

Supporting Information

Magnetic Fe₃O₄@BTC nanocomposite for ultrasound-assisted synthesis of dihydropyrano[2,3-c]pyrazoles

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- S.2.** EDAXS of Fe₃O₄@Fe-BTC NC.
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- S.4.** FT-IR, ¹H NMR, and ¹³C NMR (5j): 6-amino-4-(2-chlorophenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile.
- S.5.** FT-IR, ¹H NMR, and ¹³C NMR (5j): 6-amino-4-(4-methoxyphenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

S1. SEM, EDAX and elemental mapping images of Fe_3O_4

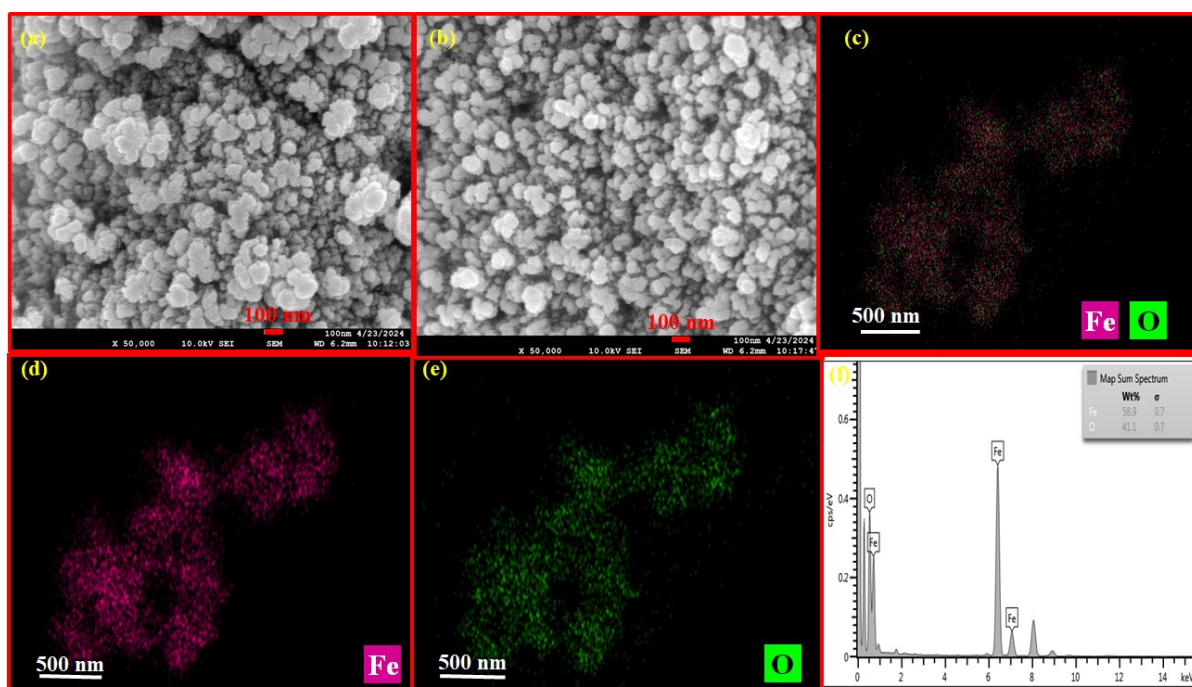


Figure 1: (a, b) SEM images, and (c-e) elemental mapping of Fe_3O_4 NPs, (f) EDAX images of Fe and O of Fe_3O_4 NPs.

S2. EDAX of Fe₃O₄@Fe-BTC NC

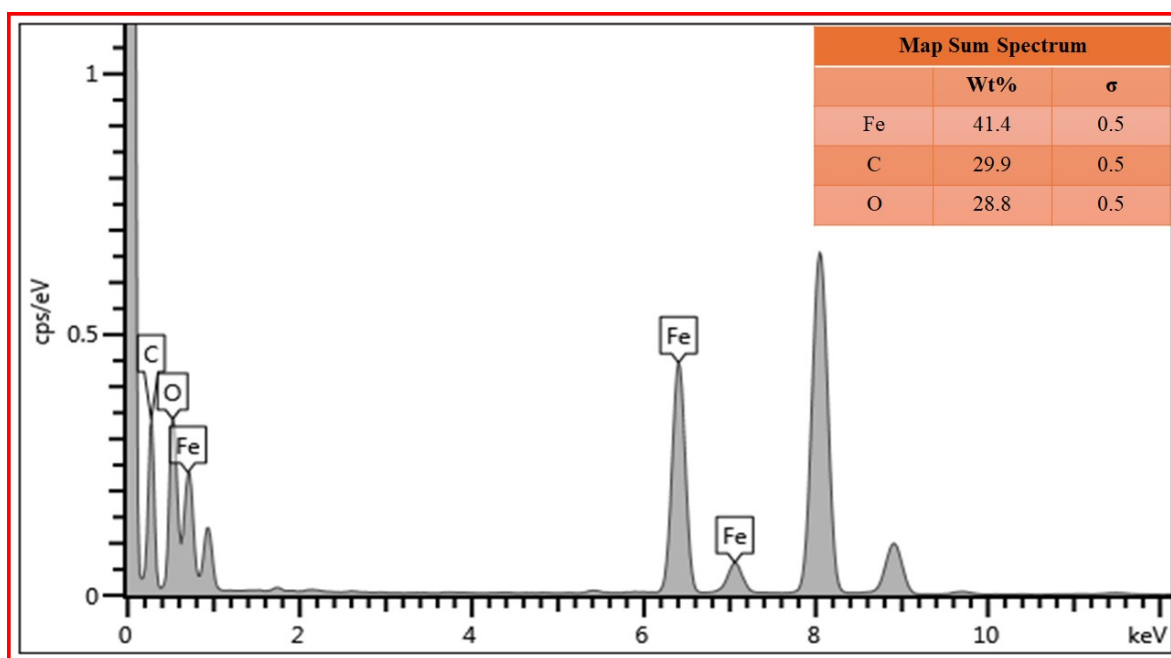


Figure 2: EDAX of Fe₃O₄@Fe-BTC NC.

S3: FT-IR, ^1H NMR, ^{13}C NMR and mass spectra of (5a): 6-amino-1, 4-dihydro-3-methyl-4-phenylpyrano [2, 3-c] pyrazole-5-carbonitrile.

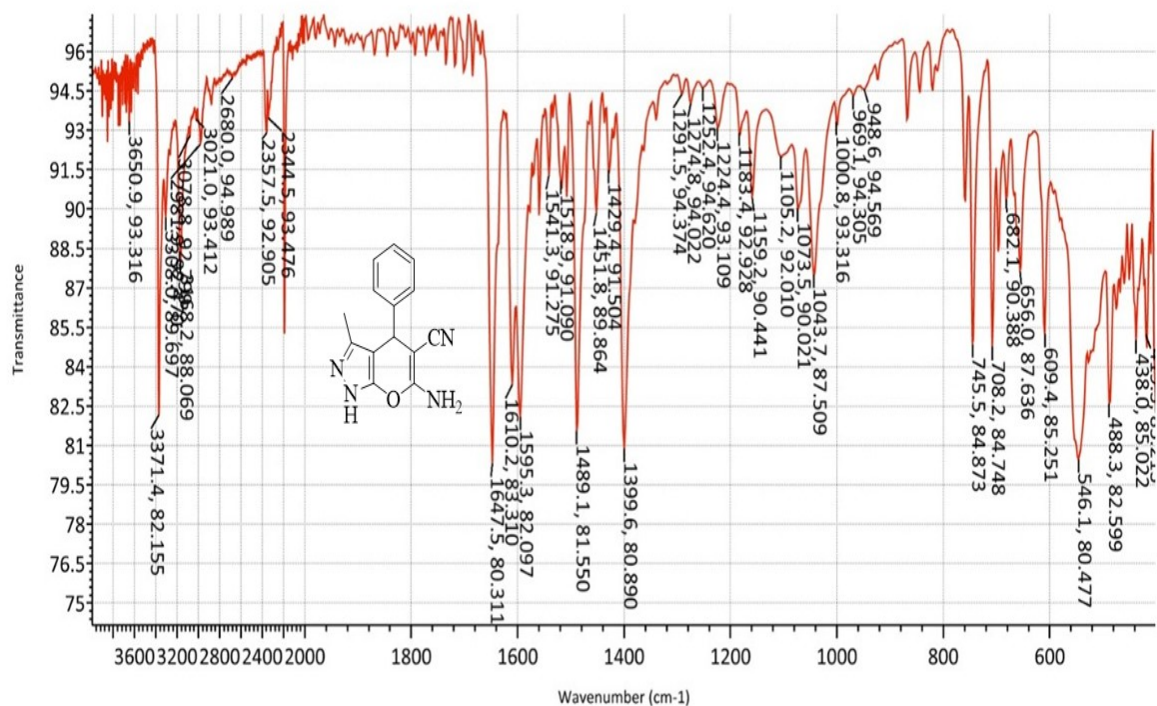


Figure 3: (5a) FT-IR of 6-amino-1, 4-dihydro-3-methyl-4-phenylpyrano [2, 3-c] pyrazole-5-carbonitrile

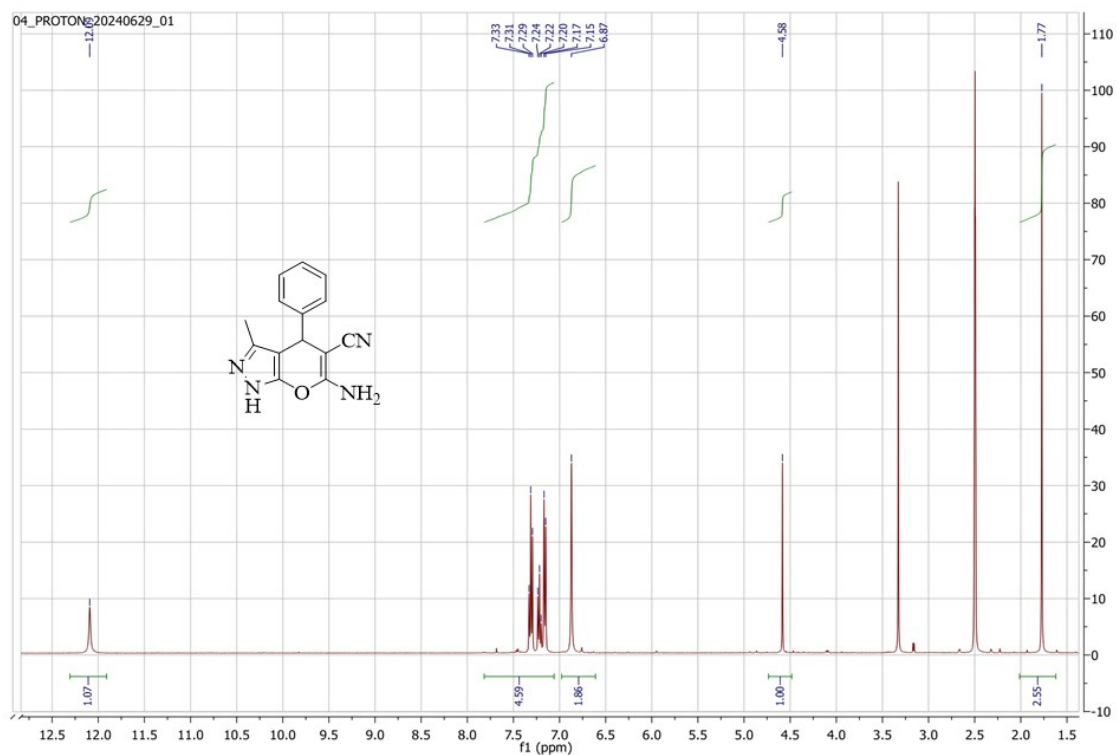


Figure 4: (5a) ¹H NMR of 6-amino-1, 4-dihydro-3-methyl-4-phenylpyrano [2, 3-c] pyrazole-5-carbonitrile.

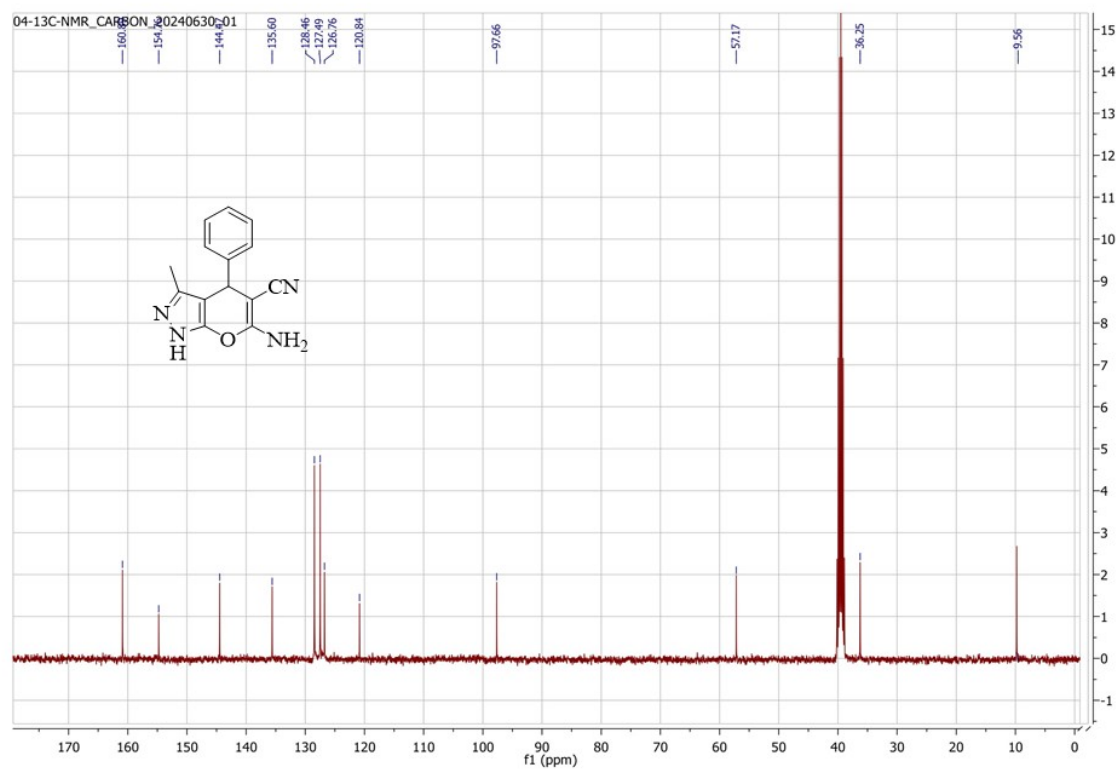


Figure 5: (5a) ¹³C NMR of 6-amino-1, 4-dihydro-3-methyl-4-phenylpyrano [2, 3-c] pyrazole-5-carbonitrile.



Figure 6: (5a) EIS-Mass of 6-amino-1, 4-dihydro-3-methyl-4-phenylpyrano [2, 3-c] pyrazole-5-carbonitrile

S2. FT-IR, ^1H NMR, and ^{13}C NMR of (5j): 6-amino-4-(2-chlorophenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile.

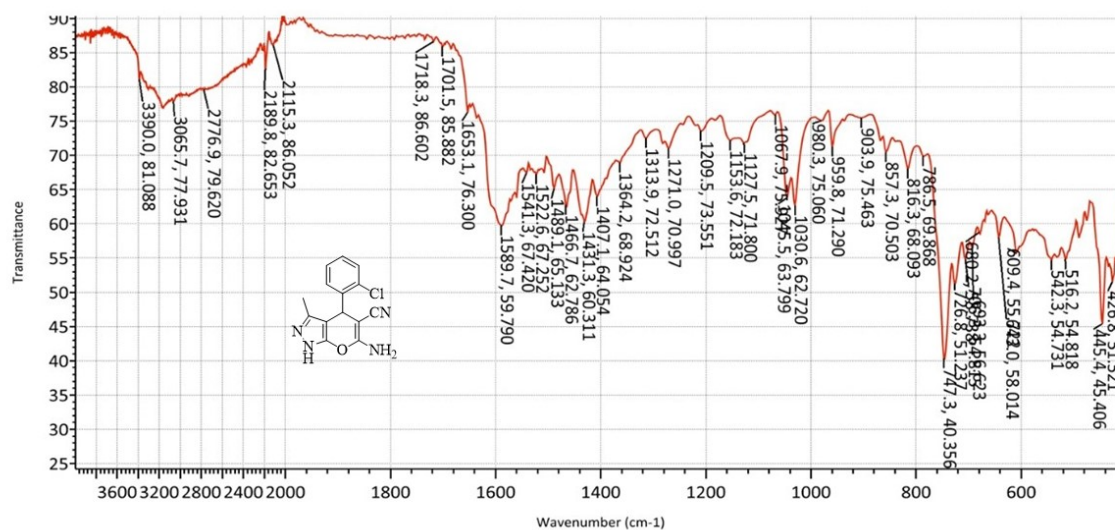


Figure 7: (5e) FT-IR of 6-amino-4-(2-chlorophenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile.

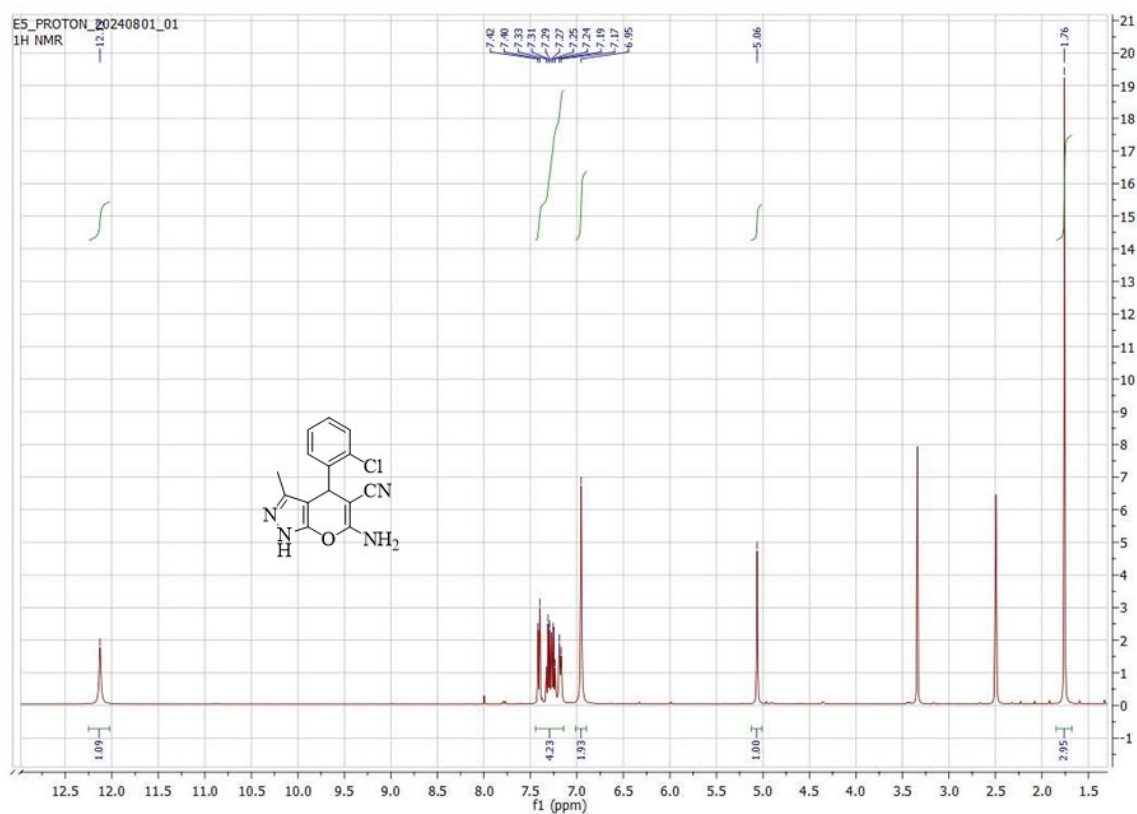


Figure 8: (5e) ^1H -NMR of 6-amino-4-(2-chlorophenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

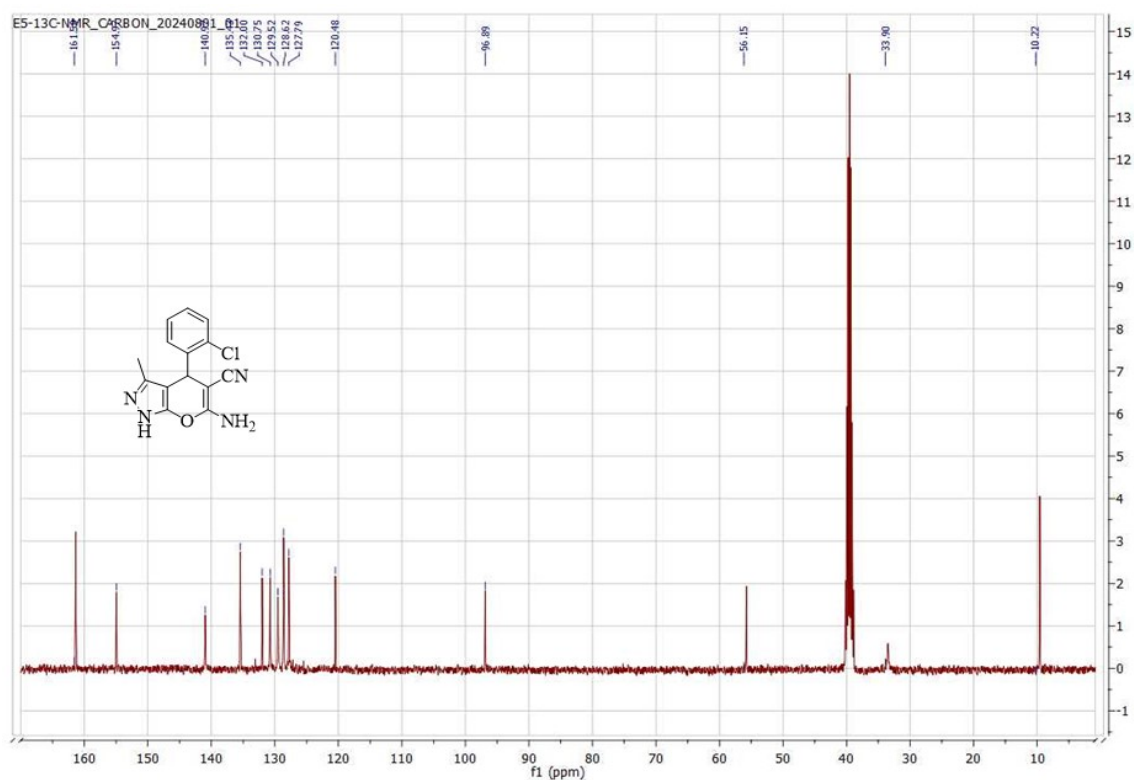


Figure 9: (5e) ^{13}C -NMR of 6-amino-4-(2-chlorophenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile.

S3. FT-IR, ^1H NMR, and ^{13}C NMR of (5j): 6-amino-4-(4-methoxyphenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile.

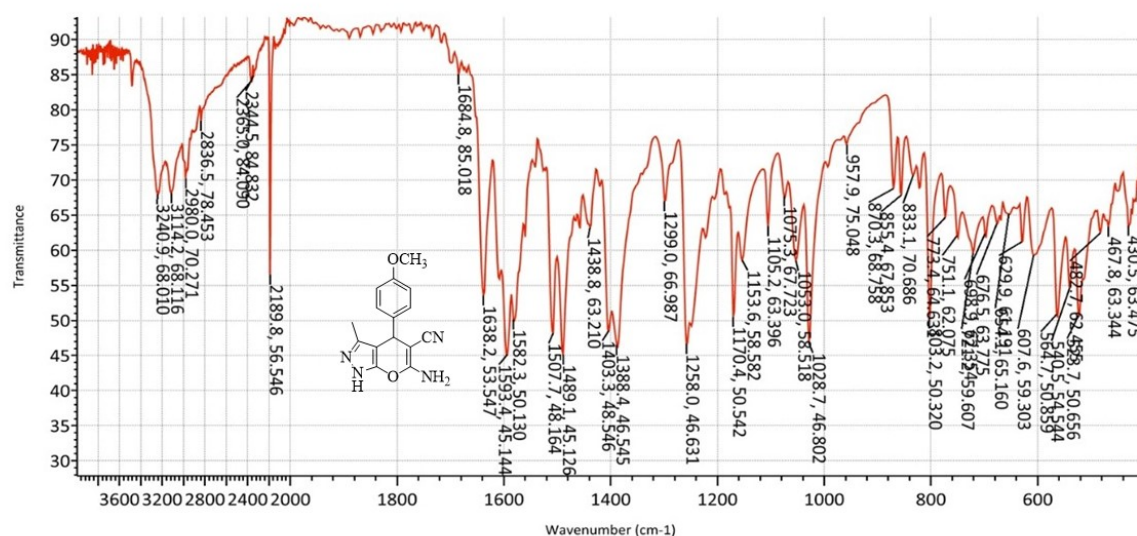


Figure 10: (5j) FT-IR of 6-amino-4-(4-methoxyphenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

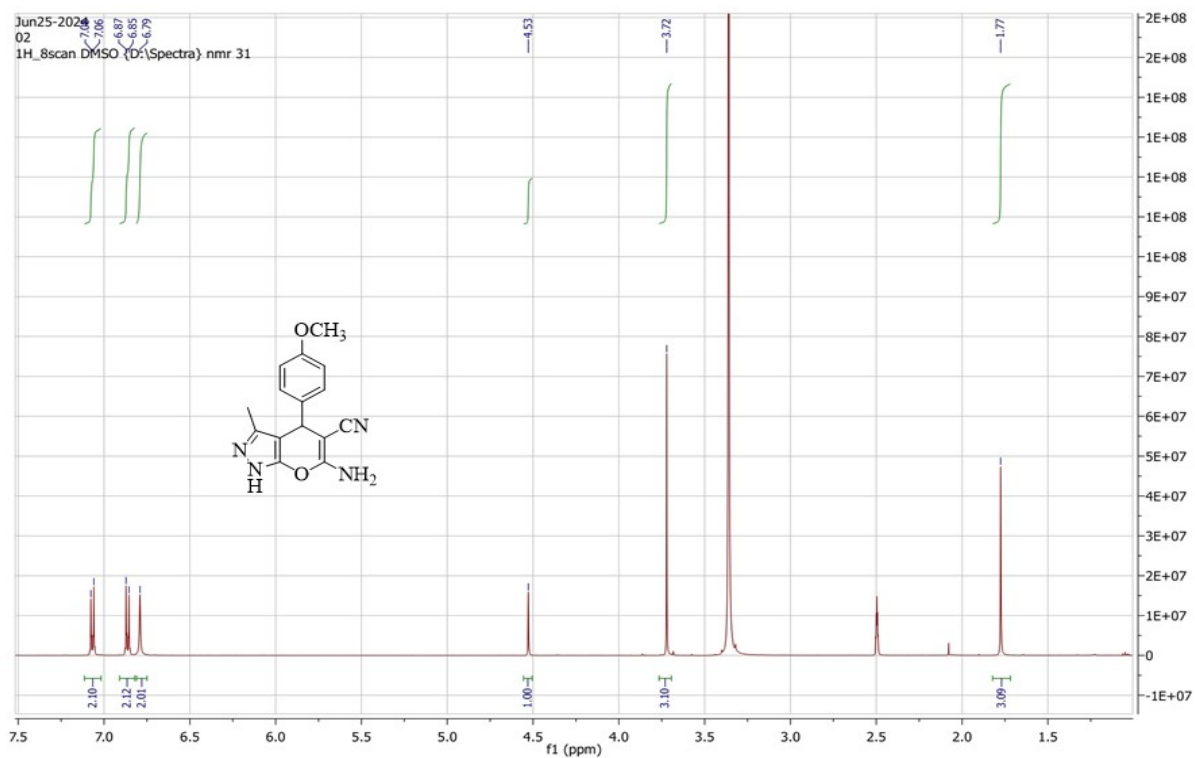


Figure 11: (5j) ^1H NMR of 6-amino-4-(4-methoxyphenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

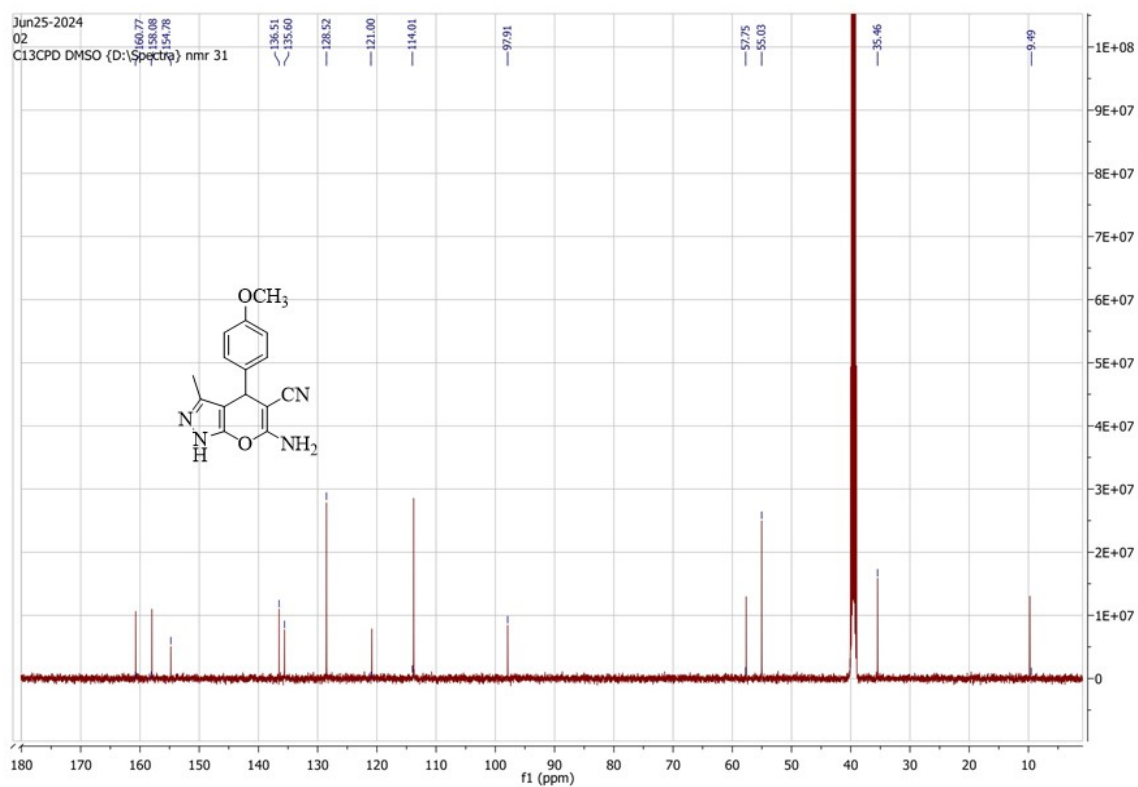


Figure 12: (5j) ^{13}C NMR of 6-amino-4-(4-methoxyphenyl)-3-methyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile.