Supplementary Material

Absolute configuration sensing of chiral aryl- and aryloxy-propionic acids by biphenyl chiroptical probes

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(S)-1-(5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(6-isobutylphenyl)propan-1-one, **(4aa).**

Following the general procedure the product **4aa** was isolated by column chromatography on silica gel (CH_2Cl_2/MeOH 97.5:2.5) in 85% yield as a light yellow solid. $[\alpha]_D$ = +171.71 (c = 1.05, $CHCl_3$); mp: 144-145°C. ^{1}H-NMR (300 MHz, $CDCl_3$) δ 0.88 (d, 6.6 Hz, 6H), 1.4 (d, 6.7 Hz, 3H), 1.86 (m,1H), 2.42 (d, 7.1 Hz, 2H), 3.82 (m,3H), 4.3 (d, J = 13.5 Hz, 1H), 4.9 (d, J = 13.5 Hz, 1H), 6.09 (d, 7.0 Hz, 1H), 6.97 (t, J = 7.1 Hz, 1H), 7.05-7.36 (m, 10H). ^{13}C-NMR (75.5 MHz, $CDCl_3$) δ 21.36, 22.61, 22.71, 30.59, 44.48, 45.32, 46.90, 48.33, 127.45, 128.05, 128.159, 128.19, 128.57, 128.83, 128.88, 129.16, 130.21, 130.58, 133.61, 134.27, 140.08, 140.65, 140.85, 140.93, 171.66. HRESIMS (+) *m*/*z* 384.2331 $[M + H]^+$ (calcd for $C_{27}H_{29}NO$ 384.2327).

(S)-1-(5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(6-methoxynaphthalen-2-yl)propan-1-one, (**4ba**).

Following the general procedure the product **4ba** was isolated by column chromatography on silica gel (CH_2Cl_2/MeOH 97.5:2.5) in 80% yield as a white solid. $[\alpha]^{20}_D$ = +95.0 (c = 1.00, $CHCl_3$). mp: 139-141°C. ^{1}H NMR (500 MHz, $CDCl_3$) 7.75 (d, J=8.5 Hz, 1H); 7.67 (d, J=9.5 Hz, 1H); 7.47 (d, J=7.5 Hz, 1H); 7.46-7.42 (m, 5H); 7.38 (m, 1H); 7.32 (t, J=7.5 Hz, 1H); 7.15 (bs, 1H); 6.25 (bs, 1H); 4.71 (d, J=12.0 Hz, 1H); 4.29 (d, J=13.0 Hz, 1H); 4.14 (q, J=7.0 Hz, 1H); 4.08 (d, J=12.5 Hz, 2H); 3.94 (s, 3H); 1.58 (d, J=7.0 Hz, 3H). ^{13}C NMR (125 MHz, $CDCl_3$) 171.5; 157.6; 140.6; 137.4; 134.1; 133.5; 133.3; 130.2; 129.2; 129.0; 128.6; 128.5; 128.3; 128.0; 127.9; 127.7; 126.2; 125.7; 119.1; 105.7; 55.3; 48.5; 46.6; 44.3; 21.0. HRESIMS (+) *m*/*z* 408.1961 $[M + H]^+$ (calcd for $C_{28}H_{25}NO_2$ 408.1964).

(S)-1-(3,9-dimethoxy-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(6-methoxynaphthalen-2-yl)propan-1-one, (**4bb**).

Following the general procedure the product **4bb** was isolated by column chromatography on silica gel (CH_2Cl_2/MeOH 97.5:2.5) in 54% yield as light yellow solid. $[\alpha]^{20}_D$ = +113 (c = 1.05, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 7.78 (d, J=8.5 Hz, 1H); 7.72 (s, 1H); 7.71 (d, J =9.0 Hz, 1H); 7.46 (dd, J=8.5, 1.5 Hz,1H); 7.31 (d, J=8.5 Hz, 1H); 7.27 (d, J=8.5 Hz, 1H); 7.15 (dd, J=2.5, 8.5 Hz, 1H); 7.13 (s, 1H); 7.01 (d, J=3.0 Hz, 1H); 6.95 (dd, J=2.5, 8.5 Hz, 1H); 6.80 (dd, J=2.5, 8.5 Hz, 1H); 5.52 (bs, 1H); 4.98 (d, J=13.5 Hz, 1H); 4.42 (d, J=12.8 Hz, 1H); 4.12 (q, J=7.0 Hz, 1H); 3.94 (d, J =14.0 Hz, 1H); 3.94 (s, 3H); 3.88 (s, 1H); 3.87 (d, J=12.0 Hz, 1H); 3.01 (s, 3H); 1.58 (d, J=7.0 Hz, 3H). ^{13}C NMR (125 MHz, $CDCl_3$) 171.3; 159.2; 158.78; 157.8; 137.8; 134.9; 134.1; 133.6; 133.0; 132.8; 129.3; 129.2; 128.7;

128.6; 127.8; 126.4; 125.75; 119.2; 115.2; 114.4; 112.4; 105.6; 55.5; 55.4; 54.6; 48.5; 47.1; 44.5; 21.0. HRESIMS (+) *m/z* 468.2179 $[M + H]^+$ (calcd for $C_{30}H_{29}NO_4$ 468.2175).

(S)-1-(3,9-diamino-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(6-methoxynaphthalen-2-yl)propan-1-one, (**4bc**).

Following the general procedure, the product **4bc** was isolated by column chromatography on silica gel ($CHCl_3$/MeOH from 98:2 to 9:1) in 72% yield as yellow oil. $[\alpha]^{20}_D$ = +67 (c = 0.09, $CHCl_3$). ^{1}H NMR (400 MHz, $CDCl_3$) 7.81 (d, J=8.4 Hz, 1H); 7.73 (d, J=8.4 Hz, 1H); 7.68 (s, 1H); 7.56 (d, J=7.2 Hz, 1H); 7.45 (dd, J=1.6, 8.4 Hz, 2H); 7.19-7.11 (m, 2H); 6.77 (d, J=2.4 Hz, 1H); 6.72 (dd, J=2.4 8.4 Hz, 1H); 6.53 (dd, J=2.4, 8.0 Hz, 1H); 4.96 (bs, 1H); 4.85 (d, J=13.6 Hz, 1H); 4.27 (d, J=12.8, 1H); 4.12 (q, J=6.8 Hz, 1H); 3.95 (s, 3H); 3.90 (d, J=12.8 Hz, 1H); 3.86 (d, J=13.6 Hz, 1H); 3.77 (bs, 2H); 2.93 (bs, 2H); 1.59 (bd, J=6.4 Hz, 3H). ^{1}H NMR (100 MHz, $CDCl_3$) 171.3; 157.7; 145.7; 145.2; 138.0; 134.6; 133.8; 133.4; 130.9; 129.2; 128.5; 128.1; 127.8; 126.7; 125.9; 119.10; 116.7; 115.2; 114.9; 114,8; 105,4; 55,4; 48.4; 47.5; 44.5; 20.9. HRESIMS (+) *m/z* 498.1662 $[M + H]^+$ (calcd for $C_{28}H_{23}N_3O_6$ 498.1665).

(S)-1-(3,9-dinitro-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(6-methoxynaphthalen-2-yl)propan-1-one, (**4bd**).

Following the general procedure, the product **4bd** was isolated by column chromatography on silica gel (CH_2Cl_2/MeOH 97.5:2.5) in 71% yield as a yellow solid. $[\alpha]^{20}_D$ = +69.4 (c = 1.08, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 8.39 (s, 1H); 8.32 (dd, J=2.0, 8.0 Hz, 1H); 8.20 (dd, J=2.0, 8.5 Hz, 1H); 7.80 (d, J=8.5 Hz, 1H); 7.65-7.62 (m, 4H); 7.38 (d, J=8.5 Hz, 1H); 7.18 (s, 1H); 7.14 (dd, J=9.0, 2.5 Hz, 1H); 7.02 (s, 1H); 4.93 (d, J=14 Hz, 1H); 4.44 (d, J=13.0 Hz, 1H); 4.18-4.09 (m, 3H); 3.93 (s, 3H); 1.60 (d, J=6.0 Hz,3H). ^{13}C NMR (125 MHz, $CDCl_3$) 171.8; 157.9; 148.4; 148.4; 148.1; 144.8; 136.5; 133.9; 129.3; 129.2; 129.1; 128.9; 128.3; 125.6; 124.35; 123.9; 119.7; 106.0; 55.4; 47.7; 46.0; 44.6; 21.0. HRESIMS (+) *m/z* 438.2187 $[M + H]^+$ (calcd for $C_{28}H_{27}N_3O_2$ 438.2182).

(S)-2-(3-benzoylphenyl)-1-(5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)propan-1-one, (**4ca**).

Following the general procedure, the product **4ca** was isolated by column chromatography on silica gel (CH_2Cl_2/MeOH 97:3) in 85% yield as white solid. $[\alpha]^{20}_D$ = +121 (c = 0.28, $CHCl_3$). ^{1}H NMR (500

MHz, $CDCl_3$) 7.74 (bs, 2H); 7.70 (d, J=7.0 Hz, 2H); 7.59 (d, J=7.5 Hz, 1H); 7.55 (d, J=7.5 Hz,1H); 7.52-7.44 (m, 5H); 7.41-7.39 (m, 3H); 7.16 (t, J=7.0Hz, 1H); 6.43 (bd, J=6.0 Hz, 1H); 4.85 (d, J=1.5 Hz, 1H); 4.30 (d, J=13.0 Hz, 1H); 4.14-4.03 (m, 3H); 1.54 (d, J= 7.0 Hz, 3H). ^{13}C NMR (125 MHz, $CDCl_3$) 196.5; 170.8; 142.7; 140.6; 140.5; 138.4; 137.4; 133.8; 132.6; 131.4; 130.3; 130.1; 129.2; 129.1; 128.8; 128.8; 128.4; 128.2; 128.1; 128.0; 48.6; 46.8; 44.1; 20.9. HRESIMS (+) *m/z* 432.1969 $[M + H]^+$ (calcd for $C_{30}H_{25}NO_2$ 432.1964).

(S)-2-(3-benzoylphenyl)-1-(3,9-dimethoxy-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)propan-1-one, (**4cb**).

Following the general procedure the product **4cb** was isolated by column chromatography on silica gel ($CHCl_3$) in 68% yield as a dark yellow oil. $[\alpha]^{20}_D$ = +85 (c = 0.77, $CHCl_3$). ^1H NMR (500 MHz, $CDCl_3$) 7.78 (s, 1H); 7.735 (m, 3H); 7.60 (d, J=8.0 Hz, 1H); 7.56 (t, J=7.5 Hz, 1H); 7.51 (t, J=7.5 Hz, 1H); 7.41 (t, J=7.5 Hz, 2H); 7.35 (t, J=7.5, 2H); 6.98 (bs, 1H); 6.96 (d, J=2.5 Hz, 1H); 6.90 (dd, J=2.5, 8.0 Hz, 1H); 5.92 (bs, 1H); 4.87 (d, J=13.5 Hz, 1H); 4.30 (d, J=13.5 Hz, 1H); 4.12 (q, J=7.0 Hz, 1H); 4.02 (d, J=12.5 Hz, 1H); 3.95 (d, J=13.5 Hz, 1H); 3.85 (s, 3H); 3.65 (s, 3H); 1.54 (d, J=7.0 Hz, 3H). ^{13}C NMR (125 MHz, $CDCl_3$) 196.4; 170.8; 159.3; 159.0; 142.8; 138.4; 137.7; 134.0; 132.9; 132.8; 132.8; 132.6; 131.4; 130.1; 129.2; 129.1; 128.9; 128.3; 115.2; 114.5; 114.3; 114.1; 55.5; 55.4; 48.8; 47.1; 44.1; 21.0. HRESIMS (+) *m/z* 492.2173 $[M + H]^+$ (calcd for $C_{32}H_{29}NO_4$ 492.2175).

(S)-2-(3-benzoylphenyl)-1-(3,9-dinitro-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)propan-1-one, (**4cc**).

Following the general procedure, the product **4cc** was isolated by column chromatography on silica gel ($CHCl_3$/MeOH 95:5) in 85% yield as dark yellow oil. $[\alpha]^{20}_D$ = +153 (c = 0.67, $CHCl_3$). ^1H NMR (500 MHz, $CDCl_3$) 8.40(d, J=2.0 Hz, 1H); 8.37 (dd, J=2.0,8.5 Hz, 1H); 8.30 (dd, J=2.0, 8.5 Hz, 1H); 7.89 (s, 1H); 7.81 (d, J=7.5 Hz, 2H); 7.78 (d, J=7.0 Hz, 1H); 7.70 (dd, J=3.0, 8.0 Hz, 2H); 7.60 (t, J=7.5 Hz, 1H); 7.56-7.47 (m, 4H); 7.14 (bs, 1H); 5.06 (d, J=14 Hz, 1H); 4.51 (d, J=13.5 Hz, 1H); 4.13 (q, J=7.0 Hz, 1H); 4.06 (d, J=13.0 Hz, 1H); 4.01 (d, J=14.0 Hz, 1H); 1.59 (d, J=7.0 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) 196.2; 171.0; 148.5; 148.2; 144.7; 142.2; 138.7; 137.3; 135.5; 134.7; 132.7; 131.0; 130.0; 129.9; 129.3; 129.3; 128.7; 128.4; 125.8; 124.3; 124.2; 124.0; 47.7; 46.1; 44.5; 20.9. HRESIMS (+) *m/z* 522.1667 $[M + H]^+$ (calcd for $C_{30}H_{23}N_3O_6$ 522.1665).

(R)-1-(5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(2-fluoro-[1,1'-biphenyl]-4-yl)propan-1-one, (**4da**).
Following the general procedure the product **4da** was isolated on silica gel (CH_2Cl_2/MeOH 97.5:2.5) in 90% yield as a white solid. $[\alpha]^{20}_D$ = -87.8 (c = 0.62, $CHCl_3$). mp: 56-58°C. ^{1}H NMR (500 MHz, $CDCl_3$) 7.57 (d, J=6.5 Hz, 2H); 7.50-7.44 (m, 7H); 7.41-7.38 (m, 3H); 7.19-7.14 (m, 3H); 6.5 (d, J=6.0 Hz, 1H); 4.83 (d, J=12.0 Hz, 1H); 4.31 (d, J=12.5 Hz, 1H); 4.10-4.06 (m, 3H); 1.56 (d, J=6.5 Hz, 3H). ^{13}C NMR (125 MHz, $CDCl_3$) 170.7; 160.1 (d, J=248 Hz); 143.8 (d, J=7.6 Hz); 140.6 (d, J=11.5 Hz); 135.5; 133.9; 133.2; 131.3 (d, J=3.8 Hz); 130.3; 129.0 (d, J=29.0 Hz); 128.8; 128.6; 128.5; 128.4; 128.1; 128.0; 128.0; 127.8; 127.7; 123.5; 123.5 (d, J=2.9 Hz); 115.2 (d, J=23.9 Hz); 48.6; 46.8; 43.8; 20.7. HRESIMS (+) *m*/*z* 422.1924 $[M + H]^+$ (calcd for $C_{29}H_{24}FNO$ 422.1920).

(R)-1-(3,9-dimethoxy-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(2-fluoro-[1,1'-biphenyl]-4-yl)propan-1-one, (**4db**).
Following the general procedure, the product **4db** was isolated by column chromatography on silica gel (CH_2Cl_2) in 55% yield as a yellow solid. $[\alpha]^{20}_D$ = −139 (c = 1.15, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 7.59 (d, J=7.5 Hz, 2H); 7.48 (m, 3H); 7.41 (d, J=7.0 Hz, 1H); 7.37 (d, J=8.5 Hz, 2H); 7.22 (t, J=8.0 Hz, 1H); 7.19 (s, 1H); 7.03 (d, J=2.0 Hz, 1H); 7.00 (dd, J=2.0, 8.5 Hz, 1H); 6.92 (dd, J=2.0, 8.5 Hz, 1H); 6.03 (d, J=1.5 Hz, 1H); 4.89 (d, J=14.0 Hz, 1H); 4.35 (d, J=12.5 Hz, 1H); 4.10-3.99 (m, 3H); 3.88 (s, 3H); 3.62 (s, 3H); 1.58 (d, J=7.0 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) 170.7; 160.1 (d, J=248 Hz); 159.3; 159.0; 143.9 (d, J=7.6 Hz); 135.3; 134.8; 134.1; 132.9; 131.4 (d, J=3.5 Hz); 129.0; 128.8; 127.8;128.48; 127.8 (d, J=9.5 Hz); 123.4; 115.3 (d, J=18.0 Hz); 114.4 (d, J=18.0 Hz); 114.0; 55.5; 55.2; 48.8; 47.2; 43.8; 20.9. HRESIMS (+) *m*/*z* 482.2128 $[M + H]^+$ (calcd for $C_{31}H_{28}FNO_3$ 482.2131).

(R)-1-(3,9-dinitro-5,7-dihydro-6H-dibenzo[c,e]azepin-6-yl)-2-(2-fluoro-[1,1'-biphenyl]-4-yl)propan-1-one, (**4dc**).
Following the general procedure the product **4dc** was isolated on silica gel ($CHCl_3$) in 52% yield as a dark yellow oil. $[\alpha]^{20}_D$ = −97 (c = 0.20, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 8.46 (d, J=2.5 Hz, 1H); 8.38 (dd, J=8.5 Hz, 1H); 8.33 (dd, J=8.0, 2.0 Hz, 1H); 7.70 (dd, J=8.5, 4.5 Hz, 2H); 7.601 (d, J=8.0 Hz, 2H); 7.52 (d, J=8 Hz, 1H); 7.49 (d, J=5.0 Hz, 1H); 7.47 (d, J=8.0 Hz, 2H); 7.39 (t, J=7.5 Hz, 1H); 7.20 (dd, J=2.0, 7.0 Hz, 1H); 7.14 (dd, J=1.5, 11.0 Hz, 1H); 5.01 (d, J=14.0 Hz, 1H); 4.12 (d, J=13.5 Hz, 1H); 4.11 (d, J=13.5 Hz, 1H); 4.06 (q, J=6.5 Hz, 1H); 1.58 (d, J=6.5 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) 171.0; 160.2 (d, J=249 Hz); 148.5; 148.2; 144.7; 142.7 (d, J=7.6 Hz); 135.6; 135.1; 134.8; 131.8 (d, J=3.9 Hz); 129.4 (d, J=7.6 Hz); 129.1 (d, J=3.8 Hz); 128.7 (d, J=13.2 Hz); 128.5; 127.9;

125.8; 124.4; 124.2; 124.0; 123.2 (d J =3.8 Hz); 114.94 (d, J=24.0 Hz); 108.0; 47.8; 40.1; 44.0; 20.9. HRESIMS (+) *m/z* 512.1626 $[M + H]^+$ (calcd for $C_{29}H_{22}FN_3O_5$ 512.1622).

(R)-1-(5H-dibenzo[c,e]azepin-6(7H)-yl)-2-phenoxypropan-1-one (**5aa**).

Following the general procedure the product **5aa** was isolated on silica gel ($CHCl_3$) in 95% yield as a white solid. $[\alpha]^{20}_D$ = 6.1 (c = 1.06, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 7.54-6.26 (m, 10H); 6.94-6.98 (m, 3H); 5.10 (q, J=7.0 Hz, 1H); 4.36-4.52 (m, 4H); 1.72 (d, J=7.0 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) 169.28; 157.46; 133.75; 133.63; 130.57; 129.95; 129.54; 129.22; 128.99; 128.67; 128.53; 128.39; 128.21; 121.82: 115.30; 74.82; 48.12; 47.31; 18.31. HRESIMS (+) *m/z* 344.1655 $[M + H]^+$ (calcd for $C_{23}H_{21}NO_2$ 344.1651).

(R)-1-(5H-dibenzo[c,e]azepin-6(7H)-yl)-2-(naphthalen-2-yloxy)propan-1-one (**5ba**).

Following the general procedure the product **5ba** was isolated on silica gel ($CHCl_3$) in 88% yield as a yellow solid. $[\alpha]^{20}_D$ = 74.3 (c = 0.95, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 7.75 (d, J=9.0 Hz, 2H); 7.65 (d, J=9.0 Hz, 1H); 7.56-7.39 (m, 6H); 7.35-7.25 (m, 4H); 7.22 (dd, J_1=2.0 Hz, J_2=2.5 Hz, 1H); 7.16 (d, J=2.5 Hz, 1H); 5.25 (q, J=7.0 Hz, 1H); 4.56-4.36 (m, 4H); 1.79 (d, J=7.0 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) 168.89, 155.11, 140.79, 140.555, 134.43, 133.47, 133.33, 130.03, 129.78, 129.28, 129.00, 128.72, 128.44, 128.29, 128.17, 127.96, 127.59, 126.99, 126.44. 123.98, 118.74, 107.81, 74.46, 48.00, 47.07, 17.98. HRESIMS (+) *m/z* 394.1810 $[M + H]^+$ (calcd for $C_{27}H_{23}NO_2$ 394.1807).

(R)-1-(3,9-dinitro-5H-dibenzo[c,e]azepin-6(7H)-yl)-2-phenoxypropan-1-one (**5ac**).

Following the general procedure the product **5ac** was isolated on silica gel ($CHCl_3$) in 65% yield as a yellow oil. $[\alpha]^{20}_D$ = -19.0 (c = 1.0, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 8.34 (s, 2H); 8.30 (s, 1H); 8.15 (s, 1H); 7.70 (t, J=9.2 Hz, 2H); 7.31 (t, J=7.6 Hz, 2H); 7.01-6.96 (m, 3H); 5.30 (q, J=7.0 Hz, 1H); 4.68-4.37 (m, 4H); 1.73 (d, J=7.0 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) 169.28; 157.46; 133.75; 133.63; 130.57; 129.95; 129.54; 129.22; 128.99; 128.67; 128.53; 128.39; 128.21; 121.82: 115.30; 74.82; 48.12; 47.31; 18.31. HRESIMS (+) *m/z* 434.1356 $[M + H]^+$ (calcd for $C_{23}H_{19}N_3O_6$ 434.1352).

(R)-1-(3,9-dinitro-5H-dibenzo[c,e]azepin-6(7H)-yl)-2-(naphthalen-2-yloxy)propan-1-one (**5bc**).

Following the general procedure, the product **5bc** was isolated by column chromatography on silica gel ($CHCl_3$) in 70% yield as a yellow oil. $[\alpha]^{20}_D$ = +16.2 (c = 1.04, $CHCl_3$). ^{1}H NMR (500 MHz, $CDCl_3$) 8.25 (br s, 2H); 8.20 (s, 1H); 8.13 (s, 1H); 7.75 (d, J=9.0 Hz, 1H); 7.69-7.56 (m, 4H); 7.37-7.17 (m, 4H); 5.20 (q, J=7.0, 1H); 4.59-4.34 (m, 4H); 1.73 (d, J=7.0, 3H). ^{13}C NMR (100 MHz, $CDCl_3$)169.19, 154.42, 148.37, 148.22, 144.76, 144.58, 135.08, 134.94, 134.28, 130.28, 129.34, 129.22, 127.65, 126.92, 126.75, 125.64, 124.91, 124.84, 124.30, 124.16, 123.98, 118.20, 107.58, 75.11, 47.17, 46.26, 17.72. HRESIMS (+) *m*/*z* 484.1505 $[M + H]^+$ (calcd for $C_{27}H_{21}N_3O_6$ 484.1509).

*Figure S1. NMR Spectra of **4ba***

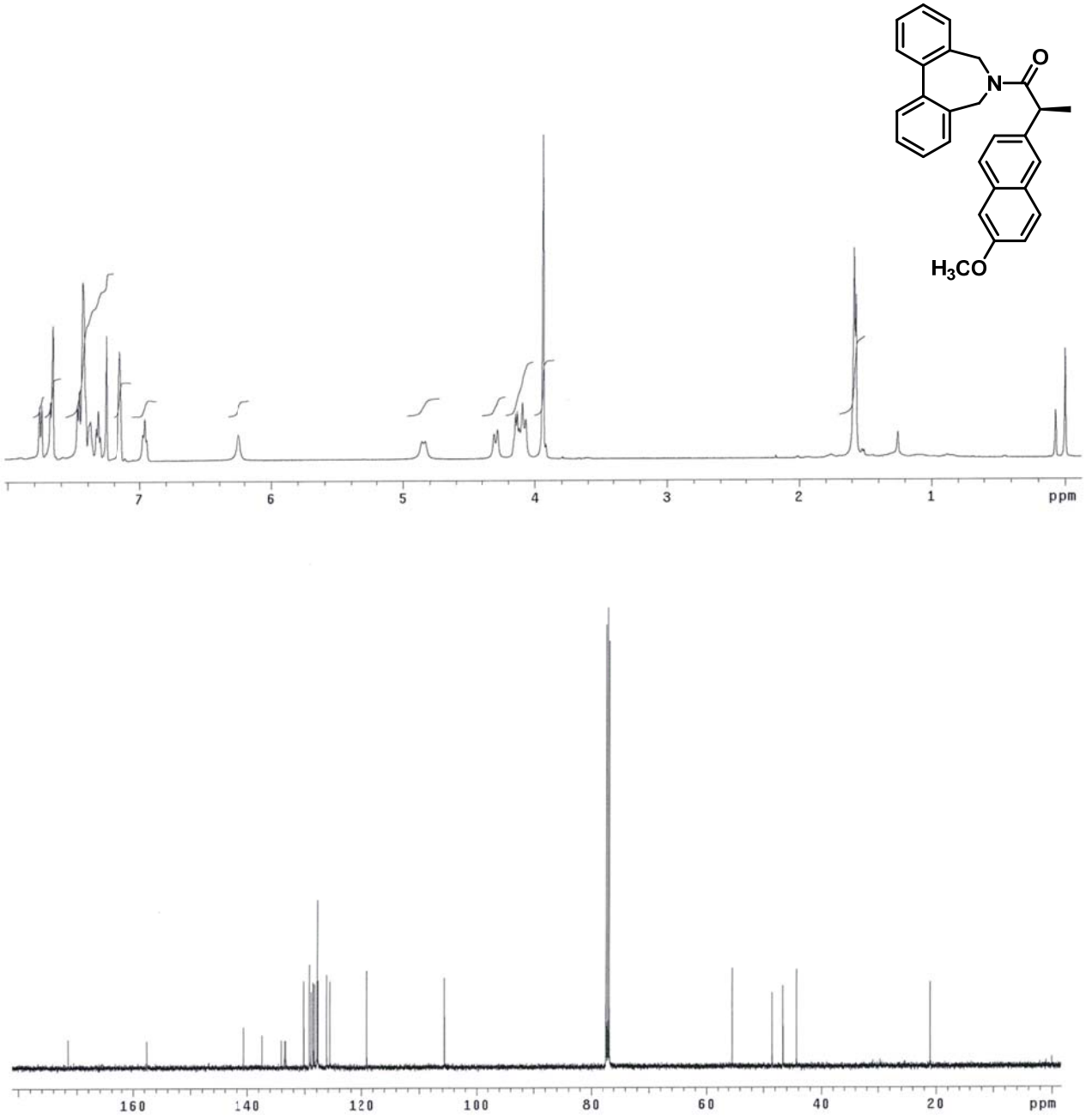


*Figure S2. NMR Spectra of **4bb***

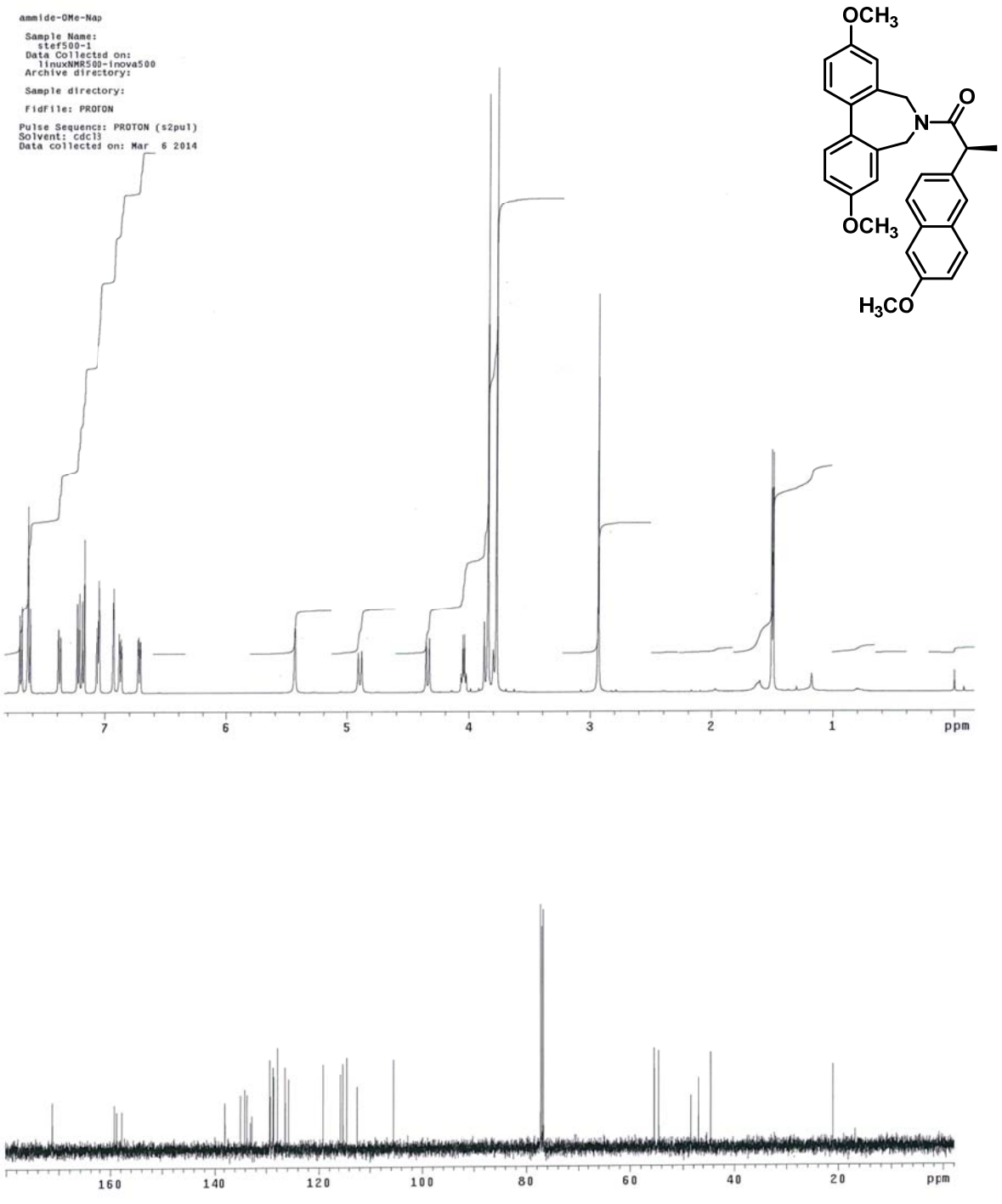


Figure S3. NMR Spectra of ***4bc***

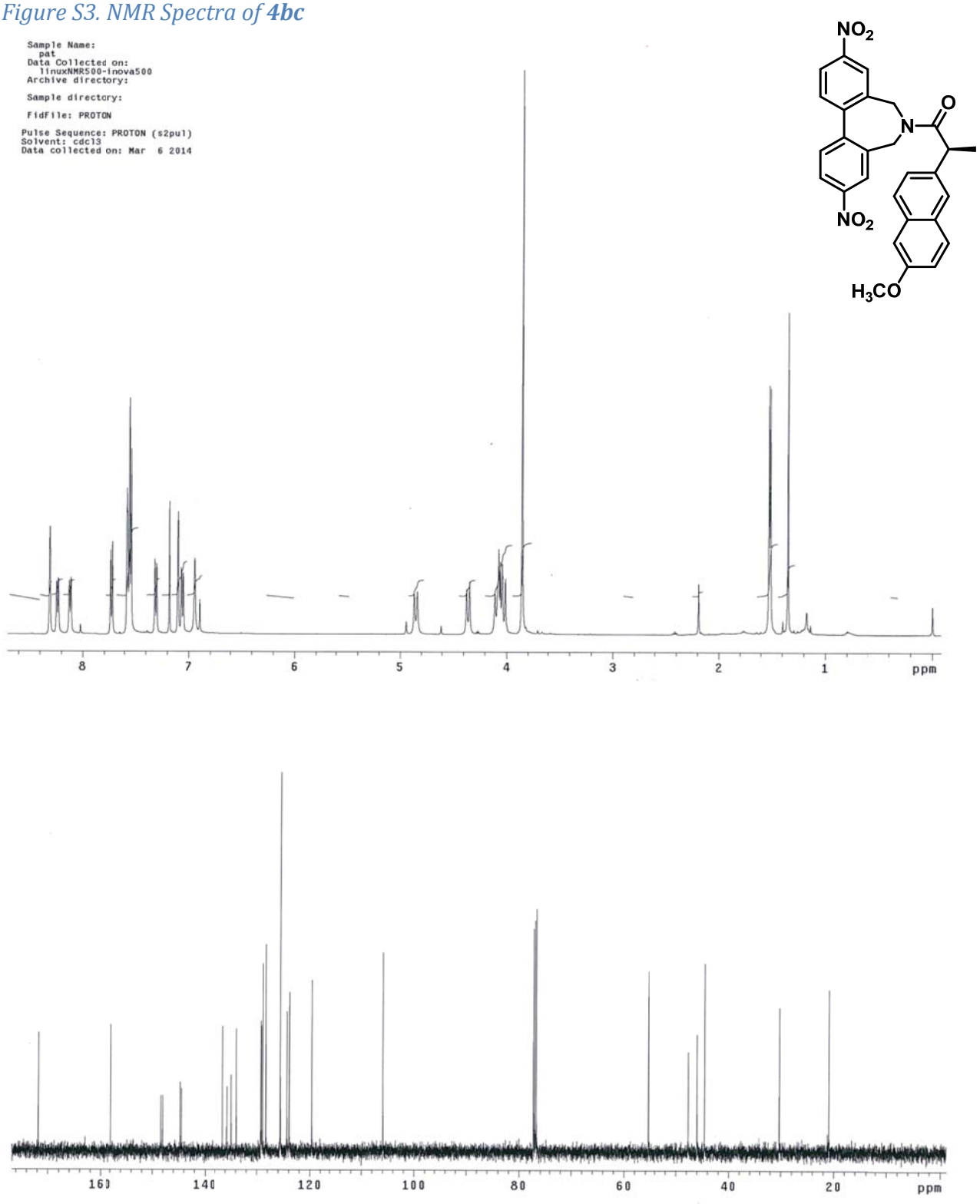


*Figure S4. NMR Spectra of **4bd***

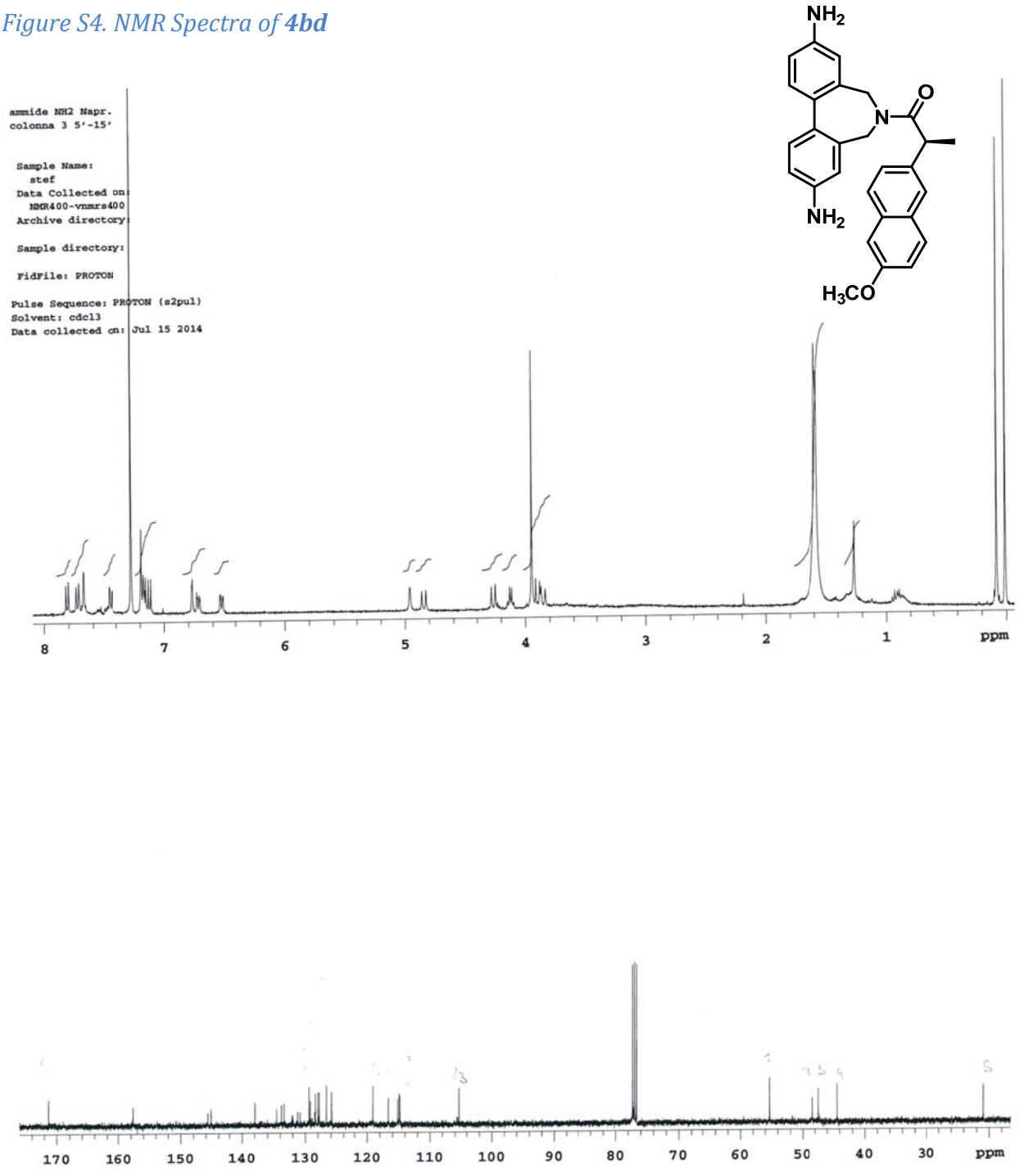


*Figure S5. NMR Spectra of 4**ca***

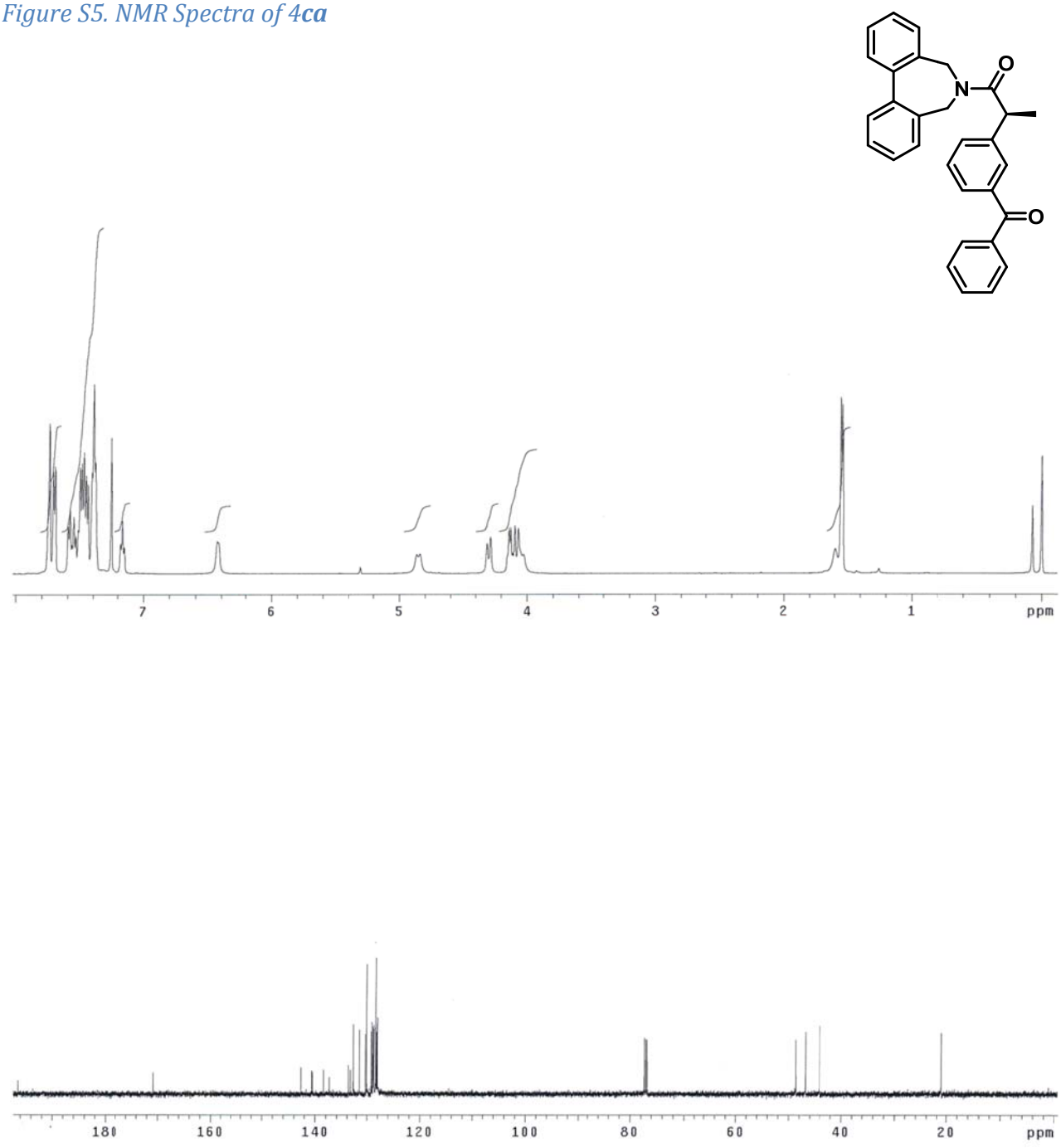


Figure S6. NMR Spectra of ***4cb***

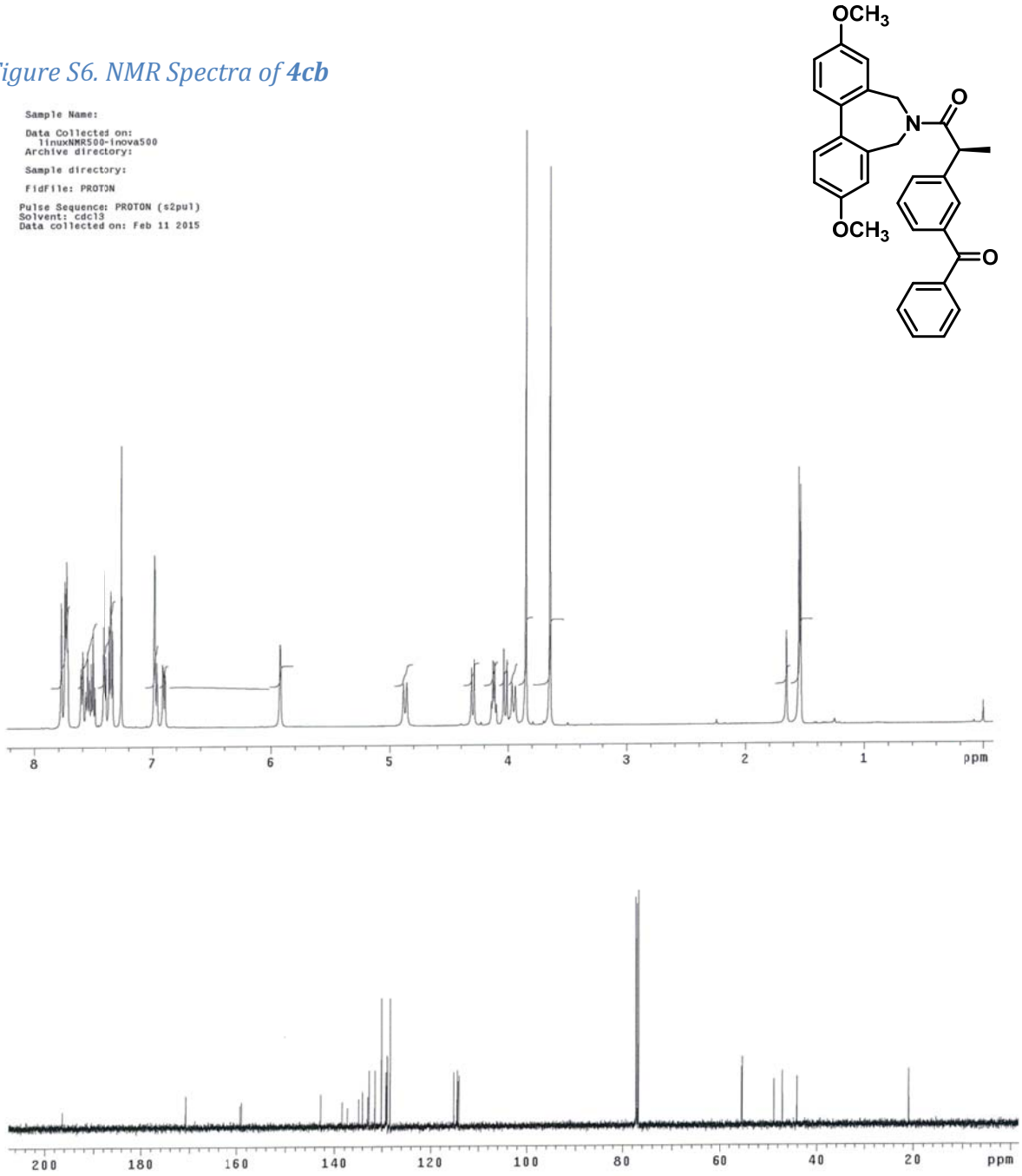
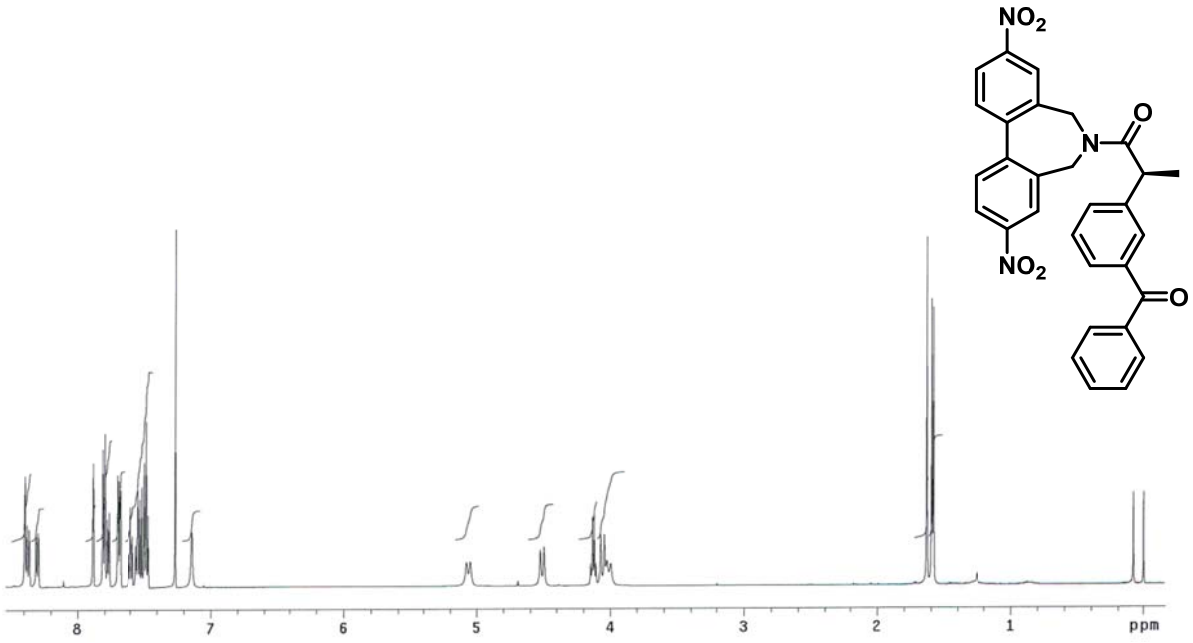


Figure S7. NMR Spectra of ***4cc***



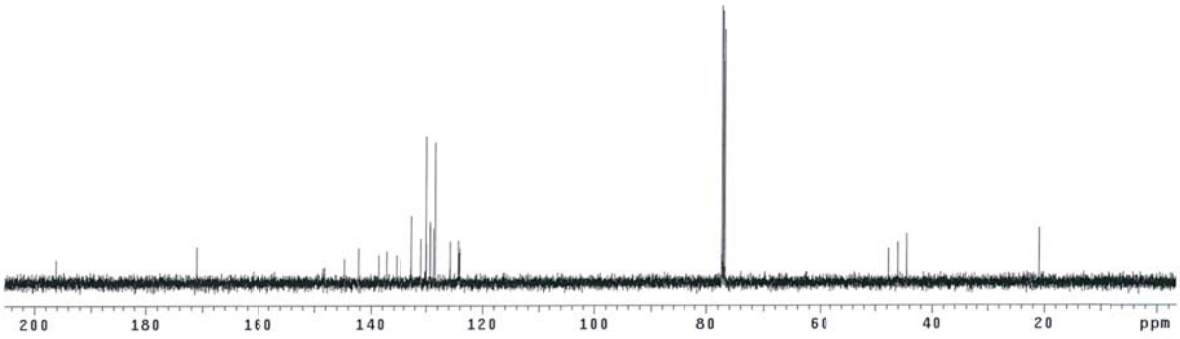
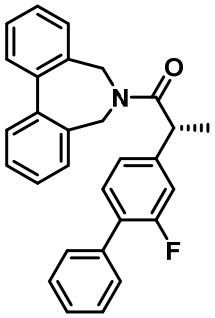
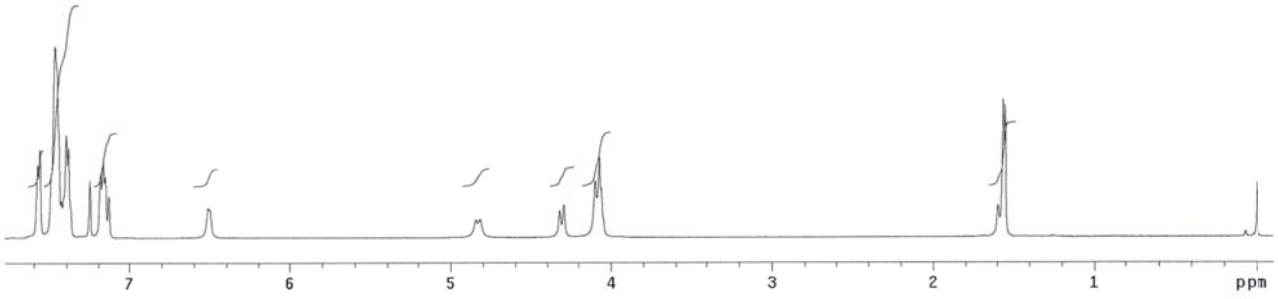


*Figure S8. NMR Spectra of **4da***





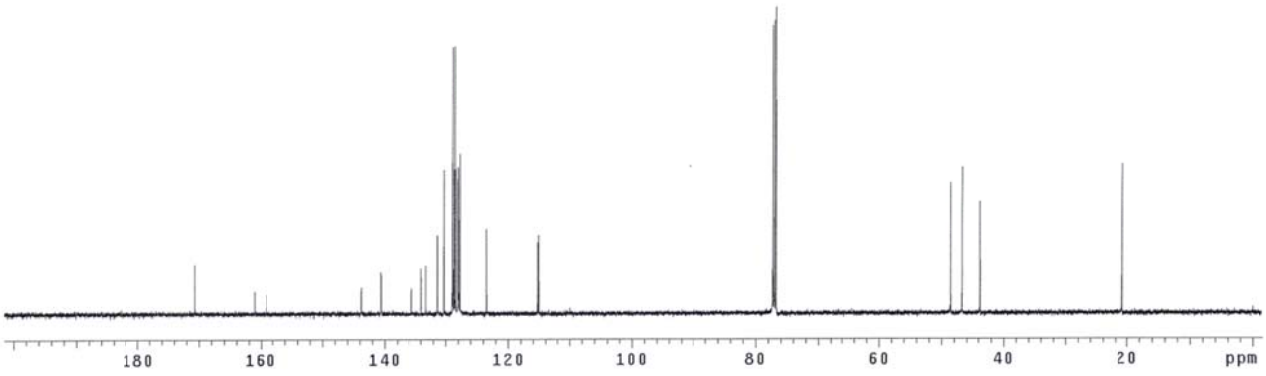


*Figure S9. NMR Spectra of **4db***

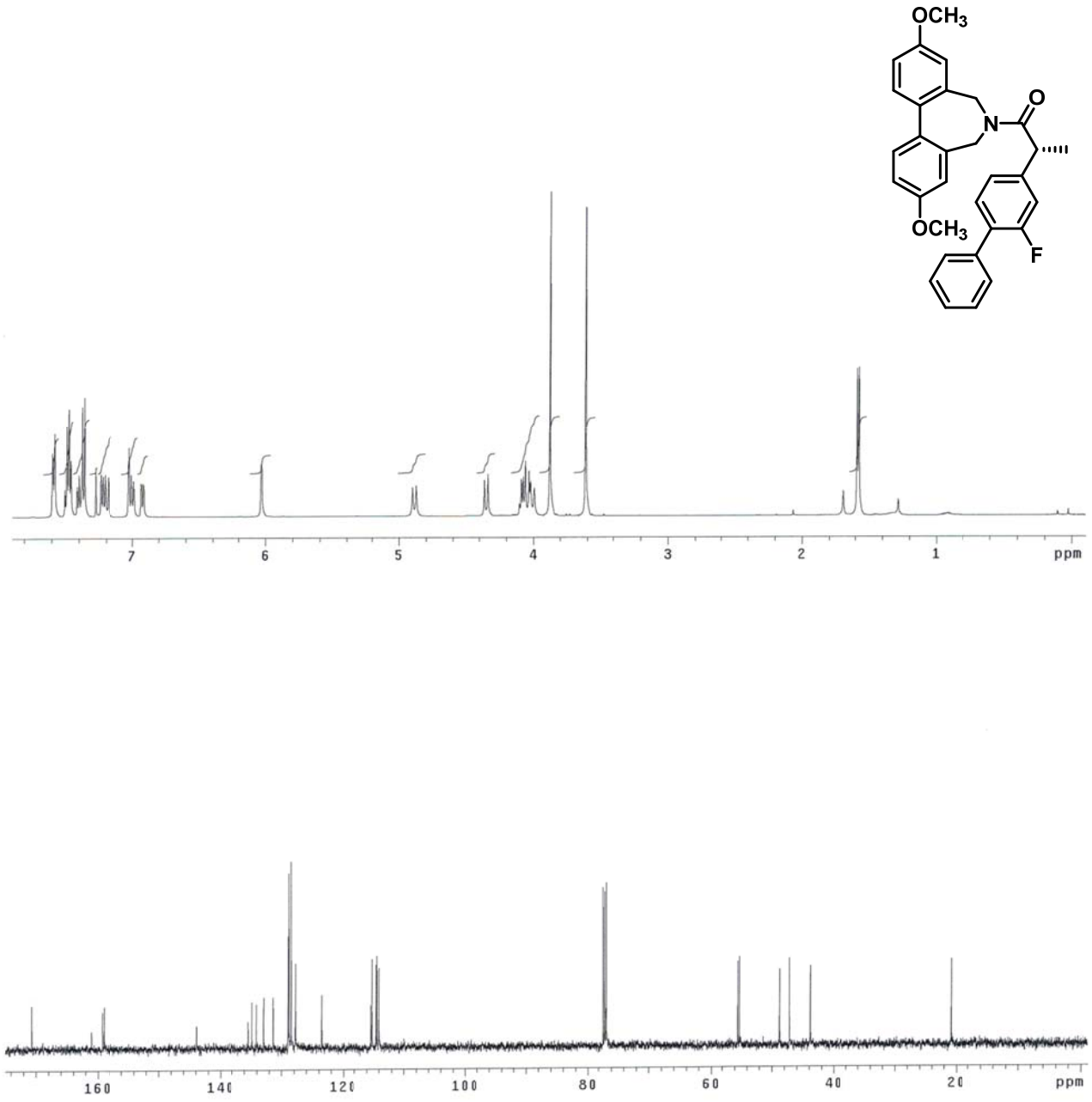
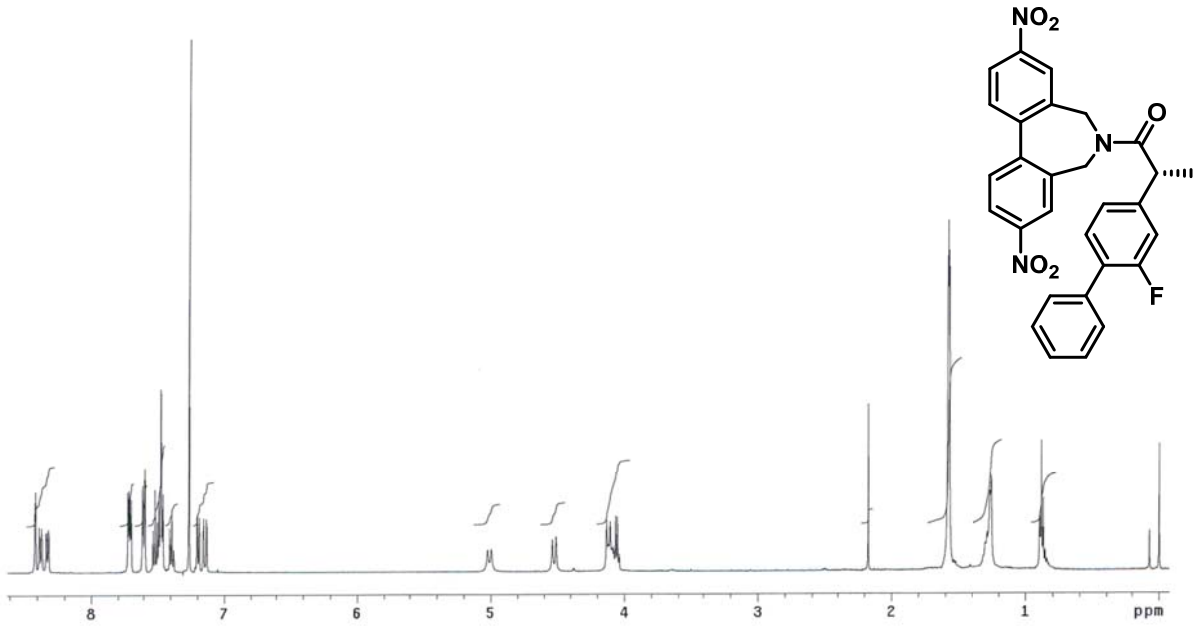


Figure S10. NMR Spectra of ***4dc***



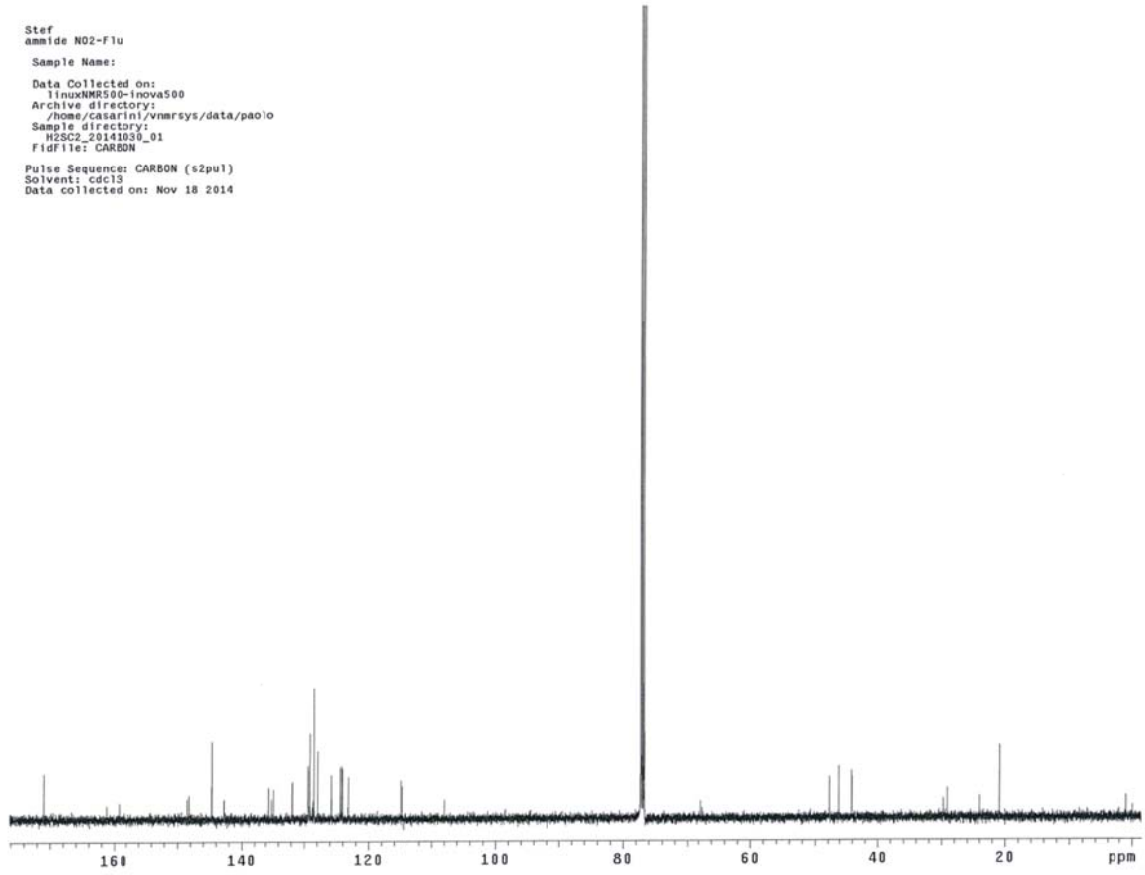
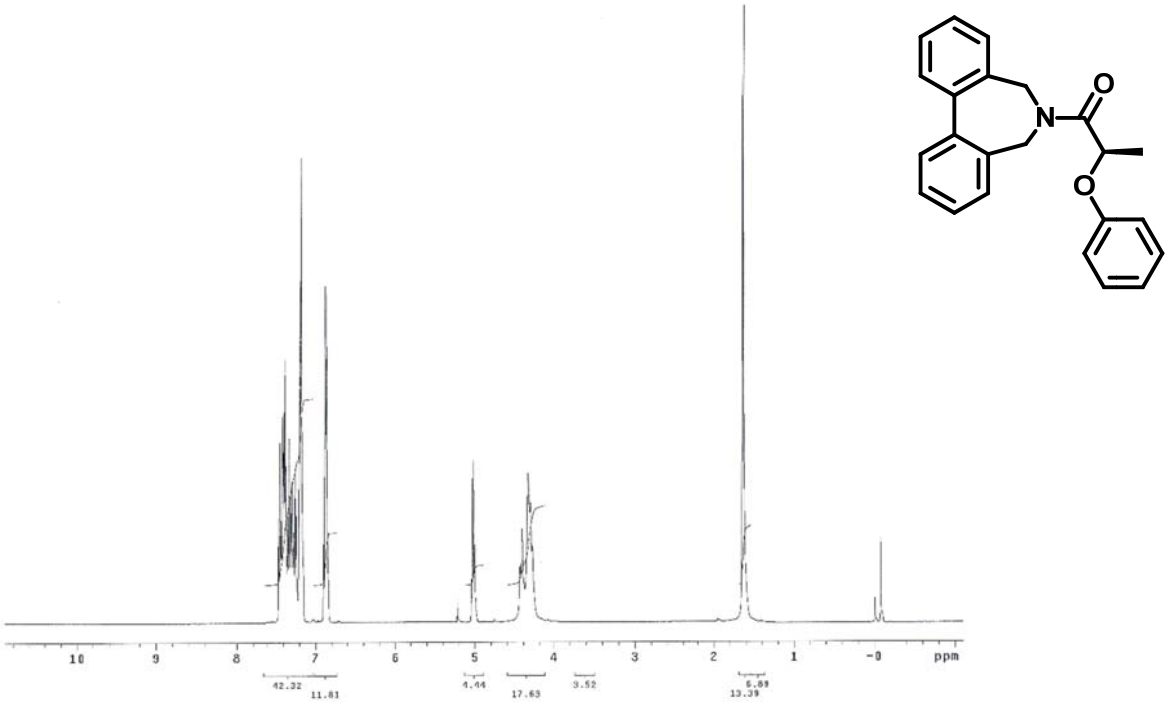


Figure S11. NMR Spectra of 5aa



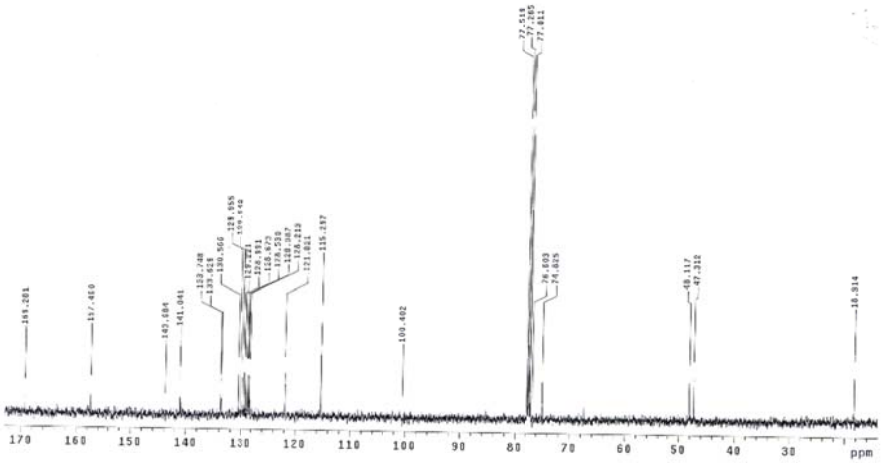


Figure S12. NMR Spectra of ***5ba***

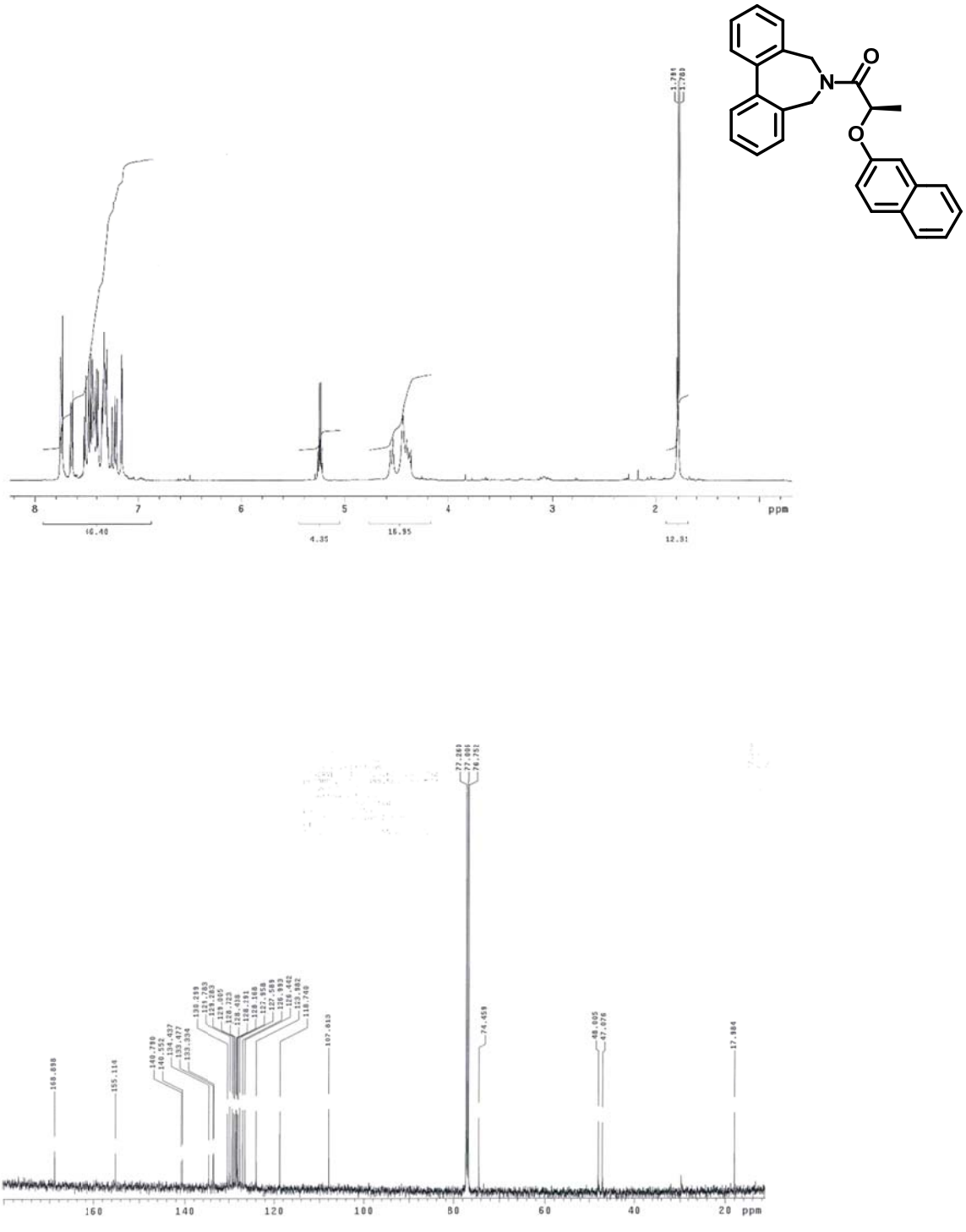


Figure S13. NMR Spectra of ***5ac***

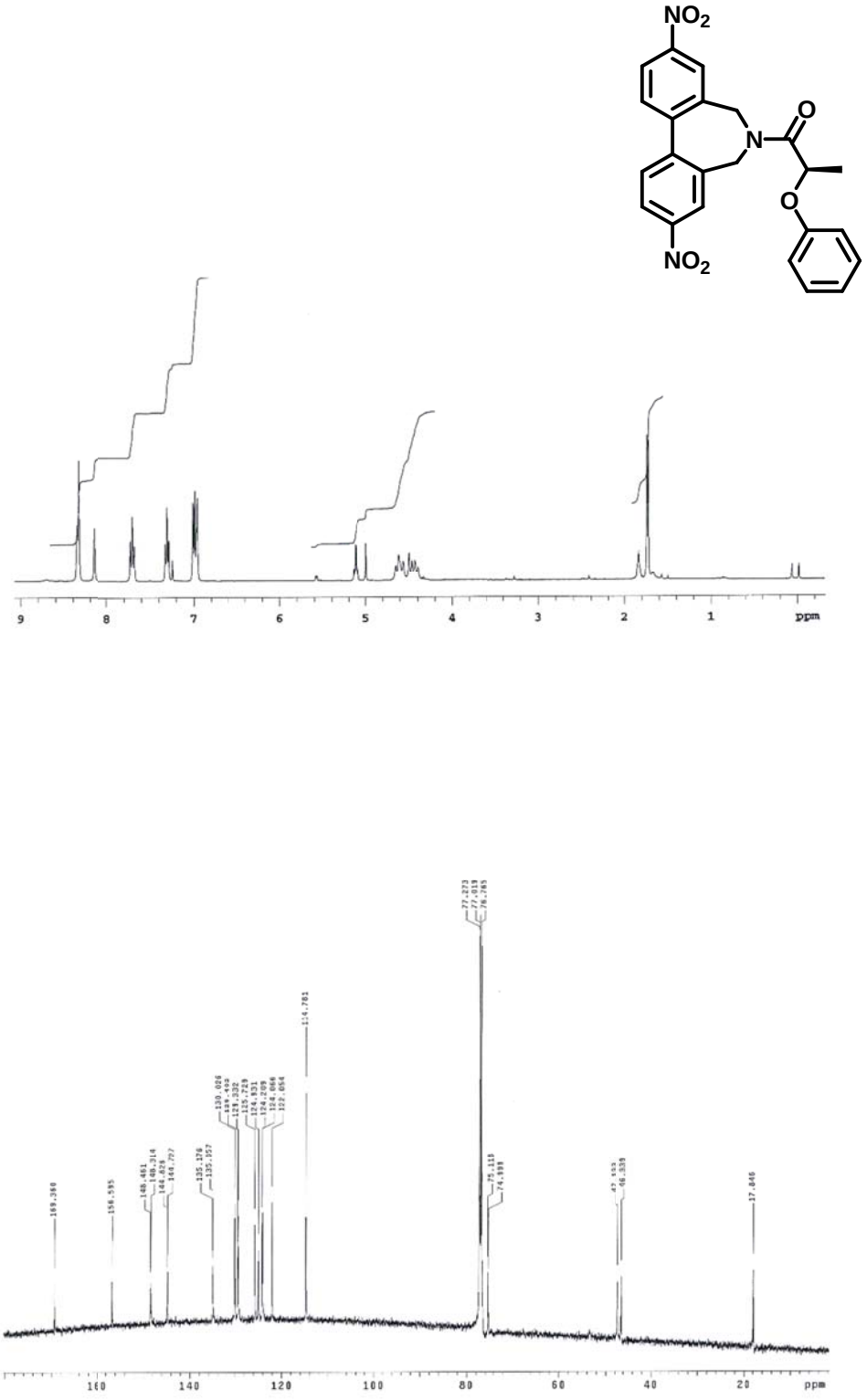


Figure S14. NMR Spectra of ***5bc***