Supplementary Information

Copper-Catalyzed Annulation of Heteroaromatic *β*-Halo-*α*,*β*-unsaturated Carboxylic Acids with Alkynes for the Synthesis of Indolo[2,3-*c*]pyrane-1-ones and Thieno[2,3-*c*]pyrane-7-ones

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1. **^{1}H and ^{13}C NMR Spectra of Starting Materials 1c-g**

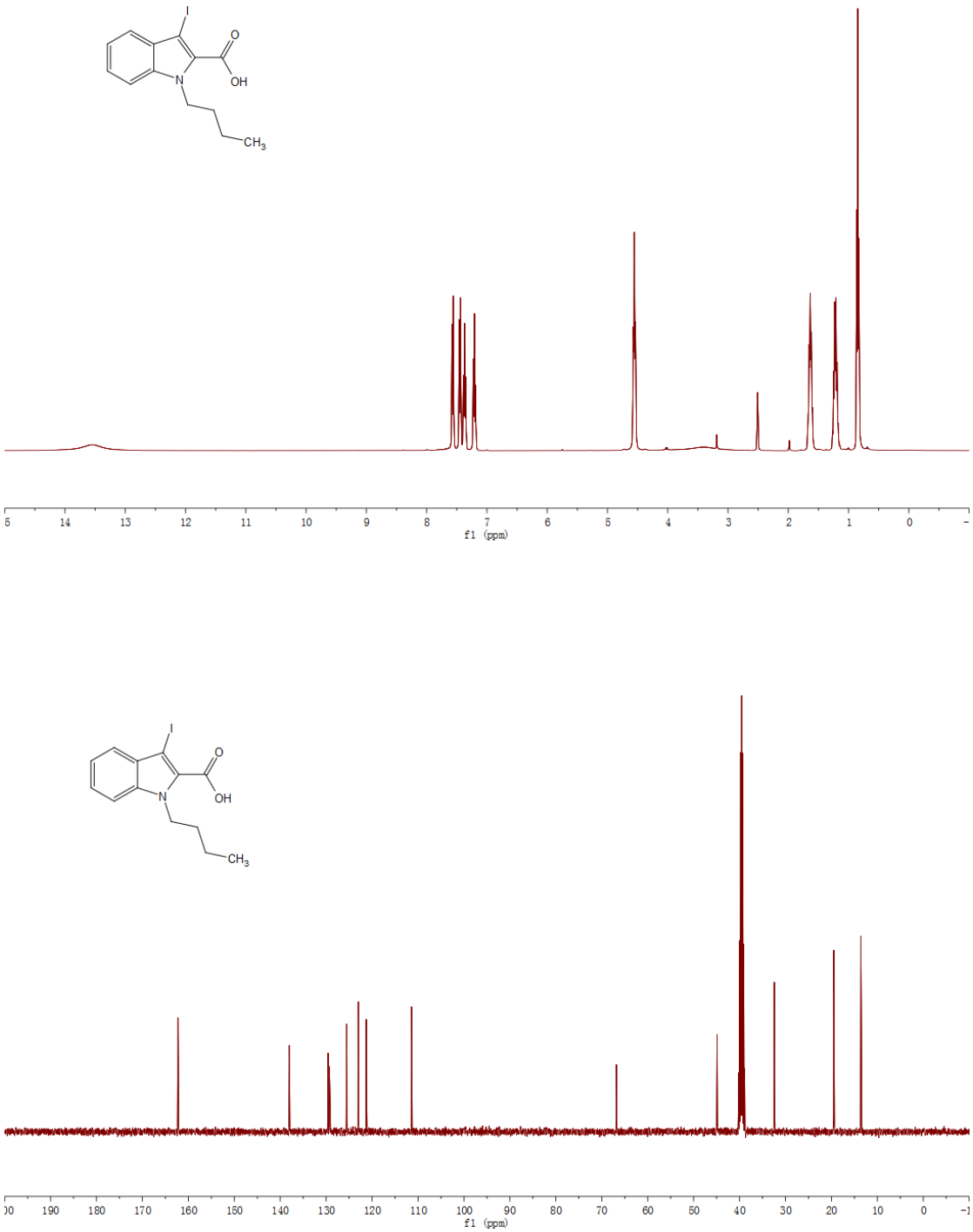


Figure 1. ^{1}H and ^{13}C NMR spectra of starting material **1c** in DMSO-d_6

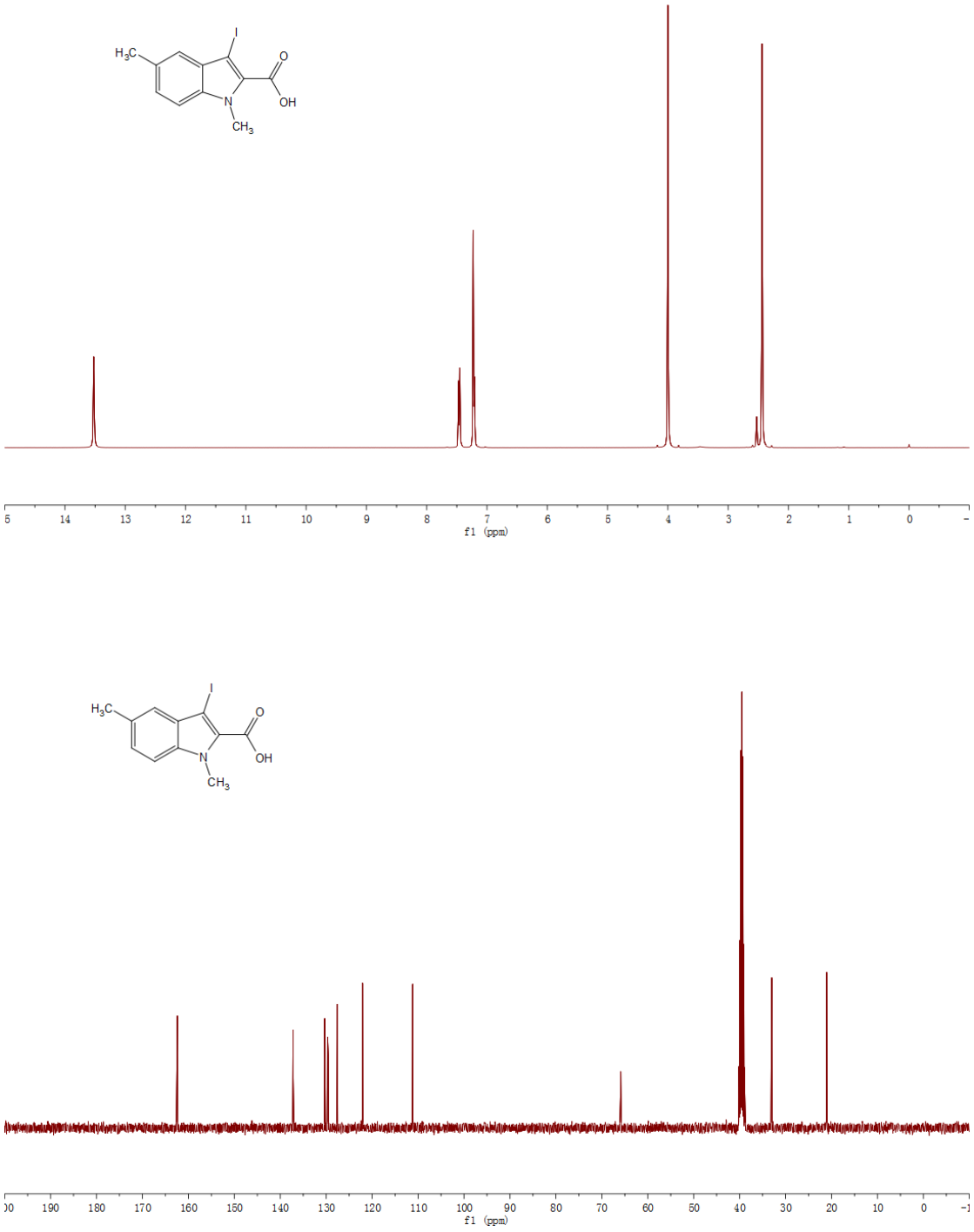


Figure 2. ^{1}H and ^{13}C NMR spectra of starting material **1e** in DMSO-d_6

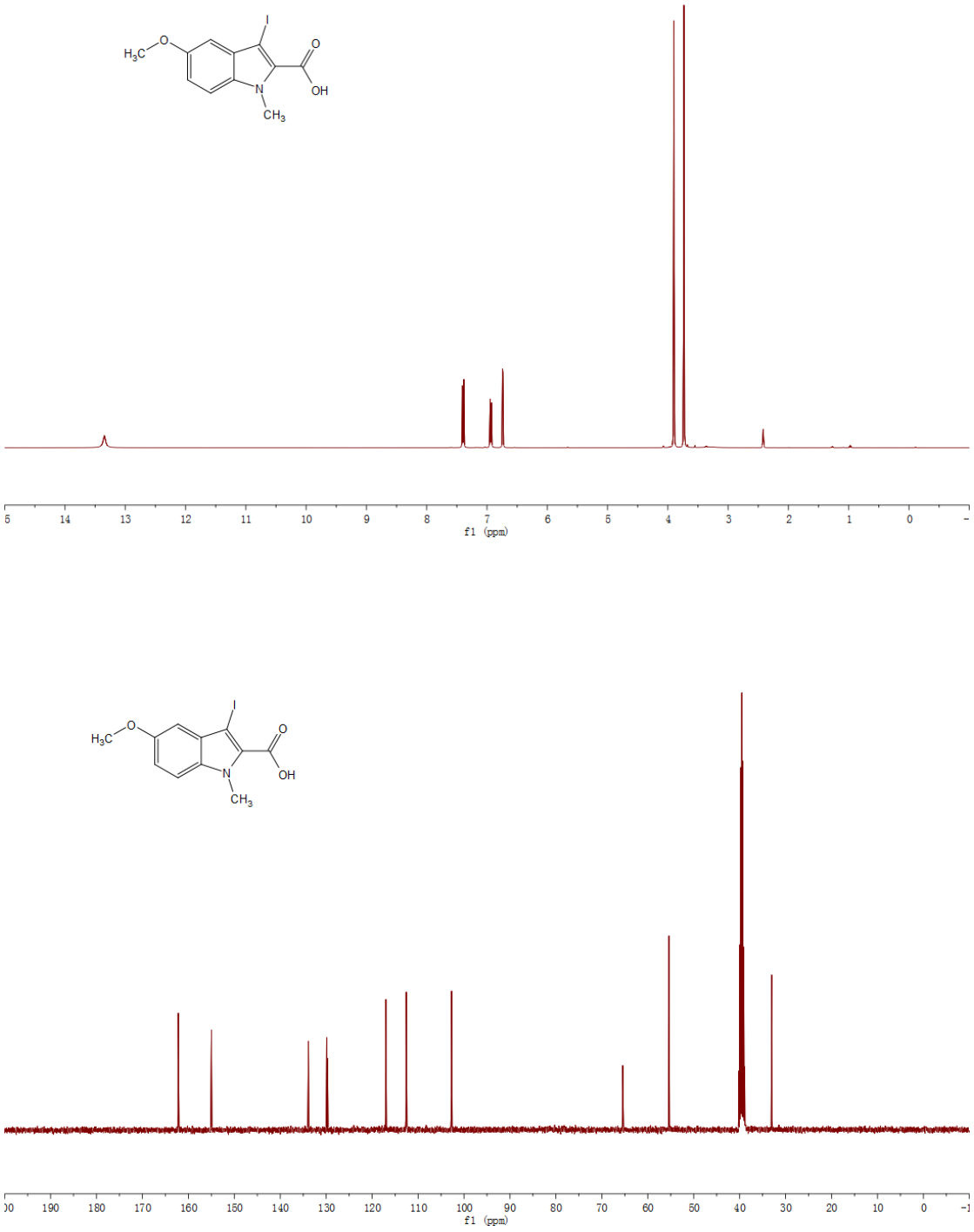


Figure 3. ^{1}H and ^{13}C NMR spectra of starting material **1f** in DMSO-d_6

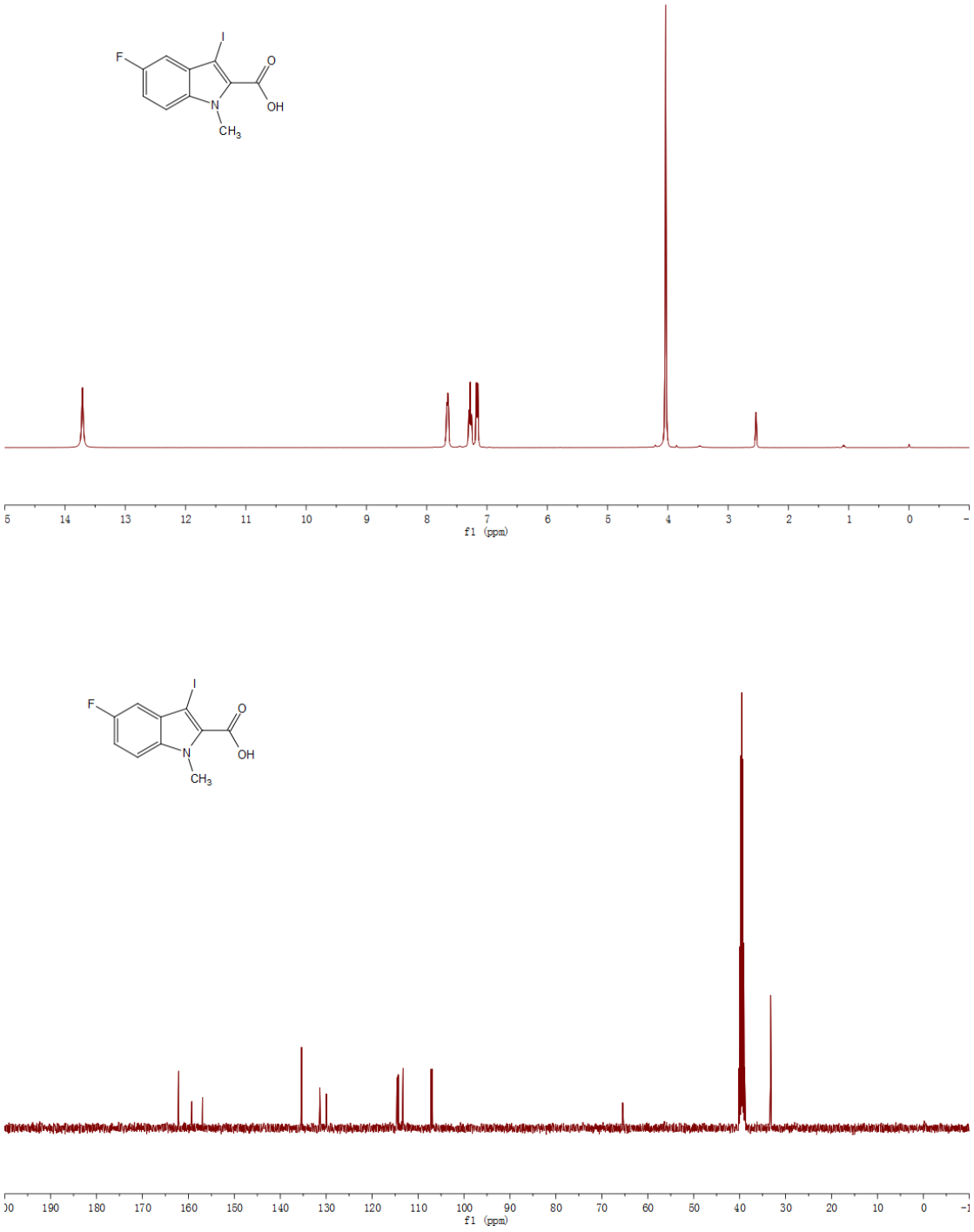


Figure 4. ^{1}H and ^{13}C NMR spectra of starting material **1g** in DMSO-d_6

2. ^{1}H and ^{13}C NMR Spectra of Compounds 3aa-ia, 3ab-ag

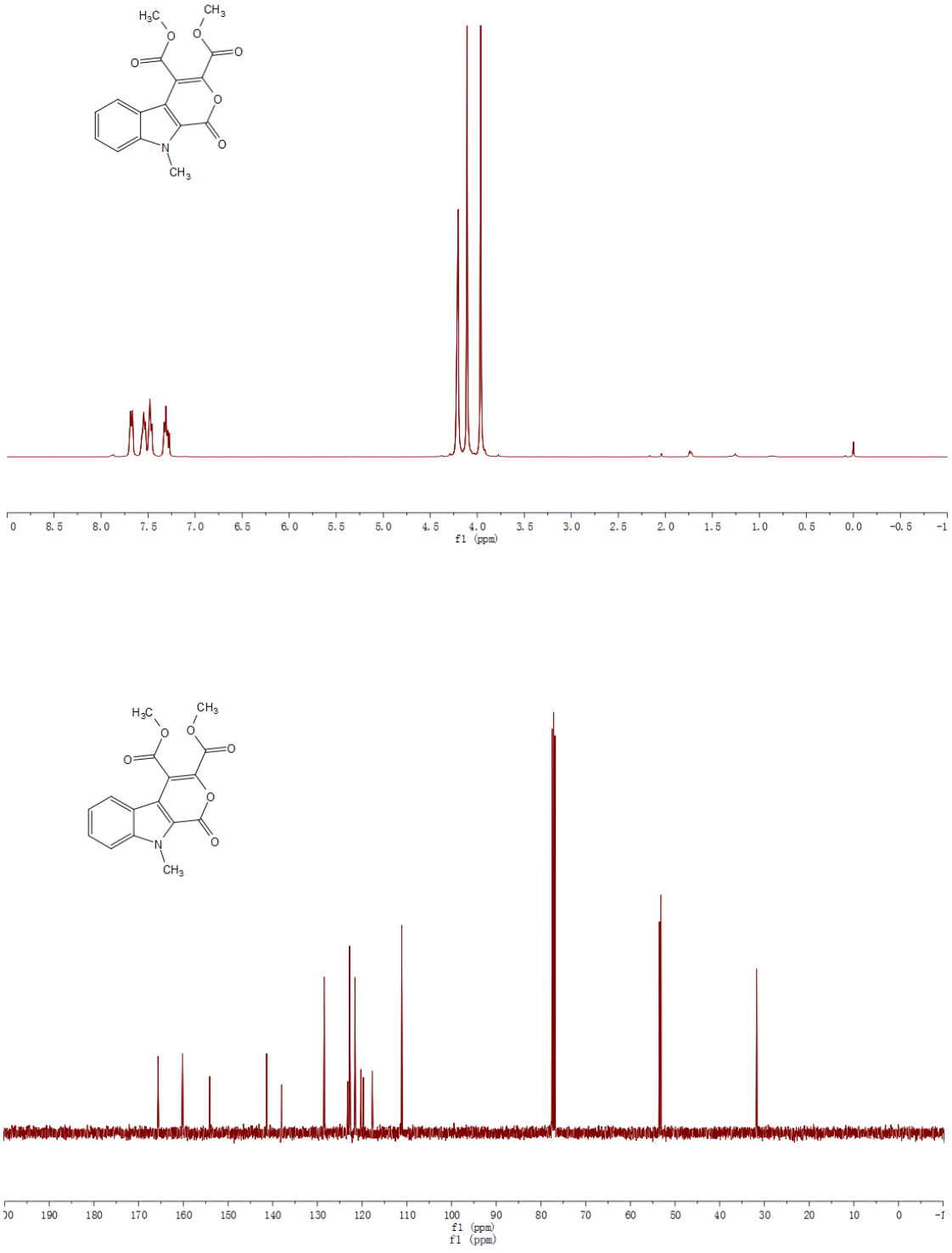


Figure 5. ^{1}H and ^{13}C NMR spectra of compound **3aa** in $CDCl_3$

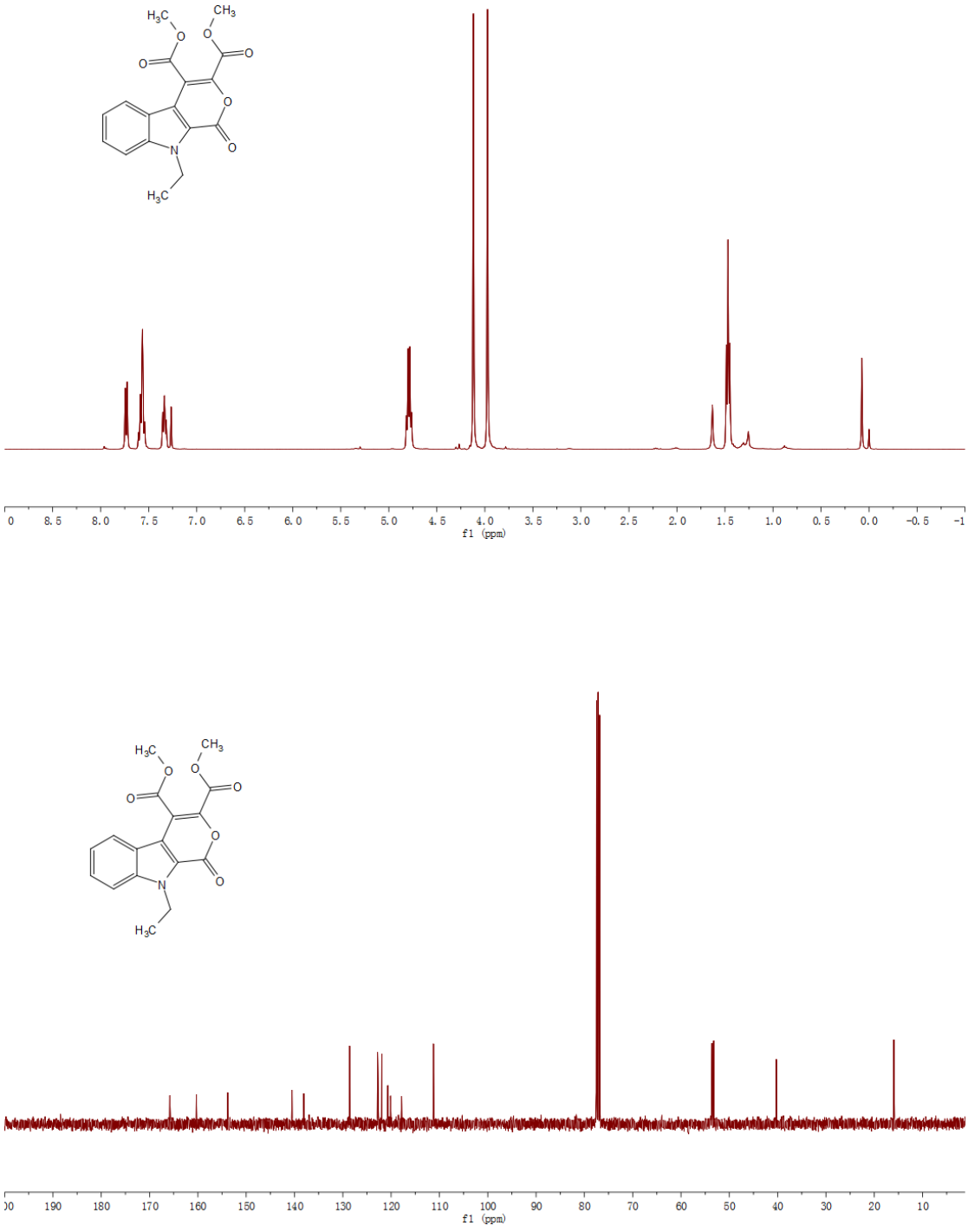
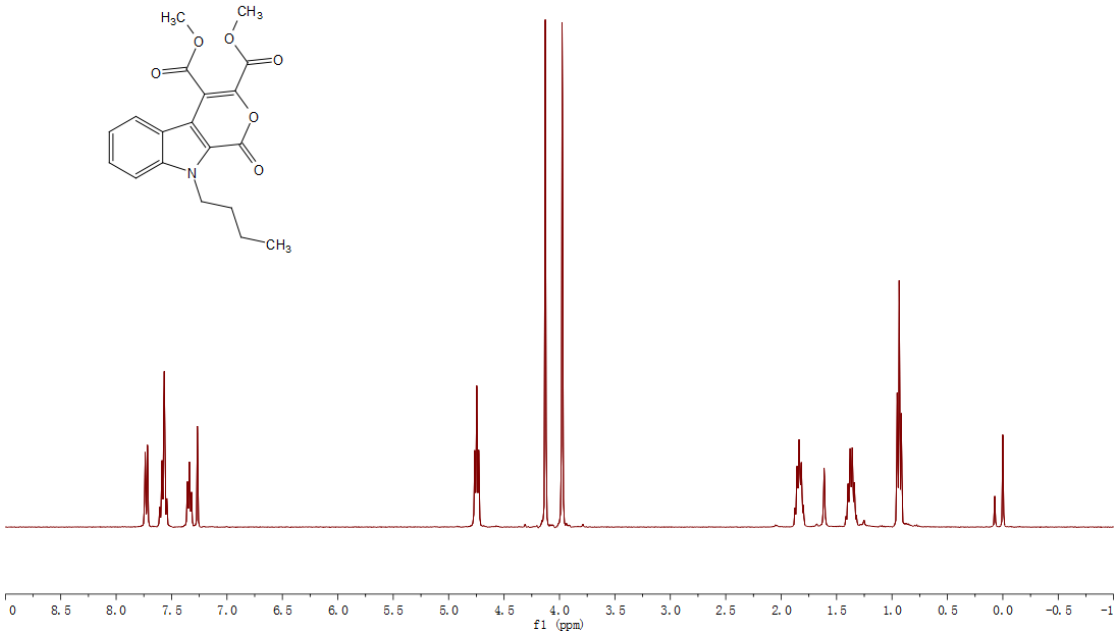


Figure 6. ^{1}H and ^{13}C NMR spectra of compound **3ba** in $CDCl_3$



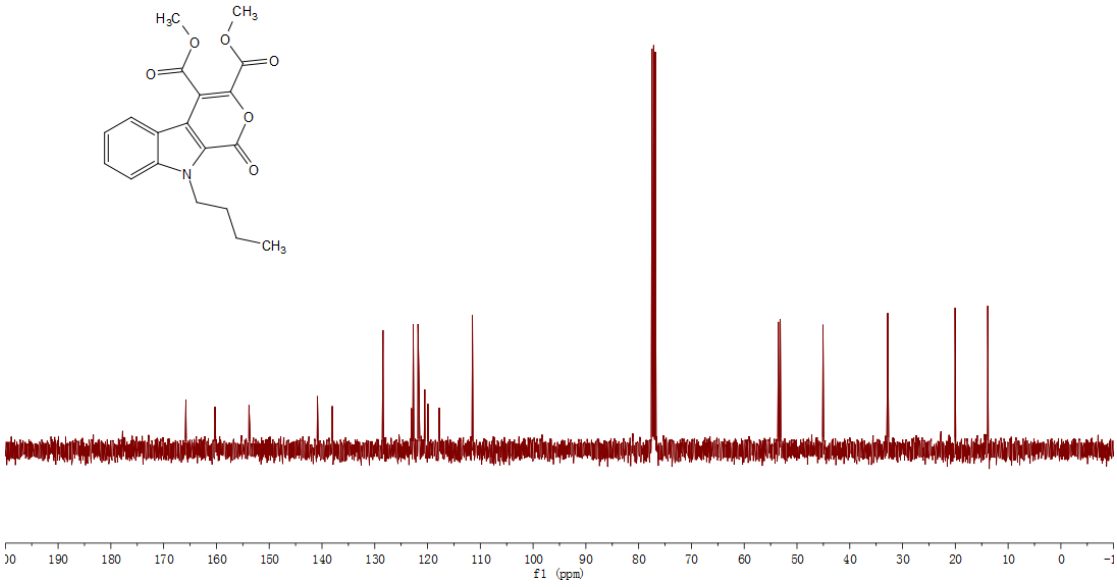
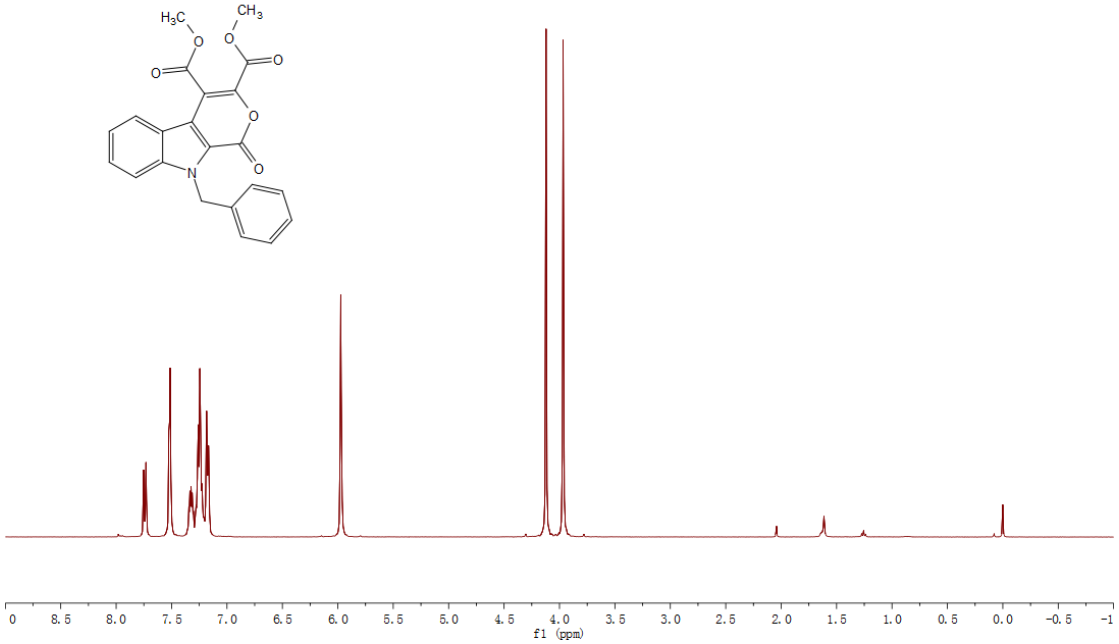


Figure 7. ^{1}H and ^{13}C NMR spectra of compound **3ca** in $CDCl_3$



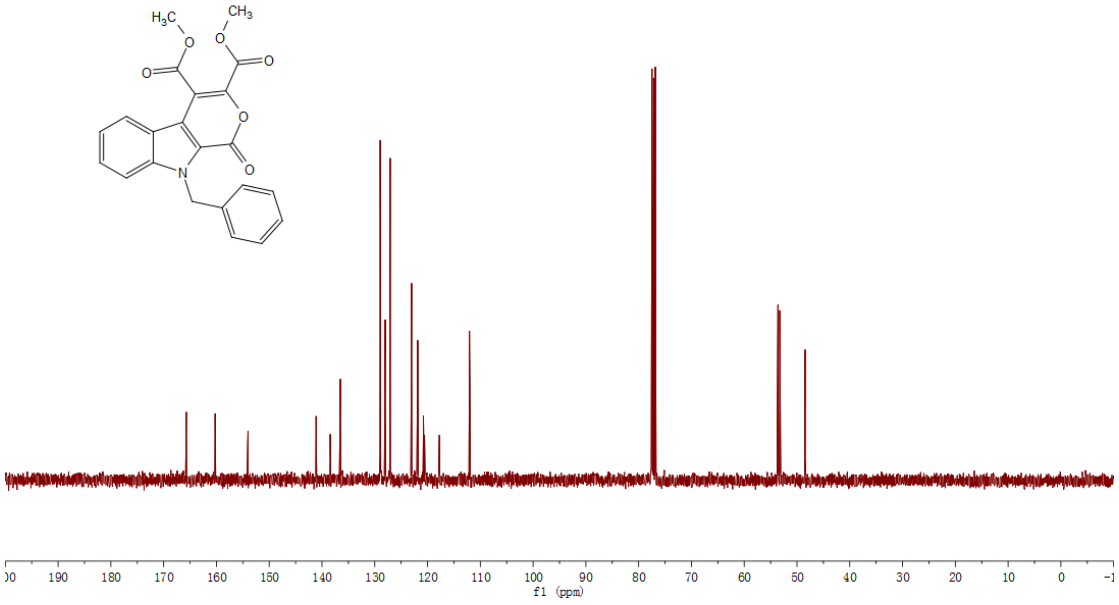


Figure 8. ^{1}H and ^{13}C NMR spectra of compound **3da** in $CDCl_3$

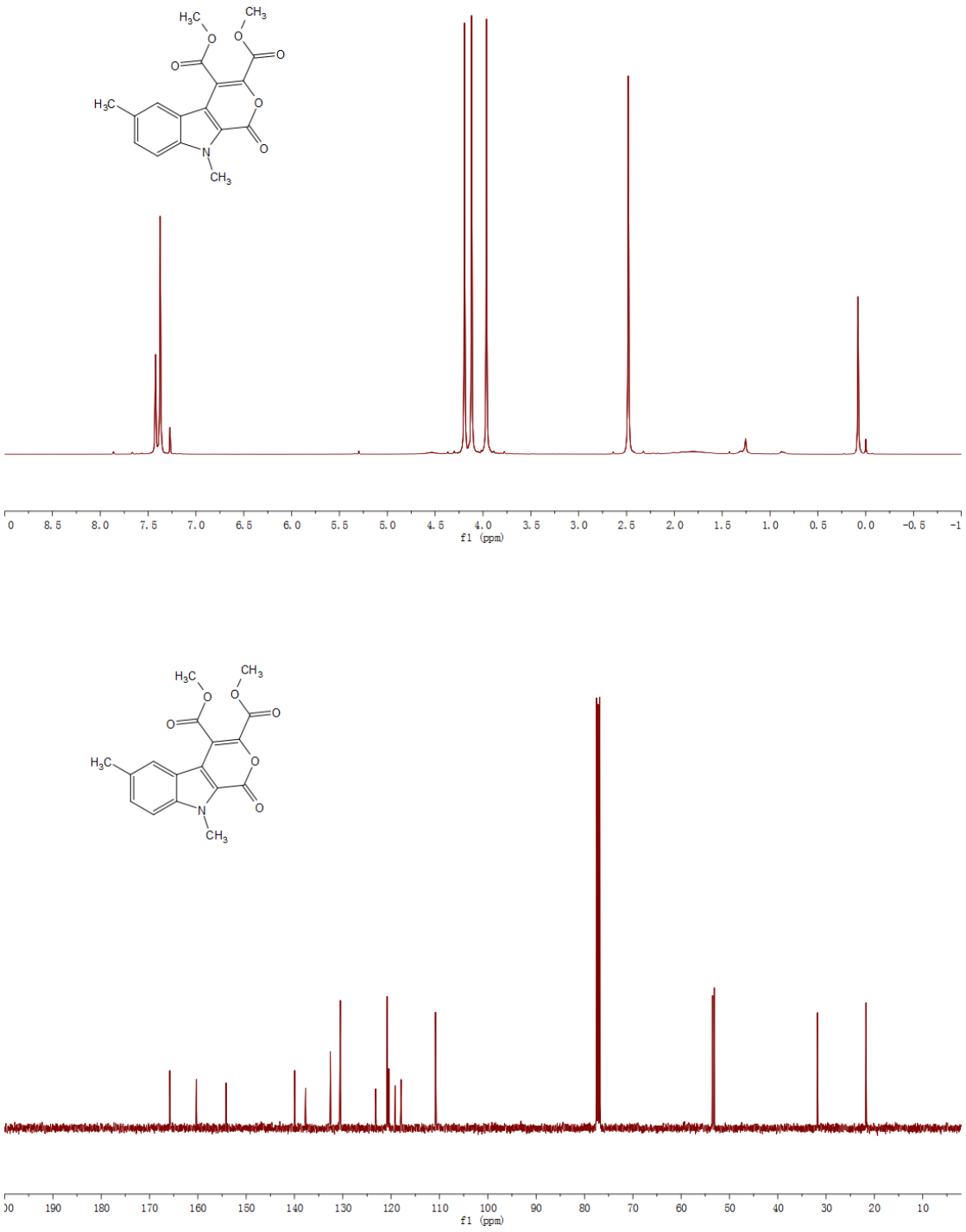
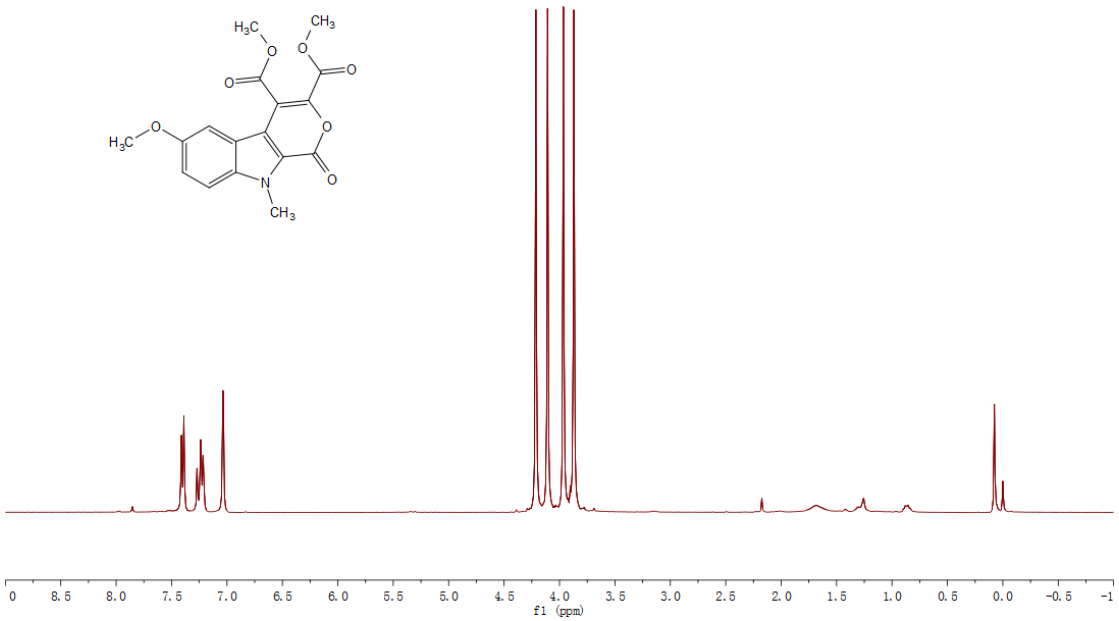


Figure 9. ^{1}H and ^{13}C NMR spectra of compound **3ea** in $CDCl_3$



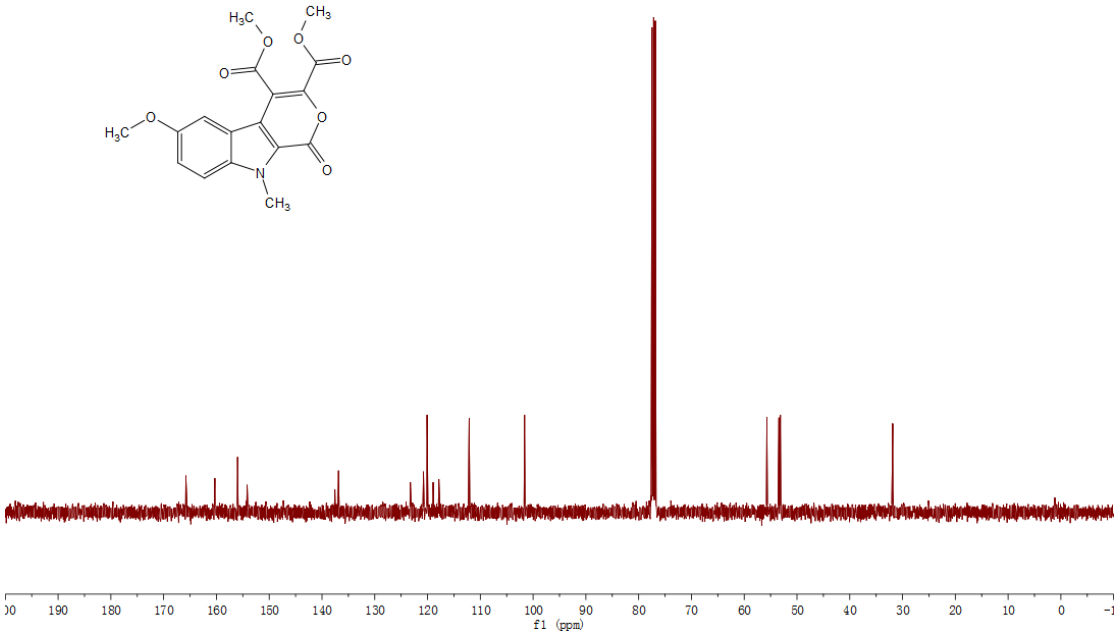


Figure 10. ^{1}H and ^{13}C NMR spectra of compound **3fa** in $CDCl_3$

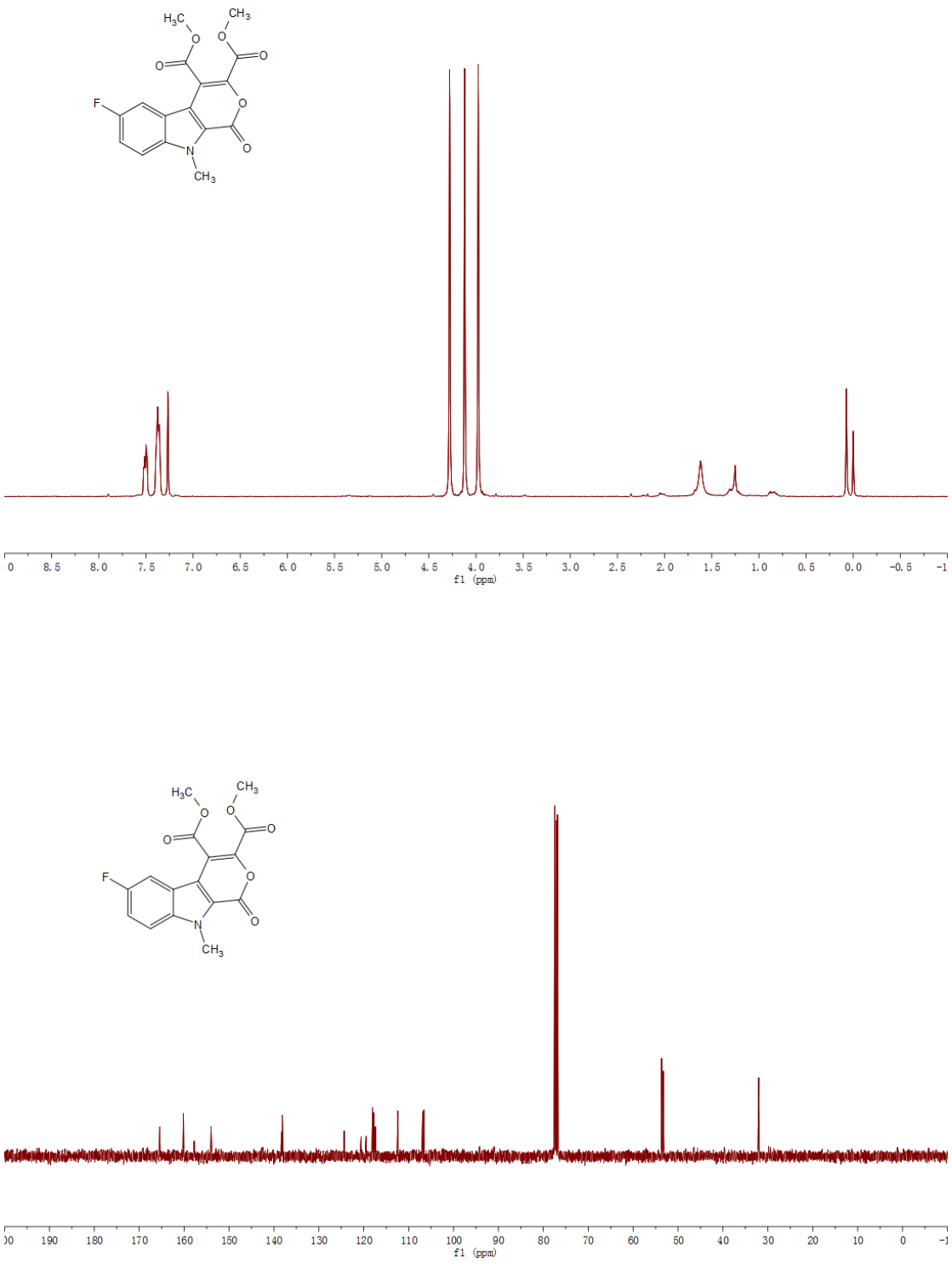


Figure 11. ^{1}H and ^{13}C NMR spectra of compound **3ga** in $CDCl_3$

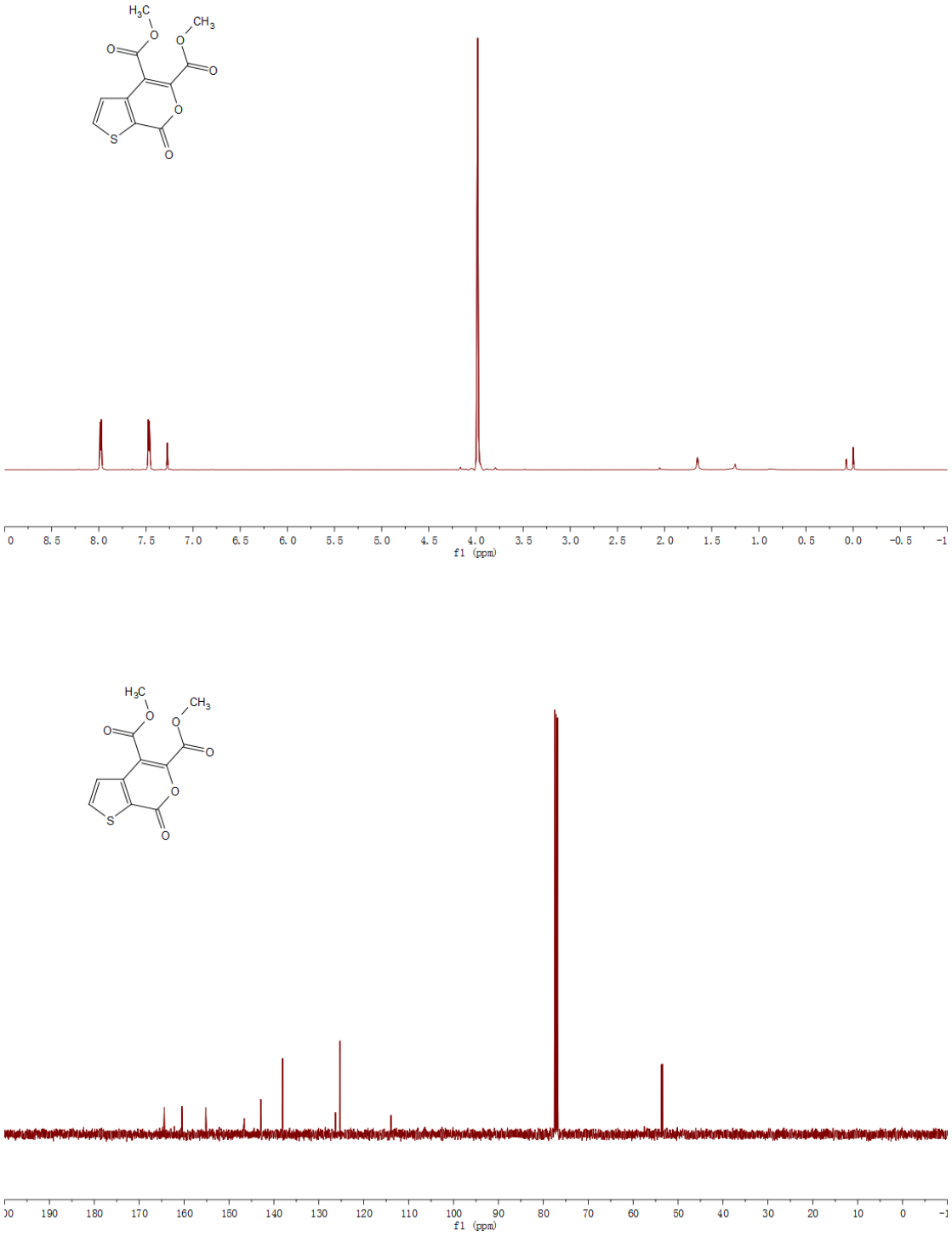


Figure 12. ^{1}H and ^{13}C NMR spectra of compound **3ia** in $CDCl_3$

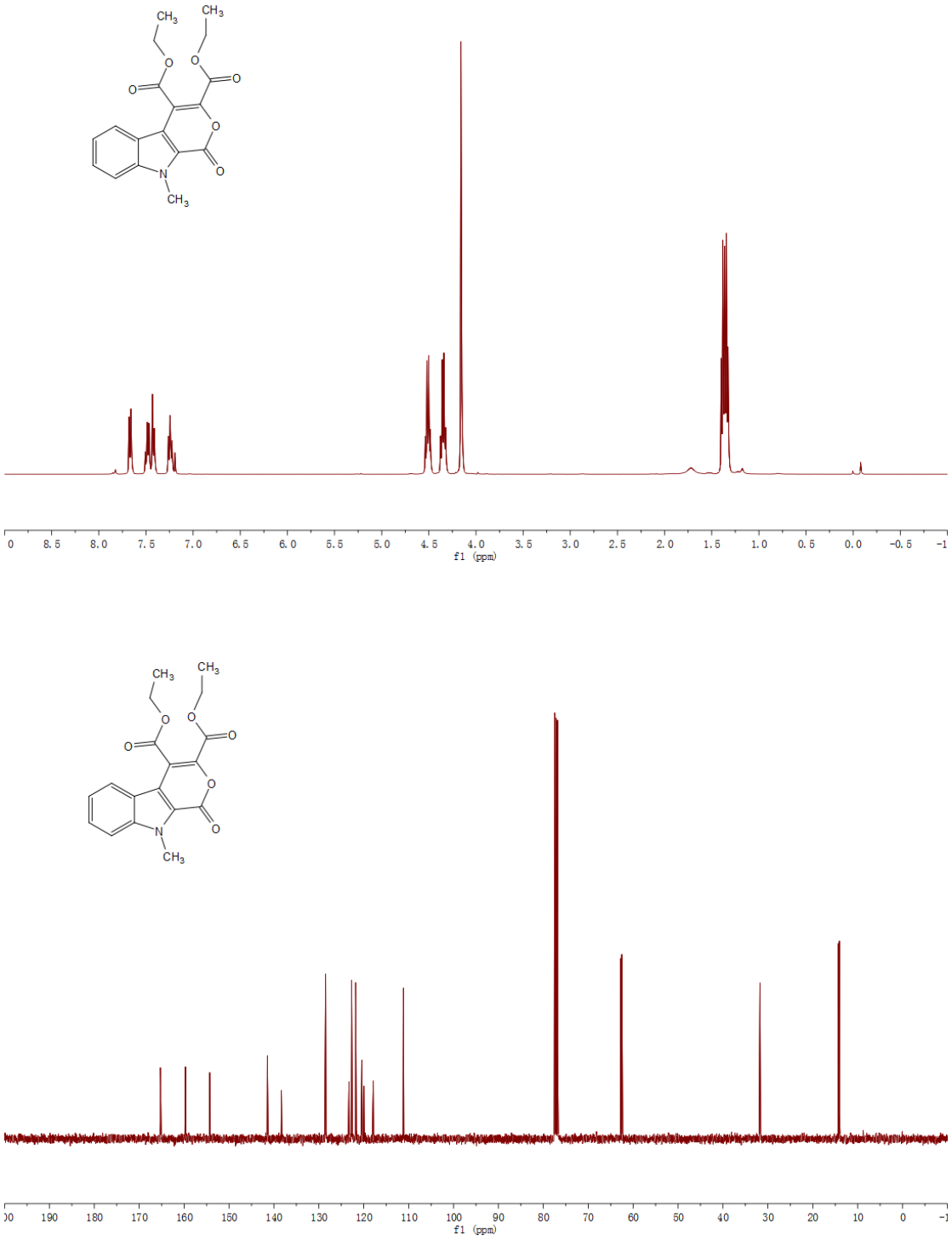
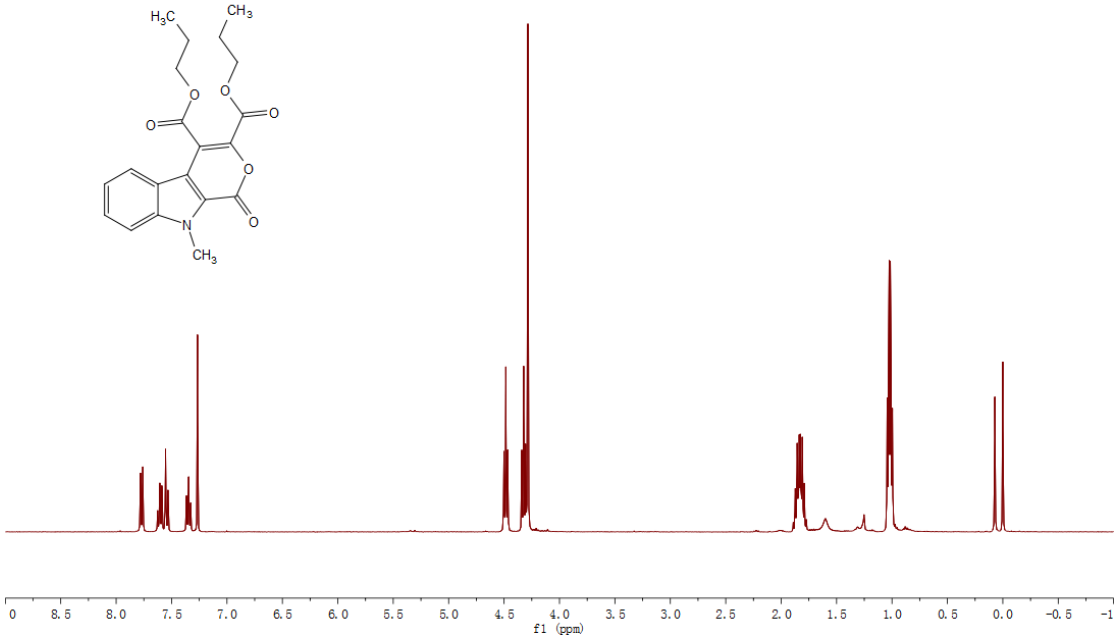


Figure 13. ^{1}H and ^{13}C NMR spectra of compound **3ab** in $CDCl_3$



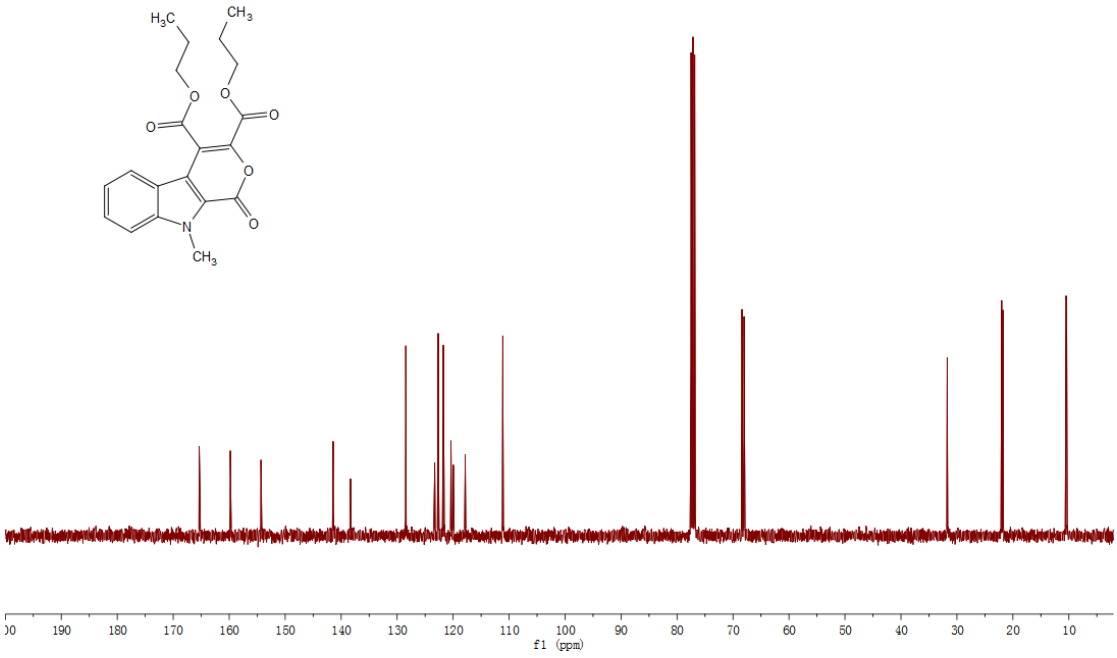
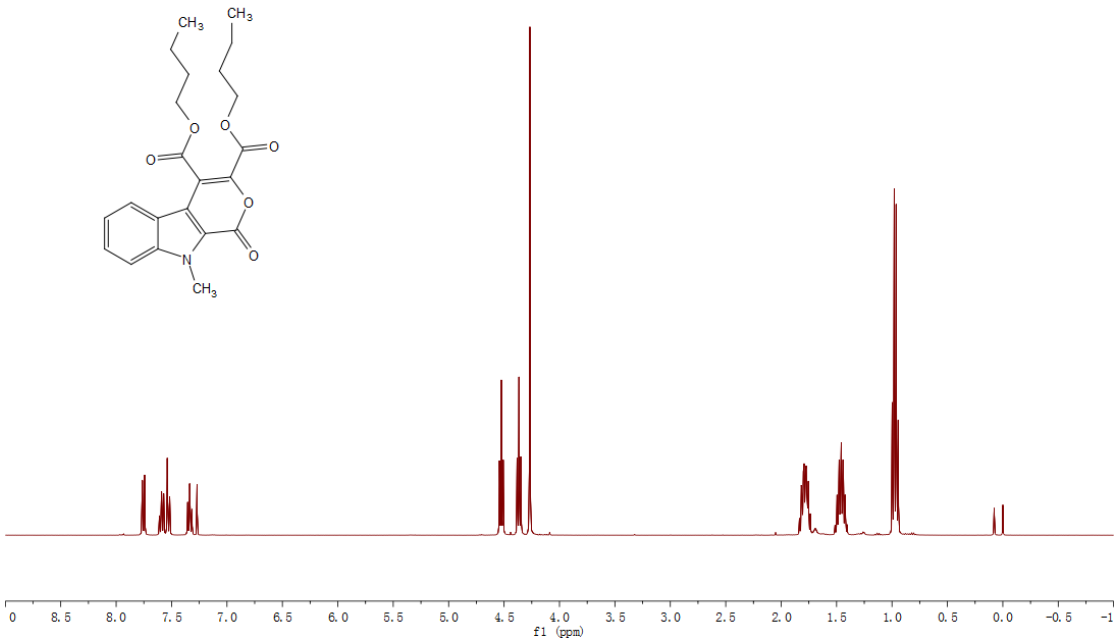


Figure 14. ^{1}H and ^{13}C NMR spectra of compound **3ac** in $CDCl_3$



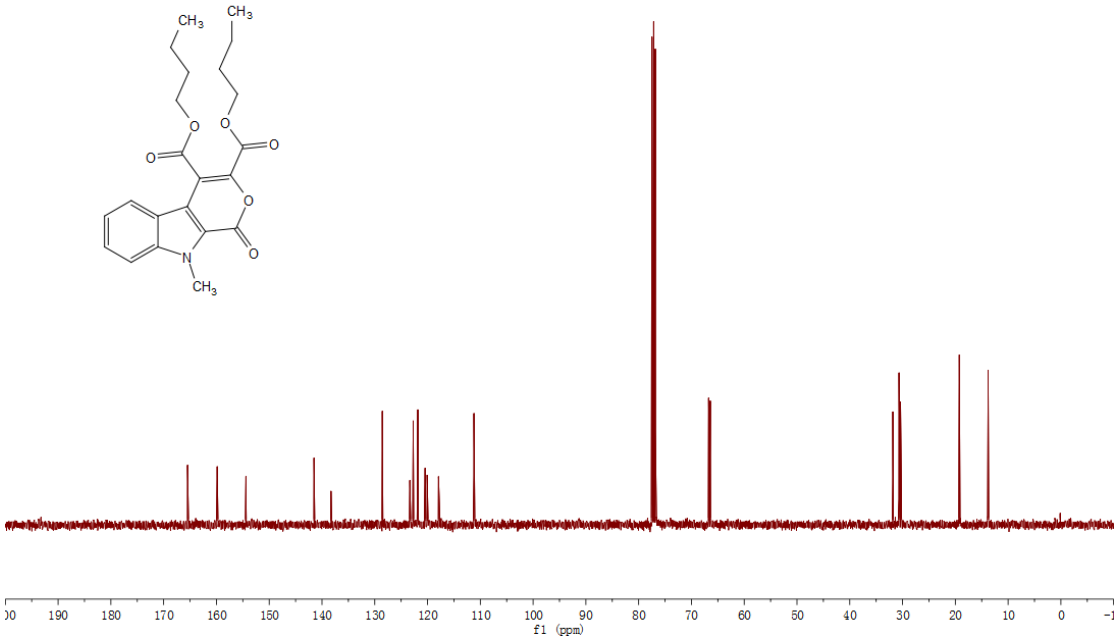
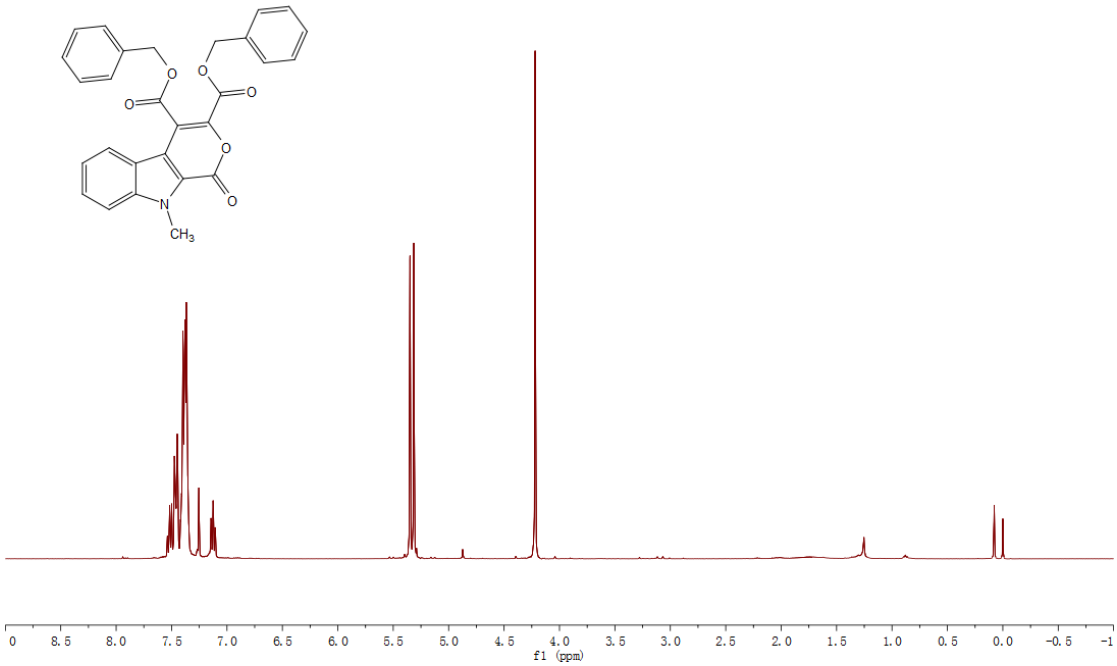


Figure 15. ^{1}H and ^{13}C NMR spectra of compound **3ad** in $CDCl_3$



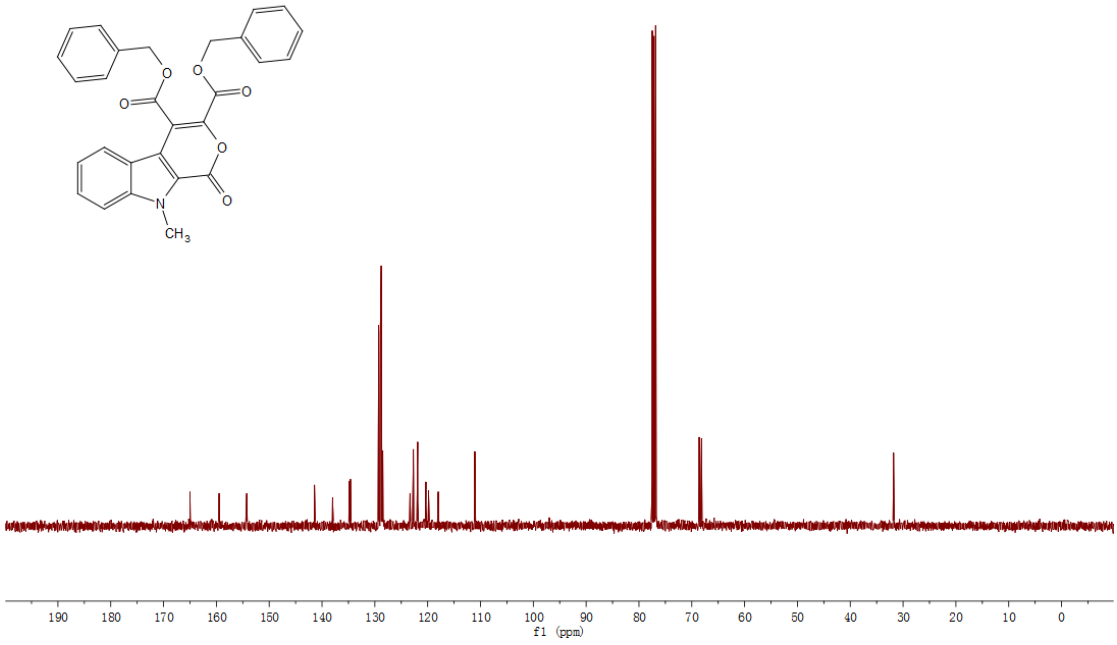


Figure 16. ^{1}H and ^{13}C NMR spectra of compound **3ae** in $CDCl_3$

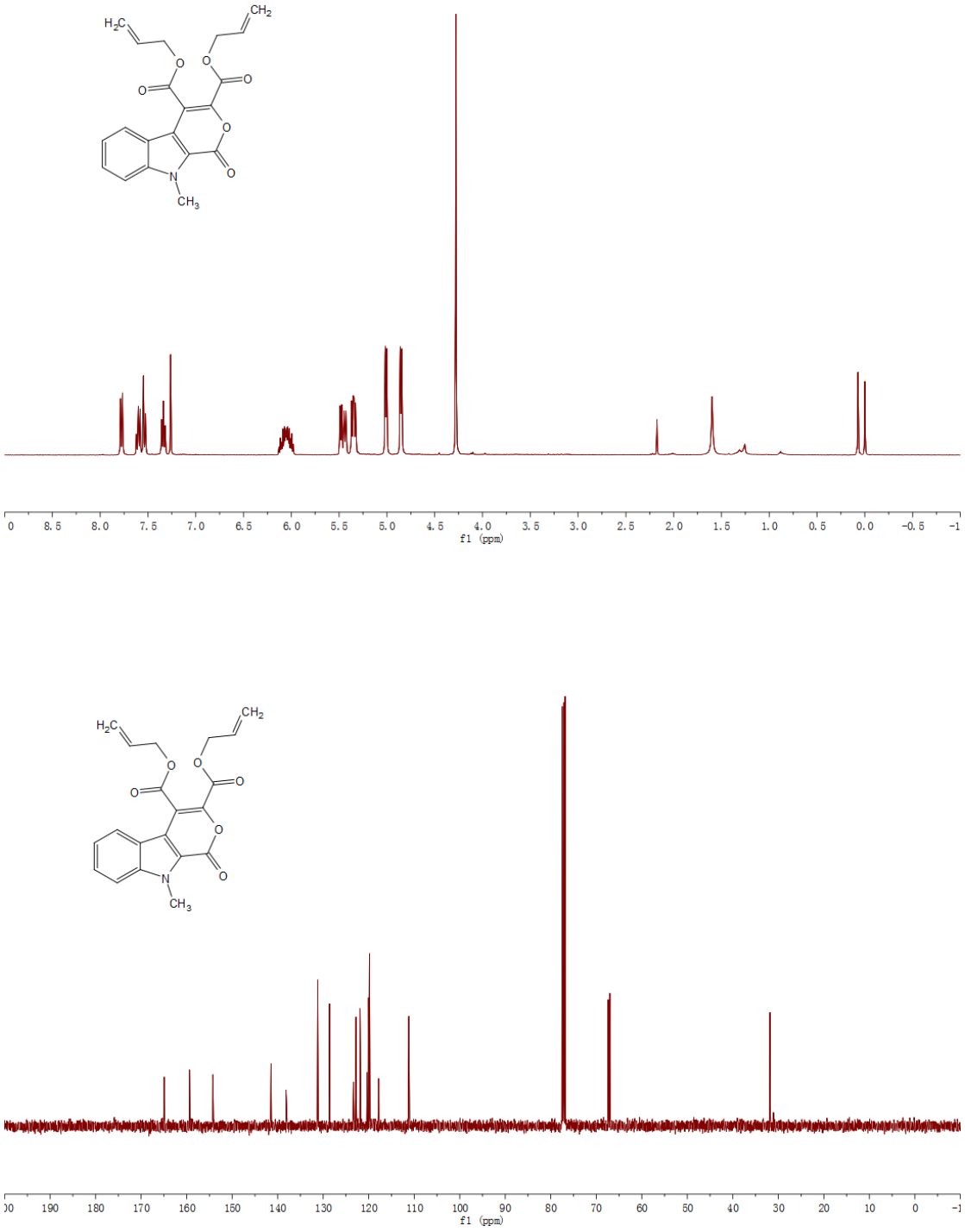
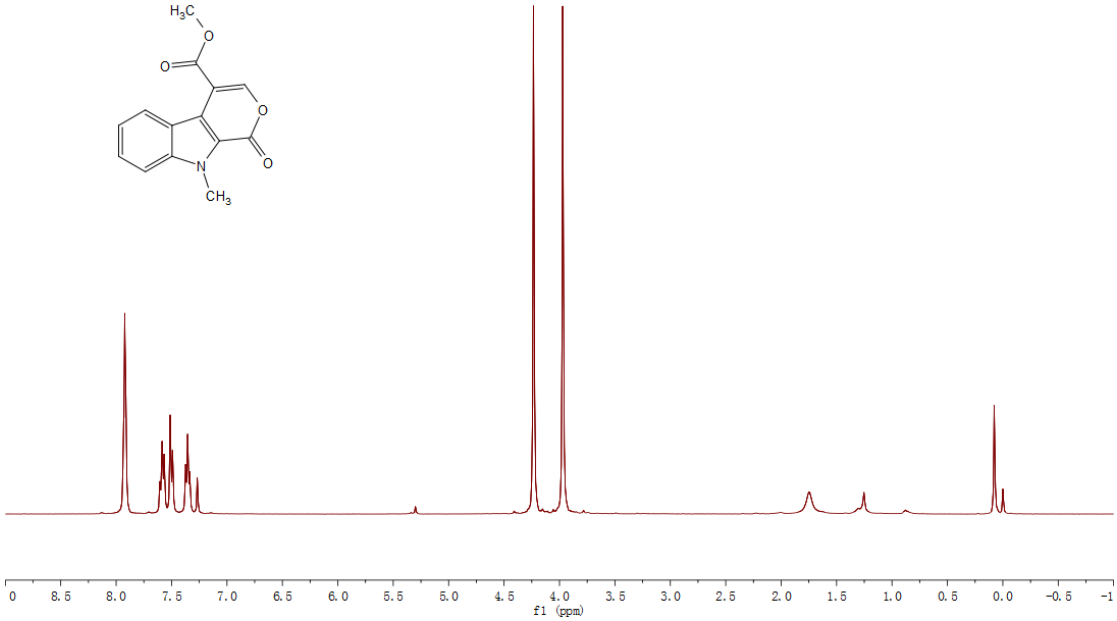


Figure 17. ^{1}H and ^{13}C NMR spectra of compound **3af** in $CDCl_3$



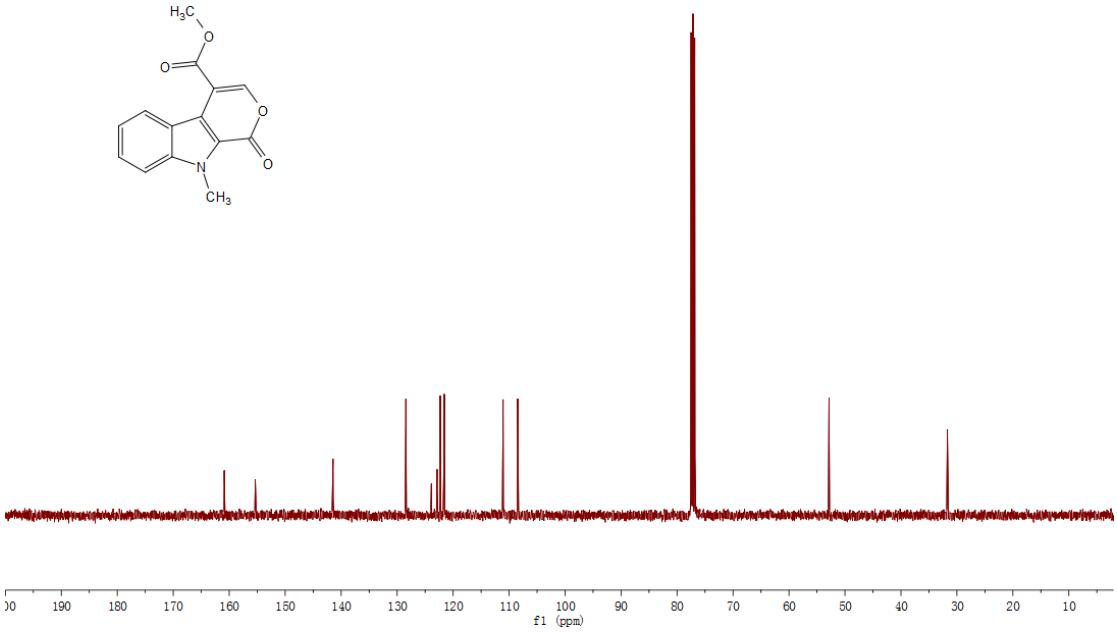


Figure 18. ^{1}H and ^{13}C NMR spectra of compound **3ag** in $CDCl_3$