

Supplementary Materials

Figure S1. ^1H -NMR of 4a.

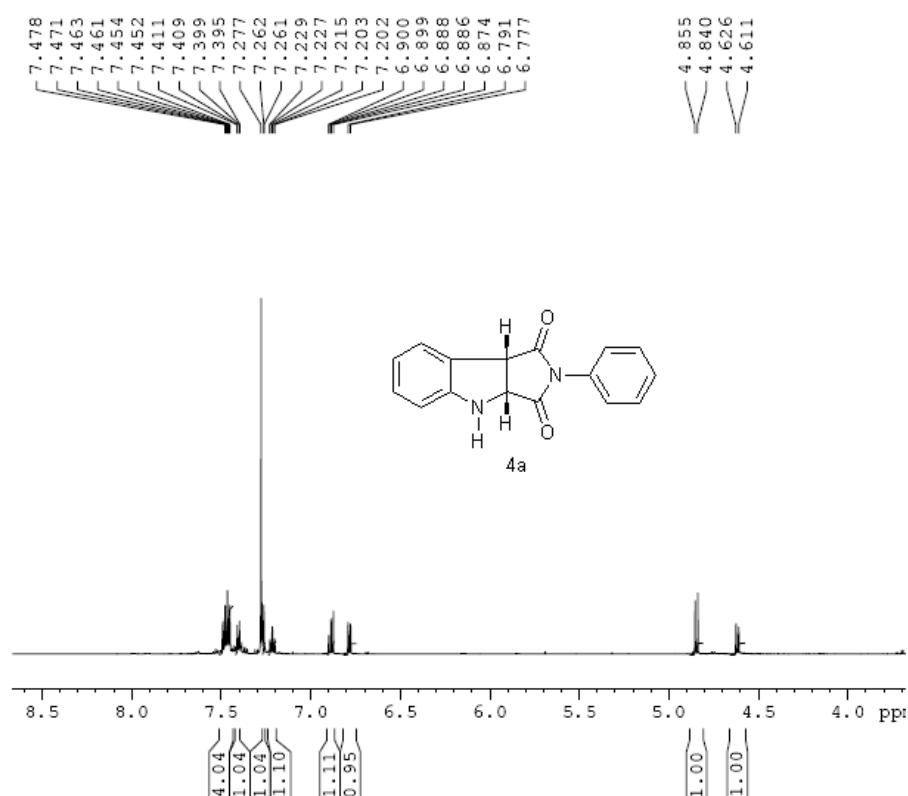


Figure S2. ^{13}C -NMR of 4a.

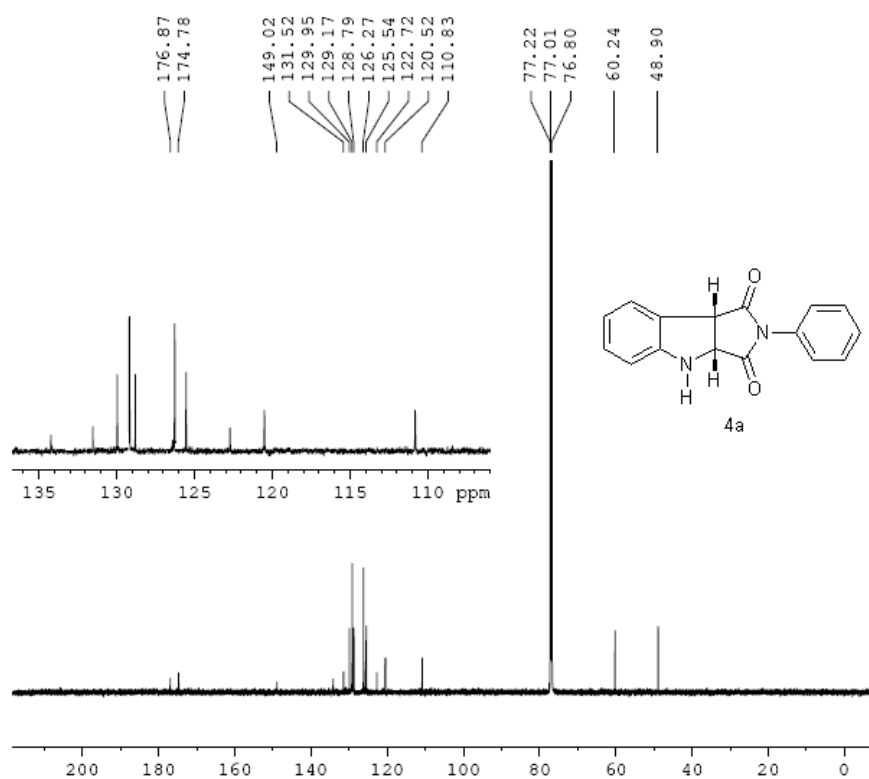


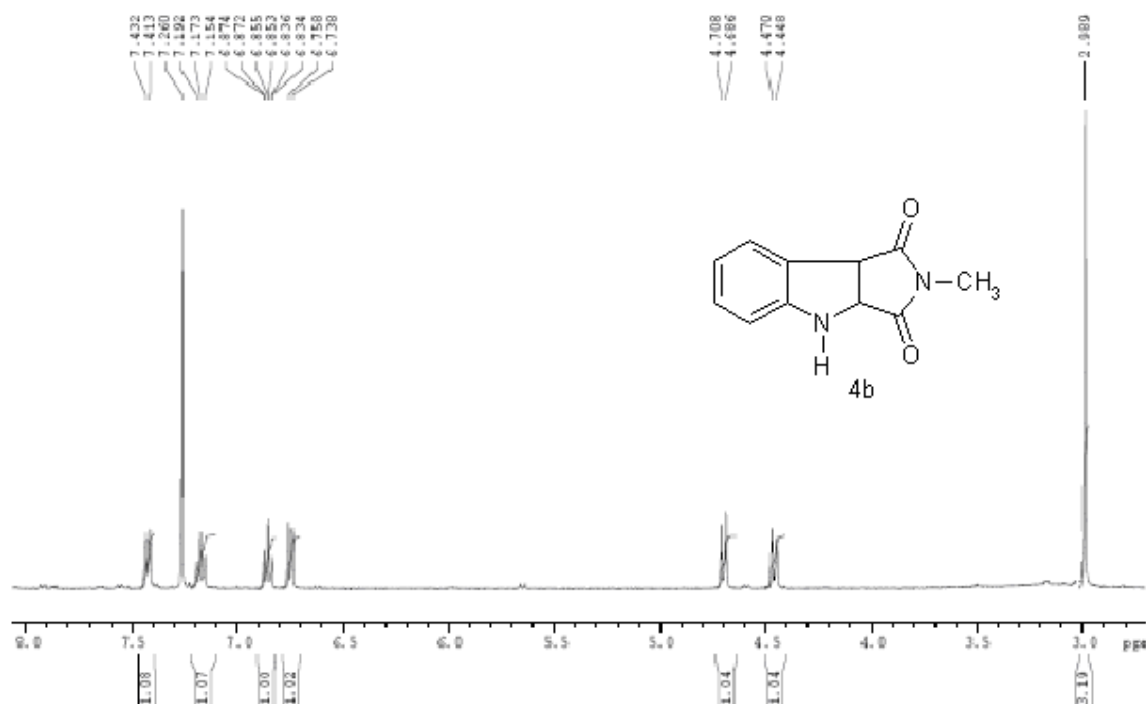
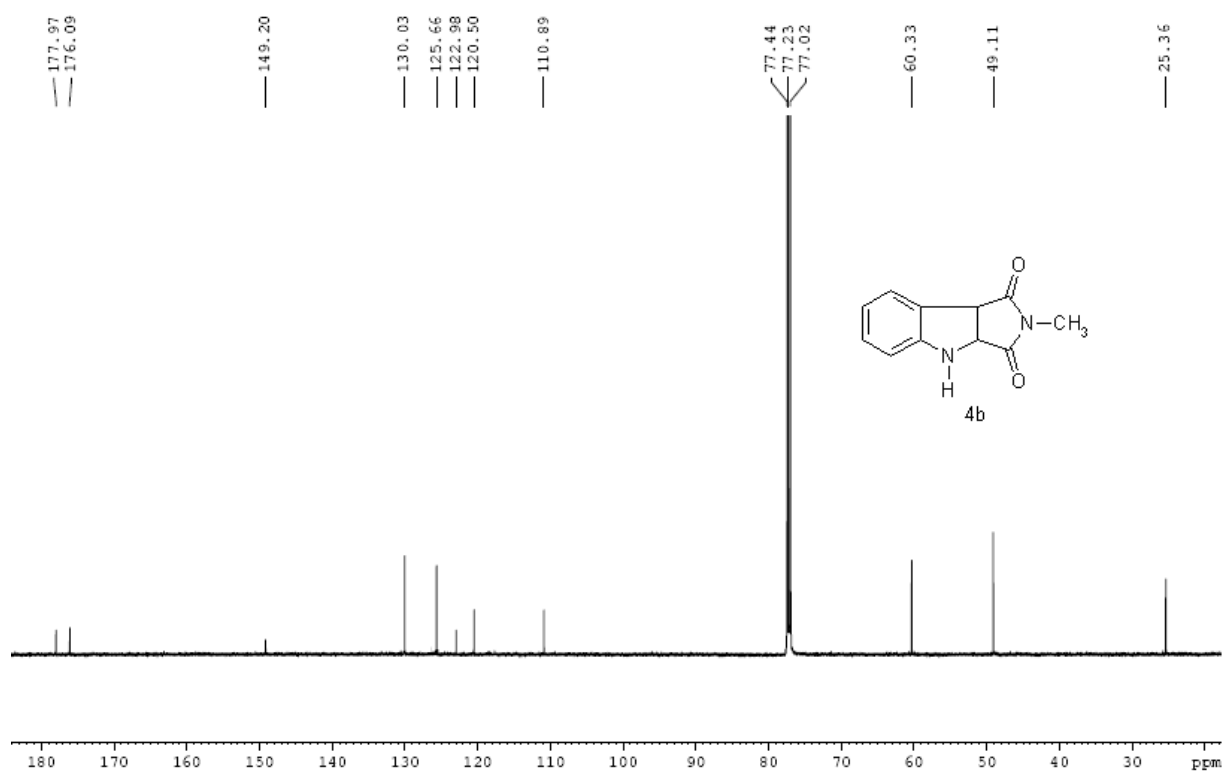
Figure S3. ^1H -NMR and ^{13}C -NMR of **4b**.**Figure S4.** ^{13}C -NMR of **4b**.

Figure S5. HSQC of 4b.

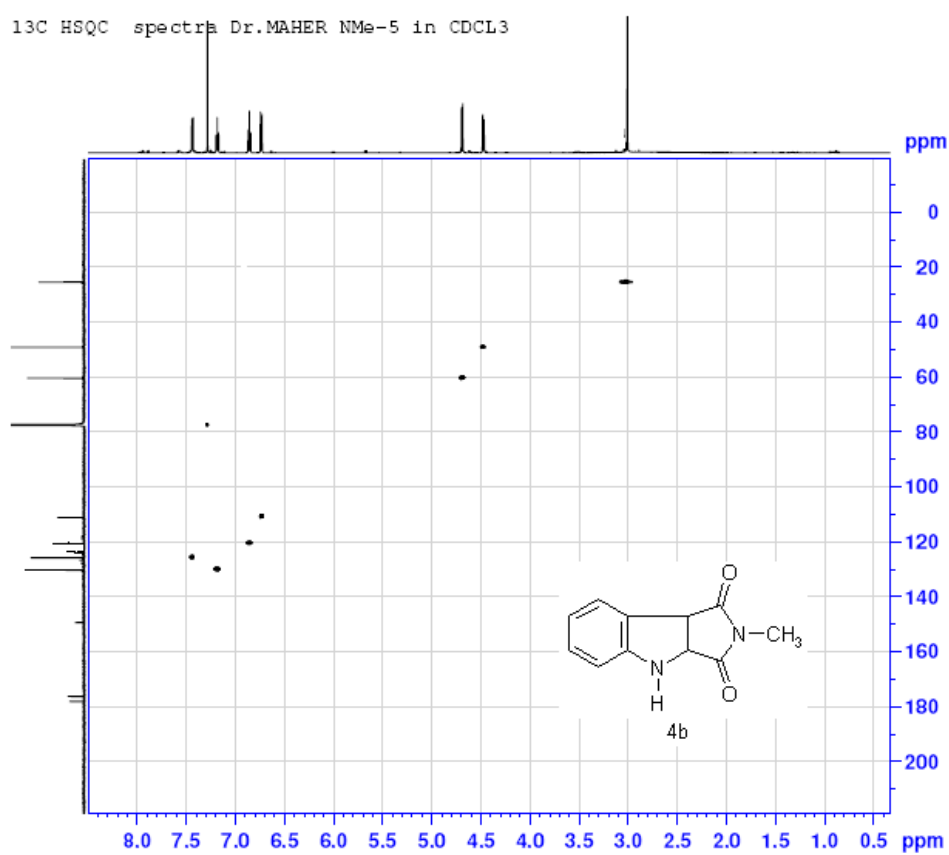


Figure S6. H,H COSY of 4b.

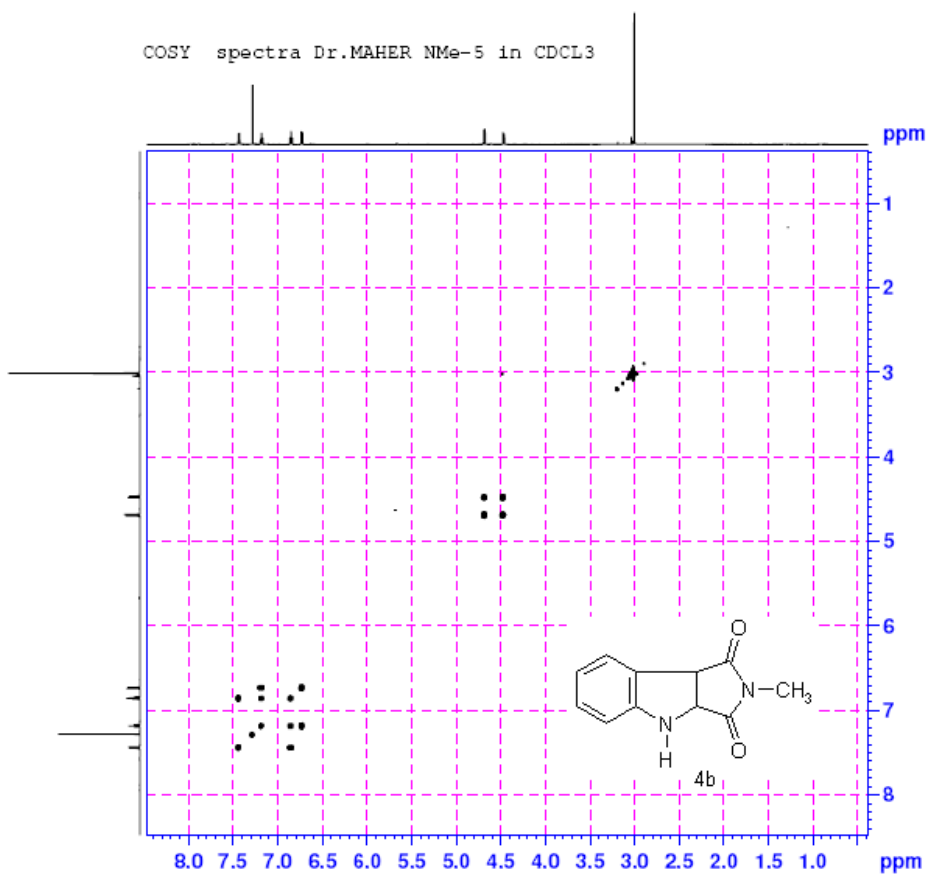


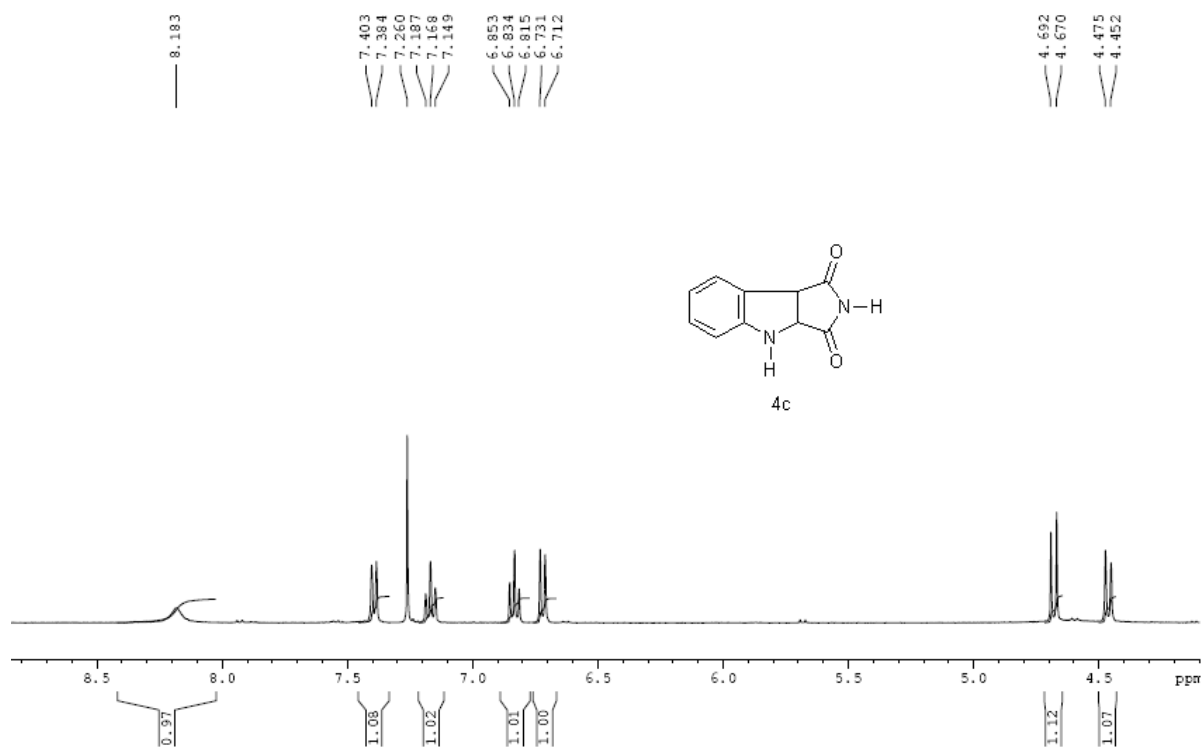
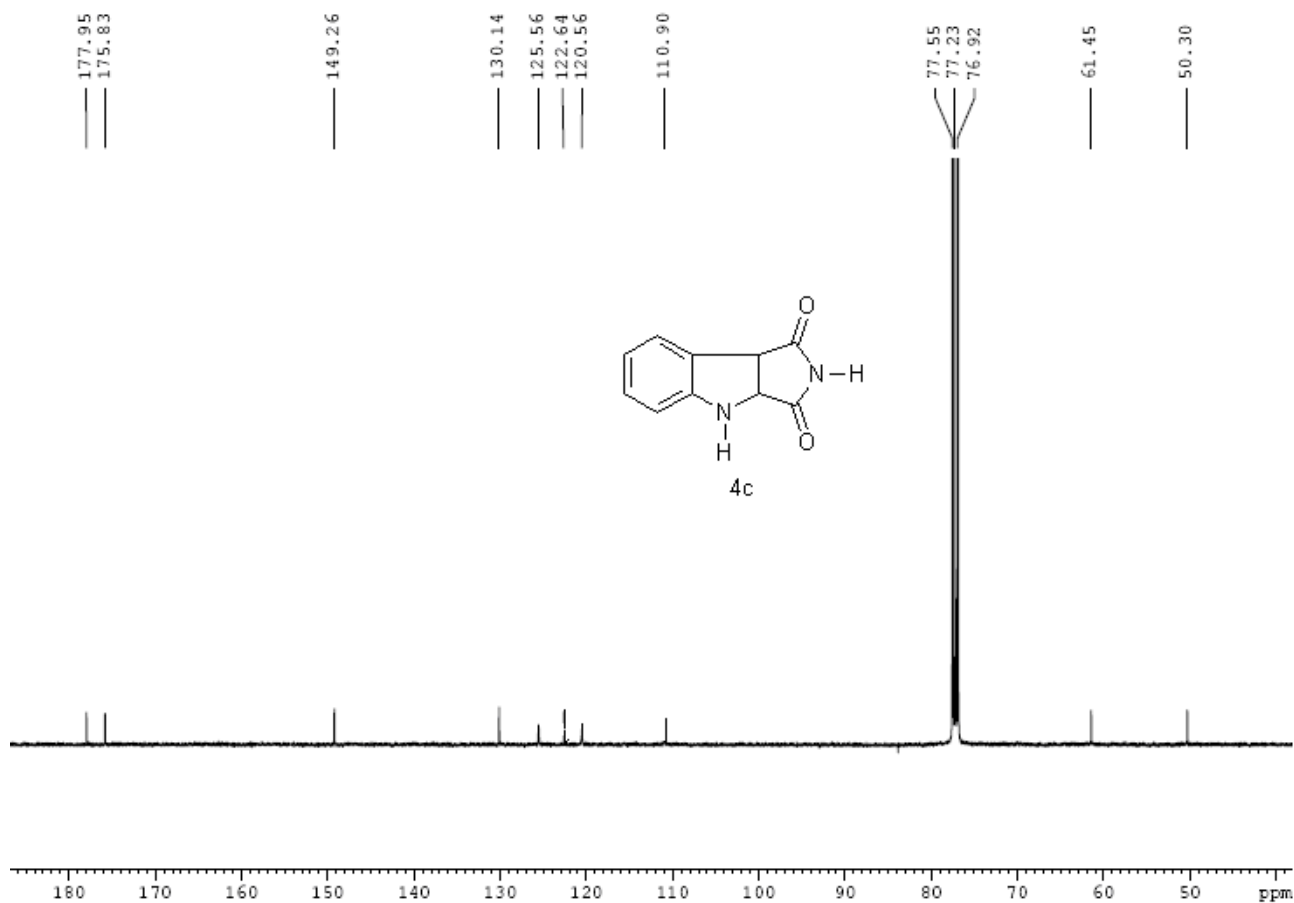
Figure S7. ^1H -NMR of 4c.Figure S8. ^{13}C -NMR of 4c.

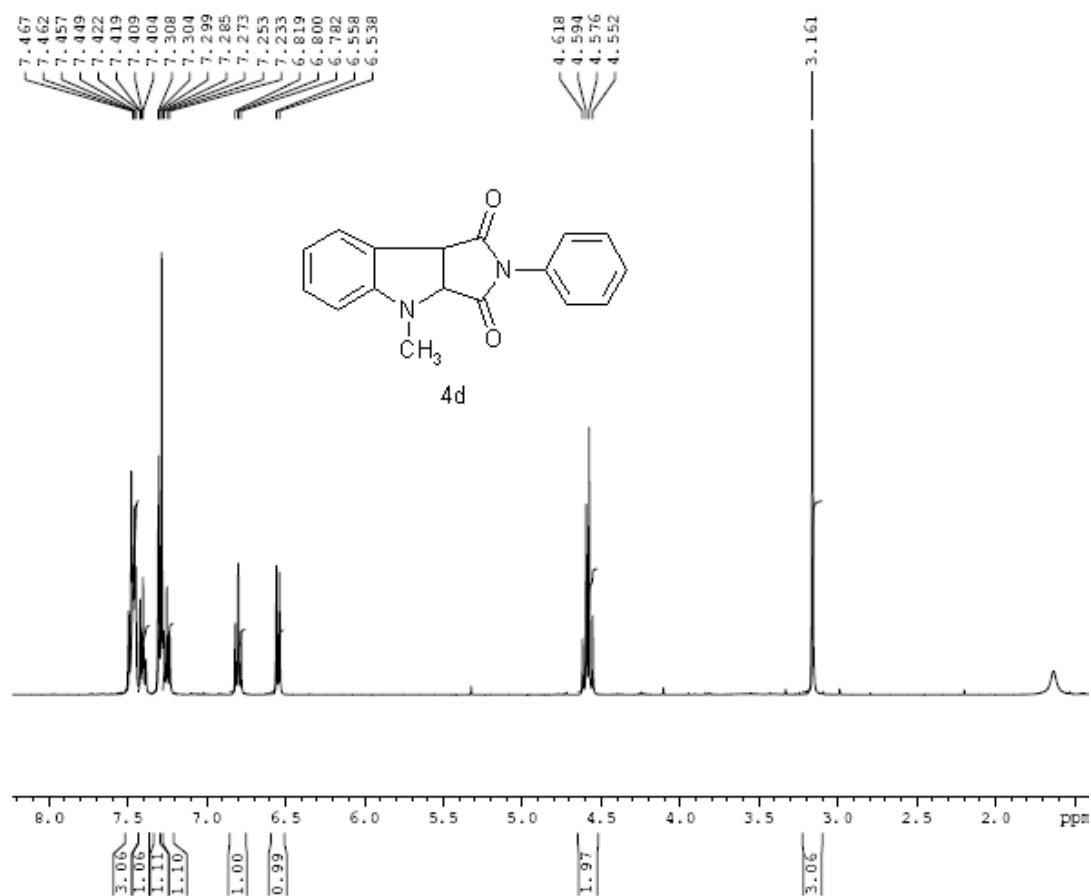
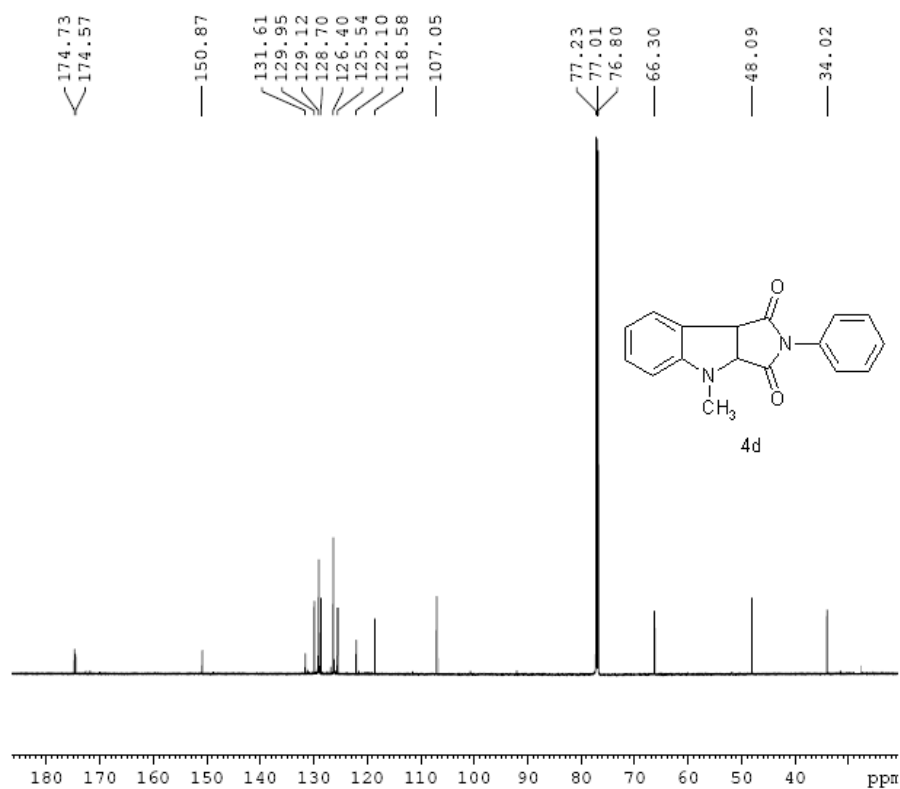
Figure S9. ^1H -NMR of 4d.Figure S10. ^{13}C -NMR of 4d.

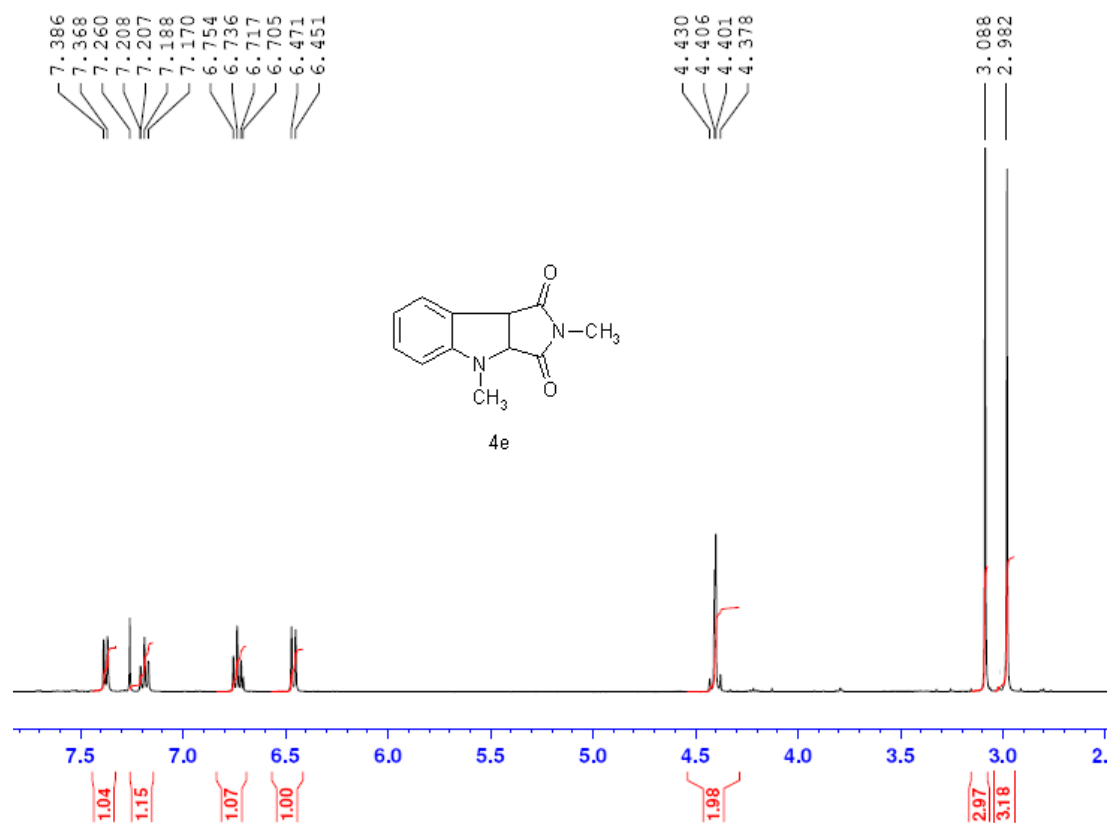
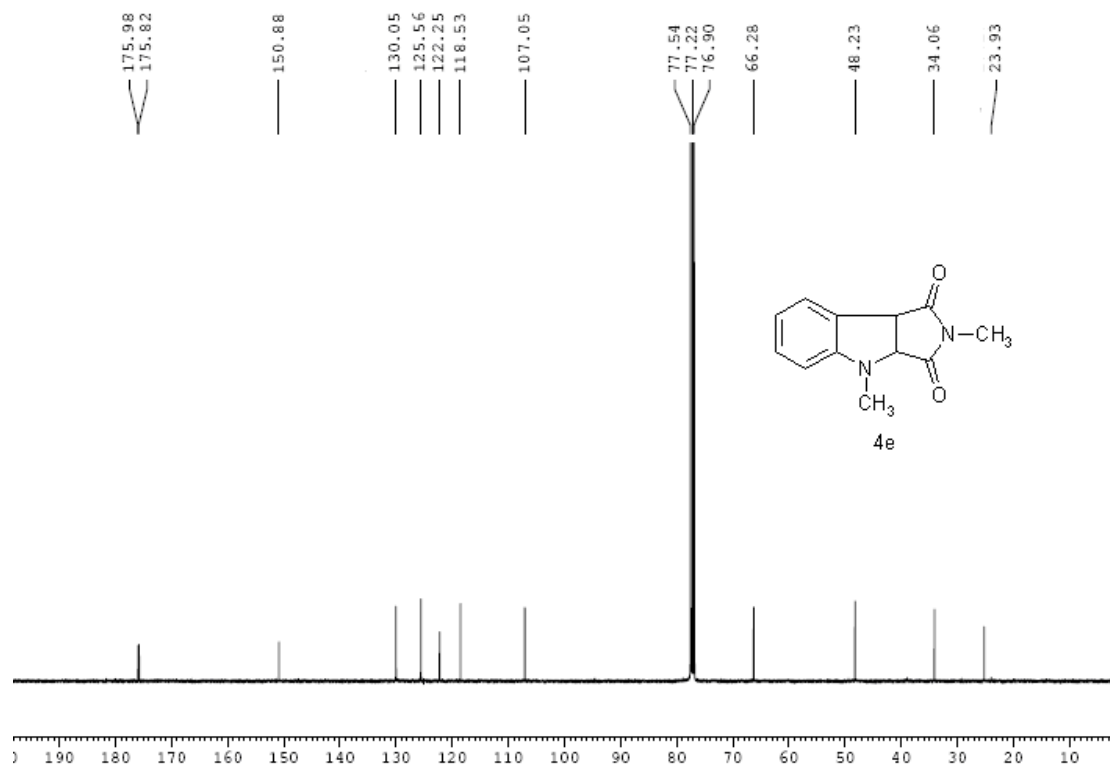
Figure S11. ^1H -NMR of 4e.Figure S12. ^{13}C -NMR of 4e.

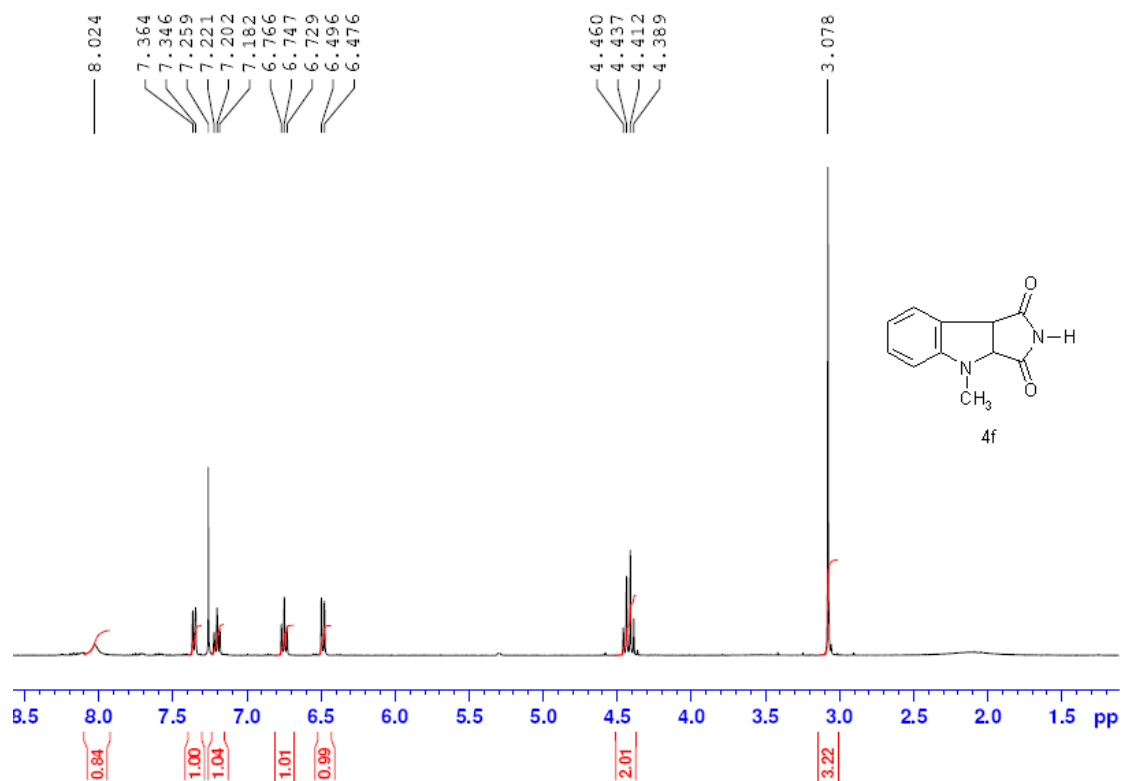
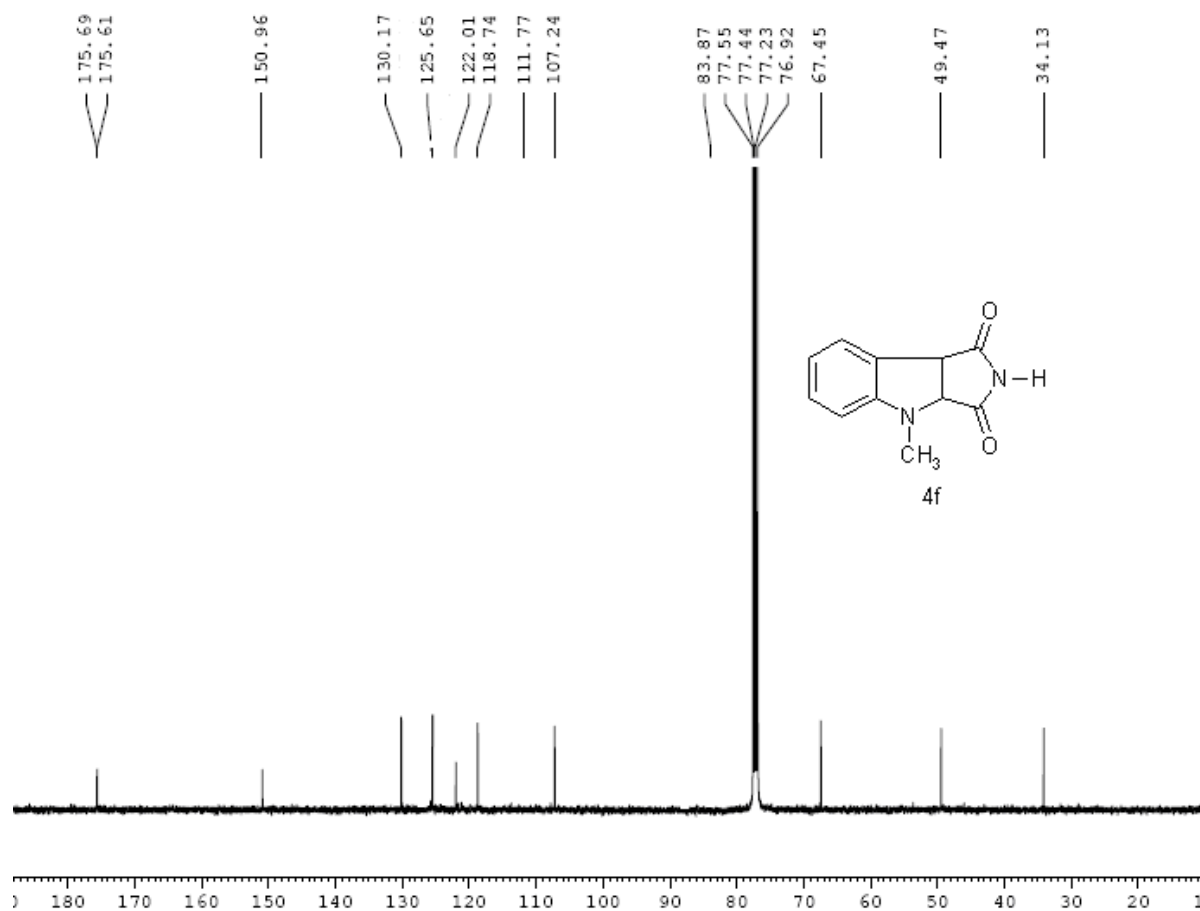
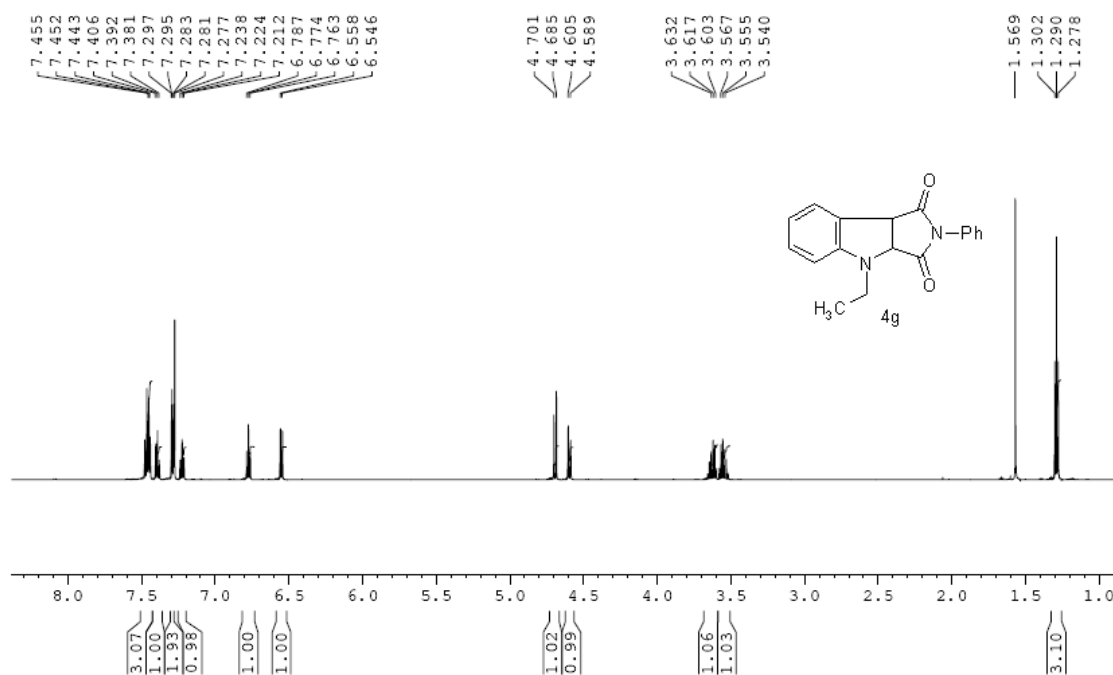
Figure S13. ^1H -NMR of 4f.Figure S14. ^{13}C -NMR of 4f.

Figure S15. ^1H -NMR of **4g**.

^1H Spectra Dr.MAHER N Eth 11 in CDCl_3

Figure S16. ^{13}C -NMR of **4g**.

^{13}C decoupled Spectra Dr.MAHER Neth 11 in CDCl_3

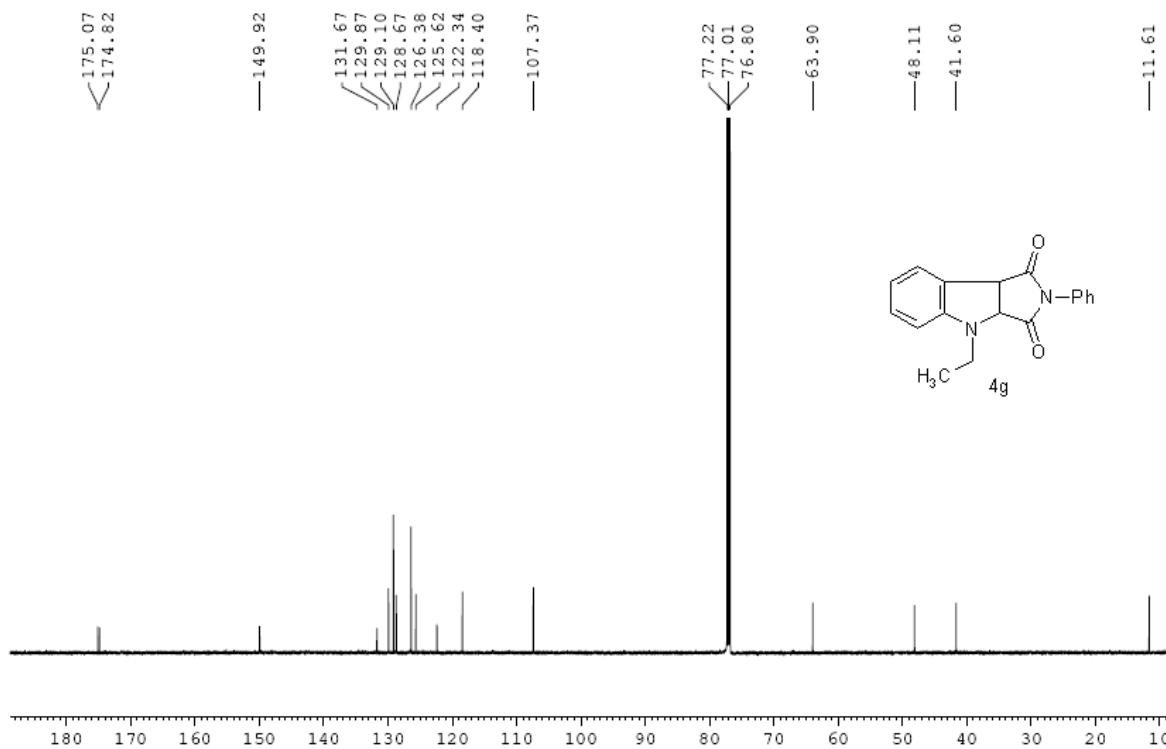


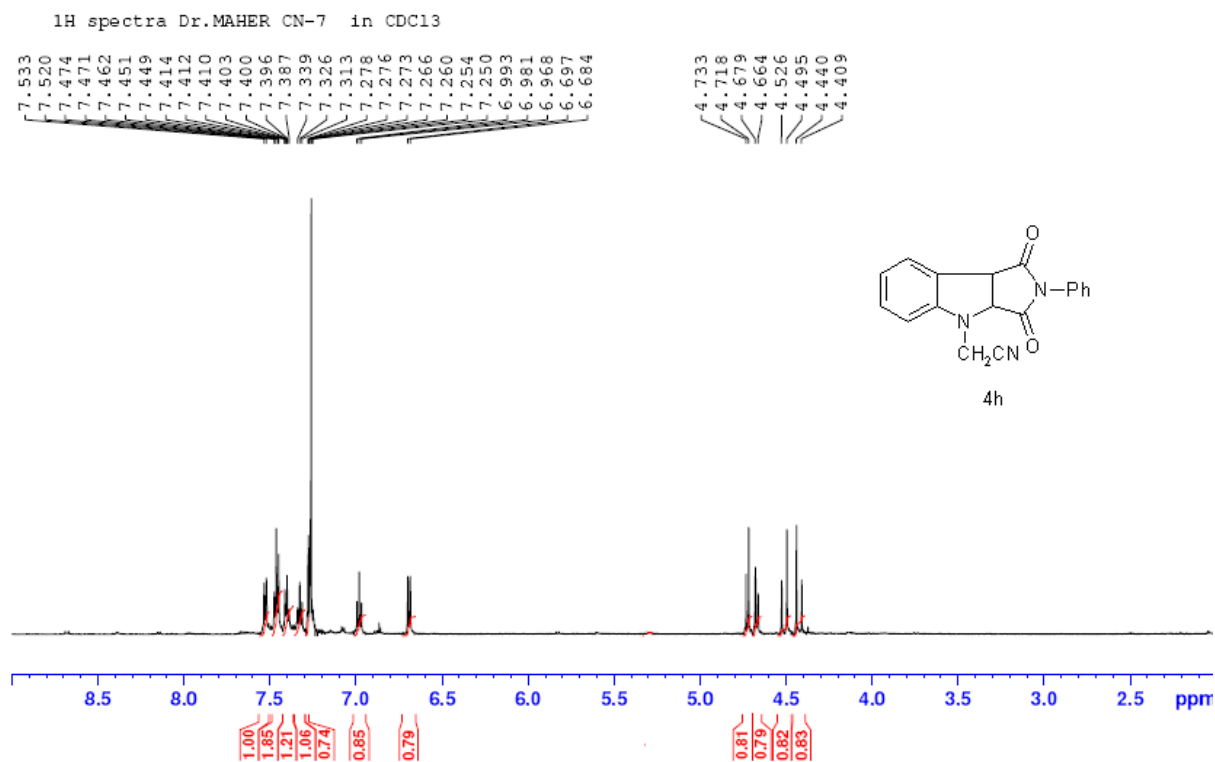
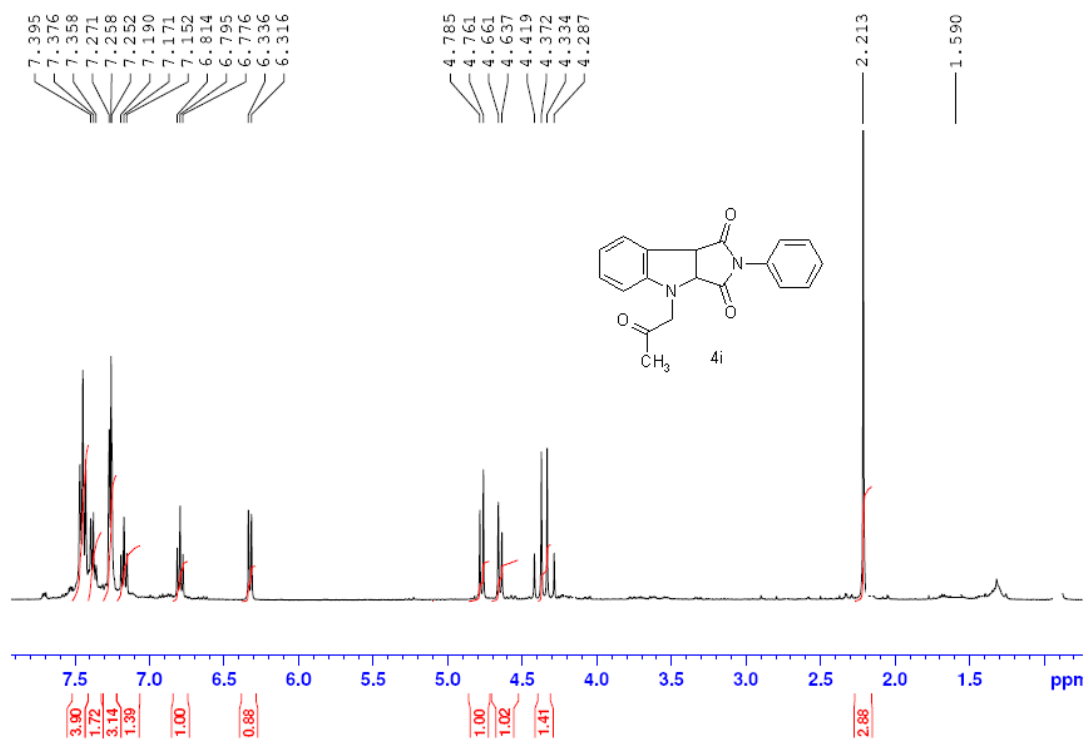
Figure S17. ^1H -NMR of 4h.Figure S18. ^1H -NMR of 4i.

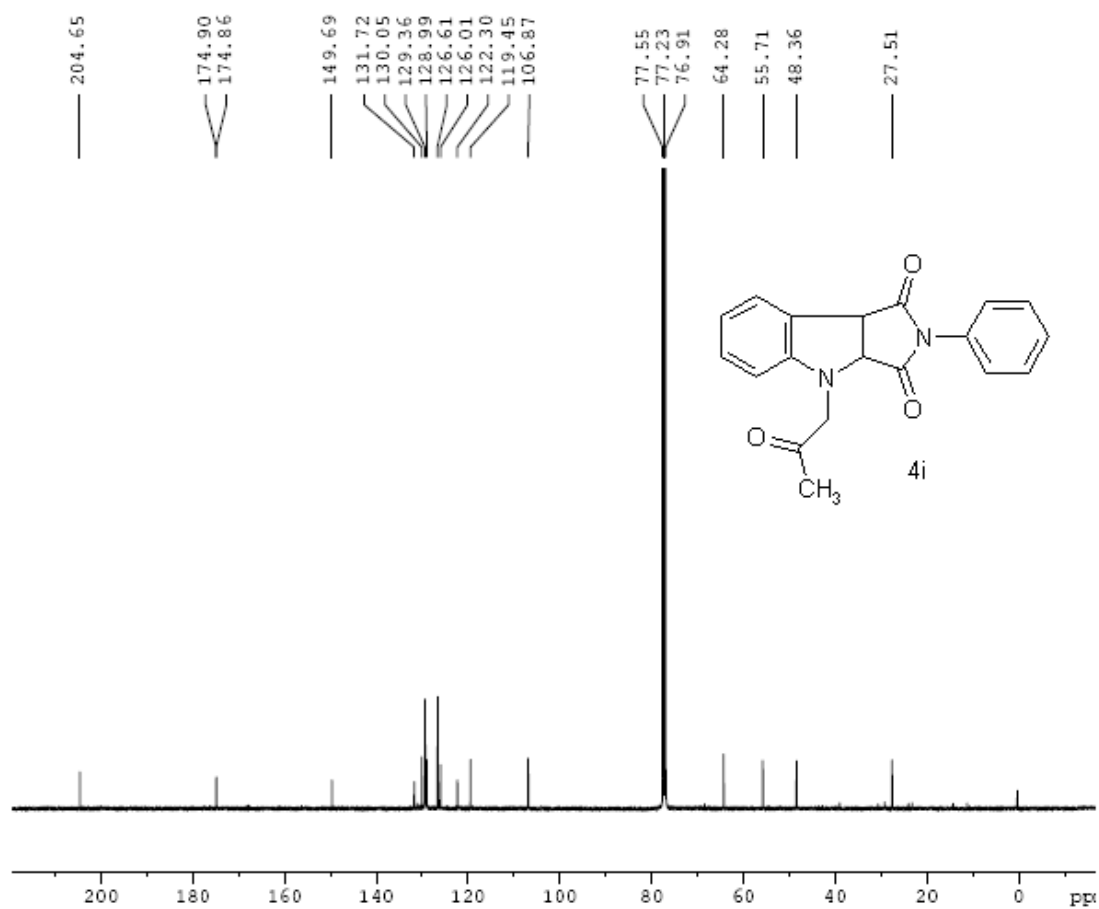
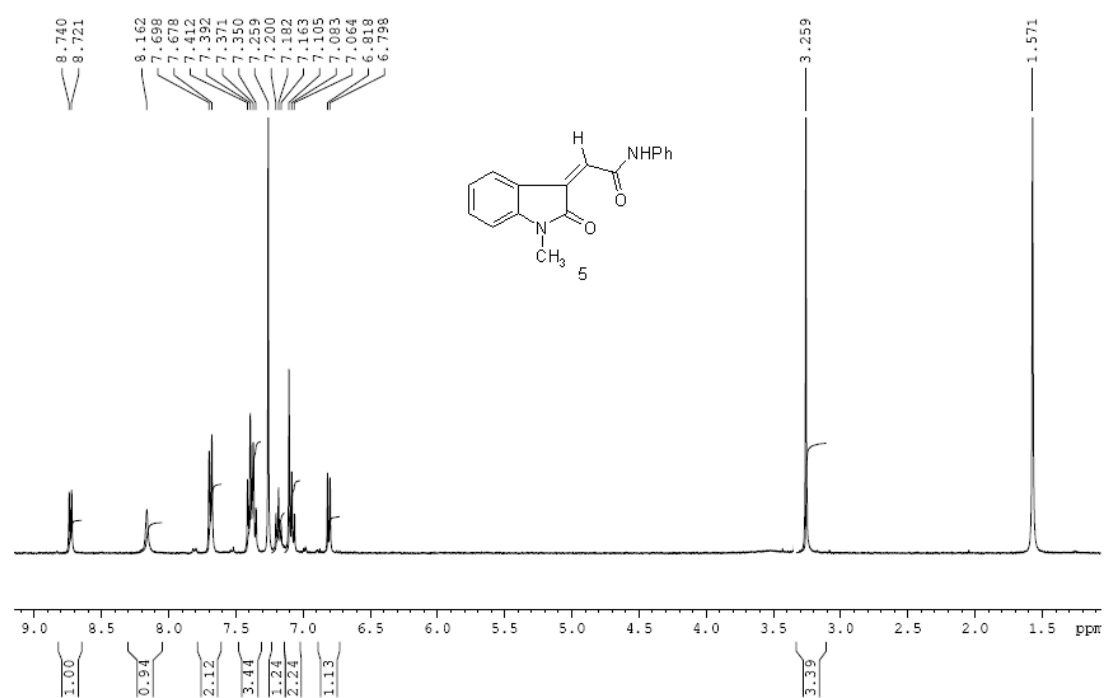
Figure S19. ^{13}C -NMR of 4i.Figure S20. ^1H -NMR of 5.

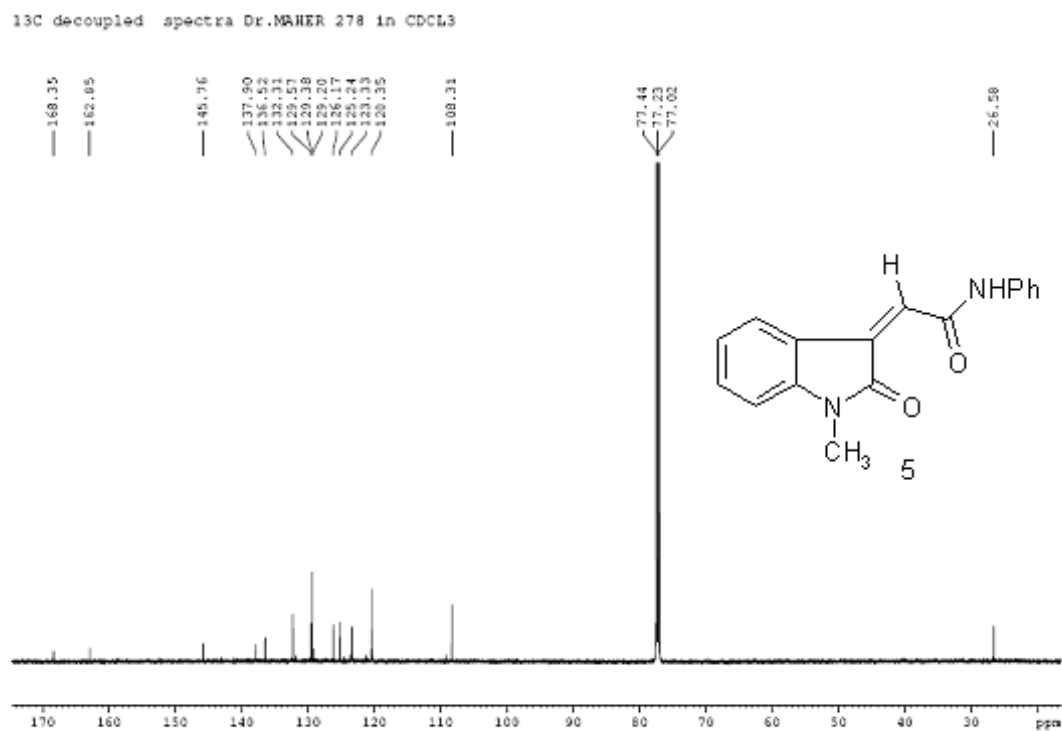
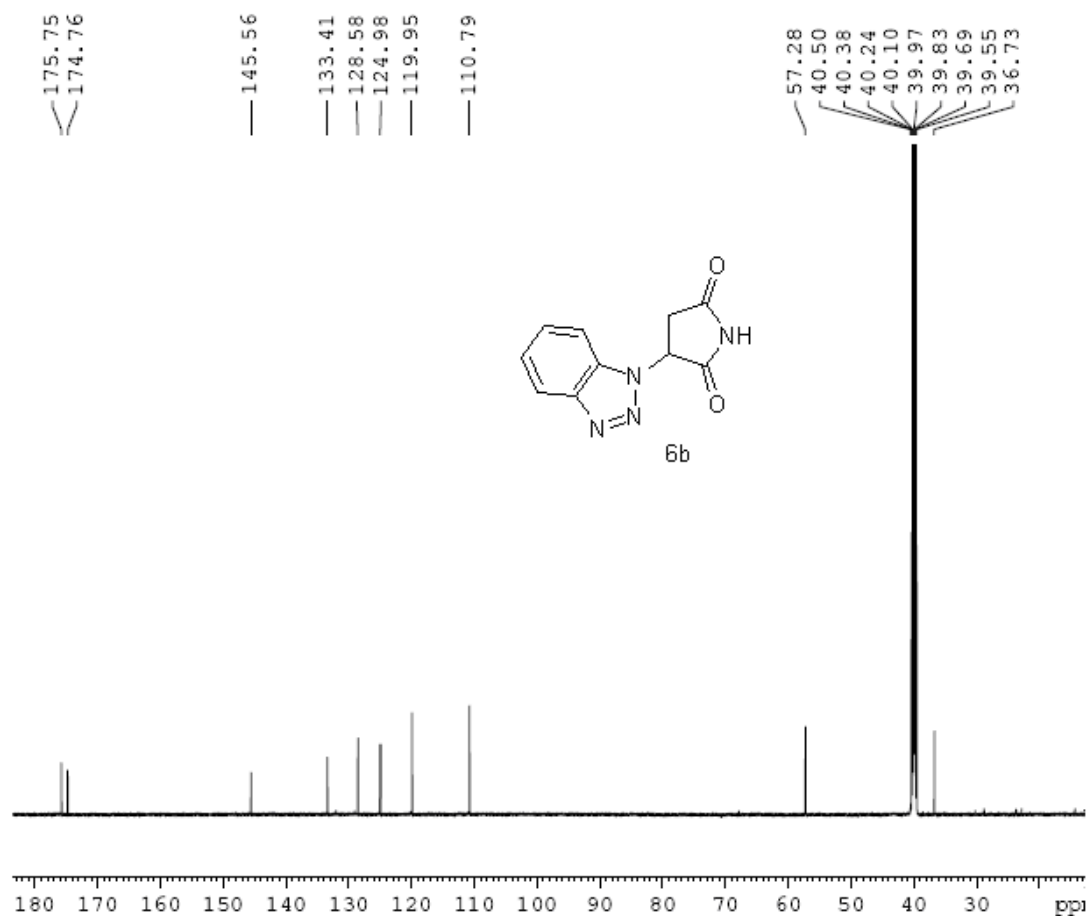
Figure S21. ^{13}C -NMR of 5.Figure S22. ^{13}C -NMR of 6b.

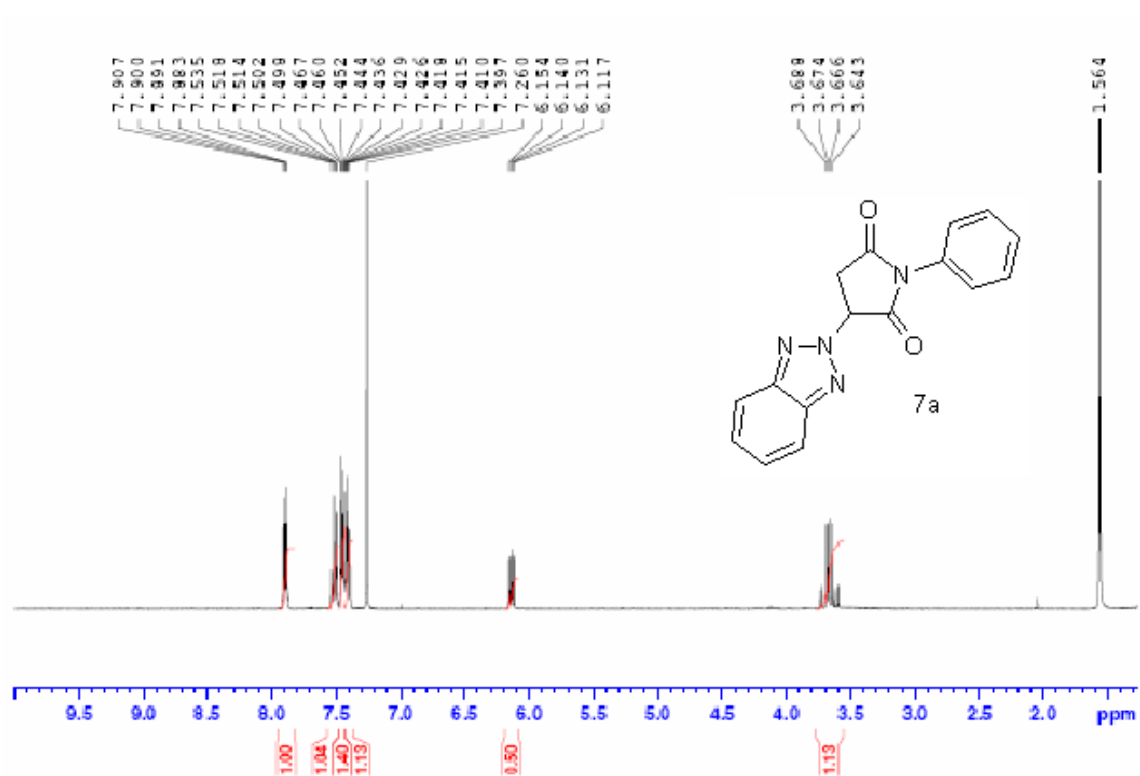
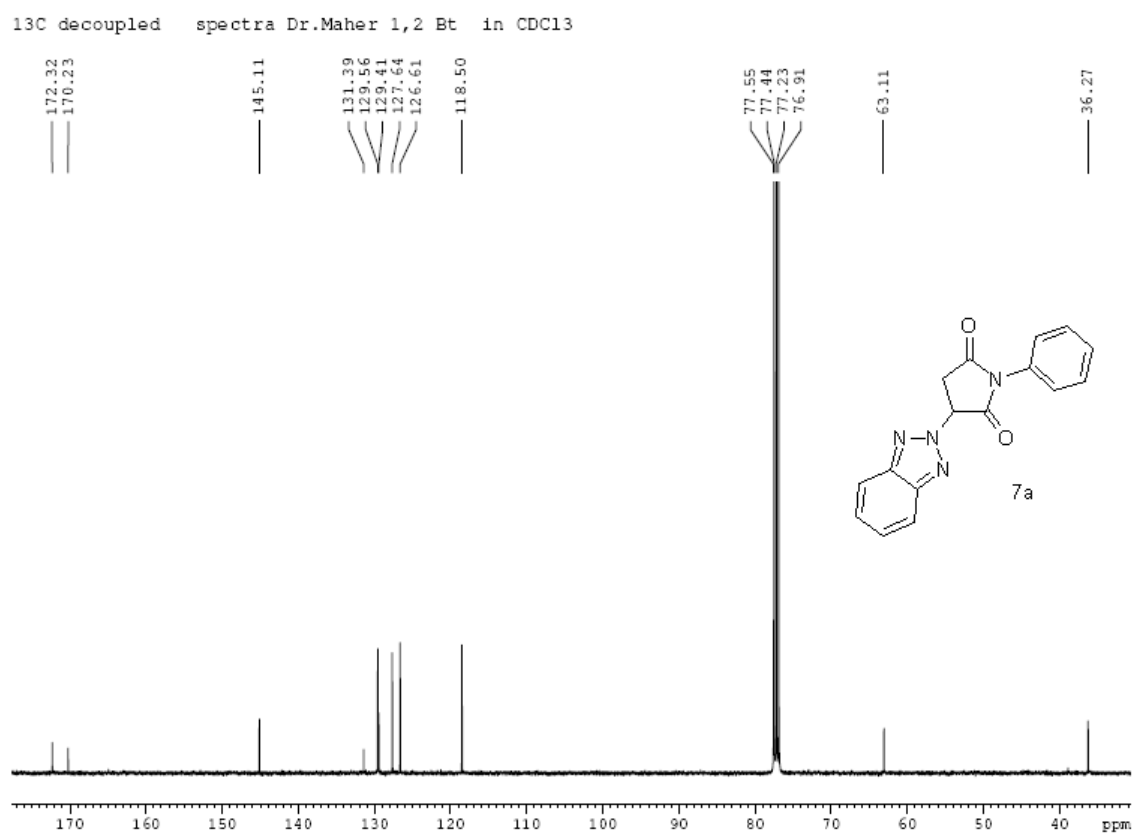
Figure S23. ^1H -NMR of 7a.Figure S24. ^{13}C -NMR of 7a.

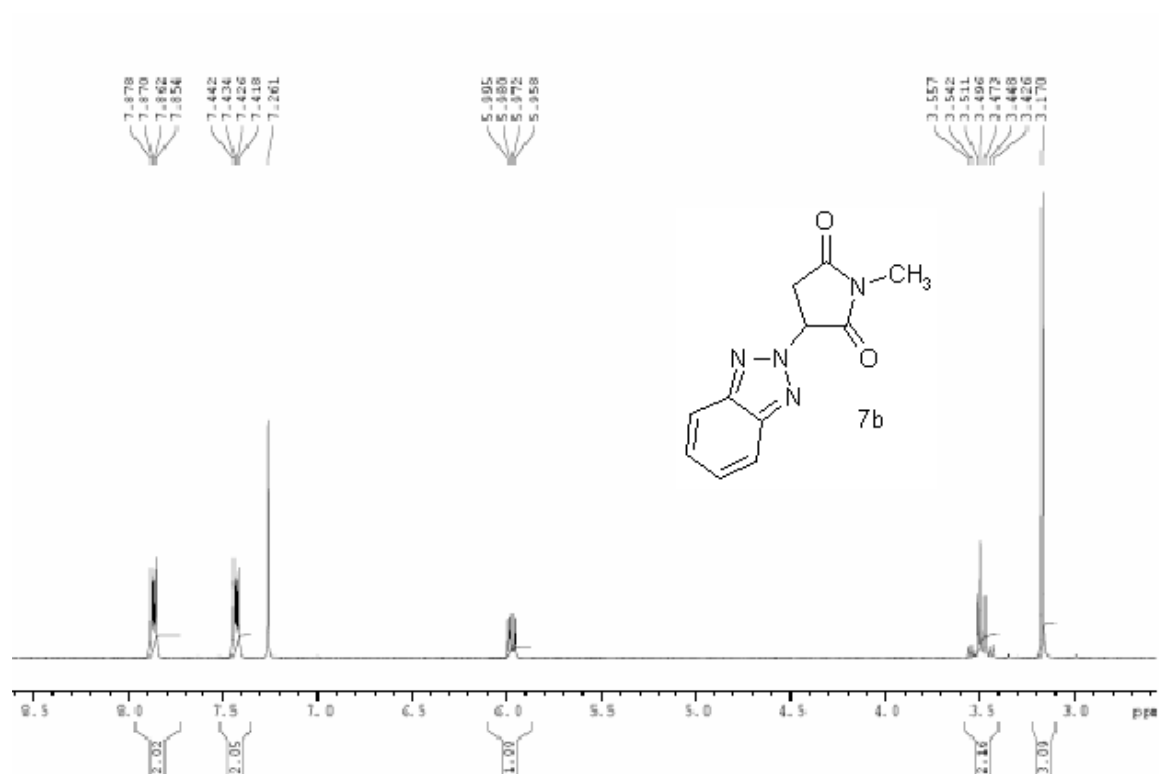
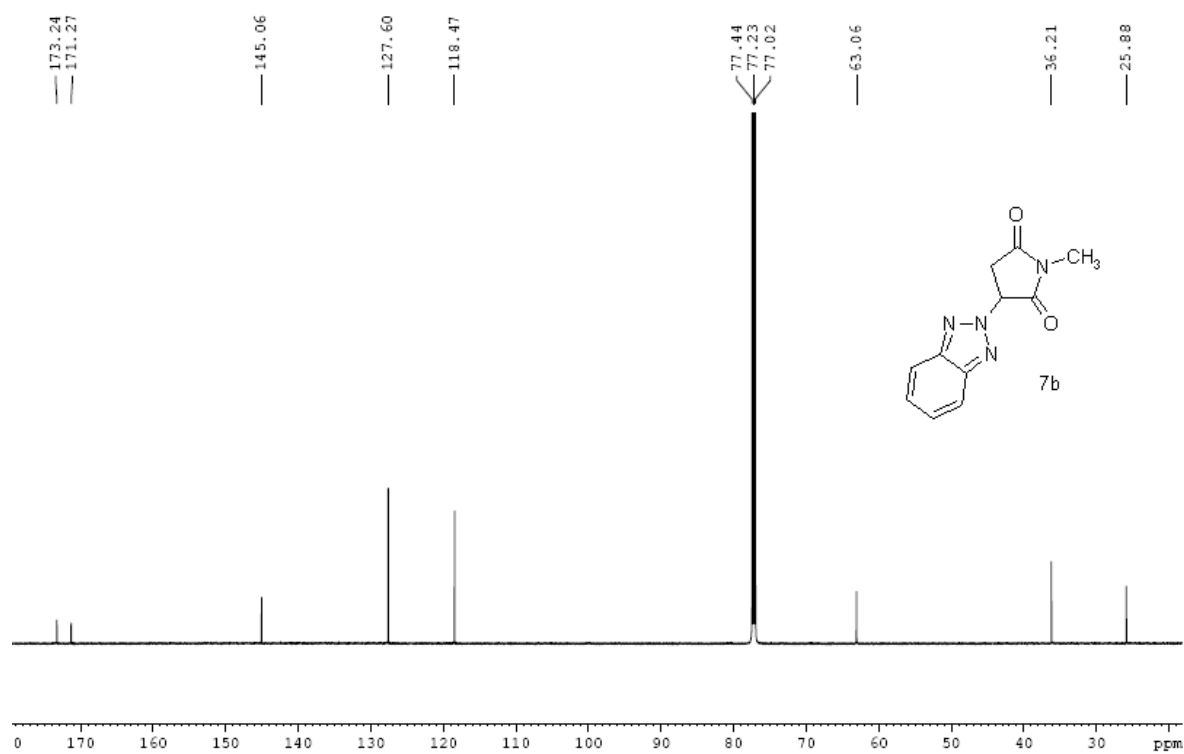
Figure S25. ^1H -NMR of 7b.Figure S26. ^{13}C -NMR of 7b.

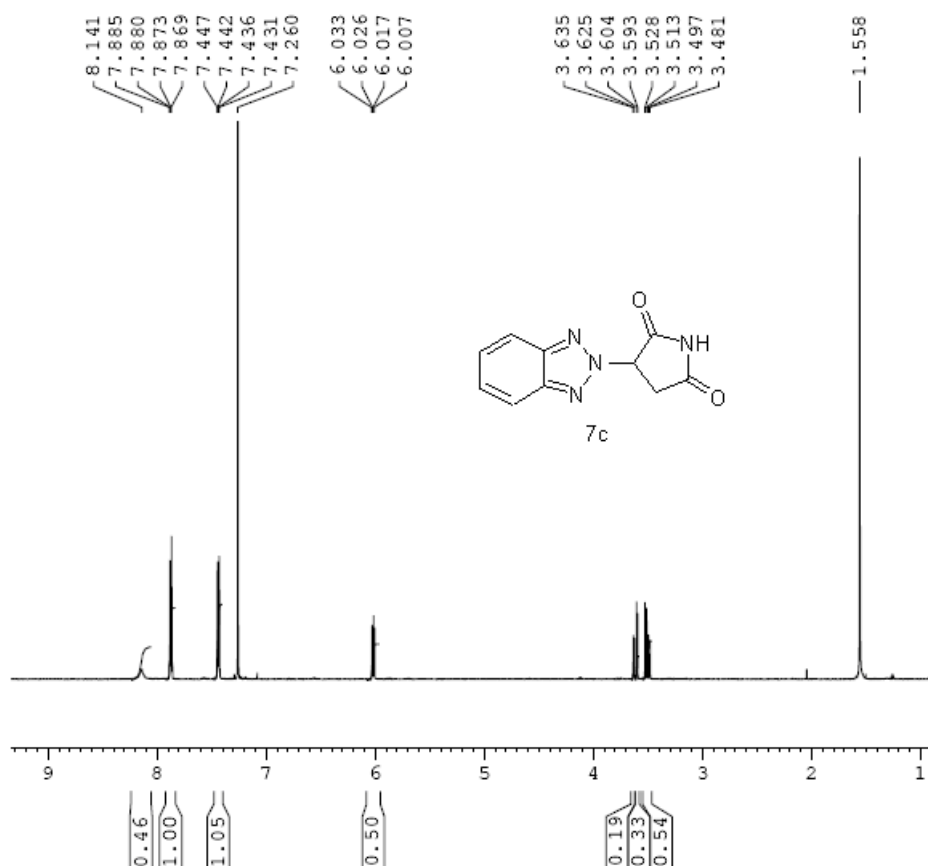
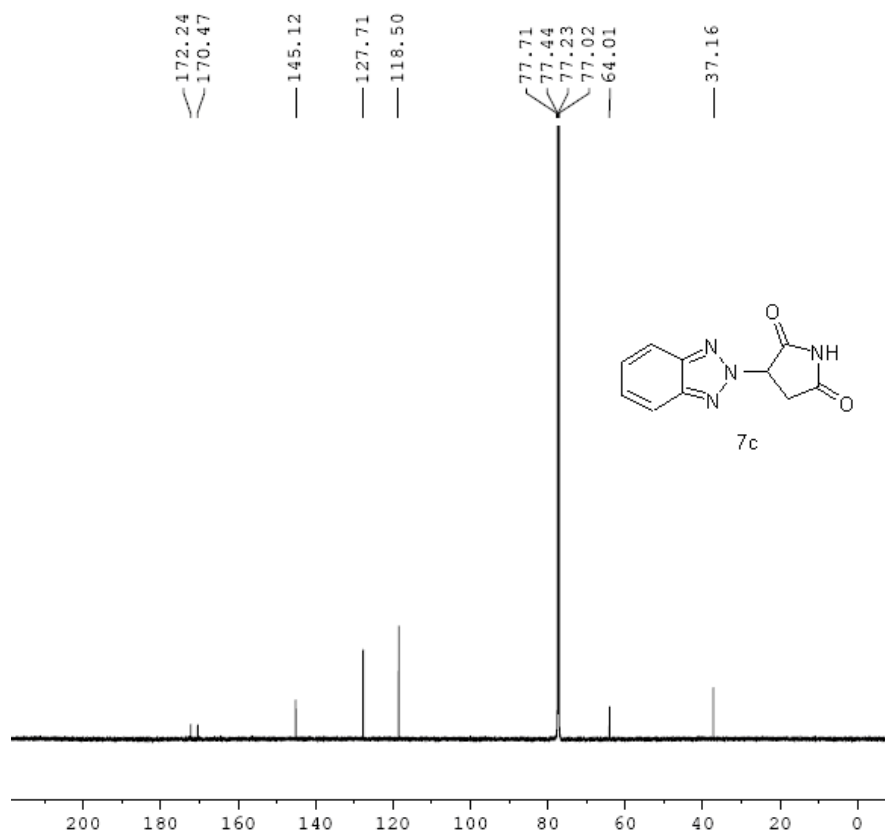
Figure S27. ^1H -NMR of 7c.Figure S28. ^{13}C -NMR of 7c.

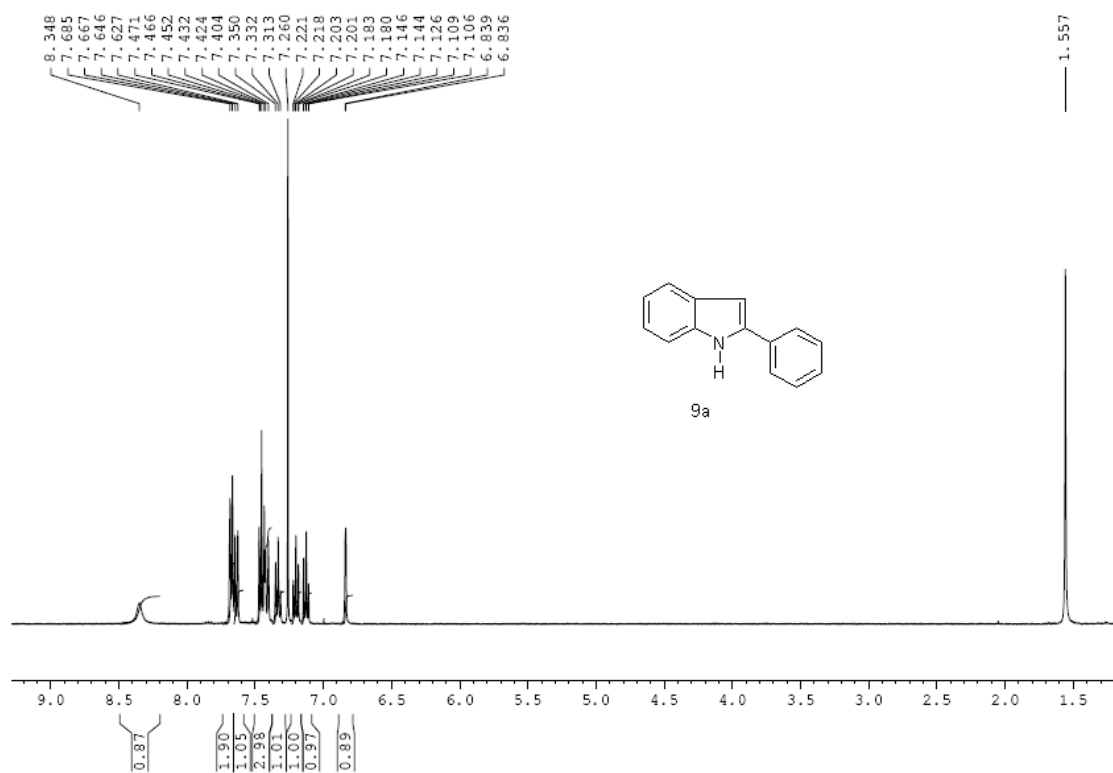
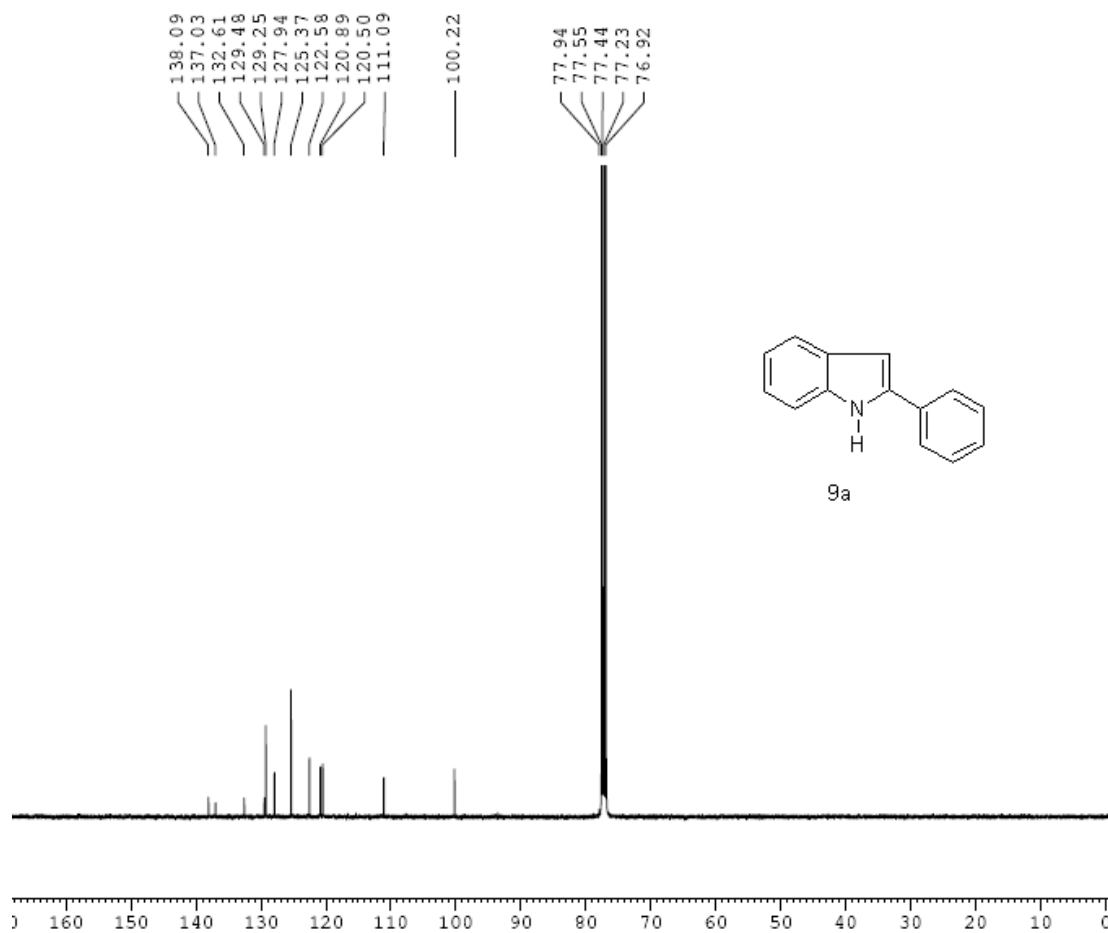
Figure S29. ^1H -NMR of 9a.Figure S30. ^{13}C -NMR of 9a.

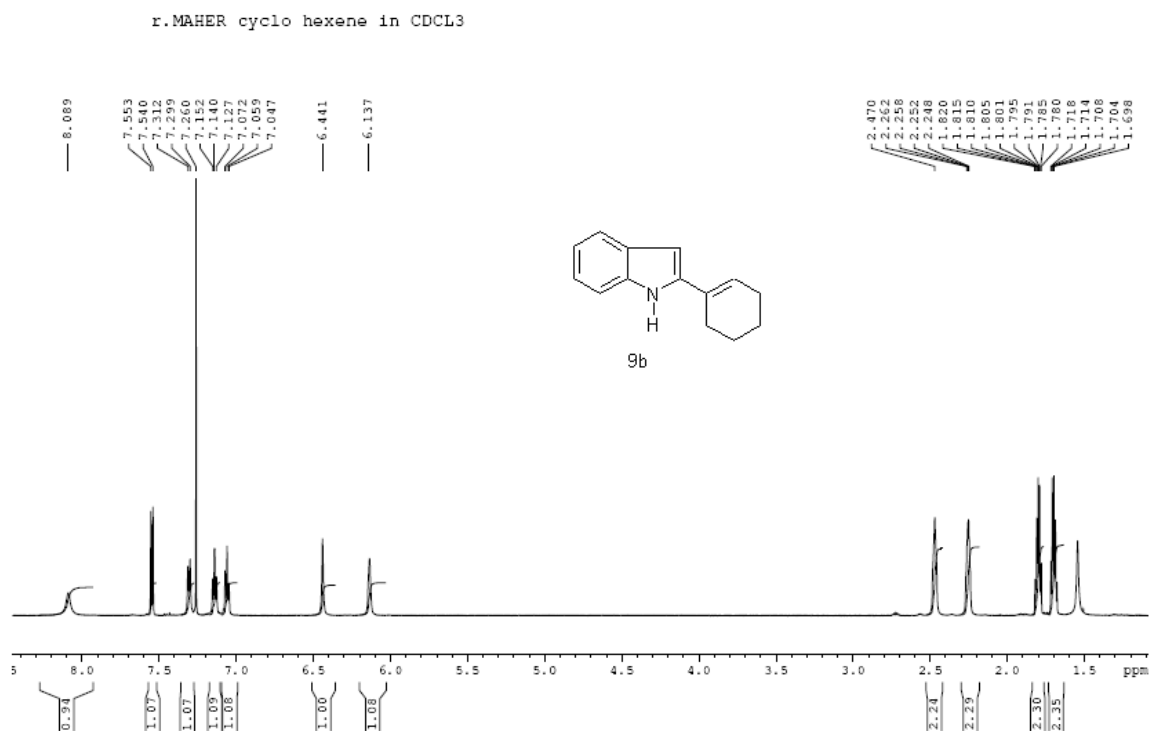
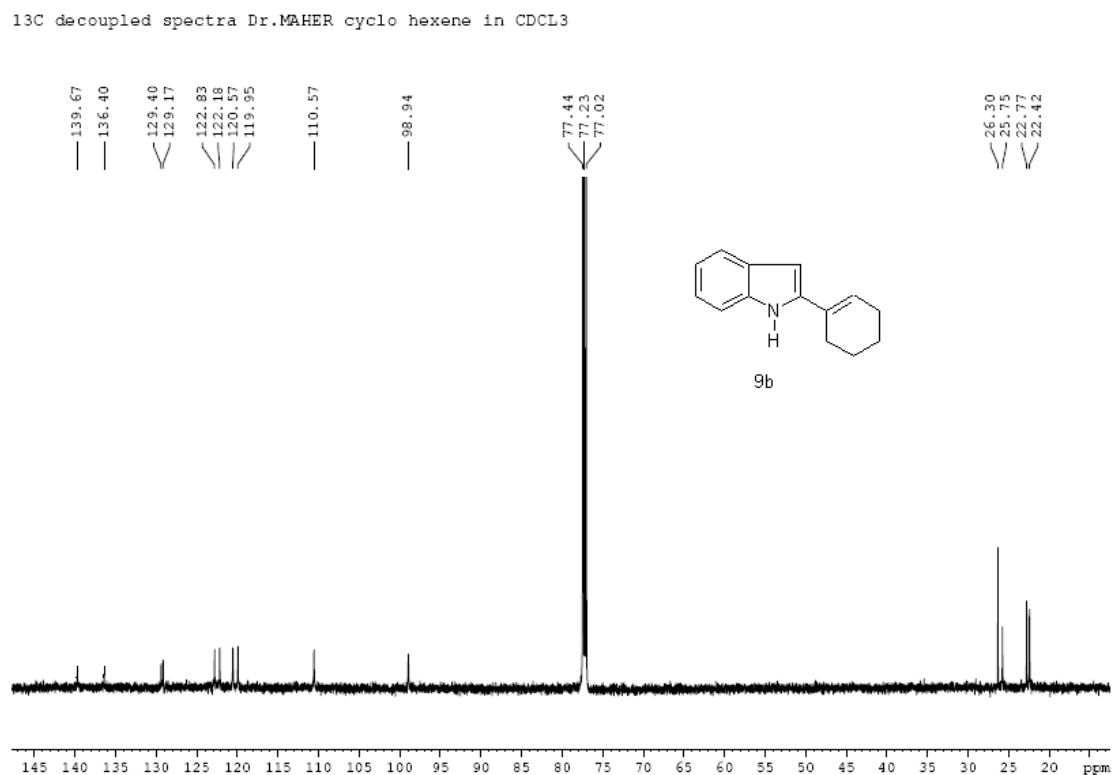
Figure S31. ^1H -NMR of 9b.Figure S32. ^{13}C -NMR of 9b.

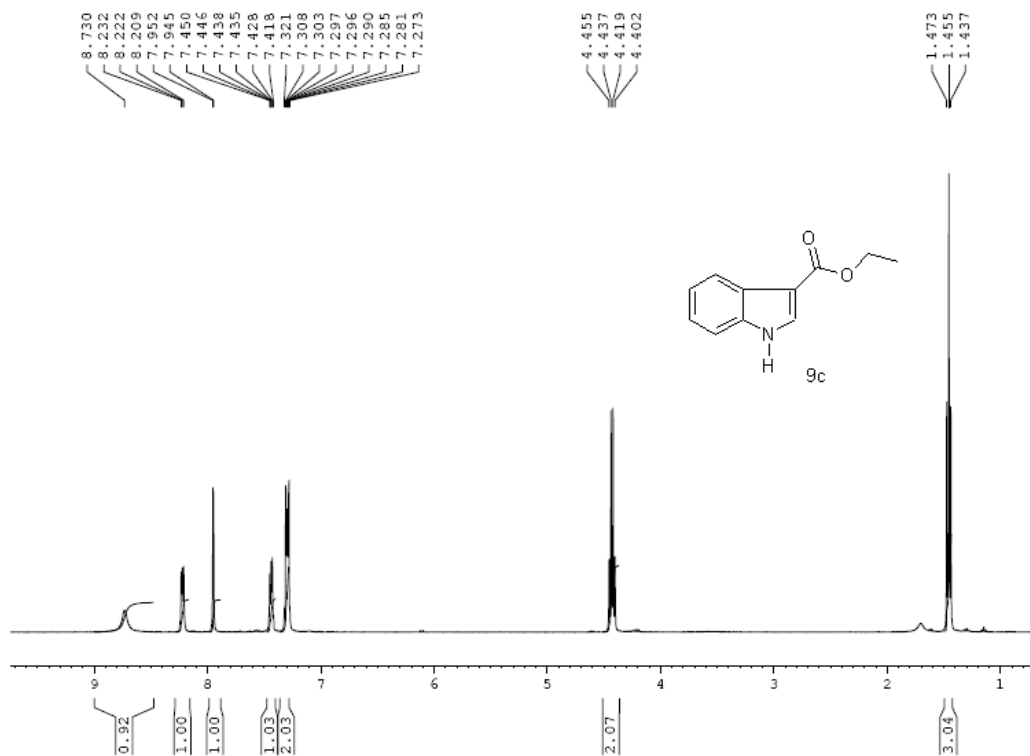
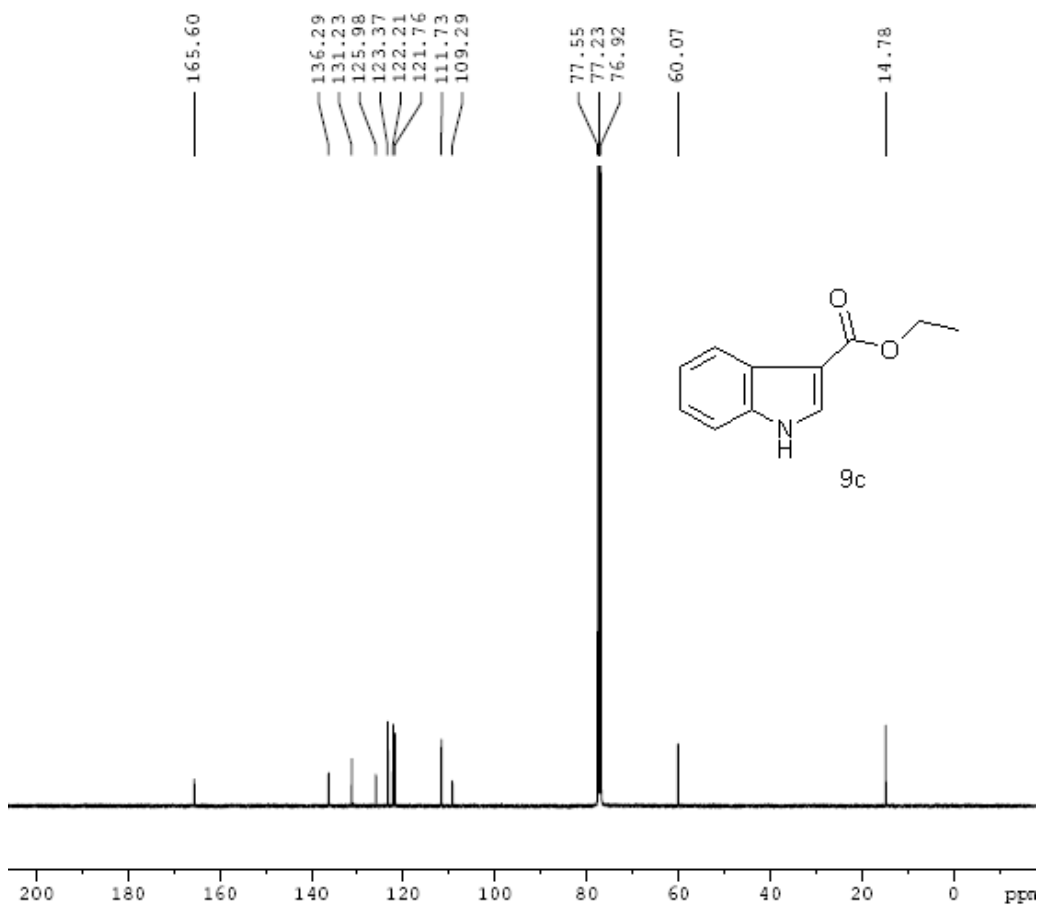
Figure S33. ^1H -NMR of 9c.Figure S34. ^{13}C -NMR of 9c.

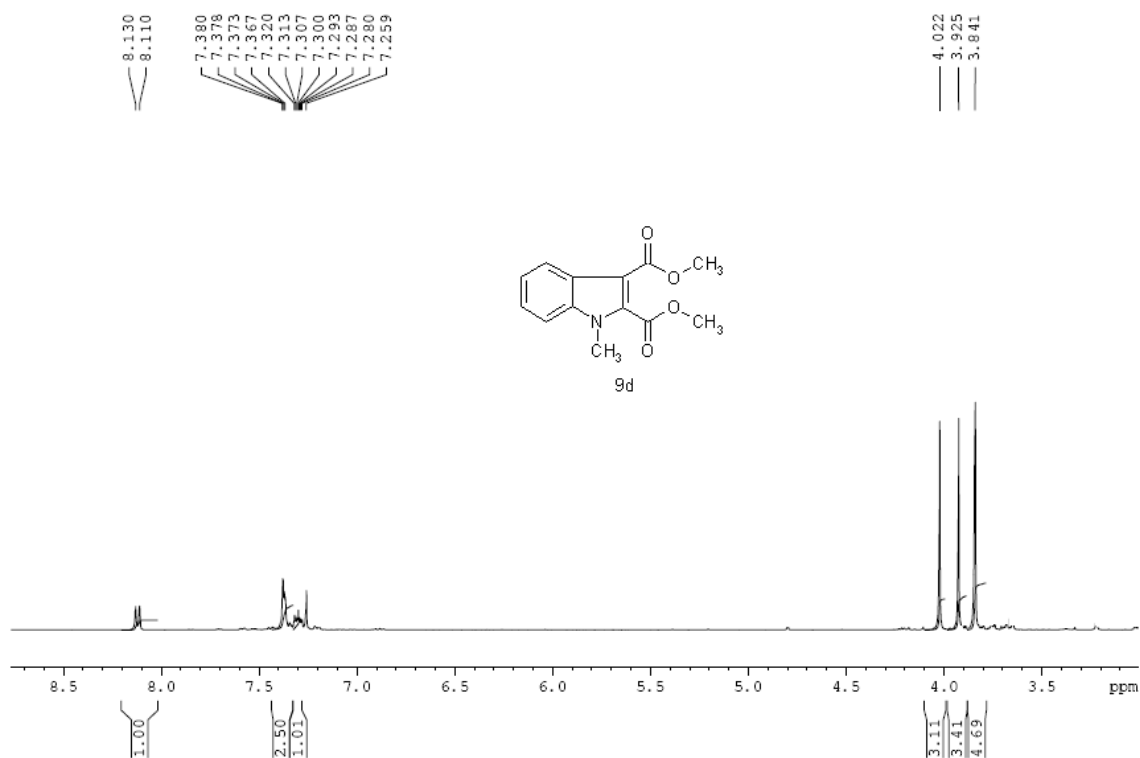
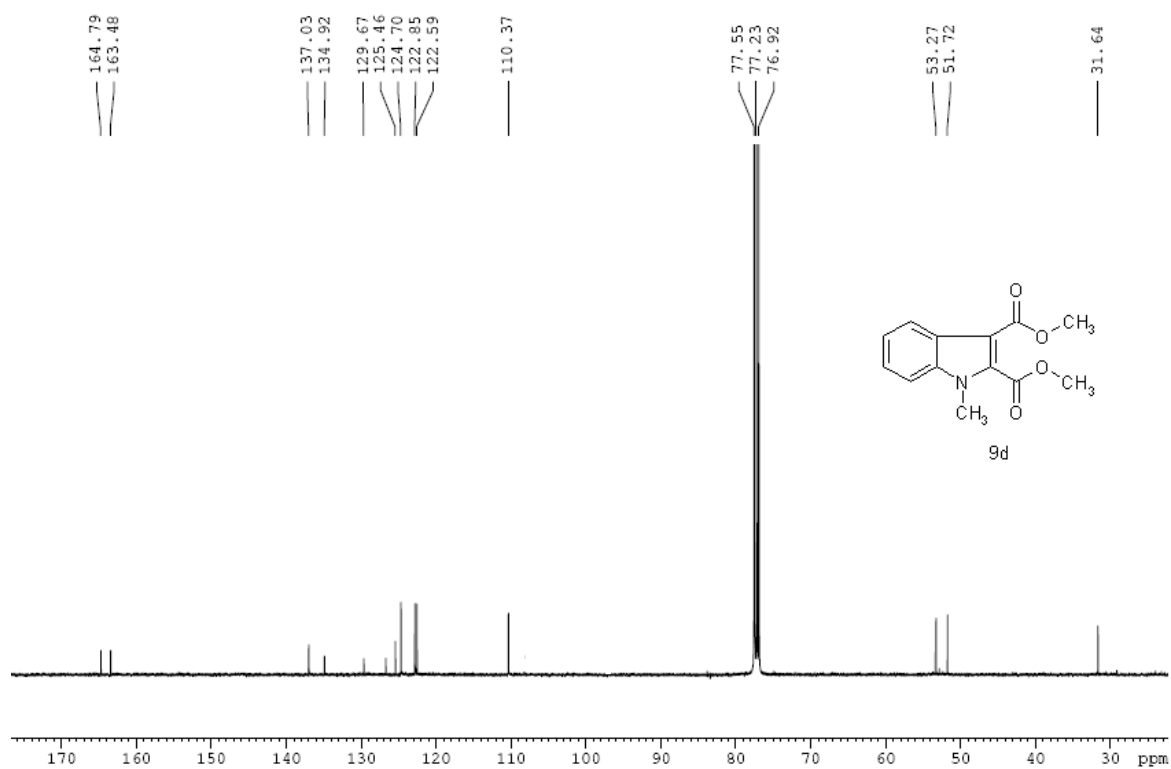
Figure S35. ^1H -NMR of 9d.Figure S36. ^{13}C -NMR of 9d.

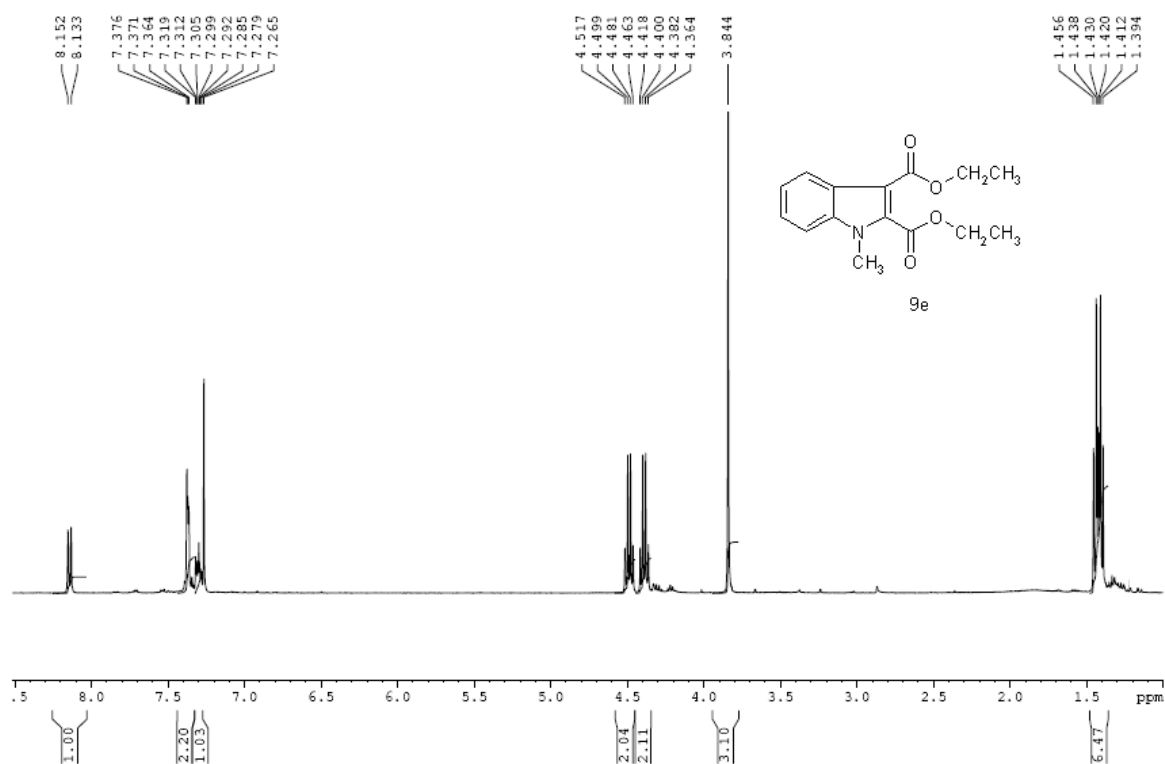
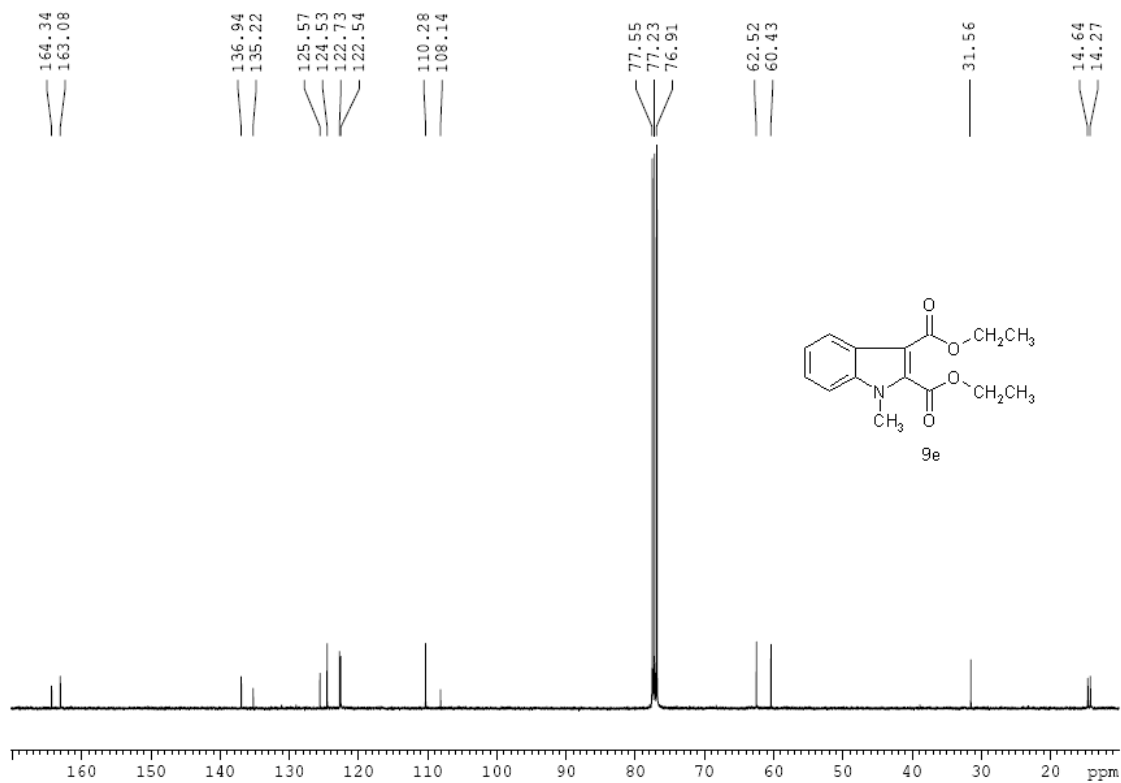
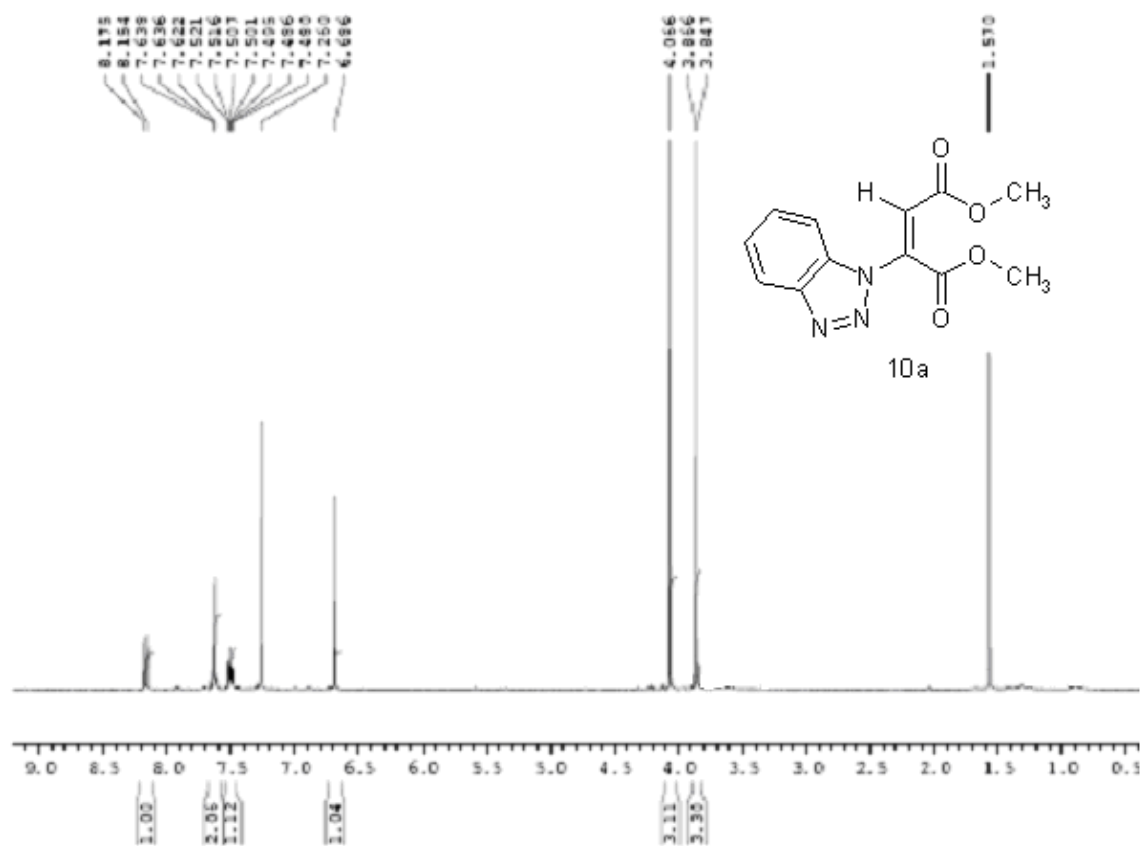
Figure S37. ^1H -NMR of 9e.Figure S38. ^{13}C -NMR of 9e.

Figure S39. ^1H -NMR of 10a.Figure S40. ^{13}C -NMR of 10a.

^{13}C decoupled Spectra Dr. MAHER C3 in CDCl_3

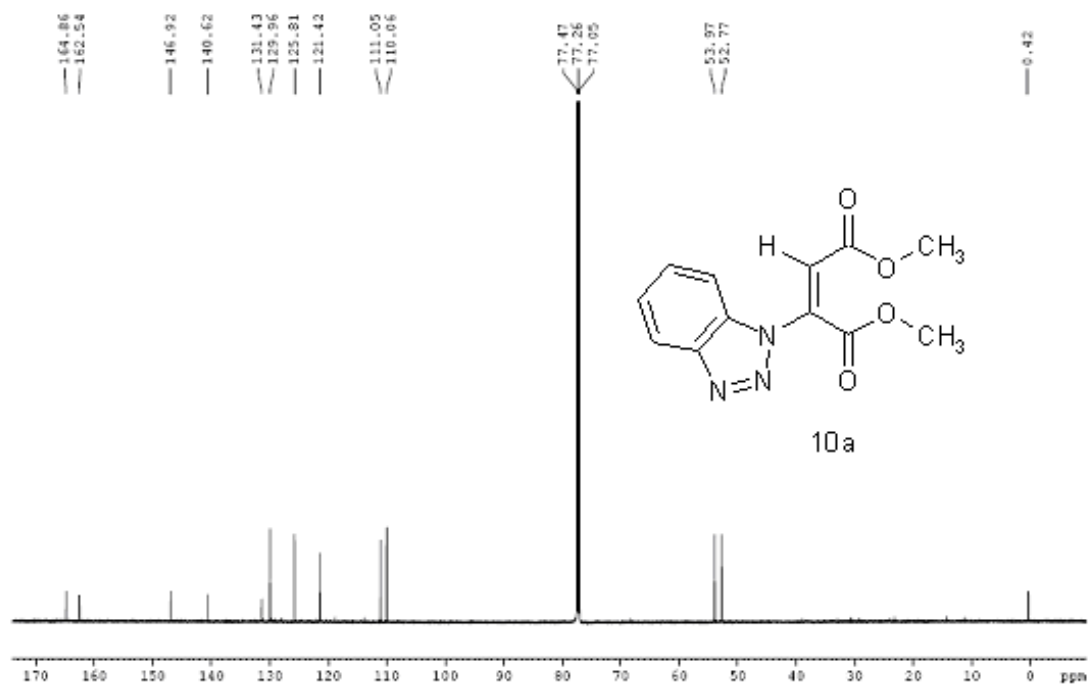


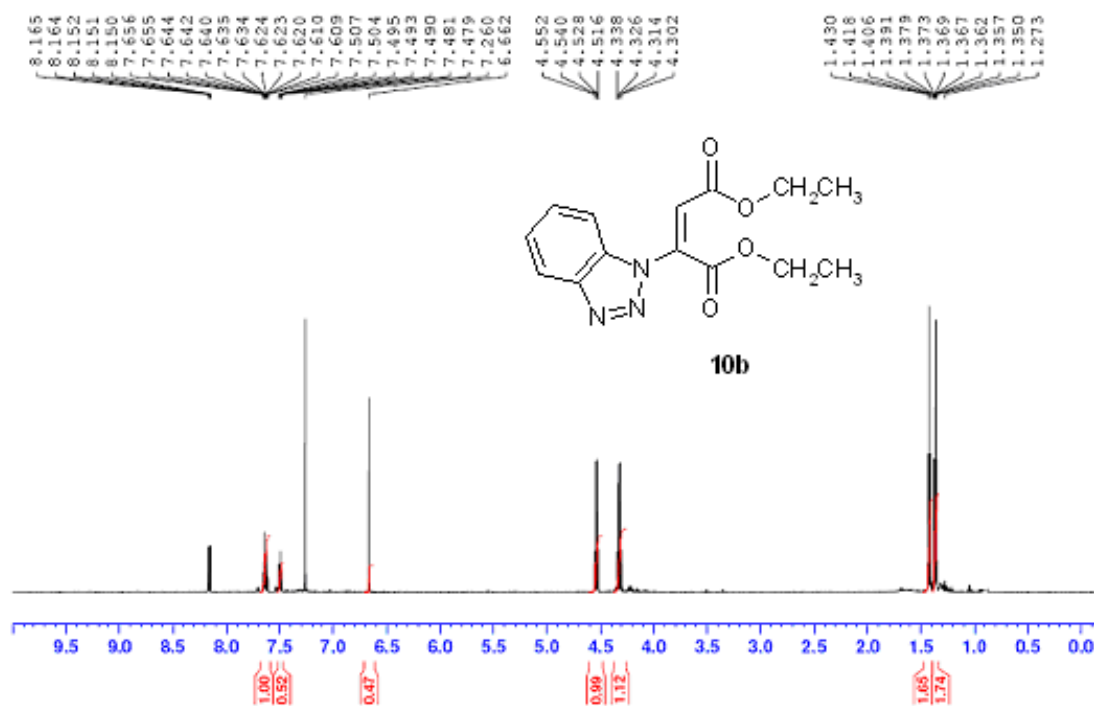
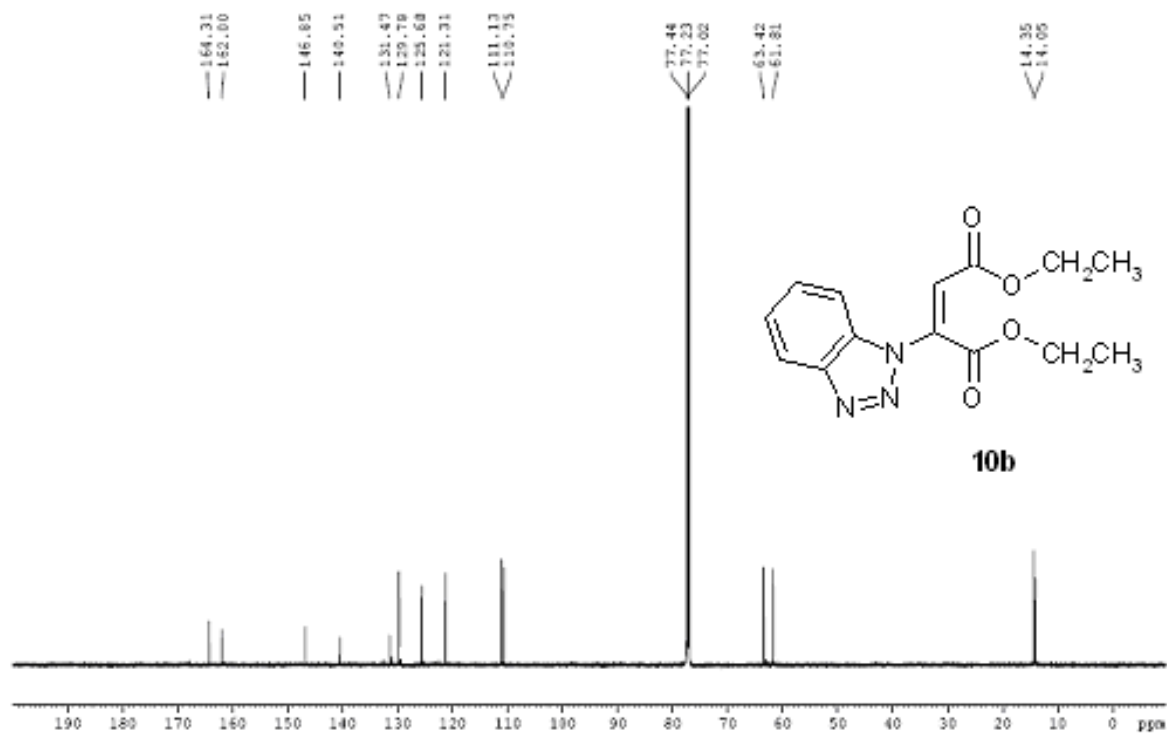
Figure S41. ^1H -NMR of **10b**.Figure S42. ^{13}C -NMR of **10b**.

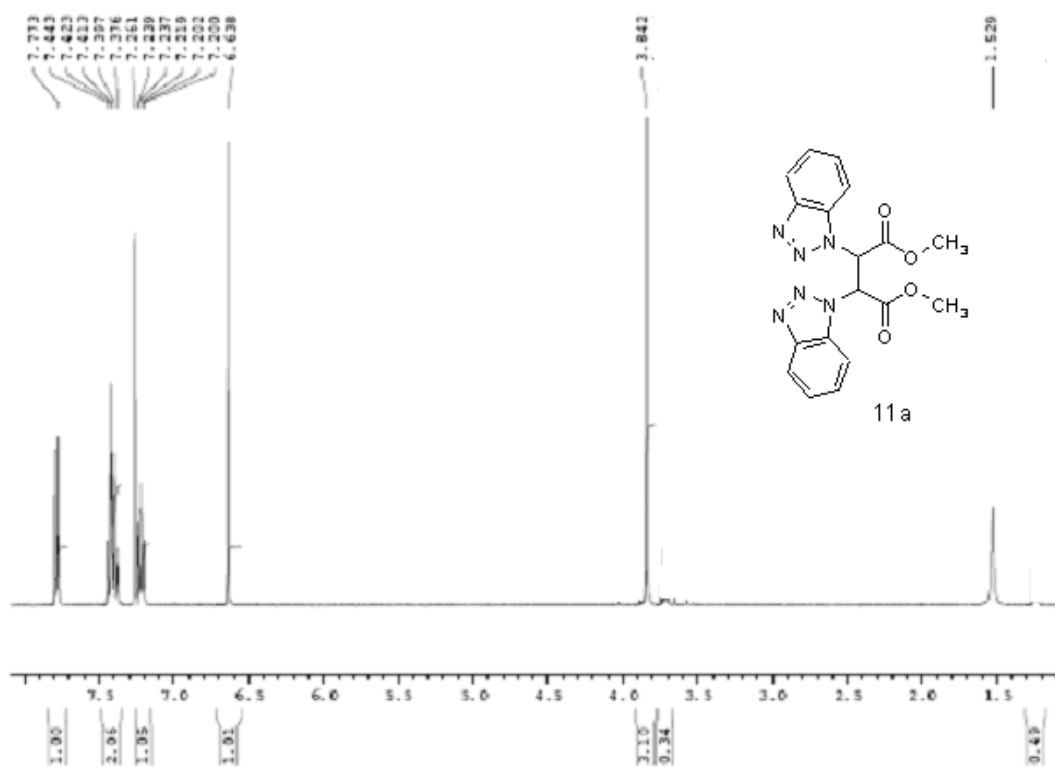
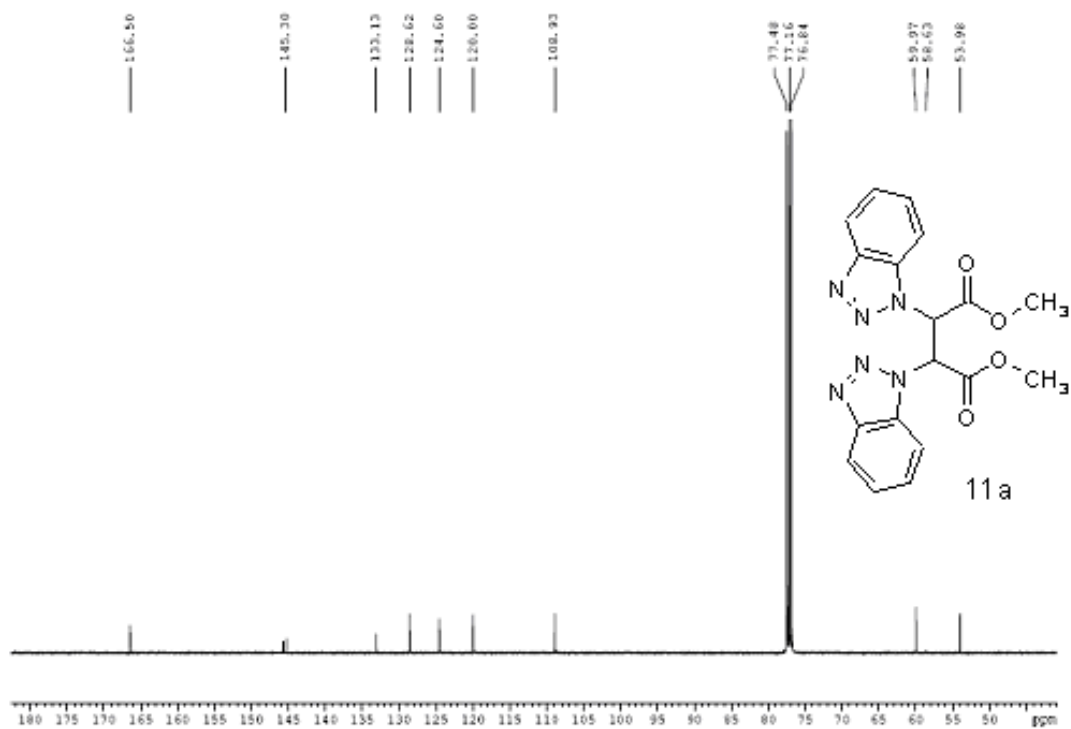
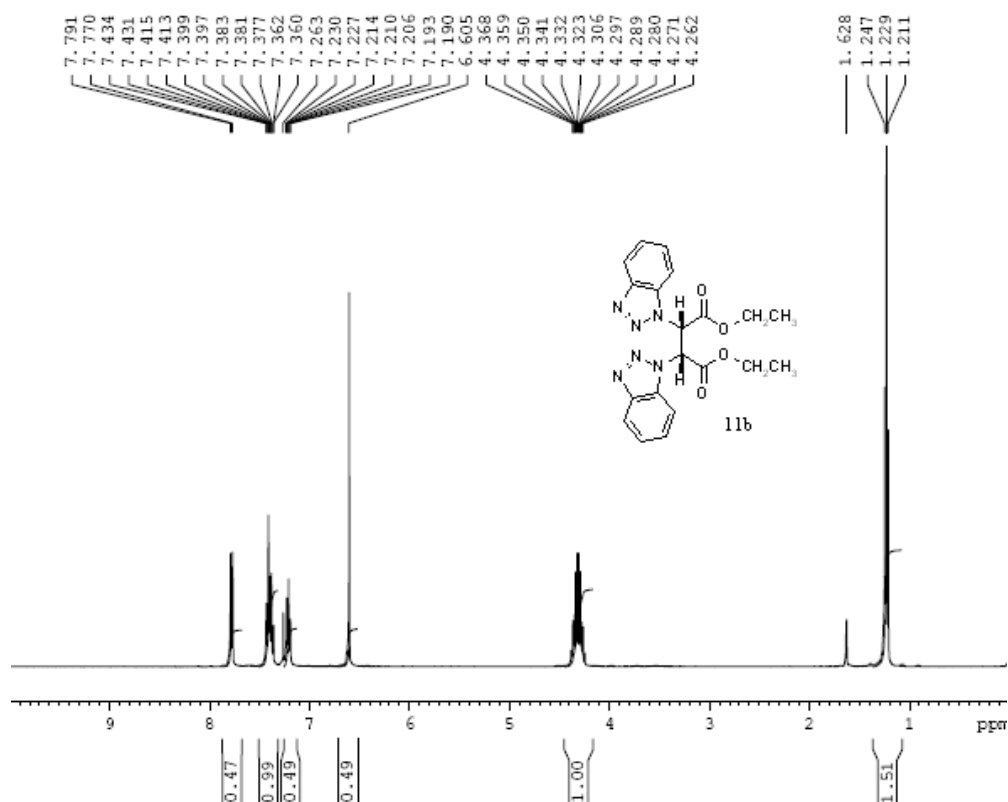
Figure S43. ^1H -NMR of 11a.Figure S44. ^{13}C -NMR of 11a.

Figure S45. ^1H -NMR of 11b.Figure S46. ^{13}C -NMR of 11b.

^{13}C decoupled spectrum Dr.Maher Ester in CDCl_3

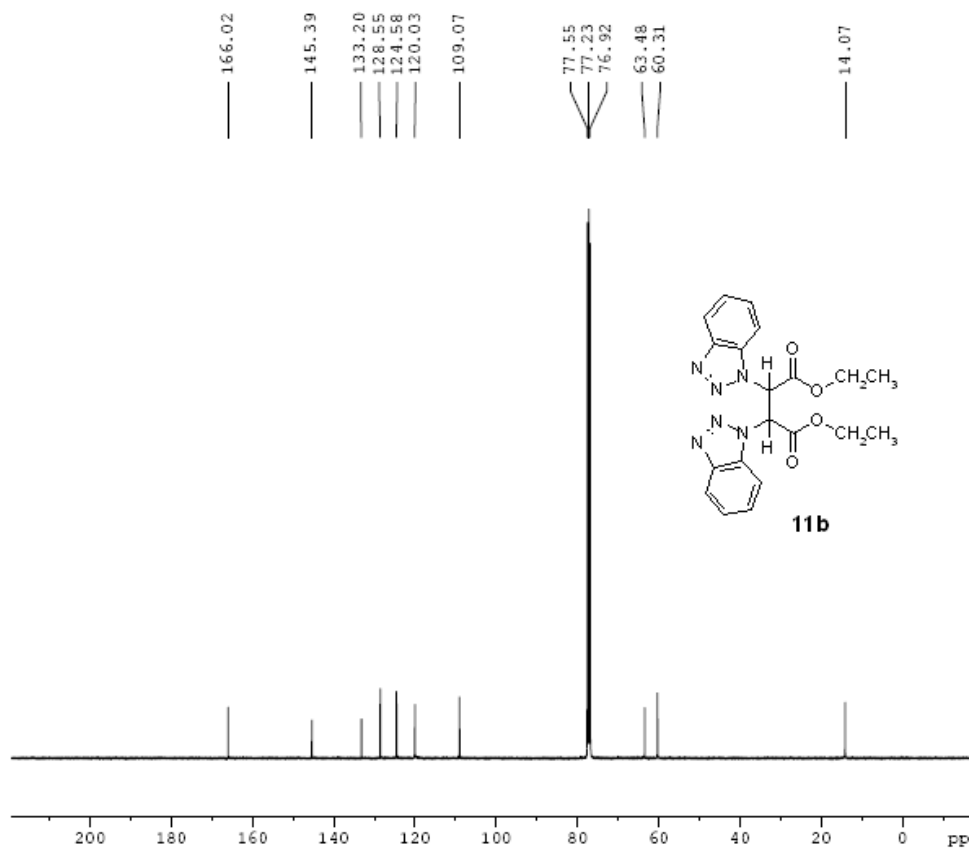


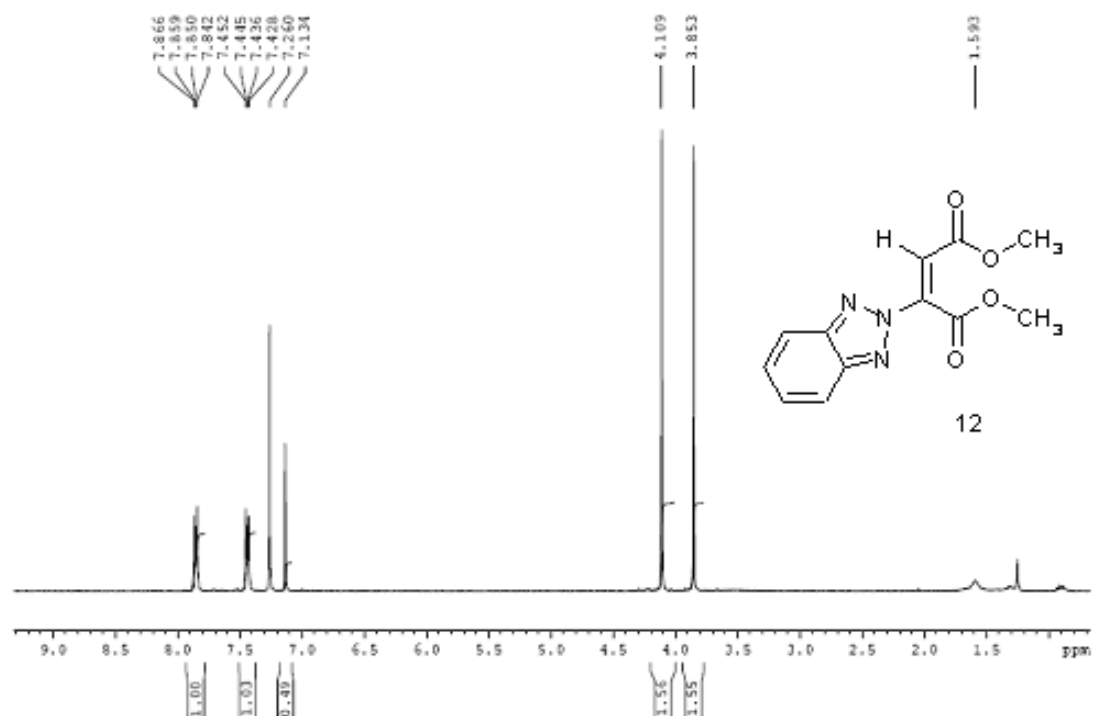
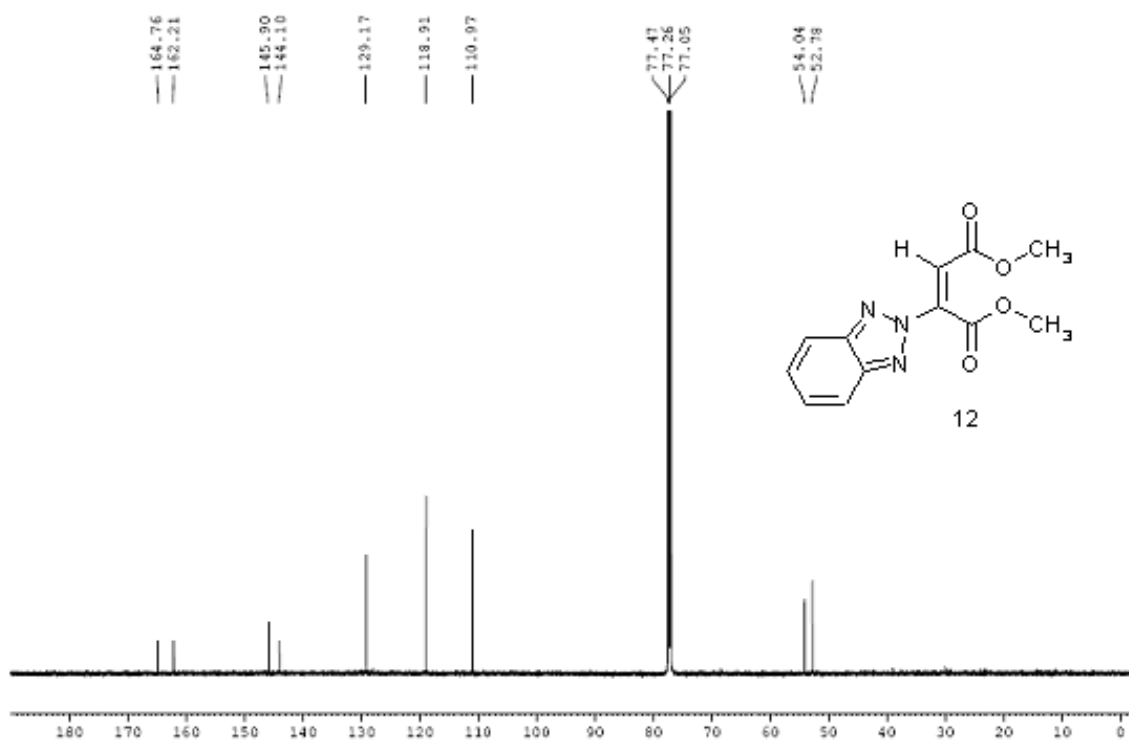
Figure S47. ^1H -NMR of 12.Figure S48. ^{13}C -NMR of 12.

Figure S49. GC-Mass of 4a.

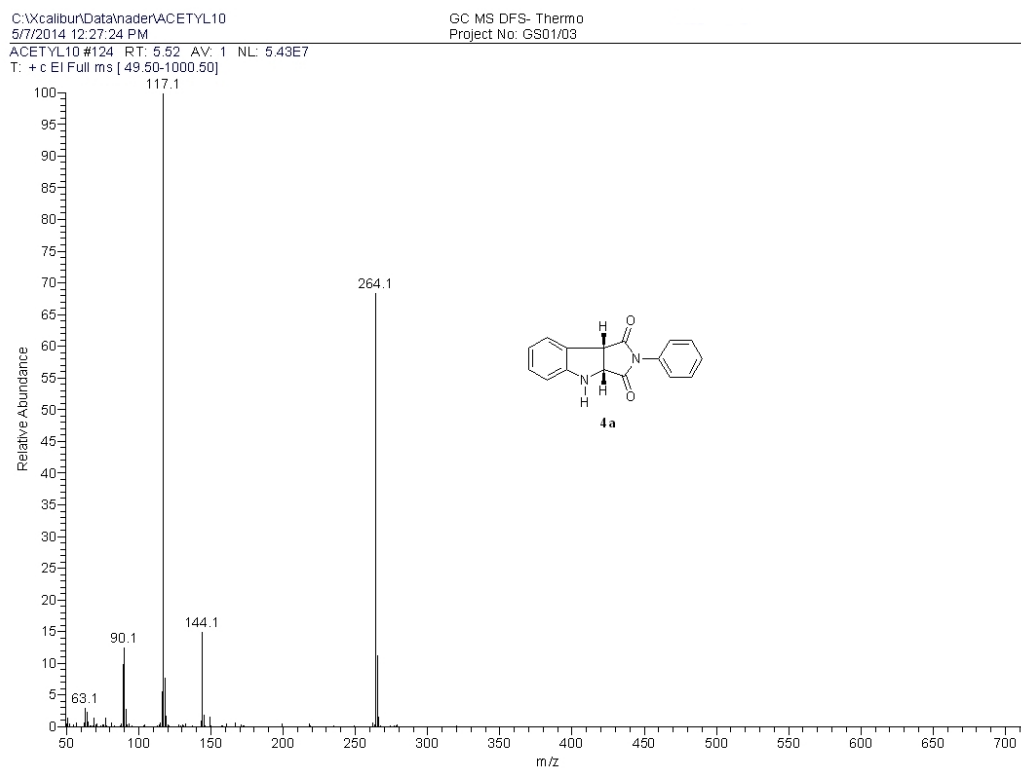


Figure S50. GC-Mass of 4b.

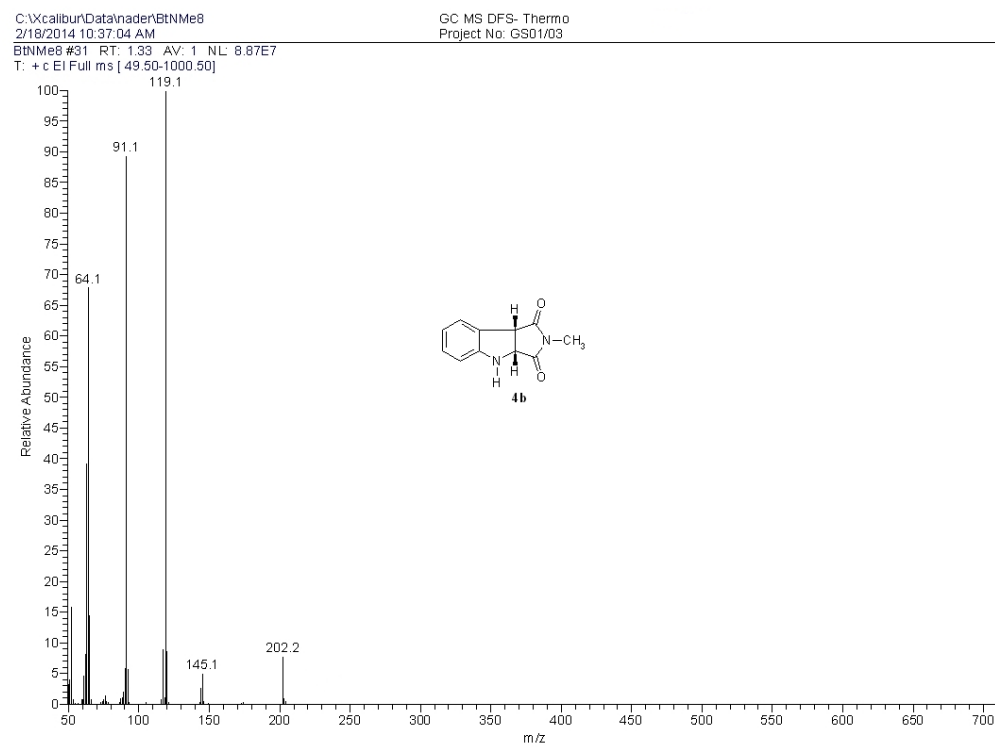


Figure S51. GC-Mass of 4d.

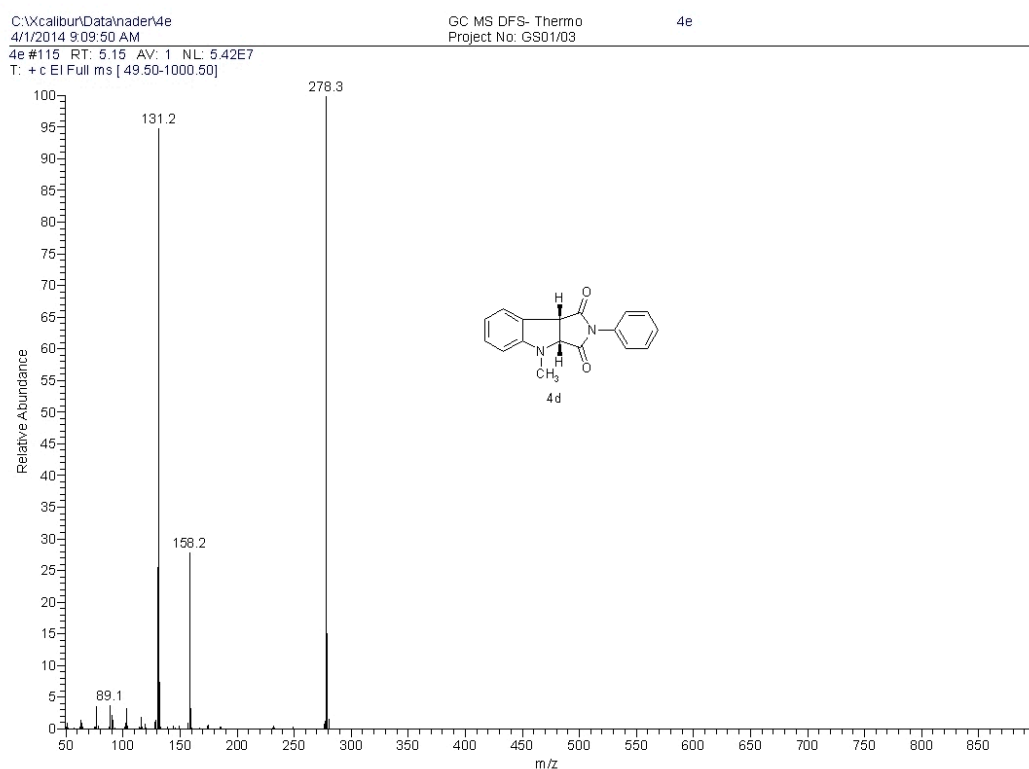


Figure S52. GC-Mass of 4e.

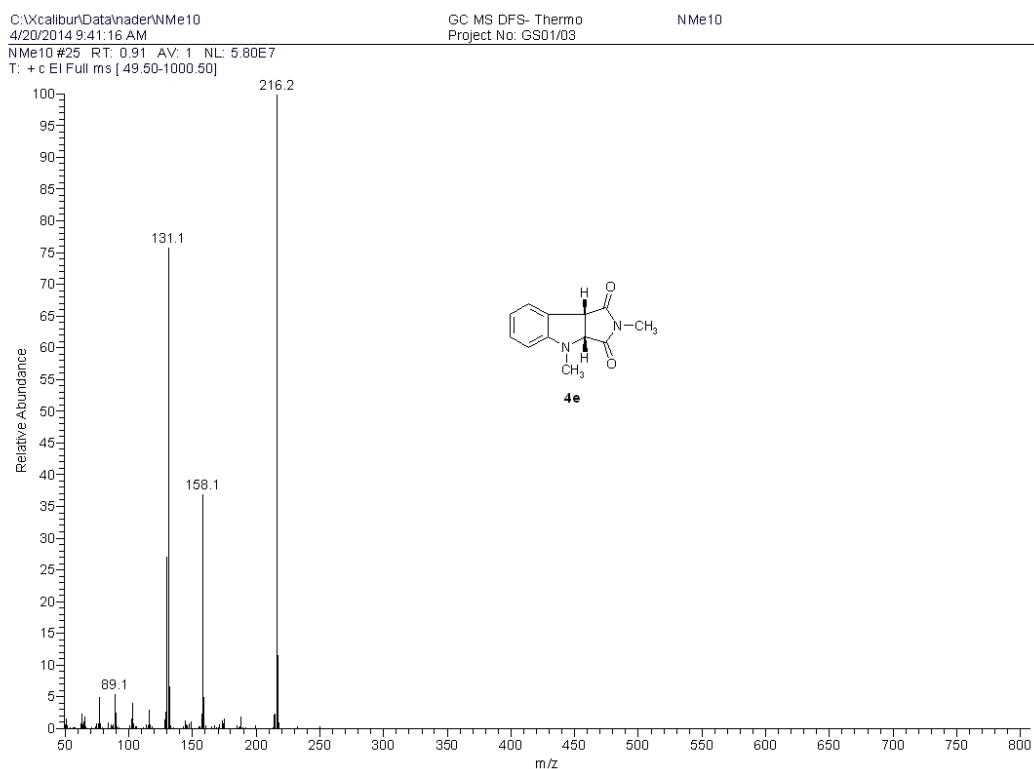


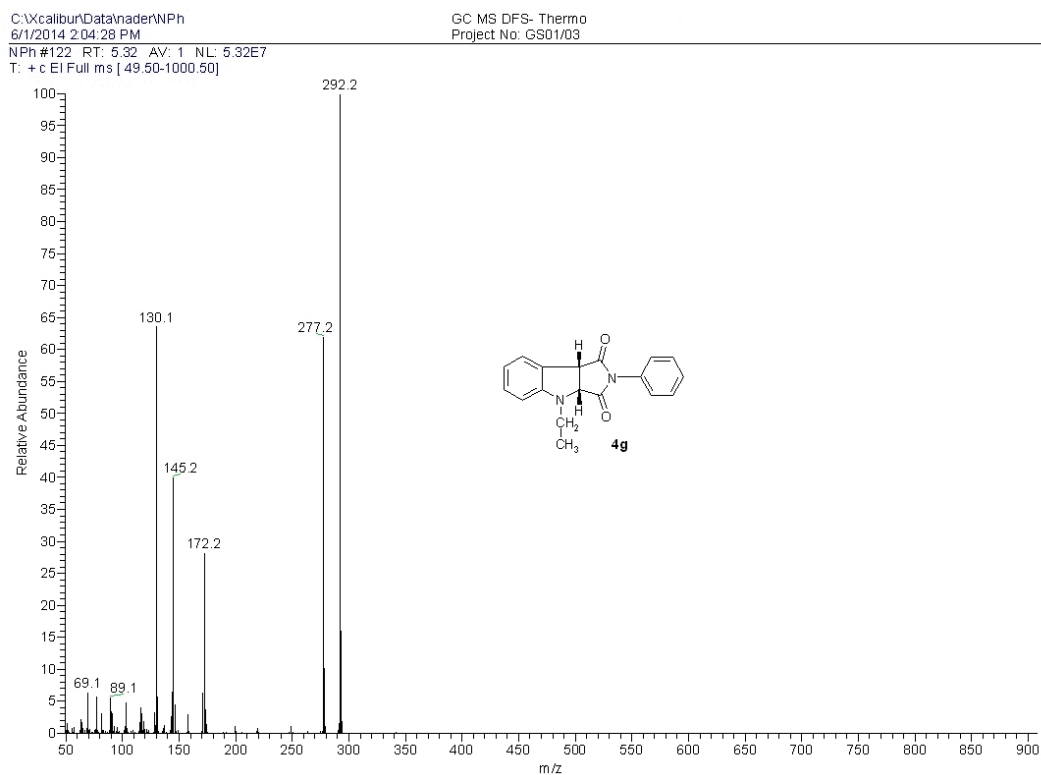
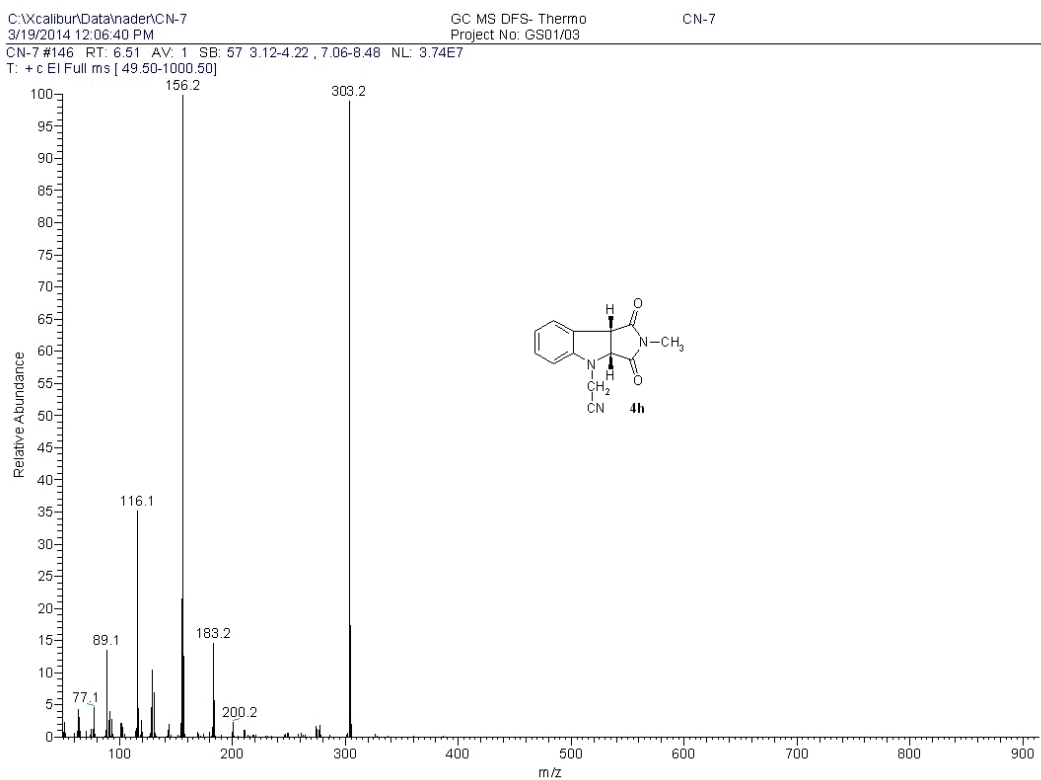
Figure S53. GC-Mass of **4g**.Figure S54. GC-Mass of **4h**.

Figure S55. GC-Mass of 4i.

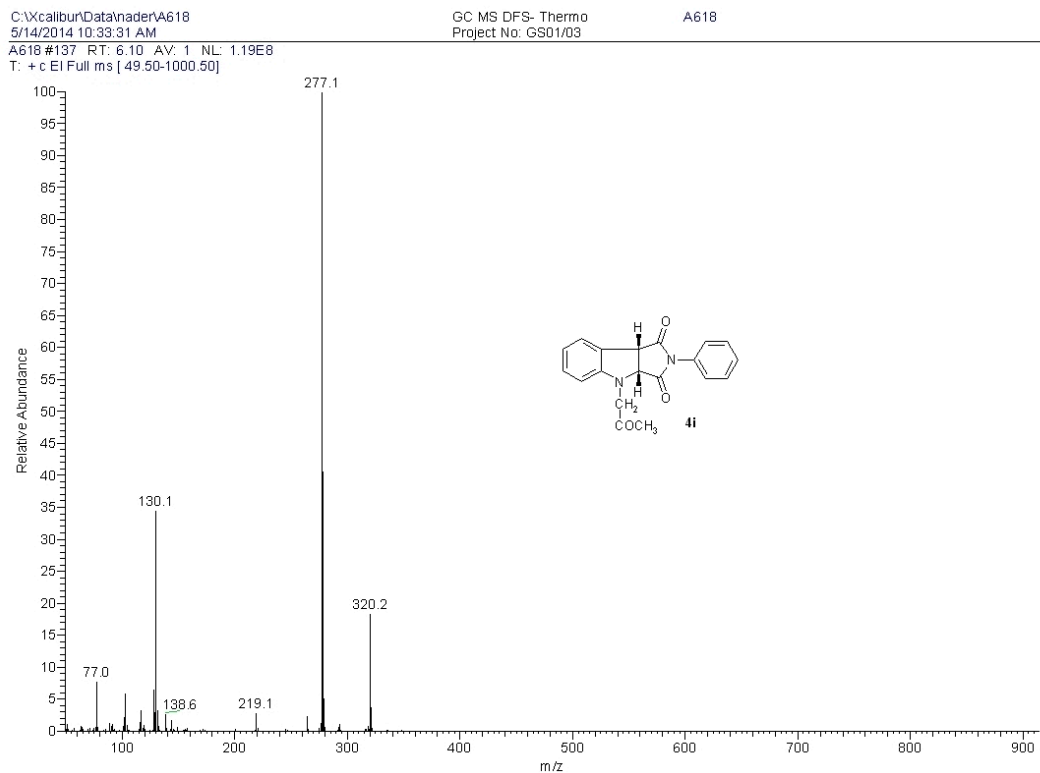


Figure S56. GC-Mass of 5.

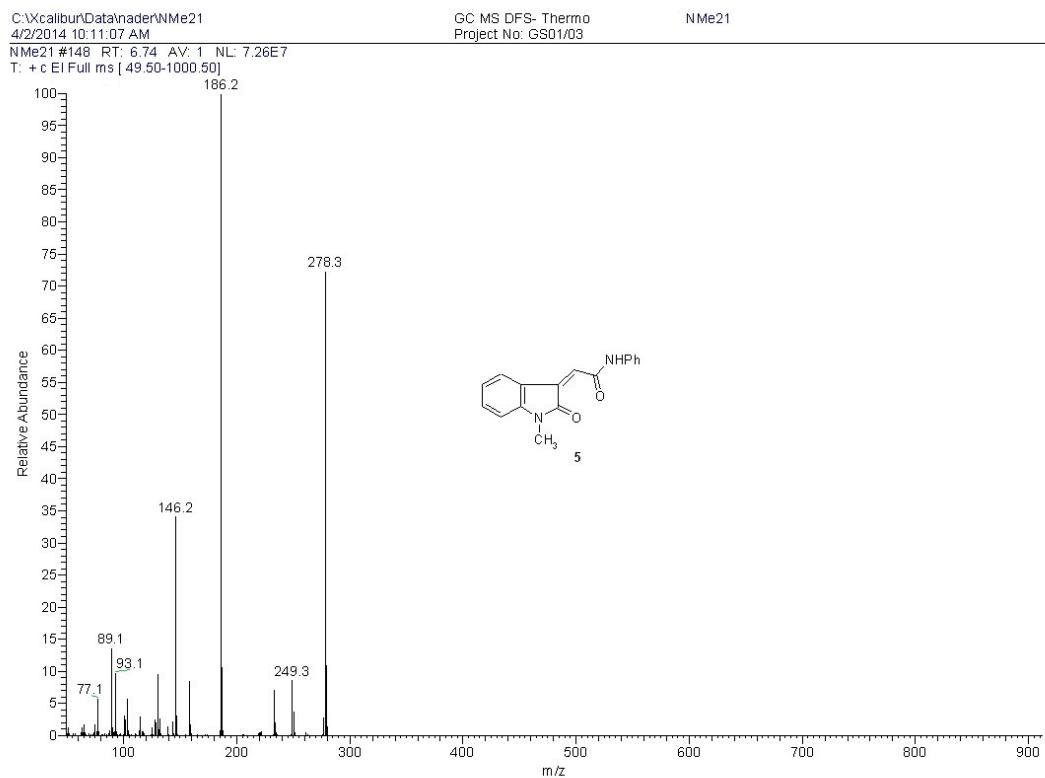


Figure S57. GC-Mass of 6a.

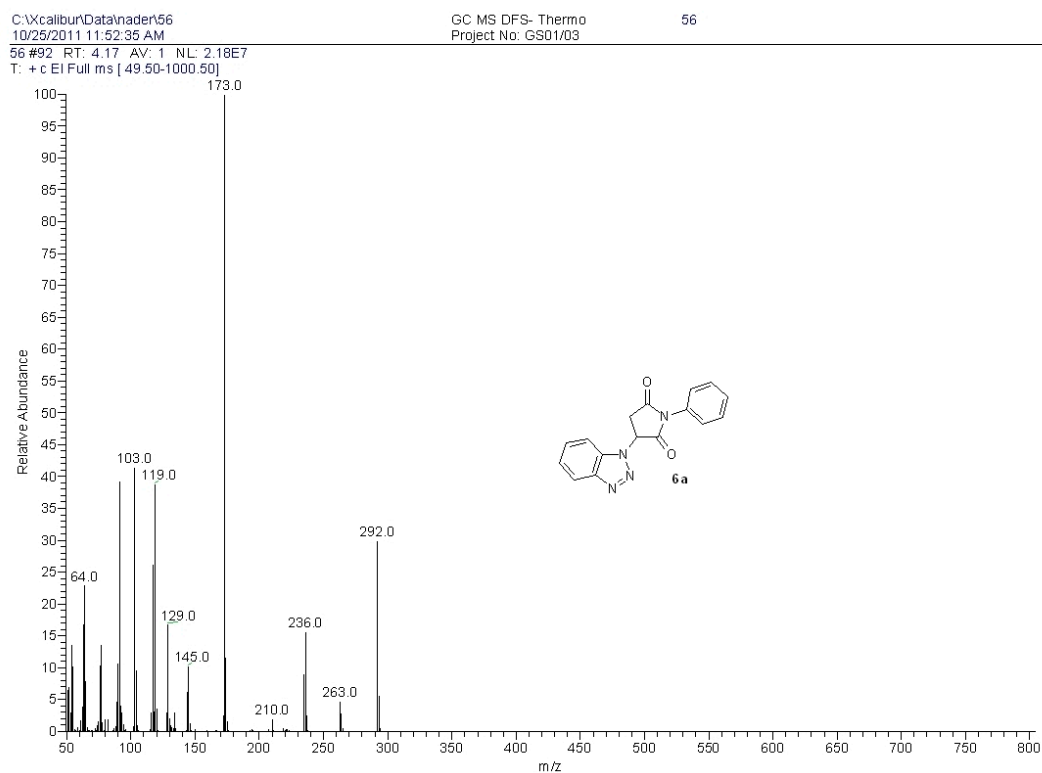


Figure S58. GC-Mass of 6b.

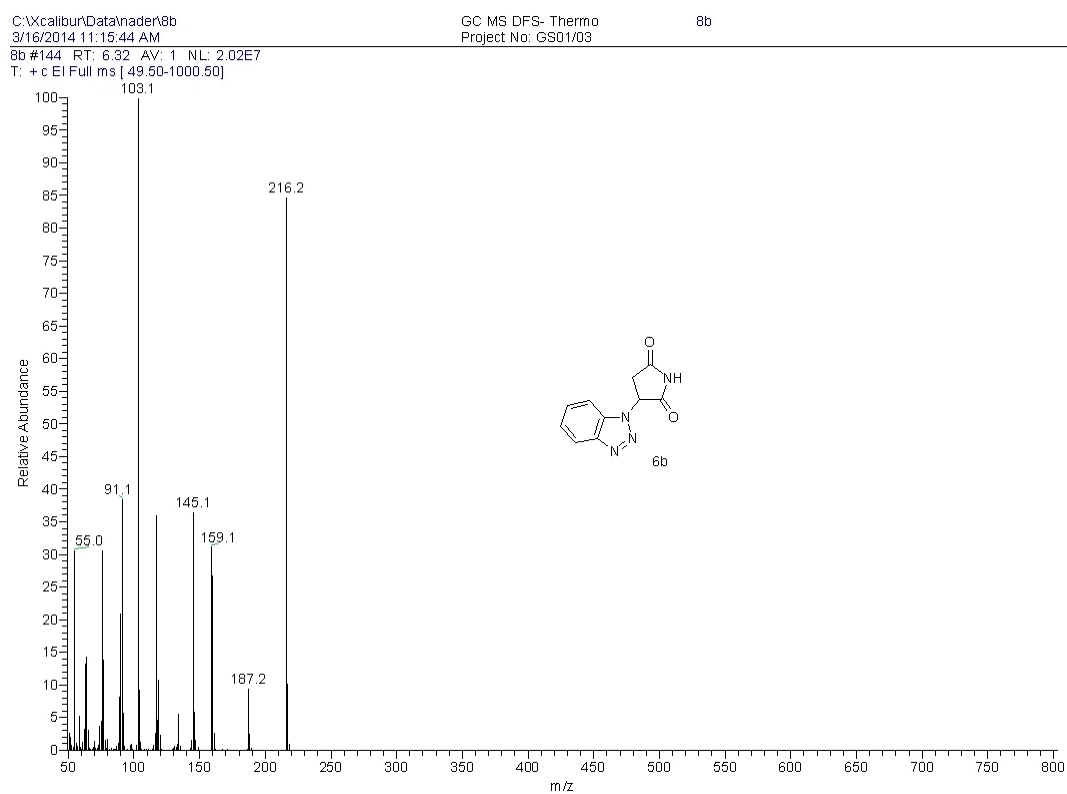


Figure S59. GC-Mass of 7a.

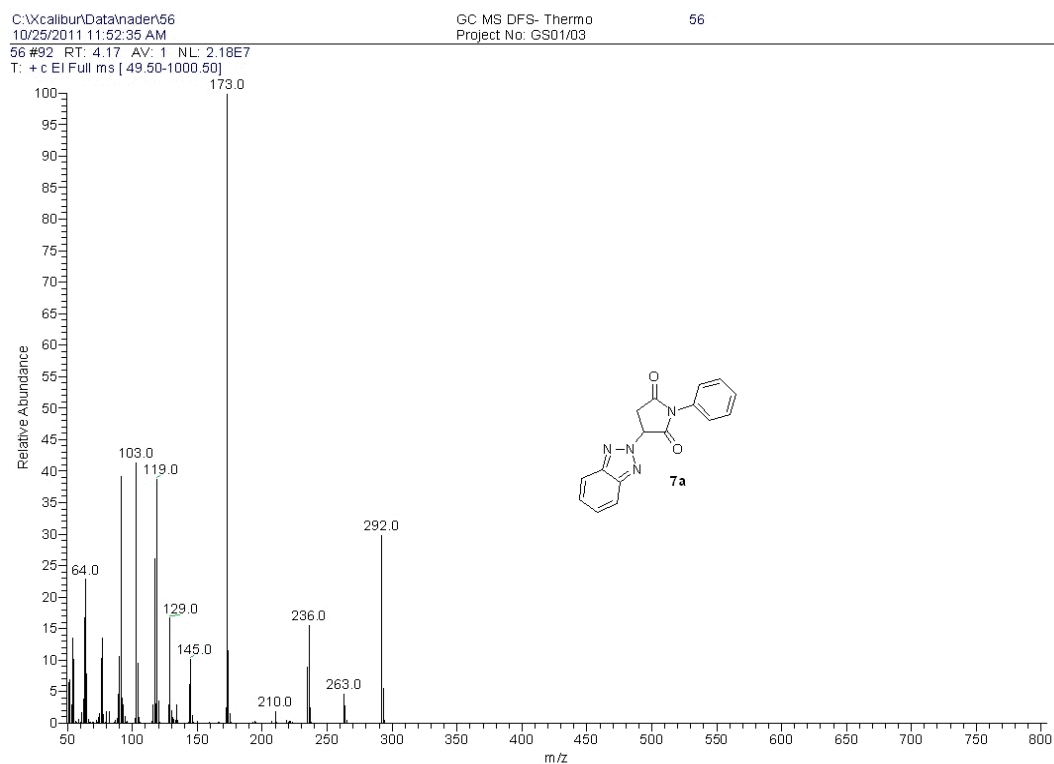


Figure S60. GC-Mass of 7b.

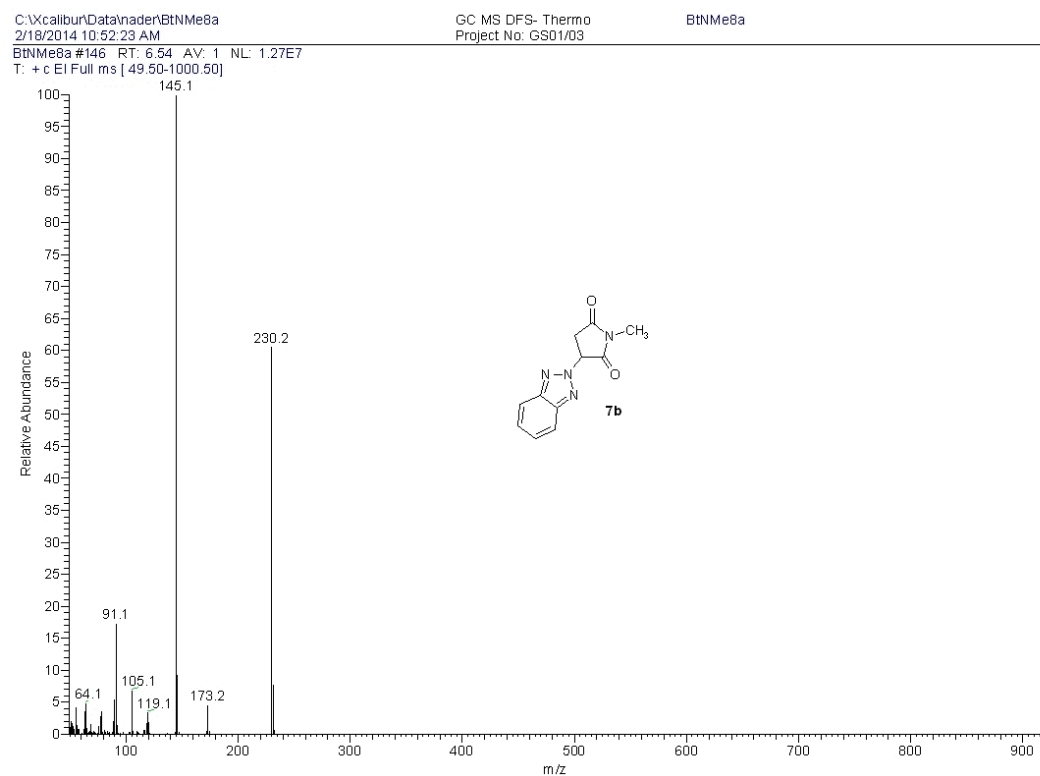


Figure S61. GC-Mass of 9d.

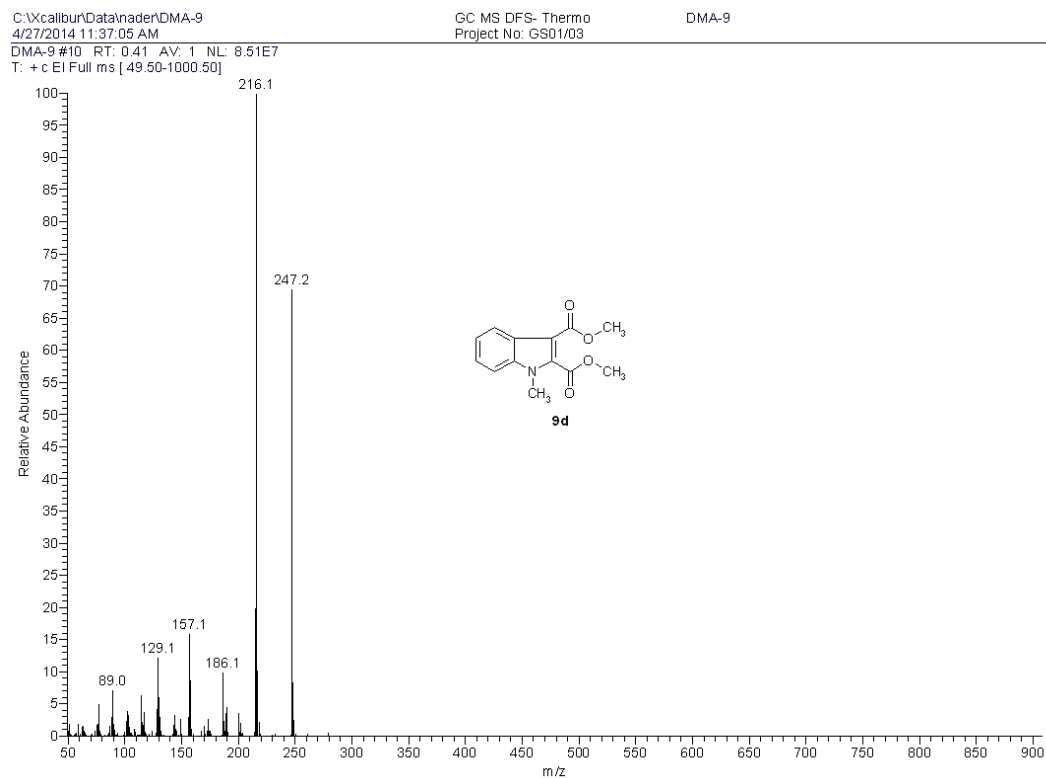


Figure S62. GC-Mass of 9e.

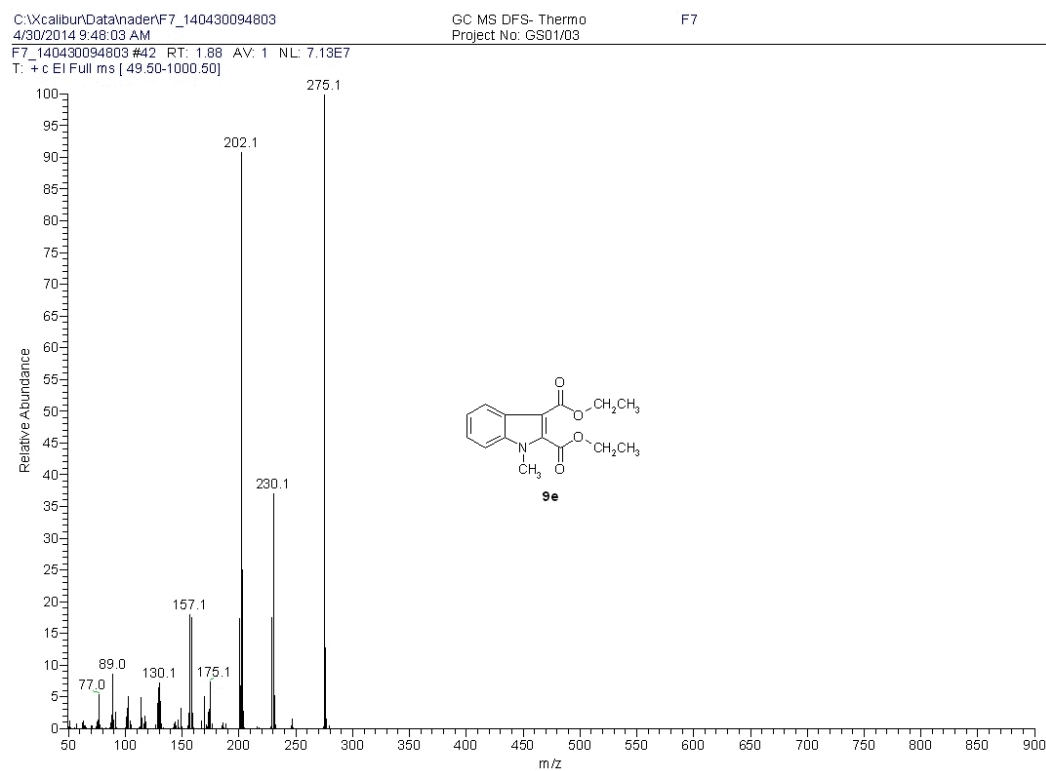


Figure S63. GC-Mass of 11a.

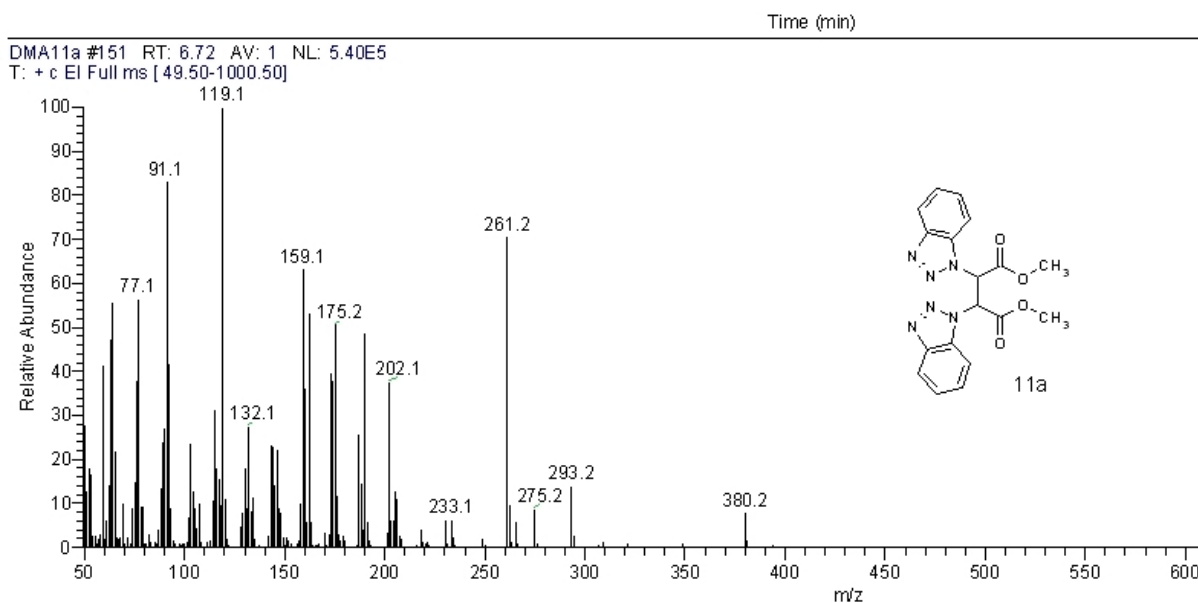


Figure S64. GC-Mass of 11b.

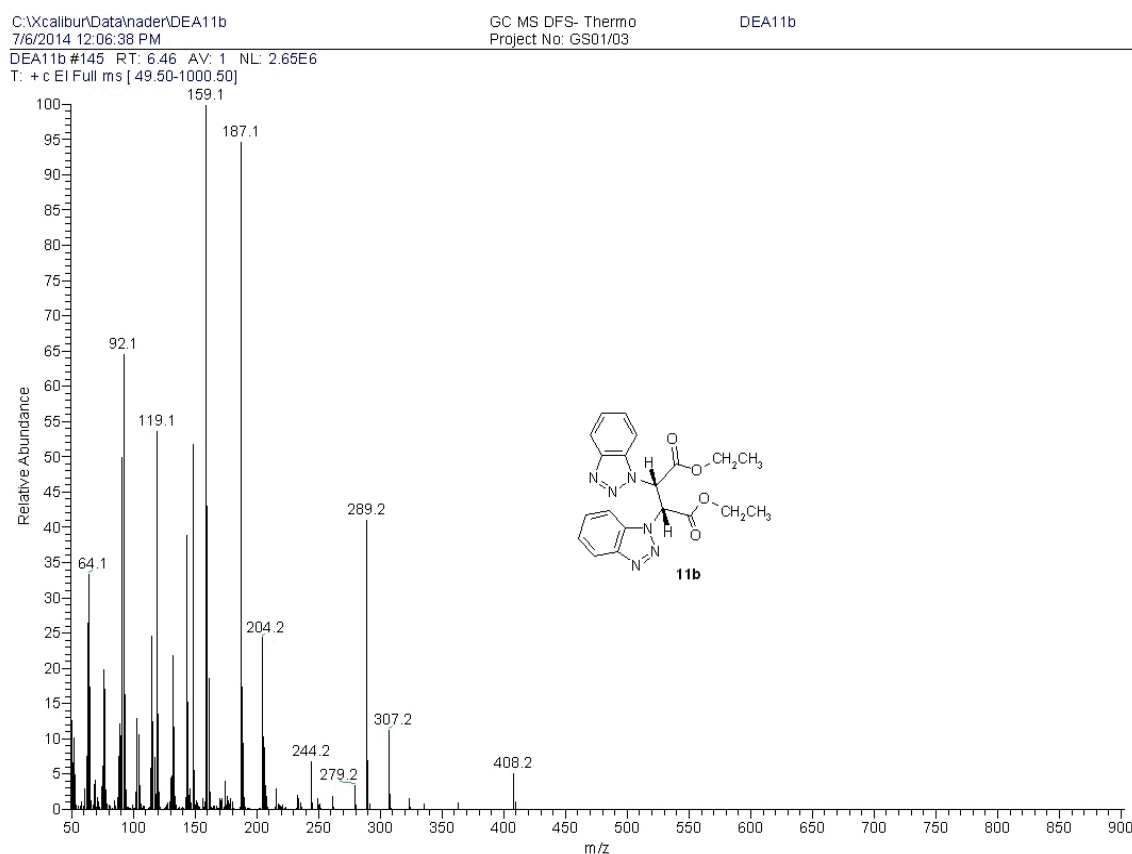


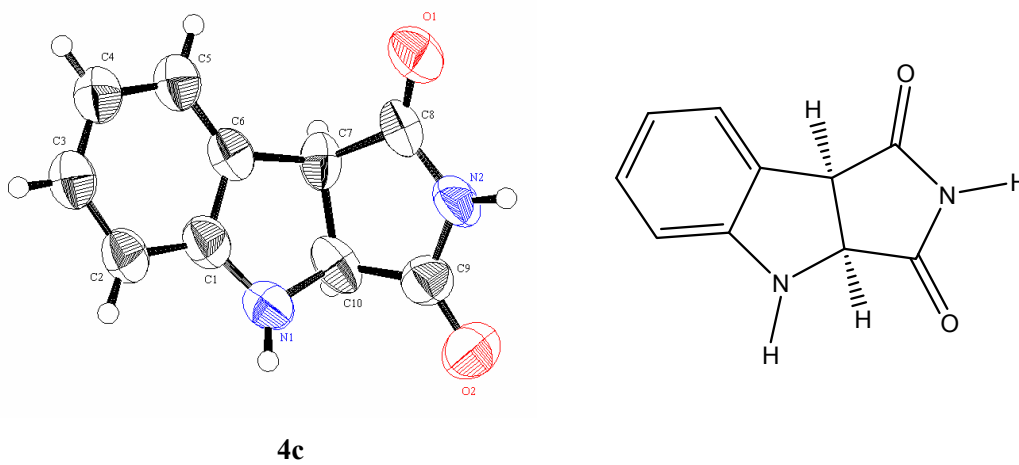
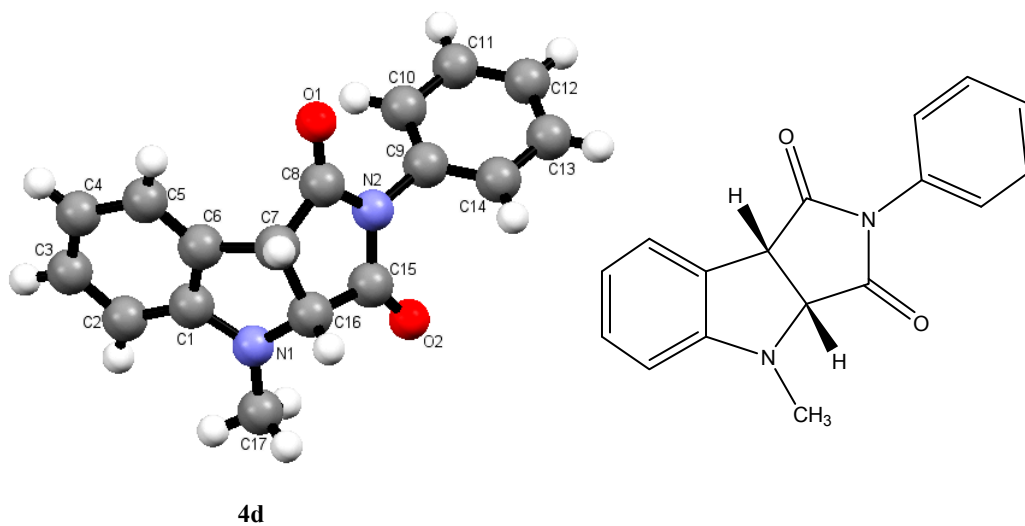
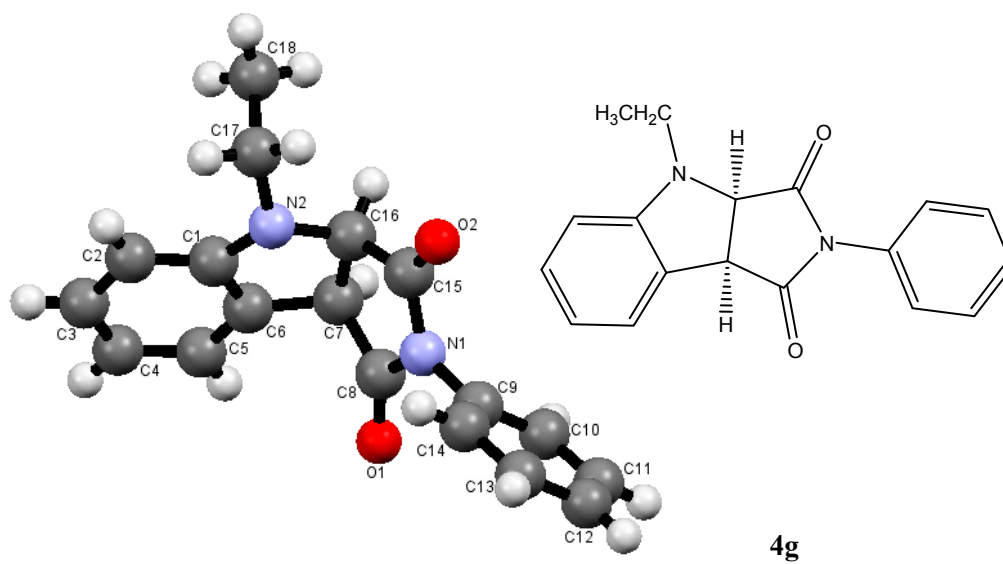
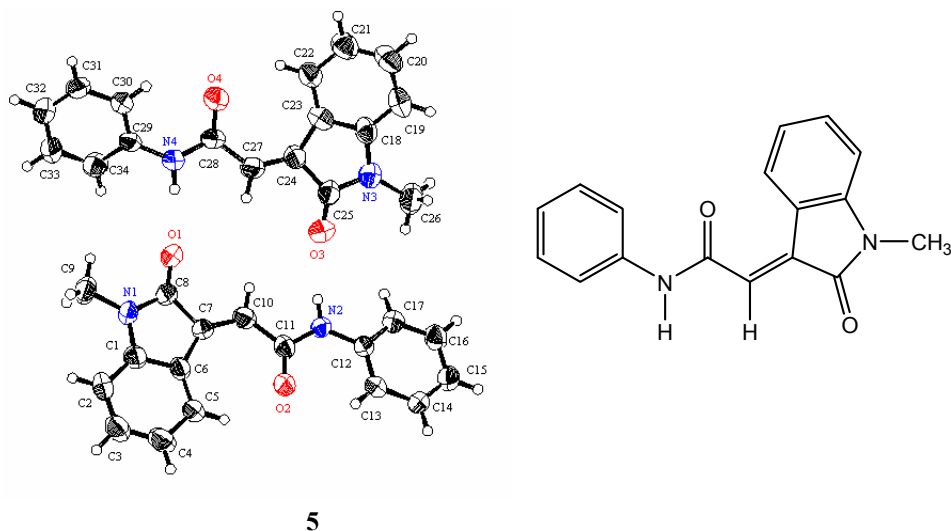
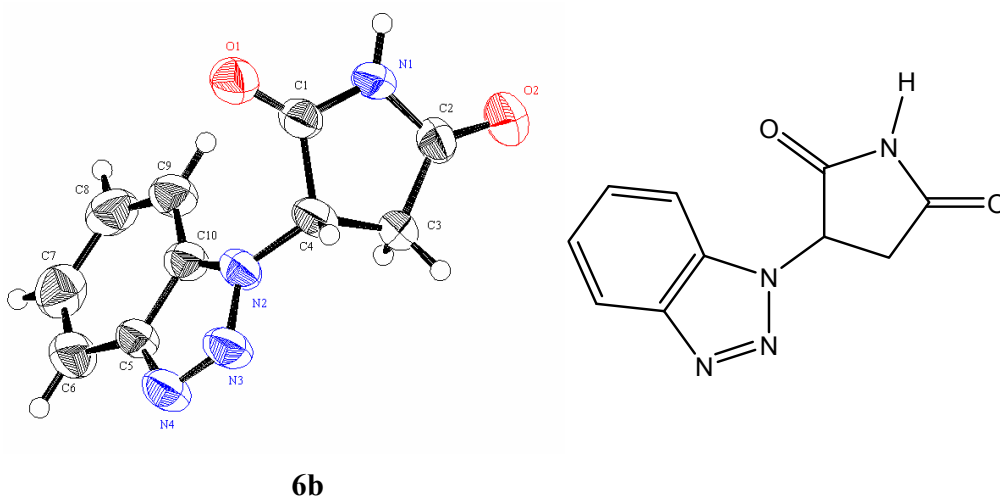
Figure S65. X-Ray Crystal Structure of 4c.**Figure S66. X-Ray Crystal Structure of 4d.****Figure S67. X-Ray Crystal Structure of 4g.**

Figure S68. X-Ray Crystal Structure of 5.**Figure S69. X-Ray Crystal Structure of 6b.****Figure S70. X-Ray Crystal Structure of 11a.**