC\ZZH\DATA\ZZH411 AND ZZH414\ZZH411 AND 414 2007-12-20 15-43-00\SIG1000001.D
 Sample Name: ZZH414A-2

```

=====
Acq. Operator   :                               Seq. Line :    1
Acq. Instrument : Instrument 1                   Location  : Vial 3
Injection Date  : 12/20/2007 3:44:25 PM        Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH411 AND ZZH414\ZZH411 AND 414 2007-12-20 15-43-00\ODH-20-80-
  LML-254NM-35MIN.M
Last changed   : 12/20/2007 2:51:55 PM
Analysis Method : D:\LC\ZZH\DATA\ZZH411 AND ZZH414\ZZH411 AND 414 2007-12-20 15-43-00\
  SIG1000001.D\DA.M (ODH-20-80-LML-254NM-35MIN.M)
Last changed   : 3/12/2008 10:09:29 PM by zhangzhihai
  (modified after loading)
Method Info    : ODH-20-80-LML-254NM-35MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=254 nm

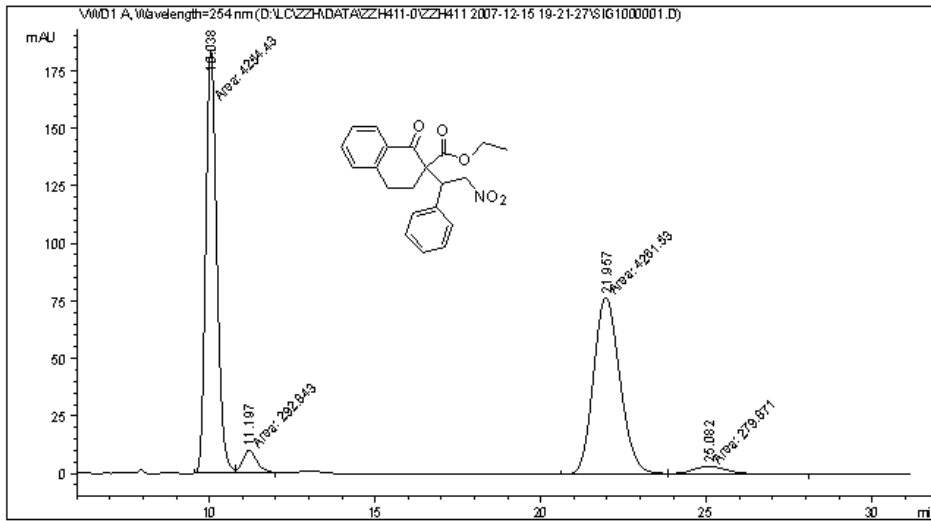
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area %s	Height [mAU]	Area %
1	10.011	MF	0.2911	154.24014		8.83227	1.9262
2	11.308	FM	0.5158	15.69854		5.07302e-1	0.1961
3	21.532	MF	0.9173	7770.27539		141.18092	97.0399
4	24.666	FM	1.2531	67.08730		8.92266e-1	0.8378

Totals : 8007.30137 151.41276

Data File D:\LC\ZZH\DATA\ZZH411-0\ZZH411 2007-12-15 19-21-27\SIG1000001.D
 Sample Name: zzh411.R

```

=====
Acq. Operator   : zhihai zhang           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 52
Injection Date  : 12/16/2007 11:22:53 AM Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\data\ZZH411\ZZH411 2007-12-15 19-21-27\ODH-20-80-1ML-254NM-100MIN.M
Last changed    : 12/16/2007 11:00:20 AM by wcb
Analysis Method : D:\LC\ZZH\DATA\ZZH411-0\ZZH411 2007-12-15 19-21-27\SIG1000001.D\DA.M (ODH-20-
80-1ML-254NM-100MIN.M)
Last changed    : 3/12/2008 10:06:18 PM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-20-80-1ML-254NM-100MIN
  
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=254 nm

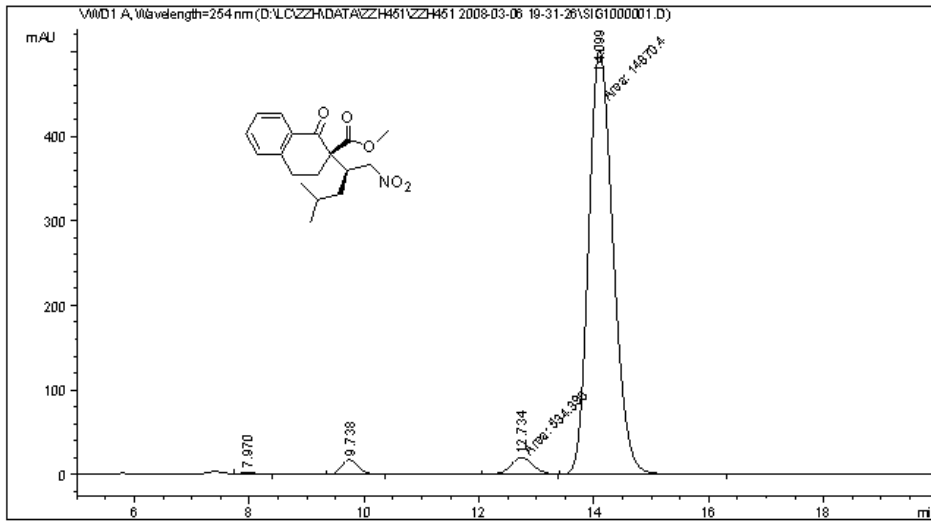
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area %	Height [mAU]
1	10.038	MF	0.3859	4254.42725	46.8102	183.74840
2	11.197	FM	0.4962	292.84344	3.2221	9.83567
3	21.957	MF	0.9256	4261.53467	46.8884	76.73265
4	25.082	MM	1.3663	279.87140	3.0793	3.41392

Totals : 9088.67676 273.73063

Data File D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 19-31-26\SIG1000001.D
 Sample Name: zzh451b-2

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 64
Injection Date  : 3/6/2008 7:32:53 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 19-31-26\ODH-10-90-1ML-254NM-100MIN.M
Last changed   : 10/14/2007 9:50:40 AM by ZZH
Analysis Method: D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 19-31-26\SIG1000001.D\DA.M (ODH-10-90-1ML-254NM-100MIN.M)
Last changed   : 3/13/2008 9:39:00 AM by zhangzhihai
                (modified after loading)
Method Info    : ODH-10-90-1ML-254NM-100MIN
  
```



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

```

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

Signal 1: WVD1 A, Wavelength=254 nm

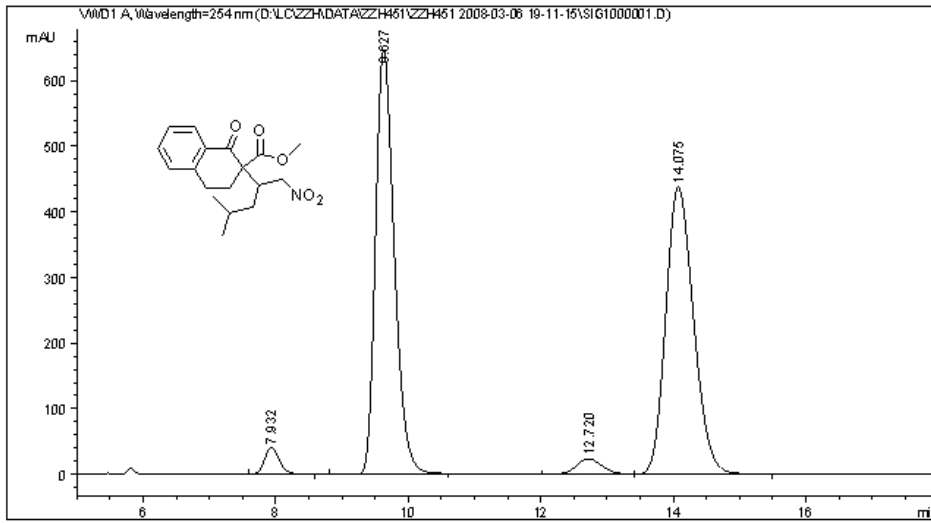
Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	7.970	VB	0.2626	43.35131		2.52865	0.2744
2	9.738	BB	0.3131	351.19989		17.36925	2.2229
3	12.734	MM	0.4498	534.39600		19.80339	3.3824
4	14.099	MM	0.4934	1.48704e4		502.30405	94.1204

Totals : 1.57994e4 542.00533

Data File D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 19-11-15\SIG1000001.D
 Sample Name: zzh451b-r

```

=====
Acq. Operator   : zhang zhihai           Seq. Line :    1
Acq. Instrument : Instrument 1           Location  : Vial 63
Injection Date  : 3/6/2008 7:12:45 PM   Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 19-11-15\ODH-10-90-1ML-254NM-100MIN.M
Last changed    : 10/14/2007 9:50:40 AM by ZZH
Analysis Method : D:\LC\ZZH\DATA\ZZH451\ZZH451 2008-03-06 19-11-15\SIG1000001.D\DA.M (ODH-10-90-
1ML-254NM-100MIN.M)
Last changed    : 3/13/2008 9:35:33 AM by zhangzhihai
                 (modified after loading)
Method Info     : ODH-10-90-1ML-254NM-100MIN
  
```



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

```

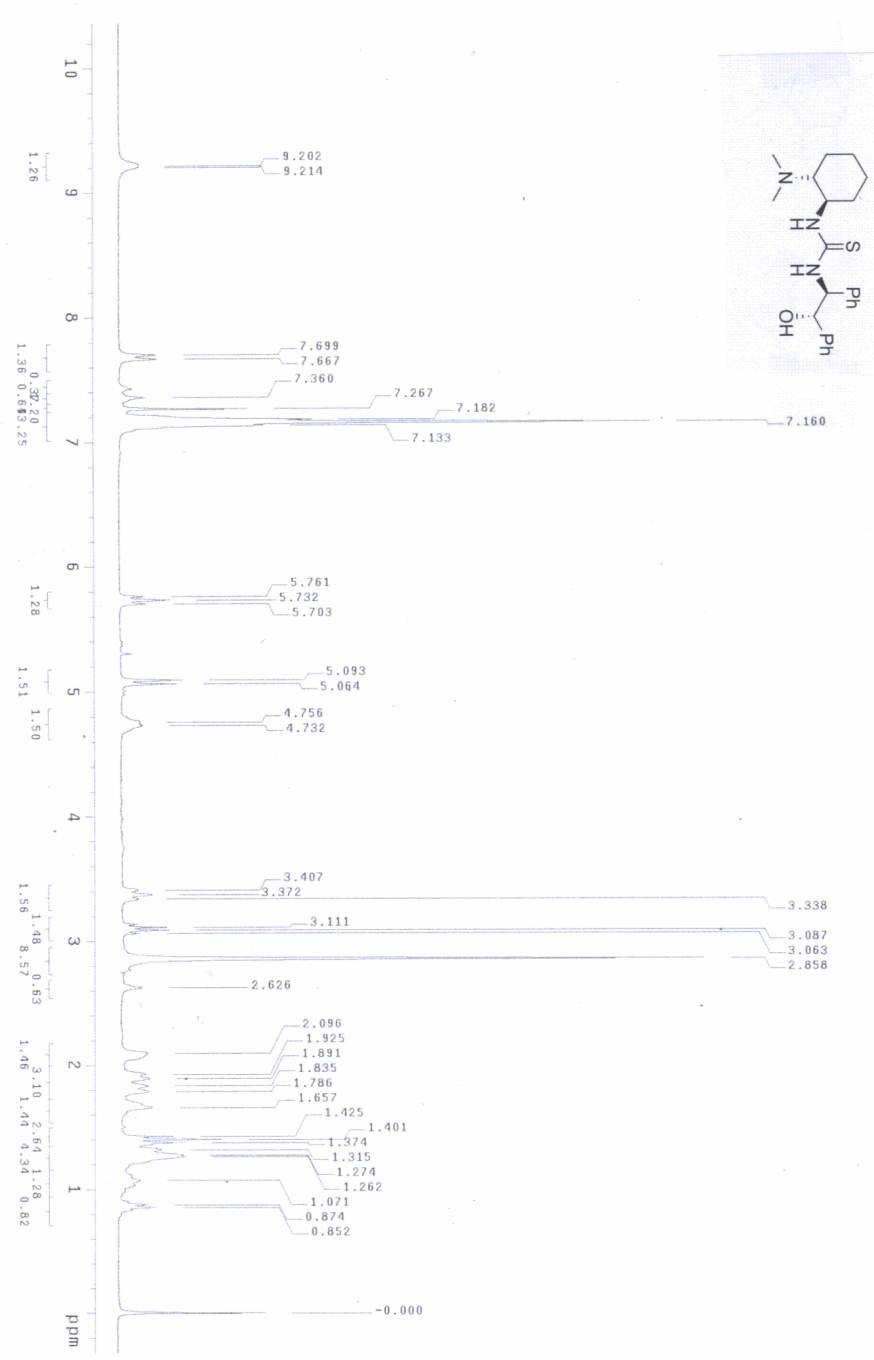
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: WVD1 A, Wavelength=254 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Height [mAU]	Area %
1	7.932	VB	0.2450	643.60034	40.20440	40.20440	2.4011
2	9.627	BV	0.3042	1.27478e4	646.87268	646.87268	47.5593
3	12.720	BV	0.4215	649.38690	23.70533	23.70533	2.4227
4	14.075	VB	0.4539	1.27632e4	437.52258	437.52258	47.6168

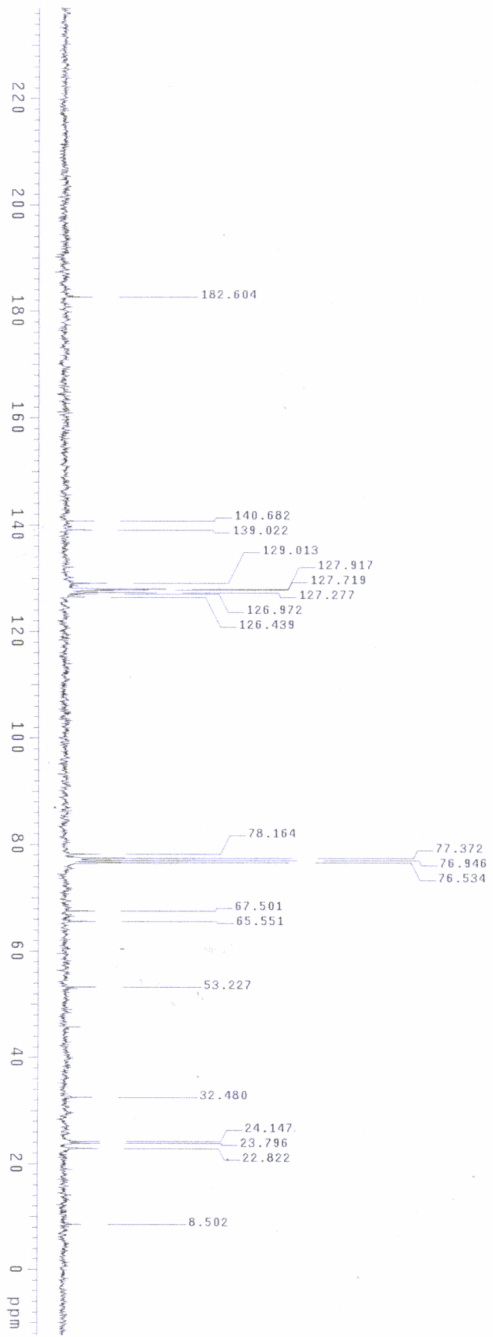
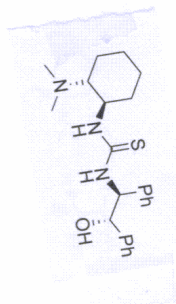
Totals : 2.68040e4 1148.30499

ZZ13171-11-3

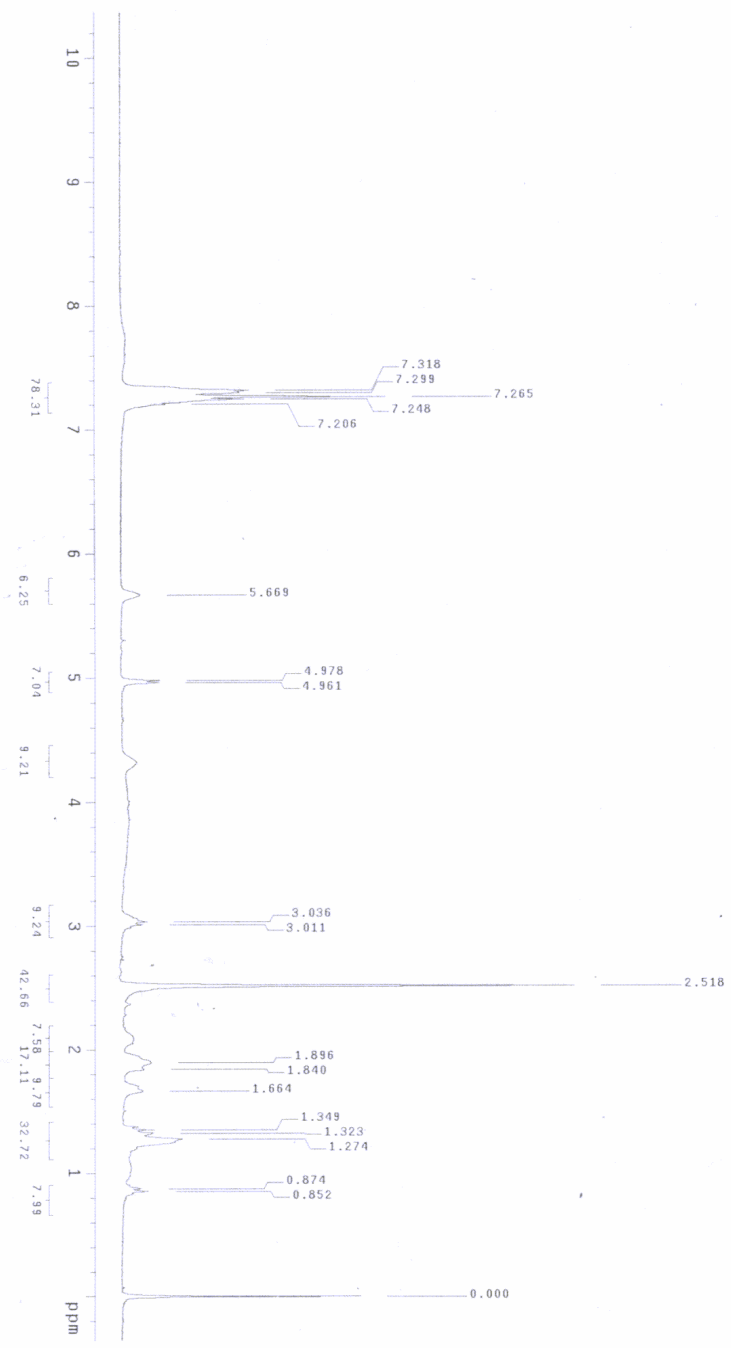
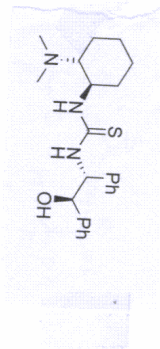


C13-22N397D-B

Solvent: CDCl3
Ambient: 29.81496
Mascity: 300888 msc: Cary3000
Relax. delay: 1.000 sec
Pulse: 28.0 degrees
Acq. time: 0.500 sec
Width: 18832.4 Hz
Observed: 13.0075452844 MHz
OBSERVED C13: 101.75452844 MHz
DECUPLE: H1, 300.0807172 MHz
Power: 40 dB
CONTINUOUSLY ON
Acquisition Method
Line broadening: 4.0 Hz
DATA PROCESSING
FT size: 32768
Total time: 1 hr, 50 min, 15 sec

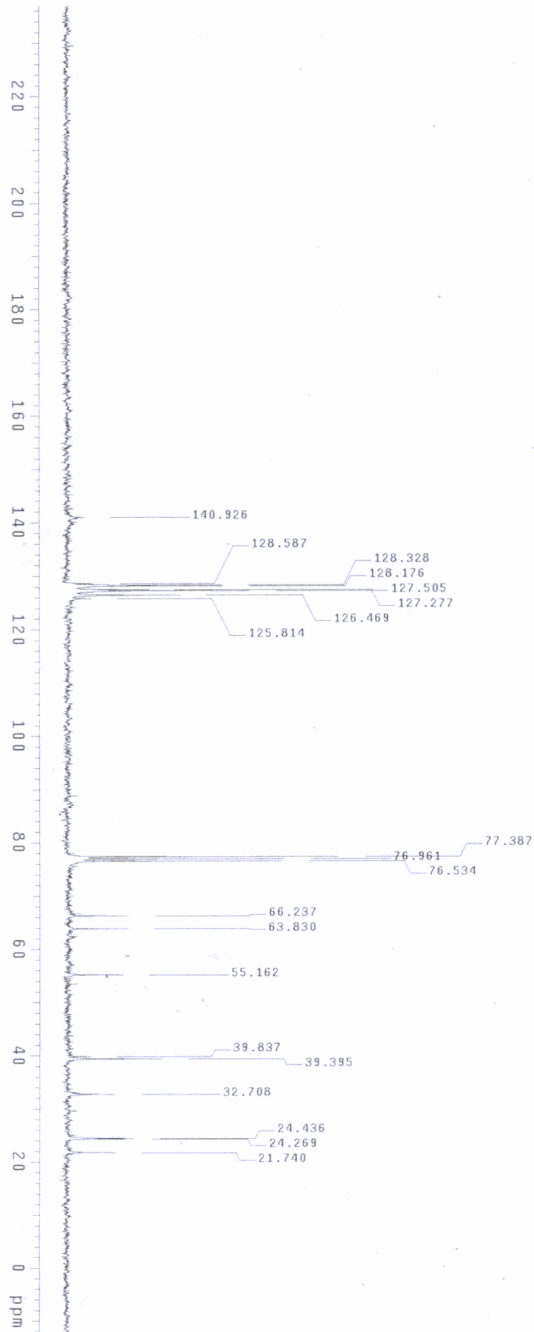
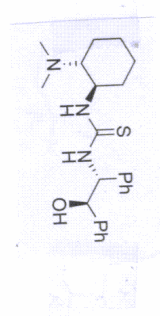


ZZ1397d-2

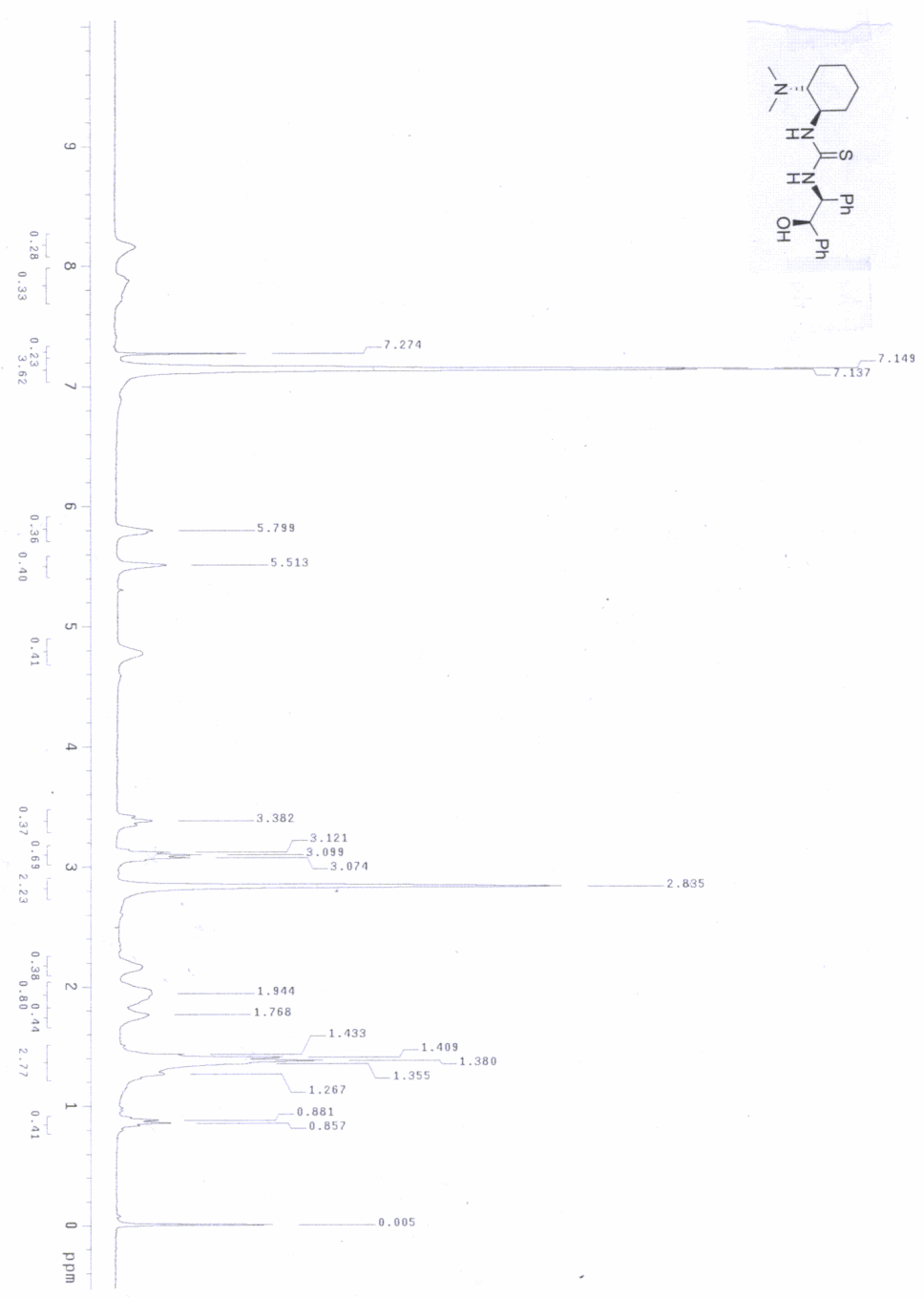
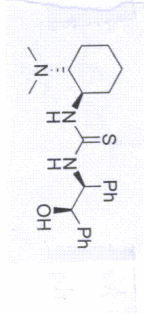


Cl3-22h3974

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Acq. time 0.500 sec
Width 18832.4 Hz
352 repetitions
OBSERVED C13' 300.000172 MHz
OBSERVED H1' 300.000172 MHz
Power 40 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
F2 size 32768
F1 size 32768
Total time 1 hr., 50 min., 15 sec

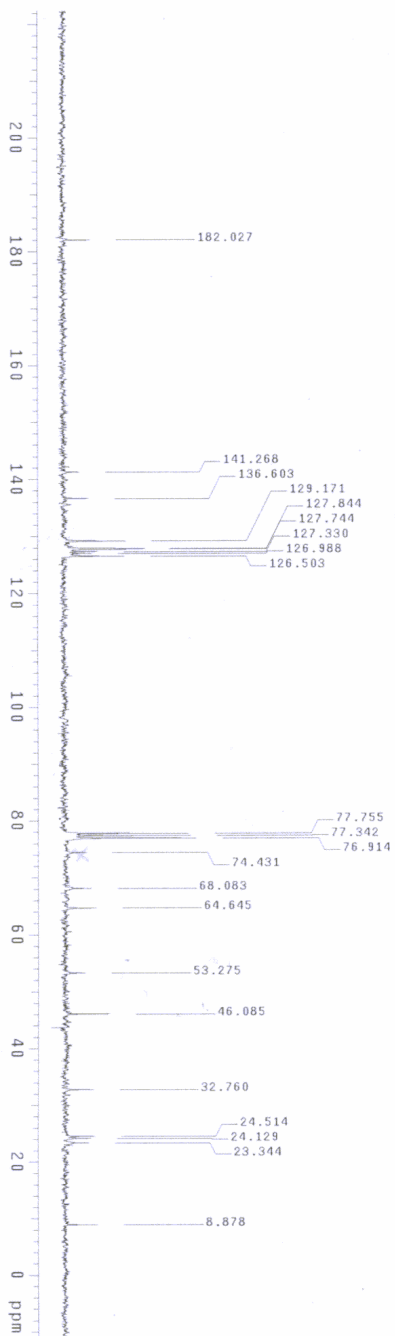
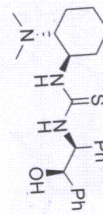


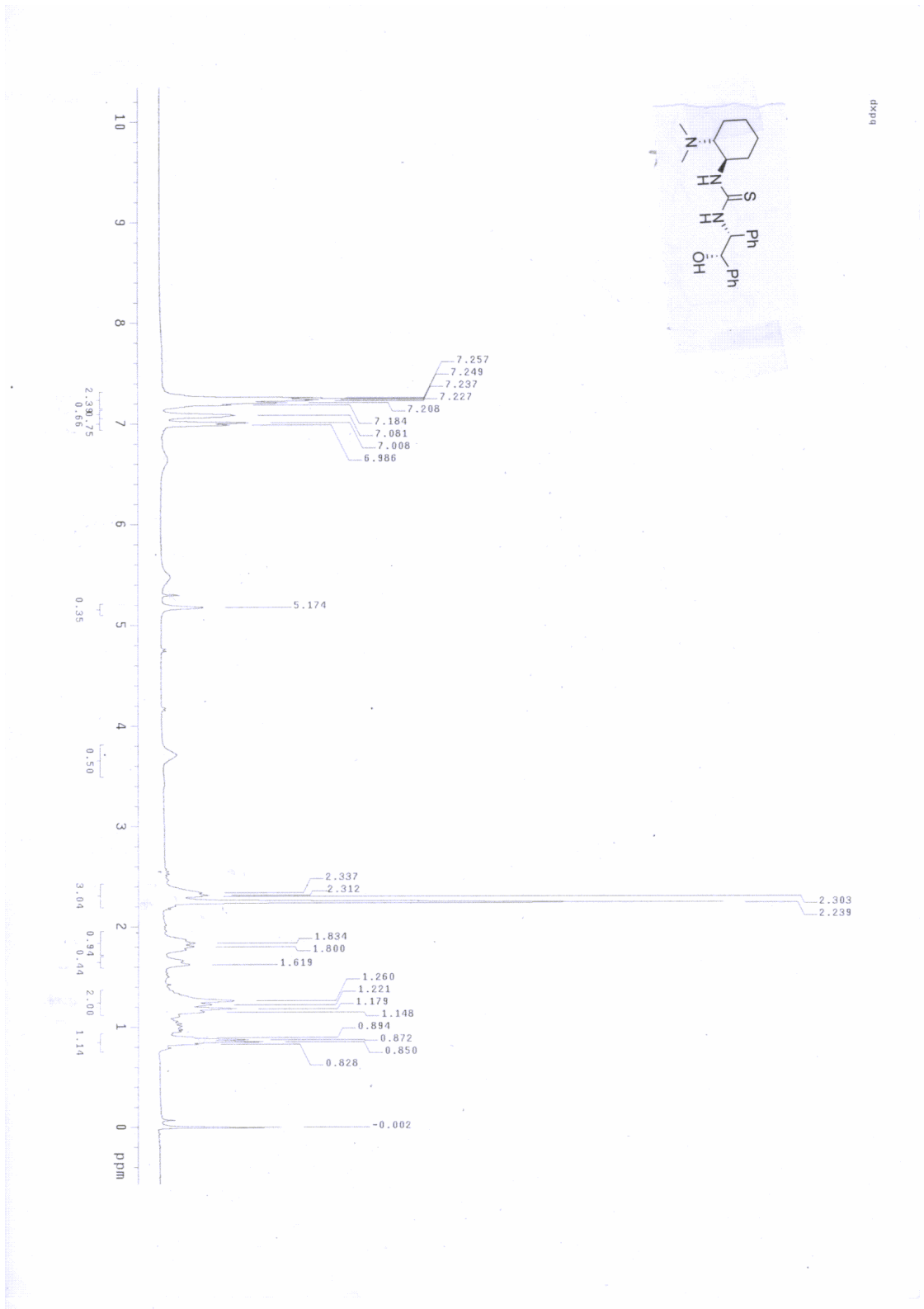
ZZ1397C



C13-2211397c

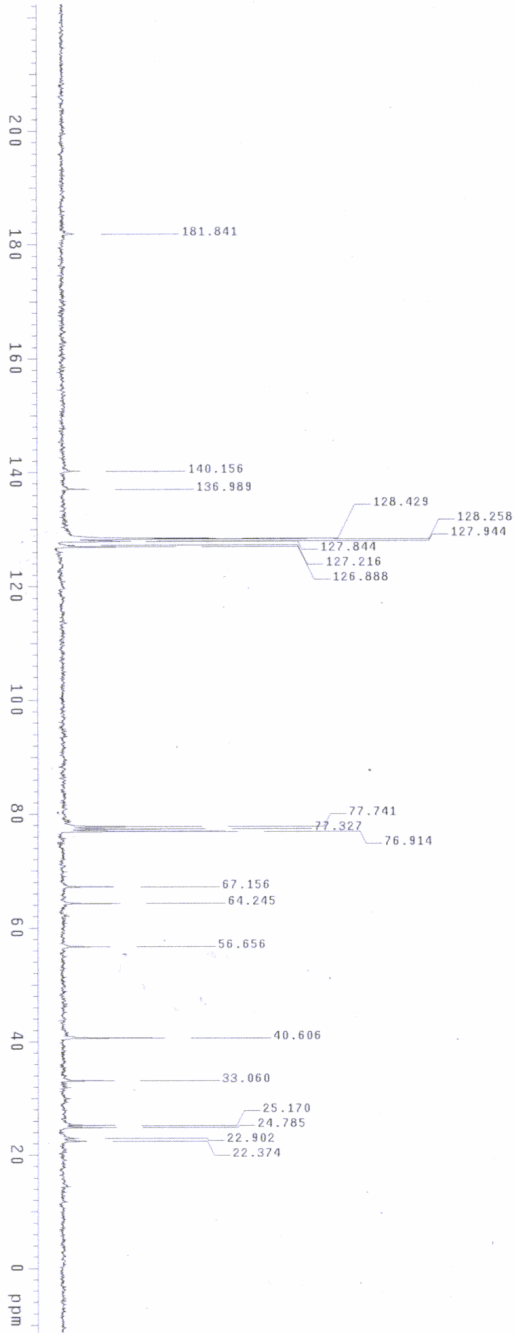
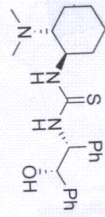
Solvent: CDCl3
Ambient temperature
Mercury-300B8 "mercury300"
Relax delay 1.000 sec
Acq 16.000 sec
Acq 4.000 sec
Width 17636.7 Hz
144 repetitions
OBSERVE C13, 75.4552576 MHz
PULPROG zgpg30
Power 40 dB, 300.0607172 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
F1 F2 4.00000000 4.00000000
F1 F2 24.32768 24.32768
Total time 1 hr, 55 min, 30 sec





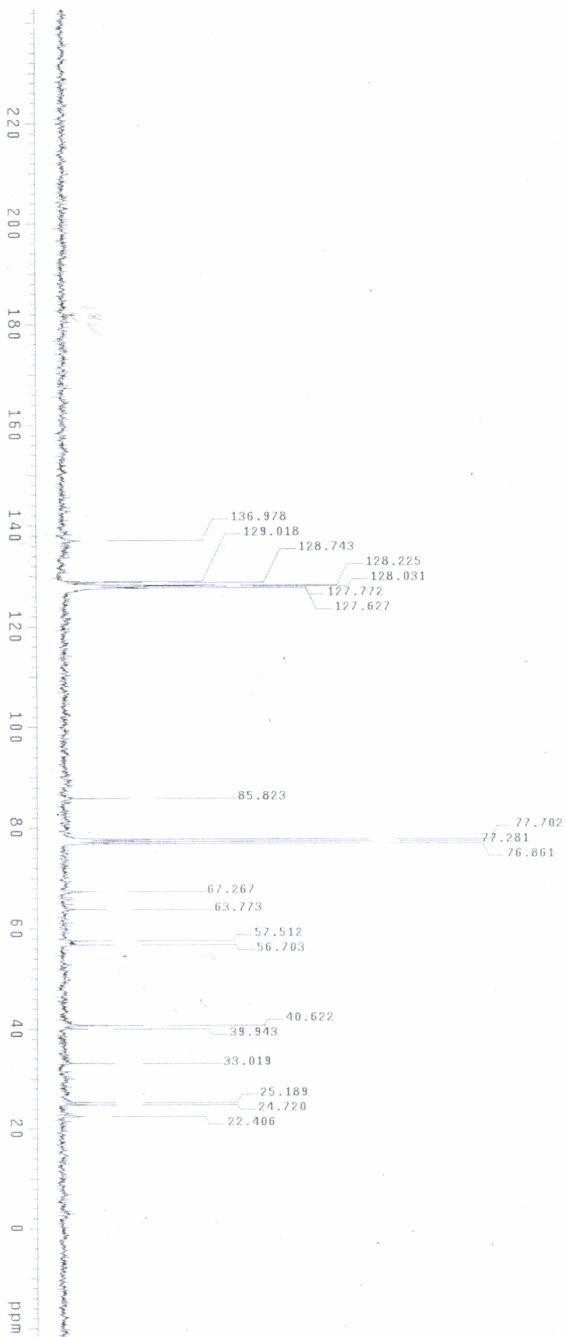
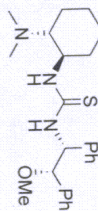
Cl3-dioxolanlyst

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax delay 1.000 sec
Acq time 0.500 sec
Width 17636.7 Hz
304 repetitions
OBSERVED C13, 95.4552576 MHz
OBSERVED H1, 300.5007172 MHz
Power 40 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
AQ 4.0000000000000000 Hz
FT size 32768
Total time 4 hr, 48 min, 46 sec

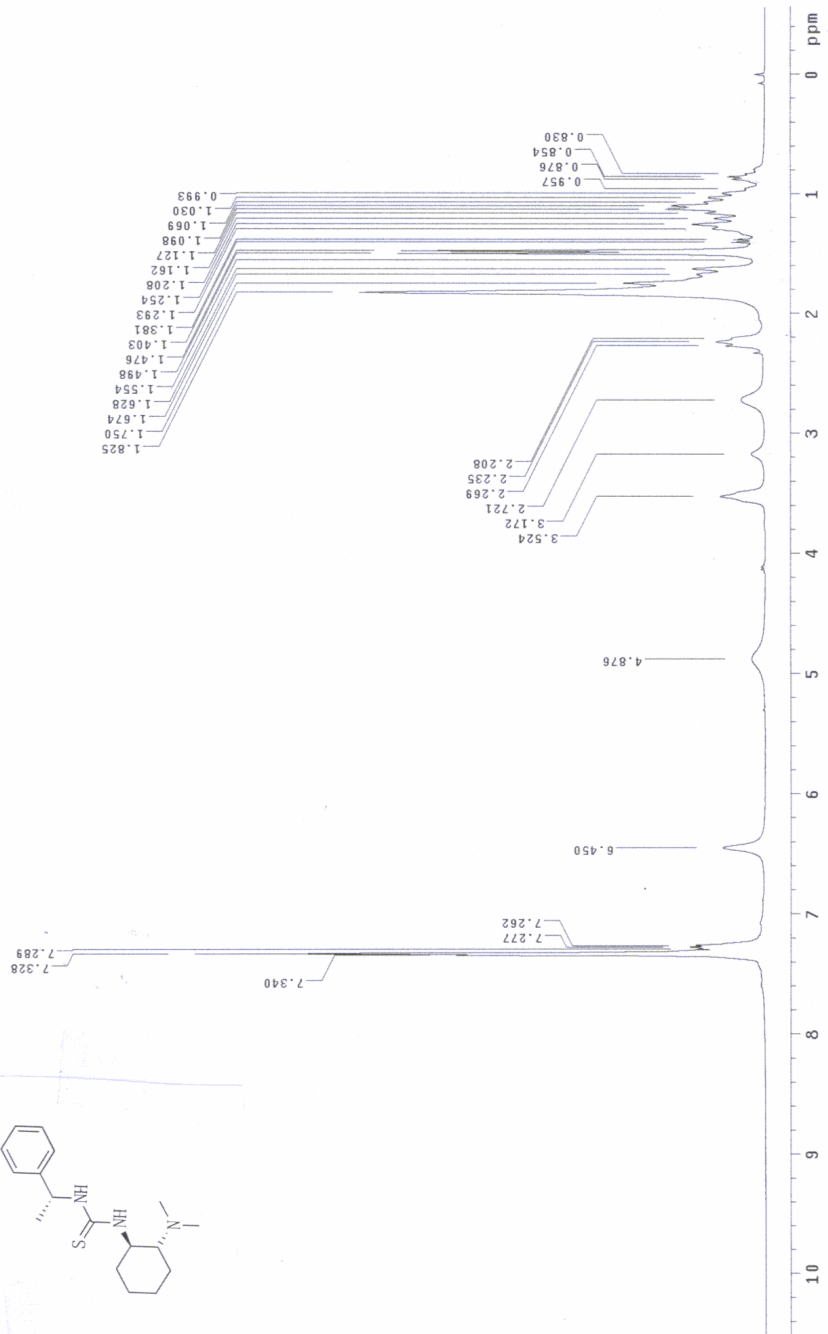
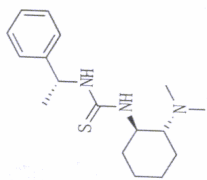


C13-zzh453

Solvent: CDCl3
Ambient Temperature
Mercury-300BB "mercury300"
Relax delay 1.000 sec
Acq 12.0 deg/sec
Acq 12.0 deg/sec
Width 20000.0 Hz
408 Repetitions
OBSERVE C13, 75.4552576 MHz
DECODE C13, 300.0807172 MHz
PULPROG zgpg30
CONTINUOUSLY ON
WALTZ-16 modulated
DATA PROCESSING
Time Processing 4.0 Hz
Sweep 10000.0 Hz
Total time 5 hr, 49 min, 0 sec

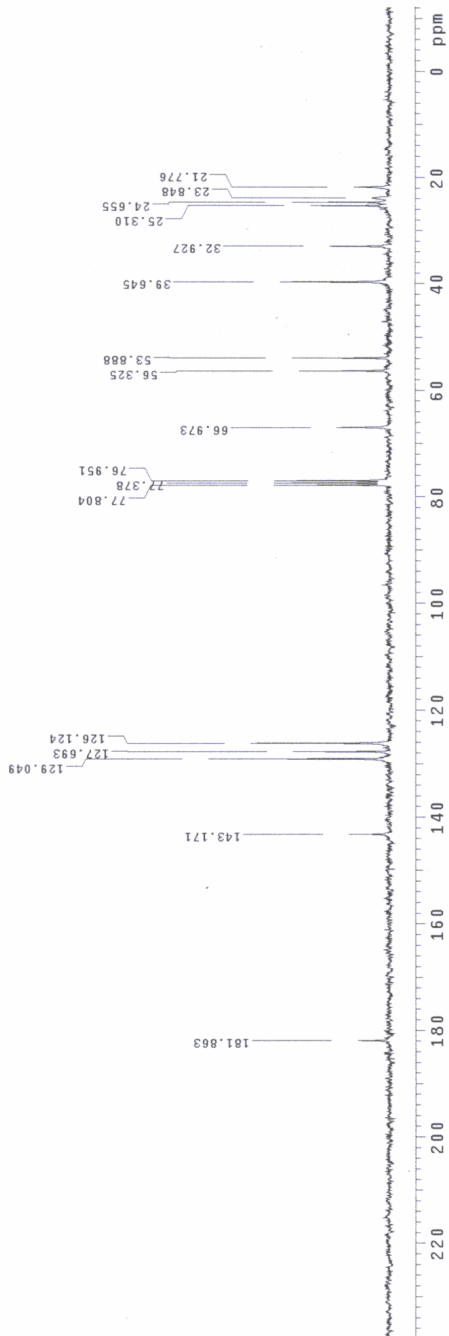
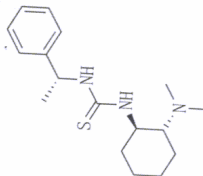


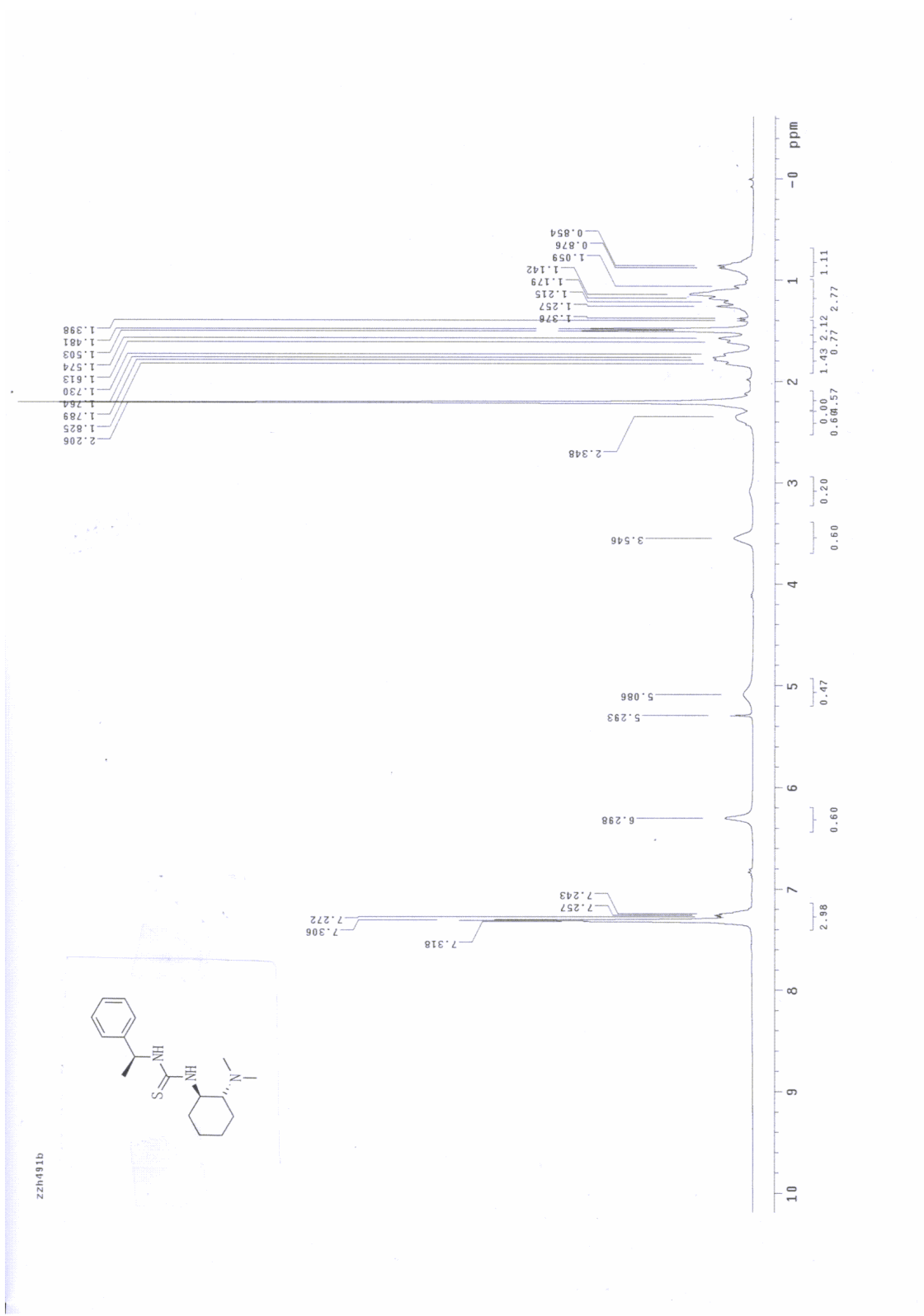
zzh498a



c13-zzh498a

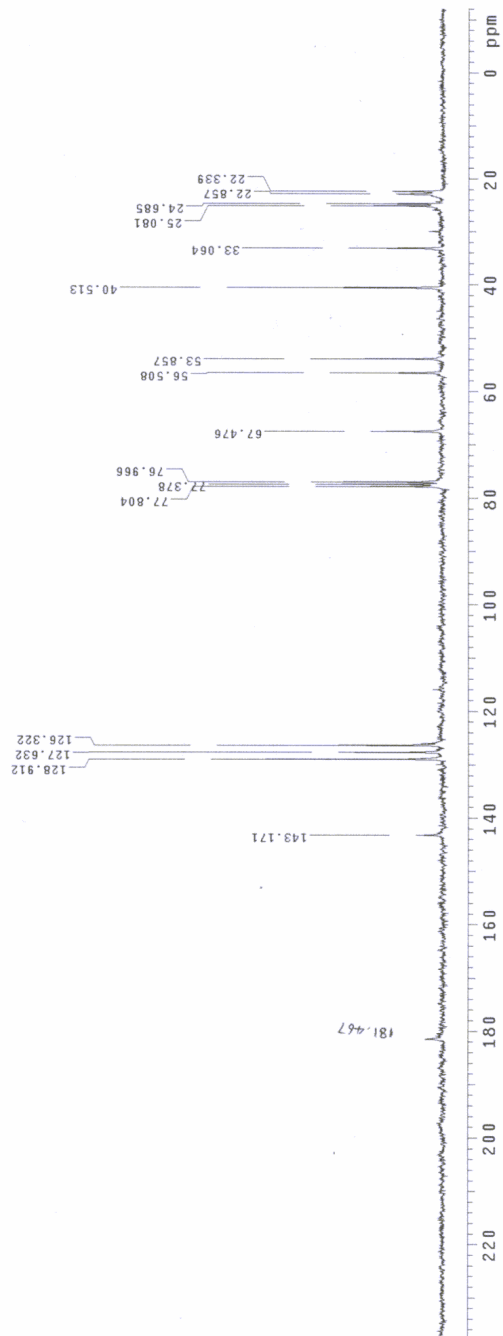
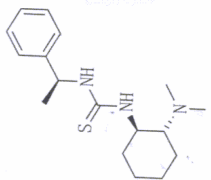
Solvent: CDCl3
Ambient temperature
Mercury-300BB Mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 18832.4 Hz
Observer c13, 25.4552576 MHZ
DECOUPLE H1, 300.0807172 MHZ
Power 40 dB
continuously on
Waltz16 Modulated
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32768
Total time 2 hr, 25 min, 1 sec

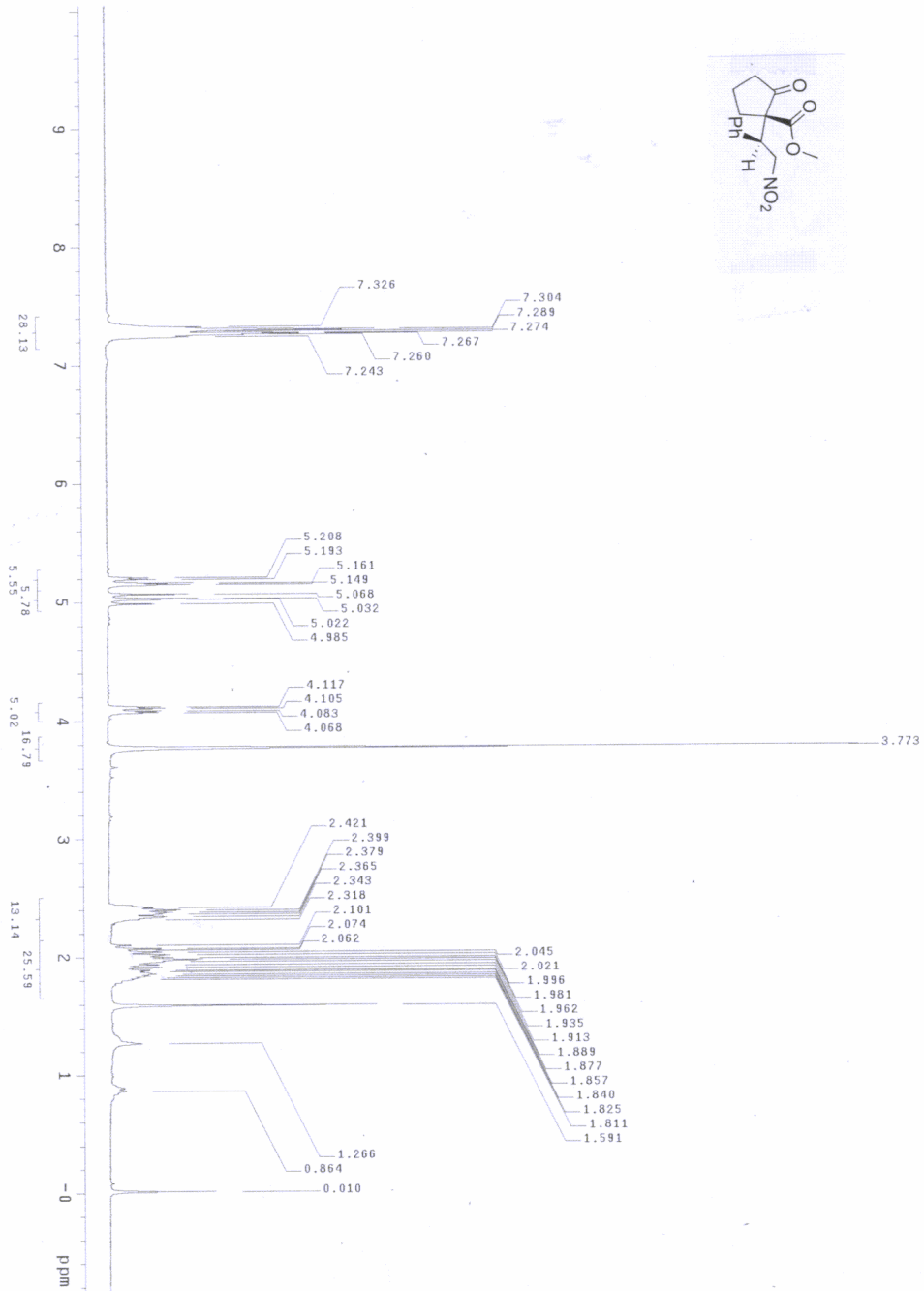
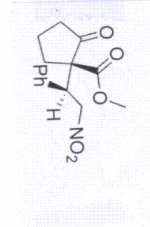




c13-zzh491b

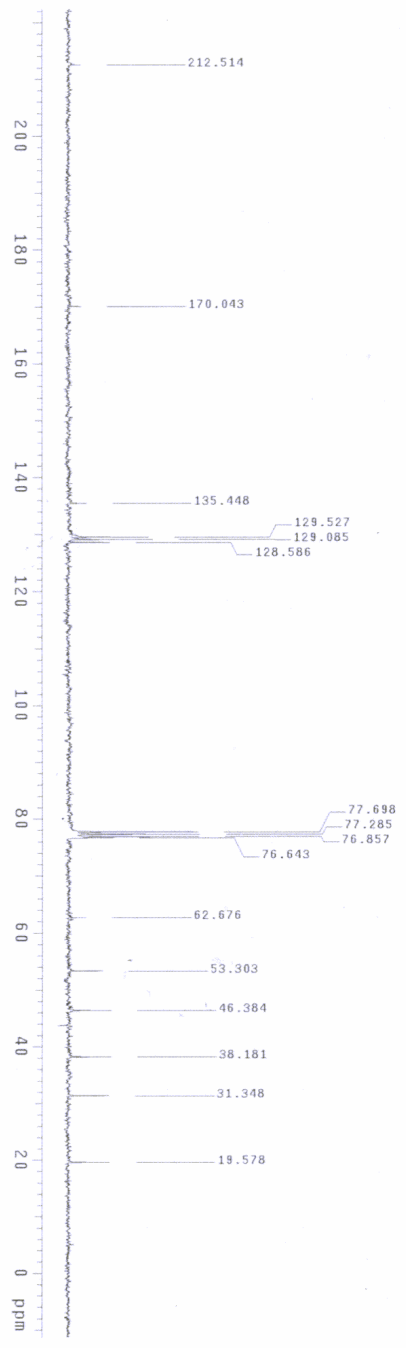
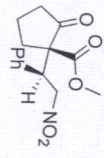
Solvent: CDCl3
Temperature: 300.2 K
Pulsprog: zgpg30
Mercury: 300MHz
Relax. delay: 1.000 sec
Pulse: zgpg30
Pulse program: zgpg30
Acq. time: 0.500 sec
V2: 180.0 Hz
V1: 180.0 Hz
OBSERVE: C13, cont5-4552576 MHz
DECOUPLE: H1, 300.0807172 MHz
Power: 40.00 dB
SFO: 101.625300 MHz
AQ: 0.500000 sec
RG: 655.36
WDW: EM
SSB: 0
LB: 3.00 Hz
GB: 0
PC: 0.000000 sec
DATA PROCESSING
Line broadening: 4.0 Hz
FT size: 32768
Total time: 1 hr, 27 min, 1 sec



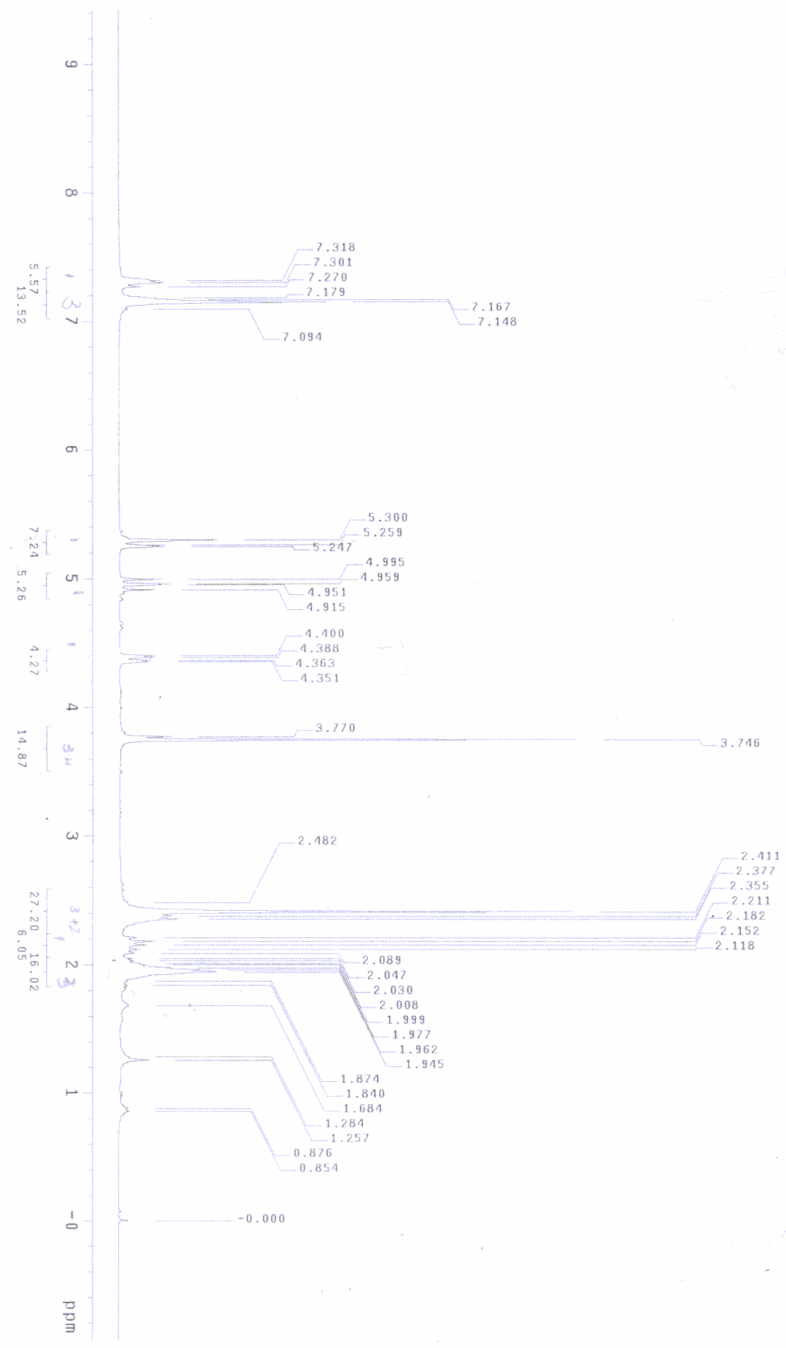
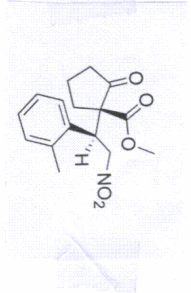


Cl3-zzh388a

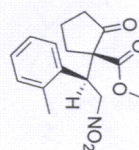
Solvent: CDCl3
Ambient temperature
Mercury-300B8 "mercury300"
Relax delay 1.000 sec
Acq time 0.500 sec
Width 17636.7 Hz
184 repetitions
OBSERVED Cl3, 300.500172 MHz
PULPROG zgpg30
Power 40 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
SI 14
FT size 32768
Total time 4 hr, 48 min, 46 sec



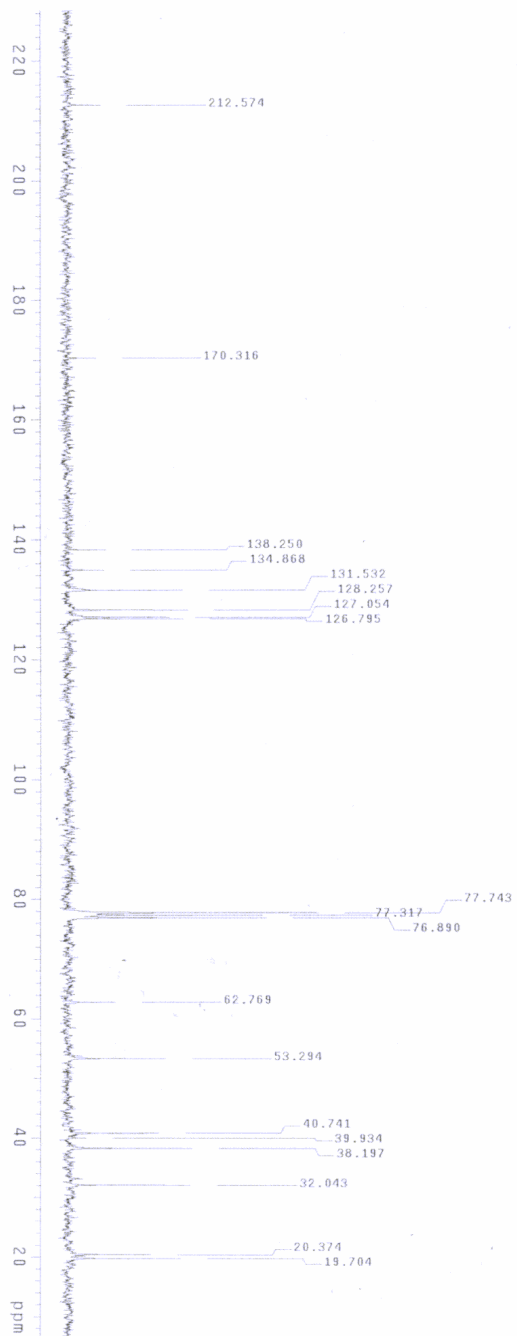
221429A



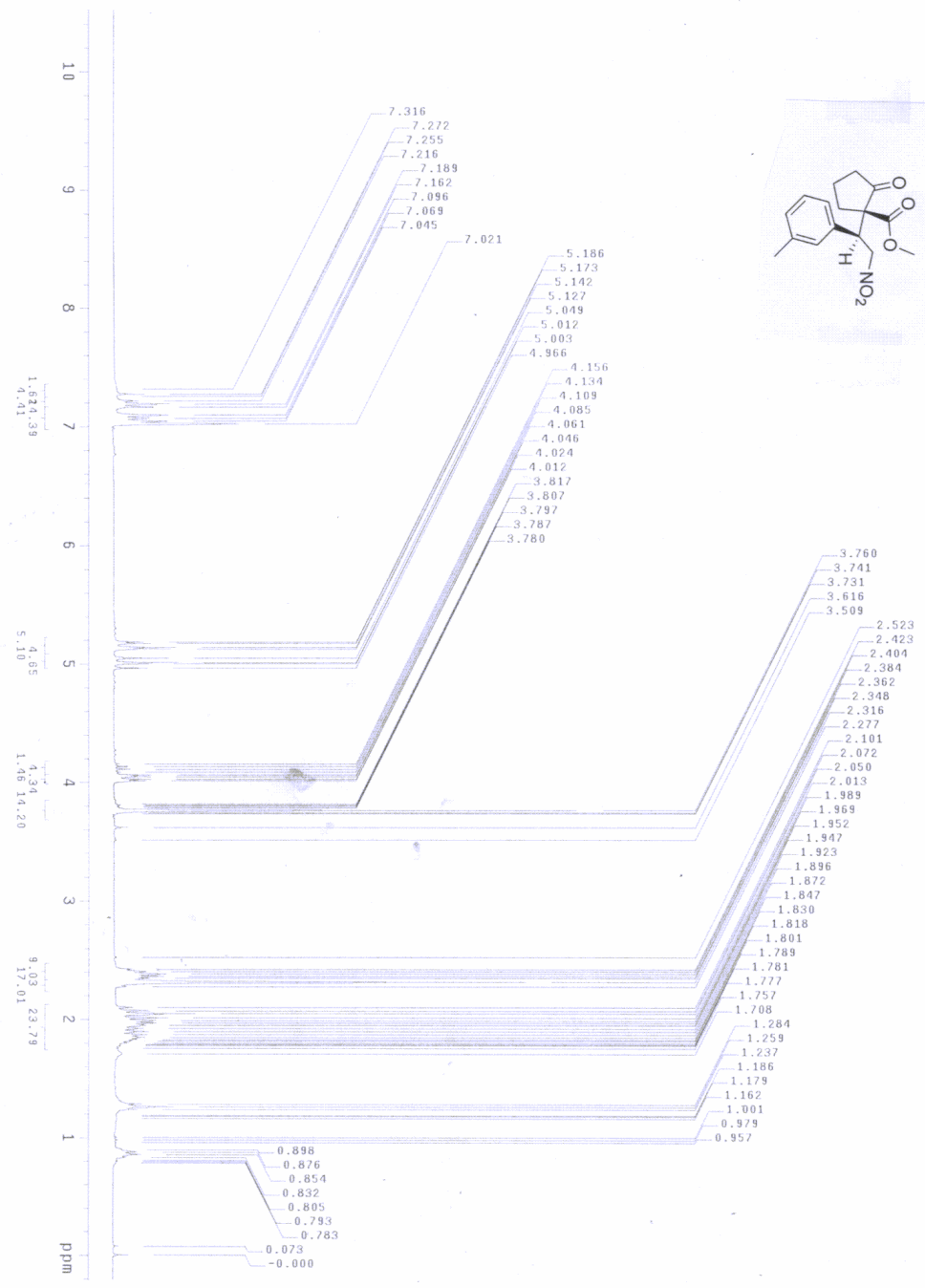
C13-221429a



Solvent: CDCl₃
Ambient temperature
Mercury-3000B Mercury3000
Relax. delay 1.000 sec
Pulse: 28.0 degrees
Acq. time 0.500 sec
Width 18832.4 Hz
OBSERVE C13
DECOUPLE H1
Power 40 dB
Continuously on
DATA PROCESSING
Line broadening 4.0 Hz
FT size 32788
Total time 3 hr, 43 min, 12 sec

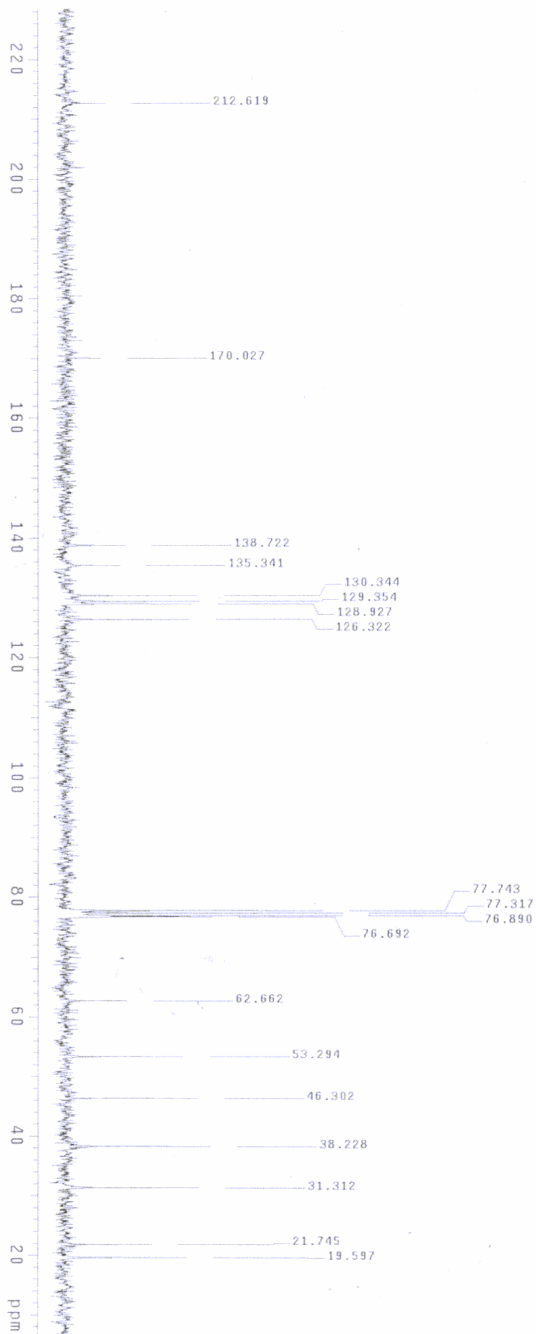
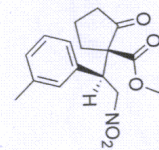


zz1h029b

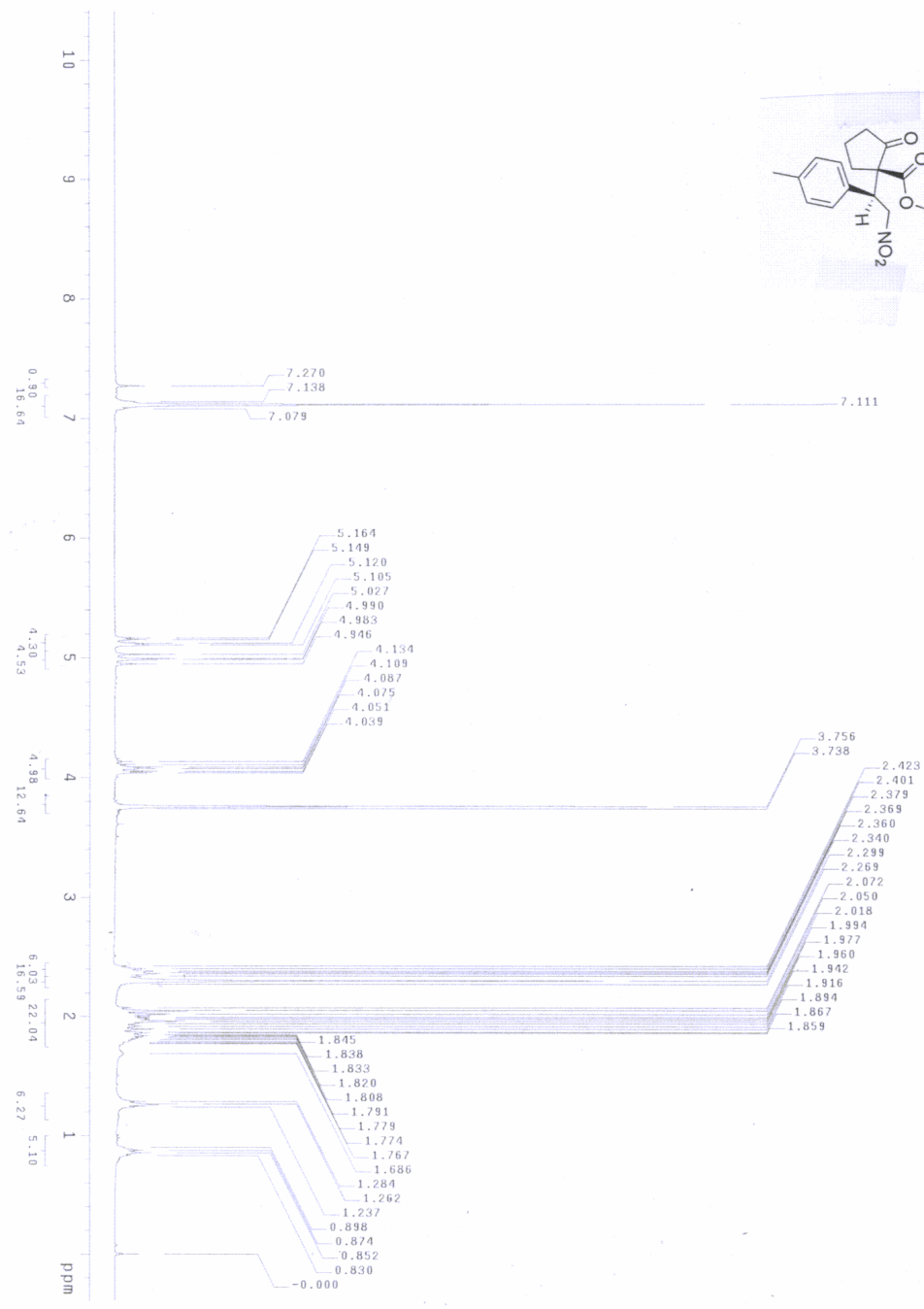
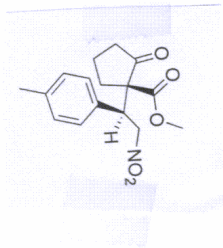


C13-zzh429b

Solvent: CDCl3
Ambient Temperature
Mercury-3000B mercury3000
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 18832.4 Hz
Observations: 75.4552576 MHz
DECOUPLE H1: 300.0807172 MHz
Power 40 dB
Continuously on
Data Acquisition
FT size 32768
Line broadening 4.0 Hz
Total time 3 hr, 43 min, 12 sec

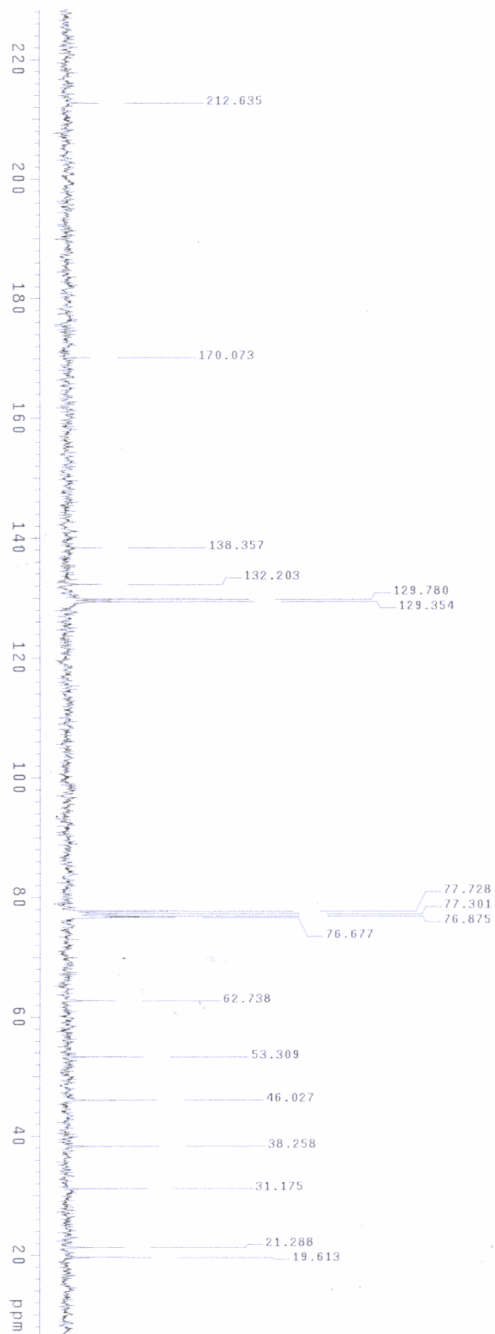
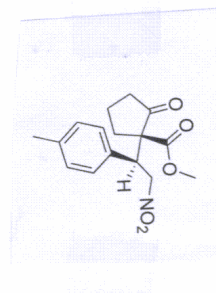


zzh429c

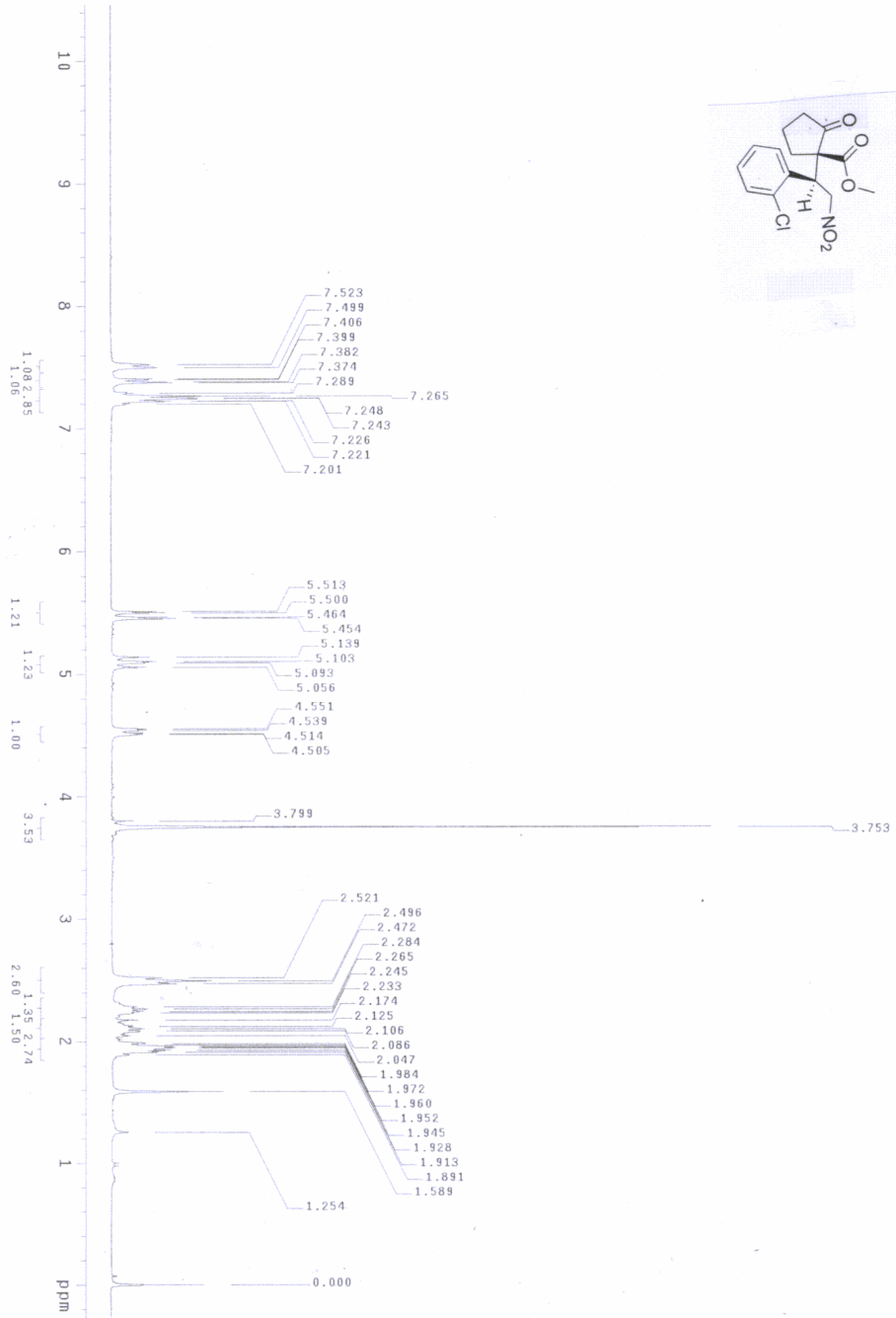
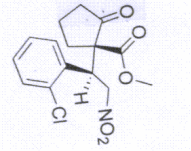


C13-zzh429c

Solvent: CDCl3
Ambient Temperature
Mercury-300DB mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 0.500 sec
Width 18832.4 Hz
Obs. repetitions 75.4552576 MHz
Observed C13
DECUPLE H1 300.0807172 MHz
Power 40 dB
Continuously on
Data Acquisition
Data Processing
Line broadening 4.0 Hz
FT size 32768
Total time 3 hr, 43 min, 12 sec

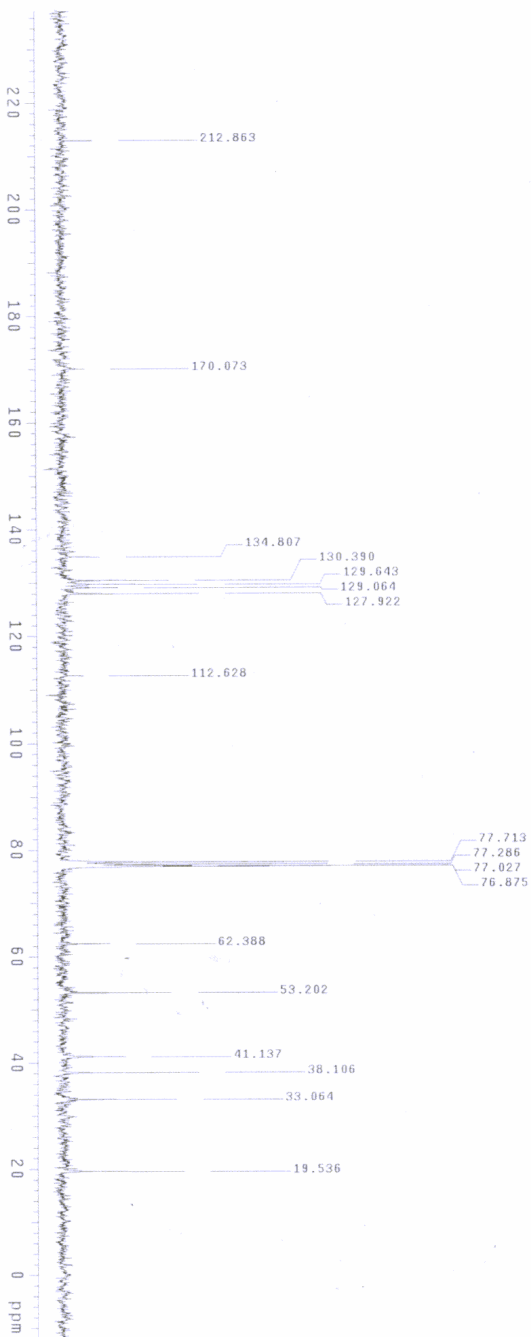
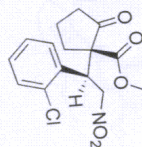


Z21-0214

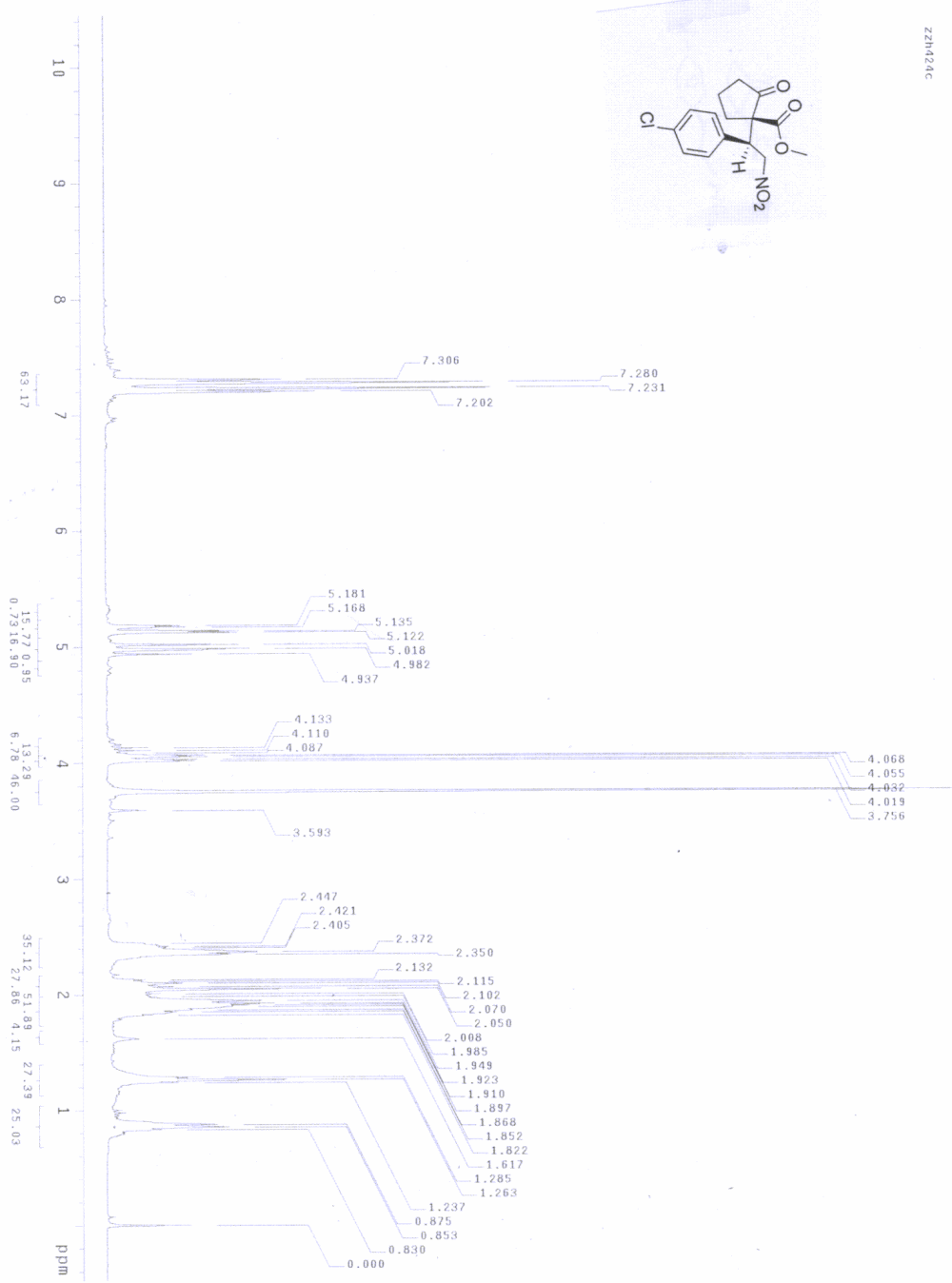
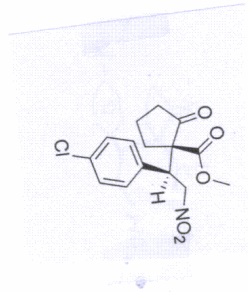


C13-ZZM424A

Solvent: CDCl3
Ambient temperature
Mercury-300B8 "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Width 18832.4 Hz
192 repetitions
OBSERVE C13, 75.455276 MHz
DECOUPLE H1, 300.0807172 MHz
CONTINUOUSLY on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 HZ
F1 size 32768
Total time 4 hr, 35 min, 39 sec

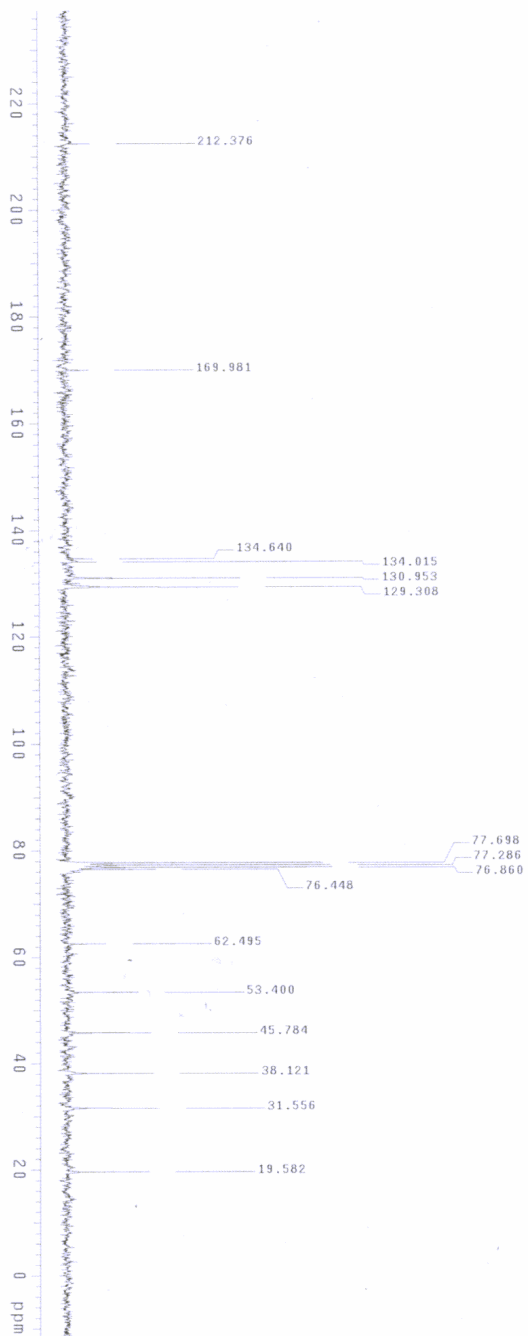
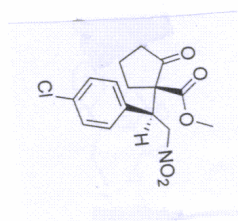


Z2H2406

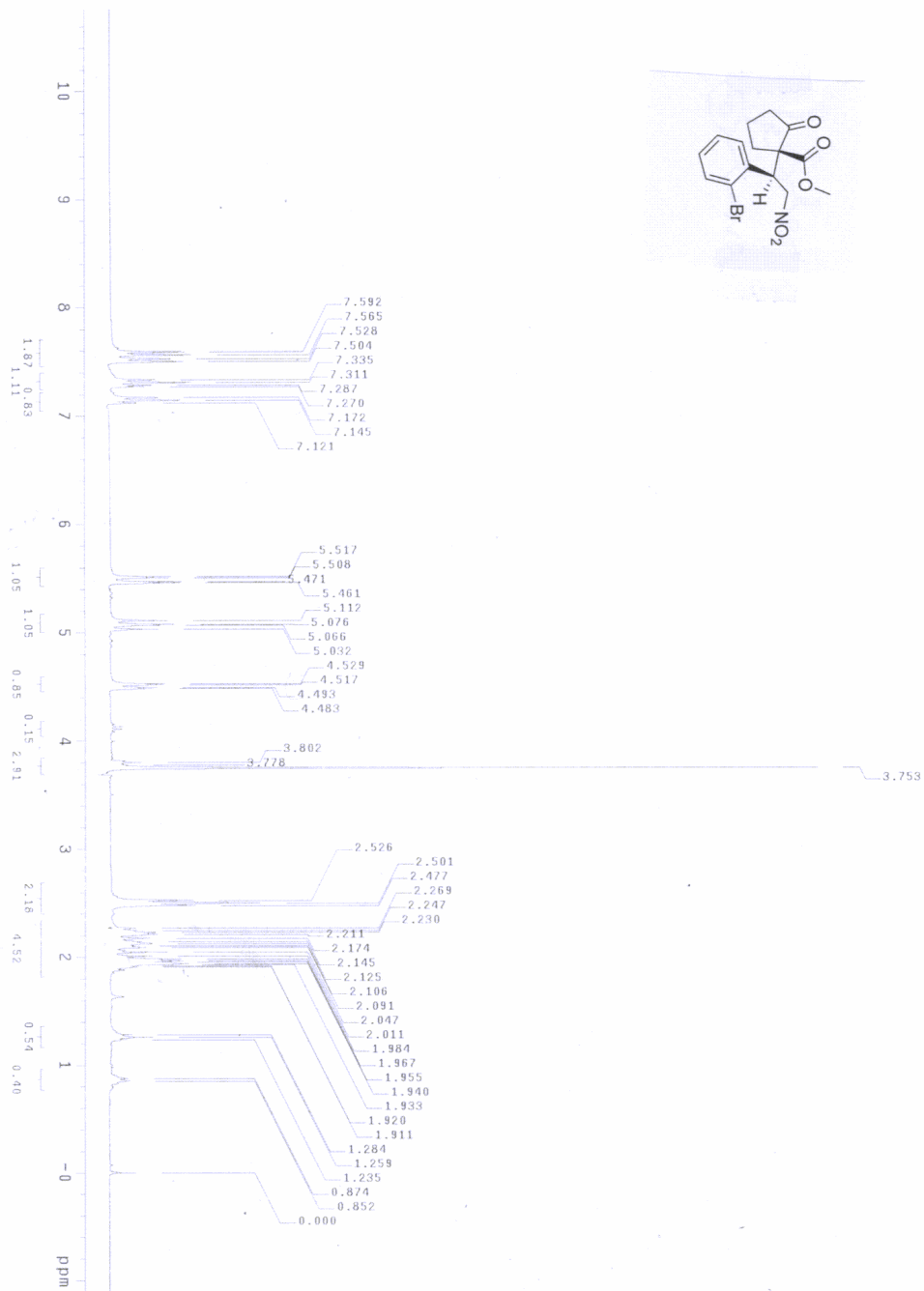
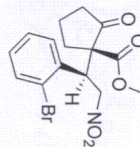


C13-ZZM124C

Solvent: CDCl3
Ambient Temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Pulse 28.0 degrees
Acq. time 4.00000000 sec
Width 18832.4 Hz
176 Repetitions
OBSERVE C13, 75.455276 MHz
DECUPLE H1, 300.0807172 MHz
0
Continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 4.0 Hz
File size 35.93 MB
Total time 4 hr., 35 min., 39 sec

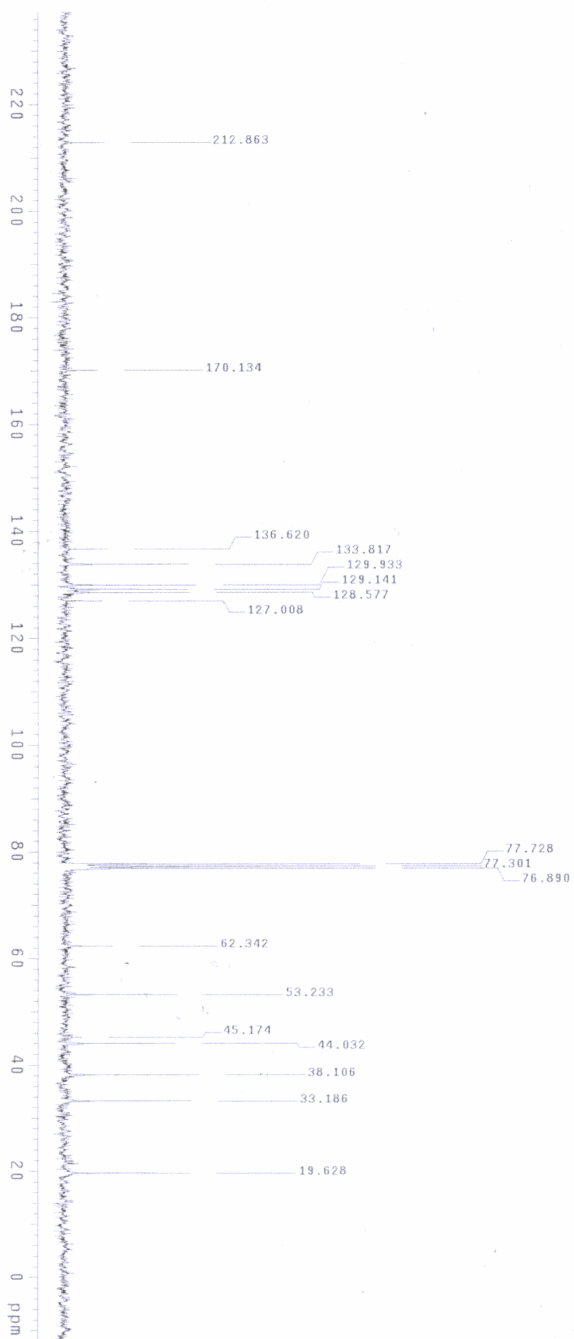
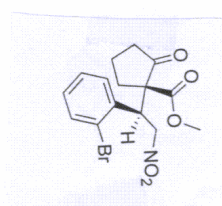


Z21-025A

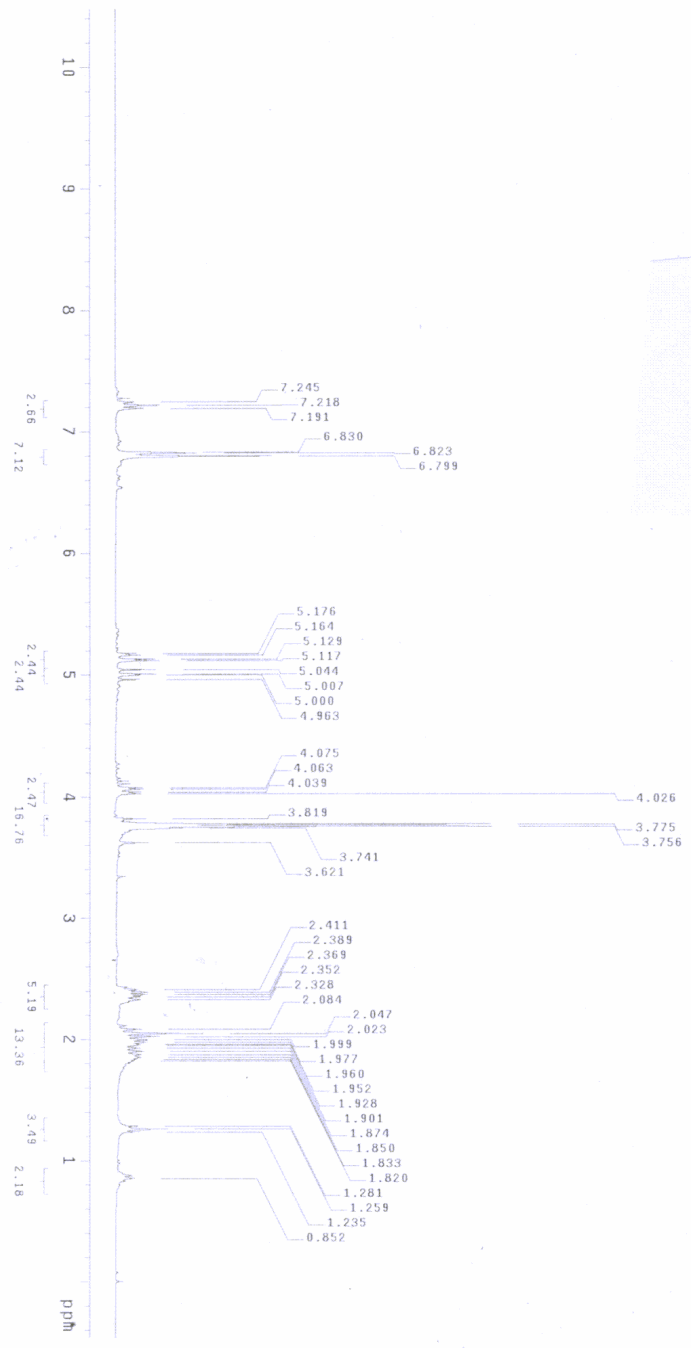


Cl3-zz1425a

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Acq. time 0.500 sec
Width 18832.4 Hz
128 repetitions
OBSERVE C13, 45.455256 MHz
PULSE PRG zgpg30
Power 40 dB, 500.5007172 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
AQ 4.0000000000000000
FT SIZE 32768
Total time 4 hr, 35 min, 39 sec

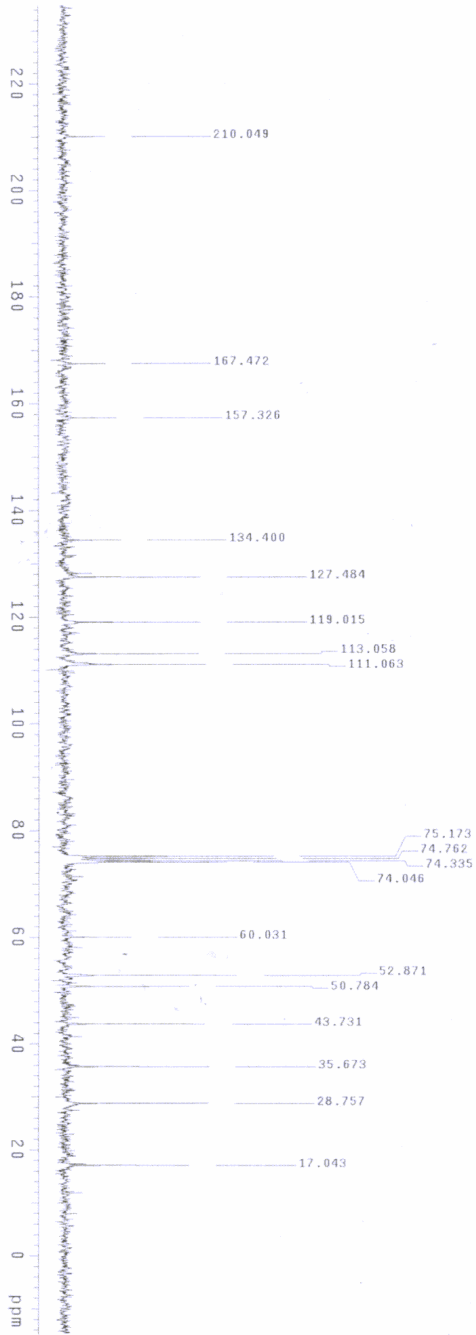
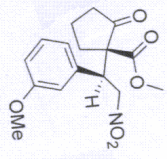


ZZM4331b

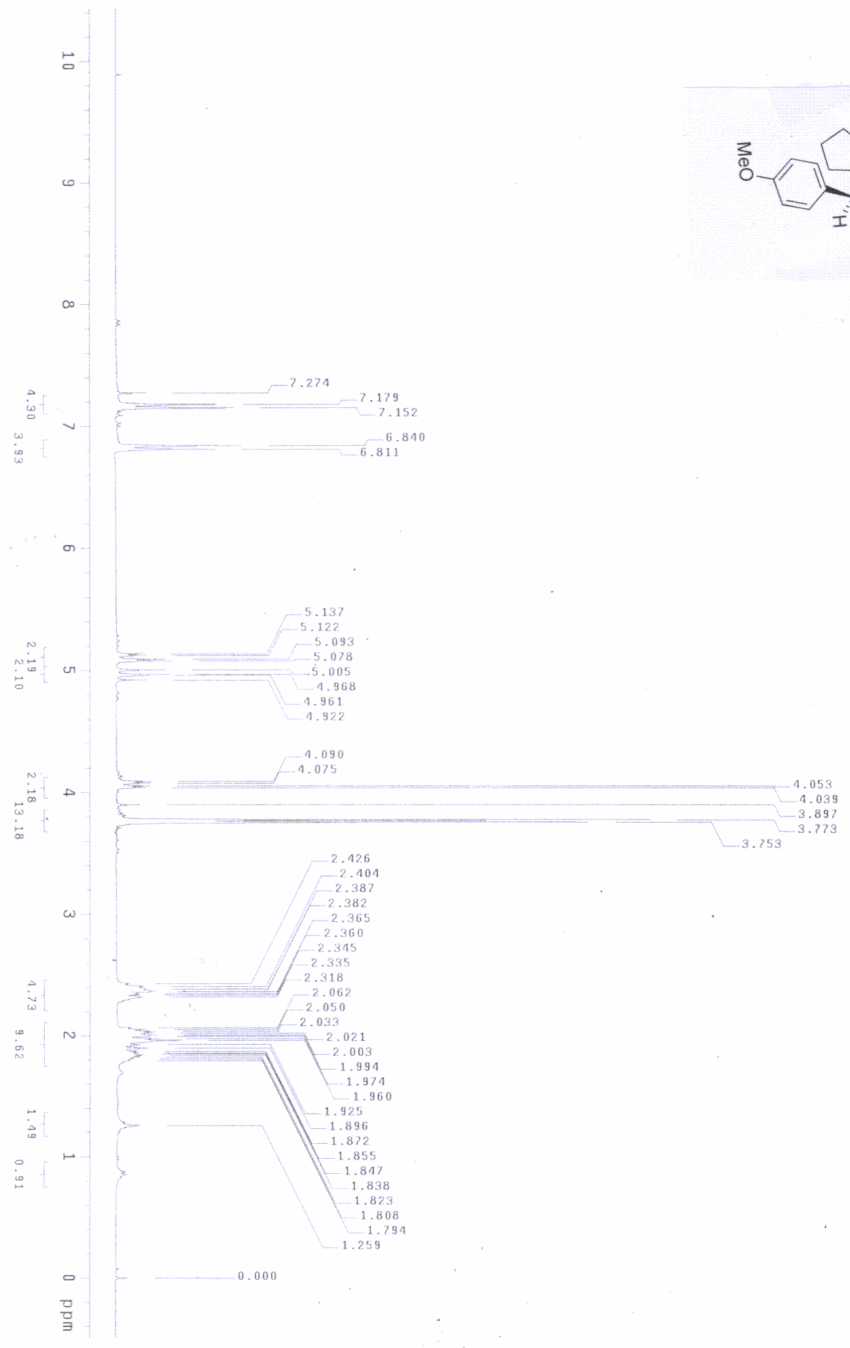
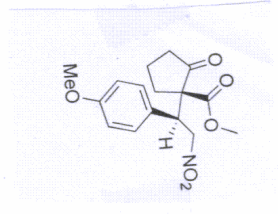


C13-ZZH433B

Solvent: CDCl3
Ambient temperature
File: C13-ZZH433B
Mercury-300BB "mercury300"
Relax: 48.000 sec
Pulse: 26.000 sec
Acq: time 0.500 sec
Width 16832.4 Hz
96 repetitions
SFO: 55.454515 MHz
DECUPLE: CH1 300.0607172 MHz
Power: 40 dB
continuously on
WALTZ-16 modulated
D1: 1.000000 sec
D11: 0.000000 sec
FT size 32768
Total time 4 hr, 8 min, 5 sec

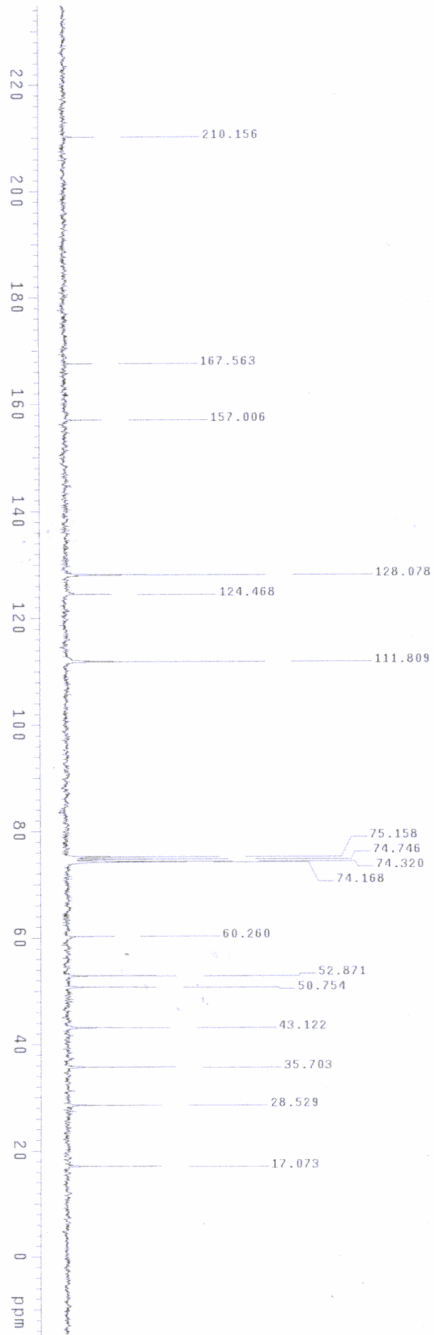
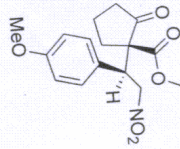


Z2H433C

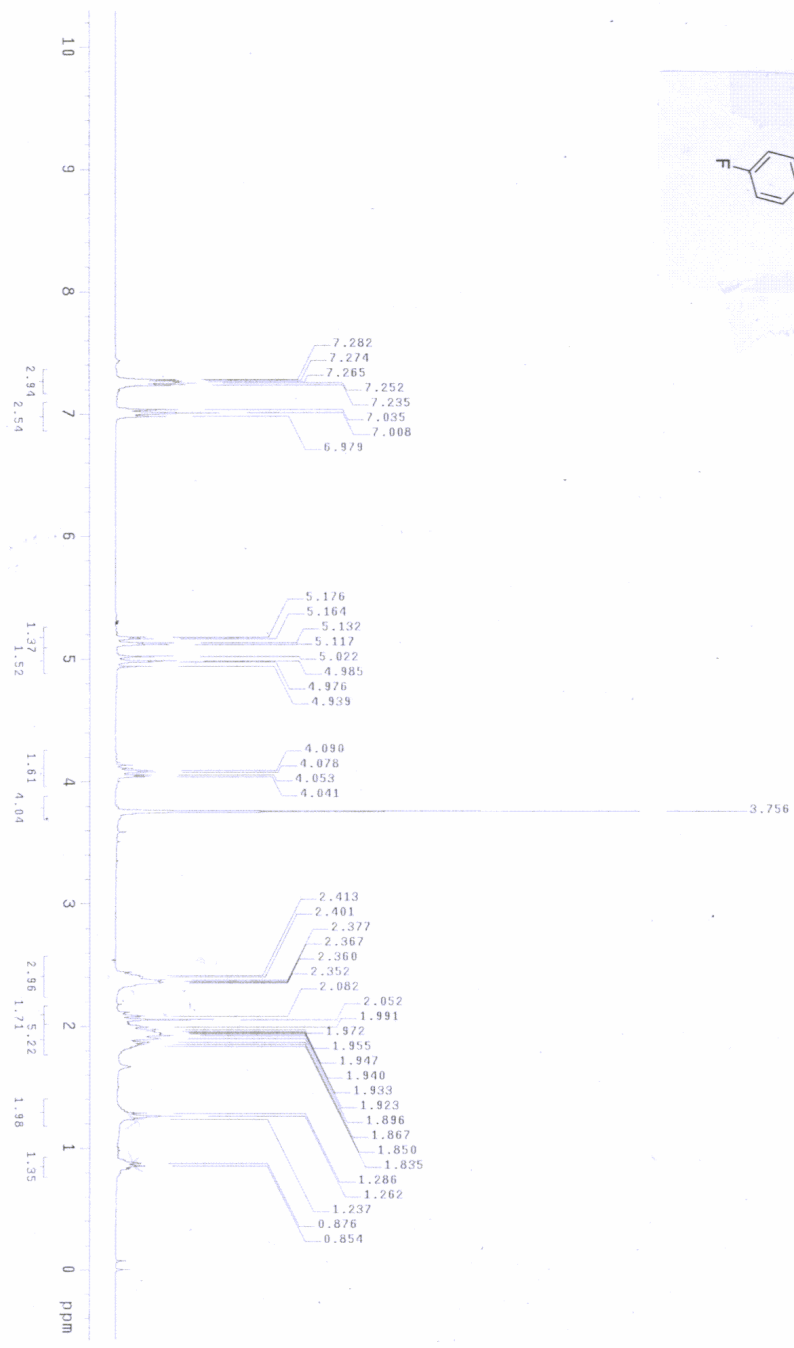
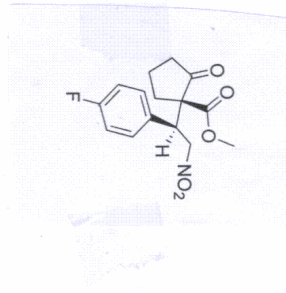


C13-zzh433c

Solvent: CDCl3
Ambient temperature
Mercury-300RB "mercury300"
Relax .delay 1.000 sec
Acq 28.000 sec
Acq 4.000 sec
Width 18832.4 Hz
272 repetitions
OBSERVE C13, 75.4554515 MHz
PULPROG zgpg30
Power 4.0 dB
300.0607172 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
F1 time 4.0000000 sec
F2 time 4.0000000 sec
Total time 4 hr, 8 min, 5 sec

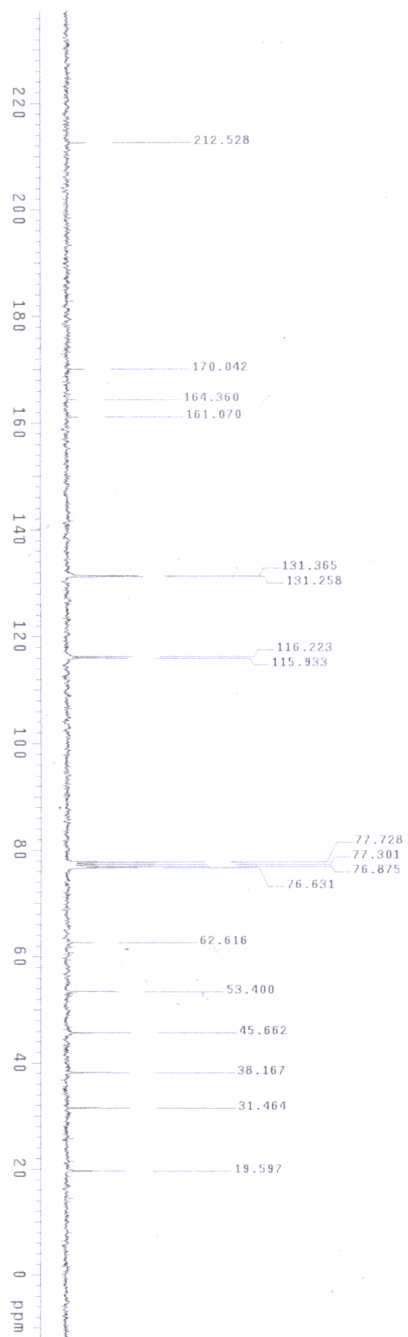
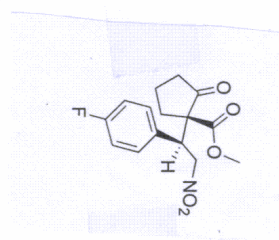


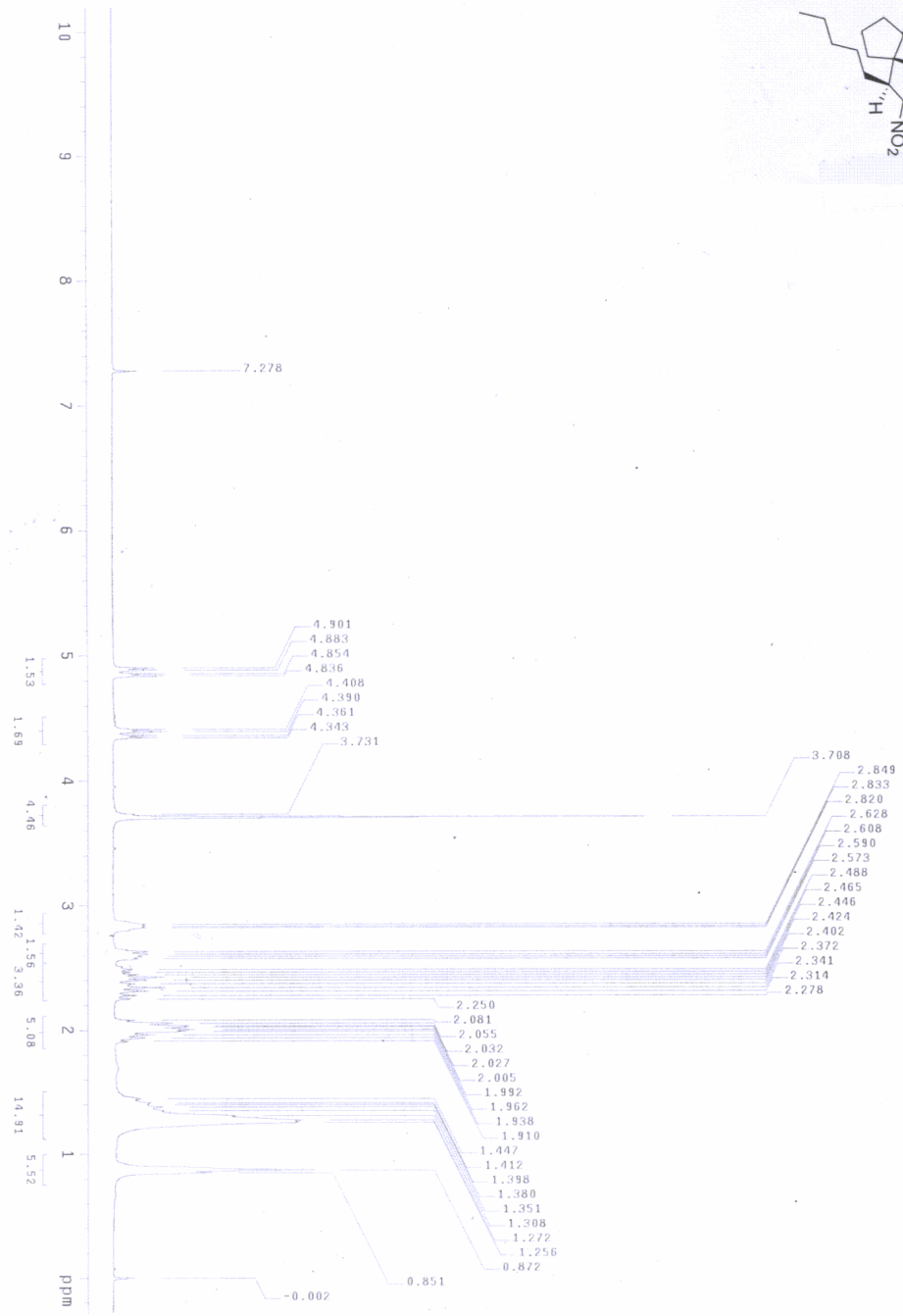
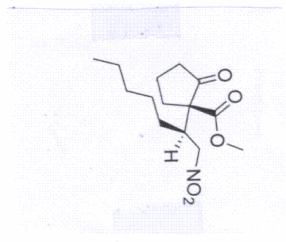
ZZ14346



C13-434A

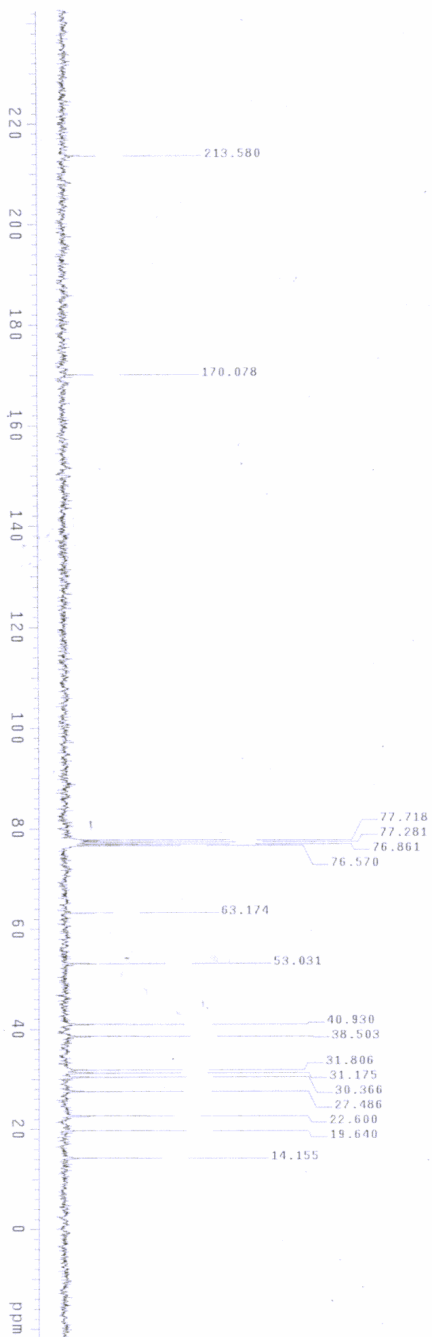
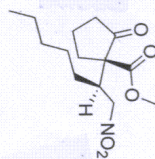
Solvent: CDCl3
Ambient temperature
Mercury-300WB "mercury300"
Rate: delay 1.000 sec
Rate: 280 MHz
Acq. time 0.500 sec
Width 18832.4 Hz
144 repetitions: 452526 MHz
OBSERVE C13: 300.0807172 MHz
Power: 40 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
Time processing 4.0 Hz
F1 size 32768
Total time 4 hr, 8 min, 5 sec



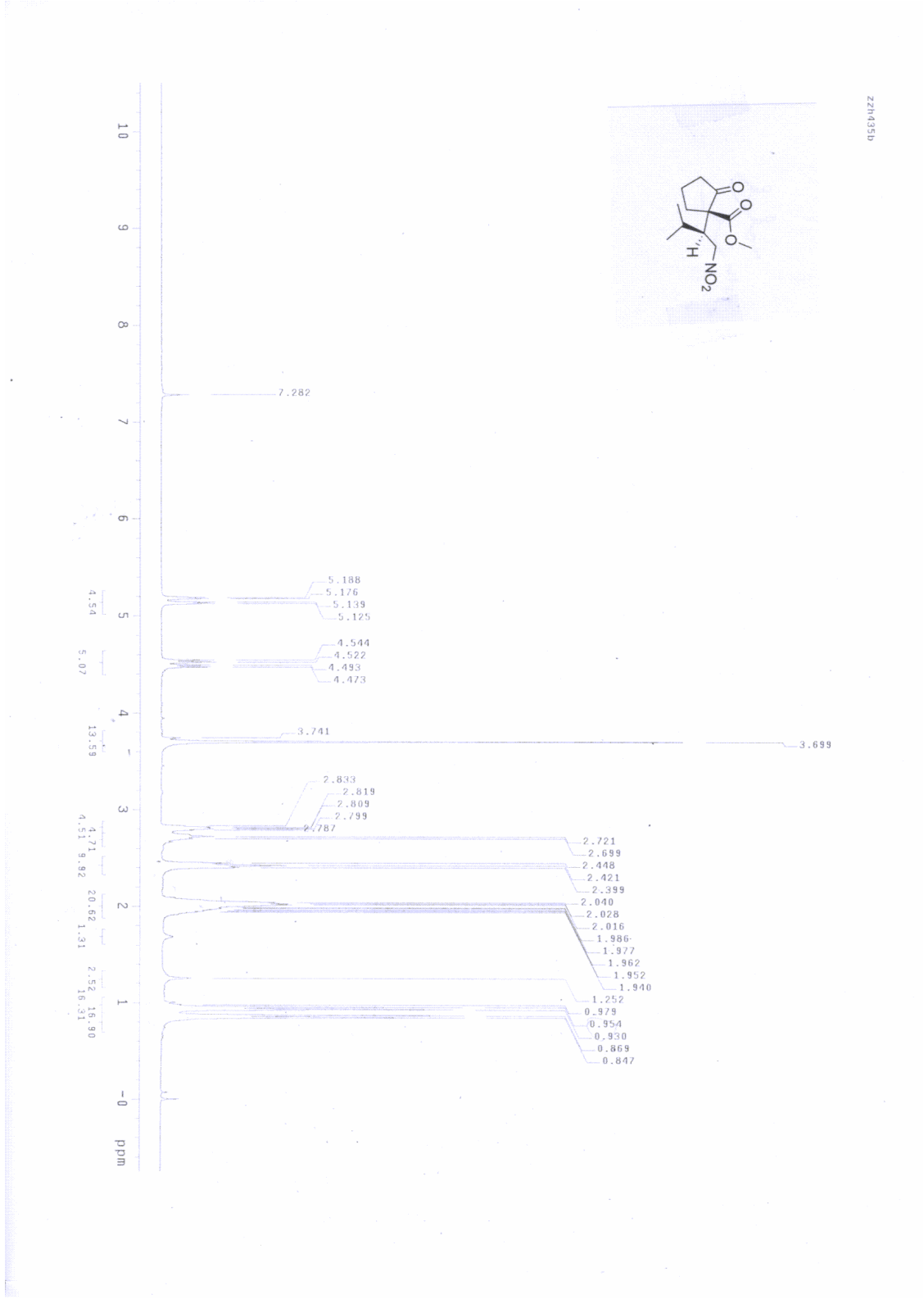
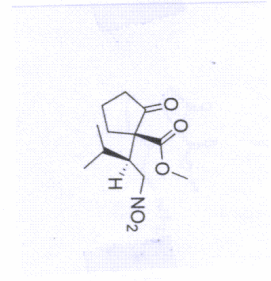


C13-221451A

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax delay 1.000 sec
Pulse 28.0 deg sec
Acq time 4.000 sec
Width 20000.0 Hz
96 repetitions
OBSERVE C13, 75.455276 MHz
DECODE 48, 300.080172 MHz
CONTINUOUSLY ON
WALTZ-16 modulated
DATA PROCESSING
F1 time processing 4.0 Hz
F2 time processing 0.0 Hz
Total time 5 hr, 49 min, 0 sec

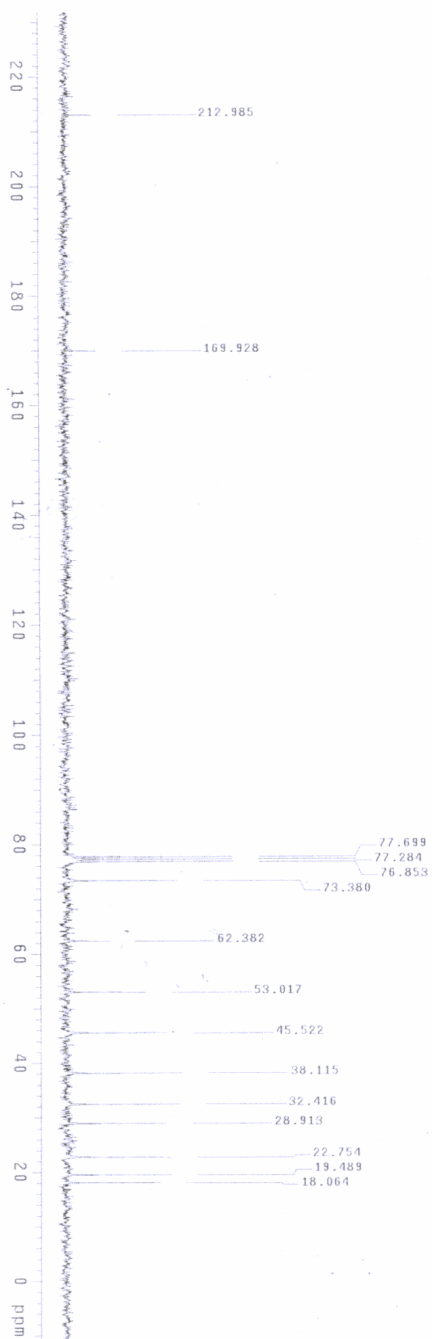
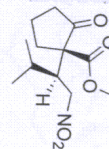


ZZ1435D

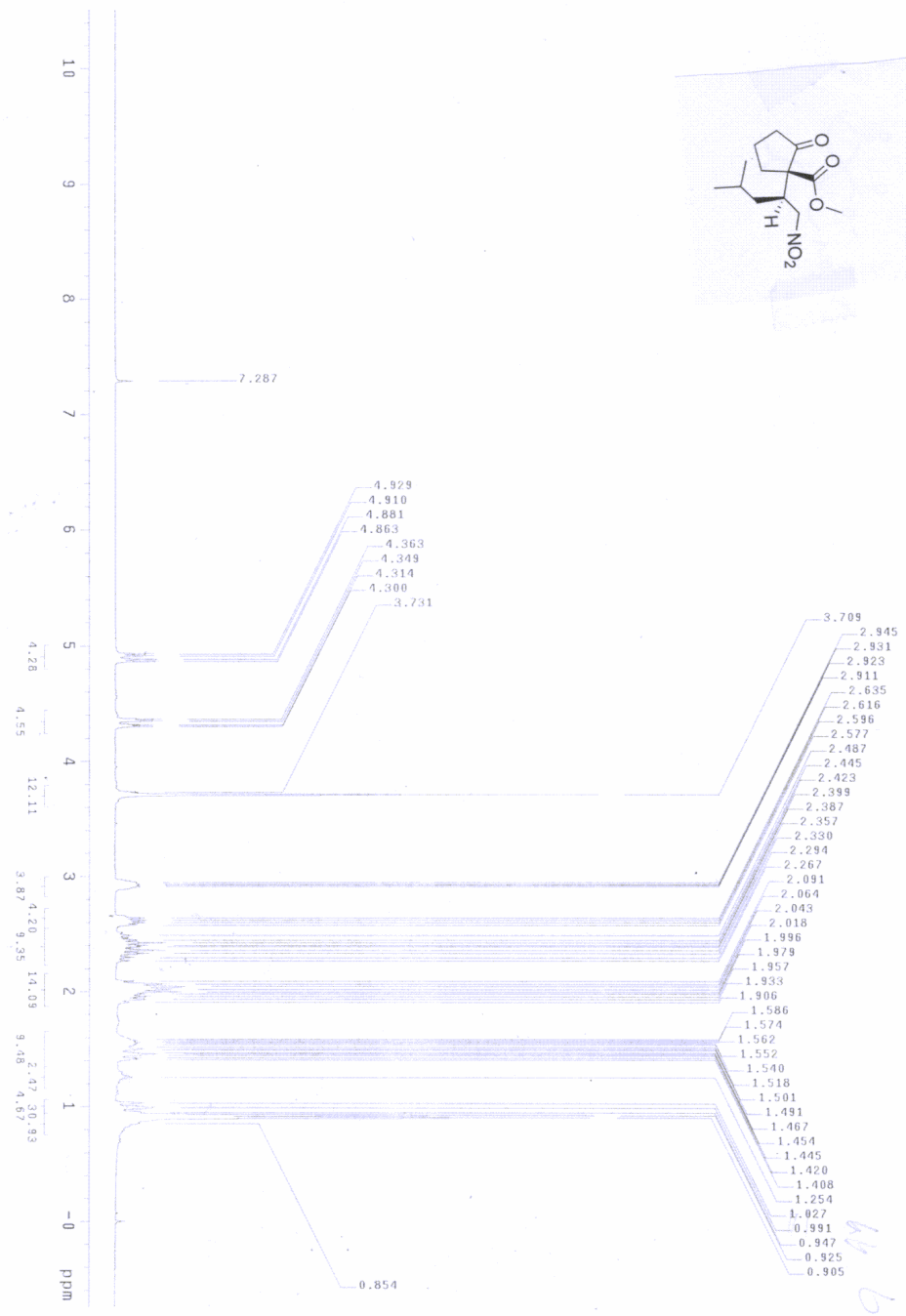
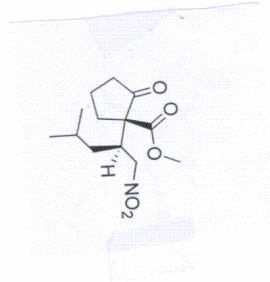


C13-Z20435D

Solvent: CDCl3
Ambient temperature
Mercury-3008B "mercury300"
Relax. delay 1.000 sec
Pulse 2d1
Acq. time 0.500 sec
Width 18348.6 Hz
144 repetitions
OBSERVE C13, 75.4552576 MHz
Pulse 4d
Power 40 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
FT size 32768
Total time 4 hr, 35 min, 20 sec

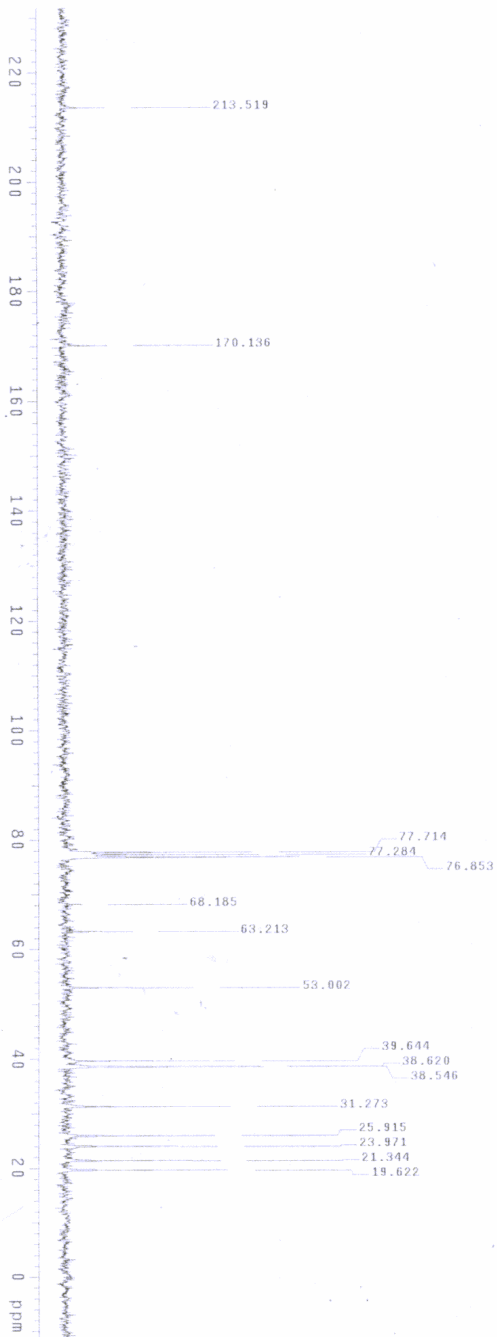
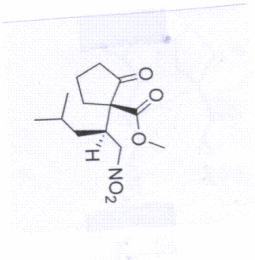


ZZ1V4356

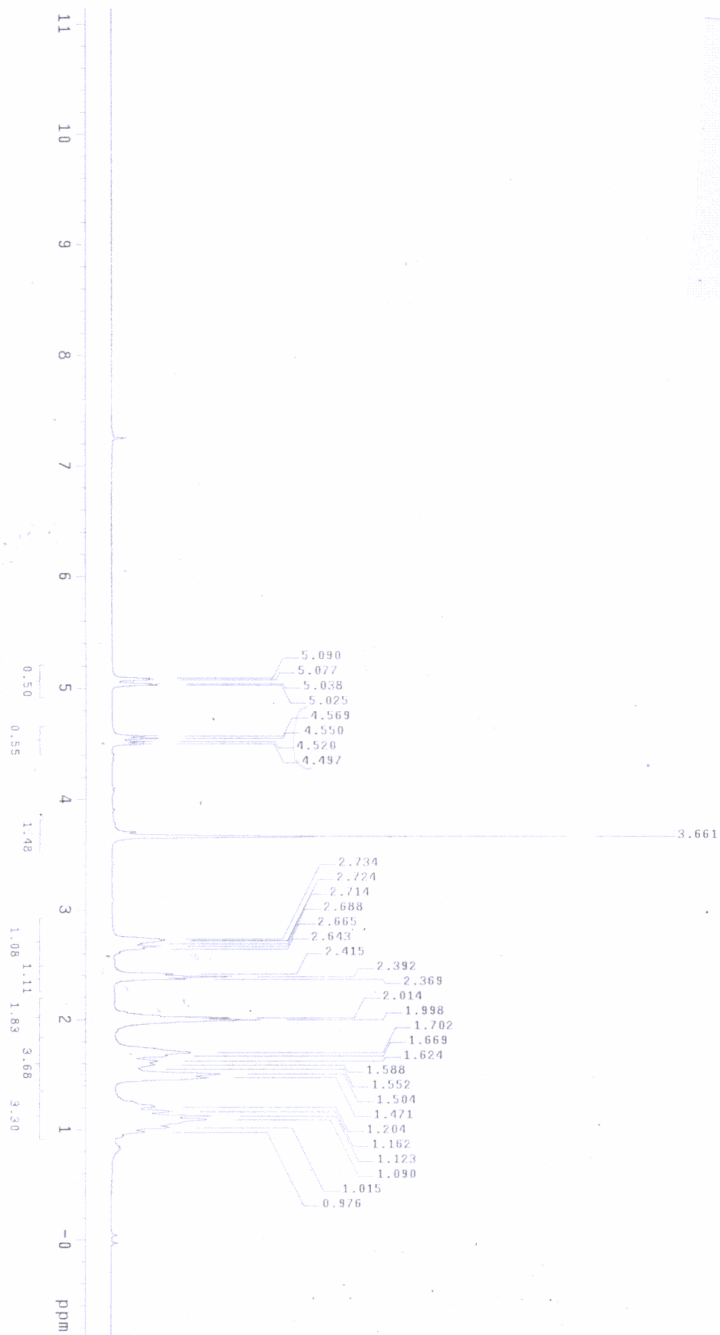
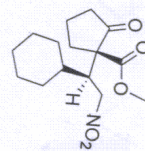


Cl3-ZZH435C

Solvent: CDCl3
Ambient temperature
Mercury-30088 "mercury300"
Relax. delay 1.000 sec
Acq. time 0.500 sec
Width 18348.6 Hz
160 repetitions
OBSERVE C13, 50.455276 MHz
PULSE PRG zgpg30
Power 40 dB, 300.0007172 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
AQ 16.000000000000000
FT SIZE 32768
Total time 4 hr., 35 min., 20 sec

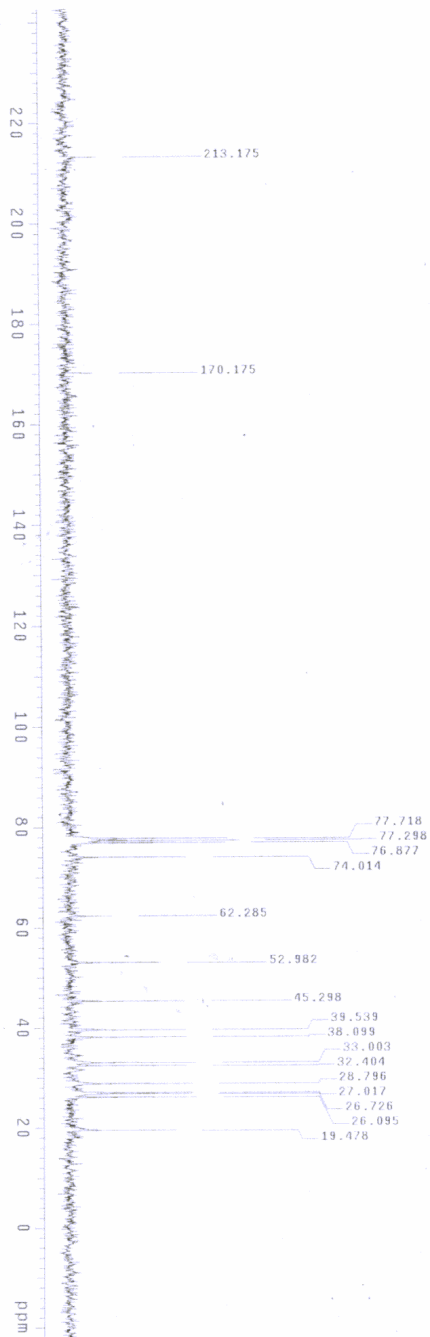
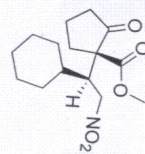


22h445a



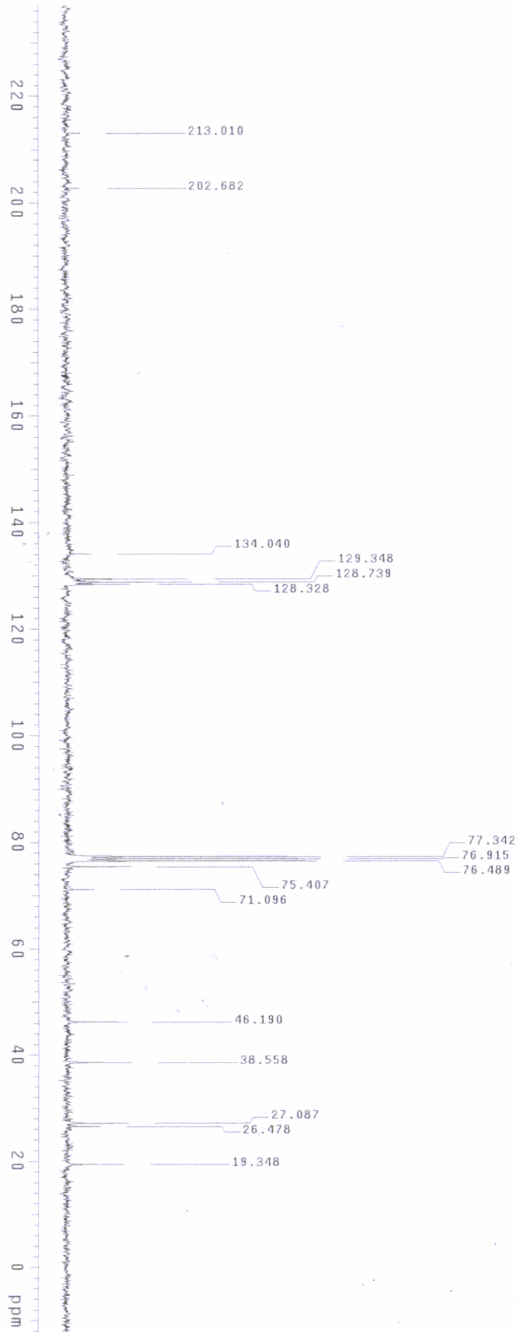
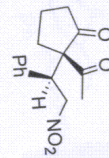
C13-zzn445a

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax .delay 1.000 sec
Acq 120.00000 sec
Acq 120.00000 sec
Width 20000.0 Hz
64 r repetitions
OBSERVE C13, 75.4552576 MHz
PULSE 40 dB, 500.0007172 MHz
CONTINUOUSLY ON
WALTZ-16 modulated
DATA PROCESSING
F1 file 439758
Total time 5 hr, 49 min, 0 sec

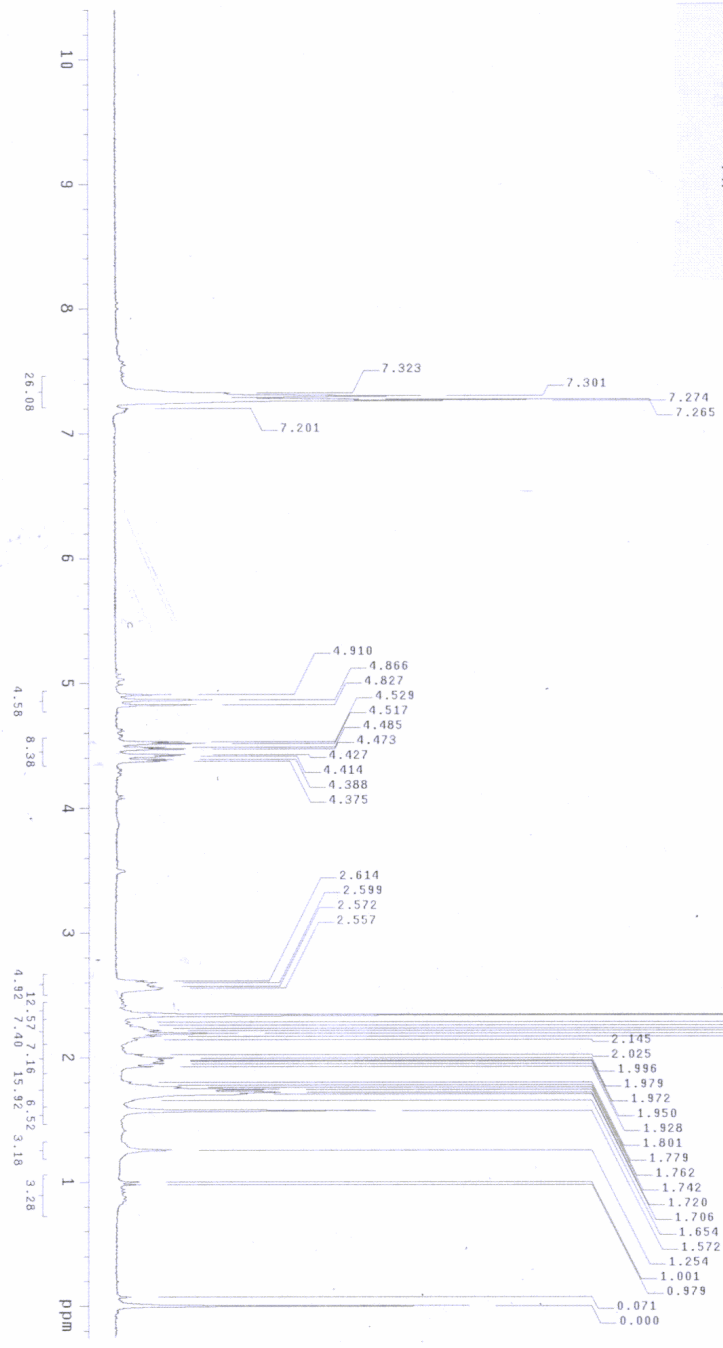
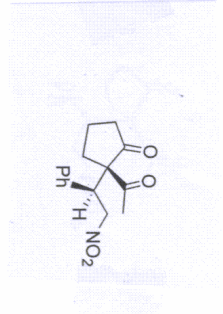


Cl3-zzh400a

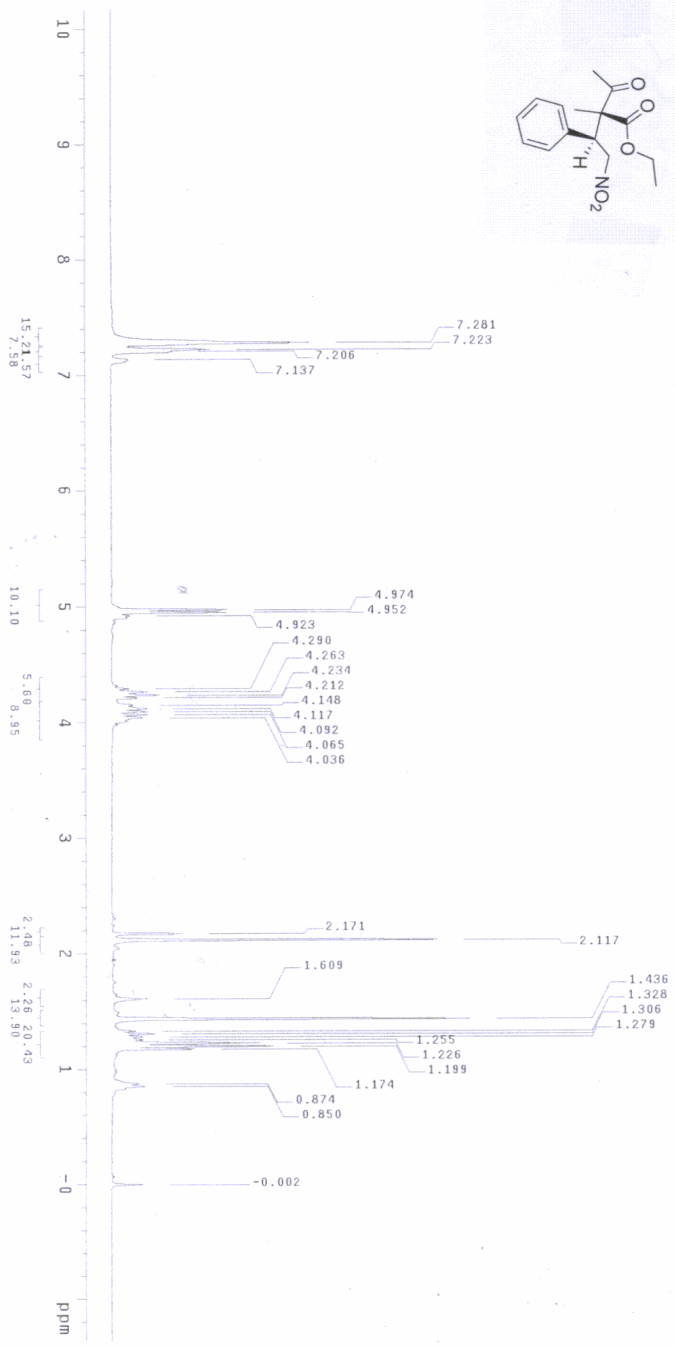
Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Acq. time 0.500 sec
Width 18832.4 Hz
208 repetitions
OBSERVE Cl3, 300.5007172 MHz
Pulse 40 dB, 300.5007172 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
F2 size 32768
Total time 1 hr., 50 min., 15 sec

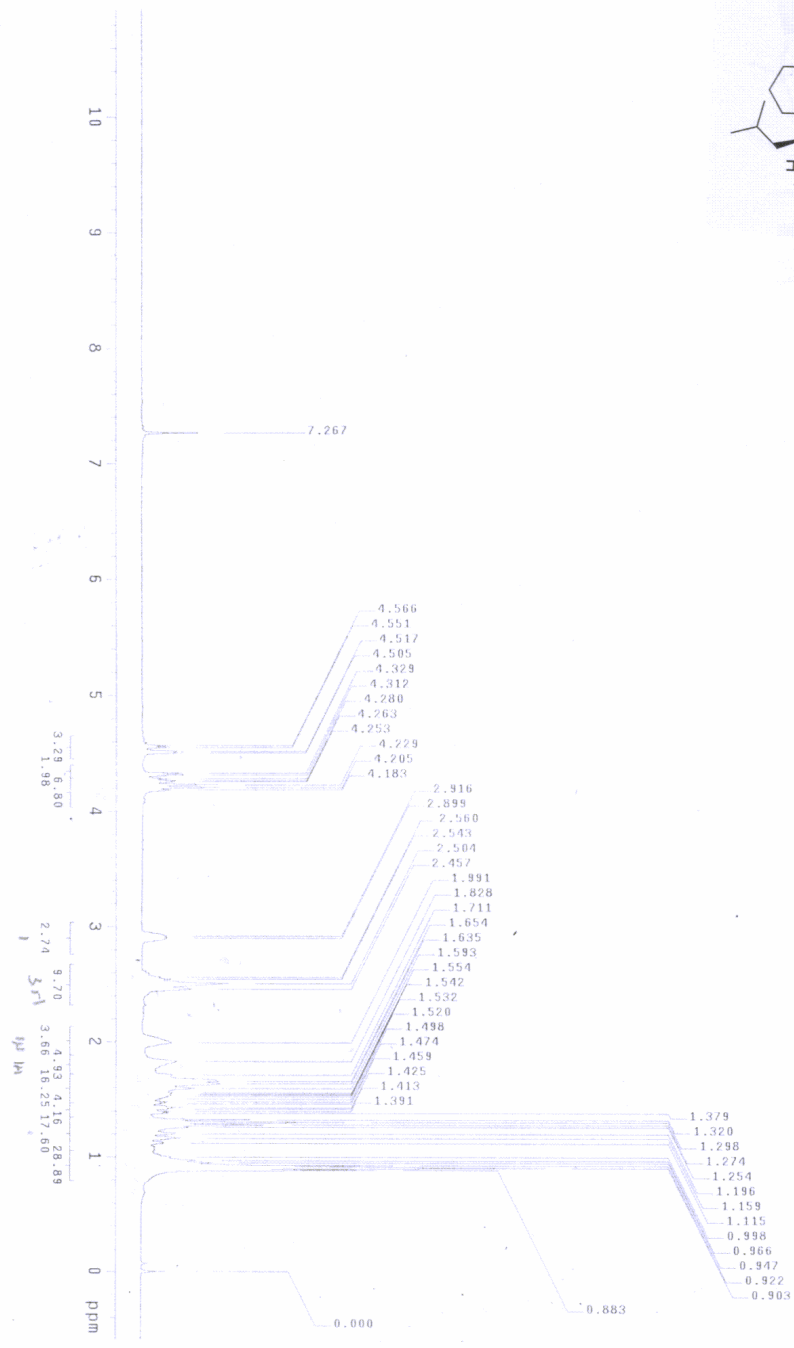
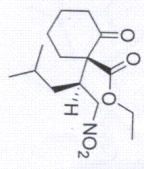


0001000



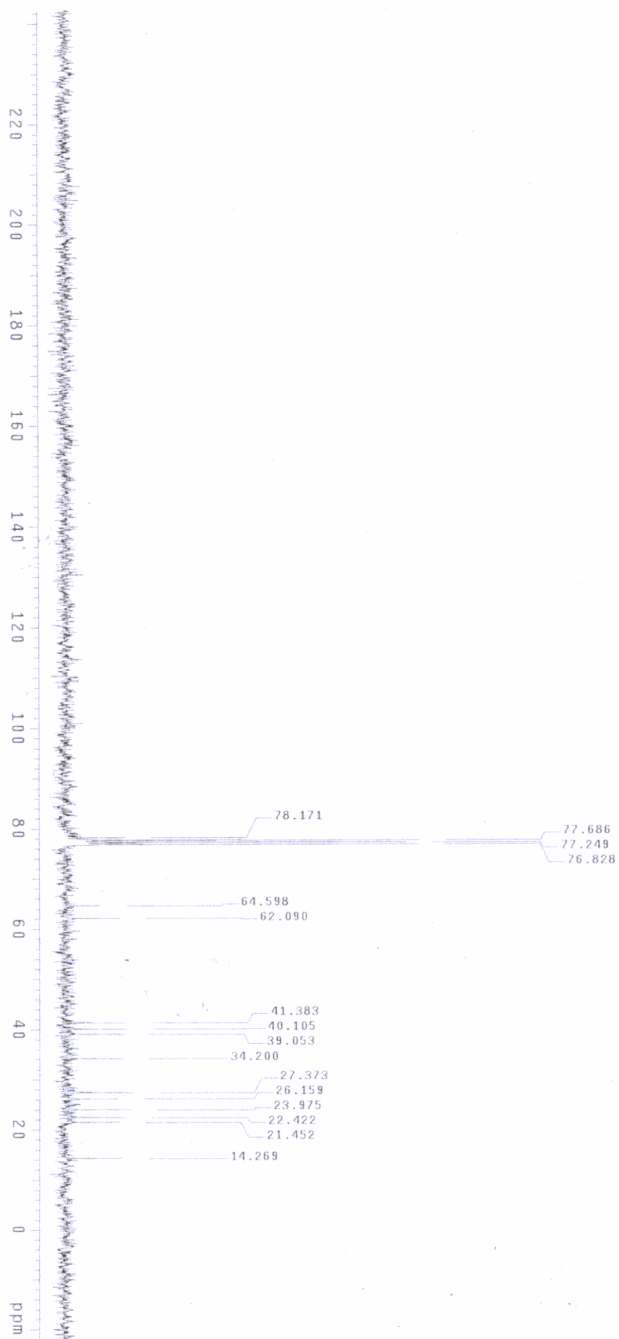
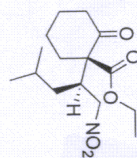
ZZ1339C

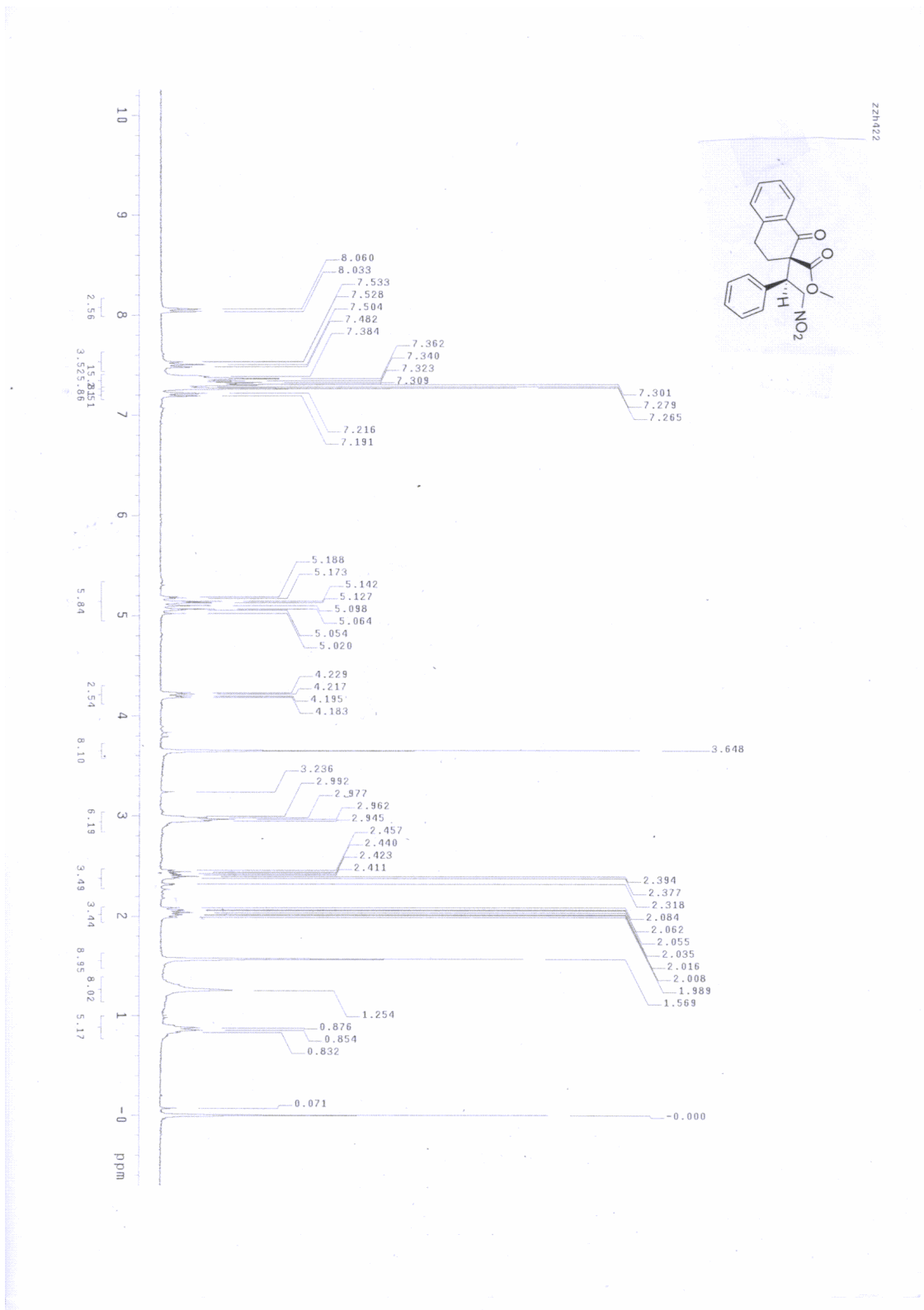




Cl3-zzh/49a

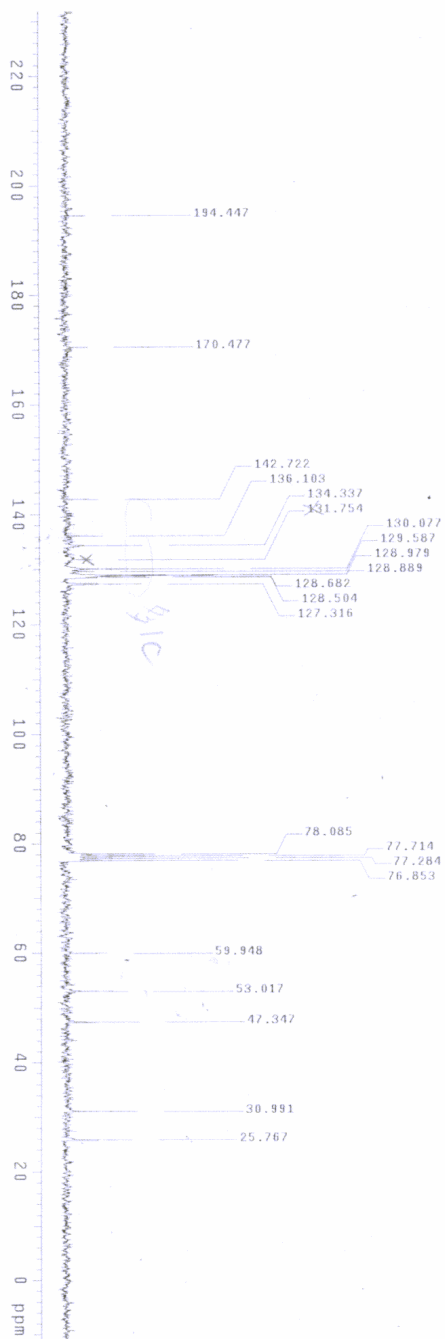
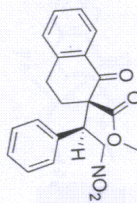
Solvent: Cl3
Ambient temperature
Mercury-30088 "mercury300"
Relax_delay 1.000 sec
Acq 1.200 sec
Acq 1.200 sec
Width 20000.0 Hz
160 Repetitions
OBSERVE Cl3, 75.455276 MHz
PULPROG zgpg30
Power 0 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
F1 time 0.000000
F2 time 0.000000
Total time 5 hr, 49 min, 0 sec



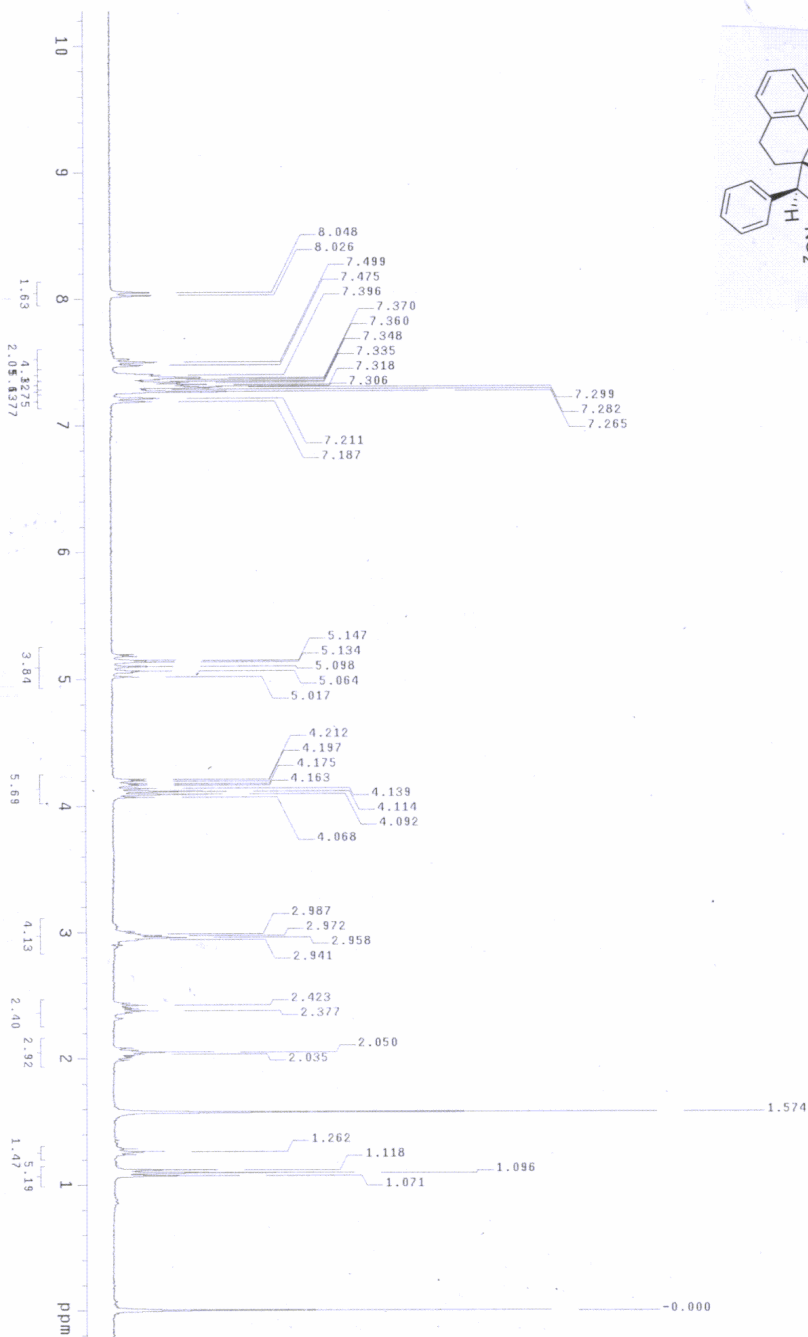
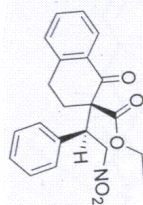


C13-221422

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax. delay 1.000 sec
Acq. time 0.500 sec
Width 18348.6 Hz
178 repetitions
OBSERVE C13, 5.455526 MHz
PULPROG zgpg30
Power 40 dB, 300.500712 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
FT size 32768
Total time 4 hr, 35 min, 20 sec

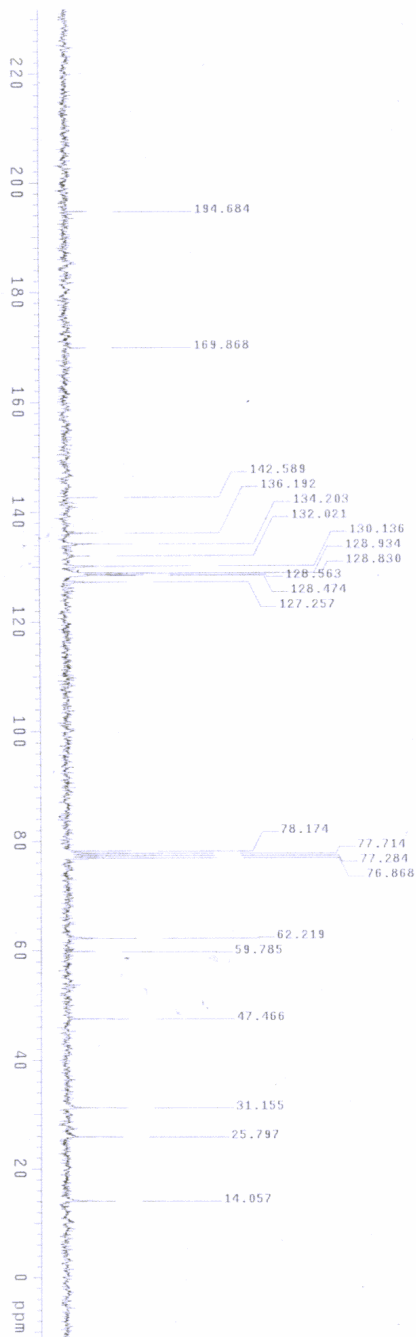
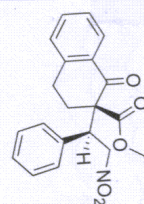


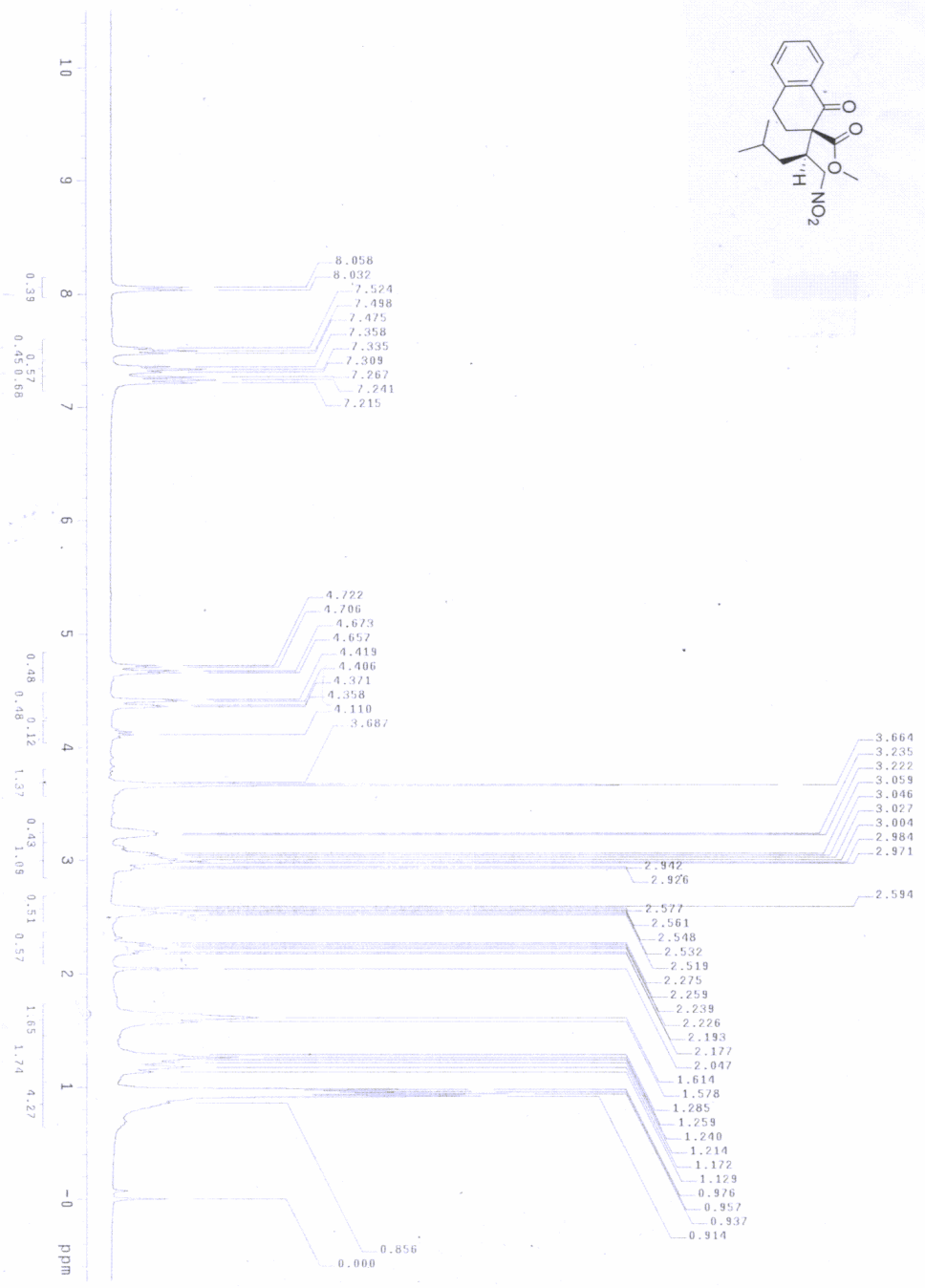
Z204148



Cl3-442a-a

Solvent: CDCl3
Ambient temperature
Mercury-300BB "mercury300"
Relax delay 1.000 sec
Acq time 0.500 sec
Width 18348.6 Hz
80 repetitions
OBSERVE Cl3, 45.455276 MHz
Pulse program zgpg30
Power 40 dB, 300.3607172 MHz
Continuously on
WALTZ-16 modulated
DATA PROCESSING
AQ 4.0000000000000000
SI 32768
Total time 1 hr, 35 min, 20 sec





C13-zzh451b

Solvent: CDCl3
Ambient Temperature
Mercury-300BB "mercury300"
Relax delay 1.000 sec
Acq 28.0 deg
Acq 12.0 deg
Width 20000.0 Hz
280 Repetitions
OBSERVE C13, 75.455276 MHz
PULSE 50 dB
PCOUPLE 50 dB
Continuously on
WALTZ-16 modulated
DATA PROCESSING
Time processing 4.0 Hz
Sweeping 4.0 Hz
Total time 5 hr, 49 min, 0 sec

