

Supplementary Material

***N*-(1*H*-Pyrazol-5-yl)cyanoacetamide in heterocyclic synthesis: Synthesis of novel *N*-(pyrazol-5-yl)pyridine-3,5-dicarbonitriles and pyrazolo[4,3-*e*]pyrido[1,2-*α*]pyrimidine-6,8-dicarbonitrile moieties**

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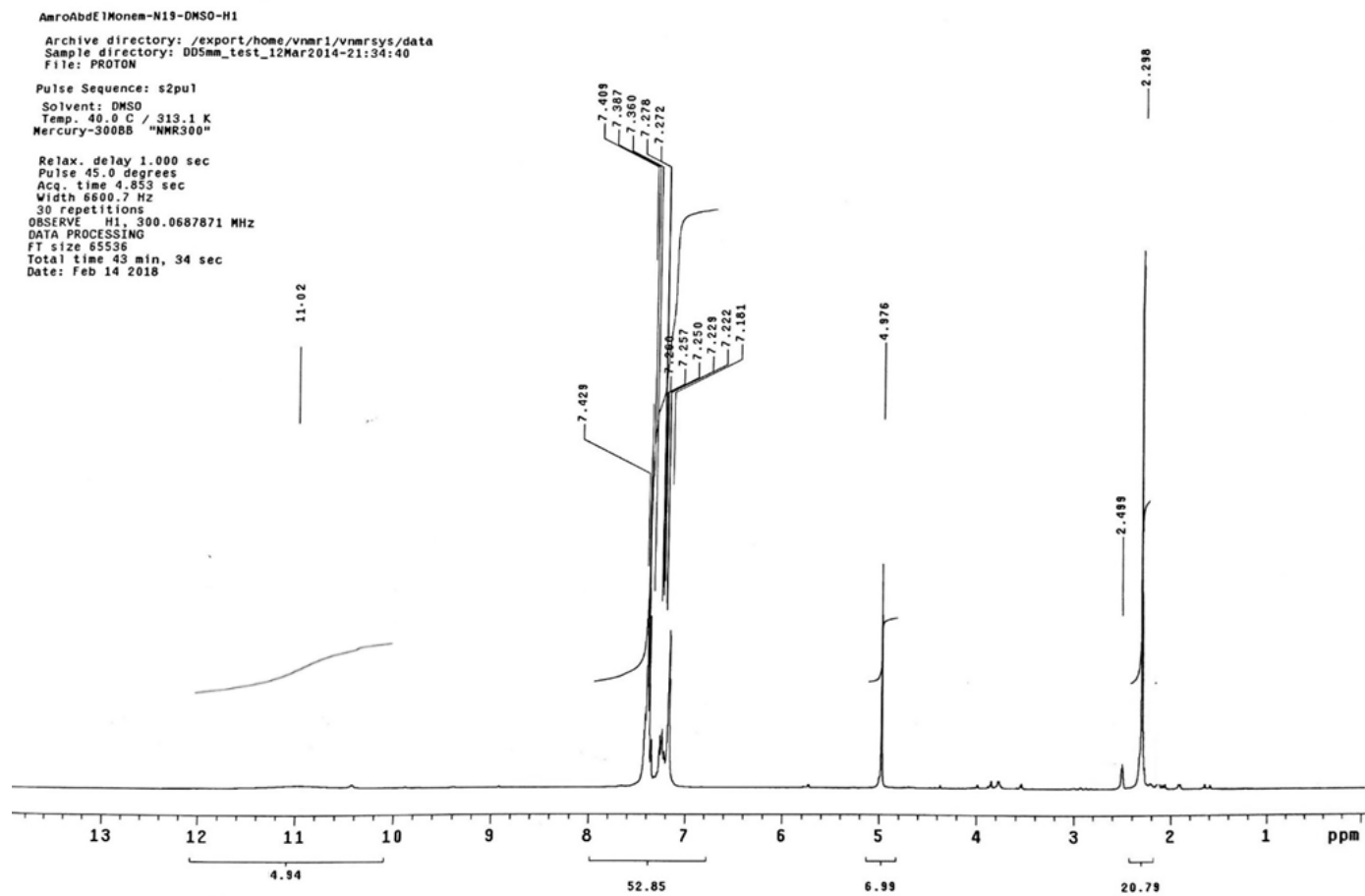


Figure 1. The ^1H NMR spectrum of compound 5.

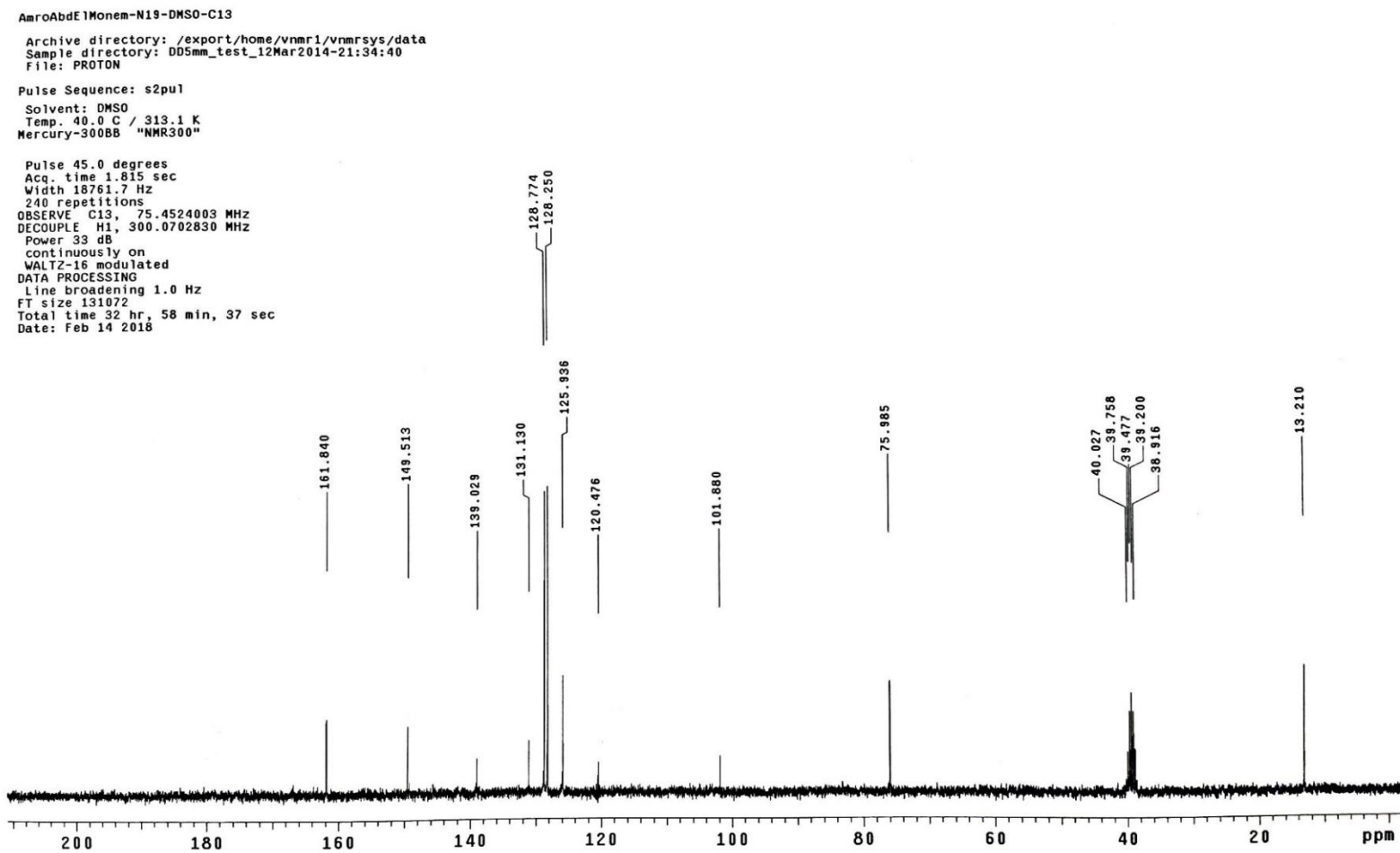


Figure 2. The ^{13}C NMR spectrum of compound 5.

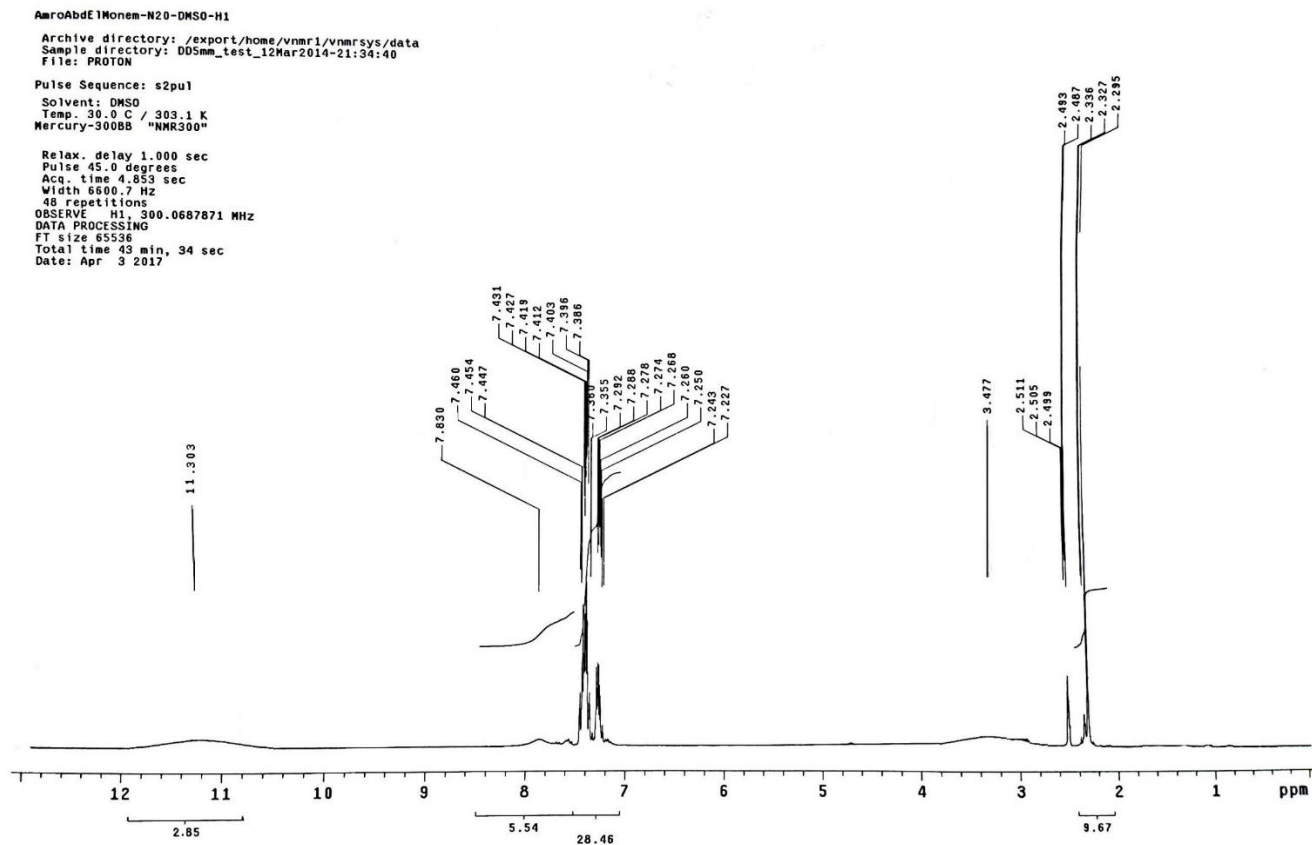


Figure 3. The ^1H NMR spectrum of compound **7a**.

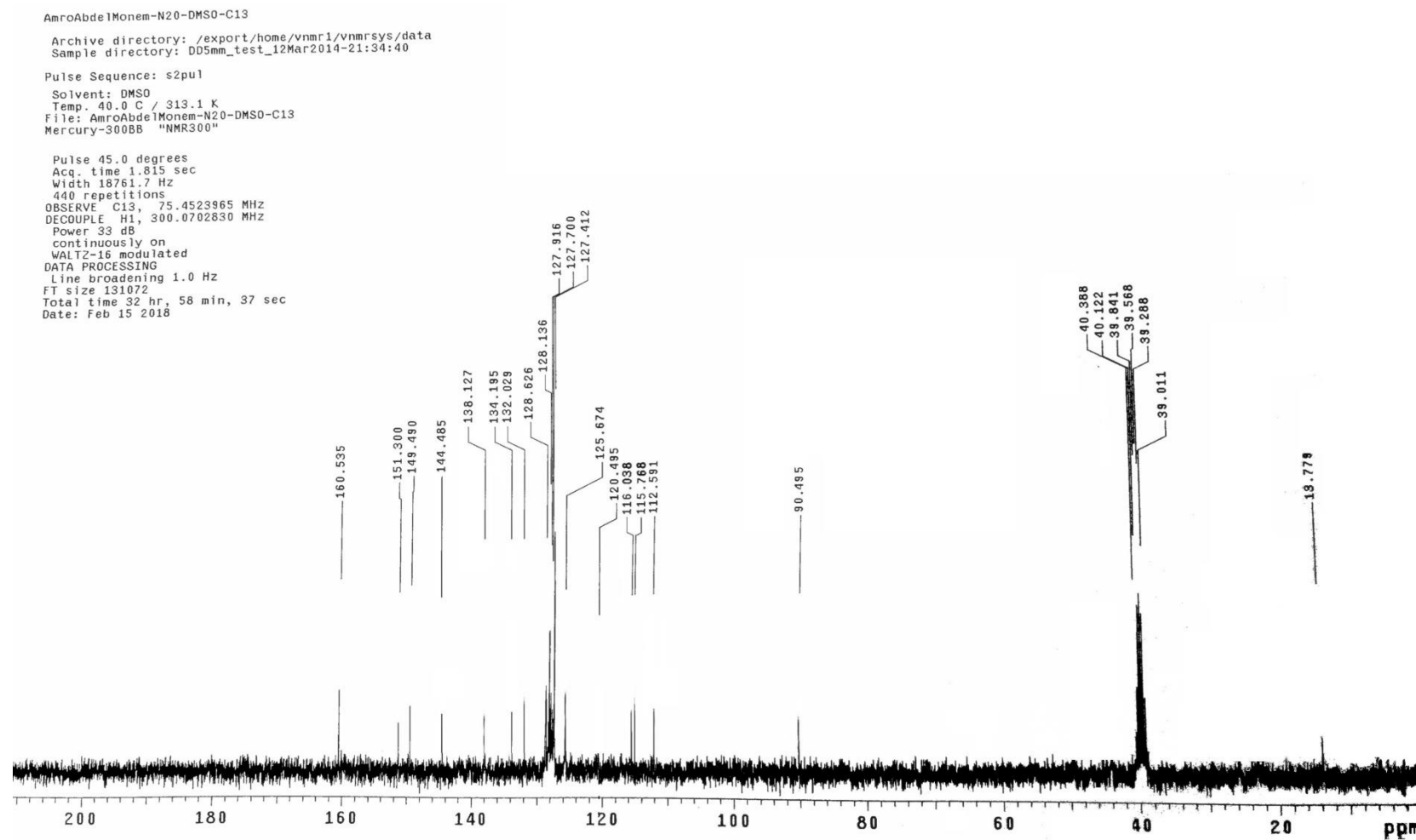


Figure 4. The ^{13}C NMR spectrum of compound **7a**.

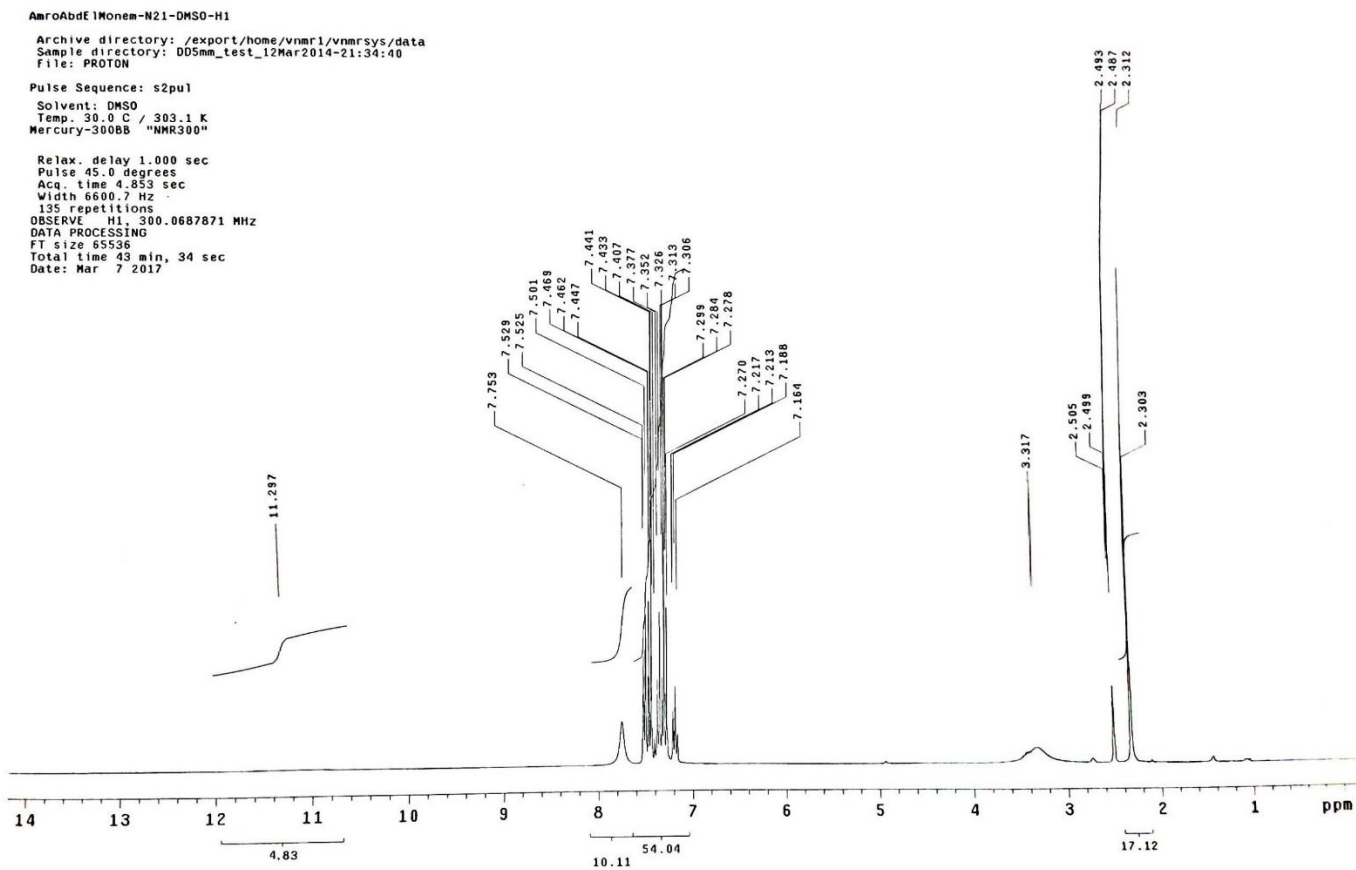


Figure 5. The ^1H NMR spectrum of compound **7b**.

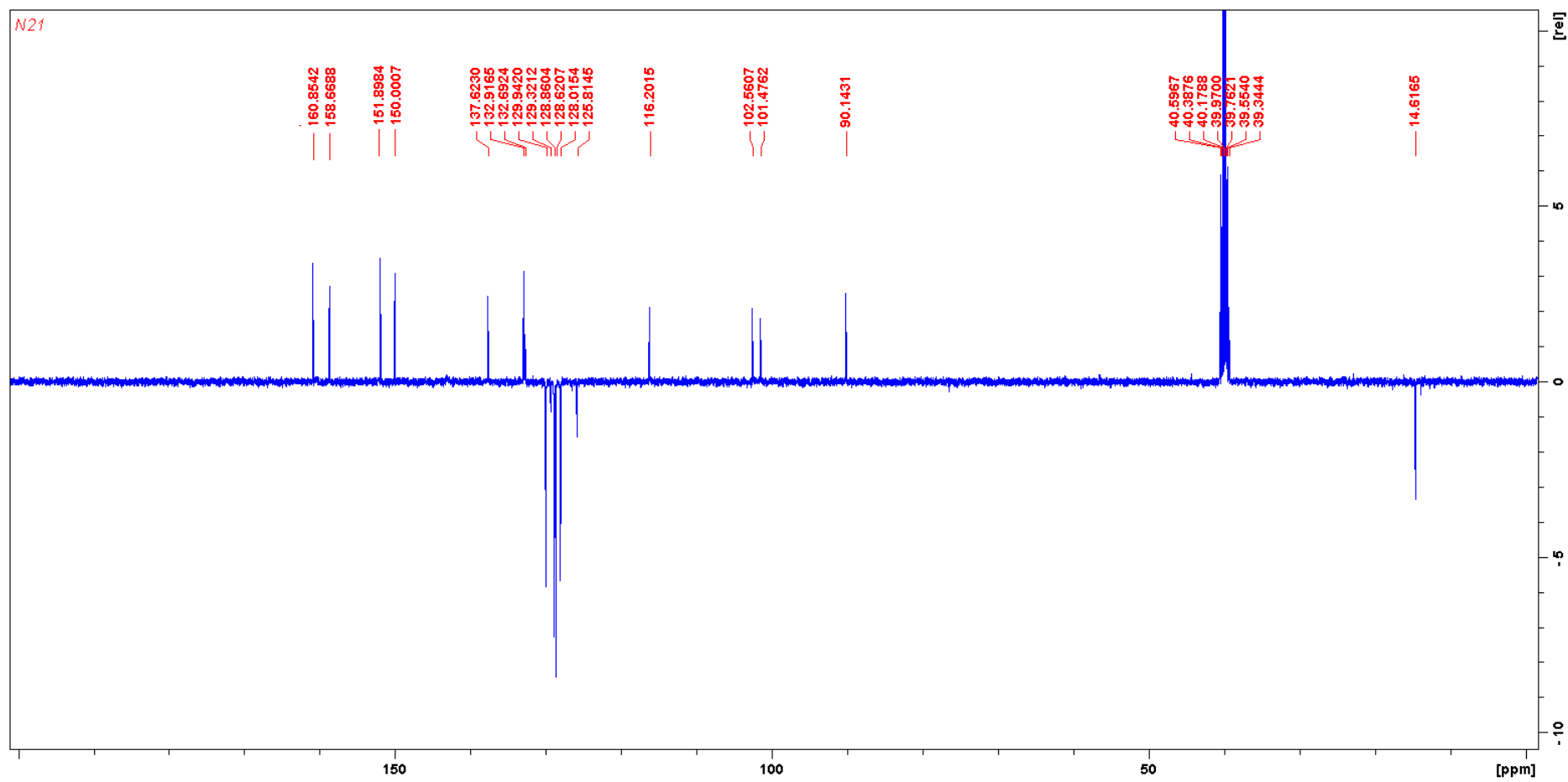


Figure 6. The ^{13}C NMR spectrum of compound **7b**.

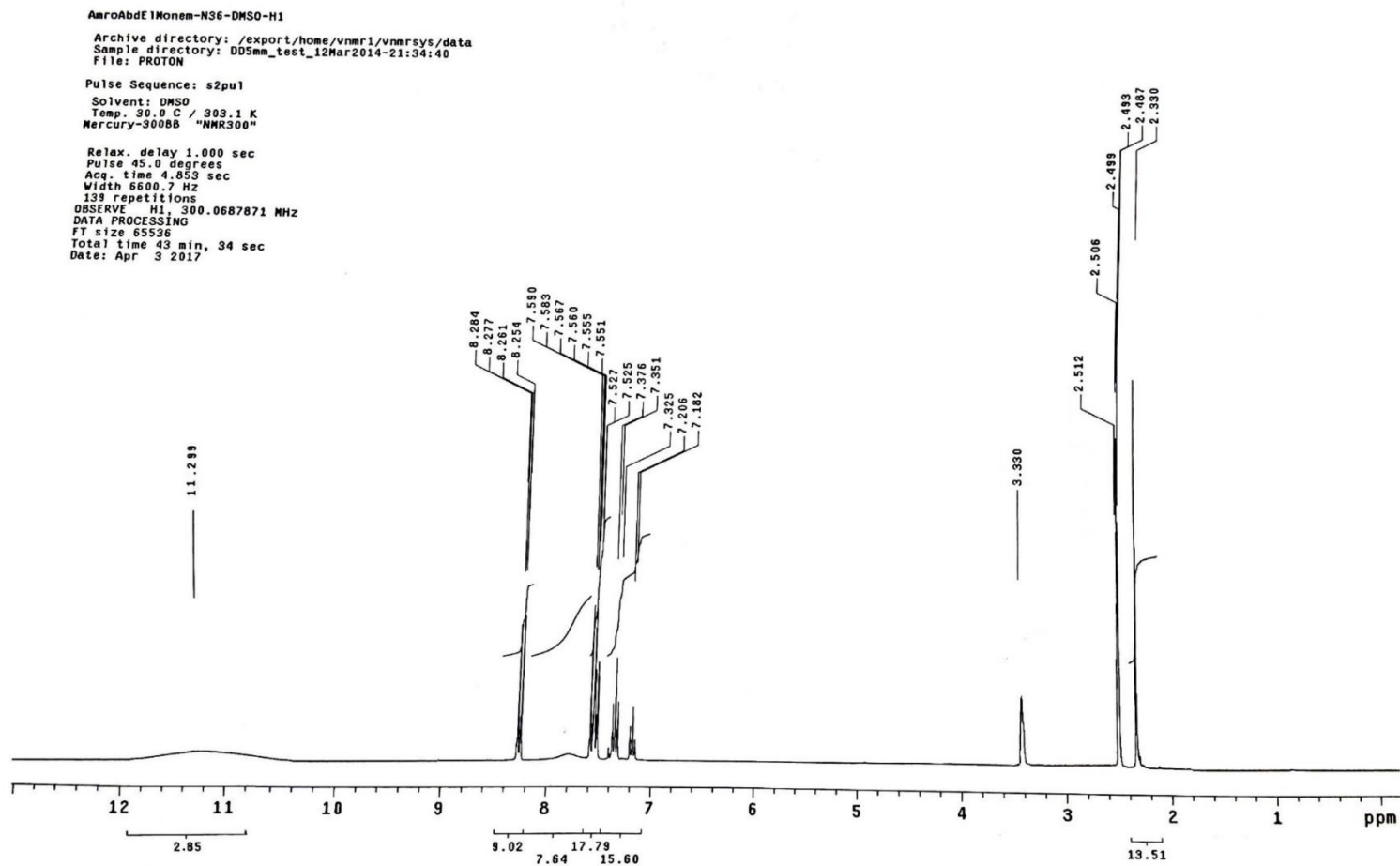


Figure 7. The ^1H NMR spectrum of compound 7c.

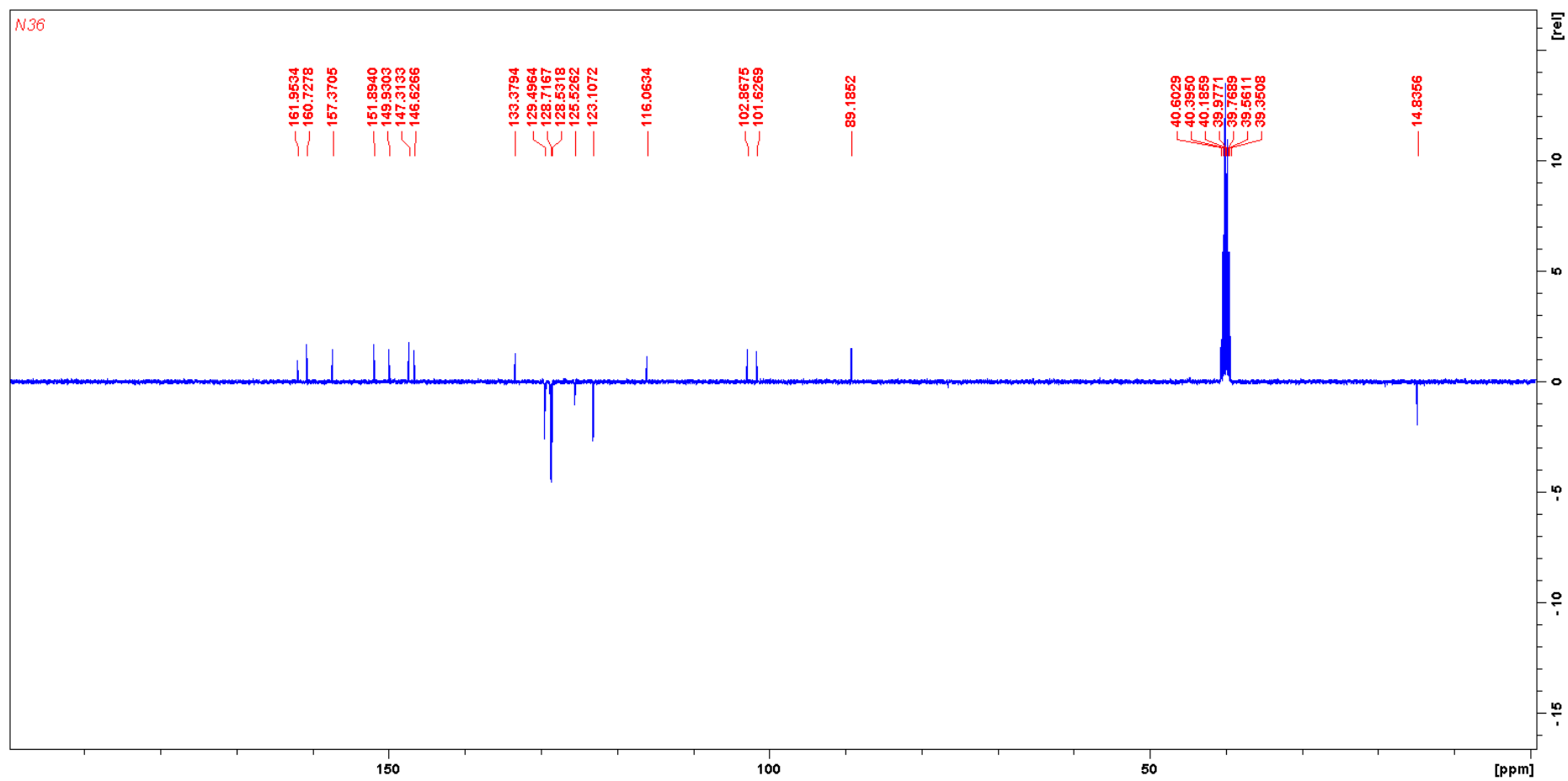


Figure 8. The ^{13}C NMR spectrum of compound 7c.

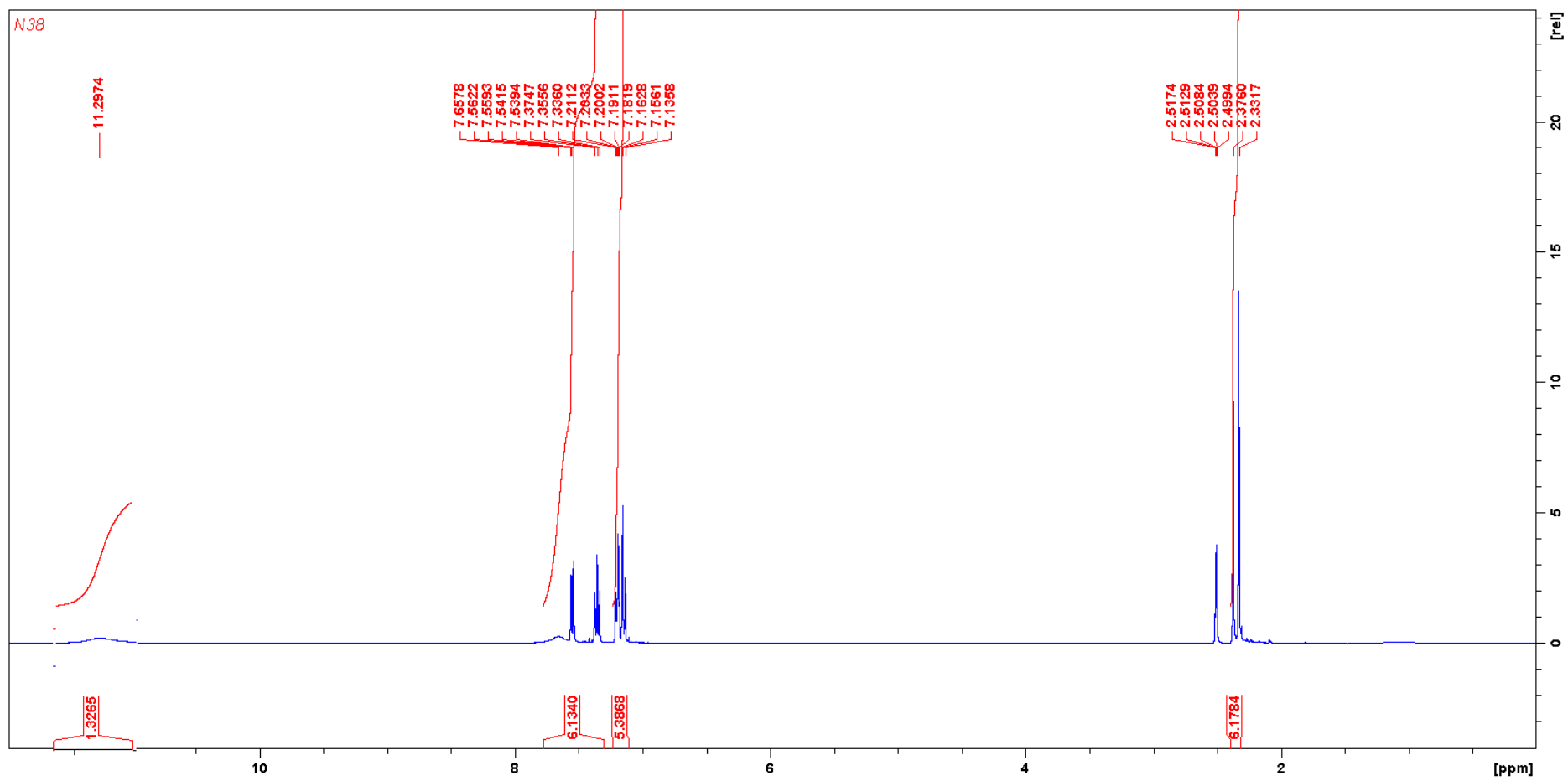


Figure 9. The ^1H NMR spectrum of compound **7d**.

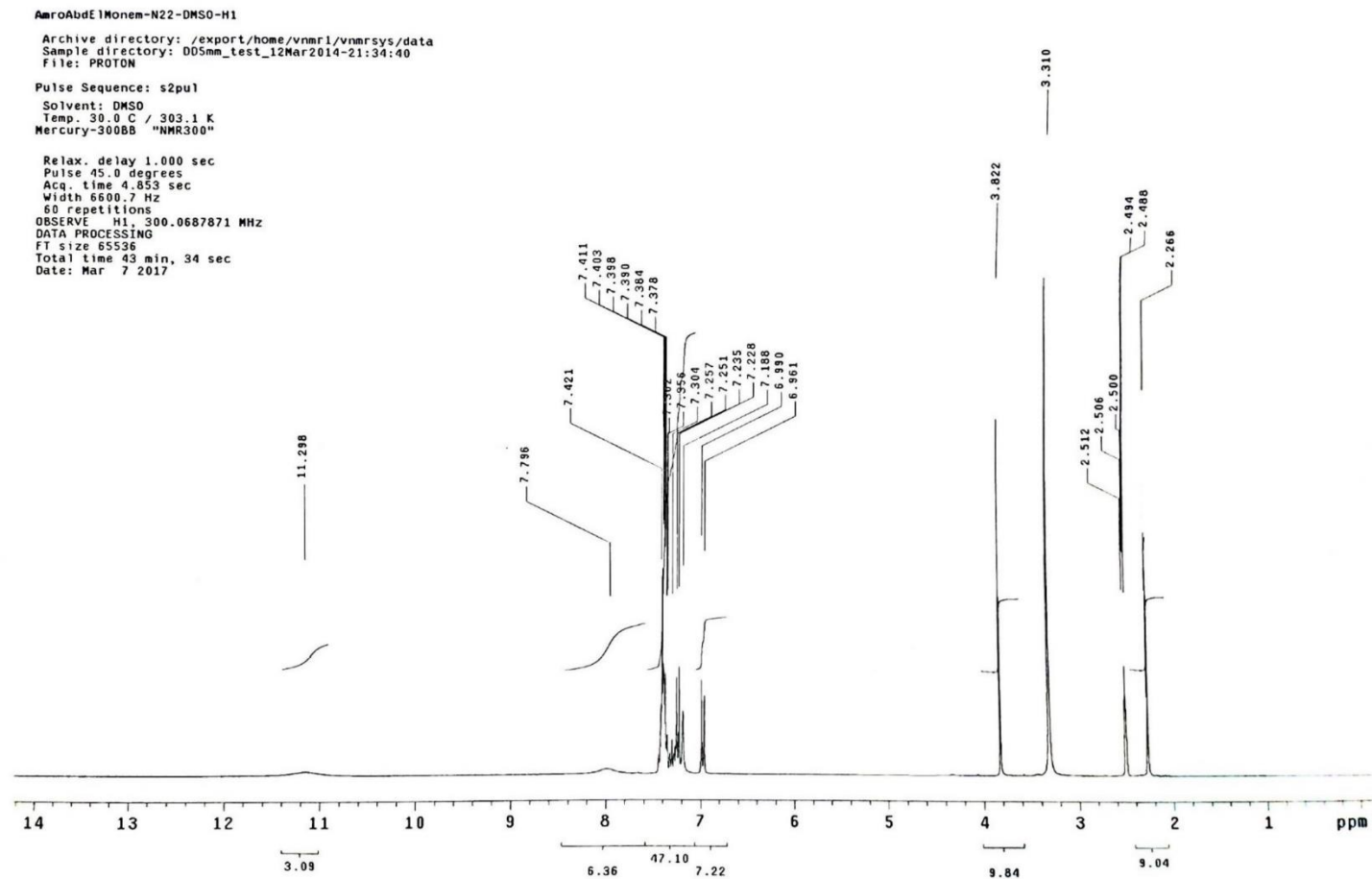


Figure 10. The ^1H NMR spectrum of compound **7e**.

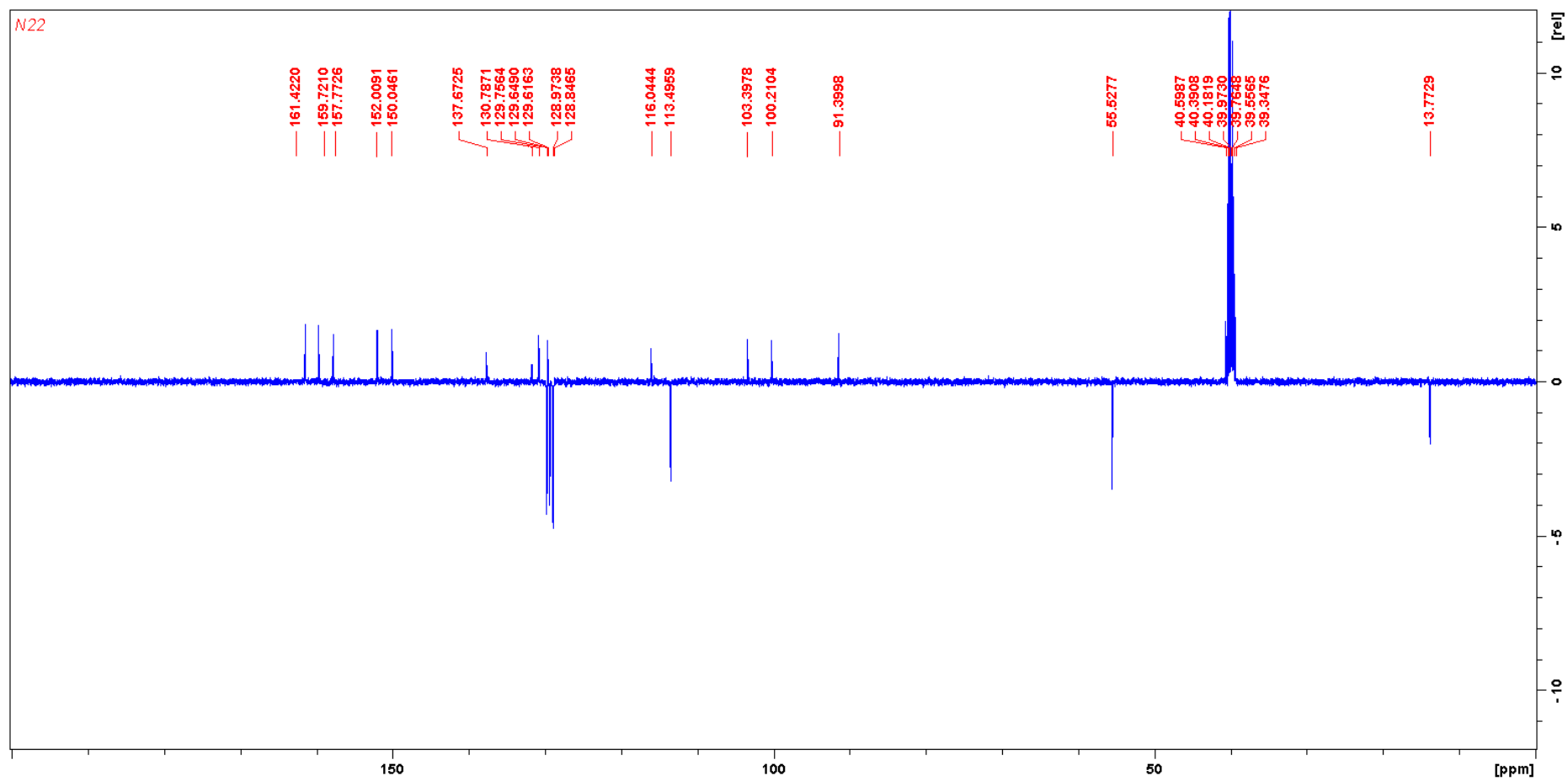


Figure 11. The ^{13}C NMR spectrum of compound 7e.

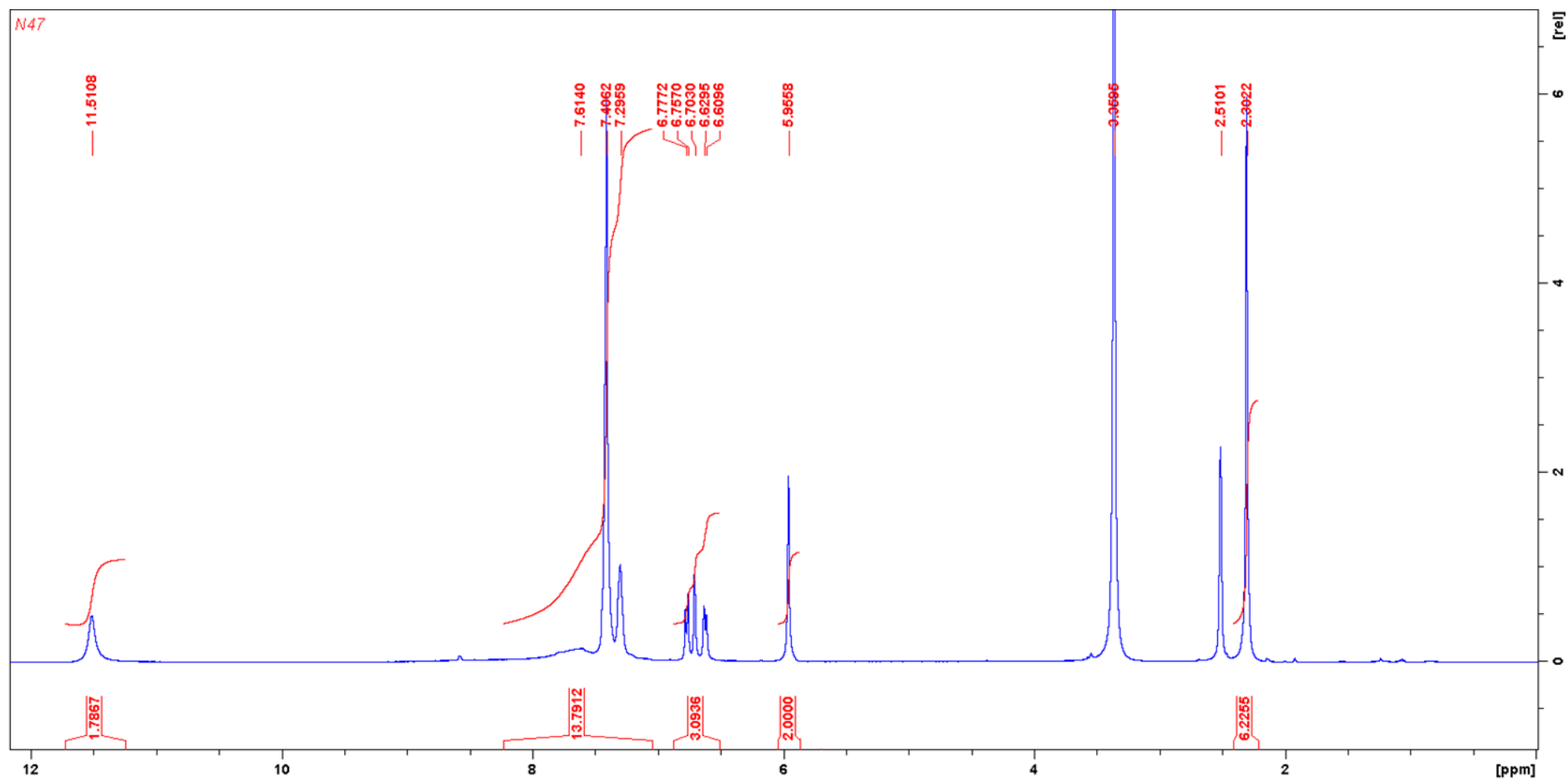


Figure 12. The ^1H NMR spectrum of compound 7f.

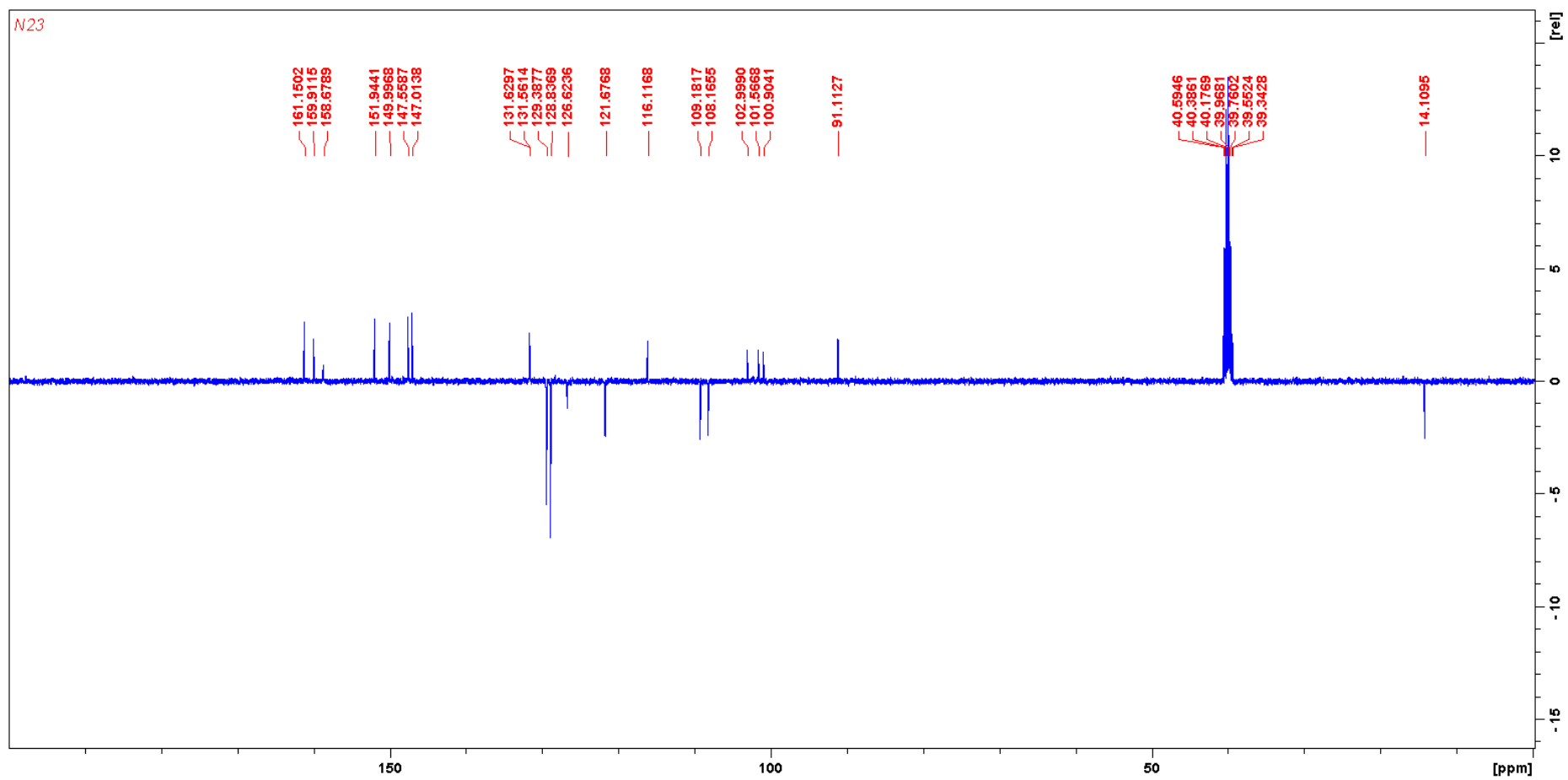


Figure 13. The ^{13}C NMR spectrum of compound 7f.

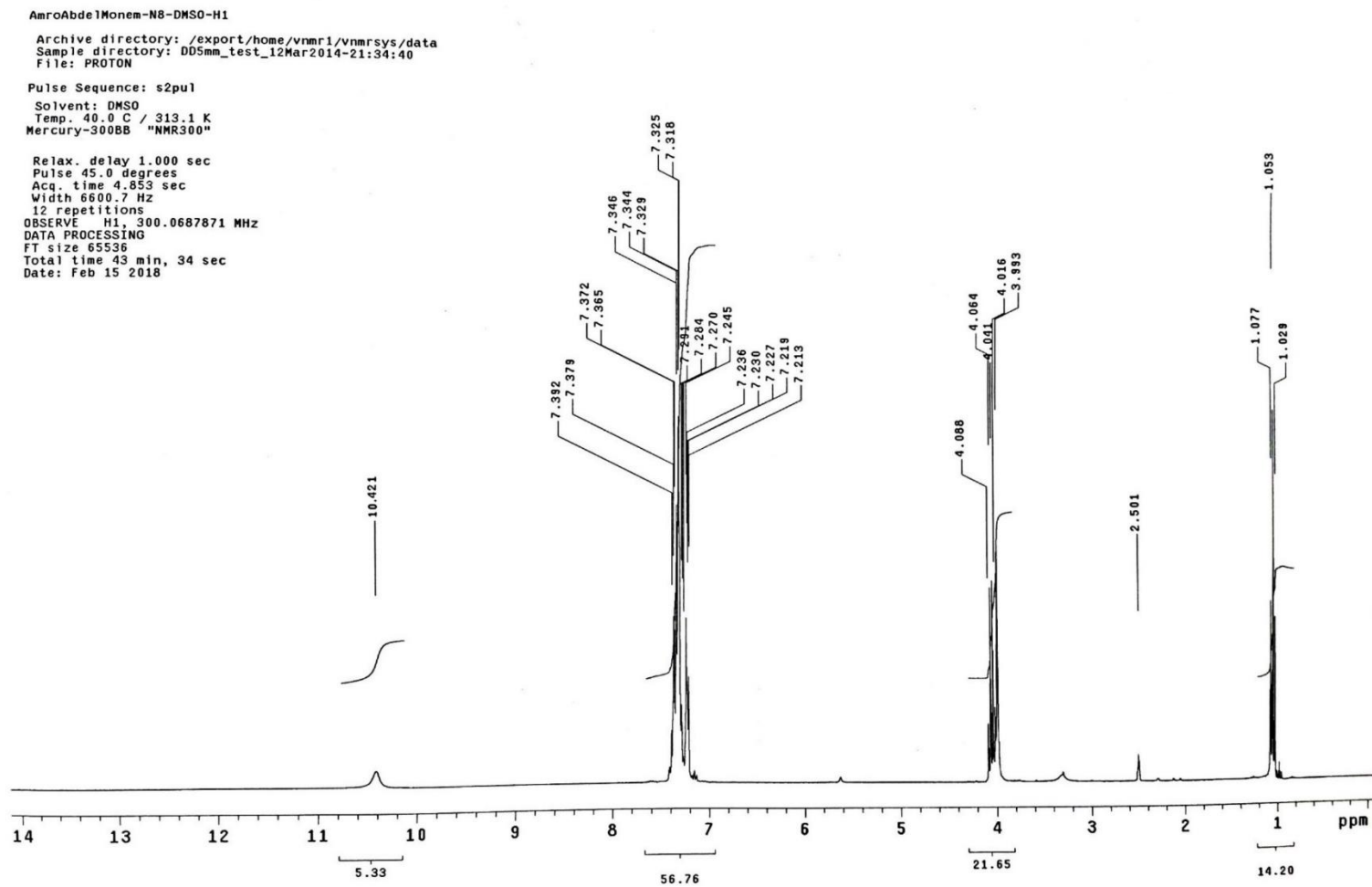


Figure 14. The ^1H NMR spectrum of compound **18**.

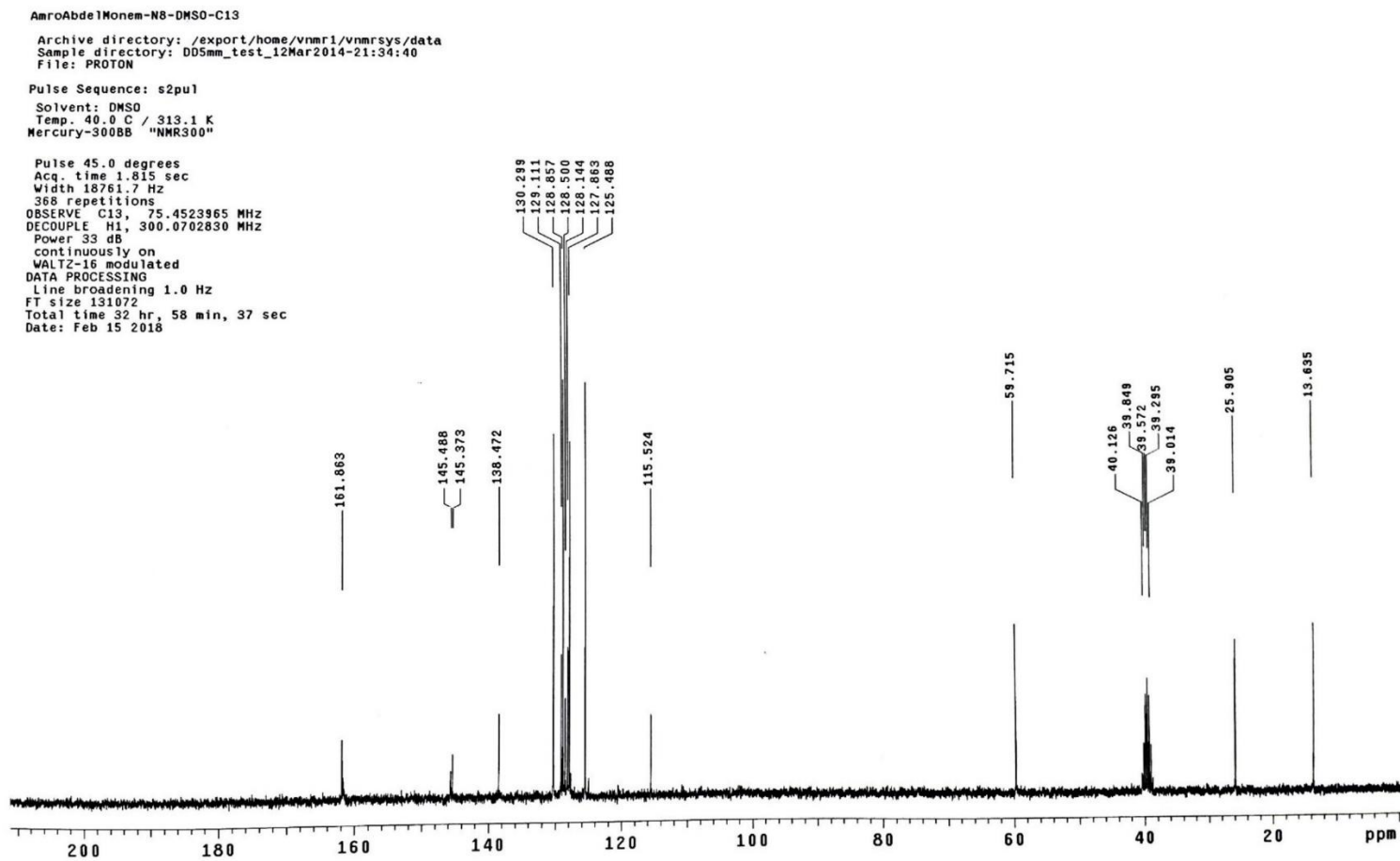


Figure 15. The ^{13}C NMR spectrum of compound 18.

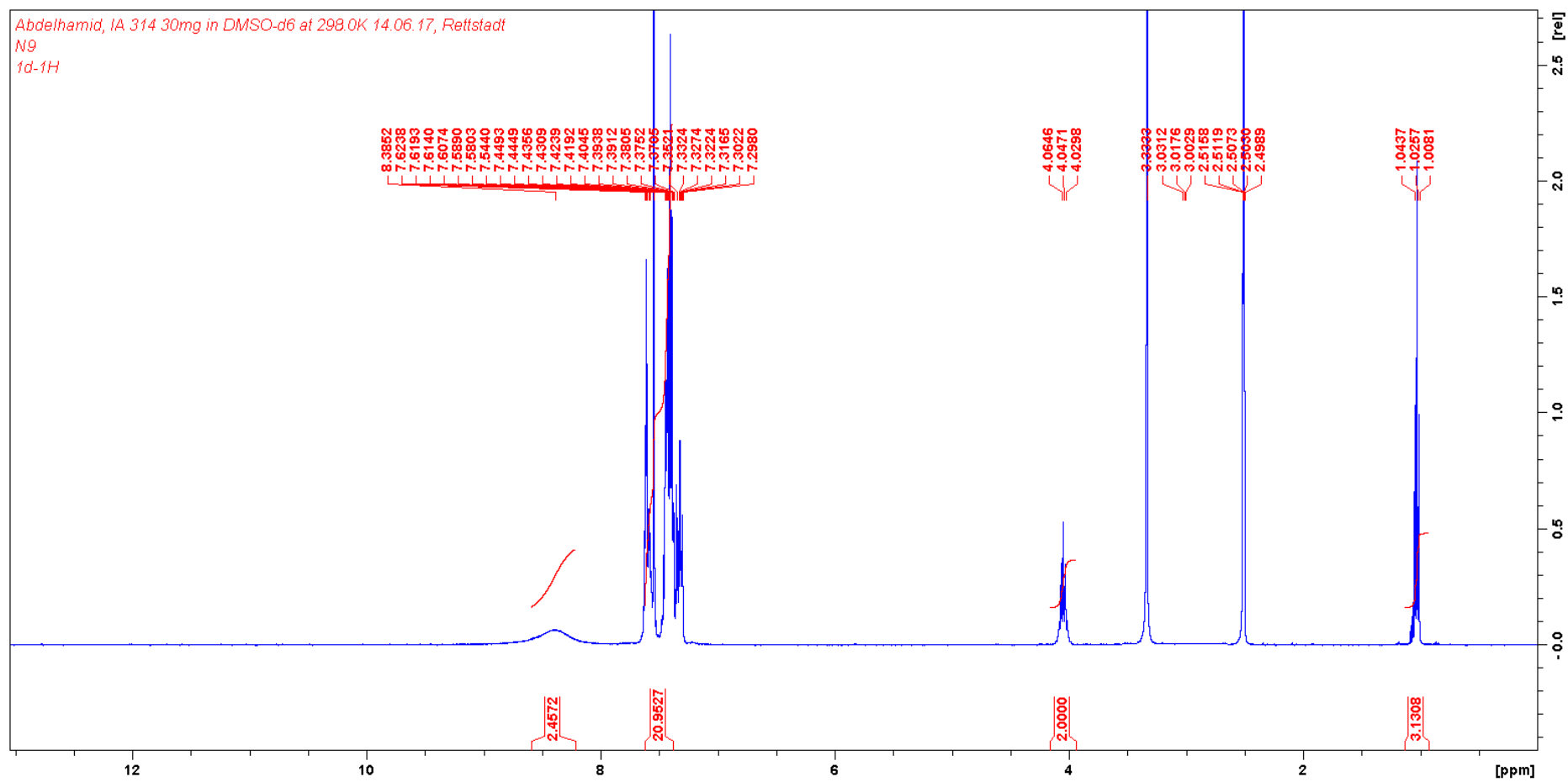


Figure 16. The ^1H NMR spectrum of compound 20a.

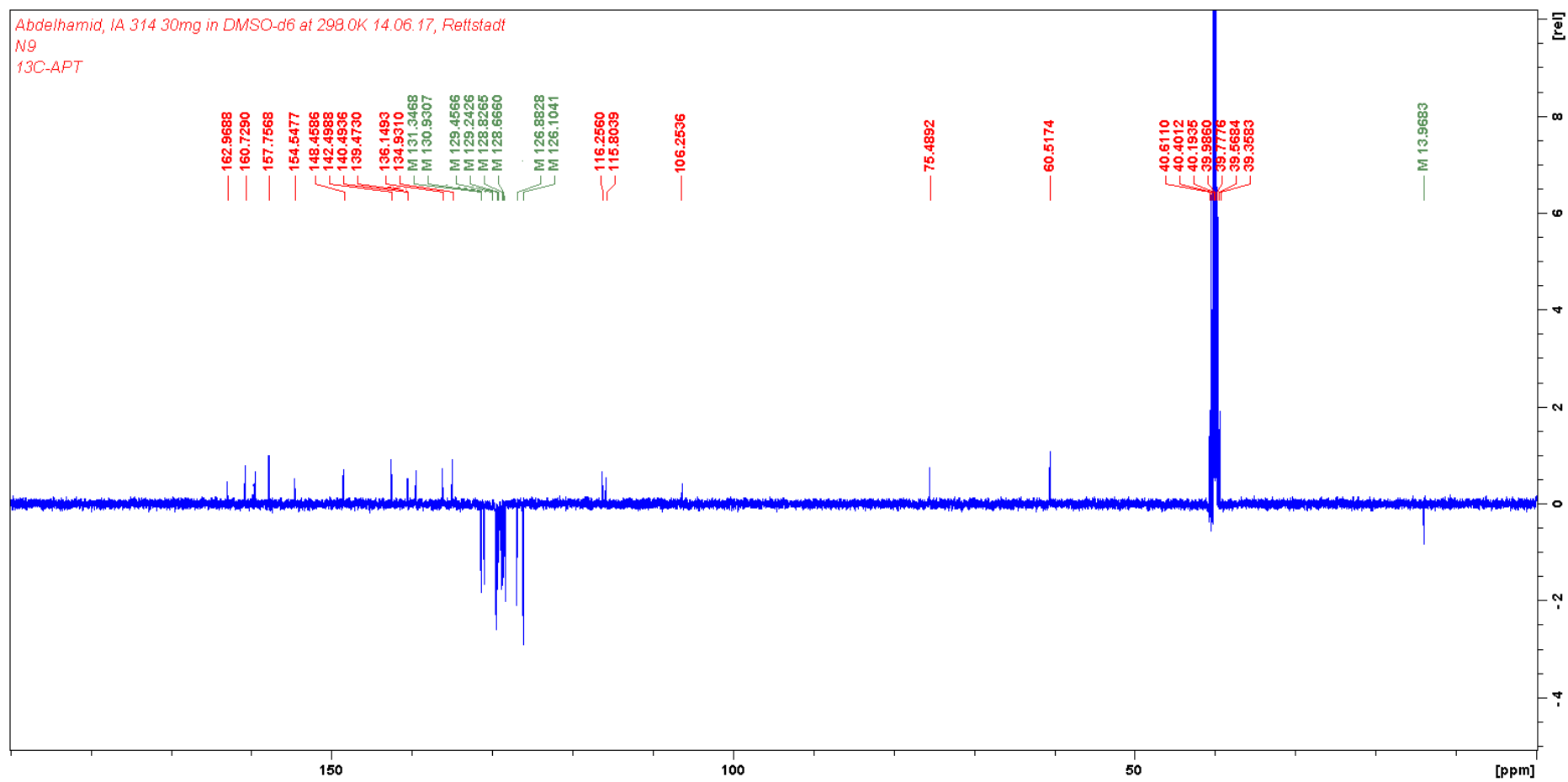


Figure 17. The ^{13}C NMR spectrum of compound 20a.

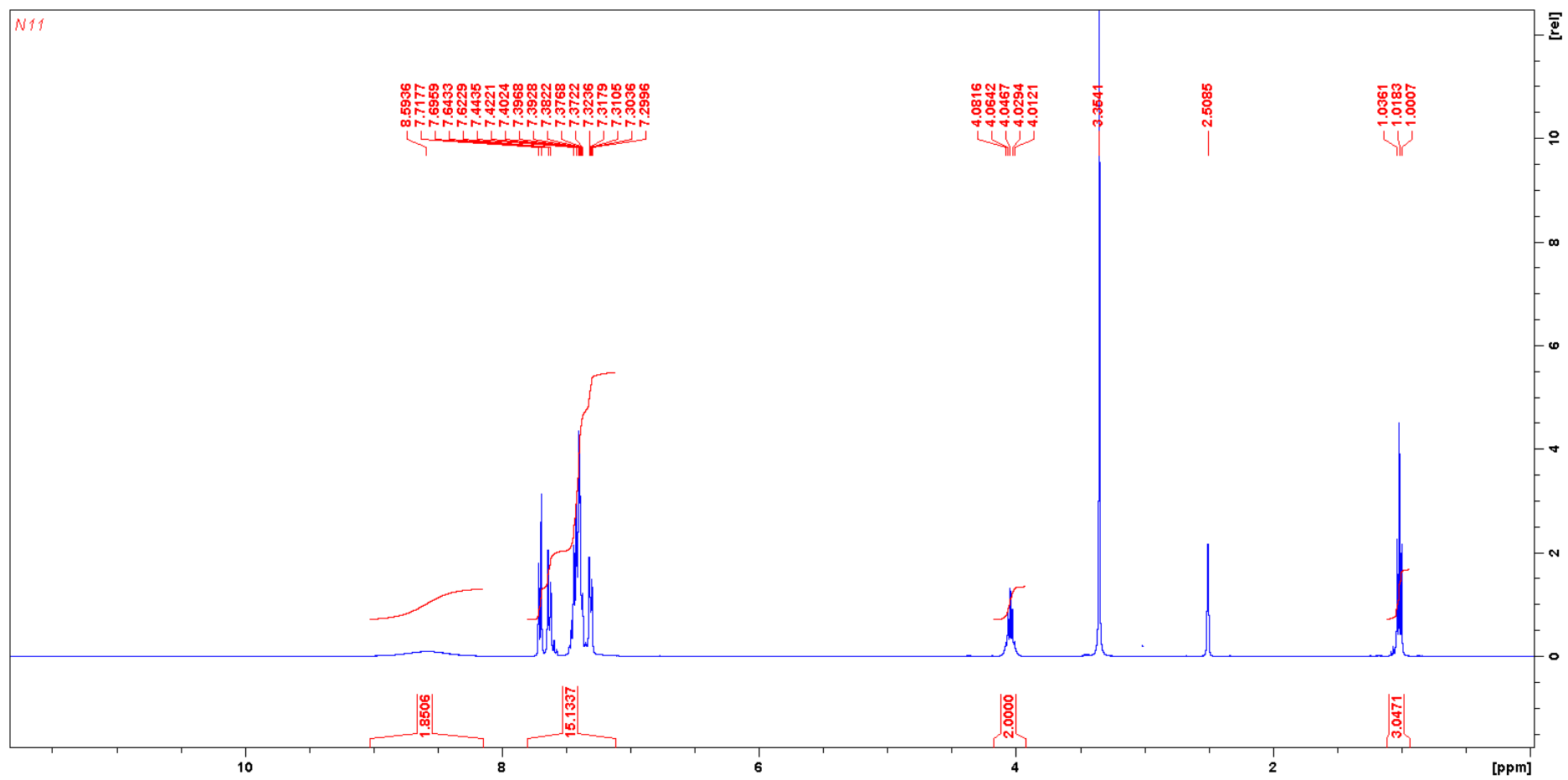


Figure 18. The ^1H NMR spectrum of compound **20b**.

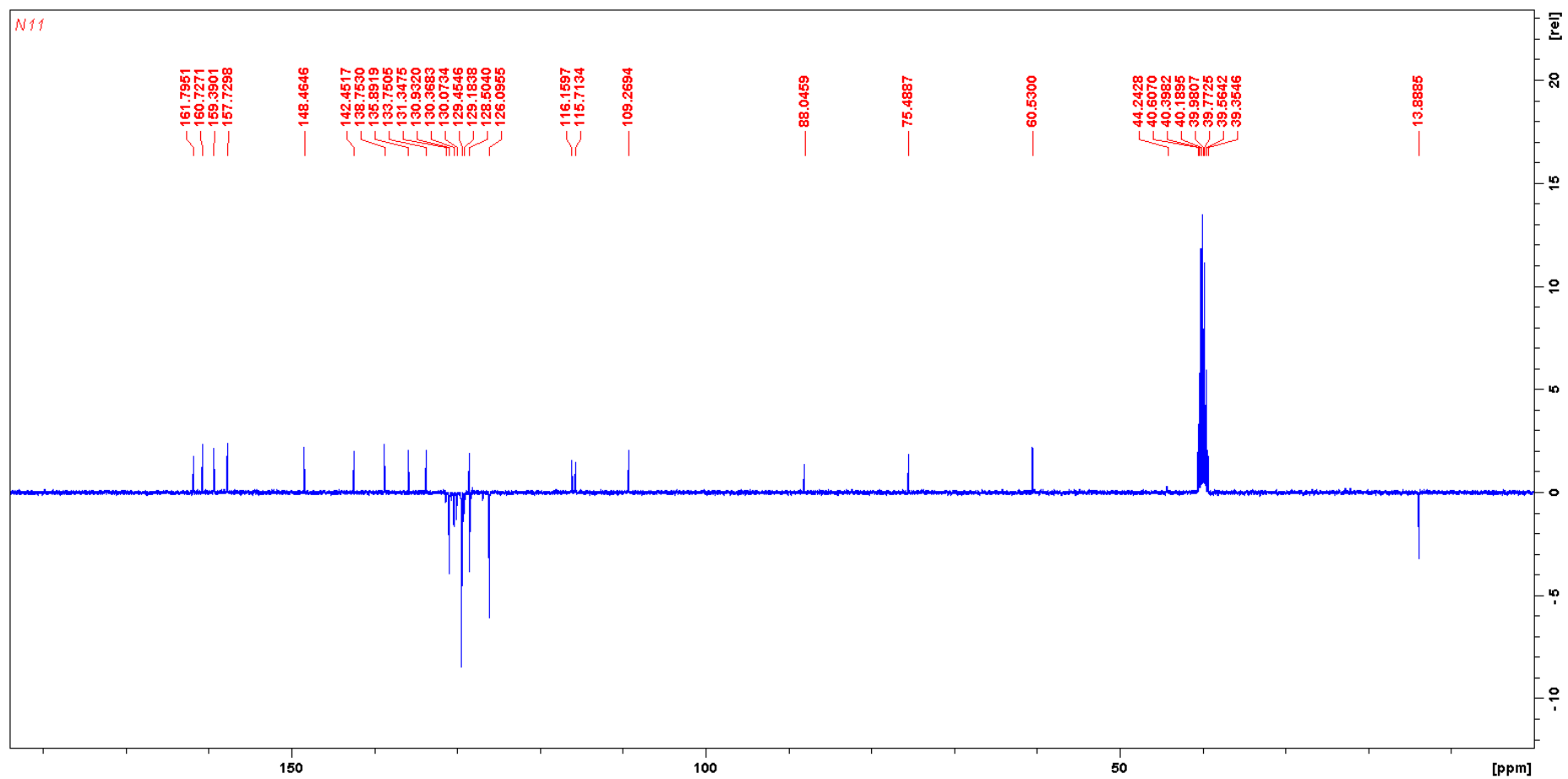


Figure 19. The ^{13}C NMR spectrum of compound **20b**.

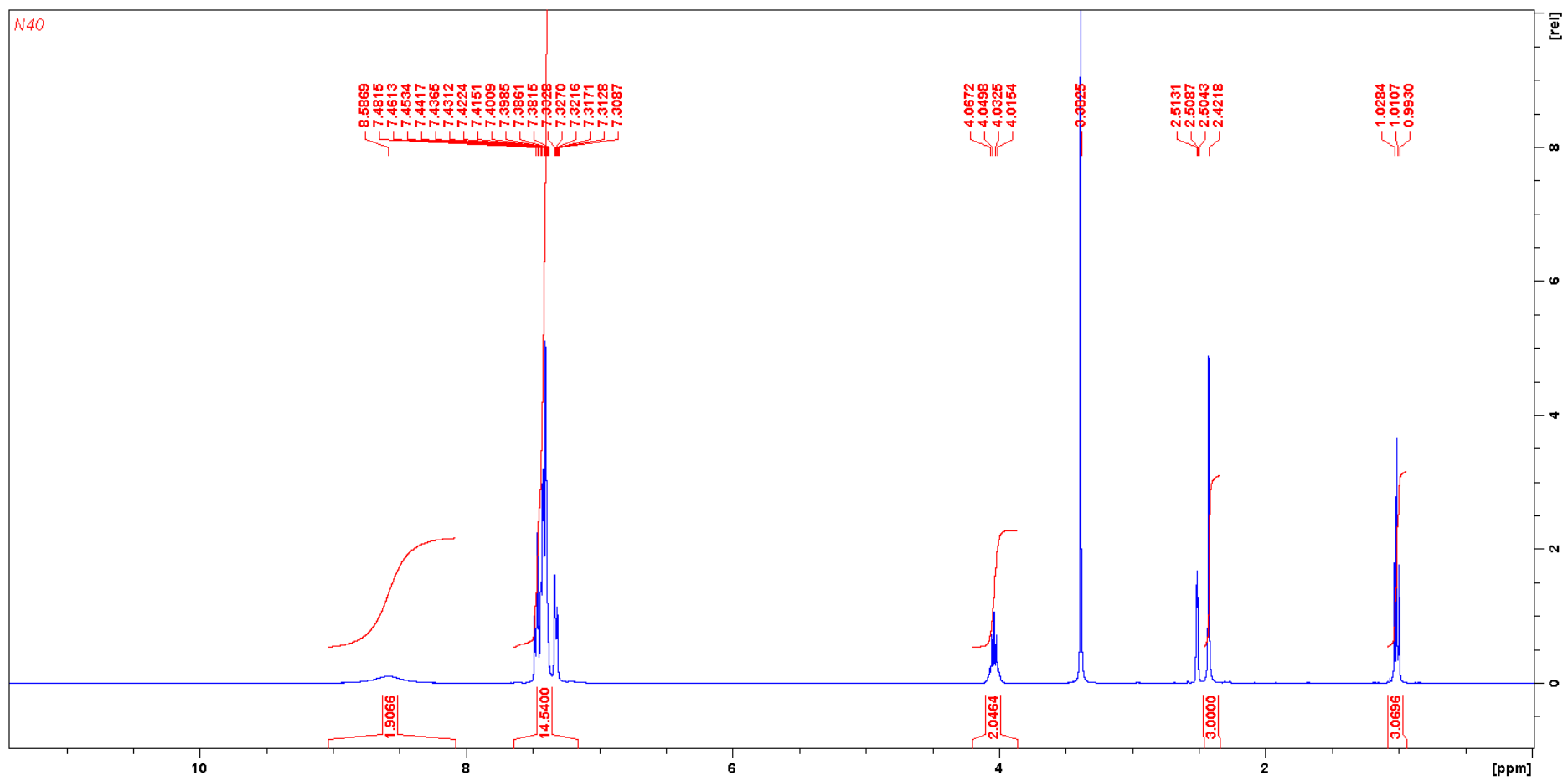


Figure 20. The ^1H NMR spectrum of compound **20d**.

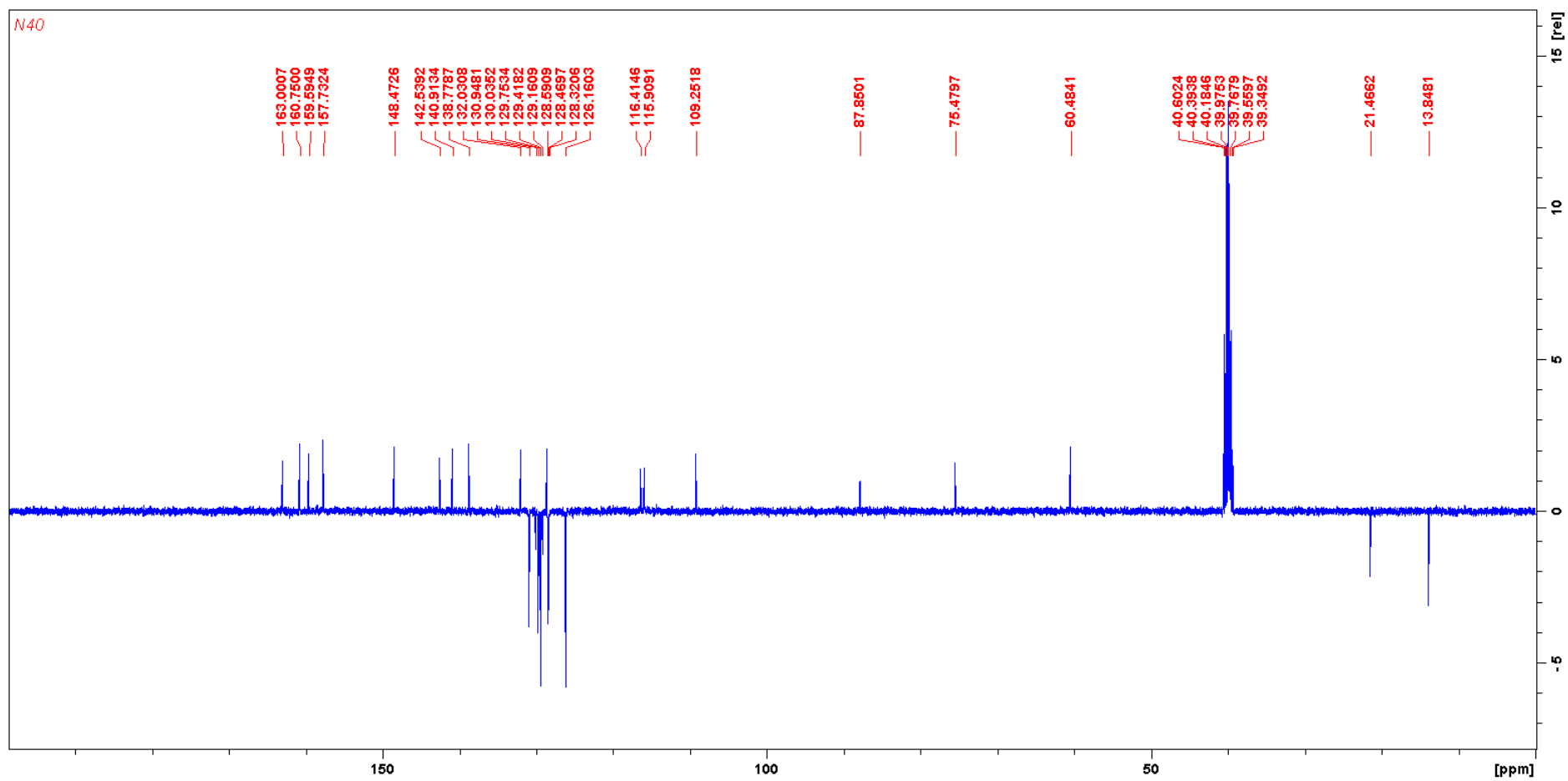


Figure 21. The ^{13}C NMR spectrum of compound 20d.

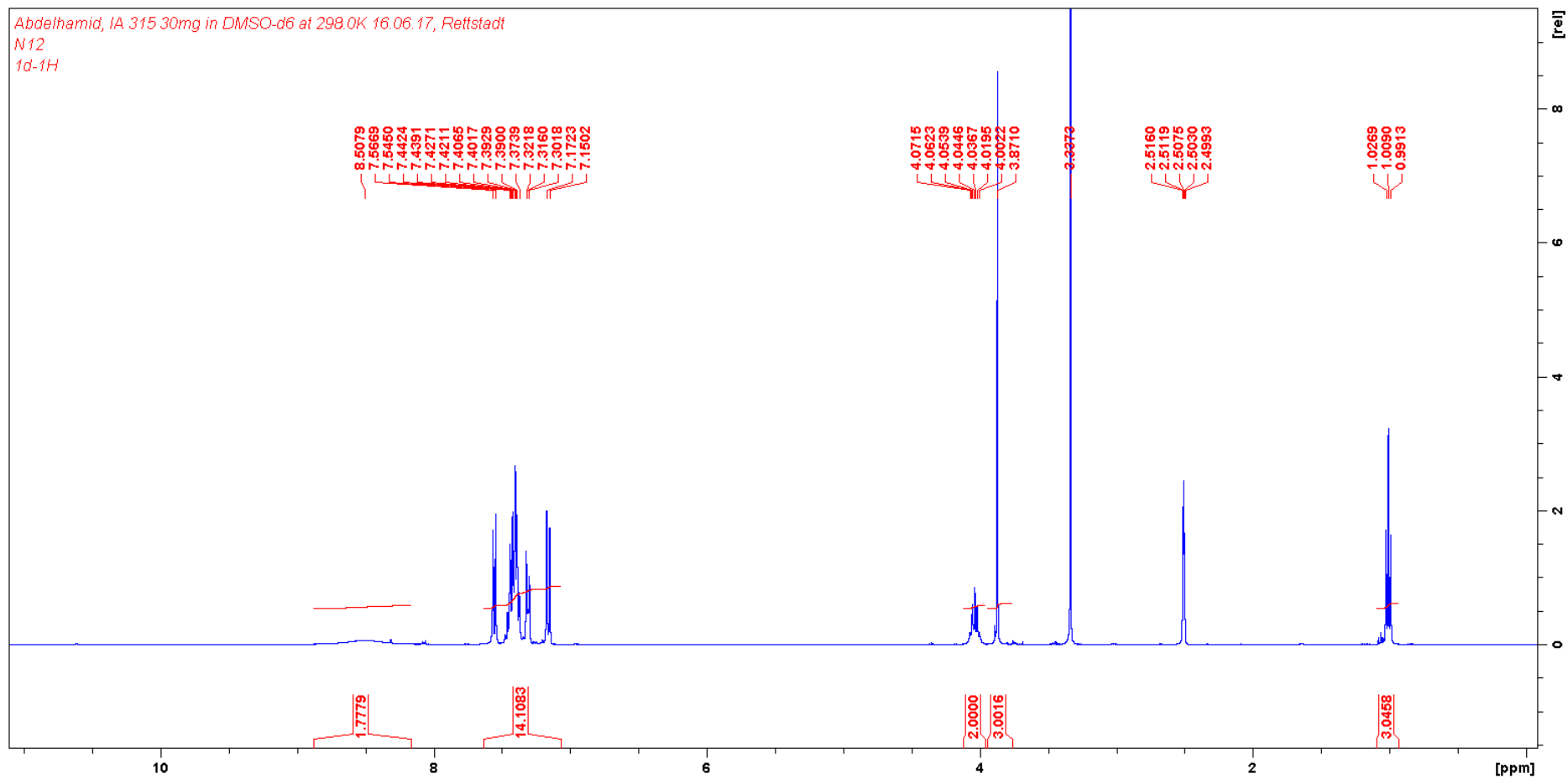


Figure 22. The ^1H NMR spectrum of compound **20e**.

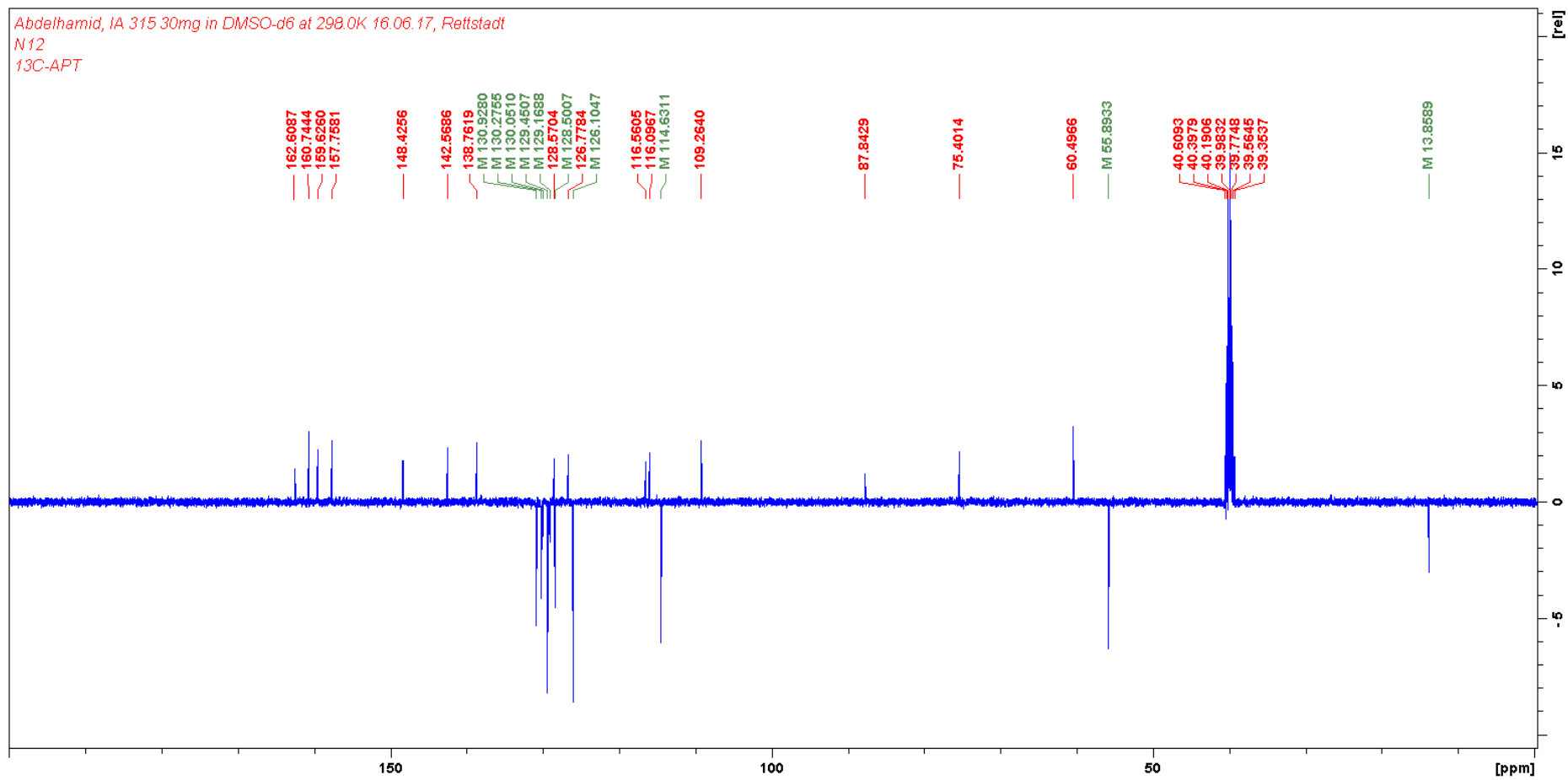


Figure 23. The ^{13}C NMR spectrum of compound **20e**.

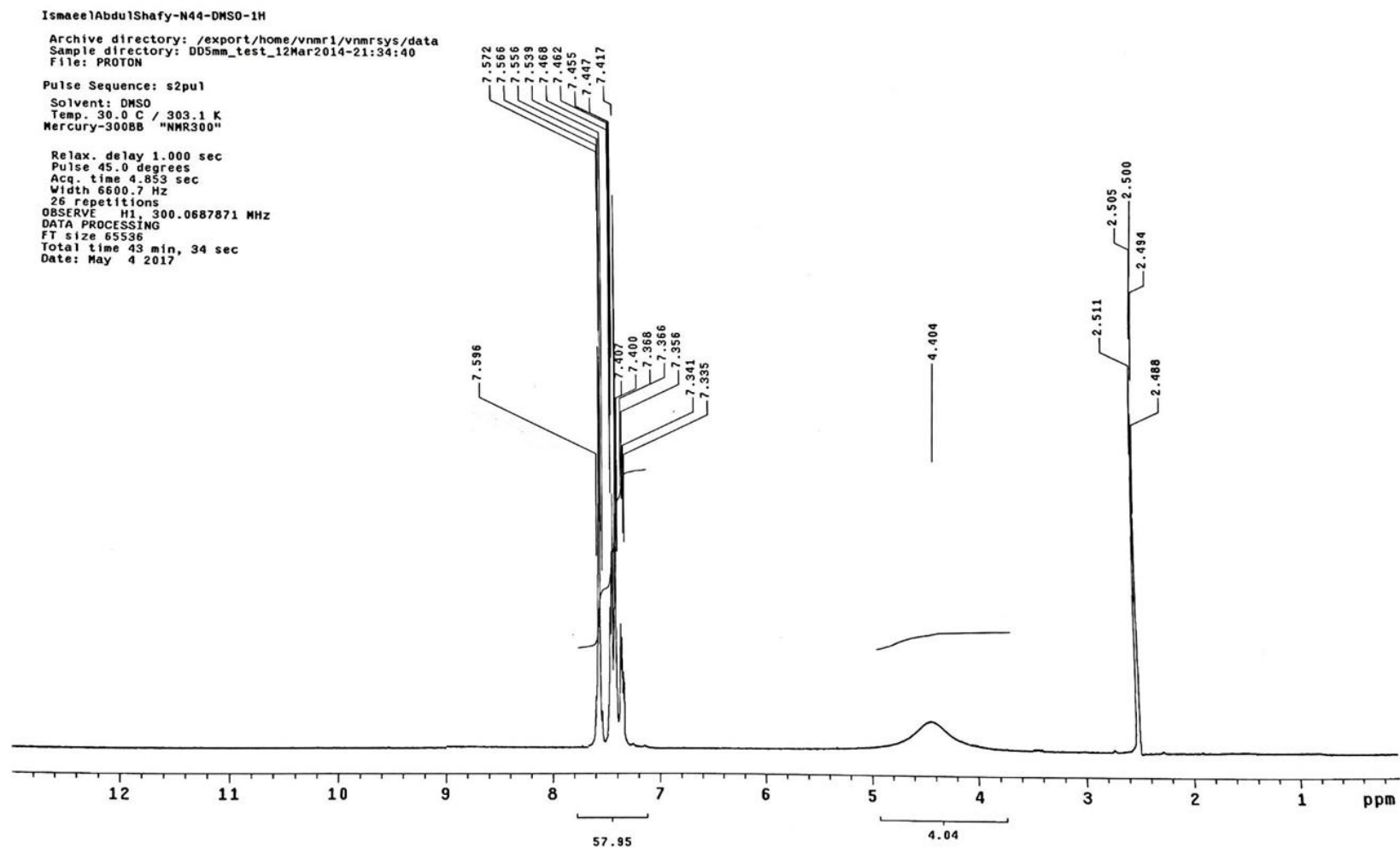


Figure 24. The ^1H NMR spectrum of compound 21a.

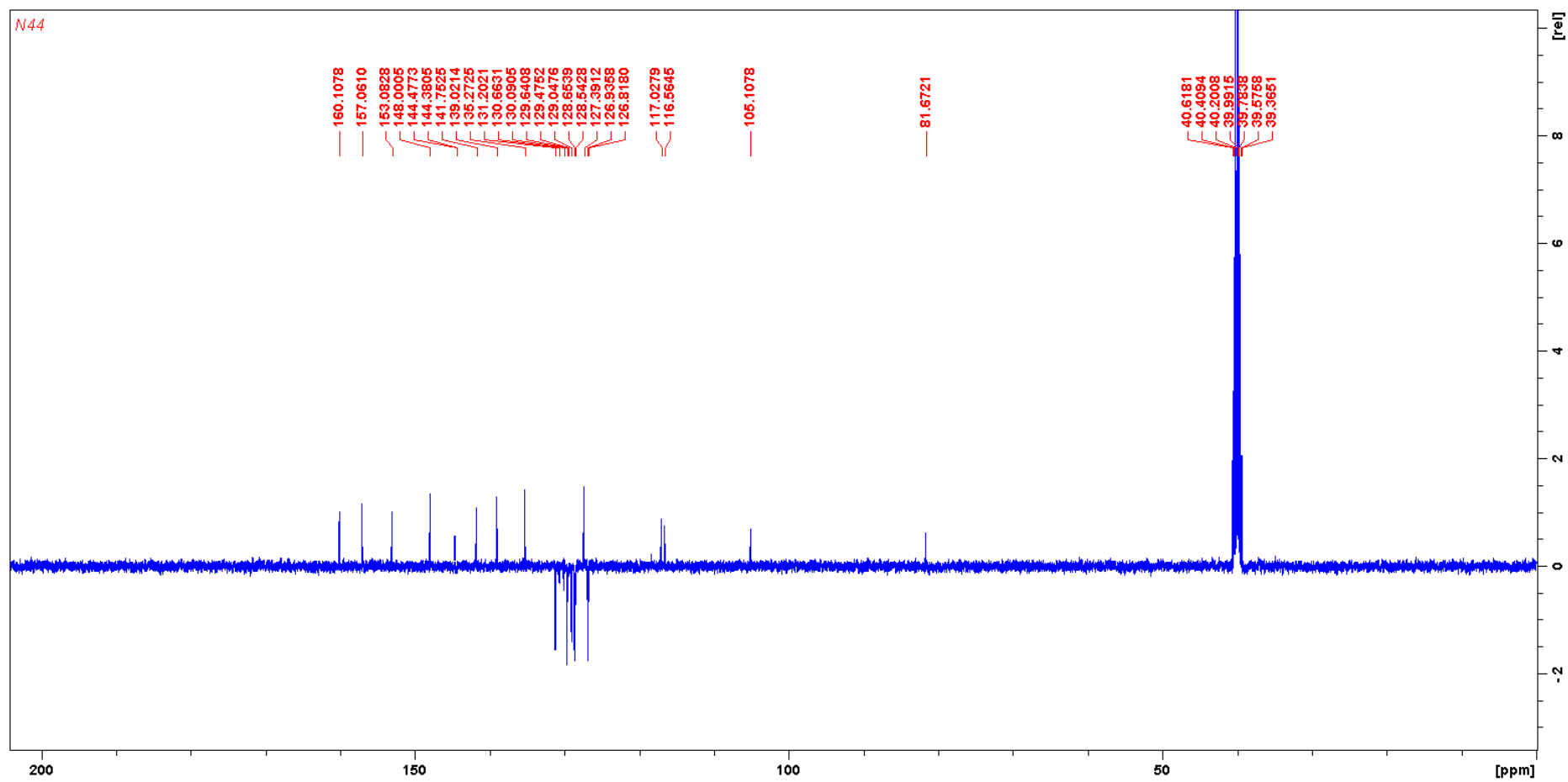


Figure 25. The ^{13}C NMR spectrum of compound **21a**.

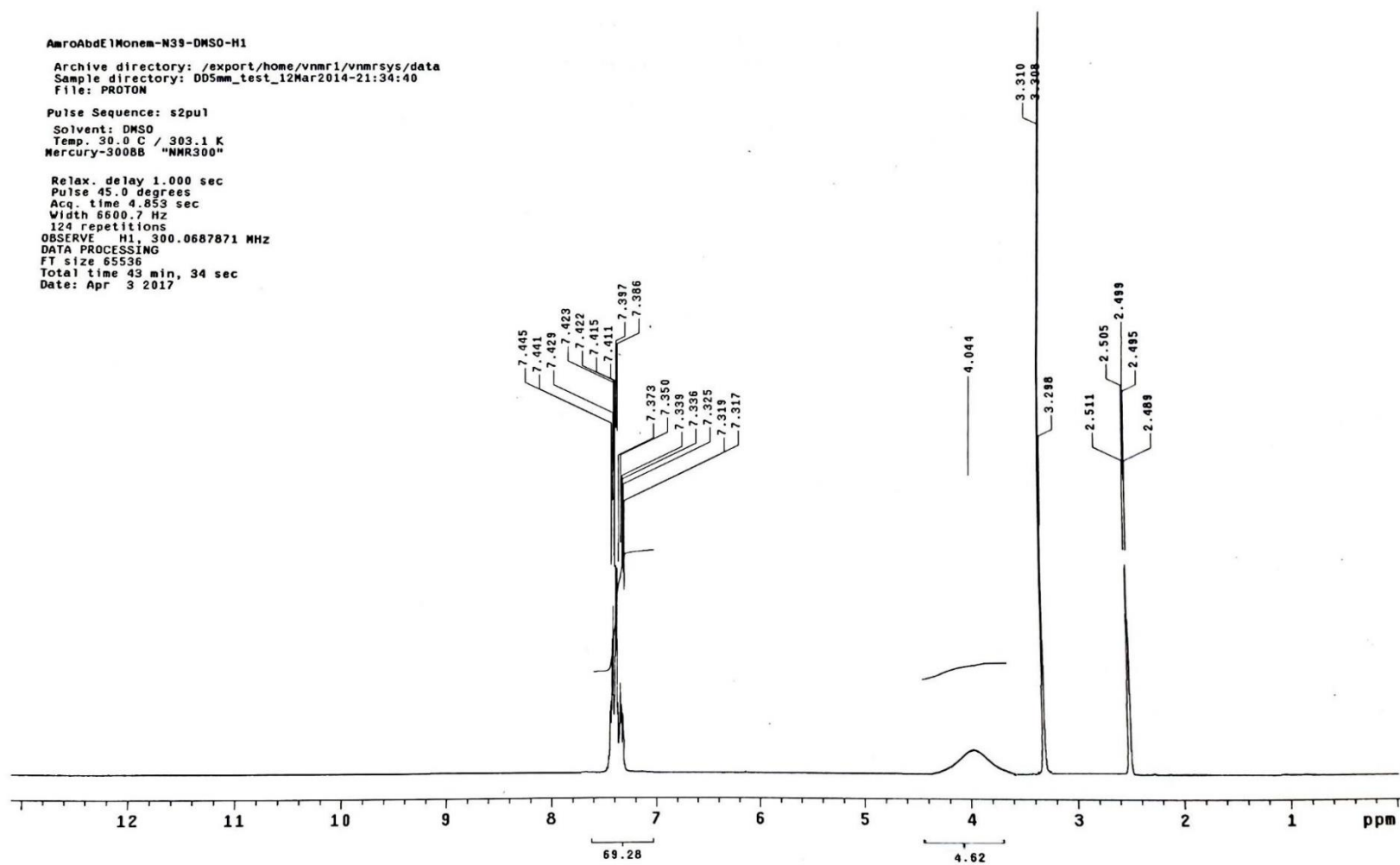


Figure 26. The ^1H NMR spectrum of compound 21c.

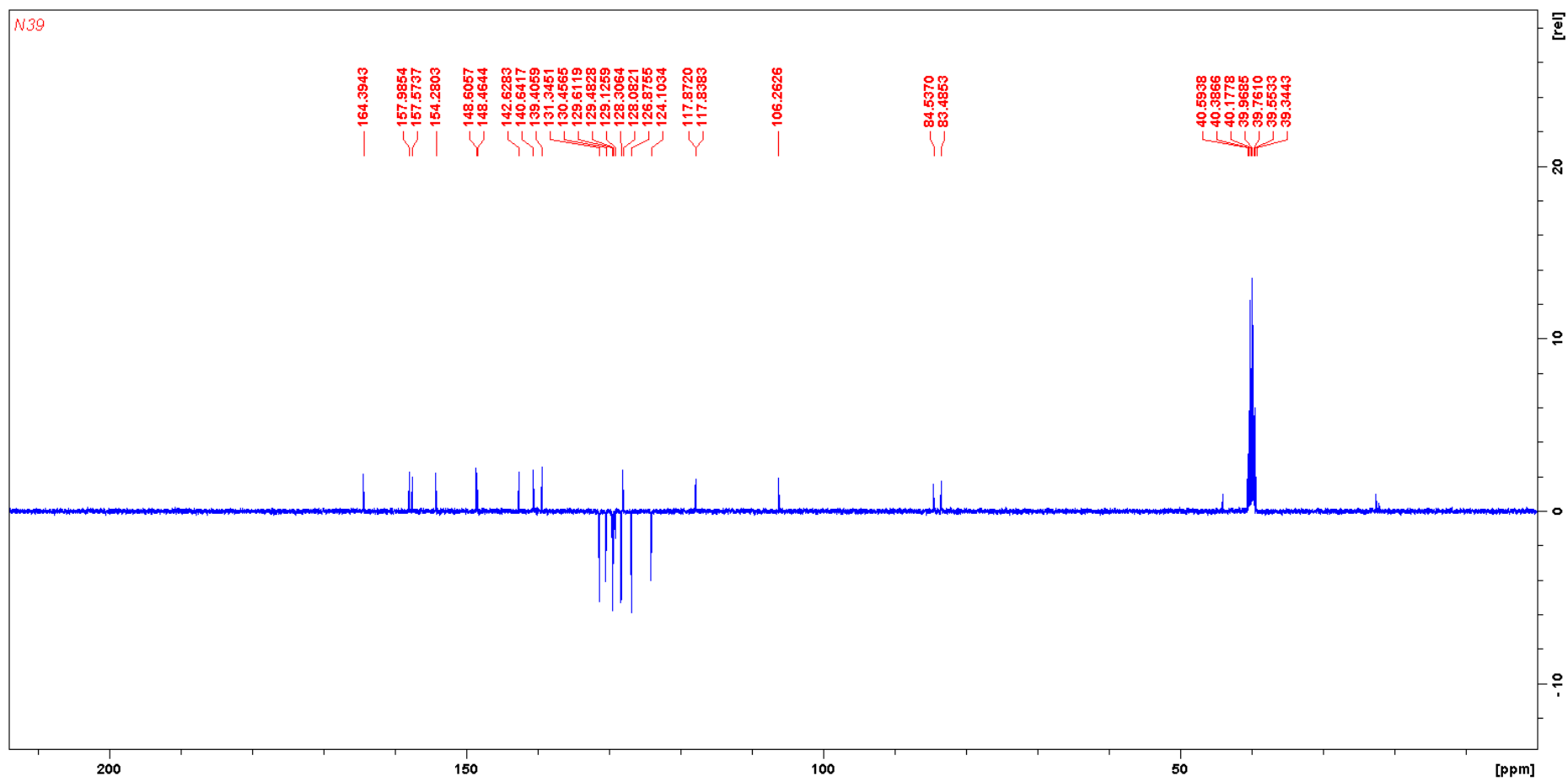


Figure 27. The ^{13}C NMR spectrum of compound **21c**.

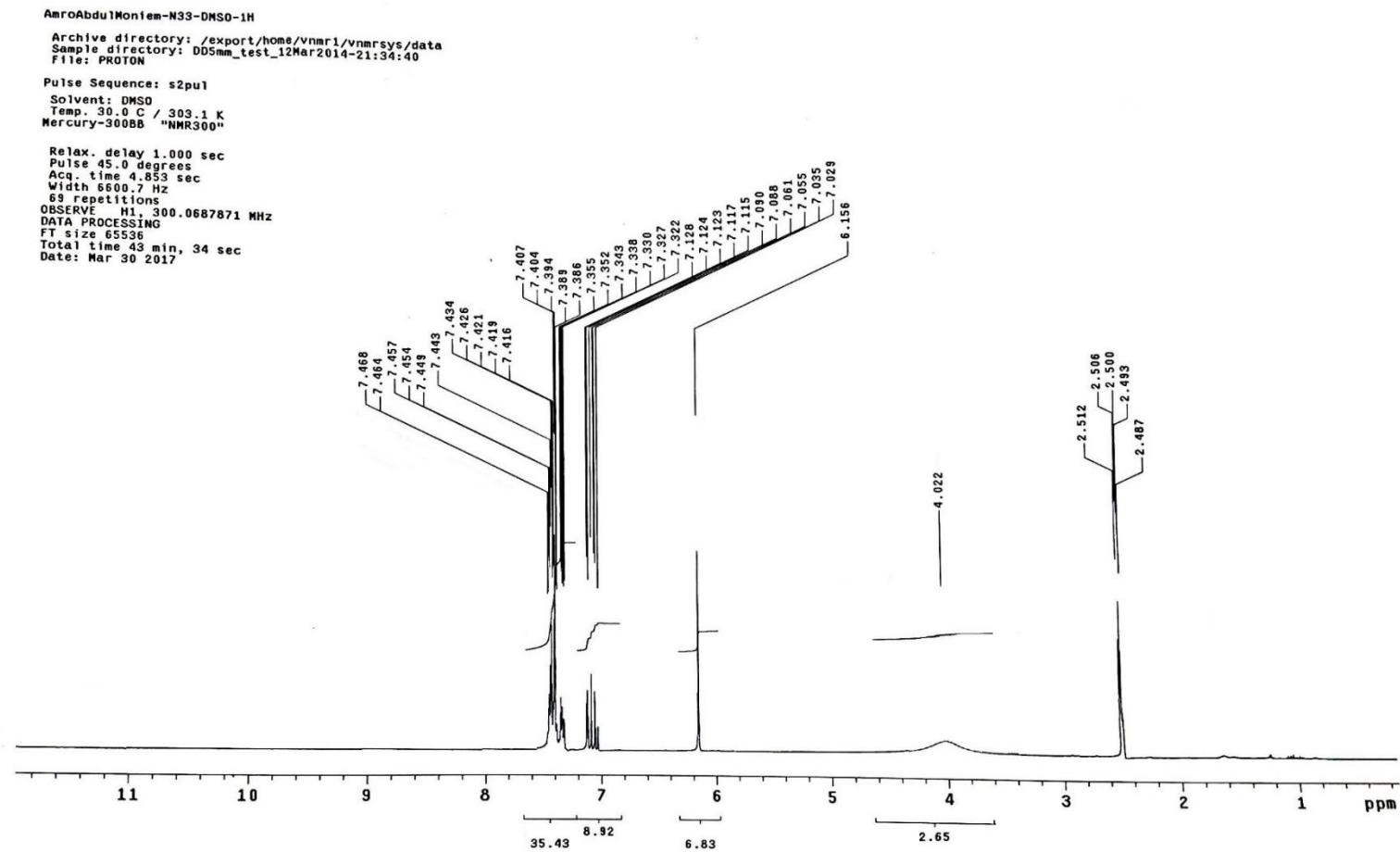


Figure 28. The ^1H NMR spectrum of compound **21f**.

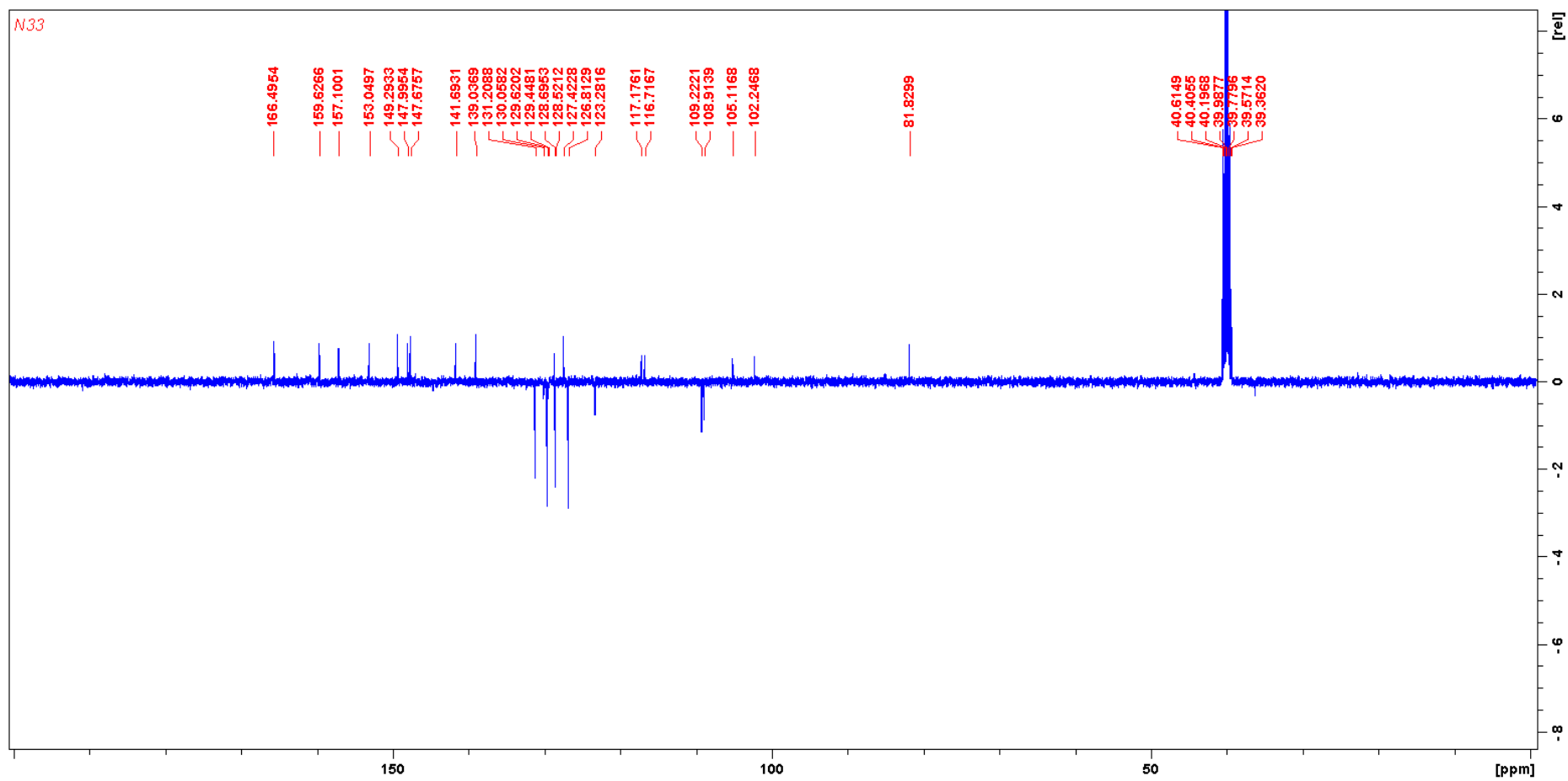


Figure 29. The ^{13}C NMR spectrum of compound **21f**.

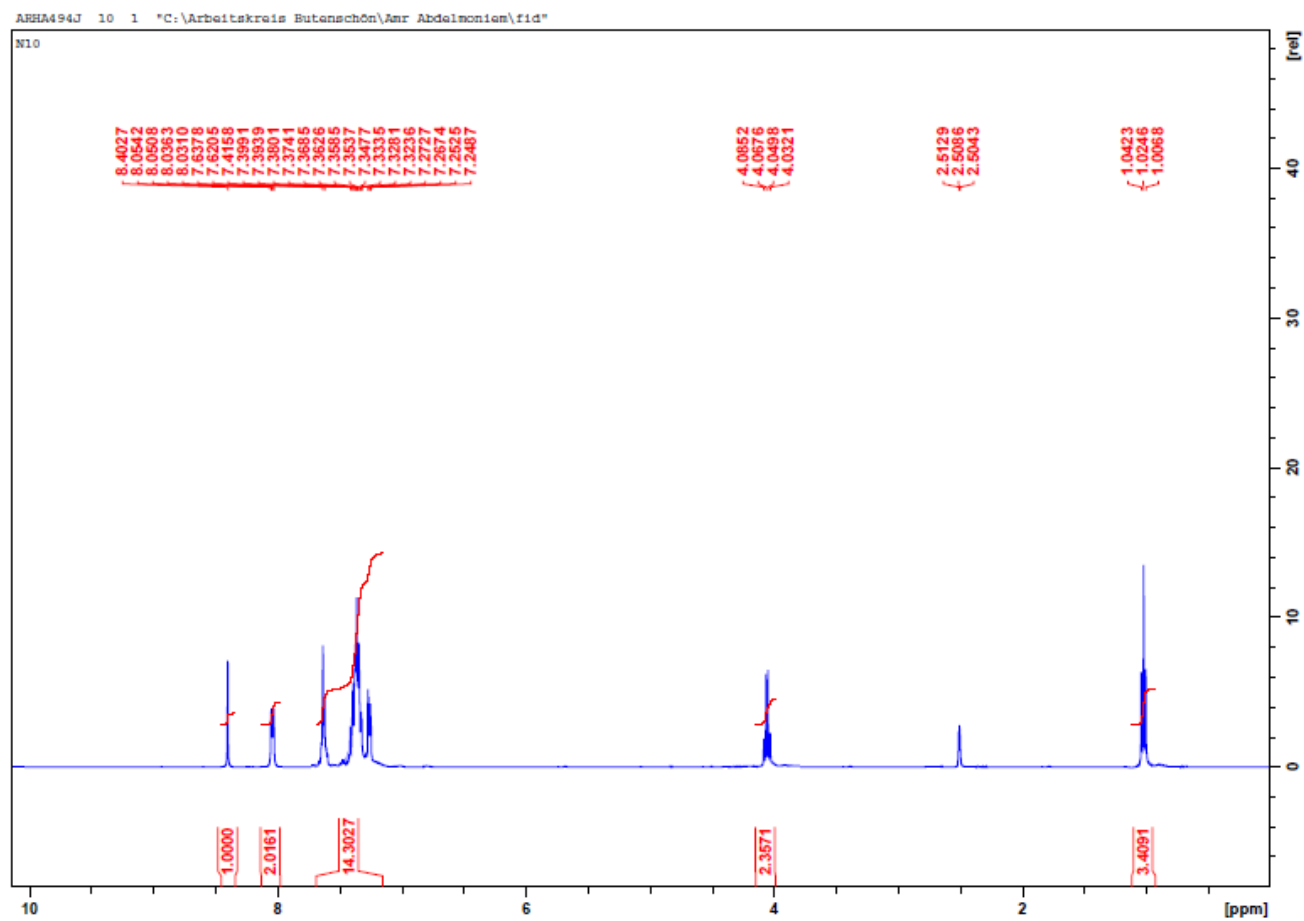


Figure 30. The ^1H NMR spectrum of compound 24a.

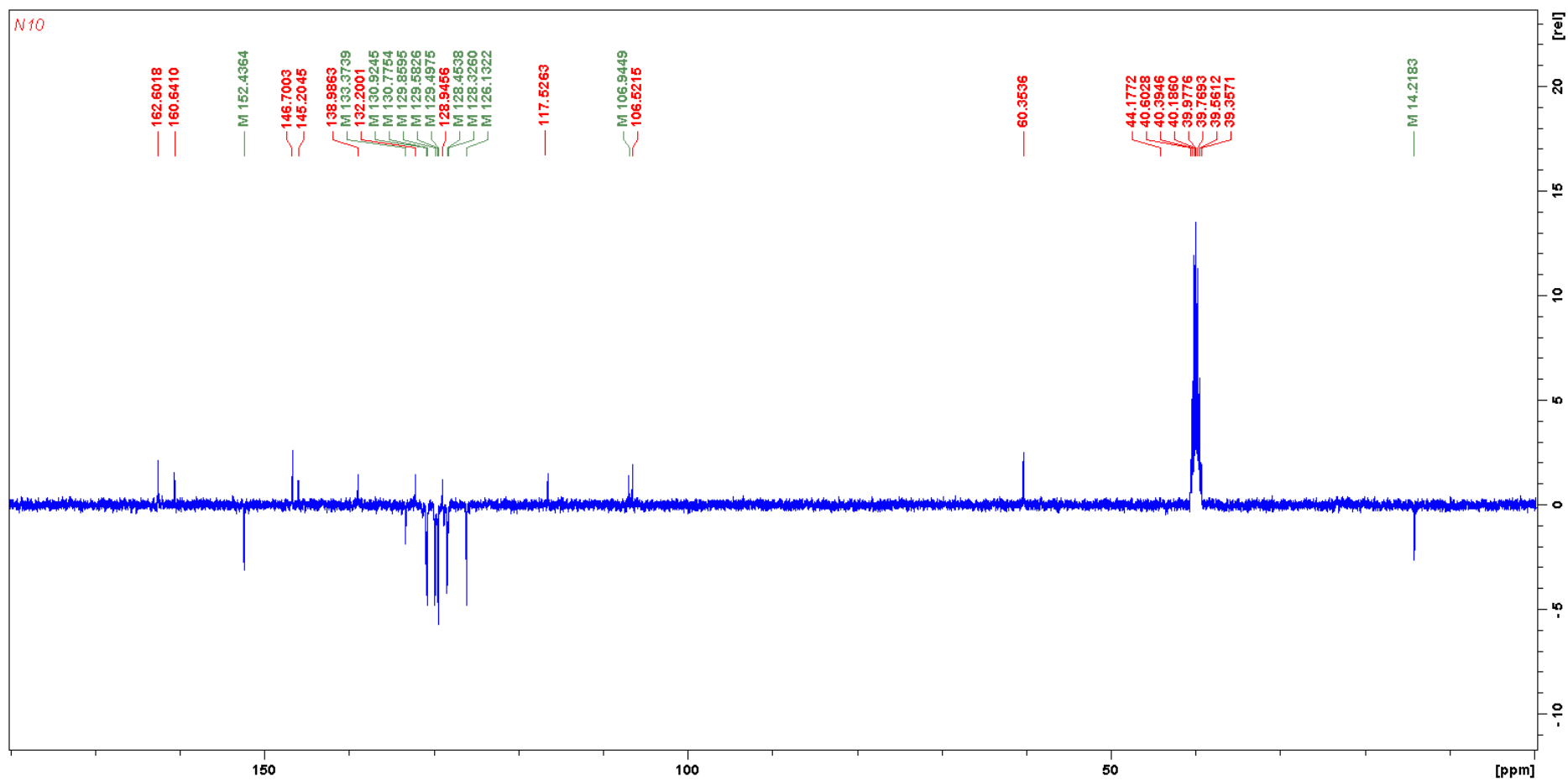


Figure 31. The ^{13}C NMR spectrum of compound 24a.

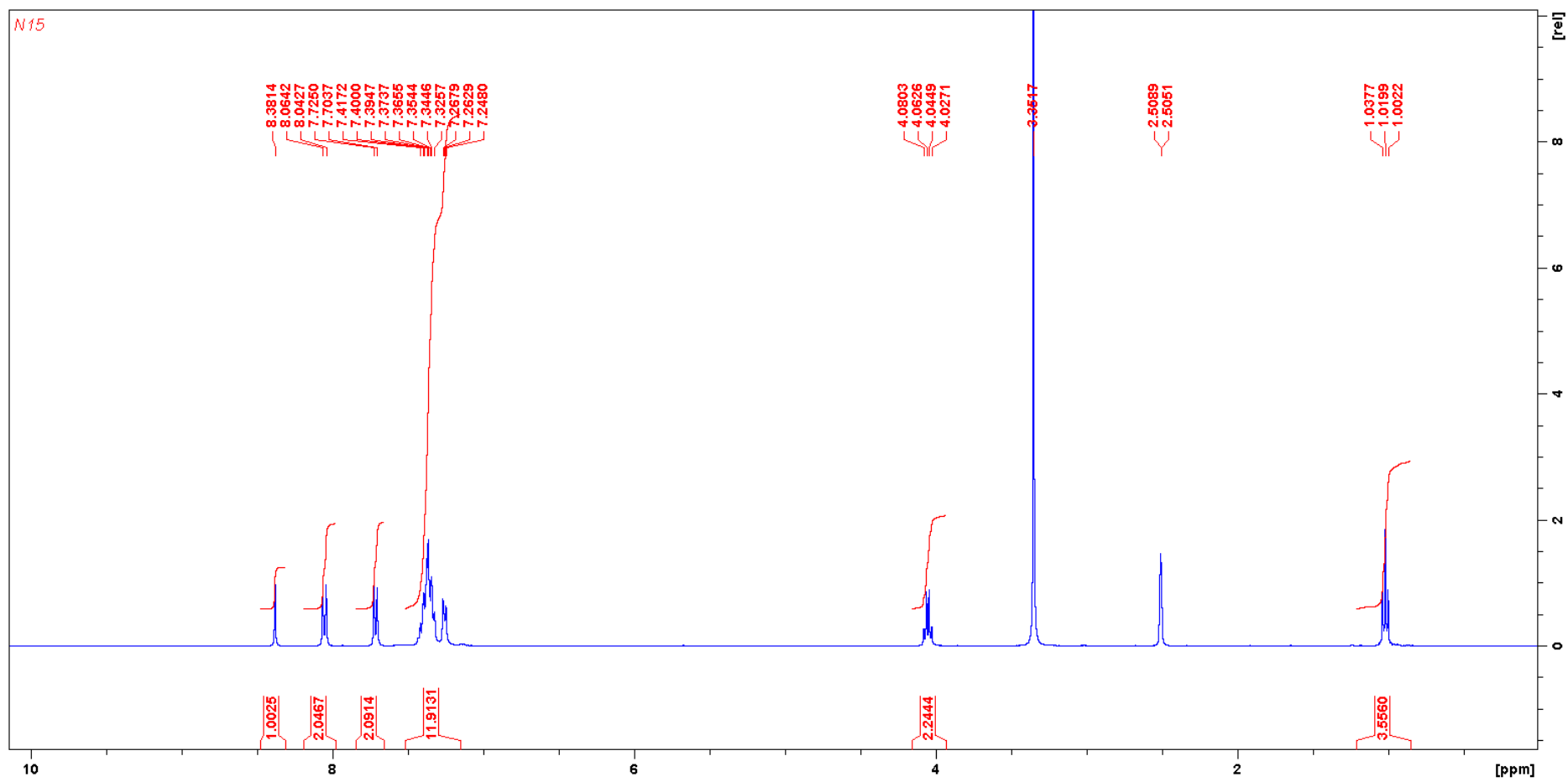


Figure 32. The ^1H NMR spectrum of compound **24b**.

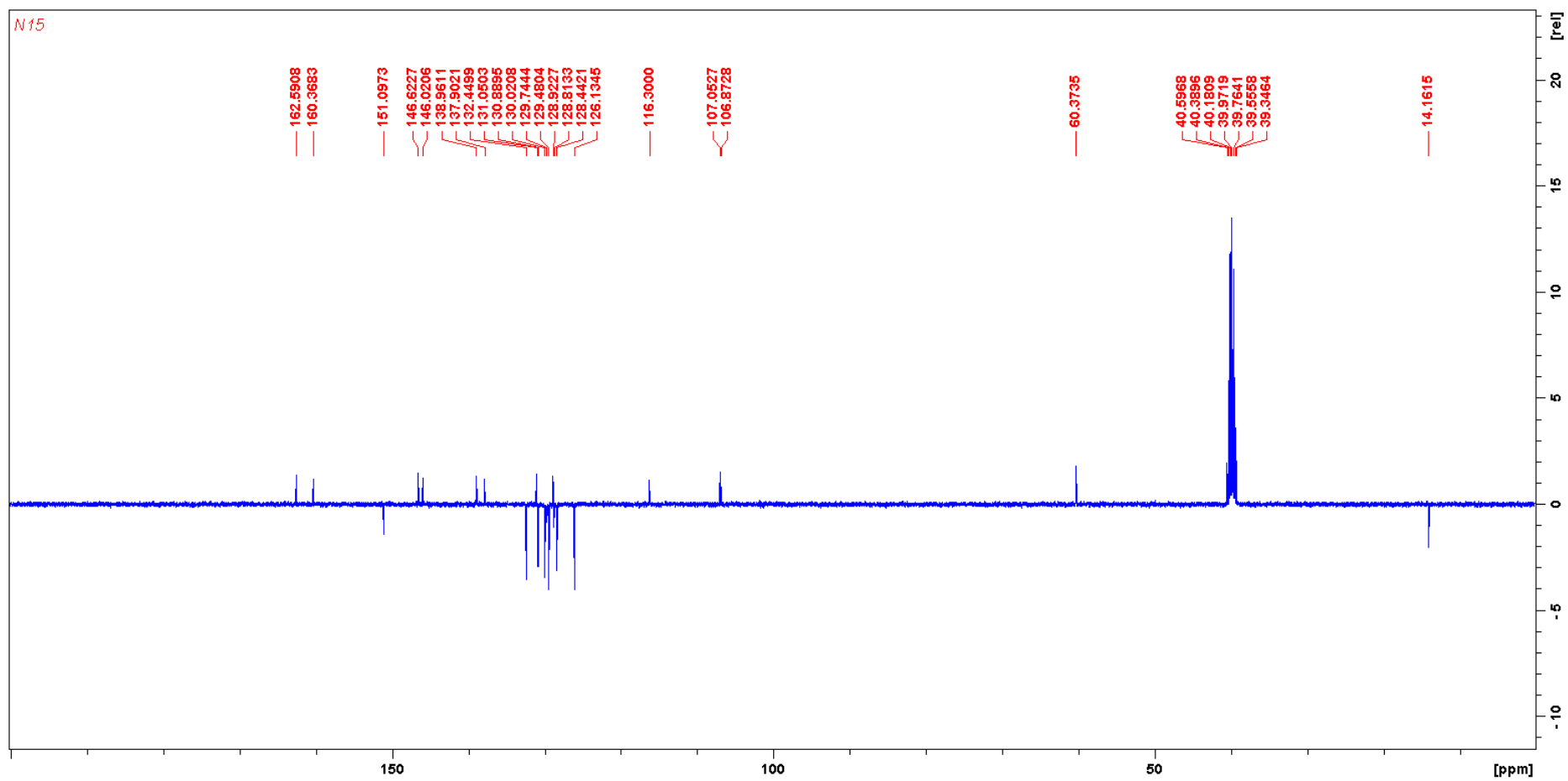


Figure 33. The ^{13}C NMR spectrum of compound **24b**