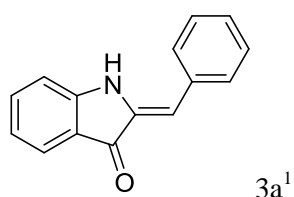


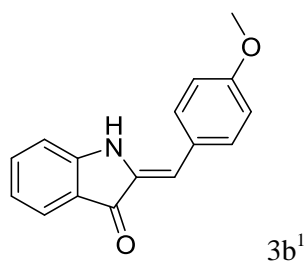
General procedure: Pd(PPh₃)₄ (5 mol%, 58 mg), 2-iodoaniline (1.0 mmol, 219 mg), and phenylacetylene (1.0 mmol, 110 μL) were transferred into an oven-dried tube which was filled with nitrogen and equipped with a string bar. Toluene (2.0 mL), and Et₃N (6.0 equiv., 6 mmol, 835 μL) were added into the reaction tube via syringe. Then a mixture of formic acid (2.0 mmol, 76 μL) and acetic anhydride (2.0 mmol, 189 μL) was stirred at 30 °C for 1.5 h, and added drop wise to the reaction tube. The final mixture was stirred at room temperature for 2 h, and then raise to 70 °C for another 14 h. After the reaction was complete, the reaction mixture was filtered, concentrated, and purified by column chromatography on silica gel (petroleum ether/ethyl acetate) to give the pure product.



¹H NMR (400 MHz, DMSO) δ 9.82 (s, 1H), 7.74 (d, *J* = 7.7 Hz, 2H), 7.59 (d, *J* = 7.6 Hz, 1H), 7.52 (t, *J* = 7.7 Hz, 1H), 7.47 (t, *J* = 7.6 Hz, 2H), 7.36 (t, *J* = 7.4 Hz, 1H), 7.15 (d, *J* = 8.1 Hz, 1H), 6.92 (t, *J* = 7.4 Hz, 1H), 6.65 (s, 1H).

¹³C NMR (101 MHz, DMSO) δ 186.8, 154.7, 136.8, 134.8, 134.6, 130.5, 129.4, 128.8, 124.5, 120.5, 120.2, 113.1, 110.2.

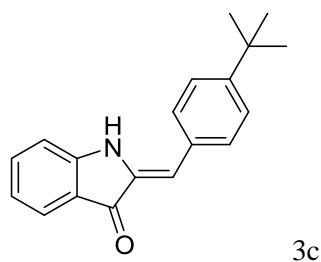
GC-MS (EI, 70 ev) *m/z* (%) = 221.9([M]⁺, 10), 220.8(74), 219.8(100), 164.9(14), 110.2(6), 88.9(10).



¹H NMR (400 MHz, DMSO) δ 9.70 (s, 1H), 7.71 (d, *J* = 8.7 Hz, 2H), 7.57 (d, *J* = 7.6 Hz, 1H), 7.50 (dd, *J* = 8.0, 7.3 Hz, 1H), 7.14 (d, *J* = 8.1 Hz, 1H), 7.04 (d, *J* = 8.6 Hz, 2H), 6.90 (t, *J* = 7.4 Hz, 1H), 6.65 (s, 1H), 3.82 (s, 4H).

¹³C NMR (101 MHz, DMSO) δ 186.5, 160.0, 154.3, 136.4, 133.6, 132.2, 127.1, 124.4, 120.7, 119.9, 115.0, 113.0, 111.0, 55.8.

GC-MS (EI, 70 ev) *m/z* (%) = 252.2([M]⁺, 17), 251.2(100), 250.2(69), 236.3(29), 220.2(23), 208.2(15), 180.2(10), 152.2(8).

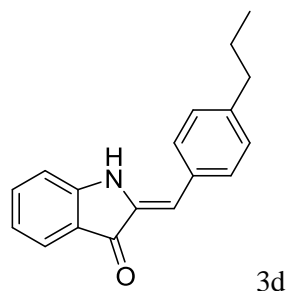


^1H NMR (400 MHz, DMSO) δ 9.77 (s, 1H), 7.67 (d, J = 8.3 Hz, 2H), 7.60 (d, J = 7.5 Hz, 1H), 7.54 – 7.41 (m, 3H), 7.17 (d, J = 8.1 Hz, 1H), 6.91 (t, J = 7.4 Hz, 1H), 6.66 (s, 1H), 1.30 (s, 11H).

^{13}C NMR (101 MHz, CDCl_3) δ 186.8, 153.3, 152.0, 136.1, 135.0, 131.8, 129.5, 126.2, 124.9, 121.6, 120.4, 112.1, 112.0, 34.8, 31.1.

GC-MS (EI, 70 ev) m/z (%) = 278.3([M]⁺, 17), 277.3(78), 276.3(12), 263.3(20), 262.3(100), 246.2(12), 234.2(8), 220.2(58), 116.8(18).

HR-MS (ESI) m/z : calculated mass 277.1467 [M]⁺, found 277.1488.

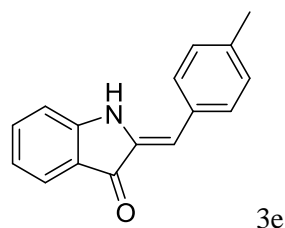


^1H NMR (400 MHz, DMSO) δ 9.77 (s, 1H), 7.66 (d, J = 8.0 Hz, 2H), 7.60 (d, J = 7.8 Hz, 1H), 7.51 (dd, J = 11.1, 4.1 Hz, 1H), 7.28 (d, J = 8.0 Hz, 2H), 7.17 (d, J = 8.1 Hz, 1H), 6.91 (t, J = 7.4 Hz, 1H), 6.66 (s, 1H), 2.56 (dd, J = 19.2, 11.9 Hz, 2H), 1.58 (dt, J = 14.3, 7.3 Hz, 2H), 0.89 (t, J = 7.3 Hz, 3H).

^{13}C NMR (101 MHz, CDCl_3) δ 186.8, 153.4, 143.7, 136.1, 134.9, 132.0, 129.7, 129.3, 124.9, 121.6, 120.4, 112.2, 112.2, 37.9, 24.3, 13.8.

GC-MS (EI, 70 ev) m/z (%) = 264.3([M]⁺, 18), 263.3(94), 262.3(42), 234.2(88), 220.2(100), 204.2(15), 116.7(8).

HR-MS (ESI) m/z : calculated mass 263.1310 [M]⁺, found 263.1305.

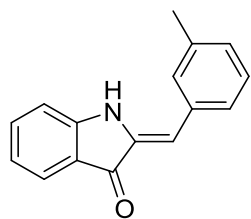


^1H NMR (400 MHz, DMSO) δ 9.75 (s, 1H), 7.64 (d, J = 8.1 Hz, 2H), 7.59 (d, J = 7.6 Hz, 1H), 7.54 – 7.46 (m, 1H), 7.28 (d, J = 8.0 Hz, 2H), 7.16 (d, J = 8.1 Hz, 1H), 6.91 (t, J = 7.4 Hz, 1H), 6.64 (s, 1H), 2.34 (s, 3H).

^{13}C NMR (101 MHz, CDCl_3) δ 186.7, 154.5, 138.7, 136.6, 134.4, 131.8, 130.4, 130.1, 124.5, 120.5, 120.1, 113.0, 110.6, 21.5.

GC-MS (EI, 70 ev) m/z (%) = 236.3([M]⁺, 16), 235.2(97), 234.2(100), 220.2(95), 204.2(8), 116.6(15), 103.2(10), 77.1(10).

HR-MS (ESI) m/z : calculated mass 235.0997 [M]⁺, found 235.0988.



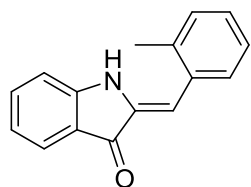
3f

^1H NMR (400 MHz, CDCl_3) δ 7.74 (d, $J = 7.6$ Hz, 1H), 7.48 (t, $J = 7.7$ Hz, 1H), 7.41 – 7.34 (m, 3H), 7.32 (d, $J = 7.5$ Hz, 1H), 7.15 (d, $J = 7.3$ Hz, 1H), 7.05 (d, $J = 8.1$ Hz, 1H), 6.96 (t, $J = 7.4$ Hz, 1H), 6.85 (s, 1H), 2.40 (s, 4H).

^{13}C NMR (101 MHz, CDCl_3) δ 186.8, 153.4, 138.8, 136.1, 135.3, 134.6, 130.3, 129.4, 129.0, 126.7, 124.9, 121.6, 120.5, 112.1, 112.0, 21.5.

GC-MS (EI, 70 ev) m/z (%) = 236.2([M]⁺, 15), 235.2(90), 234.2(100), 221.2(17), 220.2(100), 204.2(8), 191.2(7), 178.1(7), 165.1(8), 116.6(14), 103.2(10), 77.1(10).

HR-MS (ESI) m/z : calculated mass 235.0997 [M]⁺, found 235.0988.



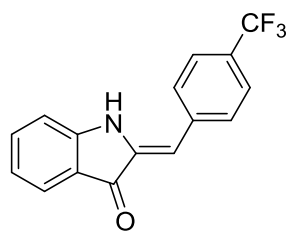
3g

^1H NMR (400 MHz, DMSO) δ 7.76 (d, $J = 7.6$ Hz, 1H), 7.60 (d, $J = 7.2$ Hz, 1H), 7.48 (t, $J = 7.7$ Hz, 1H), 7.28 (dd, $J = 10.6, 6.1$ Hz, 3H), 7.00 (d, $J = 5.6$ Hz, 2H), 6.96 (d, $J = 7.6$ Hz, 2H), 2.43 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 186.6, 154.8, 138.2, 136.8, 135.5, 133.3, 131.1, 129.3, 128.7, 126.8, 124.6, 120.5, 120.0, 112.9, 107.3, 20.2.

GC-MS (EI, 70 ev) m/z (%) = 235.9([M]⁺, 10), 234.9(64), 233.9(74), 220.9(15), 219.9(84), 218.9(20), 217.0(100), 216.9(33), 177.9(8), 116.4(14), 102.9(10), 77.0(10).

HR-MS (ESI) m/z : calculated mass 235.0997 [M]⁺, found 235.0988.



3h

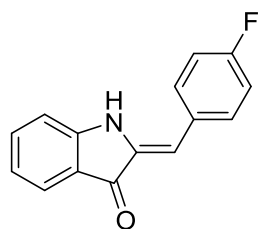
^1H NMR (400 MHz, DMSO) δ 9.98 (s, 1H), 7.90 (d, $J = 8.1$ Hz, 2H), 7.77 (d, $J = 8.2$ Hz, 2H), 7.59 (d, $J = 7.5$ Hz, 1H), 7.53 (t, $J = 7.6$ Hz, 1H), 7.14 (d, $J = 8.1$ Hz, 1H), 6.93 (t, $J = 7.4$ Hz, 1H), 6.64 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.9, 154.8, 138.8, 137.2, 136.1, 133.0 (q, $J = 33.6$ Hz), 130.6, 126.0, 124.7, 123.6 (q, $J = 270.8$ Hz), 120.6, 120.3, 113.1, 107.6.

^{19}F NMR (382 MHz, CDCl_3): $\delta = -68.1$ (s).

GC-MS (EI, 70 ev) m/z (%) = 290.1([M]⁺, 14), 289.1(88), 288.1(100), 220.2(48), 165.2(10), 110.1(8), 76.1(6).

HR-MS (ESI) m/z : calculated mass 289.0714 [M]⁺, found 289.0786.



3i

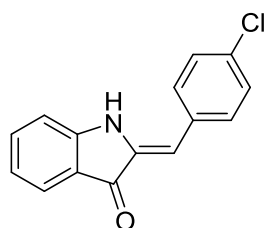
^1H NMR (400 MHz, DMSO) δ 9.80 (s, 1H), 7.78 (dd, J = 8.3, 5.6 Hz, 2H), 7.58 (d, J = 7.2 Hz, 1H), 7.55 – 7.48 (m, 1H), 7.30 (dd, J = 11.8, 5.6 Hz, 2H), 7.13 (d, J = 7.9 Hz, 1H), 6.91 (t, J = 7.1 Hz, 1H), 6.65 (d, J = 5.0 Hz, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.8, 162.3 (d, J = 251.9 Hz), 154.7, 136.8, 134.6, 132.5 (d, J = 8.2 Hz), 131.2 (d, J = 2.2 Hz), 124.6, 120.5, 120.2, 116.4 (d, J = 21.8 Hz), 113.0, 109.2.

^{19}F NMR (382 MHz, CDCl_3): δ = -109.9 (m).

GC-MS (EI, 70 ev) m/z (%) = 240.2([M]⁺, 12), 239.2(80), 2238.2(100), 183.2(16), 119.4(7), 107.1(8).

HR-MS (ESI) m/z : calculated mass 239.0746 [M]⁺, found 239.0811.



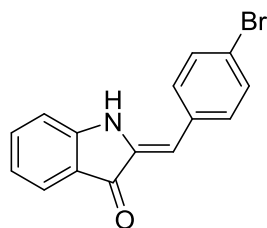
3j

^1H NMR (400 MHz, DMSO) δ 9.86 (s, 1H), 7.76 (d, J = 8.6 Hz, 2H), 7.60 (d, J = 7.5 Hz, 1H), 7.54 (t, J = 8.1 Hz, 4H), 7.14 (d, J = 8.1 Hz, 1H), 6.94 (t, J = 7.4 Hz, 1H), 6.63 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.8, 154.6, 136.9, 135.1, 133.6, 133.2, 131.9, 129.3, 124.6, 120.4, 113.0, 108.6.

GC-MS (EI, 70 ev) m/z (%) = 257.8([M]⁺, 5), 256.8(30), 255.8(46), 254.8(88), 253.8(100), 219.8(50), 164.9(17), 109.9(15), 88.9(13).

HR-MS (ESI) m/z : calculated mass 255.0451 [M]⁺, found 255.0478.



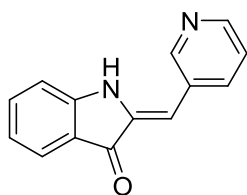
3k

^1H NMR (400 MHz, DMSO) δ 9.85 (s, 1H), 7.76 – 7.62 (m, 6H), 7.59 (d, J = 7.6 Hz, 1H), 7.54 (t, J = 7.4 Hz, 2H), 7.14 (d, J = 8.1 Hz, 2H), 6.93 (t, J = 7.1 Hz, 2H), 6.60 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.8, 154.6, 136.9, 135.2, 133.9, 132.3, 132.1, 129.2, 124.6, 121.9, 120.3, 113.0, 108.7.

GC-MS (EI, 70 ev) m/z (%) = 301.6([M]⁺, 15), 300.6(94), 299.6(100), 298.6(95), 297.6(88), 219.8(87), 190.8(28), 164.9(28), 109.9(42), 88.9(22), 76.0(12).

HR-MS (ESI) m/z : calculated mass 298.9946 [M + H]⁺, found 298.9988.



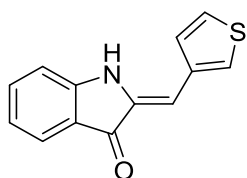
31

^1H NMR (400 MHz, DMSO) δ 9.95 (s, 1H), 8.92 (s, 1H), 8.53 (d, $J = 4.3$ Hz, 1H), 8.14 (d, $J = 8.0$ Hz, 1H), 7.61 (d, $J = 7.6$ Hz, 1H), 7.54 (dd, $J = 11.1, 4.1$ Hz, 1H), 7.49 (dd, $J = 7.7, 5.1$ Hz, 1H), 7.15 (d, $J = 8.1$ Hz, 1H), 6.94 (t, $J = 7.4$ Hz, 1H), 6.63 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.7, 154.7, 148.9, 137.1, 135.9, 131.9, 130.8, 129.2, 124.7, 124.3, 120.5, 120.3, 113.0, 106.1.

GC-MS (EI, 70 ev) m/z (%) = 222.8([M]⁺, 12), 221.8(79), 220.8(100), 192.8(15), 165.9(10), 138.9(7), 110.9(7), 76.0(8).

HR-MS (ESI) m/z : calculated mass 222.0793 [M]⁺, found 222.0766.



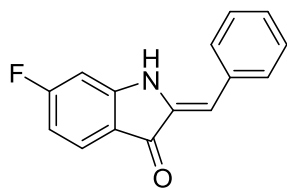
3m

^1H NMR (400 MHz, DMSO) δ 9.63 (s, 1H), 8.03 (s, 1H), 7.65 (d, $J = 2.5$ Hz, 1H), 7.60 (d, $J = 6.1$ Hz, 2H), 7.50 (t, $J = 7.6$ Hz, 1H), 7.17 (d, $J = 8.1$ Hz, 1H), 6.90 (t, $J = 7.4$ Hz, 1H), 6.81 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.7, 154.3, 136.6, 136.1, 134.0, 129.3, 127.9, 127.4, 124.4, 120.8, 120.0, 112.9, 105.1.

GC-MS (EI, 70 ev) m/z (%) = 228.8([M]⁺, 7), 227.8(17), 226.8(100), 225.8(47), 209.8(13), 198.8(17), 197.9(16), 170.8(12), 121.9(12), 95.9(14).

HR-MS (ESI) m/z : calculated mass 227.0405 [M]⁺, found 227.0418.



3n

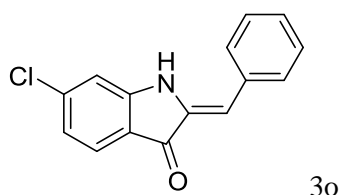
^1H NMR (400 MHz, DMSO) δ 10.02 (s, 1H), 7.72 (d, $J = 7.5$ Hz, 2H), 7.66 (dd, $J = 8.4, 5.9$ Hz, 1H), 7.48 (t, $J = 7.6$ Hz, 2H), 7.38 (t, $J = 7.4$ Hz, 1H), 6.86 (dd, $J = 9.9, 2.1$ Hz, 1H), 6.74 (td, $J = 9.6, 2.2$ Hz, 1H), 6.66 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 185.1, 167.9 (d, $J = 251.6$ Hz), 156.2 (d, $J = 14.4$ Hz), 135.0, 134.3, 130.3, 129.4, 129.0, 127.2 (d, $J = 11.9$ Hz), 117.3, 110.7, 108.2 (d, $J = 24.2$ Hz), 99.6 (d, $J = 26.5$ Hz).

^{19}F NMR (382 MHz, CDCl_3): $\delta = -106.8$ (m).

GC-MS (EI, 70 ev) m/z (%) = 239.8([M]⁺, 10), 238.8(65), 237.8(100), 182.8(13), 119.2(7), 88.9(8).

HR-MS (ESI) m/z : calculated mass 239.0746 [M]⁺, found 239.0811.

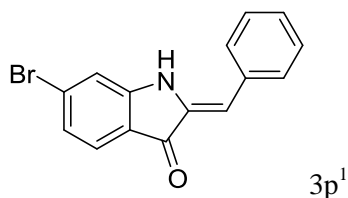


^1H NMR (400 MHz, DMSO) δ 9.98 (s, 1H), 7.72 (d, J = 7.3 Hz, 2H), 7.60 (d, J = 8.0 Hz, 1H), 7.49 (t, J = 7.2 Hz, 2H), 7.45 – 7.29 (m, 2H), 7.14 (s, 2H), 6.93 (d, J = 7.9 Hz, 1H), 6.69 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 185.4, 155.1, 141.2, 134.7, 134.3, 130.4, 129.5, 129.1, 126.1, 120.4, 119.3, 112.6, 111.3.

GC-MS (EI, 70 ev) m/z (%) = 257.1([M]⁺, 18), 256.1(40), 255.2(56), 254.2(100), 219.2(6), 190.2(6), 165.2(7), 109.9(8), 89.1(10).

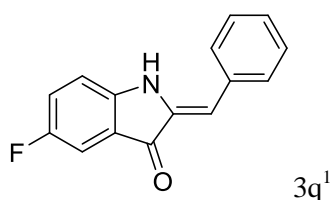
HR-MS (ESI) m/z : calculated mass 255.0451 [M]⁺, found 255.0478.



^1H NMR (400 MHz, DMSO) δ 9.98 (s, 1H), 7.72 (d, J = 7.4 Hz, 2H), 7.53 (d, J = 8.1 Hz, 1H), 7.49 (t, J = 7.6 Hz, 3H), 7.40 (d, J = 7.3 Hz, 1H), 7.31 (d, J = 1.4 Hz, 1H), 7.08 (dd, J = 8.1, 1.5 Hz, 1H), 6.70 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 185.6, 155.2, 134.6, 134.3, 130.4, 130.4, 129.5, 129.2, 126.2, 123.2, 119.6, 115.6, 111.3.

GC-MS (EI, 70 ev) m/z (%) = 301.6([M]⁺, 8), 200.6(58), 299.6(100), 298.6(56), 297.6(94), 218.8(16), 189.8(13), 164.9(14), 109.9(16), 88.9(14), 74.9(12).

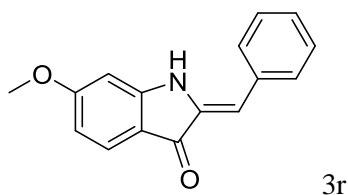


^1H NMR (400 MHz, DMSO) δ 9.78 (s, 1H), 7.73 (d, J = 7.7 Hz, 2H), 7.47 (t, J = 7.5 Hz, 2H), 7.38 (dd, J = 14.0, 6.7 Hz, 3H), 7.16 (dd, J = 8.6, 3.8 Hz, 1H), 6.69 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.3, 155.8, 154.5 (d, J = 250.8 Hz), 135.6, 134.5, 130.5, 129.4, 129.0, 124.3 (d, J = 24.4 Hz), 120.8 (d, J = 7.6 Hz), 114.4, 111.2, 109.8 (d, J = 24.5 Hz).

^{19}F NMR (382 MHz, CDCl₃): δ = -105.6 (m).

GC-MS (EI, 70 ev) m/z (%) = 240.2([M]⁺, 10), 239.2(63), 238.2(100), 183.2(14), 119.4(6), 89.1(7).

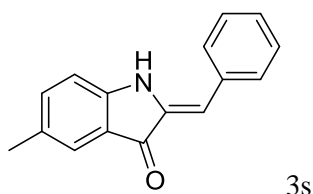


^1H NMR (400 MHz, DMSO) δ 9.76 (s, 1H), 7.70 (d, $J = 7.6$ Hz, 2H), 7.51 (d, $J = 8.5$ Hz, 1H), 7.47 (t, $J = 7.6$ Hz, 2H), 7.36 (t, $J = 7.4$ Hz, 1H), 6.61 (d, $J = 2.0$ Hz, 1H), 6.55 (s, 1H), 6.50 (dd, $J = 8.5, 2.1$ Hz, 1H), 3.86 (s, 4H).

^{13}C NMR (101 MHz, DMSO) δ 184.7, 166.8, 157.0, 135.7, 134.7, 130.1, 129.3, 128.6, 126.3, 113.9, 109.0, 108.8, 96.3, 56.1.

GC-MS (EI, 70 ev) m/z (%) = 251.8([M]⁺, 10), 250.8(67), 249.8(100), 234.8(8), 206.8(12), 151.9(6), 63.0(7).

HR-MS (ESI) m/z : calculated mass 251.0946 [M]⁺, found 251.0978.

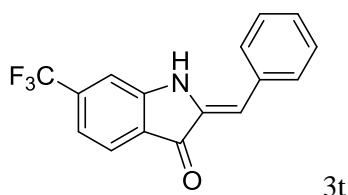


^1H NMR (400 MHz, DMSO) δ 9.65 (s, 1H), 7.73 (d, $J = 7.7$ Hz, 2H), 7.47 (t, $J = 7.6$ Hz, 2H), 7.39 (s, 1H), 7.35 (t, $J = 7.7$ Hz, 2H), 7.06 (d, $J = 8.1$ Hz, 1H), 6.62 (s, 1H), 2.27 (s, 4H).

^{13}C NMR (101 MHz, DMSO) δ 186.8, 153.0, 137.8, 135.3, 134.7, 130.3, 129.3, 129.2, 128.7, 124.2, 120.6, 112.9, 109.8, 20.6.

GC-MS (EI, 70 ev) m/z (%) = 236.3([M]⁺, 12), 235.3(67), 234.2(100), 116.6(15), 89.1(10).

HR-MS (ESI) m/z : calculated mass 235.0997 [M]⁺, found 235.0988.



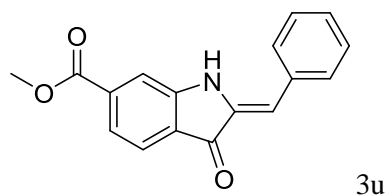
^1H NMR (400 MHz, DMSO) δ 10.15 (s, 1H), 7.78 (d, $J = 7.9$ Hz, 1H), 7.73 (d, $J = 7.4$ Hz, 2H), 7.49 (t, $J = 7.5$ Hz, 2H), 7.40 (s, 2H), 7.19 (d, $J = 7.8$ Hz, 1H), 6.75 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 185.9, 153.8, 134.6, 134.2, 130.5, 129.5, 129.3, 125.7, 123.2 (q, $J = 273.8$ Hz), 123.1, 116.3, 112.0, 109.7.

^{19}F NMR (382 MHz, CDCl_3): $\delta = -68.7$ (s).

GC-MS (EI, 70 ev) m/z (%) = 289.8([M]⁺, 15), 288.8(75), 287.8(100), 190.8(7), 164.9(7), 89.0(10).

HR-MS (ESI) m/z : calculated mass 289.0714 [M]⁺, found 289.0786.

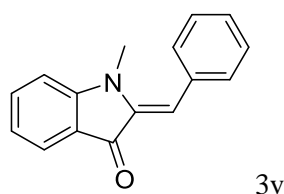


^1H NMR (400 MHz, DMSO) δ 10.03 (s, 1H), 7.74 (d, J = 7.6 Hz, 2H), 7.71 (d, J = 4.4 Hz, 2H), 7.68 (s, 1H), 7.49 (t, J = 7.6 Hz, 2H), 7.45 (d, J = 8.0 Hz, 1H), 7.39 (t, J = 7.3 Hz, 1H), 6.71 (s, 1H), 3.88 (s, 3H).

^{13}C NMR (101 MHz, DMSO) δ 186.29 (s), 166.2, 154.0, 136.3, 134.9, 134.3, 130.5, 129.5, 129.2, 124.8, 123.5, 120.5, 113.8, 111.5, 53.0.

GC-MS (EI, 70 ev) m/z (%) = 279.8([M]⁺, 12), 278.8(62), 277.8(100), 218.8(13), 190.8(8), 164.9(8), 123.4(12).

HR-MS (ESI) m/z : calculated mass 279.0895 [M]⁺, found 235.0988.

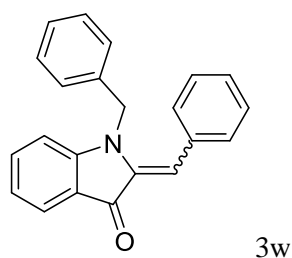


^1H NMR (400 MHz, DMSO) δ 8.09 (d, J = 7.4 Hz, 1H), 7.67 – 7.56 (m, 1H), 7.53 (d, J = 7.4 Hz, 1H), 7.51 – 7.34 (m, 4H), 7.15 (dd, J = 18.3, 8.4 Hz, 2H), 6.98 (t, J = 7.4 Hz, 1H), 6.88 – 6.77 (m, 1H), 6.57 (s, 1H), 3.41 (s, 2H), 3.05 (s, 2H).

^{13}C NMR (101 MHz, DMSO) δ 186.5, 184.4, 156.9, 153.1, 138.4, 137.7, 137.1, 136.8, 134.4, 134.1, 130.8, 130.5, 128.9, 128.7, 128.5, 128.4, 124.4, 121.2, 120.7, 120.6, 119.1, 117.5, 111.7, 111.5, 109.9, 34.6, 29.4.

GC-MS (EI, 70 ev) m/z (%) = 235.9([M]⁺, 10), 234.9(64), 233.9(100), 218.8(7), 164.9(7), 116.3(8).

HR-MS (ESI) m/z : calculated mass 235.0997 [M]⁺, found 235.0988.



^1H NMR (400 MHz, DMSO) δ 8.03 (d, J = 7.3 Hz, 1H), 7.67 (d, J = 7.6 Hz, 1H), 7.62 (d, J = 7.5 Hz, 1H), 7.54 (dd, J = 17.4, 8.1 Hz, 1H), 7.42 – 7.12 (m, 9H), 6.99 (t, J = 7.4 Hz, 1H), 6.94 (s, 1H), 6.90 (t, J = 7.4 Hz, 1H), 6.84 – 6.80 (m, 1H), 6.66 (s, 1H), 5.20 (s, 1H), 4.90 (s, 1H).

^{13}C NMR (101 MHz, DMSO) δ 186.5, 184.3, 156.1, 152.9, 137.4, 137.1, 137.0, 136.9, 136.9, 136.5, 134.2, 134.1, 130.5, 129.1, 128.8, 128.7, 128.6, 128.4, 127.7, 127.7, 126.9, 124.6, 121.7, 120.9, 120.9, 119.6, 118.2, 112.9, 112.3, 110.2, 48.3, 45.3.

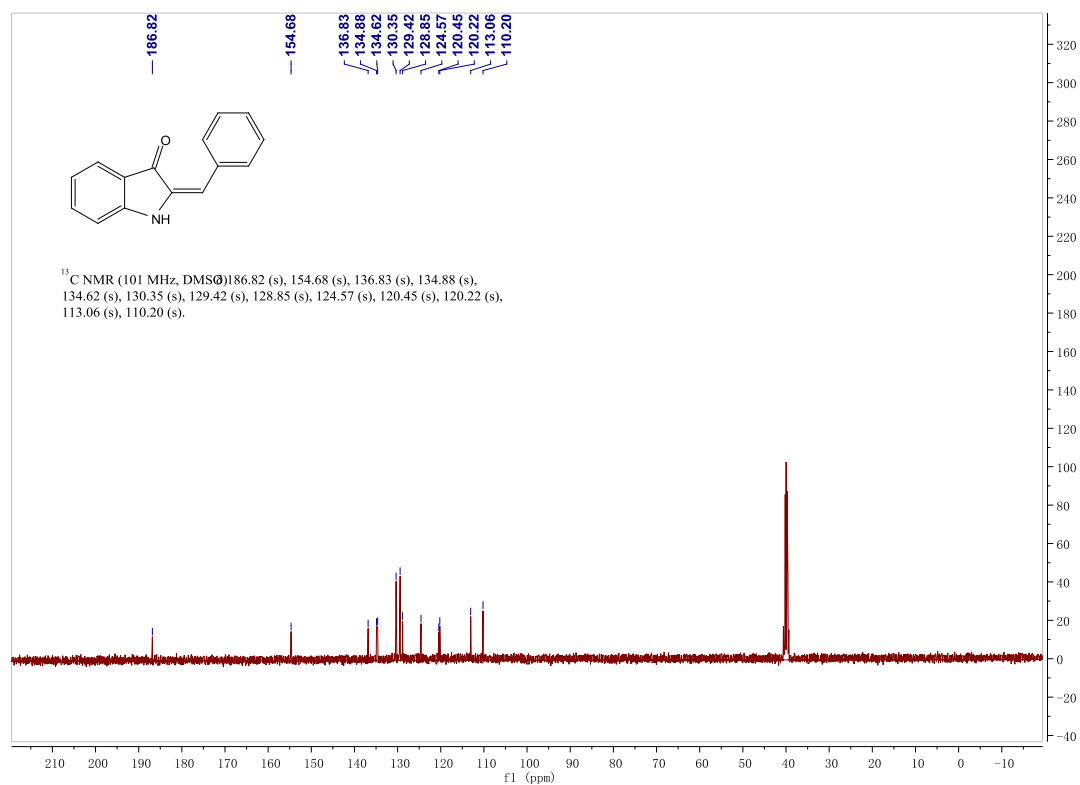
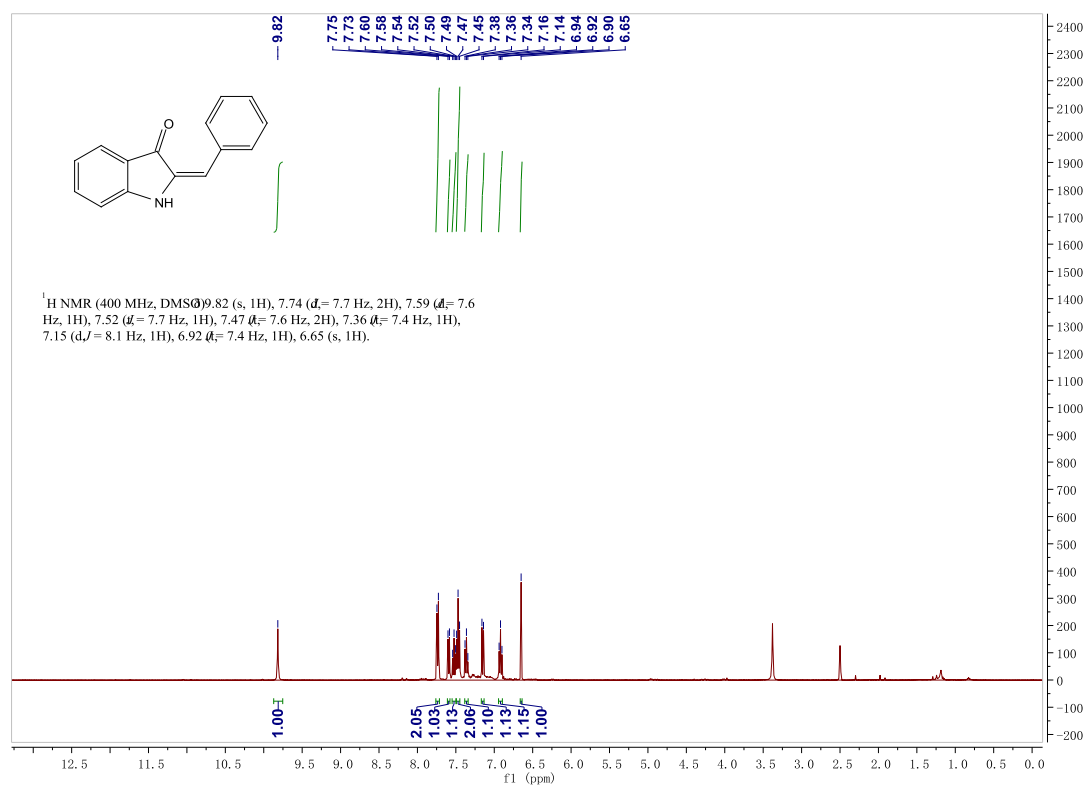
GC-MS (EI, 70 ev) m/z (%) = 311.8([M]⁺, 25), 310.8(100), 209.8(25), 219.8(90), 190.9(29),

164.9(18), 91.0(88).

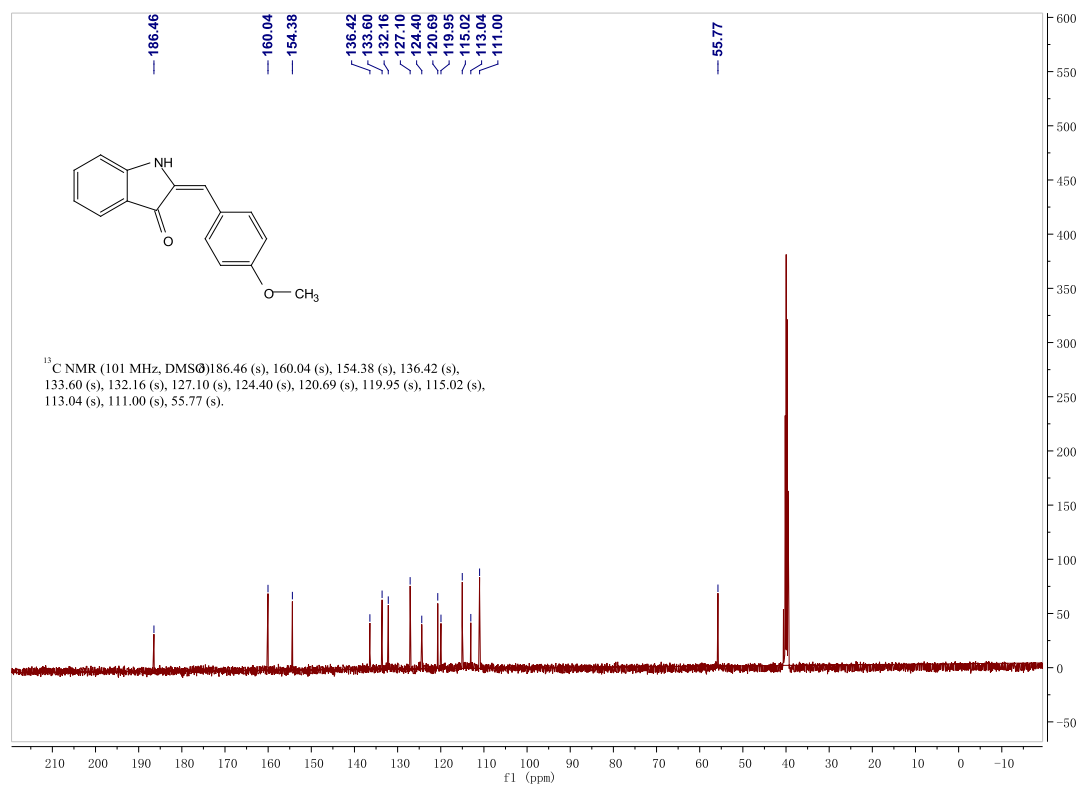
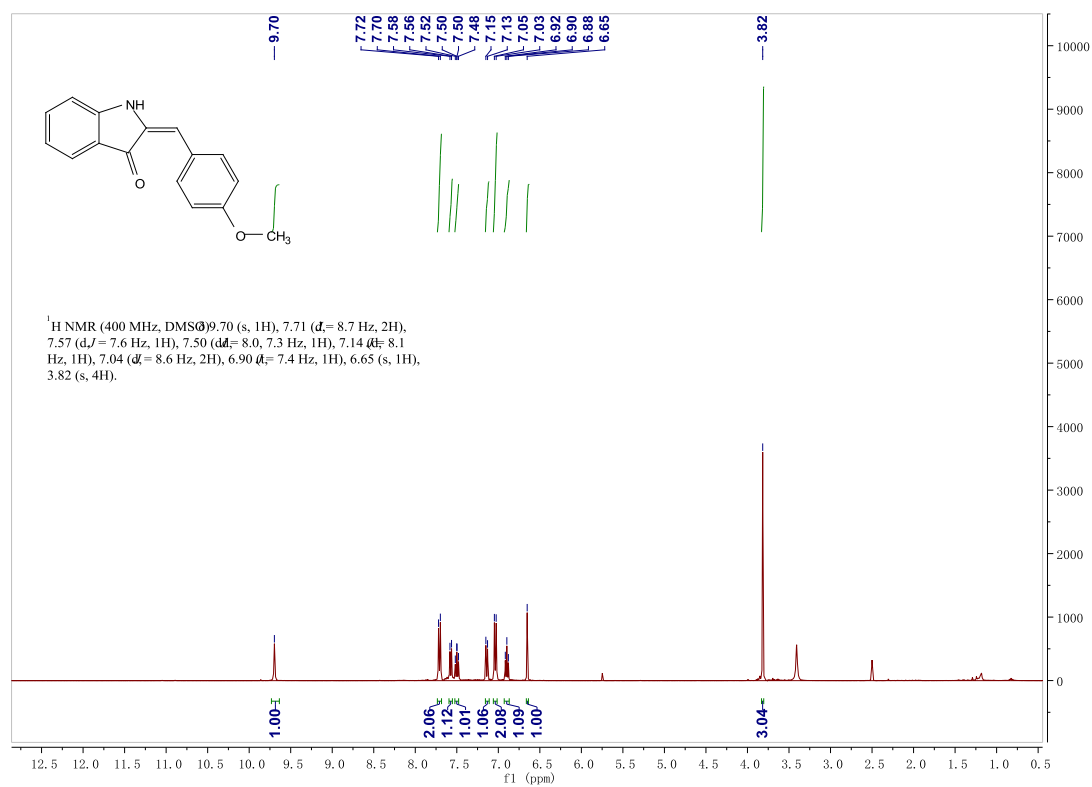
HR-MS (ESI) m/z: calculated mass 311.1310 [M]⁺, found 311.1315.

1. M. Genelot, V. Dufaud, L. Djakovitch, *Tetrahedron* 2011, **67**, 976-981.

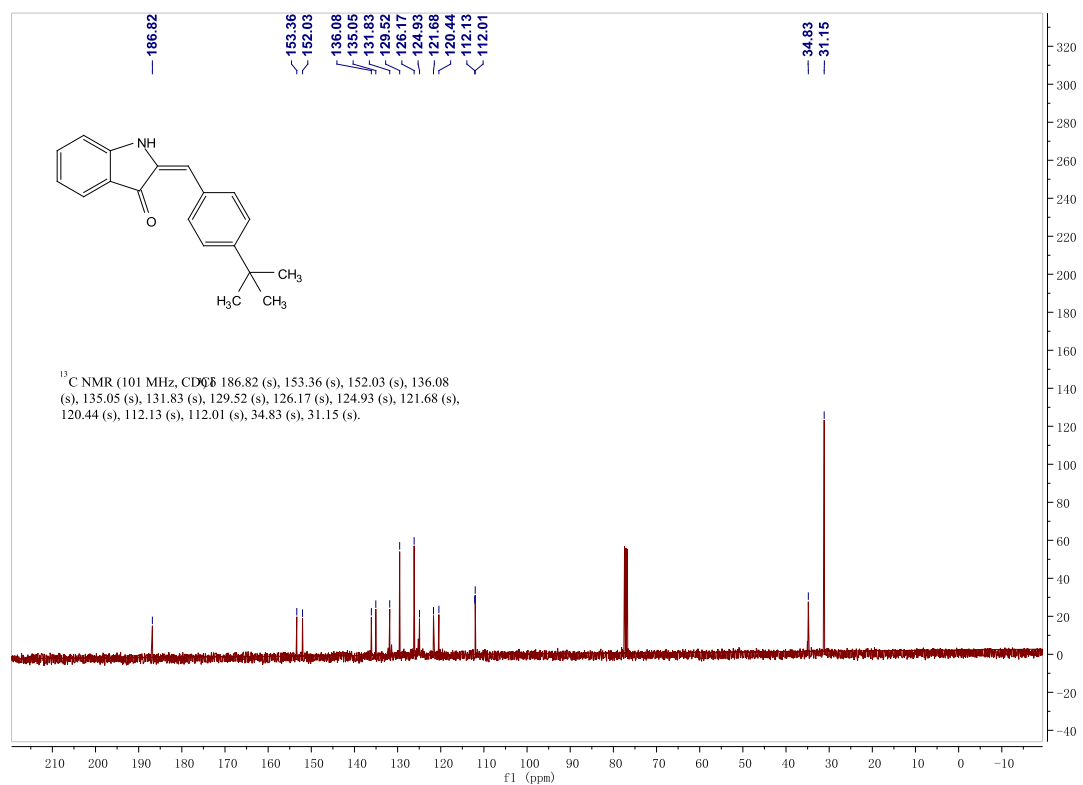
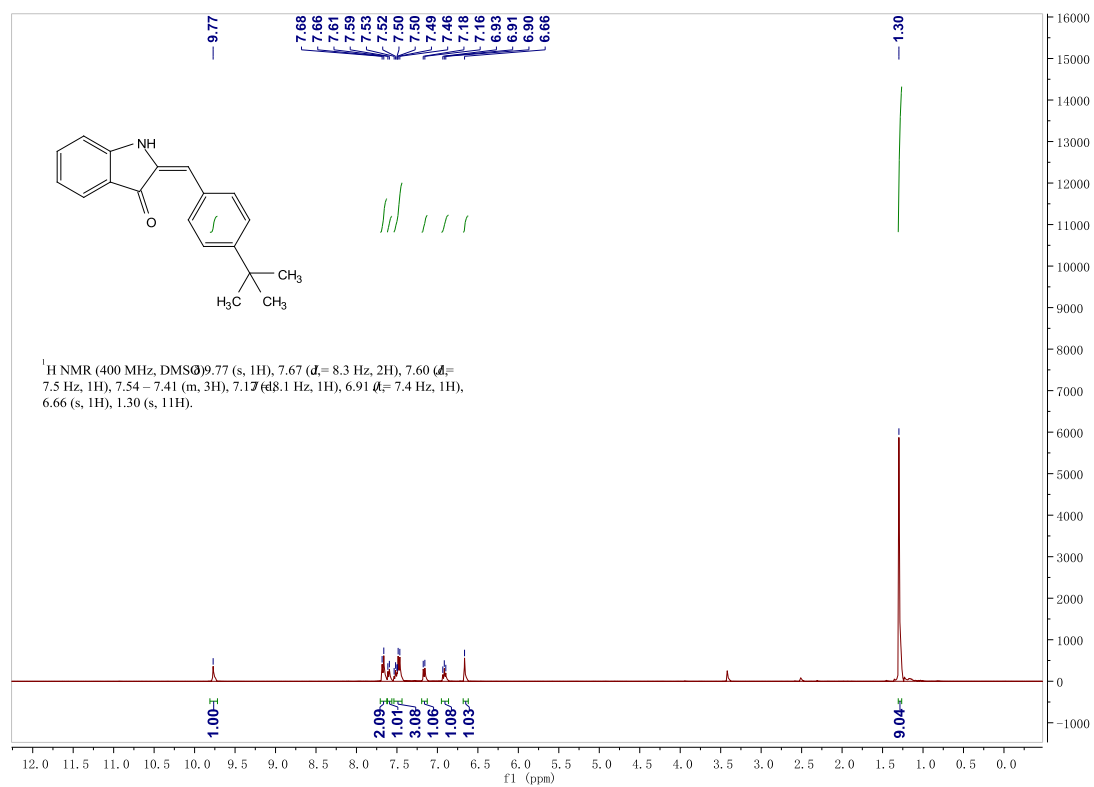
3a



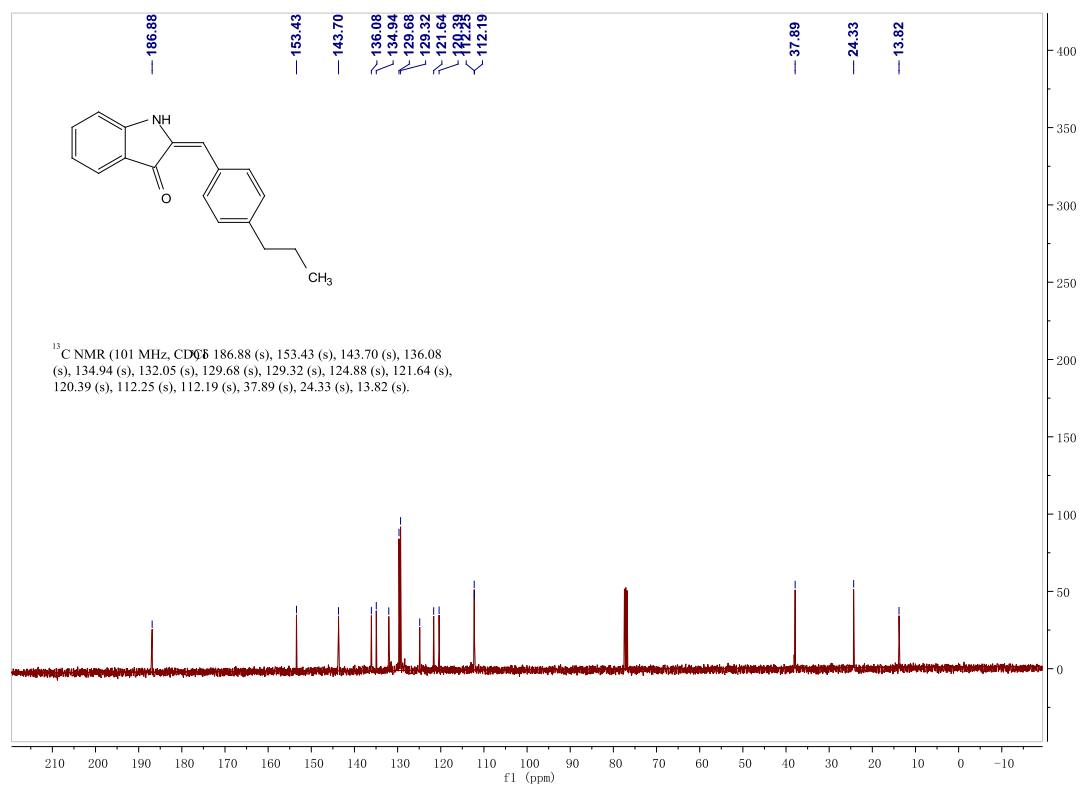
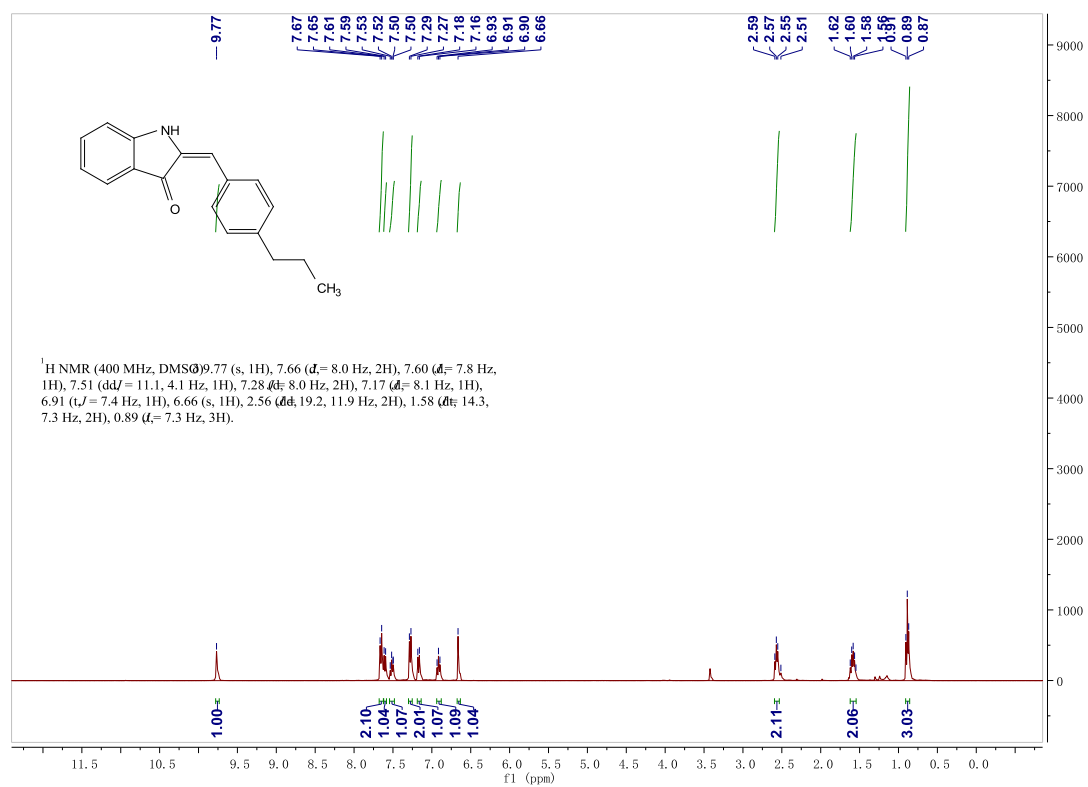
3b



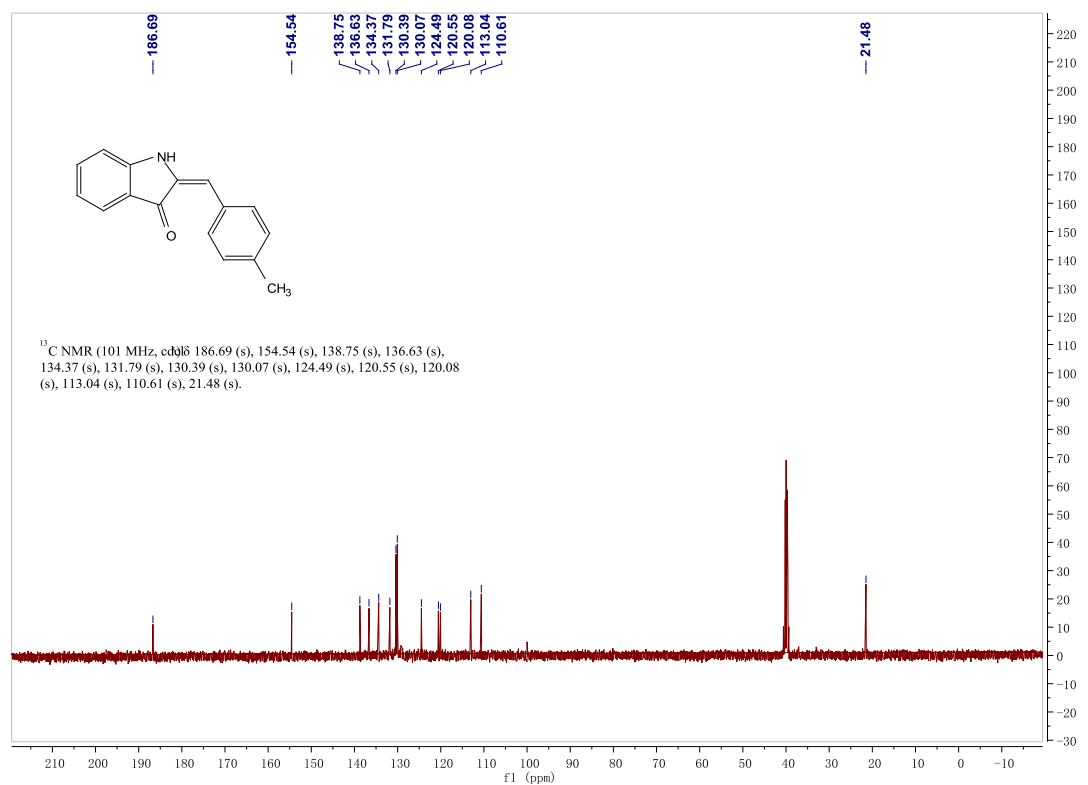
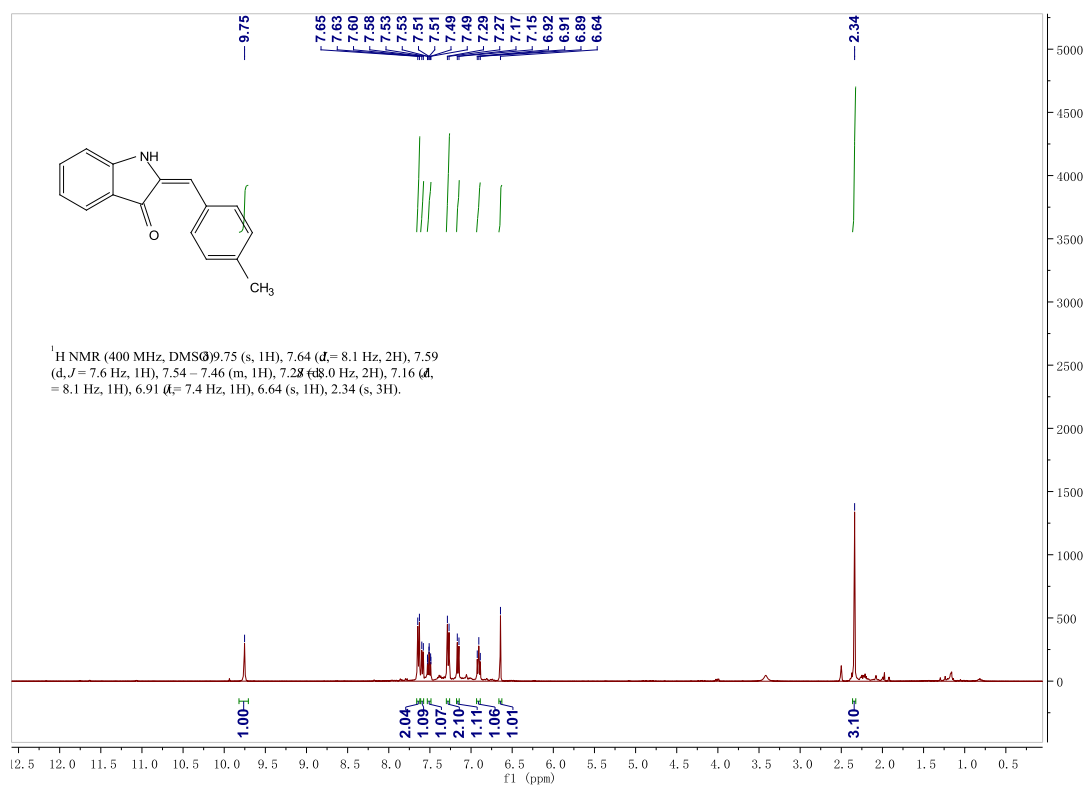
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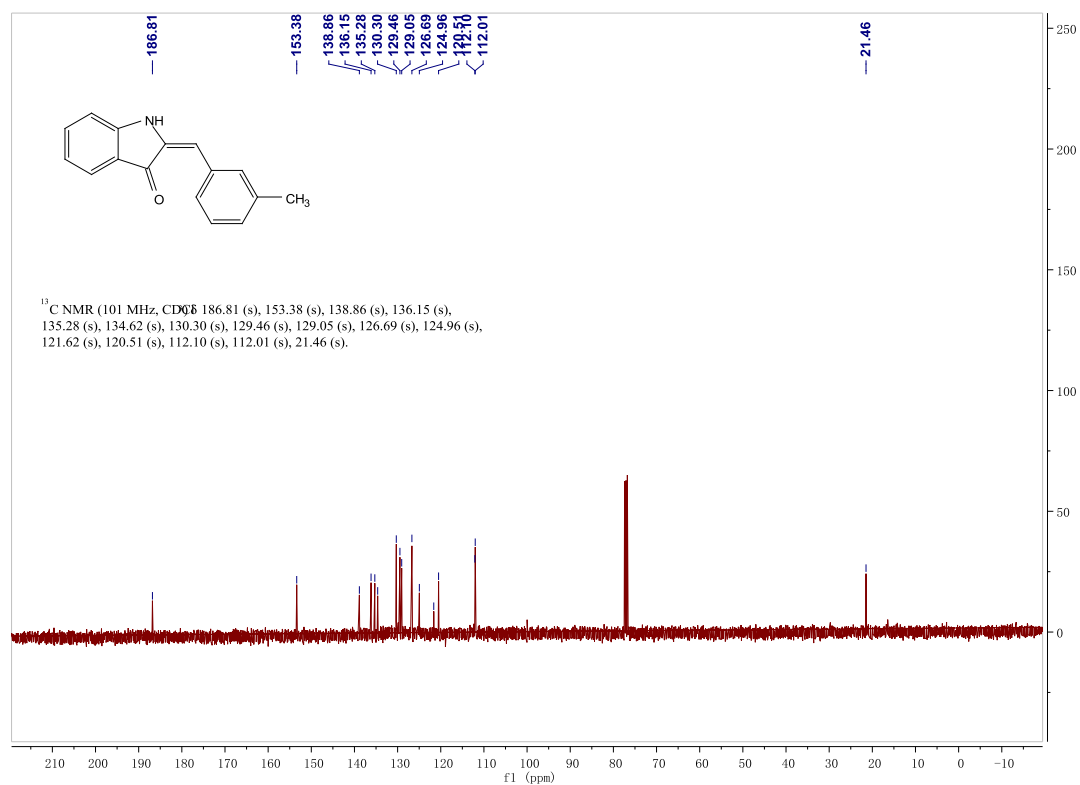
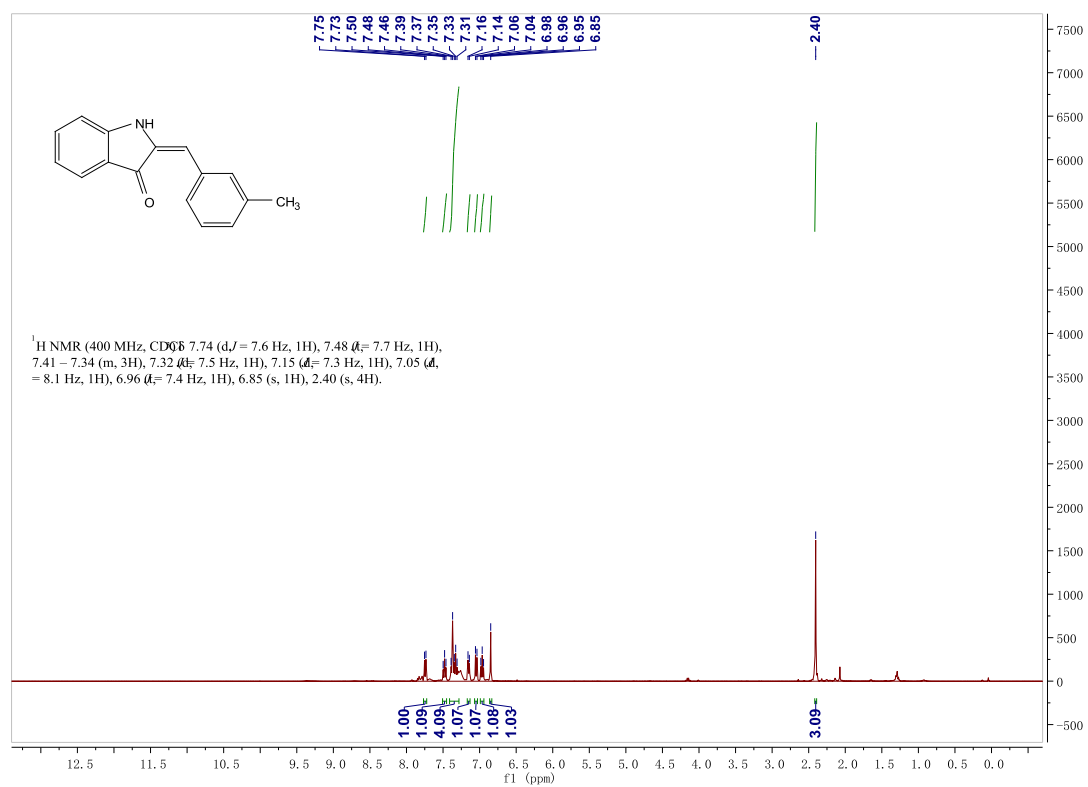
3d



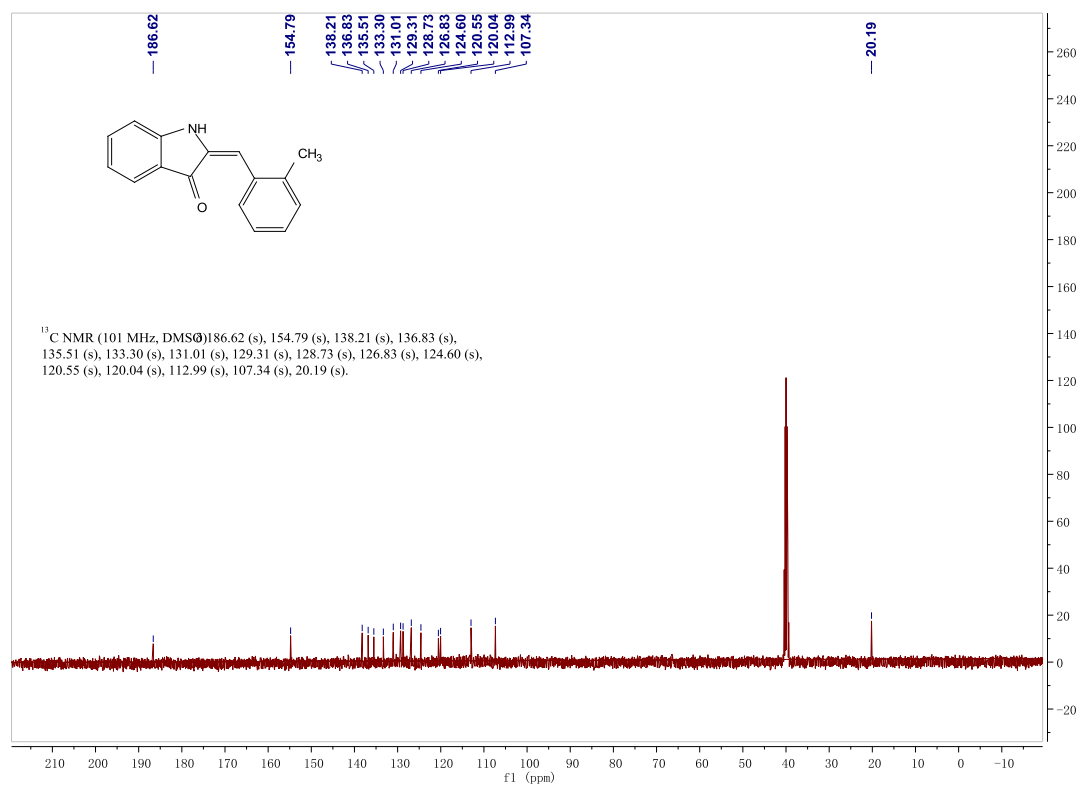
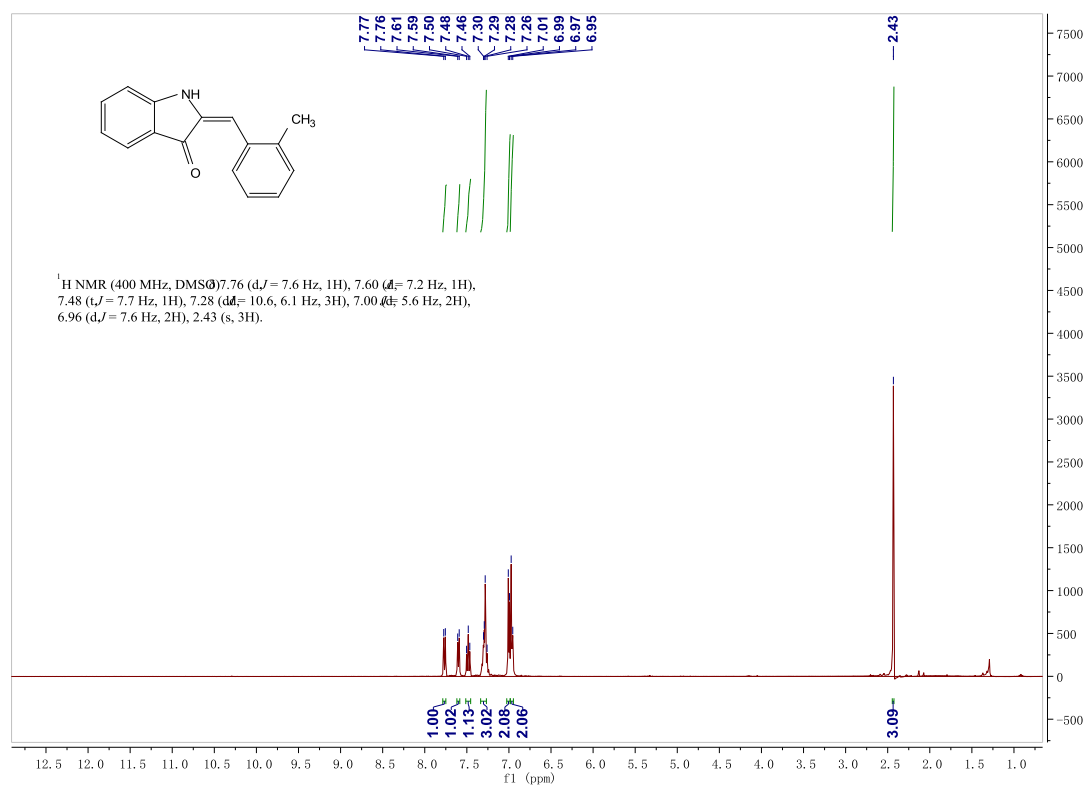
3e



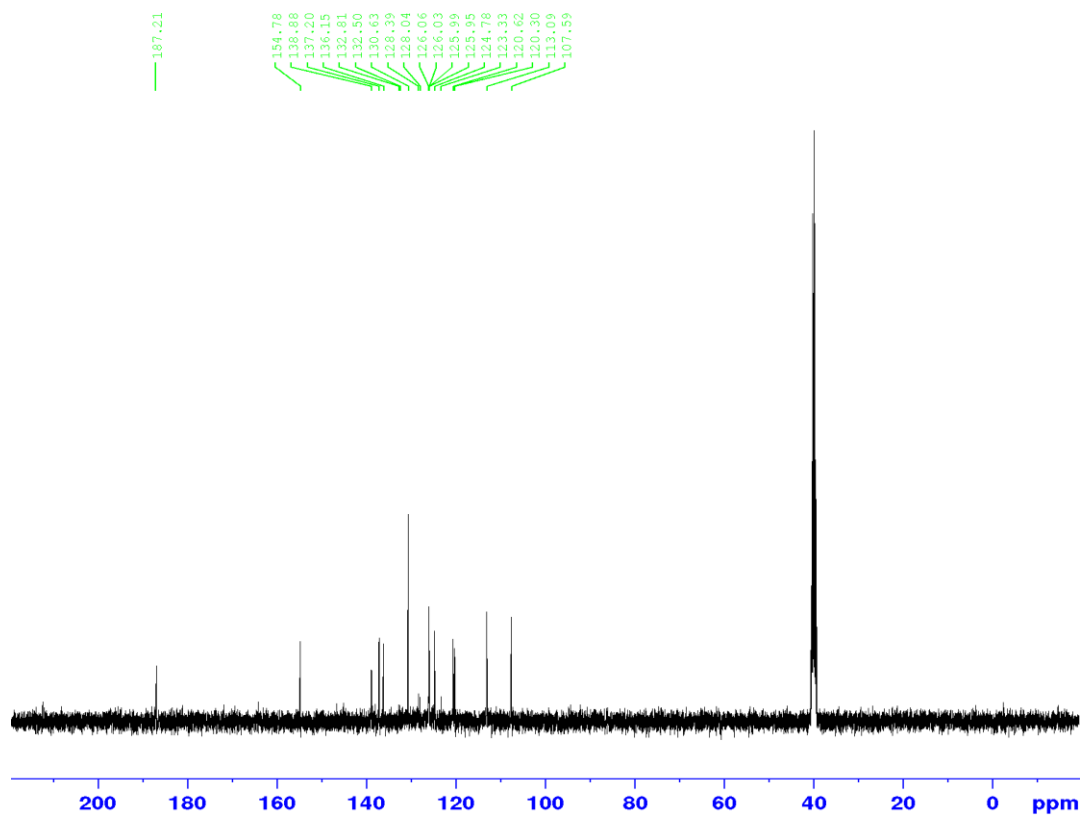
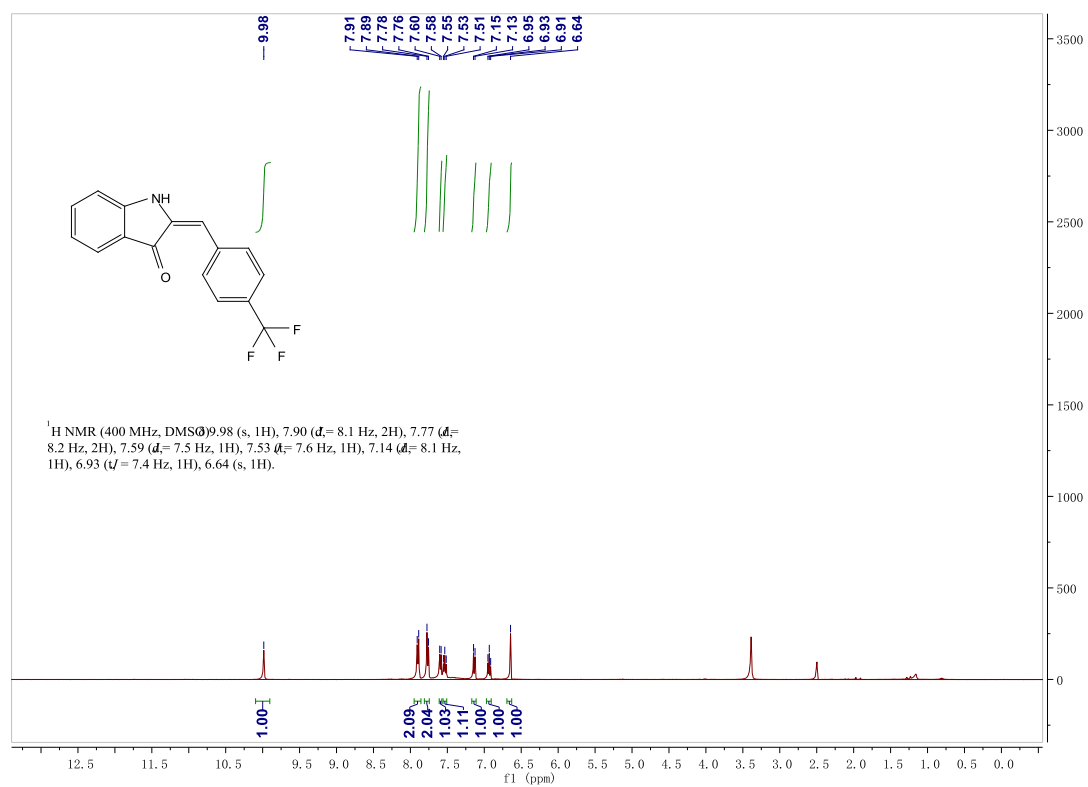
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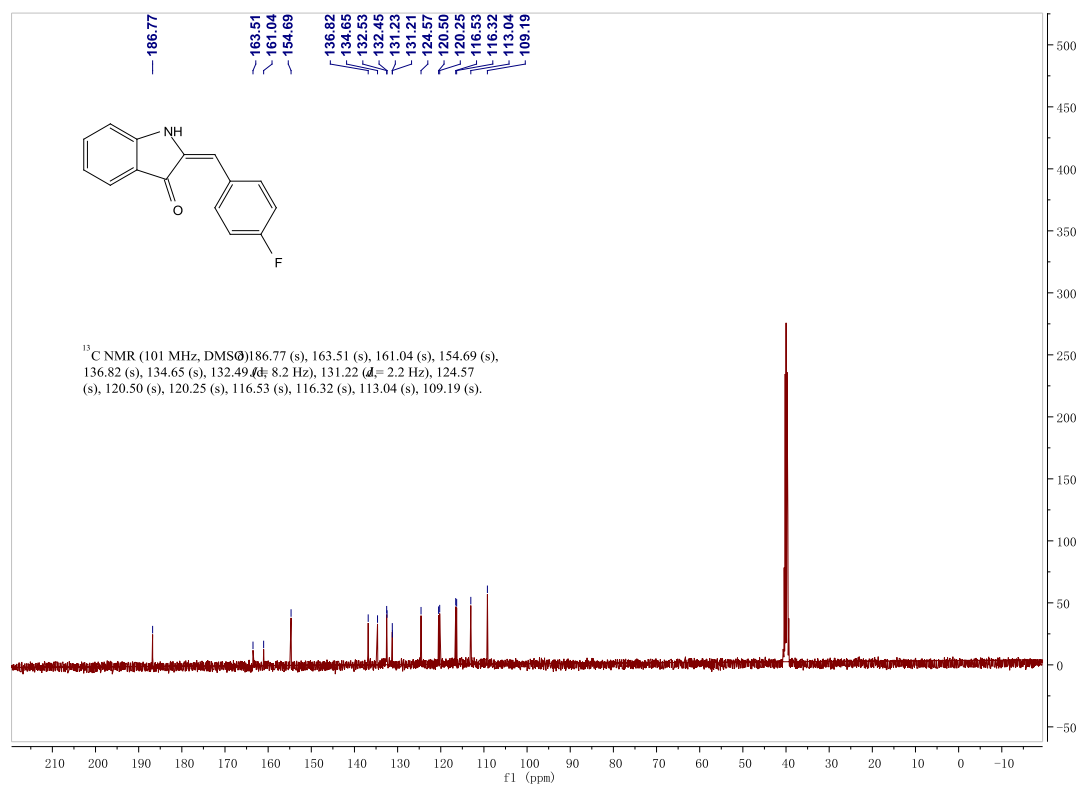
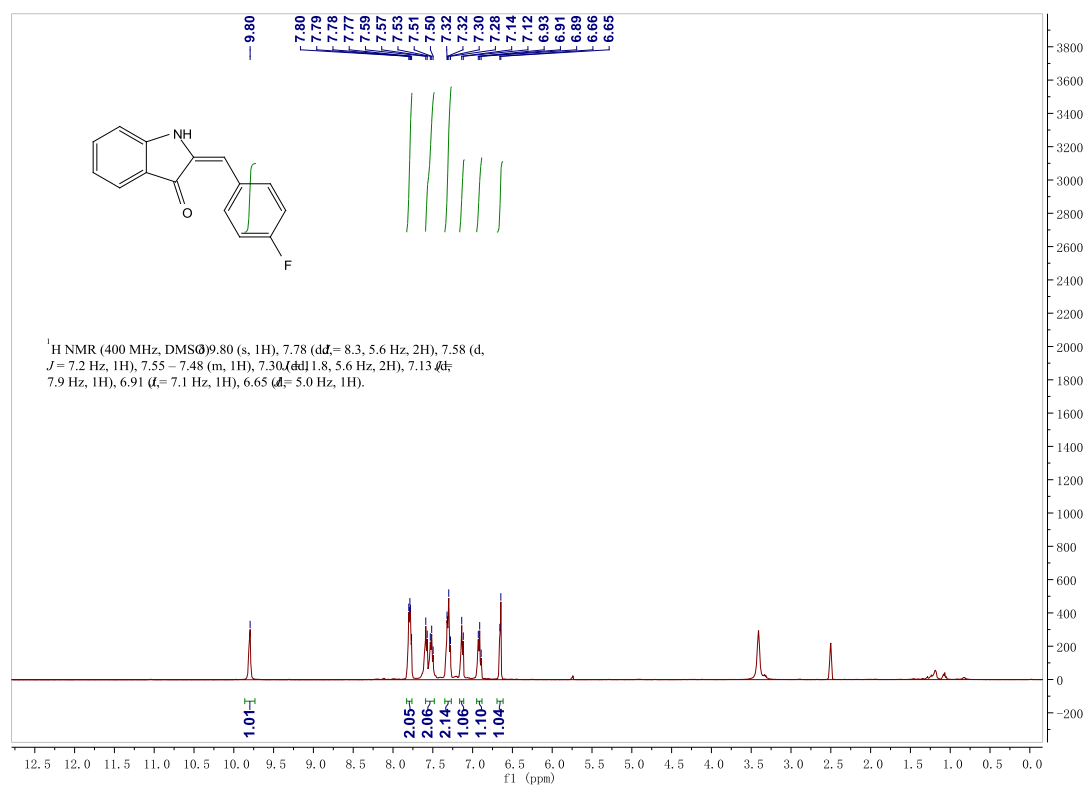


3g

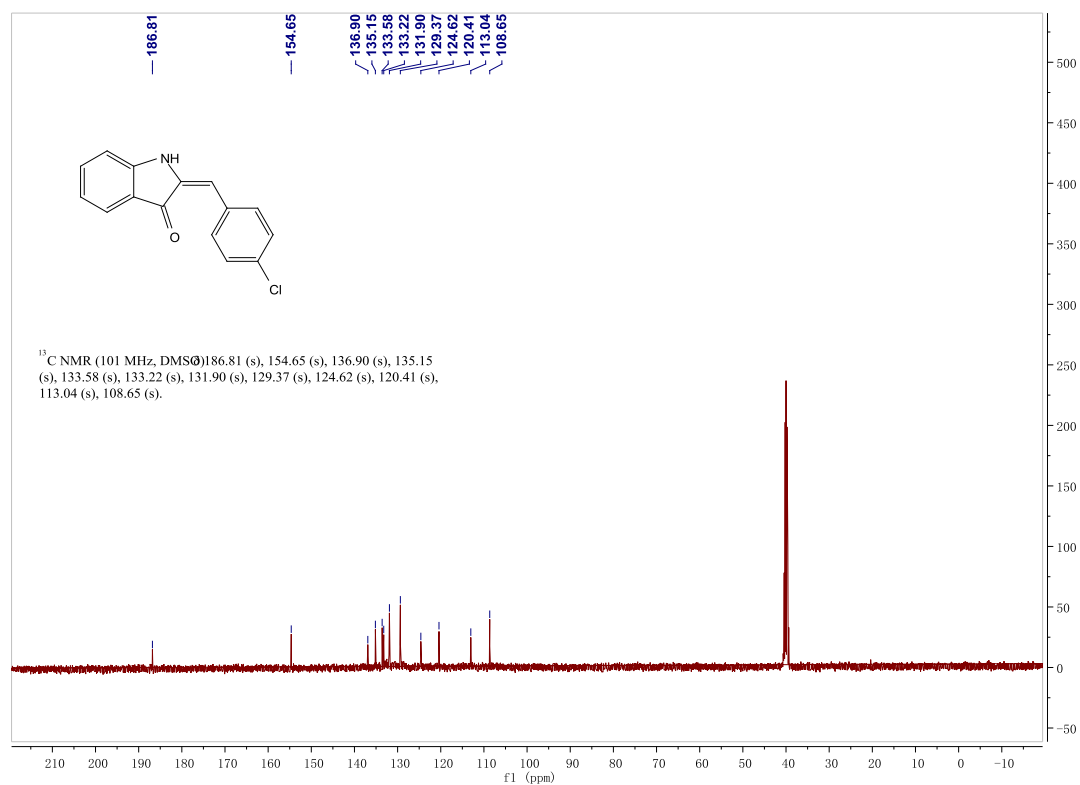
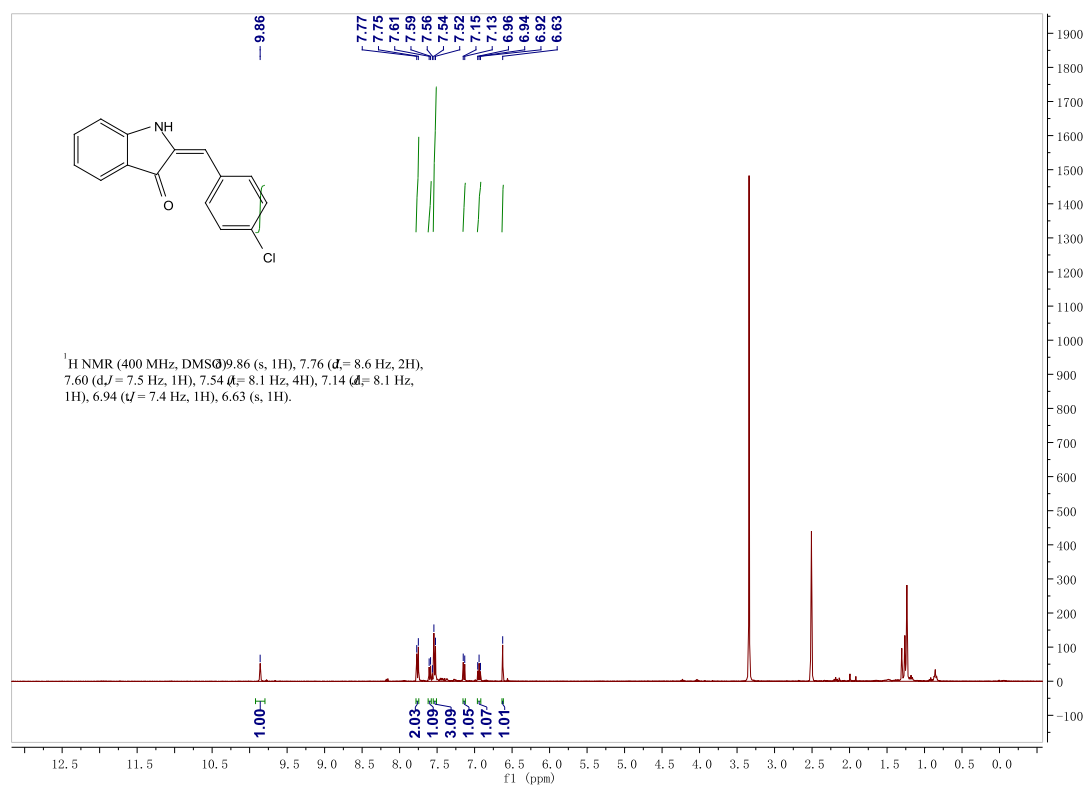


3h

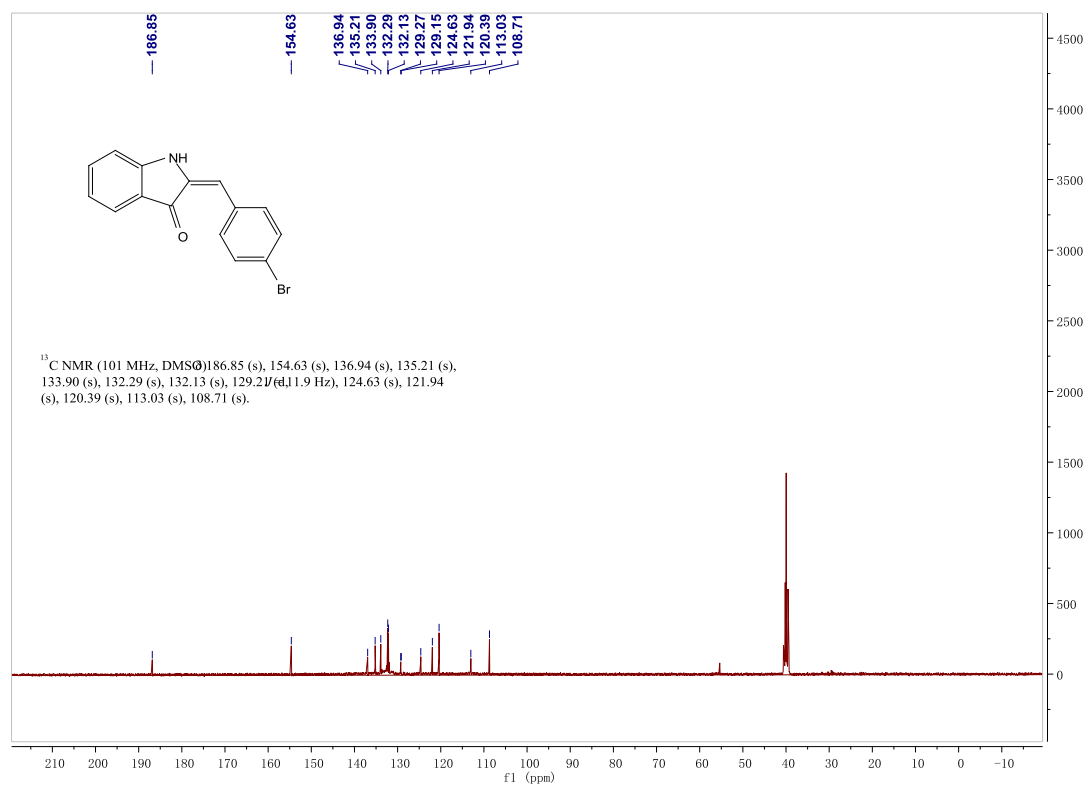
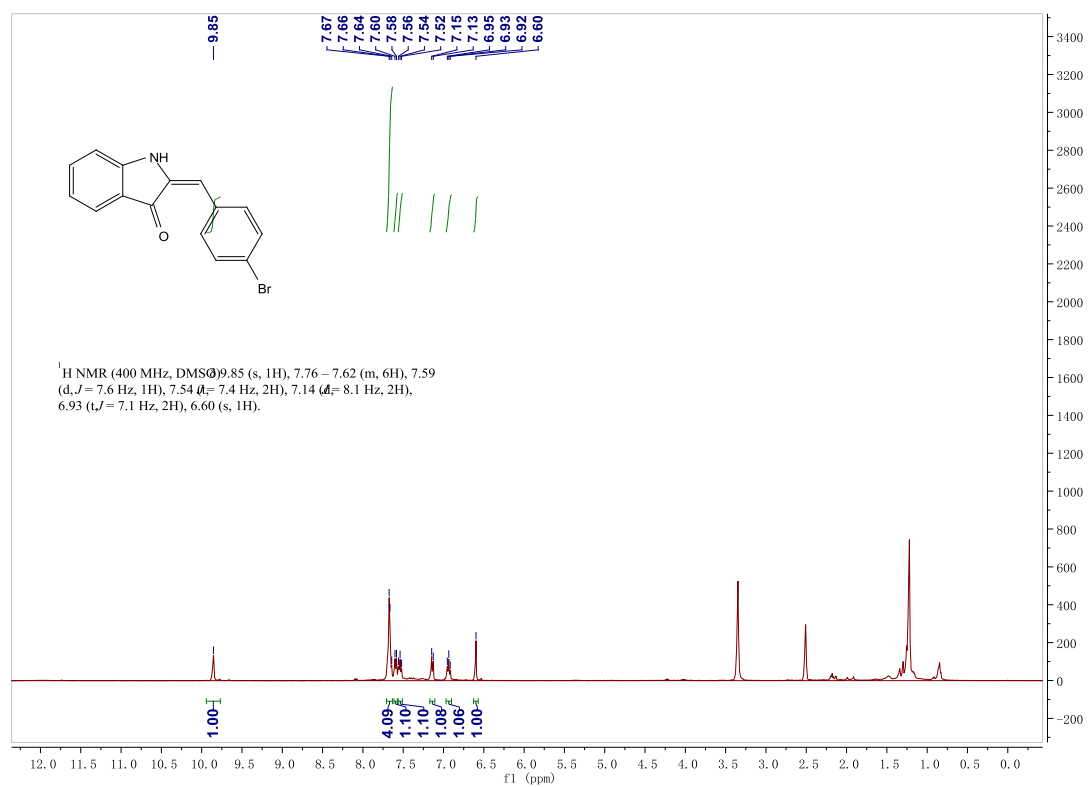


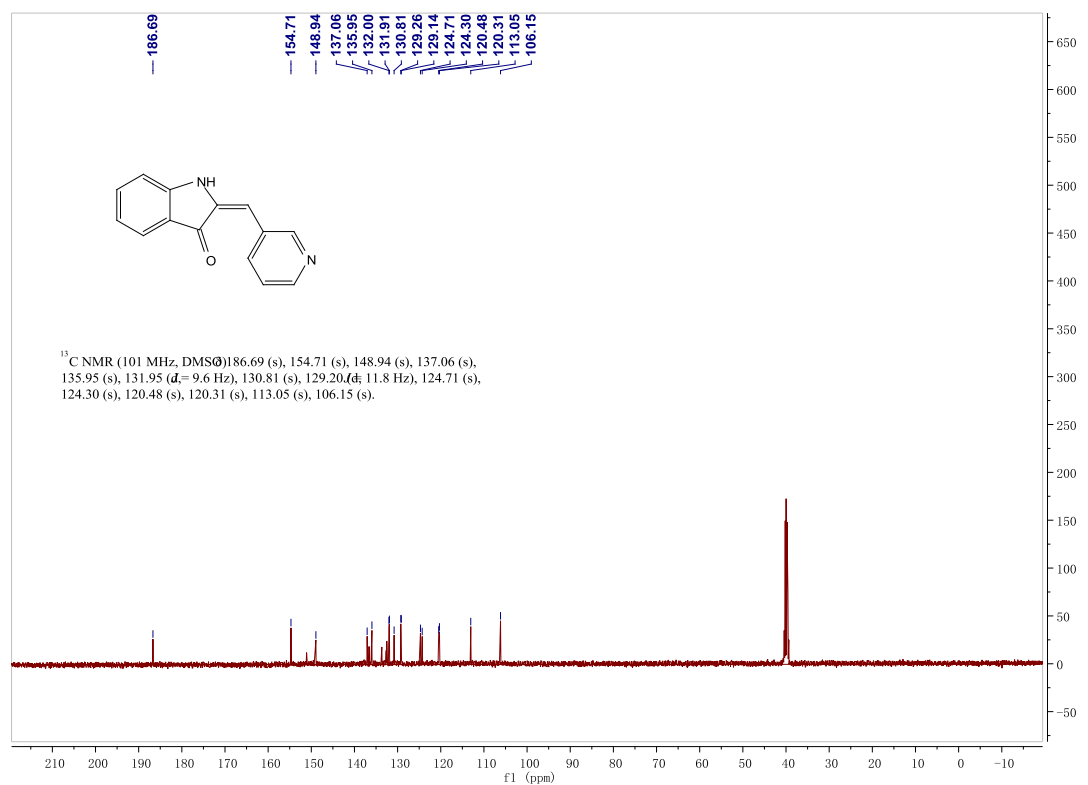
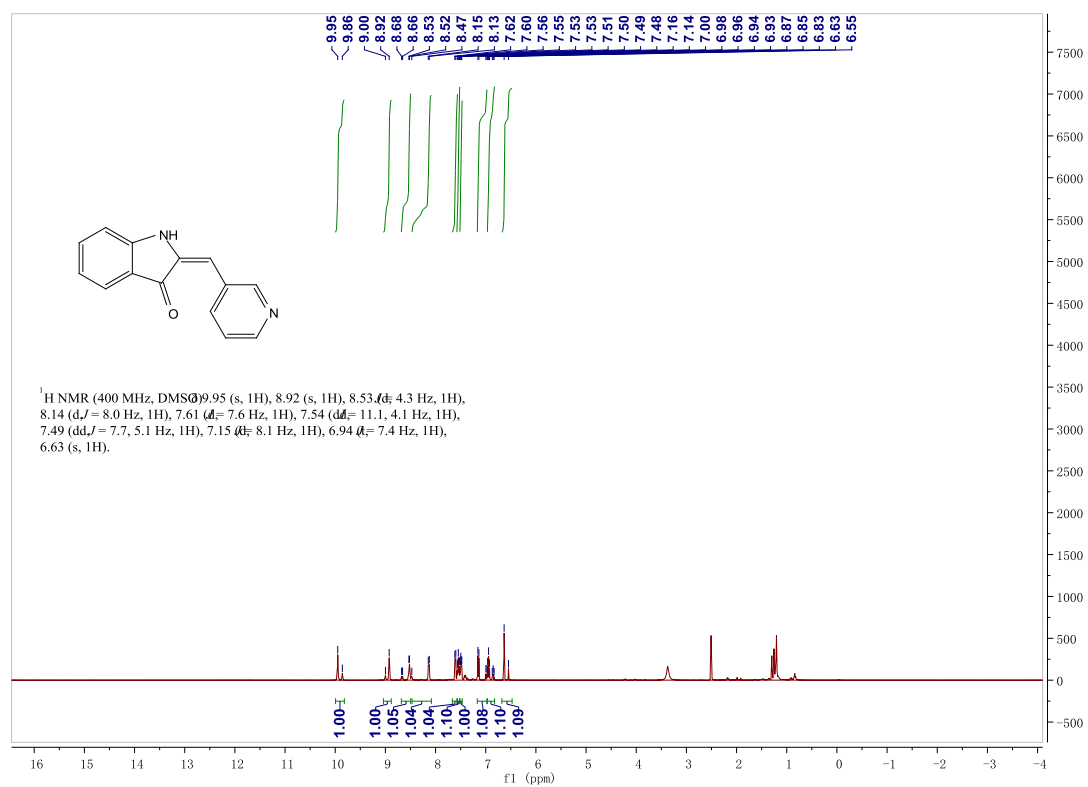


3j

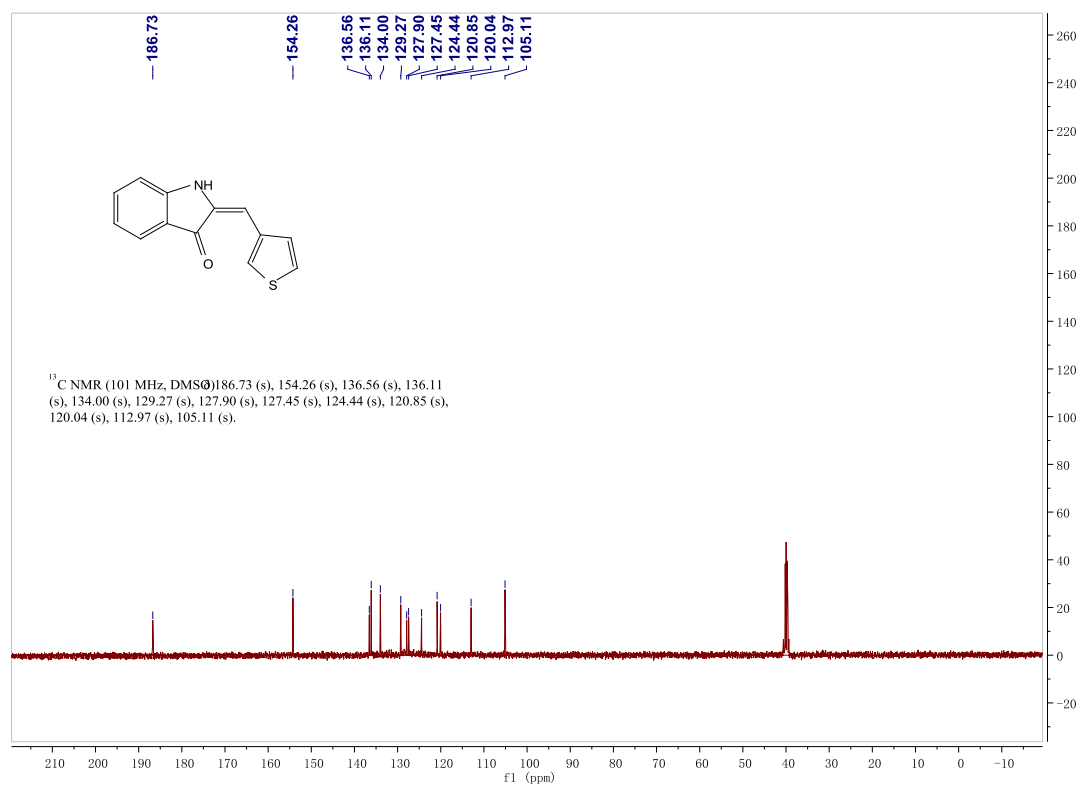
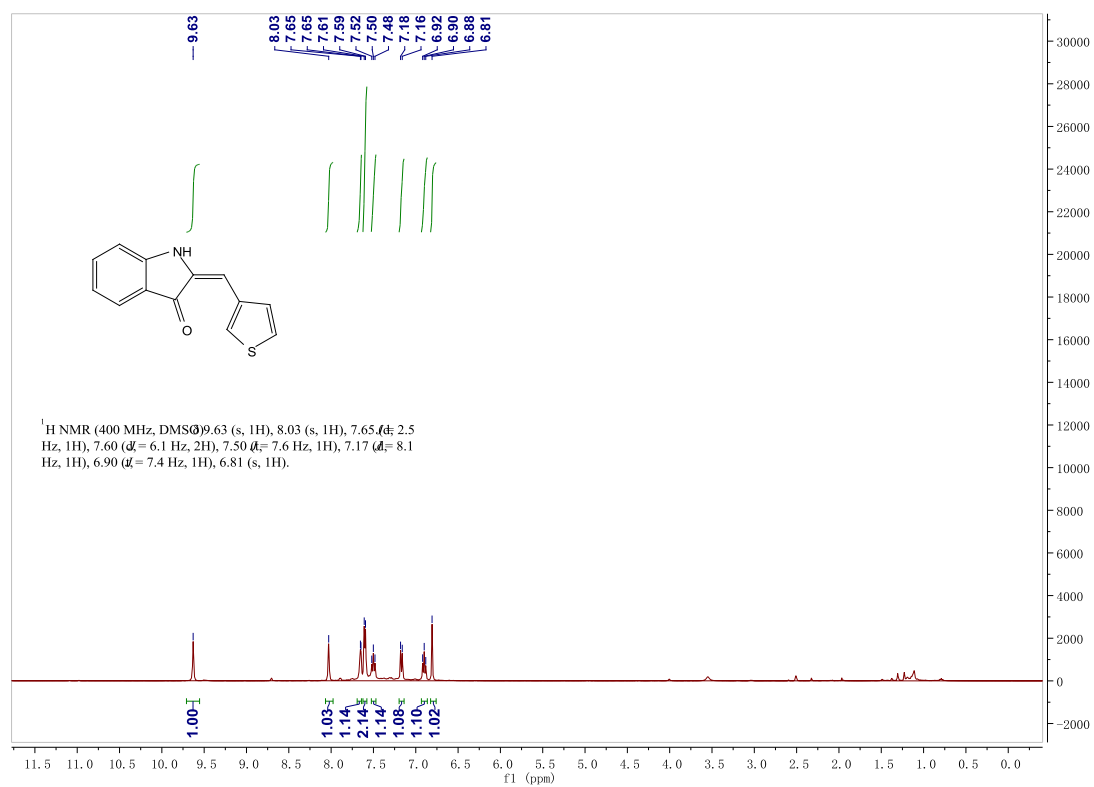


3k

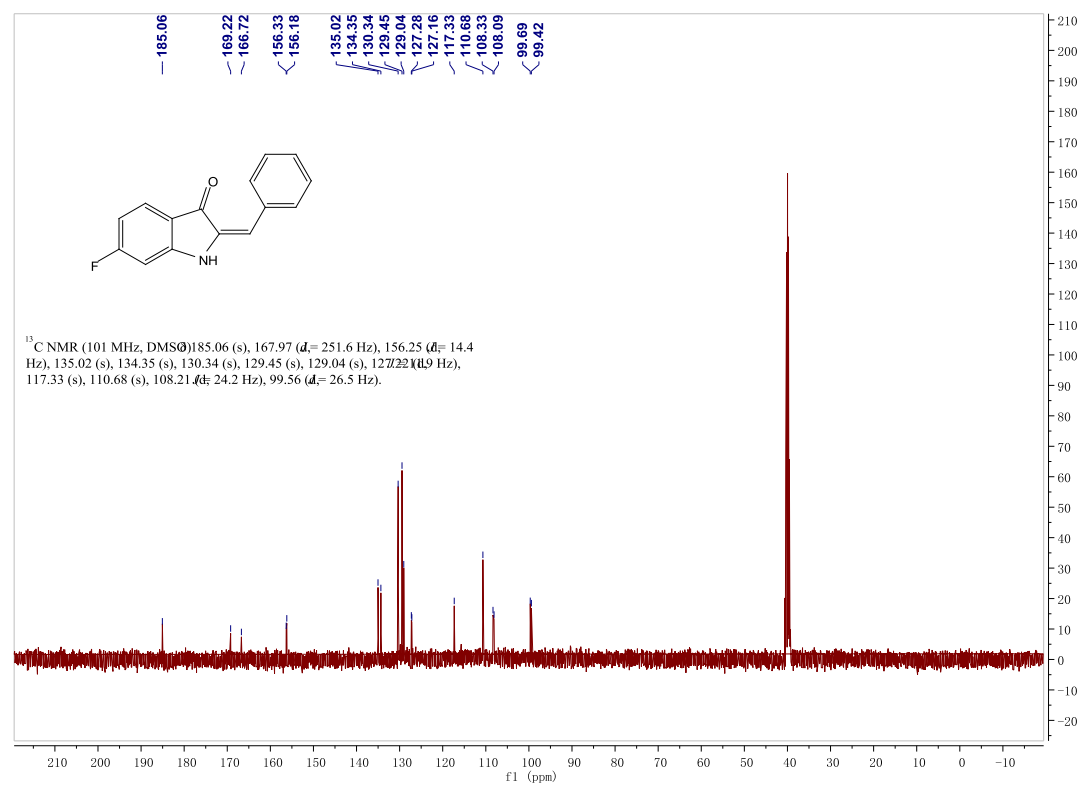
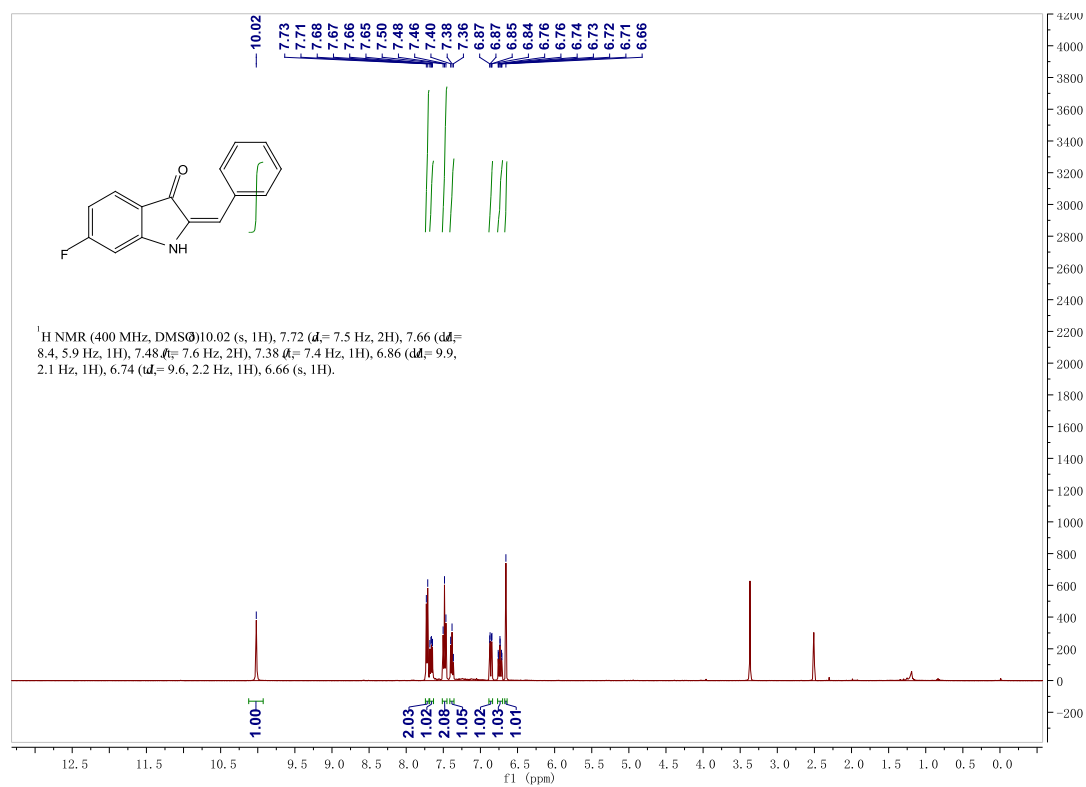


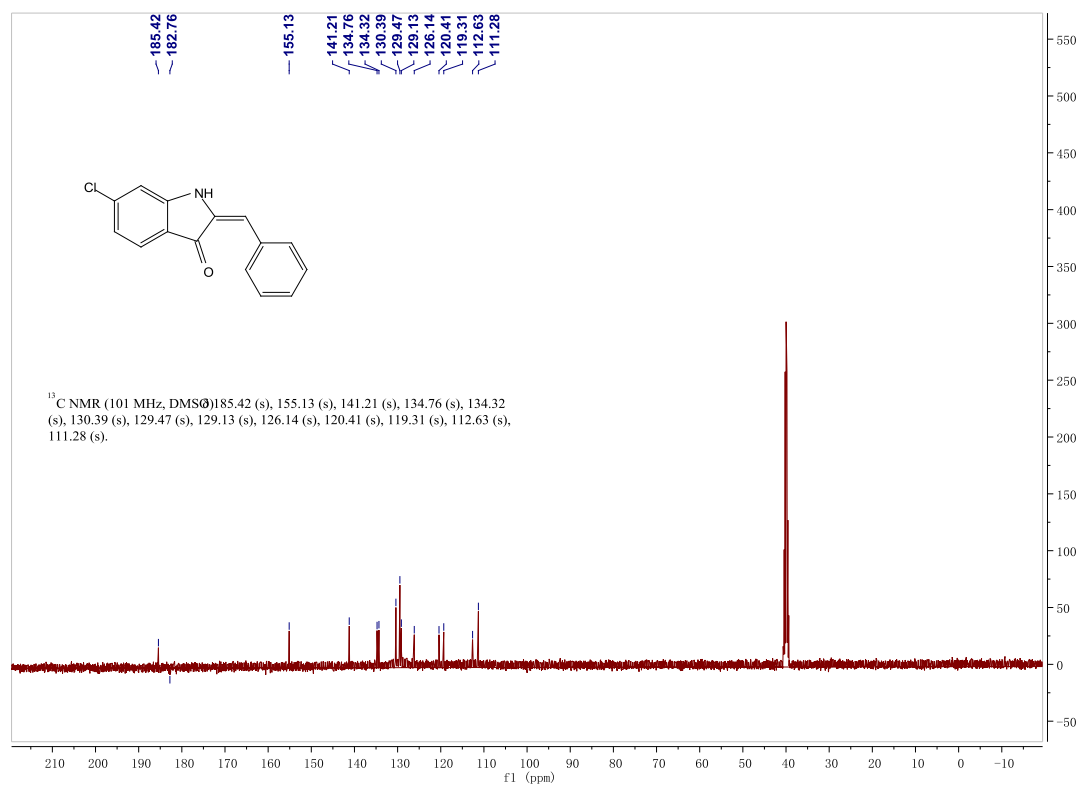
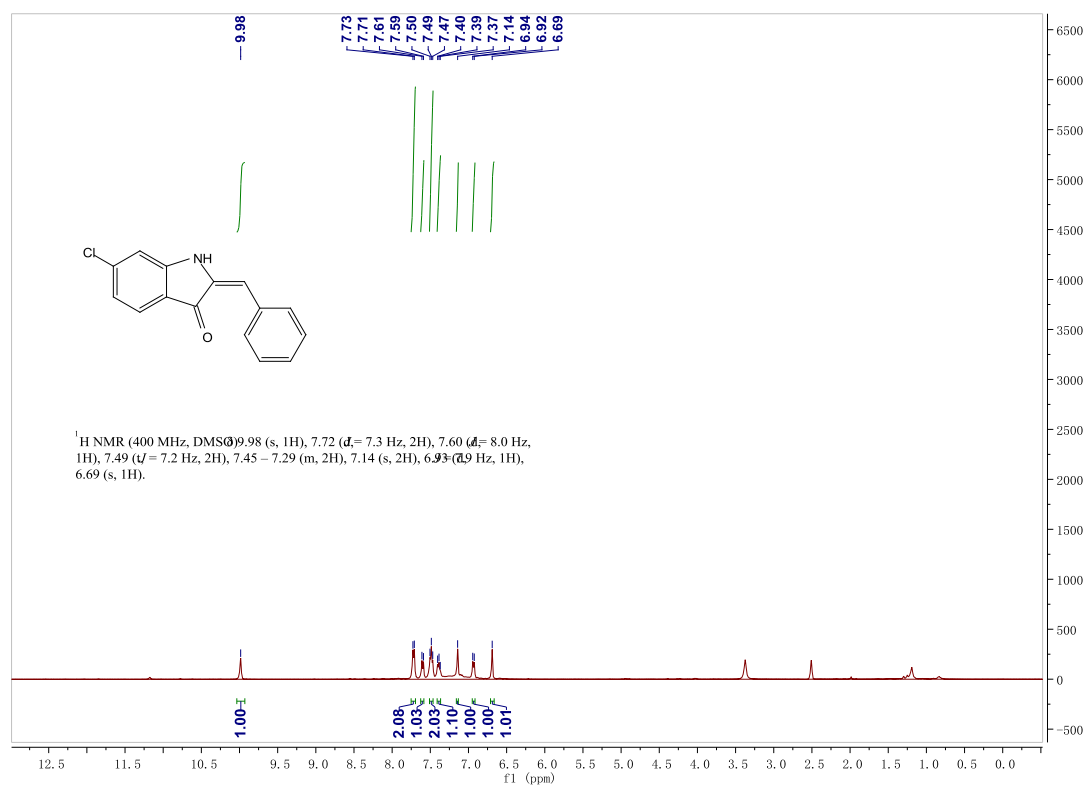


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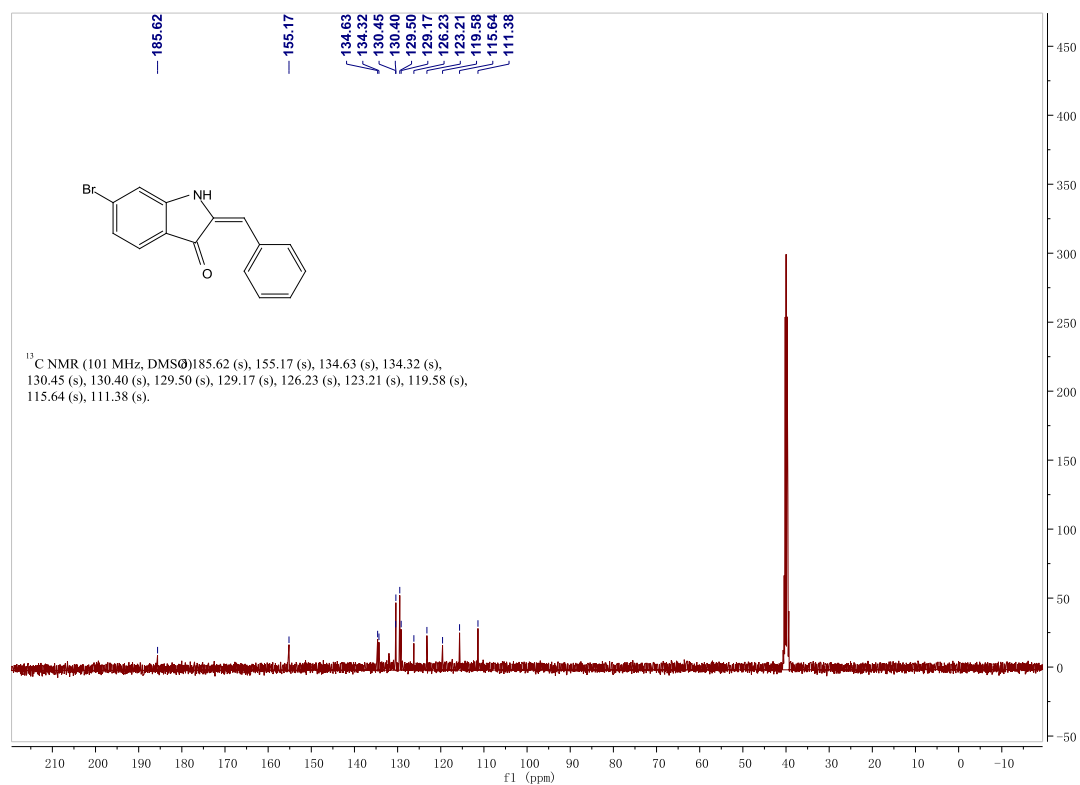
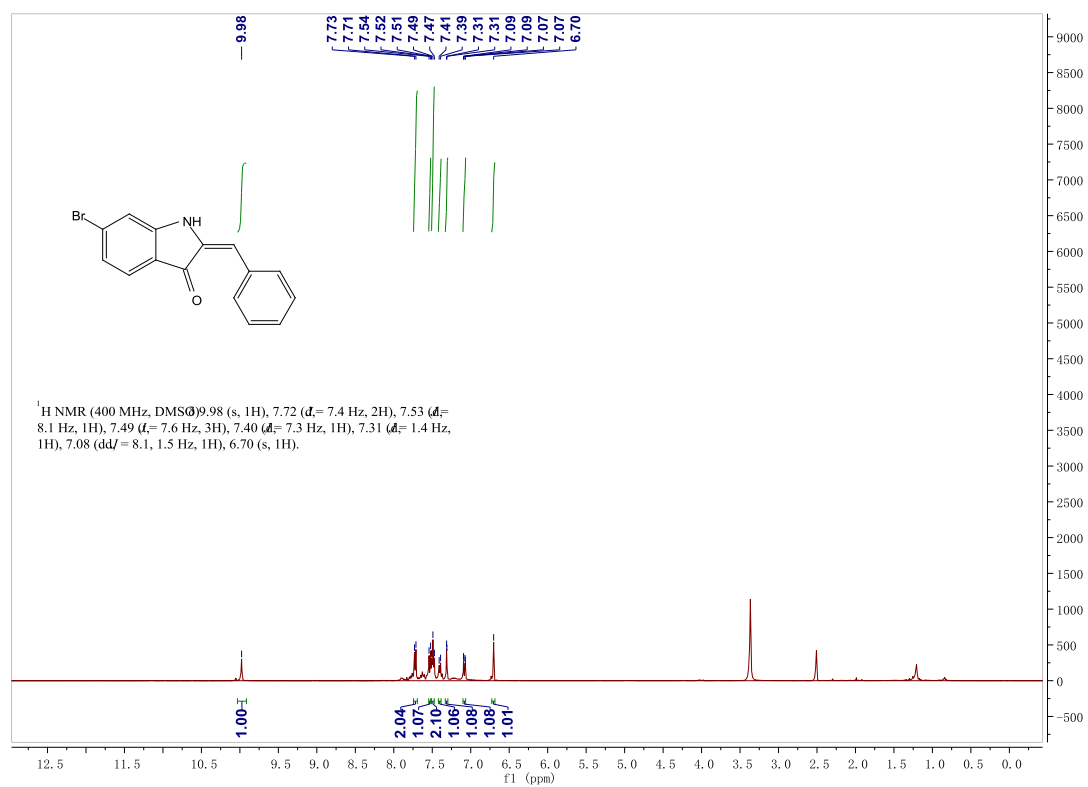


3n

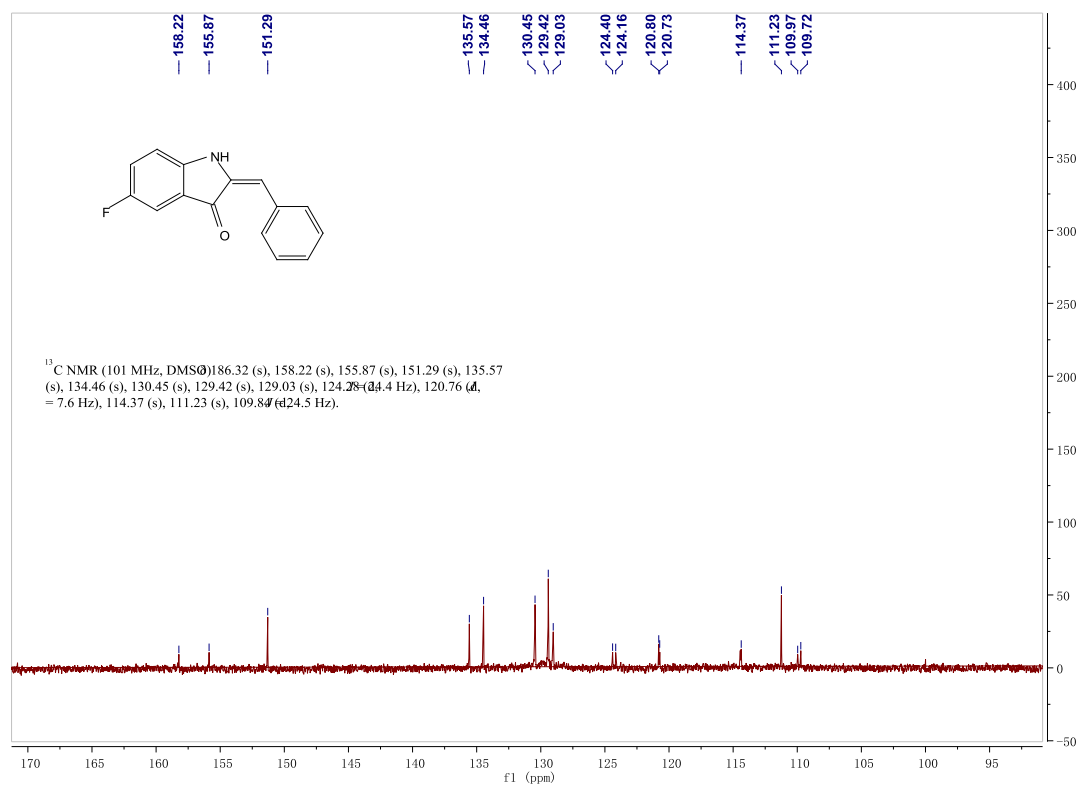
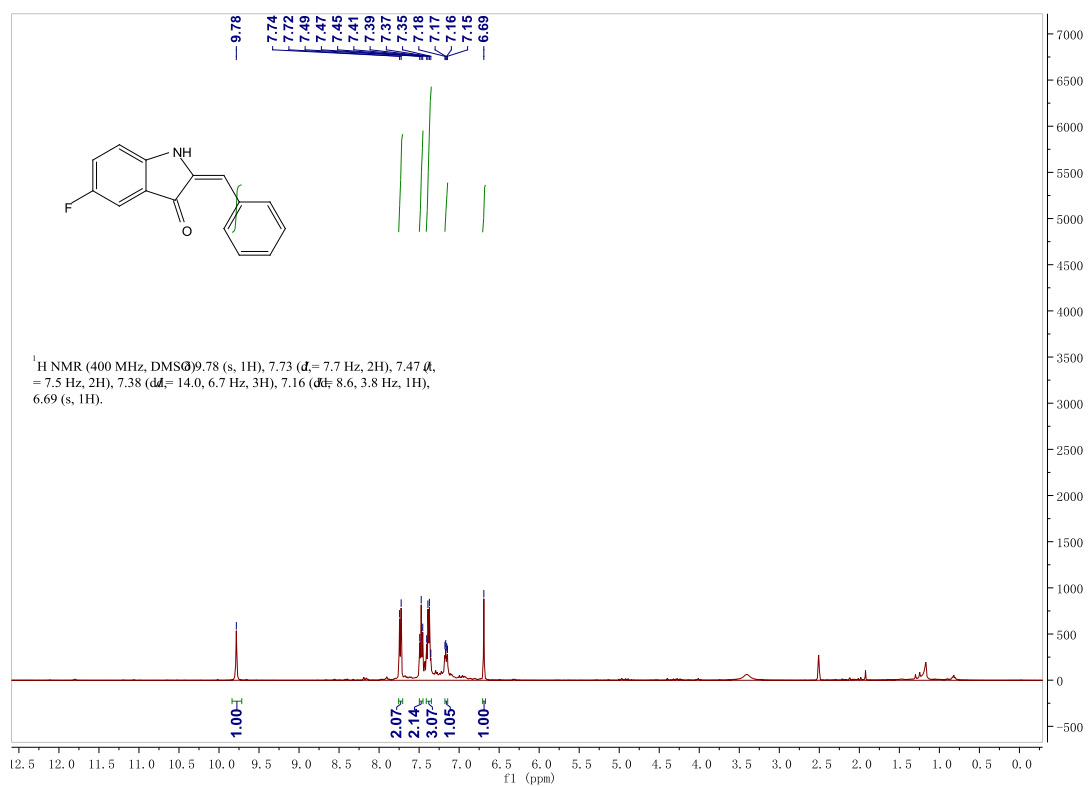




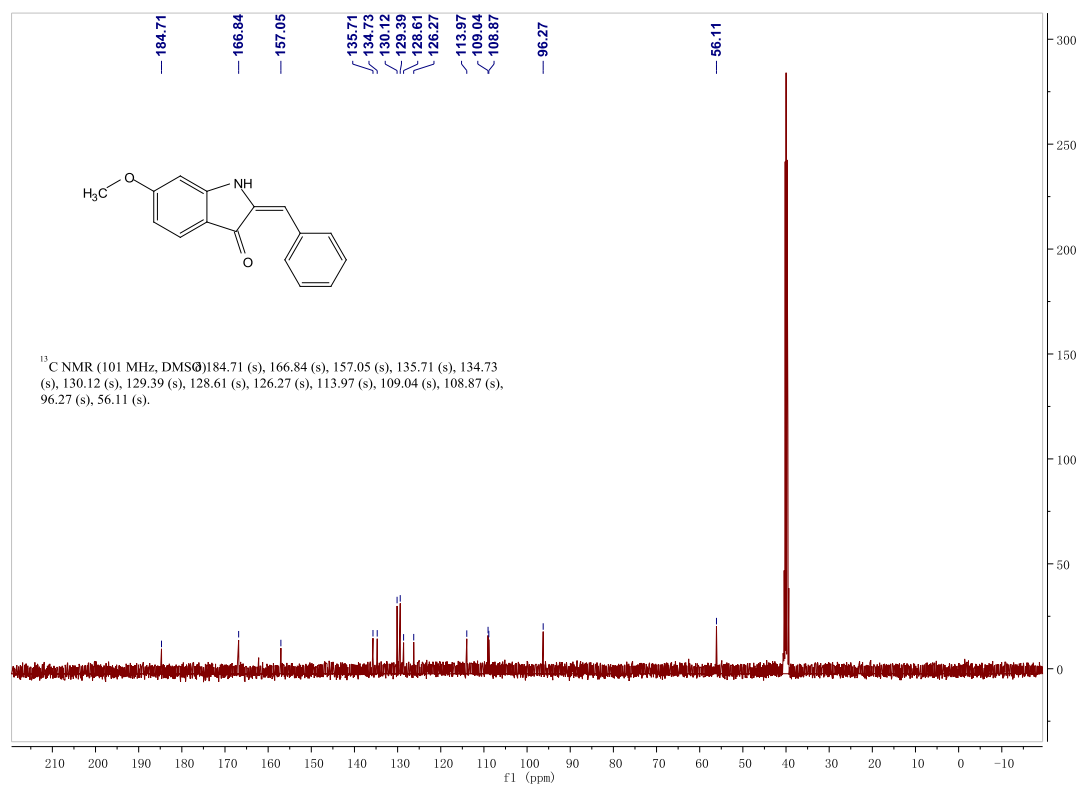
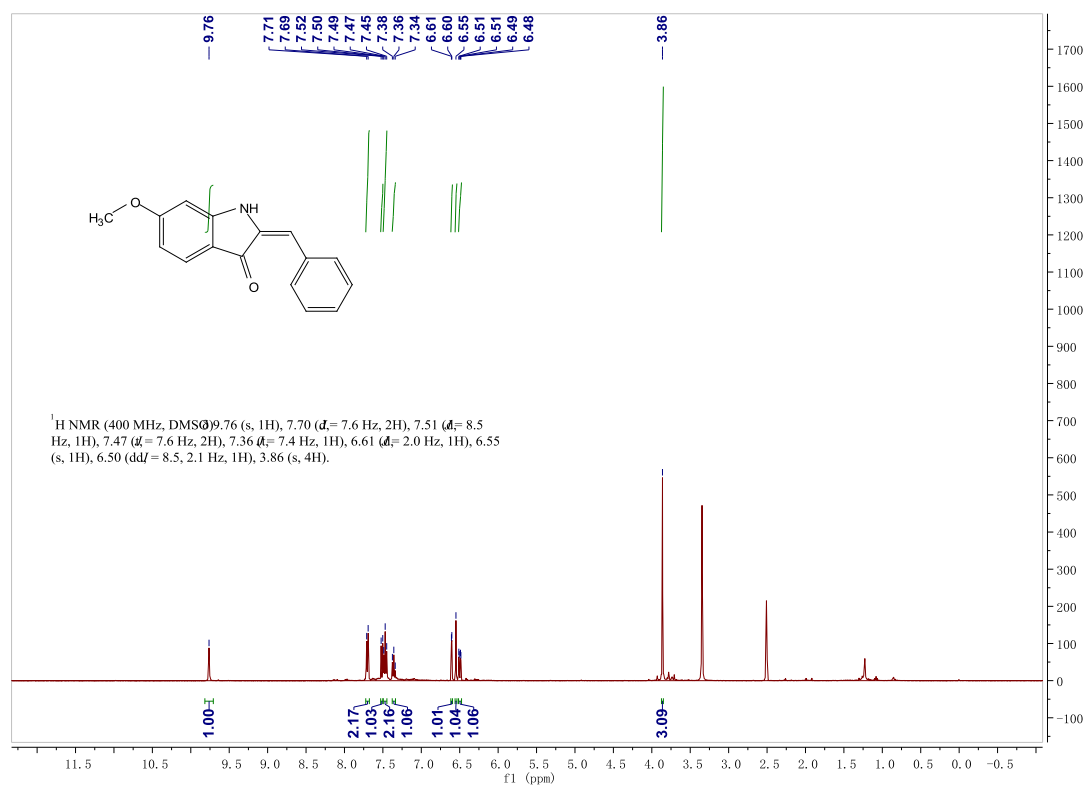
3p



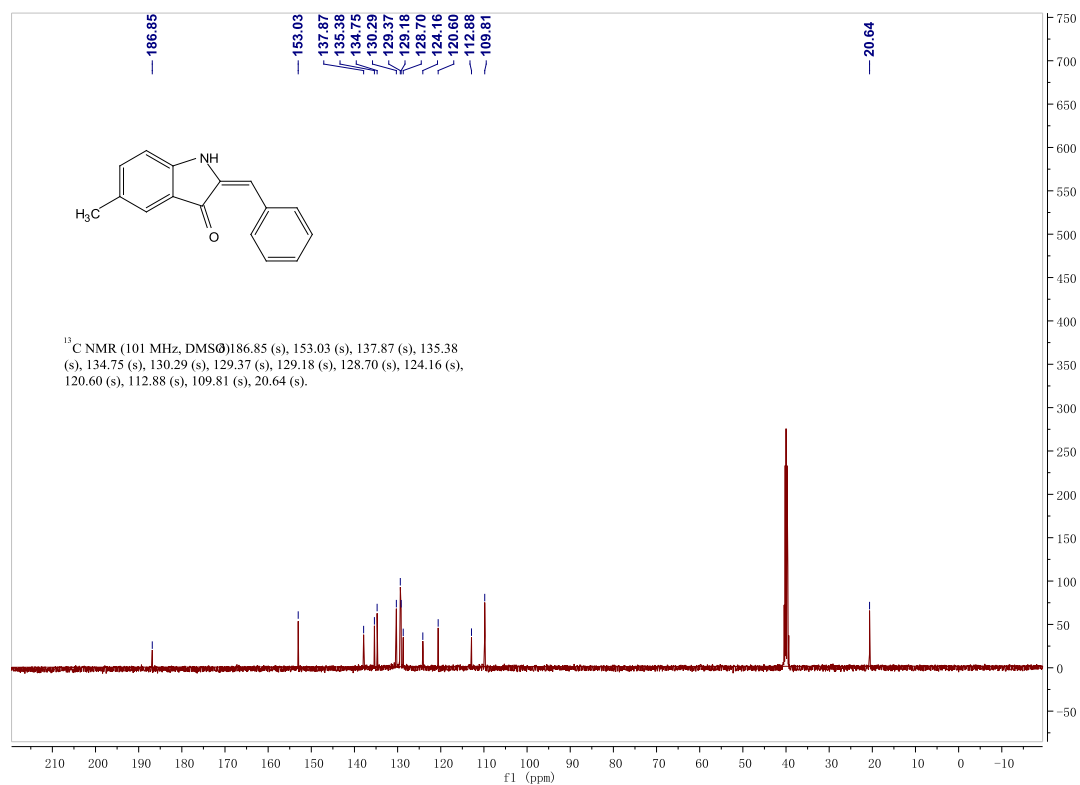
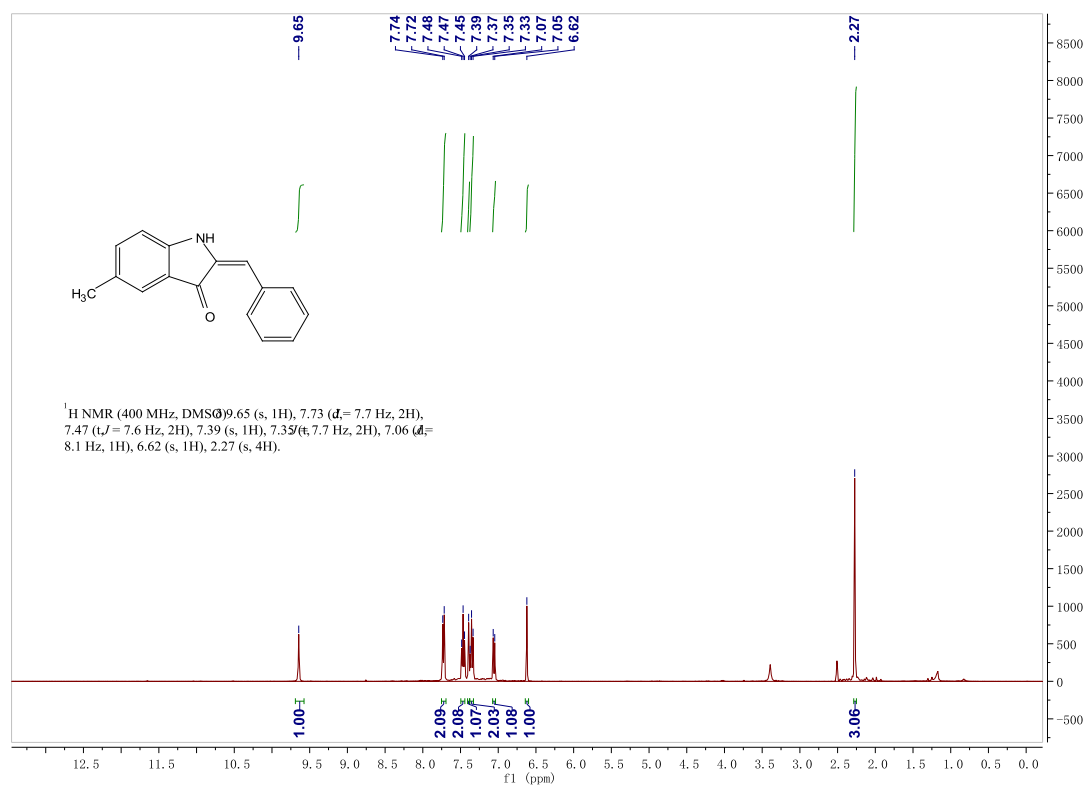
3q



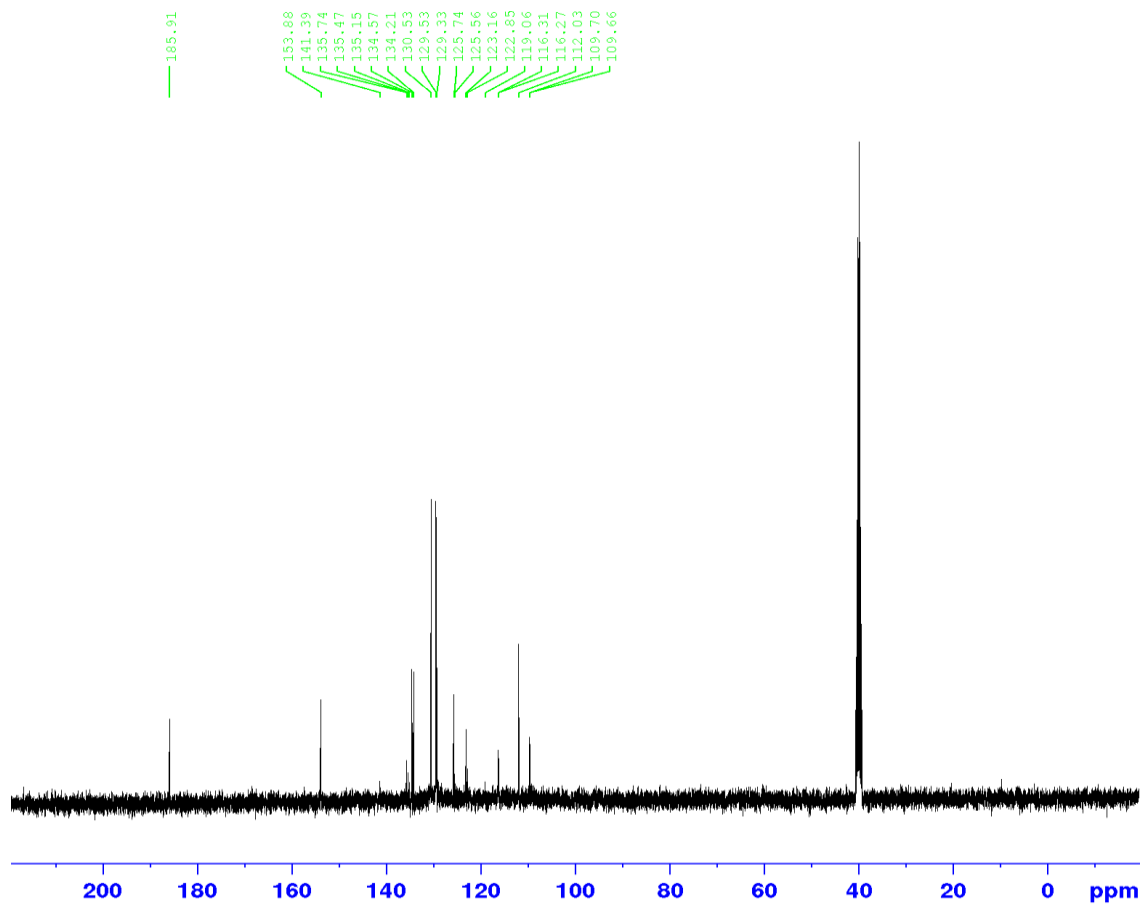
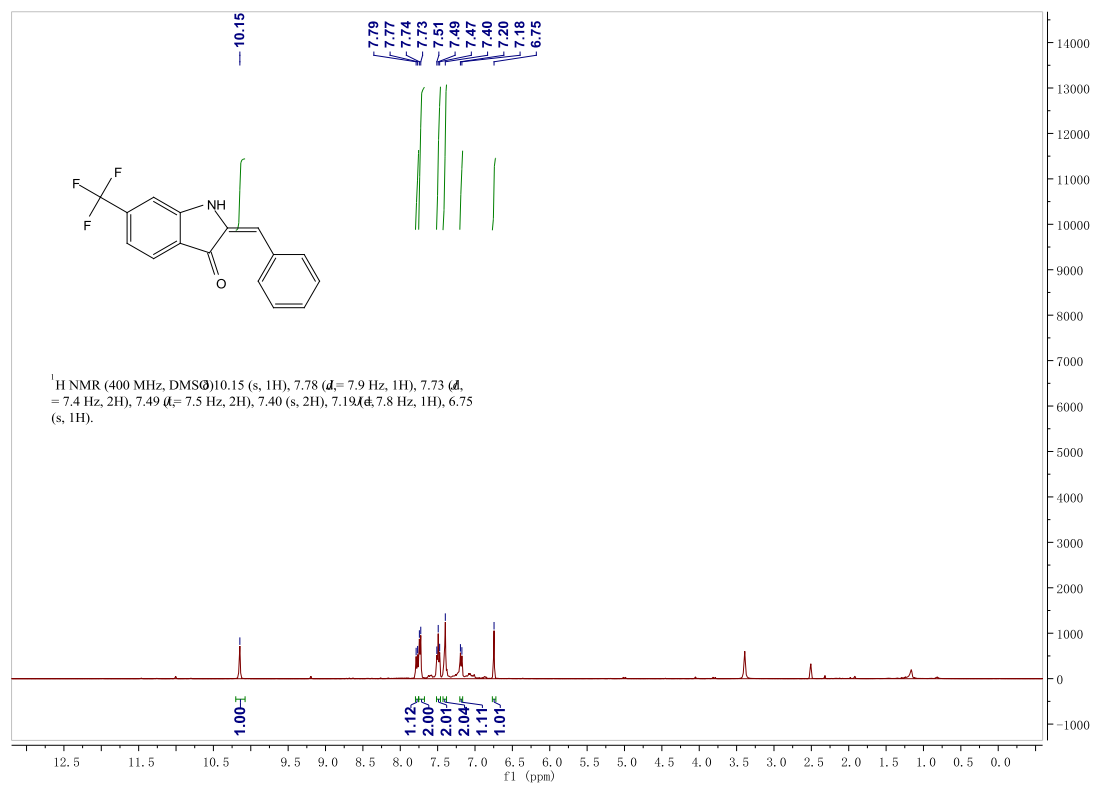
3r



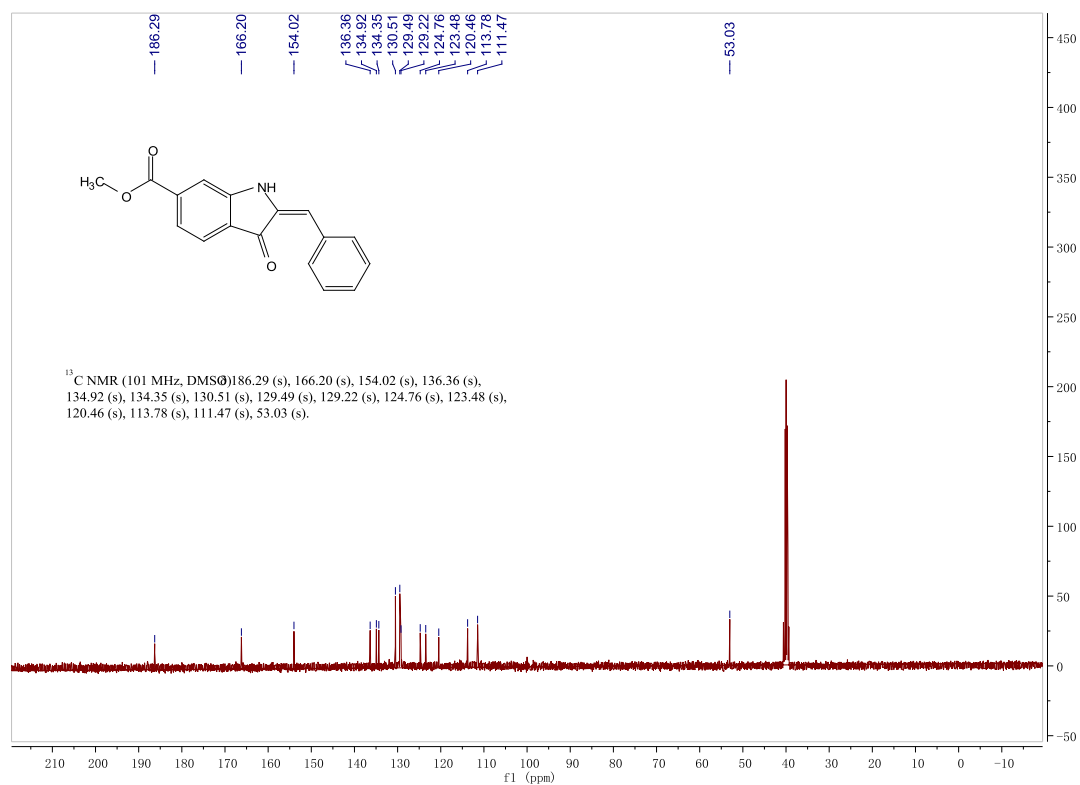
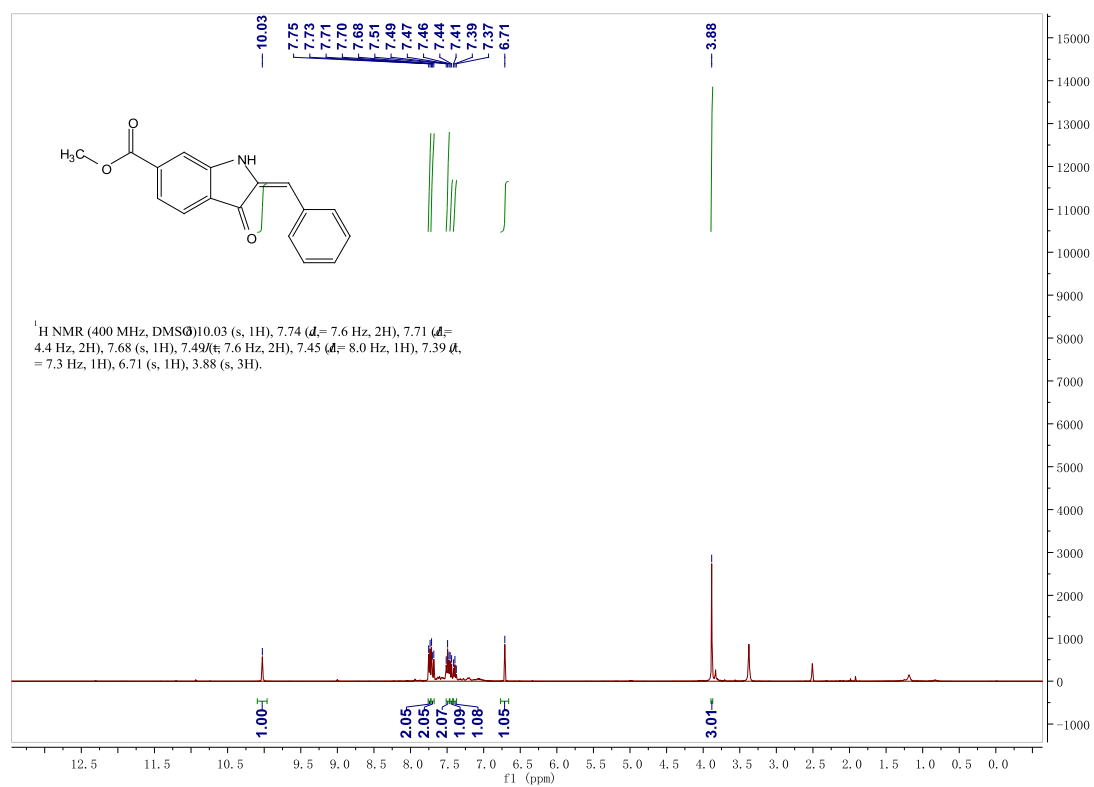
3s



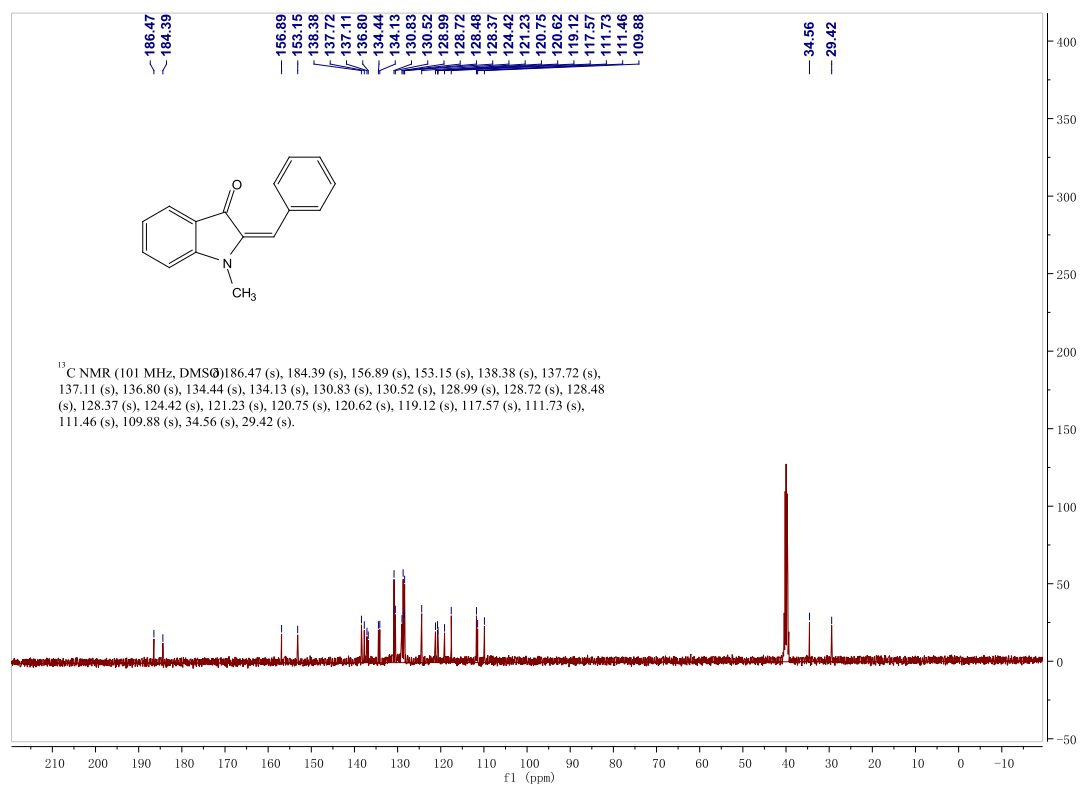
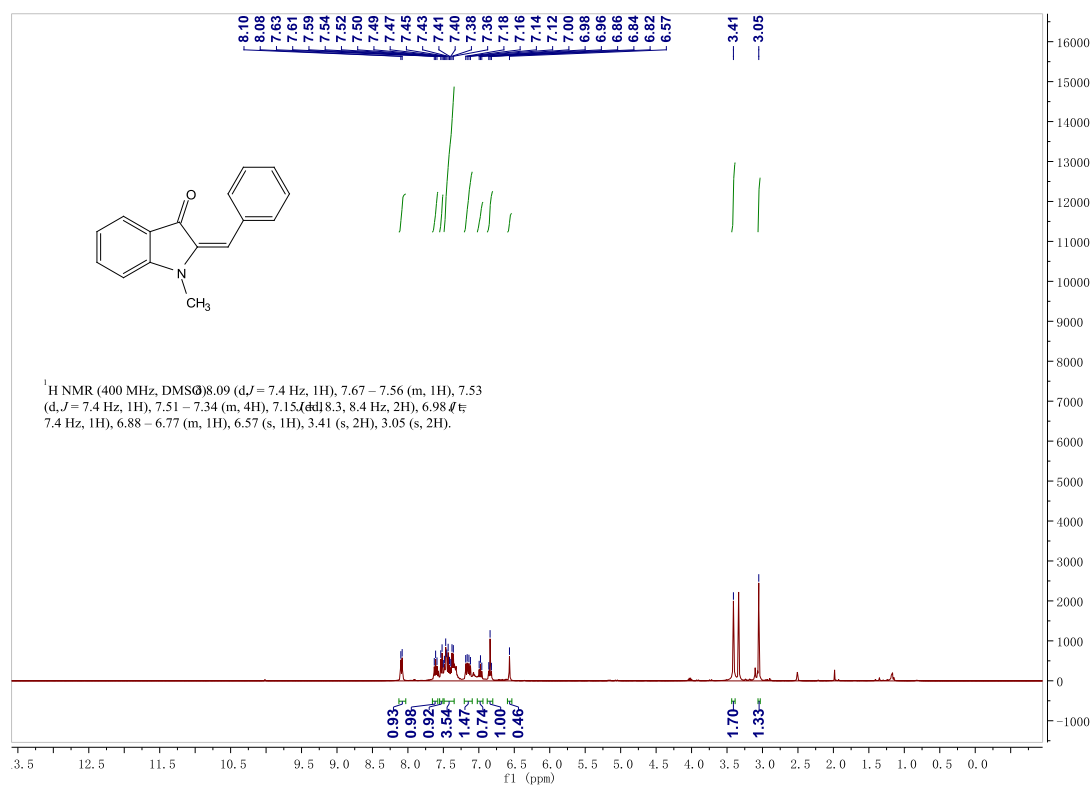
3t



3u



3v



3w

