Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

A Direct Greener Route towards the Synthesis of 2-Aroyl-3,5-diarylthiophenes from 1,5-Diketones

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General procedure

Synthesis of 1,3,5-triarylpentan-1,5-diones (3): A mixture of chalcone **1** (1.0 equiv.), aryl methyl ketone **2** (1.0 equiv.) and powdered sodium hydroxide (2.0 equiv.) was crushed together for twenty minutes using a pestle and mortar. The mixture got solidified and the completion of the reaction was monitored by TLC chromatography using petroleum ether : ethyl acetate mixture (4:1) as eluent. After the completion of the reaction, the reaction mass was washed with water to remove the sodium hydroxide to give the corresponding 1,3,5-triarylpentan-1,5-diones. The product was further purified by recrystallization from ethanol to give colorless crystals.

Synthesis of 3,5-diaryl-2-aroylthiophene 4: A mixture of 1,3,5-triarylpentane-1,5-dione **3** (1.0 equiv.), morpholine (2.0 equiv.) and elemental sulfur (1.1 equiv.) was taken in a 10 ml quartz vial and placed in the microwave oven. The vial was sealed and subjected to microwave irradiation at 110 ^{o}C for 5 min. The reaction was monitored by TLC chromatography using petroleum ether : ethyl acetate mixture (4:1) as eluent. After the completion of the reaction, the reaction was cooled to room temperature and ice cooled water was added. The precipitate obtained was filtered, dried in vacuum and recrystallized from ethanol to afford **4**.

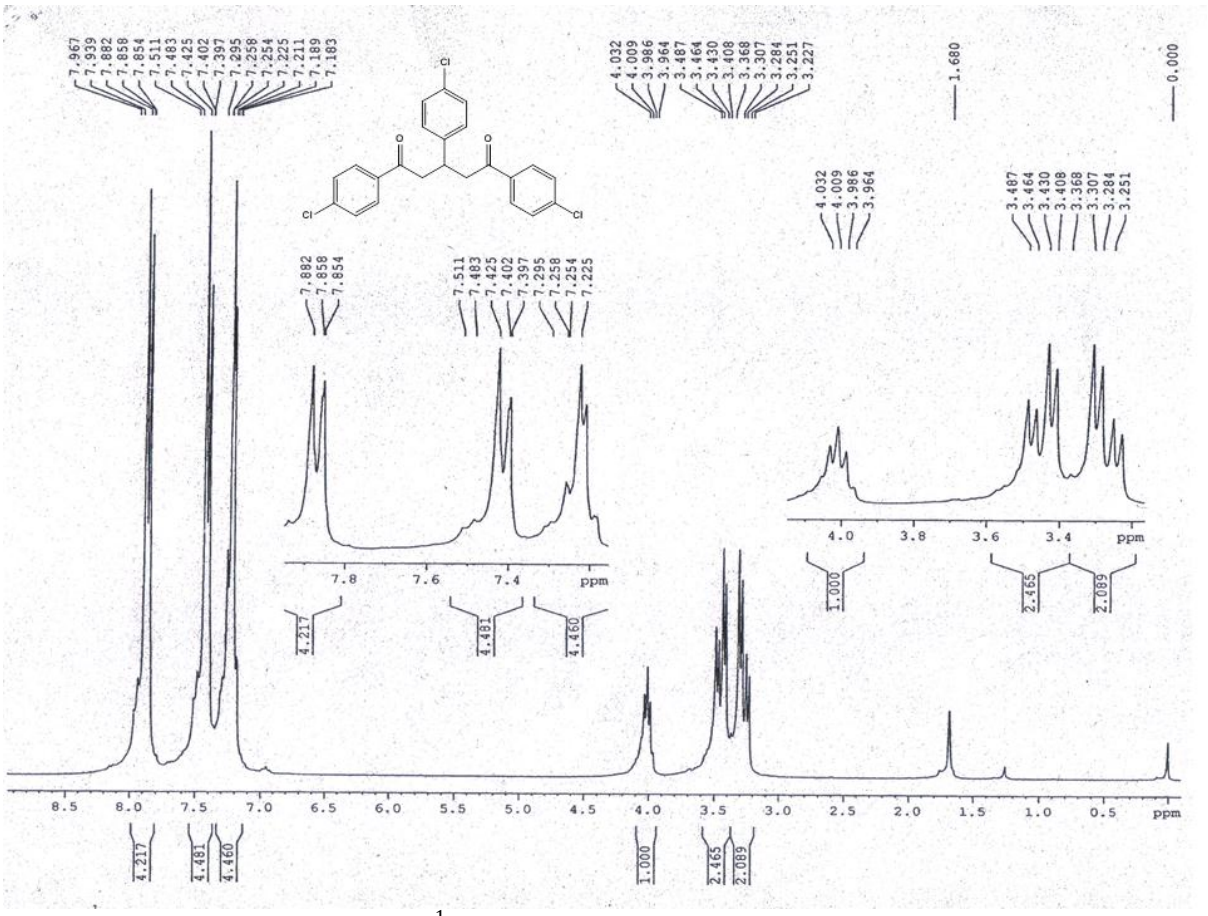

Figure 1. ^{1}H NMR Spectrum of compound **3a**

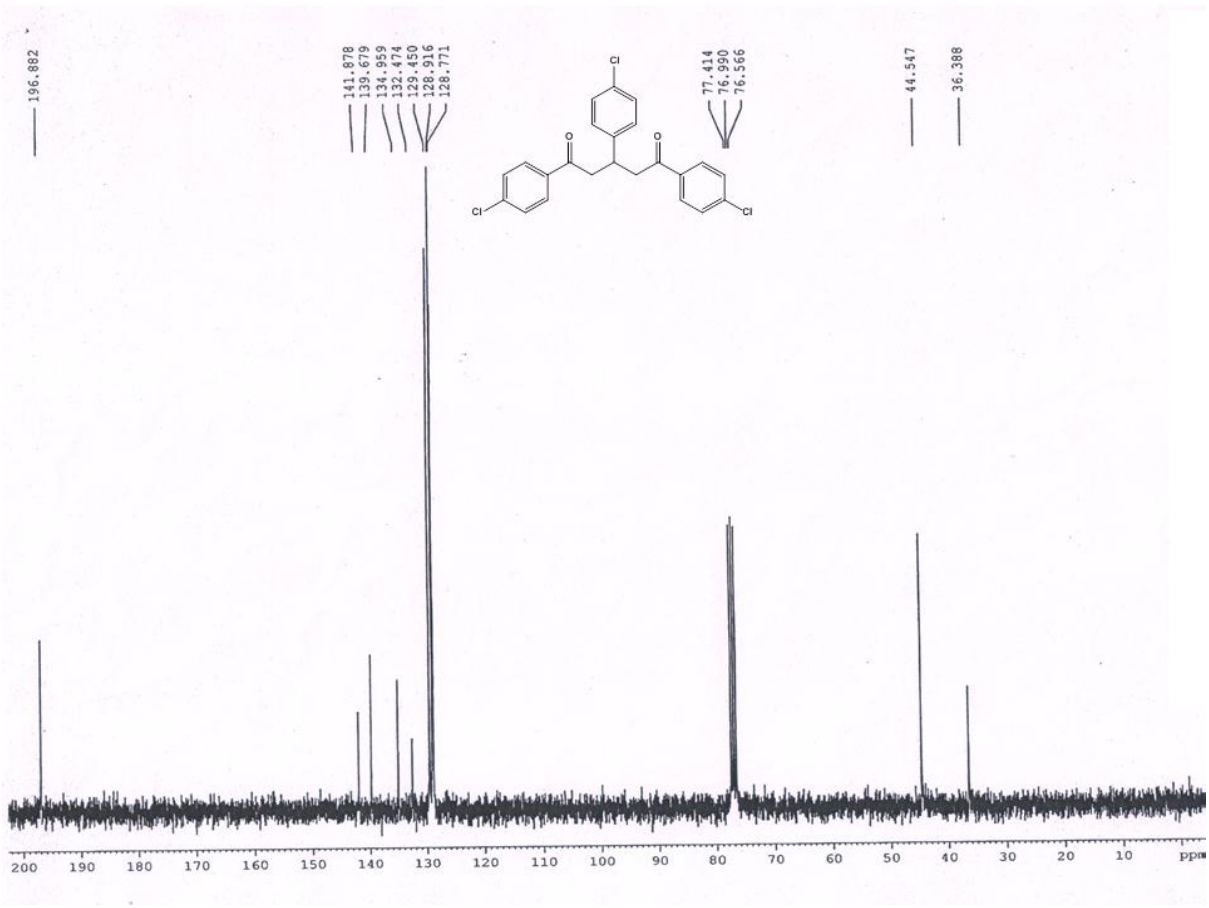

Figure 2. ^{13}C Spectrum of compound **3a**

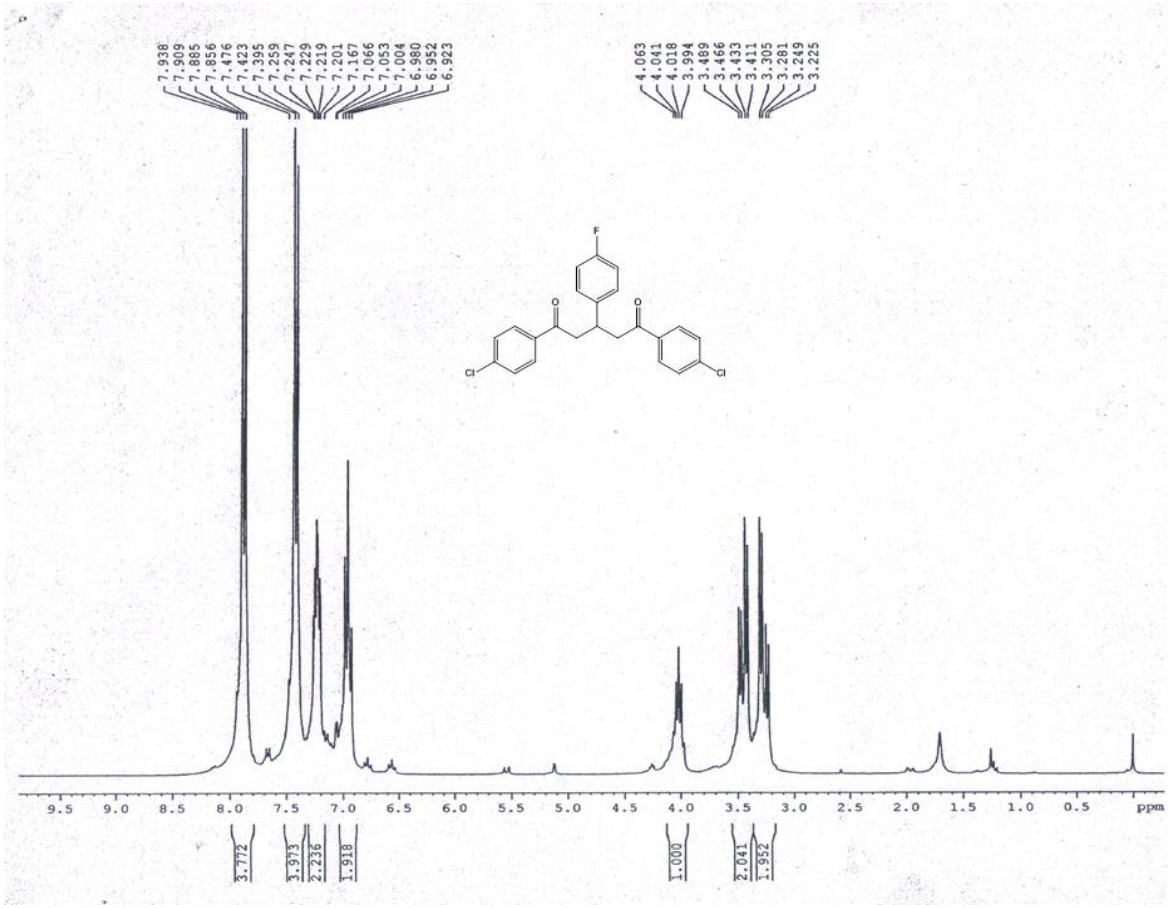

Figure 3. ^{1}H NMR Spectrum of compound **3b**

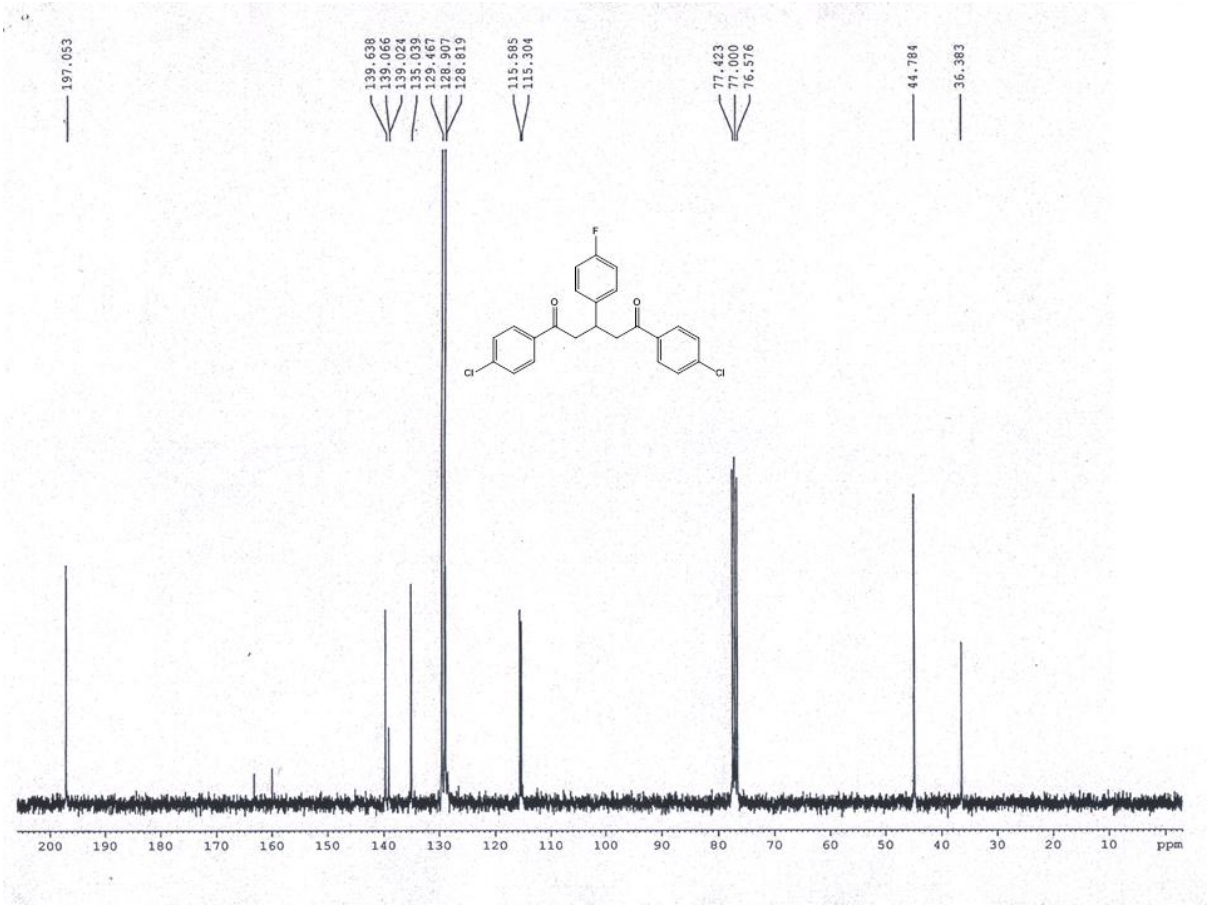

Figure 4. ^{13}C Spectrum of compound **3b**

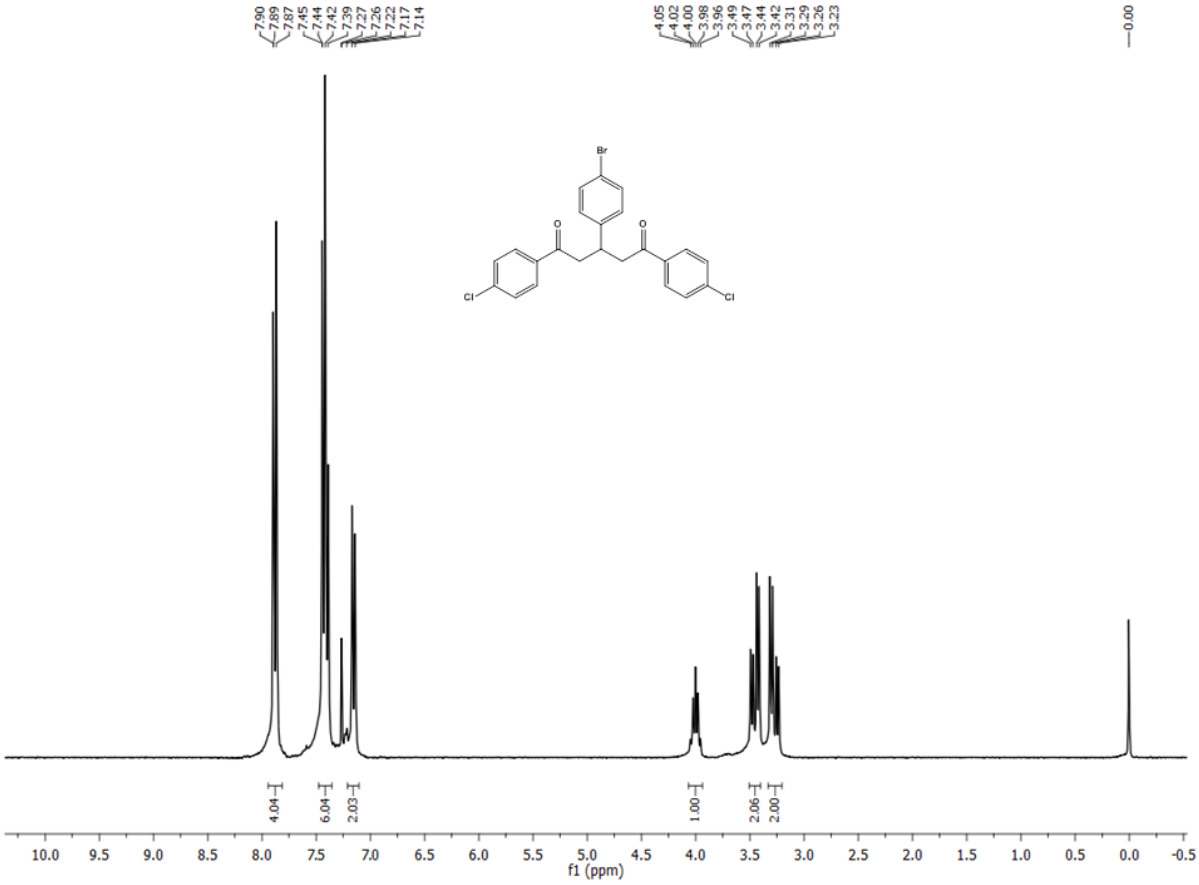

Figure 5. ^{1}H NMR Spectrum of compound **3c**

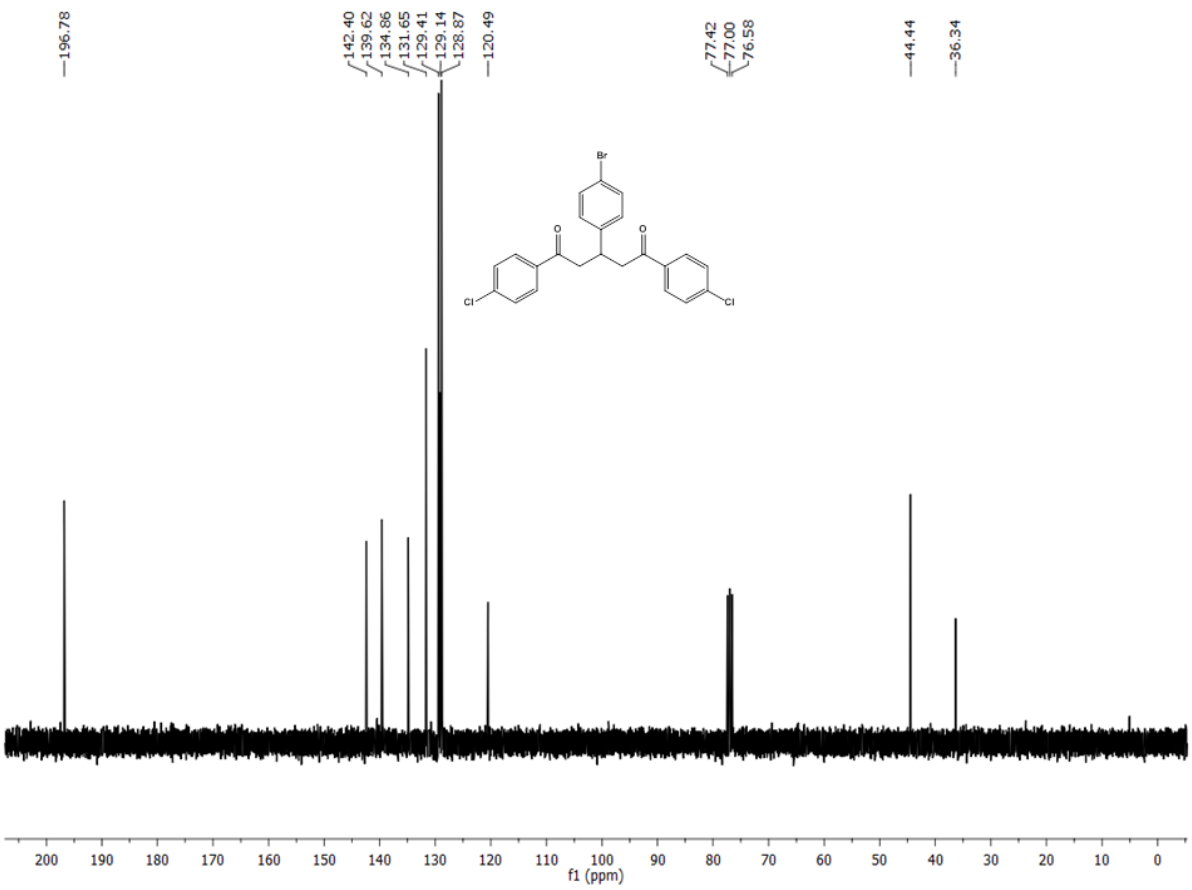

Figure 6. ^{13}C Spectrum of compound **3c**

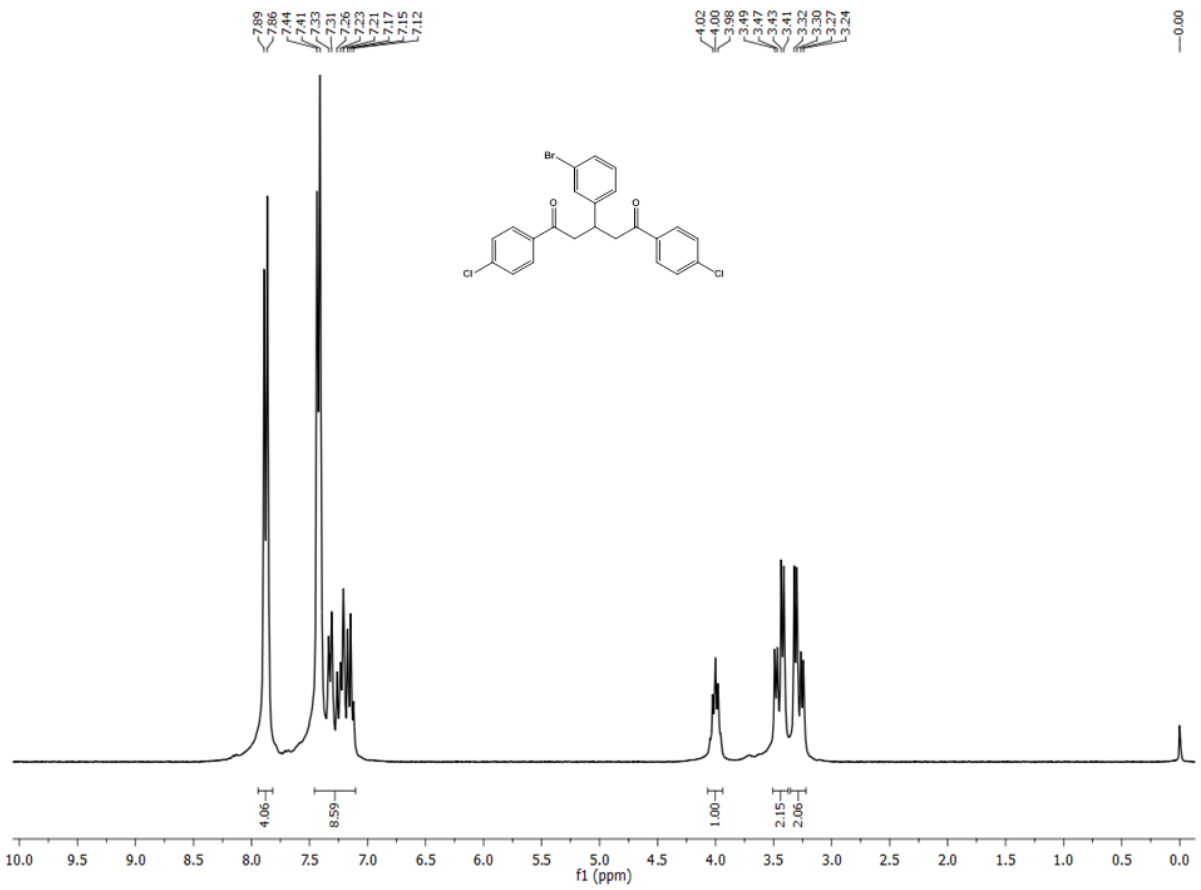

Figure 7. ^{1}H NMR Spectrum of compound **3d**

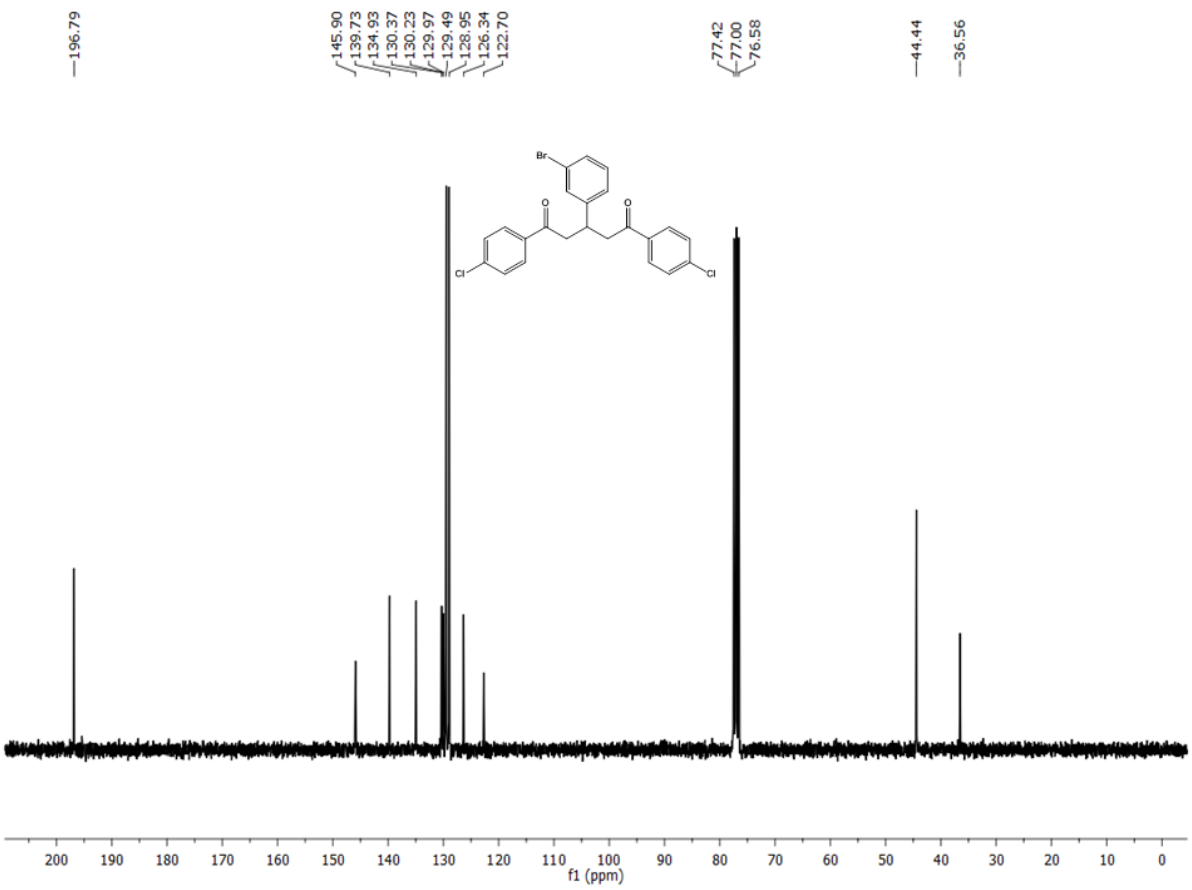

Figure 8. ^{13}C Spectrum of compound **3d**

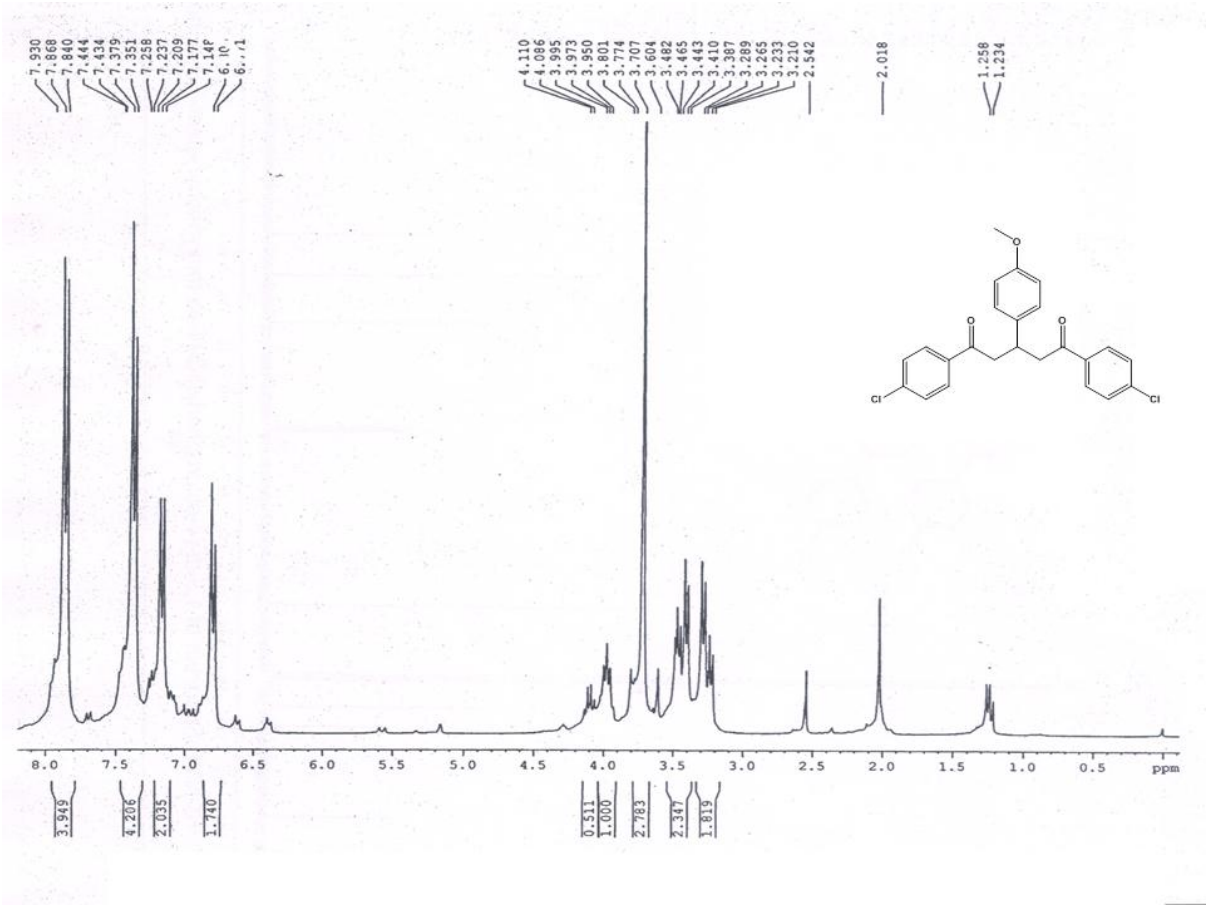

Figure 9. ^{1}H NMR Spectrum of compound **3e**

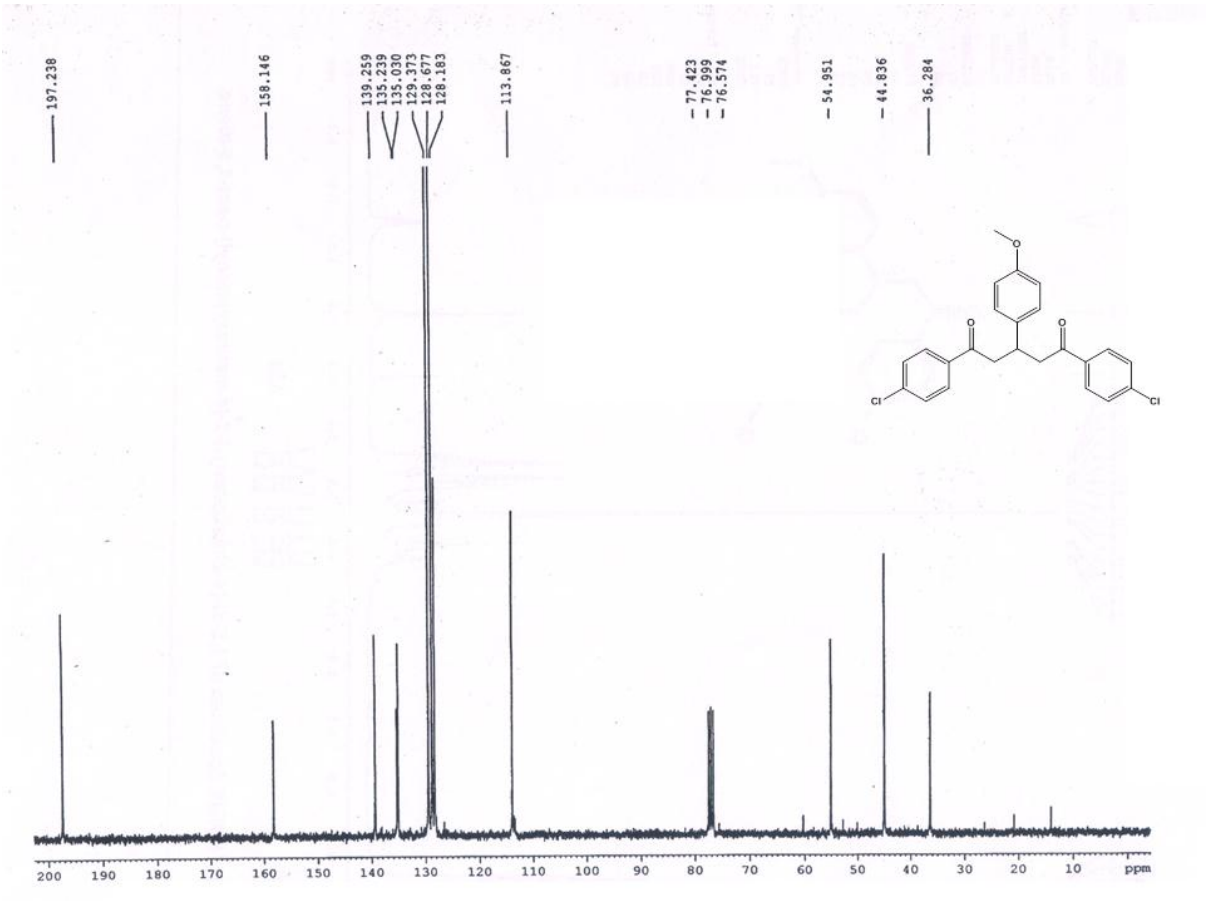

Figure 10. ^{13}C Spectrum of compound **3e**

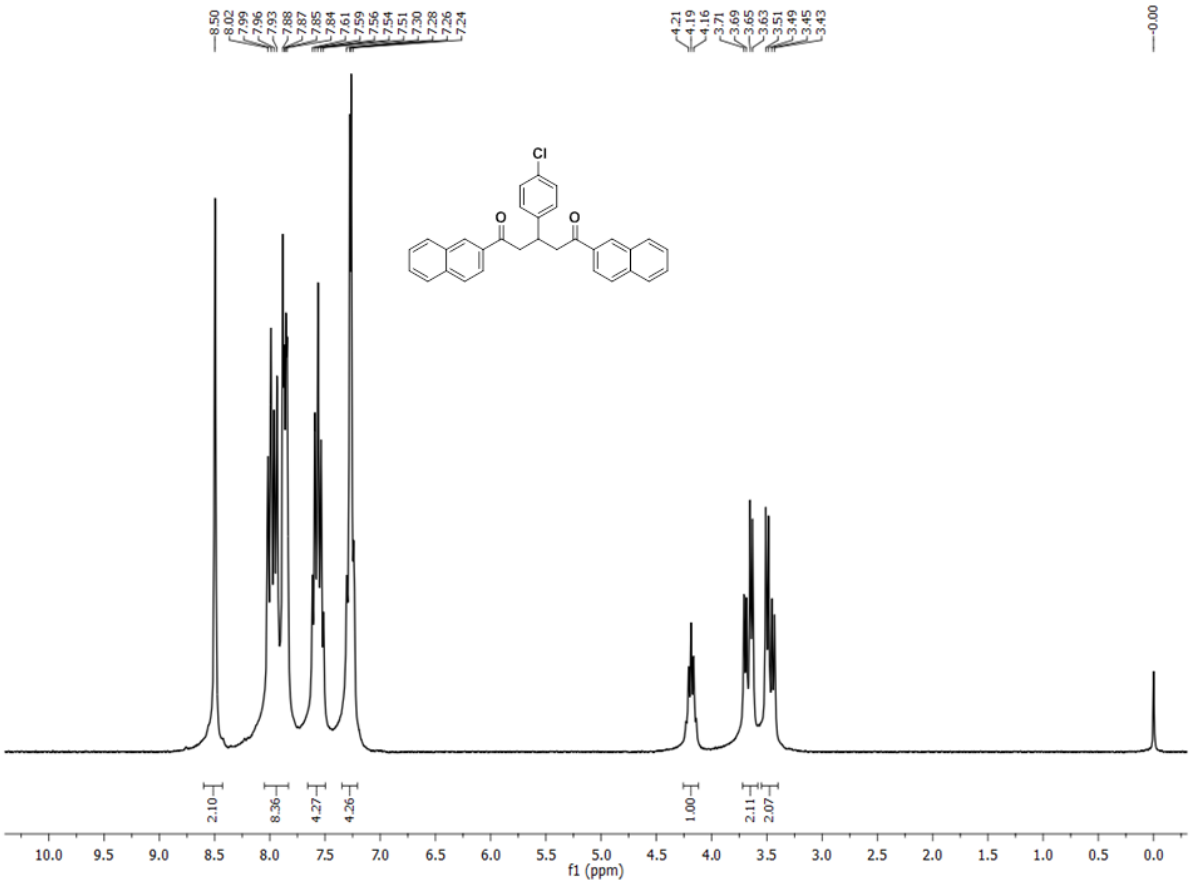

Figure 11. ^{1}H NMR Spectrum of compound **3m**

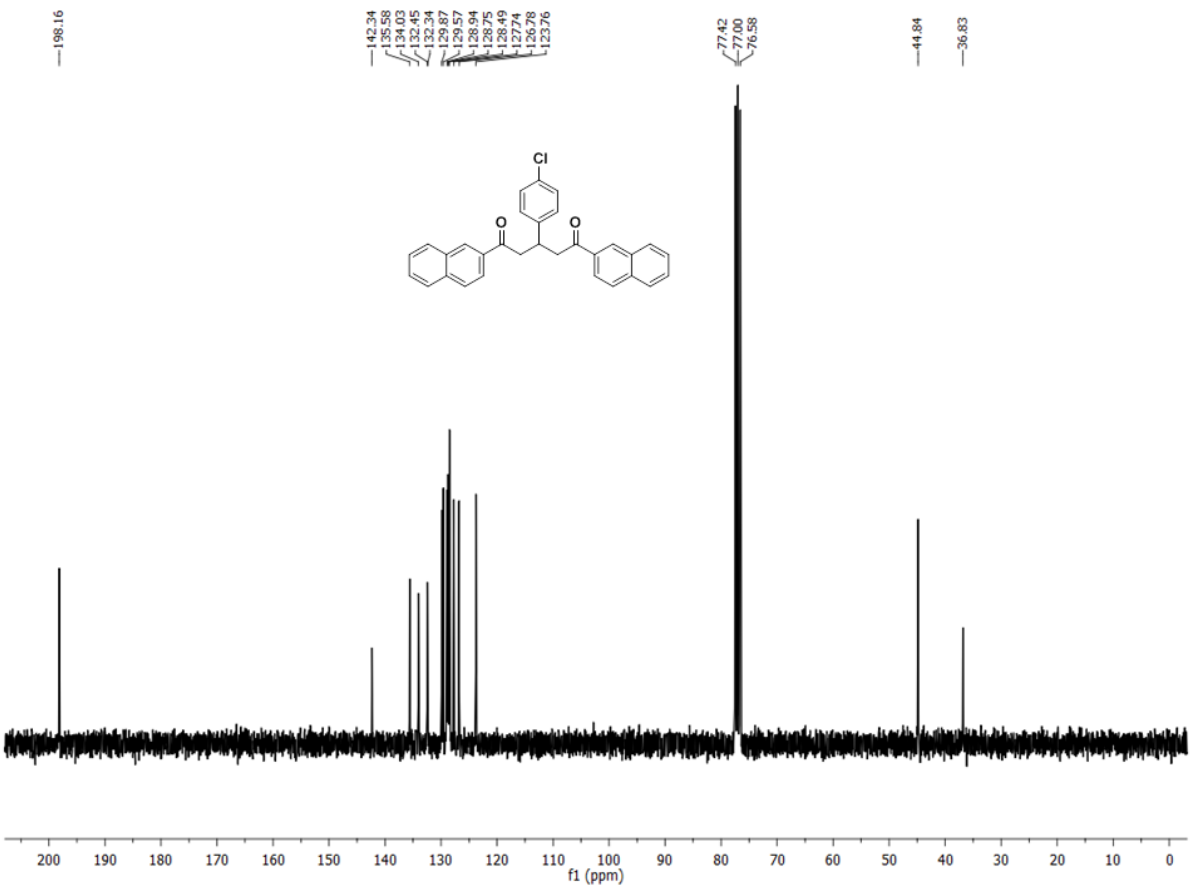

Figure 12. ^{13}C Spectrum of compound **3m**

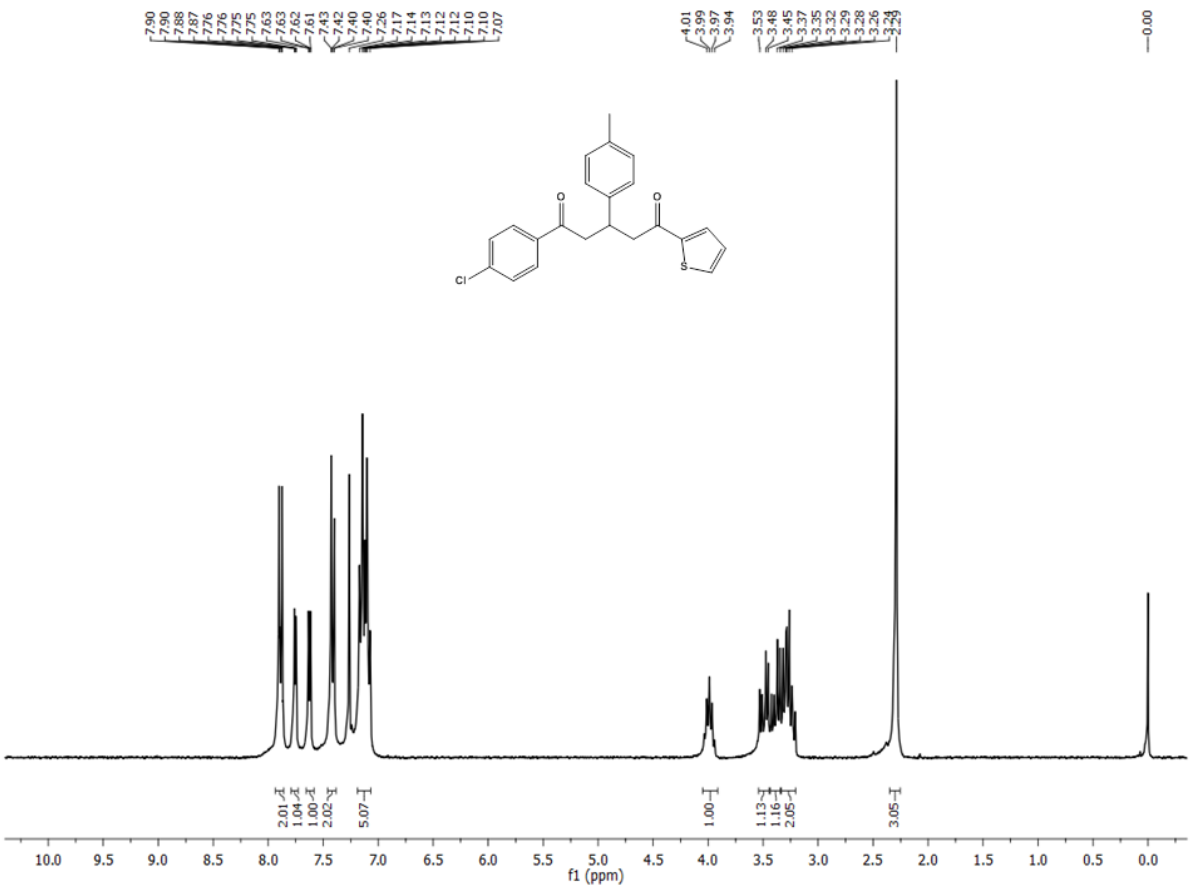

Figure 13. ^{1}H NMR Spectrum of compound **3n**

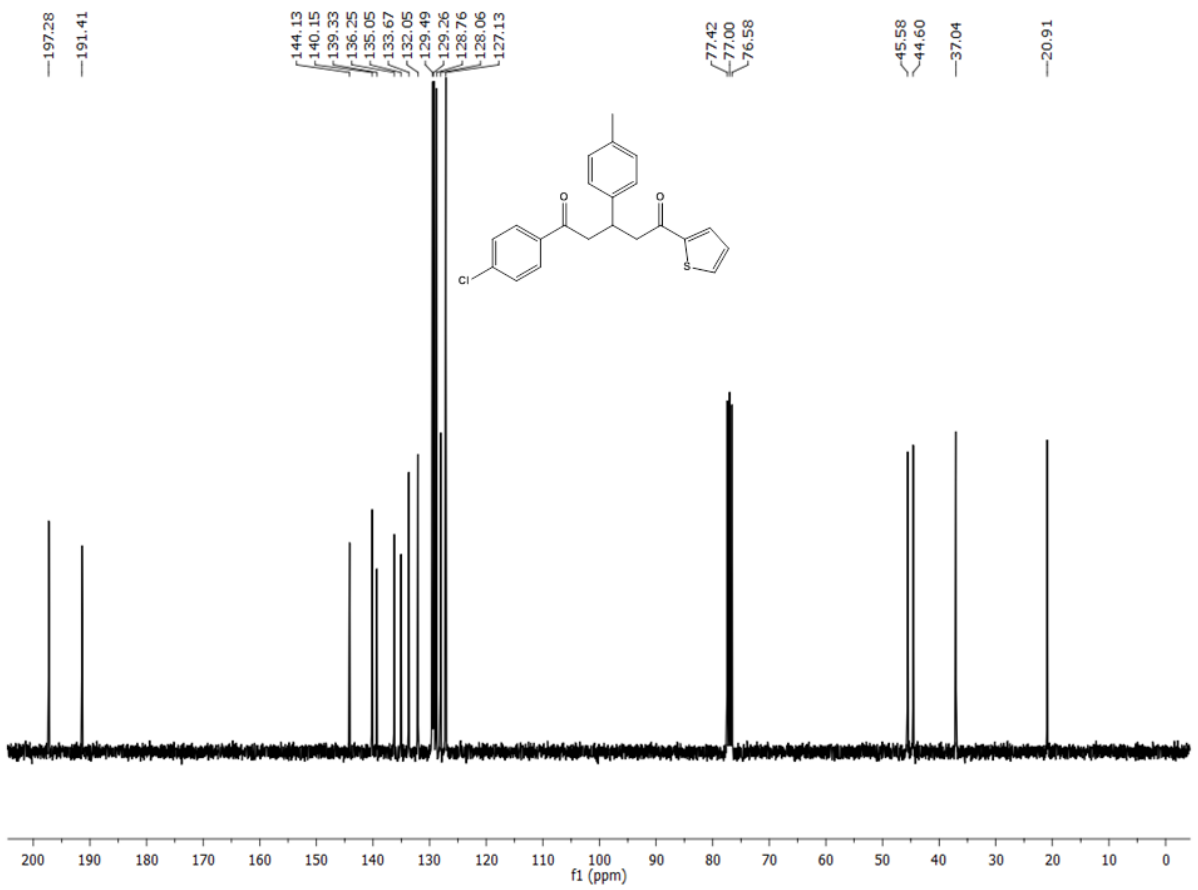

Figure 14. ^{13}C Spectrum of compound **3n**

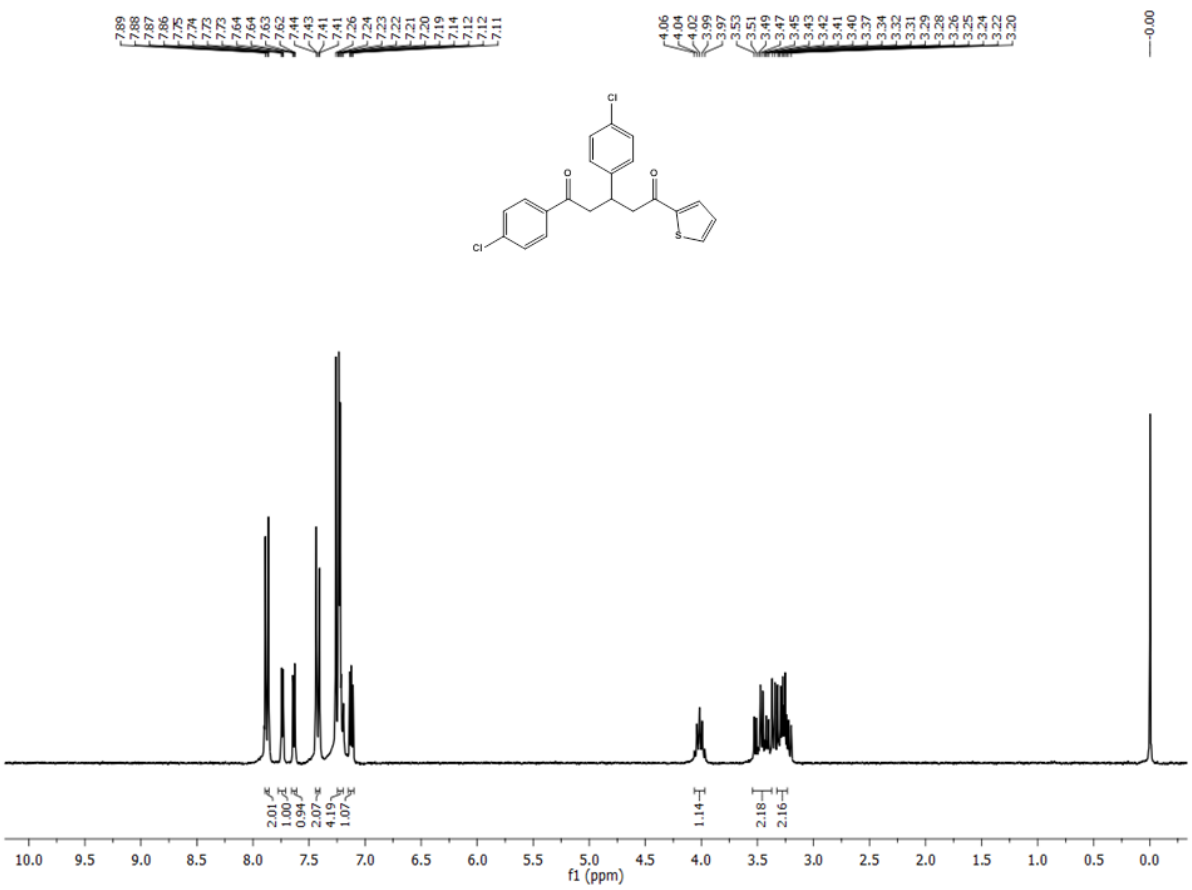

Figure 15. ^{1}H NMR Spectrum of compound **3o**

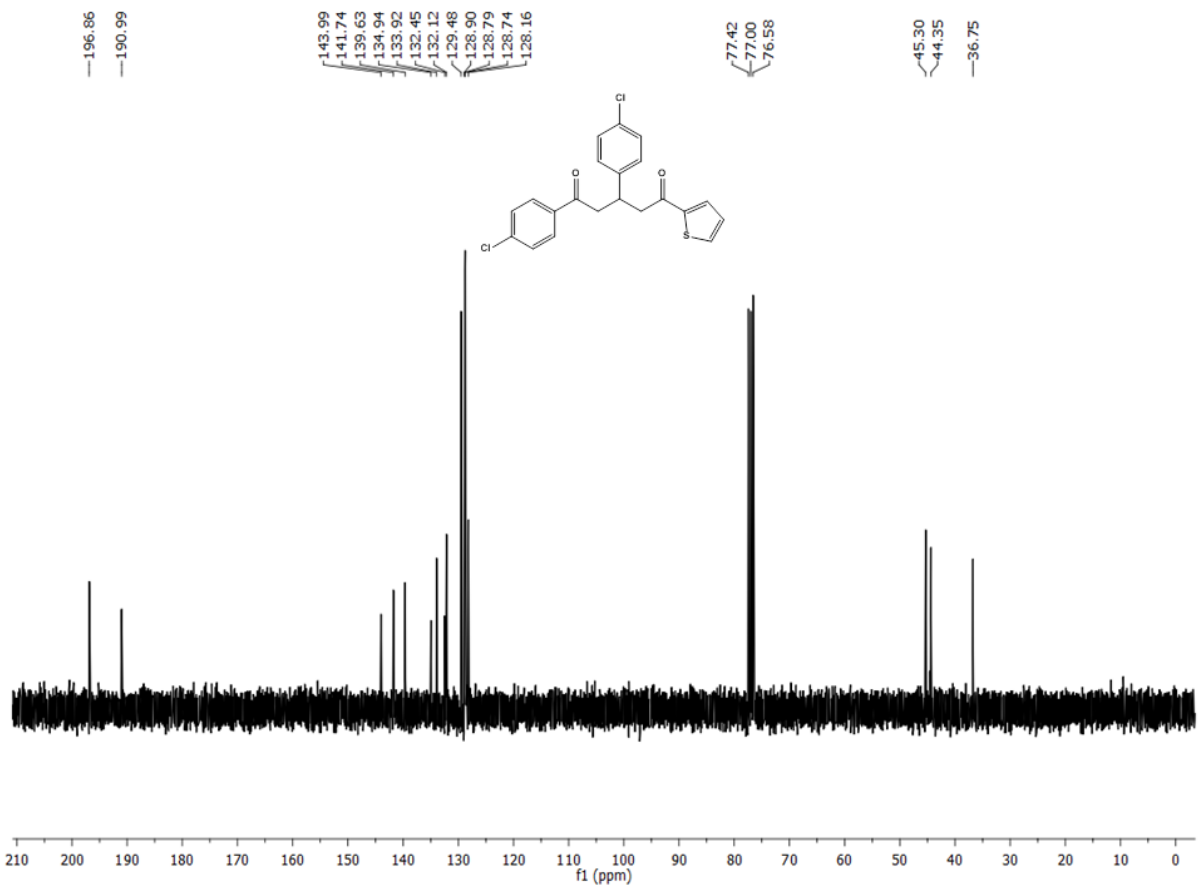

Figure 16. ^{13}C Spectrum of compound **3o**

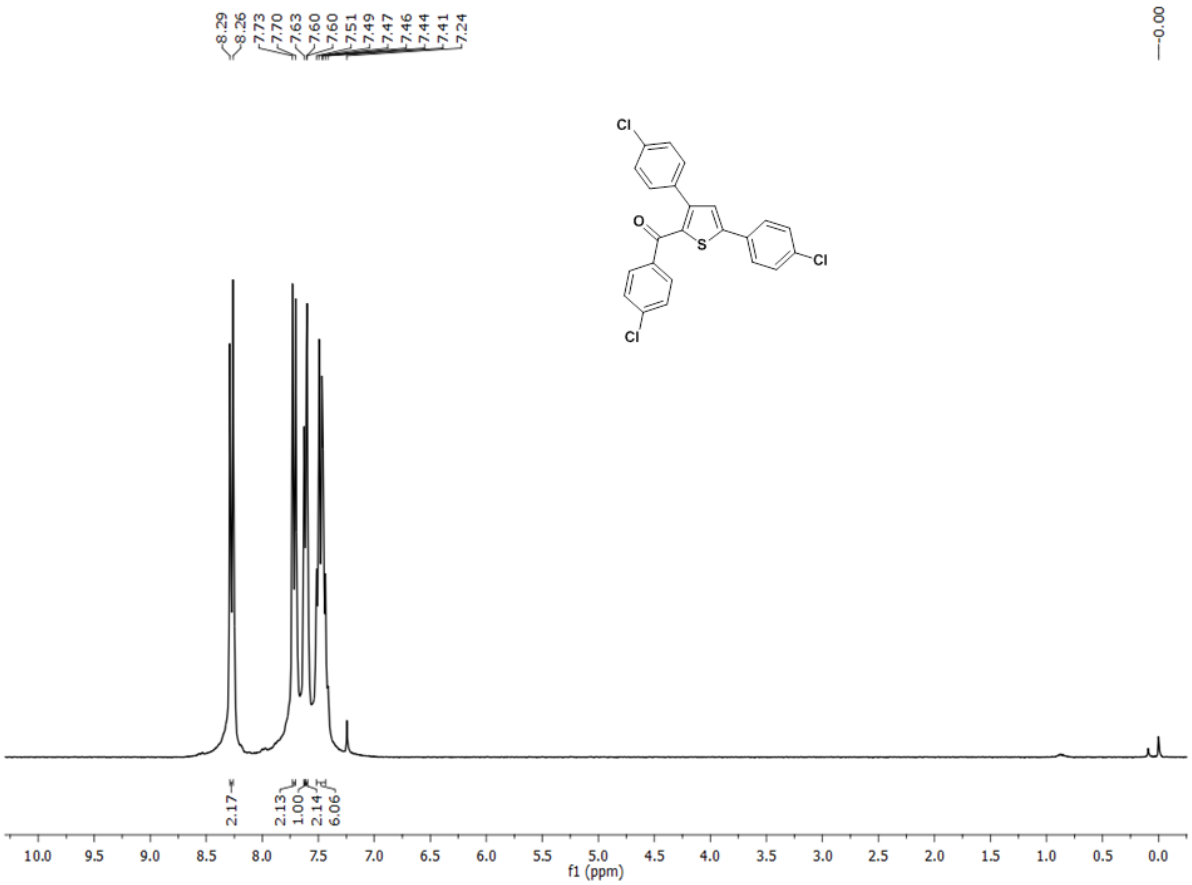

Figure 17. ^{1}H NMR Spectrum of compound **4a**

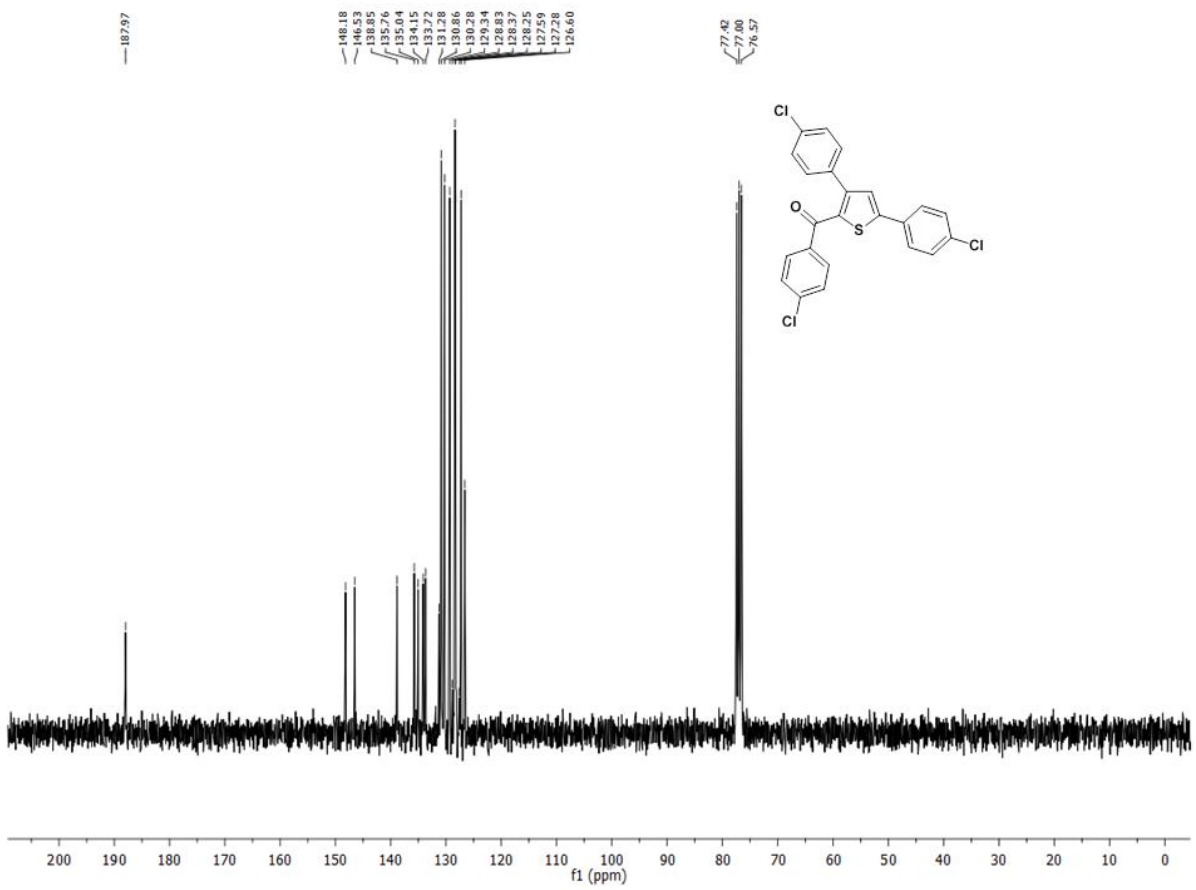

Figure 18. ^{13}C Spectrum of compound **4a**

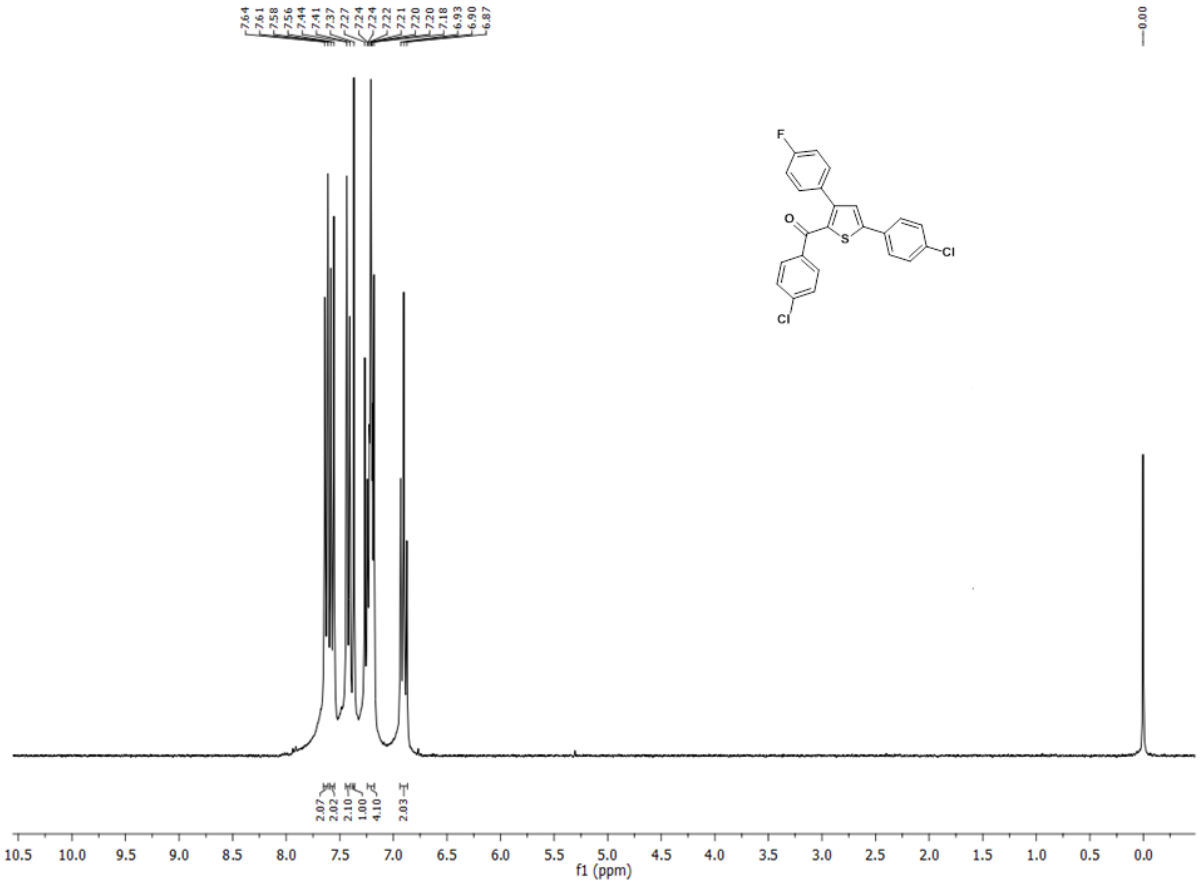

Figure 19. ^{1}H NMR Spectrum of compound **4b**

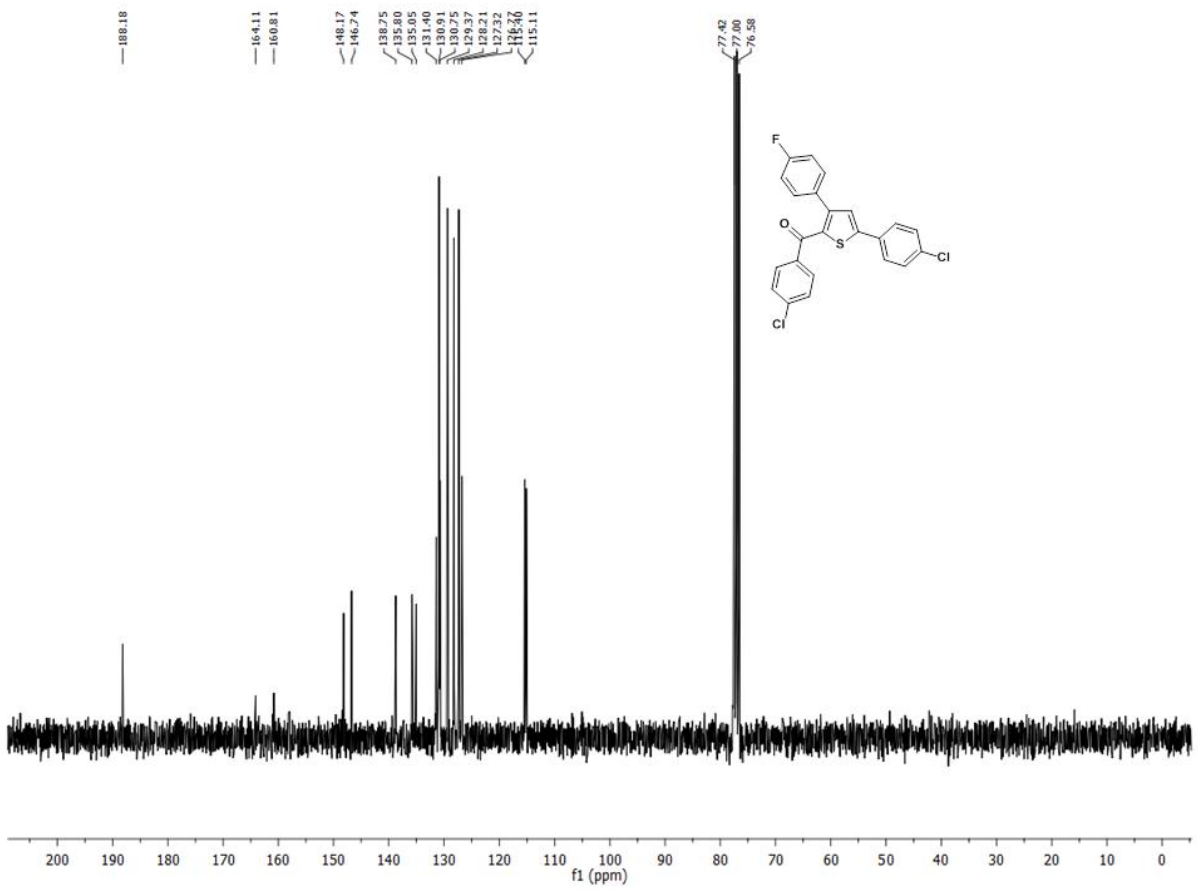

Figure 20. ^{13}C Spectrum of compound **4b**

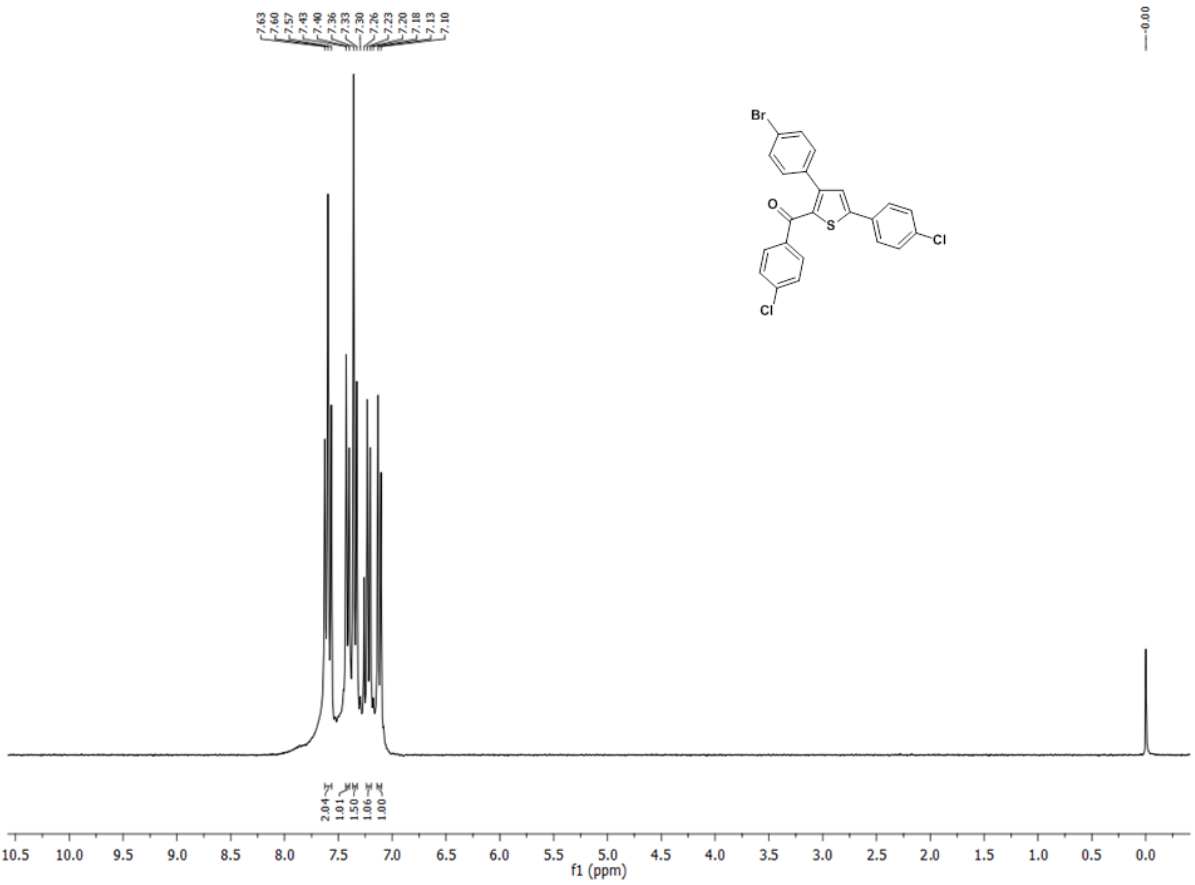

Figure 21. ^{1}H NMR Spectrum of compound **4c**

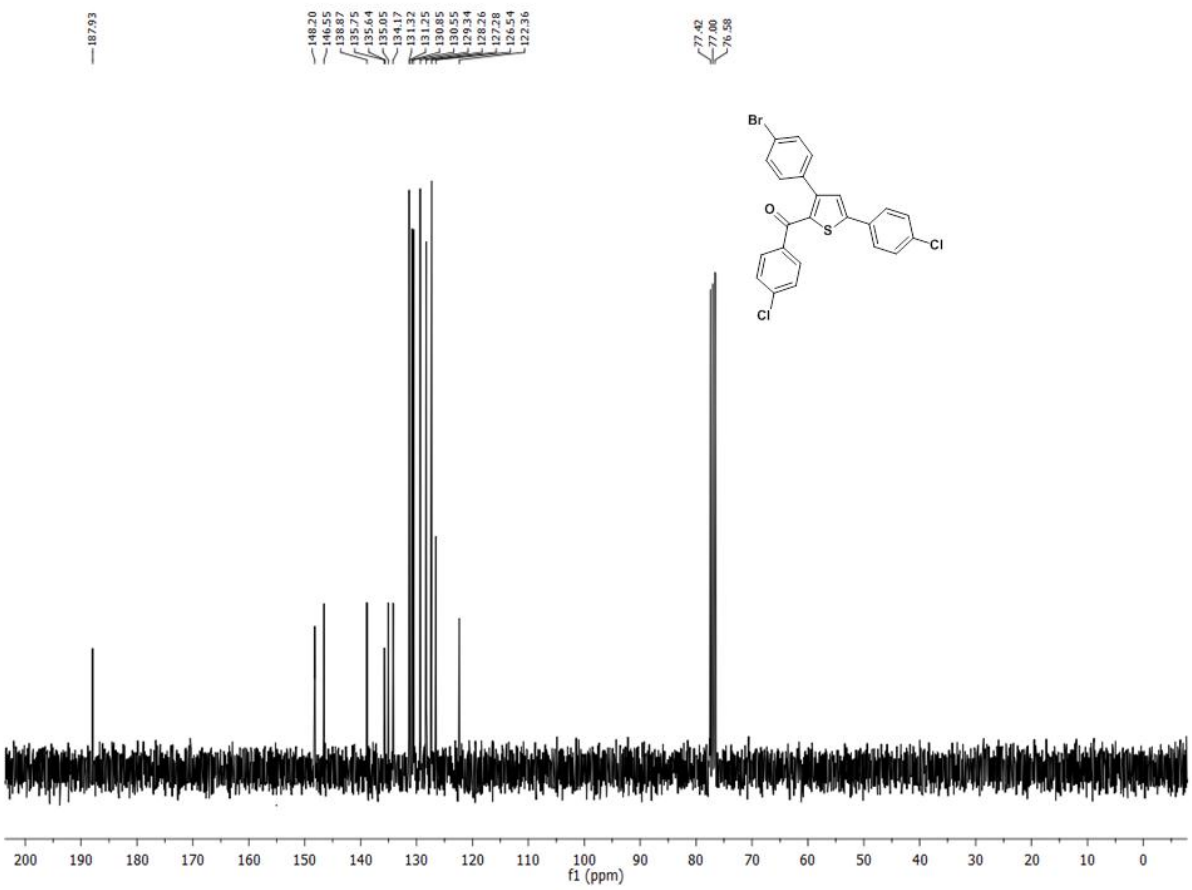

Figure 22. ^{13}C Spectrum of compound **4c**

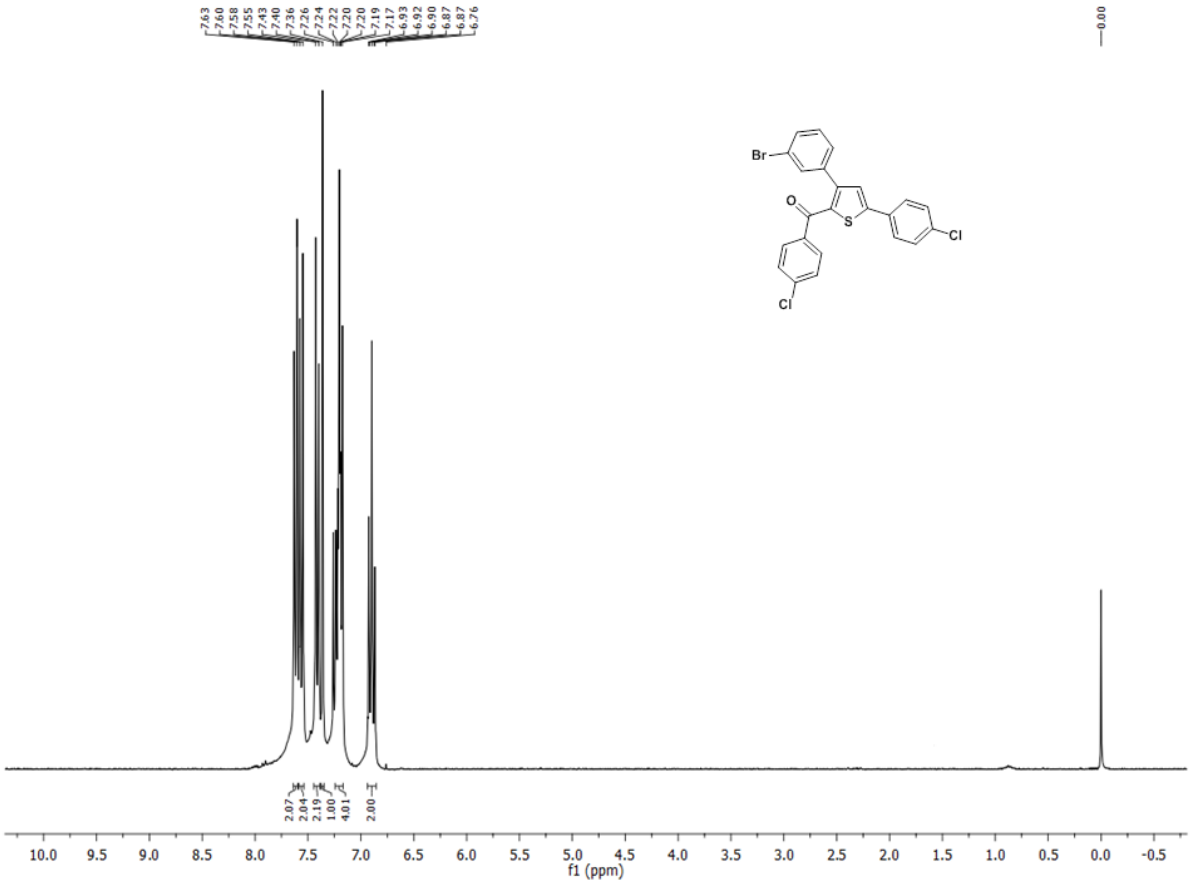

Figure 23. ^{1}H NMR Spectrum of compound **4d**

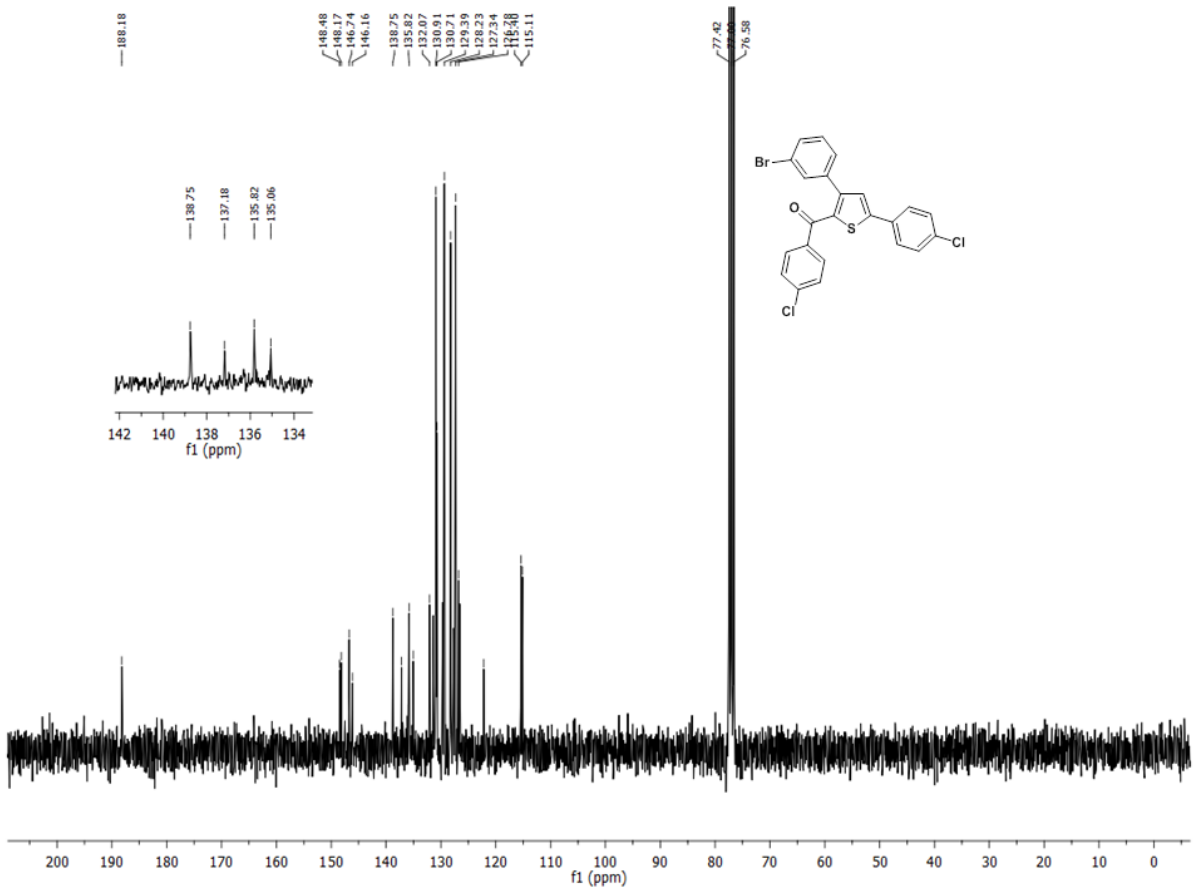

Figure 24. ^{13}C Spectrum of compound **4d**

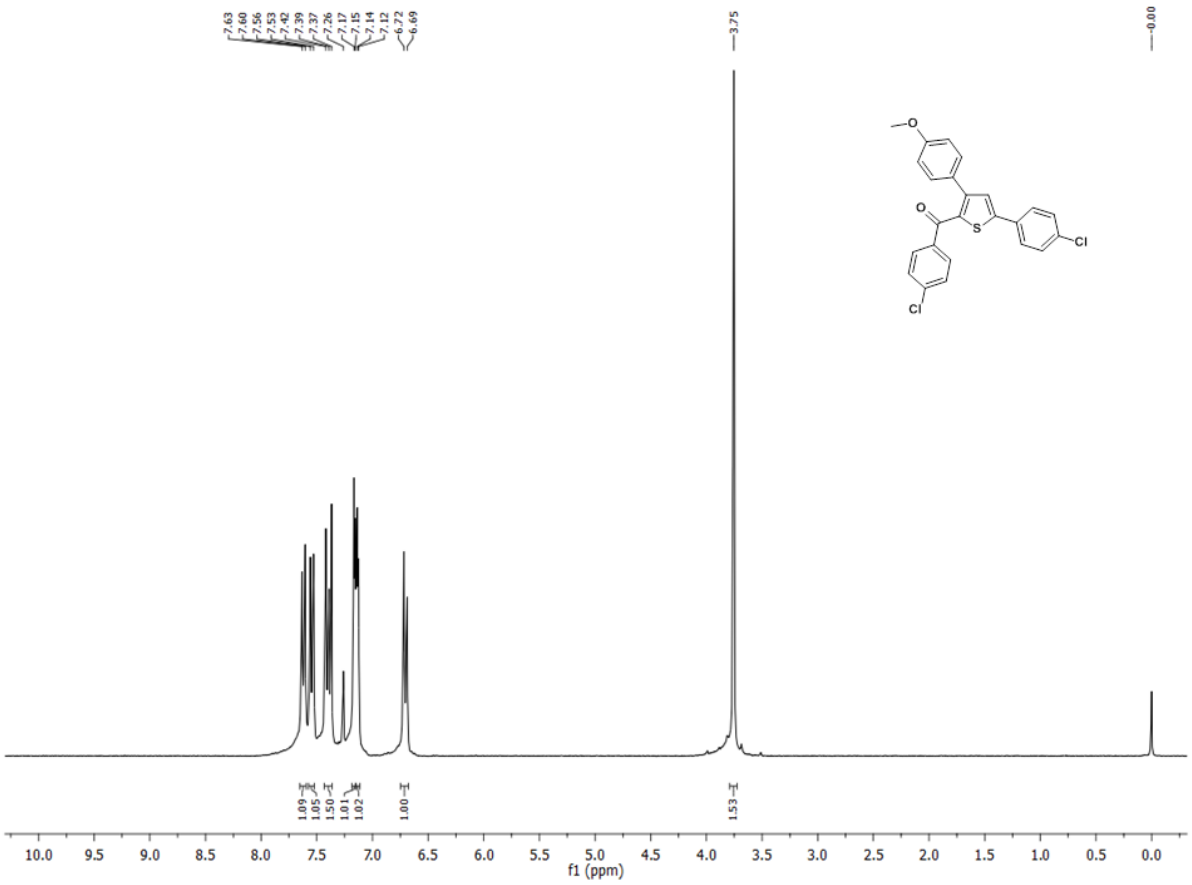

Figure 25. ^{1}H NMR Spectrum of compound **4e**

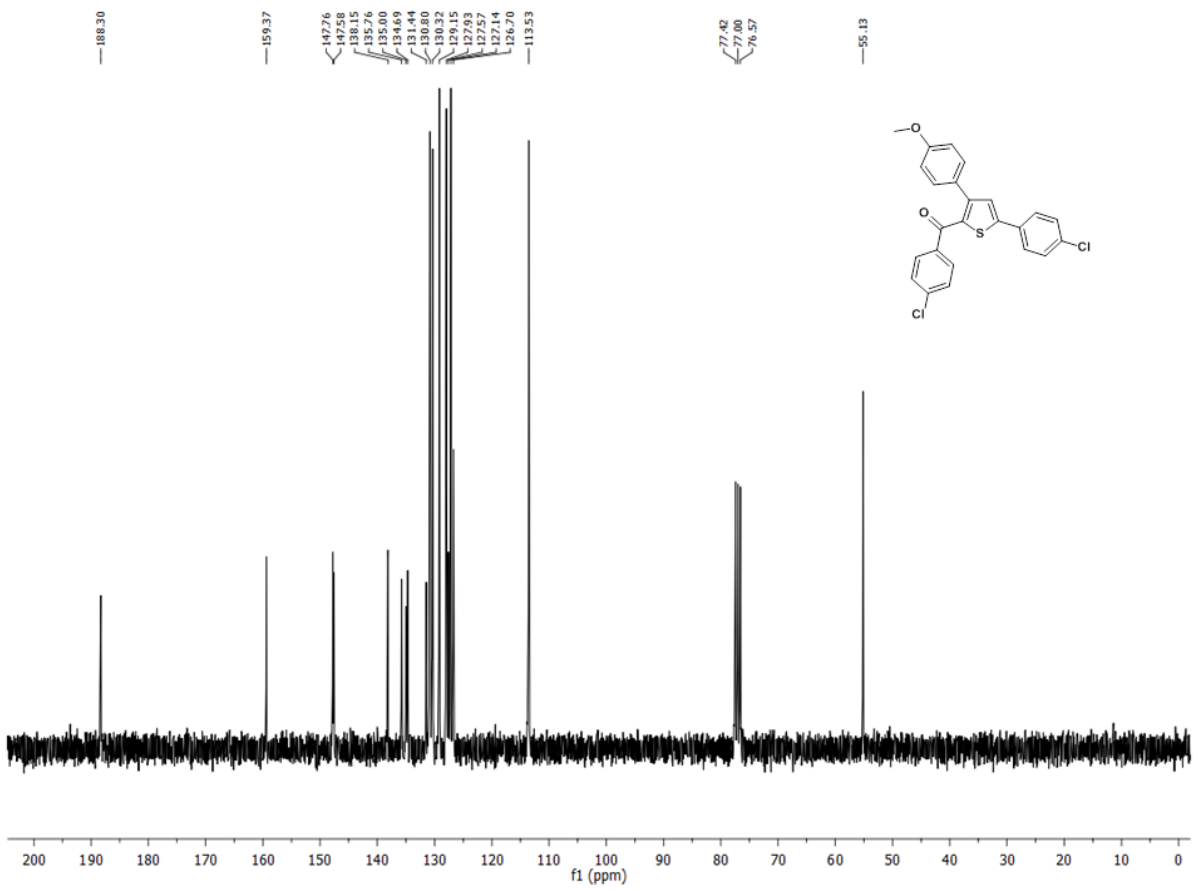

Figure 26. ^{13}C Spectrum of compound **4e**

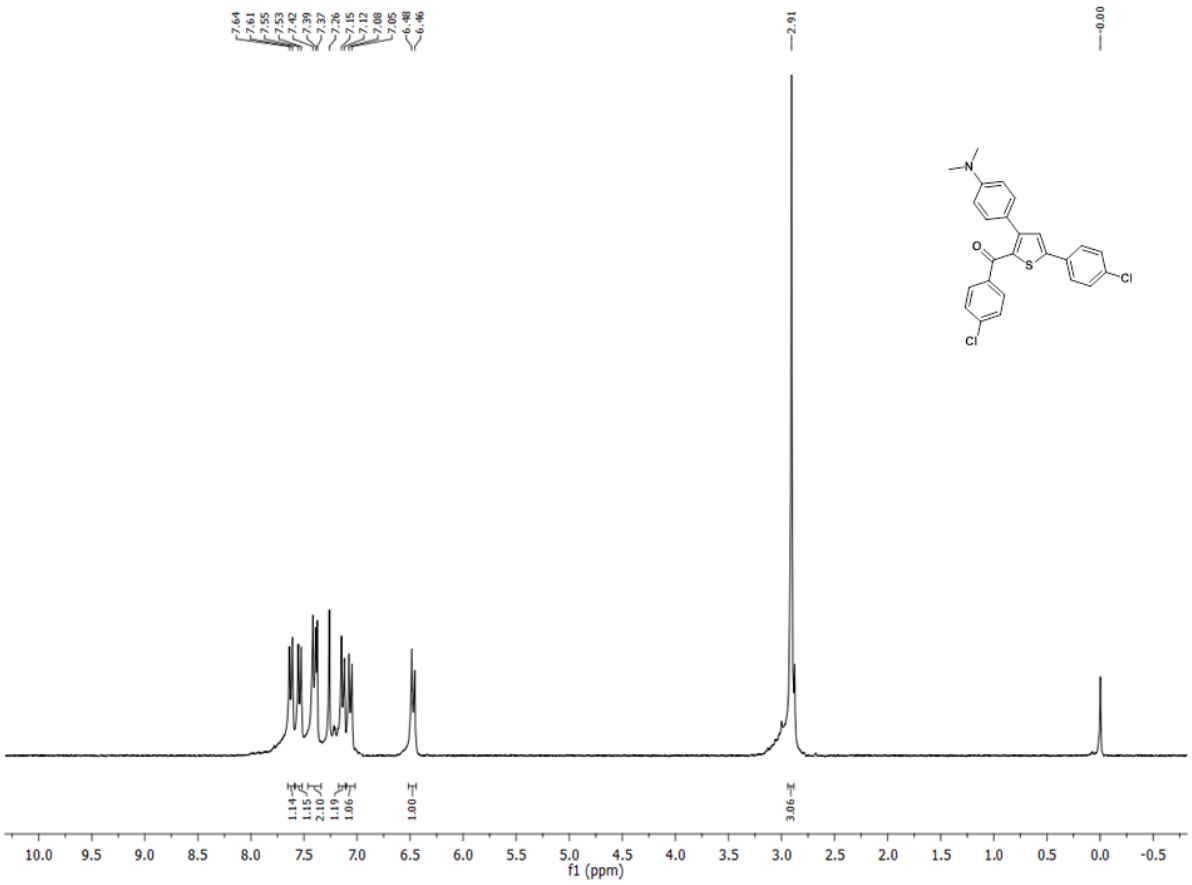

Figure 27. ^{1}H NMR Spectrum of compound **4f**

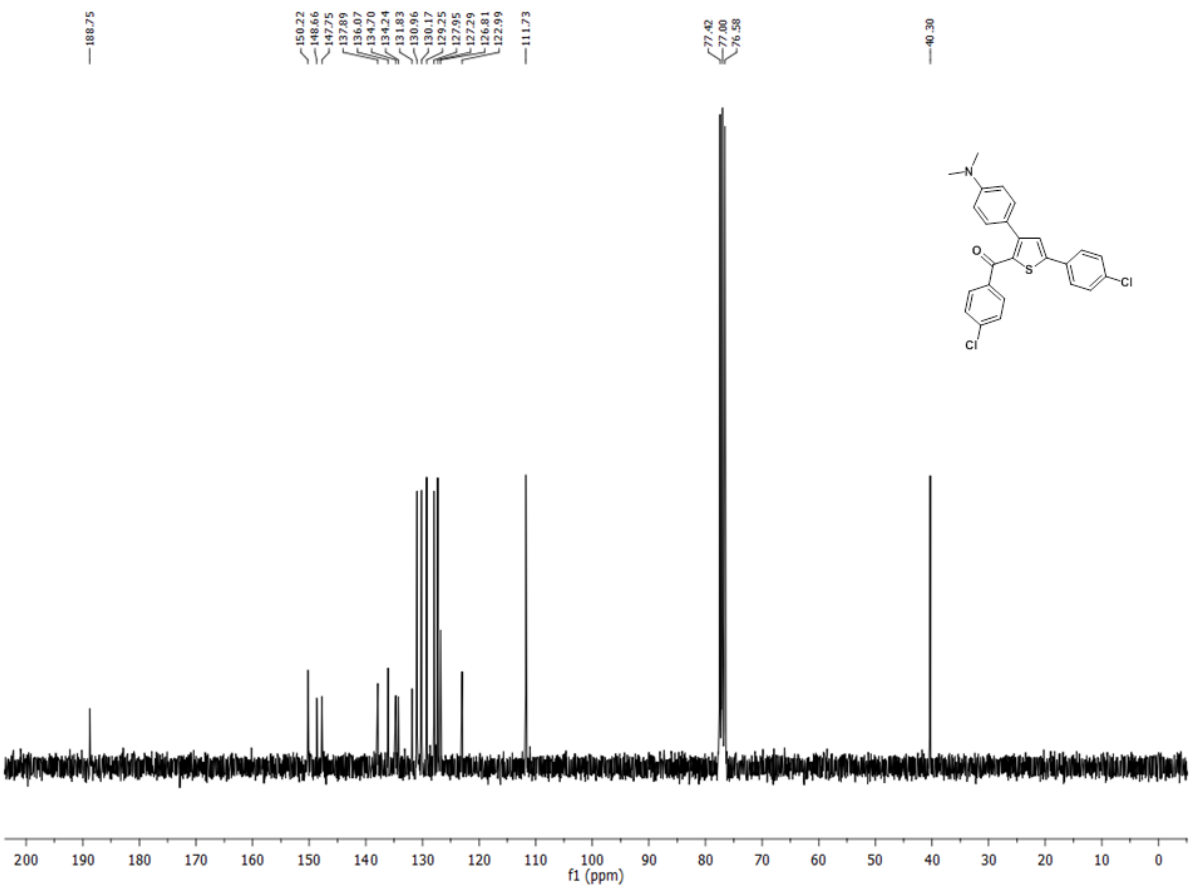

Figure 28. ^{13}C Spectrum of compound **4f**

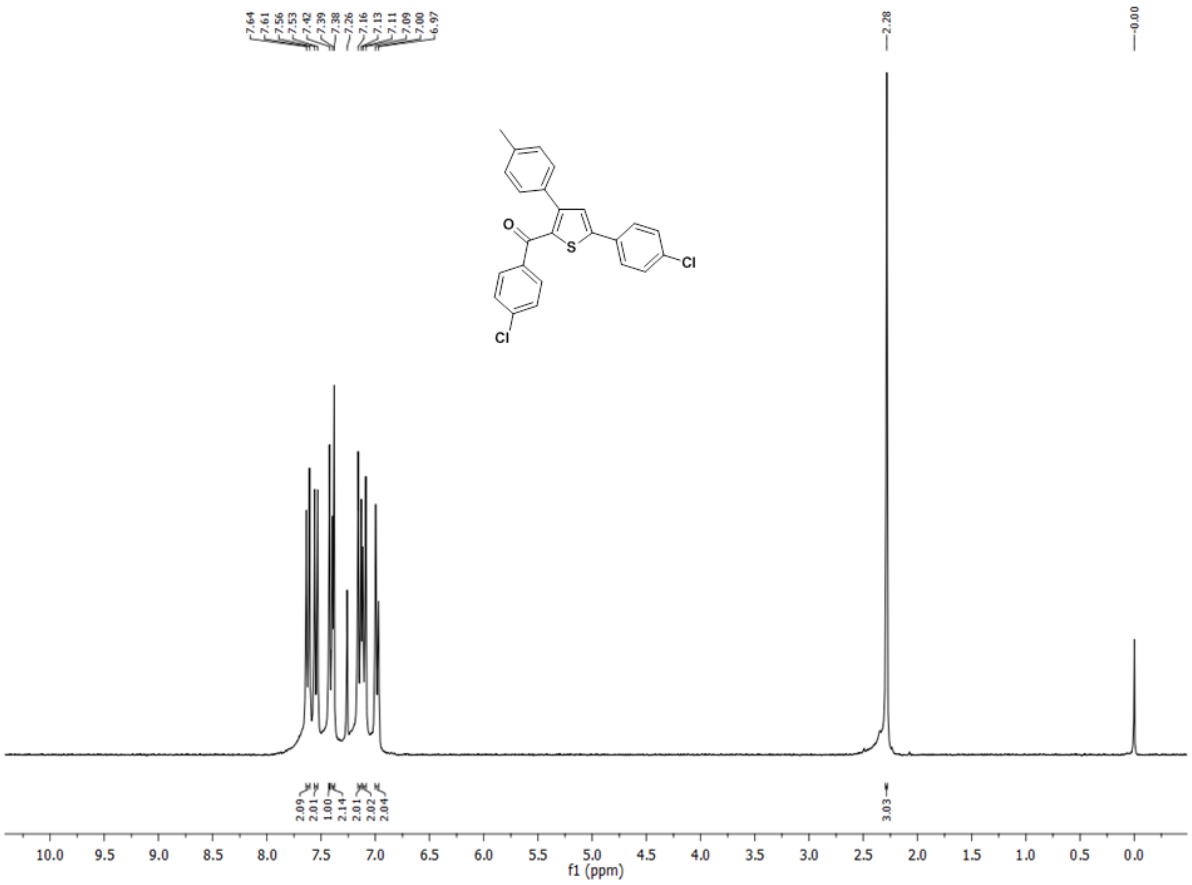

Figure 29. ^{1}H NMR Spectrum of compound **4g**

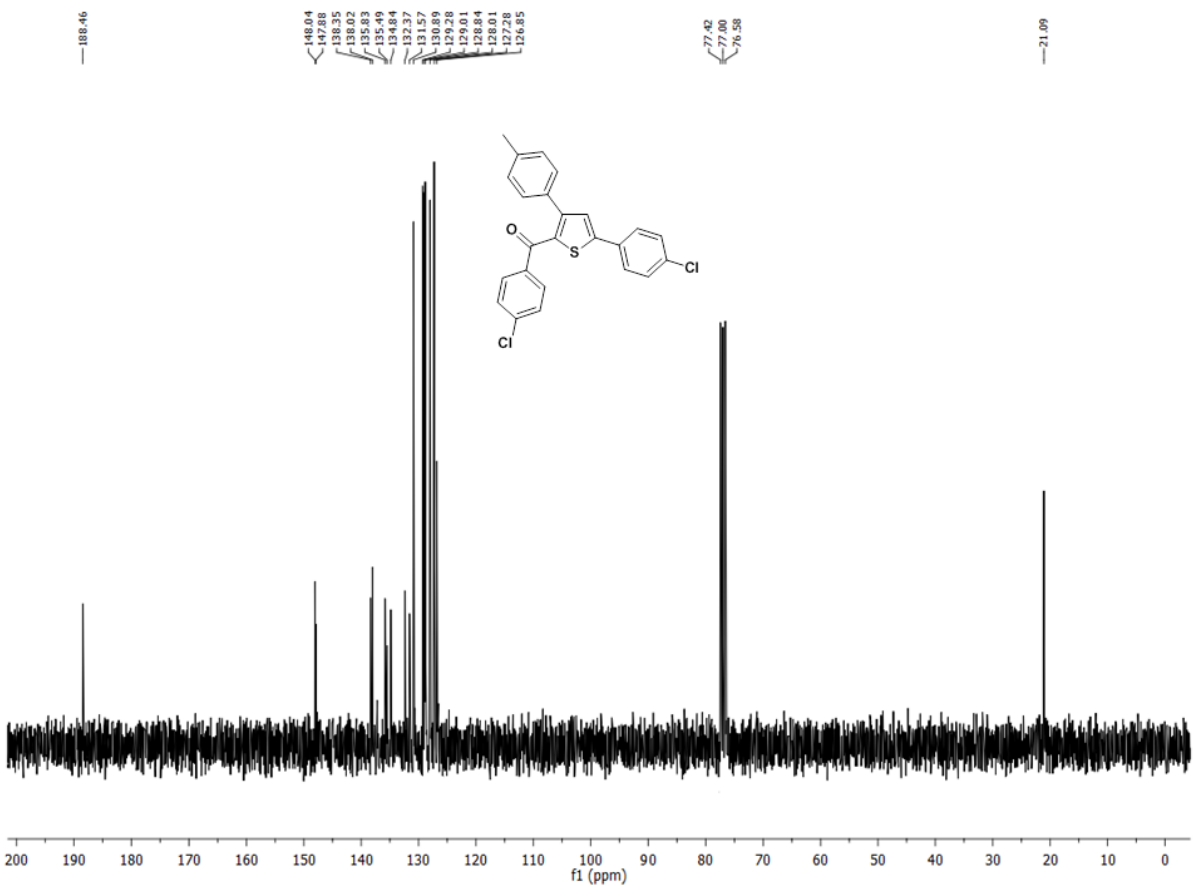

Figure 30. ^{13}C Spectrum of compound **4g**

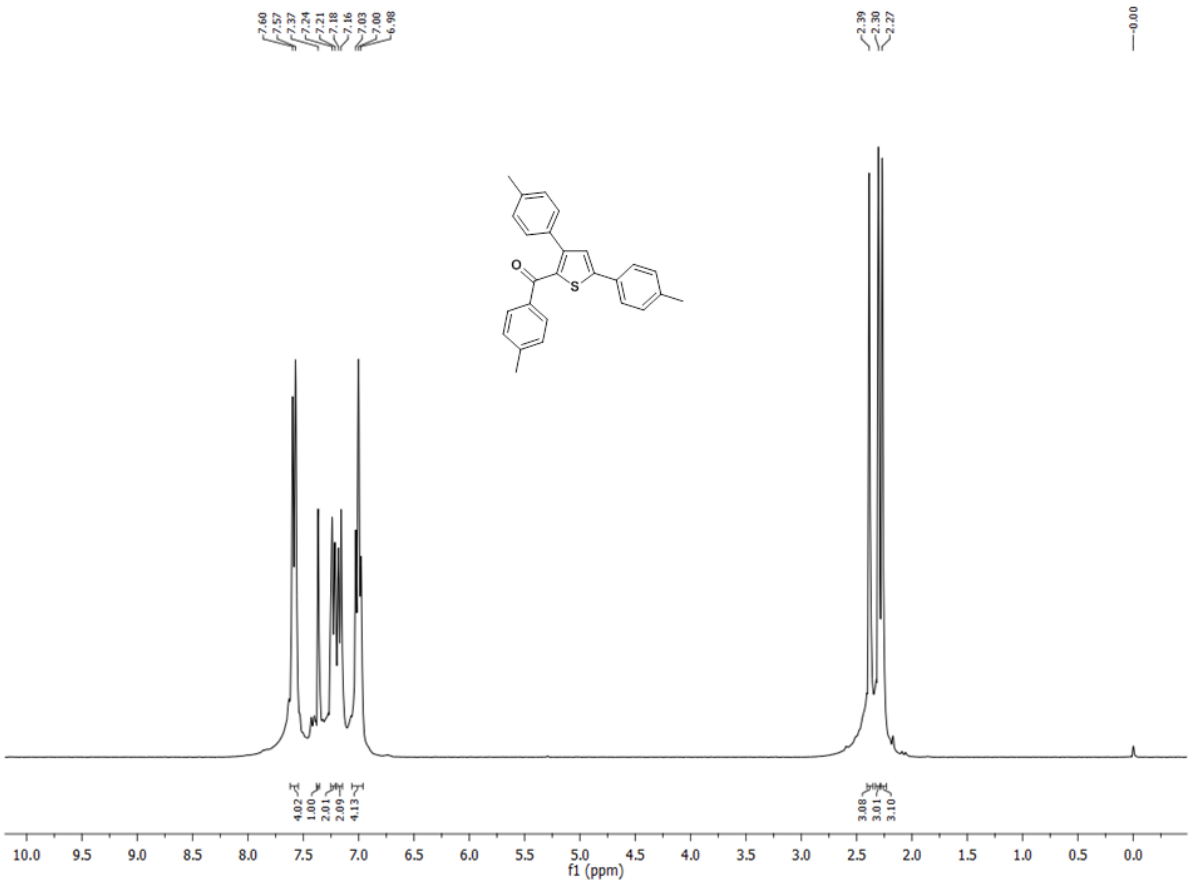

Figure 31. ^{1}H NMR Spectrum of compound **4h**

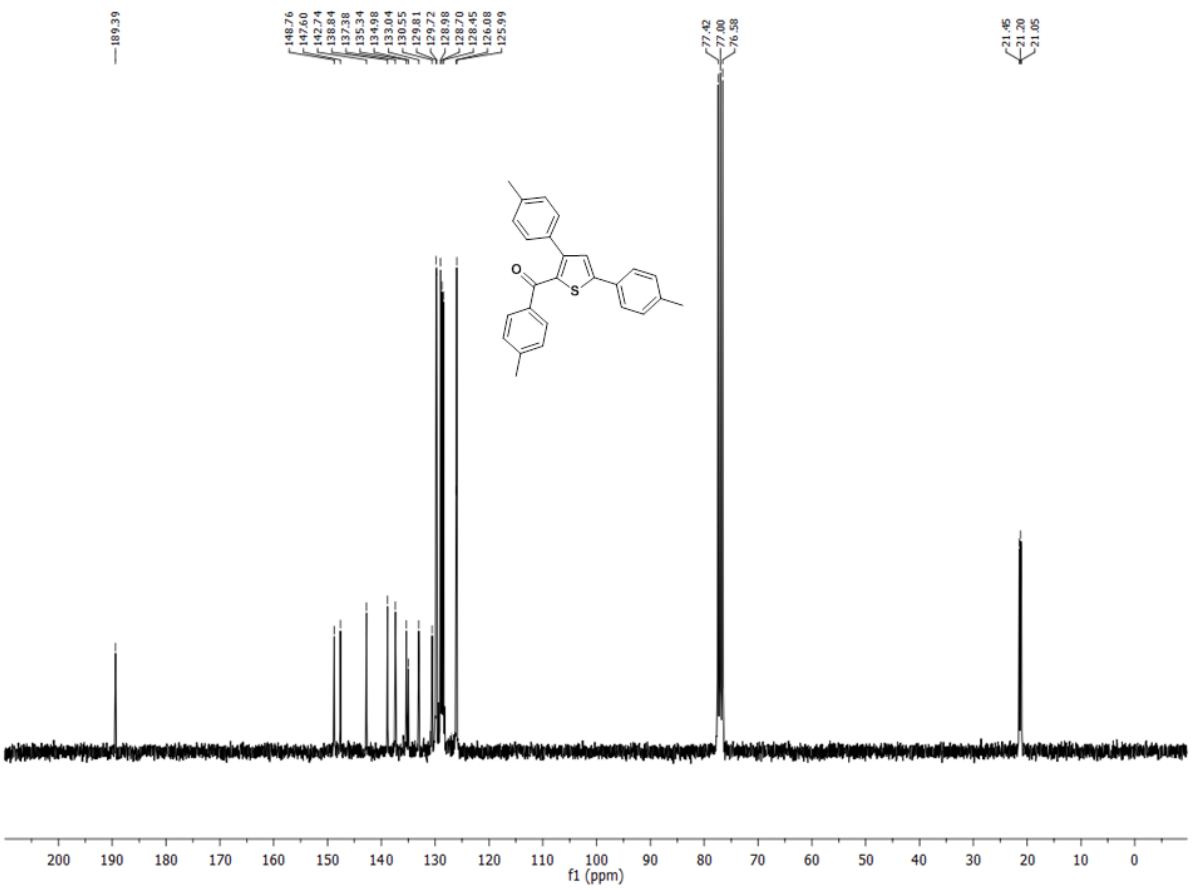

Figure 32. ^{13}C Spectrum of compound **4h**

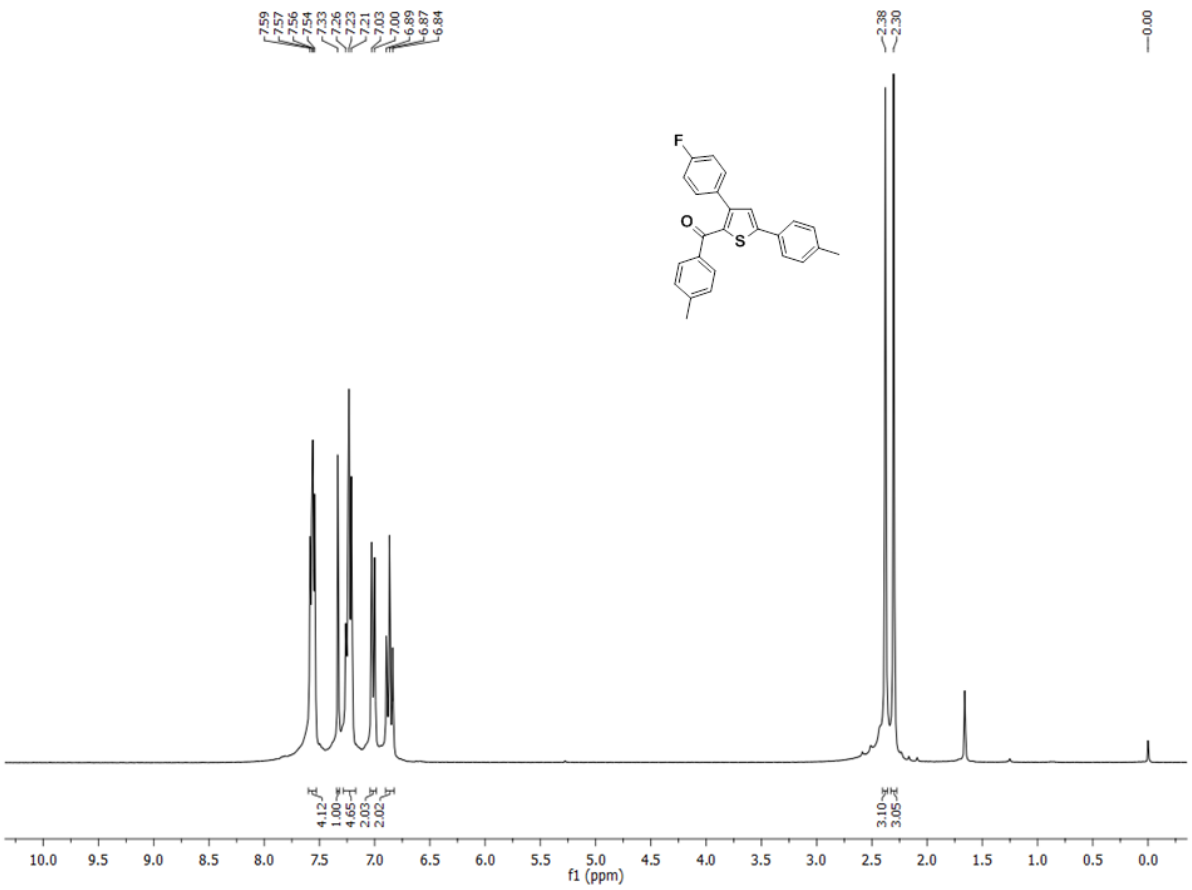

Figure 33. ^{1}H NMR Spectrum of compound **4i**

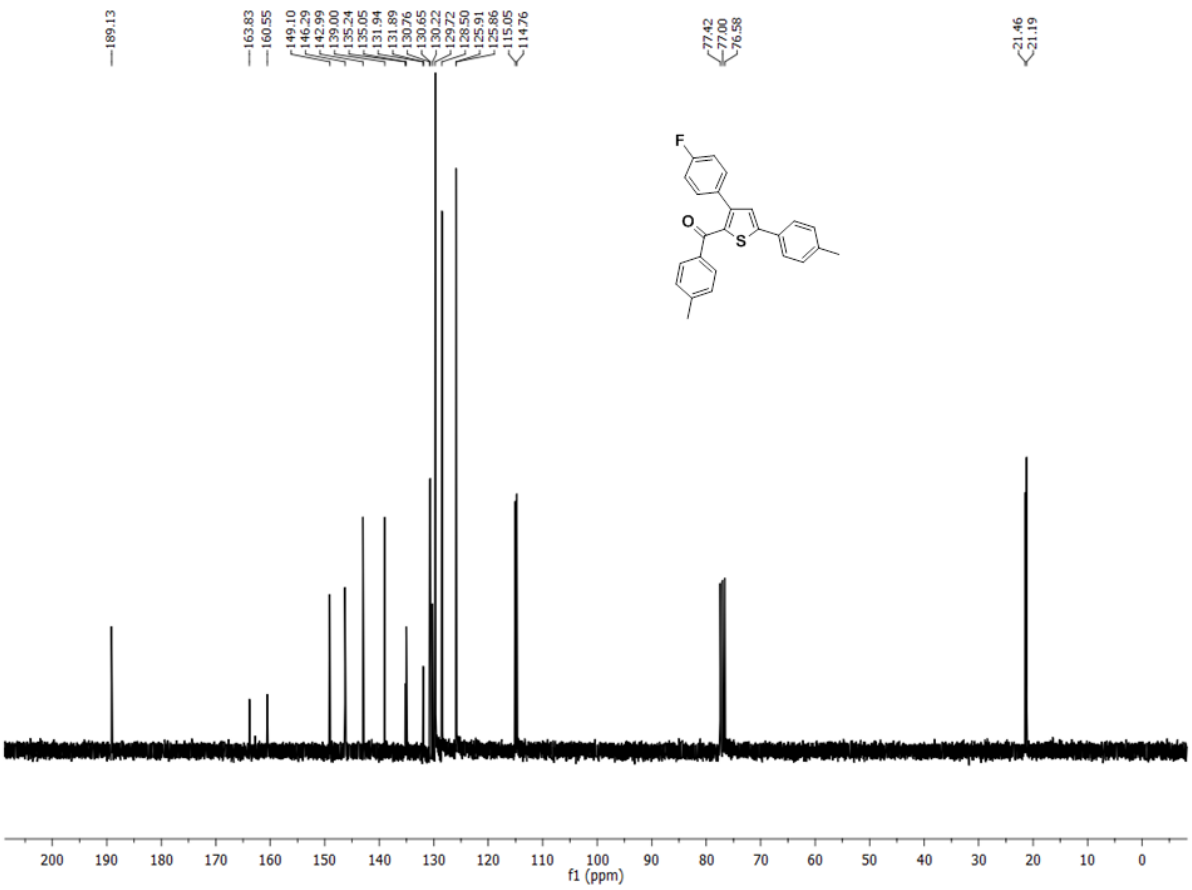

Figure 34. ^{13}C Spectrum of compound **4i**

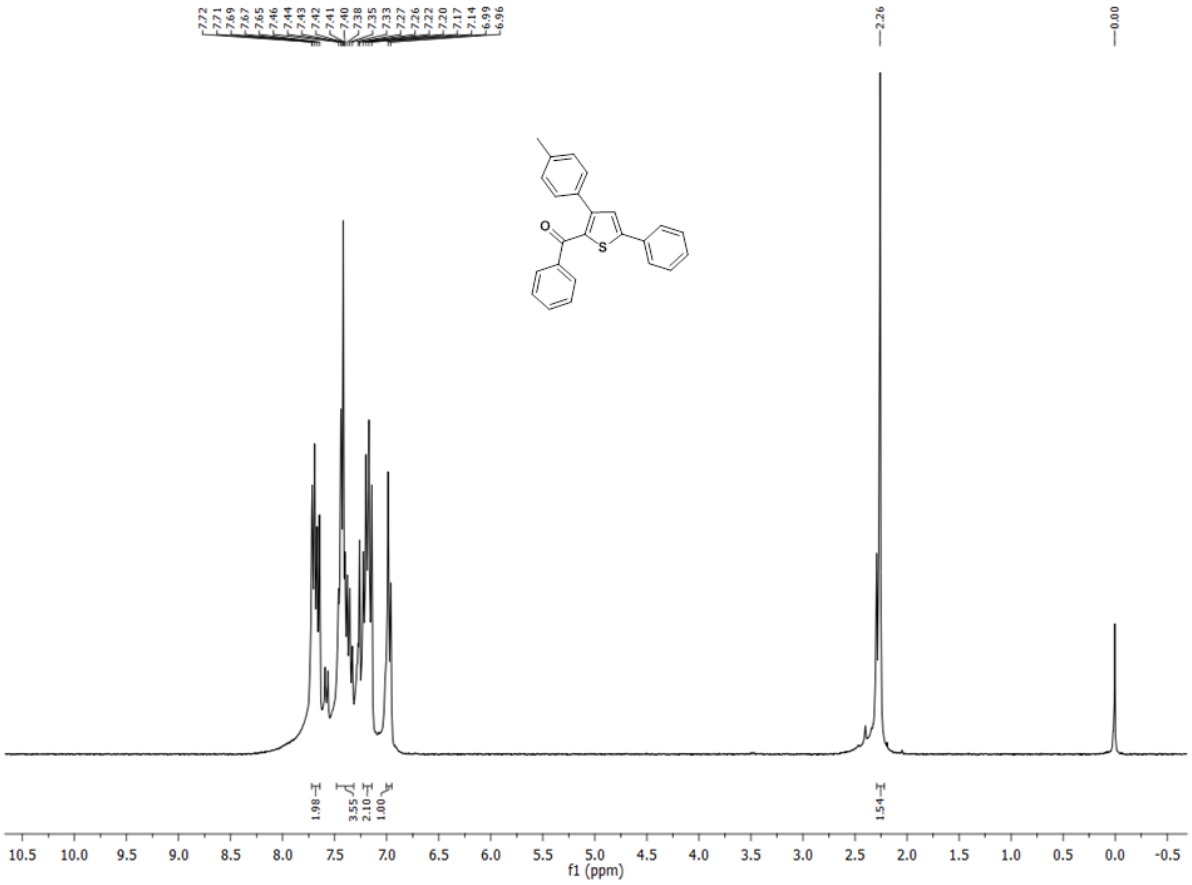

Figure 35. ^{1}H NMR Spectrum of compound **4j**

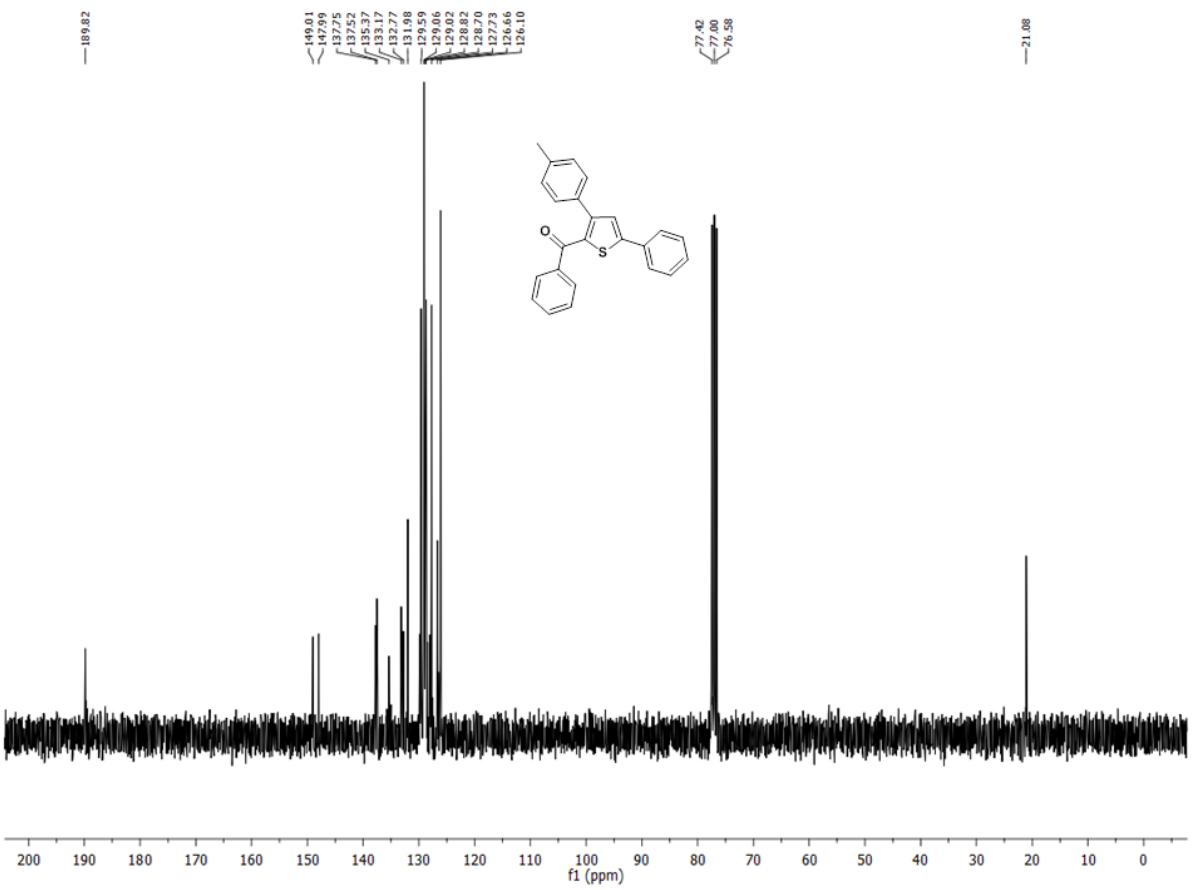

Figure 36. ^{13}C Spectrum of compound **4j**

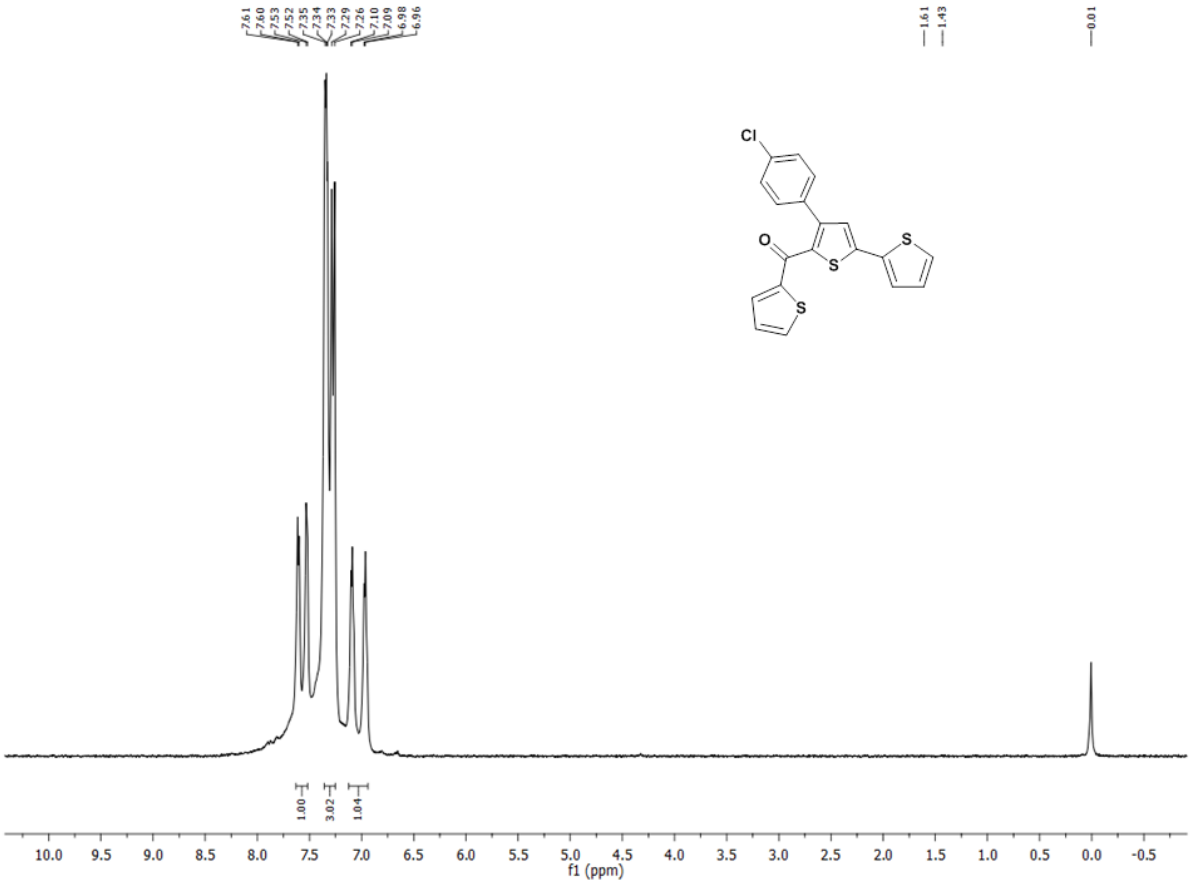

Figure 37. ^{1}H NMR Spectrum of compound **4k**

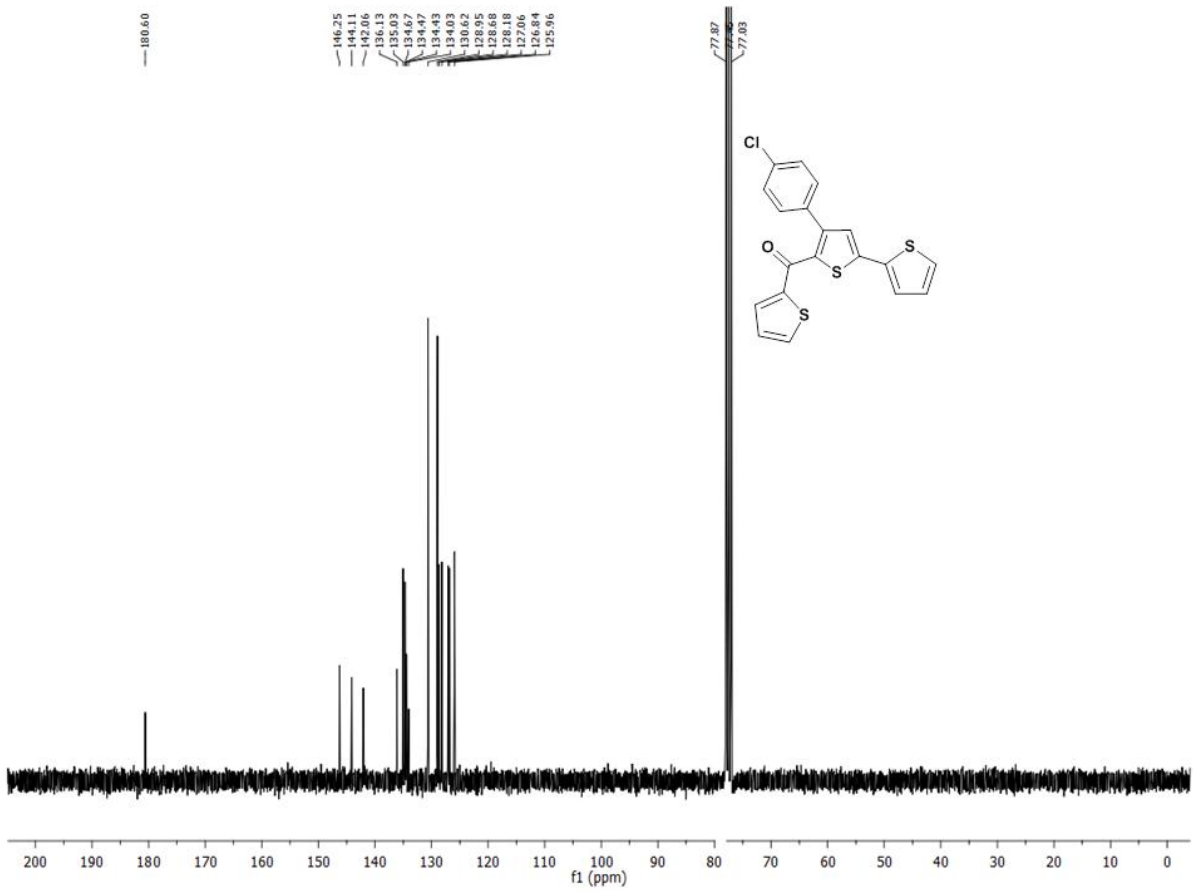

Figure 38. ^{13}C Spectrum of compound **4k**

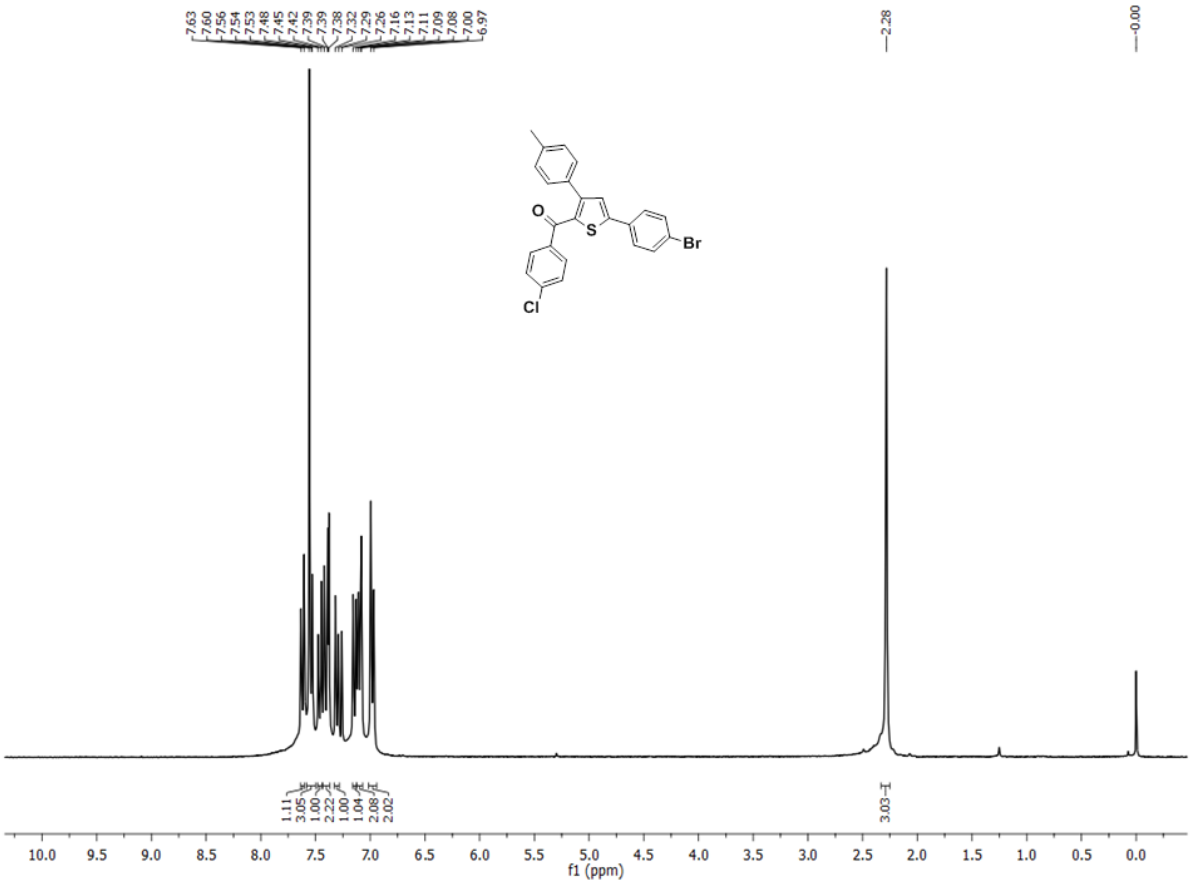

Figure 39. ^{1}H NMR Spectrum of compound **4l**

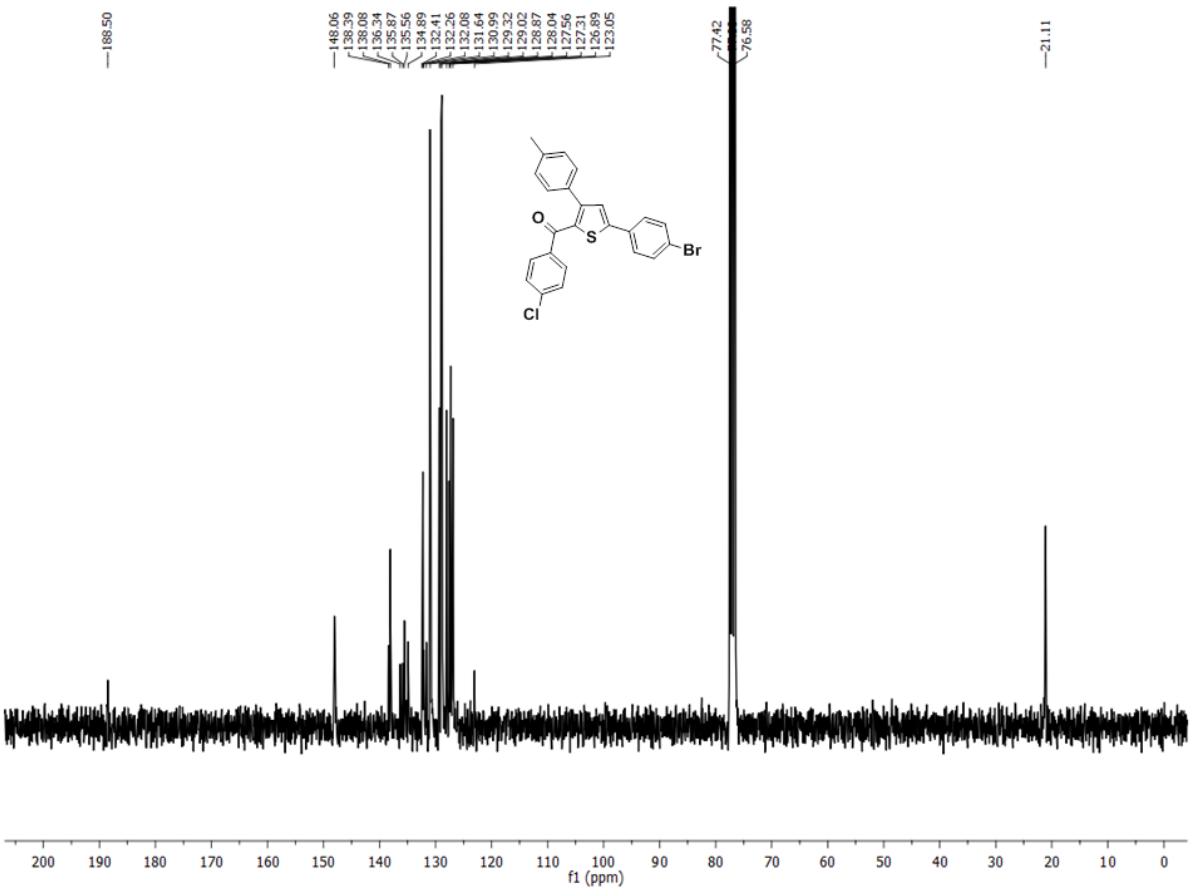

Figure 40. ^{13}C Spectrum of compound **4l**

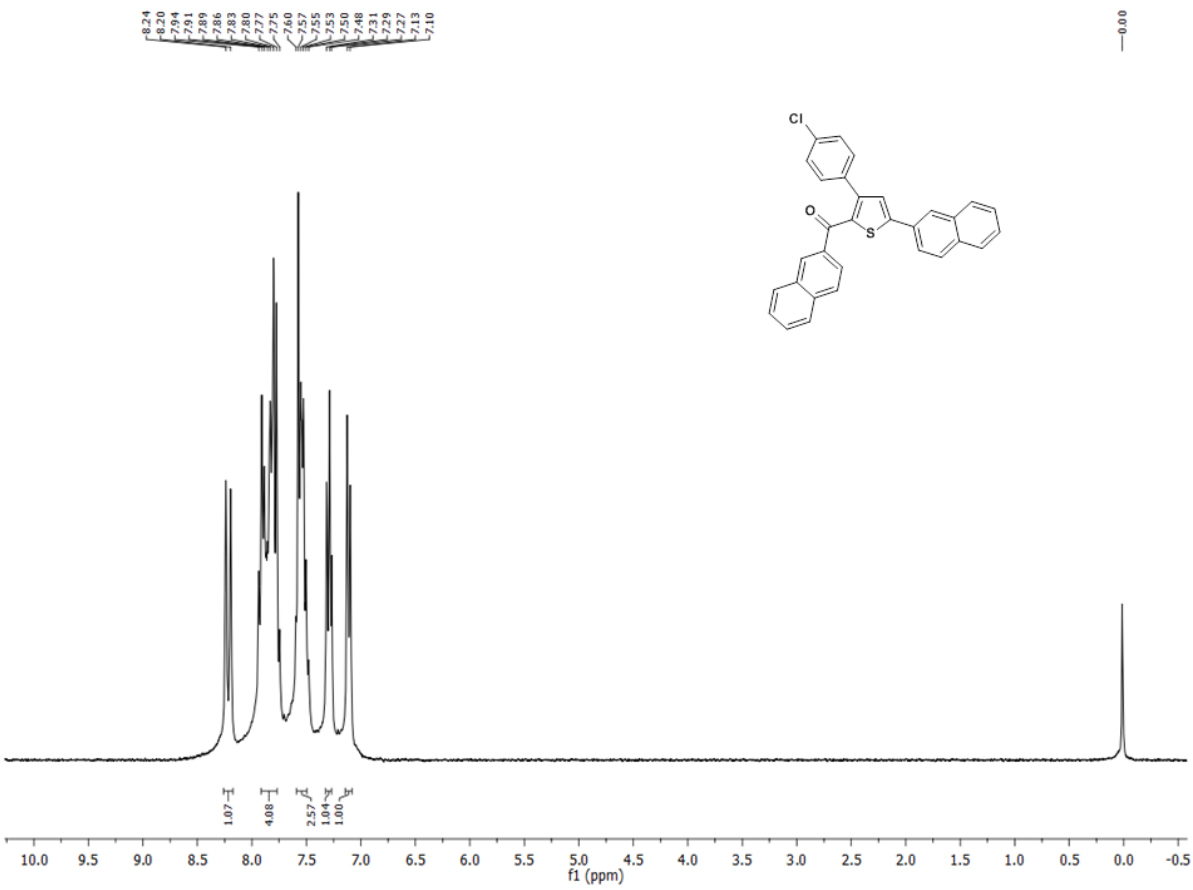

Figure 41. ^{1}H NMR Spectrum of compound **4m**

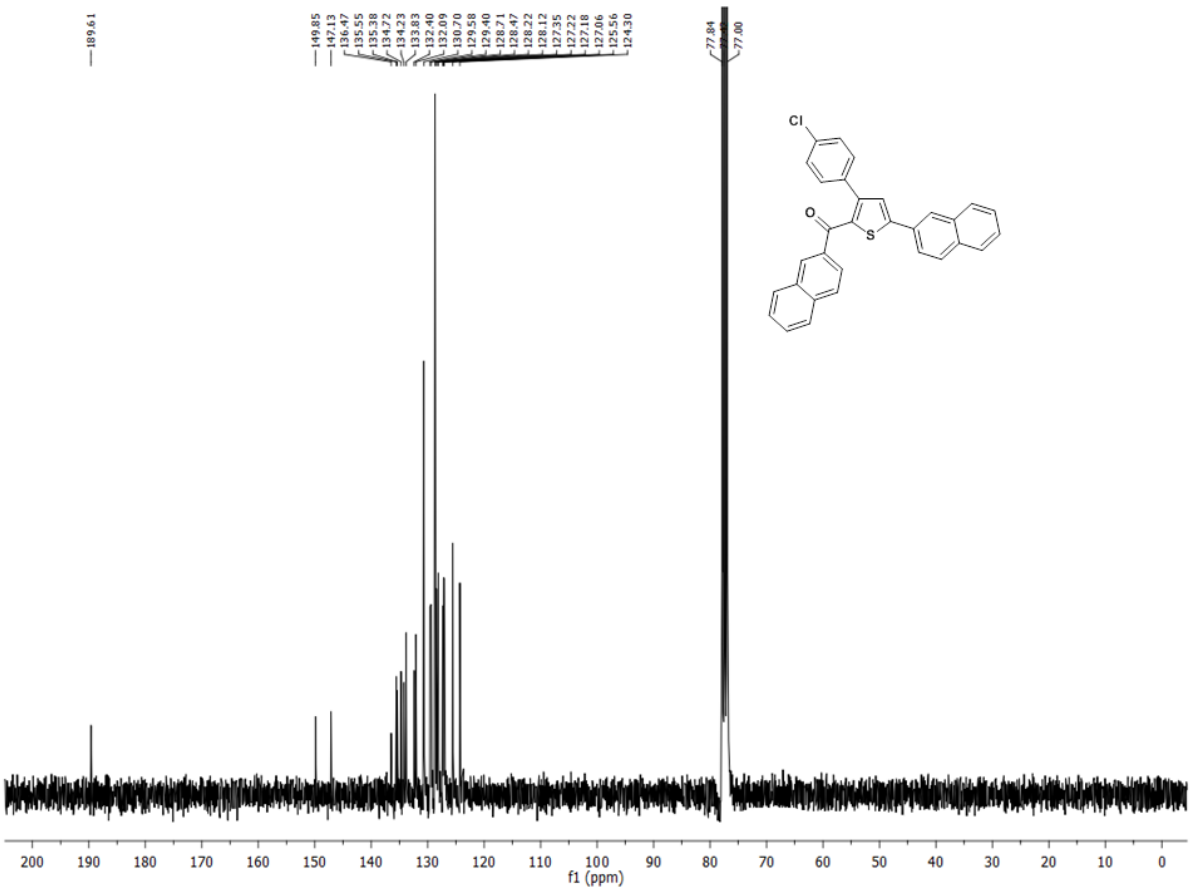

Figure 42. ^{13}C Spectrum of compound **4m**

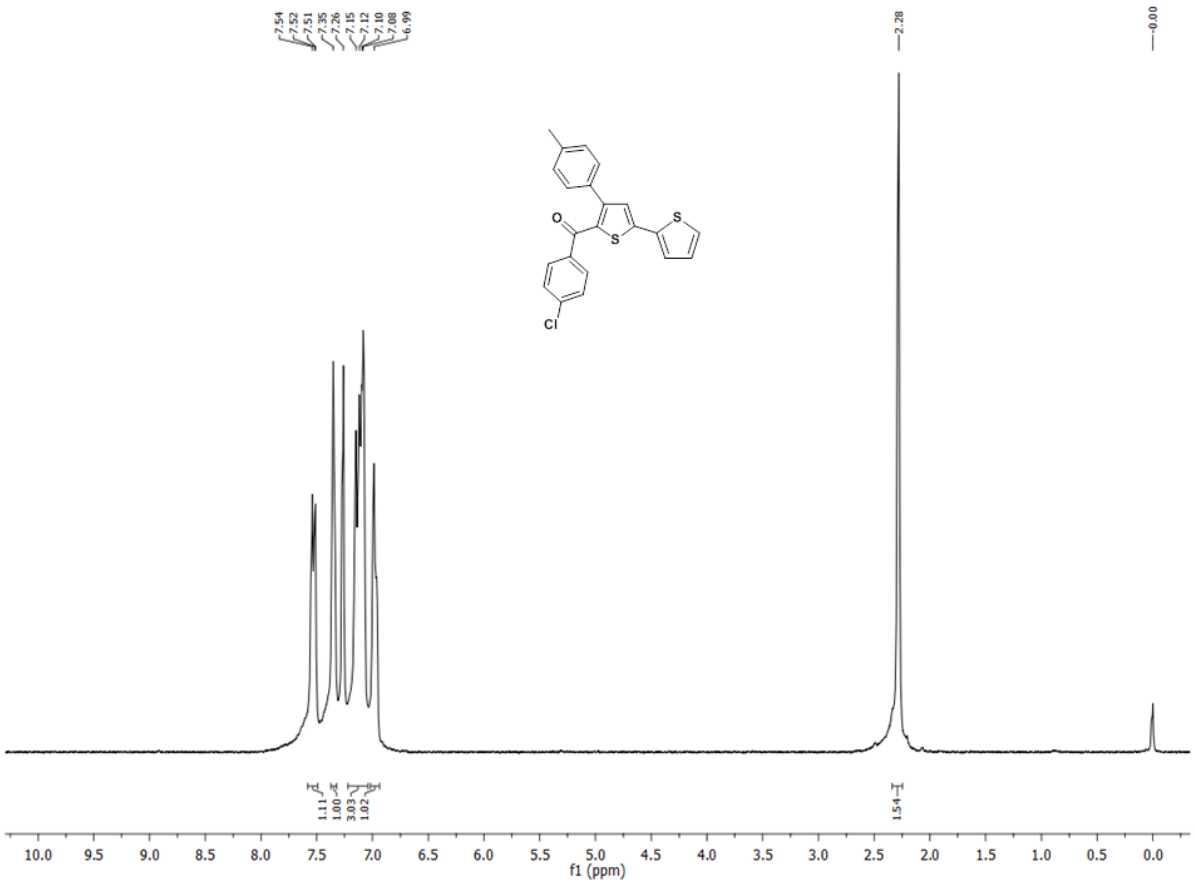

Figure 43. ^{1}H NMR Spectrum of compound **4n**

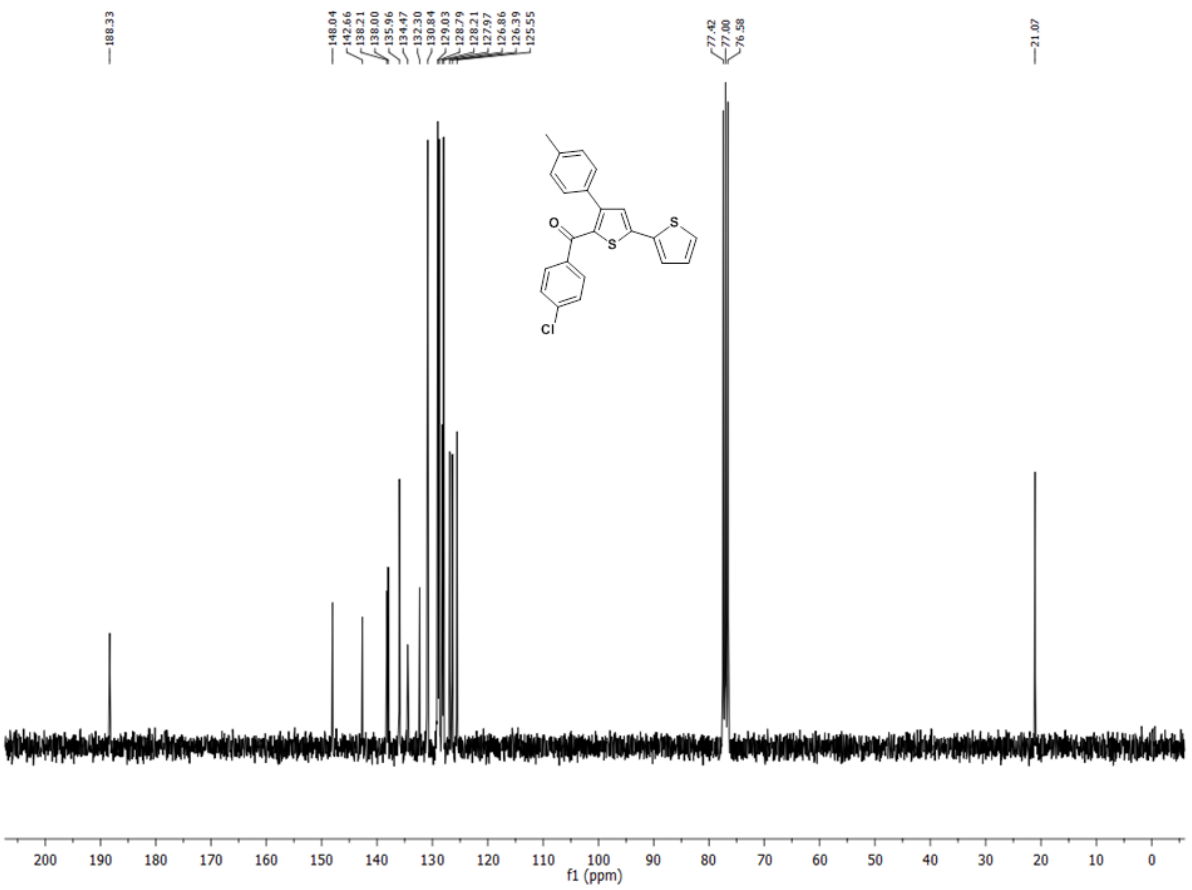

Figure 44. ^{13}C Spectrum of compound **4n**

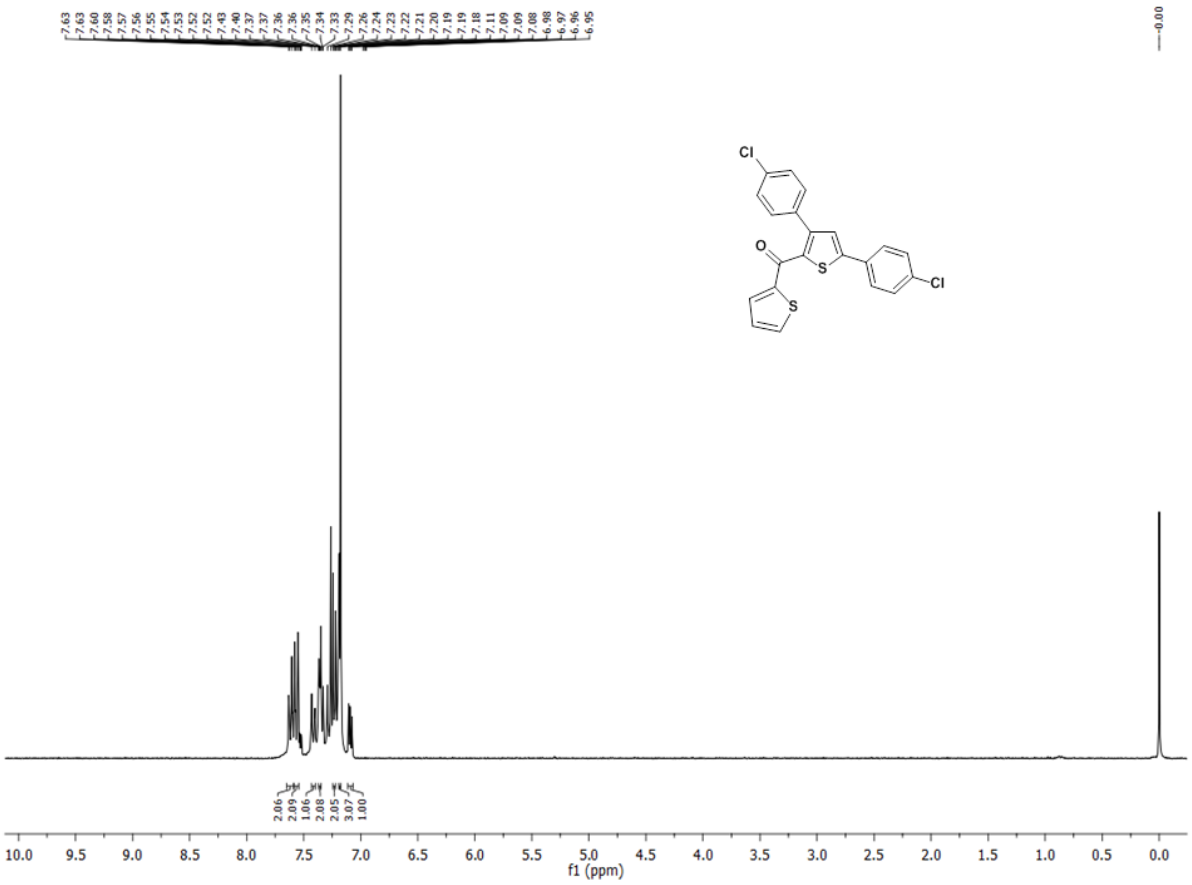

Figure 45. ^{1}H NMR Spectrum of compound **4o**

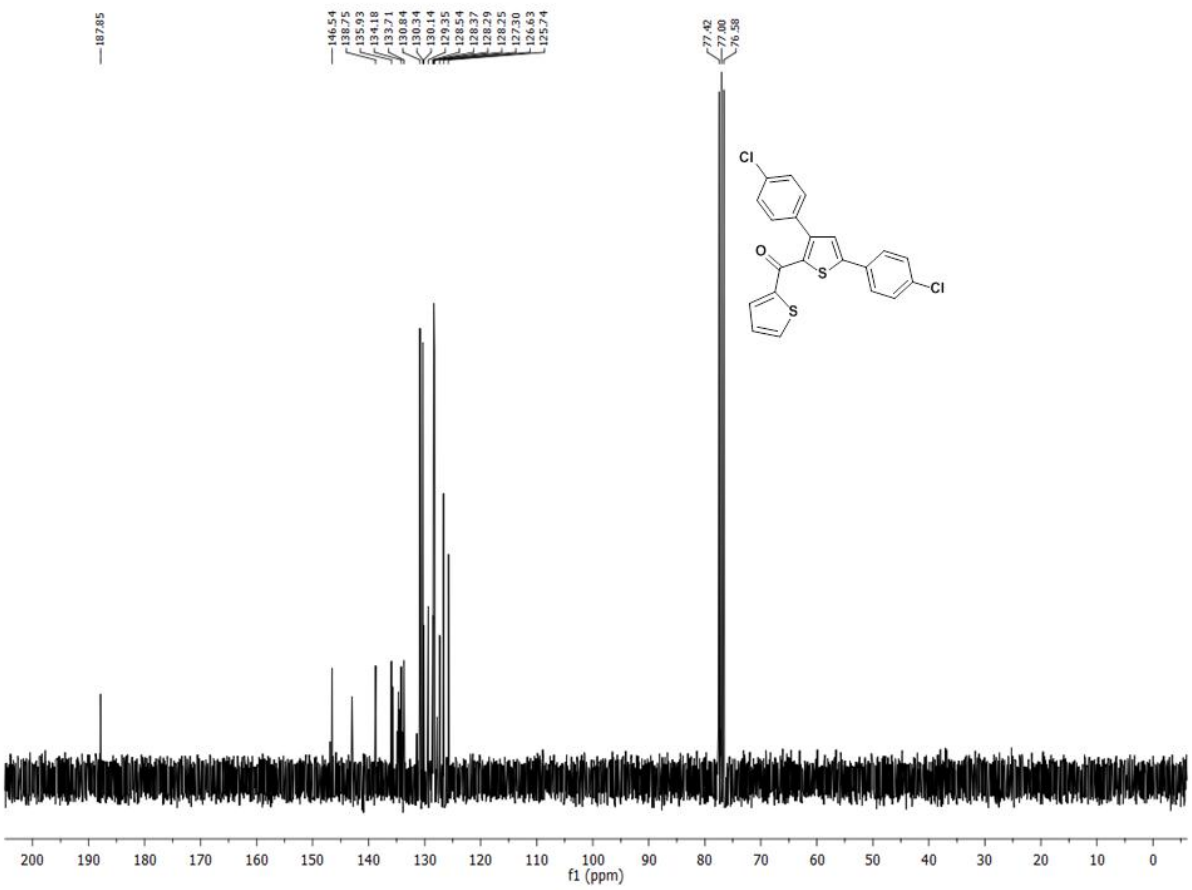

Figure 46. ^{13}C Spectrum of compound **4o**