

Supporting Information

Metal- and Oxidizing-Reagent-Free Anodic *para*-Selective Amination of Anilines with Phenothiazines

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(A) Typical experimental procedure

To an oven-dried undivided three-necked bottle (10mL) were added substrates **1a** aniline (0.3 mmol), phenothiazine (1.2 equiv), $n\text{Bu}_4\text{NPF}_6$ (0.3 mmol) and CH_3CN (10 mL). The bottle was equipped graphite rod (ϕ 6 mm, about 18 mm immersion depth in solution) as the anode and pt plate (10 mm \times 10 mm \times 1 mm) as the cathode. The reaction mixture was stirred and electrolyzed at a constant current of 10 mA under room temperature for 3 h (Figure S1). and stopped until complete consumption of aniline (monitored by TLC). After the reaction was finished, the reaction mixture was concentrated in vacuum, and the resulting residue was purified by silica gel column chromatography (hexane/ethyl acetate) to afford the desired product **3aa**.

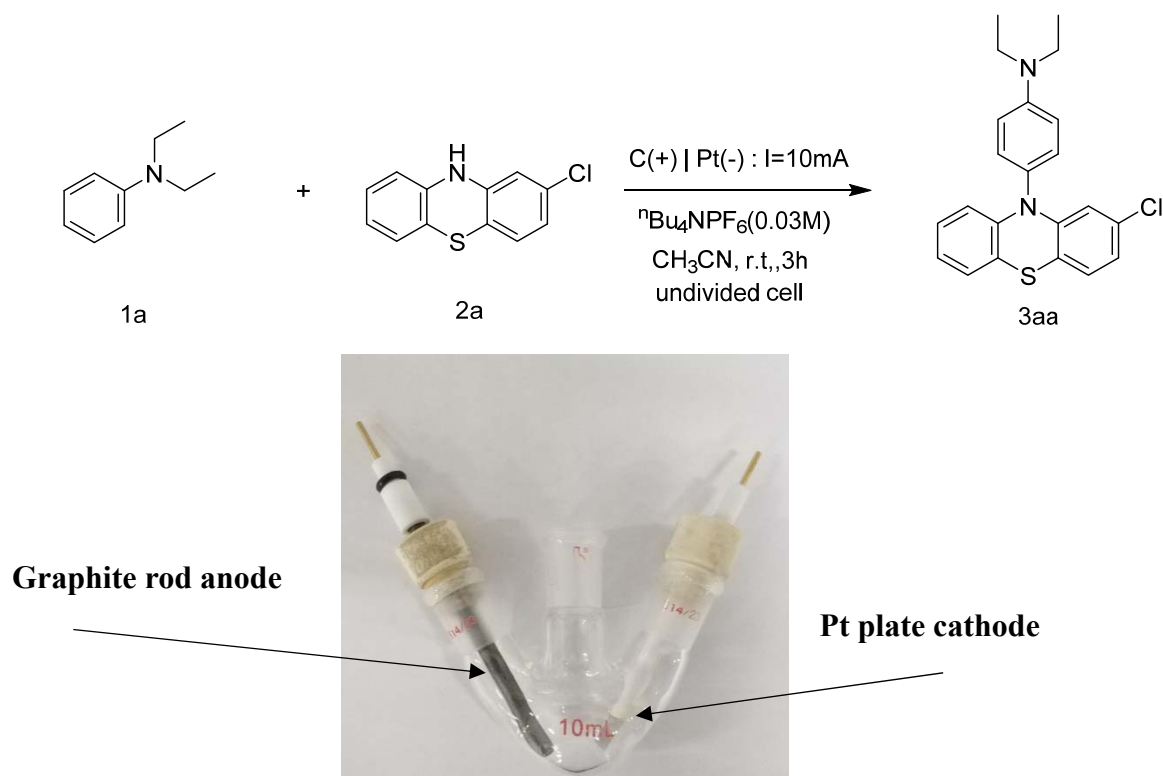


Figure S1. Undivided cell for current controlled electrolysis

Procedure for cyclic voltammetry (CV): Cyclic voltammetry was performed in a three-electrode cell connected to a schlenk line under nitrogen at room temperature. The working electrode was a steady glassy carbon disk electrode while the counter electrode was a platinum plate. The reference was an Ag/AgCl electrode submerged in saturated aqueous KCl solution, and separated from reaction by a salt bridge. 10 mL solvent containing 0.3 M $n\text{Bu}_4\text{NPF}_6$ were poured into the electrochemical cell in cyclic voltammetry experiments. The CV of all substrates were measured at the concentration of 0.01M. The scan rate was 0.10 V/s, ranging from 0 V to 2.0 V.

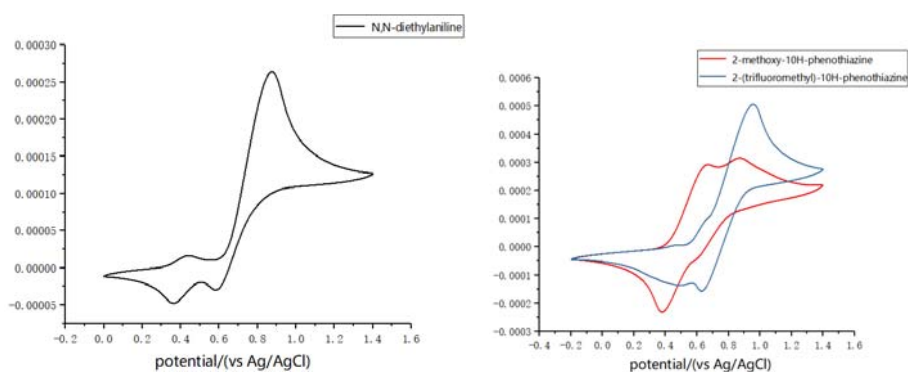
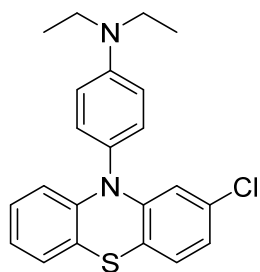


Figure S2. Study of the oxidation potential during electrolysis

(B) Analytical data

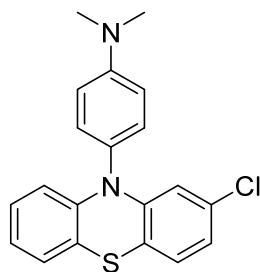
4-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*-diethylaniline (3aa):



White solid; mp 138.8-142.4 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.14-7.12 (m, 2H), 6.95-6.93 (m, 1H), 6.86-6.77 (m, 5H), 6.73-6.71 (m, 1H), 6.28-6.26 (m, 2H), 3.45-3.41 (m, 4H), 1.24 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125MHz, CDCl₃) δ: 147.5, 146.2, 144.5, 132.6, 131.4, 127.1, 127.0, 126.9, 126.4, 122.4, 121.6, 119.1, 117.9, 116.0, 115.6, 112.9, 44.4, 12.6; LRMS (EI, 70eV) *m/z* (%): 380 (M⁺, 100), 335 (36), 273 (13), 182 (12); HRMS *m/z* (ESI) calcd for C₂₂H₂₁ClN₂S ([M+H]⁺) 381.1187, found 381.1196.

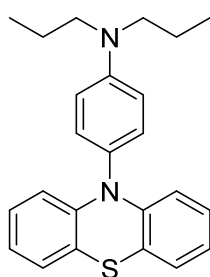
4-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*-dimethylaniline (3ba):

Yellow solid; mp 146.4-48.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.19-



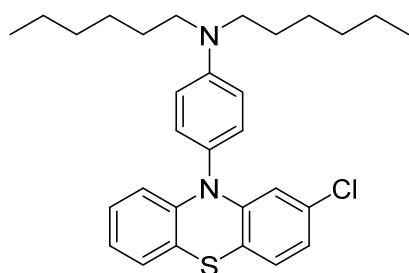
7.17 (m, 2H), 6.96-6.94 (m, 1H), 6.89-6.87 (m, 2H), 6.86-6.84 (m, 1H), 6.83-6.77(m, 2H), 6.74-6.72 (m, 1H), 6.24-6.22 (m, 2H), 3.06 (s, 6H); ¹³C NMR (125 MHz, CDCl₃) δ: 150.1, 146.2, 144.4, 132.6, 131.3, 128.3, 127.0, 126.9, 126.5, 122.4, 121.7, 119.1, 117.9, 116.0, 115.6, 113.8, 40.5.; LRMS (EI, 70eV) *m/z* (%): 352 (M⁺, 100), 320 (12), 158 (12), 121 (18); HRMS *m/z* (ESI) calcd for C₂₀H₁₇ClN₂S ([M+H]⁺) 353.0874, found 353.0881.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-dipropylaniline (3ca):



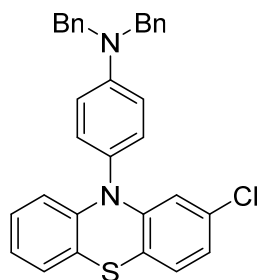
Yellow solid; mp 100.9-102.4 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.12-7.10 (m, 2H), 6.95-6.93 (m, 1H), 6.85-6.81 (m, 2H), 6.78-6.75 (m, 3H), 6.73-6.71 (m, 1H), 6.28-6.25 (m, 2H), 3.29 (t, *J* = 7.5 Hz, 4H), 1.72-1.65 (m, 4H), 0.98 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125MHz, CDCl₃) δ : 148.0, 146.3, 144.5, 132.6, 131.3, 127.0, 126.9, 126.4, 122.4, 121.6, 119.1, 117.9, 116.1, 115.7, 112.9, 53.0, 20.4, 11.5. ; LRMS (EI, 70eV) *m/z* (%): 408 (M⁺, 81), 379 (100), 351 (14), 336 (13); HRMS *m/z* (ESI) calcd for C₂₄H₂₅ClN₂S ([M+H]⁺) 409.1500, found 409.1509.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-dihexylaniline (3da):



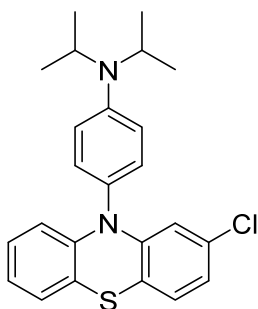
Yellow liquid; ¹H NMR (500 MHz, CDCl₃) δ: 7.11-7.10 (m, 2H), 6.94-6.93 (m, 1H), 6.85-6.82 (m, 2H), 6.76-6.74 (m, 3H), 6.72-6.70 (m, 1H), 6.28-6.25 (m, 2H), 3.30 (t, *J* = 7.5 Hz, 4H), 1.67-1.62 (m, 4H), 1.37-1.32 (m, 12H), 0.92 (t, *J* = 7.5 Hz, 3H); ¹³C NMR (125MHz, CDCl₃) δ : 147.9, 146.3, 144.5, 132.6, 131.3, 129.1, 127.0, 126.9, 126.4, 122.4, 121.6, 119.1, 117.9, 116.1, 115.6, 112.8, 51.1, 31.7, 27.2, 26.9, 22.7, 14.1; LRMS (EI, 70eV) *m/z* (%): 493 (M⁺, 100), 280 (35), 208 (22), 57 (89); HRMS *m/z* (ESI) calcd for C₃₀H₃₇ClN₂S ([M+H]⁺) 493.2439, found 493.2448.

***N,N*-Dibenzyl-4-(2-chloro-10*H*-phenothiazin-10-yl)aniline (3ea):**



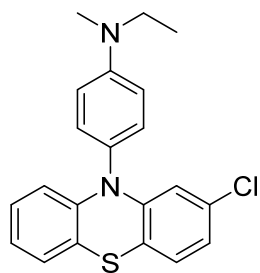
Yellow solid; mp 143.4-144.5 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.39-7.36 (m, 4H), 7.31-7.29 (m, 6H), 7.10-7.08 (m, 2H), 6.94-6.92 (m, 1H), 6.89-6.87 (m, 2H), 6.85-6.82 (m, 2H), 6.78-6.75 (m, 1H), 6.73-6.71 (m, 1H), 6.25-6.23 (m, 2H), 4.72 (s, 4H); ¹³C NMR (125 MHz, CDCl₃) δ : 149.2, 146.1, 144.3, 138.0, 132.5, 131.4, 128.8, 128.7, 128.7, 127.2, 127.1, 127.0, 126.9, 126.6, 126.5, 122.5, 121.7, 119.2, 118.0, 116.0, 115.7, 114.0, 54.3; HRMS *m/z* (ESI) calcd for C₃₂H₂₅ClN₂S ([M+H]⁺) 505.1500, found 505.1513.

4-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*-diisopropylaniline (3fa):



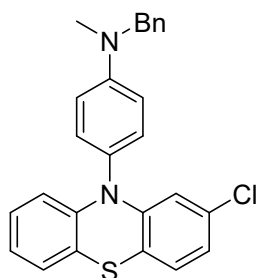
White solid; mp 153.3-155.6 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.10 (d, *J* = 10.0 Hz, 2H), 6.98 (d, *J* = 5.0 Hz, 2H), 6.95-6.93 (m, 1H), 6.87-6.82 (m, 2H), 6.79-6.76 (m, 1H), 6.73-6.71 (m, 1H), 6.28-6.26 (m, 2H), 3.93-3.85 (m, 2H), 1.32 (d, *J* = 5.0 Hz, 12H); ¹³C NMR (125 MHz, CDCl₃) δ : 148.1, 146.2, 144.4, 132.6, 130.7, 128.4, 127.0, 126.9, 126.4, 122.4, 121.7, 119.1, 118.1, 117.9, 116.1, 115.7, 47.5, 21.3; LRMS (EI, 70eV) *m/z* (%): 408 (M⁺,78), 393 (100), 351 (53), 232 (41); HRMS *m/z* (ESI) calcd for C₂₄H₂₅ClN₂S ([M+H]⁺) 409.1500, found 409.1512.

4-(2-Chloro-10H-phenothiazin-10-yl)-N-ethyl-N-methylaniline (3ga):



Yellow solid; mp 152.1-154.3 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.17-7.15 (m, 2H), 6.95-6.94 (m, 1H), 6.86-6.81 (m, 4H), 6.79-6.76 (m, 1H), 6.73-6.71 (m, 1H), 6.25-6.23 (m, 2H), 3.50-3.46 (m, 2H), 3.00 (s, 3H), 1.22 (t, *J* = 7.5 Hz, 3H); ¹³C NMR (125 MHz, CDCl₃) δ : 148.8, 146.2, 144.5, 132.6, 131.4, 127.8, 127.0, 126.9, 126.4, 122.4, 121.7, 119.1, 117.9, 116.0, 115.6, 113.5, 46.8, 37.5, 11.5.; LRMS (EI, 70eV) *m/z* (%): 366 (M⁺, 100), 351 (77), 336 (21), 175 (19); HRMS *m/z* (ESI) calcd for C₂₁H₁₉ClN₂S ([M+H]⁺) 367.1030, found 367.1037.

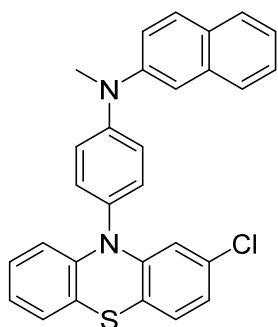
N-Benzyl-4-(2-chloro-10H-phenothiazin-10-yl)-N-methylaniline (3ha):



Yellow solid; mp 133.4-134.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.39-7.36 (m, 2H), 7.30-7.27 (m, 3H), 7.16-7.14 (m, 2H), 6.95-6.94 (m, 1H), 6.90-6.89 (m, 2H), 6.86-6.81 (m, 2H), 6.79-6.77 (m, 1H), 6.74-6.72 (m, 1H), 6.24-6.22 (m, 2H), 4.62 (s, 2H), 3.12 (s, 3H); ¹³C NMR (125 MHz, CDCl₃) δ: 149.5, 146.2, 144.4, 138.5, 132.6, 131.4, 128.7, 128.4, 127.1, 127.0, 126.9, 126.6, 126.5, 122.5, 121.7, 119.1, 117.9, 116.0, 115.6, 113.8, 56.7, 38.7; LRMS (EI, 70eV) *m/z* (%): 428 (M⁺, 95), 337 (100), 281 (35), 207 (55); HRMS *m/z* (ESI) calcd for C₂₆H₂₁ClN₂S ([M+H]⁺) 429.1187, found 429.1190.

***N*-(4-(2-Chloro-10*H*-phenothiazin-10-yl)phenyl)-*N*-methylnaphthalen-2-amine**

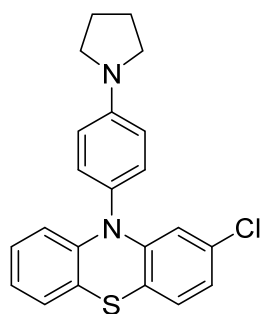
(3ia):



Yellow solid; mp 117.9-119.9 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.96-7.94 (m, 2H), 7.63 (d, *J* = 10.0 Hz, 1H), 7.52-7.49 (m, 2H), 7.46-7.43 (m, 1H), 7.04-7.01 (m, 2H), 6.88-6.86 (m, 1H), 6.75 (d, *J* = 10.0 Hz, 1H), 6.73-6.63 (m, 6H), 5.91-5.87 (m, 2H), 3.25 (s, 3H); ¹³C NMR (125 MHz, CDCl₃)

δ : 148.3, 145.3, 143.9, 142.3, 133.2, 132.4, 132.4, 131.4, 130.3, 128.9, 128.5, 128.2, 127.6, 126.9, 126.8, 126.4, 126.0, 124.0, 122.8, 122.1, 119.7, 118.7, 118.5, 116.2, 115.9, 39.0; LRMS (EI, 70eV) *m/z* (%): 464 (M⁺, 100), 336 (6), 232 (16), 217 (15); HRMS *m/z* (ESI) calcd for C₂₉H₂₁ClN₂S ([M+H]⁺) 465.1187, found 465.1193.

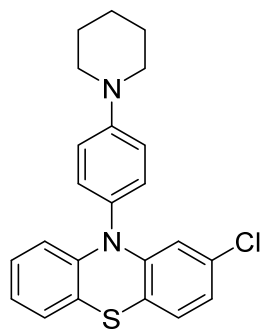
2-Chloro-10-(4-(pyrrolidin-1-yl)phenyl)-10*H*-phenothiazine (3ja):



Red solid; mp 146.3-148.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.17-7.15 (m, 2H), 6.95-6.93 (m, 1H), 6.85 (d, *J* = 10.0 Hz, 1H), 6.83-6.75 (m, 2H), 6.73-6.71 (m, 3H), 6.25-6.23 (m, 2H), 3.37 (t, *J* = 7.5 Hz, 4H), 2.08-2.05 (m, 4H); ¹³C NMR (125

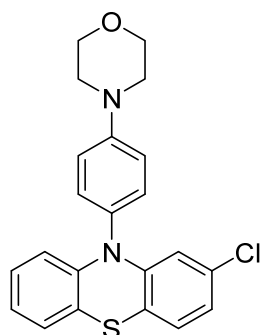
MHz, CDCl₃) δ : 147.5, 146.3, 144.50, 132.6, 131.4, 127.3, 127.0, 126.9, 126.4, 122.4, 121.6, 119.0, 117.8, 116.0, 115.6, 113.1, 47.7, 25.6; LRMS (EI, 70eV) *m/z* (%): 378 (M⁺, 100), 232 (16), 207 (18), 189 (16); HRMS *m/z* (ESI) calcd for C₂₂H₁₉ClN₂S ([M+H]⁺) 379.1030, found 379.1041.

2-Chloro-10-(4-(piperidin-1-yl)phenyl)-10H-phenothiazine (3ka):



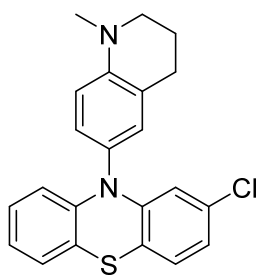
Red solid; mp 140.3-143.2 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.20-7.18 (m, 2H), 7.11-7.09 (m, 2H), 6.96-6.94 (m, 1H), 6.86-6.85 (m, 1H), 6.84-6.78 (m, 2H), 6.74-6.72 (m, 1H), 3.27 (t, *J* = 7.5 Hz), 1.78-1.73 (m, 4H), 1.64-1.61 (m, 2H); ¹³C NMR (125 MHz, CDCl₃) δ : 151.7, 145.9, 144.2, 132.6, 131.3, 130.4, 127.0, 126.9, 126.5, 122.5, 121.8, 119.1, 117.9, 117.6, 116.0, 115.6, 49.9, 25.8, 24.2; LRMS (EI, 70eV) *m/z* (%): 392 (M⁺, 100), 273 (8), 232 (13), 190 (11); HRMS *m/z* (ESI) calcd for C₂₃H₂₁ClN₂S ([M+H]⁺) 393.1187, found 393.1192.

4-(4-(2-Chloro-10H-phenothiazin-10-yl)phenyl)morpholine (3la):



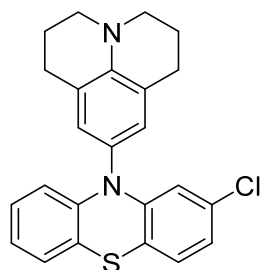
Red solid; mp 195.1-198.2 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.25-7.23 (m, 2H), 7.10-7.08 (m, 2H), 6.97-6.95 (m, 1H), 6.86 (d, *J* = 5.0 Hz, 1H), 6.84-6.77 (m, 2H), 6.75-6.73 (m, 1H), 6.19-6.17 (m, 2H), 3.91 (t, *J* = 5.0 Hz, 4H), 3.27 (t, *J* = 5.0 Hz, 4H); ¹³C NMR (125 MHz, CDCl₃) δ: 150.9, 145.8, 144.1, 132.6, 131.6, 131.5, 127.1, 127.0, 126.5, 122.6, 121.9, 119.2, 118.0, 117.0, 115.9, 115.6, 66.8, 48.7; LRMS (EI, 70eV) *m/z* (%): 394 (M⁺, 100), 341 (8), 232 (6), 153 (16); HRMS *m/z* (ESI) calcd for C₂₂H₁₉ClN₂OS ([M+H]⁺) 395.0979, found 395.0986.

2-Chloro-10-(1-methyl-1,2,3,4-tetrahydroquinolin-6-yl)-10H-phenothiazine (3ma):



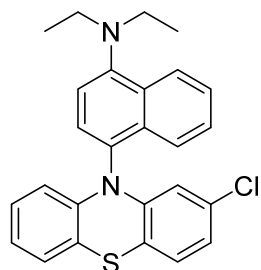
Yellow solid; mp 118.5-188.9 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.01-6.99 (m, 1H), 6.94-6.92 (m, 1H), 6.68 (d, *J* = 5.0 Hz, 1H), 6.85-6.81 (m, 2H), 6.78-6.75 (m, 1H), 6.72-6.70 (m, 2H), 6.28-6.26 (m, 2H), 3.32 (t, *J* = 5.0 Hz, 2H), 2.97 (s, 3H), 2.79 (t, *J* = 7.5 Hz, 2H); ¹³C NMR (125 MHz, CDCl₃) δ : 146.4, 146.2, 144.4, 132.5, 130.3, 129.2, 127.8, 127.0, 126.9, 126.4, 124.9, 122.4, 121.6, 119.1, 117.8, 116.0, 115.6, 111.9, 51.1, 39.0, 27.8, 22.1; LRMS (EI, 70eV) *m/z* (%): 378 (M⁺, 100), 232 (24), 189 (14), 144 (14); HRMS *m/z* (ESI) calcd for C₂₂H₁₉ClN₂S ([M+H]⁺) 379.1030, found 379.1038.

2-Chloro-10-(2,3,6,7-tetrahydro-1H,5H-pyrido[3,2,1-i]quinolin-9-yl)-10H-phenothiazine (3na):



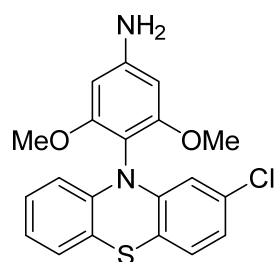
Yellow solid; mp 183.1-185.3 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 6.93-6.91 (m, 1H), 6.86-6.82 (m, 2H), 6.78-6.74 (m, 1H), 6.72-6.70 (m, 3 H), 6.33-6.31 (m, 2H), 3.22 (t, *J* = 5.0 Hz, 4H), 2.78 (t, *J* = 5.0 Hz, 4H), 2.04-2.00 (m, 4H); ¹³C NMR (125 MHz, CDCl₃) δ: 146.2, 144.4, 142.6, 132.5, 128.4, 127.3, 126.9, 126.9, 126.3, 123.3, 122.3, 121.5, 119.0, 117.8, 116.1, 115.7, 49.9, 27.7, 21.8; LRMS (EI, 70eV) *m/z* (%): 404 (M⁺, 99), 341 (45), 281 (53), 207 (100); HRMS *m/z* (ESI) calcd for C₂₄H₂₁ClN₂S ([M+H]⁺) 405.1187, found 405.1194.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethylnaphthalen-1-amine (3oa):



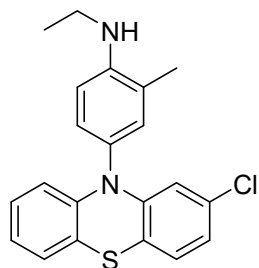
Red solid; mp 121.3-123.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 8.39 (d, *J* = 10 Hz, 1H), 8.02 (d, *J* = 10.0 Hz, 1H), 7.53-7.49 (m, 4H), 7.45-7.42 (m, 1H), 7.26 (t, *J* = 5.0 Hz, 1H), 6.99-6.97 (m, 1H), 6.89 (d, *J* = 5.0 Hz, 1H), 6.78-6.75 (m, 1H), 6.73-6.70 (m, 2H), 6.06-6.04 (m, 2H), 3.33-3.29 (m, 4H), 1.15 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 149.3, 145.2, 143.5, 132.7, 132.5, 132.1, 131.0, 129.0, 127.1, 127.1, 126.5, 125.9, 125.3, 123.5, 122.7, 122.1, 119.4, 118.2, 117.8, 116.1, 115.7, 47.4, 12.3; LRMS (EI, 70eV) *m/z* (%): 430 (M⁺, 100), 415 (12), 232 (47), 183 (44); HRMS *m/z* (ESI) calcd for C₂₆H₂₃ClN₂S ([M+H]⁺) 431.1341, found 431.1344.

4-(2-Chloro-10H-phenothiazin-10-yl)-3,5-dimethoxyaniline (3pa) :



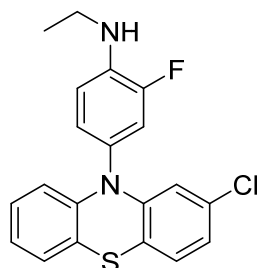
Yellow liquid; ¹H NMR (500 MHz, CDCl₃) δ: 6.88-6.87 (m, 1H), 6.82-6.77 (m, 2H), 6.74-6.71 (m, 1H), 6.68-6.66 (m, 1H), 6.14-6.10 (m, 2H), 6.00 (s, 2H), 3.95 (s, 2H), 3.68 (s, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 158.5, 148.4, 144.5, 142.6, 132.5, 127.0, 126.7, 126.2, 122.2, 121.4, 119.1, 117.9, 115.2, 114.9, 107.4, 92.0, 55.8; LRMS (EI, 70eV) *m/z* (%): 384 (M⁺, 100), 326 (9), 232 (6), 153 (16); HRMS *m/z* (ESI) calcd for C₂₀H₁₇ClN₂O₂S ([M+H]⁺) 385.0772, found 385.0778.

4-(2-Chloro-10H-phenothiazin-10-yl)-N-ethyl-2-methylaniline (3qa):



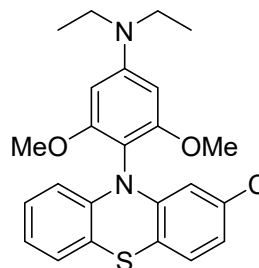
White solid; ^1H NMR (500 MHz, CDCl_3) δ : 7.09-7.07 (m, 1H), 7.01 (s, 1H), 6.95-6.93 (m, 1H), 6.85-6.80 (m, 2H), 6.78-6.75 (m, 2H), 6.73-6.70 (m, 1H), 3.61 (s, 1H), 3.30-3.25 (m, 2H), 2.19 (s, 3H), 1.37 (t, $J = 7.25$ Hz, 3H); ^{13}C NMR (125 MHz, CDCl_3) δ : 146.3, 146.1, 144.4, 132.5, 131.8, 129.3, 128.5, 127.0, 126.9, 126.4, 123.9, 122.4, 121.6, 119.0, 117.8, 116.0, 115.6, 110.8, 38.5, 17.6, 14.9; HRMS m/z (ESI) calcd for $\text{C}_{21}\text{H}_{19}\text{ClN}_2\text{S}$ ($[\text{M}+\text{H}]^+$) 367.1030, found 367.1044.

4-(2-Chloro-10H-phenothiazin-10-yl)-N-ethyl-2-fluoroaniline (3ra):



Yellow solid; ^1H NMR (500 MHz, CDCl_3) δ : 7.03-6.95 (m, 3H), 6.88-6.76 (m, 4H), 6.76-6.74 (m, 1H), 6.26-6.22 (m, 2H), 4.05 (s, 1H), 3.30-3.26 (m, 2H), 1.36 (t, $J = 7.25$ Hz, 3H); ^{13}C NMR (125 MHz, CDCl_3) δ : 145.8, 144.0, 137.3, 137.3, 132.7, 127.8, 127.7, 127.3, 127.3, 127.2, 127.0, 126.6, 122.8, 122.0, 119.3, 118.1, 116.9, 116.8, 115.9, 115.6, 112.6, 112.6, 38.1, 14.8; ^{19}F NMR (471 MHz, CDCl_3) δ : -132.97; HRMS m/z (ESI) calcd for $\text{C}_{21}\text{H}_{19}\text{ClFN}_2\text{S}$ ($[\text{M}+\text{H}]^+$) 371.0780, found 371.0796.

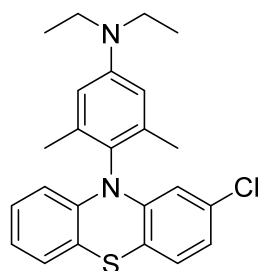
4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3,5-dimethoxyaniline (3sa):



Red solid; mp 183.3-185.1 $^\circ\text{C}$ (uncorrected); ^1H NMR (500 MHz, CDCl_3) δ : 6.89-6.87 (m, 1H), 6.83-6.78 (m, 2H), 6.74-6.71 (m, 1H), 6.68-6.66 (m, 1H), 6.17-6.15 (m, 2H), 5.96 (s, 2H), 3.73 (s, 6H), 3.44-3.40 (m, 4H), 1.26 (t, $J = 7.5$ Hz, 6H); ^{13}C NMR (125 MHz, CDCl_3) δ : 158.5, 149.3, 145.0, 143.1, 132.5, 127.0, 126.7, 126.1,

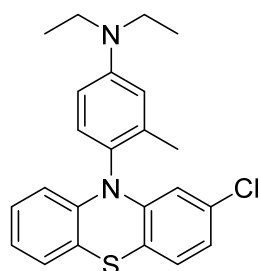
122.1, 121.3, 119.2, 118.0, 115.4, 115.2, 105.4, 88.8, 55.8, 44.6, 12.7; LRMS (EI, 70eV) m/z (%): 440 (M^+ , 100), 398 (10), 396 (23), 212 (11); HRMS m/z (ESI) calcd for $C_{24}H_{25}ClN_2O_2S$ ($[M+H]^+$) 441.1398, found 441.1412.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3,5-dimethylaniline (3ta):



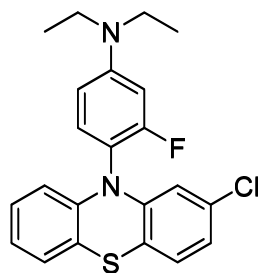
Yellow solid; mp 119.0-120.8 °C (uncorrected); 1H NMR (500 MHz, $CDCl_3$) δ : 6.86-6.84 (m, 1H), 6.79-6.75 (m, 2H), 6.73-6.70 (m, 1H), 6.67-6.65 (m, 1H), 6.50 (s, 2H), 5.99-5.97 (m, 2H), 3.41-3.37 (m, 4H), 2.12 (s, 6H), 1.23 (t, $J = 7.5$ Hz, 6H); ^{13}C NMR (125 MHz, $CDCl_3$) δ : 147.6, 143.5, 141.6, 138.3, 132.8, 127.3, 126.8, 126.1, 125.0, 122.2, 121.4, 118.1, 116.8, 114.7, 114.1, 112.0, 44.2, 18.5, 12.7.; LRMS (EI, 70eV) m/z (%): 408 (M^+ , 100), 393 (50), 364 (28), 196 (14); HRMS m/z (ESI) calcd for $C_{24}H_{25}ClN_2S$ ($[M+H]^+$) 409.1500, found 409.1509.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3-methylaniline (3ua):



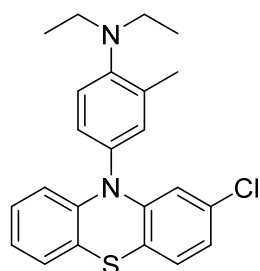
Yellow solid; mp 114.9-116.9 °C (uncorrected); 1H NMR (500 MHz, $CDCl_3$) δ : 7.05-7.03 (m, 1H), 6.90-6.88 (m, 1H), 6.82-6.78 (m, 2H), 6.75-6.72 (m, 1H), 6.70-6.68 (m, 1H), 6.65-6.63 (m, 2H), 6.13-6.11 (m, 2H), 3.42-3.38 (m, 4H), 2.12 (s, 3H), 1.23 (t, $J = 7.5$ Hz, 6H); ^{13}C NMR (125 MHz, $CDCl_3$) δ : 147.8, 145.0, 143.1, 138.4, 132.7, 131.5, 127.1, 126.9, 126.3, 125.9, 122.3, 121.5, 118.6, 117.4, 115.5, 115.0, 114.0, 110.9, 44.3, 18.2, 12.7; LRMS (EI, 70eV) m/z (%): 394 (M^+ , 100), 350 (33), 281 (8), 189 (13); HRMS m/z (ESI) calcd for $C_{23}H_{23}ClN_2S$ ($[M+H]^+$) 395.1343, found 395.1349.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3-fluoroaniline (3va):



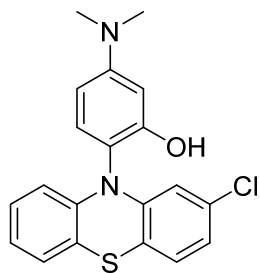
Yellow solid; mp 139.1-141.0 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.12 (t, *J* = 7.5 Hz, 1H), 6.98-6.96 (m, 1H), 6.91-6.87 (m, 2H), 6.83-6.79 (m, 1H), 6.77-6.75 (m, 1H), 6.54 (s, 1H), 6.53-6.51 (m, 1H), 6.28-6.26 (m, 2H), 3.42-3.38 (m, 4H), 1.23 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 162.3, 160.3, 149.7, 149.7, 145.4, 143.5, 132.8, 132.3, 132.3, 127.2, 127.1, 126.6, 122.8, 122.1, 119.6, 118.5, 115.6, 115.4, 113.8, 113.7, 108.4, 108.4, 99.3, 99.1, 44.6, 12.5; ¹⁹F NMR (471 MHz, CDCl₃) δ : -110.25; LRMS (EI, 70eV) *m/z* (%): 398 (M⁺, 100), 383 (48), 354 (35), 191 (11); HRMS *m/z* (ESI) calcd for C₂₂H₂₀ClFN₂S ([M+H]⁺) 399.1093, found 399.1102.

4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-2-methylaniline (3wa):



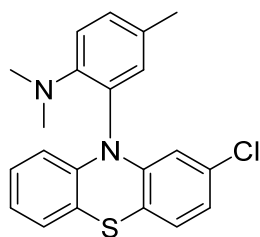
Yellow solid; mp 101.3-103.3 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.23 (d, *J* = 10 Hz, 1H), 7.13 (t, *J* = 7.5 Hz, 2H), 6.95 (d, *J* = 5.0 Hz, 1H), 6.87-6.72 (m, 4H), 6.19 (d, *J* = 5.0 Hz), 3.10-3.05 (m, 4H), 2.34 (s, 3H), 1.07 (t, *J* = 5.0 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 150.3, 145.7, 144.0, 137.6, 134.3, 132.8, 132.5, 128.2, 127.1, 126.9, 126.5, 123.7, 122.6, 121.8, 119.2, 118.0, 116.0, 115.7, 47.0, 18.6, 12.5; LRMS (EI, 70eV) *m/z* (%): 394 (M⁺, 98), 379 (100), 350 (21), 232 (10); HRMS *m/z* (ESI) calcd for C₂₃H₂₃ClN₂S ([M+H]⁺) 395.1343, found 395.1348.

2-(2-Chloro-10H-phenothiazin-10-yl)-5-(dimethylamino)phenol (3xa):



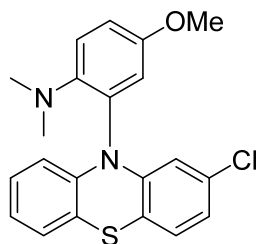
Yellow solid; mp 137.4-140.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.17 (t, *J* = 5.0 Hz, 1H), 7.06-7.05 (m, 1H), 6.96 (d, *J* = 5.0 Hz, 1H), 6.95-6.91 (m, 1H), 6.90-6.87 (m, 1H), 6.85-6.83 (m, 1H), 6.48-6.45 (m, 4H), 5.74 (s, 1H), 3.04 (s, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 153.4, 151.9, 145.6, 143.7, 133.1, 131.6, 127.4, 126.8, 123.5, 122.9, 120.9, 119.8, 116.3, 116.2, 114.2, 105.8, 99.7, 40.4; LRMS (EI, 70eV) *m/z* (%): 368 (M⁺, 100), 232 (9), 184 (14), 137 (22); HRMS *m/z* (ESI) calcd for C₂₀H₁₇ClN₂OS ([M+H]⁺) 369.0823, found 369.0831.

2-(2-Chloro-10H-phenothiazin-10-yl)-*N,N*,4-trimethylaniline (3ya):



Yellow solid; mp 117.9-119.2 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.19-7.17 (m, 1H), 7.02 (d, *J* = 10.0 Hz, 1H), 6.95 (d, *J* = 5.0 Hz, 1H), 6.93-6.91 (m, 1H), 6.83-6.75 (m, 3H), 6.73-6.71 (m, 1H), 6.19-6.16 (m, 2H), 2.79 (s, 6H), 2.33 (s, 3H); ¹³C NMR (125 MHz, CDCl₃) δ : 148.6, 144.8, 143.1, 133.7, 132.6, 131.2, 130.2, 129.9, 126.9, 126.4, 122.7, 121.9, 119.8, 118.9, 117.7, 115.8, 115.4, 43.2, 20.4; LRMS (EI, 70eV) *m/z* (%): 366 (M⁺, 100), 334 (11), 323 (15), 118 (11); HRMS *m/z* (ESI) calcd for C₂₁H₁₉ClN₂S ([M+H]⁺) 367.1030, found 367.1036.

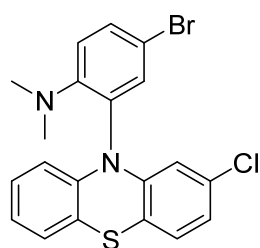
2-(2-Chloro-10H-phenothiazin-10-yl)-4-methoxy-*N,N*-dimethylaniline(3za):



Yellow solid; mp 121.5-123.2 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.14 (d, *J* = 10.0 Hz, 1H), 7.00-6.98 (m, 1H), 6.95-6.93 (m, 1H), 6.86-6.79 (m, 3H), 6.76-6.73 (m, 2H), 3.80 (s,

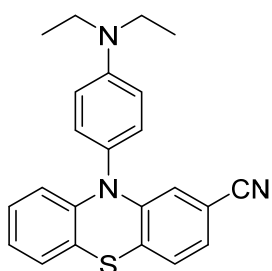
3H), 2.74 (m, 6H); ^{13}C NMR (125 MHz, CDCl_3) δ : 154.9, 145.1, 144.6, 142.9, 132.6, 131.9, 127.0, 126.5, 122.8, 122.0, 121.7, 118.9, 118.2, 117.7, 115.7, 115.3, 115.3, 55.8, 43.7; LRMS (EI, 70eV) m/z (%): 382 (M^+ , 100), 350 (11), 339 (9), 232 (11); HRMS m/z (ESI) calcd for $\text{C}_{21}\text{H}_{19}\text{ClN}_2\text{OS}$ ($[\text{M}+\text{H}]^+$) 383.0797, found 383.0802.

4-Bromo-2-(2-chloro-10H-phenothiazin-10-yl)-N,N-dimethylaniline(3aaa):



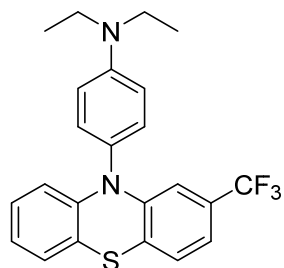
Yellow solid; mp 133.1-134.2 °C (uncorrected); ^1H NMR (500 MHz, CDCl_3) δ : 7.49-7.46 (m, 1H), 7.29 (d, $J = 3.0$ Hz, 1H), 6.97-6.94 (m, 2H), 6.87 (s, 1H), 6.85 (s, 1H), 6.84-6.80 (m, 1H), 6.78-6.76 (m, 1H), 6.21-6.19 (m, 1H), 2.87 (s, 6H); ^{13}C NMR (125 MHz, CDCl_3) δ : 150.0, 144.3, 142.7, 136.2, 132.7, 132.5, 131.6, 130.1, 127.2, 126.6, 123.1, 122.4, 120.8, 119.1, 117.9, 115.8, 115.4, 114.1, 111.6, 42.7; LRMS (EI, 70eV) m/z (%): 431(M^+ , 100), 386 (11), 231 (19), 118 (14); HRMS m/z (ESI) calcd for $\text{C}_{20}\text{H}_{16}\text{BrClN}_2\text{S}$ ($[\text{M}+\text{H}]^+$) 430.9979, found 430.9983.

10-(4-(Diethylamino)phenyl)-10H-phenothiazine-2-carbonitrile (3ab):



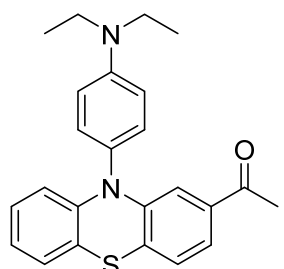
Yellow solid; mp 144.6-146.3 °C (uncorrected); ^1H NMR (500 MHz, CDCl_3) δ : 7.07 (d, $J = 10$ Hz, 2H), 6.95-6.90 (m, 2H), 6.87 (d, $J = 5.0$ Hz, 1H), 6.84-6.74 (m, 4H), 6.39 (s, 1H), 6.24 (d, $J = 5.0$ Hz, 1H), 3.44-3.40 (m, 4H), 1.23 (t, $J = 7.5$ Hz, 6H); ^{13}C NMR (125 MHz, CDCl_3) δ : 147.6, 145.5, 143.7, 131.0, 127.3, 126.5, 126.5, 126.3, 126.2, 125.1, 122.7, 119.1, 117.7, 117.6, 116.1, 112.9, 109.9, 44.3, 12.5; LRMS (EI, 70eV) m/z (%): 371 (M^+ , 93), 359 (100), 327 (37), 178 (11); HRMS m/z (ESI) calcd for $\text{C}_{23}\text{H}_{21}\text{N}_3\text{S}$ ($[\text{M}+\text{H}]^+$) 372.1529, found 372.1538.

***N,N*-Diethyl-4-(2-(trifluoromethyl)-10*H*-phenothiazin-10-yl)aniline (3ac):**



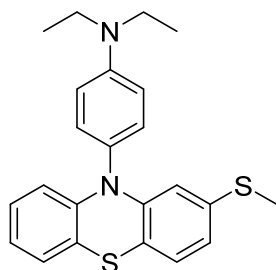
Yellow solid; mp 114.3-116.7 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.14-7.12 (m, 2H), 7.01 (d, *J* = 10.0 Hz, 1H), 6.97 (d, *J* = 10.0 Hz, 1H), 6.86-6.76 (m, 4H), 6.48 (s, 1H), 6.26-6.24 (m, 1H), 3.45-3.41 (m, 4H), 1.24 (t, *J* = 5.0 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 147.7, 145.5, 144.5, 131.3, 129.4, 129.1, 128.9, 128.6, 127.2, 126.9, 126.5, 126.4, 125.0, 124.2, 122.9, 122.5, 118.4 (q, *J* = 16.0 Hz) , 116.2, 113.0, 111.8 (q, *J* = 16.0 Hz), 44.4, 12.6. ; ¹⁹F NMR (471 MHz, CDCl₃) δ : -62.83; LRMS (EI, 70eV) *m/z* (%): 414 (M⁺, 91), 399 (100), 370 (34), 266 (14); HRMS *m/z* (ESI) calcd for C₂₃H₂₁F₃N₂S ([M+H]⁺) 415.1450, found 415.1457.

1-(10-(4-(Diethylamino)phenyl)-10*H*-phenothiazin-2-yl)ethan-1-one (3ad):



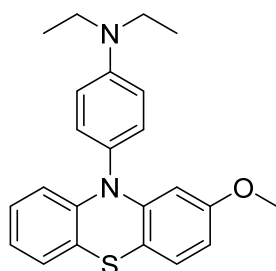
Yellow solid; mp 139.5-141.6 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.31-7.29 (m, 1H), 7.15-7.13 (m, 2H), 6.97 (d, *J* = 5.0 Hz, 1H), 6.92-6.90 (m, 1H), 6.84-6.81 (m, 4H), 6.77-6.74 (m, 1H), 6.25-6.23 (m, 1H), 3.44-3.40 (m, 4H), 2.35 (s, 3H), 1.23 (t, *J* = 5.0 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 197.3, 147.5, 145.1, 144.5, 135.9, 131.3, 127.2, 127.1, 126.6, 126.3, 126.1, 122.2, 122.2, 118.2, 116.1, 114.3, 113.0, 44.4, 26.4, 12.5; LRMS (EI, 70eV) *m/z* (%): 388 (M⁺, 100), 373 (83), 344 (31), 186 (10); HRMS *m/z* (ESI) calcd for C₂₄H₂₄N₂OS ([M+H]⁺) 389.1682, found 389.1688.

***N,N*-Diethyl-4-(2-(methylthio)-10*H*-phenothiazin-10-yl)aniline (3ae):**



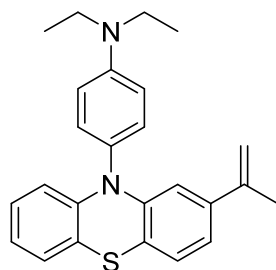
Yellow solid; mp 134.3-136.4 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.14-7.13 (m, 2H), 6.95-6.94 (m, 1H), 6.87 (d, *J* = 5.0 Hz, 1H), 6.82-6.79 (m, 3H), 6.77-6.73 (m, 1H), 6.67-6.65 (m, 1H), 6.27-6.24 (m, 2H), 3.44-3.40 (m, 4H), 2.27 (s, 3H), 1.23 (t, *J* = 5.0 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 147.5, 145.4, 144.9, 136.8, 131.6, 127.6, 126.8, 126.6, 126.4, 122.0, 120.1, 119.4, 116.4, 116.0, 114.5, 112.9, 44.4, 16.2, 12.6; LRMS (EI, 70eV) *m/z* (%): 392 (M⁺, 100), 377 (72), 348 (28), 188 (13); HRMS *m/z* (ESI) calcd for C₂₃H₂₄N₂S₂ ([M+H]⁺) 393.1454, found 393.1461.

***N,N*-Diethyl-4-(2-methoxy-10*H*-phenothiazin-10-yl)aniline (3af):**



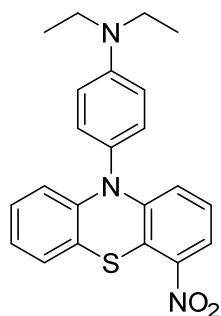
Yellow solid; mp 155.9-157.2 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.15-7.13 (d, *J* = 10 Hz, 2H), 6.98-6.96 (m, 1H), 6.87 (d, *J* = 5.0 Hz, 1H), 6.84-6.74 (m, 4H), 6.35-6.33 (m, 1H), 6.30-6.28 (m, 1H), 5.94 (d, *J* = 2.5 Hz, 1H), 3.62 (s, 3H), 3.43-3.38 (m, 4H), 1.22 (t, *J* = 5.0 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 159.1, 147.4, 146.4, 144.8, 131.5, 127.8, 126.7, 126.6, 126.4, 121.9, 119.9, 115.8, 112.8, 110.6, 105.6, 103.9, 55.2, 44.4, 12.6; LRMS (EI, 70eV) *m/z* (%): 376 (M⁺, 100), 361 (76), 332 (46), 181 (17); HRMS *m/z* (ESI) calcd for C₂₃H₂₄N₂OS ([M+H]⁺) 377.1682, found 377.1693.

***N,N*-Diethyl-4-(2-(prop-1-en-2-yl)-10*H*-phenothiazin-10-yl)aniline (3ag):**



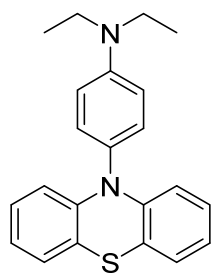
Red solid; mp 97.3-99.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.17-7.16 (m, 2H), 6.96-6.94 (m, 1H), 6.91 (d, *J* = 10.0 Hz, 1H), 6.87-6.85 (m, 1H), 6.84-6.80 (m, 3H), 6.76-6.72 (m, 1H), 6.42 (d, *J* = 2.0 Hz), 6.28-6.26 (m, 1H), 5.50-5.50 (m, 1H), 4.88 (t, *J* = 3.0 Hz, 1H), 3.44-3.40 (m, 4H), 1.91 (s, 3H), 1.23 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 147.4, 145.1, 144.9, 142.9, 140.0, 131.6, 127.9, 126.8, 126.4, 126.1, 121.8, 119.3, 119.2, 118.7, 115.9, 113.0, 112.9, 111.8, 44.4, 21.6, 12.5; LRMS (EI, 70eV) *m/z* (%): 386 (M⁺, 100), 371 (55), 342 (25), 185 (14); HRMS *m/z* (ESI) calcd for C₂₅H₂₆N₂S ([M+H]⁺) 387.1889, found 387.1893.

***N,N*-Diethyl-4-(4-nitro-10*H*-phenothiazin-10-yl)aniline (3ah):**



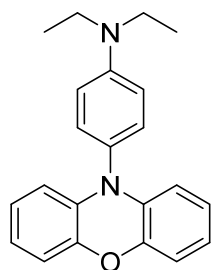
Black solid; mp 141.3-143.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.44-7.40 (m, 2H), 7.38-7.36 (m, 1H), 7.22-7.17 (m, 2H), 7.14-7.12 (m, 2H), 7.08-7.03 (m, 2H), 6.54-6.52 (m, 2H), 3.29-3.25 (m, 4H), 1.10 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125MHz, CDCl₃) δ : 145.7, 145.0, 144.0, 137.7, 135.8, 134.4, 130.3, 129.3, 127.8, 127.3, 126.3, 125.1, 124.2, 124.0, 123.0, 112.2, 44.4, 12.5; LRMS (EI, 70eV) *m/z* (%): 391 (M⁺, 100), 376 (89), 299 (27), 164 (74); HRMS *m/z* (ESI) calcd for C₂₂H₂₁N₃O₂S ([M+H]⁺) 392.1427, found 392.1436.

***N,N*-Diethyl-4-(10*H*-phenothiazin-10-yl)aniline (3ai):**



White solid; mp 151.4-153.3 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.17-7.15 (m, 2H), 6.97-6.95 (m, 2H), 6.84-6.80 (m, 4H), 6.77-6.73 (m, 2H), 6.29-6.27 (m, 2H), 3.44-3.40 (m, 4H), 1.23 (t, *J* = 5.0 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 147.3, 145.1, 131.7, 127.9, 126.8, 126.4, 121.9, 119.3, 115.7, 112.8, 44.4, 12.6; LRMS (EI, 70eV) *m/z* (%): 346 (M⁺, 100), 331 (93), 302 (53), 165 (14); HRMS *m/z* (ESI) calcd for C₂₂H₂₂N₂S ([M+H]⁺) 347.1576, found 347.1583.

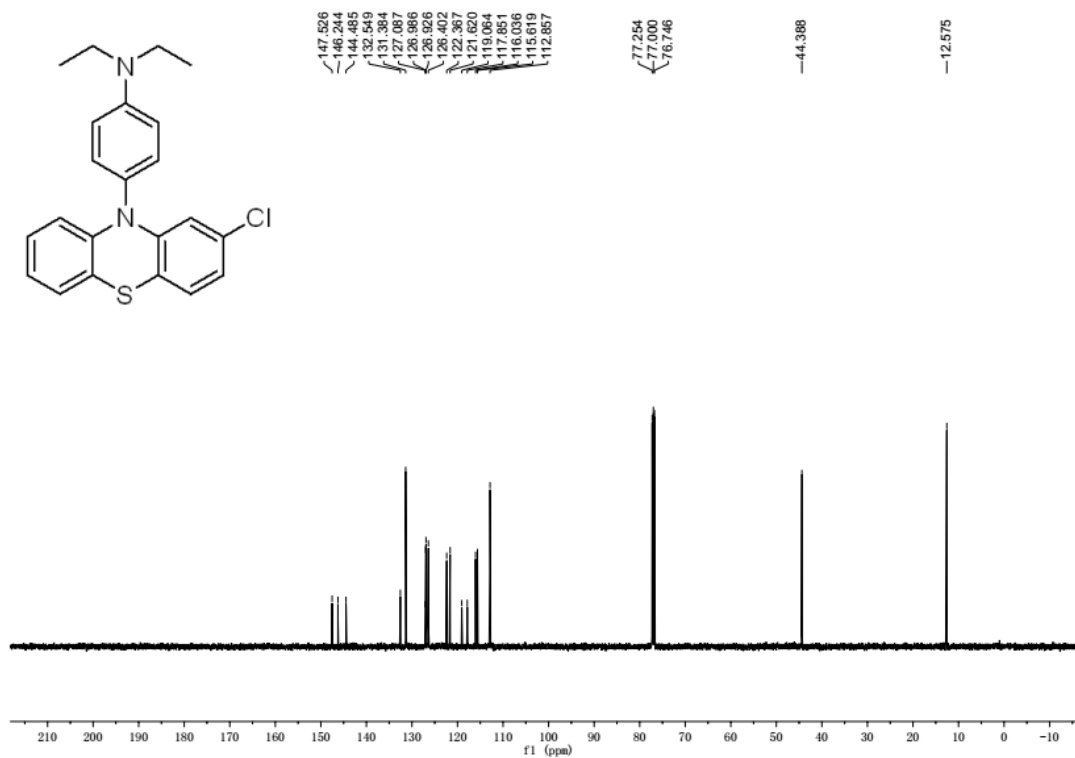
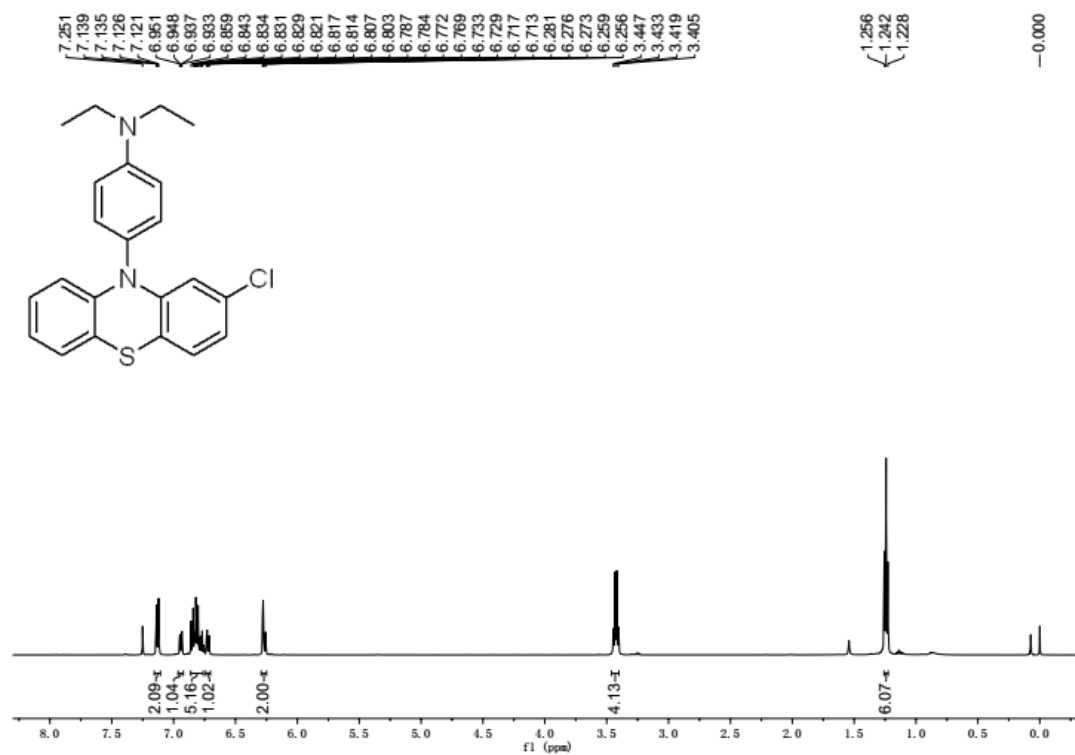
***N,N*-Diethyl-4-(10*H*-phenoxazin-10-yl)aniline (3aj):**



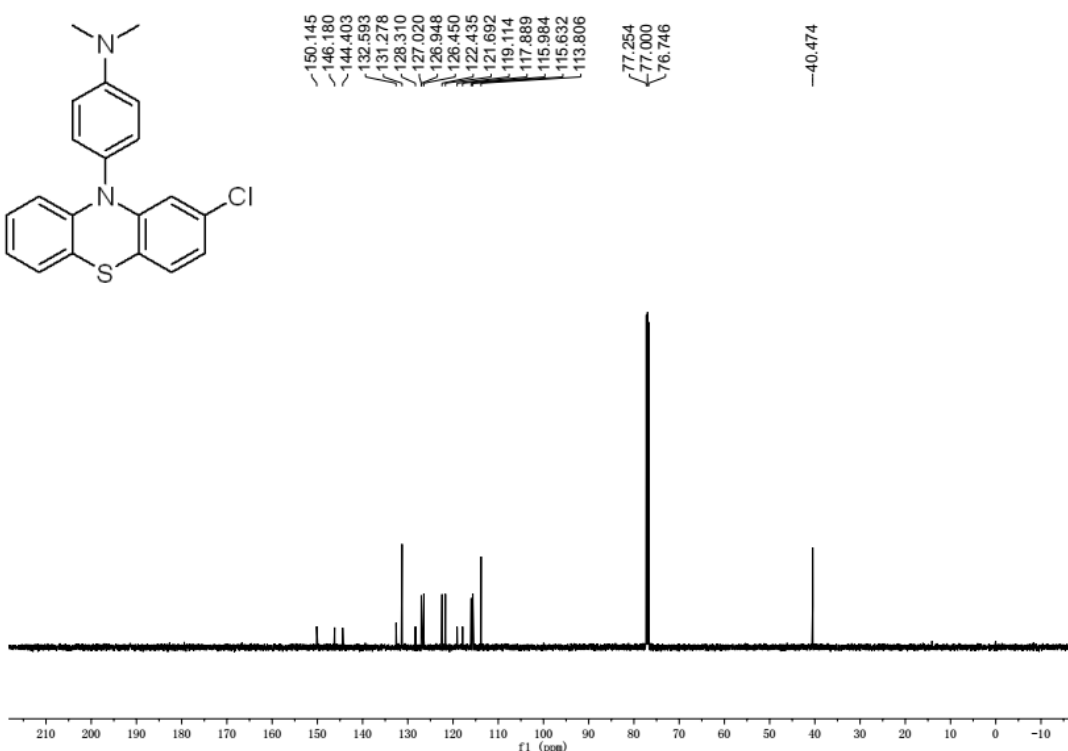
Red solid; mp 147.1-149.1 °C (uncorrected); ¹H NMR (500 MHz, CDCl₃) δ: 7.09-7.08 (m, 2H), 6.79-6.77 (m, 2H), 6.64-6.62 (m, 2H), 6.59-6.56 (m, 4H), 6.01-6.59 (m, 2H), 3.42-3.37 (m, 4H), 1.22 (t, *J* = 7.5 Hz, 6H); ¹³C NMR (125 MHz, CDCl₃) δ : 147.4, 144.0, 135.2, 131.2, 125.7, 123.1, 120.7, 115.0, 113.3, 113.1, 44.4, 12.6; LRMS (EI, 70eV) *m/z* (%): 330 (M⁺, 100), 315 (62), 286 (61), 182 (42); HRMS *m/z* (ESI) calcd for C₂₂H₂₂N₂O ([M+H]⁺) 331.1805, found 331.1812

(C) Spectra

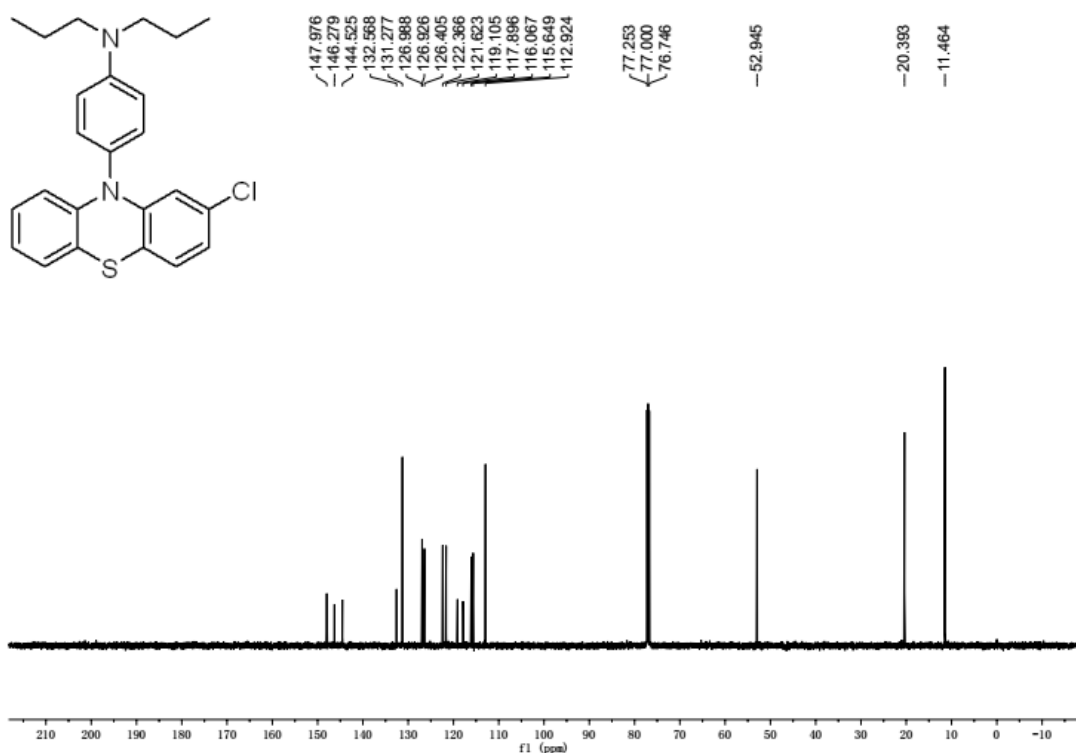
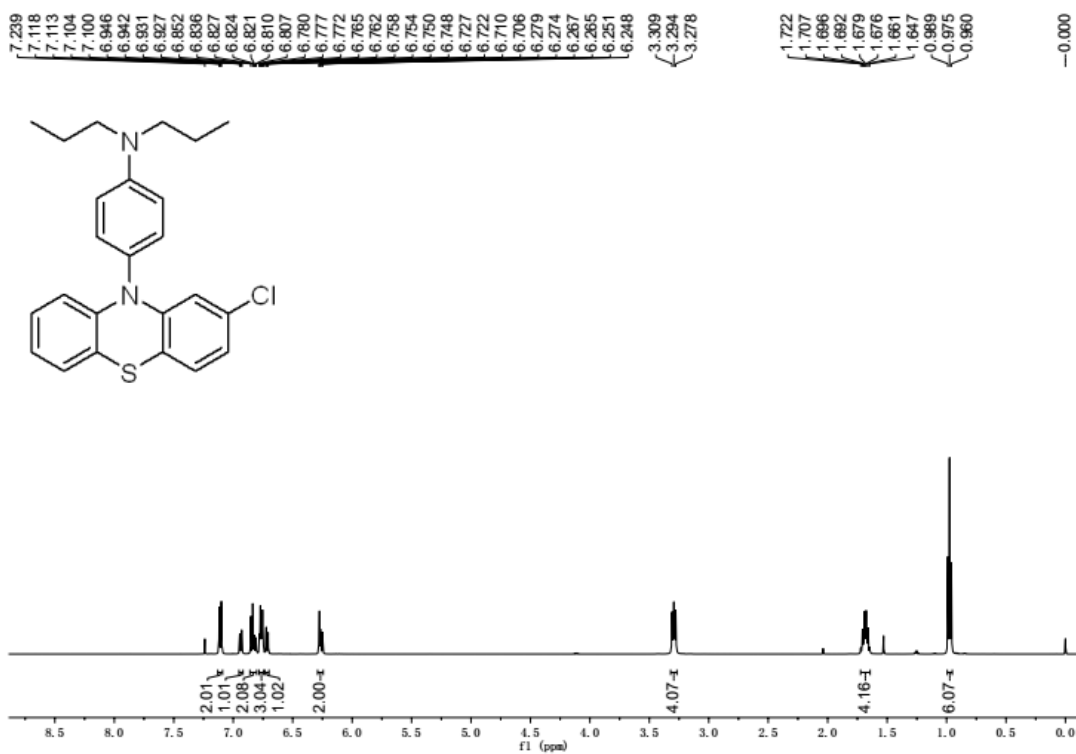
4-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*-diethylaniline (3a):



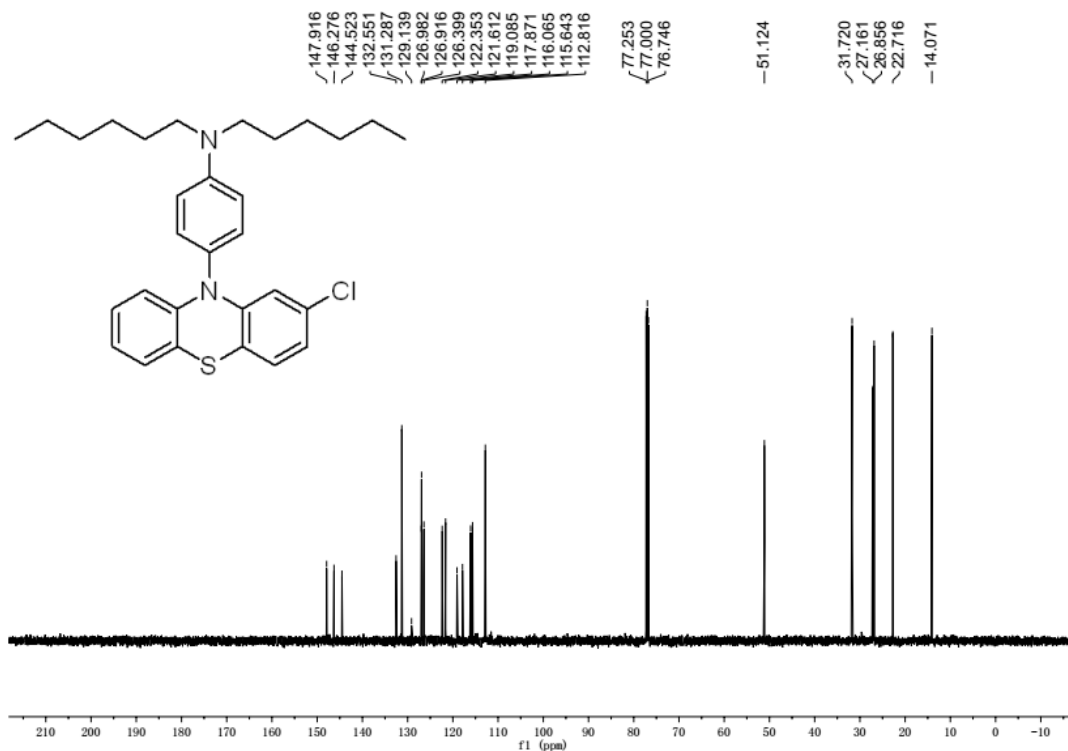
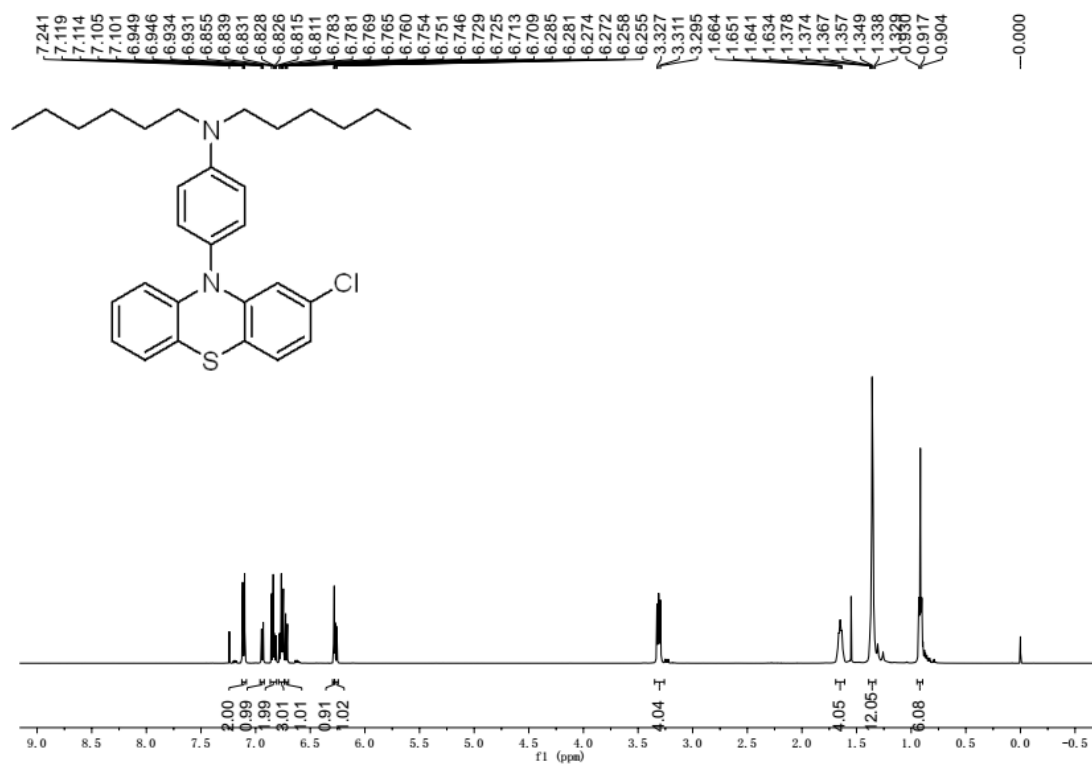
4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-dimethylaniline (3ba):



4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-dipropylaniline(3ca):



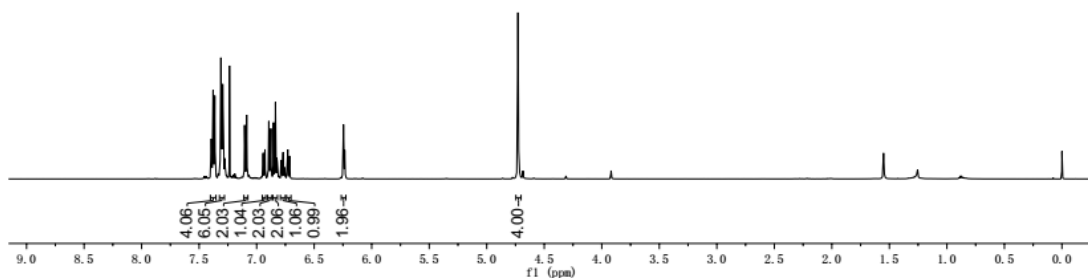
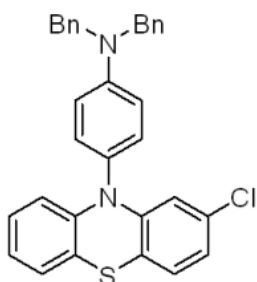
4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-dihexylaniline (3da):



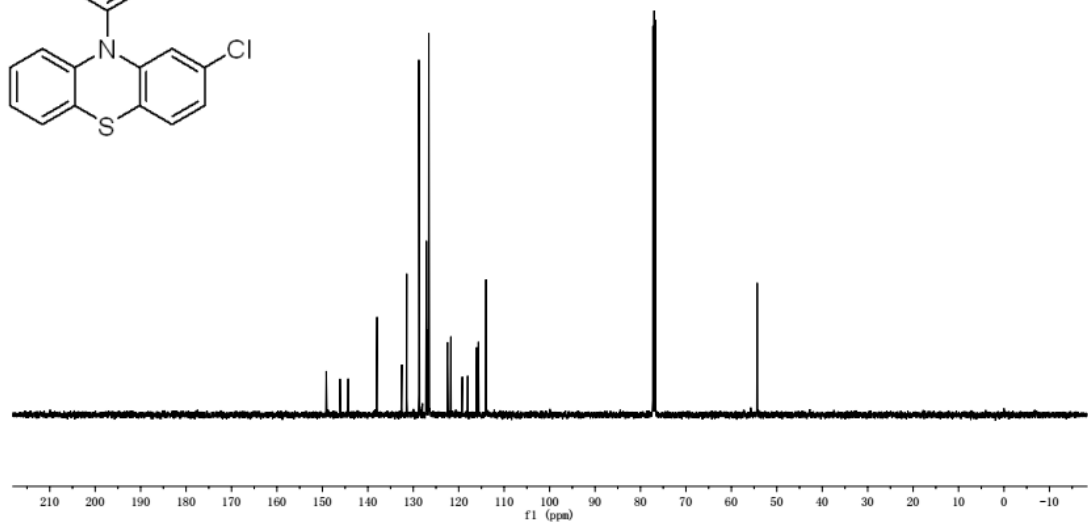
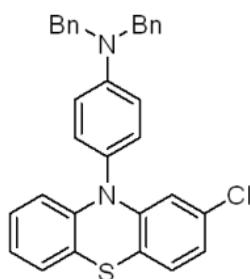
***N,N*-Dibenzyl-4-(2-chloro-10*H*-phenothiazin-10-yl)aniline (3ea):**

7.396
7.394
7.391
7.381
7.378
7.369
7.364
7.311
7.307
7.296
7.292
7.236
7.105
7.100
7.091
7.087
6.946
6.943
6.931
6.928
6.894
6.890
6.881
6.876
6.866
6.853
6.841
6.837
6.825
6.821
6.788
6.785
6.773
6.770
6.758
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6.251
6.249
6.245
6.241
6.235
6.232
4.728

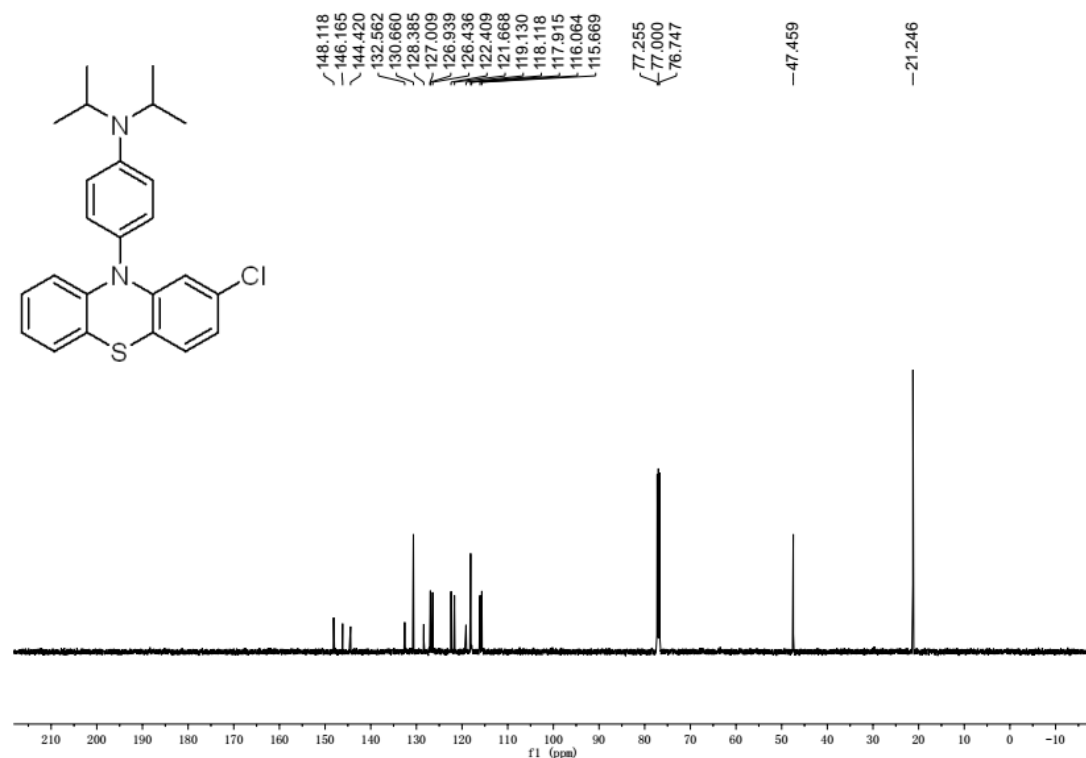
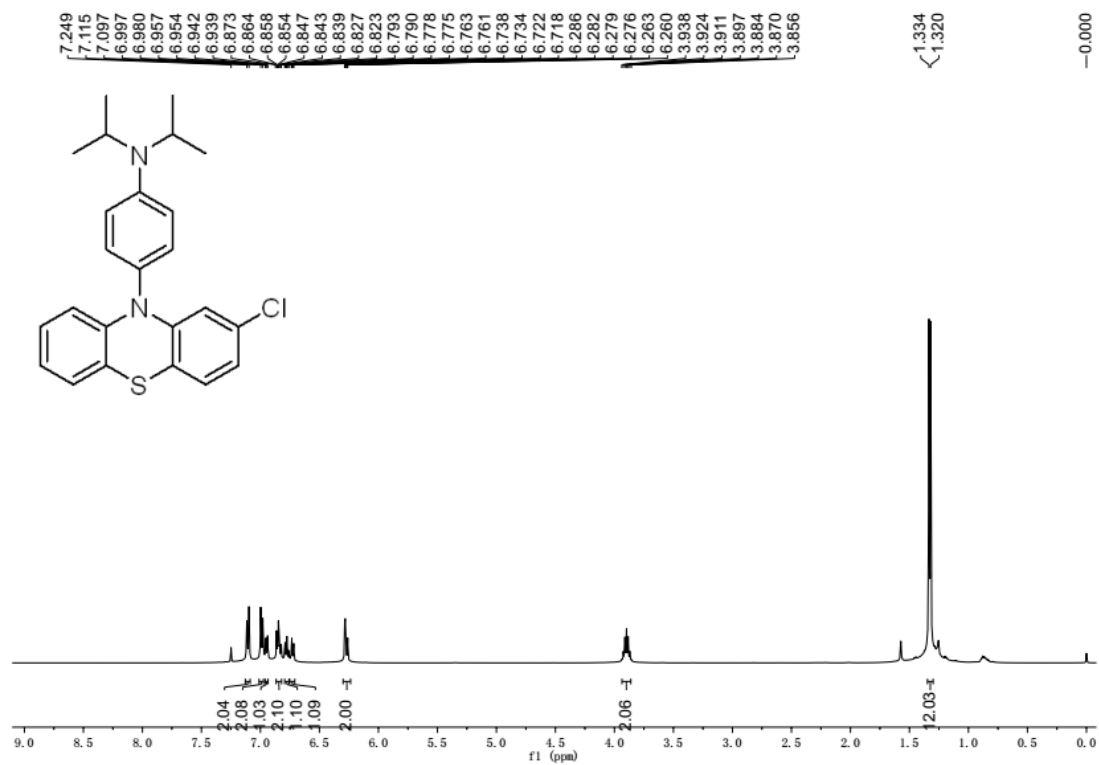
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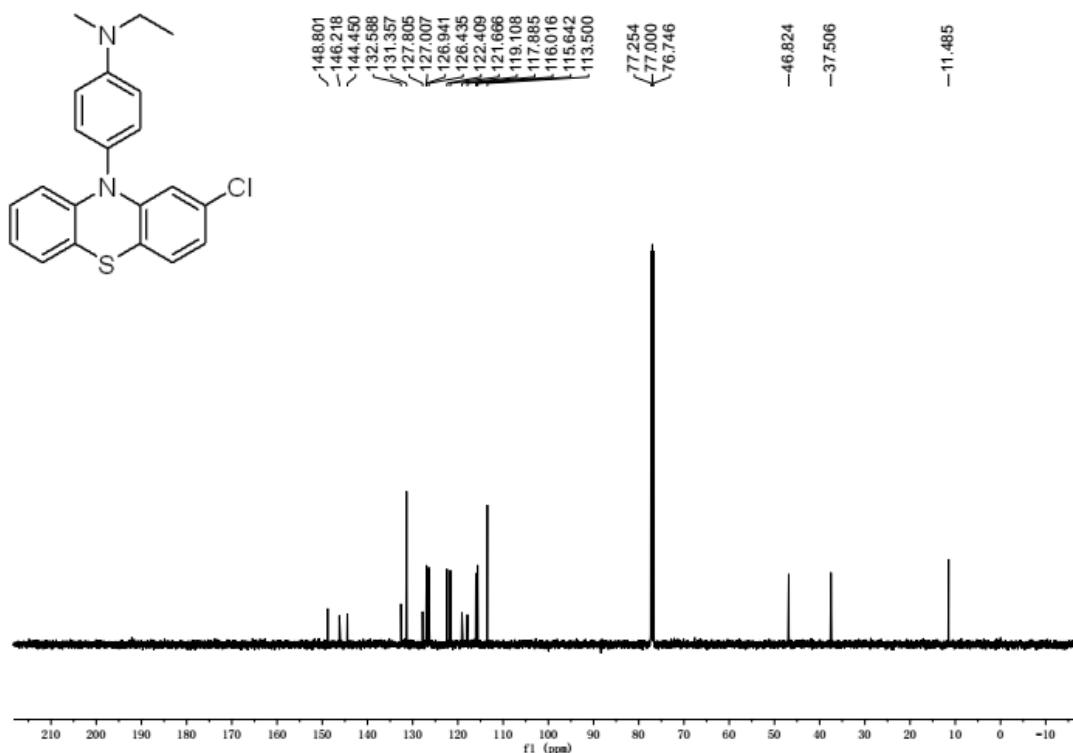
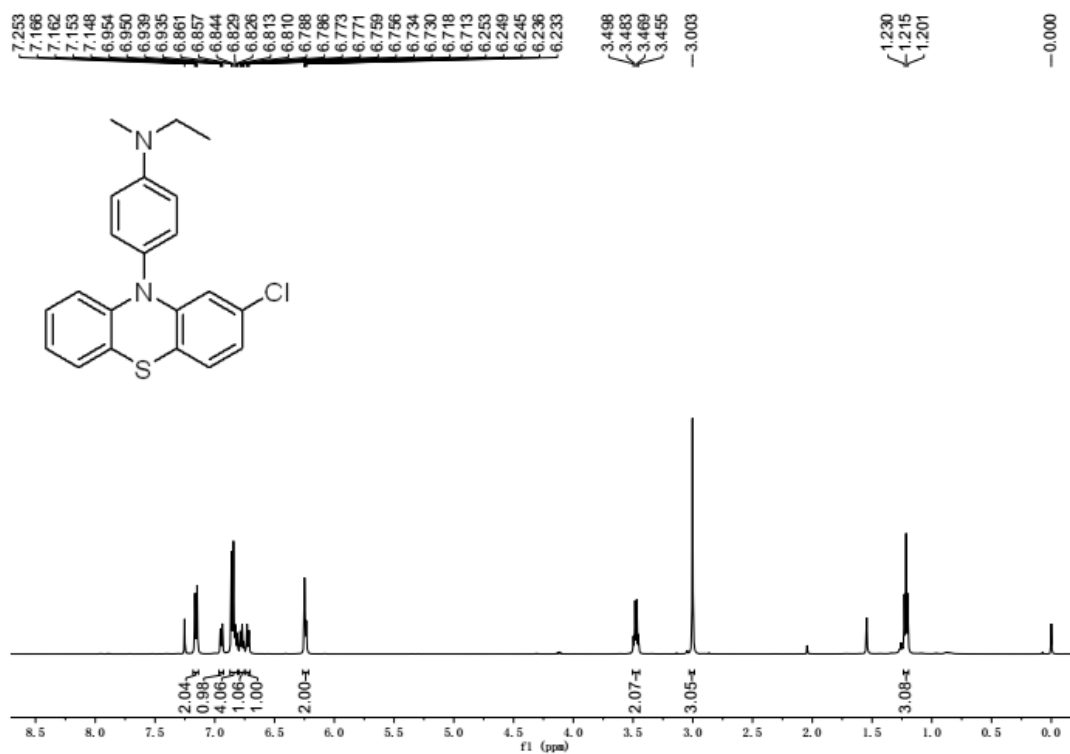
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144.338
137.983
132.512
131.432
128.772
128.742
128.674
127.106
127.070
127.055
126.922
126.582
126.477
122.468
121.726
119.214
118.028
116.044
115.669
114.005
77.254
77.000
76.746
-54.306



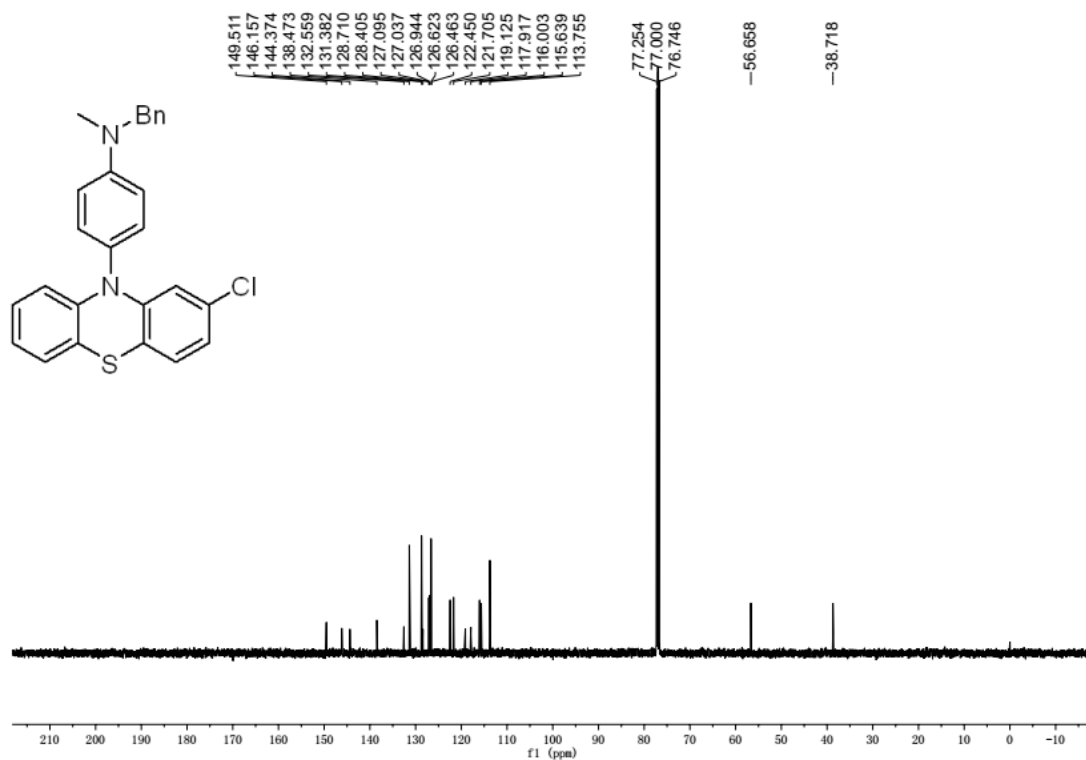
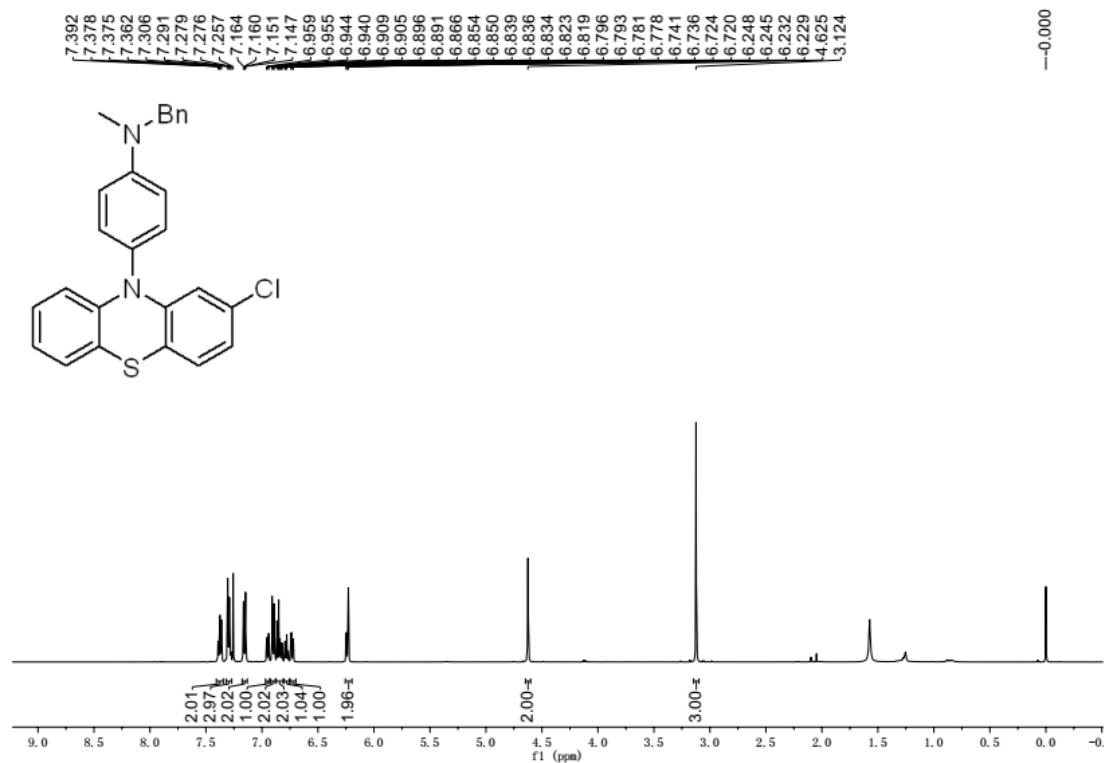
4-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*-diisopropylaniline (3fa):



4-(2-Chloro-10H-phenothiazin-10-yl)-N-ethyl-N-methylaniline (3ga);

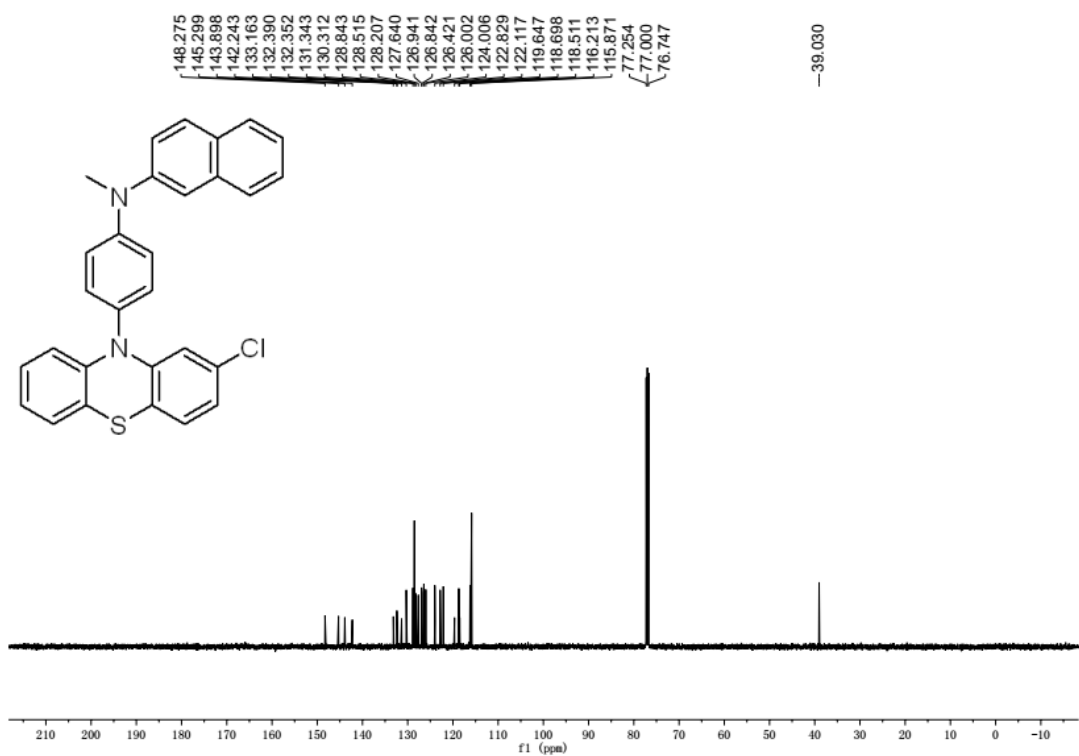
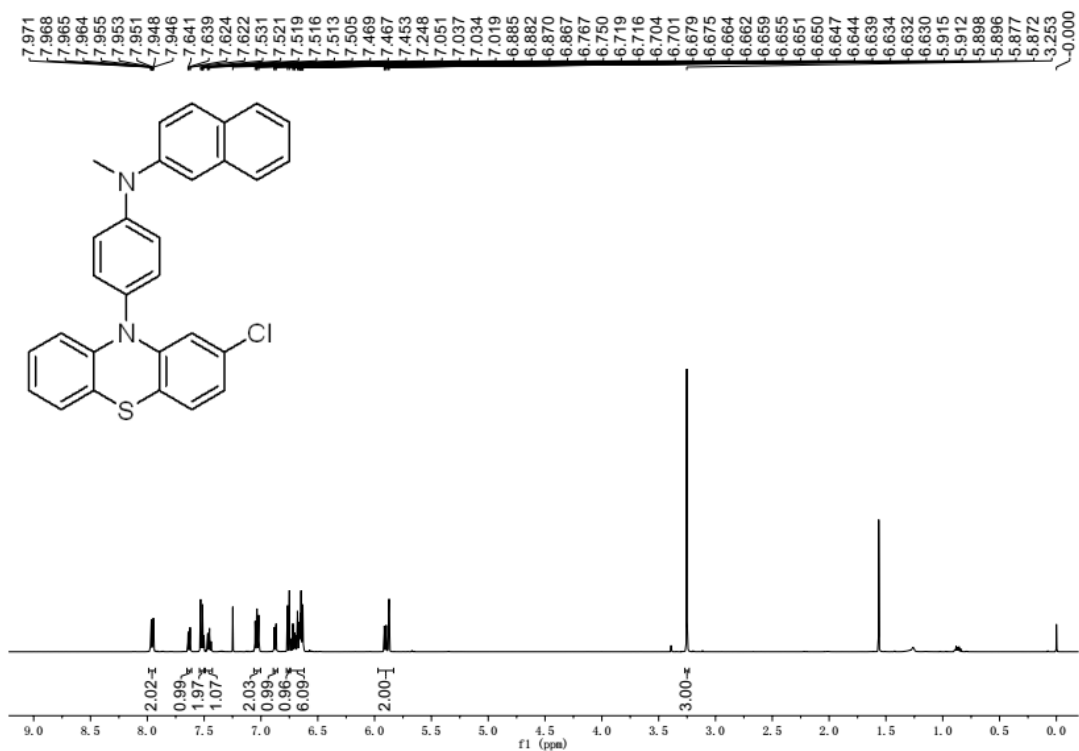


***N*-Benzyl-4-(2-chloro-10*H*-phenothiazin-10-yl)-*N*-methylaniline (3ha):**

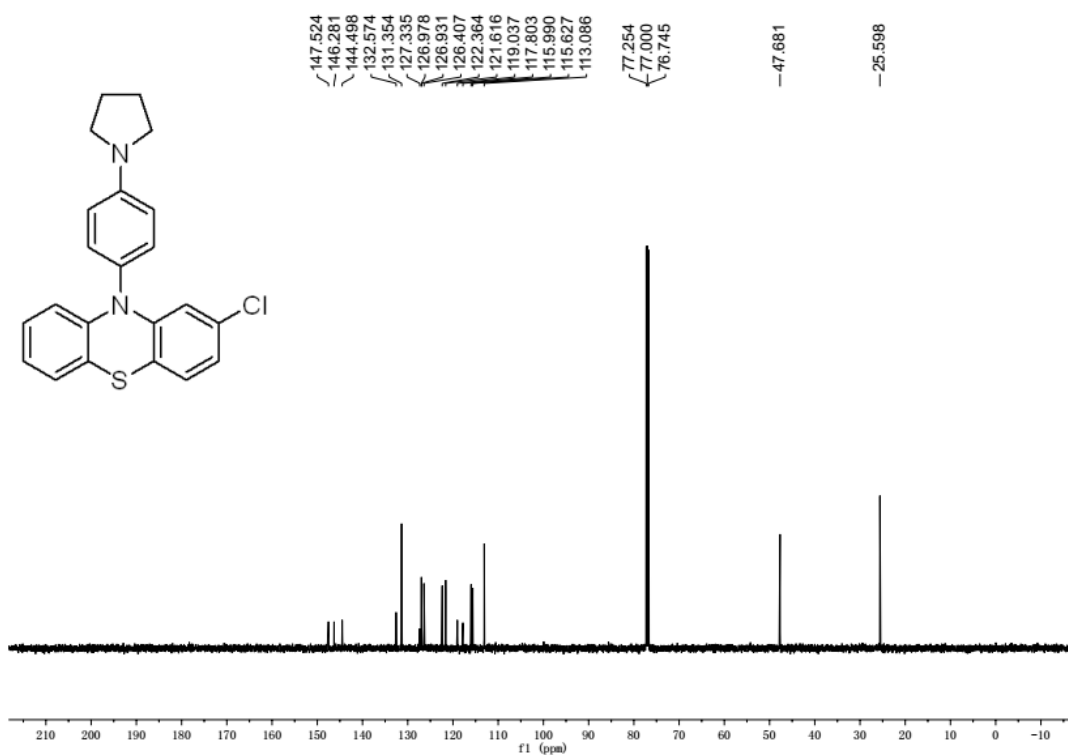
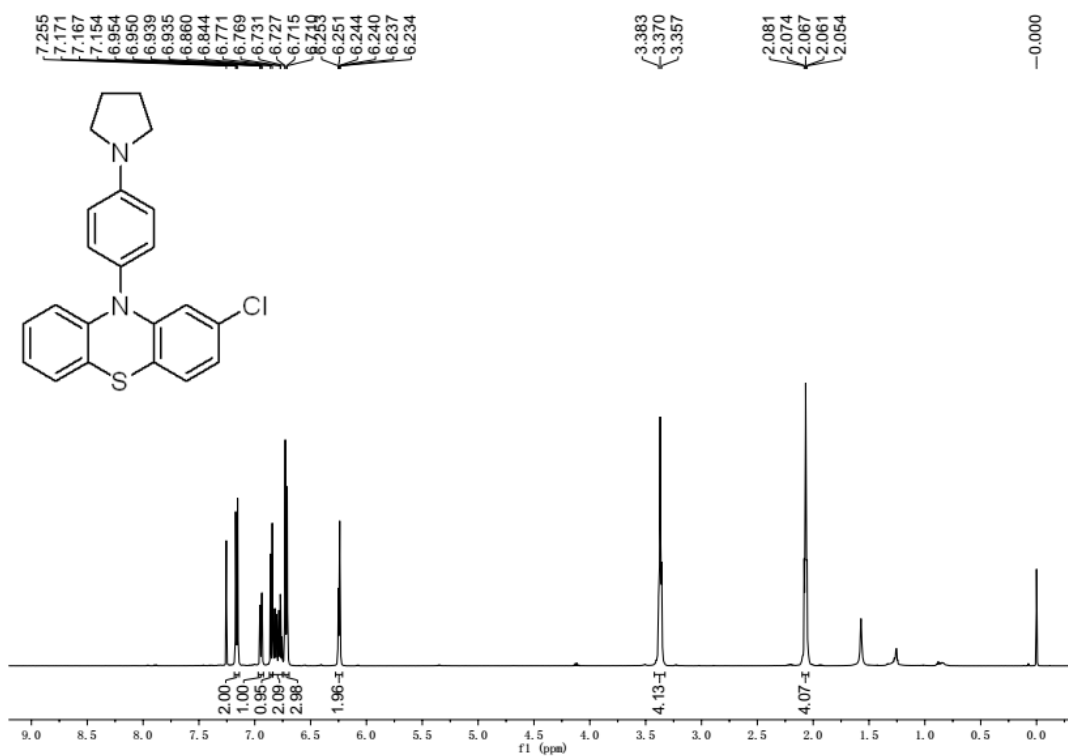


***N*-(4-(2-Chloro-10*H*-phenothiazin-10-yl)phenyl)-*N*-methylnaphthalen-2-amine**

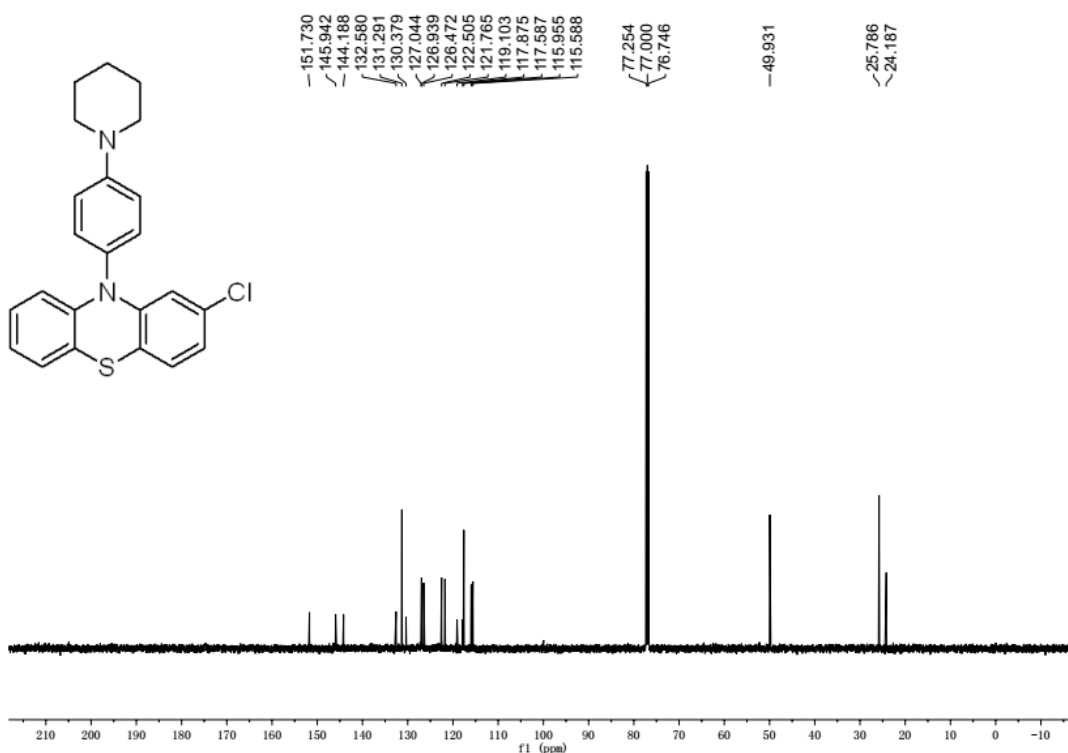
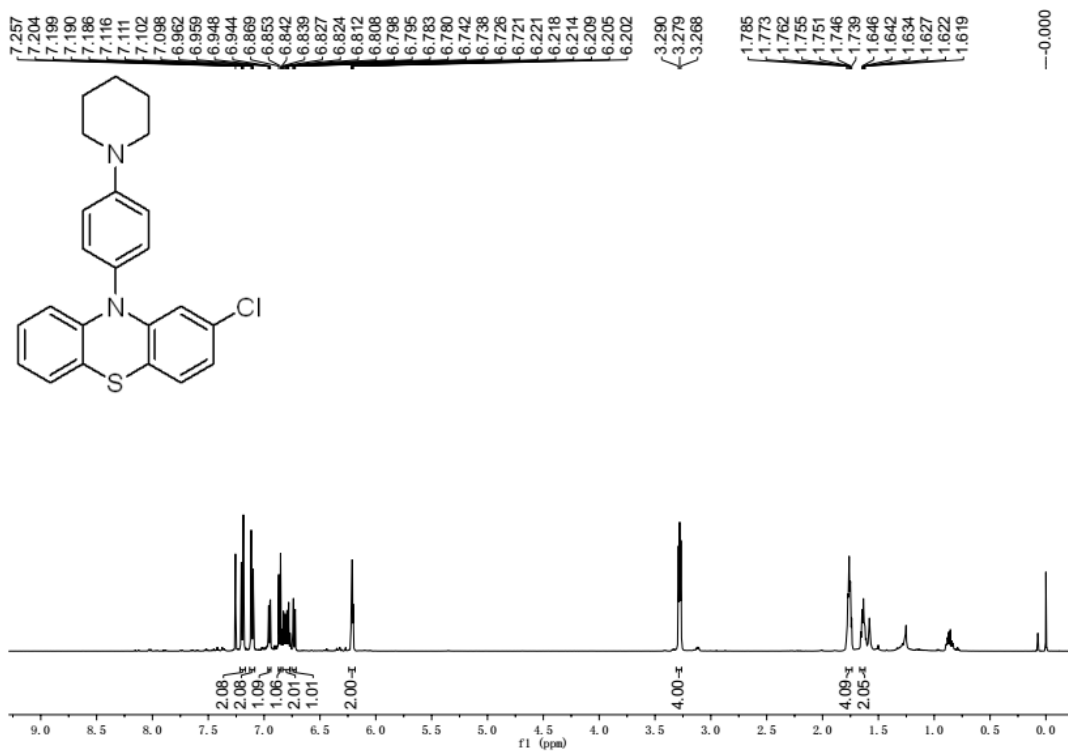
(3ia):



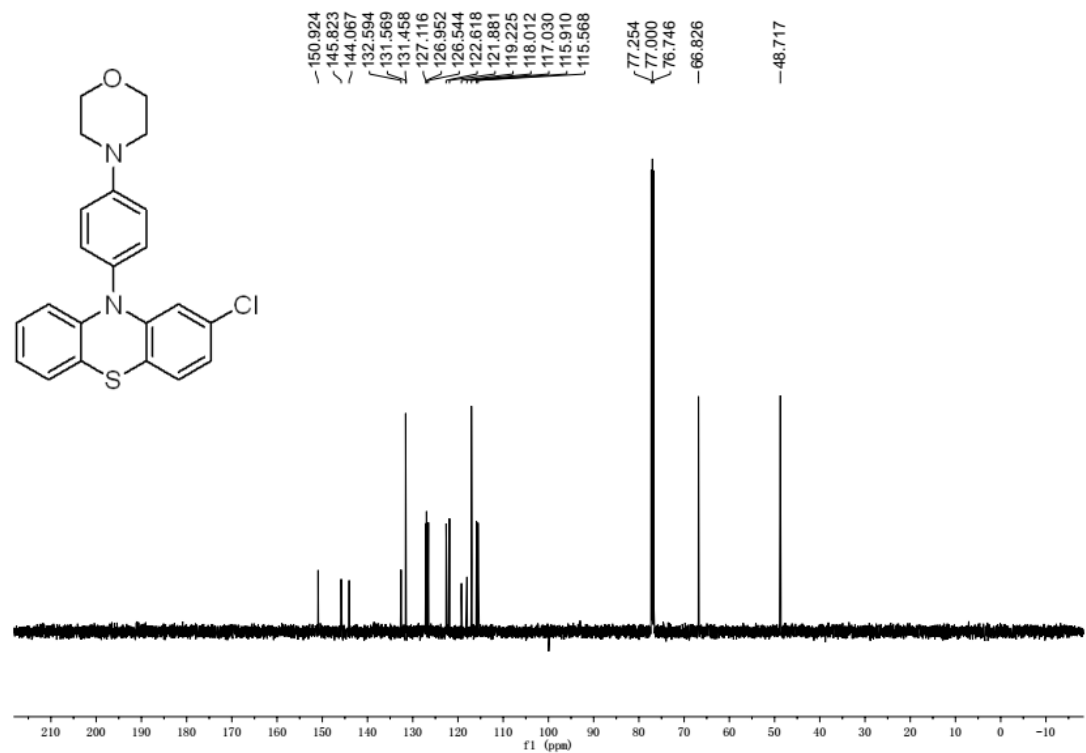
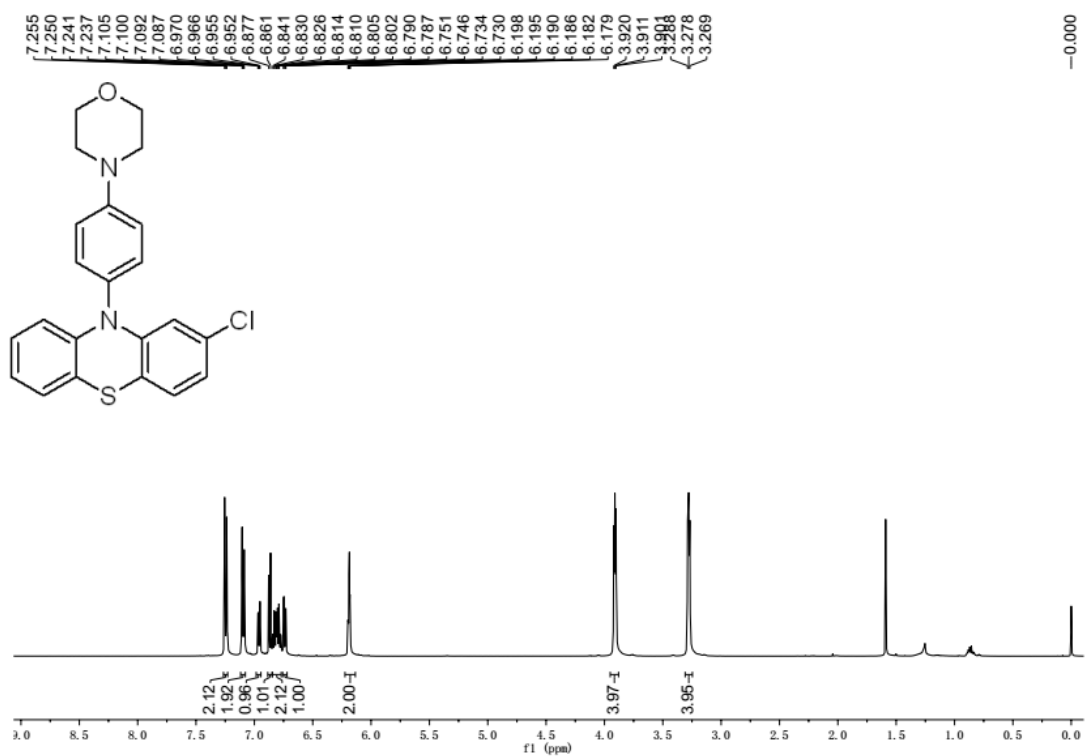
2-Chloro-10-(4-(pyrrolidin-1-yl)phenyl)-10H-phenothiazine (3ja):



2-Chloro-10-(4-(piperidin-1-yl)phenyl)-10H-phenothiazine (3ka):

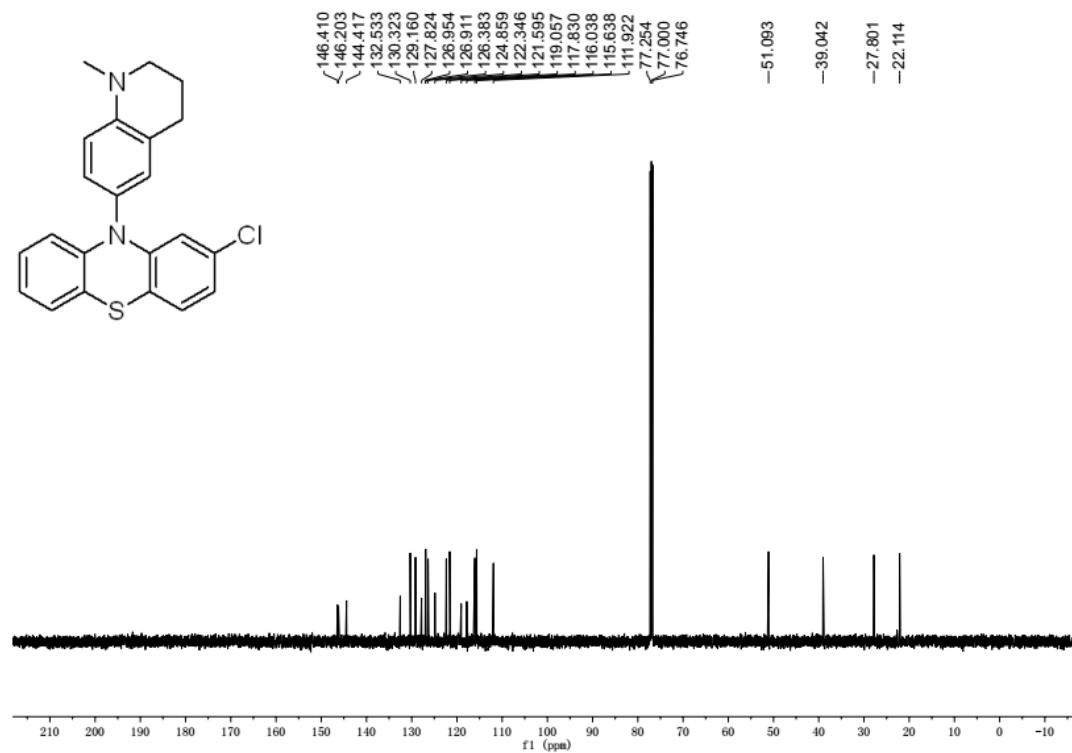
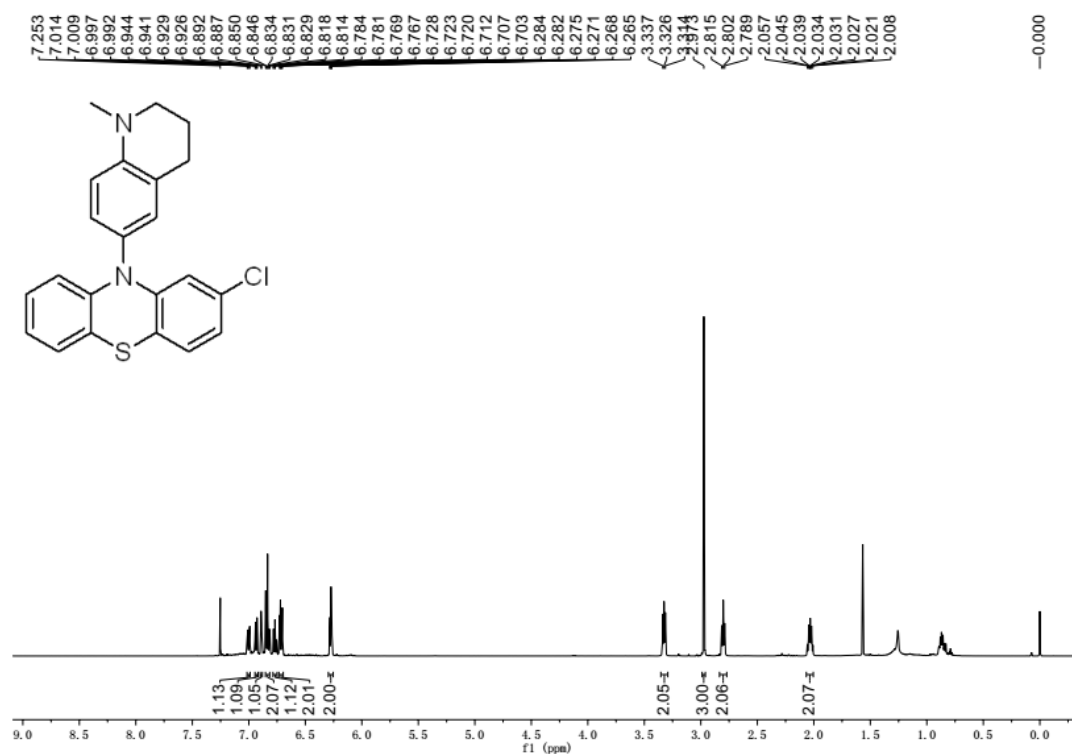


4-(4-(2-Chloro-10H-phenothiazin-10-yl)phenyl)morpholine (31a):



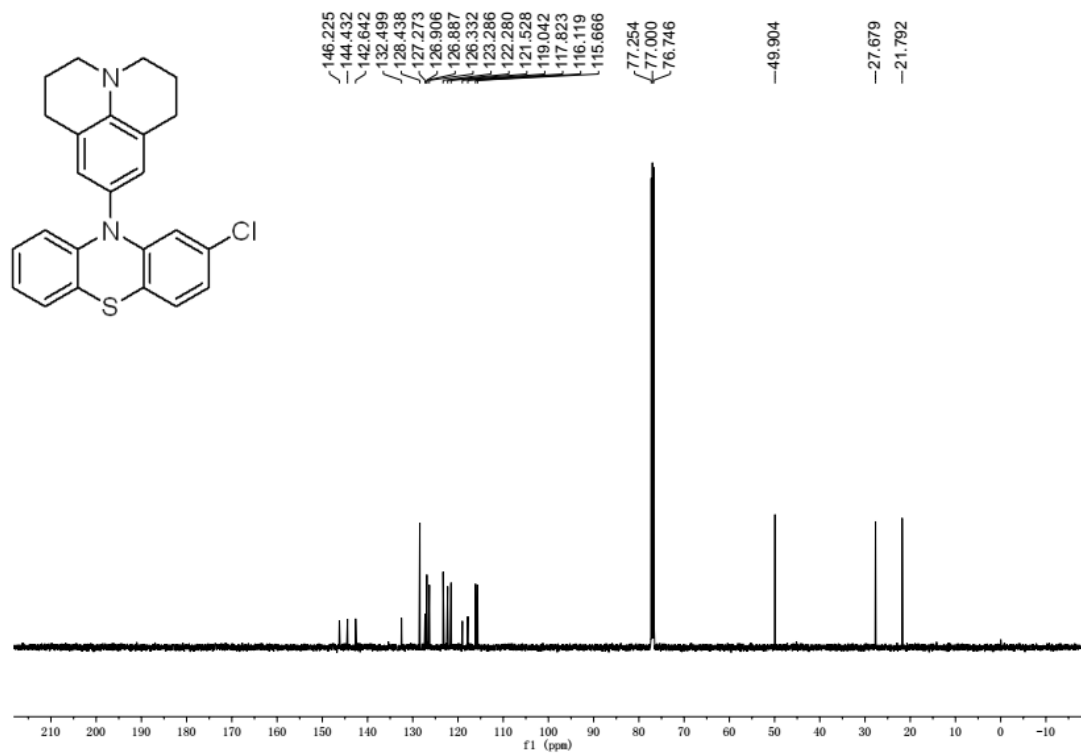
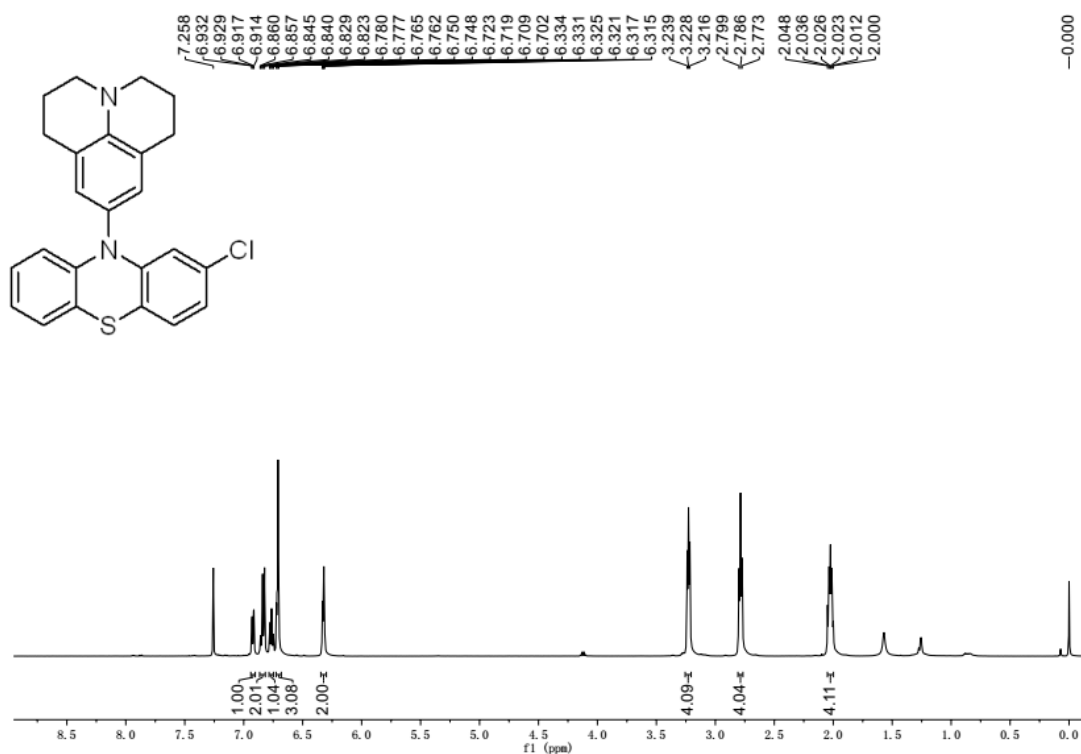
2-Chloro-10-(1-methyl-1,2,3,4-tetrahydroquinolin-6-yl)-10H-phenothiazine

(3ma):

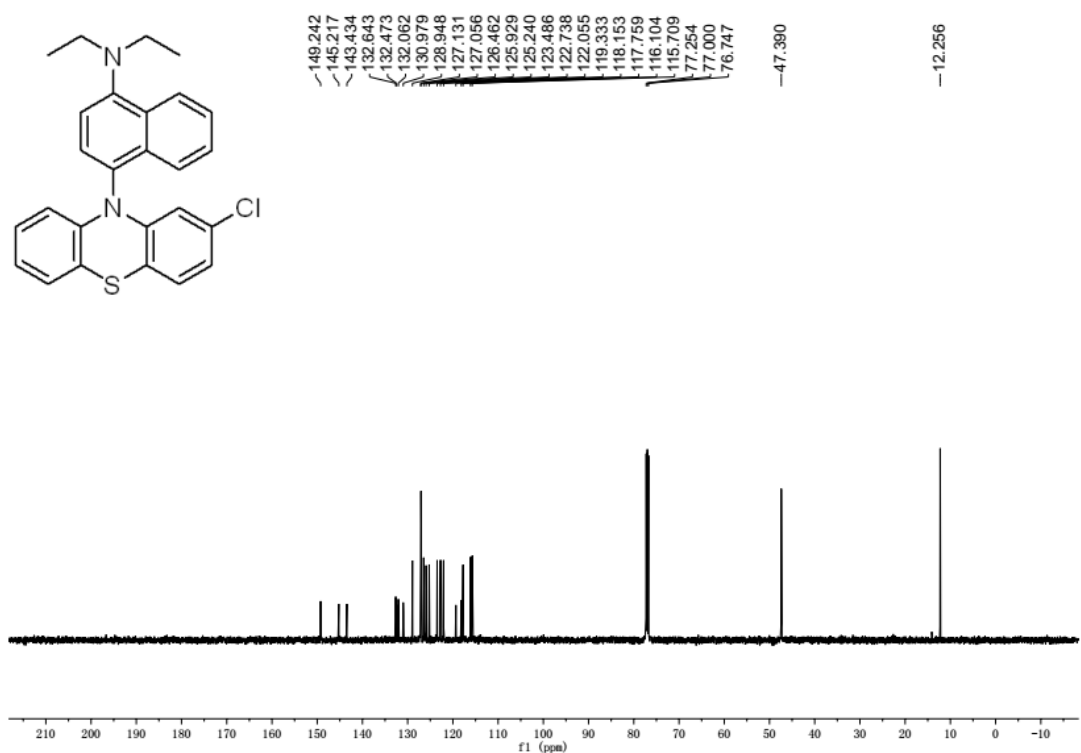


2-Chloro-10-(2,3,6,7-tetrahydro-1*H*,5*H*-pyrido[3,2-*i*]quinolin-9-yl)-10*H*-

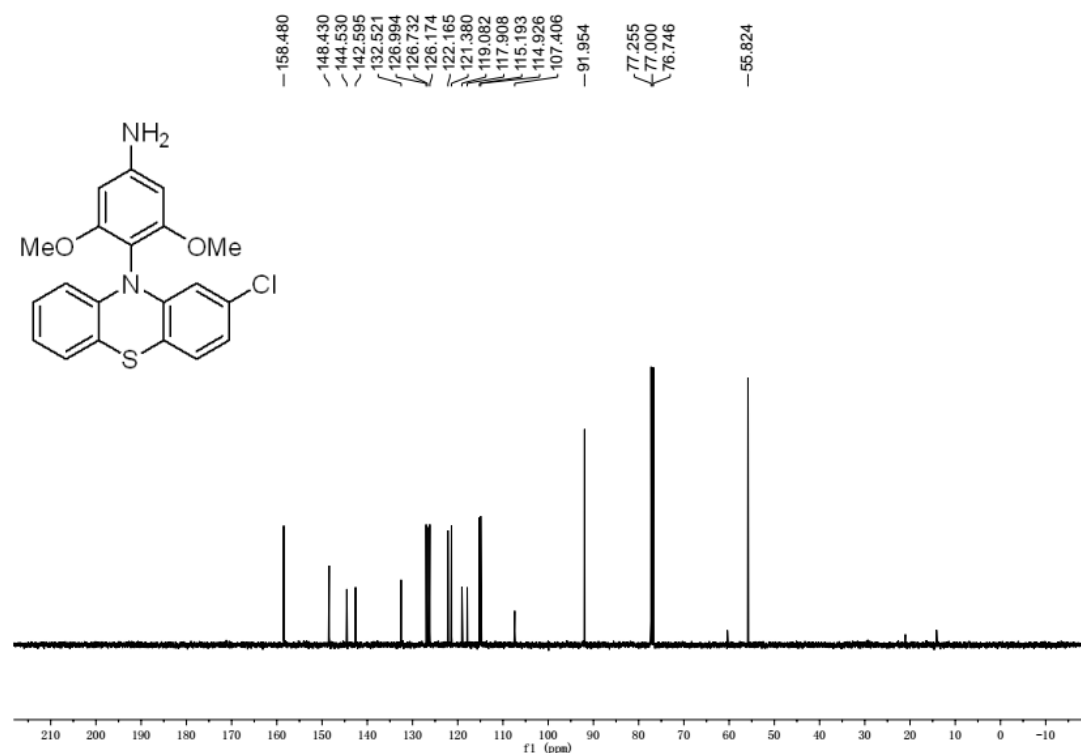
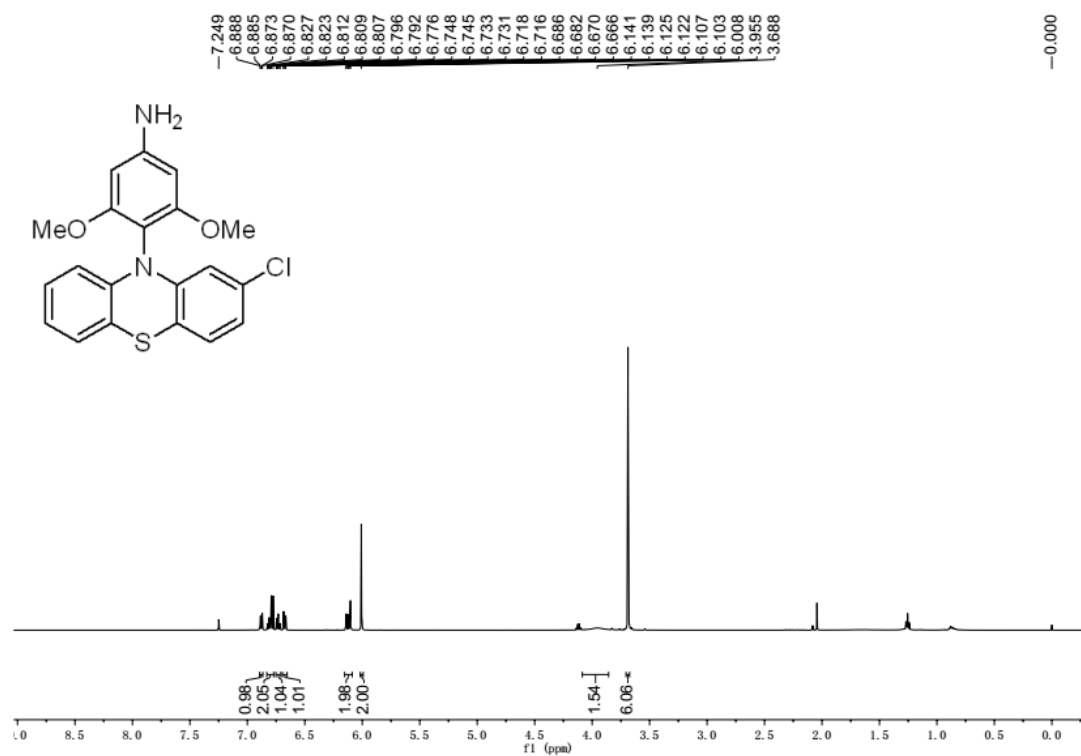
phenothiazine (3na):



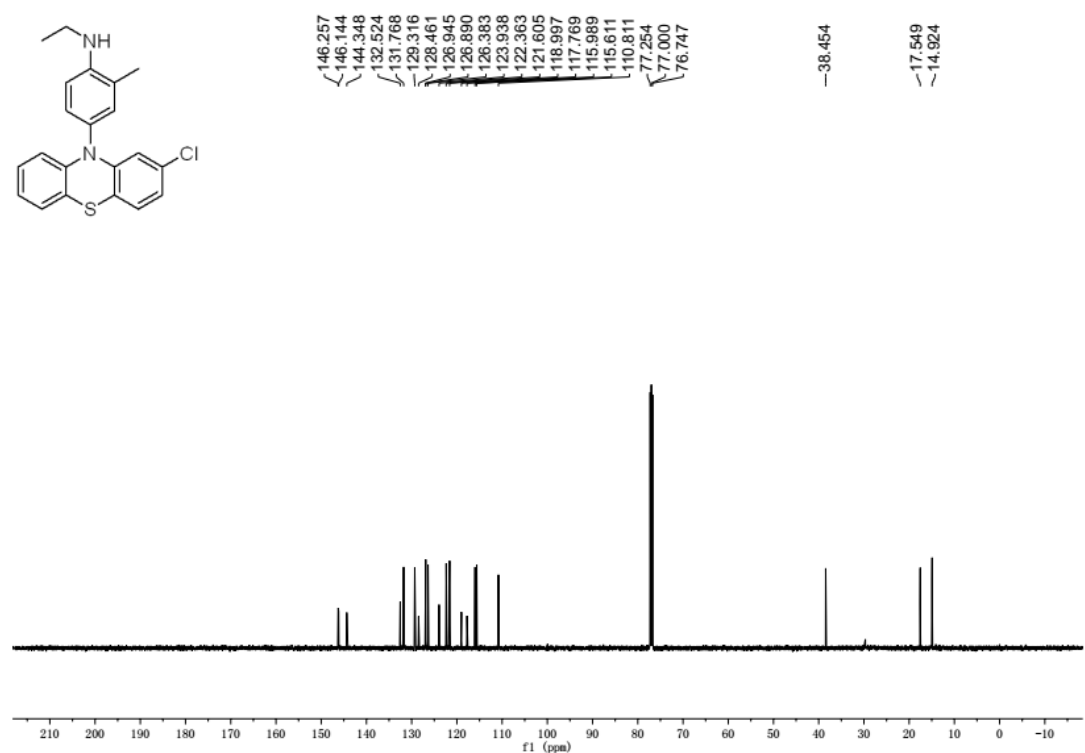
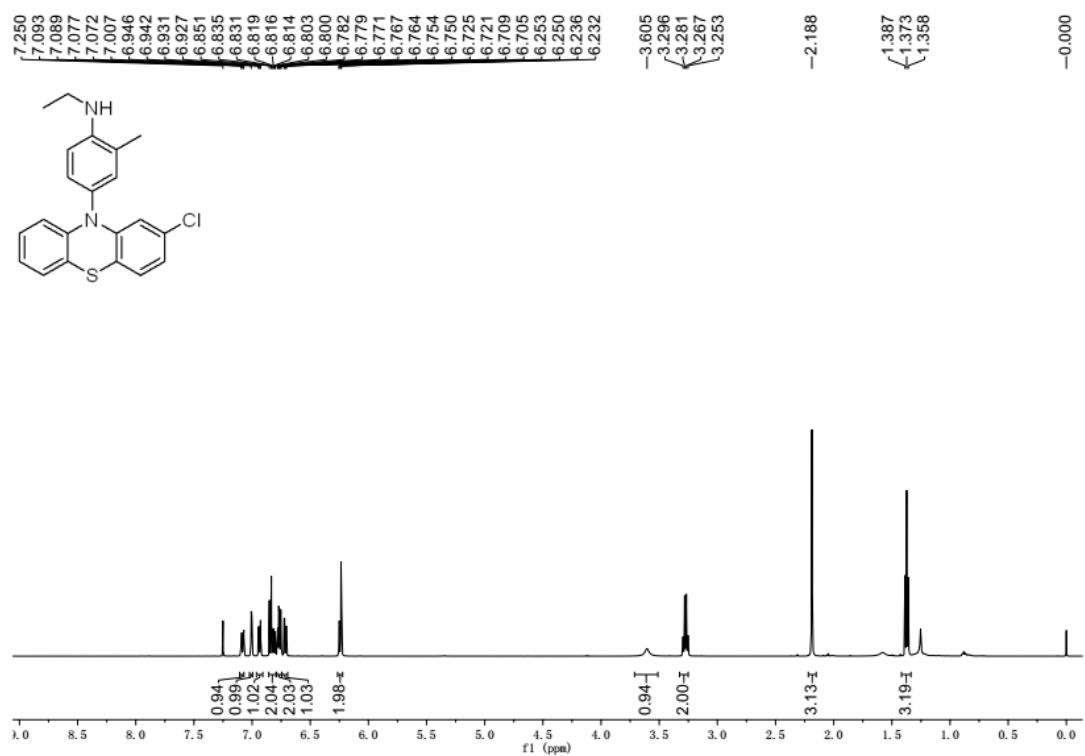
4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethylnaphthalen-1-amine (30a):



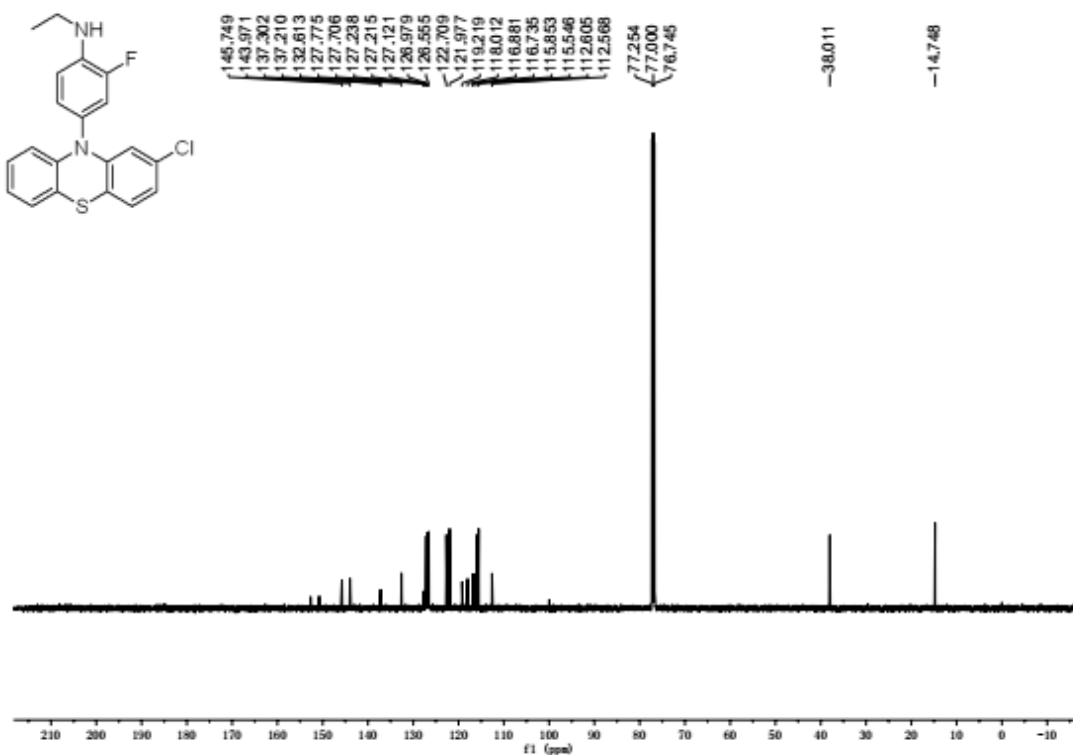
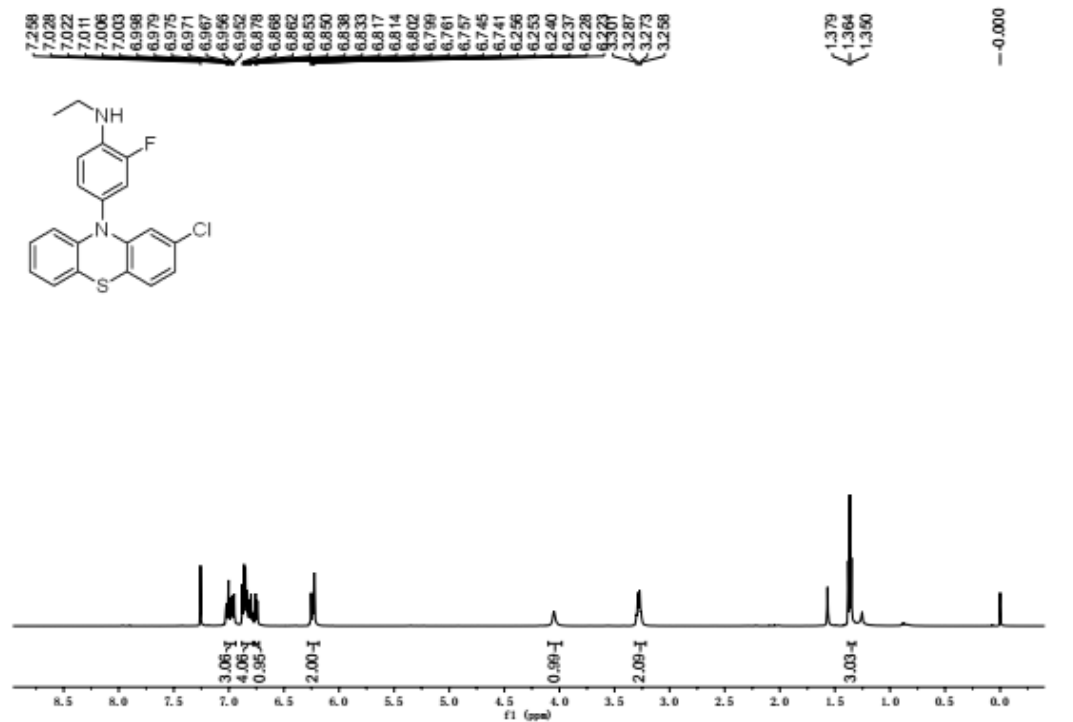
4-(2-Chloro-10H-phenothiazin-10-yl)-3,5-dimethoxyaniline (3pa) :

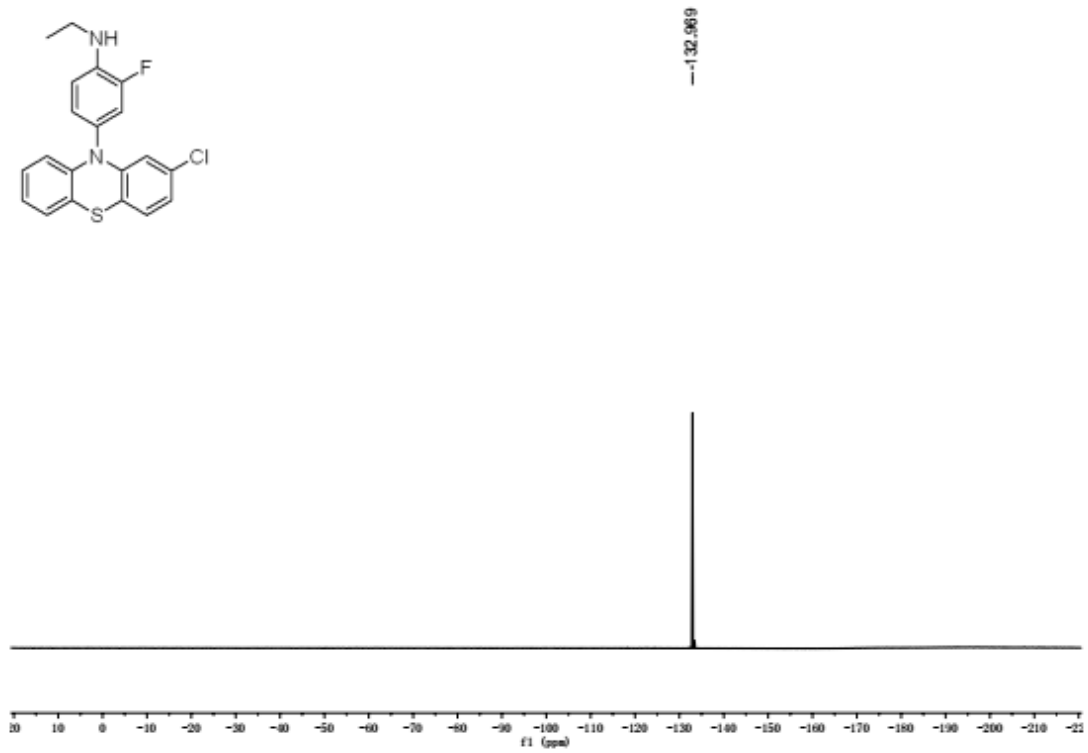
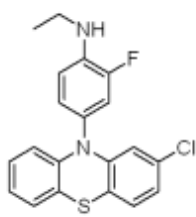


4-(2-Chloro-10H-phenothiazin-10-yl)-N-ethyl-2-methylaniline (3qa):

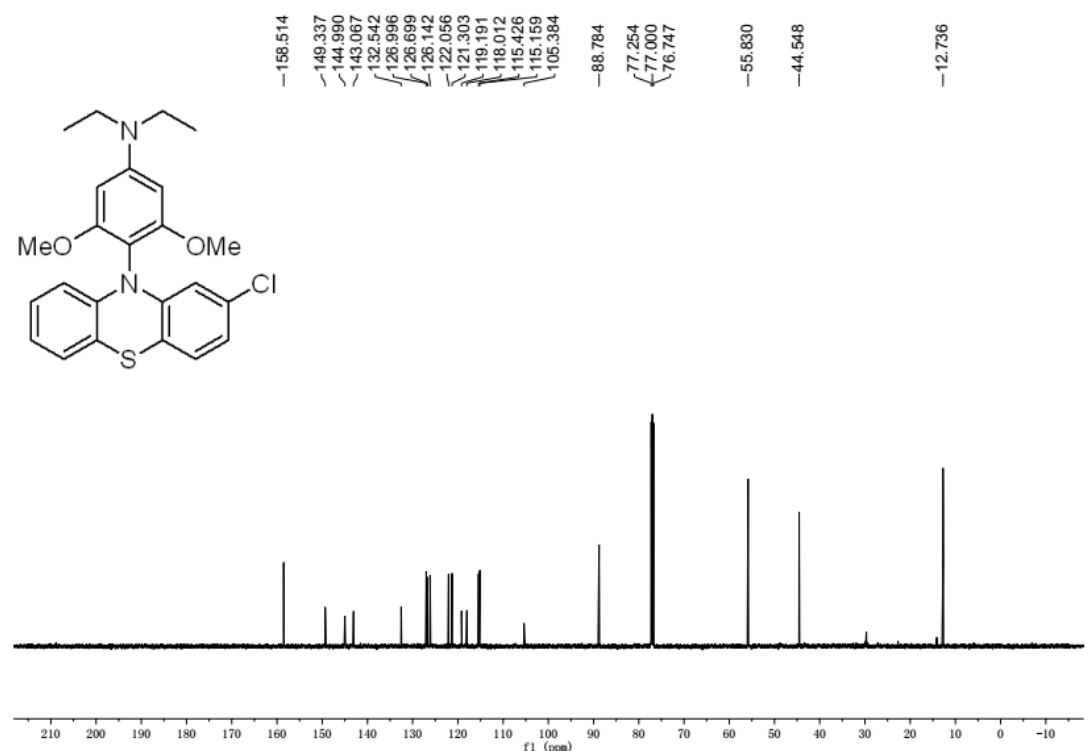
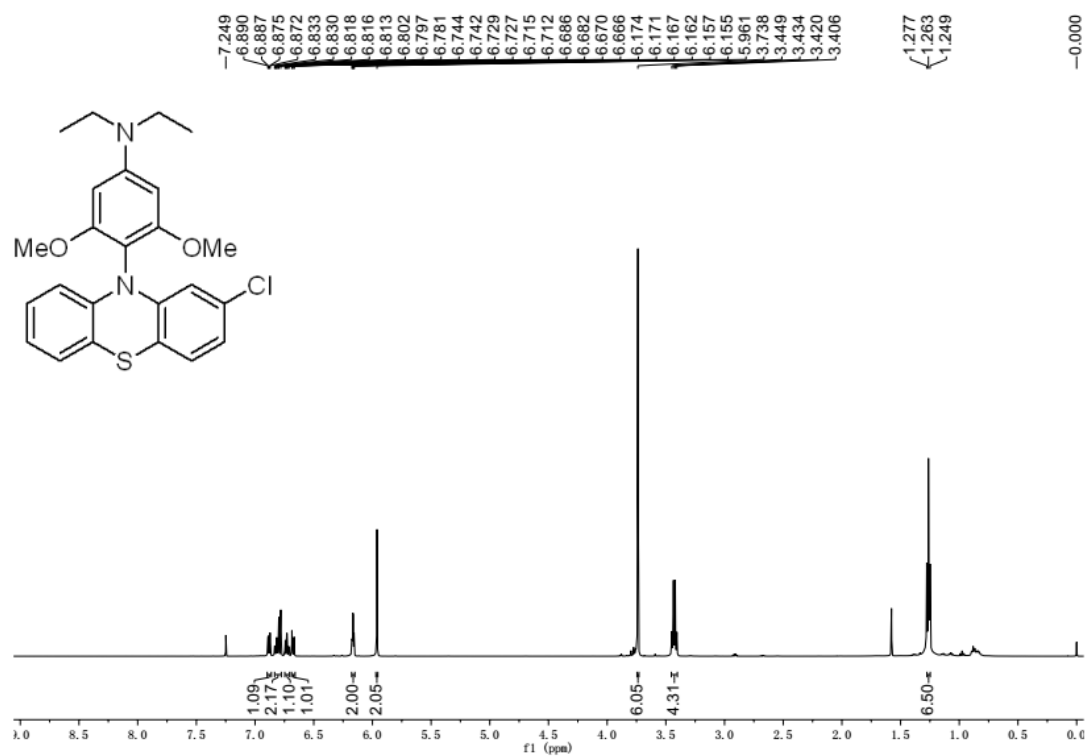


4-(2-Chloro-10H-phenothiazin-10-yl)-N-ethyl-2-fluoroaniline (3ra):

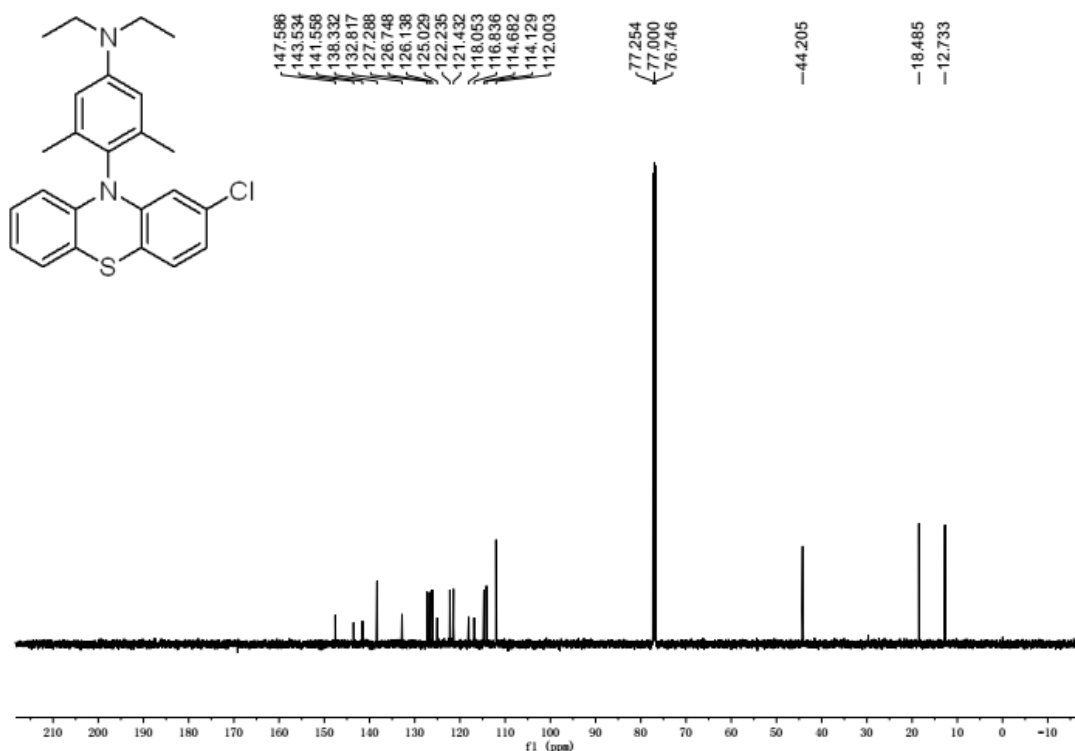
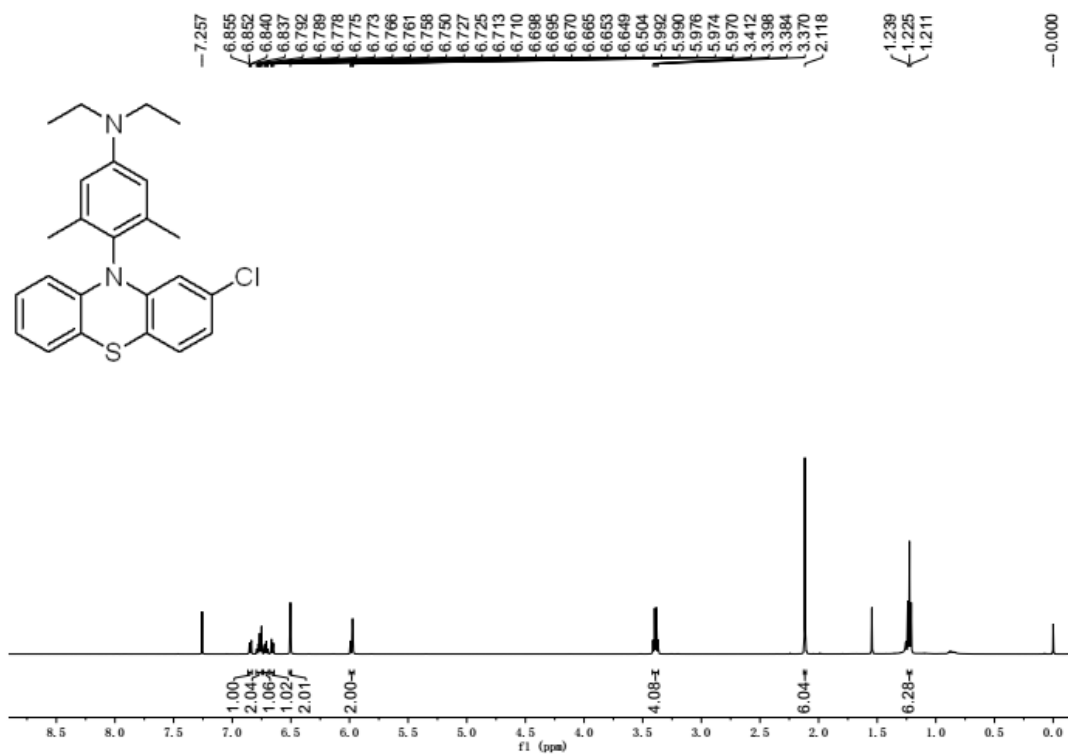




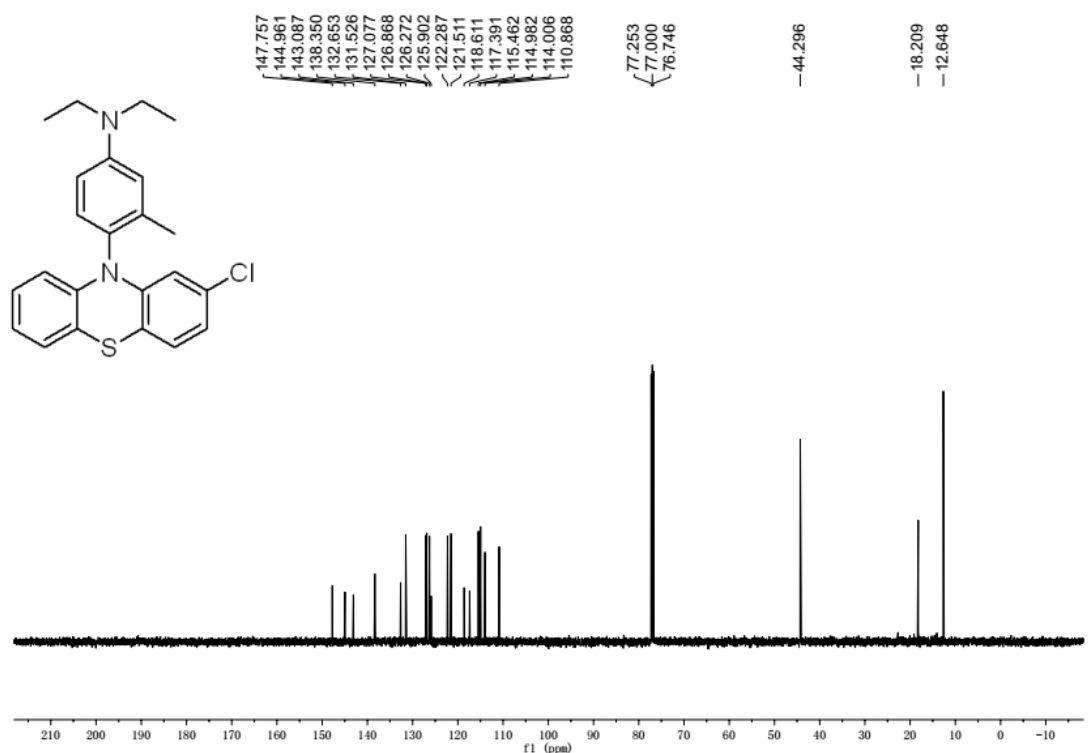
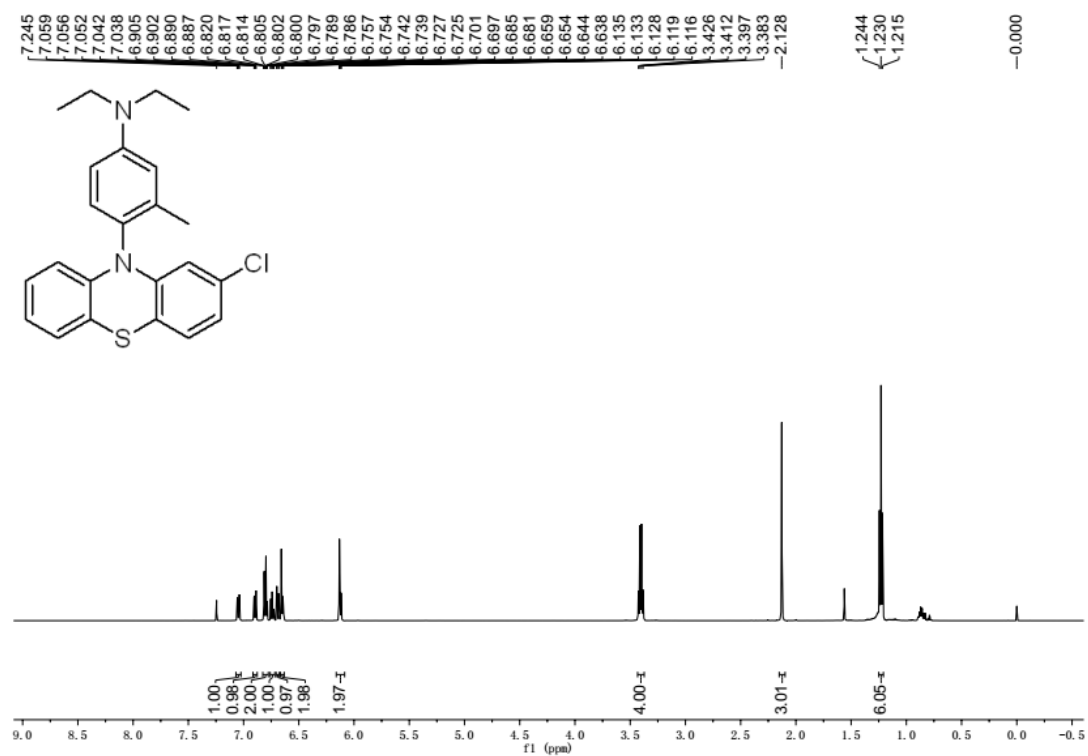
4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3,5-dimethoxyaniline (3sa):



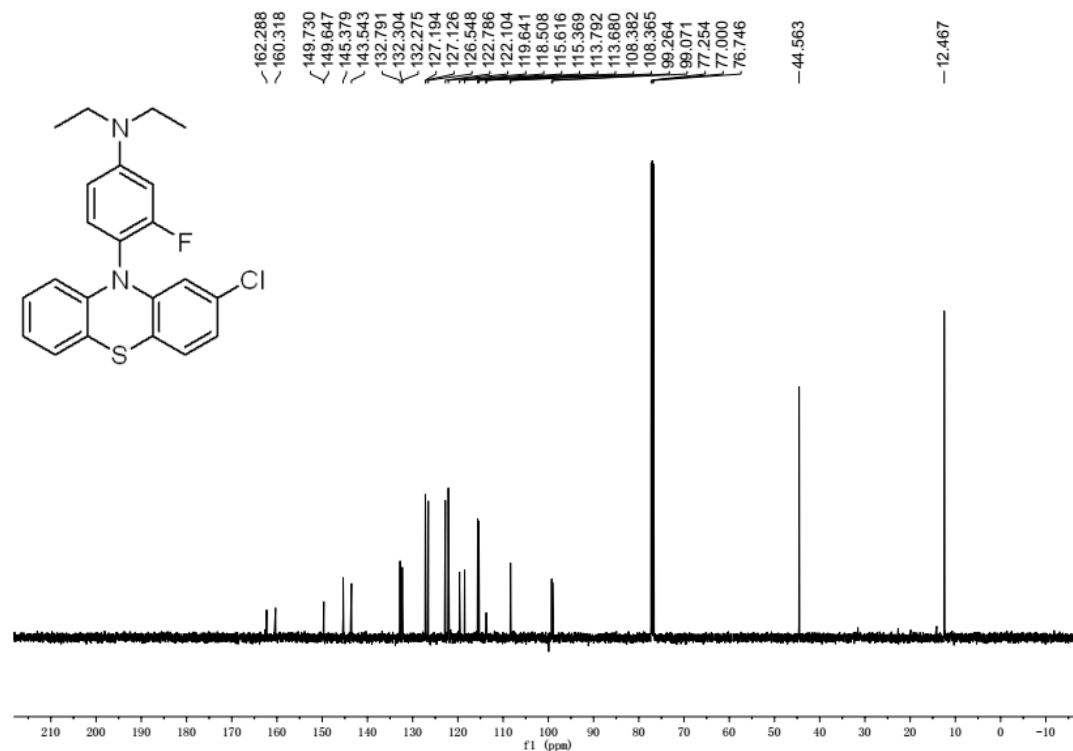
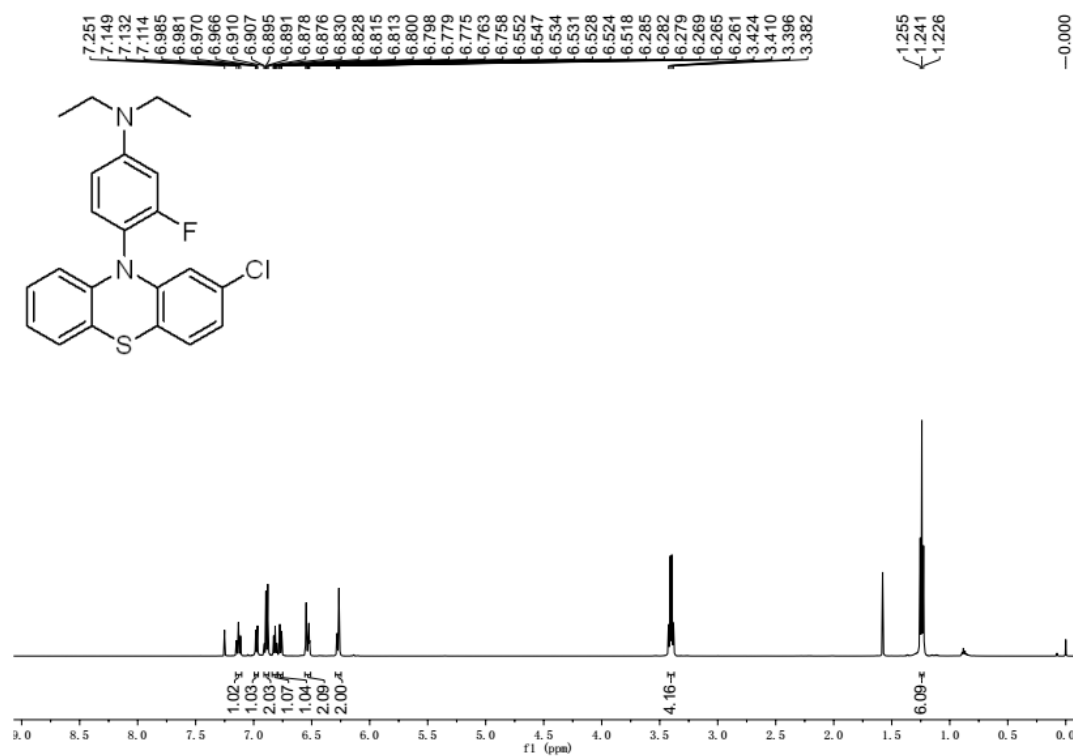
4-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*-diethyl-3,5-dimethylaniline (3ta):

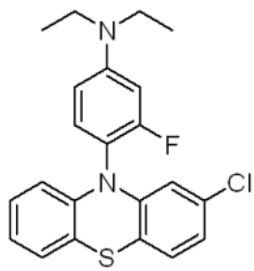


4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3-methylaniline (3ua):

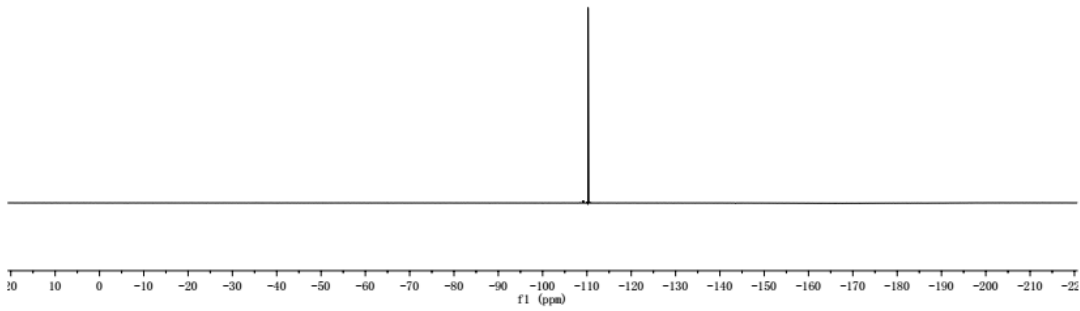


4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-3-fluoroaniline (3va):

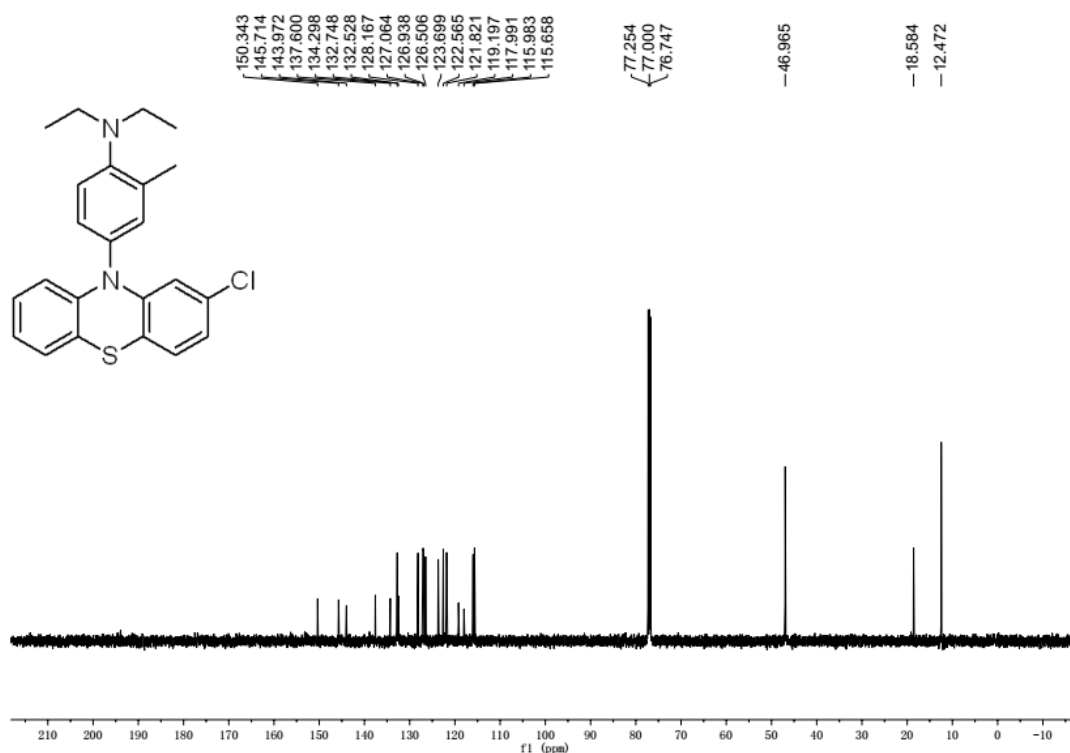
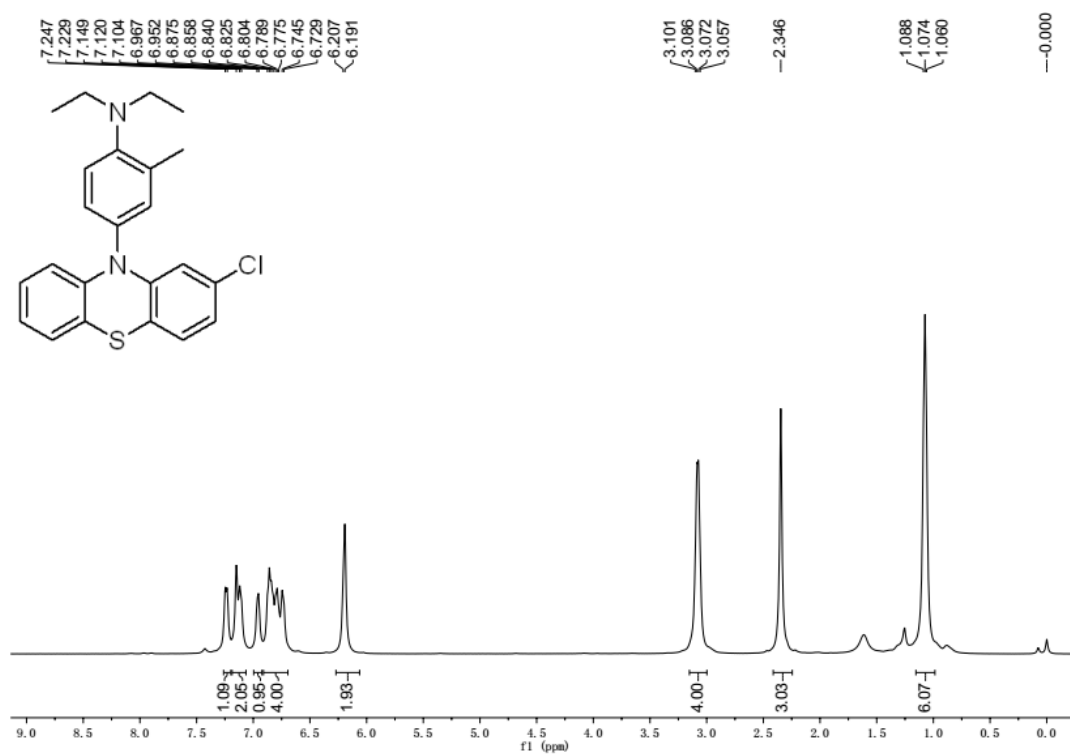




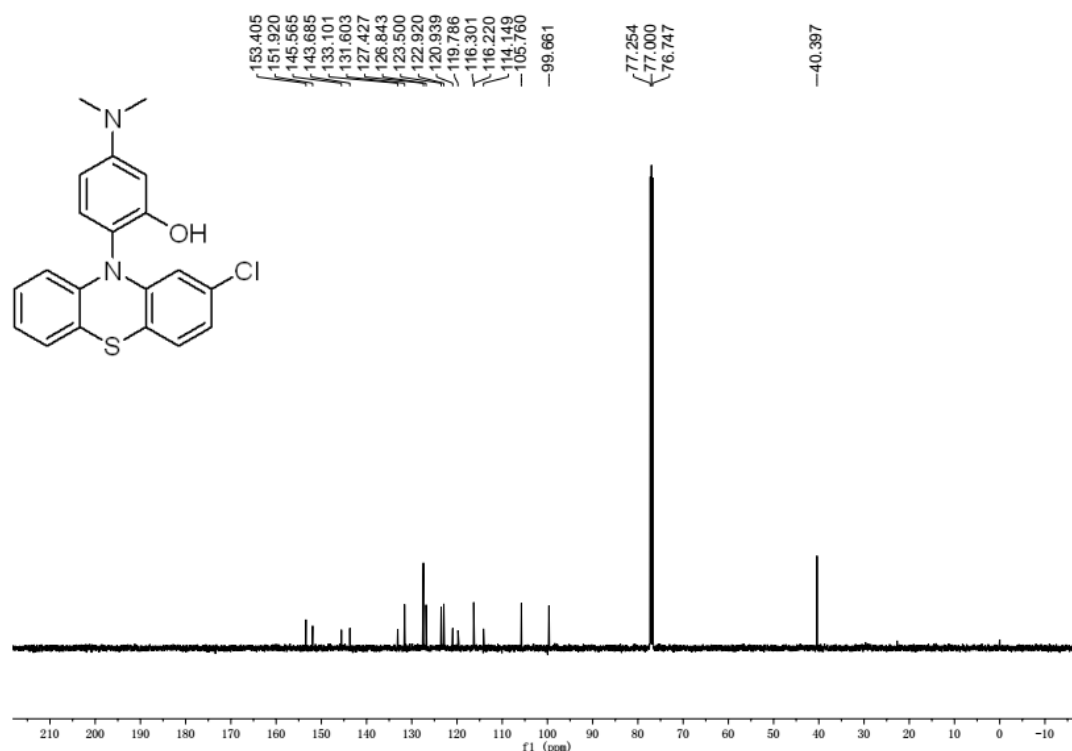
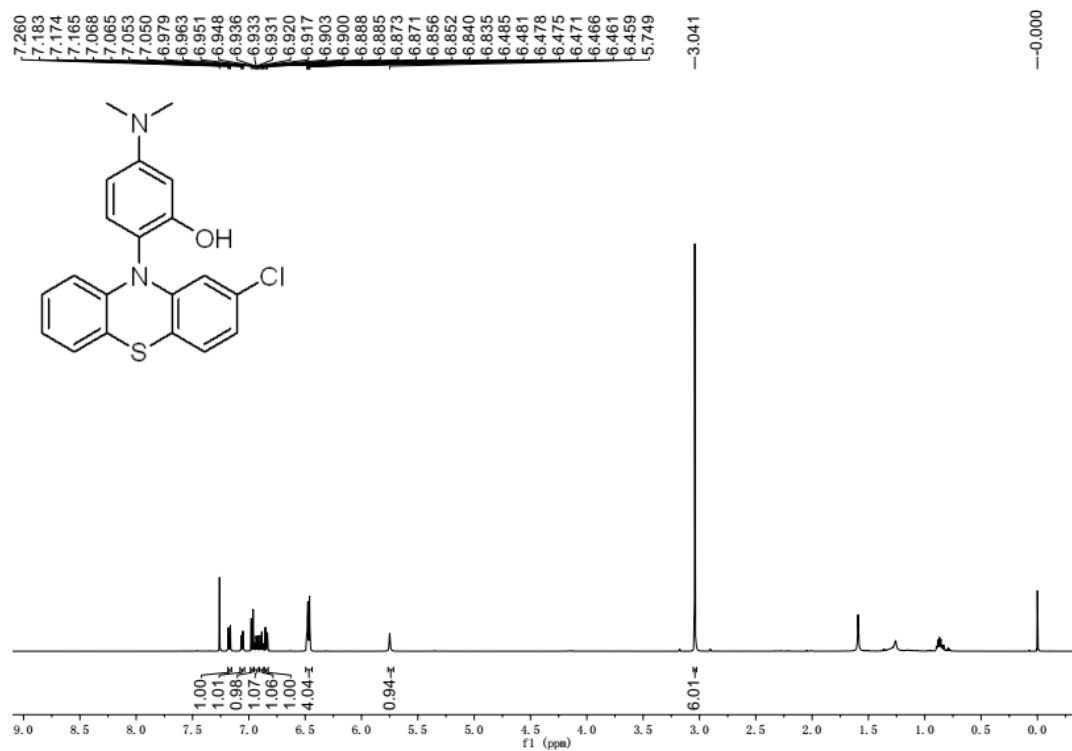
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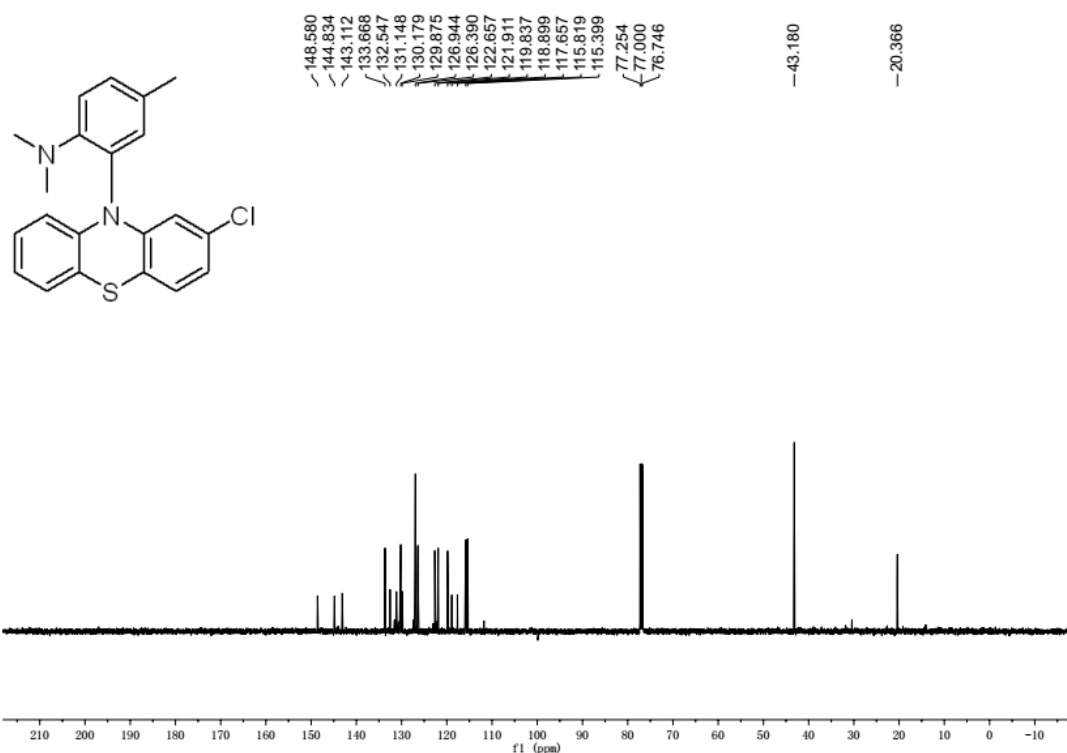
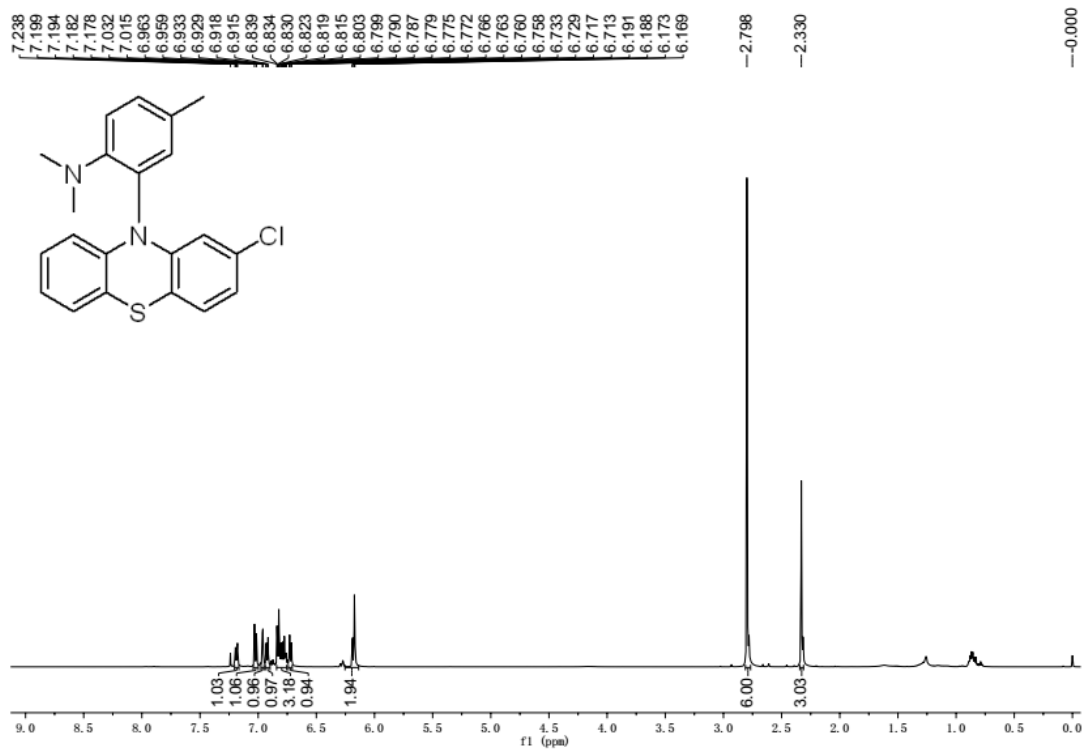
4-(2-Chloro-10H-phenothiazin-10-yl)-N,N-diethyl-2-methylaniline (3wa):



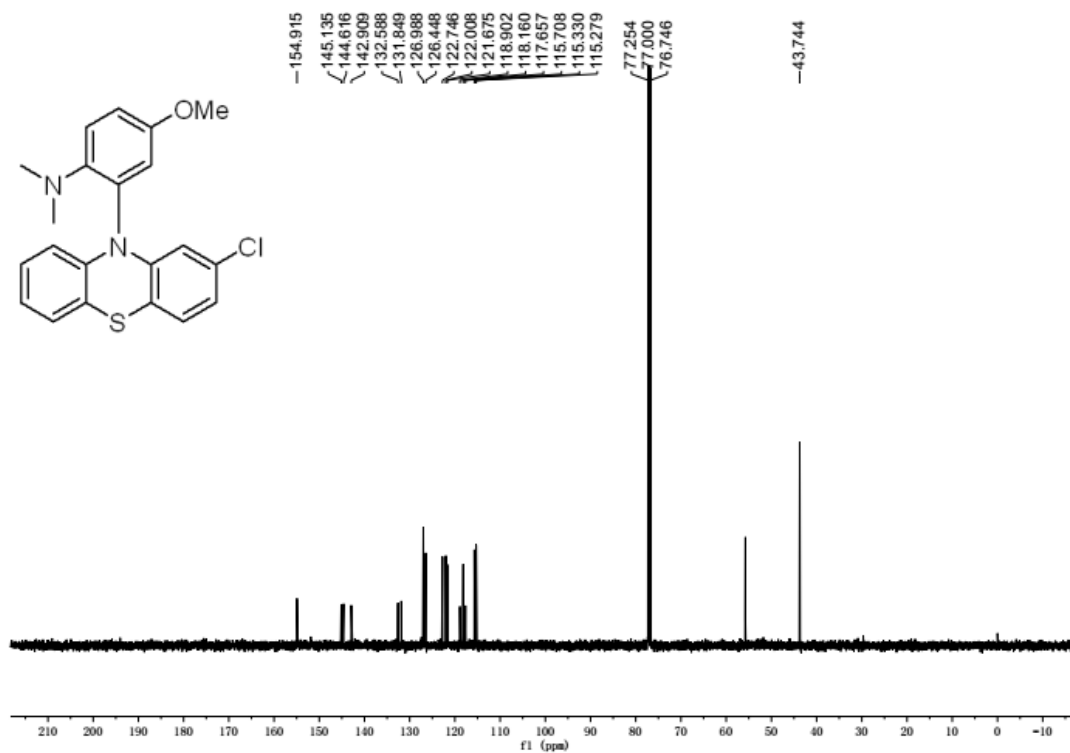
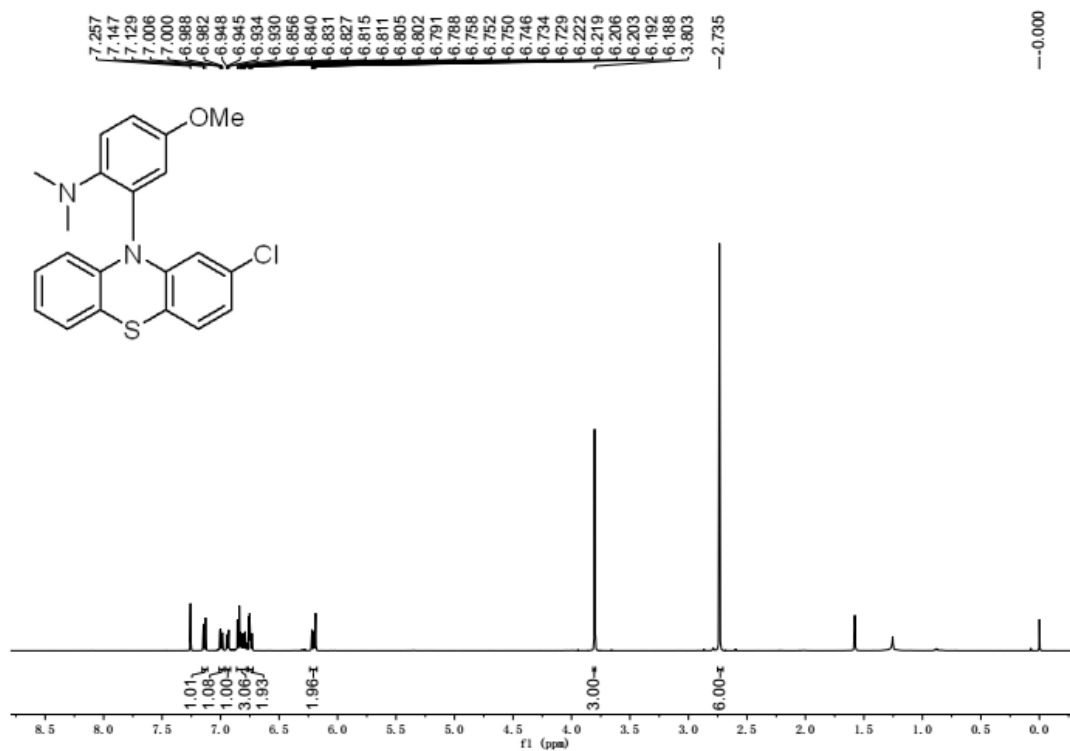
2-(2-Chloro-10H-phenothiazin-10-yl)-5-(dimethylamino)phenol (3xa):



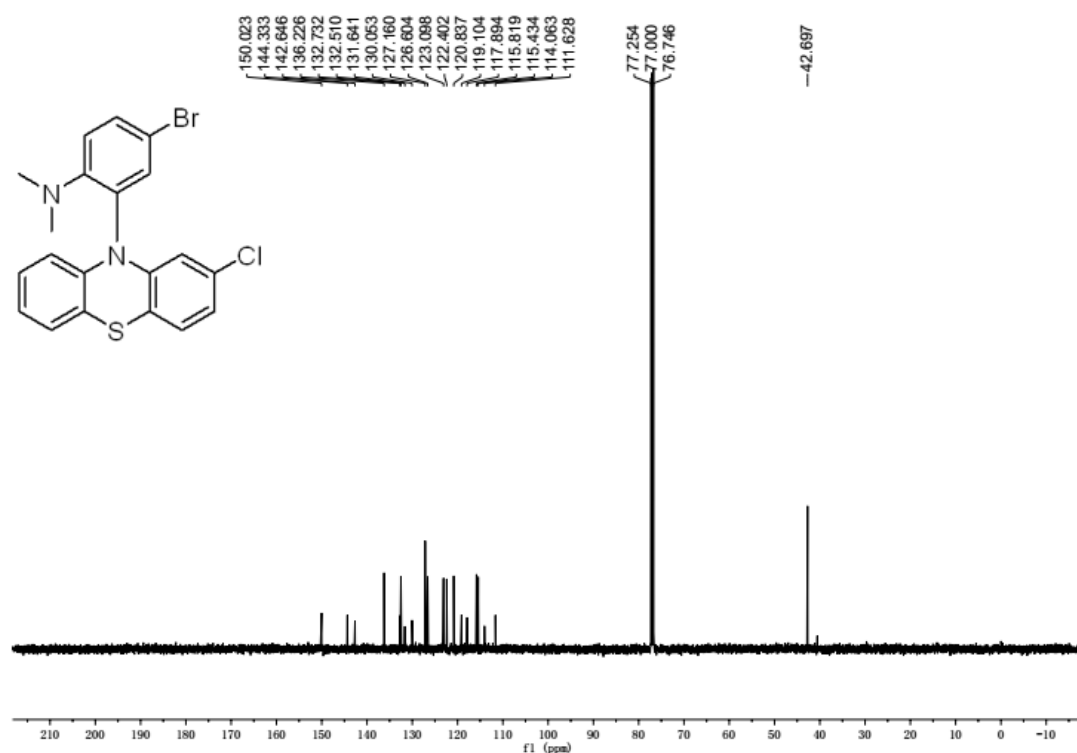
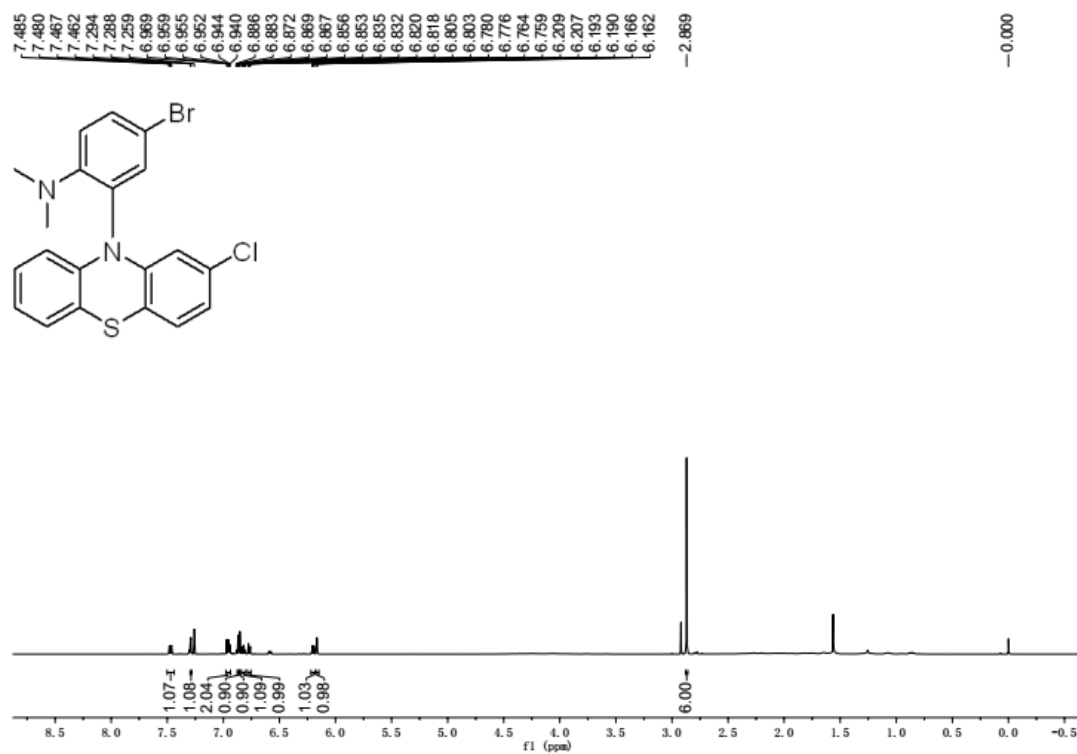
2-(2-Chloro-10*H*-phenothiazin-10-yl)-*N,N*,4-trimethylaniline (3ya):



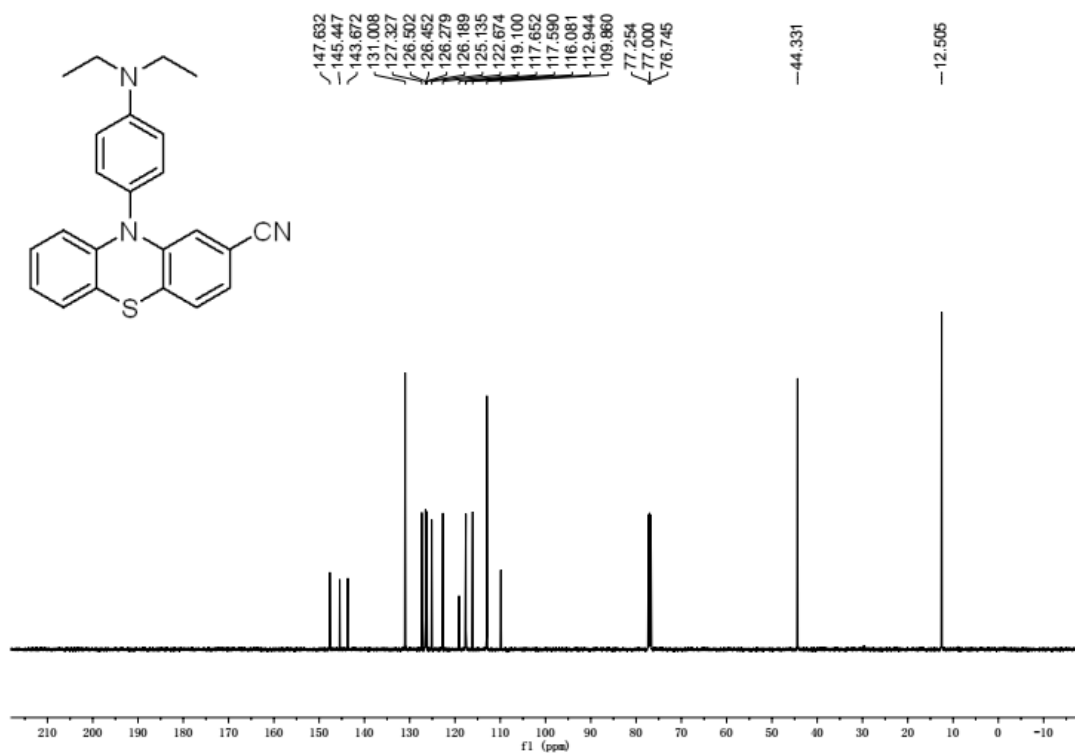
2-(2-Chloro-10H-phenothiazin-10-yl)-4-methoxy-N,N-dimethylaniline(3za):



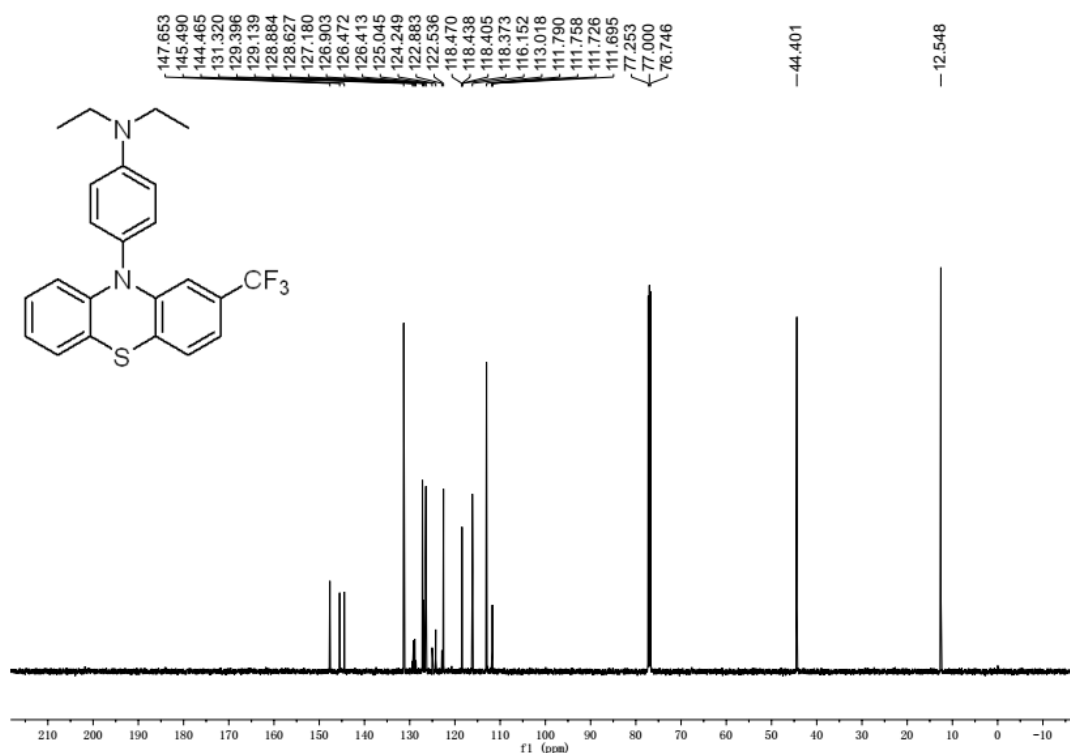
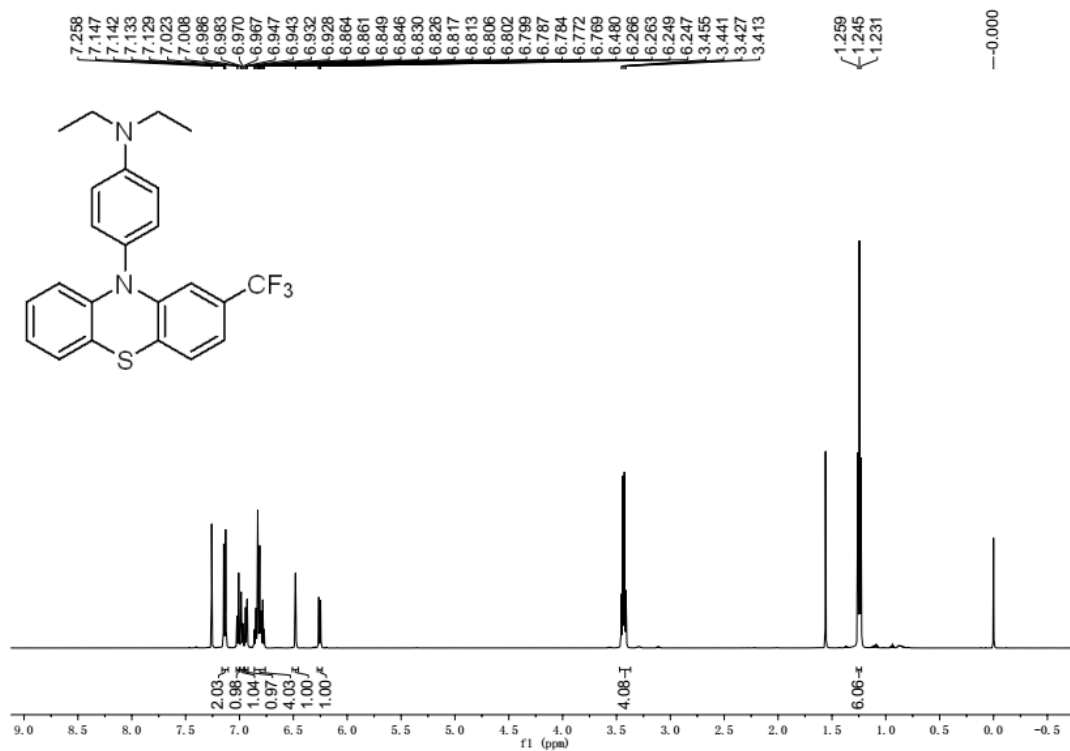
4-Bromo-2-(2-chloro-10H-phenothiazin-10-yl)-N,N-dimethylaniline(3aaa):

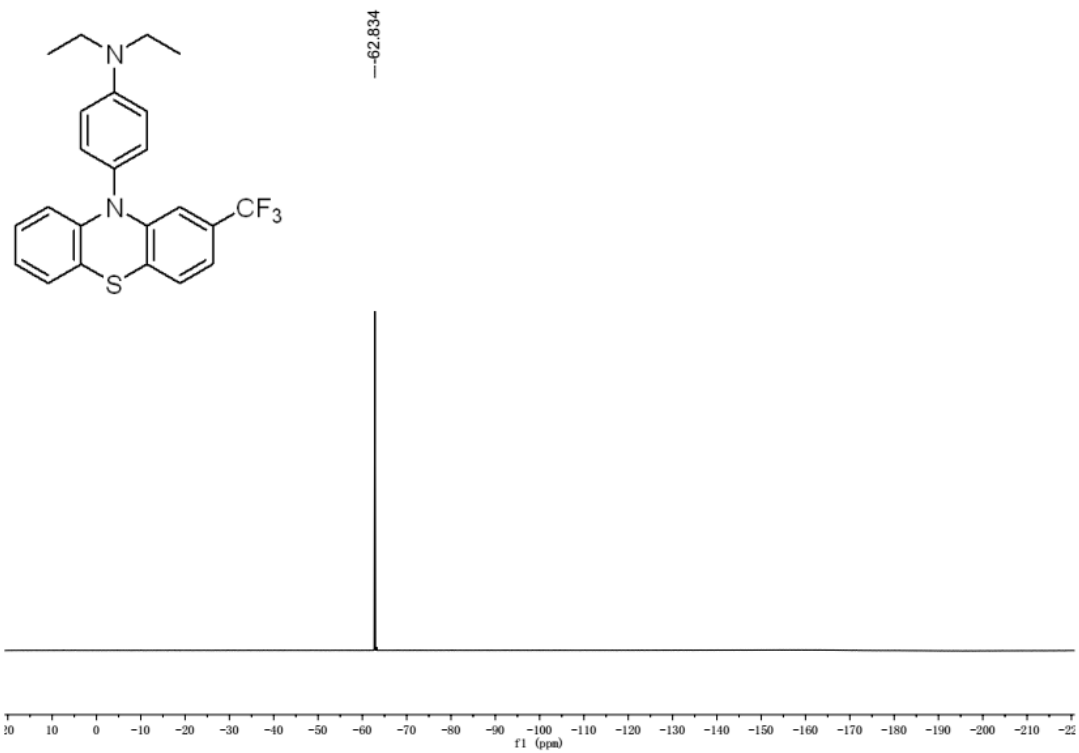


10-(4-(Diethylamino)phenyl)-10*H*-phenothiazine-2-carbonitrile (3ab):



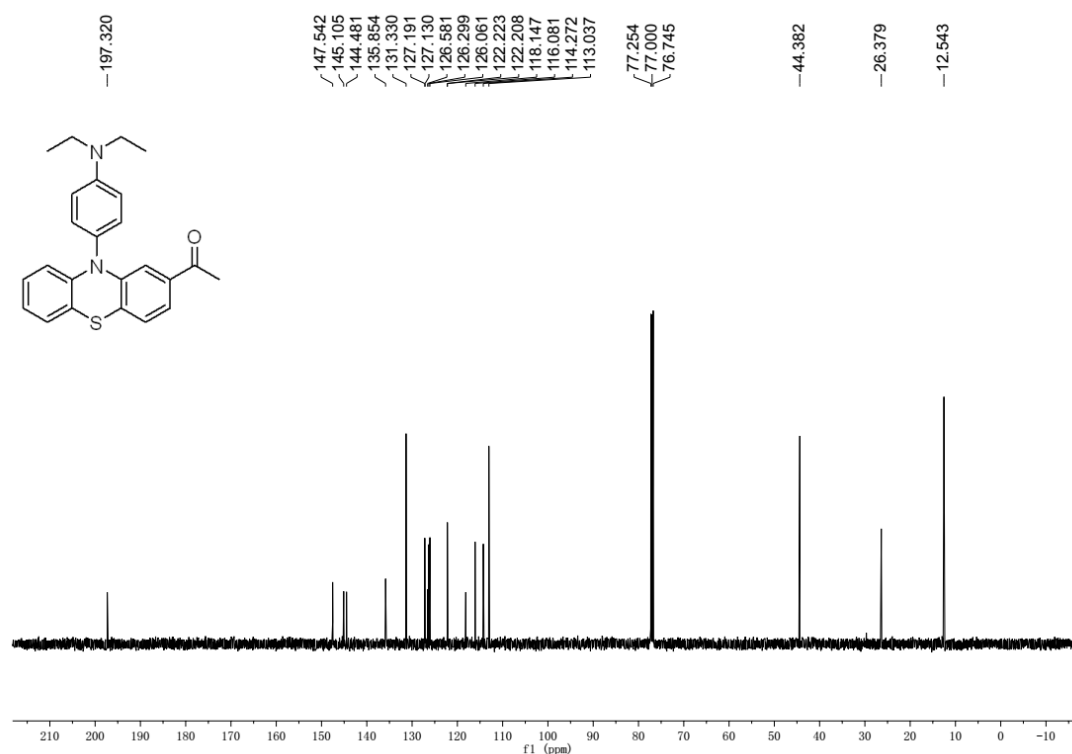
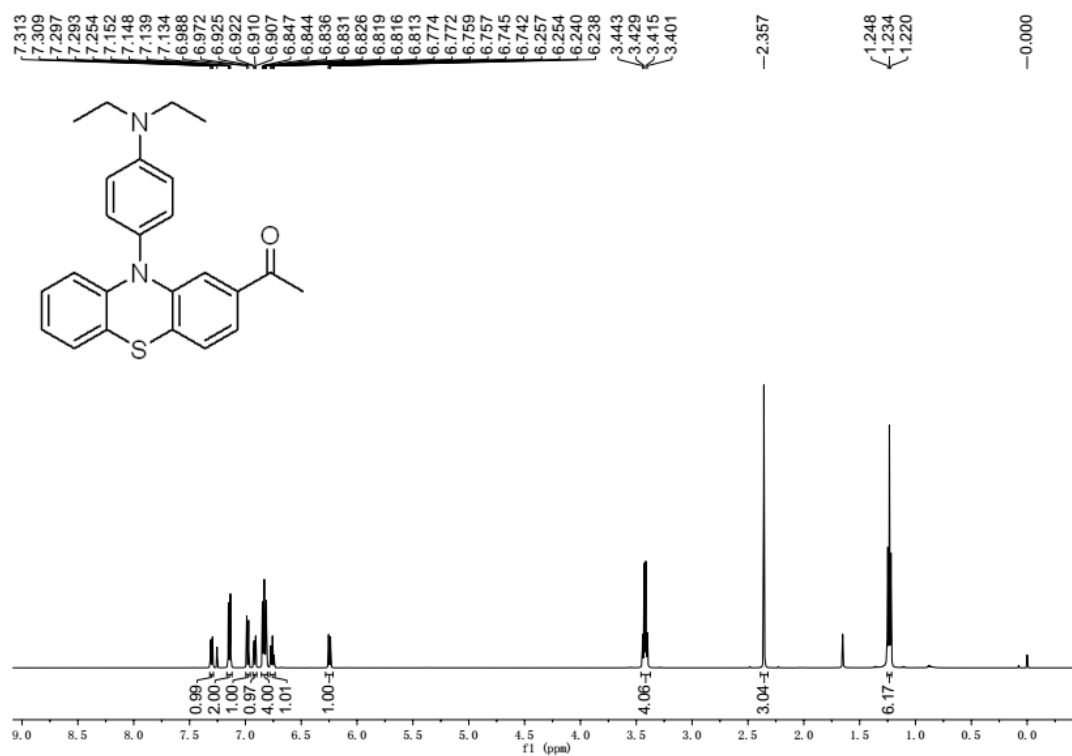
***N,N*-Diethyl-4-(2-(trifluoromethyl)-10*H*-phenothiazin-10-yl)aniline (3ac):**



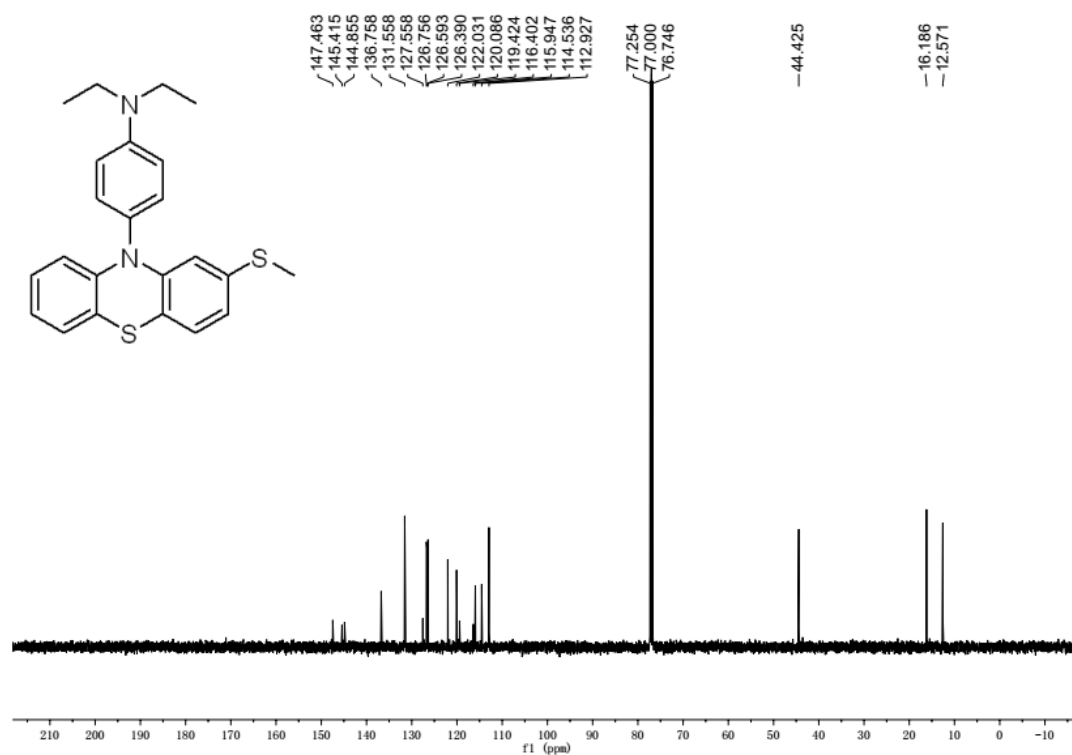
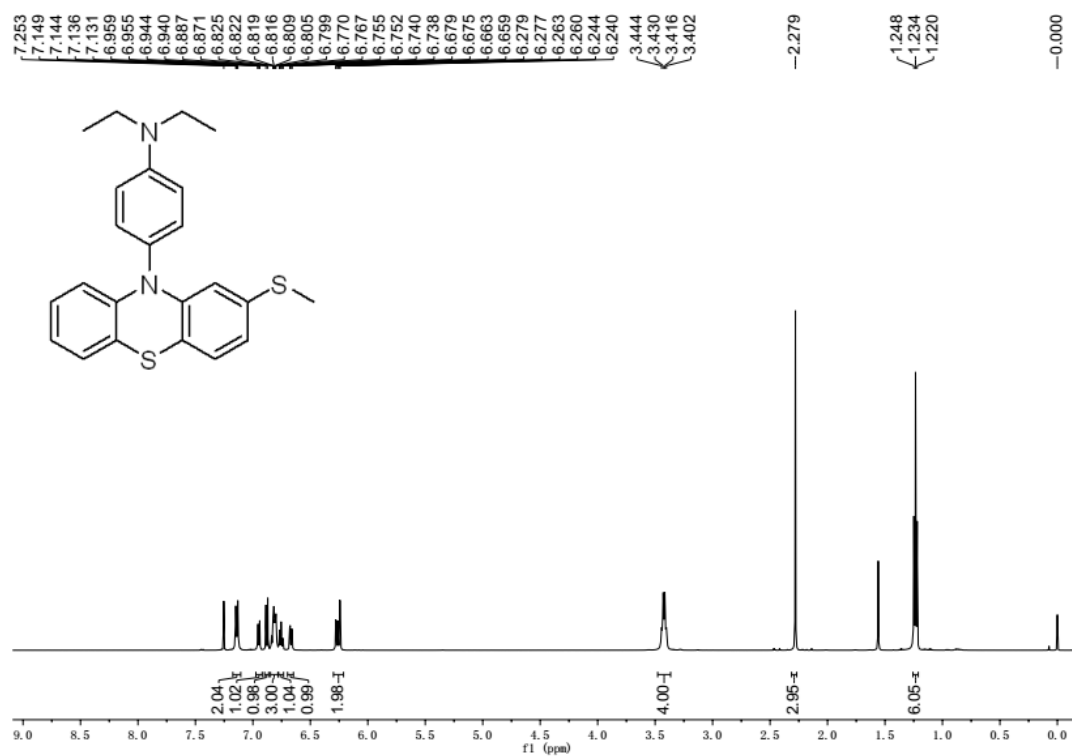


1-(10-(4-(Diethylamino)phenyl)-10H-phenothiazin-2-yl)ethan-1-one (3ad):

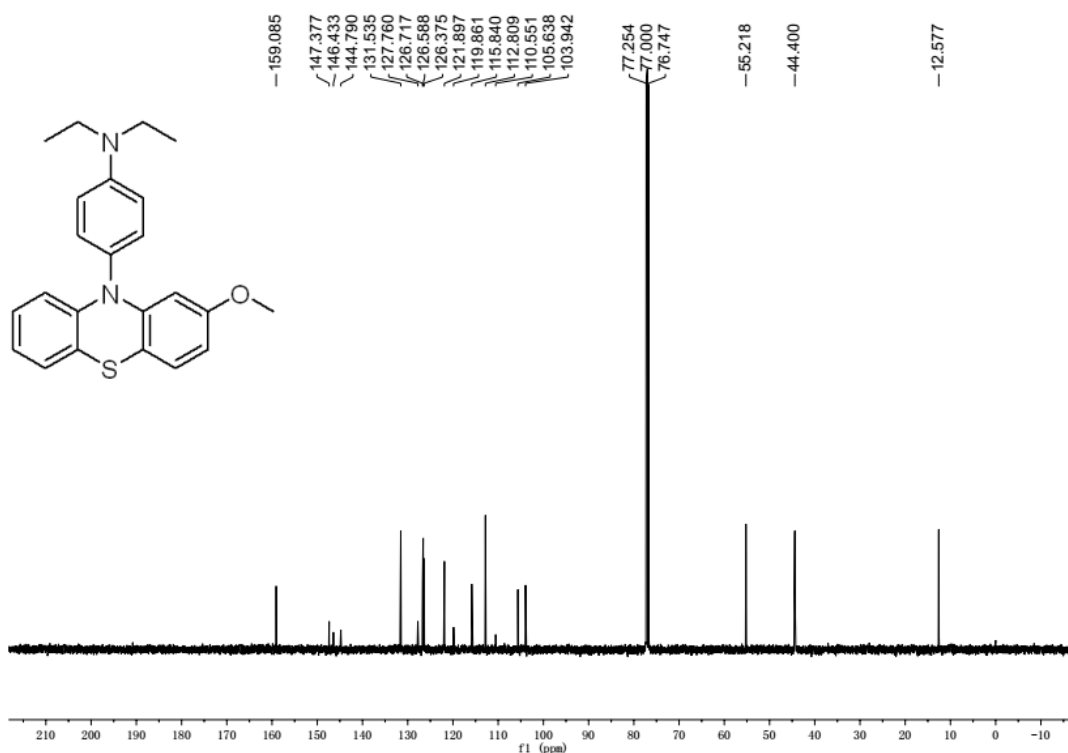
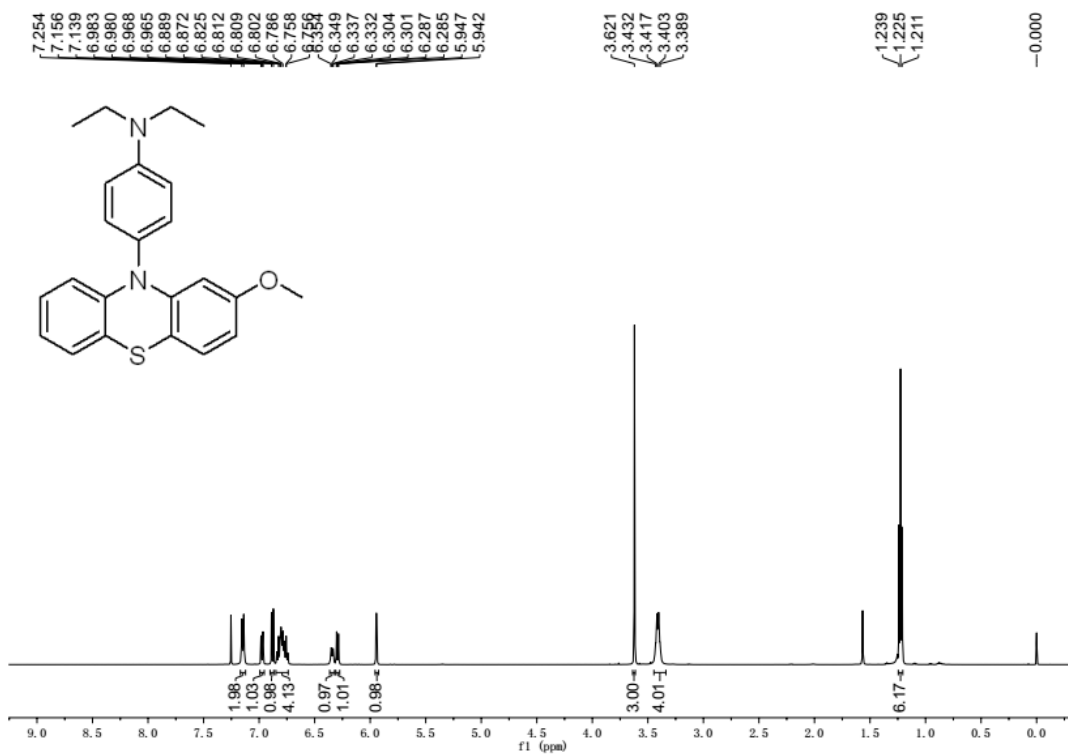
(3ad):



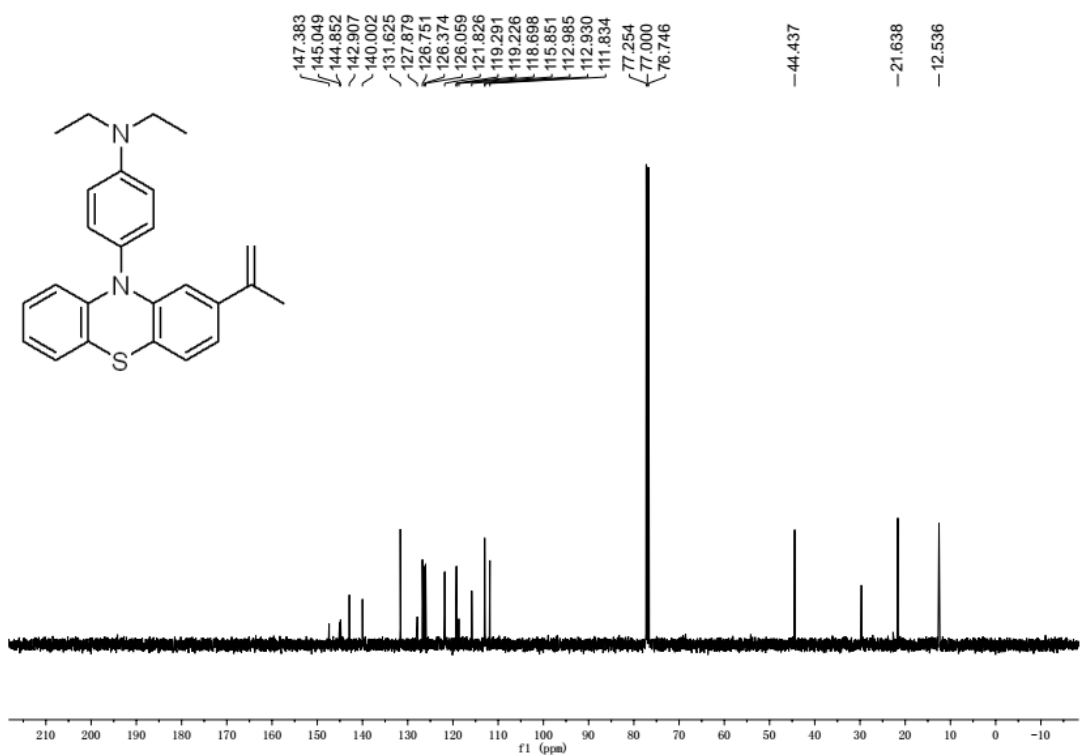
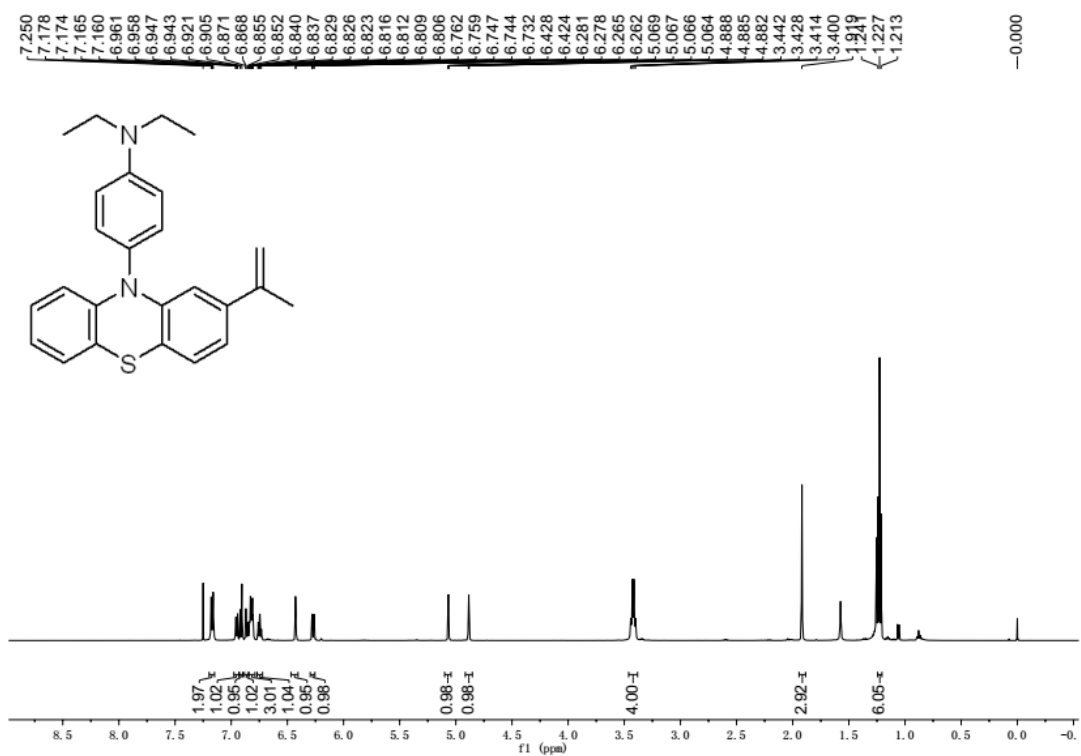
***N,N*-Diethyl-4-(2-(methylthio)-10*H*-phenothiazin-10-yl)aniline (3ae):**



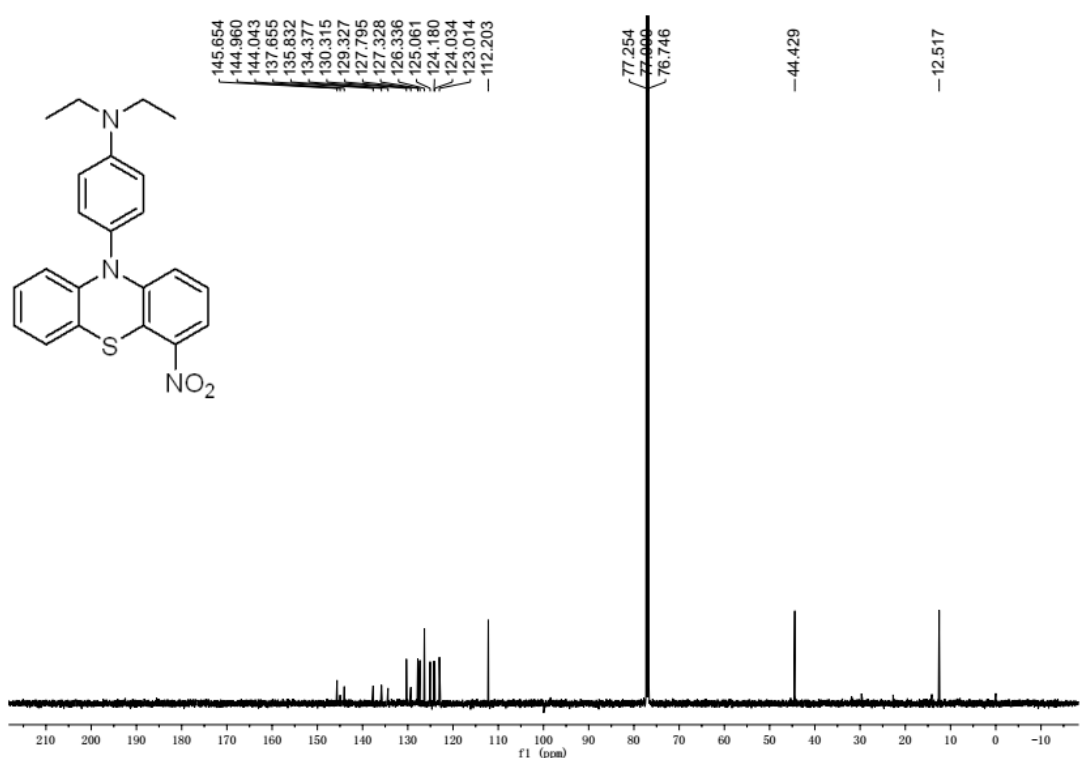
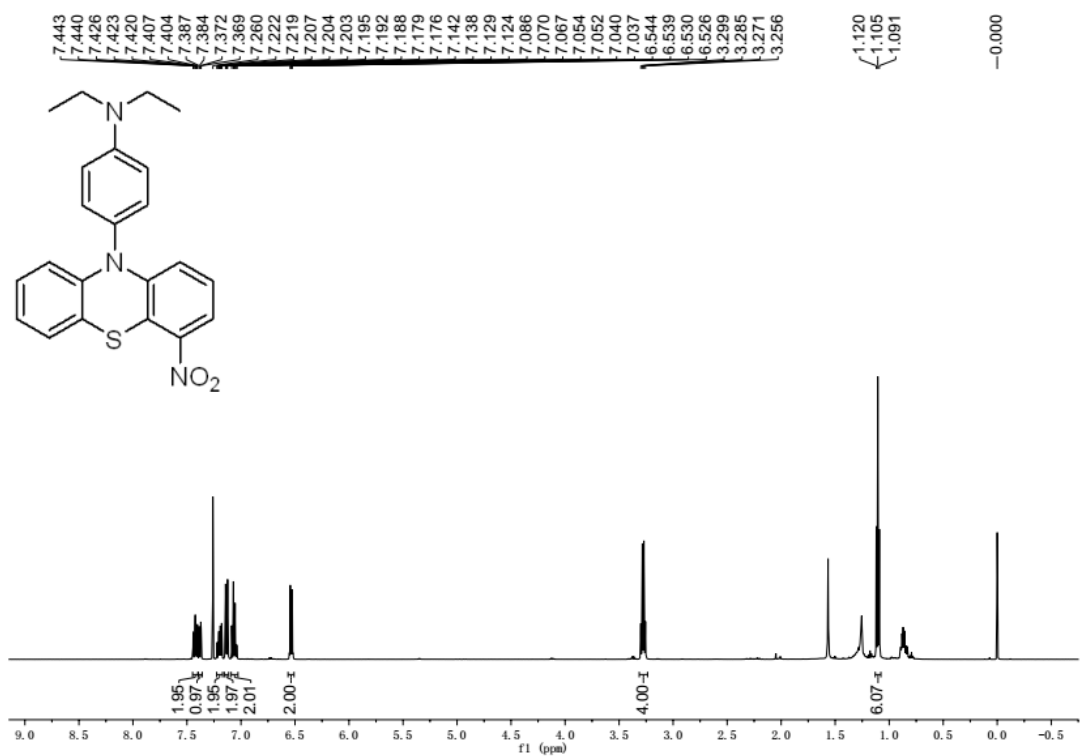
***N,N*-Diethyl-4-(2-methoxy-10*H*-phenothiazin-10-yl)aniline (3af):**



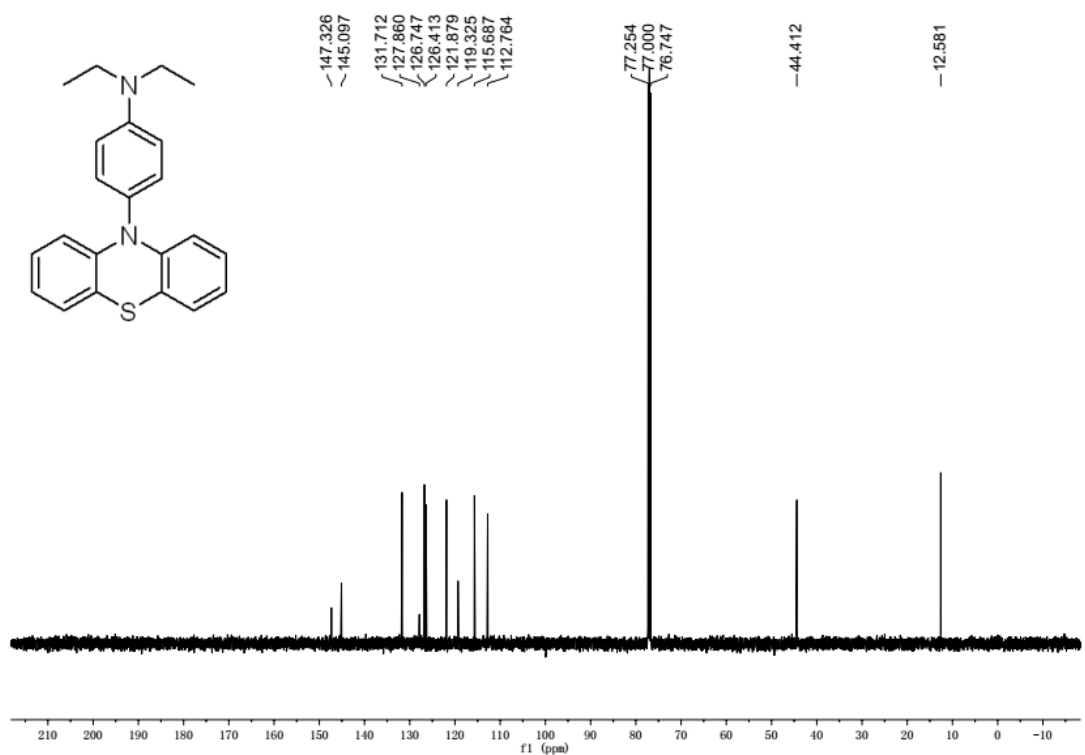
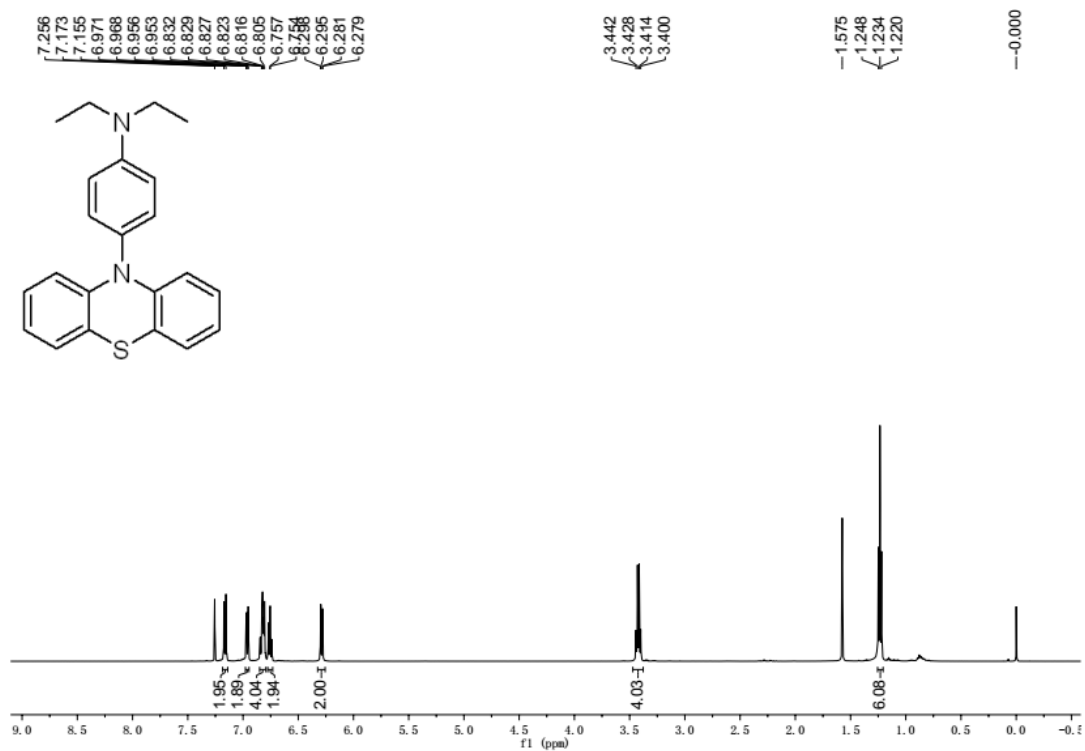
***N,N*-Diethyl-4-(2-(prop-1-en-2-yl)-10*H*-phenothiazin-10-yl)aniline (3ag):**



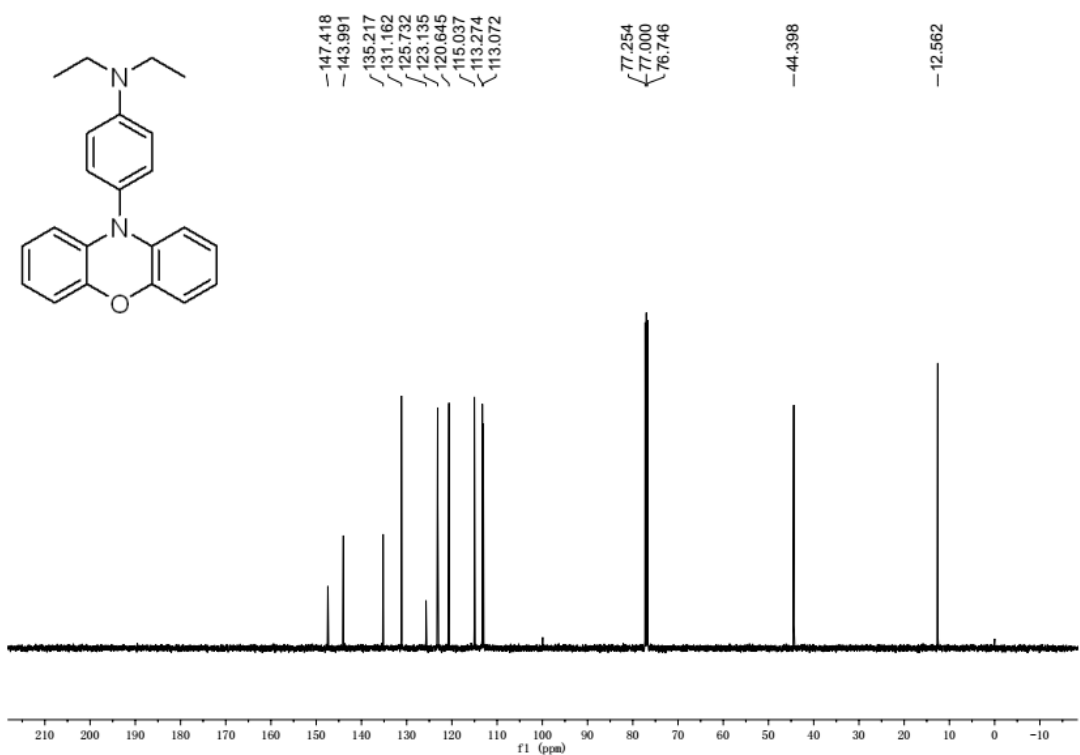
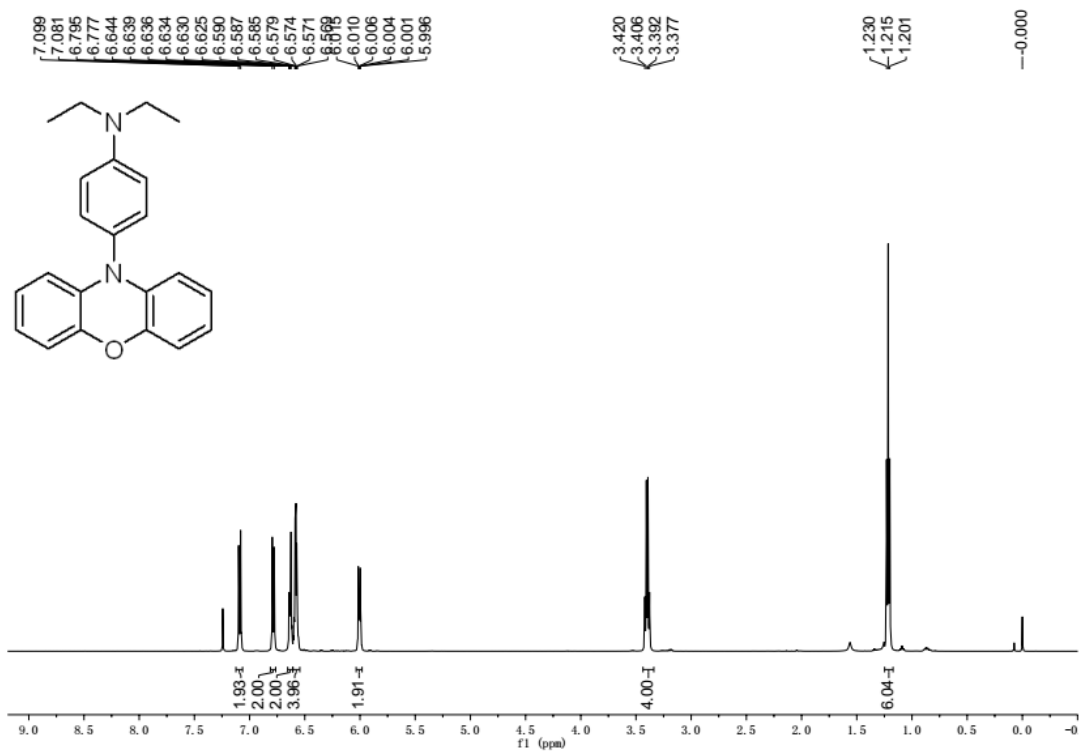
***N,N*-Diethyl-4-(4-nitro-10*H*-phenothiazin-10-yl)aniline (3ah):**



***N,N*-Diethyl-4-(10*H*-phenothiazin-10-yl)aniline (3ai):**



***N,N*-Diethyl-4-(10*H*-phenoxazin-10-yl)aniline 3aj):**



(D) The X-ray single-crystal diffraction analysis of 3aa

(CCDC 1897389)

