Supplementary Material

An ionic liquid {[^{sec}bmim]$^{+}$ Br^{-}} as a "dual reagent catalyst" for the multicomponent synthesis of (quinolinyl- and isoquinolinyl- amino) alkylnaphthols, their bis- analogs and a facile route to naphthoxazines

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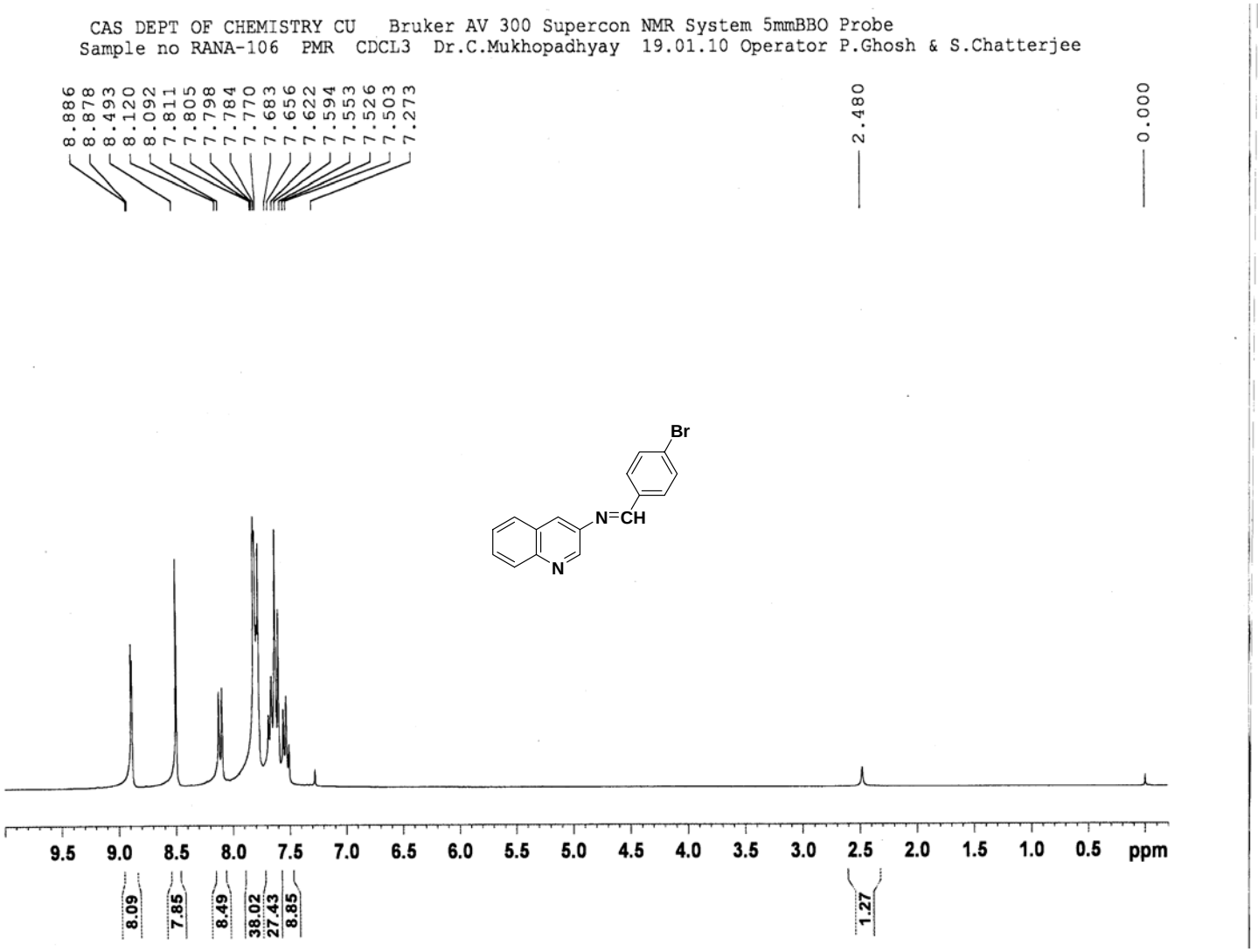
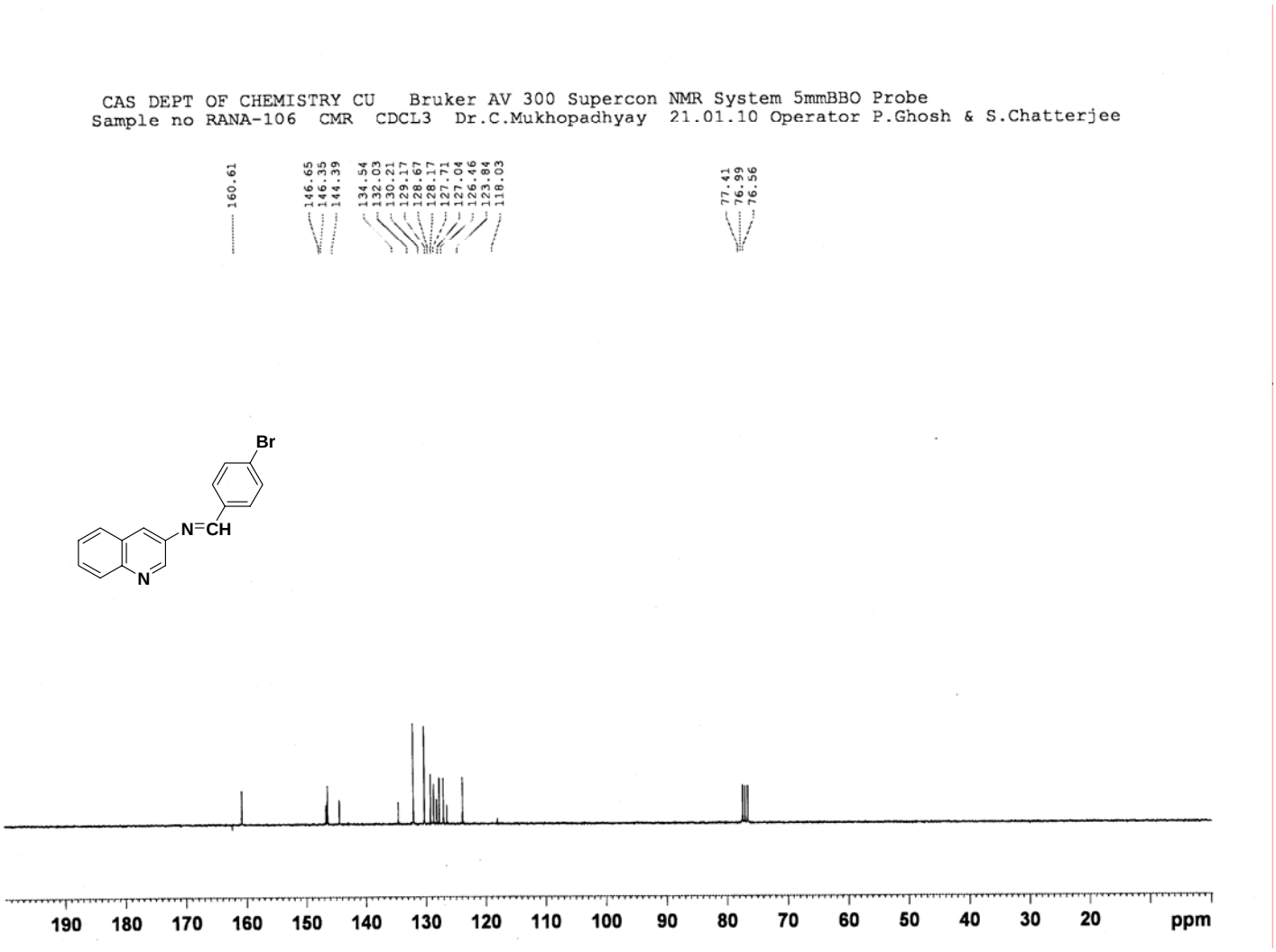
The spectral and analytical data for the isolated imine **[(4-Bromo-benzylidene)-quinolin-3-yl-amine]**, a white solid, is as follows: [Found: C, 61.97; H, 3.49; N, 8.92 %; $C_{16}H_{11}BrN_2$ requires C: 61.76, H: 3.56, Br: 25.68, N: 9.00 %]. R_f (20 % EtOAc / petroleum ether): 0.51. Mp: 128-130 ºC (EtOAC); ν_{max} (KBr): 1626, 1573, 1484, 1400, 1335, 1217, 1064, 1007, 974, 909, 862 and 756; ^{1}H NMR (300 MHz, $CDCl_3$) δ_H: 8.88 (d, ^3J =2.4 Hz, 1H, Ar), 8.49 (s, 1H, C-H), 8.10 (d, ^3J =8.4 Hz, 1H, Ar), 7.81-7.5 (m, 8H, Ar); ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 160.6 (CH), 146.6 (C), 146.3 (CH), 144.4 (C), 134.5 (C), 132.0 (CH), 130.2 (CH), 129.2 (CH), 128.7 (CH), 128.2 (C), 127.7 (CH), 127.0 (CH), 126.5 (C), 123.8 (CH); HRMS (M^+): 310.0102; $C_{21}H_{16}N_2O$ requires 310.0106.

^{1}H NMR Spectrum of [(4-Bromo-benzylidene)-quinolin-3-yl-amine]



^{13}C NMR Spectrum of [(4-Bromo-benzylidene)-quinolin-3-yl-amine]



Spectral Characterisation Data (3b-3t)

1-[(4-Bromophenyl)-(quinolin-3′-ylamino)-methyl]-naphthalene-2-ol (**3b**). (Table 3, entry 2): The titled compound was obtained as a white solid (387 mg, 85 %); [Found: C: 68.73; H, 4.32; N, 6.02 %. $C_{26}H_{19}ClN_2O$ requires C: 68.58, H: 4.21, Br: 17.55, N: 6.15, O: 3.51 %]. R_f (40 % EtOAc / petroleum ether): 0.46. Mp: 174-176 ºC (EtOAc). ν_{max} (KBr): 3372, 3051, 2621, 1610, 1513, 1480, 1440, 1321, 1262, 1221, 1066, 1005, 852, 812, 778 and 744 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-d_6) δ_H: 10.27 (s, 1H, O-H), 8.75 (d, ^3J =2.1 Hz, 1H, $C_{2'}$-H), 8.06 (d, ^3J =8.4Hz, 1H, $C_{8'}$-H), 7.76-7.72 (m, 3H, C-H, C_4-H and C_5-H), 7.51-7.41 (m, 3H, C_8-H, C_{3a}-H and C_{5a}-H), 7.36-7.12 (m, 7H, C_{2a}-H, C_{6a}-H, C_6-H, C_7-H, $C_{5'}$-H, $C_{6'}$-H and $C_{7'}$-H), 7.11 (d, ^3J =6.3 Hz, 1H, C_3-H), 7.04 (d, ^3J =2.1 Hz, 1H, $C_{4'}$-H), 6.64 (d, ^3J =6.3 Hz, 1H, N-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 144.1 ($C_{2'}$), 142.2($C_{3'}$), 141.7 ($C_{9'}$), 141.2 (C_{1a}), 132.1 (C_9), 131.1 (C_{3a} and C_{5a}), 129.7 (C_4), 129.3 ($C_{10'}$), 129.0 (C_{2a} and C_{6a}), 128.9 (C_{10}), 128.7(C_5), 128.5 ($C_{8'}$), 126.6 ($C_{6'}$), 126.3 (C_7), 125.9 ($C_{7'}$), 124.2 ($C_{5'}$),

124.0 ($C_{4'}$), 122.6 (C_6), 119.5 (C_{4a}), 118.4 (C_1), 118.3 (C_8), 109.0 (C_3), 52.2 (C-H). HRMS (M^+): 454.0678; $C_{26}H_{19}BrN_2O$ requires 454.0681.

1-[(4-Nitrophenyl)-(quinolin-3′-ylamino)-methyl]-naphthalene-2-ol (**3c**). (Table 3, entry 3): The titled compound was obtained as a white solid (337 mg, 80 %); [Found: C: 74.33; H, 4.46; N, 9.89 %. $C_{26}H_{19}N_3O_3$ requires C: 74.10, H: 4.54, N: 9.97, O: 11.39 %]. R_f (40 % EtOAc / petroleum ether): 0.41. Mp: 180-182 ºC (EtOAc). ν_{max} (KBr): 3373, 3056, 2629, 1605, 1515, 1341, 1264, 1219, 1053, 847 and 746 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.34 (s, 1H, O-H), 8.76 (d, ^3J =2.7 Hz, 1H, $C_{2'}$-H), 8.14 (d, ^3J =8.7 Hz, 2 H, C_{3a}-H and C_{5a}-H), 8.02 (d, ^3J =6.3 Hz, 1H, $C_{8'}$-H), 7.78-7.73 (m, 3H, N-H, C_4-H and C_5-H), 7.58 (d, ^3J =8.7 Hz, 2 H, C_{2a}-H and C_{6a}-H), 7.51 (dd, ^3J =8.0 Hz and ^4J=2.2 Hz, 1H, C_8-H), 7.37-7.18 (m, 5 H, C_6-H, C_7-H, $C_{5'}$-H, $C_{6'}$-H and $C_{7'}$-H), 7.11 (d, ^3J =6.3Hz, 1H, C_3-H), 7.05 (d, ^3J =2.1Hz, 1H, $C_{4'}$-H), 6.74 (d, ^3J =6.3Hz, 1H, C-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 150.6 (C_{4a}), 146.2 ($C_{3'}$), 144.1 ($C_{2'}$), 142.02 ($C_{9'}$), 141.3 (C_{1a}), 132.1 (C_9), 130.0 (C_4), 129.3 ($C_{10'}$), 128.8 (C_{10}), 128.7(C_5), 128.5 ($C_{8'}$), 127.9 (C_{2a} and C_{6a}), 126.6 ($C_{6'}$), 126.57 (C_7), 126.0 ($C_{7'}$), 124.3 ($C_{5'}$), 123.7 ($C_{4'}$), 123.5 (C_{3a} and C_{5a}), 122.7 (C_6), 118.3 (C_8), 118.2 (C_1), 109.1 (C_3), 55.5 (C-H). HRMS (M^+): 421.1421; $C_{26}H_{19}N_3O_3$ requires 421.1426.

1-[(4-Cyanophenyl)-(quinolin-3′-ylamino)-methyl]-naphthalene-2-ol (**3d**). (Table 3, entry 4): The titled compound was obtained as a white solid (301 mg, 75 %); [Found: C: 80.94; H, 4.83; N, 10.38 %. $C_{27}H_{19}N_3O$ requires C: 80.78, H: 4.77, N: 10.47, O: 3.99 %]. R_f (40 % EtOAc / petroleum ether): 0.43. Mp: 194-196 ºC (EtOAc). ν_{max} (KBr): 3371, 3048, 2225, 1607, 1510, 1438, 1345, 1261, 1219, 1053, 858, 820, 781, 747 and 648 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.34 (s, 1H, O-H), 8.76 (s, 1H, $C_{2'}$-H), 8.01 (s, 1H, $C_{8'}$-H), 7.76-7.72 (m, 3H, C-H, C_4-H and C_5-H), 7.51 (d, ^3J =8.1 Hz, 1H, C_8-H), 7.34-7.16 (m, 10H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, C_3-H, C_6-H, C_7-H, $C_{5'}$-H, $C_{6'}$-H and $C_{7'}$-H), 7.04 (s, 1H, $C_{4'}$-H), 6.71 (d, ^3J =6.3 Hz, 1H, N-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.2 (C_2), 148.3 (C_{4a}), 144.1 ($C_{2'}$), 142.1 ($C_{9'}$), 141.2 (C_{1a}), 132.2 (C_{3a} and C_{5a}), (132.1 (C_9), 129.9 (C_4), 129.3 ($C_{10'}$), 128.9 (C_{10}), 128.7 (C_5), 128.5 ($C_{8'}$), 127.7 (C_{2a} and C_{6a}), 126.6 ($C_{6'}$), 126.5 (C_7), 125.9 ($C_{7'}$), 124.3 ($C_{5'}$), 123.7 ($C_{4'}$), 122.6 (C_6), 118.9 (CN), 118.3 (C_8), 118.2 (C_1), 109.2 (C_{4a}), 109.1 (C_3), 52.5 (C-H). HRMS (M^+): 401.1522; $C_{27}H_{19}N_3O$ requires 401.1528.

1-[(3,4-Dimethoxyphenyl)-(quinolin-3′-ylamino)-methyl naphthalene-2-ol (**3e**). (Table 3, entry 5): The titled compound was obtained as an off-white solid (310 mg, 71 %), [Found: C: 77.30; H, 5.49; N, 6.37 %. $C_{28}H_{24}N_2O_3$ requires C: 77.04, H: 5.54, N: 6.42, O: 11.00 %]. R_f (40 % EtOAc / petroleum ether): 0.31; Mp: 162-164 ºC (EtOAc). ν_{max} (KBr): 3388, 3048, 2941, 1610, 1510, 1449, 1389, 1326, 1263, 1139, 1027 and 823 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.22 (s, 1H, O-H), 8.70 (s, 1H, $C_{2'}$-H), 8.13 (d, ^3J = 8.7 Hz, 1H, $C_{8'}$-H), 7.74-7.68 (m, 3H, N-H, C_4-H and C_5-H), 7.44 (d, ^3J = 7.5 Hz, 1H, C_8-H), 7.34-7.17 (m, 5H, C_6-H, C_7-H, $C_{5'}$-H, $C_{6'}$-H and $C_{7'}$-H), 7.09 (d, ^3J = 6.6 Hz, 1H, C_3-H), 7.06 (s, 1H, C_{2a}-H), 7.01 (s, 1H, $C_{4'}$-H), 6.83-6.76 (m, 2H, C_{5a}-H and C_{6a}-H), 6.59 (d, ^3J = 6.6 Hz, 1H, C-H), 3.65 (s, 3H, O-C$\underline{H}_3$), 3.61 (s, 3H, O-C$\underline{H}_3$); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 148.6 (C_{4a}), 147.6 (C_{3a}), 144.1 ($C_{2'}$), 142.3 ($C_{3'}$), 141.1 ($C_{9'}$), 134.3 (C_{1a}), 132.3 (C_9), 129.4 (C_4), 128.9 (C_{10} and $C_{10'}$), 128.6 (C_5), 128.5 ($C_{8'}$), 126.6 ($C_{6'}$), 126.0 (C_7), 125.8 ($C_{7'}$), 124.3 ($C_{5'}$), 124.0 ($C_{4'}$), 122.4 (C_6), 119.1 (C_{2a}), 118.5 (C_1), 118.2 (C_8), 111.7 (C_{5a}), 111.2 (C_{2a}), 108.9 (C_3), 55.6 (2×O-$\underline{C}H_3$), 52.5 ($\underline{C}$-H). HRMS (M^+) 436.1789; $C_{28}H_{24}N_2O_3$ requires 436.1787.

1-[(2-Nitrophenyl)-(quinolin-3′-ylamino)-methyl]-naphthalene-2-ol (**3f**). (Table 3, entry 6): The titled compound was obtained as a yellow solid (316 mg, 75 %), [Found: C: 74.28; H, 4.44; N, 10.03 %. $C_{26}H_{19}N_3O_3$ requires C: 74.10, H: 4.54, N: 9.97, O: 11.39 %]. R_f (40 % EtOAc / petroleum ether): 0.39; Mp: 168-170 ºC (EtOAc). ν_{max} (KBr): 3388, 3170, 3060, 1615, 1578, 1514, 1443, 1368, 1305, 1253, 1109, 1057, 949, 789 and 734 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.20 (s, 1H, O-H), 8.65 (d, ^3J = 3.6 Hz, 1H, $C_{2'}$-H), 8.16 (d, ^3J = 8.1 Hz, 1H, C_{3a}-H), 8.00 (d, ^3J = 8.7 Hz, 1H, $C_{4'}$-H), 7.82-7.72 (m, 3H, C_4-H, C_5-H and C_8-H), 7.56-7.05 (m, 11H, C_{4a}-H, C_{5a}-H, C_{6a}-H, C_3-H, C_6-H, C_7-H, $C_{3'}$-H, $C_{5'}$-H, $C_{6'}$-H, C-H and N-H), 6.80 (d, ^3J = 7.5 Hz, 1H, $C_{7'}$-

H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 154.0 (C_2), 149.8 (C_{2a}), 147.5 ($C_{2'}$), 143.5 ($C_{8'}$), 137.6 ($C_{9'}$), 136.1 ($C_{4'}$), 135.4 (C_{1a}), 132.9 (C_9), 132.1 (C_{5a}), 130.2 (C_{6a}), 129.5 (C_4), 128.9 (C_{4a}), 128.4 (C_5), 128.3 (C_{10} and $C_{10'}$), 127.8 ($C_{6'}$), 127.1 (C_7), 124.3 (C_{3a}), 122.7 ($C_{3'}$ and C_6), 121.9 (C_8), 118.6 (C_3), 116.1 (C_1), 114.7 ($C_{5'}$), 105.2 ($C_{7'}$), 49.5 (C-H). HRMS (M^+) 421.1422; $C_{26}H_{19}N_3O_3$ requires 421.1426.

1-[(4-Chlorophenyl)-(quinolin-8′-ylamino)-methyl]-naphthalene-2-ol (3g). (Table 3, entry 7): The titled compound was obtained as a yellowish solid (349 mg, 85 %); [Found: C: 76.28; H, 4.57; N, 6.73 %. $C_{26}H_{19}ClN_2O$ requires C: 76.00, H: 4.66, N: 6.82, Cl: 8.63, O: 3.89 %]. R_f (20 % EtOAc/petroleumether): 0.51. Mp: 150-152 ºC (EtOAC). ν_{max} (KBr): 3309, 3031, 2902, 1613, 1591, 1505, 1470, 1410, 1374, 1319, 1269, 1230, 1159 and 1096 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-d_6) δ_H: 10.35 (s, 1H, O-H), 8.70 (d, ^3J =3.0 Hz, 1H, $C_{2'}$-H), 8.30 (br s, 1H, N-H), 8.16 (dd, ^3J =8.5 Hz and ^4J = 2.5 Hz, 1H, $C_{4'}$-H),7.8-7.73 (m, 3H, C_4-H, C_5-H and C_8-H), 7.46-7.20 (m, 9H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, C_3-H, C_6-H, C_7-H, $C_{3'}$-H, $C_{6'}$-H), 7.05 (d, ^3J =8.1 Hz, 1H, C_5-H), 6.90-6.80 (m, 2H, $C_{7'}$-H and C-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.0 (C_2), 147.4 ($C_{2'}$), 143.9 ($C_{8'}$), 142.1 (C_{1a}), 137.6 ($C_{9'}$), 136.2 ($C_{4'}$), 132.2 (C_9), 131.0 (C4a), 129.6 (C_4), 128.9 (C_5), 128.7 ($C_{10'}$), 128.4 (C_{10}), 128.3 (C_{2a} and C_{6a}), 128.2 (C_{3a} and C_{5a}), 127.9 ($C_{6'}$), 127.0 (C_7), 122.9 (C_6), 122.7 ($C_{3'}$), 121.9 (C_8), 119.5 (C_1), 118.7 (C_3), 114.1 ($C_{5'}$), 105.4 ($C_{7'}$), 52.1 (C-H). HRMS (M^+) 410.1183; $C_{26}H_{19}ClN_2O$ requires 410.1186.

1-[(4a-Chlorophenyl)-(quinolin-3′-ylamino)-methyl]-naphthalene-2-ol (**3h**). (Table 3, entry 8): The titled compound was obtained as a white solid (337 mg, 82 %), [Found: C, 76.23; H, 4.57; N, 6.77 %. $C_{26}H_{19}ClN_2O$ requires C: 76.00, H: 4.66, Cl: 8.63 N: 6.82, O: 3.89 %]. R_f (40 % EtOAc / petroleum ether): 0.48. Mp**:** 172-174 ºC (EtOAc). ν_{max} (KBr) : 3370, 3049, 2618, 1611, 1511, 1482, 1441, 1323, 1262, 1221, 1084, 1012, 855, 814, 781 and 744 cm^{-1} ; ^{1}H NMR (300 MHz, DMSO-d_6) δ_H: 10.25 (s, 1H, O-H), 8.71 (d, ^3J =2.4 Hz, 1H, $C_{2'}$-H), 8.01 (^{3}d, ^3J =7.5 Hz, 1H, $C_{8'}$-H), 7.76-7.70 (m, 3H, C-H, C_4-H and C_5-H), 7.48 (dd, ^3J =8.1 Hz and ^4J =1.5 Hz, 1H, C_8-H), 7.33-7.18 (m, 9H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, C_6-H, C_7-H, $C_{5'}$-H, $C_{6'}$-H and $C_{7'}$-H), 7.11 (d, ^3J =6.6 Hz, 1H, C_3-H), 6.99 (d, ^3J =1.8 Hz, 1H, $C_{4'}$-H), 6.61 (d, ^3J =6.3 Hz, 1H, N-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 151.1 (C_2), 144.1 ($C_{2'}$), 142.1 ($C_{9'}$**),** 141.2 ($C_{3'}$ and C_{1a}), 132.1 (C_9), 131.0 (C_{4a}**),** 129.7 (C_4), 129.3 ($C_{10'}$), 128.9 (C_{10}), 128.6 (C_5, C_{2a} and C_{6a}), 128.2 ($C_{8'}$, C_{3a} and C_{5a}), 126.6 ($C_{6'}$), 126.3 (C_7), 125.9 ($C_{7'}$**),** 124.2 ($C_{4'}$ and $C_{4'}$), 122.5 (C_6), 118.4 (C_1), 118.2 (C_8), 108.9 (C_3), 52.1 (C-H). HRMS (M^+): 410.1189; $C_{26}H_{19}ClN_2O$ requires 410.1186.

1-[(3,4-Dimethoxyphenyl)-(quinolin-8′-ylamino)-methyl]-naphthalene -2-ol (3i). (Table 3, entry 9): The titled compound was obtained as a white solid (305 mg, 70%); [Found: C, 77.30; H, 5.41; N, 6.36 %. $C_{28}H_{24}N_2O_3$ requires C: 77.04, H: 5.54, N: 6.42, O: 11.00%]. R_f (20 % EtOAc / petroleum ether): 0.38. Mp: 170-172 ºC (EtOAC), ν_{max} (KBr): 3312, 3013, 2933, 1620, 1533, 1501, 1488, 1411, 1364, 1321, 1245, 1231, 1157 and 1112 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-d_6) δ_H: 10.30 (s, 1H, O-H), 8.69 (d, ^3J=3.9 Hz, 1H, $C_{2'}$-H), 8.31 (brs, 1H, N-H), 8.13 (dd, ^3J =8.4 Hz and ^4J =1.3 Hz, 1H, $C_{4'}$-H), 7.78-7.71 (m, 3H, C_4-H, C_5-H, and C_8-H), 7.44-7.17 (m, 5H, C_3-H, C_6-H, C_7-H, $C_{3'}$-H and $C_{6'}$-H), 7.10 (s, 1H, C_{2a}-H), 7.03 (d, ^3J =8.1 Hz, 1H, $C_{5'}$-H), 6.94 (d, ^3J =8.1 Hz, 1H, C_{5a}-H), 6.85-6.75 (m, 3H, $C_{7'}$-H, C_{6a}-H and C-H), 3.63 (s, 3H, OMe), 3.54 (s, 3H, OMe); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.04 (C_2), 148.89 (C_{3a} or C_{4a}), 147.79 (C_{4a} or C_{3a}), 147.5 ($C_{2'}$), 144.3 ($C_{8'}$), 137.8 ($C_{9'}$), 136.2 ($C_{4'}$), 135.4 (C_{1a}), 132.4 (C_9), 129.4 (C_4), 129.0 (C_5), 128.9 ($C_{10'}$ or C_{10}), 128.5 (C_{10} or $C_{10'}$), 127.9 ($C_{6'}$), 126.78 (C_7), 123.3 (C_6), 122.7 (C_8), 121.9 ($C_{3'}$), 119.7 (C_1), 118.9 (C_{6a}), 118.7 (C_3), 114.1 ($C_{5'}$), 111.9 (C_{5a} or C_{2a}), 110.9 (C_{2a} or C_{5a}), 105.6 ($C_{7'}$), 55.6 (2×OMe), 52.9 (C-H). HRMS (M^+) 436.1780; $C_{28}H_{24}N_2O_3$ requires 436.1787.

1-[(3-Nitrophenyl)-(quinolin-8′-ylamino)-methyl]-naphthalene-2-ol (3j). (Table 3, entry 10): The titled compound was obtained as a yellow solid (329 mg, 78%); [Found: C, 74.30; H, 4.41; N, 9.87 %. $C_{26}H_{19}N_3O_3$ requires C: 74.10, H: 4.54, N: 9.97, O: 11.39 %]. R_f (20 % EtOAc / petroleum ether): 0.44. Mp: 112-114 ºC

(EtOAc). ν_{max} (KBr): 3423, 3058, 1620, 1520, 1474, 1345, 1267, 1230, 1096, 812 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.93 (s, 1H, O-H), 8.74-8.43 (m, 1H, $C_{2'}$-H), 8.43 (t, ^3J =1.9 Hz, 1H, C_{5a}-H), 8.18-8.10 (m, 2H, $C_{4'}$-H and C_4-H), 7.88-7.78 (m, 3H, C_4-H, C_5-H and C_8-H), 7.68 (d, ^3J =7.9 Hz, 1H, C_{6a}-H), 7.53-7.23 (m, 6H, C_6-H, C_7-H, C_{5a}-H, $C_{3'}$-H, $C_{5'}$-H and $C_{6'}$-H), 7.15 (d, ^3J = 8.9 Hz, 1H, C_3-H), 6.87-6.82 (m, 2H, $C_{7'}$-H and N-H), 6.45 (s, 1H, C-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 155.9 (C_2), 148.8 (C_{3a}), 148.2 ($C_{2'}$), 143.5 ($C_{8'}$), 143.2 ($C_{9'}$), 139.1 (C_{1a}), 136.3 ($C_{4'}$), 131.4 (C_9), 130.5 (C_{5a}), 130.2 (C_4), 130.3 (C_4), 129.2 (C_5), 128.3 (C_{10} and $C_{10'}$), 127.4 ($C_{6'}$), 127.2 (C_7), 123.3 (C_{4a}), 123.2 (C_{2a}), 123.1 (C_6), 121.9 ($C_{3'}$), 121.1 (C_8), 120.0 (C_3), 119.3 ($C_{5'}$), 113.6 (C_1), 110.7 ($C_{7'}$), 61.0 (C-H). HRMS (M^+) 421.1421; $C_{26}H_{19}N_3O_3$ requires 421.1426.

1-[(3-Bromophenyl)-(quinolin-8′-ylamino)-methyl]-naphthalene-2-ol (3k). (Table 3, entry 11): The titled compound was obtained as a brown solid (346 mg, 76%); [Found: C: 68.77; H, 4.13; N, 6.12 %. $C_{26}H_{19}BrN_2O$ requires C: 68.58, H: 4.21, Br: 17.55, N: 6.19, O: 3.51 %]. R_f (20 % EtOAc/petroleumether): 0.52. Mp: 120-122 ºC (EtOAc). ν_{max} (KBr): 3313, 3041, 1589, 1507, 1467, 1413, 1375, 1318, 1273, 1232, 1156, 1103, 814, 747 and 687 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 11.08 (s, 1H, O-H), 8.76 (dd, ^3J =4.5 Hz and ^4J =1.8 Hz, 1H $C_{2'}$-H), 8.15 (dd, ^3J =8.1 Hz and ^4J = 1.8 Hz, 1H, $C_{4'}$-H), 7.85-7.73 (m, 3H, C_4-H, C_5-H and C_8-H), 7.67 (t, ^3J =1.8 Hz, 1H, C_{5a}-H), 7.46-7.10 (m, 9H, C_{2a}-H, C_{4a}-H, C_{6a}-H, C_3-H, C_6-H, C_7-H, $C_{3'}$-H, $C_{5'}$-H and $C_{6'}$-H), 6.79 (dd, ^3J =7.5Hz and ^4J =1.2 Hz, 1H, $C_{7'}$-H), 6.68 (s, 1H, N-H), 6.26 (s, 1H, C-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 156.1 (C_2), 148.2 ($C_{2'}$), 143.7 ($C_{8'}$), 143.2 ($C_{9'}$), 139.3 (C_{1a}), 136.2 ($C_{4'}$), 131.7 (C_{2a}), 131.5 (C_9), 130.9 (C_{4a}), 130.3 (C_4), 129.2 ($C_{10'}$), 129.1 (C_5), 128.2 (C_{10}), 127.4 ($C_{6'}$), 127.0 (C_{6a}), 126.9 (C_7), 123.3 (C_{3a}), 123.0 (C_6), 121.8 ($C_{3'}$), 121.4 (C_8), 120.1 (C_3), 119.3 ($C_{5'}$), 113.5 (C_1), 118.6 (C_3), 111.0 ($C_{7'}$), 62.0 (C-H). HRMS (M^+) 454.0683; $C_{26}H_{19}BrN_2O$ requires 454.0681.

1-[(4-Chlorophenyl)-(quinolin-6′-ylamino)-methyl]-naphthalene-2-ol (**3l**). (Table 3, entry 12): The titled compound was obtained as a white solid (329 mg, 80%), [Found: C: 76.26; H, 4.57; N, 6.79 %. $C_{26}H_{19}ClN_2O$ requires C: 76.00, H: 4.66, Cl: 8.63 N: 6.82, O: 3.89 %]. R_f (40 % EtOAc / petroleum ether): 0.50. Mp**:** 130-132 ºC (EtOAc). ν_{max} (KBr): 3354, 3046, 2535, 1621, 1517, 1441, 1374, 1303, 1241 and 1086 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.29 (s, 1H, O-H), 8.44 (d, ^3J = 4.0 Hz, 1H, $C_{2'}$-H), 8.03 (d, ^3J = 7.6 Hz, 1H, $C_{4'}$-H), 7.83 (d, ^3J = 8.1 Hz, 1H, C_8-H), 7.76-7.67 (m, 3H, $C_{8'}$-H, C_4-H and C_5-H), 7.49 (dd, ^3J = 9.1 Hz, ^4J = 2.1 Hz, 1H, $C_{7'}$-H), 7.32-7.18 (m, 8H, C_{2a}-H, C_{3a}-H, C_{3a}-H, C_{6a}-H, C_6-H, C_7-H, $C_{3'}$-H and $C_{5'}$-H), 6,98 (d, ^3J = 6.2 Hz, 1H, C_3-H), 6.74 (s, 1H, N-H), 6.67 (d, ^3J = 6.2 Hz, 1H, $C_{8'}$-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 146.6 ($C_{6'}$)**,** 145.5 ($C_{2'}$)**,** 142.6 ($C_{9'}$)**,** 141.7 (C_{1a})**,** 133.4 ($C_{4'}$)**,** 132.2 (C_9)**,** 130.9 (C_{4a})**,** 129.8 ($C_{10'}$)**,** 129.6 (C_4), 129.4 ($C_{8'}$)**,** 128.9 (C_{10})**,** 128.7 (C_5)**,** 128.6 (C_{2a} and C_{6a}), 128.2 (C_{3a} and C_{5a}), 126.3 (C_7), 124.1 ($C_{7'}$)**,** 122.6 (C_6), 122.1 ($C_{3'}$)**,** 121.4 (C_8)**,** 118.9 (C_1)**,** 118.3 (C_3)**,** 102.7 ($C_{5'}$)**,** 52.4 (C-H). HRMS (M^+) 410.1180; $C_{26}H_{19}ClN_2O$ requires 410.1186.

1-[(4-Cyanophenyl)-(quinolin-6′-ylamino)-methyl]-naphthalene-2-ol (**3m**). (Table 3, entry 13): The titled compound was obtained as an off-white solid (329 mg, 82%), [Found: C: 80.99; H, 4.68; N, 10.36 %. $C_{27}H_{19}N_3O$ requires C: 80.78, H: 4.77, N: 10.47, O: 3.99 %]. R_f (40 % EtOAc / petroleum ether): 0.48; Mp**:** 182-184 ºC (EtOAc). ν_{max} (KBr): 3405, 3053, 2958, 2547, 2227, 2369, 1621, 1516, 1438, 1381, 1295, 1240, 1125, 1073 and 983 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.31 (s, 1H, O-H), 8.45 (s, 1H, $C_{2'}$-H), 7.97 (s, 1H, $C_{4'}$-H), 7.85-7.22 (m, 13H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, C_4-H, C_5-H, C_6-H, C_7-H, C_8-H, $C_{3'}$-H, $C_{5'}$-H, $C_{7'}$-H and C-H), 7.00 (s, 1H, C_3-H), 6.72 (m, 2H, N-H and $C_{8'}$-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 148.8 (C_{1a}), 146.4 ($C_{6'}$), 145.6 ($C_{2'}$), 142.6 ($C_{9'}$), 133.4 ($C_{4'}$), 132.2 (C_{3a} and C_{4a}), 132.1 (C_9), 129.9 (C_4), 129.7 ($C_{10'}$), 129.4 ($C_{8'}$), 128.9 (C_{10}), 128.8 (C_5), 127.7 (C_{2a} and C_{6a}), 126.5 (C_7), 123.9 ($C_{7'}$), 122.6 (C_6), 122.1 ($C_{3'}$), 121.4 (C_8), 119.0 (CN), 118.6 (C_3), 118.3 (C_1), 109.1 (C_{4a}), 102.8 ($C_{5'}$), 53.2 (C-H). HRMS (M^+) 401.1522; $C_{27}H_{19}N_3O$ requires 401.1528.

1-[(4-Nitrophenyl)-(quinolin-6′-ylamino)-methyl]-naphthalene-2-ol (**3n**). (Table 3, entry-14): The titled compound was obtained as a yellowish solid (320 mg, 76%); [Found: C: 74.22; H, 4.61; N, 9.89 %. $C_{26}H_{19}N_3O_3$ requires C: 74.10, H: 4.54, N: 9.97, O: 11.39 %]. R_f (40 % EtOAc / petroleum ether): 0.41. Mp**:** 176-178 ºC (EtOAc). ν_{max} (KBr): 3344, 3049, 2520, 1621, 1518, 1443, 1347, 1298, 1242 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.34 (s, 1H, O-H), 8.46 (dd, ^3J =4.2 Hz and ^4J =1.2 Hz, 1H, $C_{2'}$-H), 8.14 (d, ^3J =8.7 Hz, 2H, C_{2a}-H and C_{6a}-H), 8.00 (d, ^3J =7.2 Hz, 1H, $C_{4'}$-H), 7.85 (d, ^3J =7.8 Hz, 1H, C_8-H), 7.76 (m, 2H, C_4-H and $C_{8'}$-H), 7.7 (d, ^3J =9 Hz, 1H, C_5-H), 7.57 (d, ^3J =7.6 Hz, 2H, C_{3a}-H and C_{5a}-H), 7.52 (dd, ^3J =9 Hz, and ^4J =2.4 Hz, 1H, $C_{7'}$-H), 7.33 (t, ^3J =7.8 Hz, 1H, C_7-H), 7.28-7.19 (m, 3H, C_6-H, $C_{3'}$- H, $C_{5'}$- H), 7.05 (d, ^3J =6 Hz, 1H, C_3-H), 6.76 (d, ^3J =6 Hz, 1H, $C_{8'}$- H), 6.74 (brs, 1H, N-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 151.2 (C_{4a}), 146.4 ($C_{6'}$), 146.1 ($C_{9'}$), 145.6 ($C_{2'}$), 142.6 (C_{1a}), 133.5 ($C_{4'}$), 132.1 (C_9), 130.0 (C_4), 129.8 ($C_{10'}$)**,** 129.5 ($C_{8'}$), 128.9 (C_{10}), 128.8 (C_5), 127.9(C_{2a}-H, C_{6a}-H), 126.5 (C_7), 123.8 ($C_{7'}$), 123.5 (C_{3a}-H, C_{5a}-H), 122.7 (C_6), 122.1 ($C_{3'}$), 121.4 (C_8), 118.6 (C_1), 118.3 (C_3), 102.8 ($C_{5'}$), 52.8 (C-H). HRMS (M^+) 421.1420; $C_{27}H_{19}N_3O$ requires 421.1426.

1-[(3,4-Dimethoxyphenyl)-(quinolin-6′-ylamino)]-naphthalene-2-ol (3o). (Table 3, entry 15) The titled compound was obtained as a off-white solid (297 mg, 68%), [Found: C: 77.23; H, 5.48; N, 6.33 %. $C_{28}H_{24}N_2O_3$ requires C: 77.04, H: 5.54, N: 6.42 O: 11.00%]. R_f (40 % EtOAc / petroleum ether): 0.36. Mp**:** 166-168 ºC (EtOAc). ν_{max} (KBr): 3388, 3053, 1623, 1512, 1445, 1377, 1264, 1136, 1027 and 824 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.22 (s, 1H, O-H), 8.41 (d, ^3J =4.0Hz, 1H, Ar), 8.12 (d, ^3J =8.4Hz, 1H, Ar), 7.80-7.63 (m, 4H, Ar), 7.45 (dd, ^3J =9.1 Hz and ^4J =2.4 Hz, 1H, Ar), . 7.30 (t, ^3J =7.5 Hz, 1H, Ar), 7.24-7.16 (m, 3H, Ar), 7.04 (s. 1H, Ar), 6.94 (d, ^3J =6.3Hz, 1H, Ar), 6.82-6.73 (m, 3H, Ar), 6.60 (d, ^3J =6.3Hz, 1H, Ar), 3.64 (s, 3H, O-C<u>H</u>$_3$), 3.60 (s, 3H, O-C<u>H</u>$_3$); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.1 (C_2), 148.6 (C_{4a}), 147.6 (C_{3a}), 146.6 ($C_{6'}$), 145.3 ($C_{2'}$), 142.5 ($C_{9'}$), 134.7 (C_{1a}), 133.3 ($C_{4'}$), 132.4 (C_9), 129.7 ($C_{10'}$), 129.3 (C_4 and $C_{8'}$), 129.0 (C_{10}), 128.6 (C_5), 126.0 (C_7), 124.4 ($C_{7'}$), 122.4 (C_7), 122.0 ($C_{3'}$), 121.4 (C_8), 119.1 (C_{6a}), 119.0 (C_1), 118.3 (C_3), 111.7 (C_{5a}), 111.2 (C_{2a}), 102.7 ($C_{5'}$), 55.5 (2×OMe), 52.84 (C-H); HRMS (M^+) 436.1781; $C_{28}H_{24}N_2O_3$ requires 436.1787.

1-[(2-Nitrophenyl)-(quinolin-6′-ylamino)-methyl]-naphthalene-2-ol (**3p**). (Table 3, entry 16): The titled compound was obtained as a yellow solid (295 mg, 70%); [Found: C: 74.28; H, 4.60; N, 9.87 %. $C_{26}H_{19}N_3O_3$ requires C: 74.10, H: 4.54, N: 9.97, O: 11.39 %]. R_f (40 % EtOAc / petroleum ether): 0.40. Mp**:** 180-182ºC (EtOAc). ν_{max} (KBr): 3382, 3053, 1626, 1525, 1441, 1357, 1312, 1277 and 1237 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.1 (s, 1H, O-H), 8.44 (d, ^3J =3Hz, 1H, $C_{2'}$-H), 7.92-7.65 (m, 6H, $C_{4'}$-H, C_4-H, C_5-H, C_8-H, C_{5a}-H, and C-H), 7.58-7.41 (m, 3H, $C_{7'}$-H, C_{4a}-H and C_{6a}-H), 7.39-7.26 (m, 2H, C_7-H and C_{3a}-H), 7.26-7.05 (m, 5H, $C_{3'}$-H, $C_{5'}$-H, $C_{8'}$-H, C_3-H and C_6-H), 6.67 (s,1H, N-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 154 (C_2), 149.8 (C_{2a}), 146.2 ($C_{6'}$)**,** 145.5 ($C_{2'}$)**,** 142.6 ($C_{9'}$)**,** 135.7 (C_{1a}), 133.4 ($C_{4'}$)**,** 133 (C_9), 132.2 (C_{5a}), 130.1 (C_{6a}), 129.8 ($C_{10'}$)**,** 129.7 (C_4), 129.5 ($C_{8'}$)**,** 128.7 (C_{4a}), 128.6 (C_{10})**,** 128.3 (C_5), 126.5 (C_7), 124.5 (C_{3a}), 123.2 (C_6 and C_8), 122.5 ($C_{3'}$)**,** 121.5 ($C_{7'}$)**,** 118.4 (C_3)**,** 115.6 (C_1), 102 ($C_{5'}$)**,** 49.9 (C-H). HRMS (M^+) 421.1420; $C_{26}H_{19}N_3O_3$ requires 421.1426.

2-[(4-Chlorophenyl)-(quinolin-8′-ylamino)-methyl]-naphthalene-1-ol (3q). (Table 3, entry 17): The titled compound was obtained as a yellowish brown solid (329 mg, 80%); [Found: C: 76.23; H, 4.57; N, 6.73 %. $C_{26}H_{19}ClN_2O$ requires C: 76.00, H: 4.66, Cl: 8.63, N: 6.82, O: 3.89 %]. R_f (20 % EtOAc / petroleum ether): 0.48. Mp**:** 130-132 ºC (EtOAc). ν_{max} (KBr): 3416, 3049, 1576, 1516, 1478, 1379, 1333, 1229, 1174, 1130, 1088, 1014, 929 and 797 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 9.83 (s, 1H, O-H), 8.74 (d, ^3J =2.7 Hz, 1H, $C_{2'}$-H), 8.25 (d, ^3J =7.5 Hz, 1H, C_8-H), 8.18 (d, ^3J =7.5 Hz, 1H, $C_{4'}$-H), 7.75 (d, ^3J =8.4 Hz, 1H, C_5-H), 7.48-7.35 (m, 9H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, $C_{3'}$-H, $C_{5'}$-H $C_{6'}$-H, C_7-H and N-H), 7.25 (t, ^3J =7.8 Hz, 1H, C_6-H/C_7-H), 7.08-7.06 (m, 2H, C-H and C7), 6.58 (d, ^3J =7.5 Hz, 1H, C_3-H), 6.38 (d, ^3J =6.6 Hz, 1H, C_2-H); ^{13}C NMR (75 MHz,

DMSO-d_6) and DEPT-135 δc: 149.6 (C_1), 147.5 ($C_{2'}$), 143.2 ($C_{8'}$), 141.9 (C_{1a}), 137.6 ($C_{9'}$), 136.2 ($C_{4'}$), 133.7 (C_{10}), 131.6 (C_{4a}), 128.9 (C_{2a} and C_{6a}), 128.6 (C_{3a} and C_{5a}), 128.3 ($C_{10'}$ and C_9), 127.7 ($C_{6'}$), 127.6 (C_8), 126.1 (C_6), 125.5 (C_3), 125.3 (C_7), 123.6 (C_2), 122.2 (C_5), 121.9 ($C_{3'}$), 120.2 (C_4), 114.4 ($C_{5'}$), 106.0 ($C_{7'}$), 55.1 (C-H). HRMS (M^+) 410.1186; $C_{26}H_{19}ClN_2O$ requires 410.1186.

2-[(4-Bromophenyl)-(quinolin-8′-ylamino)-methyl]-naphthalene-1-ol (**3r**). (Table 3, entry 18): The titled compound was obtained as yellowish brown solid (378 mg, 83%); [Found: C: 68.76; H, 4.11; N, 6.06 %. $C_{26}H_{19}BrN_2O$ requires C: 68.58, H: 4.21, Br: 17.55, N: 6.15, O: 3.51 %]. R_f (20 % EtOAc / petroleum ether): 0.52. Mp**:** 156-158 ºC (EtOAc). ν_{max} (KBr): 3416, 3047, 1575, 1516, 1475, 1378, 1333, 1172, 1129, 1075, 1009, 928, 792 and 746 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 9.82 (s, 1H, O-H), 8.73 (d, ^3J =2.7 Hz, 1H, Ar), 8.25 (d, ^3J =7.5 Hz, 1H, Ar), 8.18 (d, ^3J =7.5 Hz, 1H, Ar), 7.76 (d, ^3J =8.4 Hz, 1H, Ar), 7.51-7.37 (m, 9H, Ar), 7.25 (t, ^3J =7.8 Hz, 1H, Ar), 7.08-7.06 (m, 2H, Ar), 6.58 (d, ^3J =7.8 Hz, 1H, Ar), 6.36 (d, ^3J =6.6 Hz, 1H, Ar); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 149.6 (C_1), 147.5($C_{2'}$), 143.2 ($C_{8'}$), 142.3 (C_{1a}), 137.6 ($C_{9'}$), 136.2 ($C_{4'}$), 133.7 (C_{10}), 131.5 (C_{3a} and C_{5a}), 129.3 (C_{2a} and C_{6a}), 128.3 ($C_{10'}$ and C_9), 127.7 ($C_{6'}$), 127.7 (C_8), 126.1 (C_6), 125.4 (C_3), 125.2 (C_7), 123.5 (C_2), 122.2 (C_5), 121.9 ($C_{3'}$), 120.2 (C_4), 120.1(C_{4a})114.4 ($C_{5'}$), 106.0 ($C_{7'}$), 55.2 (C-H). HRMS (M^+) 454.0685; $C_{26}H_{19}BrN_2O$ requires 454.0681.

1-[(4-Chlorophenyl)-(isoquinolin-5′-ylamino)-methyl]-naphthalene-2-ol (3s). (Table 3, entry 19): The titled compound was obtained as a yellow solid (296 mg, 70%); [Found: C: 76.21; H, 4.58; N, 6.74 %. $C_{26}H_{19}ClN_2O$ requires C: 76.00, H: 4.66, Cl: 6.83, N: 6.82, O: 3.89 %]. R_f (20 % EtOAc / petroleum ether): 0.48; Mp: 156-158 ºC (EtOAc). ν_{max} (KBr): 3401, 3046, 2545, 1584, 1517, 1443, 1383, 1322, 1264, 1093 and 1057 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.39 (s, 1H, O-H), 9.10 (s, 1H, $C_{1'}$-H), 8.39-8.36 (m, 2H, C-H and $C_{3'}$- H), 8.11 (brs, 1H, N-H), 7.74 (m, 2H, C_4-H and C_5-H), 7.42-7.19 (m, 9H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, $C_{4'}$-H, $C_{7'}$- H, C_6-H, C_7-H, C_8-H), 6.99 (d, ^3J =6.2 Hz, 1H, C_3-H), 6.87 (d, ^3J =7.3 Hz, 1H, $C_{8'}$-H), 6.80 (d, ^3J =6.8 Hz, 1H, $C_{6'}$-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.2 (C_2), 152.3 ($C_{1'}$), 142.2($C_{5'}$), 141.8 ($C_{3'}$), 141.1 (C_{1a}), 132.5 (C_{4a}), 131.2 (C_9 and C_{10}), 129.6 (C_4), 129.0 (C_{2a} and C_{6a}), 128.8 (C_5), 128.2 ($C_{7'}$), 128.1 (C_{3a} and C_{5a}), 126.6 (C_7), 125.8 ($C_{9'}$ and $C_{10'}$**),** 123.5 ($C_{4'}$), 122.7 (C_6), 118.5 (C_3 and C_8), 118.46 (C_1), 115.4 ($C_{8'}$), 108.2 ($C_{6'}$), 52.8 (C-H). HRMS (M^+) 410.1181; $C_{26}H_{19}ClN_2O$ requires 410.1186.

1-[(4-Bromophenyl)-(isoquinolin-5′-ylamino)-methyl]-naphthalene-2-ol (3t). (Table 3, entry 20): The titled compound was obtained as a yellow solid (328 mg, 72%); [Found: C: 68.75; H, 4.16; N, 6.09 %. $C_{26}H_{19}BrN_2O$ requires C: 68.58, H: 4.21, Br: 17.55, N: 6.15, O: 3.51 %]. R_f (20 % EtOAc / petroleum ether): 0.52. Mp: 158-160 ºC (EtOAc). ν_{max} (KBr): 3403, 3046, 2549, 1584, 1516, 1443, 1384, 1323, 1264, 1560, 943 and 802 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.38 (s, 1H, O-H), 9.1 (s, 1H, $C_{1'}$-H), 8.38-8.35 (m, 2H, $C_{3'}$-H and C-H), 8.10 (brs, 1H, N-H), 7.79-7.69 (m, 2H, C_4-H and C_5-H), 7.48-7.17 (m, 9H, C_{2a}-H, C_{3a}-H, C_{5a}-H, C_{6a}-H, C_6-H, C_7-H, C_8-H, $C_{4'}$-H and $C_{7'}$-H), 6.98 (d, ^3J = 6.1 Hz, 1H, C_3-H), 6.85 (d, ^3J = 7.4 Hz, 1H, $C_{8'}$-H), 6.77 (d, ^3J = 7.0 Hz, 1H, $C_{6'}$-H); ^{13}C NMR (75 MHz, DMSO-d_6) and DEPT-135 δc: 153.2 (C_2), 152.3 ($C_{1'}$)**,** 142.2 ($C_{5'}$)**,** 141.8 **(**$C_{3'}$**),** 141.6 (C_{1a}), 132.5 (C_9 and C_{10}), 131.1 (C_{3a} and C_{5a}), 129.6 (C_4), 129.4 (C_{2a} and C_{6a}), 128.8 (C_5), 128.2 ($C_{7'}$)**,** 126.6 (C_7)**,** 125.8 ($C_{9'}$ and $C_{10'}$)**,** 123.6 **(**$C_{4'}$), 122.7 (C_6 and $C_{4'}$)**,** 119.6 (C_{4a}), 118.5 (C_3)**,** 118.4 (C_1)**,** 115.4 **(**$C_{8'}$), 108.2 ($C_{6'}$), 52.9 (C-H). HRMS (M^+) 454.0686; $C_{26}H_{19}BrN_2O$ requires 454.0681.

1-[Pyridin-4-yl-(quinolin-3-ylamino)-methyl]-naphthalen-2-ol (3u). (Table 3, entry 21): The titled compound was obtained as a white solid (279 mg, 74%); [Found: C: 79.75; H, 5.16; N, 11.19 %. $C_{25}H_{19}N_3O$ requires C: 79.55, H: 5.07, N: 11.13, O: 4.24 %]. R_f (20 % EtOAc / petroleum ether): 0.32. Mp: 184-186 ºC (EtOAc). ν_{max} (KBr): 3373, 3049, 2609, 1598, 1517, 1439, 1350, 1265, 1221, 1058, 990, 864, 813, 782, 747 and 650 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6) δ_H: 10.51 (s, 1H, O-H), 8.78 (s, 1H, $C_{2'}$-H), 8.45 (d, ^3J = 3.9 Hz, 2H, ArH), 8.03 (d, ^3J = 6.6 Hz, 1H, ArH), 7.78-7.68 (m, 3H, NH and ArH), 7.51 (d, ^3J = 7.2 Hz, 1H, ArH), 7.37-7.14 (m, 8H, ArH), 7.08 (d, ^3J = 7.2 Hz, 1H, ArH), 6.68 (d, ^3J = 6.0 Hz, 1H, CH); ^{13}C NMR (75 MHz, DMSO-

d$_6$) δc: 153.3, 151.5, 149.6, 144.1, 142.1, 141.3, 132.2, 130.0, 129.3, 128.9, 128.8, 128.6, 126.7, 126.5, 126.0, 124.3, 123.8, 122.7, 122.0, 118.3, 117.9, 117.8, 109.1 and 51.9.

1-[Pyridin-4-yl-(quinolin-8-ylamino)-methyl]-naphthalen-2-ol (3v). (Table 3, entry 22): The titled compound was obtained as a brown solid (268 mg, 71%); [Found: C: 79.82; H, 5.00; N, 11.02 %. $C_{25}H_{19}N_3O$ requires C: 79.55, H: 5.07, N: 11.13, O: 4.24 %]. R_f (30 % EtOAc / petroleum ether): 0.41. Mp: 168-170 ºC (EtOAc). ν_{max} (KBr): 3380, 3042, 1578, 1511, 1434, 1379, 1313, 1269, 1129, 1067and 947 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-*d*$_6$) δ_H: 10.49 (s, 1H, O-H), 8.72 (s, 1H, ArH), 8.46-8.20 (m, 3H, NH and ArH), 8.15 (d, ^3J = 8.1 Hz, 1H, ArH), 7.82-7.76 (m, 3H, ArH), 7.48-7.27 (m, 7H, ArH), 7.07 (d, ^3J = 8.1 Hz, 1H, ArH), 6.98-6.86 (m, 3H, CH and ArH); ^{13}C NMR (75 MHz, DMSO-*d*$_6$) δc: 153.2, 152.4, 149.5, 147.5, 143.9, 137.7, 136.2, 132.3, 129.9, 129.0, 128.6, 128.5, 127.9, 127.2, 122.8, 122.7, 121.9, 121.8, 119.0, 118.7, 114.4, 105.5 and 52.0.

Spectral characteristic data of the bis compounds

1,4-Bis[1-{(quinolin-8′-ylamino)-methyl}-2-hydroxy naphthyl]-benzene (4b). (Table 4, entry 2): The titled compound was obtained as a white solid (553 mg, 82 %); [Found: C: 82.08; H, 4.98; N, 8.23 %. $C_{46}H_{34}N_4O_2$ requires C: 81.88, H: 5.08, N: 8.30, O: 4.74 %]. R_f (80 % EtOAc / petroleum ether): 0.31; Mp: 190-192 ºC, ν_{max} (KBr): 3283, 3038, 2891, 1617, 1586, 1508, 1467, 1413, 1375, 1321, 1266, 1227, 1156, 1104, 946, 809 and 744 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-*d*$_6$) δ_H: 10.20 (s, 1H, O-H), 8.65 (d, ^3J =3.0 Hz, 1H, $C_{2'}$-H), 8.24 (brs, 1H, N-H), 8.12 (d, ^3J =8.0 Hz, 1H, $C_{4'}$-H), 7.79-7.65 (m, 3H, C_4-H, C_5-H and C_8-H), 7.45-7.12 (m, 7H, C_{2a}-H, C_{6a}-H, C_3-H, C_6-H, C_7-H, $C_{3'}$-H and $C_{6'}$-H), 6.99 (d, ^3J =7.0 Hz, 1H, $C_{5'}$-H), 6.77-6.74 (m, 2H, $C_{7'}$-H and C-H); ^{13}C NMR (75 MHz, DMSO-*d*$_6$) and DEPT-135 δc: 153.0 (C_2), 147.3 ($C_{2'}$)**,** 144.1 ($C_{8'}$)**,** 141.2 (C_{1a}), 137.6 ($C_{9'}$)**,** 136.1 ($C_{4'}$)**,** 132.3 (C_9), 129.3 (C_4), 128.9 (C_8), 128.7 ($C_{10'}$)**,** 128.4 (C_{10})**,** 127.8 ($C_{5'}$)**,** 126.7(C_{2a} and C_{6a}), 126.5 ($C_{6'}$)**,** 122.6 (C_6 and C_7), 121.8 ($C_{3'}$)**,** 119.5 (C_1)**,** 118.6 ($C_{5'}$)**,** 113.7 ($C_{7'}$)**,** 105.1 (C_3)**,** 52.5 (C-H). HRMS (M^+) 674.2686; $C_{46}H_{34}N_4O_2$ requires 674.2682.

1,4-Bis[2-{(quinolin-8′-ylamino)-methyl}-1-hydroxy naphthyl]-benzene (4c). (Table 4, entry 3): The titled compound was obtained as an off-white solid (526 mg, 78 %); [Found: C: 82.03; H, 4.99; N, 8.22 %. $C_{46}H_{34}N_4O_2$ requires C: 81.88, H: 5.08, N: 8.30, O: 4.74 %]. R_f (80 % EtOAc / petroleum ether): 0.30., Mp: 188-190 ºC (EtOAc). ν_{max} (KBr): 34O6, 3050, 1576, 1513, 1472, 1380, 1329, 1227, 1184, 1134, and 1081 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-*d*$_6$) δ_H: 9.73 (s, 1H, O-H), 8.71 (d, ^3J =3.0 Hz, 1H, $C_{2'}$-H), 8.21 (d, ^3J =7.5 Hz, 1H, C_8-H), 8.16 (d, ^3J =8.0 Hz, 1H, $C_{4'}$-H), 7.74 (d, ^3J =7.2 Hz, 1H, C_5-H), 7.50-7.34 (m, 7H, C_{2a}-H, C_{6a}-H, C_6-H, $C_{3'}$-H, $C_{5'}$-H, $C_{6'}$-H and N-H), 7.22 (t, ^3J = 7.8 Hz, 1H, C_7-H), 7.05-6.99 (m, 2H, $C_{6'}$-H and C-H), 6.55 (d, ^3J =7.8 Hz, 1H, C_3-H), 6.36 (d, ^3J =6.3 Hz, 1H, C_4-H); ^{13}C NMR (75 MHz, DMSO-*d*$_6$) and DEPT-135 δc: 149.6 (C_1), 147.5 ($C_{2'}$)**,** 143.3 ($C_{8'}$), 141.8 (C_{1a}), 137.6 (C_8), 136.2 ($C_{4'}$)**,** 133.6 (C_{2a}), 128.2 (C_9 and $C_{10'}$)**,** 127.7 ($C_{6'}$)**,** 127.4 (C_8), 126.0 (C_6), 125.5 (C_{2a} and C_{6a}), 125.3 (C_3), 125.2 (C_7), 123.8 (C_2), 122.8 (C_5), 121.9 ($C_{3'}$)**,** 120.1 (C_4), 114.2 ($C_{5'}$)**,** 105.8 ($C_{7'}$), 55.4 (C-H); HRMS (M^+) 674.2687; $C_{46}H_{34}N_4O_2$ requires 674.2682.

1,4-Bis[1-{(quinolin-3′-ylamino)-methyl}-2-hydroxy naphthyl]-benzene (4d). (Table 4, entry 4) The titled compound was obtained as a brown solid (567 mg, 84 %); [Found: C: 82.13; H, 5.01; N, 8.20 %. $C_{46}H_{34}N_4O_2$ requires C: 81.88, H: 5.08, N: 8.30, O: 4.74 %]. R_f (80 % EtOAc / petroleum ether): 0.29. Mp: 184-186 ºC (EtOAc). ν_{max} (KBr): 3373, 3051, 2617, 1610, 1511, 1477, 1438, 1319, 1269 and 1222cm^{-1}; ^{1}H NMR (300 MHz, DMSO-*d*$_6$) δ_H: 10.23 (s, 1H, O-H), 8.69 (s, 1H, $C_{2'}$-H), 8.10 (brs, 1H, $C_{8'}$-H), 7.80-7.67 (m, 3H, C-H, C_4-H and C_5-H), 7.56-6.96 (m, 10H, C_{2a}-H, C_{6a}-H, C_3-H, C_6-H, C_7-H, C_8-H, $C_{4'}$-H, $C_{5'}$-H, $C_{6'}$-H and $C_{7'}$-H), 6.64 (s, 1H, N-H); ^{13}C NMR (75 MHz, DMSO-*d*$_6$) and DEPT-135 δc: 153.1 (C_2), 144.0 ($C_{2'}$), 142.2 ($C_{3'}$), 141.0 ($C_{9'}$)**,** 140.2 (C_{1a}), 132.3 (C_9)**,** 129.4 (C_4)**,** 129.3 ($C_{10'}$), 128.9 (C_{10}), 128.6 (C_5), 128.5 ($C_{8'}$), 126.8 ($C_{6'}$), 126.7 (C_{2a} and C_{6a}), 126.5 (C_7), 125.8 ($C_{7'}$), 124.2 ($C_{5'}$), 124.0 ($C_{4'}$), 122.4 (C_6), 118.5 (C_8), 118.2 (C_1), 108.8 (C_3), 52.5 (C-H). HRMS (M^+) 674.2685; $C_{46}H_{34}N_4O_2$ requires 674.2682.

Spectral data of the oxazines

3-Quinolin-3-yl-3,4-dihydro-2*H*-naphtho[2,1-e][1,3]oxazine (**5b**). (Table 5, entry 2): The titled compound was obtained as a brown solid (256 mg, 82 %); [Found: C, 80.93; H, 5.07; N, 8.91 %. $C_{21}H_{16}N_2O$ requires C: 80.75, H: 5.16, N: 8.97, O: 5.12 %]. R_f (30 % EtOAc / petroleum ether): 0.53. Mp:162-164 ºC (MeOH); ν_{max} (KBr) : 3051, 2970, 2909, 1592, 1469, 1380, 1316, 1267, 1192, 1191, 1132, 1077 and 987 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ_H: 8.93 (d, ^3J =2.1 Hz, 1H, $C_{2'}$-H), 8.18-8.13 (m, 1H, C_8-H), 7.99 (d, ^3J =8.4 Hz, 1H, $C_{8'}$-H), 7.76-7.70 (m, 2H, C_6-H and C_7-H), 7.62 (dd, ^3J =8.1 Hz, ^4J =1.2 Hz, 1H, C_5-H), 7.54-7.38 (m, 4H, C_3-H, $C_{4'}$-H, $C_{6'}$-H and $C_{7'}$-H), 7.10 (d, ^3J =8.7 Hz, 1H, C_4-H), 5.61 (s, 2H, N-C$\underline{H}_2$-O), 4.88 (s, 2H, N-C$\underline{H}_2$-C): ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 149.3 (C_1), 145.8 ($C_{2'}$), 143.9 ($C_{3'}$), 142.0 ($C_{9'}$), 133.4 ($C_{10'}$), 128.9 ($C_{8'}$), 128.4 (C_{10}), 127.5 (C_3), 127.2 ($C_{6'}$), 127.0 ($C_{7'}$), 126.8 ($C_{5'}$), 126.2 (C_7), 125.6 (C_8), 124.9 (C_9), 124.2 (C_5), 121.2 (C_6), 120.7 ($C_{4'}$), 120.5 (C_4), 113.7 (C_2), 79.5 (N-$\underline{C}H_2$-O), 50.7 (N-$\underline{C}H_2$). HRMS (M^+): 312.1268; $C_{21}H_{16}N_2O$ requires 312.1263.

2-Quinolin-6-yl-2,3-dihydro-1*H*-naphtho[1,2-e][1,3]oxazine (**5c**). (Table 5, entry 3): The titled compound was obtained as a off-white solid (244 mg, 78 %), [Found: C, 80.93; H, 5.07; N, 8.91 %. $C_{21}H_{16}N_2O$ requires C: 80.75, H: 5.16, N: 8.97, O: 5.12 %]. R_f (30 % EtOAc / petroleum ether): 0.49. Mp: 146-148 ºC (MeOH); ν_{max} (KBr): 3040, 1615, 1500, 1388, 1313, 1227, 1169, 943, 907, 857, 816, 776, 745 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ_H: 8.68 (s, 1H, $C_{5'}$-H), 8.00 (d, ^3J =9.0 Hz, 1H, $C_{2'}$-H), 7.85 (d, ^3J =8.1 Hz, 1H, $C_{4'}$-H), 7.73 (d, ^3J =8.1 Hz, 1H, C_8-H), 7.66 (d, ^3J =8.4 Hz, 1H, C_4-H), 7.62-7.54 (m, 2H, C_5-H and $C_{8'}$-H), 7.48 (t, ^3J =7.5 Hz, 1H, C_7-H), 7.34 (t, ^3J =7.5 Hz, 1H, C_6-H), 7.28 (d, ^3J =2.1 Hz, 1H, $C_{5'}$-H), 7.22-7.15 (m, 1H, $C_{7'}$-H), 7.03 (d, ^3J =9.0 Hz, 1H, C_3-H), 5.44 (N-C$\underline{H}_2$-O), 4.97 (N-C$\underline{H}_2$-C); ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 152.0 (C_2), 148.1 ($C_{2'}$), 146.2 ($C_{6'}$), 144.3 ($C_{9'}$), 134.7 ($C_{4'}$), 131.0 (C_9), 130.4 (C_4), 128.9 (C_1 and C_{10}), 128.6 ($C_{8'}$), 128.3 (C_5), 126.7 (C_7), 123.7 ($C_{7'}$), 123.3 (C_6), 121.2 ($C_{3'}$), 120.7 (C_8), 118.5 (C_3), 112.1 ($C_{5'}$), 78.9 (N-$\underline{C}H_2$-O), 47.9 (N-$\underline{C}H_2$). HRMS (M^+): 312.1265; $C_{21}H_{16}N_2O$ requires 312.1263.

3-Quinolin-6-yl-3,4-dihydro-2*H*-naphtho[2,1-e][1,3]oxazine (5d). (Table 5, entry 4): The titled compound was obtained as a brown viscous liquid (250 mg, 80 %), [Found: C, 80.98; H, 5.06; N, 8.92 %. $C_{21}H_{16}N_2O$ requires C: 80.75, H: 5.16, N: 8.97, O: 5.12 %]. R_f (30 % EtOAc / petroleum ether): 0.47. ν_{max} (NEAT) : 3041, 1610, 1499, 1372, 1321, 1225, 1166, 938, 907, 866, 807, 771, 741 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ_H: 8.70 (brs, 1H, $C_{5'}$-H), 8.17-8.14 (m, 1H, $C_{2'}$-H), 8.01 (d, ^3J =9.3 Hz, 1H, C_8-H), 7.93 (d, ^3J =7.8 Hz, 1H, C_3-H), 7.75-7.71 (m, 1H, C_5-H), 7.59 (dd, ^3J =9.0 Hz and ^4J =2.4 Hz, 1H, $C_{4'}$-H), 7.48-7.34 (m, 3H, C_6-H, C_7-H and $C_{8'}$-H), 7.25 (dd, ^3J =6.9 Hz and ^4J =4.5 Hz, 1H, $C_{7'}$-H), 7.12 (d, ^3J =8.4 Hz, 1H, C_4-H), 5.61 (s, 2H, N-C$\underline{H}_2$-O), 4.81 (s, 2H, N-C$\underline{H}_2$-C); ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 149.4 (C_1), 148.2 ($C_{2'}$), 146.3 ($C_{6'}$), 144.4 ($C_{9'}$), 134.9 ($C_{4'}$), 133.3 ($C_{10'}$), 130.5 ($C_{8'}$), 129.1 (C_{10}), 127.5 (C_8), 126.1 (C_6), 125.5 (C_7), 124.9 (C_9), 124.3 ($C_{7'}$), 123.4 (C_5), 121.4 ($C_{3'}$), 121.2 (C_3), 120.5 (C_4), 114.2 (C_2), 112.2 ($C_{5'}$), 79.4 (CH2, N-CH_2-O), 50.4 (CH2, N-CH_2). HRMS (M^+): 312.1269; $C_{21}H_{16}N_2O$ requires 312.1263.

2-Quinolin-5-yl-2,3-dihydro-2*H*-naphtho[1,2-e][1,3]oxazine (**5e**). (Table 5, entry 5): The titled compound was obtained as a white solid (256 mg, 82 %); [Found: C, 80.99; H, 5.10; N, 8.92 %. $C_{21}H_{16}N_2O$ requires C: 80.75, H: 5.16, N: 8.97, O: 5.12 %]. R_f (30 % EtOAc / petroleum ether): 0.51. Mp: 166-168 ºC (MeOH); ν_{max} (KBr) : 3050, 2939, 2887, 2837, 1590, 1468, 1391, 1232, 1113, 1051, 983, 930, 900, 803, 753 and 680 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ_H: 8.93-8.91 (m, 1H, Ar), 8.61 (d, ^3J =8.4 Hz, 1H, Ar), 7.85 (d, ^3J =8.1 Hz, 1H, Ar), 7.76 (d, ^3J =8.1 Hz, 1H, Ar), 7.67 (d, ^3J =9.0 Hz, 1H, Ar), 7.57-7.31 (m, 5H, Ar), 7.10 (d, ^3J =8.7 Hz, 1H, Ar), 5.37 (s, 2H, CH_2), 4.94 (s, 2H, N-CH_2-O); ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 151.8 (C), 150.2 (CH), 149.4 (C), 146.1 (C), 132.0 (CH), 131.0 (C), 129.3 (CH), 129.1 (C), 128.7 (CH), 128.4 (CH), 126.7 (CH),

126.0 (C), 124.2 (C), 123.7 (CH), 120.8 (CH), 120.7 (CH), 118.7 (CH), 118.1 (CH), 112.2 (C), 81.3 (CH_2, O-CH_2-N), 49.9 (CH_2, N- CH_2). HRMS (M^+): 312.1261; $C_{21}H_{16}N_2O$ requires 312.1263.

3-Quinolin-5-yl-3,4-dihydro-2*H*-naphtho[2,1-e][1,3]oxazine (5f). (Table 5, entry 6):

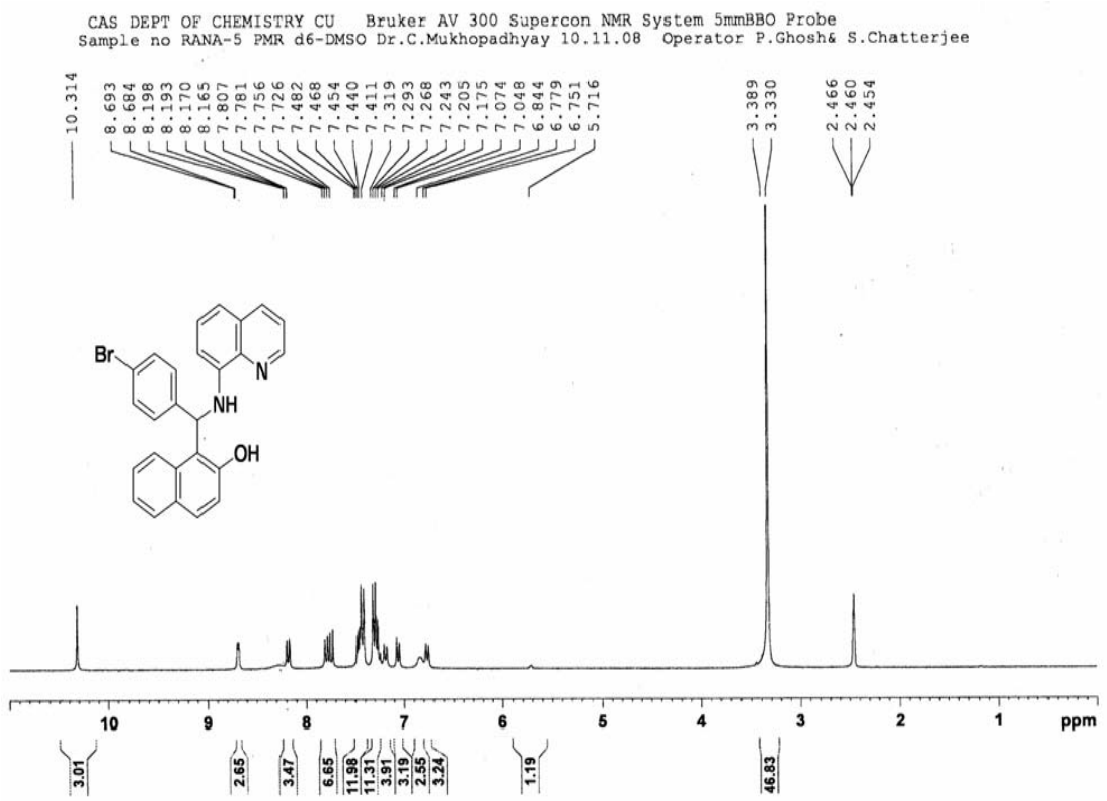
The titled compound was obtained as a white solid (250 mg, 80 %); [Found: C, 80.91; H, 5.08; N, 8.89 %. $C_{21}H_{16}N_2O$ requires C: 80.75, H: 5.16, N: 8.97, O: 5.12 %]. R_f (30 % EtOAc / petroleum ether): 0.48. Mp: 128-130 ºC (EtOAC); ν_{max} (KBr): 3056, 2947, 2889, 2838, 1576, 1506, 1467, 1400, 1312, 1257, 1209, 1160, 1075, 981, 915 and 792 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ_H: 8.95 (d, ^3J =2.7 Hz, 1H, Ar), 8.59 (d, ^3J =8.4 Hz, 1H, Ar), 8.22 (d, ^3J =7.8 Hz, 1H, Ar), 7.89-7.86 (m, 1H, Ar), 7.80-7.76 (m, 1H, Ar), 7.54-7.44 (m, 5H, Ar), 7.41 (d, ^3J =8.7 Hz, 1H, Ar), 7.04 (d, ^3J =8.7 Hz, 1H, Ar), 5.52 (s, 2H, O-C$\underline{H_2}$), 4.74 (s, 2H, -C$\underline{H_2}$-N); ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 150.1 (CH), 149.1 (C), 149.0 (C), 146.1 (C), 133.3 (C), 132.2 (CH), 129.4 (CH), 127.5 (CH), 126.1 (CH), 125.7 (CH), 125.5 (CH), 124.9 (C), 124.2 (CH), 124.1 (C), 121.2 (CH), 120.6 (CH), 120.4 (CH), 118.0 (CH), 114.1 (C), 81.7 (CH_2, O-CH_2-N), 52.2 (CH_2, N- CH_2). HRMS (M^+): 312.1268; $C_{21}H_{16}N_2O$ requires 312.1263.

2-Isoquinolin-5-yl-2,3-dihydro-1*H*-naphtho[1,2-e][1,3]oxazine (**5g**). (Table 5, entry 7):

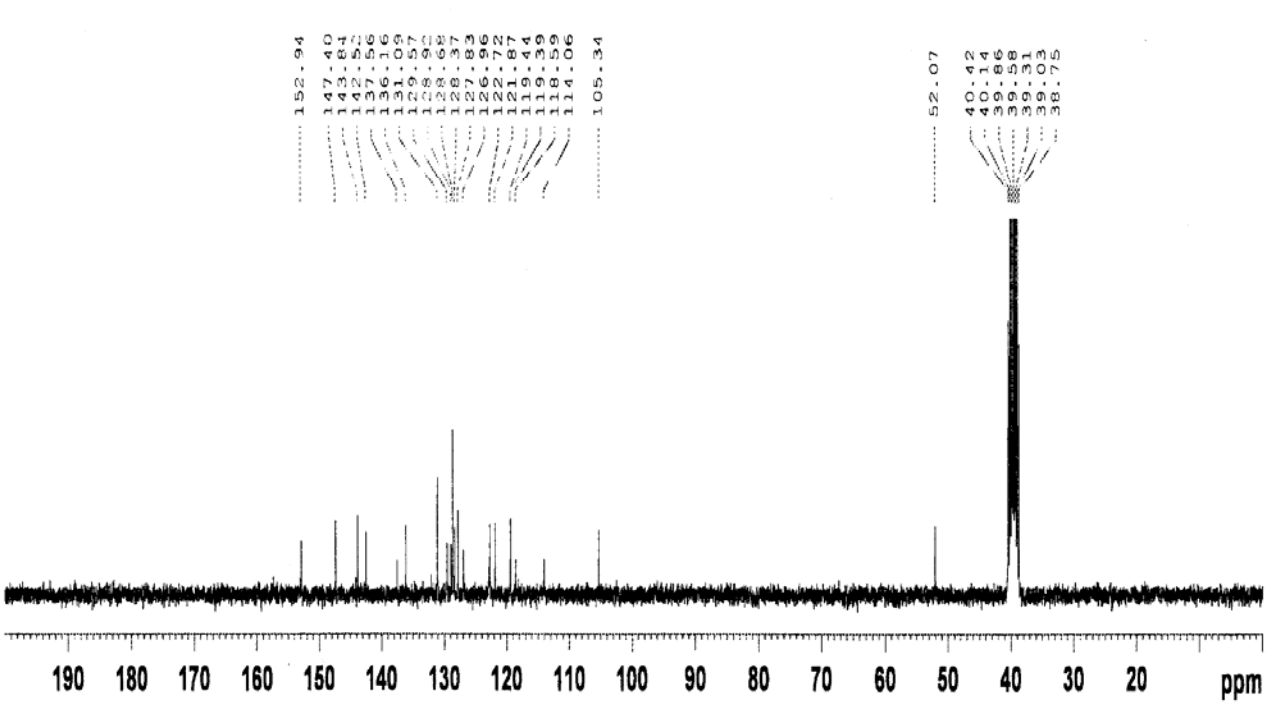
The titled compound was obtained as a white solid (244 mg, 78 %); [Found: C, 80.91; H, 5.08; N, 8.89 %. $C_{21}H_{16}N_2O$ requires C: 80.75, H: 5.16, N: 8.97, O: 5.12 %]. R_f (30 % EtOAc / petroleum ether): 0.48. Mp: 160-162 ºC (EtOAC); ν_{max} (KBr): 3033, 2938, 2884, 1582, 1470, 1429, 1376, 1149, 1105, 1037, 990, 929, 809 and 750 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$) δ_H: 9.27 (s, 1H, Ar), 8.64 (d, ^3J =5.7 Hz, 1H, Ar), 8.07 (d, ^3J =5.7 Hz, 1H, Ar), 7.79 (d, ^3J =8.1 Hz, 1H, Ar), 7.72-7.67 (m, 2H, Ar), 7.62-7.58 (m, 2H, Ar), 7.47 (dt, ^3J =8.1 Hz and ^4J = 1.2 Hz, 1H, Ar), 7.42-7.34 (m, 2H, Ar), 7.12 (d, ^3J =9.0 Hz, 1H, Ar), 5.43 (s, 2H, O-C$\underline{H_2}$), 4.99 (s, 2H, -C$\underline{H_2}$-N); ^{13}C NMR (75 MHz, $CDCl_3$) and DEPT-135 δc: 152.8 (CH), 151.7 (C), 145.3 (C), 142.9 (CH), 131.8 (C), 131.0 (C), 129.8 (C), 129.1 (C), 128.7 (CH), 128.4 (CH), 127.3 (CH), 126.7 (CH), 123.8 (CH), 123.7 (CH), 121.6 (CH), 120.8 (CH), 118.7 (CH), 116.4 (CH), 112.1 (C), 81.0 (CH_2, O-$\underline{C}H_2$-N), 49.6 (CH_2, -$\underline{C}H_2$-N); HRMS (M^+): 312.1262; $C_{21}H_{16}N_2O$ requires 312.1263.

^{1}H and ^{13}C NMR spectra of some unknown compounds

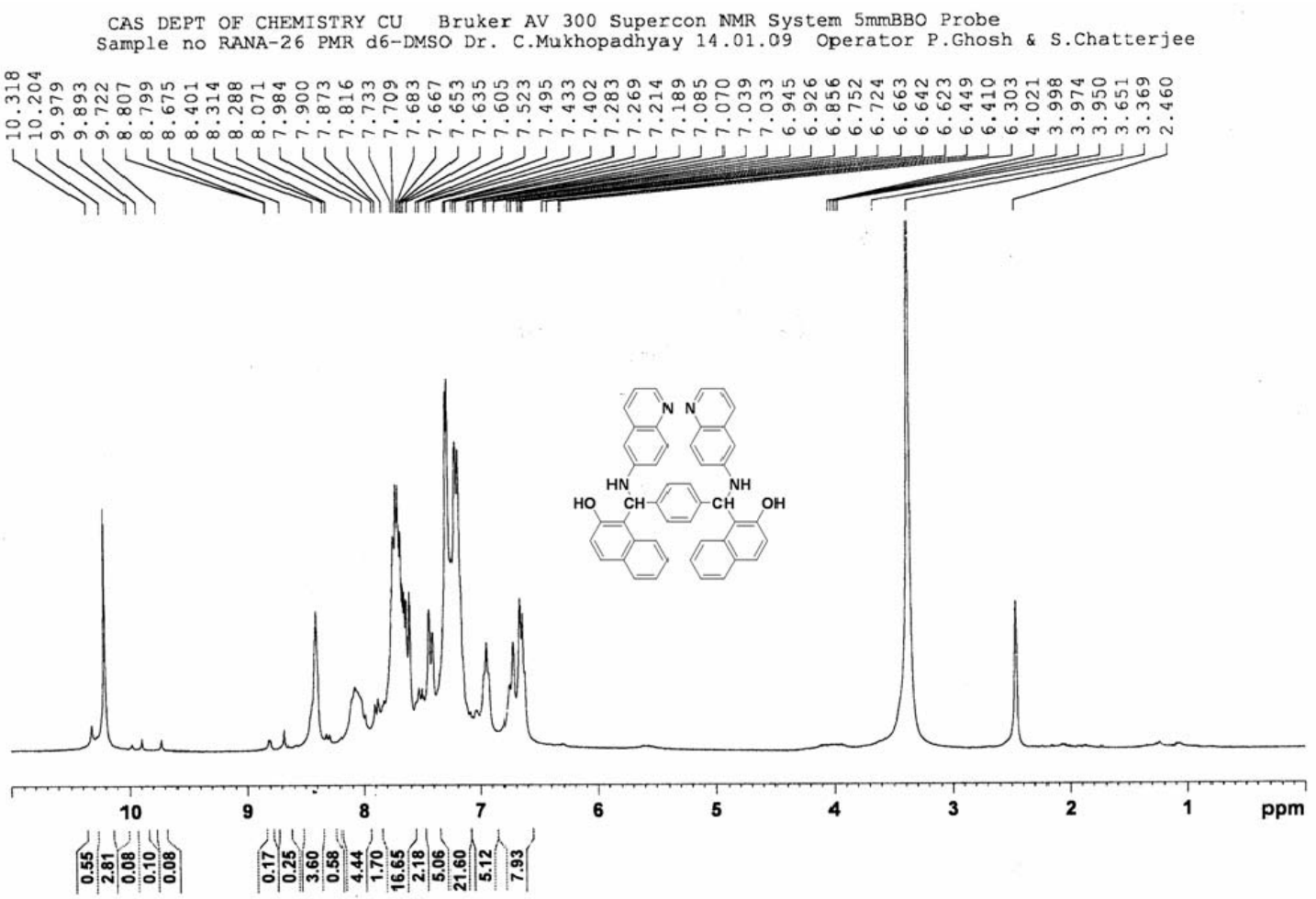
^{1}H NMR Spectrum of 3a



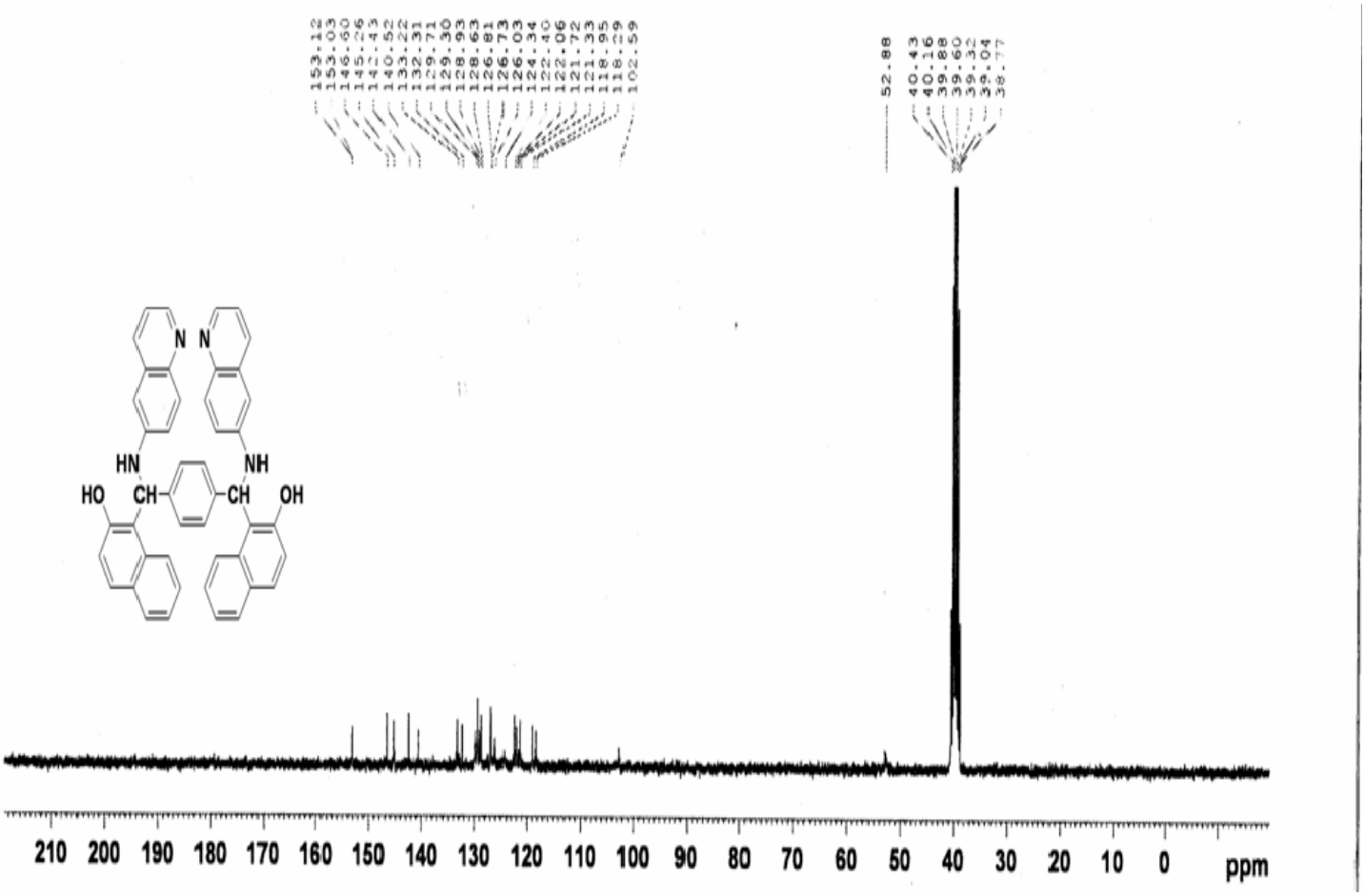
^{13}C NMR Spectrum of 3a



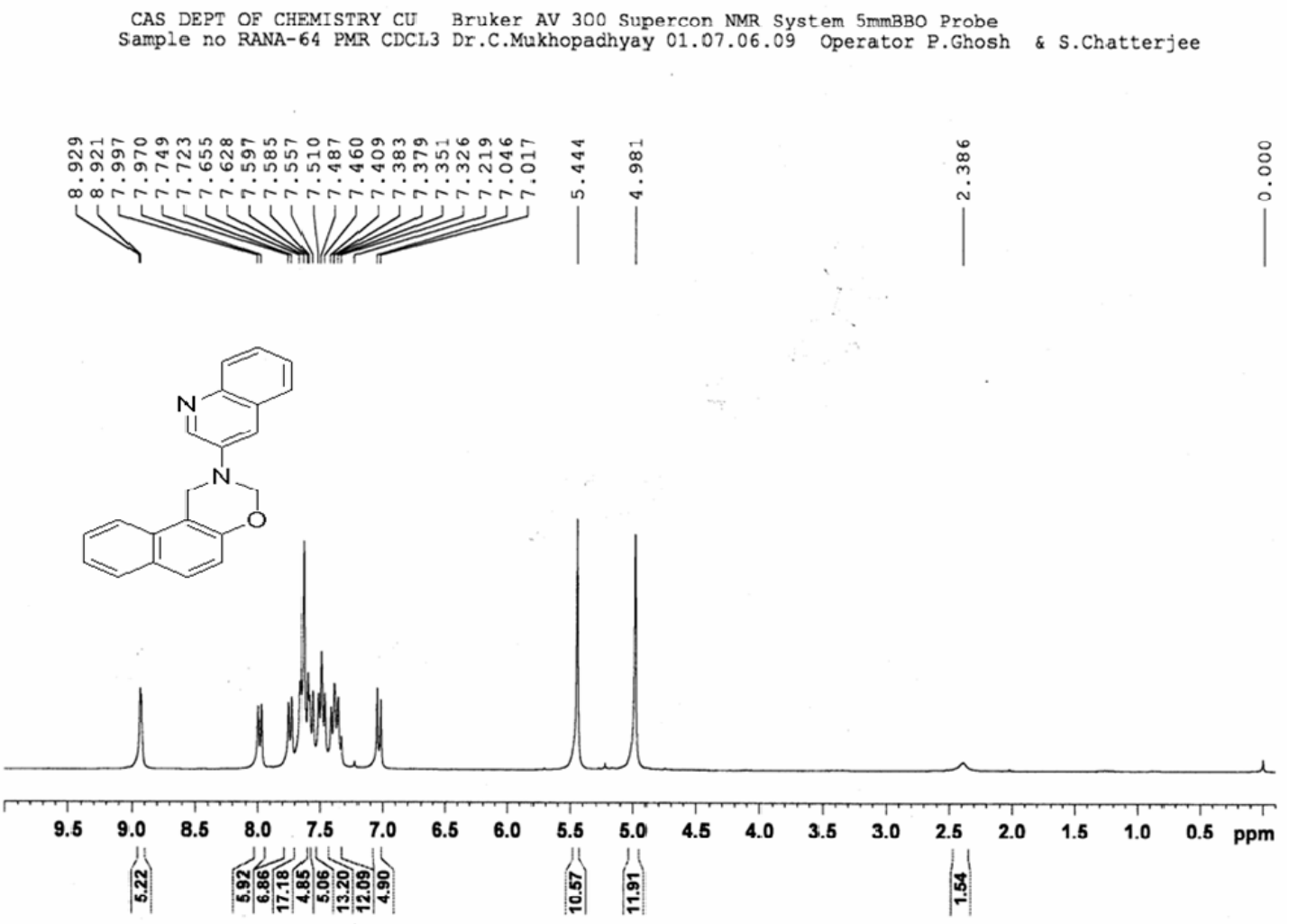
^{1}H NMR Spe



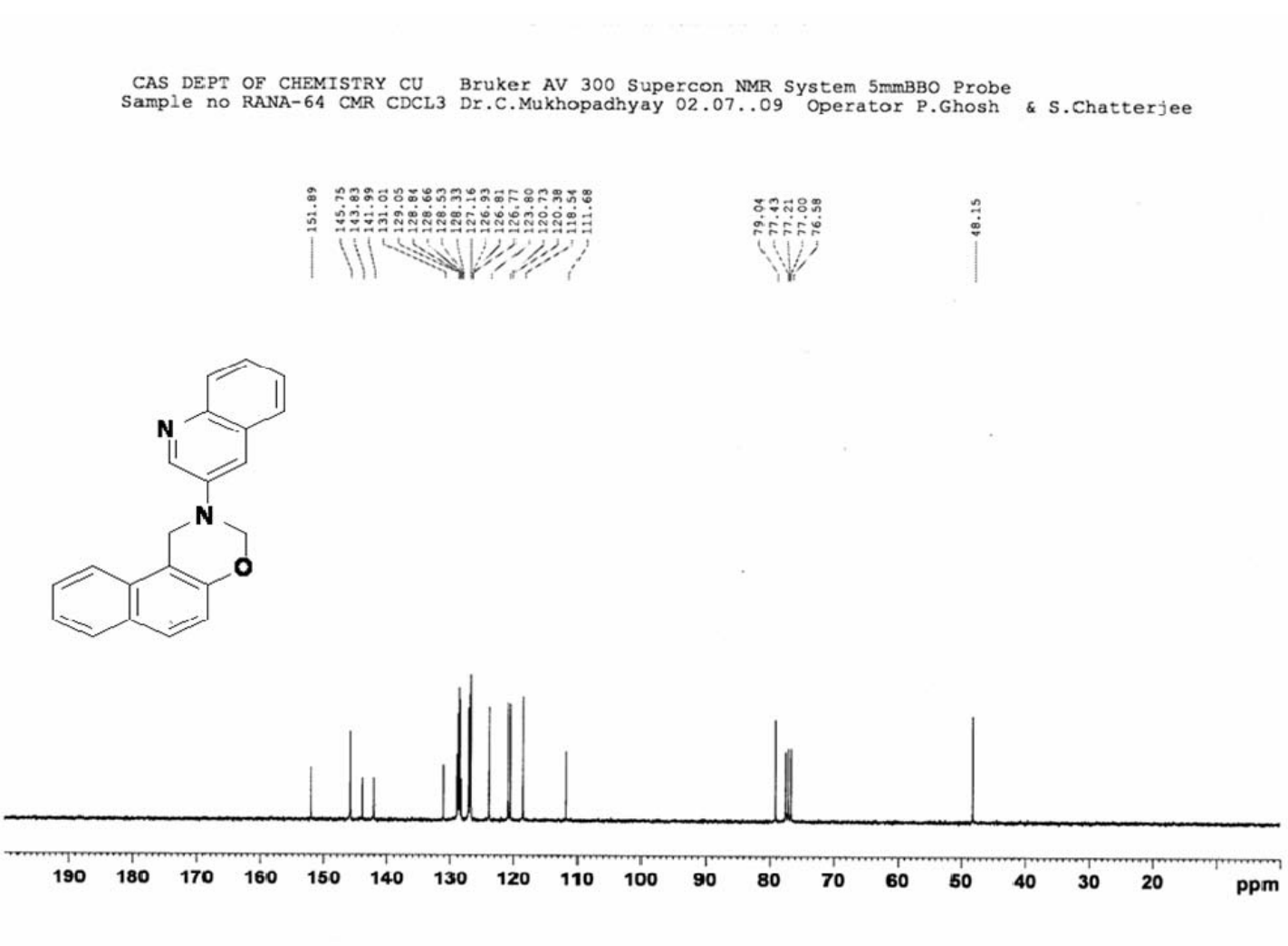
^{13}C NMR Spectrum of 4a



^{1}H NMR Spectrum of 5a

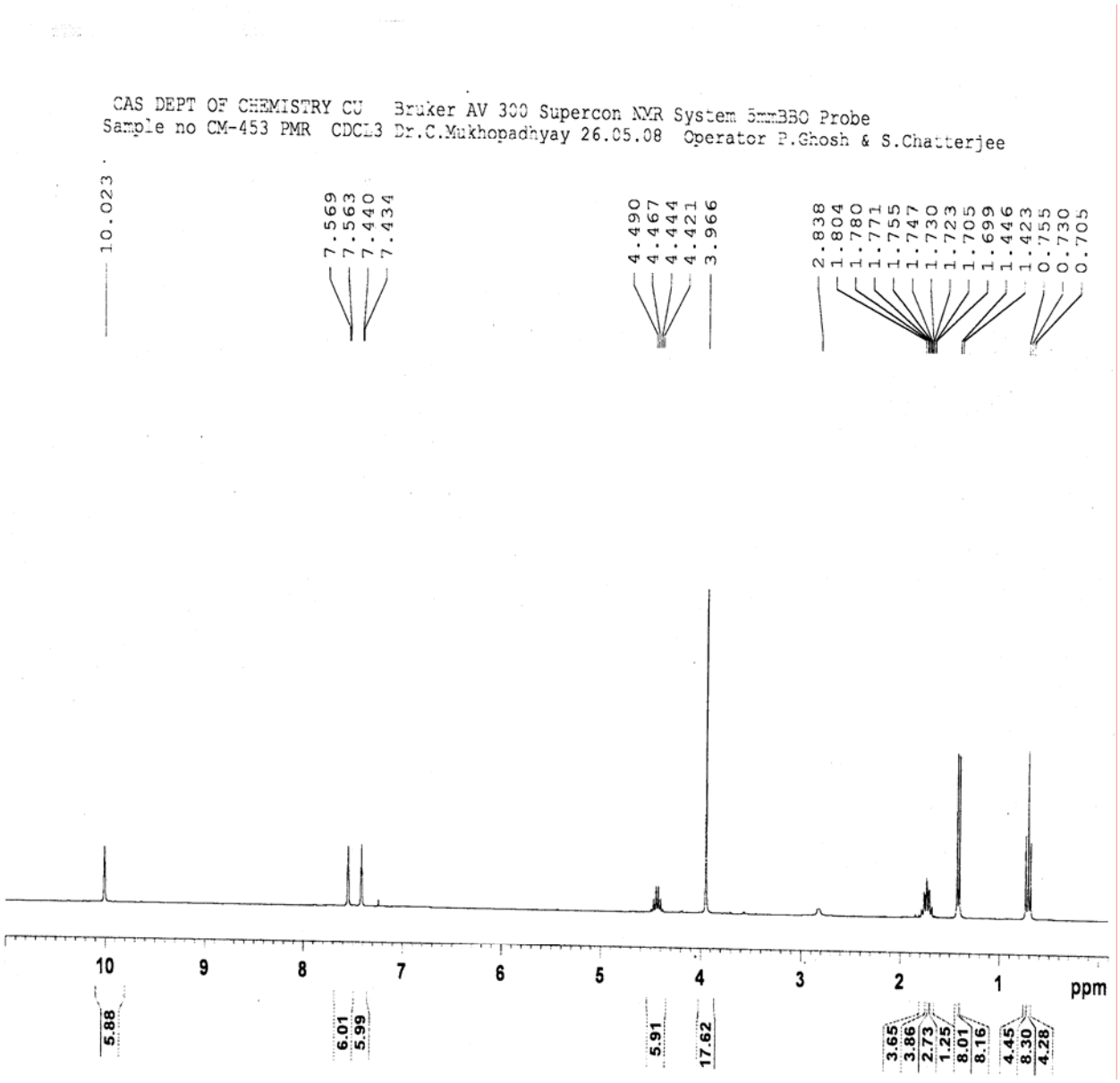


^{13}C NMR Spectrum of 5a



Spectra of the synthesized ionic liquid

^{1}H NMR spectra of the ionic liquid {[^{sec}bmim]$^{+}$ Br^{-}}



^{13}C NMR spectra of the ionic liquid {[^{sec}bmim]$^{+}$ Br^{-}}

CAS DEPT OF CHEMISTRY CU Bruker AV 300 Supercon NMR System 5mmBBO Probe
Sample no CM-453 CMR CDCL3 Dr.C.Mukhopadhyay 30.05.08 Operator P.Ghosh & S.Chatterjee