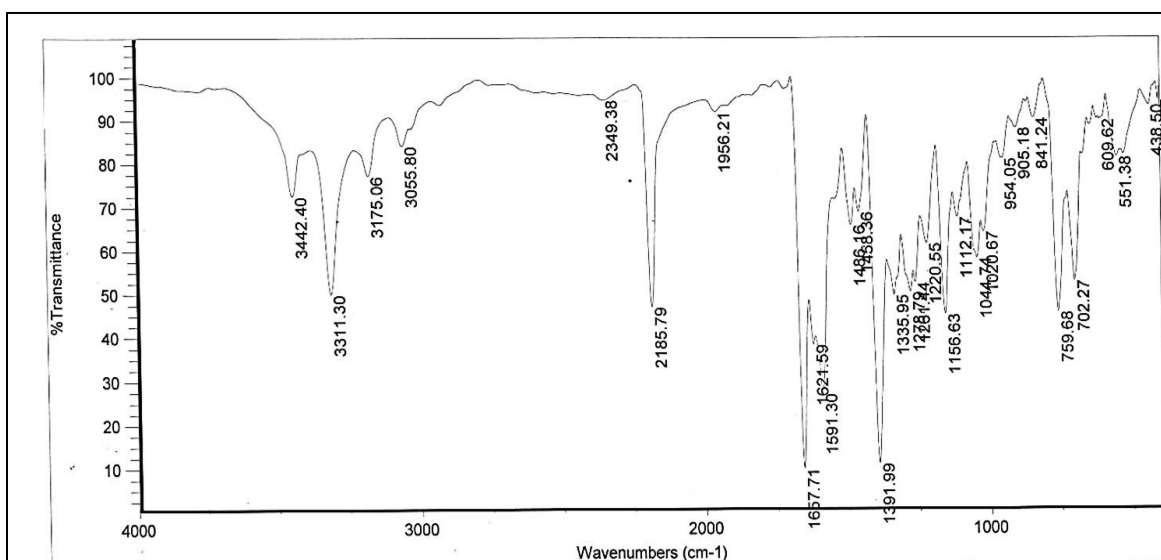


Introducing a green nanocatalytic process toward the synthesis of benzo[*a*]pyrano-[2,3-*c*]phenazines utilizing copper oxide quantum dots-modified core-shell magnetic silica mesoporous nanocatalysts as high throughput and reusable nanocatalysts

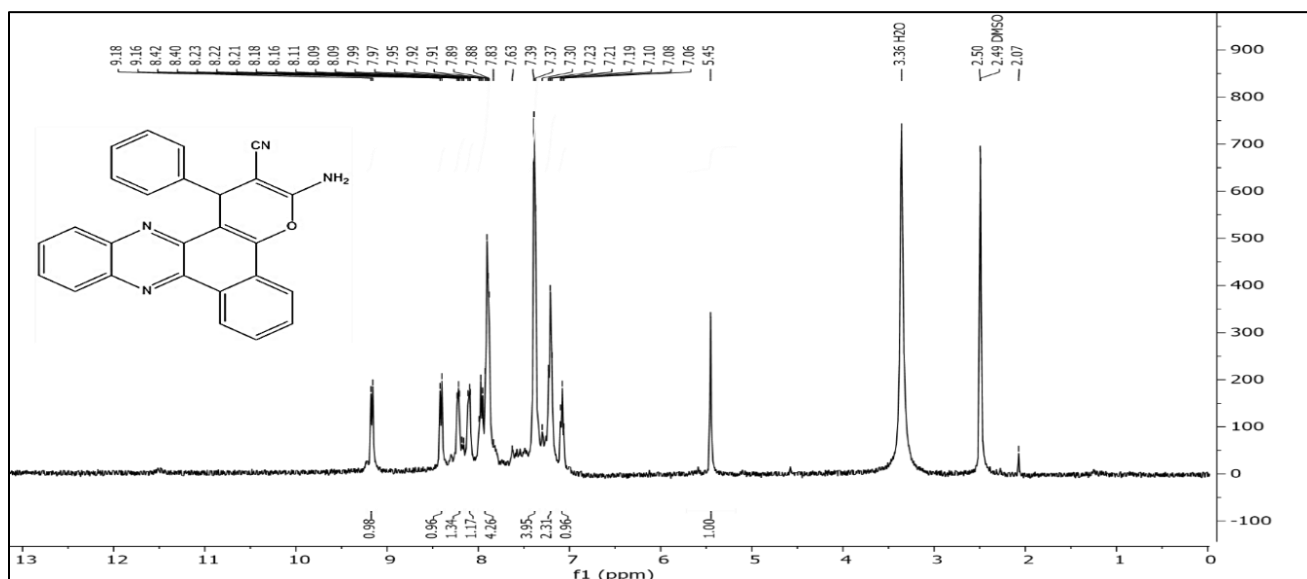
Mohadeseh Dehnavian, Abdulhamid Dehghani, Leila Moradi*

Department of Organic Chemistry, Faculty of Chemistry, University of Kashan, Kashan, Iran, P.O. Box

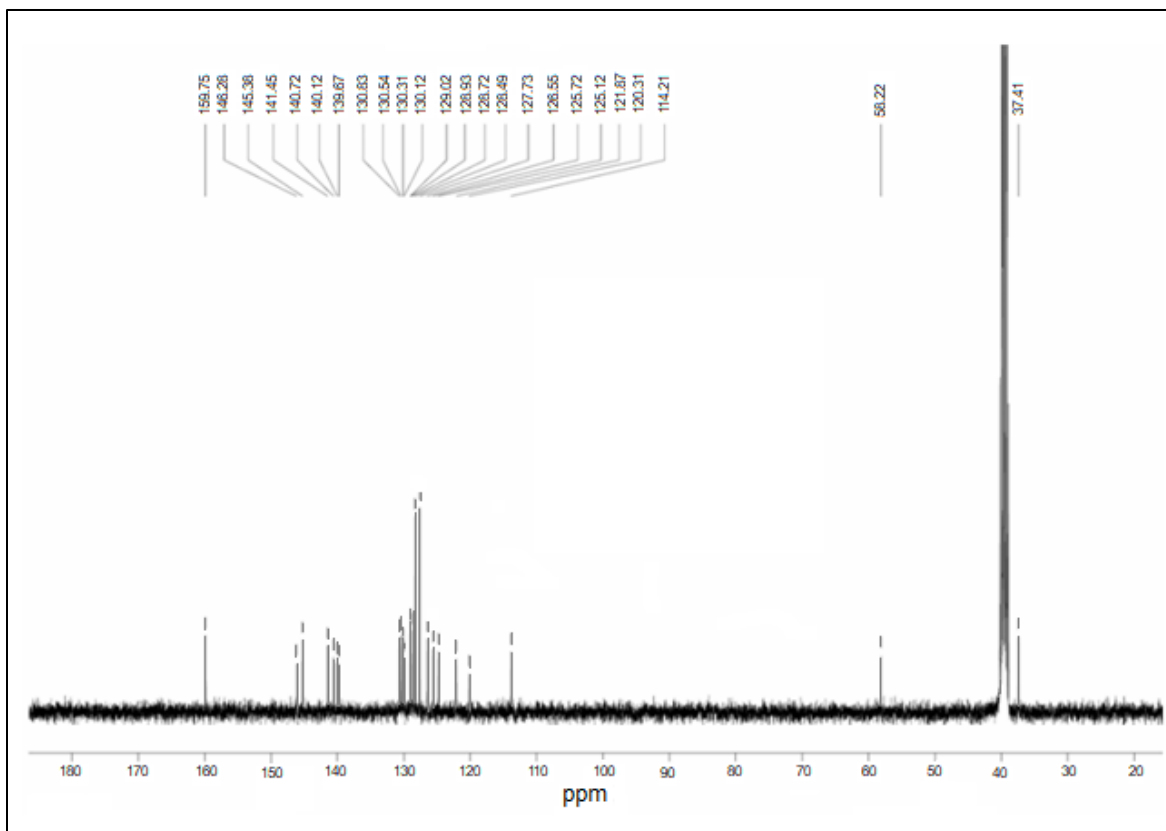
8731753153, +983155912336



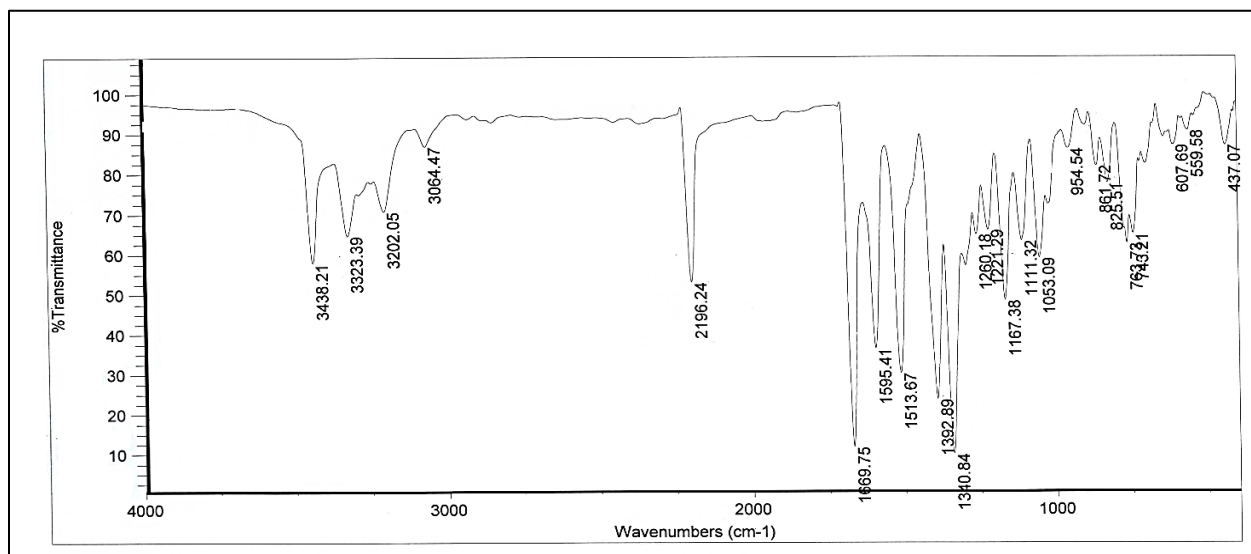
FTIR of 5a



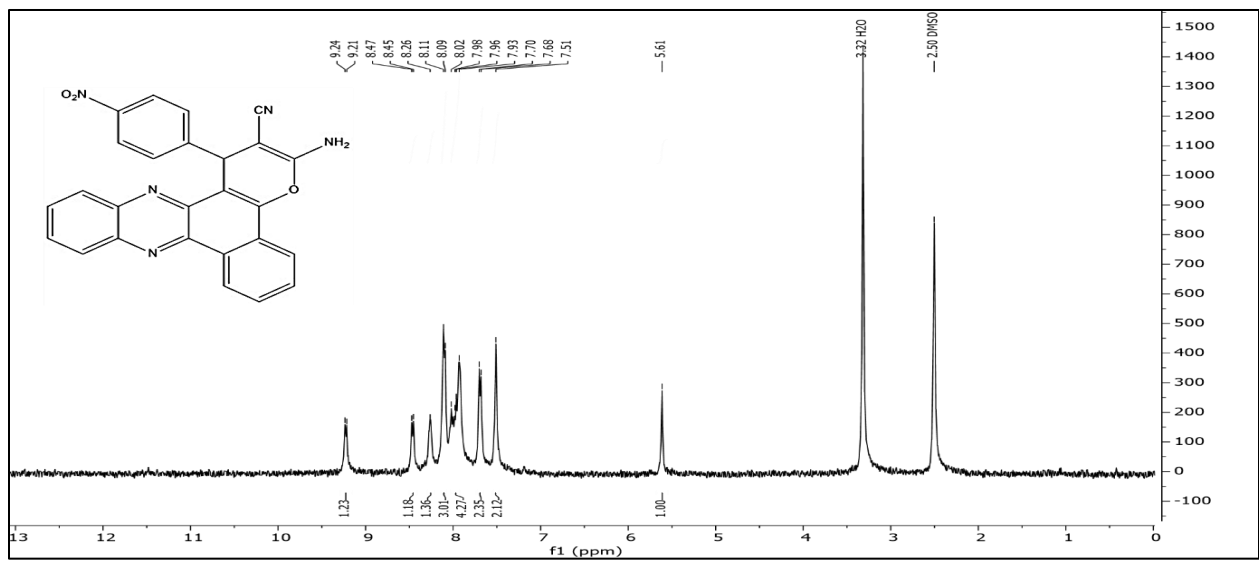
¹H NMR of 5a



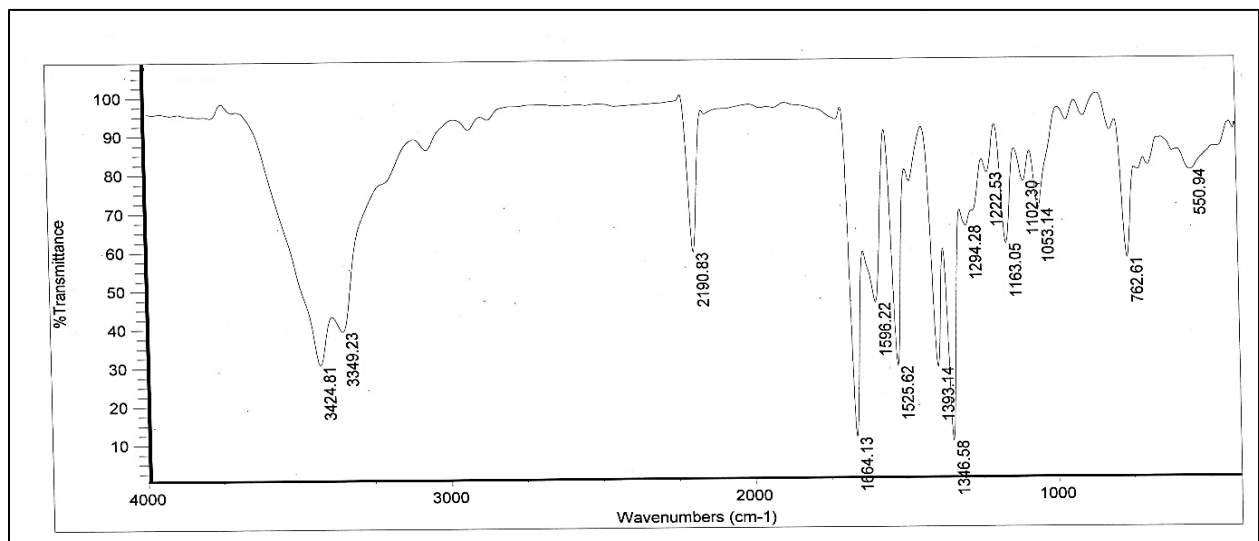
¹³C NMR of 5a



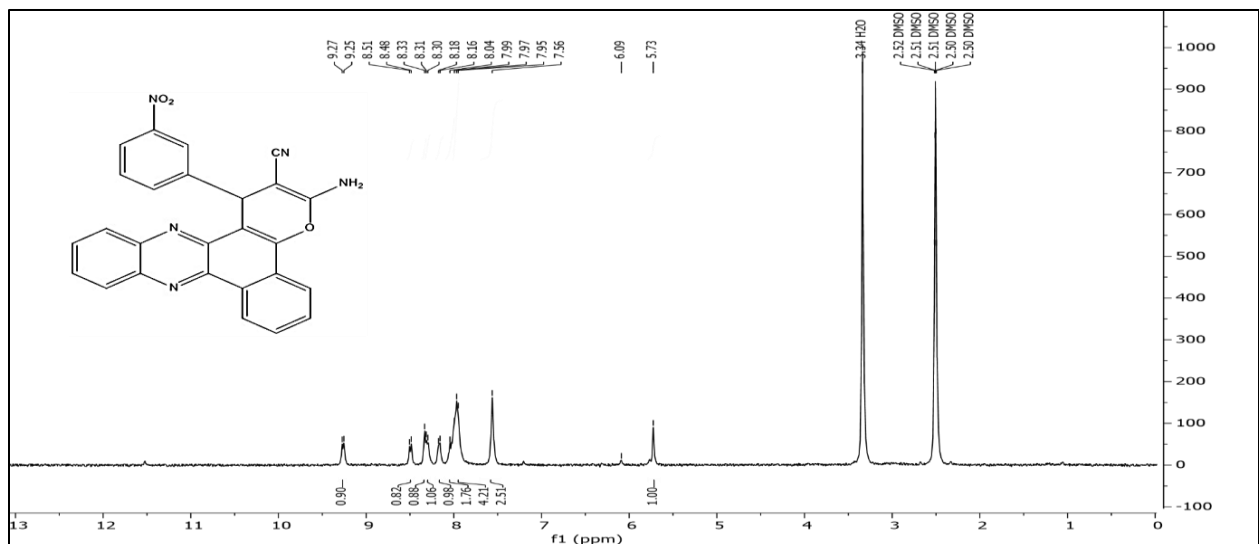
FTIR of 5b



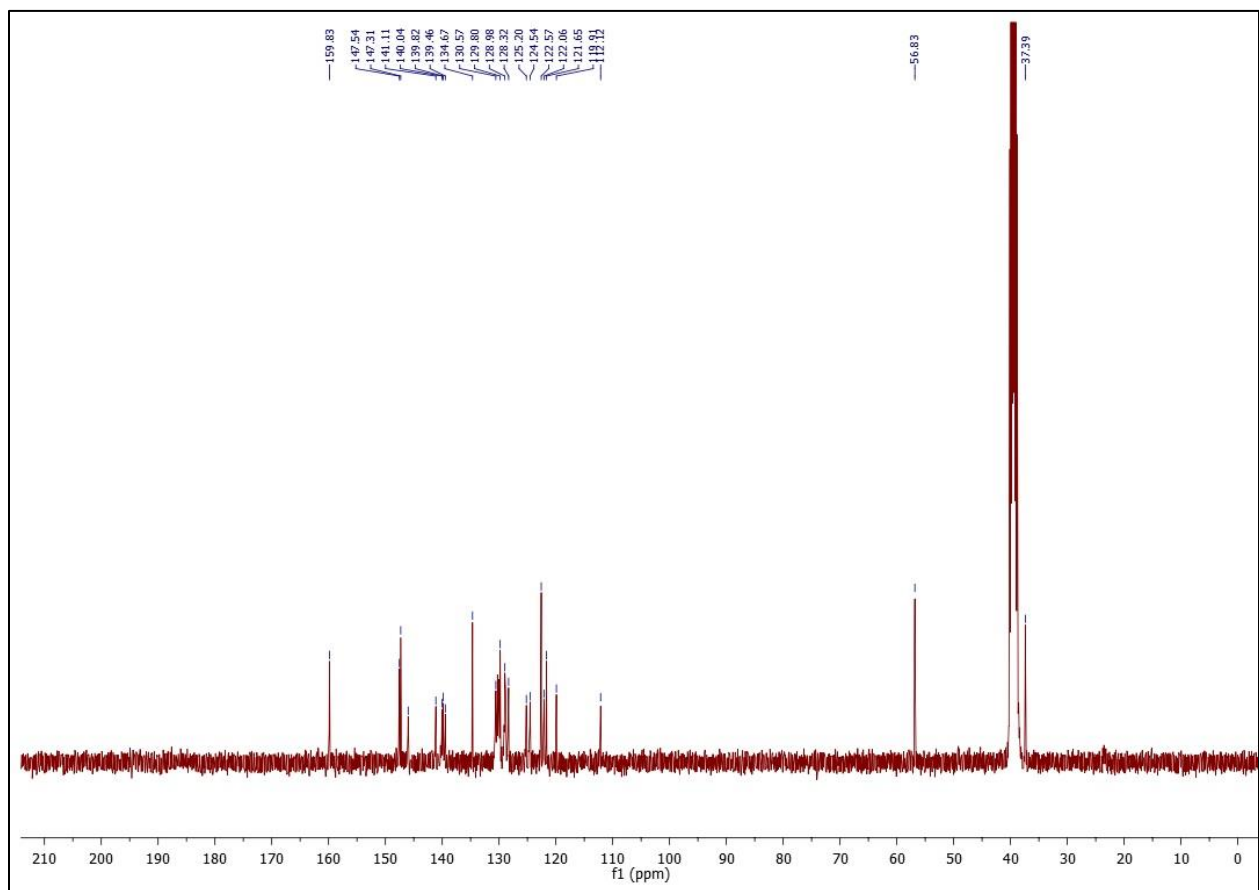
¹H NMR of 5b



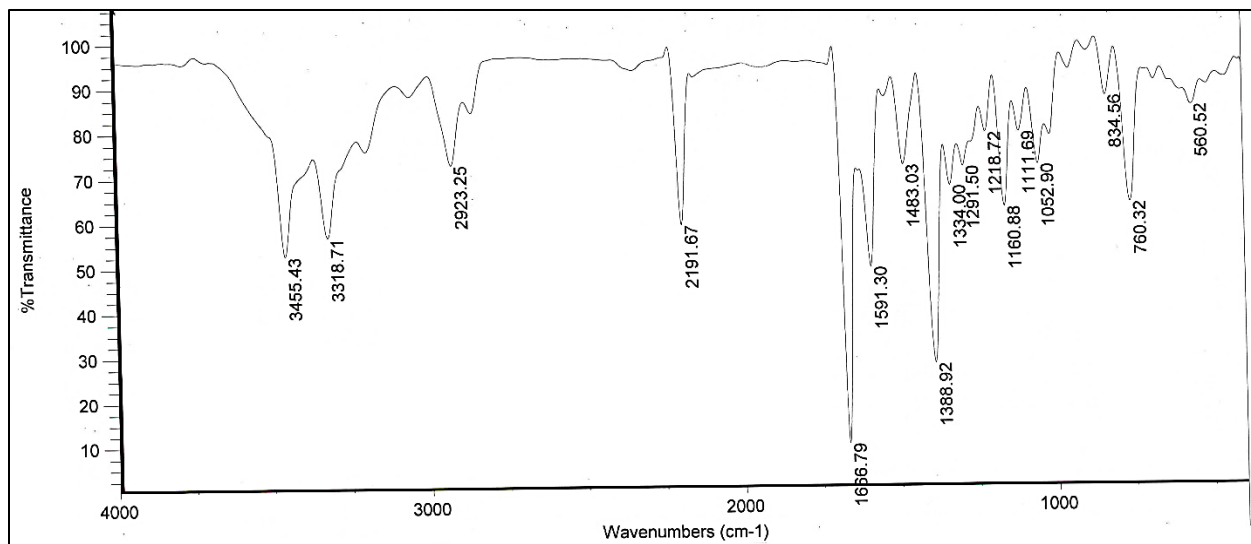
FTIR of 5c



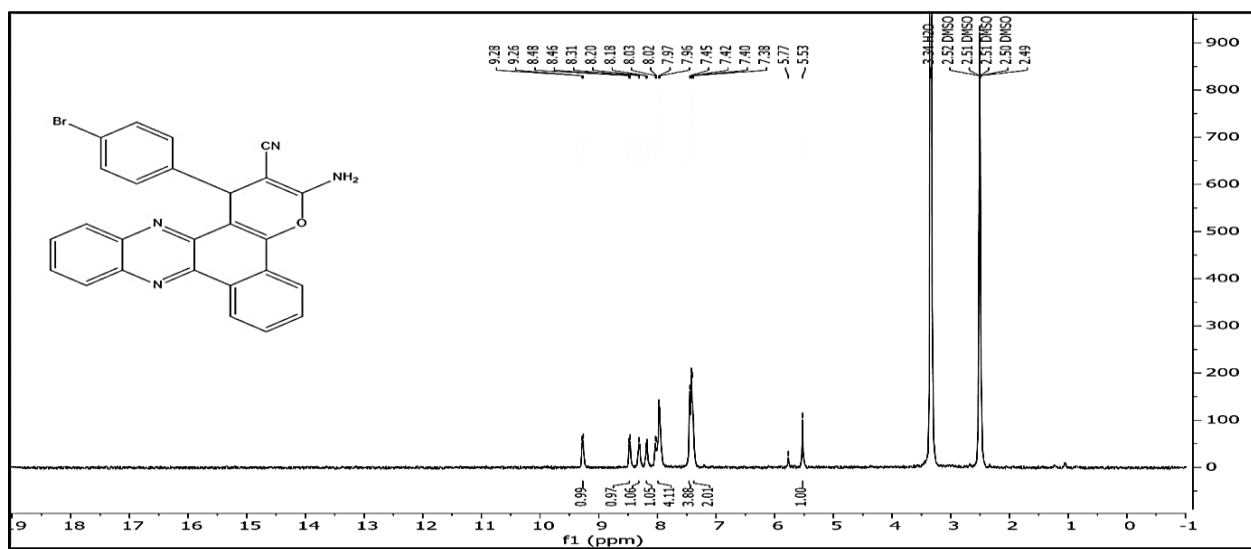
¹H NMR of 5c



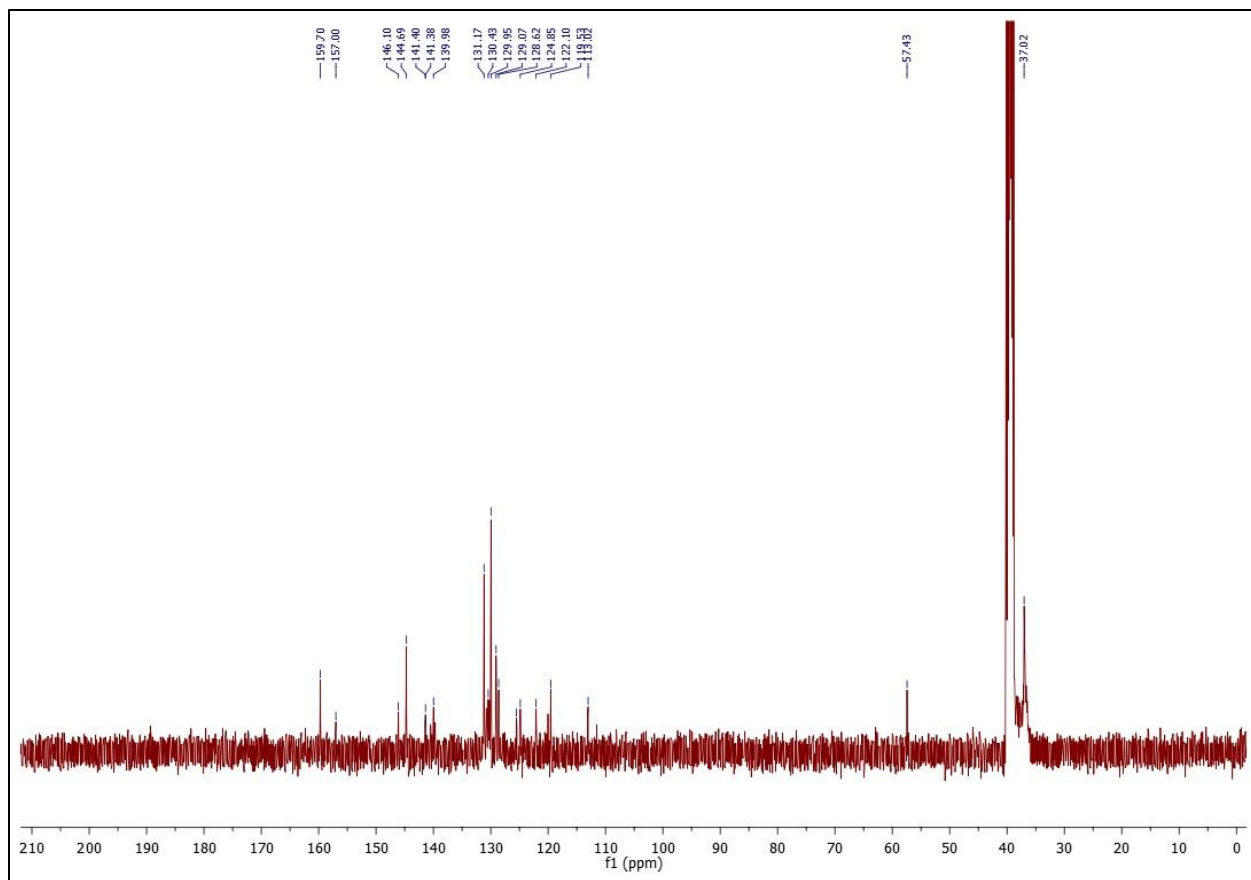
¹³C NMR of 5c



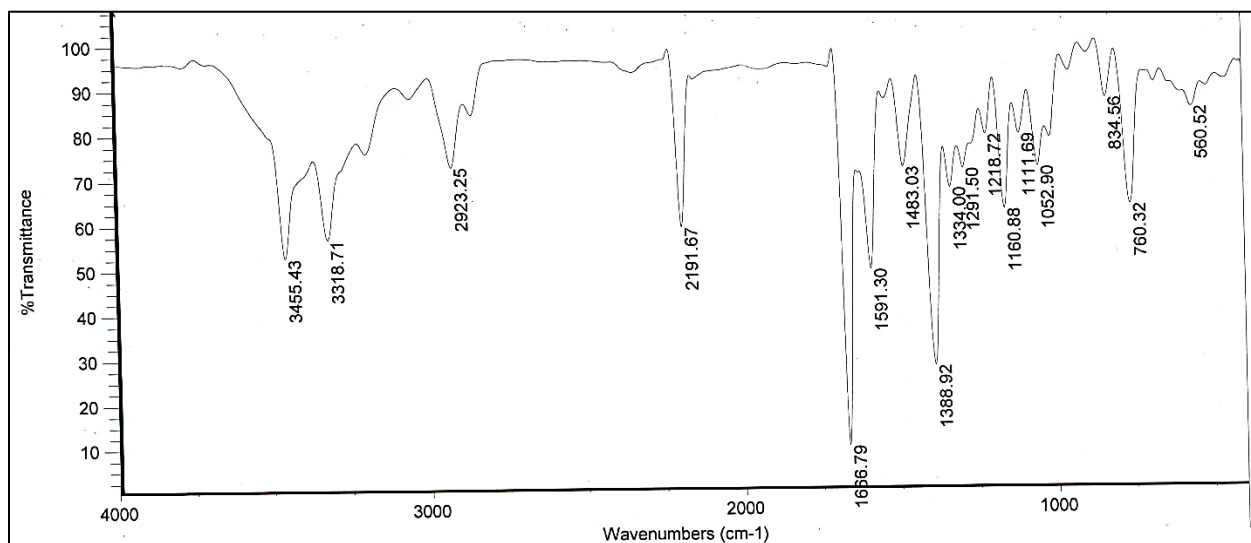
FTIR of 5d



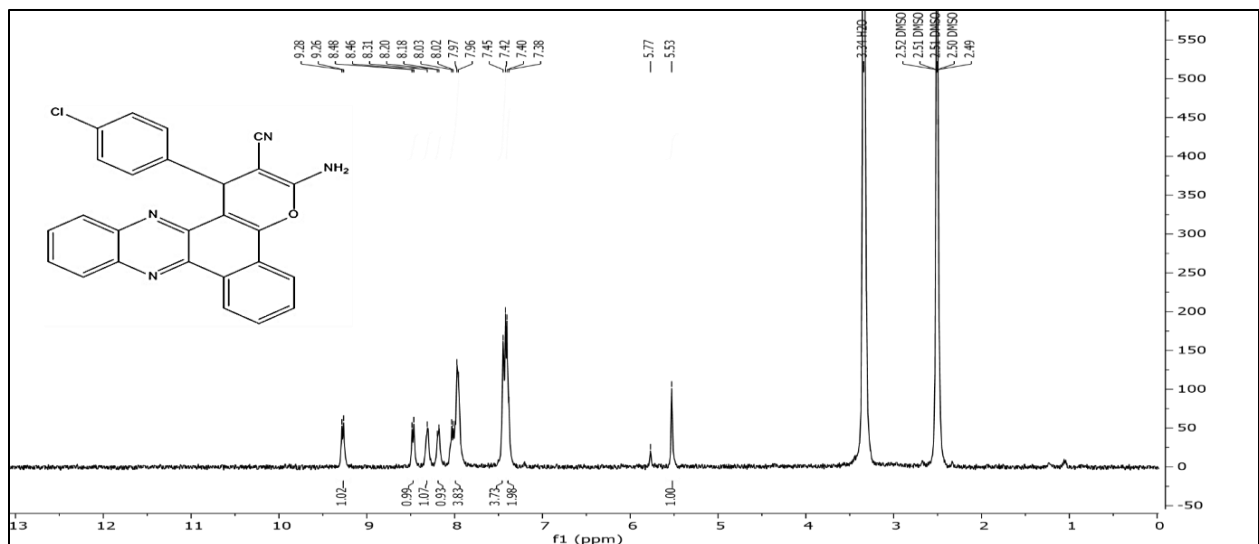
¹H NMR of 5d



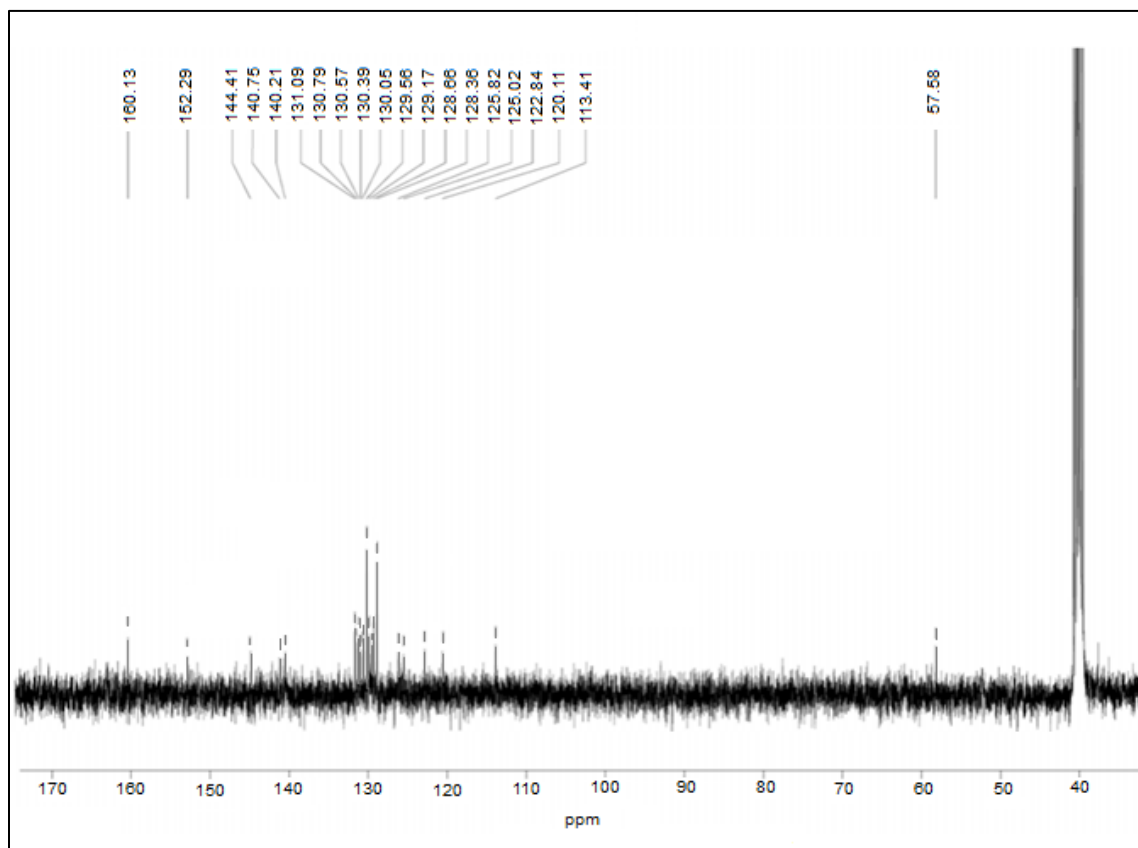
^{13}C NMR of 5d



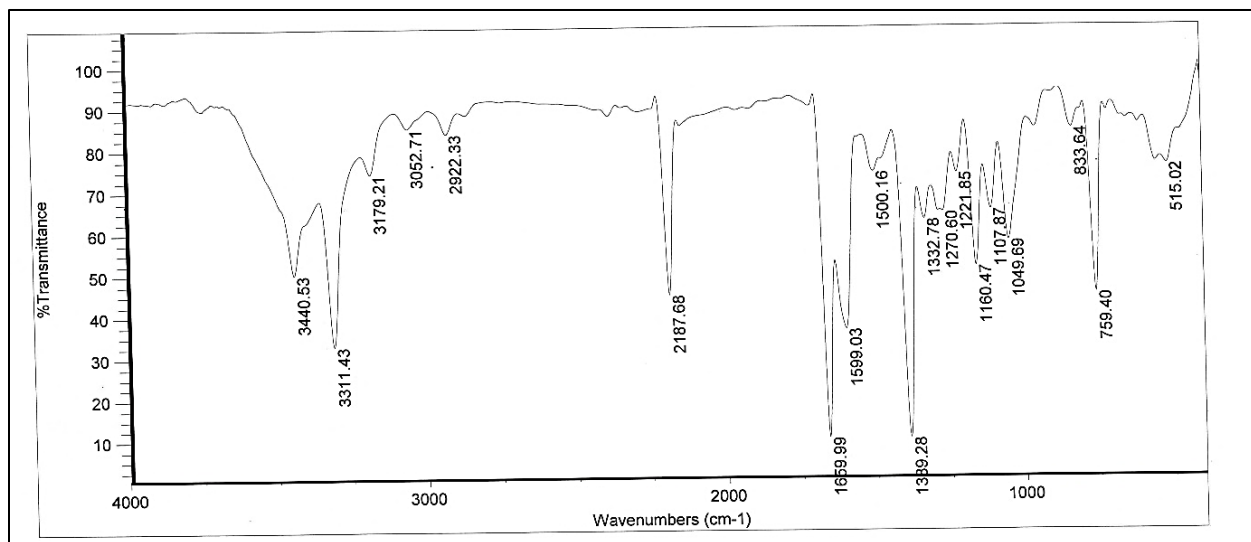
FTIR of 5e



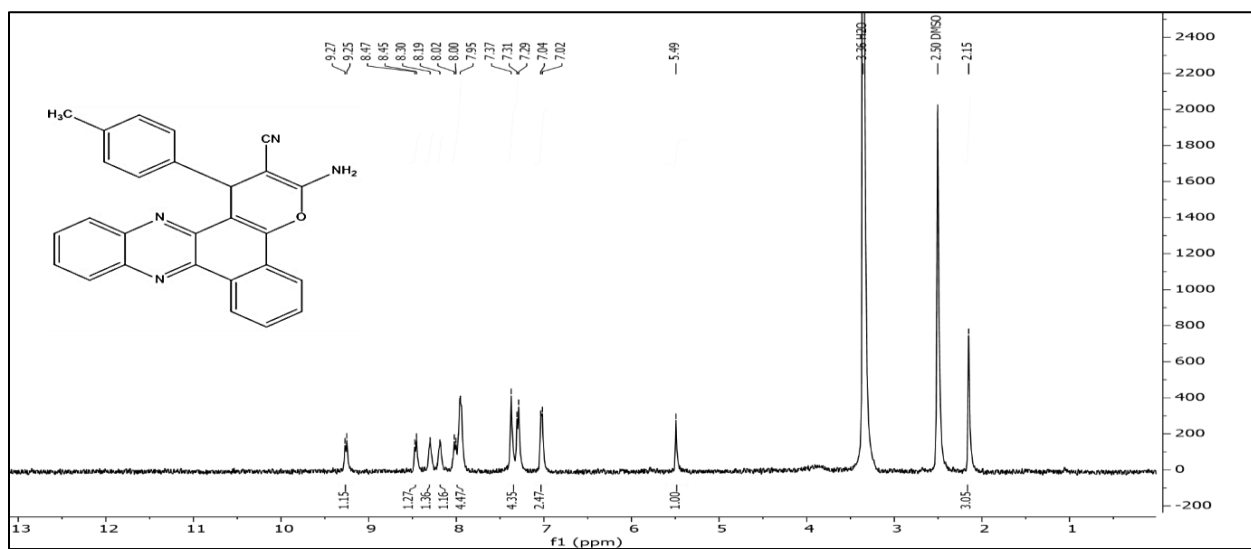
¹H NMR of 5e



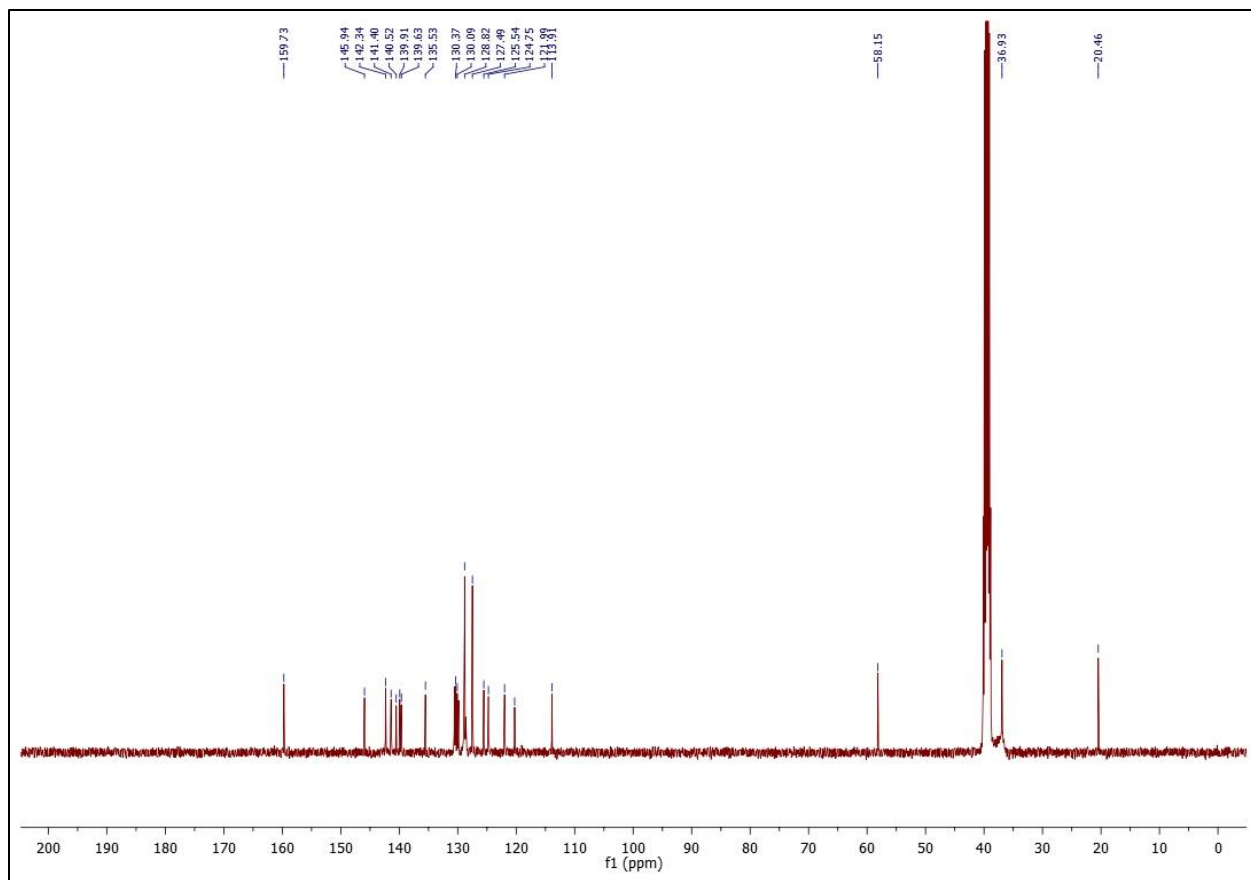
¹³C NMR of 5e



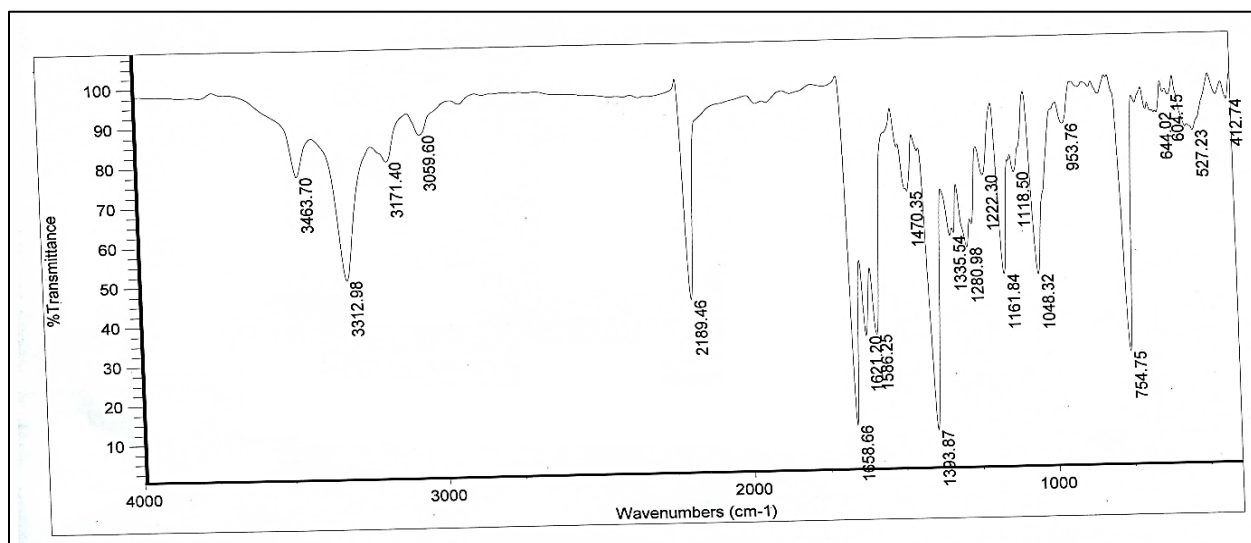
FTIR of 5f



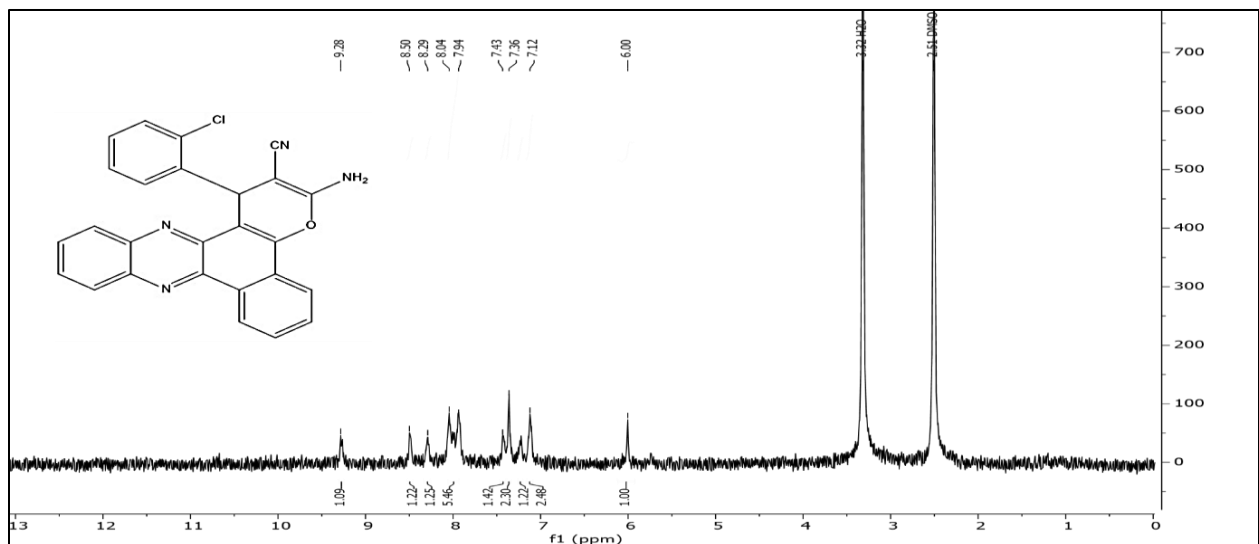
¹H NMR of 5f



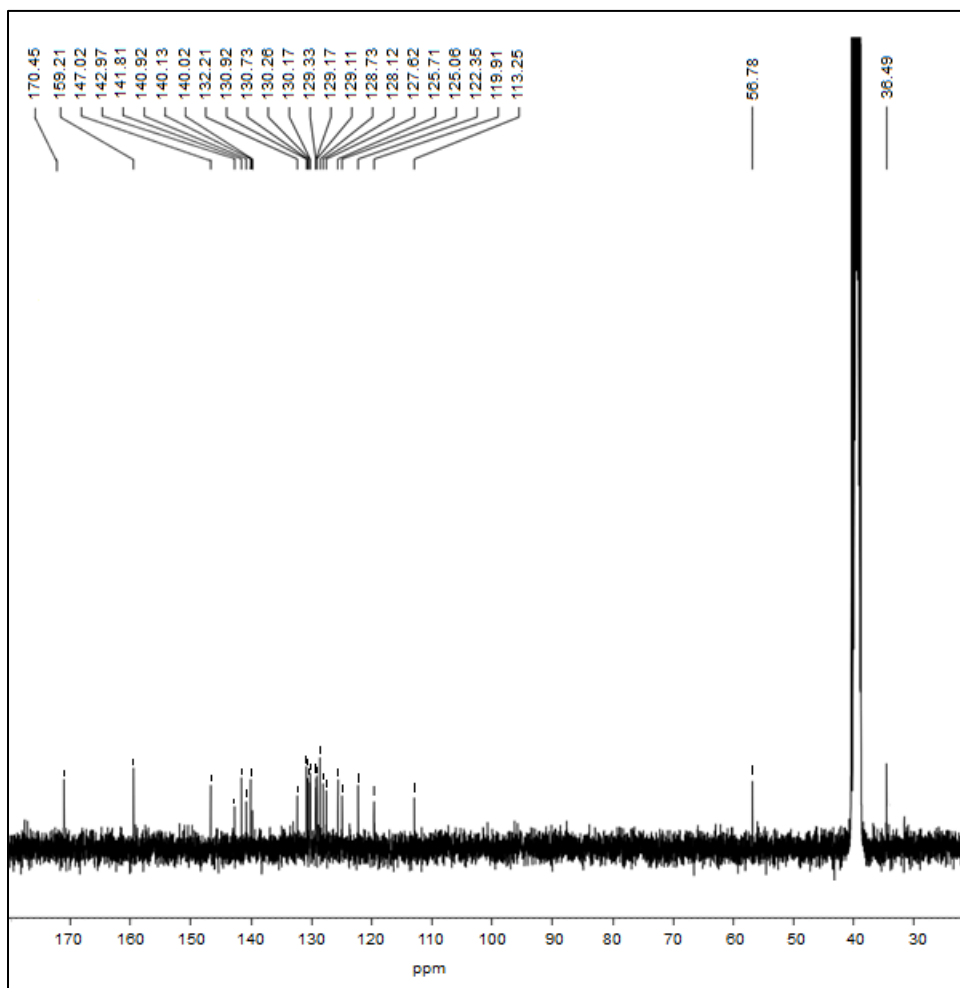
¹³C NMR of 5f



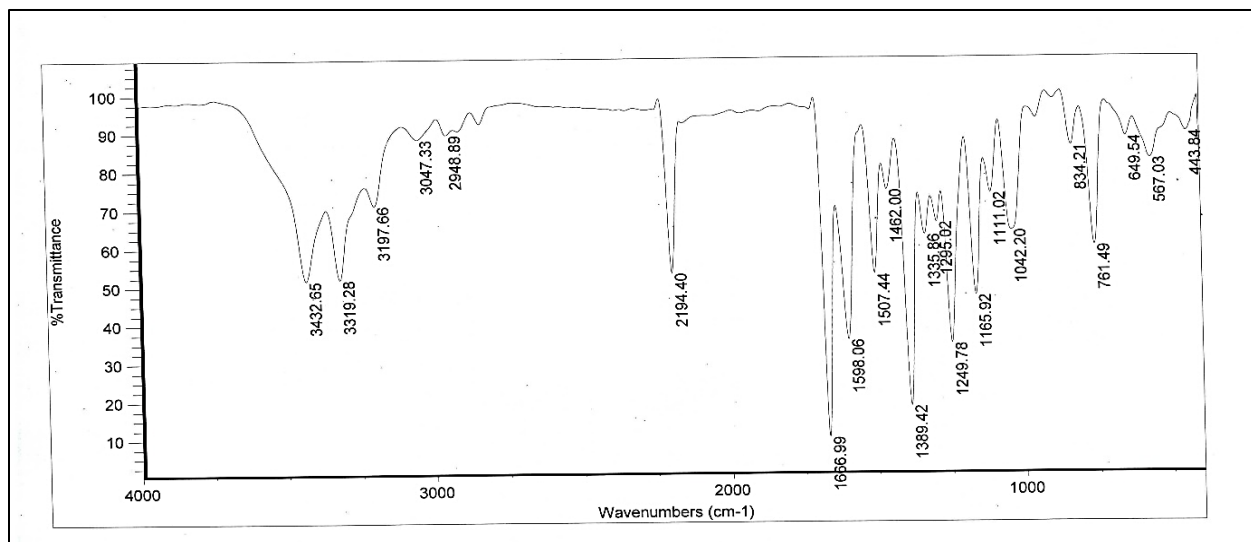
FTIR of 5g



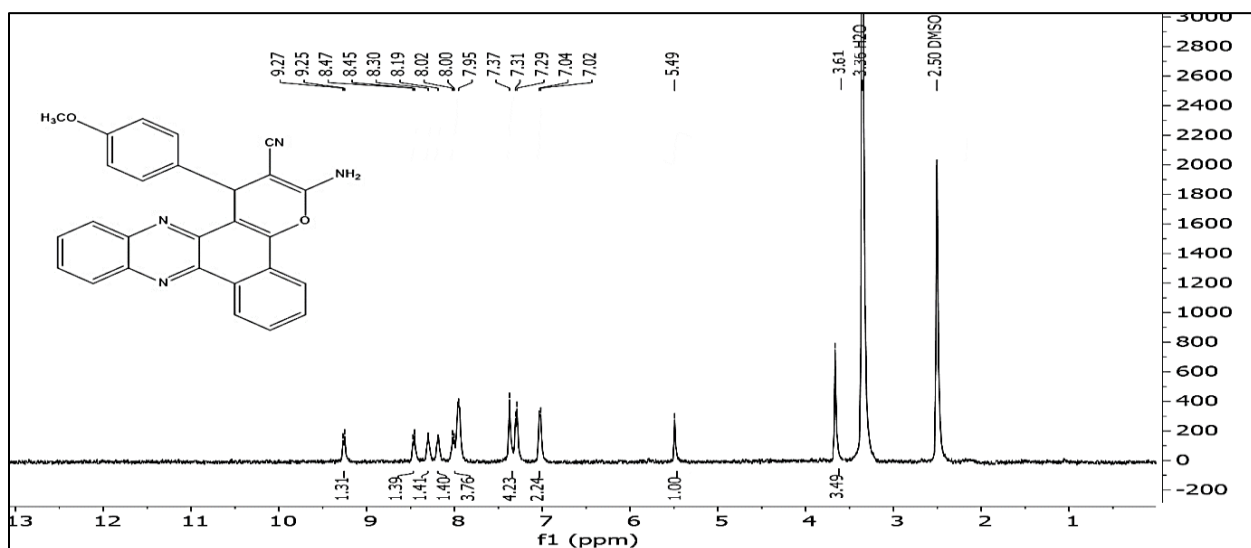
^1H NMR of 5g



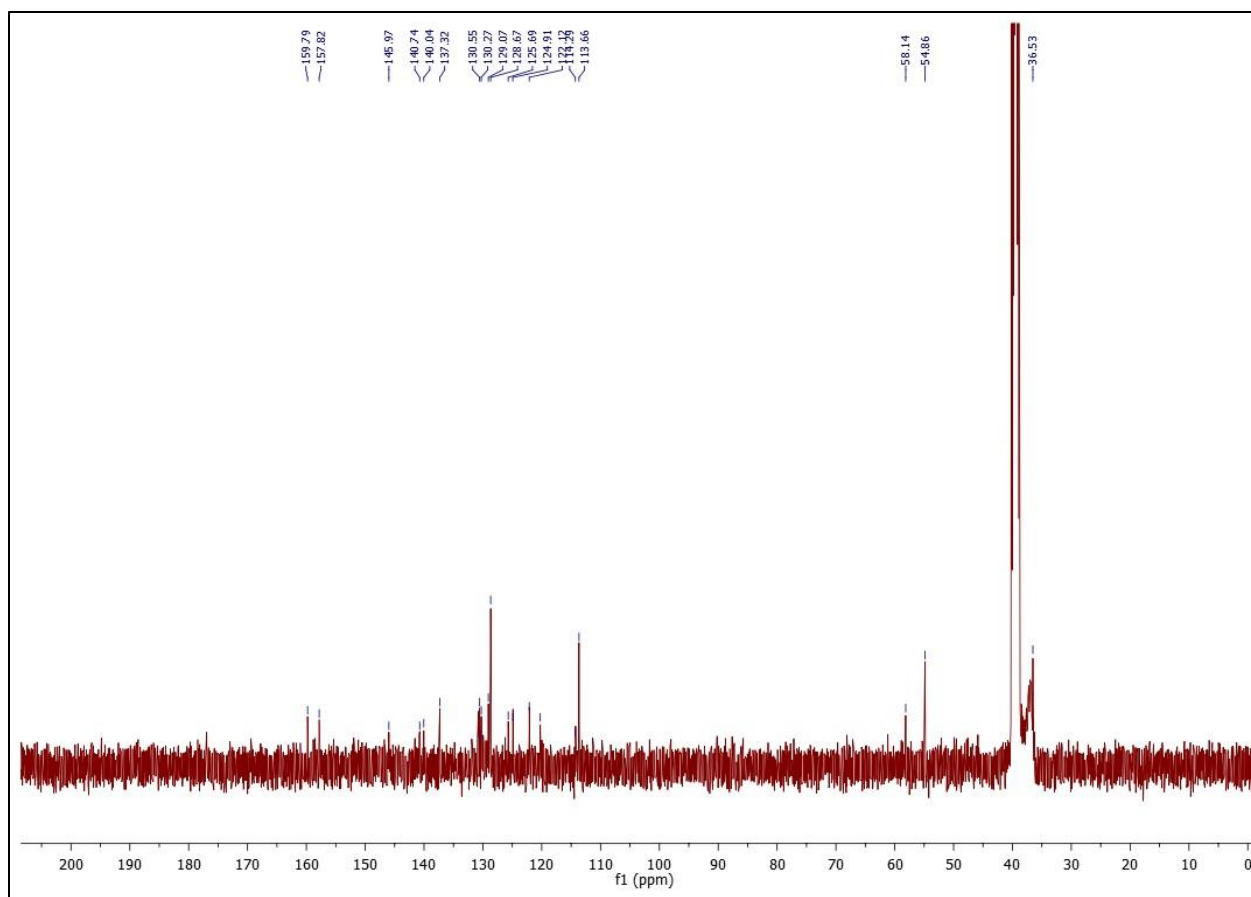
^{13}C NMR of 5g



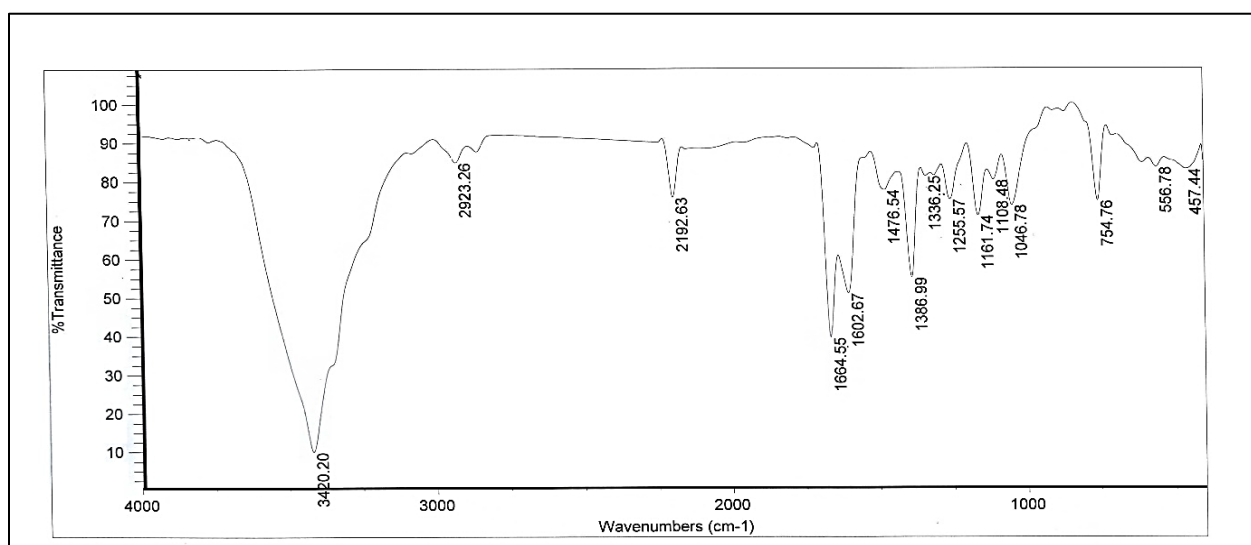
FTIR of 5h



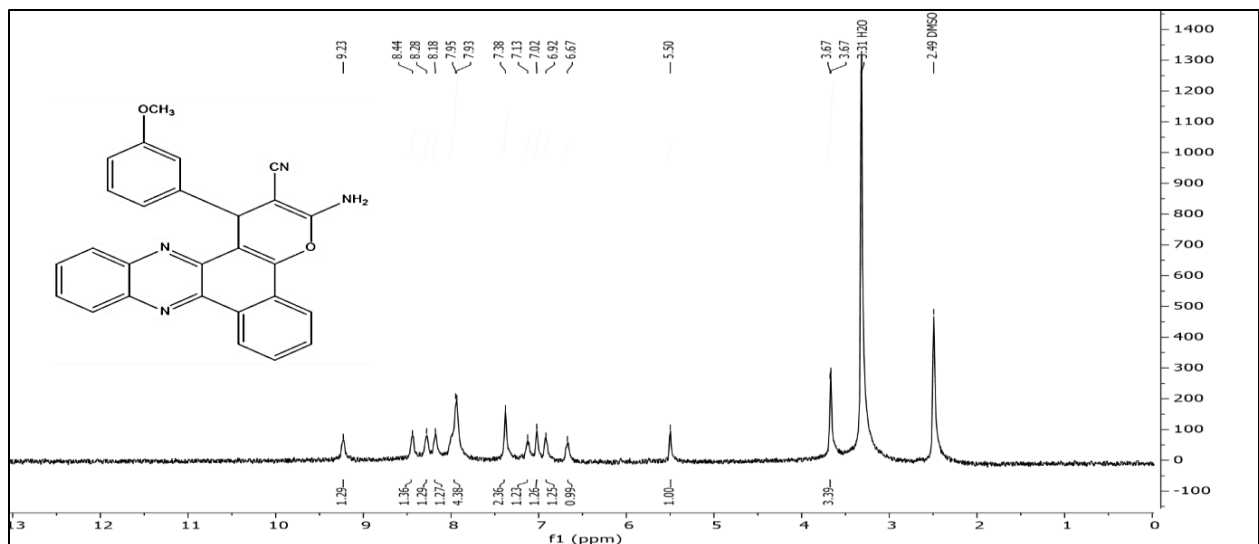
¹H NMR of 5h



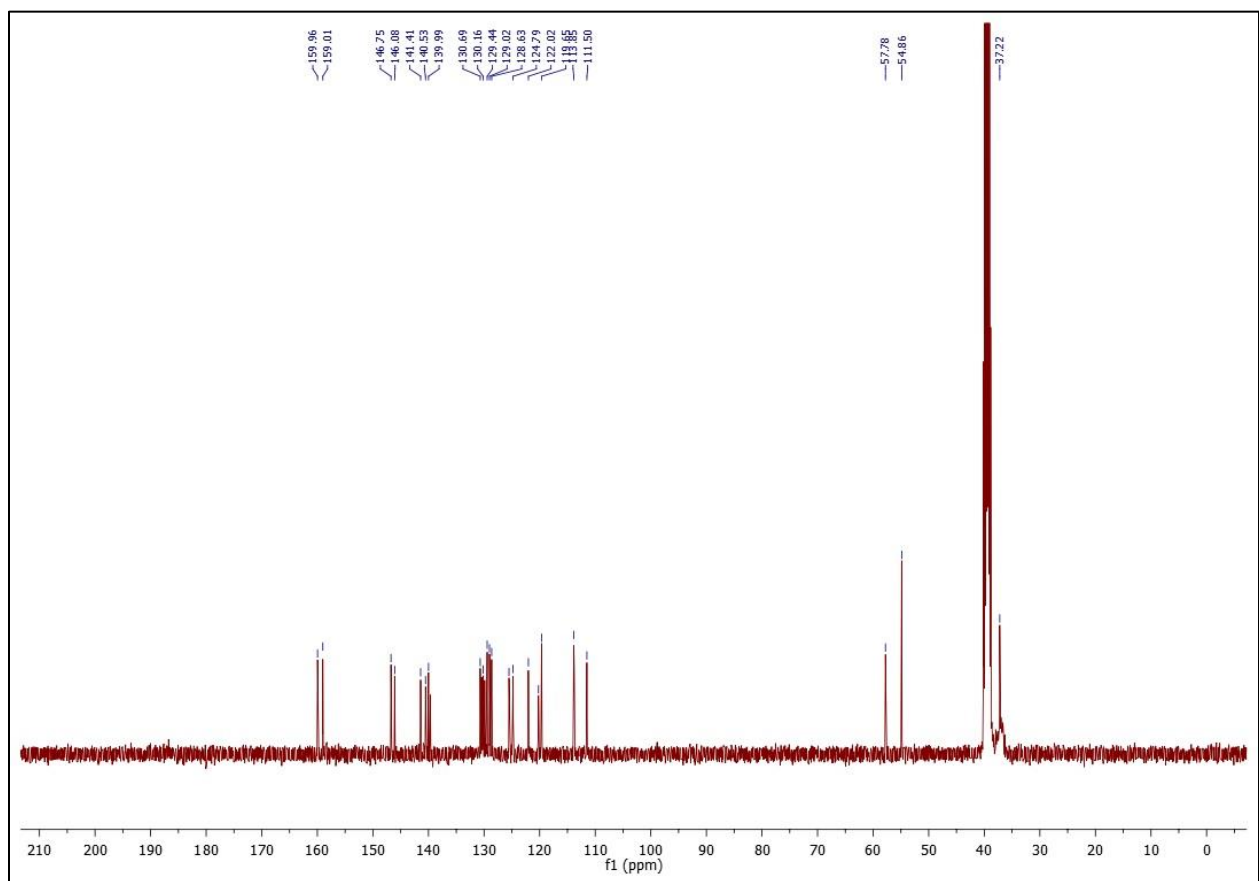
^{13}C NMR of 5h



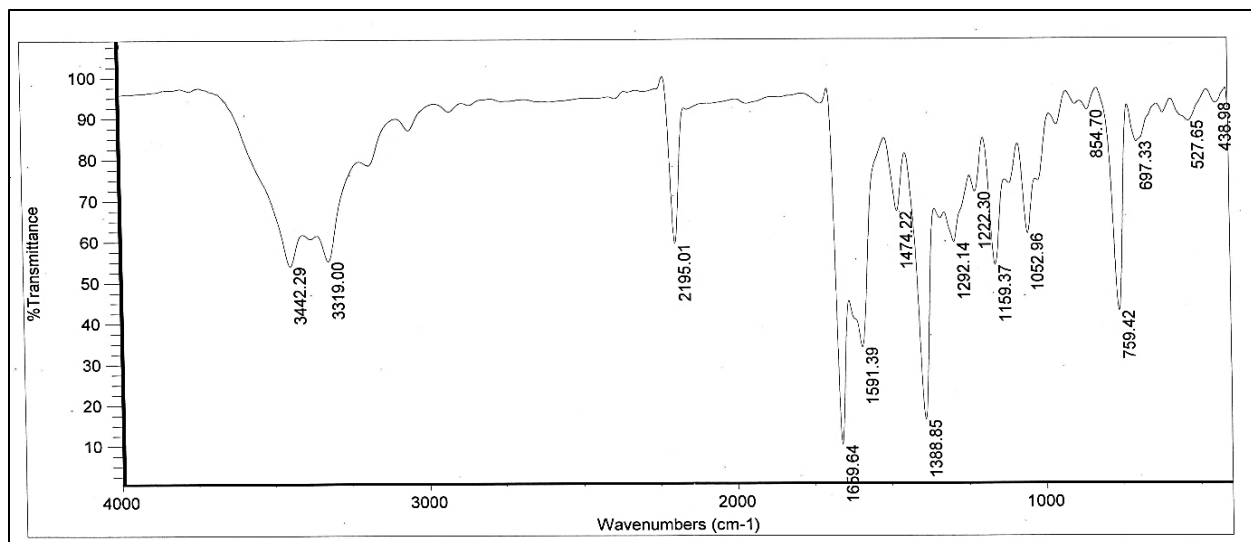
FTIR of 5i



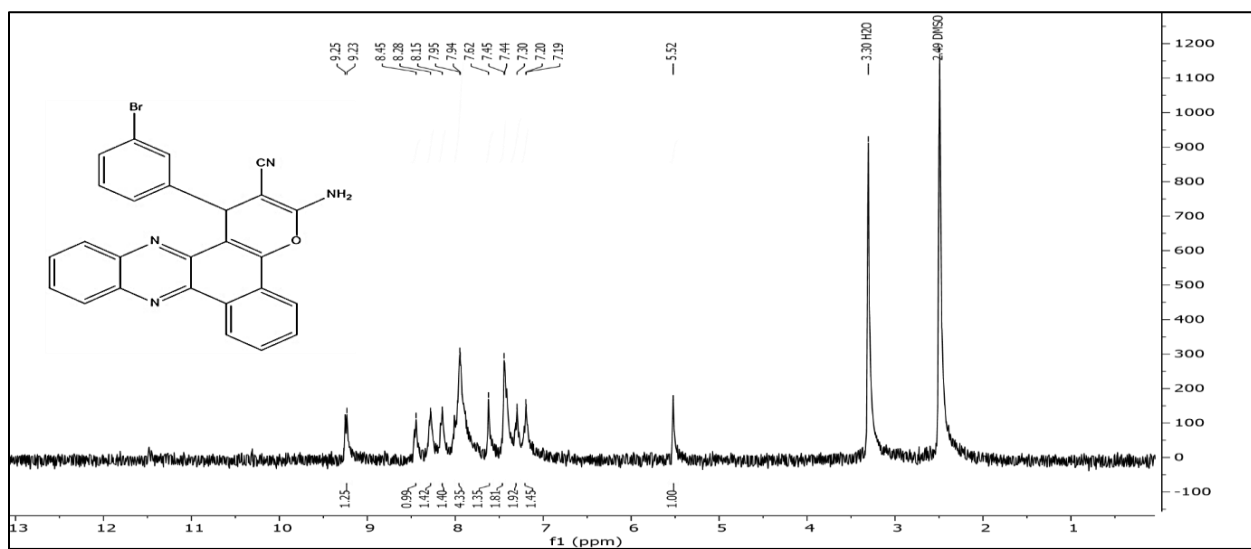
¹H NMR of 5i



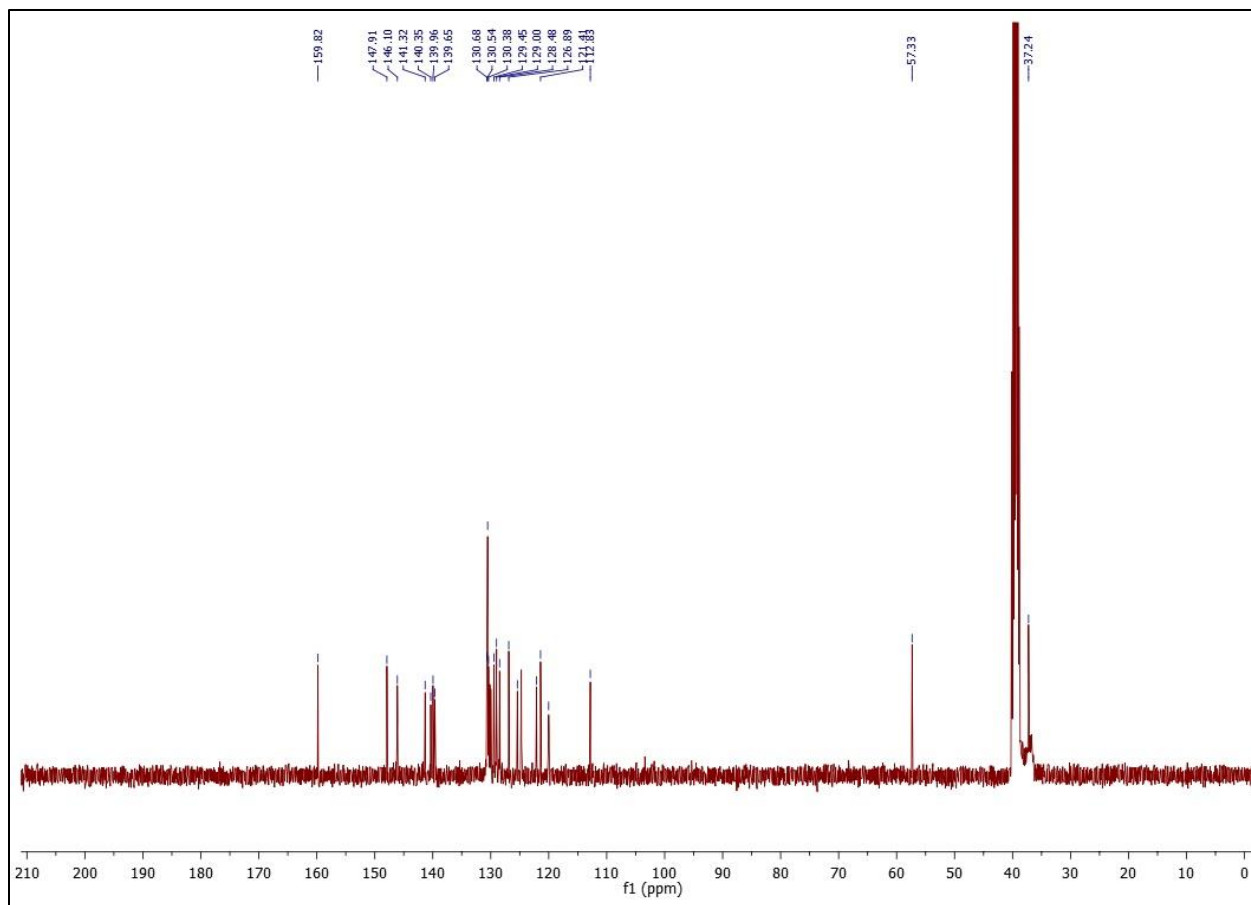
¹³C NMR of 5i



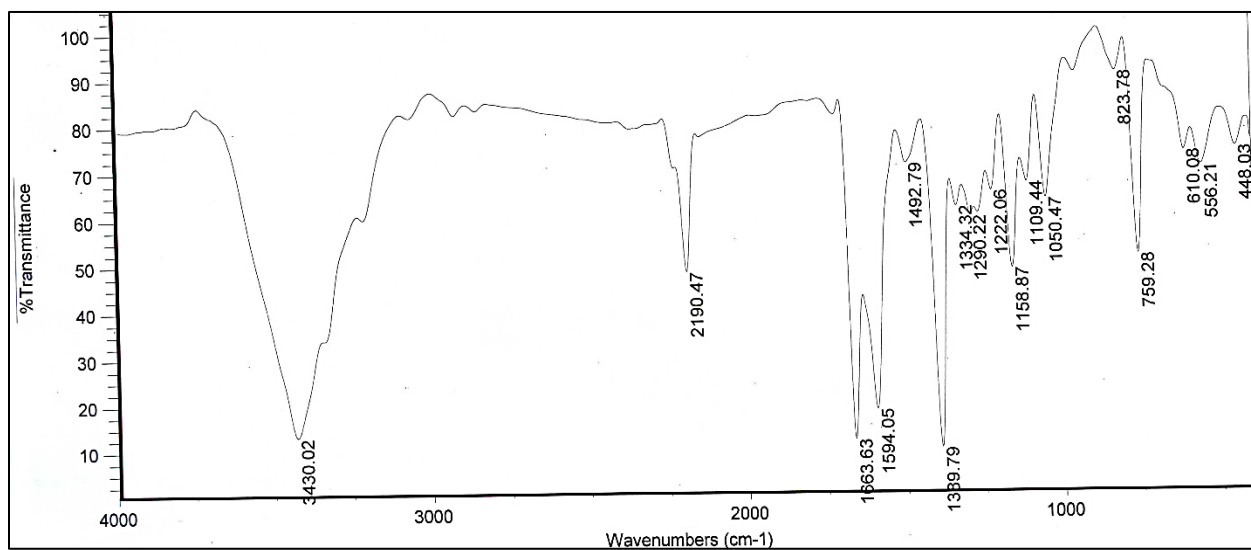
FTIR of 5j



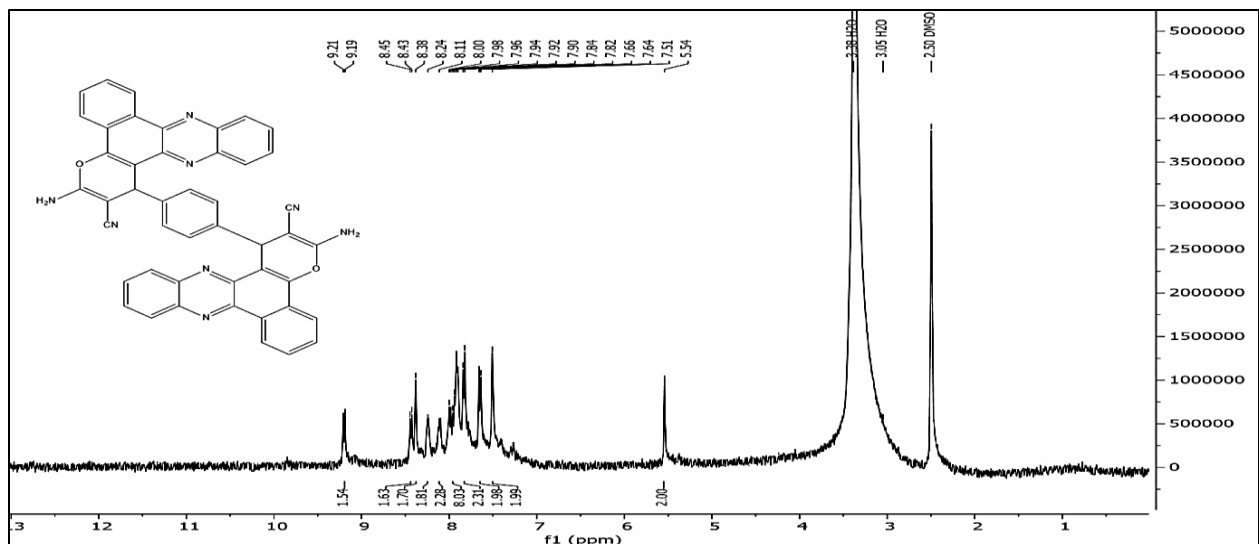
¹H NMR of 5j



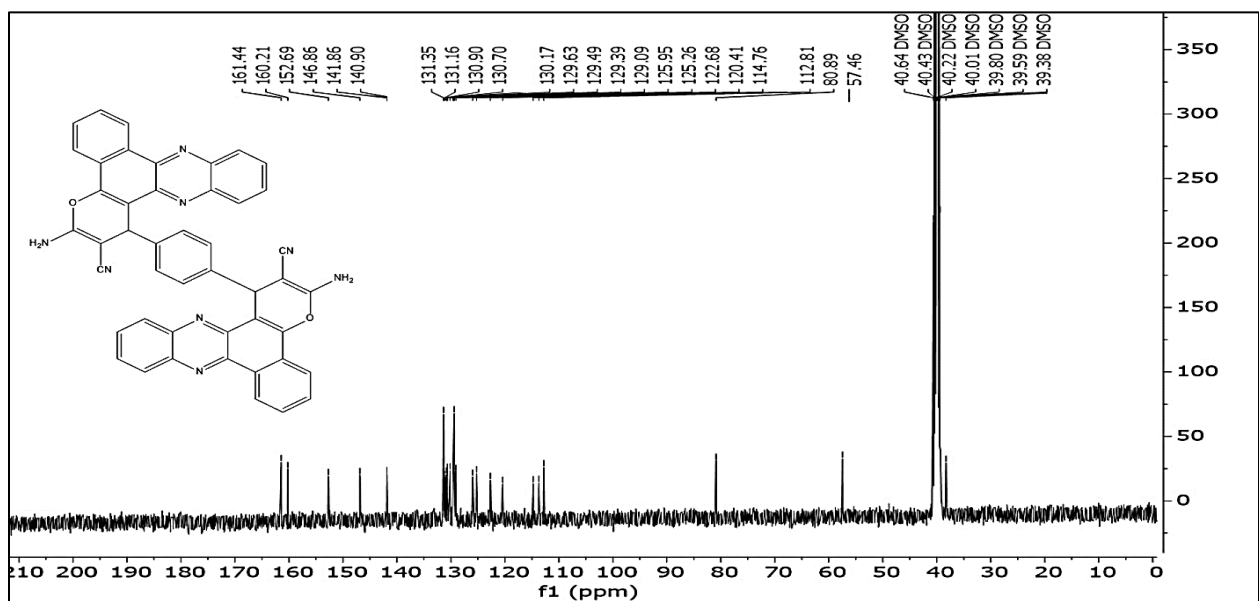
^{13}C NMR of 5j



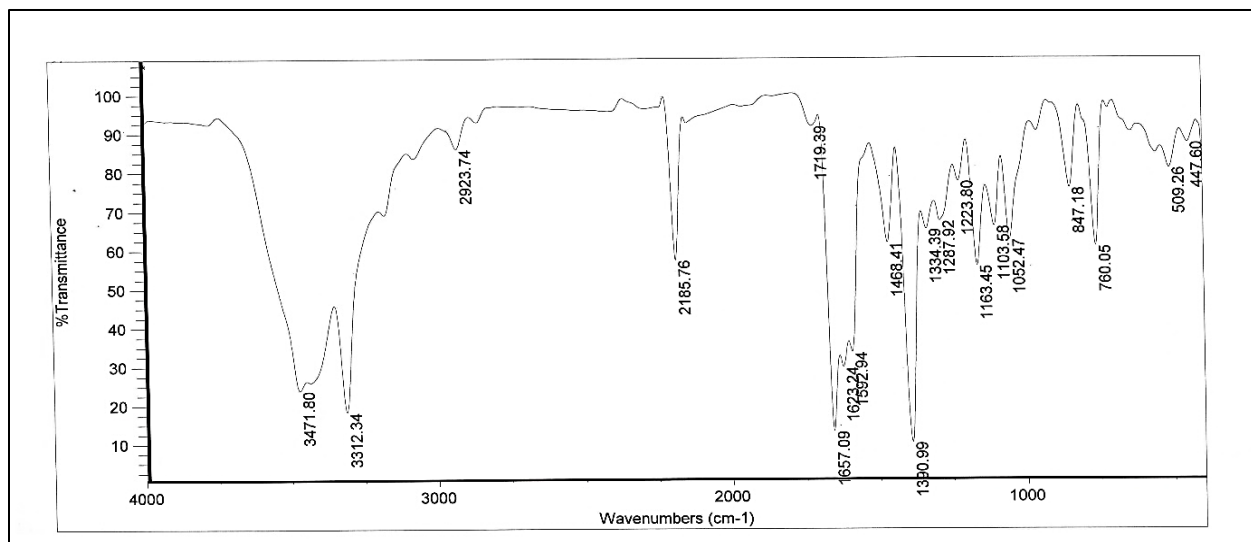
FTIR of 5k



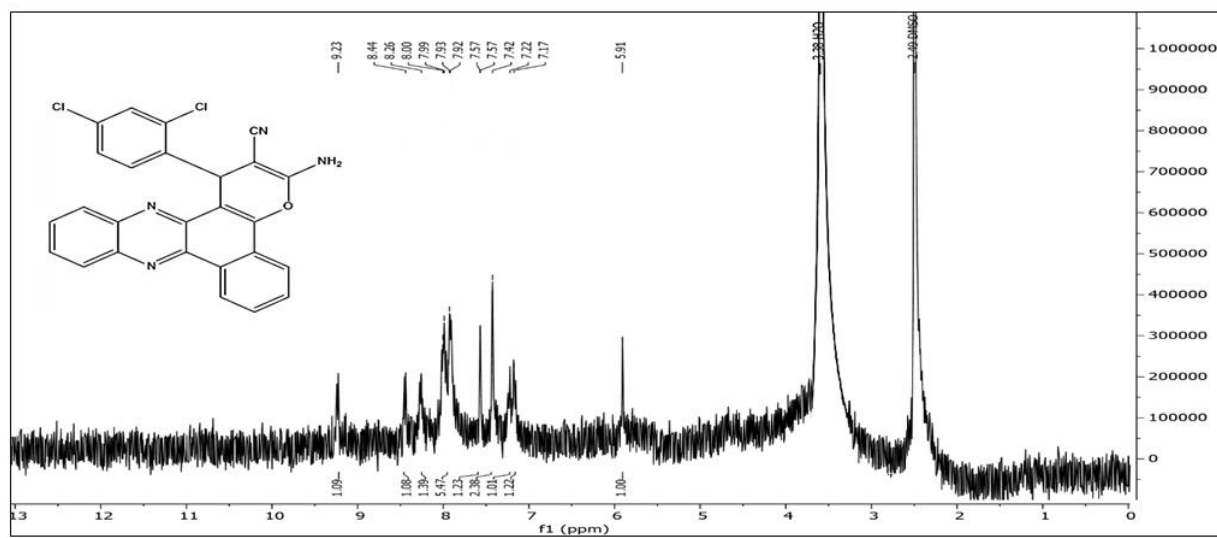
¹H NMR of 5k



¹³C NMR of 5k



FTIR of 51



¹H NMR of 51