

Electronic Supplementary Information

Water-based efficient alkyne transformation towards α -acetoxy/imido-ketones *via* oxidative coupling reactions using an alkylamine catalyst

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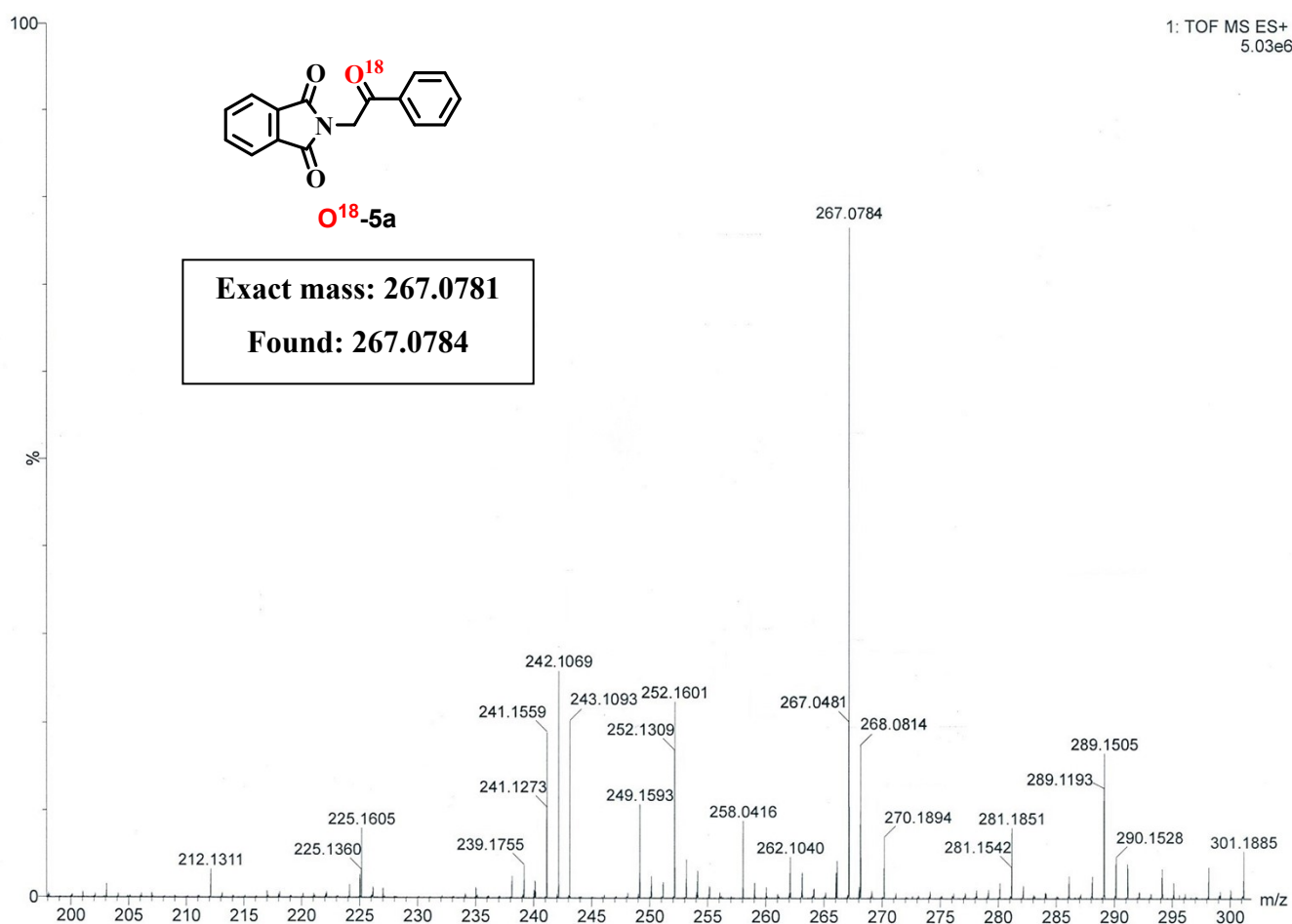
| <u>Serial No.</u> | <u>Content</u> | <u>Page Numbers</u> |
|-------------------|--|---------------------|
| 1. | Control experiments data | S-2 |
| 2. | ¹ H and ¹³ C-NMR spectra of synthesised α -acetoxyketones (4a-g), α -imidoketones (5a-g), <i>N</i> -protected cathinone (6a), cathinone (7) and <i>N</i> -benzoylphthalimide (8a) | S-3 |

1. Control experiments data

Detection of labeled isotope (^{18}O) using mass spectroscopy

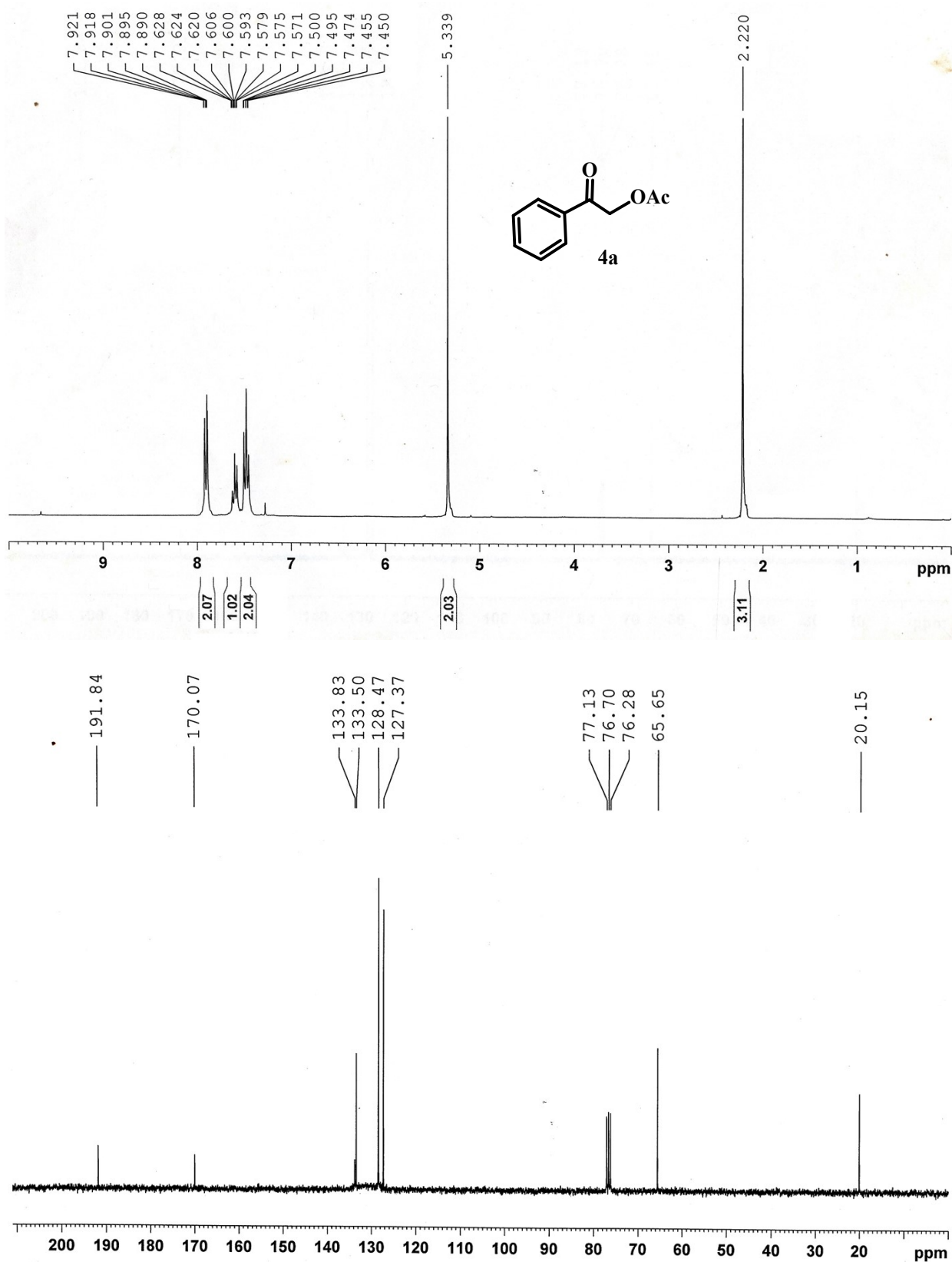
The synthesis of compound **5a** was performed on a 0.1 mmol scale in 1.0 ml H_2^{18}O , following the general procedure as depicted earlier. High-resolution mass spectrometry (HRMS) analysis was then performed directly with the post-reaction mixture. The peak at 267.0784 (M^+) confirmed the incorporation of the ^{18}O isotope into the desired product (^{18}O -**5a**), indicating the source of oxygen in the newly generated α -functionalised ketones.

SI Figure 1: HRMS spectrum of ^{18}O -**5a**

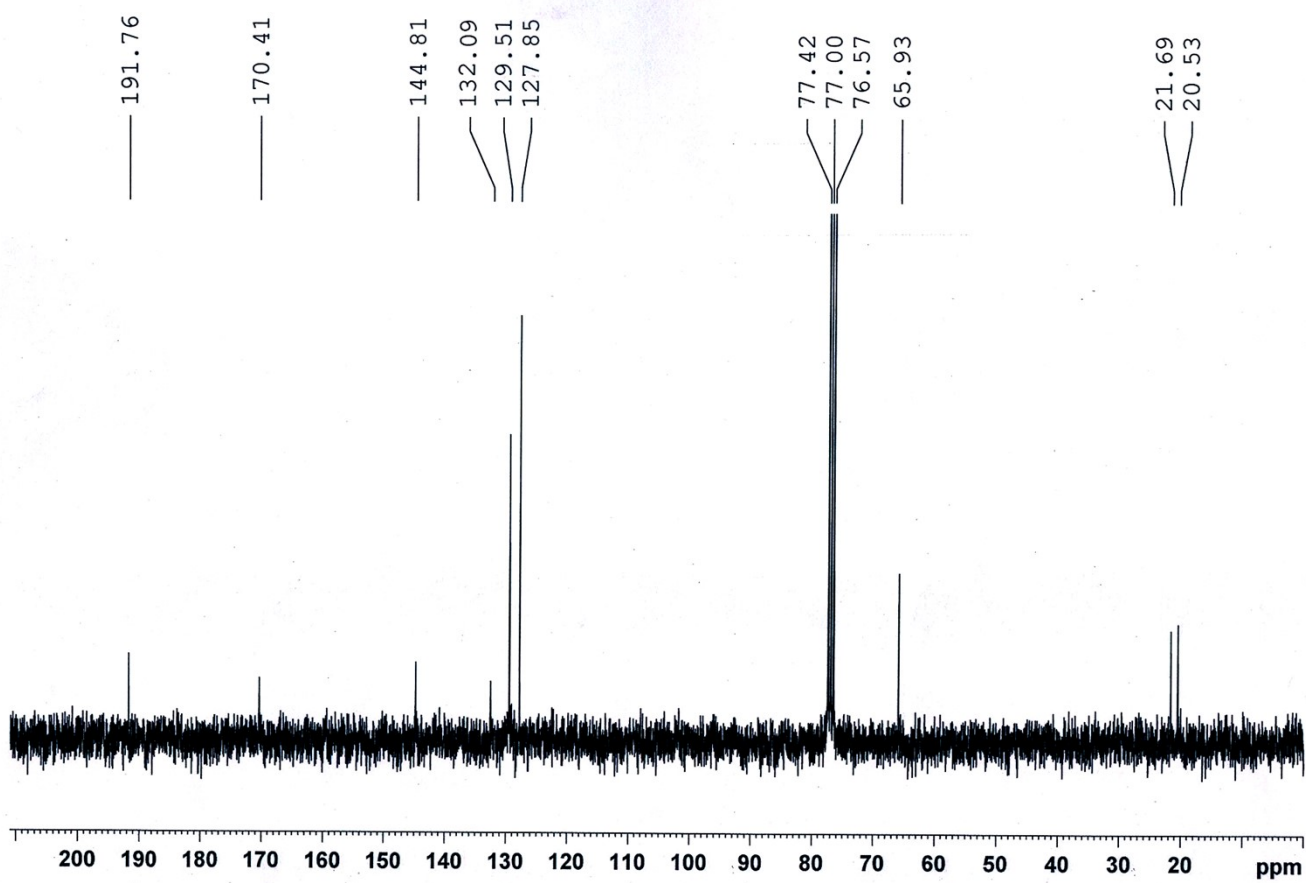
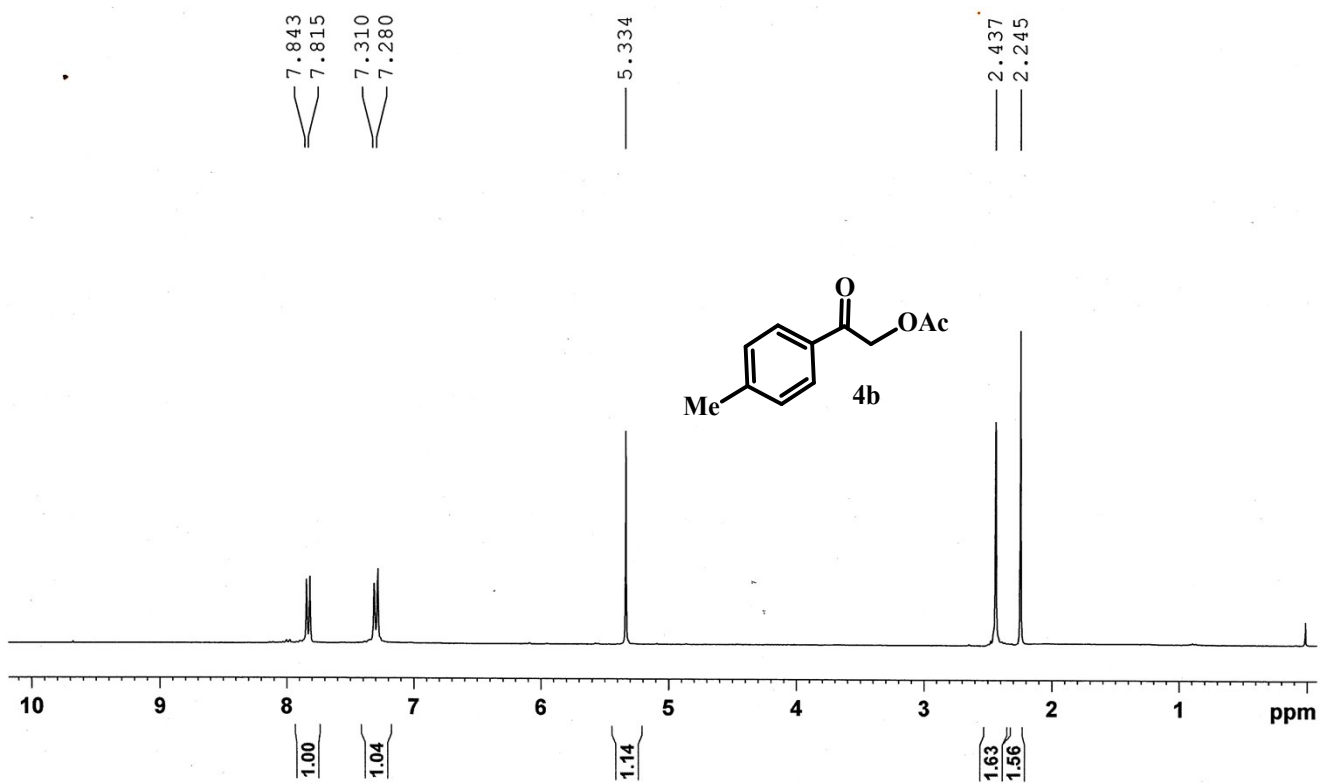


2. ^1H and ^{13}C -NMR spectra of synthesised α -acetoxyketones (4a-g), α -imidoketones (5a-g), *N*-phthalimido cathinone (6a), cathinone (7) and *N*-benzoylphthalimide (8a)

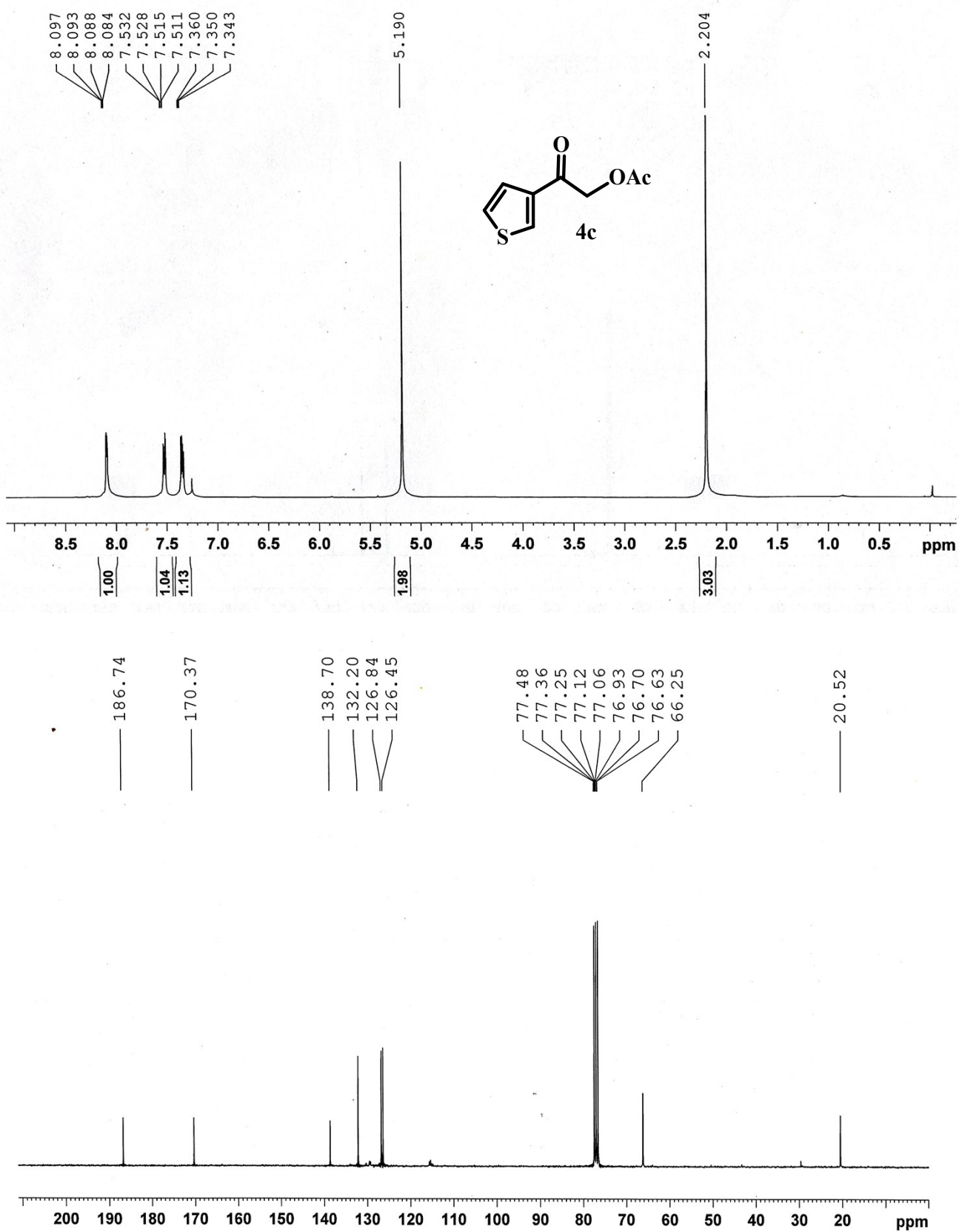
SI Figure 2: ^1H and ^{13}C -NMR spectra of compound 4a



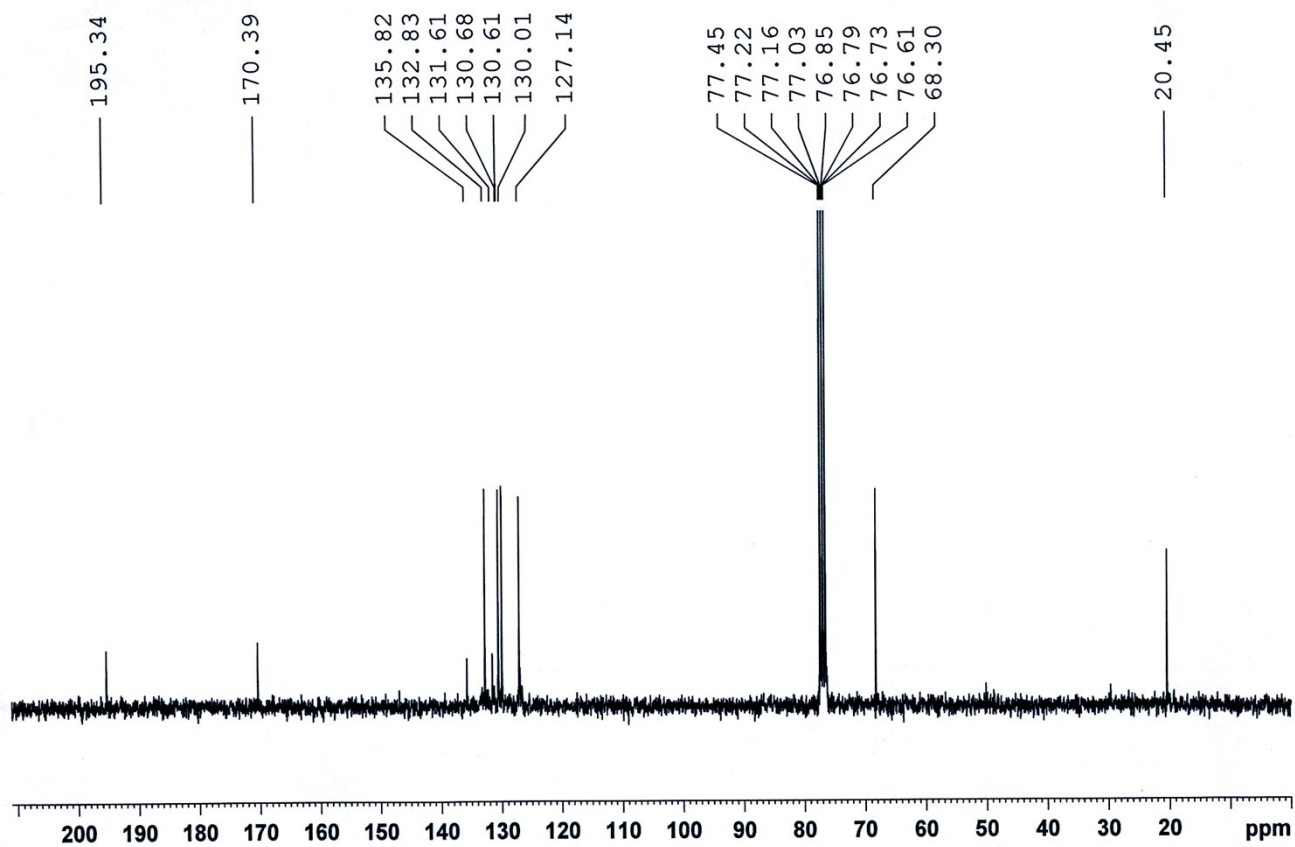
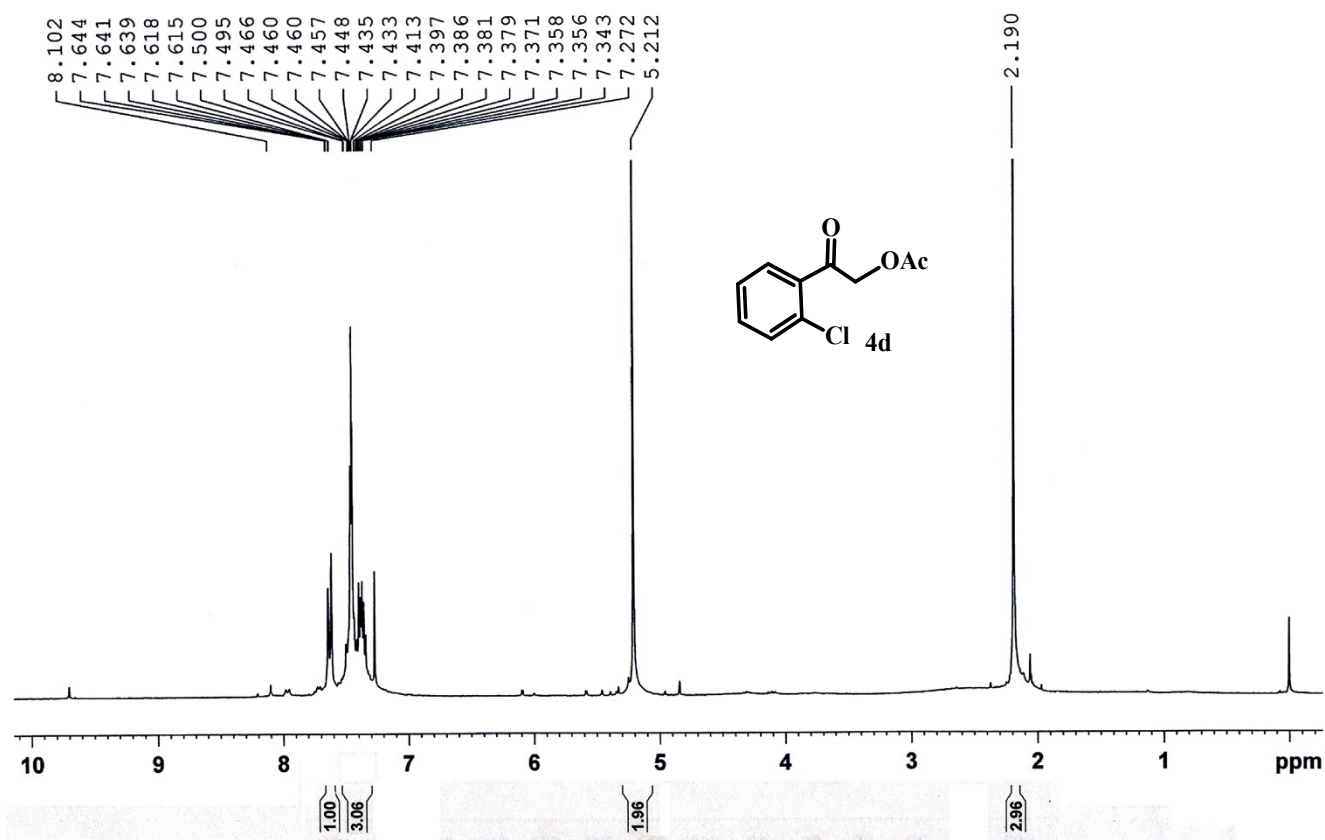
SI Figure 3: ^1H and ^{13}C -NMR spectra of compound **4b**



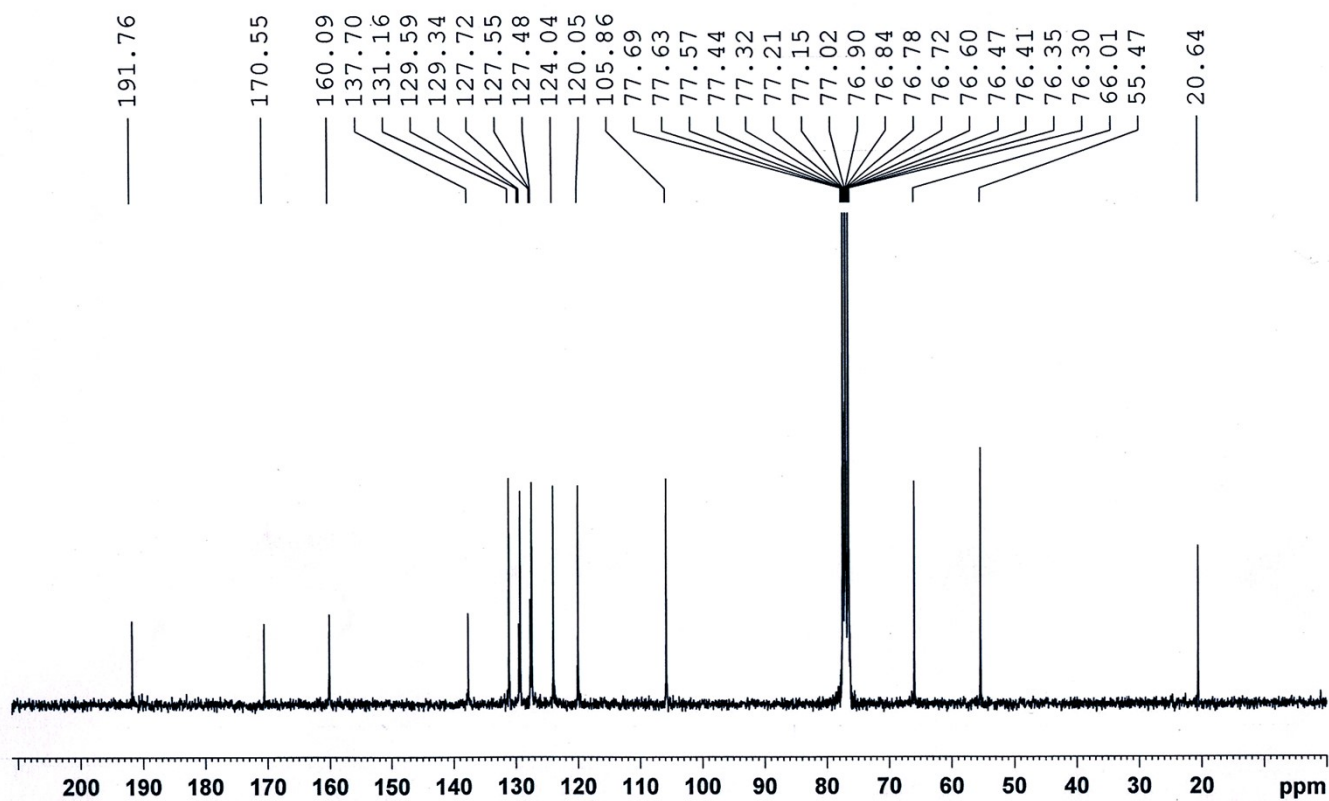
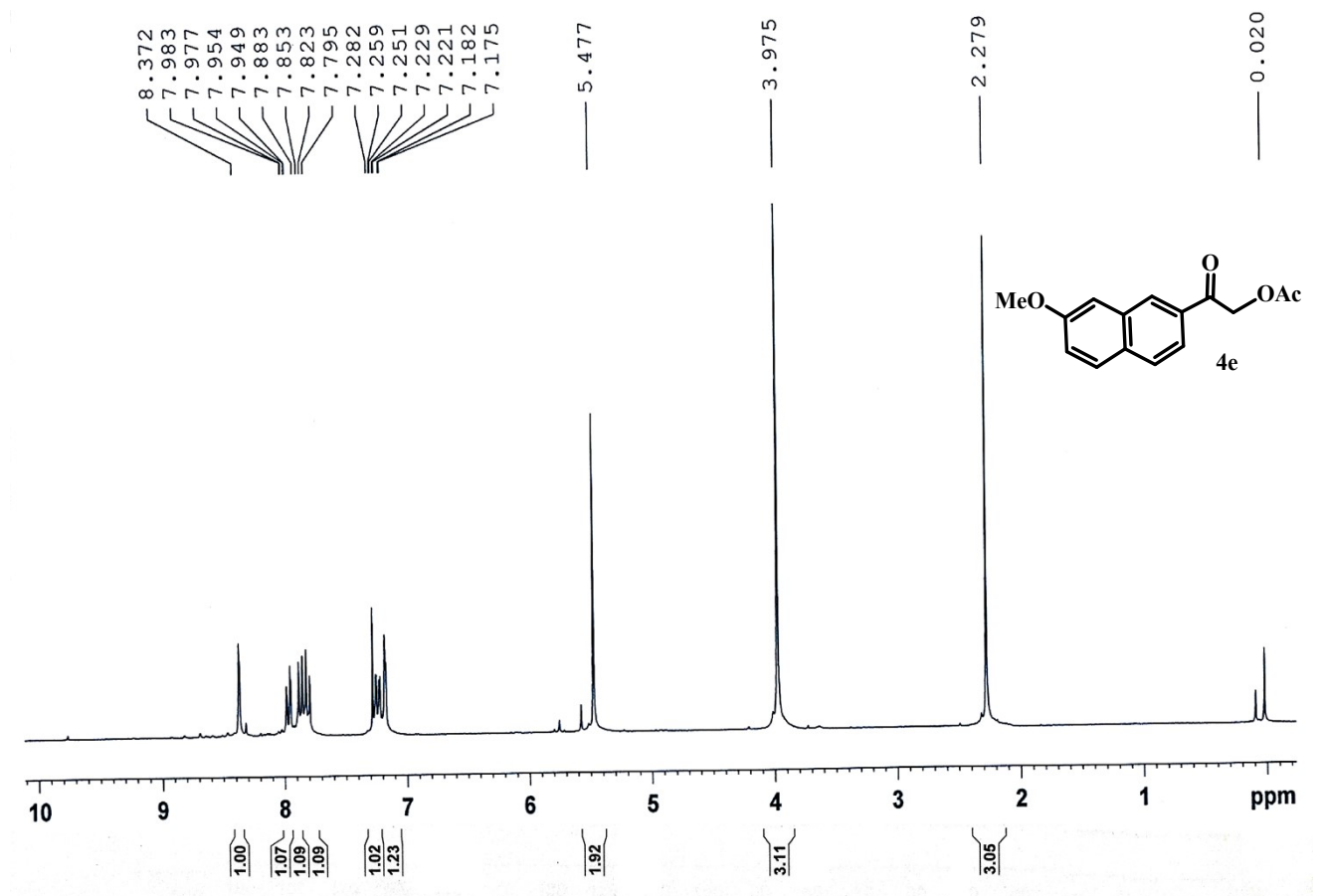
SI Figure 4: ^1H and ^{13}C -NMR spectra of compound **4c**



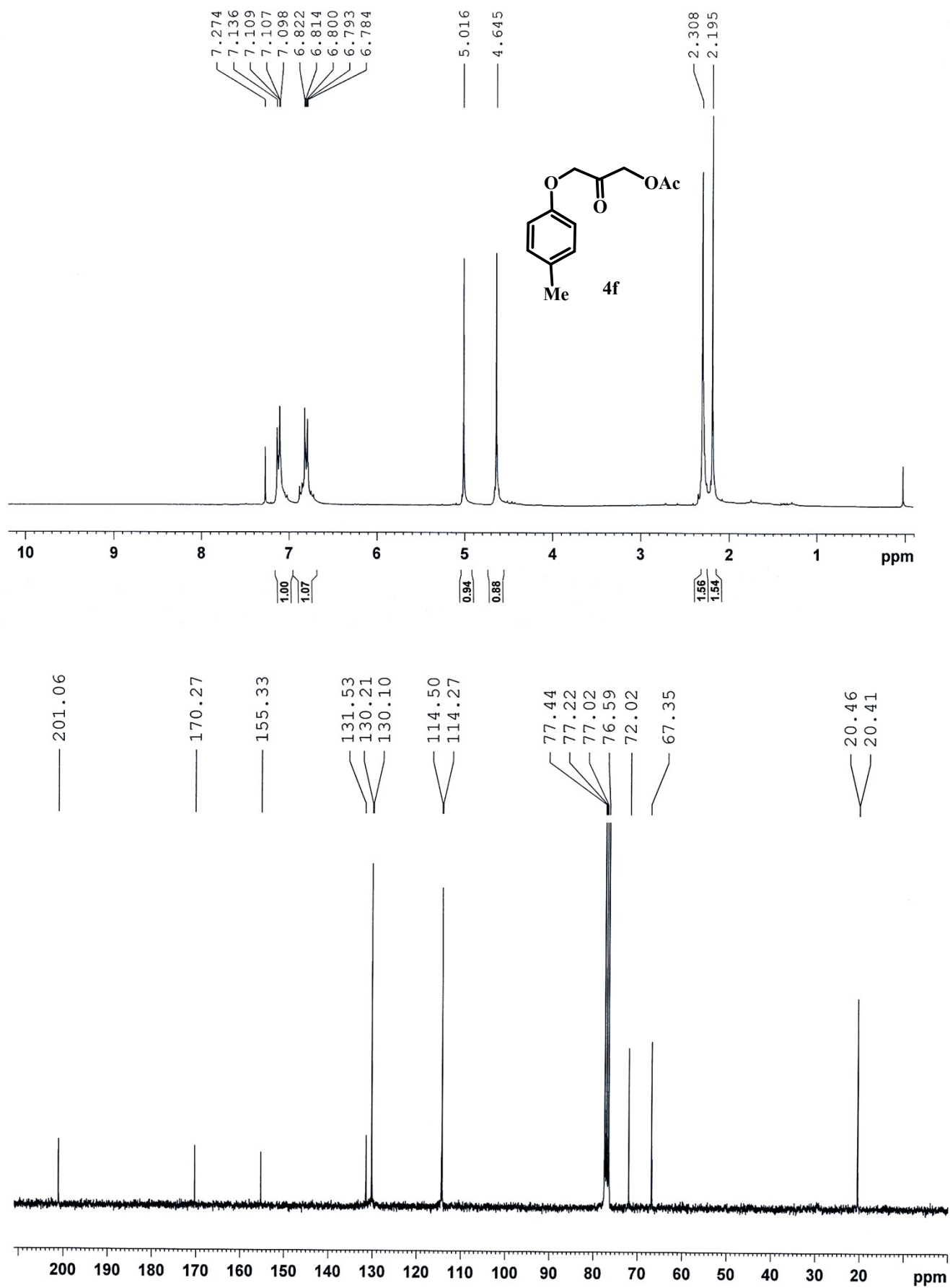
SI Figure 5: ^1H and ^{13}C -NMR spectra of compound **4d**



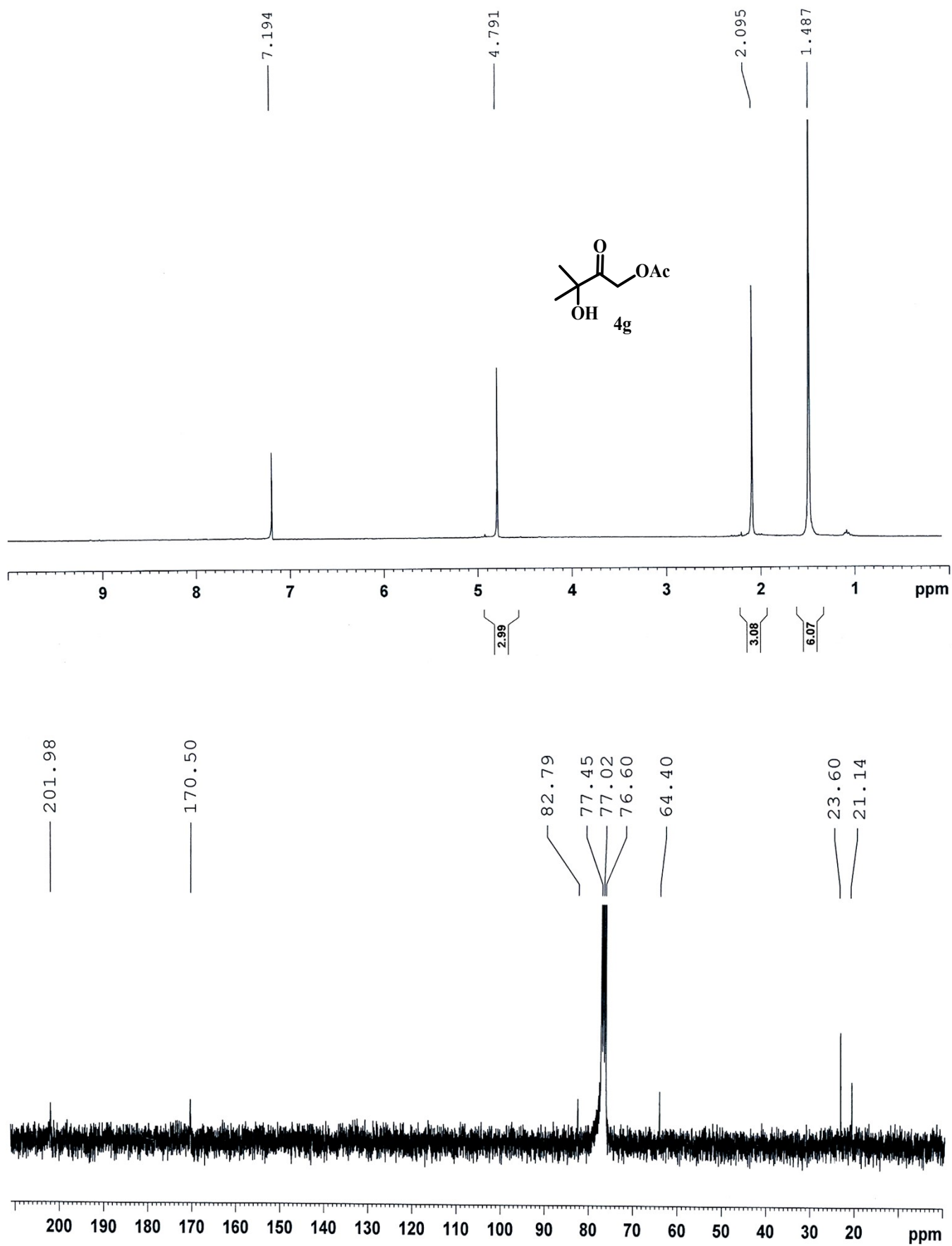
SI Figure 6: ^1H and ^{13}C -NMR spectra of compound 4e



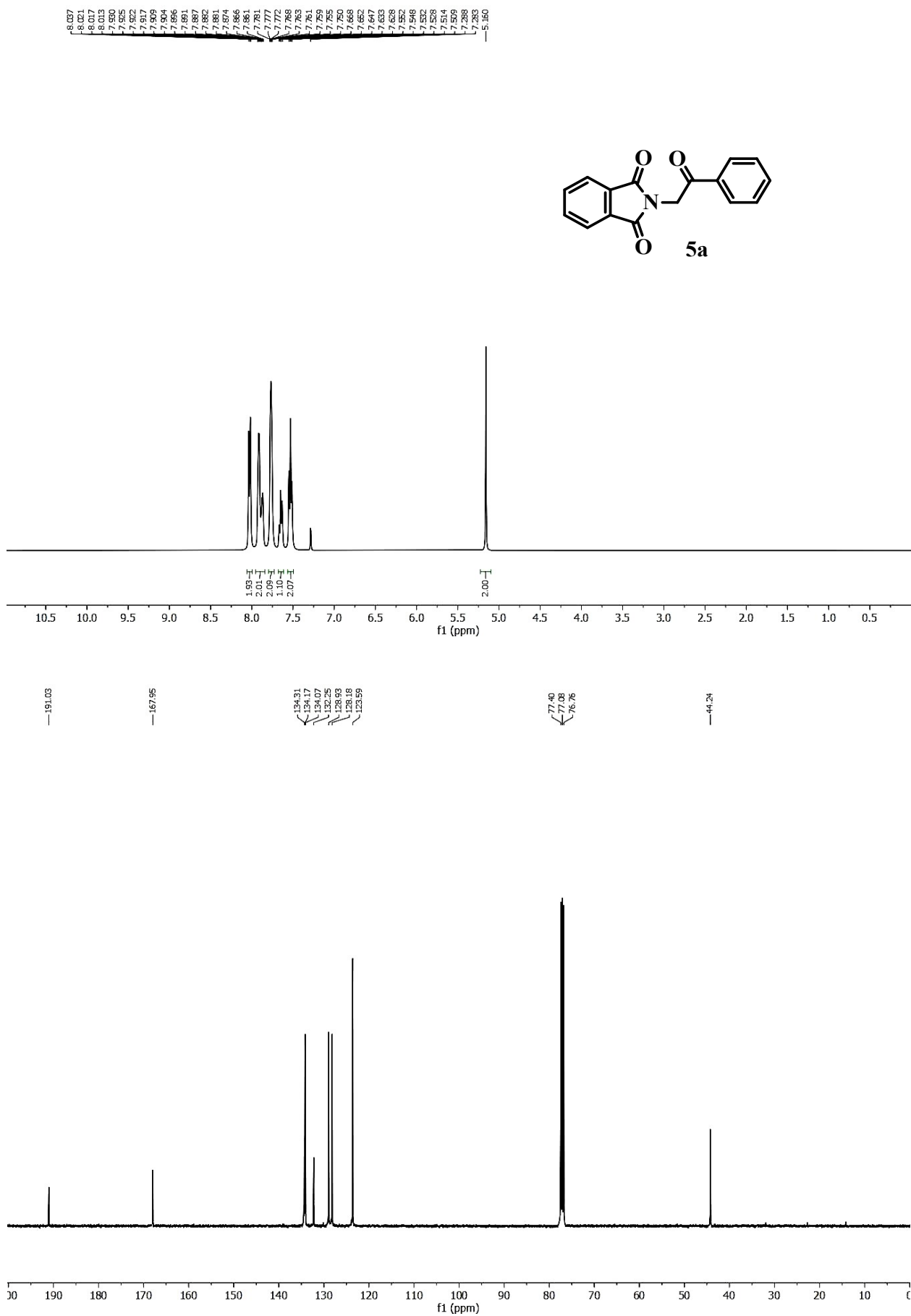
SI Figure 7: ^1H and ^{13}C -NMR spectra of compound **4f**



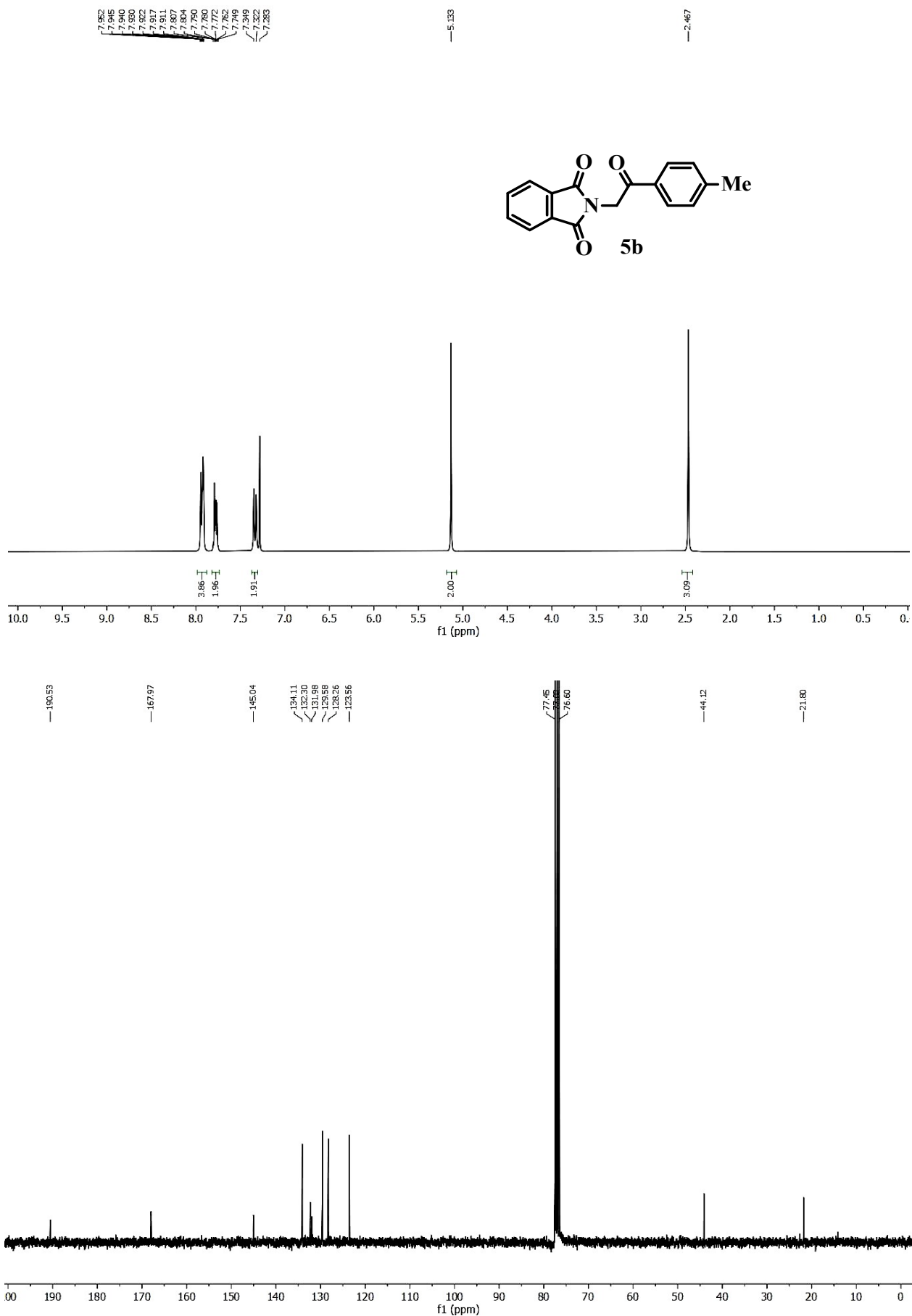
SI Figure 8: ^1H and ^{13}C -NMR spectra of compound **4g**



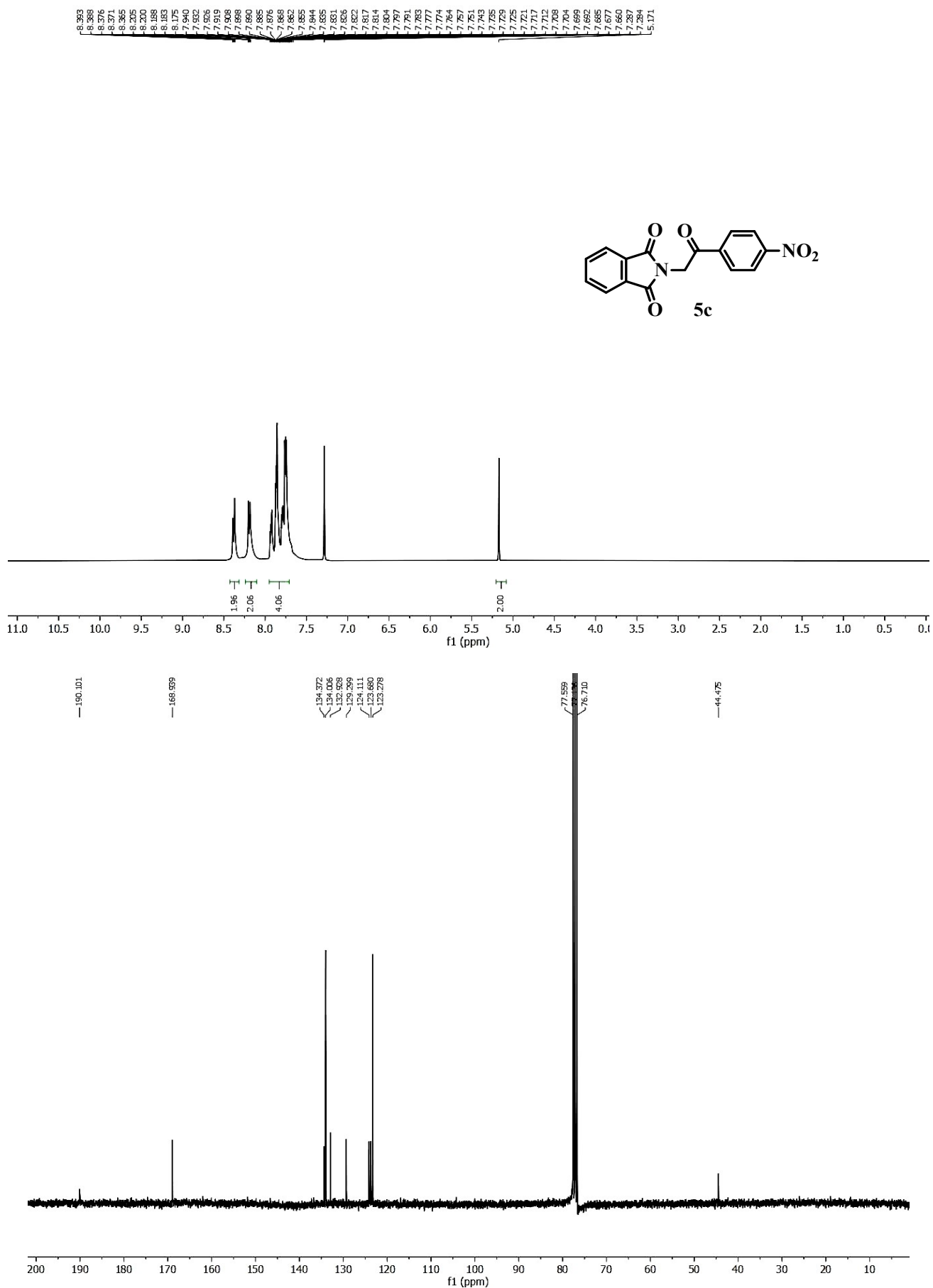
SI Figure 9: ^1H and ^{13}C -NMR spectra of compound **5a**



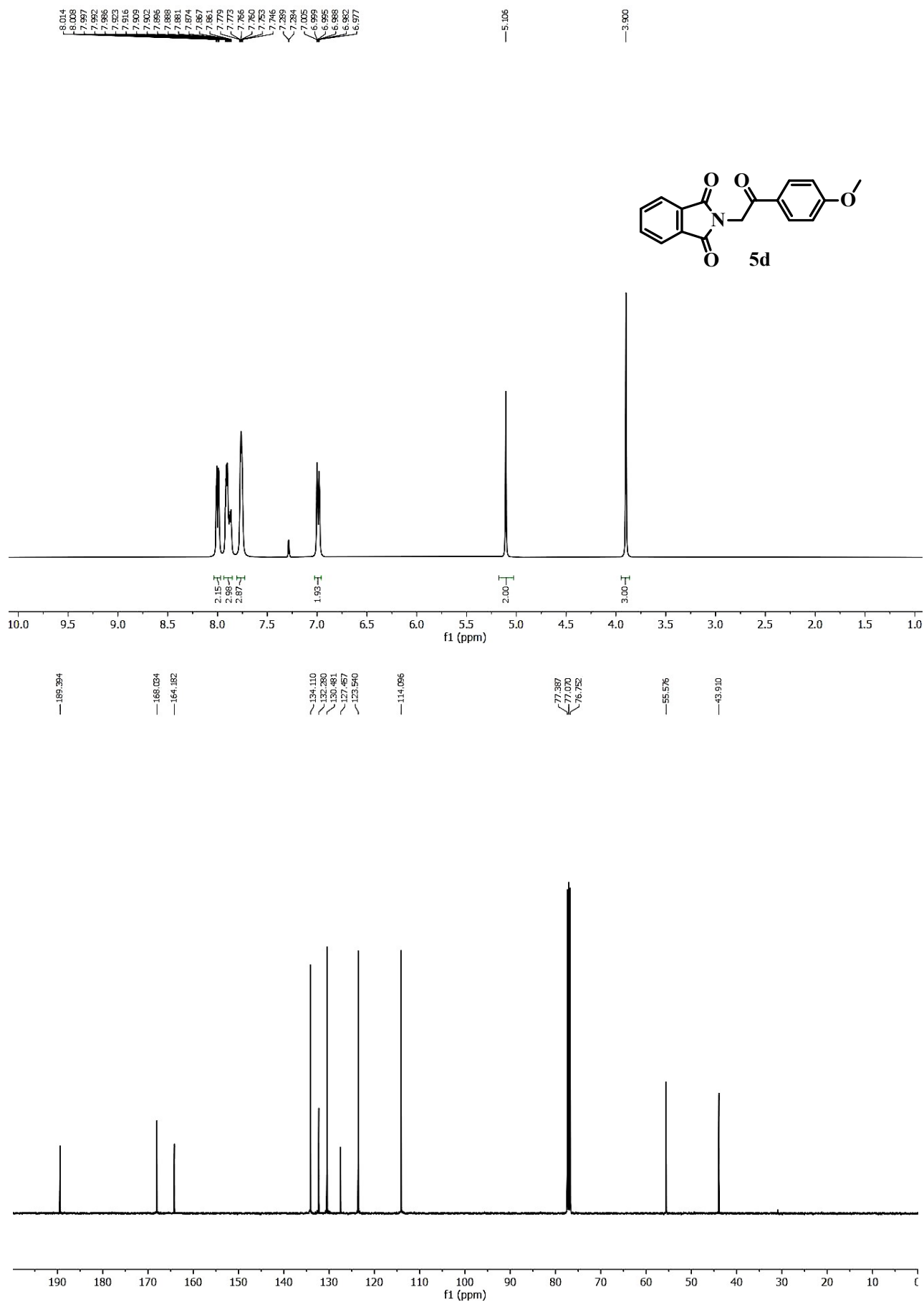
SI Figure 10: ^1H and ^{13}C -NMR spectra of compound **5b**



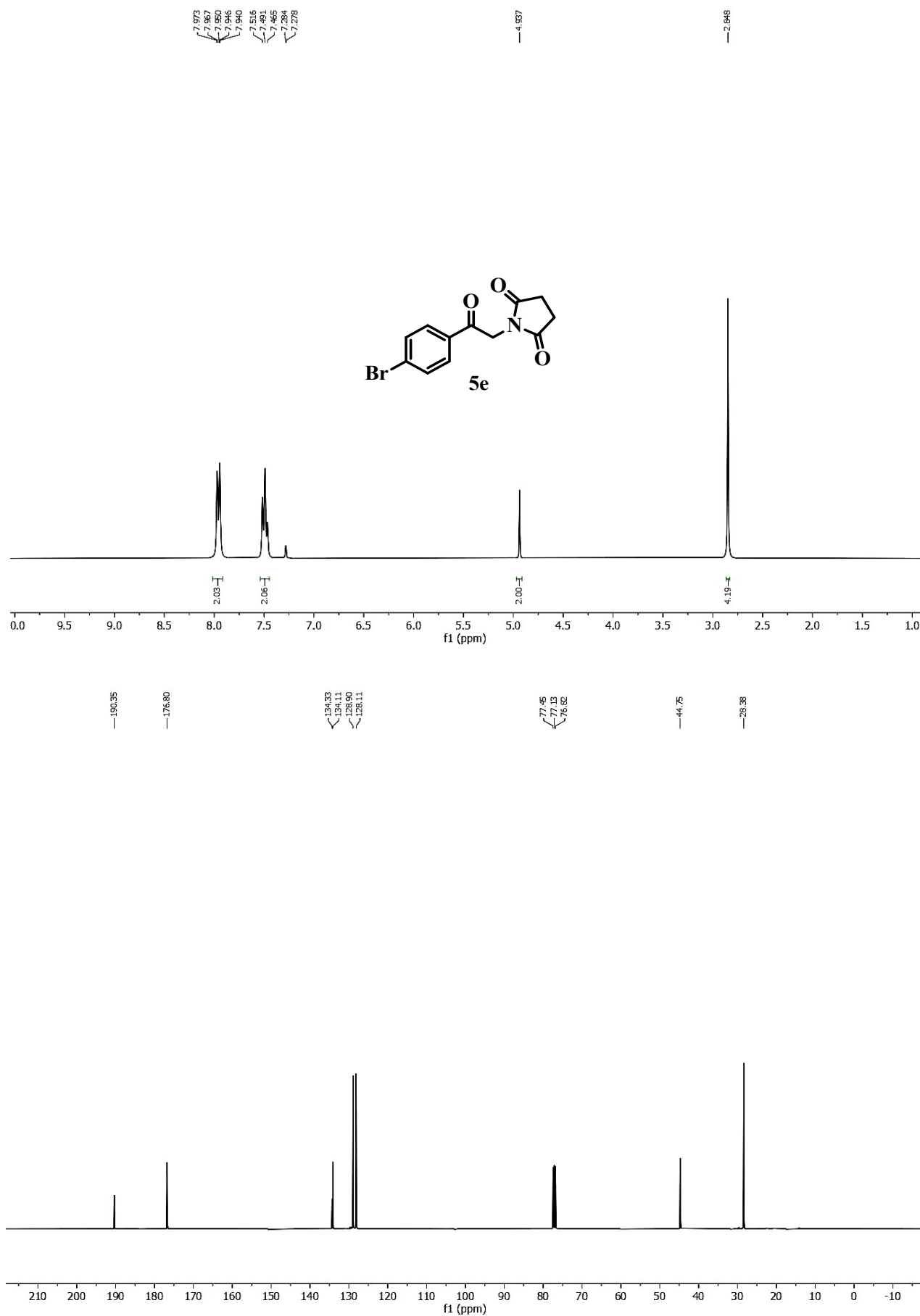
SI Figure 11: ^1H and ^{13}C -NMR spectra of compound **5c**



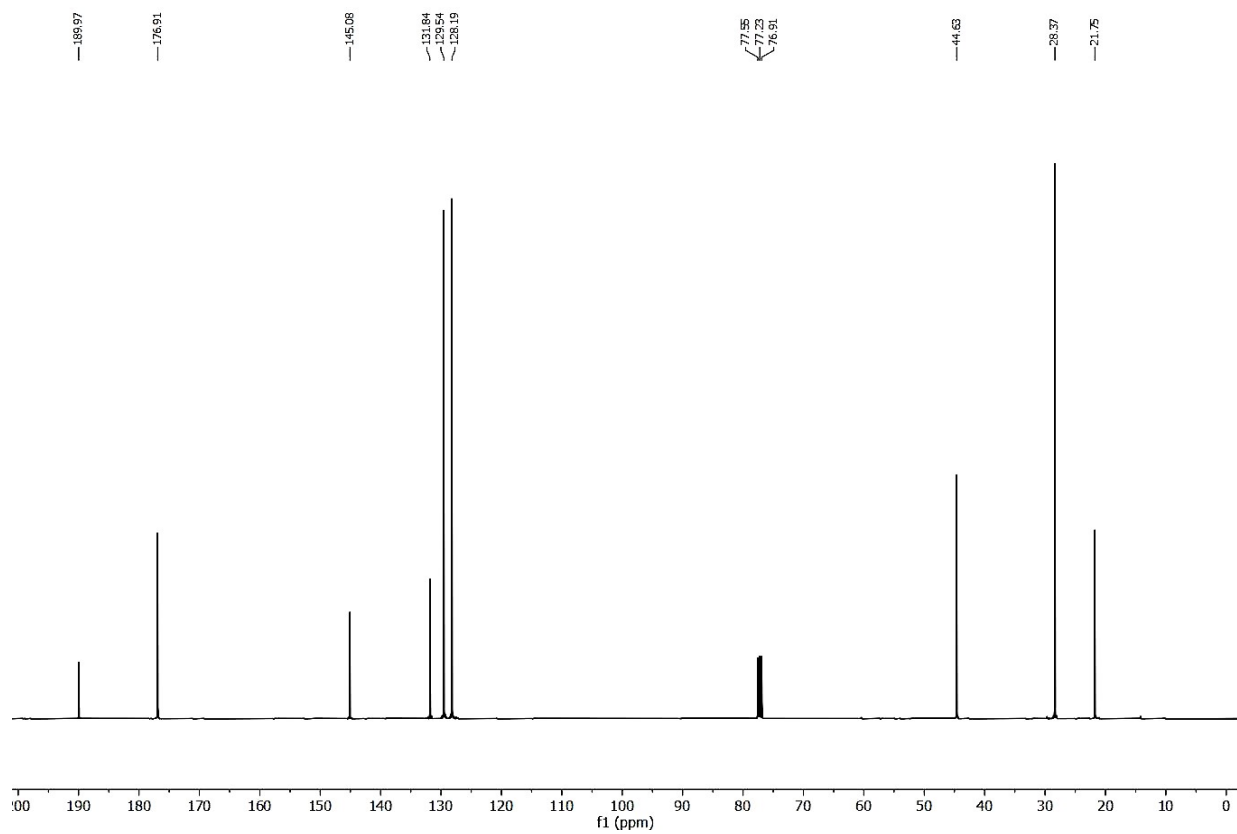
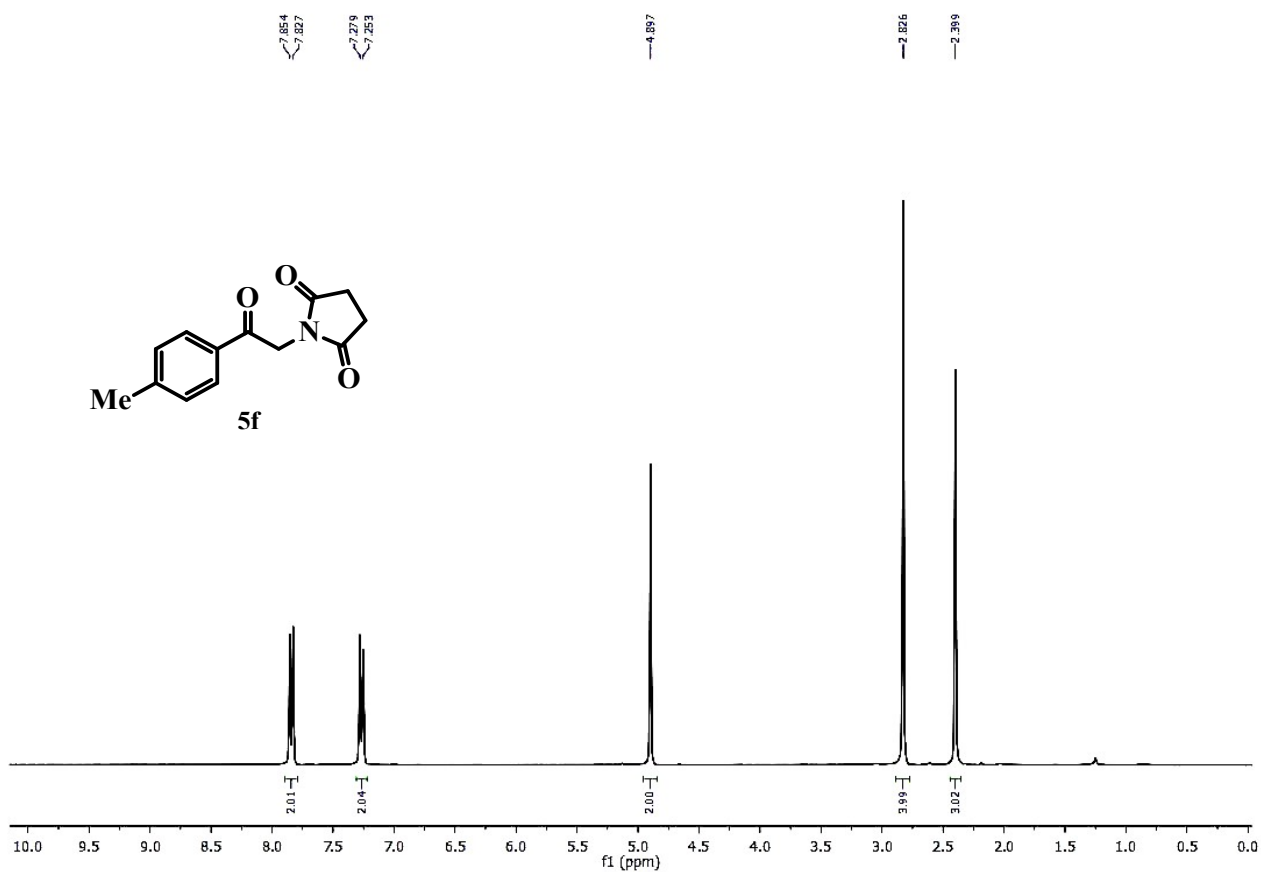
SI Figure 12: ^1H and ^{13}C -NMR spectra of compound **5d**



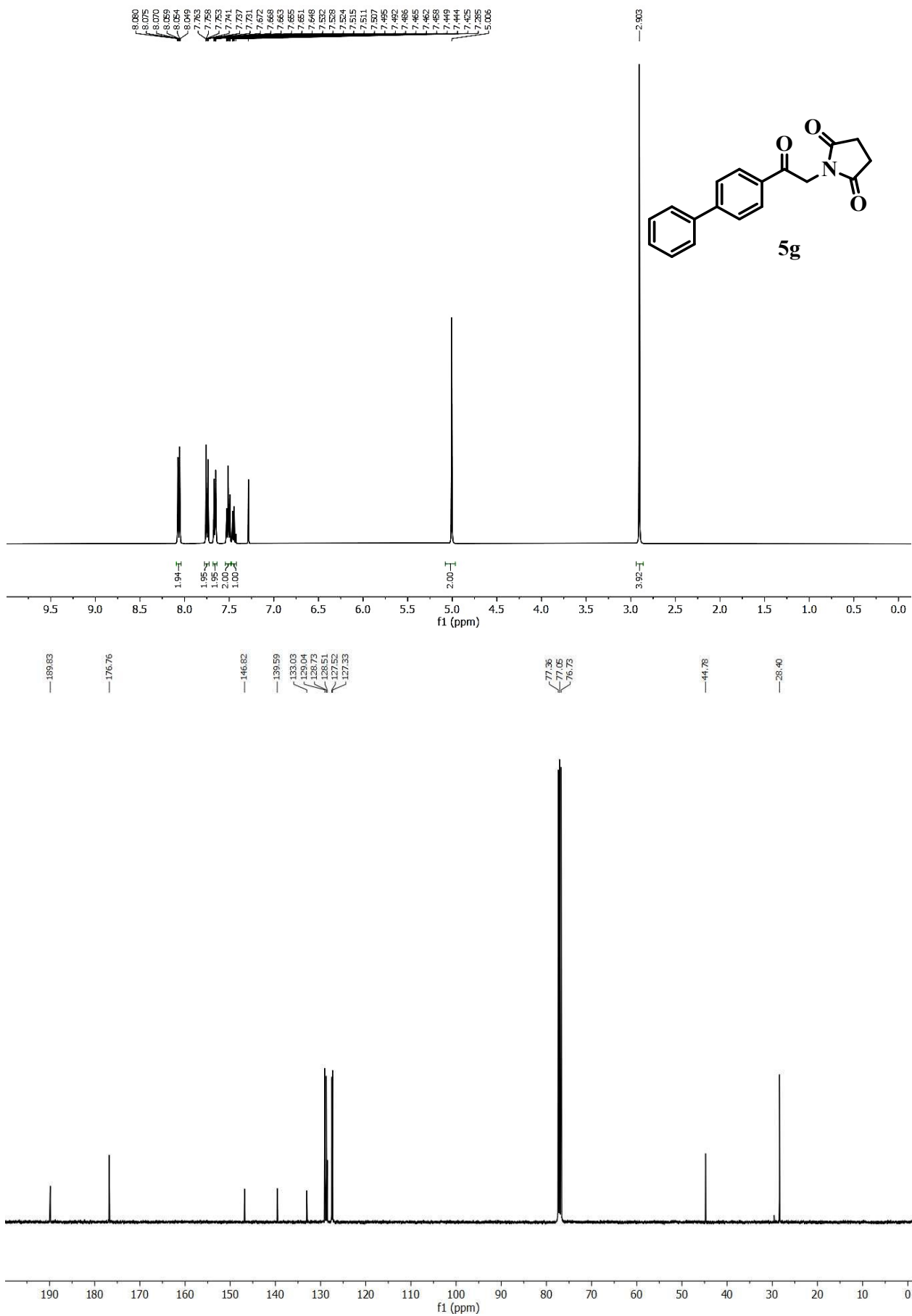
SI Figure 13: ^1H and ^{13}C -NMR spectra of compound **5e**



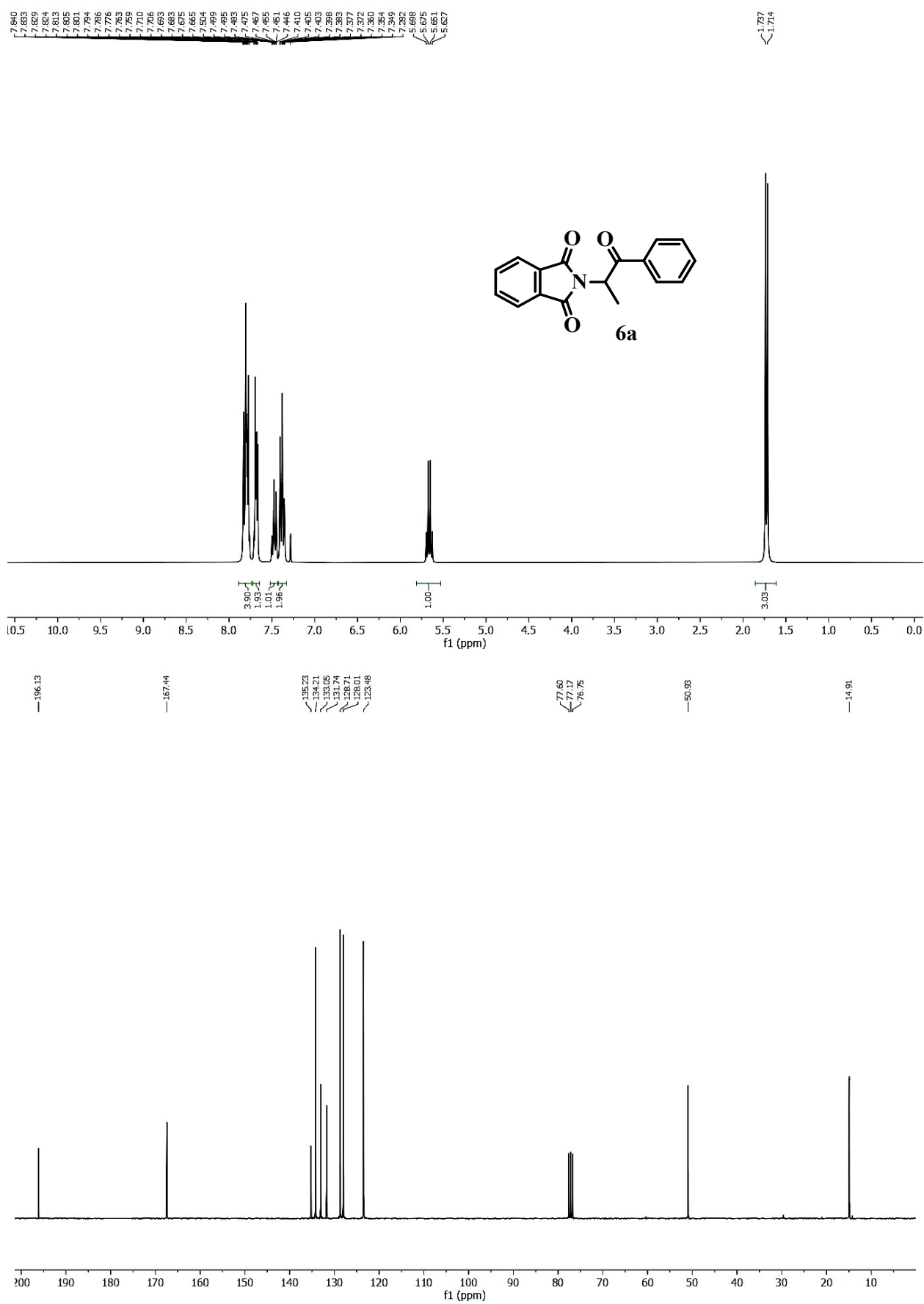
SI Figure 14: ^1H and ^{13}C -NMR spectra of compound **5f**



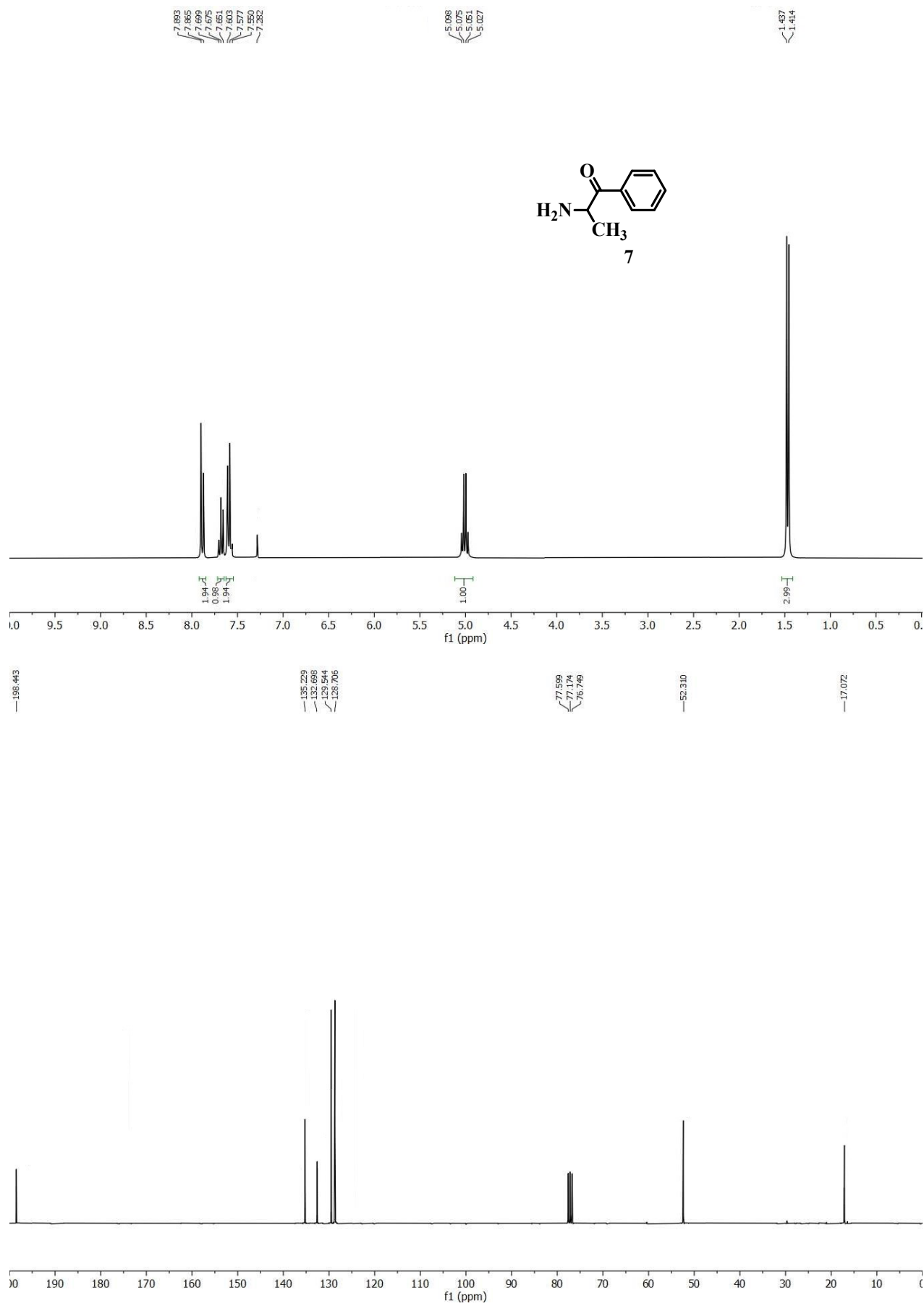
SI Figure 15: ^1H and ^{13}C -NMR spectra of compound **5g**



SI Figure 16: ¹H and ¹³C-NMR spectra of compound 6a



SI Figure 17: ^1H and ^{13}C -NMR spectra of compound 7



SI Figure 18: ^1H and ^{13}C -NMR spectra of compound **8a**

