Supporting Information

Solvent Controlled Radical Cyclization of Propargylamines for Multi-Iodinated Quinoline Formation

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1. General information

Commercially available reagents were used as received without purification. Column chromatography was carried out on silica gel (300–400 mesh). Analytical thin–layer chromatography was performed on glass plates of Silica Gel GF–254 with detection by UV. Infrared spectroscopy was measured by Agilent Cary 630 FTIR Spectrometer. ^{1}H and ^{13}C NMR spectra were recorded on a 400M Bruker spectrometer. The chemical shift references were as follows: ^{1}H NMR ($CDCl_3$) 7.26 ppm. ^{13}C NMR ($CDCl_3$) 77.0 ppm. HRMS spectra were carried out on TOF MS EI^+ and ESI. Melting point determination was taken on a Melt–Temp apparatus (X-4) and was uncorrected.

2. Synthesis of propargylamines 1 following reported procedures (*J. Am. Chem. Soc.,***2002**, *124*, 5638; *J. Org. Chem.* **2006**, *71*, 2064-2070; *Org. Lett.* **2006**, *8*, 2405-2408; *Tetrahedron*, **2014**, *70*, 3134-3140.) The mixture of aldehyde (0.2 mmol), phenylacetylene (0.3 mmol), aniline (0.24 mmol) and copper (I) chloride (10 mol %) was heated at 60°C for two hours. The mixture in water was extracted with diethyl ether. The organic layer was washed with water and dried over anhydrous $MgSO_4$. The solvent was removed in *vacuo*. After flash column chromatography on silica gel with EtOAc/hexane as eluent, the product was isolated as a yellow oil.

3. General procedure

Propargylamine **1** (0.1 mmol) and *N*-iodosuccinimide (0.12 mmol) were stirred in 1,4-dioxane (2 ml) at room temperature for 6h to give a red-brown solution. The solution was evaporated to dryness and the crude product was purified by column chromatography to afford pure product **2**.

Propargylamine **1** (0.1 mmol) and *N*-iodosuccinimide (0.3 mmol) were stirred in methanol (2 ml) at 60 °C for 6h to give a brown solution. The solution was evaporated to dryness and the crude product purified by column chromatography with EtOAc/hexane as eluent to obtain the final product **3**.

4. Characterization data

3-iodo-2,4-diphenylquinoline (**2a**): White solid, mp 121-122 °C. Yield: 27.3 mg (67%). IR ν_{max}

cm^{-1} (KBr disc): 2951, 2834, 1550, 1391, 1322, 1243, 1100, 1048, 961, 834. ^1H NMR ($CDCl_3$, 400 MHz) δ 8.17 (m, 1H), 7.78 – 7.69 (m, 1H), 7.69 – 7.62 (m, 2H), 7.60 – 7.37 (m, 8H), 7.35 – 7.27 (m, 2H).^{13}C NMR ($CDCl_3$, 101 MHz) δ 161.9, 154.7, 146.9, 143.8, 142.2, 130.1, 129.4, 129.3, 129.1, 128.7, 128.6, 128.5, 128.0, 127.4, 127.3, 126.9, 98.5. HRMS (ESI): Calcd. for $C_{21}H_{15}IN$ $(M+H)^+$ 408.0249, found 408.0247.

3-iodo-5,7-dimethyl-2,4-diphenylquinoline (2b): White solid. mp 157-158 °C. Yield: 27.8 mg (64%). IR ν_{max} cm^{-1} (KBr disc): 2967, 1534, 1492, 1384, 1261, 1045, 943, 825, 811, 766. ^1H NMR (400 MHz, CDCl3) δ 7.85 (s, 1H), 7.61 (m, 2H), 7.57 – 7.33 (m, 6H), 7.25 (m, 2H), 7.13 (s, 1H), 2.46 (s, 3H), 1.85 (s, 3H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 161.2, 153.9, 148.5, 146.6, 144.1, 139.9, 134.8, 133.0, 129.5, 129.3, 128.5, 128.3, 128.2, 127.9, 127.8, 124.5, 100.6, 24.5, 21.4. HRMS (ESI): Calcd. for $C_{23}H_{19}IN$ $(M+H)^+$ 436.0562, found 436.0557.

6-(tert-butyl)-3-iodo-2,4-diphenylquinoline (2c): White solid. Yield: 37.5 mg (81%). IR ν_{max} cm^{-1} (KBr disc): 3058, 2950, 1535, 1440, 1087, 1027, 922, 749, 697, 609. ^1H NMR (400 MHz, $CDCl_3$) δ=8.11 (m, 1H), 7.83 (m, 1H), 7.71 – 7.41 (m, 8H), 7.31 (m, 3H), 1.26 (s, 9H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 161.3, 154.5, 150.3, 145.5, 143.9, 142.3, 129.3, 129.1, 129.1, 128.9, 128.6, 128.5, 128.4, 128.0, 127.1 , 121.8 , 98.4 , 35.0 , 31.0 . HRMS (ESI): Calcd. for $C_{25}H_{23}IN$ $(M+H)^+$ 464.0875, found 464.0873.

3-iodo-6-methoxy-2,4-diphenylquinoline (2d): White solid. Melting point: 137-138 °C. Yield: 32.8 mg (75%). IR ν_{max} cm^{-1} (KBr disc): 2836, 2758, 1562, 1498, 1346, 1276, 1252, 1134, 1028, 954. ^1H NMR ($CDCl_3$, 400 MHz) δ 8.06 (d, J = 9.2 Hz, 1H), 7.65 – 7.41 (m, 8H), 7.38 (m, 1H), 7.33 – 7.27 (m, 2H), 6.63 (m, 1H), 3.69 (s, 3H).^{13}C NMR (101 MHz, $CDCl_3$) δ 159.5, 158.3, 153.2, 143.8, 143.1, 142.4, 130.9, 129.4, 129.1, 128.8, 128.5, 128.5, 128.4, 128.0, 122.5, 104.9, 99.1, 55.4. HRMS (ESI): Calcd. for $C_{22}H_{17}INO$ $(M+H)^+$ 438.0355, found 438.0350.

6-(tert-butyl)-2-(4-fluorophenyl)-3-iodo-4-phenylquinoline (2e): White solid. Melting point: 252-253 °C. Yield: 34.6 mg (72%). IR ν_{max} cm^{-1} (KBr disc): 3067, 2957, 2868, 1539, 1507, 1217, 1157, 1084, 1013, 978. ^1H NMR ($CDCl_3$, 400 MHz) δ 8.08 (m, 1H), 7.83 (m, 1H), 7.67 – 7.49 (m, 5H), 7.35 – 7.27 (m, 3H), 7.21 – 7.13 (m, 2H), 1.26 (s, 9H).^{13}C NMR (101 MHz, $CDCl_3$) δ 154.7, 150.4, 145.3, 142.2, 131.3 (d, J = 8.3 Hz), 129.2, 129.1, 128.8, 128.6, 128.5, 127.1, 121.9, 115.1, 114.9 (d, J = 21.7 Hz), 98.3, 35.0, 31.0. ^{19}F NMR ($CDCl_3$, 100 MHz) δ -113.1. HRMS (ESI): Calcd. for $C_{25}H_{22}FIN(M+H)^+$ 482.0781, found 482.0781.

6-(tert-butyl)-3-iodo-4-phenyl-2-(p-tolyl)quinolone (2f): White solid. Melting point: 244-245 °C. Yield:36.3 mg (76%). IR ν_{max} cm^{-1} (KBr disc): 3054, 2950, 1559, 1362, 1256, 1084, 1019, 980, 918, 745. ^1H NMR ($CDCl_3$, 400 MHz) δ 8.09 (m, 1H), 7.82 (m, 1H), 7.61 – 7.49 (m, 5H), 7.35 – 7.26 (m, 5H), 2.43 (s, 3H), 1.25 (s, 9H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 161.3, 154.5, 150.1, 145.5, 142.4, 141.0, 138.4, 129.2, 129.1, 129.0, 128.8, 128.6, 128.6, 128.4, 127.0, 121.8, 98.6, 35.0, 31.01, 21.4. HRMS (ESI): Calcd. for $C_{26}H_{25}IN$ $(M+H)^+$ 478.1032, found 478.1026.

6-(tert-butyl)-3-iodo-2-phenyl-4-(p-tolyl)quinolone (2g) White solid. Melting point: 227-229 °C. Yield: 37.2 mg (78%). IR ν_{max} cm^{-1} (KBr disc): 2954, 2866, 1560, 1491, 1334, 1256, 1202, 1088, 921, 766. ^1H NMR ($CDCl_3$, 400 MHz) δ 8.09 (m, 1H), 7.82 (m, 1H), 7.62 (m, 2H), 7.53 – 7.33 (m, 6H), 7.19 (m, 2H), 2.49 (s, 3H), 1.27 (s, 9H).^{13}C NMR (101 MHz, $CDCl_3$) δ 161.3, 154.7, 150.2, 145.5, 144.0, 139.3, 138.2, 129.3, 129.2, 129.0, 129.0, 128.9, 128.4, 127.9, 127.3, 122.0, 98.8, 35.0, 31.1, 21.6. HRMS (ESI): Calcd. for $C_{26}H_{25}IN[M+H]^+$ 478.1032, found: 478.1028.

6-chloro-3-iodo-2,4-diphenylquinoline (2h): White solid.mp:183-184 °C. Yield: 30.9mg (70%). IR ν_{max} cm^{-1} (KBr disc): 2976, 2818, 1556, 1423, 1384, 1204, 945, 844, 775, 684. ^1H NMR

($CDCl_3$, 400 MHz) δ 8.13–8.06 (m, 1H), 7.69–7.45 (m, 9H), 7.38 (m, 1H), 7.30–7.26 (m, 2H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 162.2, 154.0, 145.4, 143.4, 141.5, 133.2, 131.1, 129.2，129.0, 128.9, 128.8, 128.8, 128.0, 127.9, 125.6, 99.8. HRMS (ESI): Calcd. for $C_{21}H_{14}ClIN$ $(M+H)^+$ 441.9859, found 441.9851.

3-iodo-2,4-diphenyl-6-(trifluoromethyl)quinolone (2i): White solid. Melting point: 245-246 °C. Yield: 33.8mg (71%). IR ν_{max} cm^{-1} (KBr disc): 3066, 1625, 1560, 1441, 1336, 1383, 1314, 1293, 977, 900. ^1H NMR ($CDCl_3$, 400 MHz) δ 8.27 (m, 1H), 7.90 (m, 1H), 7.71 (s, 1H), 7.68 – 7.45 (m, 8H), 7.30 (m, 2H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 164.2, 154.8, 147.9, 143.2, 141.2, 130.7, 129.2, 129.1, 129.0, 128.9, 128.6, 128.1, 126.3, 125.8 (q, J = 2.9 Hz) 125.1, 124.8 (q, J = 4.5 Hz), 122.4, 100.1. ^{19}F NMR ($CDCl_3$, 100 MHz) δ -62.4. HRMS (ESI): Calcd. for $C_{22}H_{14}F_3I_2N$ $(M+H)^+$ 476.0123, found 476.0118.

3,6-diiodo-2,4-diphenylquinoline (3a): White solid, yield: 40.5mg (76%), mp:223-225 °C. IR ν_{max} cm^{-1} (KBr disc): 3056, 2344, 1528, 1441, 1328, 1025, 971, 883, 827, 743. ^1H NMR ($CDCl_3$, 400 MHz) δ 7.97 (m, 1H), 7.87 (m, 1H), 7.76 (s, 1H), 7.67 – 7.43 (m, 9H), 7.32 – 7.27 (m, 1H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 162.5, 153.7, 145.9, 143.4, 141.4, 139.0, 135.5, 131.1, 129.2, 129.1 , 129.0 , 128.9 , 128.8 , 128.7 , 128.0 , 99.6 , 93.3. HRMS (ESI): calcd for $C_{21}H_{14}I_2N$ $(M+H)^+$ 533.9216, found 533.9211

7-fluoro-3,6-diiodo-2,4-diphenylquinoline (3b): Yellow solid, yield: 34.7 mg (63%), mp: 201-202 °C. IR ν_{max} cm^{-1} (KBr disc): 3062, 1556, 1463, 1338, 1180, 1085, 885, 747, 693, 557. ^1H NMR ($CDCl_3$, 400 MHz) δ 7.85 (d, J = 6.7 Hz, 1H), 7.78 (d, J = 8.7 Hz, 1H), 7.65 – 7.55 (m, 5H), 7.52 –7.46 (m, 3H), 7.29 – 7.25 (m, 2H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 163.6, 162.7, 160.2, 153.7, 153.7, 147.7 (d, J = 11.8 Hz), 143.2, 141.3, 138.2, 138.2, 129.2, 129.0, 128.9, 128.1, 125.8, 113.18 (d, J = 23.7 Hz), 98.4, 84.0 (d, J = 28.6 Hz). ^{19}F NMR ($CDCl_3$, 100 MHz) δ -90.6. HRMS (ESI): calcd for $C_{21}H_{13}FI_2N$ $(M+H)^+$ 551.9121, found 551.9192.

3,6-diiodo-5,7-dimethyl-2,4-diphenylquinoline (3c): White solid, yield 41.5mg (74%), mp 201-202 °C. IR ν_{max} cm^{-1} (KBr disc): 3056, 2344, 1491, 1437, 1157, 1028, 988, 971, 848, 704. ^1H NMR ($CDCl_3$, 400 MHz) δ 7.94 (s, 1H), 7.77 – 7.56 (m, 2H), 7.56 – 7.36 (m, 6H), 7.25 – 7.22 (m, 2H), 2.66 (s, 3H), 2.14 (s, 3H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 162.0, 153.1, 147.3, 146.7, 143.8, 143.6, 138.5, 129.6, 129.2, 128.7, 128.6, 128.5, 128.0, 127.6, 125.0, 113.4, 100.9, 31.9, 31.1. HRMS (ESI): calcd for $C_{23}H_{18}I_2N$ $(M+H)^+$ 561.9529, found 561.9563.

2-([1,1'-biphenyl]-4-yl)-3,6-diiodo-4-phenylquinoline (3d) White solid, yield 37.1mg (61%), mp 307-308 °C, IR ν_{max} cm^{-1} (KBr disc): 3028, 1327, 1243, 1086, 1057, 971, 885, 831, 695, 611. ^1H NMR ($CDCl_3$, 400 MHz) δ 7.97 (m, 1H), 7.88 (m, 1H), 7.79 – 7.53 (m, 10H), 7.47 (m, 2H), 7.37 (m, 1H), 7.29 (m, 2H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 162.2, 153.7, 146.0, 142.3, 141.7, 141.5, 140.7, 139.0, 135.5, 131.1, 129.8, 129.1, 129.0, 128.9, 128.8, 128.7, 127.6, 127.3,126.8, 99.4, 93.3. HRMS (ESI): Calcd. for $C_{27}H_{18}I_2N$ $(M+H)^+$ 609.9529, found 609.9581.

3,6-diiodo-4-phenyl-2-(4-(trifluoromethyl)phenyl)quinolone (3e) White solid, yield: 41.5mg (69%), mp 297-298 °C. IR ν_{max} cm^{-1} (KBr disc): 3069, 1588, 1467, 1318, 1124, 1018, 972, 887, 831, 699. ^1H NMR ($CDCl_3$, 400 MHz) δ 7.99 (dd, J = 8.8, 1.9 Hz, 1H), 7.85 (d, J = 8.8 Hz, 1H), 7.80 – 7.74 (m, 5H), 7.63 – 7.54 (m, 3H), 7.28 (m, 2H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 161.1, 154.0, 146.7, 145.9, 141.1, 139.3, 135.6, 131.1, 129.8, 129.1, 129.0, 128.9, 125.1 (q, J = 3.7 Hz), 98.5, 93.9. ^{19}F NMR ($CDCl_3$, 100 MHz) δ -62.6. HRMS (ESI): Calcd. for $C_{22}H_{13}F_3I_2N$ $(M+H)^+$ 601.9089, found 601.9086.

2-(4-chlorophenyl)-3,6-diiodo-4-phenylquinoline (3f) White solid, yield 37.9 mg (67%), mp

300-301°C. IR ν_{max} cm^{-1} (KBr disc): 3024, 1655, 1489, 1459, 1325, 1090, 1014, 973, 885, 823. ^1H NMR (400 MHz, $CDCl_3$) δ 7.97 (m, 1H), 7.84 (m, 1H), 7.76 (m, 1H), 7.58 (m, 5H), 7.47 (m, 2H), 7.33 – 7.25 (m, 2H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 161.3, 153.9, 145.9, 141.7, 141.3, 139.2, 135.5 , 135.0 , 131.0 , 130.8, 129.0 , 128.9，128.8 , 128.3, 99.1,93.6. HRMS (ESI): calcd for $C_{21}H_{13}I_2N$ $(M+H)^+$ 567.8826, found 567.8823.

2-(4-(tert-butyl)phenyl)-3,6-diiodo-4-phenylquinoline (3g) White solid, yield 44.2 mg (75%), mp 214-216 °C. IR ν_{max} cm^{-1} (KBr disc): 2954, 2860, 1523, 1508, 1459, 1323, 1109, 971, 829, 747. ^1H NMR ($CDCl_3$, 400 MHz) δ 7.95 (m, 1H), 7.86 (m, 1H), 7.75 (m, 1H), 7.55 (m,7H), 7.27 (m, 2H), 1.37 (s, 9H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 162.6, 153.6, 151.8, 145.9, 141.6, 140.5, 138.9, 135.5, 131.1, 129.1, 128.9, 128.9, 128.8, 128.7, 125.0, 99.7, 93.1, 34.8, 31.4. HRMS (ESI): calcd for $C_{25}H_{21}I_2N(M+H)^+$ 589.9842, found 589.9838.

4-(3-fluorophenyl)-3,6-diiodo-2-phenylquinoline (3h) White solid, yield 32.5 mg (59%), mp 218-219 °C. IR ν_{max} cm^{-1} (KBr disc): 3065, 1578, 1467, 1435, 1329, 1211, 993, 885, 826, 764. ^1H NMR (400 MHz, $CDCl_3$) δ 7.96 (m ,1H), 7.86 (m, 1H), 7.73 (m, 1H), 7.65–7.43 (m, 7H), 7.24 (m,1H), 7.08–6.97 (m, 2H). ^{13}C NMR ($CDCl_3$,101MHz) δ 162.5, 152.2, 152.1, 145.9, 143.2, 139.2, 135.1, 131.2, 130.8 (d, J = 8.4 Hz), 129.2, 128.9, 128.4, 128.1, 125.0, 116.5 (d, J = 22.3 Hz), 116.0 (d, J = 20.9 Hz), 99.3, 93.6. ^{19}F NMR ($CDCl_3$, 100 MHz) δ -111.4. HRMS (ESI): Calcd for $C_{21}H_{13}FI_2N$ $(M+H)^+$ 551.9121, found 551.9121.

4-(4-chlorophenyl)-3,6-diiodo-2-phenylquinoline (3i) White solid, yield 39.7 mg (70%), mp 279-280 °C. IR ν_{max} cm^{-1} (KBr disc): 3051, 2344, 1587, 1459, 1396, 1329, 1176, 1088, 972, 885. ^1H NMR (400 MHz, $CDCl_3$) δ 7.98 (m, 1H), 7.87 (m, 1H), 7.74 (m, 1H), 7.66 – 7.42 (m, 7H), 7.25–7.20 (m, 2H). ^{13}C NMR ($CDCl_3$, 101 MHz) δ 152.4, 145.9, 143.2, 139.7, 139.1, 135.1, 135.0, 131.2, 130.6, 129.3, 129.2, 128.9, 128.5, 128.1, 99.5, 93.6. HRMS (ESI): Calcd. for $C_{21}H_{13}ClI_2N$ $(M+H)^+$ 567.8826, found 567.8821.

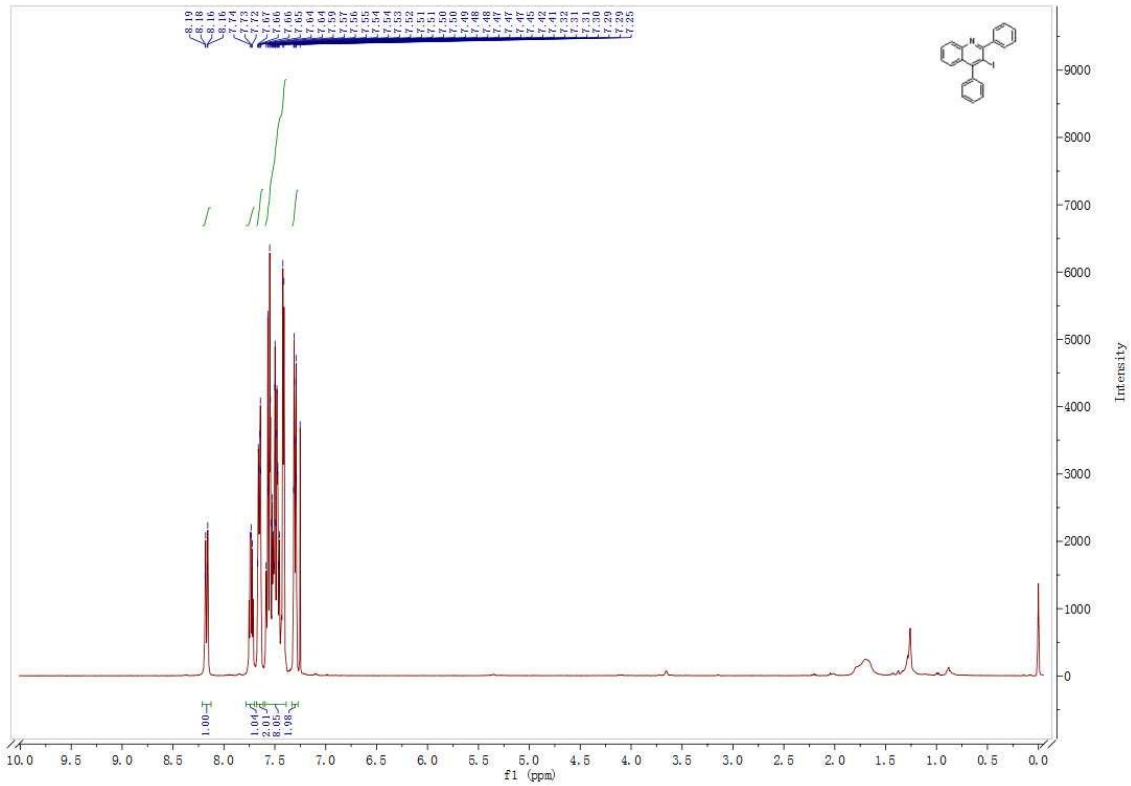
2,3,4,6-tetraphenylquinoline (4a): 6-diiodo-5,7-diphenylquinoline **3a** (0.267g, 0.5 mmol), sodium carbonate (0.106g, 1 mmol), phenylboroic acid (0.183g, 1.5 mmol), $Pd(PPh_3)_4$ (0.029g, 0.0025mmol) in the molar ratio of 1:2:3:0.05 were stirred in the 1:1 mixture of THF and H_2O (12 ml) at 70 °C for 12h to give a brown solution. The reaction mixture was allowed to cool to room temperature after which water (10 mL) was added. The mixture was then extracted with dichloromethane (3×10 mL) and the organic extracts dried (Na_2SO_4), filtered and concentrated in *vacuo*. Purification by flash chromatography furnished the pure cross-coupled product as a white liquid (0.156 g, 72%). IR ν_{max} cm^{-1} (KBr disc): 3027, 2343, 1545, 1442, 1351, 1075, 1019, 926, 852, 755. ^1H NMR (400 MHz, $CDCl_3$) δ 8.33 (m, 1H), 8.00 (m, 1H), 7.77 (m, 1H), 7.59–7.54 (m, 2H), 7.45–7.27 (m, 7H), 7.21 (m, 6H), 7.03–6.99 (m, 3H), 6.91 (m, 2H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 159.0, 147.9, 146.8, 141.2, 140.7, 139.3, 138.4, 136.9, 133.4, 131.4, 130.4, 130.2, 130.0, 129.2, 128.9, 127.9, 127.7, 127.7, 127.6, 127.5, 127.4, 126.9, 126.4, 124.4. HRMS (ESI): Calcd. for $C_{33}H_{24}N$ $(M+H)^+$ 434.1909, found 434.1905.

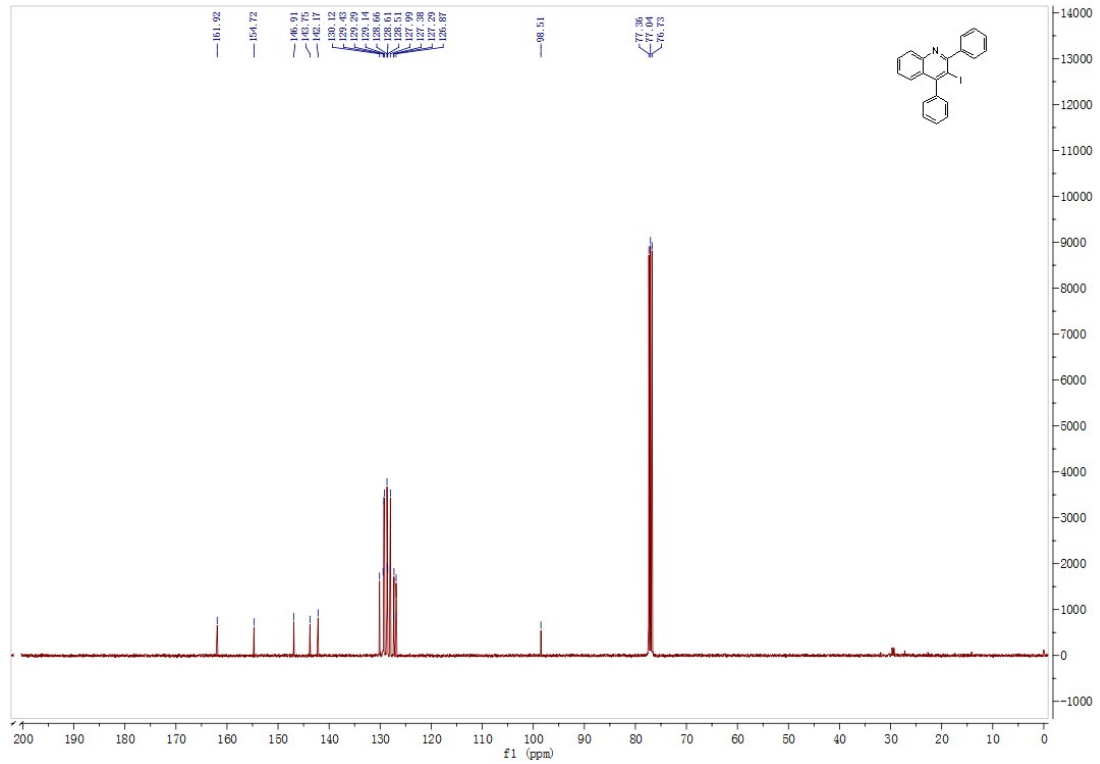
2, 4-diphenyl-3, 6-bis(phenylethynyl)quinoline (4b): 6-diiodo-5,7-diphenylquinoline **3a** (0.267g, 0.5 mmol), CuI (0.1 mmol), $(PPh_3)_2PdCl_2$ (0.05 mmol) and potassium carbonate (1.5 mmol) was charged in a dry and argon-flushed *Schlenk*-flask. Then phenylacetylene (1.5 mmol) and dry DMF (3.0 mL) were added and the mixture was stirred at 120 ^oC for 18 h. The reaction mixture was allowed to cool to room temperature after which water (20 mL) was added. The mixture was then extracted with dichloromethane (3×10 mL) and the organic phase was dried with Na_2SO_4, filtered and concentrated in *vacuo*. Purification by flash chromatography furnished the pure cross-

coupling product as a white solid (0.171 g, 71%). ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.17 (d, *J* = 9.1 Hz, 1H), 8.09 (d, *J* = 7.4 Hz, 2H), 7.82 (d, *J* = 7.2 Hz, 2H), 7.57 (ddd, *J* = 24.7, 13.3, 7.3 Hz, 10H), 7.39 – 7.30 (m, 3H), 7.24 – 7.17 (m, 3H), 6.96 (d, *J* = 7.7 Hz, 2H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 159.9, 151.6, 146.2, 139.9, 136.7, 132.7, 131.7, 131.1, 130.2, 129.6, 129.4, 129.1, 128.7, 128.0, 127.9, 125.6, 122.9, 121.9, 116.2, 98.8, 90.9, 89.3, 87.6. HRMS (ESI): Calcd. for $C_{37}H_{23}NH$ $(M+H)^+$ 482.1909, found 482.1906.

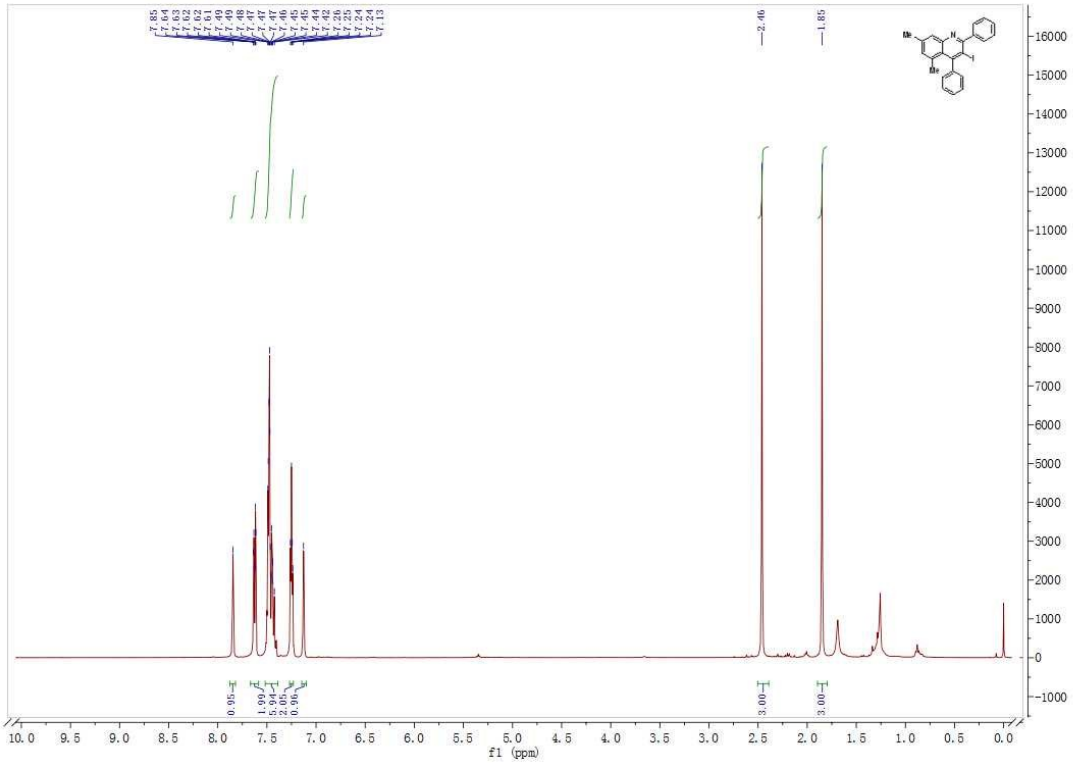
4. ^{1}H NMR and ^{13}C NMR Spectra of iodoquinolines 2-4

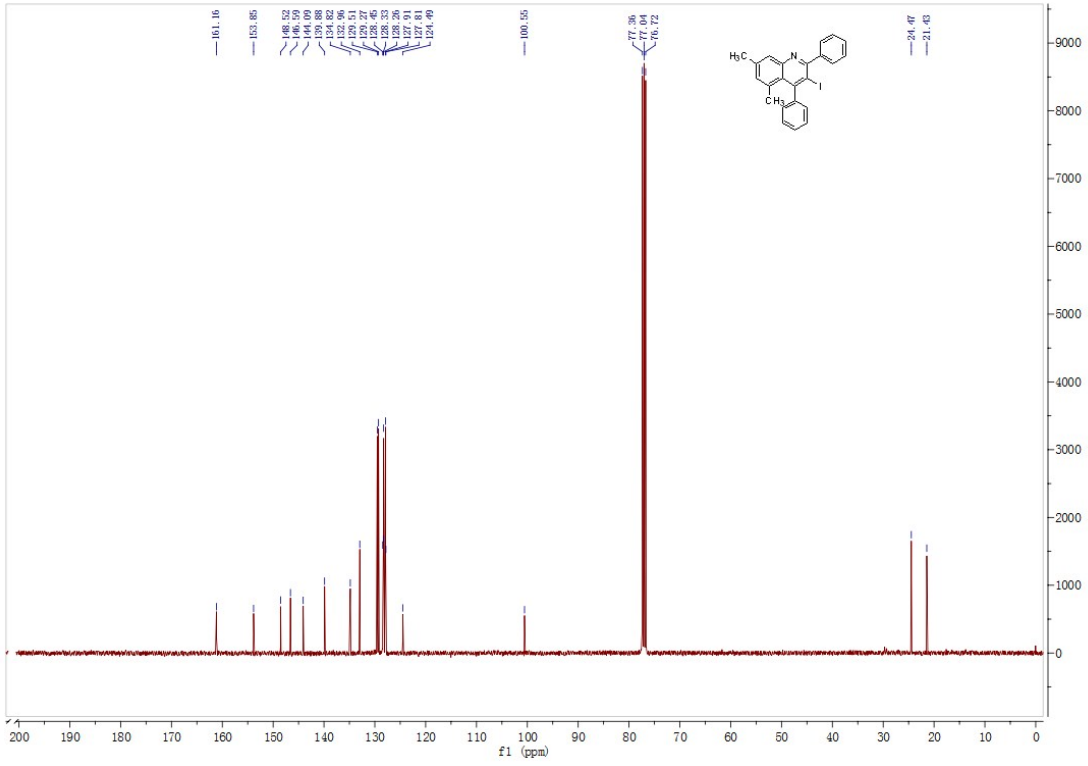
3-iodo-2,4-diphenylquinoline (2a)



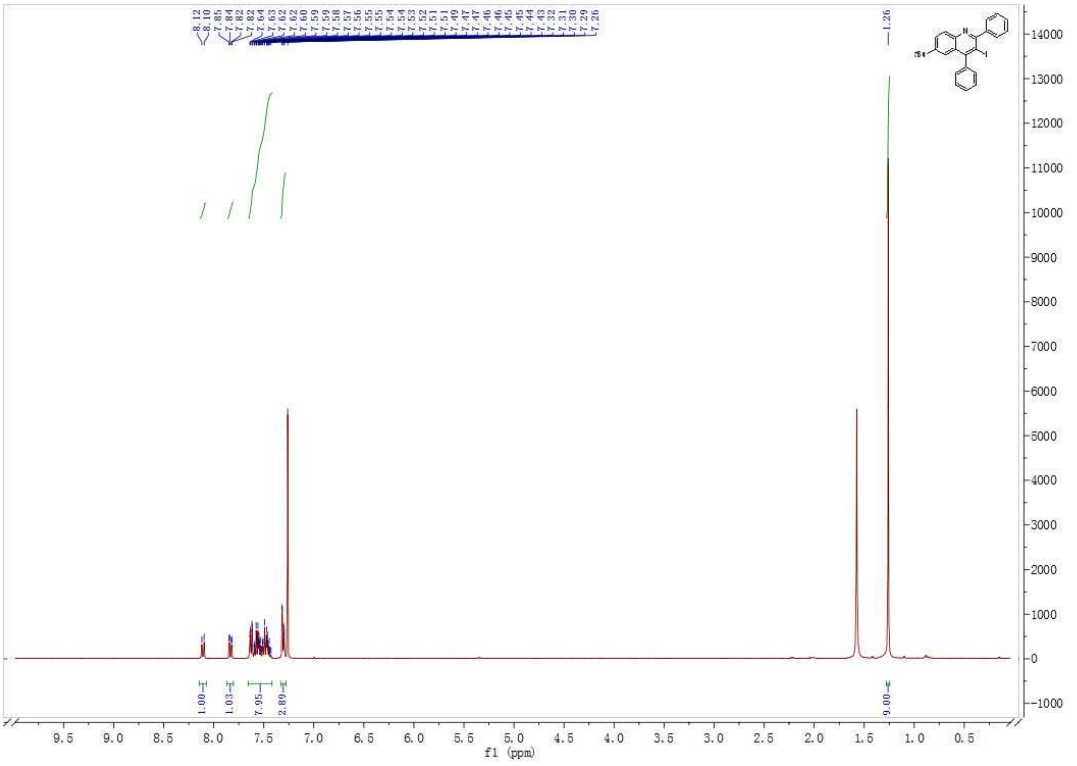


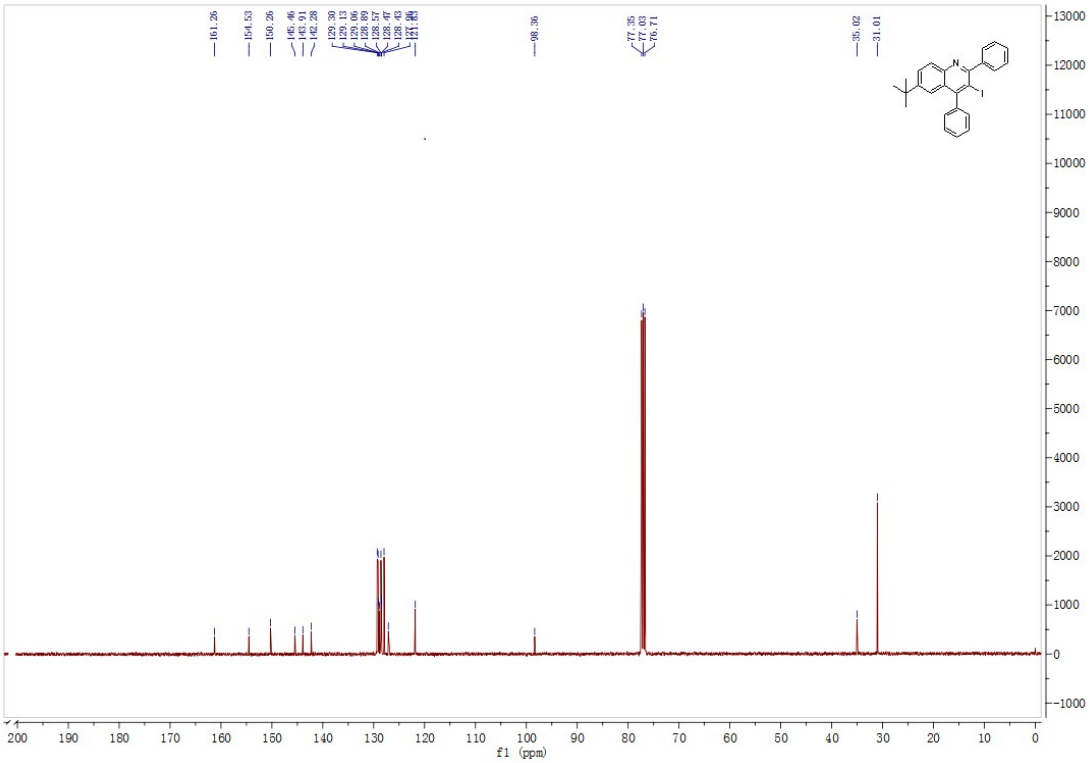
3-iodo-5,7-dimethyl-2,4-diphenylquinoline (2b)



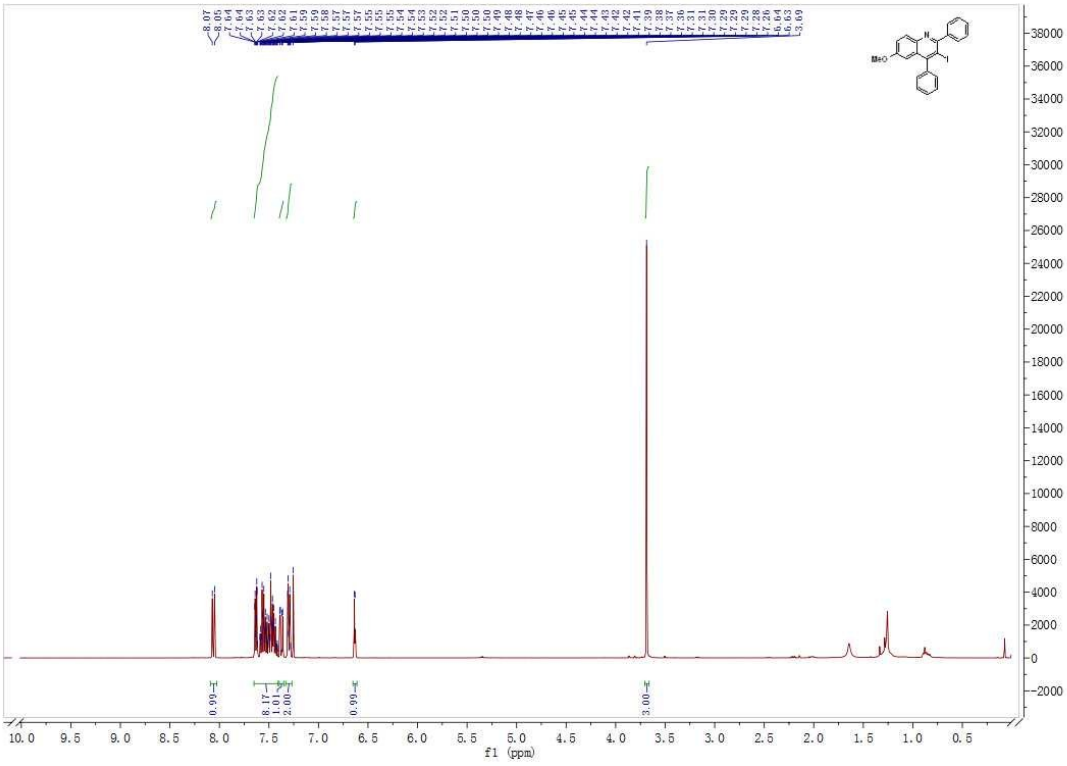


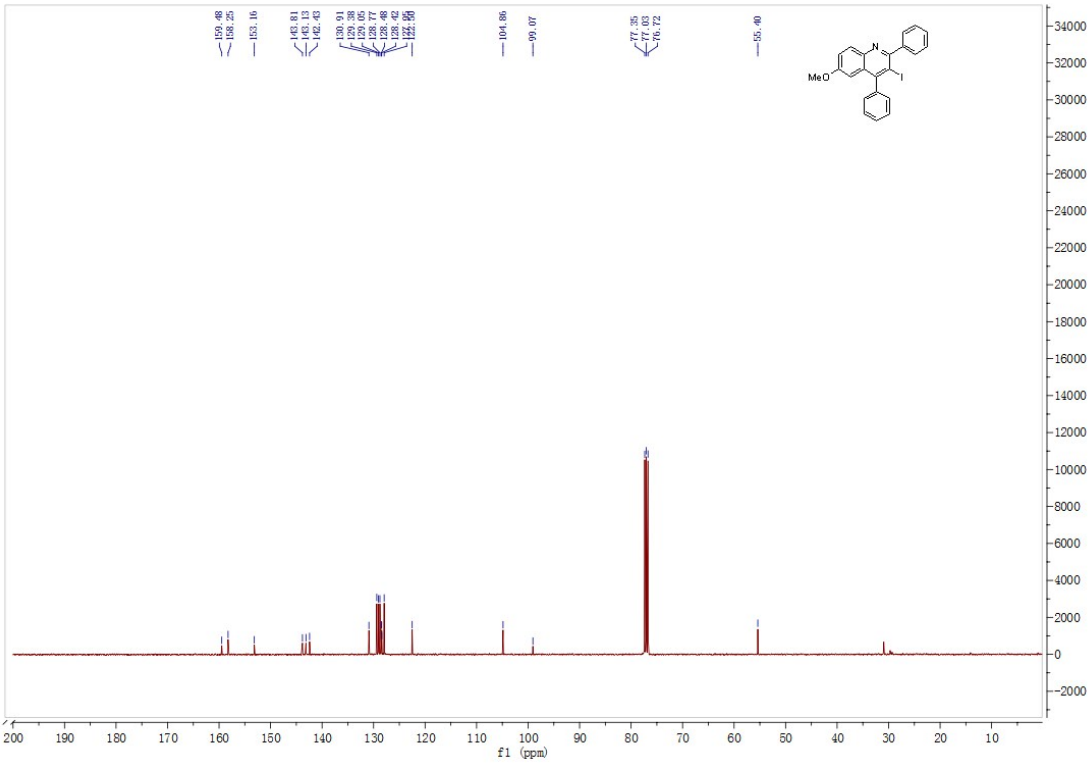
6-(tert-butyl)-3-iodo-2,4-diphenylquinoline (2c)



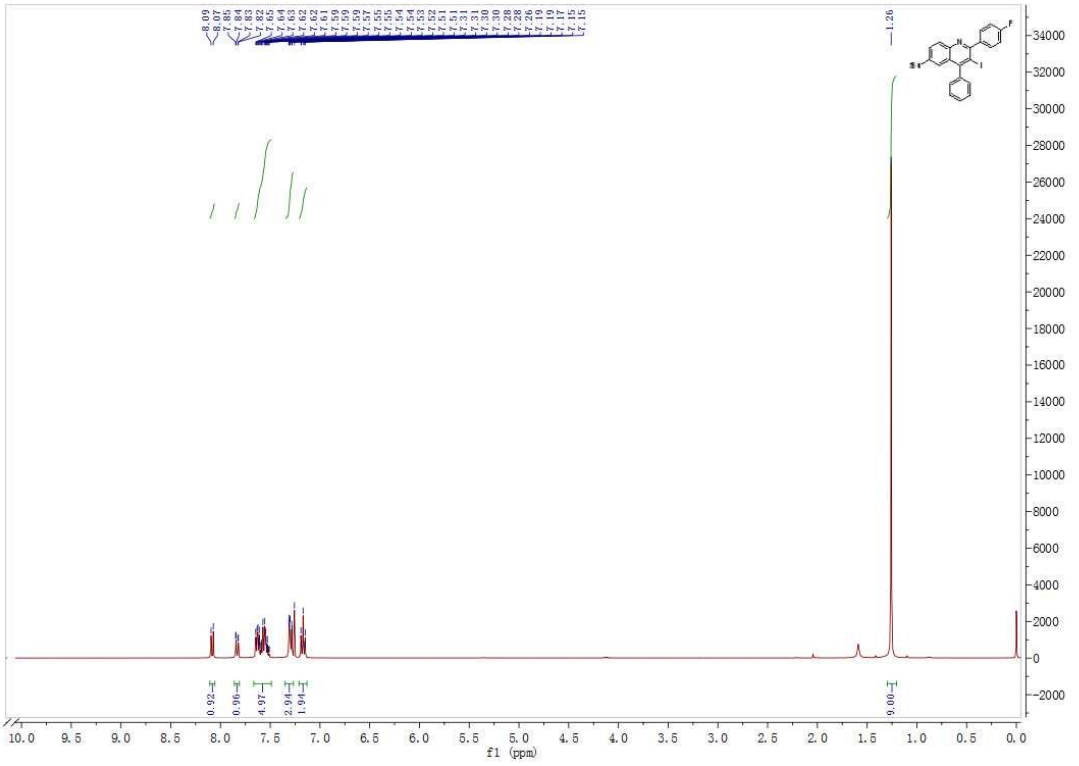


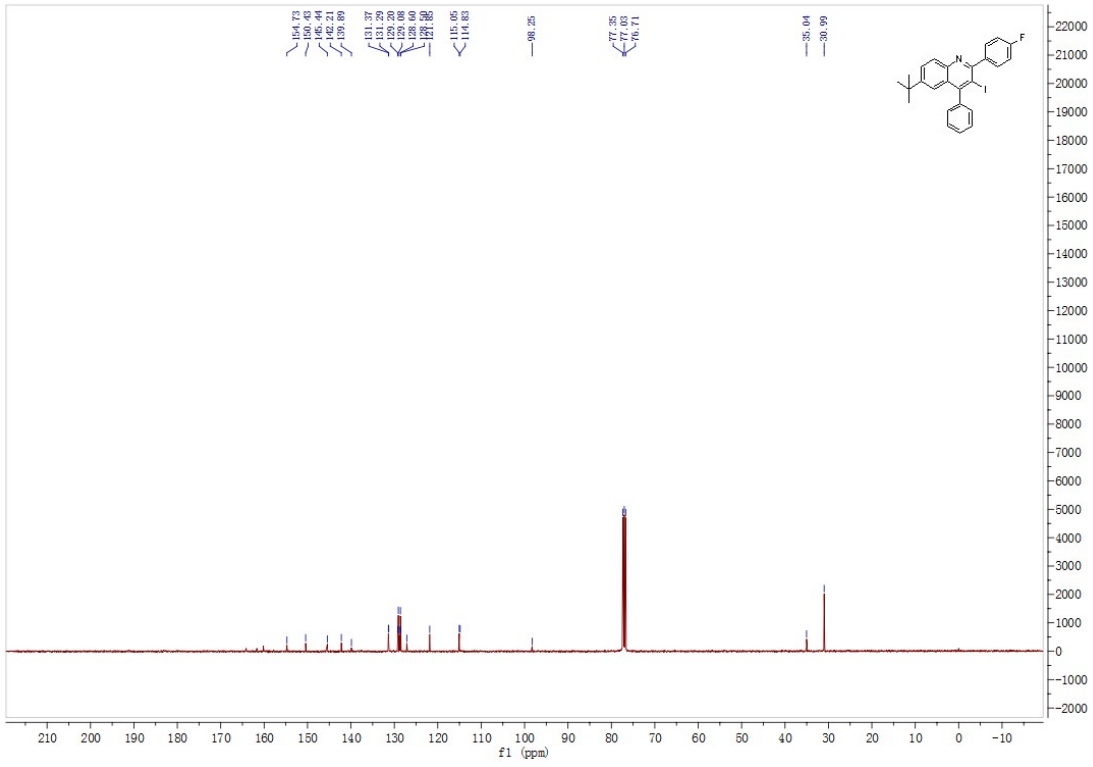
3-iodo-6-methoxy-2,4-diphenylquinoline (2d)



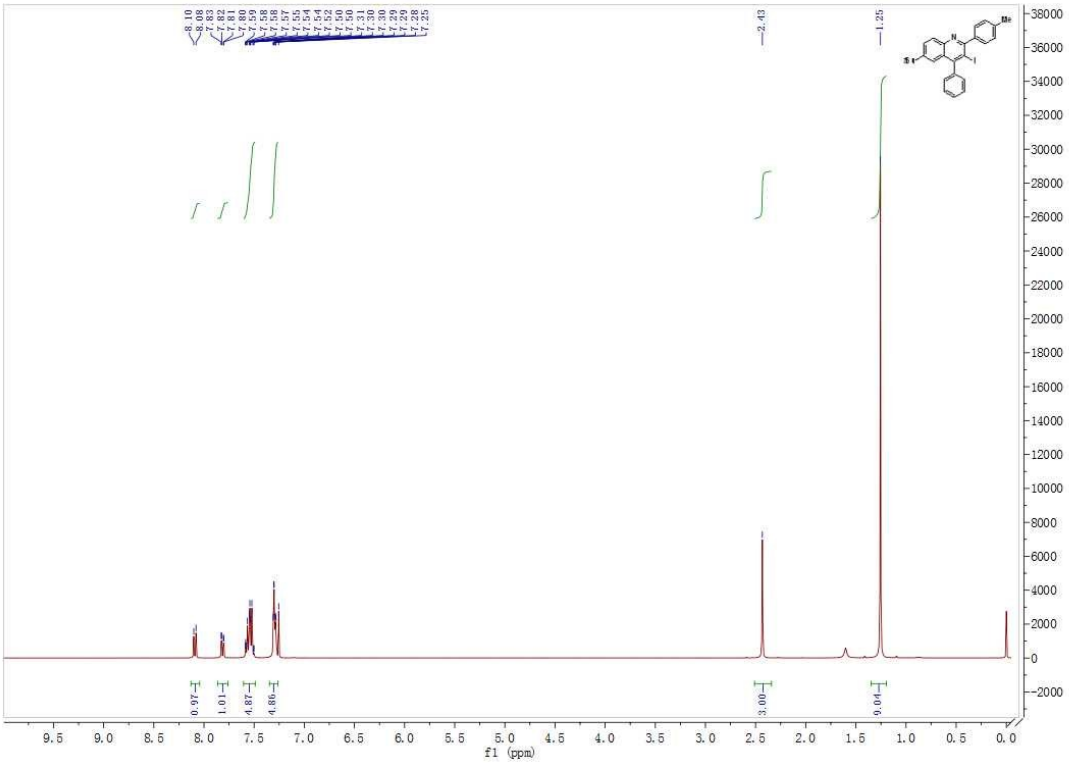


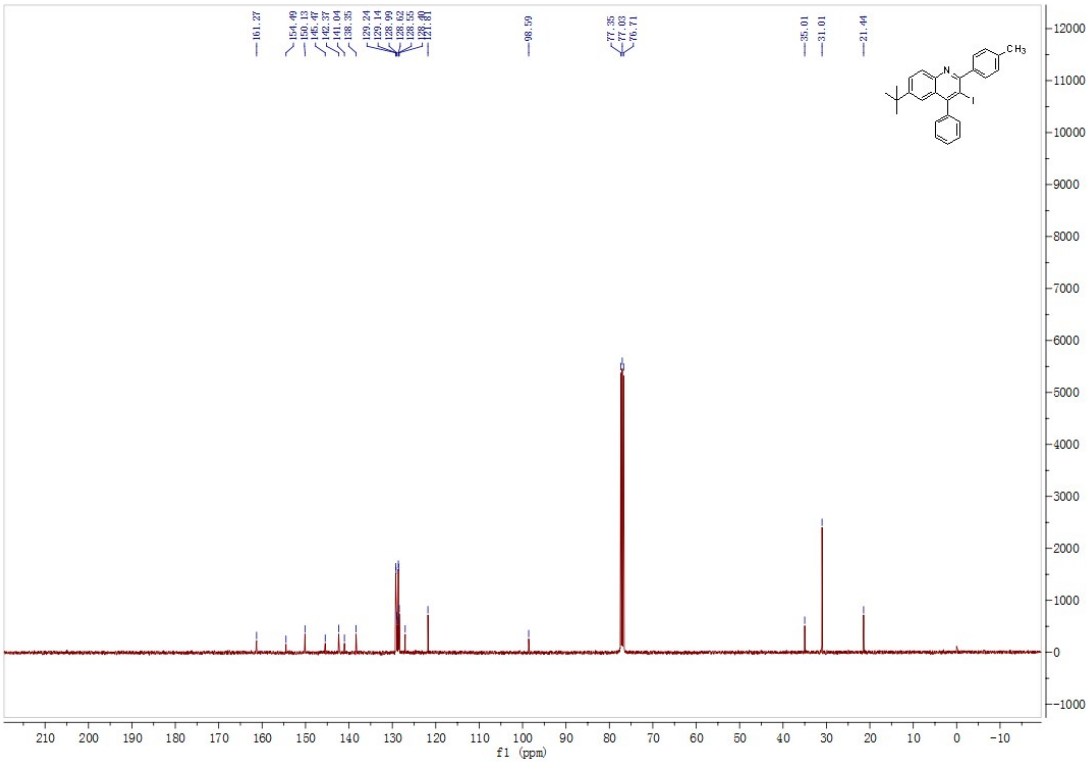
6-(tert-butyl)-2-(4-fluorophenyl)-3-iodo-4-phenylquinoline (2e)



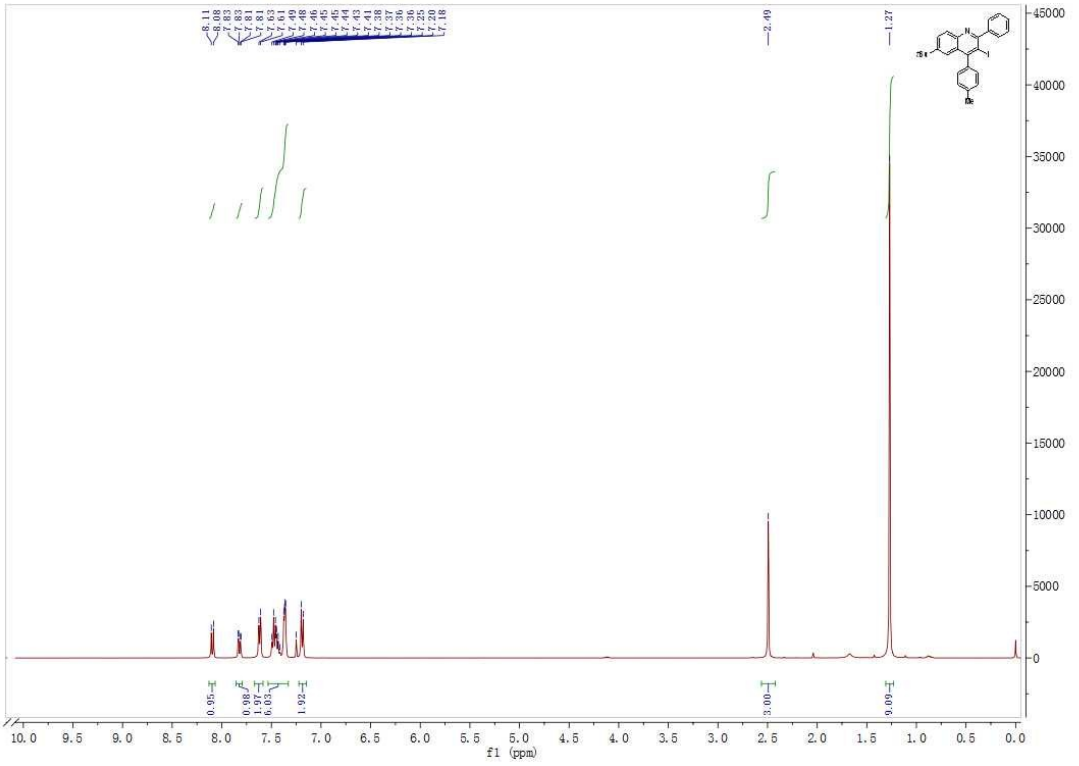


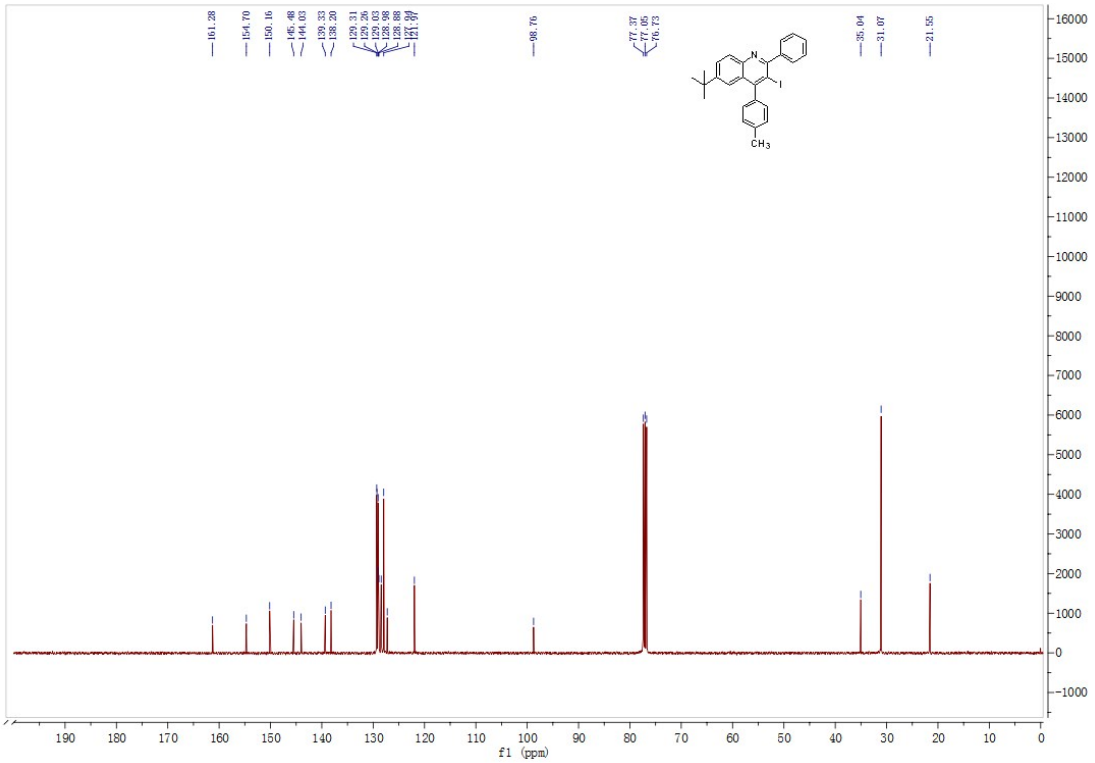
6-(tert-butyl)-3-iodo-4-phenyl-2-(p-tolyl)quinolone (2f)



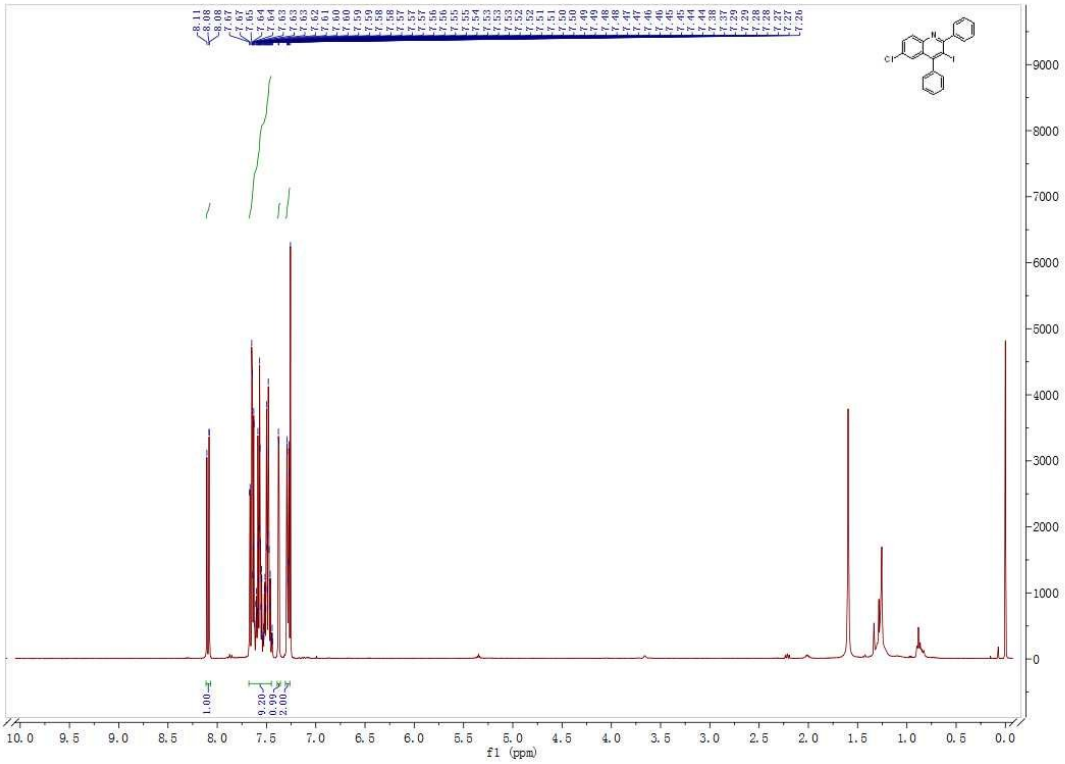


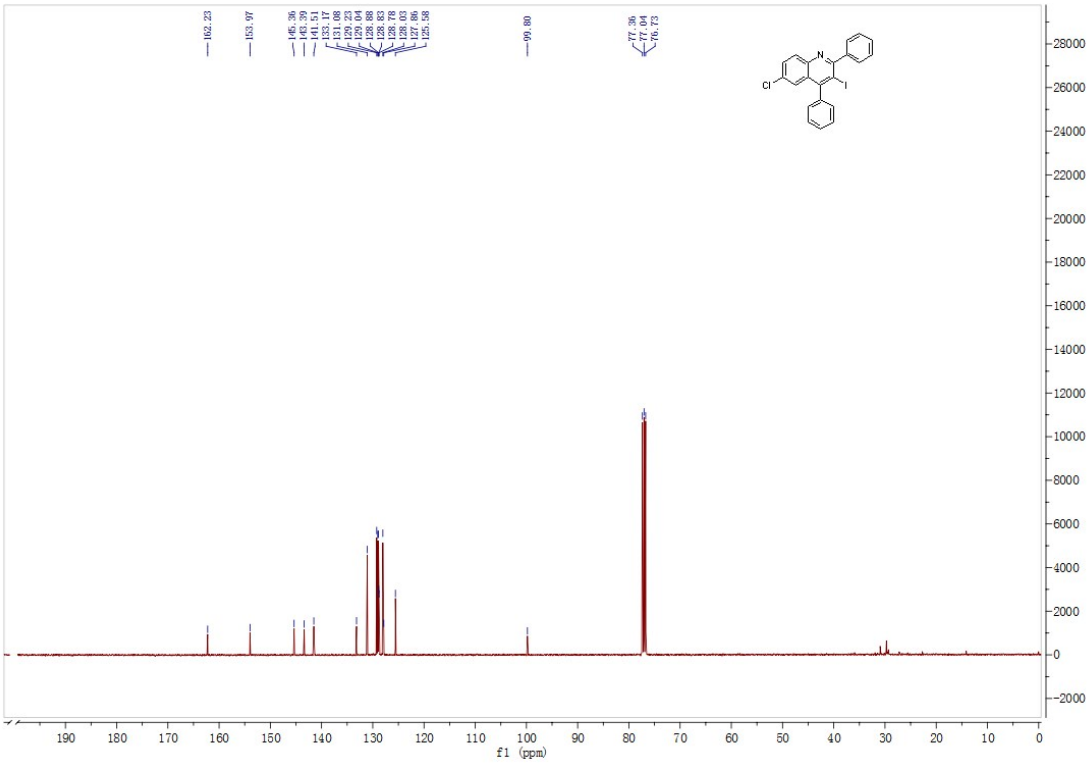
6-(tert-butyl)-3-iodo-2-phenyl-4-(p-tolyl)quinolone (2g)



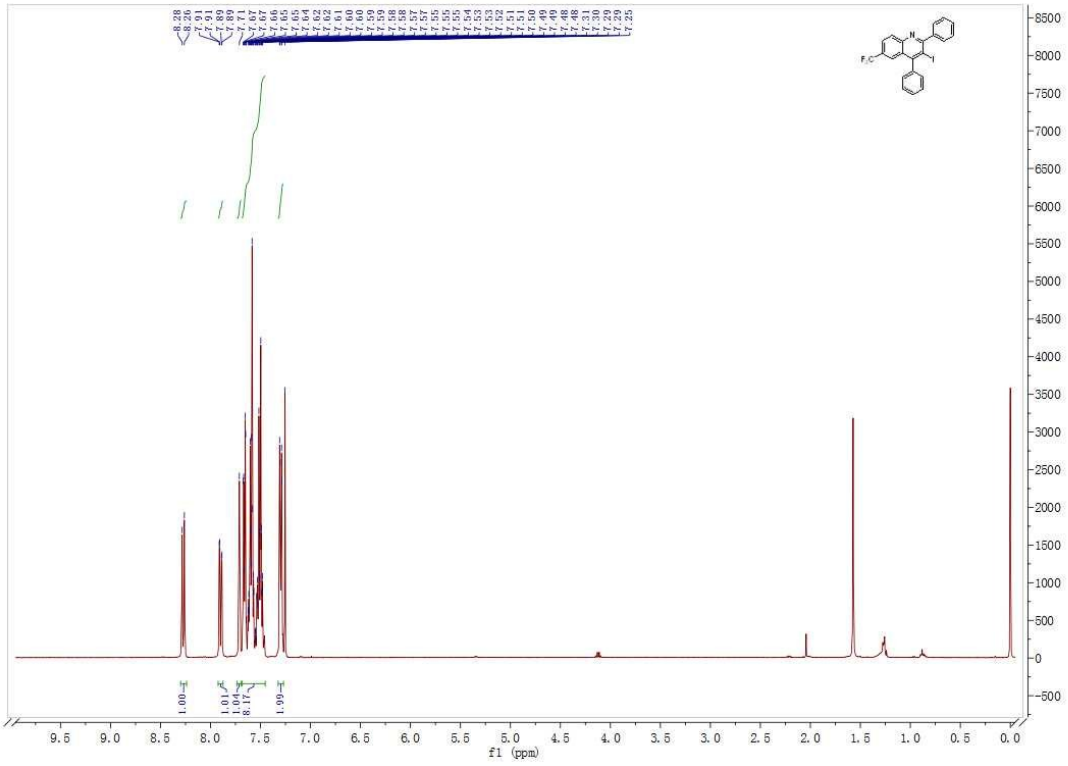


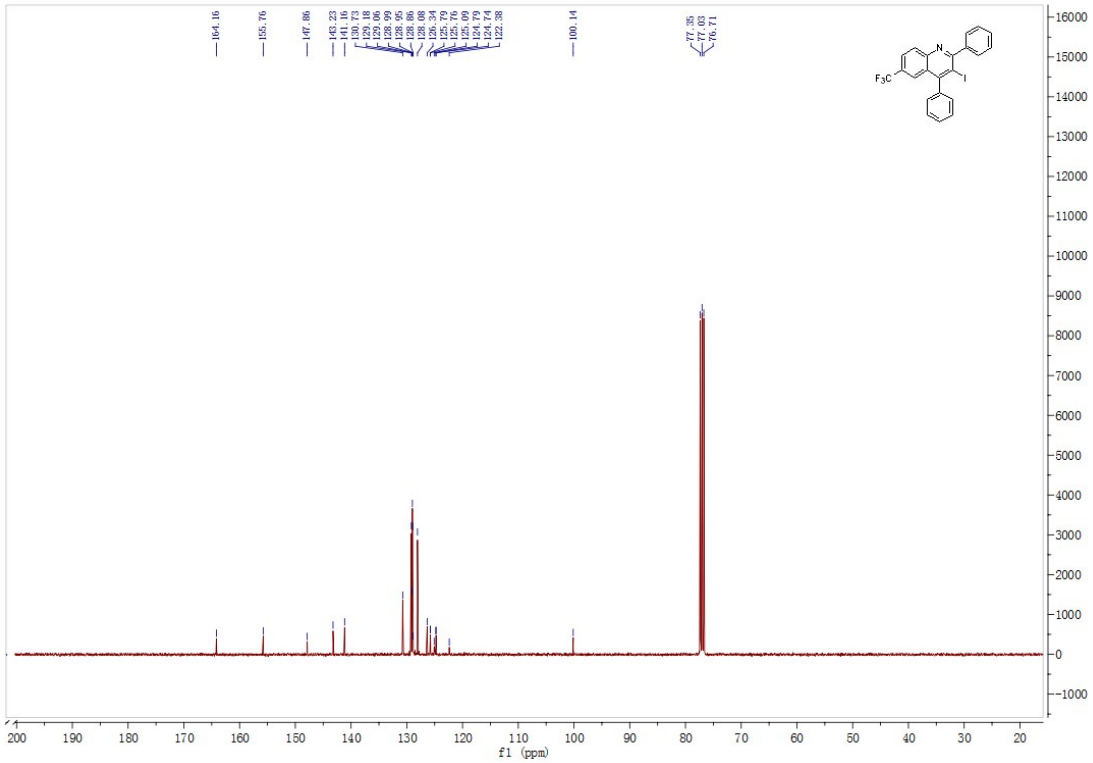
6-chloro-3-iodo-2,4-diphenylquinoline (2h)



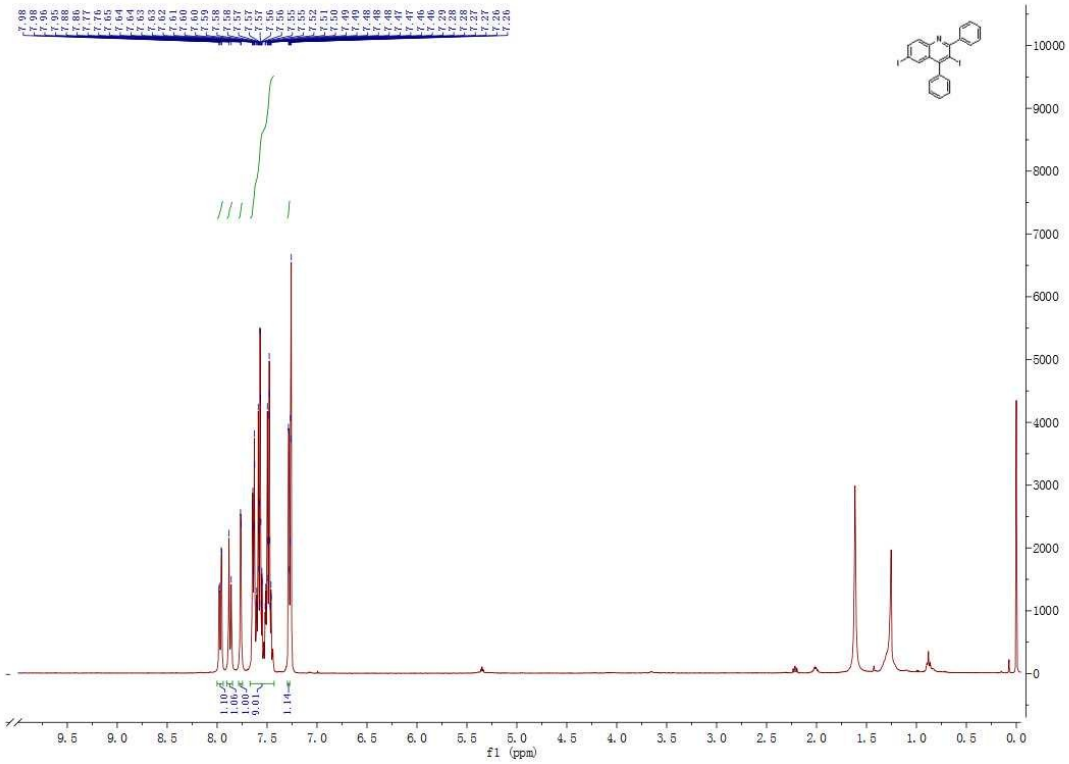


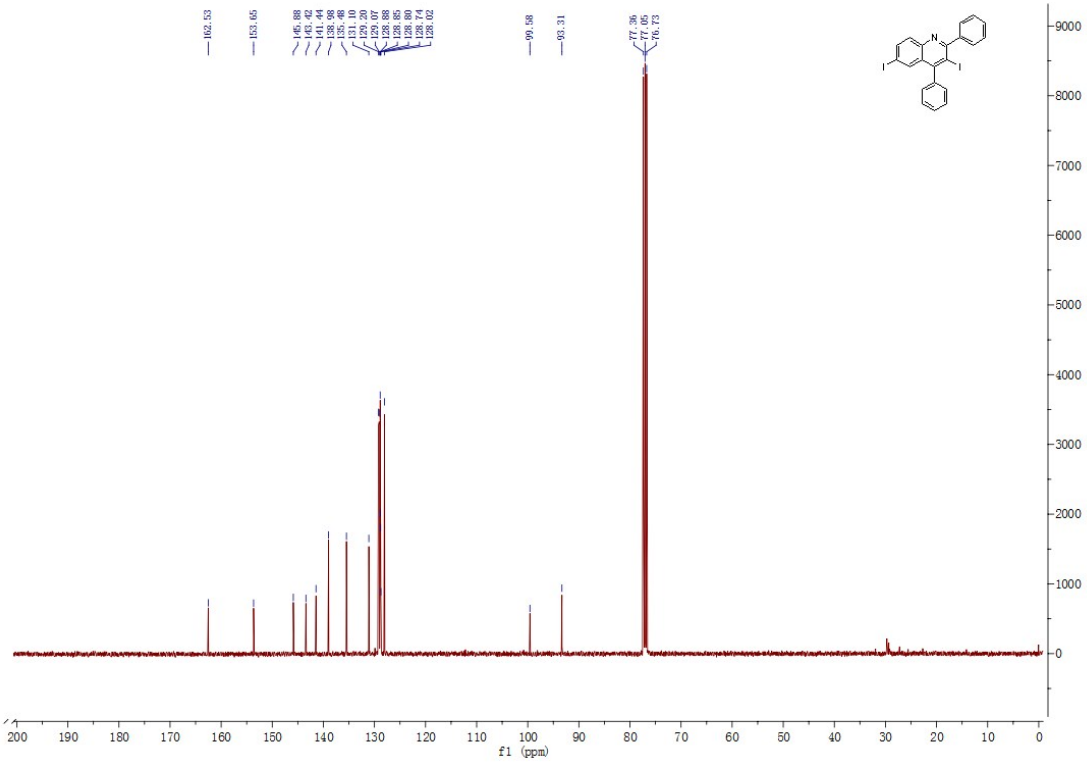
3-iodo-2,4-diphenyl-6-(trifluoromethyl)quinolone (2i)



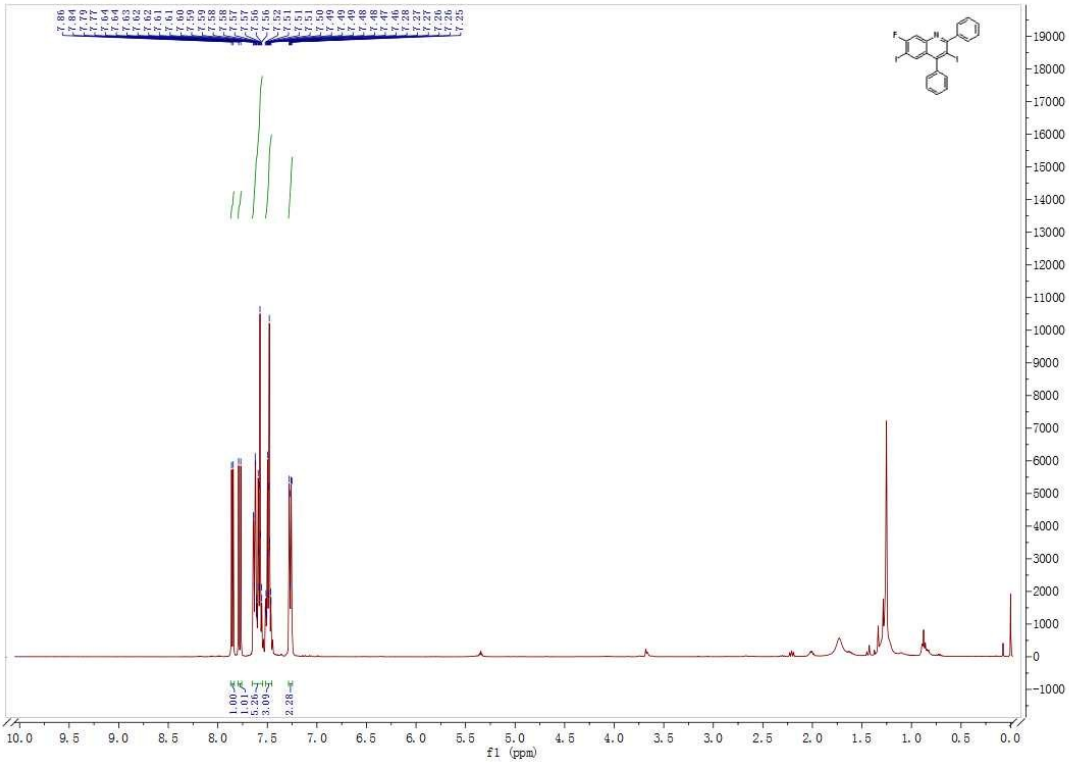


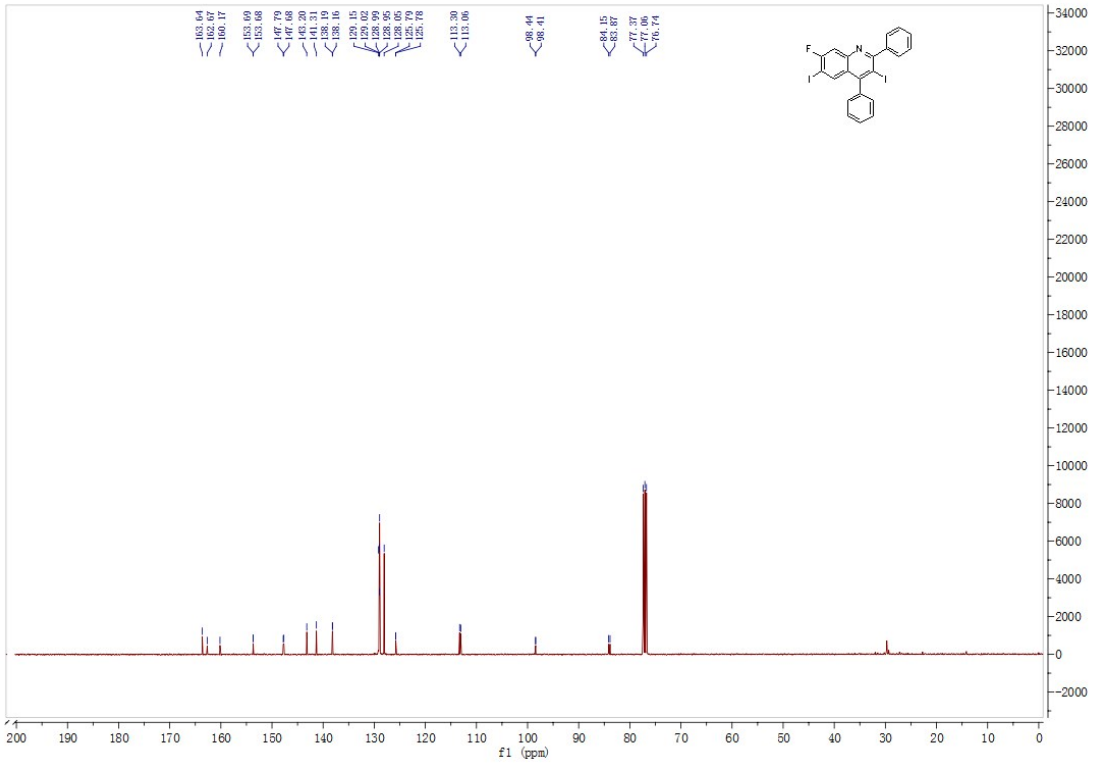
3,6-diiodo-2,4-diphenylquinoline (3a)



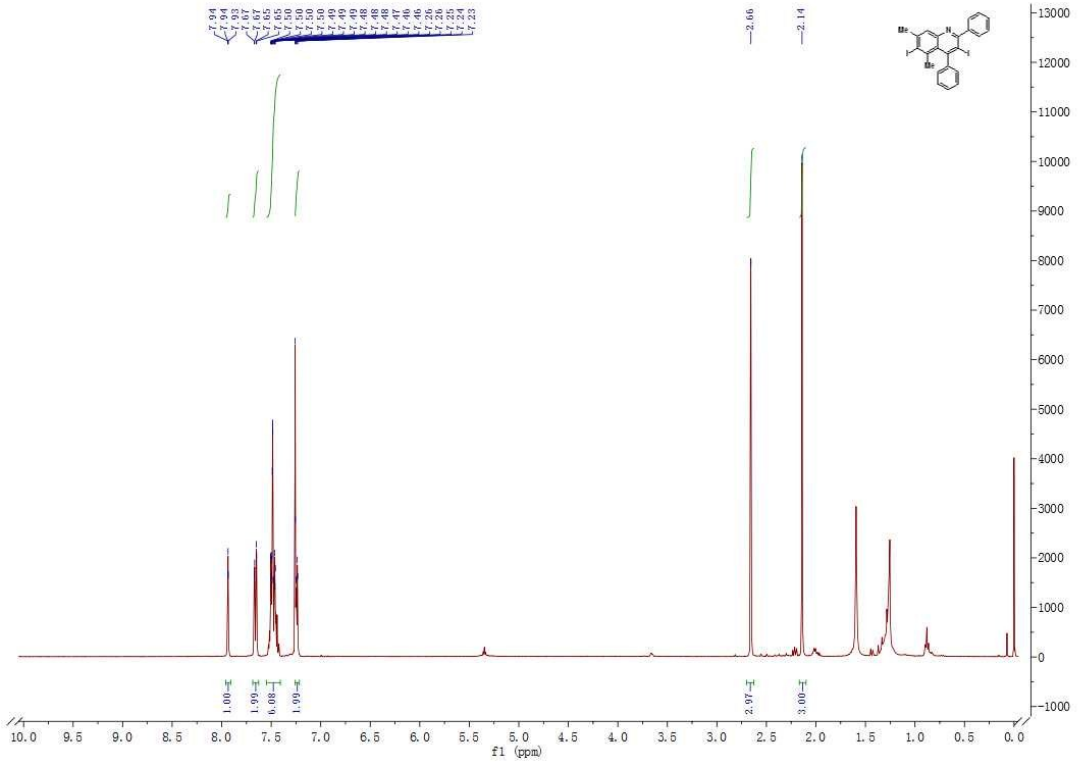


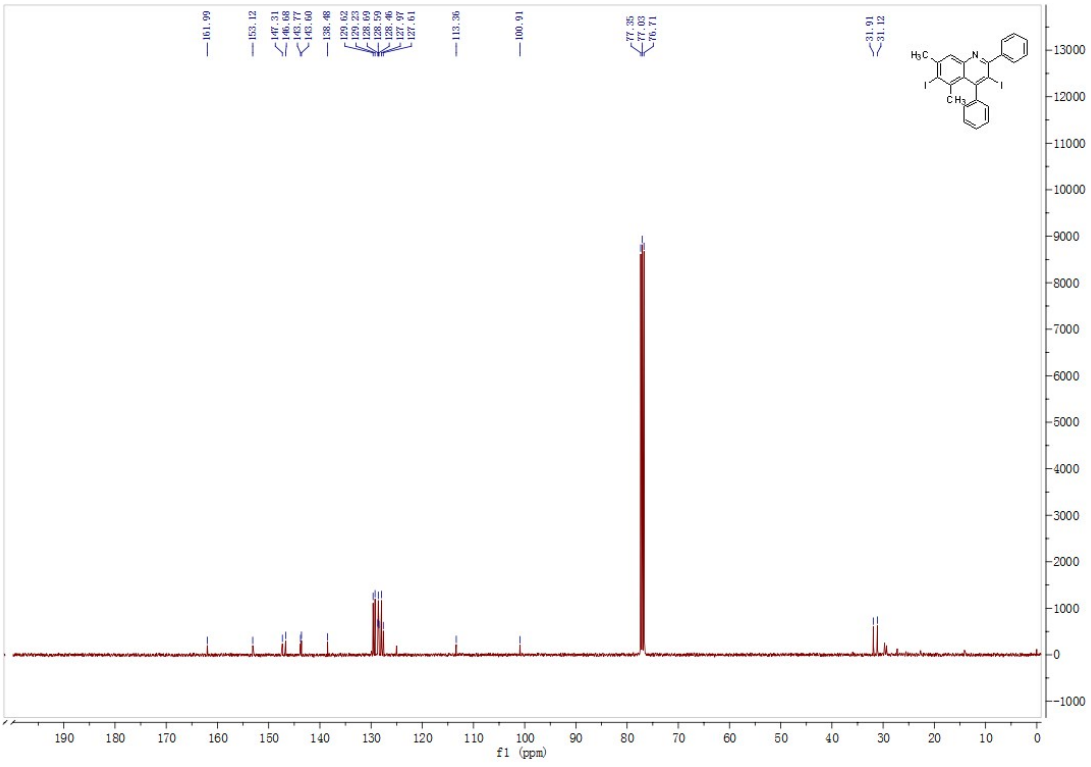
7-fluoro-3,6-diiodo-2,4-diphenylquinoline (3b)



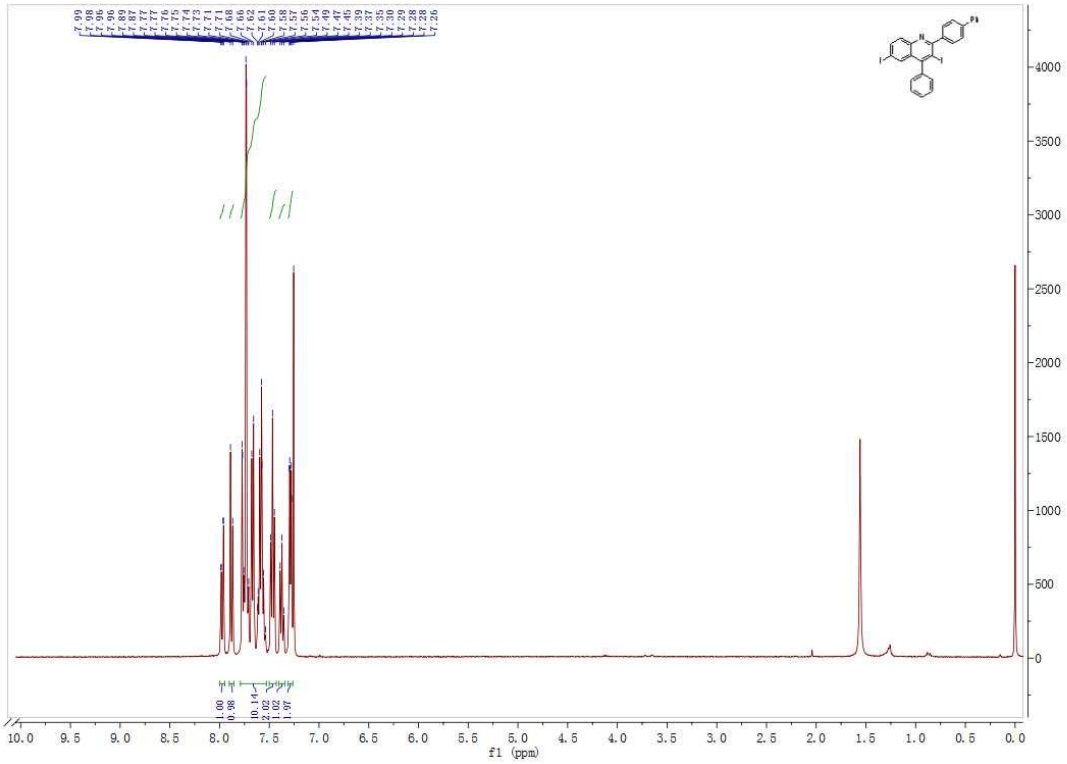


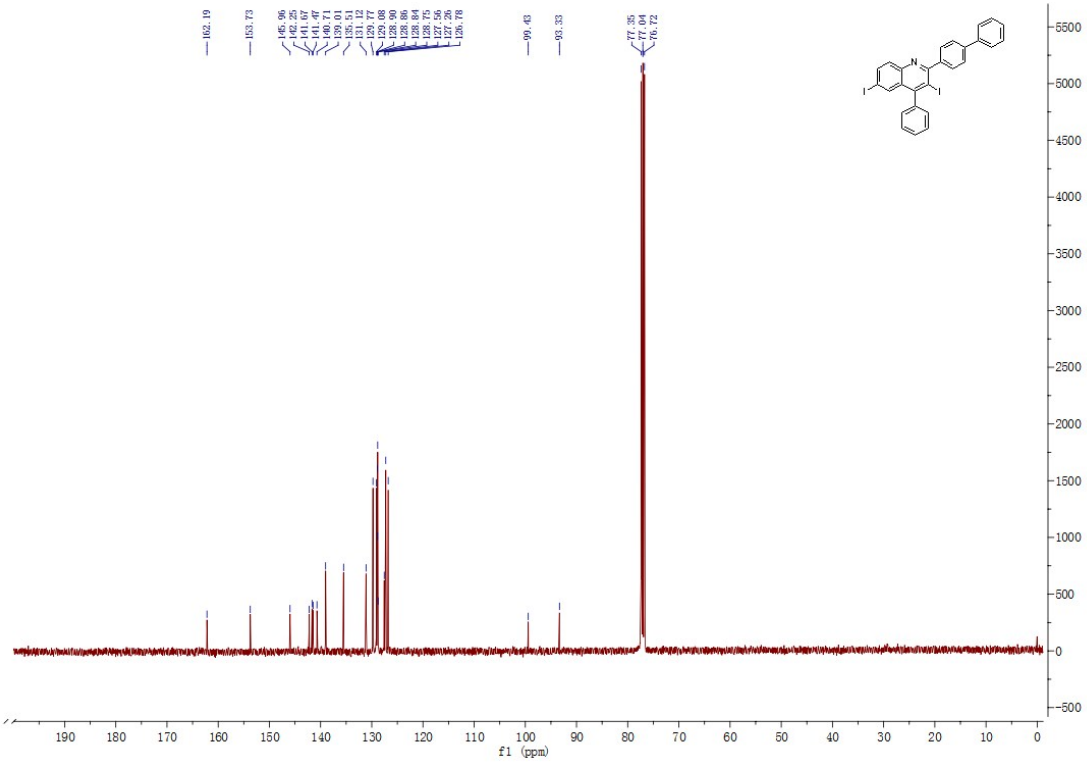
3,6-diiodo-5,7-dimethyl-2,4-diphenylquinoline (3c)



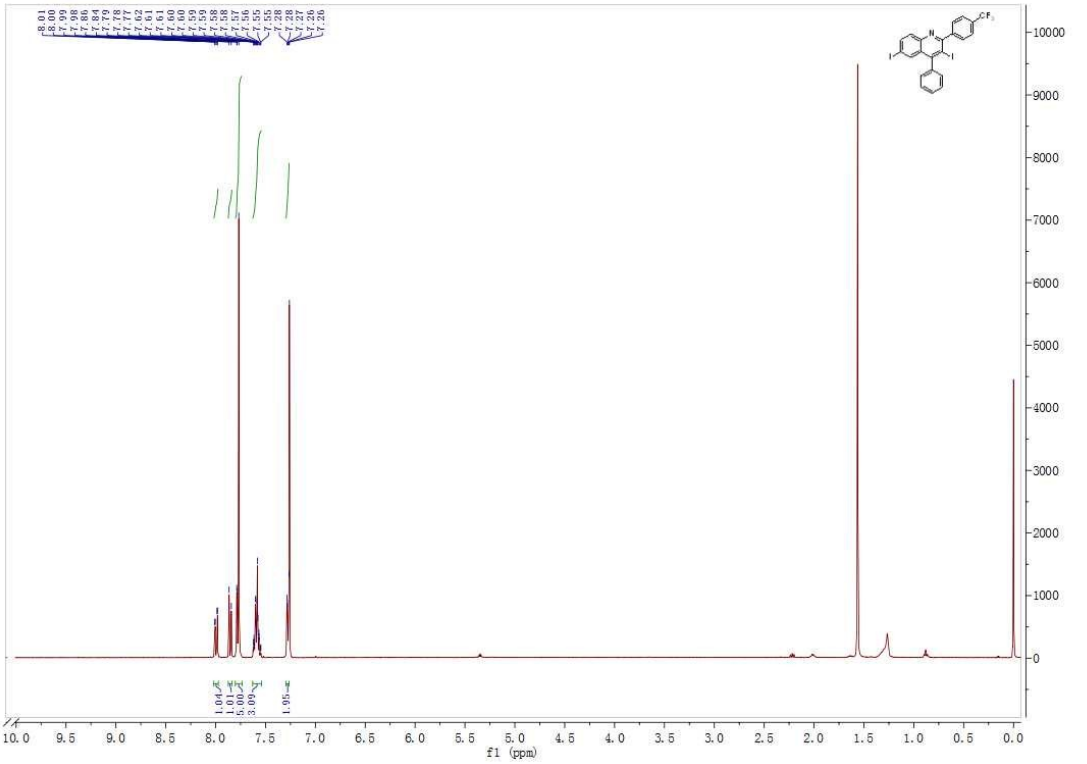


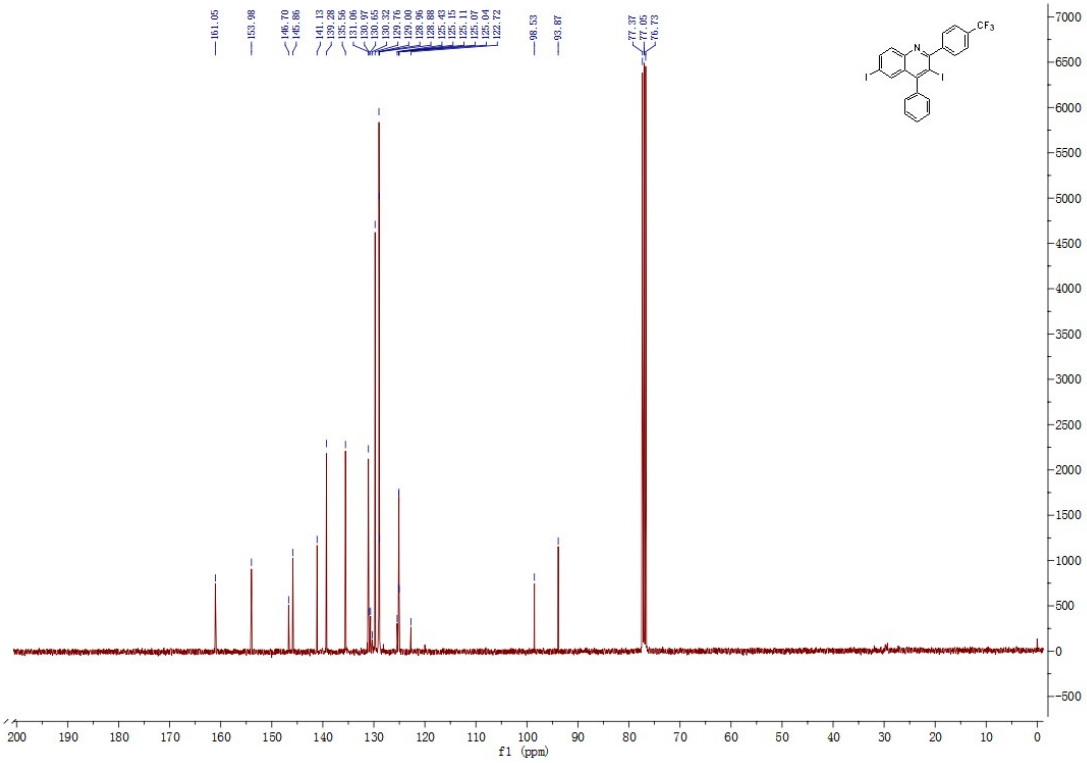
2-([1,1'-biphenyl]-4-yl)-3,6-diiodo-4-phenylquinoline (3d)



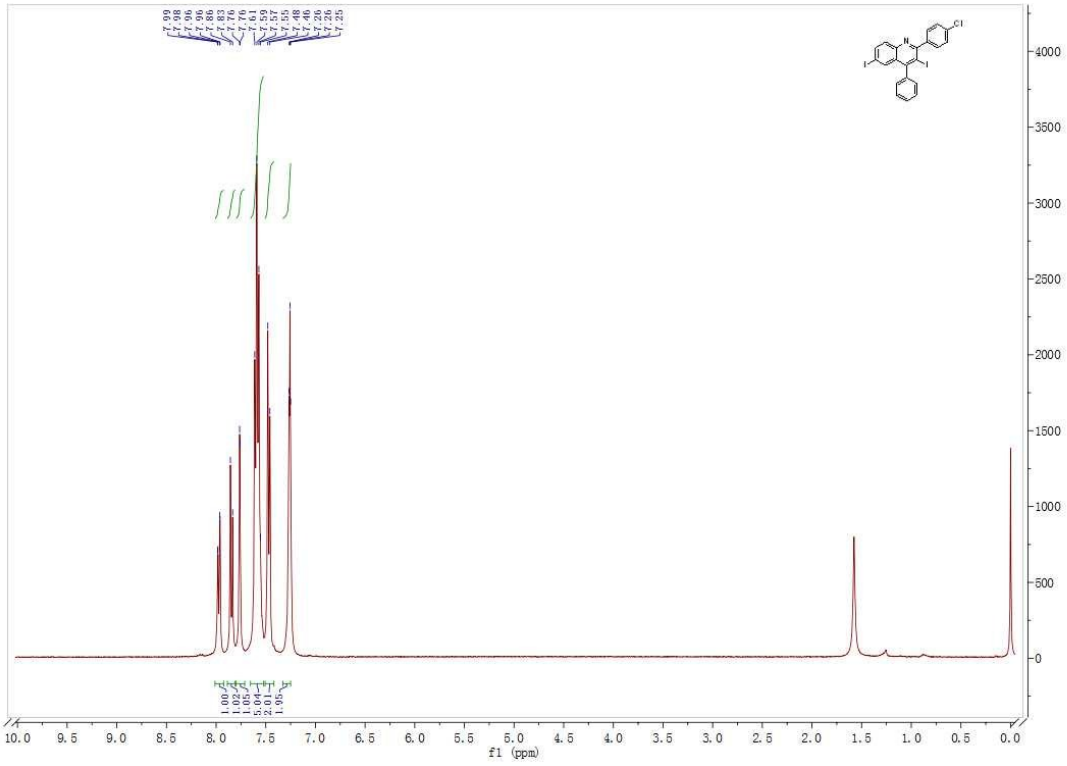


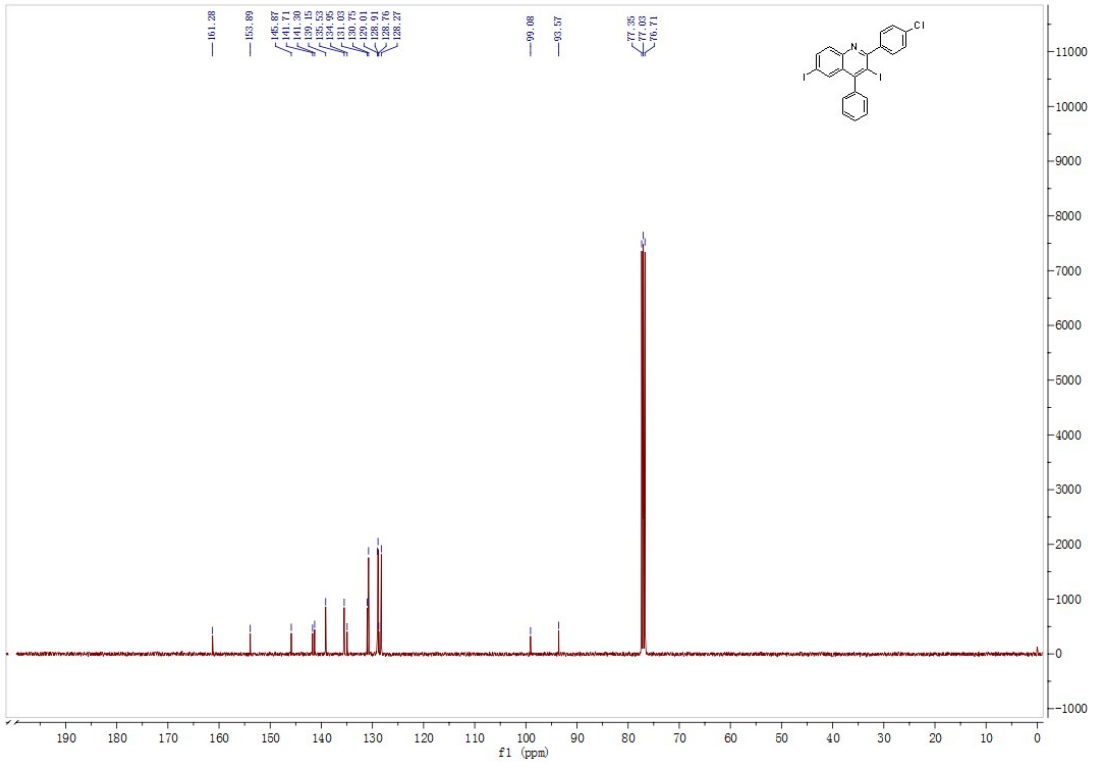
3,6-diiodo-4-phenyl-2-(4-(trifluoromethyl)phenyl)quinolone (3e)



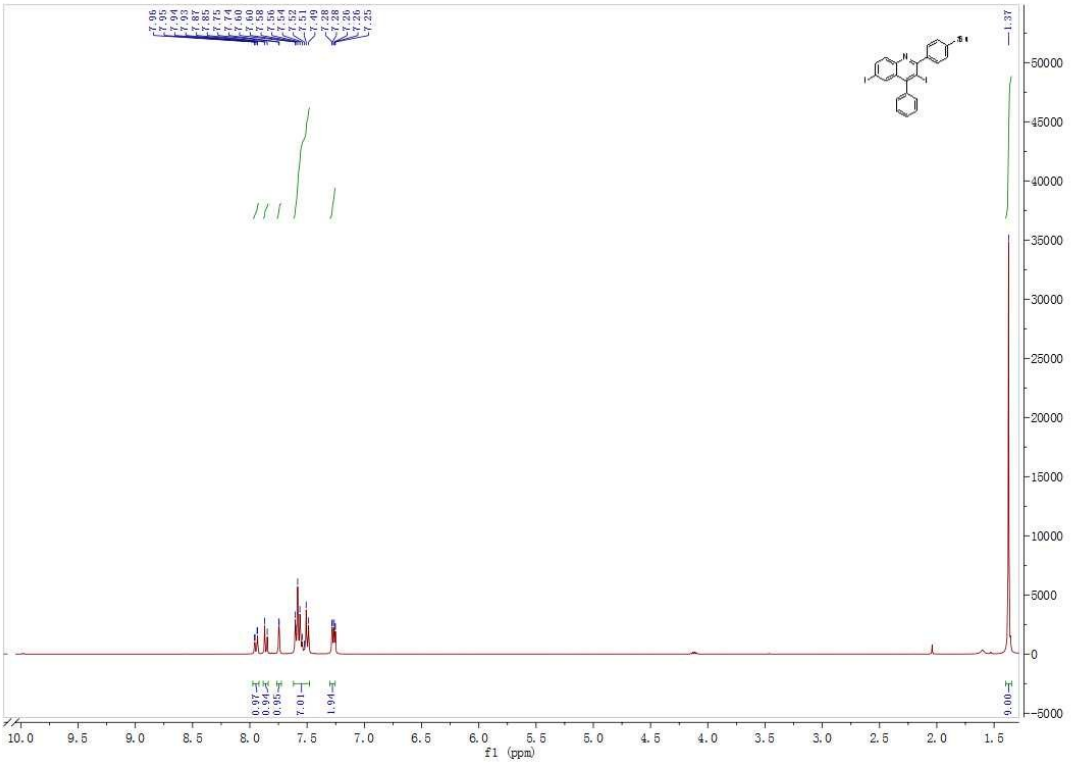


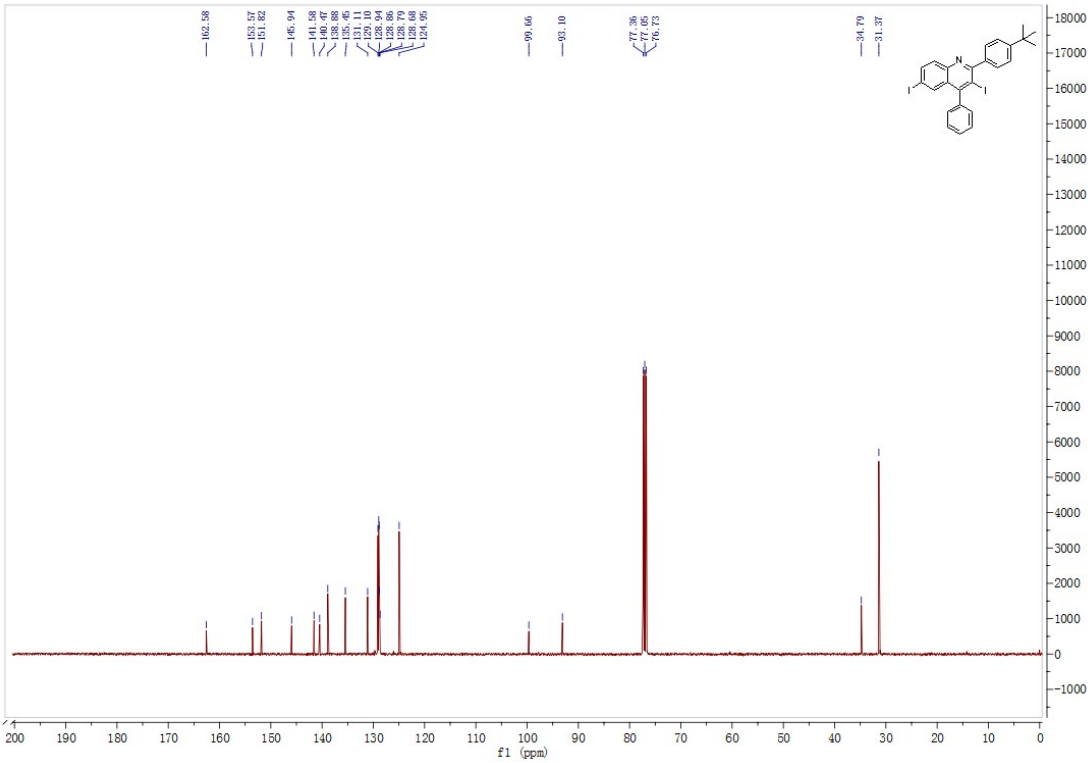
2-(4-chlorophenyl)-3,6-diiodo-4-phenylquinoline (3f)



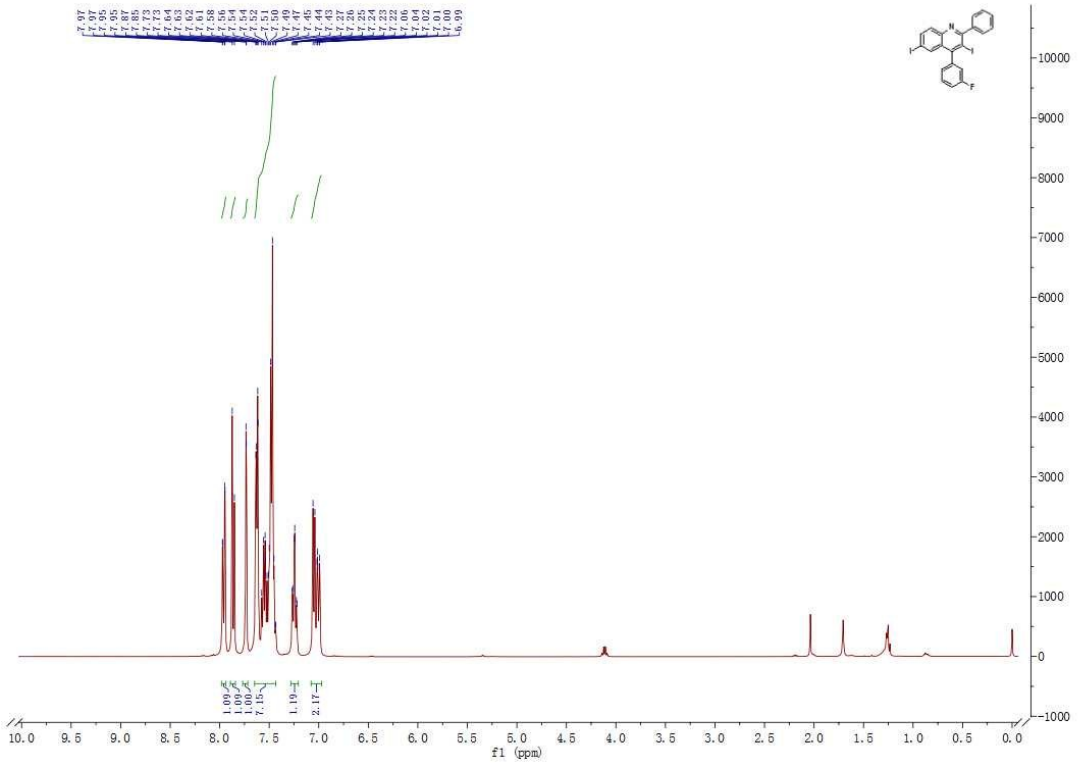


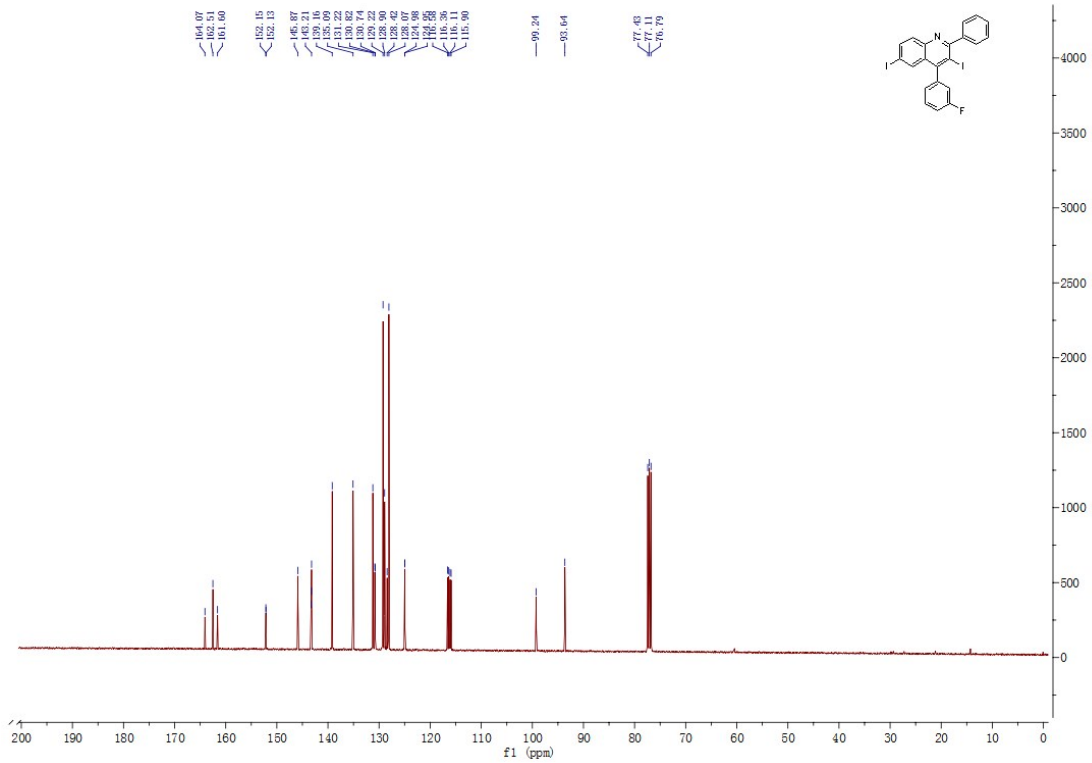
2-(4-(tert-butyl)phenyl)-3,6-diiodo-4-phenylquinoline (3g)



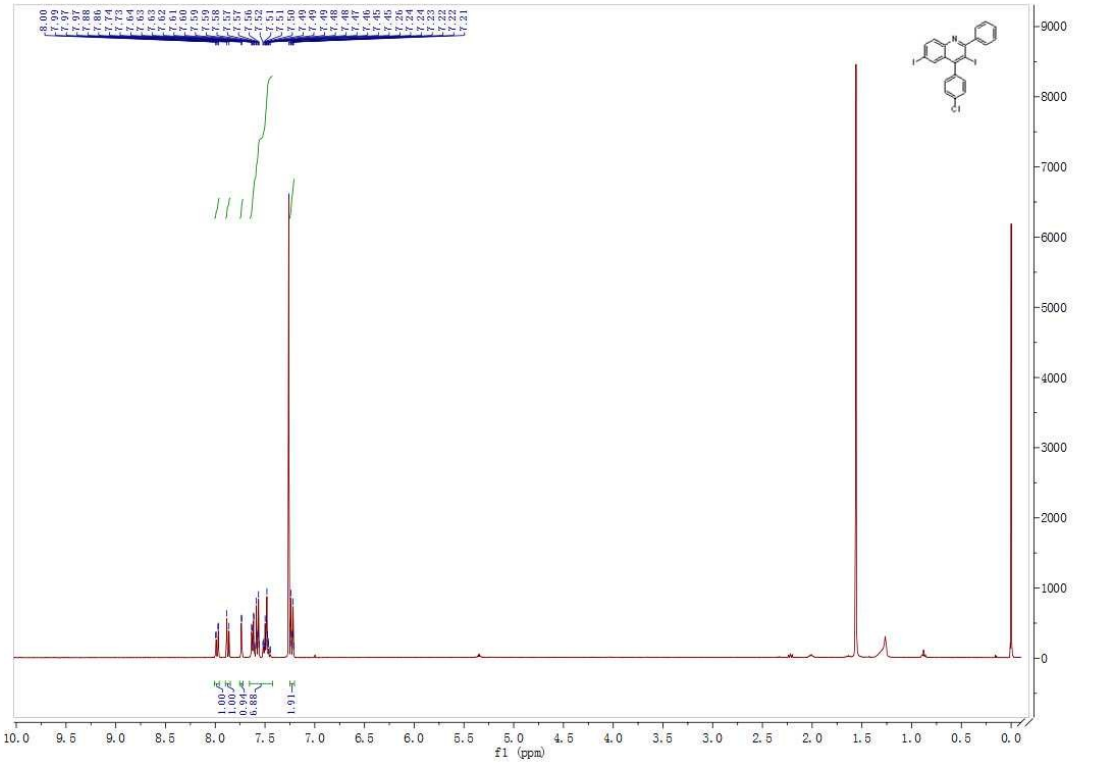


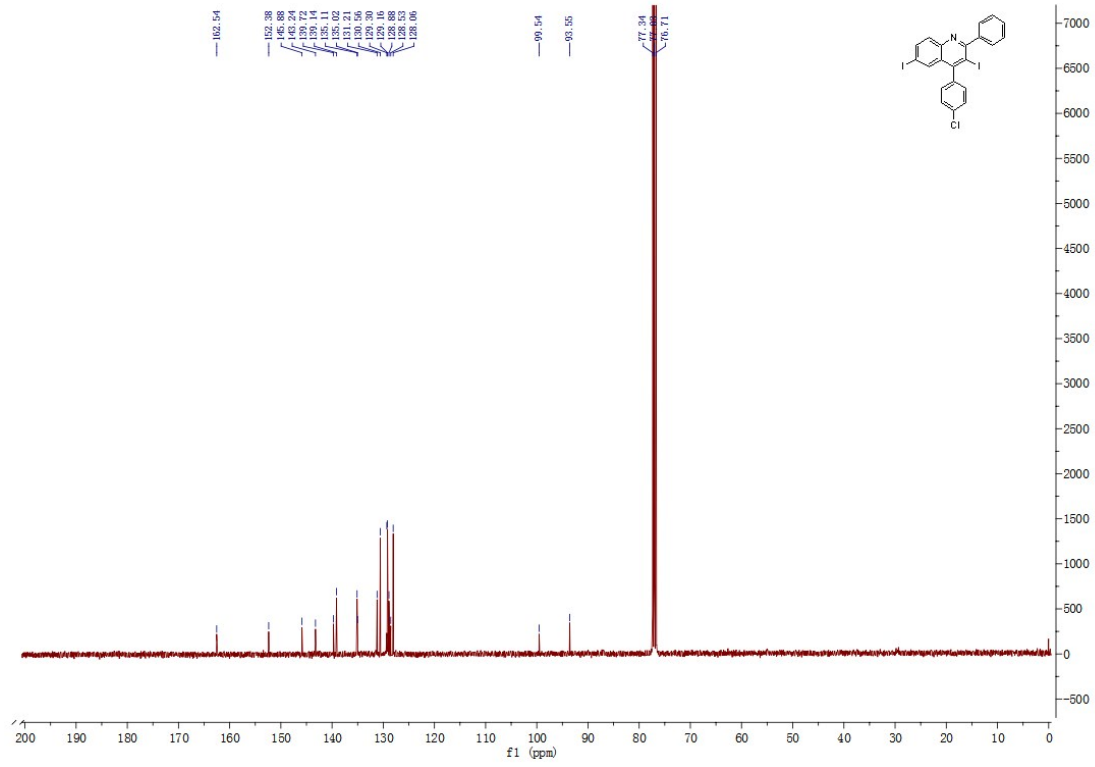
4-(3-fluorophenyl)-3,6-diiodo-2-phenylquinoline (3h)



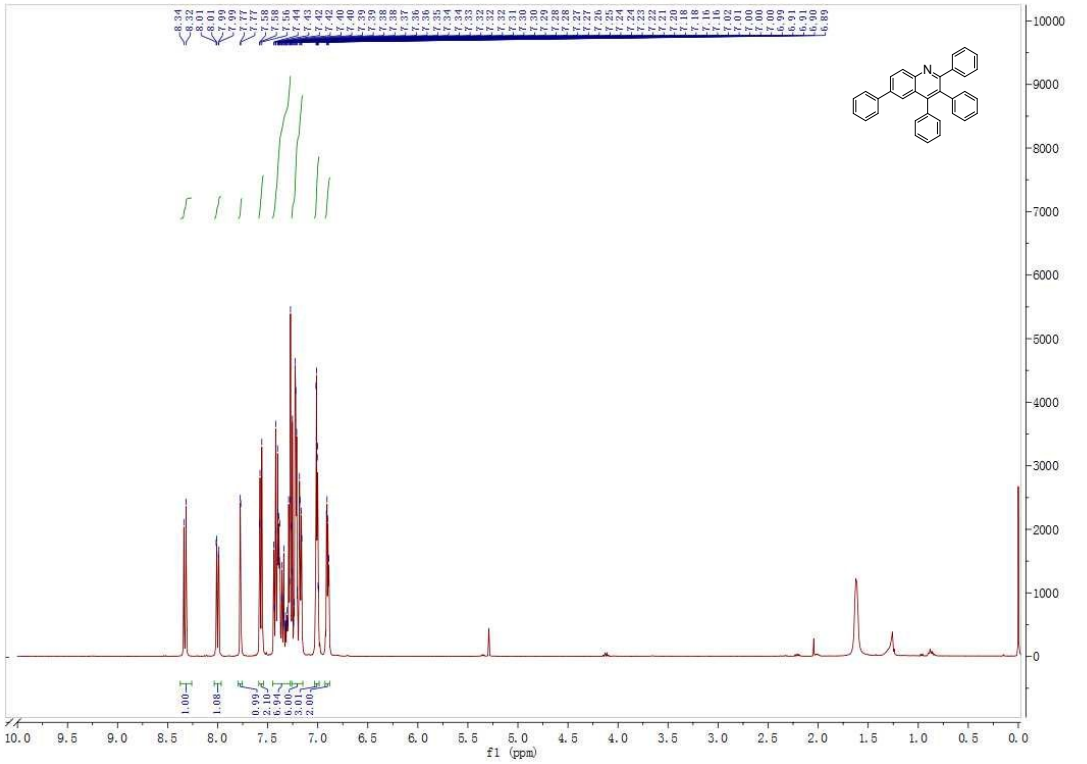


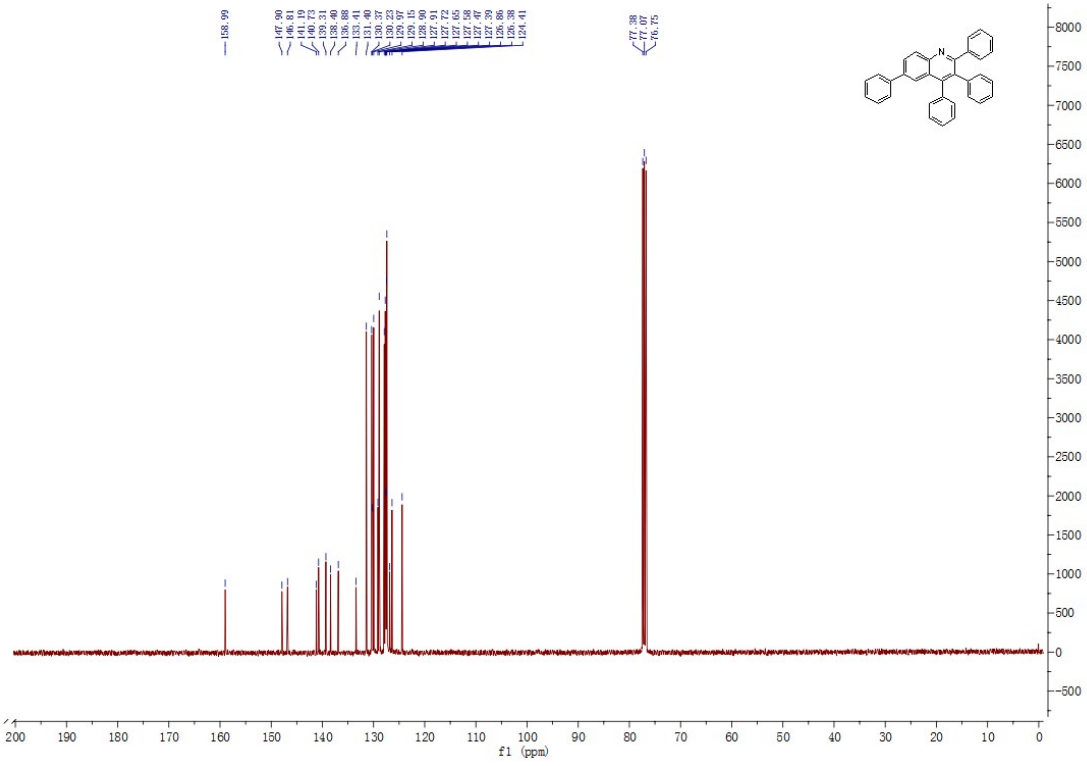
4-(4-chlorophenyl)-3,6-diiodo-2-phenylquinoline (3i)





2,3,4,6-tetraphenylquinoline (4a)





2, 4-diphenyl-3, 6-bis(phenylethynyl)quinoline (4b)