

# Supporting Information

for

## Synthesis of Aryl Iodides from Arylhydrazines and Iodine

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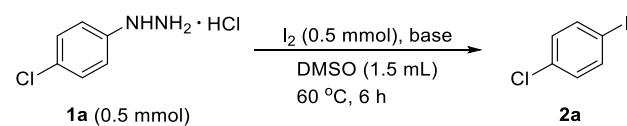
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**Table S1. Optimization of the Iodination of Arylhydrazines with Iodine Using Several Bases<sup>a</sup>**

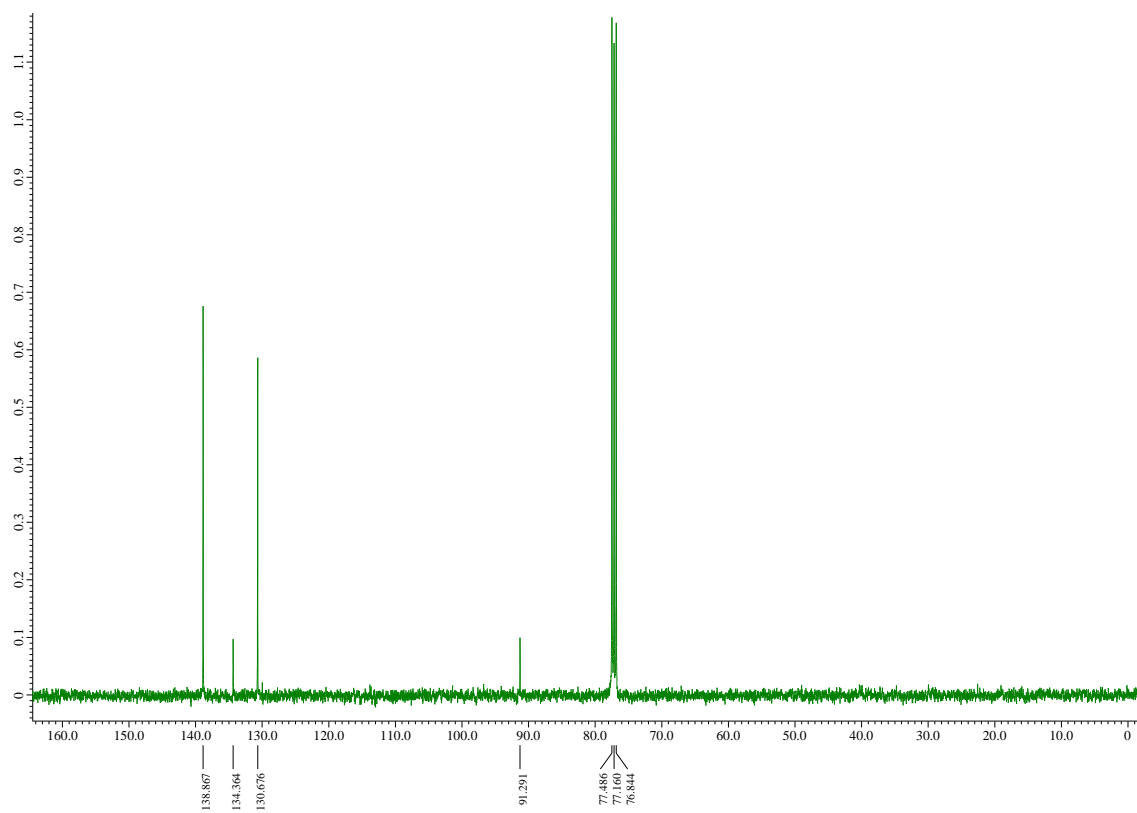
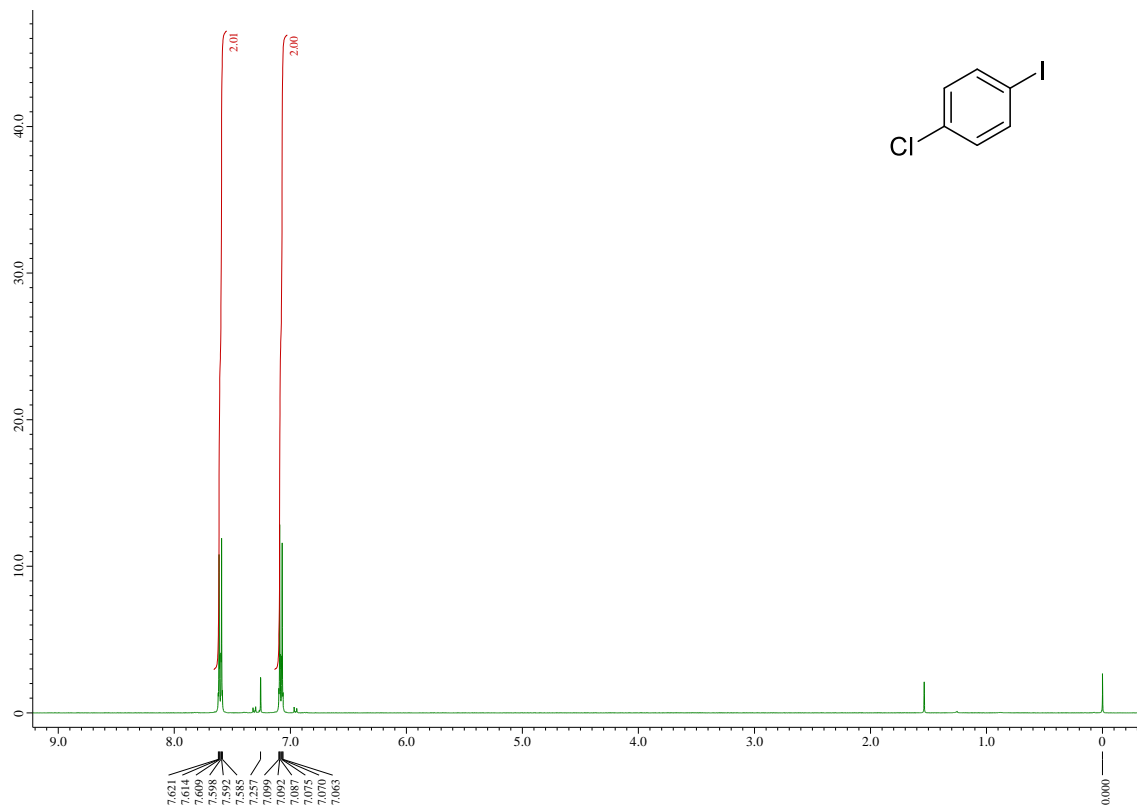


entry	base (mmol)	yield <sup>b</sup> (%)
1	Li <sub>2</sub> CO <sub>3</sub> (0.5)	21
2	Na <sub>2</sub> CO <sub>3</sub> (0.5)	62
3	K <sub>2</sub> CO <sub>3</sub> (0.5)	59
4	Cs <sub>2</sub> CO <sub>3</sub> (0.5)	63
5	K <sub>3</sub> PO <sub>4</sub> (0.5)	63
6	Et <sub>3</sub> N (0.5)	48
7	DBU (0.5)	29
8	K <sub>2</sub> HPO <sub>4</sub> (0.5)	45
9	KOAc (1.0)	62
10	KOH (1.0)	44
11	KOH (0.5)	45
12	NaHCO <sub>3</sub> (1.0)	46
13	NaHCO <sub>3</sub> (0.5)	31

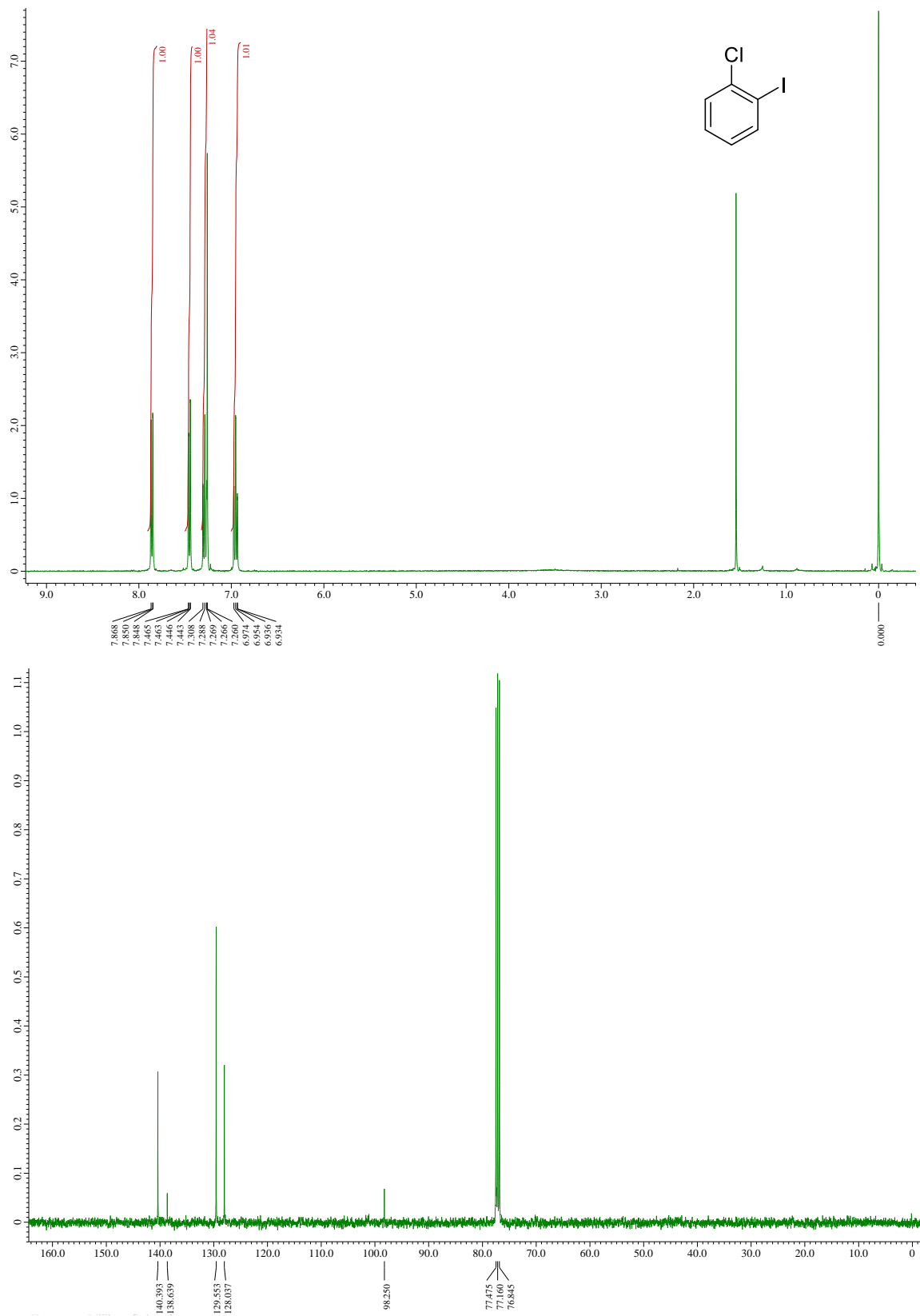
<sup>a</sup>Conditions: **1a**, I<sub>2</sub>, base, and solvent were stirred at 60 °C for 6 h. <sup>b</sup>Determined by <sup>1</sup>H NMR spectroscopy of the crude mixture using 1,3,5-trioxane as an internal standard.

**The Procedure of Using *tert*-Butylhydrazine Hydrochloride as Substrate.** *tert*-Butylhydrazine hydrochloride (62.3 mg, 0.5 mmol), I<sub>2</sub> (126.9 mg, 0.5 mmol), and DMSO (0.1 mL) were added to a round-bottomed flask, and the reaction mixture was stirred at 60 °C for 6 h under air. The resulting mixture was cooled to room temperature and directly analyzed by <sup>1</sup>H NMR (CDCl<sub>3</sub>). As a result, the peak of 2-iodo-2-methylpropane (1.81 ppm) was not detected. Then, sat. Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub> (aq., 5 mL) and water (10 mL) were added into the combined reaction mixture. The mixture was extracted with CHCl<sub>3</sub> (4×5 mL), dried over anhydrous Na<sub>2</sub>SO<sub>4</sub>, and concentrated *in vacuo*. The residue was analyzed by GC-MS, and unfortunately, GC-MS spectra also indicated no formation of 2-iodo-2-methylpropane (184 *m/z*).

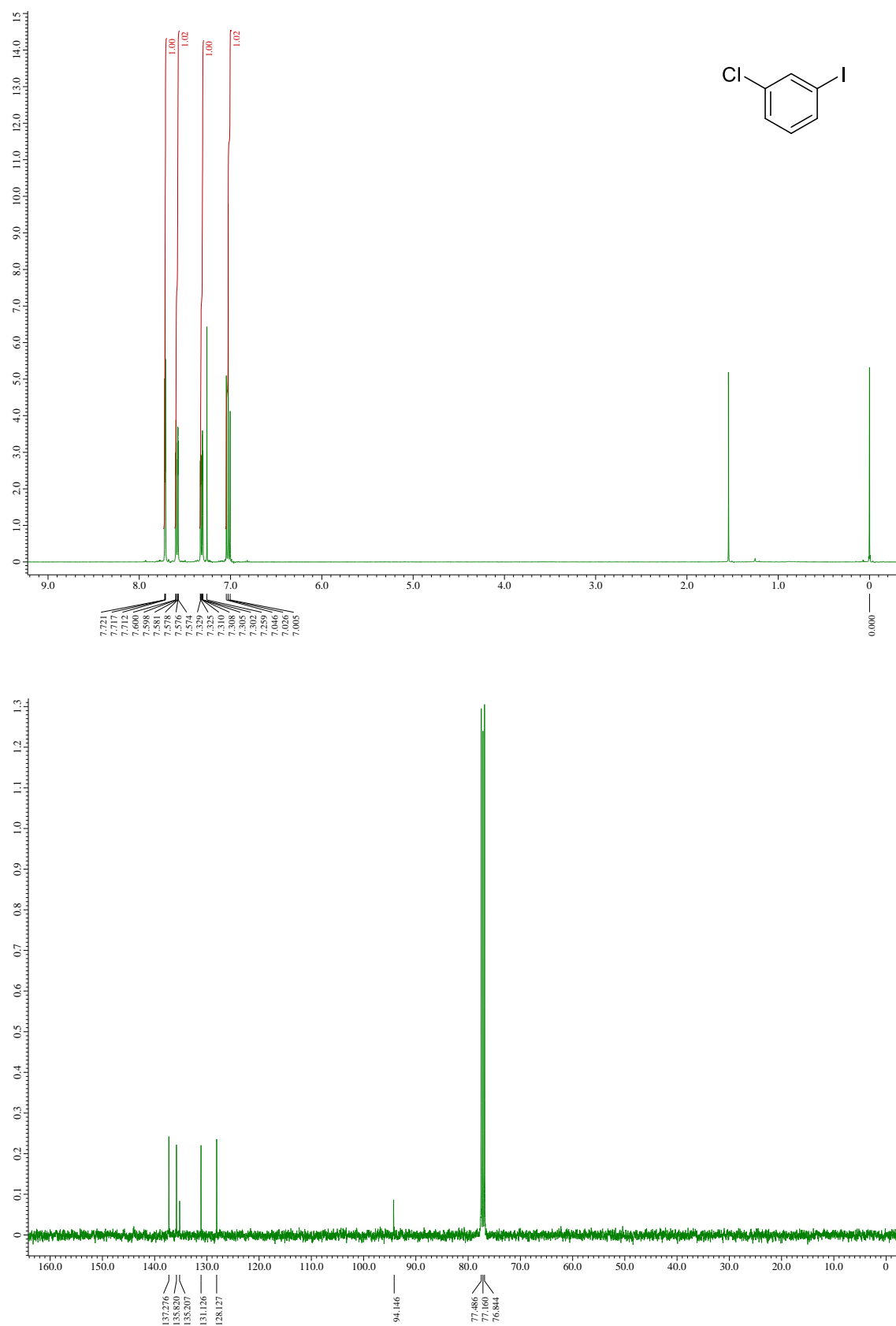
**Figure S1:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2a**



**Figure S2:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2b**



**Figure S3:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2c**



**Figure S4:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2d**

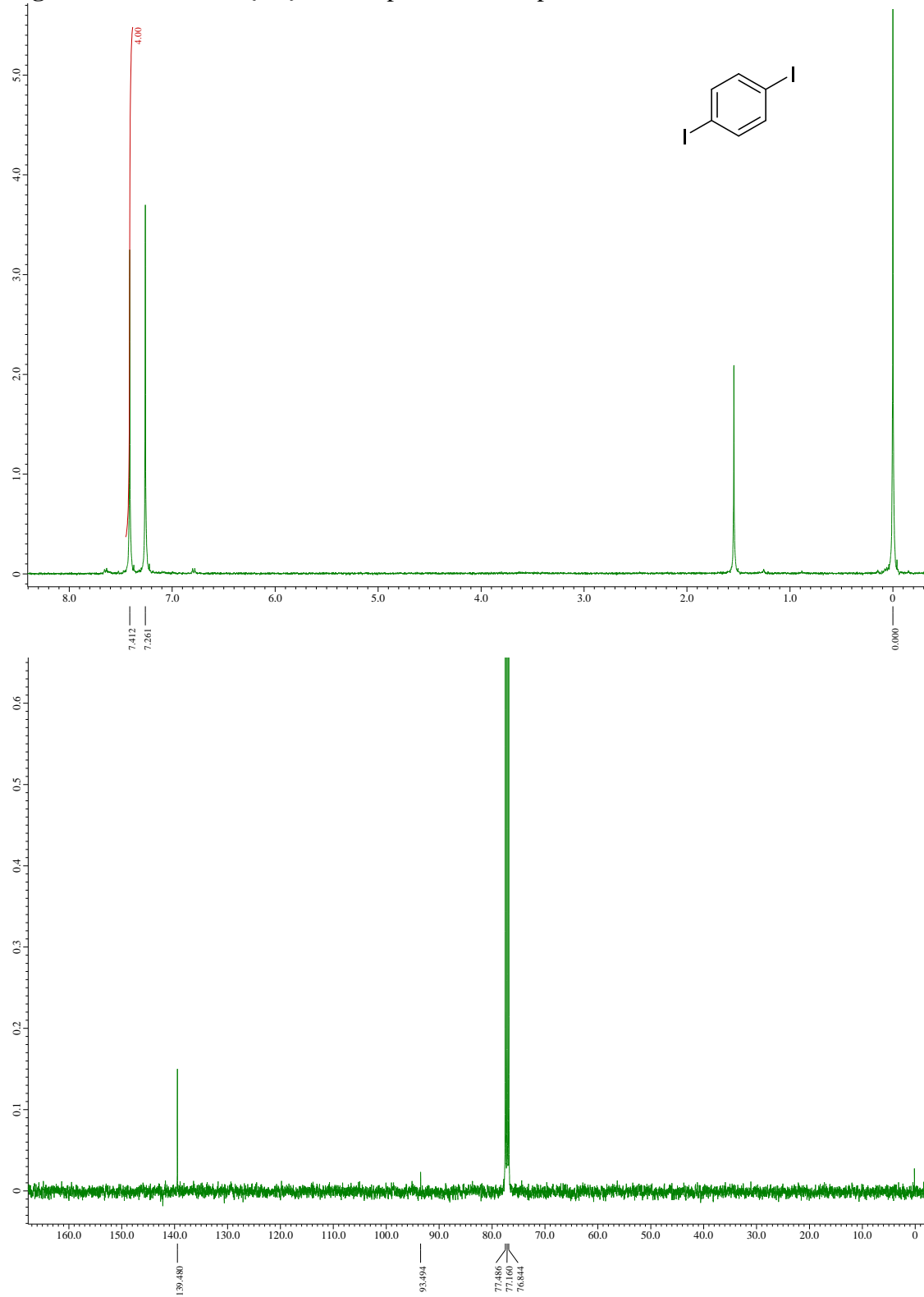
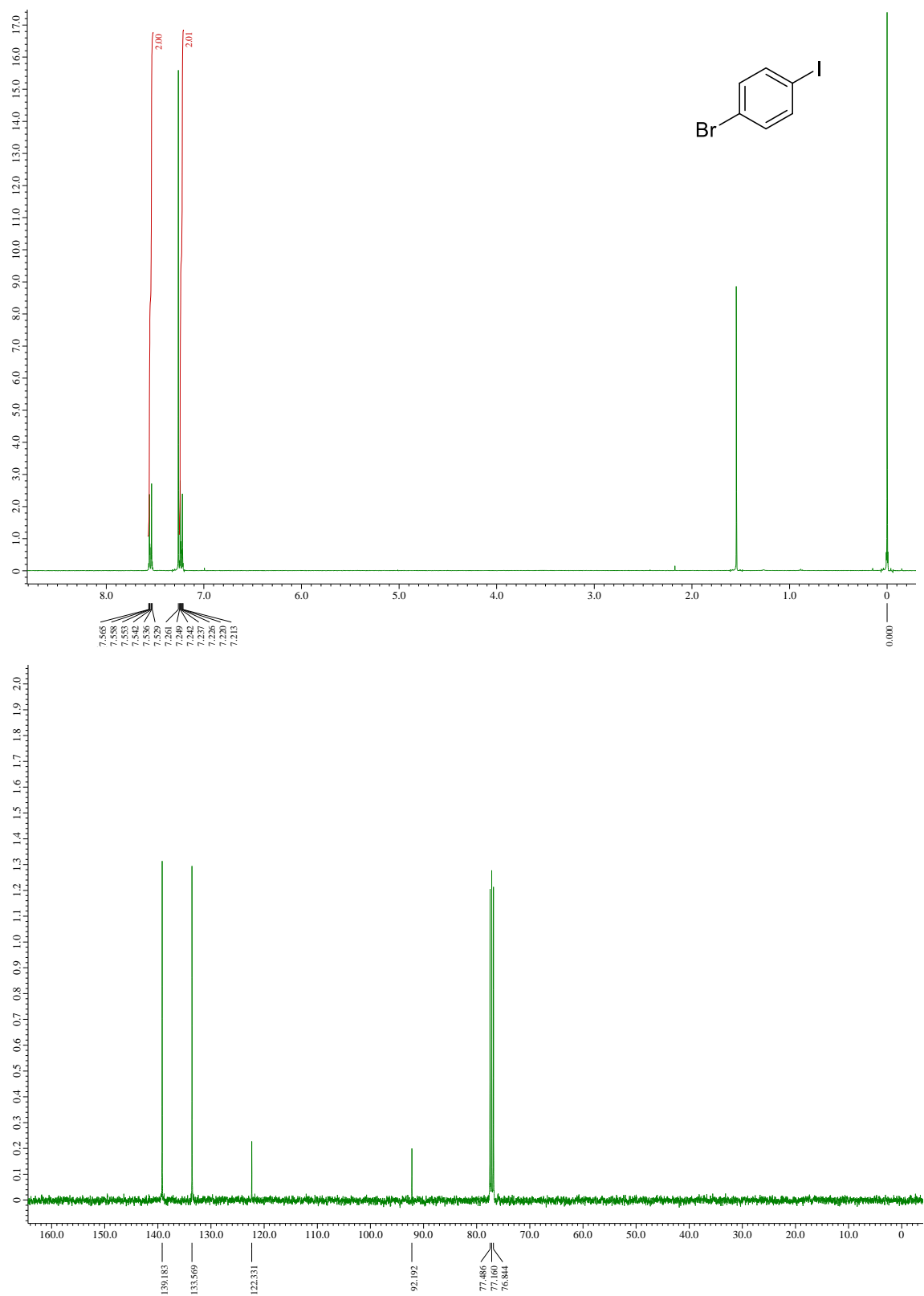
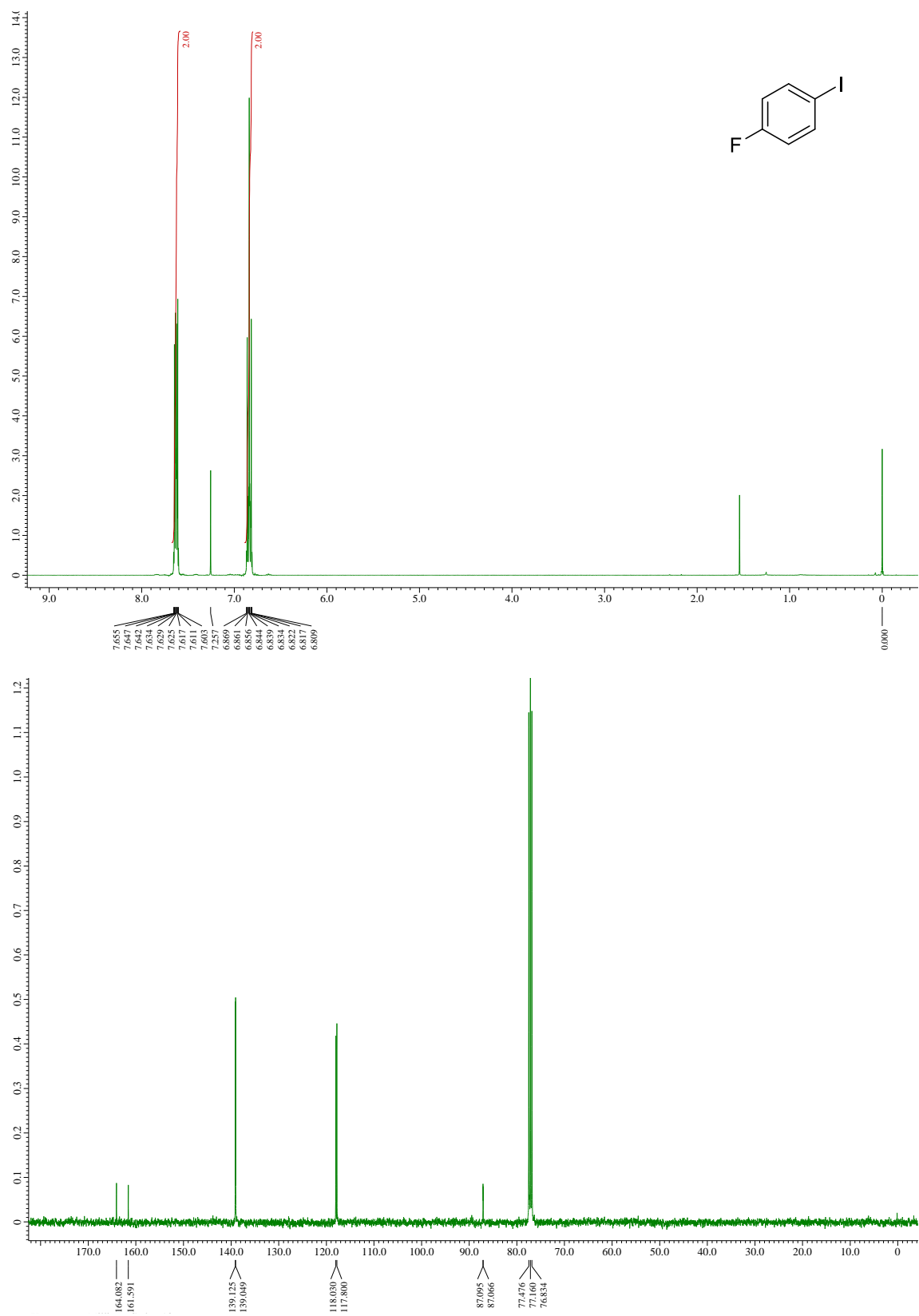


Figure S5:  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound 2e

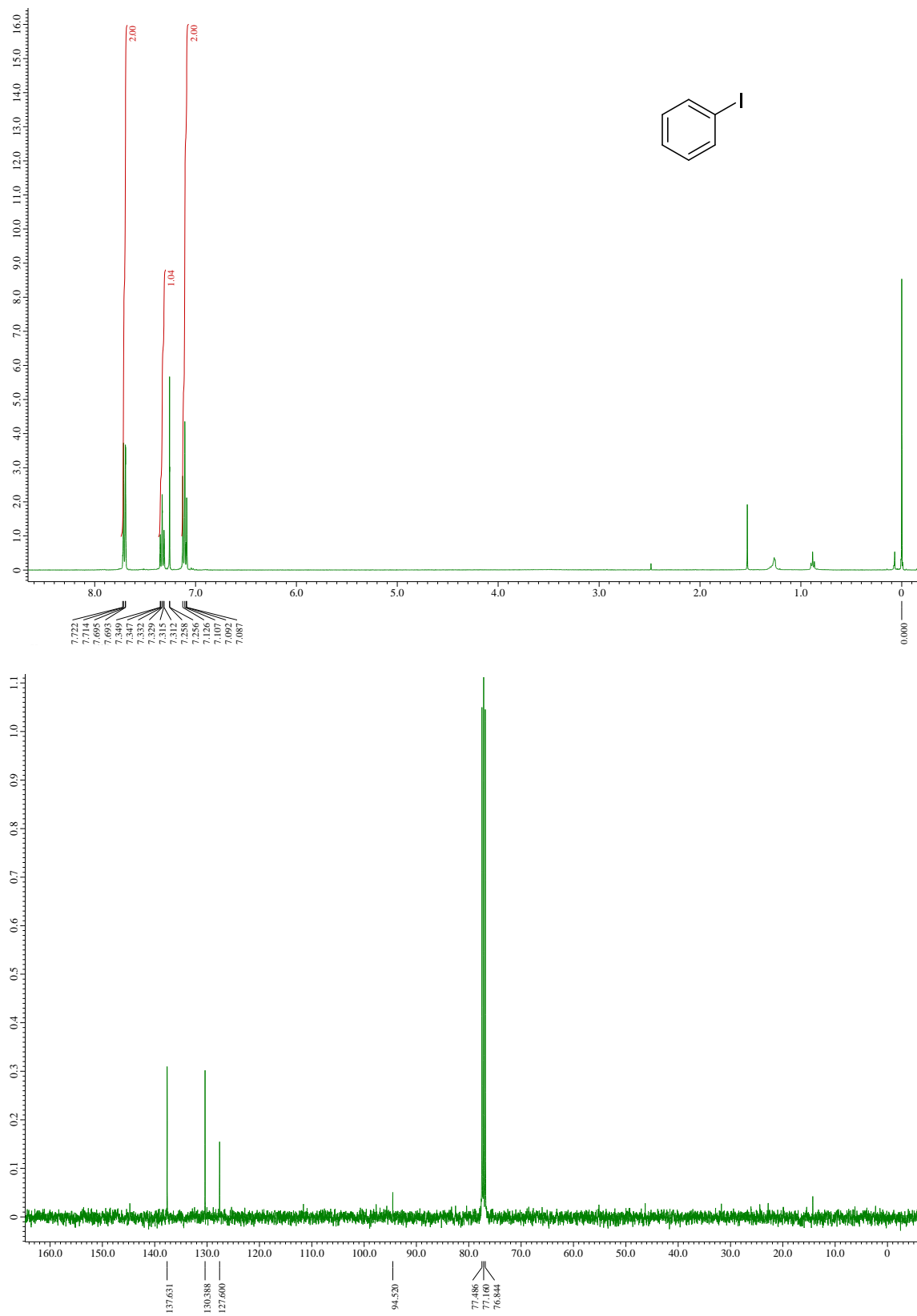


**Figure S6:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2f**

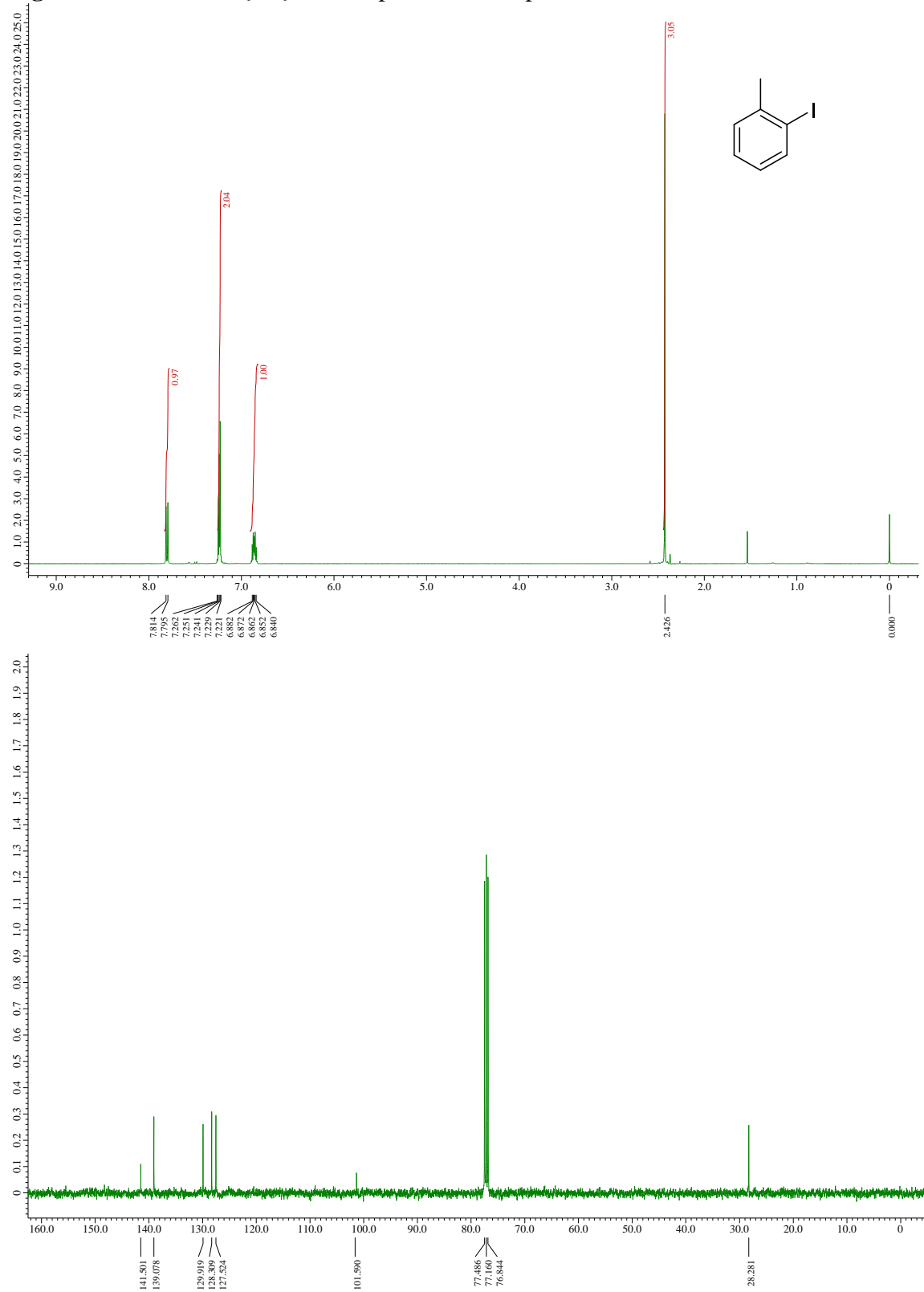




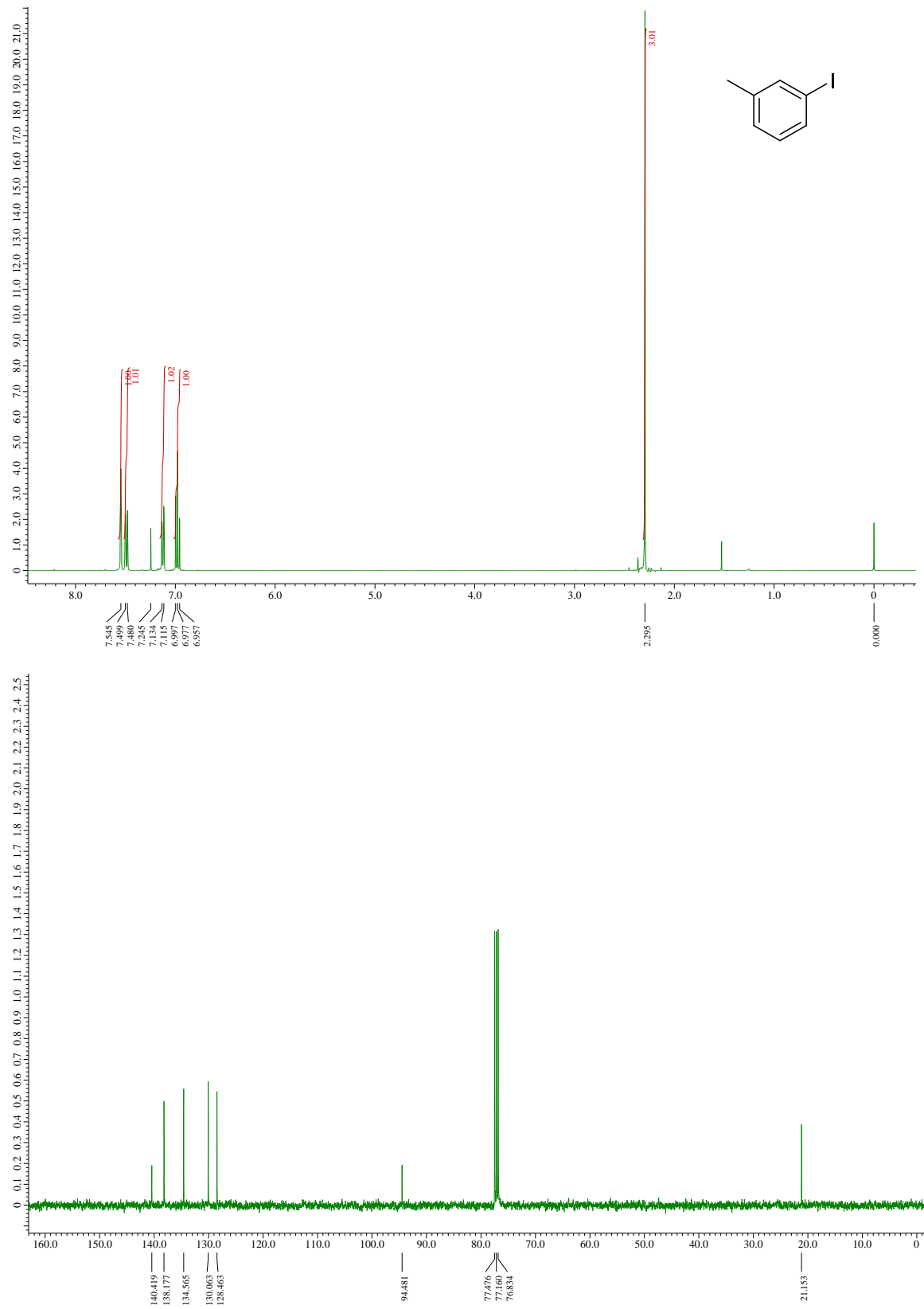
**Figure S7:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2g**



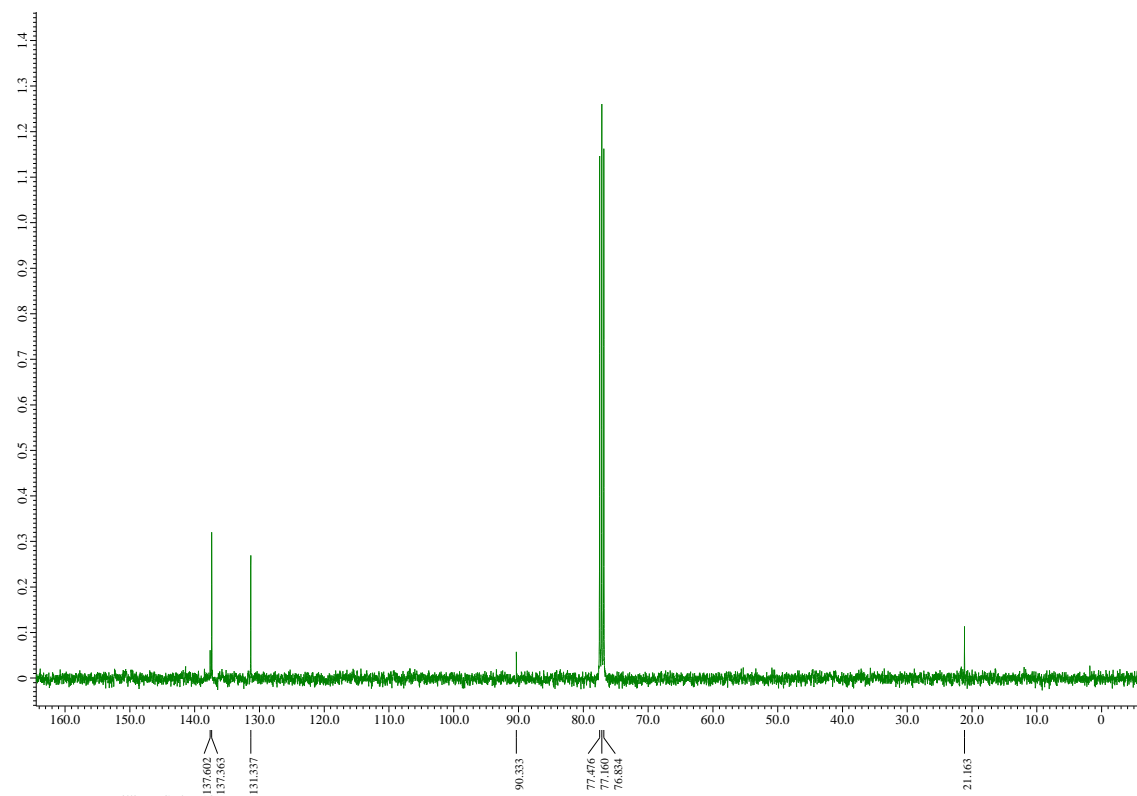
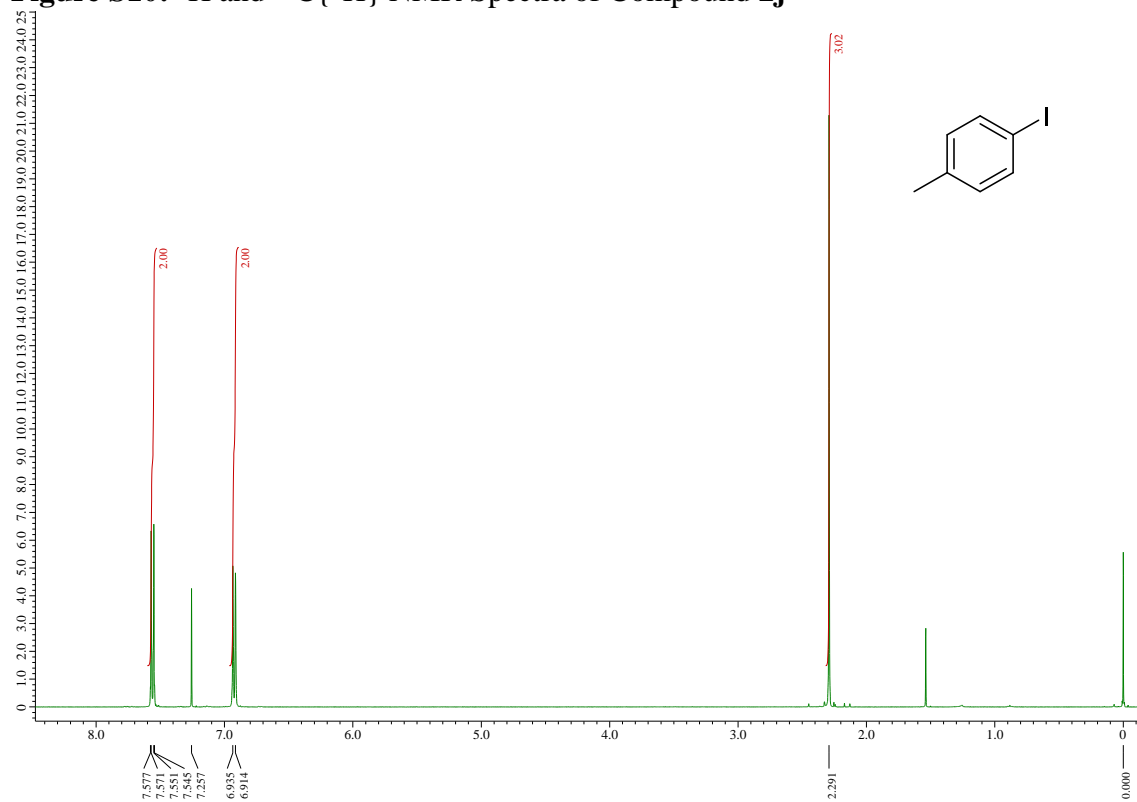
**Figure S8:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2h**



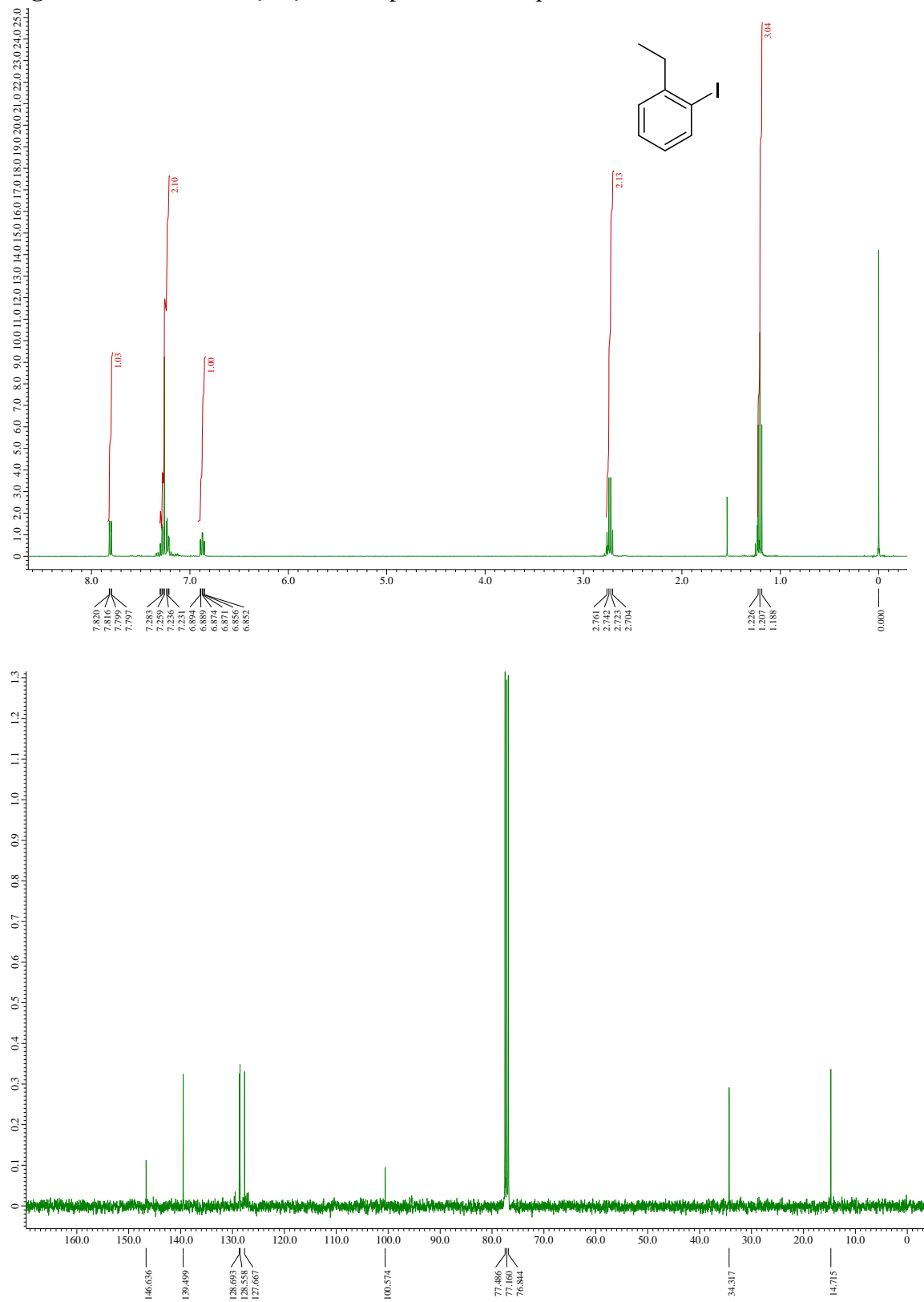
**Figure S9:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2i**



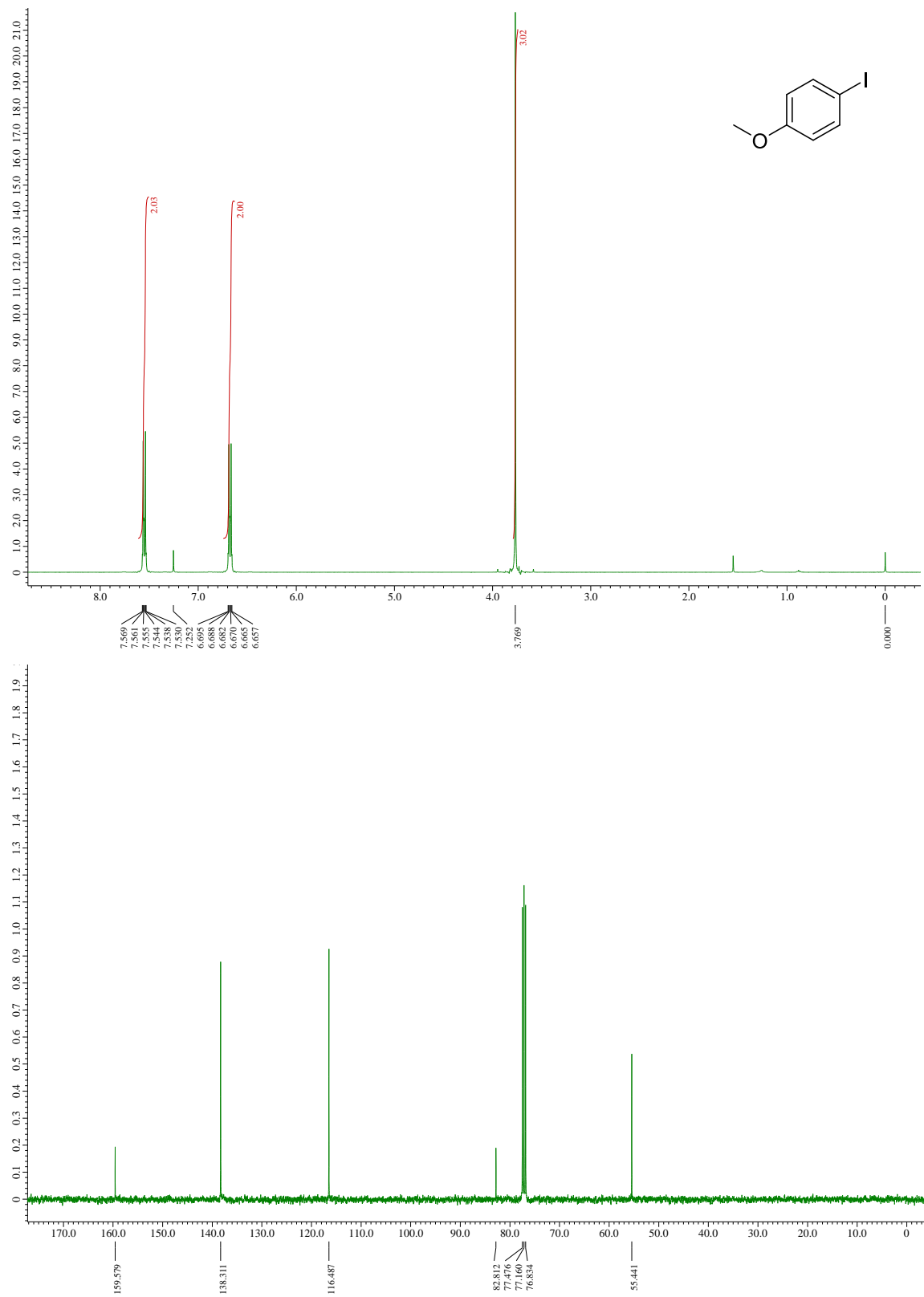
**Figure S10:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2j**



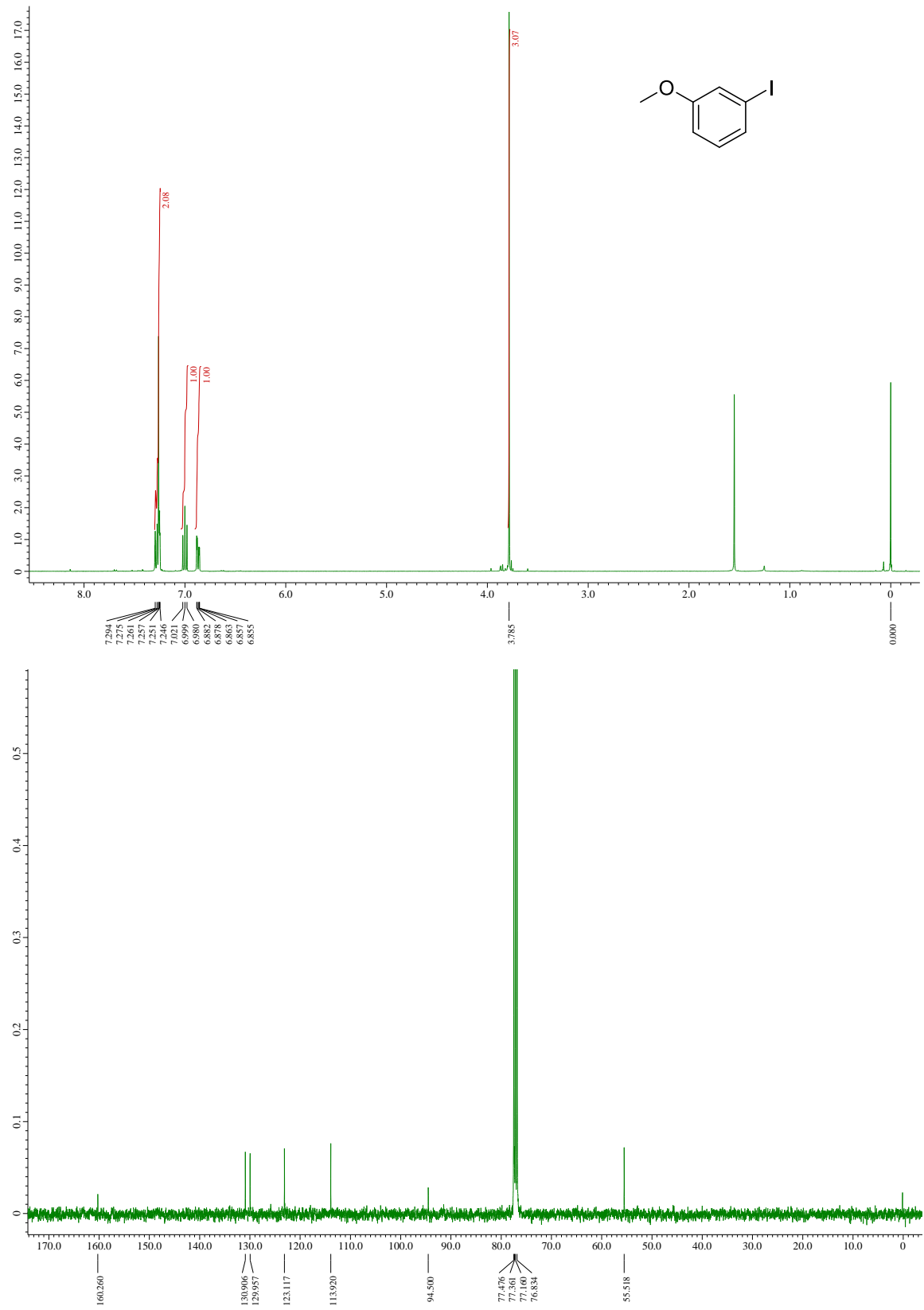
**Figure S11:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2k**



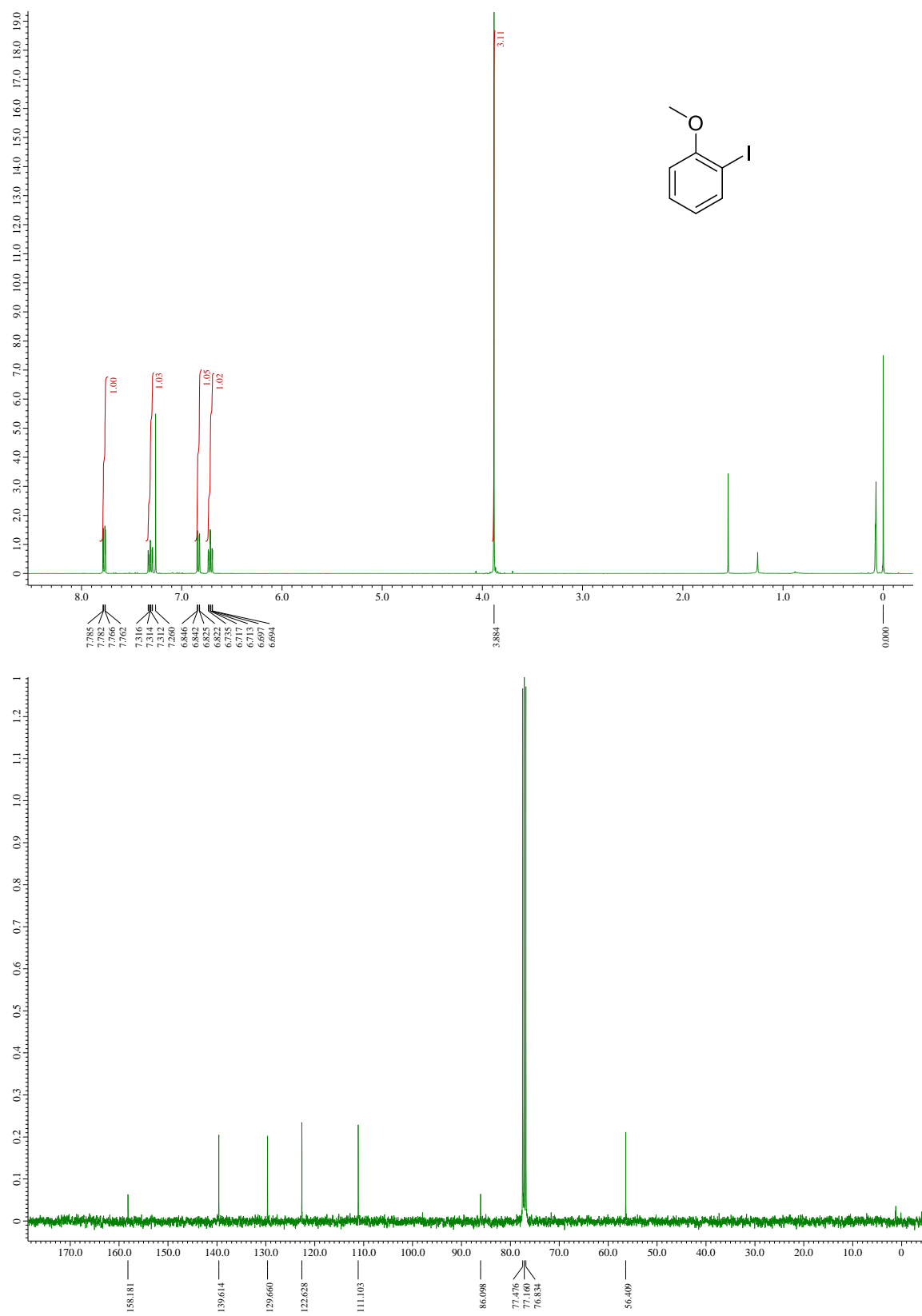
**Figure S12:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2l**



**Figure S13:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2m**



**Figure S14:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2n**





**Figure S15:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2o**

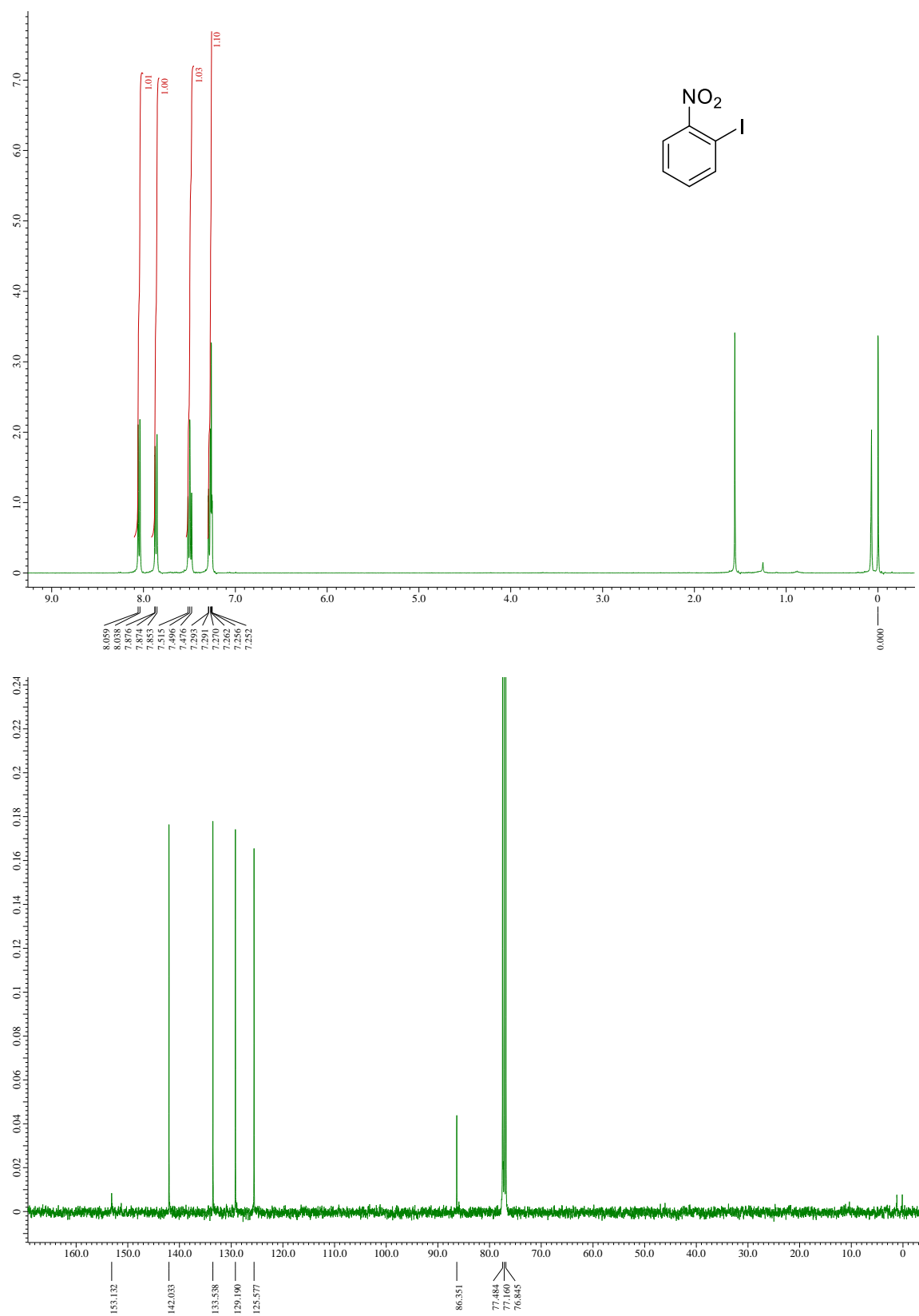
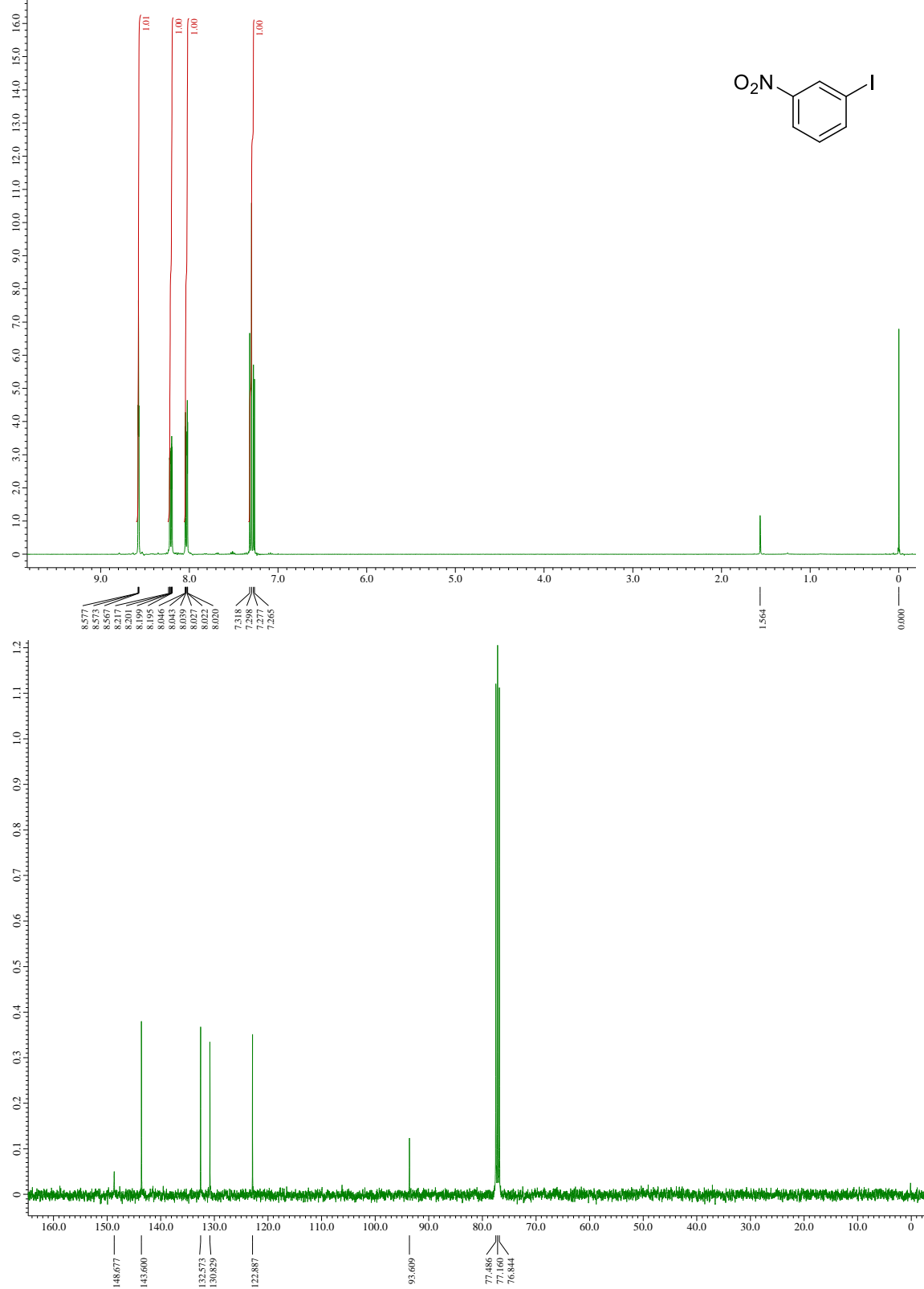
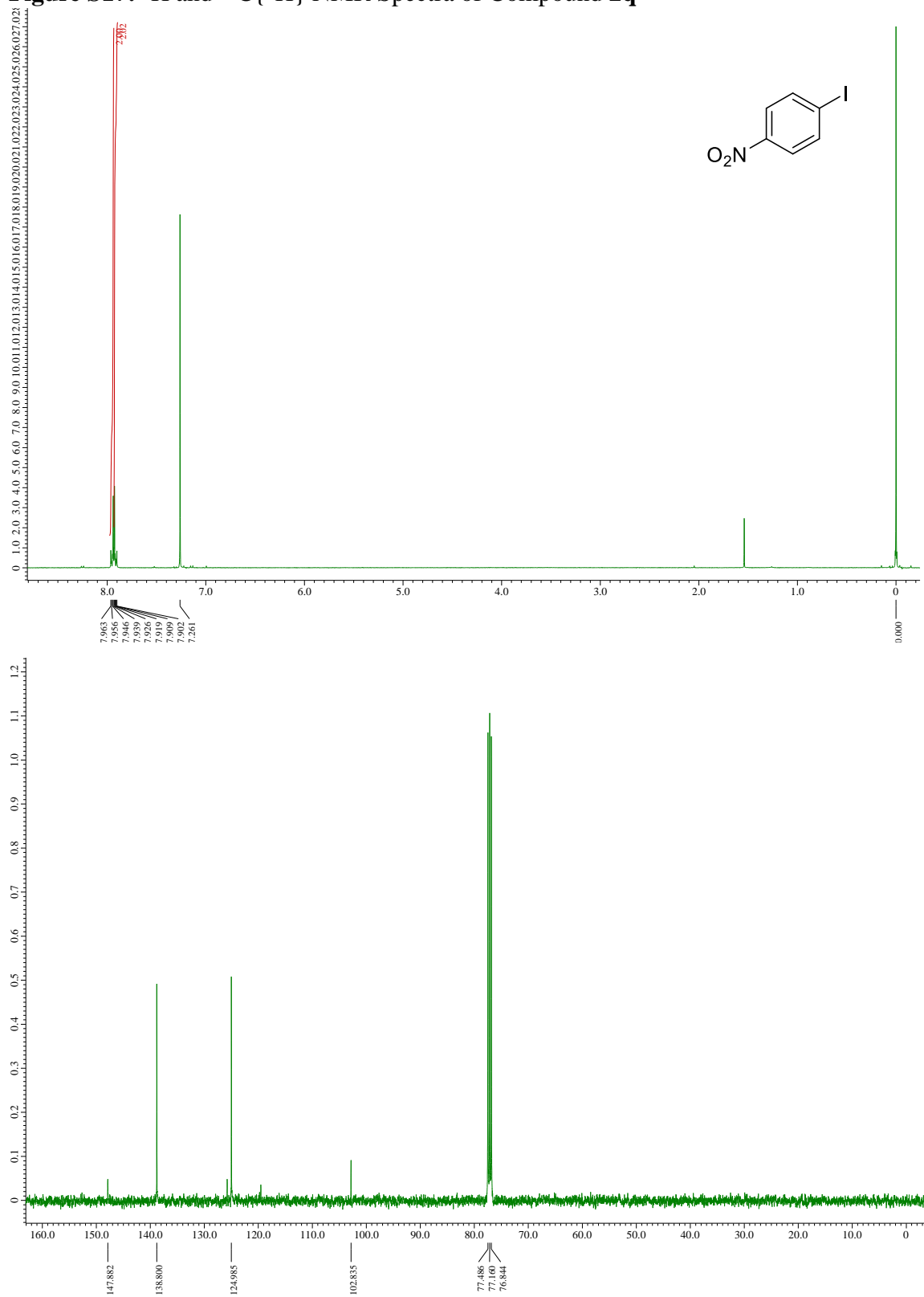


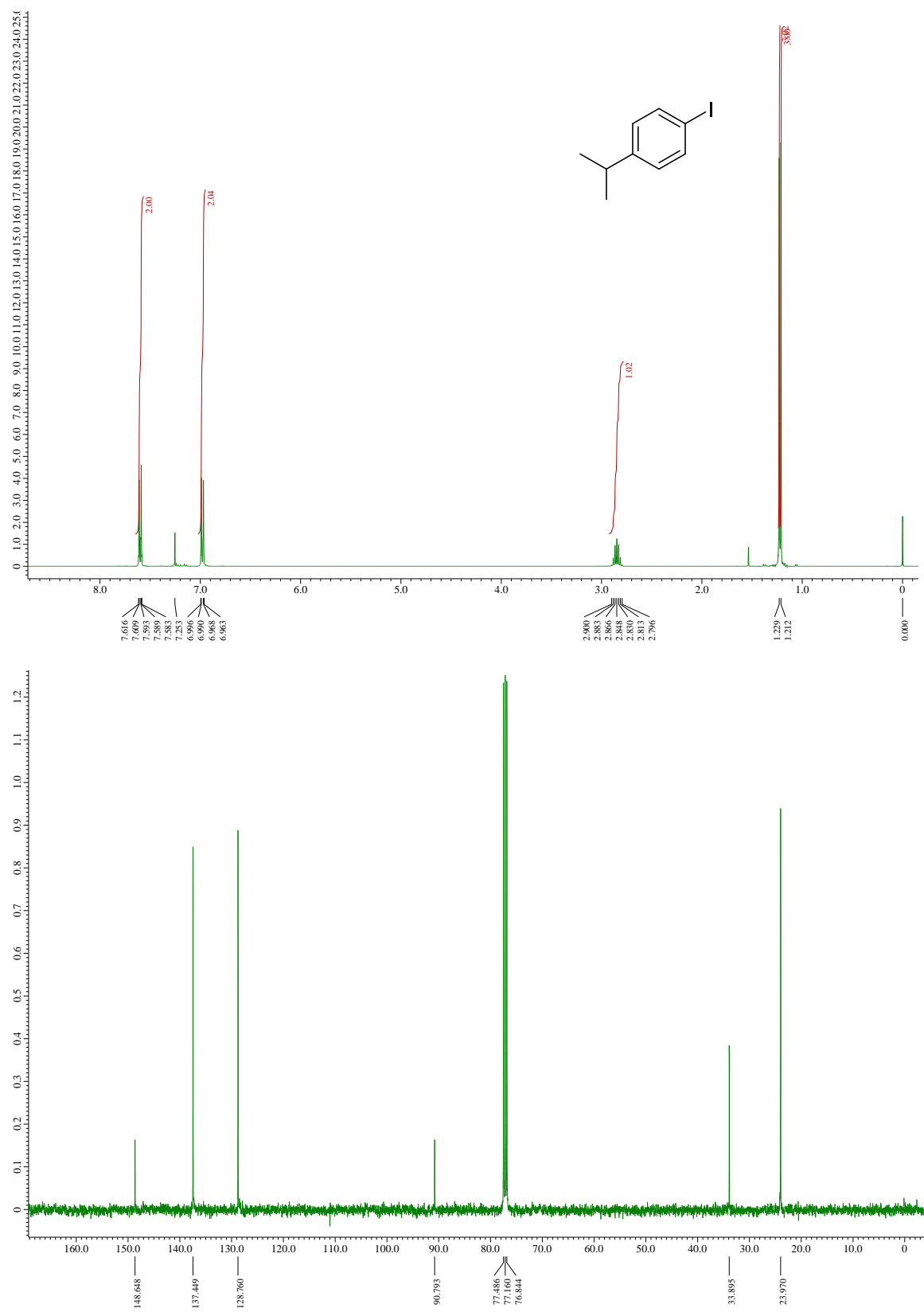
Figure S16:  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2p**



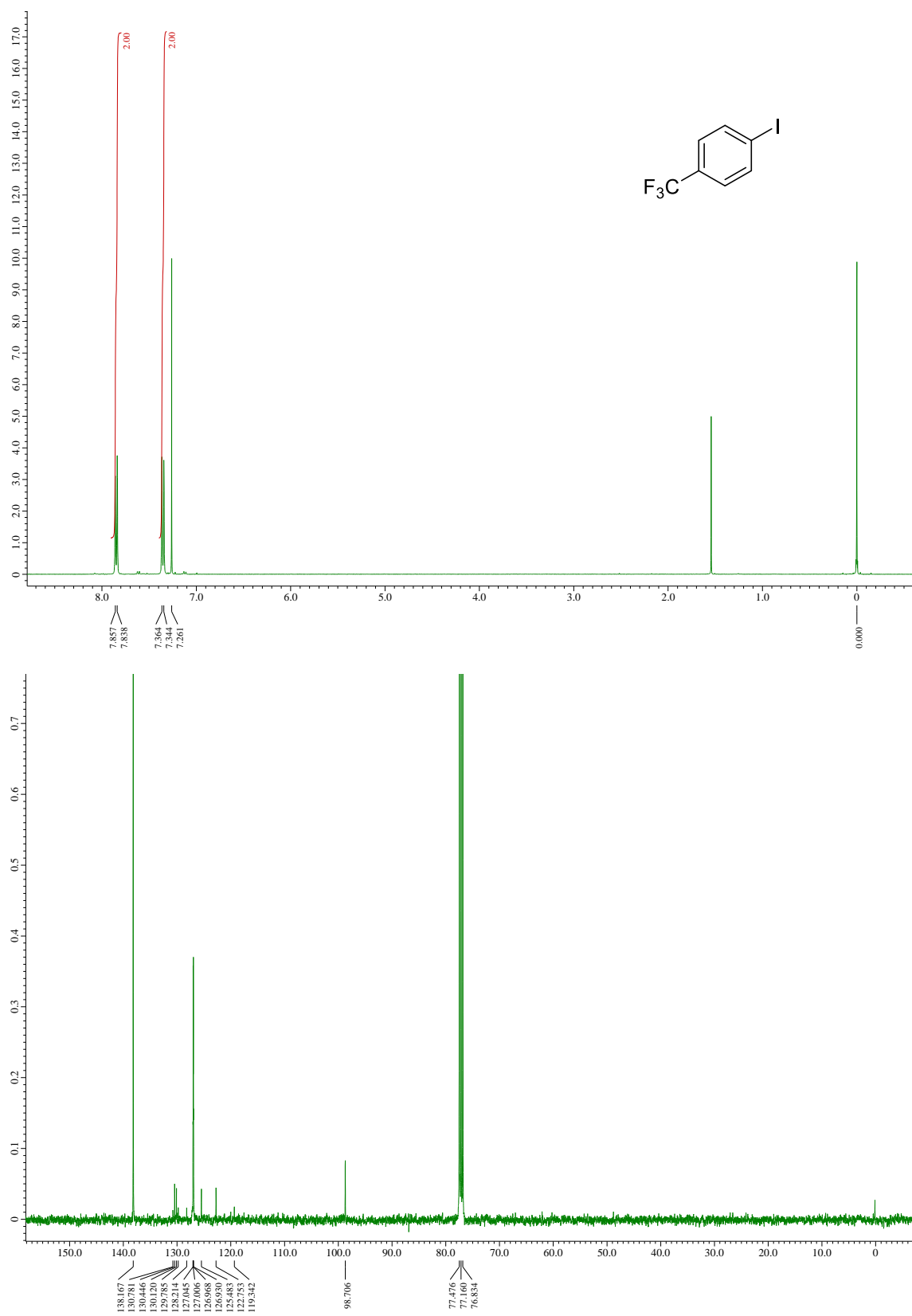
**Figure S17:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2q**



**Figure S18:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2r**



**Figure S19:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2s**



**Figure S20:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2t**

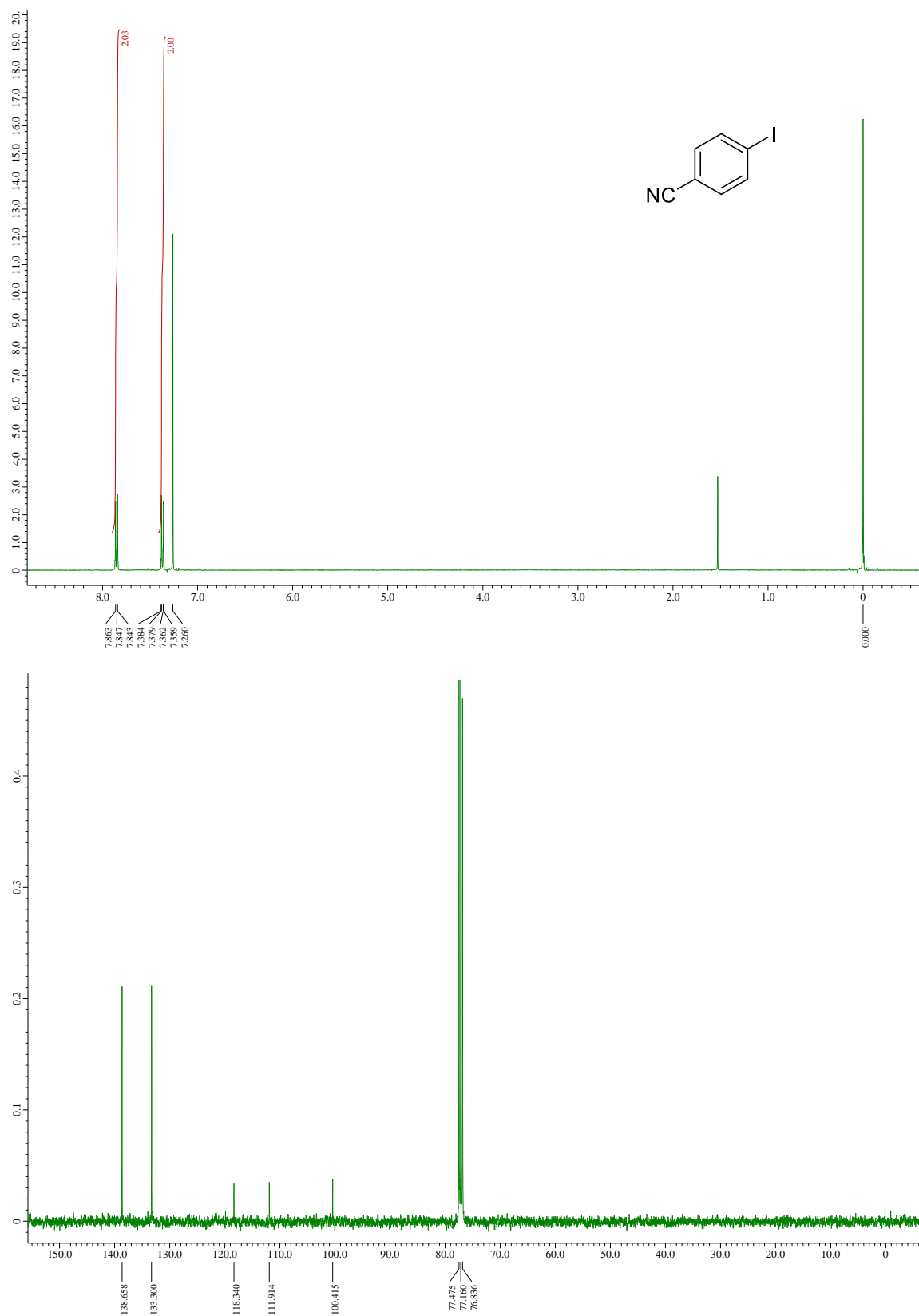
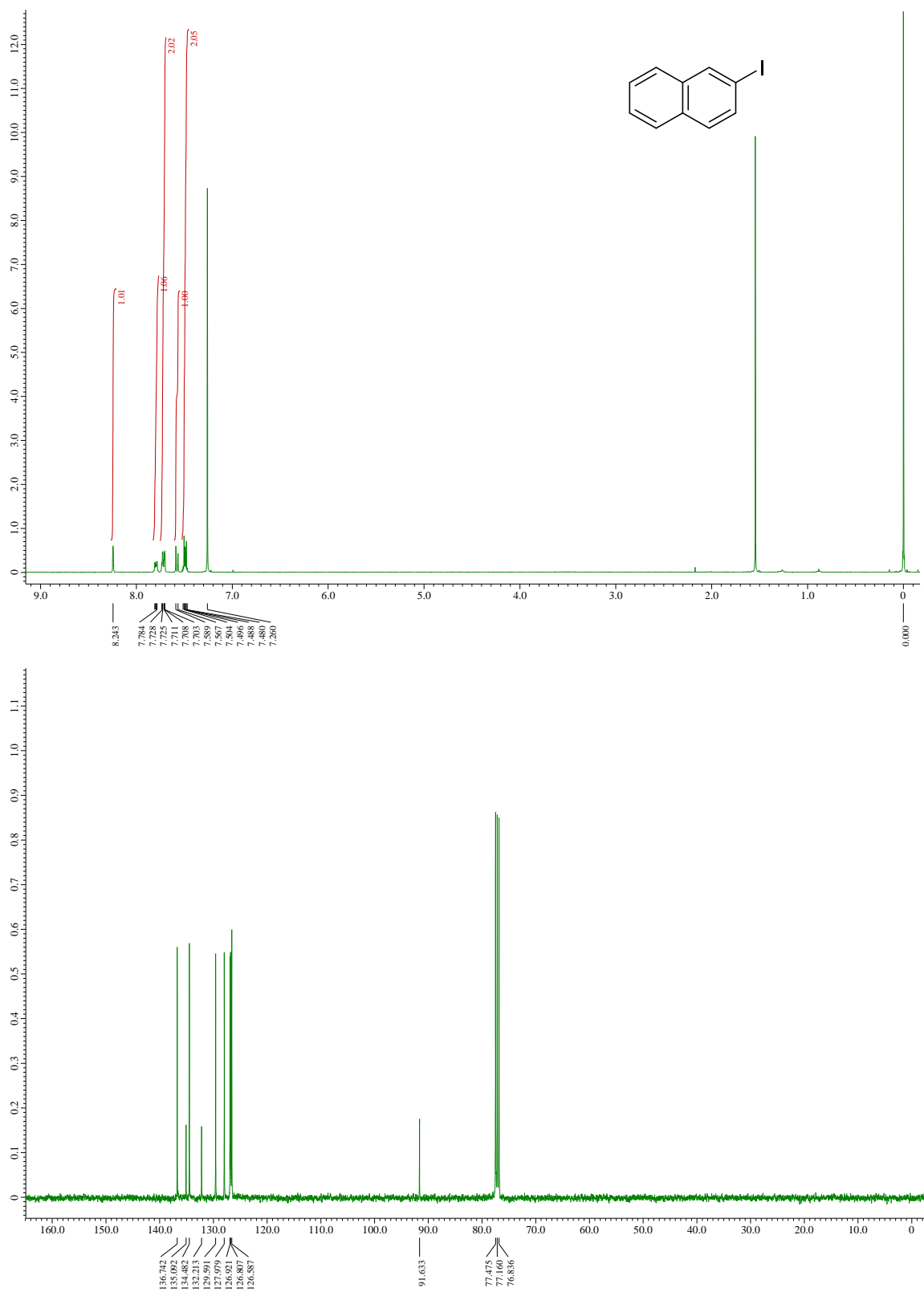
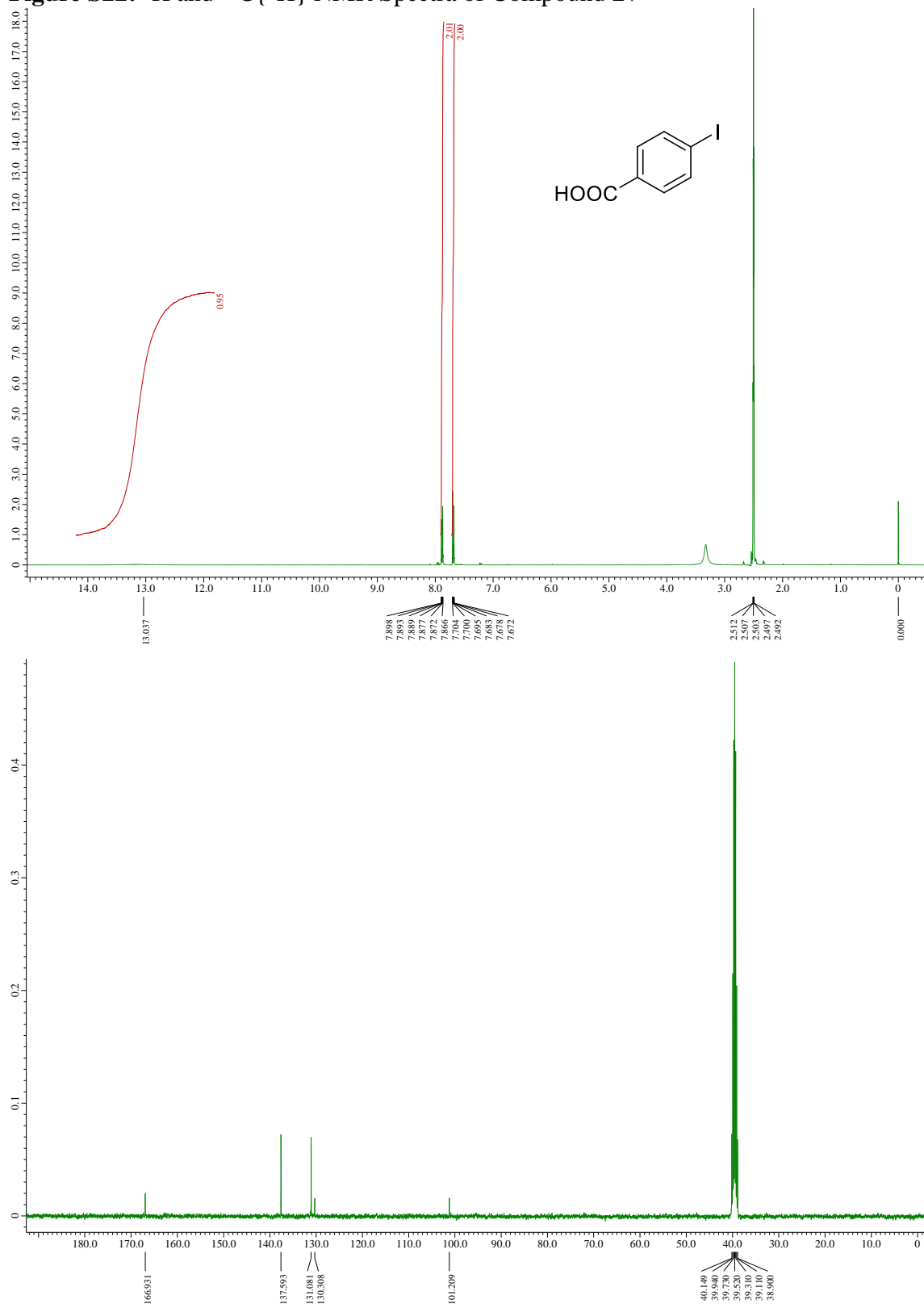


Figure S21:  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2u**

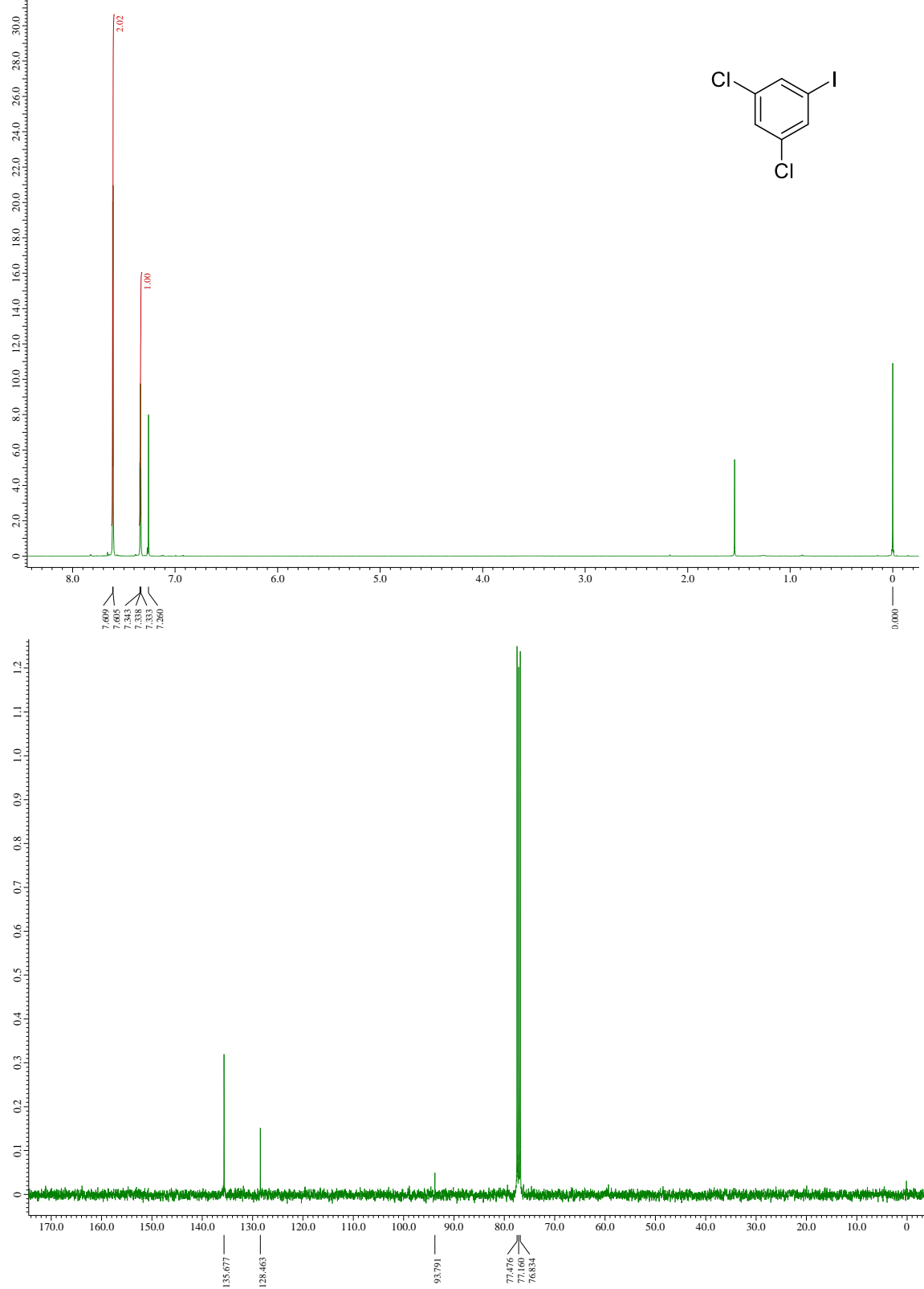


**Figure S22:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2v**

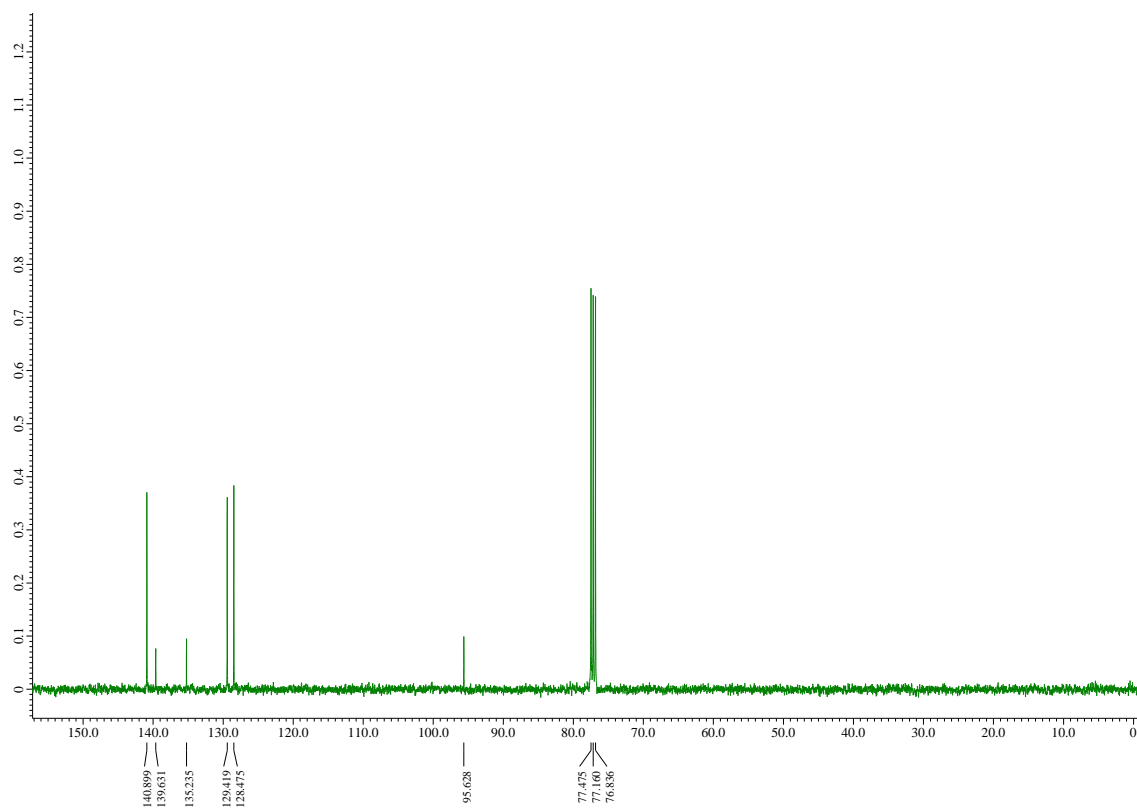
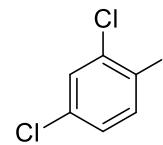
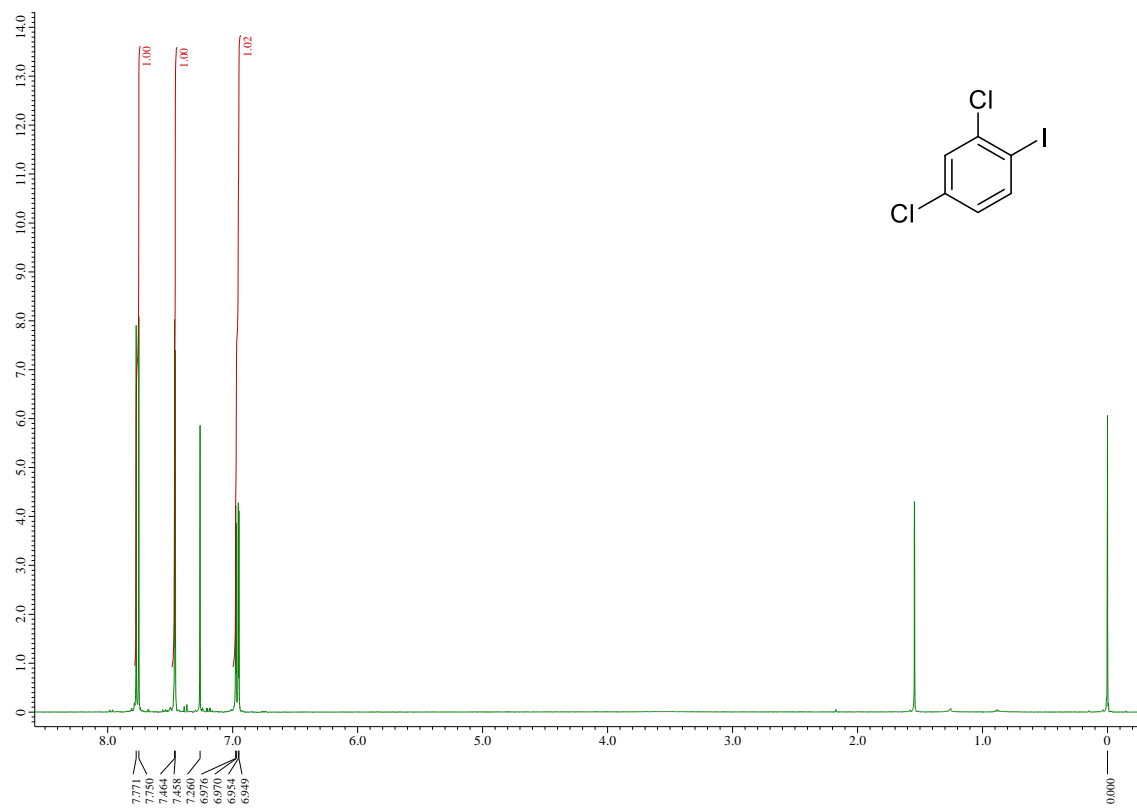




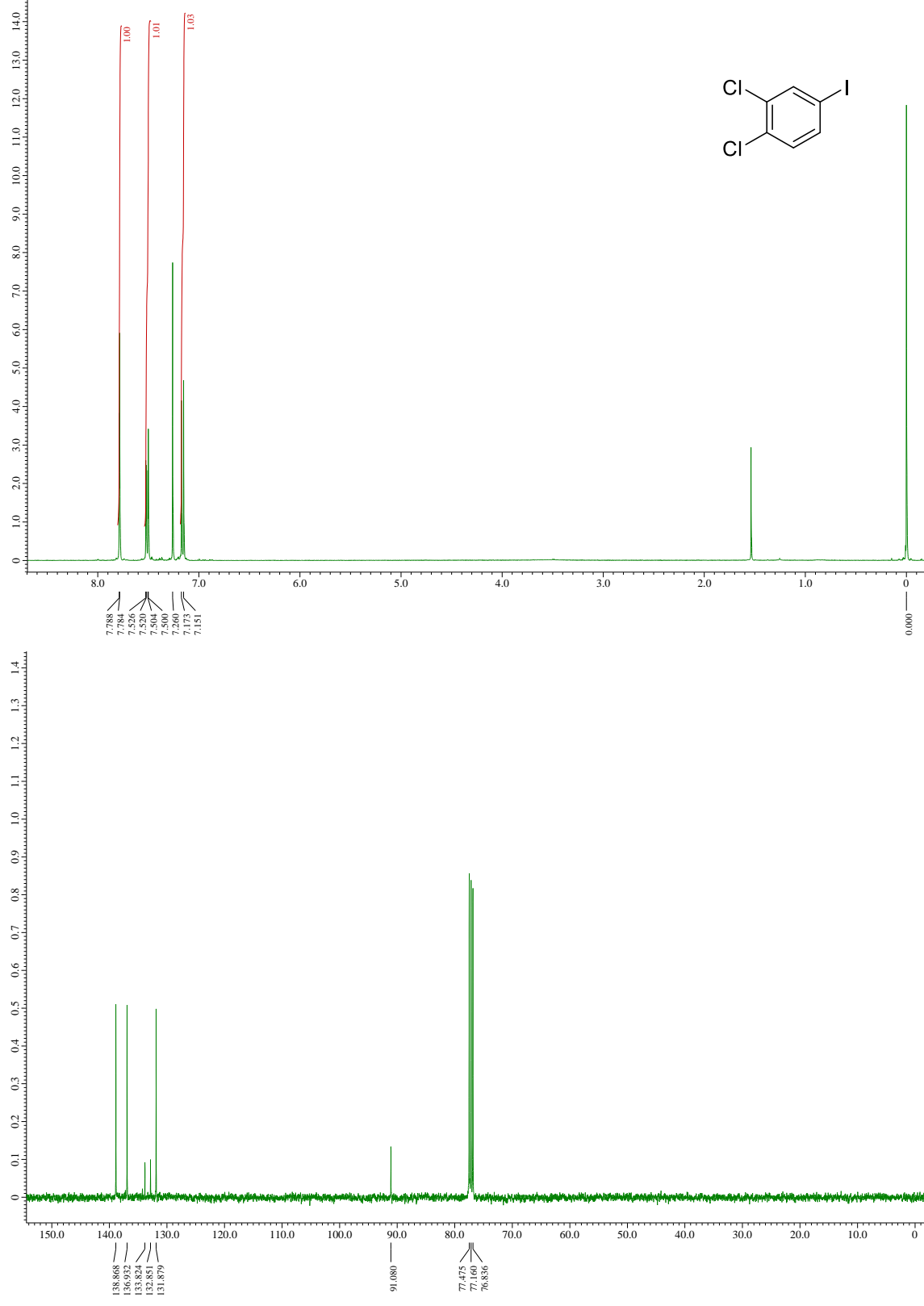
**Figure S23:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2x**



**Figure S24:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2y**



**Figure S25:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2z**



**Figure S26:**  $^1\text{H}$  and  $^{13}\text{C}\{^1\text{H}\}$  NMR Spectra of Compound **2a'**

