

Supplementary Material (ESI) for Green Chemistry
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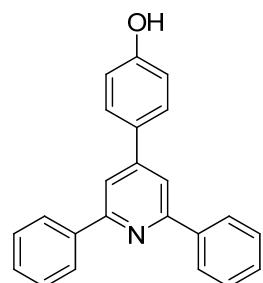
Solvent- and catalyst-free synthesis of new hydroxylated trisubstituted pyridines under microwave irradiation

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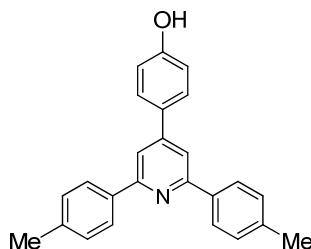
^b*Key Laboratory of Pesticides and Chemical Biology of the Ministry of Education, College of Chemistry, Central China Normal University, Wuhan 430079, China.*
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Characterization data for compounds



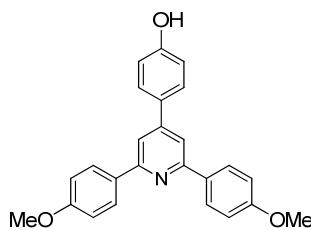
4-(2,6-diphenylpyridin-4-yl)phenol (3a)

Yield 83%, yellow solid, mp 209–210 °C; ¹H NMR (300MHz, DMSO-d₆): δ (ppm) 9.87 (s, 1H, OH), 8.32 (d, *J*=6.9 Hz, 4H), 8.12 (s, 2H, Py-H), 7.92 (d, *J*=6.9 Hz, 2H), 7.57–7.43 (m, 6H), 6.93 (d, *J*=6.9 Hz, 2H); ¹³C NMR (75MHz, DMSO-d₆): δ (ppm) 159.0, 156.5, 149.5, 139.1, 129.1, 128.7, 128.4, 127.0, 116.1, 115.8; IR (KBr, cm⁻¹): 3426, 2358, 1560, 1512, 1393, 835, 685; ESI-MS: m/z 324.29 [M+H]⁺.



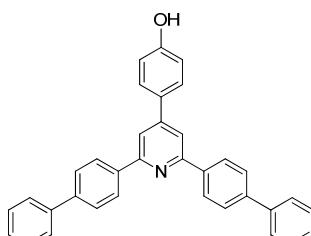
4-(2,6-diphenylpyridin-4-yl)phenol (3b)

Yield 85%, yellow solid, mp 275–276 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.86 (s, 1H, OH), 8.21 (d, J =8.1 Hz, 4H), 8.05 (s, 2H, Py-H), 7.90 (d, J =8.4 Hz, 2H), 7.35 (d, J =8.1 Hz, 4H), 7.64 (d, J =8.4 Hz, 2H), 3.37 (s, 6H, CH₃); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.8, 156.2, 149.2, 138.6, 136.3, 129.3, 128.6, 128.3, 126.8, 115.9, 115.0, 20.9; IR (KBr, cm⁻¹): 3430, 1599, 1510, 1271, 1210, 1176, 818; ESI-MS: m/z 352.40 [M+H]⁺.



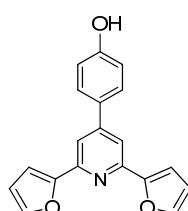
4-(2,6-bis(4-methoxyphenyl)pyridin-4-yl)phenol (3c)

Yield 86%, yellow solid, mp 243–244°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.85 (s, 1H, OH), 8.26 (d, J =9.0 Hz, 4H), 7.98 (s, 2H, Py-H), 7.89 (d, J =8.7 Hz, 2H), 7.09 (d, J =9.0 Hz, 4H), 6.93 (d, J =8.7 Hz, 2H), 3.84 (s, 6H, OCH₃); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 160.2, 158.7, 156.0, 149.1, 131.6, 128.6, 128.5, 128.2, 115.9, 114.2, 114.0, 55.2; IR (KBr, cm⁻¹): 3435, 1630, 1510, 1432, 1247, 1175, 1028, 823; ESI-MS: m/z 384.36 [M+H]⁺.



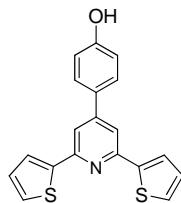
4-(2,6-di(biphenyl-4-yl)pyridin-4-yl)phenol (3d)

Yield 80%, yellow solid, mp 223–225 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.91 (s, 1H, OH), 8.45 (d, J =8.7 Hz, 4H), 8.20 (s, 2H, Py-H), 7.97 (d, J =6.9 Hz, 2H), 7.86 (d, J =8.7 Hz, 4H), 7.79 (d, J =6.9 Hz, 4H), 7.55–7.49 (m, 4H), 7.45–7.38 (m, 2H), 6.98 (d, J =6.9 Hz, 2H); 158.9, 156.0, 149.4, 140.7, 139.6, 138.1, 129.0, 128.7, 128.3, 127.7, 127.5, 127.0, 126.7, 116.0, 115.7; IR (KBr, cm⁻¹): 3238, 1603, 1515, 1389, 1202, 1112, 830, 689, 513; ESI-MS: m/z 476.45 [M+H]⁺.



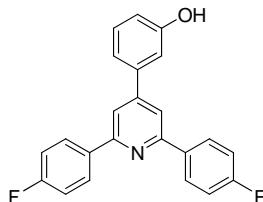
4-(2,6-di(furan-2-yl)pyridin-4-yl)phenol (3e)

Yield 86%, yellow solid, mp 263–264°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.93 (s, 1H, OH), 7.89 (dd, J_1 =1.8 Hz, J_2 =0.9 Hz, 2H), 7.83 (s, 2H, Py-H), 7.79 (d, J =8.7 Hz, 2H), 7.27 (dd, J_1 =3.3 Hz, J_2 =0.9 Hz, 2H), 6.93 (d, J =8.7 Hz, 2H), 6.70 (dd, J_1 =3.3 Hz, J_2 =1.8 Hz, 2H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 159.1, 153.1, 149.1, 148.9, 144.3, 128.3, 127.5, 116.1, 113.3, 112.4, 109.6; IR (KBr, cm⁻¹): 3438, 1606, 1524, 1487, 1220, 1173, 740; ESI-MS: m/z 304.31 [M+H]⁺.



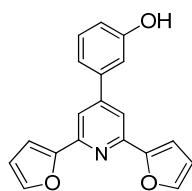
4-(2,6-di(thiophen-2-yl)pyridin-4-yl)phenol (3f)

Yield 83%, yellow solid, mp 136–137 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.92 (s, 1H, OH), 8.03 (s, 2H, Py-H), 8.01 (d, J =3.6 Hz, 2H), 7.90 (d, J =8.7 Hz, 2H), 7.67 (d, J =5.1 Hz, 2H), 7.19–7.23 (m, 2H), 6.94 (d, J =8.1 Hz, 2H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 159.0, 152.1, 149.1, 144.5, 128.6, 128.4, 127.5, 125.8, 115.9, 113.5; IR (KBr, cm⁻¹): 3399, 1560, 1514, 1437, 1257, 1216, 1179, 831, 699; ESI-MS: m/z 336.45 [M+H]⁺.



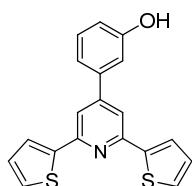
3-(2,6-bis(4-fluorophenyl)pyridin-4-yl)phenol (3g)

Yield 80%, yellow solid, mp 199–200°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.72 (s, 1H, OH), 8.41 (d, J =8.4 Hz, 2H), 8.39 (d, J =8.7 Hz, 2H), 8.20 (s, 2H, Py-H), 7.47–7.34 (m, 7H), 7.65 (d, J =7.8 Hz, 1H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 164.7, 161.4, 158.1, 155.4, 150.0, 139.2, 135.3, 135.2, 130.1, 129.2, 129.1, 118.1, 116.3, 115.7, 115.4, 114.2; IR (KBr, cm⁻¹): 3428, 1602, 1548, 1506, 1390, 1221, 1153, 836; ESI-MS: m/z 360.11 [M+H]⁺.



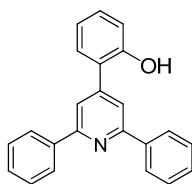
3-(2,6-di(furan-2-yl)pyridin-4-yl)phenol (3h)

Yield 84%, yellow solid, mp 163–164°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.74 (s, 1H, OH), 7.91 (s, 2H), 7.82 (s, 2H, Py-H), 7.37–7.24 (m, 5H), 6.92 (d, J =7.5 Hz, 1H), 6.72–6.69 (m, 2H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.1, 152.9, 149.3, 149.2, 144.5, 138.5, 130.4, 117.7, 116.6, 114.1, 113.6, 112.4, 109.8; IR (KBr, cm⁻¹): 3439, 1609, 1543, 1489, 1391, 1204, 1080, 749; ESI-MS: m/z 304.14 [M+H]⁺.



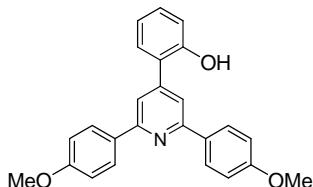
3-(2,6-di(thiophen-2-yl)pyridin-4-yl)phenol (3i)

Yield 78%, yellow solid, mp 124–125 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.74 (s, 1H, OH), 8.03 (d, J =3.9 Hz, 2H), 8.02 (s, 2H, Py-H), 7.68 (d, J =5.1 Hz, 2H), 7.39–7.32 (m, 3H), 7.23–7.19 (m, 2H), 6.93 (d, J =6.9 Hz, 1H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.0, 152.1, 149.7, 144.2, 138.7, 130.2, 128.8, 128.5, 126.0, 118.0, 116.4, 114.5, 114.1; IR (KBr, cm⁻¹): 3402, 1594, 1540, 1430, 1390, 1234, 804, 706; ESI-MS: m/z 336.07 [M+H]⁺.



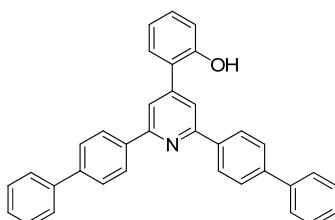
2-(2,6-diphenylpyridin-4-yl)phenol (3j)

Yield 75%, yellow solid, mp 153–154 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 8.46 (s, 1H, Py-H), 8.32 (d, J =7.5 Hz, 1H), 8.23 (s, 1H, Py-H), 8.15–8.09 (m, 4H), 7.65–7.53 (m, 6H), 7.37 (t, J =7.5 Hz, 1H), 7.01–6.95 (m, 2H), OH signal was not observed; ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 159.2, 157.4, 154.5, 150.6, 137.6, 137.2, 131.6, 129.8, 129.7, 129.2, 129.1, 127.8, 127.6, 126.8, 119.1, 118.9, 117.8, 117.1, 116.2; IR (KBr, cm⁻¹): 3440, 1603, 1542, 1388, 861, 756; ESI-MS: m/z 324.34 [M+H]⁺.



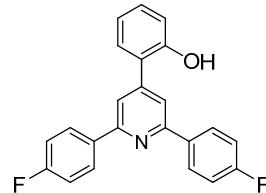
2-(2,6-bis(4-methoxyphenyl)pyridin-4-yl)phenol (3k)

Yield 76%, yellow solid, mp 123–124 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.87 (s, 1H, OH), 8.18 (d, J =8.7 Hz, 4H), 7.93 (s, 2H, Py-H), 7.54 (d, J =6.3 Hz, 1H), 7.32–7.26 (m, 1H), 7.09 (d, J =8.7 Hz, 4H), 7.04–6.95 (m, 2H), 3.84 (s, 6H, OCH₃); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 160.1, 155.3, 154.9, 148.1, 131.7, 130.4, 130.0, 128.1, 125.7, 119.7, 117.7, 116.4, 114.1, 55.2; IR (KBr, cm⁻¹): 3428, 1608, 1514, 1396, 1245, 1174, 1031, 882, 754; ESI-MS: m/z 384.38 [M+H]⁺.



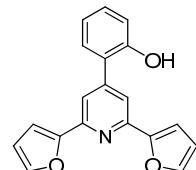
2-(2,6-di(biphenyl-4-yl)pyridin-4-yl)phenol (3l)

Yield 78%, yellow solid, mp 226–227°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.98 (s, 1H, OH), 8.36 (d, J =8.1 Hz, 4H), 8.15 (s, 2H, Py-H), 7.86 (d, J =8.1 Hz, 4H), 7.78 (d, J =7.5 Hz, 4H), 7.64–7.28 (m, 8H), 7.07–7.00 (m, 2H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 155.3, 154.9, 148.4, 140.7, 139.6, 138.1, 130.6, 130.2, 129.1, 127.8, 127.4, 127.1, 126.8, 125.3, 119.8, 119.2, 116.4; IR (KBr, cm⁻¹): 3439, 1617, 1514, 1391, 1246, 1174, 1113, 838, 757; ESI-MS: m/z 476.20 [M+H]⁺.



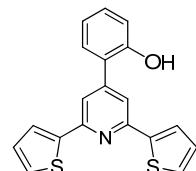
2-(2,6-bis(4-fluorophenyl)pyridin-4-yl)phenol (3m)

Yield 71%, yellow solid, mp 201–202°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.94 (s, 1H, OH), 8.31 (d, J =8.4 Hz, 2H), 8.28 (d, J =8.4 Hz, 2H), 8.06 (s, 2H, Py-H), 7.58 (d, J =7.2 Hz, 1H), 7.40–7.26 (m, 5H), 7.05–7.00 (m, 2H); 164.6, 161.3, 154.8, 154.7, 148.5, 135.5, 135.4, 130.5, 130.2, 129.0, 128.9, 125.2, 119.7, 119.0, 116.3, 115.8, 115.5; IR (KBr, cm⁻¹): 3440, 1118, 1509, 1391, 1226, 1103, 829, 749; ESI-MS: m/z 360.21 [M+H]⁺.



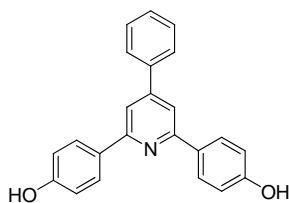
2-(2,6-di(furan-2-yl)pyridin-4-yl)phenol (3n)

Yield 74%, yellow solid, mp 174–175°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.99 (s, 1H, OH), 7.88 (s, 2H), 7.83 (s, 2H), 7.51 (d, J =7.5 Hz, 1H), 7.33–7.27 (m, 1H), 7.23 (d, J =3.3 Hz, 2H), 7.04–6.94 (m, 2H), 6.70 (dd, J_1 =3.3 Hz, J_2 =1.8 Hz, 2H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 154.8, 153.0, 148.4, 147.9, 144.3, 130.4, 130.1, 124.5, 119.8, 116.7, 116.4, 112.3, 109.3; IR (KBr, cm⁻¹): 3431, 1615, 1574, 1489, 1385, 1233, 1173, 1007, 821, 752; ESI-MS: m/z 304.20 [M+H]⁺.



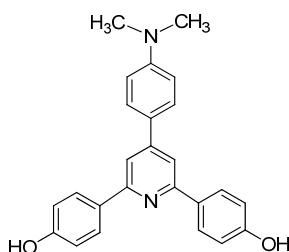
2-(2,6-di(thiophen-2-yl)pyridin-4-yl)phenol (3o)

Yield 75%, yellow solid, mp 166–167 °C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.94 (s, 1H, OH), 7.93 (s, 2H, Py-H), 7.87 (dd, J_1 =3.3 Hz, J_2 =1.8 Hz, 2H), 7.66 (dd, J_1 =5.7 Hz, J_2 =0.9 Hz, 2H), 7.50 (dd, J_1 =7.5 Hz, J_2 =1.8 Hz, 1H), 7.30–7.27 (m, 1H), 7.20–7.17 (m, 2H), 7.04–6.96 (m, 2H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 154.8, 151.3, 148.3, 144.3, 130.3, 130.2, 128.5, 128.4, 125.5, 124.9, 119.6, 117.3, 116.3; IR (KBr, cm⁻¹): 3432, 1595, 1537, 1430, 1387, 1288, 1238, 1116, 843, 755, 710; ESI-MS: m/z 336.18 [M+H]⁺.



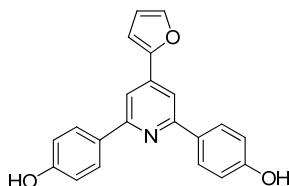
4,4'-(4-phenylpyridine-2,6-diyl)diphenol (6a)

Yield 80%, yellow solid, mp 229–230°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.77 (s, 2H, OH), 8.17 (d, J =8.4 Hz, 4H), 8.17 (d, J =7.5 Hz, 4H), 7.97 (s, 2H, Py-H), 7.59–7.50 (m, 3H), 6.94 (d, J =8.4 Hz, 4H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.7, 156.4, 149.2, 138.3, 130.0, 129.1, 128.4, 127.3, 115.6, 114.4; IR (KBr, cm⁻¹): 3547, 3231, 1737, 1601, 1510, 1452, 1397, 1239, 1169, 836, 762, 695; ESI-MS: m/z 340.35 [M+H]⁺.



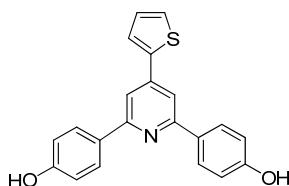
4,4'-(4-(dimethylamino)phenyl)pyridine-2,6-diyl)diphenol (6b)

Yield 82%, yellow solid, mp 246–247°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.73 (s, 2H, OH), 8.13 (d, J =8.7 Hz, 4H), 7.88 (s, 2H, Py-H), 7.86 (d, J =8.4 Hz, 2H), 6.90 (d, J =8.4 Hz, 4H), 6.86 (d, J =8.7 Hz, 2H), 3.00 (s, 6H, CH₃); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.5, 156.1, 150.9, 148.9, 130.3, 128.2, 127.8, 124.8, 115.4, 112.9, 112.3, 40.0; IR (KBr, cm⁻¹): 3345, 1596, 1515, 1368, 1241, 1170, 823; ESI-MS: m/z 383.42 [M+H]⁺.



4,4'-(4-(furan-2-yl)pyridine-2,6-diyl)diphenol (6c)

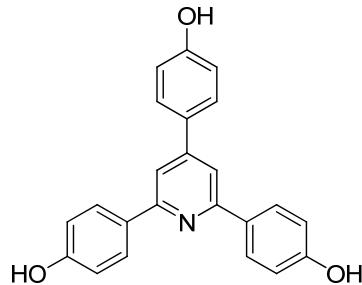
Yield 71%, yellow solid, mp 196–197°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.80 (s, 2H, OH), 8.12 (d, J =8.7 Hz, 4H), 7.95–7.92 (m, 3H), 6.91 (d, J =8.4 Hz, 4H), 7.36 (d, J =1.5 Hz, 1H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.7, 156.3, 151.4, 144.5, 138.7, 129.7, 128.2, 115.5, 112.6, 110.3, 109.8; IR (KBr, cm⁻¹): 3422, 1609, 1514, 1446, 1378, 1285, 1228, 1172, 830, 758; ESI-MS: m/z 330.32 [M+H]⁺.



4,4'-(4-(thiophen-2-yl)pyridine-2,6-diyl)diphenol (6d)

Yield 77%, yellow solid, mp 231–232°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.80 (s, 2H,

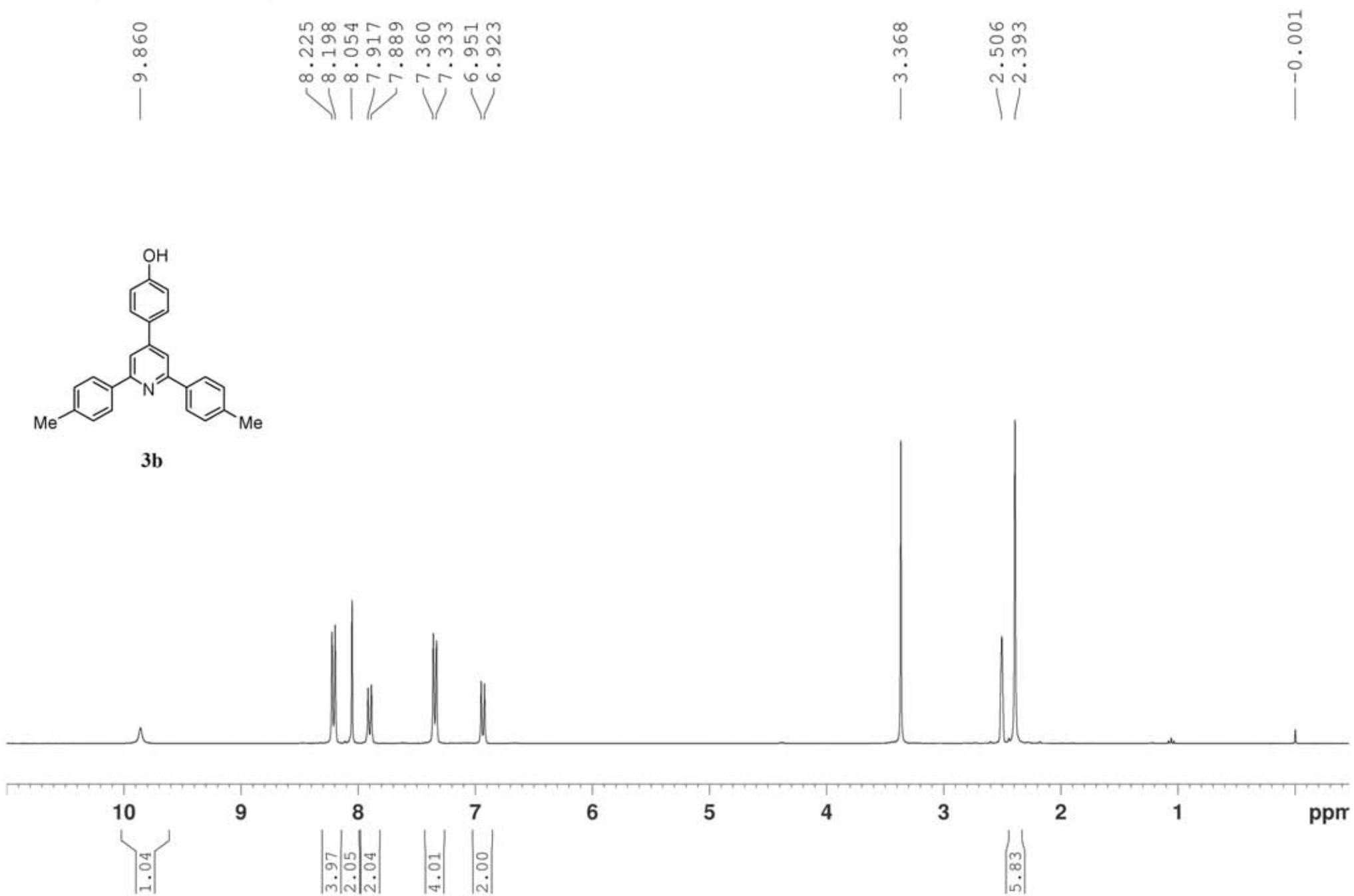
OH), 8.13 (d, $J=8.7$ Hz, 4H), 8.03 (d, $J=3.6$ Hz, 1H), 7.90 (s, 2H, Py-H), 7.76 (d, $J=5.1$ Hz, 1H), 7.29–7.25 (m, 1H), 6.91 (d, $J=8.7$ Hz, 4H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.8, 156.5, 142.5, 141.3, 129.6, 128.8, 128.3, 127.9, 126.6, 115.5, 112.5; IR (KBr, cm⁻¹): 3433, 1603, 1513, 1397, 1233, 1174, 829, 579; ESI-MS: m/z 346.30 [M+H]⁺.



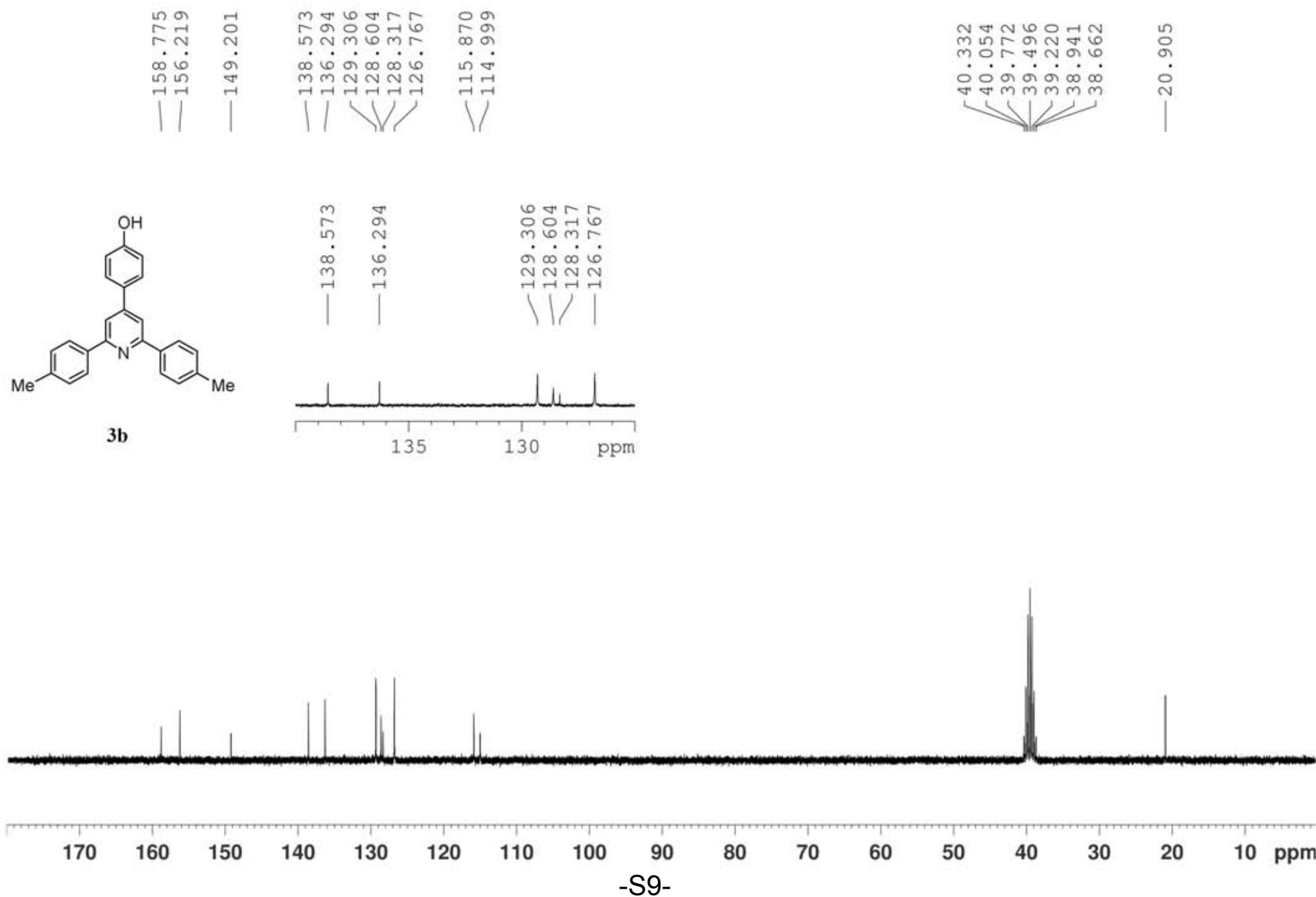
4,4',4''-(pyridine-2,4,6-triyl)triphenol (6e)

Yield 72%, yellow solid, mp 281–282°C; ^1H NMR (300MHz, DMSO-d₆): δ (ppm) 9.82 (s, 1H, OH), 9.74 (s, 2H, OH), 8.13 (d, $J=8.7$ Hz, 4H), 7.88 (s, 2H, Py-H), 7.85 (d, $J=8.4$ Hz, 2H), 6.93–6.88 (m, 6H); ^{13}C NMR (75MHz, DMSO-d₆): δ (ppm) 158.6, 158.5, 156.2, 148.9, 130.2, 128.7, 128.5, 128.3, 115.9, 115.5, 113.5; IR (KBr, cm⁻¹): 3294, 1708, 1603, 1513, 1393, 1234, 1175, 831; ESI-MS: m/z 356.40 [M+H]⁺.

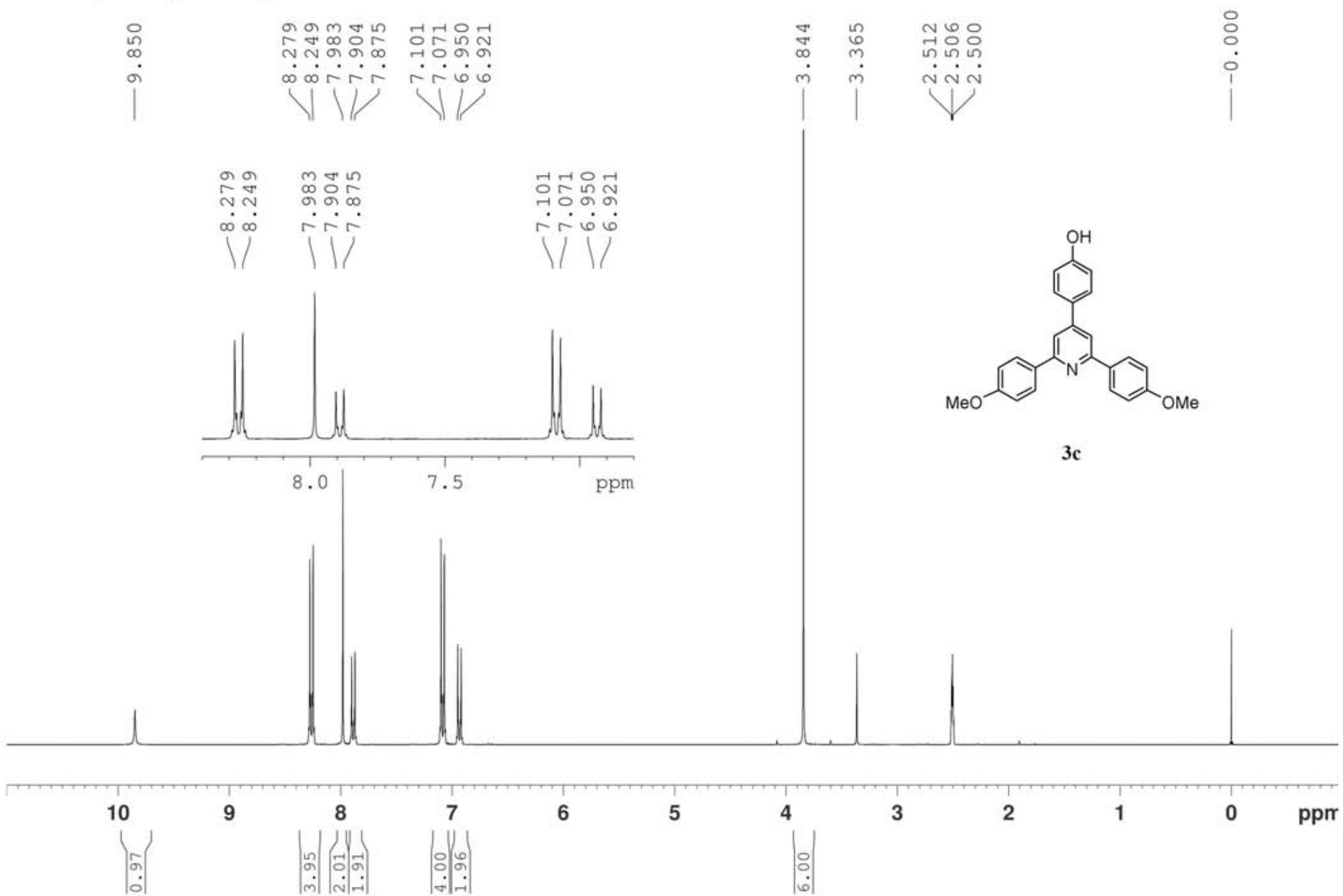
¹H NMR (300MHz, DMSO-d₆)



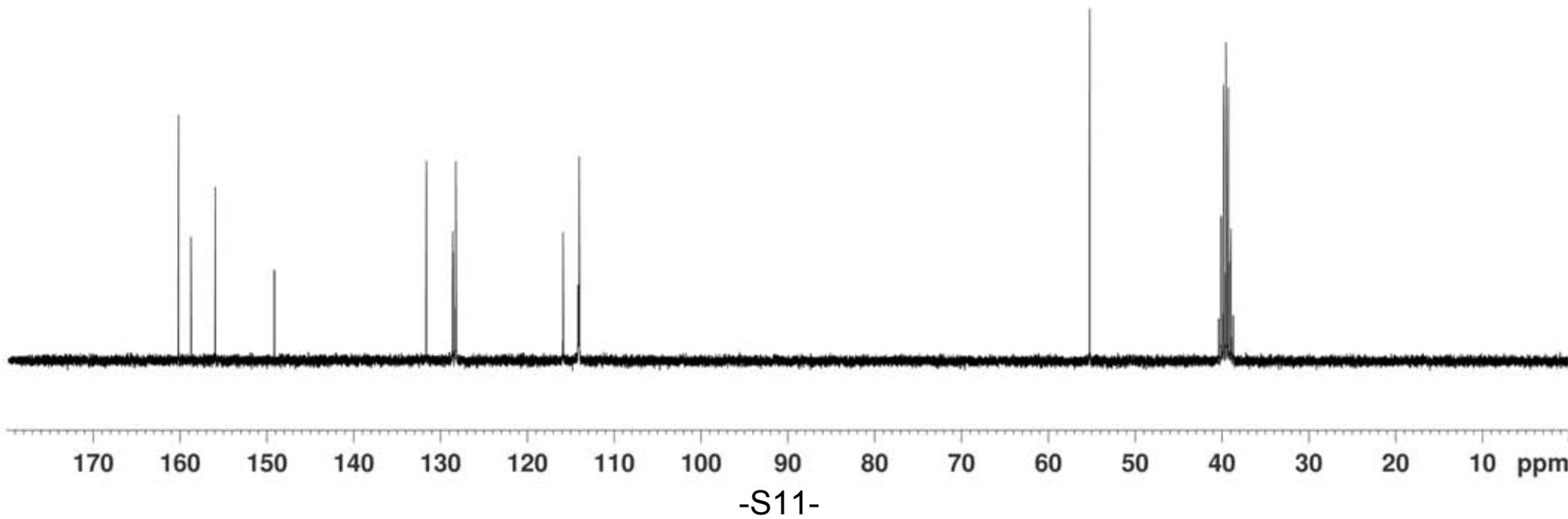
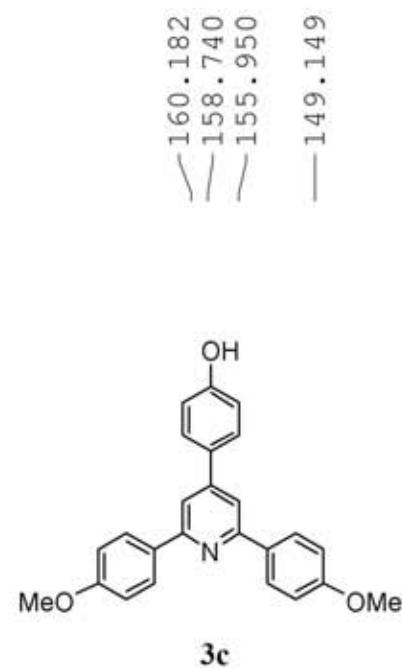
¹³C NMR (75MHz, DMSO-d₆)



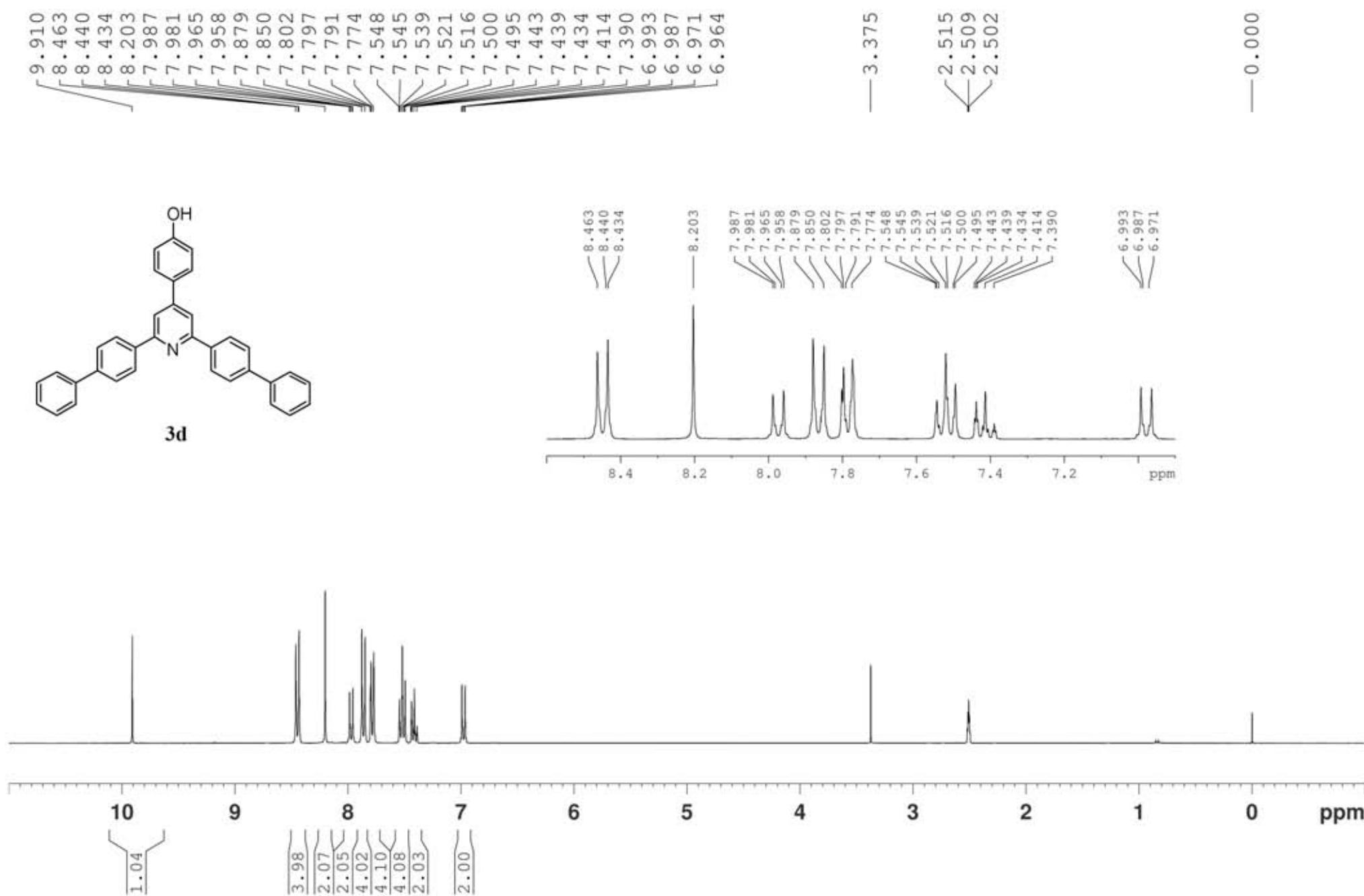
¹H NMR (300MHz, DMSO-d₆)



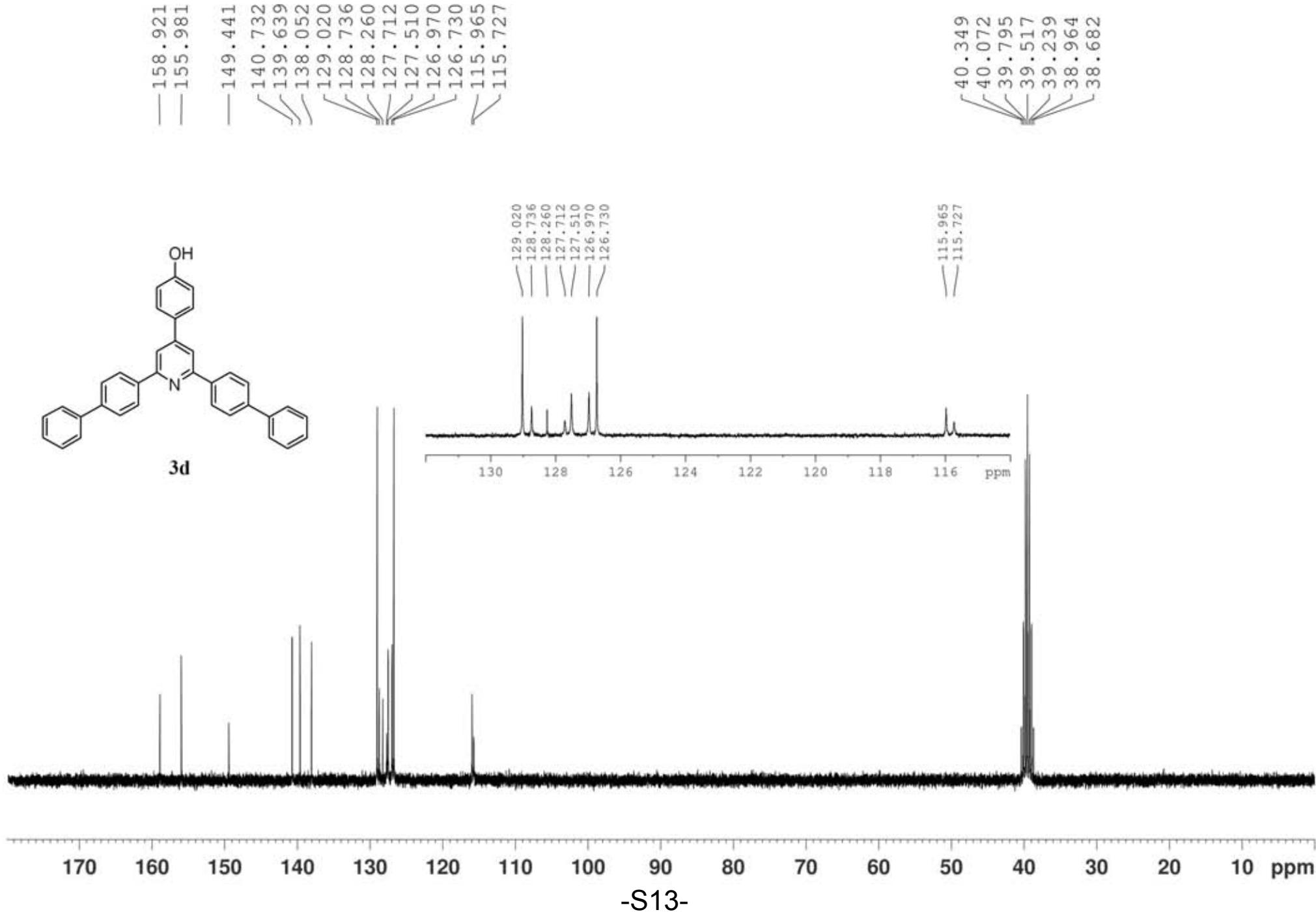
¹³C NMR (75MHz, DMSO-d₆)



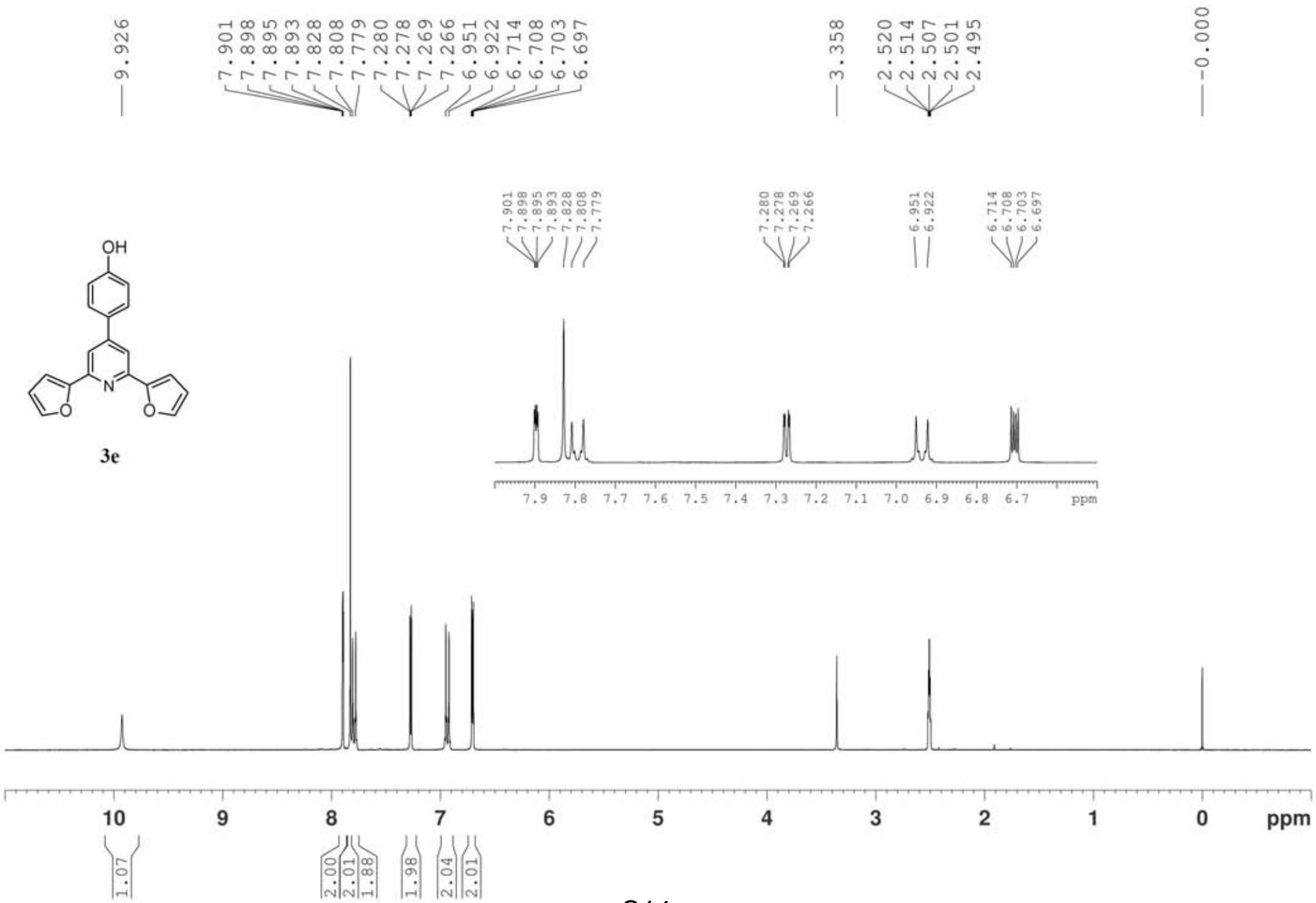
¹H NMR (300MHz, DMSO-d₆)



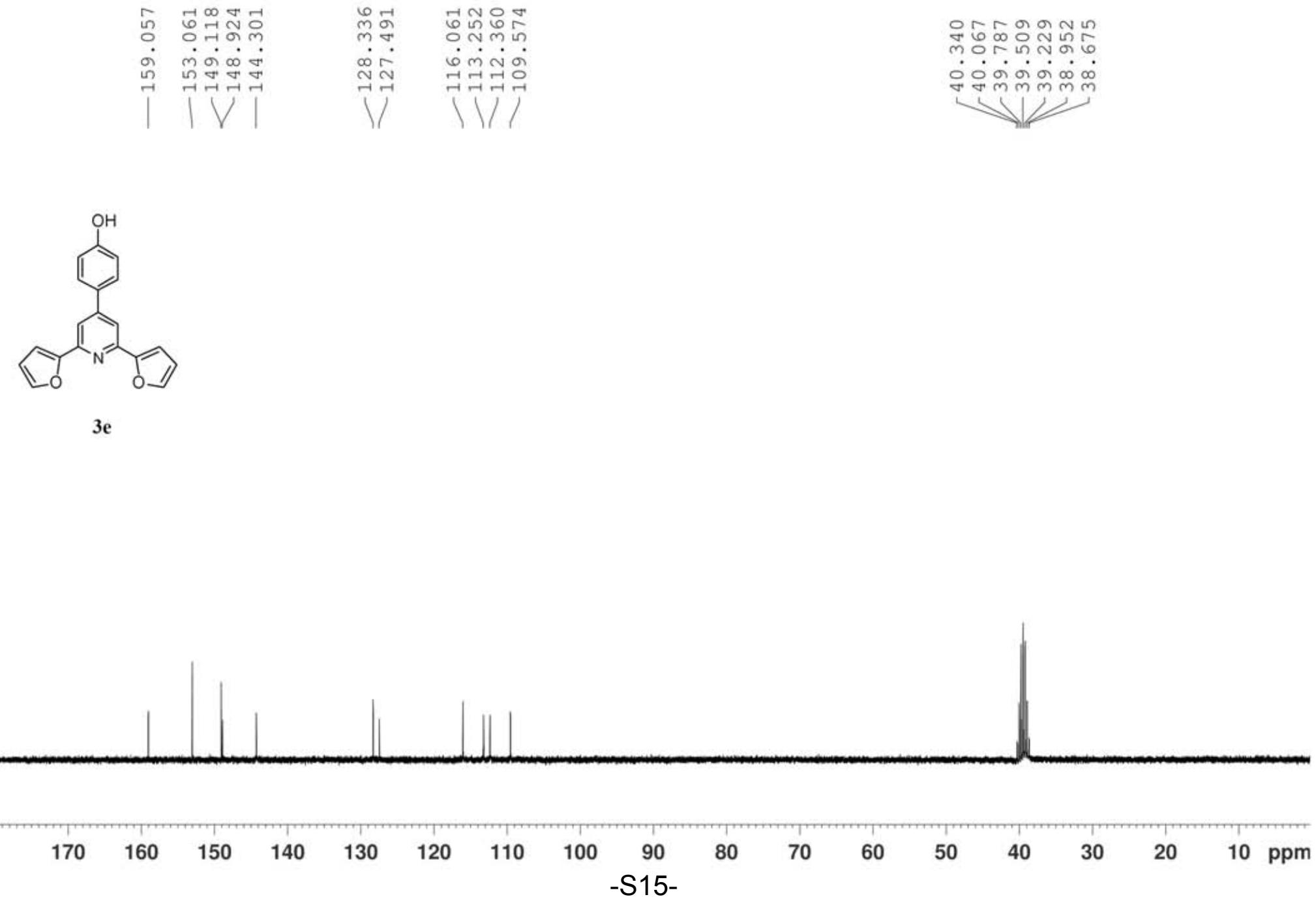
¹³C NMR (75MHz, DMSO-d₆)



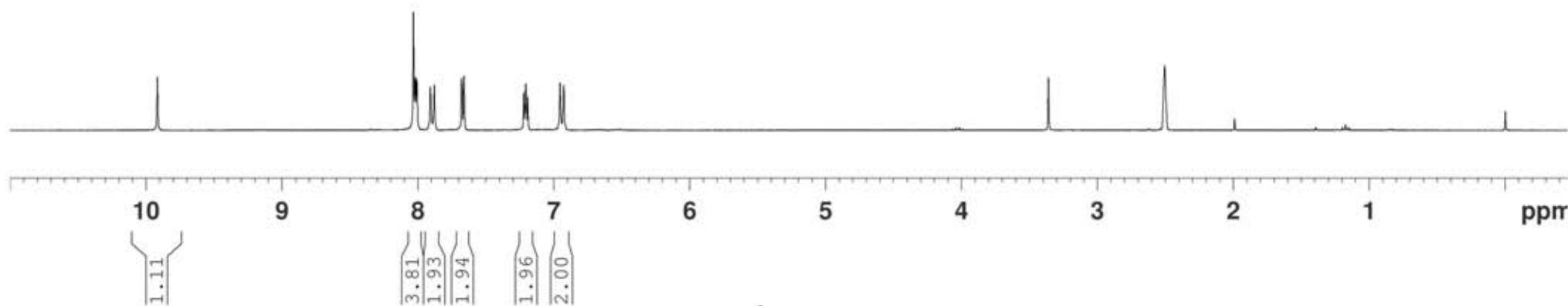
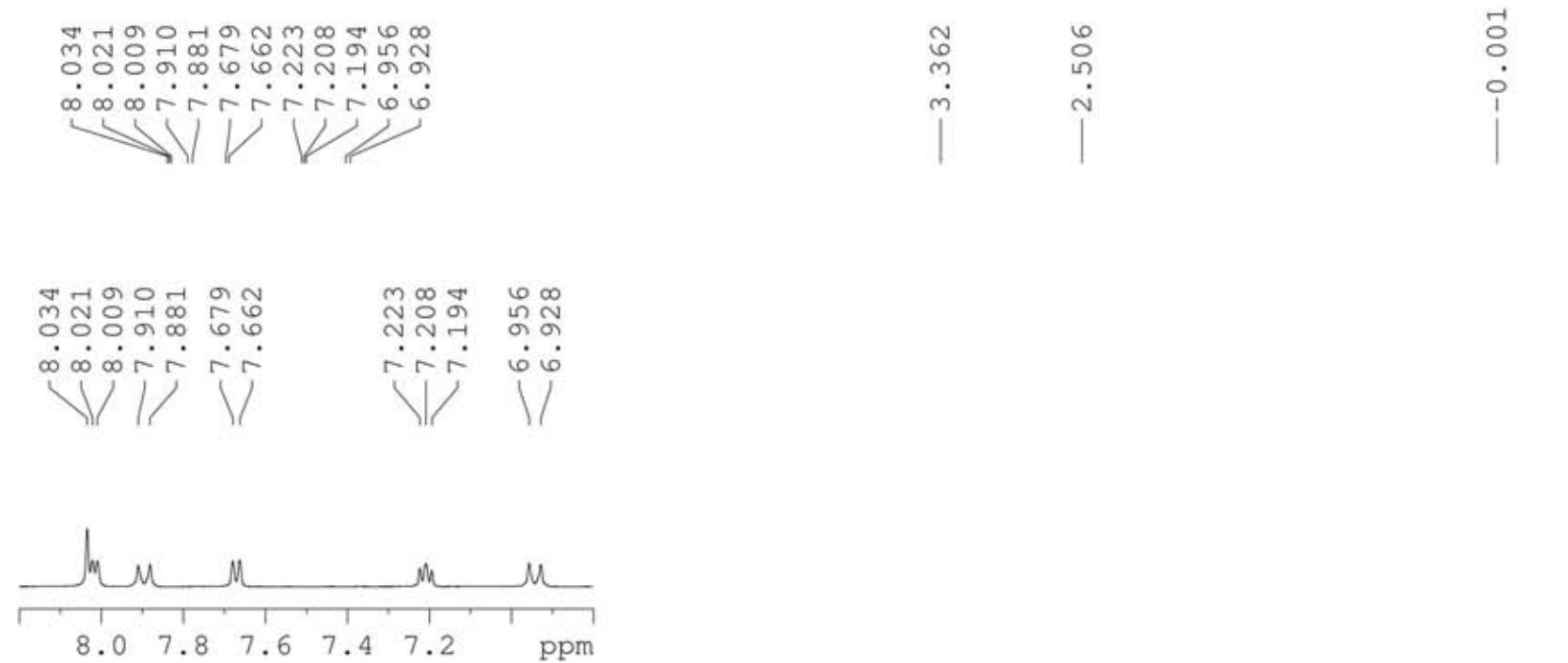
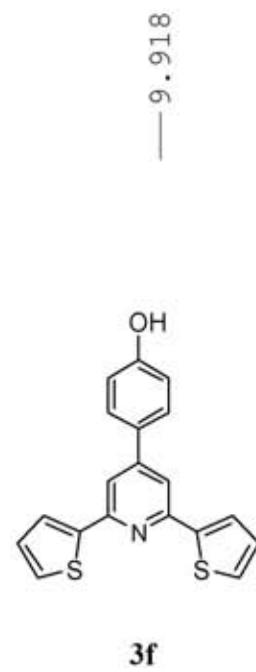
¹H NMR (300MHz, DMSO-d₆)



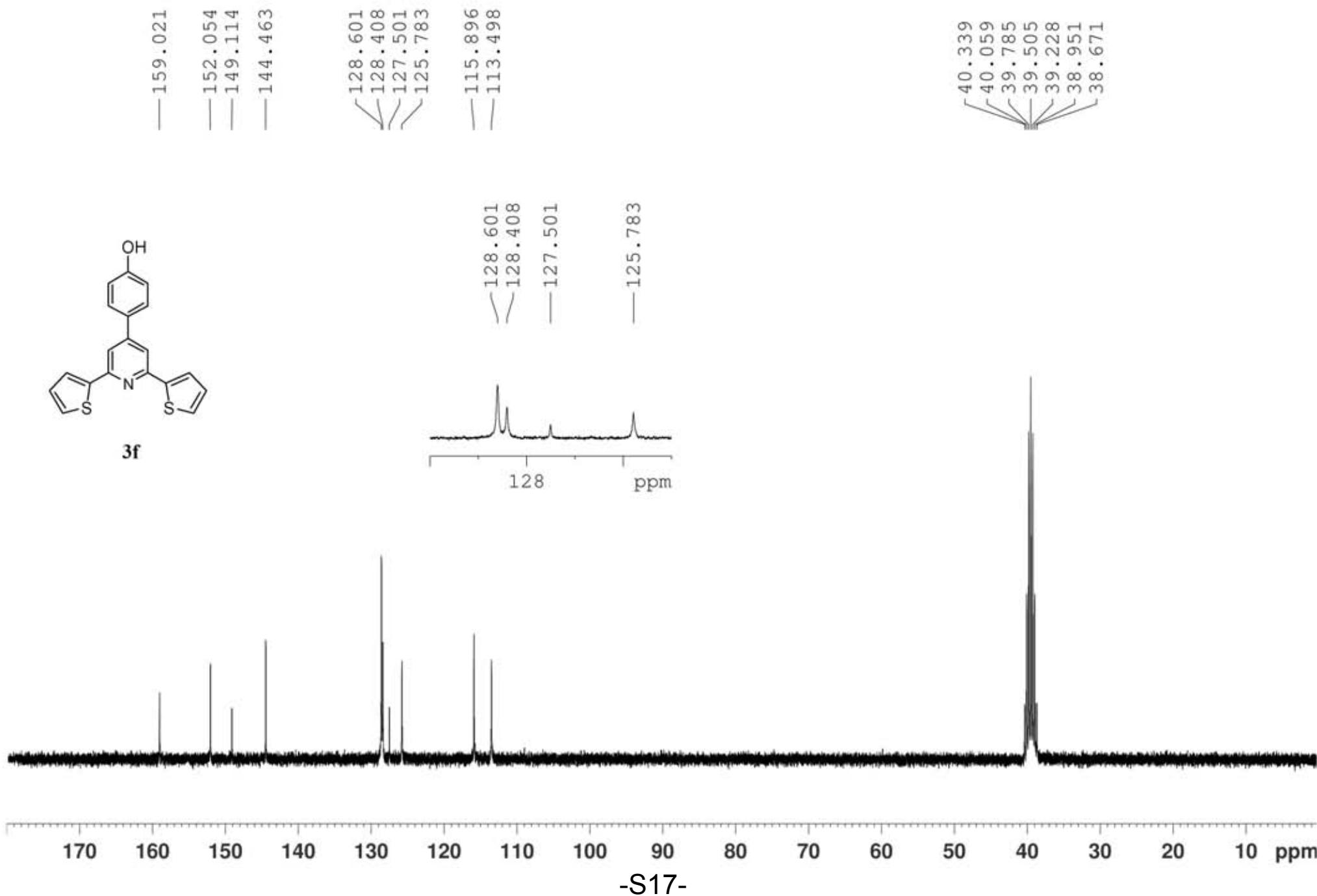
^{13}C NMR (75MHz, DMSO-d₆)



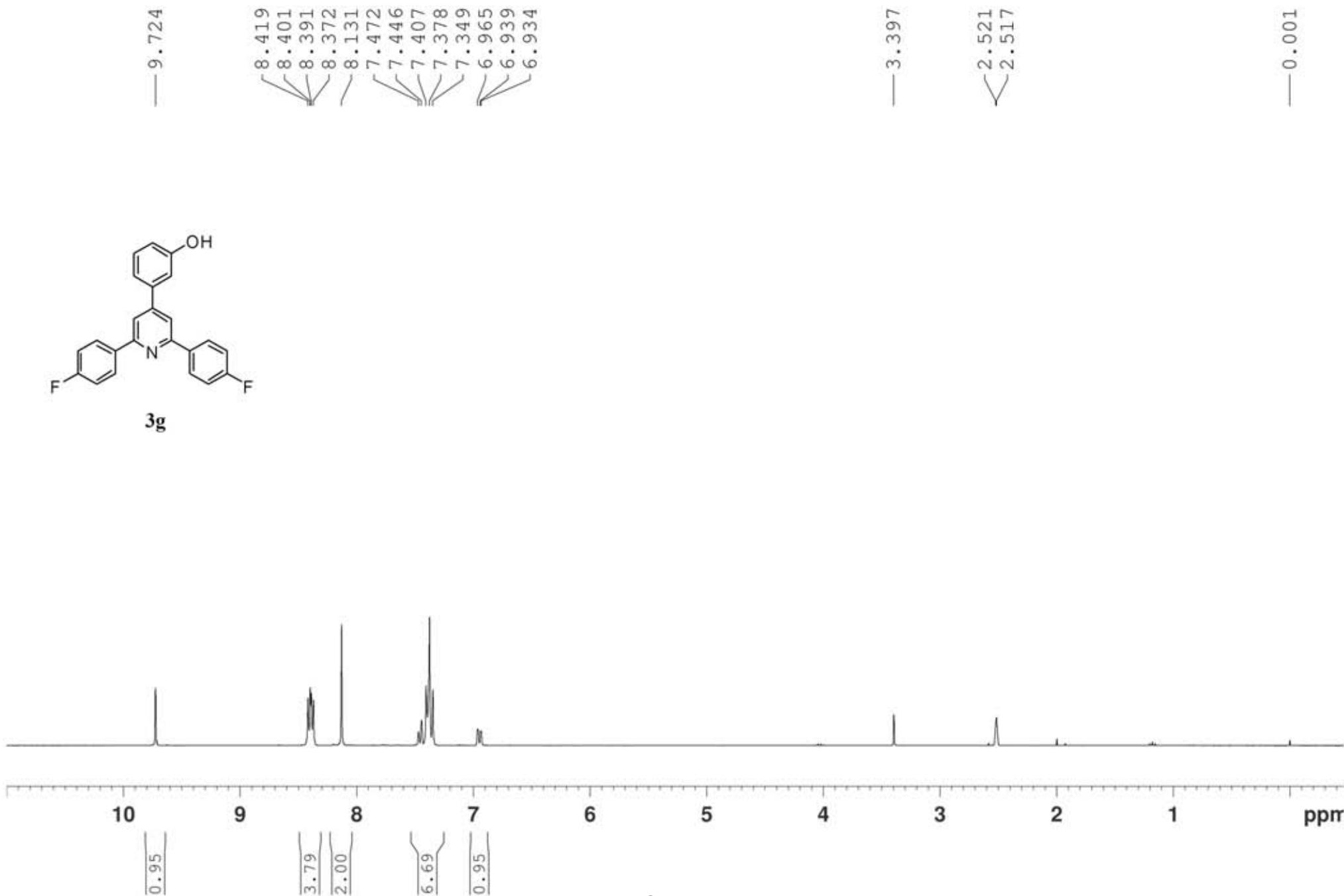
¹H NMR (300MHz, DMSO-d₆)



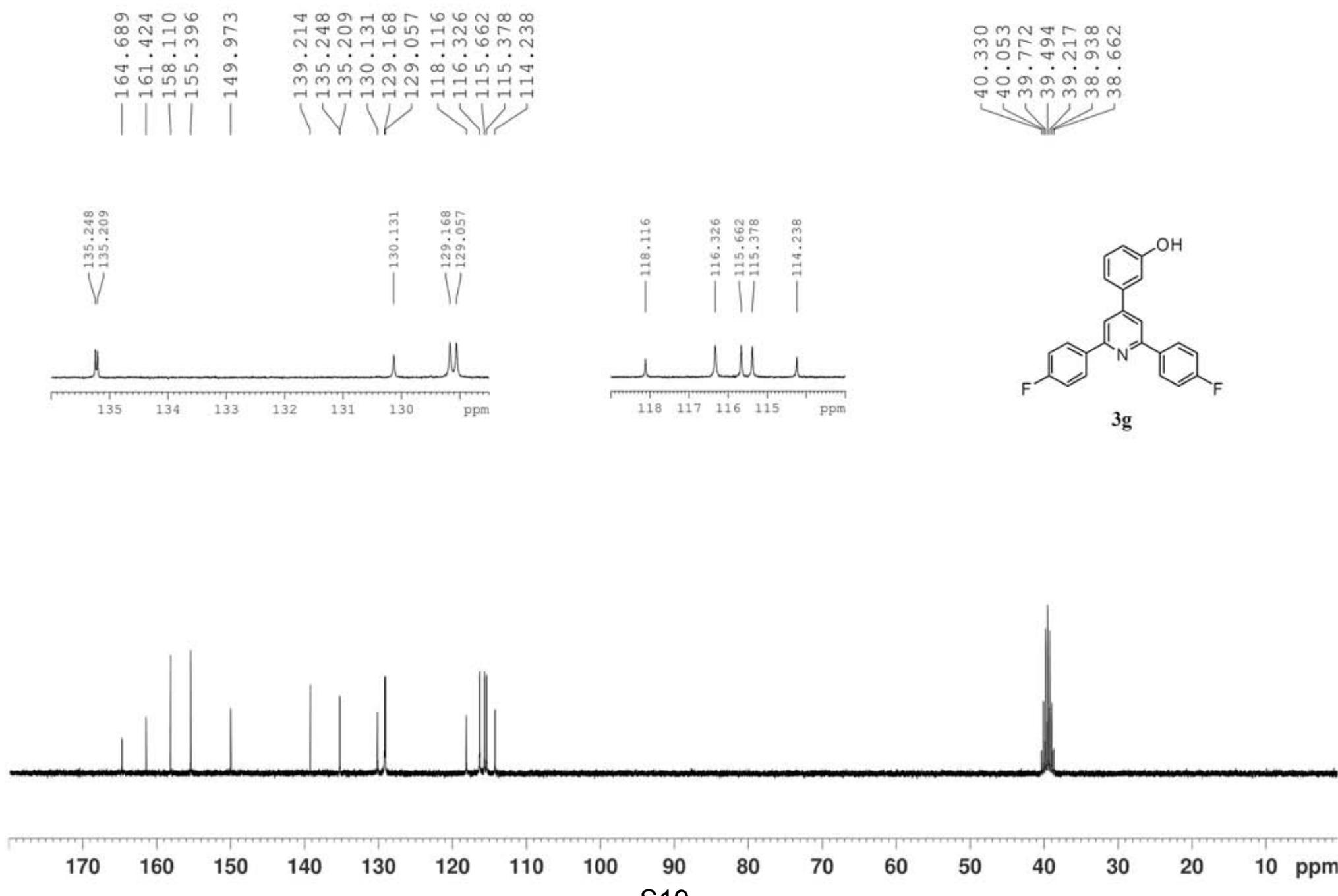
¹³C NMR (75MHz, DMSO-d₆)



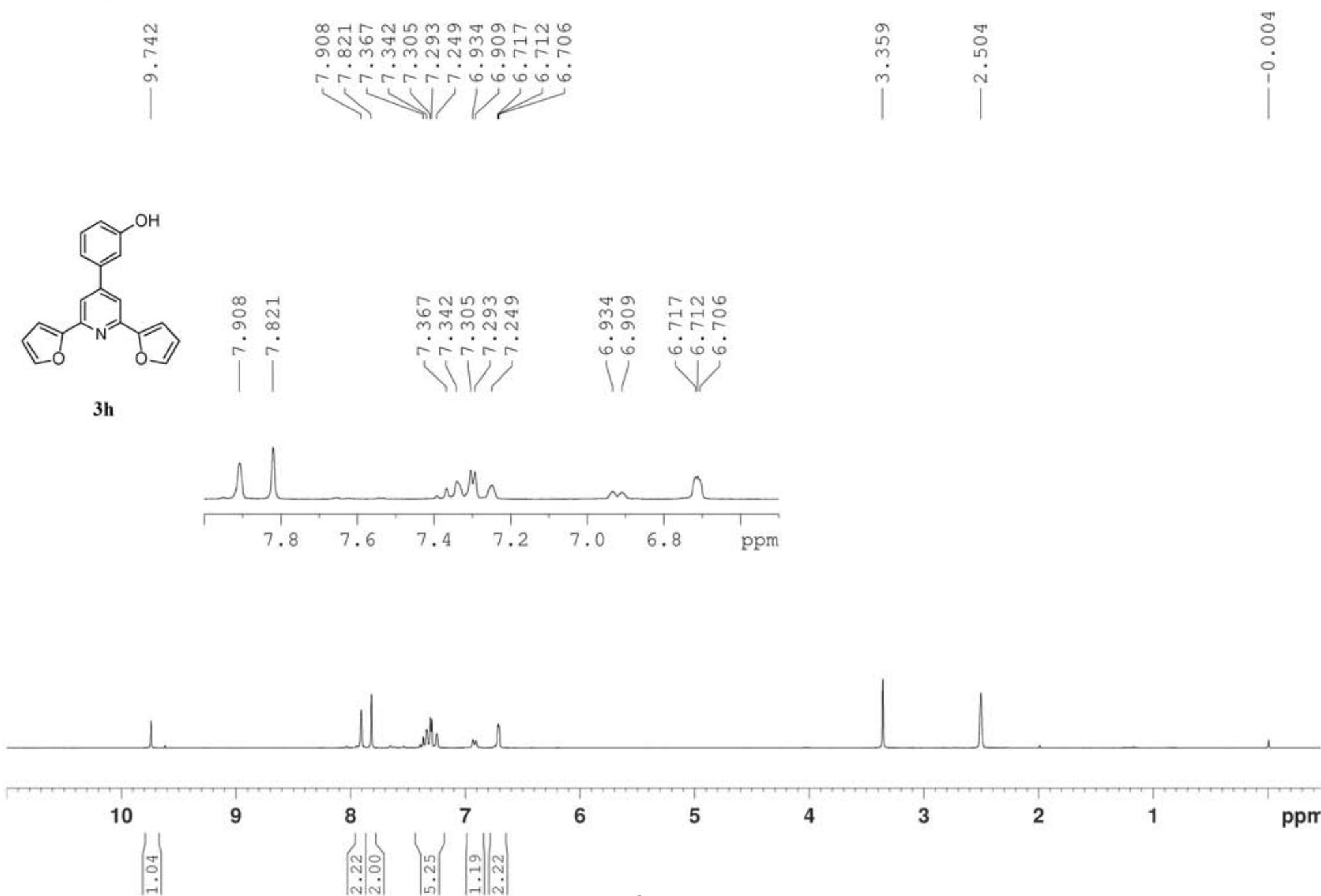
¹H NMR (300MHz, DMSO-d₆)



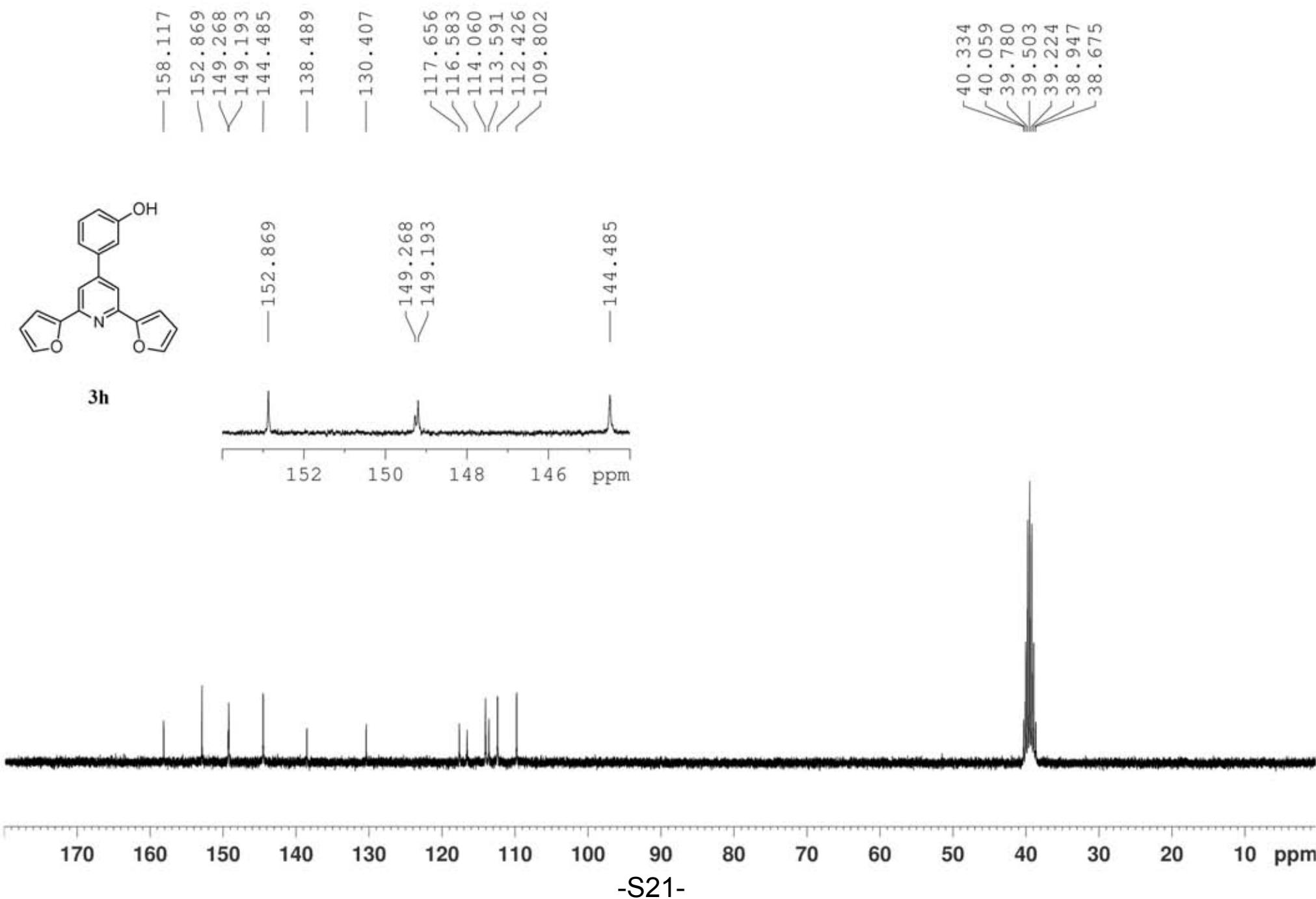
¹³C NMR (75MHz, DMSO-d₆)



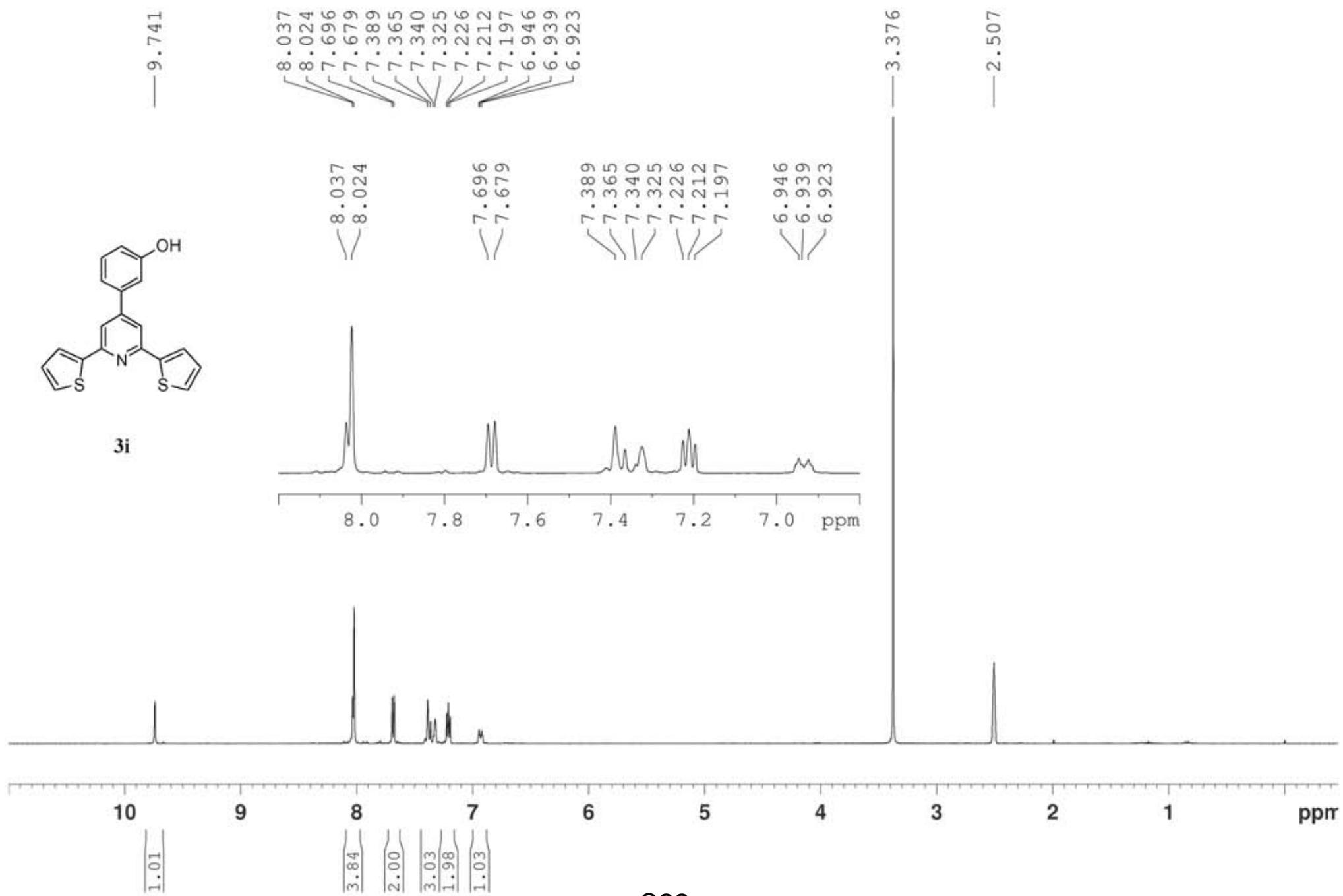
¹H NMR (300MHz, DMSO-d₆)



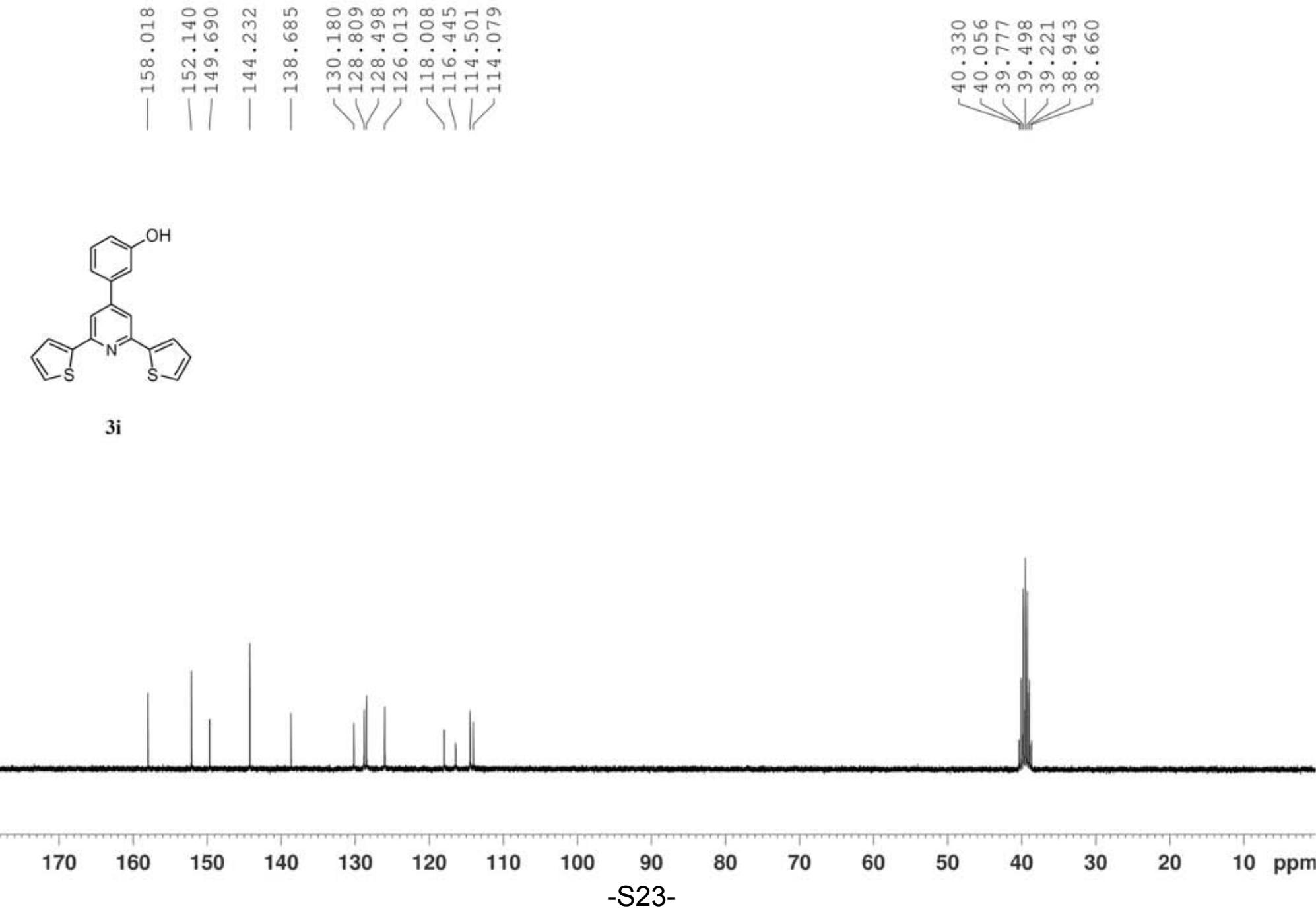
^{13}C NMR (75MHz, DMSO-d₆)



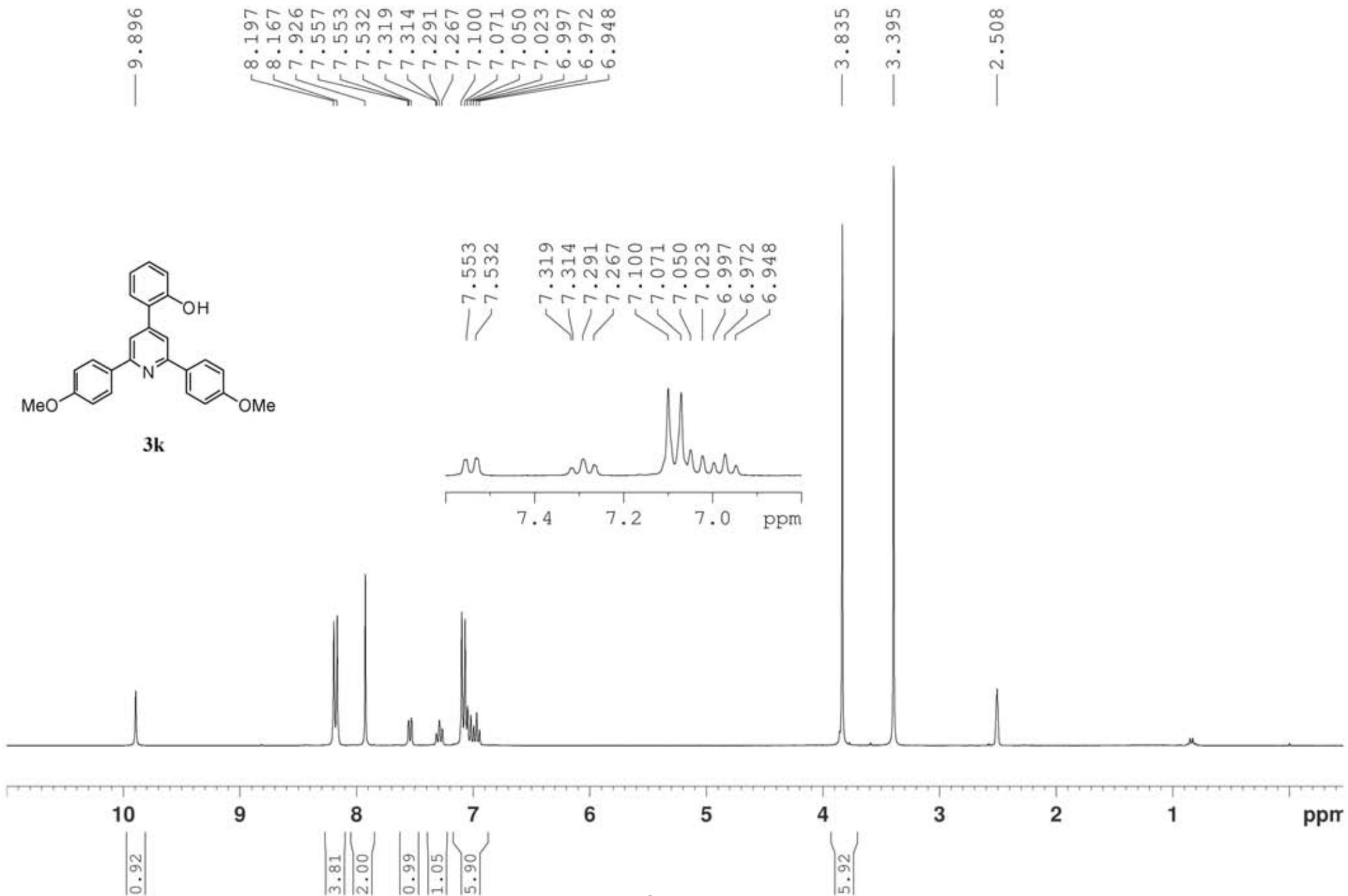
¹H NMR (300MHz, DMSO-d₆)



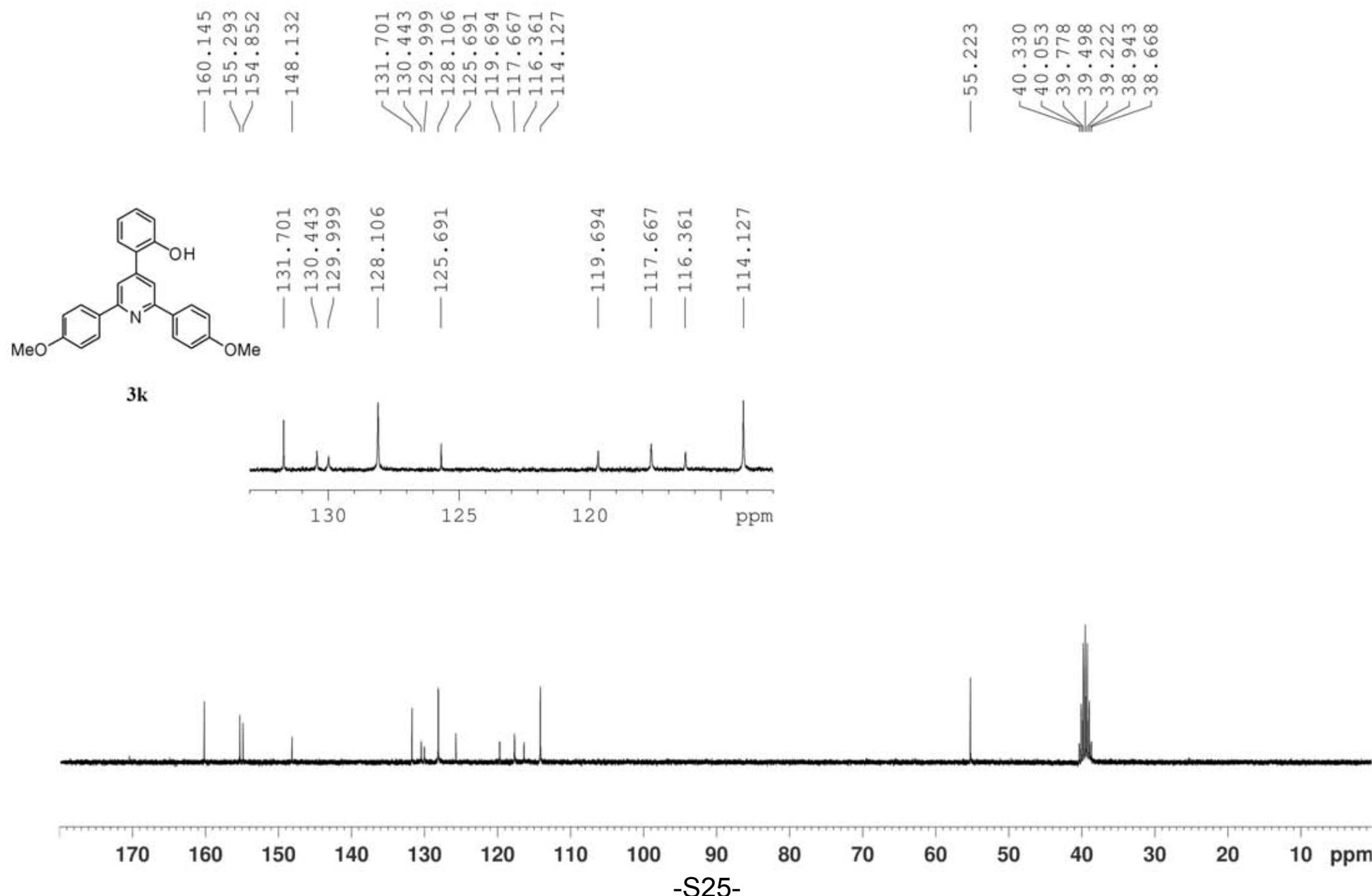
¹³C NMR (75MHz, DMSO-d₆)



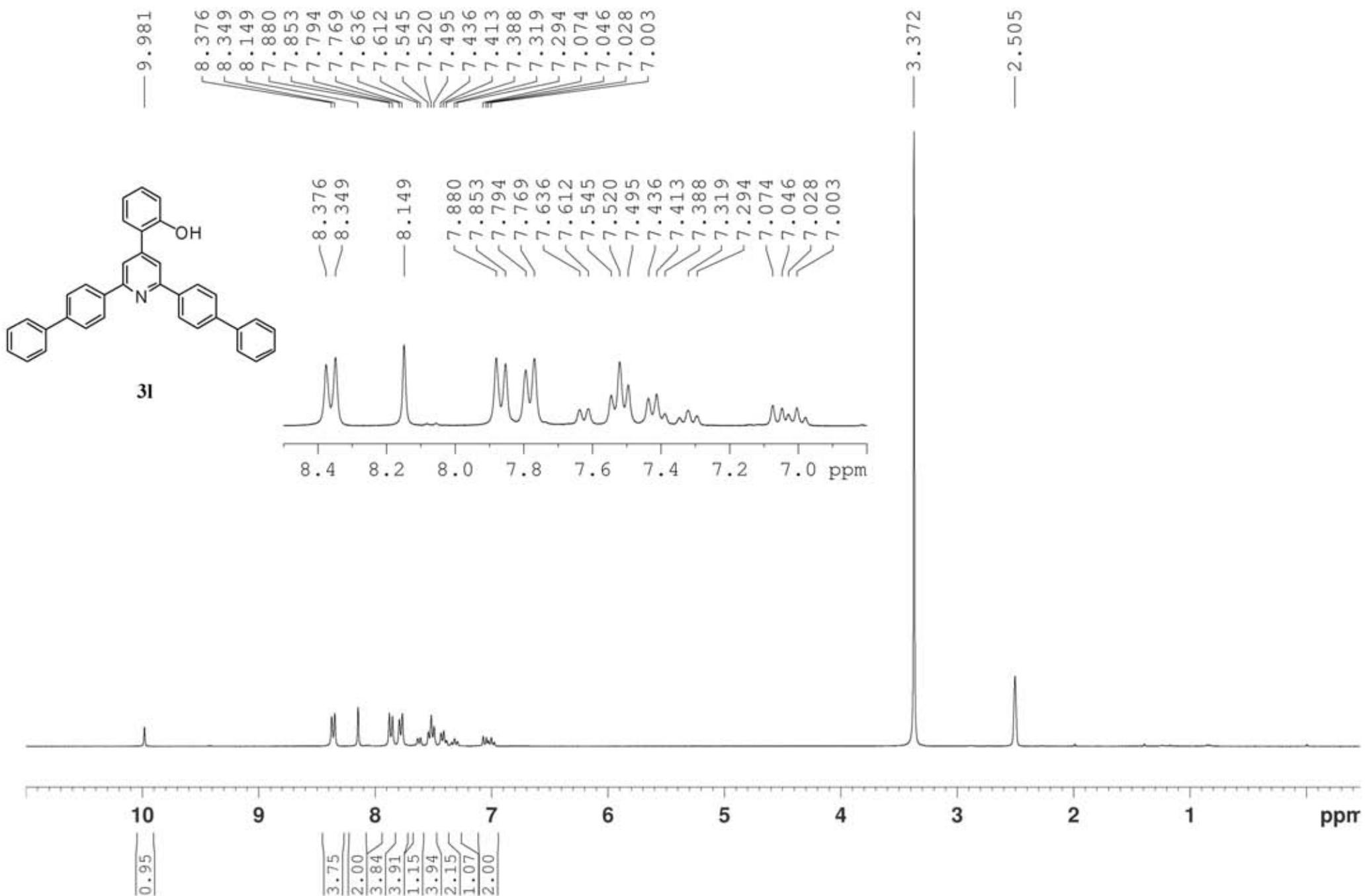
¹H NMR (300MHz, DMSO-d₆)



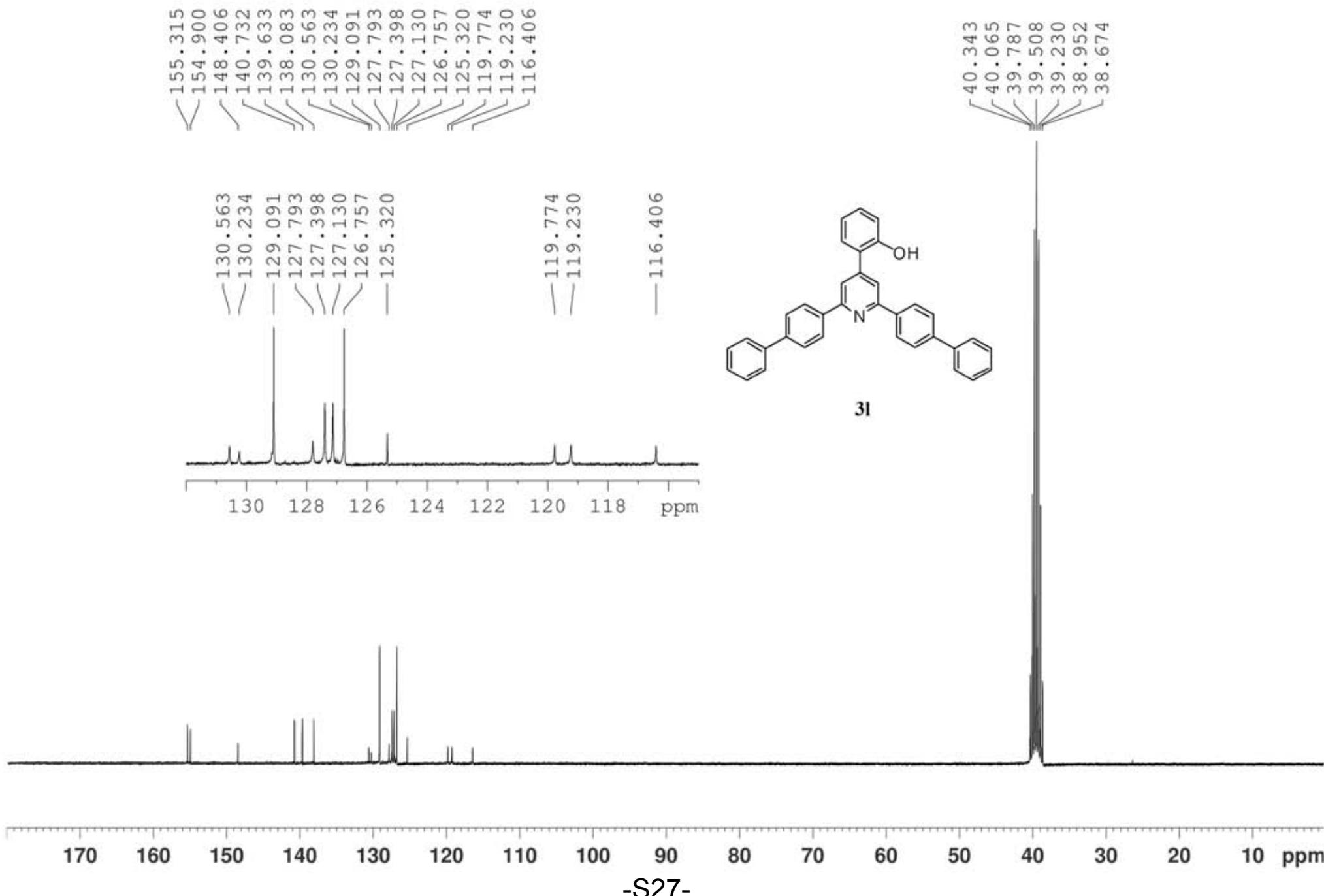
¹³C NMR (75MHz, DMSO-d₆)



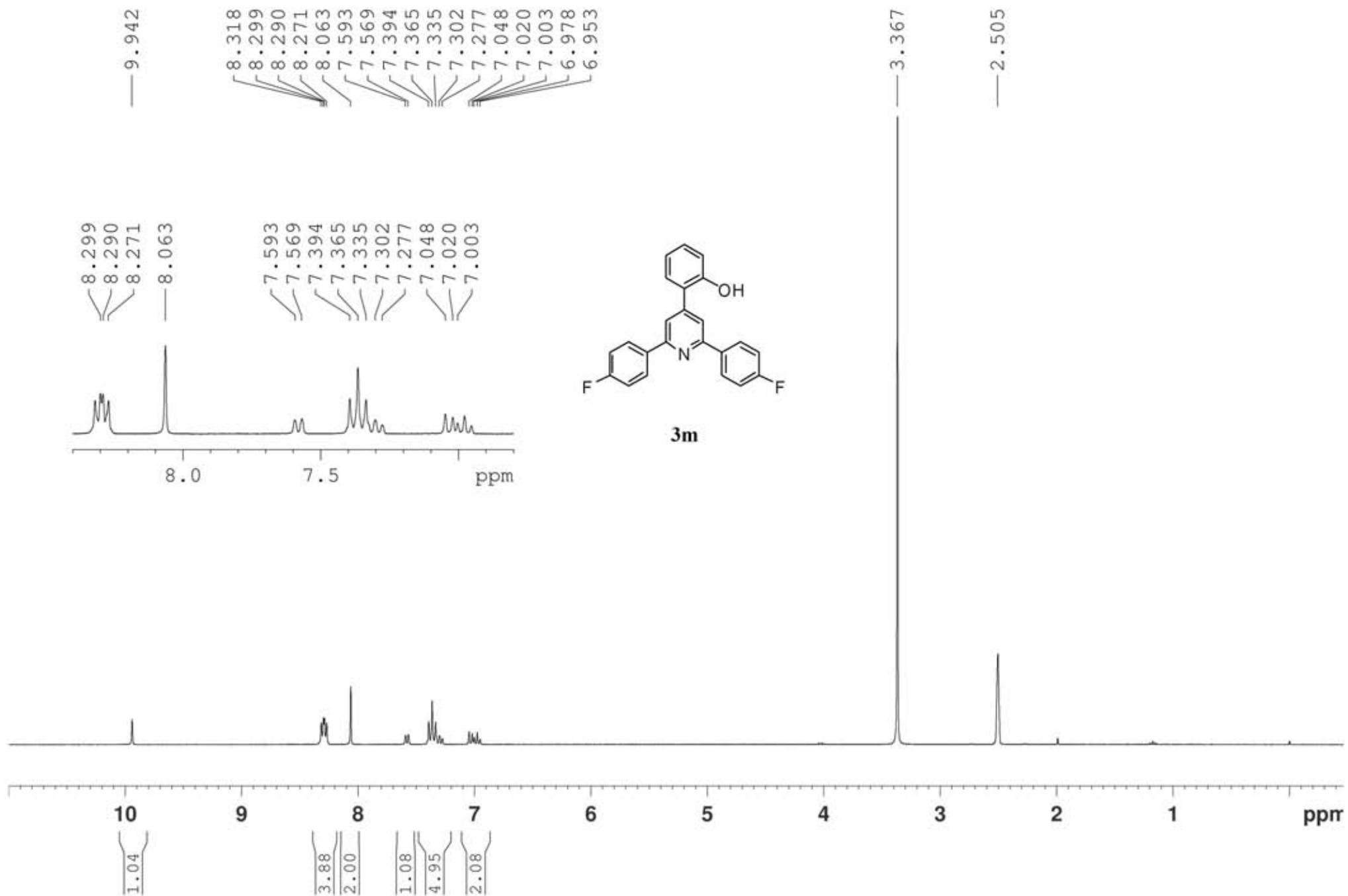
¹H NMR (300MHz, DMSO-d₆)



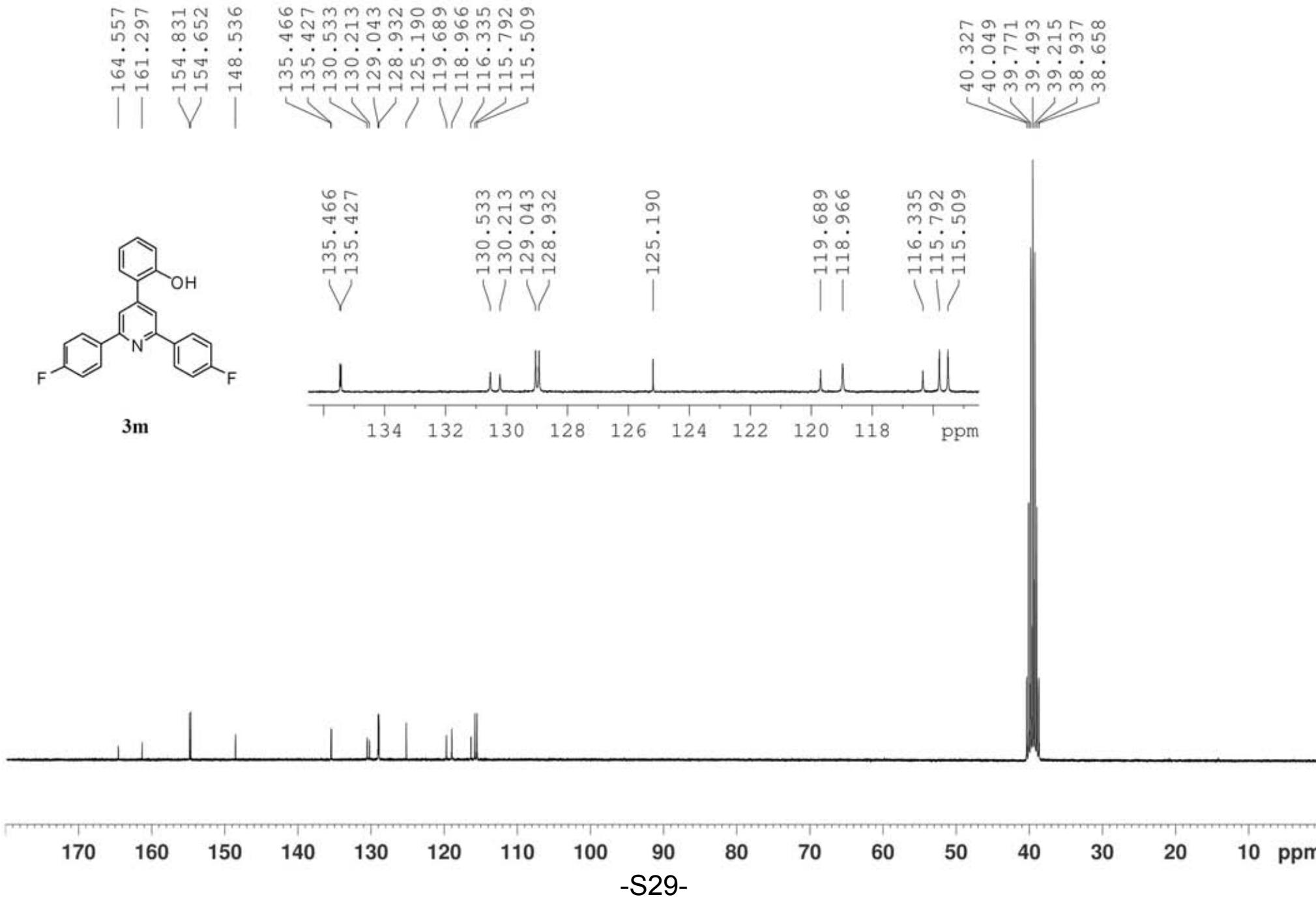
¹³C NMR (75MHz, DMSO-d₆)



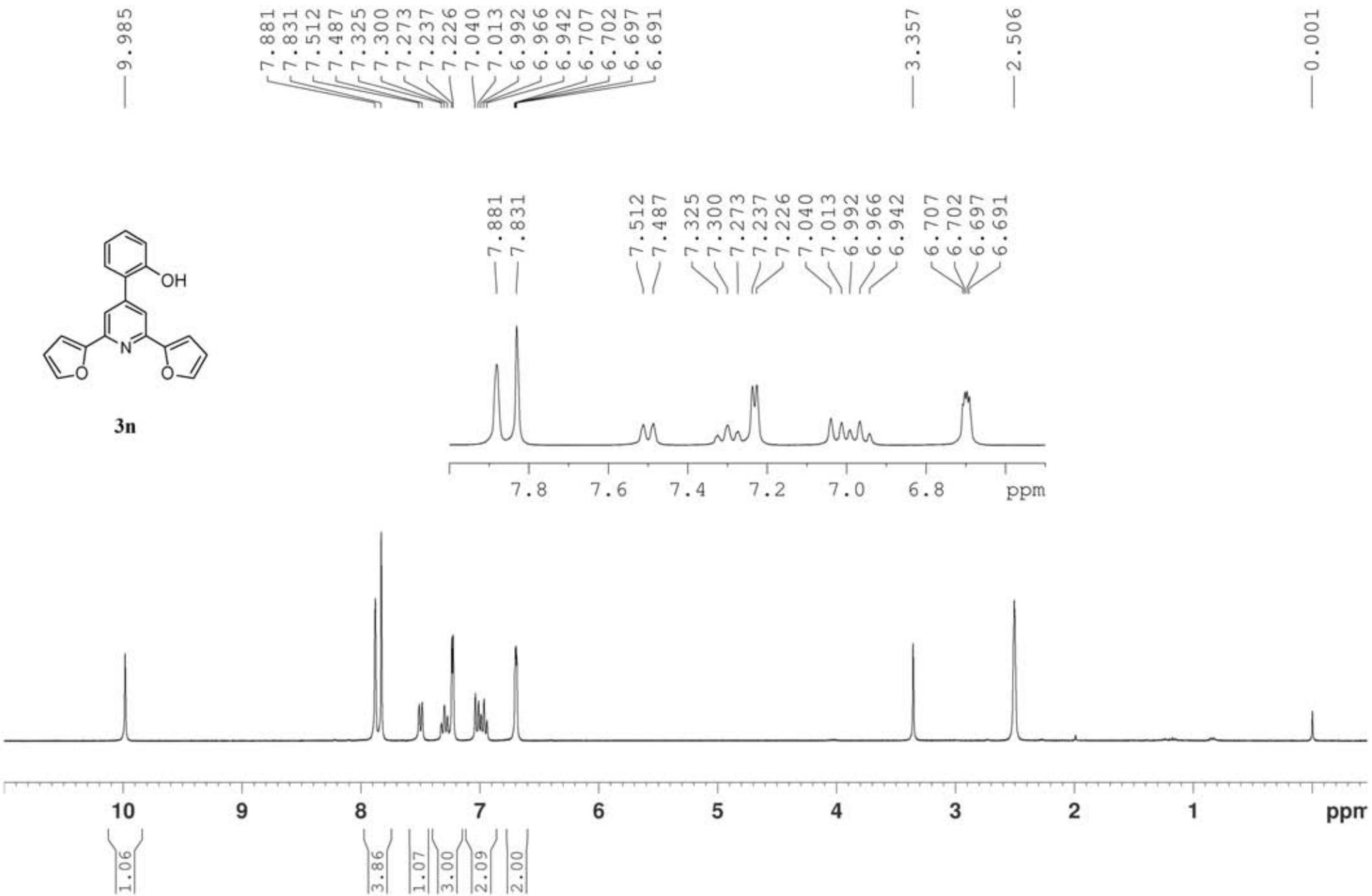
¹H NMR (300MHz, DMSO-d₆)



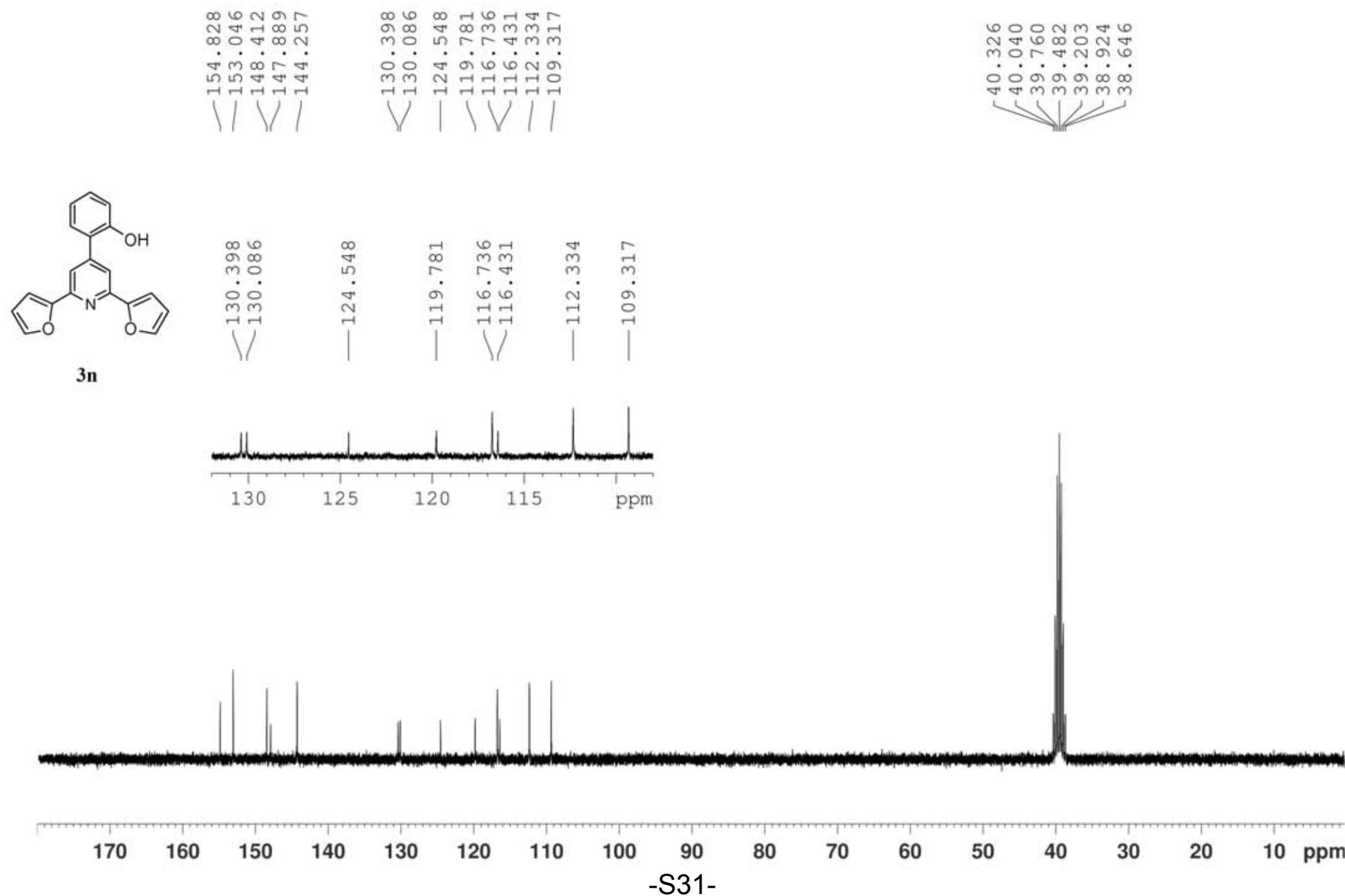
¹³C NMR (75MHz, DMSO-d₆)



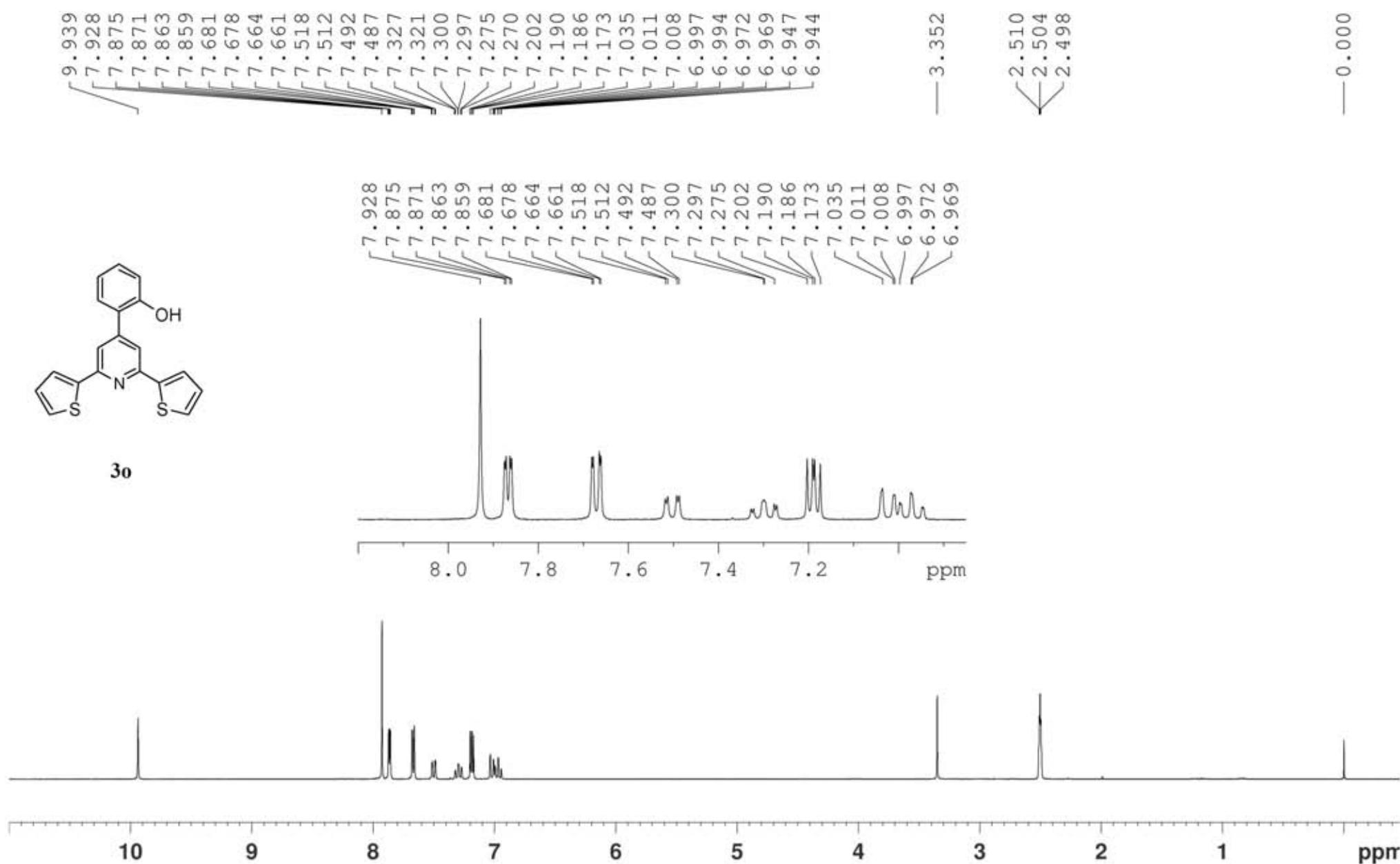
¹H NMR (300MHz, DMSO-d₆)



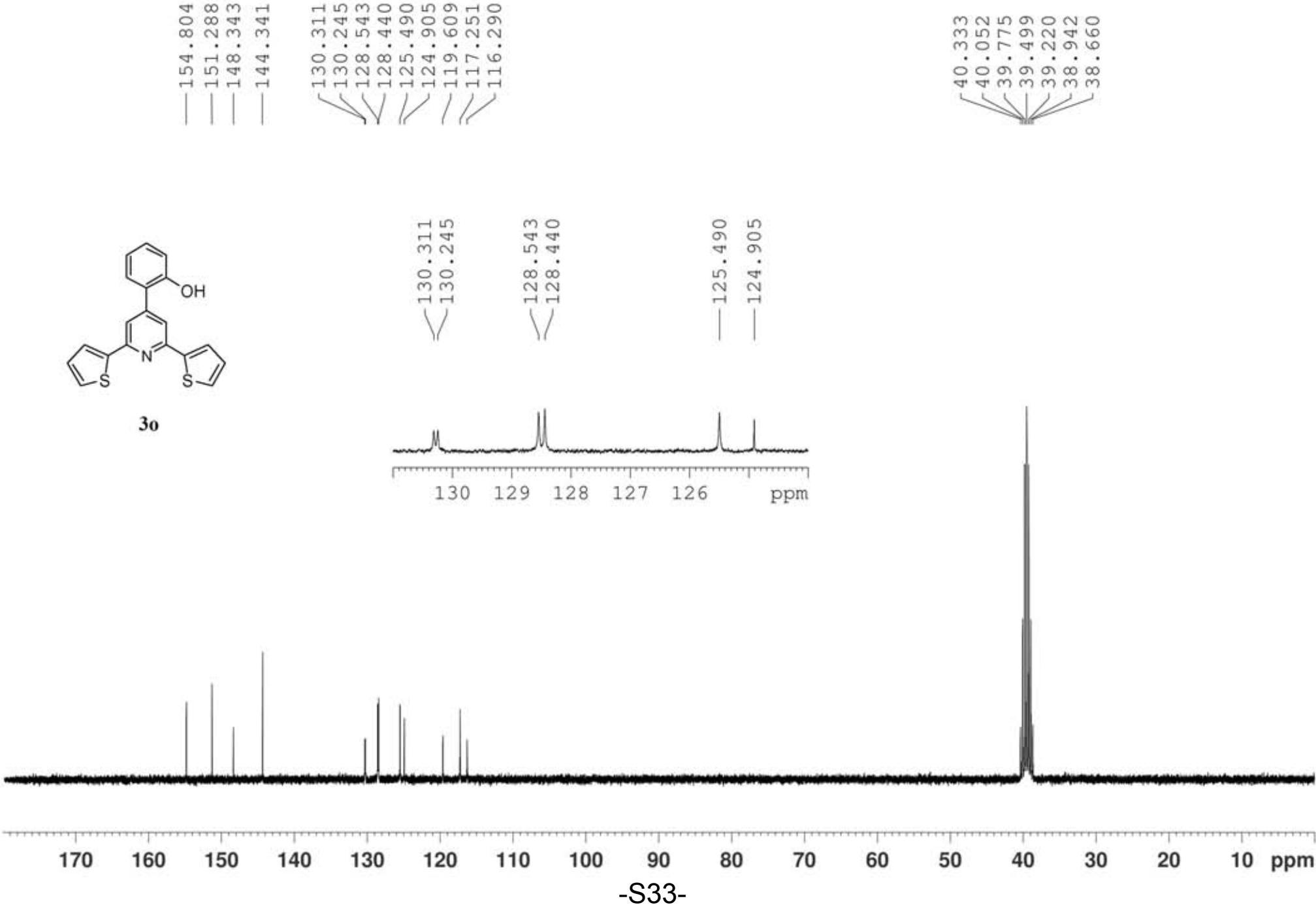
¹³C NMR (75MHz, DMSO-d₆)



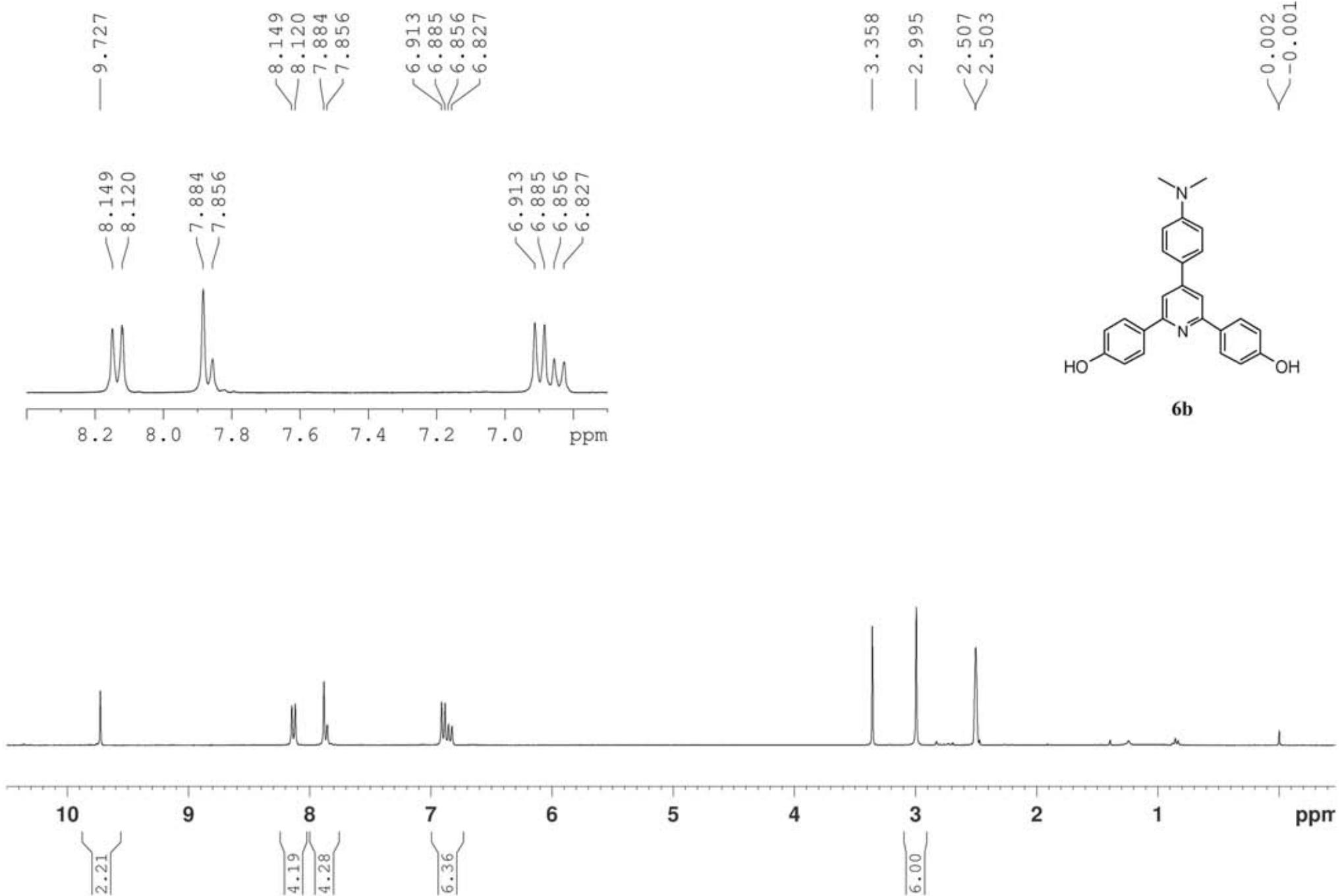
¹H NMR (300MHz, DMSO-d₆)



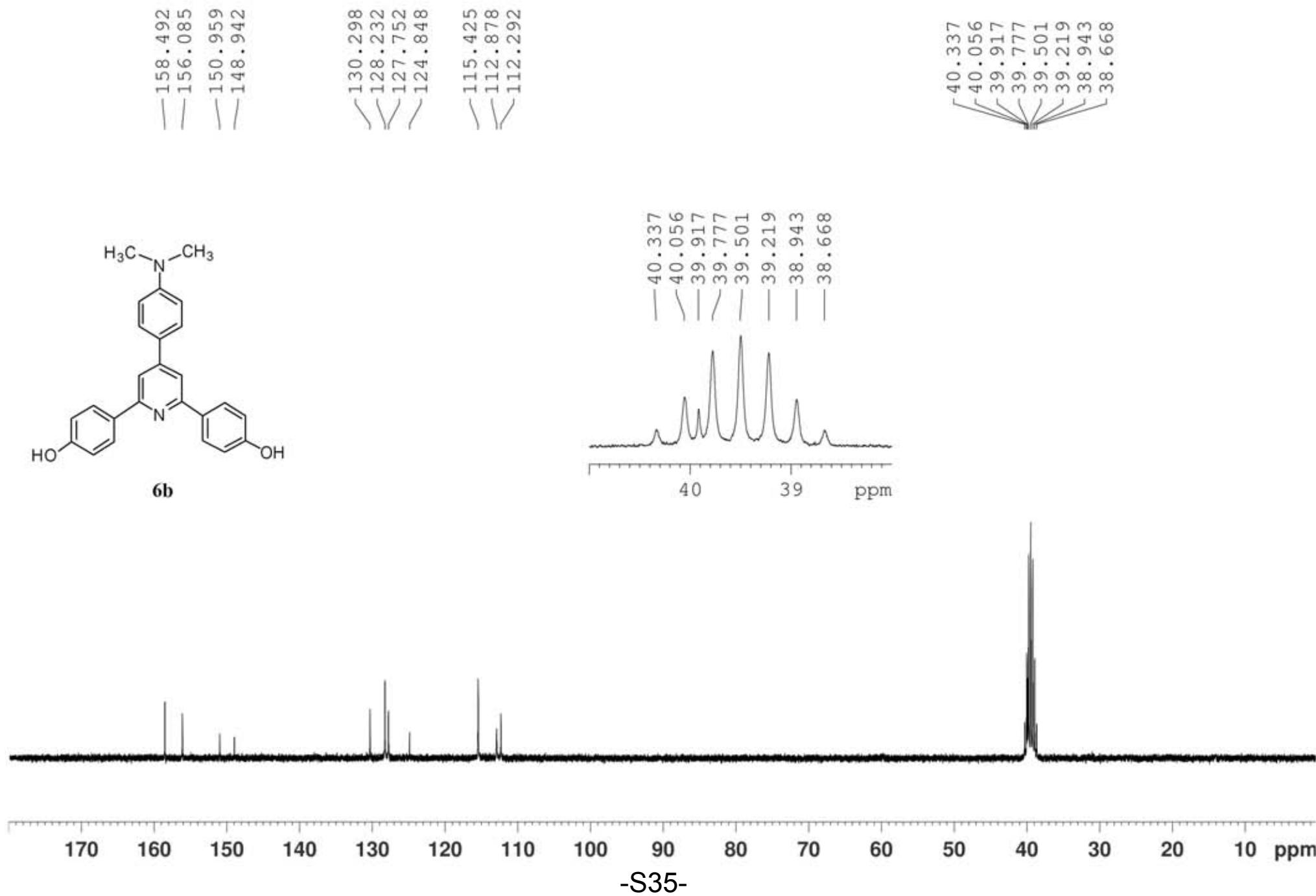
¹³C NMR (75MHz, DMSO-d₆)



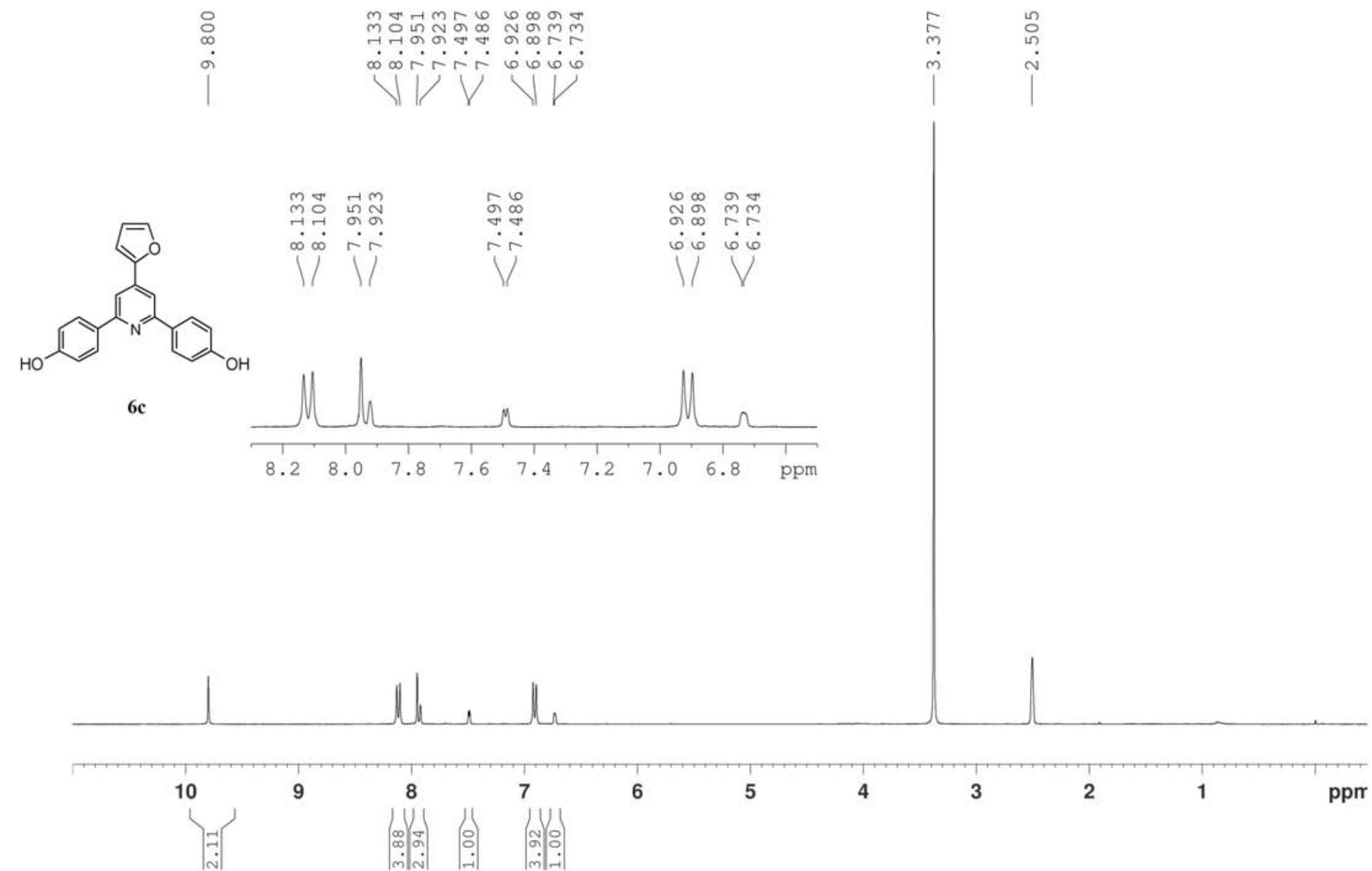
¹H NMR (300MHz, DMSO-d₆)



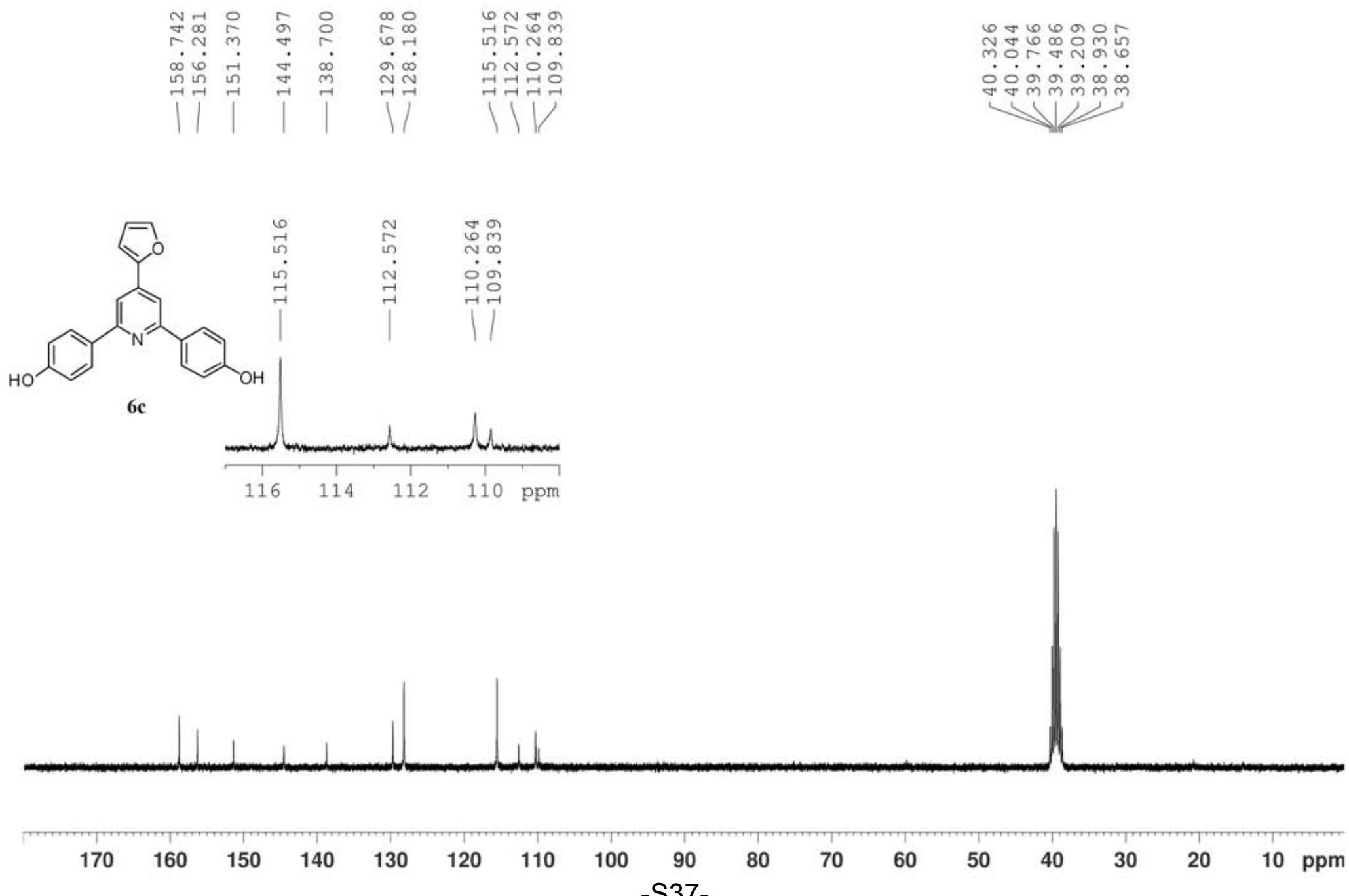
¹³C NMR (75MHz, DMSO-d₆)



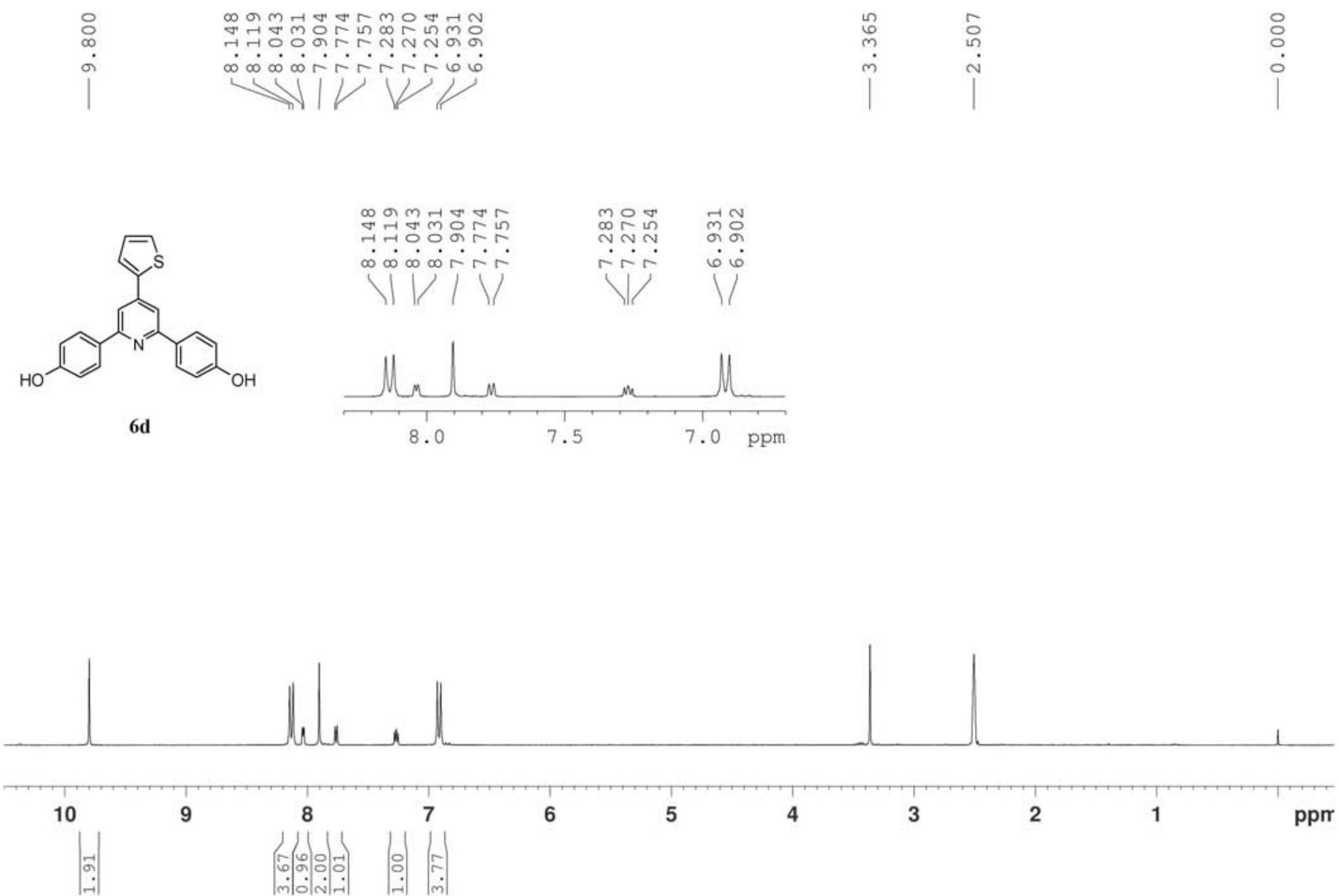
¹H NMR (300MHz, DMSO-d₆)



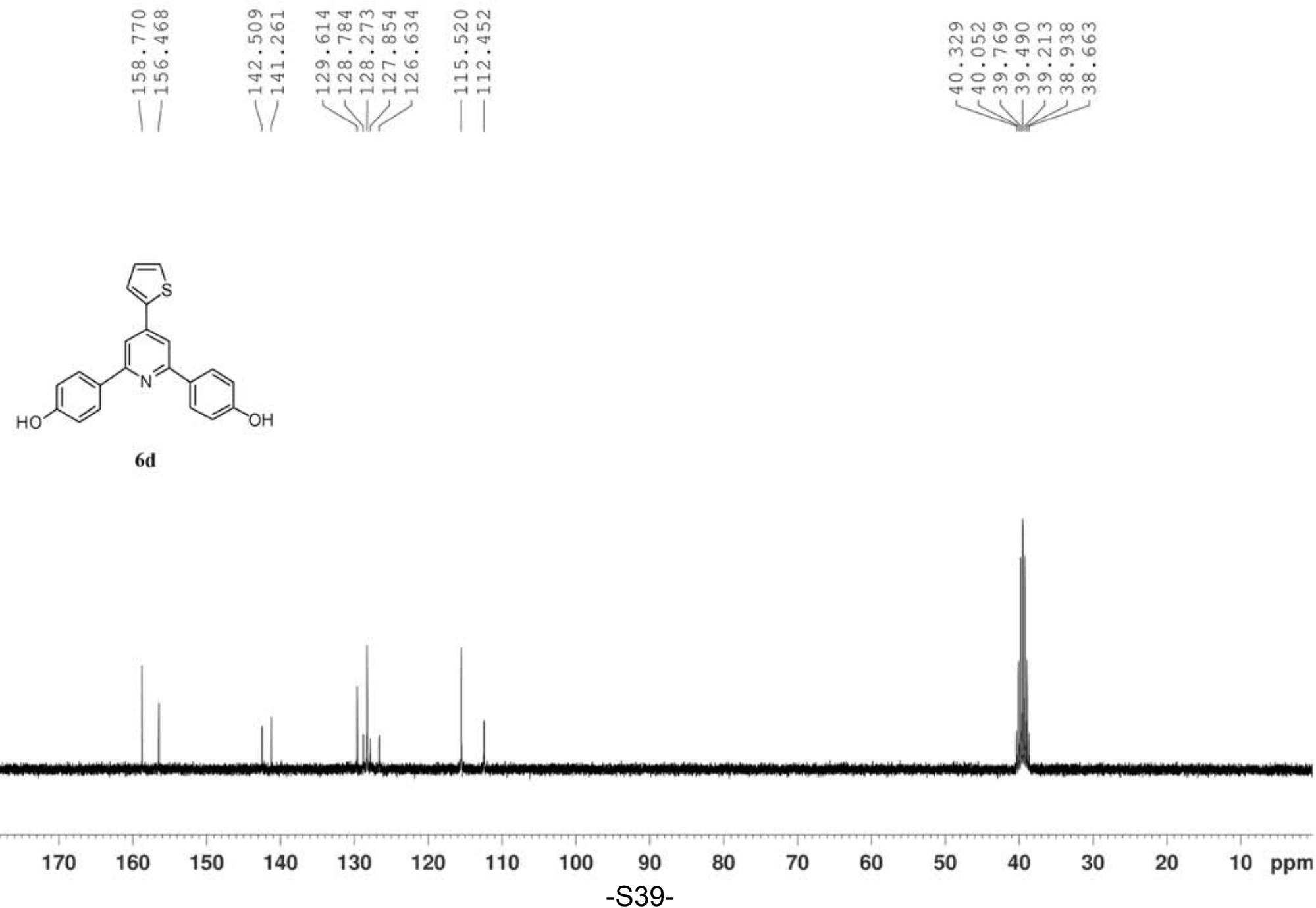
¹³C NMR (75MHz, DMSO-d₆)



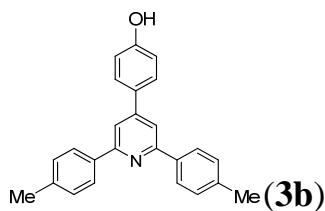
¹H NMR (300MHz, DMSO-d₆)



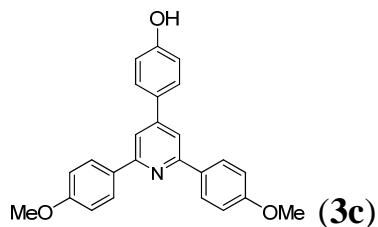
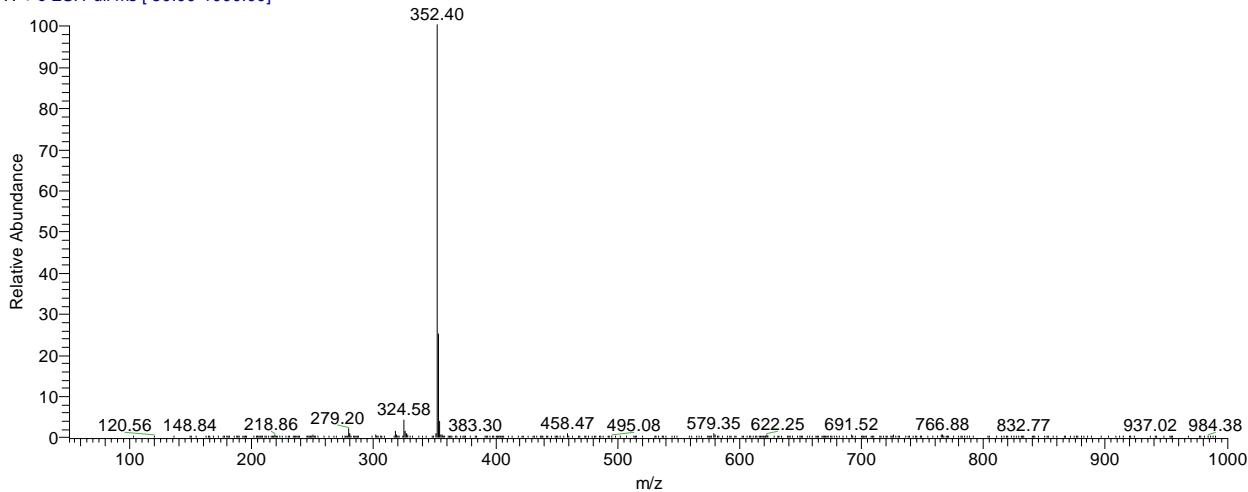
¹³C NMR (75MHz, DMSO-d₆)



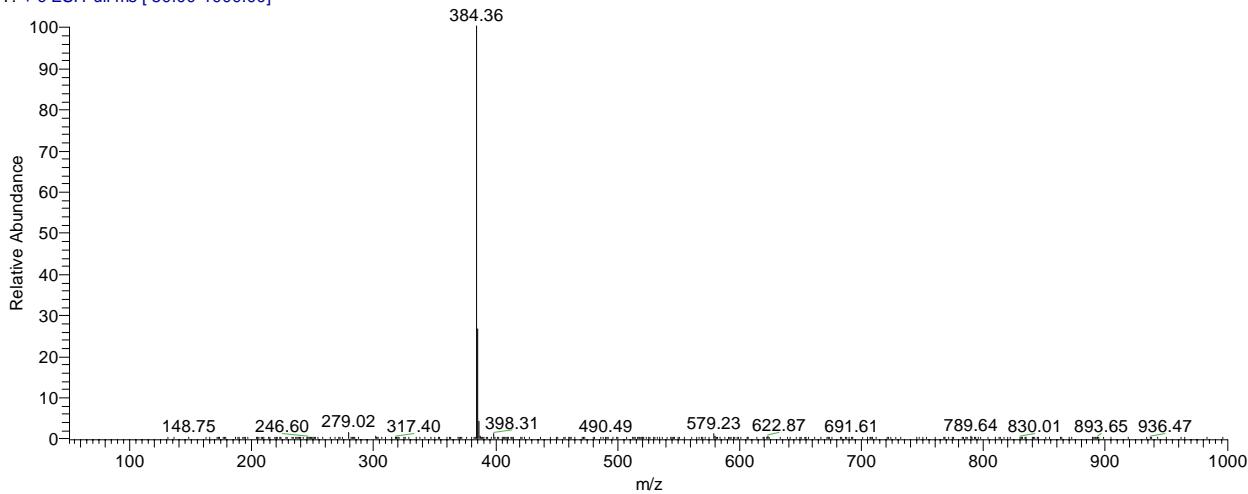
ESI-MS spectra for all new compounds

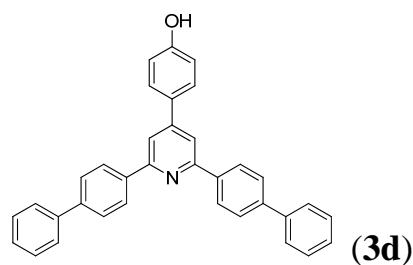


20111019_111125144119 #11 RT: 0.17 AV: 1 NL: 2.34E7
T: + c ESI Full ms [50.00-1000.00]

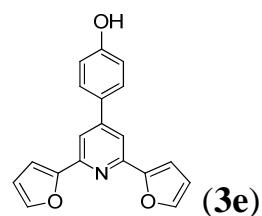
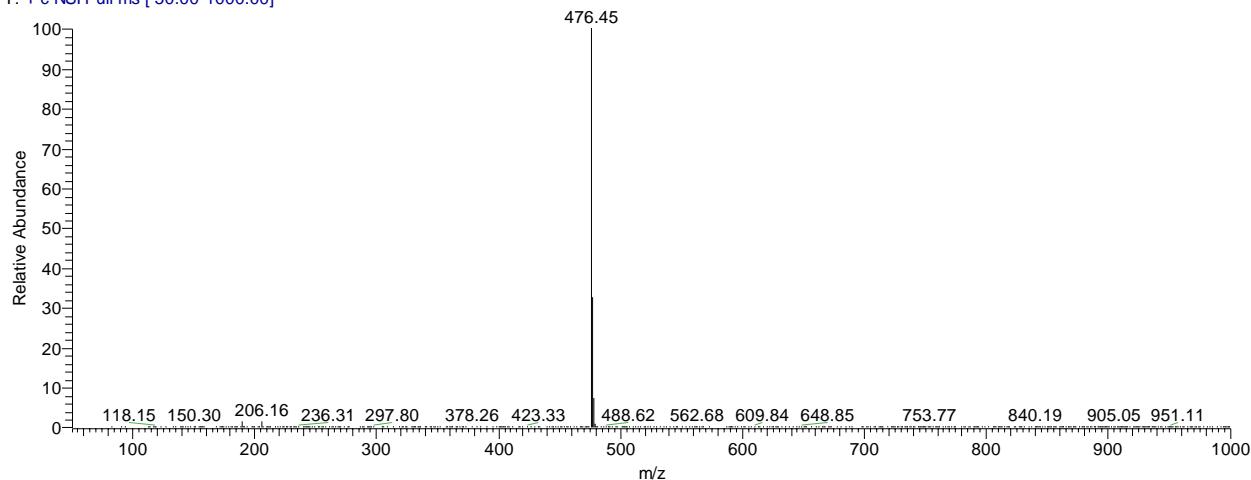


20111019_111125144302 #8 RT: 0.12 AV: 1 NL: 4.94E7
T: + c ESI Full ms [50.00-1000.00]

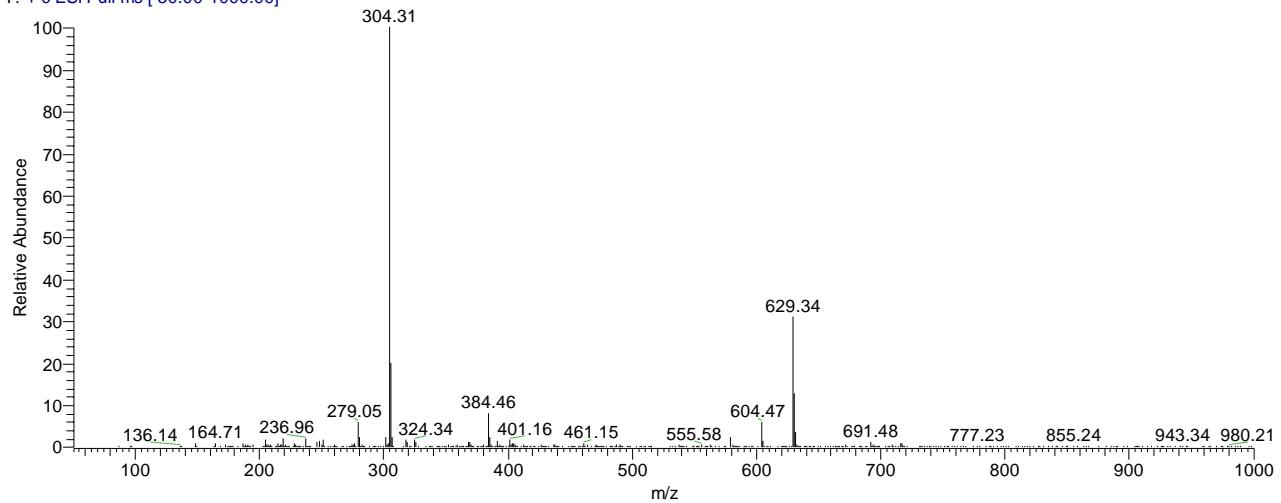


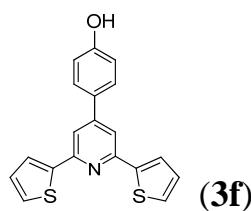


zhouxw061003_110302084431 #50-54 RT: 0.83-0.89 AV: 5 SB: 7 0.32-0.43 NL: 2.90E7
T: + c NSI Full ms [50.00-1000.00]

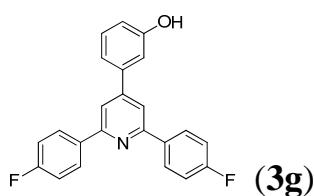
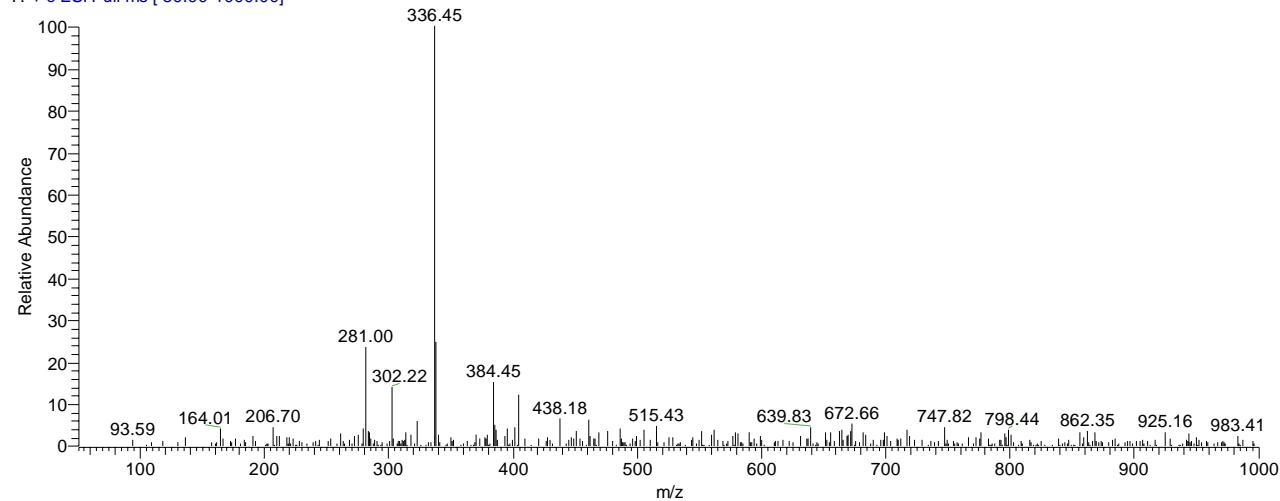


20111019_111125144428 #119 RT: 2.06 AV: 1 NL: 1.04E7
T: + c ESI Full ms [50.00-1000.00]

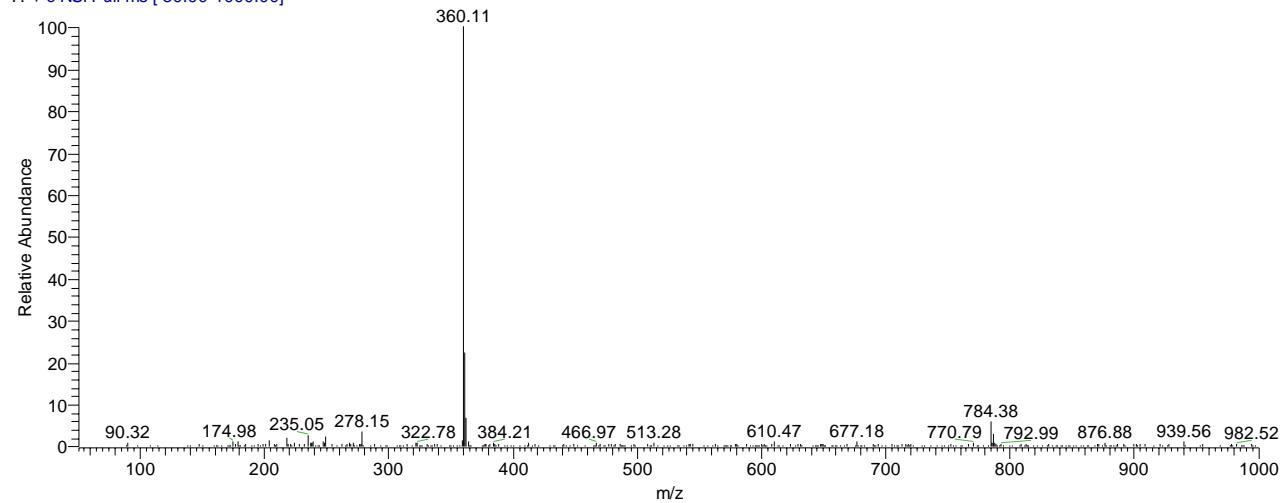


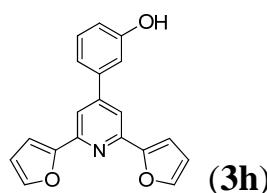


20110119_111125144428 #217 RT: 3.77 AV: 1 SB: 27 2.65-3.11 NL: 7.52E5
T: + c ESI Full ms [50.00-1000.00]

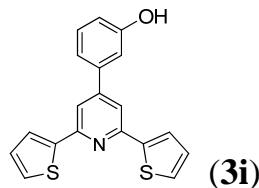
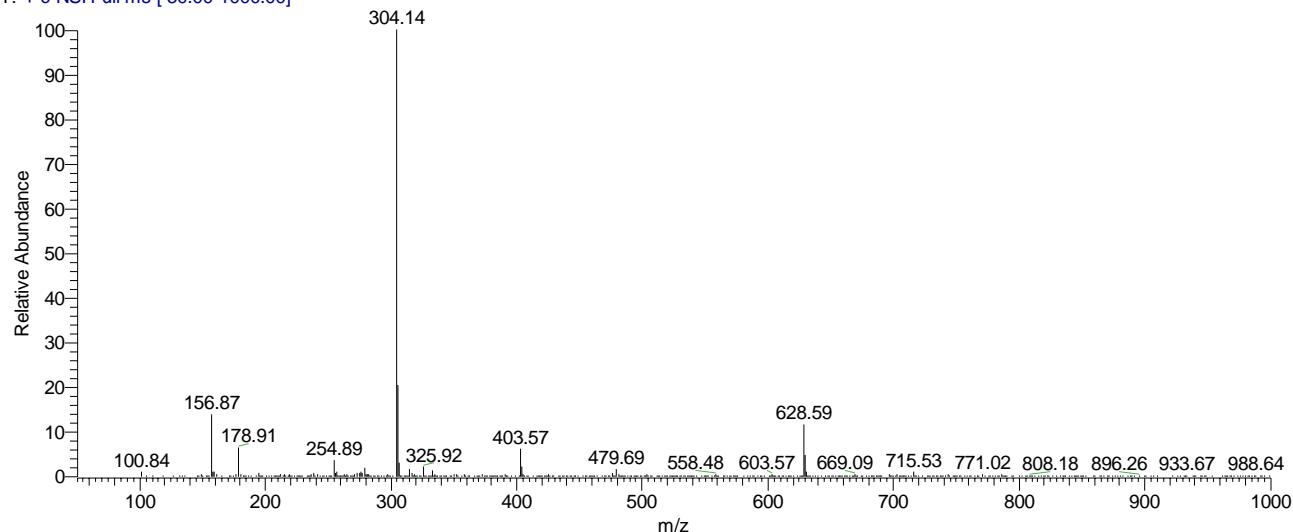


20111213_111213105218 #44 RT: 0.79 AV: 1 SB: 3 0.04-0.07 NL: 3.53E6
T: + c NSI Full ms [50.00-1000.00]

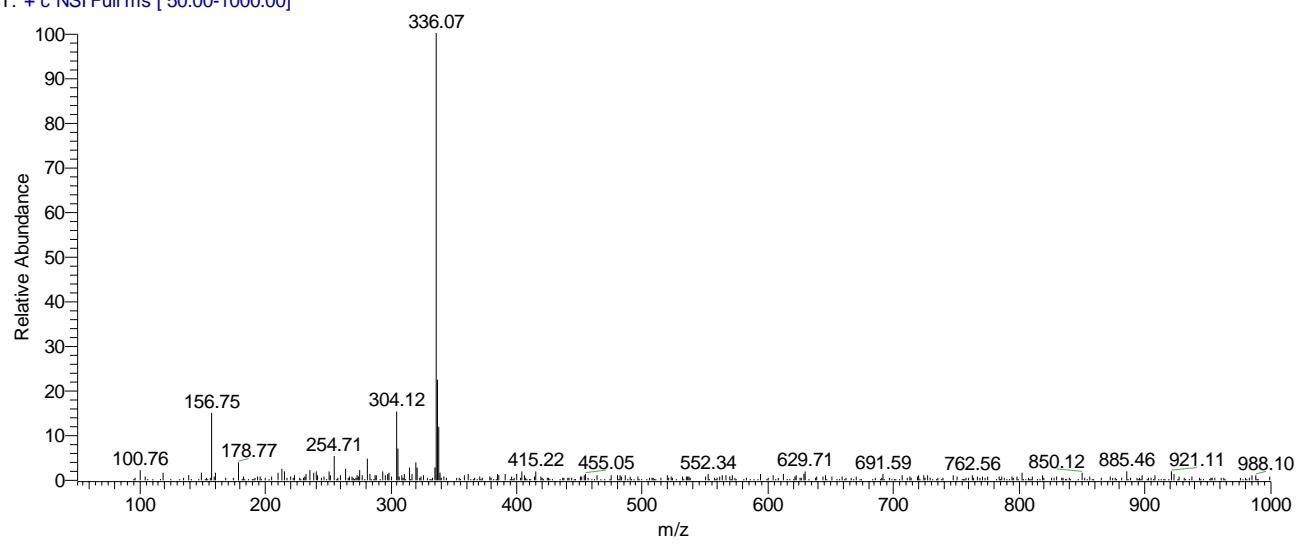


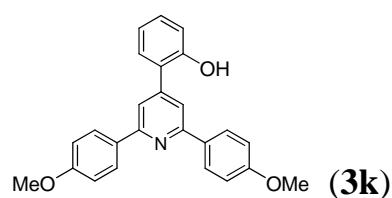


20111213_111213140055 #28 RT: 0.47 AV: 1 NL: 1.10E7
T: + c NSI Full ms [50.00-1000.00]

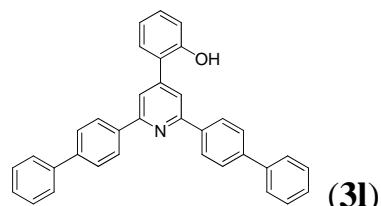
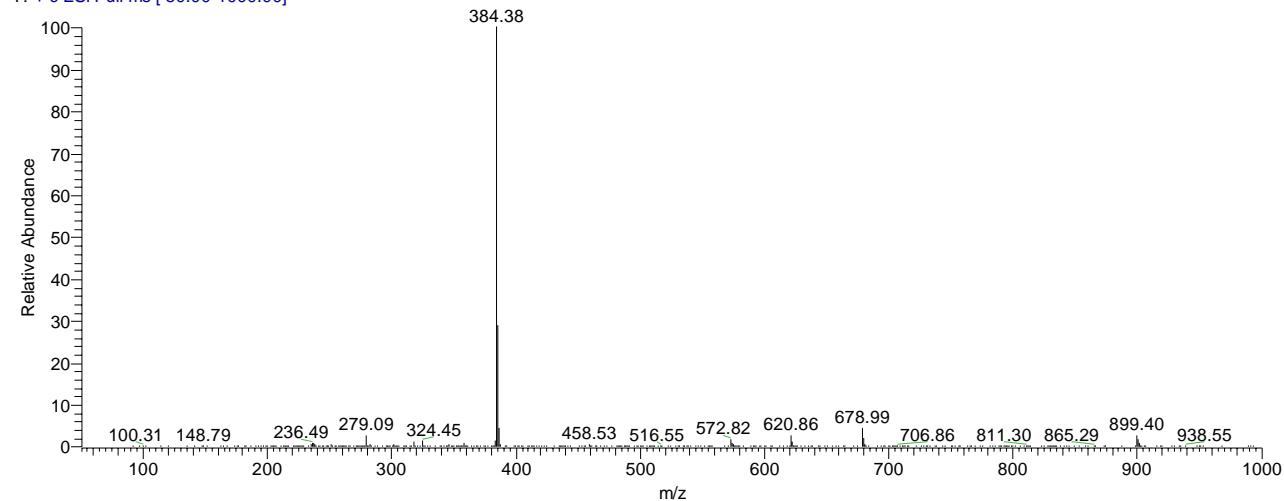


20111213_111213140055 #329 RT: 5.92 AV: 1 SB: 34 3.74-4.34 NL: 1.37E6
T: + c NSI Full ms [50.00-1000.00]

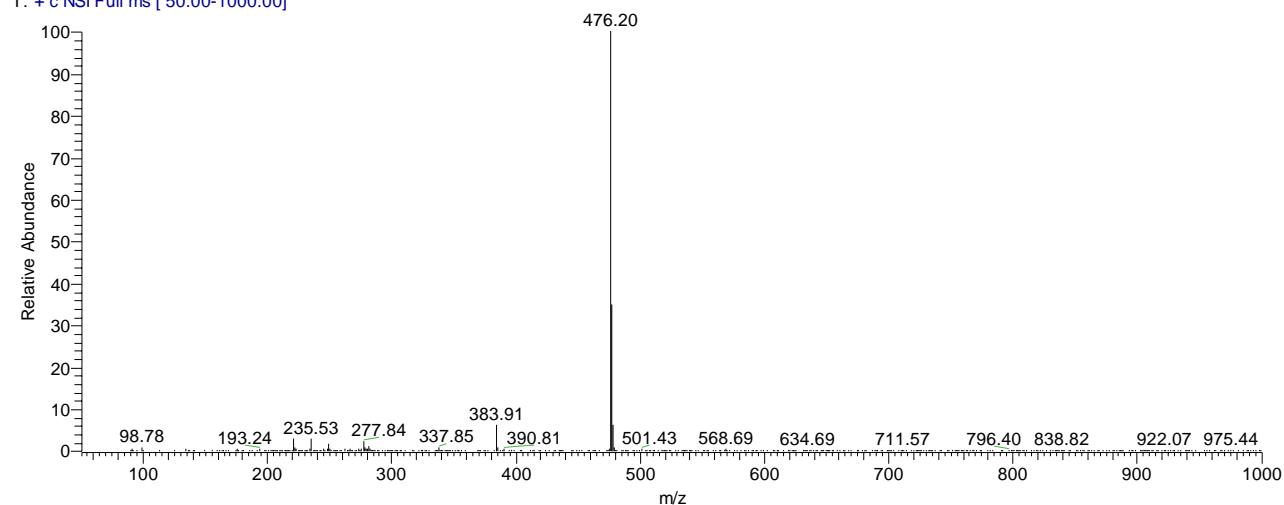


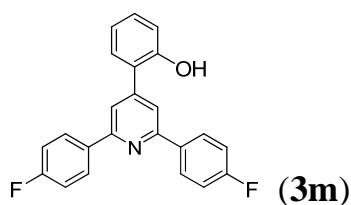


20111019_111125150121 #11 RT: 0.17 AV: 1 NL: 3.29E7
T: + c ESI Full ms [50.00-1000.00]

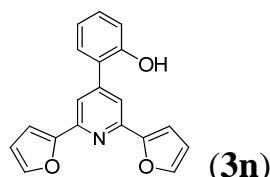
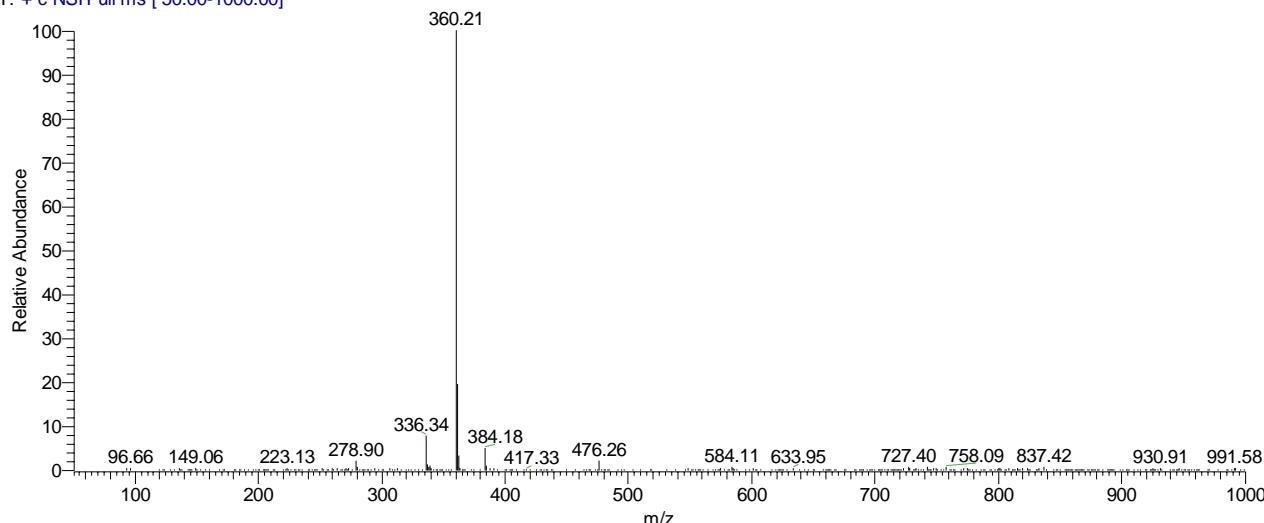


20111213_111213103710 #538 RT: 9.83 AV: 1 NL: 1.27E7
T: + c NSI Full ms [50.00-1000.00]

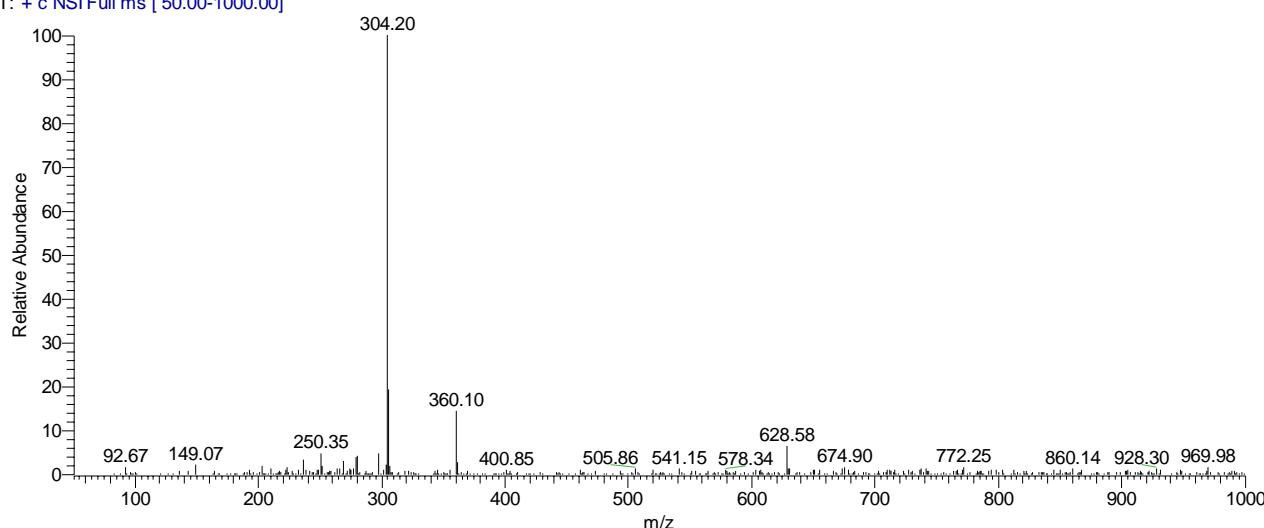


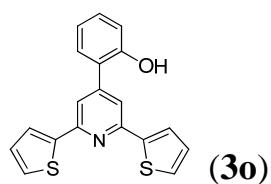


20111213_111213140803 #823 RT: 14.93 AV: 1 SB: 17 1.07-1.36 NL: 9.86E6
T: + c NSI Full ms [50.00-1000.00]

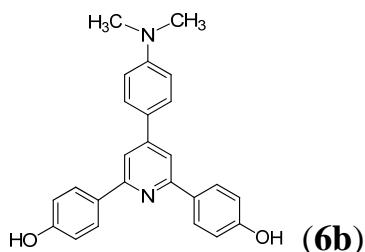
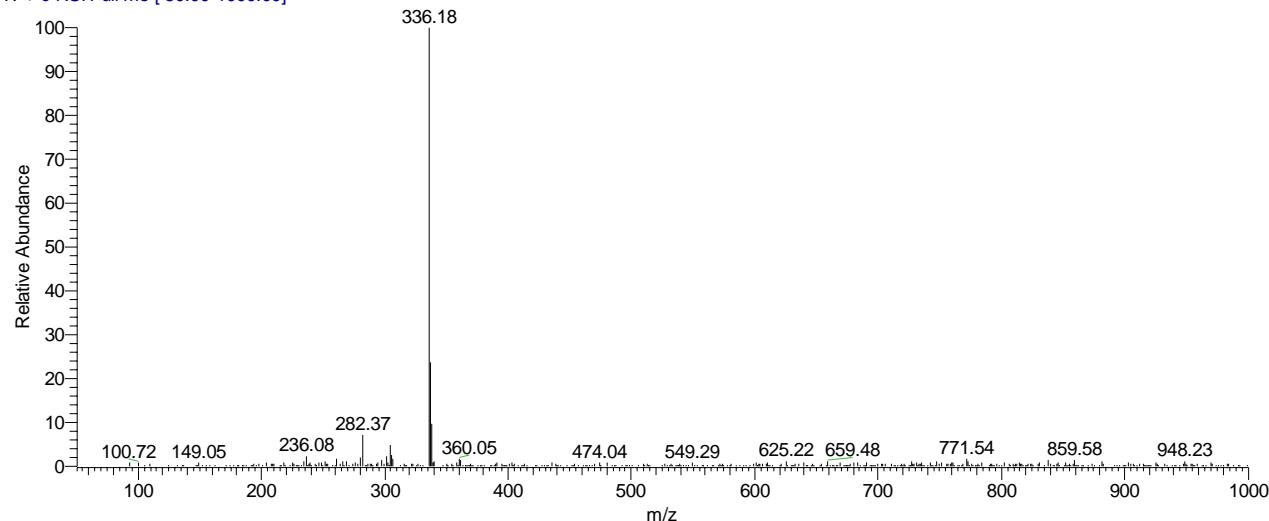


20111213_111213140803 #627 RT: 11.36 AV: 1 SB: 17 1.07-1.36 NL: 2.02E6
T: + c NSI Full ms [50.00-1000.00]

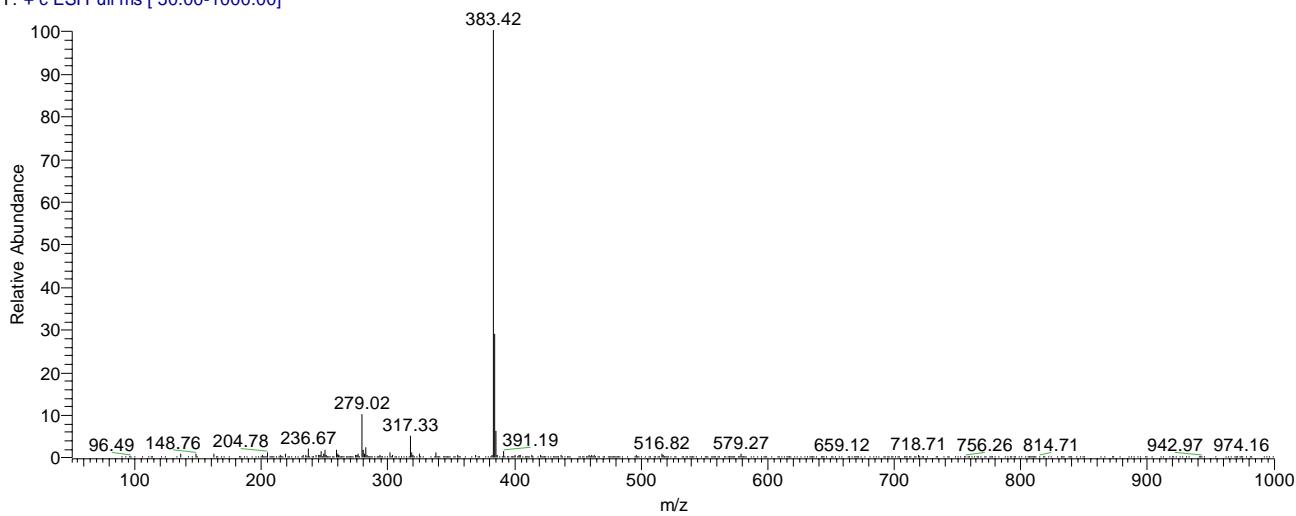


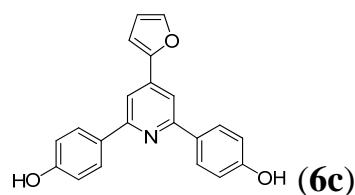


20111213_111213140803 #710 RT: 12.87 AV: 1 SB: 17 1.07-1.36 NL: 3.59E6
T: + c NSI Full ms [50.00-1000.00]

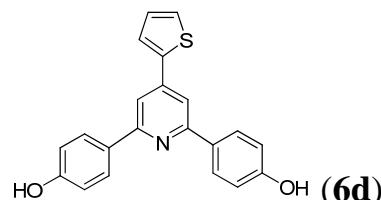
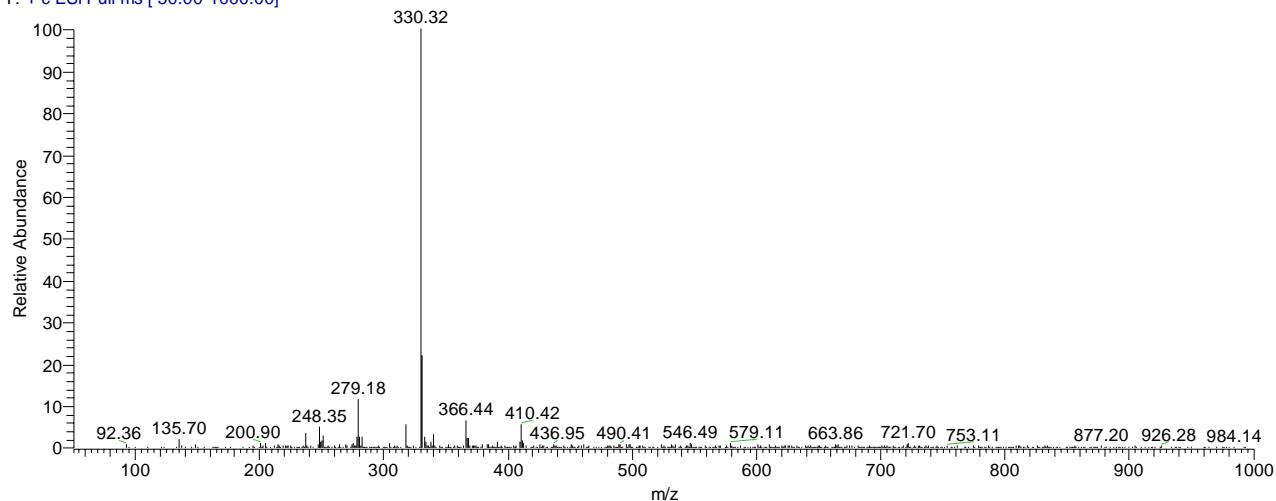


20111019_111125145148 #89 RT: 1.58 AV: 1 NL: 1.76E7
T: + c ESI Full ms [50.00-1000.00]





20111019_111125145148 #248 RT: 4.41 AV: 1 NL: 1.17E7
T: + c ESI Full ms [50.00-1000.00]



20111019_111125145148 #306 RT: 5.45 AV: 1 NL: 3.23E7
T: + c ESI Full ms [50.00-1000.00]

