

Supporting Information

EFFICIENT APPROACH TOWARDS THE POLYSUBSTITUTED 4*H*-PYRAN HYBRID QUINOLONE DERIVATIVES AND SUBSEQUENT COPPER-CATALYZED HYDROXYLATION OF HALOARENES

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1. Crystallographic data and structure refinements summary for compound **3i**

Diethyl 4-(6,7-dimethyl-2-oxo-1,2-dihydroquinolin-3-yl)-2,6-dimethyl-4H-pyran-3,5-dicarboxylate (**3i**)

Compound **3i** was recrystallized from EtOH by slow evaporation in a vial with diameter of 1.5 cm and length 4.5 cm at room temperature to give appropriate size and quality crystals for X-ray diffraction analysis.

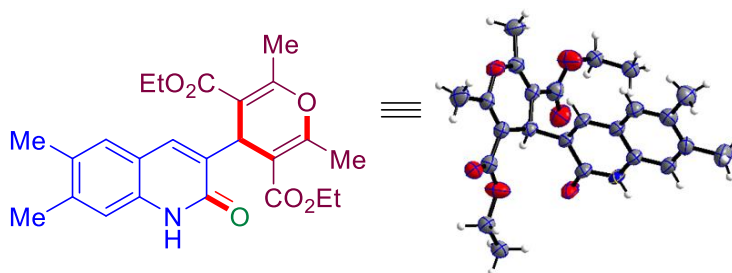


Figure 1: ORTEP diagrams of **3i** (CCDC: 2032414) thermal ellipsoids are at 50% probability. Hydrogen atoms are reported in white, carbon atoms in grey, oxygen atoms in red, nitrogen atoms in blue.

CCDC number	CCDC2032414
Formula	C ₂₄ H ₂₇ NO ₆
Formula weight	425.47
Color	Off-white solid
Temperature/K	296 K
Radiation	Cu K α
Wavelength/Å	0.71073
Crystal system	Triclinic
Space group	P-1
a (Å)	8.9897(5)
b (Å)	10.4019(6)
c (Å)	12.5556(7)
α (°)	84.725(2)
β (°)	83.639(2)
γ (°)	69.687(2)
Volume (Å ³)	1092.48(11)
Z	2
Density (g/ml)	1.293

μ (1/mm)	0.093
F (000)	452
2θ (max)	50.0
No. of unique reflections	3854
No. of parameters	286
R_obs, wR ₂ _obs	0.0557 and 0.1817
Goof	0.999

2. NMR spectral data

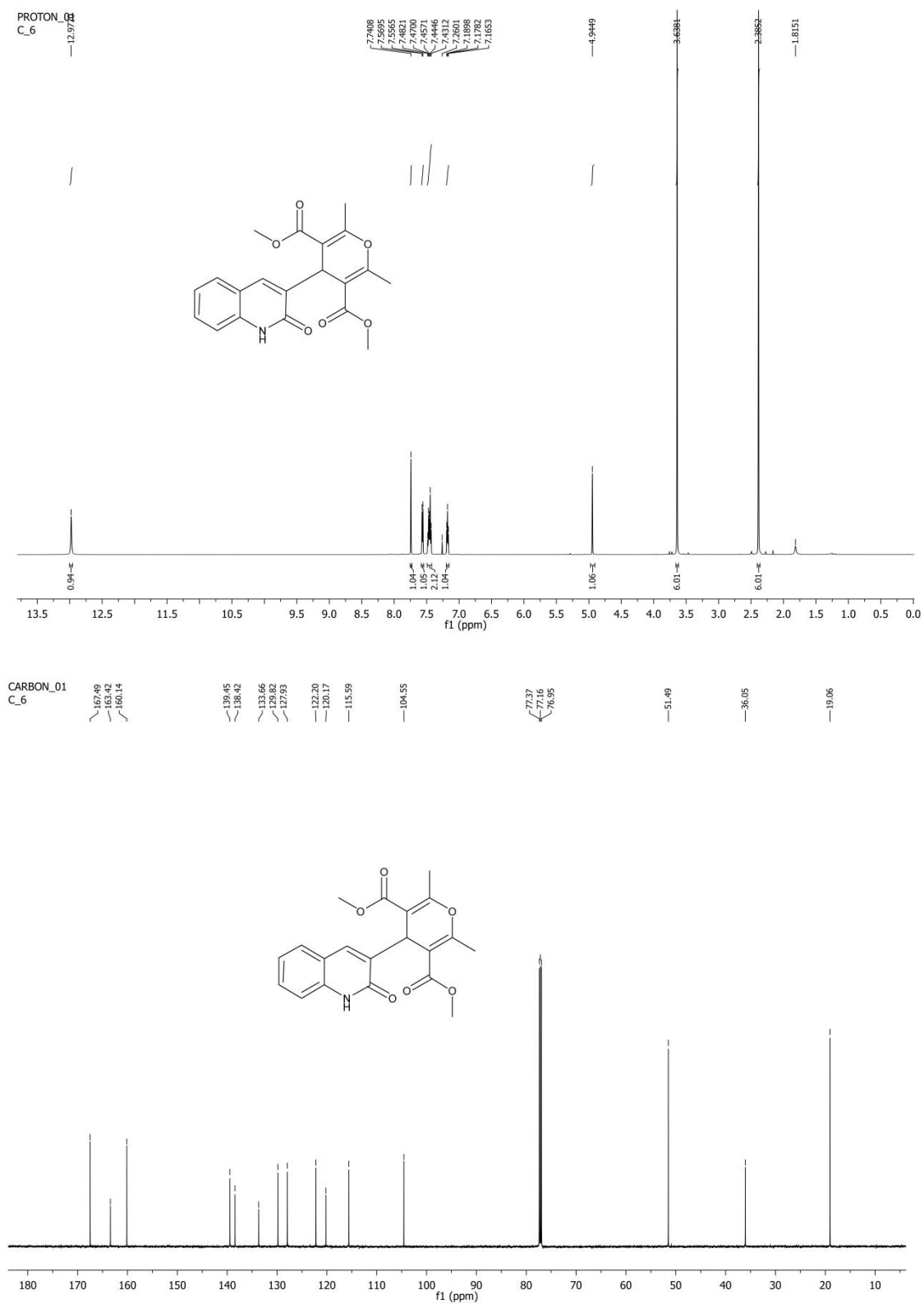


Figure 2. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3a** in CDCl_3 .

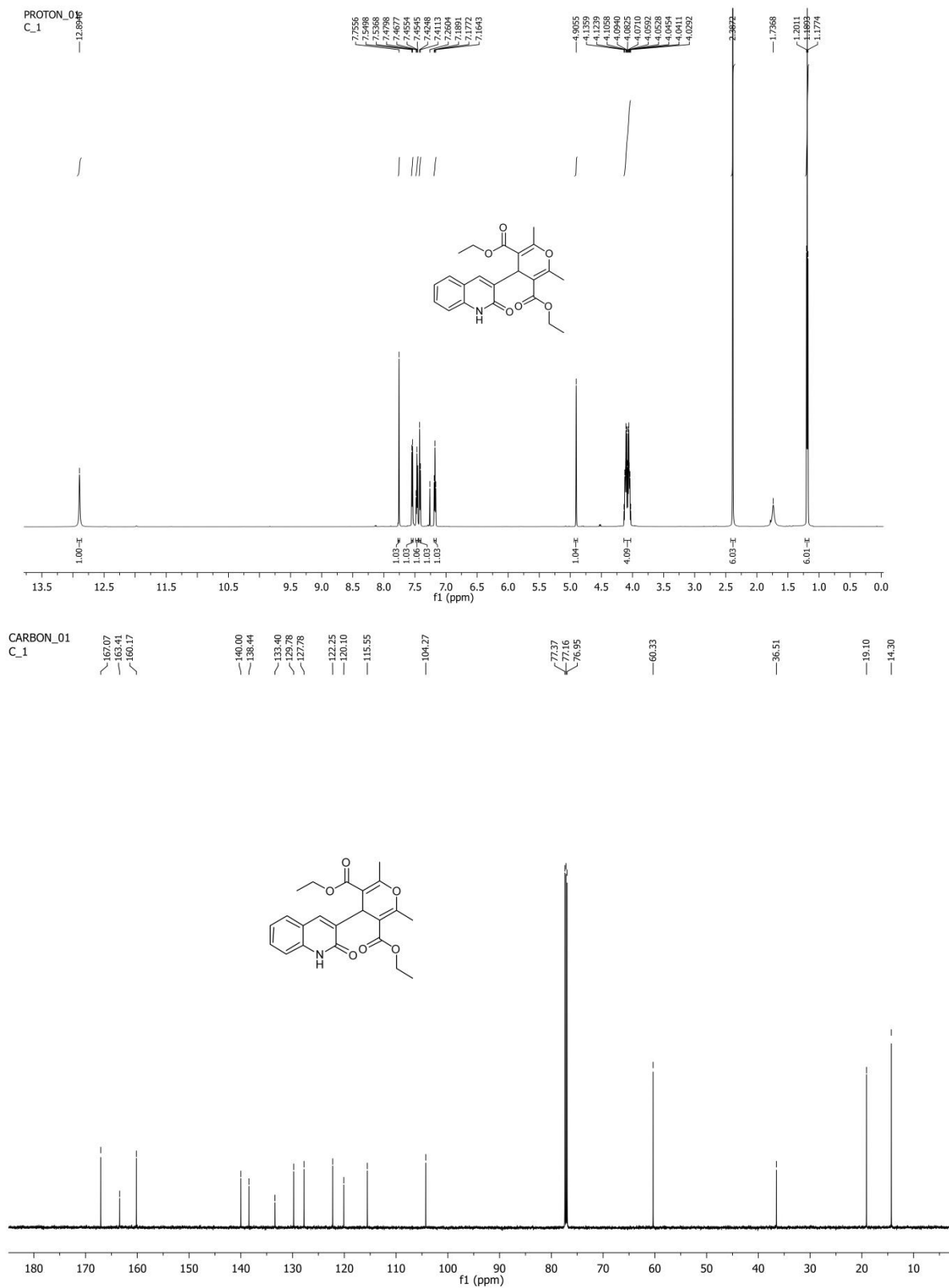


Figure 3. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3b** in CDCl_3 .

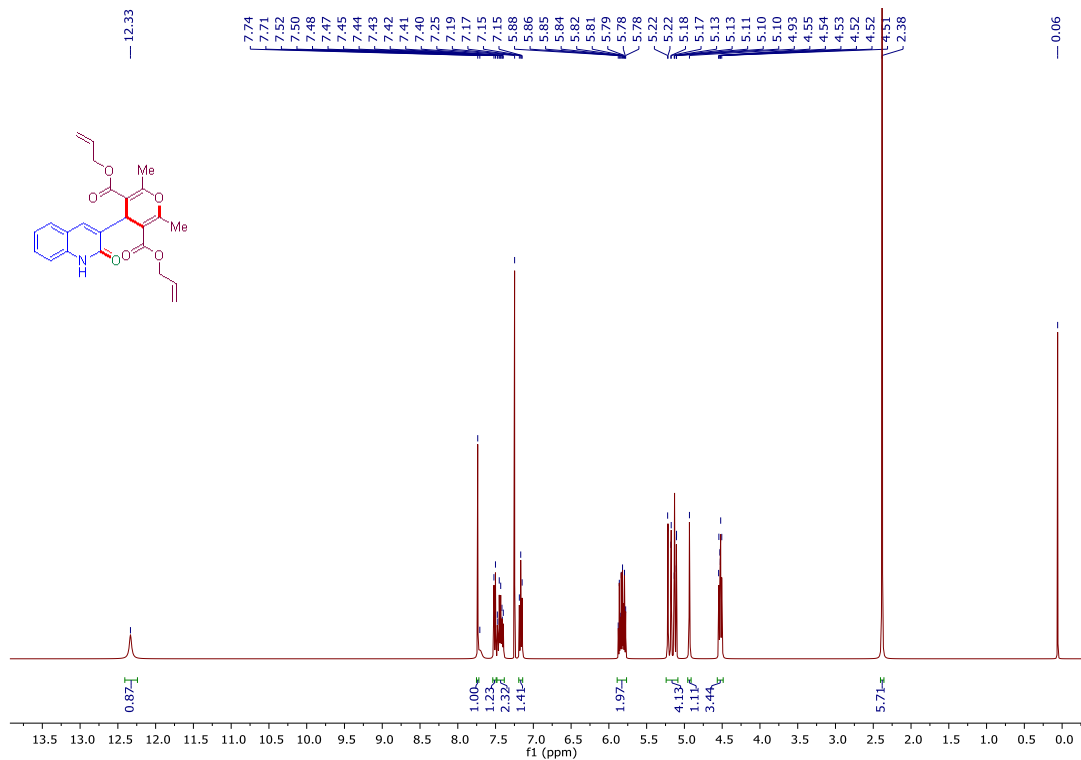


Figure 4. ¹H (400 MHz) NMR spectra of **3c** in CDCl₃.

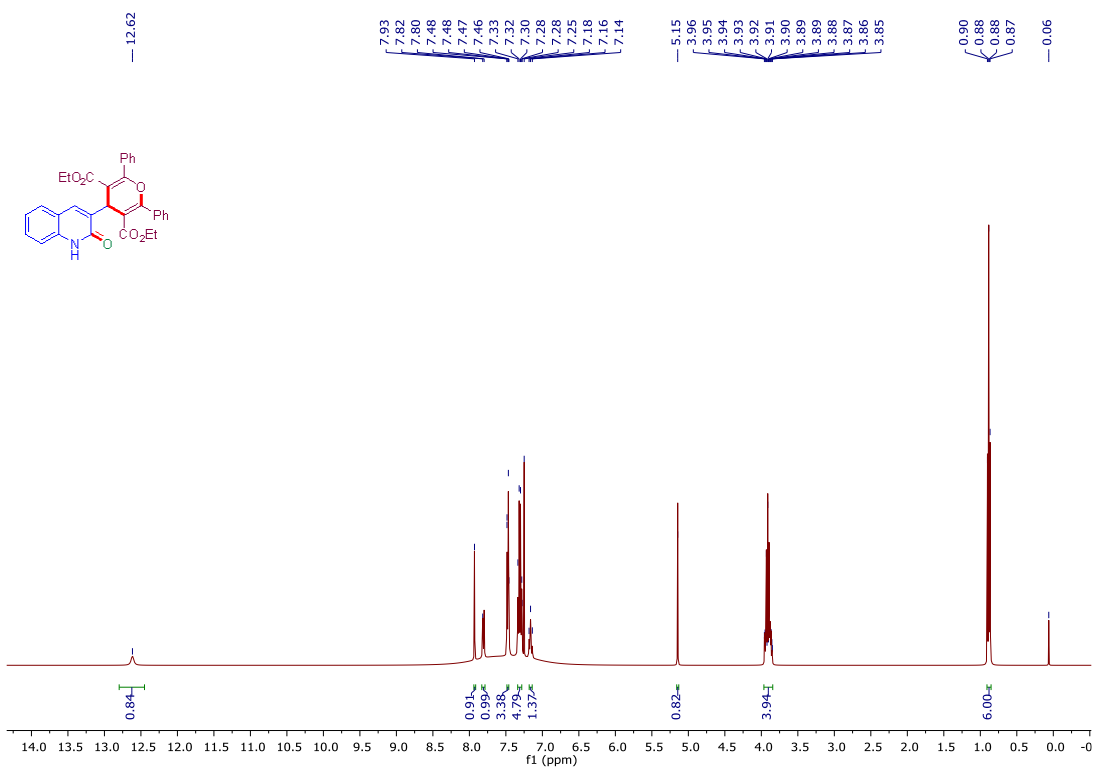
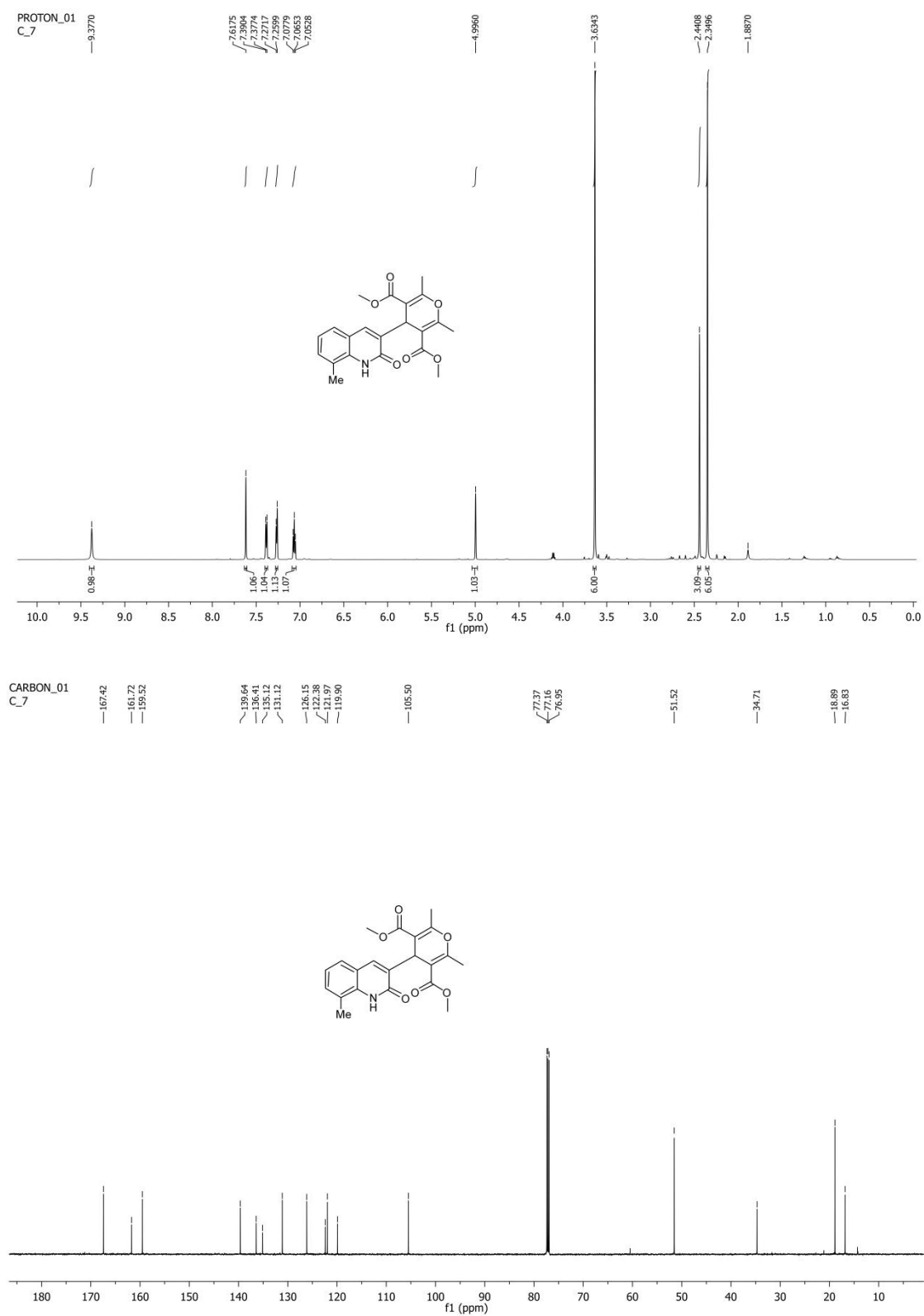


Figure 5. ¹H (400 MHz) NMR spectra of **3d** in CDCl₃.



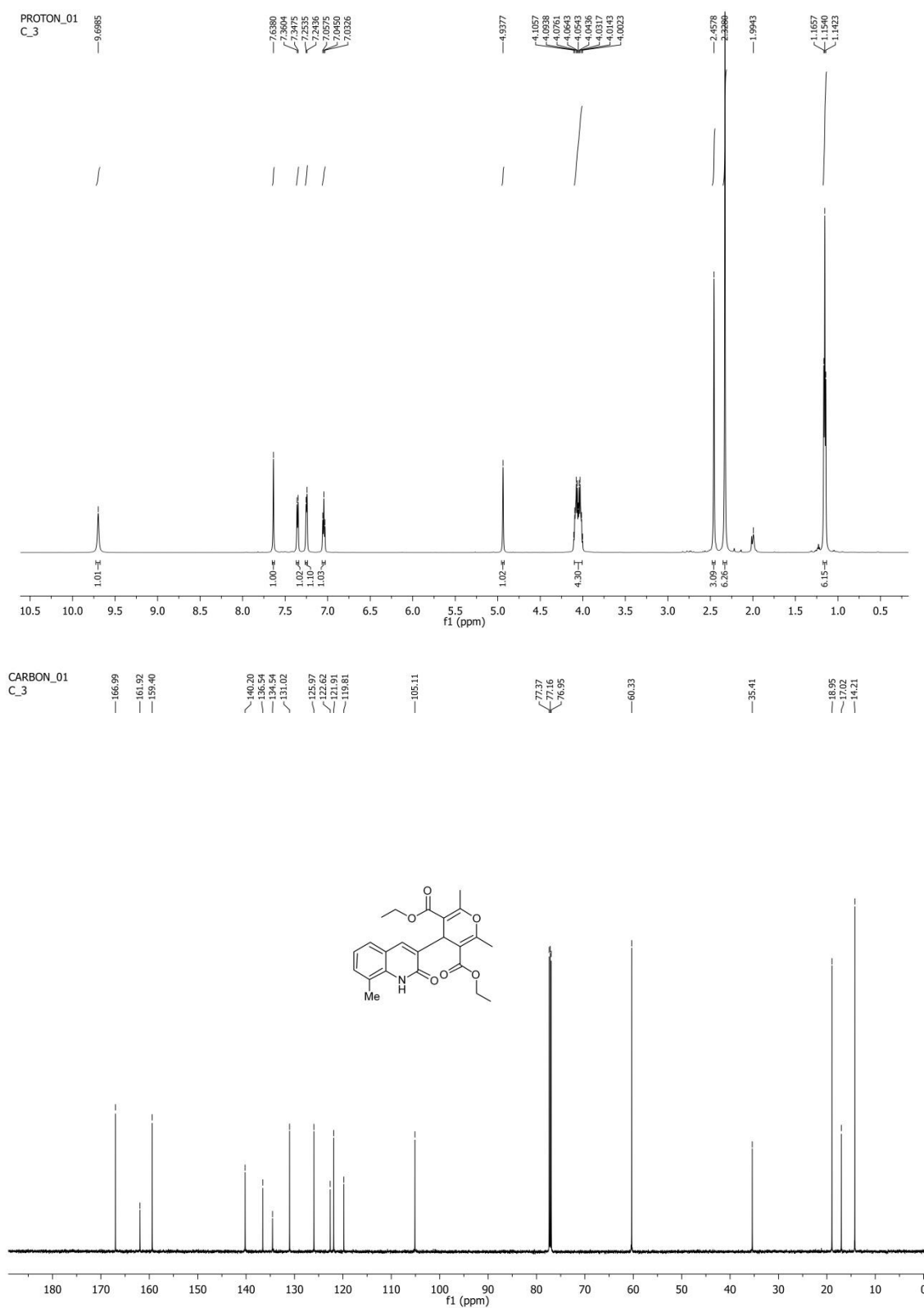


Figure 7. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3f** in CDCl_3 .

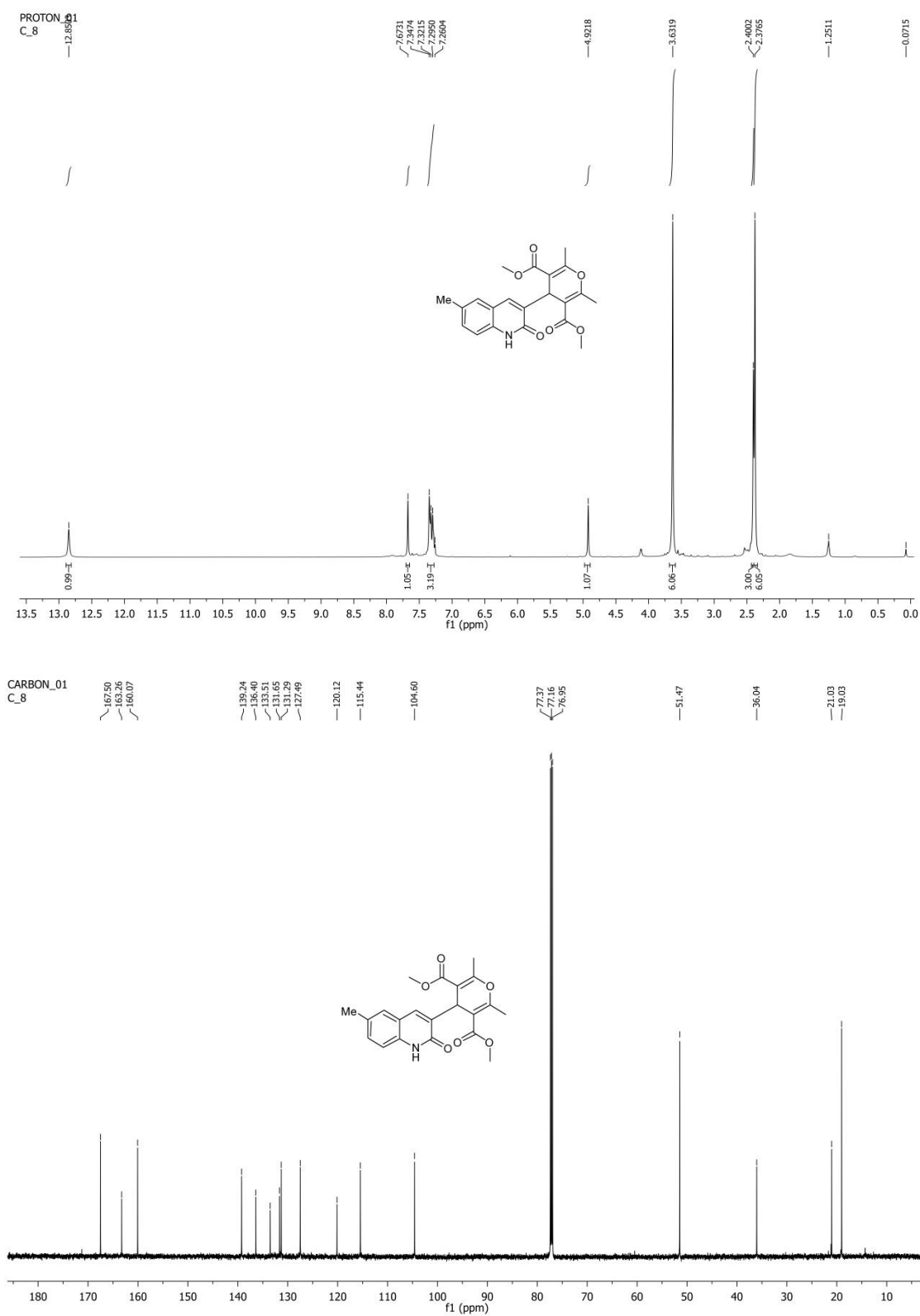


Figure 8. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3g** in CDCl_3 .

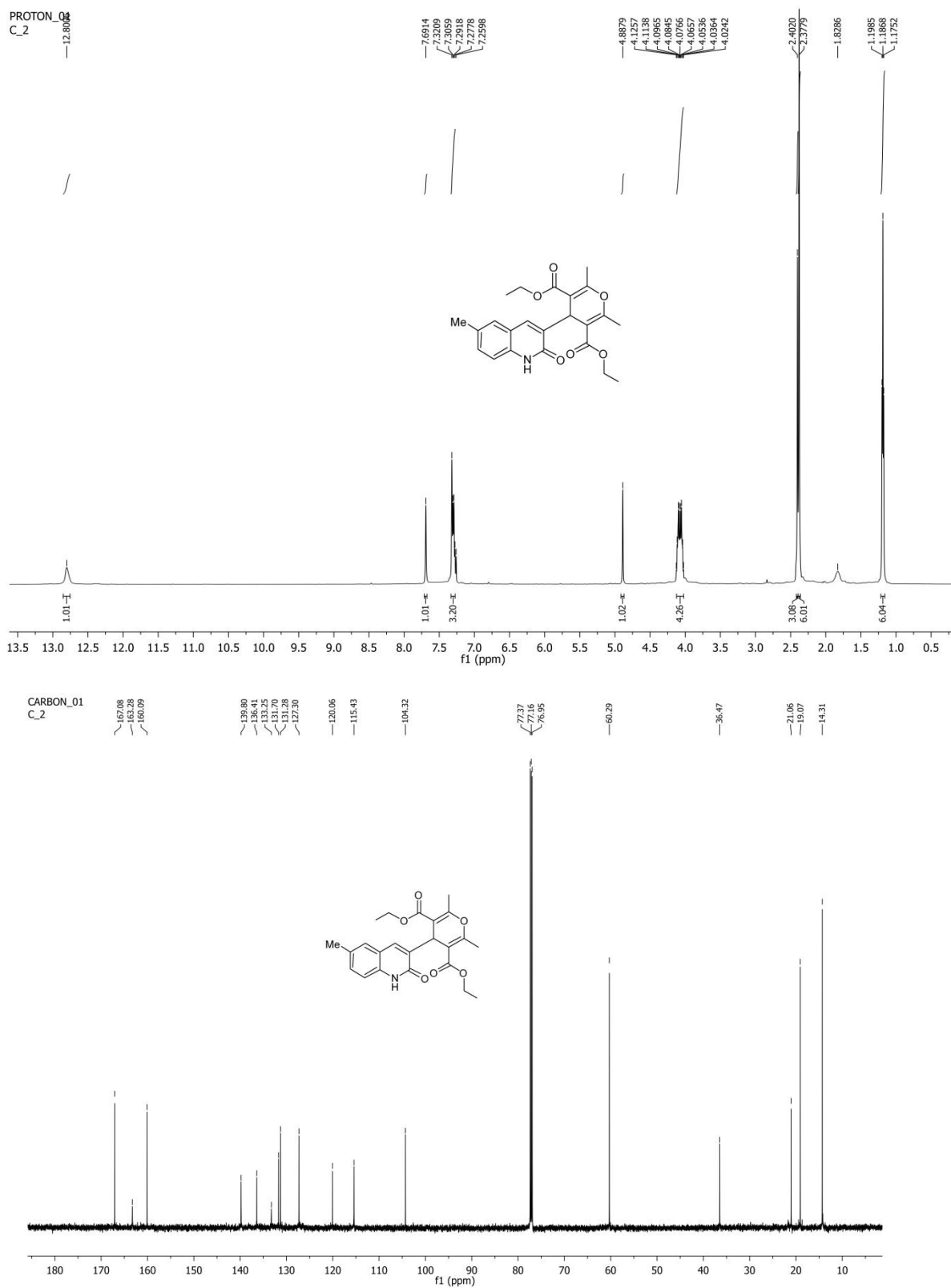


Figure 9. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3h** in CDCl_3 .

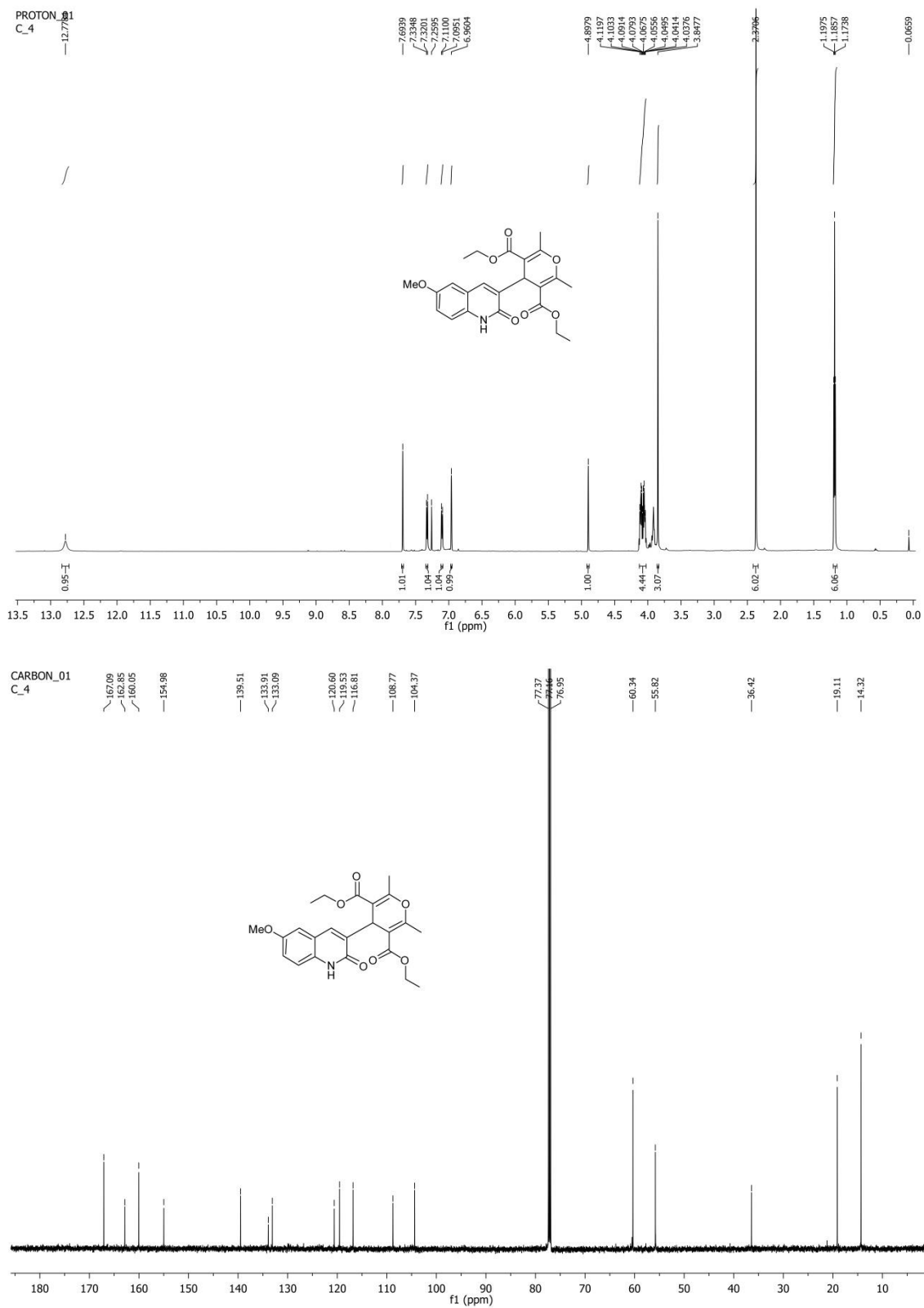


Figure 11. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3j** in CDCl_3 .

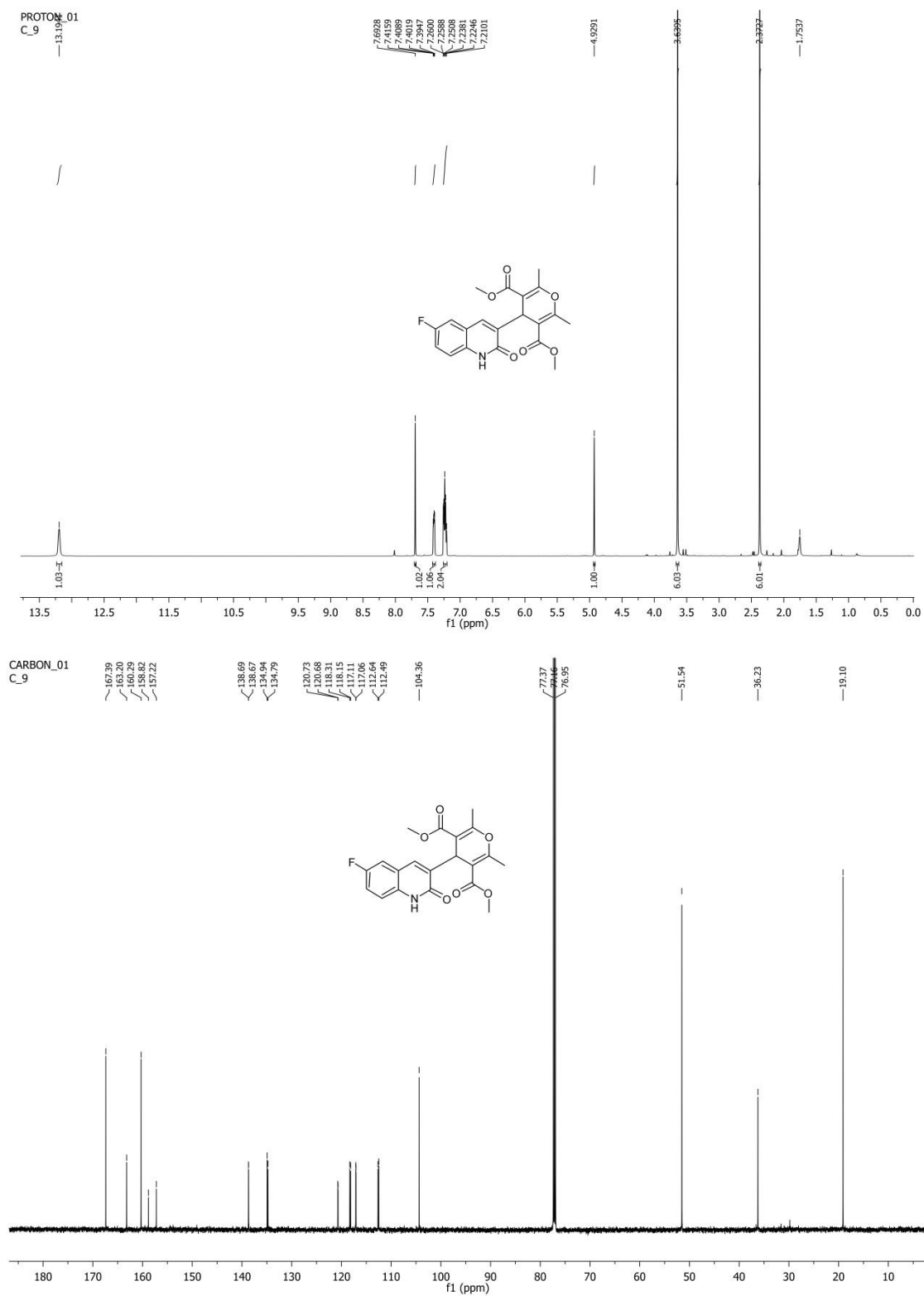


Figure 12. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **3k** in CDCl_3 .

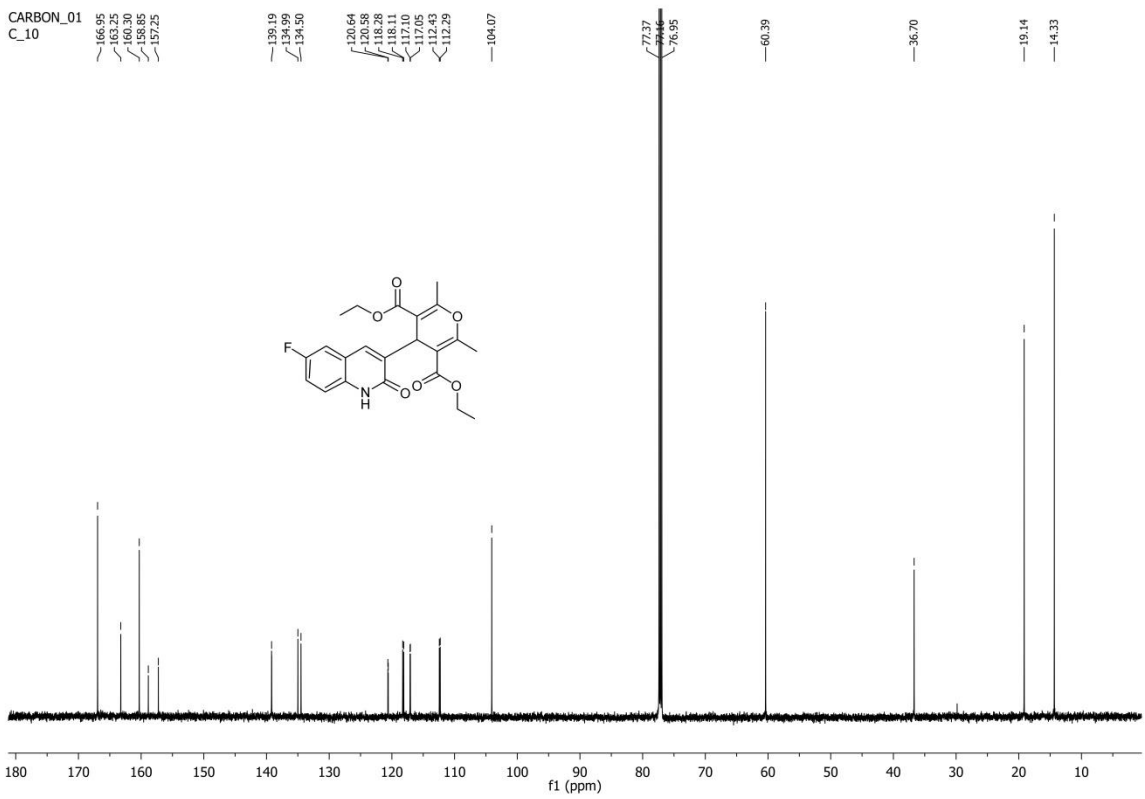
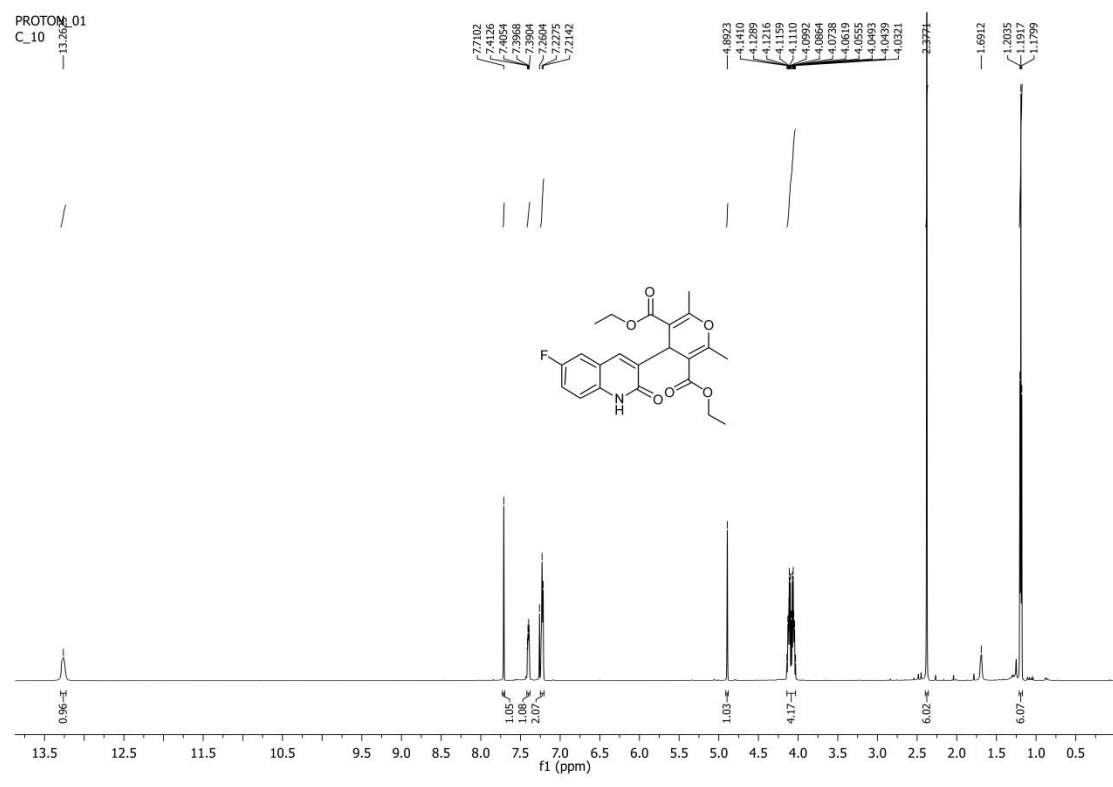


Figure 13. ^1H (600 MHz), ^{13}C (150 MHz) NMR spectra of **31** in CDCl_3 .