

Supplementary Material

Synthesis of 9-Hydroxy-1*H*-Benzo[*f*]chromene Derivatives with Effective Cytotoxic Activity on MCF7/ADR, *P*-Glycoprotein Inhibitors, Cell Cycle Arrest and Apoptosis

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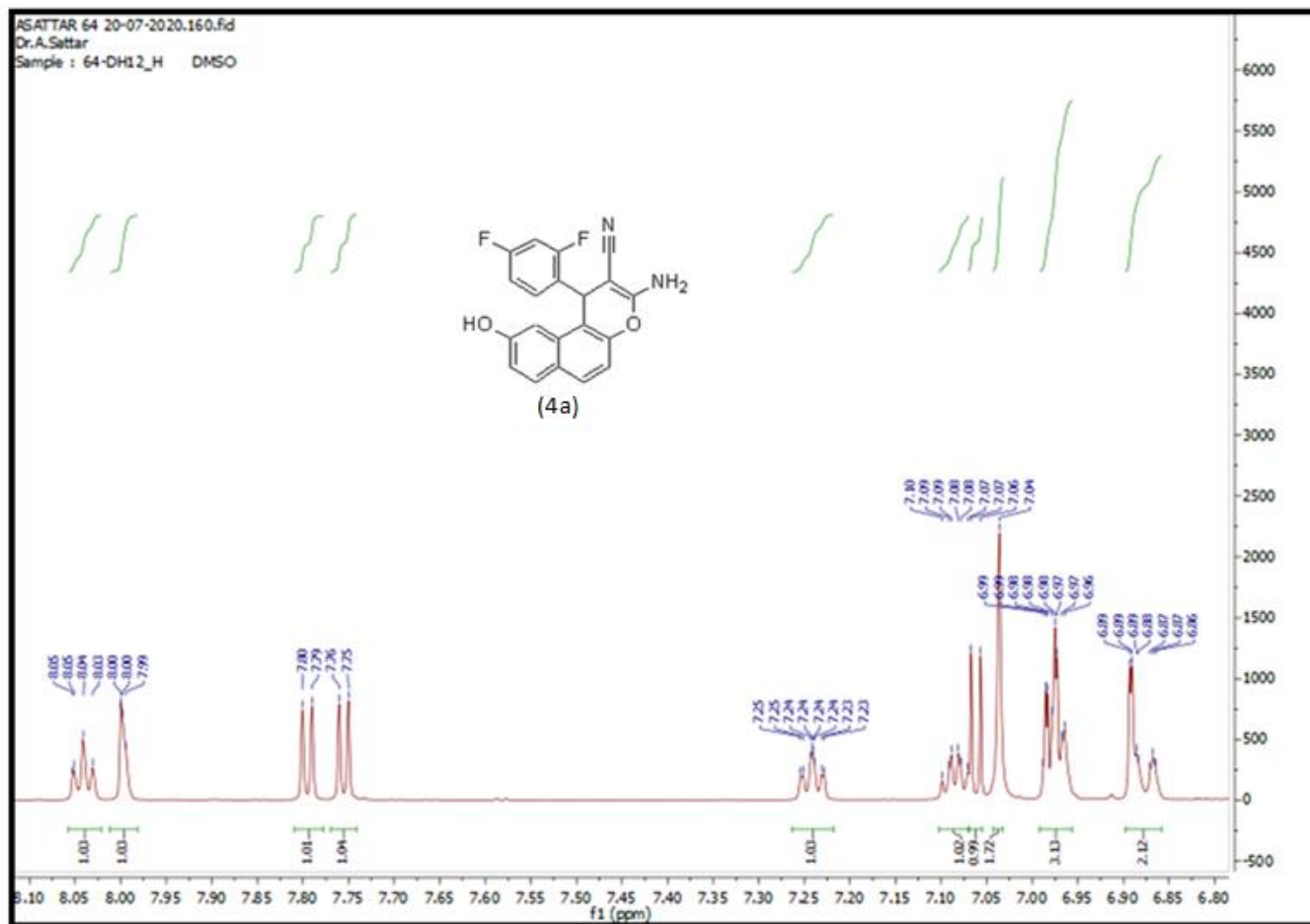


Figure S1: ^1H NMR 8.5-6.5 ppm of cpd. (4a).

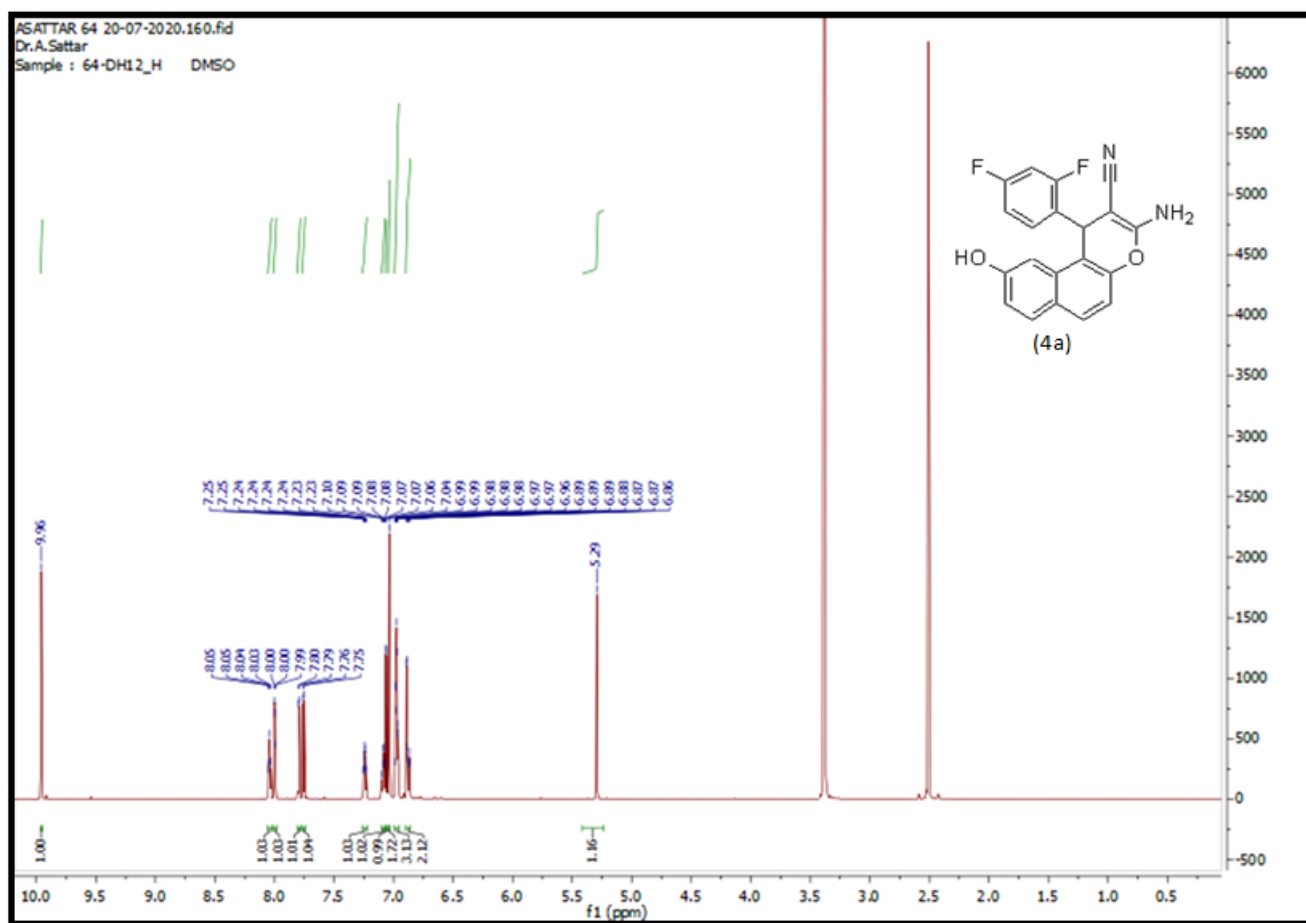


Figure S2: ^1H NMR of cpd. (4a).

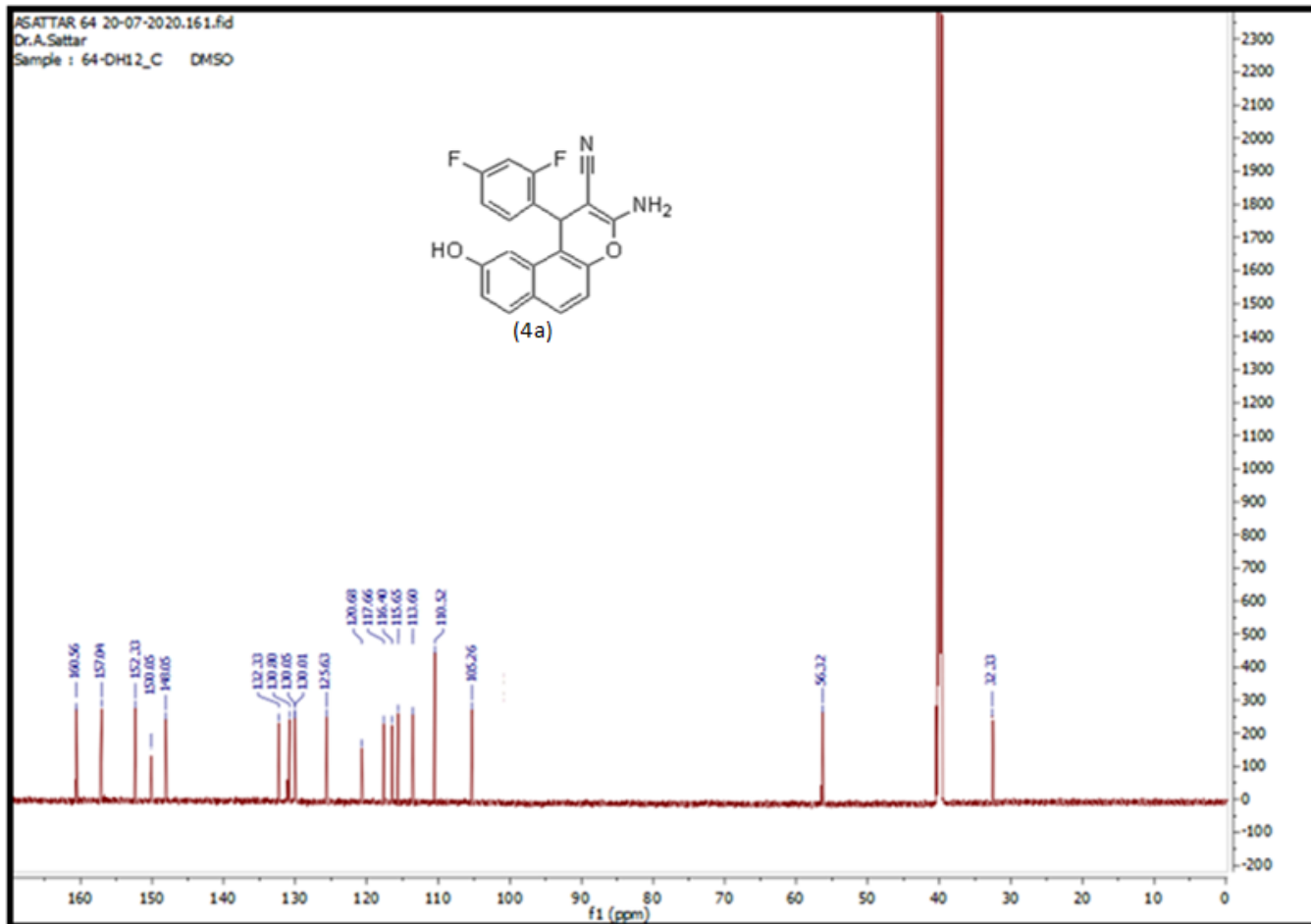


Figure S3: ¹³C NMR of cpd. (4a).

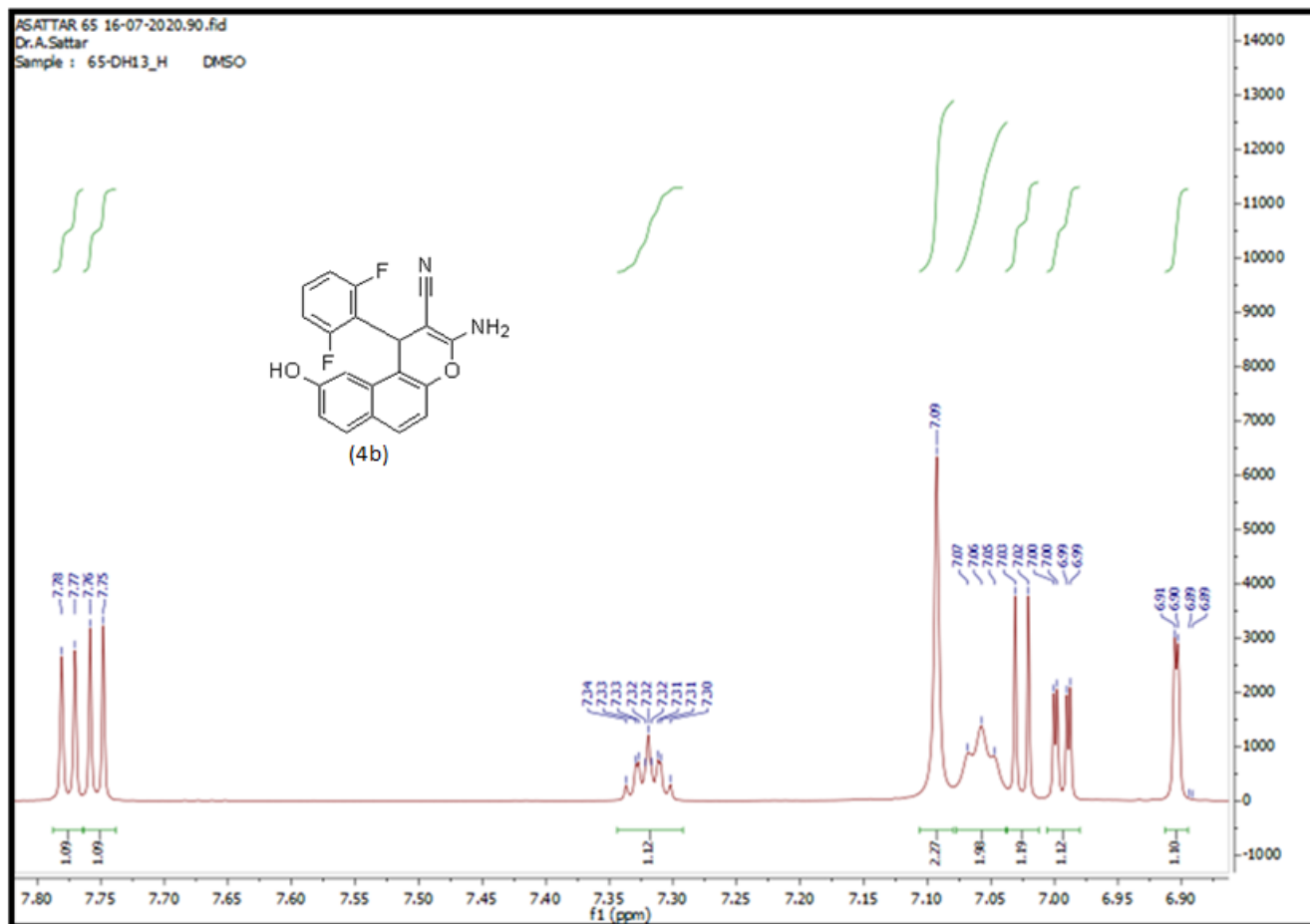


Figure S4: ^1H NMR 8.5-6.5 ppm of cpd. (4b).

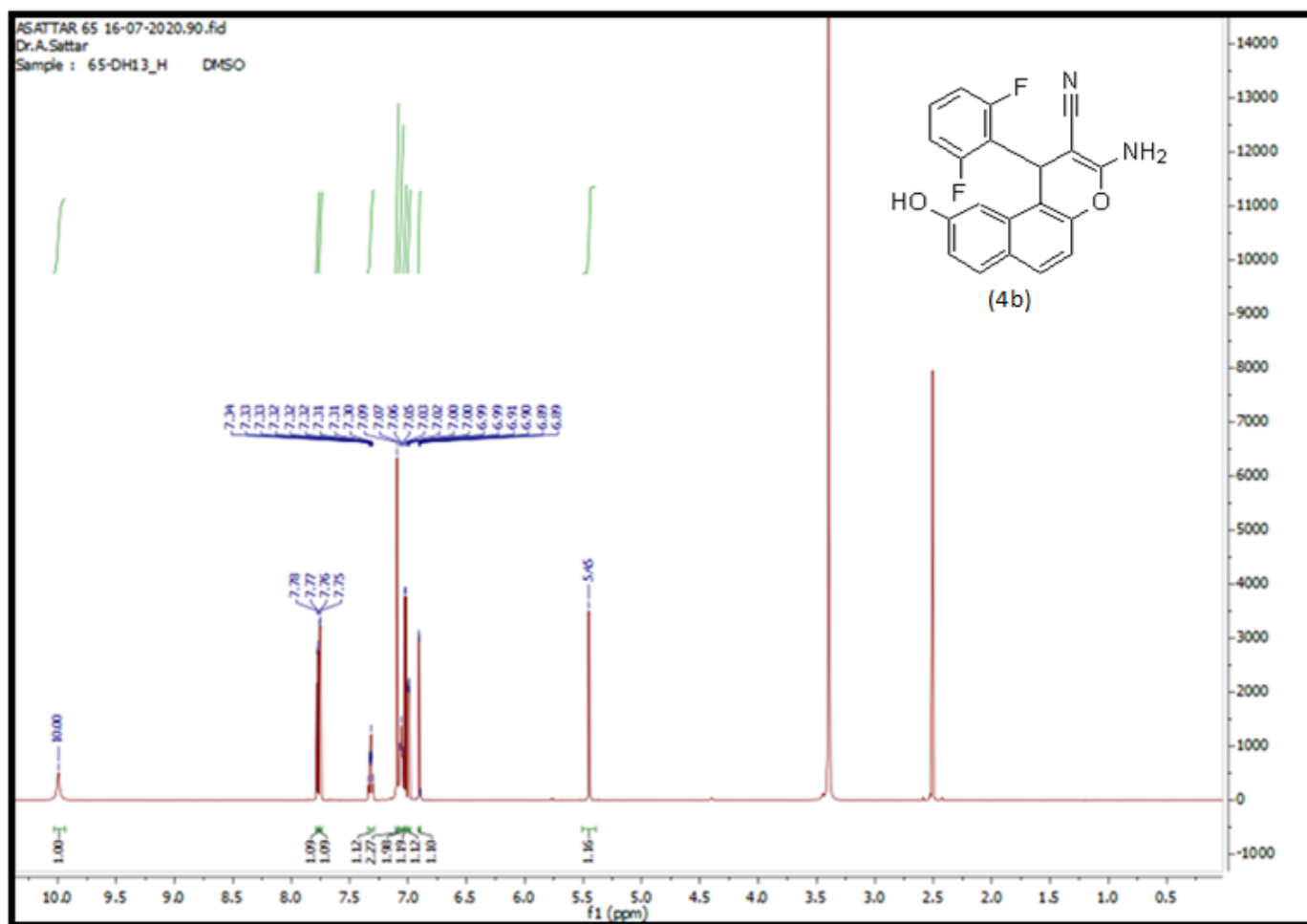


Figure S5: ^1H NMR of cpd. (4b).

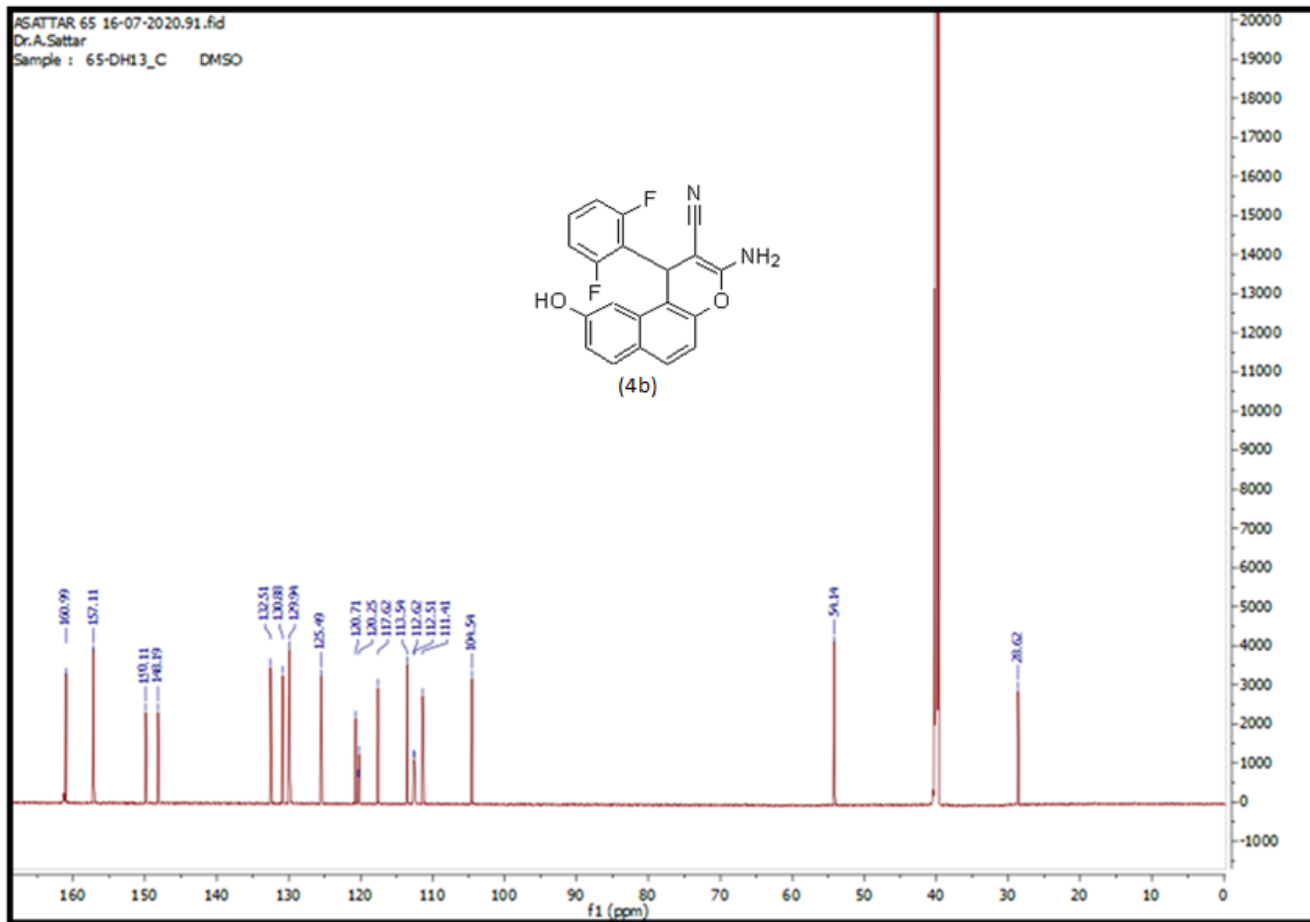


Figure S6: ¹³C NMR of cpd. (4b).

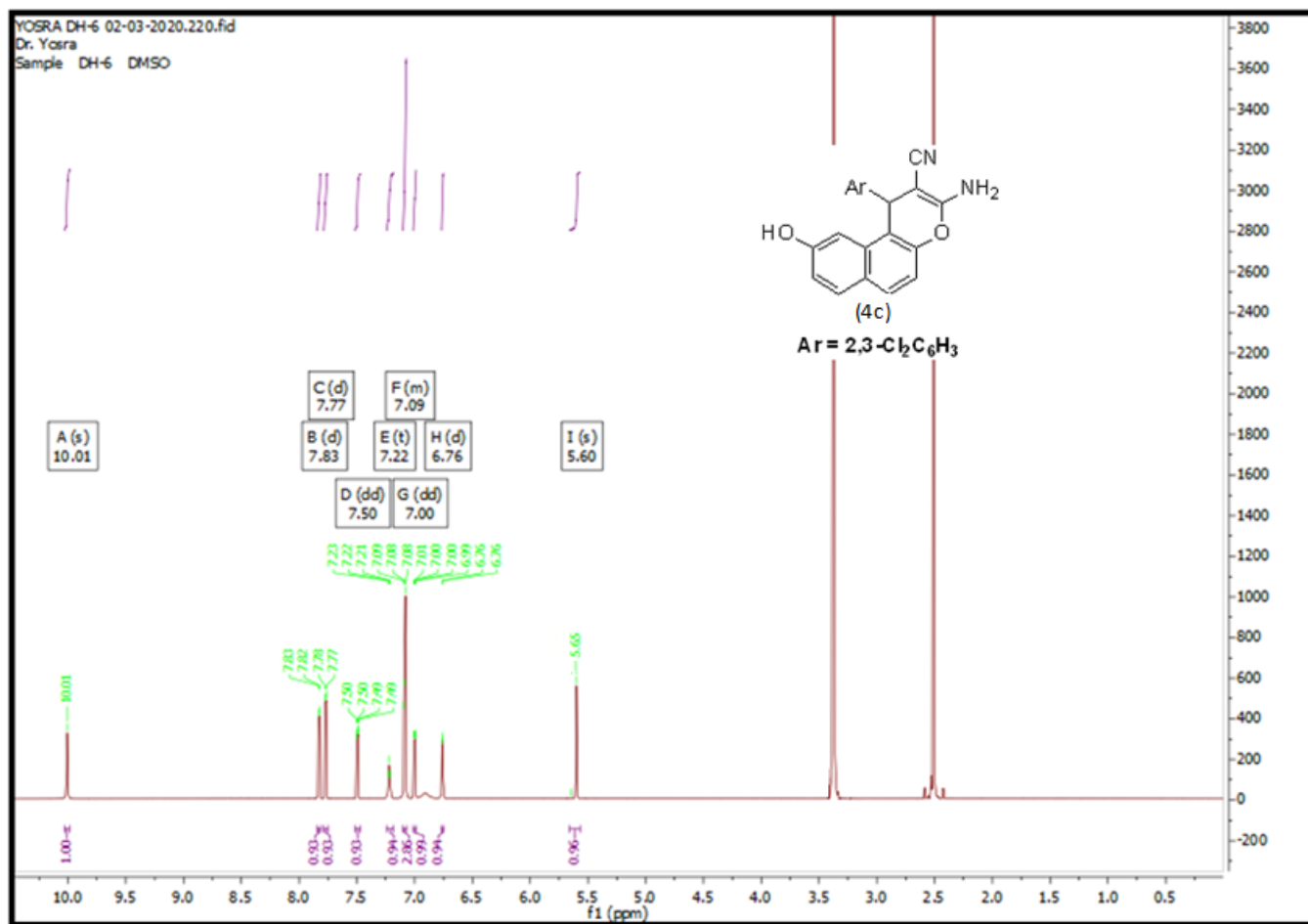


Figure S7: ¹H NMR of cpd. (4c).

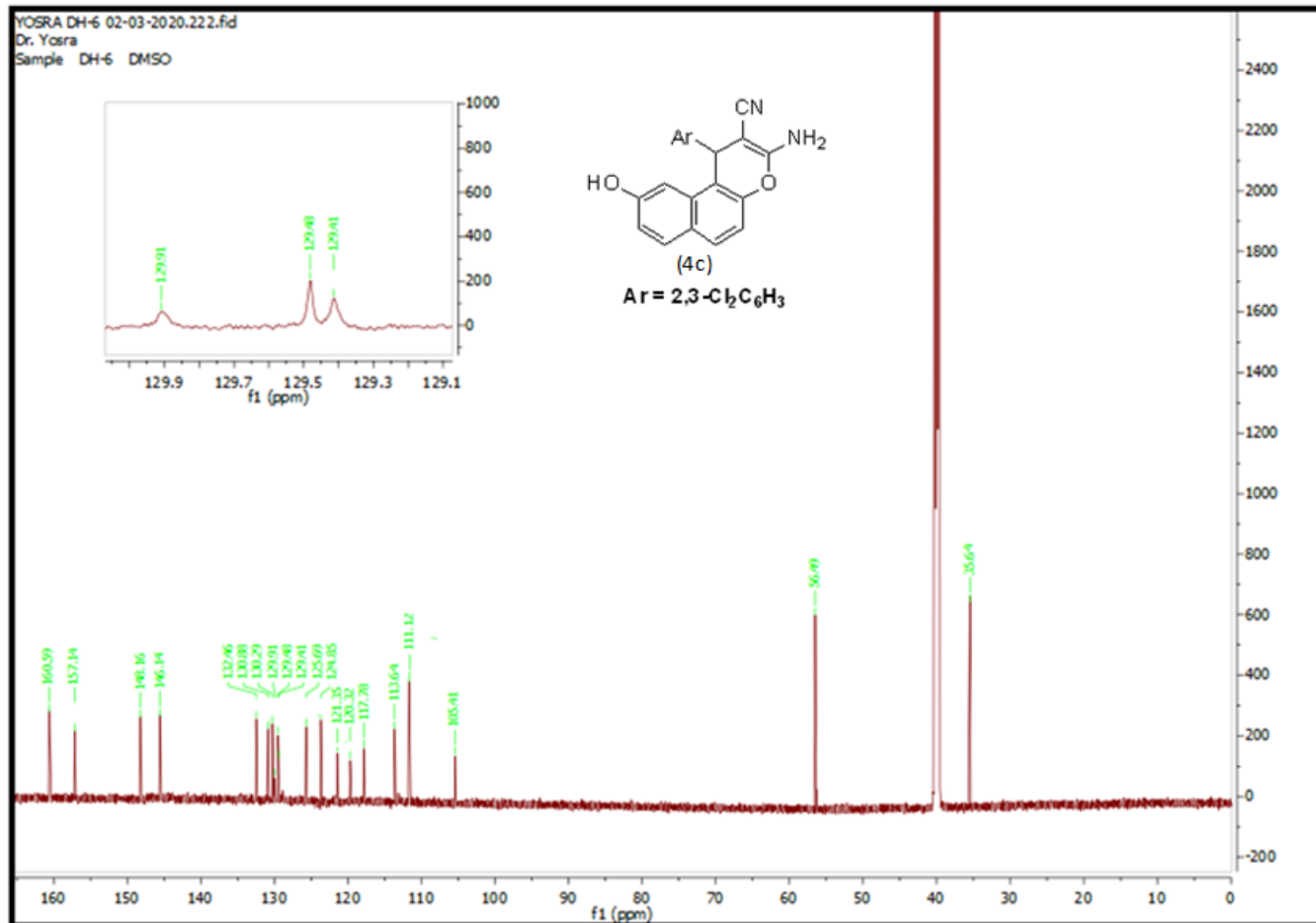


Figure S8: ¹³C NMR of cpd. (4c).

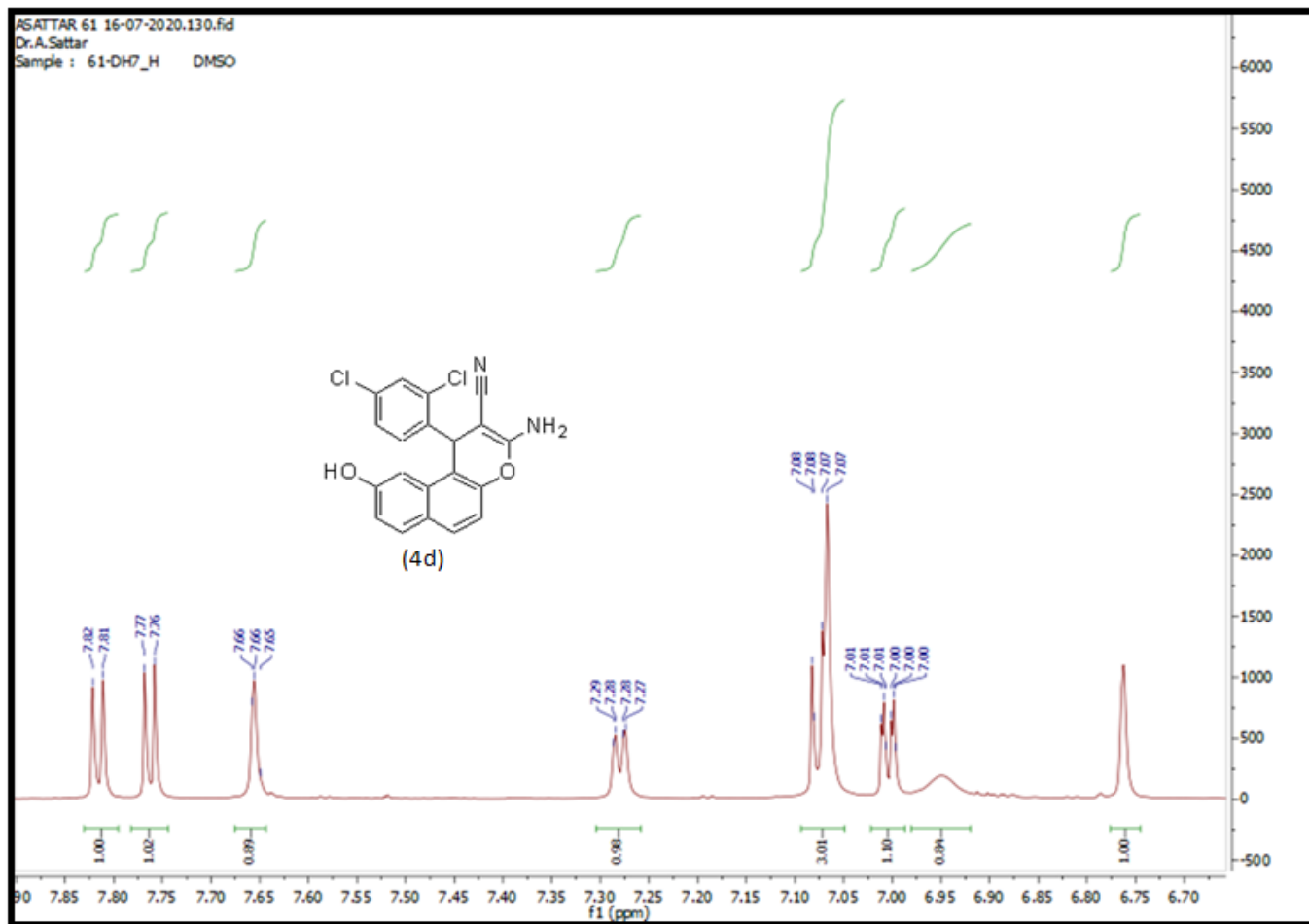


Figure S9: ^1H NMR 8.5-6.5 ppm of cpd. (4d).

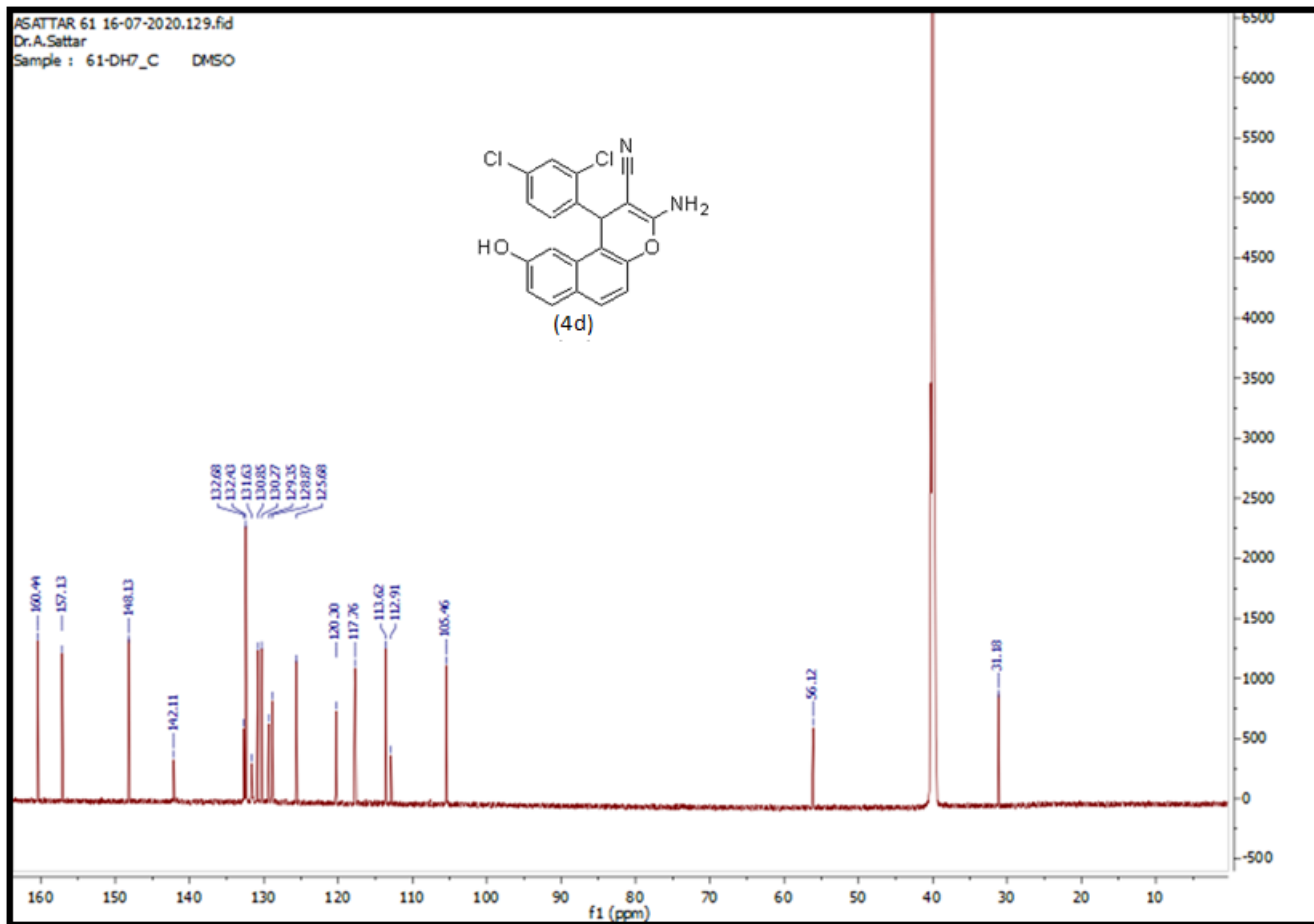


Figure S11: ^{13}C NMR of cpd. (4d).

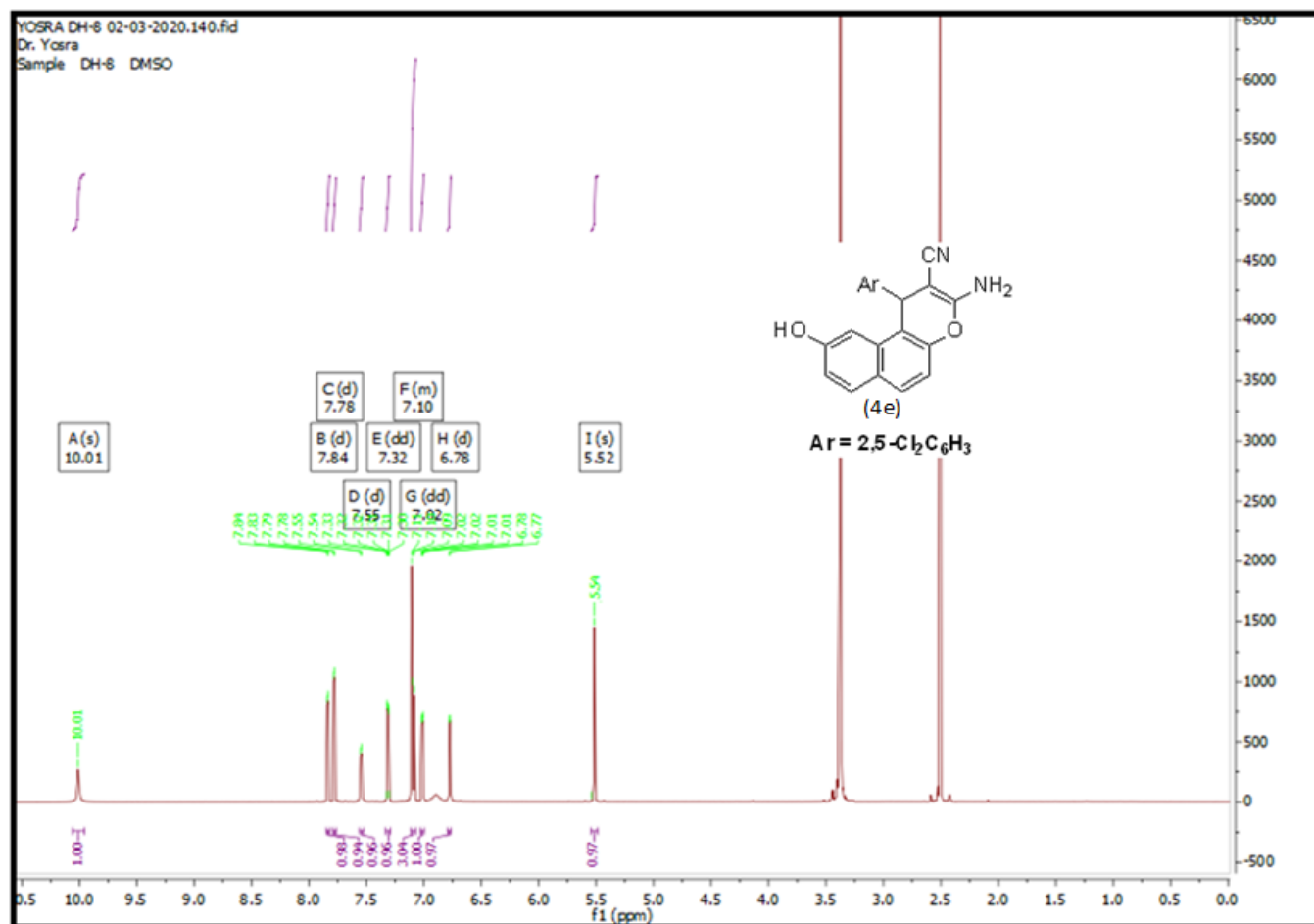


Figure S12: ¹H NMR of cpd (4e).

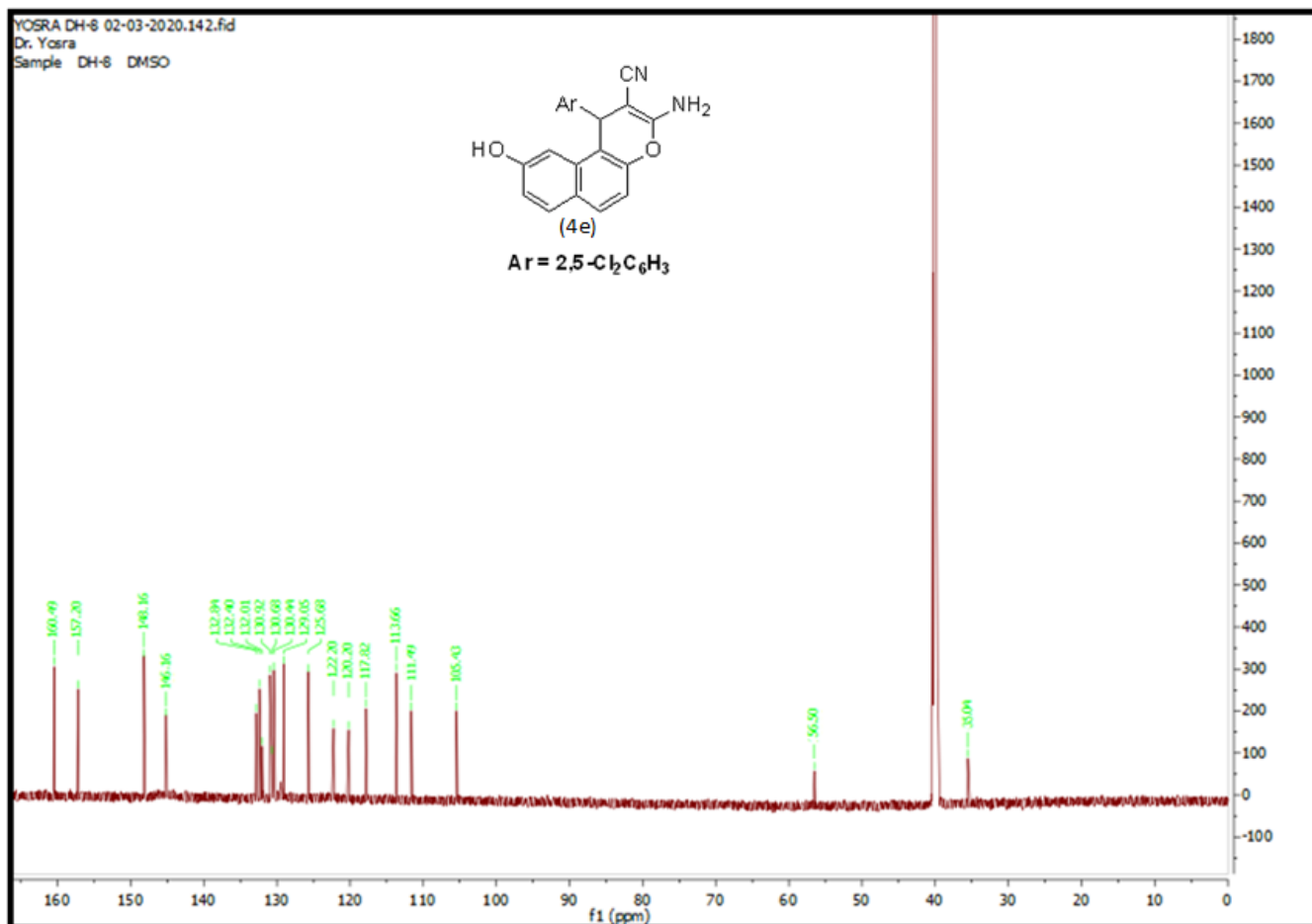


Figure S13: ¹³C NMR of cpd. (4e).

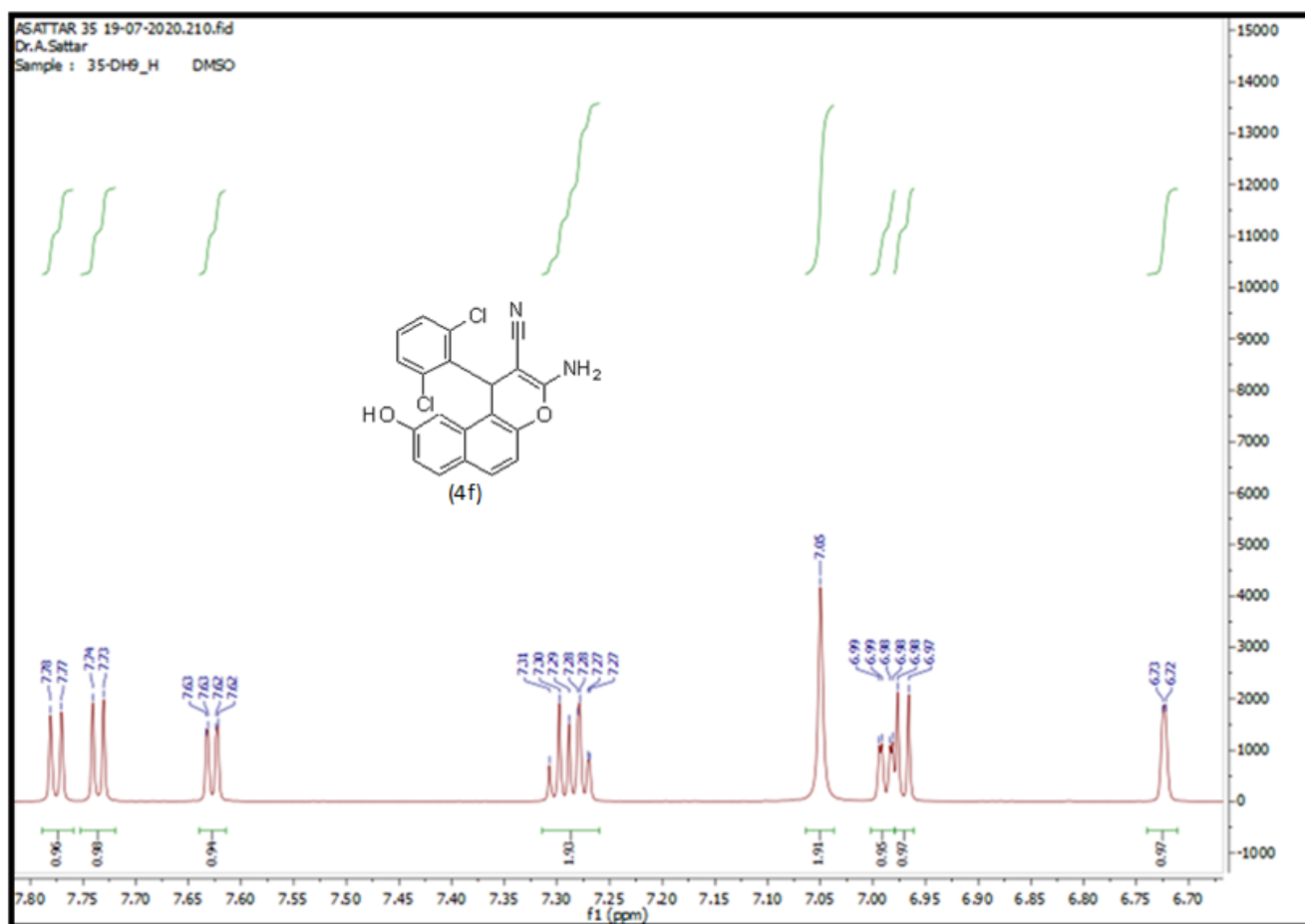


Figure S14: ¹H NMR 8.5-6.5 ppm of cpd. (4f).

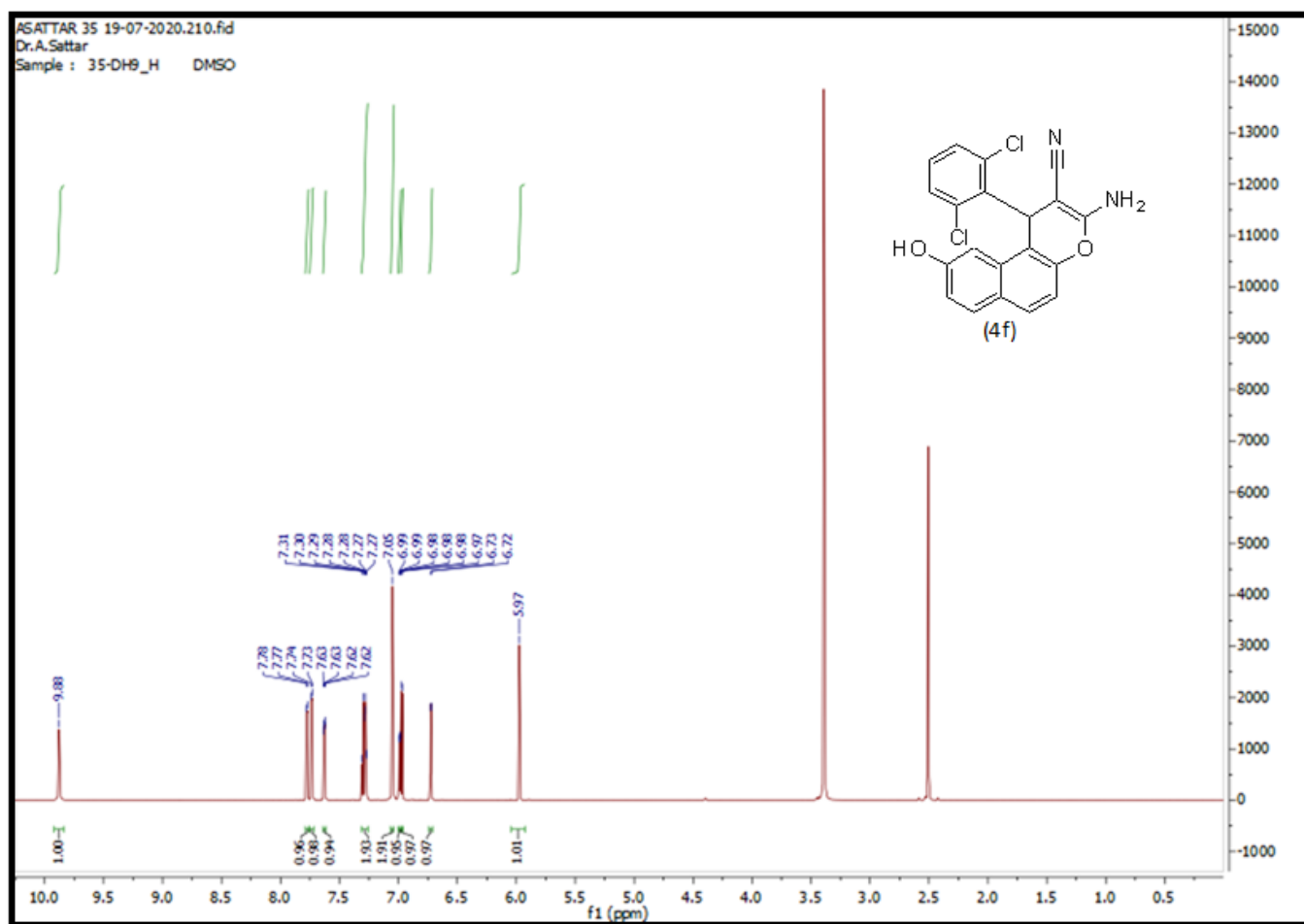


Figure S15: ^1H NMR of cpd. (4f).

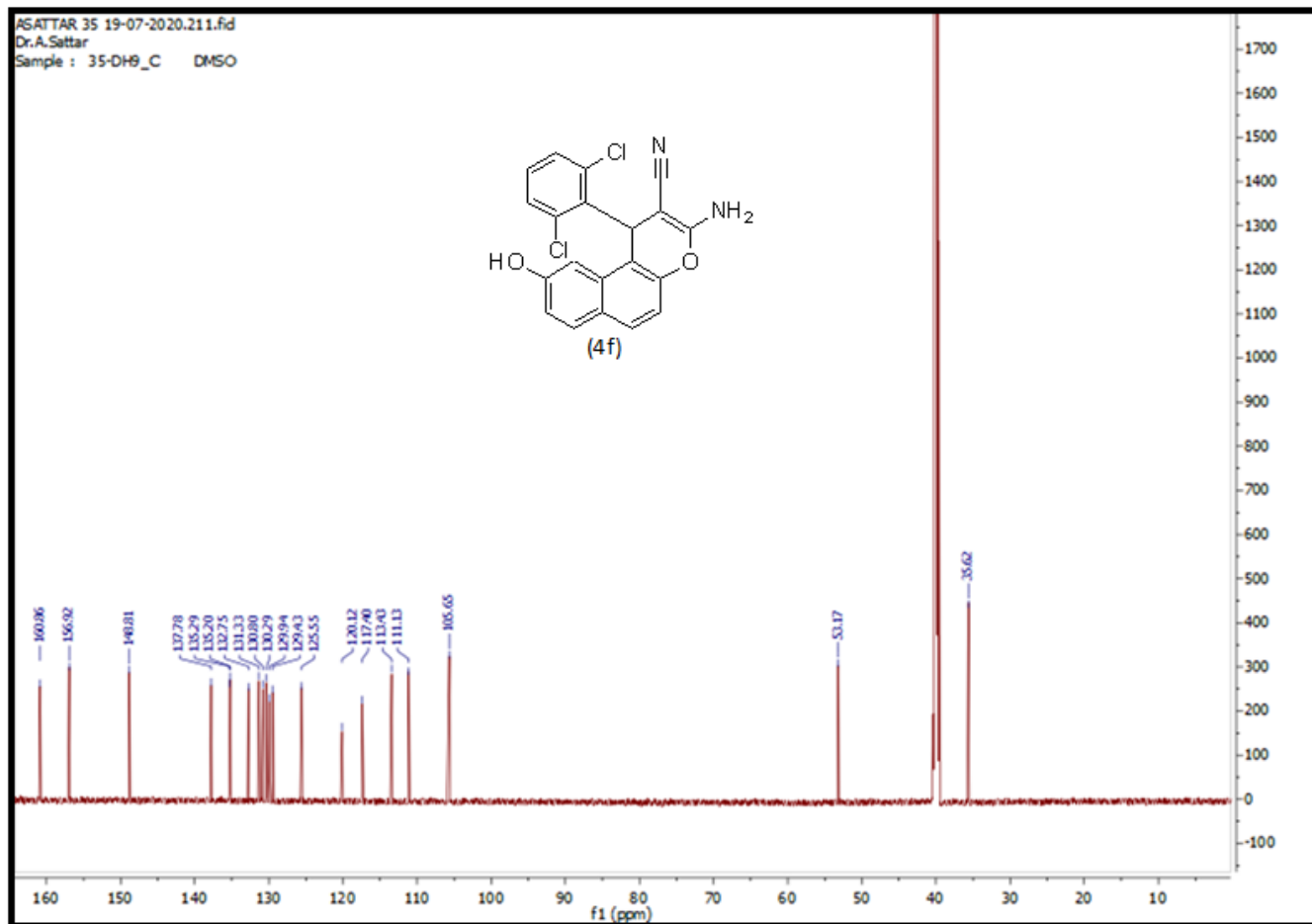


Figure S16: ¹³C NMR of cpd. (4f).

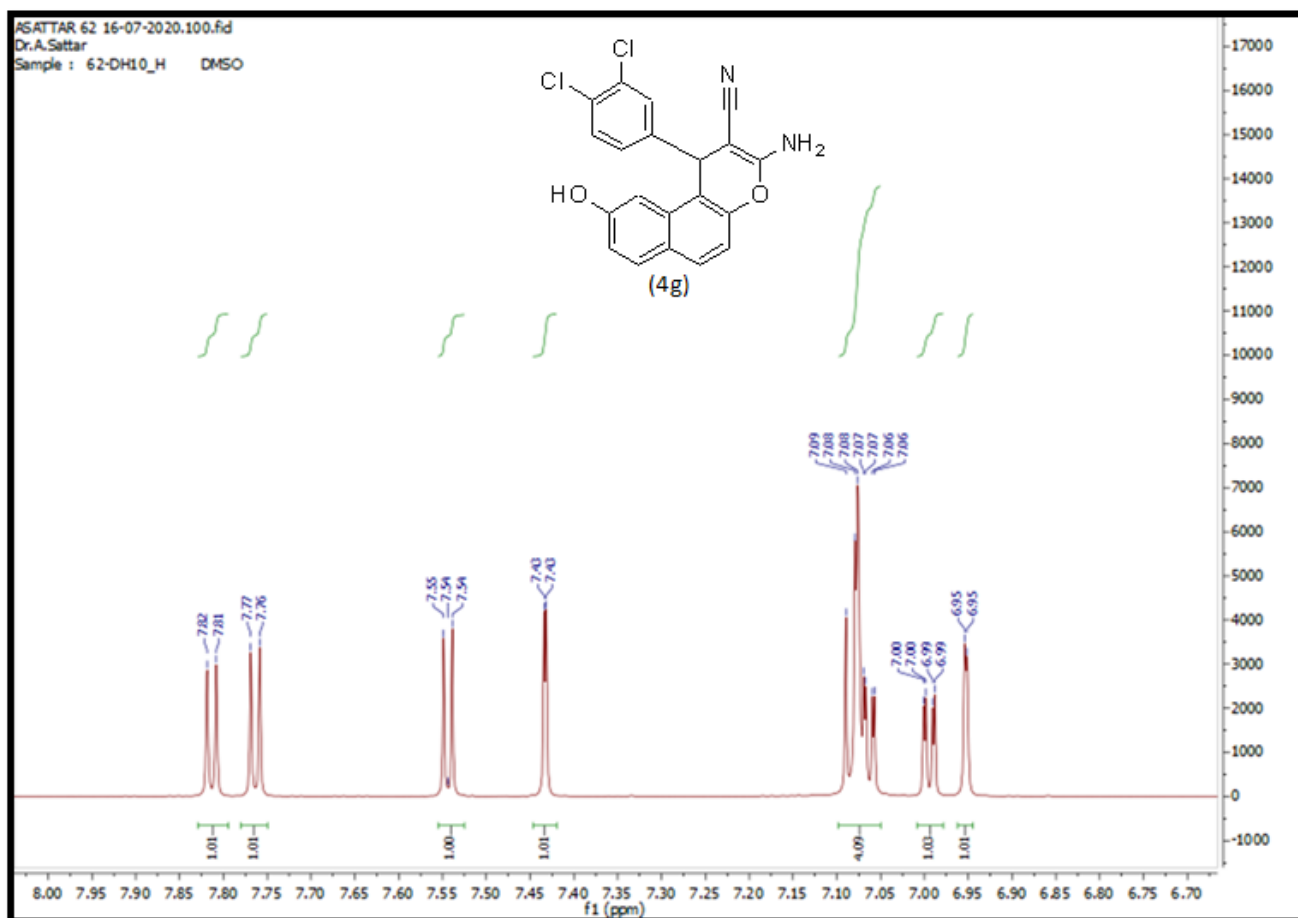


Figure S17: ^1H NMR 8.5-6.5 ppm of cpd. (4g).

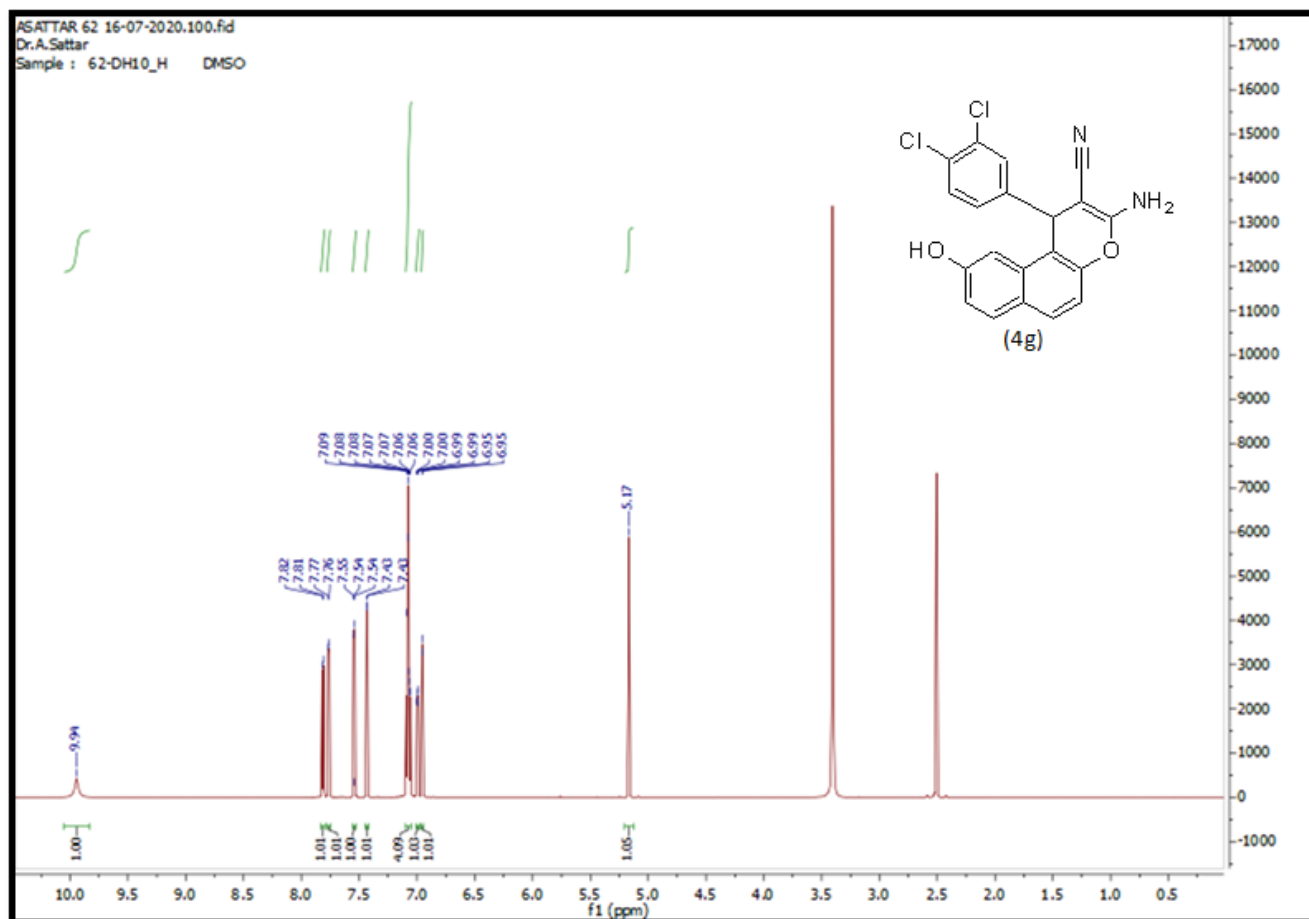


Figure S18: ^1H NMR of cpd. (4g).

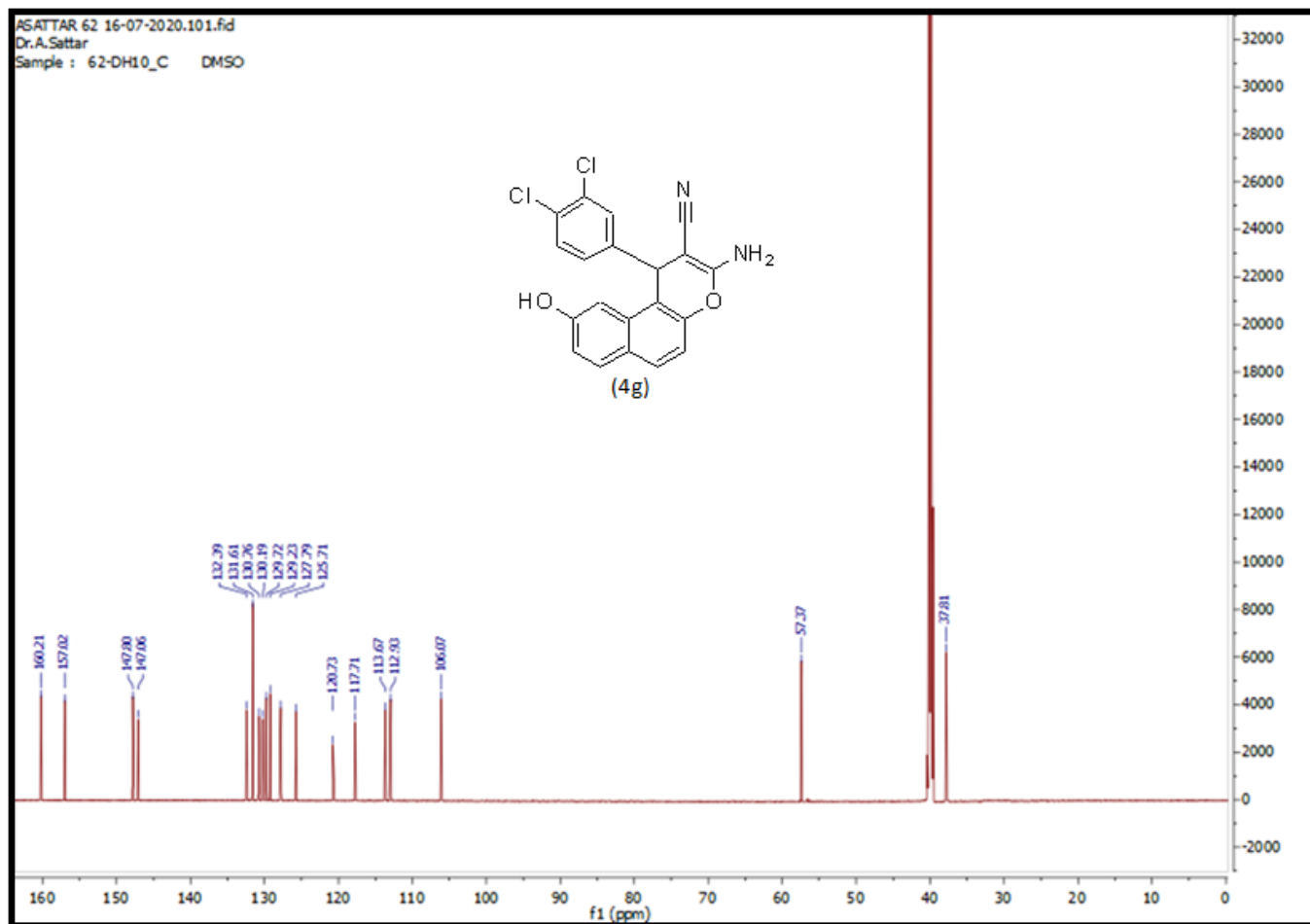


Figure S19: ^{13}C NMR of cpd. (4g).

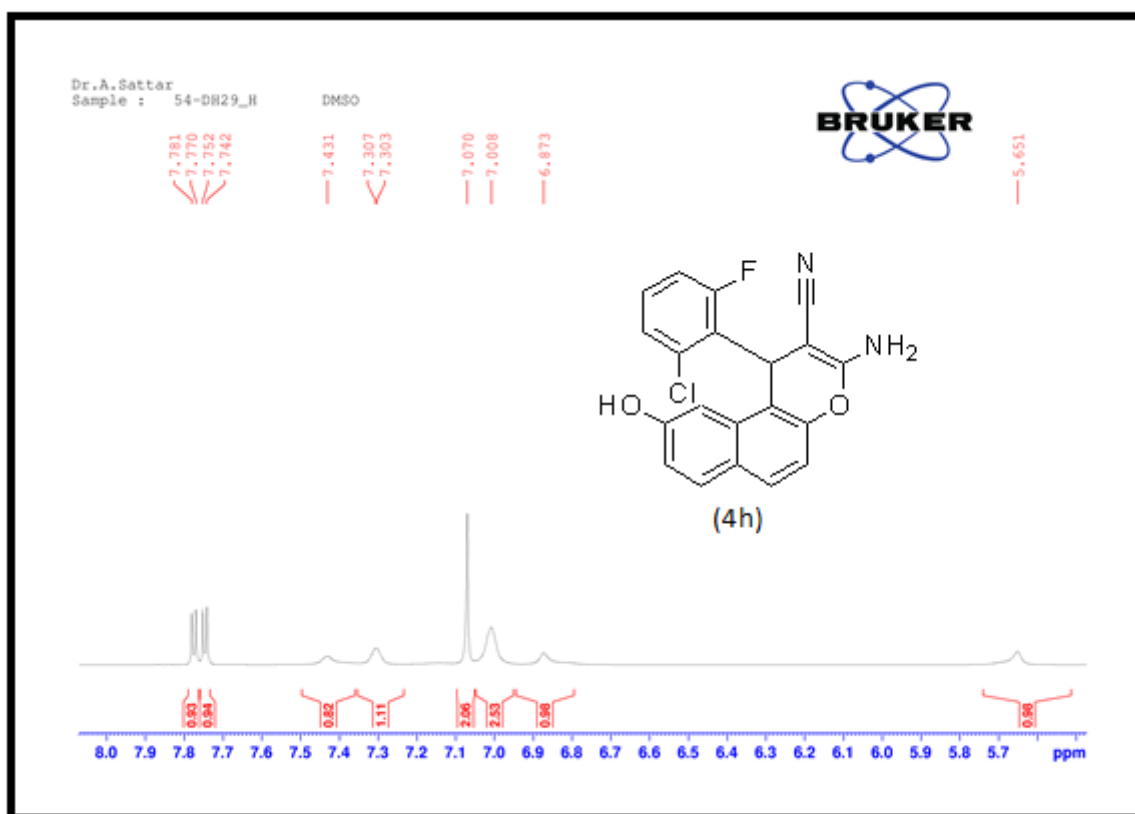


Figure S20: ^1H NMR 8.5-6.5 ppm of cpd. (4h).

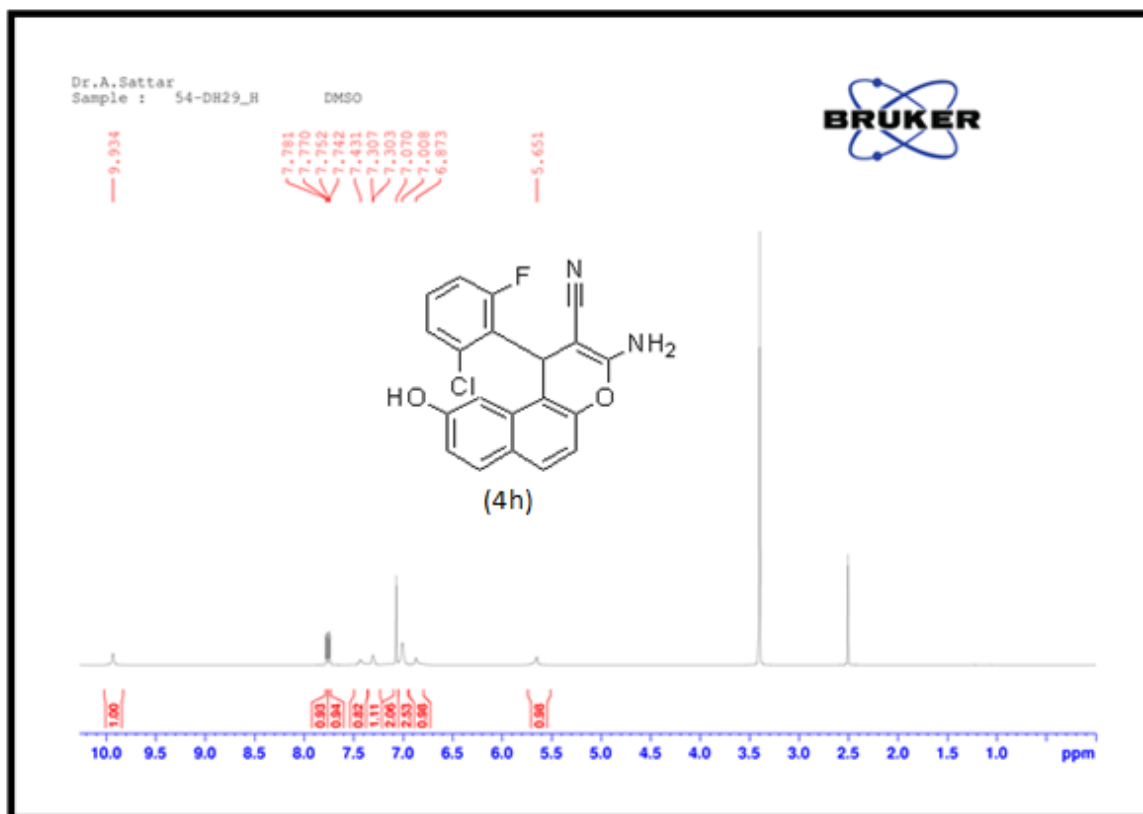


Figure S21: ^1H NMR of cpd. (4h).

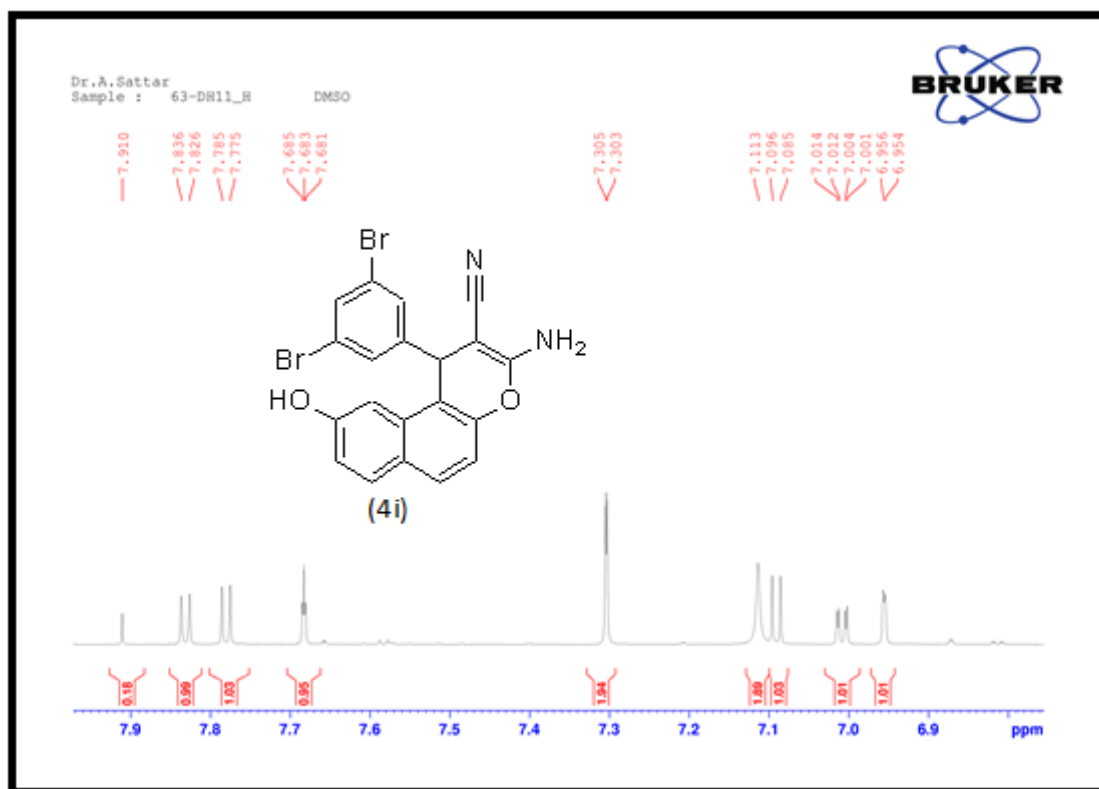


Figure S23: ^1H NMR 8.5-6.5 ppm of cpd. (4i).

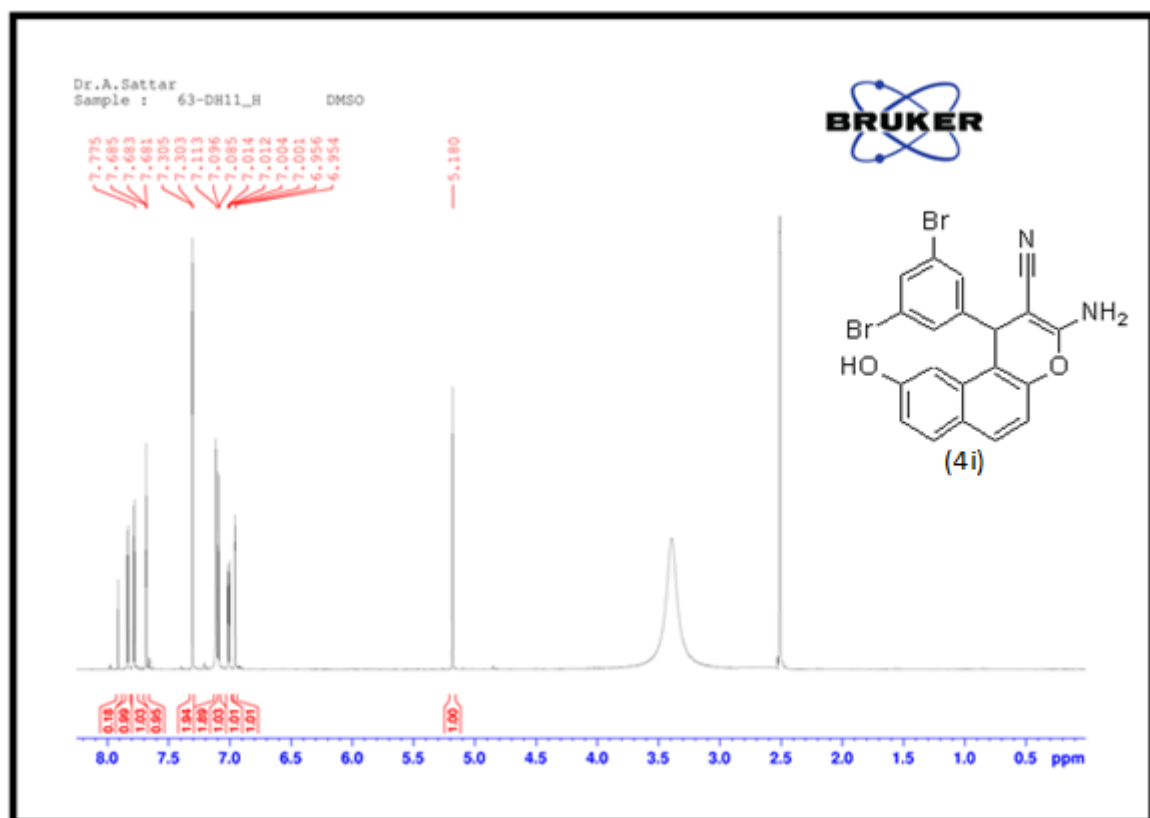


Figure S24: ¹H NMR of cpd. (4i).

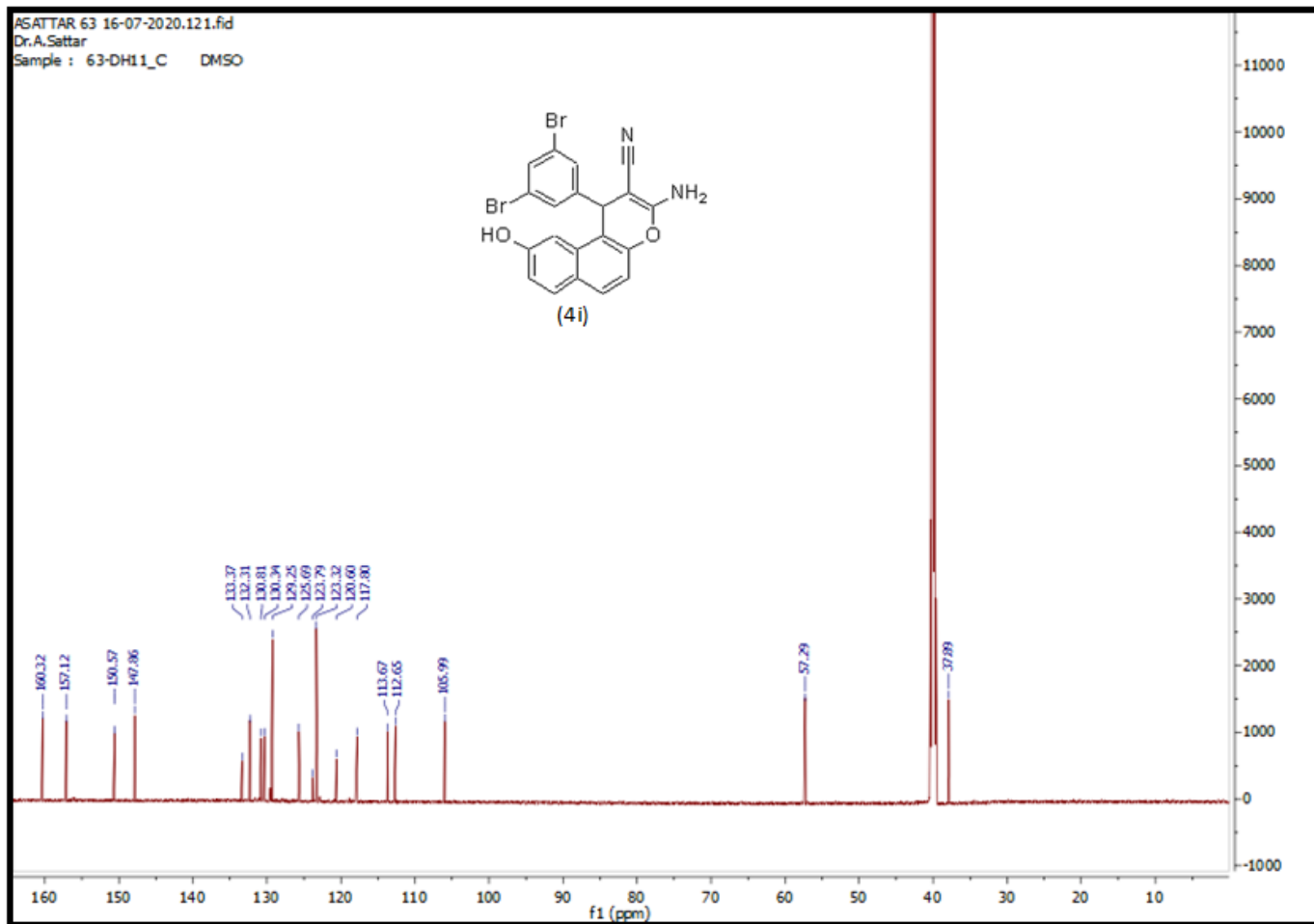


Figure S25: ^{13}C NMR of cpd. (4i).

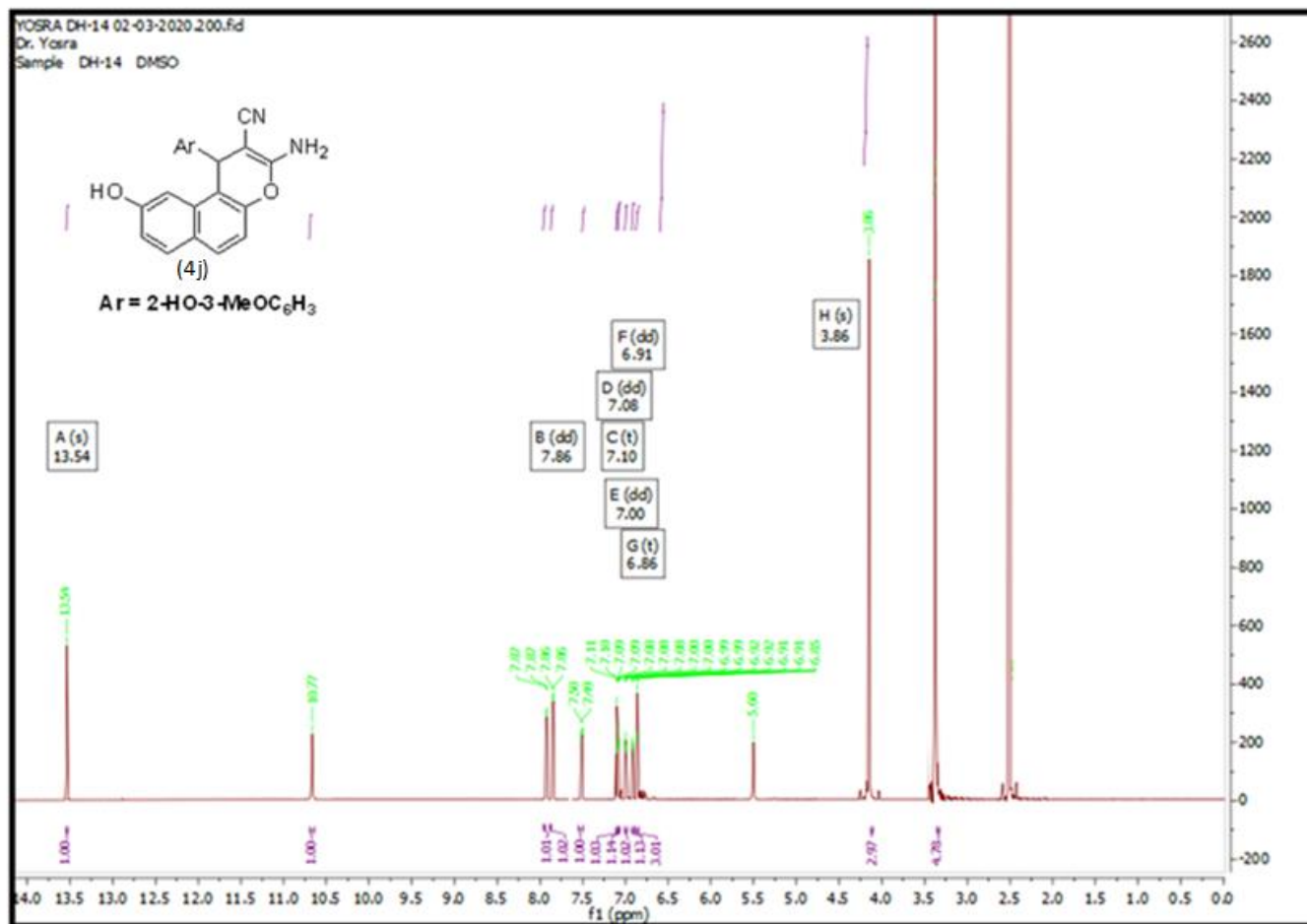


Figure S26: ¹H NMR of cpd. (4j).

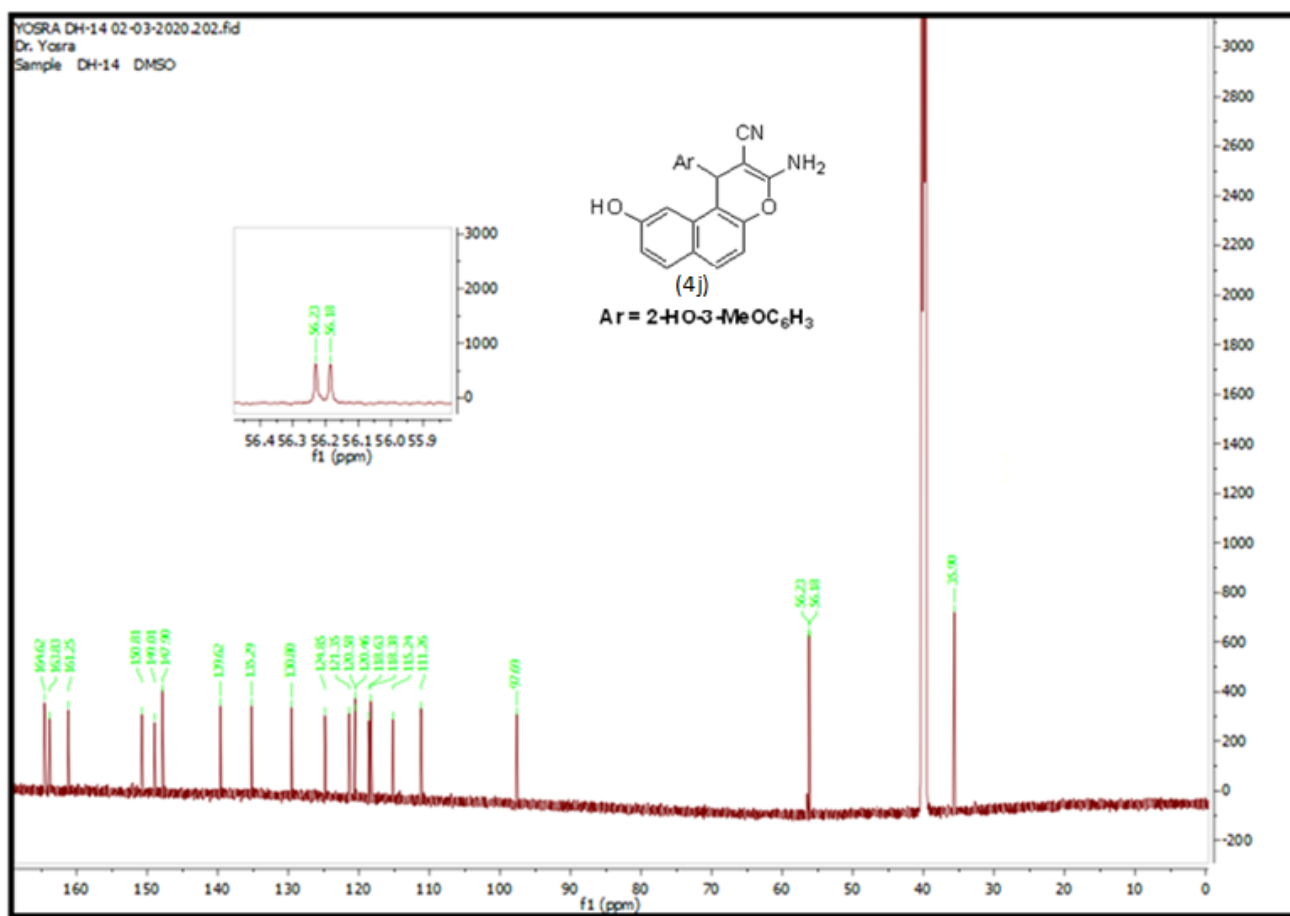


Figure S27: ¹³C NMR of cpd. (4j).

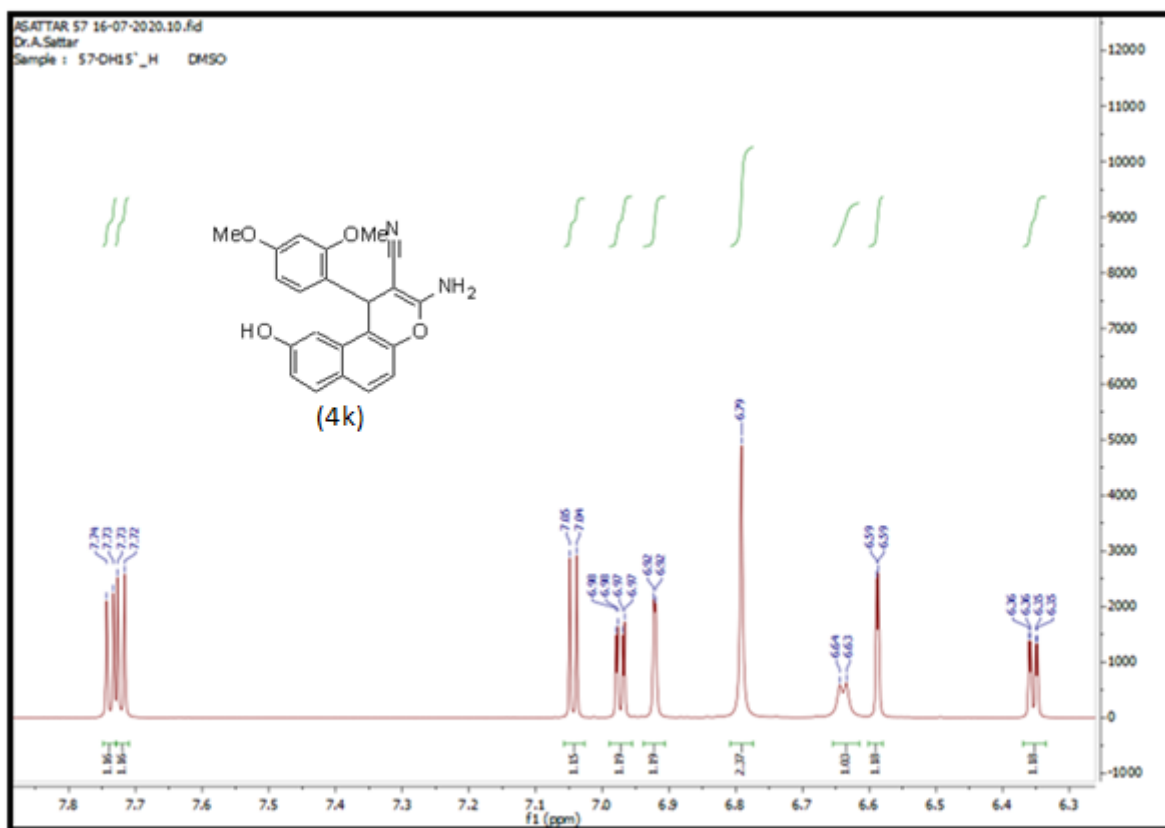


Figure S28: ¹H NMR 8.5-6.5 ppm of cpd. (4k).

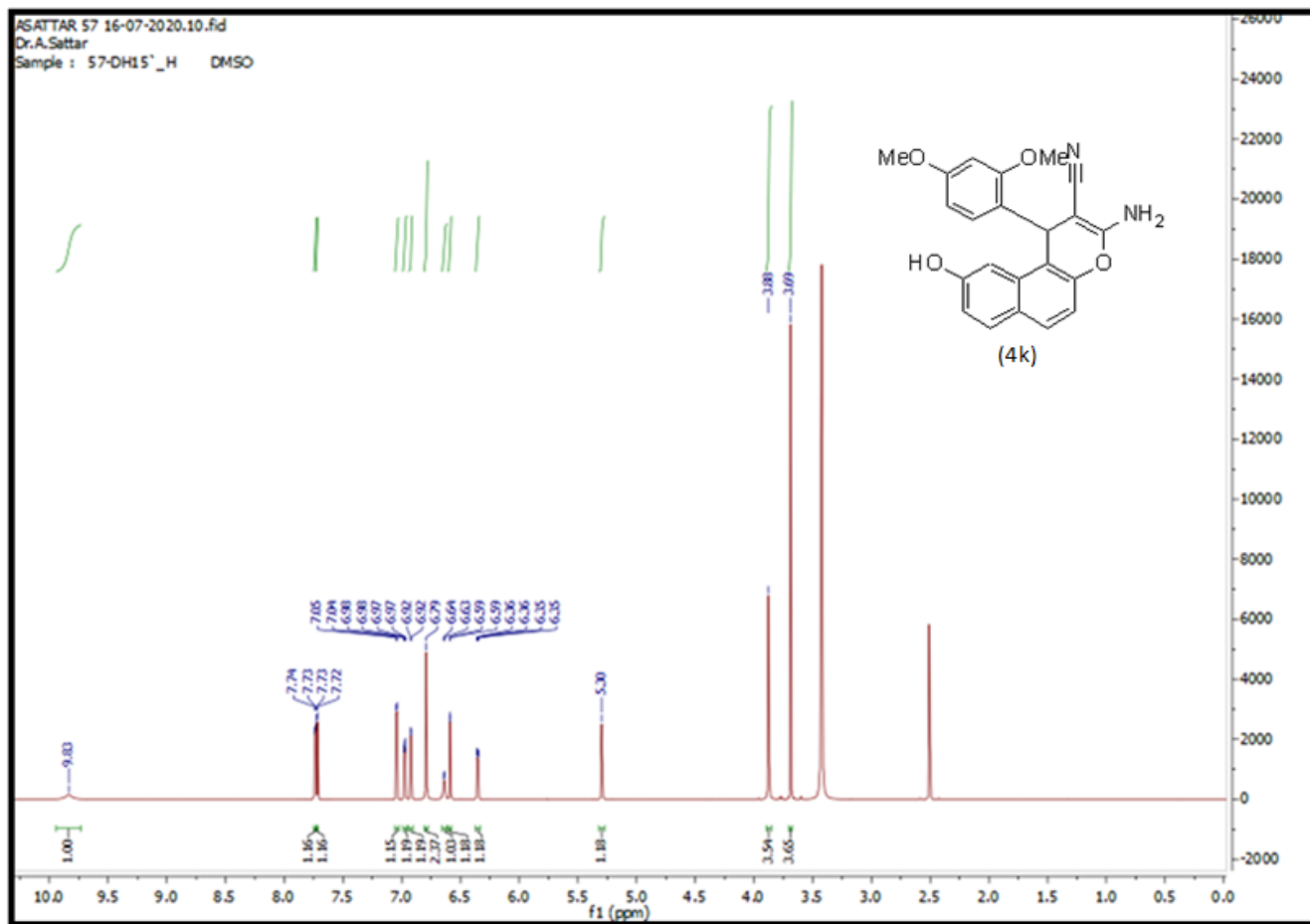


Figure S29: ^1H NMR of cpd. (4k).

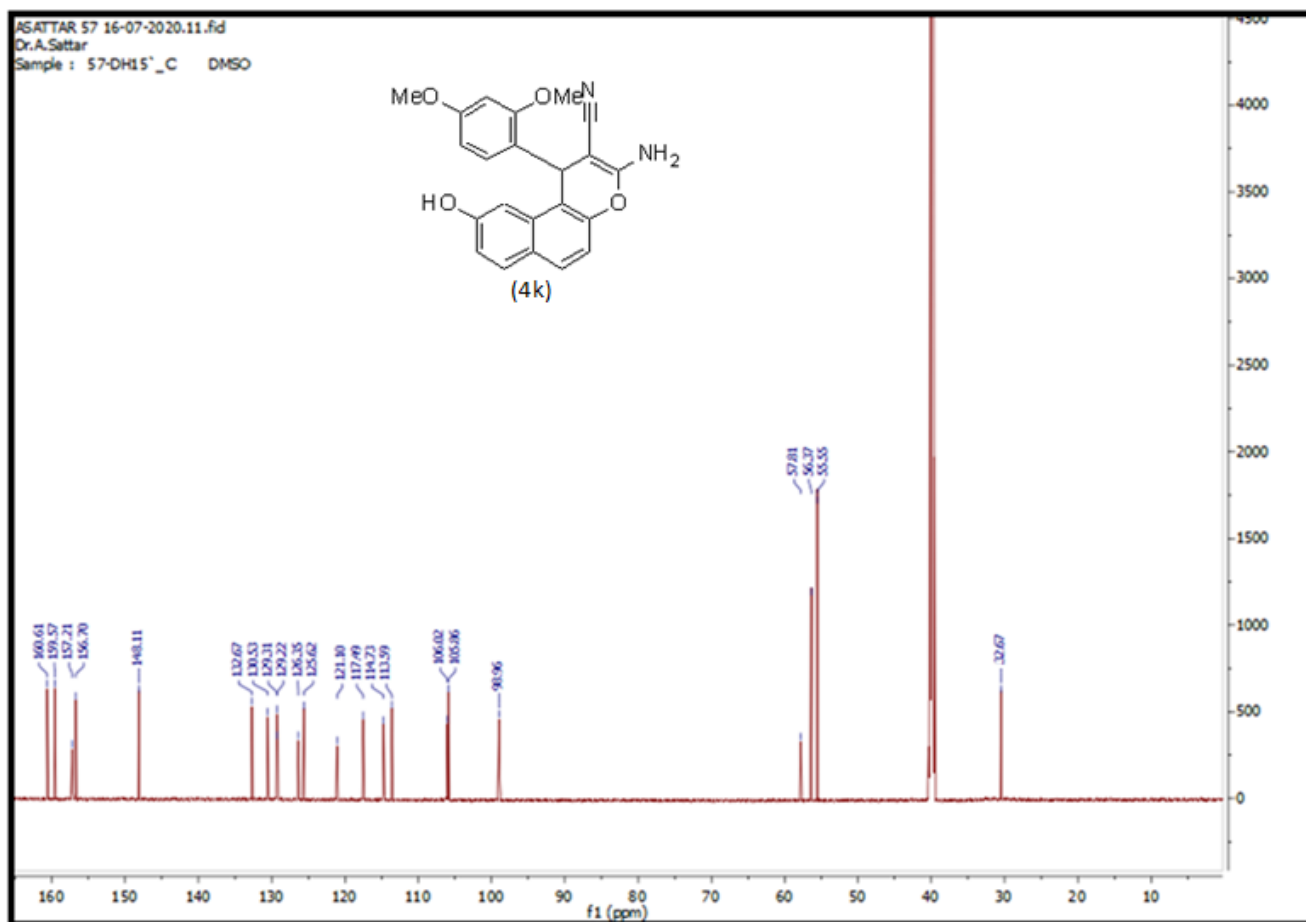


Figure S30: ¹³C NMR of cpd. (4k).

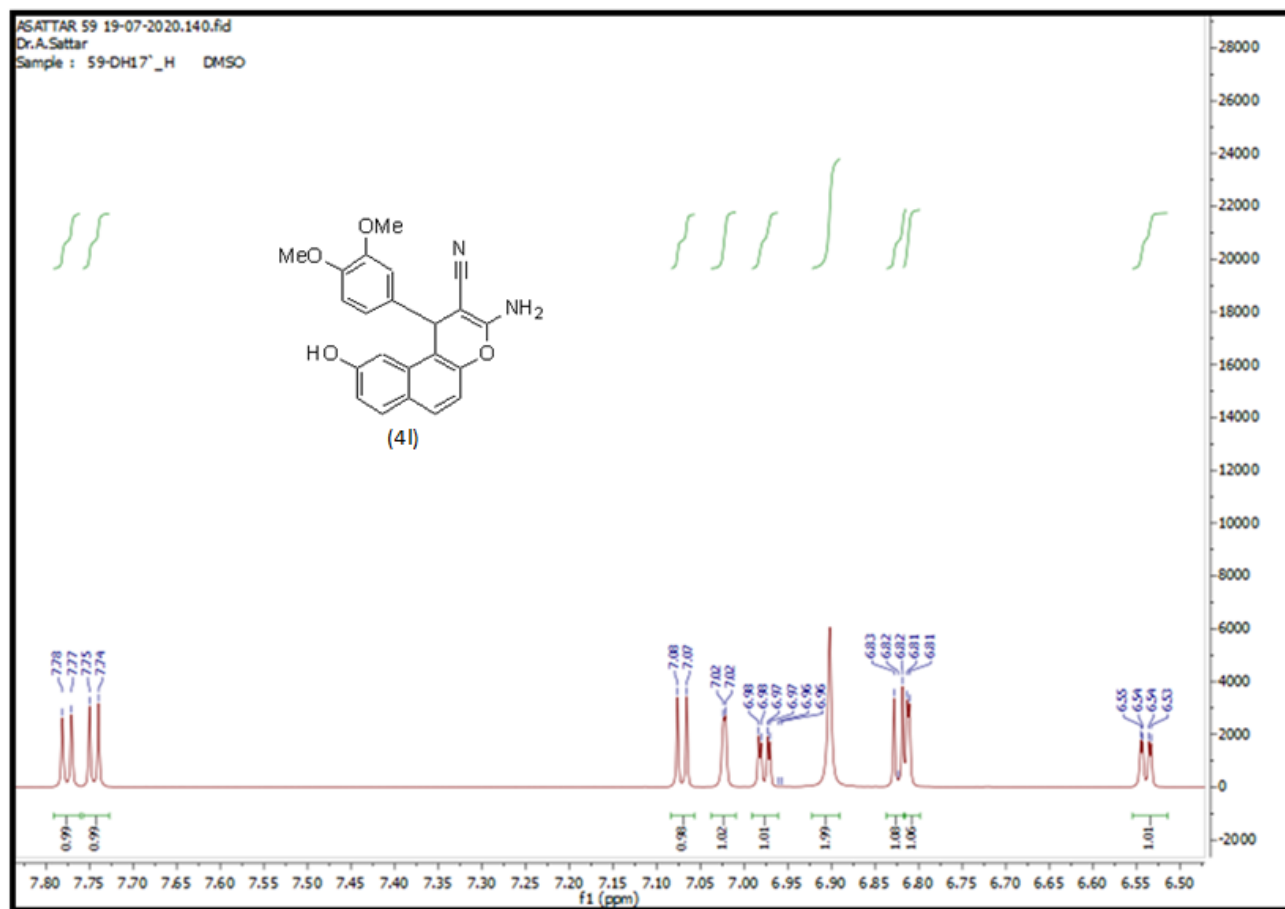


Figure S31: ^1H NMR 8.5-6.5 ppm of cpd. (4I).

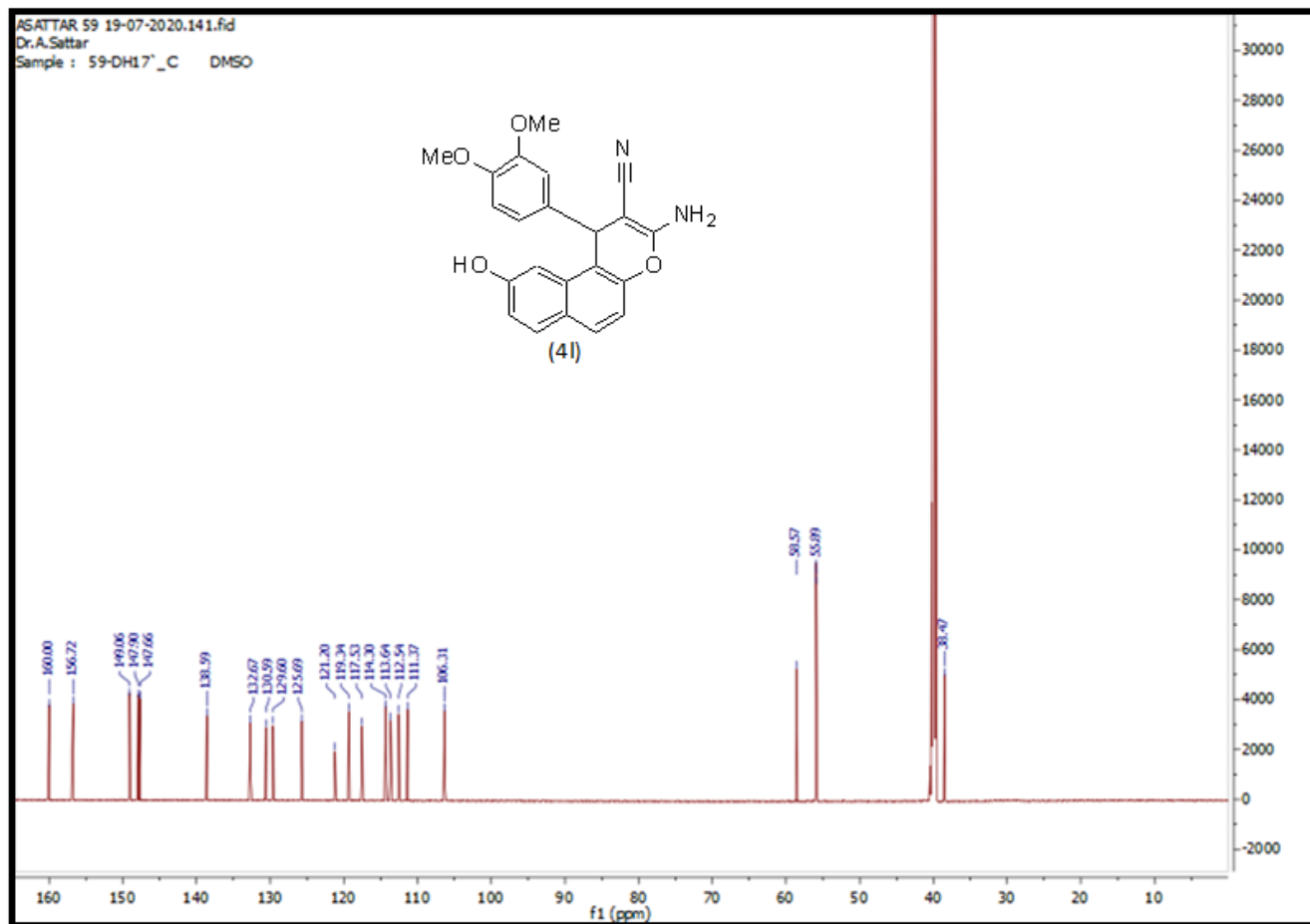


Figure S33: ¹³C NMR of cpd. (4l).

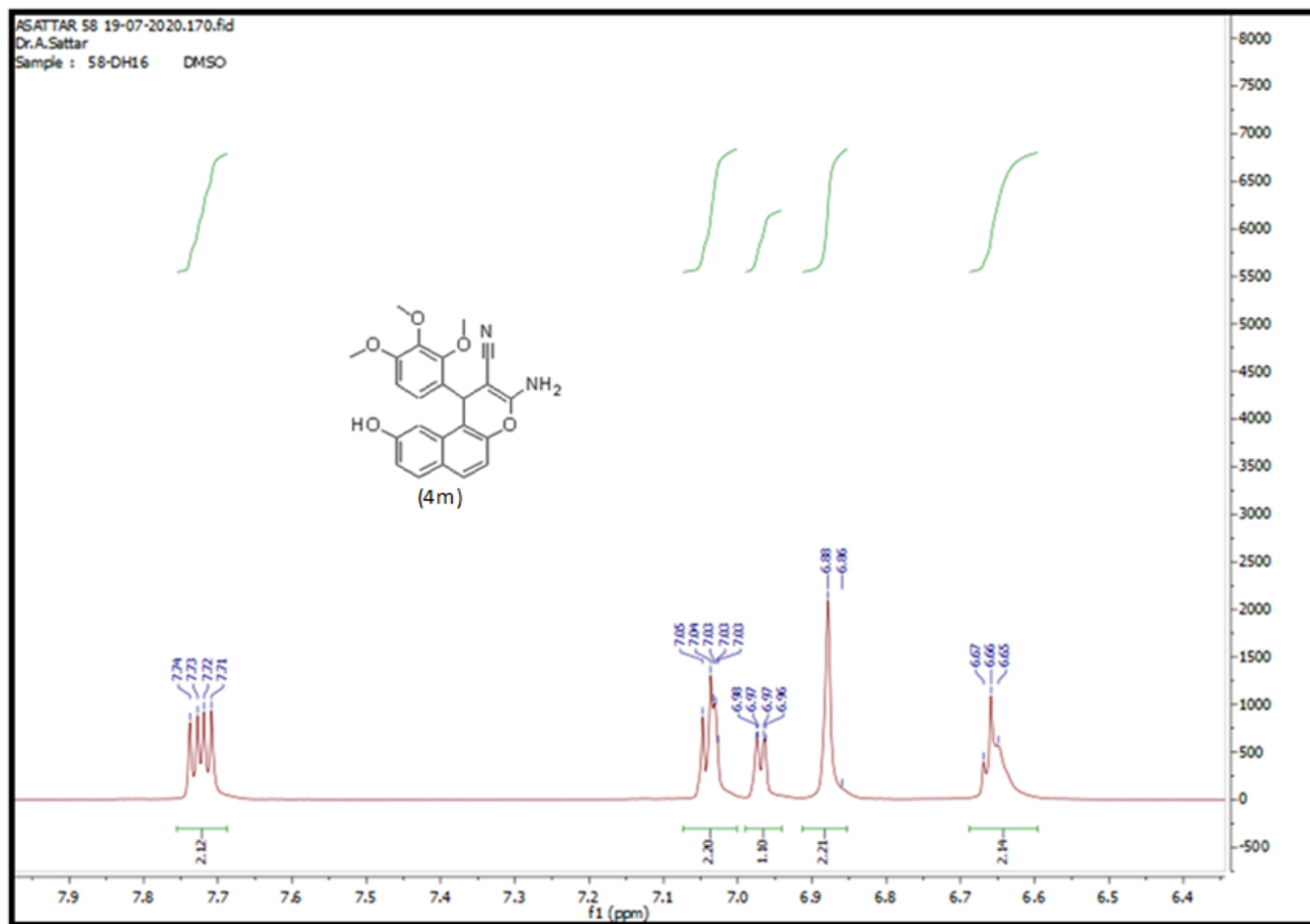


Figure S34: ¹H NMR 8.5-6.5 ppm of cpd. (4m).

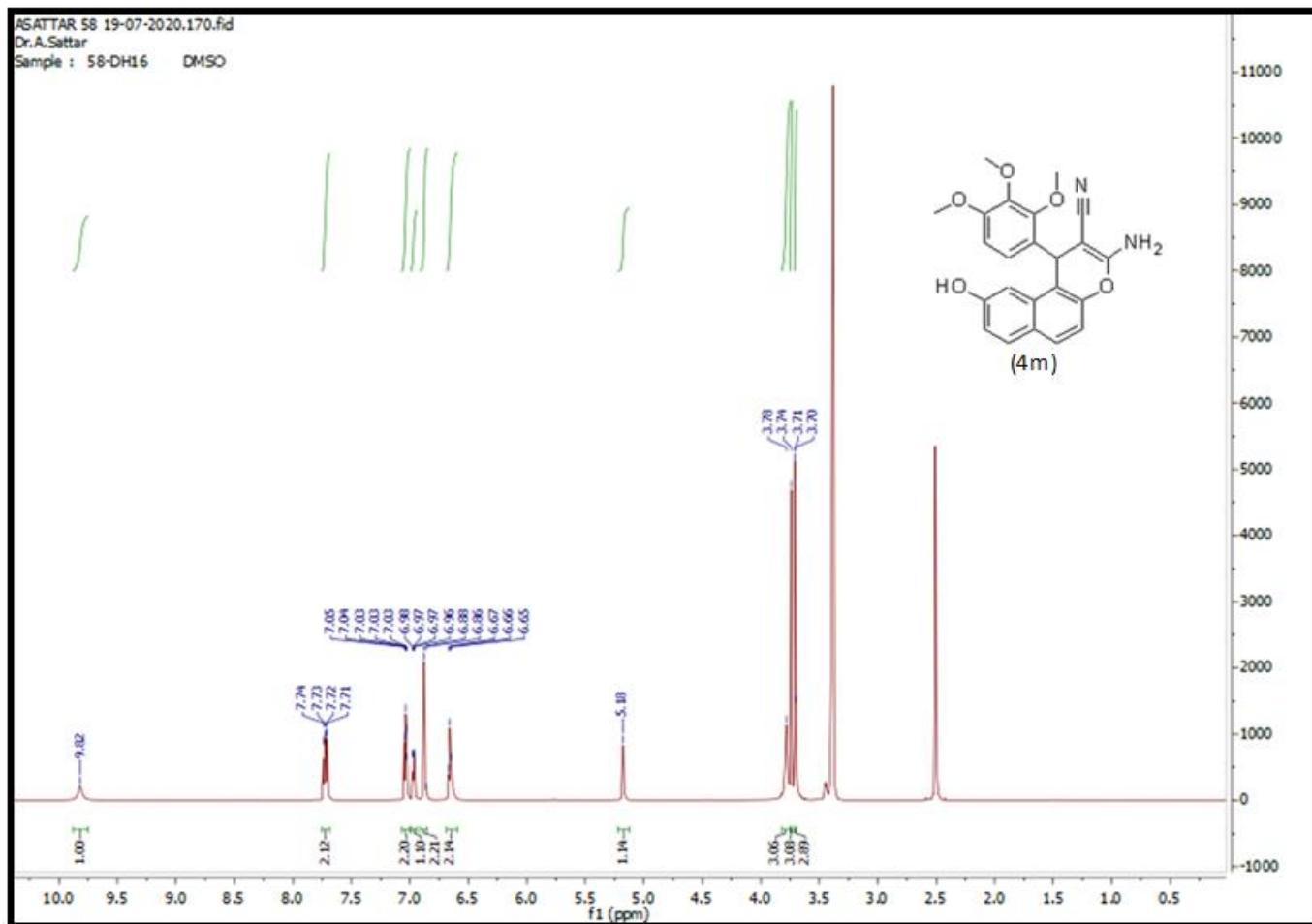


Figure S35: ^1H NMR of cpd. (4m).

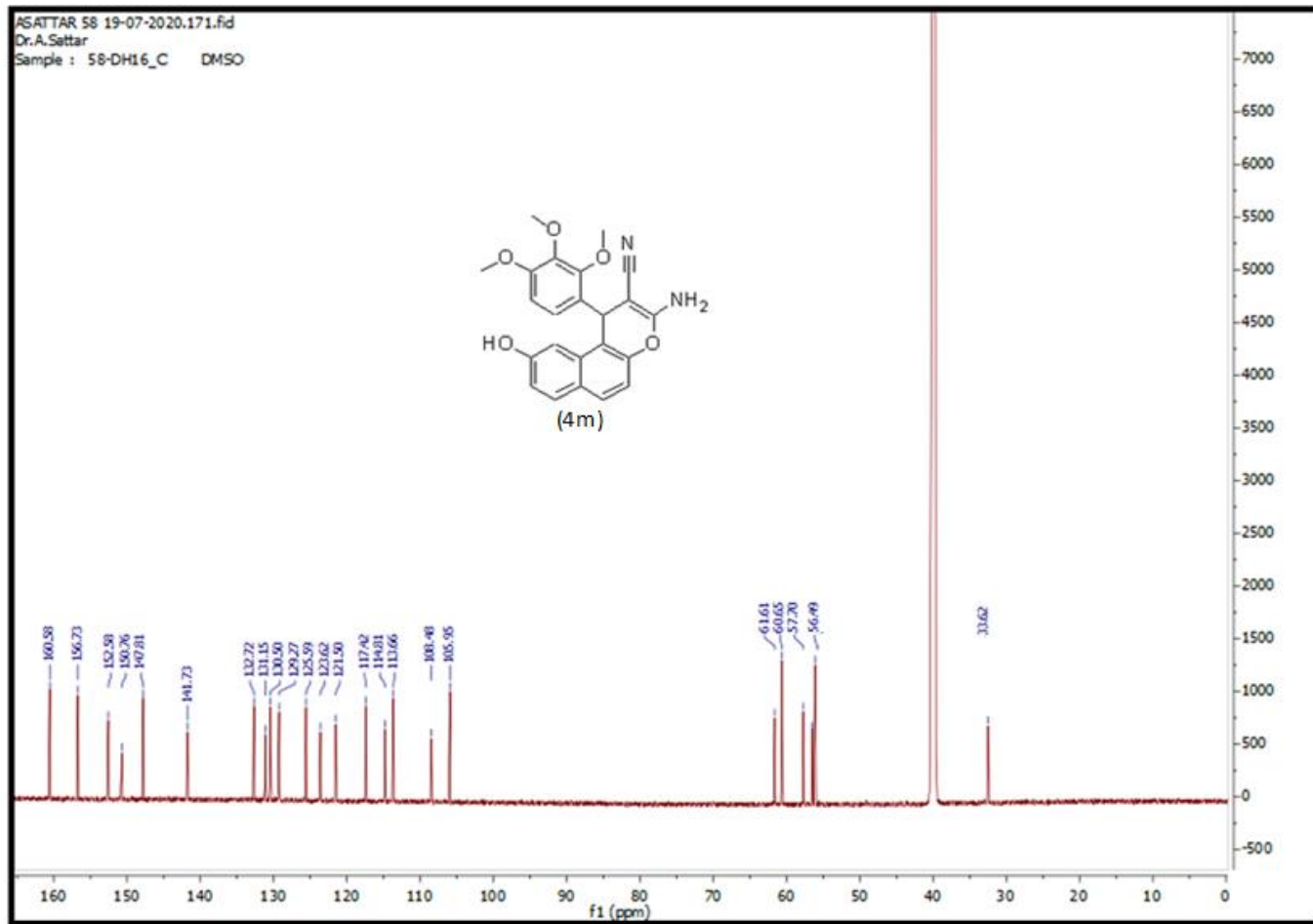


Figure S36: ¹³C NMR of cpd. (4m).

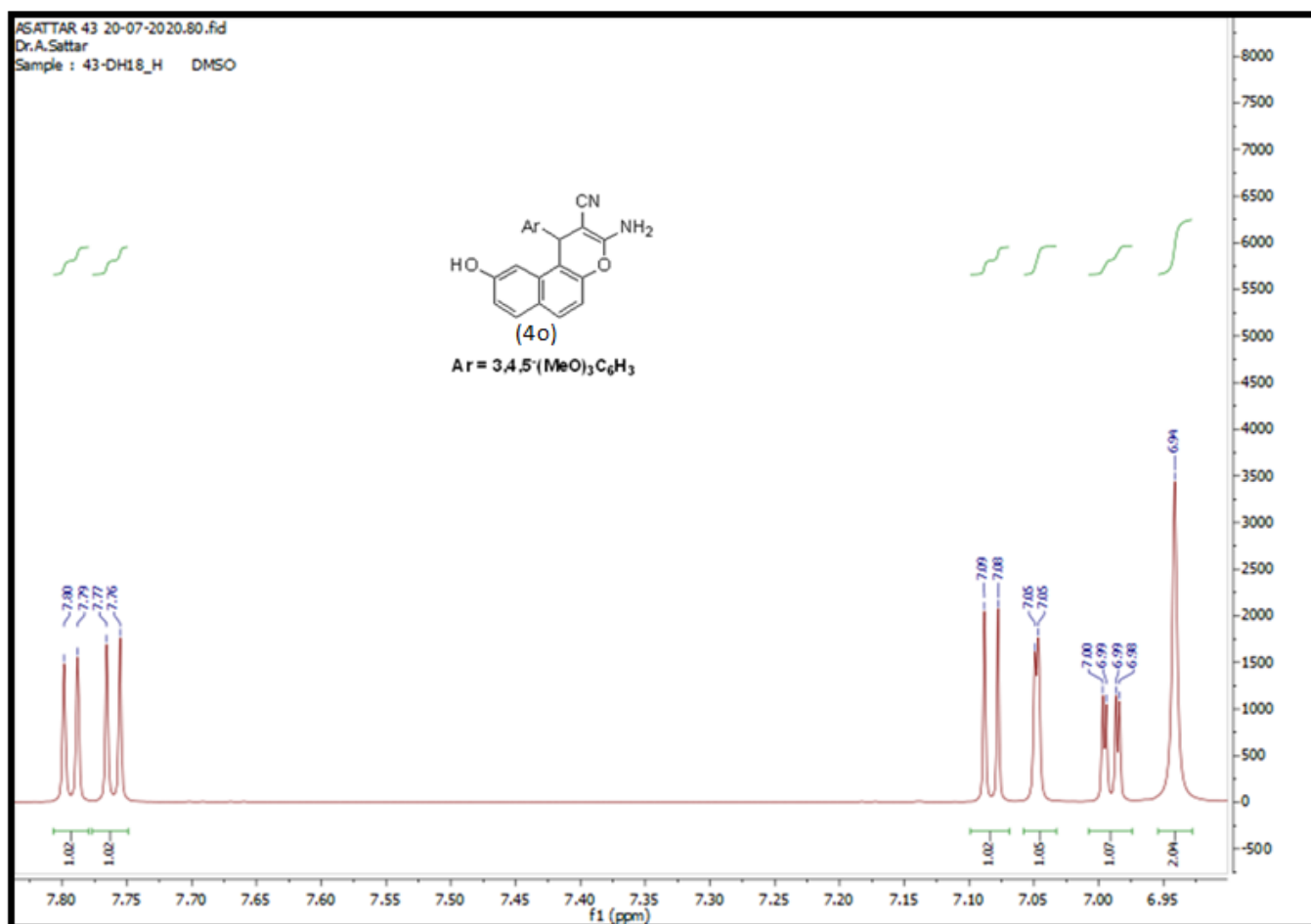


Figure S37: ¹H NMR 8.5-6.5 ppm of cpd. (4n).

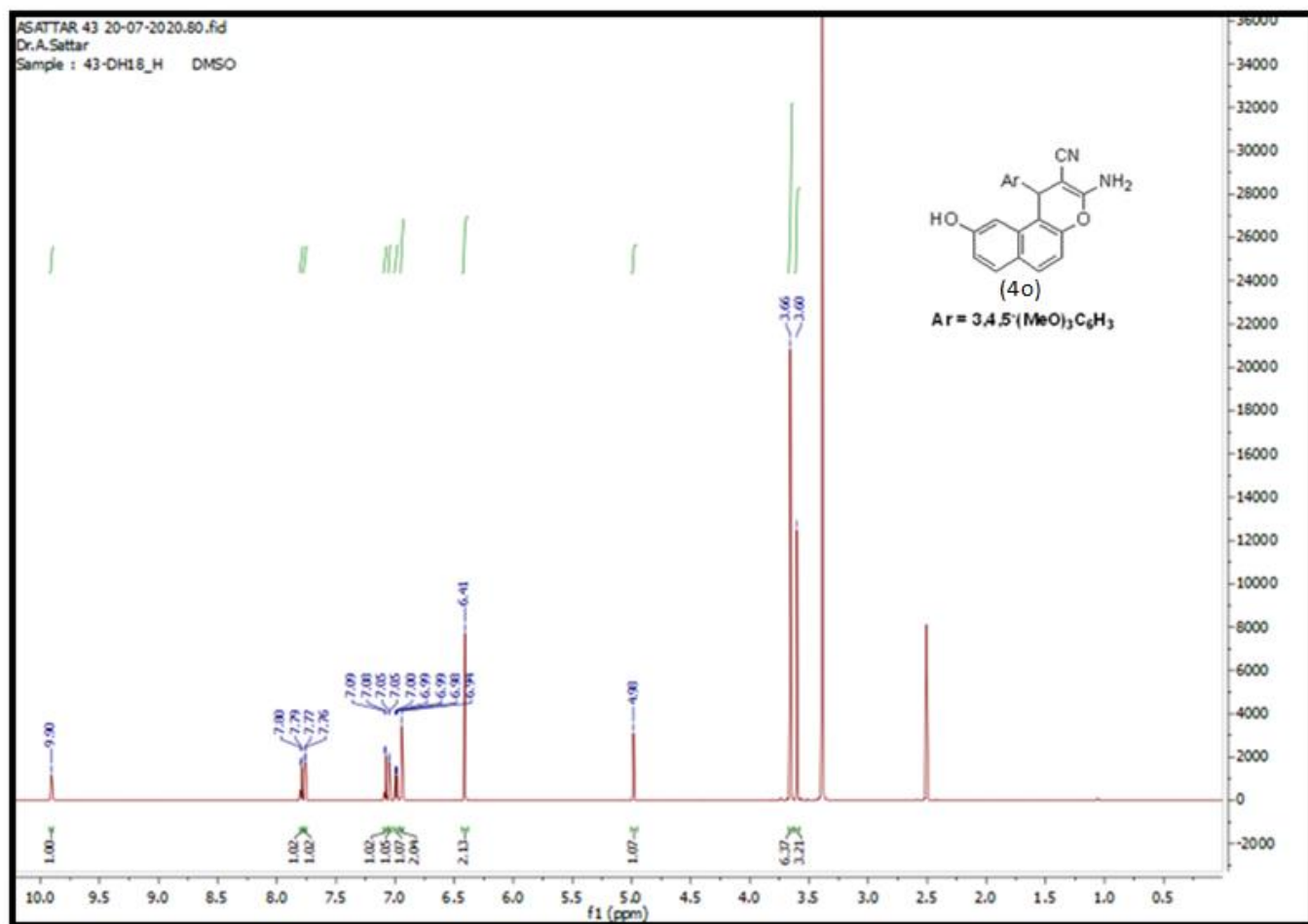


Figure S38: ¹H NMR of cpd. (4n).

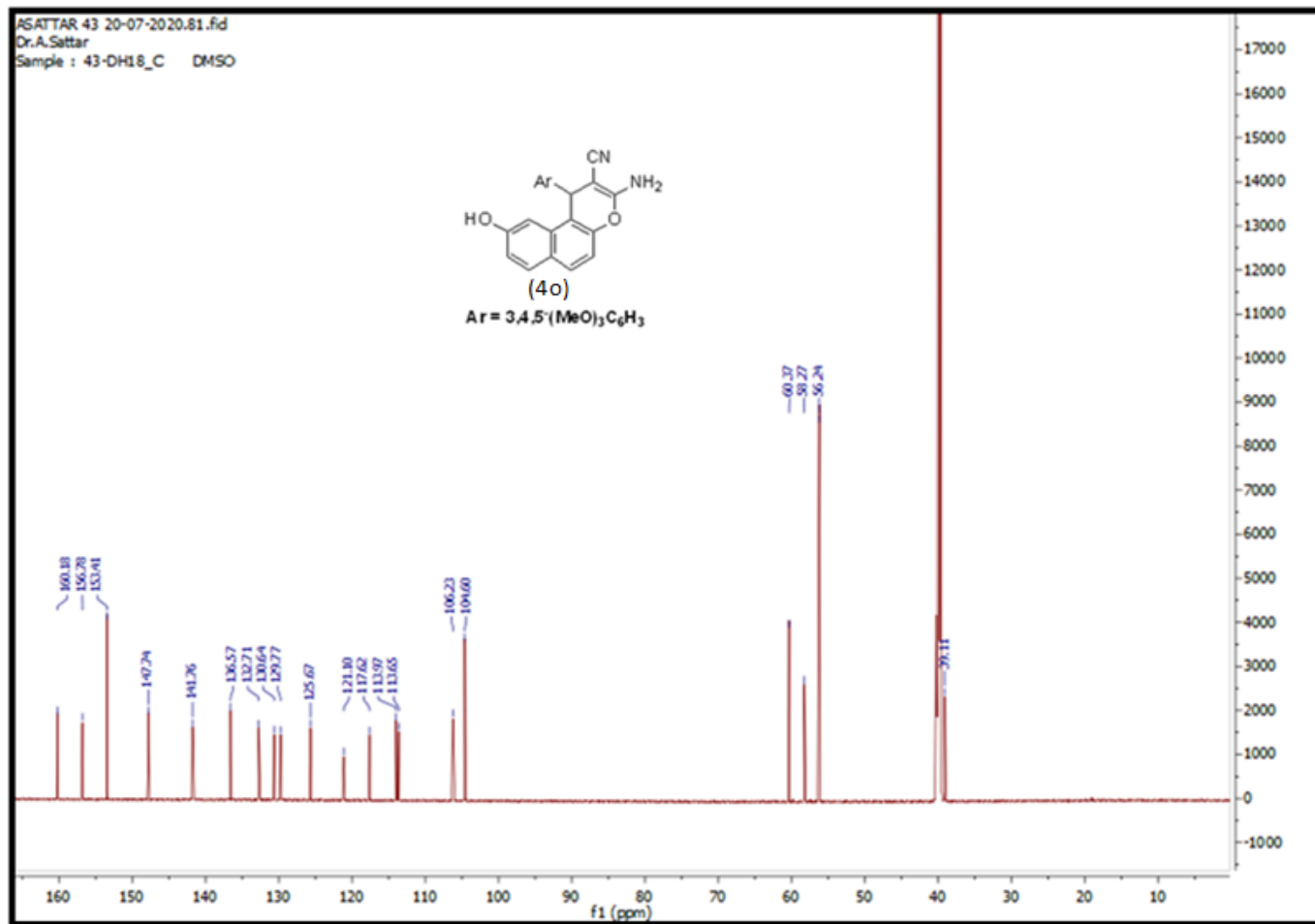


Figure S39: ¹³C NMR of cpd. (4n).

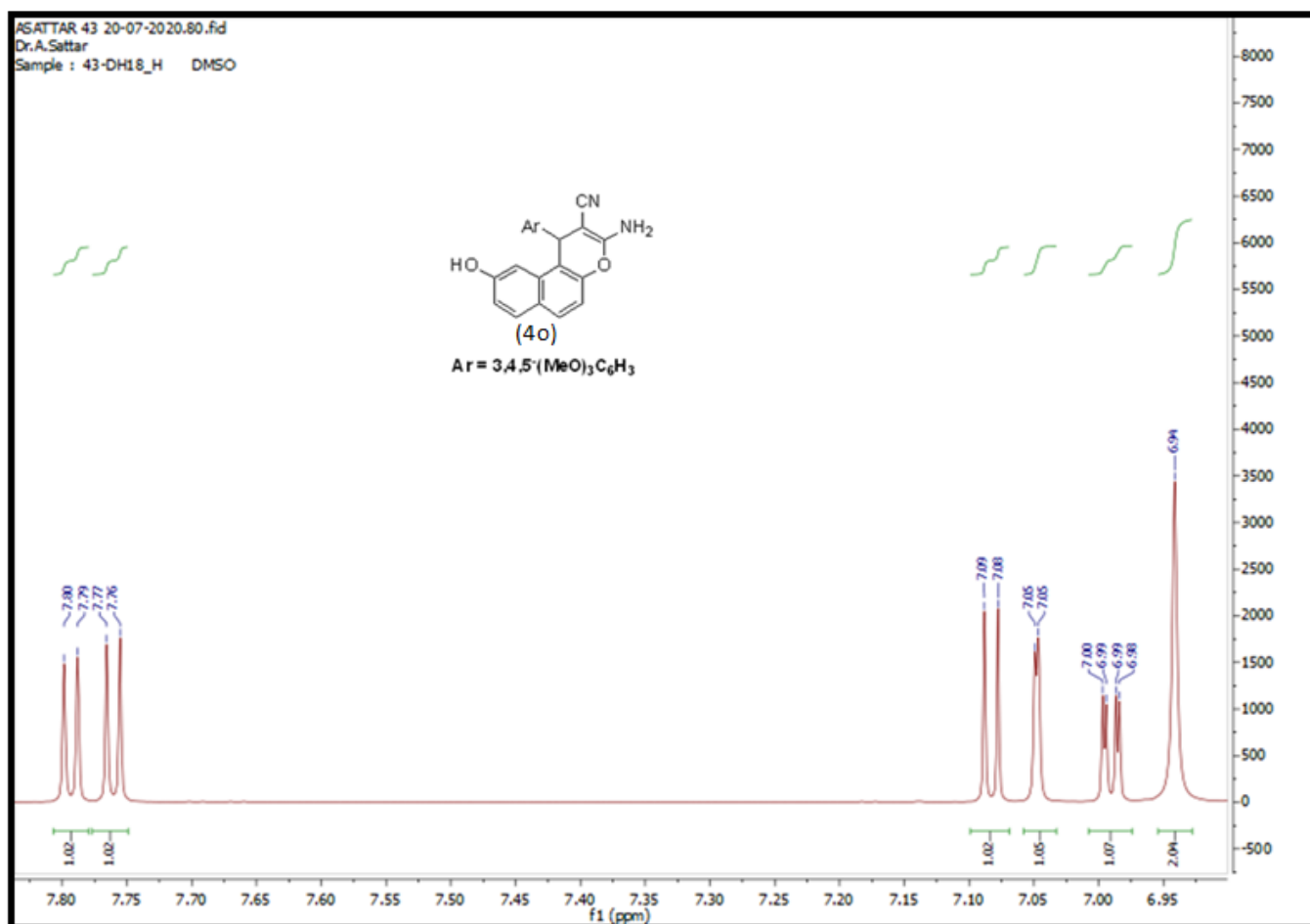


Figure S40: ¹H NMR 8.5-6.5 ppm of cpd. (4o).

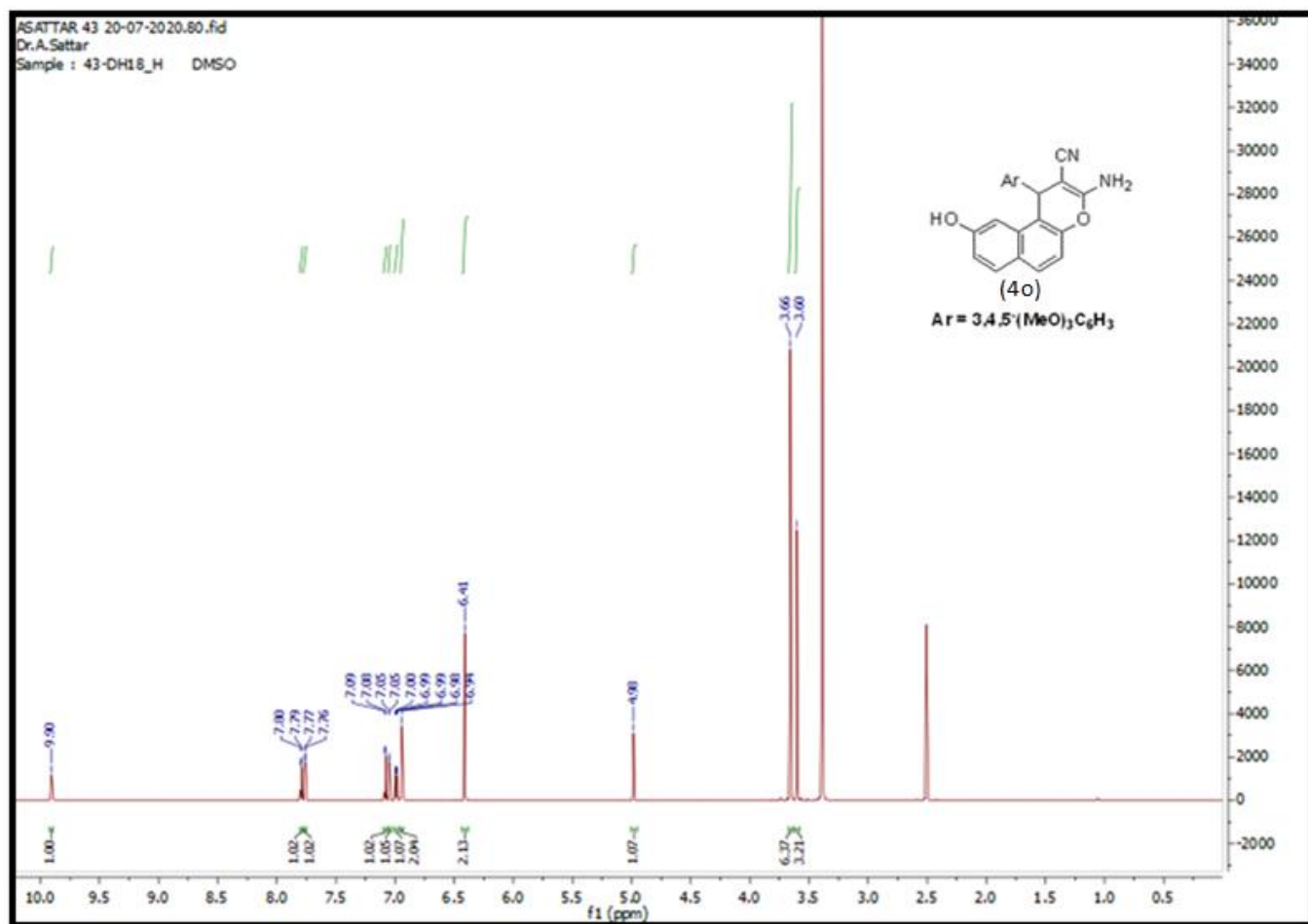


Figure S41: ¹H NMR of cpd. (4o).

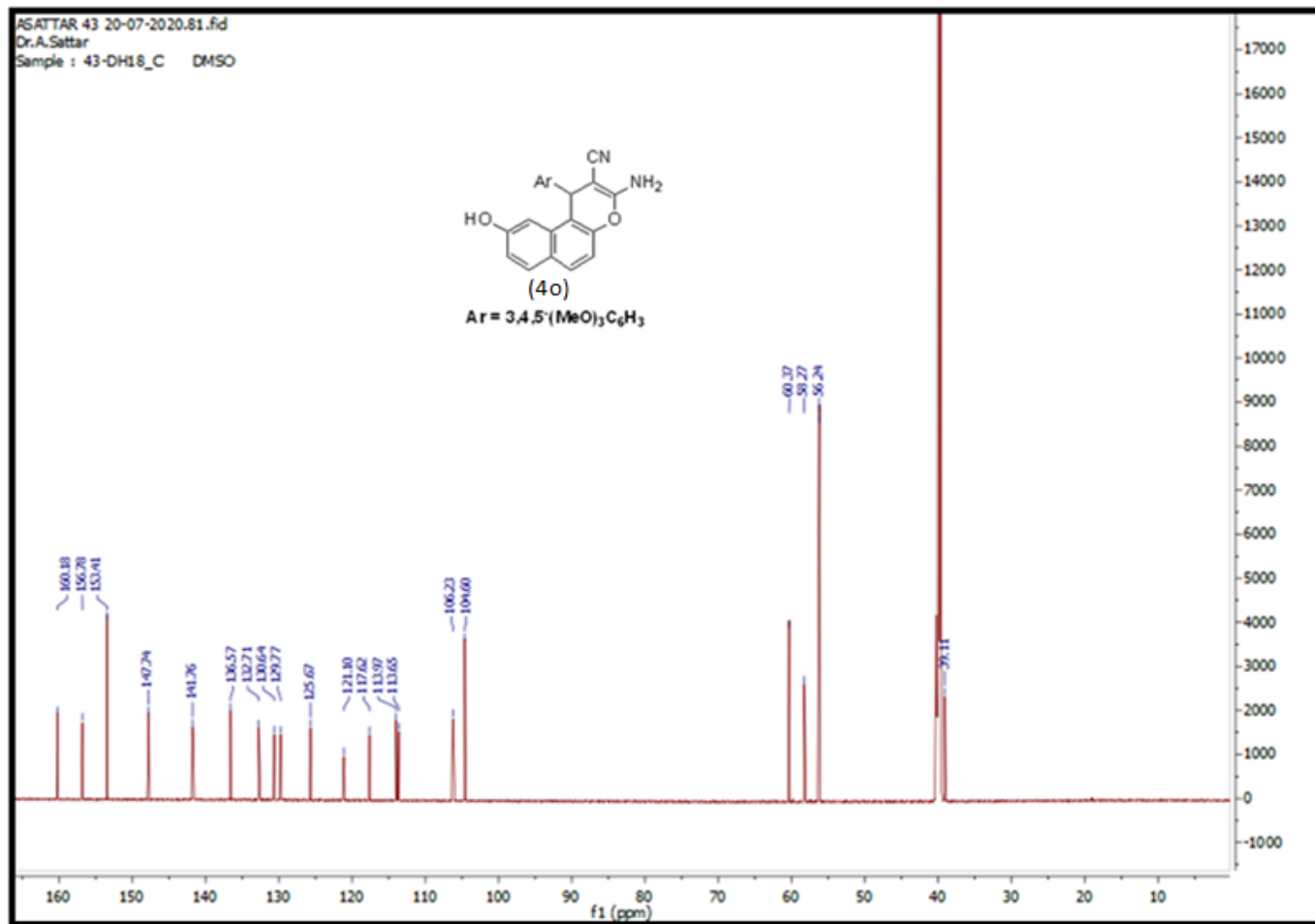


Figure S42: ^{13}C NMR of cpd. (4o).

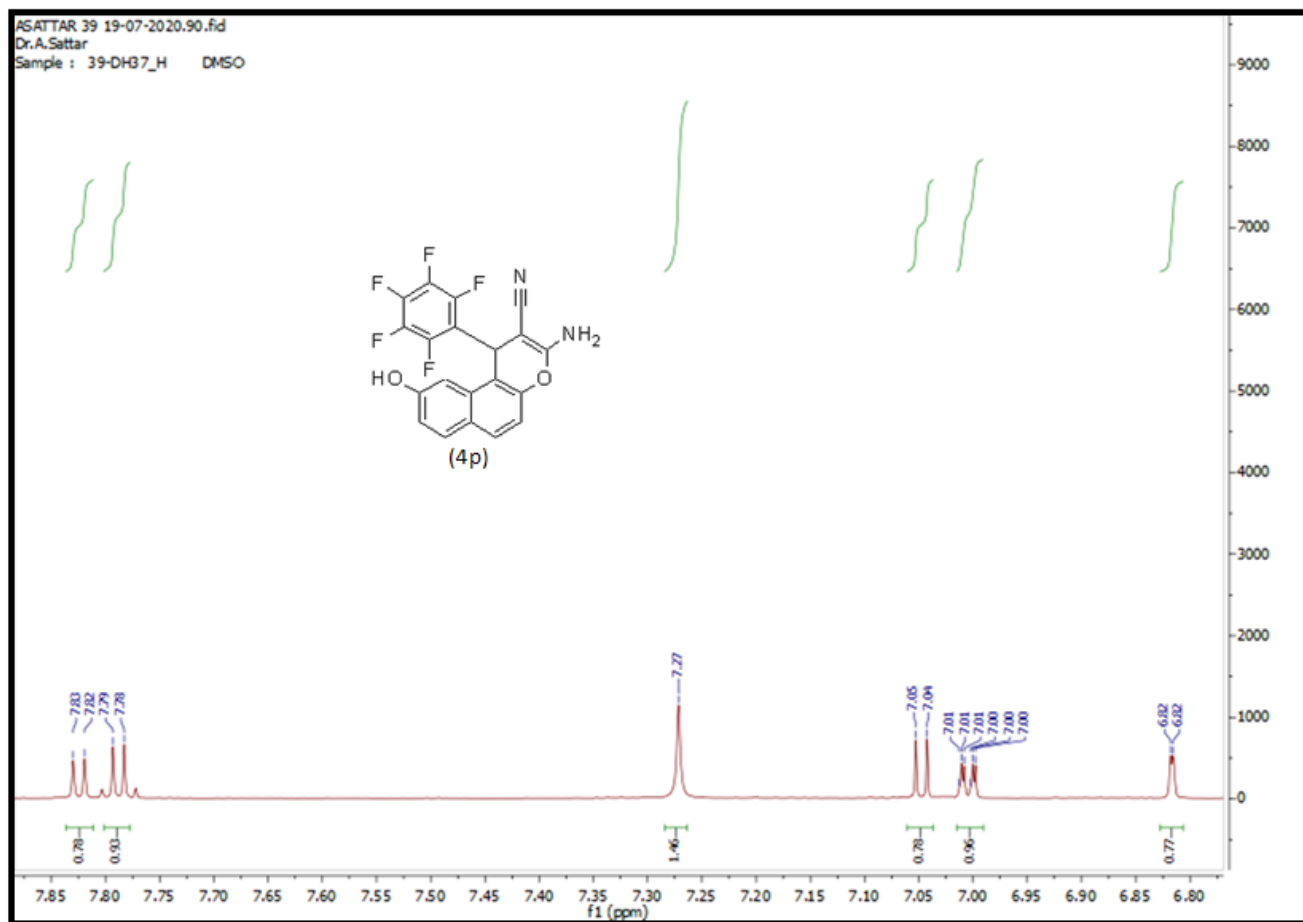


Figure S43: ^1H NMR 8.5-6.5 ppm of cpd. (**4p**).

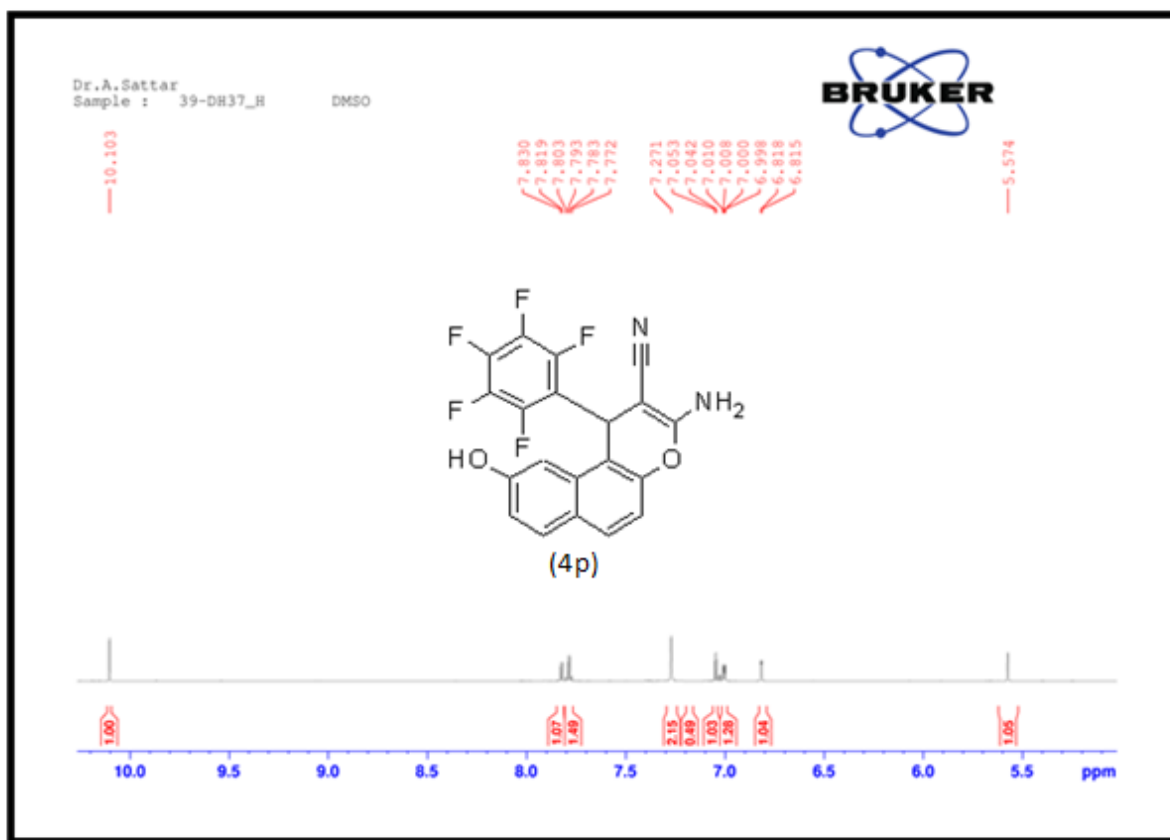


Figure S44: ¹H NMR 10.5-5.5 ppm of cpd. (4p).

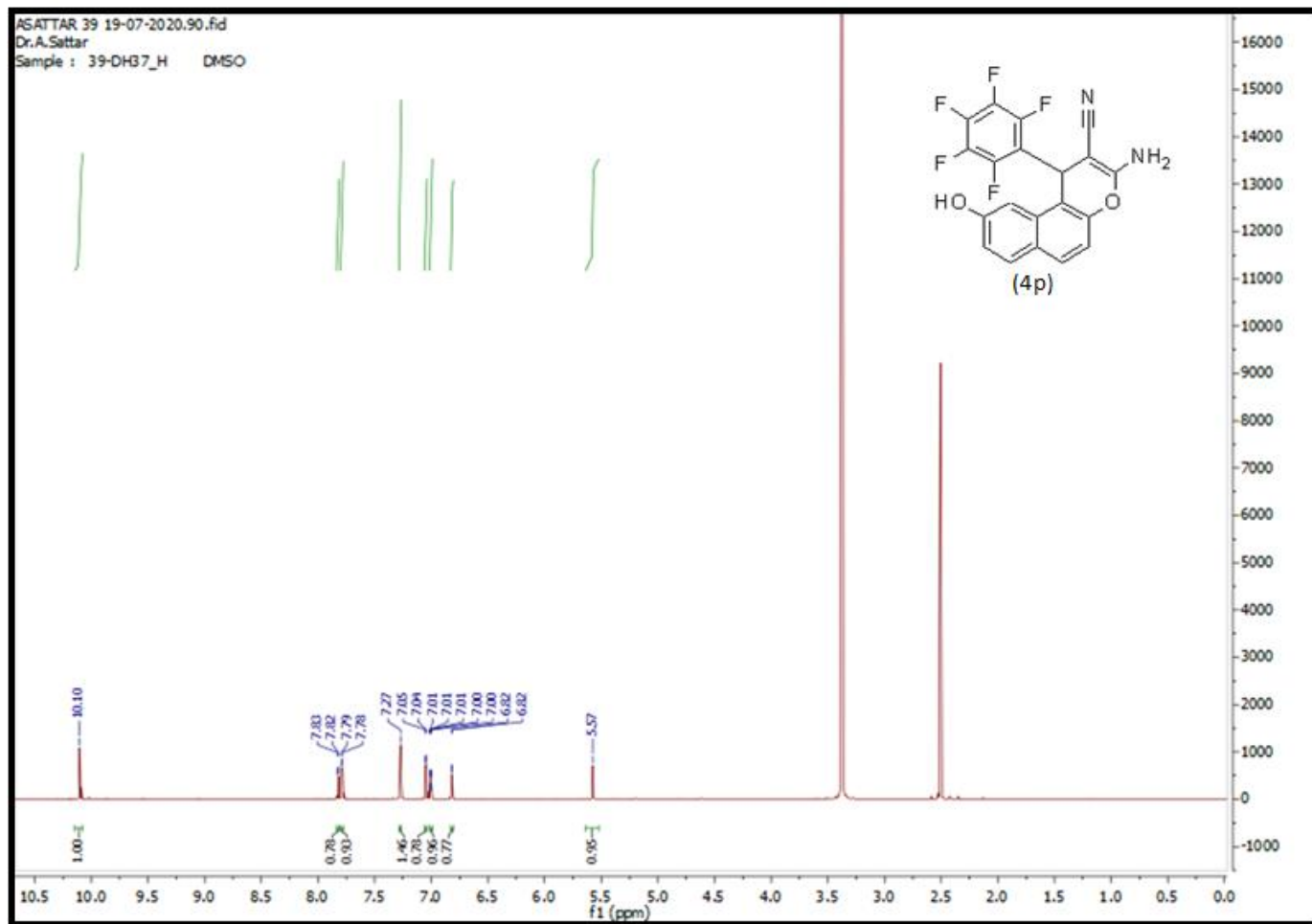


Figure S45: ^1H NMR of cpd. (4p).

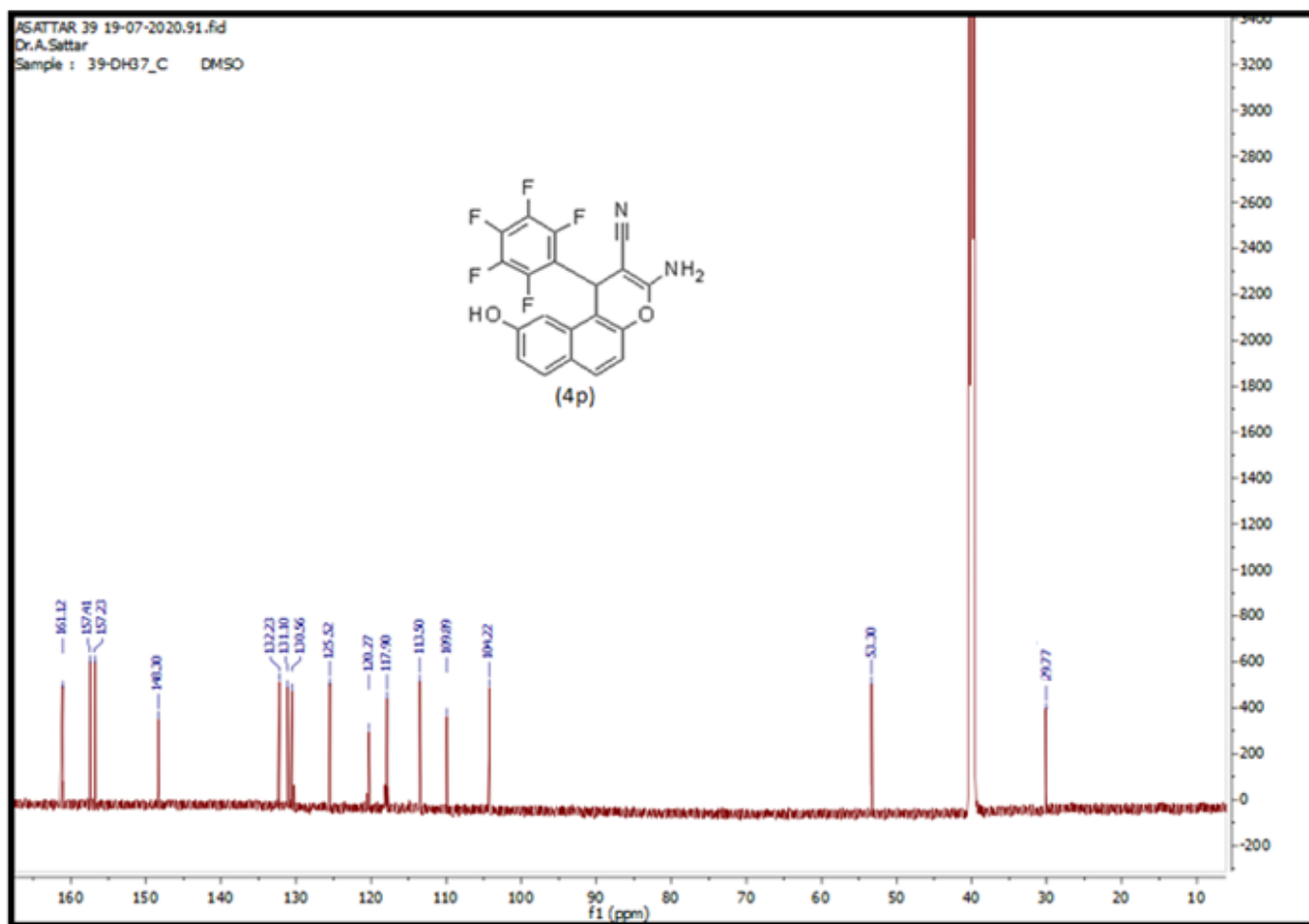


Figure S46: ¹³C NMR of cpd. (4p).

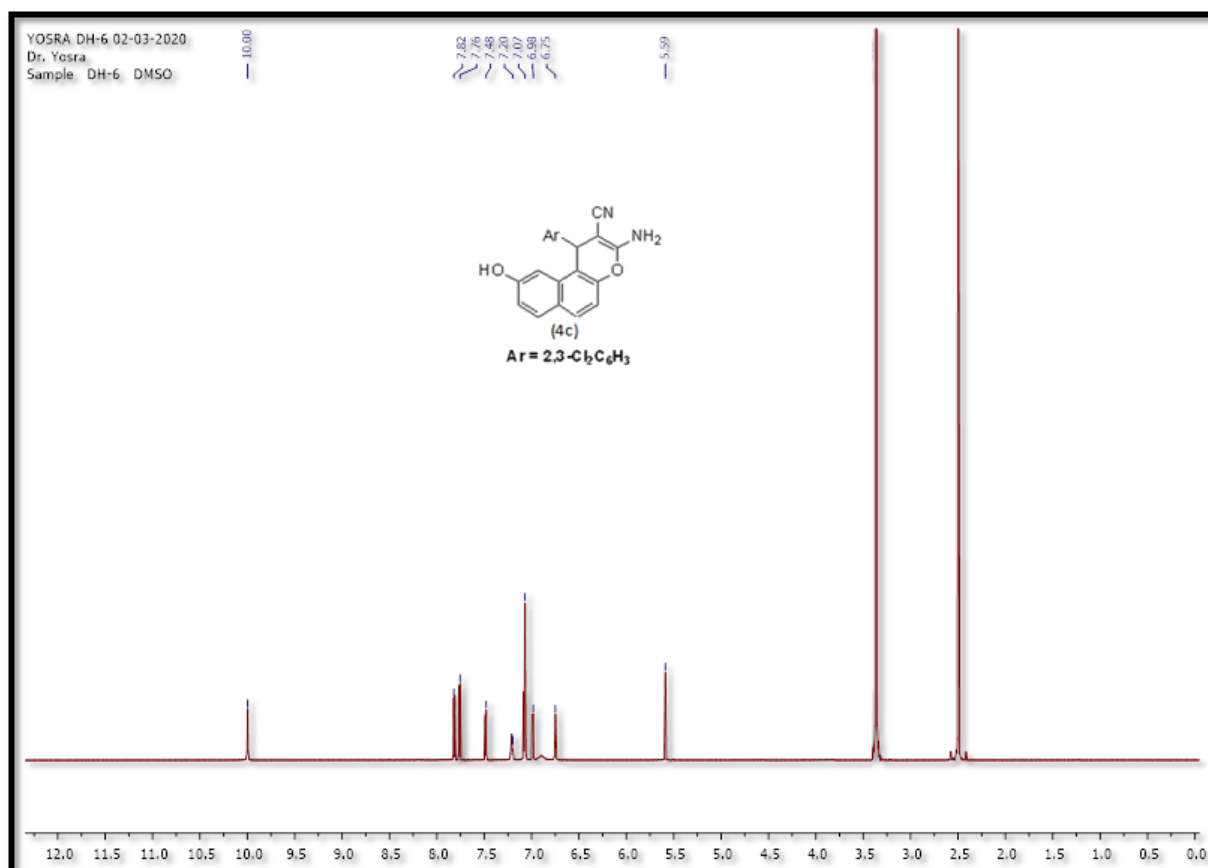


Figure S47: ¹H NMR of cpd. (4c).

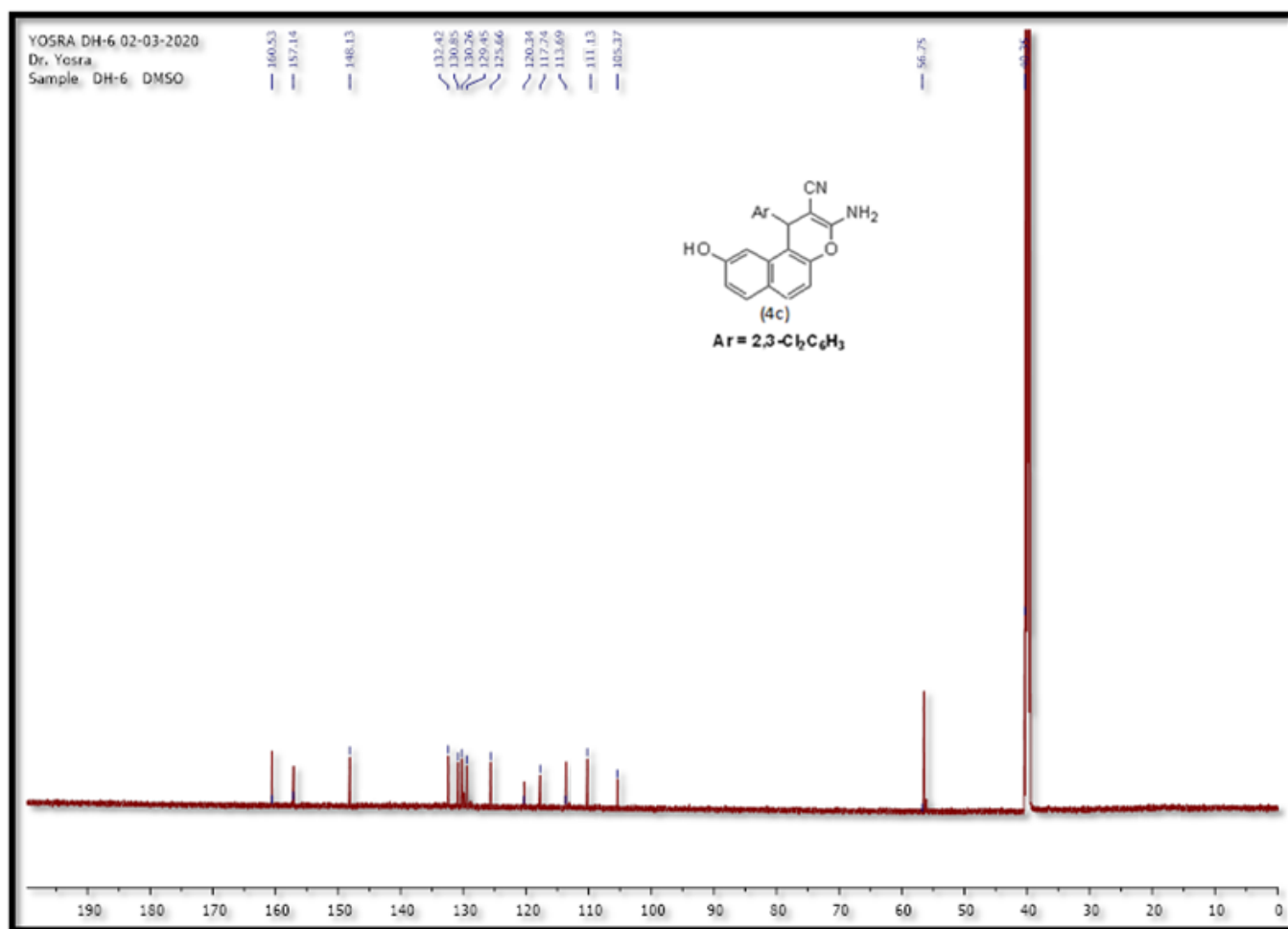


Figure S48: ¹³C NMR of cpd. (4c).

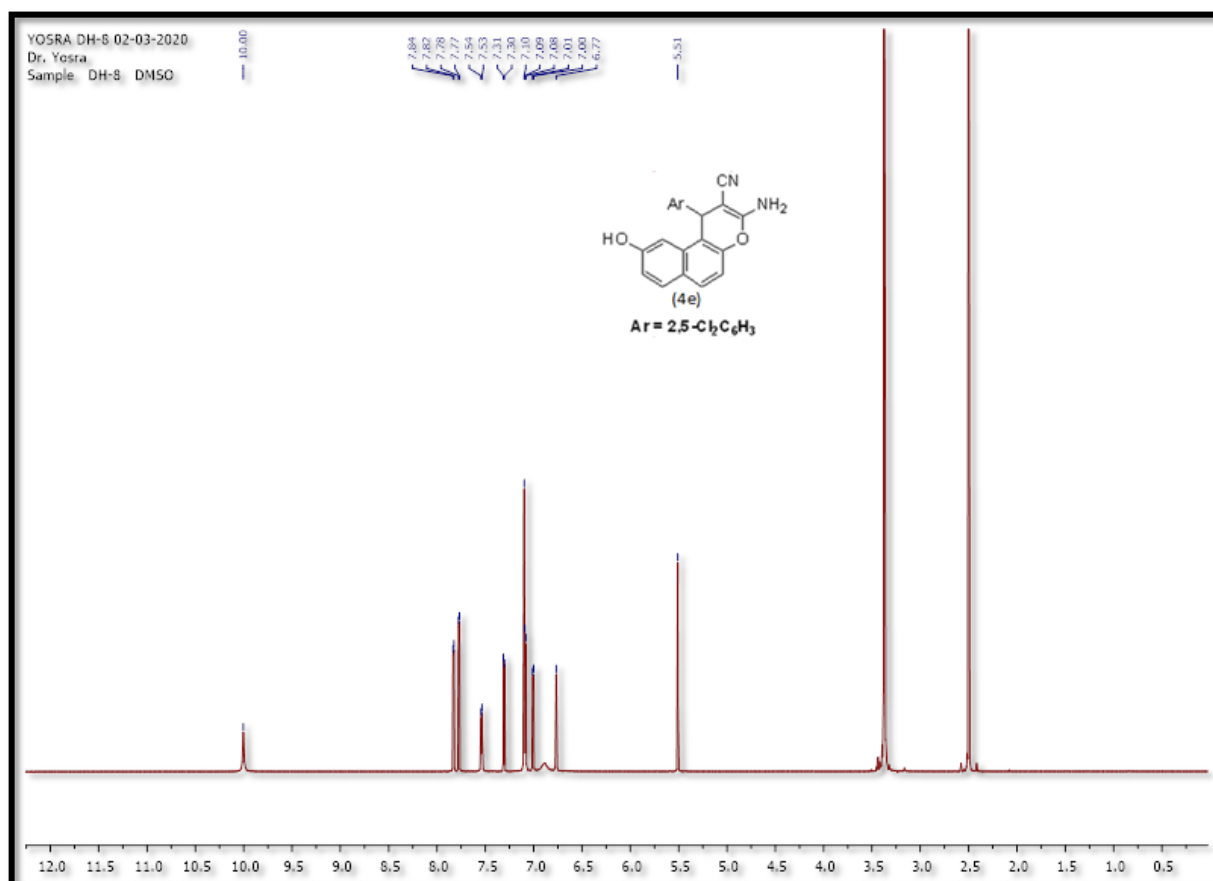


Figure S49: ¹H NMR of cpd. (4e).

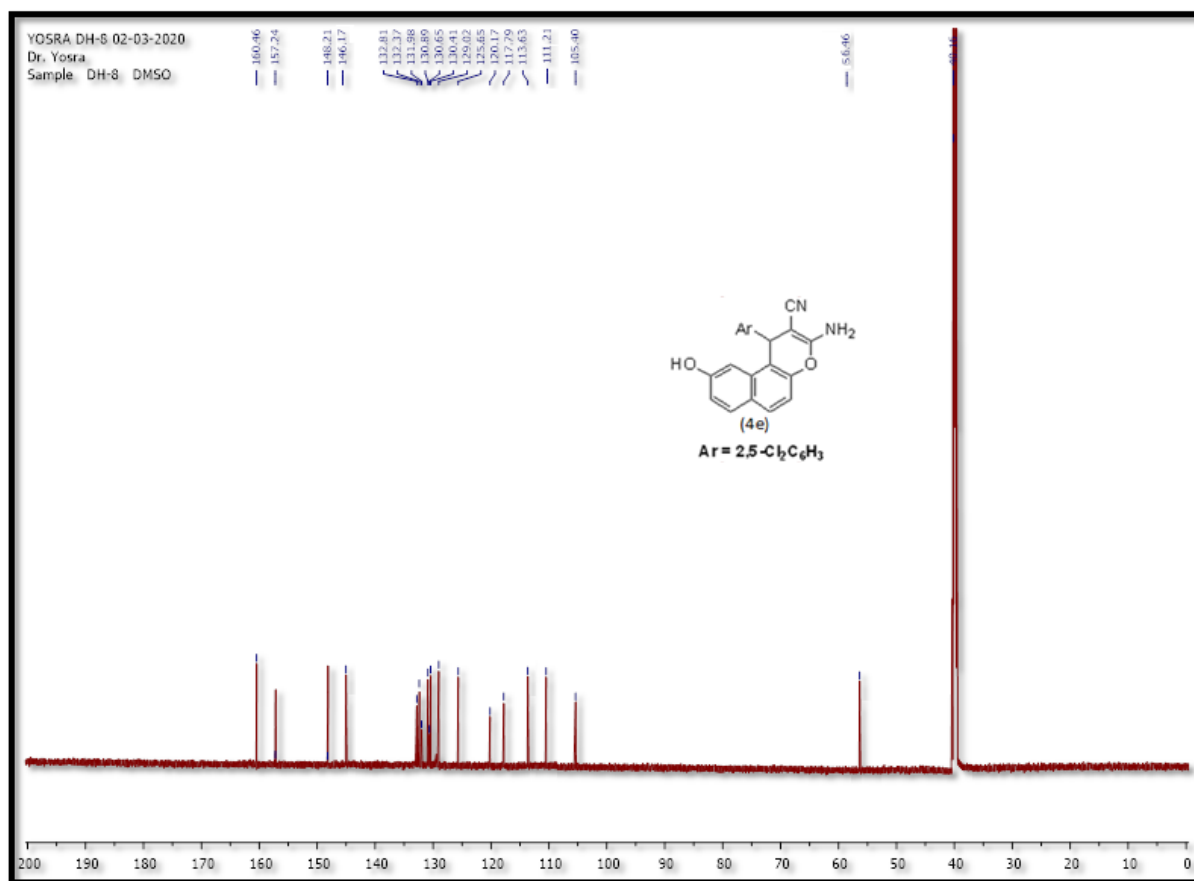


Figure S50: ^{13}C NMR of cpd. (4e).

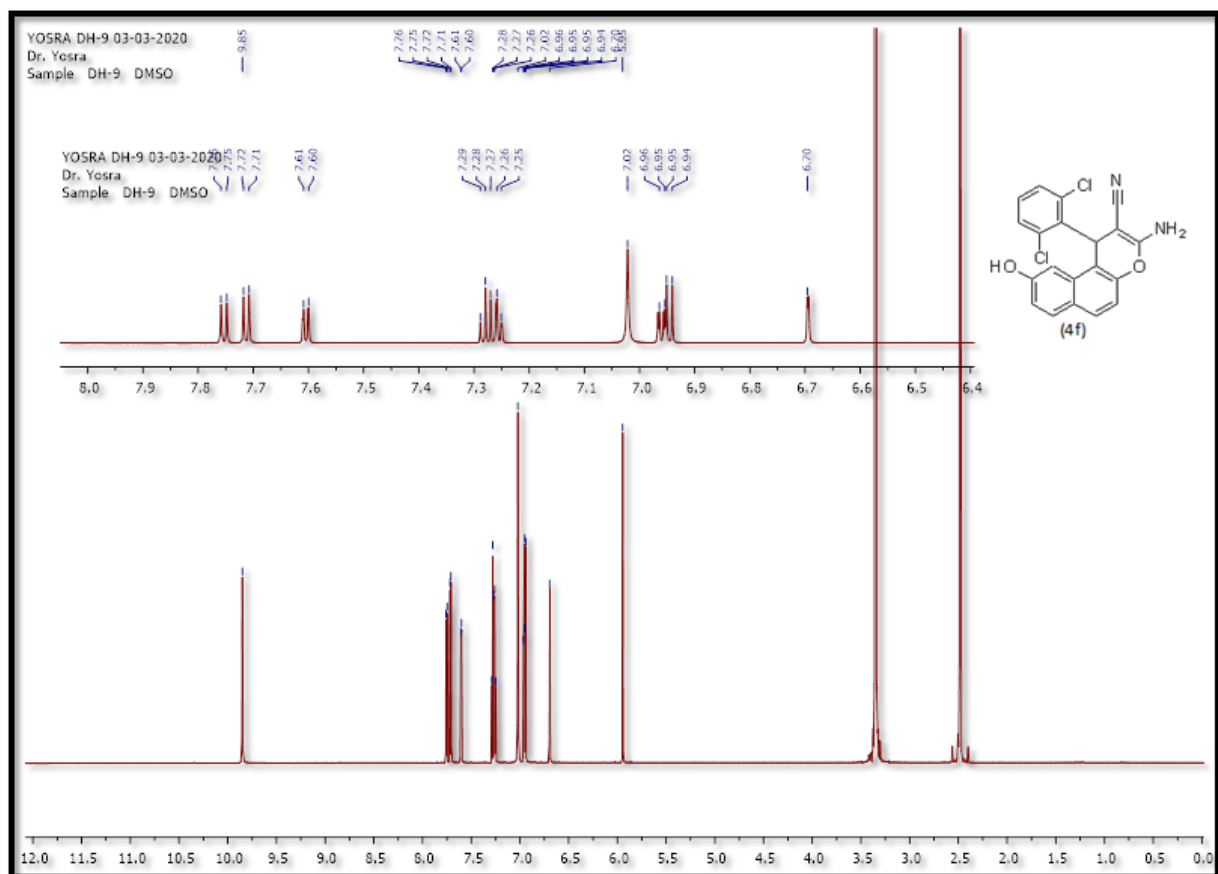


Figure S51: ^1H NMR of cpd. (4f).

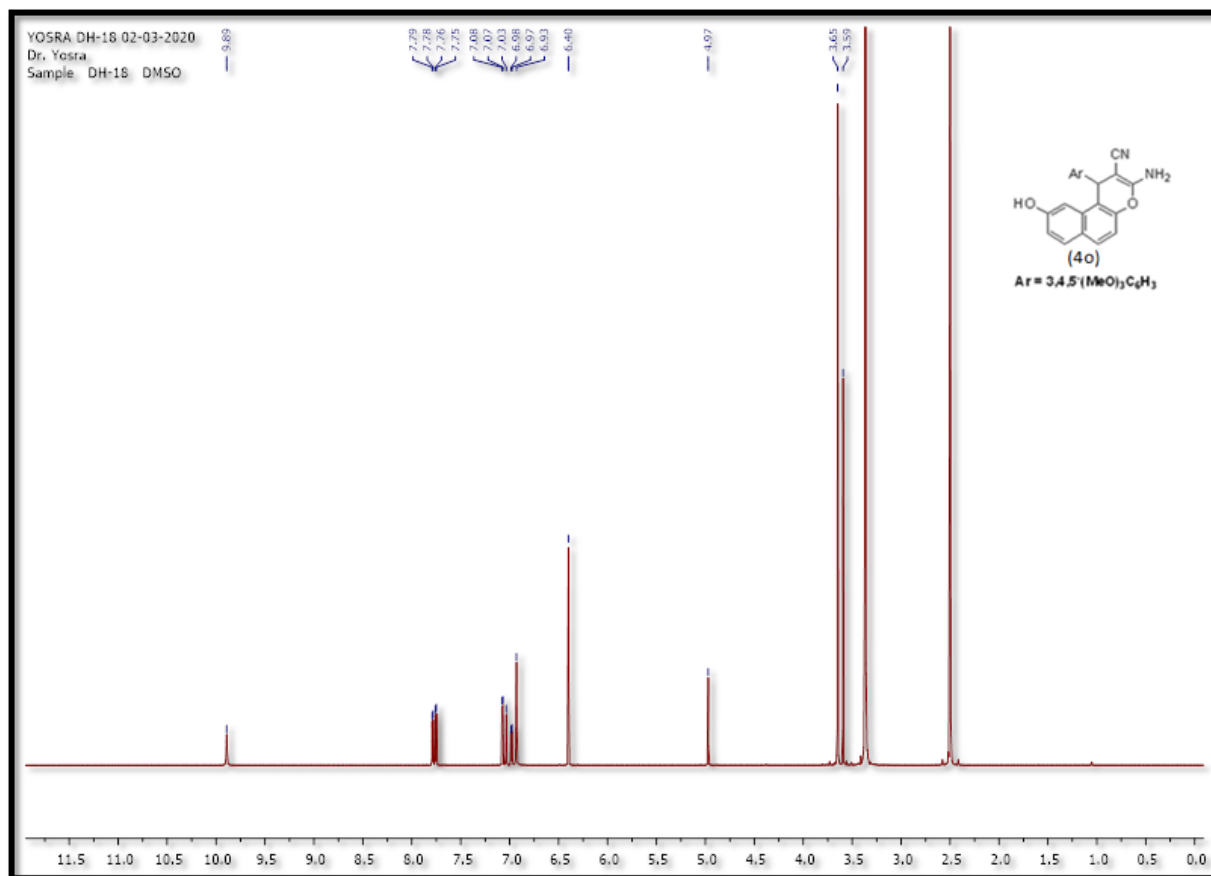
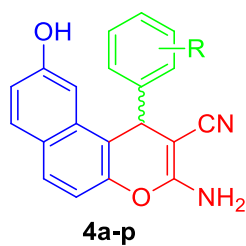


Figure S52: ^1H NMR of cpd. (4o).

Table S1: The optimization Microwave irradiation condition for Synthesis of **4a-p**.



Cpd.	R	yield (%) ^a	yield (%) ^b	yield (%) ^c
4a	2,4-F ₂	56	75	88
4b	2,6-F ₂	77	81	85
4c	2,3-Cl ₂	76	83	89
4d	2,4-Cl ₂	74	85	88
4e	2,5-Cl ₂	79	81	84
4f	2,6-Cl ₂	63	83	84
4g	3,4-Cl ₂	66	76	83
4h	2-Cl-6-F	69	80	87
4i	3,5-Br ₂	59	83	86
4j	2-HO-3-MeO	72	76	83
4k	2,4-(MeO) ₂	62	84	90
4l	3,4-(MeO) ₂	76	78	89
4m	2,3,4-(MeO) ₃	78	80	90
4n	2,4,5-(MeO) ₃	73	76	87
4o	3,4,5-(MeO) ₃	64	80	89
4p	2,3,4,5,6-F ₅	65	77	79

a: 200 W/ 1 min.; b: 300 W/ 1.5 min.; c: 400 W/2 min.