

Supporting Information

for

Fluorinated and non-fluorinated 1,4-diarylpirazoles via MnO₂-mediated mechanochemical deacylative oxidation of 5-acylpirazolines

Greta Utecht-Jarzyńska,^a Anna Kowalczyk,^{a,b} Marcin Jasiński^{a,*}

^a *Faculty of Chemistry, University of Lodz, Tamka 12, 91403 Łódź, Poland*

^b *The University of Lodz Doctoral School of Exact and Natural Sciences, Banacha 12/16, 90237 Łódź, Poland*

* Corresponding author: Marcin Jasiński – *University of Lodz, Faculty of Chemistry, Łódź, Poland;*

<https://orcid.org/0000-0002-8789-9690>;

Phone: +48-42-635 5766;

Email: mjasinski@uni.lodz.pl

Content

Copies of ¹ H and ¹³ C NMR spectra of new compounds	S2
Copies of ¹⁹ F NMR spectra of new pyrazolines and pyrazoles	S22

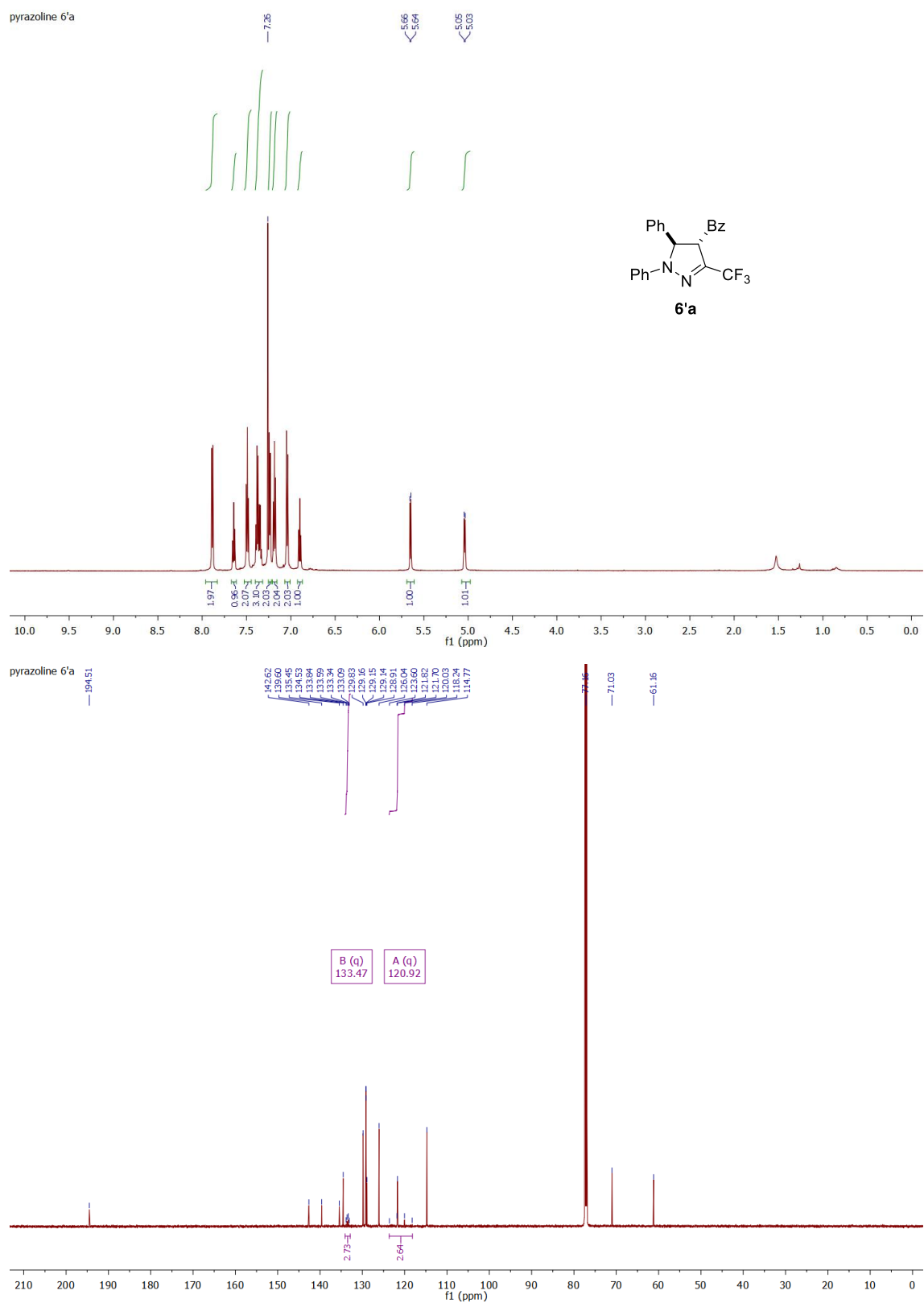


Figure S1. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **6'a**.

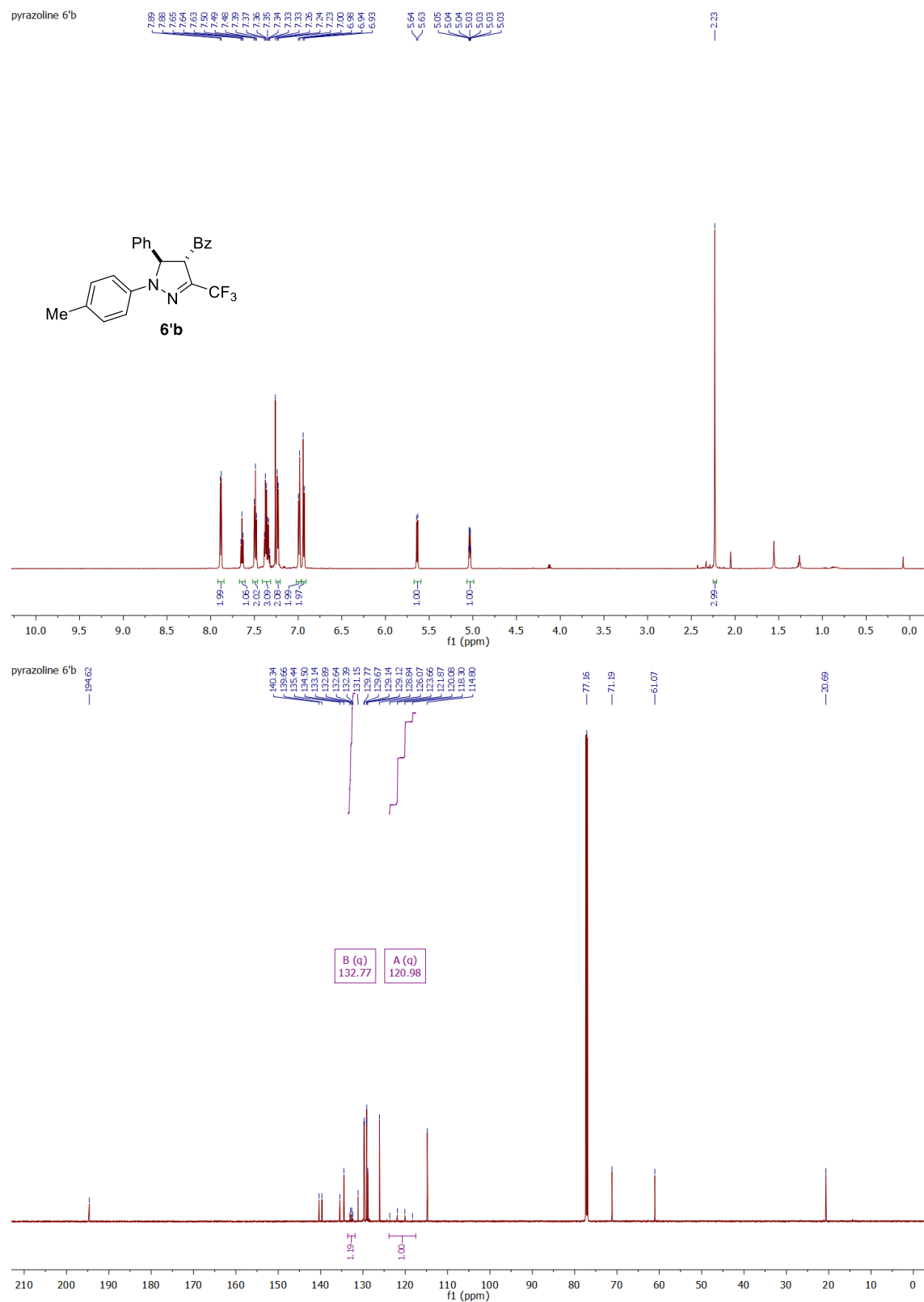


Figure S2. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound 6'b.

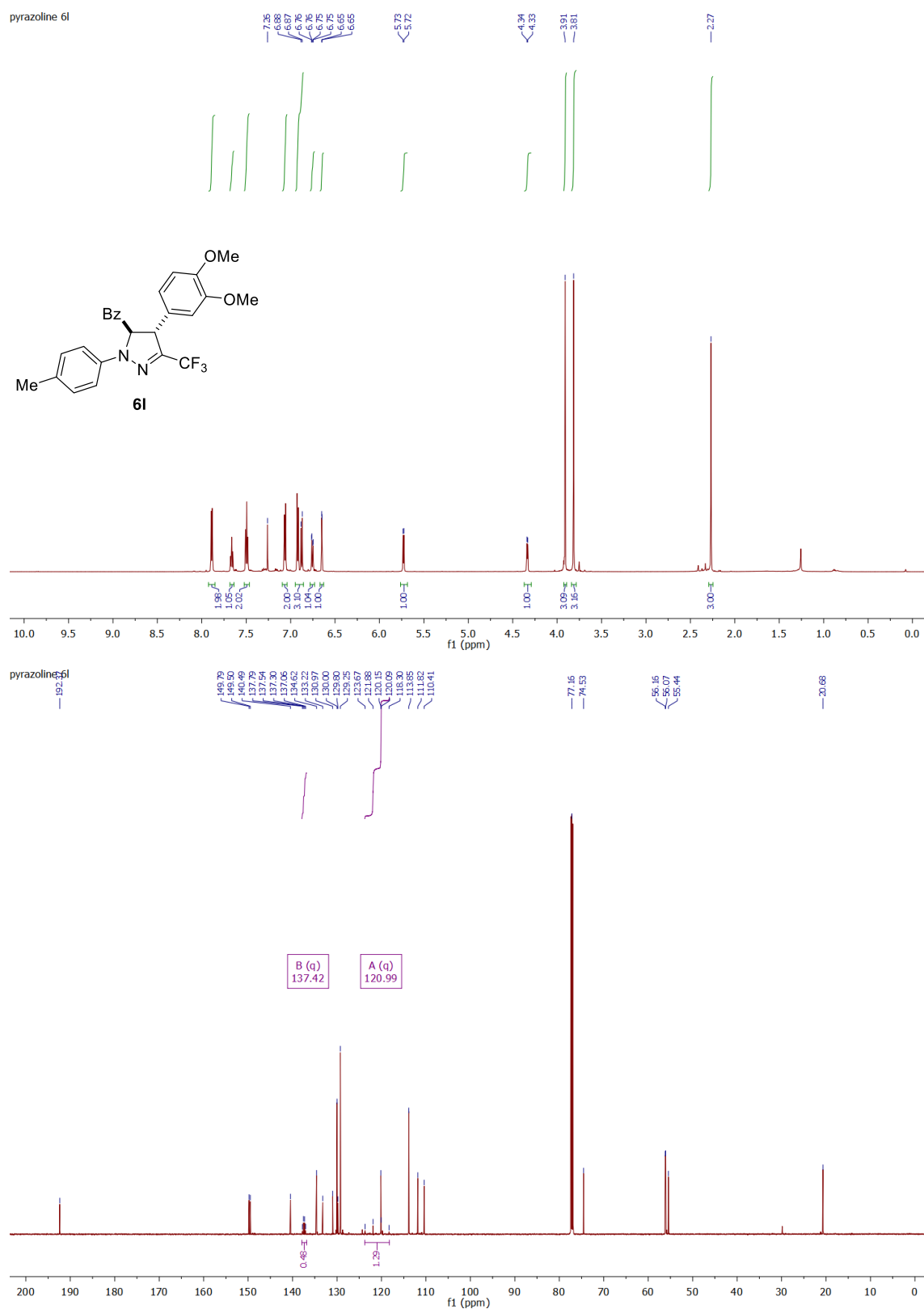


Figure S3. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound 6l.

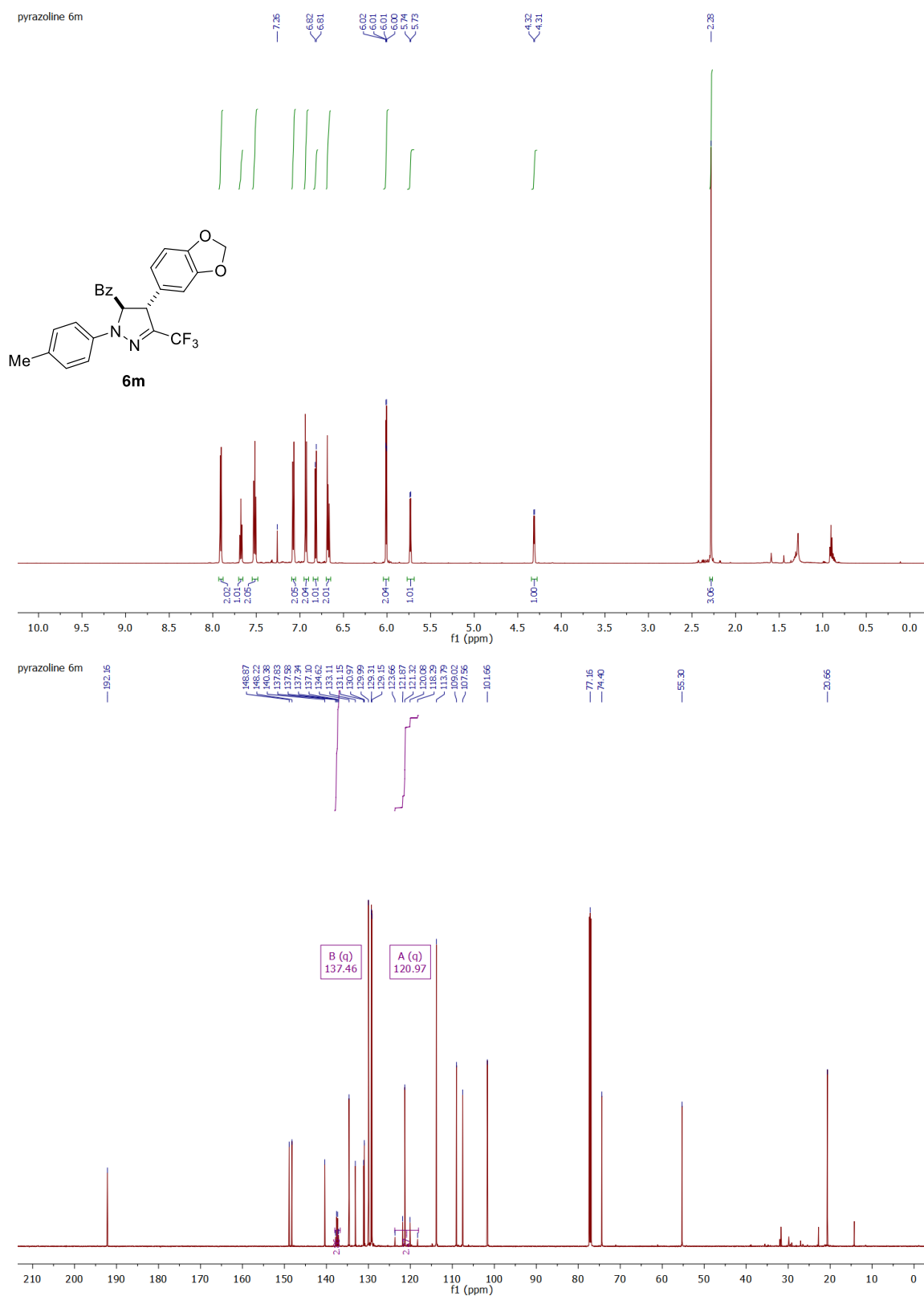


Figure S4. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **6m**.

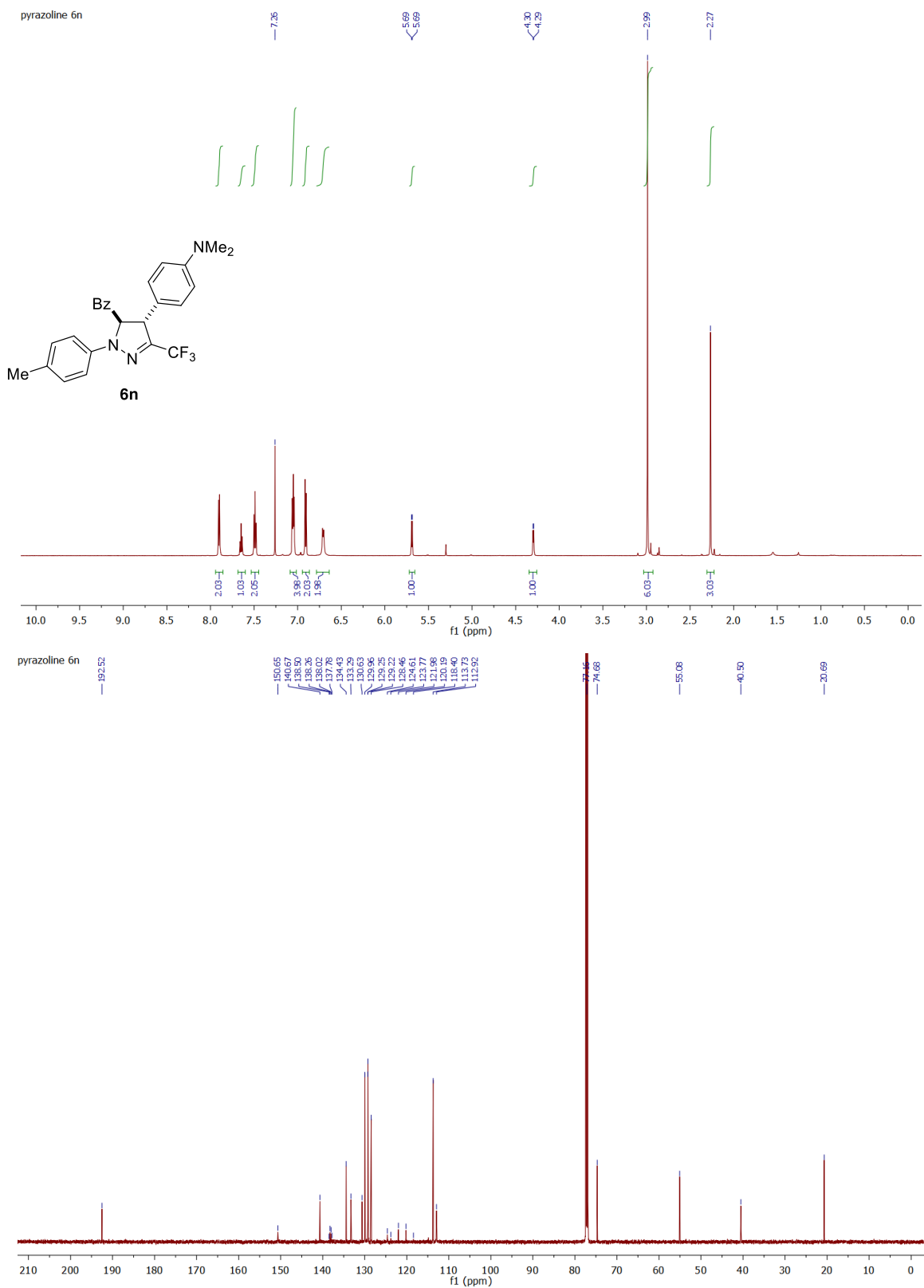


Figure S5. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **6n**.

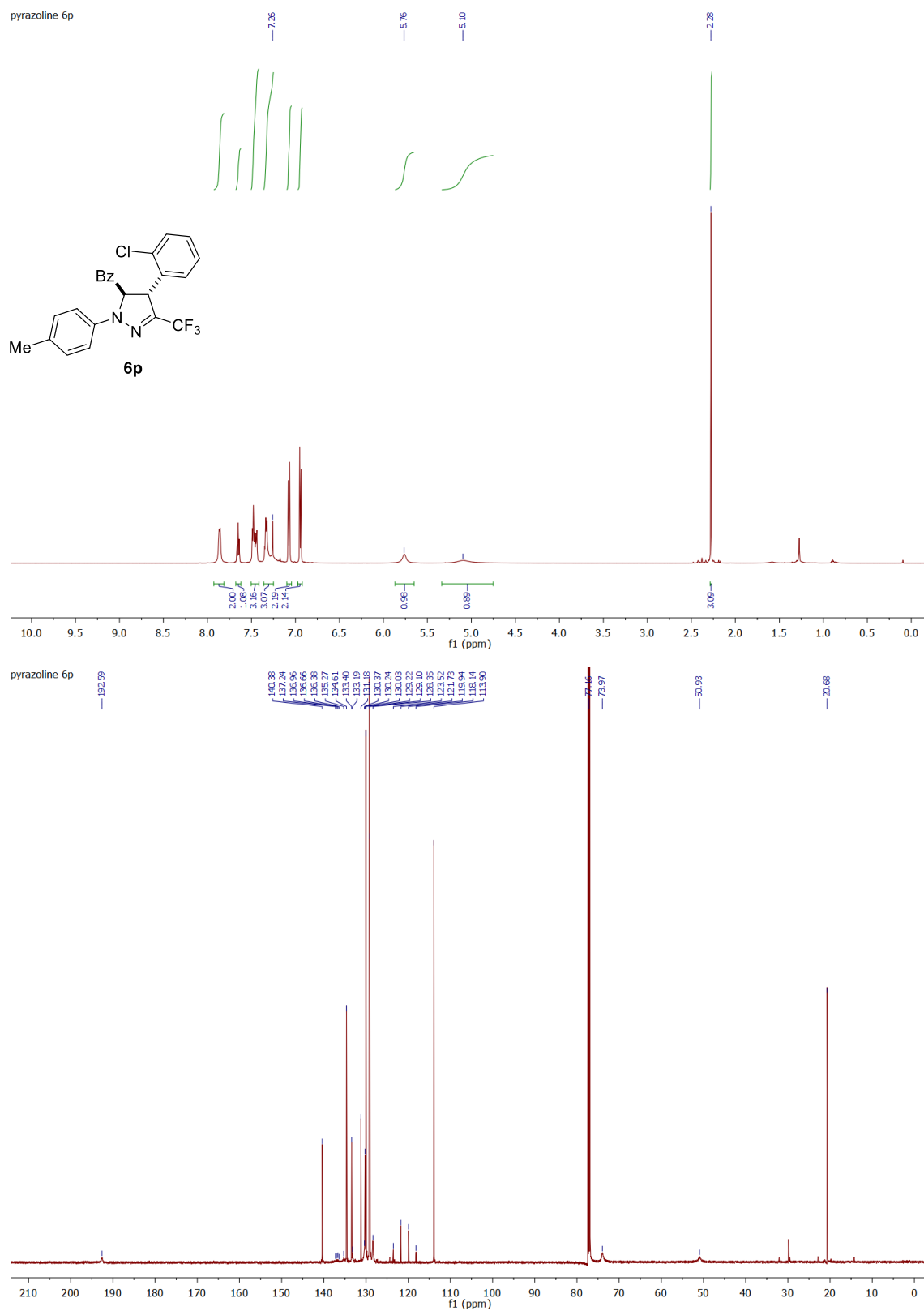


Figure S6. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **6p**.

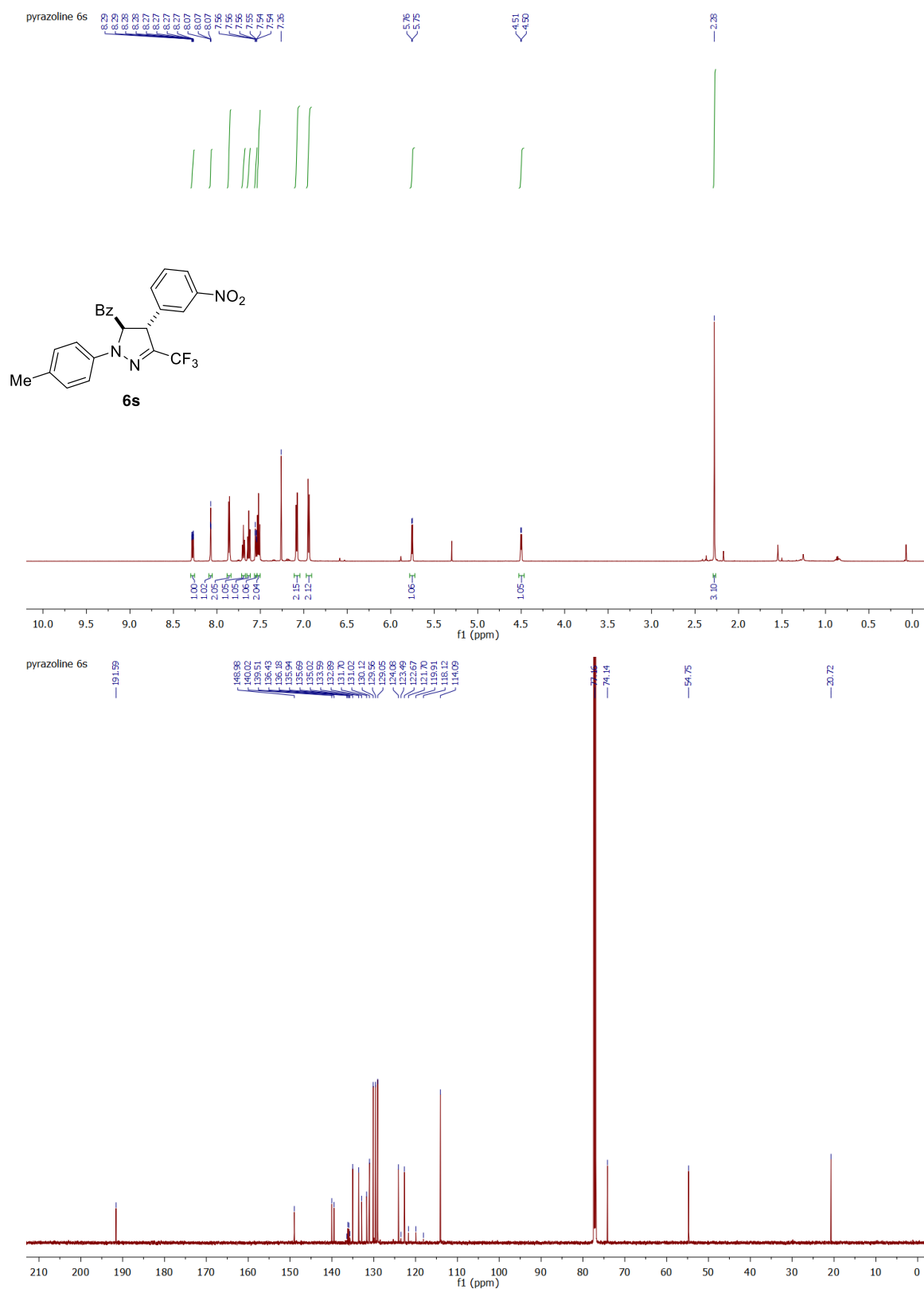


Figure S7. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **6s**.

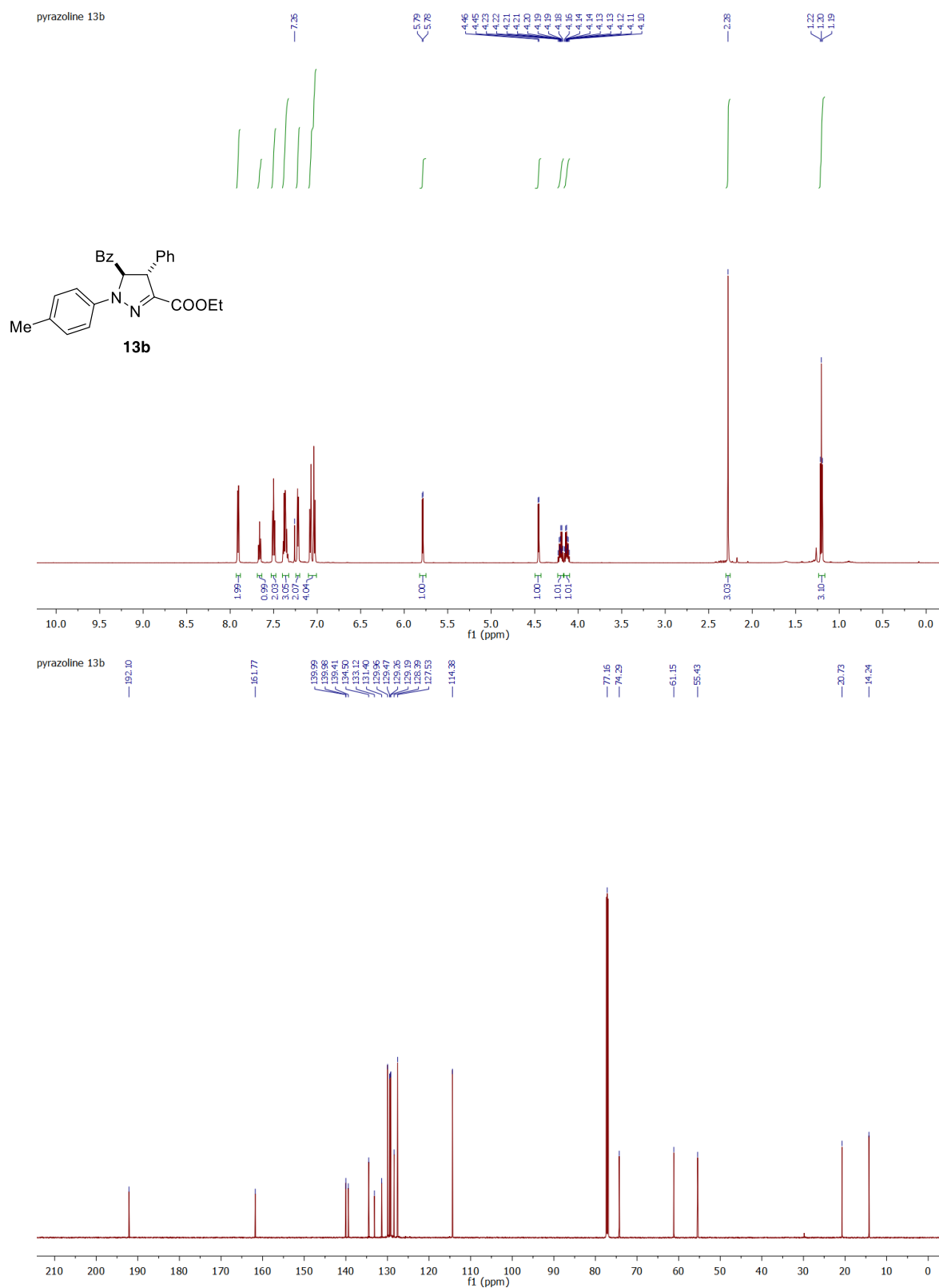


Figure S8. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **13b**.

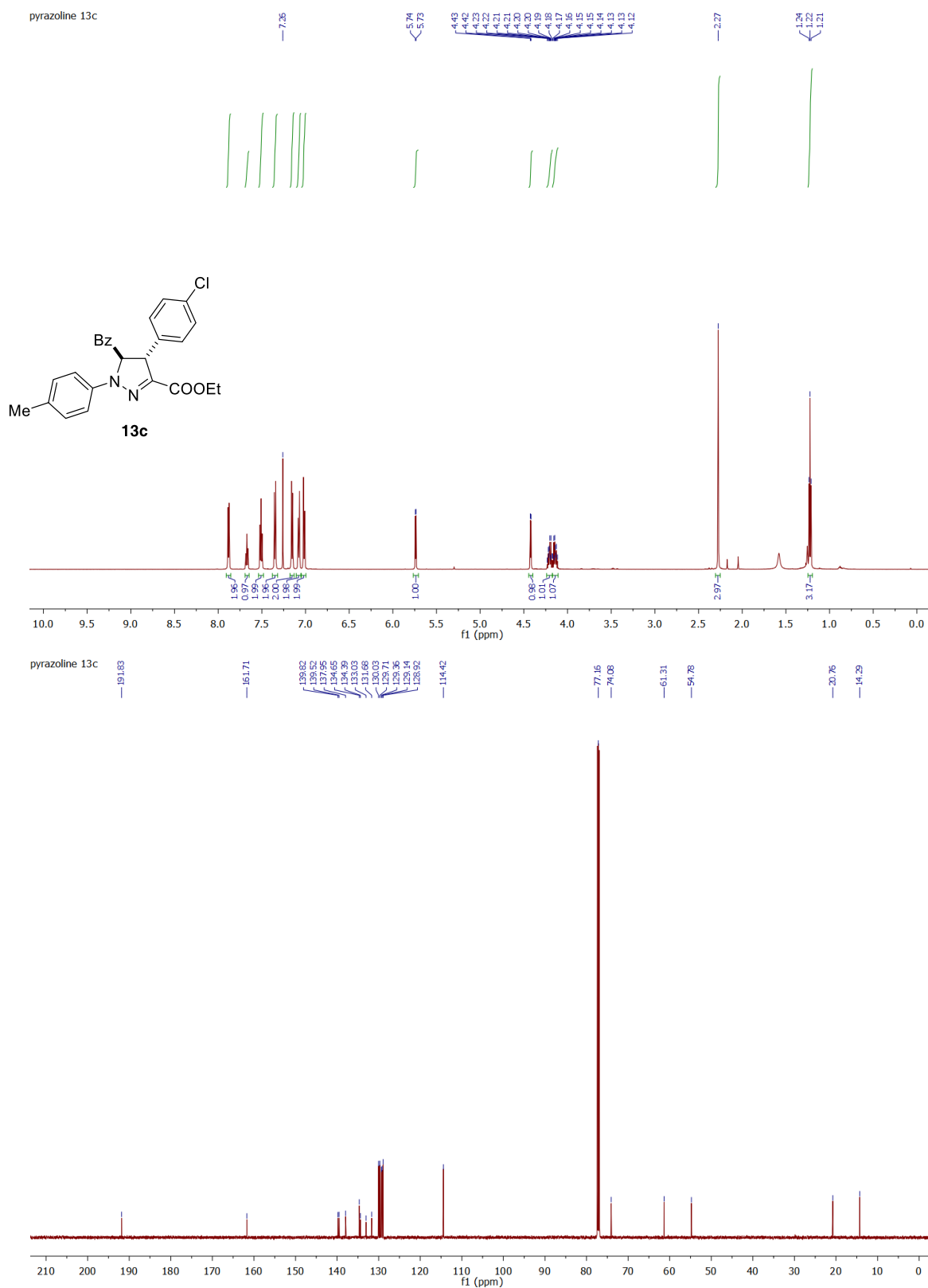


Figure S9. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **13c**.

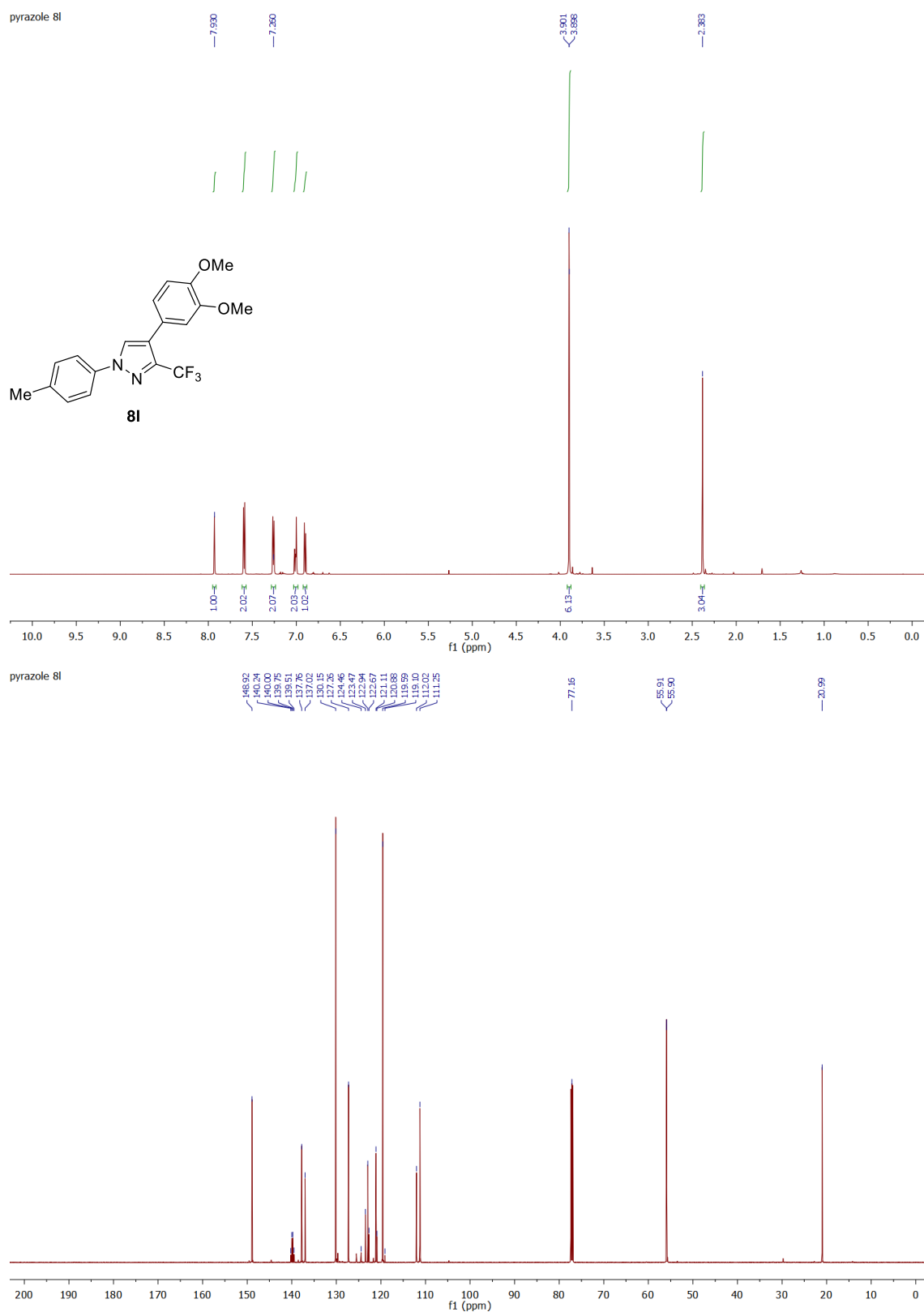


Figure S10. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **8I**.

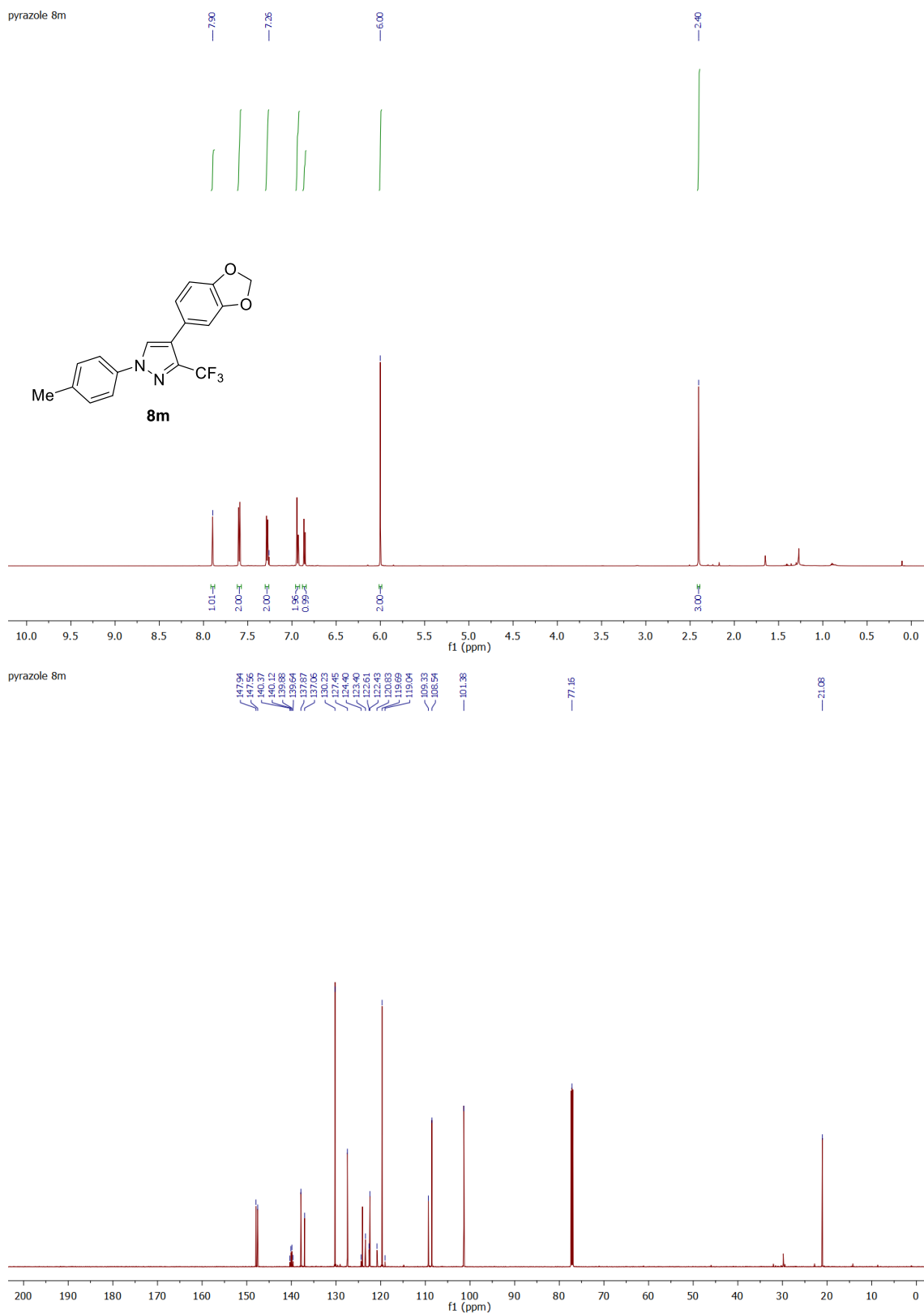


Figure S11. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **8m**.

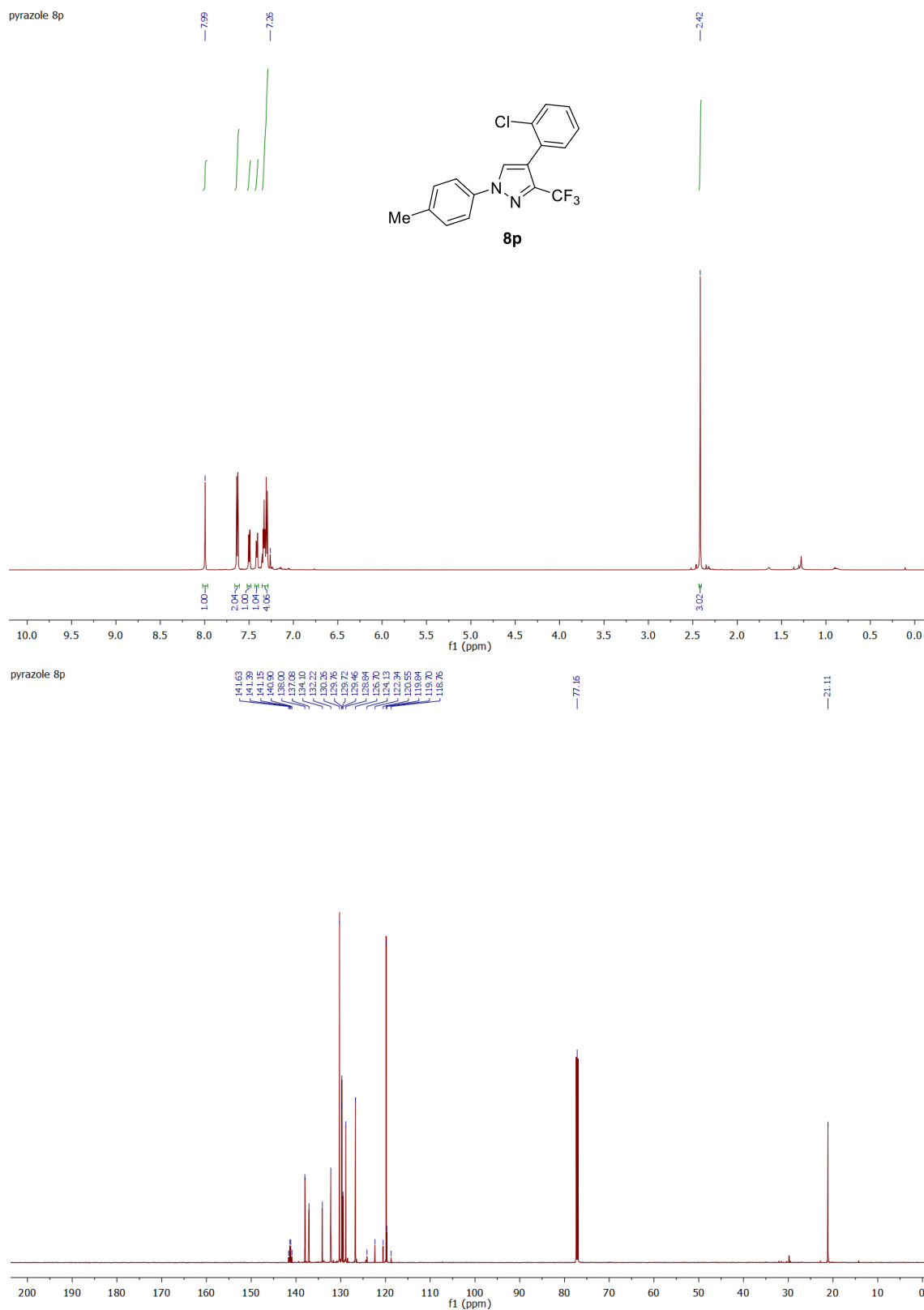


Figure S12. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **8p**.

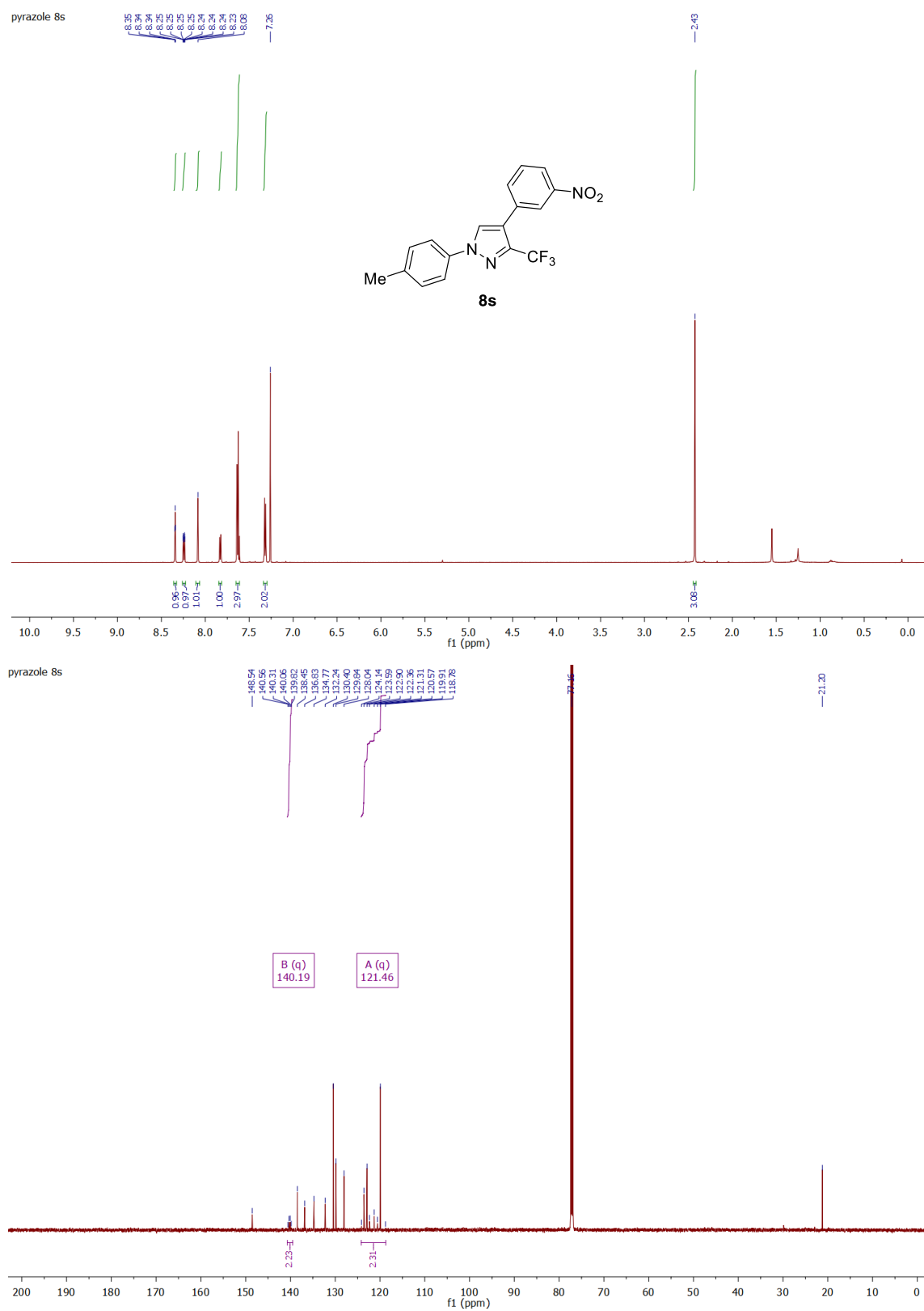


Figure S13. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **8s**.

pyrazole 12b

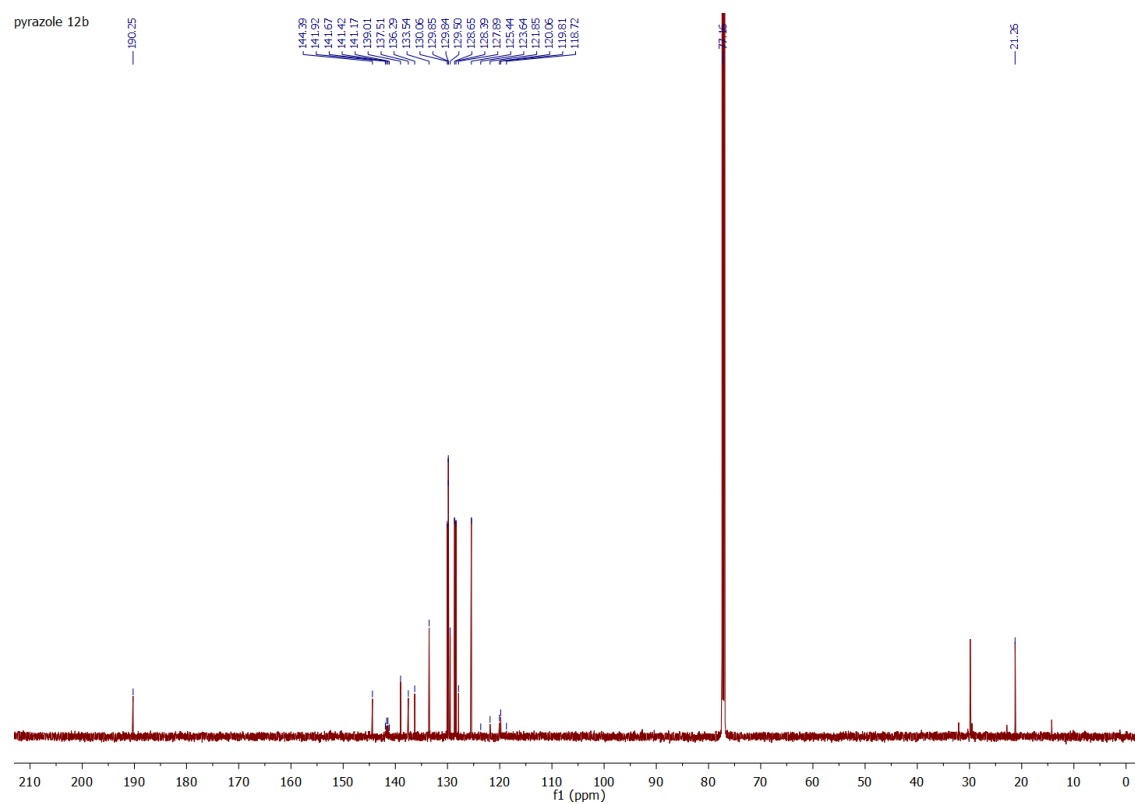
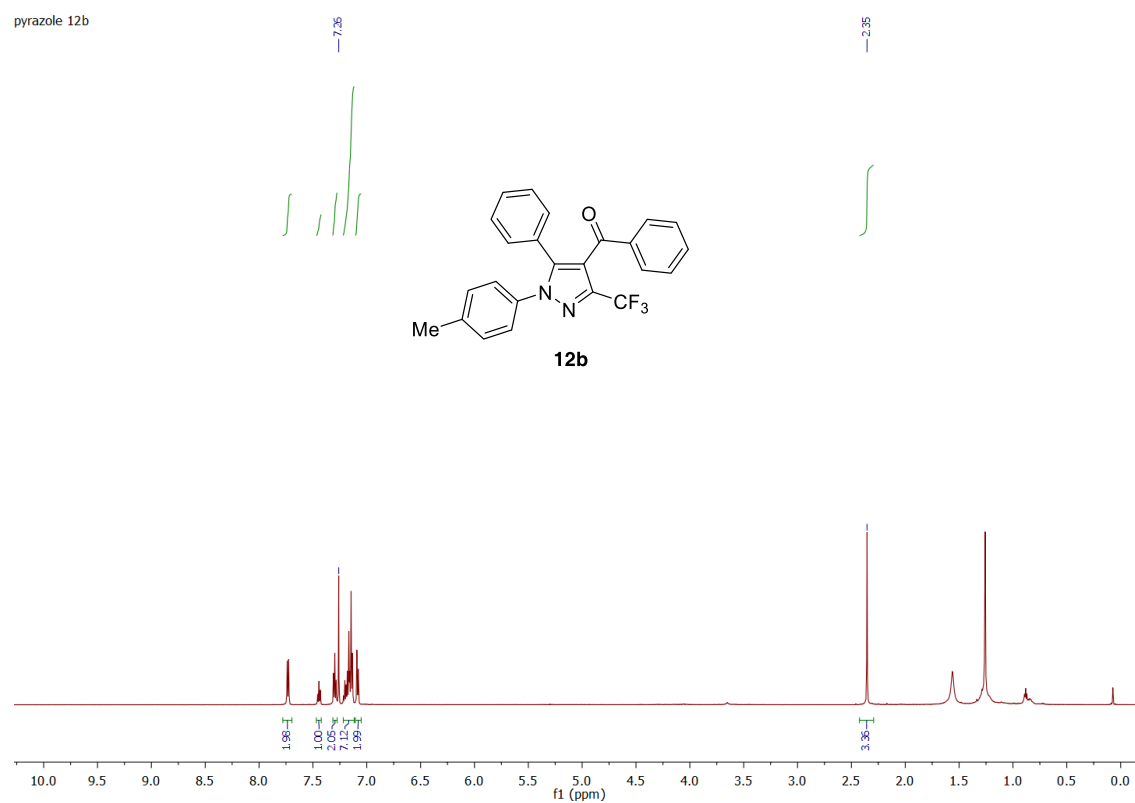


Figure S14. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **12b**.

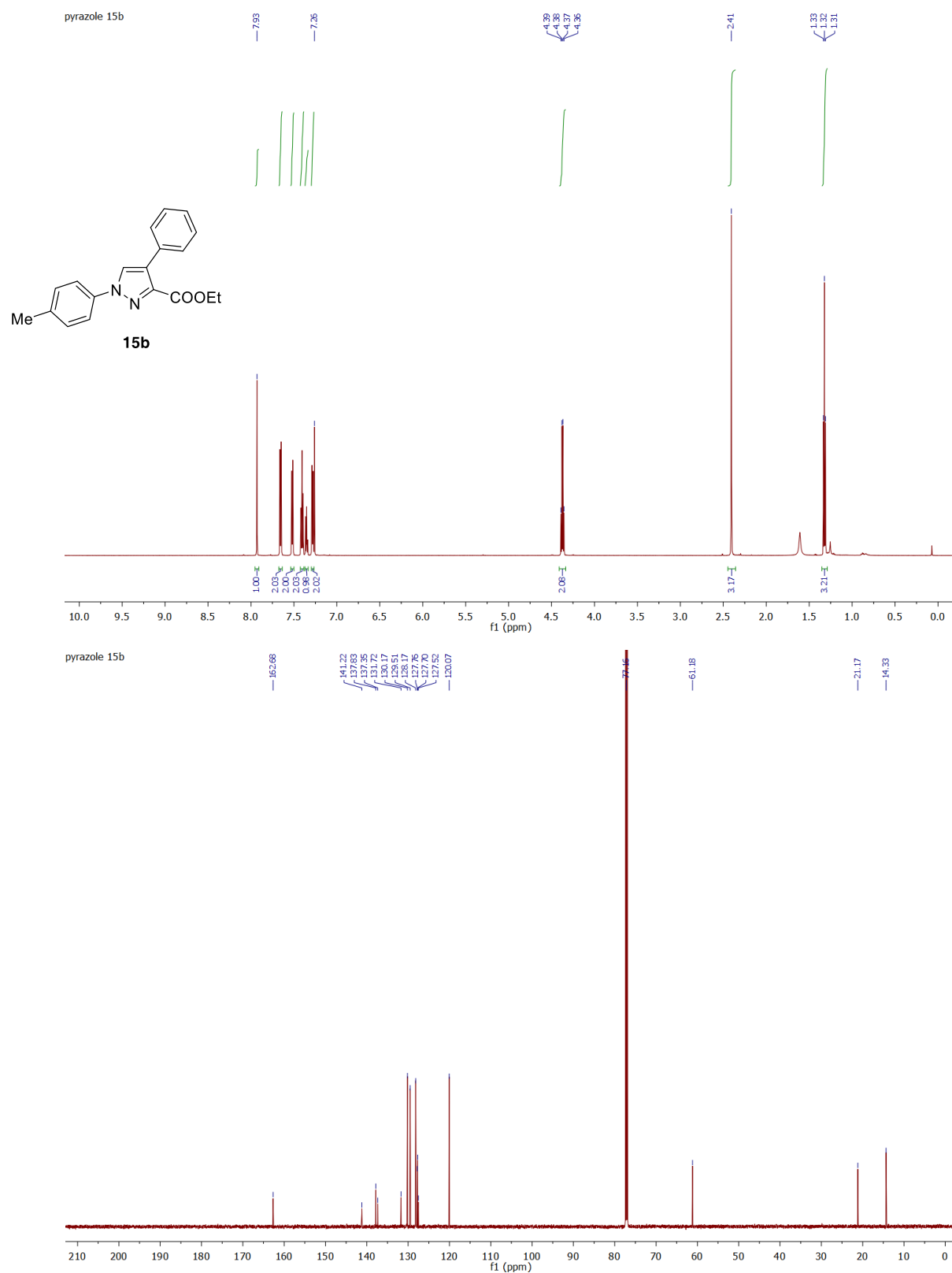


Figure S15. ^1H NMR (600 MHz, CDCl_3) and ^{13}C NMR (151 MHz, CDCl_3) spectra for compound **15b**.

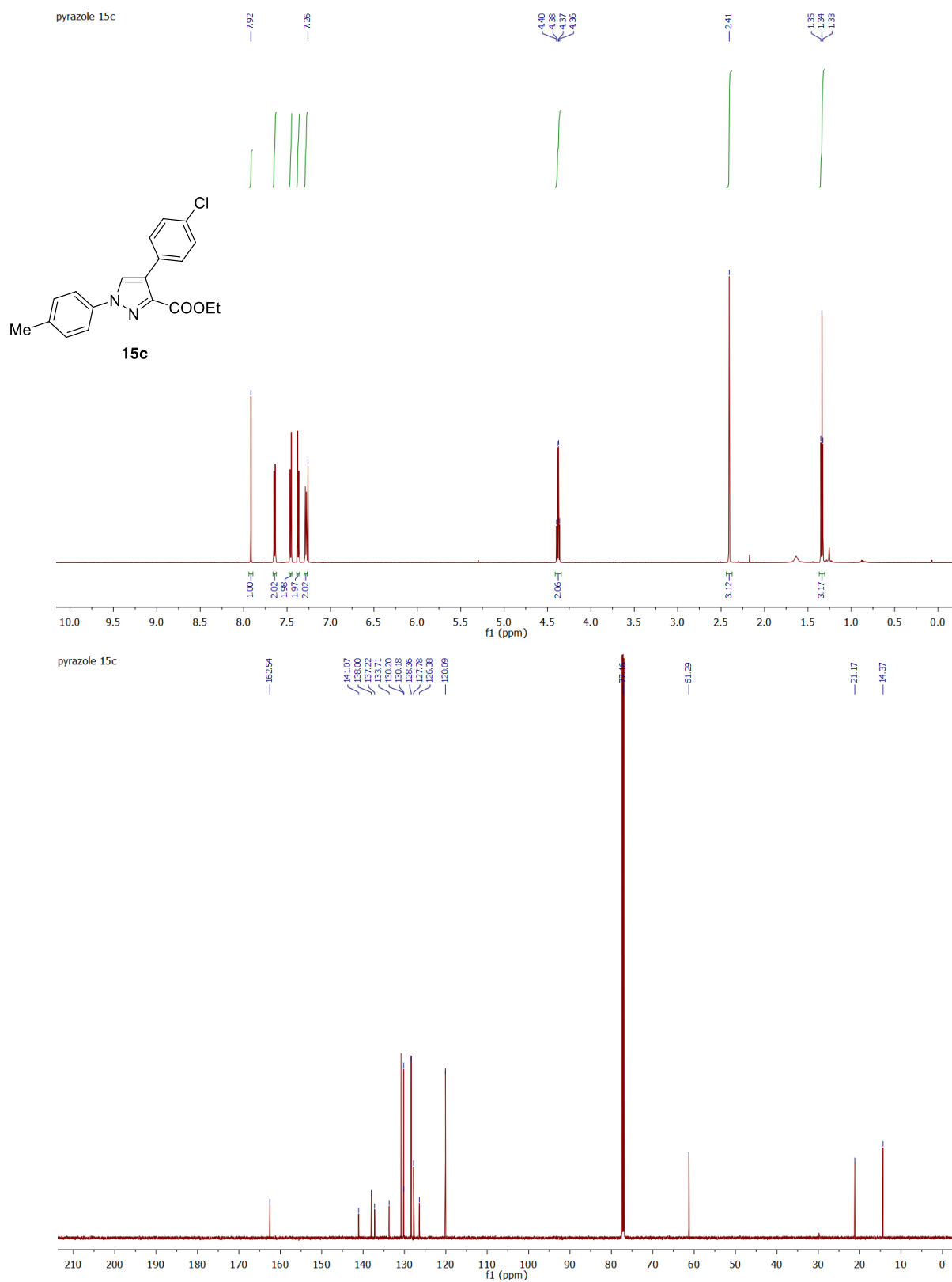


Figure S16. ^1H NMR (600 MHz, CDCl_3) and ^{13}C NMR (151 MHz, CDCl_3) spectra for compound 15c.

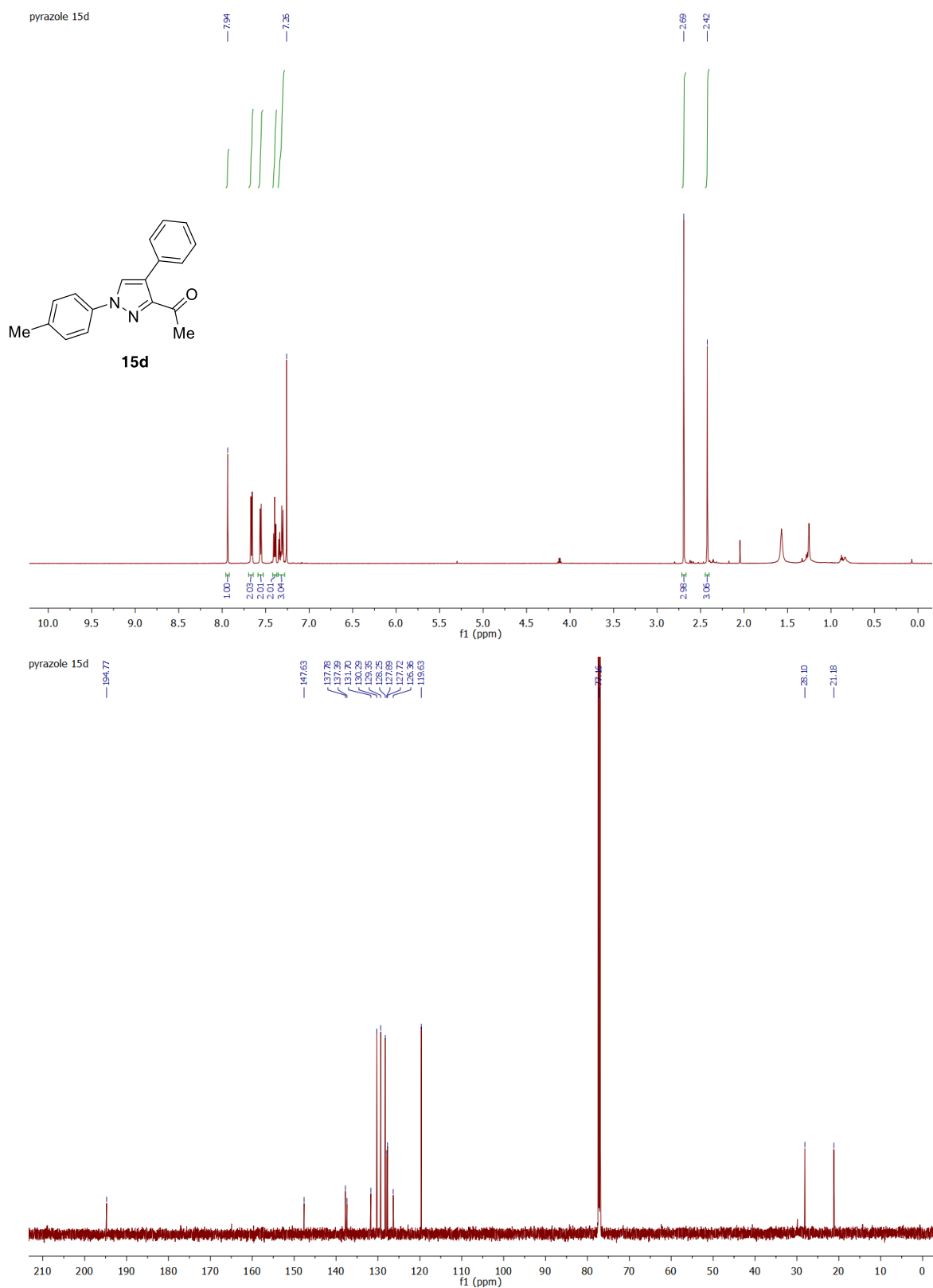


Figure S17. ^1H NMR (600 MHz, CDCl_3) and ^{13}C NMR (151 MHz, CDCl_3) spectra for compound **15d**.

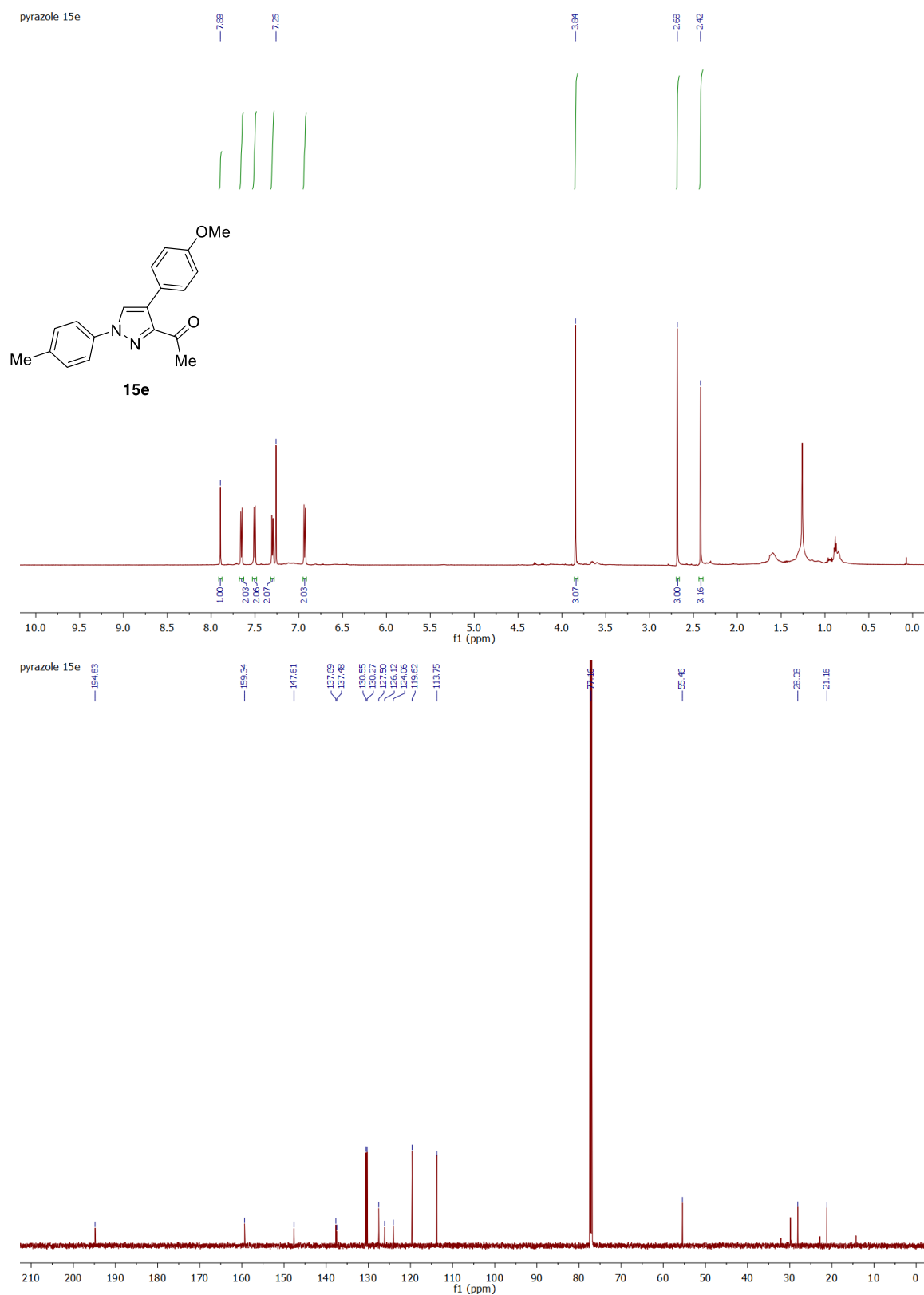


Figure S18. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **15e**.

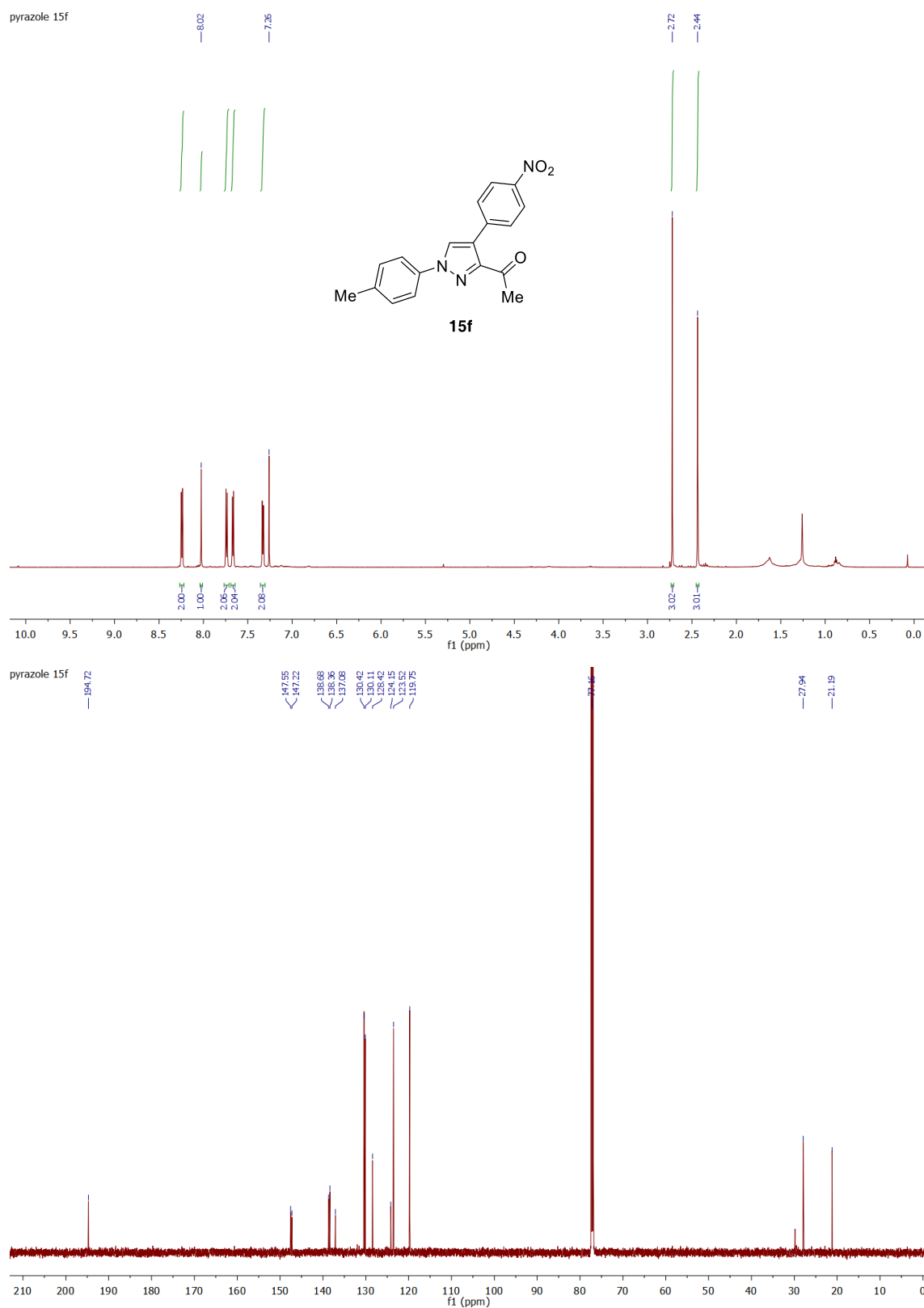


Figure S19. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **15f**.

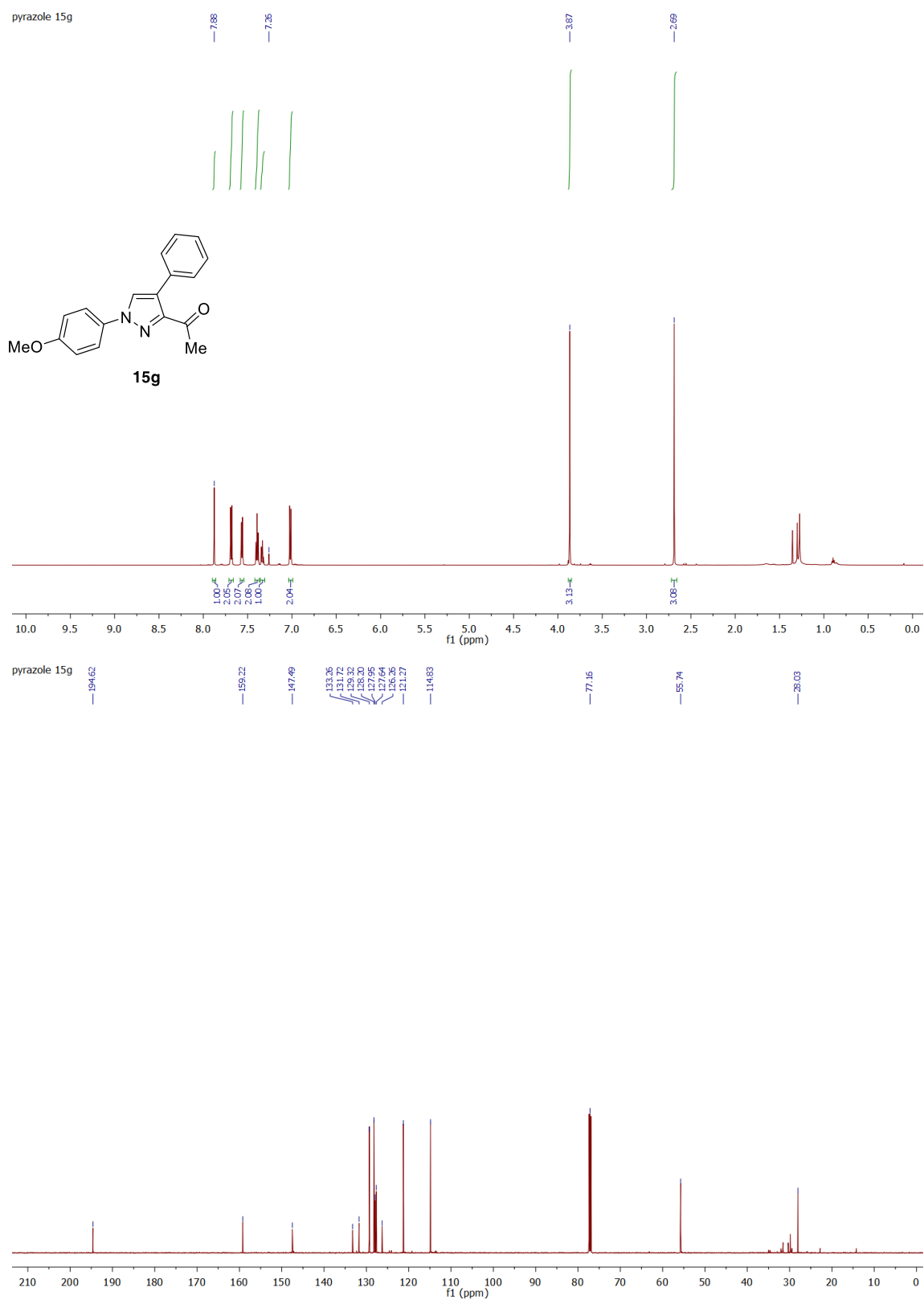
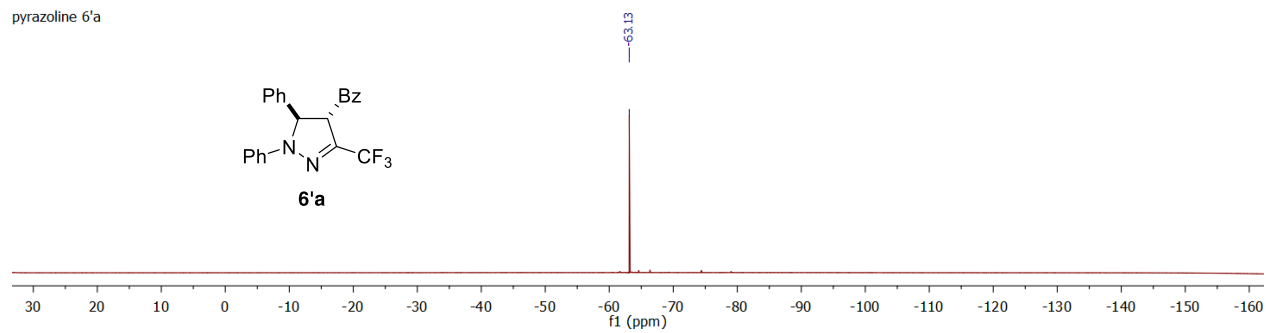
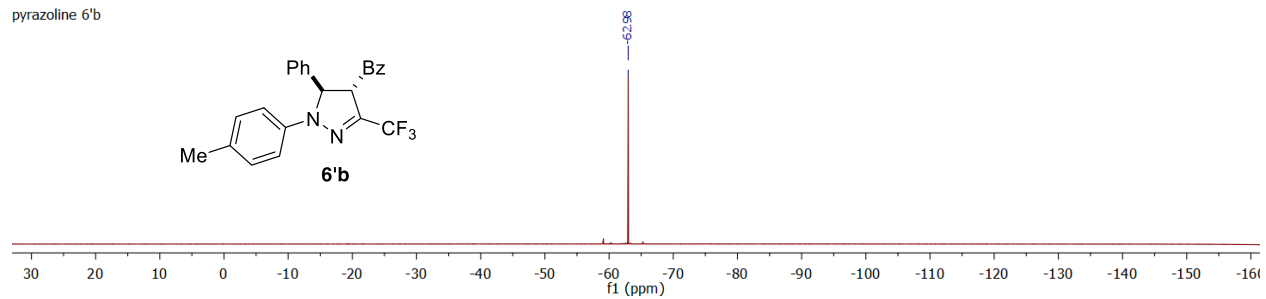


Figure S20. ¹H NMR (600 MHz, CDCl₃) and ¹³C NMR (151 MHz, CDCl₃) spectra for compound **15g**.

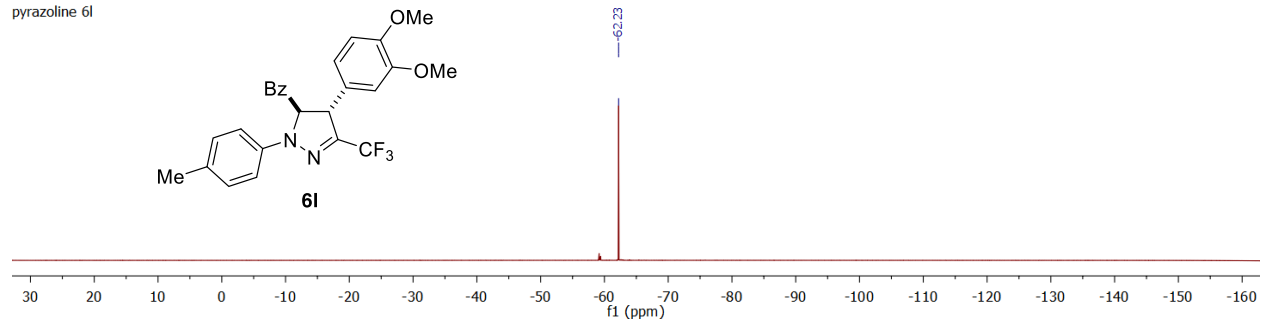
pyrazoline 6'a



pyrazoline 6'b



pyrazoline 6l



pyrazoline 6m

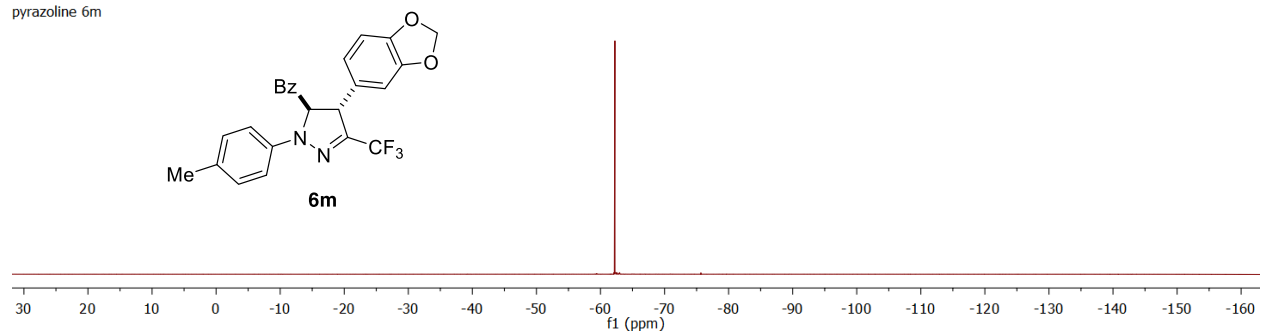


Figure S21. ^{19}F NMR (565 MHz, CDCl_3) spectra for pyrazolines 6'a, 6'b, 6l and 6m.

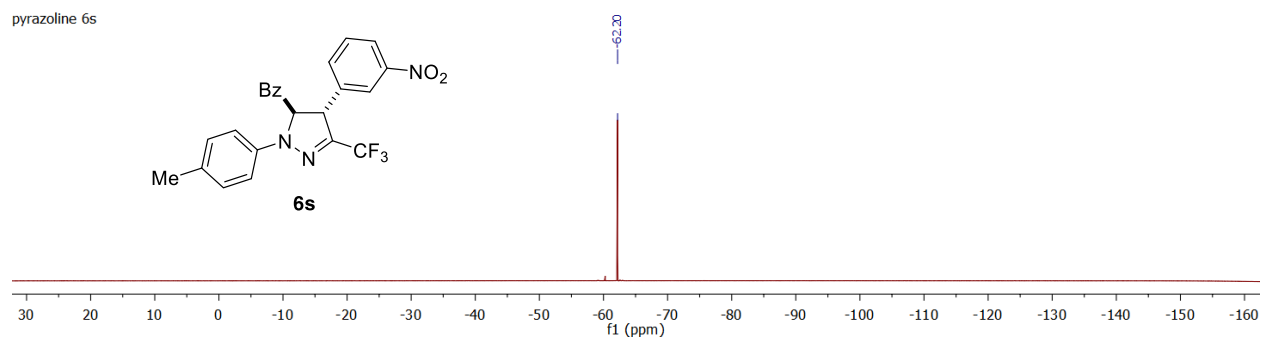
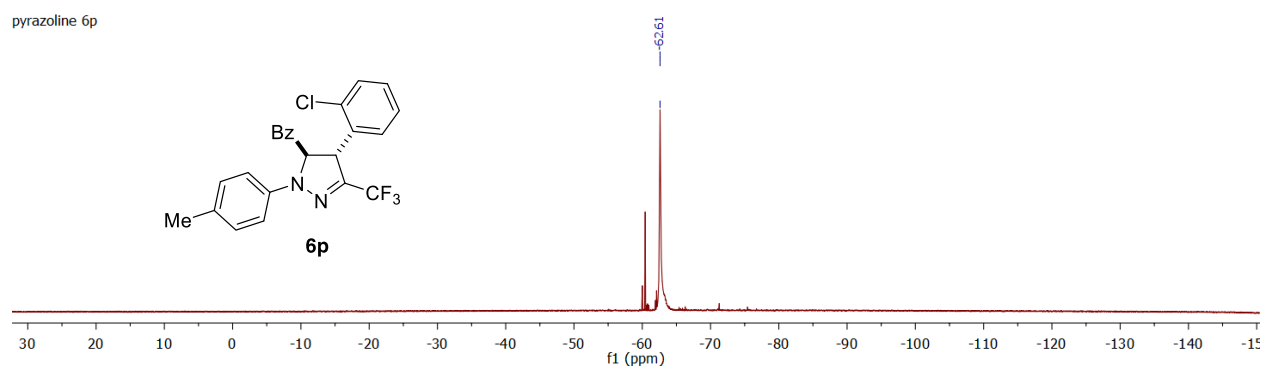
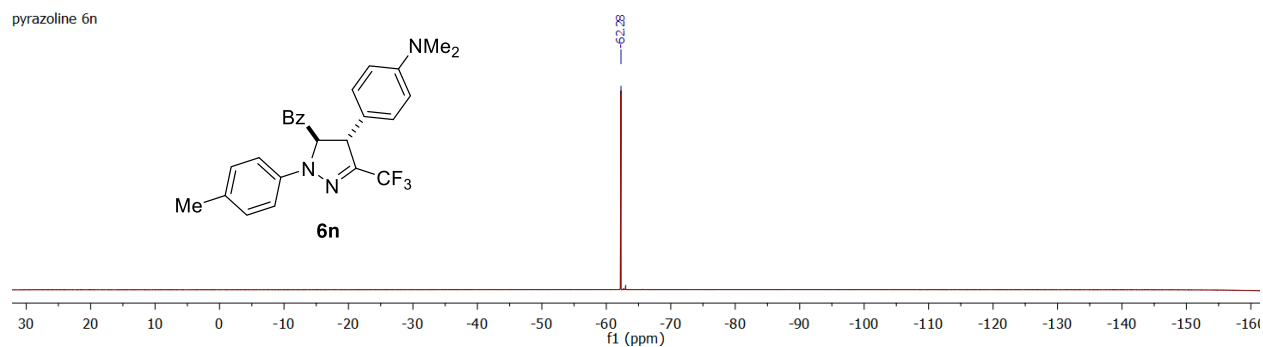


Figure S22. ^{19}F NMR (565 MHz, CDCl_3) spectra for pyrazolines **6n**, **6p** and **6s**.

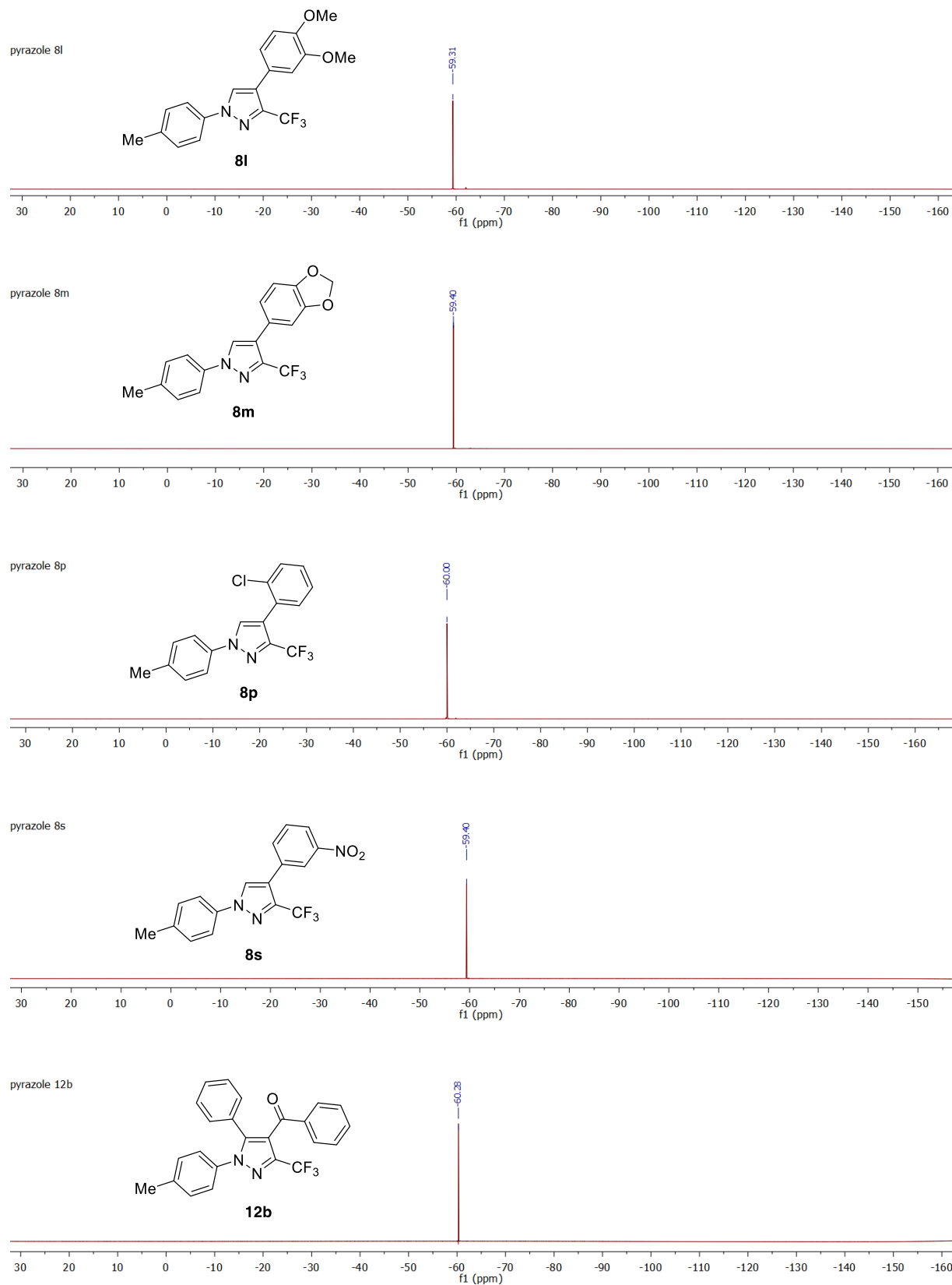


Figure S23. ^{19}F NMR (565 MHz, CDCl_3) spectra for pyrazoles **8l**, **8m**, **8p**, **8s** and **12b**.