Supporting information

Oxygen Free Csp^3-H Oxidation of Pyridin-2-yl-methanes to Pyridin-2-yl-methanones with Water by Copper Catalysis

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4 Jiujiang Key Laboratory for the Development and Utilization of Traditional Chinese Medicine Resources in Northwest Jiangxi, Jiujiang 332005, China

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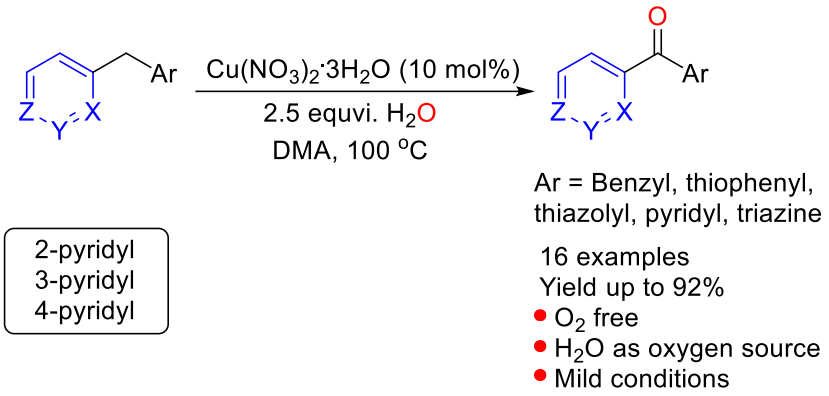


We describe an efficient copper catalyzed synthesis of pyridin-2-yl-methanones from pyridin-2-yl-methanes by direct Csp^3-H oxidation approach with water under mild conditions. Pyridin-2-yl-methanes with aromatic rings such as substituted benzene, thiophene, thiazole, pyridine, triazine, undergo the reaction well to obtain the corresponding products in moderate to good yields. Several controlled experiments are operated for the mechanism exploration, indicating that water participates in the oxidation process and it is the single oxygen source in this transformation. The current work provides a new sight for water involved oxidation reactions.

Contents

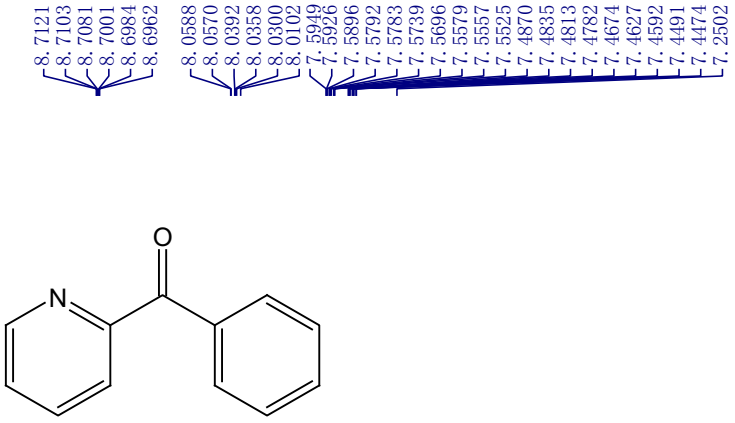
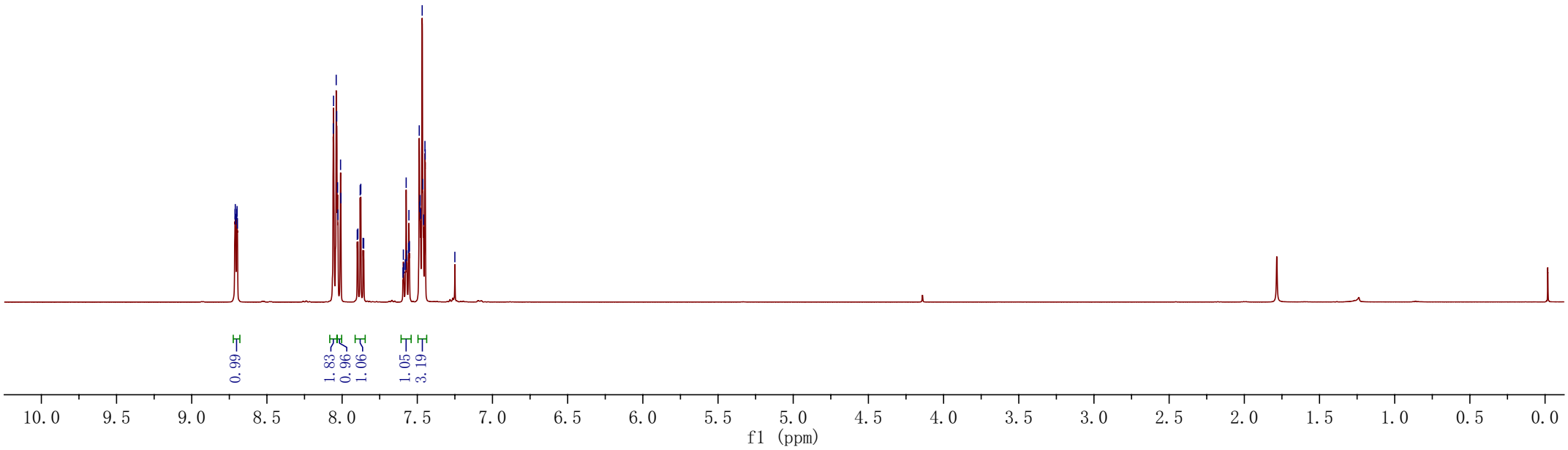


Figure S1. ^{1}H spectrum of **2a** in $CDCl_3$



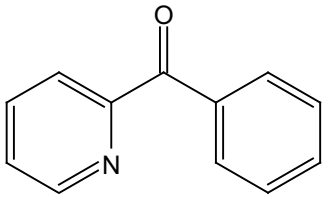
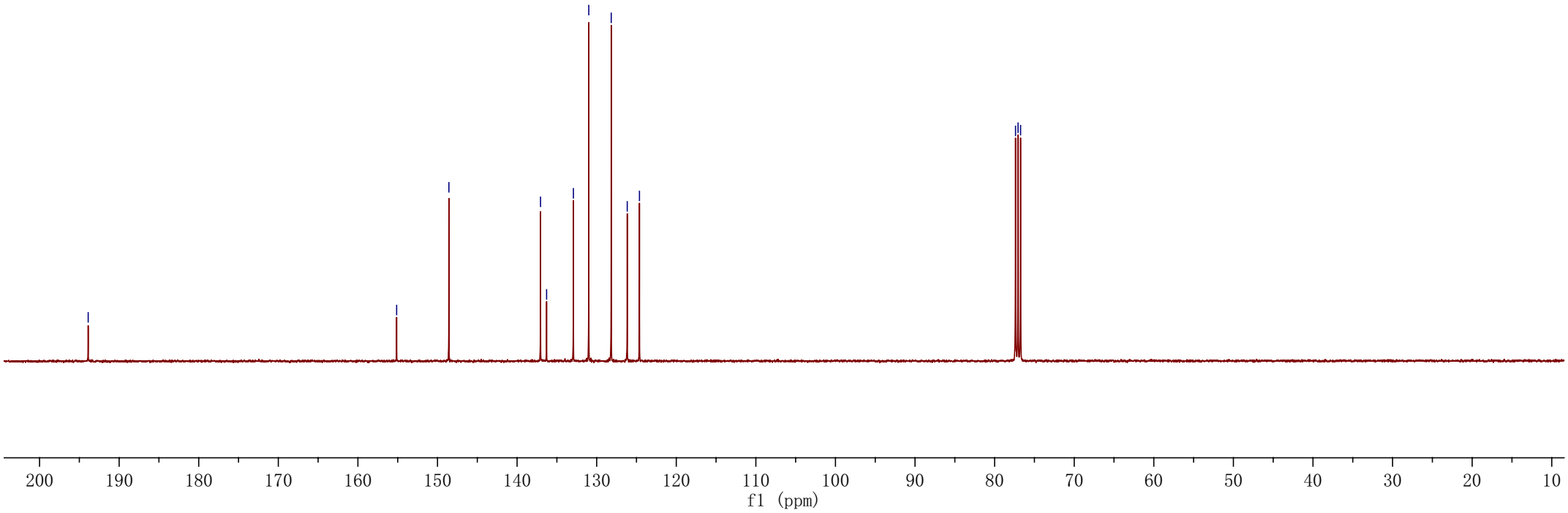


Figure S2. ^{13}C spectrum of **2a** in $CDCl_3$



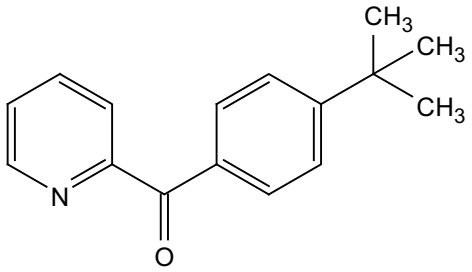


Figure S3. ^{1}H spectrum of **2b** in $CDCl_3$

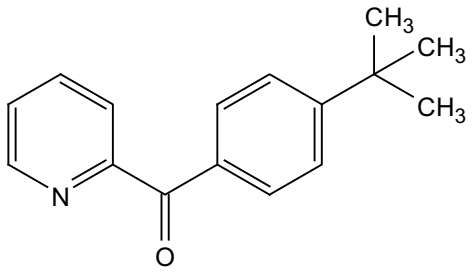


Figure S4. ^{13}C spectrum of **2b** in $CDCl_3$

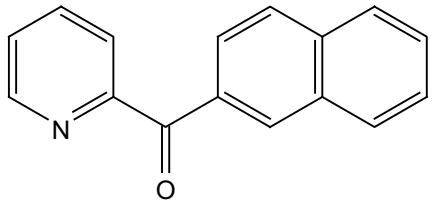


Figure S5. ^{1}H spectrum of **2c** in $CDCl_3$

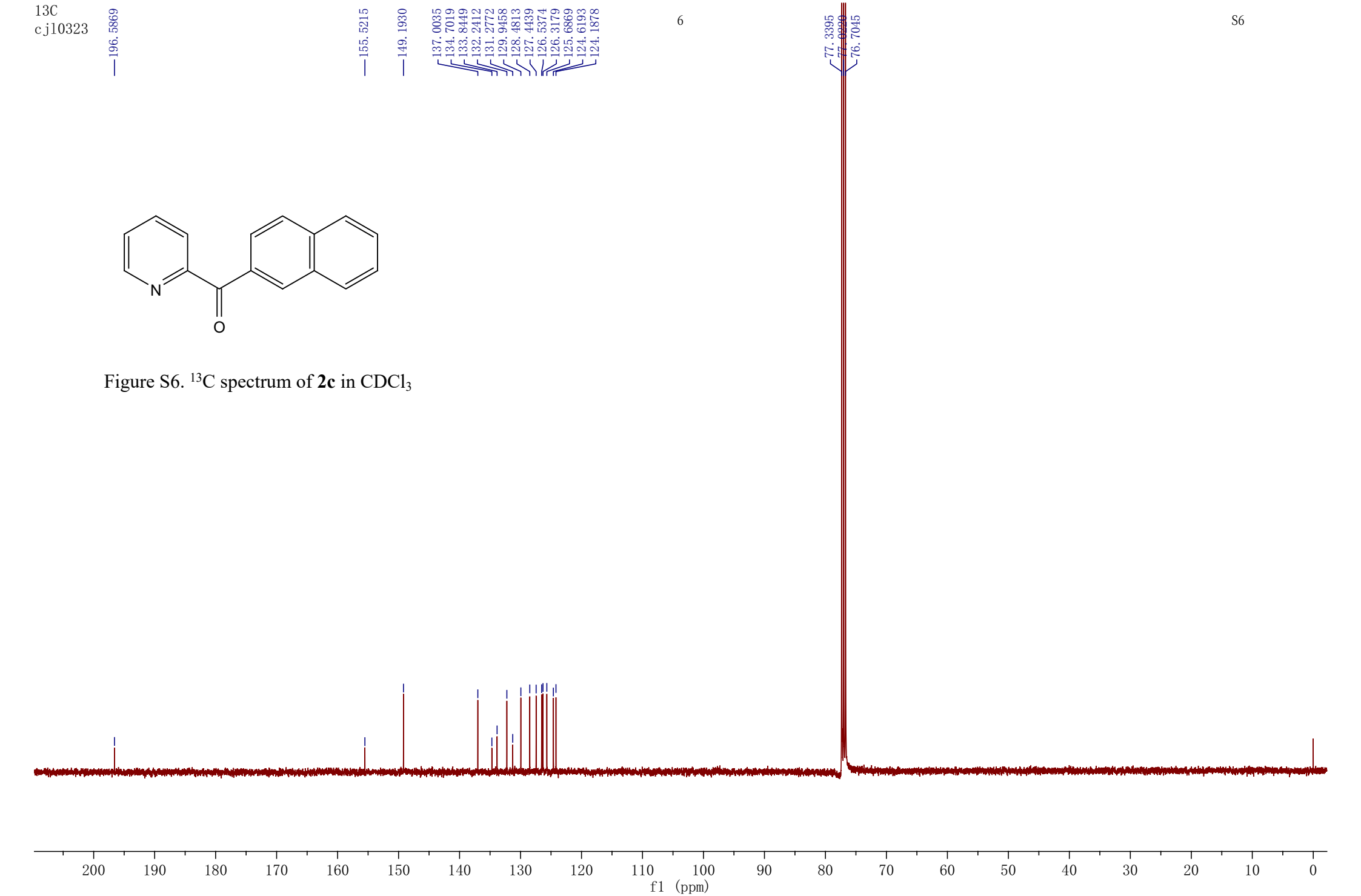


Figure S6. ^{13}C spectrum of **2c** in $CDCl_3$

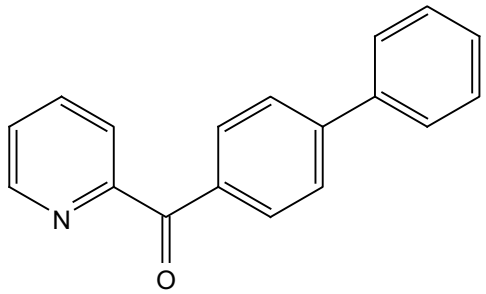
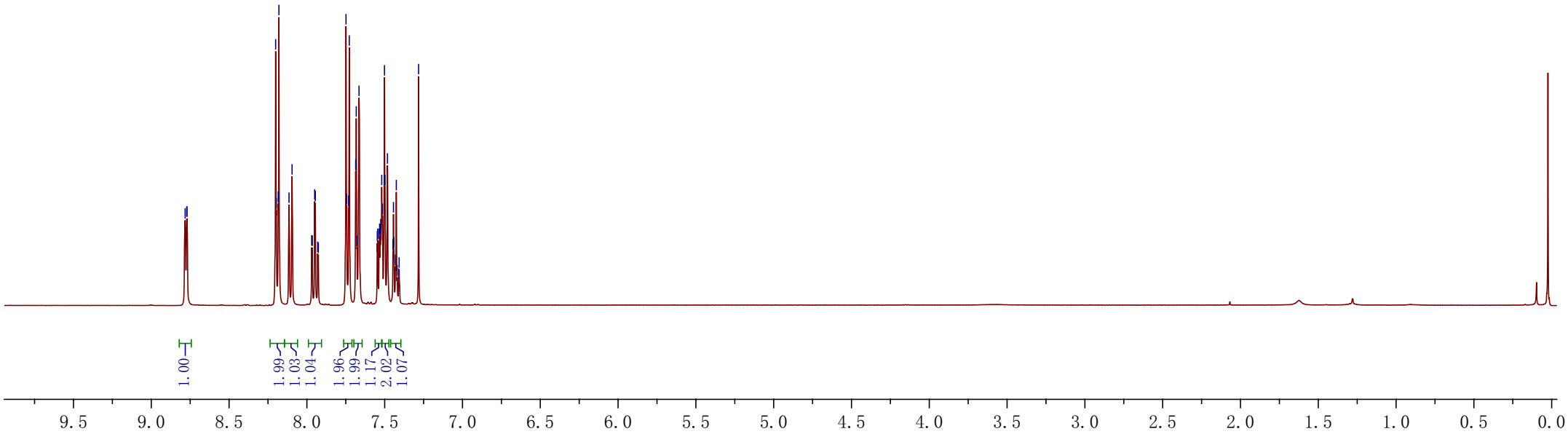


Figure S7. ^{1}H spectrum of **2d** in $CDCl_3$



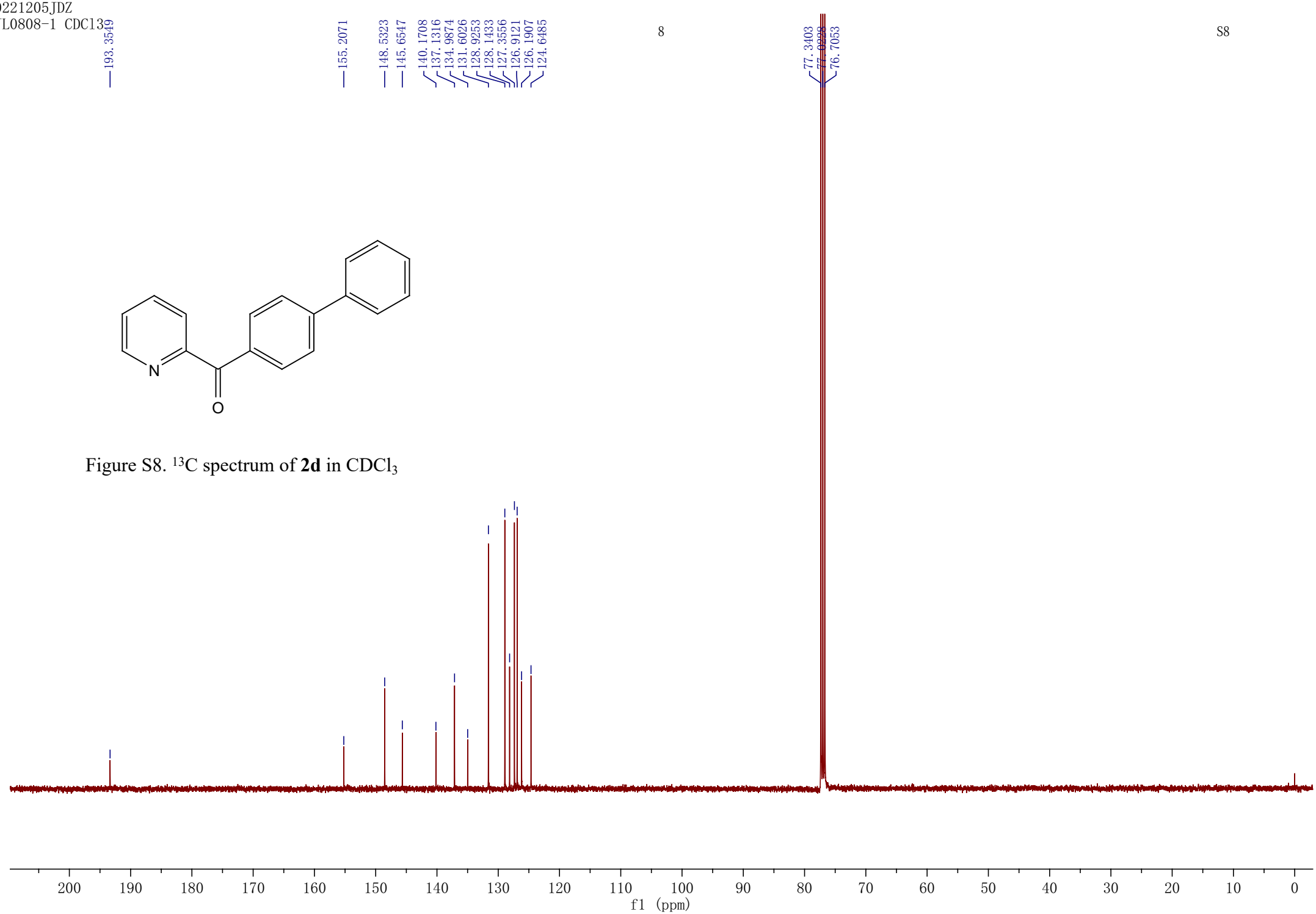
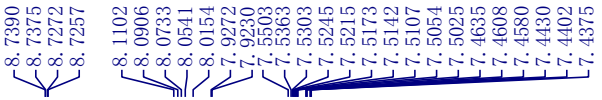


Figure S8. ^{13}C spectrum of **2d** in $CDCl_3$



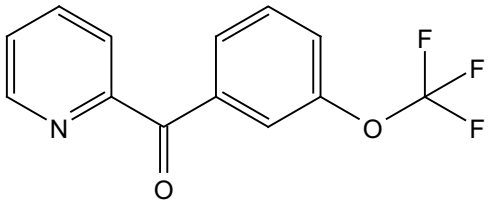
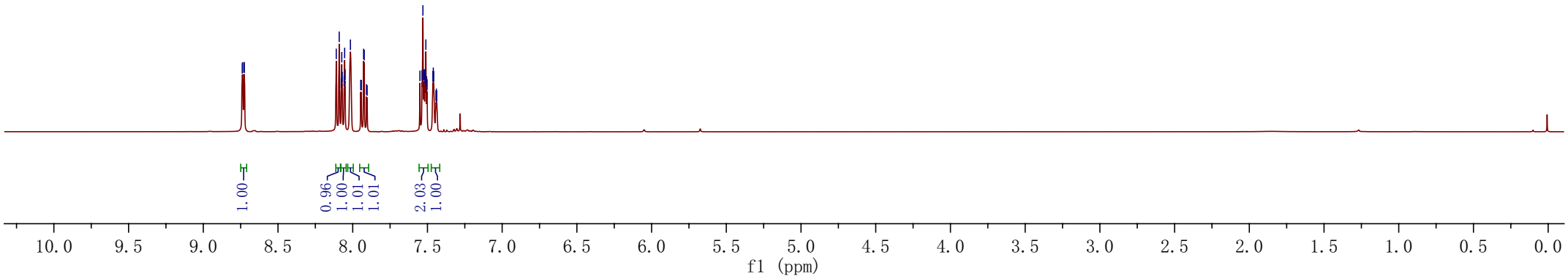


Figure S9. ^{1}H spectrum of **2e** in $CDCl_3$



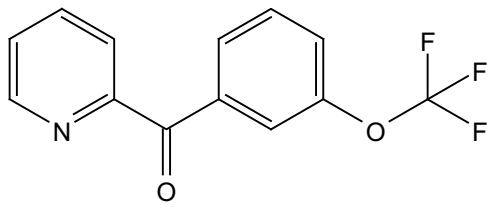
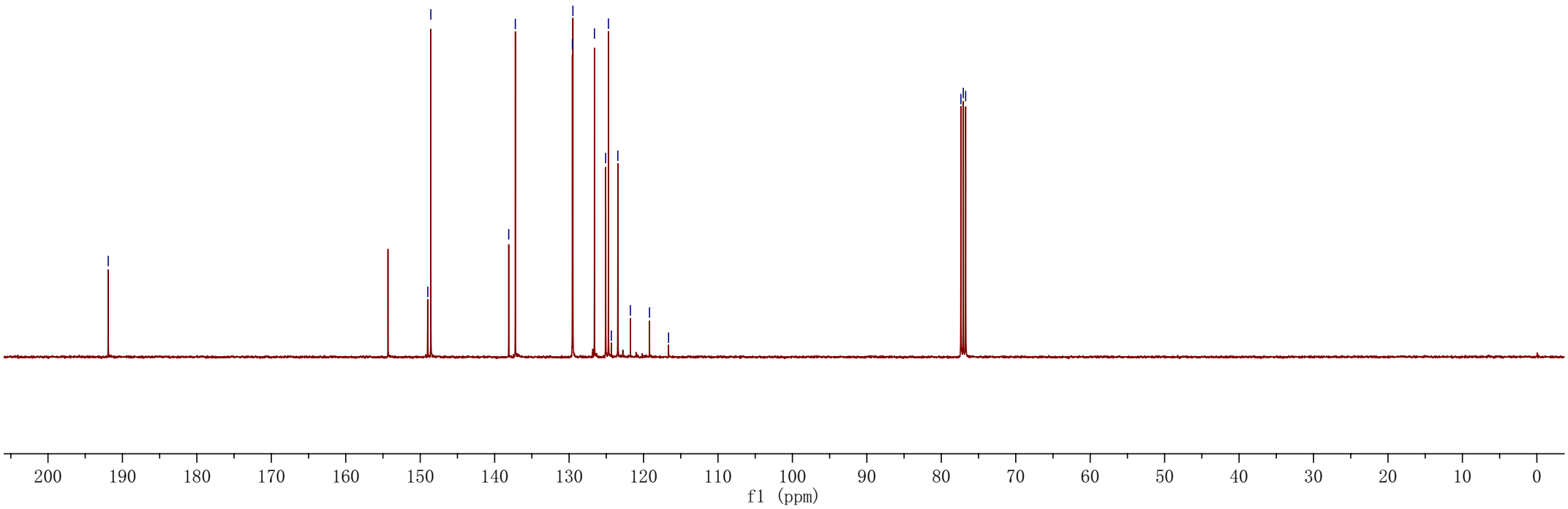


Figure S10. ^{13}C spectrum of **2e** in $CDCl_3$



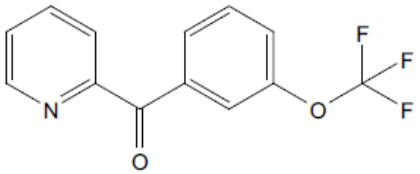
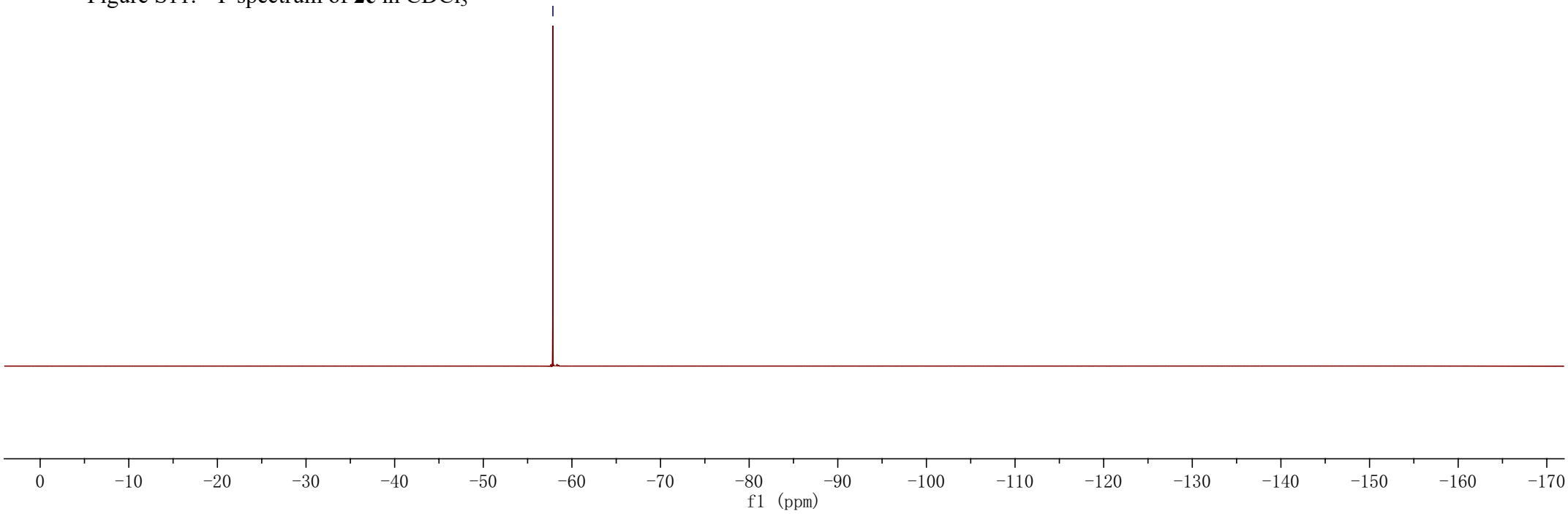
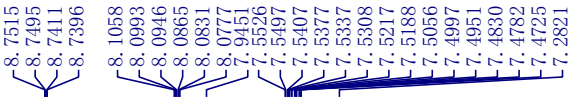


Figure S11. ^{19}F spectrum of **2e** in $CDCl_3$





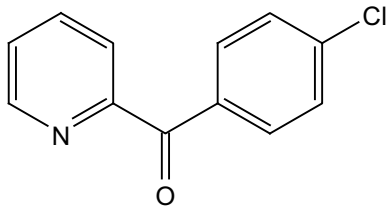
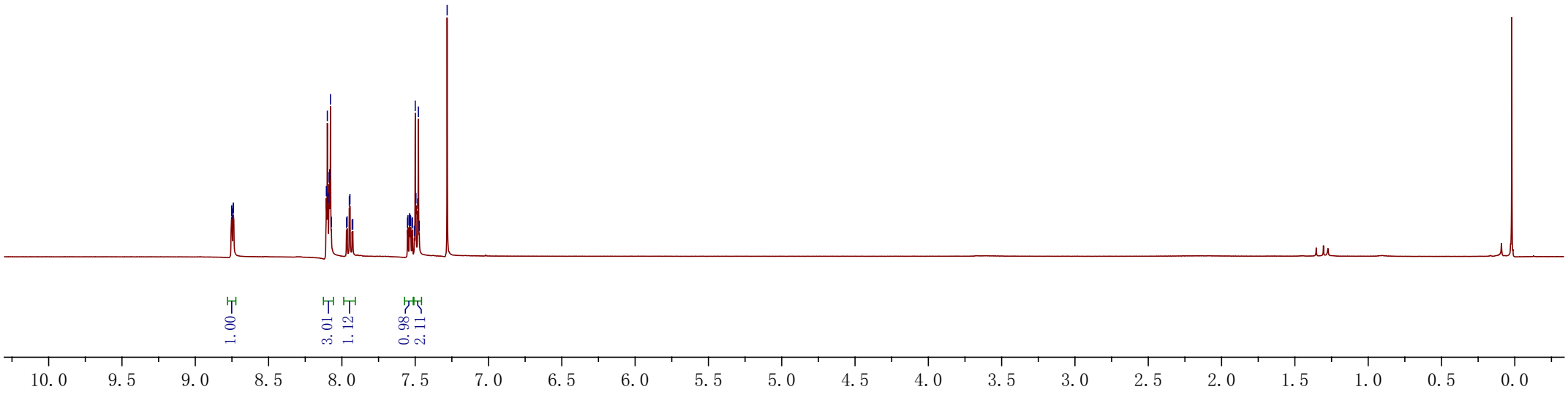


Figure S12. ^{1}H spectrum of **2f** in $CDCl_3$



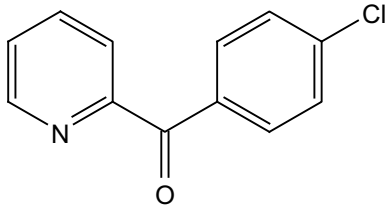


Figure S13. ^{13}C spectrum of **2f** in $CDCl_3$

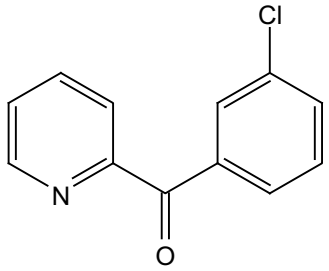
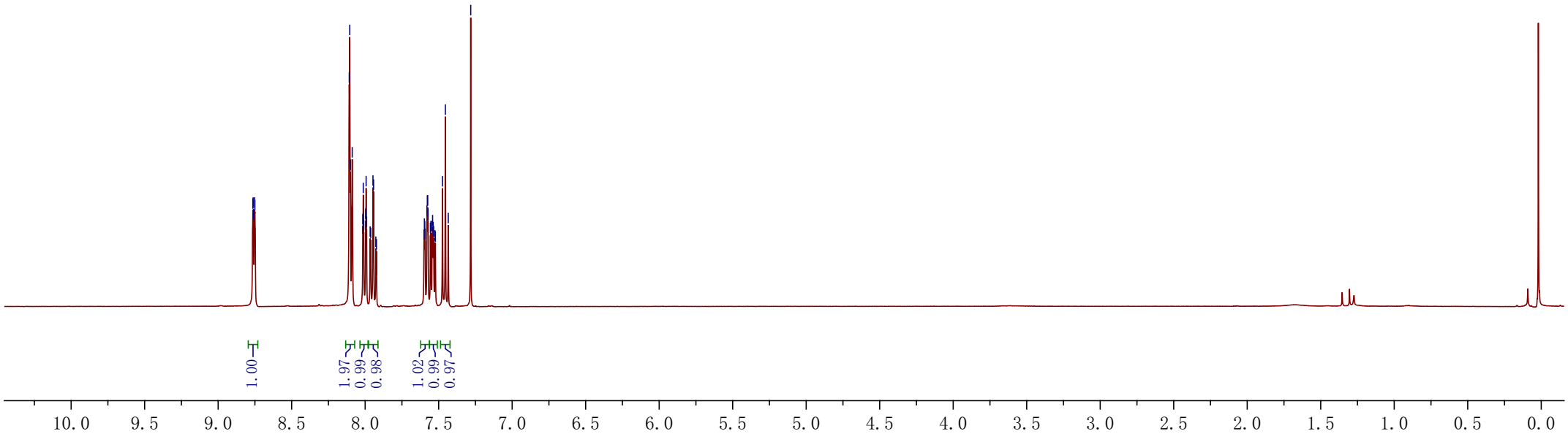


Figure S14. ^{1}H spectrum of **2g** in $CDCl_3$



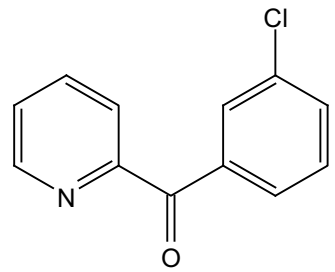
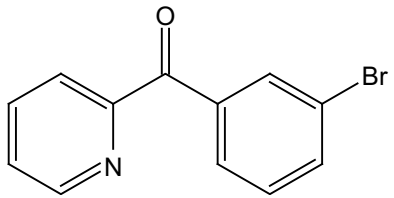


Figure S15. ^{13}C spectrum of **2g** in $CDCl_3$



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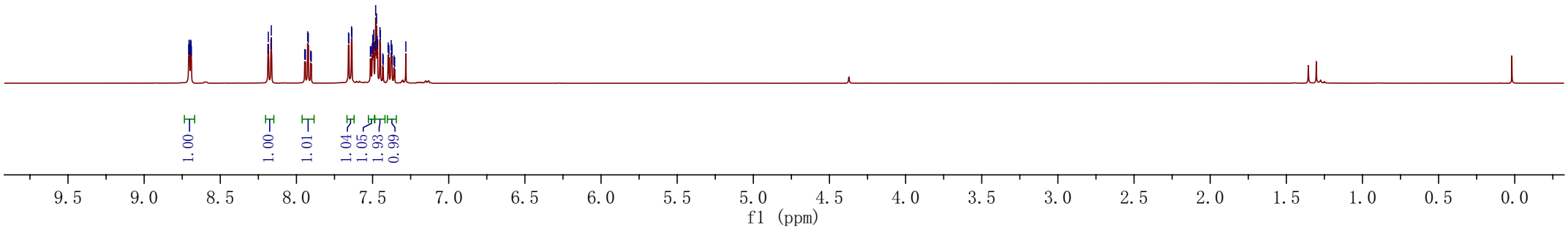

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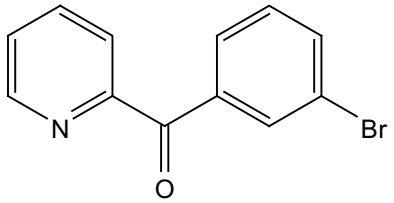

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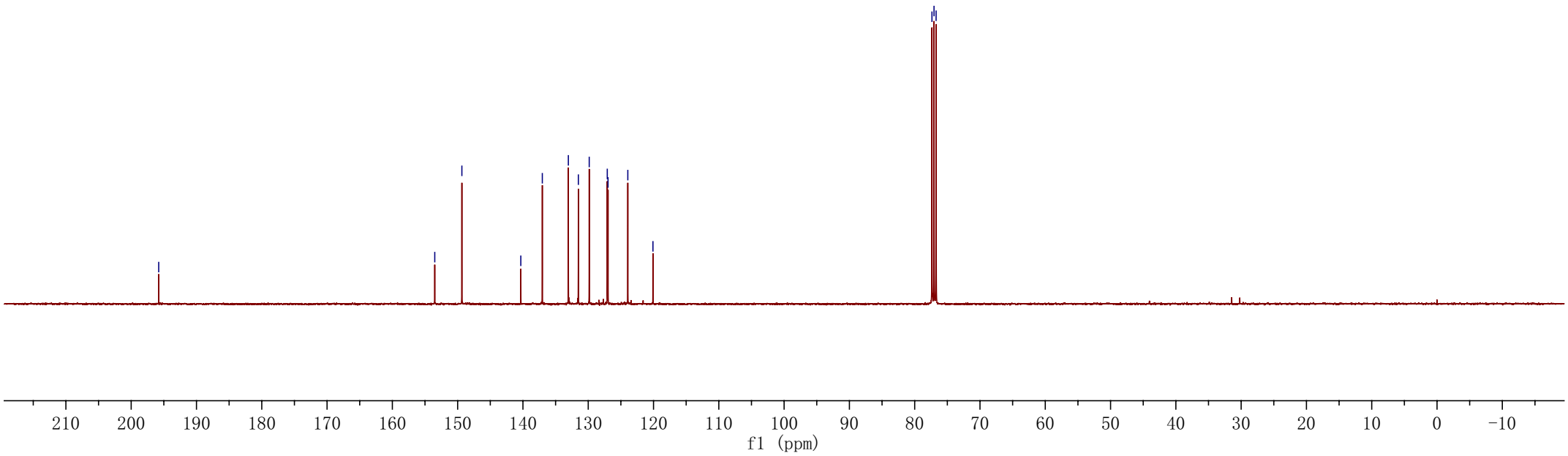


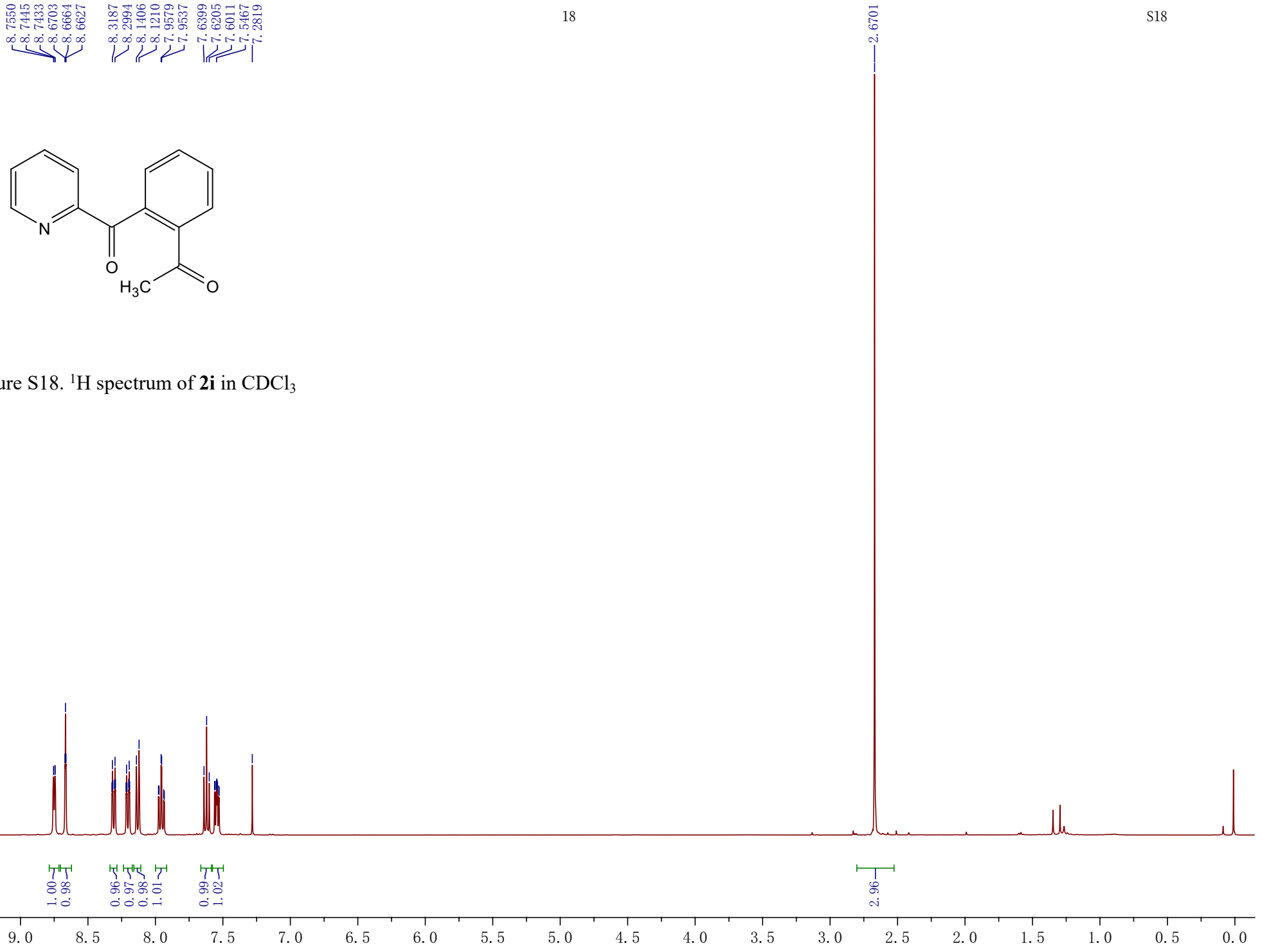


Figure S18. ^{1}H spectrum of **2i** in $CDCl_3$

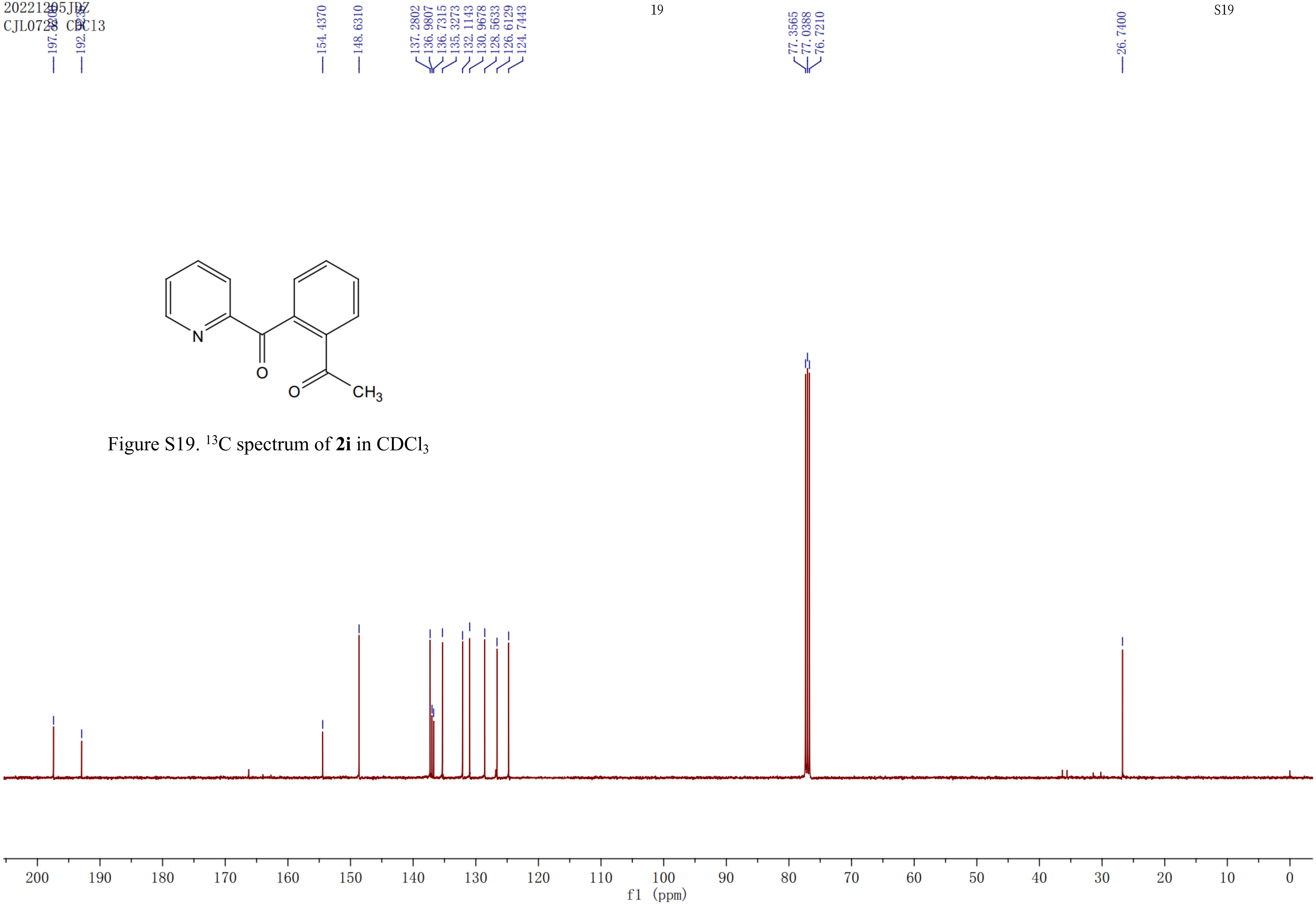


Figure S19. ^{13}C spectrum of **2i** in $CDCl_3$

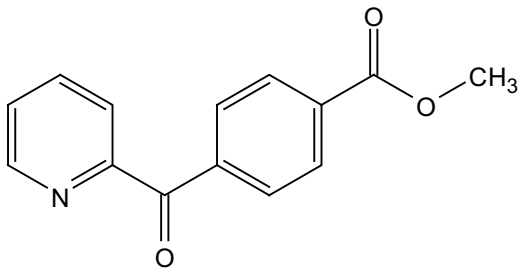
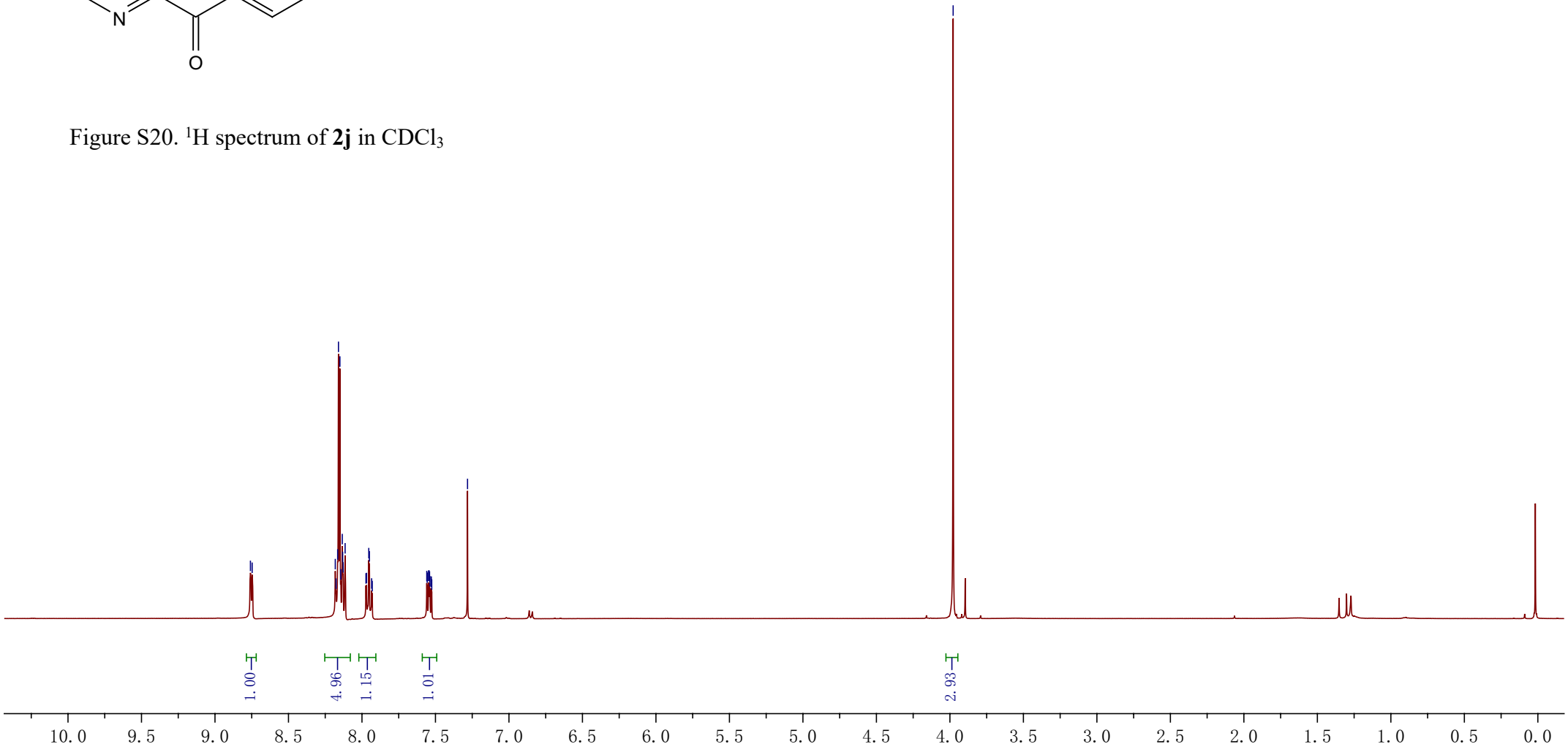
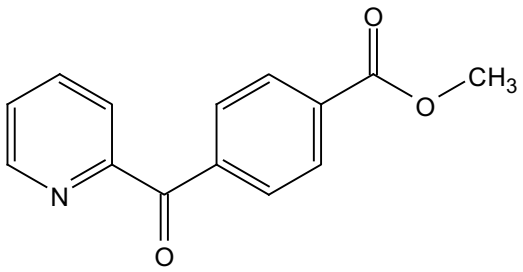


Figure S20. ^{1}H spectrum of **2j** in $CDCl_3$





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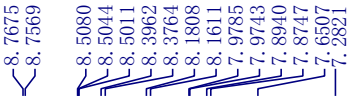

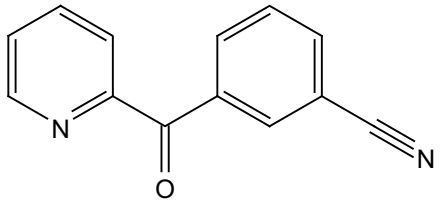

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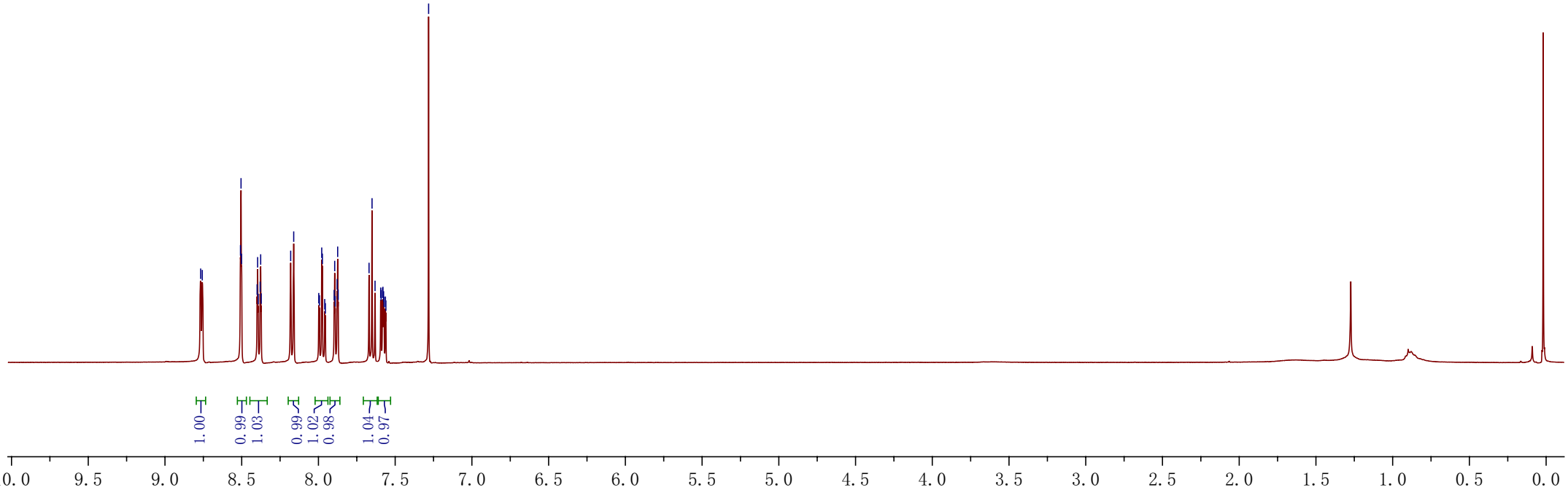

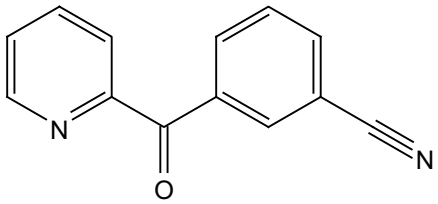

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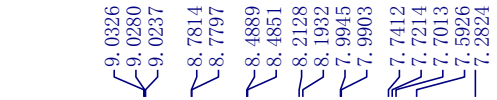

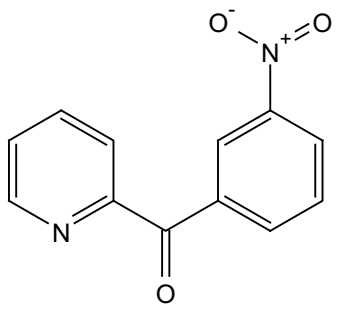

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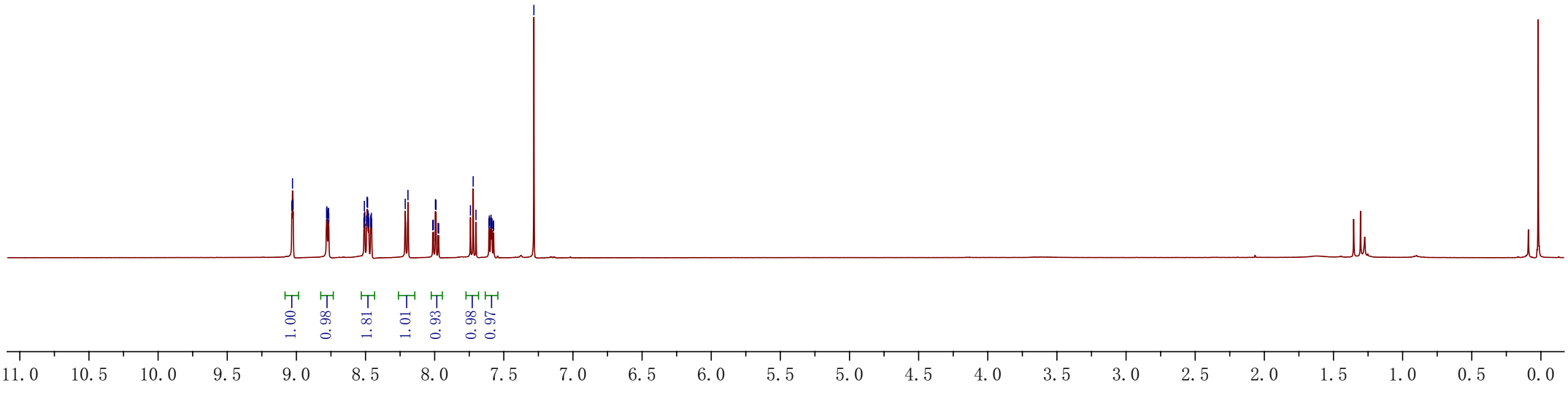


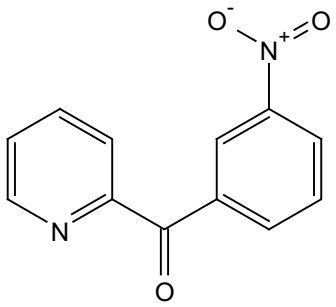
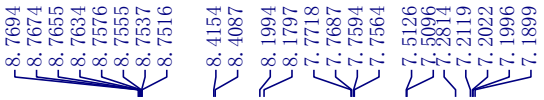
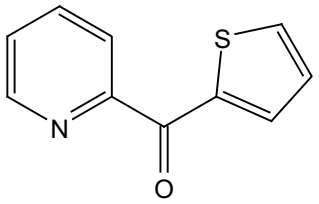


Figure S25. ^{13}C spectrum of **21** in $CDCl_3$





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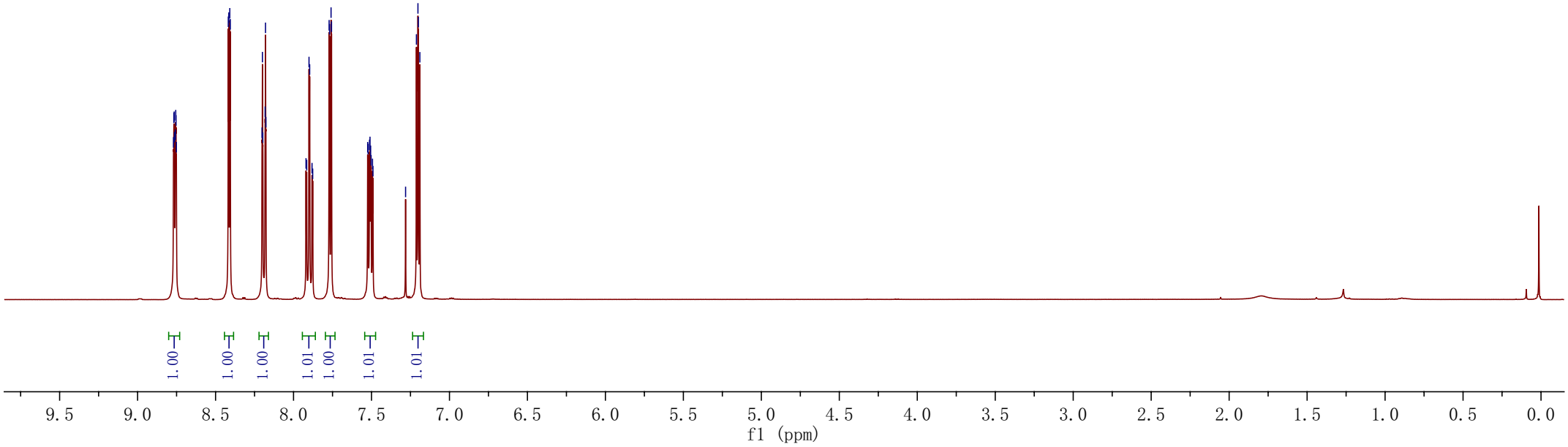


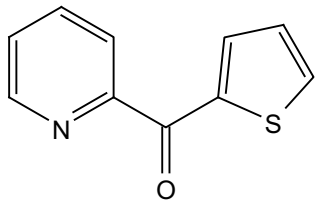
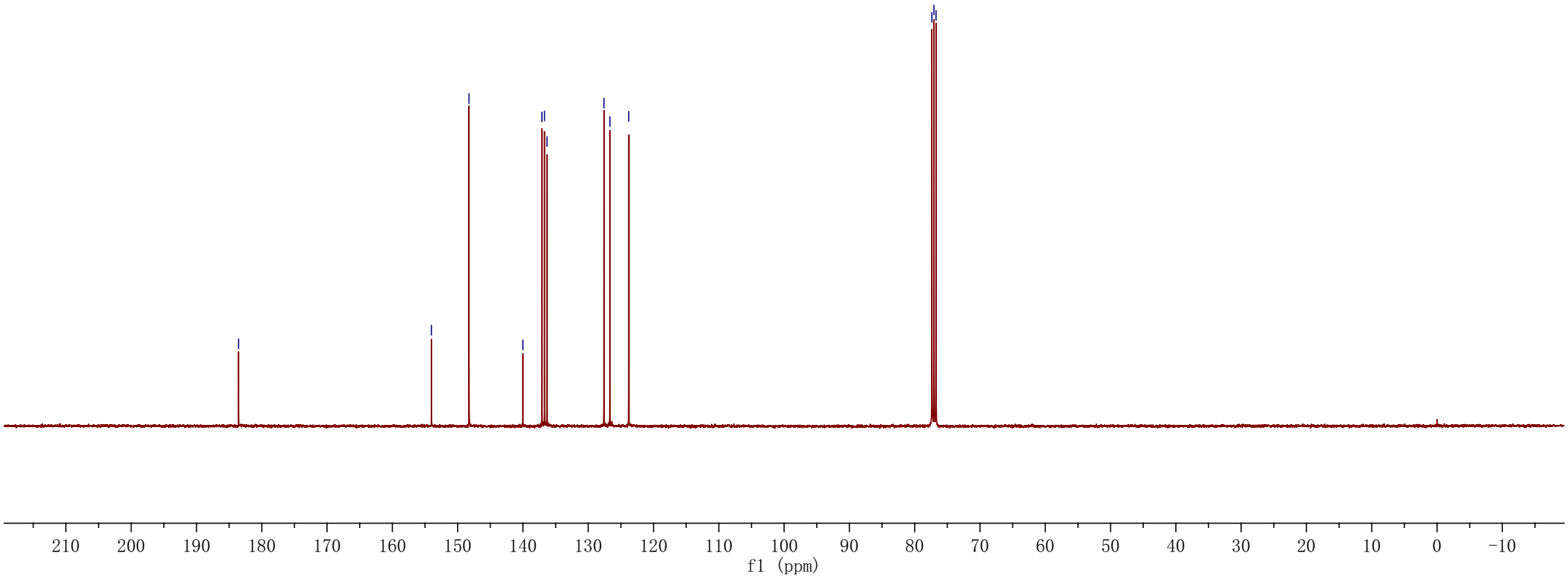


Figure S27. ^{13}C spectrum of **2m** in $CDCl_3$



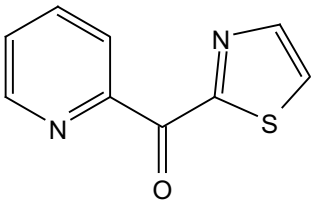
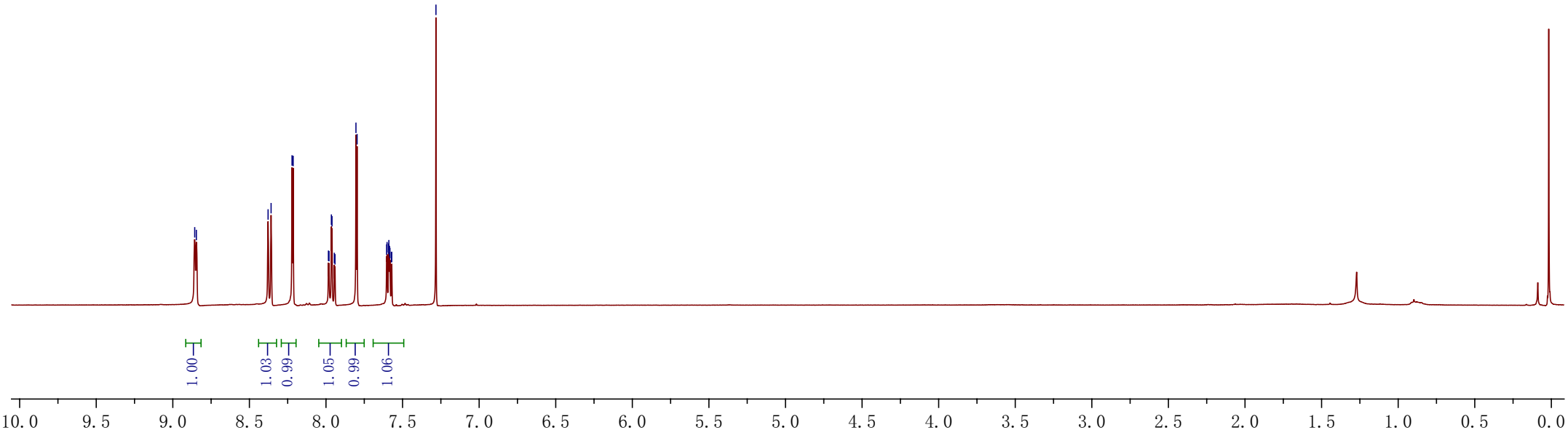


Figure S28. ^{1}H spectrum of **2n** in $CDCl_3$



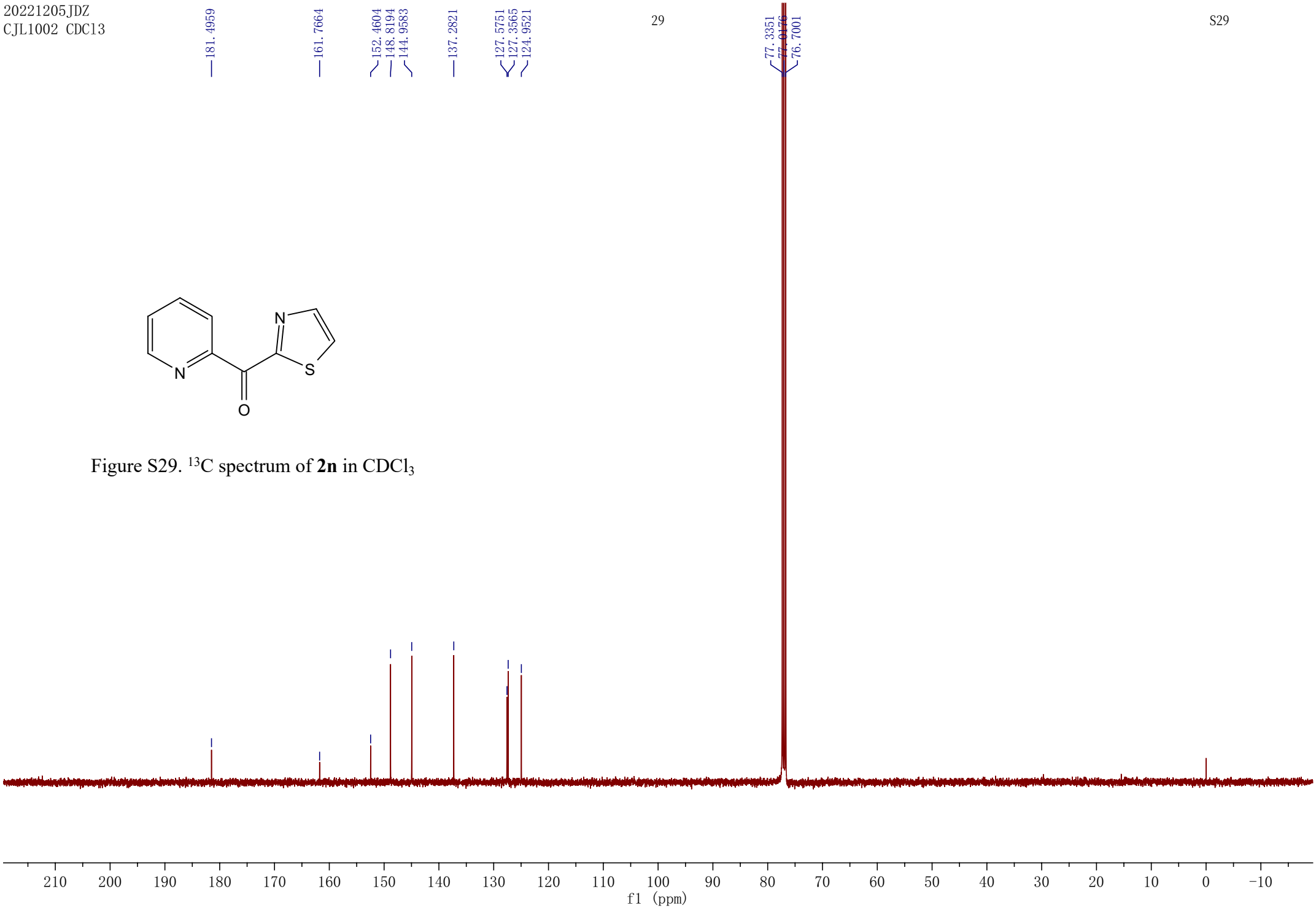
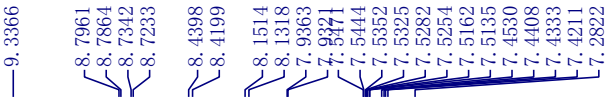


Figure S29. ^{13}C spectrum of **2n** in $CDCl_3$



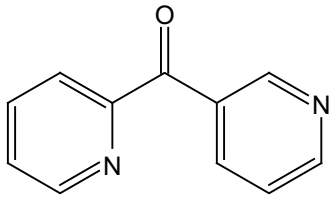
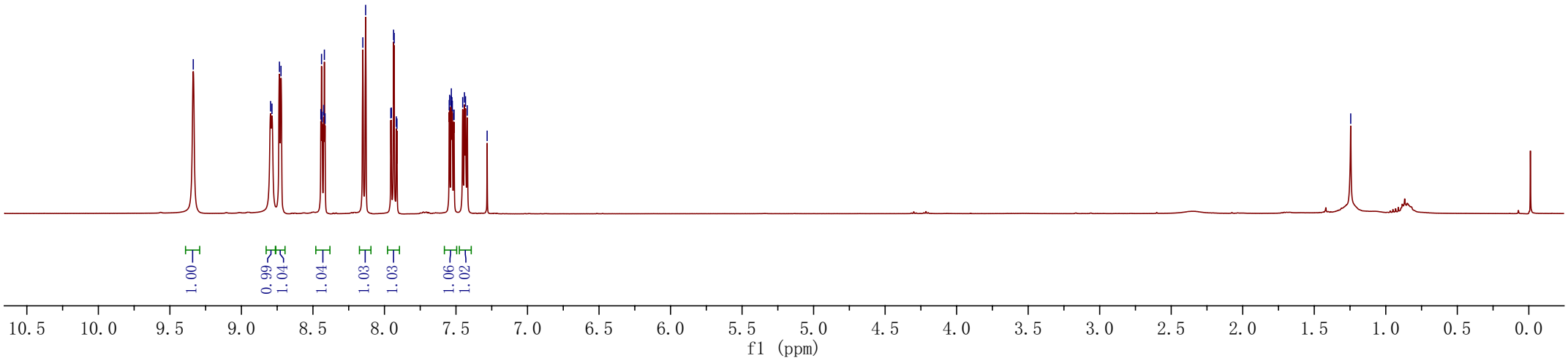


Figure S30. ^{1}H spectrum of **2o** in $CDCl_3$



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77.3847
77.0668
76.7490

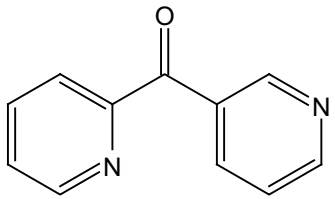
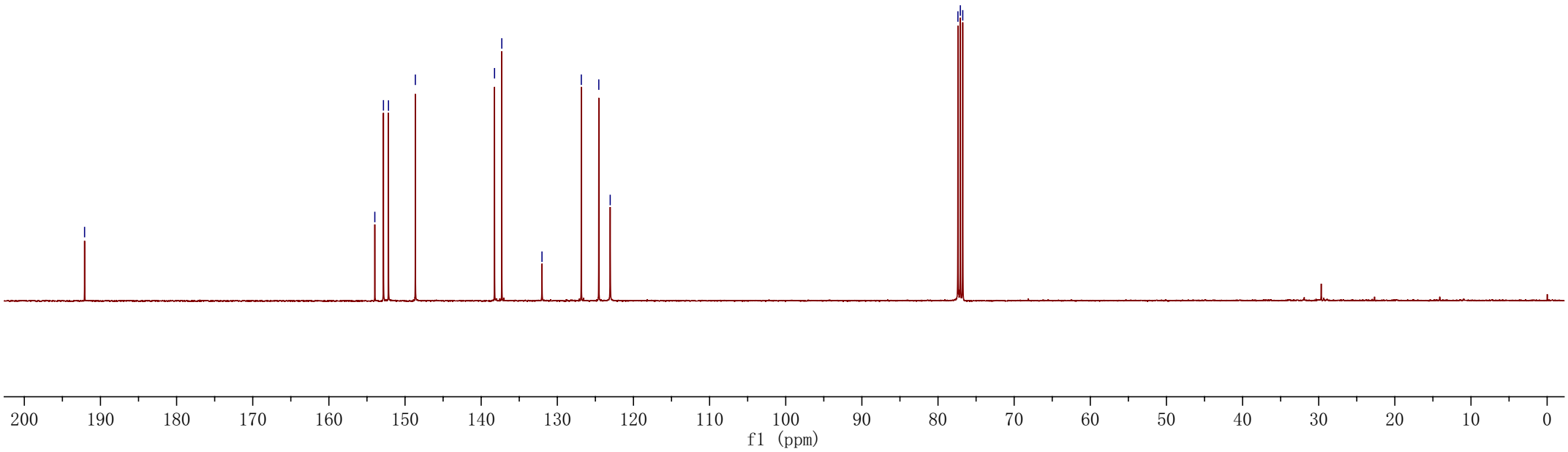
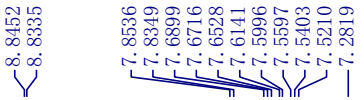


Figure S31. ^{1}H spectrum of **2o** in $CDCl_3$





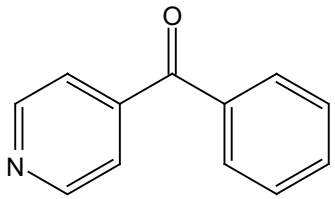
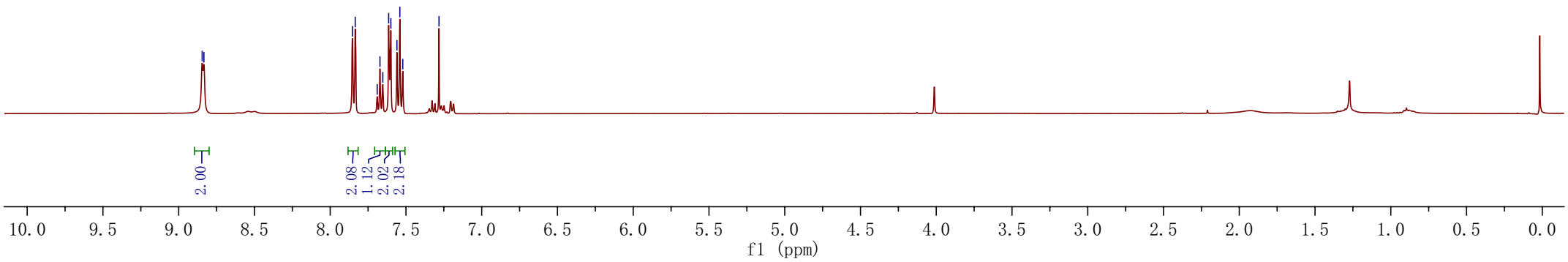


Figure S32. ^{1}H spectrum of **2p** in $CDCl_3$



195.1838
150.3717
144.4062
135.9193
133.5538
130.1535
128.8684
128.6718
122.8942
77.3428
77.0252
76.7077

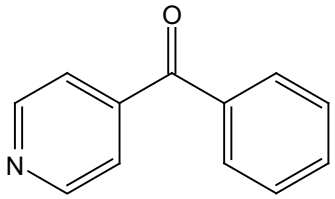


Figure S33. ^{13}C spectrum of **2p** in $CDCl_3$

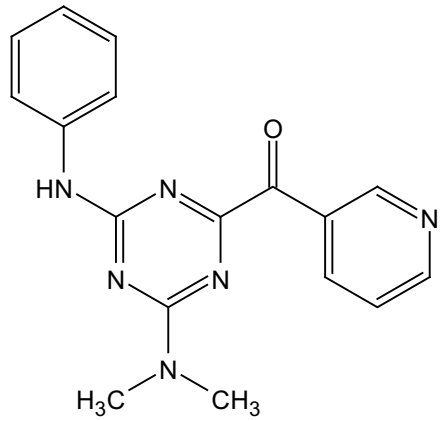
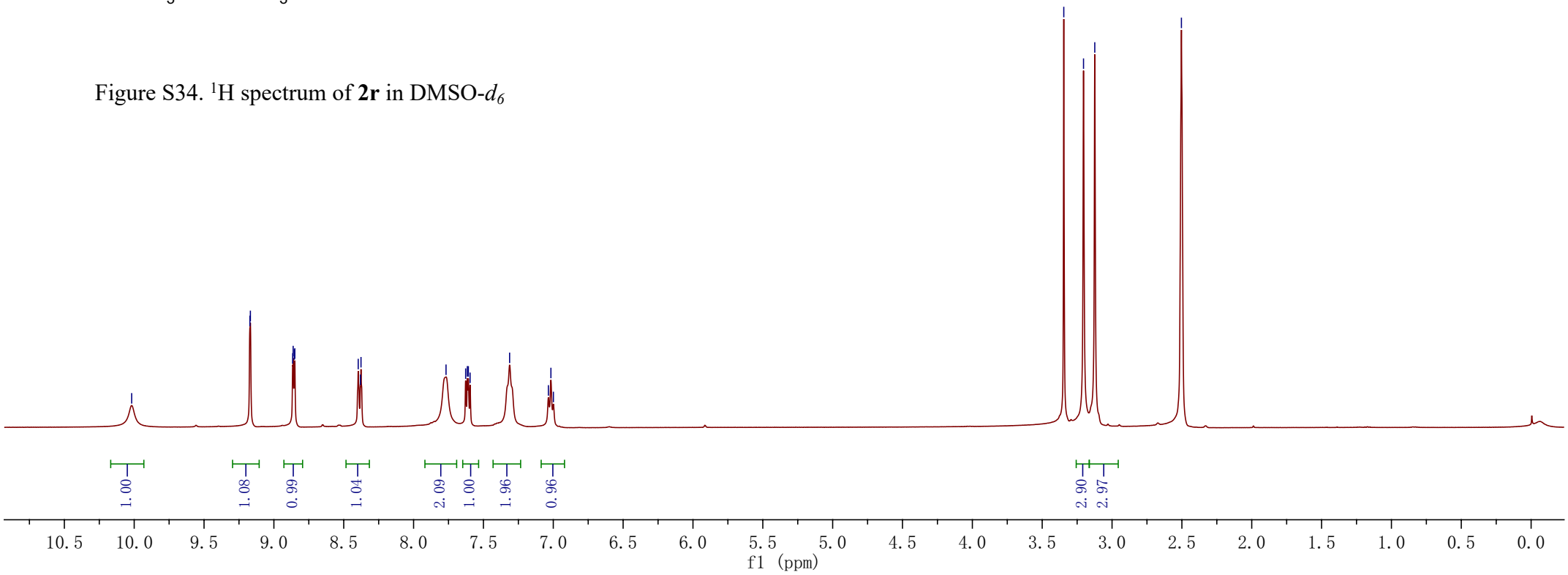


Figure S34. ^{1}H spectrum of **2r** in DMSO-d_6



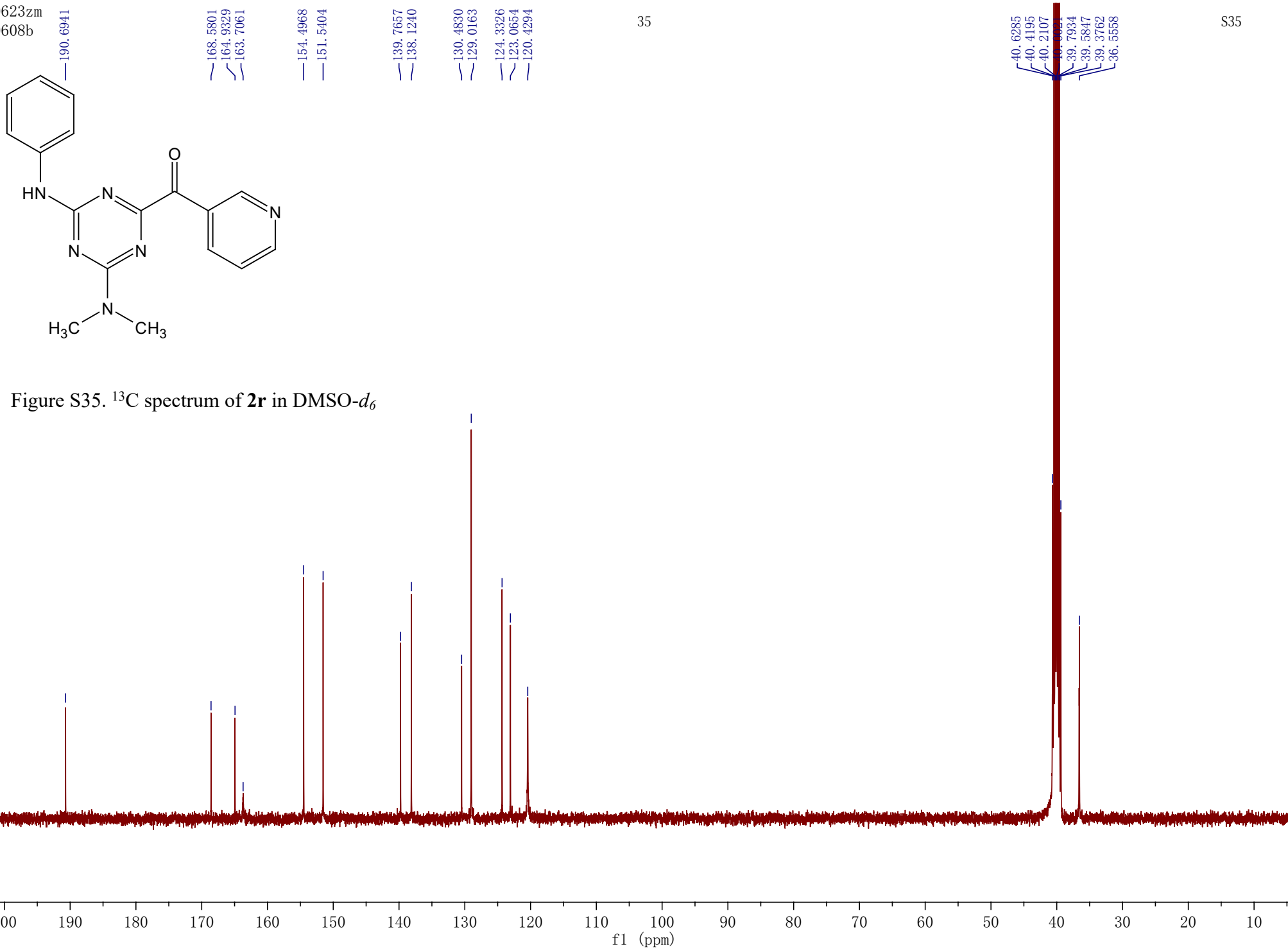


Figure S35. ^{13}C spectrum of **2r** in DMSO-d_6