

Supporting Information

Synthesis and multiple biological activities of trifluoromethylpyrazolyl-substituted thiosemicarbazones and thiazolidinones

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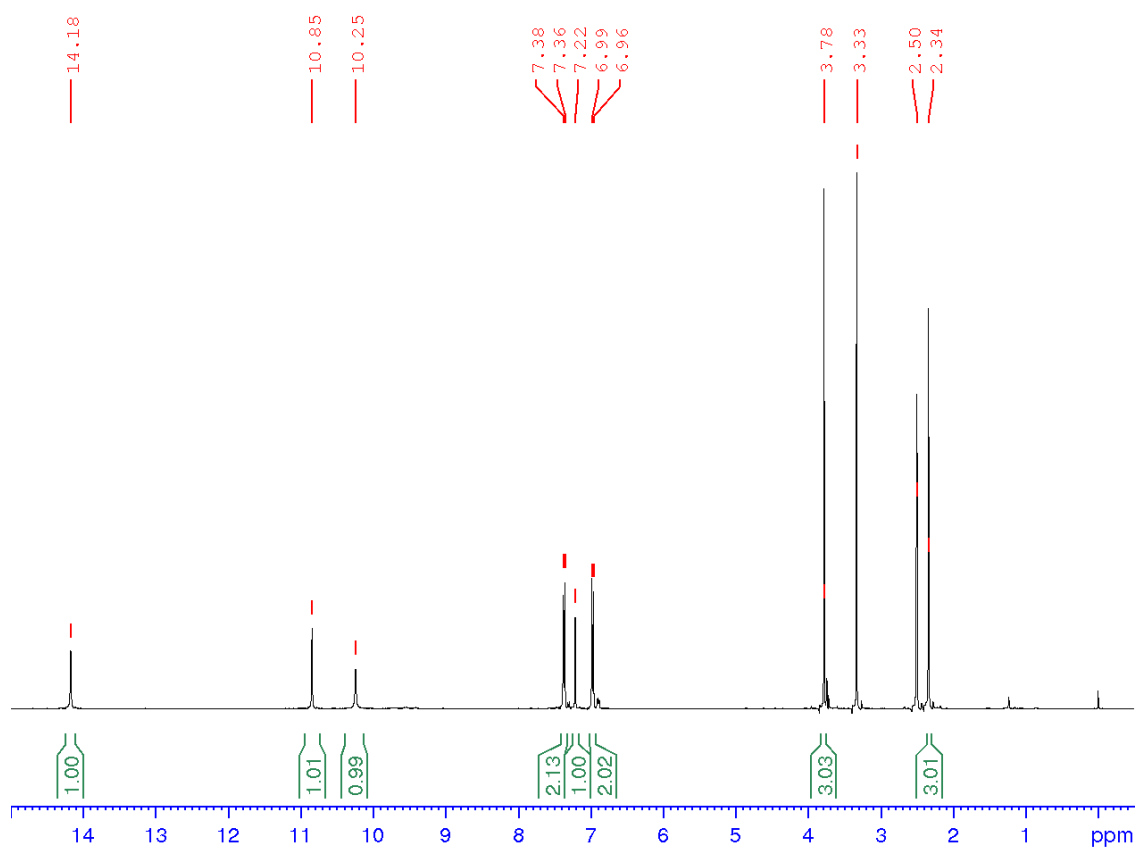


Fig. S 1. ¹H NMR spectrum (400 MHz, DMSO-d₆) of compound **2a**.

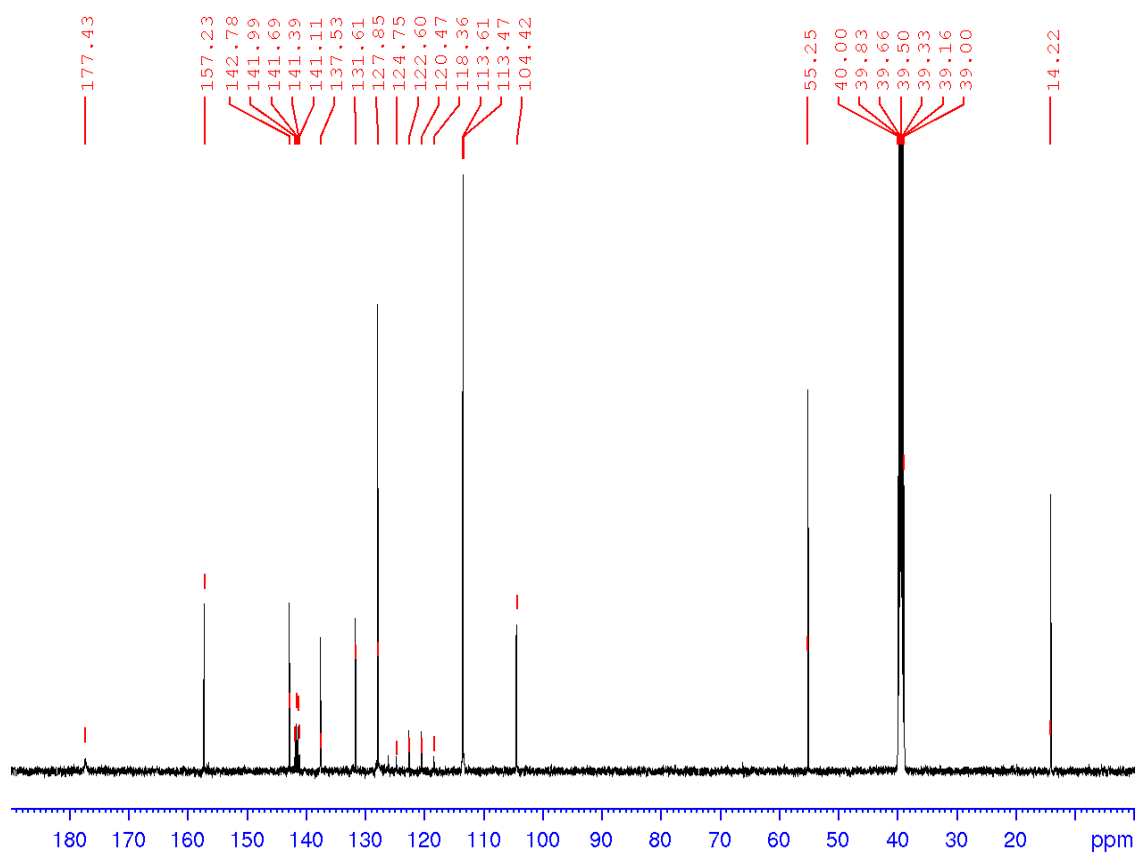


Fig. S 2. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **2a**.



Fig. S 3. ^{19}F NMR spectrum (470 MHz, DMSO- d_6) of compound **2a**.

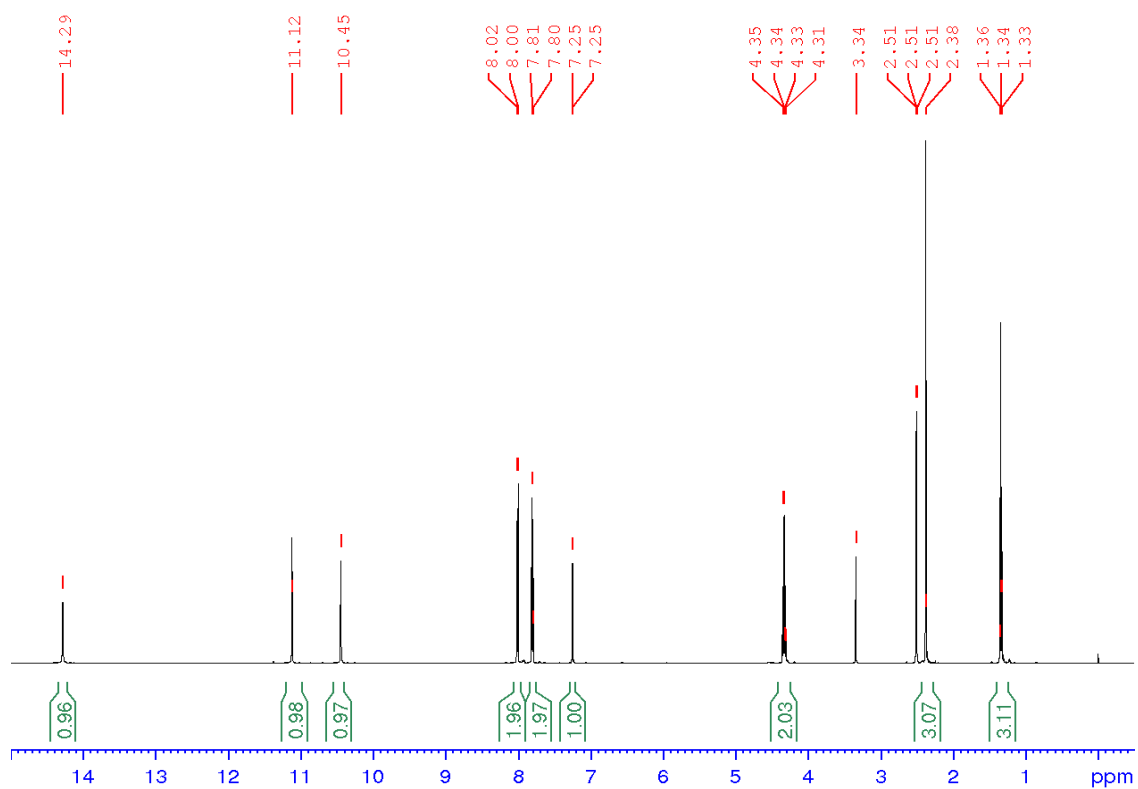


Fig. S 4. ^1H NMR spectrum (500 MHz, DMSO- d_6) of compound **2b**.

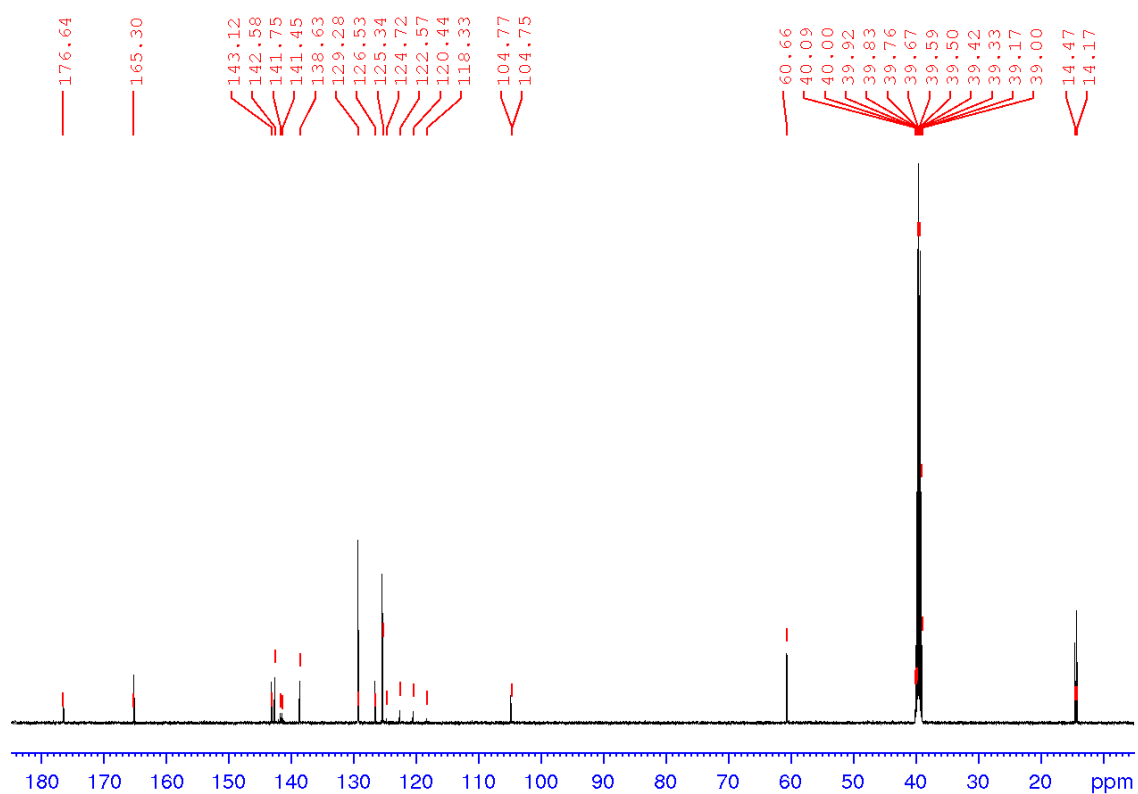


Fig. S 5. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **2b**.

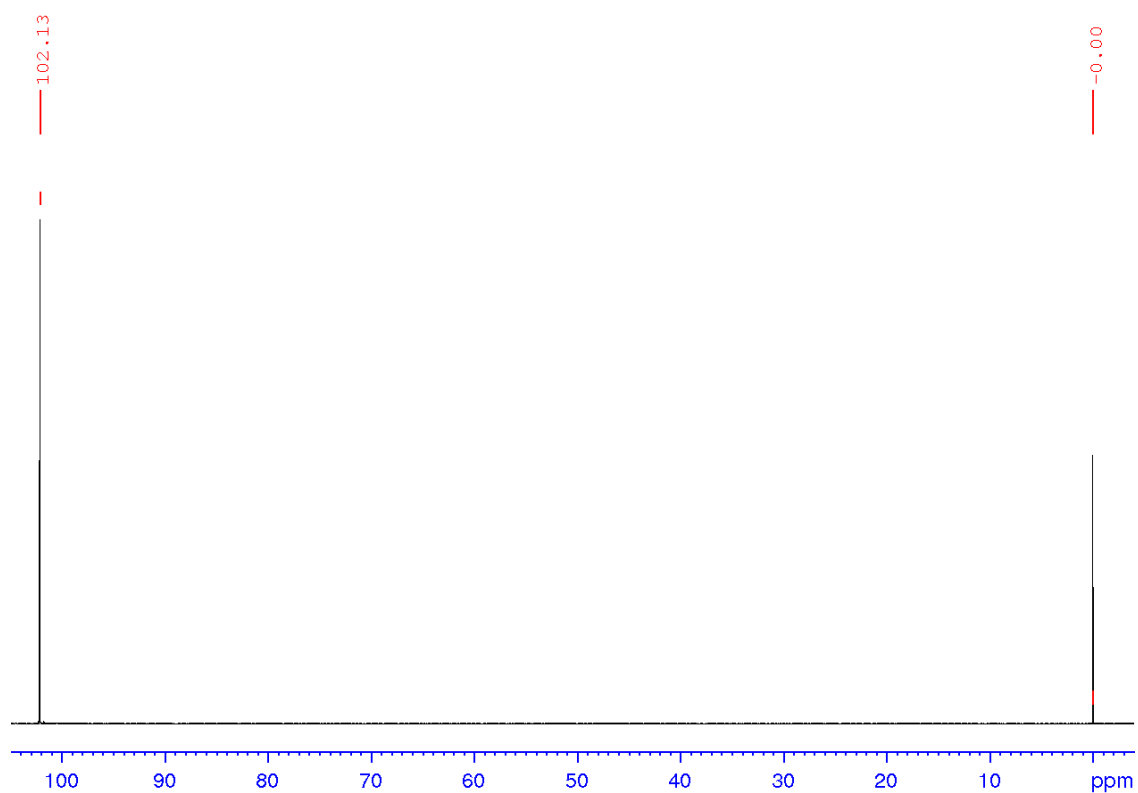


Fig. S 6. ¹⁹F NMR spectrum (470 MHz, DMSO-d₆) of compound **2b**.

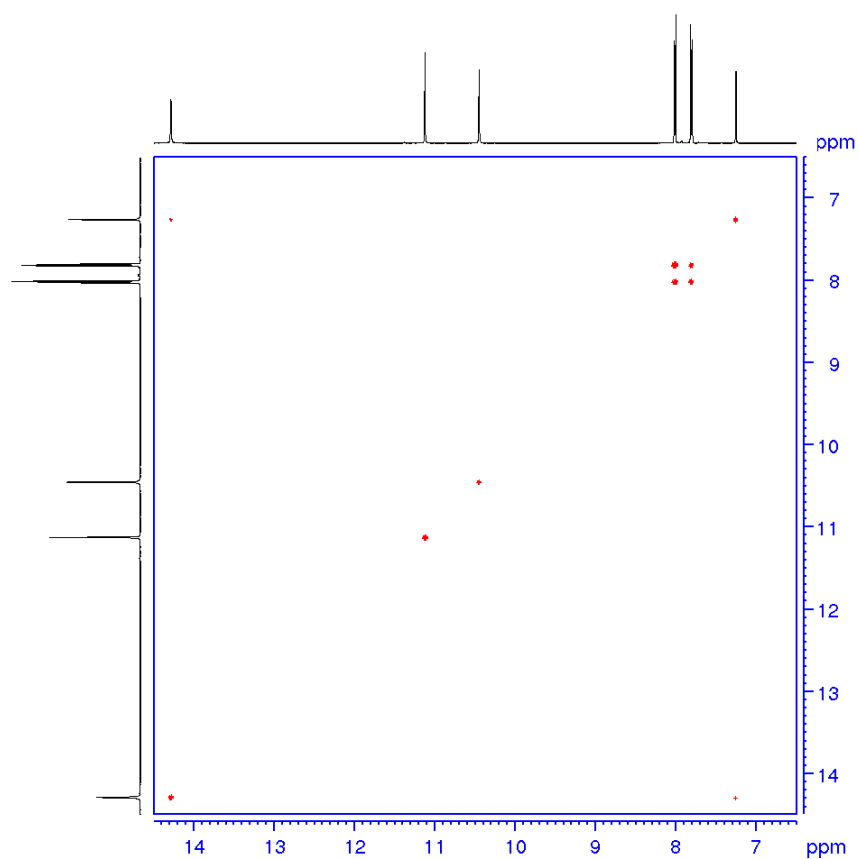


Fig. S 7. 2D ^1H - ^1H COSY spectrum (500 MHz, DMSO-d_6) of compound **2b**.

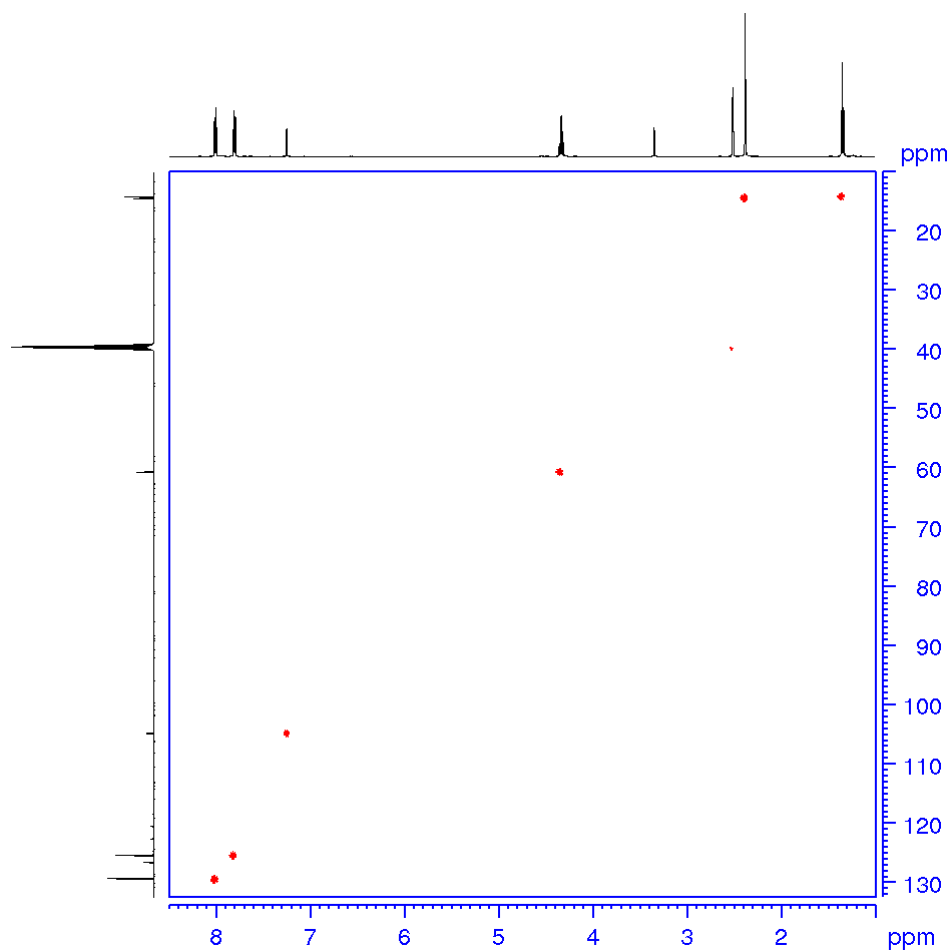


Fig. S 8. 2D ^1H - ^{13}C HSQC spectrum (500 MHz, DMSO-d_6) of compound **2b**.

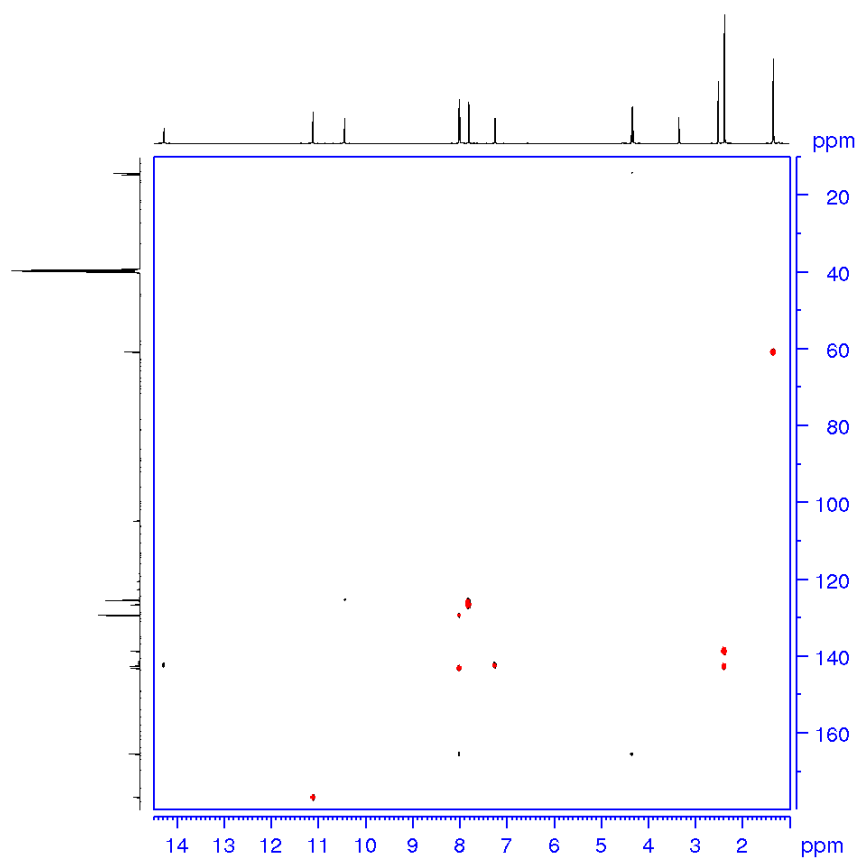


Fig. S 9. 2D ^1H - ^{13}C HMBC spectrum (500 MHz, DMSO-d_6) of compound **2b**.

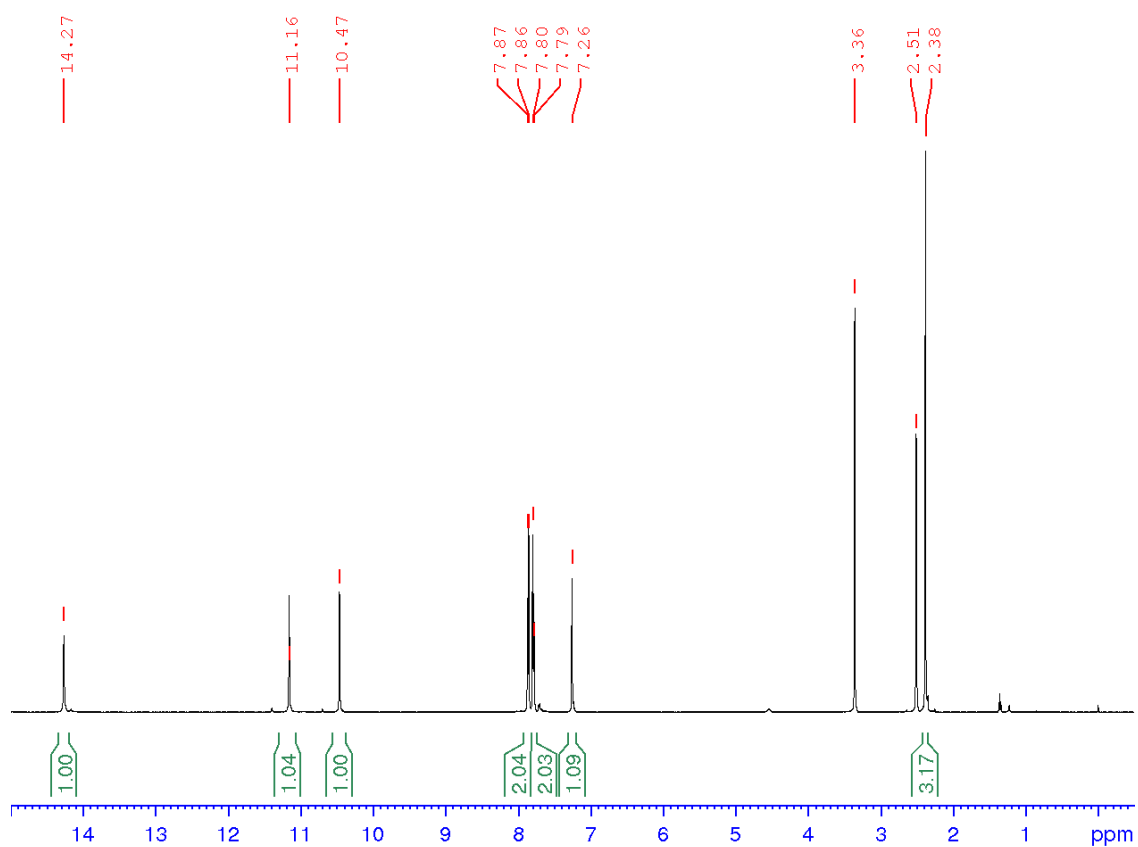


Fig. S 10. ^1H NMR spectrum (500 MHz, DMSO-d_6) of compound **2c**.

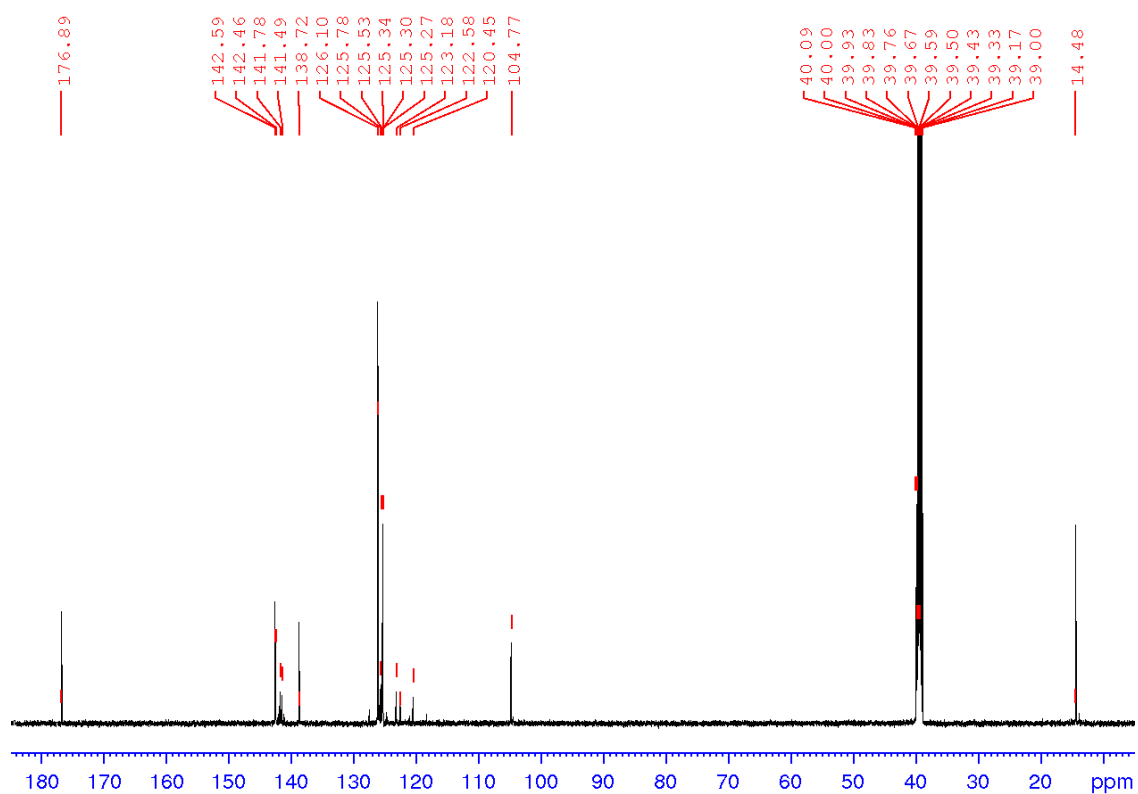


Fig. S 11. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **2c**.

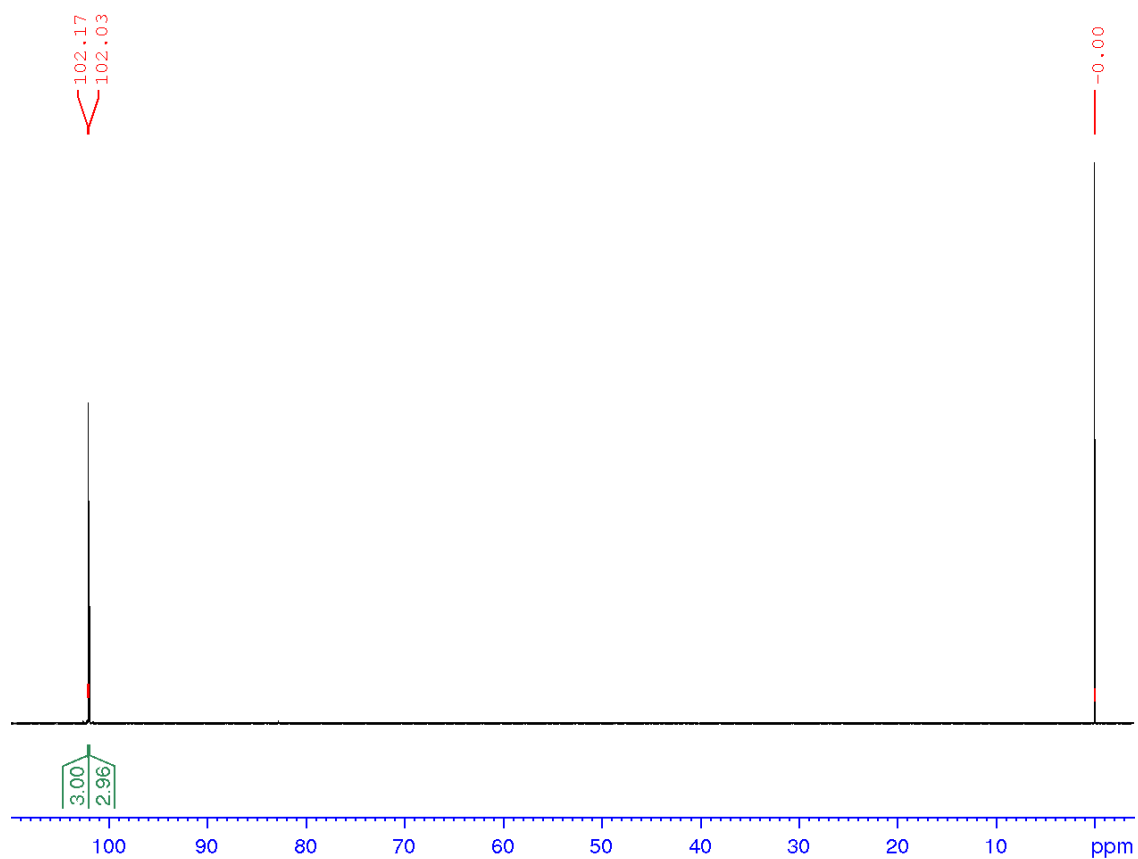


Fig. S 12. ¹⁹F NMR spectrum (470 MHz, DMSO-d₆) of compound **2c**.

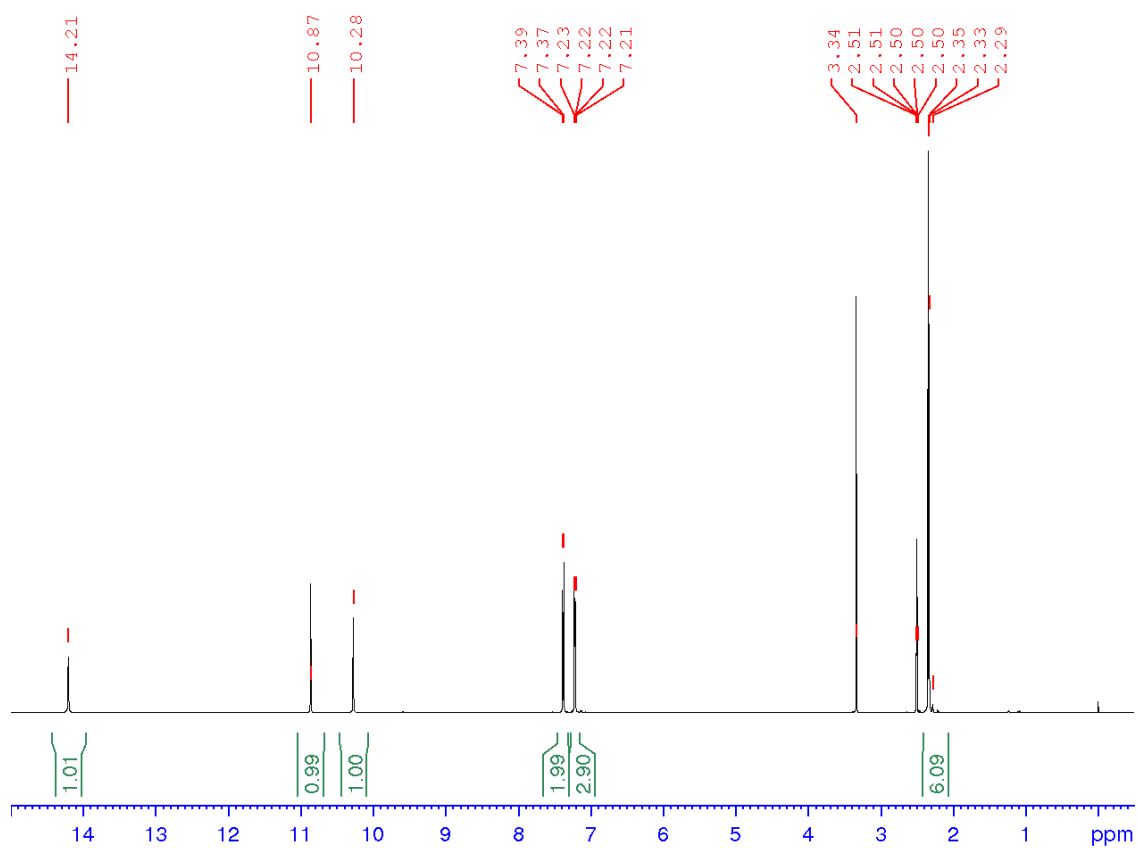


Fig. S 13. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **2d**.

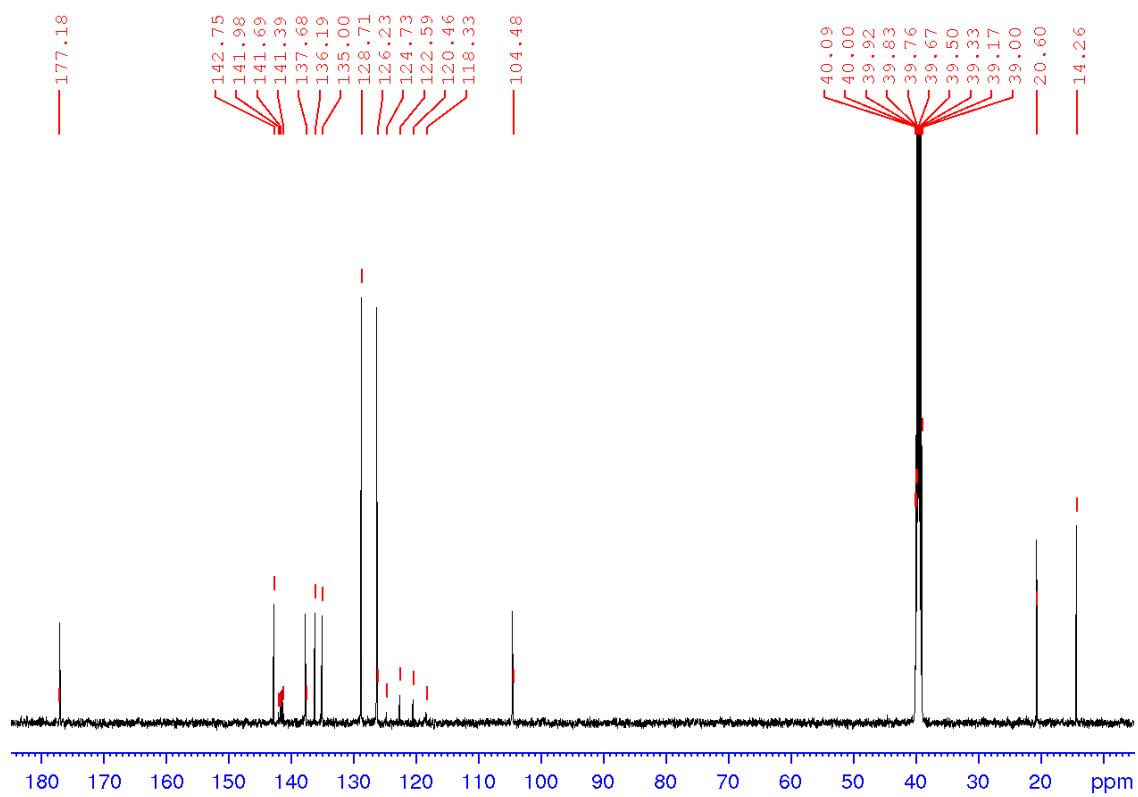


Fig. S 14. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **2d**.

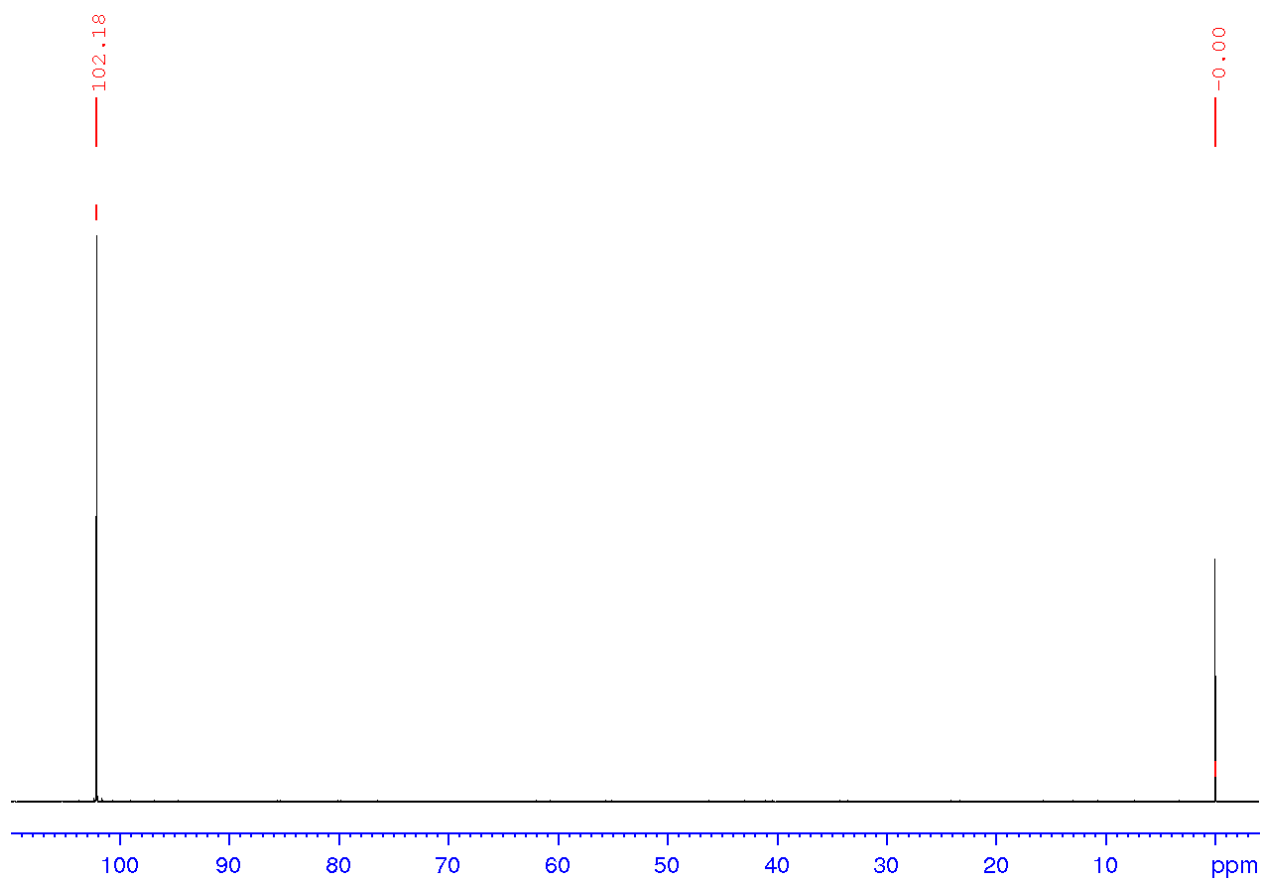


Fig. S 15. ¹⁹F NMR spectrum (376 MHz, DMSO-d₆) of compound **2d**.

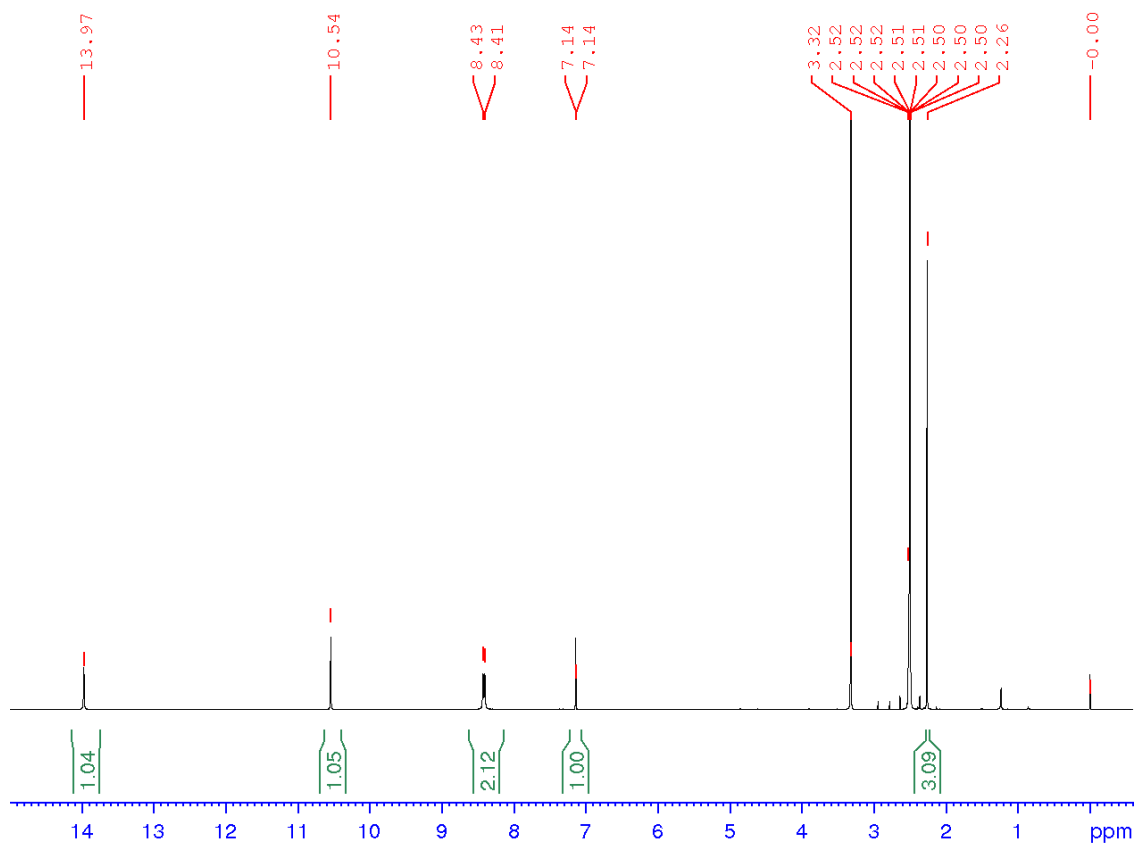


Fig. S 16. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **2e**.

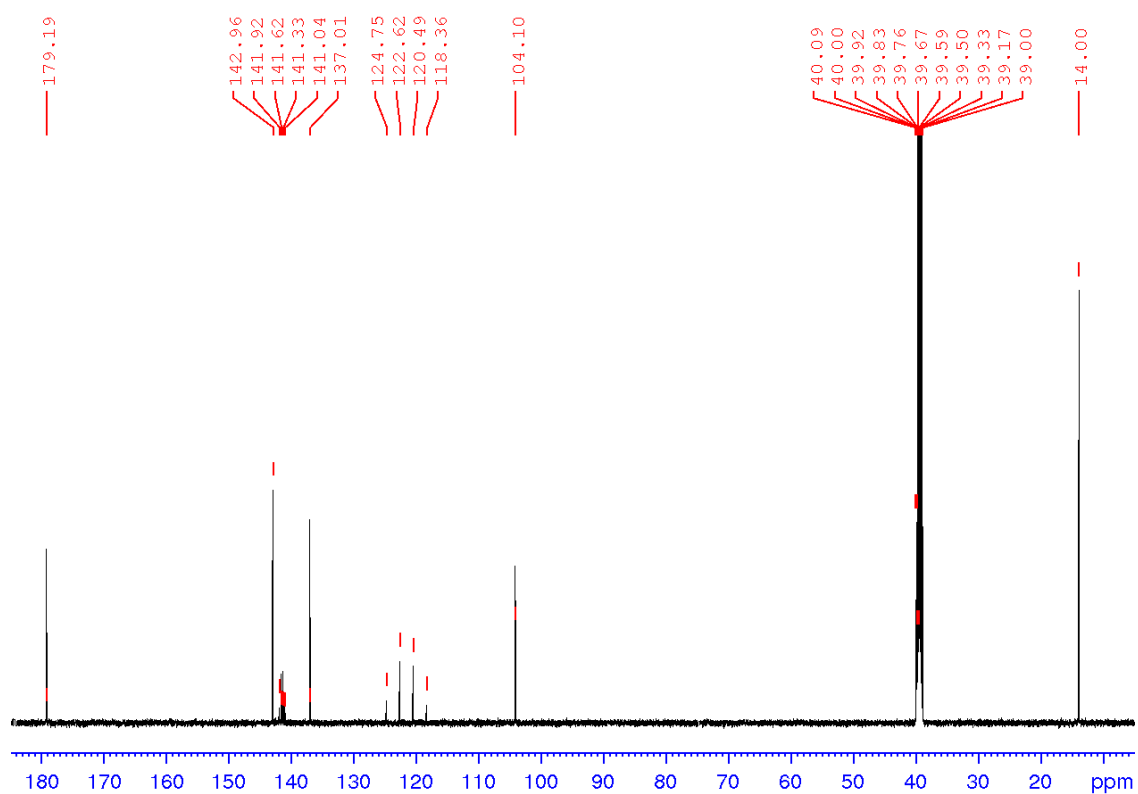


Fig. S 17. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **2e**.

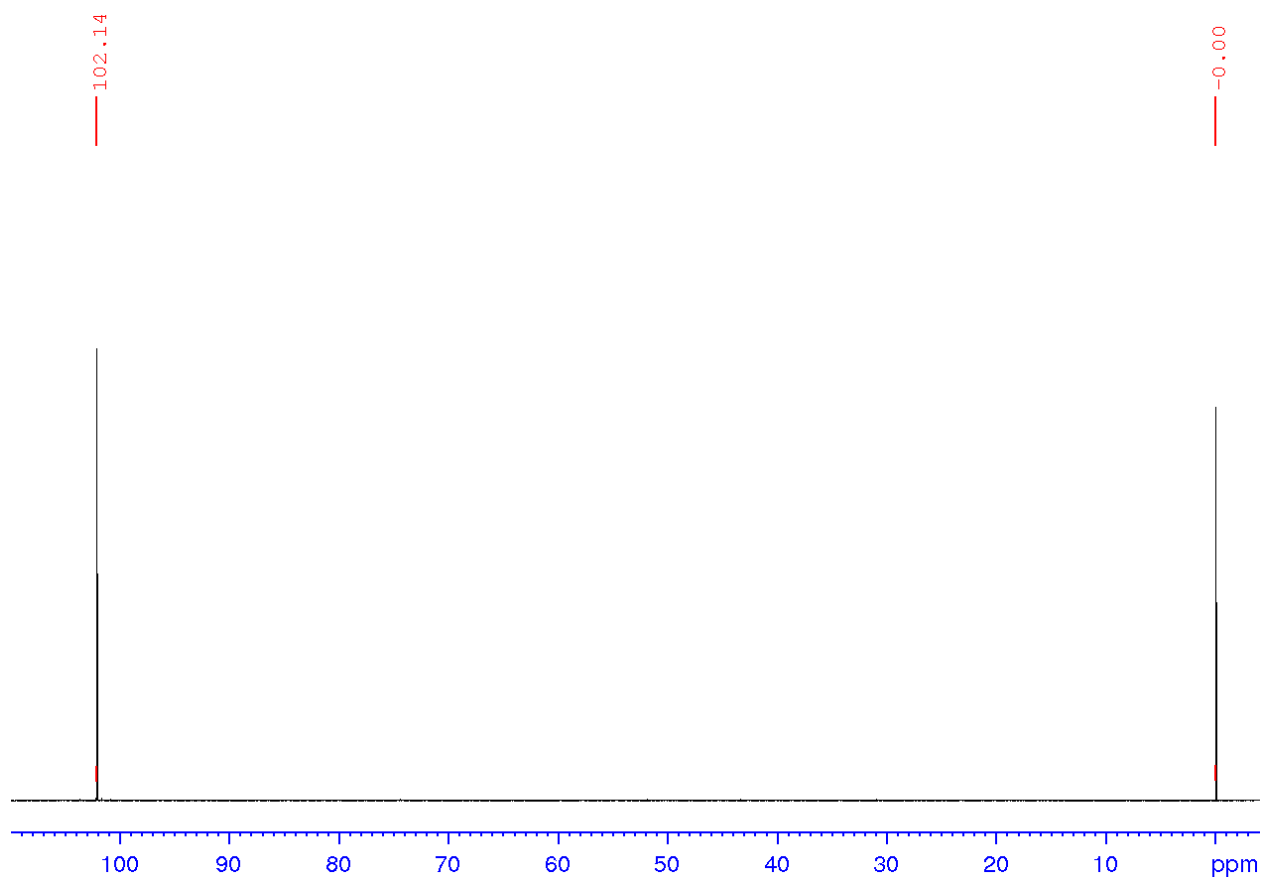


Fig. S 18. ¹⁹F NMR spectrum (470 MHz, DMSO-d₆) of compound **2e**.

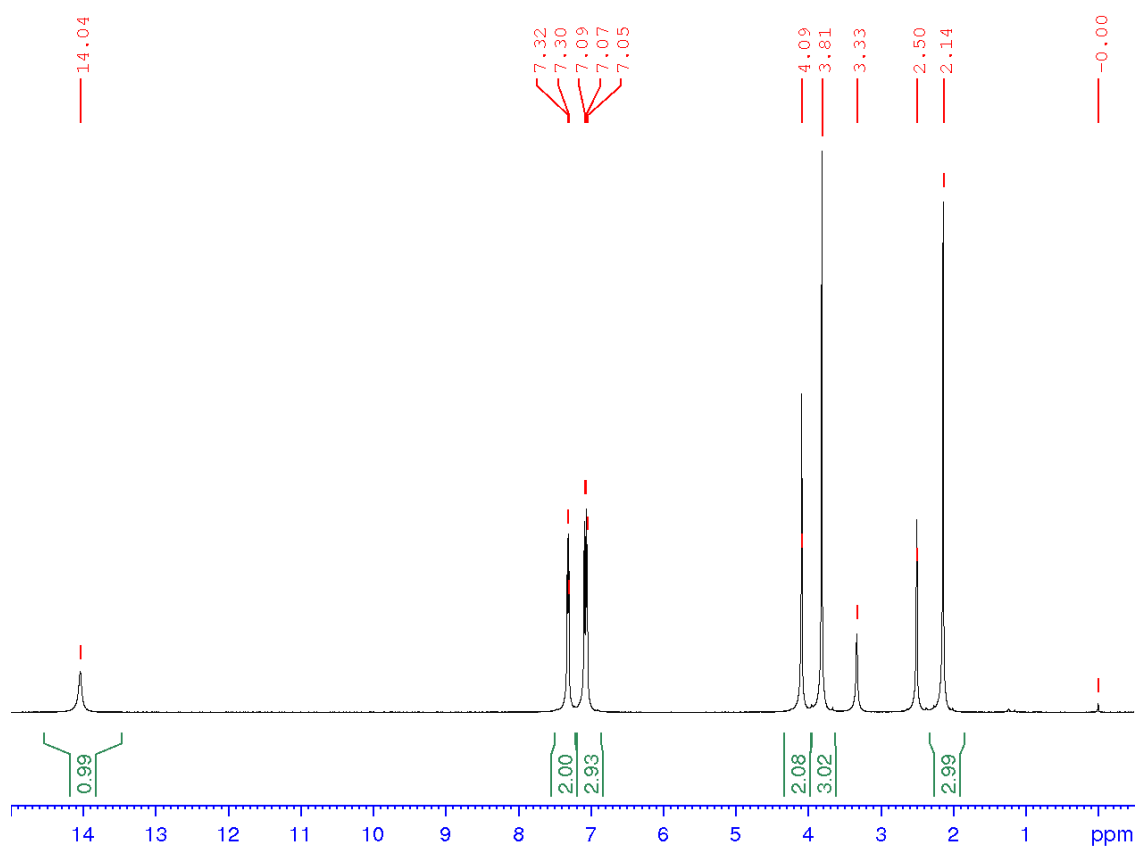


Fig. S 19. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **4a**.

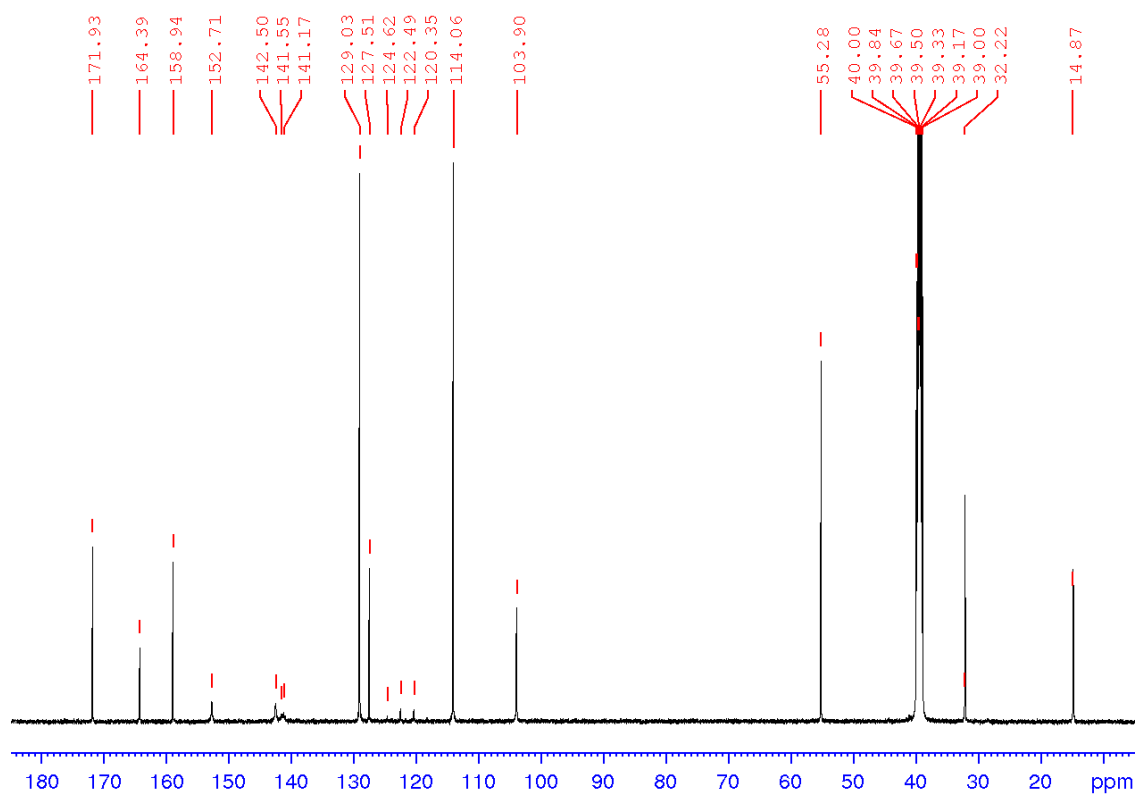


Fig. S 20. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **4a**.

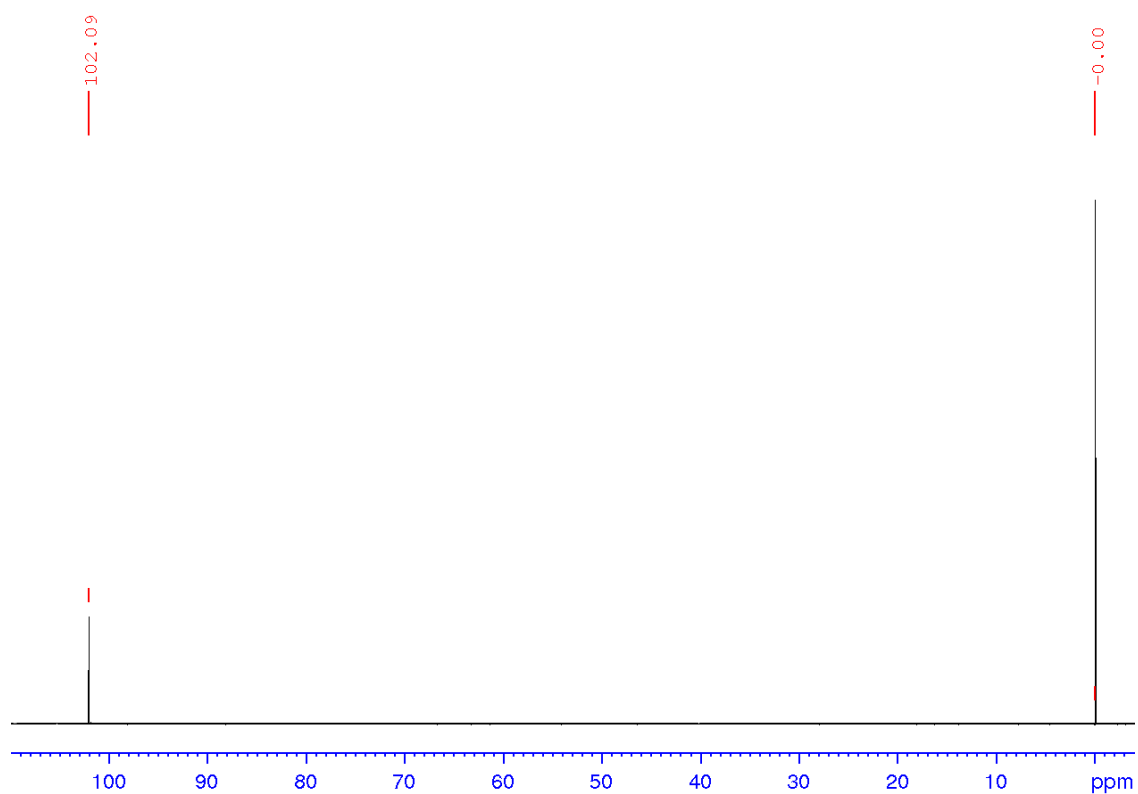


Fig. S 21. ¹⁹F NMR spectrum (376 MHz, DMSO-d₆) of compound **4a**.

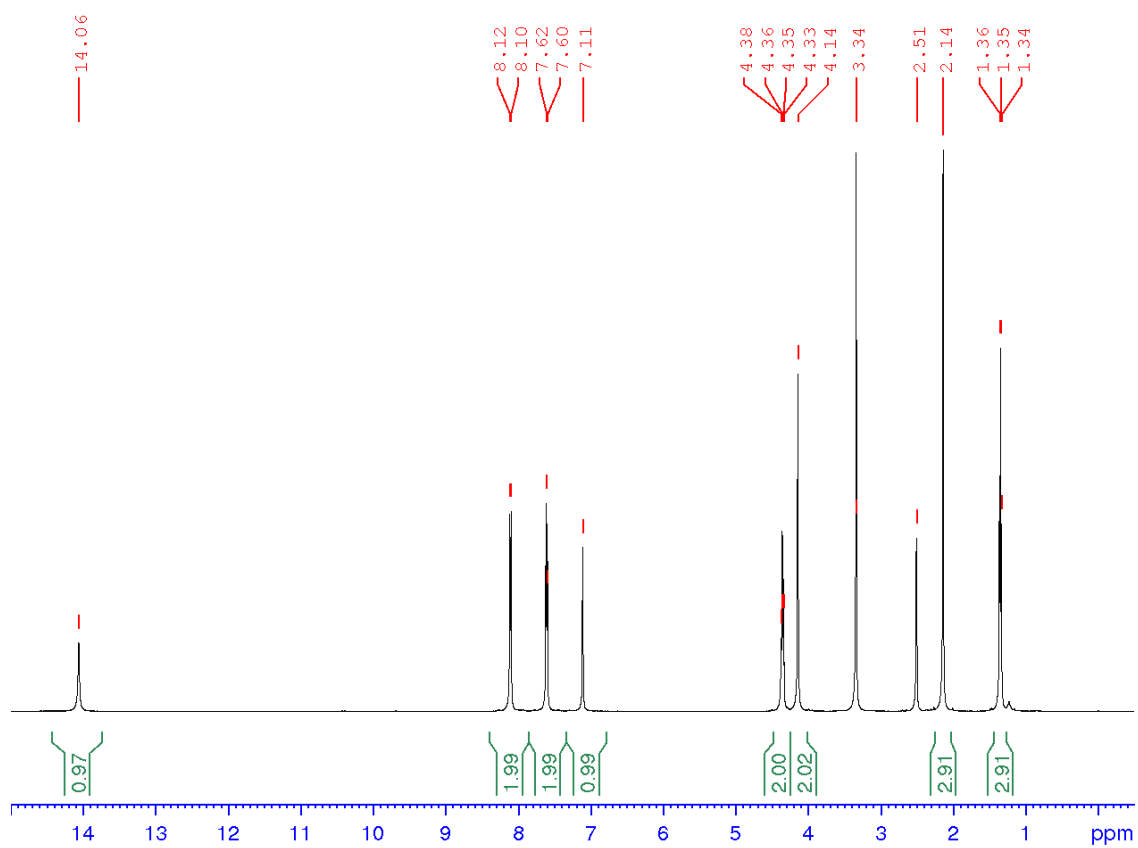


Fig. S 22. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **4b**.

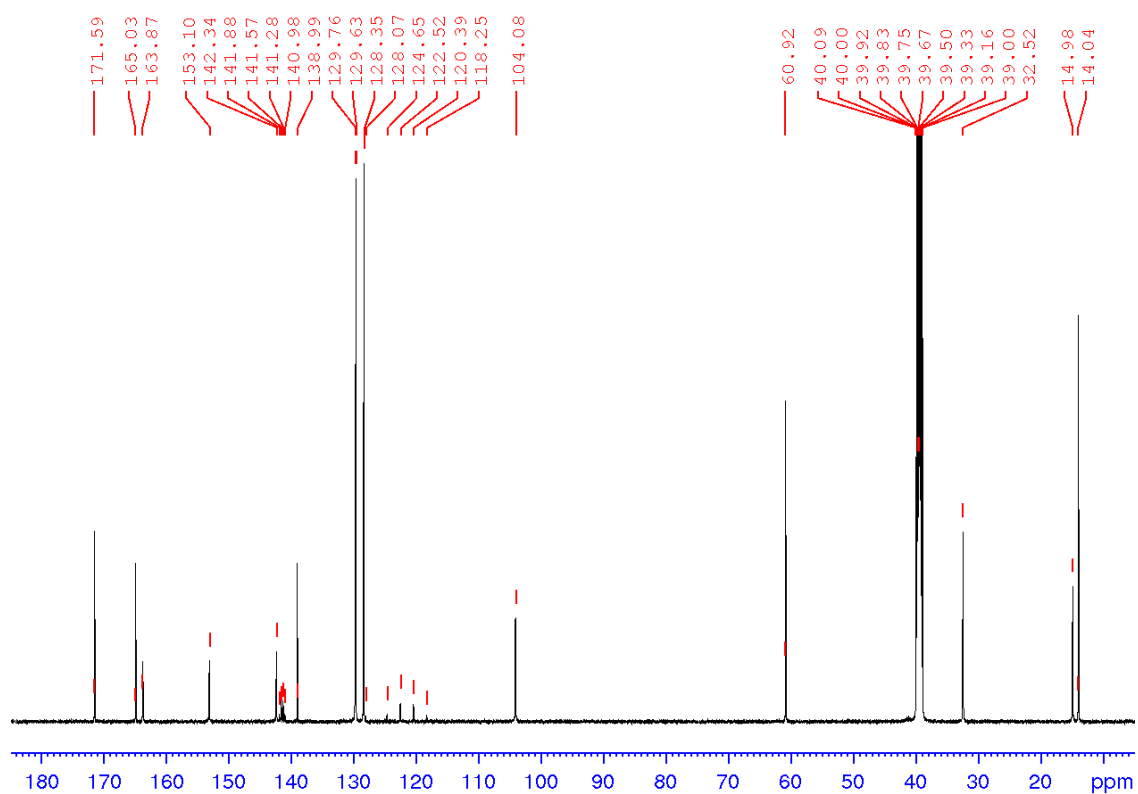


Fig. S 23. ^{13}C NMR spectrum (126 MHz, DMSO-d_6) of compound **4b**.

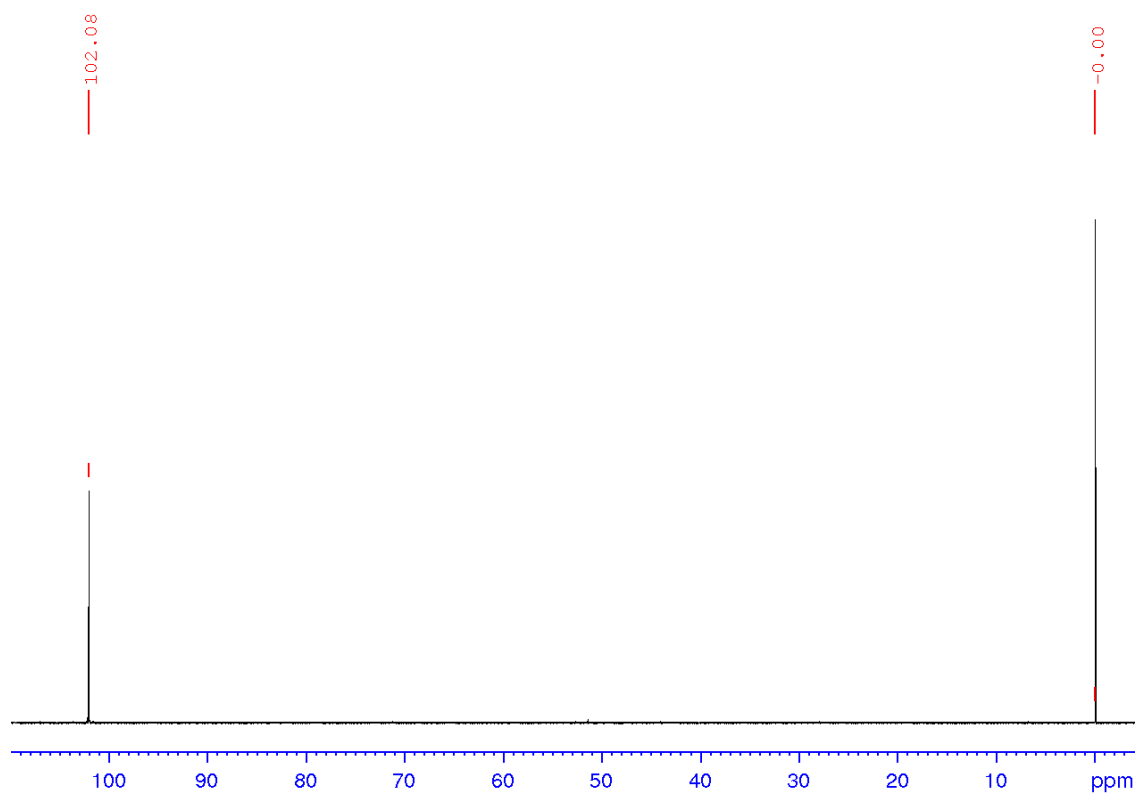


Fig. S 24. ^{19}F NMR spectrum (376 MHz, DMSO-d_6) of compound **4b**.

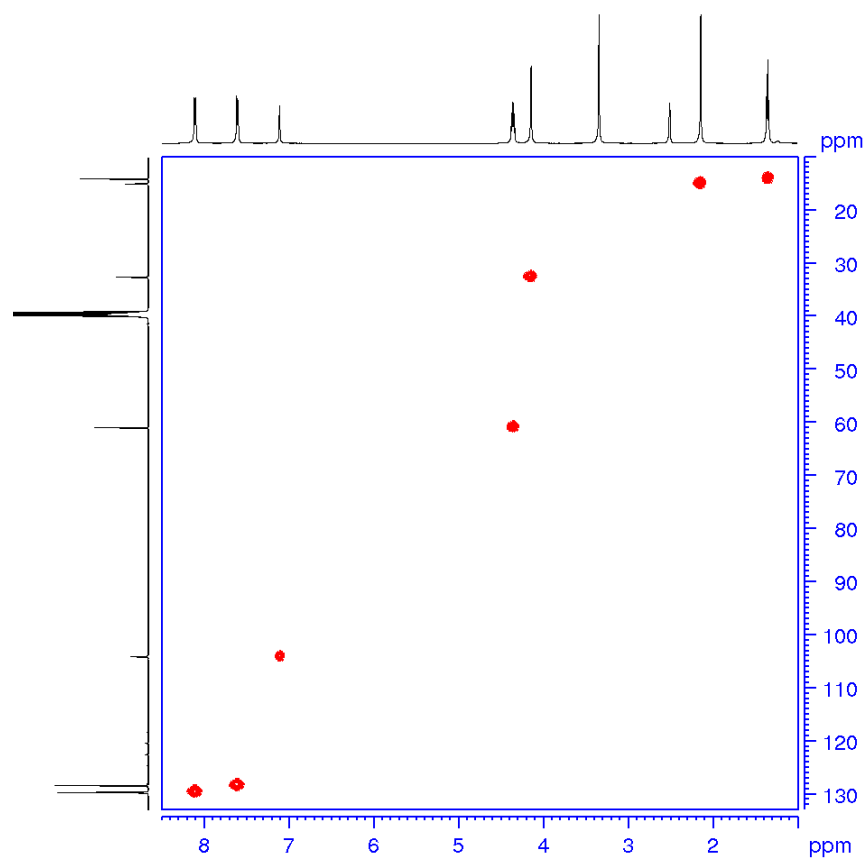


Fig. S 25. 2D ^1H - ^{13}C HSQC spectrum (500 MHz, DMSO- d_6) of compound **4b**.

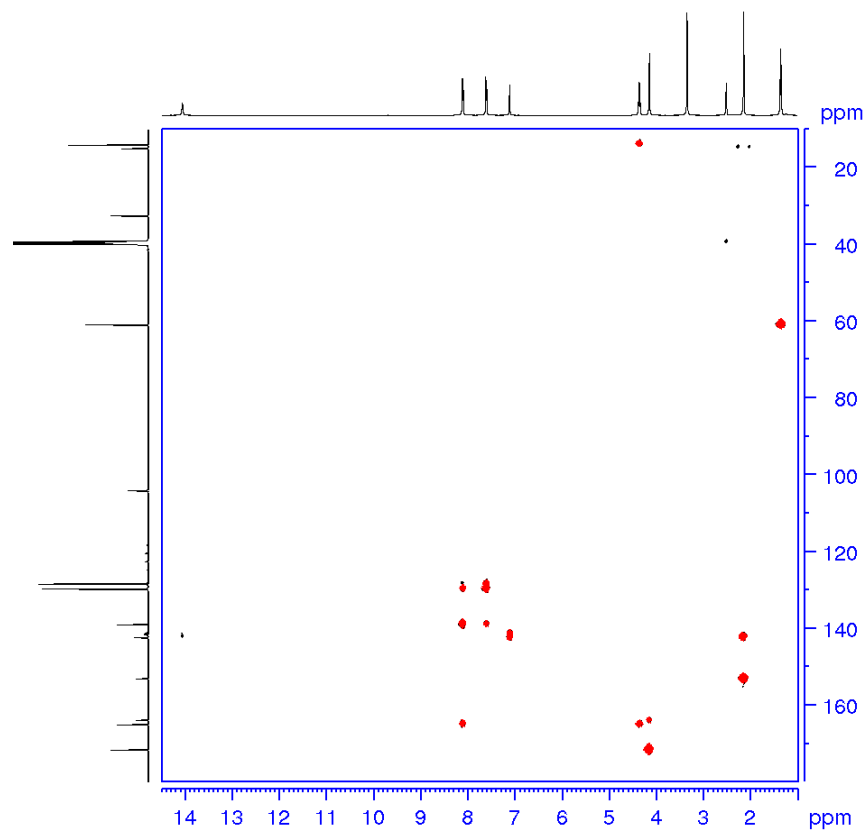


Fig. S 26. 2D ^1H - ^{13}C HMBC spectrum (500 MHz, DMSO- d_6) of compound **4b**.

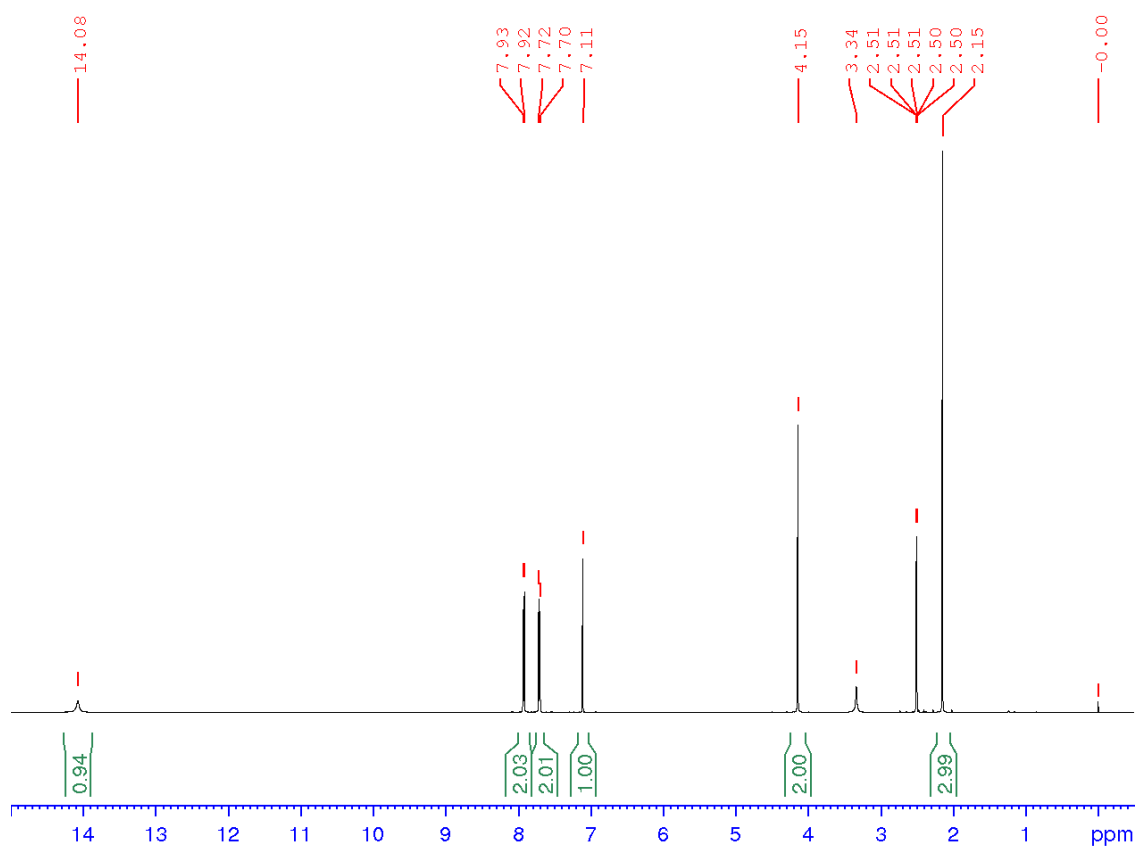


Fig. S 27. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **4c**.

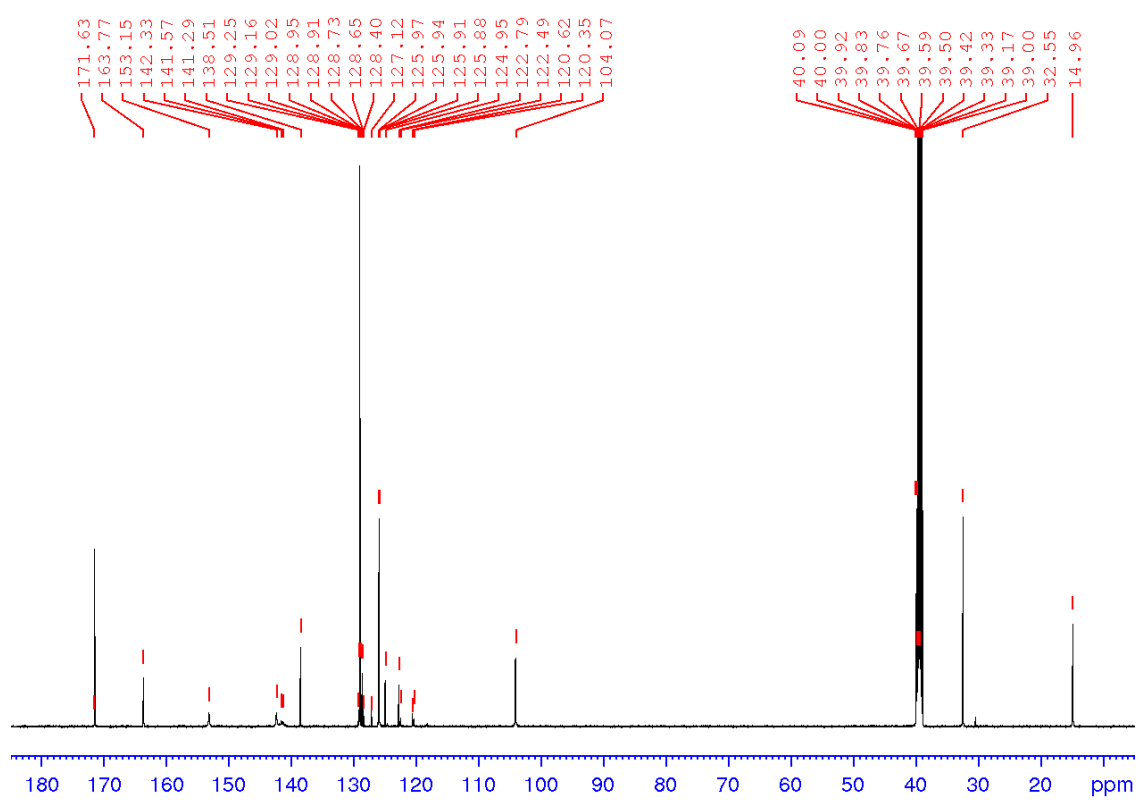


Fig. S 28. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **4c**.

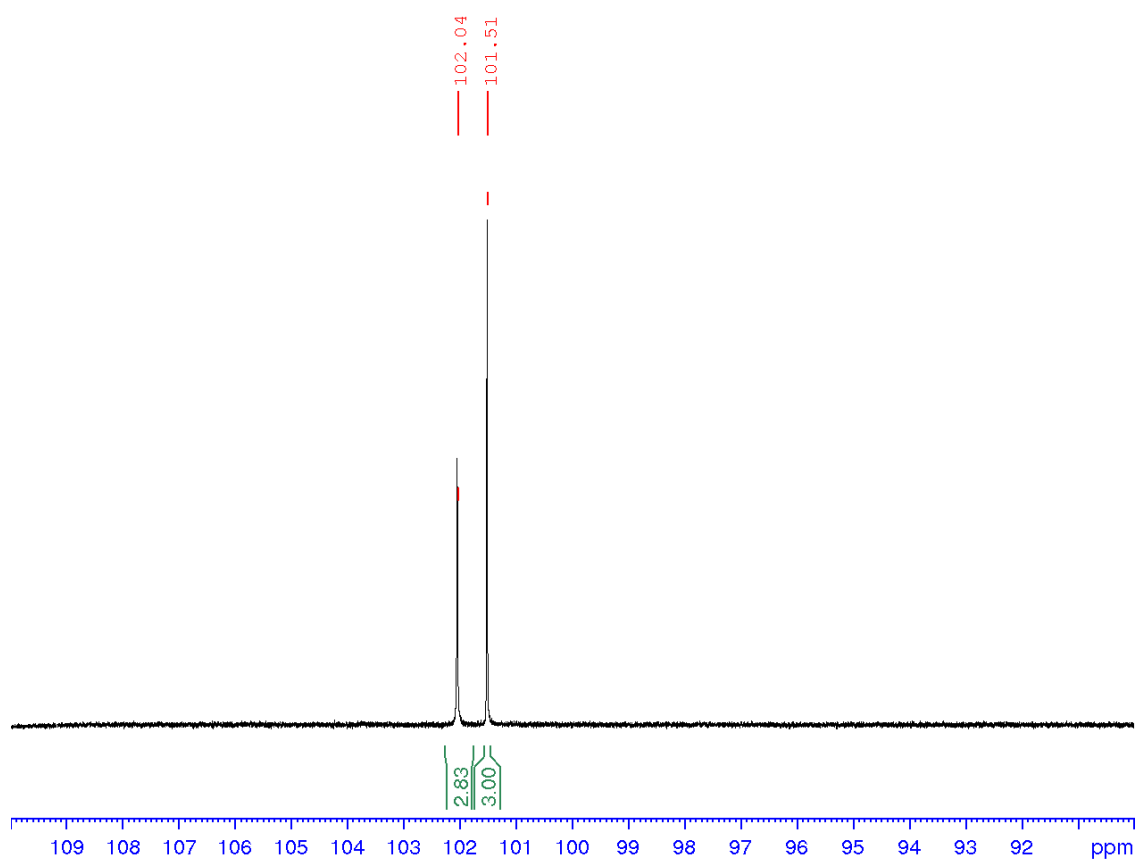


Fig. S 29. ¹⁹F NMR spectrum (470 MHz, DMSO-d₆) of compound **4c**.

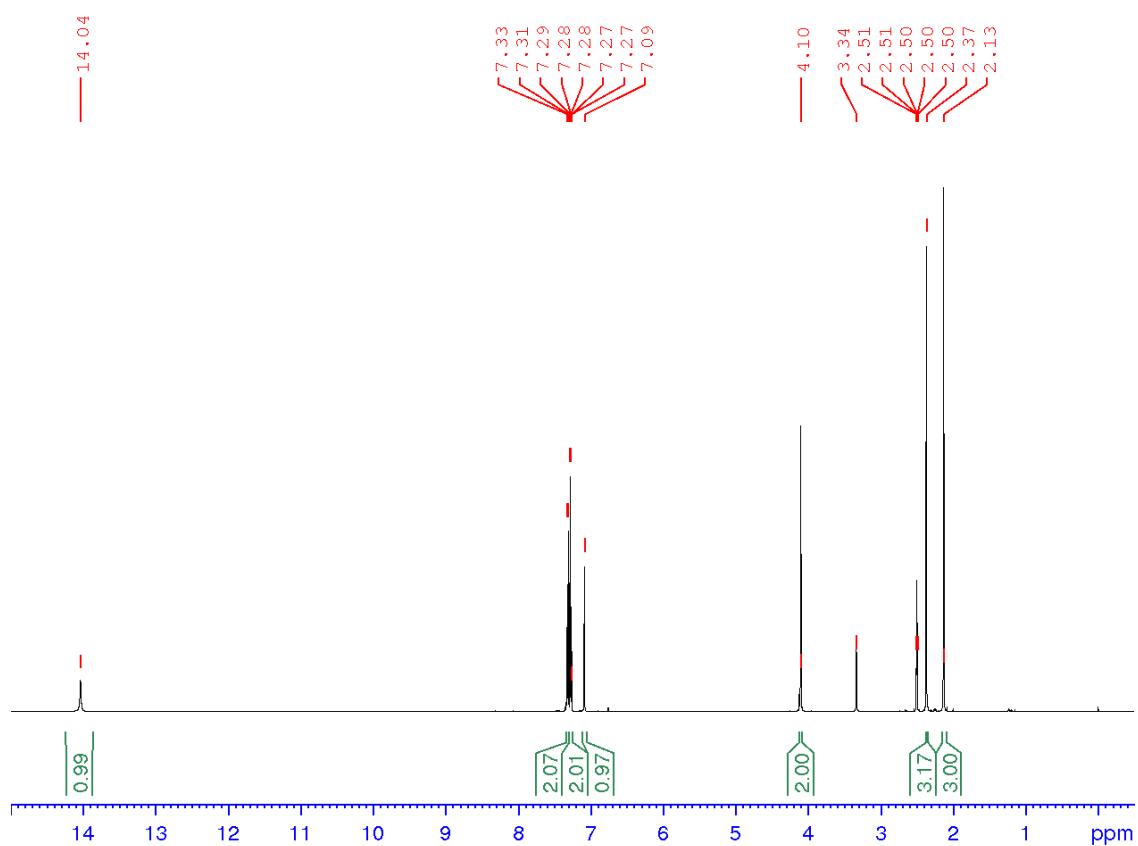


Fig. S 30. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **4d**.

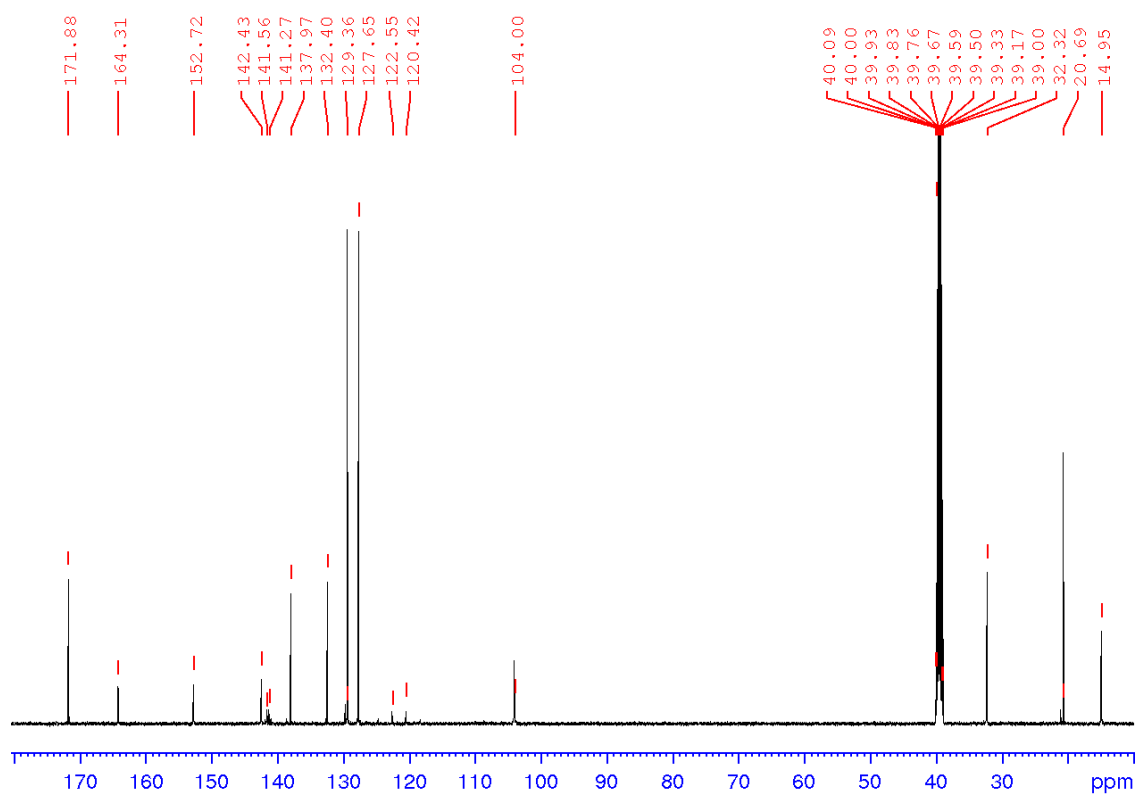


Fig. S 31. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **4d**.

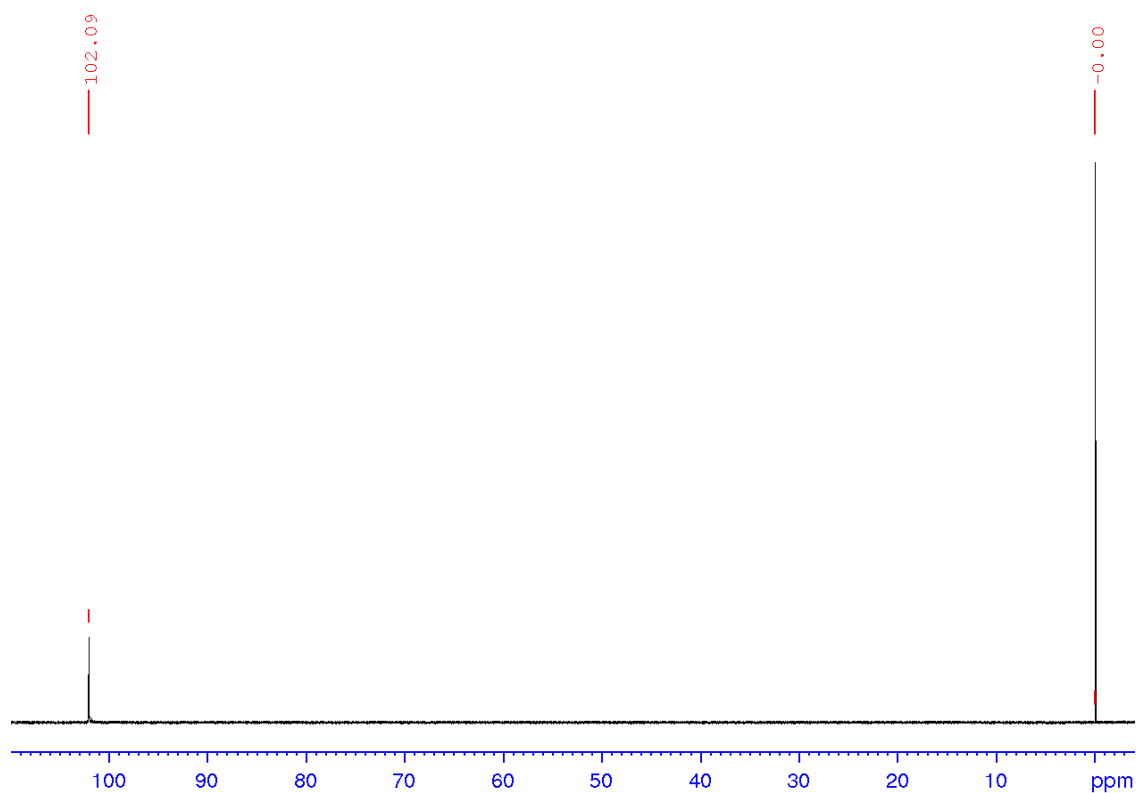


Fig. S 32. ¹⁹F NMR spectrum (470 MHz, DMSO-d₆) of compound **4d**.

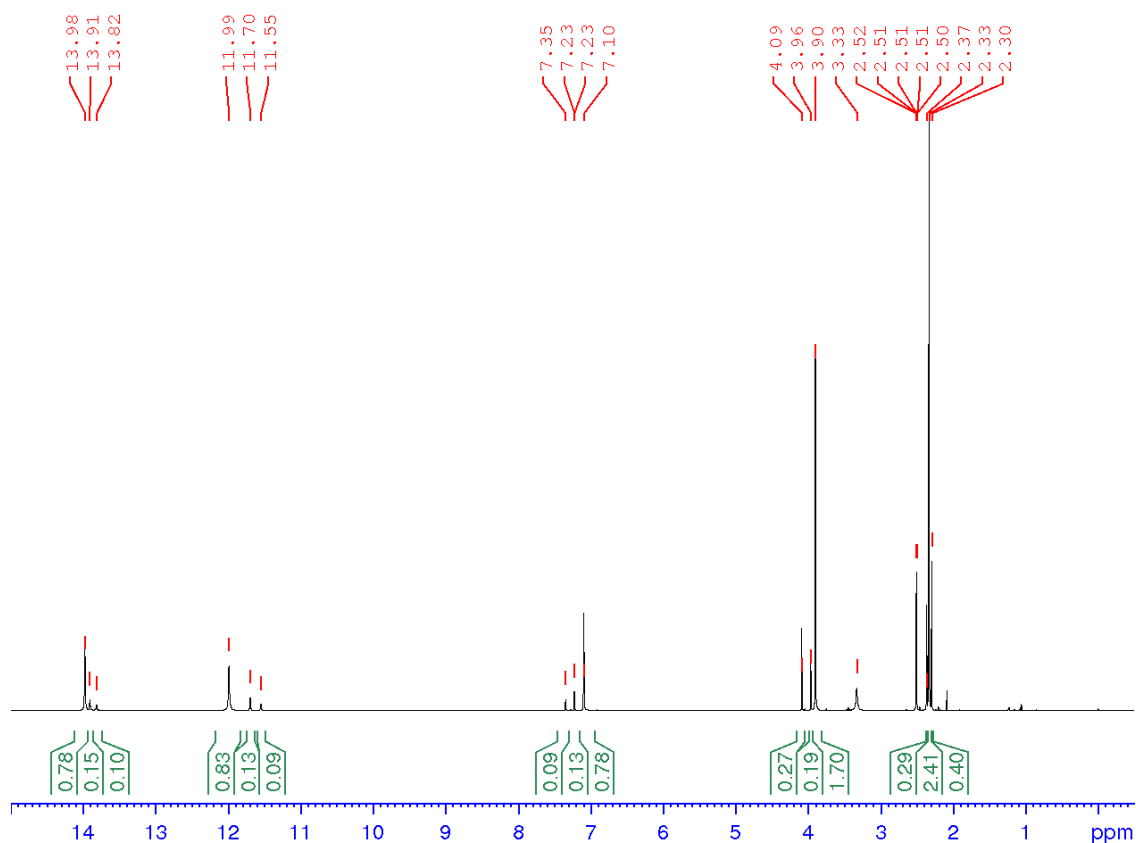


Fig. S 33. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **4e**.

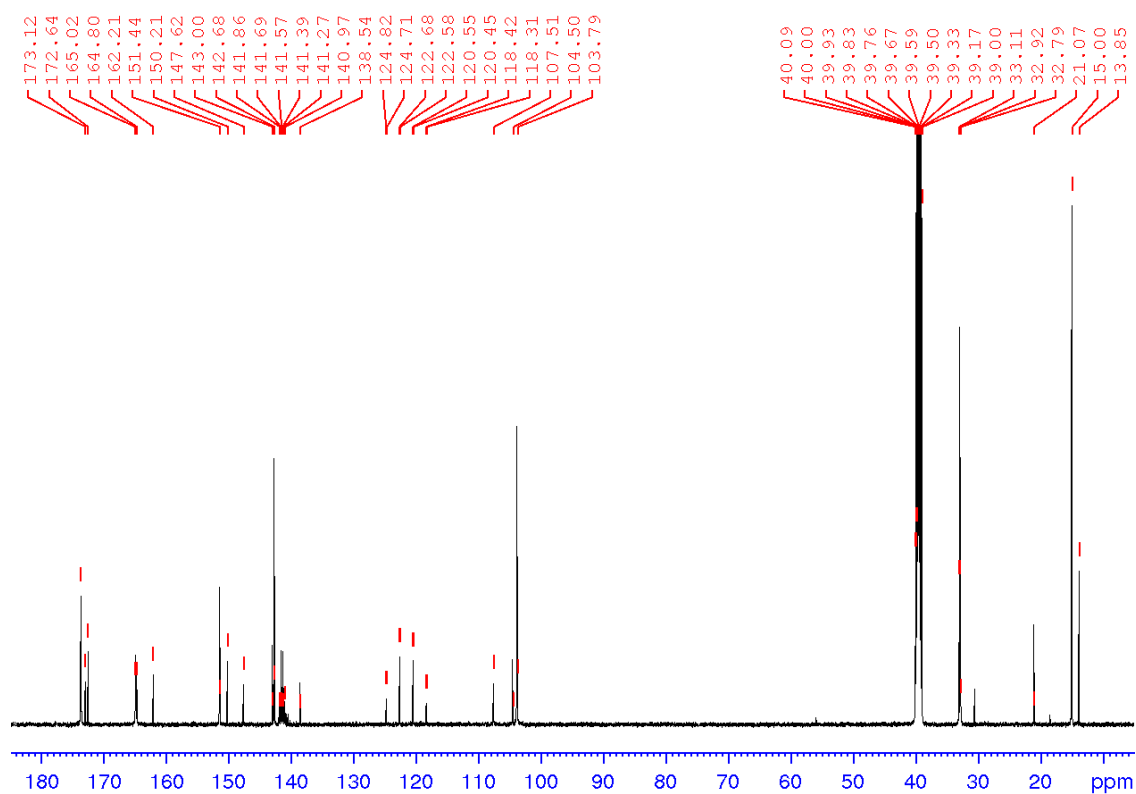


Fig. S 34. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **4e**.

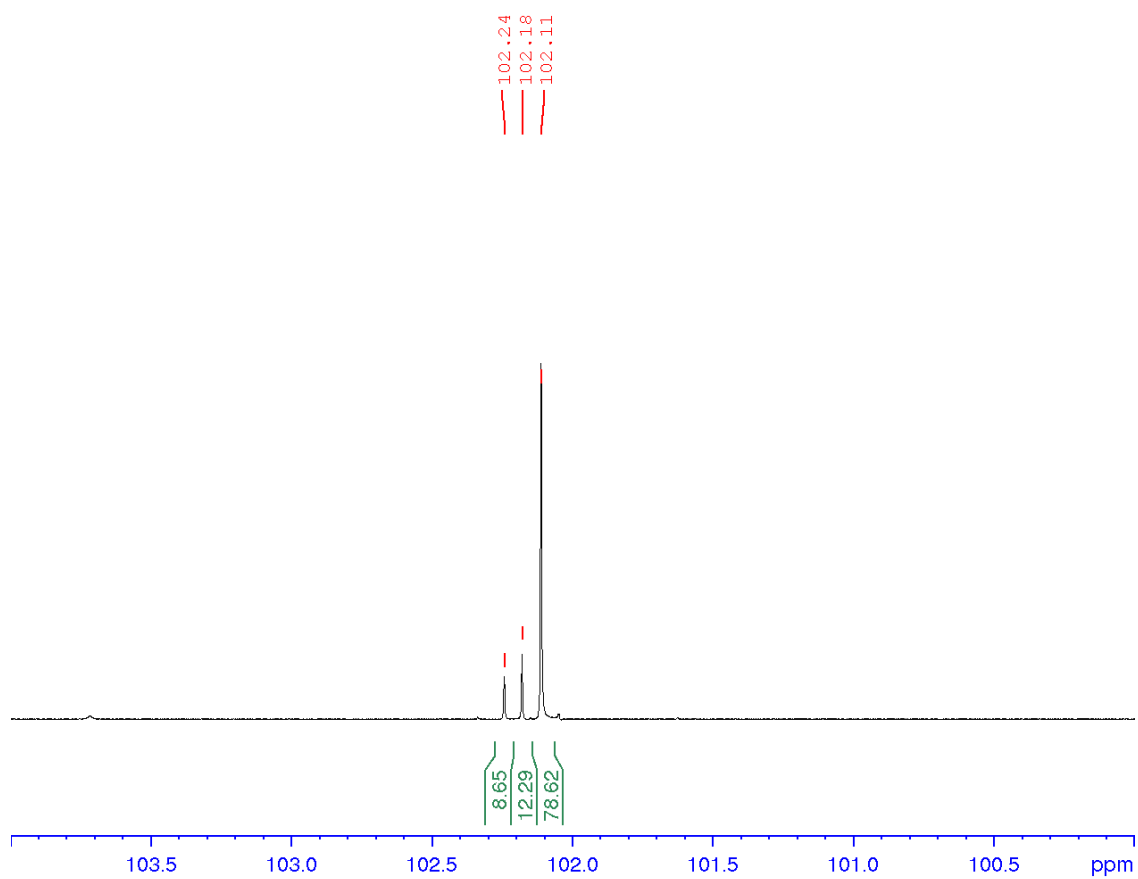


Fig. S 35. ^{19}F NMR spectrum (376 MHz, DMSO- d_6) of compound **4e**.

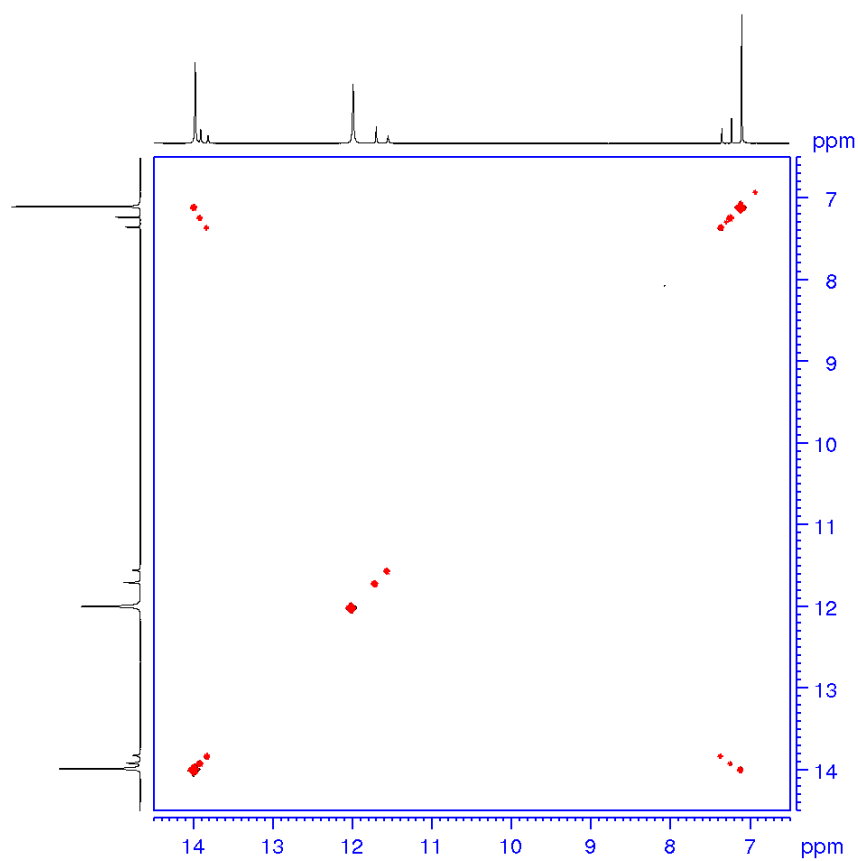


Fig. S 36. 2D ^1H - ^1H COSY spectrum (500 MHz, DMSO- d_6) of compound **4e**.

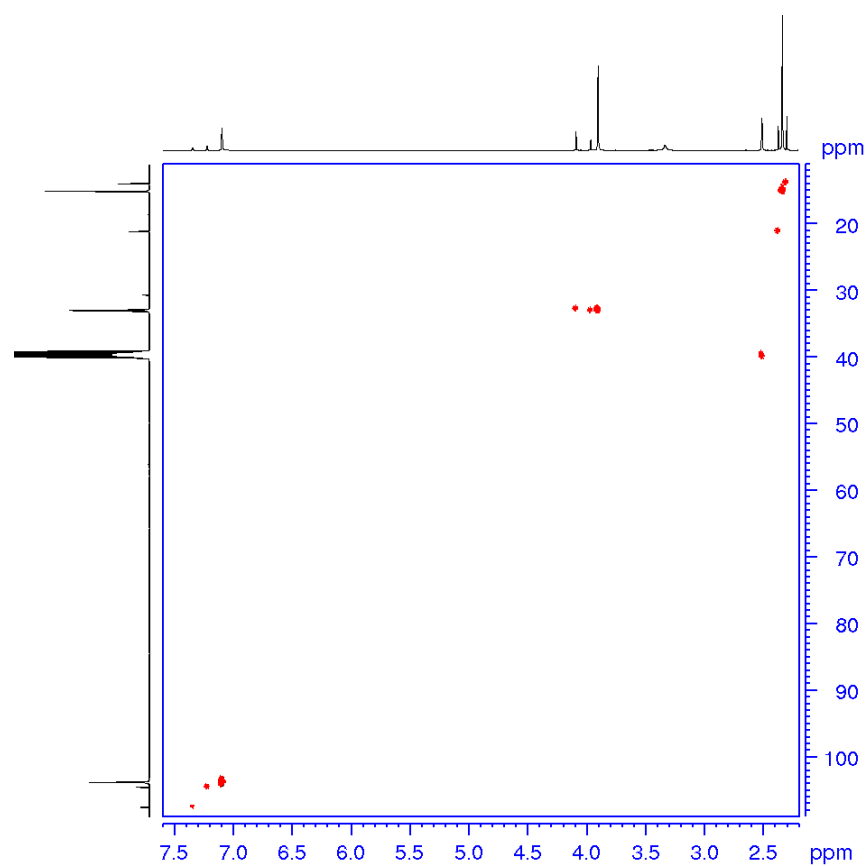


Fig. S 37. 2D ^1H - ^{13}C HSQC spectrum (500 MHz, DMSO- d_6) of compound **4e**.

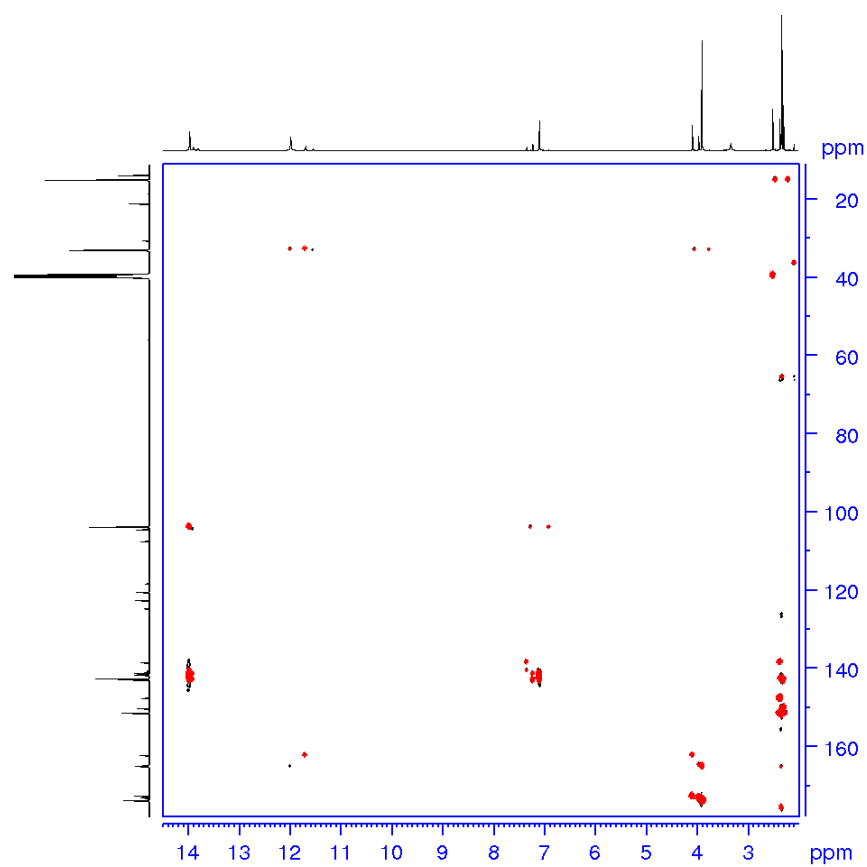


Fig. S 38. 2D ^1H - ^{13}C HMBC spectrum (500 MHz, DMSO- d_6) of compound **4e**.

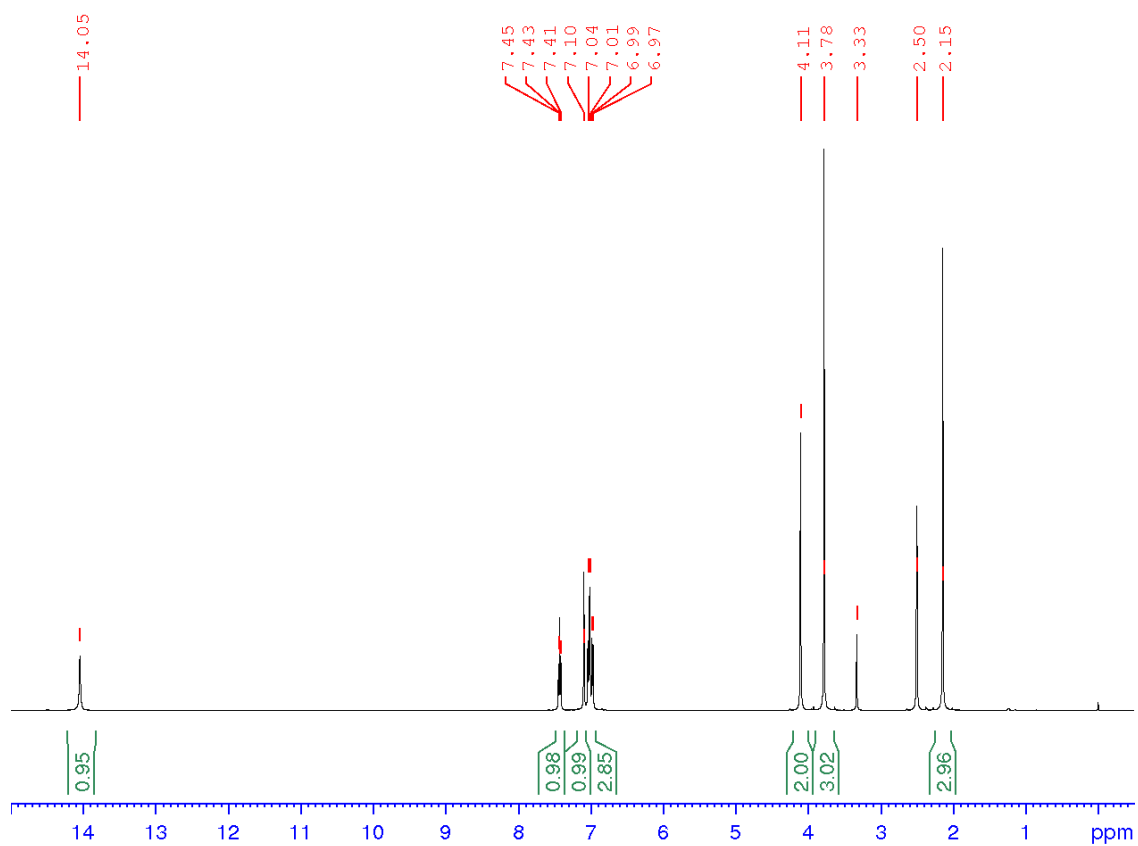


Fig. S 39. ¹H NMR spectrum (500 MHz, DMSO-d₆) of compound **4f**.

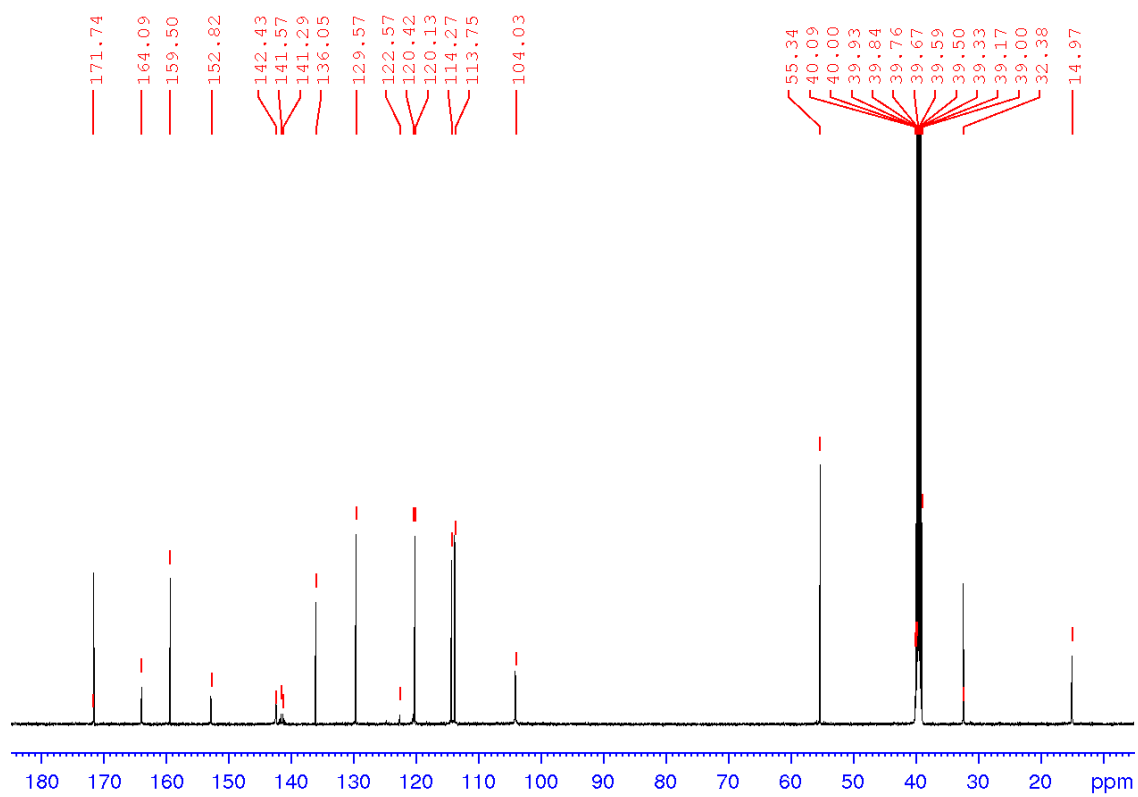


Fig. S 40. ¹³C NMR spectrum (126 MHz, DMSO-d₆) of compound **4f**.

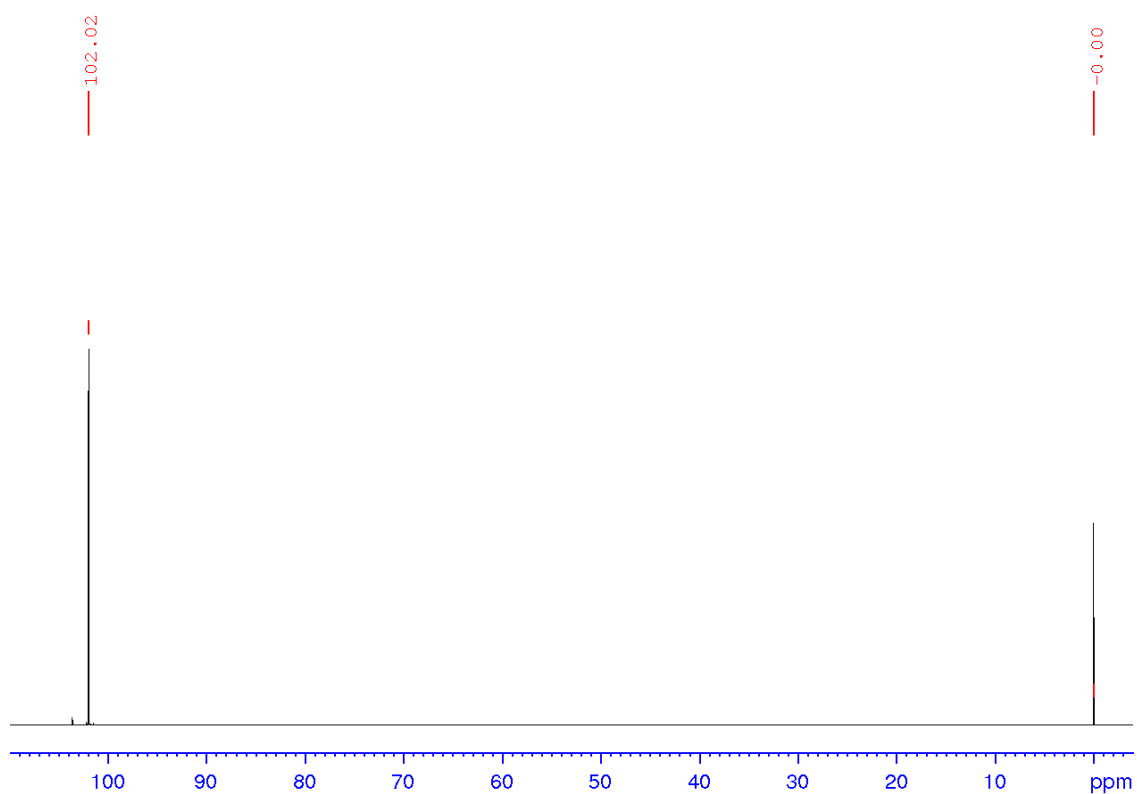


Fig. S 41. ^{19}F NMR spectrum (376 MHz, DMSO- d_6) of compound **4f**.

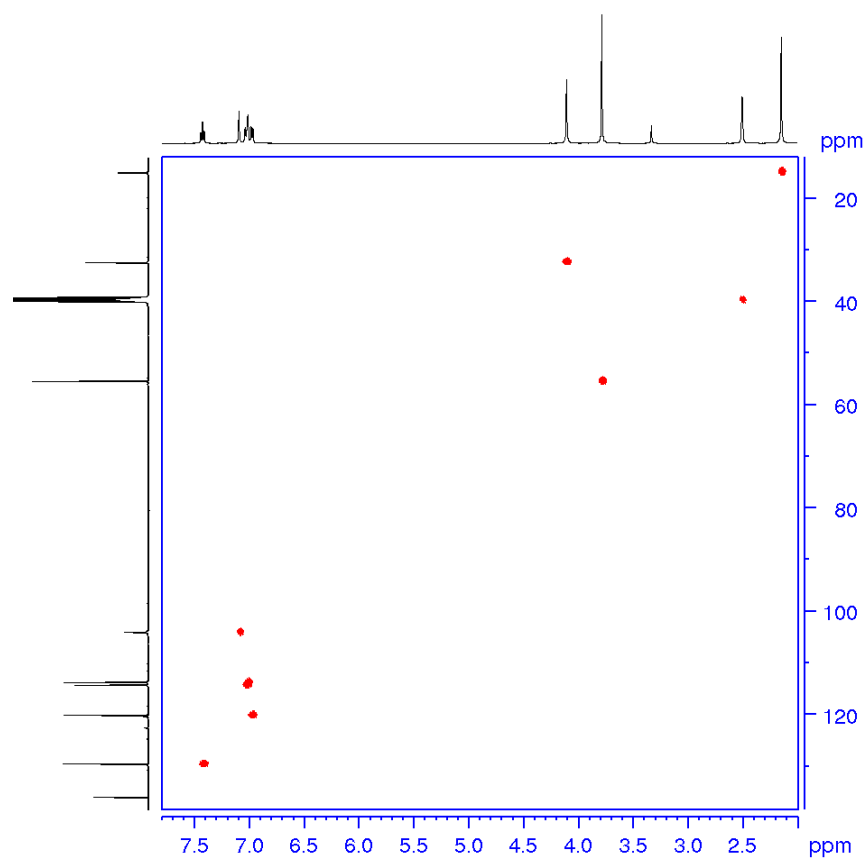


Fig. S 42. 2D ^1H - ^{13}C HSQC spectrum (500 MHz, DMSO- d_6) of compound **4f**.

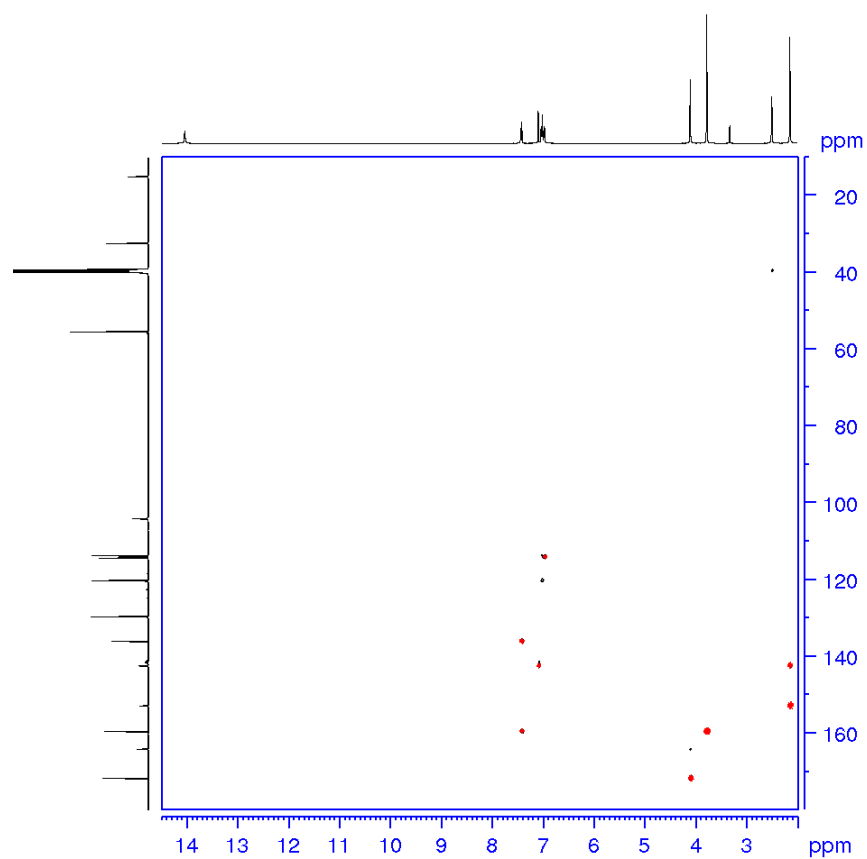


Fig. S 43. 2D ^1H - ^{13}C HMBC spectrum (500 MHz, DMSO- d_6) of compound **4f**.