

**Synthesis of Non-Aromatic Pyrroles Based on the Reaction of Carbonyl Derivatives of
Acetylene with 3,3-Diaminoacrylonitriles**

Pavel S. Silaichev, Lidia N. Dianova, Tetyana V. Beryozkina, Vera S. Berseneva, Andrey N.
Maslivets, Vasiliy A. Bakulev

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Figure S1. ^1H NMR spectrum ($\text{DMSO-}d_6$) of **4a**

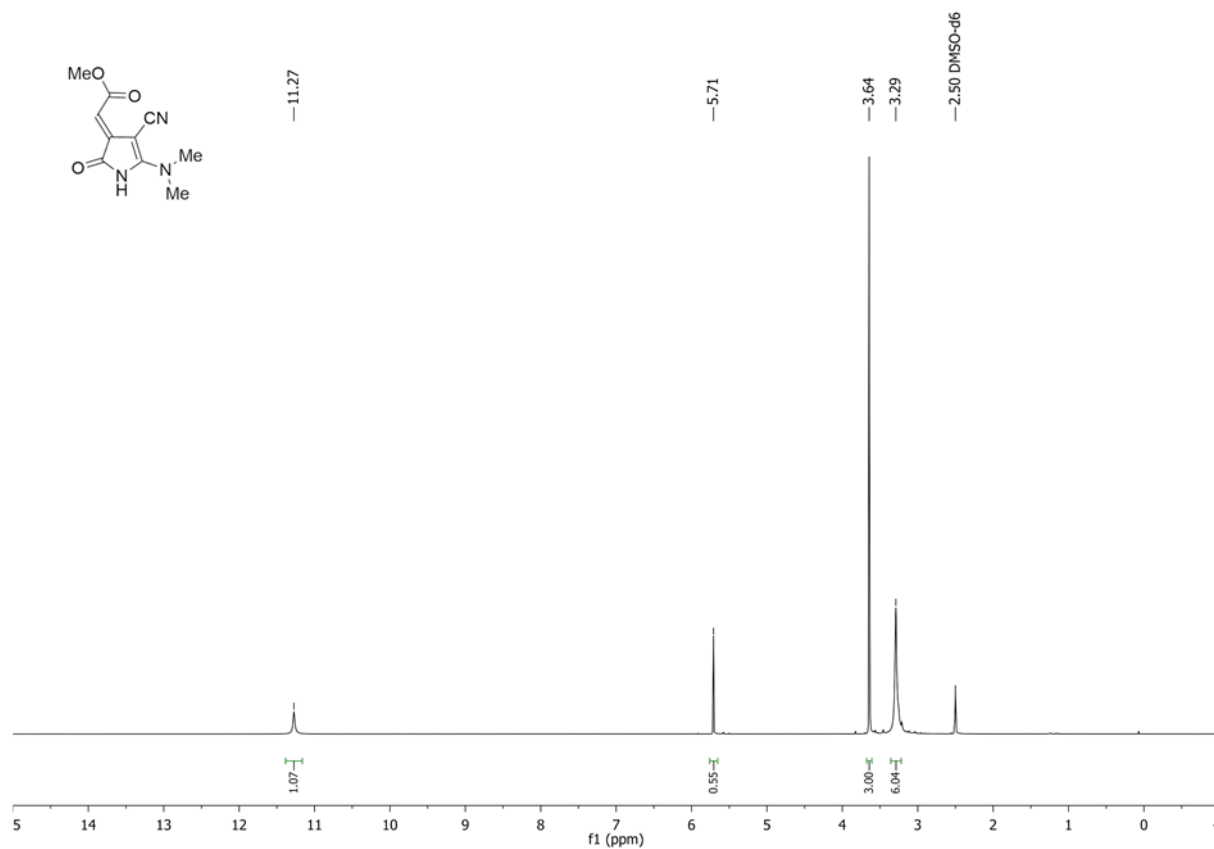


Figure S2. ^{13}C NMR spectrum ($\text{DMSO-}d_6$) of **4a**

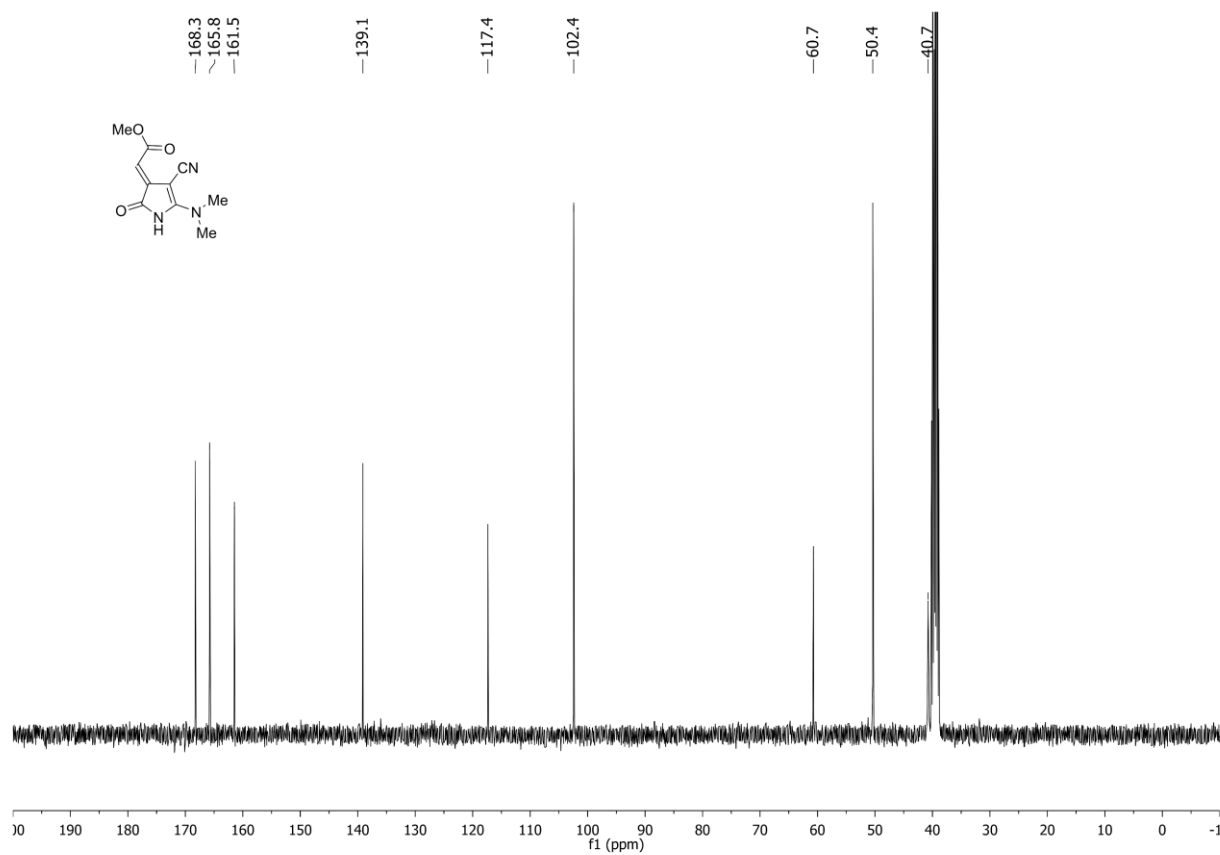


Figure S3. ^1H - ^{13}C HSQC spectrum of **4a**

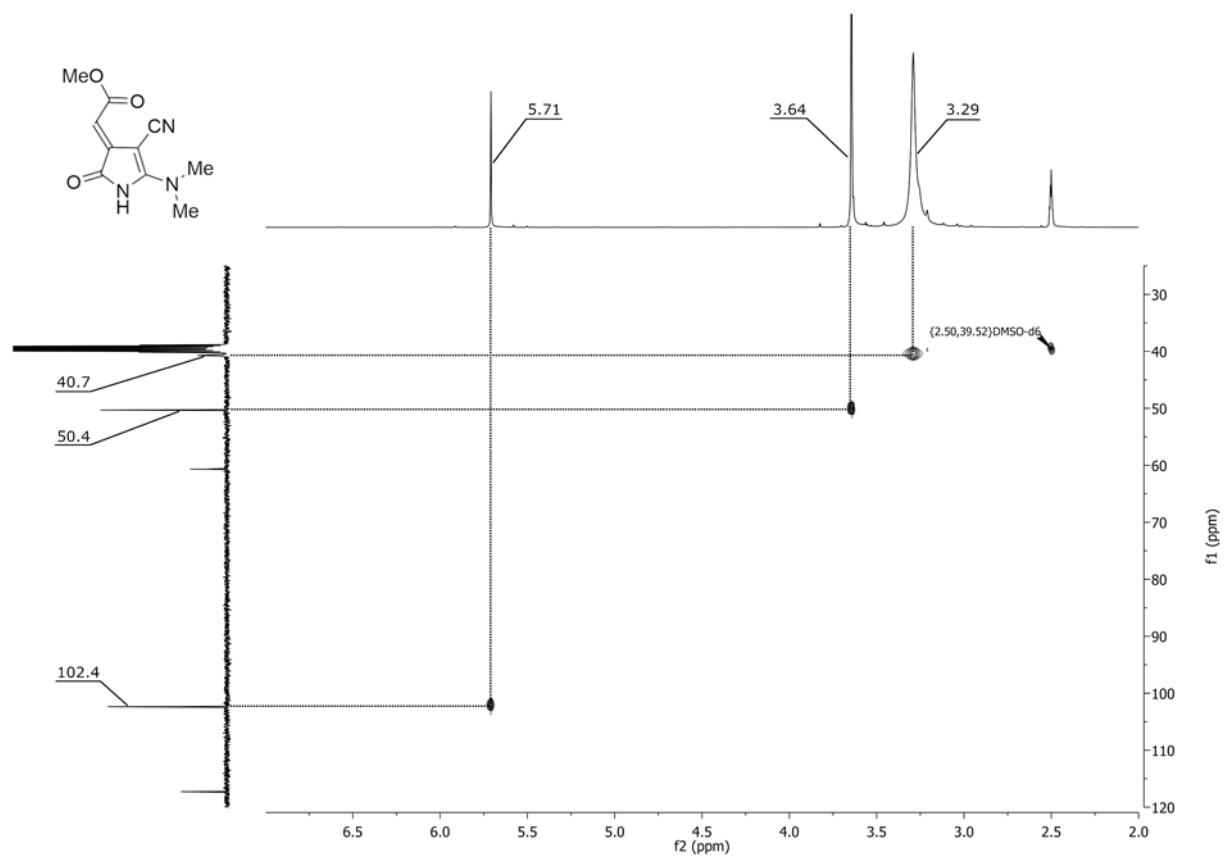


Figure S4. ^1H NMR spectrum ($\text{DMSO-}d_6$) of **4b**

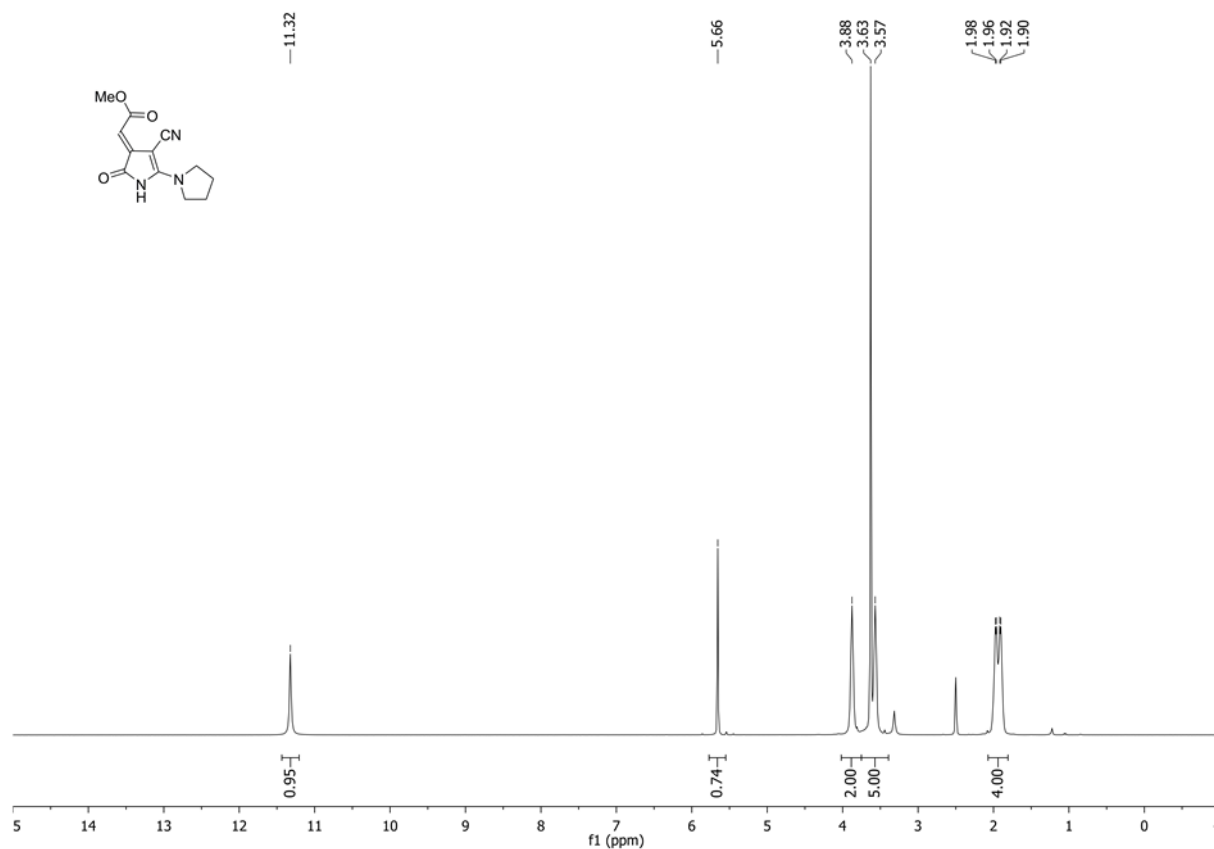


Figure S5. ^{13}C NMR spectrum ($\text{DMSO-}d_6$) of **4b**

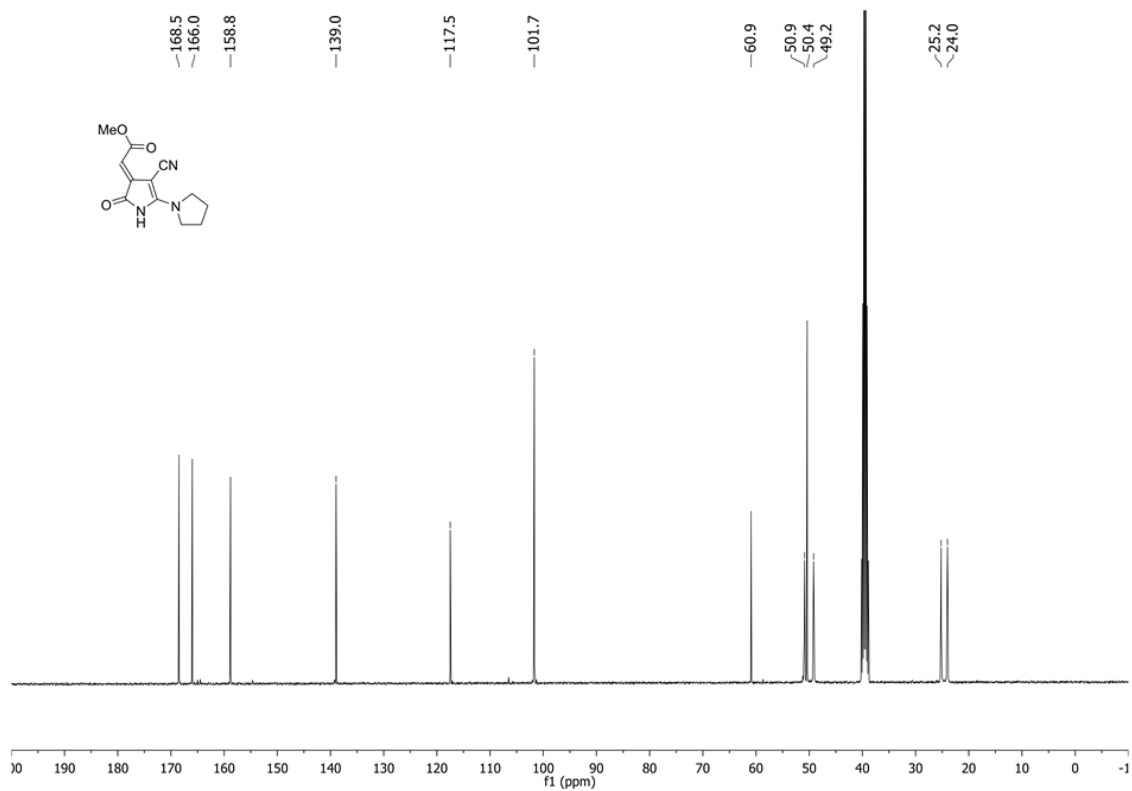


Figure S6. ^1H - ^{13}C HSQC spectrum of **4b**

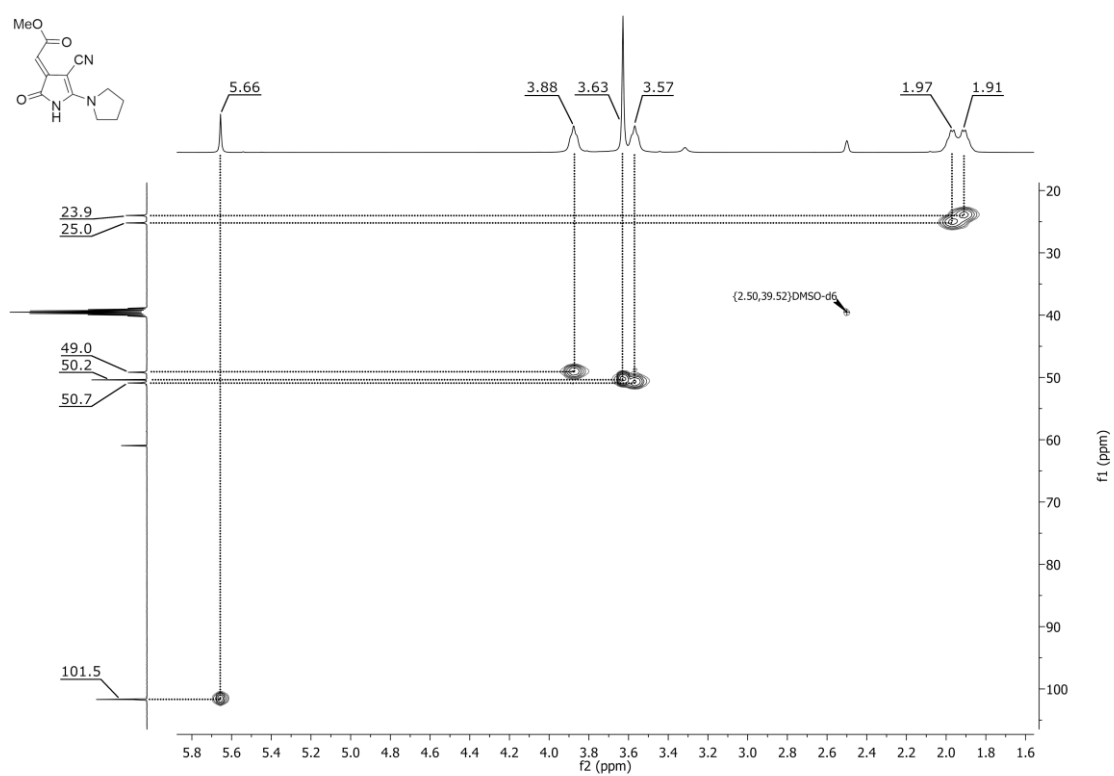


Figure S7. ^1H - ^{13}C HMBC spectrum of **4b**

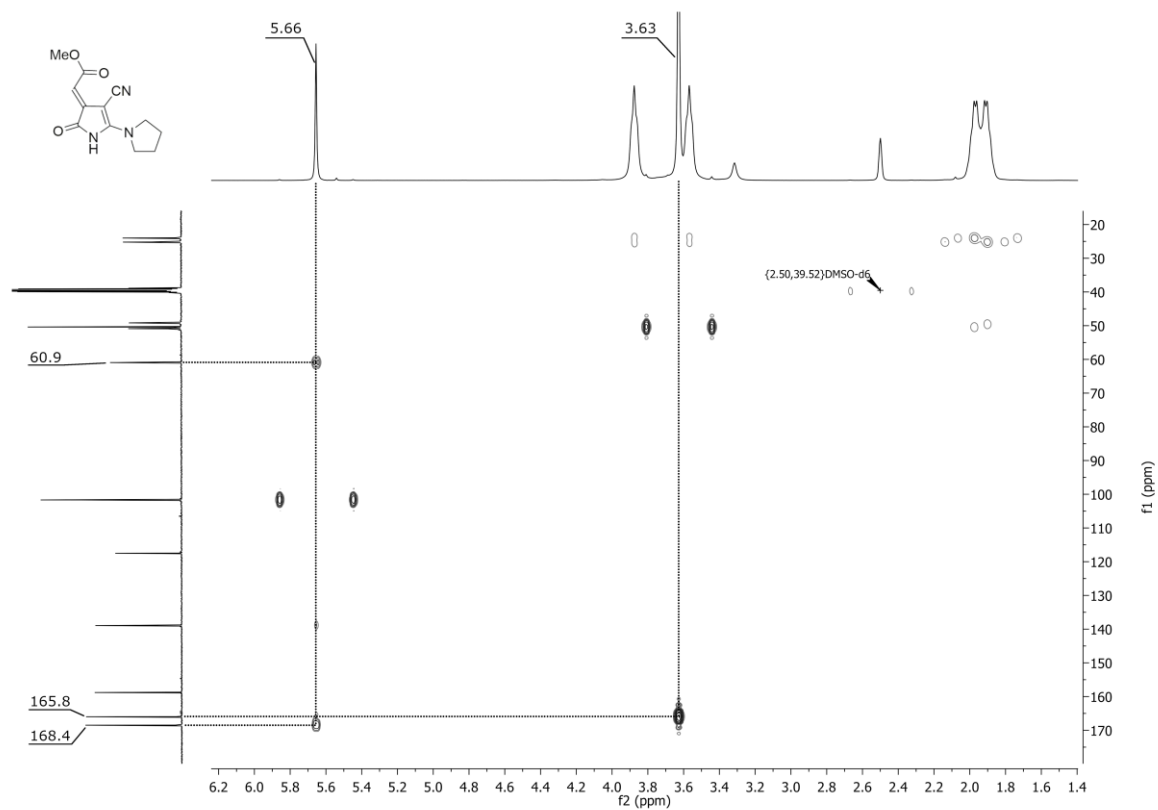


Figure S8. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **4c**

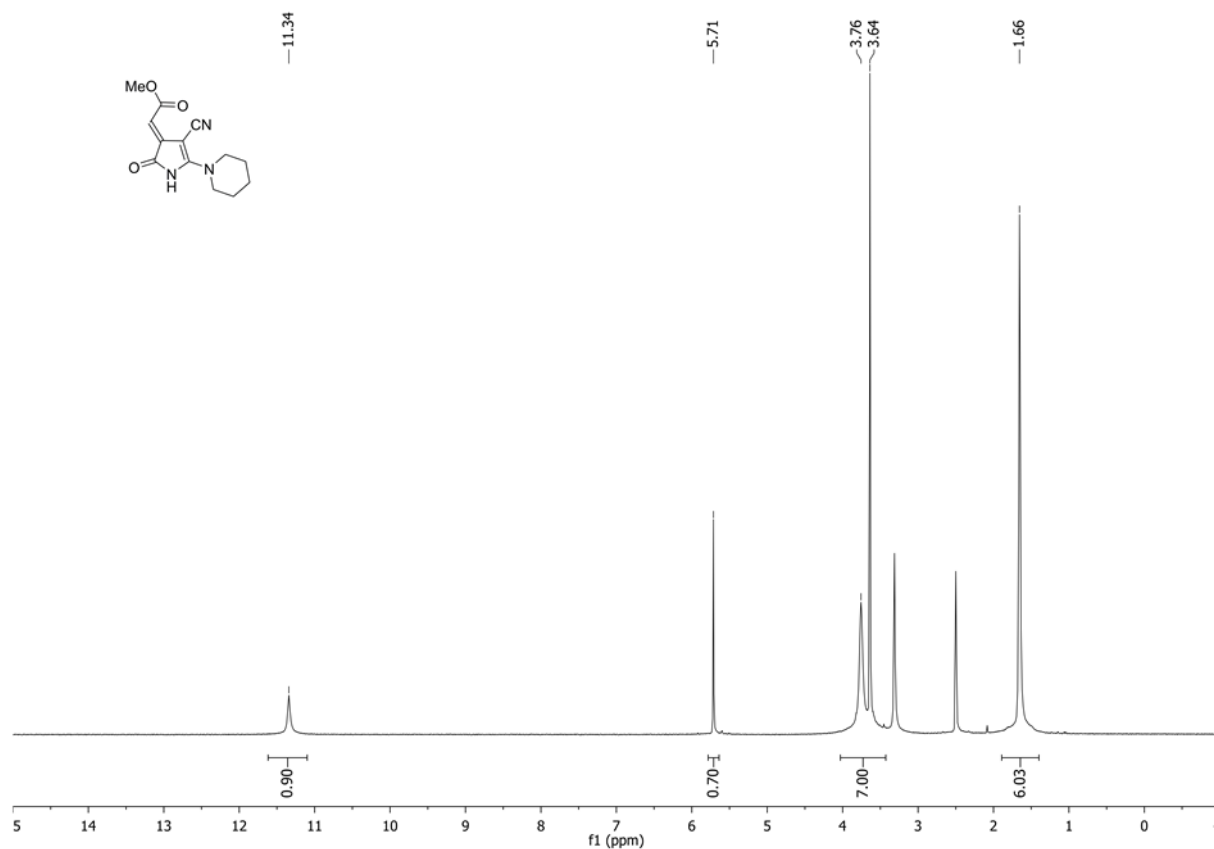


Figure S9. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **4c**

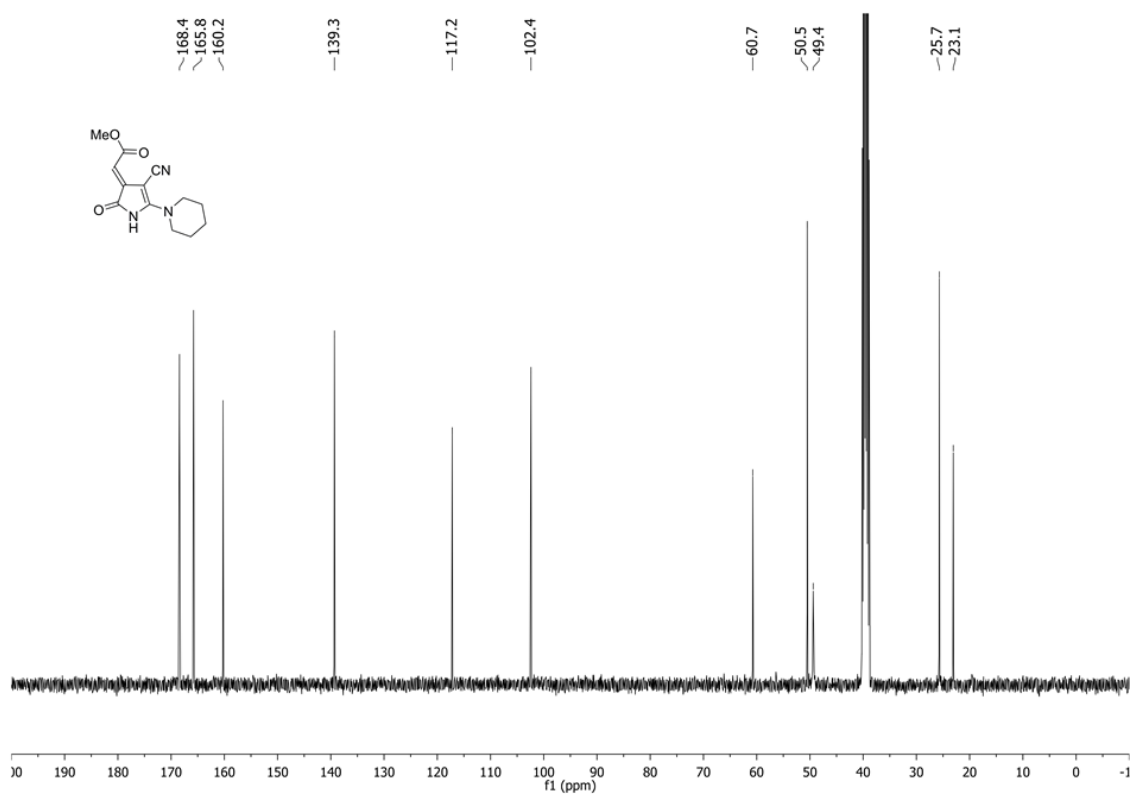


Figure S10. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **4d**

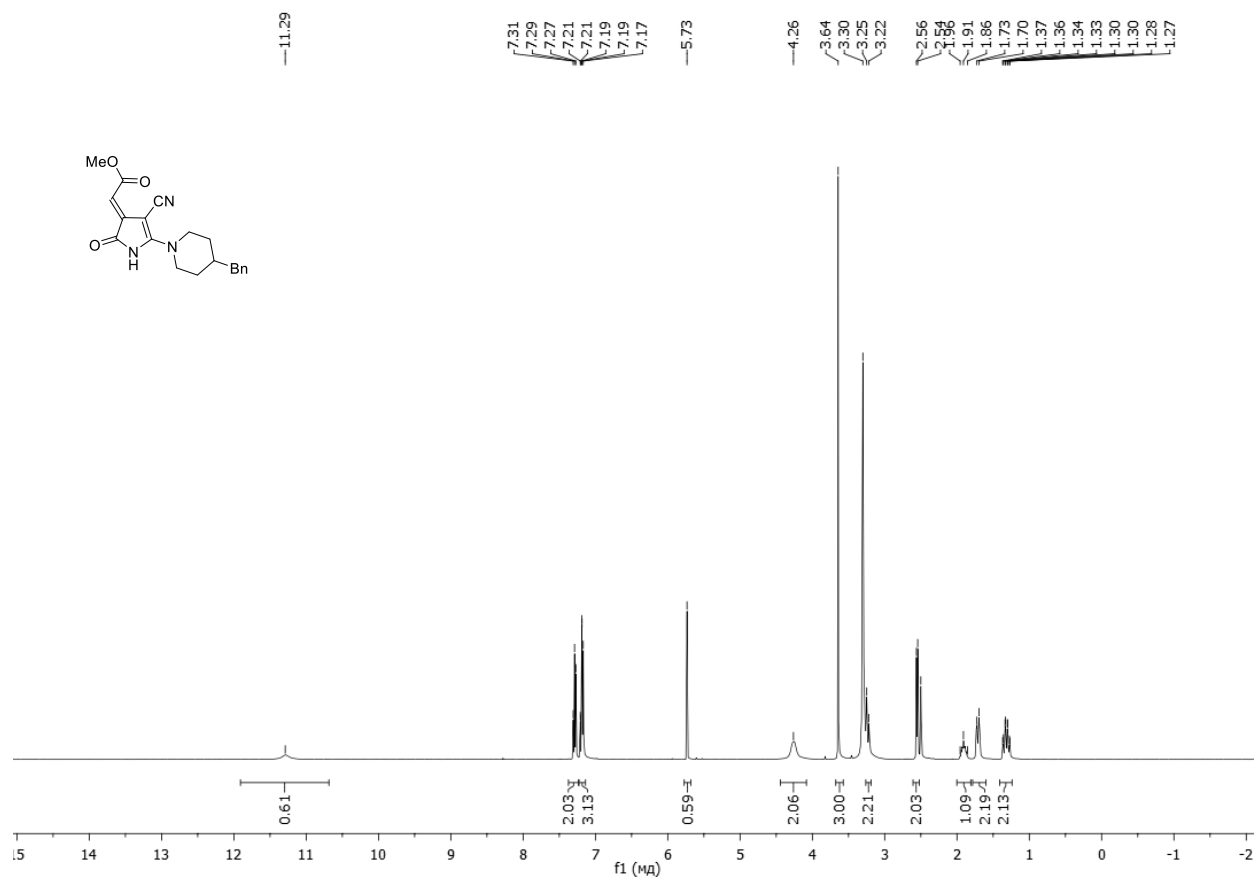


Figure S11. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **4d**

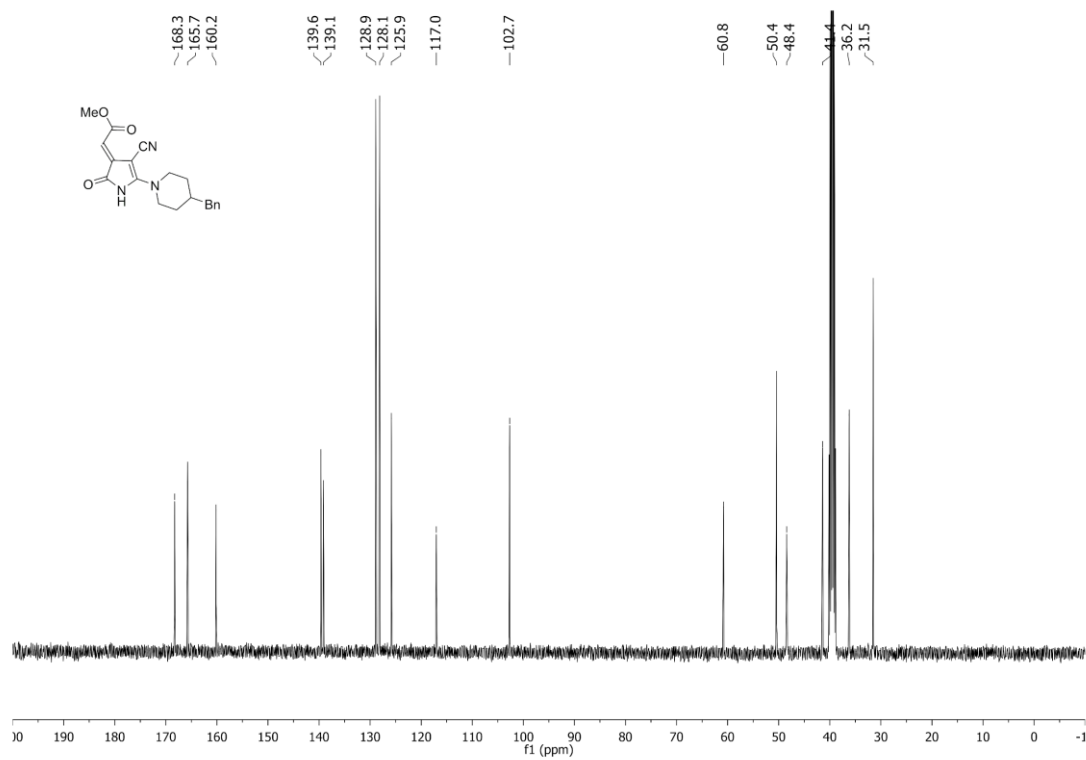


Figure S12. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **4e**

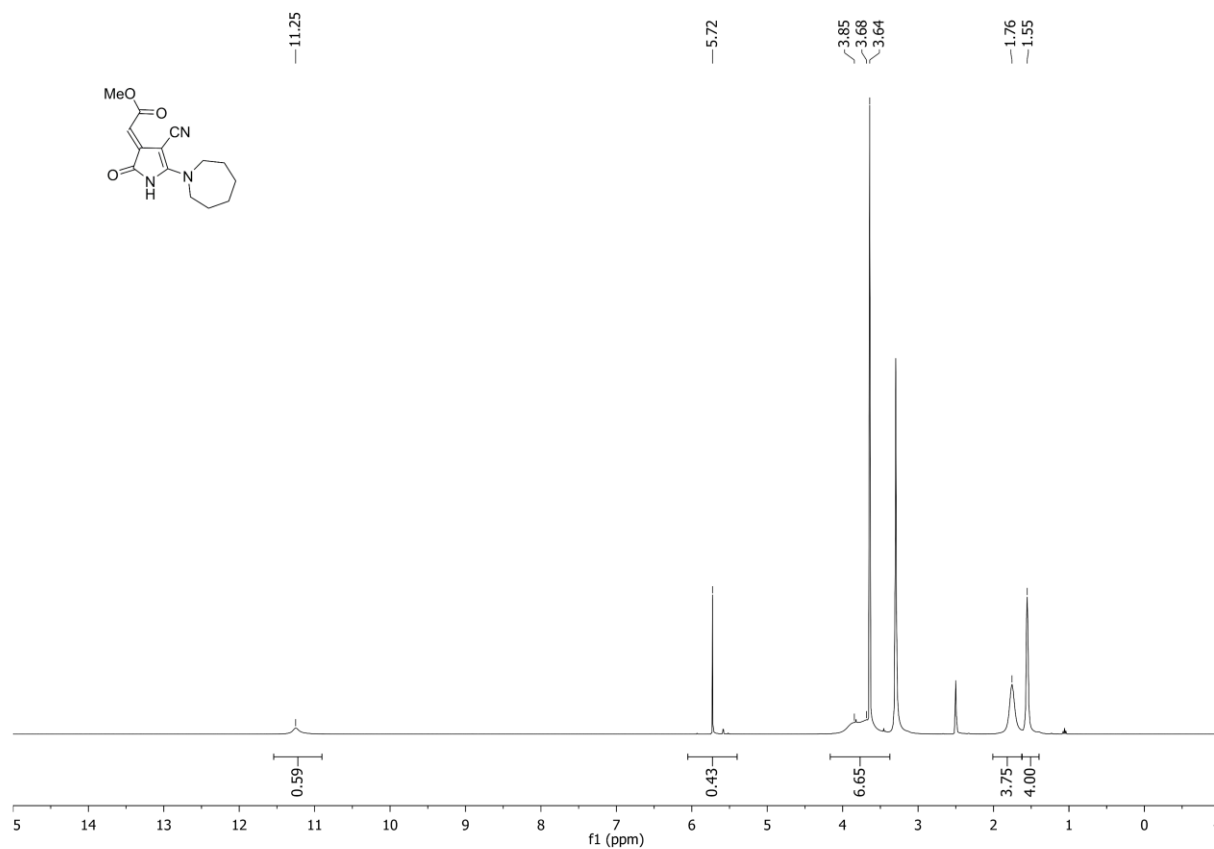


Figure S13. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **4e**

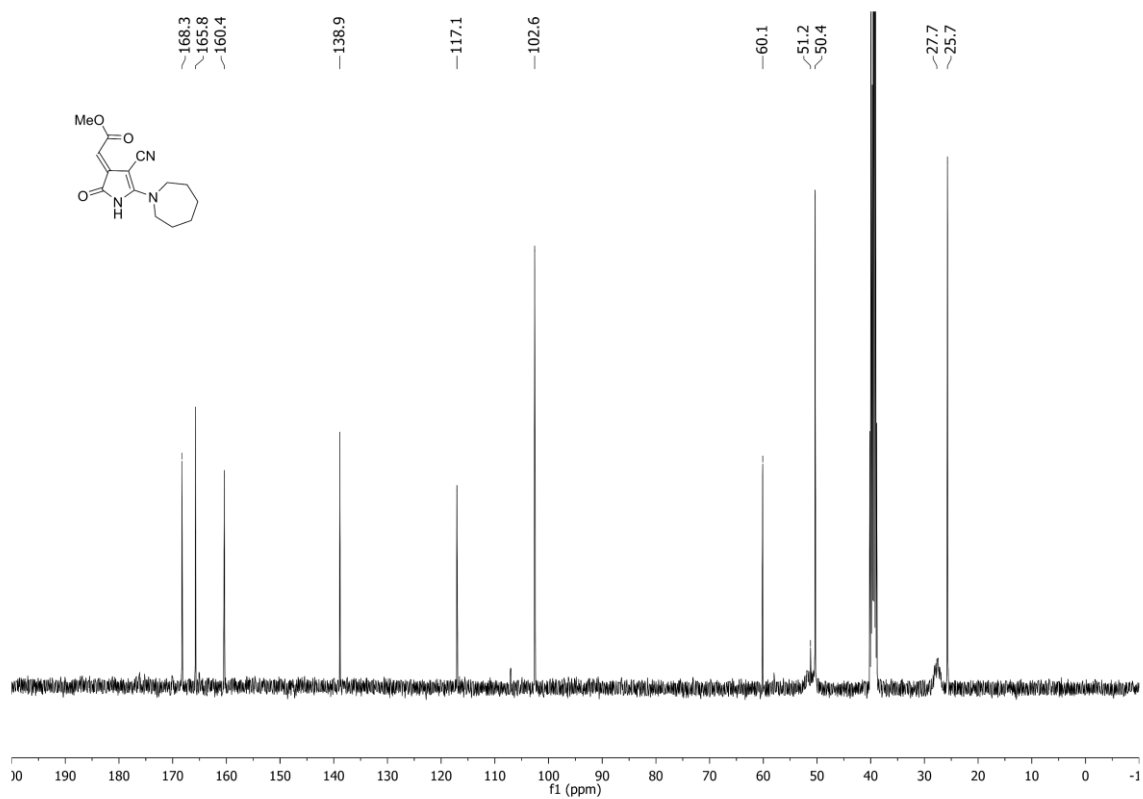


Figure S14. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **4f**

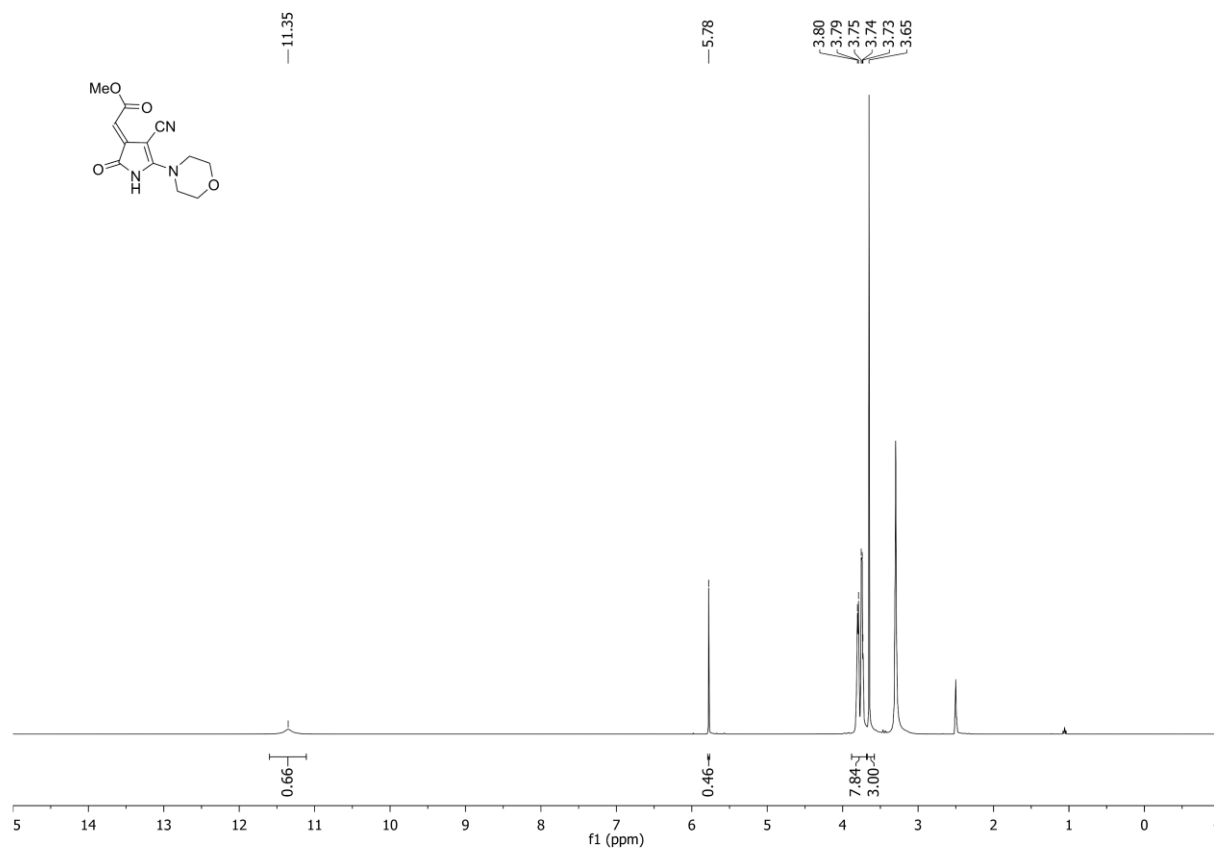


Figure S15. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **4f**

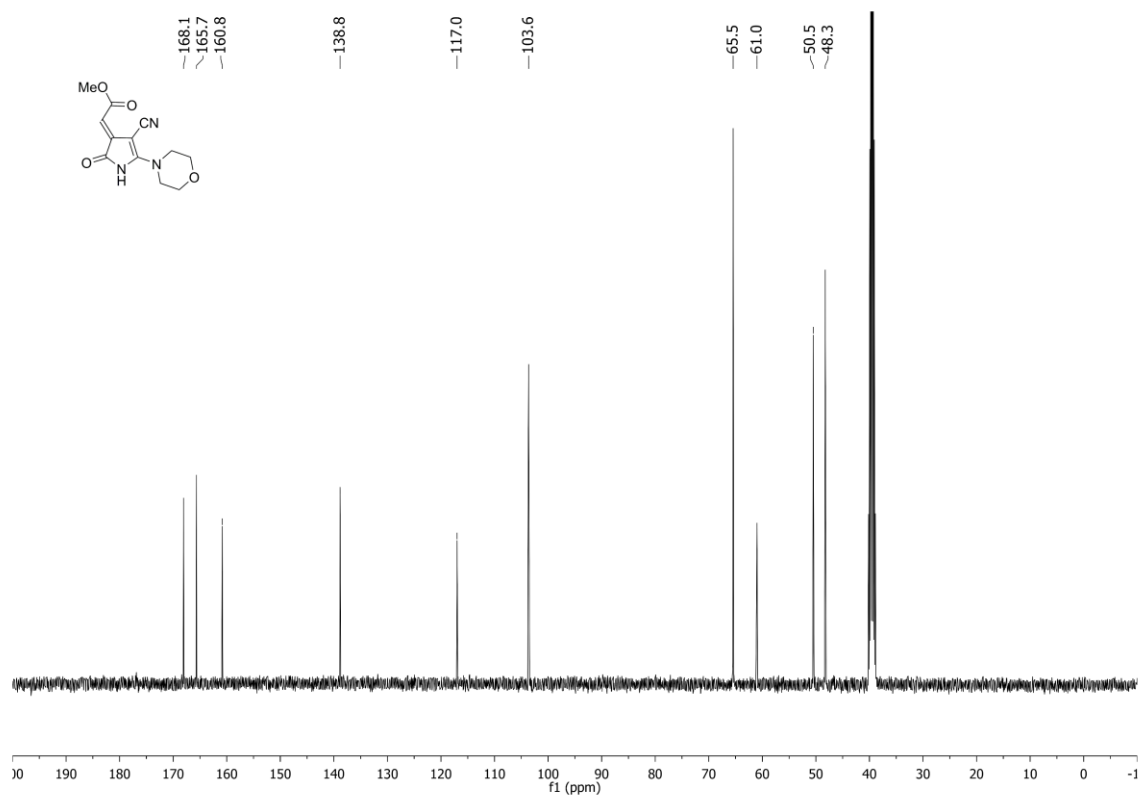


Figure S16. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **4g**

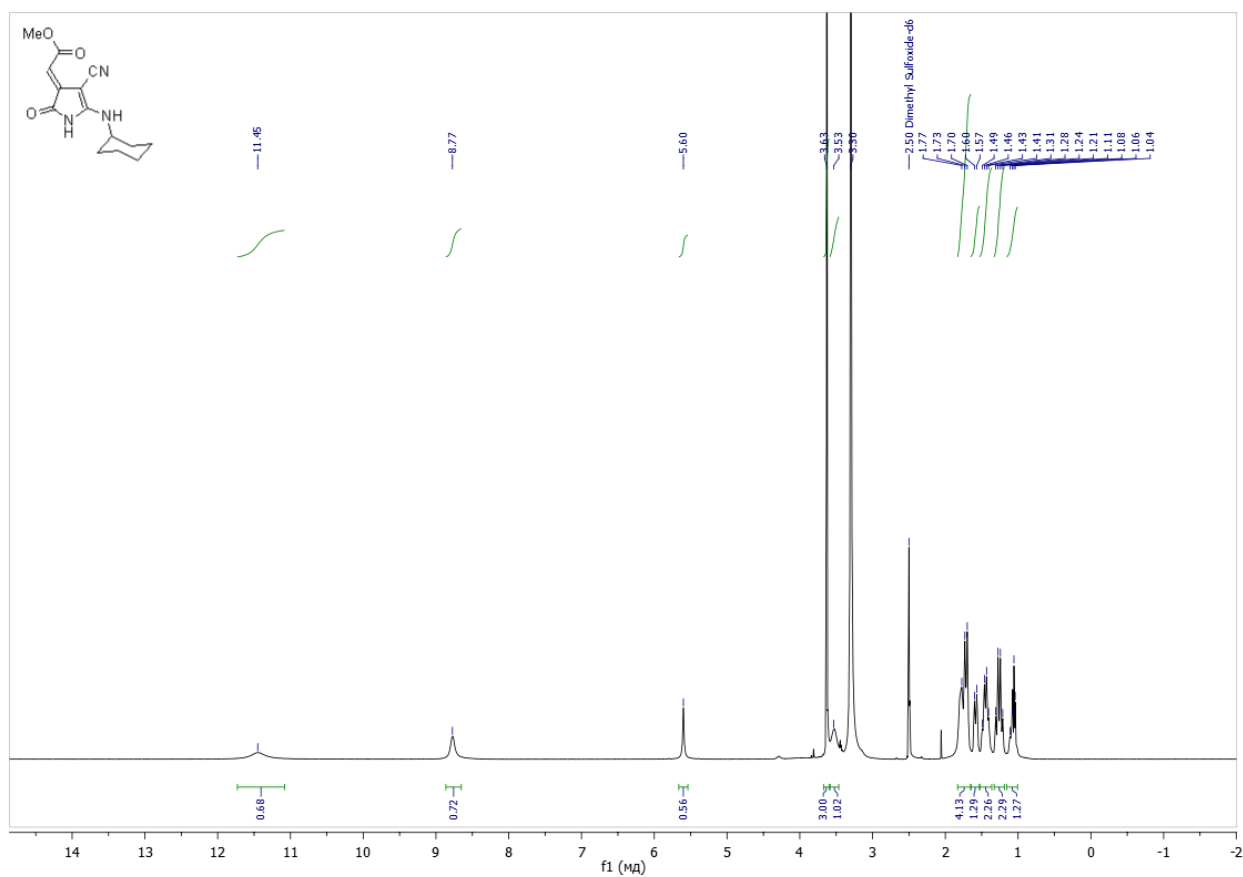


Figure S17. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **4g**

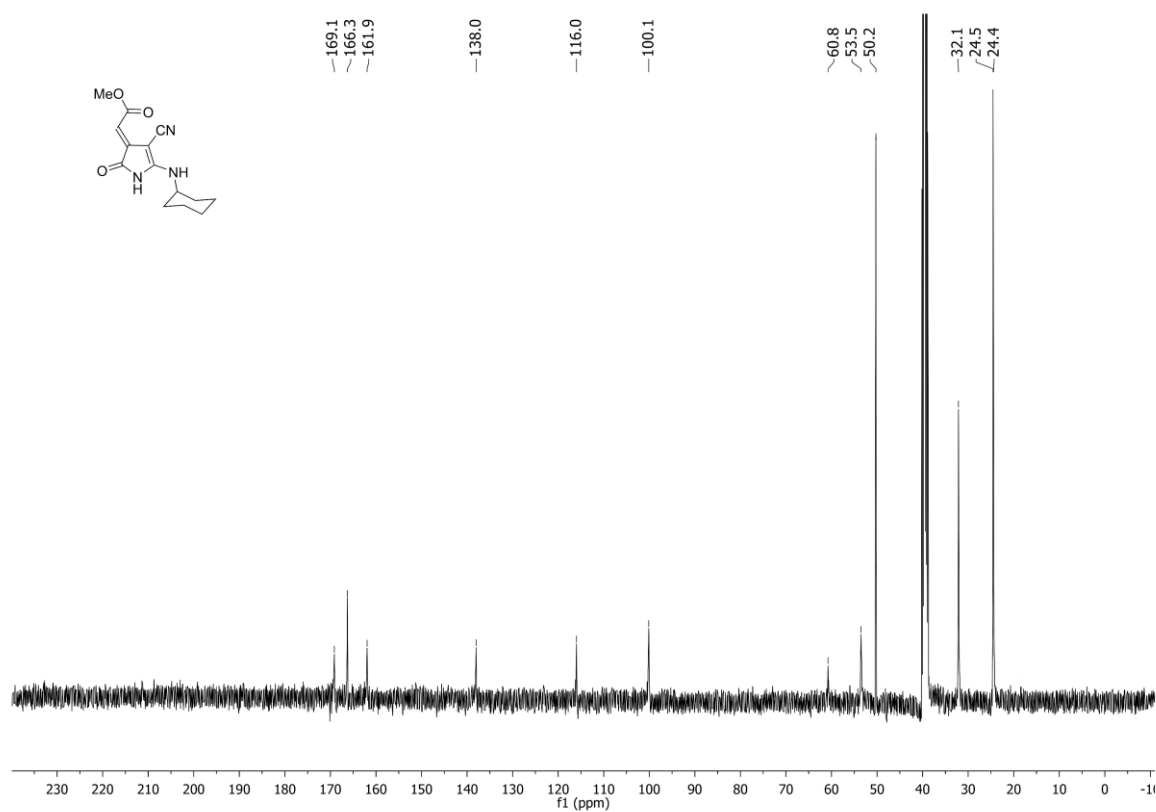


Figure S18. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **5a**

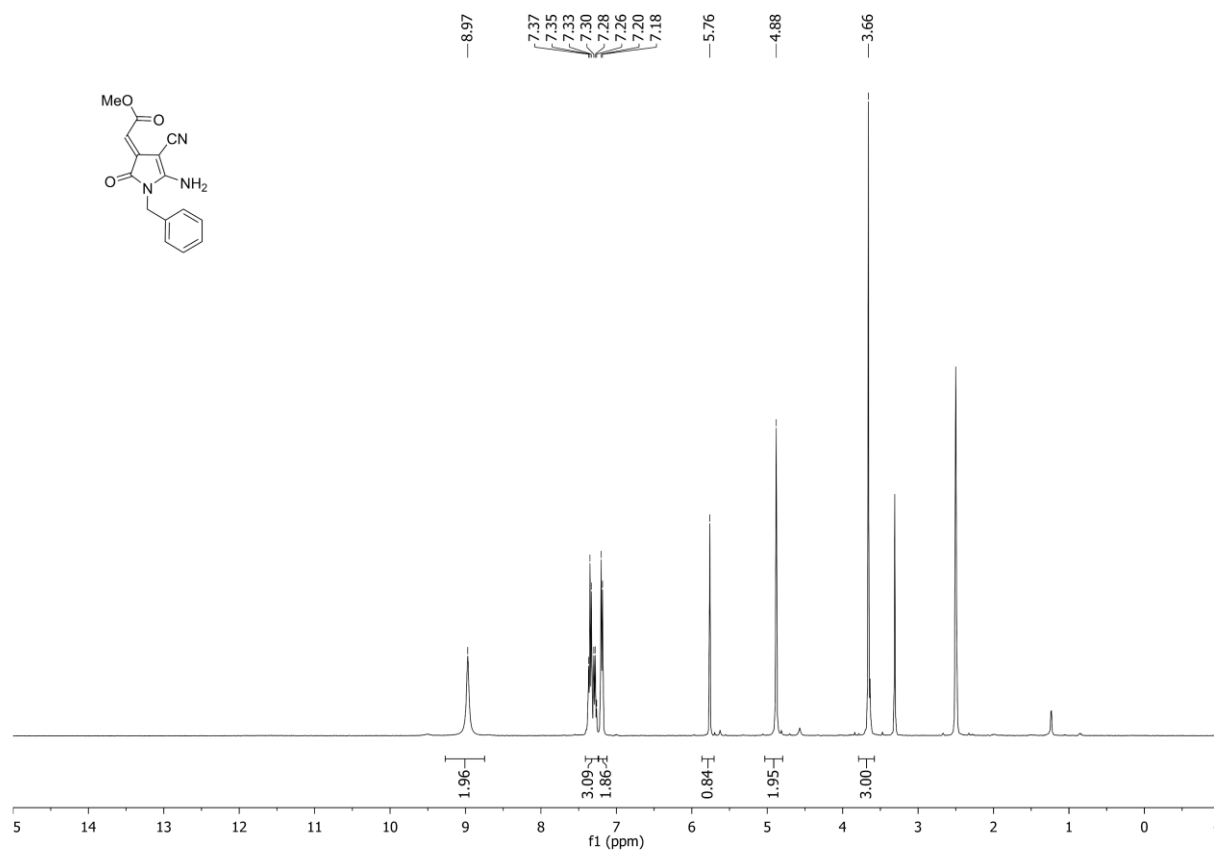


Figure S19. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **5a**

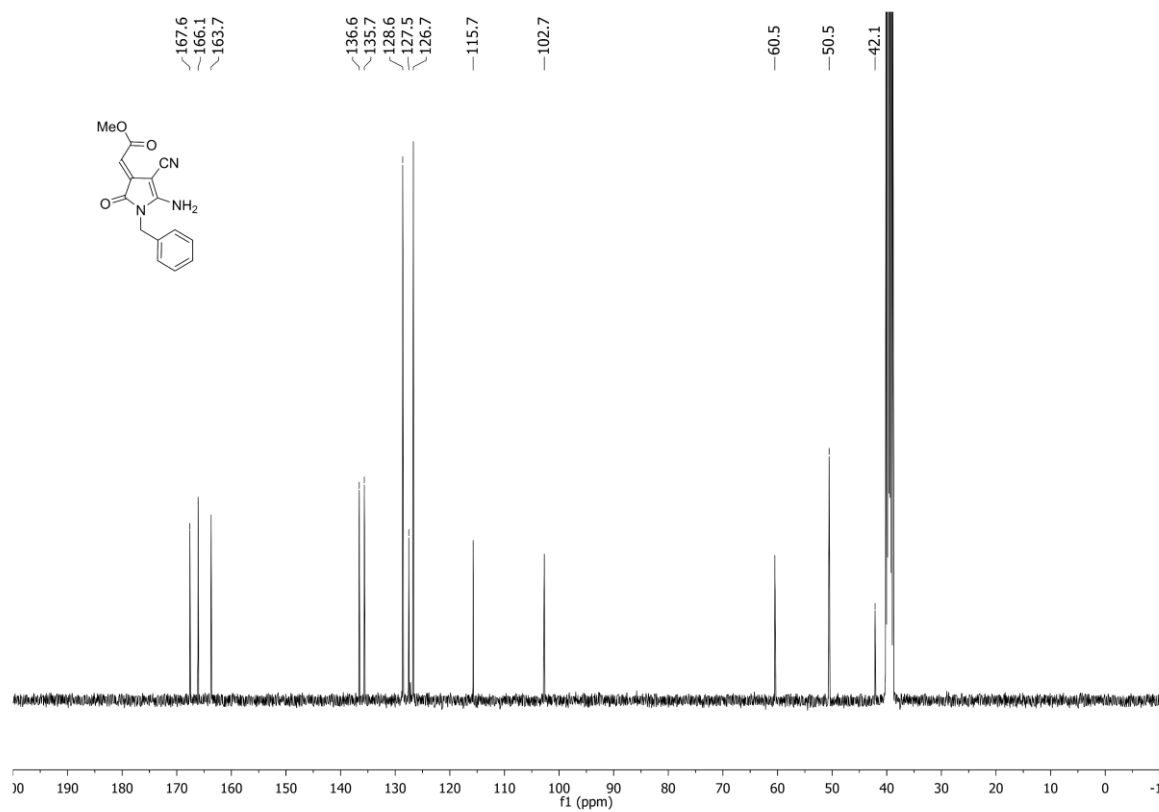


Figure S20. ^1H - ^{13}C HSQC spectrum (DMSO- d_6) of **5a**

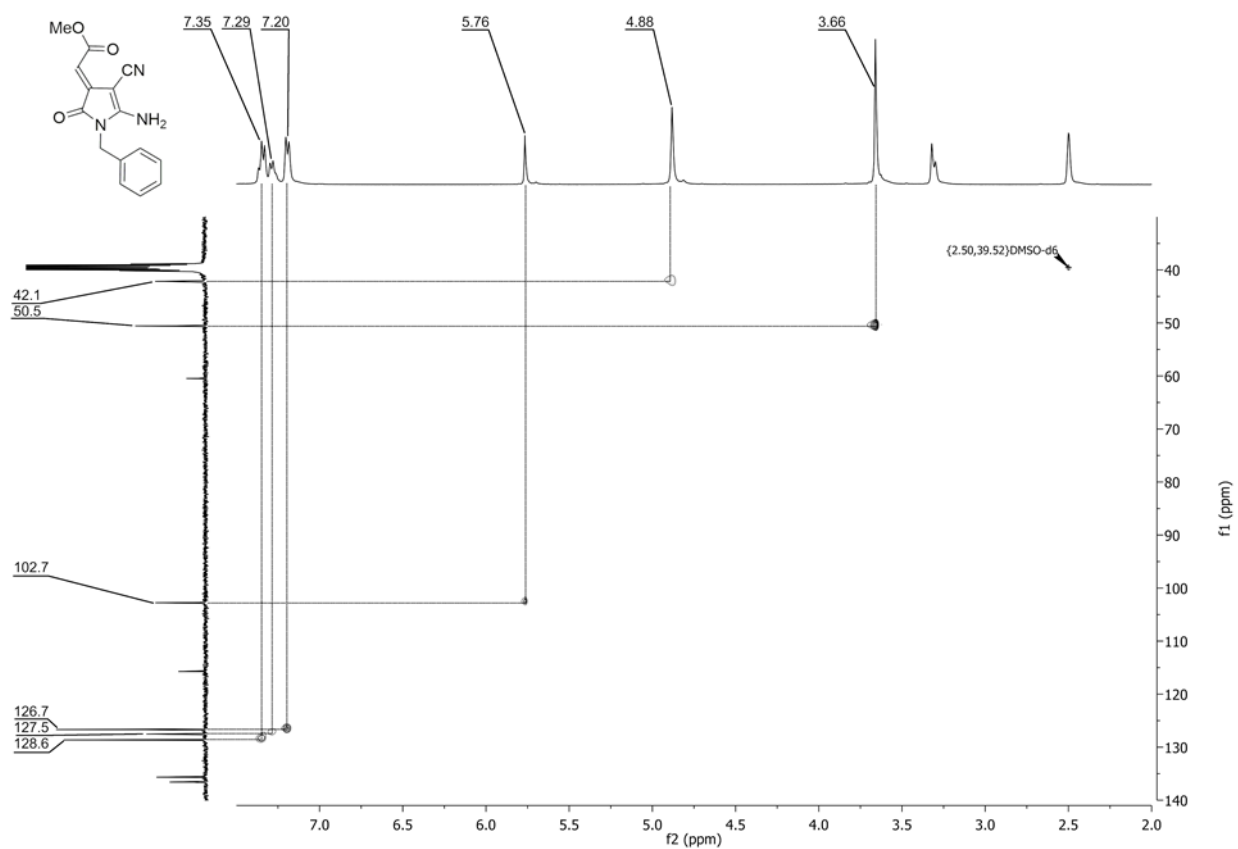
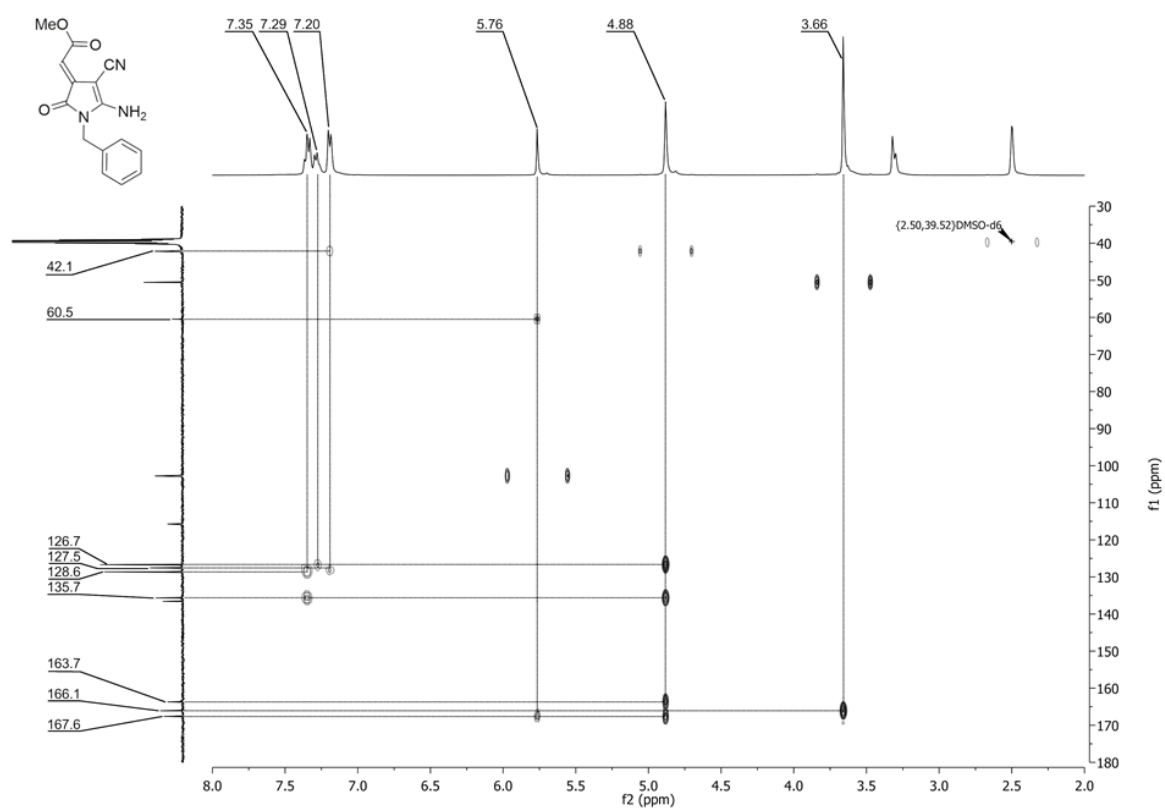


Figure S21. ^1H - ^{13}C HMBC spectrum (DMSO- d_6) of **5a**



Chemical structure of compound 10: COC(=O)C1=C(C#N)C(N)=C1CNc2ccc(F)cc2

¹H NMR spectrum (CDCl₃) of compound 10. The spectrum shows peaks at 8.97 (s, 1H), 7.29-7.03 (m, 5H), 5.74 (s, 2H), 4.89 (s, 2H), 3.66 (s, 3H), and 2.86 (s, 2H). Integration values are provided below the peaks: 1.99, 0.97, 0.95, 0.90, 0.88, 2.00, and 3.00.

COC(=O)C(=C1C(=O)N(C1Cc2ccc(F)c(F)c2)C(=O)N)C#N

167.4, 166.1, 163.6, 163.0, 162.9, 161.1, 160.9, 160.5, 160.4, 158.6, 158.5, 136.5, 129.4, 129.4, 129.3, 129.3, 119.0, 119.0, 118.9, 118.8, 115.7, 111.6, 111.6, 111.4, 111.4, 111.4, 104.3, 104.1, 103.8, 102.7, 60.7, 50.5, 37.1, 37.0

Figure S24. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **5c**

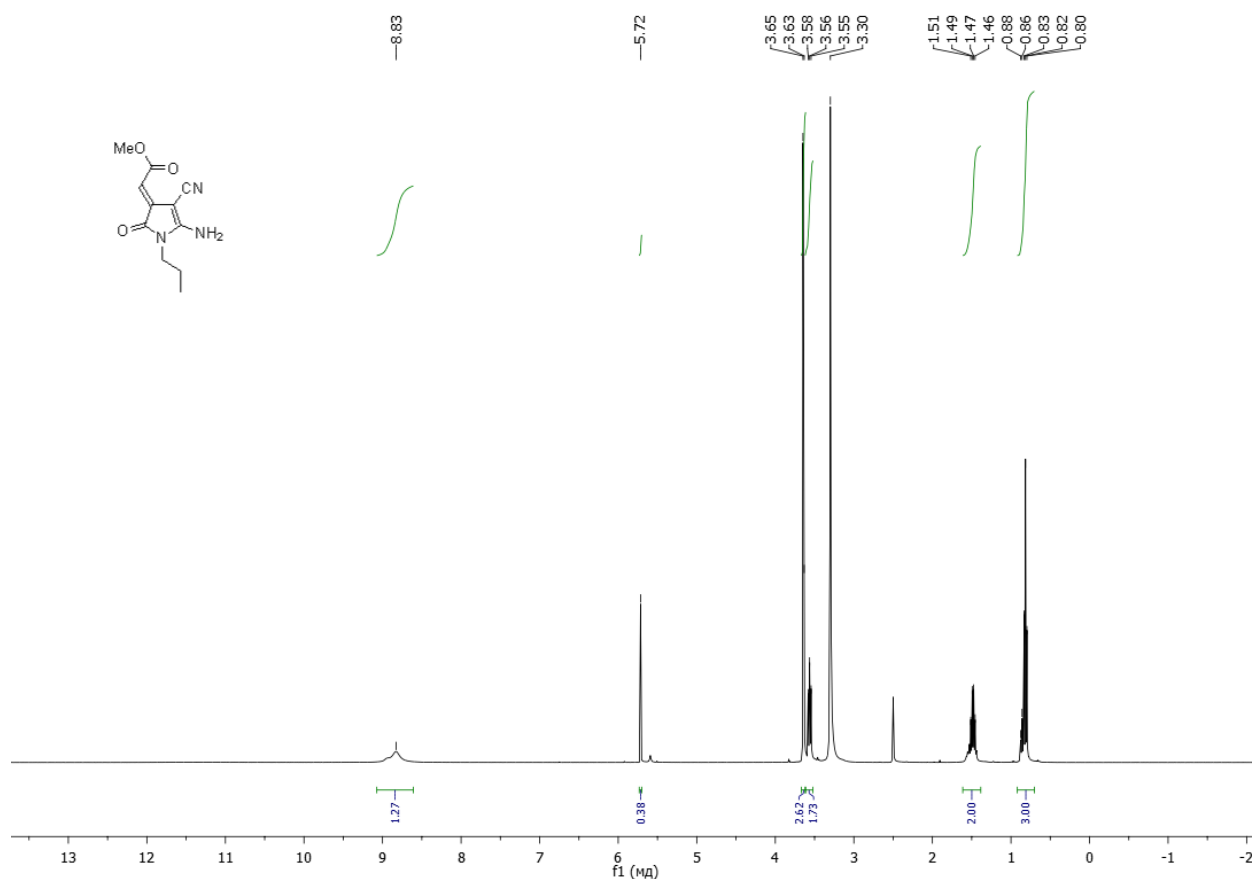


Figure S25. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **5c**

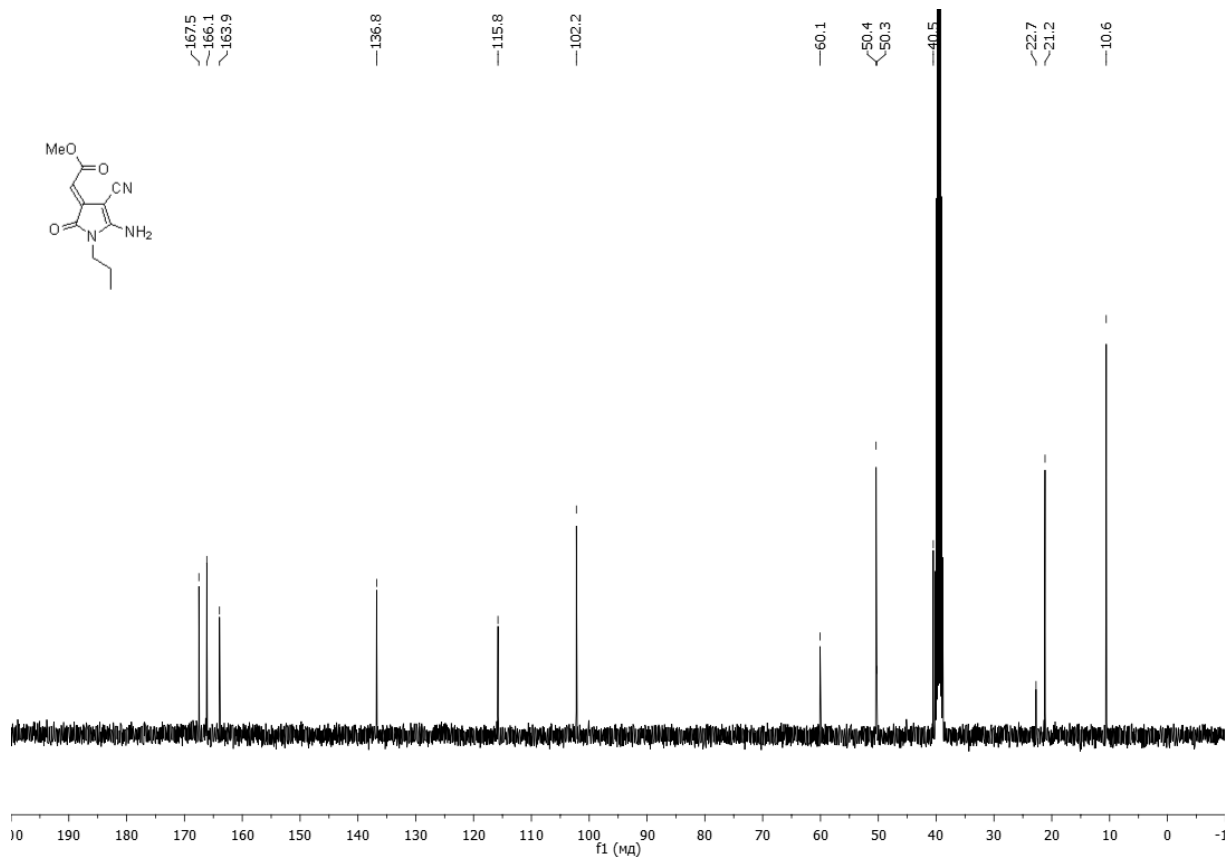


Figure S26. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **5d**

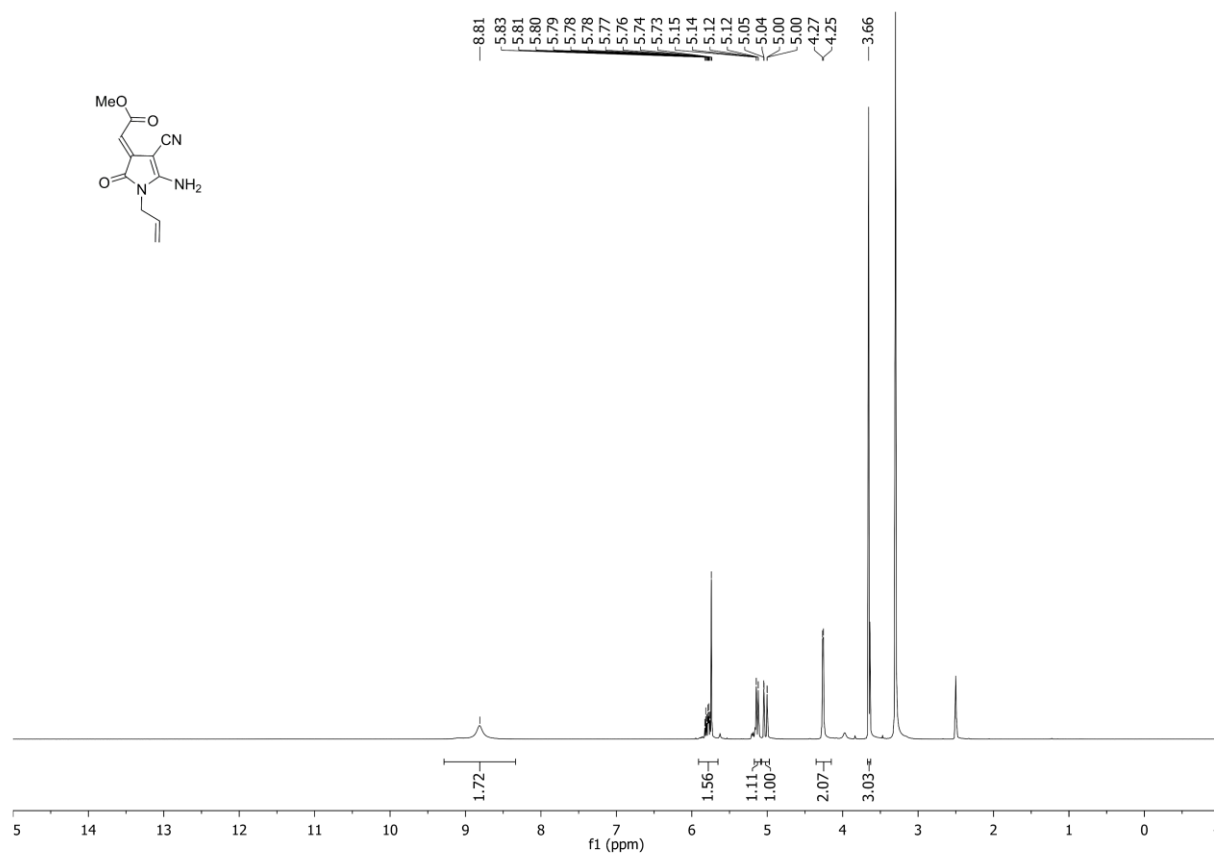


Figure S27. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **5d**

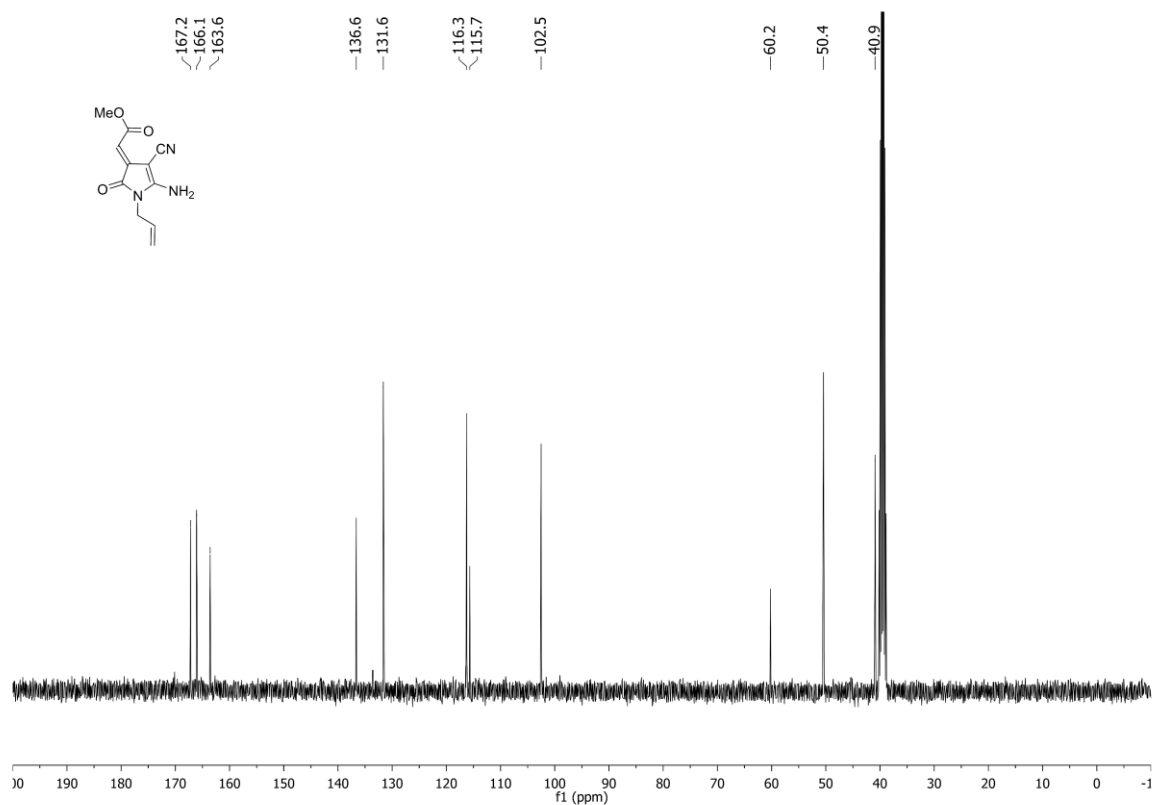


Figure S28. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **5e**

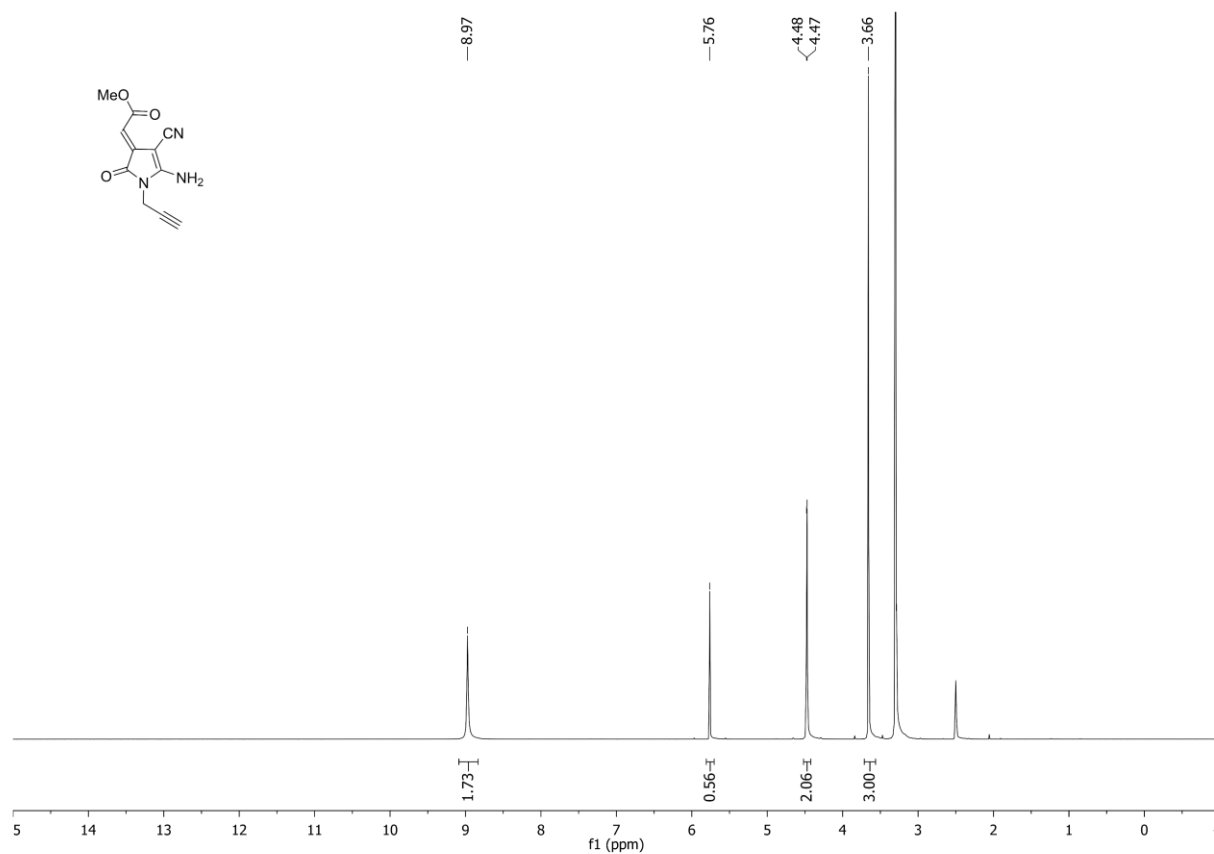


Figure S29. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **5e**

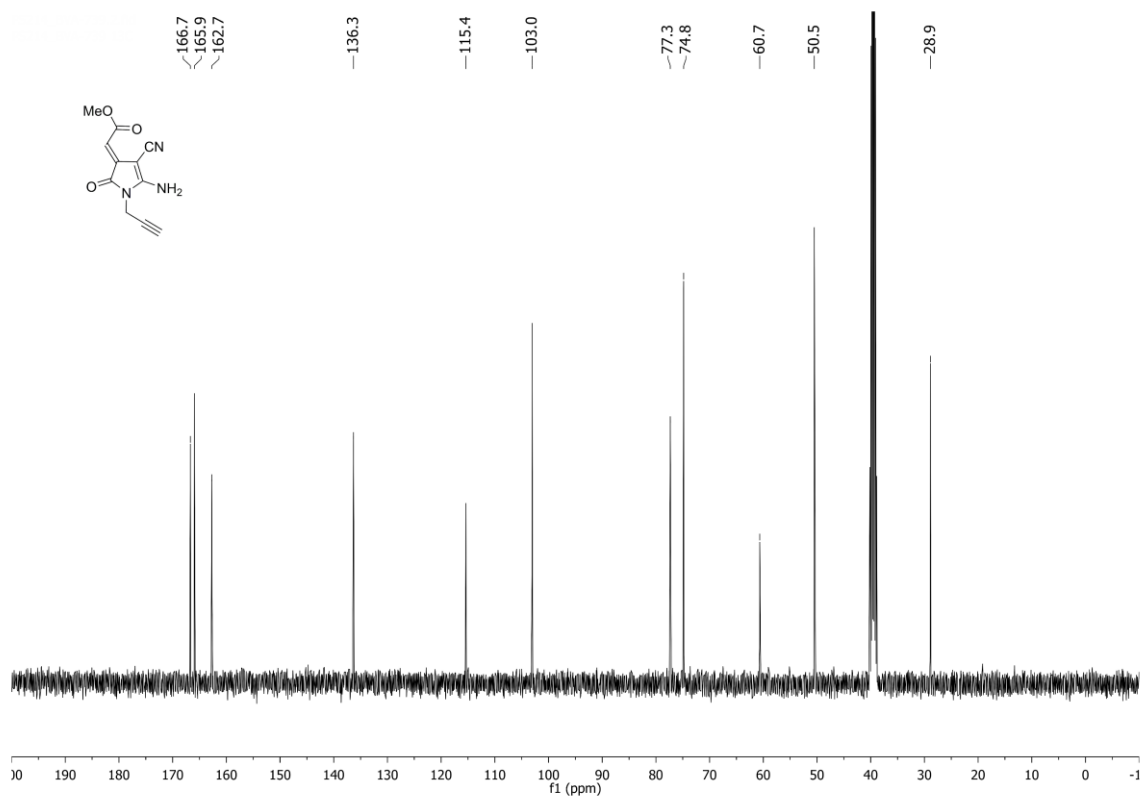


Figure S30. ^1H NMR spectrum ($\text{DMSO}-d_6$) of **5f**

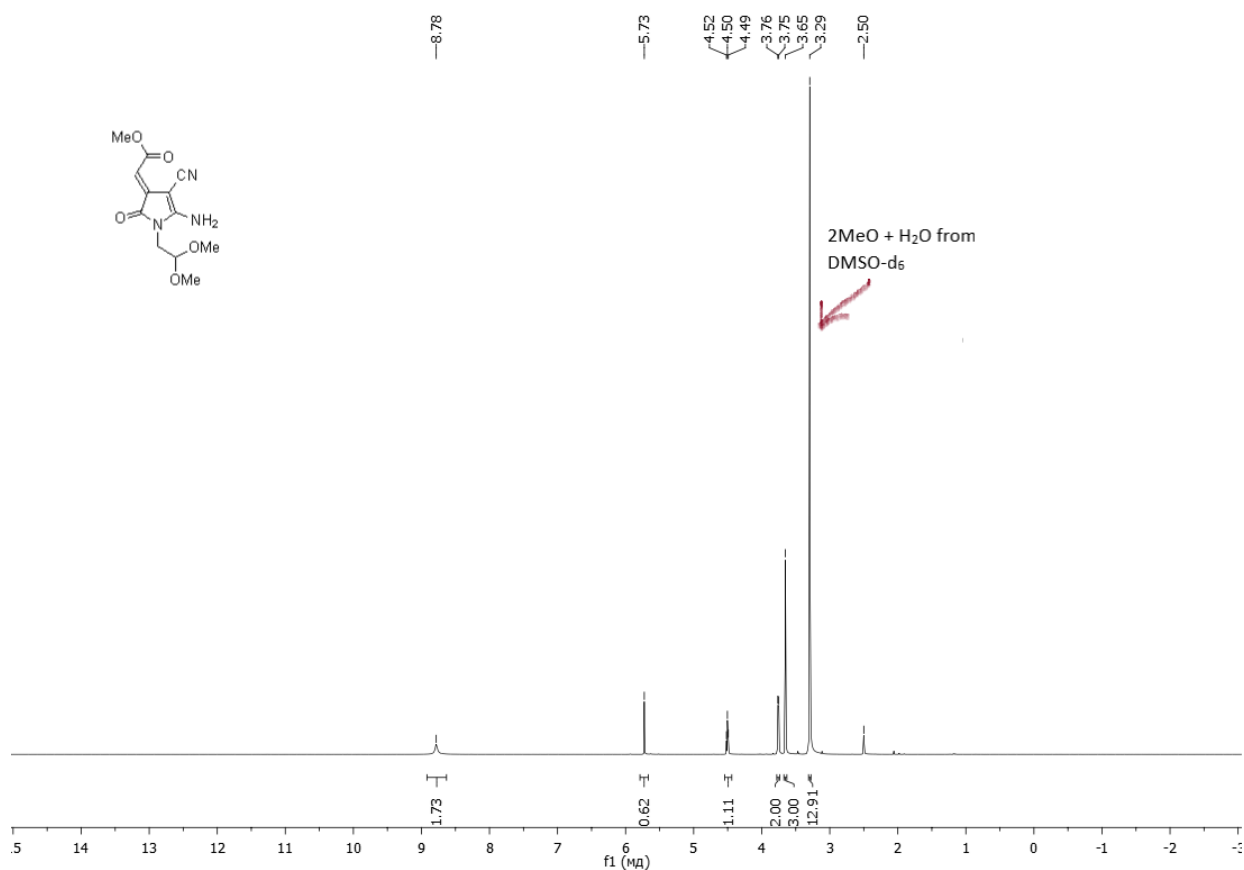


Figure S31. ^{13}C NMR spectrum ($\text{DMSO}-d_6$) of **5f**

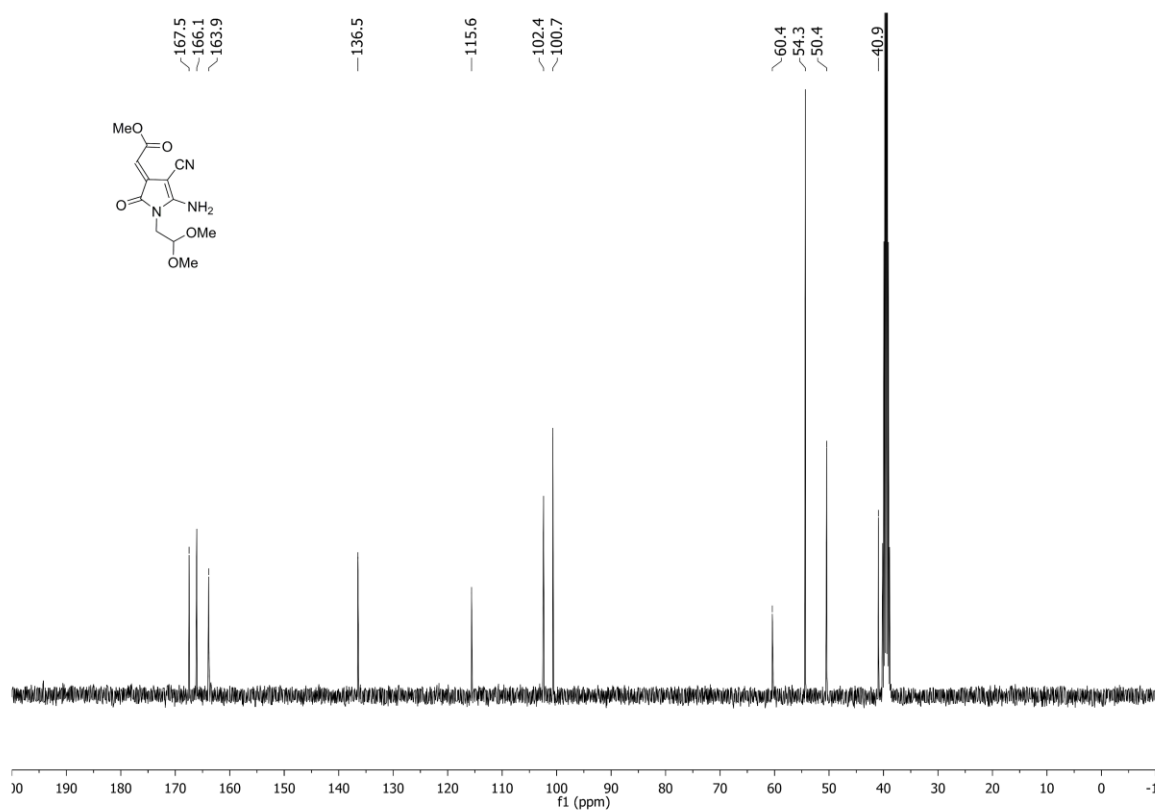


Figure S32. ^1H NMR spectrum (CDCl_3) of **6a**

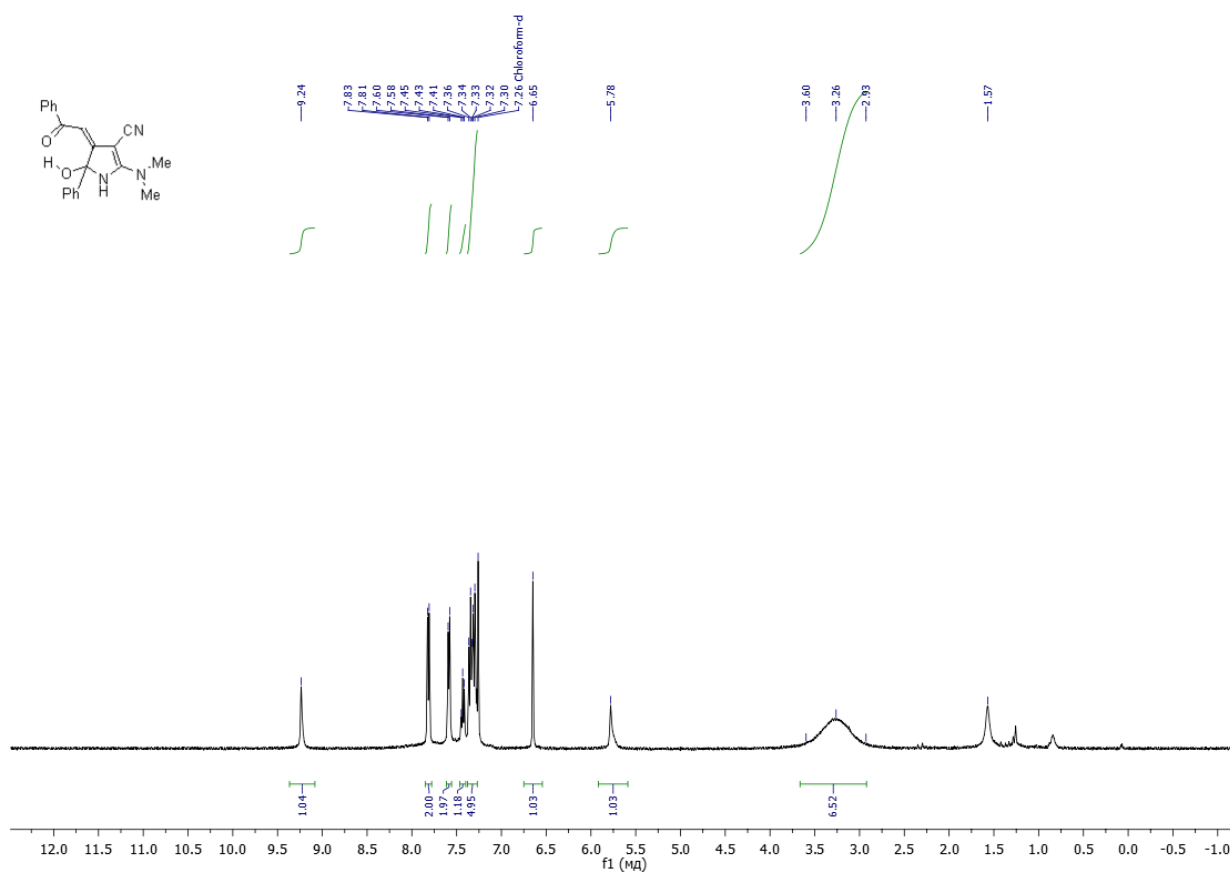


Figure S33. ^{13}C NMR spectrum (CDCl_3) of **6a**

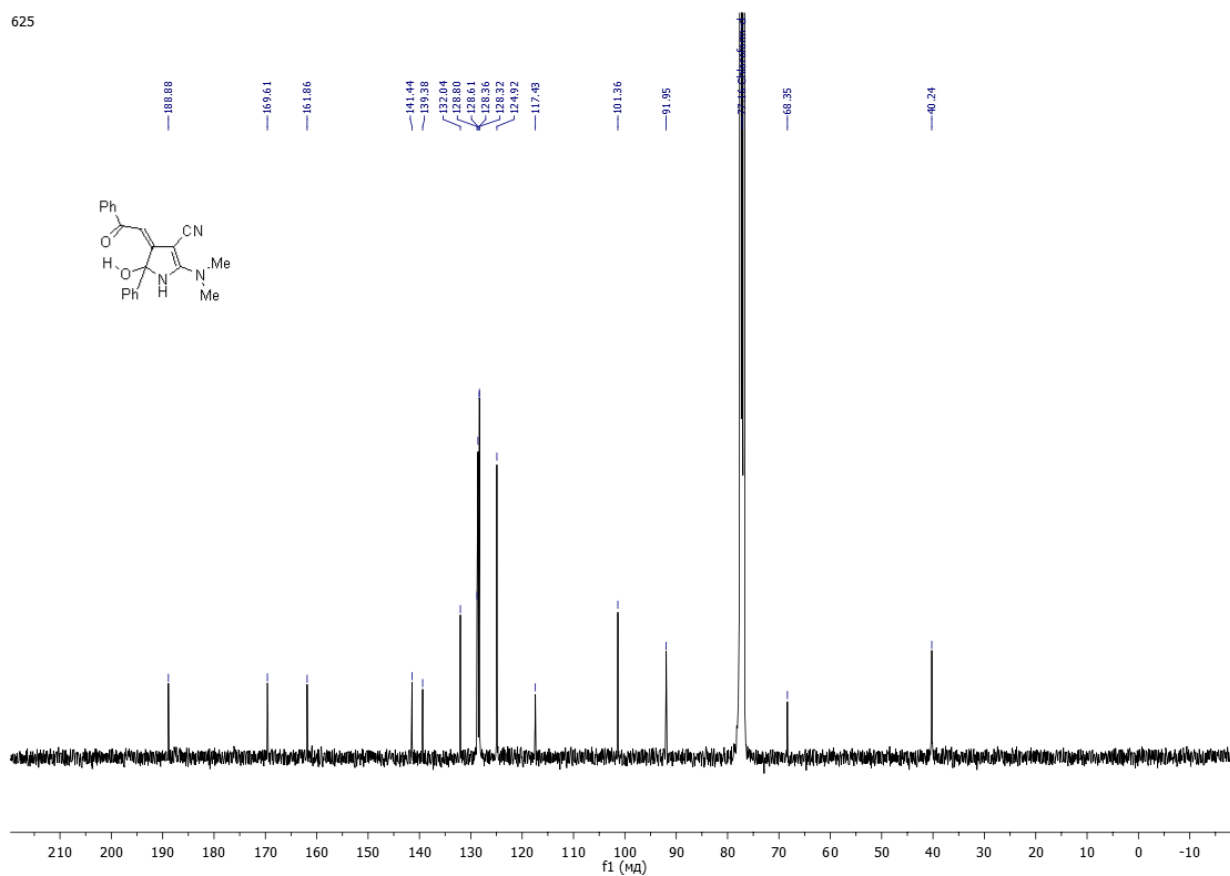


Figure S34. ^1H NMR spectrum (CDCl_3) of **6b**

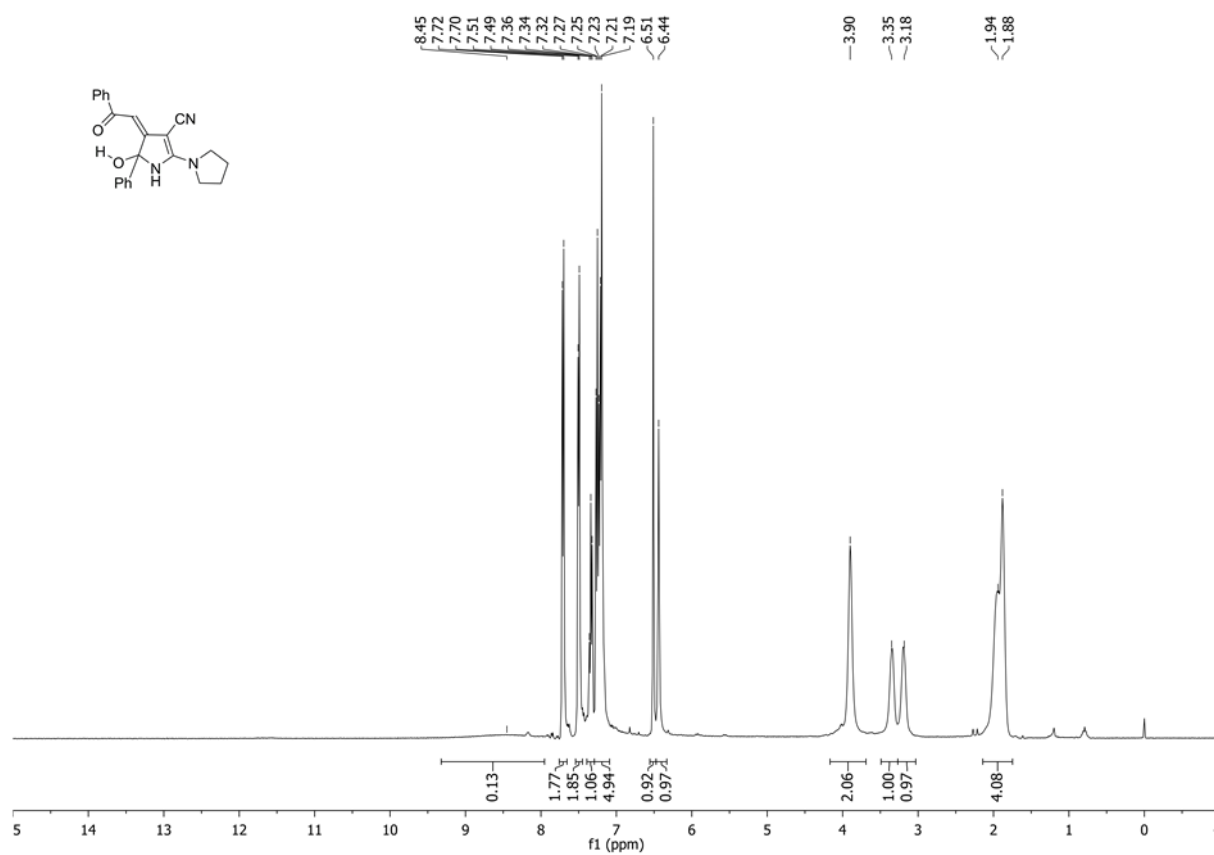


Figure S35. ^{13}C NMR spectrum (CDCl_3) of **6b**

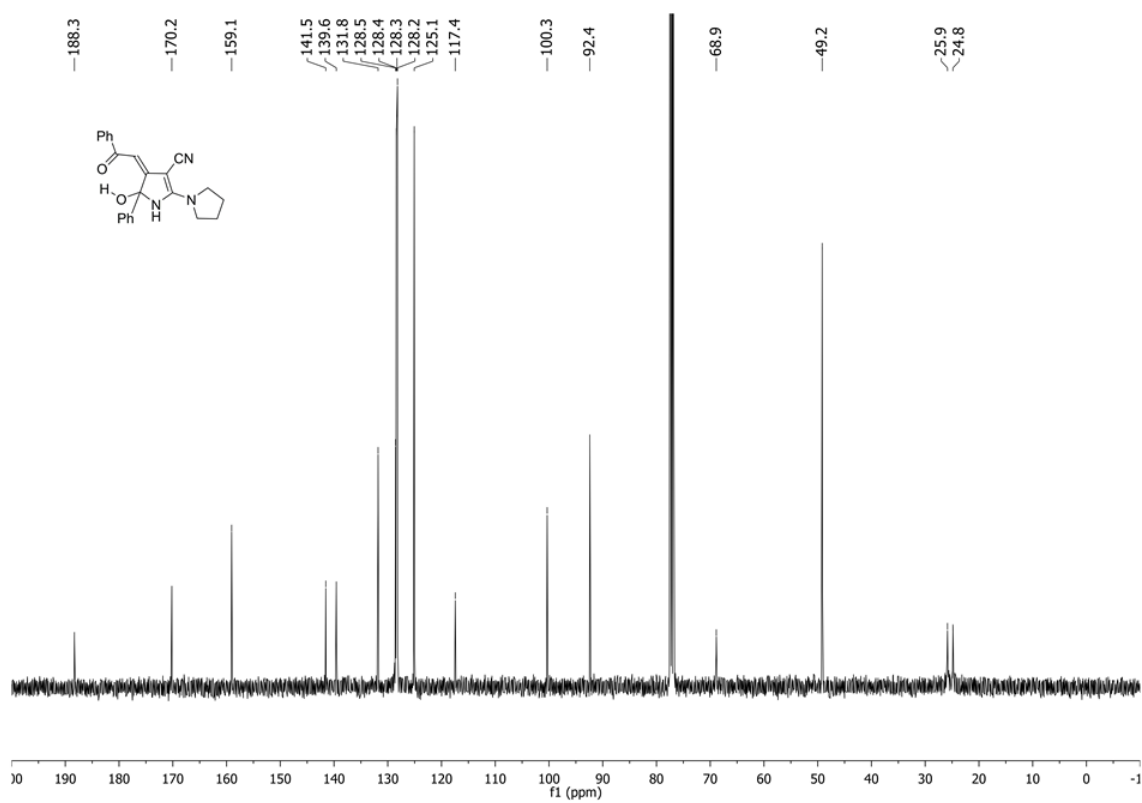


Figure S36. ^1H - ^{13}C HSQC spectrum of **6b**

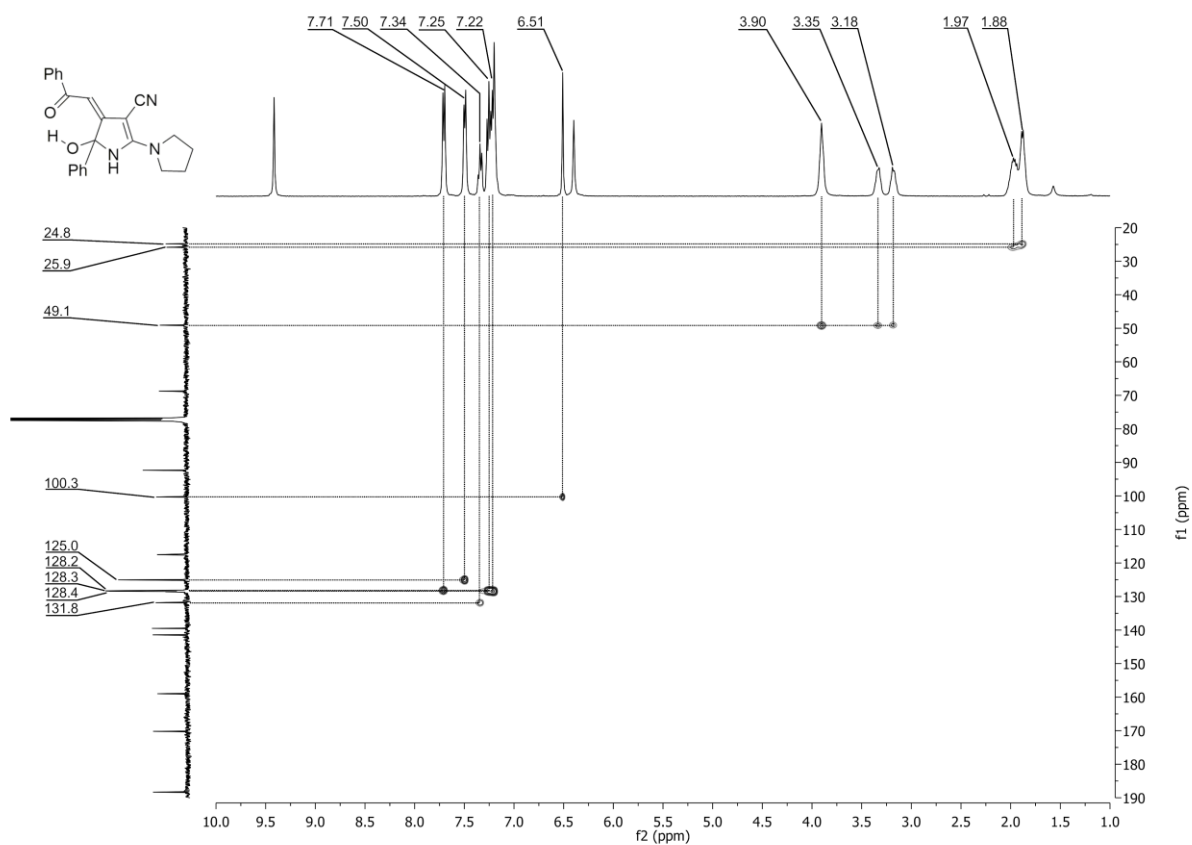


Figure S37. ^1H - ^{13}C HMBC spectrum of **6b**

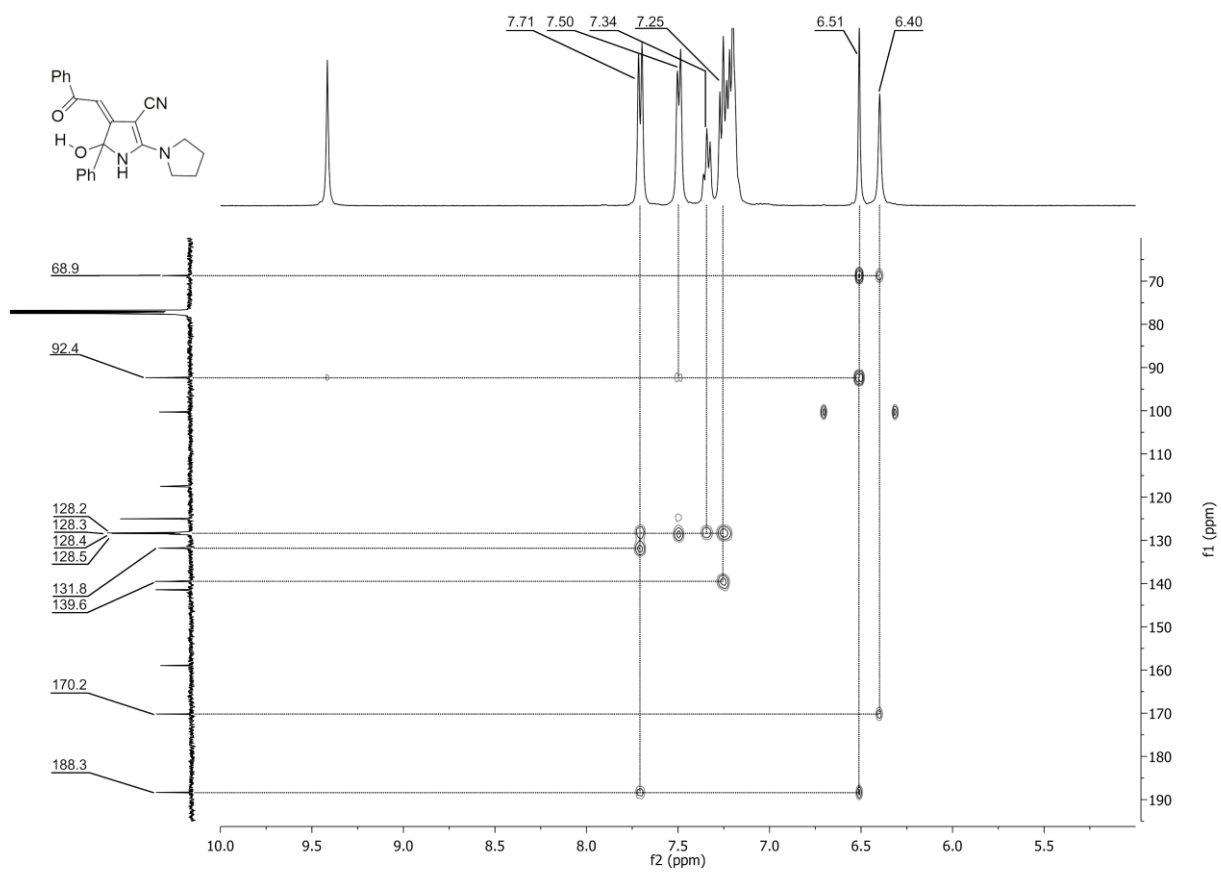


Figure S38. ^1H NMR spectrum (CDCl_3) of **6c**

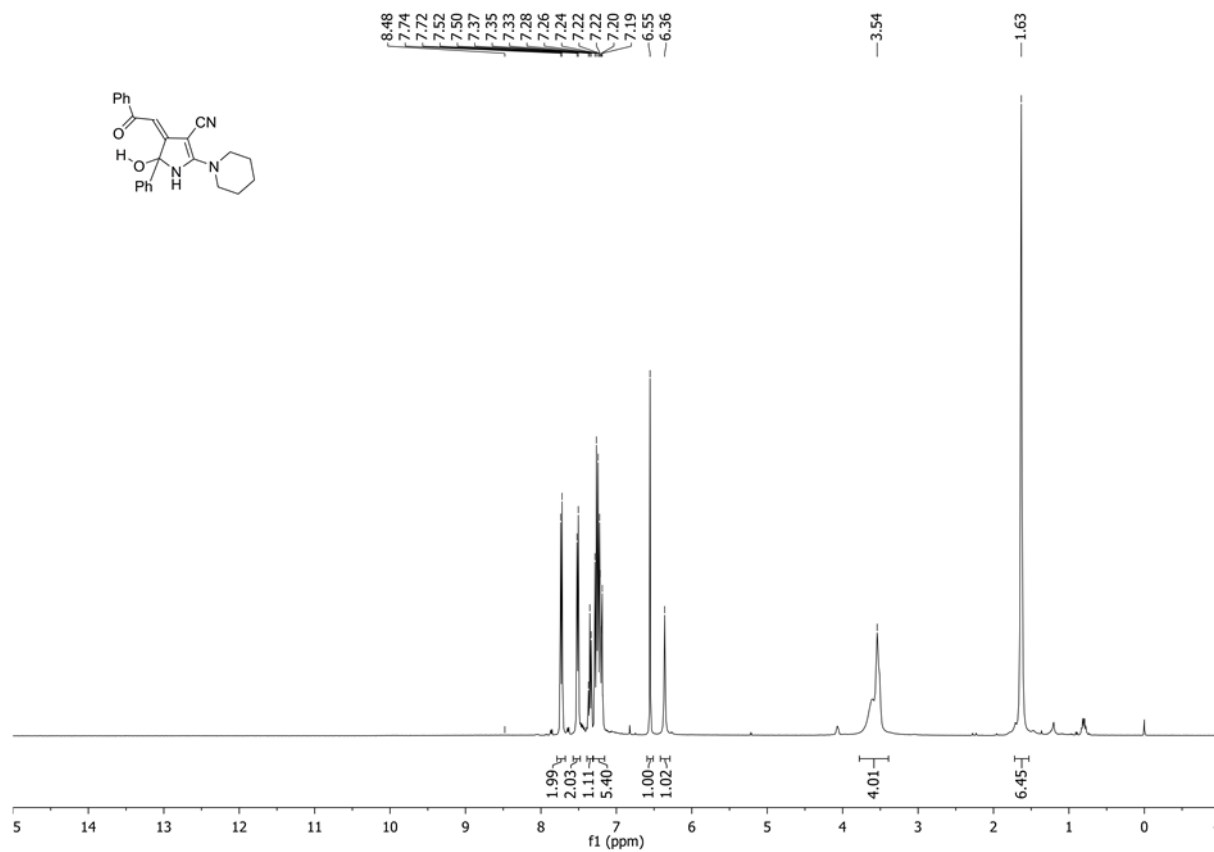


Figure S39. ^{13}C NMR spectrum (CDCl_3) of **6c**

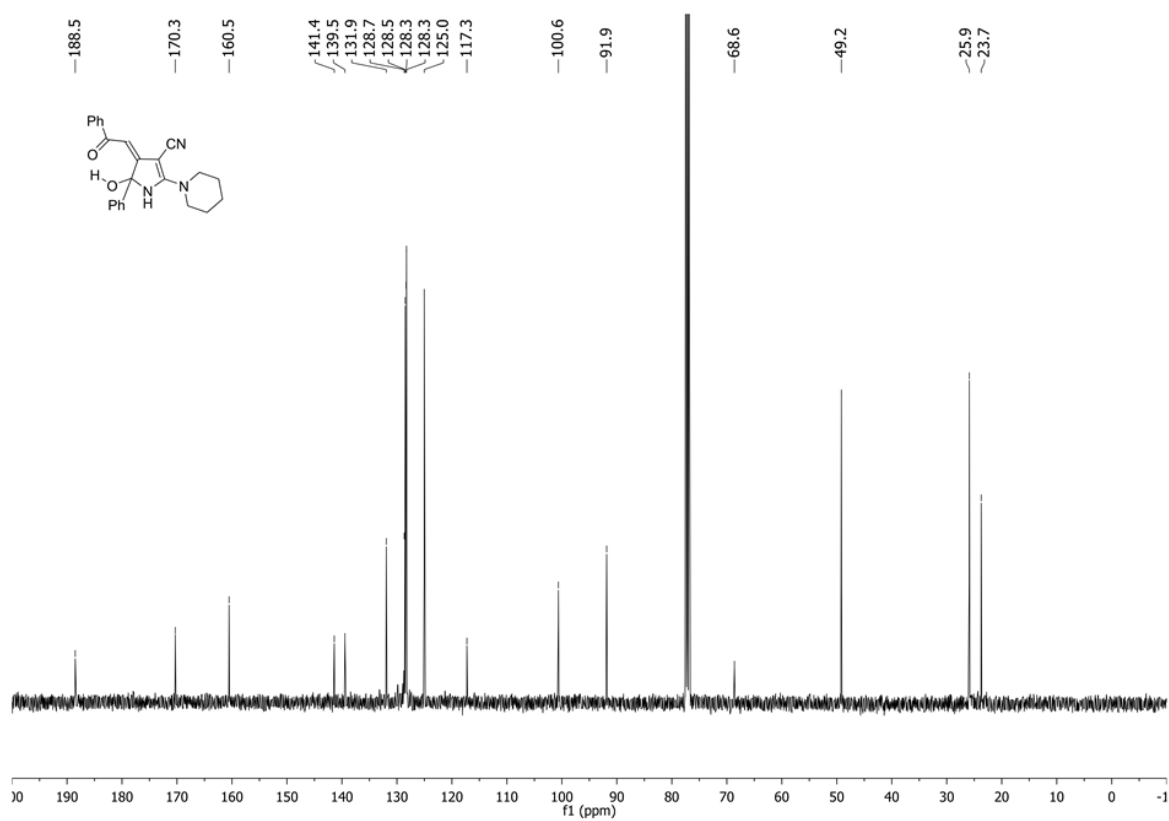


Figure S40. ^1H NMR spectrum (CDCl_3) of **6d**

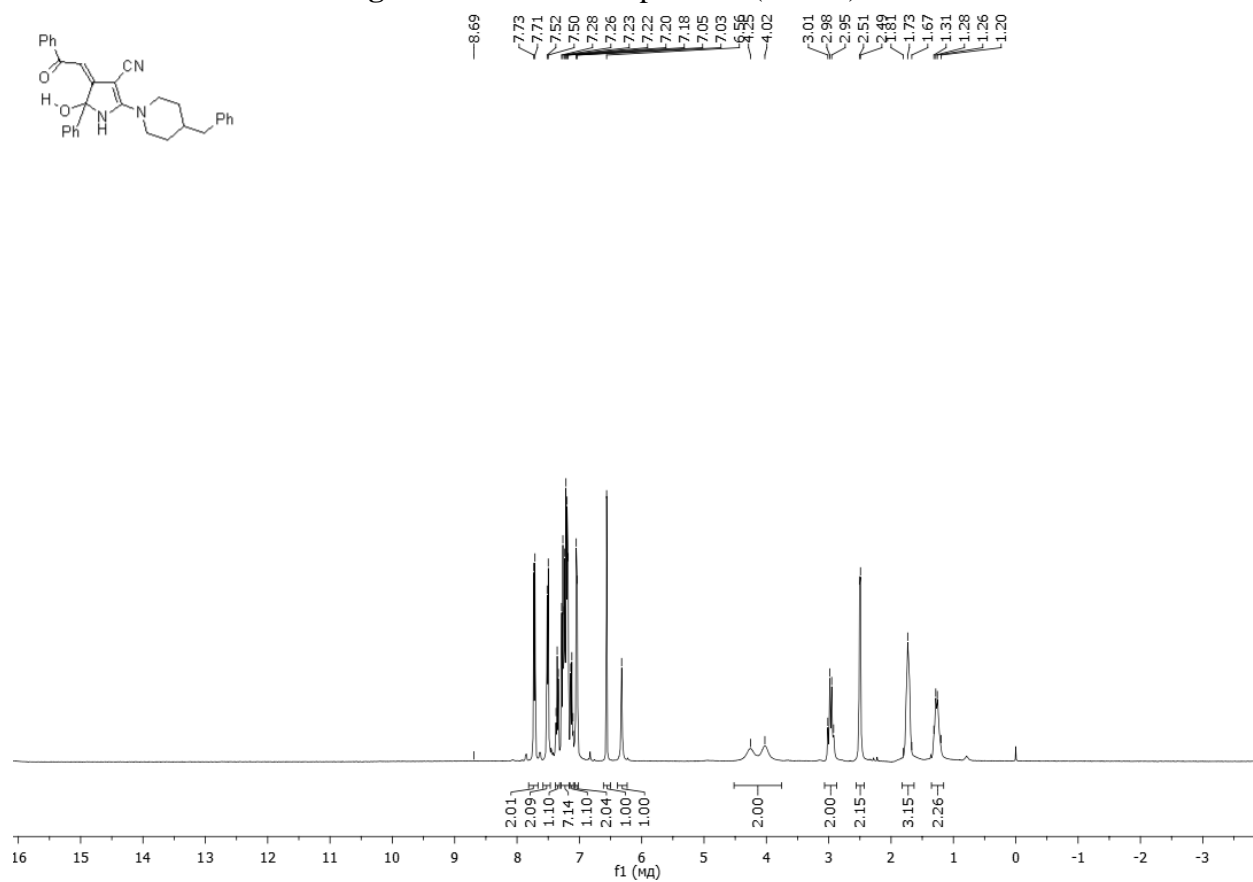


Figure S41. ^{13}C NMR spectrum (CDCl_3) of **6d**

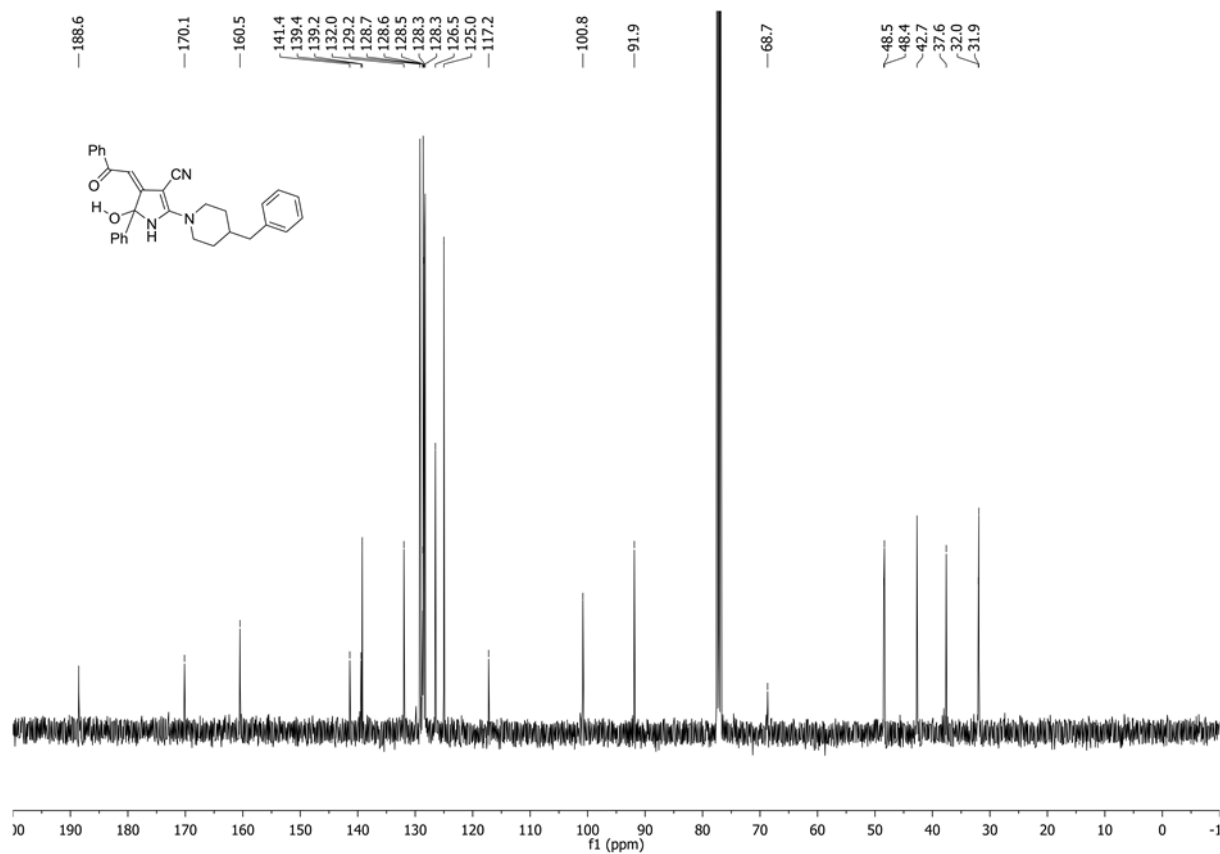


Figure S42 ^1H NMR spectrum (CDCl_3) of **6e**

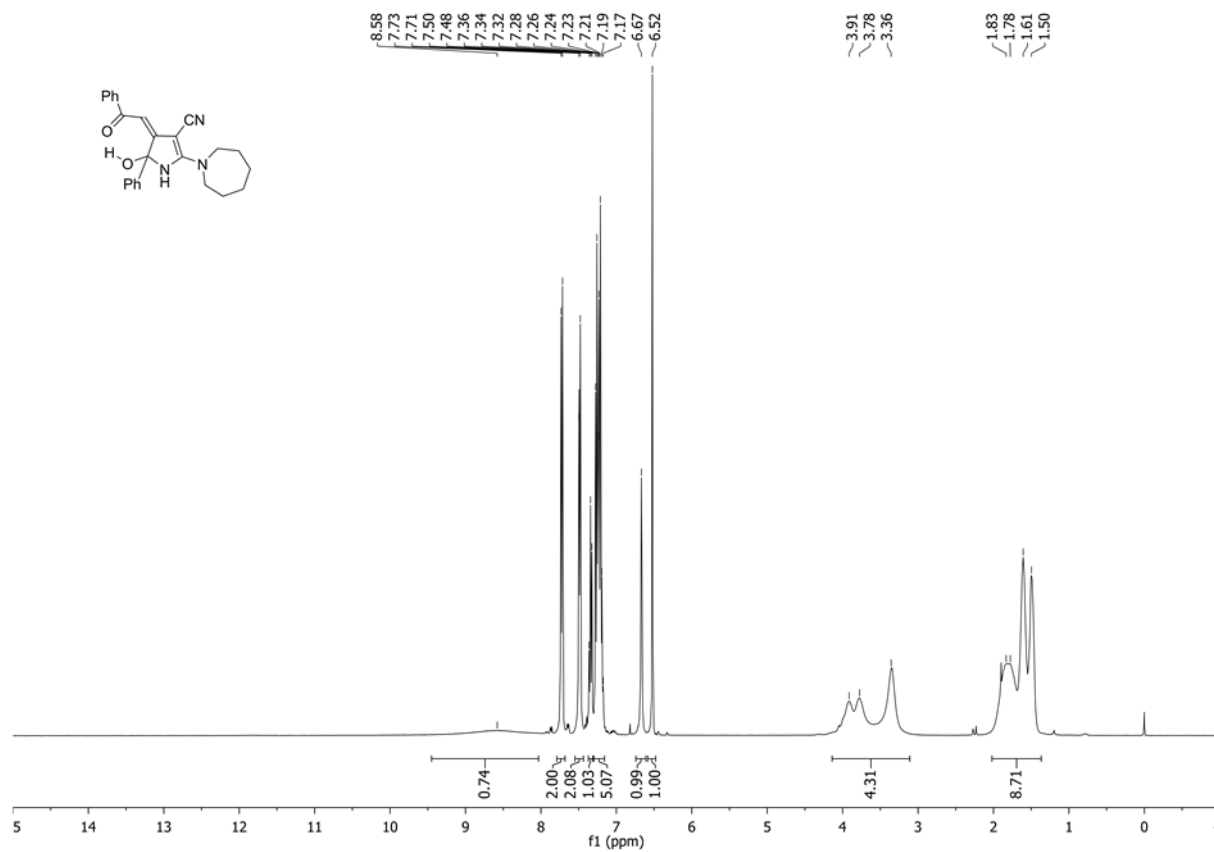


Figure S43 ^{13}C NMR spectrum (CDCl_3) of **6e**

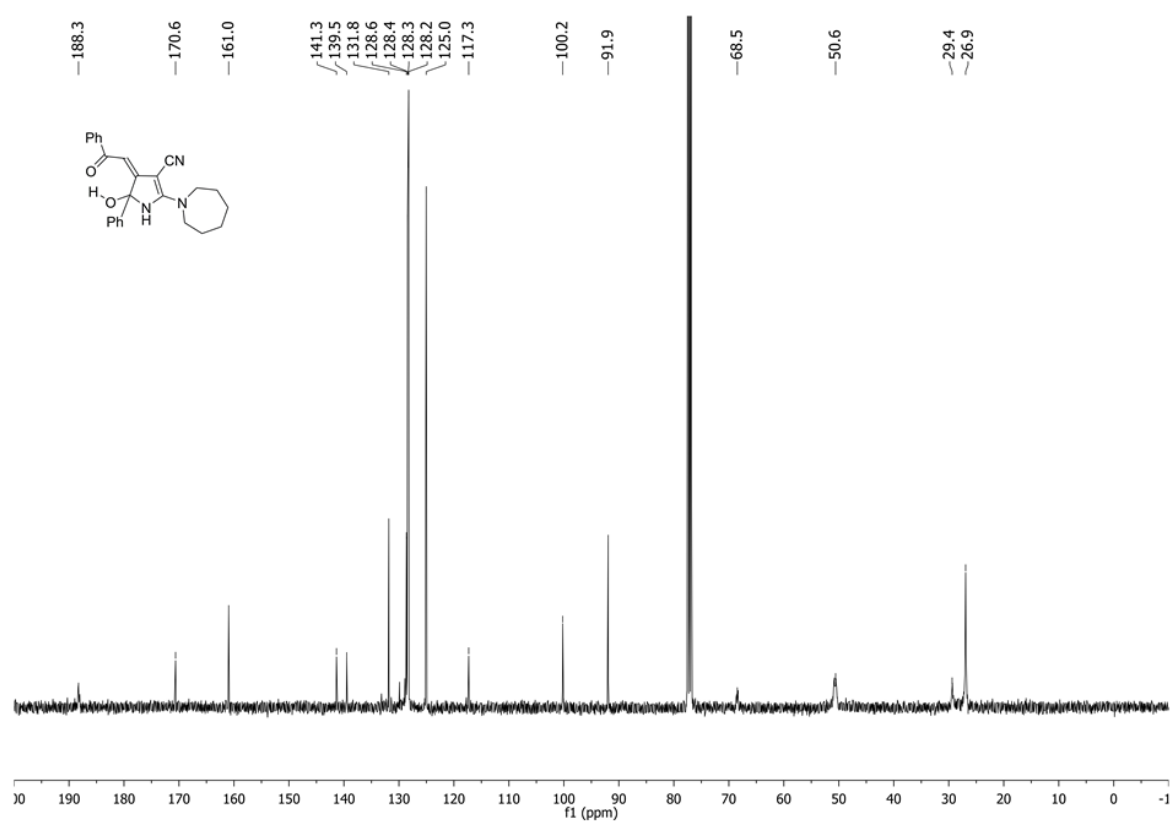


Figure S44 ^1H NMR spectrum (CDCl_3) of **6f**

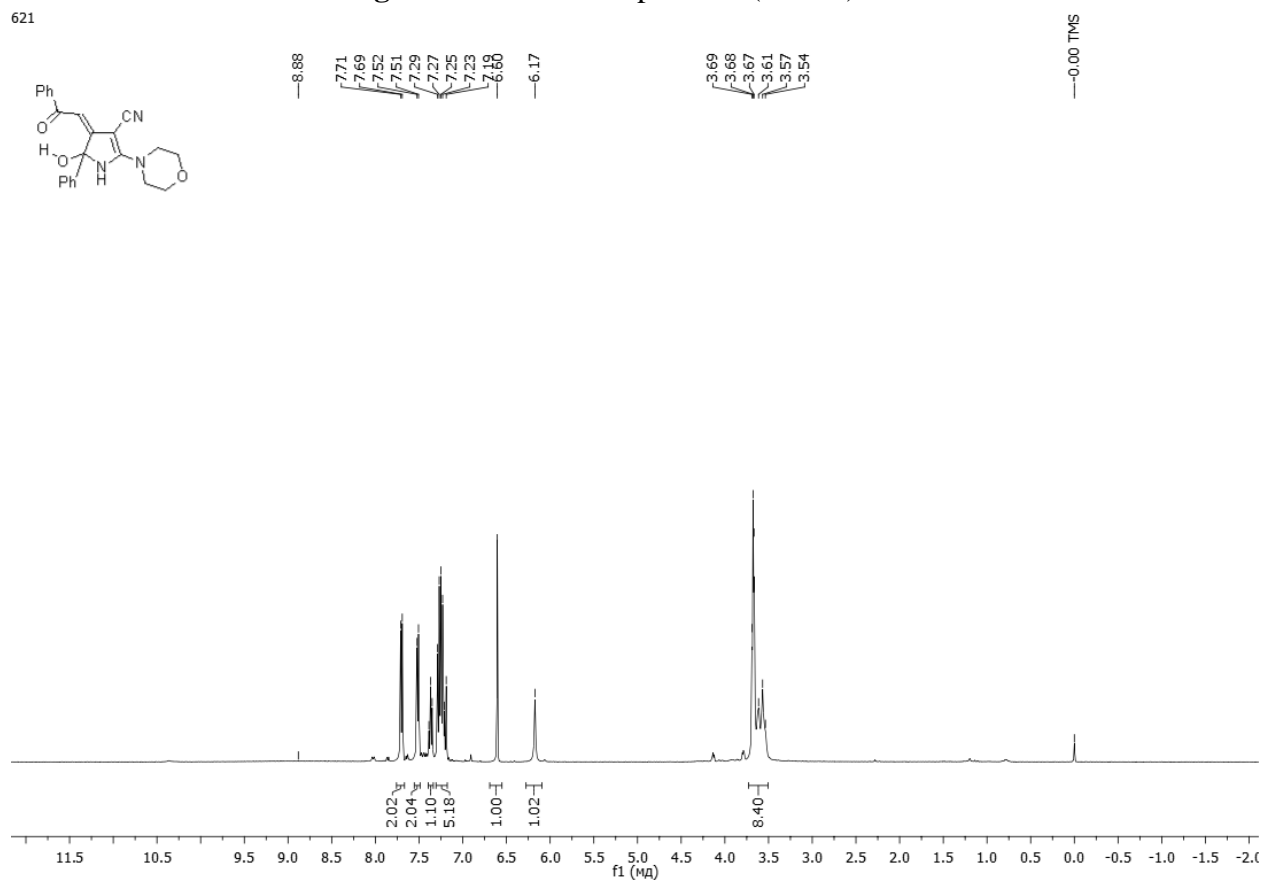


Figure S45 ^{13}C NMR spectrum (CDCl_3) of **6f**

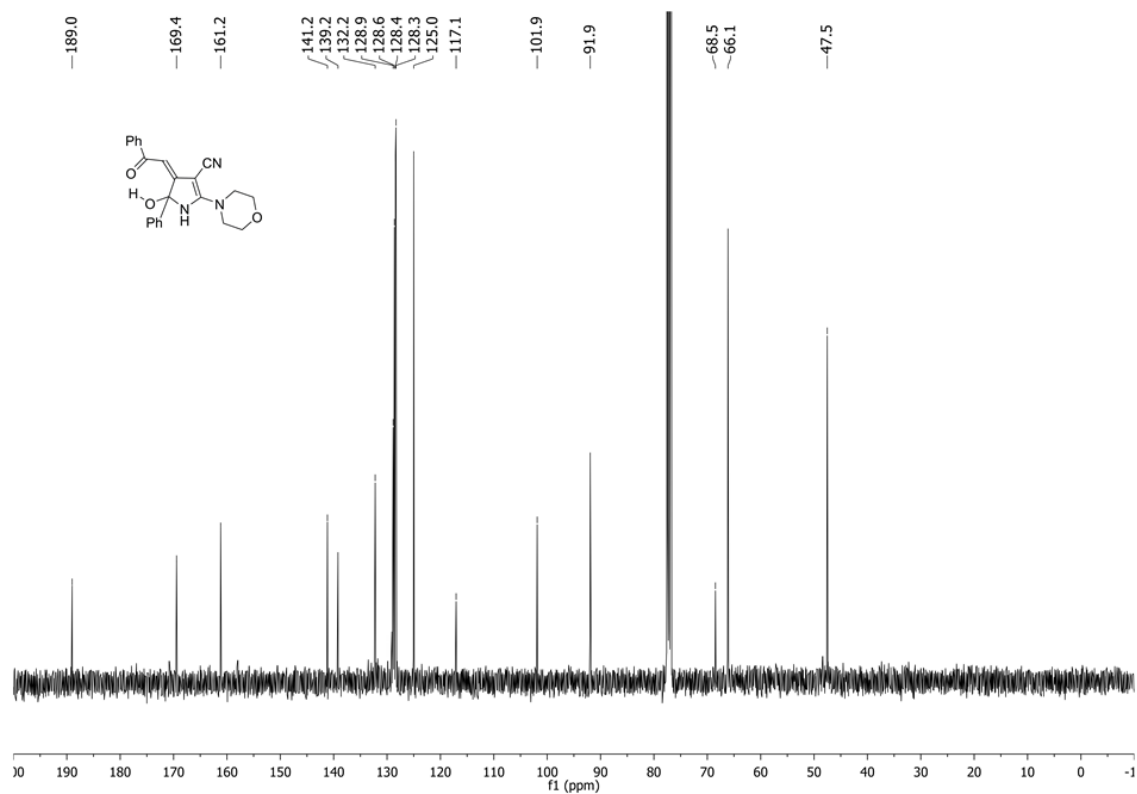


Figure S46 ^1H NMR spectrum (CDCl_3) of **6g**

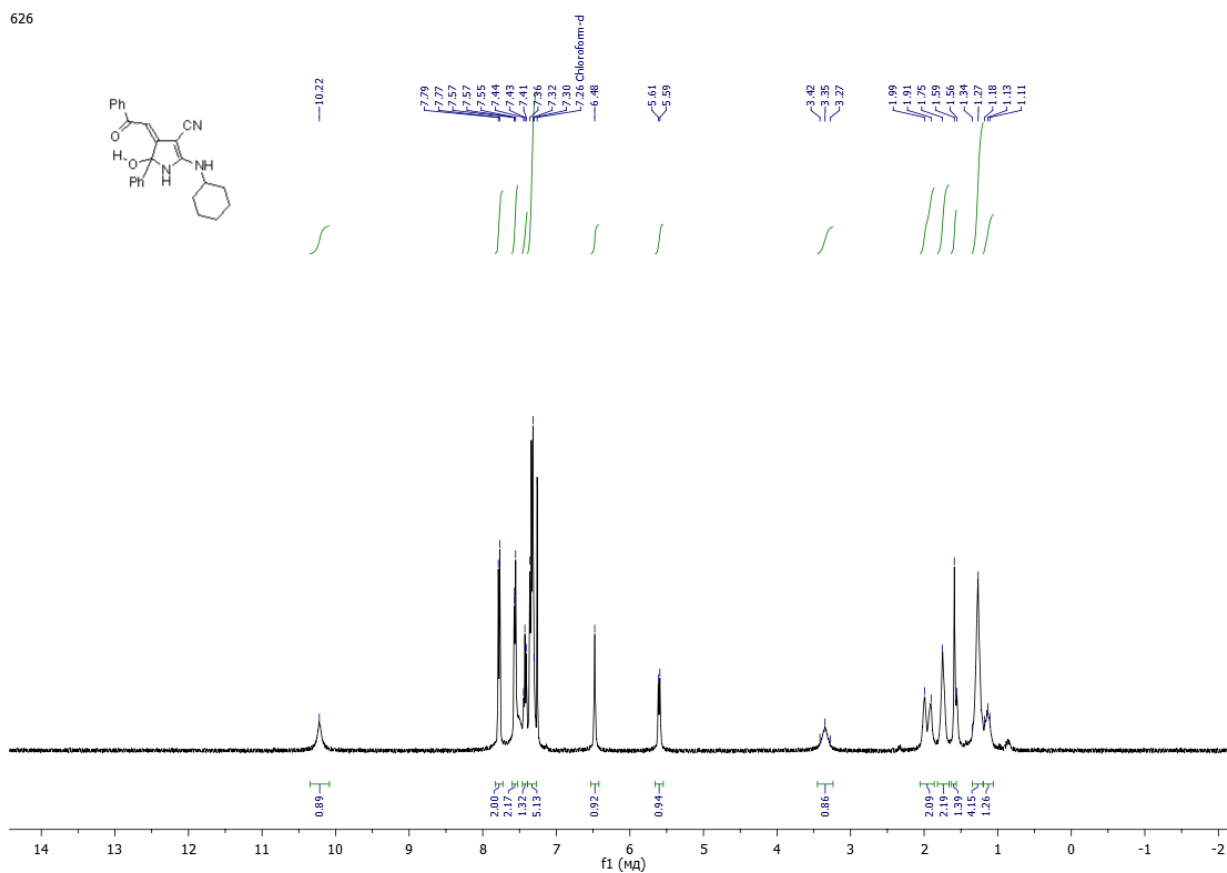


Figure S47 ^{13}C NMR spectrum (CDCl_3) of **6g**

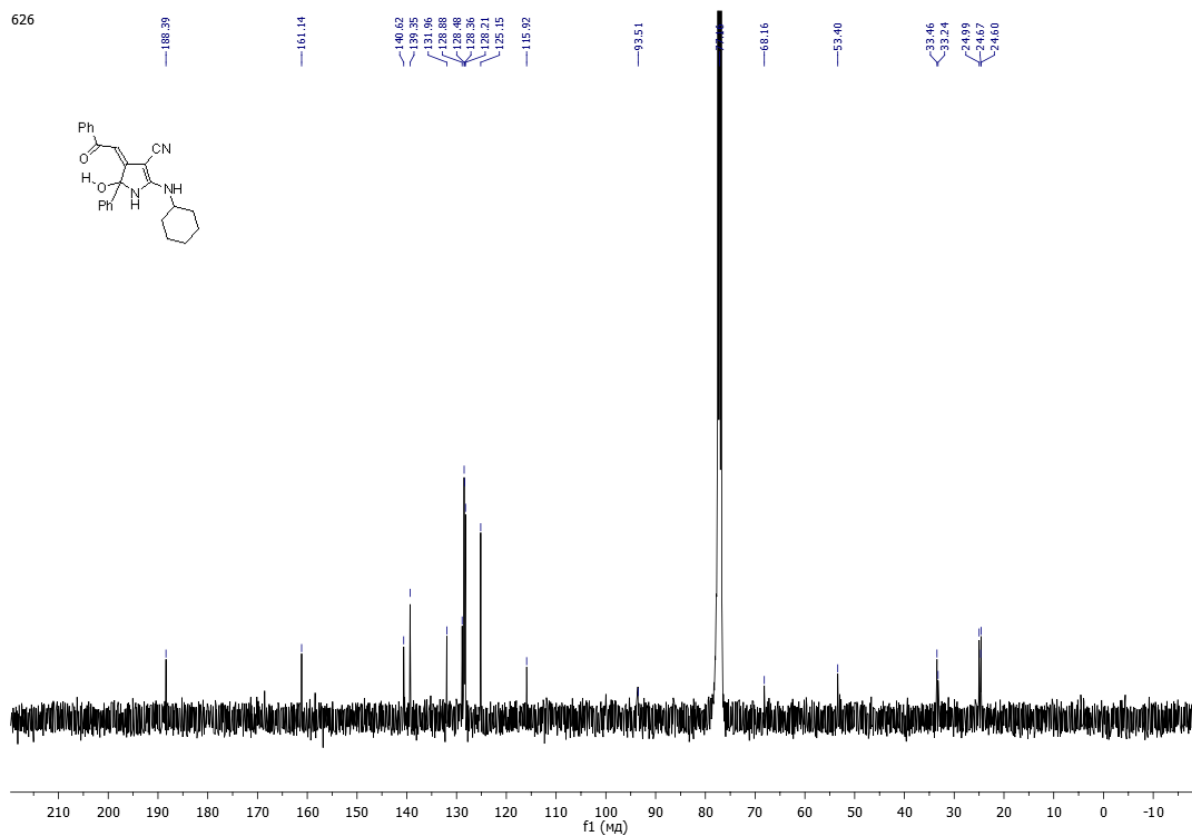


Figure S48 ^1H NMR spectrum (CDCl_3) of **7a**

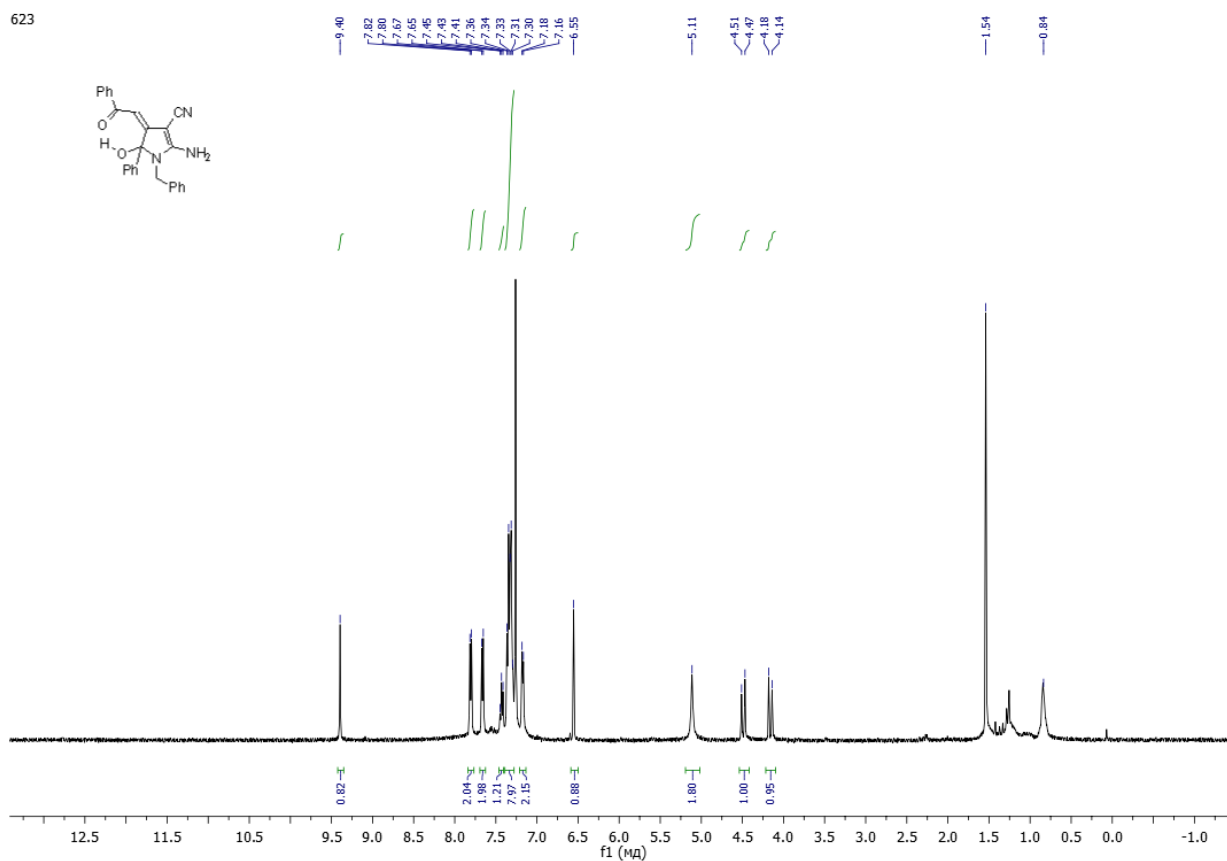


Figure S49 ^1H NMR spectrum (CDCl_3) of **7b**

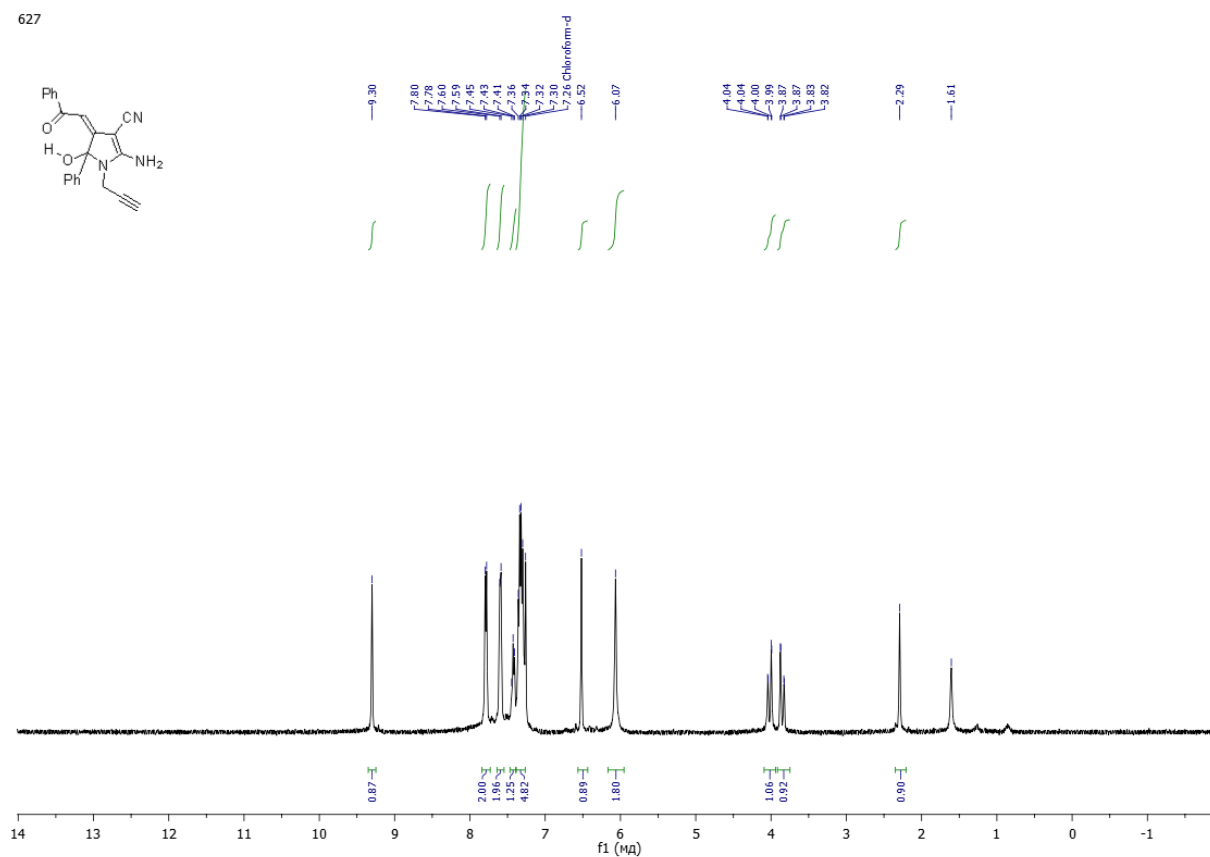


Figure S50 ^{13}C NMR spectrum (CDCl_3) of **7b**

