Supporting Information

Nanoparticle mediated organic synthesis (NAMO-Synthesis) : CuI-NP catalyzed ligand free Amidation of Aryl halides

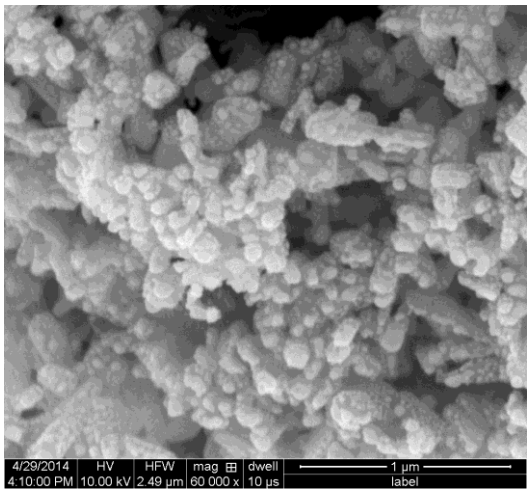
Atul Kumar,* Ajay Kumar Bishnoi

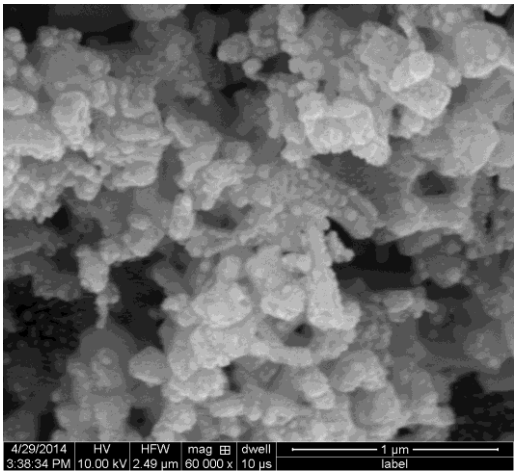
Medicinal and Process Chemistry Division, CSIR-Central Drug Research Institute, Lucknow-226031, India
dratulsax@gmail.com

General: All the reagents and solvents were purchased from Sigma-Aldrich or Merck chemical Co. Column chromatography was performed using Spectrochem siliga gel (100-200). Organic solvents were concentrated under reduced pressure on Ika rotary evaporator. The progress of reaction was checked by thin-layer chromatography. The plates were visualized first with UV illumination followed by iodine. ^{1}H and ^{13}C NMR spectra were obtained using either a Bruker DRX-200 or AV-300 spectrometer. Chemical shifts are reported in ppm from tetramethylsilane with the solvent resonance as the internal standard and ^{1}H NMR Spectra are reported in the order: multiplicity, coupling constant (J value) in hertz (Hz) and no of protons; signals were characterized as s (singlet), d (doublet), t (triplet), m (multiplet). ^{13}C NMR spectra were recorded at 50 or 75 MHz. Mass spectra were obtained using JEOL SX-102 (ESI) instrument. The surface property and the composition of the CuI nanoparticles was determined using Scanning electron microscope (SEM-EDX) –FEI, Netherland, Quanta™ 450 FEG and Transmission electron microscopy (TEM) – FEI, netherland, Tecnai™ G2 Spirit.

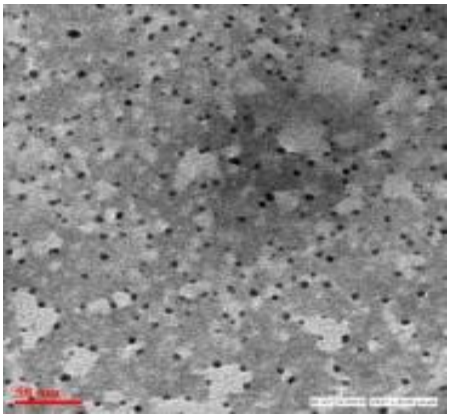
General procedure for preparation of CuI nanoparticles

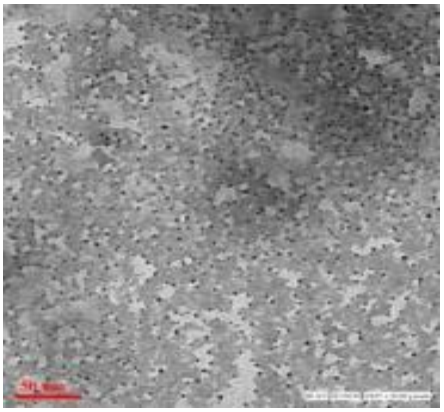
0.464 g (4 mmol) of dimethylglyoxime (dmgH) and 0.400 g (2 mmol) of $Cu(OAc)_2.H_2O$ were added into 50 ml of absolute ethanol in sequence, which was stirred at 0 °C for 30 min to get brown precipitates Cu(dmg) 2 . Then the collected precipitates dispersed in 50 ml of absolute ethanol again, 0.664 g (4 mmol) KI was added and stirred vigorously for 2 h. After that, the mixture was transferred into 60 mL Teflon-lined stainless steel autoclave. The autoclave was sealed and heated at 180 °C for 6 h, and then the reactor bomb is allowed to cool to room temperature. Black precipitates were obtained, then centrifugalized and washed with ethanol and deionized water for three times to ensure the removal of the impurities. The final product was then dried in a vacuum oven at room temperature for 12 h.



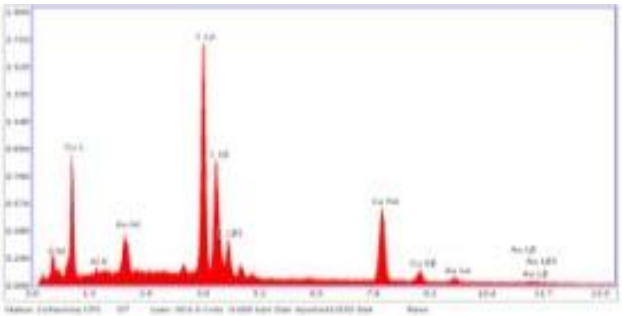


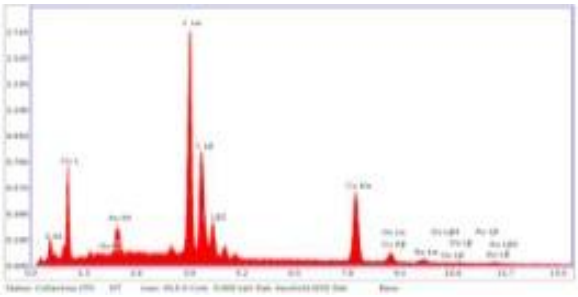
SEM images of catalyst before the reaction (b) After the 5th run





TEM images before the reaction (d) After the 5th run





EDX image of fresh catalyst, and (f) EDX image of catalyst after 5th run.

General procedure for the Arylamidation of simple amides

The Arylation of amides was carried out in a round bottomed flask. In a typical experiment, a mixture of bromobenzene (1 mmol), benzamide (1.5 mmol), CuI NPs (1.5 mol%) and K_2CO_3 (1.5 equ.) were dissolved in 10 mL of ethylene glycol / 2-propanol (1:5) and stirred for the 5 hours at 70 ^{0}C temperature. The reaction was monitored to completion using TLC. At the end of reaction, the mixture was then cooled to room temperature and poured into distilled water. The products were extracted using EtOAc and the organic layer was dried over anhydrous sodium sulphate (Na_2SO_4). The solvent was evaporated in vacuo, the crude products were purified by silica column chromatography using EtOAc / hexane solvent system.

General procedure for the benzimidazole derivatives in one-pot.

The amidation reaction was carried out in a round bottomed flask. In a typical experiment, a mixture of 2-bromo-N-methylaniline (1 mmol), benzamide (1.5 mmol), CuI NPs (1.5 mol%) and K_2CO_3 (1.5 equ.) were dissolved in 10 mL of ethylene glycol / 2-propanol (1:5) and stirred for the 5 hours at 70 ^{0}C temperature. The reaction was monitored to completion using TLC. At the end of reaction, the mixture was then cooled to room temperature and poured into distilled water. The products were extracted using EtOAc and the organic layer was dried over anhydrous sodium sulphate (Na_2SO_4). The solvent was evaporated in vacuo, the crude products were purified by silica column chromatography using EtOAc / hexane solvent system.

General procedure for the Quinazolinone derivatives in one-pot.

In a typical experiment, a mixture of 2-bromobenzamide (1 mmol), benzamide (1.5 mmol), CuI NPs (1.5 mol%) and K_2CO_3 (1.5 equ.) were dissolved in 10 mL of ethylene glycol / 2-propanol (1:5) and and stirred for the 5 hours at 70 ^{0}C temperature. The reaction was monitored to completion using TLC. At the end of reaction, the mixture was then cooled to room temperature and poured into distilled water. The products were extracted using EtOAc and the organic layer was dried over anhydrous sodium sulphate (Na_2SO_4). The solvent was evaporated in vacuo, the crude products were purified by silica column chromatography using EtOAc / hexane solvent system.

Characterization data for synthesized compounds:

N-Phenylbenzamide (1): Yield 85%; mp 64-66 ^{0}C; ESI MS (*m/z*) = 198 $(M+H)^{+}$. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.90 (s, 1H), 7.86 (d, J = 7.3, 2H), 7.64 (d, J = 8.8 Hz, 2H), 7.53 (t, J = 8.0 Hz, 1H), 7.46 (t, J = 6.4 Hz, 2H), 7.39 (t, J = 7.6 Hz, 2H), 7.16 (t, J = 6.4 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 166.1, 138.2, 135.3, 132.1, 129.4, 129.1, 127.3, 124.9, 120.6. Analysis calculated for $C_{13}H_{11}NO$: C, 79.16; H, 5.62. Found: C, 79.08; H, 5.52.

4-chloro-N-phenylbenzamide (2): Yield 84%; mp 193-195 ^{0}C; ESI MS (*m/z*) = 232 $(M+H)^{+}$. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.83 (d, J = 8.4 Hz, 2H), 7.76 (s, 1H), 7.63 (d, J = 8.2 Hz, 2H), 7.48 (d, J = 8.4 Hz, 2H), 7.39 (t, J = 7.8 Hz, 2H), 7.17 (t, J = 7.4 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 164.8, 138.2, 137.6, 133.3, 129.2, 129.1, 128.5, 124.8, 120.2. Analysis calculated for $C_{13}H_{10}ClNO$: C, 67.39; H, 4.35. Found: C, 67.29; H, 4.32.

4-methoxy-N-phenylbenzamide (**3):** Yield 83%; mp 172-174 ^{0}C; ESI MS (m/z) = 228 $(M+H)^{+}$. ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.86 (d, J = 8.4 Hz, 2H), 7.73 (br, 1H), 7.62 (dd, J = 8.8 Hz, 1.2 Hz, 2H), 7.37 (t, J = 8.8 Hz, 2H), 7.15 (t, J = 7.6 Hz, 1H), 6.98 (d, J = 8.4 Hz, 2H), 3.88 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 164.9, 161.9, 139.4, 129.6, 128.5, 127.0, 123.4, 120.3, 113.6, 55.4. Analysis calculated for $C_{14}H_{13}NO_2$: C, 73.99; H, 5.77. Found: C, 73.81; H, 5.72.

N-Thiophen-3-yl-benzamide (4): Yield 82%; mp 145-147 ^{0}C; ESI MS (m/z) = 204 $(M+H)^{+}$. ^{1}H NMR (300 MHz, $CDCl_3$): δ 8.35 (br s, 1H), 7.86 (dd, J = 1.2, 8.1 Hz, 2H), 7.73 (dd, J = 1.2, 3.0 Hz, 1H), 7.55-7.43 (m, 3H), 7.26 (dd, J = 3.3, 4.8 Hz, 1H), 7.15 (dd, J = 1.5,

5.4 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 165.4, 135.8, 134.6, 132.0, 129.0, 127.3, 124.9, 121.5, 110.9. Analysis calculated for $C_{11}H_9NOS$: C, 65.00; H, 4.46. Found: C, 64.91; H, 4.41.

1-Phenylpyrrolidin-2-one (5): Yield 80%; mp 85-86 ^{0}C; ESI MS (m/z) =162 $(M+H)^+$. ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.62 (d, J = 8.8 Hz, 2H), 7.38 (t, J = 8.4 Hz, 2H), 7.13 (t, J = 8.4 Hz, 1H), 3.87 (t, J = 7.2 Hz, 2H), 2.63 (t, J = 7.6 Hz, 2H), 2.14-2.19 (m, 2H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 174.0, 139.3, 128.6, 124.2, 119.7, 48.5, 32.6, 17.7. Analysis calculated for $C_{10}H_{11}NO$: C, 74.51; H, 6.88. Found: C, 74.49; H, 6.81.

4-Hydroxy-N-phenylbenzamide (6) : Yield 82%; mp 207-208 ^{0}C; ESI MS (m/z) = 214 $(M+H)^+$. ^{1}H NMR (400 MHz, $CDCl_3$): δ 10.06 (s, 1H), 9.95 (br, 1H), 7.84 (d, J = 8.8 Hz, 2H), 7.74 (dd, J = 8.8 Hz, 1.2 Hz, 2H), 7.31 (t, J = 8.0 Hz, 2H), 7.04 (t, J = 7.6 Hz, 1H), 6.84 (d, J = 8.4 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): δ 165.1, 160.5, 139.5, 129.7, 128.5, 125.5, 123.3, 120.3, 114.9. Analysis calculated for $C_{13}H_{11}NO_2$: C, 73.23; H, 5.20. Found: C, 73.09; H, 5.11.

1-methyl-2-phenyl-1H-benzo[d]imidazole (7) : Yield 76%; mp 91-93 ^{0}C; ESI MS (m/z) = 209 (M+H)+. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.87-7.85 (m, 1 H), 7.81-7.79 (m, 2 H), 7.59-7.55 (m, 3 H), 7.44-7.42 (m, 1 H), 7.38-7.32 (m, 2 H), 3.90 (s, 3 H). ^{13}C NMR (50 MHz, $CDCl_3$): δ 31.7, 109.6, 119.9, 122.5, 122.8, 128.7, 129.5, 129.7, 130.3, 136.6, 143.0, 153.8. Analysis calculated for $C_{14}H_{12}N_2$: C, 80.74; H, 5.81. Found: C, 80.69; H, 5.70.

1-methyl-2-p-tolyl-1H-benzo[d]imidazole (8) : Yield 78%; mp 127-129 ^{0}C; ESI MS (*m/z*) = 223 $(M+H)^+$. ^{1}H NMR (300 MHz, DMSO-d_6): δ 7.86-7.83 (m, 1 H), 7.69 (d, 2 H, J = 8 Hz), 7.43-7.41 (m, 1 H), 7.37-7.33 (m, 4 H), 3.89 (s,3 H), 2.47 (s, 3 H). ^{13}C NMR (75 MHz,

$CDCl_3$): δ 21.5, 31.7, 109.6, 119.7, 122.4, 122.6, 127.3, 129.3, 129.4, 136.6, 139.8, 143.0, 154.0. Analysis calculated for $C_{15}H_{14}N_2$: C, 81.05; H, 6.35. Found: C, 81.00; H, 6.29.

2-(4-methoxyphenyl)-1-methyl-1H-benzo[d]imidazole (9): Yield 80%; mp 118-120 ^{0}C; ESI MS (m/z) = 239 $(M+H)^+$. ^{1}H NMR (400MHz, $CDCl_3$): δ 7.84-7.82 (m, 1 H), 7.74 (d, 2 H, J = 8.8 Hz), 7.42-7.39 (m, 1 H), 7.34-7.32 (m, 2 H), 7.07 (d, 2 H, J = 8.8 Hz), 3.91 (s, 3 H), 3.88 (s, 3 H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 31.7, 55.4, 109.5, 114.2, 119.6, 122.3, 122.5, 122.6, 130.9, 136.6, 143.0, 153.8, 160.8. Analysis calculated for $C_{15}H_{14}N_2O$: C, 75.61; H, 5.92. Found: C, 75.50; H, 5.76.

1-Methyl-2-(o-tolyl)-1H-benzo[d]imidazole (10): Yield 79%; mp 135-137 ^{0}C; ESI MS (m/z) = 223 $(M+H)^+$. ^{1}H NMR (300 MHz, DMSO-d_6): δ 7.85-7.81 (m, 1H), 7.44-7.38 (m, 3H), 7.36-7.29 (m, 4H), 3.62 (s, 3H), 2.27 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 153.9, 143.1, 138.1, 135.7, 130.5, 130.4, 130.1, 130.0, 125.9, 122.7, 122.3, 120.0, 109.6, 30.7, 19.8. Analysis calculated for $C_{15}H_{14}N_2$: C, 81.05; H, 6.35. Found: C, 80.92; H, 6.29.

2-(4-Chlorophenyl)benzimidazole (11): 76% yield; mp 303-305 ^{0}C; ESI MS (m/z) = 229 $(M+H)^+$. ^{1}H NMR (300 MHz, $CDCl_3$): δ 8.07-8.03 (m, 2H), 7.62-7.57 (m, 2H), 7.55-7.51 (m, 2H), 7.29-7.25 (m, 2H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 152.2, 137.3, 130.3, 129.7, 129.3, 124.2, 115.3. Analysis calculated for $C_{13}H_9ClN_2$: C, 68.28; H, 3.97. Found: C, 68.09; H, 3.88.

2-(2-Chlorophenyl)benzimidazole (12): 74% yield; mp 234-236 ^{0}C; ESI MS (m/z) = 229 $(M+H)^+$. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.84-7.80 (m, 1H), 7.68-7.42 (m, 5H), 7.32-7.26 (m, 2H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 151.2, 139.9, 134.0, 133.2, 132.6, 131.6, 131.1, 128.5,

124.19, 124.07, 116.2. Analysis calculated for $C_{13}H_9ClN_2$: C, 68.28; H, 3.97. Found: C, 68.11; H, 3.85

2-Phenylquinazolin-4(3H)-one (13) : Yield 81%; mp 234-236 ^{0}C; ESI MS (*m/z*) = 223 $(M+H)^+$. ^{1}H NMR (300 MHz, DMSO-d_6): δ 7.50-7.60 (m, 4H), 7.73-7.86 (m, 2H), 8.15-8.20 (m, 3H), 12.52 (s, 1H). ^{13}C NMR (75 MHz, DMSO-d_6): δ 121.4, 126.3, 127.0, 127.8, 128.2, 129.0, 131.8, 133.1, 135.0, 149.1, 152.8, 162.8. Analysis calculated for $C_{14}H_{10}N_2O$: C, 75.66; H, 4.54. Found: C, 75.52; H, 4.42.

2-(4-chlorophenyl)quinazolin-4(3H)-one (14): Yield 75%; mp 299-301 ^{0}C; ESI MS (m/z) = 257 $(M+H)^+$. ^{1}H NMR (300 MHz, DMSO-d_6): δ 7.51 (t, *J* = 7.0 Hz, 1H), 7.61 (d, *J* = 8.6 Hz, 2H), 7.73 (d, *J* = 8.0 Hz, 1H), 7.82-7.87 (m, 1H), 8.14-8.22 (m, 3H), 12.55 (s, 1H). ^{13}C NMR (75 MHz, DMSO-d_6): δ 121.0, 125.9, 126.7, 127.5, 128.7, 129.6, 131.5, 134.6, 136.3, 148.4, 151.3, 162.1. Analysis calculated for $C_{14}H_9ClN_2O$: C, 65.51; H, 3.53. Found: C, 65.42; H, 3.42.

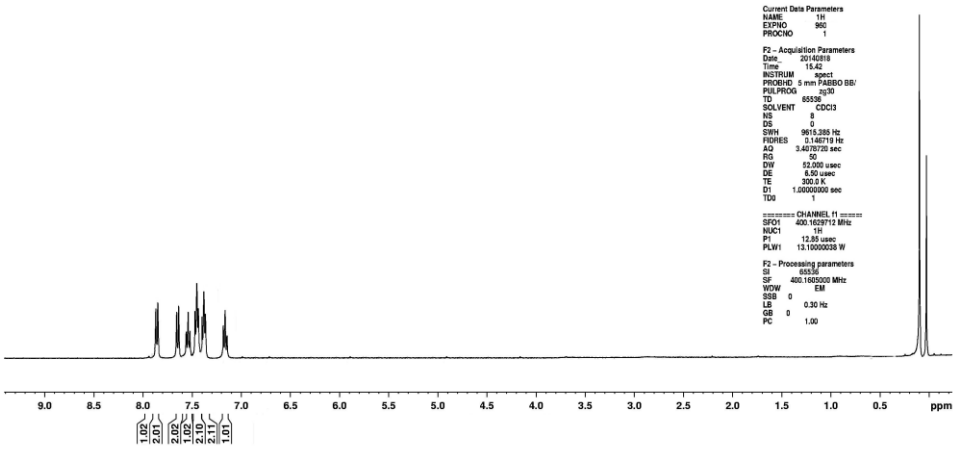
2-(4-Methoxyphenyl)quinazolin-4(3H)-one (15): Yield 76%; mp 247-249 ^{0}C; ESI MS (*m/z*) = 253 $(M+H)^+$. ^{1}H NMR (300 MHz, DMSO-d_6): δ 3.85 (s, 3H), 7.07 (d, *J* = 8.8 Hz, 2H), 7.46 (t, *J*= 7.05 Hz, 1H), 7.69 (d, *J* = 7.95 Hz, 1H), 7.79 (t, *J* = 6.93 Hz, 1H), 8.12-8.21 (m, 3H), 12.38 (s, 1H). ^{13}C NMR (75 MHz, DMSO-d_6): δ 55.5, 114.0, 120.6, 124.4, 125.9, 126.2, 126.8, 129.6, 134.6, 148.4, 152.1, 162.0, 162.3. Analysis calculated for $C_{15}H_{12}N_2O_2$: C, 71.42; H, 4.79. Found: C, 71.29; H, 4.62.

2-(Pyridin-3-yl)quinazolin-4(3H)-one (16): Yield 72%; mp 275-277 ^{0}C; ESI MS (m/z) = 224 $(M+H)^+$. ^{1}H NMR (300 MHz, DMSO-d_6): δ 7.55 (t, *J* = 7.5 Hz, 1H), 7.71-7.90 (m, 4H),

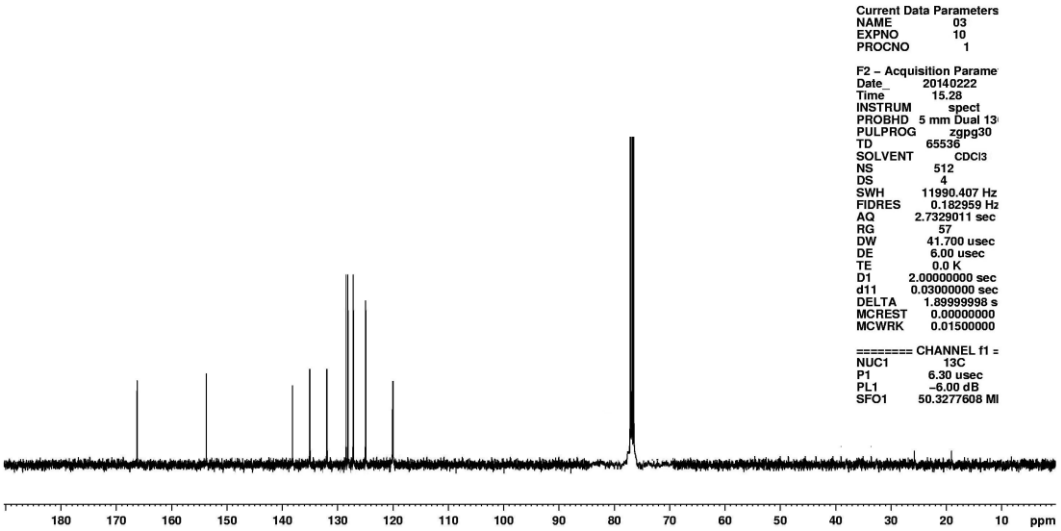
8.17 (d, *J* = 7.6 Hz, 1H), 8.63 (d, *J* = 7.8 Hz, 1H), 8.82-8.84 (m, 1H), 9.35 (s, 1H). ^{13}C NMR (75 MHz, DMSO-d_6): δ 121.1, 123.5, 125.9, 127.0, 127.6, 128.7, 134.7, 135.3, 148.5, 148.7, 150.7, 151.8, 162.1. Analysis calculated for $C_{13}H_9N_3O$: C, 69.95; H, 4.06.Found: C, 69.80; H, 3.96.

2,3-Diphenylquinazolin-4(3H)-one (17): Yield 76%; mp 157-159 ^{0}C; ESI MS (m/z) = 283 $(M+H)^+$. ^{1}H NMR (400 MHz, $CDCl_3$): δ 8.37 (d, J = 7.6 Hz, 1H), 7.82-7.29 (m, 2H), 7.56-7.52 (m, 1H), 7.34-7.21 (m, 8H), 7.16 (d, J = 7.2 Hz, 2H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 162.41, 155.34, 147.62, 137.79, 135.57, 134.88, 129.43, 129.24, 129.11, 128.55, 128.12, 127.88, 127.42, 127.35, 121.09. Analysis calculated for $C_{20}H_{14}N_2O$: C, 80.52; H, 4.73.Found: C, 80.39; H, 4.63.

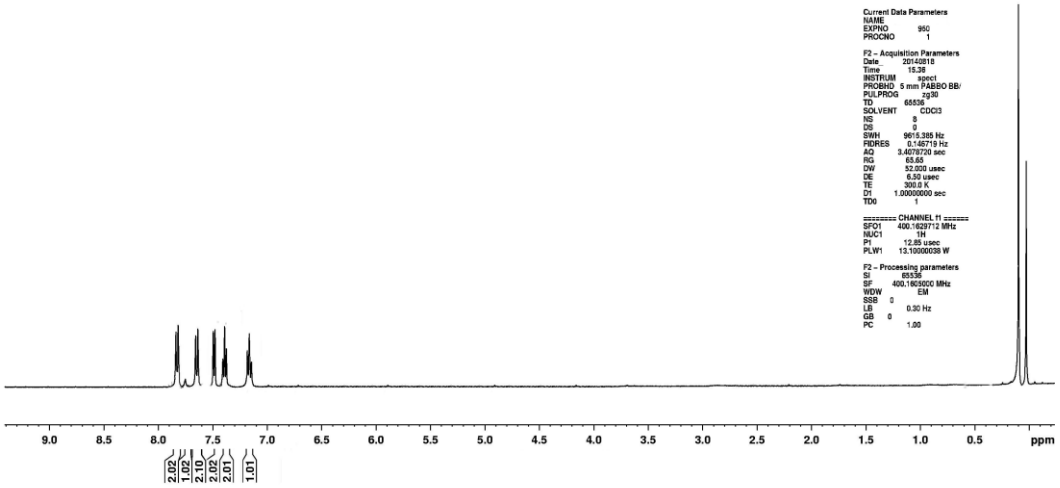
2-Phenyl-3-p-tolylquinazolin-4(3H)-one (18) : 78% yield; mp 165-167 ^{0}C; ESI MS (m/z) = 313 $(M+H)^+$. ^{1}H NMR (400 MHz, $CDCl_3$): δ 8.36 (d, J = 8.0 Hz, 1H), 7.81-7.78 (m, 2H), 7.54-7.51 (m, 1H), 7.35 (d, J = 7.2 Hz, 2H), 7.24-7.20 (m, 3H), 7.11 (d, J = 8.0 Hz, 2H), 7.03 (d, J = 8.0 Hz, 2H), 2.30 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 162.55, 155.51, 147.64, 138.49, 135.70, 135.10, 134.79, 129.79, 129.36, 129.11, 128.87, 128.11, 127.83, 127.34, 121.10, 21.30. Analysis calculated for $C_{21}H_{16}N_2O$: C, 80.75; H, 5.16.Found: C, 80.72; H, 5.03.



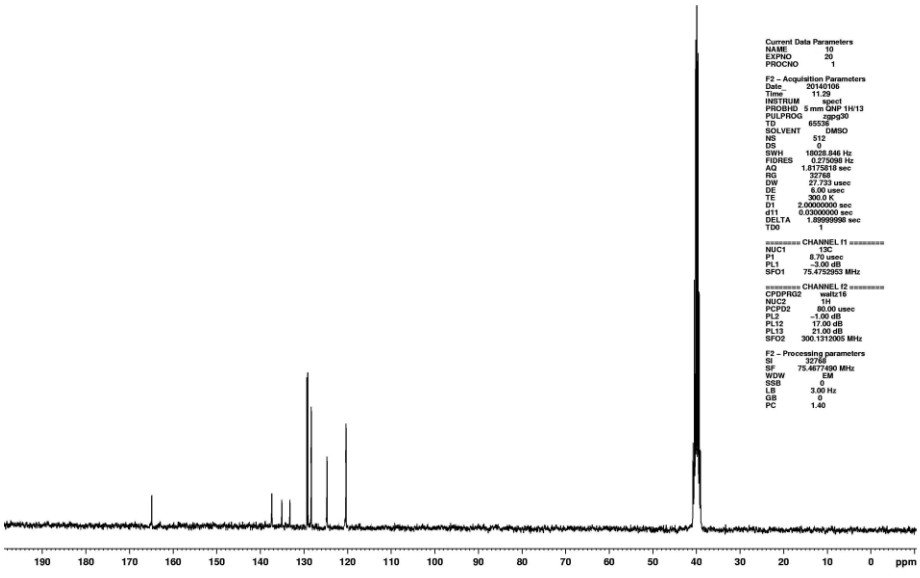
^{1}H NMR spectra of N-Phenylbenzamide (1)



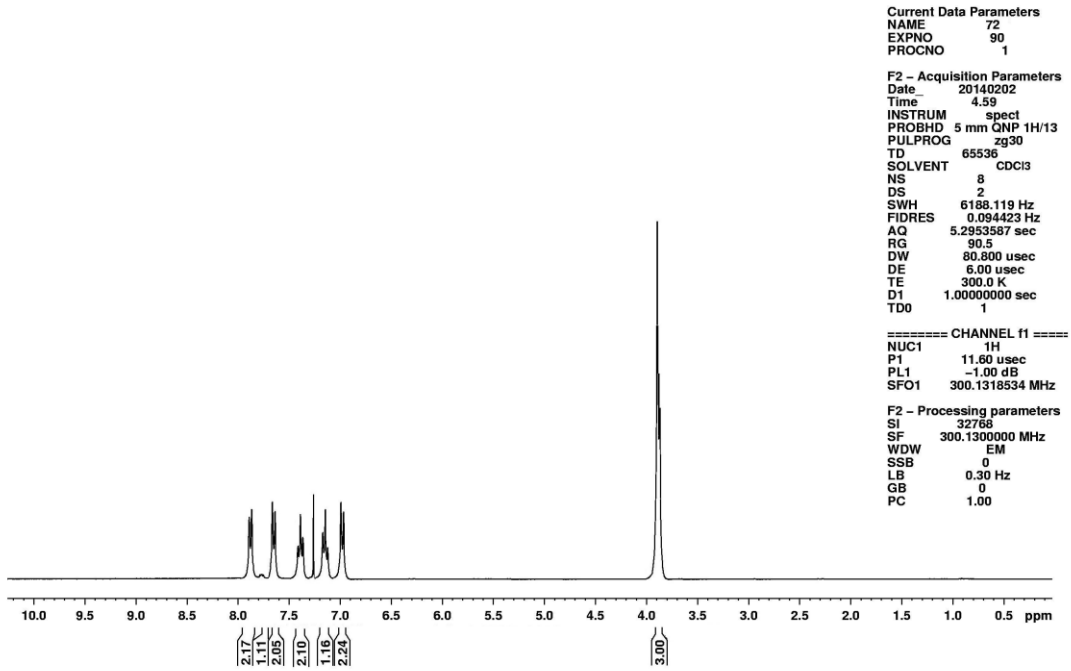
^{13}C NMR spectra of N-Phenylbenzamide (1)



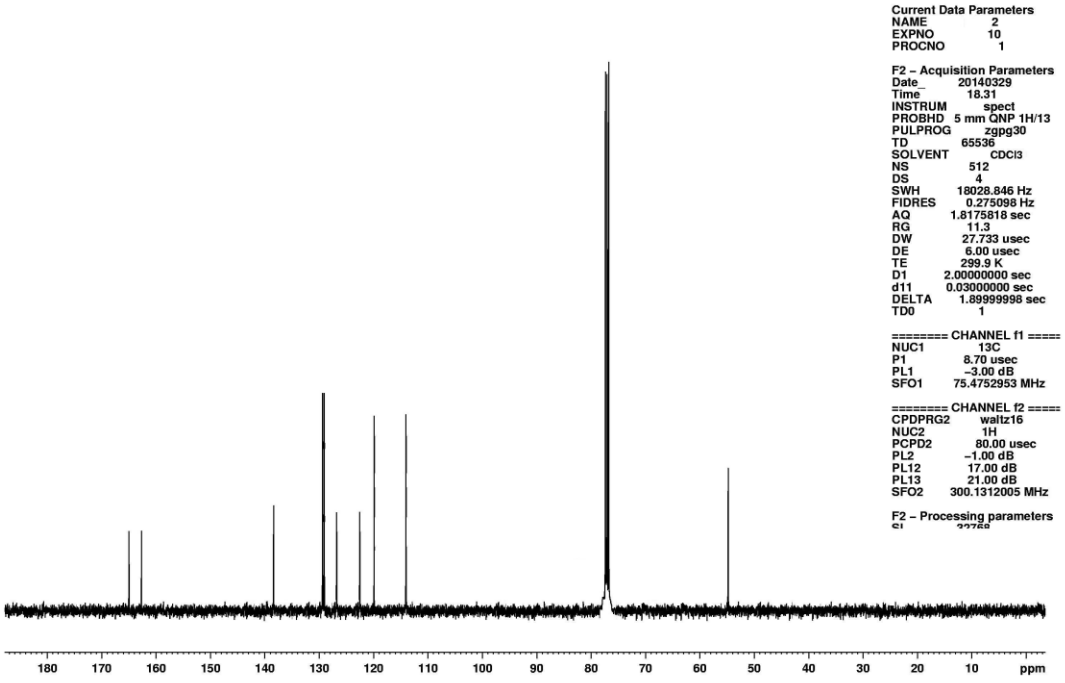
^{1}H NMR spectra of 4-chloro-N-phenylbenzamide (2)



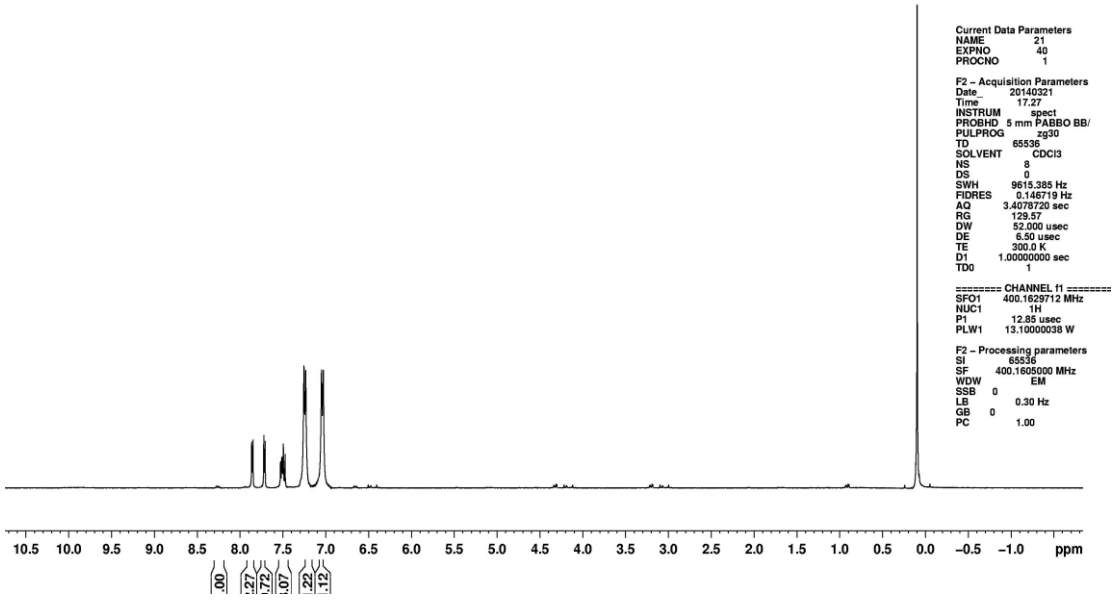
^{13}C NMR spectra of 4-chloro-N-phenylbenzamide (2)



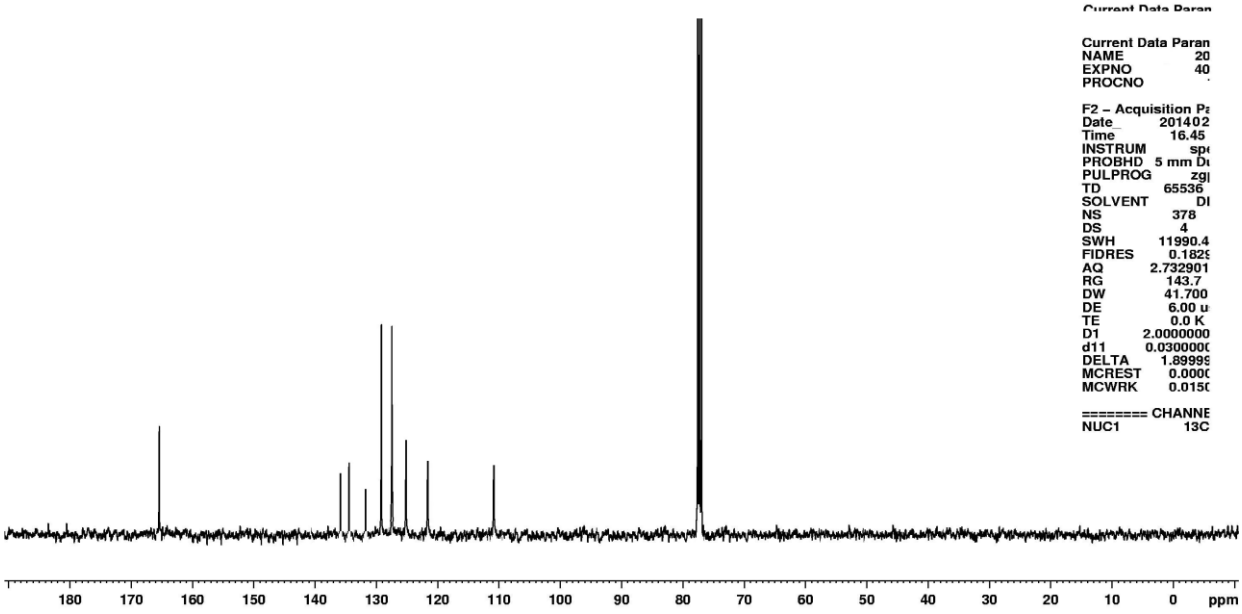
^{1}H NMR spectra of 4-methoxy-N-phenylbenzamide (3)



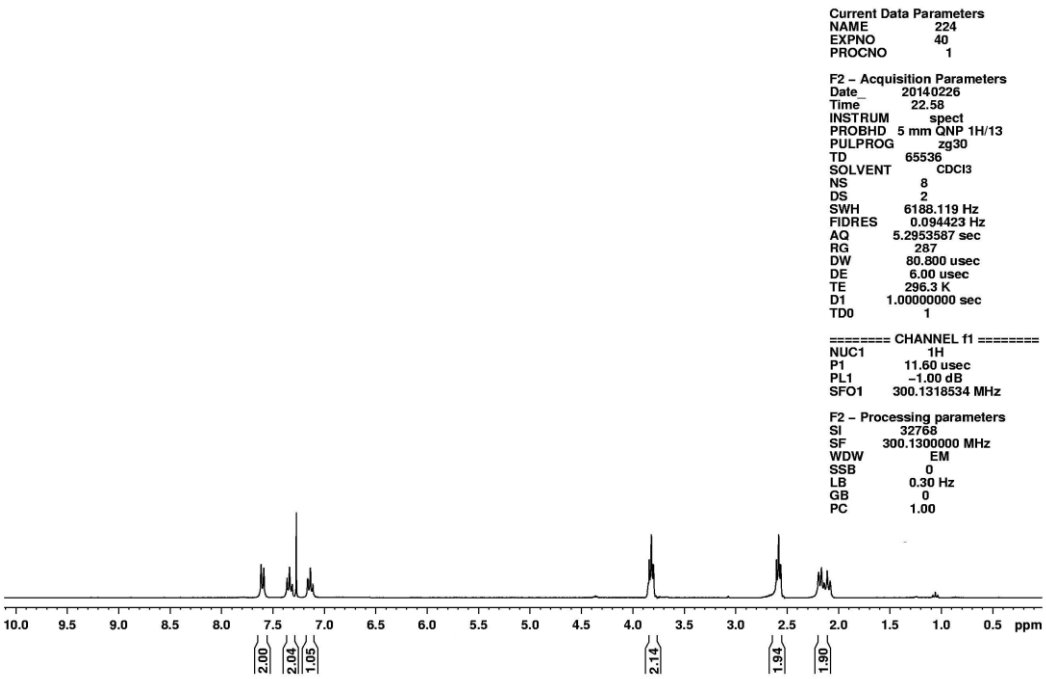
^{13}C NMR spectra of 4-methoxy-N-phenylbenzamide (3)



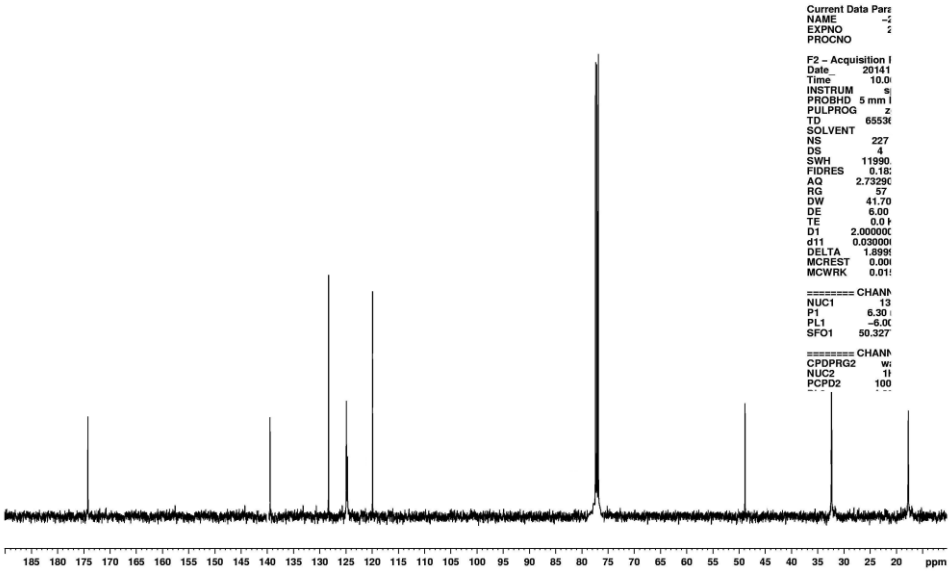
[1]H NMR spectra of N-Thiophen-3-yl-benzamide (4)



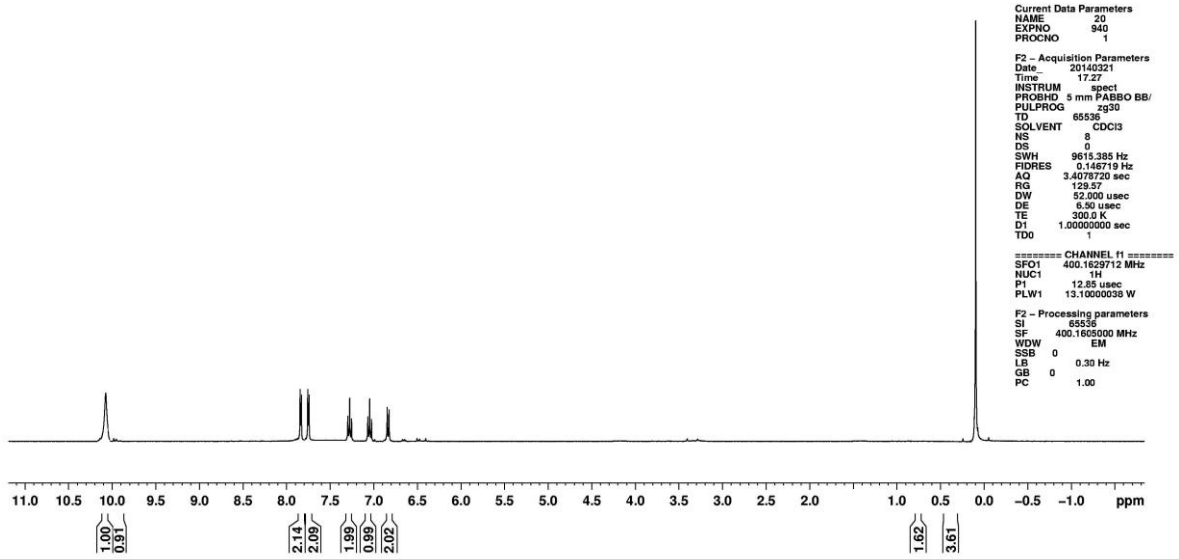
[13]C NMR spectra of N-Thiophen-3-yl-benzamide (4)



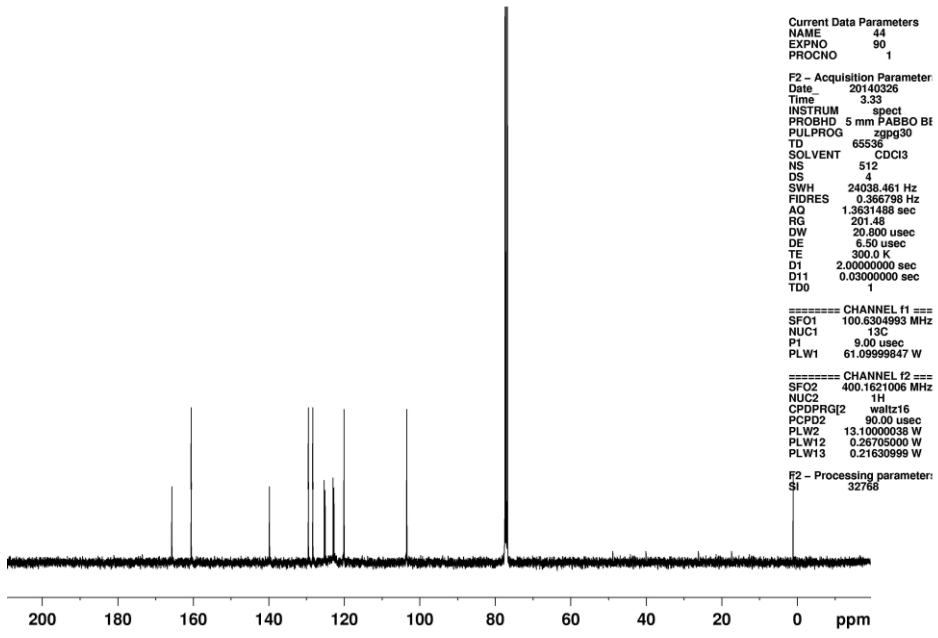
^{1}H NMR spectra of 1-Phenylpyrrolidin-2-one (5)



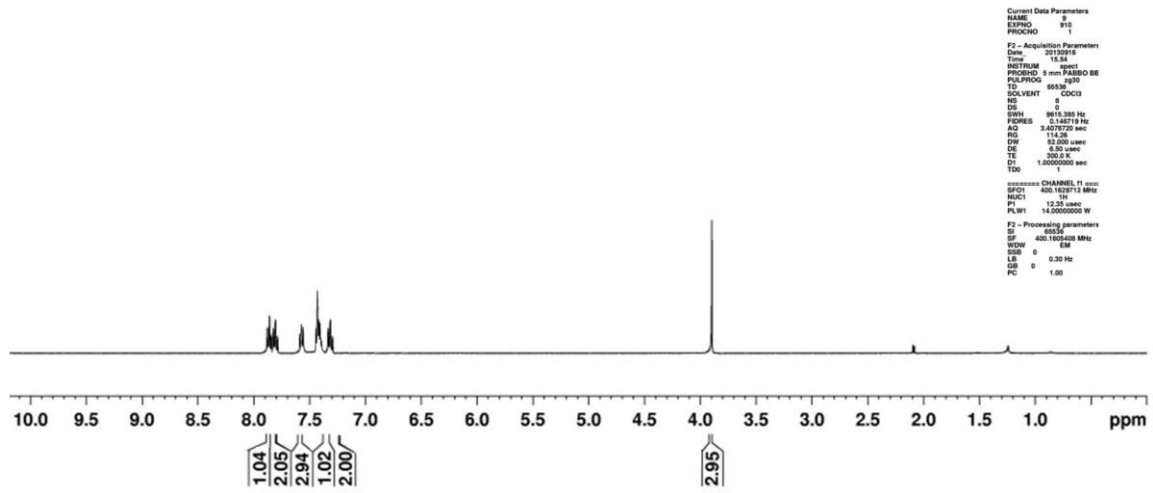
^{13}C NMR spectra of 1-Phenylpyrrolidin-2-one (5)



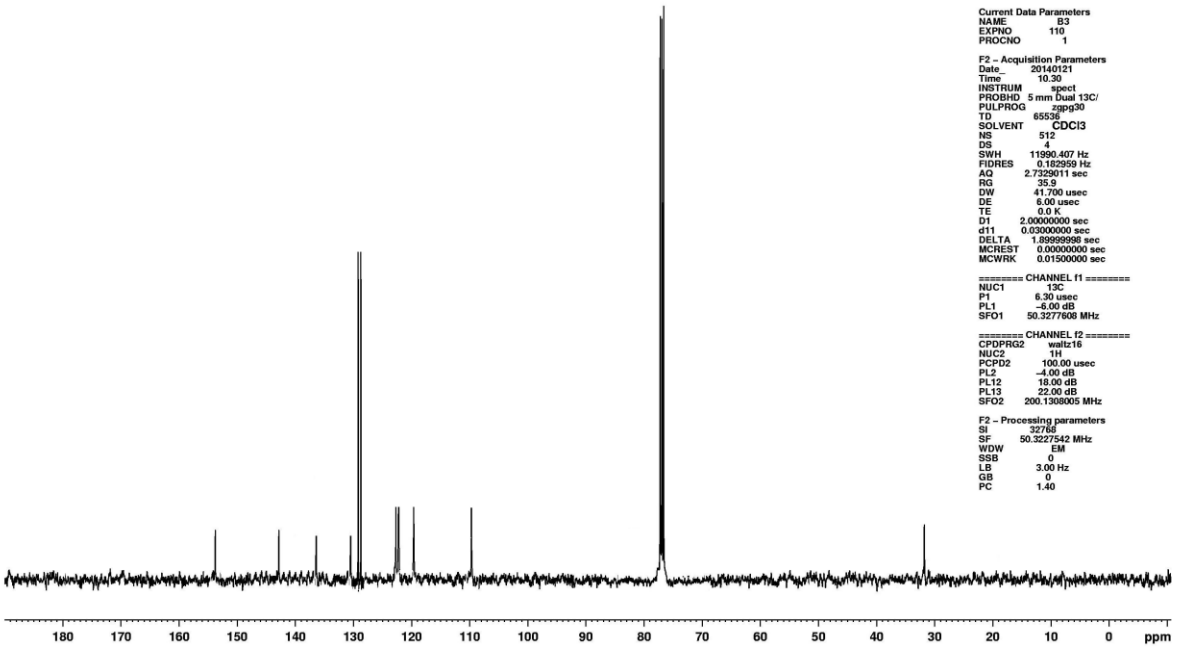
^{1}H NMR spectra of 4-Hydroxy-N-phenylbenzamide (6)



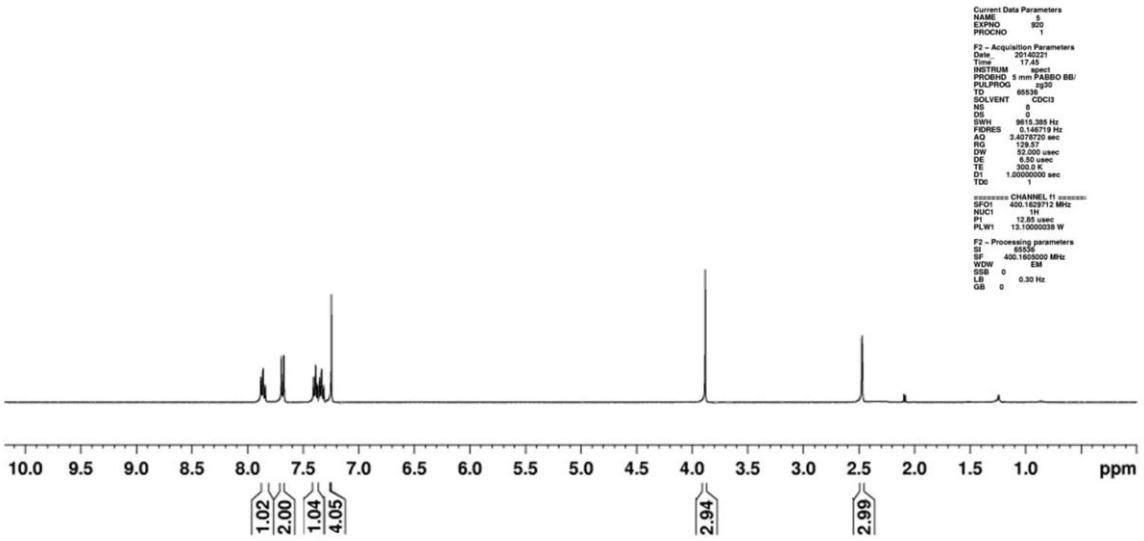
^{13}C NMR spectra of 4-Hydroxy-N-phenylbenzamide (6)



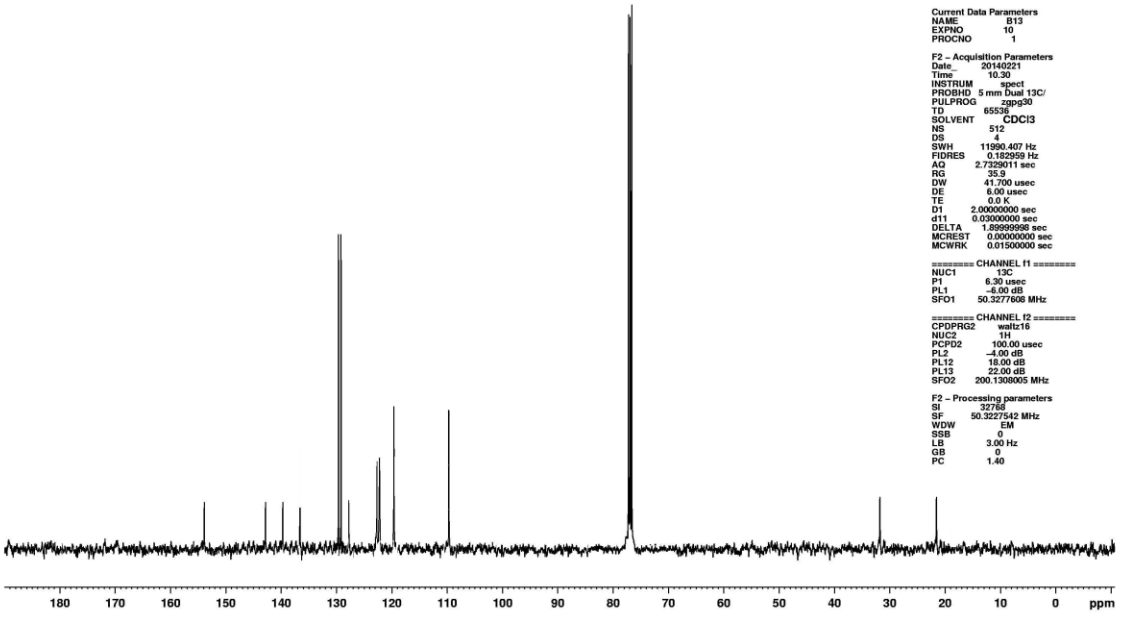
^{1}H NMR spectra of 1-methyl-2-phenyl-1H-benzo[d]imidazole (7)



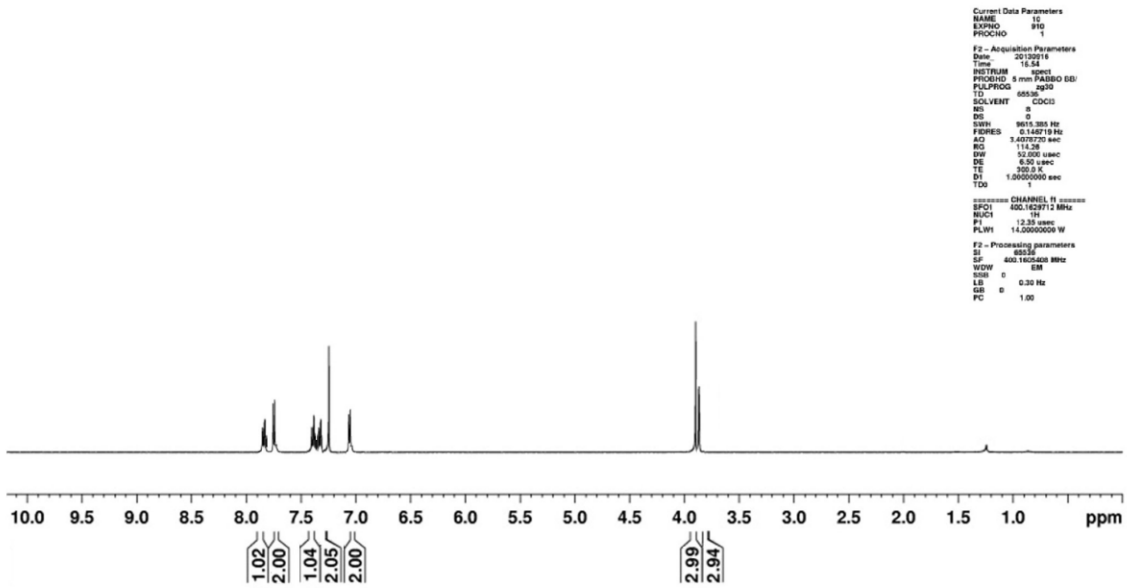
^{13}C NMR spectra of 1-methyl-2-phenyl-1H-benzo[d]imidazole (7)



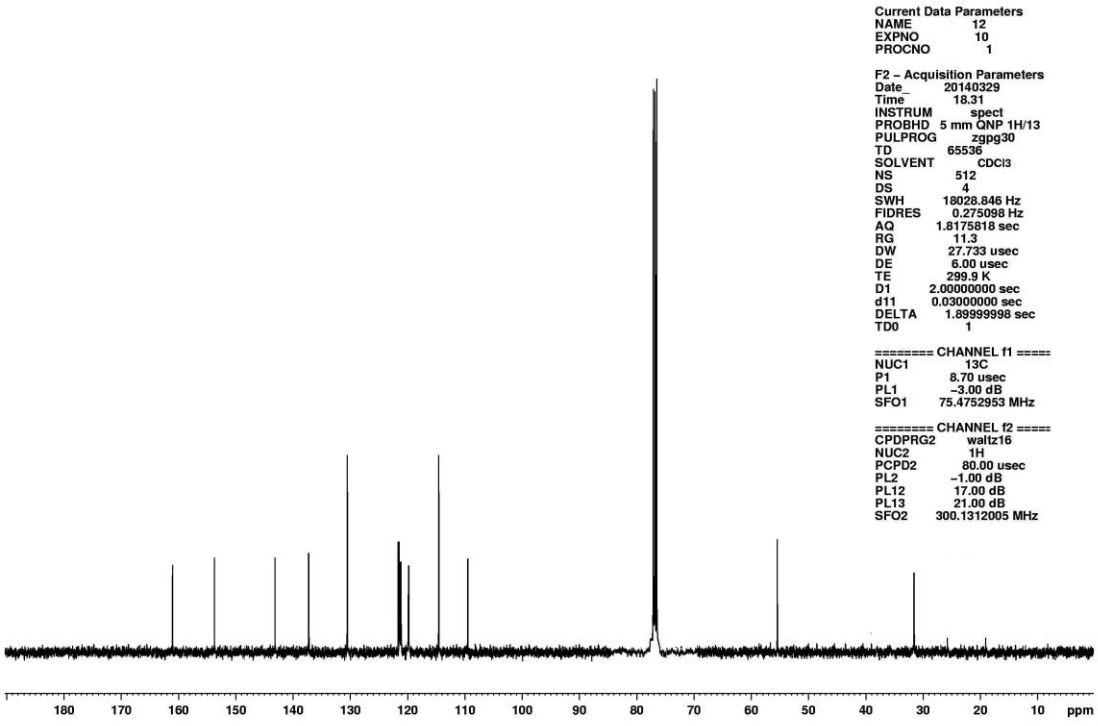
^{1}H NMR spectra of 1-methyl-2-p-tolyl-1H-benzo[d]imidazole (8)



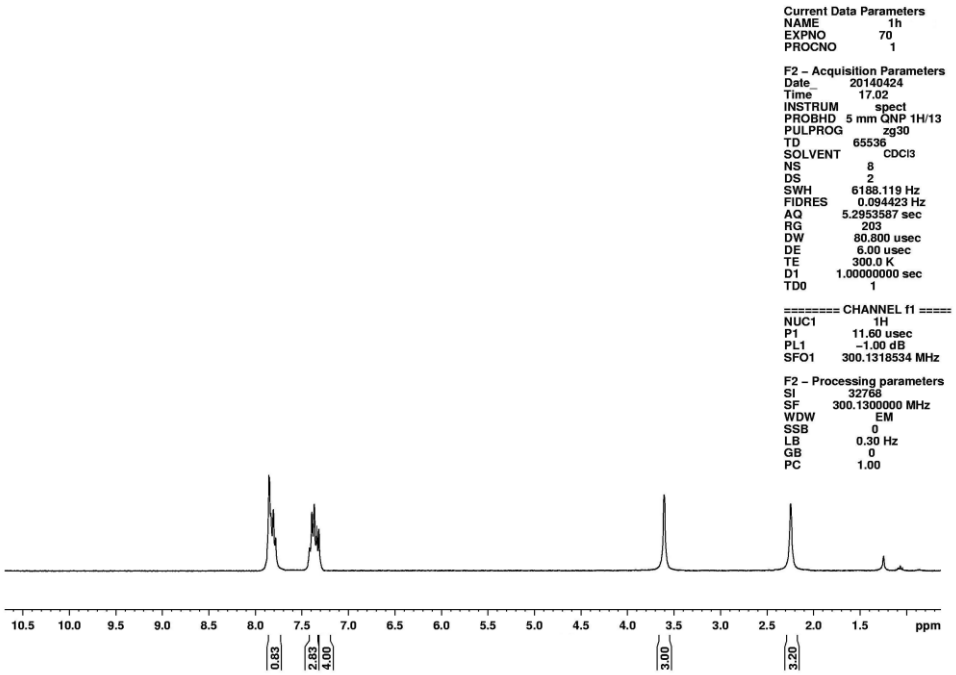
^{13}C NMR spectra of 1-methyl-2-p-tolyl-1H-benzo[d]imidazole (8)



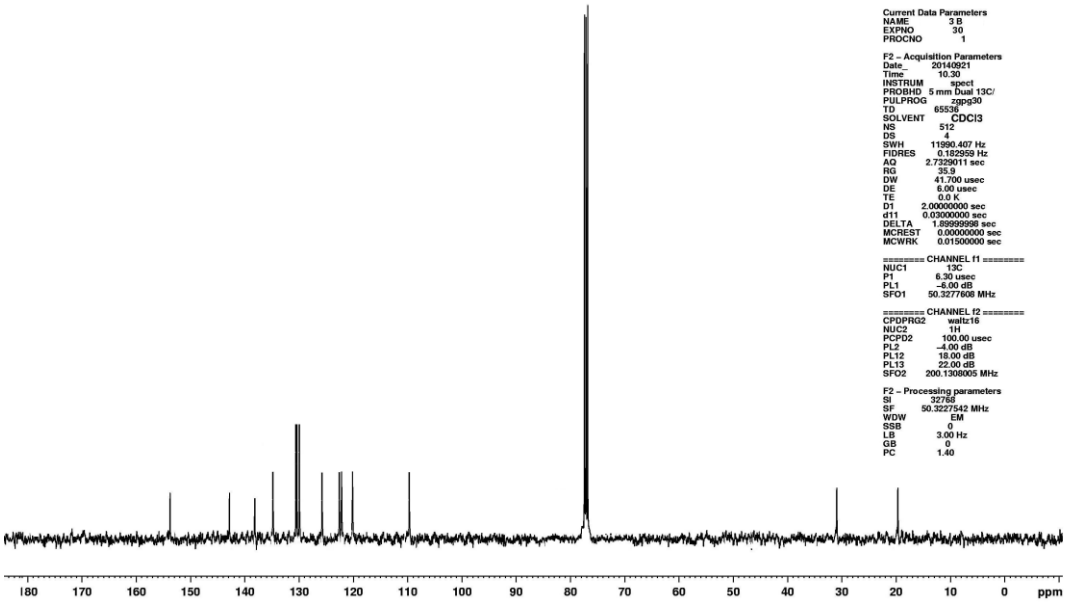
^{1}H NMR spectra of 2-(4-methoxyphenyl)-1-methyl-1H-benzo[d]imidazole (9)



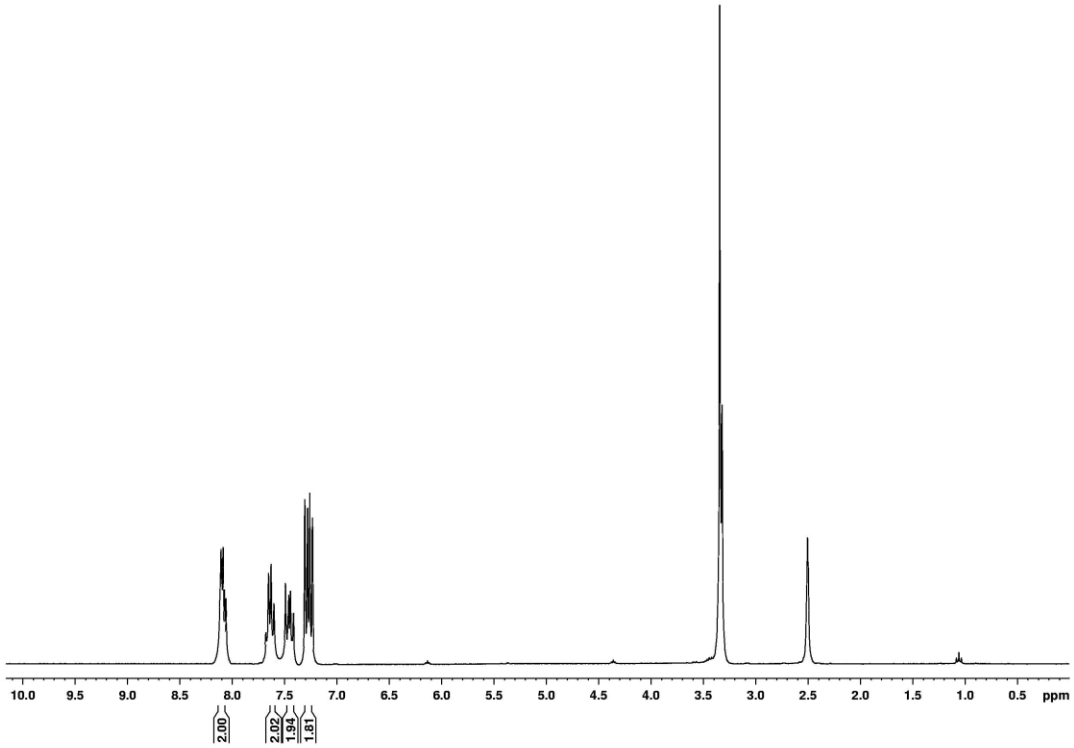
^{13}C NMR spectra of 2-(4-methoxyphenyl)-1-methyl-1H-benzo[d]imidazole (9)



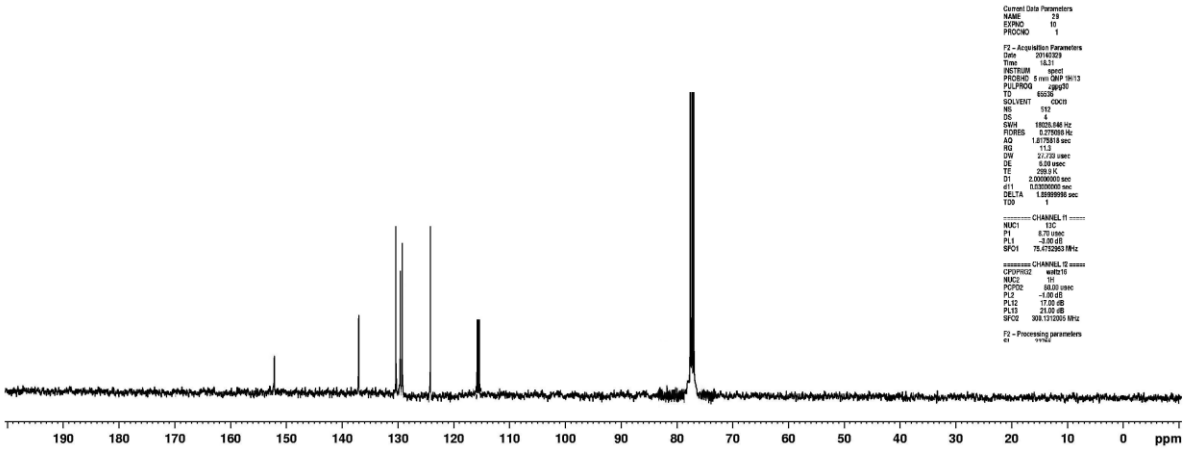
^{1}H NMR spectra of 1-Methyl-2-(o-tolyl)-1H-benzo[d]imidazole (10)



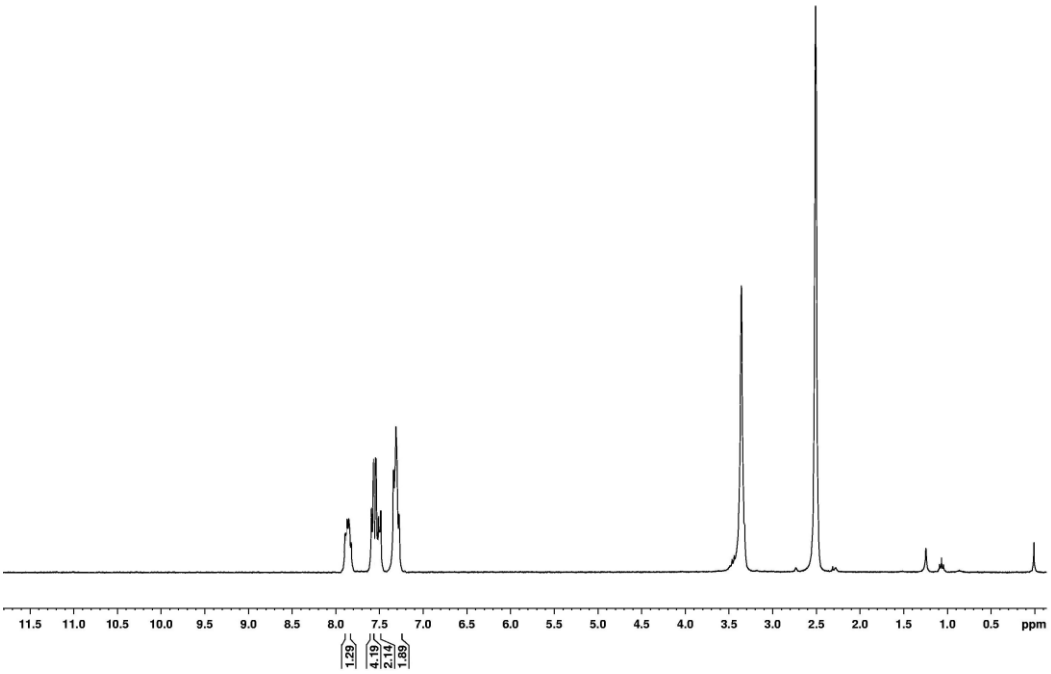
^{13}C NMR spectra of 1-Methyl-2-(o-tolyl)-1H-benzo[d]imidazole (10)



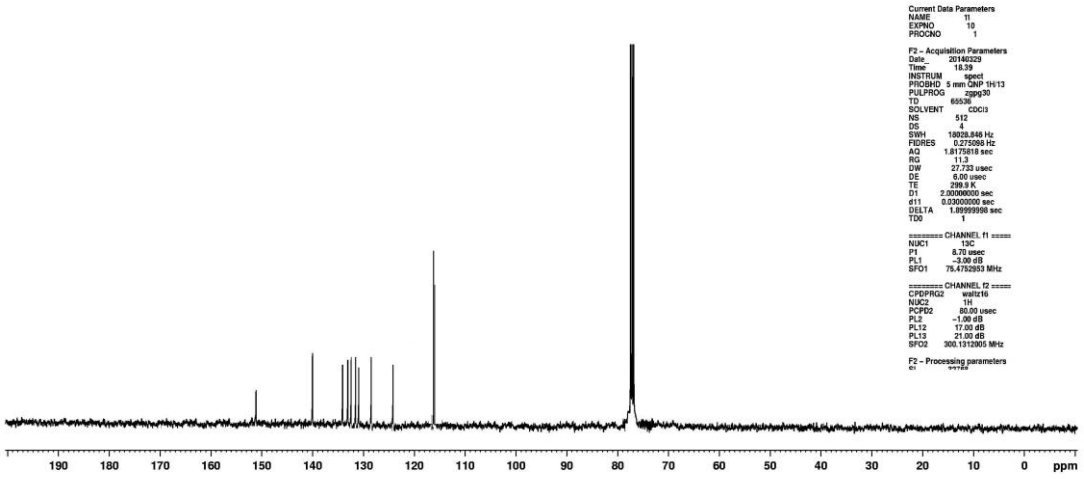
^{1}H NMR spectra of 2-(4-Chlorophenyl)benzimidazole (11)



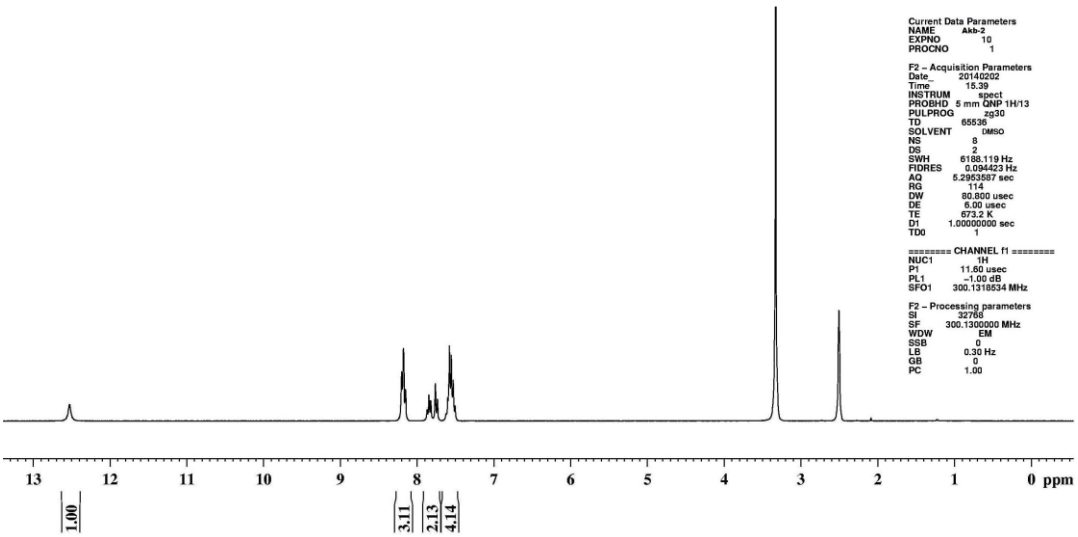
^{13}C NMR spectra of 2-(4-Chlorophenyl)benzimidazole (11)



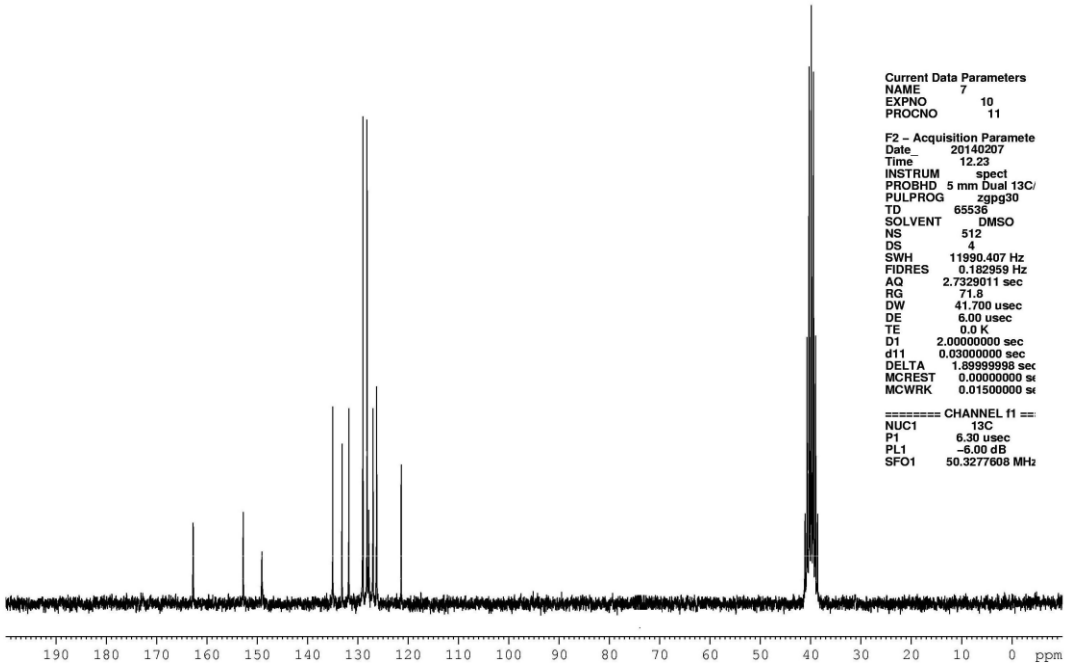
^{1}H NMR spectra of 2-(2-Chlorophenyl)benzimidazole (12)



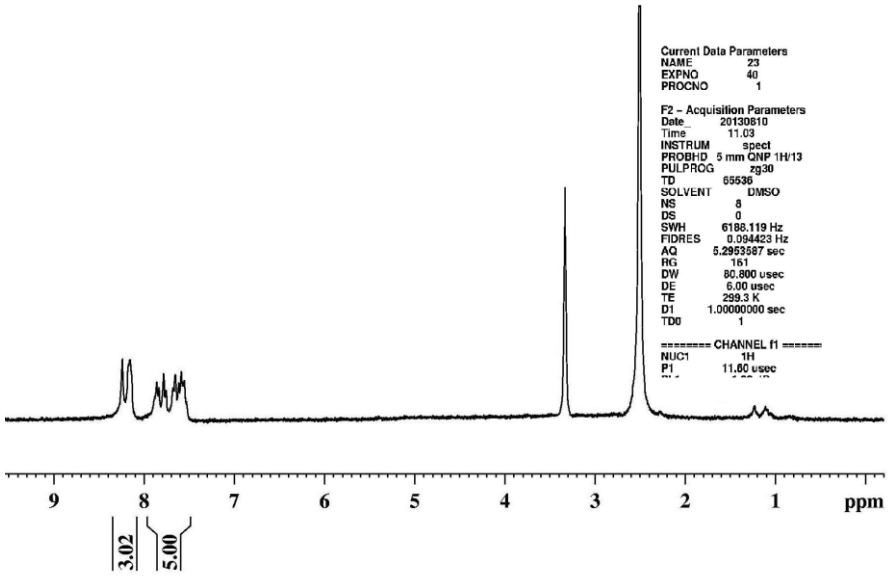
^{13}C NMR spectra of 2-(2-Chlorophenyl)benzimidazole (12)



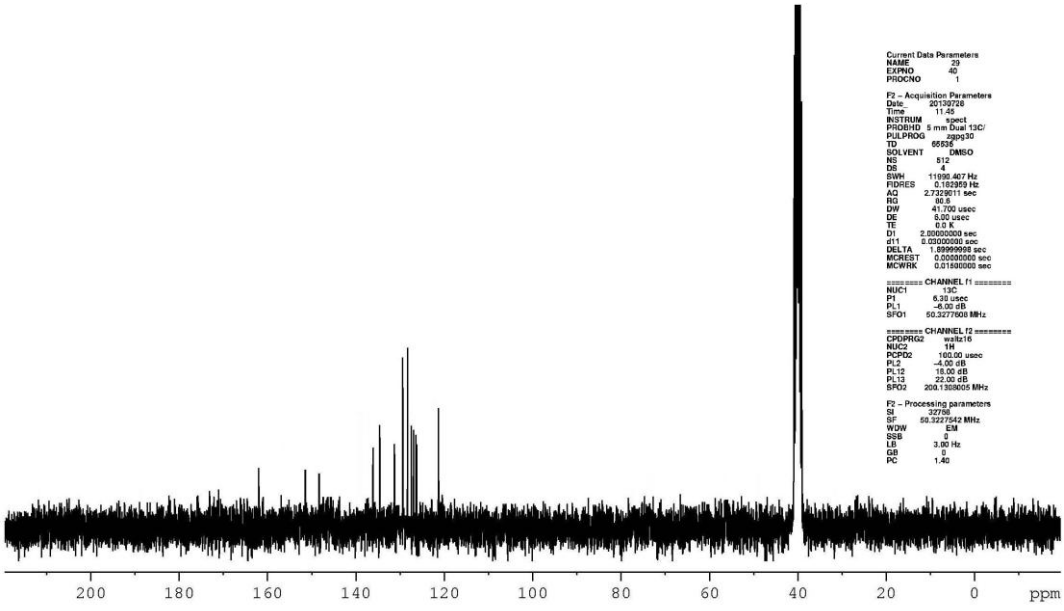
^{1}H NMR spectra of 2-Phenylquinazolin-4(3H)-one (13)



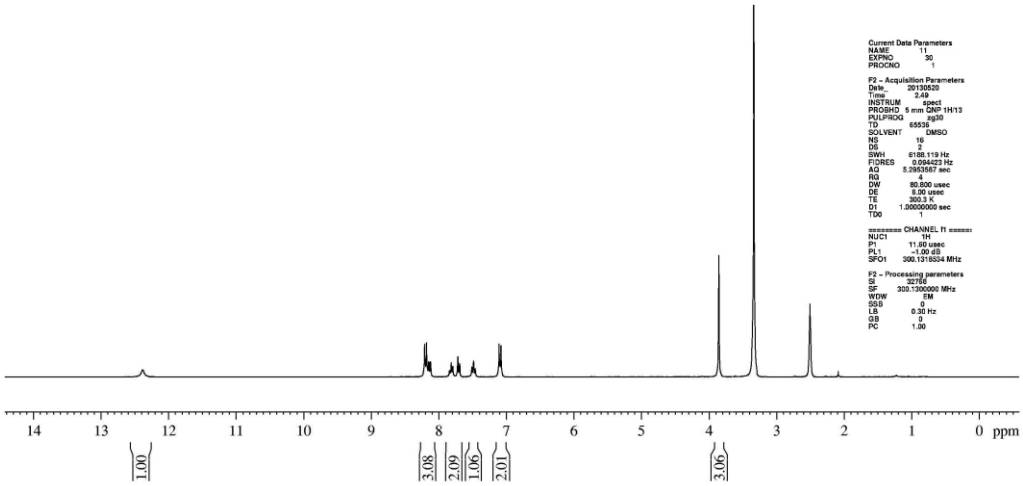
^{13}C NMR spectra of 2-Phenylquinazolin-4(3H)-one (13)



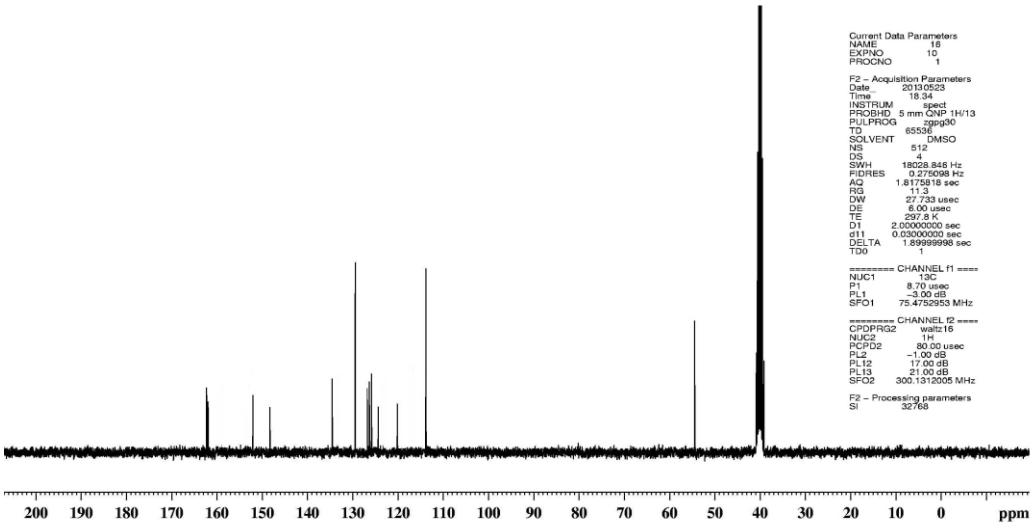
[1]H NMR spectra of 2-(4-chlorophenyl)quinazolin-4(3H)-one (14)



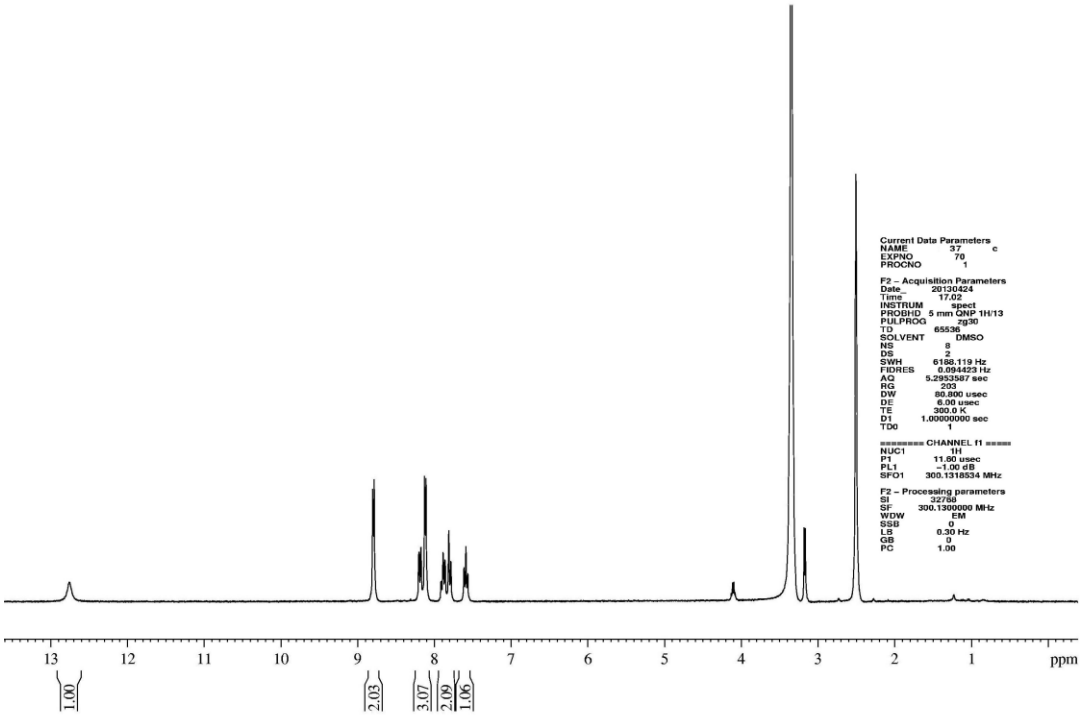
[13]C NMR spectra of 2-(4-chlorophenyl)quinazolin-4(3H)-one (14)



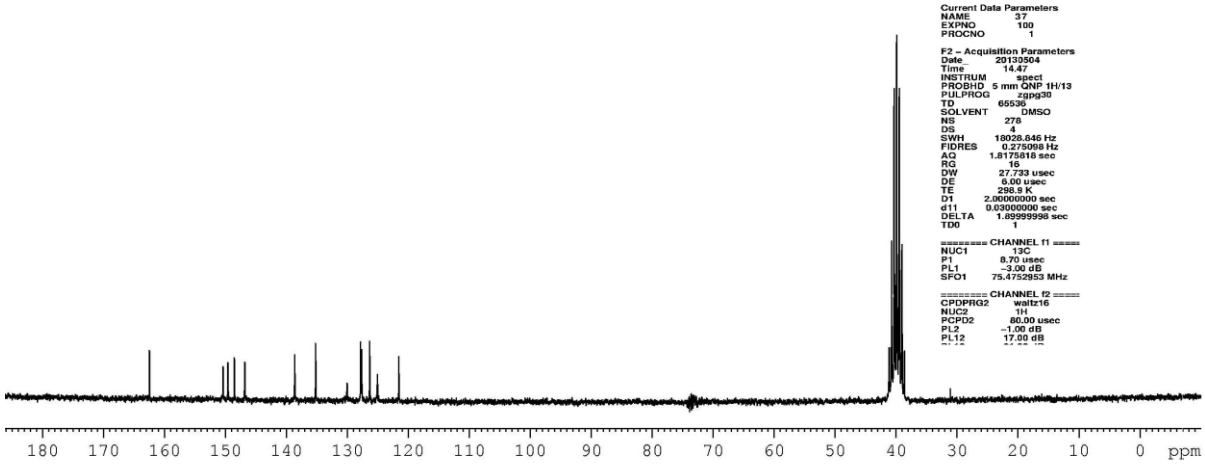
^{1}H NMR spectra of 2-(4-Methoxyphenyl)quinazolin-4(3H)-one (15)



^{13}C NMR spectra of 2-(4-Methoxyphenyl)quinazolin-4(3H)-one (15)



^{1}H NMR spectra of 2-(Pyridin-4-yl)quinazolin-4(3H)-one (16)



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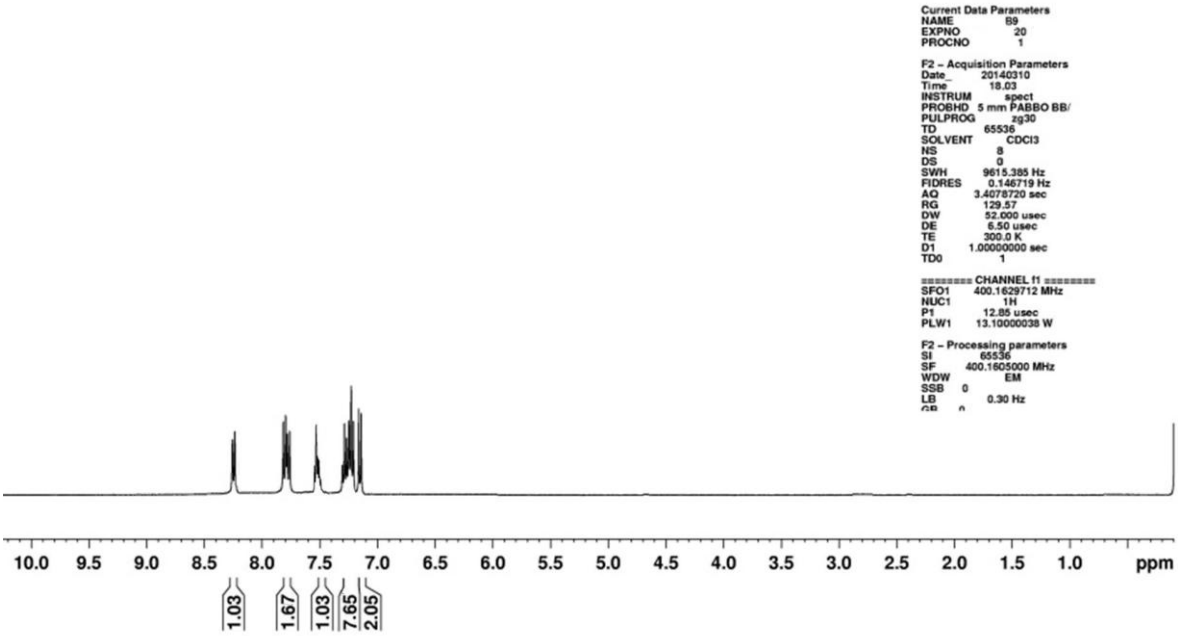
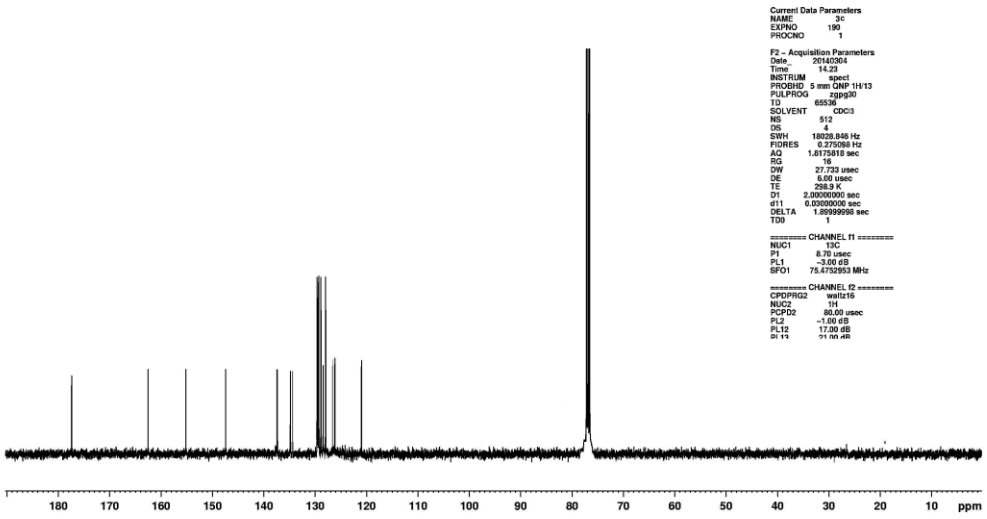
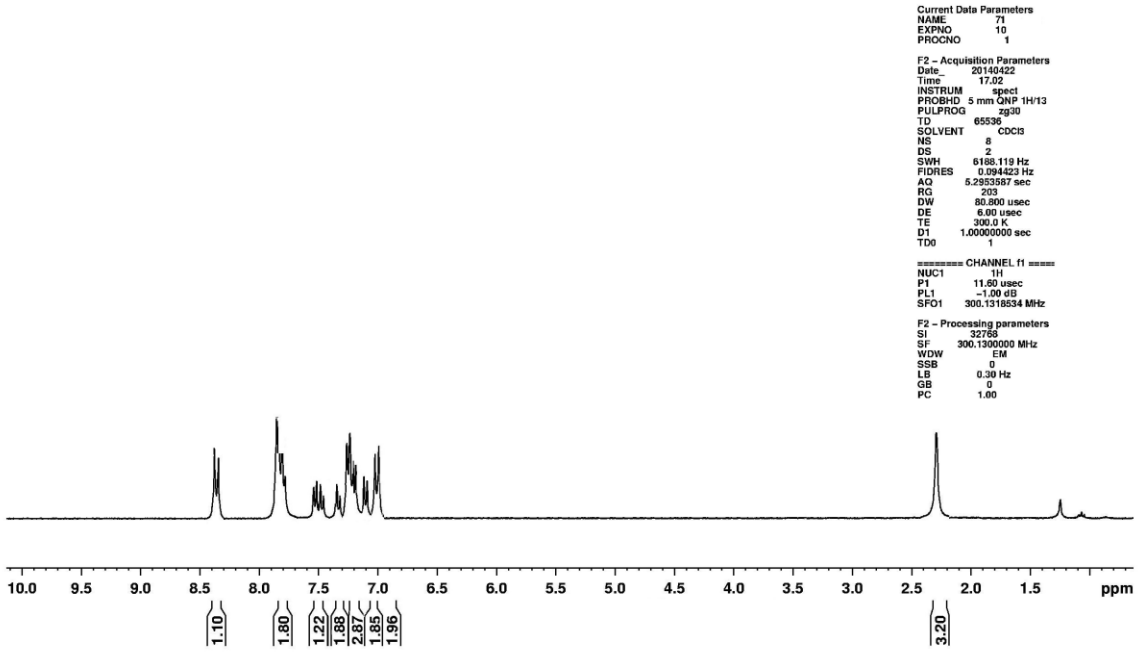
^{13}C NMR spectra of 2-(Pyridin-4-yl)quinazolin-4(3H)-one (16)



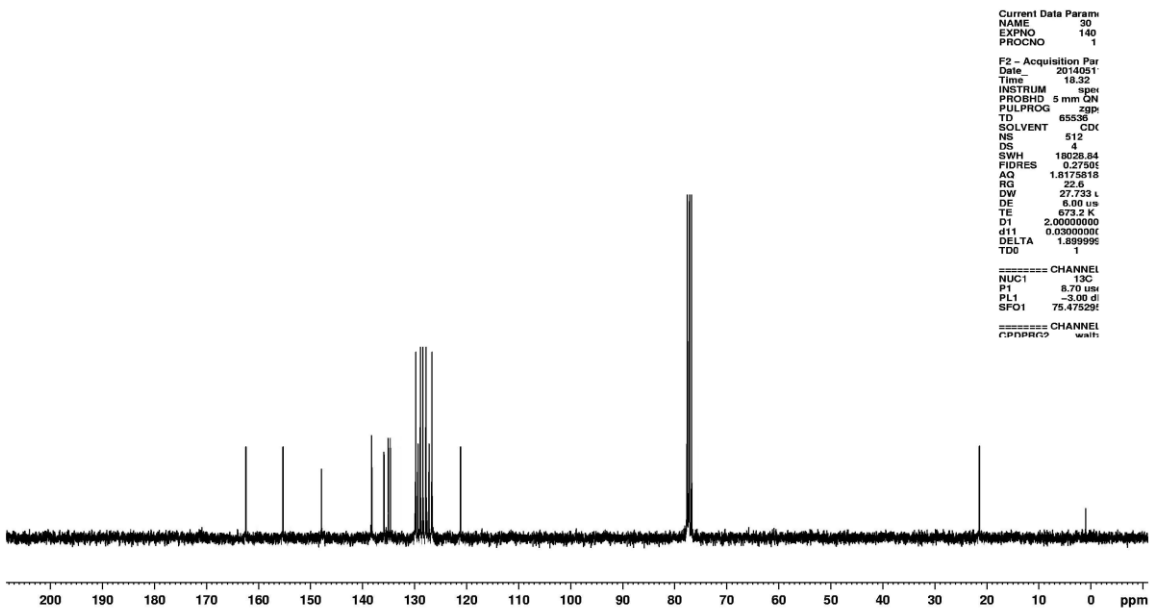
^{1}H NMR spectra of 2,3-Diphenylquinazolin-4(3H)-one (17)



^{13}C NMR spectra of 2,3-Diphenylquinazolin-4(3H)-one (17)



^{1}H NMR spectra of 2-Phenyl-3-p-tolylquinazolin-4(3H)-one (18)



^{13}C NMR spectra of 2-Phenyl-3-p-tolylquinazolin-4(3H)-one (18)