Electronic Supplementary Material (ESI) for RSC Advances.

Efficient synthesis of 1, 2-disubstituted benzimidazoles catalyzed by phosphoric acid as a homogeneous catalyst under mild conditions and investigating its anti-diabetes properties through molecular docking studies and calculations

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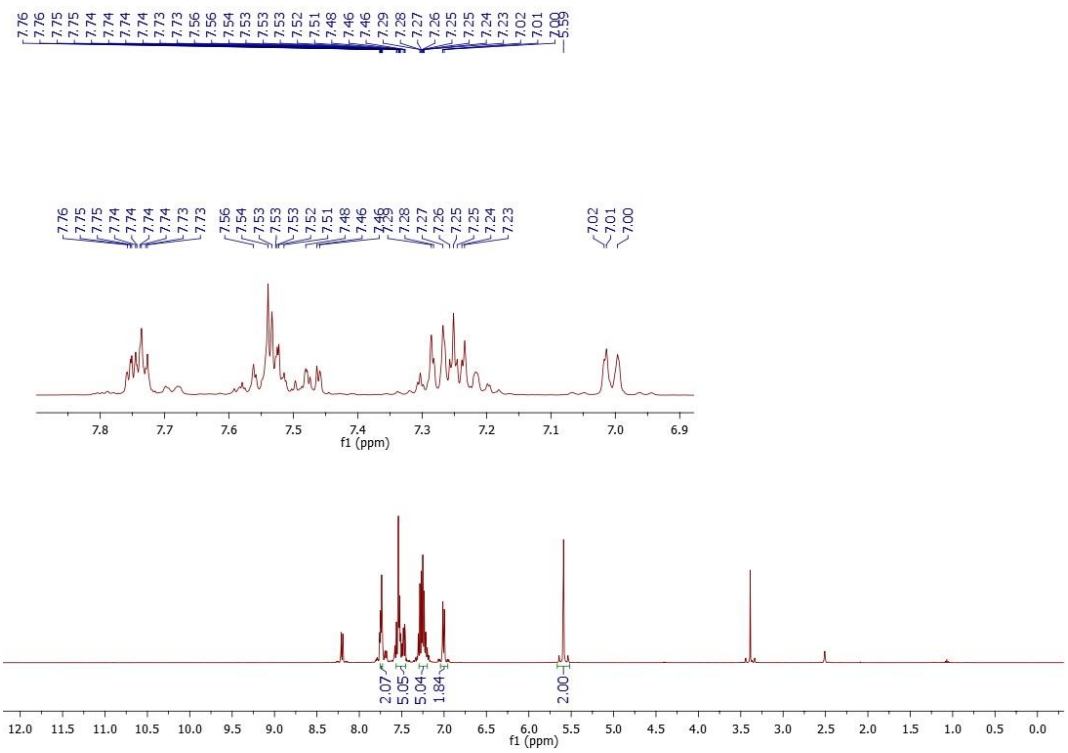

Figure 1*:* ^{1}H NMR spectrum (400 MHz) of **1-benzyl-2-phenyl-*1*H-benzo[*d*]imidazole (3a)** in DMSO-d_6.

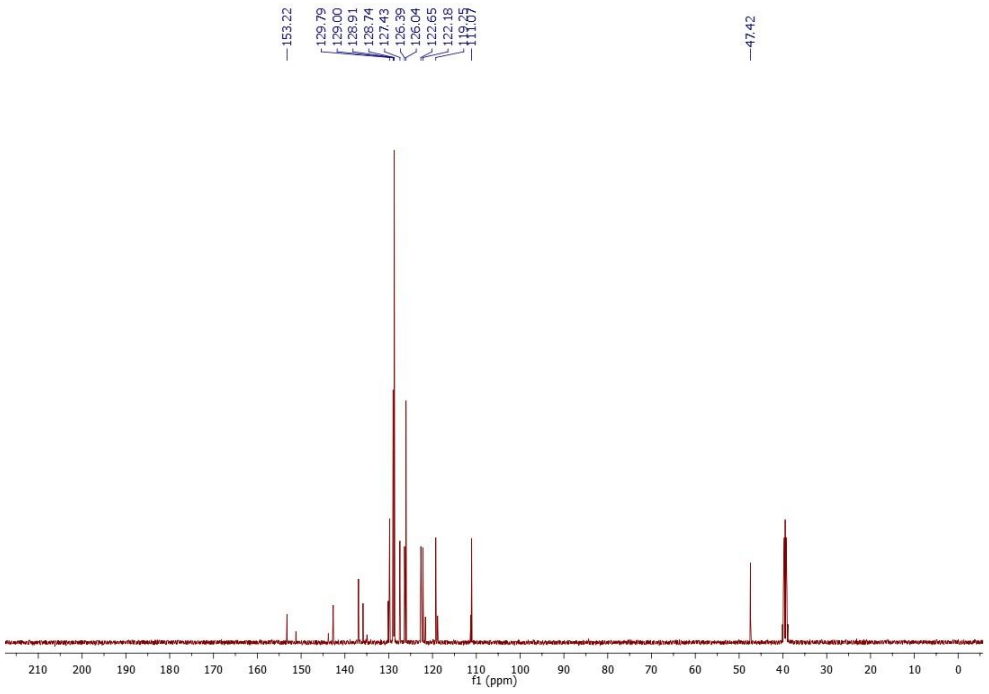

Figure 2*:* ^{13}C NMR spectrum (101 MHz) of **1-benzyl-2-phenyl-*1*H-benzo[*d*]imidazole (3a)** in DMSO-d_6.

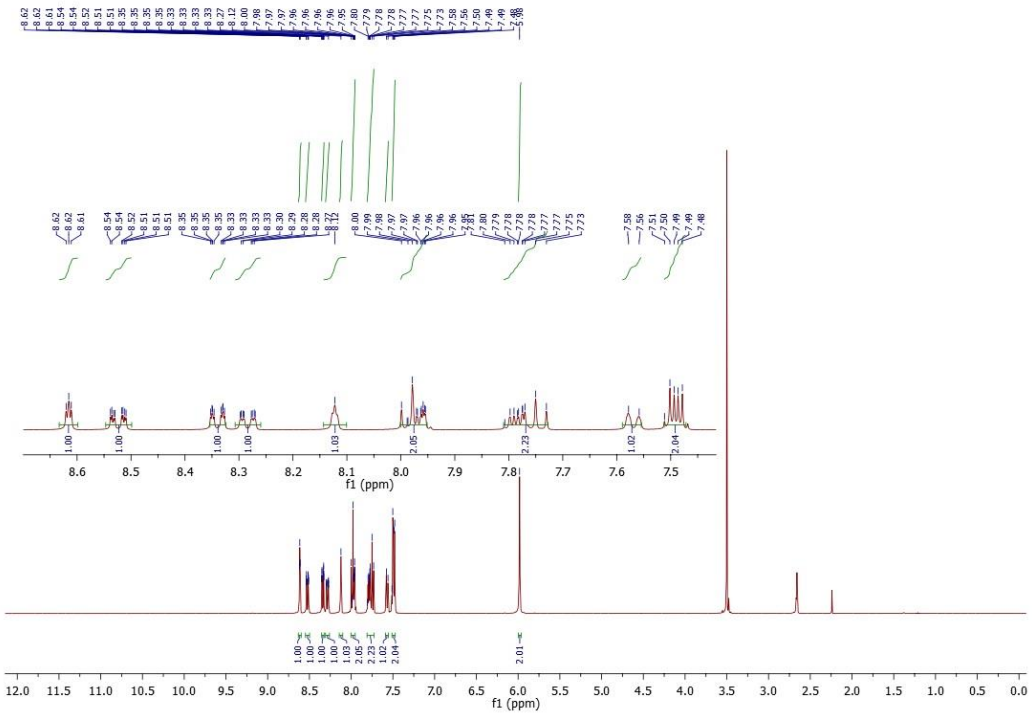

Figure 3*:* ^{1}H NMR spectrum (400 MHz) of **1-(3-nitrobenzyl)-2-(3-nitrophenyl)-1*H*-benzo[*d*]imidazole (3b)** in DMSO-d_6.

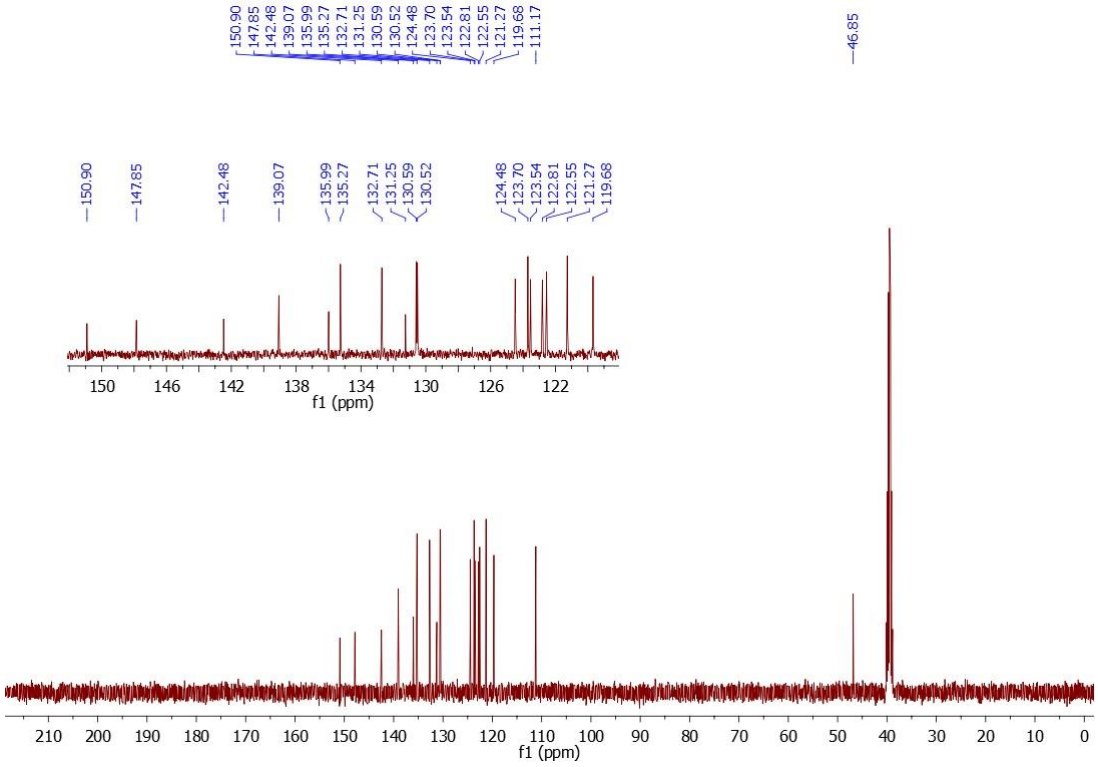

Figure 4*:* ^{13}C NMR spectrum (101 MHz) of **1-(3-nitrobenzyl)-2-(3-nitrophenyl)-1*H*-benzo[*d*]imidazole (3b)** in DMSO-d_6.

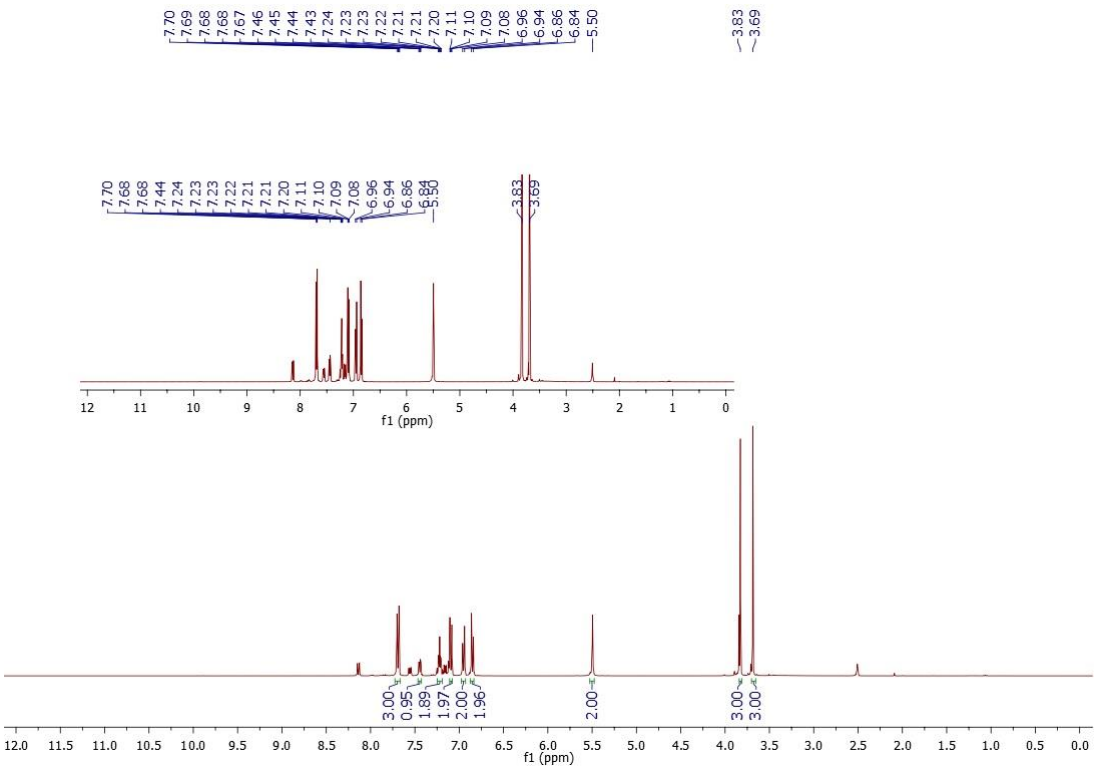

Figure 5*:* [1]H NMR spectrum (400 MHz) of **1-(4-methoxybenzyl)-2-(4-methoxyphenyl)-1*H*-benzo[*d*]imidazole (3c)** in DMSO-d_6.

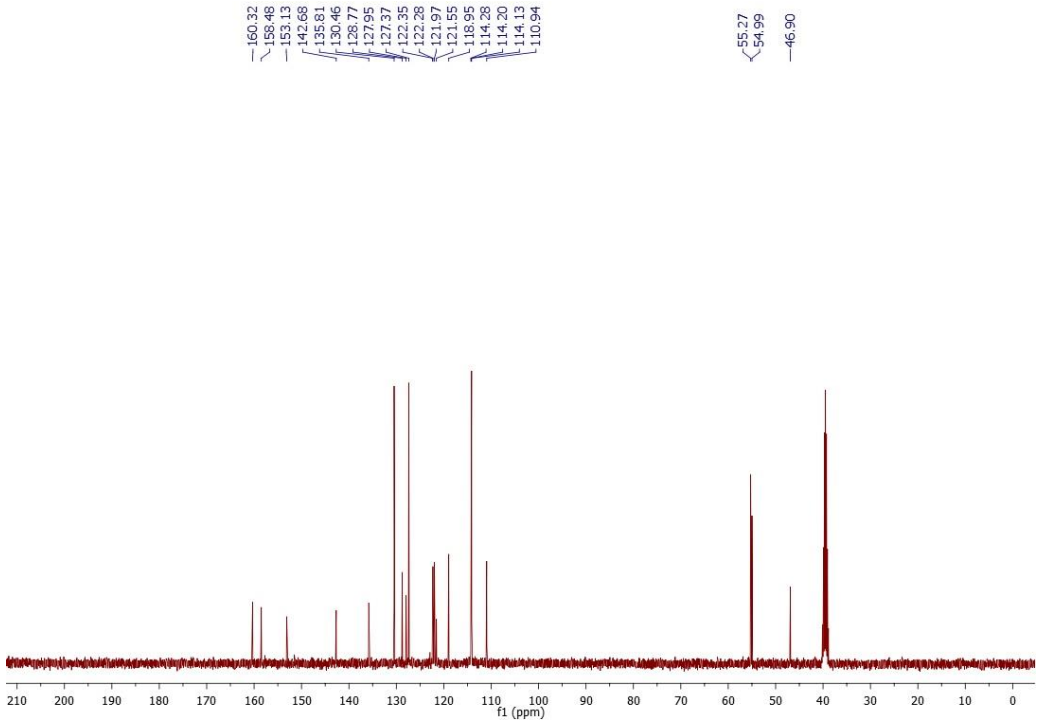

Figure 6*:* [13]C NMR spectrum (101 MHz) of **1-(4-methoxybenzyl)-2-(4-methoxyphenyl)-1*H*-benzo[*d*]imidazole (3c)** in DMSO-d_6.

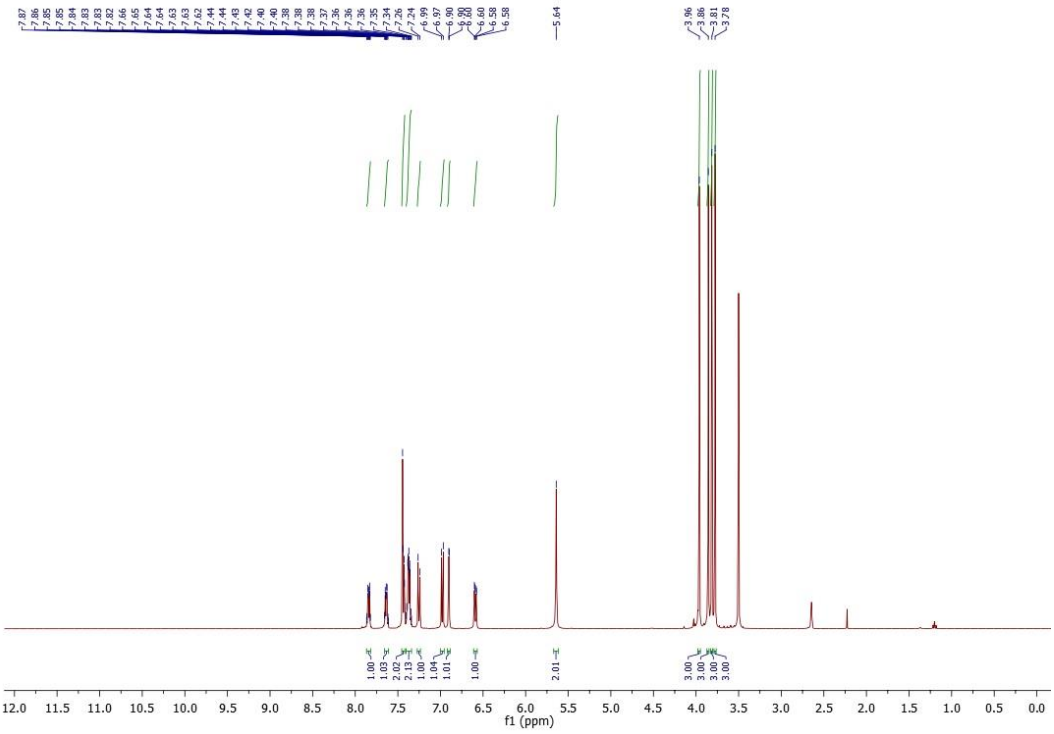

Figure 7*:* ^{1}H NMR spectrum (400 MHz) of **1-(3,4-dimethoxybenzyl)-2-(3,4-dimethoxyphenyl)-1*H*-benzo[*d*]imidazole (3d)** in DMSO-d_6.

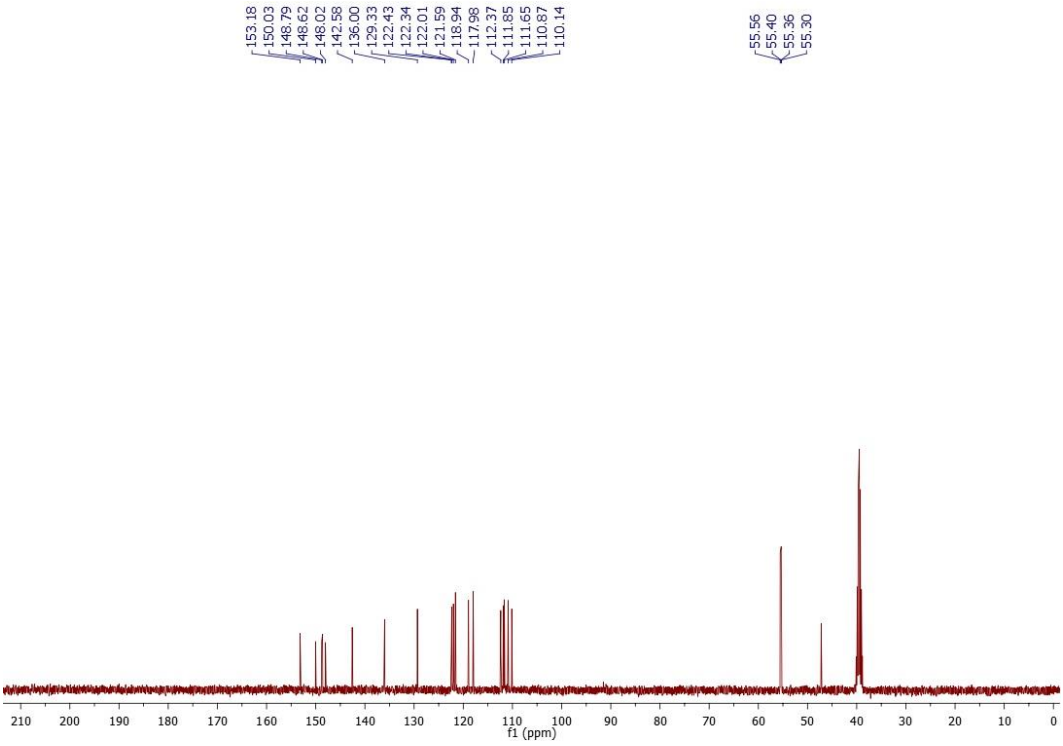

Figure 8*:* ^{13}C NMR spectrum (101 MHz) of **1-(3,4-dimethoxybenzyl)-2-(3,4-dimethoxyphenyl)-1*H*-benzo[*d*]imidazole (3d)** in DMSO-d_6.

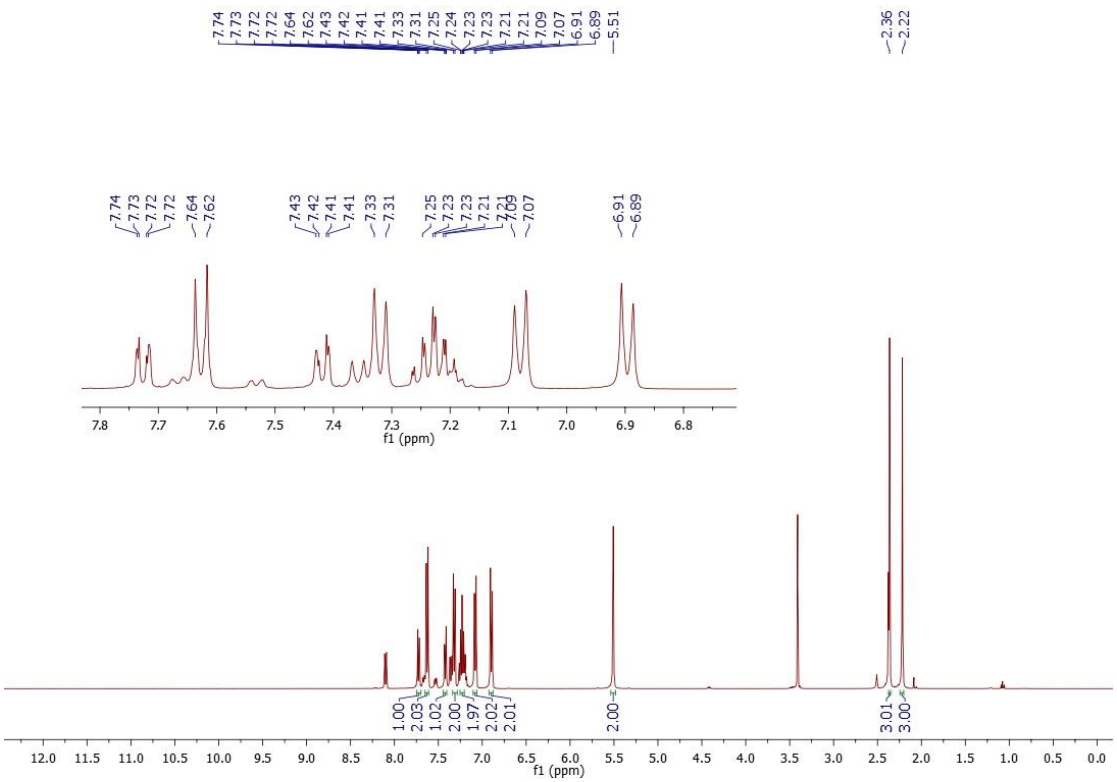

Figure 9*:* [1]H NMR spectrum (400 MHz) of **1-(4-methylbenzyl)-2-(p-tolyl)-1*H*-benzo[*d*]imidazole (3e)** in DMSO-d_6.

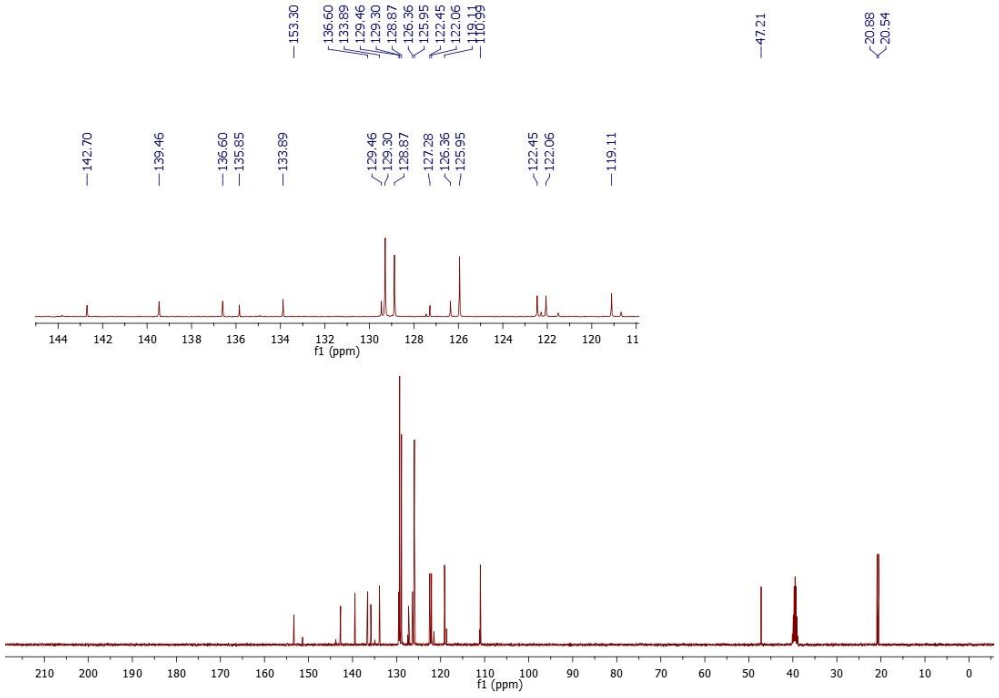

Figure 10*:* [13]C NMR spectrum (101 MHz) of **1-(4-methylbenzyl)-2-(p-tolyl)-1*H*-benzo[*d*]imidazole (3e)** in DMSO-d_6.

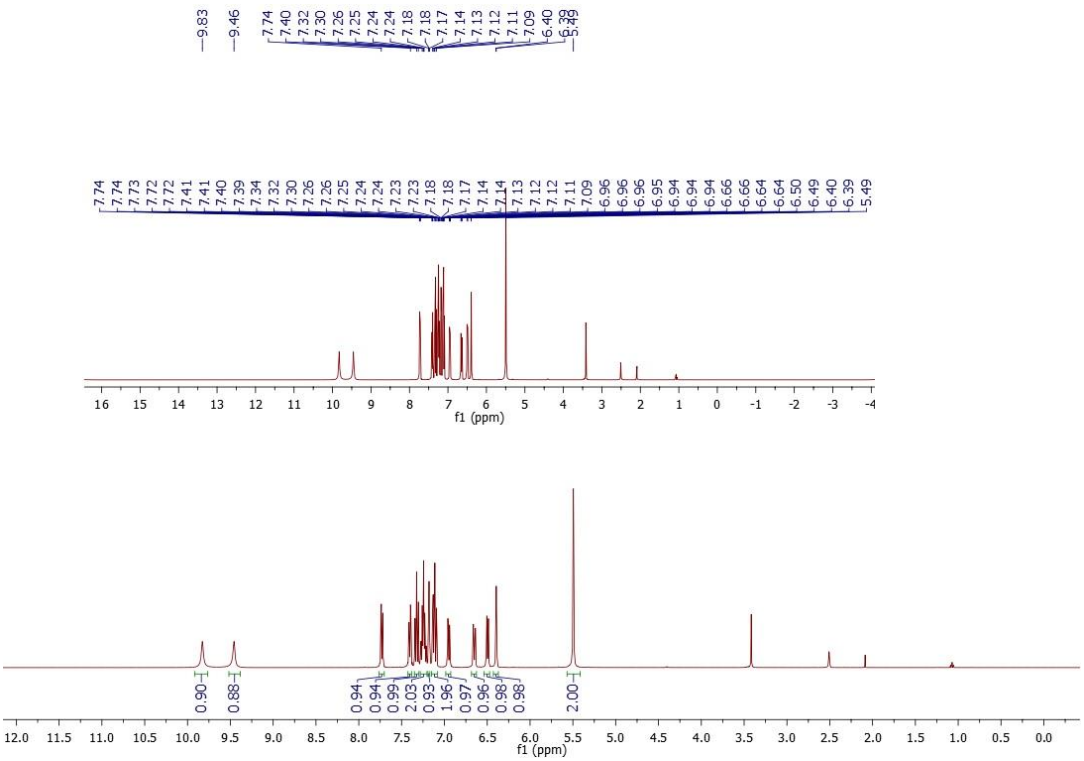

Figure 11: ^{1}H NMR spectrum (400 MHz) of **3-(1-(3-hydroxybenzyl)-1H-benzo[d]imidazol-2-yl)phenol (3f)** in DMSO-d_6.

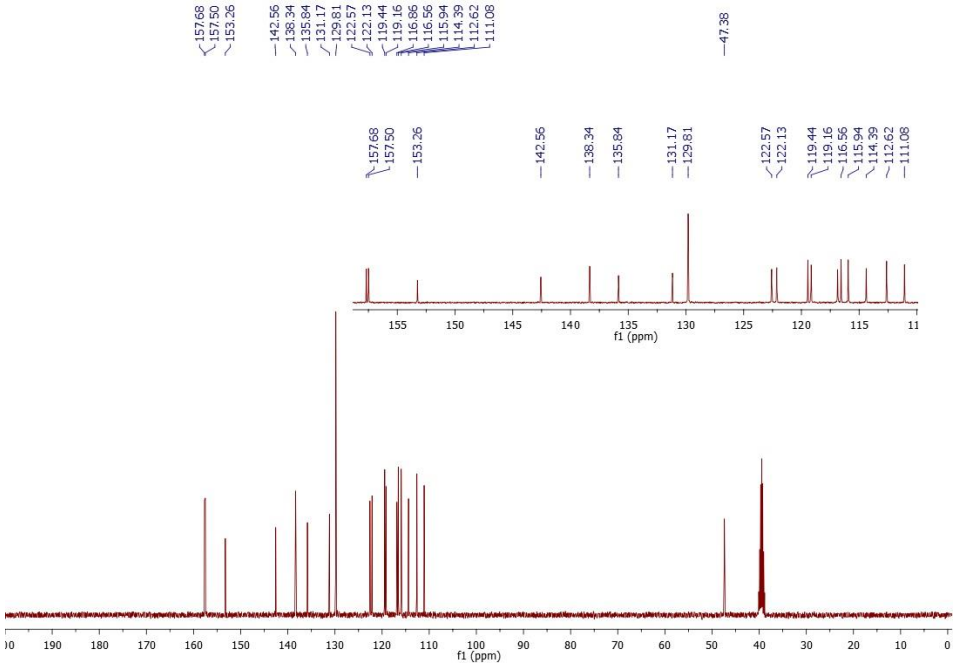

Figure 12: ^{13}C NMR spectrum (400 MHz) of **3-(1-(3-hydroxybenzyl)-1H-benzo[d]imidazol-2-yl)phenol (3f)** in DMSO-d_6.

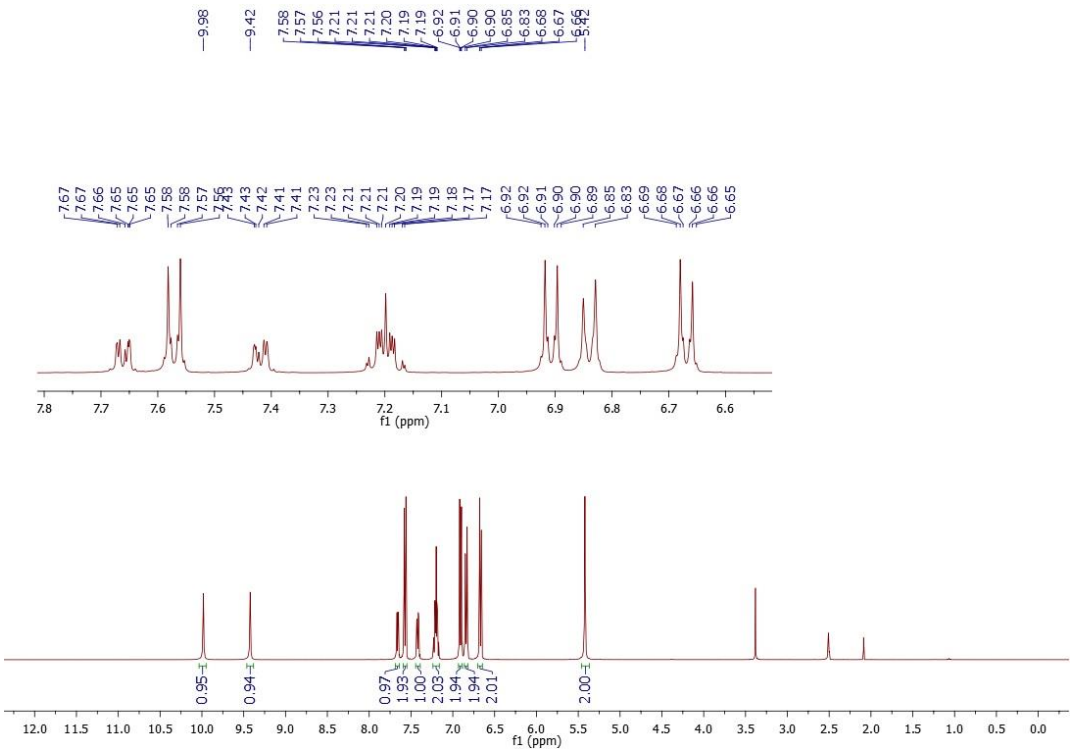

Figure 13: ^{1}H NMR spectrum (400 MHz) of **4-(1-(4-hydroxybenzyl)-1*H*-benzo[*d*]imidazol-2-yl)phenol (3g)** in DMSO-d_6.

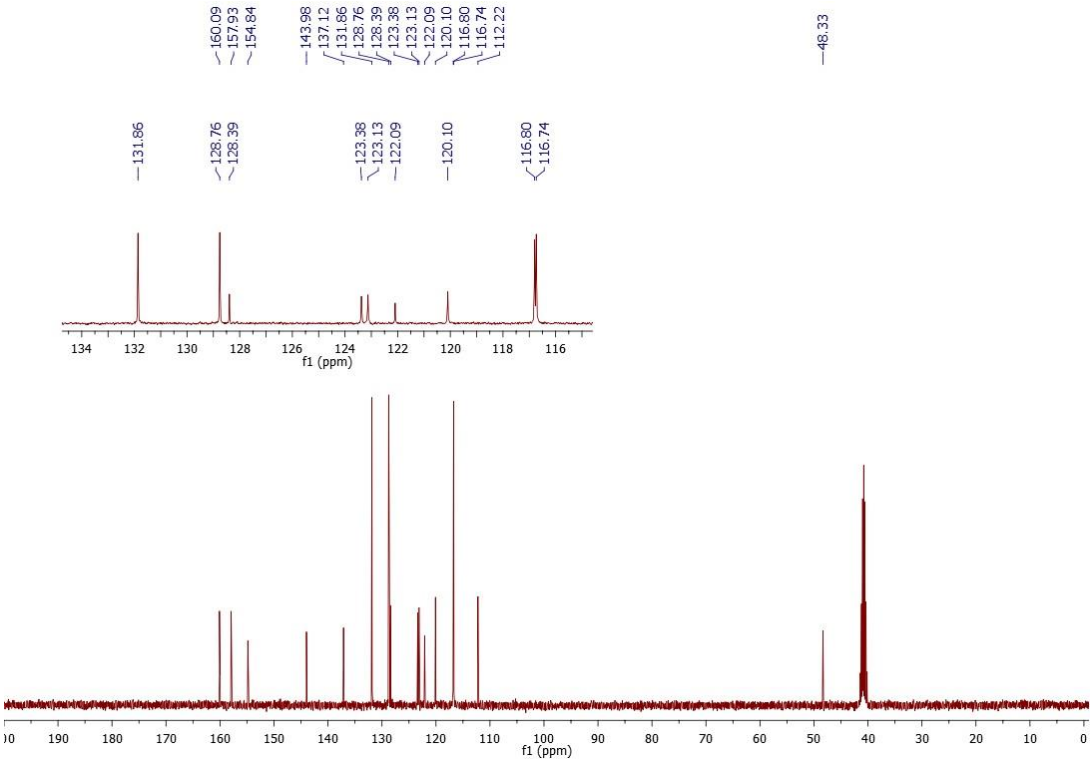

Figure 14: ^{13}C NMR spectrum (101 MHz) of **4-(1-(4-hydroxybenzyl)-1*H*-benzo[*d*]imidazol-2-yl)phenol (3g)** in DMSO-d_6.

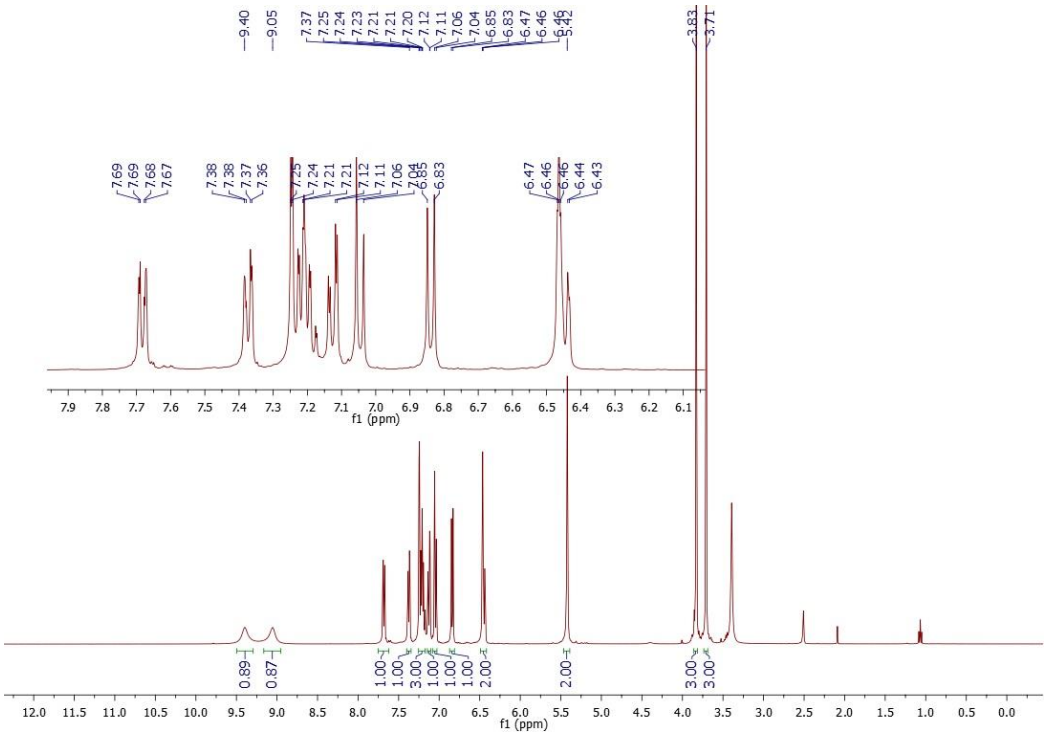

Figure 15*:* ^{1}H NMR spectrum (400 MHz) of **5-(1-(3-hydroxy-4-methoxybenzyl)-1*H*-benzo[*d*]imidazol-2-yl)-2-methoxyphenol (3h)** in DMSO-d_6.

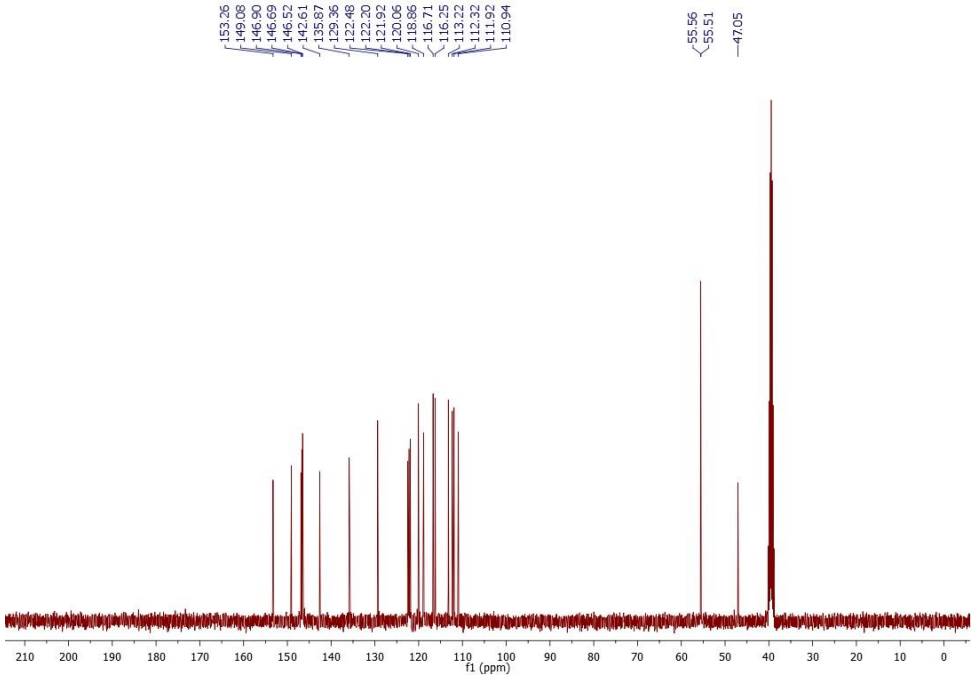

Figure 16*:* ^{13}C NMR spectrum (101 MHz) of **5-(1-(3-hydroxy-4-methoxybenzyl)-1*H*-benzo[*d*]imidazol-2-yl)-2-methoxyphenol (3h)** in DMSO-d_6.

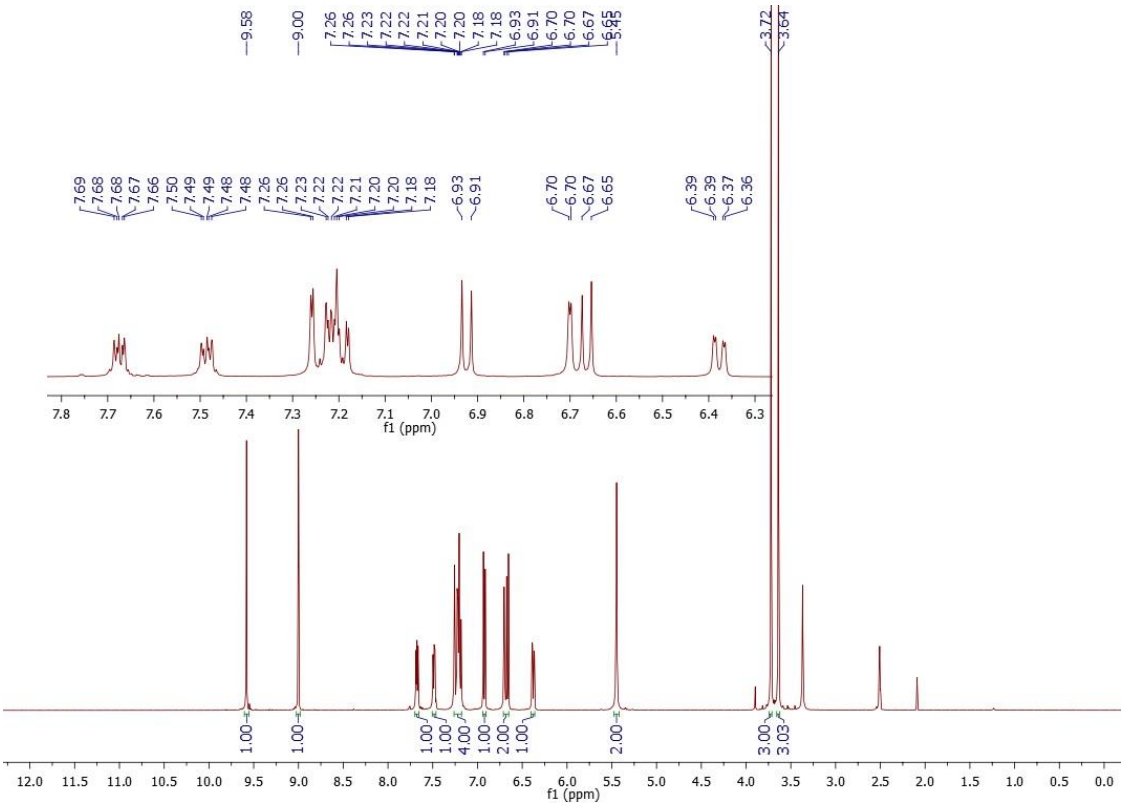

Figure 17*:* ^{1}H NMR spectrum (400 MHz) of **4-(1-(4-hydroxy-3-methoxybenzyl)-1*H*-benzo[*d*]imidazol-2-yl)-2-methoxyphenol (3i)** in DMSO-d_6.

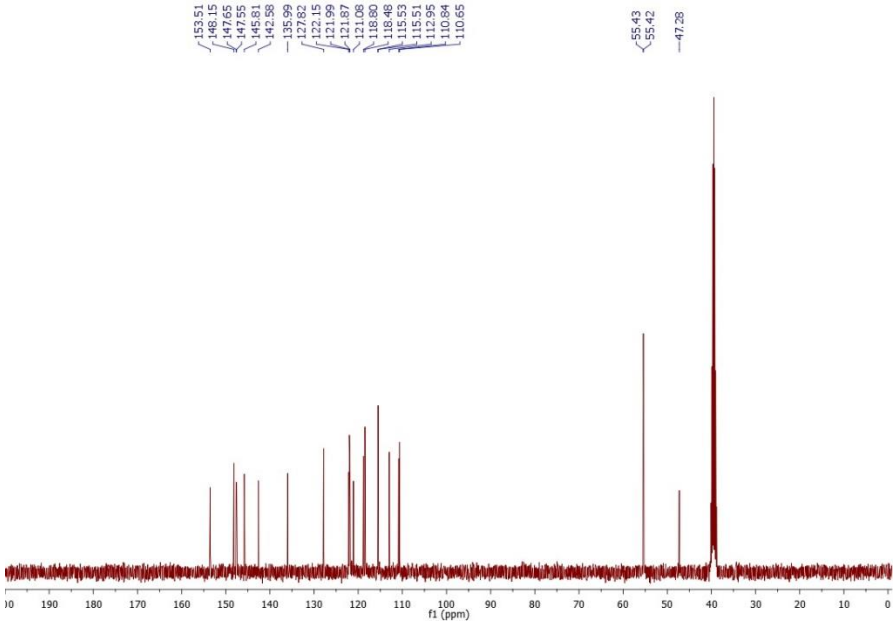

Figure 18*:* ^{13}C NMR spectrum (101 MHz) of **4-(1-(4-hydroxy-3-methoxybenzyl)-1*H*-benzo[*d*]imidazol-2-yl)-2-methoxyphenol (3i)** in DMSO-d_6.

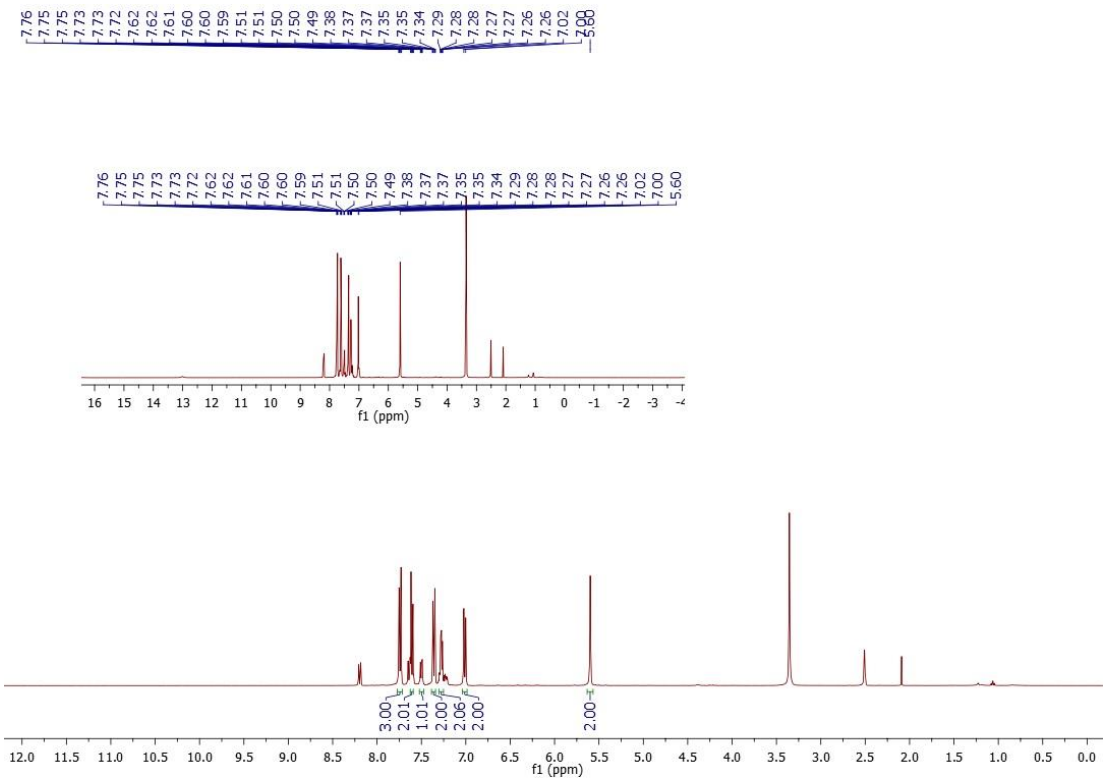

Figure 19*:* ^{1}H NMR spectrum (400 MHz) of **1-(4-chlorobenzyl)-2-(4-chlorophenyl)-1*H*-benzo[*d*]imidazole (3j)** in DMSO-d_6.

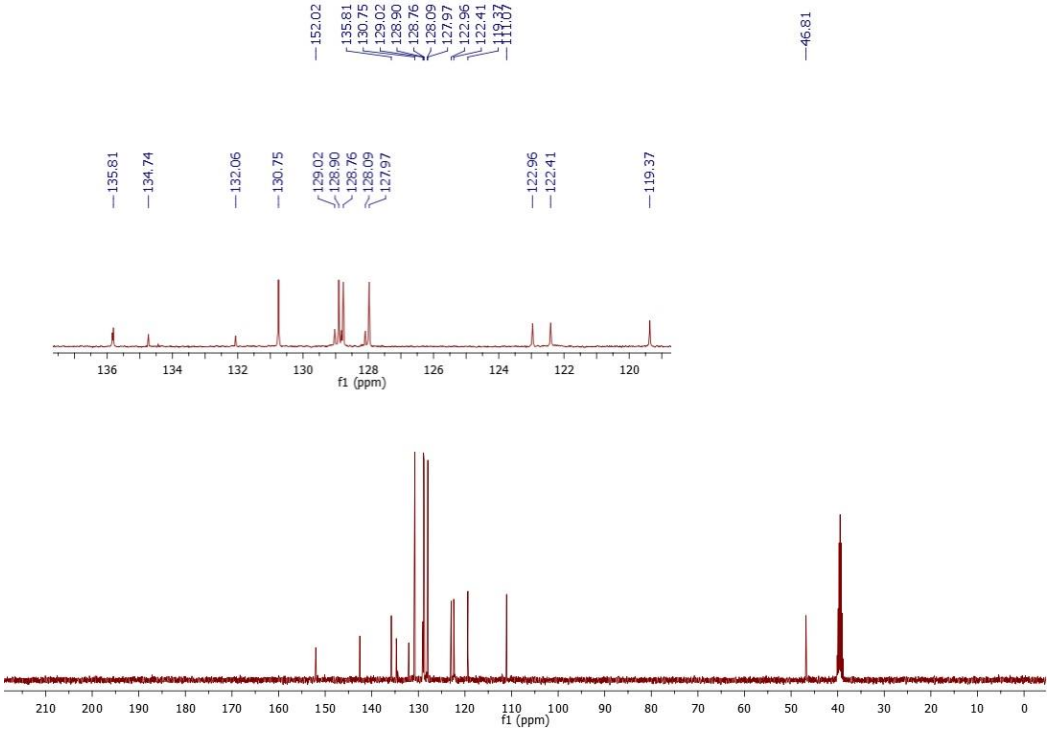

Figure 20*:* ^{13}C NMR spectrum (101 MHz) of **1-(4-chlorobenzyl)-2-(4-chlorophenyl)-1*H*-benzo[*d*]imidazole (3j)** in DMSO-d_6.

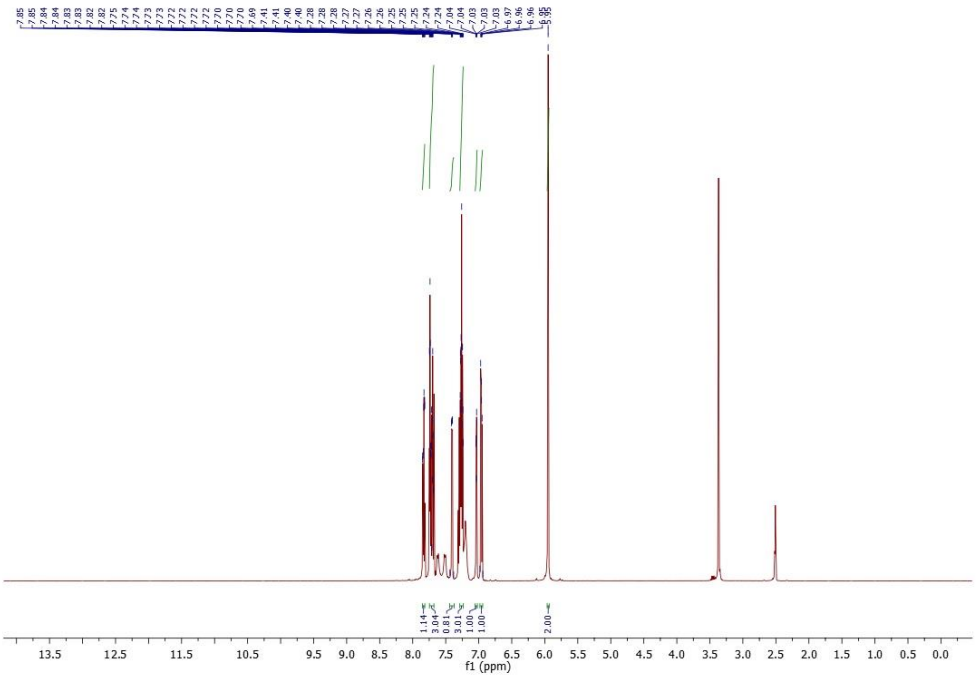

Figure 21: ^{1}H NMR spectrum (400 MHz) of **2-(thiophen-2-yl)-1-(thiophen-2-ylmethyl)-1H-benzo[d]imidazole (3k)** in DMSO-d_6.

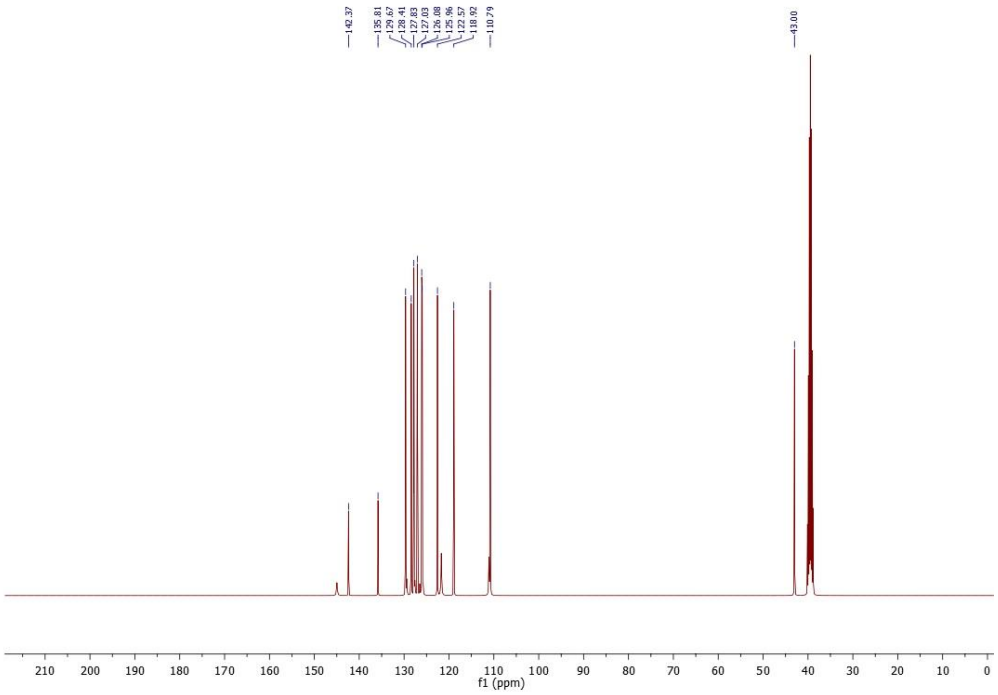

Figure 22: ^{13}C NMR spectrum (101 MHz) of **2-(thiophen-2-yl)-1-(thiophen-2-ylmethyl)-1H-benzo[d]imidazole (3k)** in DMSO-d_6.