Supporting Information

Molecular iodine mediated synthesis of polysubstituted oxazoles by oxidative domino cyclization in water

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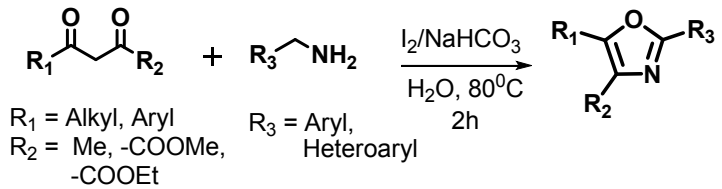
General procedures and methods

^{1}H and ^{13}C NMR spectra were recorded on Bruker Avance DPX 200FT, Bruker Robotics, Bruker DRX 300 and 400 Spectrometers at 200, 300, 400 MHz (1H) and 50, 75, 100 MHz (^{13}C). Experiments were recorded in $CDCl_3$ and DMSO-d_6 at 25^{o}C. The data are accounted as follows: Chemical shifts (δ ppm) (multiplicity, coupling constant (Hz), integration). The abbreviations' for multiplicity are as follows: s = singlet, d = doublet, t = triplet, m = multiplet, dd = doublet of doublet. Mass spectra were recorded on a JEOL JMS-600H high resolution spectrometer using EI mode at 70 eV. Purification of reaction mixtures were performed with Methanol for recrystallization methods. Reagents and solvents were commercial grade and were used as supplied without further purification, unless otherwise stated

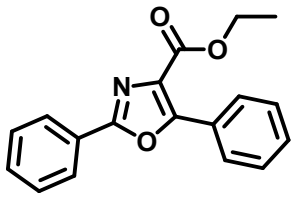
General procedure for the synthesis of 2, 4, 5,-Trisubstituted oxazoles:



Iodine (2.5 equiv) and H_2O (5mL) were added to β- keto ester (1.0 equiv.), benzyl amine (2.5 equiv. added in two portions) and $NaHCO_3$ (2.5 equiv.) in 50mL round bottom flask. The resulting solution was stirred at 80^{o}C and the reaction monitored by TLC. Upon reaction completion, the reaction was

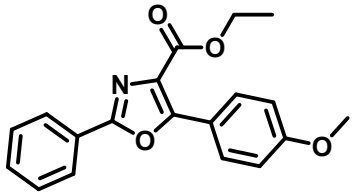
allowed to cool to room temperature before the addition of a 15mL ethyl acetate and saturated solution of $Na_2S_2O_3$ (10mL). The mixture was then separated. The organic phase was dried with Na_2SO_4 and solvent was evaporated under vacuum. The impurities were removed by rinsing the crude material with methanol (3X5mL) to get the pure oxazole derivatives.

Ethyl 2, 5-diphenyloxazole-4-carboxylate (3a):



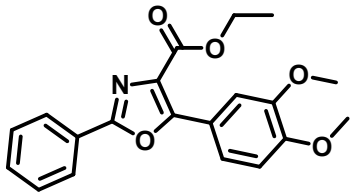
Pale yellow solid; ESI MS (m/z) = 294 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.178-8.104 (m, 4H), 7.501-7.491 (m, 6H), 4.498 (q, *J* = 7.38 Hz, 2H), 1.429 (t, *J* = 7.16Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 162.31, 159.81, 155.08, 131.08, 130.30, 128.82, 128.56, 128.40, 128.30, 127.14, 126.87, 126.39, 61.50, 14.32.

Ethyl 5-(4-methoxyphenyl)-2-phenyloxazole-4-carboxylate (3b):



White solid; ESI MS (m/z) = 324 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.129-8.099 (m, 4H), 7.492-7.485 (m, 3H), 7.016 (d, *J* = 8.73Hz, 2H), 4.461 (q, *J* = 7.12Hz, 2H), 3.880 (s, 3H), 1.435 (t, *J* = 7.30Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 162.51, 161.15 159.15, 155.40, 130.90, 130.24, 128.77, 127.03, 126.77, 126.49, 119.63, 113.84, 61.38, 55.39, 14.36.

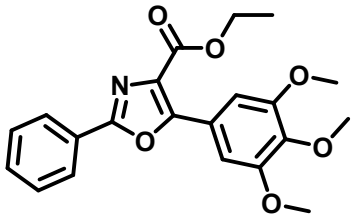
Ethyl 5-(3, 4-dimethoxyphenyl)-2-phenyloxazole-4-carboxylate (3c):



Pale yellow solid; ESI MS (m/z) = 354 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.165-8.141 (m, 2H), 7.888 (d, *J* =1.96Hz, 1H), 7.760 (dd, *J* =1.99Hz, *J* = 6.49Hz, 1H), 7.503-7.487 (m, 3H), 6.985 (d, *J* = 8.47Hz, 1H), 4.470 (q, *J* =

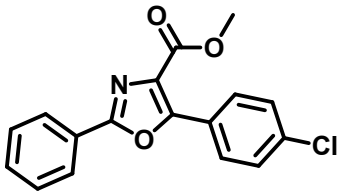
7.13Hz, 2H), 4.002 (s, 3H), 3.965 (s, 3H), 1.445 (t, *J* = 7.12Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 162.56, 159.08, 155.24, 150.81, 148.70, 130.93, 128.78, 126.81, 126.48, 121.89, 119.81, 111.70, 110.81, 61.40, 56.11, 55.98, 14.39.

Ethyl 2-phenyl-5-(3, 4, 5-trimethoxyphenyl) oxazole-4-carboxylate (3d):



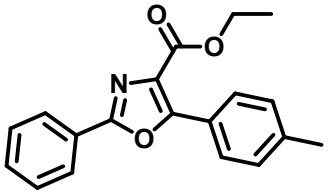
White solid; ESI MS (m/z) = 384 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.168-8.142 (m, 2H), 7.526-7.499 (m, 5H), 4.470 (q, *J* = 7.10Hz, 2H), 3.975 (s, 6H), 3.936 (s, 3H), 1.449 (t, *J* = 7.21Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 162.56, 159.08, 155.24, 150.81, 148.70, 130.93, 128.78, 126.81, 126.48, 121.89, 119.81, 111.70, 110.8, 61.40, 56.11, 55.98, 14.39.

Methyl 5-(4-chlorophenyl)-2-phenyloxazole-4-carboxylate (3e):



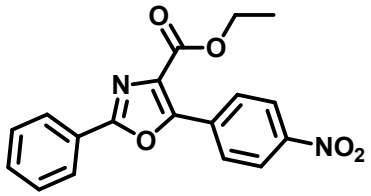
White solid; ESI MS (m/z) = 328 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.164-8.126 (m, 4H), 7.521-7.472 (m, 5H), 3.990 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 162.63, 159.91, 154.17, 136.47, 131.29, 129.70, 128.89, 128.80, 126.88, 126.14, 125.42, 52.49.

Ethyl 2-phenyl-5-p-tolyloxazole-4-carboxylate (3f):



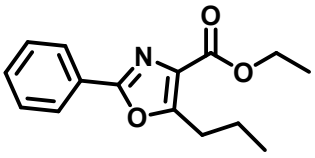
yellow solid; ESI MS (m/z) = 308 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.167-8.144 (m, 2H), 8.014 (d, *J* = 8.07Hz, 2H), 7.495-7.480 (m, 3H),7.306 (d, *J* = 8.09Hz, 2H), 4.458 (q, *J* = 7.18, 2H), 2.431 (s, 3H), 1.428 (t, *J* = 7.11Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 161.36, 158.51, 154.37, 139.64, 129.93, 128.09, 127.76, 127.47, 126.77, 125.81, 125.47, 123.32, 60.37, 20.51, 13.29.

Ethyl 5-(4-nitrophenyl)-2-phenyloxazole-4-carboxylate (3g):



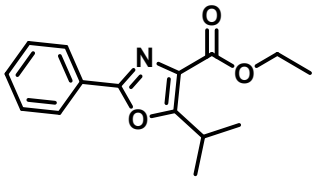
Yellow solid; ESI MS (m/z) = 339 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.407-8.333 (m, 4H), 8.171-8.191 (m, 2H), 7.543-7.523 (m, 3H), 4.502 (q, *J* = 7.25Hz, 2H), 1.464 (t, *J* = 7.08Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 161.94, 160.93, 152.17, 148.17, 132.87, 131.70, 130.73, 129.16, 128.98, 127.09, 125.81, 123.68, 77.49, 77.07, 76.65, 62.30, 14.29.

Ethyl 2-phenyl-5-propyloxazole-4-carboxylate (3h):



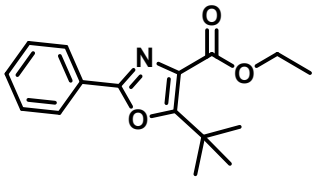
Oily; ESI MS (m/z) = 260 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.088 - 8.077 (m, 2H), 7.467 (broad, 3H), 4.428 (q, *J* =7.18, 2H), 3.091 (t, *J* = 7.40Hz, 2H) 1.761-1.834 (m, 2H) 1.422 (t, *J* = 6.7Hz, 3H), 1.022 (t, *J* = 7.26Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 162.475, 159.951, 159.671, 130.70, 128.76, 128.57, 126.71, 126.61, 60.99, 28.03, 21.35, 14.38, 13.70.

Ethyl 5-isopropyl-2-phenyloxazole-4-carboxylate (3i):



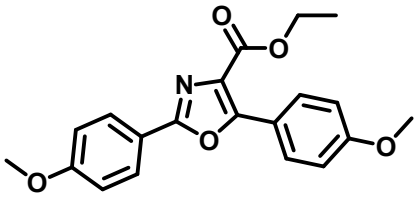
Yellow solid; ESI MS (m/z) = 260 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.088 - 8.077 (m, 2H), 7.459-7.456 (m, 3H), 4.429 (q, *J* = 7.13Hz, 2H), 3.881-3.812 (m, 1H) 1.423 (t, *J* = 6.7Hz, 3H), 1.372 (d, *J* = 7.26, 6H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 164.13, 162.44, 159.37, 130.66, 128.68, 126.92, 126.78, 126.59, 60.96, 26.28, 20.69, 14.36,

Ethyl 5-tert-butyl-2-phenyloxazole-4-carboxylate (3j):



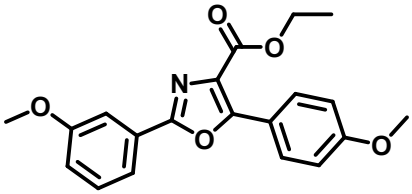
Semi solid; ESI MS (m/z) = 274 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.067-8.044 (m, 2H), 7.457-7.446 (m, 3H), 4.435 (q, *J* =7.13, 2H), 1.522 (s, 9H) 1.436 (t, *J* = 7.13Hz, 3H), 1.372 (d, *J* = 7.13Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 165.53, 162.46, 157.84, 130.58, 128.68, 127.56, 126.73, 126.53, 61.18, 33.51, 28.24, 14.32,

Ethyl 2,5-bis(4-methoxyphenyl)oxazole-4-carboxylate (3l):



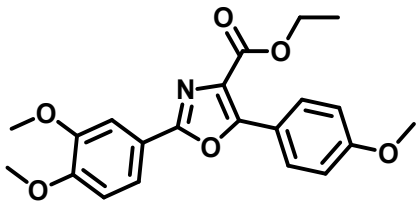
White solid; ESI MS (m/z) = 354 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.071-8.102 (m, 4H), 7.018-6.974 (m, 4H), 4.449 (q, *J* = 7.35Hz, 2H), 3.880 (s, 3H), 3.874 (s, 3H), 1.423 (t, *J* = 7.09Hz, 3H); ^{13}C NMR (100 MHz,$CDCl_3$) δ 162.57, 160.76 160.00, 158.29, 153.89, 129.12, 127.49, 125.84, 118.79, 118.18, 113.16, 112.78, 60.27, 54.36, 13.36.

Ethyl 2-(3-methoxyphenyl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3m):



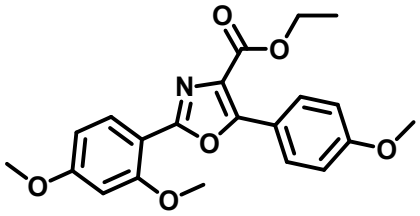
White solid; ESI MS (m/z) = 354 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.099 (d, *J* = 8.80Hz, 2H), 7.727 (d, *J* = 7.80Hz, 1H)), 7.669 (s, 1H), 7.386 (t, *J* = 7.96, 1H), 7.004-7.046 (m, 3H) 4.455 (q, *J* = 7.13Hz, 2H), 3.901 (s,3H), 3.888 (s, 3H), 1.423 (t, *J* = 7.32Hz, 3H); ^{13}C NMR (100 MHz,$CDCl_3$) δ 162.49, 161.17, 159.86, 159.09, 155.42, 130.28, 129.88, 127.69, 127.03, 119.62, 119.25, 117.48, 113.84, 111.39, 61.40, 55.55, 55.4, 14.34.

Ethyl 2-(3,4-dimethoxyphenyl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3n):



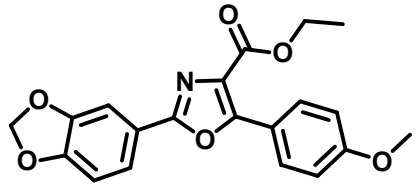
White solid; ESI MS (m/z) = 385 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.081 (d, *J* = 8.78Hz, 2H), 7.707 (s, 1H), 7.651 (s, 1H), 7.015 (d, *J* = 8.79Hz, 2H) 6.939 (d, *J* = 8.35Hz, 1H), 4.448 (q, *J* = 7.33Hz, 2H), 3.994 (s, 3H), 3.941 (s, 3H), 3.876 (s, 3H), 1.423 (t, *J* = 7.09Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 162.51, 161.07 159.29, 154.99, 151.50, 149.21, 130.18, 126.94, 120.161, 119.78, 119.38, 113.80, 110.98, 109.66, 61.29, 56.19, 55.97, 55.35, 14.30.

Ethyl 2-(2,4-dimethoxyphenyl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3o):



Pale yellow solid; ESI MS (m/z) = 385 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.131 (d, *J* = 8.63Hz, 2H), 7.979 (d, *J* = 8.60Hz, 1H), 7.001 (d, *J* = 8.68Hz, 2H) 6.593-6.553 (m, 1H),), 4.438 (q, *J* = 7.33Hz, 2H), 3.954 (s, 3H), 3.869 (s, 6H) 1.430 (t, *J* = 7.09Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 163.06, 162.77 160.89, 159.31, 158.08, 154.57, 131.76, 130.07, 126.53, 120.53, 120.06, 113.77, 108.82, 105.05, 98.95, 61.16, 55.98, 55.48, 55.35, 14.34.

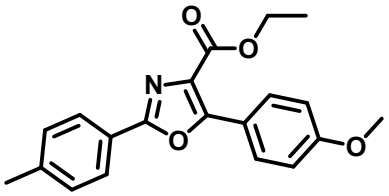
Ethyl-2-(benzo[d][1,3]dioxol-5-yl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3p):



Pale yellow solid; ESI MS (m/z) = 368 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.081 (d, *J* = 8.38Hz, 2H), 7.685 (d, *J* = 8.11Hz, 1H), 7.585 (s, 1H), 7.001 (d, *J*

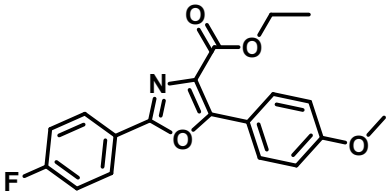
= 8.45Hz, 2H), 6.889 (d, *J* = 8.28Hz, 1H), 6.038 (s, 2H), 4.445 (q, *J* = 7.10Hz, 2H), 3.875 (s, 3H), 1.423 (t, *J* = 7.13Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 161.49, 160.03, 157.94, 153.97, 148.97, 147.08, 129.11, 125.85, 120.69, 119.55, 118.65, 112.70, 107.55, 105.96, 100.66, 60.29, 54.35, 13.30.

Ethyl 5-(4-methoxyphenyl)-2-p-tolyloxazole-4-carboxylate (3q):



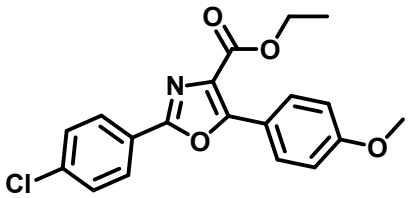
White solid; ESI MS (m/z) = 338 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.109-8.086 (dd, *J* = 2.04Hz, *J* = 8.97Hz, 2H), 8.026 (d, *J* = 8.17Hz, 2H), 7.277 (d, *J* = 8.36Hz, 2H), 6.992-7.014 (dd, *J* = 2.04Hz, *J* = 8.97Hz, 2H), 4.448 (q, *J* = 7.18, 2H), 3.871 (s, 3H), 2.406 (s, 3H), 1.428 (t, *J* = 7.15Hz, 3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 162.56, 161.10, 159.42, 155.10, 141.27, 130.19, 129.47, 126.99, 126.76, 123.85, 119.81, 115.83, 61.28, 55.37, 21.53, 14.34.

Ethyl 2-(4-fluorophenyl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3r):



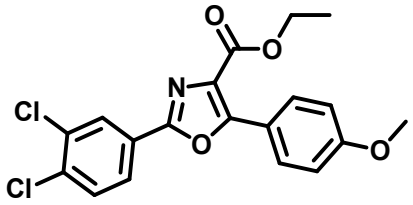
White solid; ESI MS (m/z) = 342 (M+H); ^{1}H NMR (300 MHz, $CDCl_3$) δ 8.123-8.156 (m, 2H), 8.087 (d, *J* = 8.81Hz, 2H), 7.170 (t, *J* = 8.81Hz, 2H), 7.011 (d, *J* = 8.81Hz, 2H), 4.453 (q, *J* = 7.09Hz, 2H), 3.884 (s, 3H), 1.429 (t, *J* = 7.52Hz ,3H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 166.06, 162.72, 162.40, 161.22, 158.35, 155.42, 130.21, 129.01, 128.90, 127.09, 122.91, 119.57, 116.15, 115.86, 113.87, 61.34, 55.37, 14.31.

Ethyl 2-(4-chlorophenyl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3s):



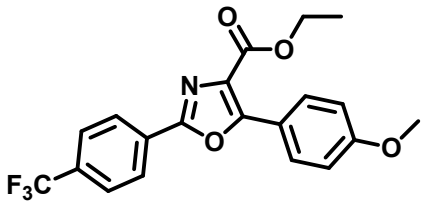
White solid; ESI MS (m/z) = 358 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.072-8.112 (m, 4H), 7.465 (d, *J* = 8.36Hz, 2H), 7.018 (d, *J* = 8.36Hz, 2H), 4.46 (q, *J* = 7.09Hz, 2H), 3.880 (s, 3H), 1.434 (t, *J* = 7.35Hz ,3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 161.32, 160.24, 157.21, 154.56, 136.05, 129.24, 128.11, 127.00, 126.10, 123.96, 118.41, 112.85, 76.02, 60.41, 54.38, 13.07.

Ethyl 2-(3,4-dichlorophenyl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3t):



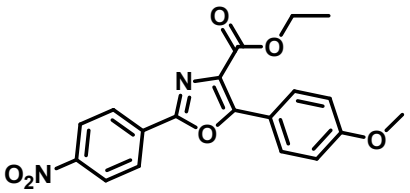
White solid; ESI MS (m/z) = 392 (M+H); ^{1}HNMR (400 MHz, $CDCl_3$+DMSO) δ 8.163 (d, *J* = 1.74Hz, 1H), 8.013 (d, *J* = 8.71Hz, 2H), 7.915-7.889 (dd, *J* = 1.84Hz, *J* = 8.41Hz, 1H), 7.503 (d, *J* = 8.4Hz, 1H), 6.949 (d, *J* = 8.41Hz, 2H), 4.378 (q, *J* = 7.07Hz, 2H), 3.820 (s, 3H), 1.355 (t, *J* = 7.15Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$+DMSO) δ 161.12, 160.39, 155.97, 154.90, 134.11, 132.31, 129.97, 129.31, 127.39, 126.21, 125.32, 124.75, 118.14, 112.91, 60.46, 54.42, 13.29.

Ethyl 5-(4-methoxyphenyl)-2-(4-(trifluoromethyl)phenyl)oxazole-4 carboxylate (3u):



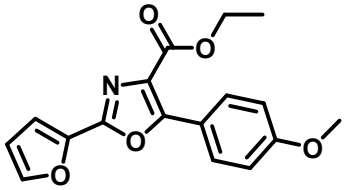
Pale yellow solid; ESI MS (m/z) = 392 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.264 (d, *J* = 8.16Hz, 2H), 8.111 (dd, *J* = 2.11Hz, *J* = 8.88Hz, 2H), 7.749 (d, *J* = 8.29Hz, 2H), 7.029 (dd, J = 2.12, *J* = 8.36Hz, 2H), 4.469 (q, *J* =7.4Hz, 2H), 3.894 (s, 3H) 1.439 (t, *J* = 7.18Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$+DMSO) δ 162.34, 161.88, 157.75, 156.20, 131.01, 130.40, 127.75, 127.68, 126.79, 119.54, 114.67, 61.60, 56.14, 14.91.

Ethyl 5-(4-methoxyphenyl)-2-(4-nitrophenyl)oxazole-4-carboxylate (3v):



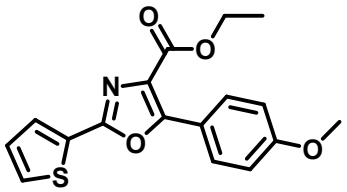
yellow solid; ESI MS (m/z) = 369 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.365-8.305 (m, 4H), 8.121 (dd, *J* = 2.09, *J* = 8.99Hz, 2H), 7.036 (dd, *J* = 2.07, *J* = 8.99Hz, 2H), 4.474 (q, *J* = 7.13Hz, 2H), 3.901 (s, 3H), 1.445 (t, *J* = 7.17Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 161.05, 161.61, 156.87, 156.60, 148.93, 131.92, 130.43, 127.73, 127.45, 124.17, 118.97, 114,00 ,61.63, 55.45, 14.32

Ethyl 2-(furan-2-yl)-5-(4-methoxyphenyl)oxazole-4-carboxylate (3w):

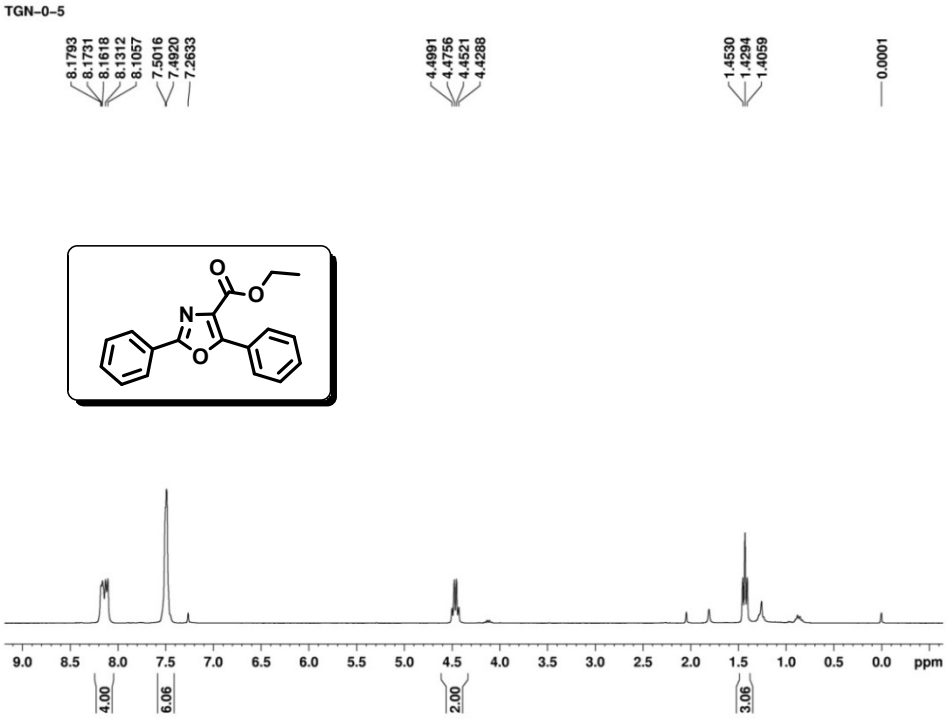


Pale yellow solid; ESI MS (m/z) = 314 (M+H), ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.112 (d, *J* = 8.97Hz, 2H), 7.597-7.594 (m, 1H), 7.166 (d, *J* = 3.48Hz, 2H),7.003, (d, *J* = 8.94 Hz, 2H), 6.575-6.562 (m, 1H), 4.447 (q, *J* = 7.12Hz, 2H), 3.877 (s, 3H), 1.423 (t, *J* = 7.17Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 162.27, 161.25, 154.92, 151.87, 144.87, 142.03, 130.24, 126.72, 119.26, 113.87, 112.67, 111.99, 61.38, 55.39, 14.30

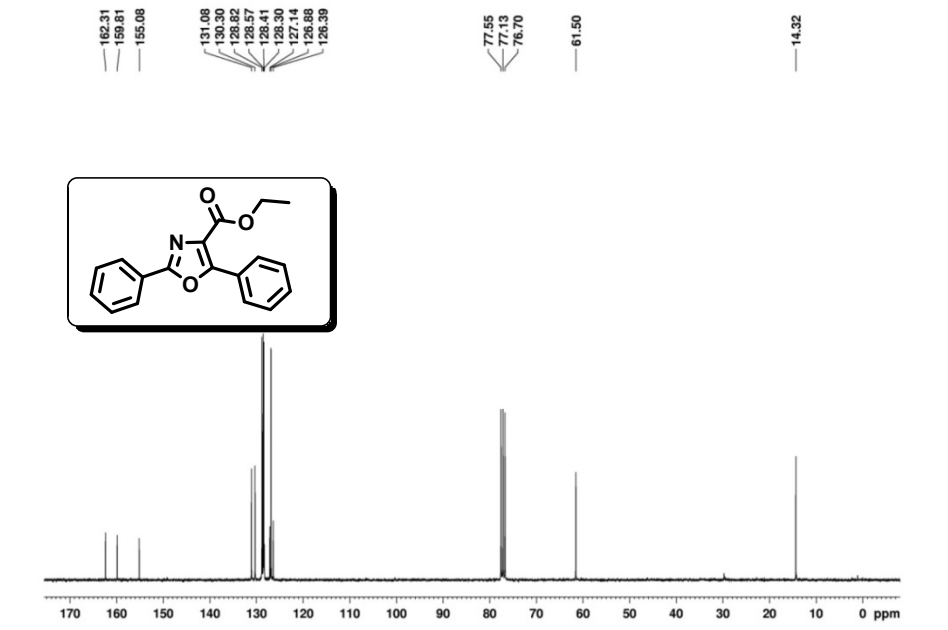
Ethyl 5-(4-methoxyphenyl)-2-(thiophen-2-yl)oxazole-4-carboxylate (x):



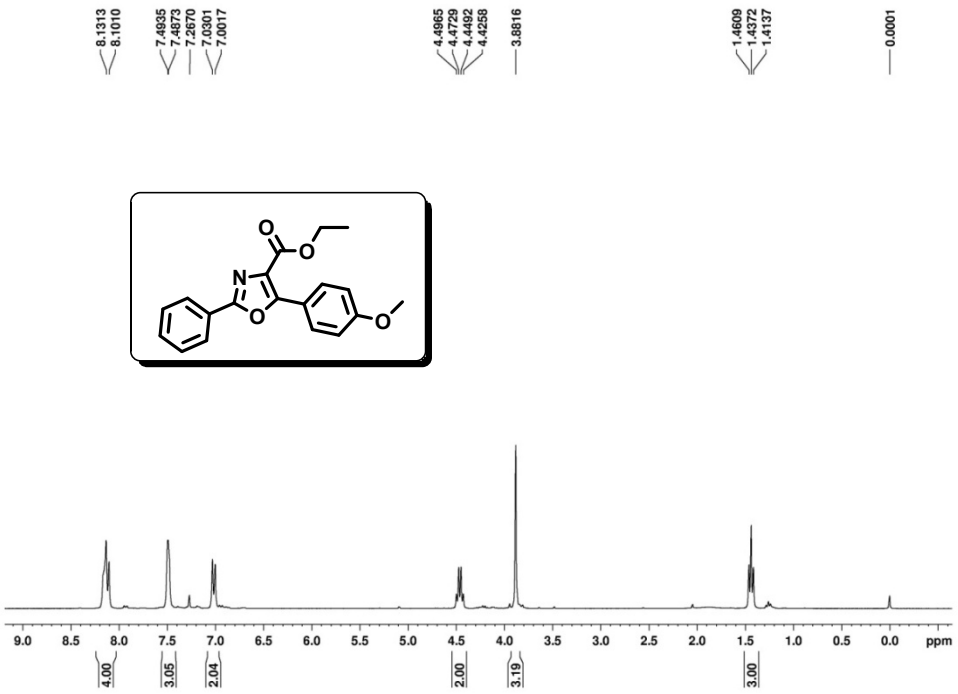
Pale yellow solid; ESI MS (m/z) = 330 (M+H); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.089-8.067 (m, 2H), 7.806-7.797 (m, 1H), 7.476 (d, *J* = 5.06Hz, 1H), 7.134, (t, *J* = 3.82 Hz, 1H), 7.013-6.991 (m, 2H), 4.444 (q, *J* = 7.10Hz, 2H), 3.872 (s, 3H), 1.421 (t, *J* = 7.19Hz, 3H); ^{13}C NMR (100 MHz,$CDCl_3$) δ 162.31, 161.20, 155.48, 154.90, 130.24, 129.10, 128.80, 127.99, 126.87, 119.41, 113.86, 61.41, 55.40, 14.32.



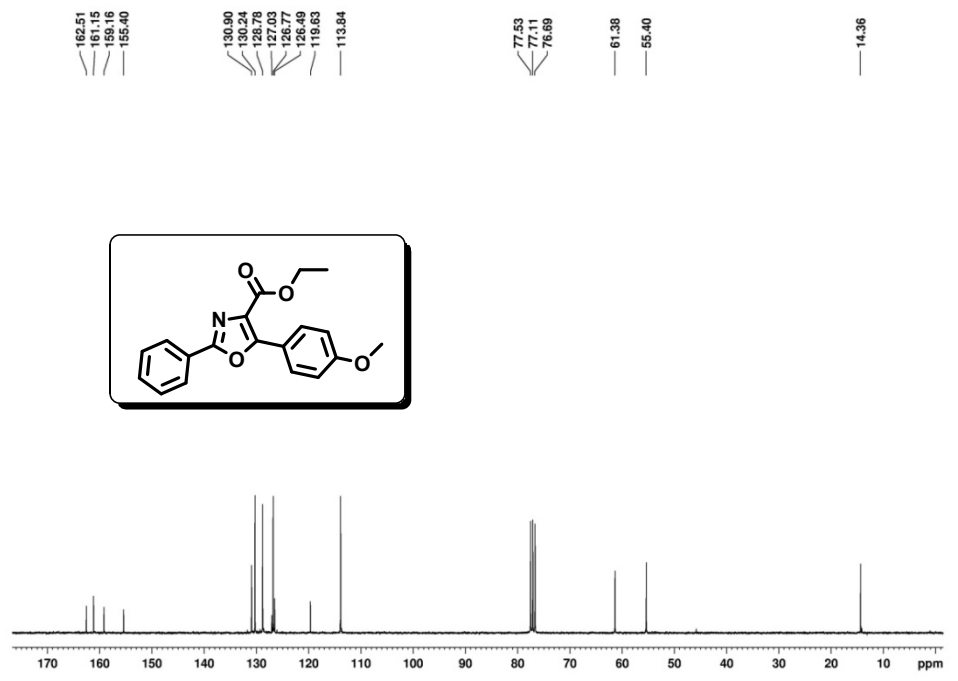
^{1}H- NMR Spectra of compound 3a



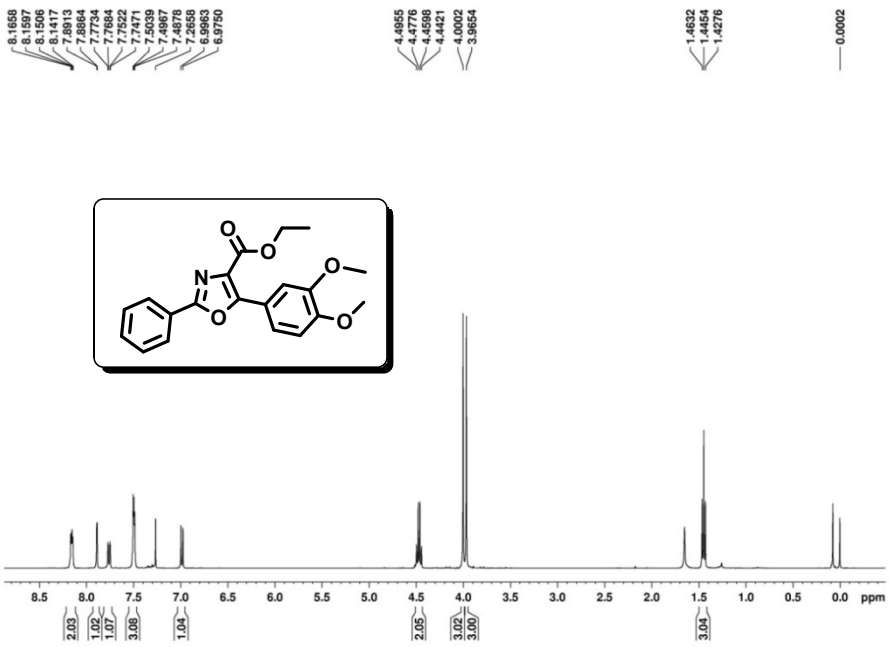
^{13}C- NMR Spectra of compound 3a



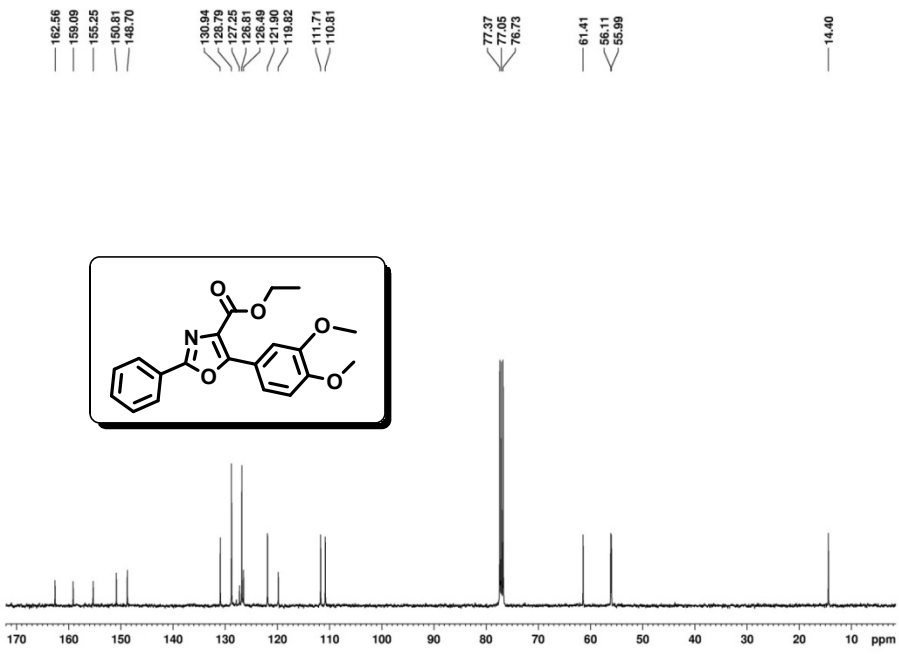
^{1}H- NMR Spectra of compound 3b



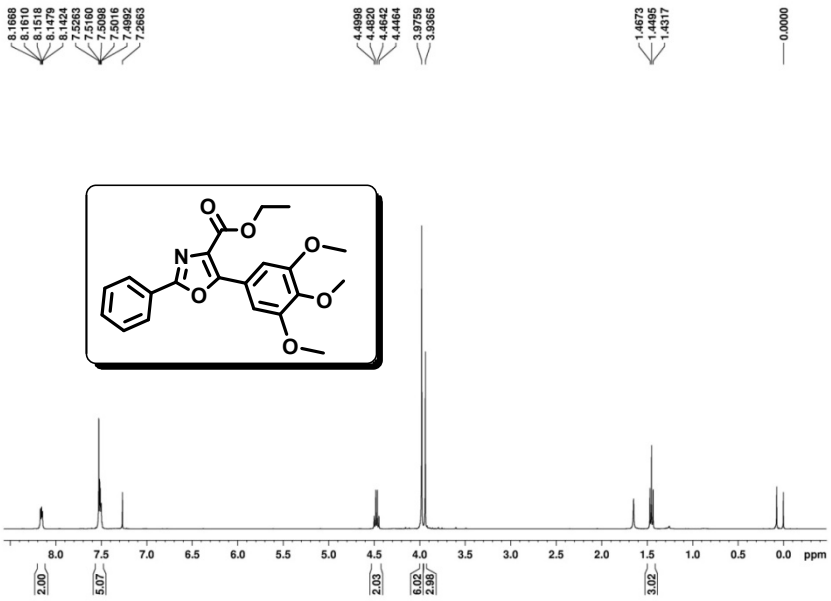
^{13}C- NMR Spectra of compound 3b



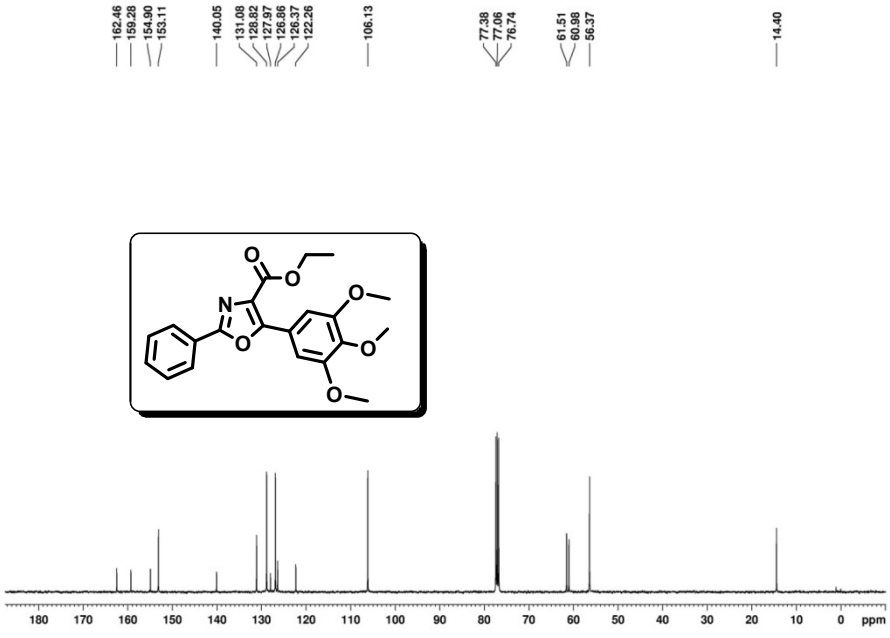
^{1}H- NMR Spectra of compound 3c



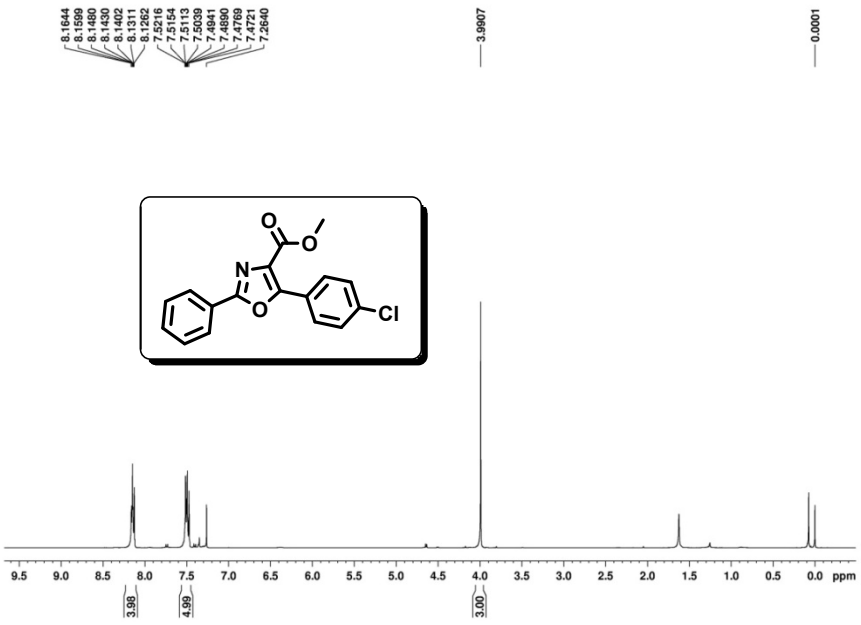
^{13}C- NMR Spectra of compound 3c



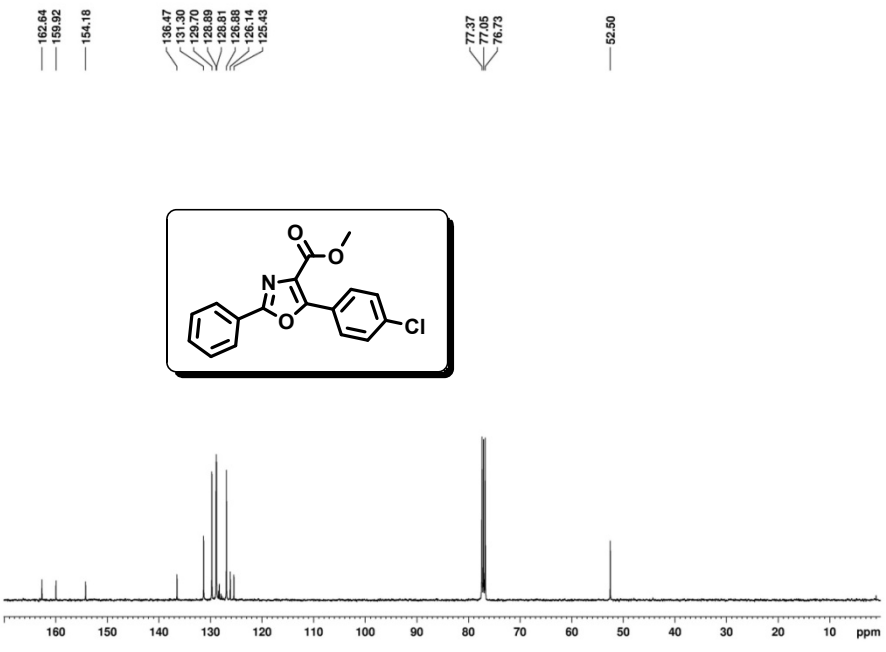
^{1}H- NMR Spectra of compound 3d



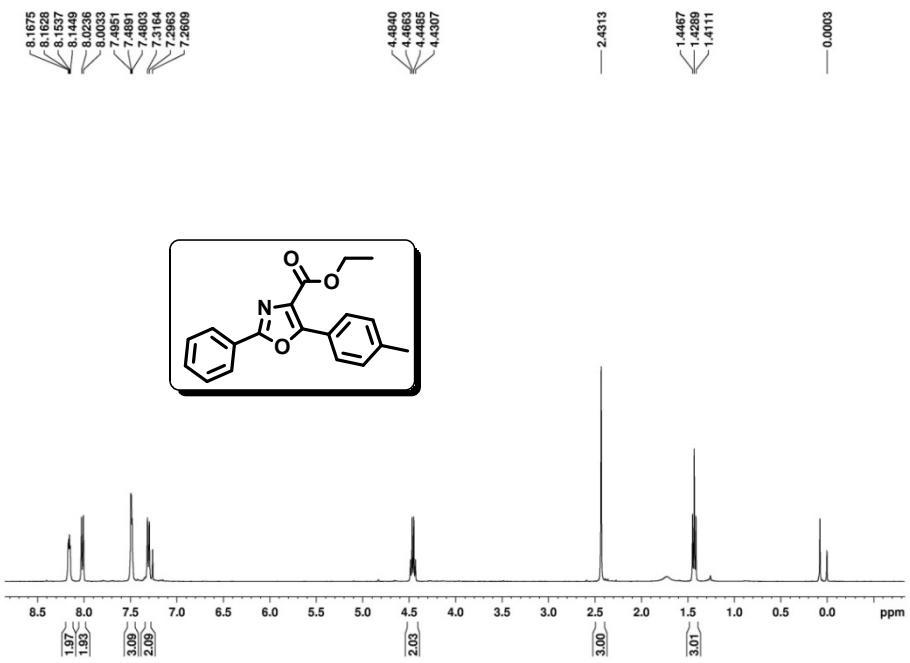
^{13}C- NMR Spectra of compound 3d



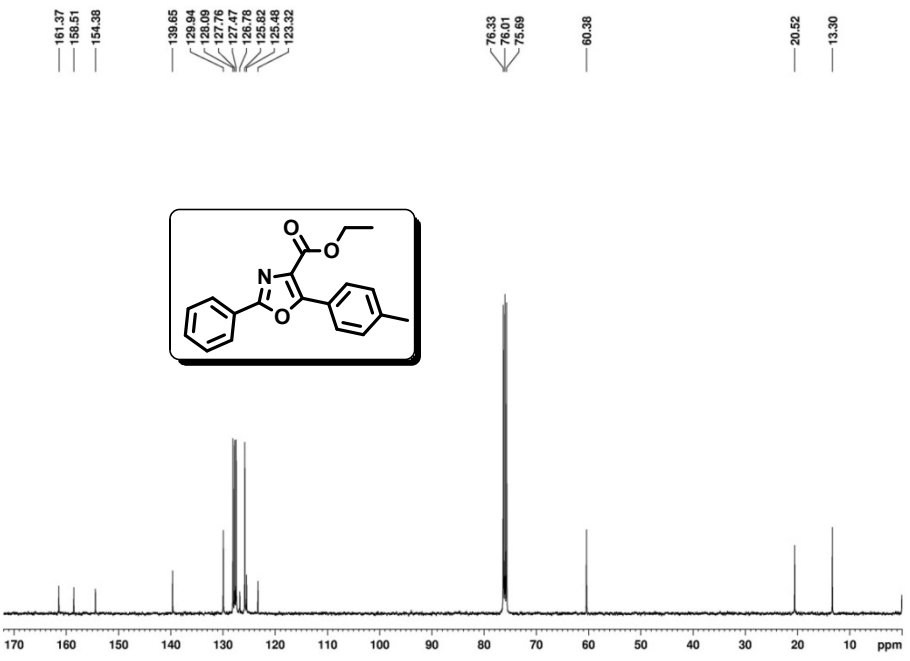
^{1}H- NMR Spectra of compound 3e



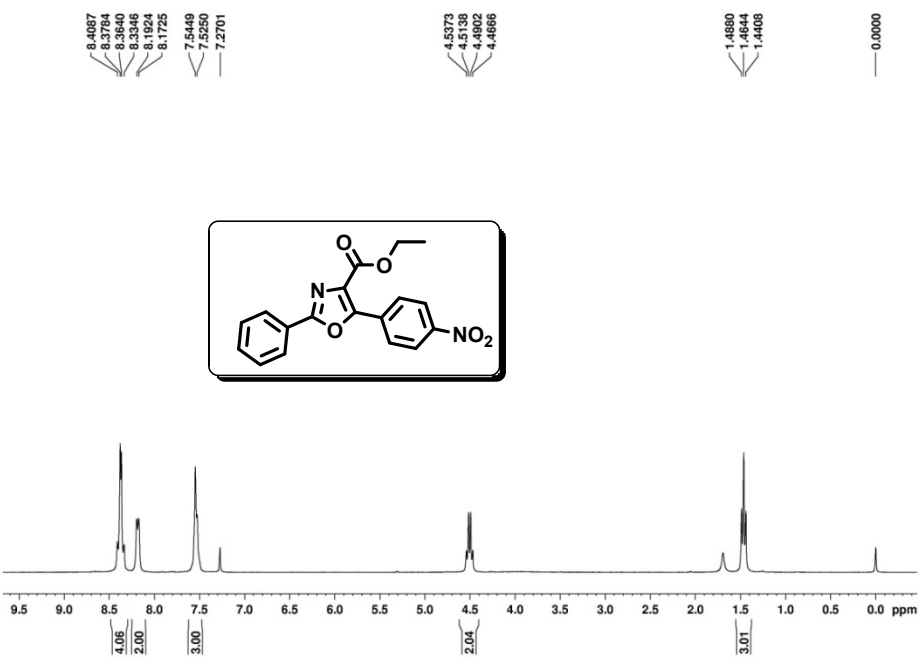
^{13}C- NMR Spectra of compound 3e



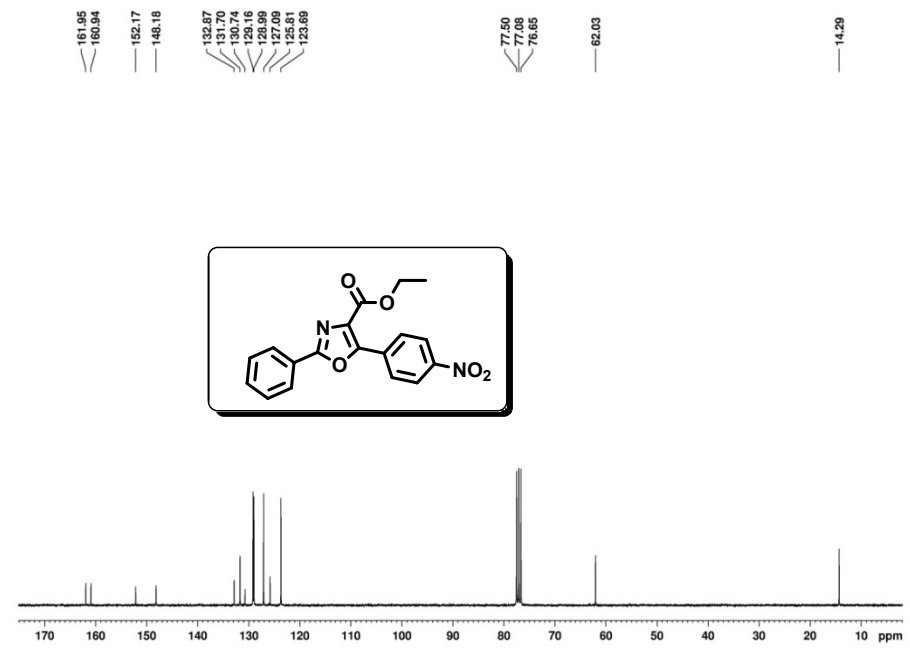
^{1}H- NMR Spectra of compound 3f



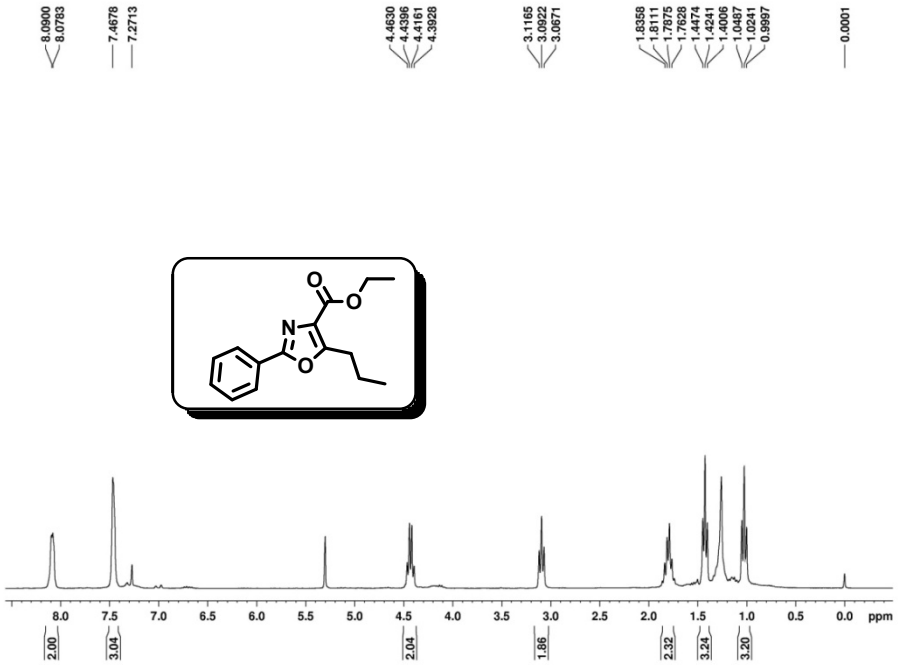
^{13}C- NMR Spectra of compound 3f



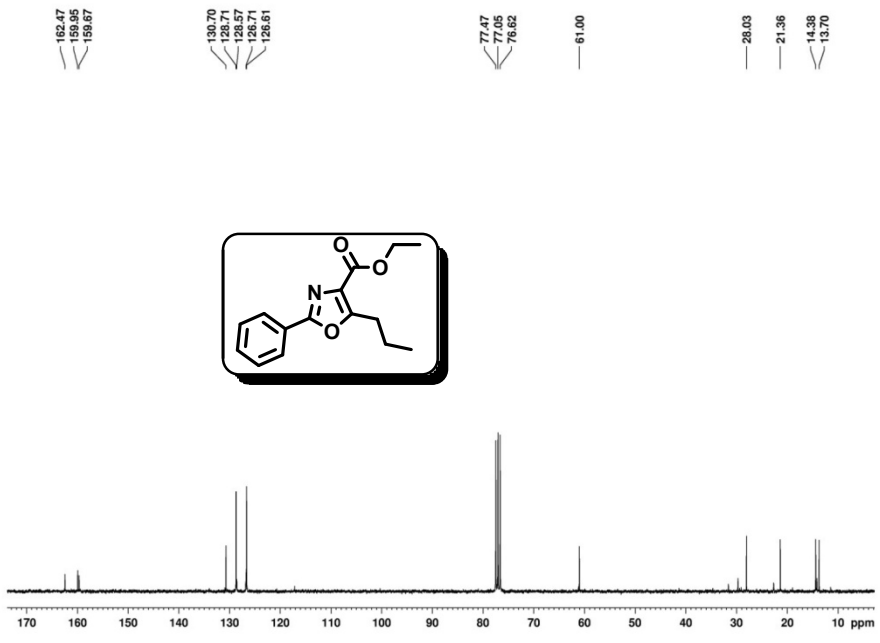
^{1}H- NMR Spectra of compound 3g



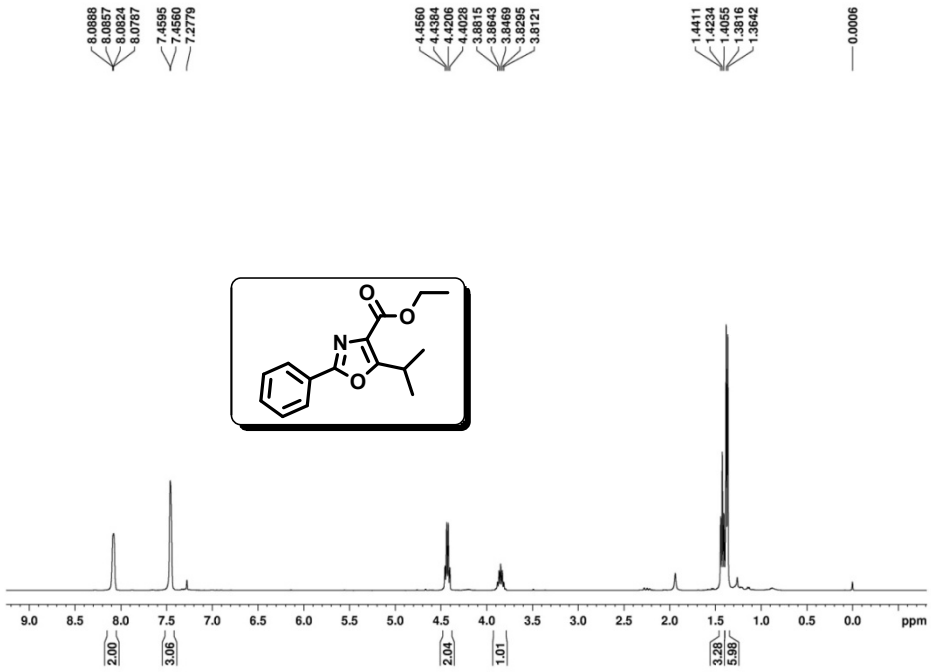
^{13}C- NMR Spectra of compound 3g



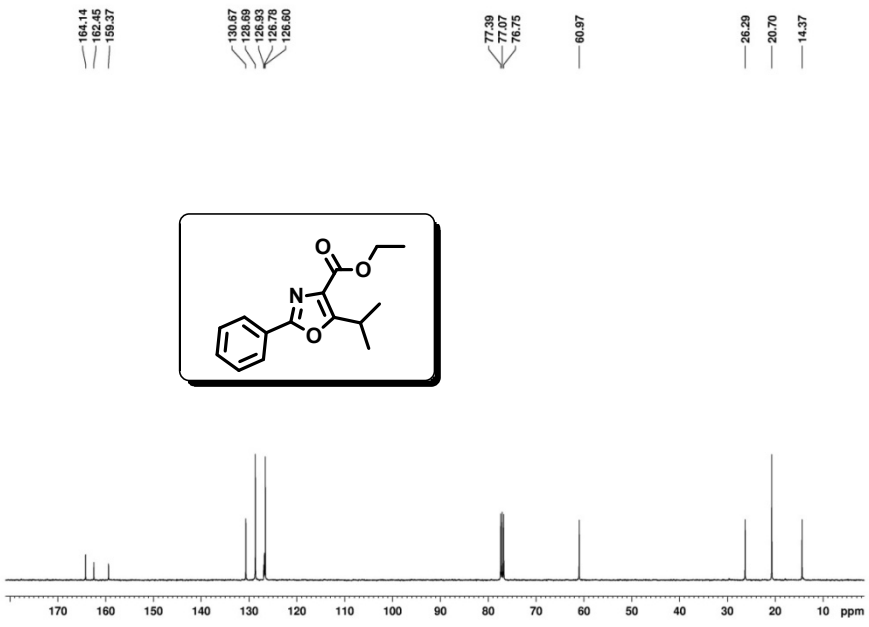
^{1}H- NMR Spectra of compound 3h



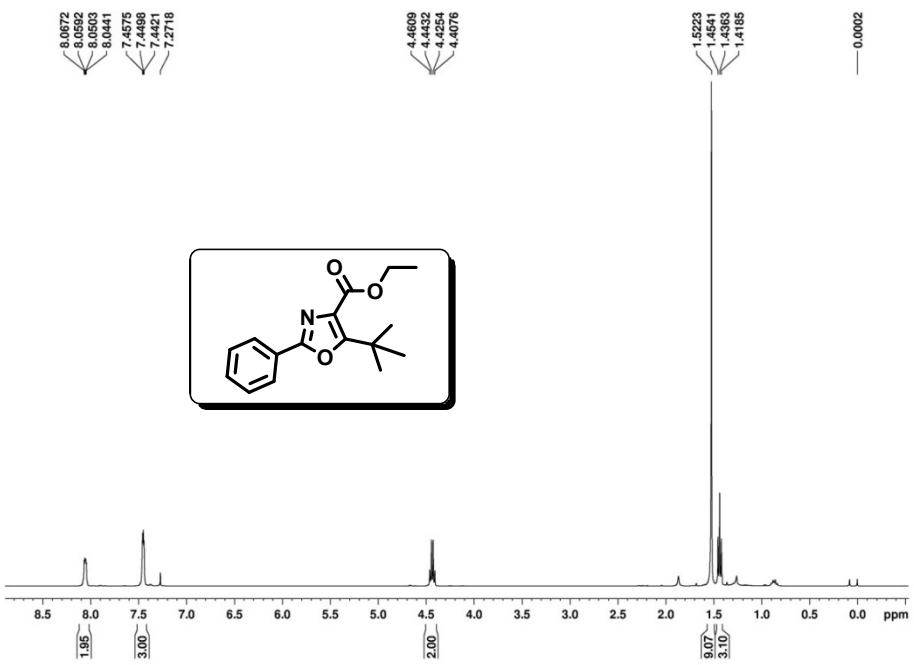
^{13}C- NMR Spectra of compound 3h



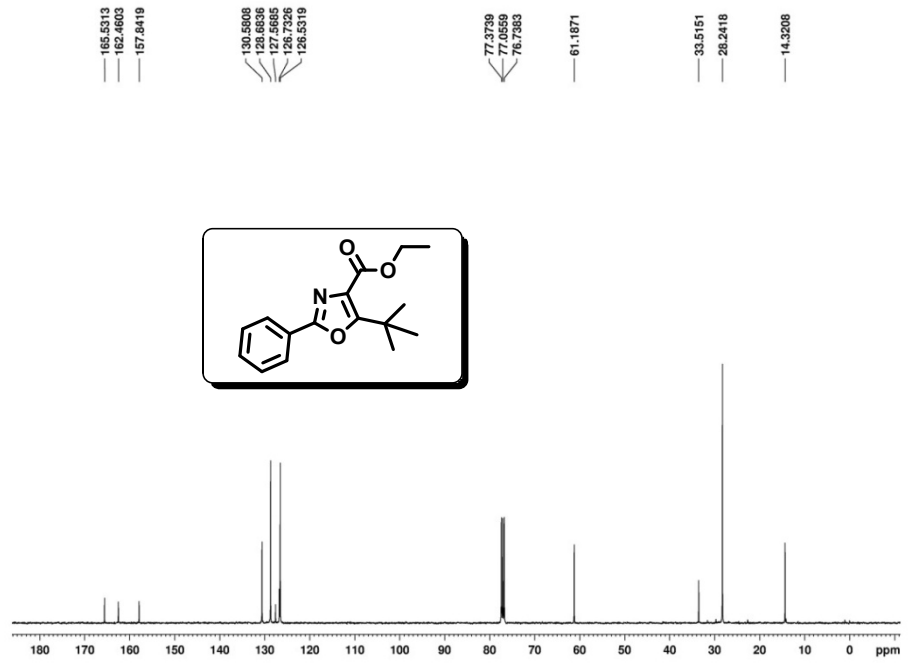
^{1}H- NMR Spectra of compound 3i



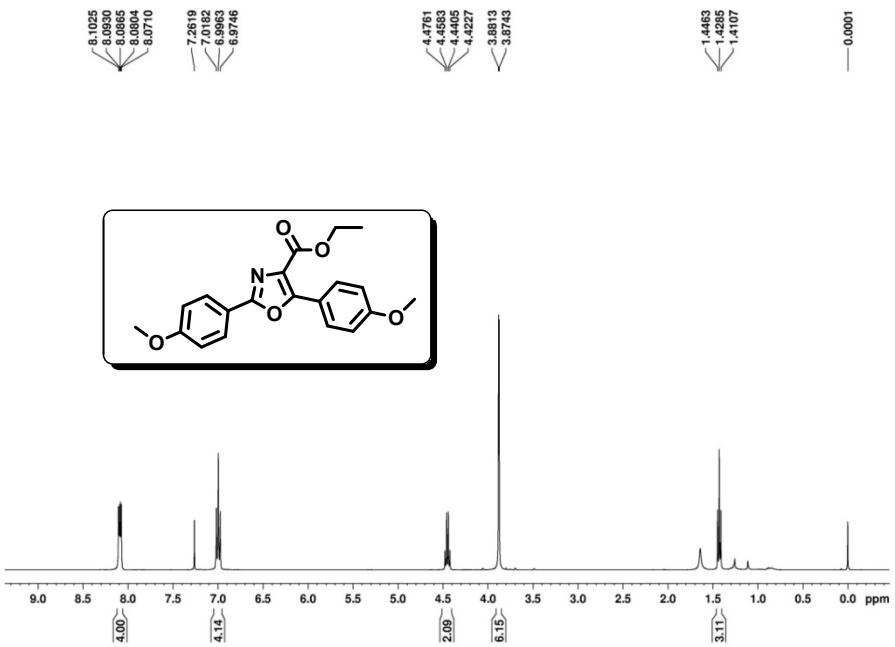
^{13}C- NMR Spectra of compound 3i



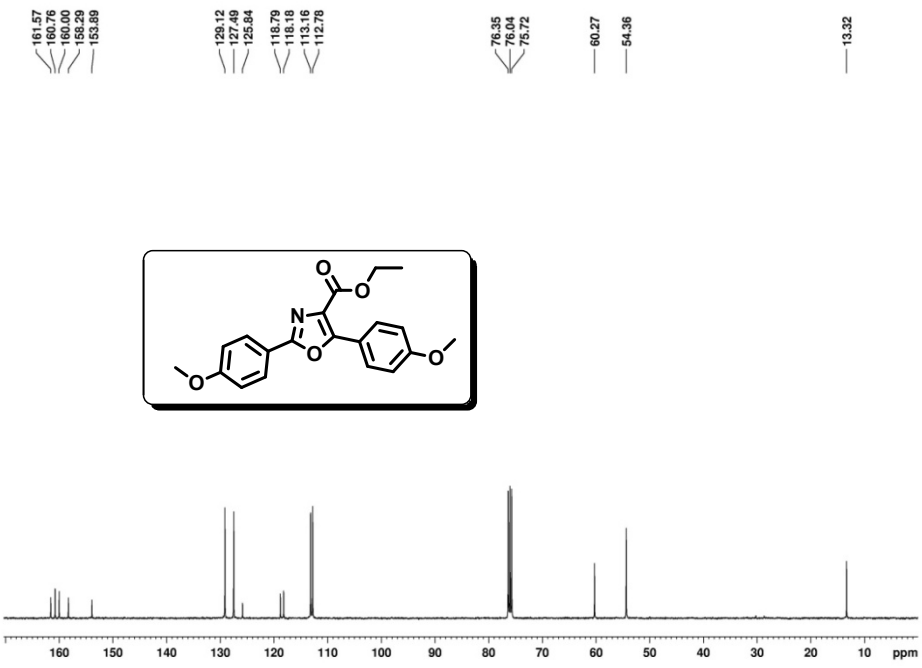
^{1}H- NMR Spectra of compound 3j



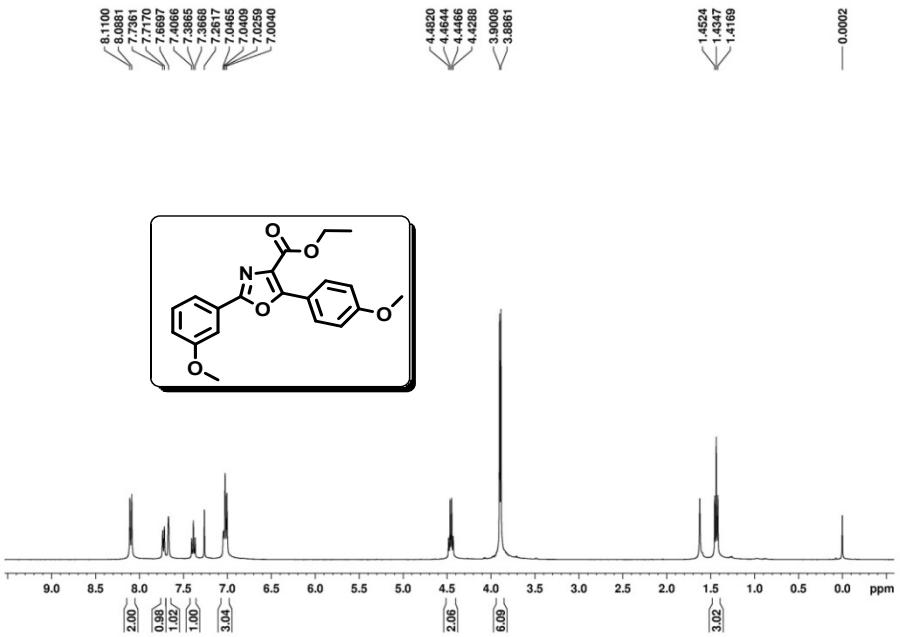
^{13}C- NMR Spectra of compound 3j



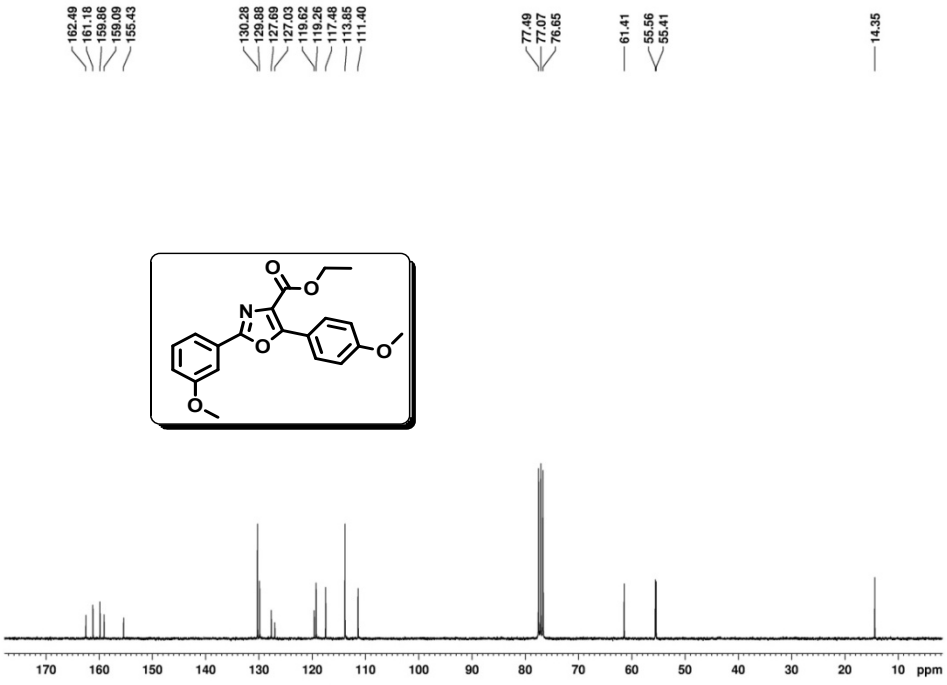
^{1}H- NMR Spectra of compound 3l



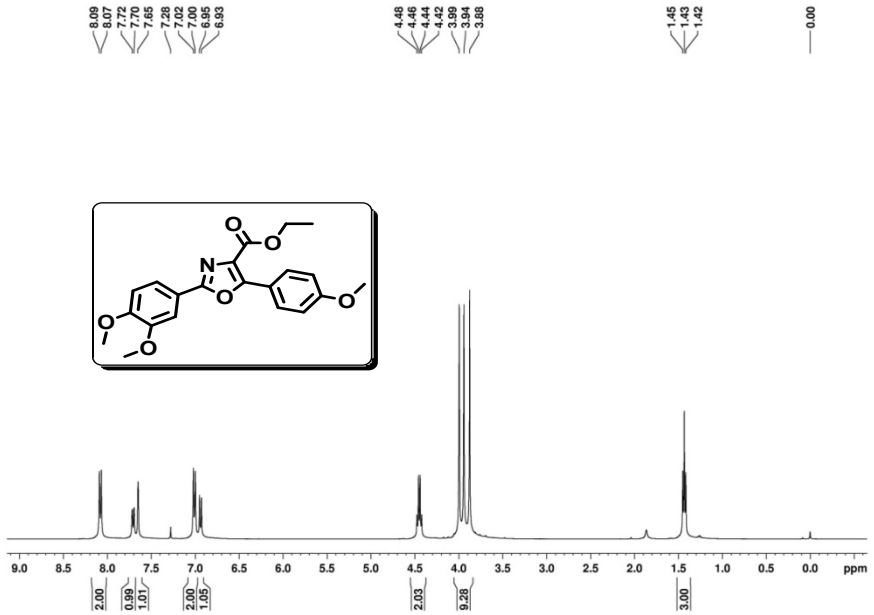
^{13}C- NMR Spectra of compound 3l



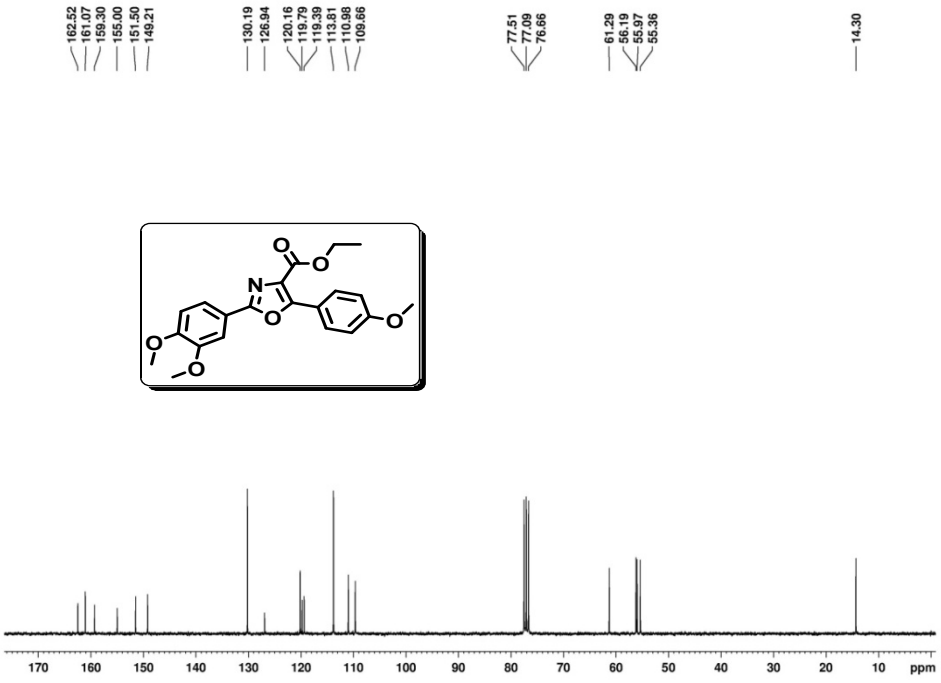
^{1}H- NMR Spectra of compound 3m



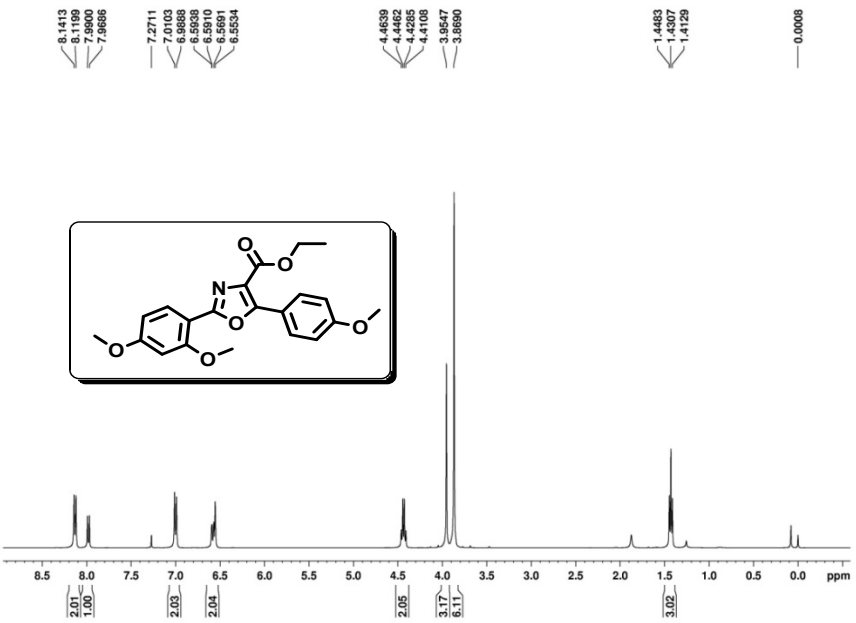
^{13}C- NMR Spectra of compound 3m



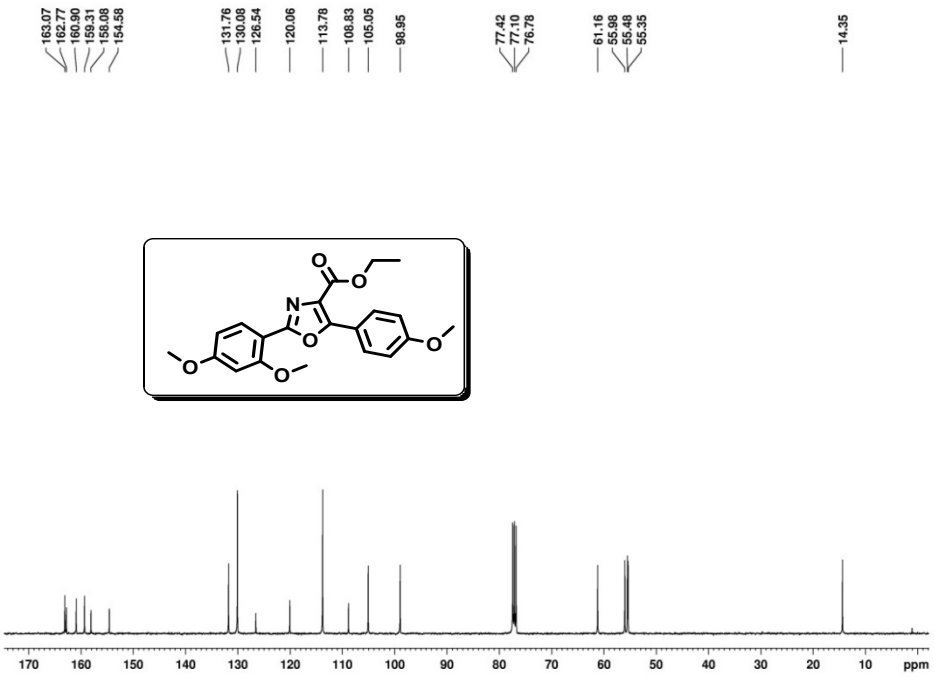
^{1}H- NMR Spectra of compound 3n



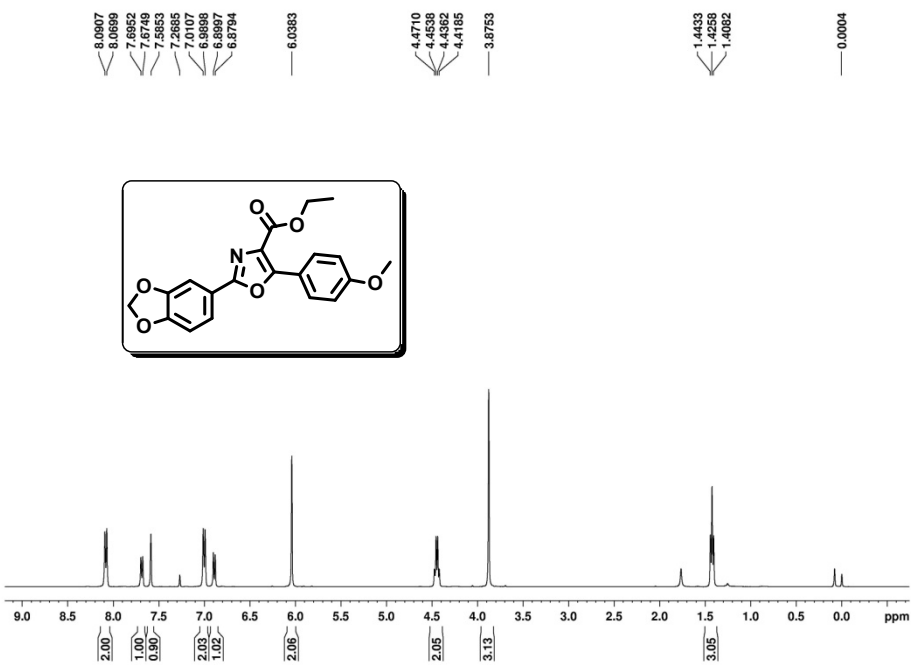
^{13}C- NMR Spectra of compound 3n



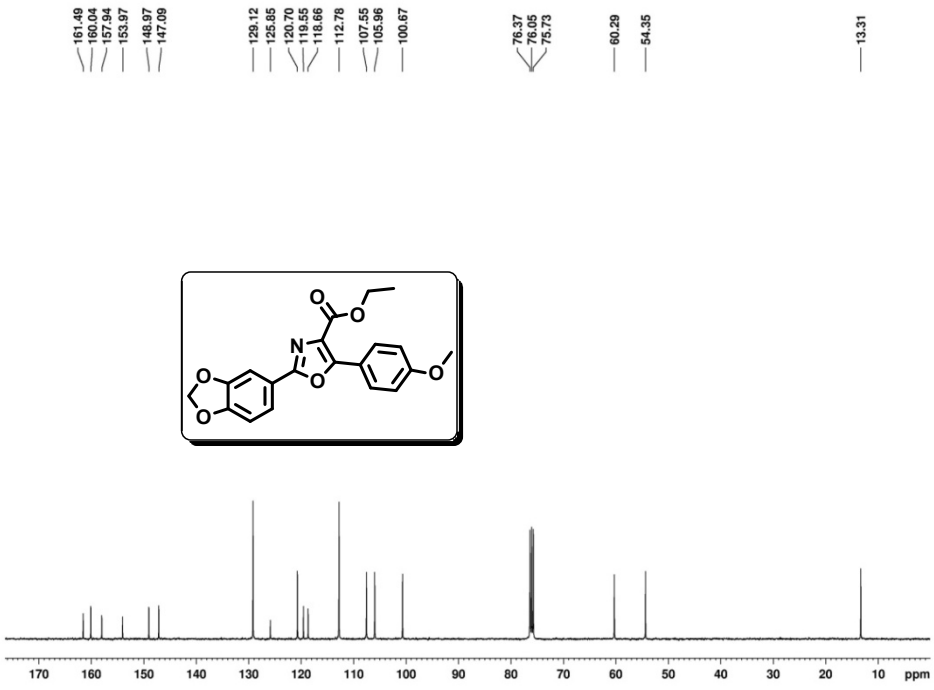
^{1}H- NMR Spectra of compound 3o



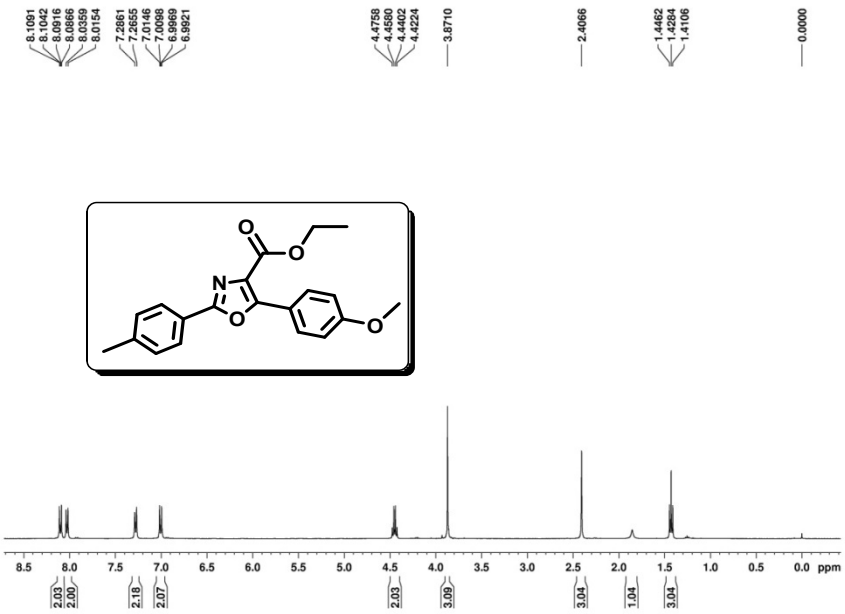
^{13}C- NMR Spectra of compound 3o



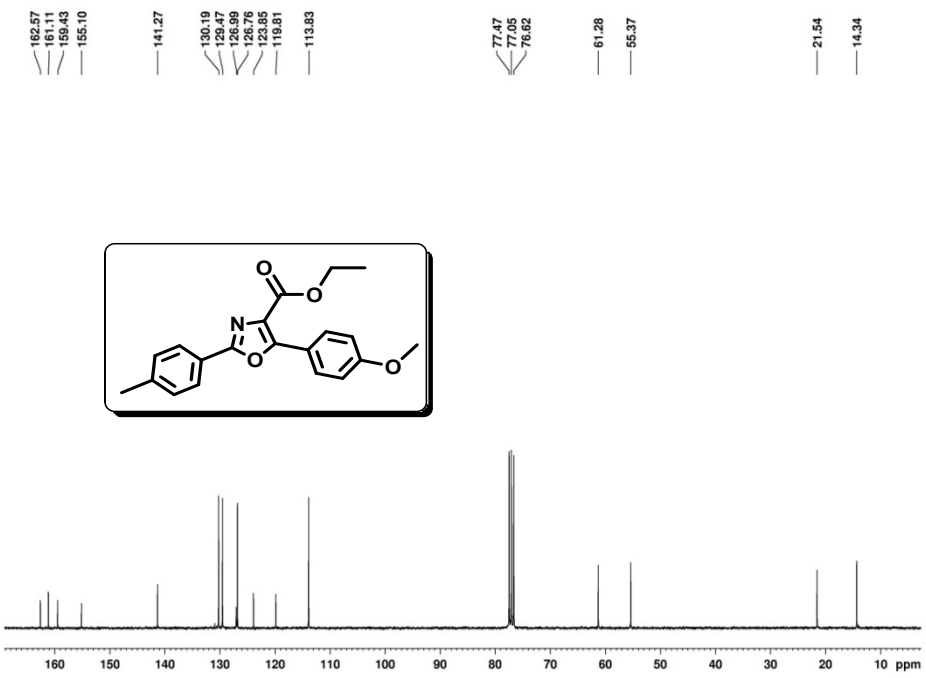
^{1}H- NMR Spectra of compound 3p



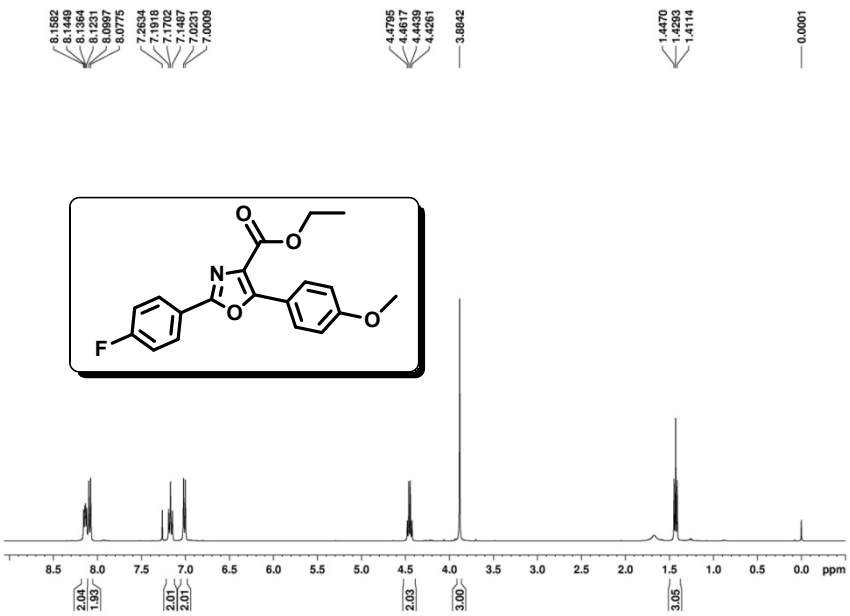
^{13}C- NMR Spectra of compound 3p



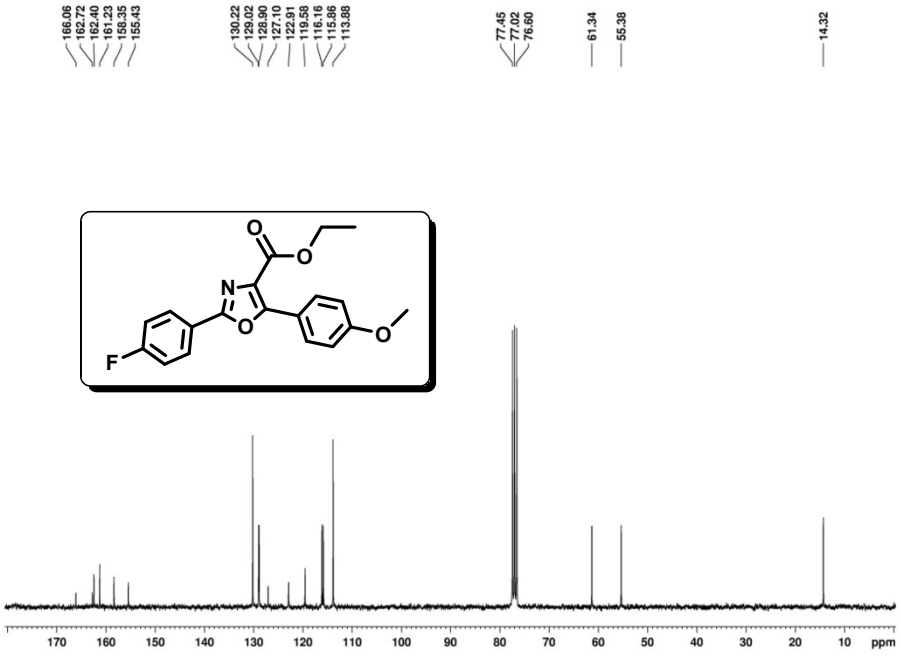
^{1}H- NMR Spectra of compound 3q



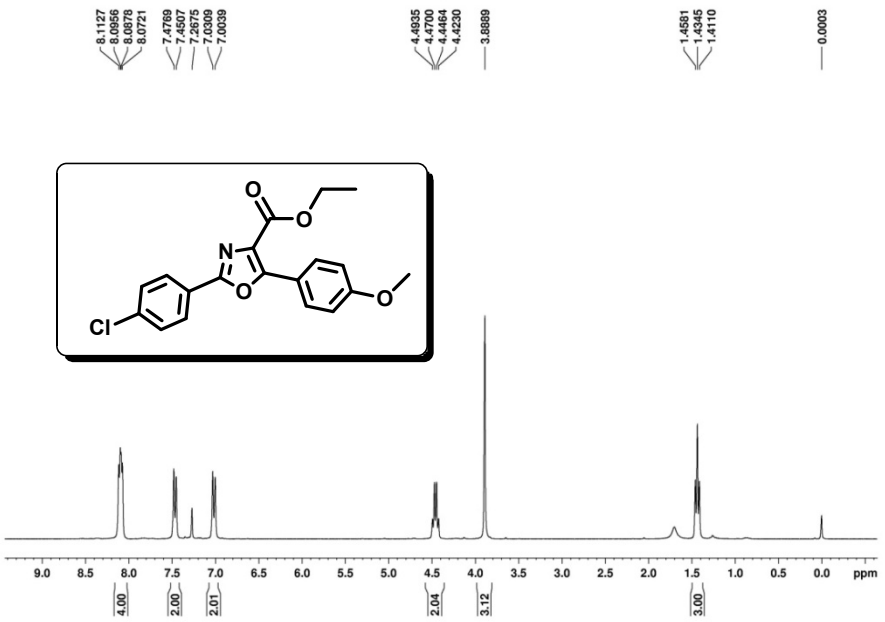
^{13}C- NMR Spectra of compound 3q



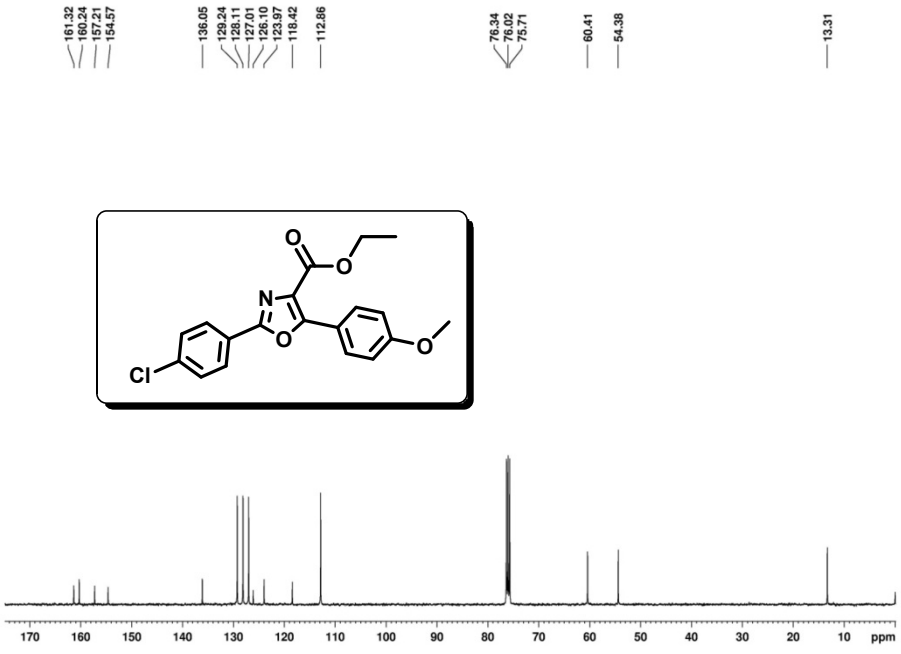
^{1}H- NMR Spectra of compound 3r



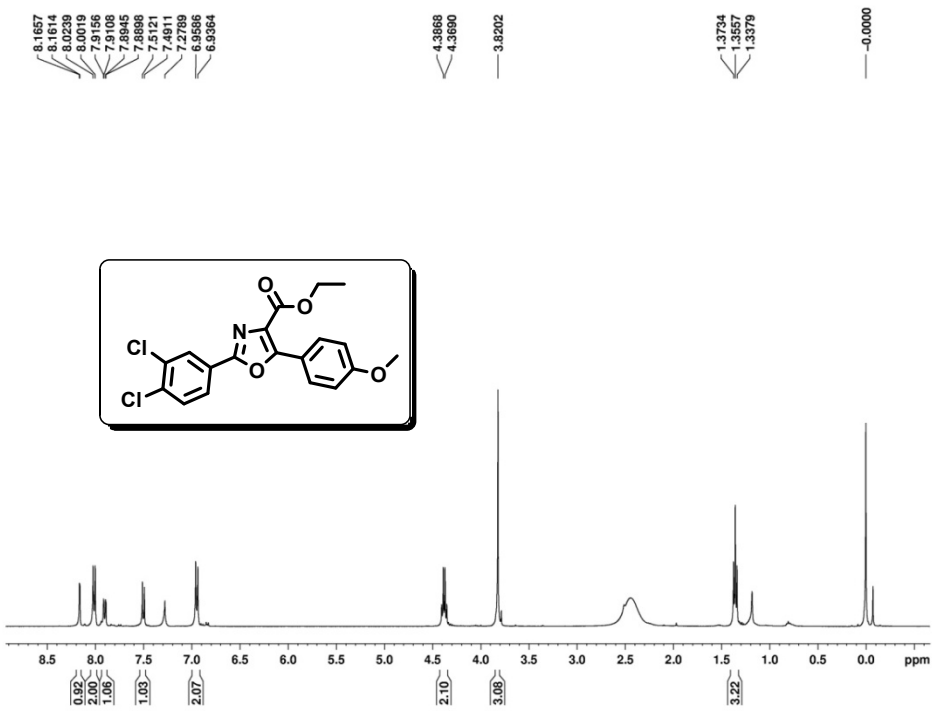
^{13}C- NMR Spectra of compound 3r



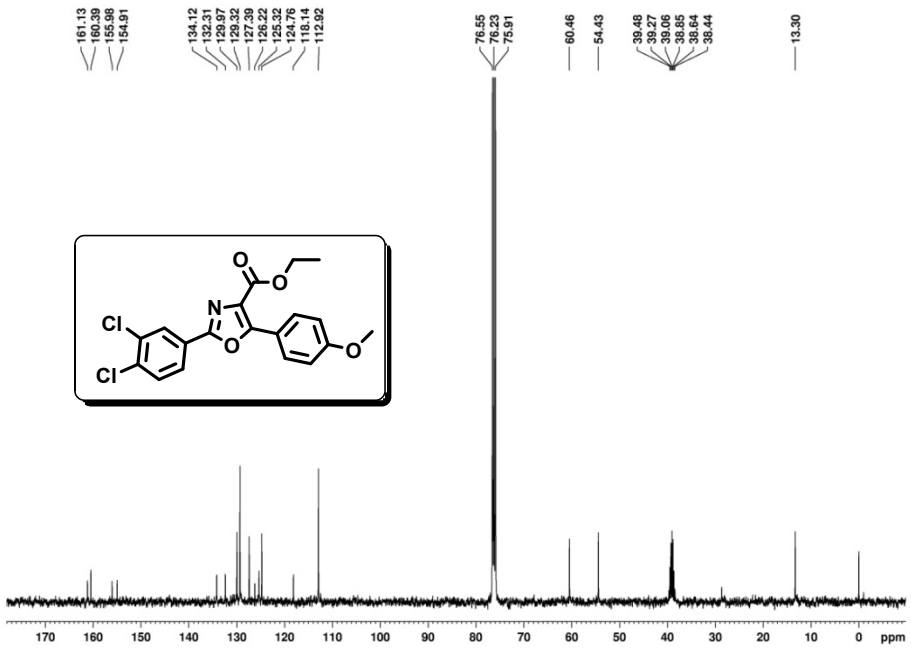
^{1}H- NMR Spectra of compound 3s



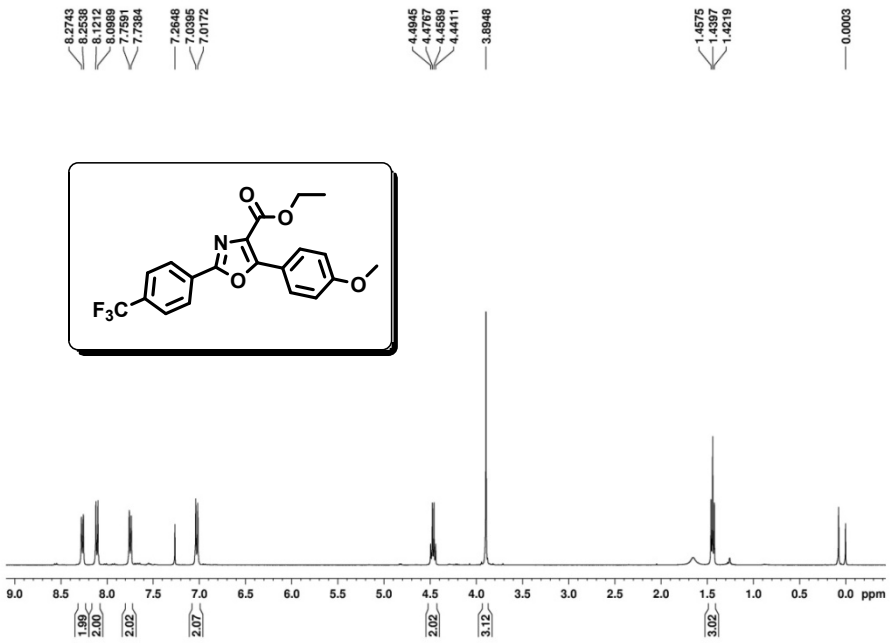
^{13}C- NMR Spectra of compound 3s



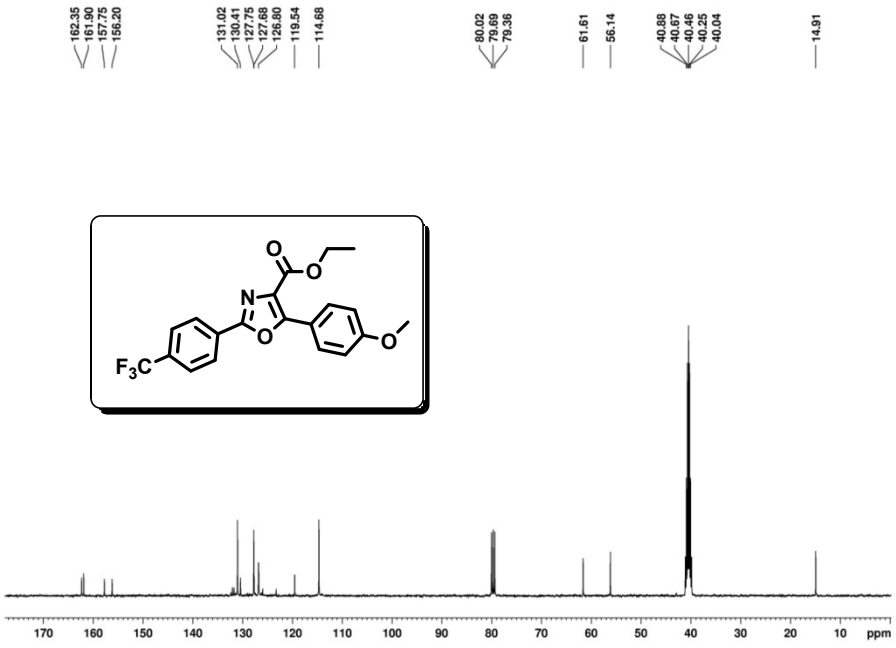
^{1}H- NMR Spectra of compound 3t



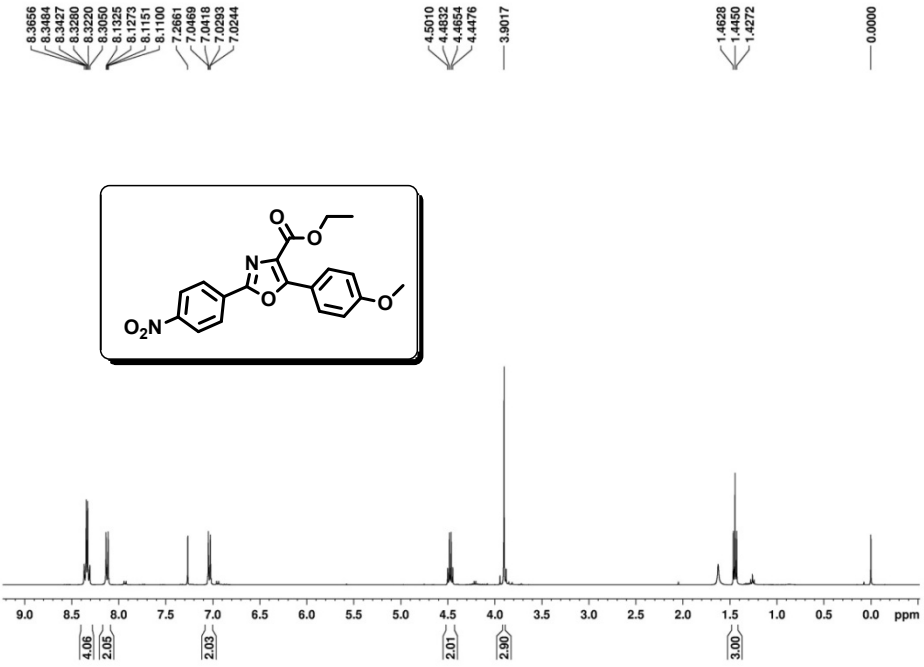
^{13}C- NMR Spectra of compound 3t



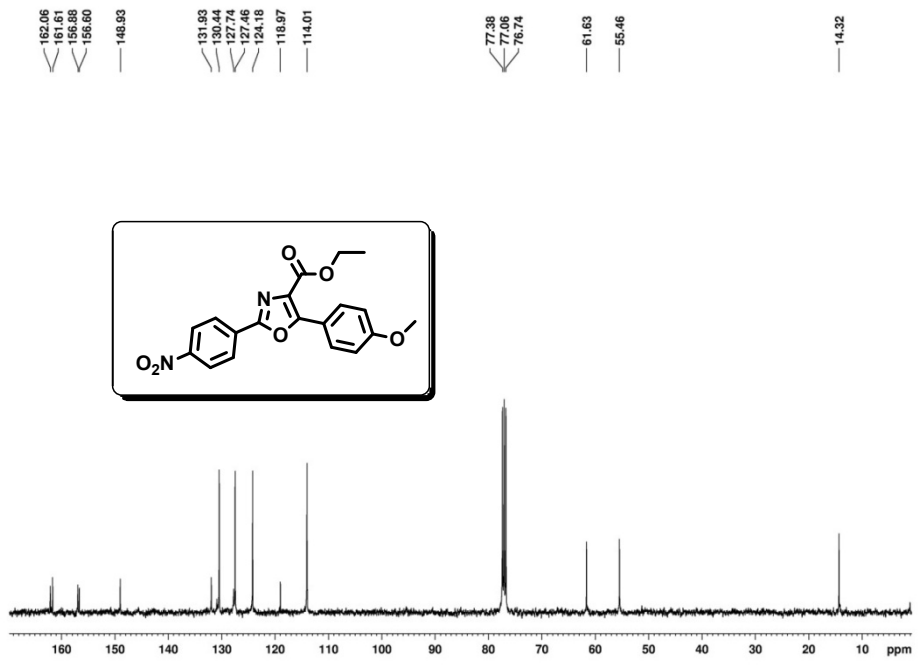
^{1}H- NMR Spectra of compound 3u



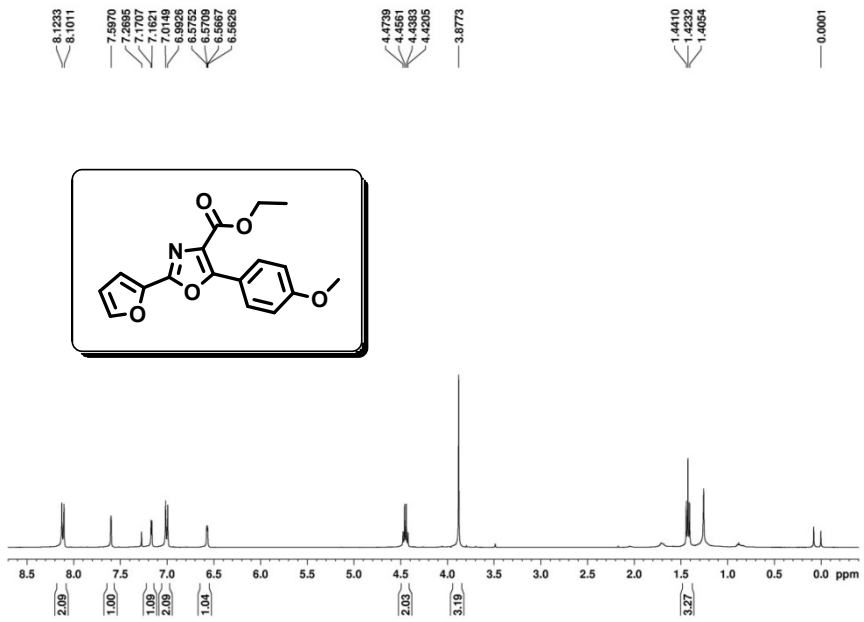
^{13}C- NMR Spectra of compound 3u



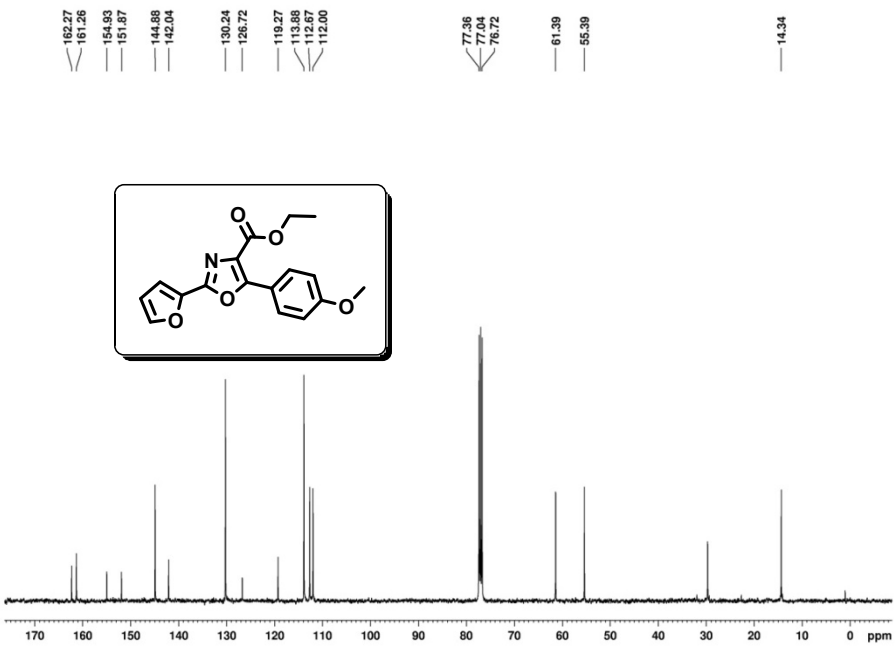
^{1}H- NMR Spectra of compound 3v



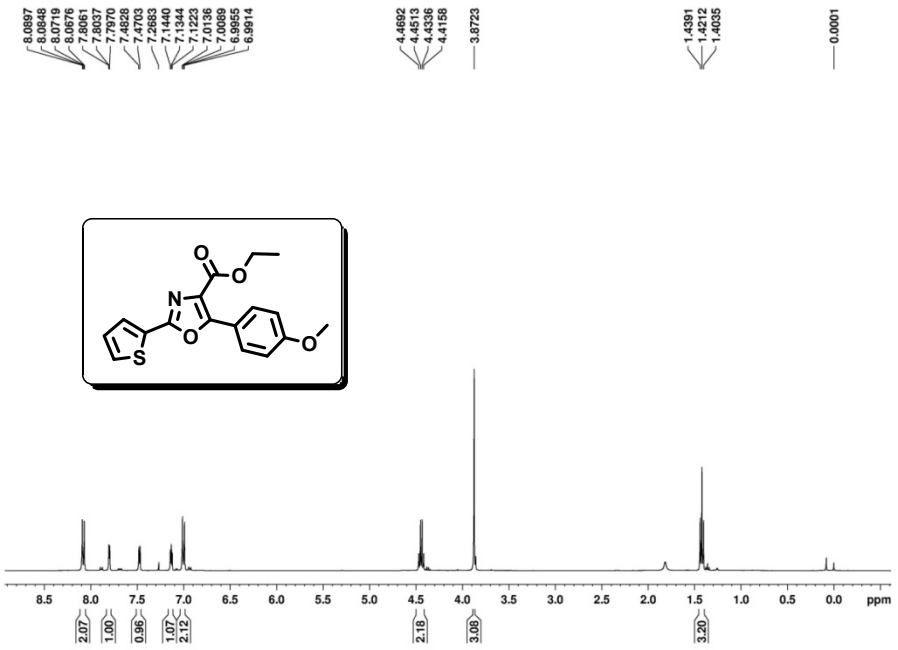
^{13}C- NMR Spectra of compound 3v



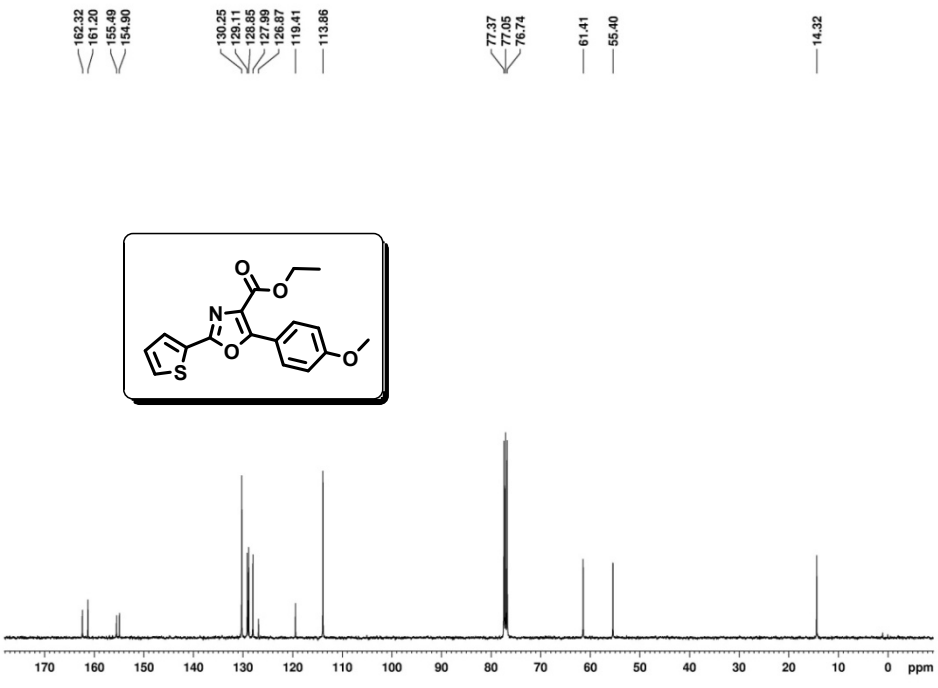
^{1}H- NMR Spectra of compound 3w



^{13}C- NMR Spectra of compound 3w



^{1}H- NMR Spectra of compound 3x



^{13}C- NMR Spectra of compound 3x