

Functionalized superparamagnetic Fe₃O₄ as an efficient quasi-homogeneous catalyst for multi-component reactions

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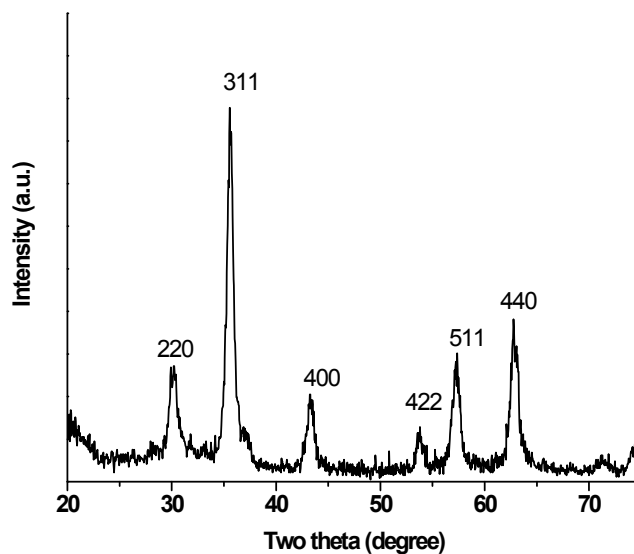


Figure 1: XRD of recycled VSF catalyst

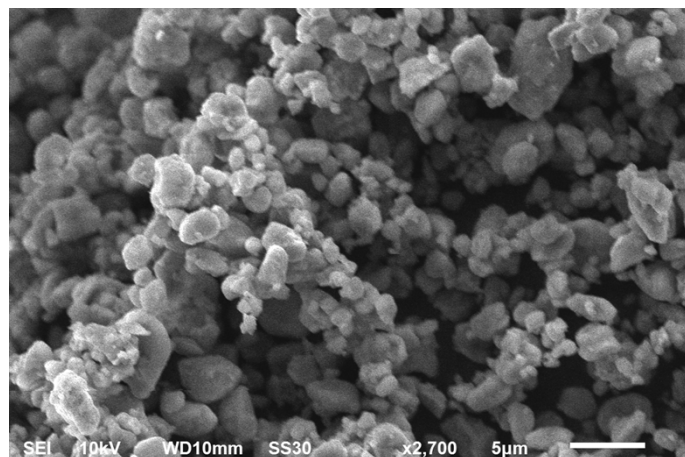


Figure 2: SEM image of recycled VSF catalyst

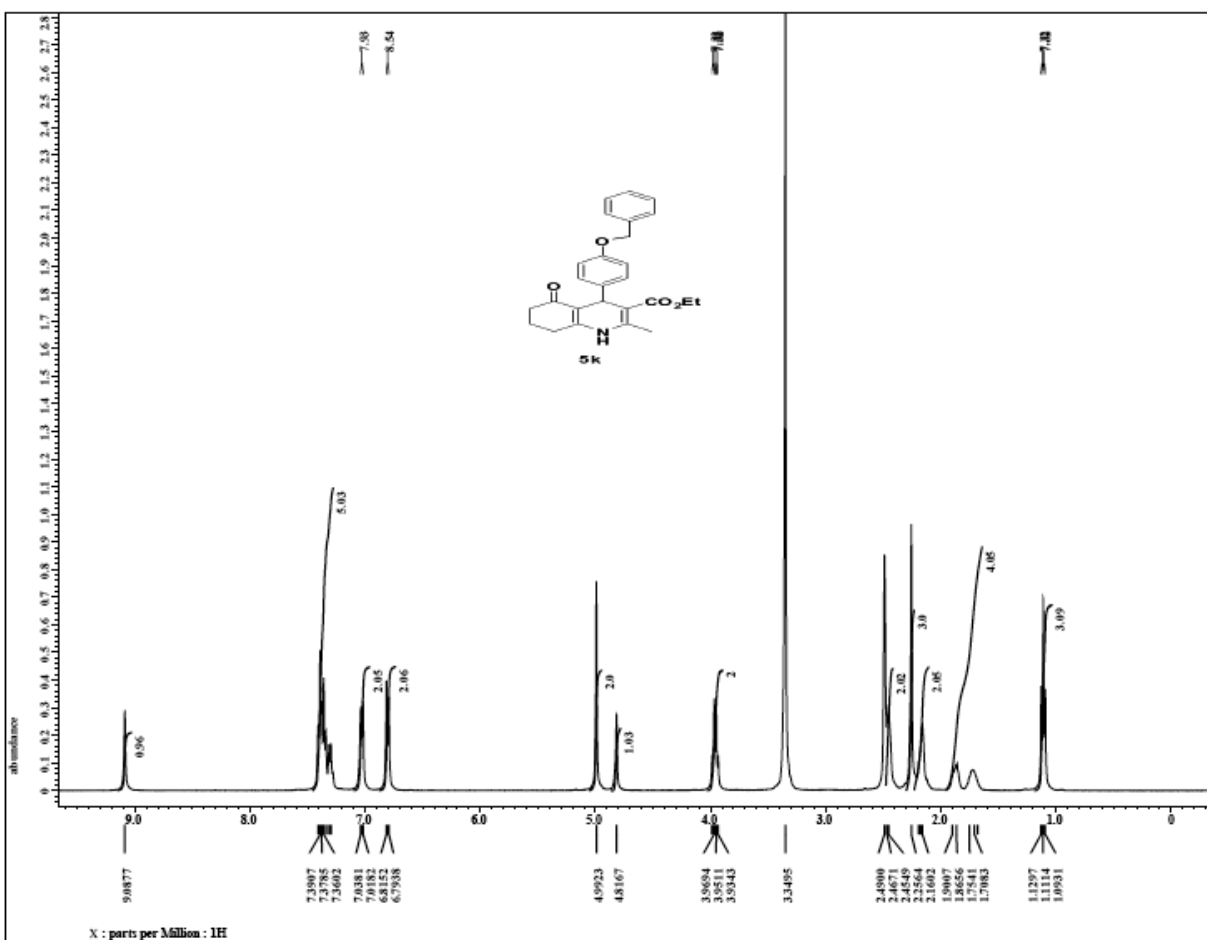


Figure 3: ^1H NMR of Ethyl-4-(4-(benzyloxy)phenyl)-2-methyl-5-oxo-1,4,5,6,7,8-hexahydroquinoline-3-carboxylate (5k)

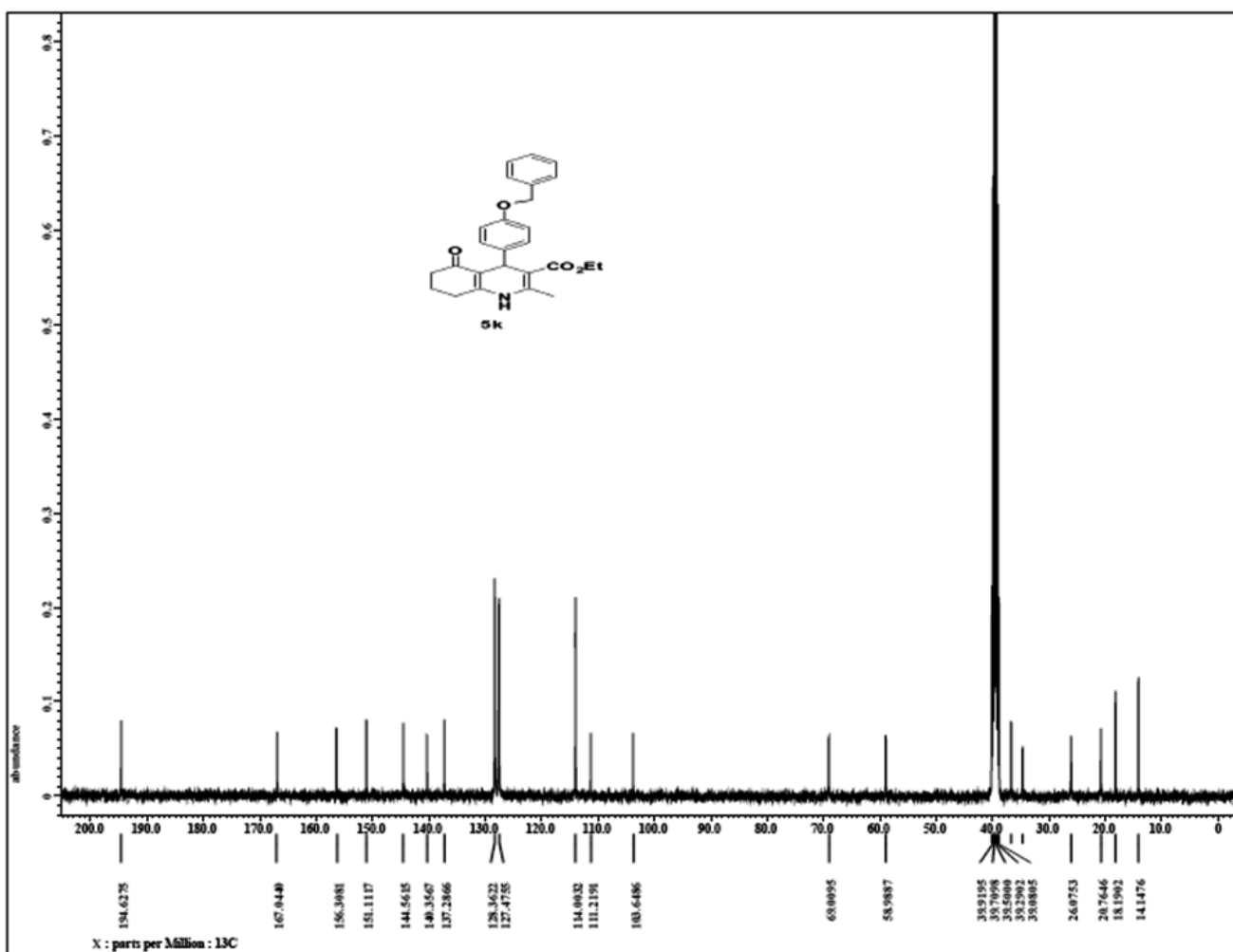


Figure 4: ^{13}C NMR of Ethyl 4-(4-(benzyloxy)phenyl)-2-methyl-5-oxo-1,4,5,6,7,8-hexahydroquinoline-3-carboxylate (5k)

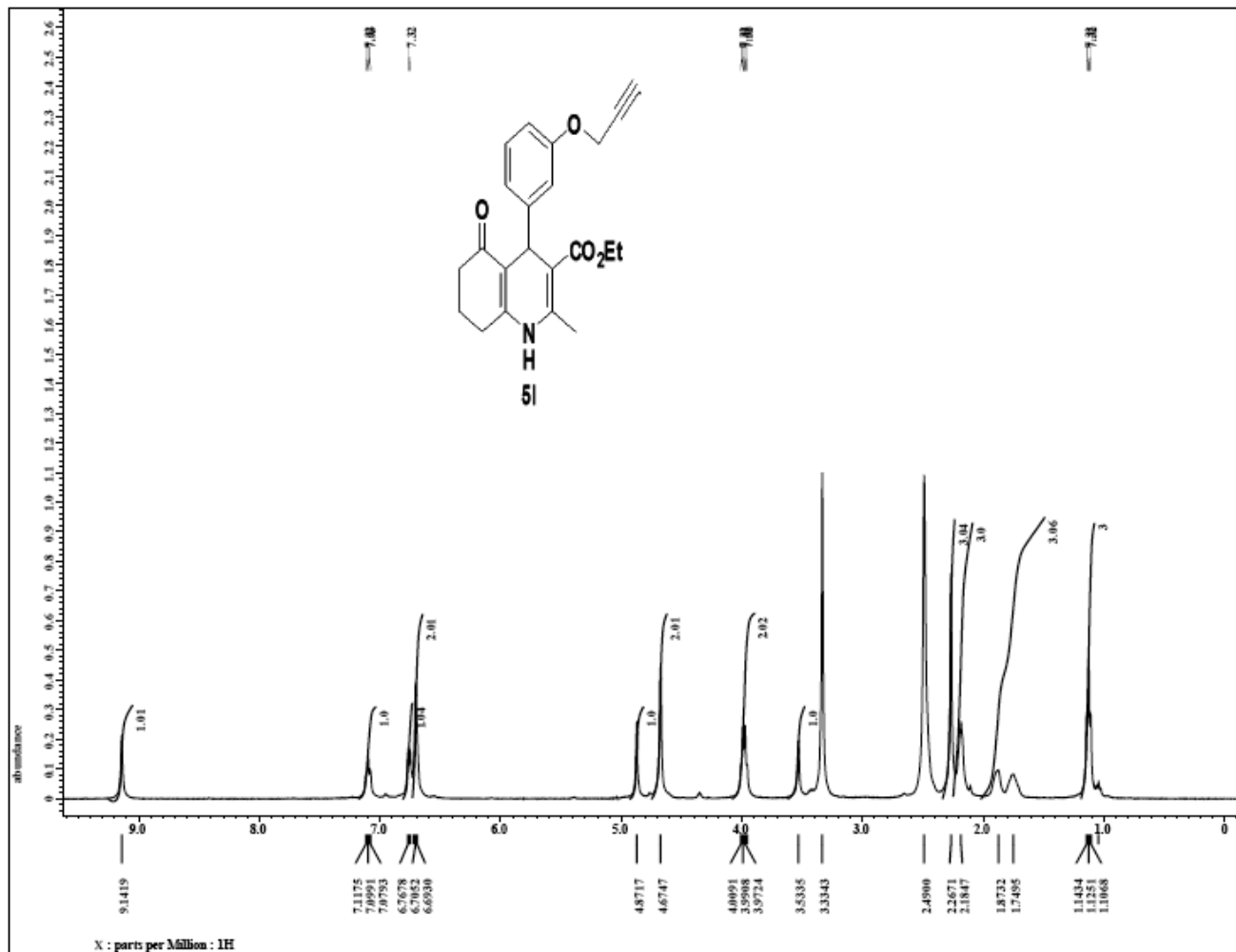


Figure 5: ¹H NMR of Ethyl2-methyl-5-oxo-4-(3-(prop-2-yn-1-yloxy)phenyl)-1,4,5,6,7,8-hexahydroquinoline-3-carboxylate (51)

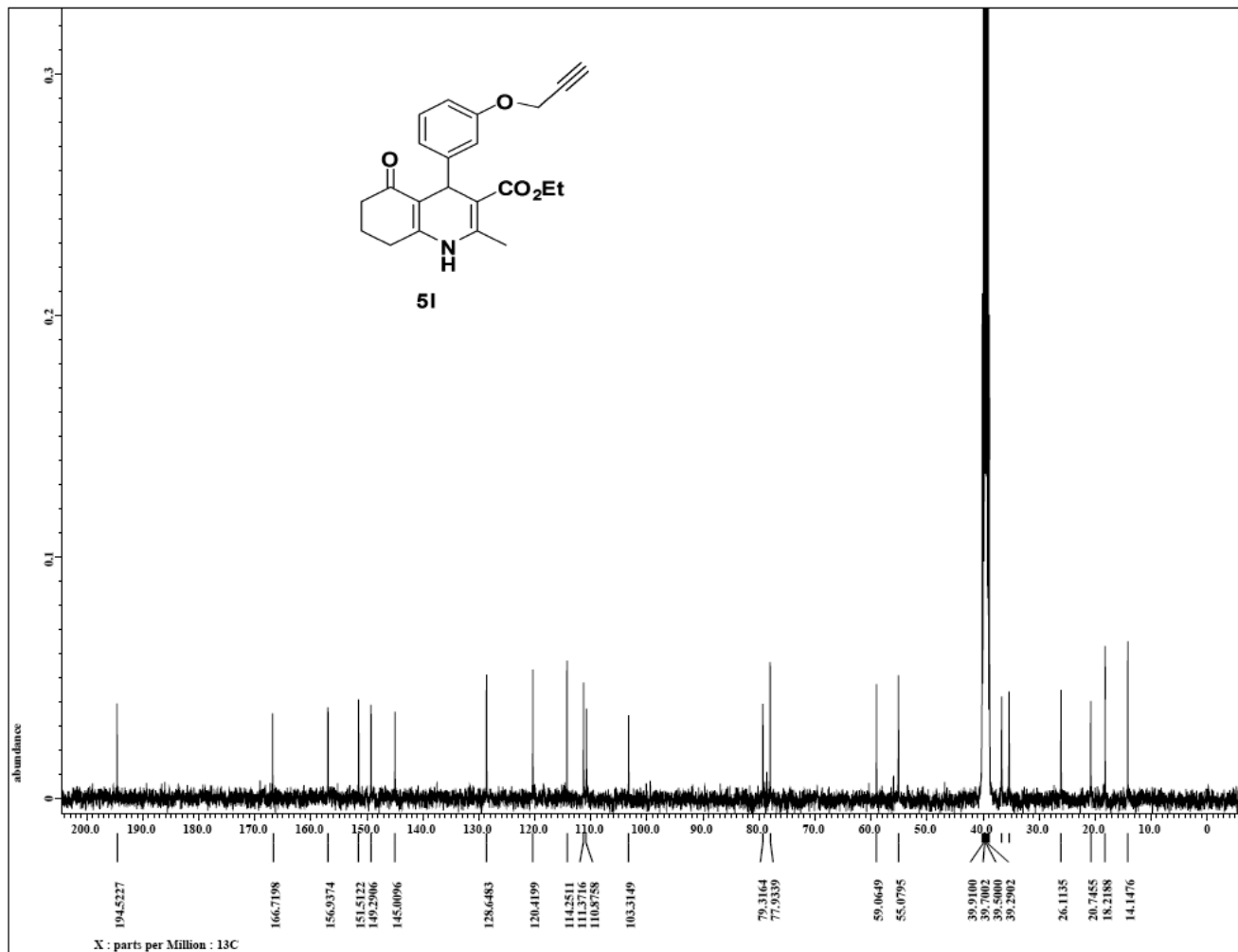


Figure 6: ^{13}C NMR of Ethyl 2-methyl-5-oxo-4-(3-(prop-2-yn-1-yloxy)phenyl)-1,4,5,6,7,8-hexahydroquinoline-3-carboxylate (51)

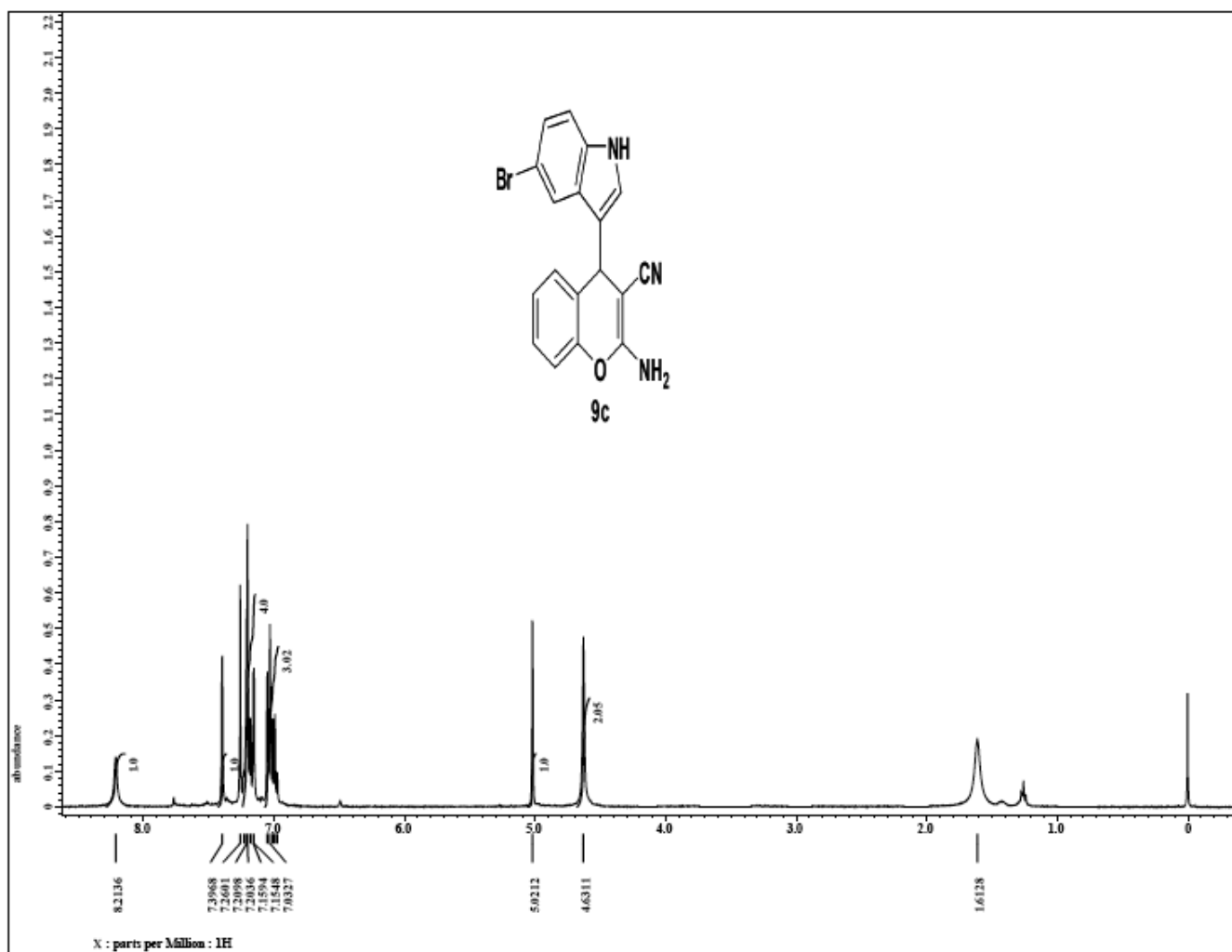


Figure 7: ¹H NMR of 2-Amino-4-(5-bromo-1H-indol-3-yl)chroman-3-carbonitrile (9c)

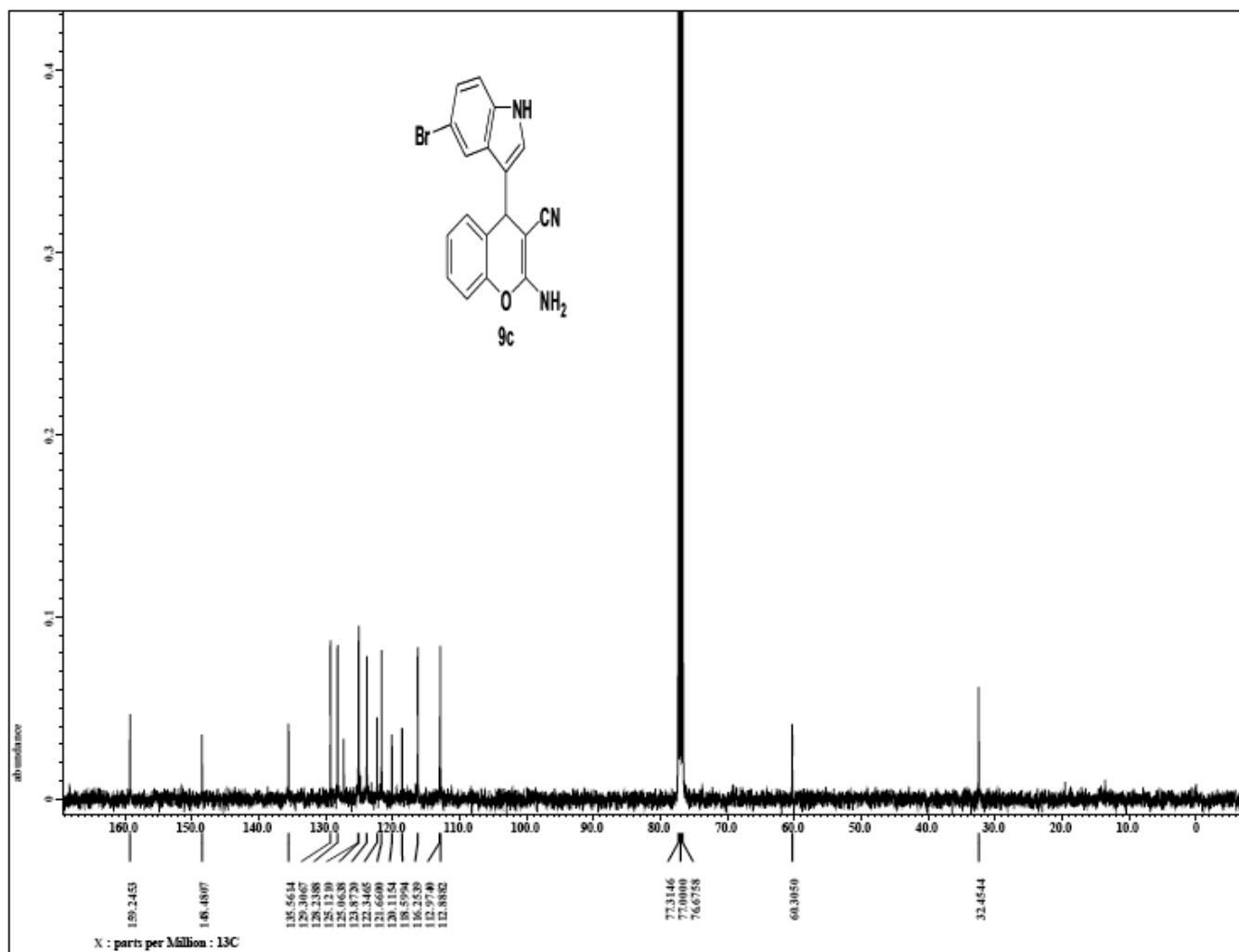


Figure 8: ^{13}C NMR of 2-Amino-4-(5-bromo-1H-indol-3-yl)chroman-3-carbonitrile(9c)

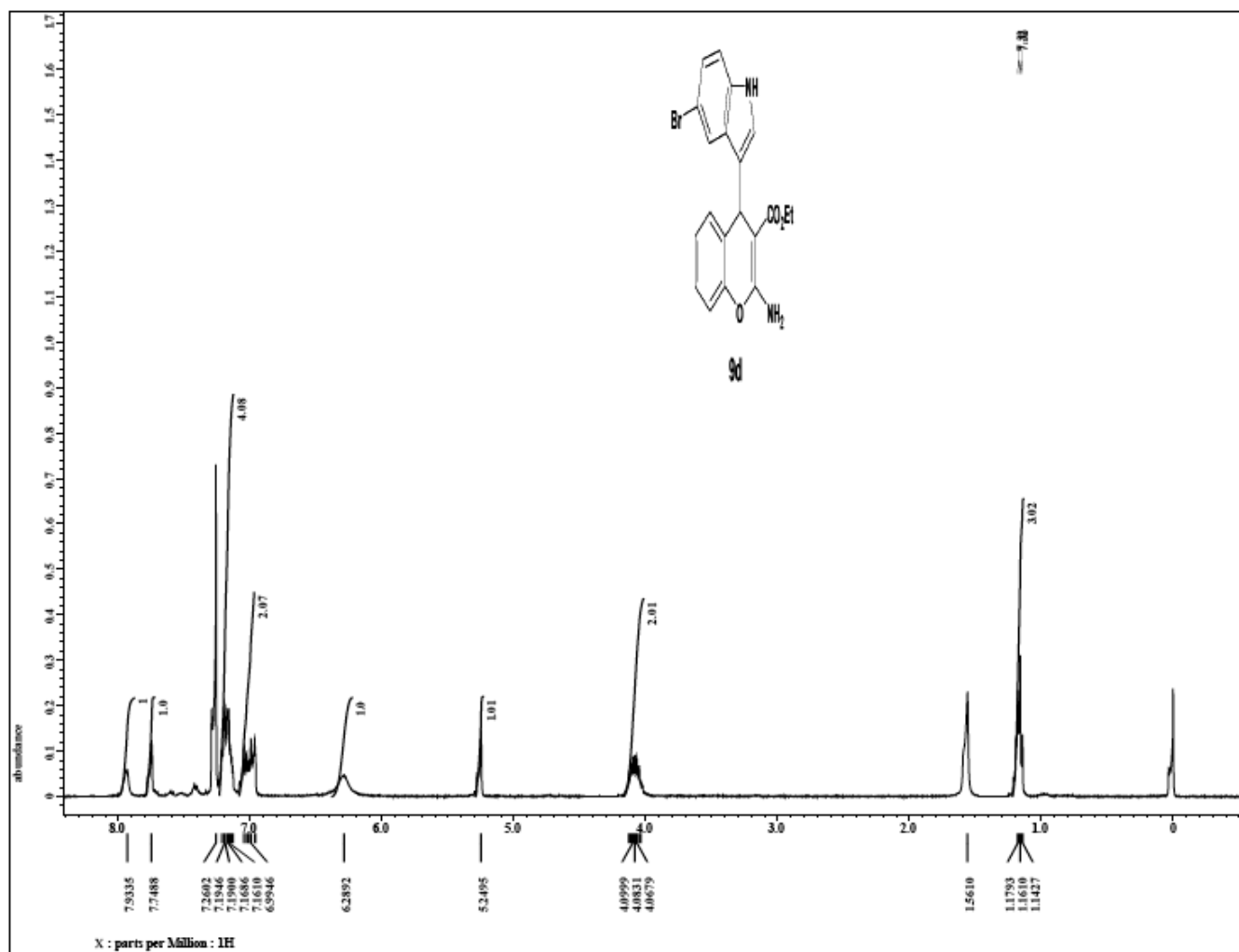


Figure 9: ^1H NMR of Ethyl 2-amino-4-(5-bromo-1H-indol-3-yl)-4H-chromene-3-carboxylate (9d):

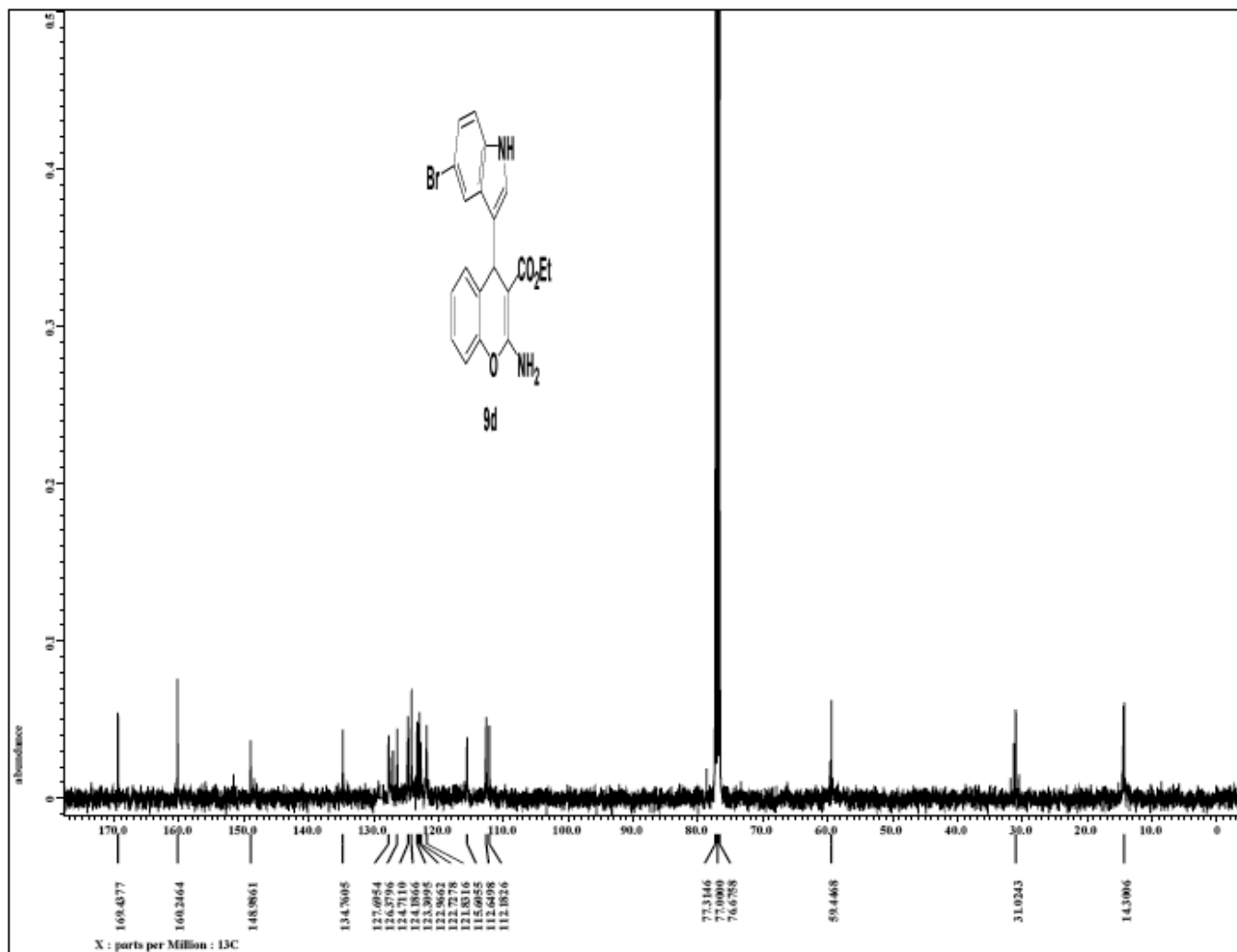


Figure 10: ¹³C NMR of Ethyl-2-amino-4-(5-bromo-1H-indol-3-yl)-4H-chromene-3-carboxylate (9d):

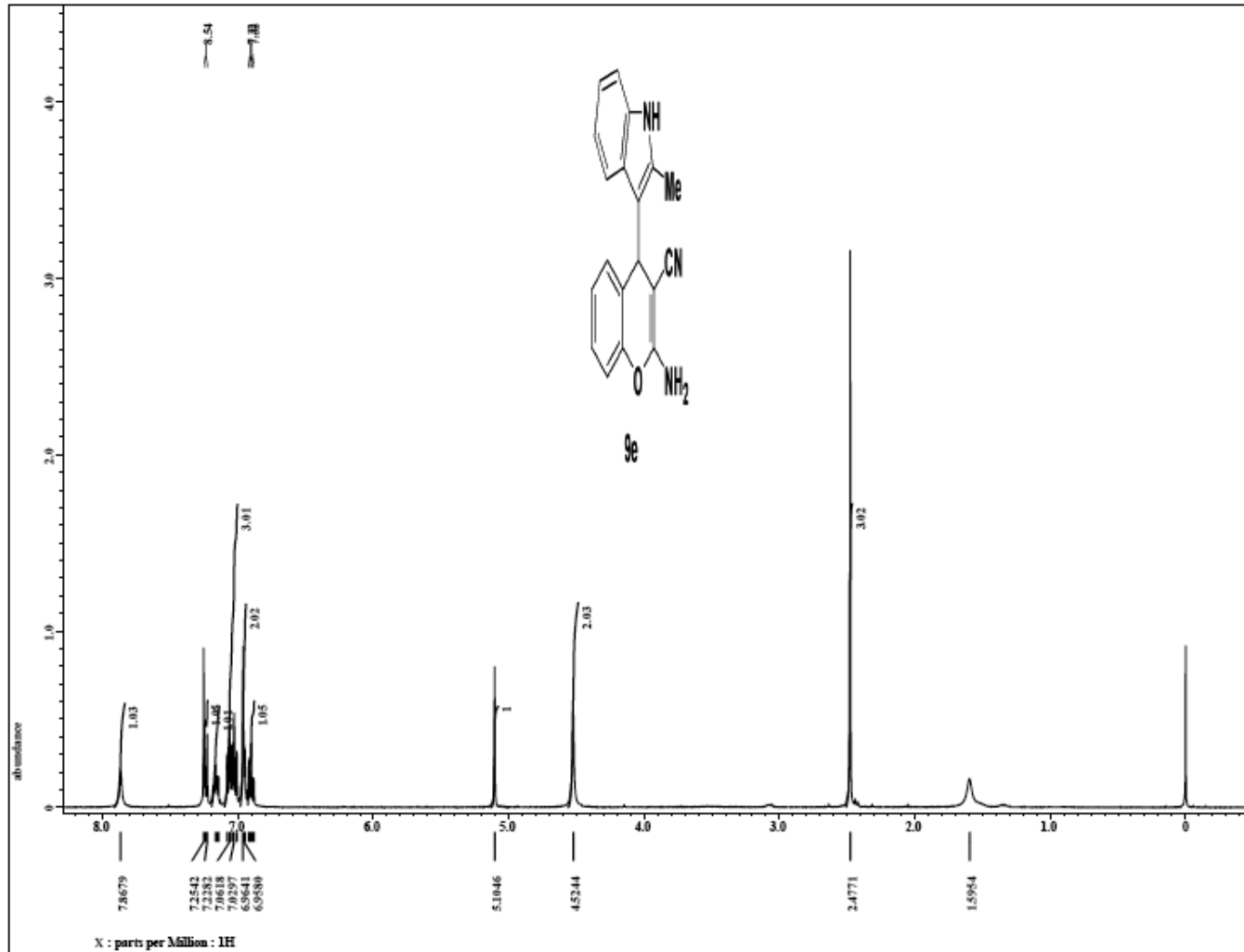


Figure 11: ¹H NMR of 2-Amino-4-(2-methyl-1H-indol-3-yl)-4H-chromene-3-carbonitrile (9e)

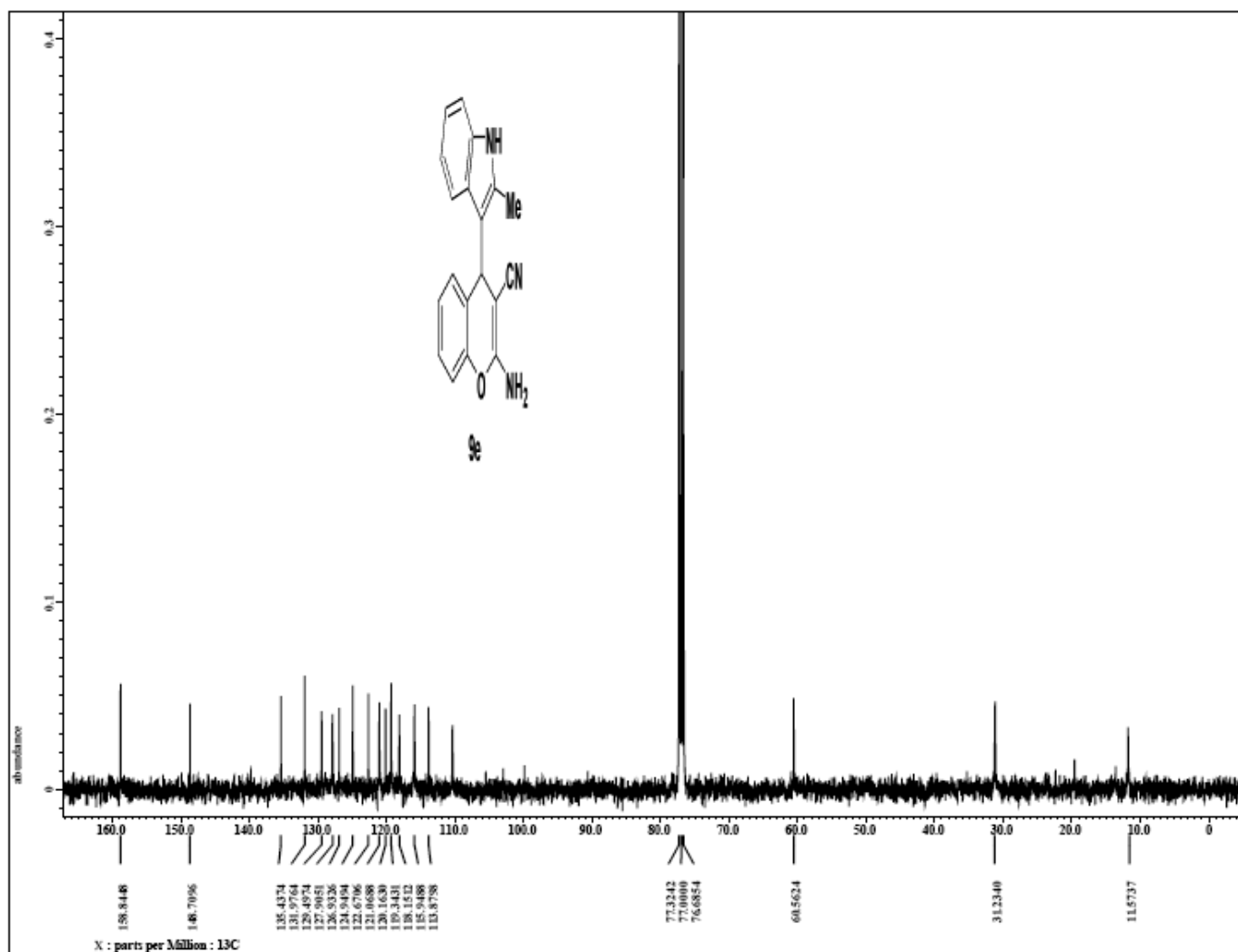


Figure 12: ¹³C NMR of 2-Amino-4-(2-methyl-1H-indol-3-yl)-4H-chromene-3-carbonitrile (9e)