Supporting information for:

Design, Synthesis and Antifungal Activities of a Novel Carboxylic Acid Amides Fungicide: Substituted 1-Phenyl-2-Phenoxyethylamino Valinamide Carbamates

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2-bromo-1-(3,4-dimethoxyphenyl)ethan-1-one 3a: white solid, m.p.: 75-76 °C [Ref.: 80 - 81°C][1]. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.75 – 7.43 (m, 2H, Ar-H), 6.92 (d, *J* = 8.4 Hz, 1H, Ar-H), 4.42 (s, 2H, CH_2), 3.96 -3.98(d, *J* = 6.6 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3).

1-(3,4-dimethoxyphenyl)-2-phenoxyethanone 4a: yield: 85.3%, white solid, m.p.: 83-85°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.77 – 7.51 (m, 2H, Ar-H), 7.26 (s, 2H, Ar-H), 7.05 – 6.83 (m, 4H, Ar-H), 3.95 (d, *J* = 9.1 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 193.09, 158.10, 153.88, 149.23, 129.56, 127.71, 122.81, 121.53, 114.78, 110.25, 110.19, 70.56, 56.10, 55.98.

1-(3,4-dimethoxyphenyl)-2-(4-fluorophenoxy)ethanone 4b: yield: 85.0%, white solid, m.p.: 125 - 126°C . ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.59 (d, *J* = 1.7 Hz, 2H, Ar-H), 7.06 – 6.72 (m, 5H, Ar-H), 5.24 (s, 2H, CH_2), 3.98 (d, *J* = 9.2 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 192.91, 158.81, 156.43, 154.21, 153.96, 149.29, 127.59, 122.72, 116.01, 115.79, 110.17, 71.20, 56.10, 55.98.

1-(3,4-dimethoxyphenyl)-2-(2-fluorophenoxy)ethanone 4c: yield: 82.1%, white solid, m.p.: 110 - 111°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.79 – 7.47 (m, 2H, Ar-H), 7.15 – 6.71 (m, 5H, Ar-H), 5.32 (s, 2H, CH_2), 3.97 (d, *J* = 6.3 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 192.71, 153.96, 151.58, 149.25, 146.06, 127.54, 124.36, 122.83, 122.29, 116.61, 116.43, 116.05, 110.19, 72.00, 56.12, 55.98.

1-(3,4-dimethoxyphenyl)-2-(4-chlorophenoxy)ethanone 4d: yield: 89.3%, white solid, m.p.: 106 - 107°C . ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.72 – 7.51 (m, 2H, Ar-H), 7.34 – 7.17 (m, 2H, Ar-H), 6.92 (dd, *J* = 17.5, 8.7 Hz, 3H, Ar-H), 5.25 (s, 2H, CH_2), 3.98 (d, *J* = 10.1 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 192.58, 156.74, 154.01, 149.30, 129.39, 127.51, 126.34, 122.72, 116.11, 110.18, 70.68, 56.12, 56.00.

1-(3,4-dimethoxyphenyl)-2-(4-methylphenoxy)ethanone 4e: yield: 76.7%, white solid, m.p.: 89 - 91°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.69 (dd, *J* = 8.4, 1.9 Hz, 1H, Ar-H), 7.60 (d, *J* = 1.9 Hz, 1H, Ar-H), 7.11 (d, *J* = 8.3 Hz, 2H, Ar-H), 6.93 (d, *J* = 8.4 Hz, 1H, Ar-H), 6.87 (d, *J* = 8.6 Hz, 2H, Ar-H), 5.23 (s, 2H, CH_2), 3.98 (d, *J* = 8.7 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.31 (s, 3H, CH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 193.38, 156.03, 153.86, 149.24, 130.84, 130.01, 127.82, 122.85, 114.67, 110.33, 110.15, 70.92, 56.12, 56.01, 20.49.

1-(3,4-dimethoxyphenyl)-2-(3-methylphenoxy)ethanone 4f: yield: 84.5%, white solid, m.p.: 73 - 74°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ δ 7.69 (dd, *J* = 8.4, 1.9 Hz, 1H, Ar-H), 7.60 (d, *J* = 1.9 Hz, 1H, Ar-H), 7.18 (t, *J* = 7.8 Hz, 1H, Ar-H), 6.93 (d, *J* = 8.4 Hz, 1H, Ar-H), 6.85 – 6.69 (m, 3H, Ar-H), 5.23 (s, 2H, CH_2), 3.97 (d, *J* = 8.4 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.34 (s, 3H, CH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 193.27, 158.13, 153.87, 149.24, 139.64, 129.29, 127.78, 122.86, 122.41, 115.68, 111.57, 110.31, 110.16, 70.27, 56.03, 21.52.

1-(3,4-dimethoxyphenyl)-2-(4-methoxyphenoxy)ethanone 4g: yield: 88.7%, white solid, m.p.: 96 - 98°C . ^{1}H NMR (400 MHz, $CDCl_3$)) δ 7.65 (dd, *J* = 8.4, 1.8 Hz, 1H, Ar-H), 7.57 (d, *J* = 1.8 Hz, 1H, Ar-H), 6.90 (dt, *J* = 5.9, 2.5 Hz, 3H, Ar-H), 6.85 – 6.76 (m, 2H, Ar-H), 5.19 (s, 2H, CH_2), 3.95 (d, *J* = 8.0 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.76 (s, 3H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 193.46, 154.40,

153.85, 152.30, 149.24, 127.79, 122.82, 115.95, 114.68, 110.29, 110.15, 71.58, 56.12, 56.01, 55.65.

1-(3,4-dimethoxyphenyl)-2-(2-methoxyphenoxy)ethanone 4h: yield: 82.5%, white solid, m.p.: 89 - 90°C [Ref.: 90 - 92 °C] [2]. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.70 (dd, *J* = 8.4, 1.9 Hz, 1H, Ar-H), 7.63 (d, *J* = 1.8 Hz, 1H, Ar-H), 7.04 – 6.82 (m, 5H, Ar-H), 5.32 (s, 2H, CH_2), 3.97 (d, *J* = 7.2 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.91 (s, 1H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 193.25, 153.80, 149.69, 149.18, 147.57, 127.81, 122.77, 122.33, 120.79, 114.63, 112.12, 110.38, 110.14, 71.95, 56.11, 55.99, 55.88.

1-(4-hydroxy-3-methoxyphenyl)-2-phenoxyethanone 4i: yield: 84.1%, white solid, m.p.: 80 - 81°C [Ref.: 78 - 79 °C][3]. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.54 (d, *J* = 10.0 Hz, 2H, Ar-H), 7.23 (d, *J* = 7.7 Hz, 2H, Ar-H), 6.90 (dd, *J* = 15.3, 7.1 Hz, 4H, Ar-H), 6.05 (s, 1H, OH), 5.16 (s, 2H, CH_2), 3.89 (s, 3H, CH_3); ^{13}C NMR (101 MHz, CDCl3) δ 193.09, 158.11, 151.06, 146.88, 129.59, 127.54, 123.45, 121.60, 114.82, 114.04, 110.10, 70.67, 56.16.

2-(4-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone 4j： yield: 87.3%, white solid, m.p.: 96 - 97°C . ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.67 – 7.53 (m, 2H, Ar-H), 7.05 – 6.95 (m, 3H, Ar-H), 6.94 – 6.86 (m, 2H, Ar-H), 6.17 (d, *J* = 2.7 Hz, 1H, OH), 5.23 (s, 2H, CH_2), 3.99 (s, 3H, OC**H**$_3$); ^{13}C NMR (101 MHz, CDCl3) δ 192.93, 158.89, 156.51, 154.28, 151.20, 146.98, 127.36, 123.35, 116.07, 115.85, 114.12, 110.03, 71.24, 56.13.

2-(2-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone 4k： yield: 84.2%, white solid, m.p.: 77 - 79°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.53 (dd, *J* = 5.8, 1.8 Hz, 2H, Ar-H), 7.08 – 6.72 (m, 5H, Ar-H), 6.09 (s, 1H, OH), 5.23 (s, 2H, CH_2), 3.90 (s, 3H, CH_3); ^{13}C NMR (101 MHz, CDCl3) δ 192.69, 154.07, 151.63, 151.19, 146.91, 146.10, 127.29, 124.34, 123.41, 122.34, 116.65, 116.47, 116.11, 114.15, 110.17, 72.02, 56.11.

2-(4-chlorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone 4l： yield: 85.2%, white solid, m.p.: 86 - 87°C . ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.64 – 7.56 (m, 2H, Ar-H), 7.28 – 7.20 (m, 2H, Ar-H), 6.97 (t, *J* = 14.9 Hz, 1H, Ar-H), 6.91 – 6.83 (m, 2H, Ar-H), 6.20 (s, 1H, OH), 5.24 (s, 2H, CH_2), 3.98 (s, 3H, CH_3); ^{13}C NMR (101 MHz, CDCl3) δ 192.65, 156.73, 151.27, 147.01, 129.44, 127.26, 126.46, 123.34, 116.14, 114.15, 110.02, 70.70, 56.14.

1-(4-hydroxy-3-methoxyphenyl)-2-(p-tolyloxy)ethanone 4m： yield: 80.6%, white solid, m.p.: 85 - 87°C . ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.70 – 7.52 (m, 2H, Ar-H), 7.16 – 7.05 (m, 2H, Ar-H), 7.00 (d, *J* = 8.1 Hz, 1H, Ar-H), 6.91 – 6.79 (m, 2H, Ar-H), 6.28 (s, 1H, OH), 5.23 (s, 2H, CH_2), 3.97 (d, *J* = 2.1 Hz, 3H, OCH_3), 2.31 (s, 3H, CH_3).

1-(4-hydroxy-3-methoxyphenyl)-2-(4-methoxyphenoxy)ethanone 4n: yield: 88.3%, white solid, m.p.: 93-94°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.61 (d, *J* = 9.9 Hz, 2H, Ar-H), 6.98 (d, *J* = 8.0 Hz, 1H, Ar-H), 6.91 (d, *J* = 9.1 Hz, 2H, Ar-H), 6.84 (d, *J* = 9.0 Hz, 2H, Ar-H), 6.32 (d, *J* = 40.4 Hz, 1H, OH), 5.19 (s, 2H, CH_2), 4.01 – 3.90 (m, 3H, $C_6H_3OCH_3$), 3.77 (s, 3H, C6H$_4$OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 193.47, 154.38, 152.31, 151.16, 146.98, 127.46, 123.39, 115.95, 114.71, 114.17, 110.14, 71.49, 56.08, 55.70.

1-(4-hydroxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanone 4o： yield: 83.4%, white solid, m.p.: 84 - 85°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.68 – 7.59 (m, 2H, Ar-H), 7.00 – 6.91 (m, 3H, Ar-H), 6.88 – 6.84 (m, 2H, Ar-H), 6.20 (s, 1H, OH), 5.31 (s, 2H, CH_2), 3.96 (s, 3H, $C_6H_3OCH_3$), 3.91 (s, 3H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, CDCl3) δ 193.22, 151.06, 149.71, 147.59, 146.89, 127.49, 123.37, 122.34, 120.82, 114.65, 114.10, 112.18, 110.22, 71.90, 56.07, 55.91.

1-(3,4-dimethoxyphenyl)-2-phenoxyethanone oxime 5a: yield: 84.1%, white solid, m.p.: 85 - 87°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.57 (dt, *J* = 21.4, 10.7 Hz, 1H, Ar-H), 7.50 (d, *J* = 1.9 Hz, 1H, Ar-H), 7.27 – 7.17 (m, 1H, Ar-H), 6.94 – 6.78 (m, 4H, Ar-H), 5.16 (s, 2H, CH_2), 3.87 (d, *J* = 8.9 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 193.20, 158.10, 153.92, 149.28, 129.59, 127.78, 122.86, 121.60, 114.81, 110.36, 110.15, 70.71, 56.15, 56.05.

1-(3,4-dimethoxyphenyl)-2-(4-fluorophenoxy)ethanone oxime 5b: yield: 83.2%, white solid, m.p.: 81 - 85°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.64 (dd, *J* = 8.4, 1.9 Hz, 1H, Ar-H), 7.56 (d, *J* = 1.8 Hz, 1H, Ar-H), 6.93 (tdd, *J* = 9.6, 8.0, 3.4 Hz, 5H, Ar-H), 5.21 (s, 2H, CH_2), 3.95 (d, *J* = 6.9 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 193.05, 158.90, 154.26, 154.01, 149.35, 127.67, 122.78, 116.08, 115.85, 110.30, 110.16, 71.36, 56.15, 56.05; HRMS (ESI) m/z Calcd for $C_{16}H_{17}FNO_4^+$ $[M+H]^+$ 306.1136, found 306.1142.

1-(3,4-dimethoxyphenyl)-2-(2-fluorophenoxy)ethanone oxime 5c: yield: 85.7%, white solid, m.p.: 96 - 99°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.74 – 7.20 (m, 2H, Ar-H), 7.10 – 6.70 (m, 5H, Ar-H), 5.34 – 4.84 (m, 2H, CH_2), 3.94 – 3.76 (m, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 192.82, 154.02, 151.69, 149.27, 146.20, 127.57, 124.37, 122.88, 122.28, 116.46, 116.13, 110.35, 110.19, 72.12, 56.14, 56.02; HRMS (ESI) m/z Calcd for $C_{16}H_{17}FNO_4^+$ $[M+H]^+$ 306.1136, found 306.1136.

1-(3,4-dimethoxyphenyl)-2-(4-chlorophenoxy)ethanone oxime 5d： yield: 92.4%, white solid, m.p.: 132 - 134°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.40 – 7.05 (m, 4H, Ar-H), 6.86 (t, *J* = 8.4 Hz, 3H, Ar-H), 5.24 (s, 2H, CH_2),3.88 (d, *J* = 8.7 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 192.79, 156.62, 154.08, 150.34, 148.81, 129.40, 122.80, 120.36, 116.14, 115.98, 110.66, 110.17, 70.81, 56.06, 55.88; HRMS (ESI) m/z Calcd for C16H17ClNO4+ [M+H]+ 322.0841, found 322.0847.

1-(3,4-dimethoxyphenyl)-2-(4-methylphenoxy)ethanone oxime 5e: yield: 81.0%, white solid, m.p.: 80 - 83°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.28 (dd, *J* = 5.9, 4.0 Hz, 2H, Ar-H), 7.09 (d, *J* = 8.2 Hz, 2H, Ar-H), 6.92 – 6.80 (m, 3H, Ar-H), 5.29 (s, 2H, CH_2), 4.11 – 3.64 (d, 6H, Ar-m-OCH_3 + Ar-p-OCH_3), 2.30 (s, 3H, CH_3); ^{13}C NMR (101 MHz, CDCl3) δ 193.61, 156.04, 155.45, 150.26, 148.74, 129.97, 126.26, 120.43, 114.51, 110.66, 109.69, 59.90, 55.86, 20.49; HRMS (ESI) m/z Calcd for $C_{17}H_{20}NO_4^+$ $[M+H]^+$ 302.1387, found 302.1392.

1-(3,4-dimethoxyphenyl)-2-(3-methylphenoxy)ethanone oxime 5f: yield: 84.3%, white solid, m.p.: 91 - 92°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.34 – 6.95 (m, 3H, Ar-H), 6.89 – 6.37 (m, 4H, Ar-H), 5.21 – 4.66 (s, 2H, CH_2), 3.83 – 3.65 (d, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.21 (s, *J* = 6.7 Hz, 3H, CH_3); ^{13}C NMR (101 MHz, CDCl3) δ 158.18, 155.44, 150.34, 148.76, 139.60, 129.26, 122.20, 120.45, 115.52, 111.38, 110.71, 109.73, 59.70, 55.88, 21.50; HRMS (ESI) m/z Calcd for $C_{17}H_{20}NO_4^+$ $[M+H]^+$

302.1387, found 302.1384.

1-(3,4-dimethoxyphenyl)-2-(4-methoxyphenoxy)ethanone oxime 5g: yield: 87.8%, white solid, m.p.: 97 - 98°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.57 (dd, *J* = 8.4, 1.5 Hz, 1H, Ar-H), 7.49 (d, *J* = 1.5 Hz, 1H, Ar-H), 6.82 (dt, *J* = 10.3, 3.1 Hz, 3H, Ar-H), 6.75 (dd, *J* = 9.7, 2.7 Hz, 2H, Ar-H), 5.11 (s, 2H, CH_2), 3.87 (d, *J* = 8.2 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.68 (s, 3H, OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 193.53, 154.42, 153.86, 152.30, 149.26, 127.82, 122.83, 115.96, 114.69, 110.33, 110.12, 71.67, 56.14, 56.04, 55.69.

1-(3,4-dimethoxyphenyl)-2-(2-methoxyphenoxy)ethanone oxime 5h: yield: 85.2%, white solid, m.p.: 116 - 117°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.40 – 7.15 (m, 3H, Ar-H), 6.97 – 6.55 (m, 4H, Ar-H), 5.27 (s, 2H, CH_2), 3.82 – 3.77 (d, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.72 (s, 3H, OCH_3); ^{13}C NMR (101 MHz, CDCl3) δ 155.72, 150.19, 149.71, 148.61, 147.51, 126.06, 122.05, 120.92, 120.49, 114.24, 112.11, 110.62, 110.01, 61.20, 55.90, 55.87, 55.80; HRMS (ESI) m/z Calcd for $C_{17}H_{20}NO_5^+$ $[M+H]^+$ 318.1336, found 318.1343.

1-(4-hydroxy-3-methoxyphenyl)-2-phenoxyethanone oxime 5i: yield: 78.2%, white solid, m.p.: 67 - 68°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.26 (m, 4H, Ar-H), 7.03 – 6.77 (m, 4H, Ar-H), 5.41 – 4.81 (m, 2H, CH_2), 3.90 (d, *J* = 4.8 Hz, 3H, CH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 158.08, 155.65, 147.19, 146.42, 129.55, 125.52, 121.37, 121.19, 114.64, 114.27, 109.26, 59.69, 55.99 . HRMS (ESI) m/z Calcd for $C_{15}H_{16}NO_4^+$ $[M+H]^+$ 274.1074, found 274.1080.

2-(4-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone oxime 5j：yield: 77.3%, white solid, m.p.: 118 - 119°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.27 – 7.18 (m, 2H, Ar-H), 7.01 – 6.85 (m, 5H, Ar-H), 5.25 (s, 2H, CH_2), 3.91 (d, *J* = 4.6 Hz, 3H, CH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 155.56, 154.07, 147.33, 146.44, 146.05, 125.17, 121.25, 116.03, 115.75, 114.21, 109.07, 60.21, 56.00; HRMS (ESI) m/z Calcd for $C_{15}H_{15}FNO_4^+$ $[M+H]^+$ 292.0980, found 292.0986. **2-(2-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone oxime 5k**：yield: 79.2%, white solid, m.p.: 77 - 79°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.34 (d, *J* = 2.0 Hz, 1H, Ar-H), 7.12 – 7.03 (m, 4H, Ar-H), 6.95 – 6.87 (m, 2H, Ar-H), 5.36 – 5.32 (m, 2H, CH_2), 3.93 (s, 3H, CH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 151.70, 147.37, 146.39, 145.90, 124.99, 124.38, 122.03, 121.22, 116.43, 116.25, 115.51, 114.28, 109.53, 61.15, 55.99; HRMS (ESI) m/z Calcd for $C_{15}H_{15}FNO_4^+$ $[M+H]^+$ 292.0980, found 292.0985.

2-(4-chlorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone oxime 5l: yield: 83.9%, white solid, m.p.: 93-95°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.31 – 7.17 (m, 4H, Ar-H), 6.91 (dd, *J* = 13.9, 8.5 Hz, 3H, Ar-H), 5.30 – 4.75 (m, 2H，CH_2), 3.89 (d, *J* = 4.8 Hz, 3H, CH_3); ^{13}C NMR (101 MHz, $CDCl_3$) δ 156.58, 155.38, 147.32, 146.45, 146.05, 129.42, 126.33, 125.15, 122.71, 121.18, 116.44, 115.98, 114.24, 111.89, 109.08, 59.85, 55.99; HRMS (ESI) m/z Calcd for $C_{15}H_{15}ClNO_4^+$ $[M+H]^+$ 308.0684, found 308.0690.

1-(4-hydroxy-3-methoxyphenyl)-2-(p-tolyloxy)ethanone oxime 5m： yield: 85.3%, white solid, m.p.: 112 - 115°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.30 – 7.18 (m, 2H, Ar-H), 7.14 – 7.00 (m, 2H, Ar-H), 6.96 – 6.81 (m, 3H, Ar-H), 5.35 – 4.83 (m, 2H, CH_2), 3.88 (s, 3H, $C_6H_3OCH_3$), 2.30 (d, *J* = 3.1 Hz, 3H, CH_3);

1-(4-hydroxy-3-methoxyphenyl)-2-(4-methoxyphenoxy)ethanone oxime 5n: yield: 84.8%, white solid, m.p.: 105 – 107°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.27 – 7.16 (m, 2H, Ar-H), 6.97 – 6.74 (m, 5H, Ar-H), 5.33 – 4.86 (m, 2H, CH_2), 3.91 (s, 3H, $C_6H_3OCH_3$), 3.78 (s, 3H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 155.98, 154.29, 152.19, 147.28, 146.41, 125.35, 123.03, 121.29, 116.33, 115.74, 114.67, 114.21, 109.24, 60.41, 56.01, 55.71; HRMS (ESI) m/z Calcd for $C_{16}H_{18}NO_5^+$ $[M+H]^+$ 304.1179, found 304.1183.

1-(4-hydroxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanone oxime 5o: yield: 78.0%, white solid, m.p.: 114 - 115°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.21 (d, *J* = 12.0 Hz, 2H, Ar-H), 6.94 – 6.73 (m, 5H, Ar-H), 5.33 – 4.84 (m, 2H, CH_2), 3.78 (s, 3H, $C_6H_3OCH_3$), 3.68 (s, 3H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 155.92, 149.69, 147.51, 147.08, 146.31, 125.45, 122.07, 121.27, 120.95, 114.24, 112.15, 109.70, 61.23, 55.94.

1-(3,4-dimethoxyphenyl)-2-phenoxyethan-1-amine 6a: yield: 78.7%, white solid, m.p.: 77 - 78°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.29 (dd, *J* = 9.5, 6.3 Hz, 2H, Ar-H), 7.10 – 6.78 (m, 6H, Ar-H), 4.41 (dd, *J* = 8.9, 3.5 Hz, 1H, $CHCH_2$), 4.07 (dd, J = 9.0, 3.6 Hz, 1H, $CHCH_2$), 3.91 (d, *J* = 7.3 Hz, 7H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3 + NH_2CH), 2.26 – 1.71 (m, 2H, NH_2).

1-(3,4-dimethoxyphenyl)-2-(4-fluorophenoxy)ethan-1-amine 6b: yield: 80.1%, light yellow solid, m.p.: 96 - 99°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.09 – 6.91 (m, 4H, Ar-H), 6.91 – 6.76 (m, 3H, Ar-H), 4.50 (s, 1H, $CHCH_2$), 4.10 (d, *J* = 7.7 Hz, 1H, $CHCH_2$), 3.92 (d, *J* = 7.7 Hz, 7H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3 + NH_2CH); ^{13}C NMR (101 MHz, $CDCl_3$) δ 157.51, 155.14, 153.78, 148.06, 147.56, 118.05, 114.91, 114.68, 110.11, 108.96, 54.90, 54.88, 28.67.

1-(3,4-dimethoxyphenyl)-2-(2-fluorophenoxy)ethan-1-amine 6c: yield: 78.3%, light yellow solid, m.p.: 65 - 68°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.11 – 6.63 (m, 7H, Ar-H), 4.36 (dd, *J* = 8.8, 3.5 Hz, 1H, $CHCH_2$), 4.04 (dd, *J* = 9.0, 3.5 Hz, 1H, $CHCH_2$), 3.88 (t, *J* = 7.0 Hz, 1H+NH_2CH), 3.82 (d, *J* = 8.1 Hz, 6H, Ar-*m*-OCH_3+Ar-*p*-OCH_3), 1.82 (s, 2H, NH_2); ^{13}C NMR (101 MHz, $CDCl_3$) δ 154.00, 151.56, 149.09, 148.56, 146.78, 134.12, 124.31, 121.30, 119.06, 116.34, 115.27, 111.09, 110.02, 75.69, 55.95, 55.91, 54.92.

2-(4-chlorophenoxy)-1-(3,4-dimethoxyphenyl)ethan-1-amine 6d: yield: 78.2%, light yellow solid, m.p.: 94 - 97°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.26 – 7.21 (m, 2H, Ar-H), 7.08 – 7.01 (m, 1H, Ar-H), 6.98 (dt, *J* = 12.0, 6.0 Hz, 1H, Ar-H), 6.86 (dt, *J* = 12.3, 5.8 Hz, 3H, Ar-H), 4.40 (dd, *J* = 9.0, 3.6 Hz, 1H, $CHCH_2$), 4.03 (dd, *J* = 8.9, 3.7 Hz, 1H, $CHCH_2$), 3.90 (dd, *J* = 15.6, 9.0 Hz, 7H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3 + NH_2CH), 1.85 (s, 2H, NH_2); ^{13}C NMR (101 MHz, CDCl3) δ 157.34, 149.10, 148.58, 134.20, 129.29, 125.81, 119.01, 115.93, 111.15, 109.93, 74.49, 55.96, 55.93, 54.84.

1-(3,4-dimethoxyphenyl)-2-(p-tolyloxy)ethan-1-amine 6e: yield: 83.4%, light yellow solid, m.p.: 68 - 72°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.19 – 6.95 (m, 4H, Ar-H), 6.86 (dd, *J* = 18.9, 8.1 Hz, 3H, Ar-H), 4.40 (d, *J* = 6.1 Hz, 1H, $CHCH_2$), 4.04 (t, *J* = 13.0 Hz, 1H, $CHCH_2$), 3.88 (t, *J* = 22.4 Hz, 7H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3 + NH_2CH), 2.31 (s, 5H, Ar-CH_3 + NH_2); ^{13}C NMR (101 MHz, CDCl3) δ 156.62, 149.07, 148.49, 134.51, 13 0.19, 129.94, 119.03, 114.50, 111.12, 110.01, 74.28, 55.95, 55.92,

54.96, 20.50.

1-(3,4-dimethoxyphenyl)-2-(m-tolyloxy)ethan-1-amine 6f: yield: 85.1%, light yellow solid, m.p.: 64 - 66°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.12 – 6.36 (m, 7H, Ar-H), 4.30 (dd, *J* = 8.5, 3.8 Hz, 1H, $CHCH_2$), 4.02 – 3.87 (m, 1H, $CHCH_2$), 3.81 (t, *J* = 8.8 Hz, 7H, NH_2CH + Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.25 (s, 3H, CH_3), 2.14 (s, 2H, NH_2).

1-(3,4-dimethoxyphenyl)-2-(4-methoxyphenoxy)ethan-1-amine 6g: yield: 86.8%, light yellow solid, m.p.: 57 - 60°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.09 – 6.95 (m, 2H, Ar-H), 6.92 – 6.76 (m, 5H, Ar-H), 4.38 (dd, *J* = 8.9, 3.4 Hz, 1H, $CHCH_2$), 4.01 (m, 1H, $CHCH_2$), 3.91 (d, *J* = 6.3 Hz, 7H, NH_2CH + Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.78 (s, 3H, $C_6H_4OCH_3$), 2.14 (s, 2H, NH_2).

1-(3,4-dimethoxyphenyl)-2-(2-methoxyphenoxy)ethan-1-amine 6h: yield: 85.2%, light yellow solid, m.p.: 90 - 94°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.09 – 6.75 (m, 7H, Ar-H), 4.44 (dd, *J* = 9.3, 3.4 Hz, 1H, $CHCH_2$), 4.12 (dd, *J* = 9.3, 3.4 Hz, 1H, $CHCH_2$), 3.91 (s, 4H, NH_2CH + $C_6H_4OCH_3$), 3.87 (d, *J* = 5.4 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 1.83 (s, 2H, NH_2).

1-(4-hydroxy-3-methoxyphenyl)-2-phenoxyethan-1-aminium chloride 6i: yield: 63.8%, white solid. ^{1}H NMR (300 MHz, DMSO) δ 9.29 (s, 1H, OH), 8.76 (s, 3H, NH_3^+), 7.42 – 7.22 (m, 3H, Ar-H), 6.99 (dd, *J* = 15.4, 7.7 Hz, 4H, Ar-H), 6.83 (d, *J* = 8.1 Hz, 1H, Ar-H), 4.58 (s, 1H, Ar-CH), 4.38 – 4.16 (m, 2H, $CHCH_2$), 3.80 (s, 3H, OCH_3); ^{13}C NMR (101 MHz, DMSO) δ 157.75, 147.61, 147.13, 129.51, 125.35, 121.24, 120.53, 115.30, 114.81, 112.25, 68.73, 55.78, 53.31.

2-(4-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethan-1-aminium chloride 6j：yield: 65.3%, white solid. ^{1}H NMR (300 MHz, DMSO) δ 9.20 (s, 1H, OH), 7.85 (s, 3H, NH_3^+), 7.22 (s, 1H, Ar-H), 7.14 (t, *J* = 8.7 Hz, 2H, Ar-H), 7.03 (dd, *J* = 9.1, 4.4 Hz, 2H, Ar-H), 6.94 (d, *J* = 8.3 Hz, 1H, Ar-H), 6.81 (d, *J* = 8.0 Hz, 1H, Ar-H), 4.51 (s, 1H, Ar-CH), 4.18 (s, 2H, $CHCH_2$), 3.79 (s, 3H, OCH_3); ^{13}C NMR (101 MHz, DMSO) δ 157.97, 155.70, 154.22, 147.57, 146.96, 126.17, 120.42, 116.30, 116.22, 115.94, 115.71, 115.26, 112.18, 69.98, 55.77, 53.39.

2-(2-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethan-1-aminium chloride 6k： yield: 69.4%, white solid. ^{1}H NMR (400 MHz, DMSO) δ 9.30 (s, 1H, OH), 8.84 (s, 3H, NH_3^+), 7.37 (s, 1H, Ar-H), 7.31 – 7.19 (m, 2H, Ar-H), 7.14 (t, *J* = 7.8 Hz, 1H, Ar-H), 7.05 – 6.95 (m, 2H, Ar-H), 6.84 (d, *J* = 8.1 Hz, 1H, Ar-H), 4.61 (s, 1H, Ar-CH), 4.50 – 4.27 (m, 2H, $CHCH_2$), 3.80 (s, 3H, OCH_3); ^{13}C NMR (101 MHz, DMSO) δ 153.00, 150.57, 147.60, 147.14, 145.66, 125.27, 124.87, 121.99, 120.64, 116.27, 115.98, 115.27, 112.30, 70.02, 55.73, 53.16.

2-(4-chlorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethan-1-aminium chloride 6l: yield: 60.8%, white solid. ^{1}H NMR (400 MHz, DMSO) δ 9.29 (s, 1H, OH), 8.70 (s, 3H, NH_3^+), 7.37 (d, *J* = 8.7 Hz, 2H, Ar-H), 7.31 (s, 1H, Ar-H), 7.06 (d, *J* = 8.7 Hz, 2H, Ar-H), 6.98 (d, *J* = 7.7 Hz, 1H, Ar-H), 6.80 (dd, *J* = 20.6, 8.4 Hz, 1H, Ar-H), 4.59 (s, 1H, Ar-CH), 4.32 – 4.20 (m, 2H, $CHCH_2$), 3.80 (s, 3H, OCH_3); ^{13}C NMR (101 MHz, DMSO) δ 156.61, 147.61, 147.14, 129.26, 125.15, 124.93, 120.52, 116.66, 115.30, 112.23, 69.11, 55.78, 53.19.

4-(1-amino-2-(p-tolyloxy)ethyl)-2-methoxyphenol 6m： yield: 72.1%, brown oil.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.04 – 6.87 (m, 3H, Ar-H), 6.87 – 6.64 (m, 4H, Ar-H), 4.37 – 4.11 (m, 1H, Ar-CH), 3.93 (s, 1H, CHCH$_2$), 3.82 (s, 4H, CHCH$_2$ + OCH$_3$), 2.21 (s, 3H, CH$_3$), 1.67 (s, 2H, NH$_2$).

1-(4-hydroxy-3-methoxyphenyl)-2-(4-methoxyphenoxy)ethan-1-aminium chloride 6n: yield: 74.3%, white solid. ^{1}H NMR (400 MHz, DMSO) δ 9.30 (s, 1H, OH), 8.73 (s, 3H, NH_3^+), 7.33 (s, 1H, Ar-H), 6.98 (d, *J* = 9.1 Hz, 3H, Ar-H), 6.86 (dd, *J* = 18.8, 8.5 Hz, 3H, Ar-H), 4.56 (s, 1H, Ar-CH), 4.33 – 4.13 (m, 2H, CHCH$_2$), 3.81 (s, 3H, $C_6H_3OCH_3$), 3.71 (s, 3H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, DMSO) δ 153.83, 151.77, 147.59, 147.09, 125.38, 120.49, 115.95, 115.28, 114.54, 112.21, 69.56, 55.77, 55.33, 53.38.

1-(4-hydroxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethan-1-aminium chloride 6o: yield: 70.5%, white solid. ^{1}H NMR (400 MHz, DMSO) δ 9.28 (s, 1H, OH), 8.71 (s, 3H, NH_3^+), 7.34 (s, 1H, Ar-H), 7.10 (d, *J* = 7.0 Hz, 1H, Ar-H), 7.01 (dt, *J* = 15.2, 7.3 Hz, 3H, Ar-H), 6.91 (dd, *J* = 10.6, 4.4 Hz, 1H, Ar-H), 6.83 (d, *J* = 8.1 Hz, 1H, Ar-H), 4.56 (s, 1H, Ar-CH), 4.39 – 4.18 (m, 2H, CHCH$_2$), 3.81 (s, 3H, $C_6H_3OCH_3$), 3.78 (s, 3H, $C_6H_4OCH_3$); ^{13}C NMR (101 MHz, DMSO) δ 149.63, 147.57, 147.19, 147.08, 125.47, 122.48, 120.75, 120.61, 115.82, 115.23, 112.62, 112.30, 70.59, 55.72, 55.58, 53.41.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-phenoxyethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8a: yield: 80.4%, white solid, m.p.: 138 - 140^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.37 – 7.20 (m, 2H, Ar-H), 7.02 – 6.75 (m, 6H, Ar-H), 6.67 (s, 1H, CHCONH), 5.32 (s, 1H, OCONH), 5.16 (s, 1H, Ar-CH), 4.86 (td, *J* = 12.1, 5.9 Hz, 1H, OCH(CH$_3$)$_2$), 4.34 – 4.10 (m, 2H, OCH$_2$), 4.00 (dd, *J* = 17.6, 11.0 Hz, 1H, OCONHCH), 3.86 (s, 6H, Ar-*m*-OCH$_3$ + Ar-*p*-OCH$_3$), 2.17 (d, *J* = 5.9 Hz, 1H, CHCH(CH$_3$)$_2$), 1.25 – 1.10 (m, 6H, OCH(CH$_3$)$_2$), 1.05 – 0.83 (m, 6H, CHCH(CH$_3$)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.15, 158.26, 156.26, 149.14, 148.59, 131.36, 129.58, 121.40, 118.99, 114.59, 111.08, 110.27, 69.90, 68.71, 60.52, 55.89, 52.30, 31.08, 22.00, 19.11, 18.03; HRMS (MALDI) m/z Calcd for $C_{25}H_{34}N_2O_6Na^+$ $[M+Na]^+$ 481.2309, found 481.2309.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(4-fluorophenoxy)ethyl)-amino)-3-methyl-1-oxobutan -2-yl)carbamate 8b: yield: 81.5%, white solid, m.p.: 130 - 132^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.02 – 6.87 (m, 4H, Ar-H), 6.87 – 6.78 (m, 3H, Ar-H), 6.62 (s, 1H, CHCONH), 5.29 (s, 1H, OCONH), 5.13 (s, 1H, Ar-CH), 4.88 (dd, *J* = 12.6, 6.3 Hz, 1H, OCH(CH$_3$)$_2$), 4.27 – 4.10 (m, 2H, OCH$_2$), 3.98 (dd, *J* = 15.3, 8.6 Hz, 1H, OCONHCH), 3.86 (s, 6H, Ar-*m*-OCH$_3$ + Ar-*p*-OCH$_3$), 2.15 (s, 1H, CHCH(CH$_3$)$_2$), 1.29 – 1.09 (m, 6H, OCH(CH$_3$)$_2$), 1.05 – 0.84 (m, 6H, CHCH(CH$_3$)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.13, 158.74, 156.55, 154.43, 148.95, 148.45, 131.34, 118.91, 116.02, 115.71, 111.19, 110.32, 70.55, 68.62, 60.53, 55.85, 52.14, 30.86, 22.04, 19.36; HRMS (MALDI) m/z Calcd for $C_{25}H_{33}FN_2O_6Na^+$ $[M+Na]^+$ 499.2215, found 499.2213.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(2-fluorophenoxy)ethyl)-amino)-3-methyl-1-oxobutan-2-yl)carbamate 8c: yield: 84.3%, white solid, m.p.: 120 - 122^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.16 - 6.82 (m, 7H, Ar-H), 6.75 (dd, *J* = 19.7, 7.5 Hz, 1H, CHCONH), 5.38 - 5.27 (m, 1H, OCONH), 5.15 (s, 1H, Ar-CH),

4.90 (dt, *J* = 12.4, 6.2 Hz, 1H, OCH$(CH_3)_2$), 4.31 (ddd, *J* = 35.6, 9.6, 4.4 Hz, 2H, OCH_2), 4.04 (d, *J* = 6.5 Hz, OCONHCH), 3.89 (d, *J* = 7.2 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.20 (dd, *J* = 13.1, 6.5 Hz, 1H, CHCH$(CH_3)_2$), 1.30 – 1.10 (m, 6H, OCH(CH_3)$_2$), 1.02 – 0.79 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.91, 156.22, 153.98, 151.65, 148.94, 146.41, 131.44, 124.40, 121.88, 119.33, 116.12, 115.51, 110.87, 110.35, 71.70, 68.69, 60.28, 55.89, 52.29, 30.82, 21.91, 19.30, 17.56; HRMS (MALDI) m/z Calcd for $C_{25}H_{33}FN_2O_6Na^+$ $[M+Na]^+$ 499.2215, found 499.2217.

isopropyl((2S)-1-(((R, S)-2-(4-chlorophenoxy)-1-(3,4-dimethoxyphenyl)ethyl)-amino)-3-methyl-1-oxobutan-2-yl)carbamate 8d: yield: 85.6%, white solid, m.p.: 150 - 152°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.24 – 7.10 (m, 2H, Ar-H), 6.86 – 6.71 (m, 5H, Ar-H), 6.53 (d, *J* = 6.0 Hz, 1H, CHCONH), 5.24 (d, *J* = 4.5 Hz, 1H, OCONH), 5.05 (s, 1H, Ar-CH), 4.80 (dt, *J* = 12.7, 5.0 Hz, 1H, OCH$(CH_3)_2$), 4.23 – 4.03 (m, 2H, OCH_2), 3.99 – 3.85 (m, 1H, OCONHCH), 3.79 (s, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.08 (s, 1H, CHCH$(CH_3)_2$), 1.21 – 1.04 (m, 6H, OCH(CH_3)$_2$), 0.97 – 0.76 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.18, 156.88, 156.47, 149.15, 148.59, 131.29, 129.33, 126.23, 118.87, 115.99, 111.22, 110.33, 70.07, 68.54, 60.55, 55.88, 52.17, 30.95, 21.89, 19.37, 17.92; HRMS (MALDI) m/z Calcd for $C_{25}H_{33}ClN_2O_6Na^+$ $[M+Na]^+$ 515.1919, found 515.1916.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(p-tolyloxy)ethyl)amino)- 3-methyl-1-oxobutan-2-yl)carbamate 8e: yield: 82.3%, white solid, m.p.: 109 - 111°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.07 (d, *J* = 8.4 Hz, 2H, Ar-H), 6.92 (d, *J* = 7.3 Hz, 2H, Ar-H), 6.84 – 6.75 (m, 3H, Ar-H), 6.64 (d, *J* = 7.4 Hz, 1H, CHCONH), 5.29 (s, 1H, OCONH), 5.15 (s, 1H, Ar-CH), 4.87 (dq, *J* = 11.6, 5.9 Hz, 1H, OCH$(CH_3)_2$), 4.27 – 4.06 (m, 2H, OCH_2), 3.98 (dd, *J* = 14.8, 8.1 Hz, 1H, OCONHCH), 3.86 (s, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.28 (s, 3H, Ar-CH3), 2.17 (d, *J* = 6.3 Hz, 1H, CHCH$(CH_3)_2$), 1.34 – 1.14 (m, 6H, OCH(CH_3)$_2$), 1.02 – 0.78 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.12, 155.32, 155.15, 147.98, 147.49, 130.71, 129.58, 128.93, 117.97, 113.44, 110.06, 109.42, 69.11, 67.51, 59.45, 54.85, 51.18, 30.05, 20.73, 19.44, 18.20, 17.09; HRMS (MALDI) m/z Calcd for $C_{26}H_{36}N_2O_6Na^+$ $[M+Na]^+$ 495.2466, found 495.2463.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(m-tolyloxy)ethyl)amino)- 3-methyl-1-oxobutan-2-yl)carbamate 8f: yield: 87.3%, white solid, m.p.: 98 - 100°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.18 (t, *J* = 7.6 Hz, 1H, Ar-H), 6.94 (s, 2H, Ar-H), 6.83 (dd, *J* = 15.3, 7.4 Hz, 3H, Ar-H), 6.72 (s, 1H, Ar-H), 6.70 (s, 1H, CHCONH), 5.34 (s, 1H, OCONH), 5.26 (dd, *J* = 18.4, 8.3 Hz, 1H, Ar-CH), 4.88 (dd, *J* = 12.9, 6.5 Hz, 1H, OCH$(CH_3)_2$), 4.19 (dd, *J* = 17.5, 7.7 Hz, 2H, OCH_2), 4.06 (d, *J* = 6.5 Hz, 1H, OCONHCH), 3.88 (s, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.34 (s, 3H, Ar-CH_3), 2.21 – 2.11 (m, 1H, CHCH$(CH_3)_2$), 1.34 – 1.12 (m, 6H, OCH(CH_3)$_2$), 1.08 – 0.82 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.01, 158.19, 156.29, 148.94, 148.48, 139.64, 131.58, 129.30, 122.13, 118.95, 115.40, 111.40, 111.09, 110.39, 69.76, 68.61, 60.50, 55.91, 52.24, 31.07, 22.07, 21.42, 19.27, 18.08; HRMS (MALDI) m/z Calcd for $C_{26}H_{36}N_2O_6Na^+$ $[M+Na]^+$ 495.2466, found 495.2468.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(4-methoxyphenoxy)ethyl)-

amino)-3-methyl-1-oxobutan-2-yl)carbamate 8g: yield: 80.4%, white solid, m.p.: 102 - 104°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.84 (s, 2H, Ar-H), 6.76 (d, *J* = 6.6 Hz, 5H, Ar-H), 6.60 (s, 1H, CHCONH), 5.22 (s, 1H, OCONH), 5.07 (s, 1H, Ar-CH), 4.90 – 4.73 (m, 1H, OCH(CH_3)$_2$), 4.16 – 4.01 (m, 2H, OCH_2), 3.96 (d, *J* = 7.3 Hz, 1H, OCONHCH), 3.80 (d, *J* = 6.3 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.69 (s, 3H, C_6H_4-*o*-OCH_3), 2.09 (s, 1H, CHCH(CH_3)$_2$), 1.19 – 1.08 (m, 6H, OCH(CH_3)$_2$), 0.93 – 0.76 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.14, 155.11, 153.31, 151.26, 147.61, 147.20, 130.77, 117.81, 114.63, 113.71, 110.07, 109.23, 69.78, 67.59, 59.76, 58.90, 54.66, 50.67, 29.74, 20.63, 17.94, 16.58; HRMS (MALDI) m/z Calcd for $C_{26}H_{36}N_2O_7$ $[M+Na]^+$ 511.2415, found 511.2414.

isopropyl((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(2-methoxyphenoxy)ethyl)-amino)-3-methyl-1-oxobutan-2-yl)carbamate 8h: yield: 87.2%, white solid, m.p.: 148 - 150°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.98 (dd, *J* = 13.7, 7.9 Hz, 4H, Ar-H), 6.90 (dd, *J* = 11.3, 4.3 Hz, 3H, Ar-H), 6.82 (d, *J* = 8.2 Hz, 1H, CHCONH), 5.24 (s, 2H, OCONH + Ar-CH), 4.97 – 4.73 (m, 1H, OCH(CH_3)$_2$), 4.31 – 4.13 (m, 2H, OCH_2), 4.02 (dd, *J* = 17.1, 8.4 Hz, 1H, OCONHCH), 3.90 – 3.80 (m, 9H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3 + C_6H_4-*o*-OCH_3), 2.26 – 2.02 (m, 1H, CHCH(CH_3)$_2$), 1.29 – 1.12 (m, 6H, OCH(CH_3)$_2$), 1.00 – 0.74 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.12, 156.19, 149.96, 148.85, 148.19, 147.75, 131.71, 122.41, 120.85, 119.02, 115.94, 112.18, 111.03, 110.39, 72.34, 68.78, 60.35, 60.10, 55.90, 52.81, 31.41, 22.08, 18.96, 17.63; HRMS (MALDI) m/z Calcd for $C_{26}H_{36}N_2O_7Na^+$ $[M+Na]^+$ 511.2415, found 511.2413.

isopropyl((2S)-1-(((R, S)-1-(4-hydroxy-3-methoxyphenyl)-2-phenoxyethyl)-amino)-3-methyl-1-oxobutan-2-yl)carbamate 8i: yield: 75.6%, white solid, m.p.: 137 - 140°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.29 (dd, *J* = 9.7, 5.4 Hz, 3H, Ar-H), 6.99 (t, *J* = 7.3 Hz, 1H, Ar-H), 6.94 – 6.84 (m, 4H, Ar-H), 6.75 (d, *J* = 7.4 Hz, 1H, CHCONH), 5.72 (s, 1H, OH), 5.32 (s, 1H, OCONH), 5.23 (dd, *J* = 22.8, 8.6 Hz, 1H, Ar-CH), 4.88 (dt, *J* = 19.3, 6.4 Hz, 1H, OCH(CH_3)$_2$), 4.22 (ddd, *J* = 14.9, 9.5, 5.2 Hz, 2H, OCH_2), 4.10 – 3.96 (m, 1H, OCONHCH), 3.87 (d, *J* = 6.1 Hz, 3H, $C_6H_3O$$CH_3$), 2.14 (dd, *J* = 24.9, 18.5 Hz, 1H, CHCH(CH_3)$_2$), 1.34 – 1.10 (m, 6H, OCH(CH_3)$_2$), 1.08 – 0.75 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.01, 158.05, 156.24, 146.38, 145.27, 130.79, 129.54, 121.32, 119.58, 114.70, 114.28, 109.89, 69.76, 68.42, 60.47, 55.87, 52.30, 30.86, 22.04, 19.24, 18.10; HRMS (MALDI) m/z Calcd for $C_{24}H_{32}N_2O_6Na^+$ $[M+Na]^+$ 467.2153, found 467.2155.

isopropyl((2S)-1-(((R, S)-2-(4-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)-ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8j: yield: 84.2%, white solid, m.p.: 163 - 165°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.89 (t, *J* = 8.6 Hz, 2H, Ar-H), 6.84 – 6.67 (m, 5H, Ar-H), 6.52 (s, 1H, CHCONH), 5.54 (s, 1H, OH), 5.20 (s, 1H, OCONH), 5.06 (s, 1H, Ar-CH), 4.89 – 4.64 (m, 1H, OCH(CH_3)$_2$), 4.22 – 4.01 (m, 2H, OCH_2), 3.91 (dd, *J* = 17.1, 8.7 Hz, 1H, OCONHCH), 3.80 (d, *J* = 1.9 Hz, 3H, $C_6H_3O$$CH_3$), 2.09 (s, 1H, CHCH($CH_3$)$_2$), 1.18 – 1.05 (m, 6H, OCH(CH_3)$_2$), 0.95 – 0.74 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.91, 158.33, 156.31, 154.46, 146.17, 144.98, 130.85, 119.33, 116.18, 115.96, 114.40, 109.87, 70.47, 68.64, 60.52, 55.34, 52.44, 30.78, 22.04, 19.26, 17.52; HRMS (MALDI) m/z Calcd for

$C_{24}H_{31}FN_2O_6Na^+$ $[M+Na]^+$ 485.2058, found 485.2059.

isopropyl((2S)-1-(((R, S)-2-(2-fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)-ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8k: yield: 78.5%, white solid, m.p.: 133 - 135°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.16 – 6.87 (m, 7H, Ar-H), 6.83 (s, 1H, CHCONH), 5.76 (s, 1H, OH), 5.32 (s, 1H, OCONH), 5.24 (s, 1H, Ar-CH), 4.89 (dd, *J* = 12.2, 6.1 Hz, 1H, OCH$(CH_3)_2$), 4.41 – 4.18 (m, 2H, OCH_2), 4.04 (s, 1H, OCONHCH), 3.90 (d, *J* = 5.7 Hz, 3H, $C_6H_3OCH_3$), 2.18 (d, *J* = 6.9 Hz, 1H, CHCH$(CH_3)_2$), 1.21 (dd, *J* = 13.7, 5.8 Hz, 6H, OCH$(CH_3)_2$), 1.04 – 0.80 (m, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.07, 156.02, 154.15, 151.53, 146.31, 145.34, 130.58, 124.40, 122.05, 119.91, 116.14, 115.63, 114.46, 109.95, 71.68, 68.35, 60.45, 56.00, 52.19, 30.81, 21.80, 19.18, 17.79; HRMS (MALDI) m/z Calcd for $C_{24}H_{31}FN_2O_6Na^+$ $[M+Na]^+$ 485.2058, found 485.2059.

isopropyl((2S)-1-(((R, S)-2-(4-chlorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)-ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8l: yield: 83.2%, light yellow solid, m.p.: 153 - 158°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.27 – 7.15 (m, 2H, Ar-H), 6.86 (dd, *J* = 19.5, 7.7 Hz, 5H, Ar-H), 6.75 (s, 1H, CHCONH), 5.75 (s, 1H, OH), 5.31 (s, 1H, OCONH), 5.22 (s, 1H, Ar-CH), 4.96 – 4.76 (m, 1H, OCH$(CH_3)_2$), 4.33 – 4.07 (m, 2H, OCH_2), 4.10 – 3.95 (m, 1H, OCONHCH), 3.88 (d, *J* = 7.5 Hz, 3H, $C_6H_3OCH_3$), 2.16 (d, *J* = 6.0 Hz, 1H, CHCH$(CH_3)_2$), 1.32 – 1.12 (m, 6H, OCH$(CH_3)_2$), 1.03 – 0.88 (m, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.03, 156.87, 156.35, 146.62, 145.26, 130.70, 129.42, 126.26, 119.47, 115.78, 114.42, 109.95, 70.05, 68.72, 60.18, 55.50, 52.00, 30.64, 21.73, 19.11, 17.97; HRMS (MALDI) m/z Calcd for $C_{24}H_{31}ClN_2O_6Na^+$ $[M+Na]^+$ 501.1763, found 501.1764.

isopropyl((2S)-1-(((R, S)-1-(4-hydroxy-3-methoxyphenyl)-2-(p-tolyloxy)ethyl)-amino)-3-methyl-1-oxobutan-2-yl)carbamate 8m: yield: 74.9%, white solid, m.p.: 131 - 133°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.09 (d, *J* = 8.3 Hz, 1H, Ar-H), 6.89 (dd, *J* = 13.4, 4.4 Hz, 3H, Ar-H), 6.80 (dd, *J* = 8.6, 2.3 Hz, 2H, Ar-H), 6.73 (d, *J* = 7.7 Hz, 1H, CHCONH), 5.74 (d, *J* = 9.8 Hz, 1H, OH), 5.29 (dt, *J* = 13.5, 7.2 Hz, 1H, OCONH), 5.20 (d, *J* = 7.2 Hz, 1H, Ar-CH), 4.99 – 4.79 (m, 1H, OCH$(CH_3)_2$), 4.28 – 4.07 (m, 2H, OCH_2), 4.07 – 3.94 (m, 1H, OCONHCH), 3.87 (d, *J* = 6.6 Hz, 3H, $C_6H_3OCH_3$), 2.30 (s, 3H, $C_6H_4CH_3$), 2.26 – 2.02 (m, 1H, CHCH$(CH_3)_2$), 1.34 – 1.11 (m, 6H, OCH$(CH_3)_2$), 1.04 – 0.85 (m, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.93, 156.34, 156.18, 146.52, 145.29, 130.91, 130.84, 130.57, 129.88, 119.47, 114.38, 109.94, 69.87, 68.43, 60.02, 55.55, 52.09, 30.71, 22.33, 19.88, 19.43, 16.98; HRMS (MALDI) m/z Calcd for $C_{25}H_{34}N_2O_6Na^+$ $[M+Na]^+$ 481.2309, found 481.2307.

isopropyl((2S)-1-(((R, S)-1-(4-hydroxy-3-methoxyphenyl)-2-(4-methoxyphenoxy)-ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8n: yield: 80.4%, gree solid, m.p.: 130 - 132°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.02 – 6.77 (m, 7H, Ar-H), 6.73 (d, *J* = 6.3 Hz, 1H, CHCONH), 5.73 (s, 1H, OH), 5.29 (s, 1H, OCONH), 5.23 (s, 1H, Ar-CH), 4.90 (dt, *J* = 12.4, 6.2 Hz, 1H, OCH$(CH_3)_2$), 4.17 (d, *J* = 5.8 Hz, 2H, OCH_2), 4.09 – 3.96 (m, 1H, OCONHCH), 3.88 (d, *J* = 4.4 Hz, 3H, $C_6H_3OCH_3$), 3.79 (s, 3H, $C_6H_4OCH_3$), 2.18 (s, 1H, CHCH$(CH_3)_2$), 1.21 (dd, *J* = 14.7, 6.0 Hz, 6H, OCH$(CH_3)_2$), 0.95 (tt, *J* = 44.1, 22.0 Hz, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.16,

154.04, 152.20, 146.61, 144.97, 130.89, 119.55, 115.82, 114.71, 114.19, 109.78, 70.63, 68.81, 60.41, 55.91, 55.59, 52.09, 31.00, 21.72, 19.21, 17.59; HRMS (MALDI) m/z Calcd for $C_{25}H_{34}N_2O_7Na^+$ $[M+Na]^+$ 497.2258, found 497.2260.

isopropyl((2S)-1-(((R, S)-1-(4-hydroxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)-ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8o: yield: 77.4%, yellow solid, m.p.: 118 – 120°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.12 (d, *J* = 6.6 Hz, 1H, Ar-H), 7.06 (d, *J* = 7.2 Hz, 2H, Ar-H), 6.99 (dd, *J* = 6.4, 4.0 Hz, 4H, Ar-H), 6.96 – 6.87 (m, 1H, CHCONH), 5.73 (s, 1H, OH), 5.32 (t, *J* = 8.5 Hz, 1H, OCONH), 5.25 (s, 1H, Ar-CH), 4.88 (tt, *J* = 12.4, 6.2 Hz, 1H, OCH$(CH_3)_2$), 4.23 (dd, *J* = 10.2, 5.2 Hz, 2H, OCH_2), 4.14 – 3.98 (m, 1H, OCONHCH), 3.91 – 3.87 (m, 6H, $C_6H_3OCH_3$ + $C_6H_4OCH_3$), 2.26 – 2.10 (m, 1H, CHCH$(CH_3)_2$), 1.34 – 1.11 (m, 6H, OCH$(CH_3)_2$), 1.03 – 0.81 (m, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.23, 156.26, 150.05, 147.85, 146.40, 145.16, 131.12, 122.27, 120.82, 119.77, 115.37, 114.65, 112.35, 109.74, 72.29, 68.53, 60.49, 59.99, 55.54, 52.66, 30.95, 21.61, 19.12, 17.88; HRMS (MALDI) m/z Calcd for $C_{25}H_{34}N_2O_7Na^+$ $[M+Na]^+$ 497.2258, found 497.2155.

isopropyl((2S)-1-(((R, S)-1-(3-methoxy-4-(prop-2-yn-1-yloxy)phenyl)-2-phenoxyethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8p: yield: 79.6%, white solid, m.p.: 139 - 141°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.28 (s, 2H, Ar-H), 7.15 – 6.76 (m, 7H, Ar-H + CHCONH), 5.38 (d, J = 25.9 Hz, 2H, OCONH + Ar-CH), 4.84 (s, 1H, OCH$(CH_3)_2$), 4.74 (d, J = 7.8 Hz, 2H, CHCCH_2), 4.20 (s, 2H, OCH_2Ar), 4.07 (s, 1H, OCONHCH), 3.84 (d, J = 6.0 Hz, 3H, $C_6H_3OCH_3$), 2.52 (s, 1H, CH_2CCH), 2.15 (s, 1H, CHCH$(CH_3)_2$), 1.18 (d, J = 19.6 Hz, 6H, OCH$(CH_3)_2$), 0.95 (t, J = 17.5 Hz, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.30, 158.27, 156.39, 149.63, 146.31, 133.11, 129.56, 121.36, 118.88, 114.57, 114.20, 110.84, 78.55, 75.89, 69.87, 68.57, 60.52, 58.31, 56.72, 55.86, 52.14, 31.07, 22.04, 19.36, 18.19, 17.80; HRMS (ESI) m/z Calcd for $C_{27}H_{35}N_2O_6^+$ $[M+H]^+$ 483.2491, found 483.2490.

isopropyl((2S)-1-(((R, S)-2-(4-fluorophenoxy)-1-(3-methoxy-4-(prop-2-yn-1-yloxy) phenyl)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8q: yield: 74.3%, white solid, m.p.: 155-157℃。^{1}H NMR (400 MHz, $CDCl_3$) δ 6.99 – 6.81 (m, 5H, Ar-H), 6.79 – 6.66 (m, 2H, Ar-H), 6.56 (d, *J* = 6.6 Hz, 1H, CHCONH), 5.23 (s, 1H, OCONH), 5.04 (s, 1H, Ar-CH), 4.80 (dt, *J* = 12.5, 6.3 Hz, 1H, OCH$(CH_3)_2$), 4.68 (d, *J* = 2.3 Hz, 2H, CHCCH_2), 4.12 (qd, *J* = 9.7, 5.0 Hz, 2H, OCH_2Ar), 3.92 (dd, *J* = 17.4, 9.3 Hz, 1H, OCONHCH), 3.79 (s, 3H, $C_6H_3OCH_3$), 2.43 (t, *J* = 2.3 Hz, 1H, CH_2CCH), 2.10 (d, *J* = 5.8 Hz, 1H, CHCH$(CH_3)_2$), 1.21 – 1.02 (m, 6H, OCH$(CH_3)_2$), 0.96 – 0.76 (m, 6H, CHCH$(CH_3)_2$). ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.13, 157.74, 155.32, 153.34, 148.68, 145.36, 131.77, 117.73, 115.03, 114.80, 113.22, 109.85, 77.37, 74.85, 69.58, 67.67, 55.71, 54.75, 50.97, 29.87, 21.09, 18.34, 16.68; HRMS (MALDI) m/z Calcd for $C_{27}H_{33}FN_2O_6Na^+$ $[M+Na]^+$ 523.2215, found 523.2218.

isopropyl((2S)-1-(((R, S)-2-(2-fluorophenoxy)-1-(3-methoxy-4-(prop-2-yn-1-yloxy) phenyl)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8r: yield: 78.2%, white solid, m.p.: 167-169℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.13 – 6.91 (m, 7H, Ar-

H), 6.84 (s, 1H, CHCONH), 5.34 (s, 1H, OCONH), 5.21 (s, 1H, Ar-CH), 4.87 (d, J = 6.2 Hz, 1H, OCH(CH_3)$_2$), 4.76 (s, 2H, CHCCH$_2$), 4.33 (d, J = 9.2 Hz, 1H, OCH$_2$Ar), 4.24 (s, 1H, OCH$_2$Ar), 4.05 (d, J = 7.2 Hz, 1H, OCONHCH), 3.89 (s, 3H, C_6H_3OCH$_3$), 2.52 (s, 1H, CH$_2$CCH), 2.17 (s, 1H, CHCH(CH_3)$_2$), 1.23 (t, J = 5.9 Hz, 6H, OCH(CH_3)$_2$), 1.08 – 0.81 (m, H, CHCH(CH_3)$_2$). ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.11, 156.36, 154.11, 151.67, 149.73, 146.38, 146.28, 132.87, 132.67, 124.45, 122.12, 119.08, 116.47, 116.29, 115.63, 114.17, 110.94, 78.52, 75.86, 71.61, 68.65, 60.46, 56.72, 55.86, 52.38, 31.00, 22.01, 19.19, 17.91; HRMS (ESI) m/z Calcd for $C_{27}H_{34}FN_2O_6^+$ $[M+H]^+$ 501.2395, found 501.2399.

isopropyl((2S)-1-(((R, S)-2-(4-chlorophenoxy)-1-(3-methoxy-4-(prop-2-yn-1-yloxy)phenyl)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8s: yield: 81.2%, white solid, m.p.: 133-135℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.35 – 7.10 (m, 2H, Ar-H), 7.11 – 6.72 (m, 6H, Ar-H + CHCONH), 5.33 (s, 2H, OCONH + Ar-CH), 4.81 (s, 1H, OCH(CH_3)$_2$), 4.74 (s, 2H, CHCCH$_2$), 4.16 (s, 2H, OCH$_2$Ar), 4.05 (s, 1H, OCONHCH), 3.84 (s, 3H, C_6H_3OCH$_3$), 2.51 (s, 1H, CH$_2$CCH), 2.13 (s, 1H, CHCH(CH_3)$_2$), 1.27 – 1.10 (m, 6H, OCH(CH_3)$_2$), 1.05 – 0.84 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.33, 156.86, 156.39, 149.69, 146.39, 132.78, 129.44, 126.23, 118.81, 115.87, 114.15, 110.94, 78.50, 75.93, 70.18, 68.65, 60.55, 56.72, 55.89, 52.01, 30.98, 22.04, 19.37, 18.17; HRMS (ESI) m/z Calcd for $C_{27}H_{34}ClN_2O_6^+$ $[M+H]^+$ 517.2100, found 517.2103.

isopropyl((2S)-1-(((R, S)-1-(3-methoxy-4-(prop-2-yn-1-yloxy)phenyl)-2-(p-tolyloxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8t: yield: 78.9%, white solid, m.p.: 159-161℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.08 (d, J = 6.0 Hz, 2H, Ar-H), 6.97 (d, J = 16.0 Hz, 4H, Ar-H + CHCONH), 6.78 (s, 2H, Ar-H), 5.33 (s, 2H, OCONH + Ar-CH), 4.86 (s, 1H, OCH(CH_3)$_2$), 4.75 (s, 2H, CHCCH$_2$), 4.19 (s, 2H, OCH$_2$Ar), 4.06 (s, 1H, OCONHCH), 3.86 (s, 3H, C_6H_3OCH$_3$), 2.52 (s, 1H, CH$_2$CCH), 2.30 (s, 3H, Ar-CH$_3$), 2.16 (s, 1H, CHCH(CH_3)$_2$), 1.31 – 1.07 (m, 6H, OCH(CH_3)$_2$), 1.07 – 0.86 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.18, 156.16, 149.67, 146.30, 133.19, 132.93, 130.66, 129.99, 118.88, 114.47, 114.20, 110.94, 78.55, 75.87, 70.10, 68.66, 60.50, 56.73, 55.87, 52.30, 31.10, 22.05, 20.50, 19.37, 18.13, 17.73; HRMS (ESI) m/z Calcd for $C_{28}H_{37}N_2O_6^+$ $[M+H]^+$ 497.2646, found 497.2648.

isopropyl((2S)-1-(((R, S)-1-(3-methoxy-4-(prop-2-yn-1-yloxy)phenyl)-2-(4-methoxyphenoxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8u: yield: 77.4%, white solid, m.p.: 147-149℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.87 (dd, J = 26.2, 8.8 Hz, 4H, Ar-H + CHCONH), 6.72 (s, 4H, Ar-H), 5.21 (d, J = 8.3 Hz, 2H, OCONH + Ar-CH), 4.77 (s, 1H, OCH(CH_3)$_2$), 4.64 (d, J = 6.7 Hz, 2H, CHCCH$_2$), 4.07 (d, J = 3.9 Hz, 2H, OCH$_2$Ar), 3.96 (s, 1H, OCONHCH), 3.76 (s, 3H, C_6H_3OCH$_3$), 3.67 (s, 3H, C_6H_4OCH$_3$), 2.42 (s, 1H, CH$_2$CCH), 2.06 (s, 1H, CHCH(CH_3)$_2$), 1.11 (d, J = 6.2 Hz, 6H, OCH(CH_3)$_2$), 0.86 (dd, J = 35.7, 6.8 Hz, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.20, 156.37, 154.35, 152.38, 149.64, 146.28, 133.20,

118.98, 115.83, 115.67, 114.69, 114.17, 110.96, 78.55, 75.86, 70.78, 68.57, 60.30, 56.74, 55.86, 55.70, 52.32, 31.05, 22.04, 19.36, 17.75; HRMS (ESI) m/z Calcd for $C_{28}H_{37}N_2O_7^+$ $[M+H]^+$ 513.2595, found 513.2594.

isopropyl((2S)-1-(((R, S)-1-(3-methoxy-4-(prop-2-yn-1-yloxy)phenyl)-2-(2-methoxyphenoxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 8v: yield: 78.1%, white solid, m.p.: 177-179℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.10 – 6.71 (m, 8H, Ar-H + CHCONH), 5.17 (s, 2H, OCONH + Ar-CH), 4.79 (s, 1H, OCH$(CH_3)_2$), 4.66 (s, 2H, CHCCH_2), 4.15 (s, 2H, OCH_2Ar), 3.98 (d, J = 23.0 Hz, 1H, OCONHCH), 3.79 (s, 6H, $C_6H_3OCH_3$ +*o*-$C_6H_4OCH_3$), 2.42 (s, 1H, CH_2CCH), 2. CHCH(CH_3)$_2$08 (s, 1H, CHCH$(CH_3)_2$), 1.13 (s, 6H, OCH(CH_3)$_2$), 0.83 (d, J = 24.1 Hz, 6H, CHCH(CH_3)$_2$). ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.96, 156.29, 150.22, 149.60, 147.93, 146.25, 133.41, 122.78, 121.14, 121.05, 119.10, 116.33, 115.94, 114.19, 112.34, 111.00, 78.60, 75.79, 72.71, 68.53, 60.08, 56.74, 55.93, 52.67, 31.51, 22.07, 19.31, 17.96, 17.59; HRMS (ESI) m/z Calcd for $C_{28}H_{37}N_2O_7^+$ $[M+H]^+$ 513.2595, found 513.2597.

((2S)-1-(((R, S)-1-(3,4-dimethoxyphenyl)-2-(4-fluorophenoxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamic acid 9: yield:97.2%, light yellow solid, m.p.: 75 - 78℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 6.93 (t, *J*= 8.5 Hz, 4H, Ar-H), 6.86 – 6.74 (m, 3H, Ar-H), 6.04 (d, *J*= 24.4 Hz, 1H, CHCONH), 5.38 (s, 1H, OCONH), 4.95 (d, *J*= 24.5 Hz, 1H, Ar-CH), 4.35 – 4.16 (m, 1H, OCONHCH), 4.14 – 4.01 (m, 2H, CHCH_2O), 3.84 (s, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.18 – 2.03 (m, 1H, CHCH$(CH_3)_2$), 0.81 (ddd, *J*= 35.2, 28.0, 6.6 Hz, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 176.10, 158.58, 156.34, 154.28, 149.23, 148.75, 131.69, 119.10, 116.00, 115.81, 111.36, 110.25, 71.72, 58.42, 55.90, 54.03, 30.61, 19.09, 17.55; HRMS (MALDI) m/z Calcd for $C_{27}H_{38}N_2O_6Na^+$ $[M+Na]^+$ 457.1745, found 457.1748.

1-(3,4-dimethoxyphenyl)-2-hydroxyethan-1-one 10: yield:97.3%, white solid, m.p.: 83 - 84℃ [Ref.:87-88℃][4]. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.60 – 7.43 (m, 2H, Ar-H), 6.92 (d, *J* = 8.2 Hz, 1H, Ar-H), 4.85 (s, 2H, CH_2), 3.97 (s, 3H, Ar-*m*-OCH_3), 3.96 (s, 3H, Ar-*p*-OCH_3), 3.60 (s, 1H, OH).

1-(3,4-dimethoxyphenyl)-2-hydroxyethan-1-one oxime 11: yield:82.7%, white solid, m.p.: 136-140℃. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.34 – 7.15 (m, 2H, Ar-H), 6.92 (dd, *J* = 13.9, 8.3 Hz, 1H, Ar-H), 4.76 (s, 2H, CH_2), 3.95 – 3.91 (m, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3).

2-amino-2-(3,4-dimethoxyphenyl)ethan-1-ol 12：yield:68.5%, light yellow solid, m.p.: 110 - 120℃, [Ref.: 92-94℃][5]. ^{1}H NMR (400 MHz, DMSO) δ 8.44 (s, 3H, NH_3^+), 7.22 (s, 1H, Ar-H), 7.07 – 6.88 (m, 2H, Ar-H), 5.54 (s, 1H, CH), 4.17 (s, 1H, OH), 3.77 (s, 3H, Ar-*m*-OCH_3), 3.75 (s, 3H, Ar-*p*-OCH_3), 3.68 (s, 2H, CH_2).

isopropyl ((2S)-1-((1-(3,4-dimethoxyphenyl)-2-hydroxyethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 13: yield: 81.8%, white solid, m.p.: 179 - 183℃. ^{1}H NMR

(300 MHz, $CDCl_3$) δ 7.09 – 6.59 (m, 4H, Ar-H + CHCONH), 5.32 (dd, *J* = 45.8, 8.1 Hz, 1H, OCONH), 4.96 (d, *J* = 4.8 Hz, 1H, Ar-CH), 4.77 (d, *J* = 5.8 Hz, 1H, OCH(CH_3)$_2$), 3.78 (s, 8H, CH_2O + Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 2.14 – 1.90 (m, 1H, CHCH(CH_3)$_2$), 1.15 (d, *J* = 5.6 Hz, 6H, OCH(CH_3)$_2$), 0.99 – 0.75 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 172.01, 156.41, 148.87, 148.18, 131.70, 118.49, 110.93, 110.01, 68.41, 66.03, 63.32, 55.80, 53.72, 30.88, 21.94, 19.44, 17.59; HRMS (MALDI) m/z Calcd for $C_{19}H_{30}N_2O_6Na^+$ $[M+Na]^+$ 405.1996, found 405.1999.

isopropyl((2S)-1-((2-(benzyloxy)-1-(3,4-dimethoxyphenyl)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 14a: yield: 54.9%, white solid, m.p.: 147 - 149°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.32 (dt, *J* = 13.5, 5.6 Hz, 5H, Ar-H), 6.86 (d, *J* = 13.9 Hz, 3H, Ar-H), 6.67 (d, *J* = 7.4 Hz, 1H, CHCONH), 5.21 (d, *J* = 8.2 Hz, 1H, OCONH), 5.15 (d, *J* = 2.7 Hz, 1H, Ar-CH), 4.91 (s, 1H, OCH(CH_3)$_2$), 4.62 – 4.46 (m, 2H, $C_6H_4CH_2$O), 4.01 (dd, *J* = 13.4, 7.1 Hz, 1H, OCONHCH), 3.91 – 3.82 (m, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.74 (d, *J* = 4.2 Hz, 2H, CH_2O), 2.14 (s, 1H, CHCH(CH_3)$_2$), 1.37 – 1.11 (m, 6H, OCH(CH_3)$_2$), 1.04 – 0.81 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.59, 156.03, 148.83, 148.17, 137.36, 132.17, 128.38, 127.85, 127.68, 118.74, 111.10, 110.32, 73.18, 72.06, 68.57, 60.39, 55.90, 52.27, 31.20, 22.08, 19.25, 17.66; HRMS (MALDI) m/z Calcd for $C_{26}H_{36}N_2O_6Na^+$ $[M+Na]^+$ 495.2466, found 495.2458.

isopropyl((2S)-1-((1-(3,4-dimethoxyphenyl)-2-((4-fluorobenzyl)oxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 14b： yield: 55.7%, white solid, m.p.: 113 - 115°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.33 – 7.12 (m, 2H, Ar-H), 7.11 – 6.89 (m, 2H, Ar-H), 6.75 (dt, *J* = 14.6, 4.3 Hz, 3H, Ar-H), 6.58 (dd, *J* = 14.6, 7.7 Hz, 1H, CHCONH), 5.18 – 4.97 (m, 2H, OCONH+Ar-CH), 4.82 (dd, *J* = 12.4, 6.2 Hz, 1H, OCH(CH_3)$_2$), 4.51 (d, *J* = 2.6 Hz, 2H, $C_6H_4CH_2$O), 3.98 – 3.84 (m, 1H, OCONHCH), 3.77 (d, *J* = 5.1 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.68 (d, *J* = 4.4 Hz, 2H, CH_2O), 2.03 (d, *J* = 5.4 Hz, 1H, CHCH(CH_3)$_2$), 1.24 – 1.05 (m, 6H, OCH(CH_3)$_2$), 0.91 – 0.73 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.87, 162.04, 159.63, 156.28, 148.93, 148.38, 132.24, 130.10, 129.74, 124.10, 119.01, 115.43, 111.06, 110.24, 72.60, 68.56, 66.89, 60.39, 55.79, 52.48, 31.09, 22.12, 19.31, 17.75; HRMS (MALDI) m/z Calcd for $C_{26}H_{35}FN_2O_6Na^+$ $[M+Na]^+$ 513.2371, found 513.2377.

isopropyl((2S)-1-((1-(3,4-dimethoxyphenyl)-2-((3-fluorobenzyl)oxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 14c： yield: 48.3%, white solid, m.p.: 152 - 155°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.29 – 7.15 (m, 1H, Ar-H), 6.98 – 6.84 (m, 3H, Ar-H), 6.81 – 6.70 (m, 3H, Ar-H), 6.66 (d, *J* = 7.5 Hz, 1H, CHCONH), 5.23 – 5.09 (m, 1H, OCONH), 5.06 (s, 1H, Ar-CH), 4.80 (s, 1H, OCH(CH_3)$_2$), 4.43 (dd, *J* = 19.1, 10.4 Hz, 2H, $C_6H_4CH_2$O), 3.93 (dd, *J* = 14.9, 7.5 Hz, 1H, OCONHCH), 3.81 – 3.73 (m, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.68 – 3.56 (m, 2H, CH_2O), 2.05 (d, *J* = 4.3 Hz, 1H, CHCH(CH_3)$_2$), 1.22 – 1.00 (m, 6H, OCH(CH_3)$_2$), 0.93 – 0.71 (m, 6H, CHCH(CH_3)$_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 171.08, 164.11, 161.66, 156.35, 148.91, 148.39, 140.41, 132.03, 129.87, 122.69, 118.94, 114.43, 111.12, 110.24, 72.55, 72.29, 68.54, 60.46, 55.77, 52.42, 31.00, 22.03, 19.32, 18.01; HRMS (MALDI)

m/z Calcd for $C_{26}H_{35}FN_2O_6Na^+$ $[M+Na]^+$ 513.2371, found 513.2376.

isopropyl((2S)-1-((1-(3,4-dimethoxyphenyl)-2-((2-fluorobenzyl)oxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 14d: yield: 52.3%, white solid, m.p.: 113 - 117°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.33 – 7.15 (m, 2H, Ar-H), 7.11 – 6.90 (m, 2H, Ar-H), 6.84 – 6.66 (m, 3H, Ar-H), 6.64 (t, *J* = 7.4 Hz, 1H, CHCONH), 5.14 (s, 1H, OCONH), 5.09 – 4.98 (m, 1H, Ar-CH), 4.86 – 4.68 (m, 1H, OCH$(CH_3)_2$), 4.62 – 4.40 (m, 2H, $C_6H_4CH_2O$), 3.92 (dd, *J* = 14.1, 7.2 Hz, 1H, OCONHCH), 3.76 (dd, *J* = 6.5, 3.2 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.67 (d, *J* = 4.6 Hz, 2H, CHCH_2O), 2.16 – 1.95 (m, 1H, CHCH$(CH_3)_2$), 1.26 – 0.99 (m, 6H, OCH$(CH_3)_2$), 0.92 – 0.72 (m, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.91, 161.97, 159.57, 156.29, 148.91, 148.33, 132.15, 130.13, 129.64, 124.05, 118.88, 115.29, 111.05, 110.25, 72.47, 68.54, 66.67, 60.31, 55.77, 52.45, 31.03, 22.03, 19.56, 17.56; HRMS (MALDI) m/z Calcd for $C_{26}H_{35}FN_2O_6Na^+$ $[M+Na]^+$ 513.2371, found 513.2379.

isopropyl((2S)-1-((2-((4-chlorobenzyl)oxy)-1-(3,4-dimethoxyphenyl)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 14e: yield: 50.5%, white solid, m.p.: 166 - 168°C. ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.21 (t, *J* = 6.9 Hz, 2H, Ar-H), 7.11 (d, *J* = 8.2 Hz, 2H, Ar-H), 6.74 (dd, *J* = 9.6, 5.4 Hz, 3H, Ar-H), 6.57 (d, *J* = 7.3 Hz, 1H, CHCONH), 5.07 (dd, *J* = 15.0, 9.9 Hz, 2H, OCONH+Ar-CH), 4.79 (td, *J* = 12.6, 6.3 Hz, 1H, OCH$(CH_3)_2$), 4.39 (dt, *J* = 12.2, 9.0 Hz, 2H, $C_6H_4CH_2O$), 3.96 – 3.82 (m, 1H, OCONHCH), 3.82 – 3.72 (m, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.63 (d, *J* = 2.9 Hz, 2H, CHCH_2O), 2.04 (d, *J* = 6.5 Hz, 1H, CHCH$(CH_3)_2$), 1.22 – 1.02 (m, 6H, OCH$(CH_3)_2$), 0.93 – 0.70 (m, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.97, 156.36, 148.89, 148.37, 136.24, 133.51, 132.18, 129.01, 128.56, 118.85, 111.08, 110.31, 72.63, 72.29, 68.58, 60.47, 55.79, 52.43, 30.79, 22.06, 19.34, 17.88; HRMS (MALDI) m/z Calcd for $C_{26}H_{35}ClN_2O_6Na^+$ $[M+Na]^+$ 529.2076, found 529.2077.

isopropyl((2S)-1-((1-(3,4-dimethoxyphenyl)-2-((4-methylbenzyl)oxy)ethyl)amino)-3-methyl-1-oxobutan-2-yl)carbamate 14f: yield: 56.1%, white solid, m.p.: 117 - 119°C. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.08 (s, 4H, Ar-H), 6.76 (q, *J* = 8.2 Hz, 3H, Ar-H), 6.51 (s, 1H, CHCONH), 5.04 (s, 2H, OCONH + Ar-CH), 4.83 (dd, *J* = 12.3, 6.2 Hz, 1H, OCH$(CH_3)_2$), 4.47 – 4.29 (m, 2H, $C_6H_4CH_2O$), 3.92 (s, 1H, OCONHCH), 3.77 (d, *J* = 7.9 Hz, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.62 (d, *J* = 3.9 Hz, 2H, CHCH_2O), 2.27 (s, 3H, $C_6H_4CH_3$), 2.03 (s, 1H, CHCH$(CH_3)_2$), 1.26 – 1.03 (m, 6H, OCH$(CH_3)_2$), 0.82 (tt, *J* = 21.8, 10.9 Hz, 6H, CHCH$(CH_3)_2$); ^{13}C NMR (101 MHz, $CDCl_3$) δ 170.79, 156.21, 148.62, 148.15, 137.38, 134.68, 132.40, 129.13, 127.75, 118.78, 110.99, 110.01, 73.08, 72.07, 60.16, 55.89, 52.45, 31.12, 29.65, 22.09, 21.19, 19.33, 17.65. HRMS (MALDI) m/z Calcd for $C_{27}H_{38}N_2O_6Na^+$ $[M+Na]^+$ 509.2622, found 509.2624.

(5S)-1-benzyl-3-(1-(3,4-dimethoxyphenyl)-2-hydroxyethyl)-5-isopropylimidazolidine-2,4-dione 16: white solid. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.22 (m, *J* = 6.6 Hz, 5H, Ar-H), 6.92 (d, *J* = 10.4 Hz, 2H, Ar-H), 6.73 (d, *J* = 8.4 Hz, 1H, Ar-H), 5.22 – 5.04 (m, 1H, CH_2OH), 5.00 – 4.87 (m, 1H, Ar-CH), 4.40 (d, *J* = 9.1 Hz, 1H, CH_2OH), 4.09 – 3.93 (m, 2H, ArCH_2), 3.77 (s, 6H, Ar-*m*-OCH_3 + Ar-*p*-OCH_3), 3.58 (s, 1H, NCHCO), 2.12 (s, 1H CHCH$(CH_3)_2$), 1.95 (s, 1H, OH), 0.98 (d, *J* = 6.8 Hz, 3H, CHCH$(CH_3)_2$), 0.74 (d, *J* = 10.3 Hz, 3H, CHCH$(CH_3)_2$).

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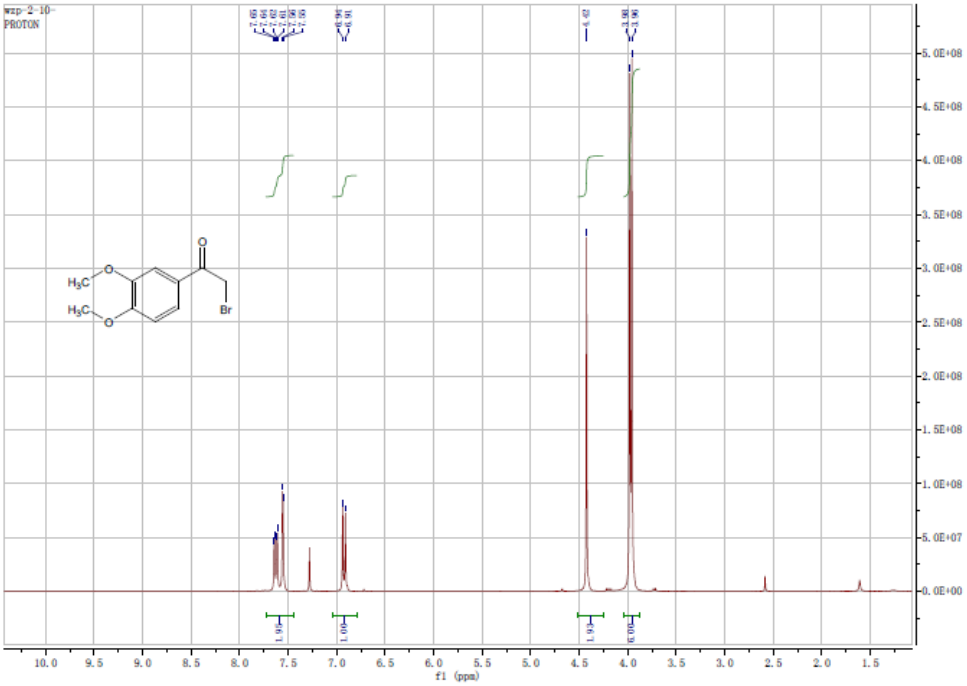
3a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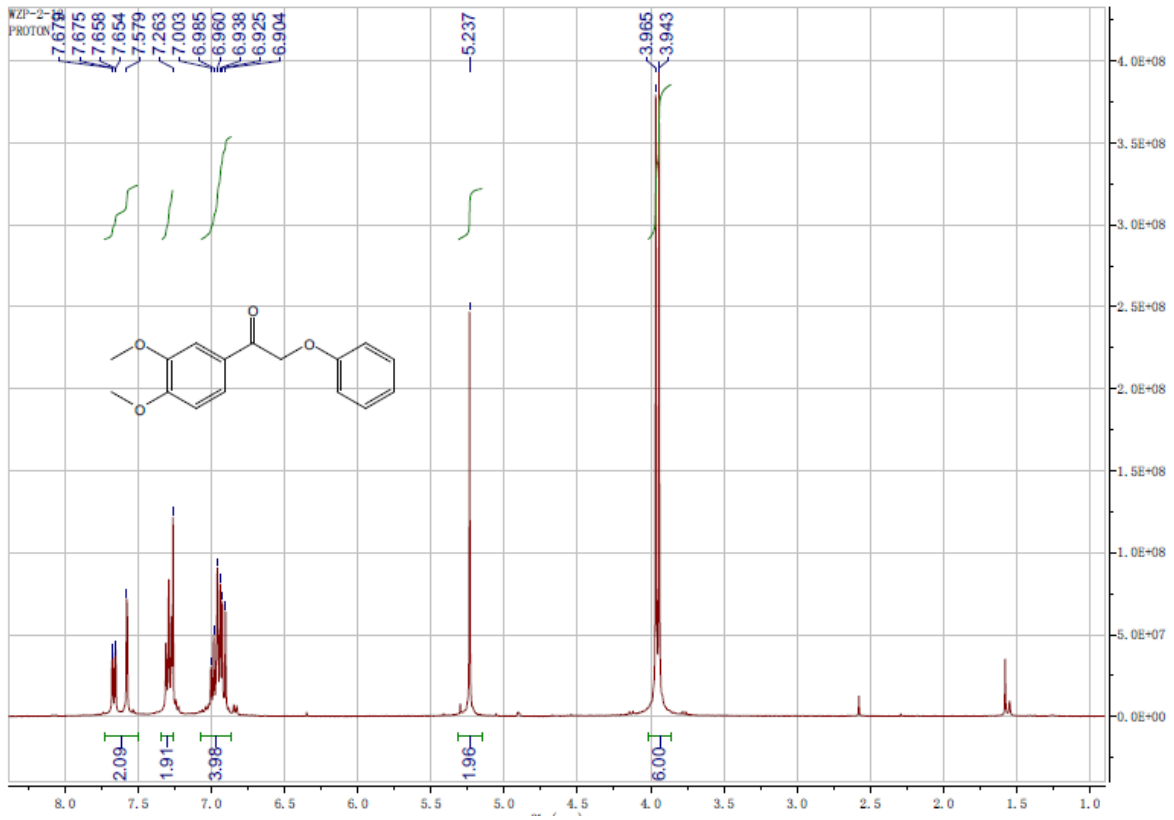
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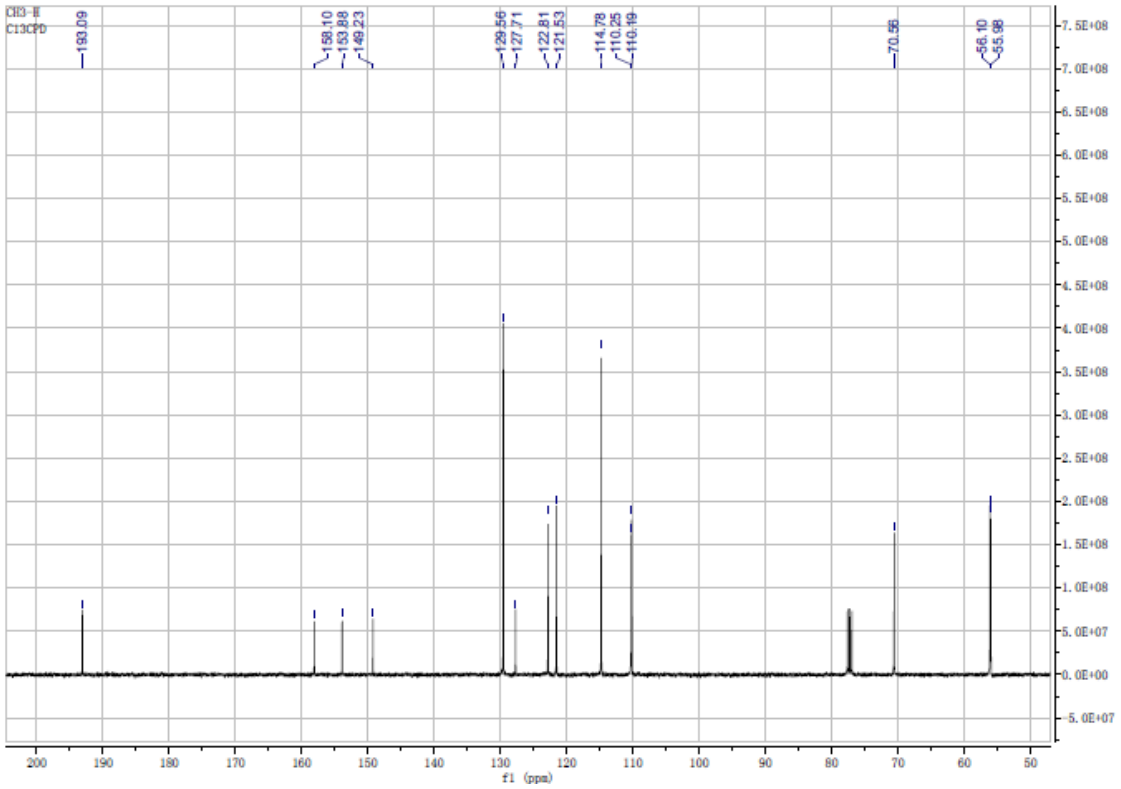
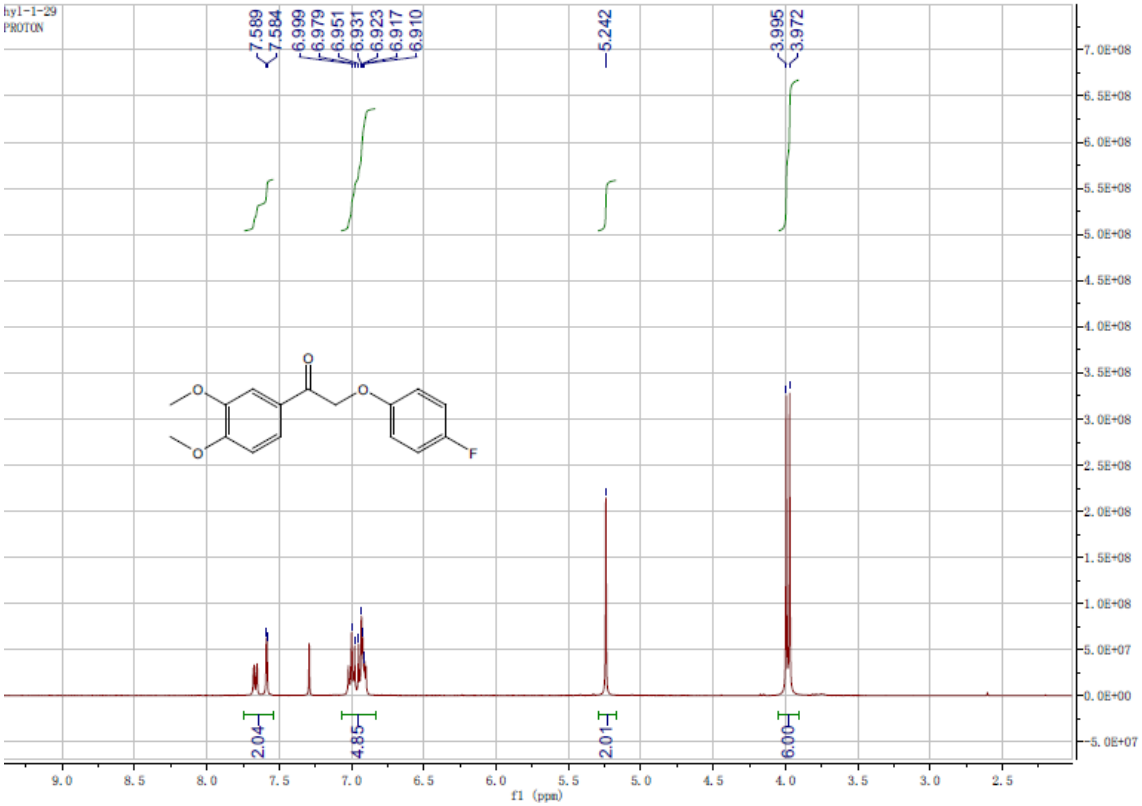
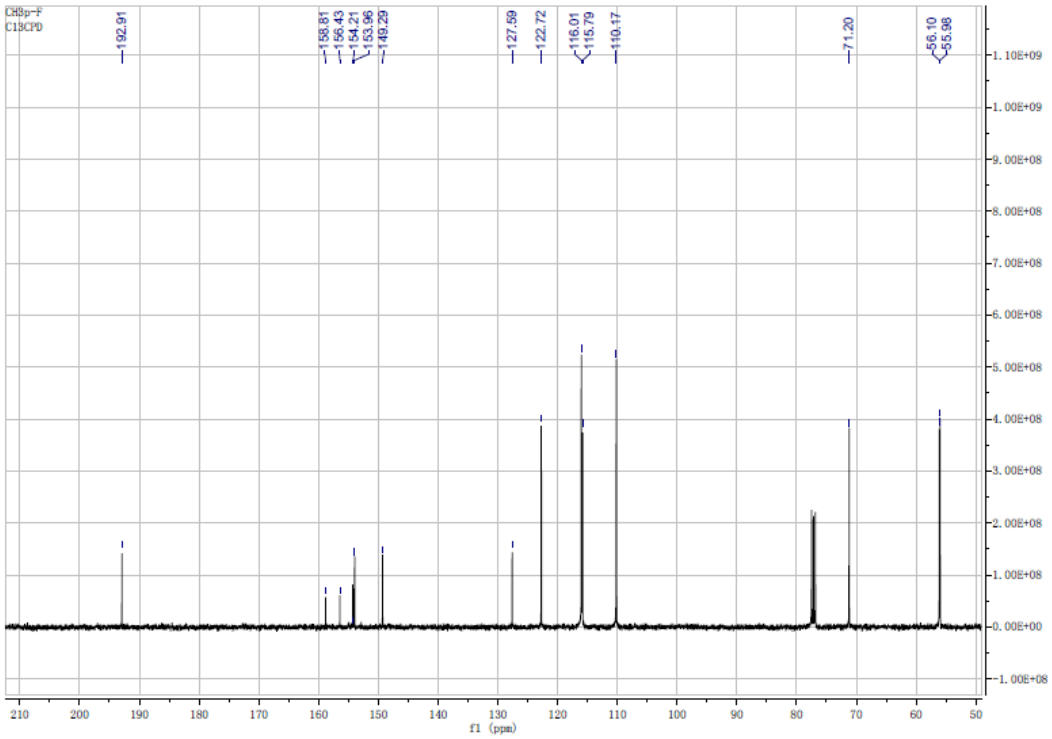
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0

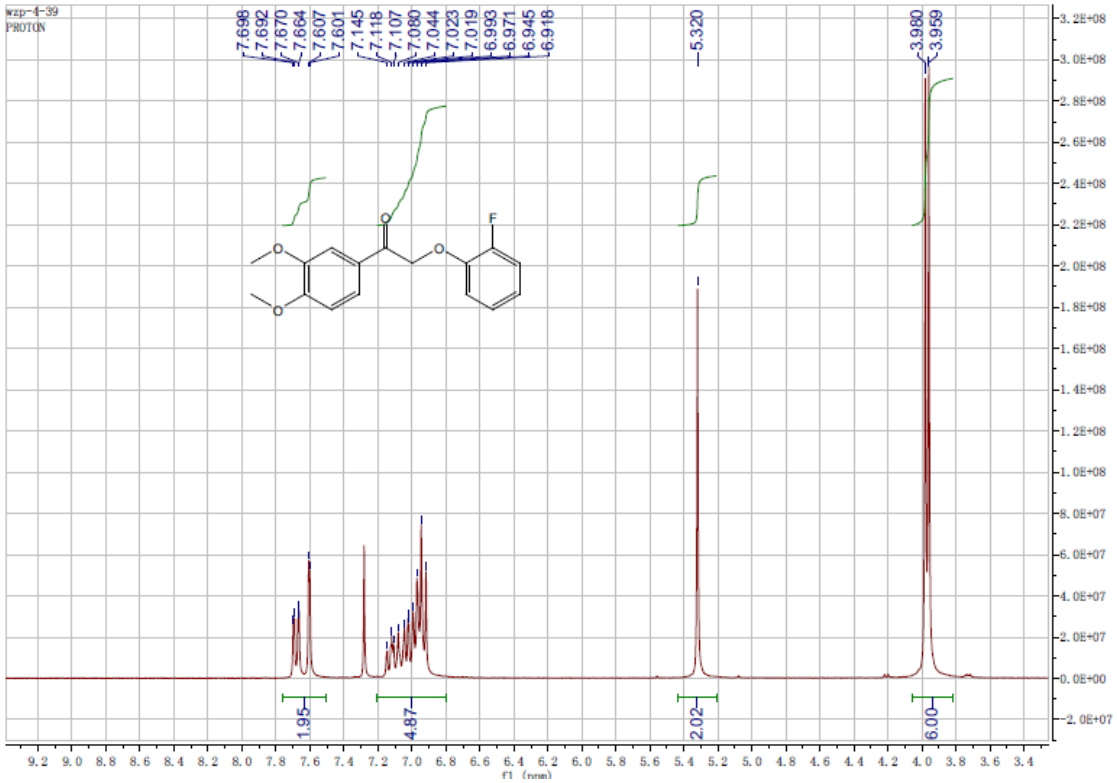

CH3-H
C13CPD
193.09
158.10
153.88
149.23
129.56
127.71
122.81
121.53
114.78
110.25
110.19
70.56
56.10
55.98
f1 (ppm)

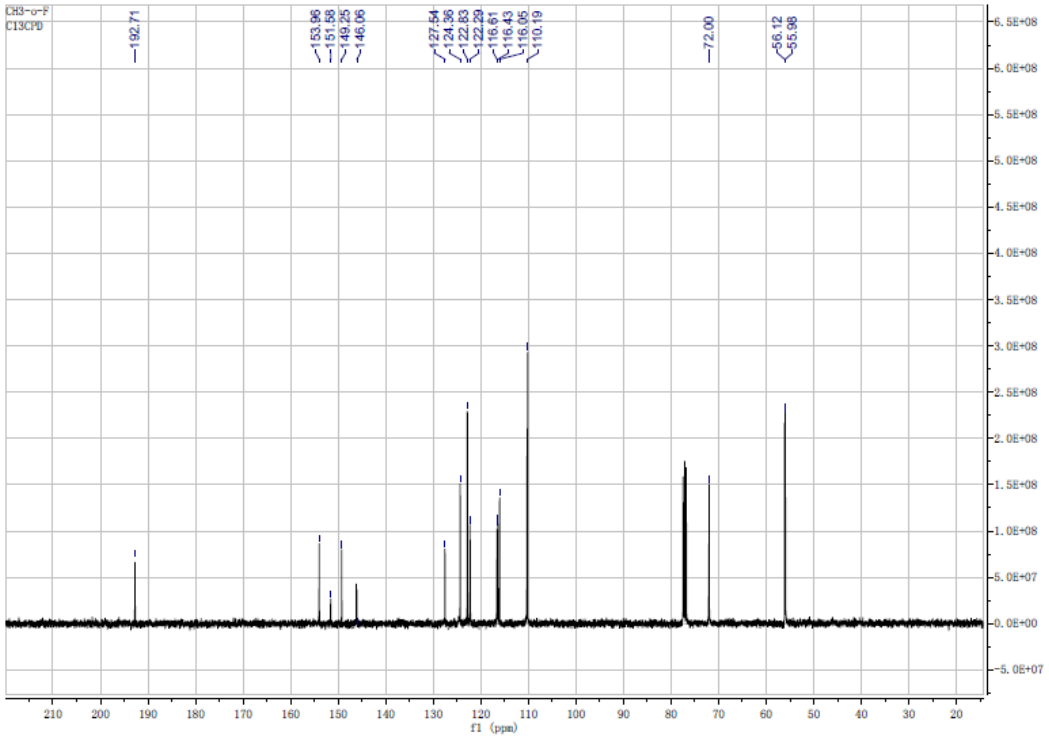
4b


hyl-1-29
PROTON
7.589
7.584
6.999
6.979
6.951
6.931
6.923
6.917
6.910
5.242
3.995
3.972
O
O
O
F
2.04
4.85
2.01
6.00
f1 (ppm)

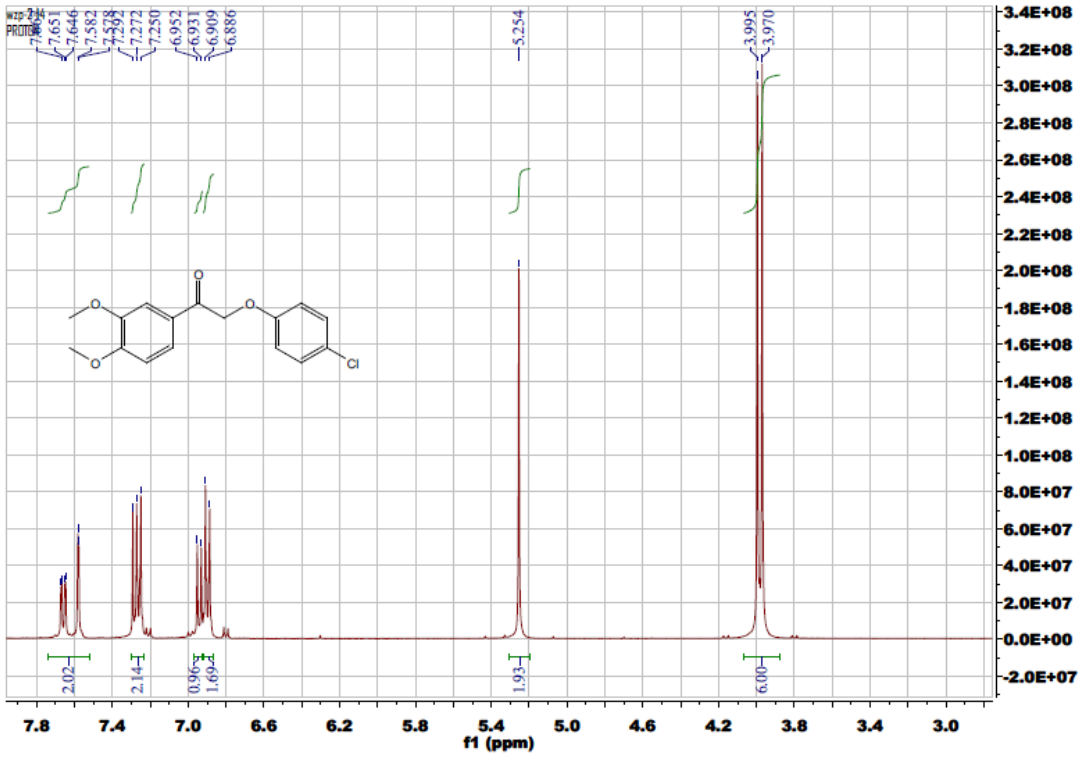

CH8p-F
C13CPD
192.91
158.81
156.43
154.21
153.96
149.29
127.59
122.72
116.01
115.79
110.17
71.20
56.10
55.98
f1 (ppm)

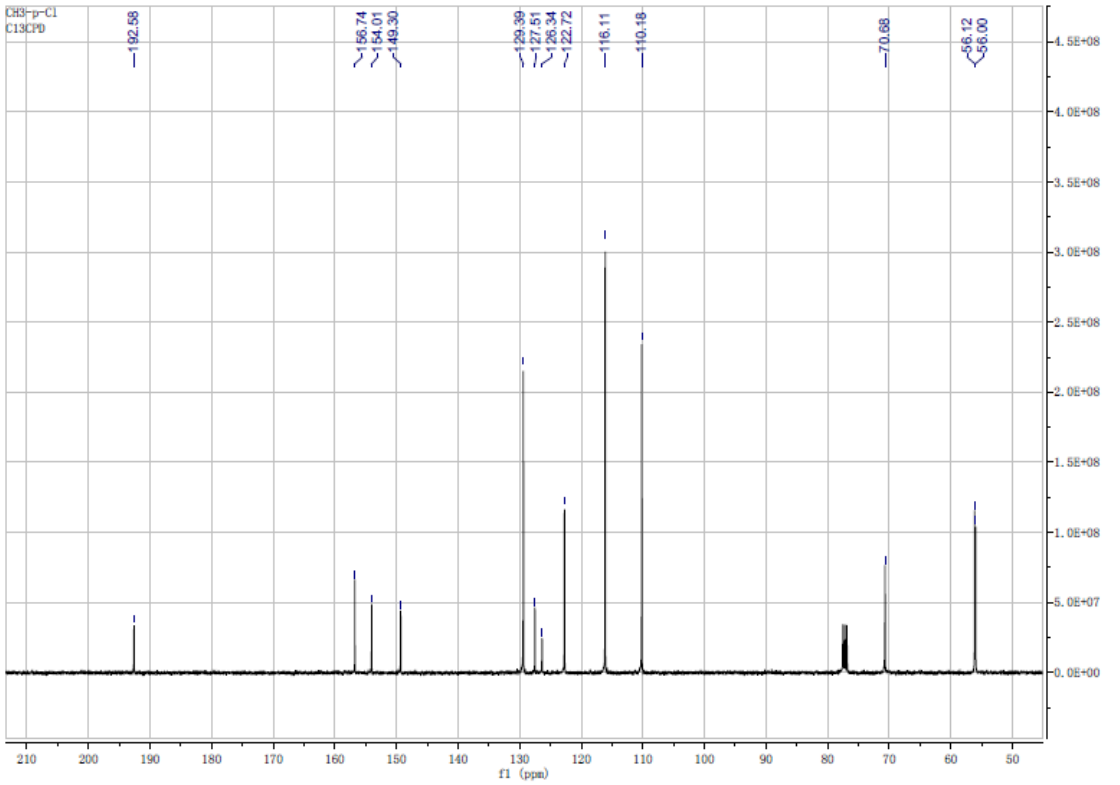
4c


wzp-4-39
PROTON
7.698
7.692
7.670
7.664
7.607
7.601
7.145
7.118
7.107
7.080
7.044
7.023
7.019
6.993
6.971
6.945
6.918
5.320
3.980
3.959
1.95
4.87
2.02
6.00
f1 (ppm)

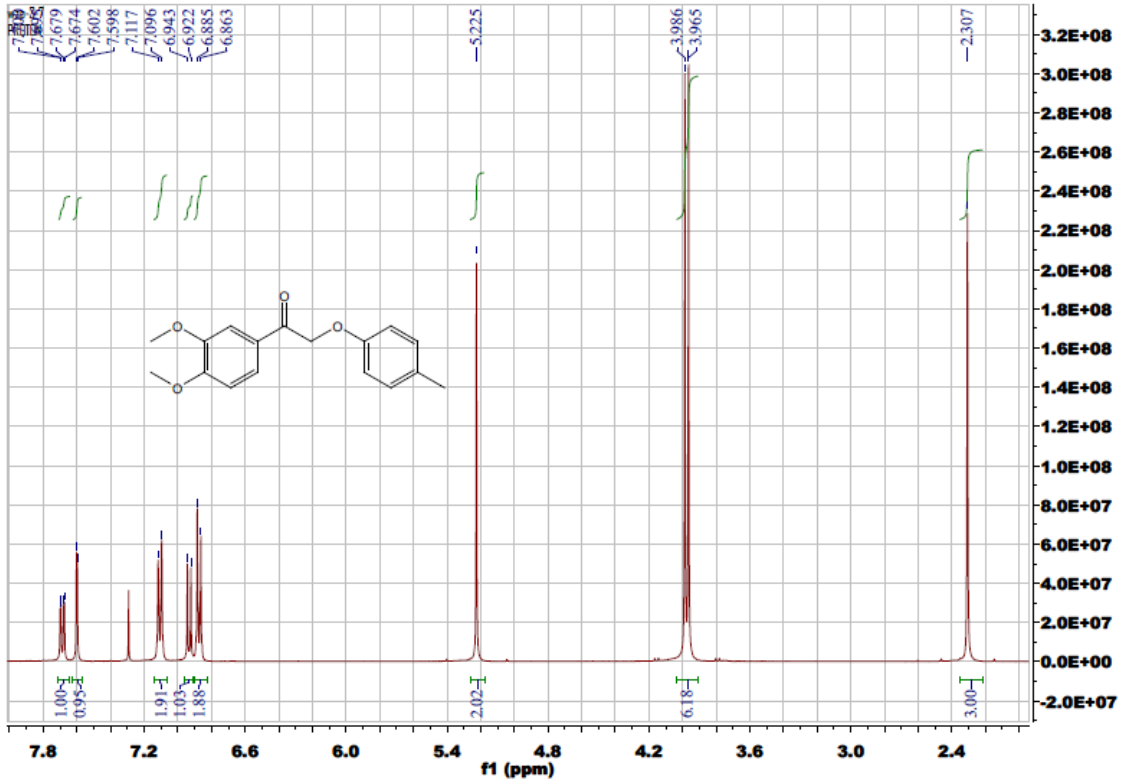

CH3-o-F
C13CPD
192.71
153.96
151.58
149.25
146.06
127.54
124.36
122.83
122.29
116.61
116.43
116.06
110.19
72.00
56.12
55.98
f1 (ppm)

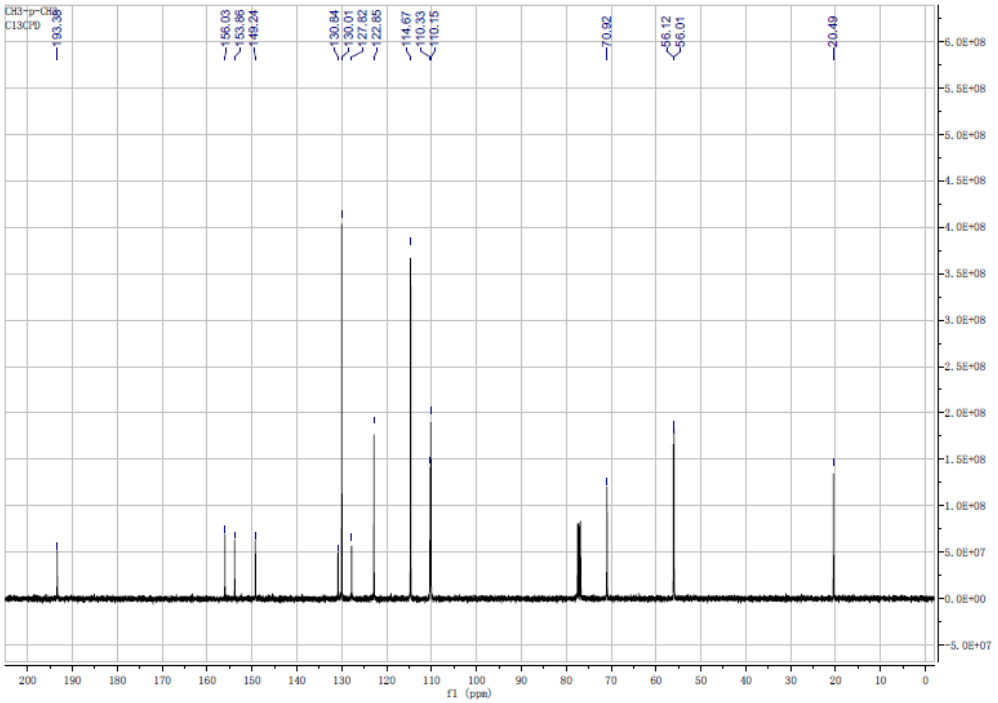
4d


7.651
7.646
7.582
7.272
7.250
6.952
6.931
6.909
6.886
5.254
3.995
3.970
Cl
2.02
2.14
0.96
1.69
1.93
6.00
f1 (ppm)

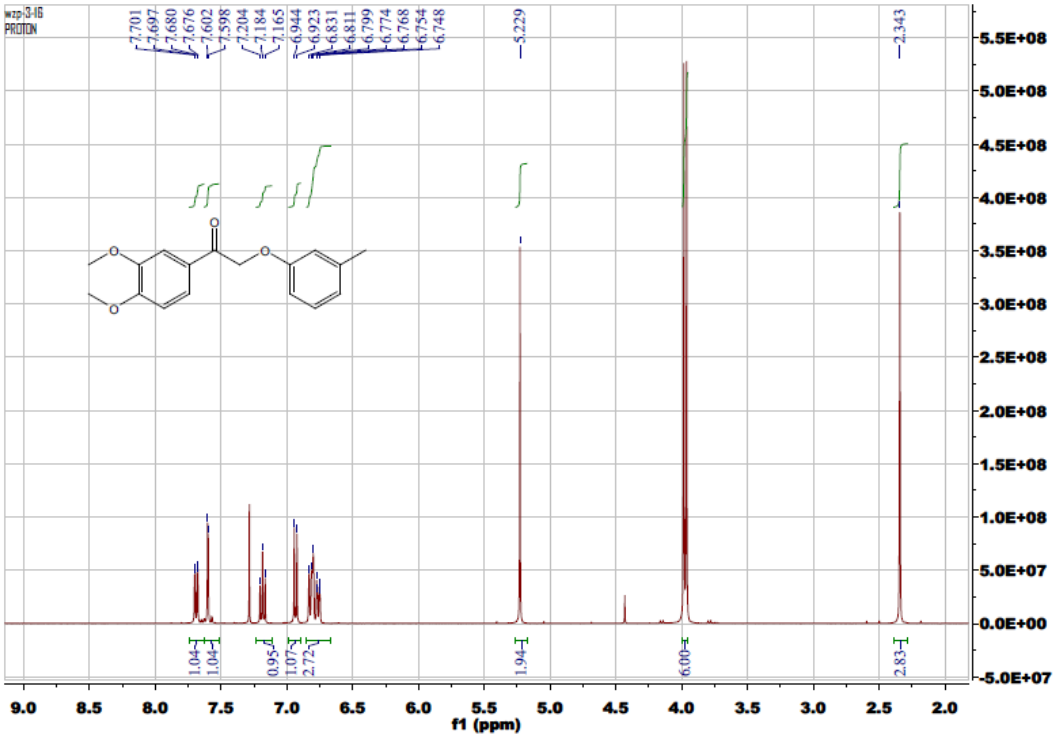

CH3-p-Cl
C13CPD
192.58
156.74
154.01
149.30
129.39
127.51
126.34
122.72
116.11
110.18
70.68
56.12
56.00
f1 (ppm)

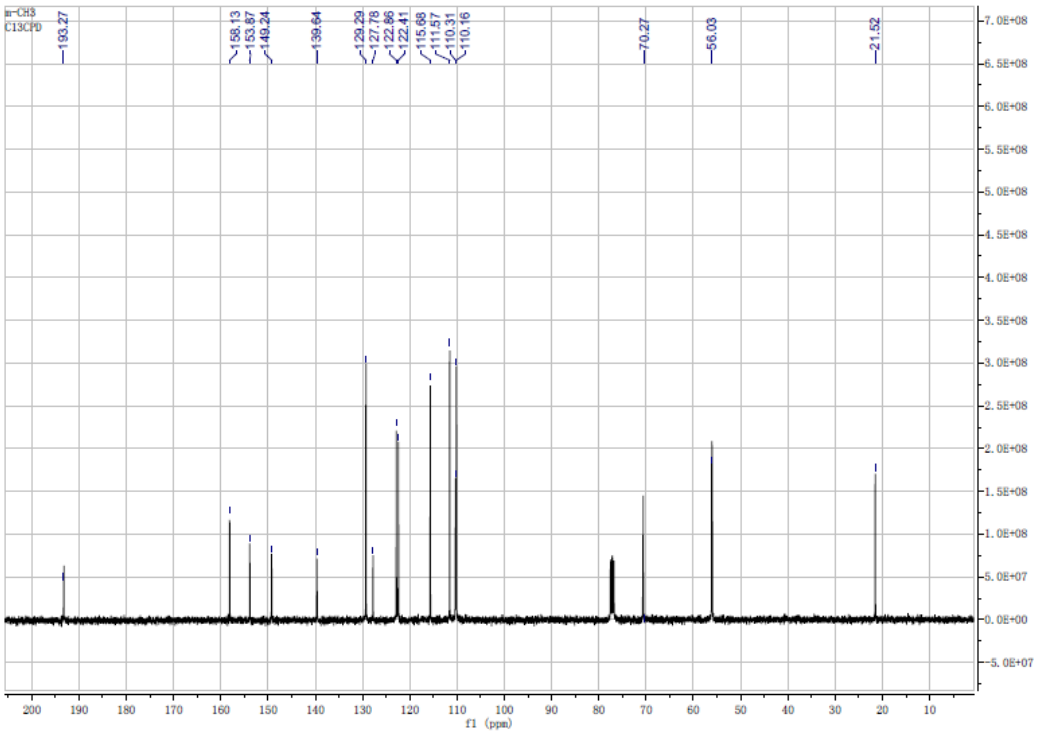
4e


7.679
7.674
7.602
7.598
7.117
7.096
6.943
6.922
6.885
6.863
5.225
3.986
3.965
2.307
1.00
0.95
1.91
1.03
1.88
2.02
6.18
3.00
f1 (ppm)

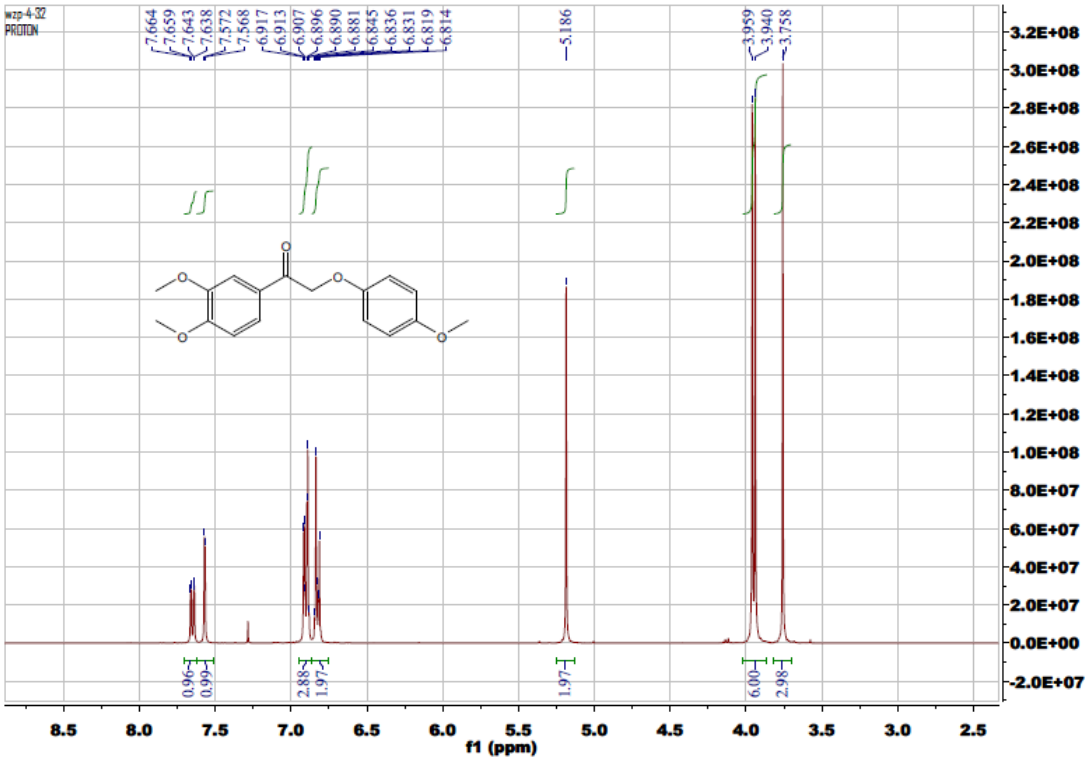

CH3-p-CHO
C13CPD
193.38
156.03
153.86
149.24
130.84
130.01
127.82
122.85
114.67
110.33
110.15
70.92
56.12
56.01
20.49
f1 (ppm)

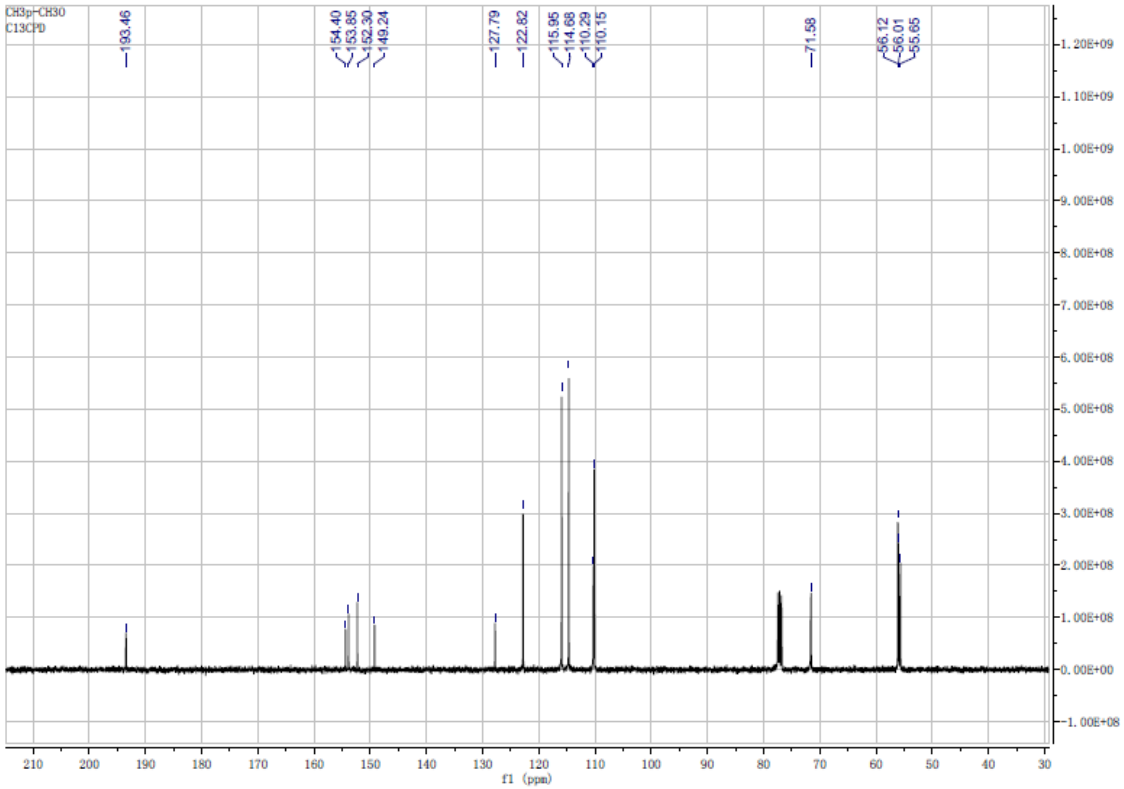
4f


wzp13-16
PROTON
7.701
7.697
7.680
7.676
7.602
7.598
7.204
7.184
7.165
6.944
6.923
6.831
6.811
6.799
6.774
6.768
6.754
6.748
5.229
2.343
1.04
1.04
0.95
1.07
2.72
1.94
6.00
2.83
f1 (ppm)

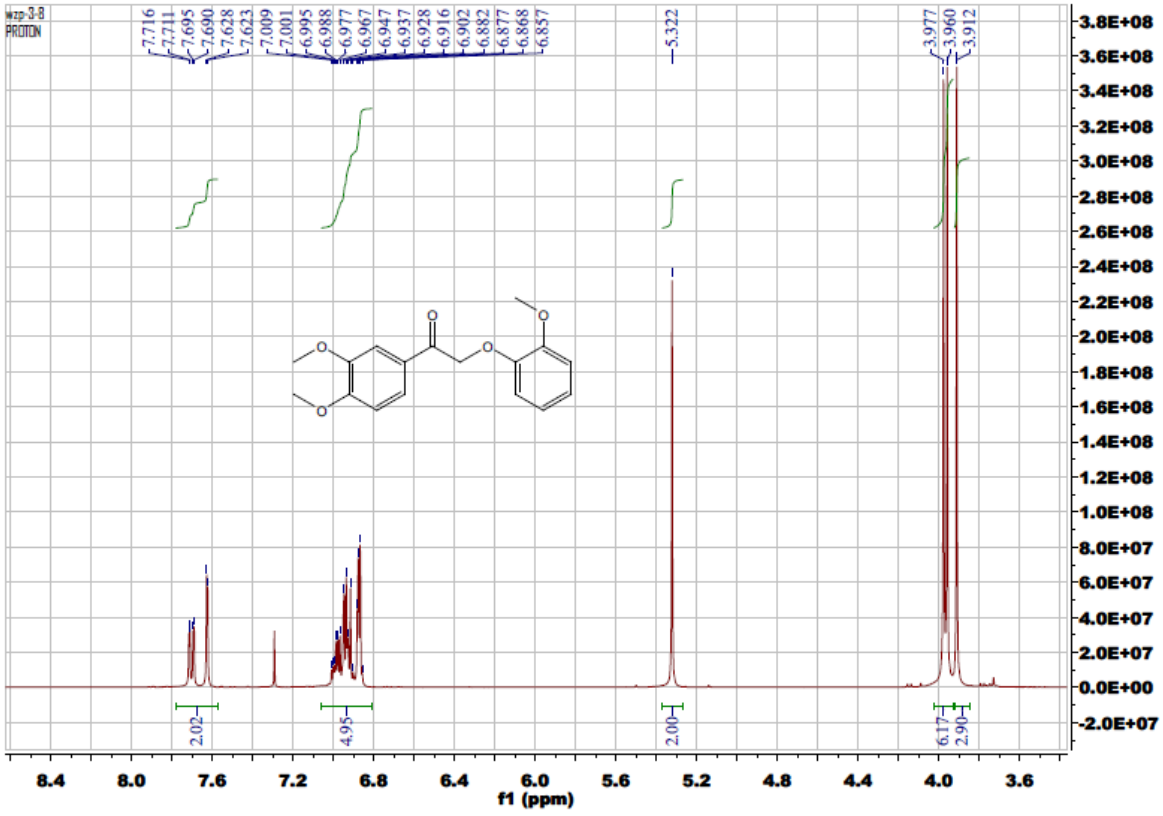

m-CH3
C13CPD
193.27
158.13
153.87
149.24
139.64
129.29
127.78
122.86
122.41
115.68
111.57
110.31
110.16
70.27
56.03
21.52
f1 (ppm)

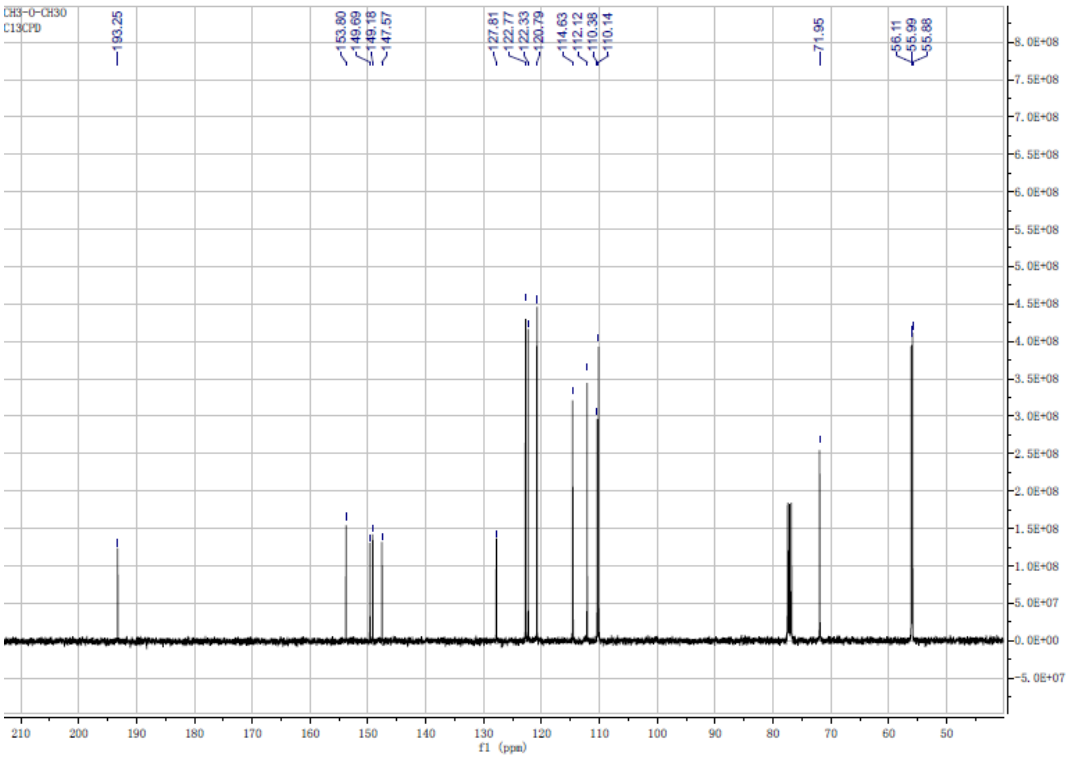
4g


wzp-4-32
PROTON
7.664
7.659
7.643
7.638
7.572
7.568
6.917
6.913
6.907
6.896
6.890
6.881
6.845
6.836
6.831
6.819
6.814
5.186
3.959
3.940
3.758
0.96
0.99
2.88
1.97
1.97
6.00
2.98
f1 (ppm)

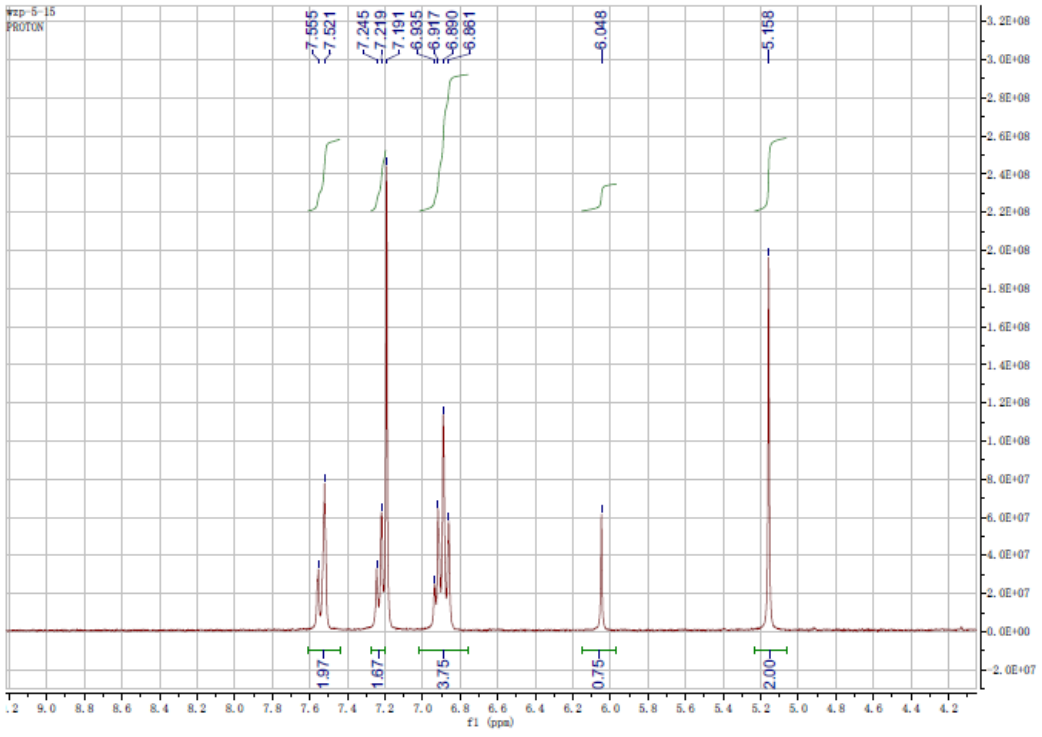

CH3p-CH3O
C13CPD
193.46
154.40
153.85
152.30
149.24
127.79
122.82
115.95
114.68
110.29
110.15
71.58
56.12
56.01
55.65
f1 (ppm)

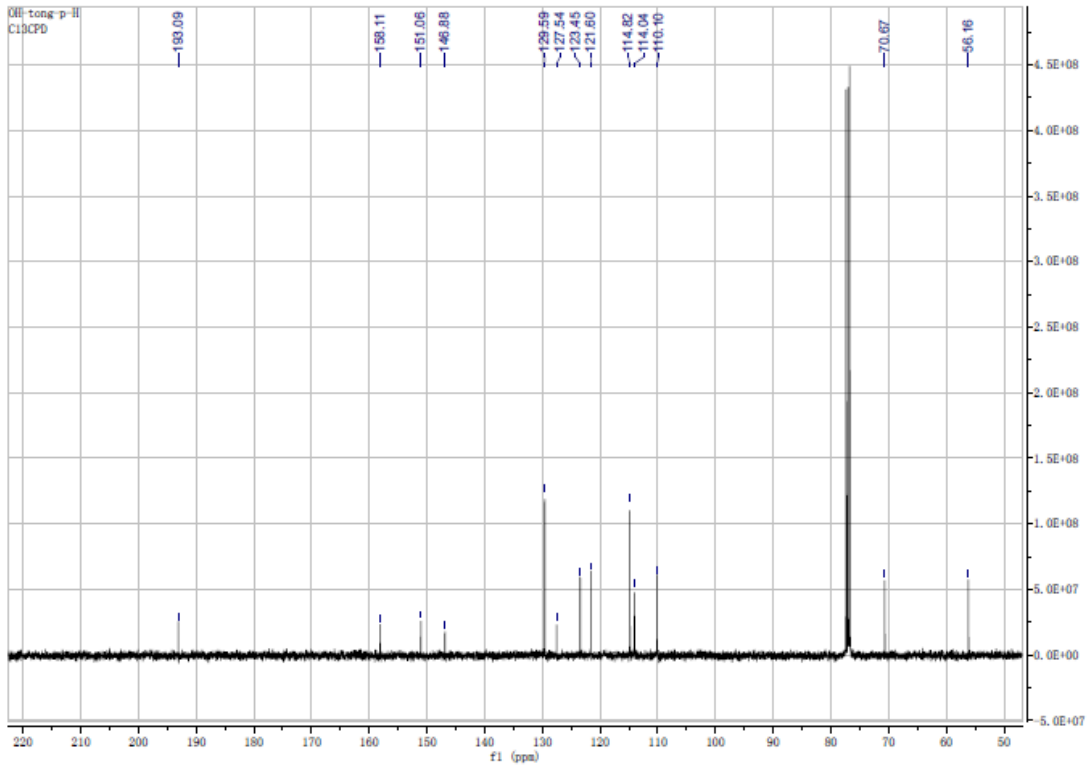
4h


wzp-3-8
PROTON
7.716
7.711
7.695
7.690
7.628
7.623
7.009
7.001
6.995
6.988
6.977
6.967
6.947
6.937
6.928
6.916
6.902
6.882
6.877
6.868
6.857
5.322
3.977
3.960
3.912
2.02
4.95
2.00
6.17
2.90
f1 (ppm)

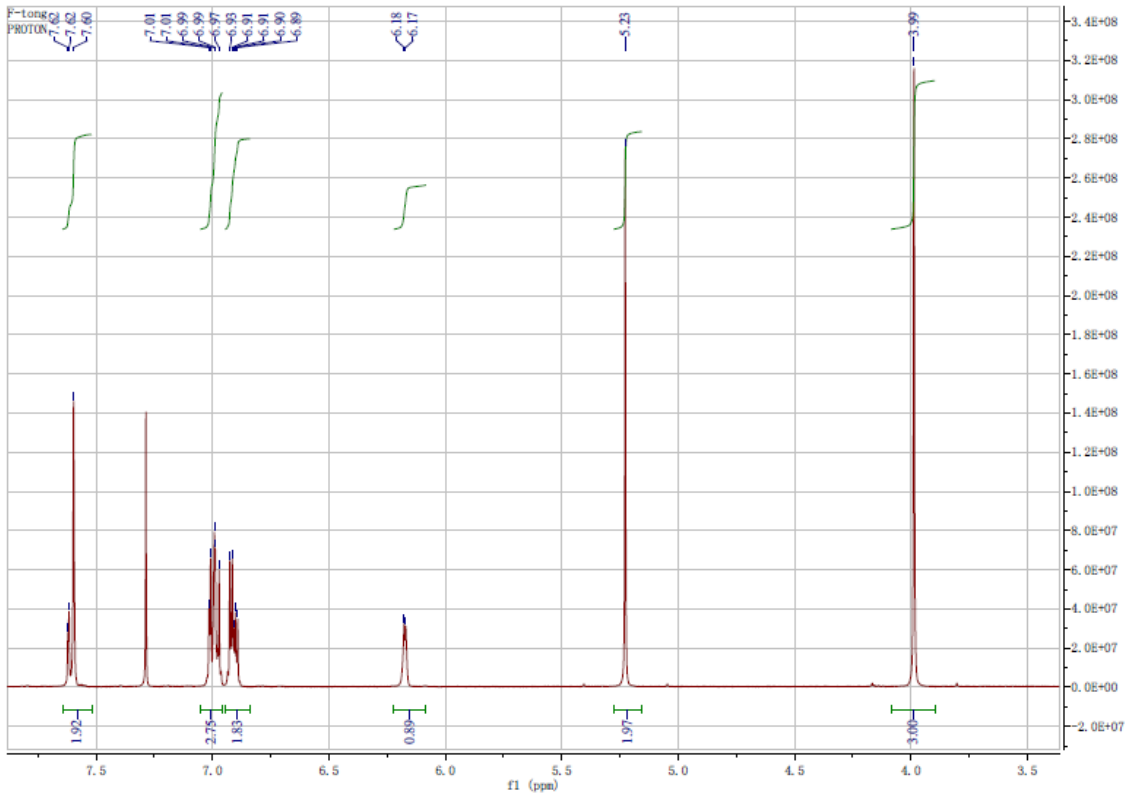

CH3-O-CH3O
C13CPD
193.25
153.80
149.69
149.18
147.57
127.81
122.77
122.33
120.79
114.63
112.12
110.38
110.14
71.95
56.11
55.99
55.88
f1 (ppm)

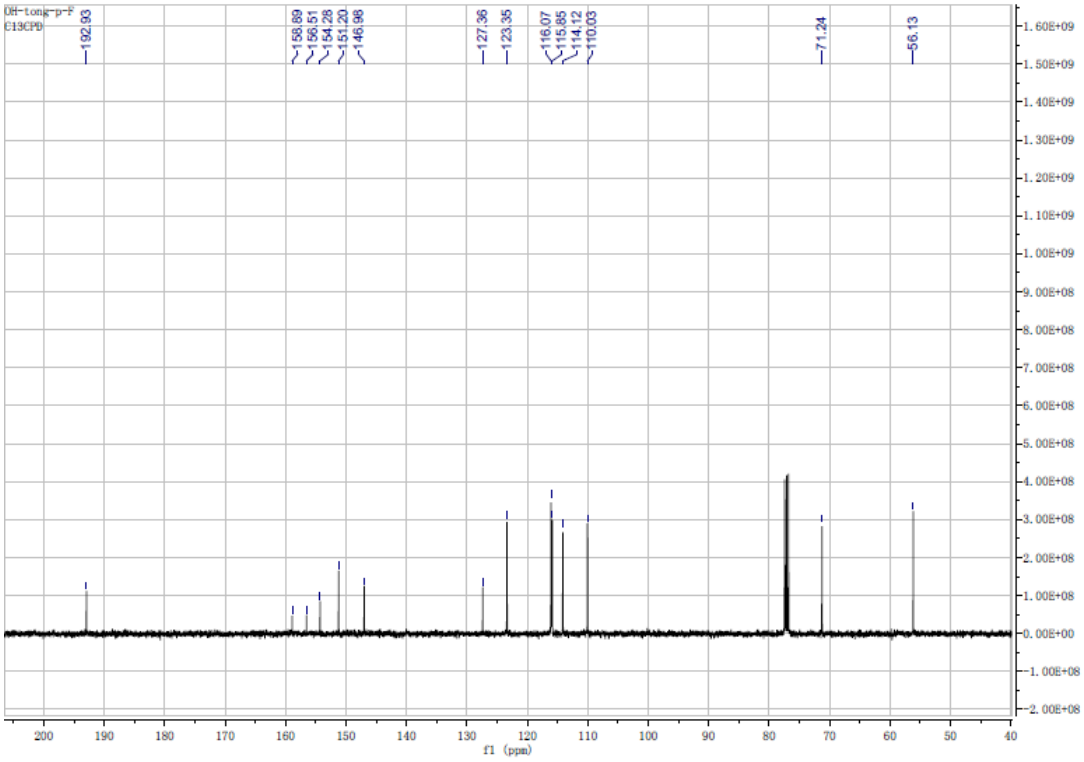
4i


wzp-5-15
PROTON
7.555
7.521
7.245
7.219
7.191
6.935
6.917
6.890
6.861
6.048
5.158
1.97
1.67
3.75
0.75
2.00
f1 (ppm)

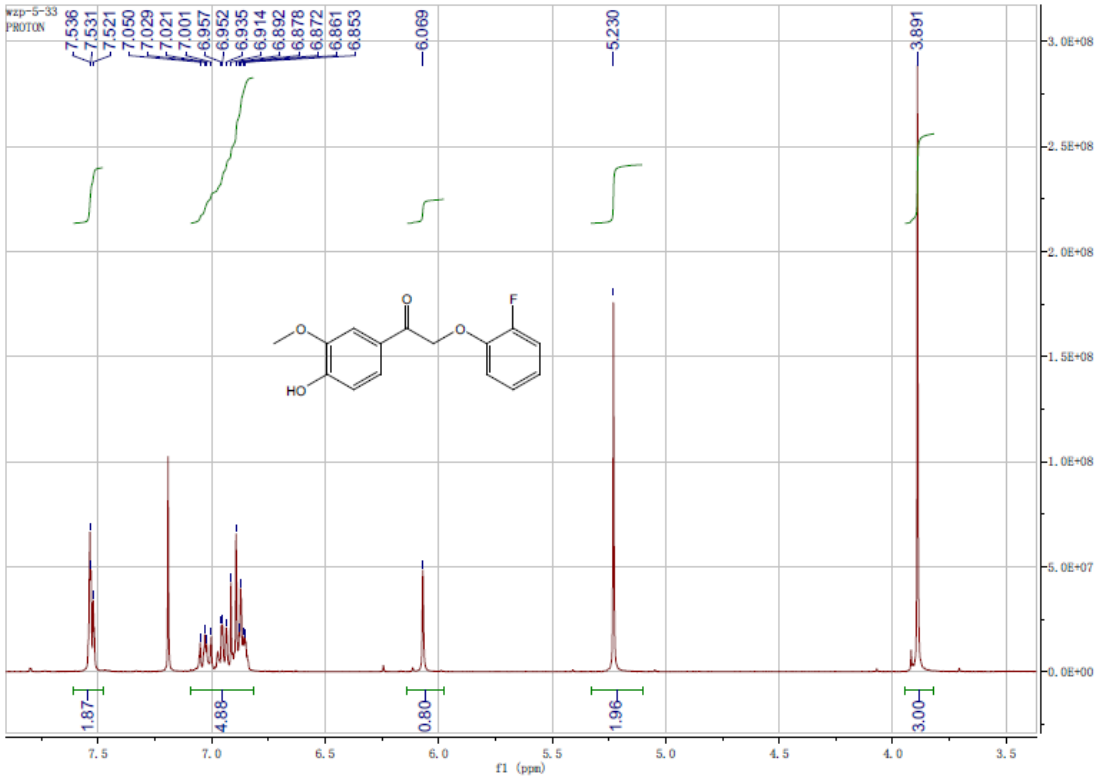

193.09
158.11
151.06
146.88
129.59
127.54
123.45
121.60
114.82
114.04
110.10
70.67
56.16
f1 (ppm)

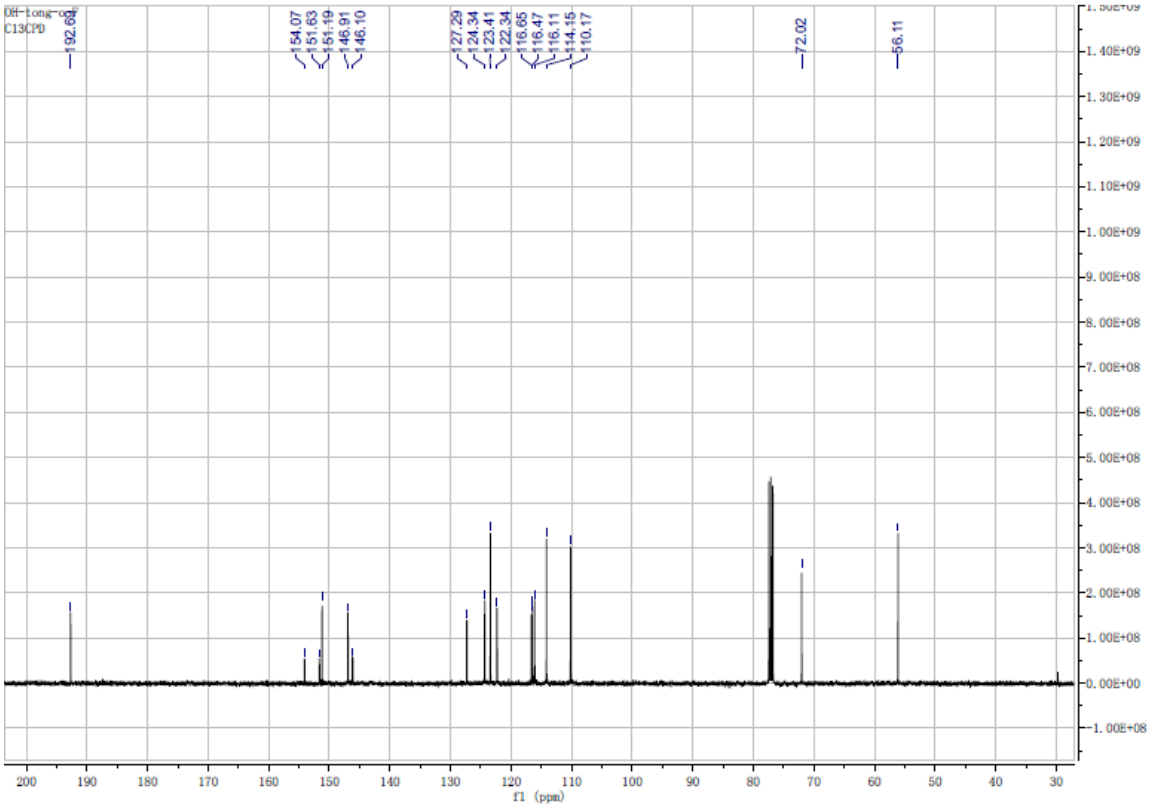
4j


7.62
7.60
7.01
6.99
6.97
6.93
6.91
6.90
6.89
6.18
6.17
5.23
3.99
1.92
2.75
1.83
0.89
1.97
3.00
f1 (ppm)

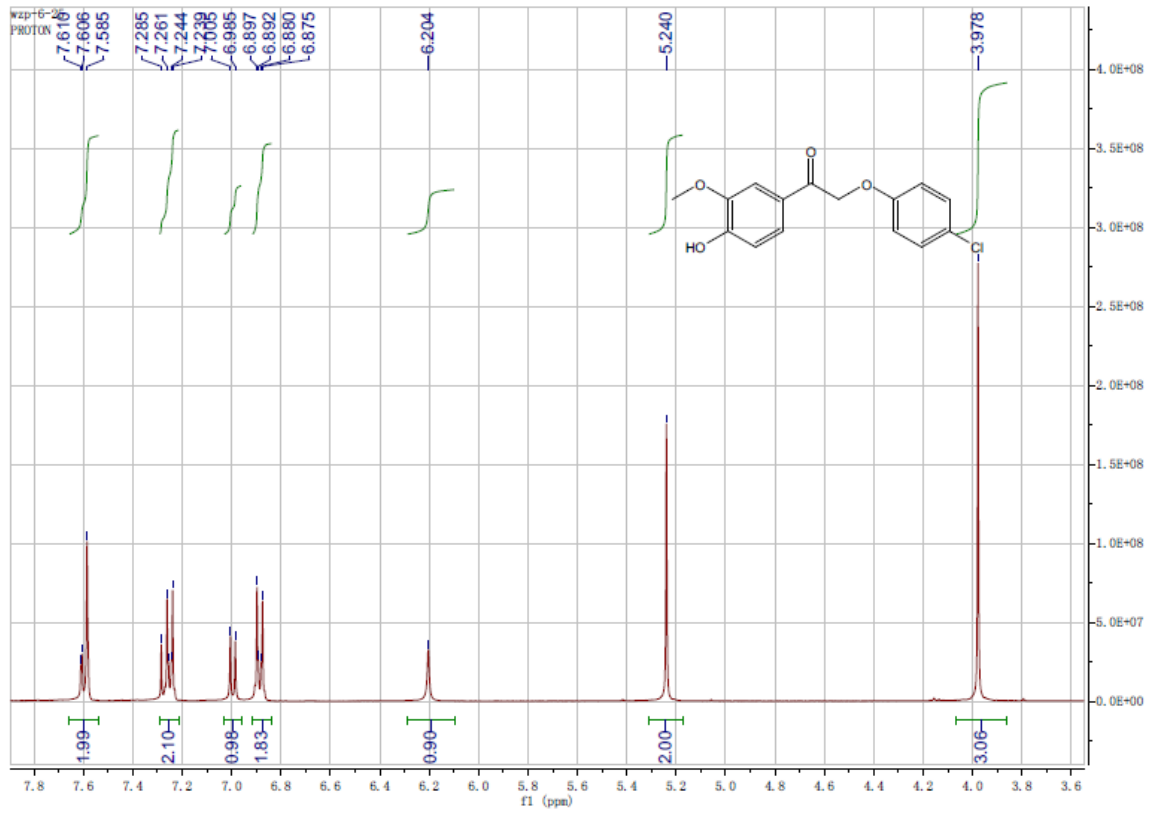

DH-tong-p-F
C13CPD
192.93
158.89
156.51
154.28
151.20
146.96
127.36
123.35
116.07
115.85
114.12
110.03
71.24
56.13
f1 (ppm)

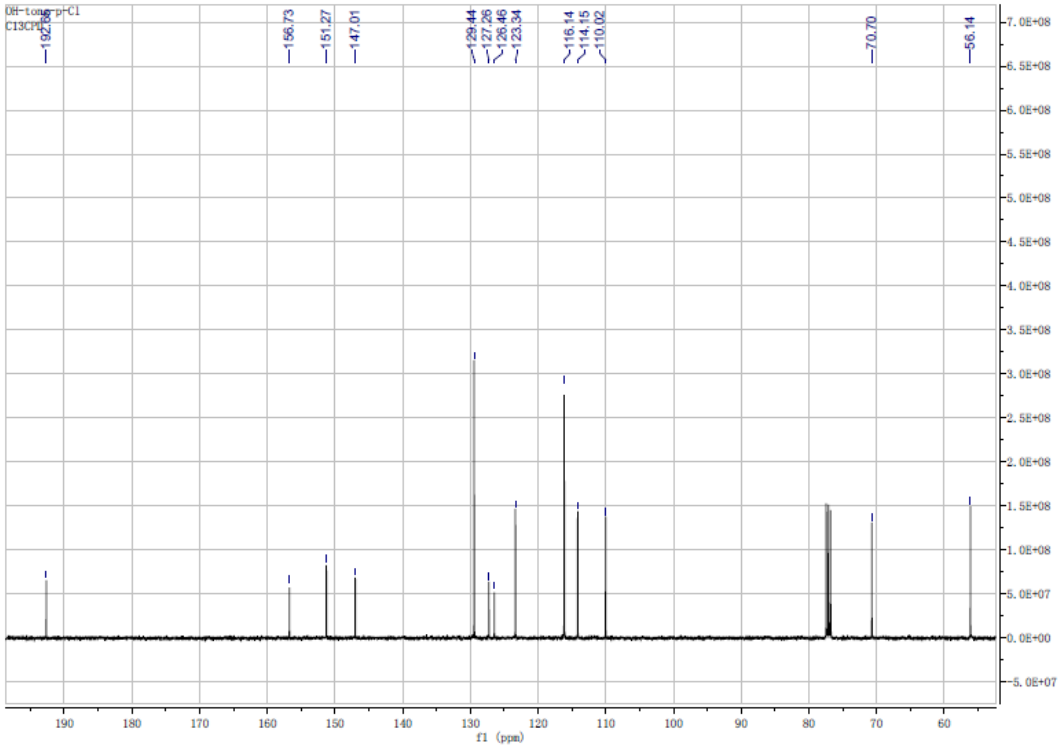
4k


wzp-5-33
PROTON
7.536
7.531
7.521
7.050
7.029
7.021
7.001
6.957
6.952
6.935
6.914
6.892
6.878
6.872
6.861
6.853
6.069
5.230
3.891
O
F
O
O
HO
1.87
4.88
0.80
1.96
3.00
f1 (ppm)

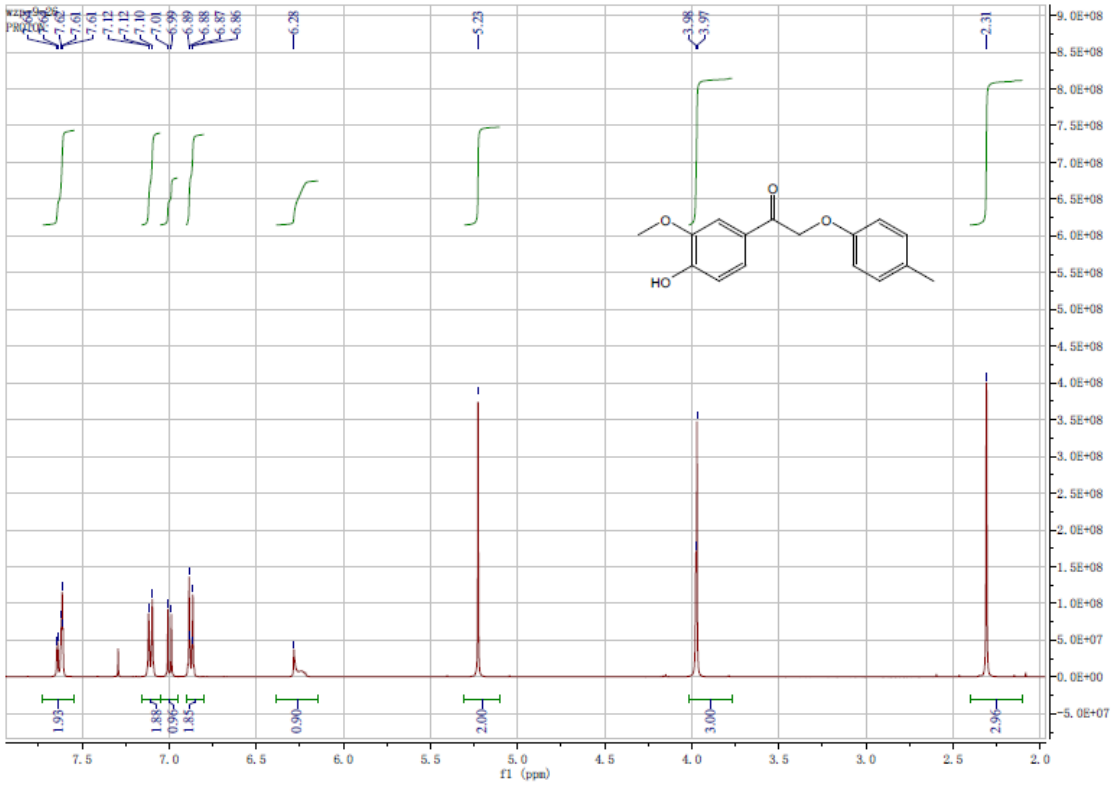

OH-Long-6
C13CPD
192.69
154.07
151.63
151.19
146.91
146.10
127.29
124.34
123.41
122.34
116.65
116.47
116.11
114.15
110.17
72.02
56.11
f1 (ppm)

4l

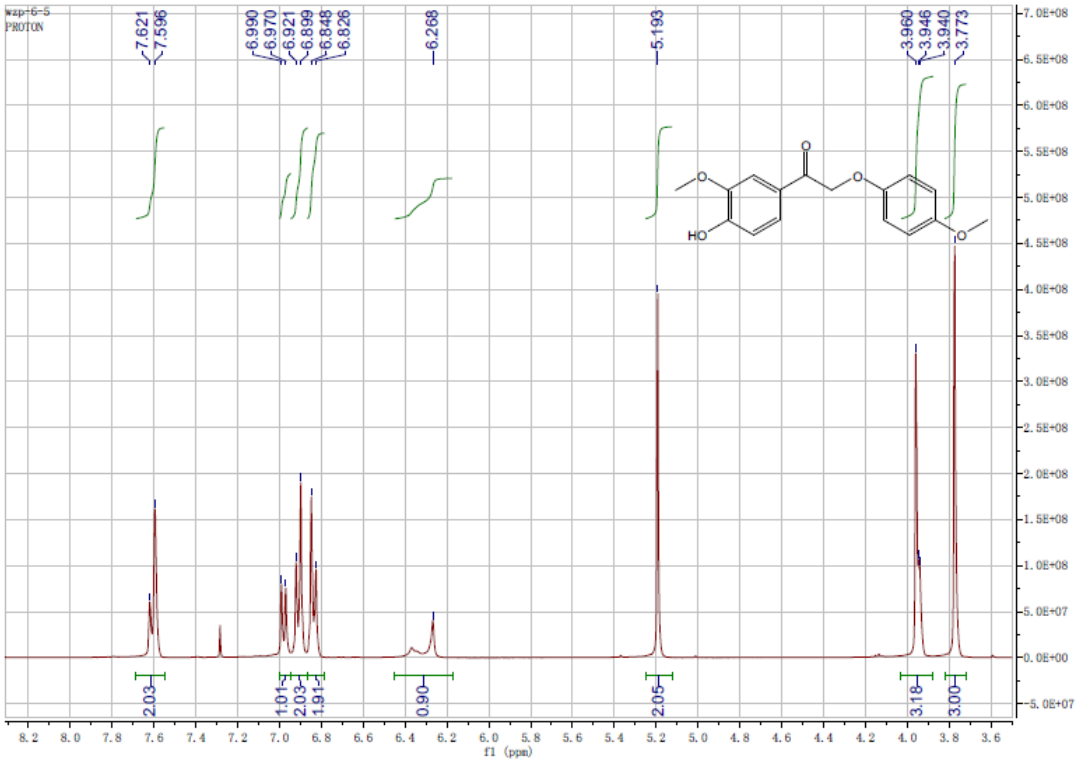

wzp-6-2
PROTON
7.618
7.606
7.585
7.285
7.261
7.244
7.039
7.035
6.985
6.897
6.892
6.880
6.875
6.204
5.240
3.978
HO
O
Cl
1.99
2.10
0.98
1.83
0.90
2.00
3.06
f1 (ppm)

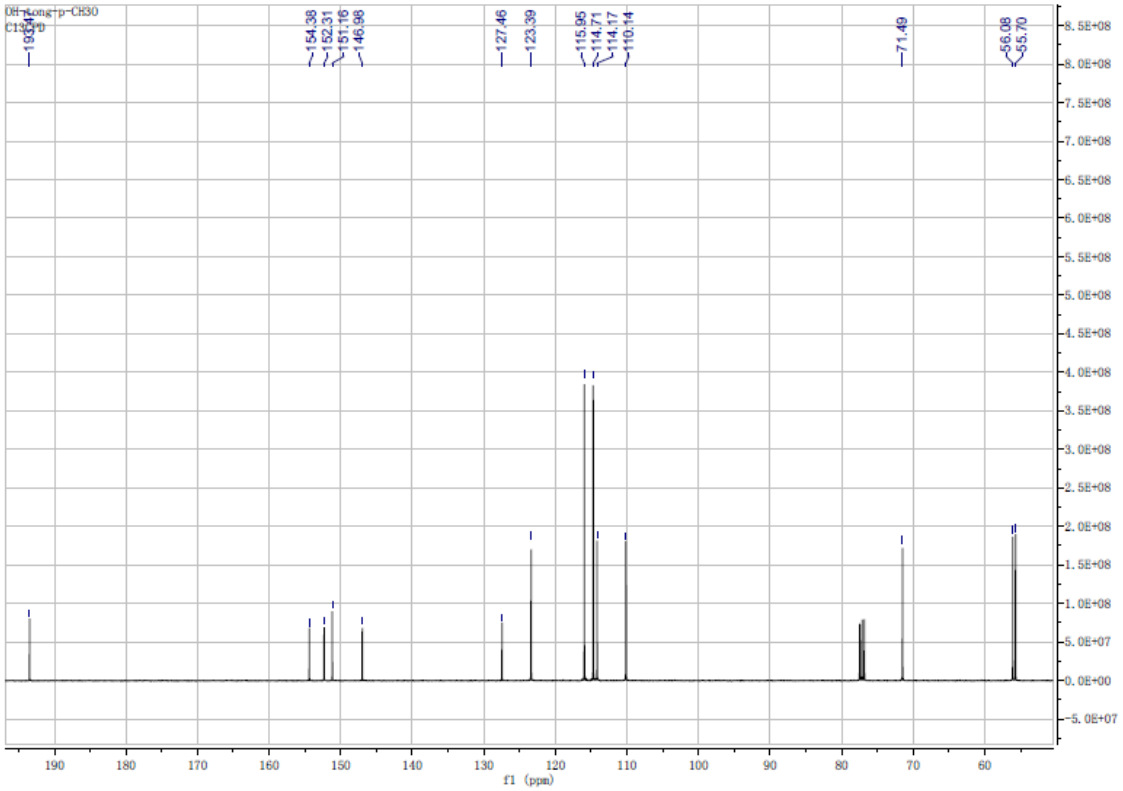

OH-tong-p-Cl
C13CPD
192.68
156.73
151.27
147.01
129.44
127.26
126.46
123.34
116.14
114.15
110.02
70.70
56.14
f1 (ppm)

4m

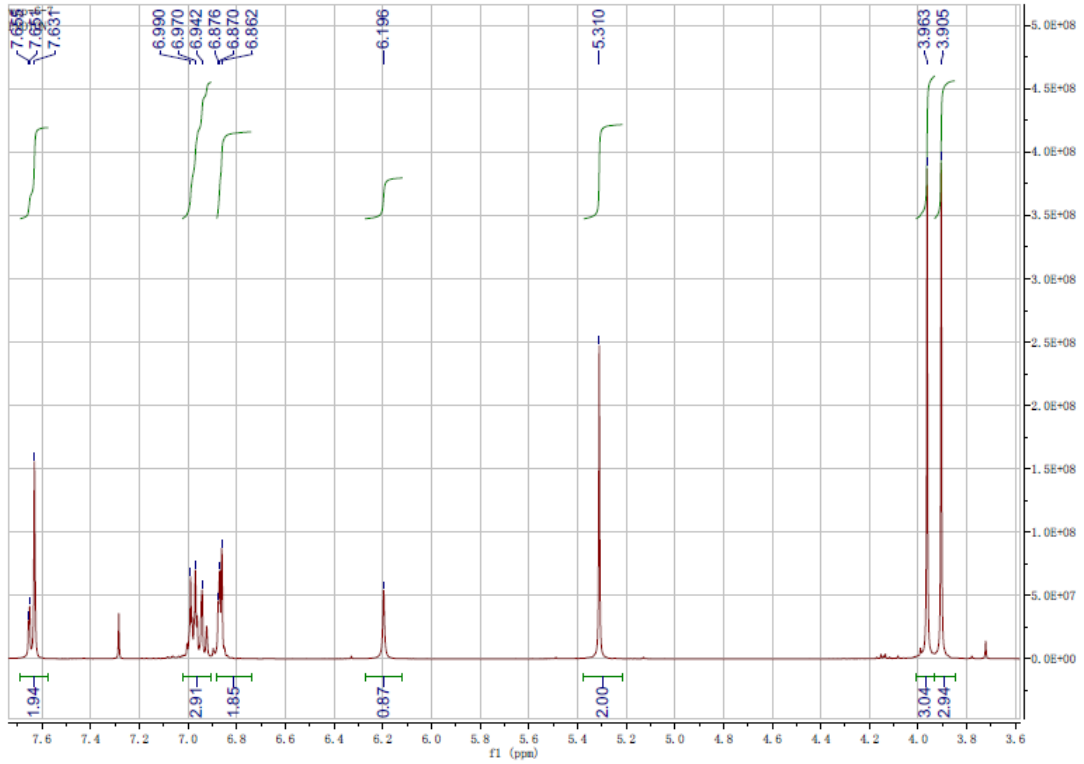

7.62
7.61
7.61
7.12
7.12
7.10
7.01
6.99
6.89
6.88
6.87
6.86
6.28
5.23
3.98
3.97
2.31
HO
1.93
1.88
0.96
1.85
0.90
2.00
3.00
2.96
f1 (ppm)

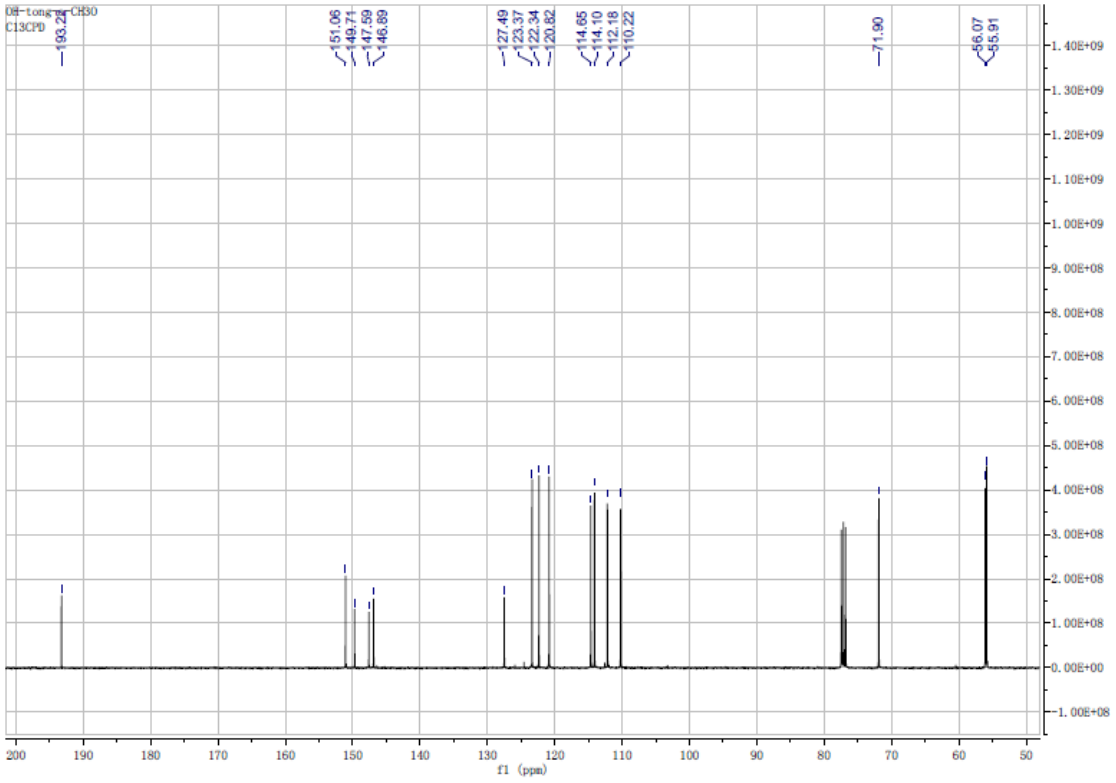
4n


wzp-6-5
PROTON
7.621
7.596
6.990
6.970
6.921
6.899
6.848
6.826
6.268
5.193
3.960
3.946
3.940
3.773
HO
2.03
1.01
2.03
1.91
0.90
2.05
3.18
3.00
f1 (ppm)

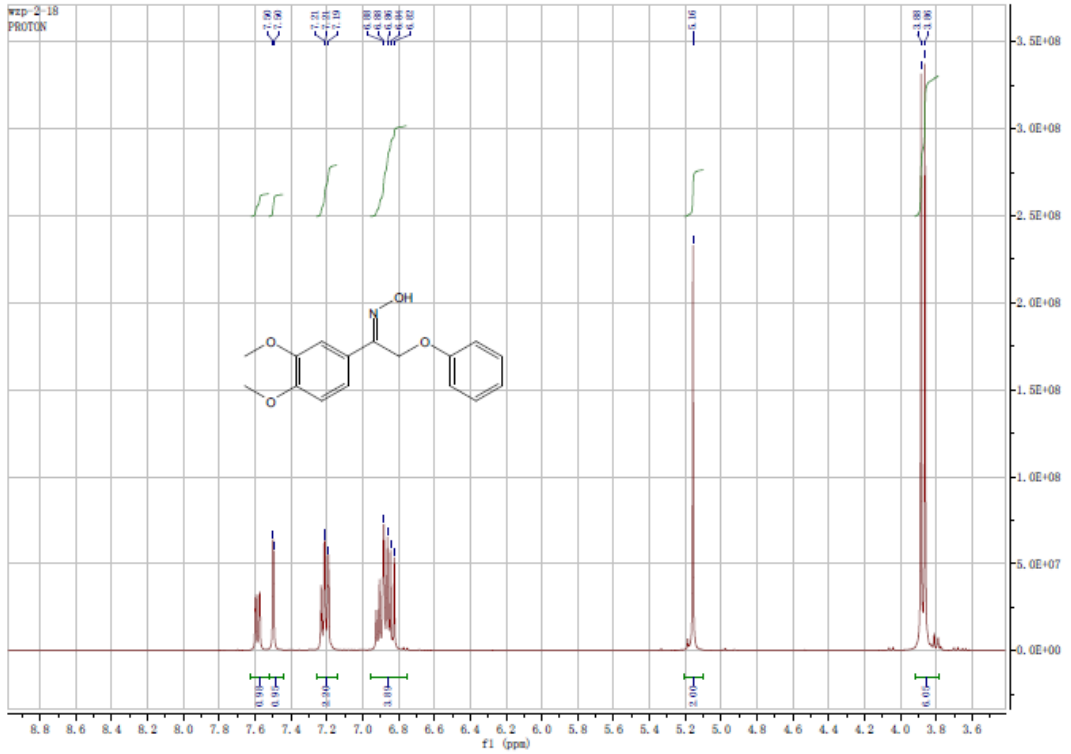

OH-Kong-p-CH3O
C13CPD
193.54
154.38
152.31
151.16
146.98
127.46
123.39
115.95
114.71
114.17
110.14
71.49
56.08
55.70
f1 (ppm)

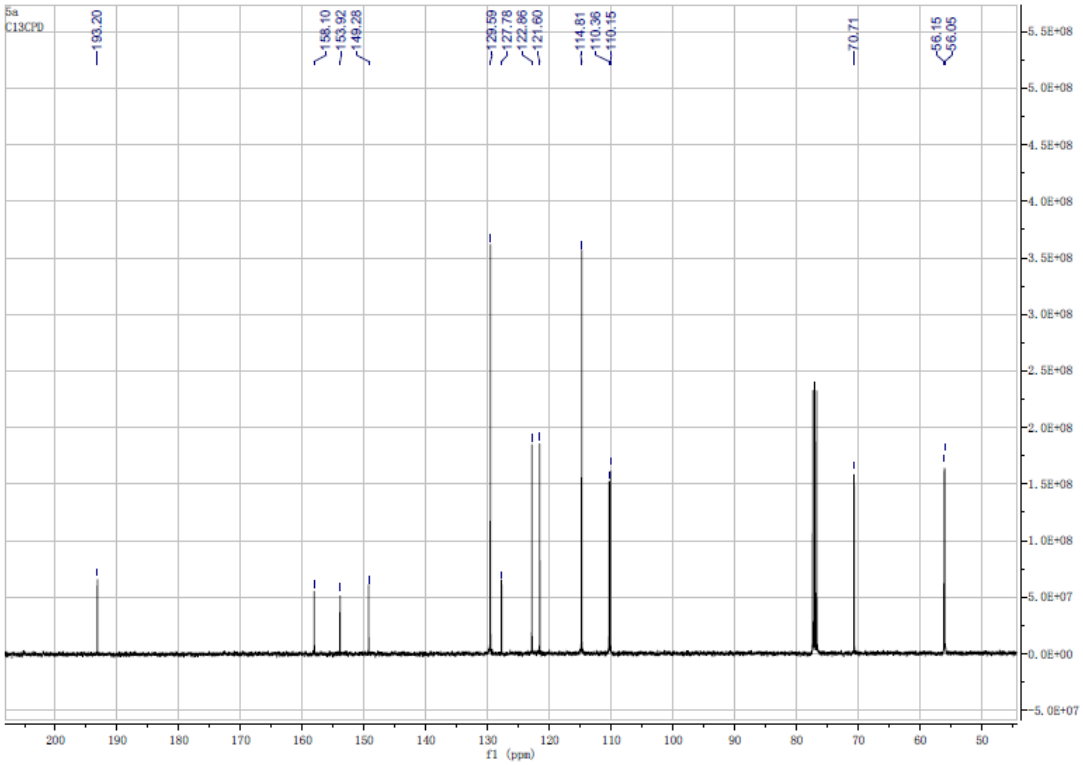
4o


7.655
7.651
7.631
6.990
6.970
6.942
6.876
6.870
6.862
6.196
5.310
3.963
3.905
1.94
2.91
1.85
0.87
2.00
3.04
2.94
f1 (ppm)

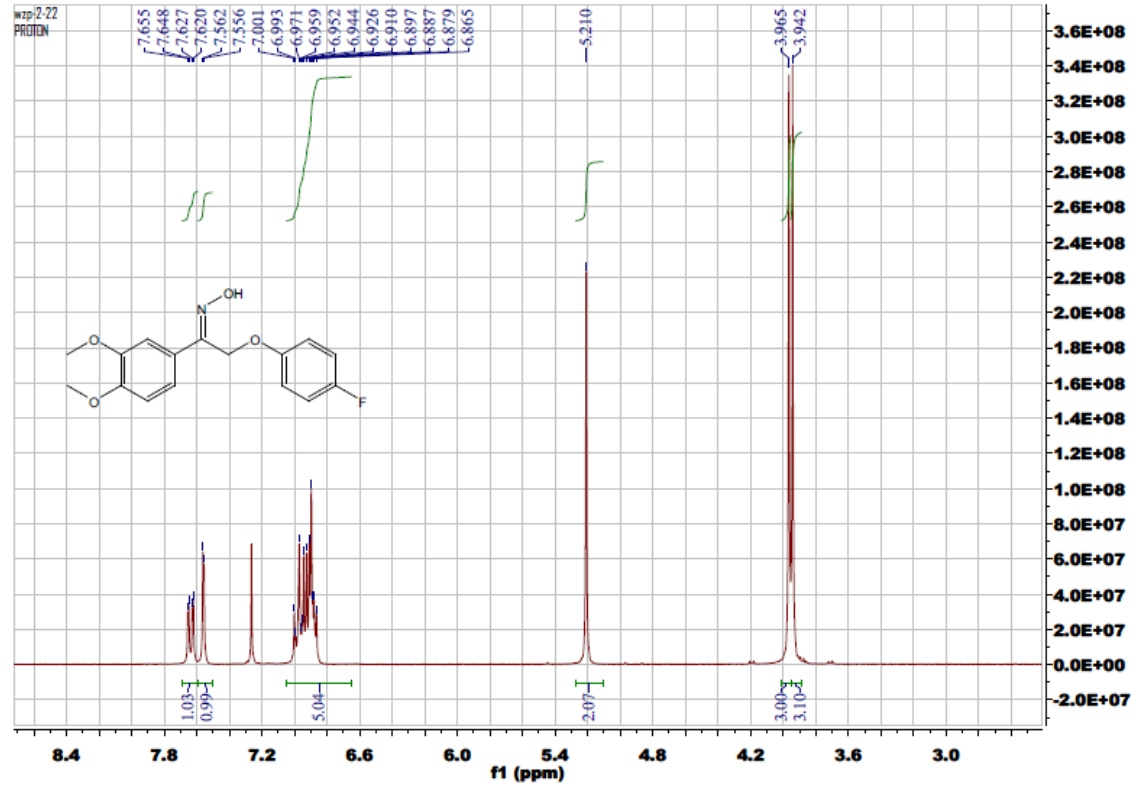

OH-tong-4-CH3O
C13CPD
193.24
151.06
149.71
147.59
146.89
127.49
123.37
122.34
120.82
114.65
114.10
112.18
110.22
71.90
56.07
55.91
f1 (ppm)

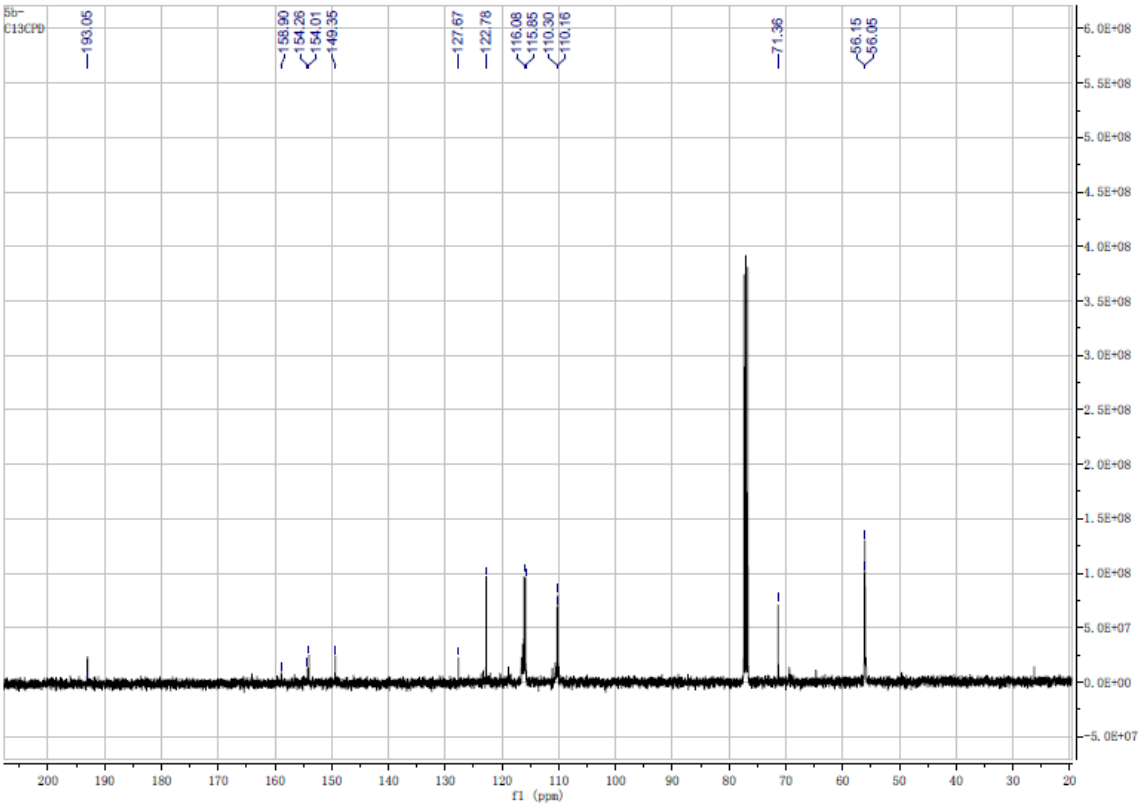
5a

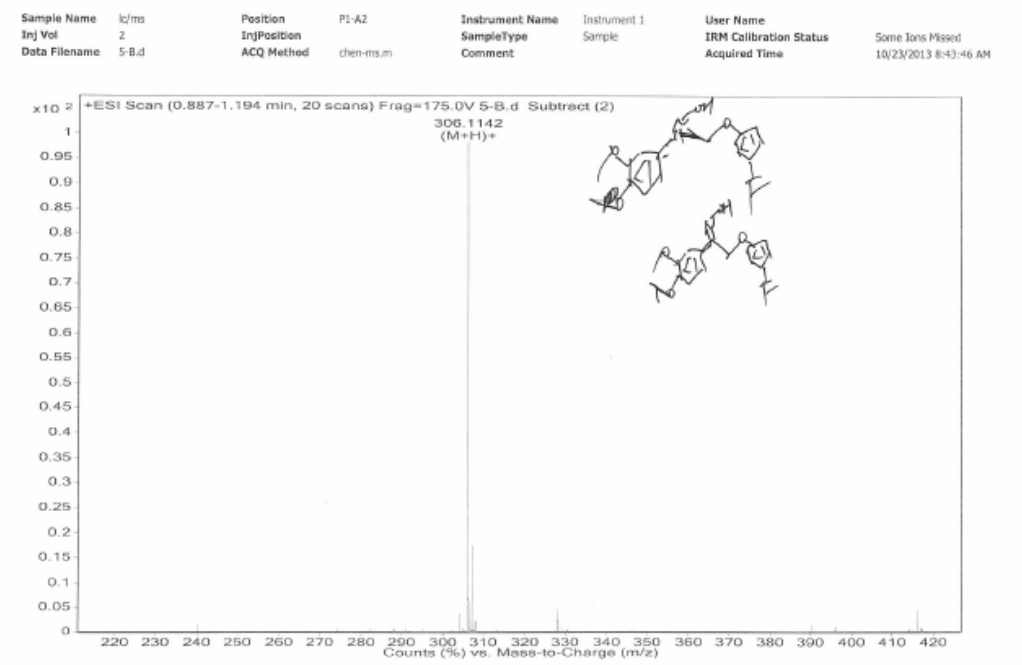

wzp-2-18
PROTON
OH
N
O
O
O
f1 (ppm)


5a
C13CPD
193.20
158.10
153.92
149.28
129.59
127.78
122.86
121.60
114.81
110.36
110.15
70.71
56.15
56.05
f1 (ppm)

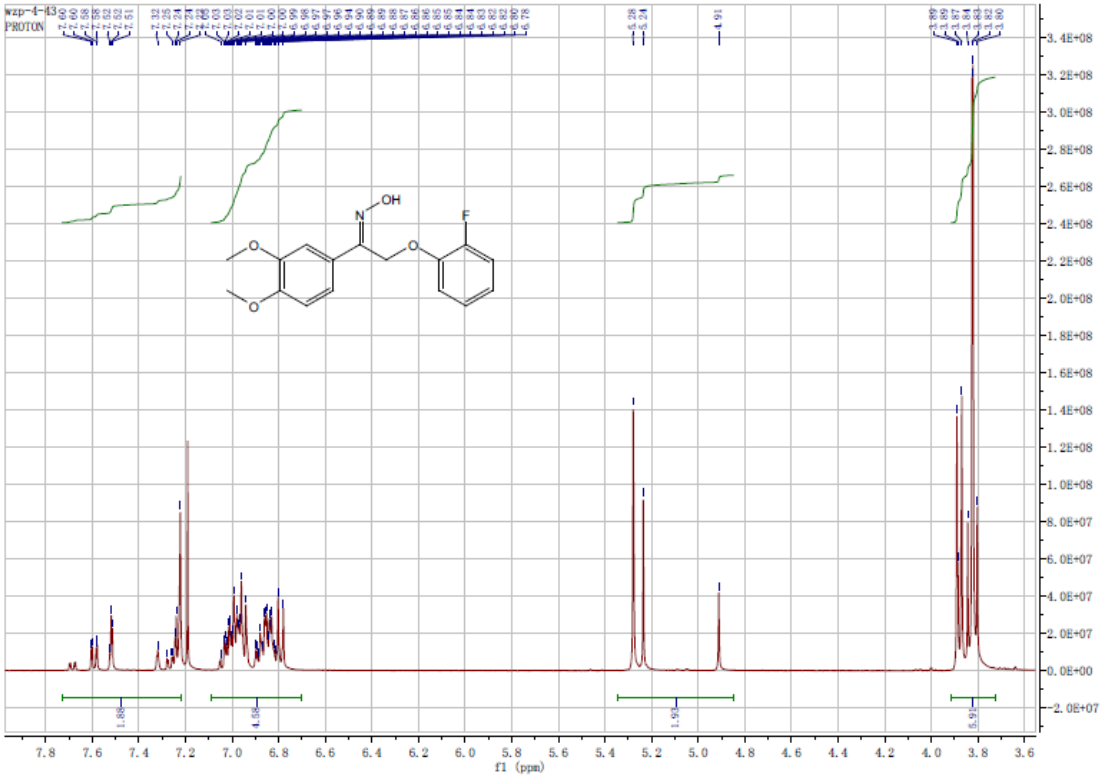
5b

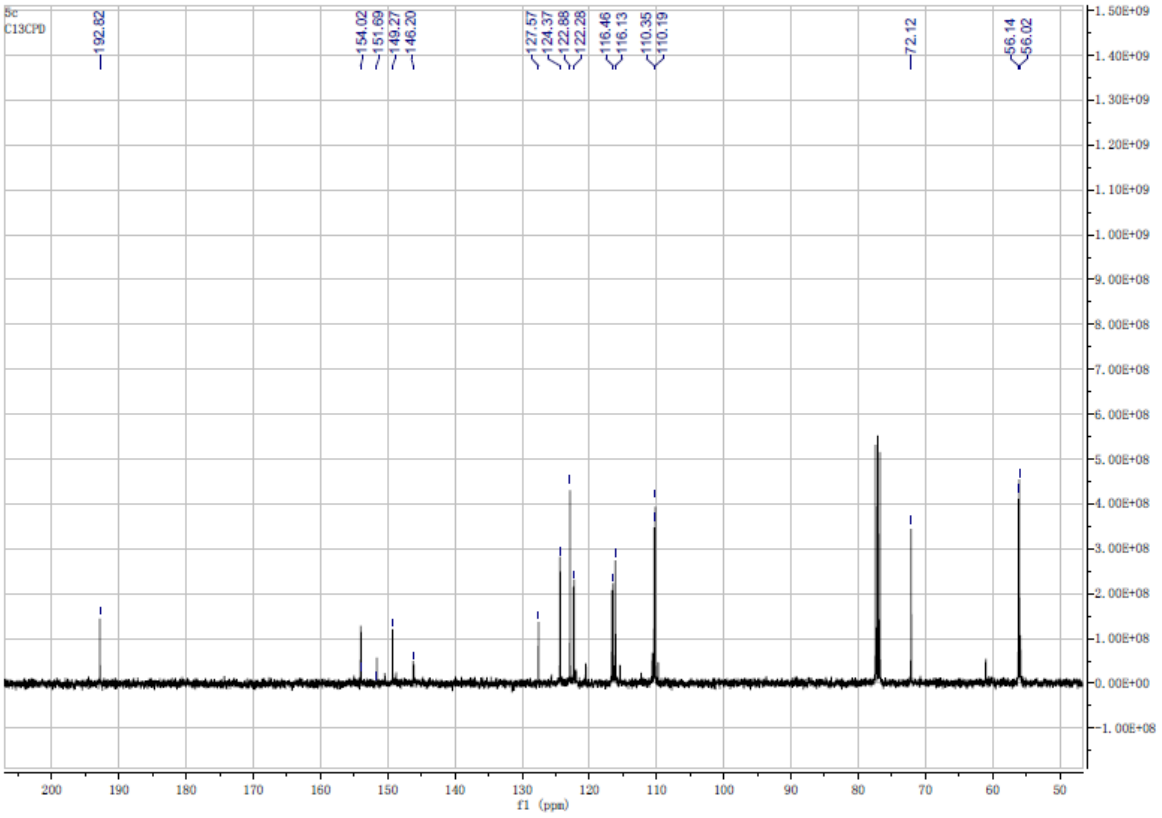

wzp/2-22
PROTON
7.655
7.648
7.627
7.620
7.562
7.556
7.001
6.993
6.971
6.959
6.952
6.944
6.926
6.910
6.897
6.887
6.879
6.865
5.210
3.965
3.942
OH
N
O
O
O
F
1.03
0.99
5.04
2.07
3.00
3.10
f1 (ppm)


5b-
C13CPD
193.05
158.90
154.26
154.01
149.35
127.67
122.78
116.08
115.85
110.30
110.16
71.36
56.15
56.05
f1 (ppm)

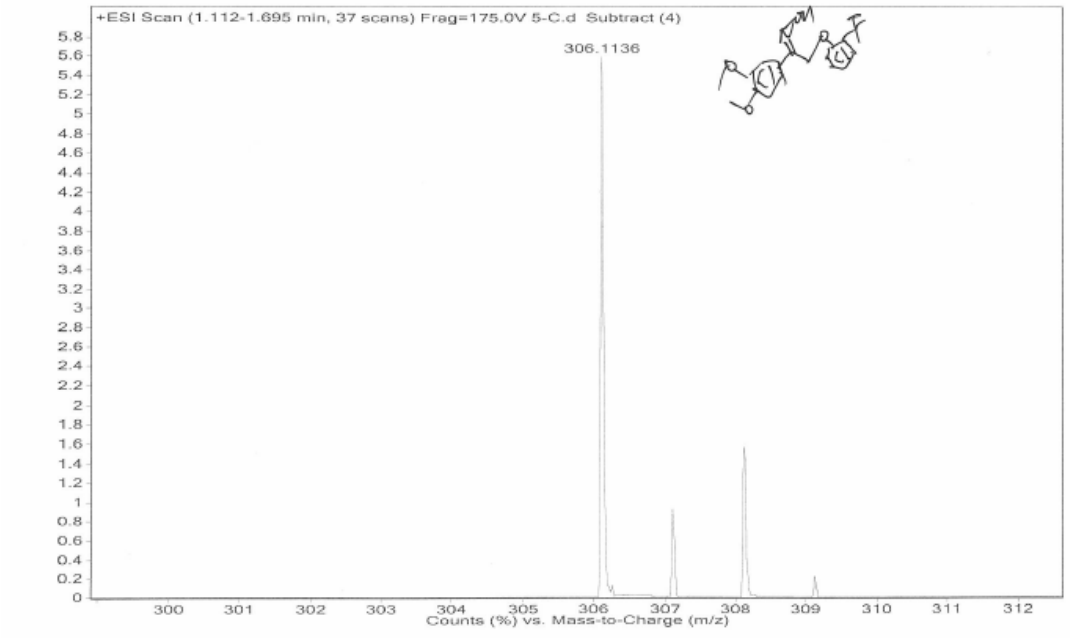

Sample Name lc/ms
Inj Vol 2
Data Filename 5-B.d
Position P1-A2
InjPosition
ACQ Method chen-ms.m
Instrument Name Instrument 1
SampleType Sample
Comment
User Name
IRM Calibration Status Some Ions Missed
Acquired Time 10/23/2013 8:43:46 AM
+ESI Scan (0.887-1.194 min, 20 scans) Frag=175.0V 5-B.d Subtract (2)
306.1142
(M+H)+
x10 2
Counts (%) vs. Mass-to-Charge (m/z)

5c

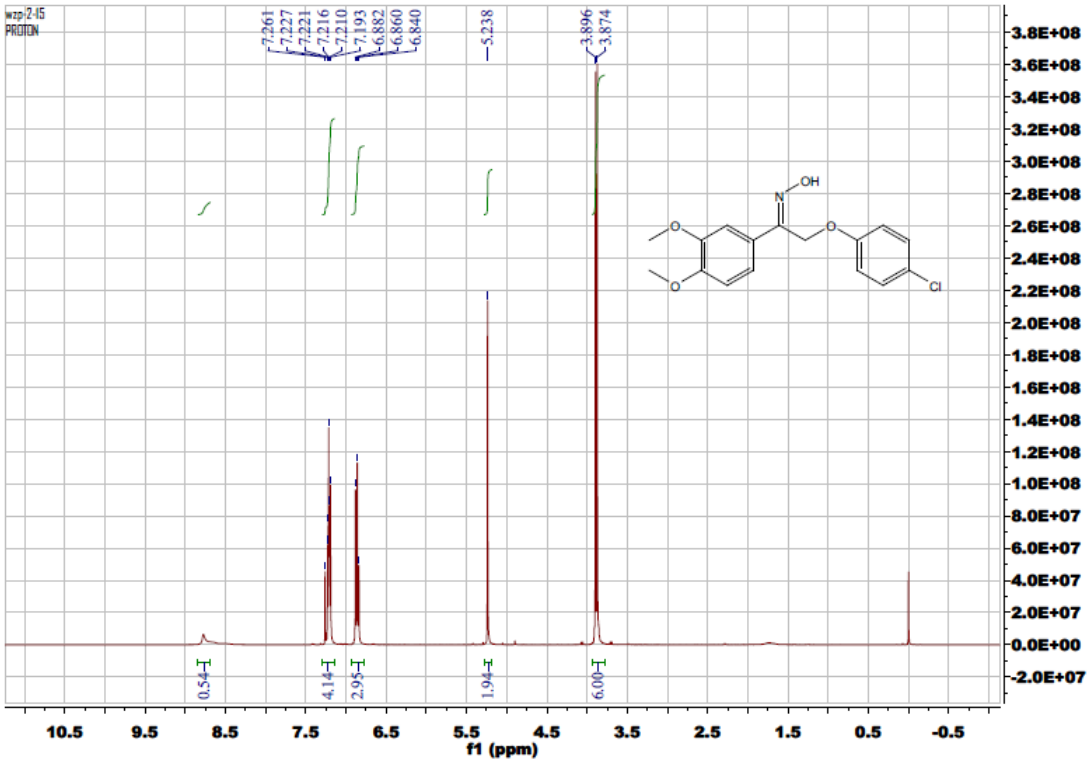

wzp-4-d3
PROTON
OH
N
O
F
f1 (ppm)

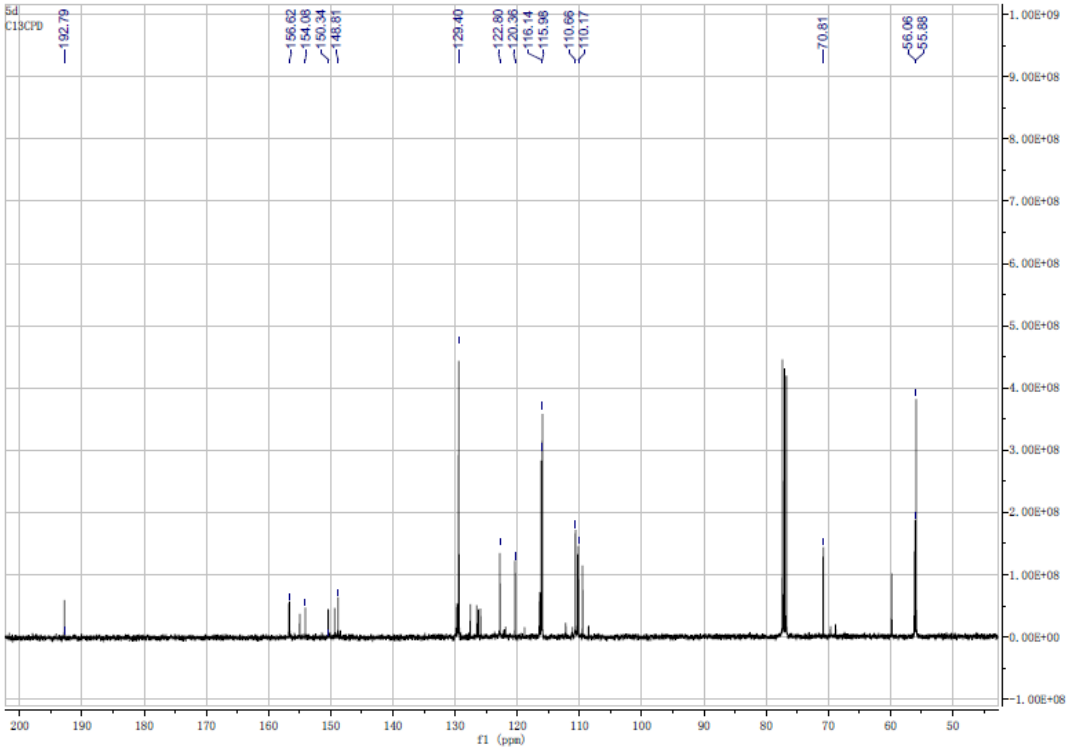


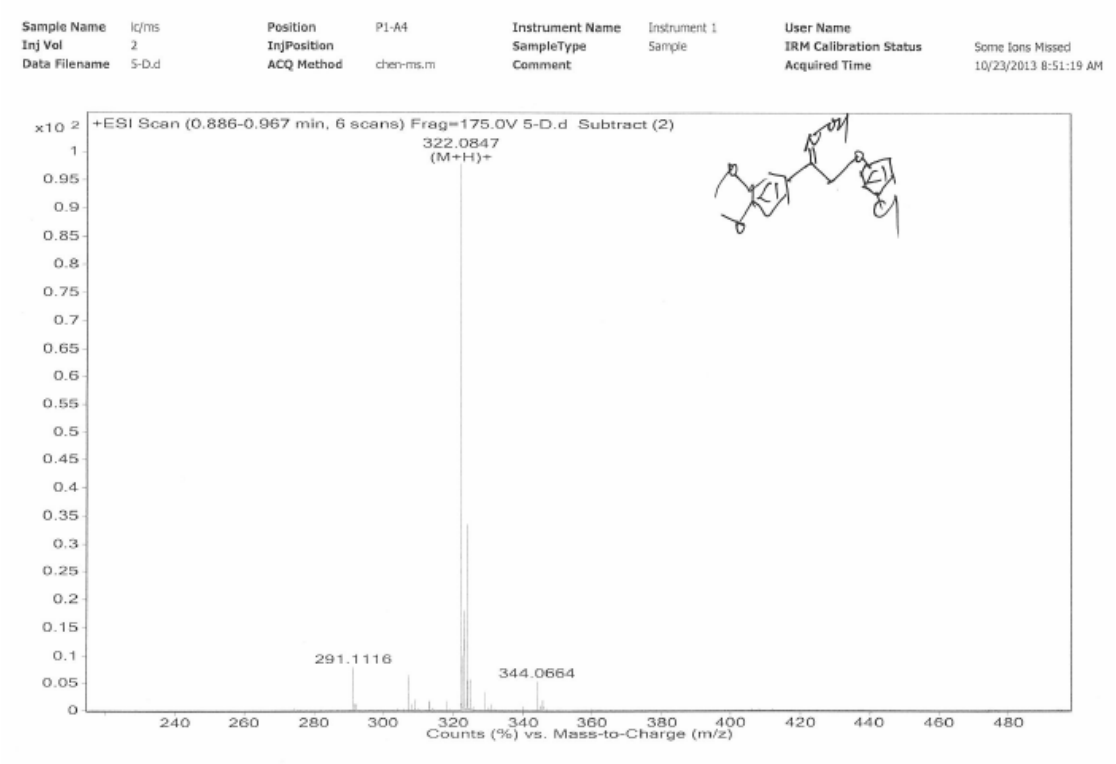
Sample Name	lc/ms	**Position**	P1-A3	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	5-C.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 8:47:32 AM



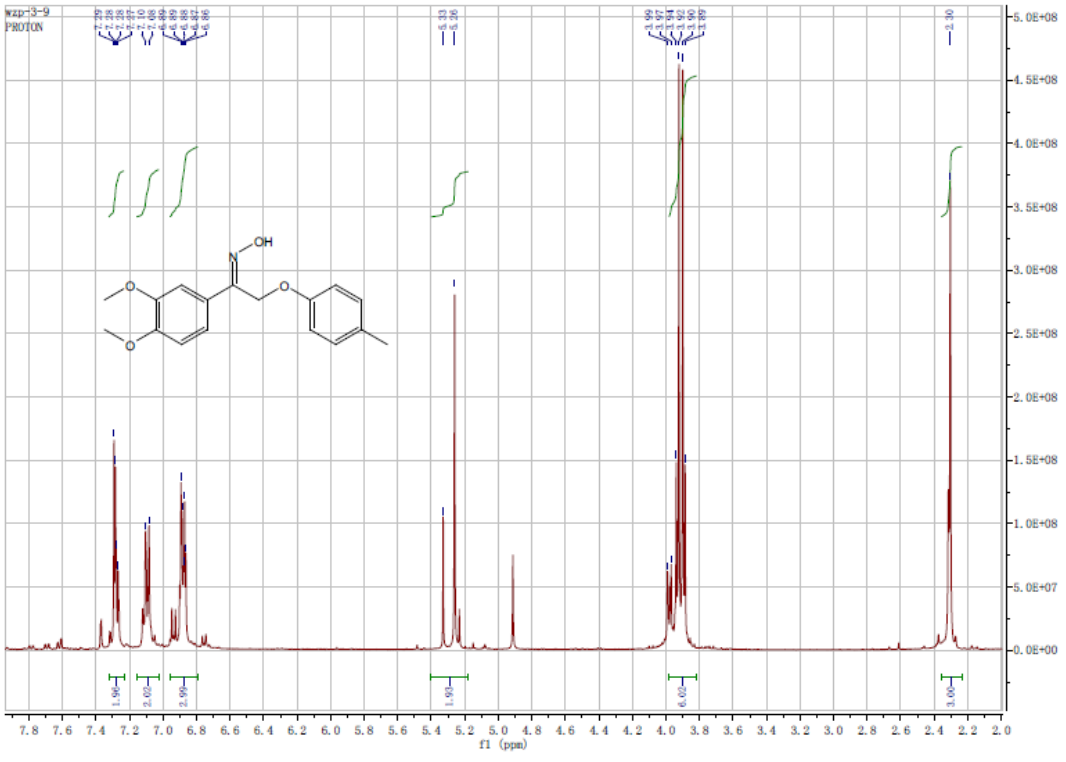
5d

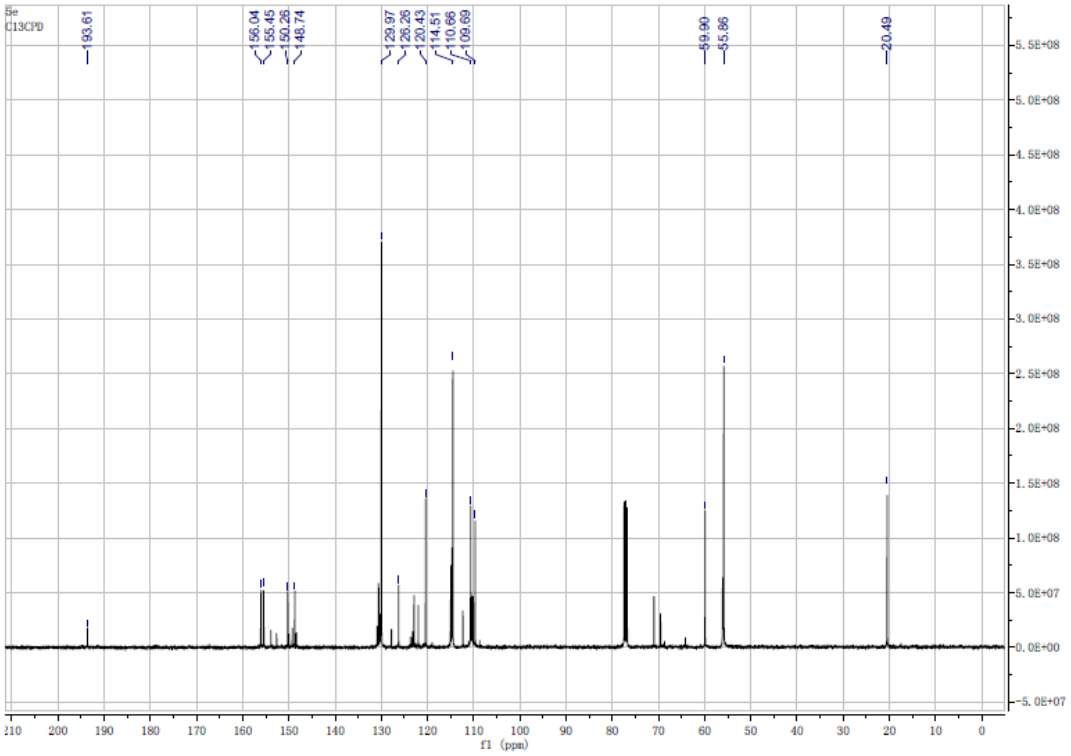

wzp/2-15
PROTON
7.261
7.227
7.221
7.216
7.210
7.193
6.882
6.860
6.840
5.238
3.896
3.874
OH
N
O
O
O
Cl
0.54
4.14
2.95
1.94
6.00
f1 (ppm)


5d
C13CPD
192.79
156.62
154.08
150.34
148.81
129.40
122.80
120.36
116.14
115.98
110.66
110.17
70.81
56.06
55.88
f1 (ppm)

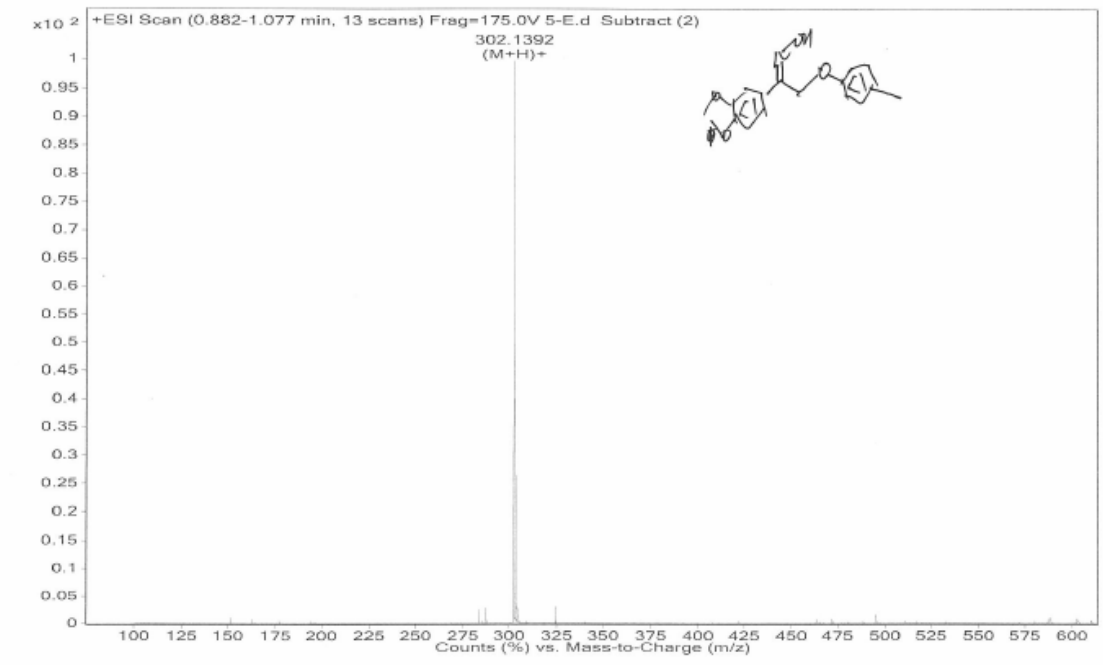

Sample Name ic/ms
Position P1-A4
Instrument Name Instrument 1
User Name
Inj Vol 2
InjPosition
SampleType Sample
IRM Calibration Status Some Ions Missed
Data Filename 5-D.d
ACQ Method chen-ms.m
Comment
Acquired Time 10/23/2013 8:51:19 AM
+ESI Scan (0.886-0.967 min, 6 scans) Frag=175.0V 5-D.d Subtract (2)
322.0847
(M+H)+
291.1116
344.0664
Counts (%) vs. Mass-to-Charge (m/z)

5e

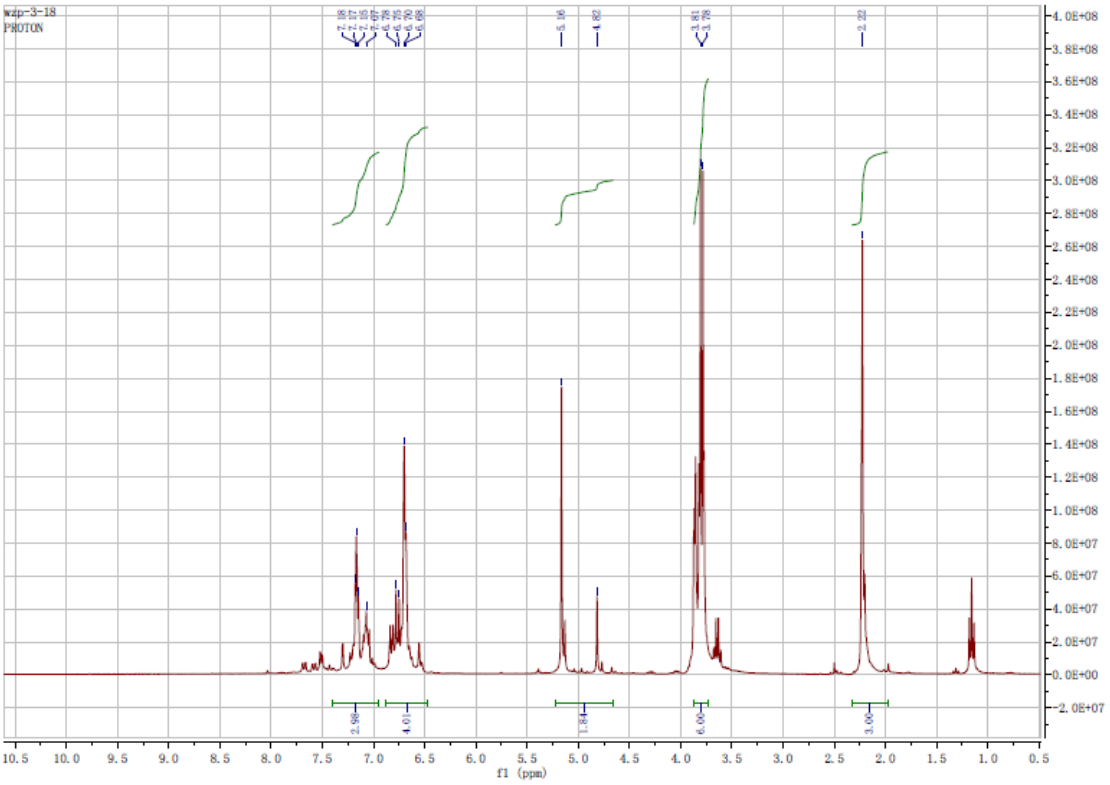

wxp-3-9
PROTON
OH
N
O
f1 (ppm)

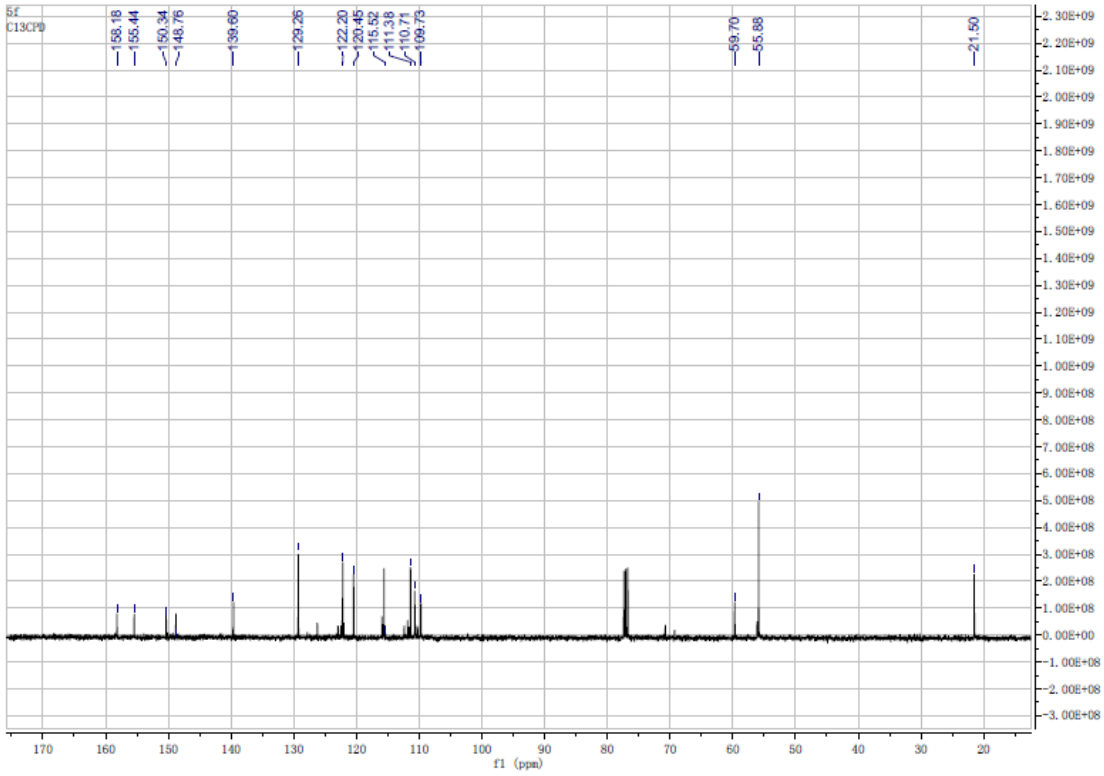


Sample Name	lc/ms	**Position**	P1-A5	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	5-E.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 8:55:05 AM

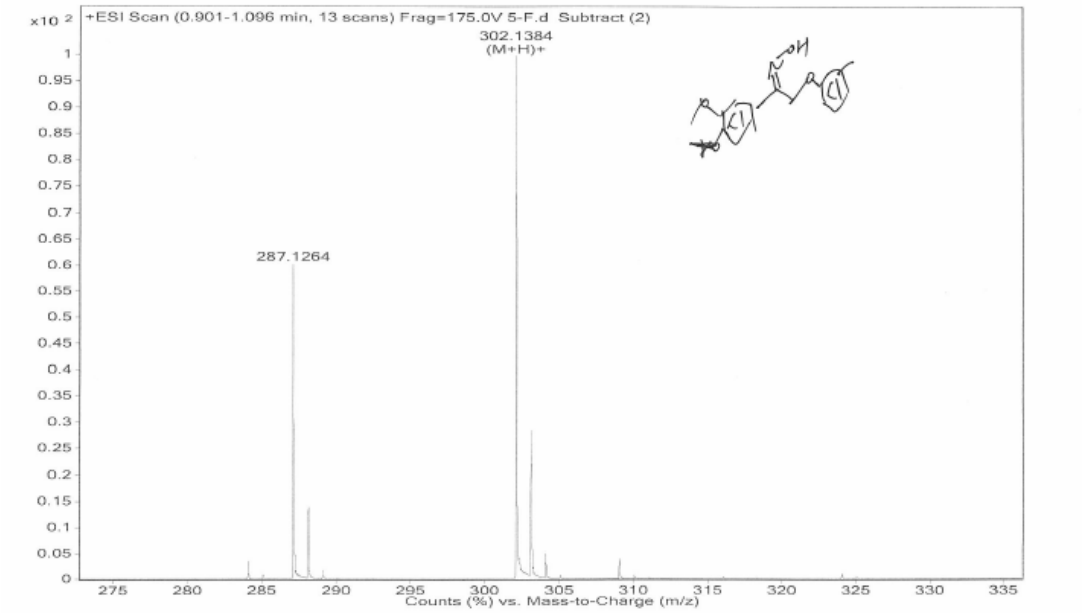


5f

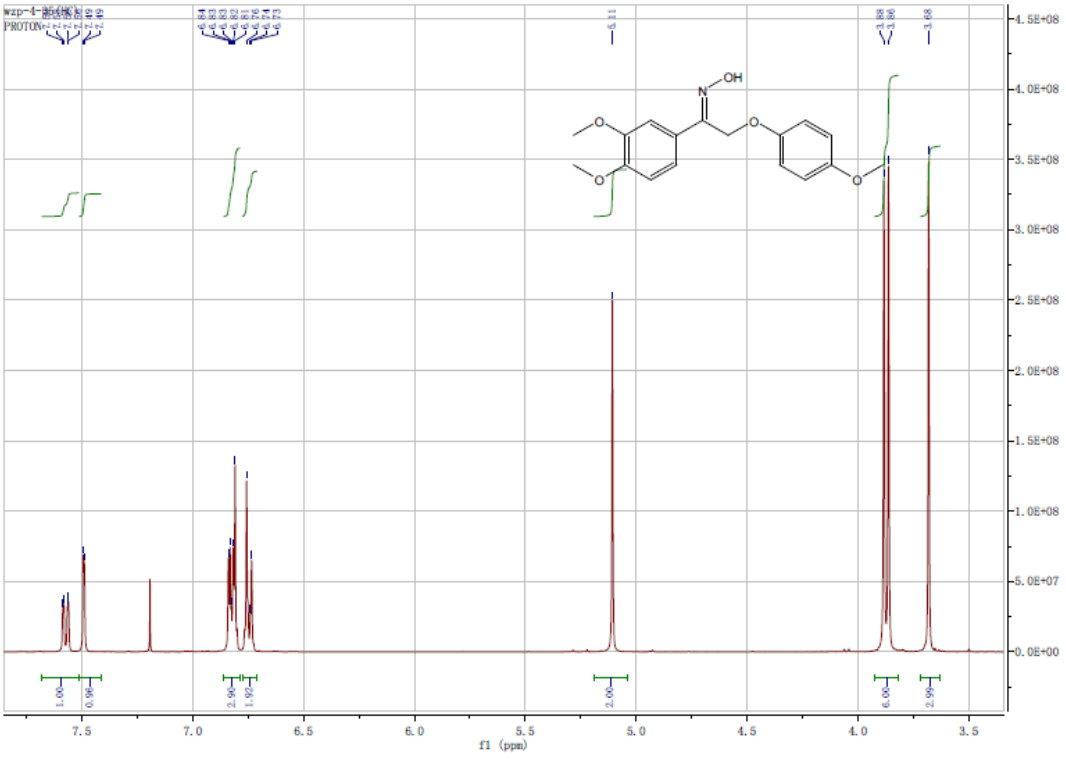

wzp-3-18
PROTON
7.08
7.07
7.05
6.80
6.78
6.75
6.70
6.68
5.96
4.82
3.81
3.78
2.22
2.98
4.01
1.84
6.00
3.00
f1 (ppm)

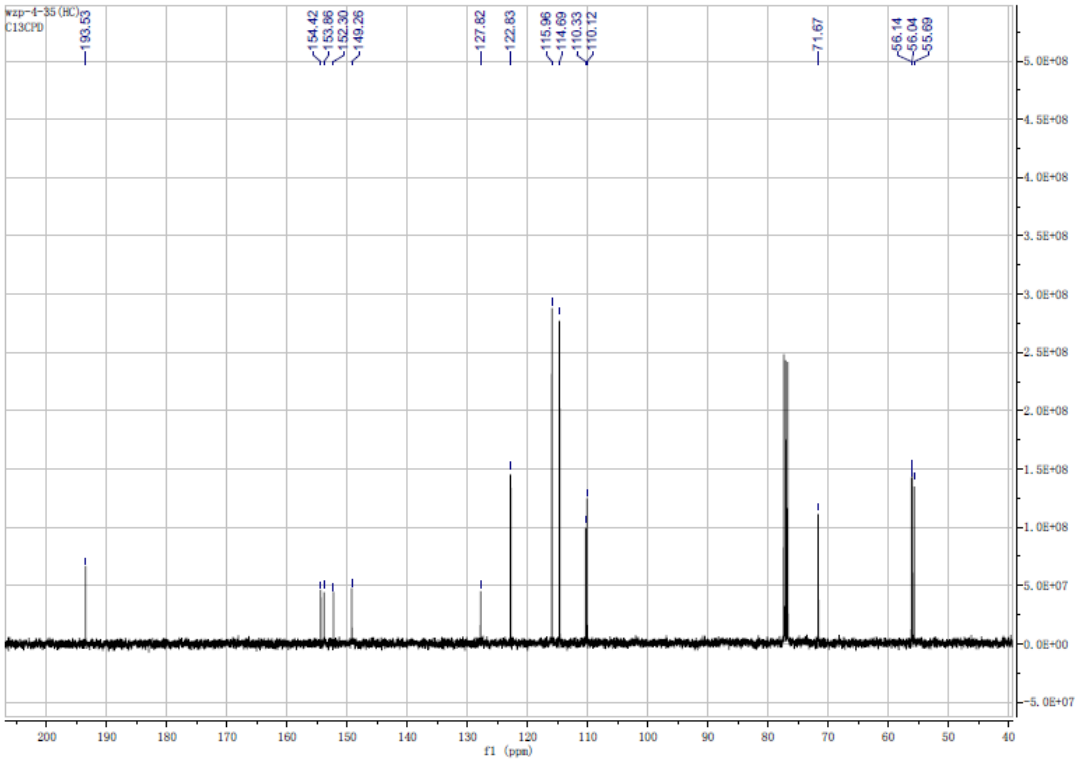

5f
C13CPD
158.18
155.44
150.34
148.76
139.60
129.26
122.20
120.45
115.52
111.38
110.71
109.73
59.70
55.88
21.50
f1 (ppm)

Sample Name	lc/ms	**Position**	P1-A6	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	5-F.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 8:58:50 AM

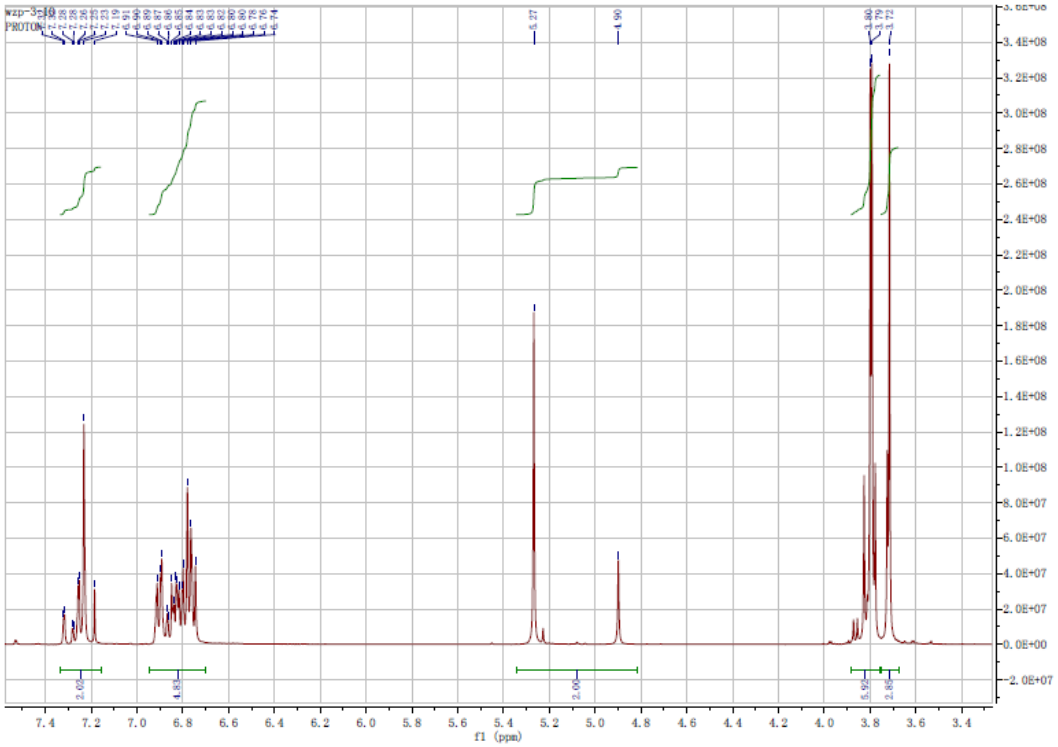


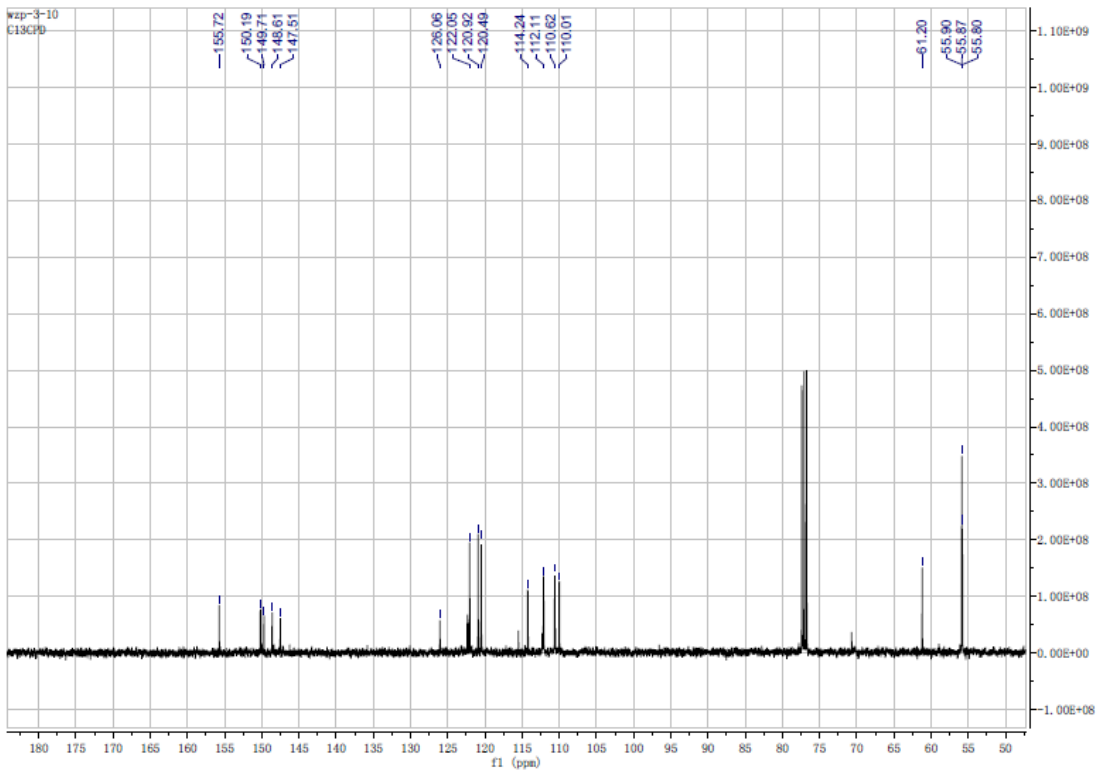
5g



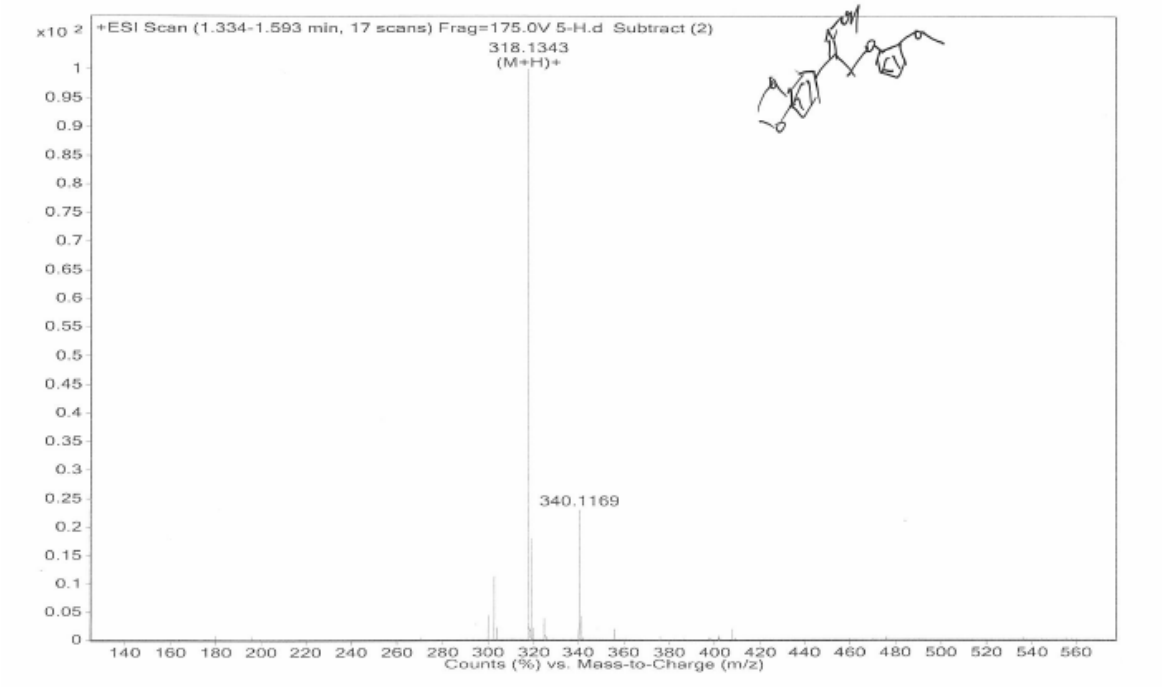

wzp-4-35 (HC)
C13CPD
193.53
154.42
153.86
152.30
149.26
127.82
122.83
115.96
114.69
110.33
110.12
71.67
56.14
56.04
55.69
f1 (ppm)

5h

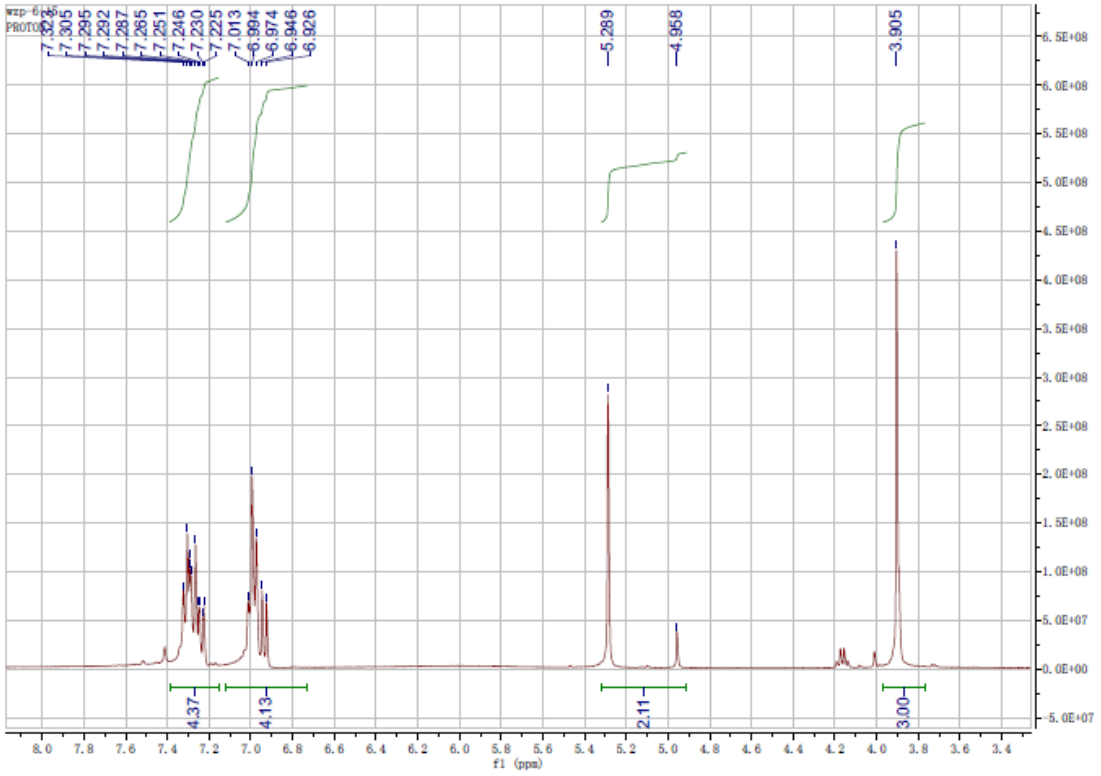

PROTON
5.27
4.90
3.90
3.79
3.72
2.00
4.85
2.00
5.92
2.85
f1 (ppm)

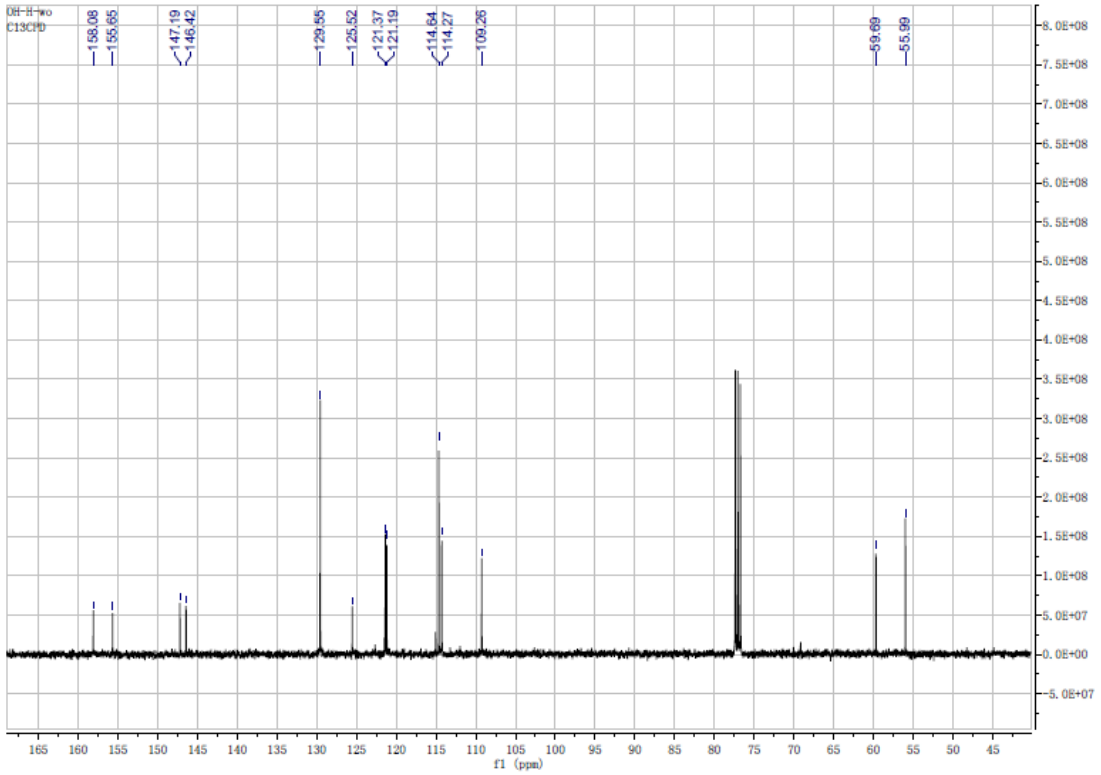


Sample Name	lc/ms	**Position**	P1-A1	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	5-H.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 10:59:54 AM

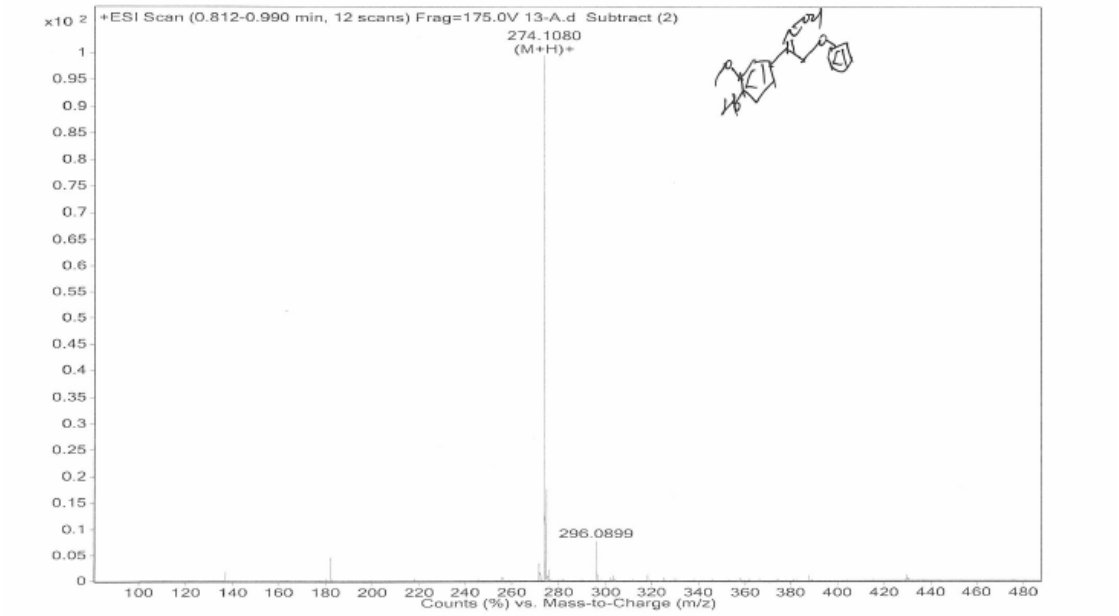


5i

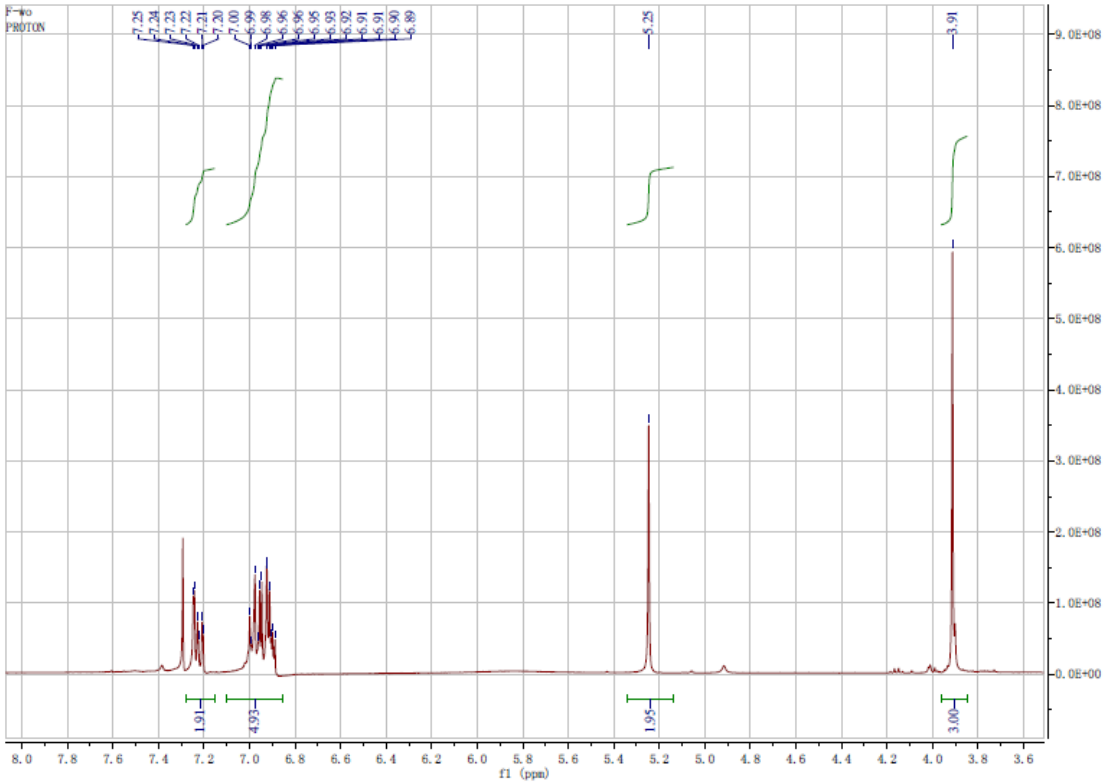

7.323
7.305
7.295
7.292
7.287
7.265
7.251
7.246
7.230
7.225
7.013
6.994
6.974
6.946
6.926
5.289
4.958
3.905
4.37
4.13
2.11
3.00
f1 (ppm)

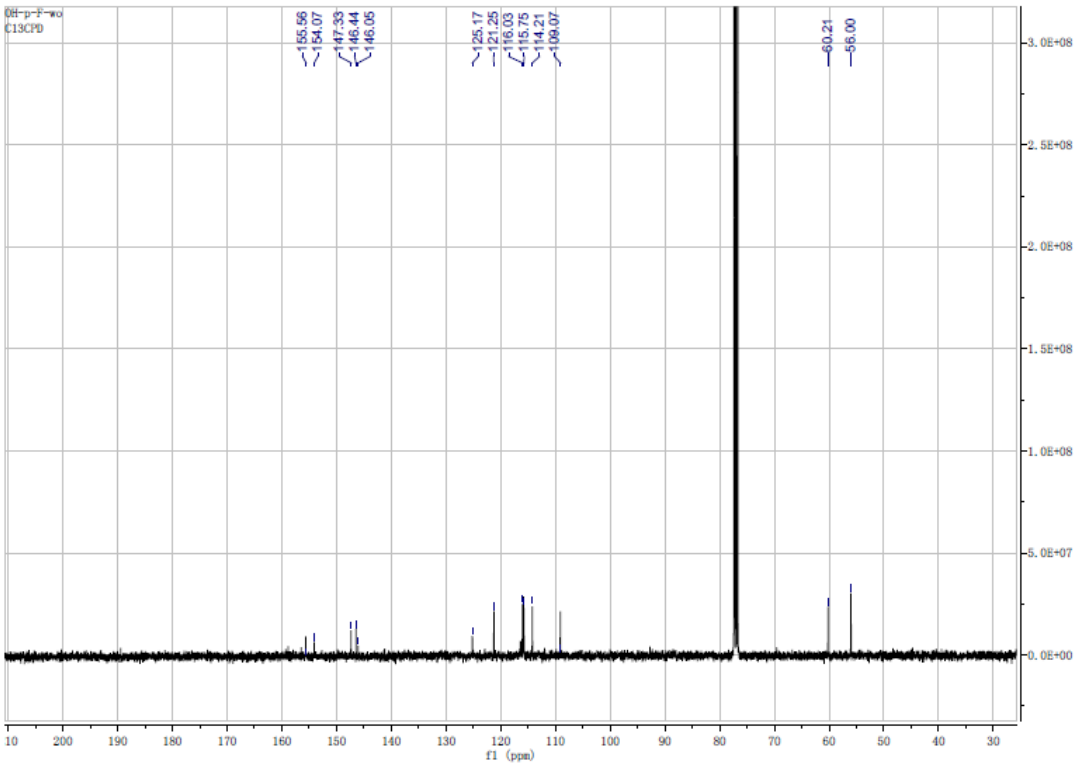

158.08
155.65
147.19
146.42
129.55
125.52
121.37
121.19
114.64
114.27
109.26
59.69
55.99
f1 (ppm)

Sample Name	lc/ms	**Position**	P1-A1	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	13-A.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 10:19:00 AM

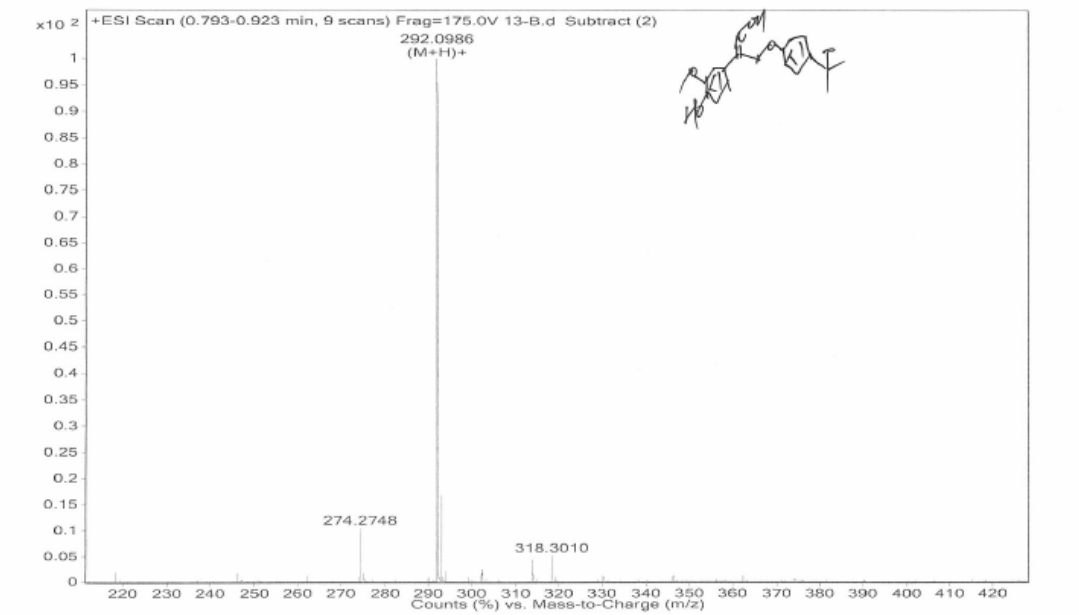


5j

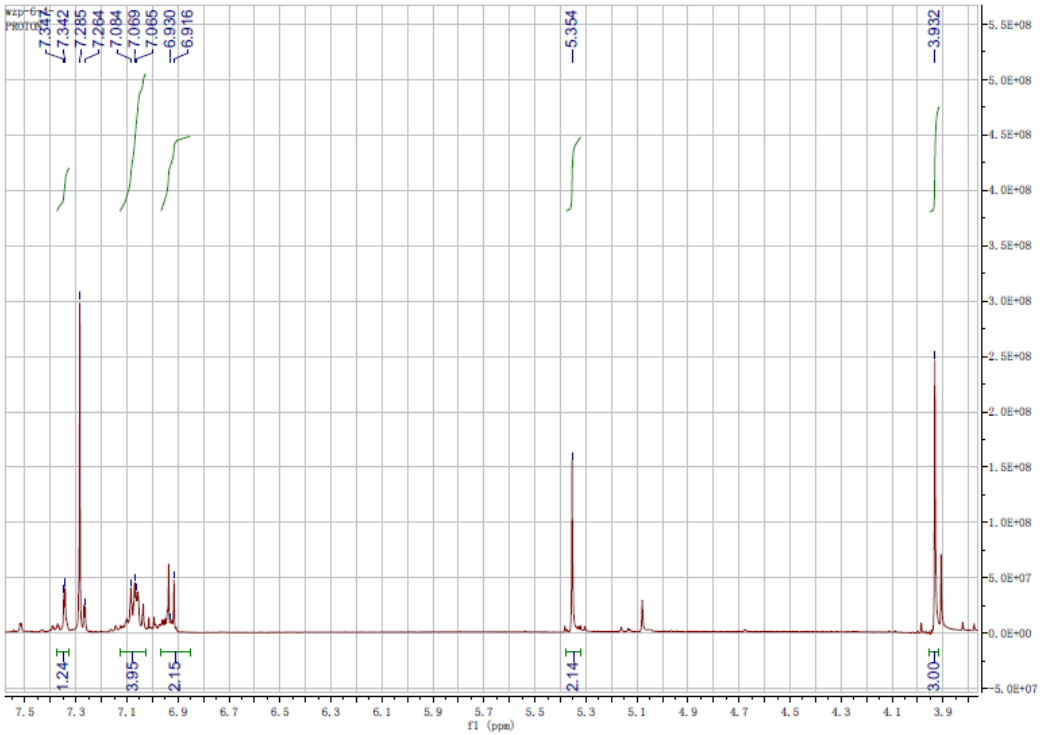


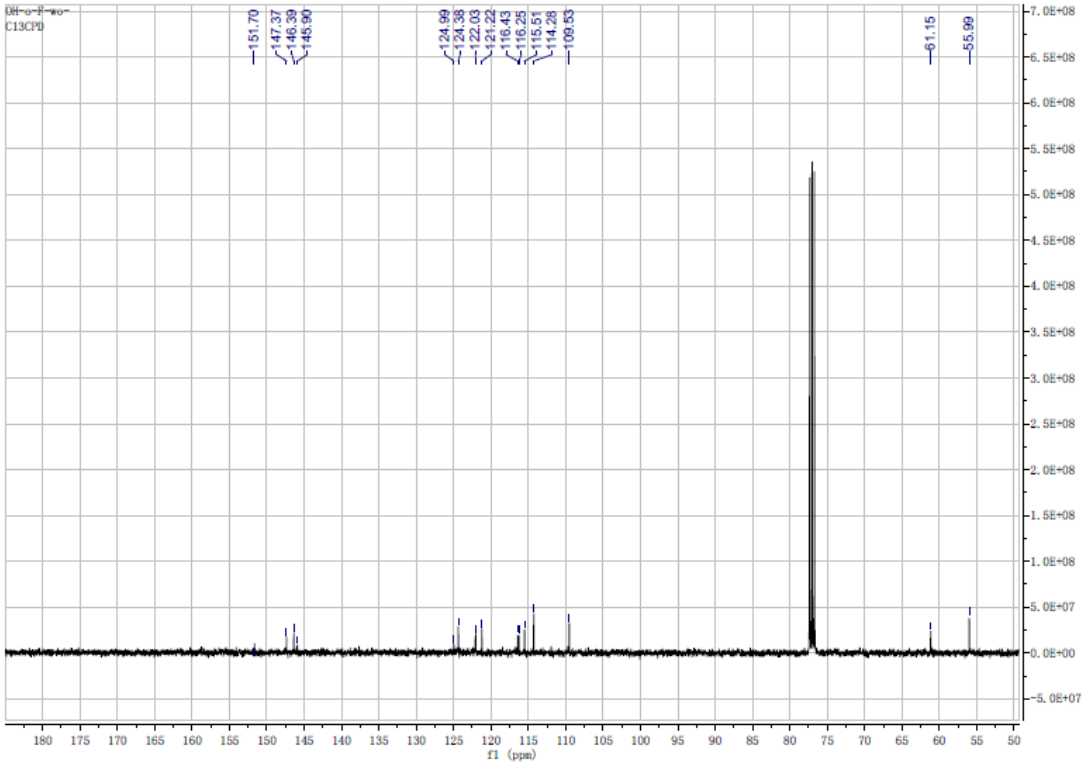


Sample Name	lc/ms	**Position**	P1-A2	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	13-8.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 10:22:45 AM

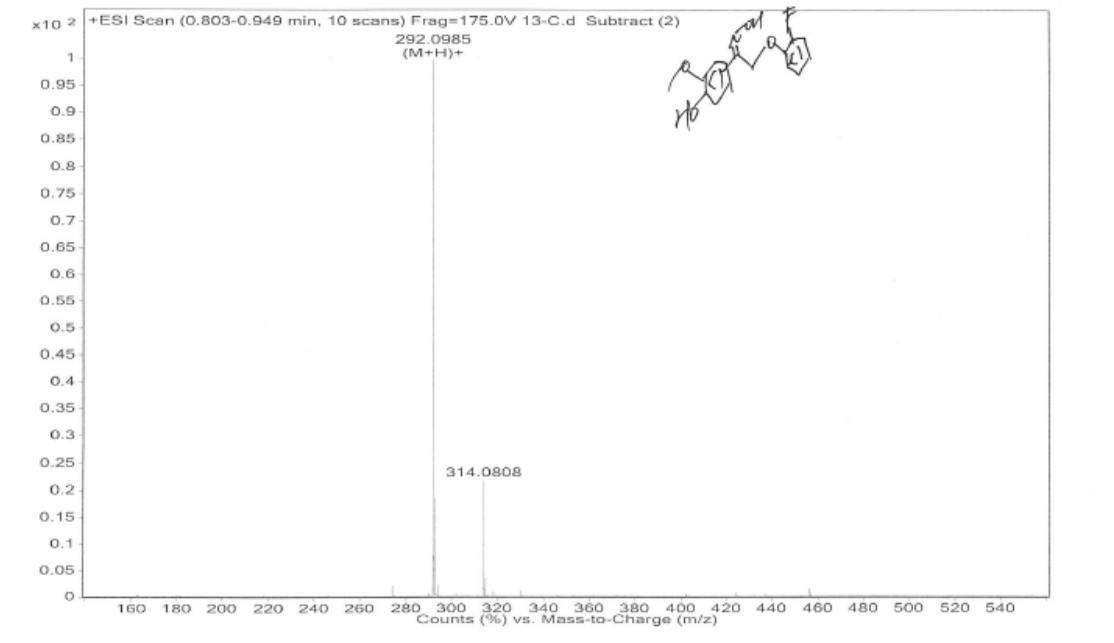


5k

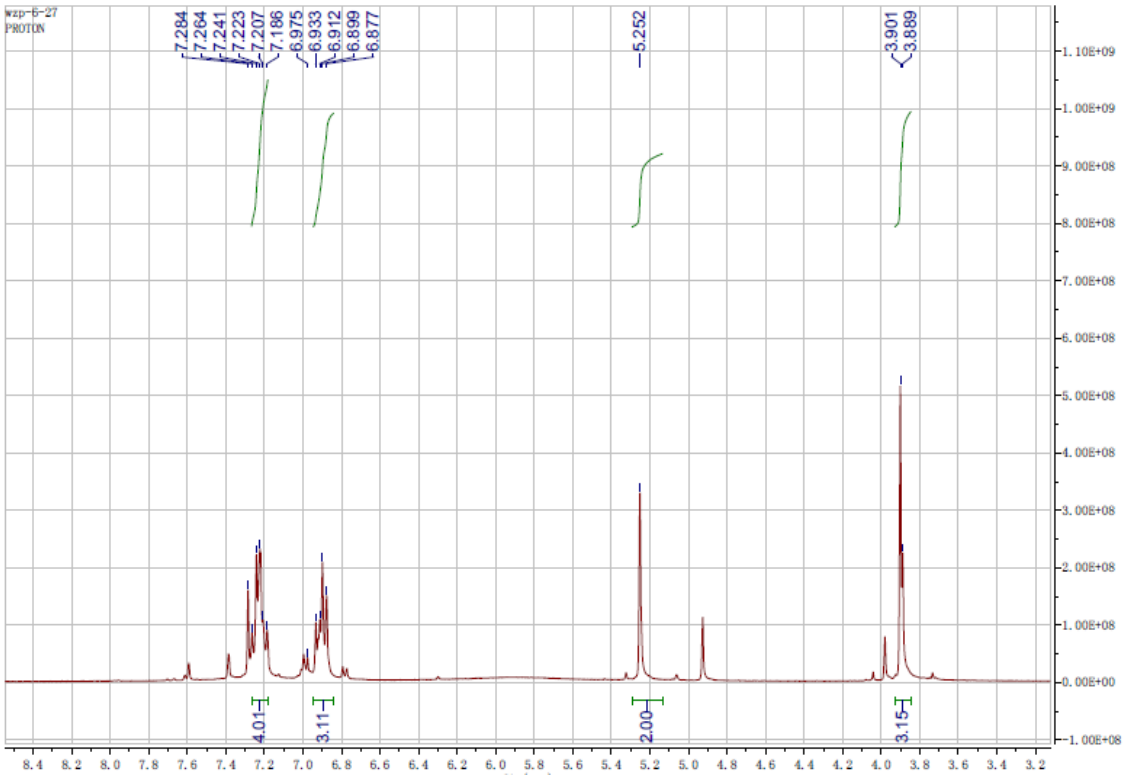

7.347
7.342
7.285
7.264
7.084
7.069
7.066
6.930
6.916
5.354
3.932
1.24
3.95
2.15
2.14
3.00
f1 (ppm)

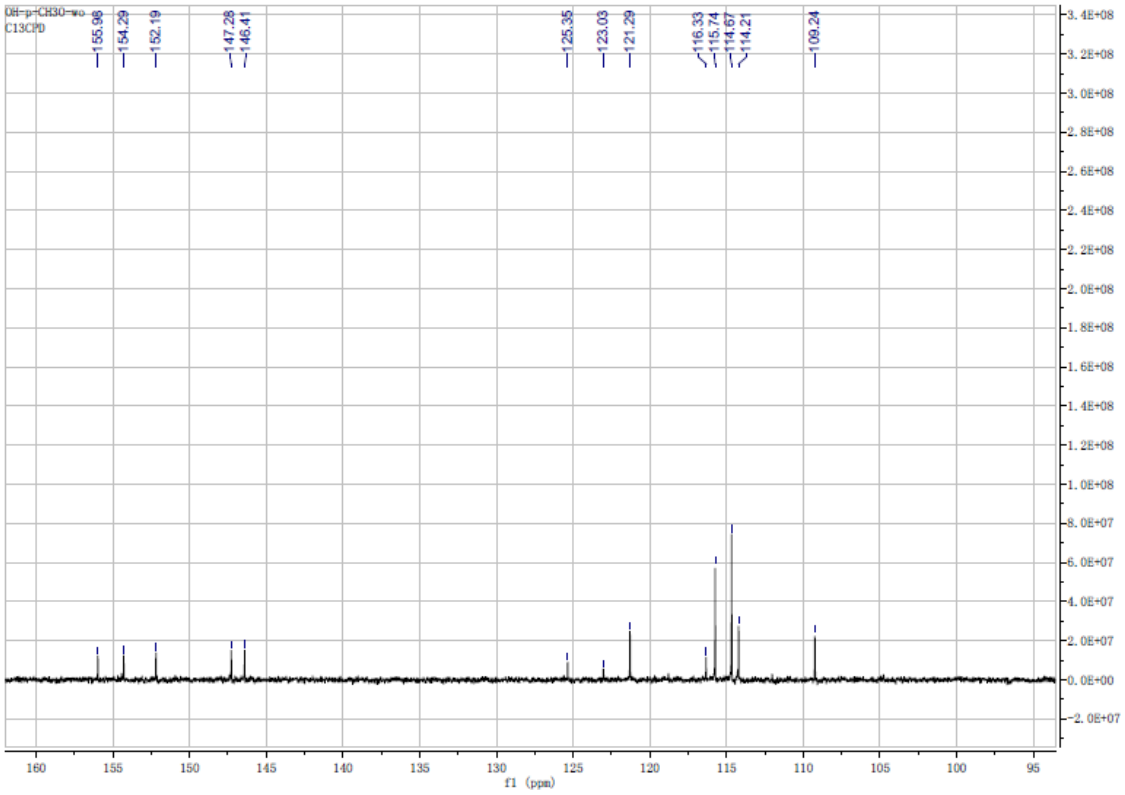

151.70
147.37
146.39
145.90
124.99
124.38
122.03
121.22
116.43
116.25
115.51
114.28
109.53
61.15
55.99
f1 (ppm)

Sample Name	lc/ms	**Position**	P1-A3	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	13-C.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 10:26:31 AM

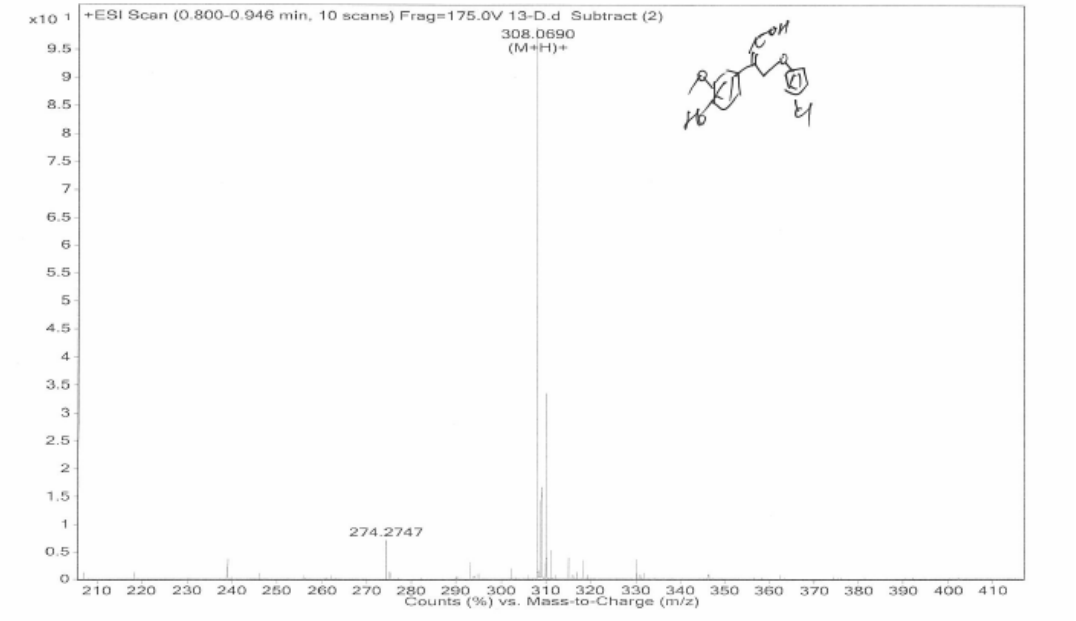


51

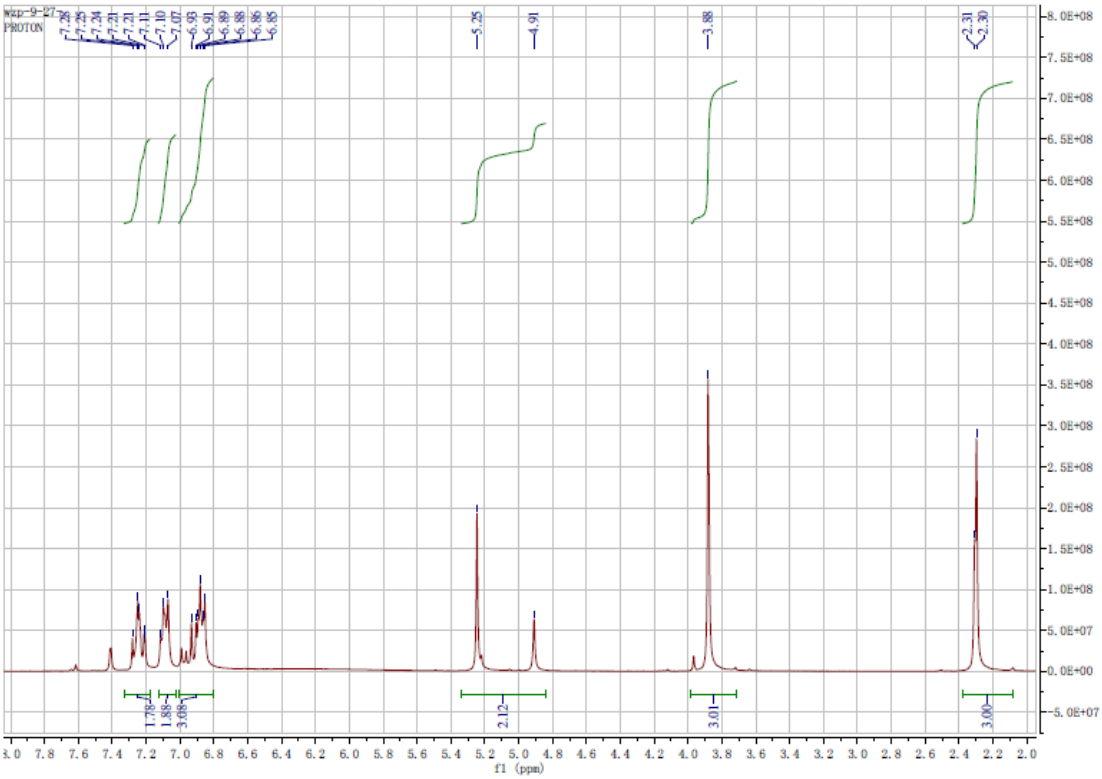




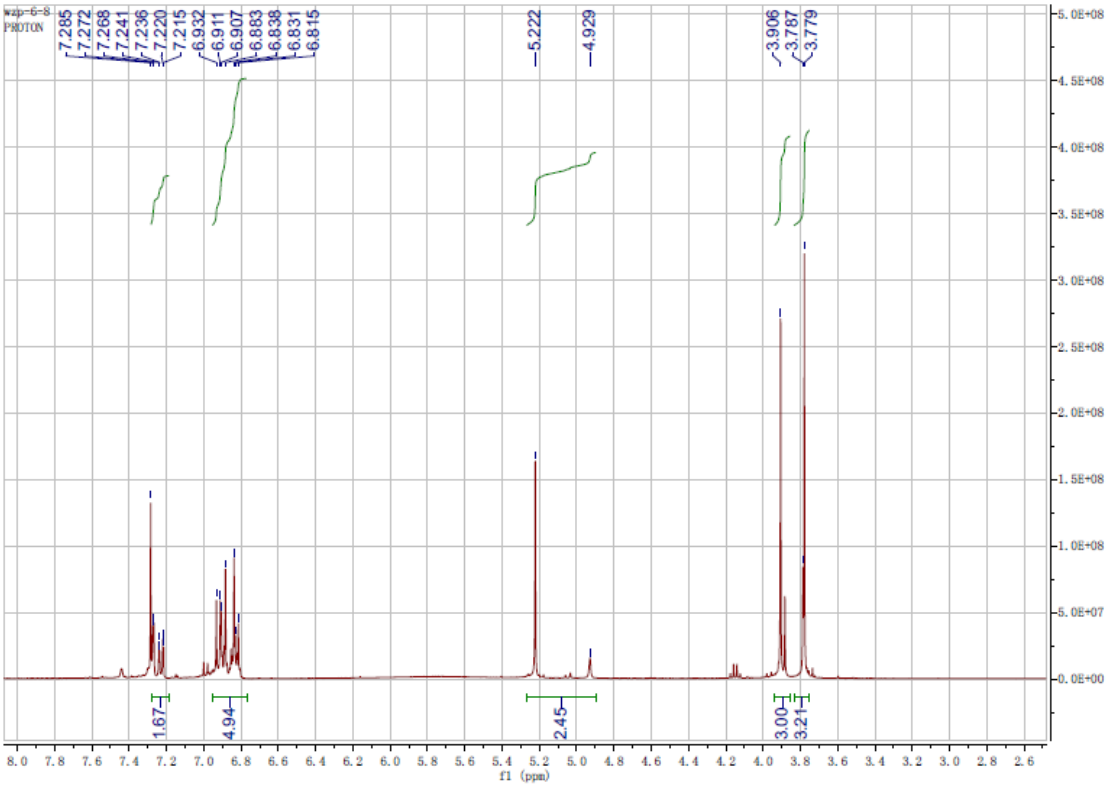
Sample Name	lc/ms	**Position**	P1-A4	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	13-D.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 10:30:17 AM

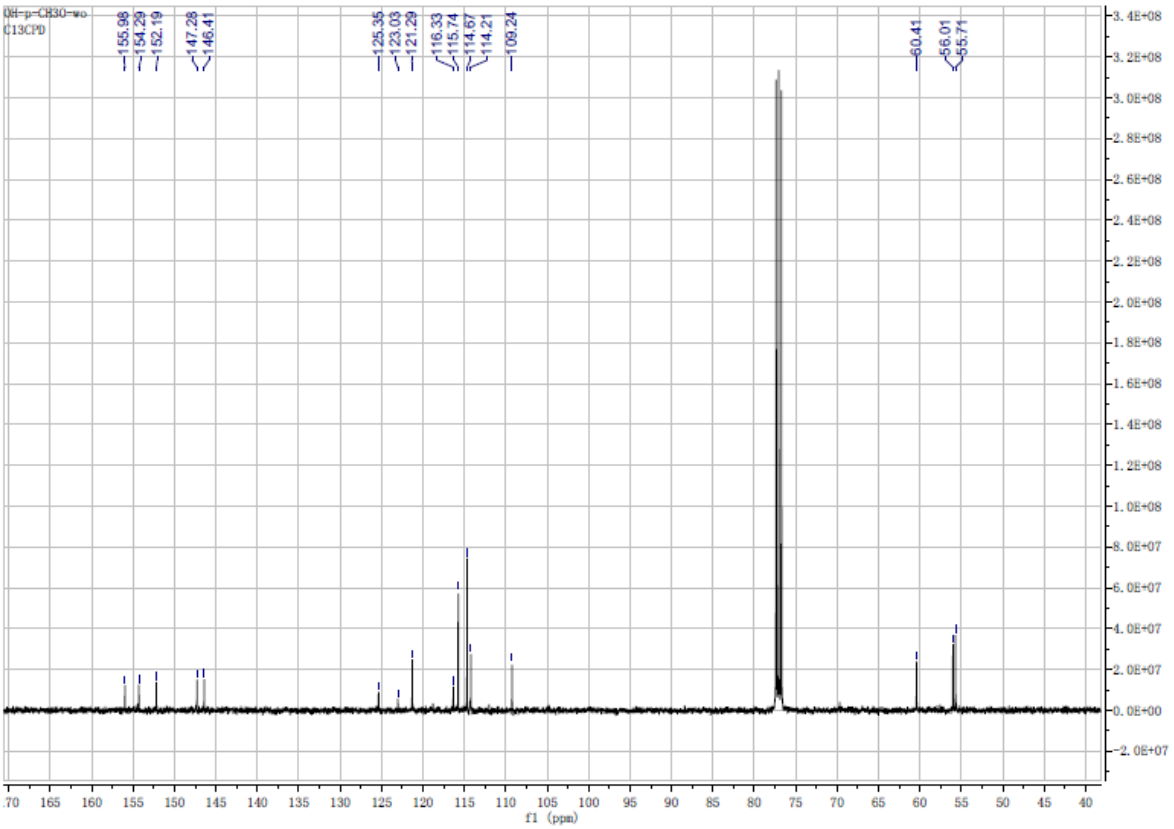


5m

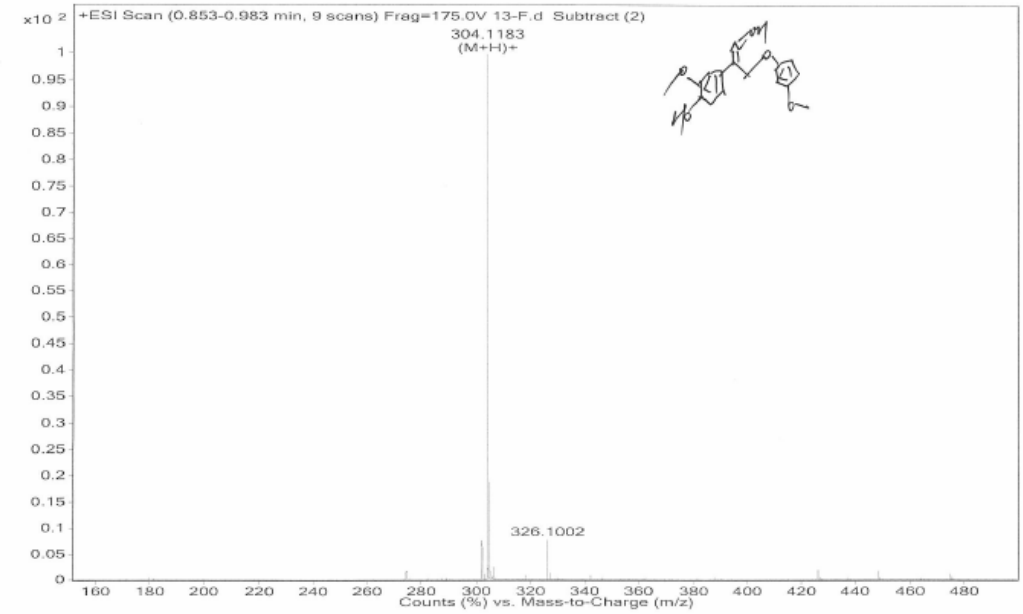

wxp-9-27
PROTON
7.29
7.25
7.24
7.21
7.21
7.11
7.10
7.07
6.93
6.91
6.89
6.88
6.86
6.85
5.25
4.91
3.88
2.31
2.30
1.78
1.88
3.08
2.12
3.01
3.00
f1 (ppm)

5n

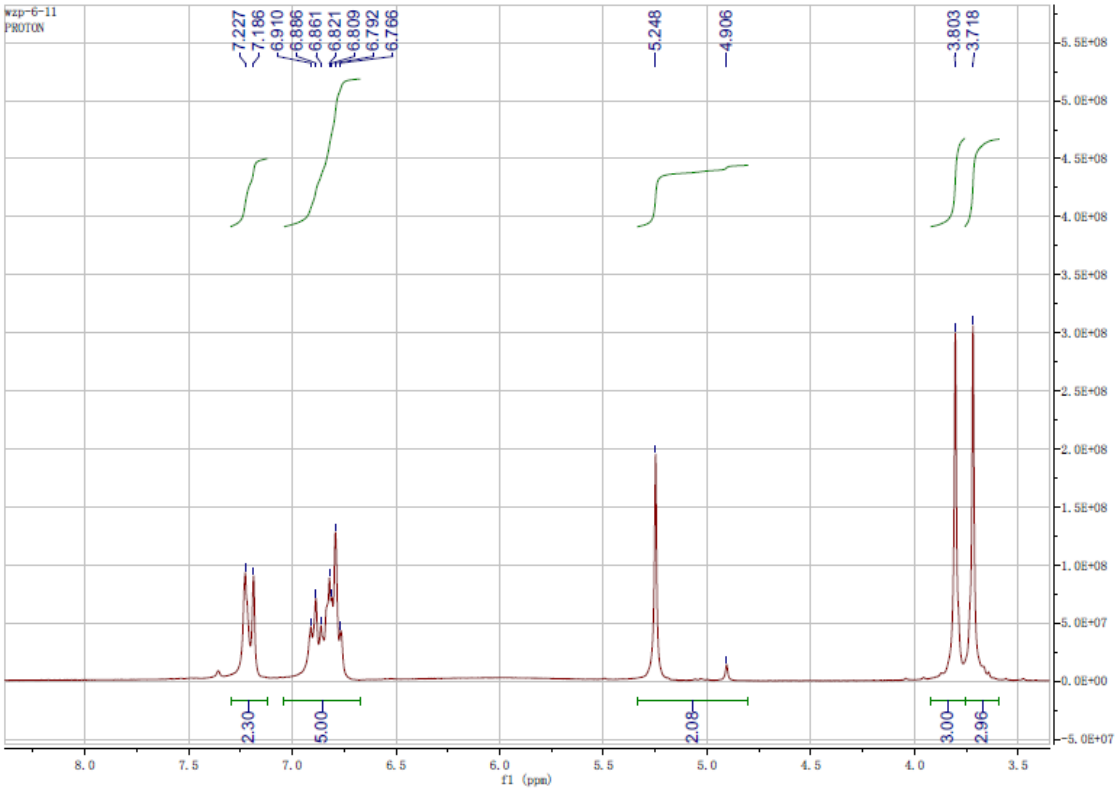

wxp-6-8
PROTON
7.285
7.272
7.268
7.241
7.236
7.220
7.215
6.932
6.911
6.907
6.883
6.838
6.831
6.815
5.222
4.929
3.906
3.787
3.779
1.67
4.94
2.45
3.00
3.21
f1 (ppm)

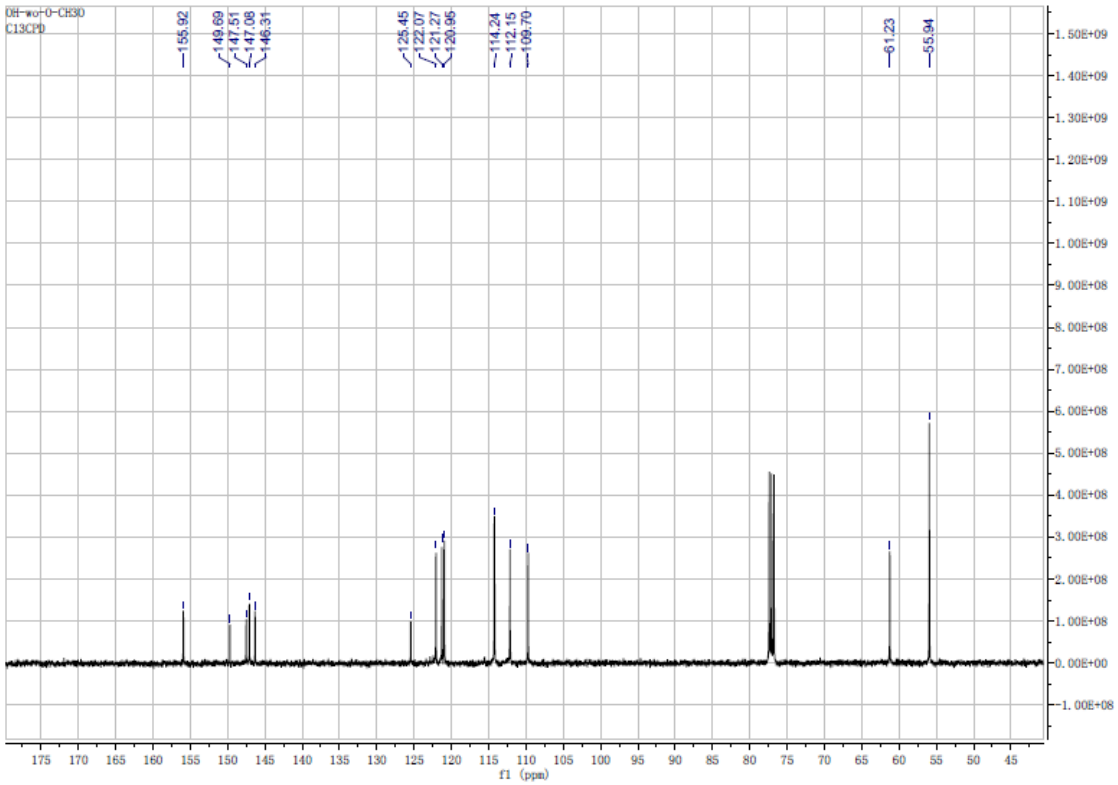


Sample Name	lc/ms	**Position**	P1-A6	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	2	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	13-F.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	10/23/2013 10:37:49 AM

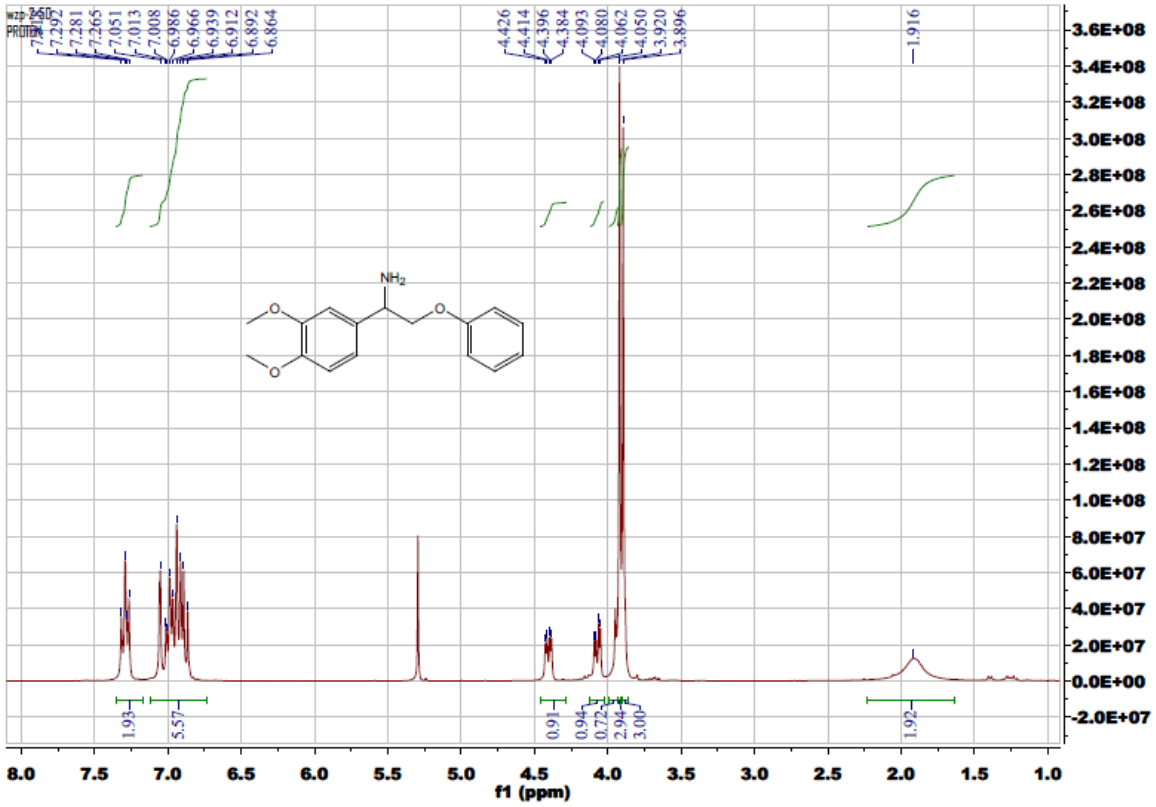


5o

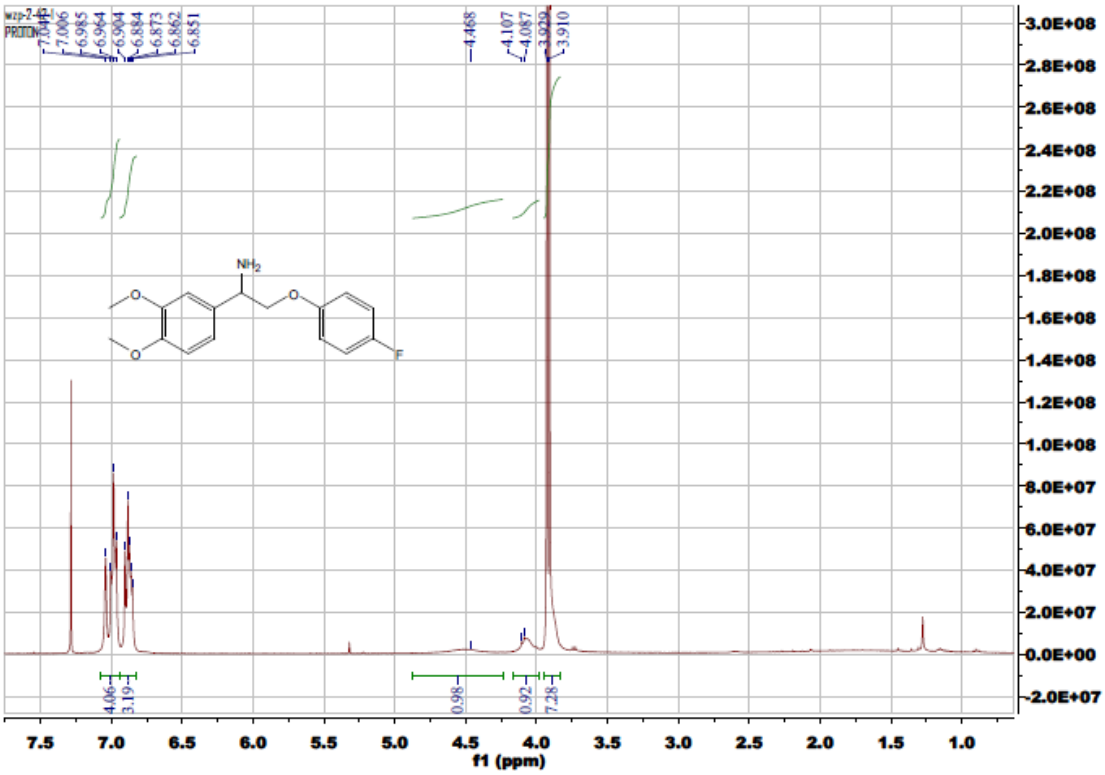

wzp-6-11
PROTON
7.227
7.186
6.910
6.886
6.861
6.821
6.809
6.792
6.766
5.248
4.906
3.803
3.718
2.30
5.00
2.08
3.00
2.96
f1 (ppm)

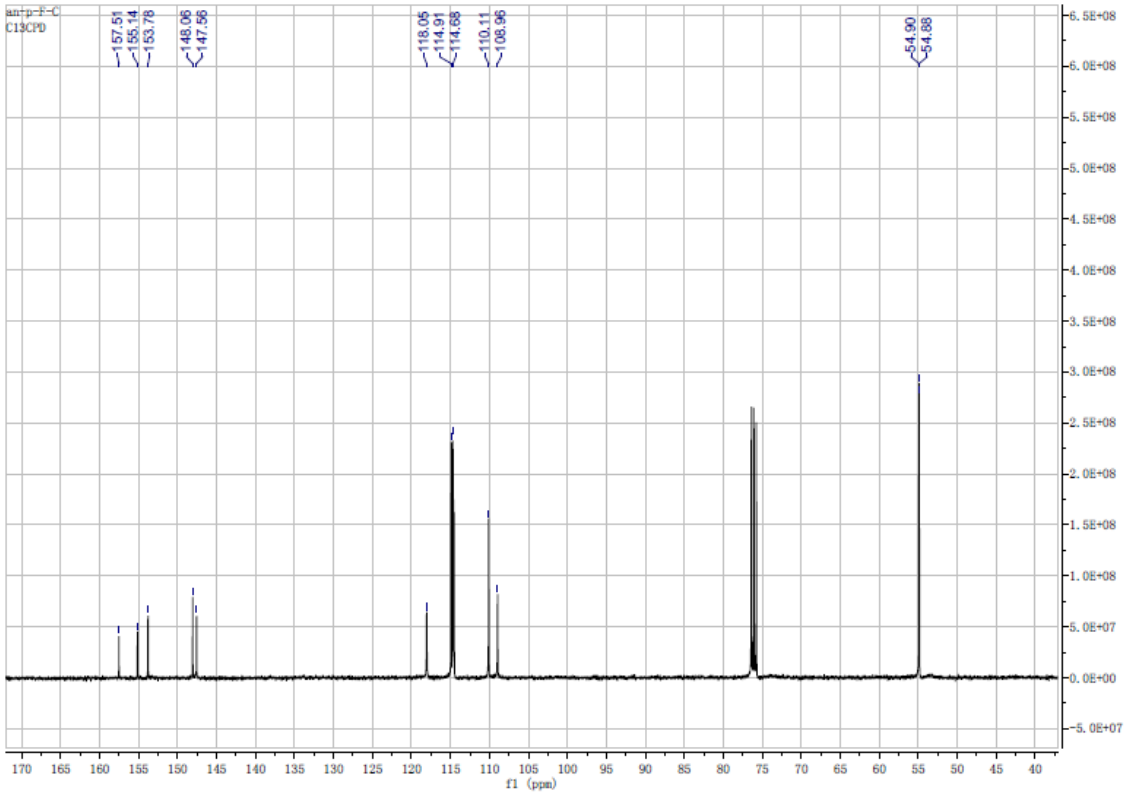

OH-wo-O-CH3O
C13CPD
155.92
149.69
147.51
147.08
146.31
125.45
122.07
121.27
120.96
114.24
112.15
109.70
61.23
55.84
f1 (ppm)

6a

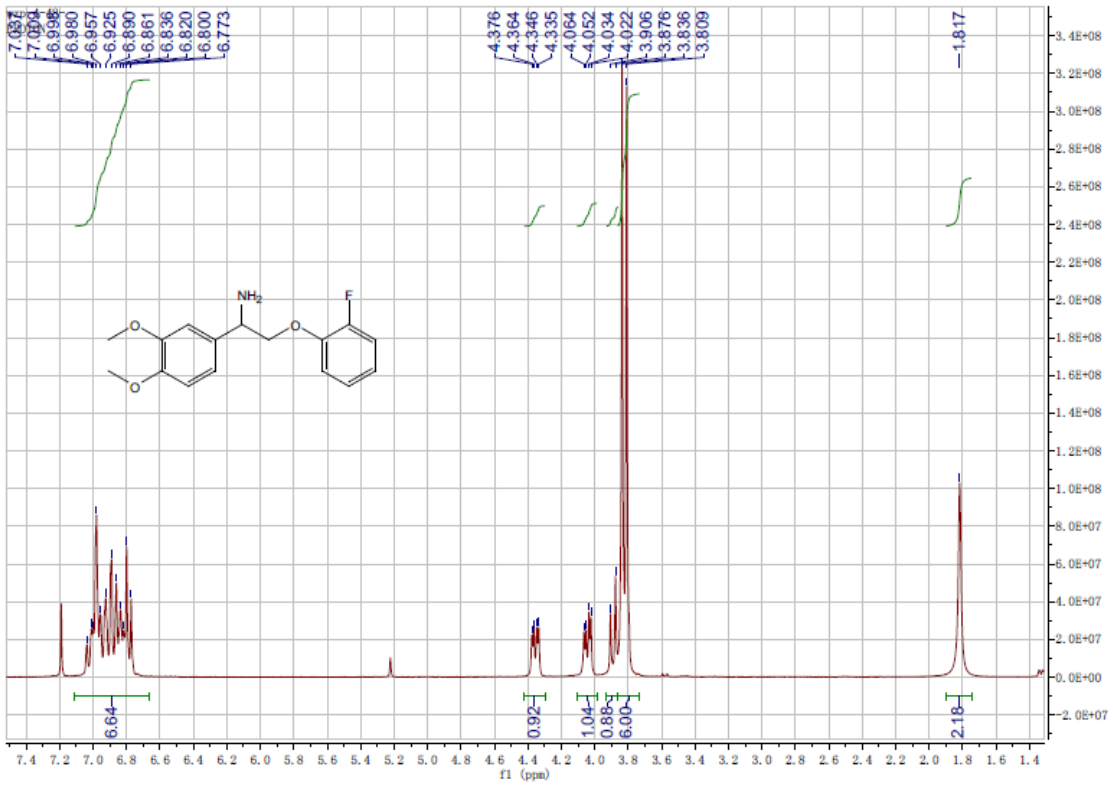

7.292
7.281
7.265
7.051
7.013
7.008
6.986
6.966
6.939
6.912
6.892
6.864
4.426
4.414
4.396
4.384
4.093
4.080
4.062
4.050
3.920
3.896
1.916
NH2
O
O
O
1.93
5.57
0.91
0.94
0.72
2.94
3.00
1.92
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
f1 (ppm)
3.6E+08
3.4E+08
3.2E+08
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
-2.0E+07

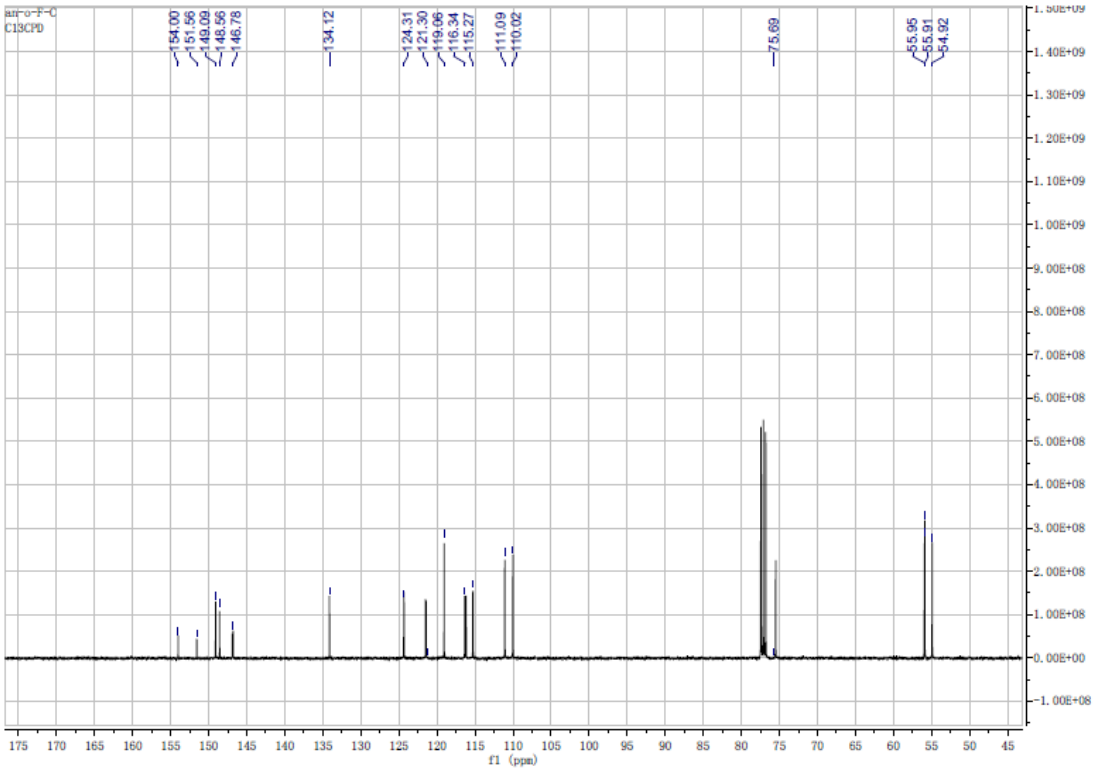
6b


7.006
6.985
6.964
6.904
6.884
6.873
6.862
6.851
4.468
4.107
4.087
3.920
3.910
NH2
O
O
O
F
4.06
3.19
0.98
0.92
7.28
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
f1 (ppm)
3.0E+08
2.8E+08
2.6E+08
2.4E+08
2.2E+08
2.0E+08
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
-2.0E+07

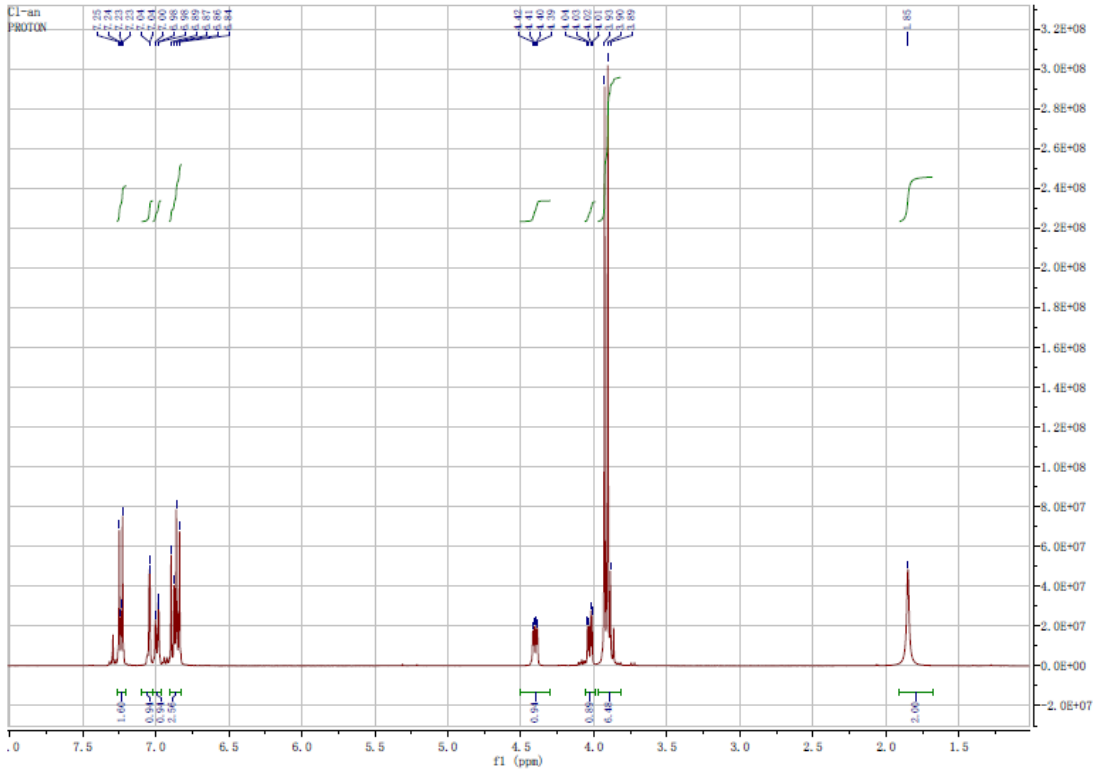

157.51
155.14
153.78
148.06
147.56
118.05
114.91
114.68
110.11
108.96
54.90
54.88
f1 (ppm)

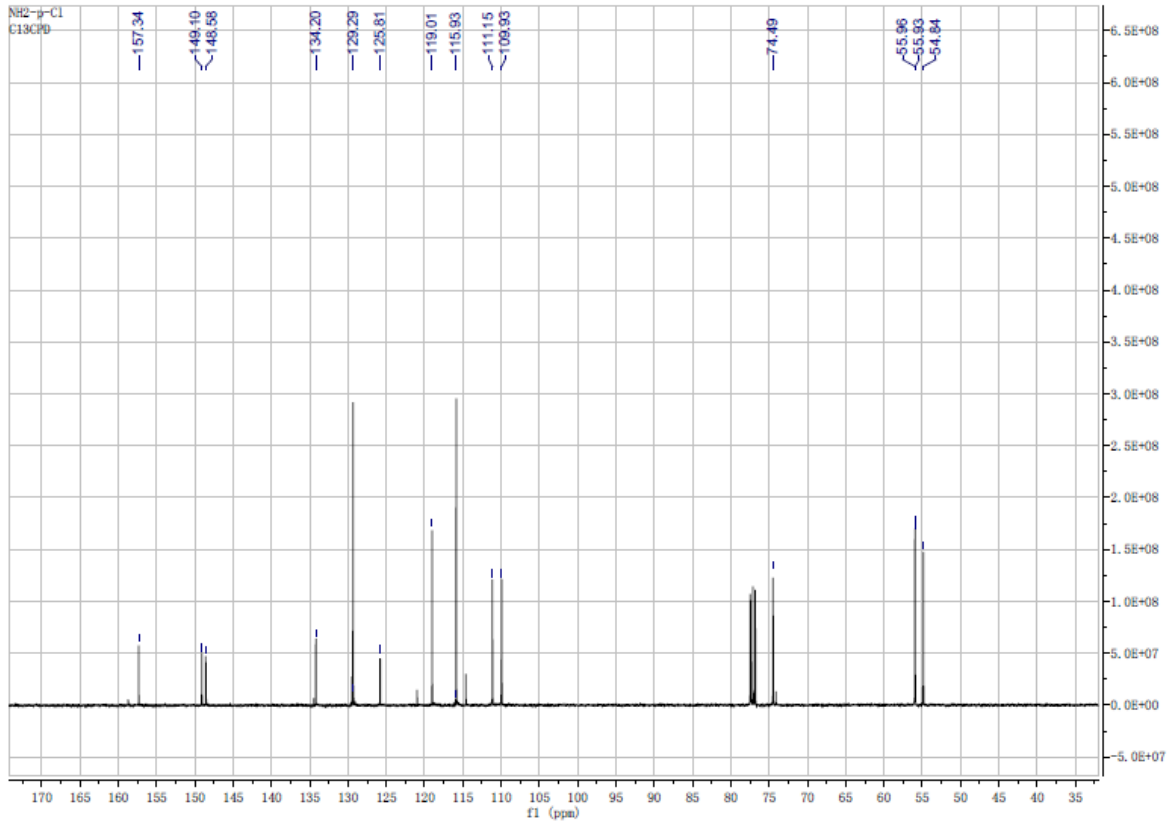
6c


6.980
6.957
6.925
6.890
6.861
6.836
6.820
6.800
6.773
4.376
4.364
4.346
4.335
4.064
4.052
4.034
4.022
3.906
3.876
3.836
3.809
1.817
NH2
F
O
O
O
6.64
0.92
1.04
0.88
6.00
2.18
f1 (ppm)

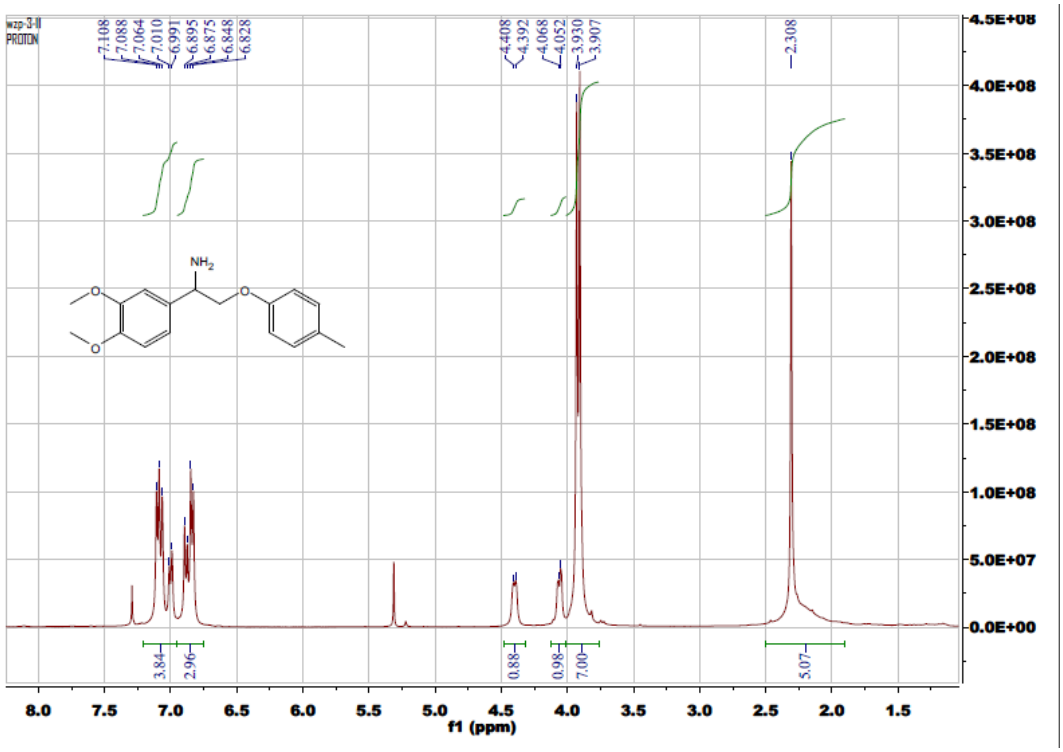

154.00
151.56
149.09
148.96
146.78
134.12
124.31
121.30
119.06
116.34
115.27
111.09
110.02
75.69
55.95
55.91
54.92
f1 (ppm)

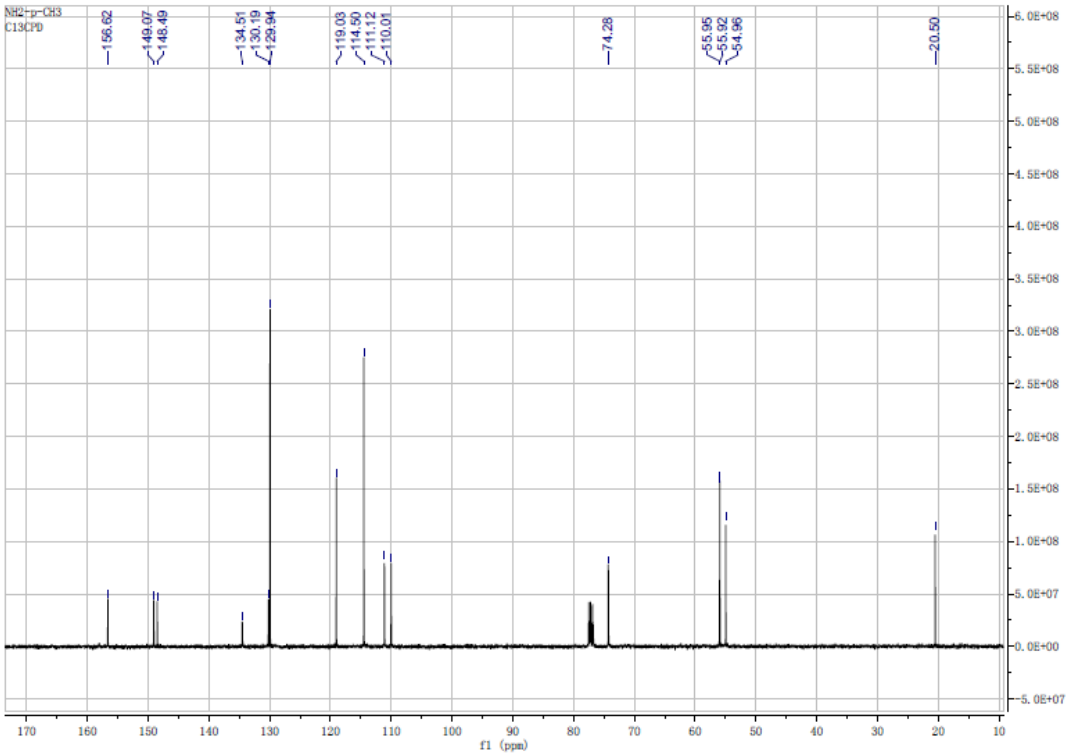
6d


Cl-an
PROTON
f1 (ppm)

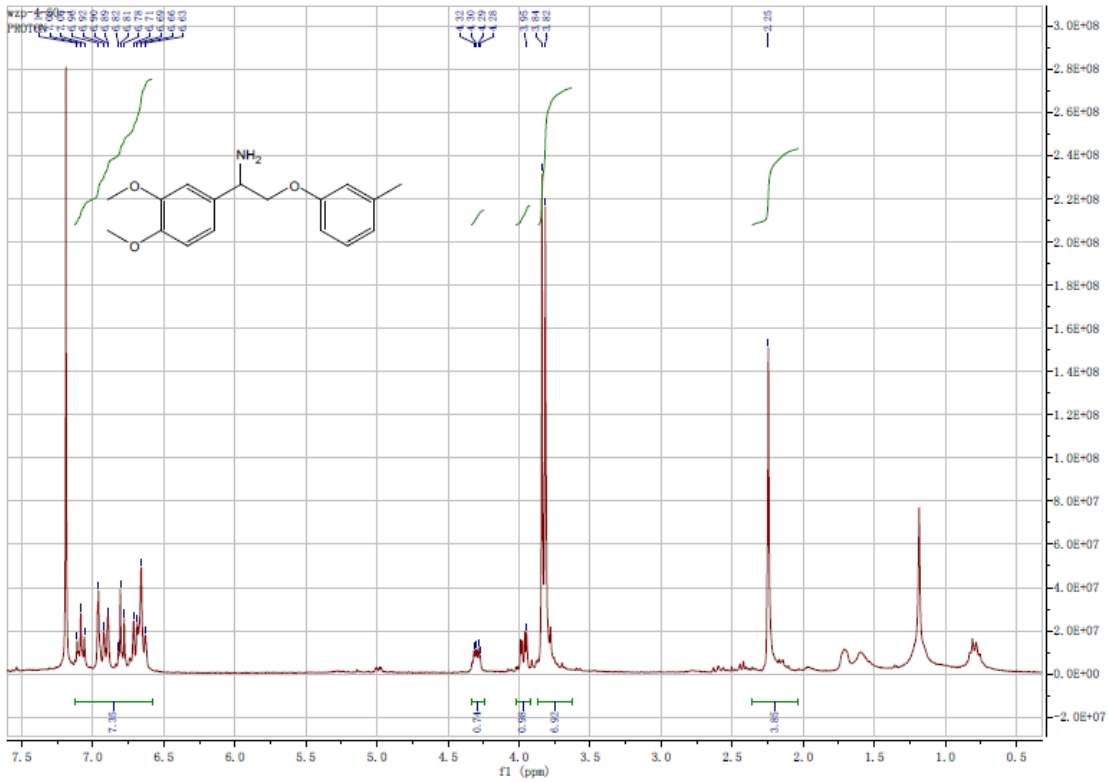

NH2-p-Cl
C13CPD
157.34
149.10
148.58
134.20
129.29
125.81
119.01
115.93
111.15
109.93
74.49
55.96
55.93
54.84
f1 (ppm)

6e

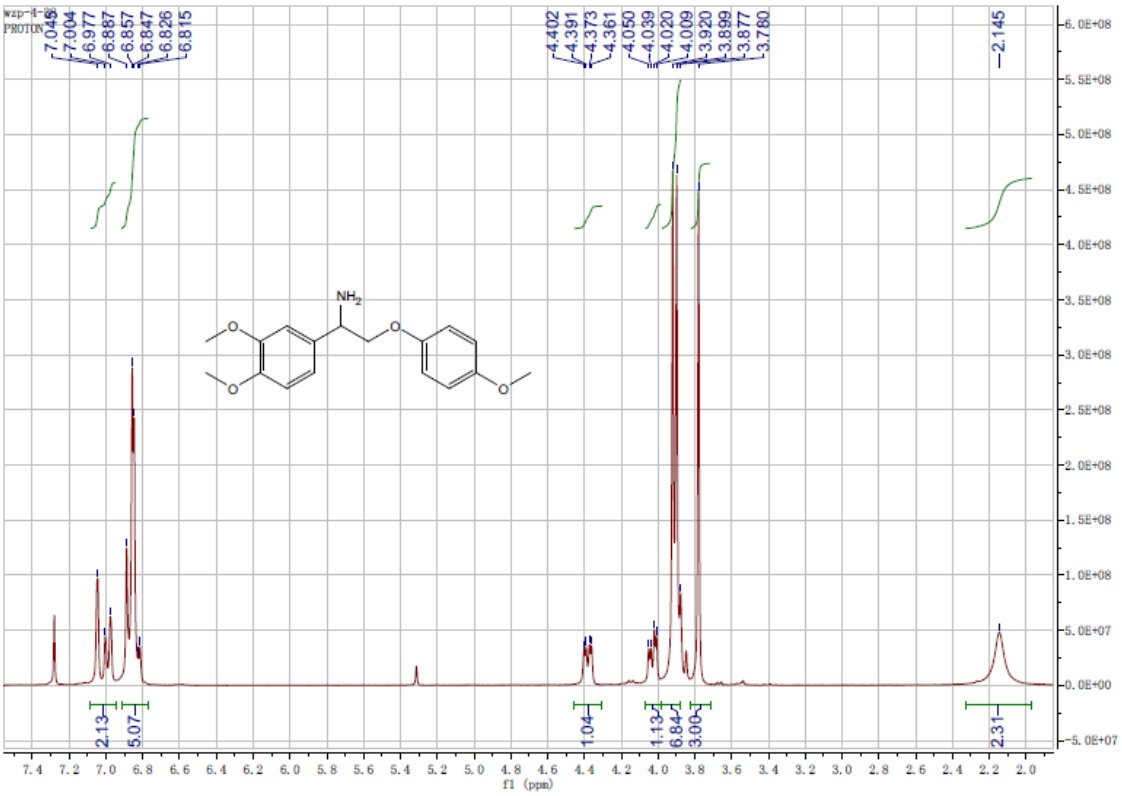

wzp-3-II
PROTON
7.108
7.088
7.064
7.010
6.991
6.895
6.875
6.848
6.828
4.408
4.392
4.068
4.052
3.930
3.907
2.308
NH2
3.84
2.96
0.88
0.98
7.00
5.07
f1 (ppm)


NH2-p-CH3
C13CPD
156.62
149.07
148.49
134.51
130.19
129.94
119.03
114.50
111.12
110.01
74.28
55.95
55.92
54.96
20.50
f1 (ppm)

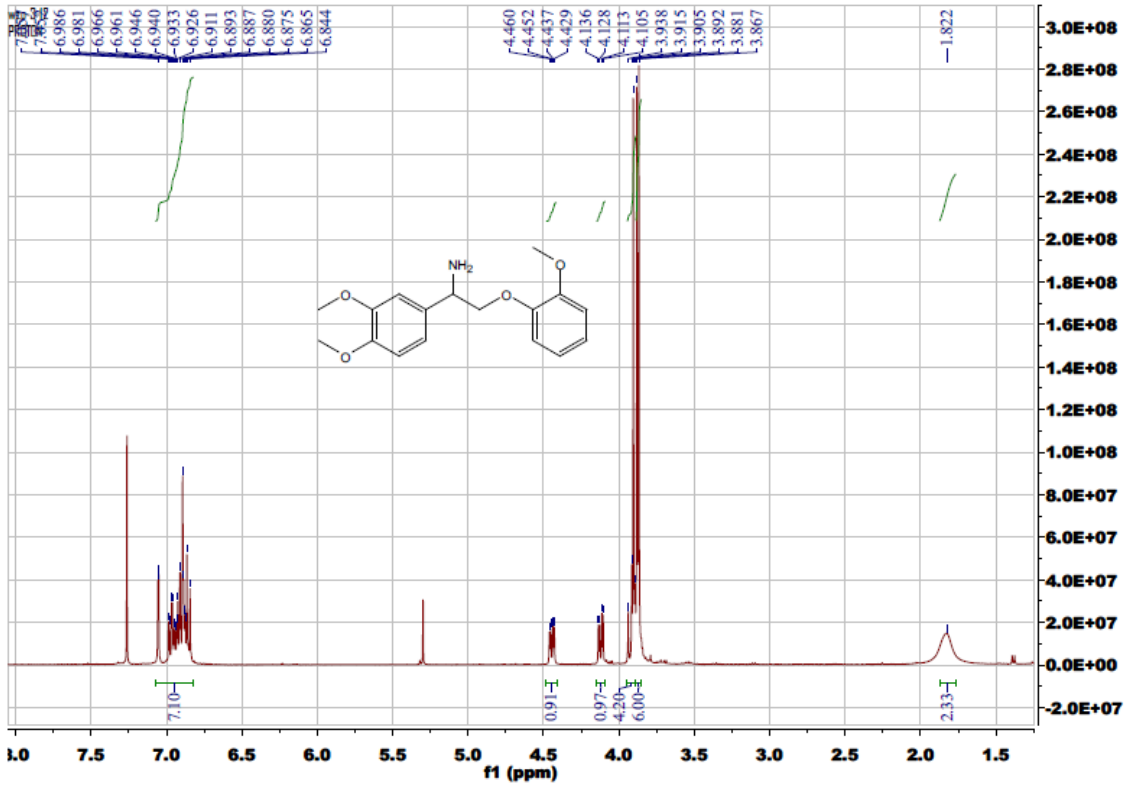
6f


NH2
O
O
O
f1 (ppm)

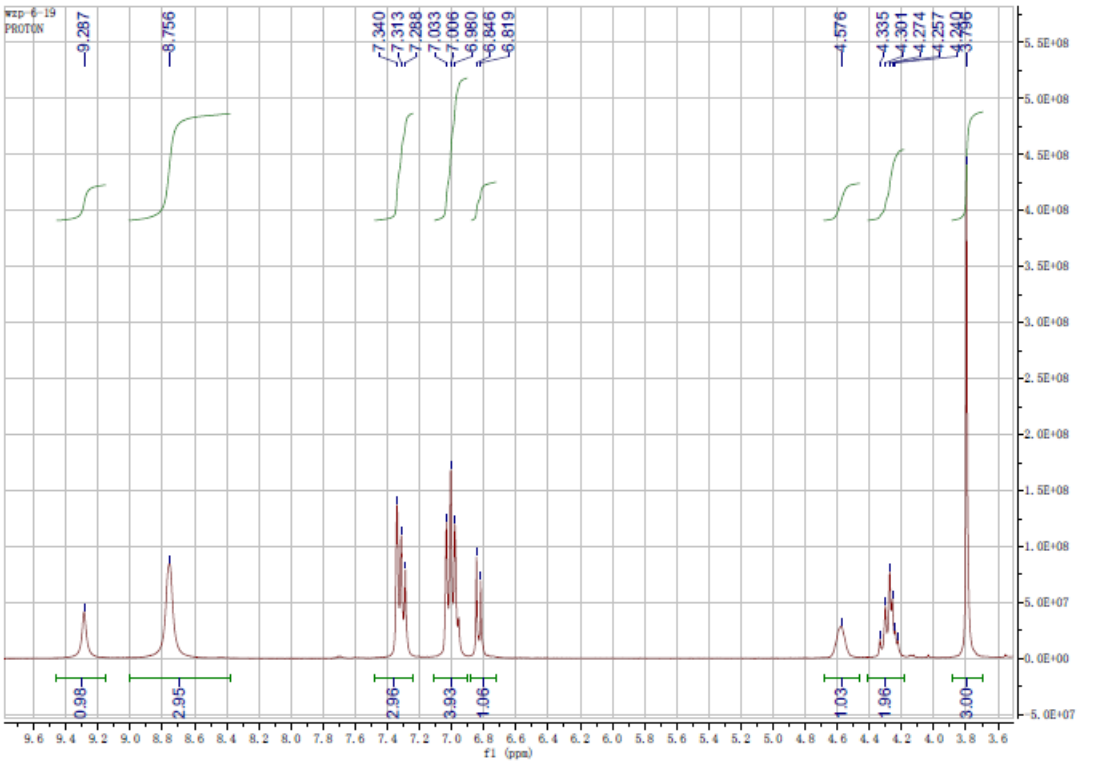
6g

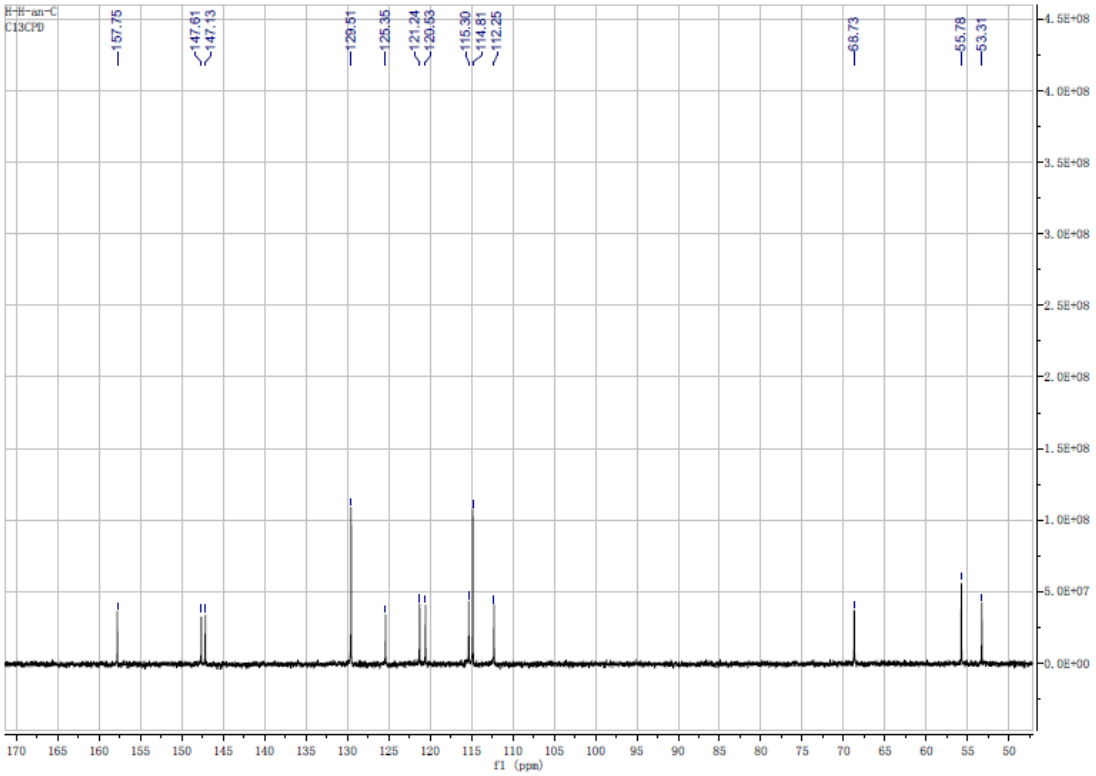

7.045
7.004
6.977
6.887
6.857
6.847
6.826
6.815
4.402
4.391
4.373
4.361
4.050
4.039
4.020
4.009
3.920
3.899
3.877
3.780
2.145
NH2
2.13
5.07
1.04
1.13
6.84
3.00
2.31
f1 (ppm)

6h

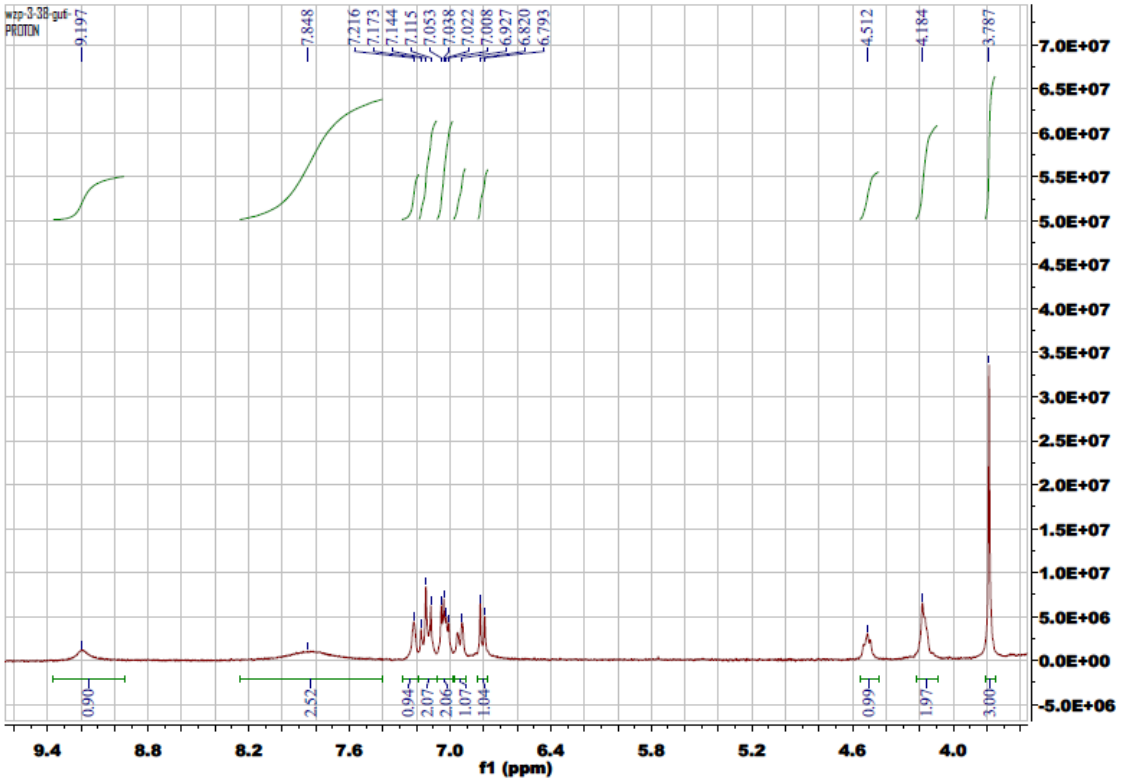

6.986
6.981
6.966
6.961
6.946
6.940
6.933
6.926
6.911
6.893
6.887
6.880
6.875
6.865
6.844
4.460
4.452
4.437
4.429
4.136
4.128
4.113
4.105
3.938
3.915
3.905
3.892
3.881
3.867
1.822
NH2
7.10
0.91
0.97
4.20
6.00
2.33
f1 (ppm)

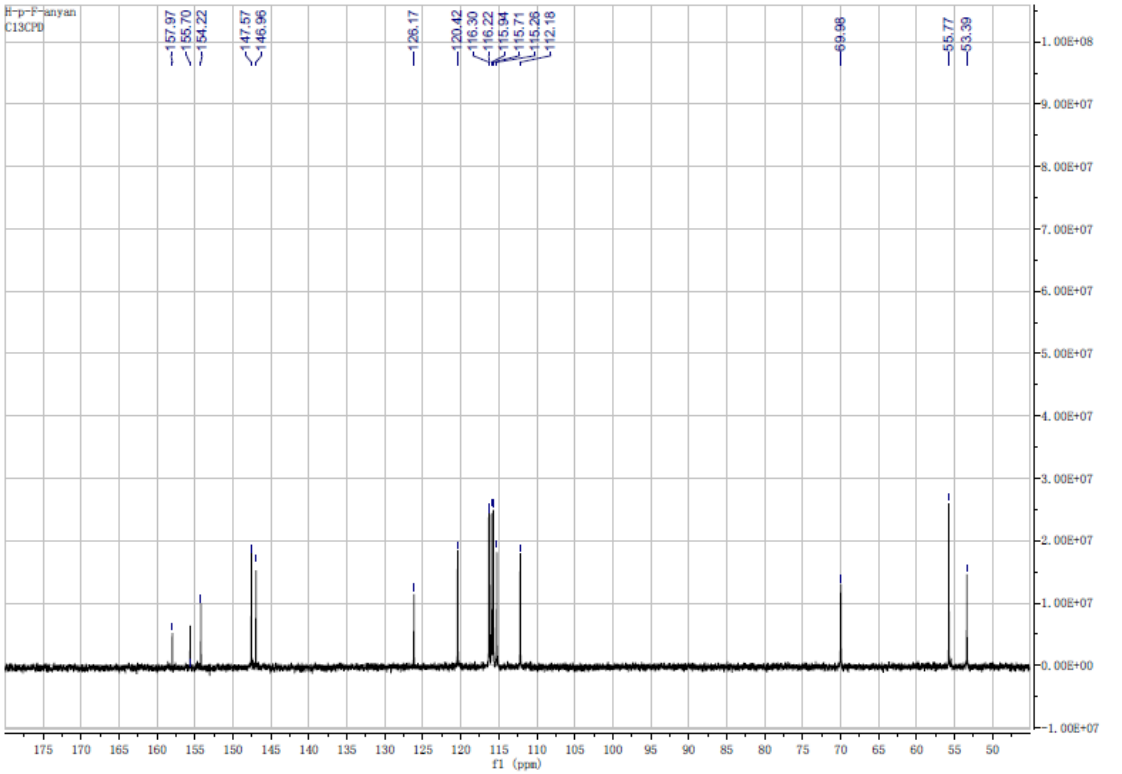
6i


wzp-6-19
PROTON
9.287
8.756
7.340
7.313
7.288
7.033
7.006
6.980
6.846
6.819
4.576
4.335
4.301
4.274
4.257
4.240
3.796
0.98
2.95
2.96
3.93
1.06
1.03
1.96
3.00
f1 (ppm)

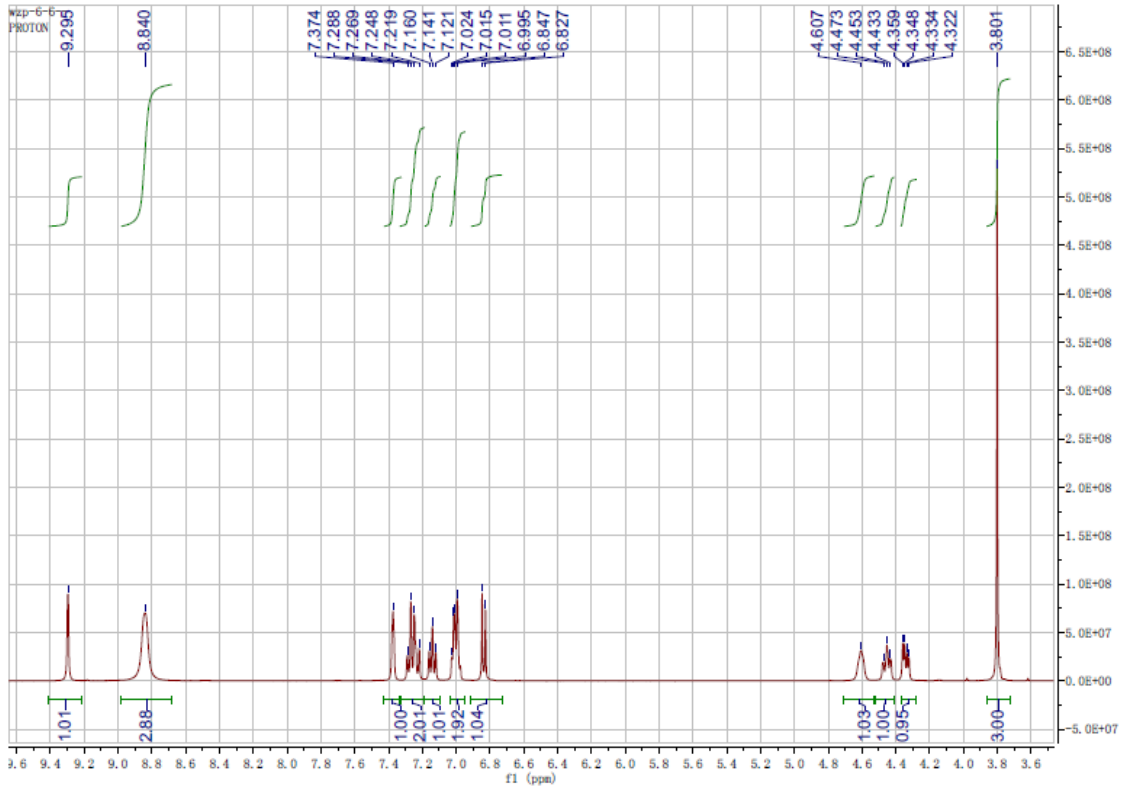

H-H-an-C
C13CPD
157.75
147.61
147.13
129.51
125.35
121.24
120.53
115.30
114.81
112.25
68.73
55.78
53.31
f1 (ppm)

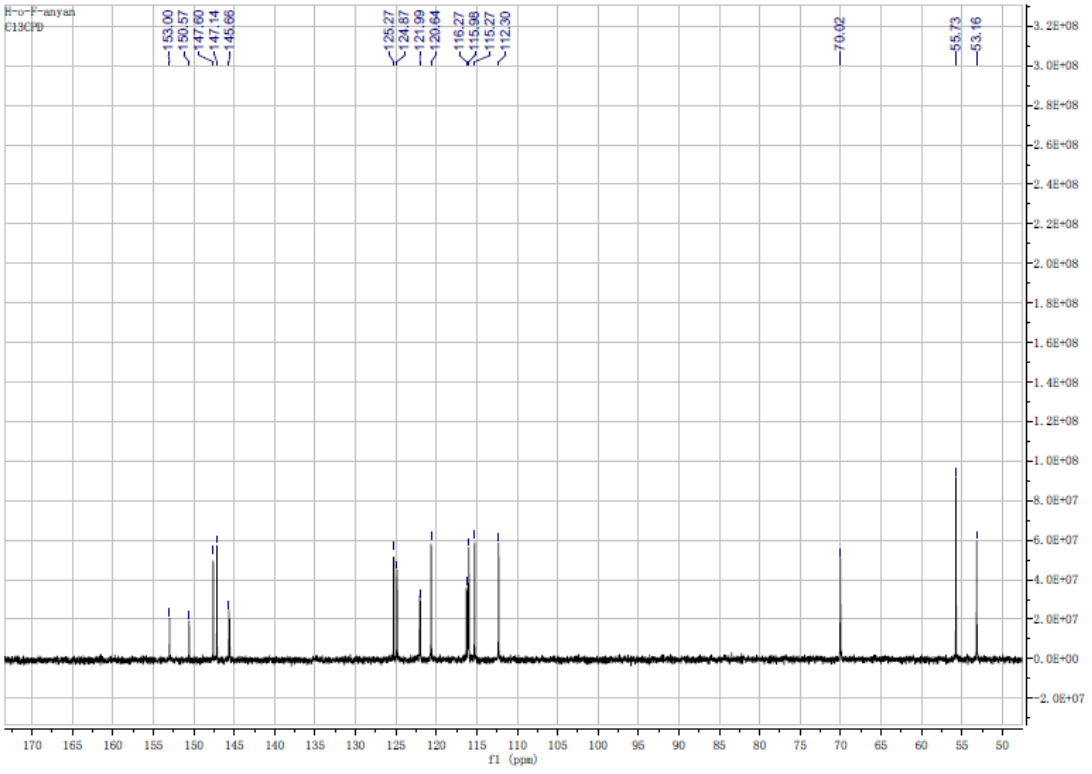
6j


wzp-3-38-guf-
PROTON
9.197
7.848
7.216
7.173
7.144
7.115
7.053
7.038
7.022
7.008
6.927
6.820
6.793
4.512
4.184
3.787
0.90
2.52
0.94
2.07
2.06
1.07
1.04
0.99
1.97
3.00
f1 (ppm)

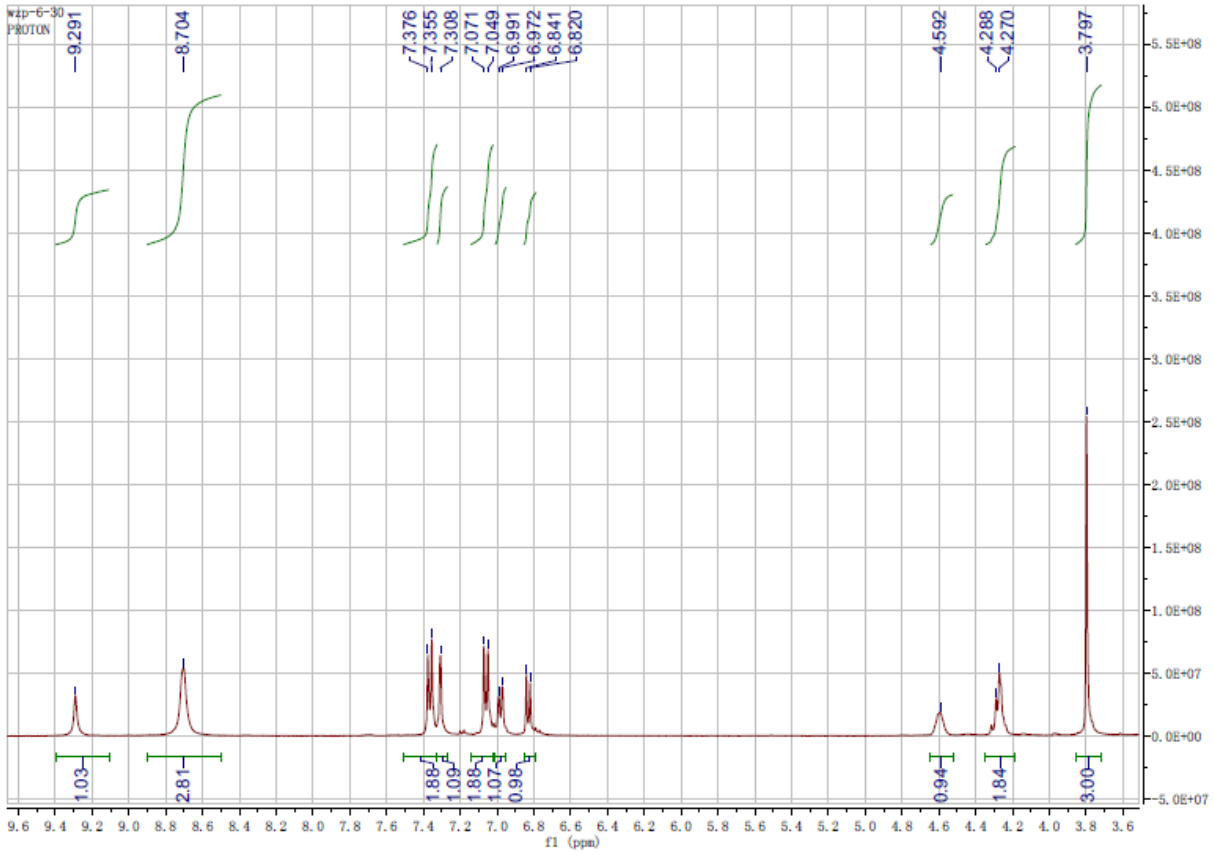

H-p-F-anyan
C13CPD
157.97
155.70
154.22
147.57
146.96
126.17
120.42
116.30
116.22
115.94
115.71
115.26
112.18
69.98
55.77
53.39
f1 (ppm)

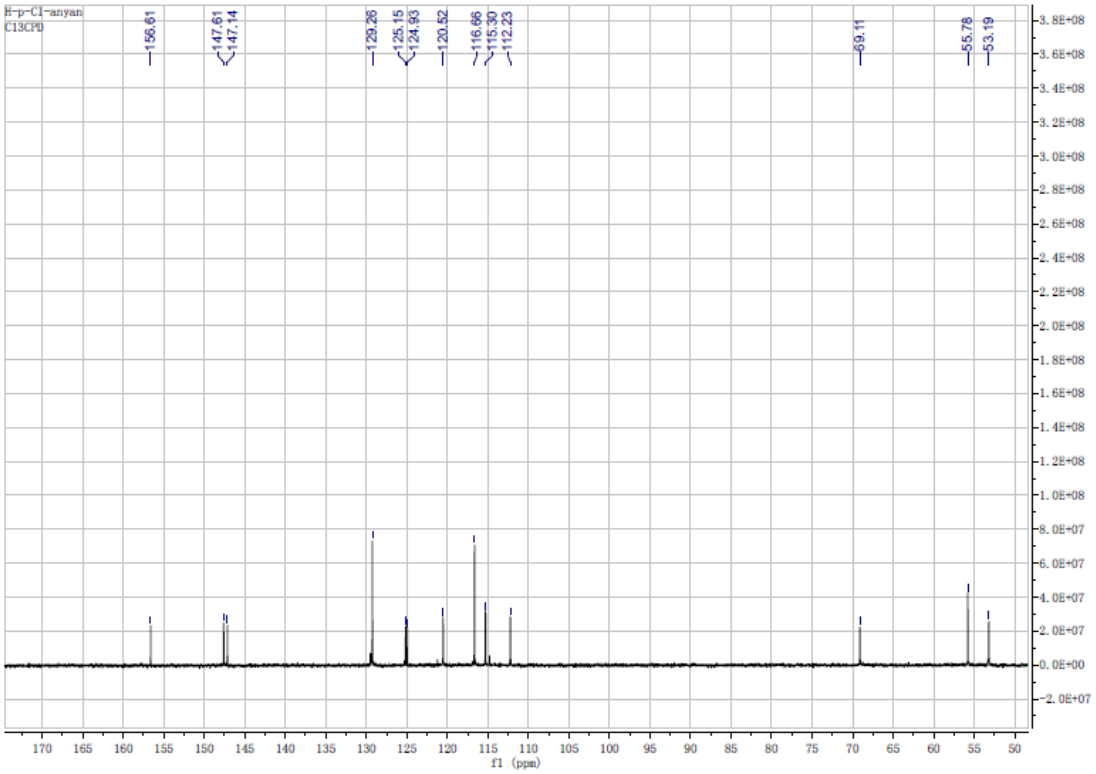
6k


wzp-6-6
PROTON
9.295
8.840
7.374
7.288
7.269
7.248
7.219
7.160
7.141
7.121
7.024
7.015
7.011
6.995
6.847
6.827
4.607
4.473
4.453
4.433
4.359
4.348
4.334
4.322
3.801
1.01
2.88
1.00
2.01
1.01
1.92
1.04
1.03
1.00
0.95
3.00
f1 (ppm)

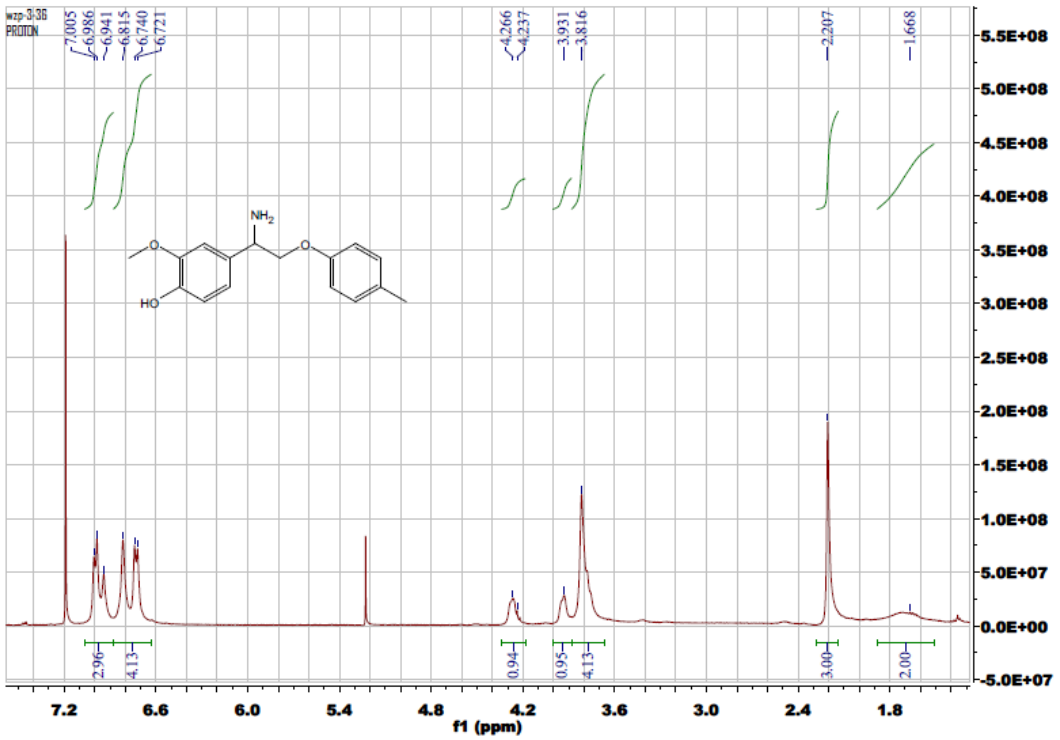

H-o-F-anyan
C13CPD
153.00
150.57
147.60
147.14
145.66
125.27
124.87
121.99
120.64
116.27
115.98
115.27
112.30
70.02
55.73
53.16
f1 (ppm)

6l

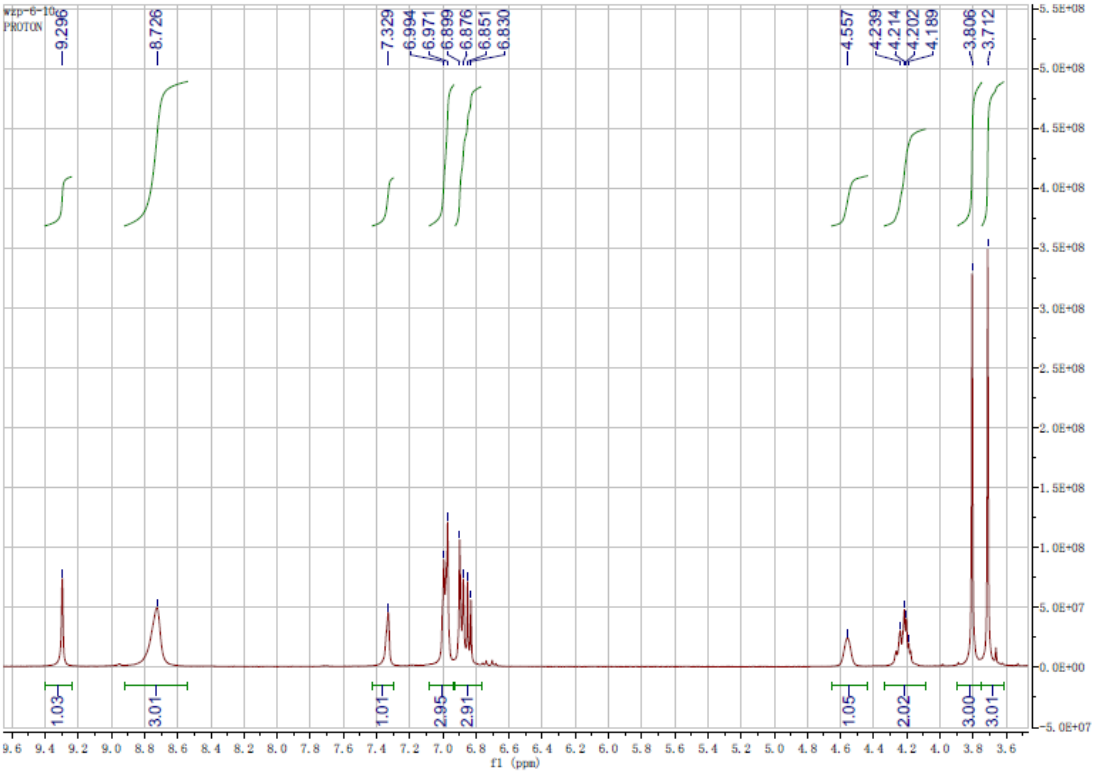

wzp-6-30
PROTON
9.291
8.704
7.376
7.355
7.308
7.071
7.049
6.991
6.972
6.841
6.820
4.592
4.288
4.270
3.797
1.03
2.81
1.88
1.09
1.88
1.07
0.98
0.94
1.84
3.00
f1 (ppm)

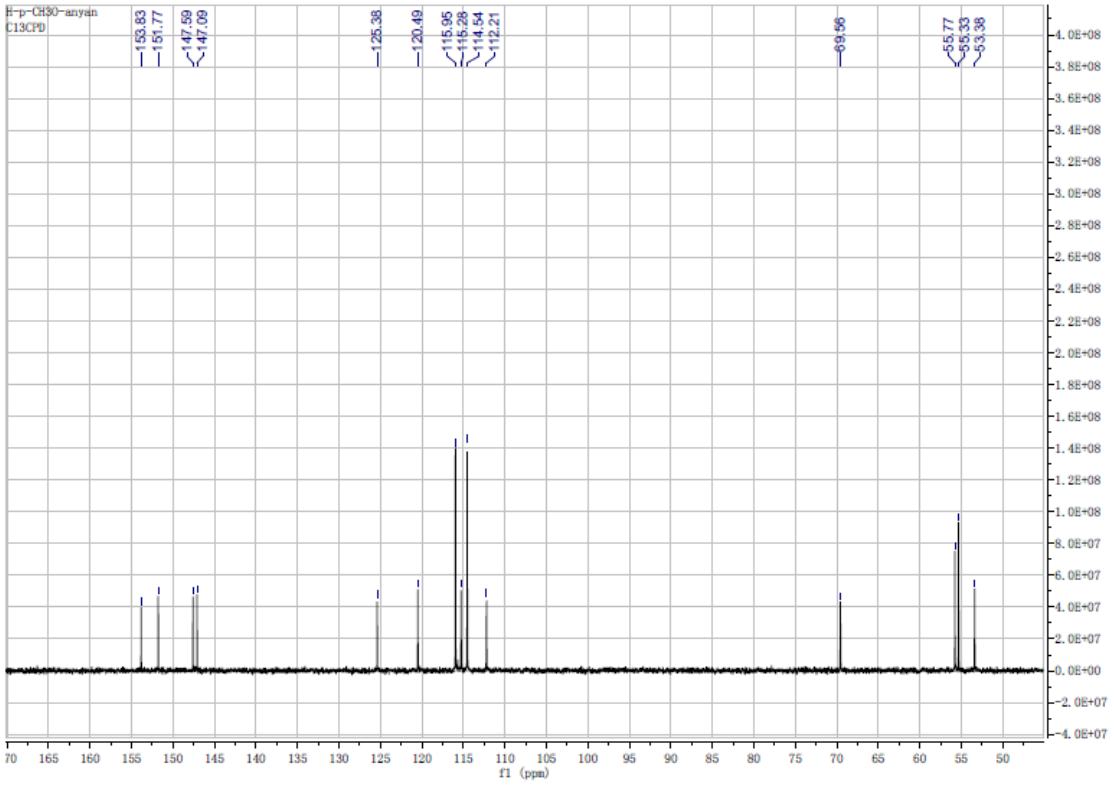

H-p-Cl-anyan
C13CPD
156.61
147.61
147.14
129.26
125.15
124.93
120.52
116.66
115.30
112.23
69.11
55.76
53.19
f1 (ppm)

6m

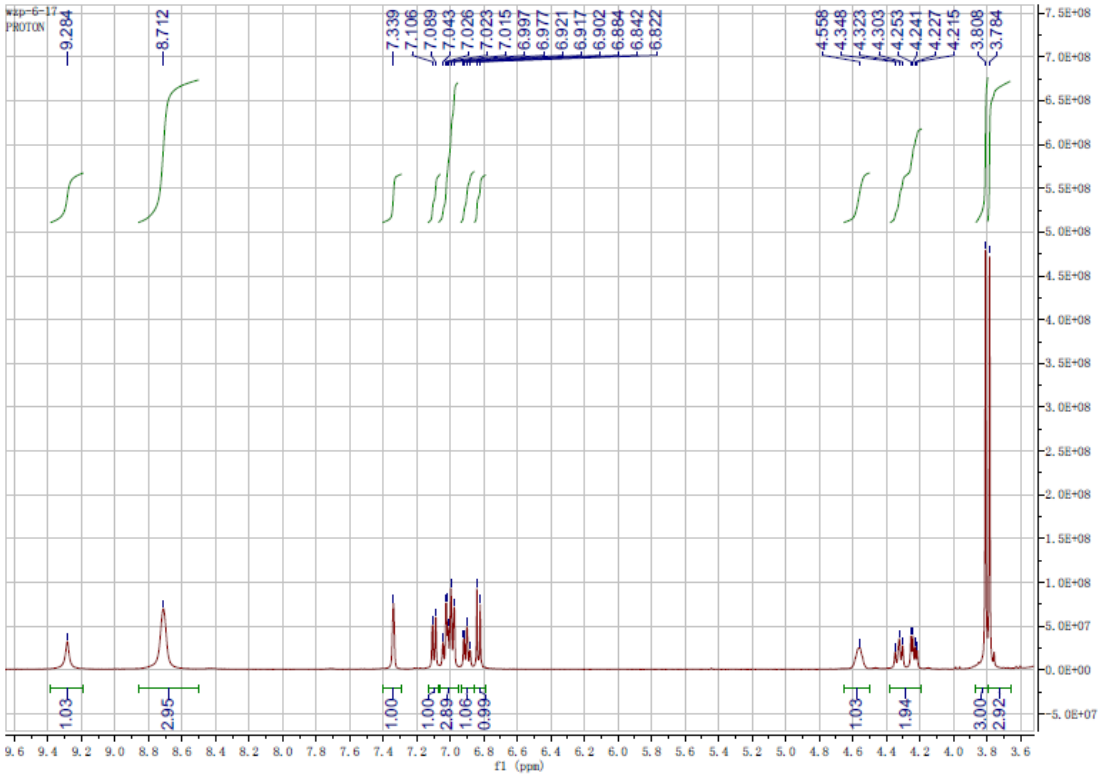

wzp-3-3B
PROTON
7.005
6.986
6.941
6.815
6.740
6.721
4.266
4.237
3.931
3.816
2.207
1.668
NH2
O
HO
2.96
4.13
0.94
0.95
4.13
3.00
2.00
f1 (ppm)

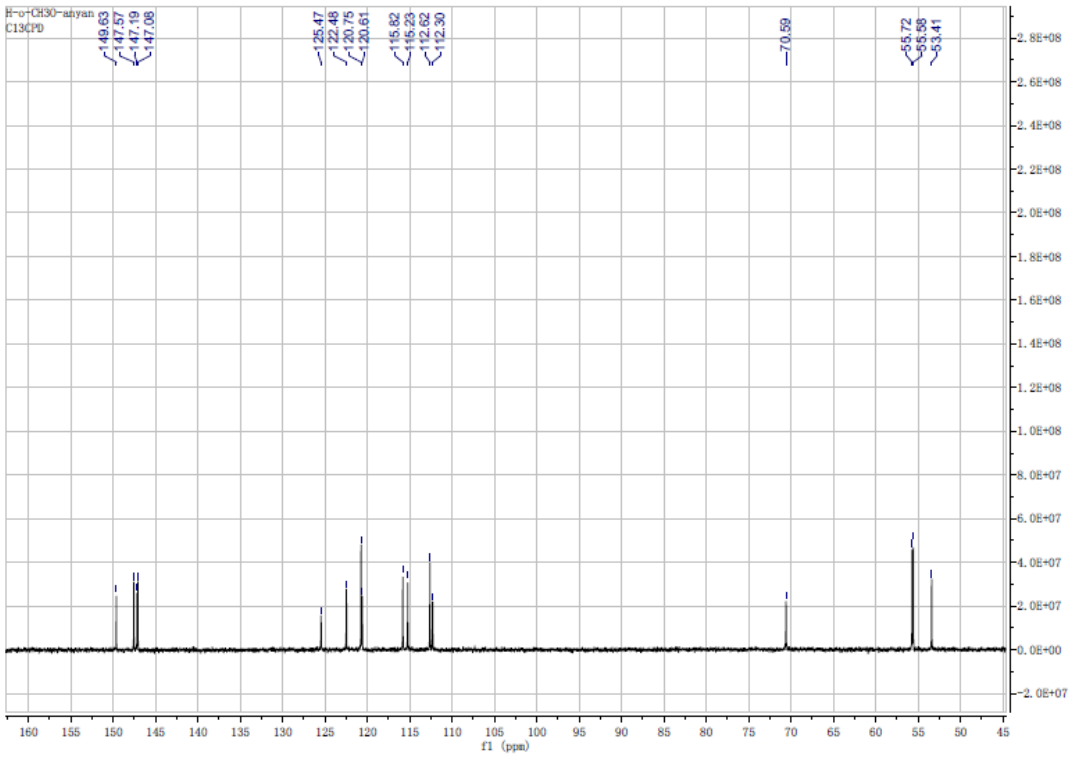
6n


PROTON
9.296
8.726
7.329
6.994
6.971
6.899
6.876
6.851
6.830
4.557
4.239
4.214
4.202
4.189
3.806
3.712
1.03
3.01
1.01
2.95
2.91
1.05
2.02
3.00
3.01
f1 (ppm)

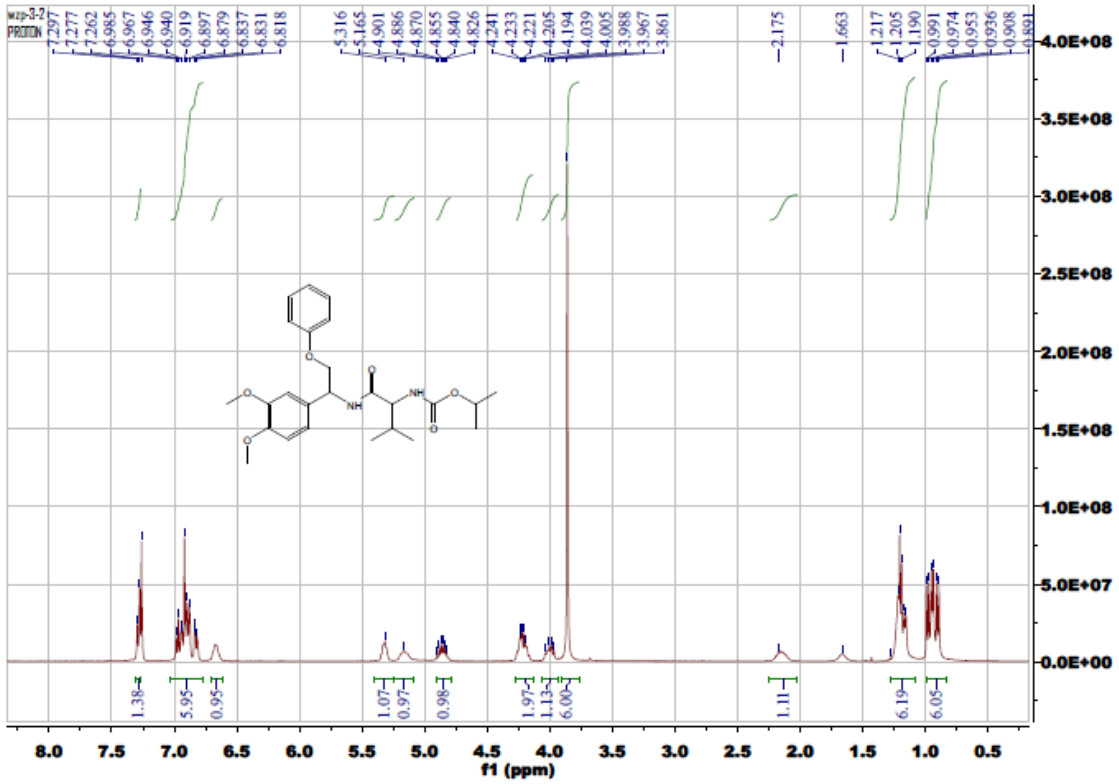

H-p-CH3O-anyan
C13CPD
153.83
151.77
147.59
147.09
125.38
120.49
115.95
115.28
114.54
112.21
69.66
55.77
55.33
53.38
f1 (ppm)

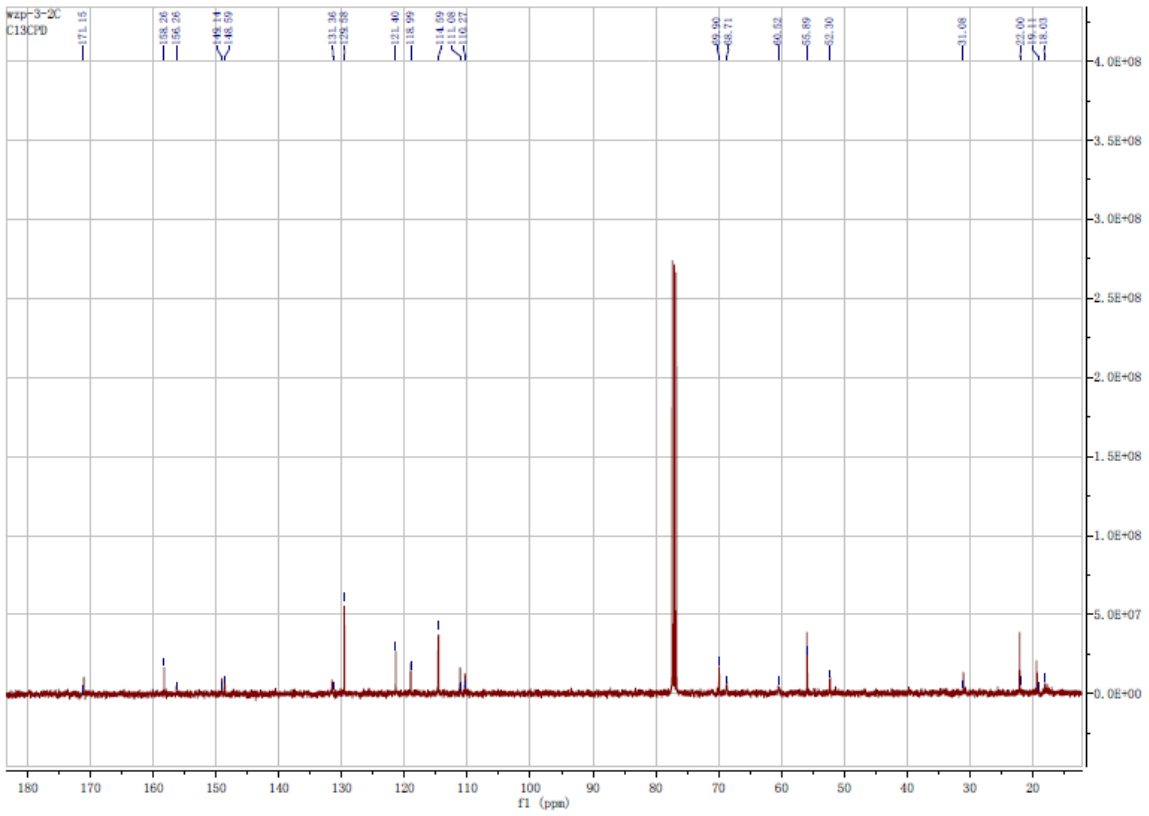
6o


wip-6-17
PROTON
9.284
8.712
7.339
7.106
7.089
7.043
7.026
7.023
7.015
6.997
6.977
6.921
6.917
6.902
6.884
6.842
6.822
4.558
4.348
4.323
4.303
4.253
4.241
4.227
4.215
3.808
3.784
1.03
2.95
1.00
1.00
2.89
1.06
0.99
1.03
1.94
3.00
2.92
f1 (ppm)


H-o-CH3O-anyan
C13CPD
149.63
147.57
147.19
147.08
125.47
122.48
120.75
120.61
115.82
115.23
112.62
112.30
70.59
55.72
55.58
53.41
f1 (ppm)

8a

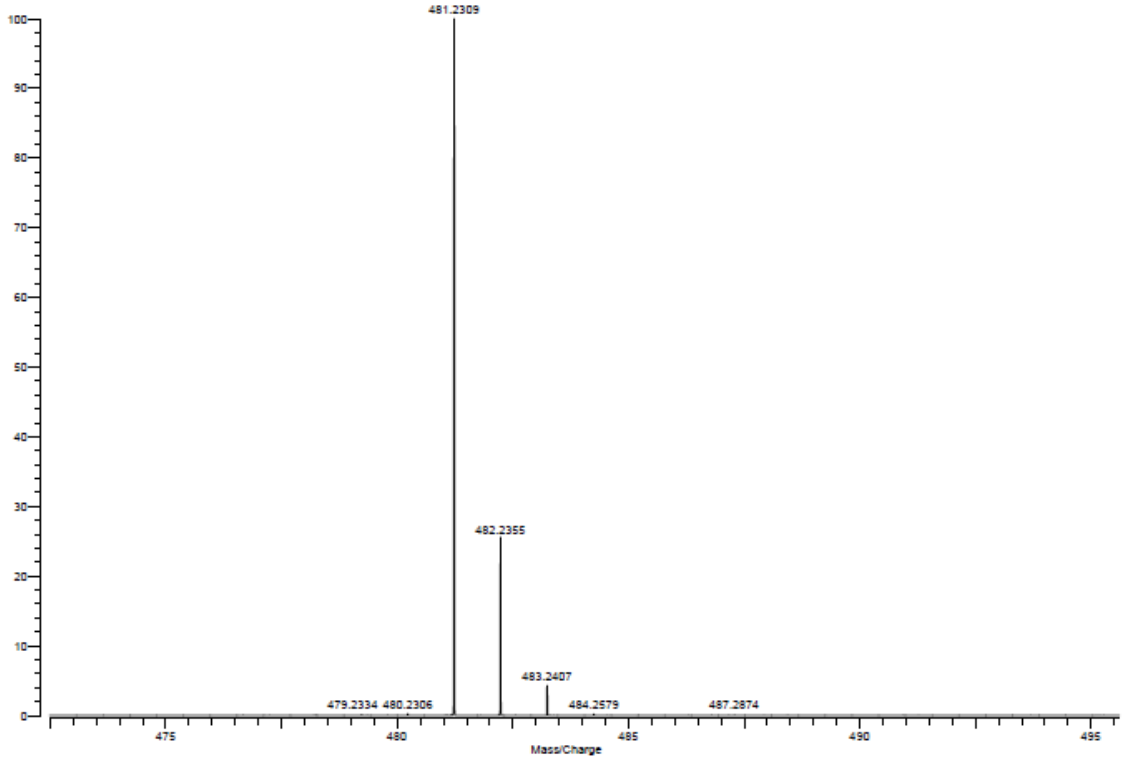

wzp-3-2
PROTON
7.297
7.277
7.262
6.985
6.967
6.946
6.940
6.919
6.897
6.879
6.837
6.831
6.818
5.316
5.165
4.901
4.886
4.870
4.855
4.840
4.826
4.241
4.233
4.221
4.205
4.194
4.039
4.005
3.988
3.967
3.861
2.175
1.663
1.217
1.205
1.190
0.991
0.974
0.953
0.936
0.908
0.891
1.38
5.95
0.95
1.07
0.97
0.98
1.97
1.13
6.00
1.11
6.19
6.05
f1 (ppm)



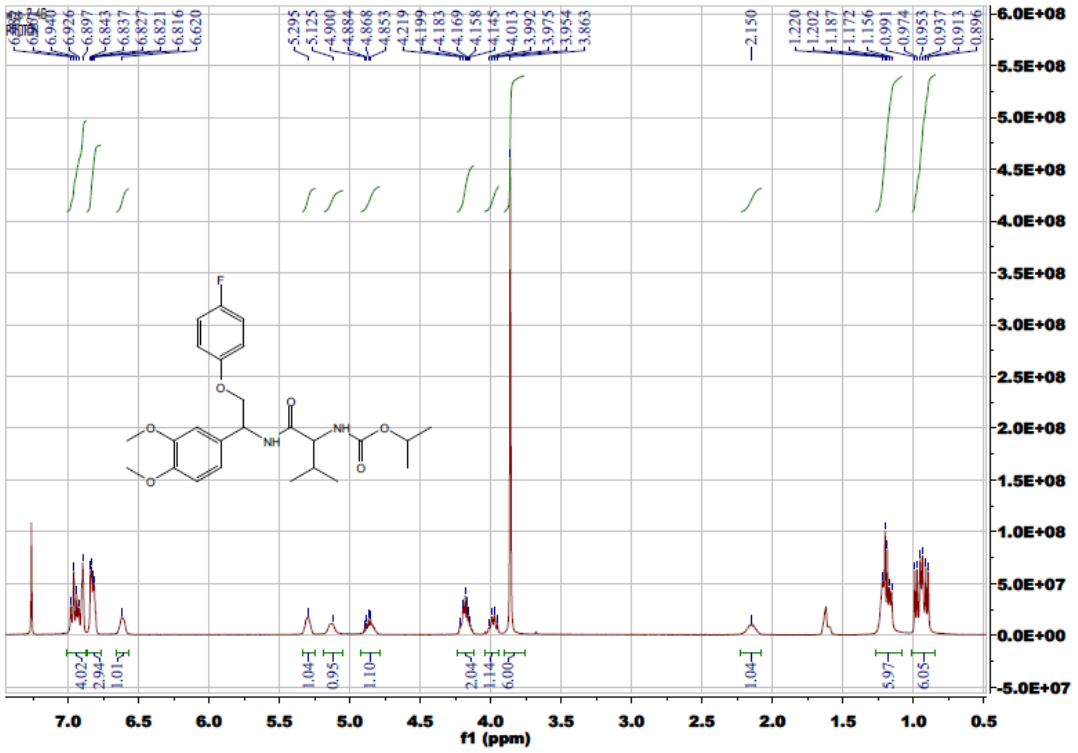
Varian ProMALDI
File: ZWG-WZP-3-2-LASER60-DHB.trans

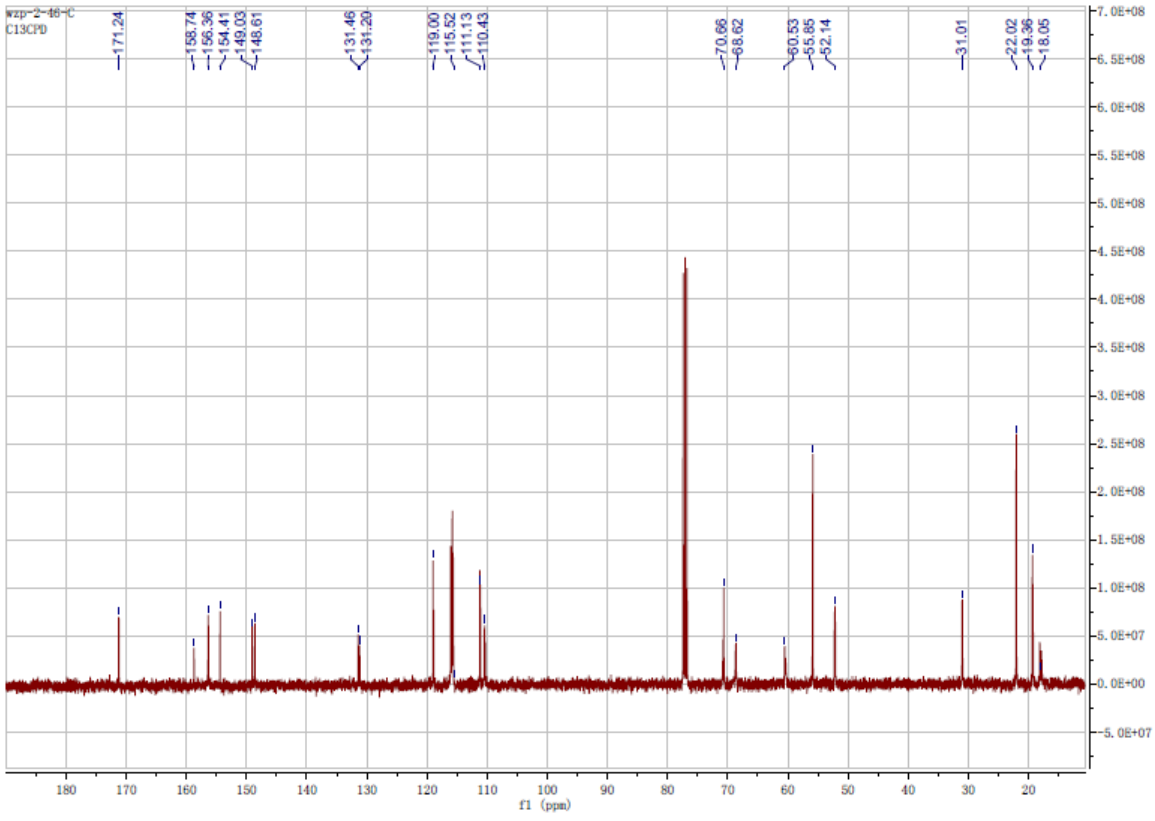
Mode: Positive
Scans: 1

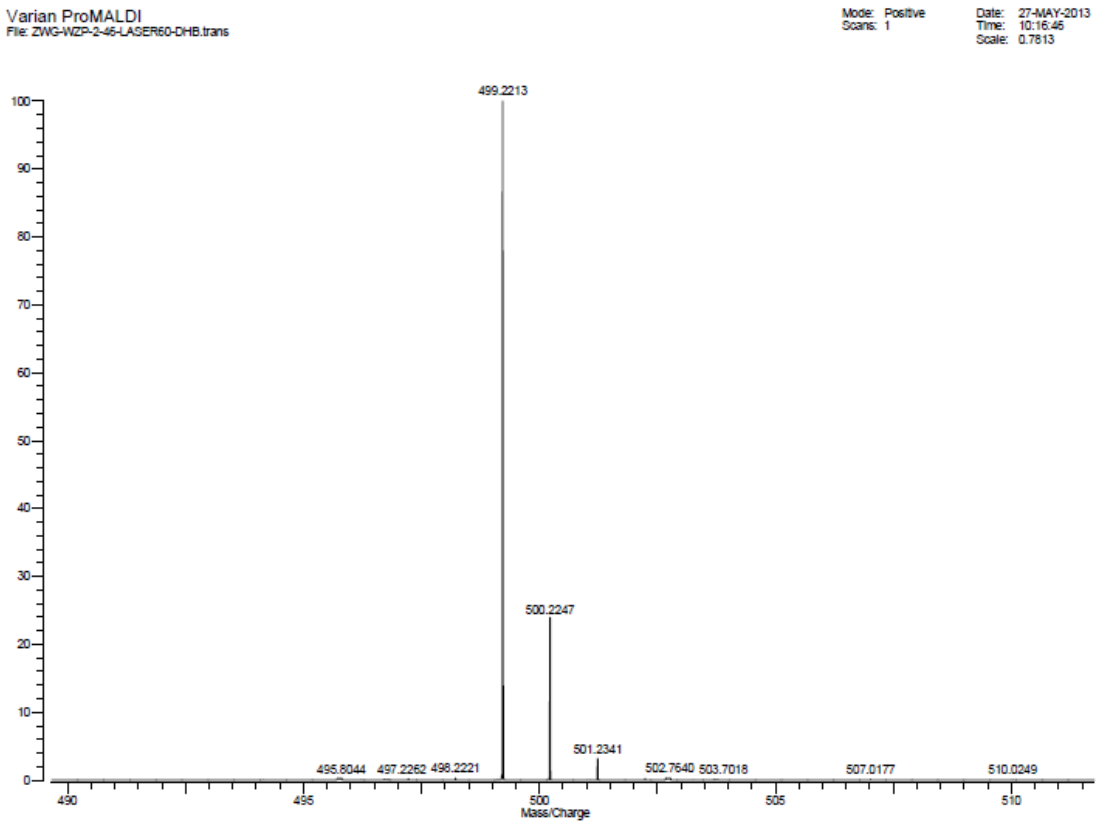
Date: 27-MAY-2013
Time: 10:18:03
Scale: 0.8744



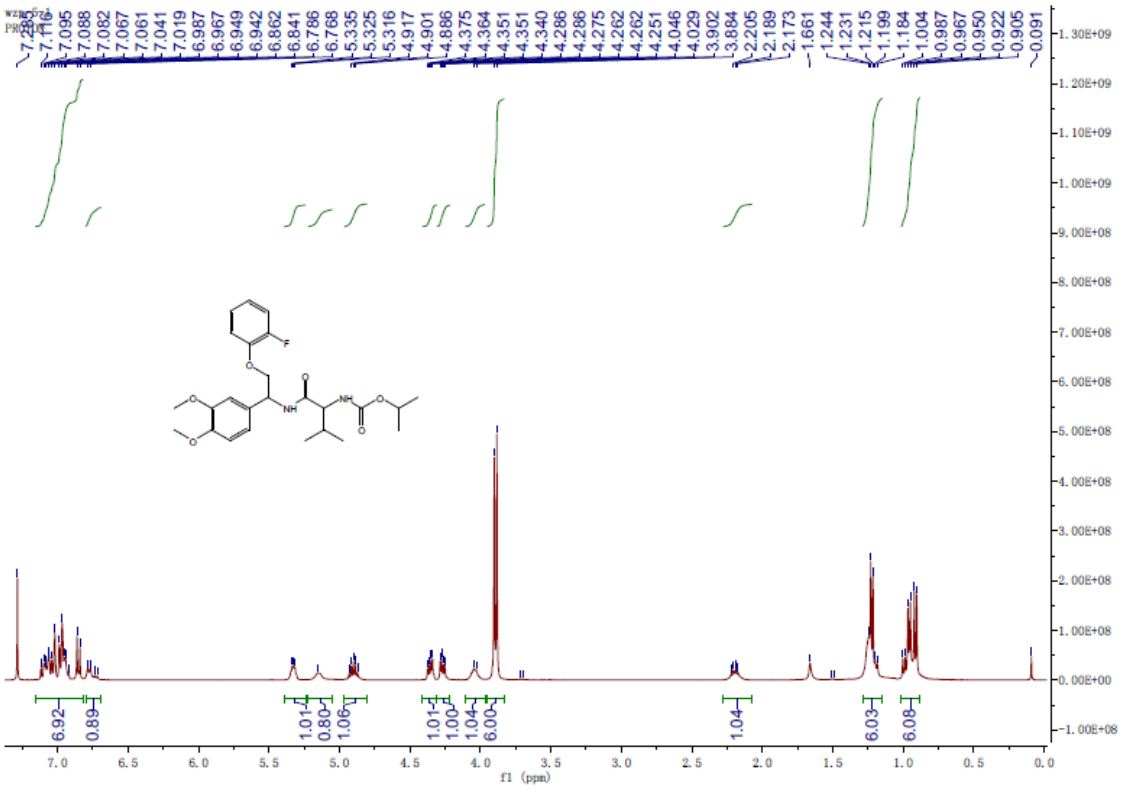
8b

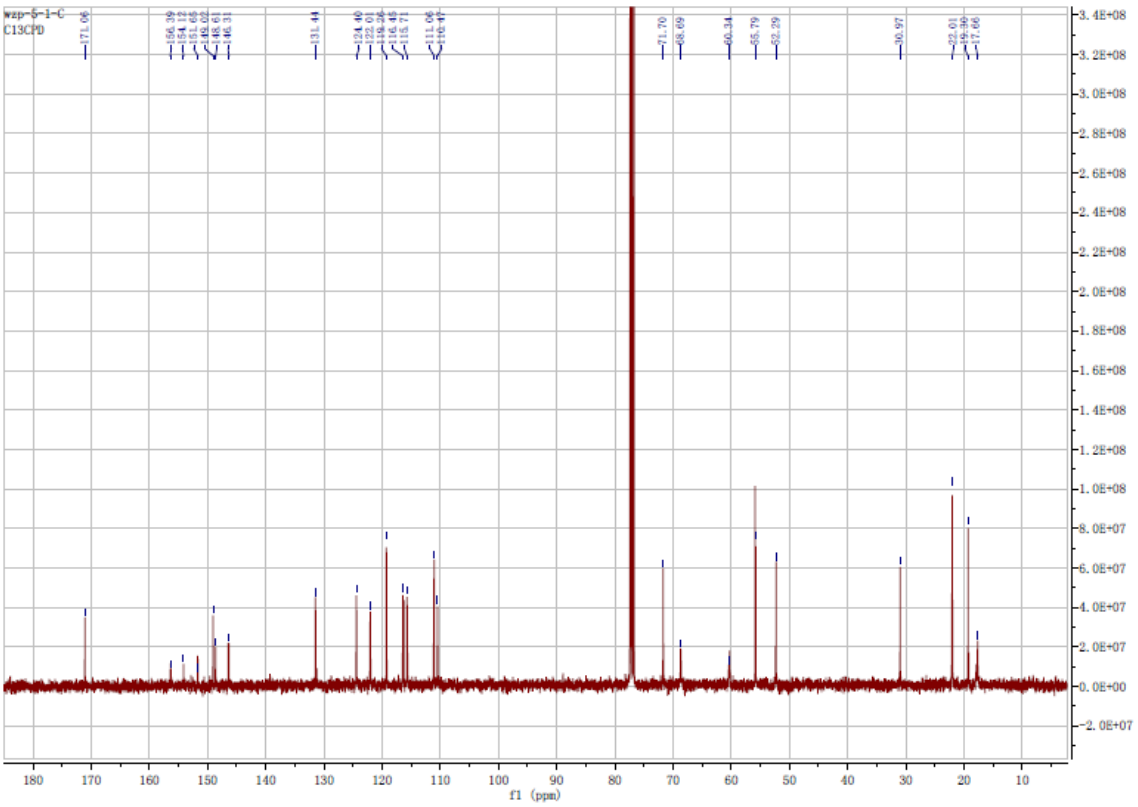

6.940
6.926
6.897
6.843
6.837
6.827
6.821
6.816
6.620
5.295
5.125
4.900
4.884
4.868
4.853
4.219
4.199
4.183
4.169
4.158
4.145
4.013
3.992
3.975
3.954
3.863
2.150
1.220
1.202
1.187
1.172
1.156
0.991
0.974
0.953
0.937
0.913
0.896
F
O
NH
O
NH
O
O
O
O
4.02
2.94
1.01
1.04
0.95
1.10
2.04
1.14
6.00
1.04
5.97
6.05
f1 (ppm)


wzp-2-46-C
C13CPD
171.24
158.74
156.36
154.41
149.03
148.61
131.46
131.20
119.00
115.52
111.13
110.43
70.66
68.62
60.53
55.85
52.14
31.01
22.02
19.36
18.05
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-2-46-LASER60-DHB.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:16:46
Scale: 0.7813
499.2213
500.2247
501.2341
495.8044
497.2262
498.2221
502.7640
503.7018
507.0177
510.0249
Mass/Charge

8c

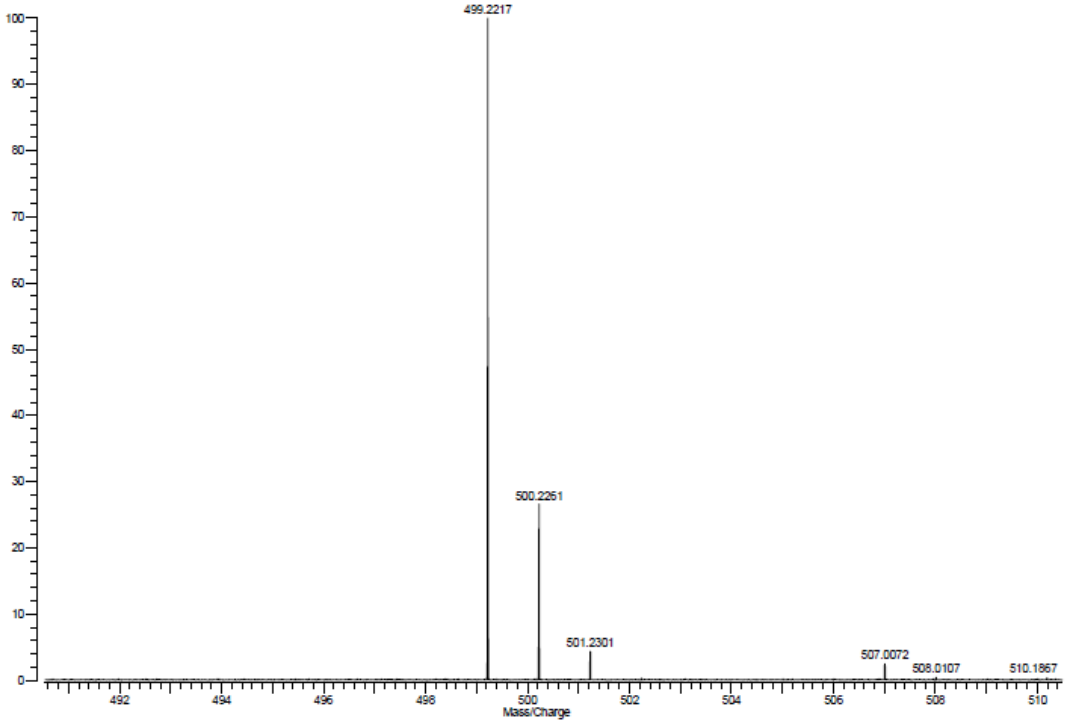

f1 (ppm)



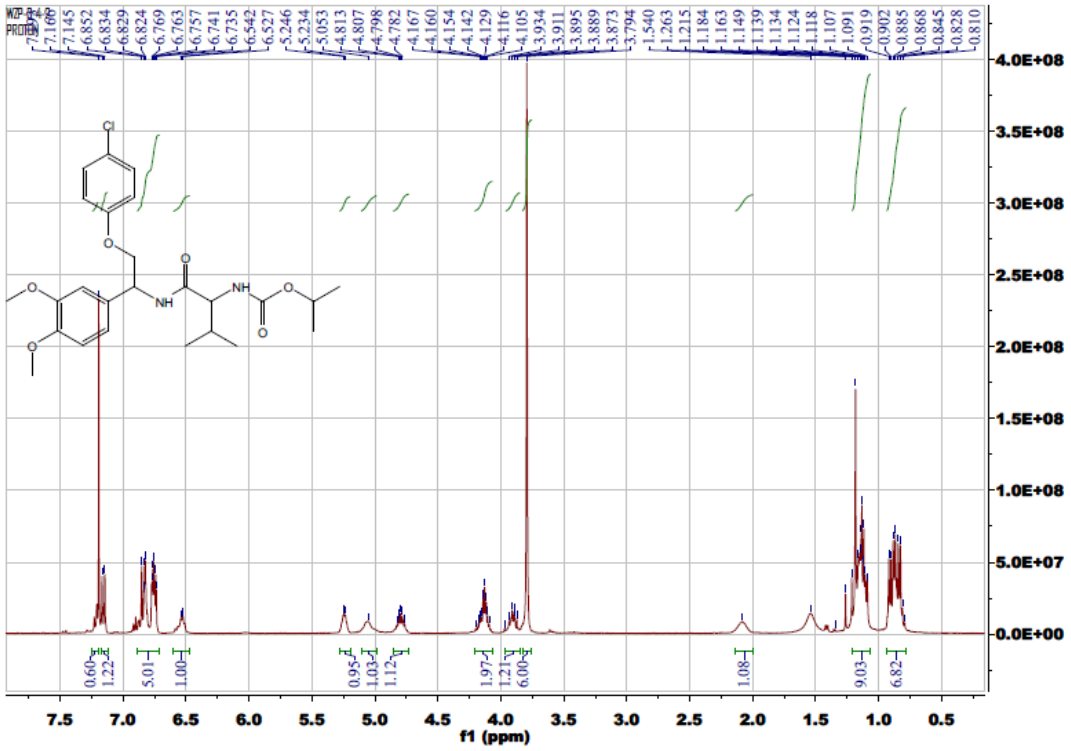
Varian ProMALDI
File: ZWG-WZP-5-1-LASER60-DHB.trans

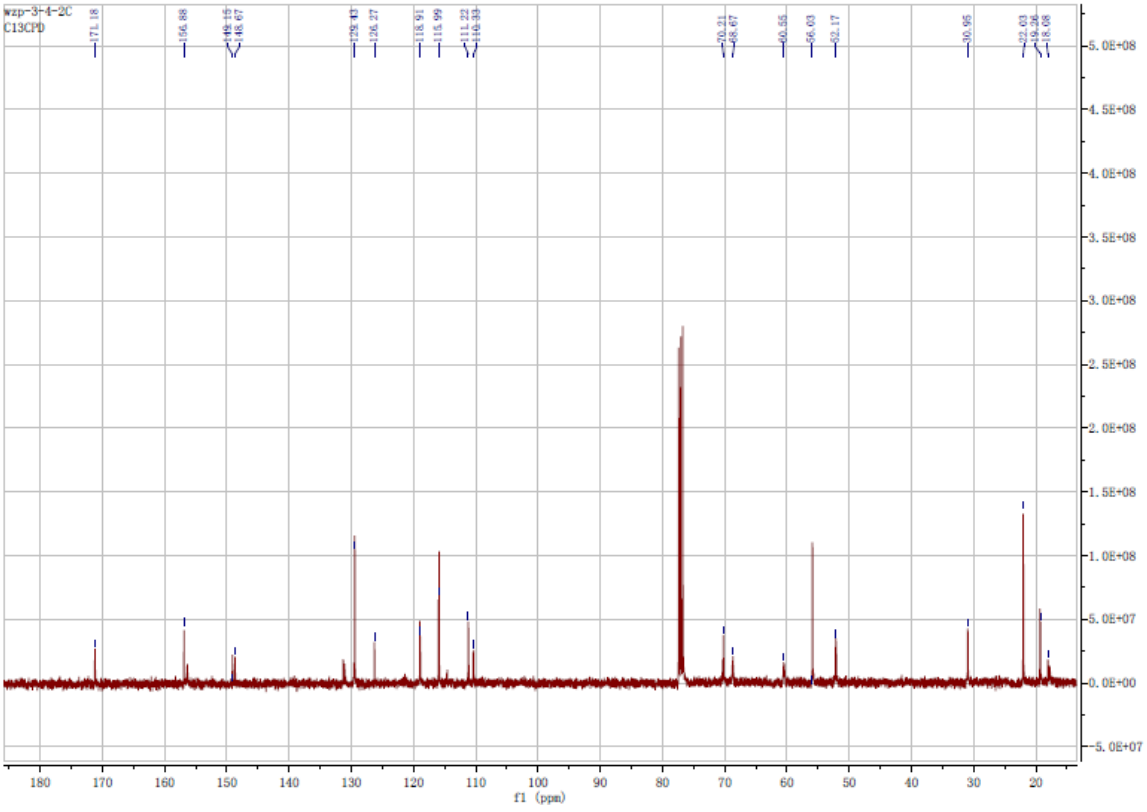
Mode: Positive
Scans: 1

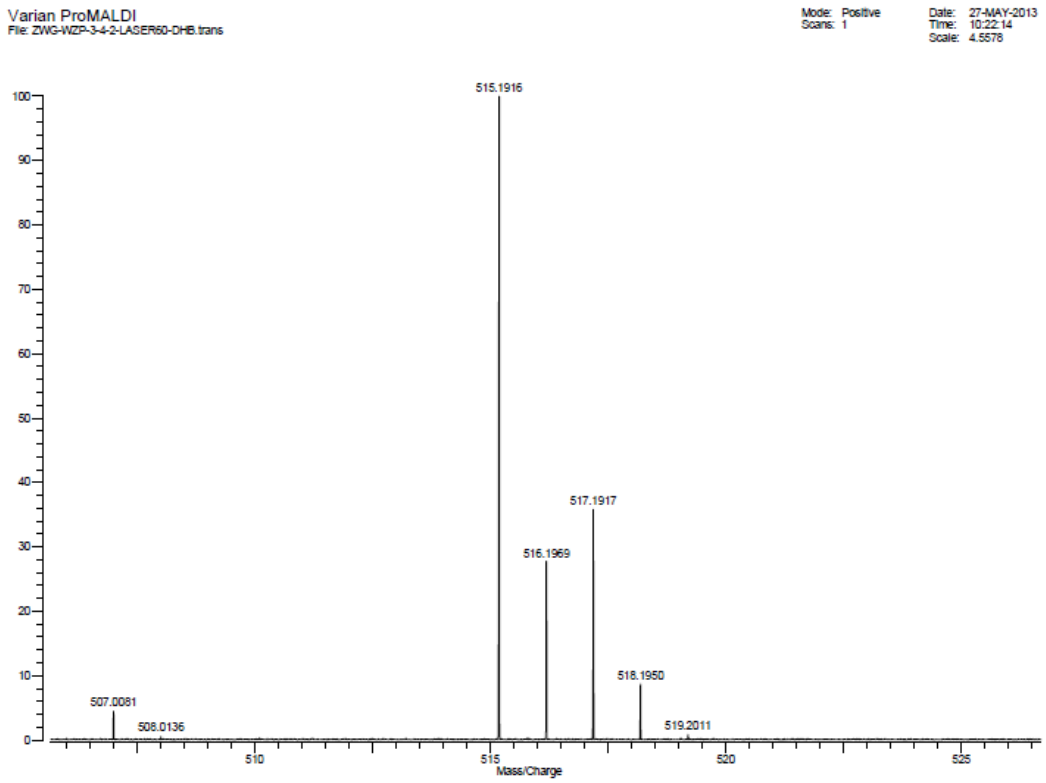
Date: 27-MAY-2013
Time: 10:28:33
Scale: 3.4851



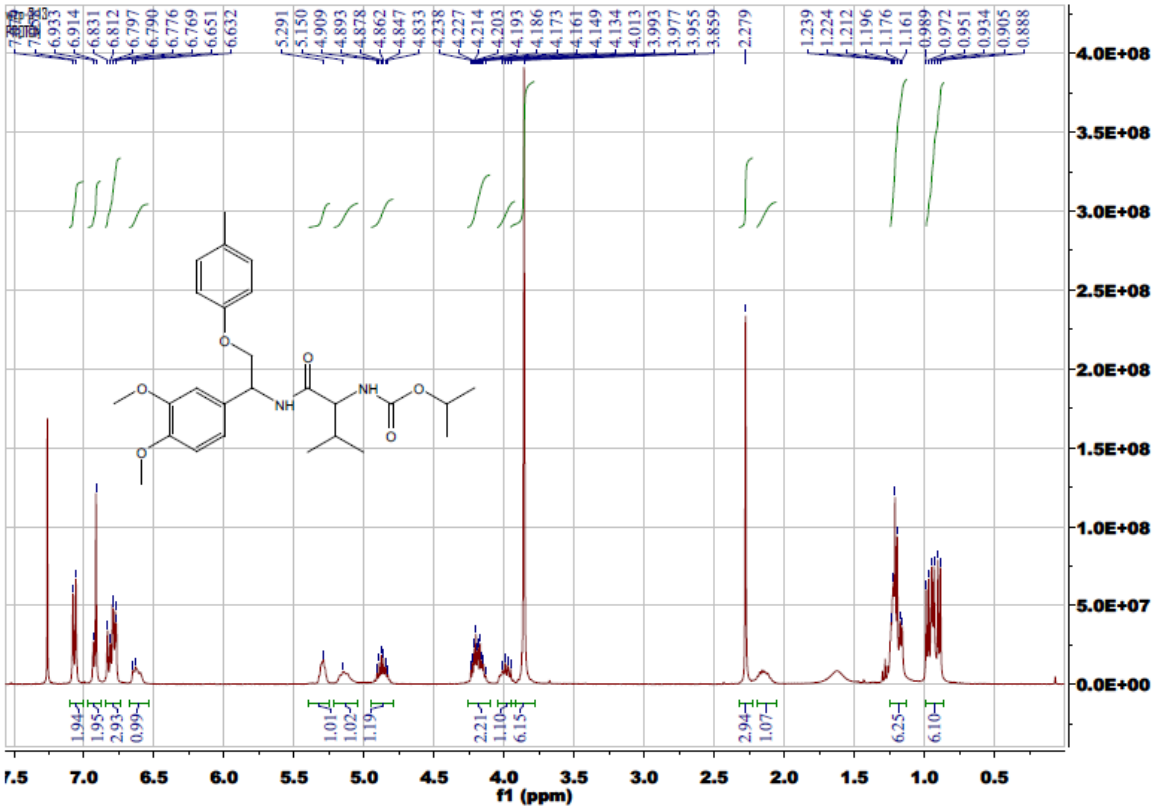
8d

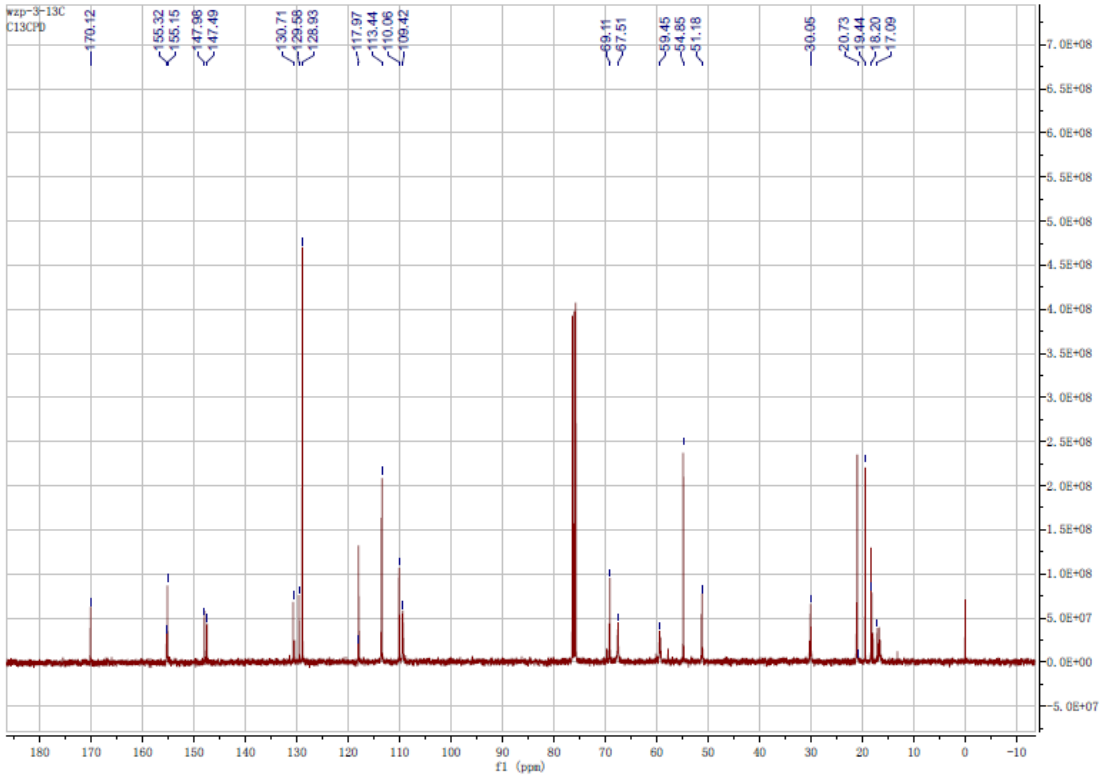





Varian ProMALDI
File: ZWG-WZP-3-4-2-LASER60-DHB.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:22:14
Scale: 4.5578
515.1916
517.1917
516.1969
518.1950
507.0081
508.0136
519.2011
Mass/Charge

8e

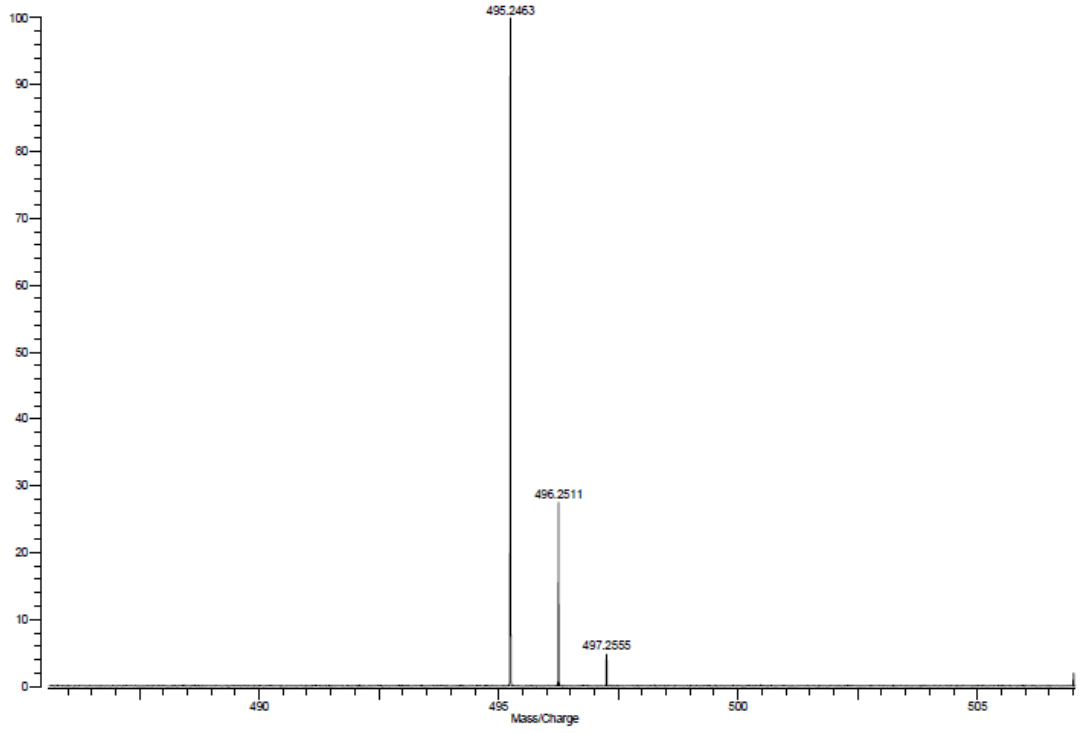

f1 (ppm)



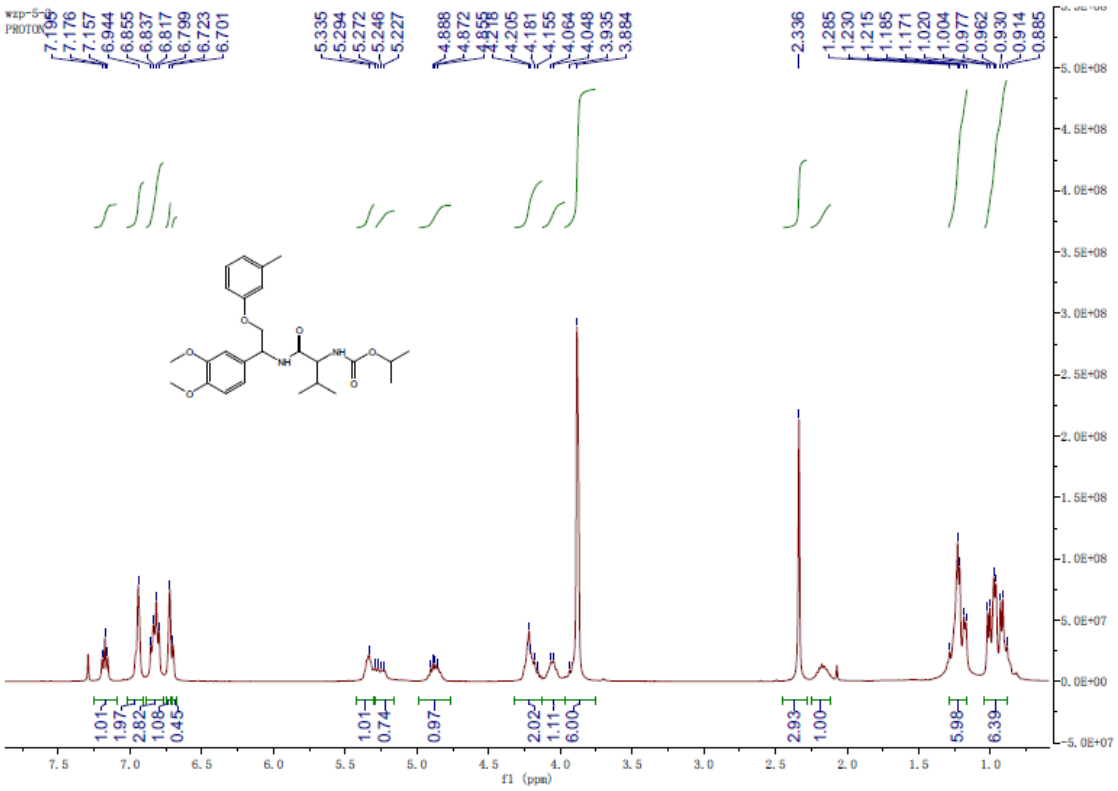
Varian ProMALDI
File: ZWG-WZP-3-13-LASER60-DHB.trans

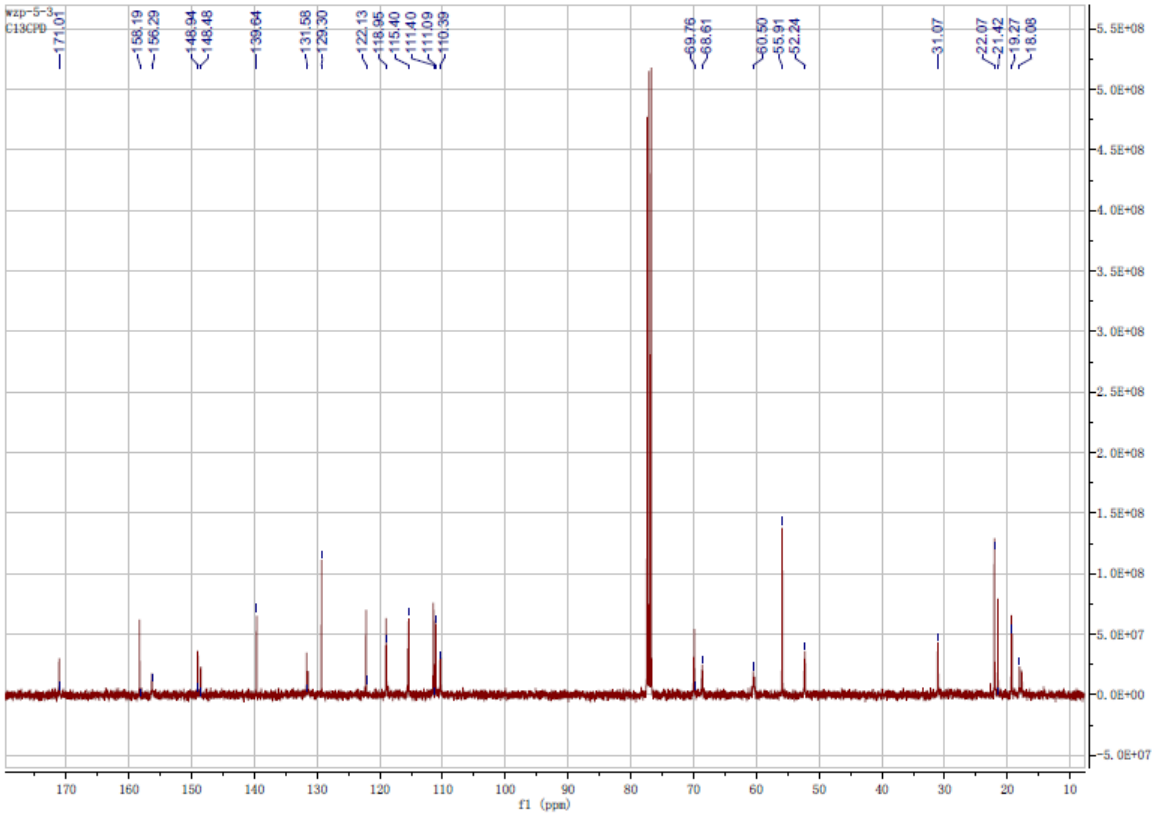
Mode: Positive
Scans: 1

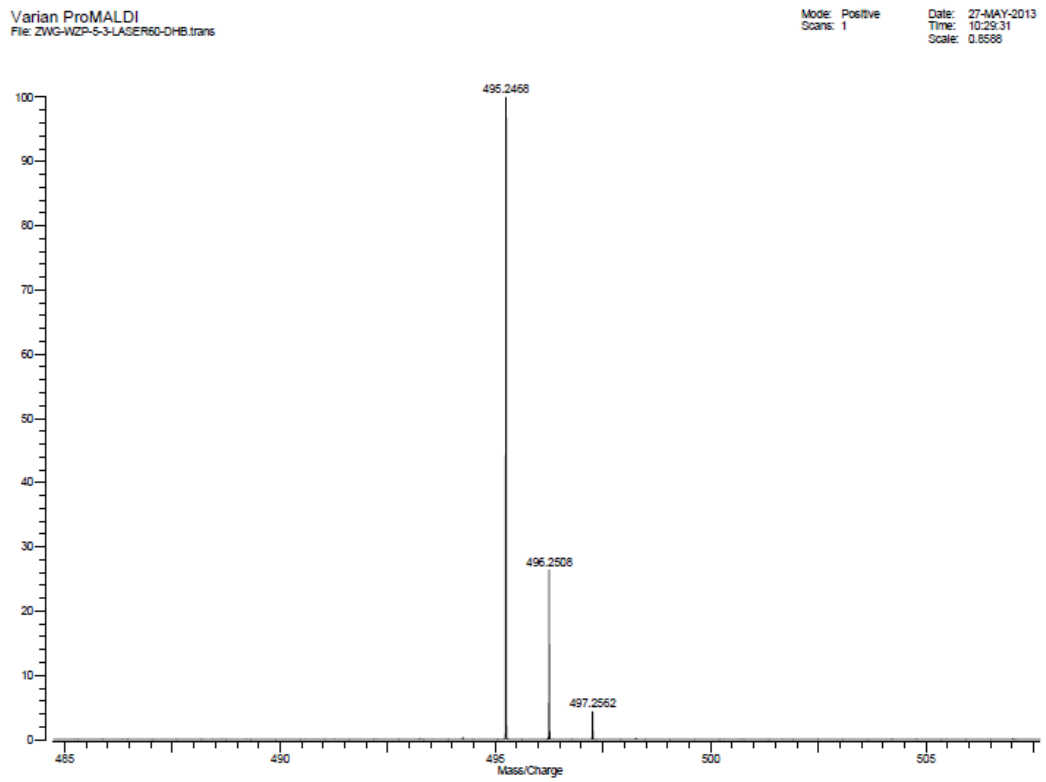
Date: 27-MAY-2013
Time: 10:23:19
Scale: 2.8212



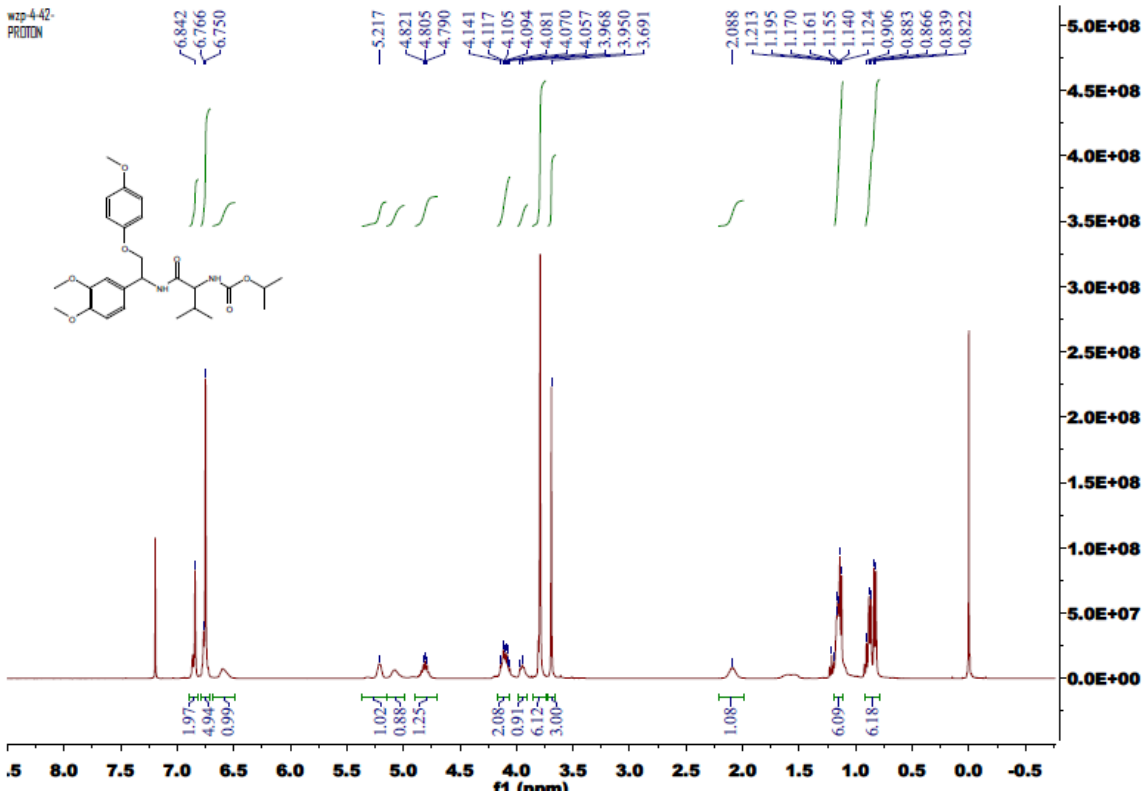
8f

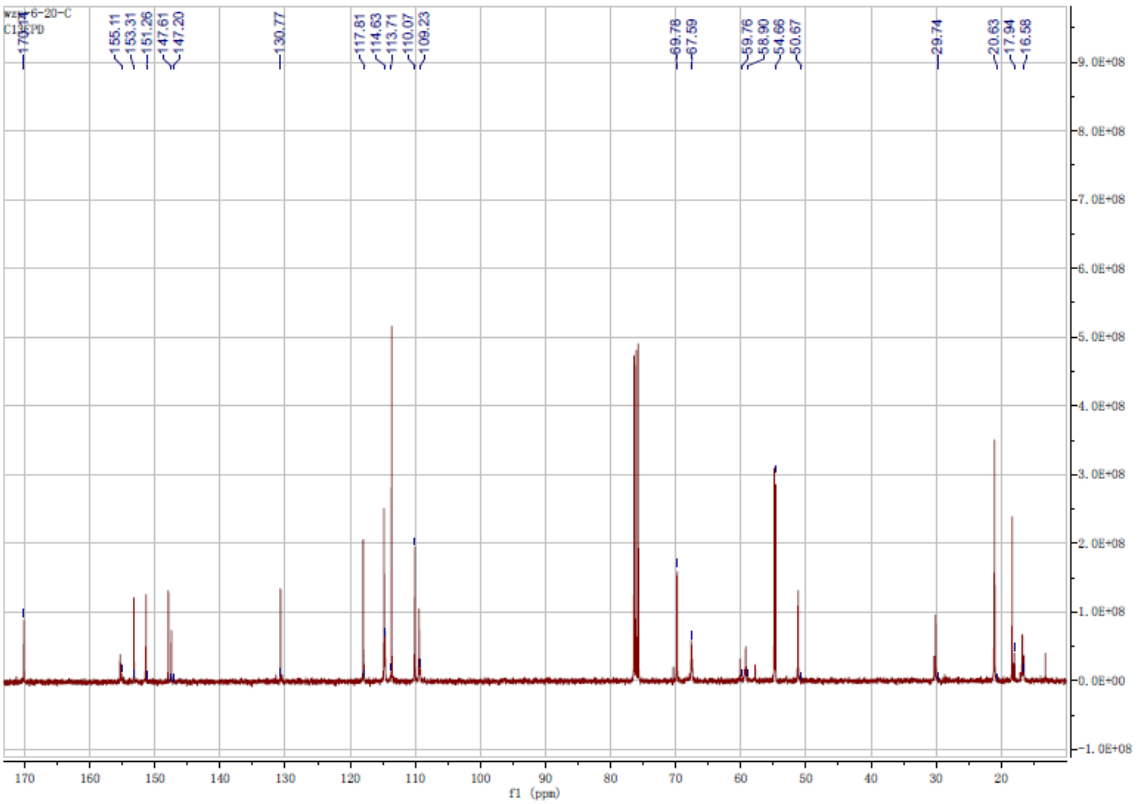

wzp-5-3
PROTON
7.195
7.176
7.157
6.944
6.855
6.837
6.817
6.799
6.723
6.701
5.335
5.294
5.272
5.246
5.227
4.888
4.872
4.855
4.218
4.205
4.181
4.155
4.064
4.048
3.935
3.884
2.336
1.285
1.230
1.215
1.185
1.171
1.020
1.004
0.977
0.962
0.930
0.914
0.885
1.01
1.97
2.82
1.08
0.45
1.01
0.74
0.97
2.02
1.11
6.00
2.93
1.00
5.98
6.39
f1 (ppm)

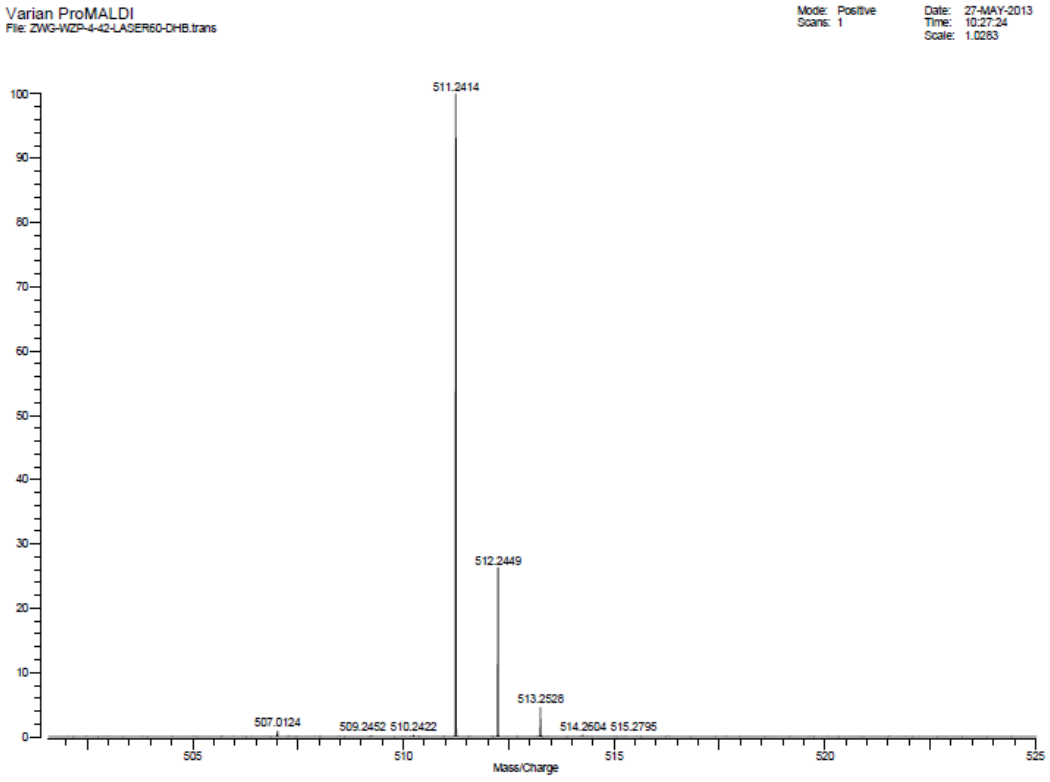

wzp-5-3
C13CPD
171.01
158.19
156.29
148.94
148.48
139.64
131.58
129.30
122.13
118.95
115.40
111.40
111.09
110.39
69.76
68.61
60.50
55.91
52.24
31.07
22.07
21.42
19.27
18.06
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-5-3-LASER60-DHB.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:29:31
Scale: 0.6586
495.2468
496.2508
497.2562
Mass/Charge

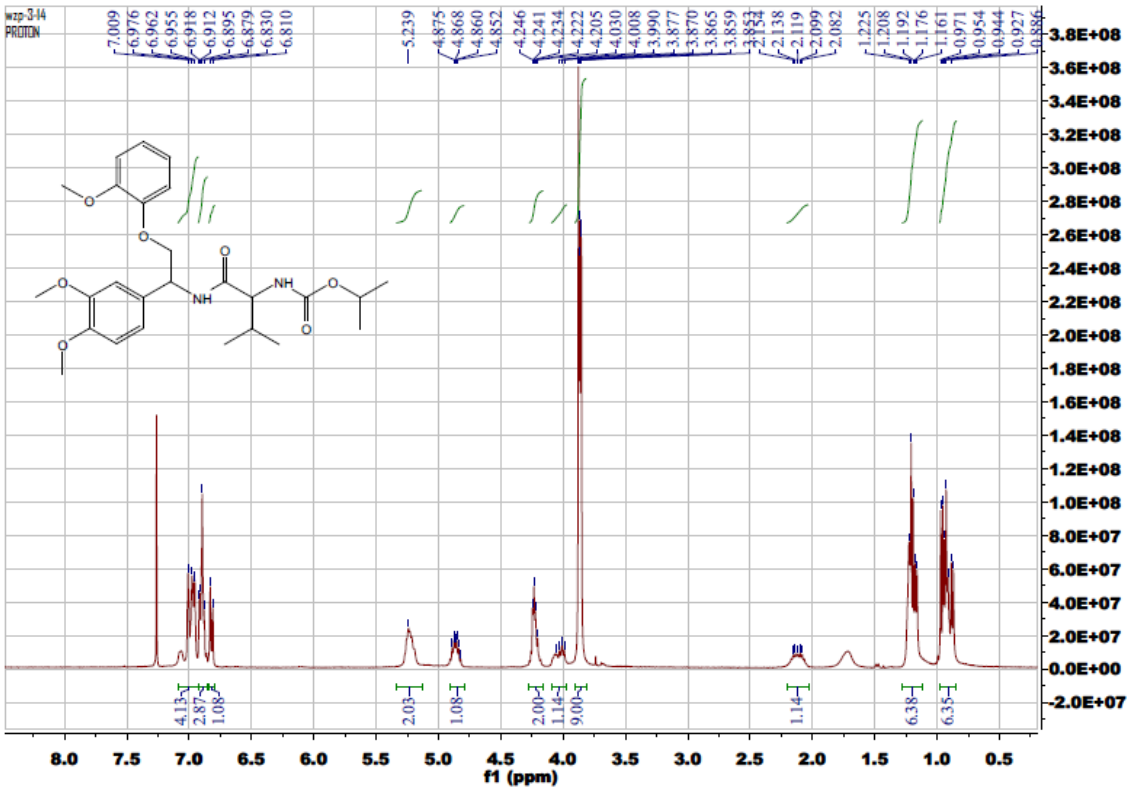
8g

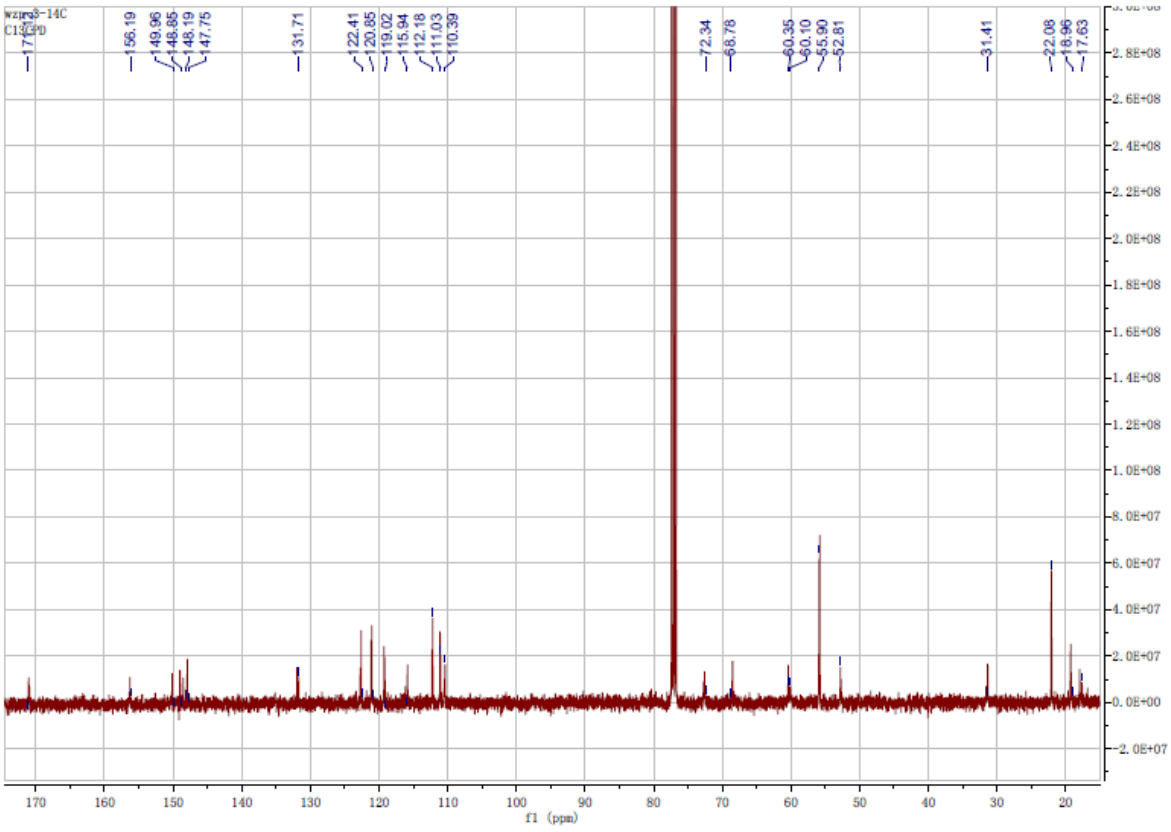

wzp-4-42-
PROTON
6.842
6.766
6.750
5.217
4.821
4.805
4.790
4.141
4.117
4.105
4.094
4.081
4.070
4.057
3.968
3.950
3.691
2.088
1.213
1.195
1.170
1.161
1.155
1.140
1.124
0.906
0.883
0.866
0.839
0.822
1.97
4.94
0.99
1.02
0.88
1.25
2.08
0.91
6.12
3.00
1.08
6.09
6.18
f1 (ppm)

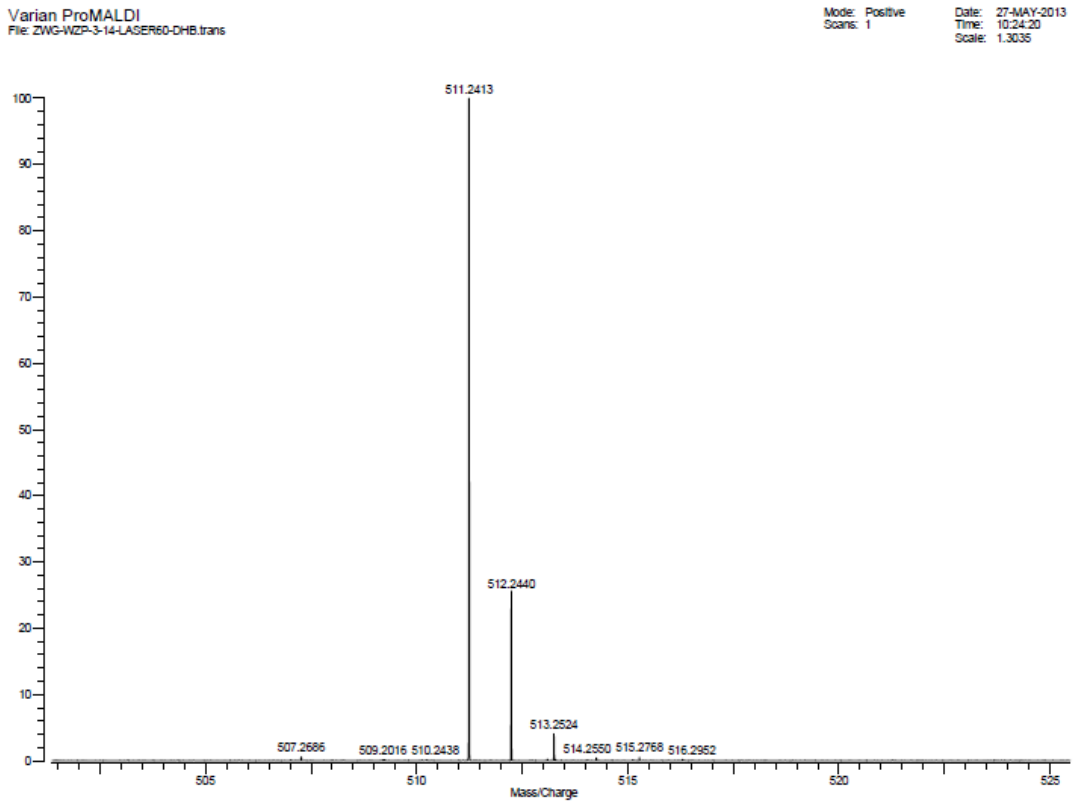

wzp-6-20-C
C13CPD
170.44
155.11
153.31
151.26
147.61
147.20
130.77
117.81
114.63
113.71
110.07
109.23
69.78
67.59
59.76
58.90
54.66
50.67
29.74
20.63
17.94
16.58
9.0E+08
8.0E+08
7.0E+08
6.0E+08
5.0E+08
4.0E+08
3.0E+08
2.0E+08
1.0E+08
0.0E+00
-1.0E+08
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-4-42-LASER60-DHB.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:27:24
Scale: 1.0283
511.2414
512.2449
513.2526
507.0124
509.2452
510.2422
514.2604
515.2795
100
90
80
70
60
50
40
30
20
10
0
505
510
515
520
525
Mass/Charge

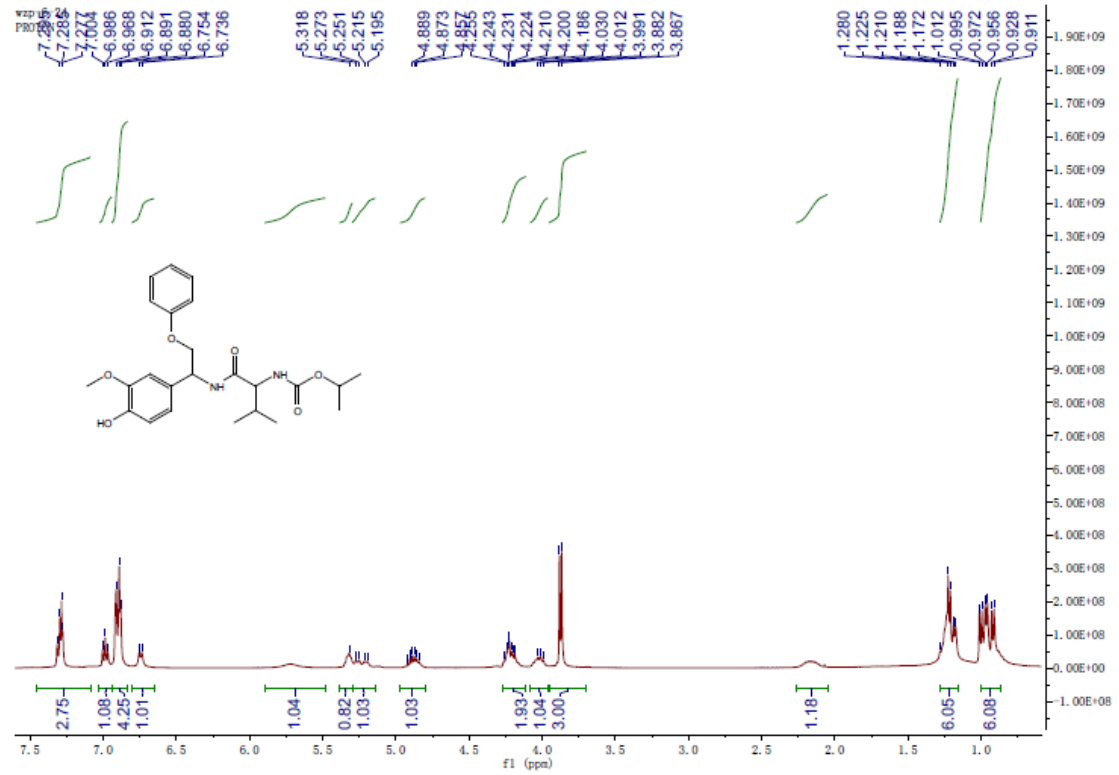
8h

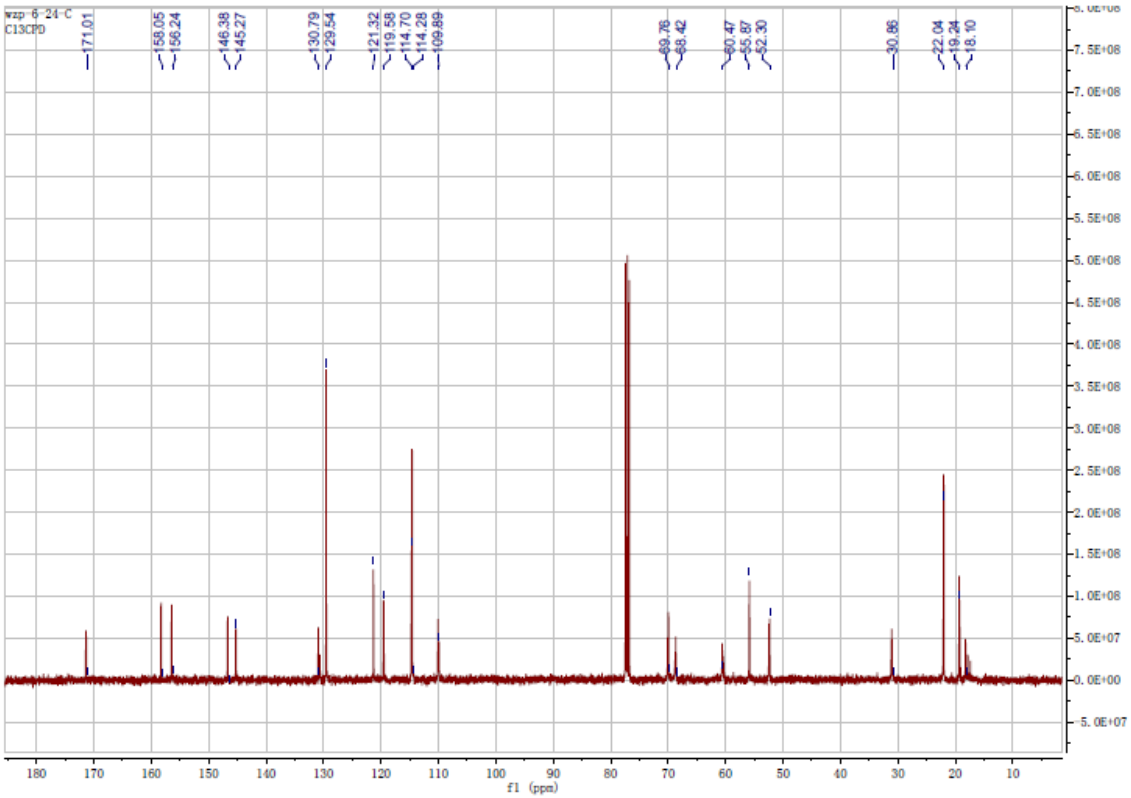


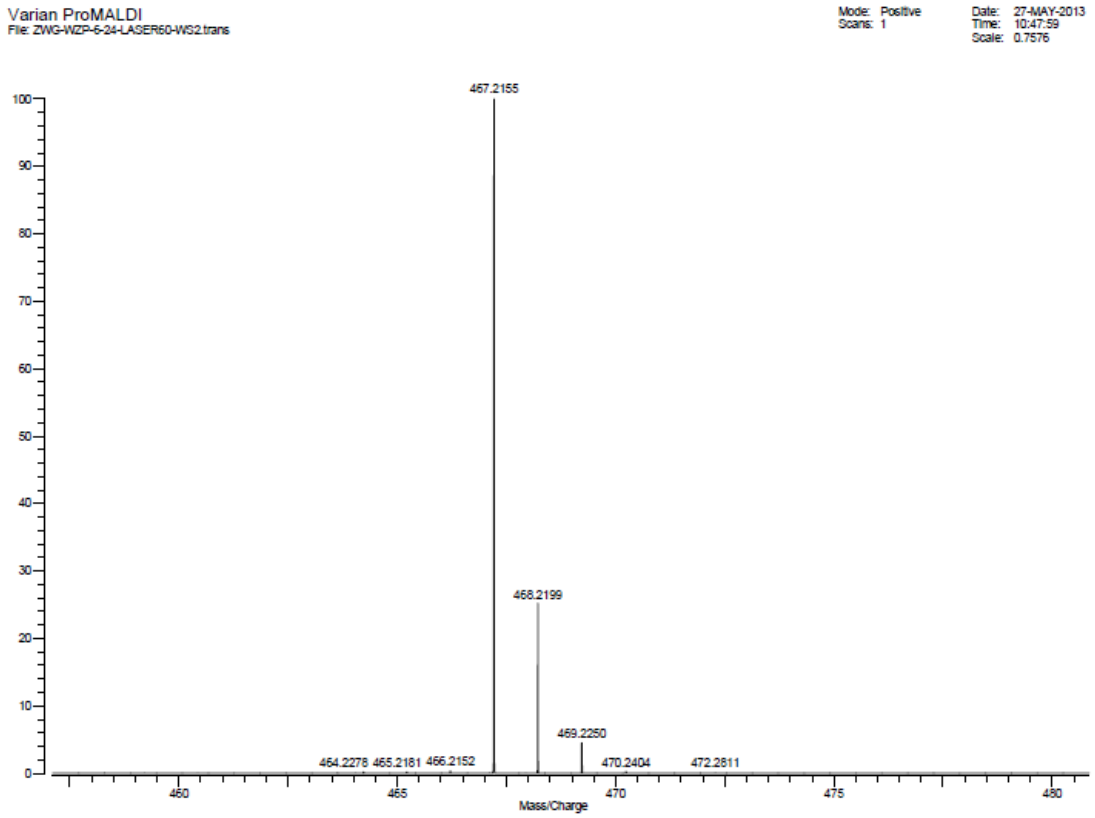



Varian ProMALDI
File: ZWG-WZP-3-14-LASER60-DHB.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:24:20
Scale: 1.3035
511.2413
512.2440
513.2524
507.2686
509.2016
510.2438
514.2550
515.2768
516.2952
Mass/Charge

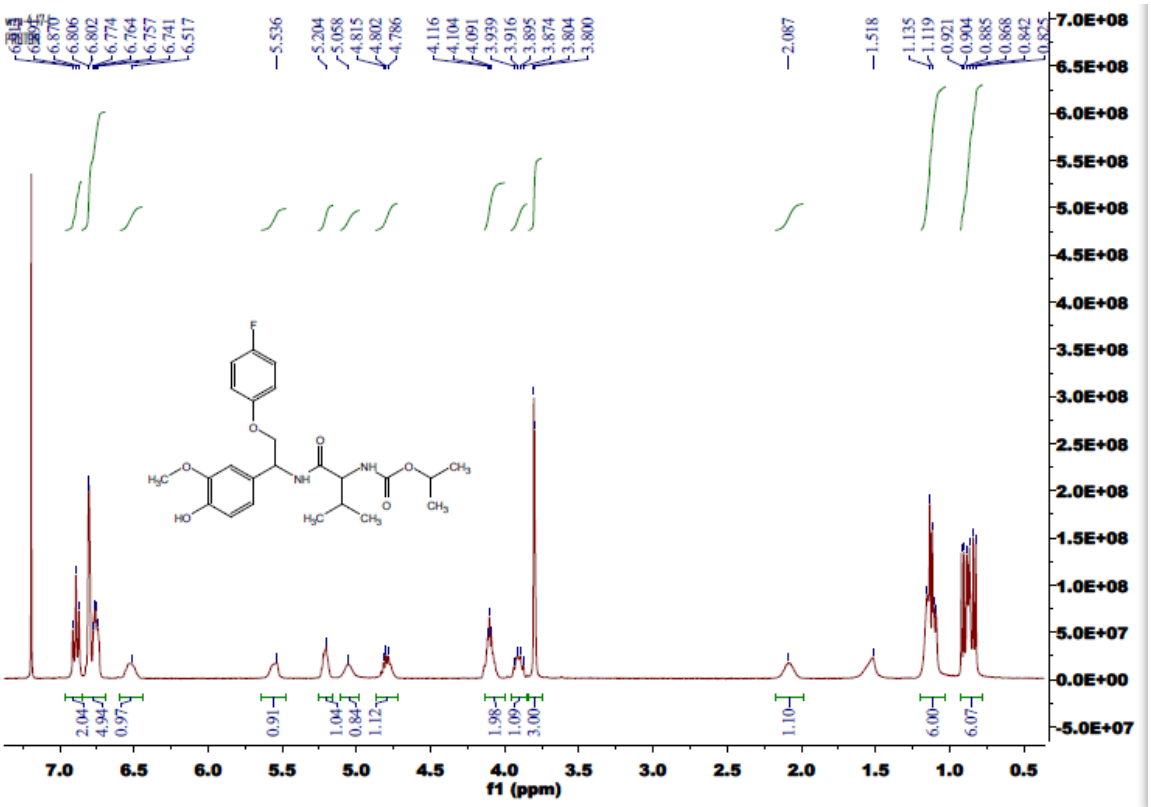
8i

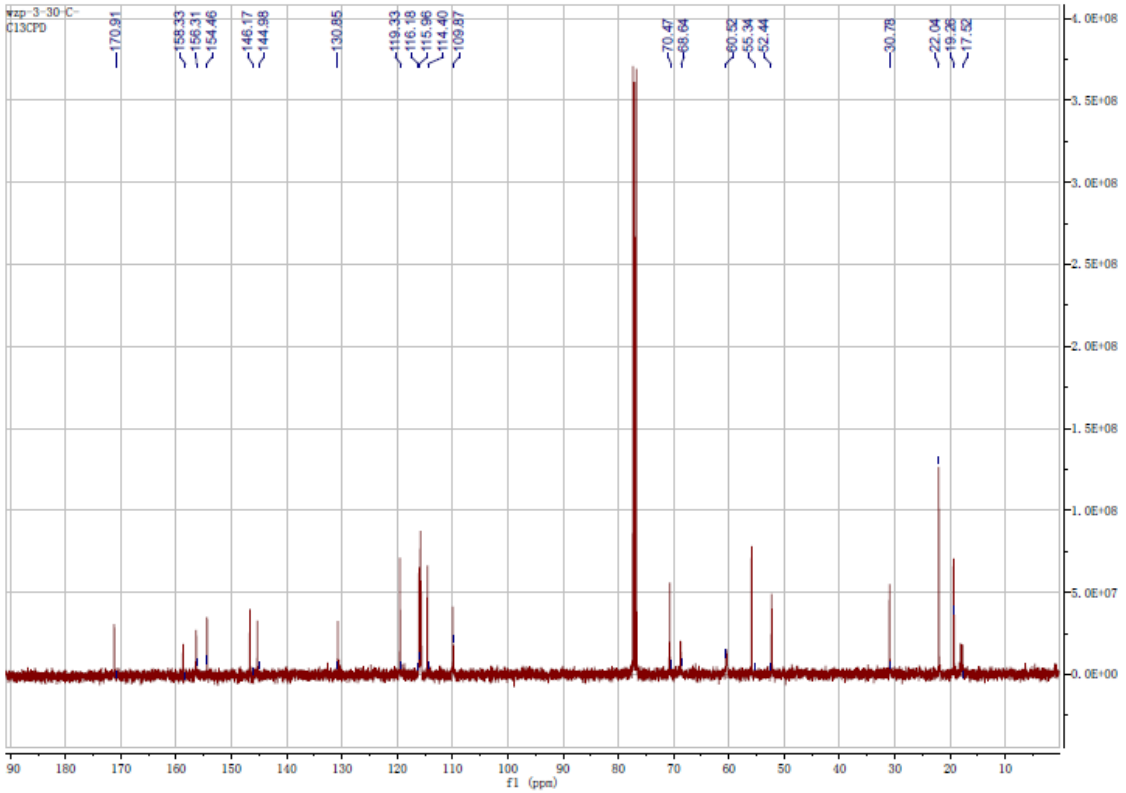

f1 (ppm)

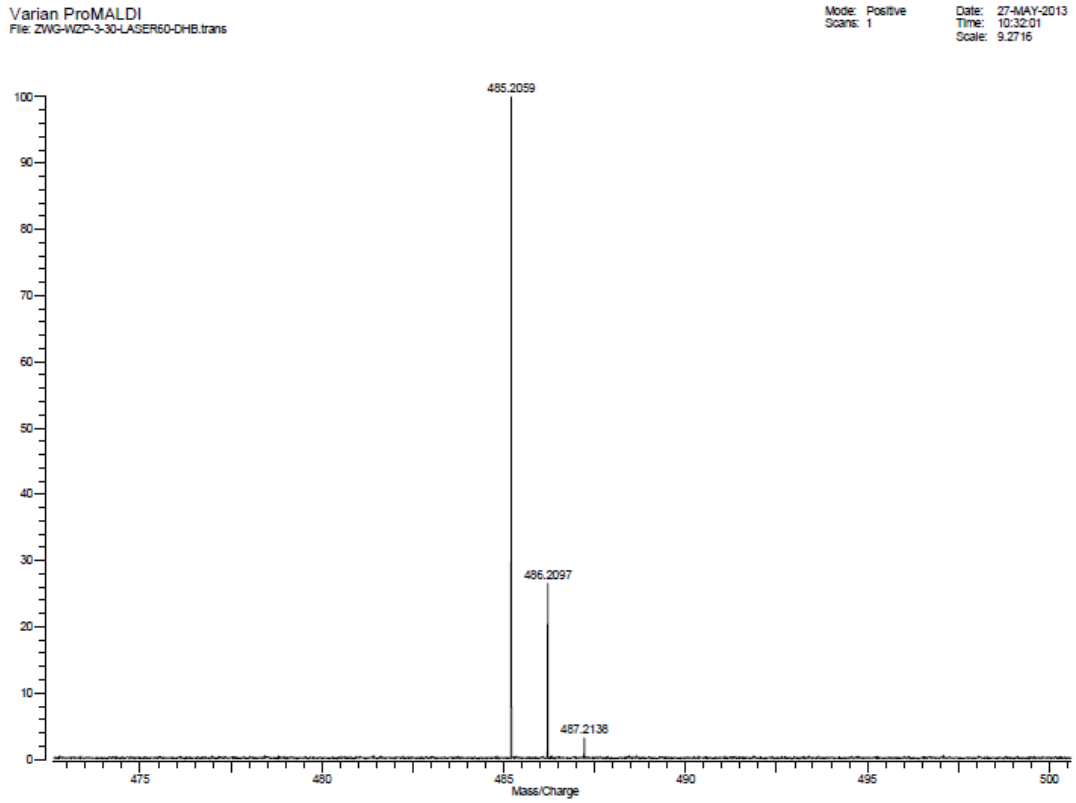

wzp-6-24-C
C13CPD
171.01
158.05
156.24
146.38
145.27
130.79
129.54
121.32
119.58
114.70
114.28
109.89
69.76
68.42
60.47
55.87
52.30
30.86
22.04
19.24
18.10
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-6-24-LASER60-WS2.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:47:59
Scale: 0.7576
467.2155
468.2199
469.2250
464.2278
465.2181
466.2152
470.2404
472.2811
Mass/Charge

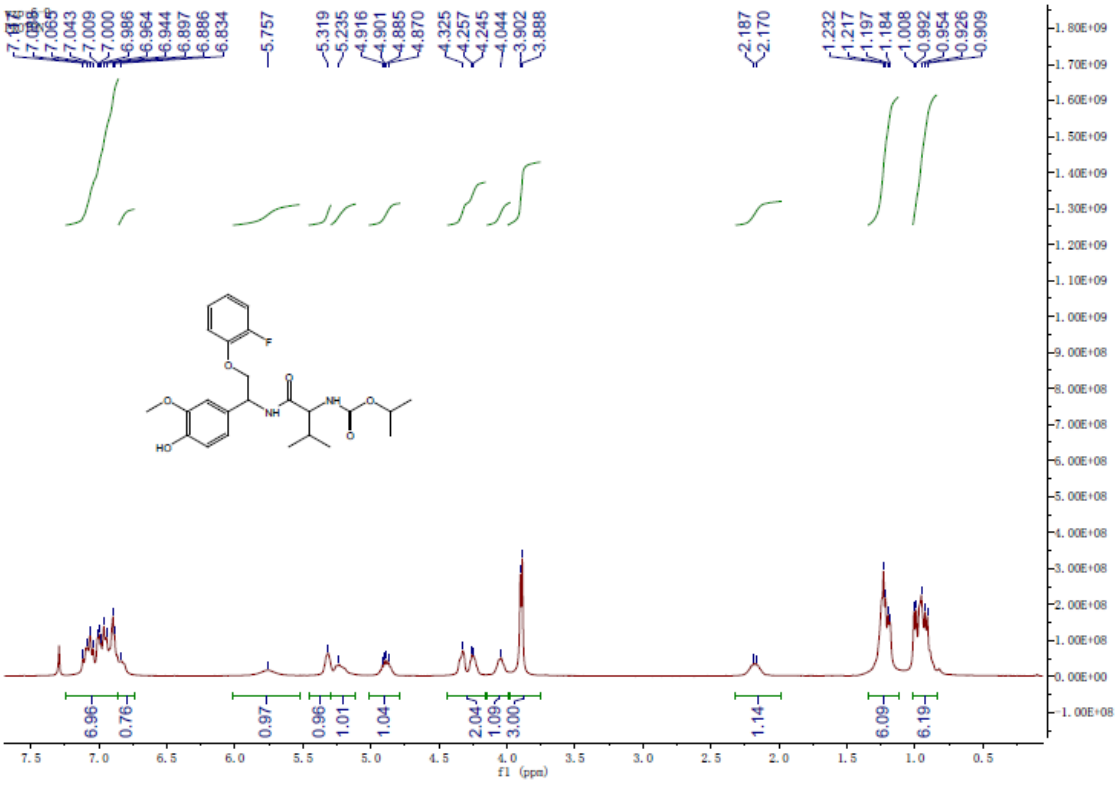
8j

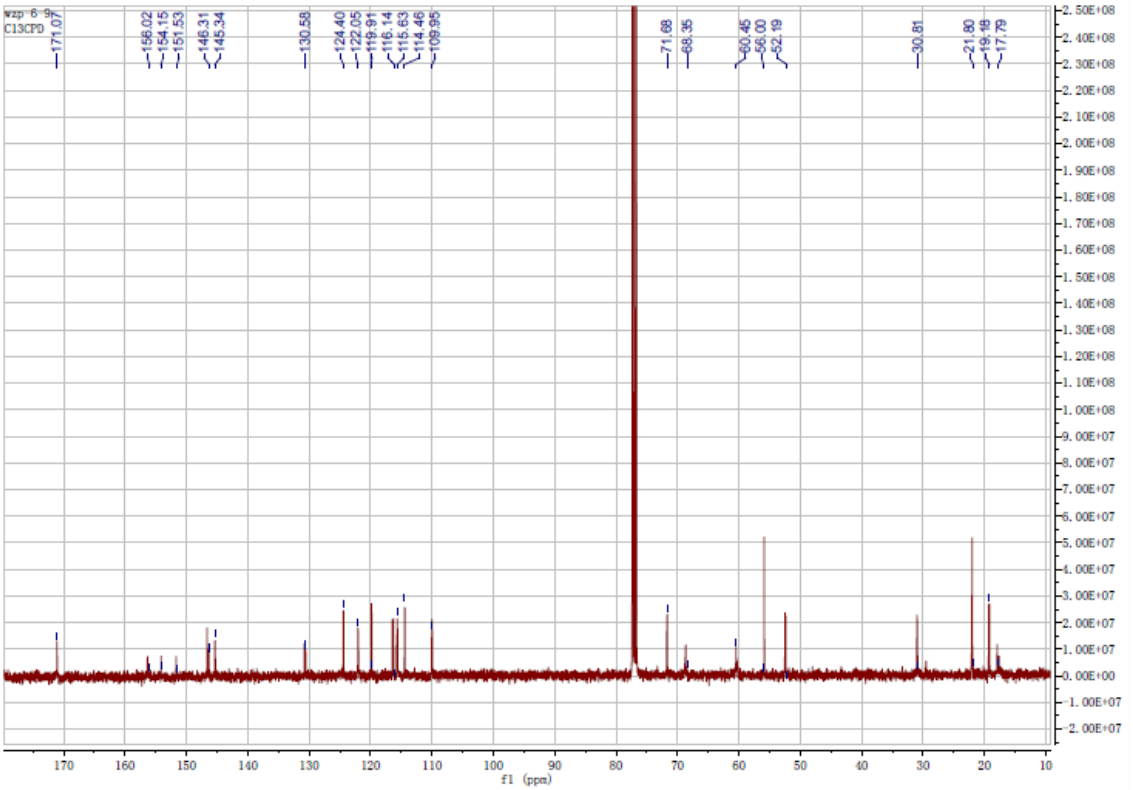

6.870
6.806
6.802
6.774
6.764
6.757
6.741
6.517
5.536
5.204
5.058
4.815
4.802
4.786
4.116
4.104
4.091
3.939
3.916
3.895
3.874
3.804
3.800
2.087
1.518
1.135
1.119
0.921
0.904
0.885
0.868
0.842
0.825
F
O
NH
NH
O
O
CH3
CH3
H3C
O
HO
H3C
CH3
2.04
4.94
0.97
0.91
1.04
0.84
1.12
1.98
1.09
3.00
1.10
6.00
6.07
f1 (ppm)


wzp-3-30-C-
C13CPD
170.91
158.33
156.31
154.46
146.17
144.98
130.85
119.33
116.18
115.96
114.40
109.87
70.47
68.64
60.52
55.34
52.44
30.78
22.04
19.26
17.52
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-3-30-LASER60-DHB.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:32:01
Scale: 9.2716
485.2059
486.2097
487.2138
Mass/Charge

8k

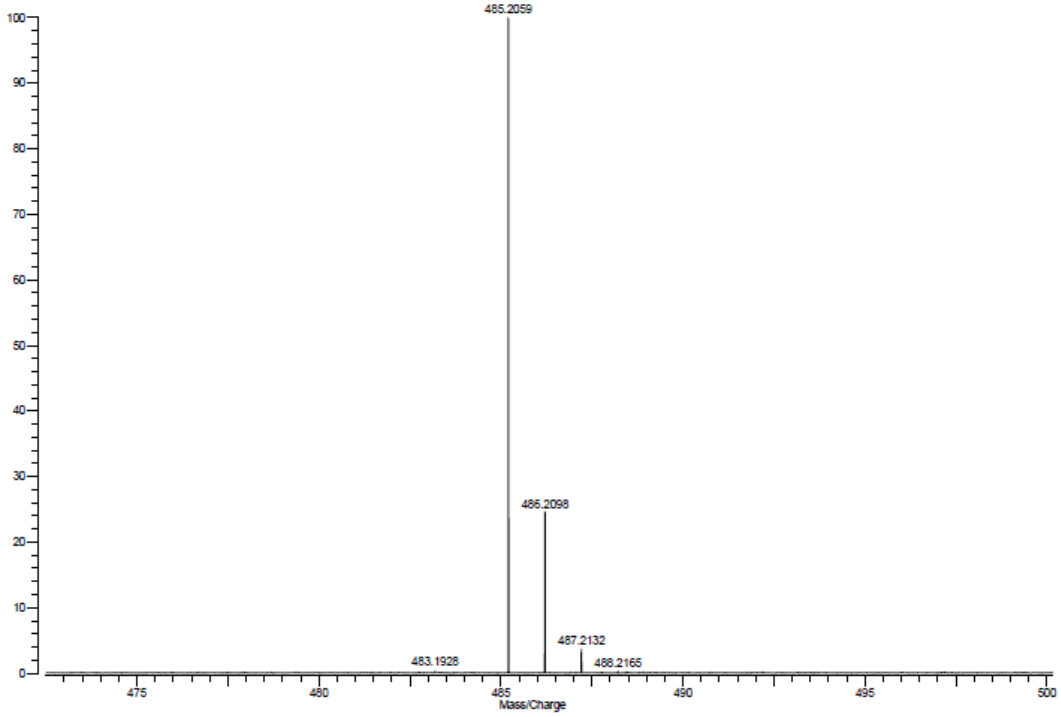

f1 (ppm)

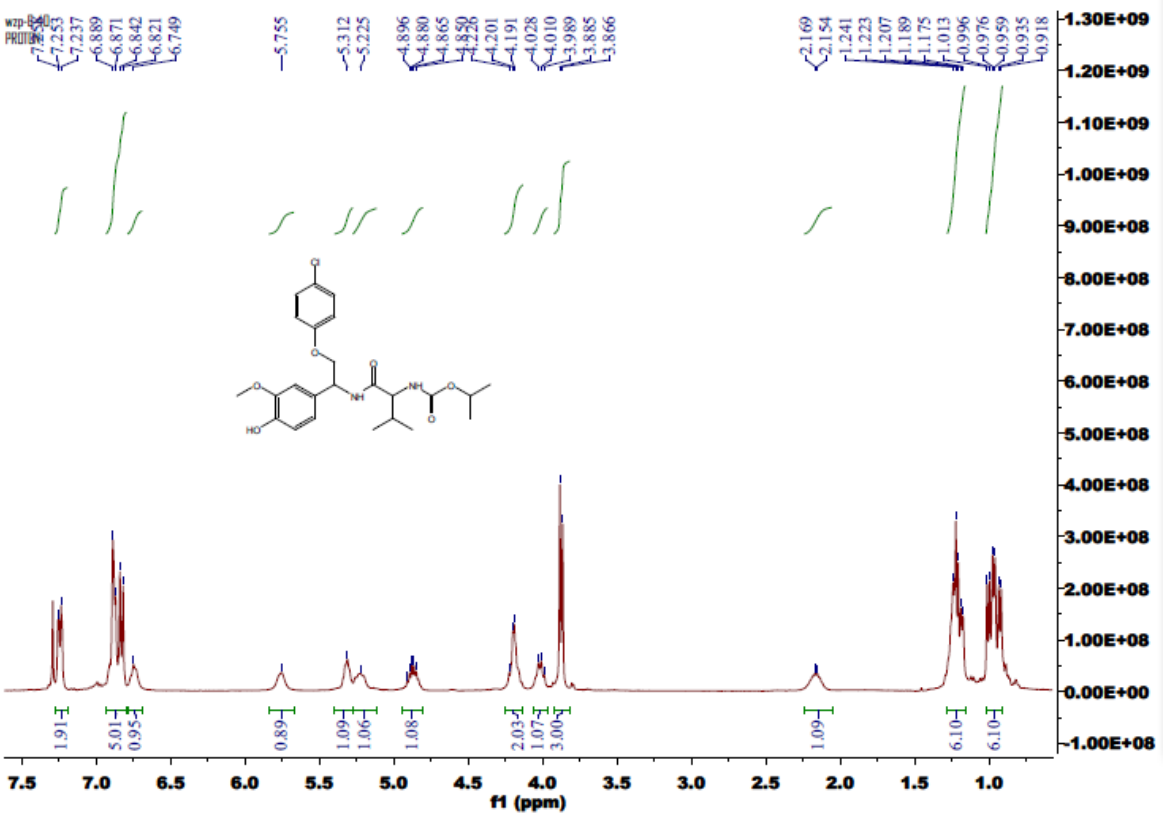


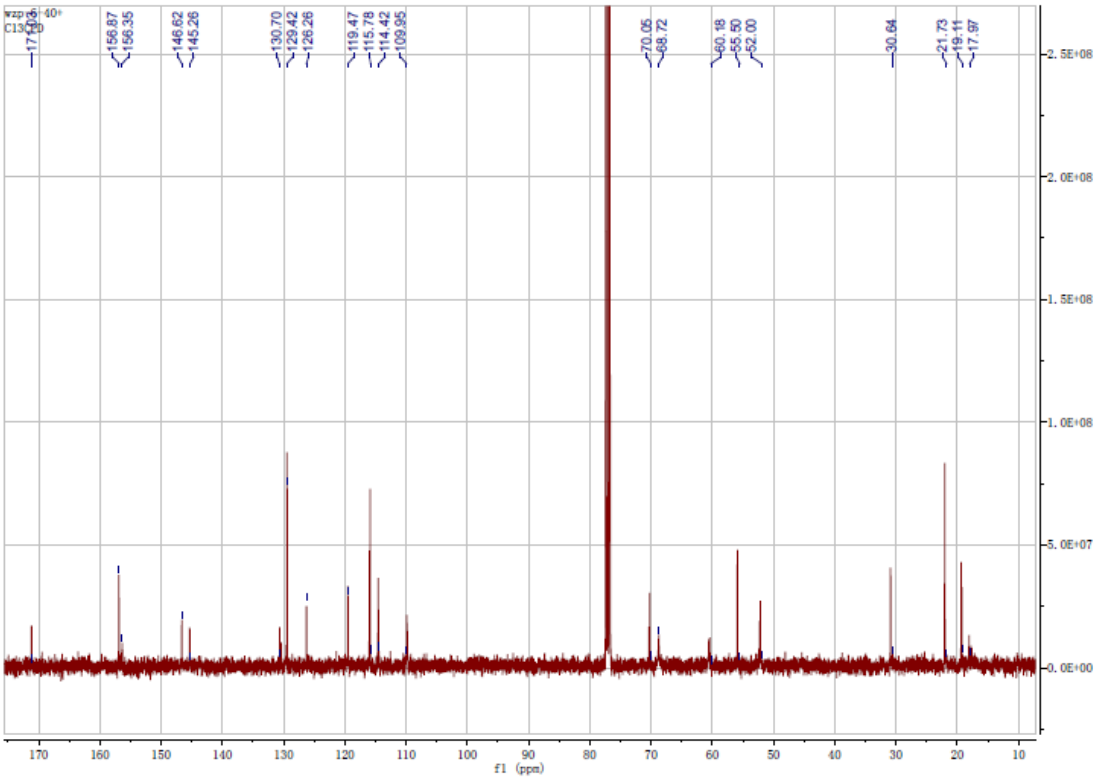
Varian ProMALDI
File: ZWG-WZP-6-9-LASER60-WS2.trans

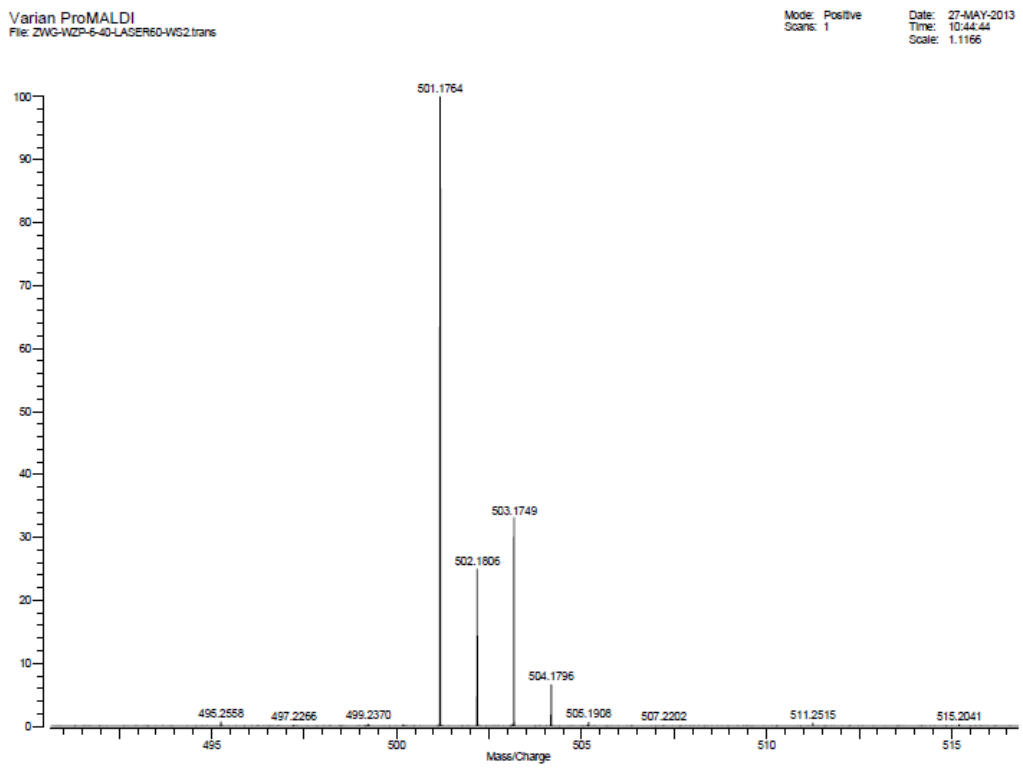
Mode: Positive
Scans: 1

Date: 27-MAY-2013
Time: 11:02:59
Scale: 2.6326

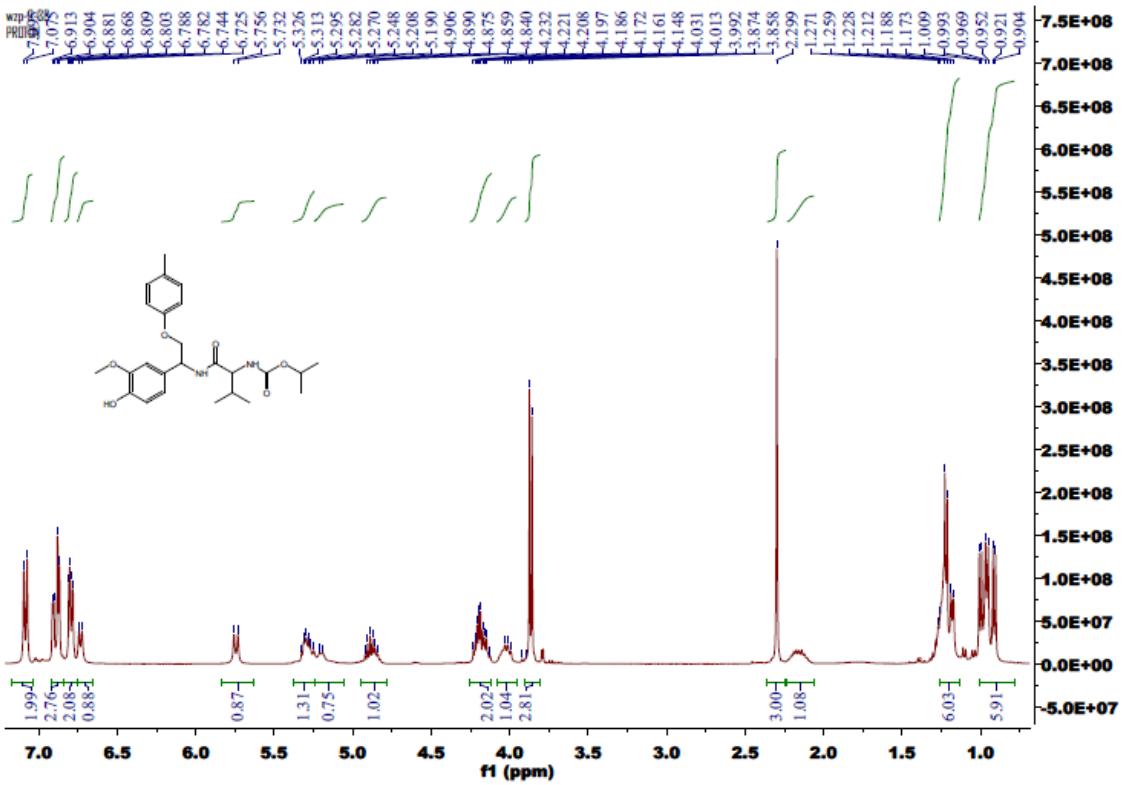


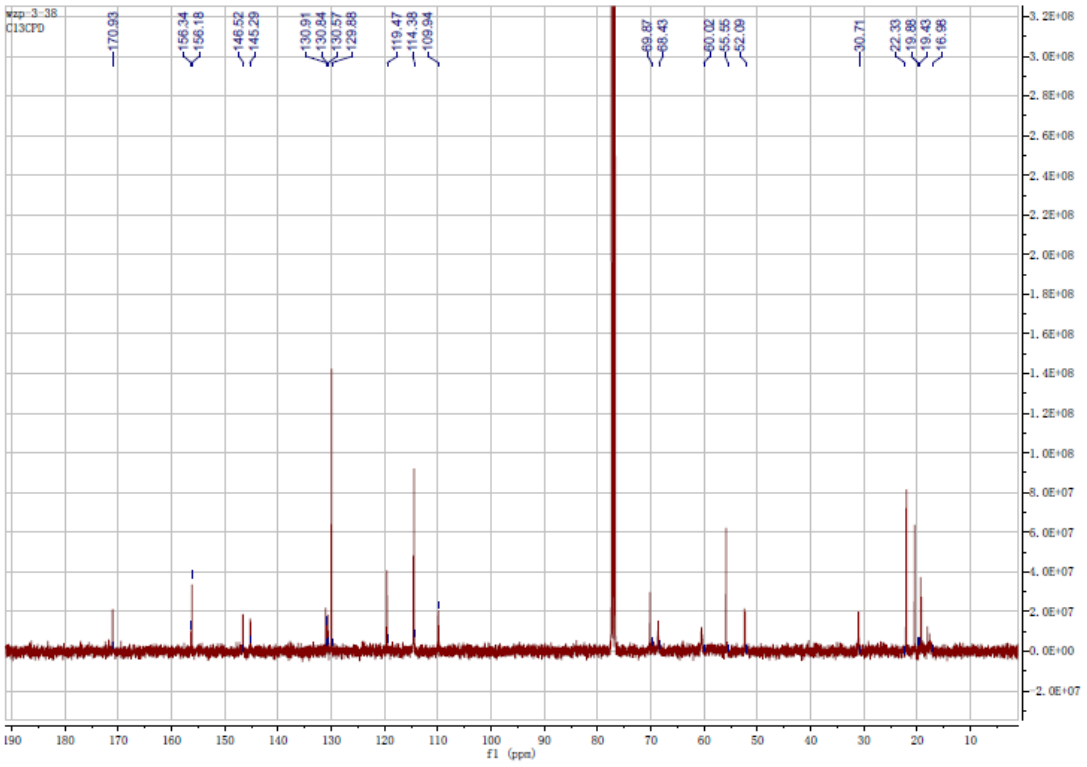

7.749
6.821
6.842
6.871
6.889
7.237
7.253
5.755
5.312
5.225
4.896
4.880
4.865
4.850
4.226
4.201
4.191
4.028
4.010
3.989
3.885
3.866
2.169
2.154
1.241
1.223
1.207
1.189
1.175
1.013
0.996
0.976
0.959
0.935
0.918
Cl
O
NH
NH
O
O
O
HO
1.91
5.01
0.95
0.89
1.09
1.06
1.08
2.03
1.07
3.00
1.09
6.10
6.10
f1 (ppm)


156.87
156.35
146.62
145.26
130.70
129.42
128.26
119.47
115.78
114.42
109.95
70.05
68.72
60.18
55.50
52.00
30.64
21.73
19.11
17.97
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-6-40-LASER60-WS2.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:44:44
Scale: 1.1166
501.1764
503.1749
502.1806
504.1796
495.2558
497.2266
499.2370
505.1908
507.2202
511.2515
515.2041
Mass/Charge

8m

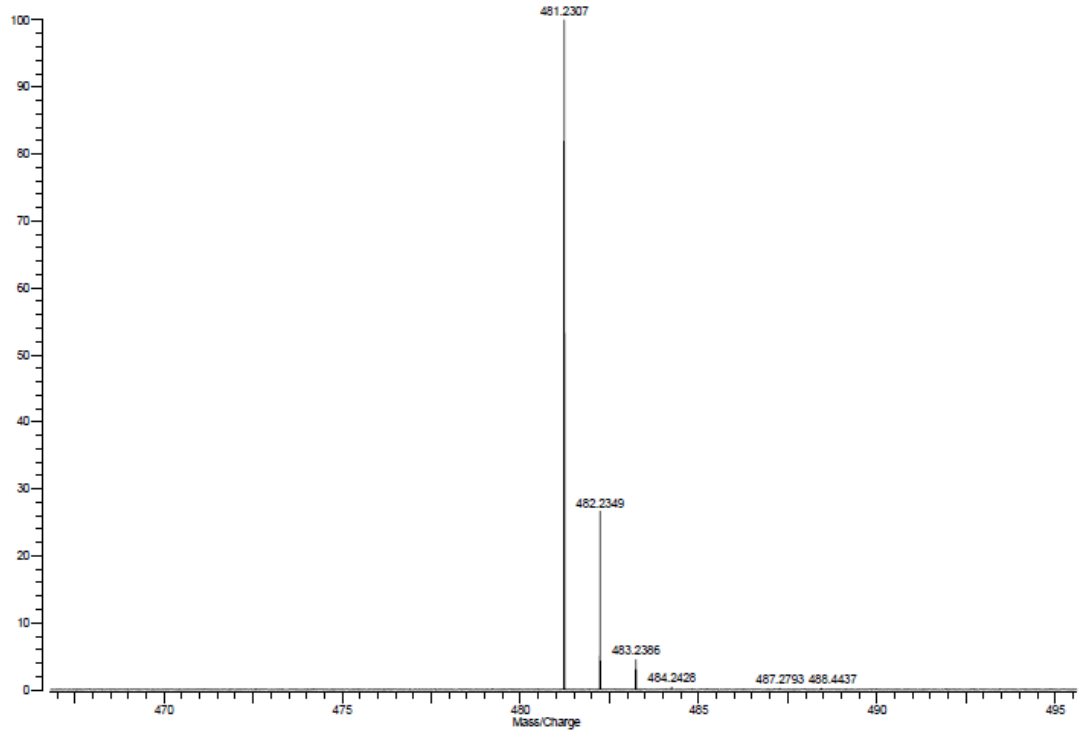

f1 (ppm)



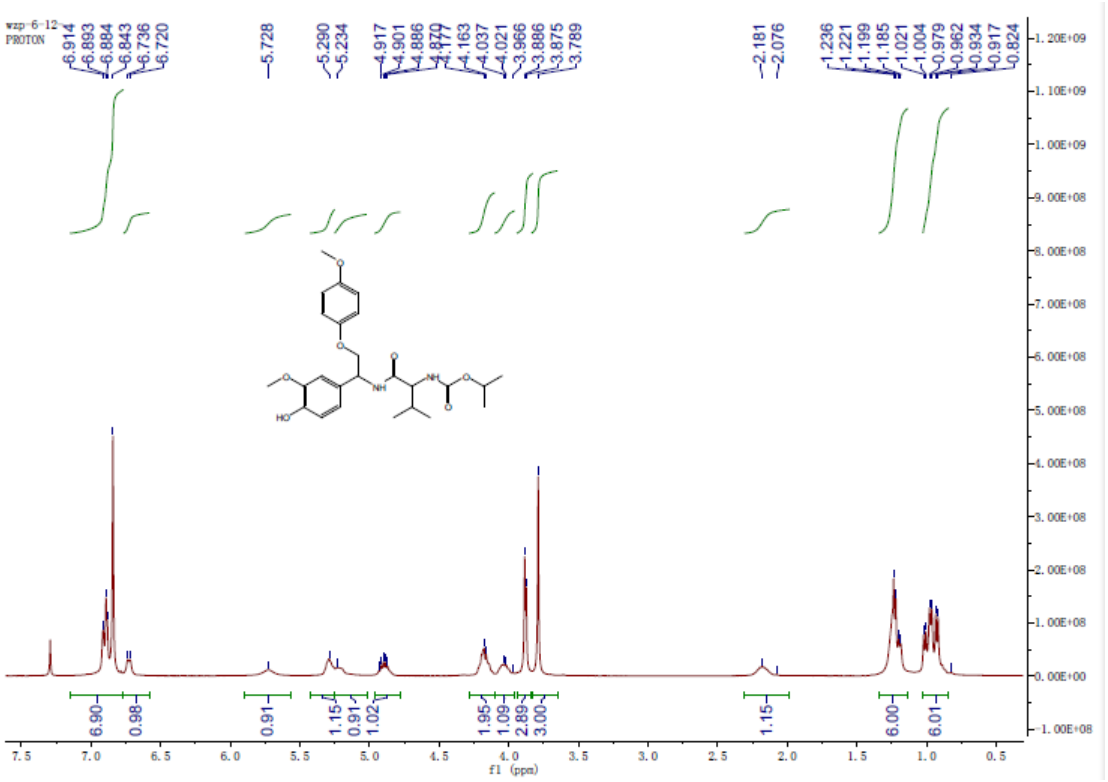
Varian ProMALDI
File: ZWG-WZP-3-38-LASER60-WS2.trans

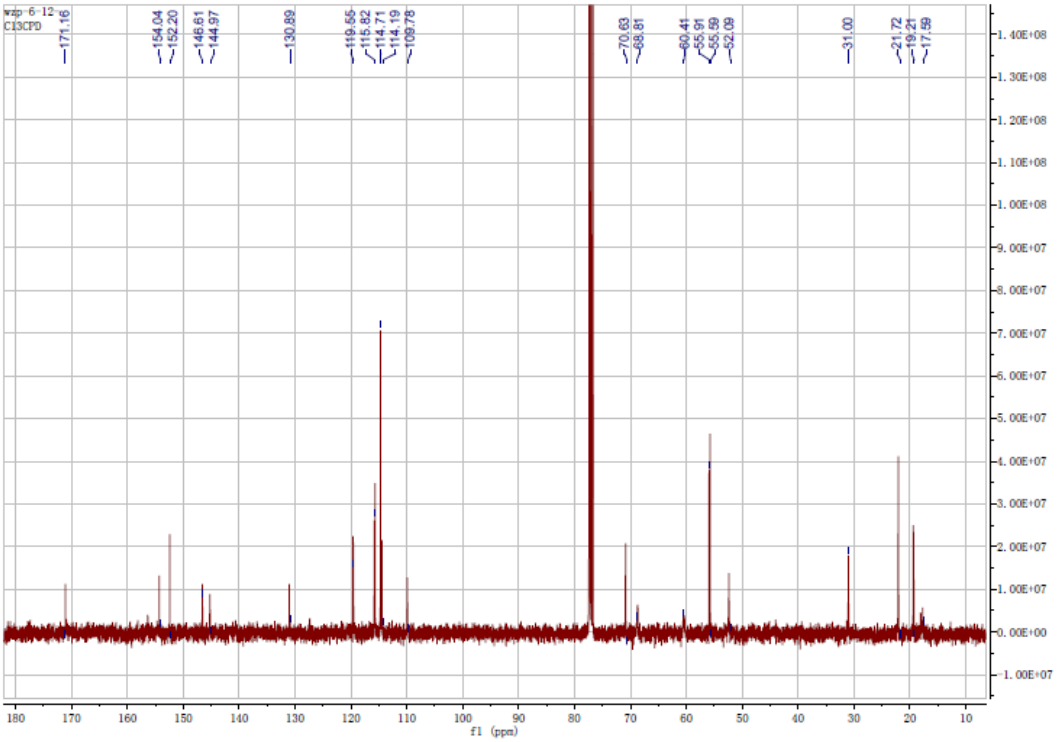
Mode: Positive
Scans: 1

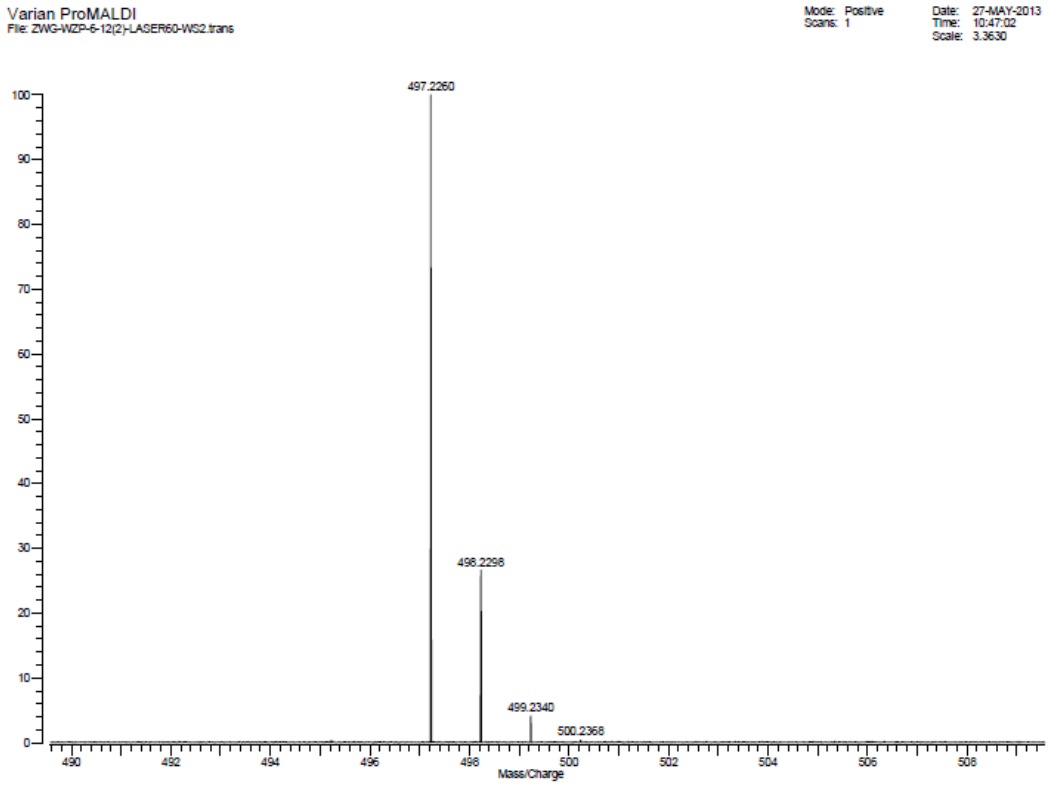
Date: 27-MAY-2013
Time: 10:19:18
Scale: 2.0123



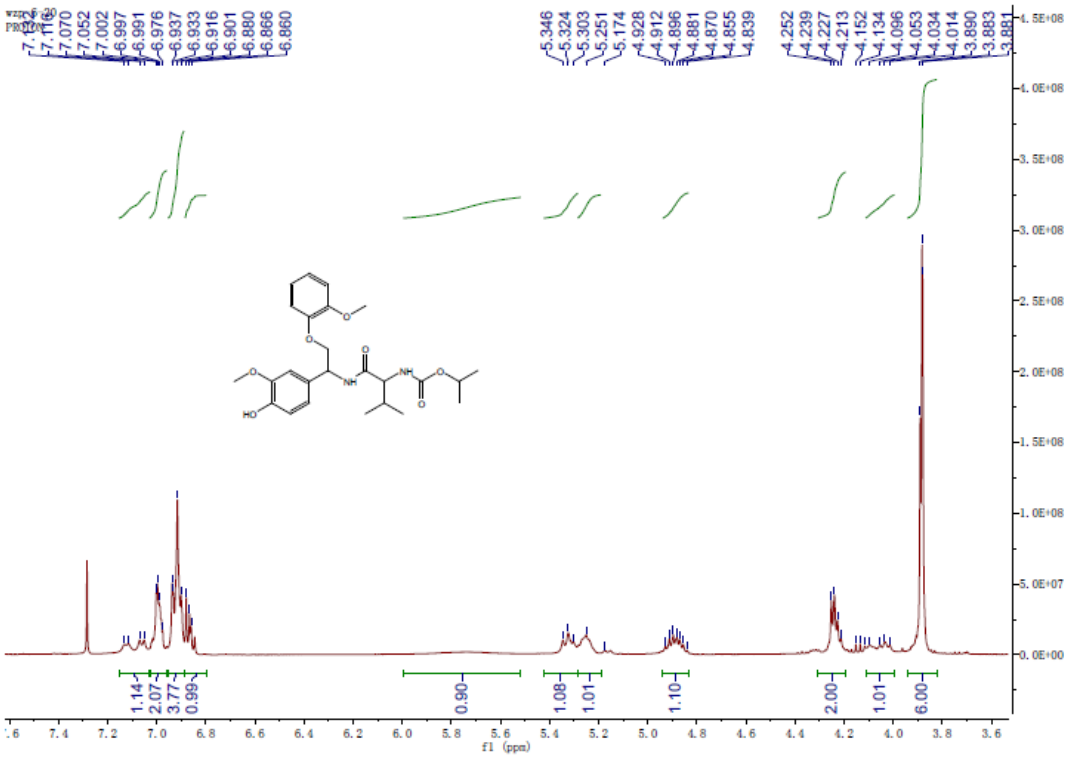
8n

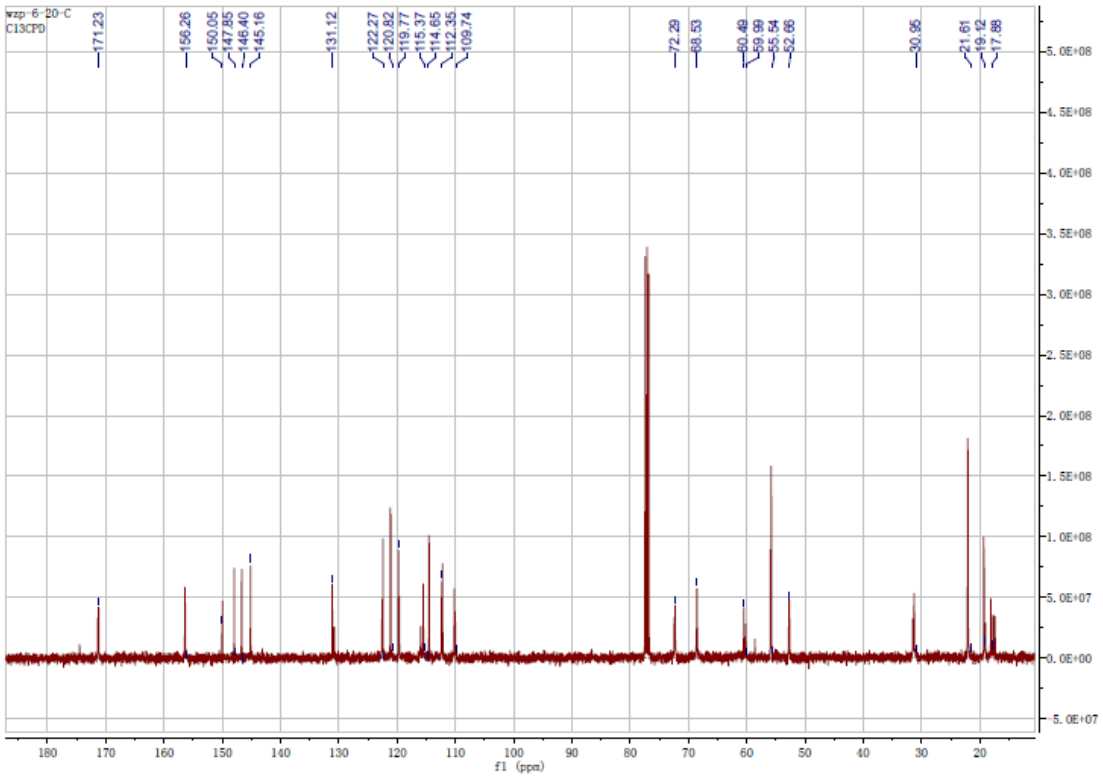

wzp-6-12-
PROTON
6.914
6.893
6.884
6.843
6.736
6.720
5.728
5.290
5.234
4.917
4.901
4.886
4.870
4.177
4.163
4.037
4.021
3.966
3.886
3.875
3.789
2.181
2.076
1.236
1.221
1.199
1.185
1.021
1.004
0.979
0.962
0.934
0.917
0.824
6.90
0.98
0.91
1.15
0.91
1.02
1.95
1.09
2.89
3.00
1.15
6.00
6.01
f1 (ppm)


wzp-6-12-
C13CPD
171.16
154.04
152.20
146.61
144.97
130.89
119.55
115.82
114.71
114.19
108.78
70.63
68.81
60.41
55.91
55.59
52.09
31.00
21.72
19.21
17.59
f1 (ppm)


Varian ProMALDI
File: ZWG-WZP-6-12(2)-LASER60-WS2.trans
Mode: Positive
Scans: 1
Date: 27-MAY-2013
Time: 10:47:02
Scale: 3.3630
497.2260
498.2298
499.2340
500.2368
Mass/Charge

8o

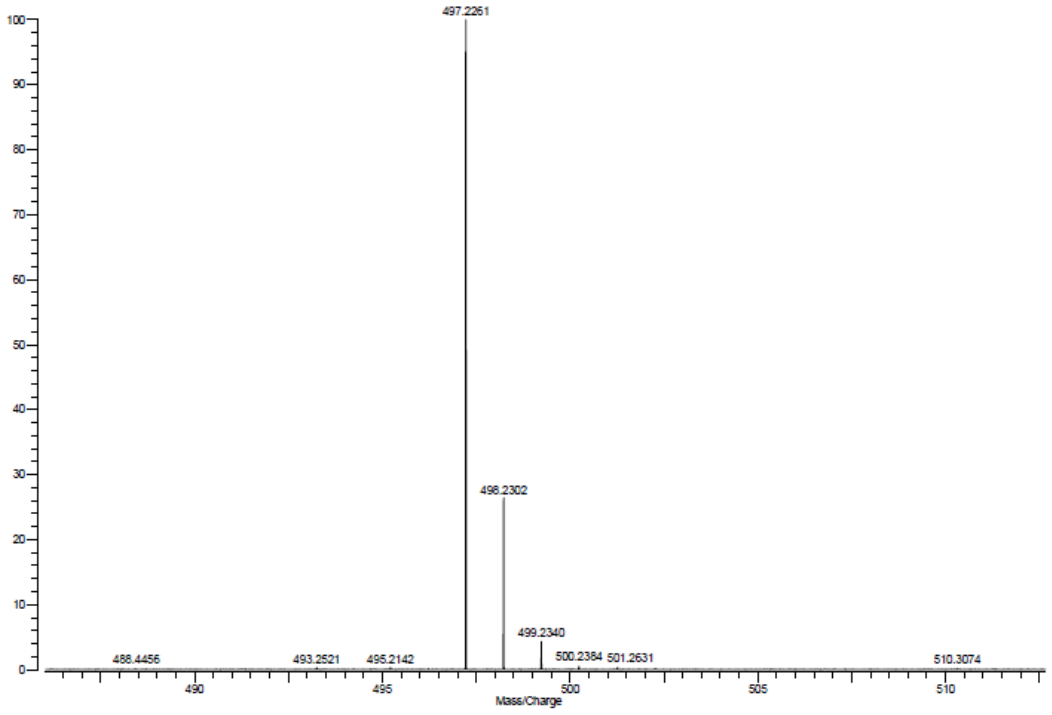

f1 (ppm)



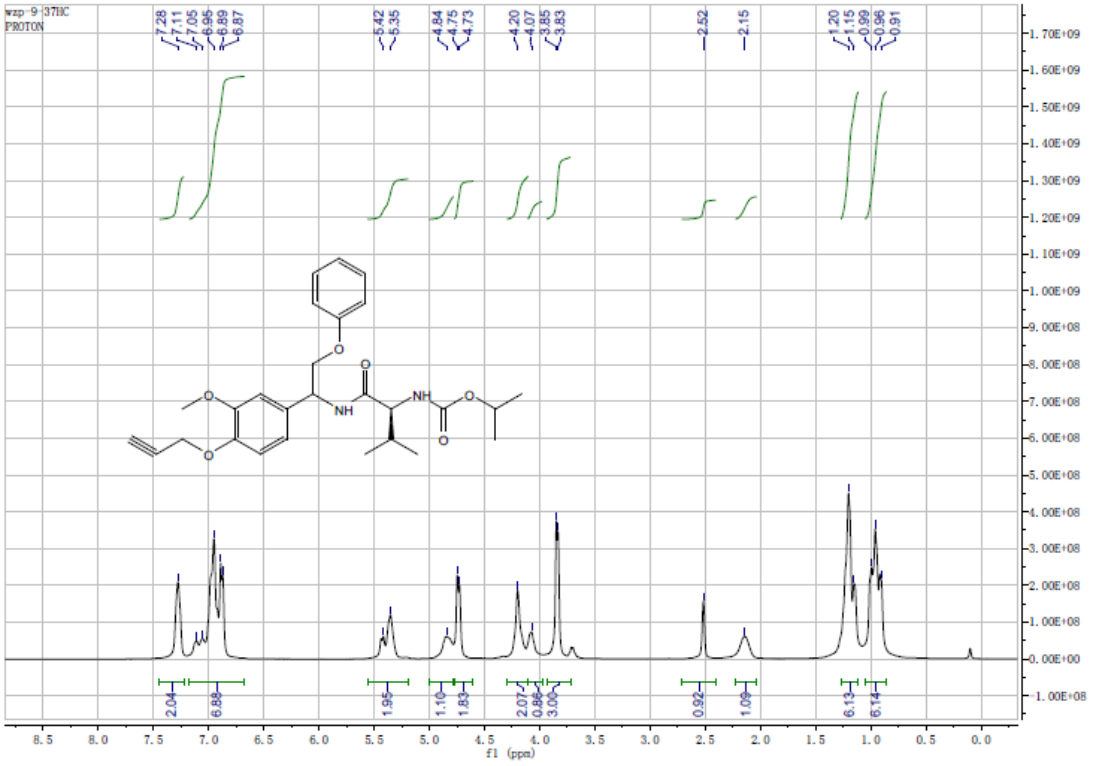
Varian ProMALDI
File: ZWG-WZP-6-20-LASER60-WS2.trans

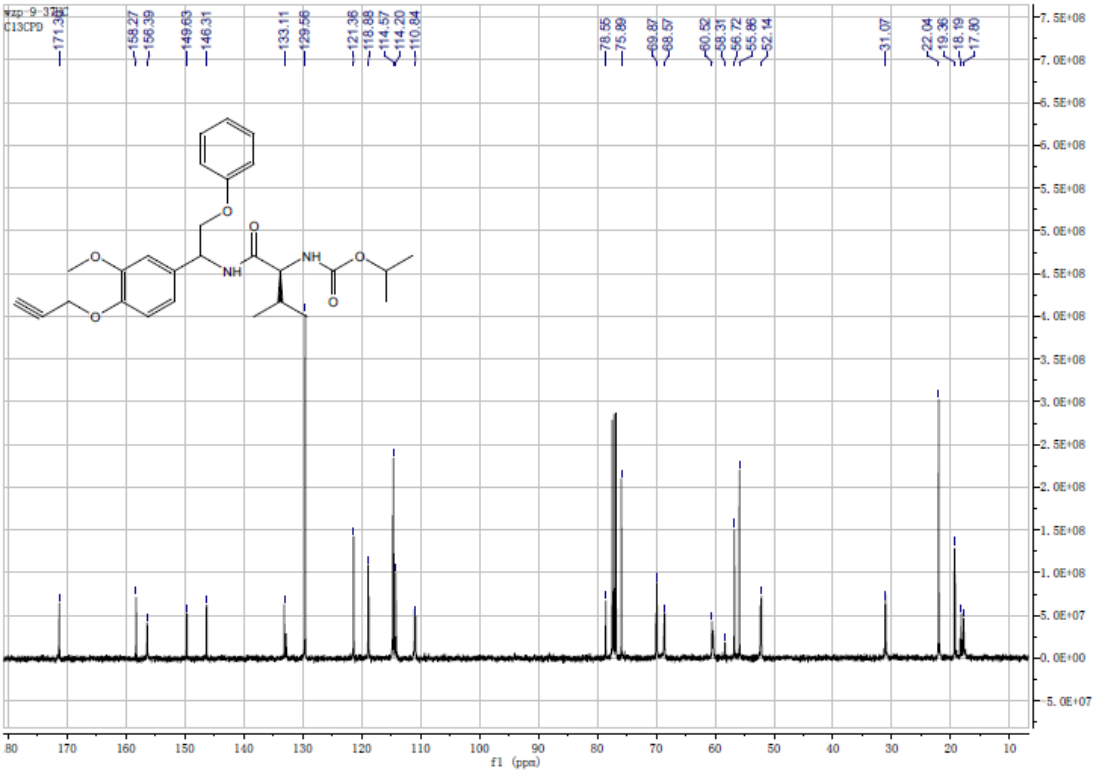
Mode: Positive
Scans: 1

Date: 27-MAY-2013
Time: 10:45:32
Scale: 1.4319

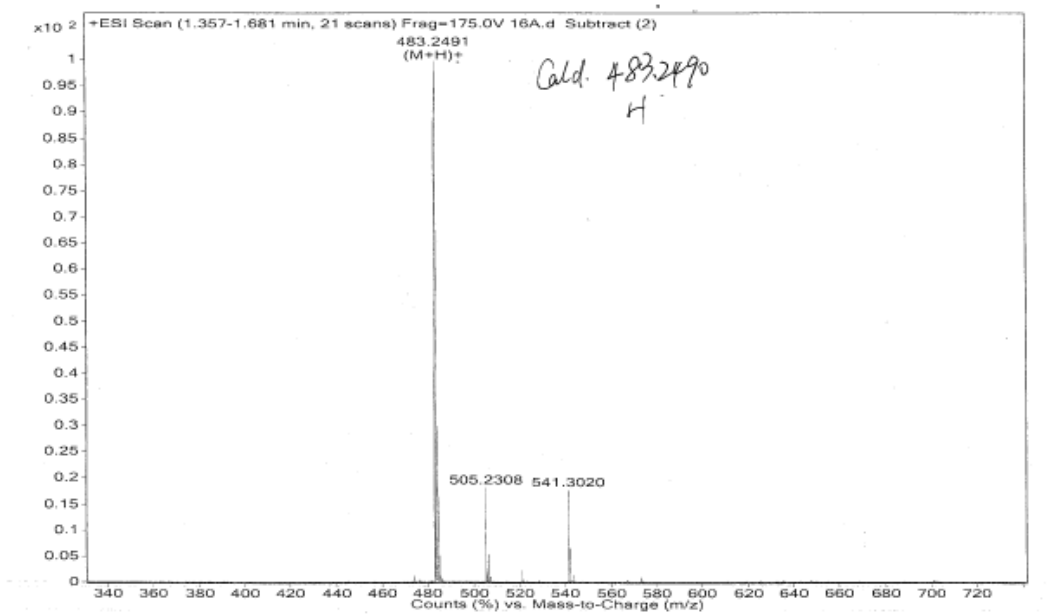


8p

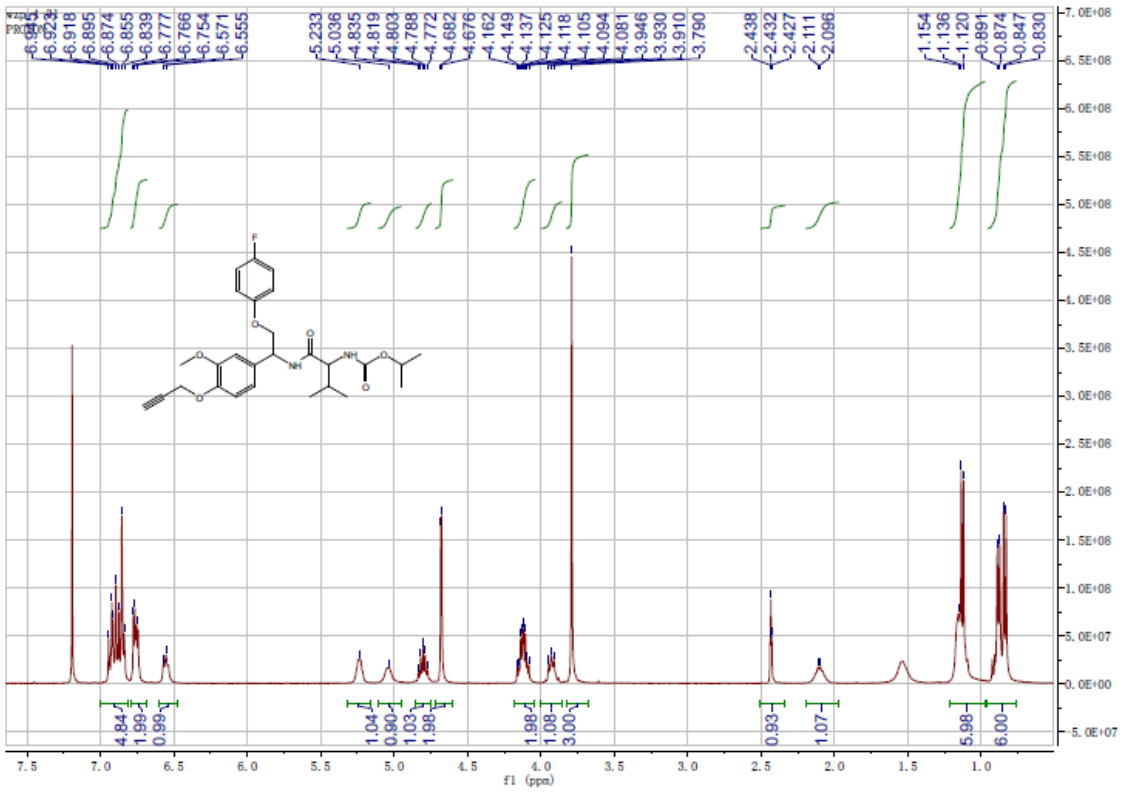

wzp-9-37HC
PROTON
7.28
7.11
7.05
6.95
6.89
6.87
5.42
5.35
4.84
4.75
4.73
4.20
4.07
3.85
3.83
2.52
2.15
1.20
1.15
0.99
0.96
0.91
NH
NH
O
2.04
6.88
1.95
1.10
1.83
2.07
0.86
3.00
0.92
1.09
6.13
6.14
f1 (ppm)

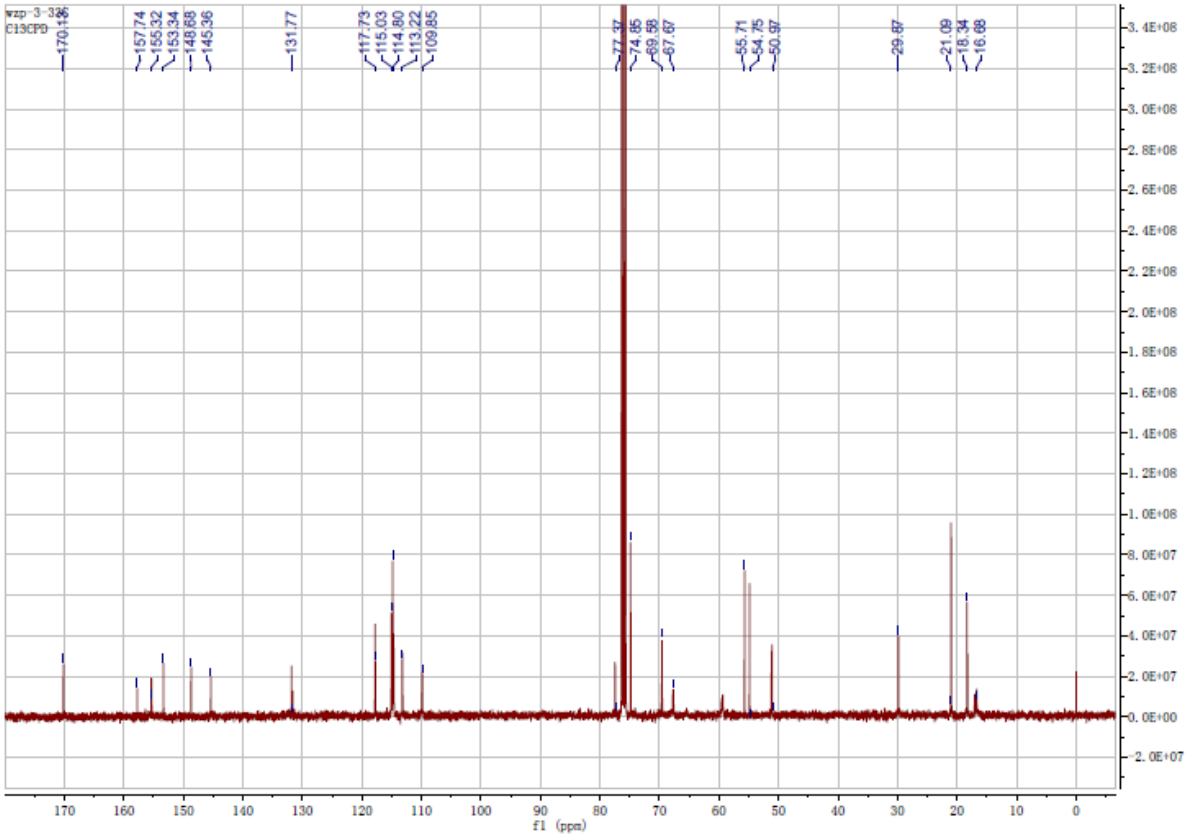

wzp-9-37HC
C13CPD
171.36
158.27
156.39
149.63
146.31
133.11
129.56
121.36
118.88
114.57
114.20
110.84
78.55
75.89
69.87
68.57
60.52
58.31
56.72
55.86
52.14
31.07
22.04
19.36
18.19
17.80
NH
NH
O
f1 (ppm)

Sample Name	lq/ms	**Position**	P1-A1	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	1	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	16A.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	1/7/2014 10:58:57 AM



8q

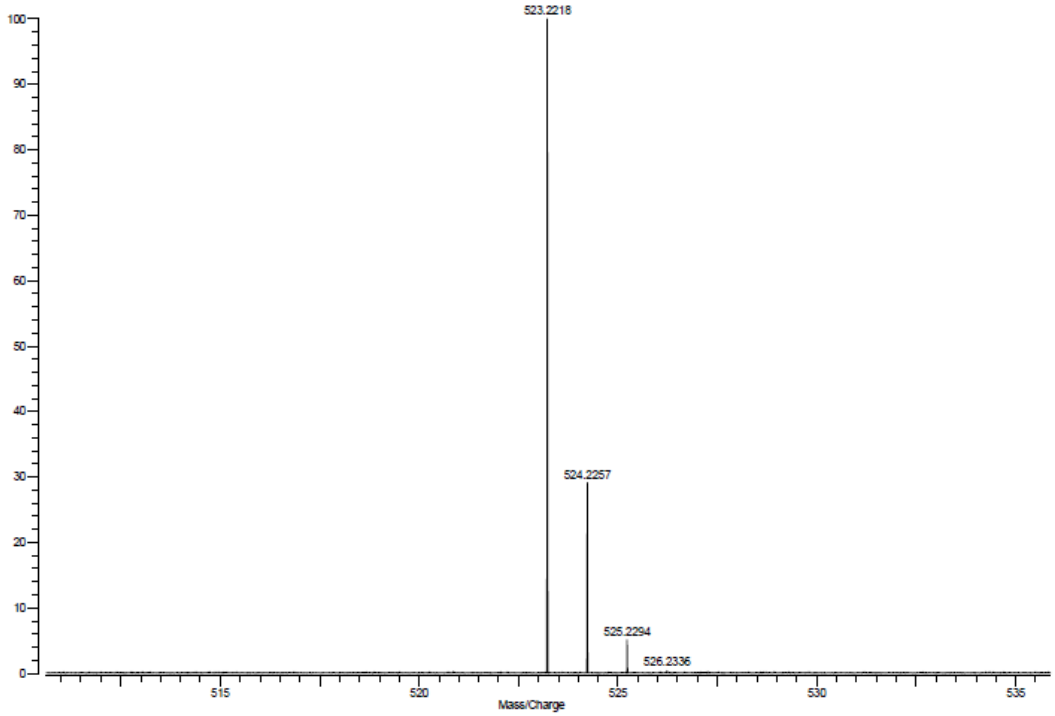




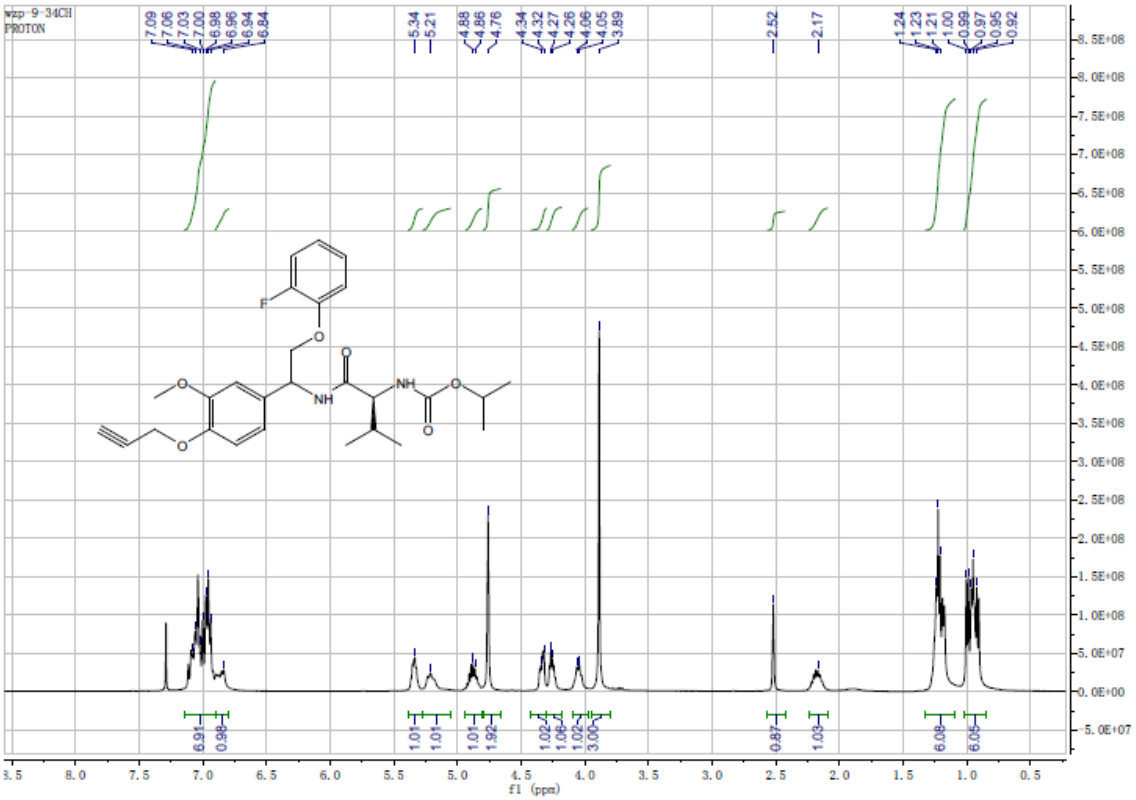
Varian ProMALDI
File: ZWG-WZP-3-33-LASER60-WS2.trans

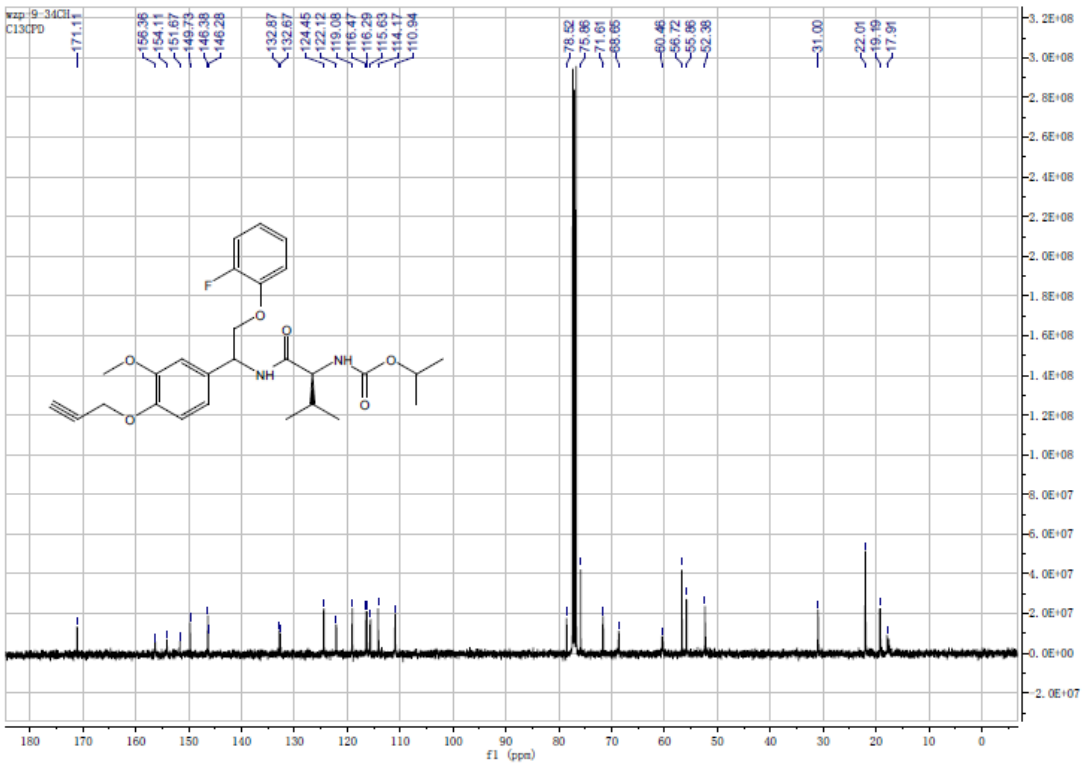
Mode: Positive
Scans: 1

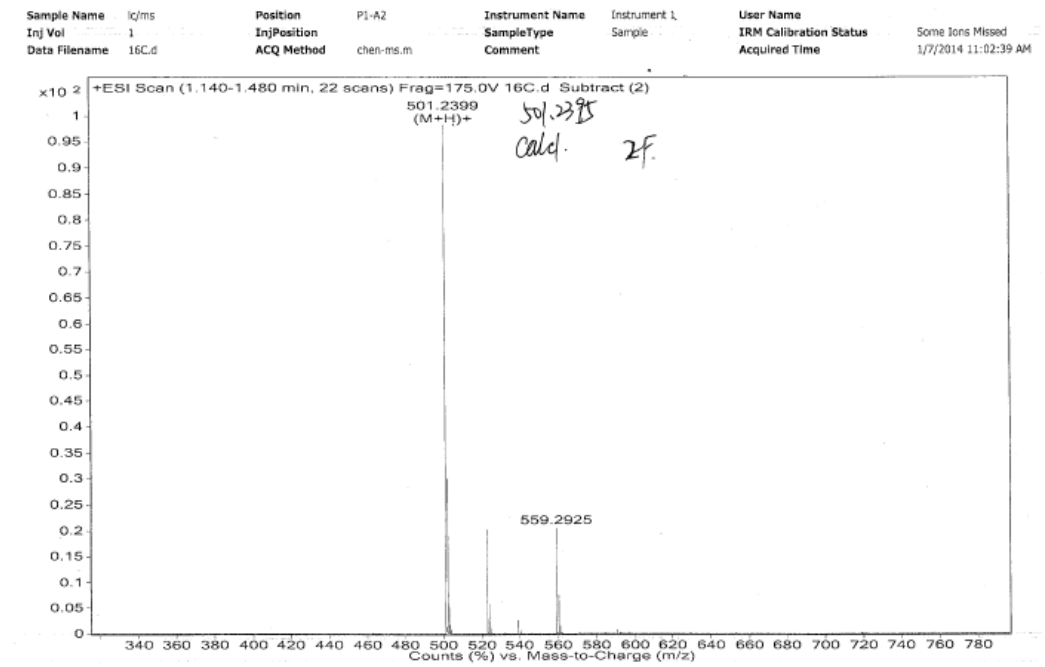
Date: 27-MAY-2013
Time: 10:30:09
Scale: 3.6089



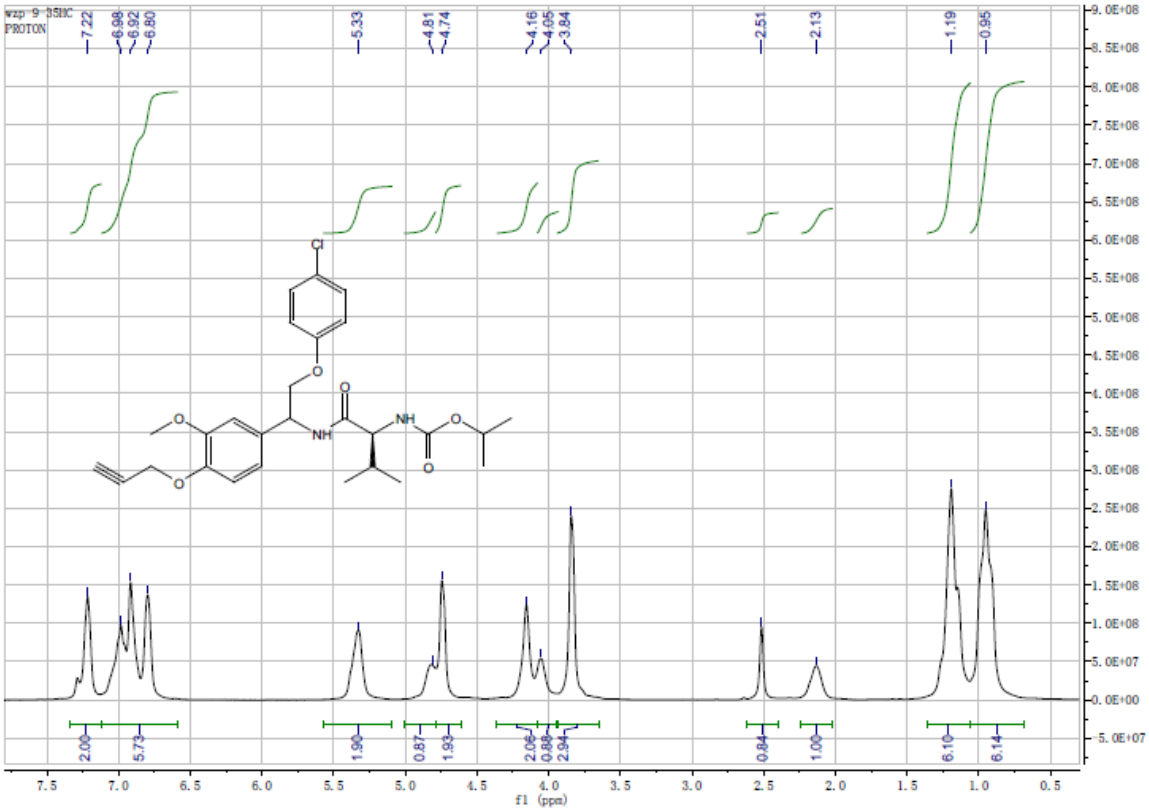
8r

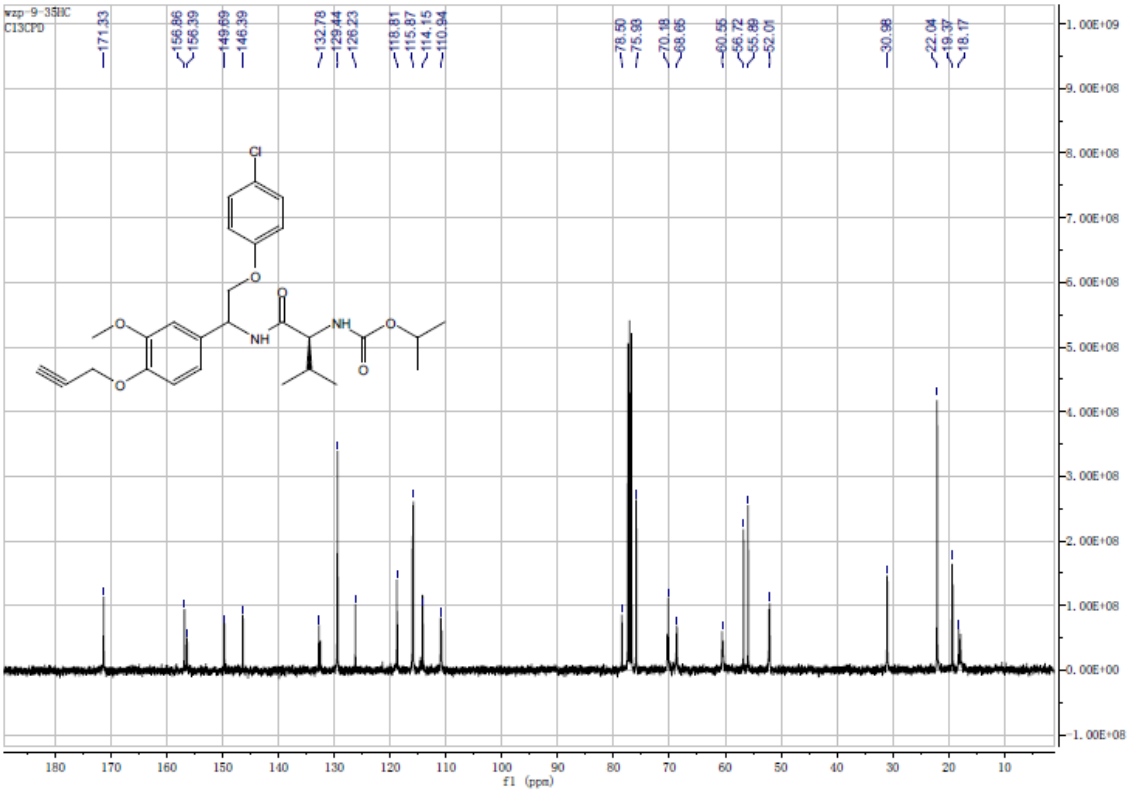

wzp-9-34CH
PROTON
7.09
7.06
7.03
7.00
6.98
6.96
6.94
6.84
5.34
5.21
4.88
4.86
4.76
4.34
4.32
4.27
4.26
4.06
4.05
3.89
2.52
2.17
1.24
1.23
1.21
1.00
0.99
0.97
0.95
0.92
6.91
0.98
1.01
1.01
1.01
1.92
1.02
1.06
1.02
3.00
0.87
1.03
6.08
6.05
f1 (ppm)


wzp-9-34CH
C13CPD
171.11
156.36
154.11
151.67
149.73
146.38
146.28
132.87
132.67
124.45
122.12
119.08
116.47
116.29
115.63
114.17
110.94
78.52
75.86
71.61
68.65
60.46
56.72
55.86
52.38
31.00
22.01
19.19
17.91
f1 (ppm)

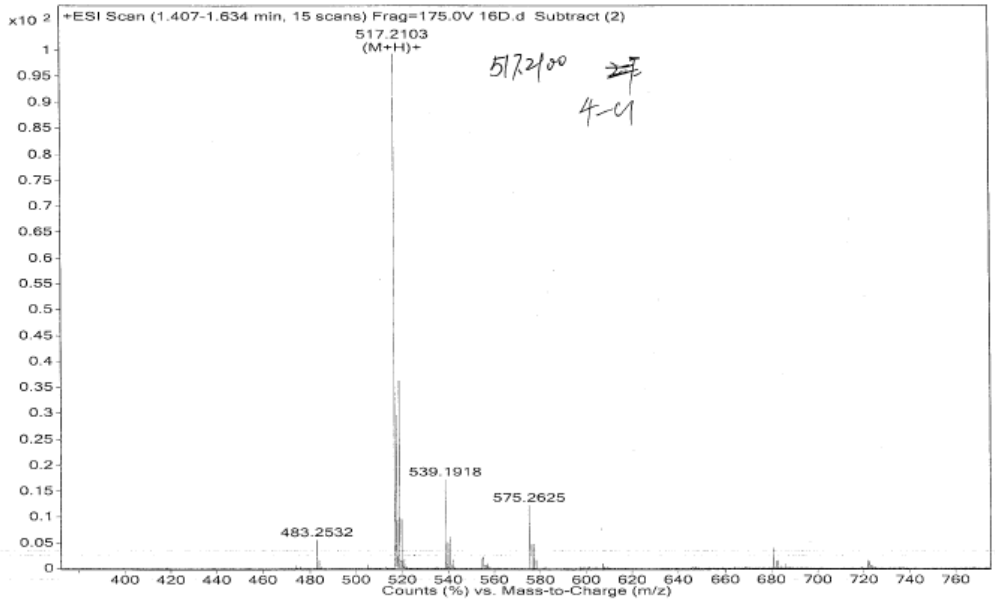

Sample Name lc/ms
Inj Vol 1
Data Filename 16C.d
Position P1-A2
InjPosition
ACQ Method chen-ms.m
Instrument Name Instrument 1
SampleType Sample
Comment
User Name
IRM Calibration Status
Acquired Time 1/7/2014 11:02:39 AM
Some Ions Missed
+ESI Scan (1.140-1.480 min, 22 scans) Frag=175.0V 16C.d Subtract (2)
501.2399
(M+H)+
559.2925
Counts (%) vs. Mass-to-Charge (m/z)

8s

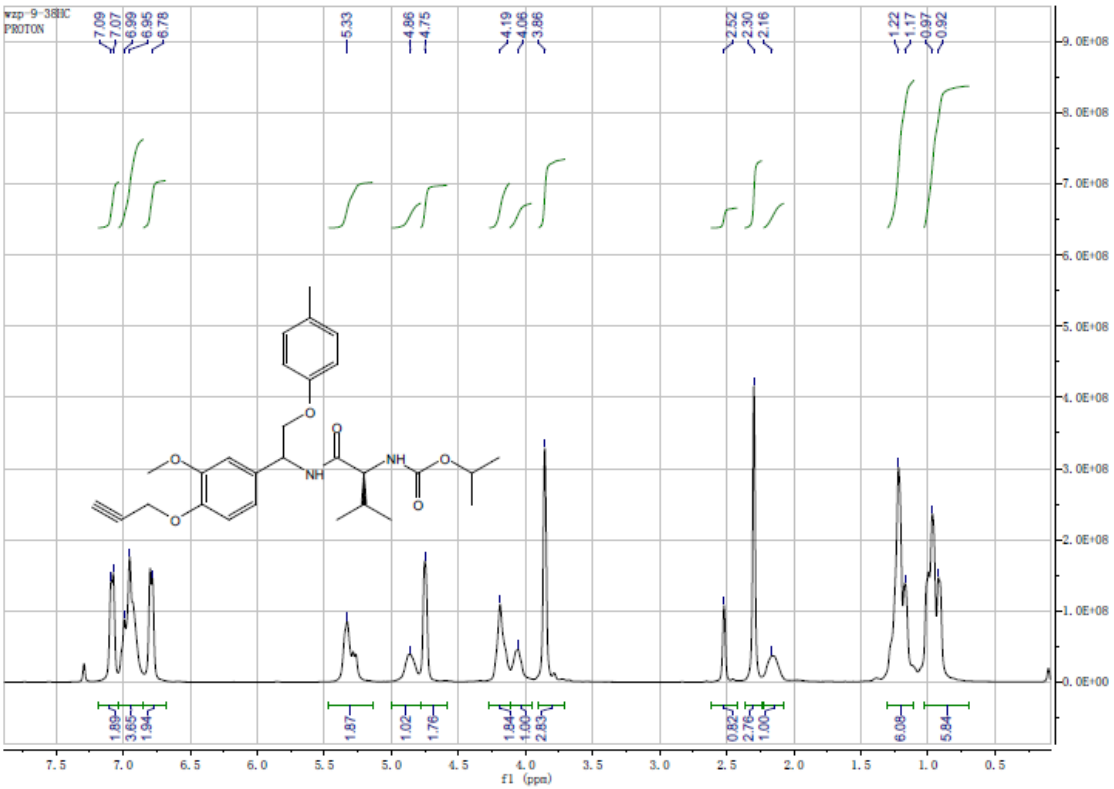

PROTON
7.22
6.98
6.92
6.80
5.33
4.81
4.74
4.16
4.05
3.84
2.51
2.13
1.19
0.95
f1 (ppm)

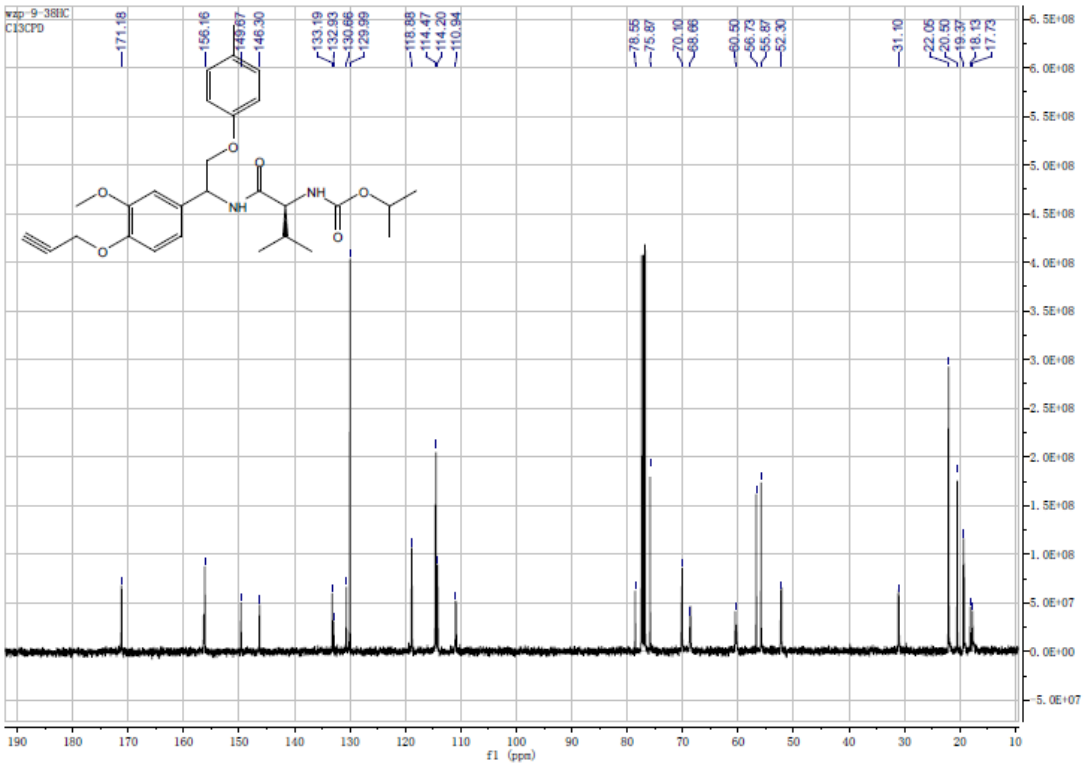


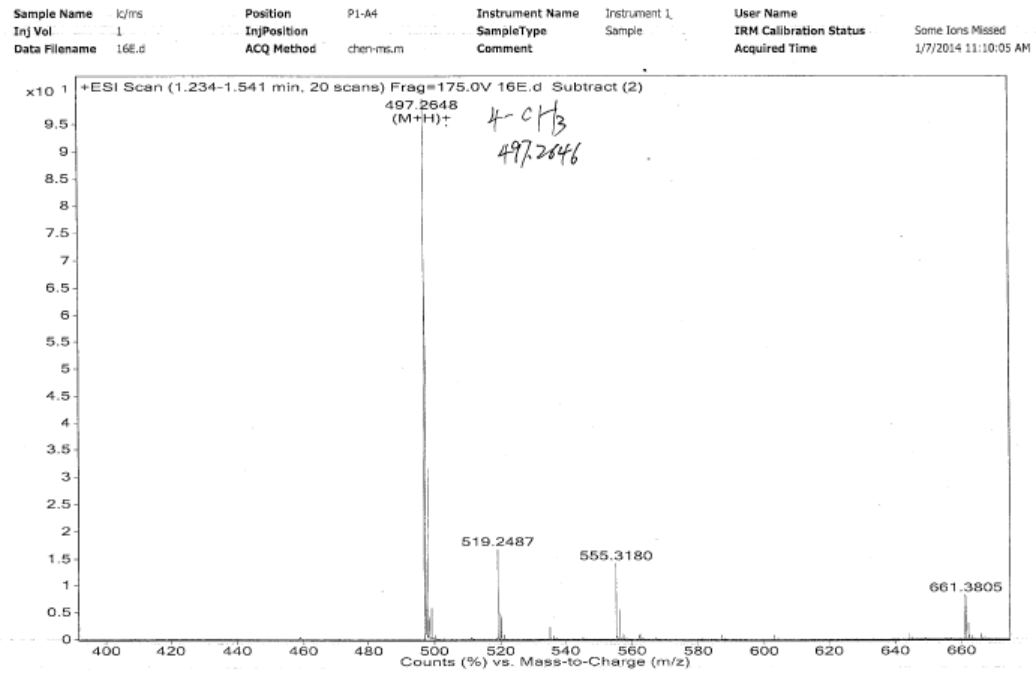
Sample Name	Unavailable	**Position**	Unavailable	**Instrument Name**	Unavailable	**User Name**	Unavailable
Inj Vol	Unavailable	**InjPosition**	Unavailable	**SampleType**	Unavailable	**IRM Calibration Status**	Some Ions Missed
Data Filename	16D.d	**ACQ Method**		**Comment**	Sample Information is unavailable	**Acquired Time**	Unavailable



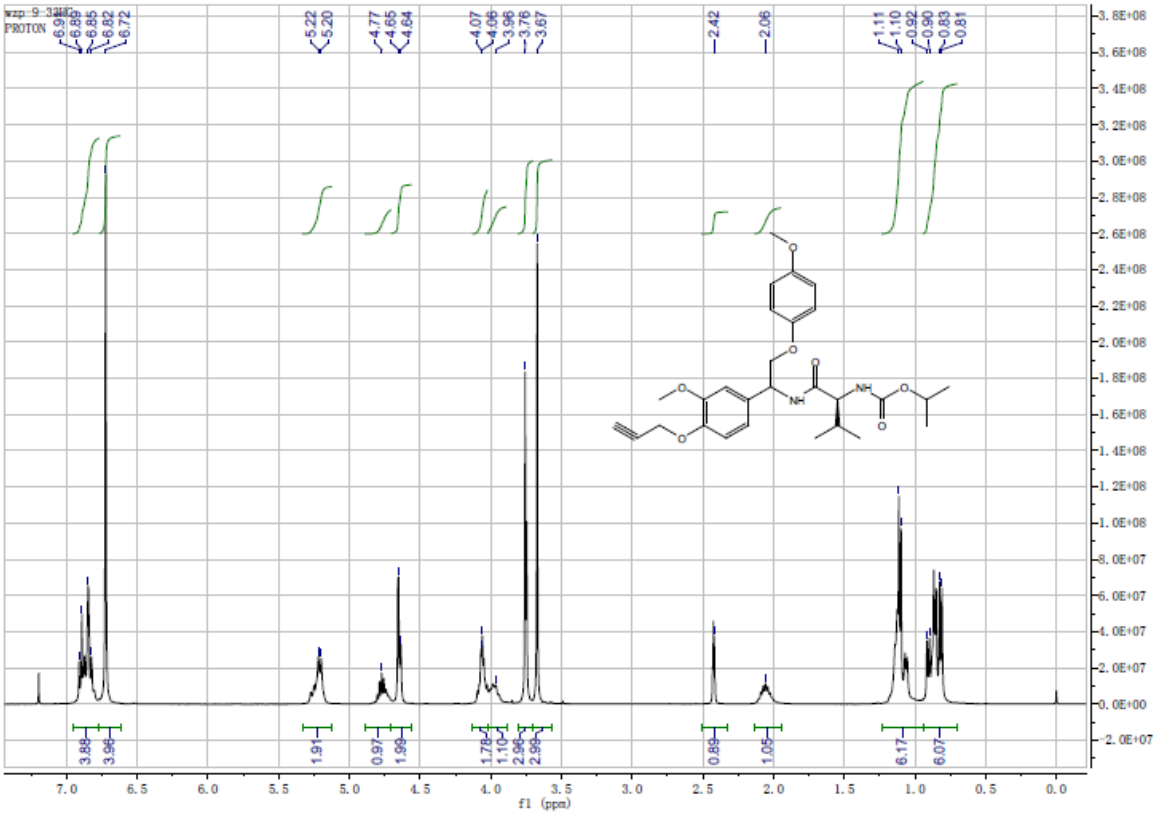
8t

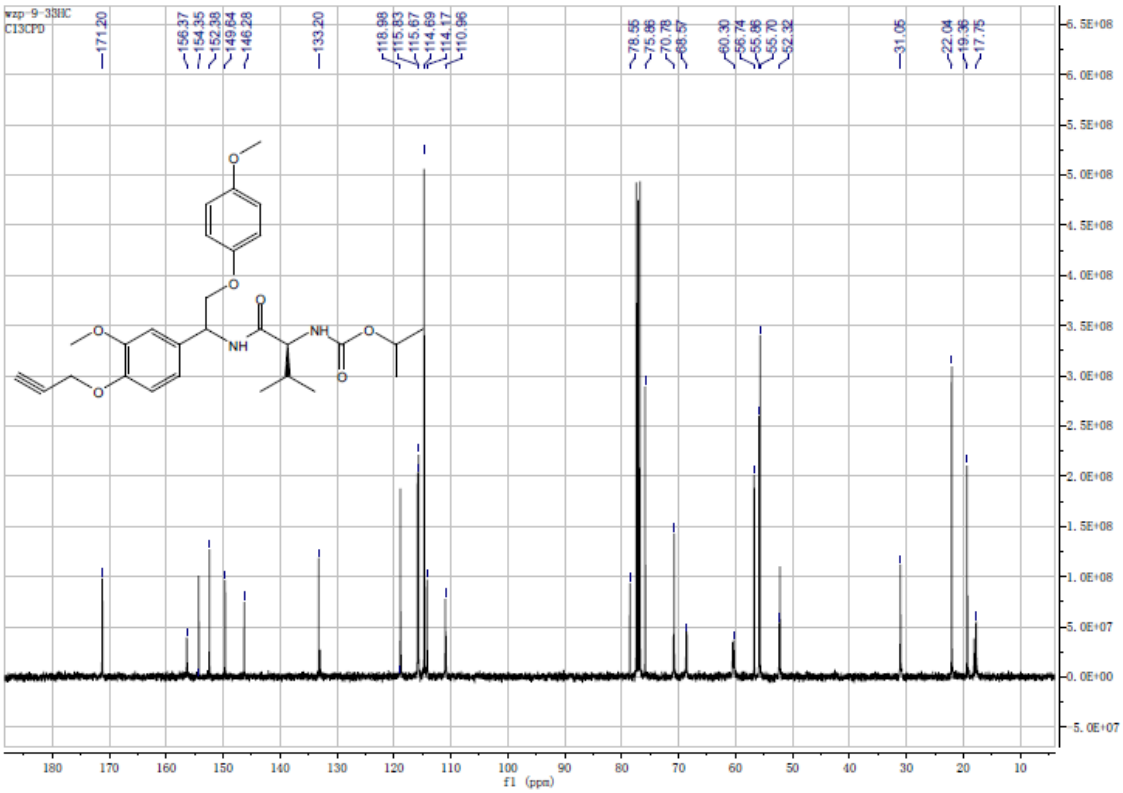

wzp-9-38HC
PROTON
7.09
7.07
6.99
6.95
6.78
5.33
4.86
4.75
4.19
4.08
3.86
2.52
2.30
2.16
1.22
1.17
0.97
0.92
1.89
3.65
1.94
1.87
1.02
1.76
1.84
1.00
2.83
0.82
2.76
1.00
6.08
5.84
f1 (ppm)


wzp-9-38HC
C13CPD
171.18
156.16
149.87
146.30
133.19
132.93
130.66
129.99
118.88
114.47
114.20
110.94
78.55
75.87
70.10
68.66
60.50
56.73
55.87
52.30
31.10
22.05
20.50
19.37
18.13
17.73
f1 (ppm)

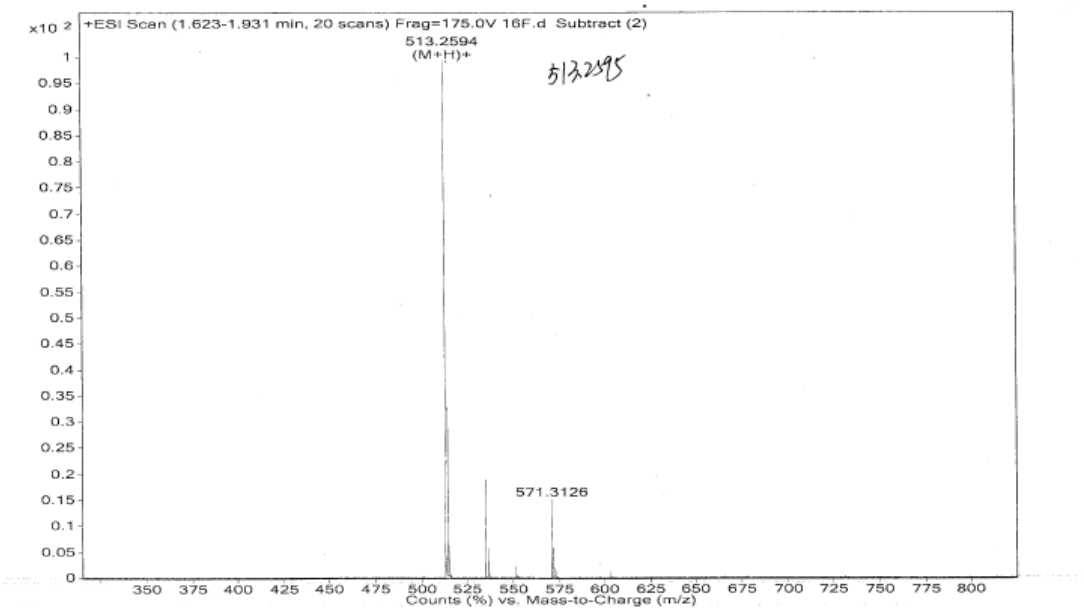

Sample Name lc/ms
Inj Vol 1
Data Filename 16E.d
Position P1-A4
InjPosition
ACQ Method chen-ms.m
Instrument Name Instrument 1
SampleType Sample
Comment
User Name
IRM Calibration Status Some Ions Missed
Acquired Time 1/7/2014 11:10:05 AM
+ESI Scan (1.234-1.541 min, 20 scans) Frag=175.0V 16E.d Subtract (2)
497.2648
(M+H)+
4-CH3
497.2646
519.2487
555.3180
661.3805
Counts (%) vs. Mass-to-Charge (m/z)

8u

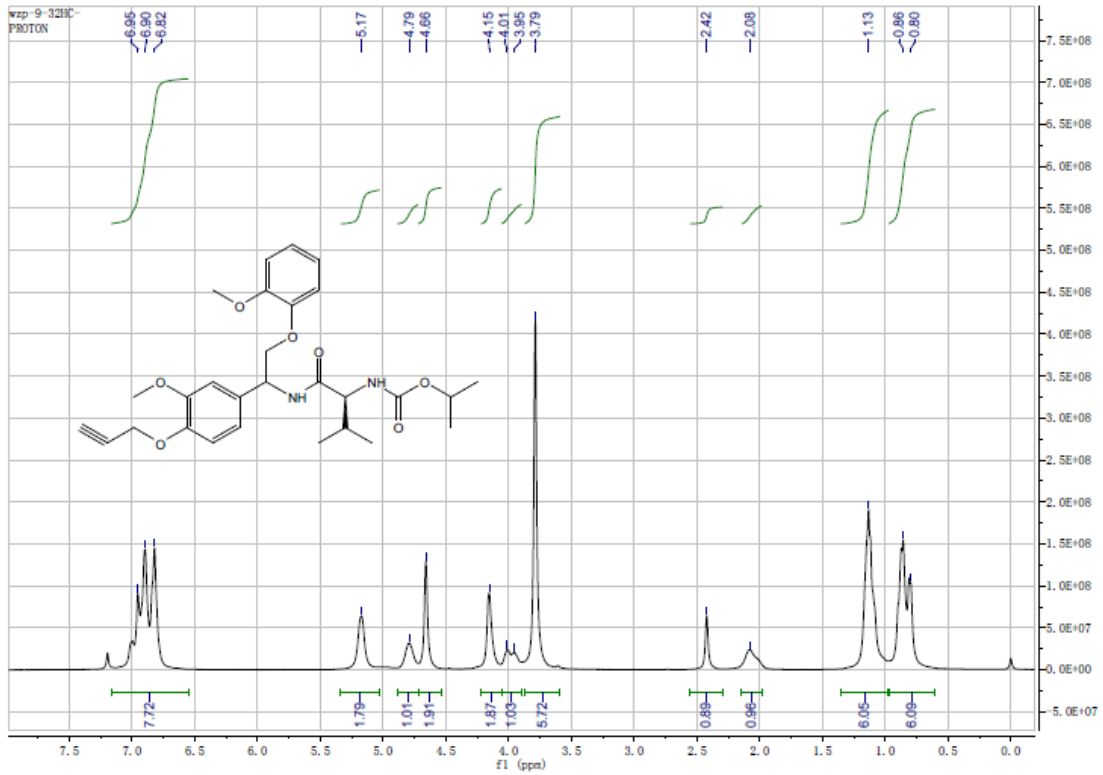

PROTON
f1 (ppm)

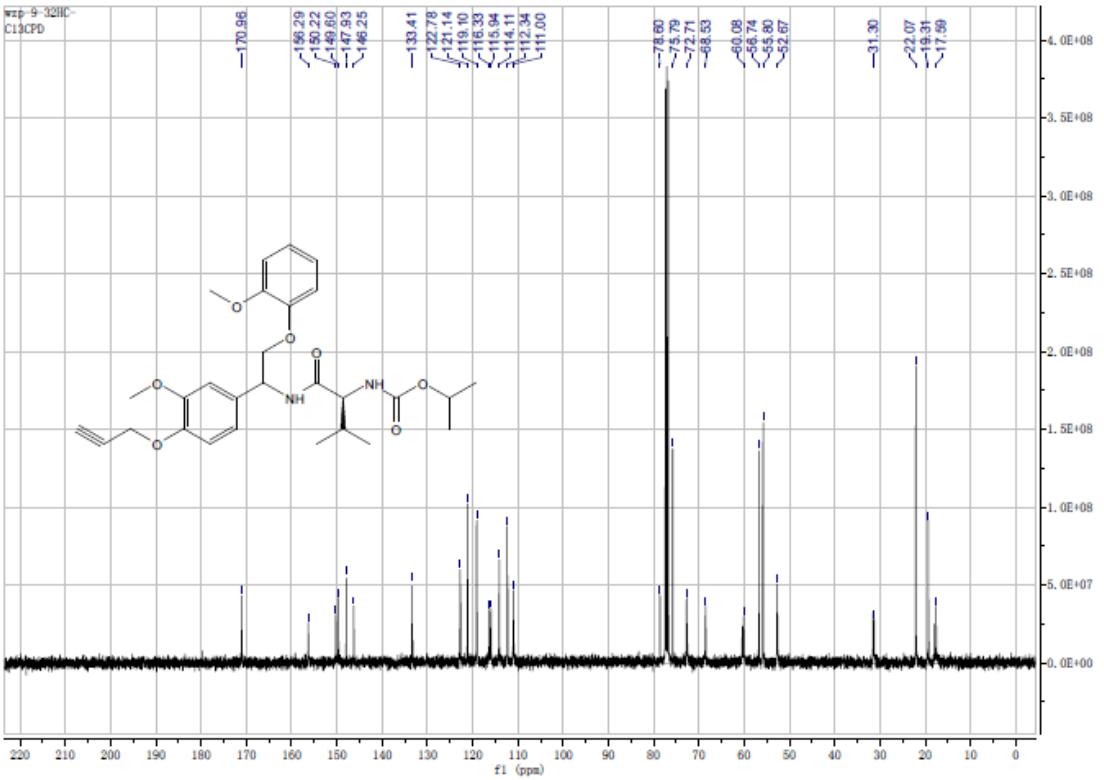


Sample Name	lc/ms	**Position**	P1-A5	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	1	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	16F.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	1/7/2014 11:13:46 AM

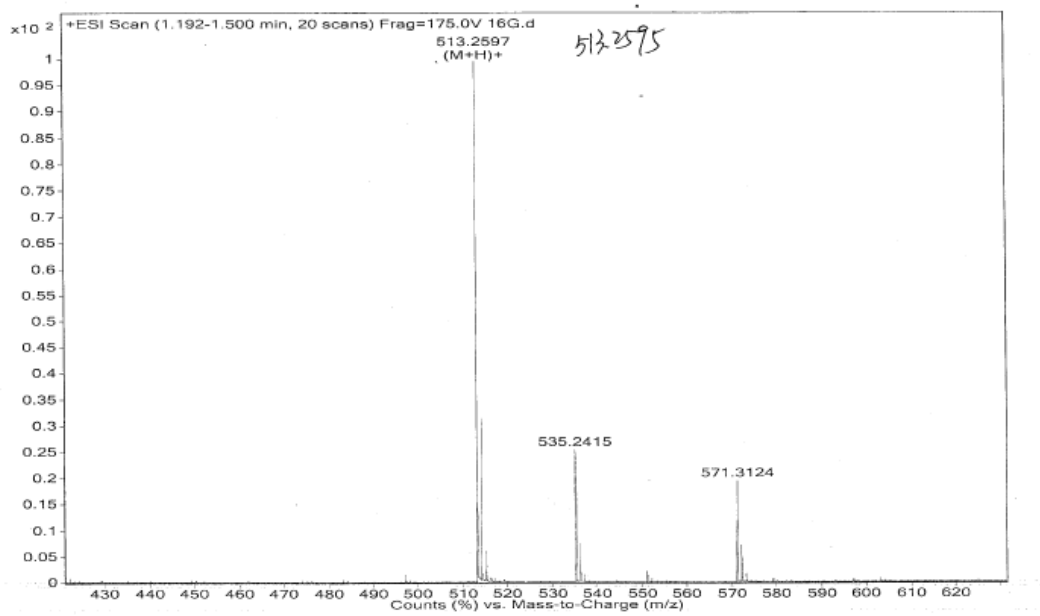


8v

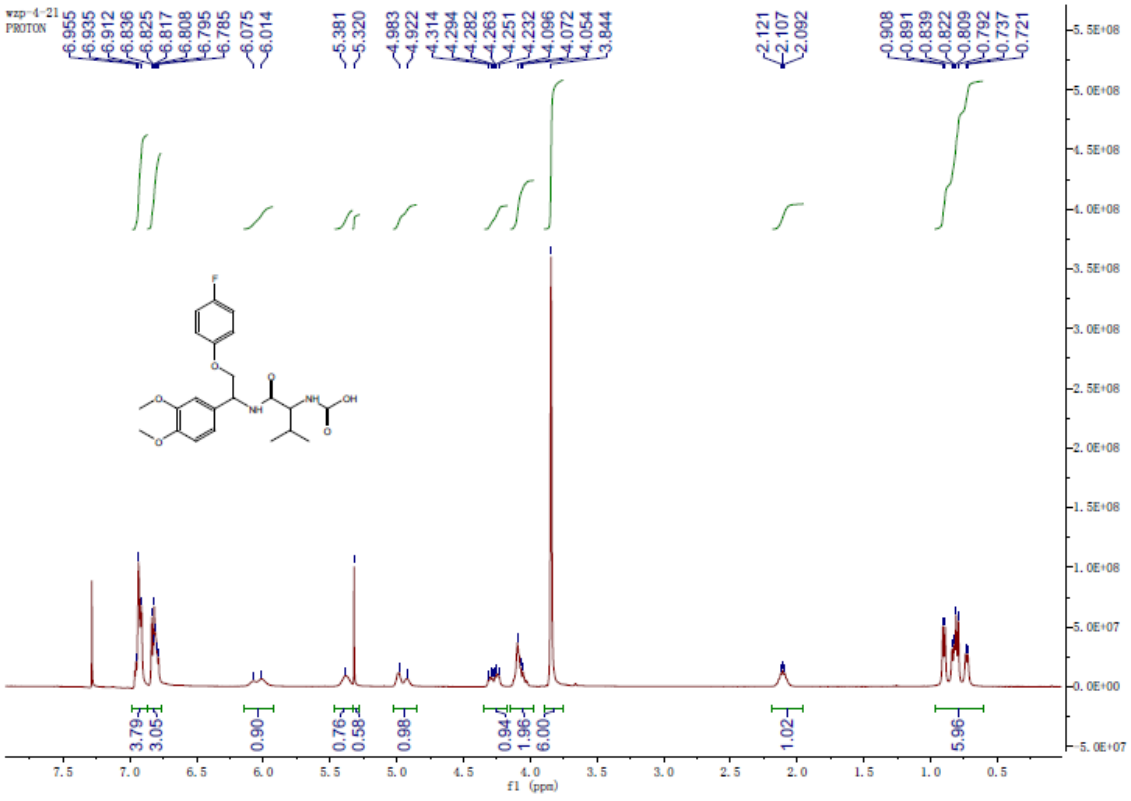

wzp-9-32HC-
PROTON
6.95
6.90
6.82
5.17
4.79
4.66
4.15
4.01
3.95
3.79
2.42
2.08
1.13
0.86
0.80
7.72
1.79
1.01
1.91
1.87
1.03
5.72
0.89
0.96
6.05
6.09
f1 (ppm)

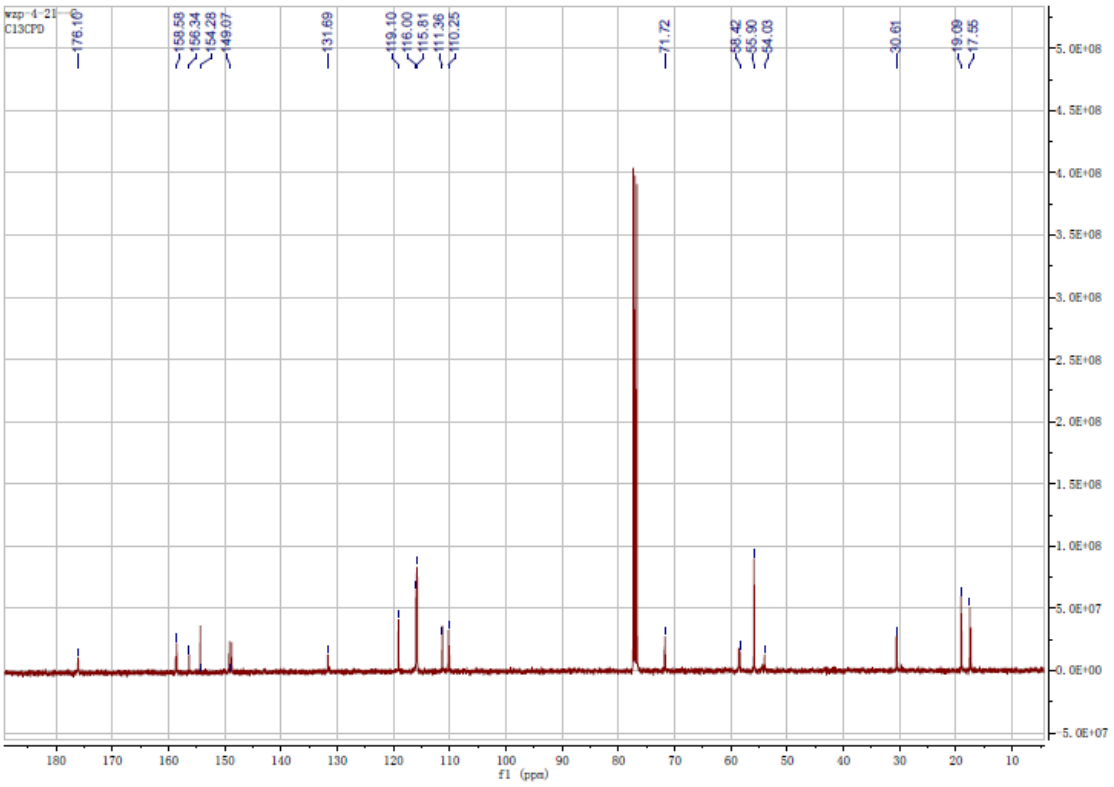

wzp-9-32HC-
C13CPD
170.96
156.29
150.22
149.60
147.93
146.25
133.41
122.78
121.14
119.10
116.33
115.94
114.11
112.34
111.00
78.60
75.79
72.71
68.53
60.08
56.74
55.80
52.67
31.30
22.07
19.31
17.59
f1 (ppm)

Sample Name	lc/ms	**Position**	P1-A6	**Instrument Name**	Instrument 1	**User Name**	
Inj Vol	1	**InjPosition**		**SampleType**	Sample	**IRM Calibration Status**	Some Ions Missed
Data Filename	16G.d	**ACQ Method**	chen-ms.m	**Comment**		**Acquired Time**	1/7/2014 11:17:30 AM



9

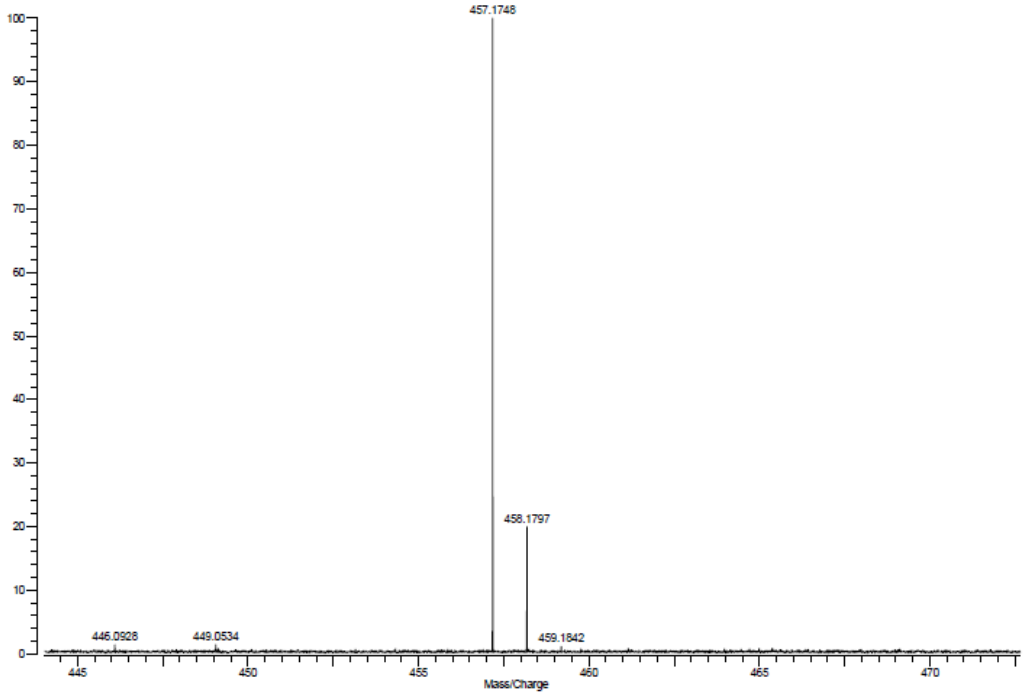




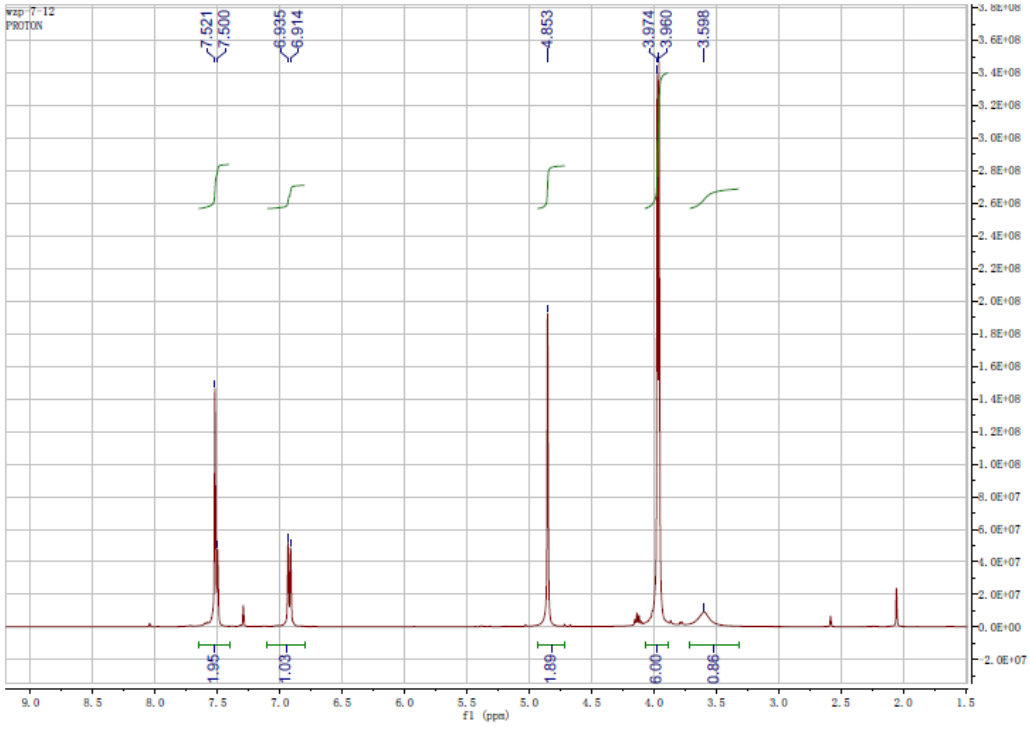
Varian ProMALDI
File: ZWG-WAP-4-21-DHB.trans

Mode: Positive
Scans: 1

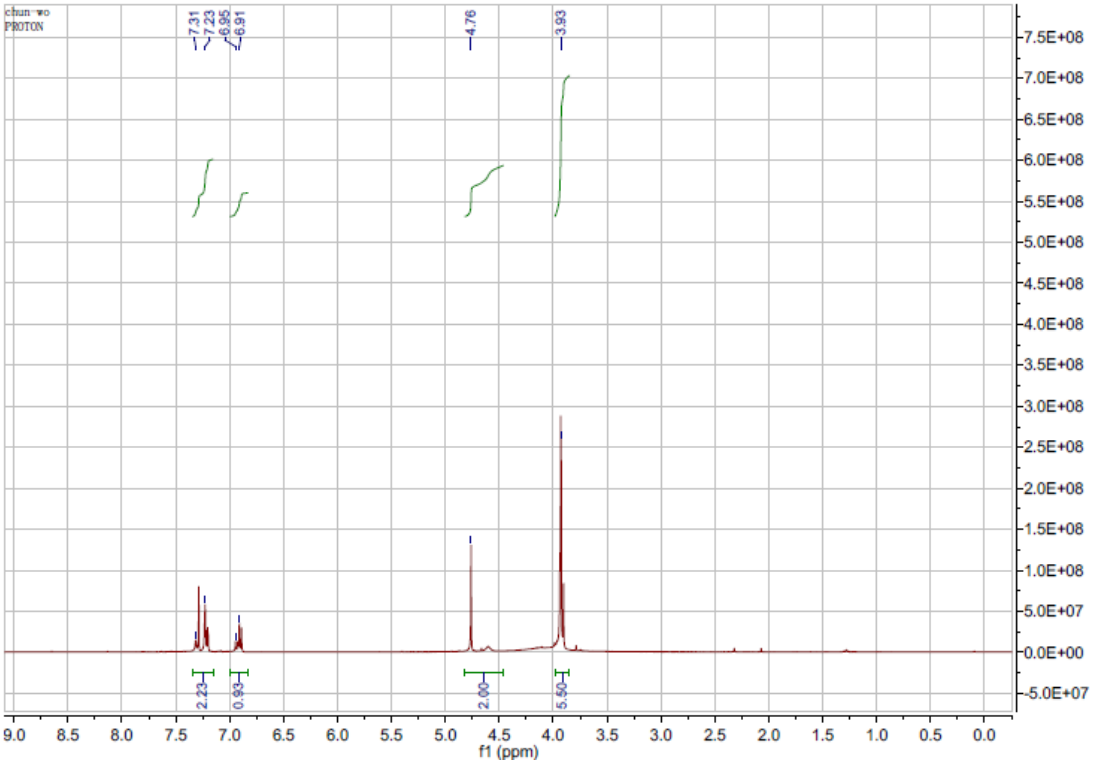
Date: 28-MAY-2013
Time: 14:43:09
Scale: 12.7602



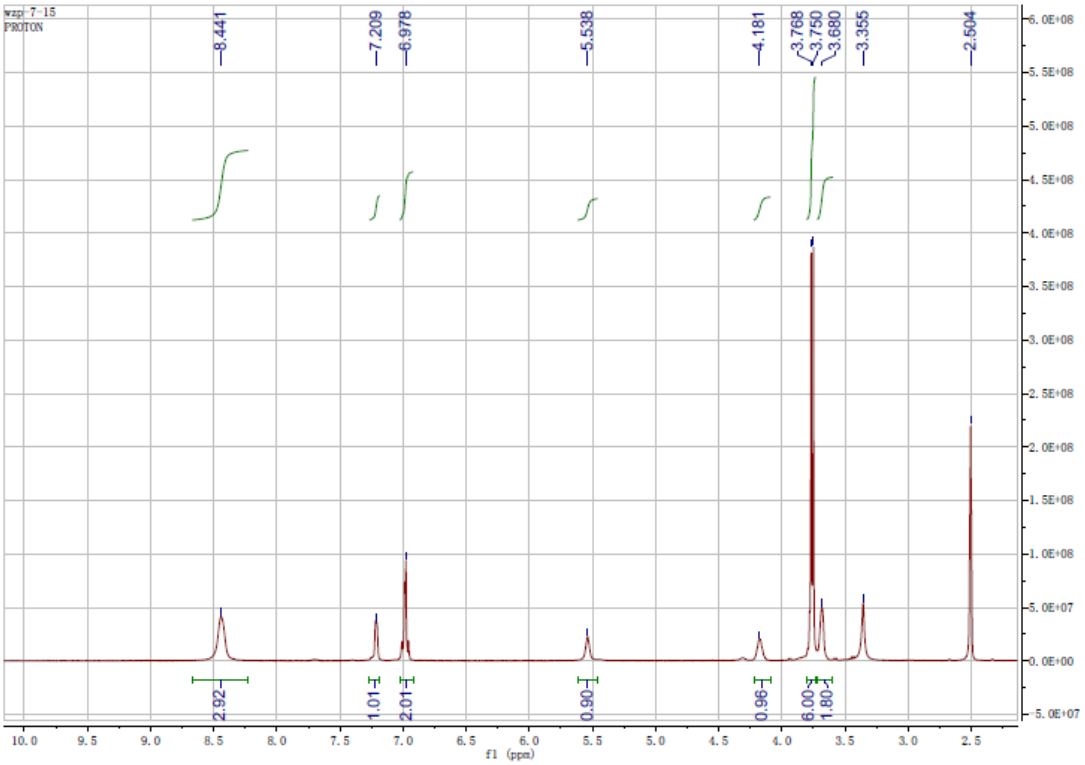
10


wzp-7-12
PROTON
7.521
7.500
6.935
6.914
4.853
3.974
3.960
3.598
1.95
1.03
1.89
6.00
0.86
f1 (ppm)

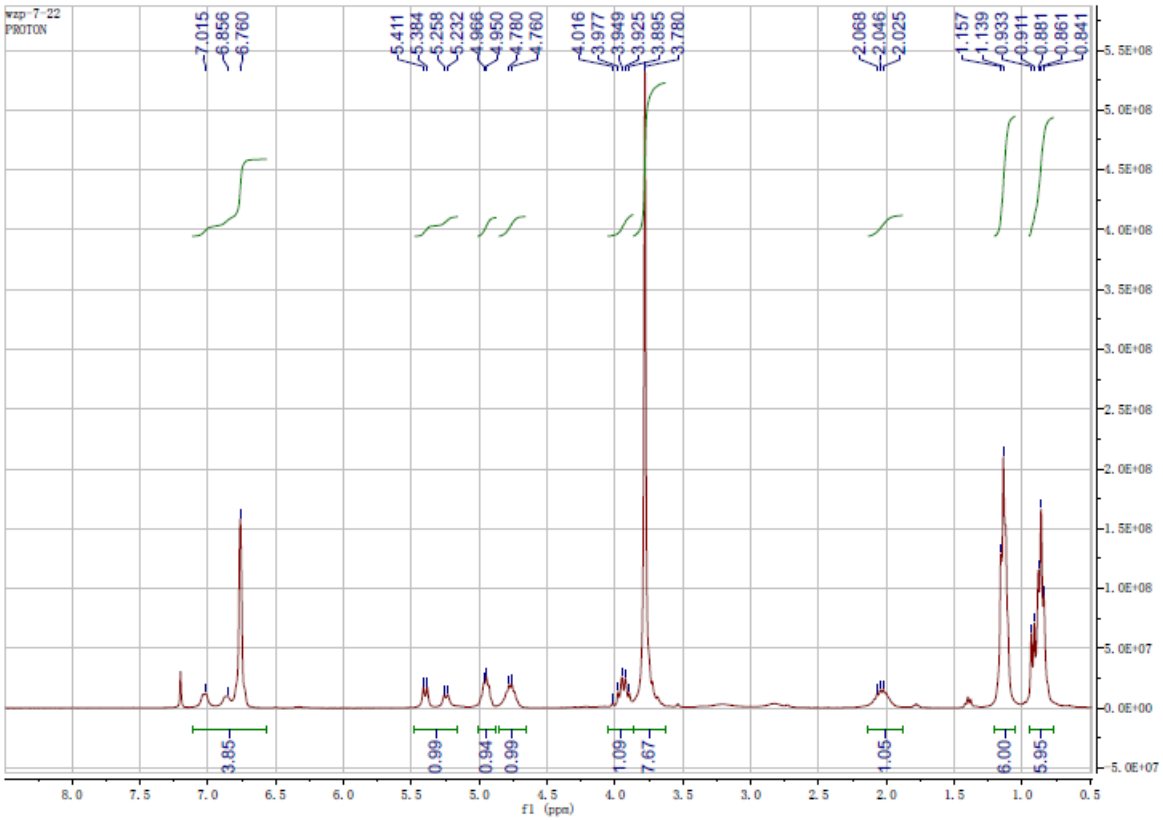
11

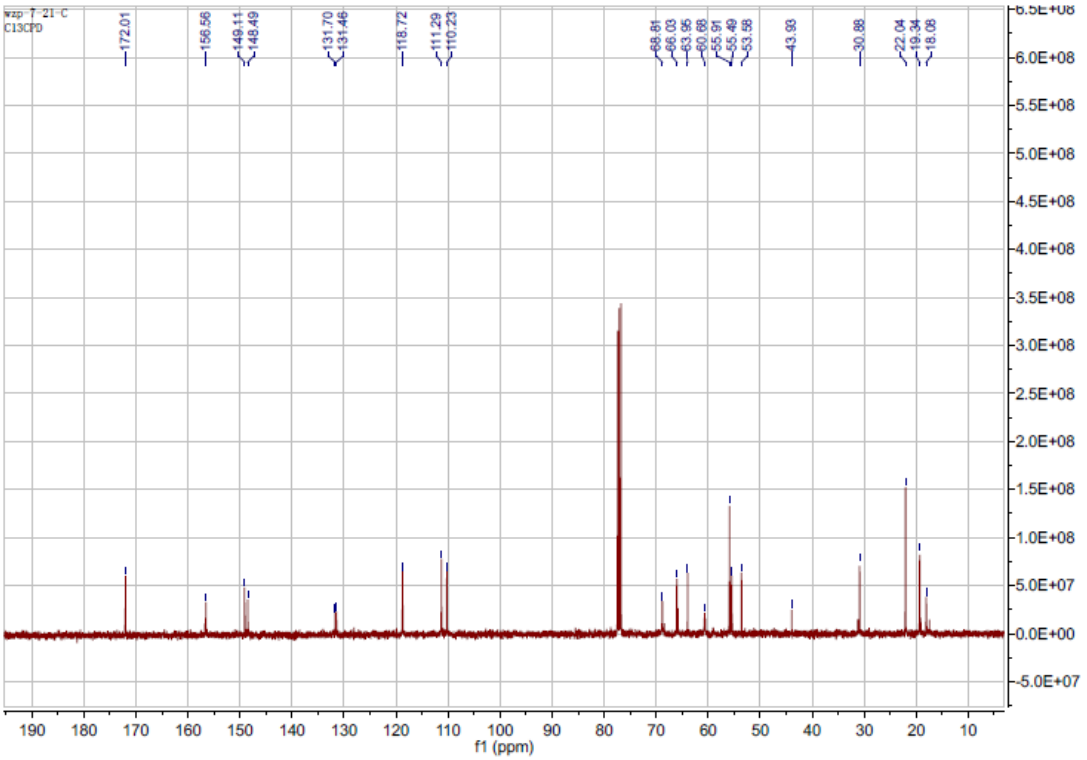

chun-wo
PROTON
7.31
7.23
6.95
6.91
4.76
3.93
2.23
0.93
2.00
5.50
f1 (ppm)

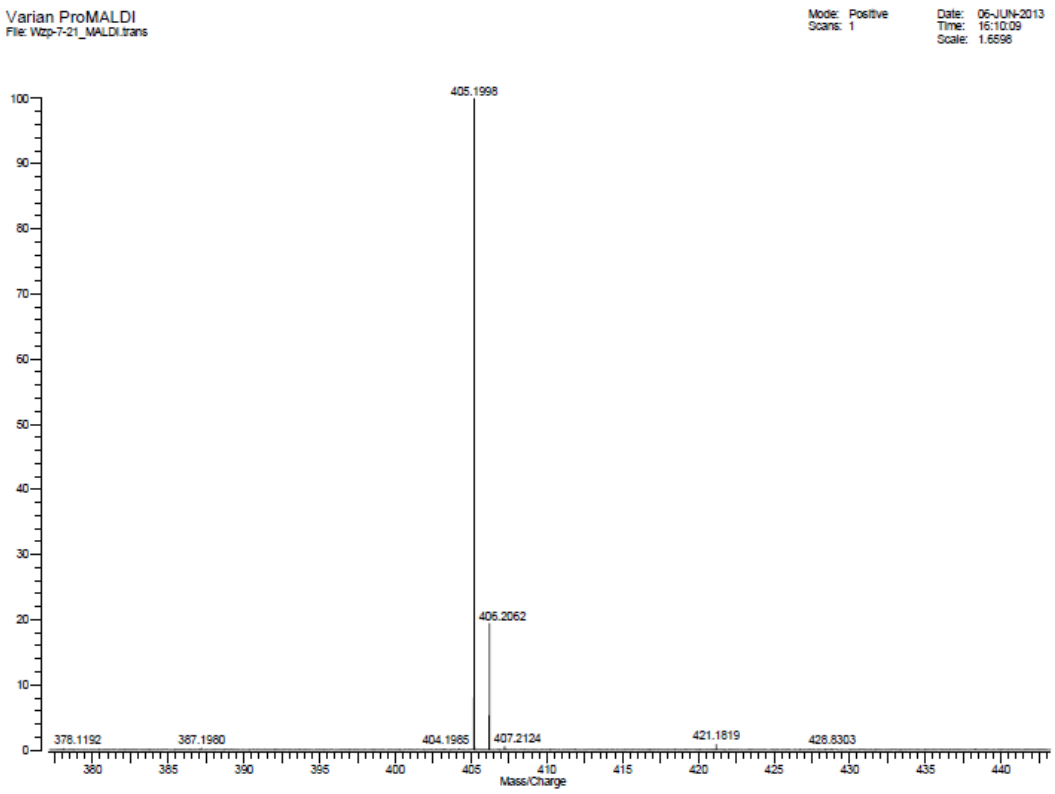
12


wzp-7-15
PROTON
8.441
7.209
6.978
5.538
4.181
3.768
3.750
3.680
3.355
2.504
2.92
1.01
2.01
0.90
0.96
6.00
1.80
f1 (ppm)

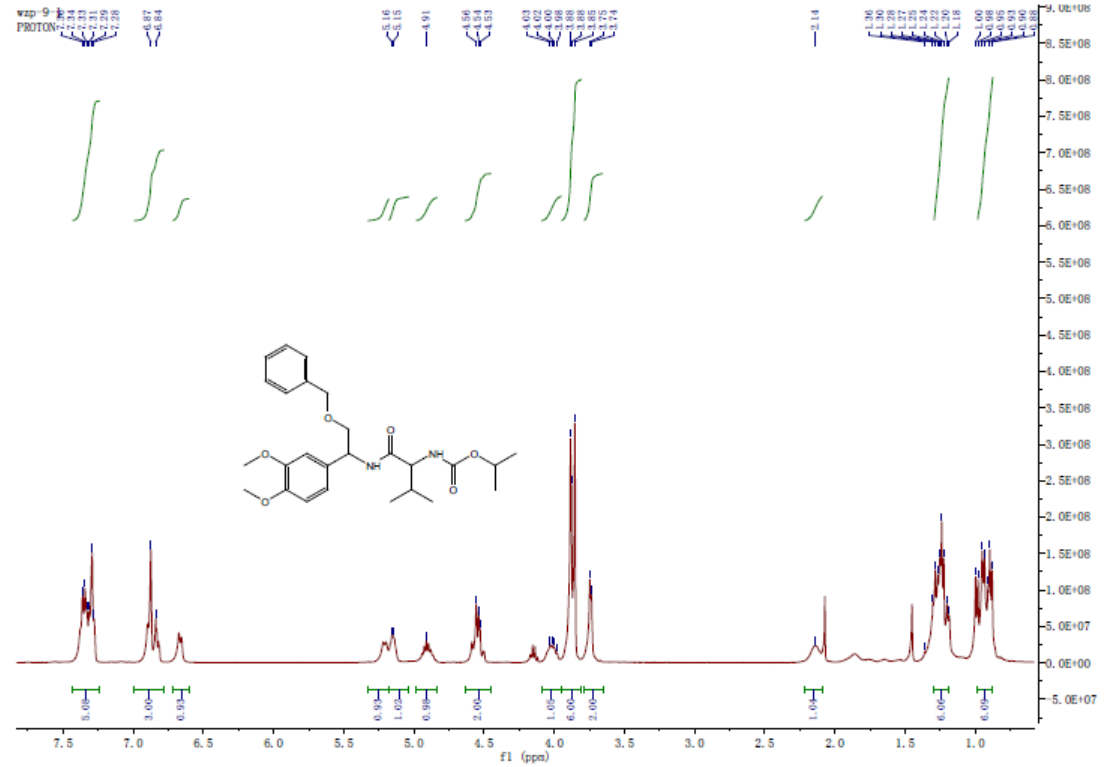
13

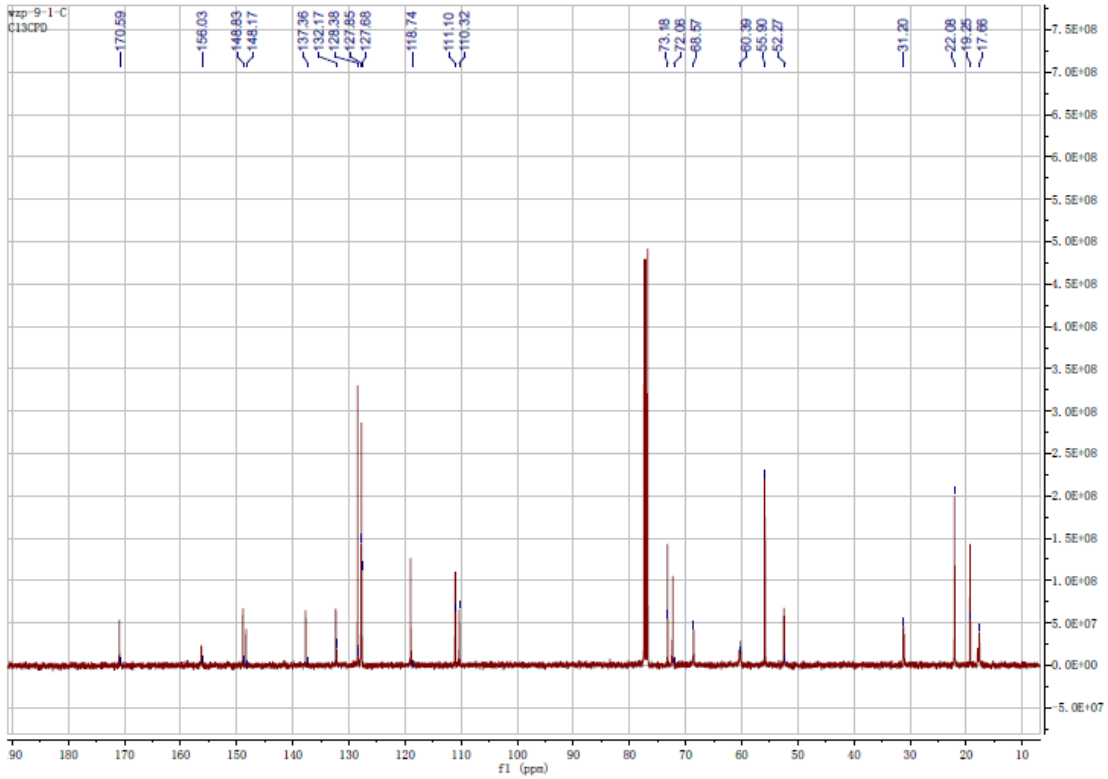

wzp-7-22
PROTON
7.015
6.856
6.760
5.411
5.384
5.258
5.232
4.966
4.950
4.780
4.760
4.016
3.977
3.949
3.925
3.895
3.780
2.068
2.046
2.025
1.157
1.139
0.933
0.911
0.881
0.861
0.841
3.85
0.99
0.94
0.99
1.09
7.67
1.05
6.00
5.95
f1 (ppm)

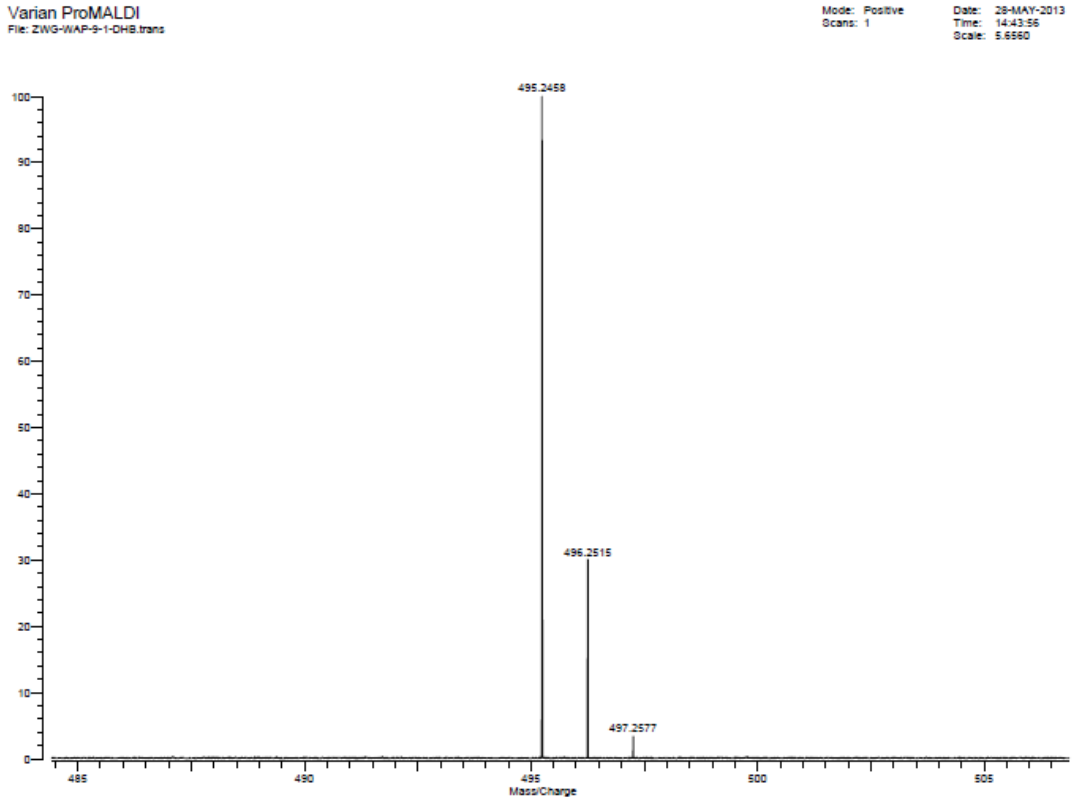

wzp-7-21-C
C13CPD
172.01
156.56
149.11
148.49
131.70
131.46
118.72
111.29
110.23
68.81
66.03
63.95
60.68
55.91
55.49
53.58
43.93
30.88
22.04
19.34
18.08
f1 (ppm)


Varian ProMALDI
File: Wzp-7-21_MALDI.trans
Mode: Positive
Scans: 1
Date: 06-JUN-2013
Time: 16:10:09
Scale: 1.6598
405.1998
406.2062
376.1192
387.1960
404.1965
407.2124
421.1819
428.8303
Mass/Charge

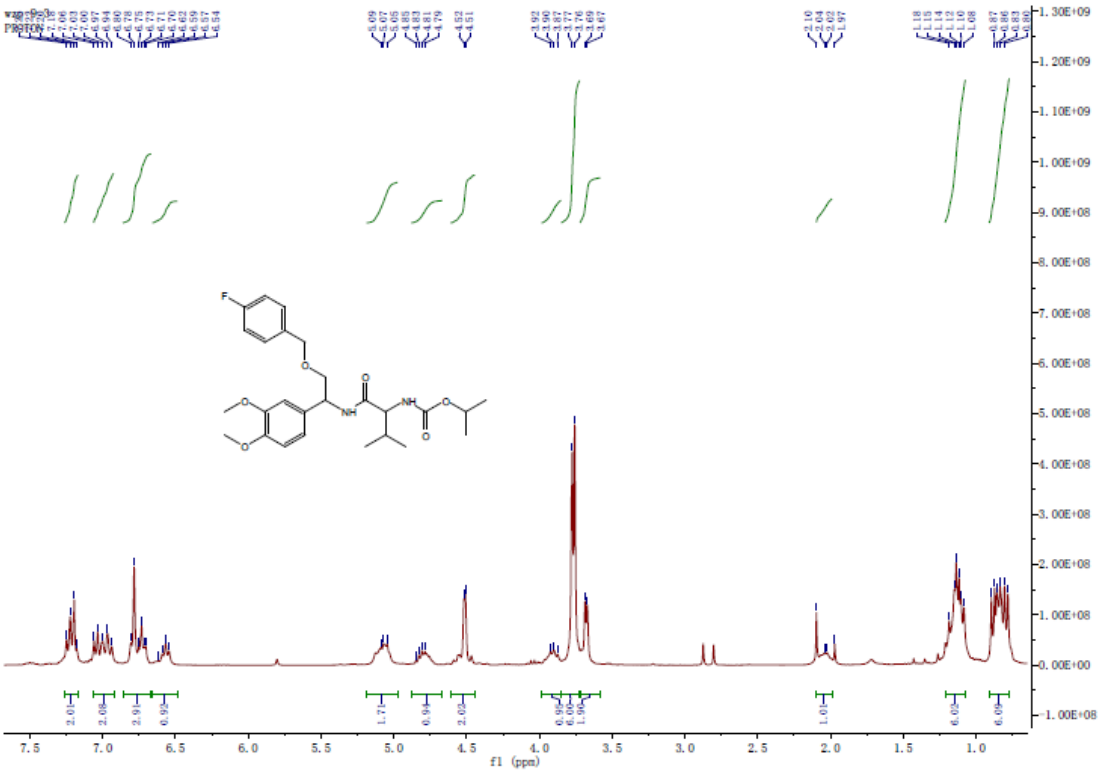
14a

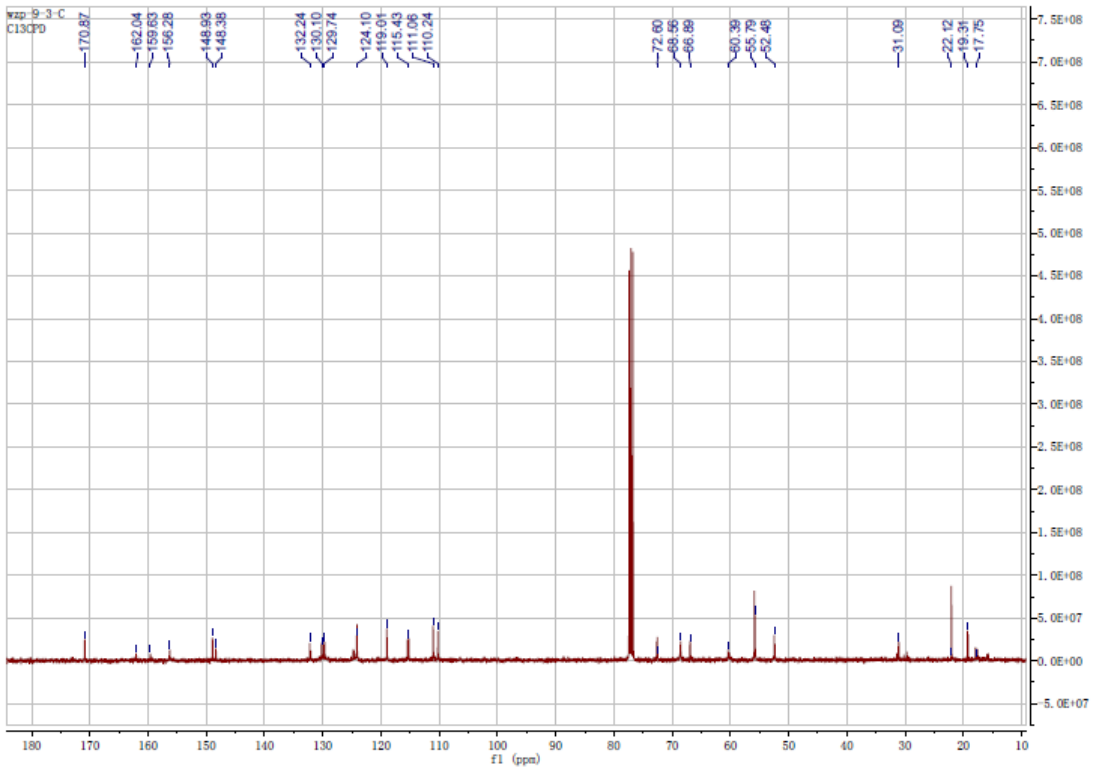


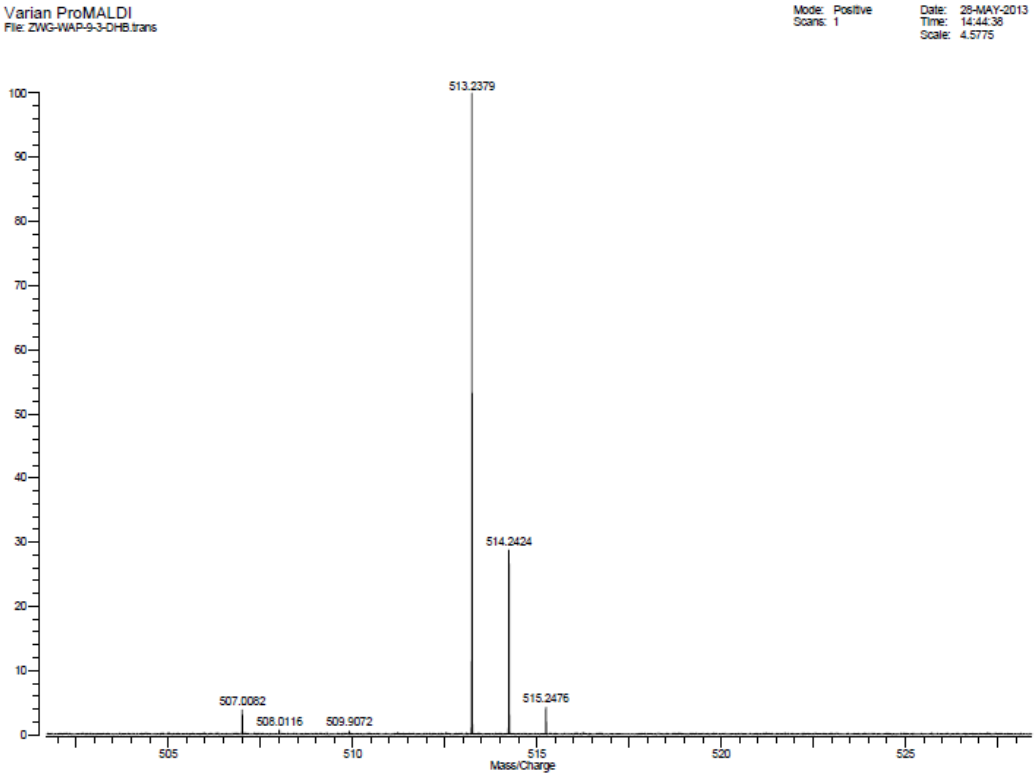



Varian ProMALDI
File: ZWG-WAP-9-1-DHB.trans
Mode: Positive
Scans: 1
Date: 28-MAY-2013
Time: 14:43:56
Scale: 5.6560
495.2458
496.2515
497.2577
Mass/Charge

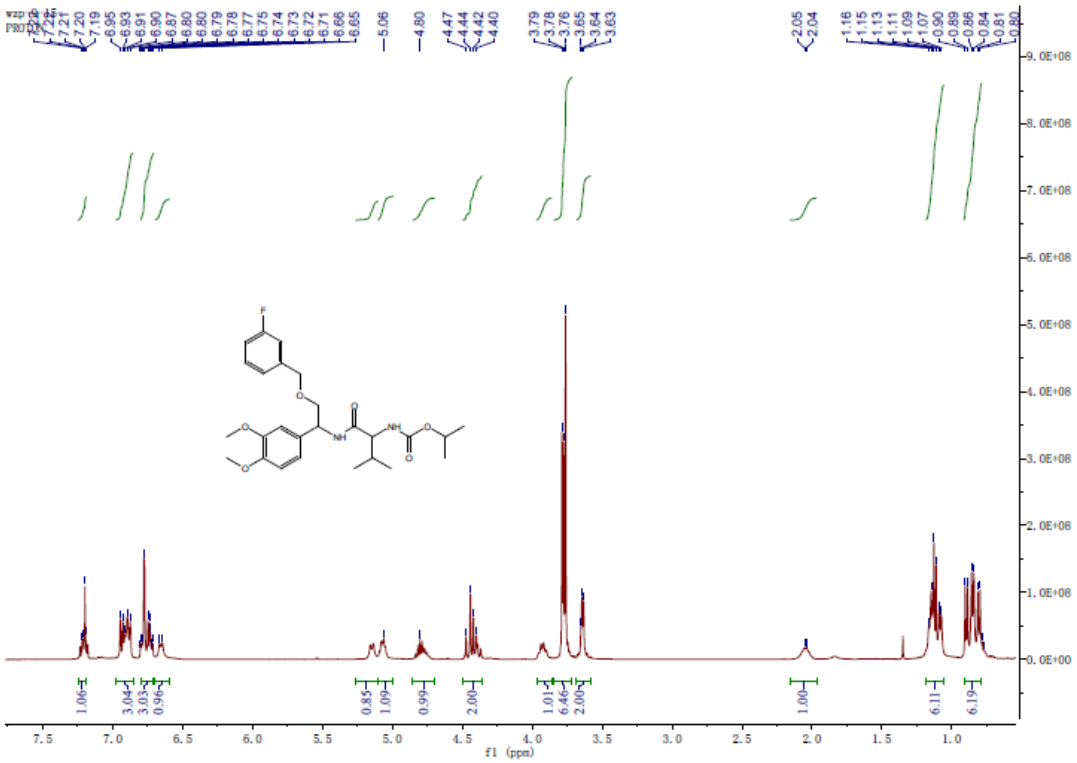
14b

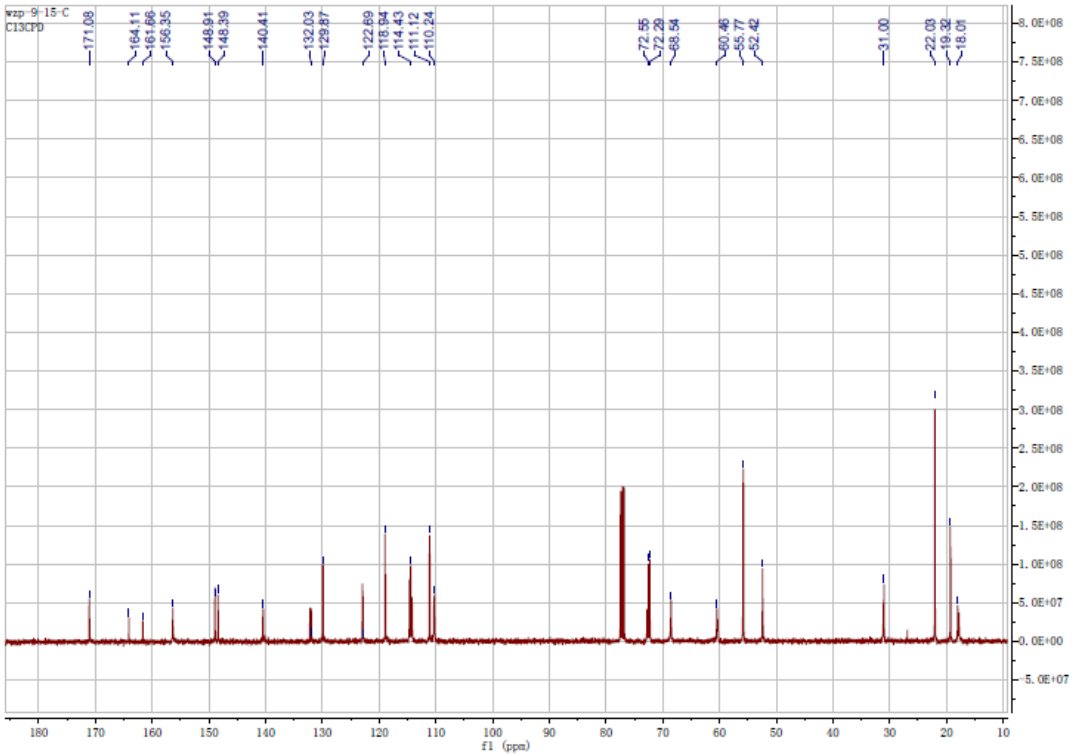

F
O
NH
O
O
O
NH
O
O
f1 (ppm)

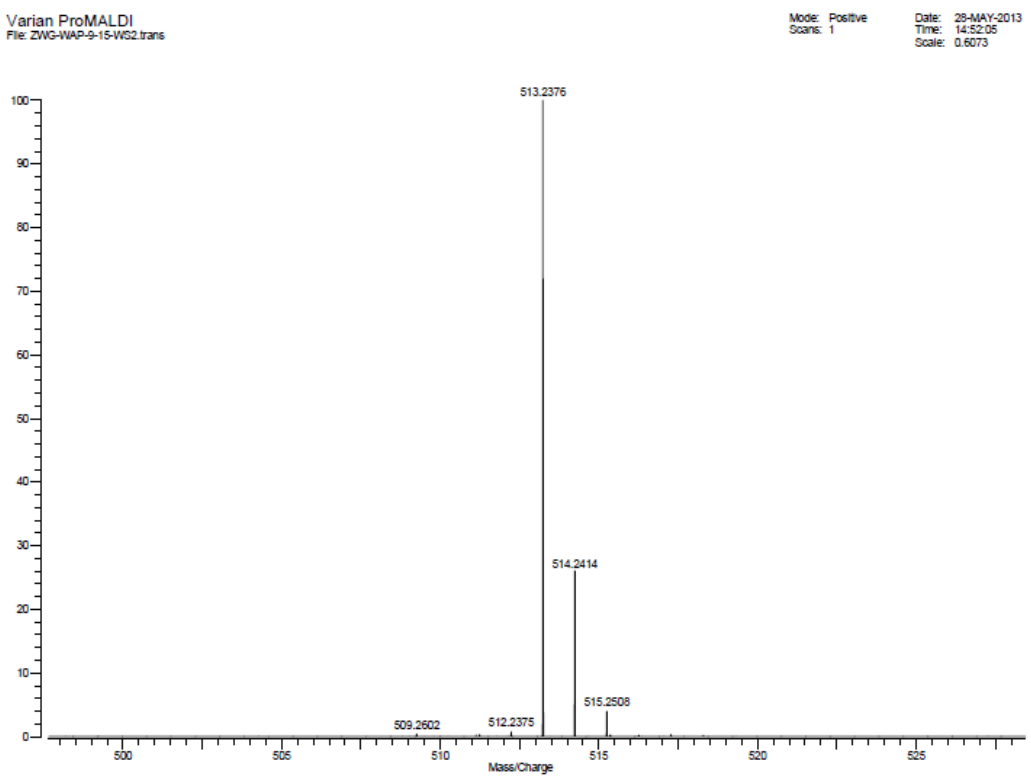

wzp-9-3-C
C13CPD
170.87
162.04
159.63
156.28
148.93
148.38
132.24
130.10
129.74
124.10
119.01
115.43
111.06
110.24
72.60
68.56
66.89
60.39
55.79
52.48
31.09
22.12
19.31
17.75
f1 (ppm)


Varian ProMALDI
File: ZWG-WAP-9-3-DHB.trans
Mode: Positive
Scans: 1
Date: 28-MAY-2013
Time: 14:44:38
Scale: 4.5775
513.2379
514.2424
515.2476
507.0082
508.0116
509.9072
Mass/Charge

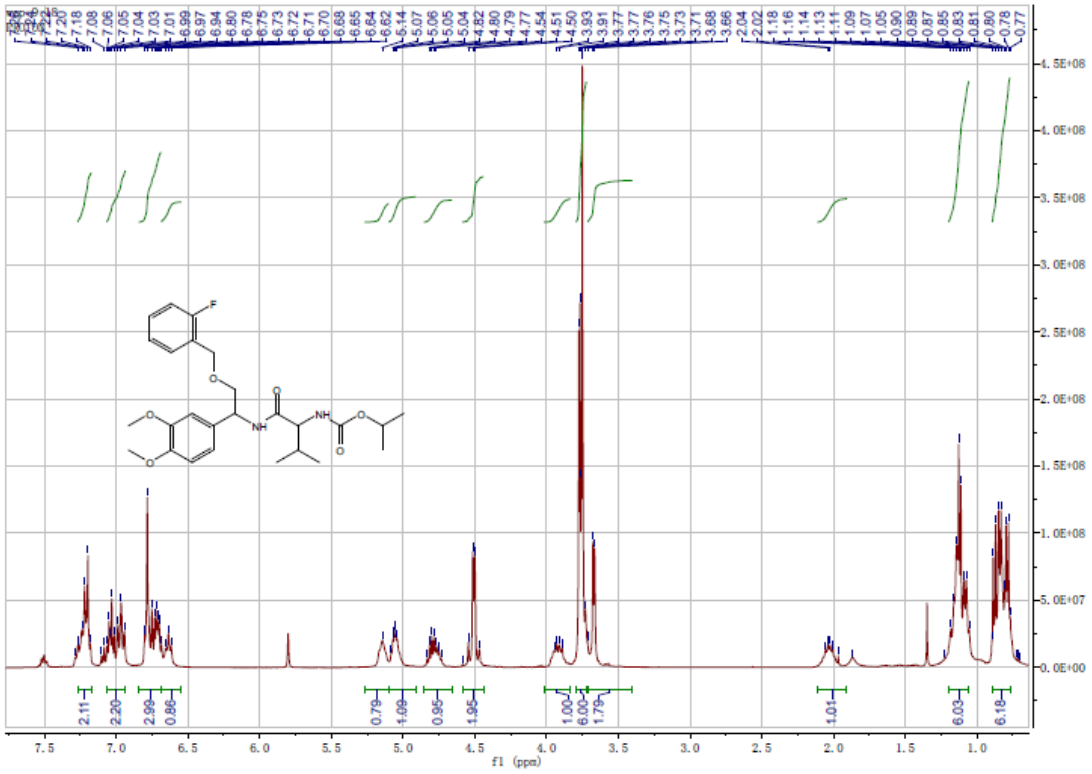
14c

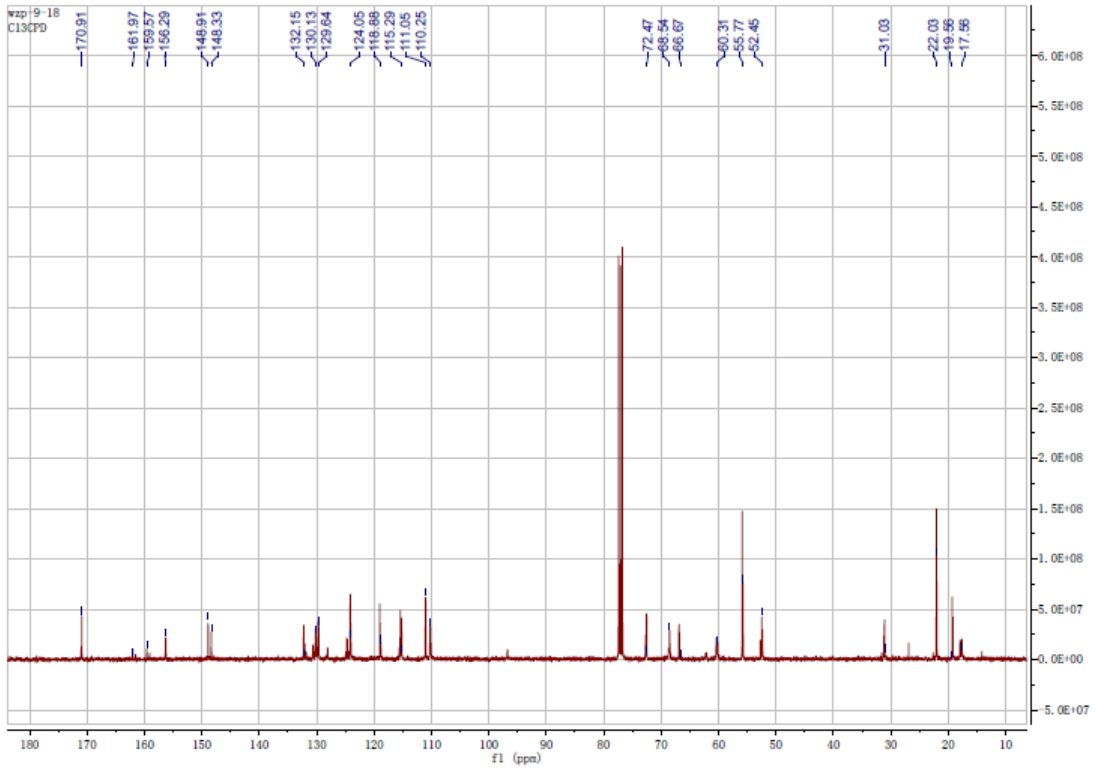

7.25
7.21
7.20
7.19
6.95
6.93
6.91
6.90
6.87
6.80
6.80
6.79
6.78
6.77
6.75
6.74
6.73
6.72
6.71
6.66
6.65
5.06
4.80
4.47
4.44
4.42
4.40
3.79
3.78
3.76
3.65
3.64
3.63
2.05
2.04
1.16
1.15
1.13
1.11
1.09
1.07
0.90
0.89
0.86
0.84
0.81
0.80
F
O
NH
O
NH
O
O
O
O
1.06
3.04
3.03
0.96
0.85
1.09
0.99
2.00
1.01
6.46
2.00
1.00
6.11
6.19
f1 (ppm)


wzp-9-15-C
C13CPD
171.08
164.11
161.66
156.35
148.91
148.39
140.41
132.03
129.87
122.69
118.84
114.43
111.12
110.24
72.55
72.29
68.54
60.46
55.77
52.42
31.00
22.03
19.32
18.01
f1 (ppm)


Varian ProMALDI
File: ZWG-WAP-9-15-WS2.trans
Mode: Positive
Scans: 1
Date: 28-MAY-2013
Time: 14:52:05
Scale: 0.6073
513.2376
514.2414
515.2508
509.2602
512.2375
Mass/Charge

14d

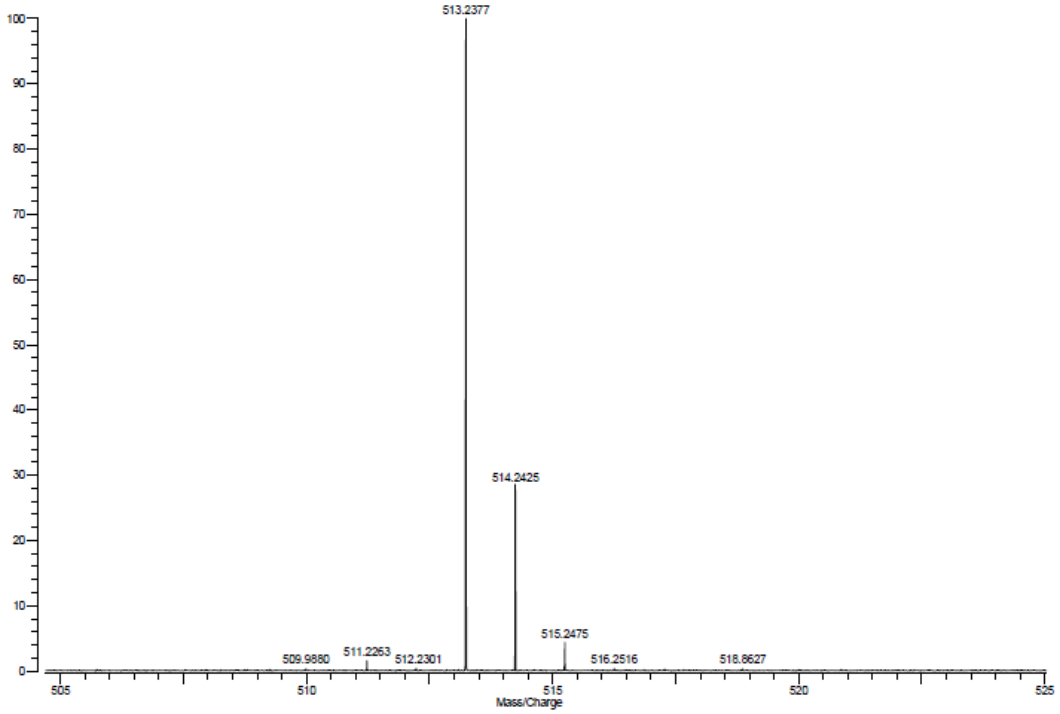

f1 (ppm)



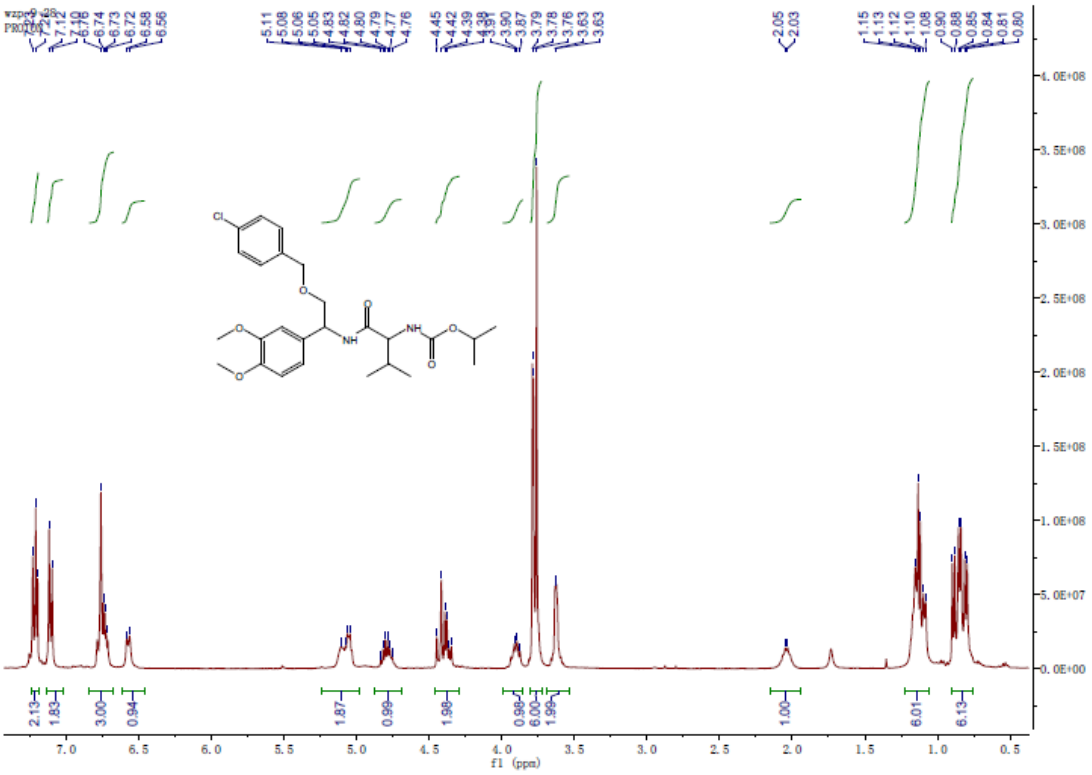
Varian ProMALDI
File: ZWG-WAP-9-9-WS2.trans

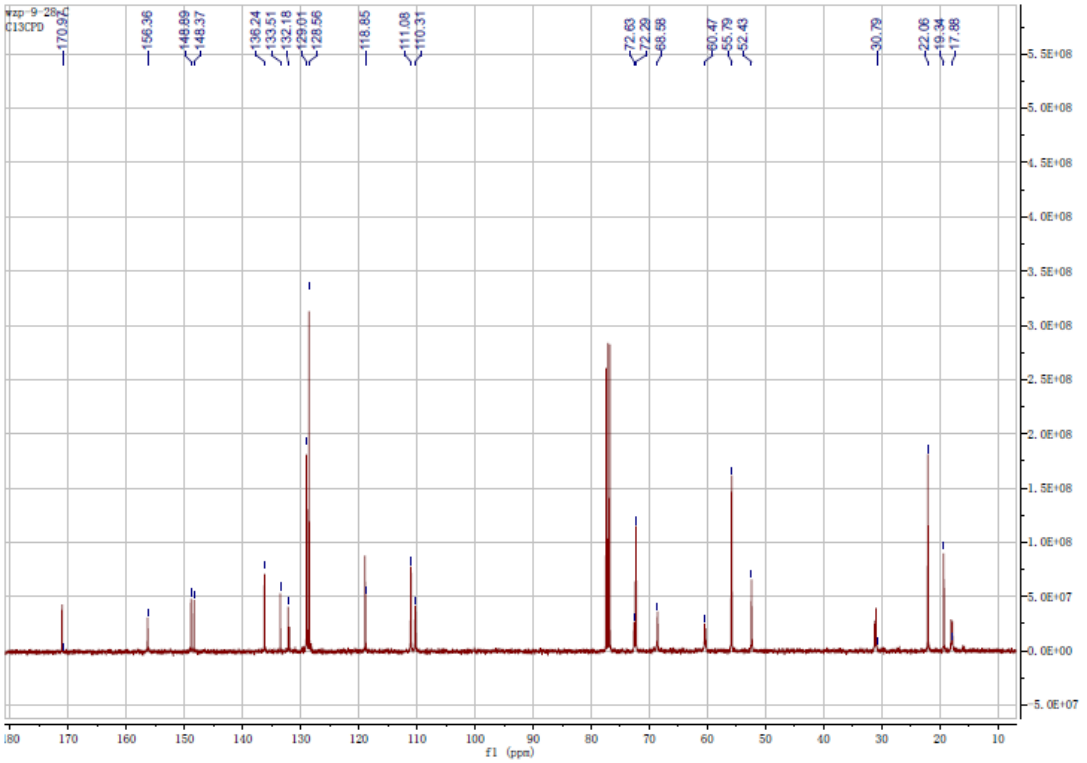
Mode: Positive
Scans: 1

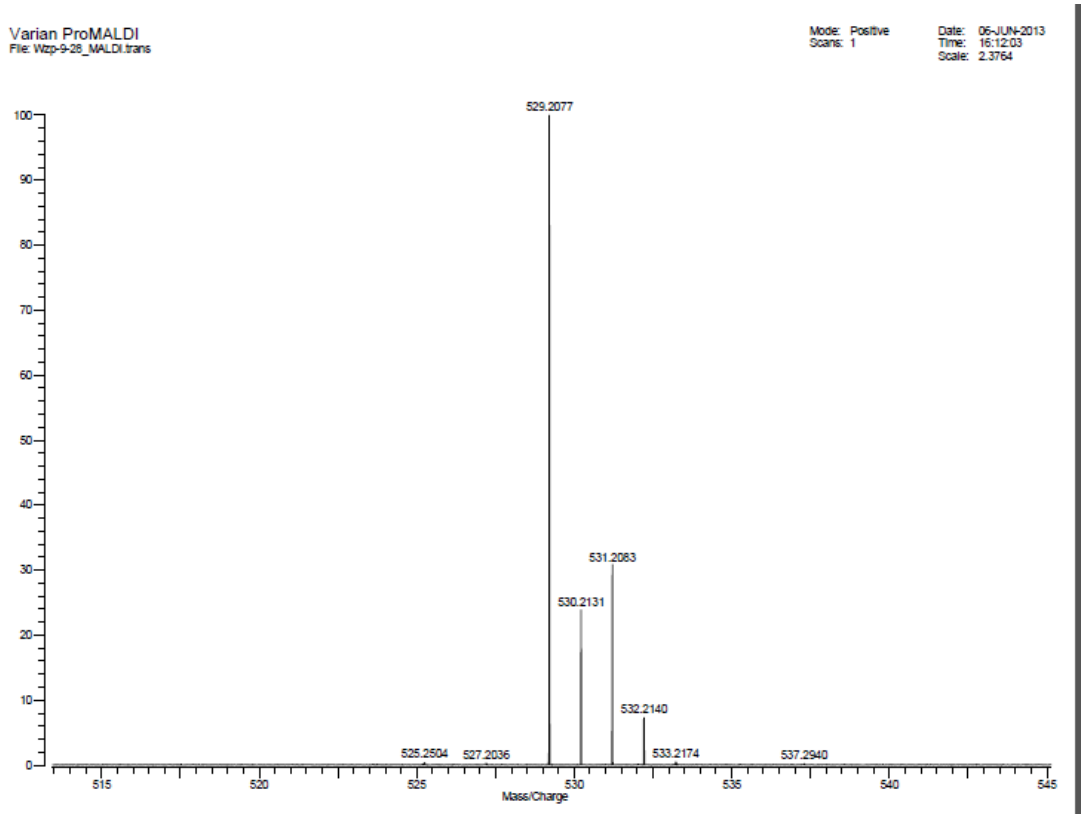
Date: 28-MAY-2013
Time: 14:49:39
Scale: 3.3628



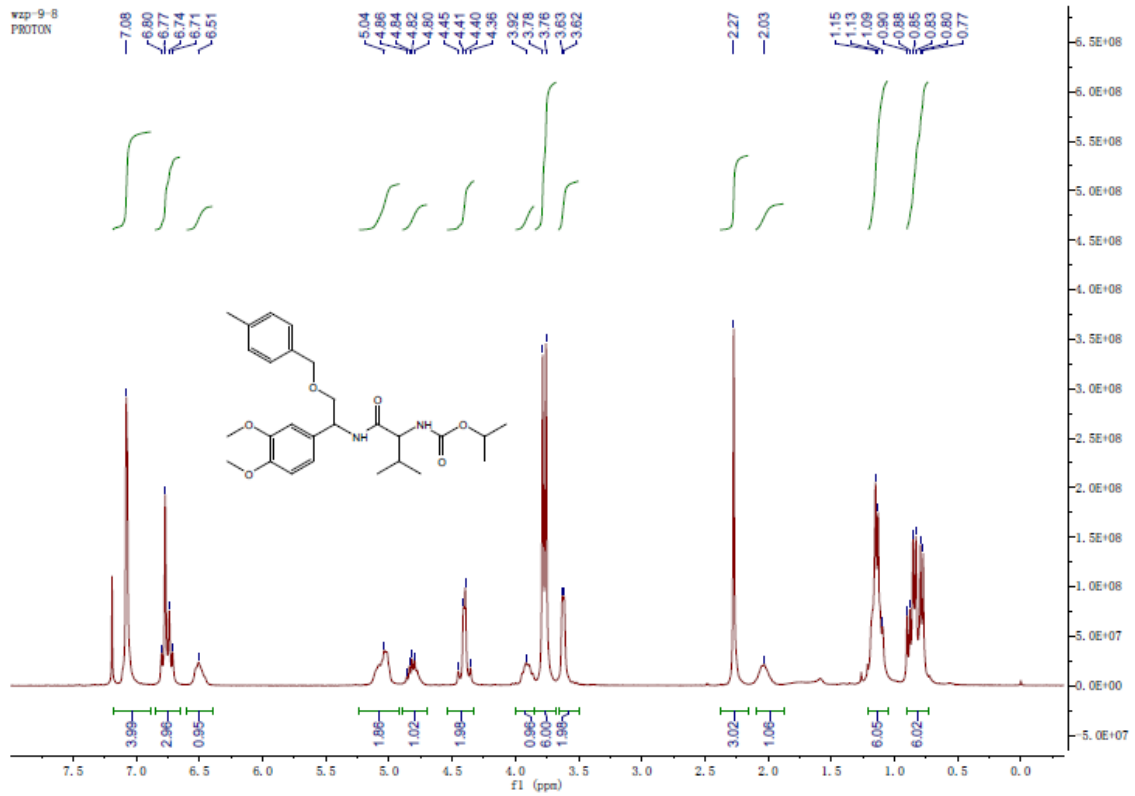
14e

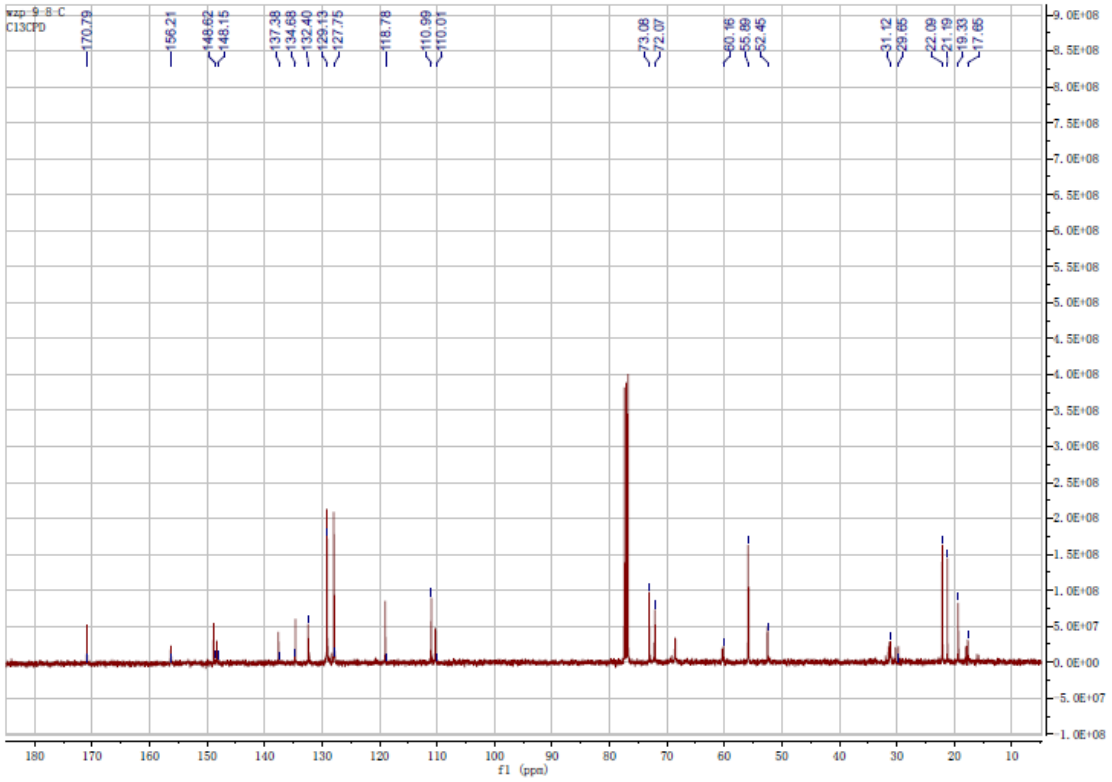


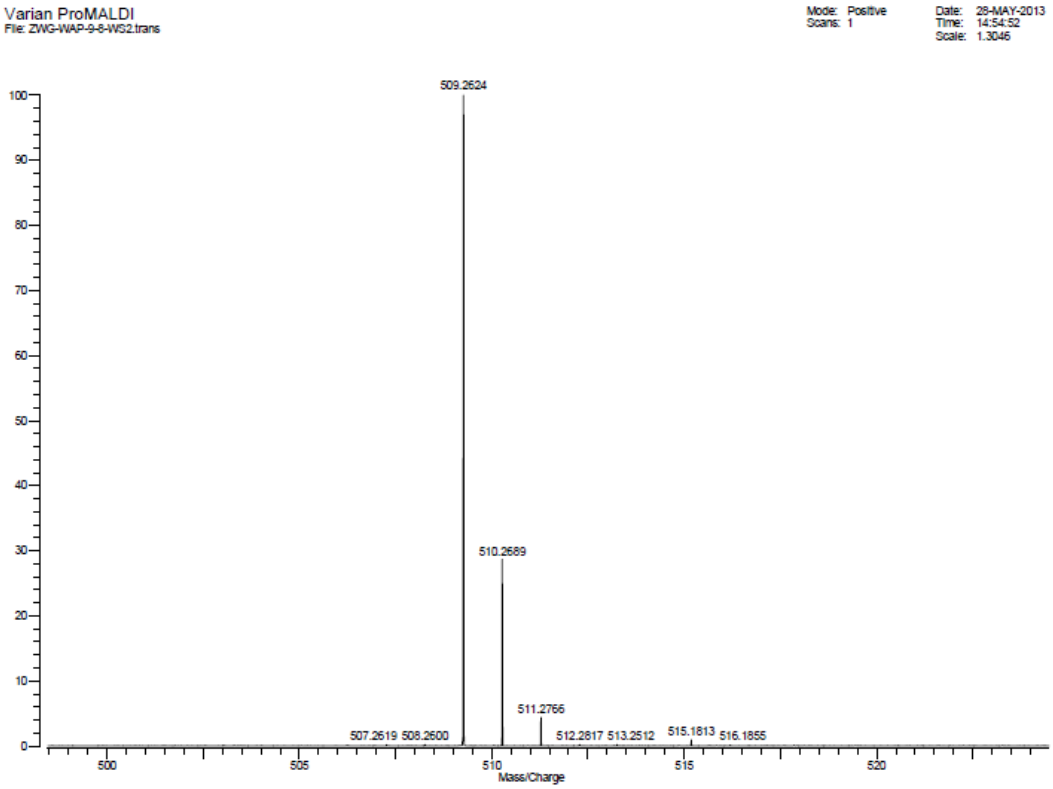



Varian ProMALDI
File: Wzp-9-28_MALDI.trans
Mode: Positive
Scans: 1
Date: 06-JUN-2013
Time: 16:12:03
Scale: 2.3764
529.2077
531.2083
530.2131
532.2140
525.2504
527.2036
533.2174
537.2940
Mass/Charge

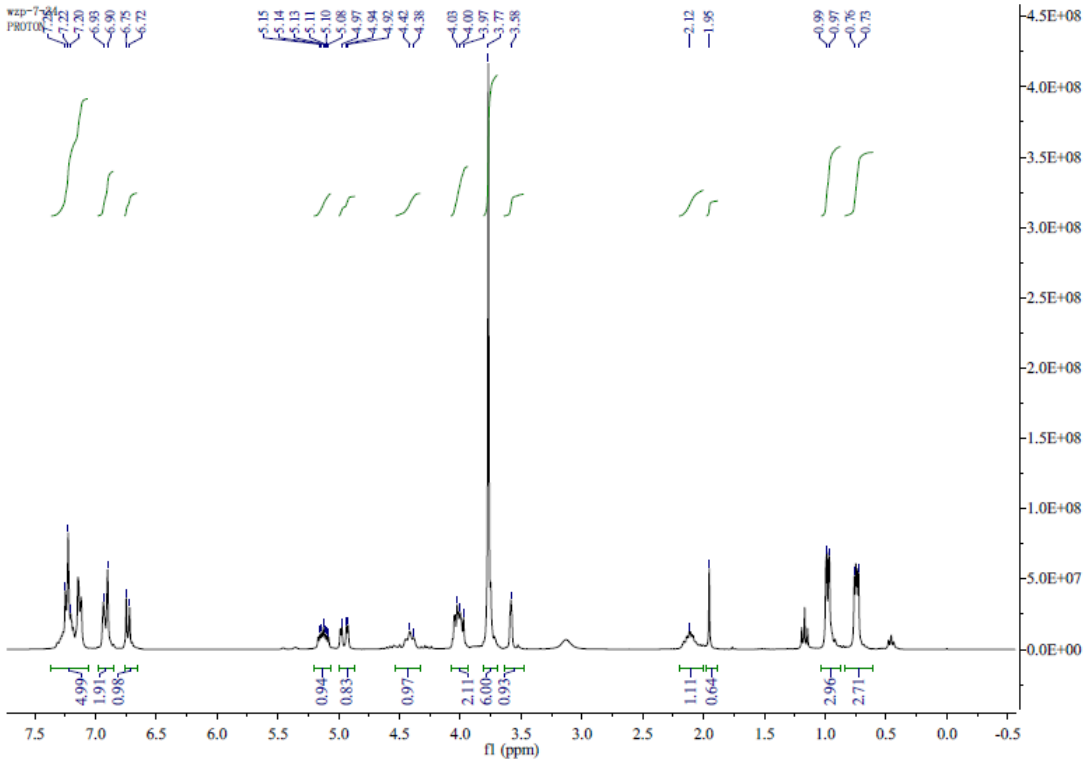
14f


wzp-9-8
PROTON
f1 (ppm)


wzp-9-8-C
C13CPD
170.79
156.21
148.62
148.15
137.38
134.68
132.40
129.13
127.75
118.78
110.99
110.01
73.08
72.07
60.16
55.89
52.45
31.12
29.65
22.09
21.19
19.33
17.65
f1 (ppm)


Varian ProMALDI
File: ZWG-WAP-9-8-WS2.trans
Mode: Positive
Scans: 1
Date: 28-MAY-2013
Time: 14:54:52
Scale: 1.3046
509.2624
510.2689
511.2766
507.2619
508.2600
512.2817
513.2512
515.1813
516.1855
Mass/Charge

16


wzp-7-24
PROTON
7.25
7.22
7.20
6.93
6.90
6.75
6.72
5.15
5.14
5.13
5.11
5.10
5.08
4.97
4.94
4.92
4.42
4.38
4.03
4.00
3.97
3.77
3.58
2.12
1.95
0.99
0.97
0.76
0.73
4.99
1.91
0.98
0.94
0.83
0.97
2.11
6.00
0.93
1.11
0.64
2.96
2.71
4.5E+08
4.0E+08
3.5E+08
3.0E+08
2.5E+08
2.0E+08
1.5E+08
1.0E+08
5.0E+07
0.0E+00
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
f1 (ppm)