Electronic Supplementary Material (ESI) for Organic Chemistry Frontiers.

Supporting Information

K_2CO_3- Accelerated Amidation of Carboxylic Acids with α-Oxo Ketene-*N, S*-Acetals as Amine Surrogates

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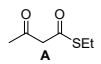
I. Detection of S-ethyl 3-oxobutanethioate A from LC-MS

1. General Information. The chromatographic separation was performed on an Agilent 1260 Infinity HPLC apparatus equipped with a reverse phase SepaChrom Srl C18 (50 mm × 4.6 mm, 5.0 μm particle size) analytical column. LC flow rate: 3.5 mL min^{-1}, The mass spectrometry shunt flow rate is 0.3 mL min^{-1}. The ultra-pure water was prepared by a Millipore purification device (New York, USA). The column temperature was set at 35 °C. The injection volume was set at 2 μL. HPLC grade Acetonitrile (0.1% HPLC grade methanoic acid) and ultrapure water (0.1% HPLC grade methanoic acid) were used as mobile phase A and mobile phase B, respectively. The gradient was set as follows: 0→5 min, 30%→80% A; 5→6 min, 80% A. A Thermofisher TSQ Quantum Access MAX mass spectrometer was used for the identification and quantification of analytes with a Full Scan mode (m/z 100 – 1000). The parameters of the ESI source (positive ionization mode) were carefully optimized.

2. Total ion chromatogram

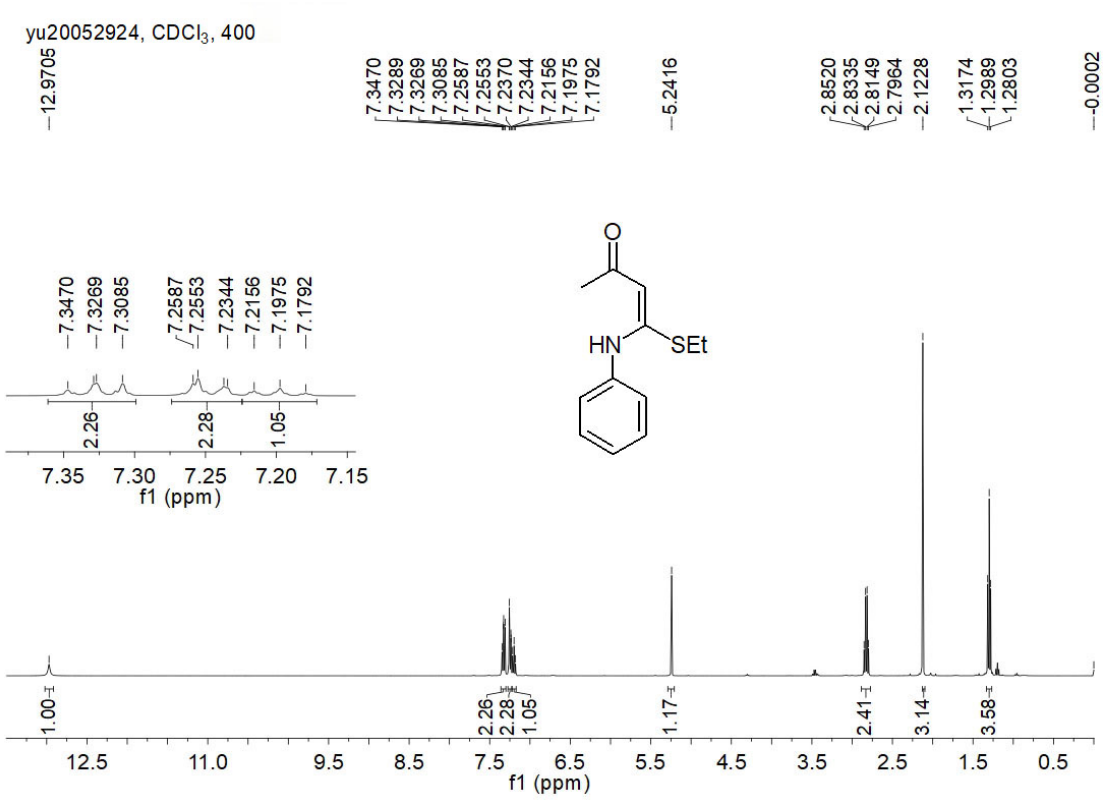
3. The MS of components based on retention time 1 minute



A

$C_6H_{11}O_2S^+(M+H^+)$, 147.0474

II. Copies of NMR spectra for 1



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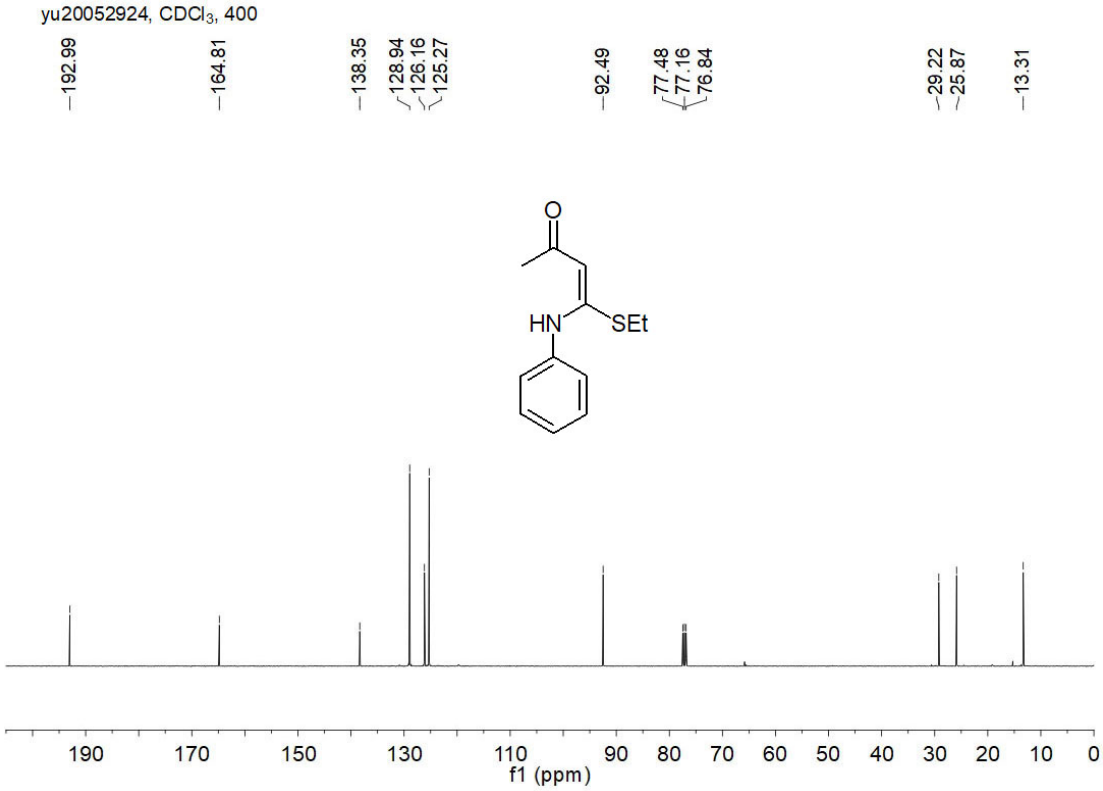

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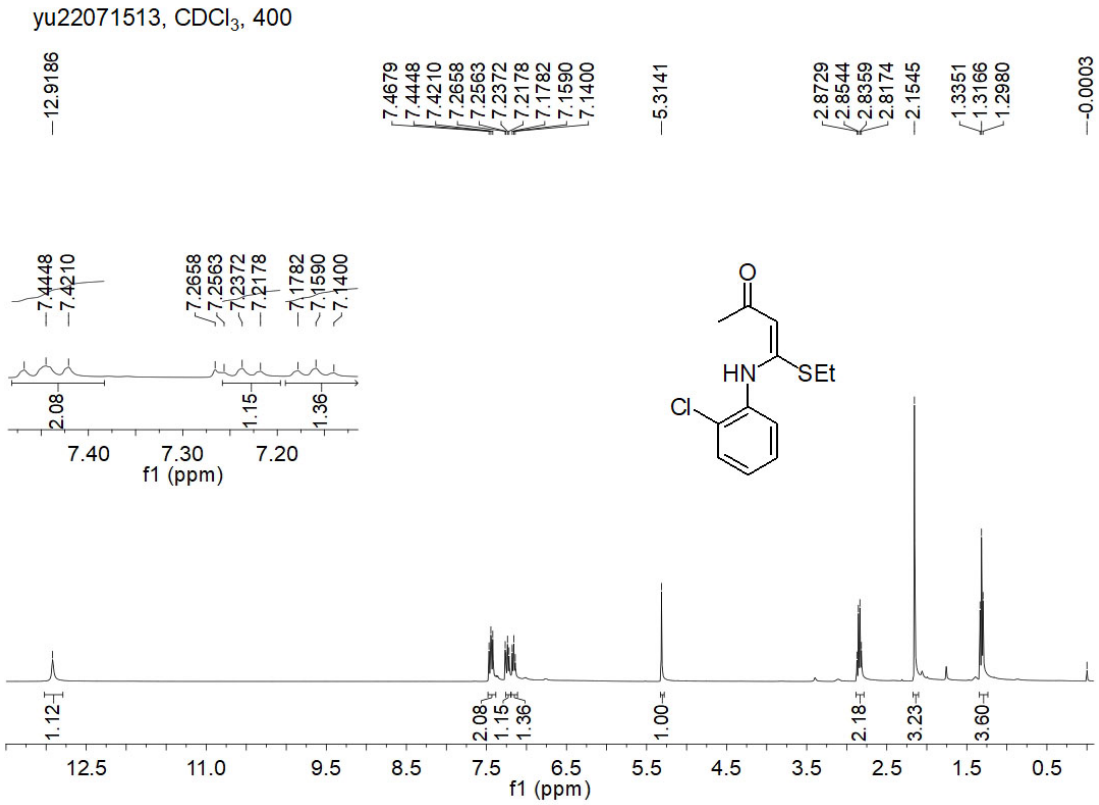

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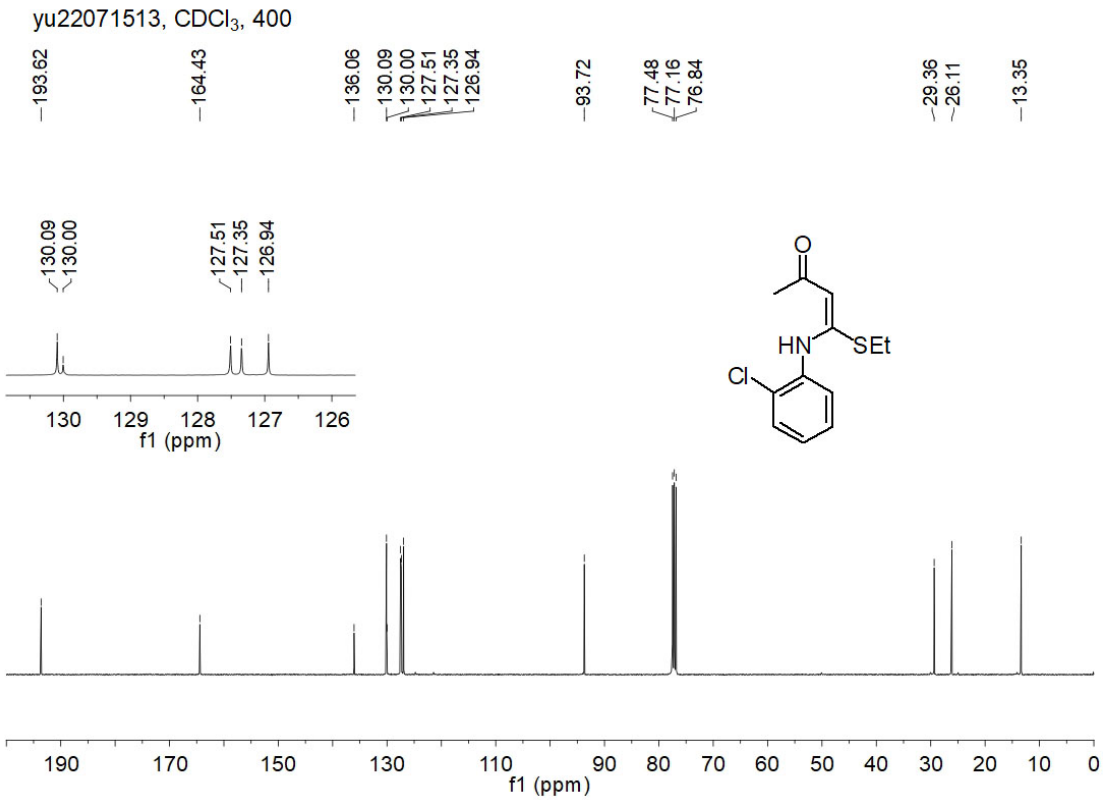

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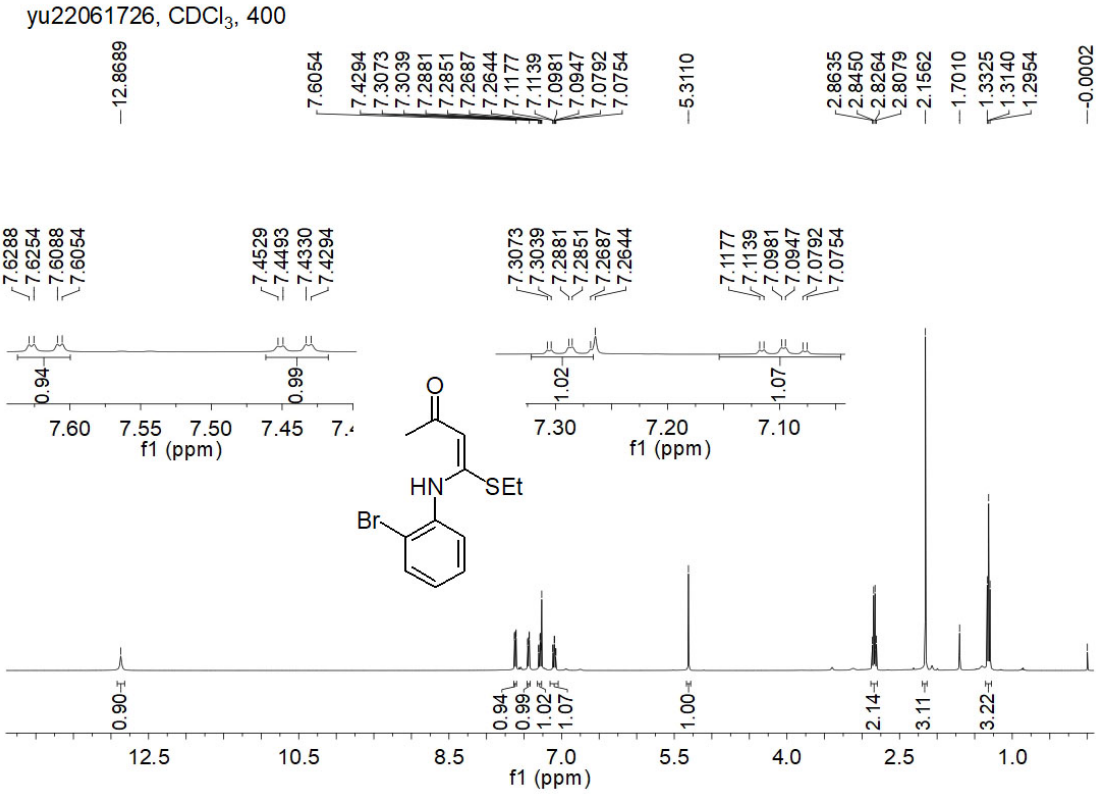

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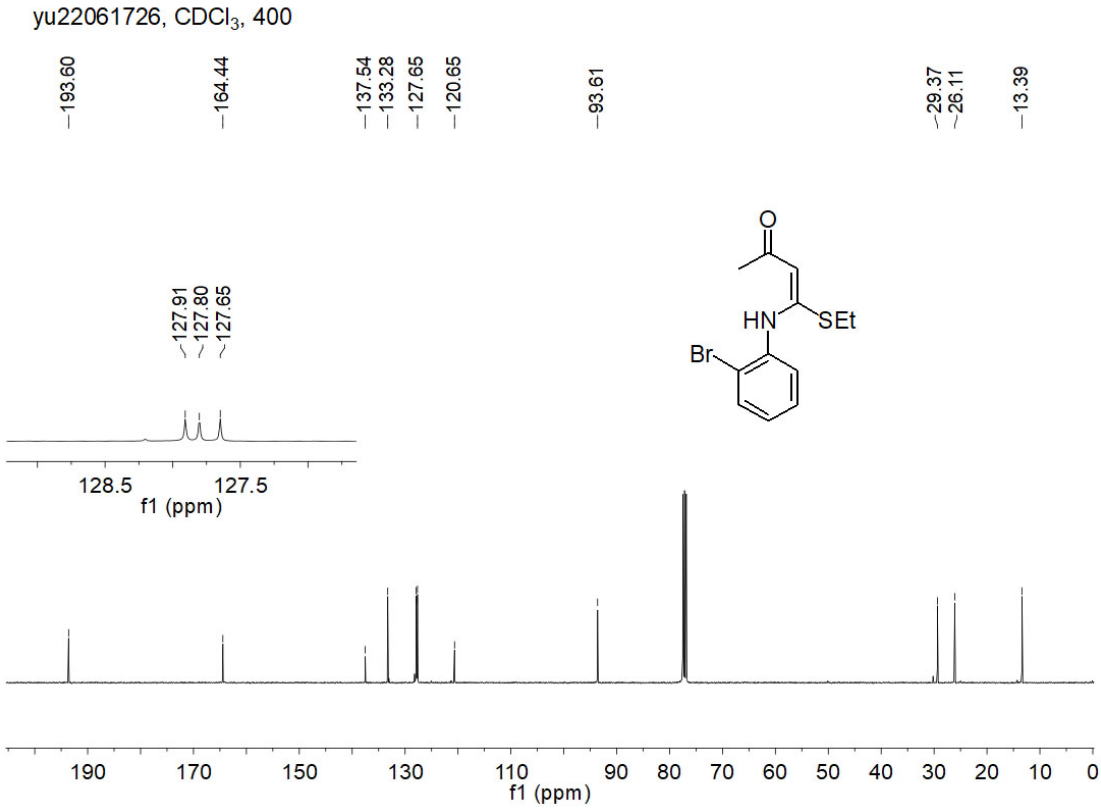

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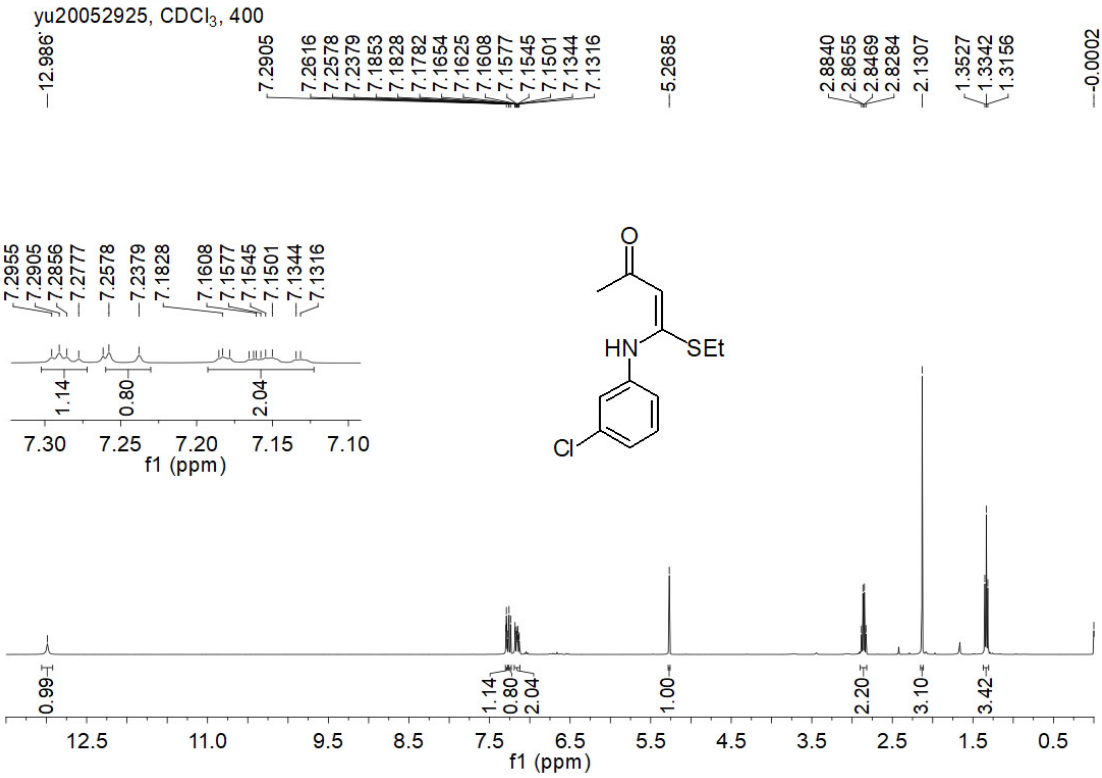

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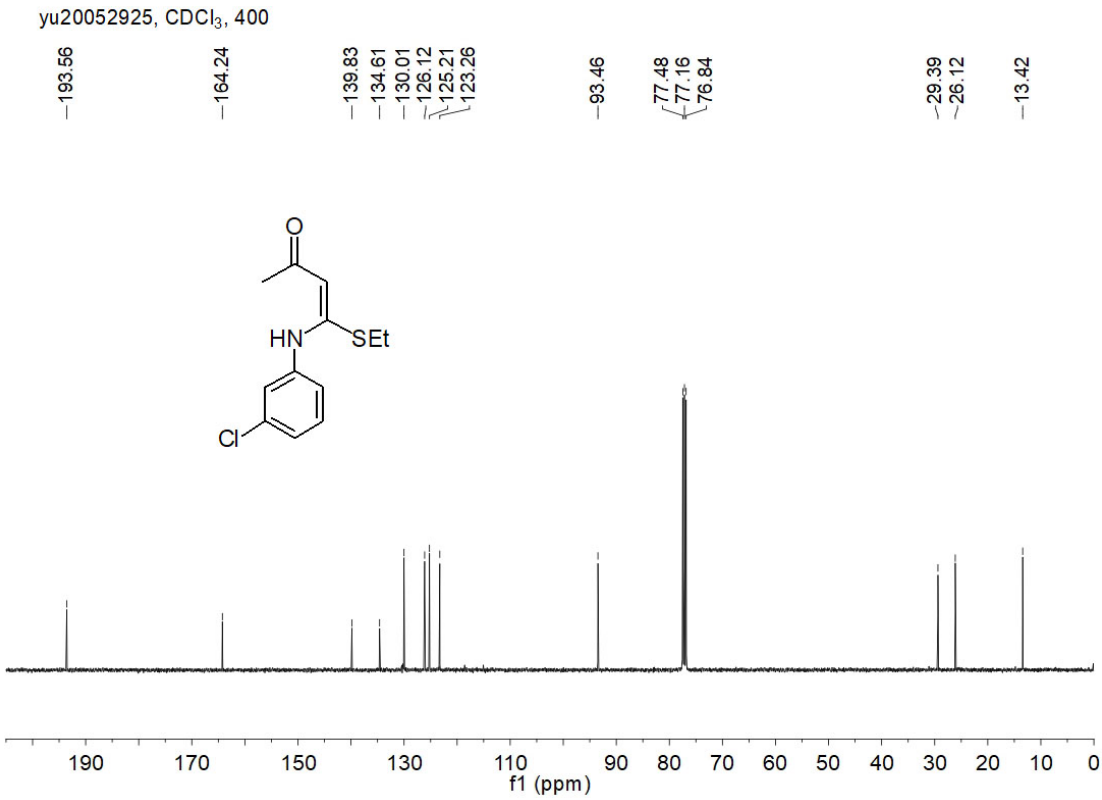

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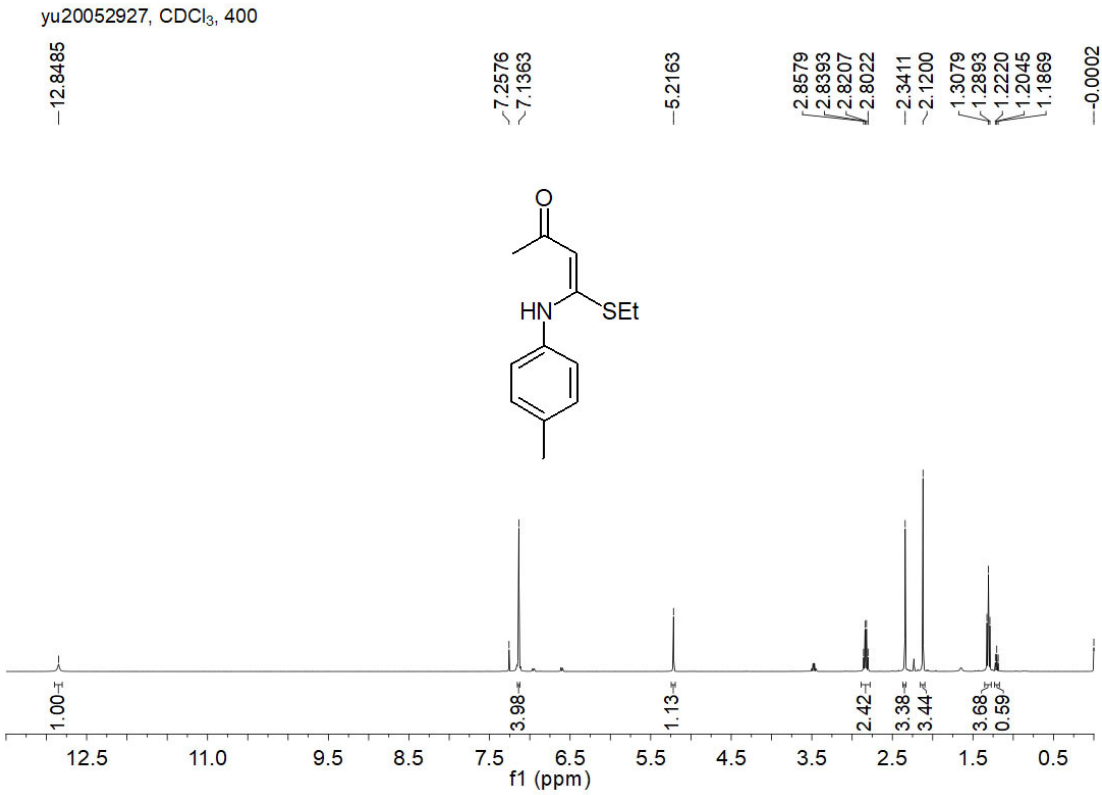

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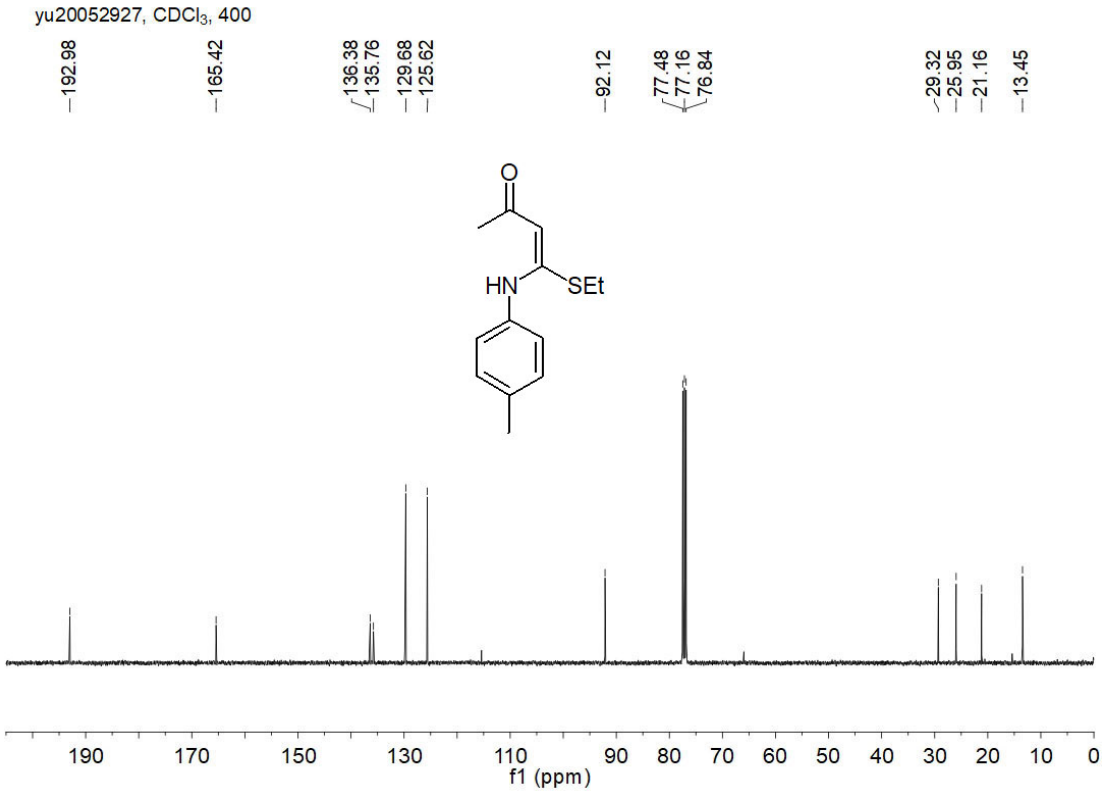

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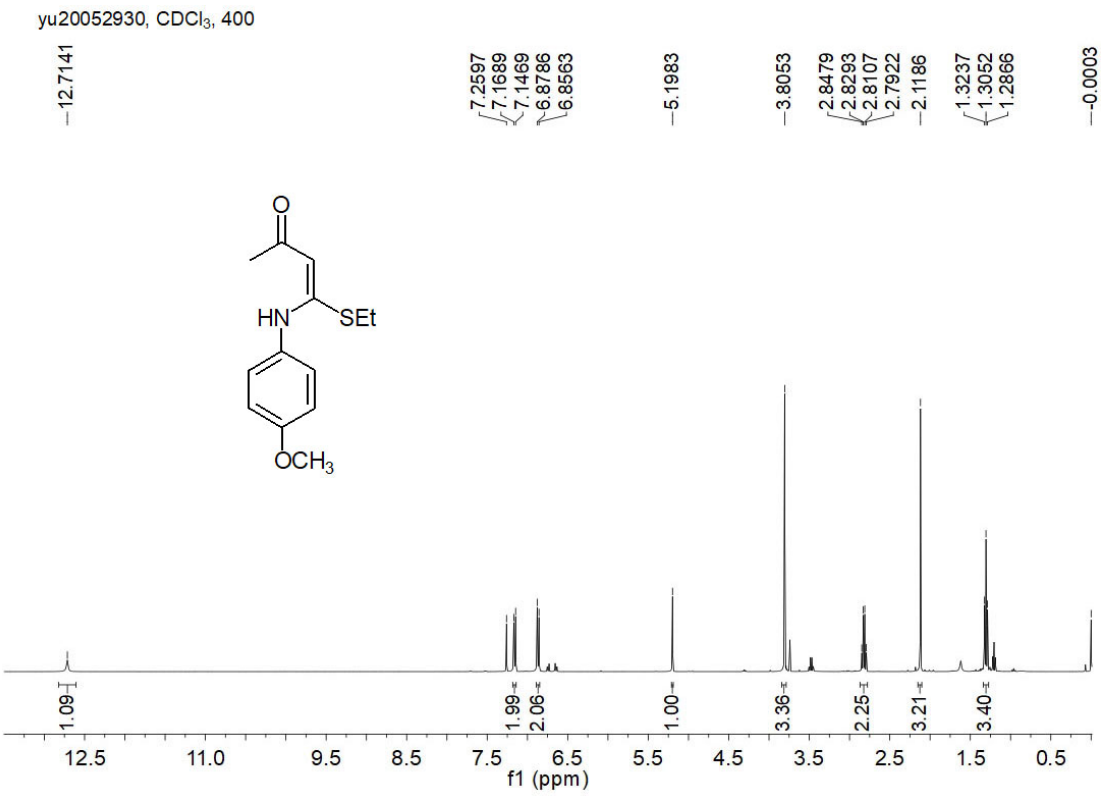

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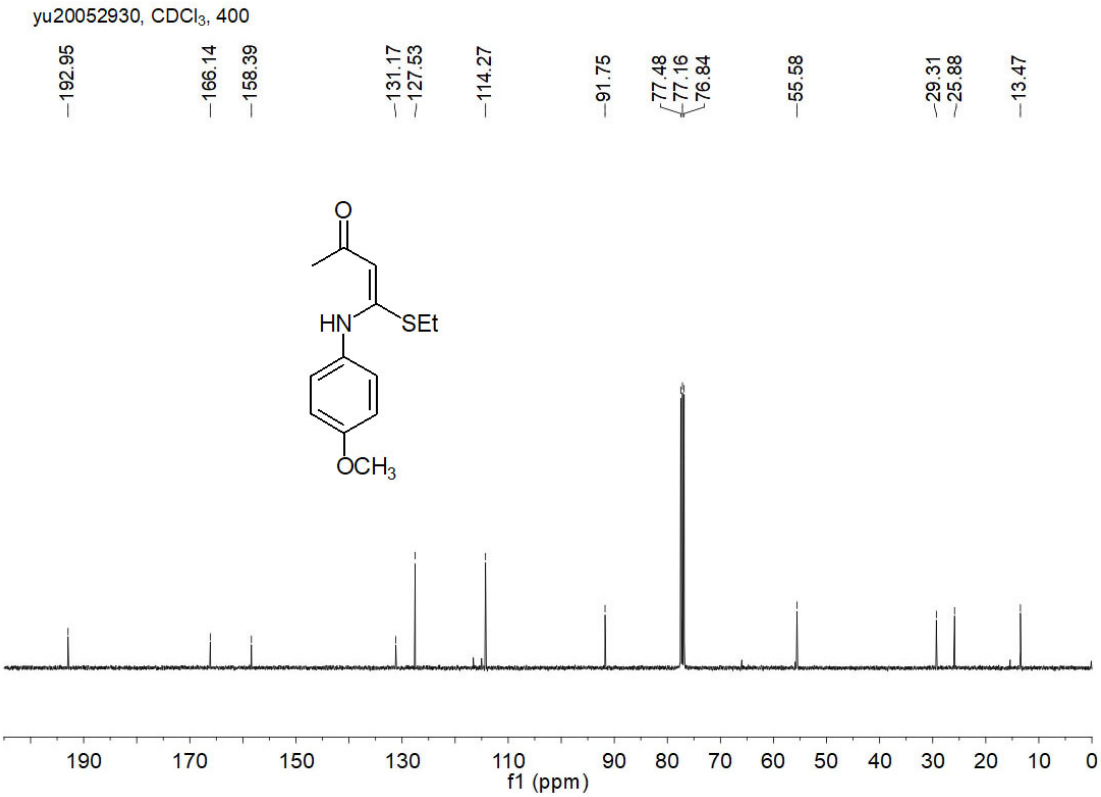

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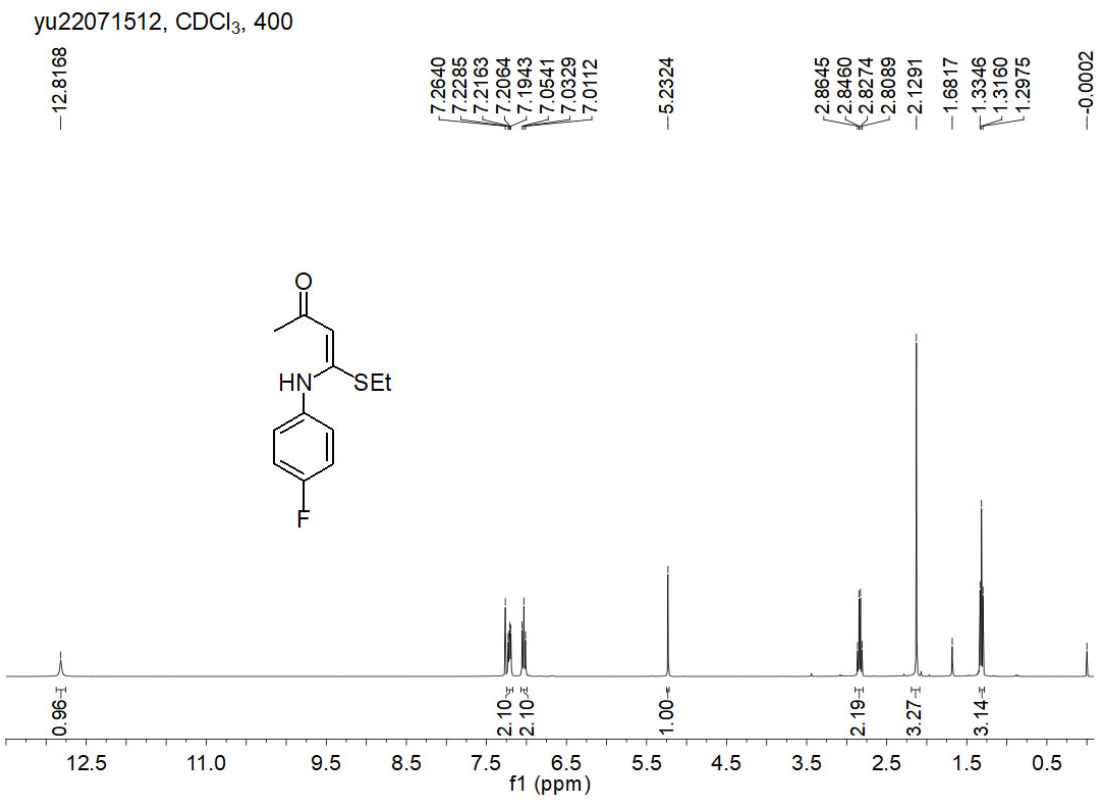

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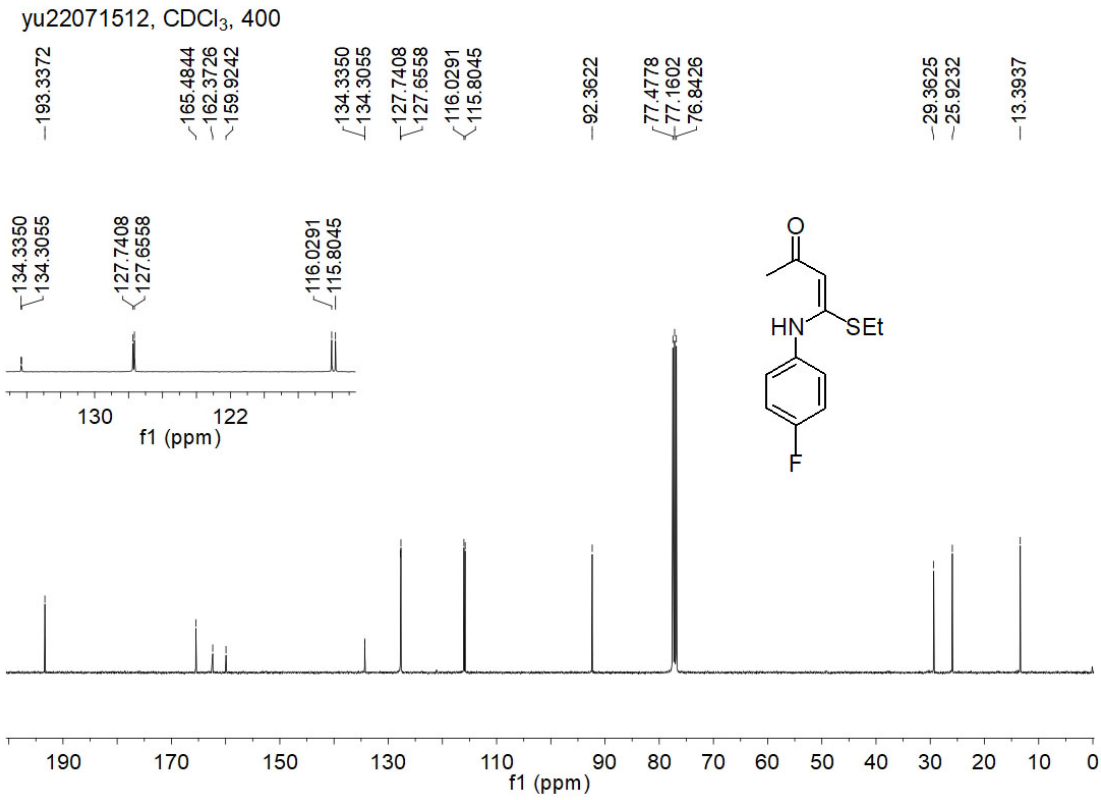

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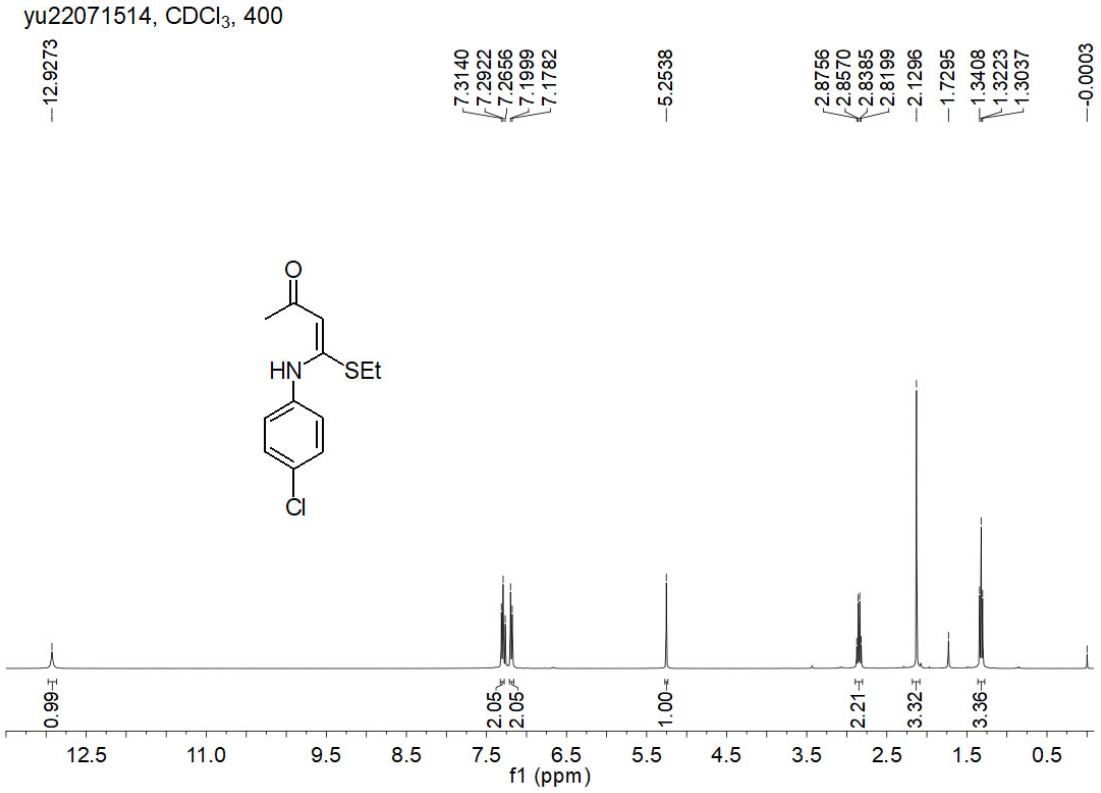

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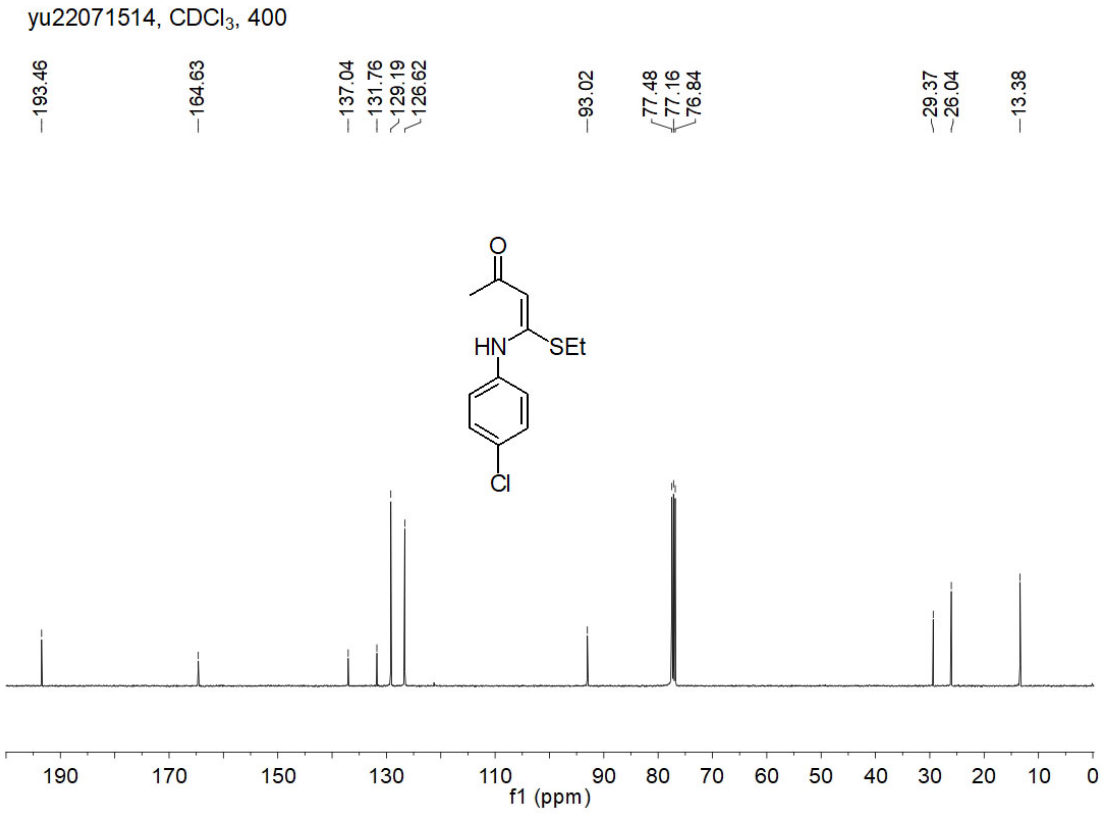

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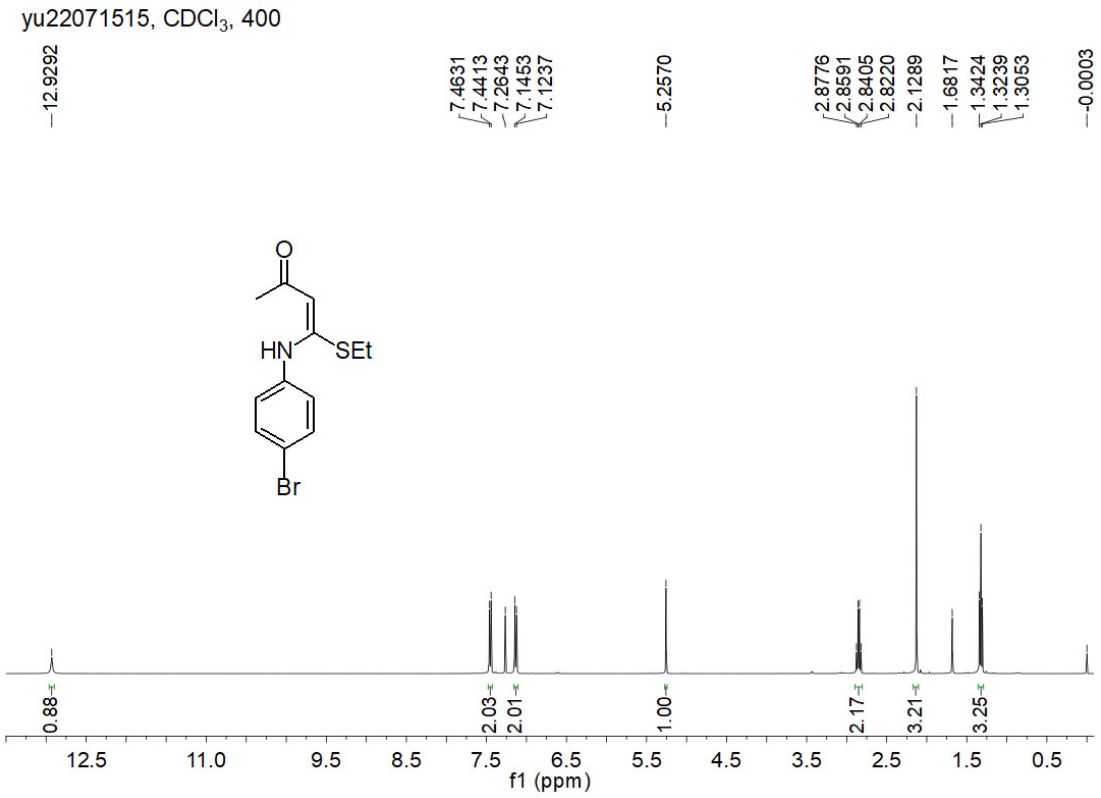

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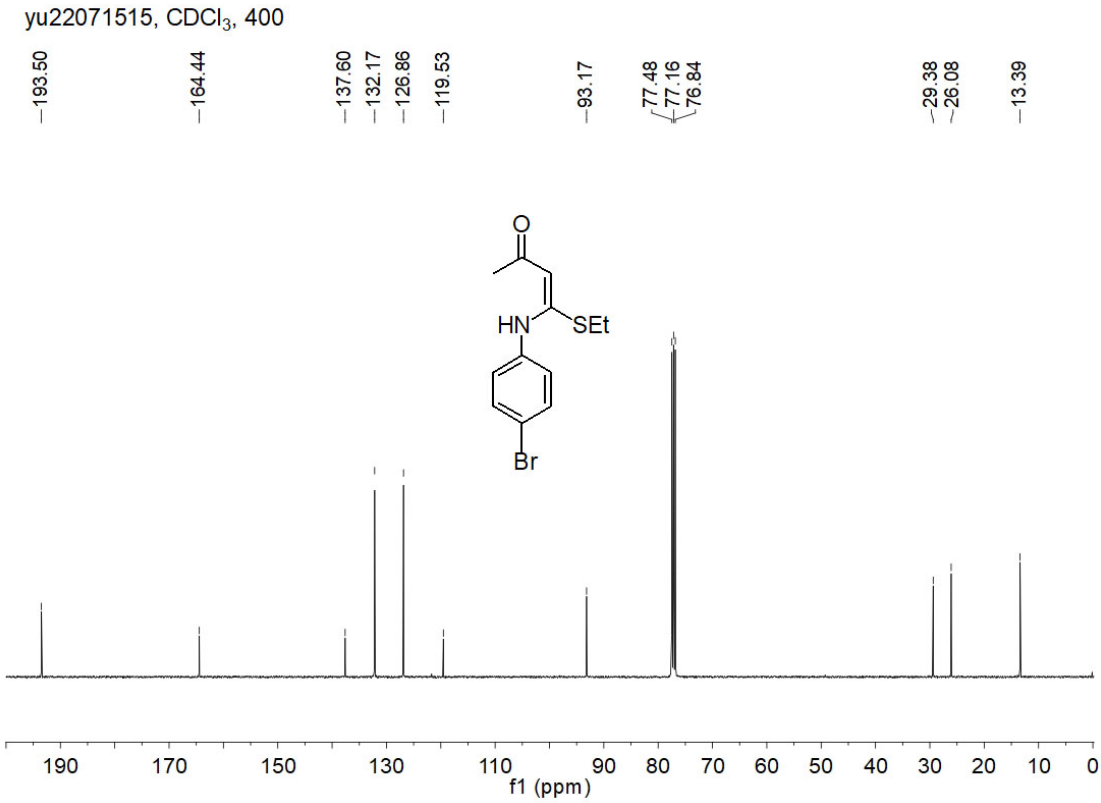

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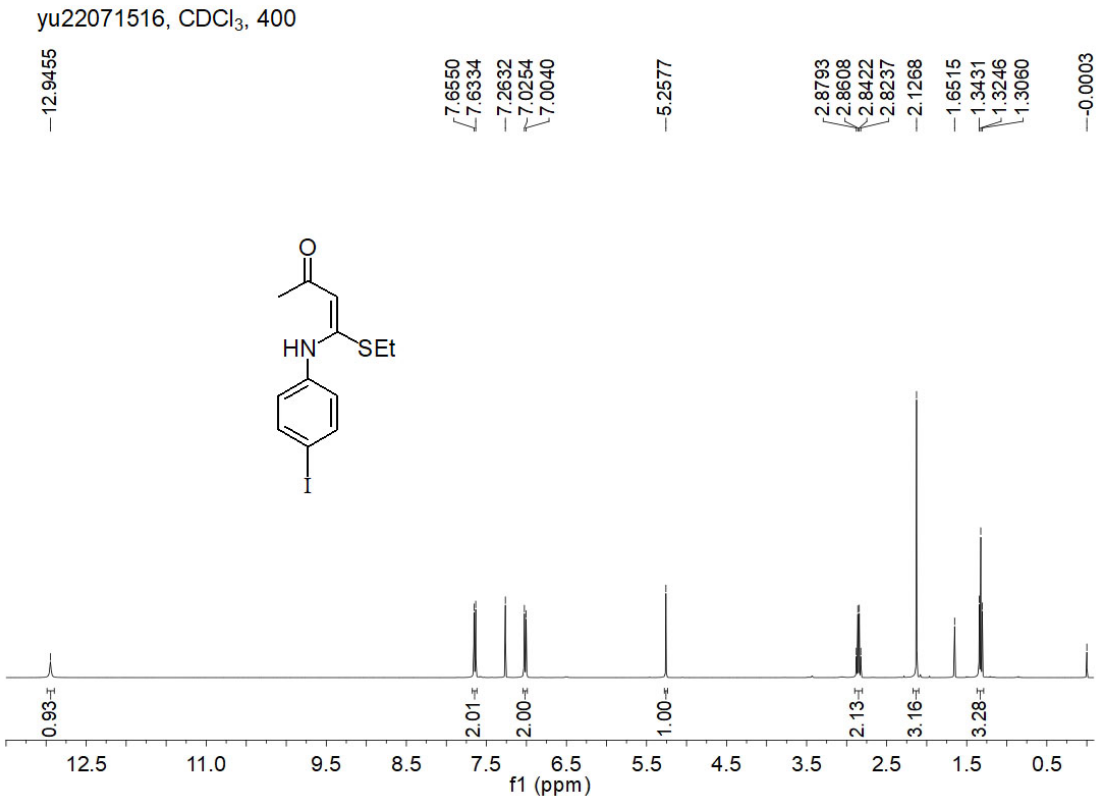

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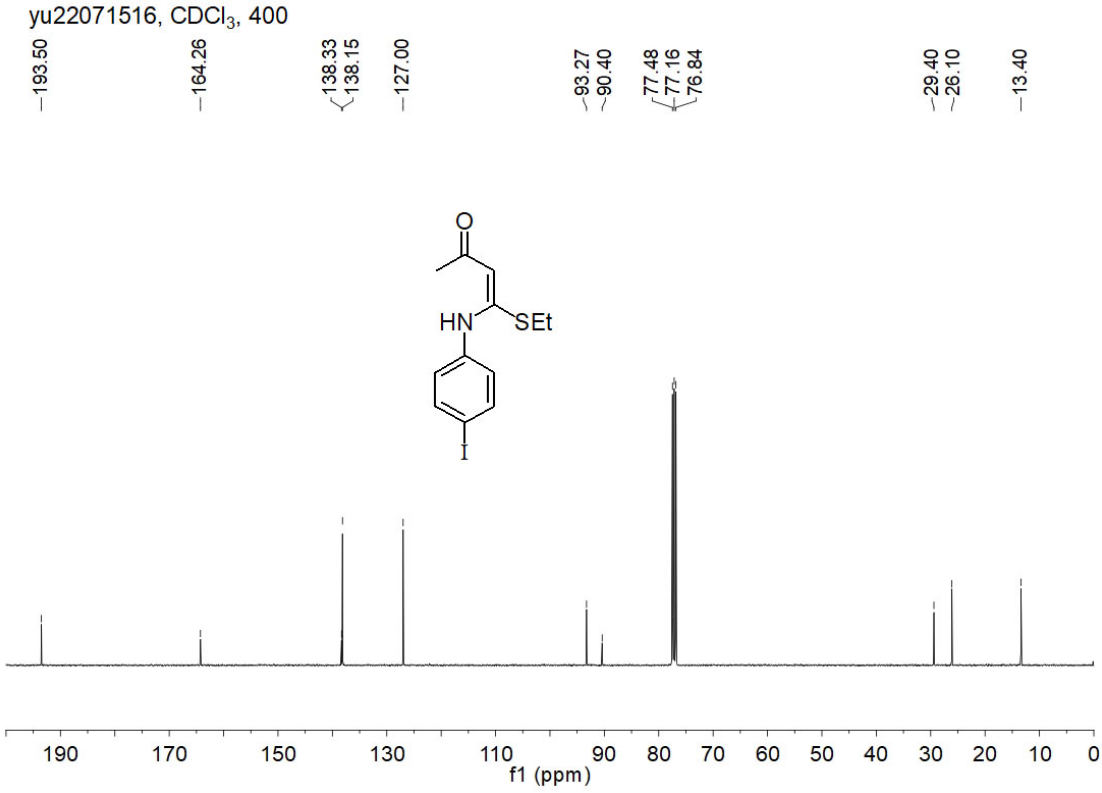

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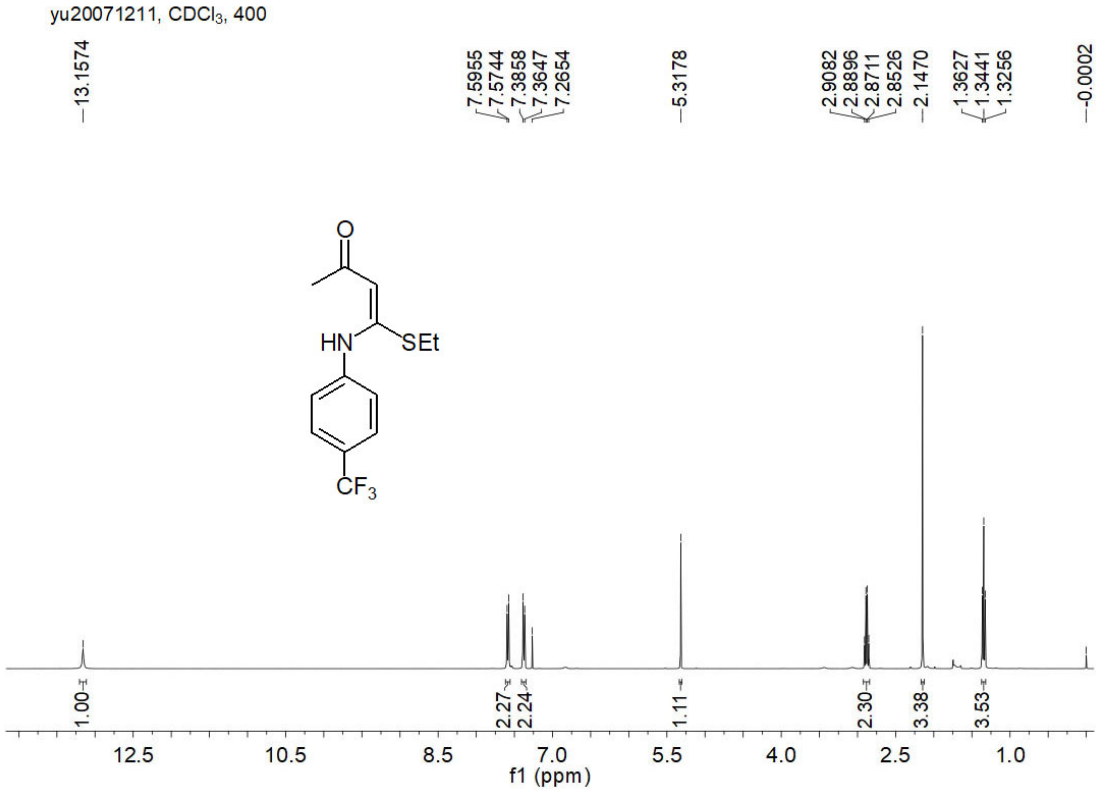

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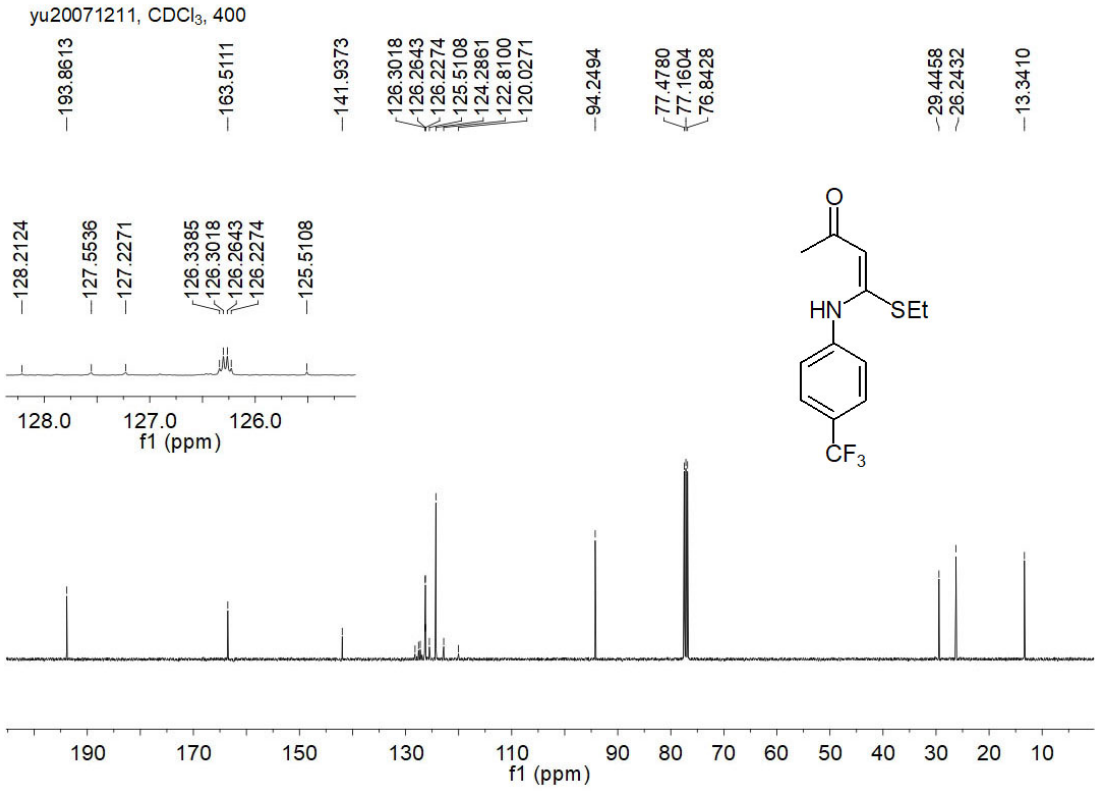

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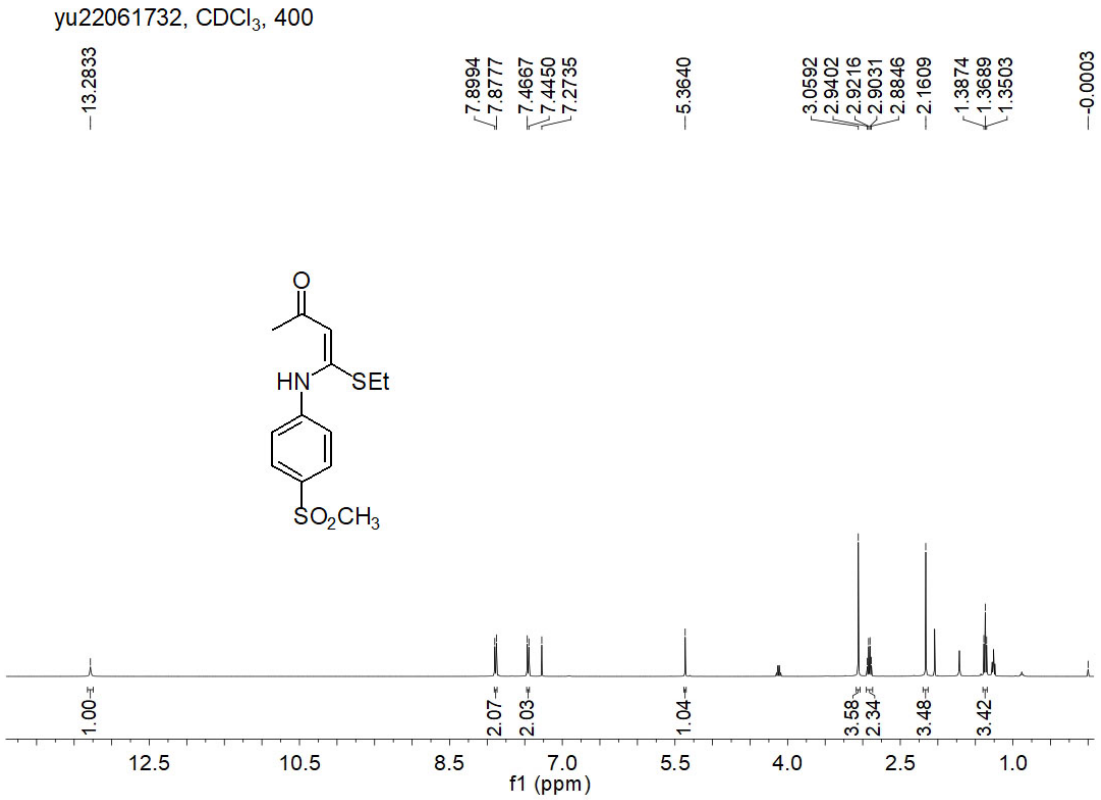

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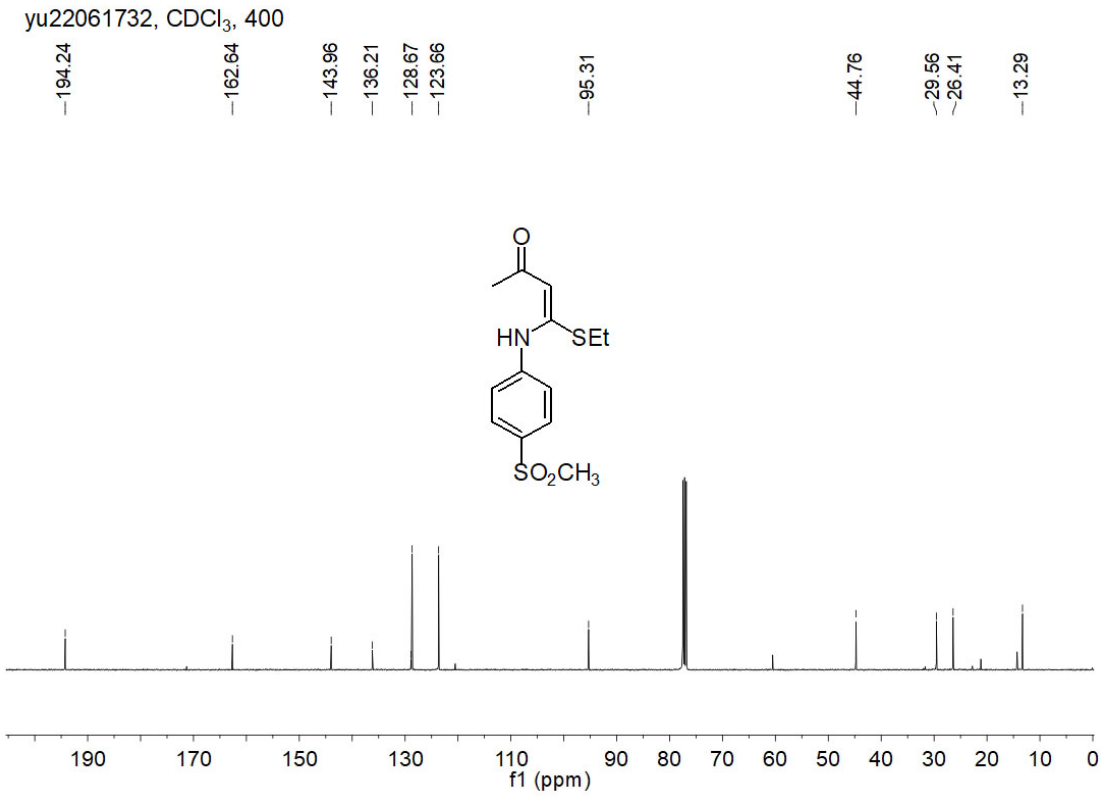

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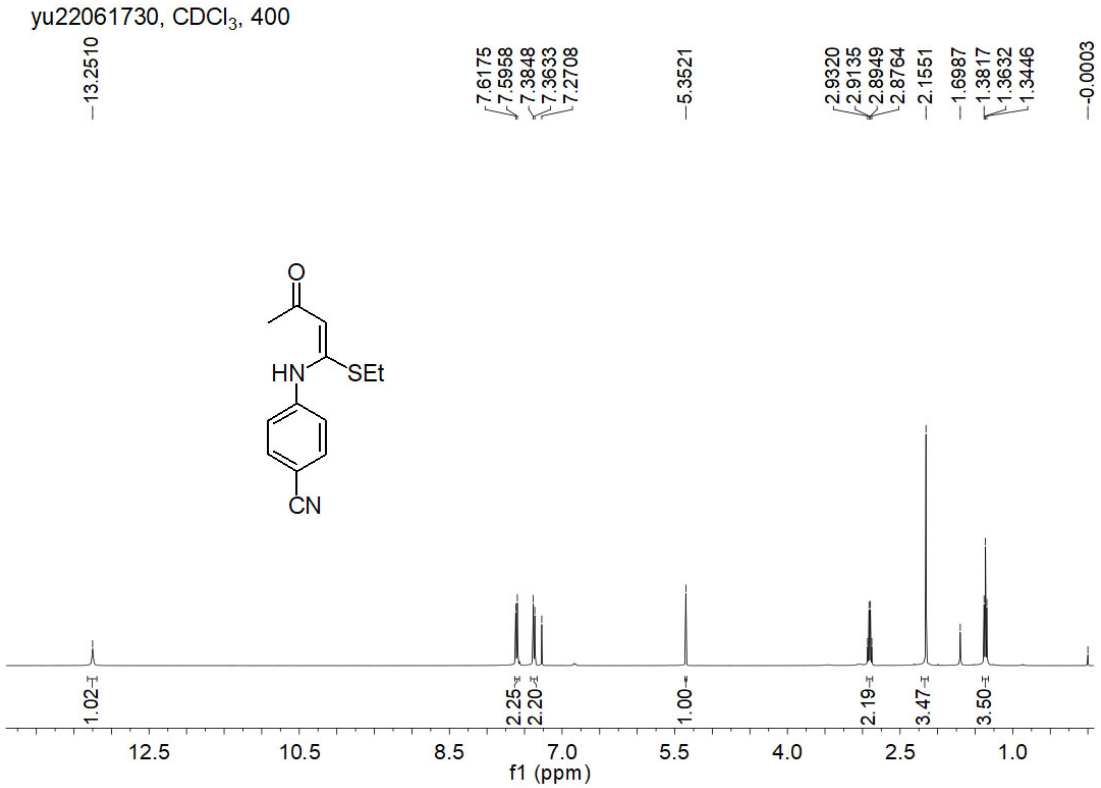

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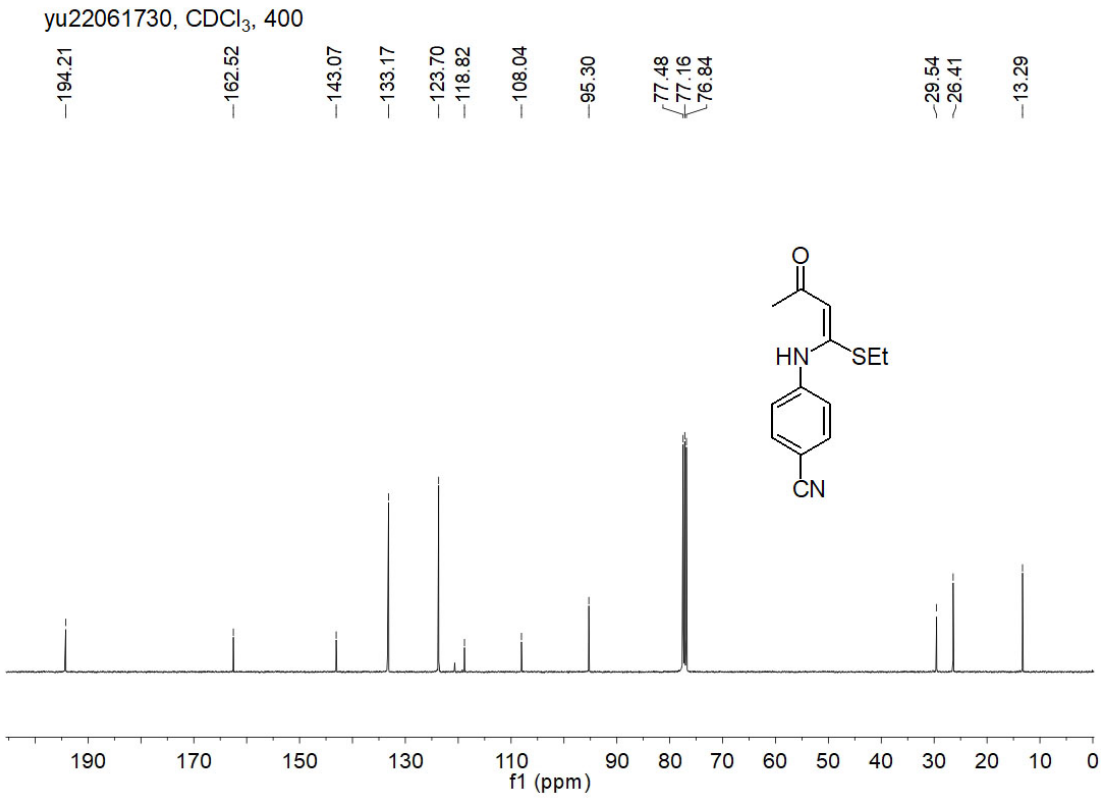

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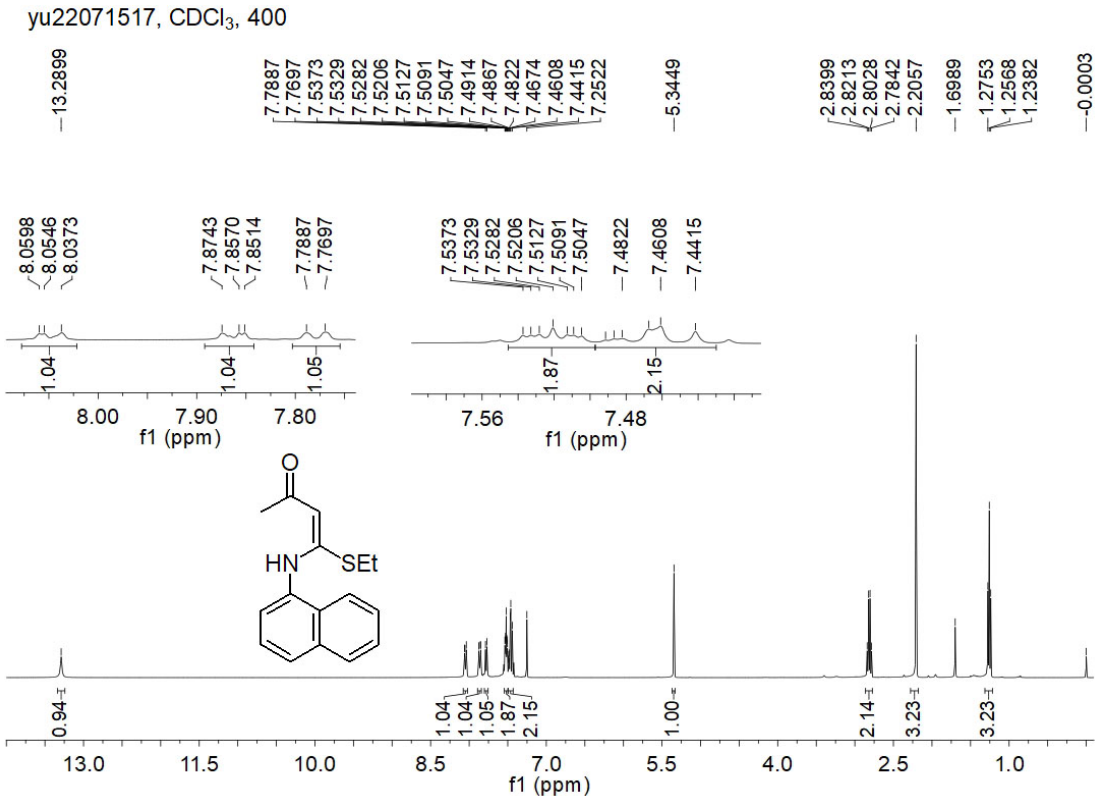

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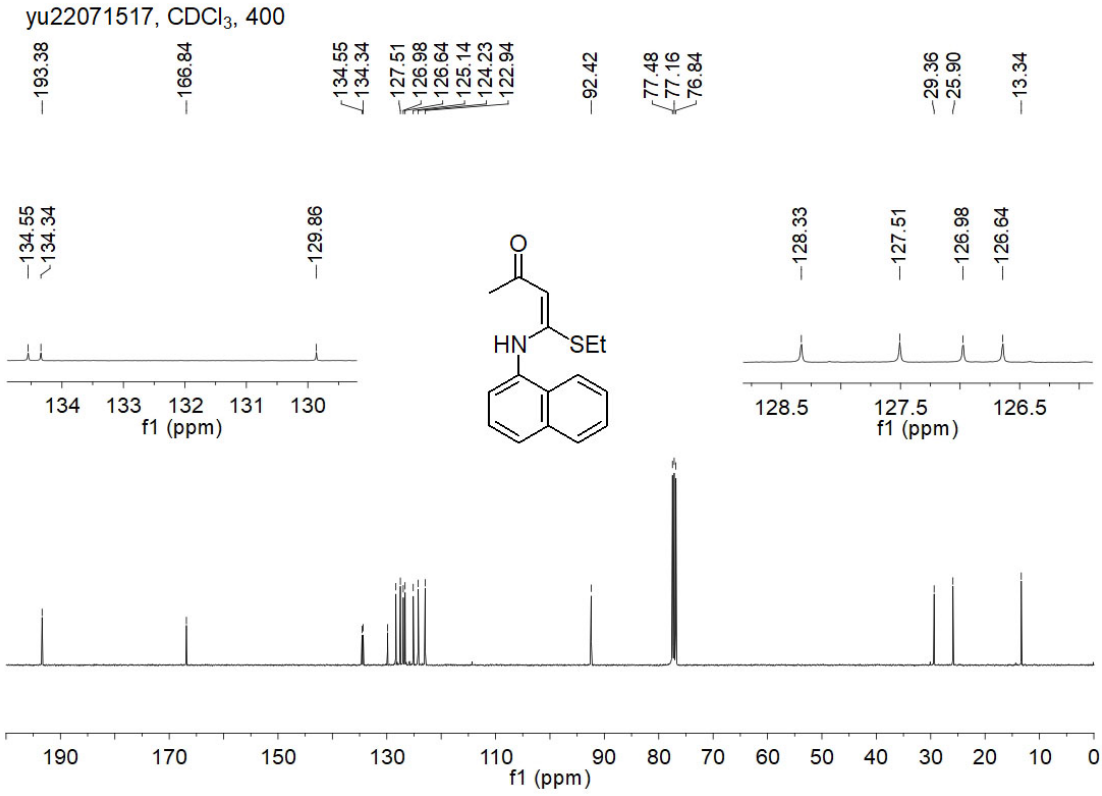

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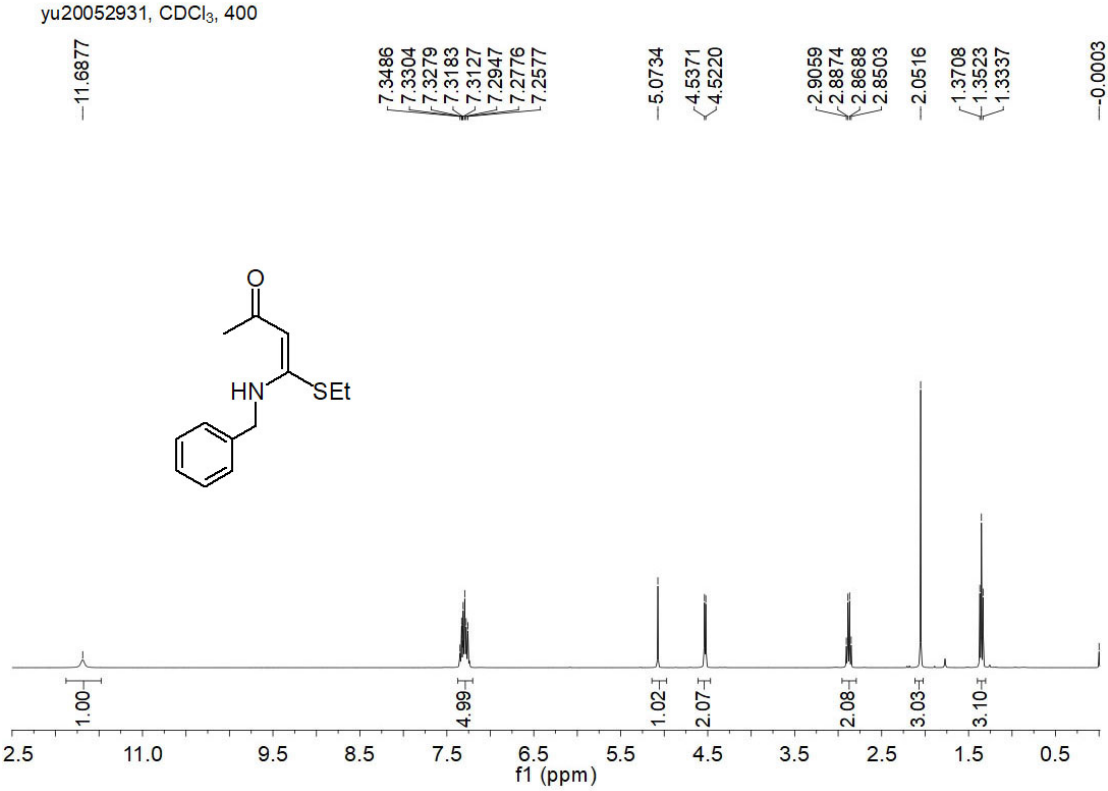

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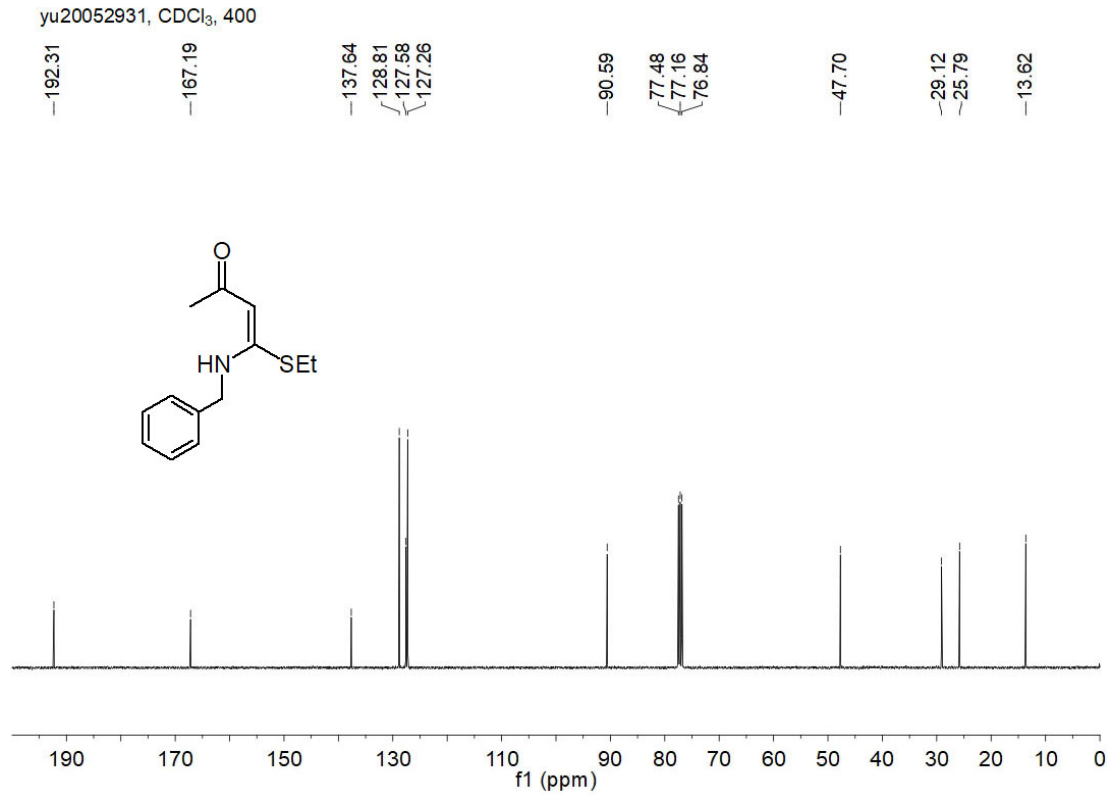

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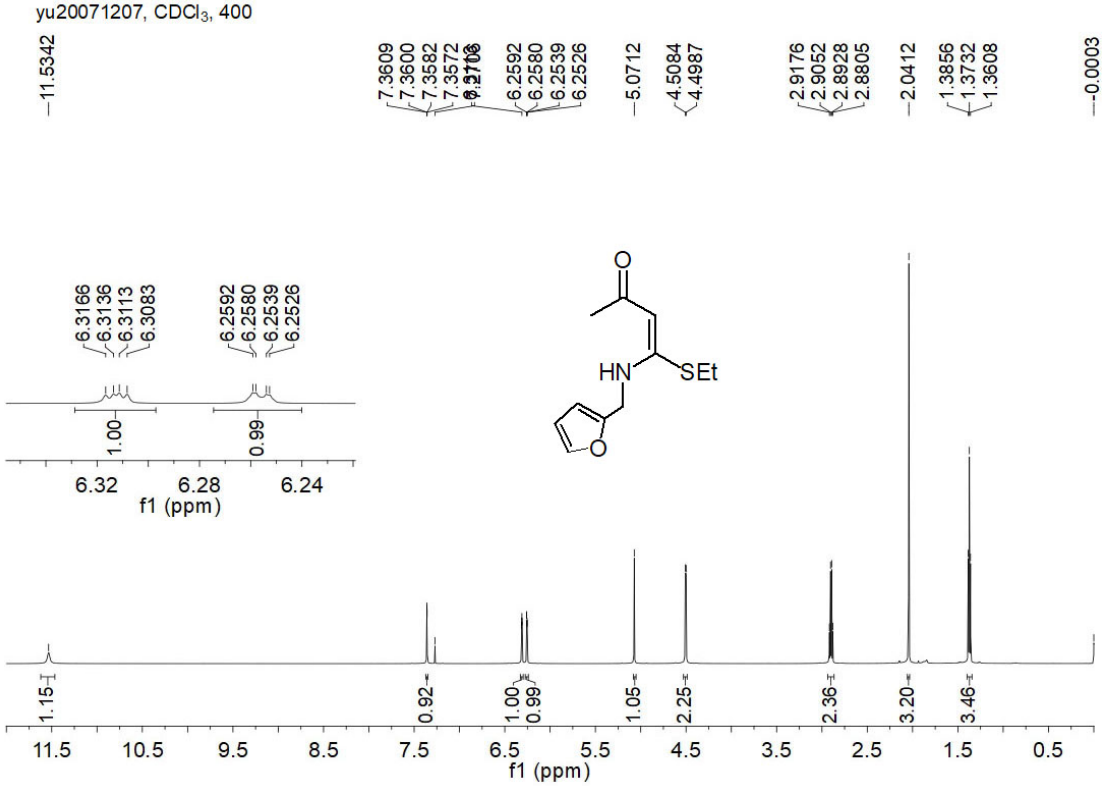

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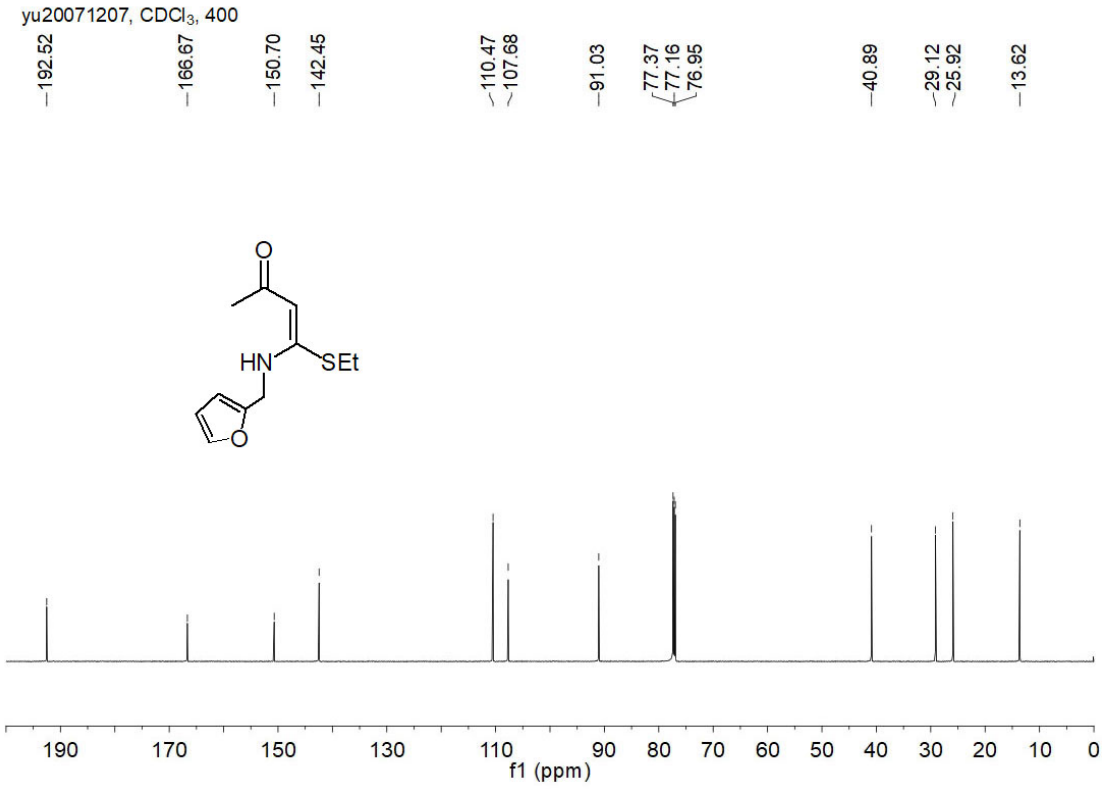

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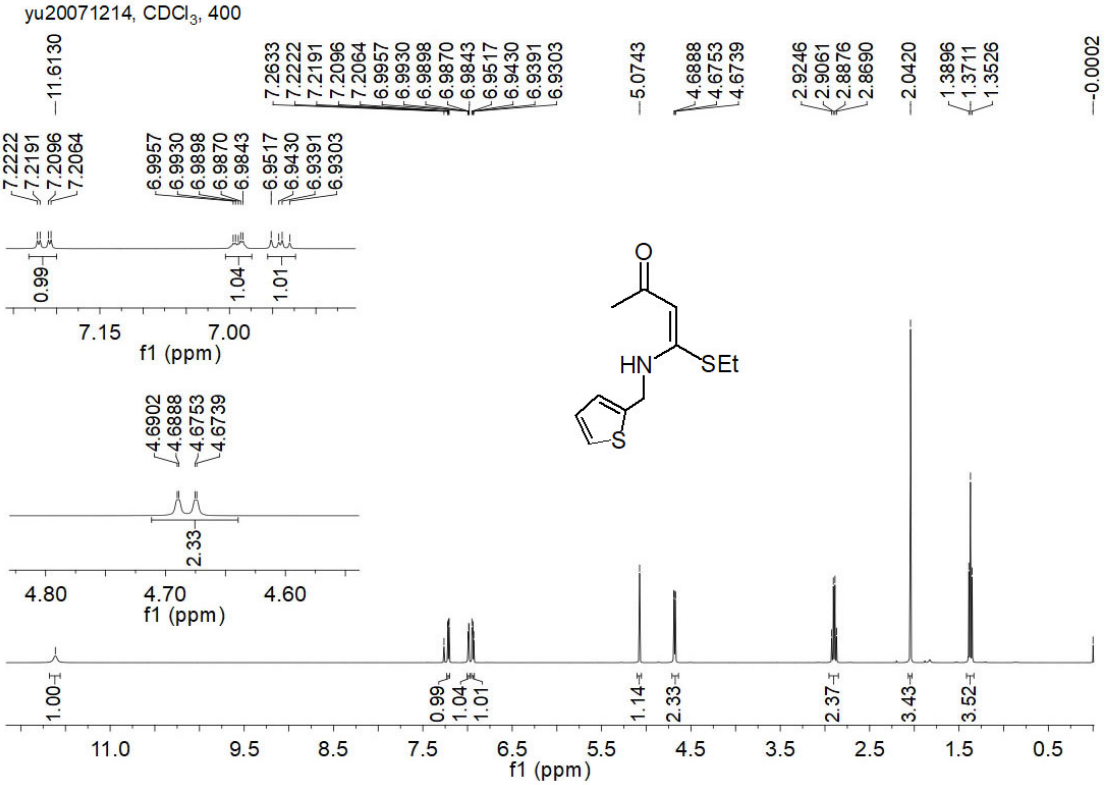

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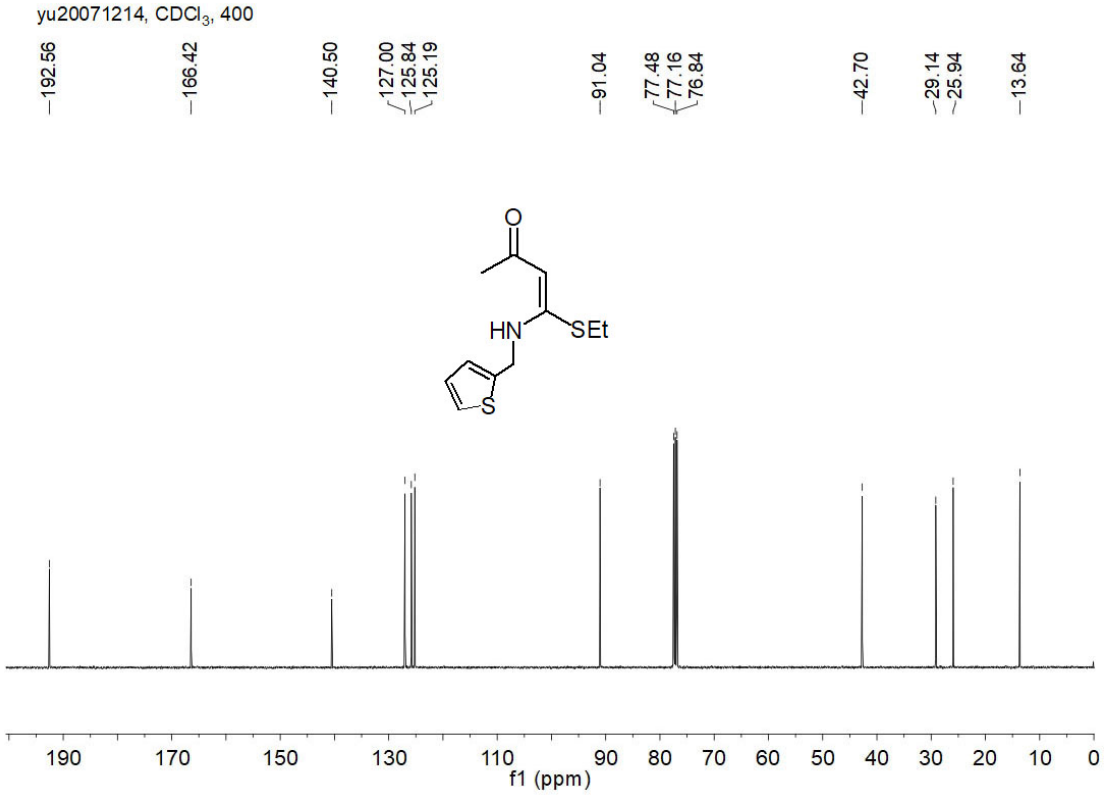

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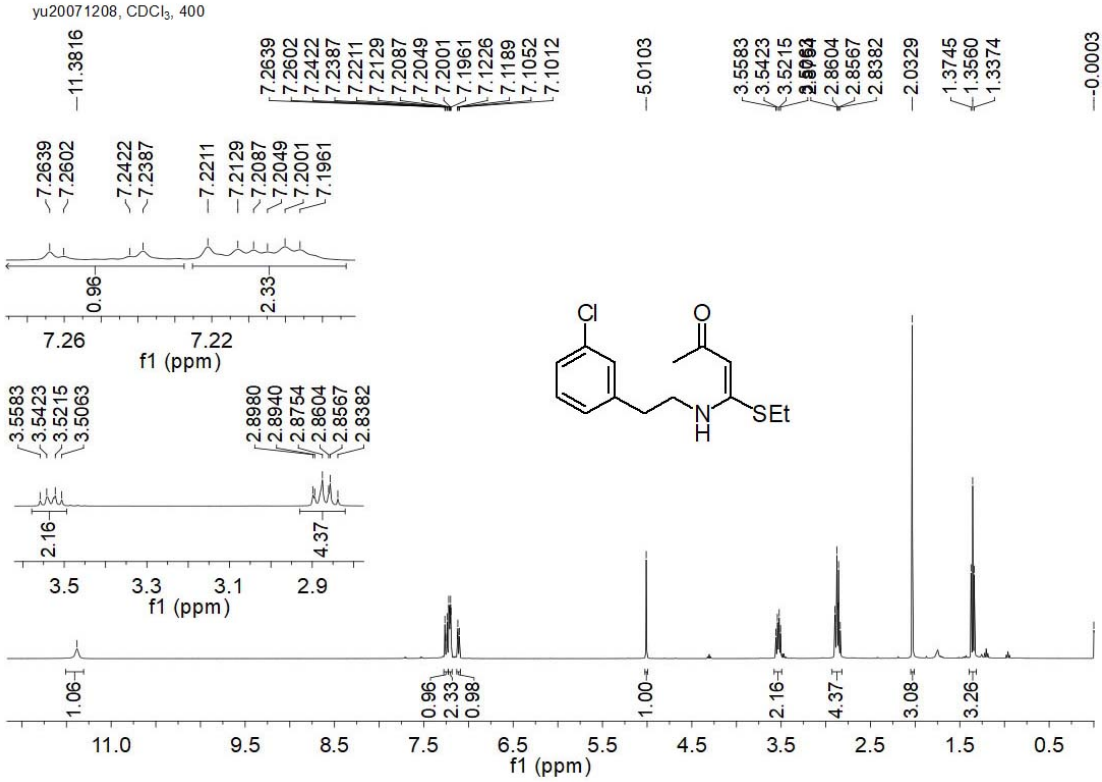

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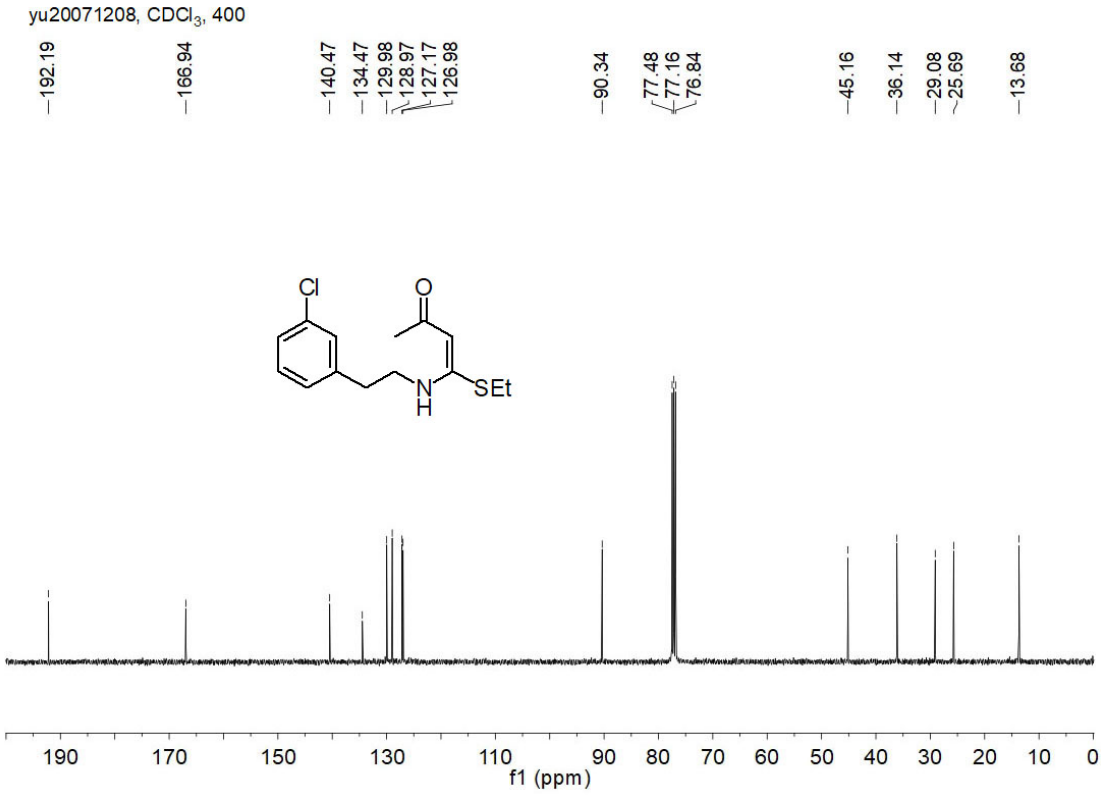

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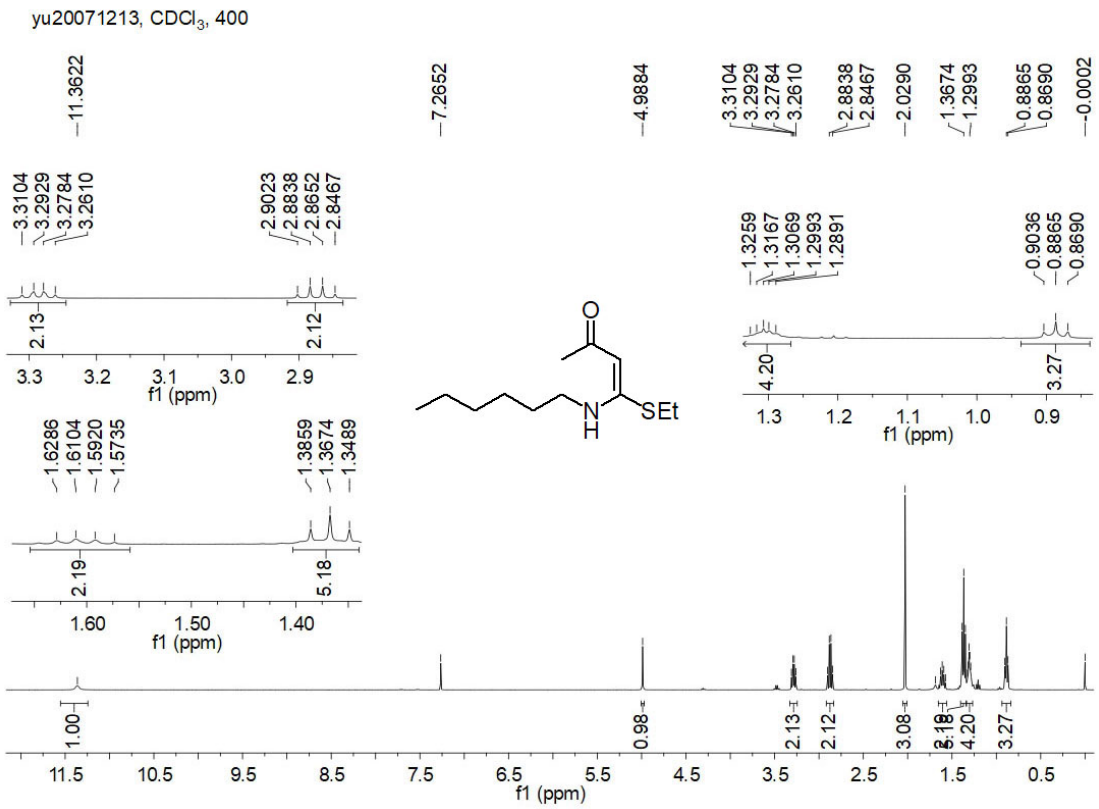

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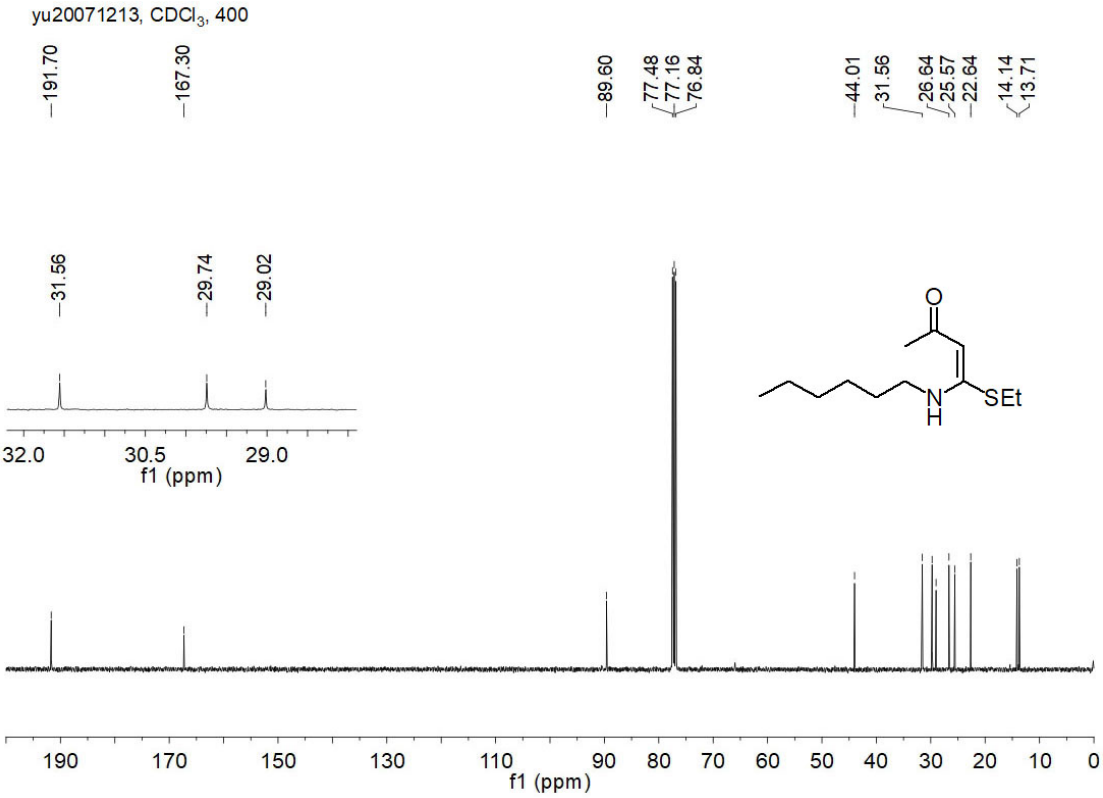

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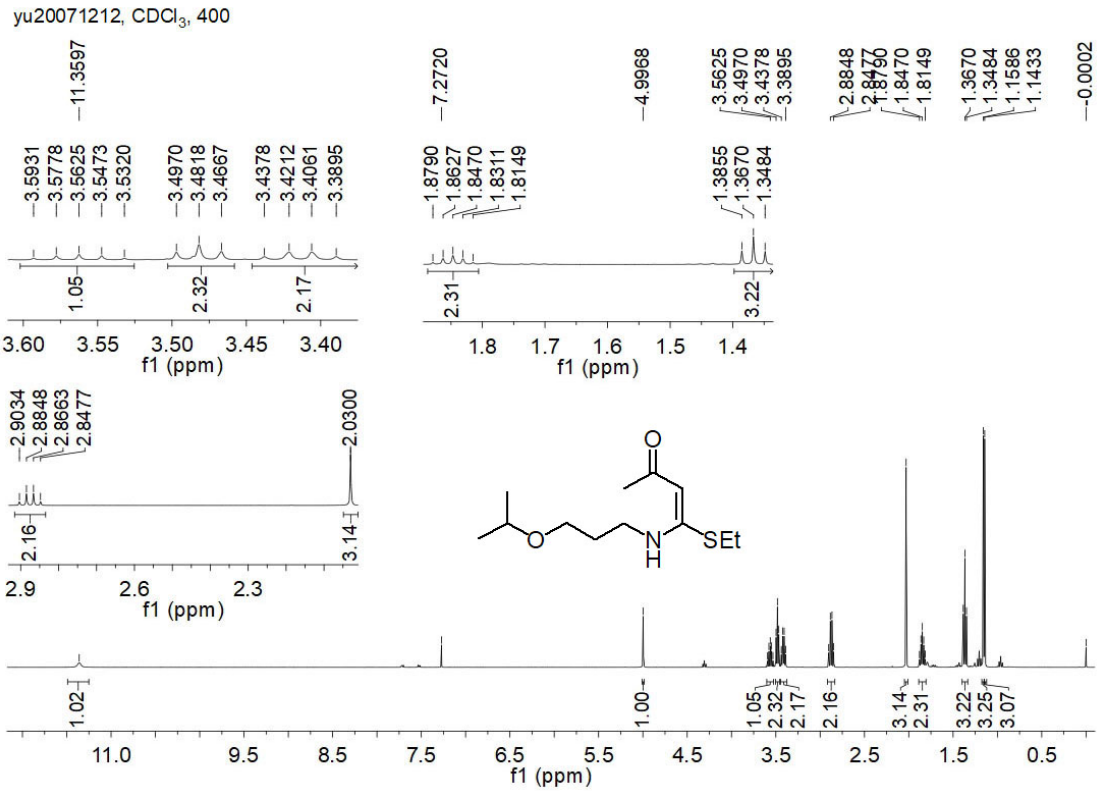

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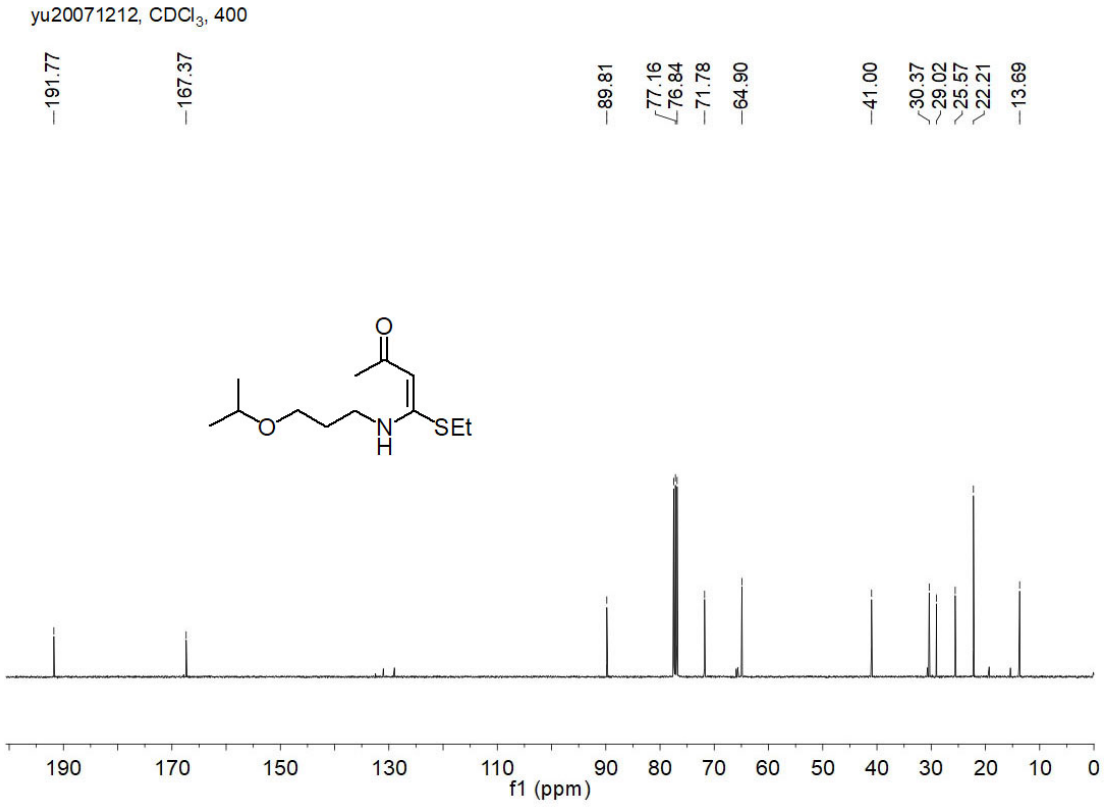

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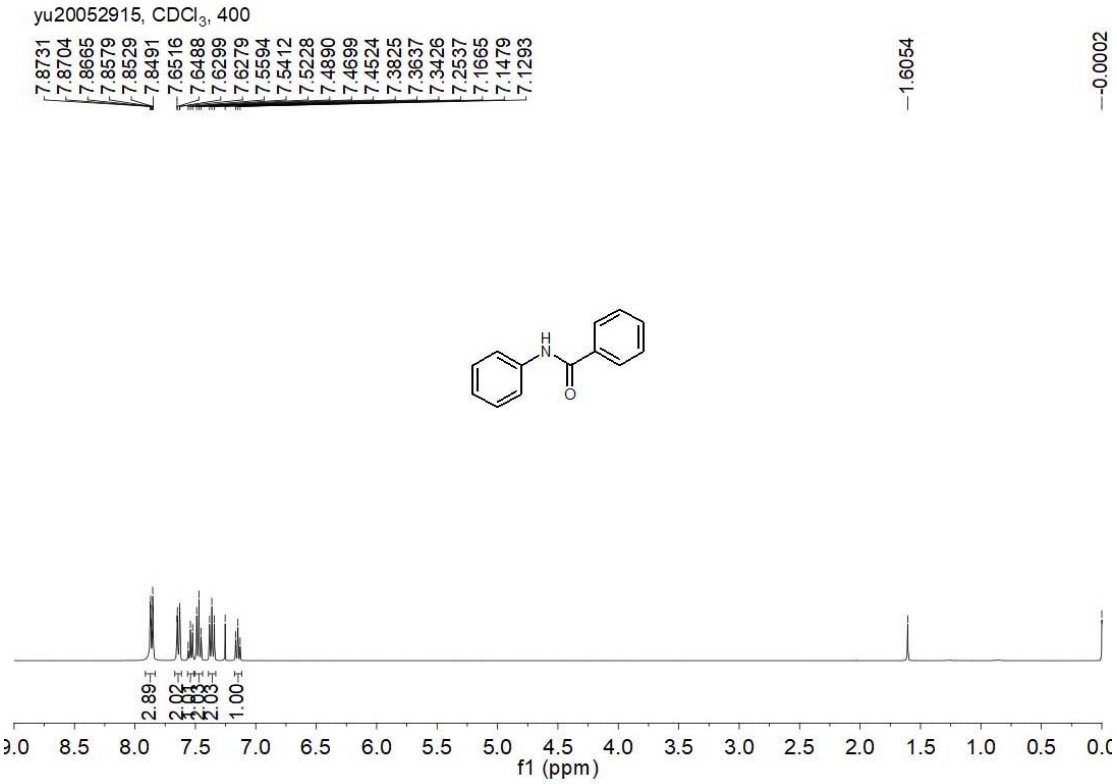
III. Copies of NMR spectra for 3



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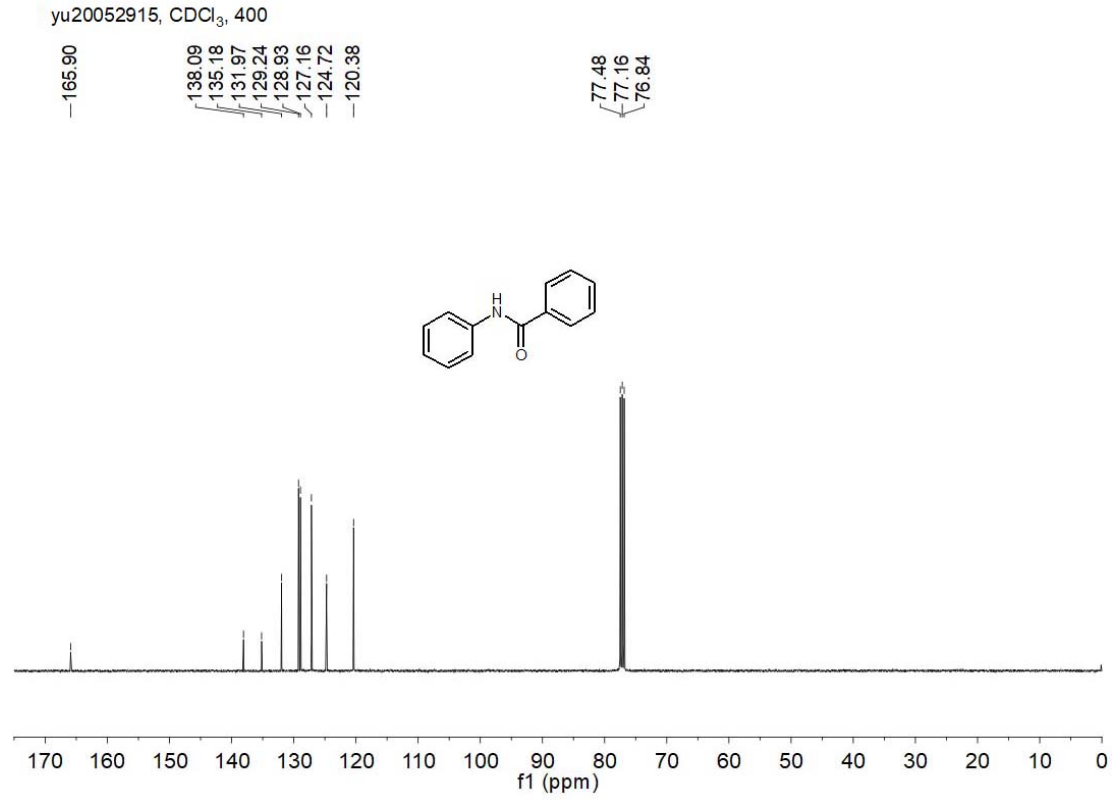

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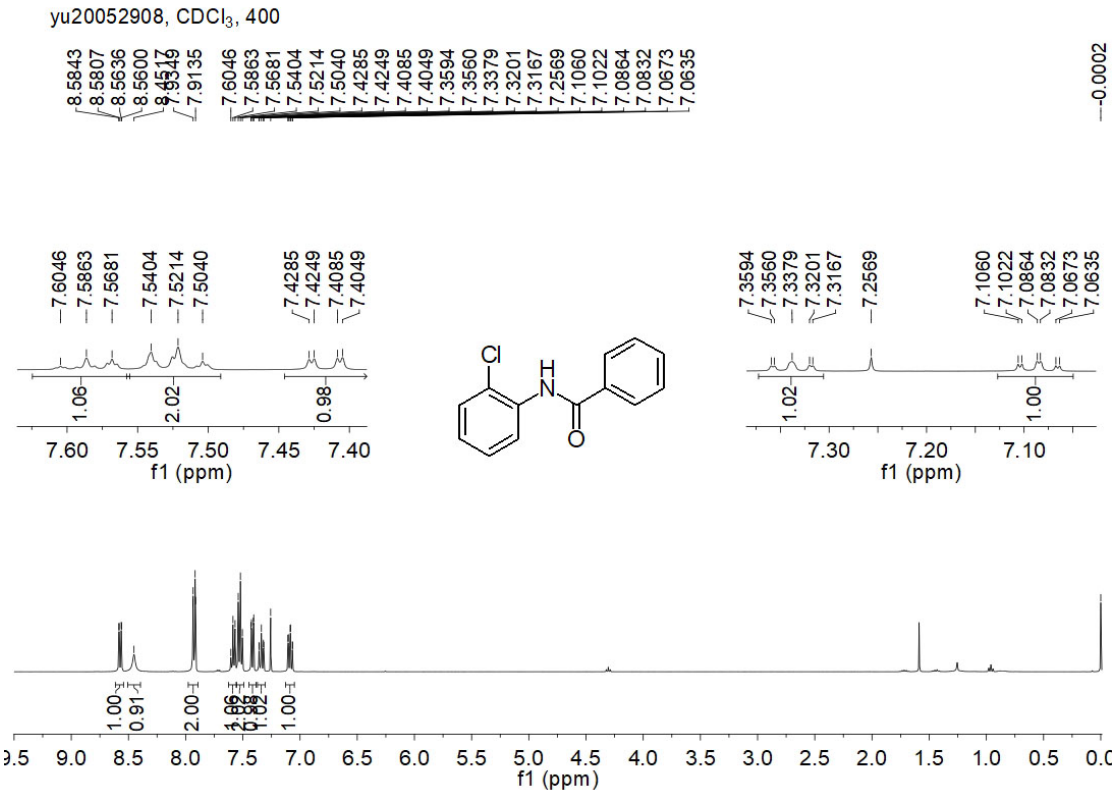

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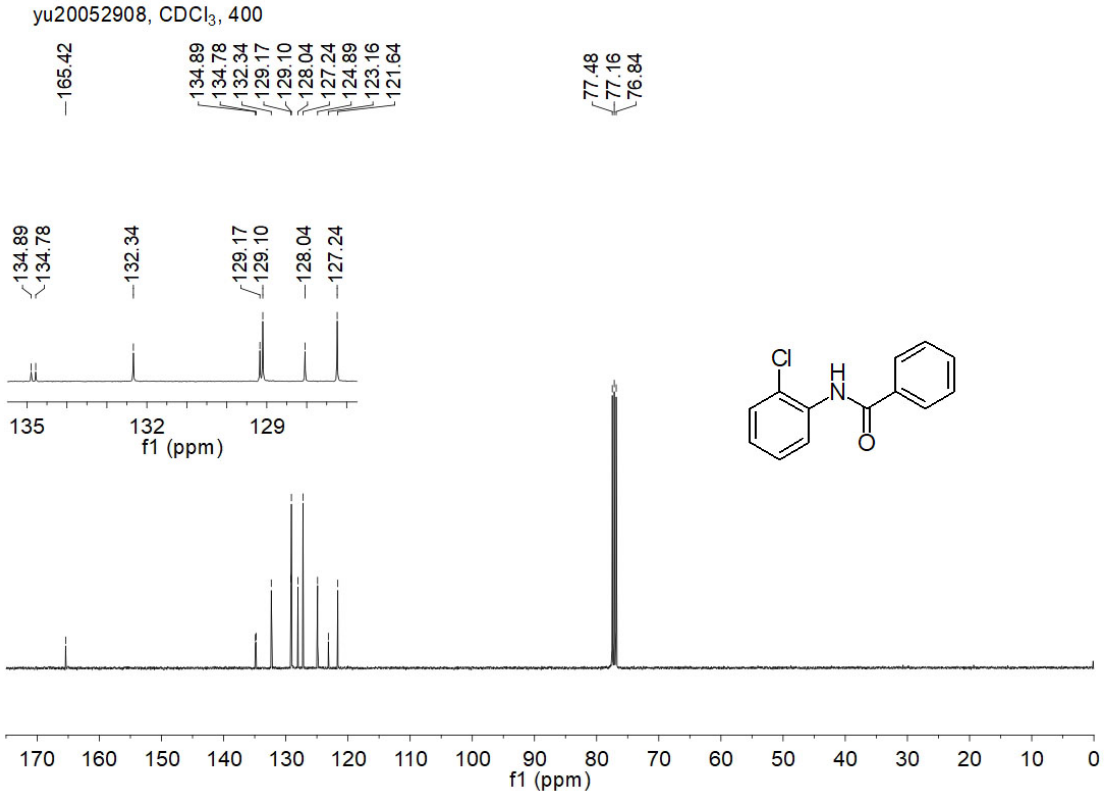

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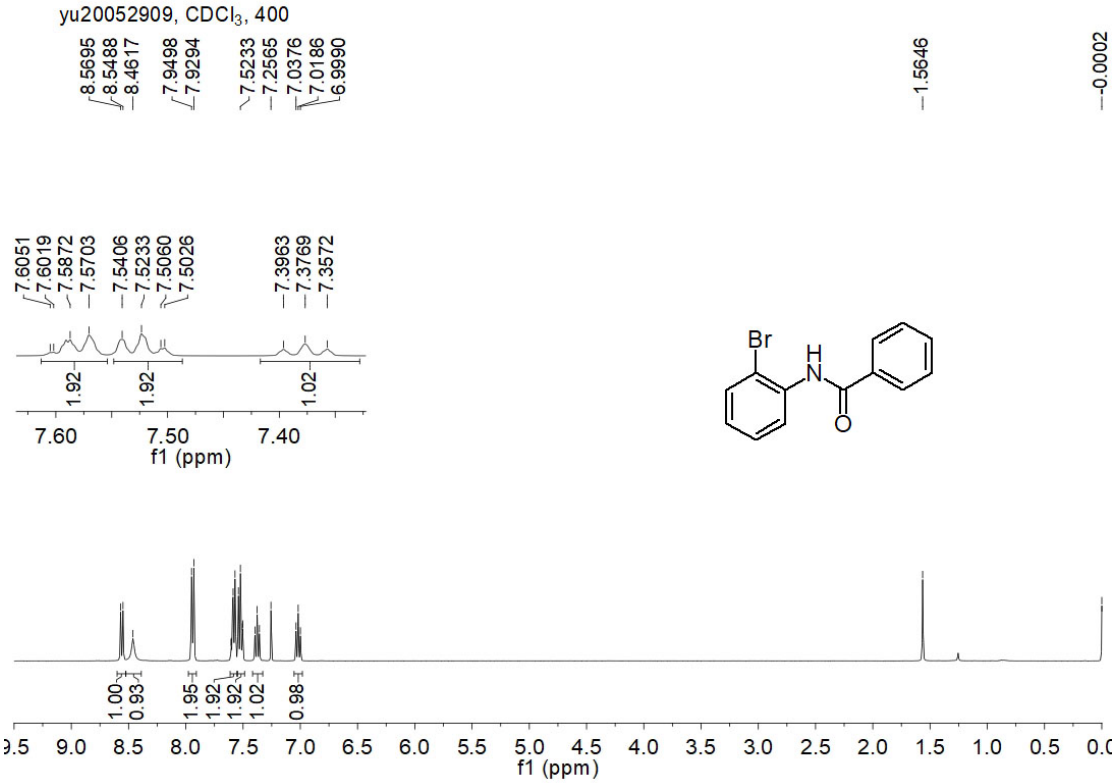

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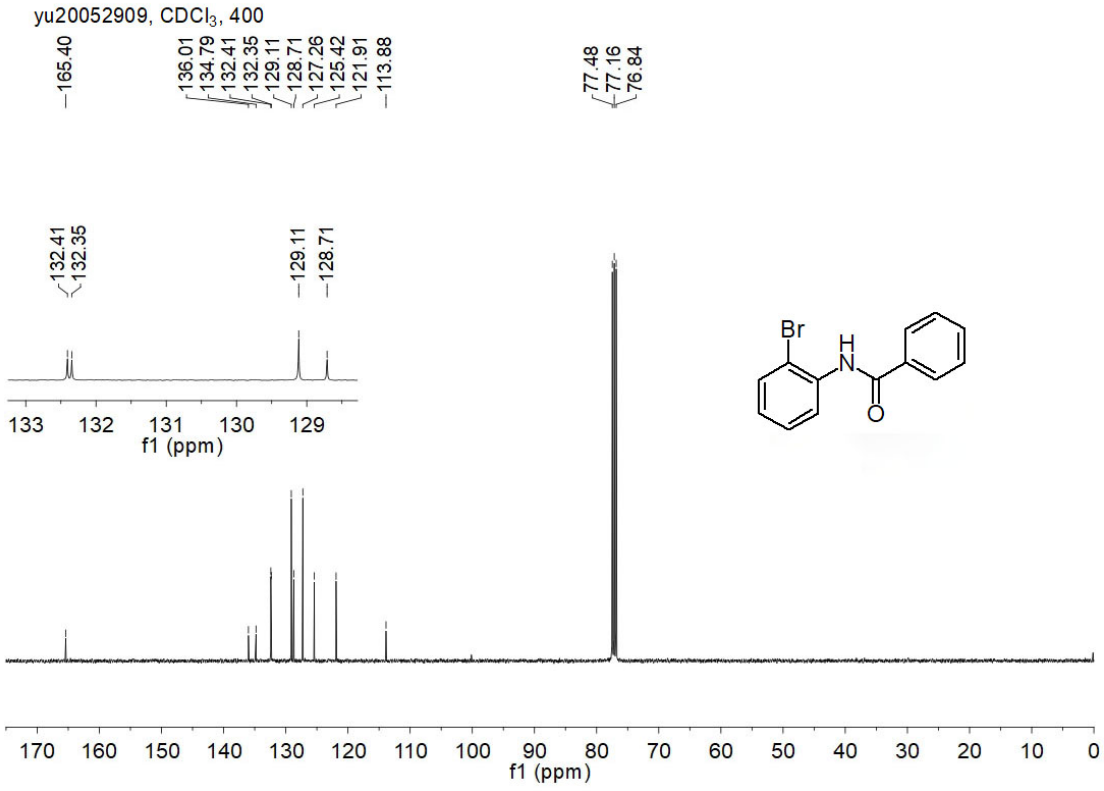

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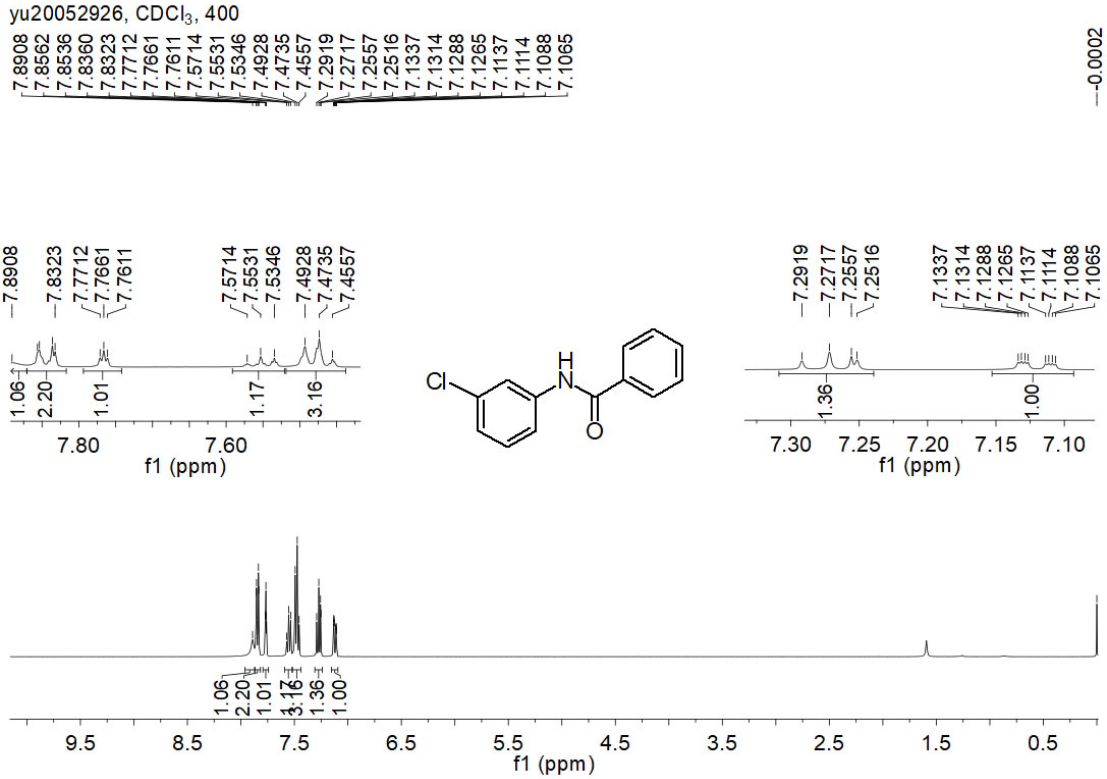

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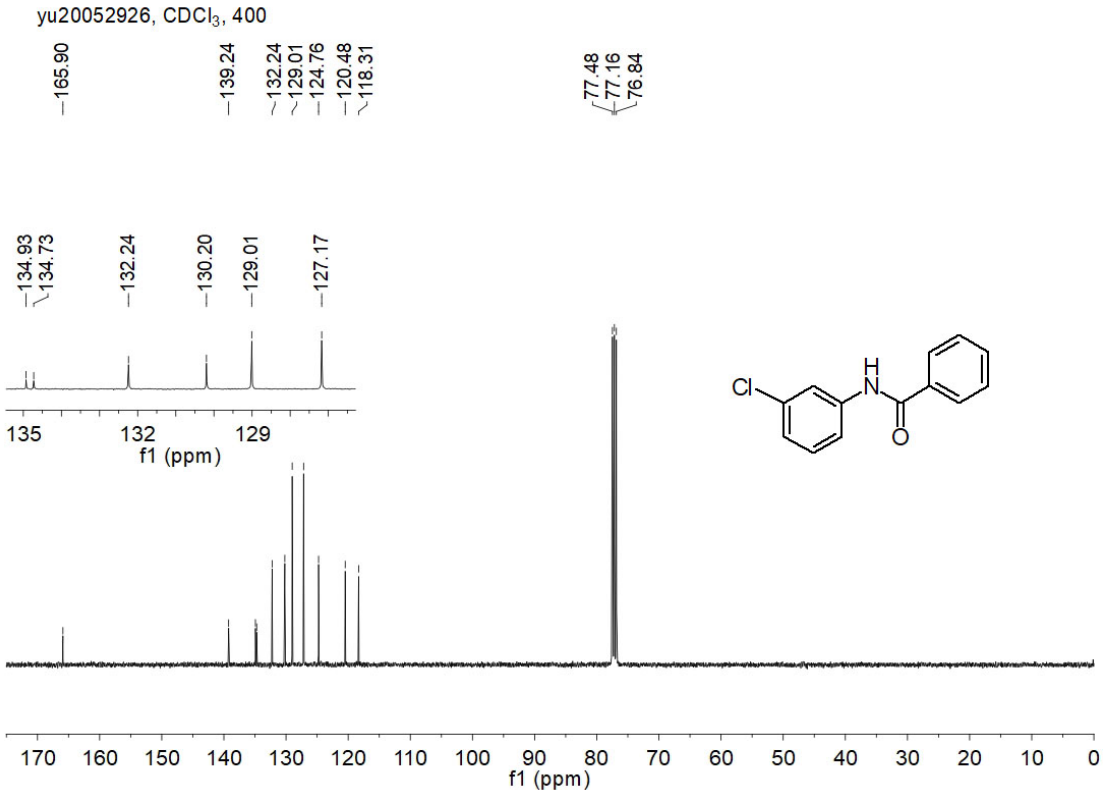

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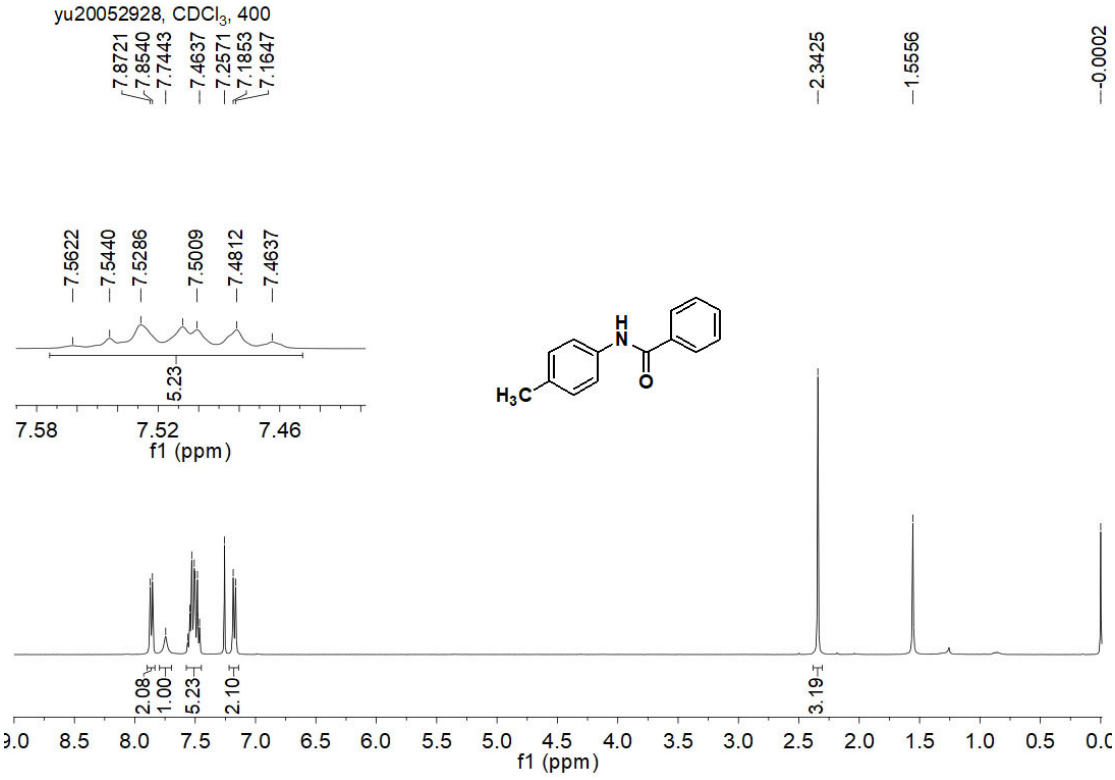

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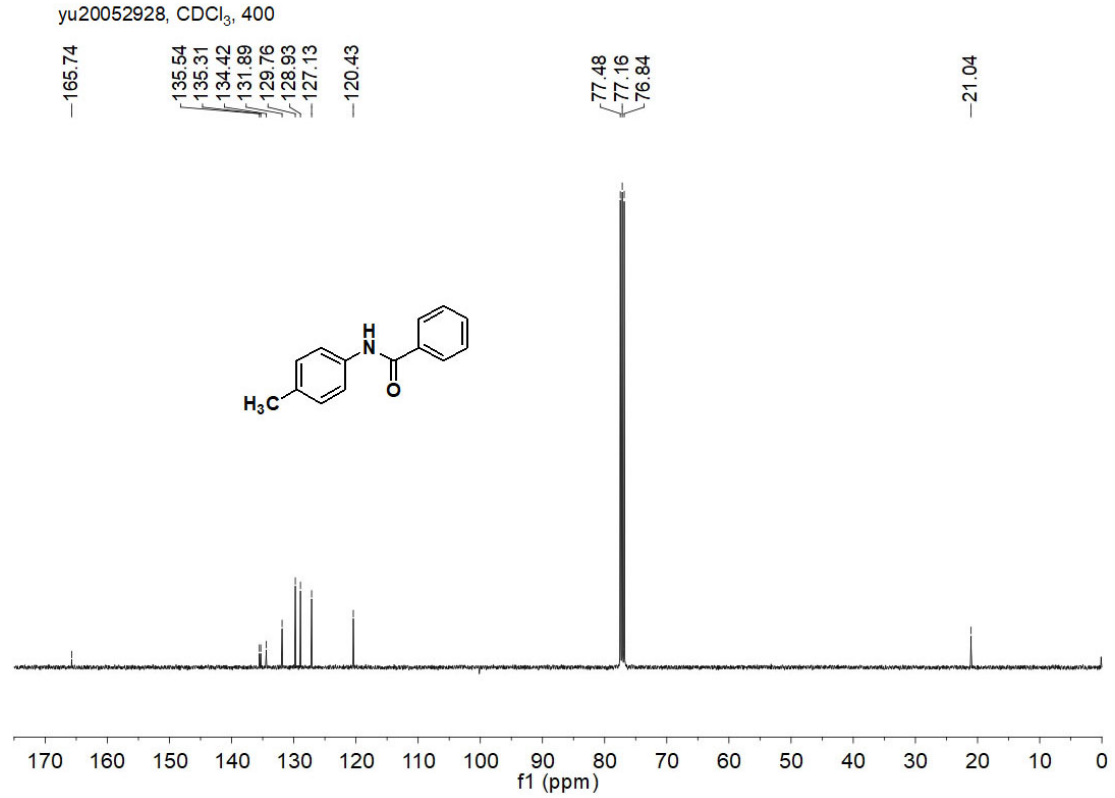

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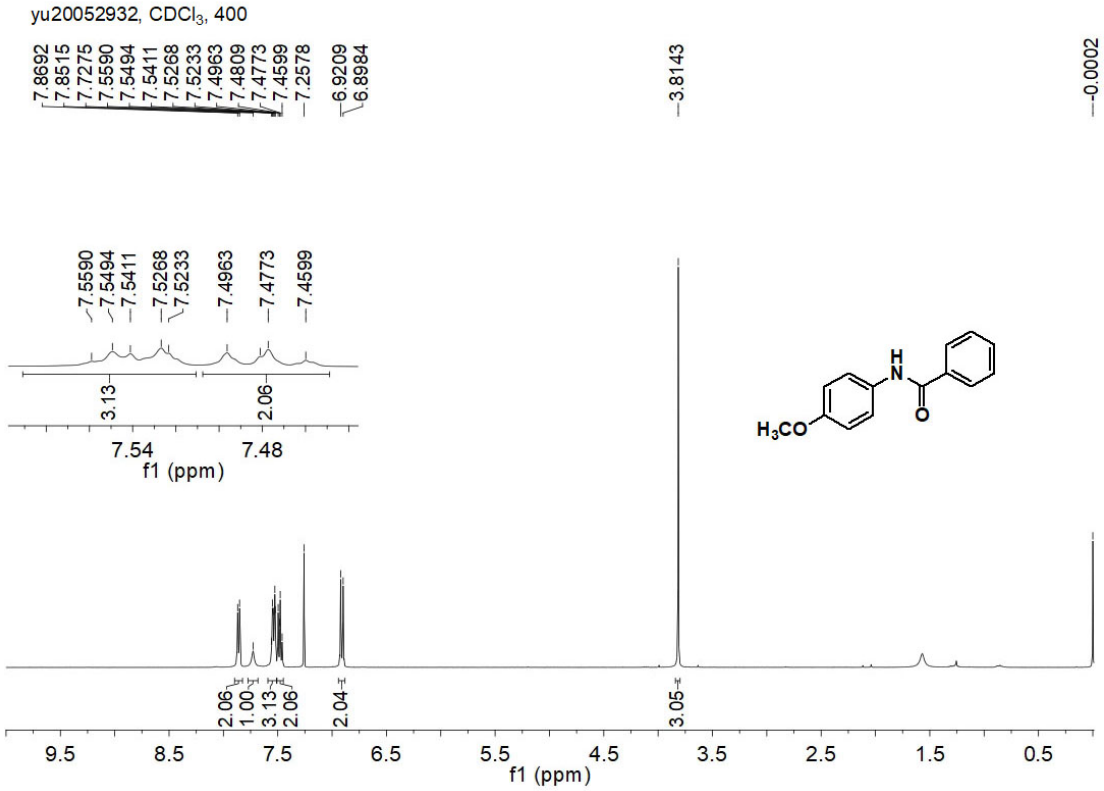

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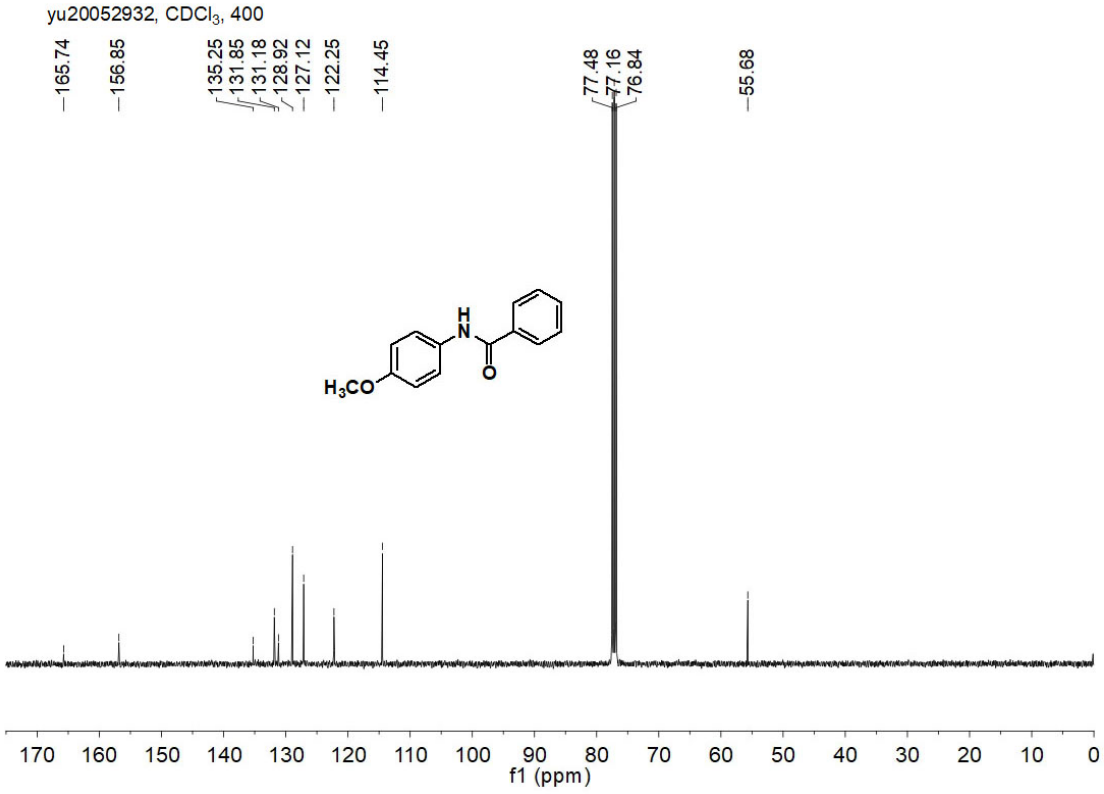

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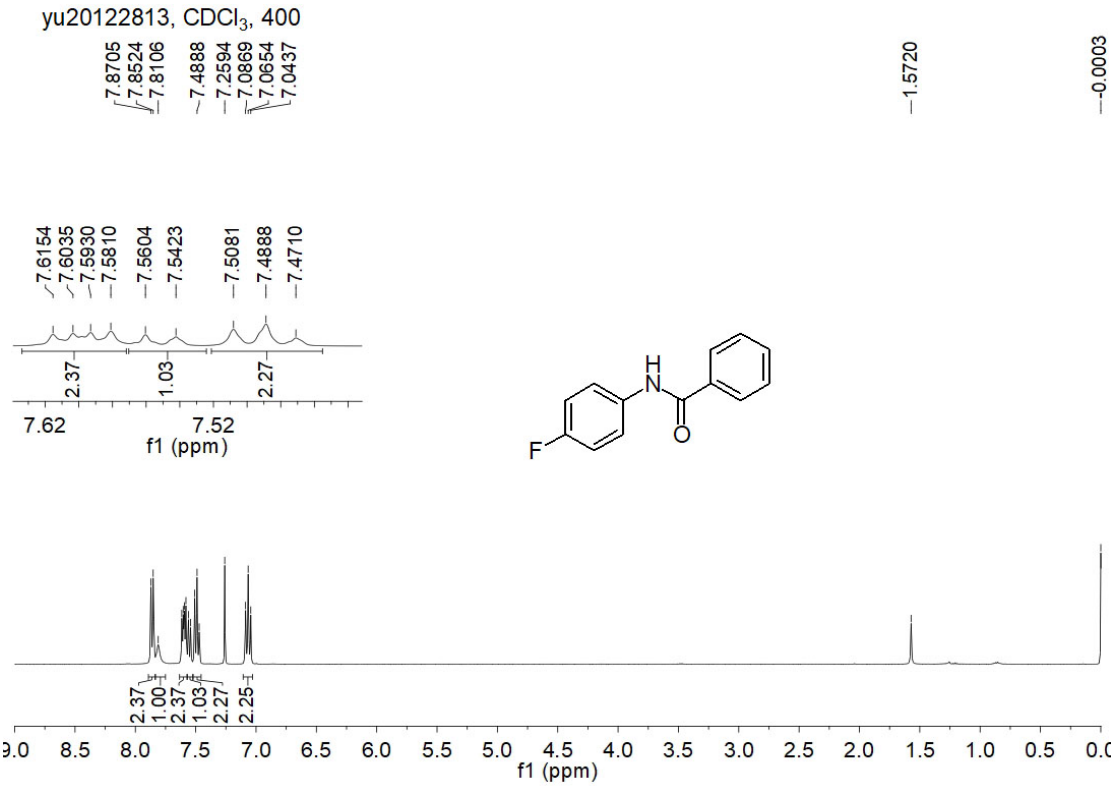

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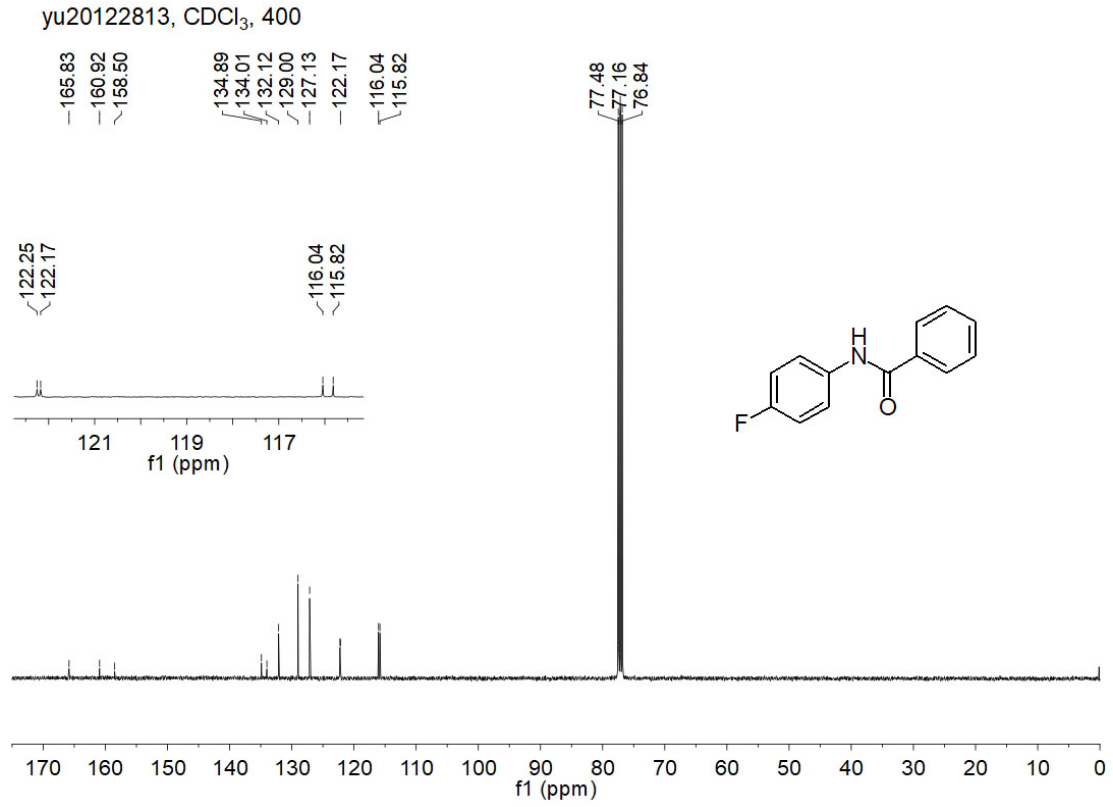
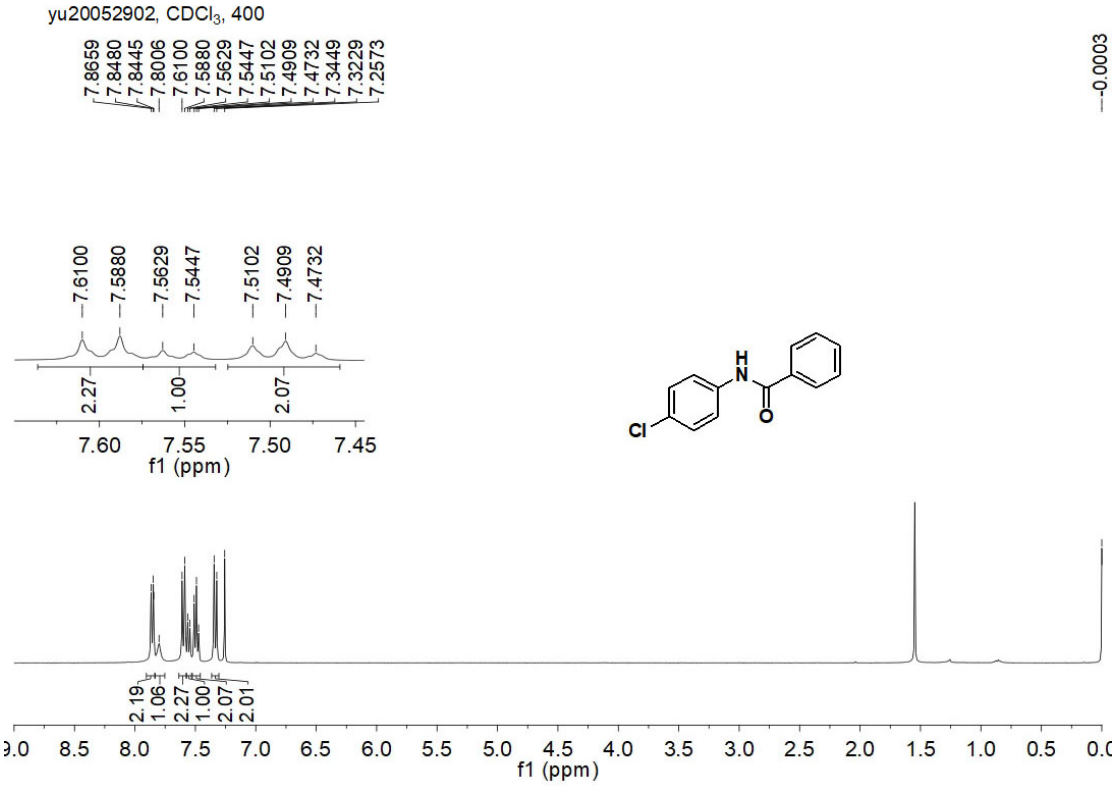


[13] CNMR of **3g**



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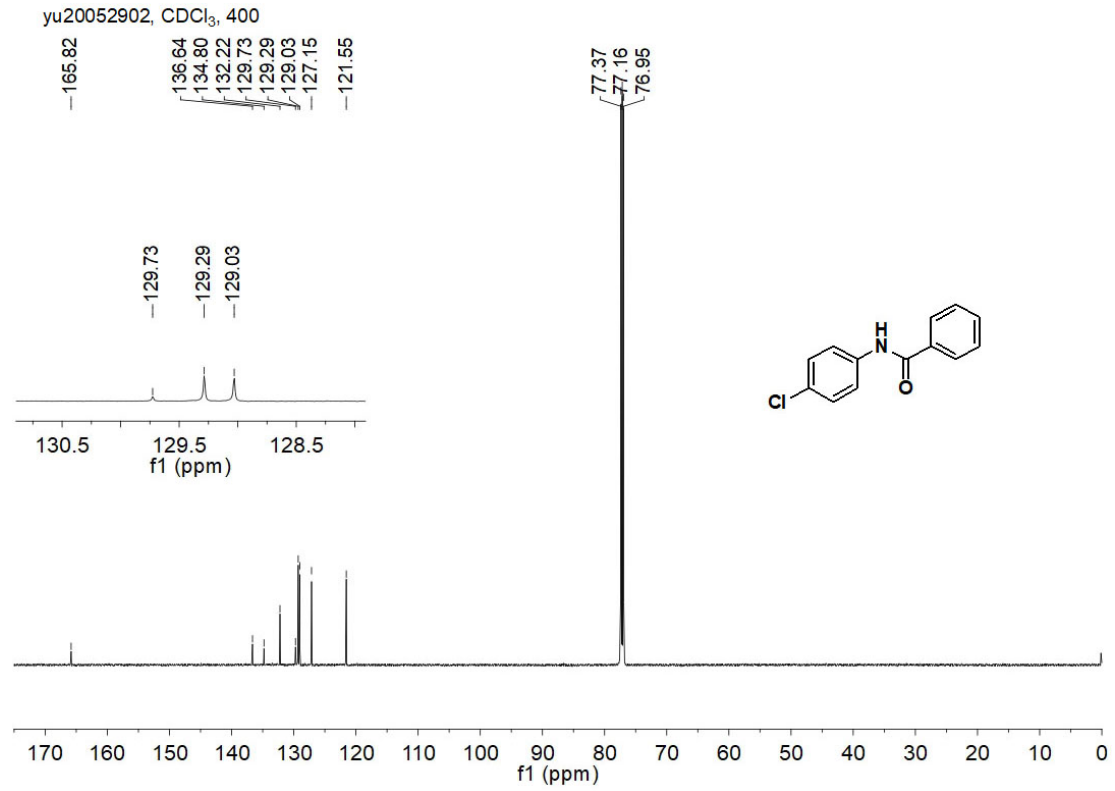
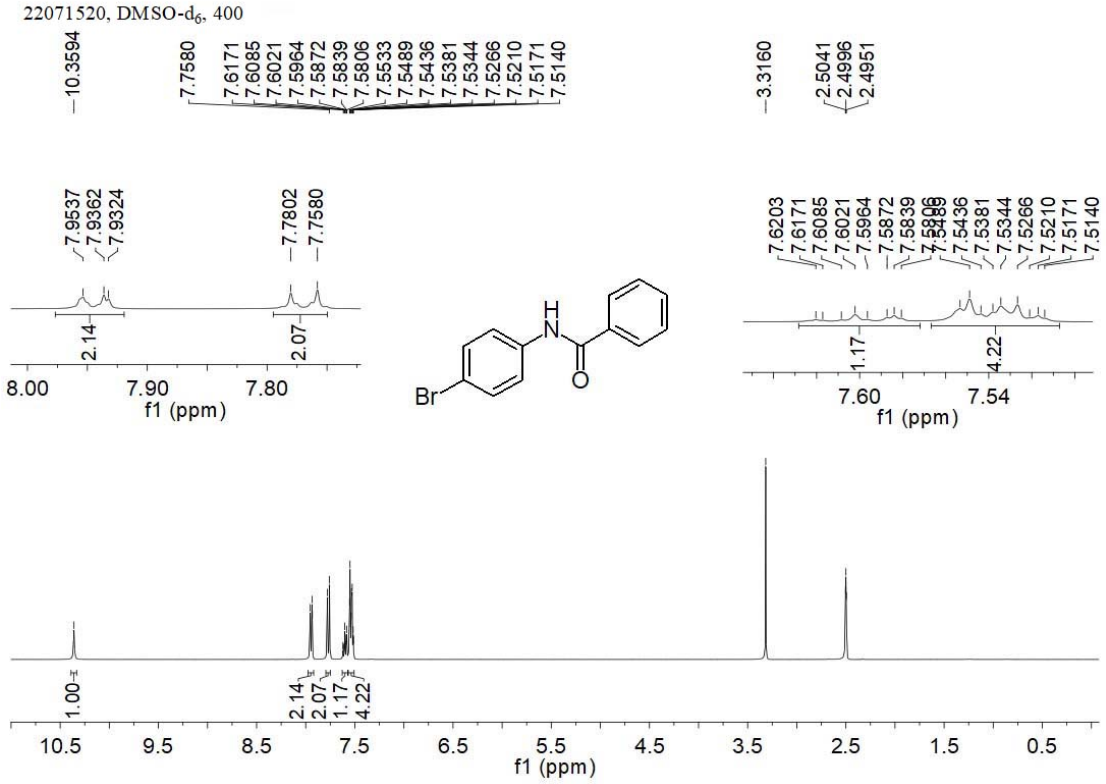


[13] CNMR of **3h**



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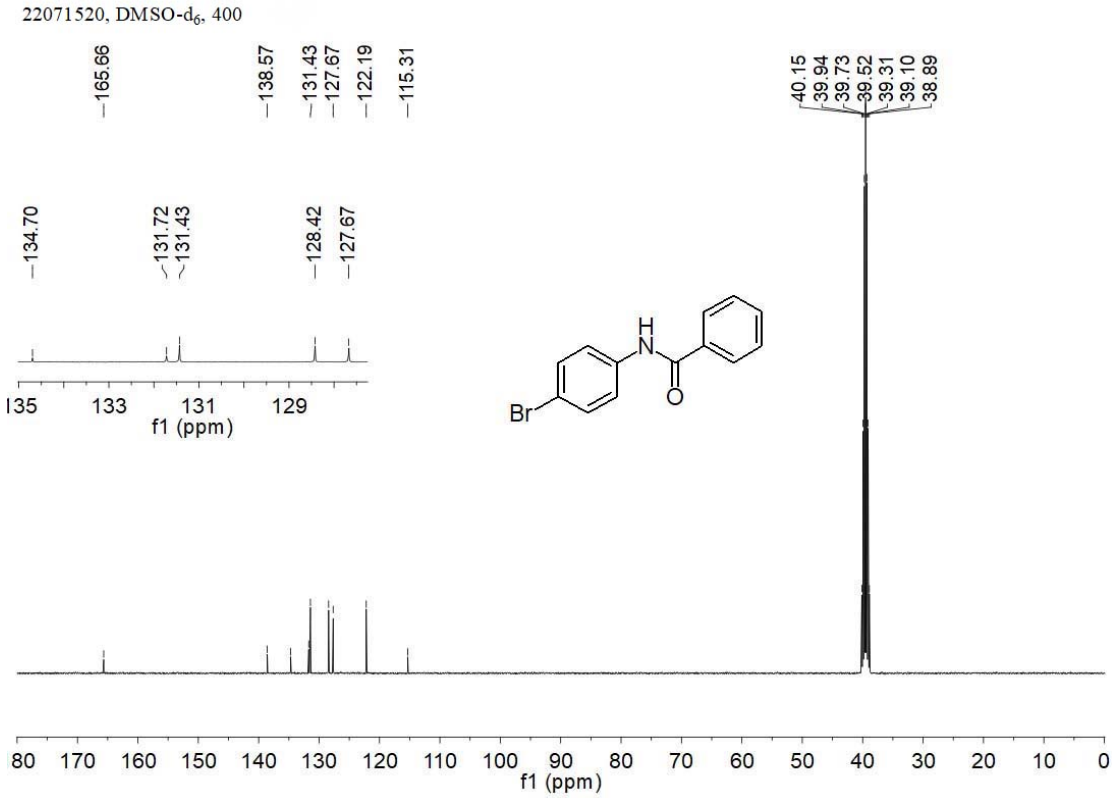

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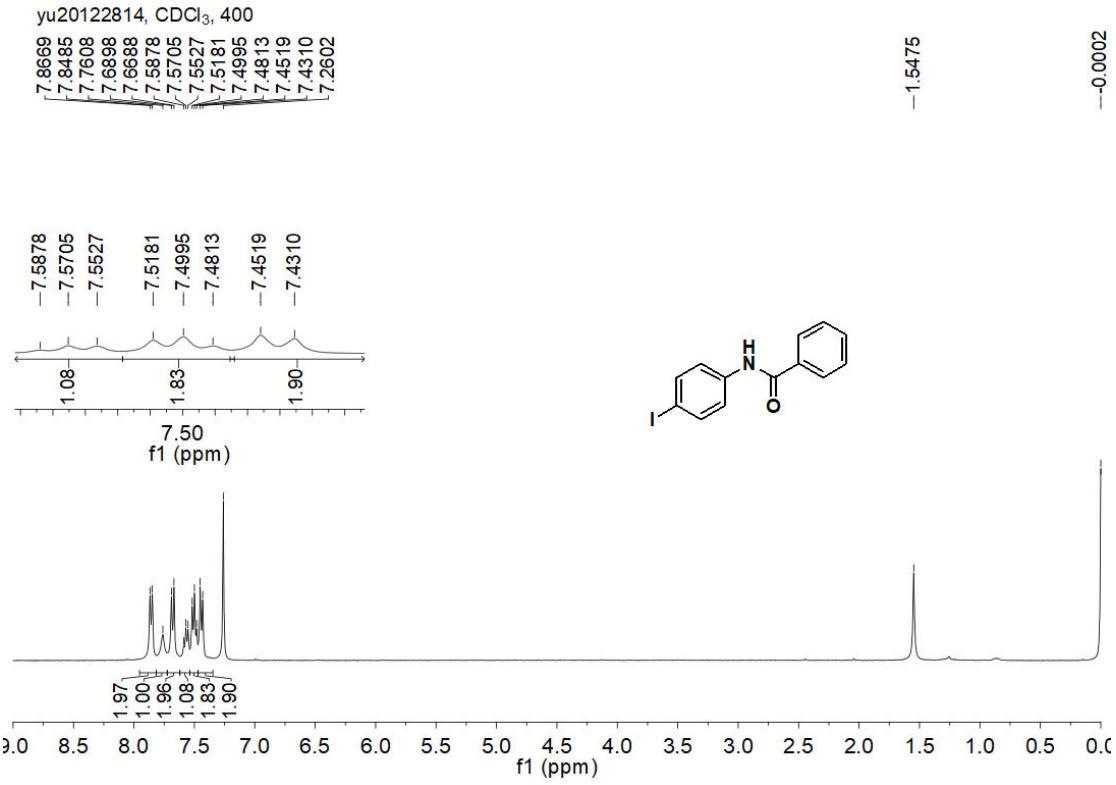

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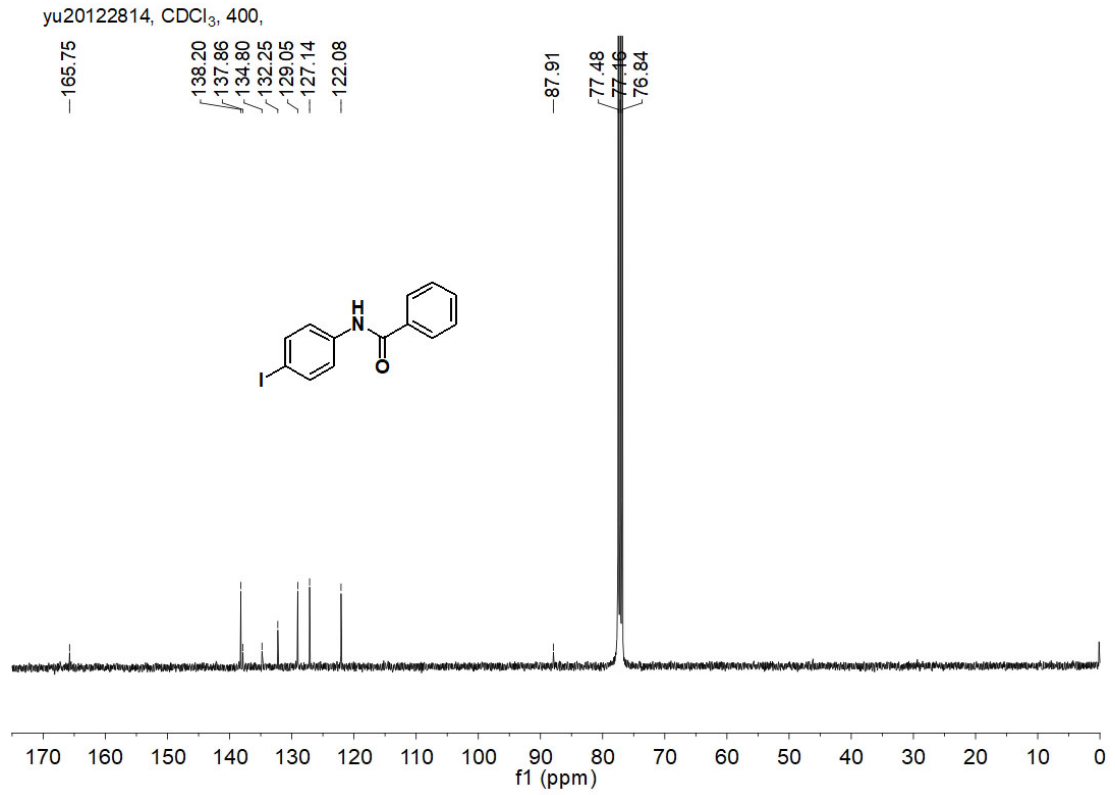

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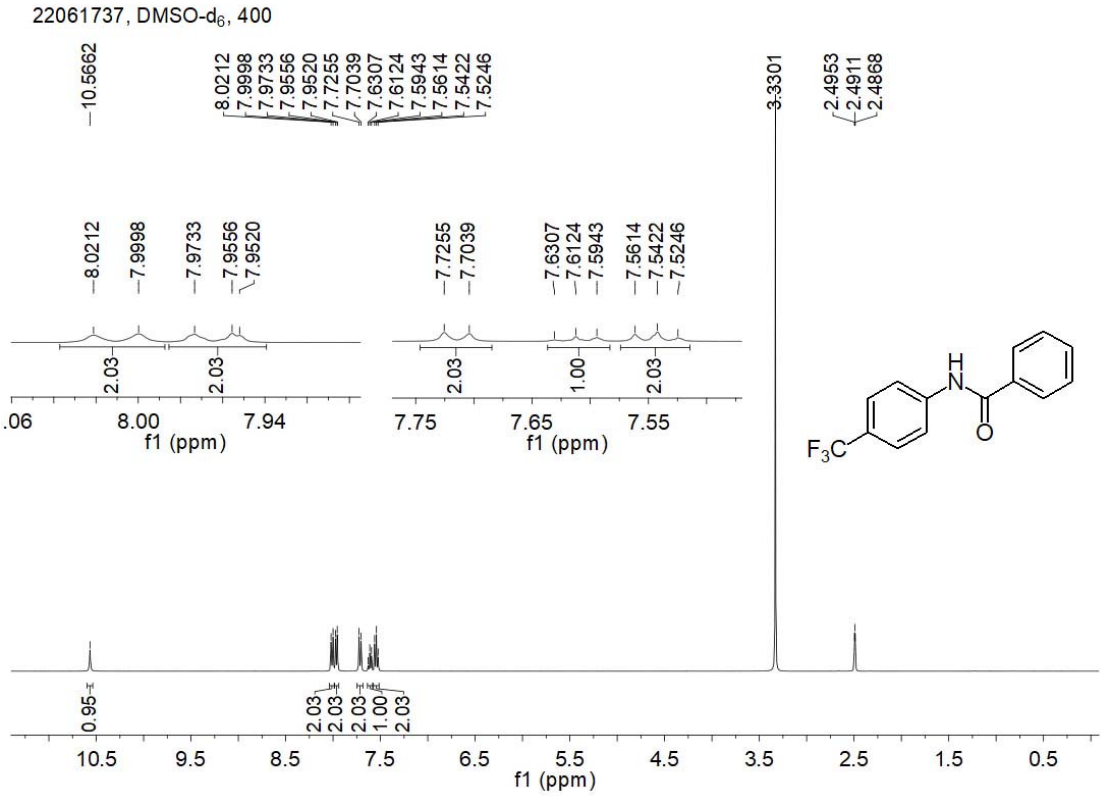
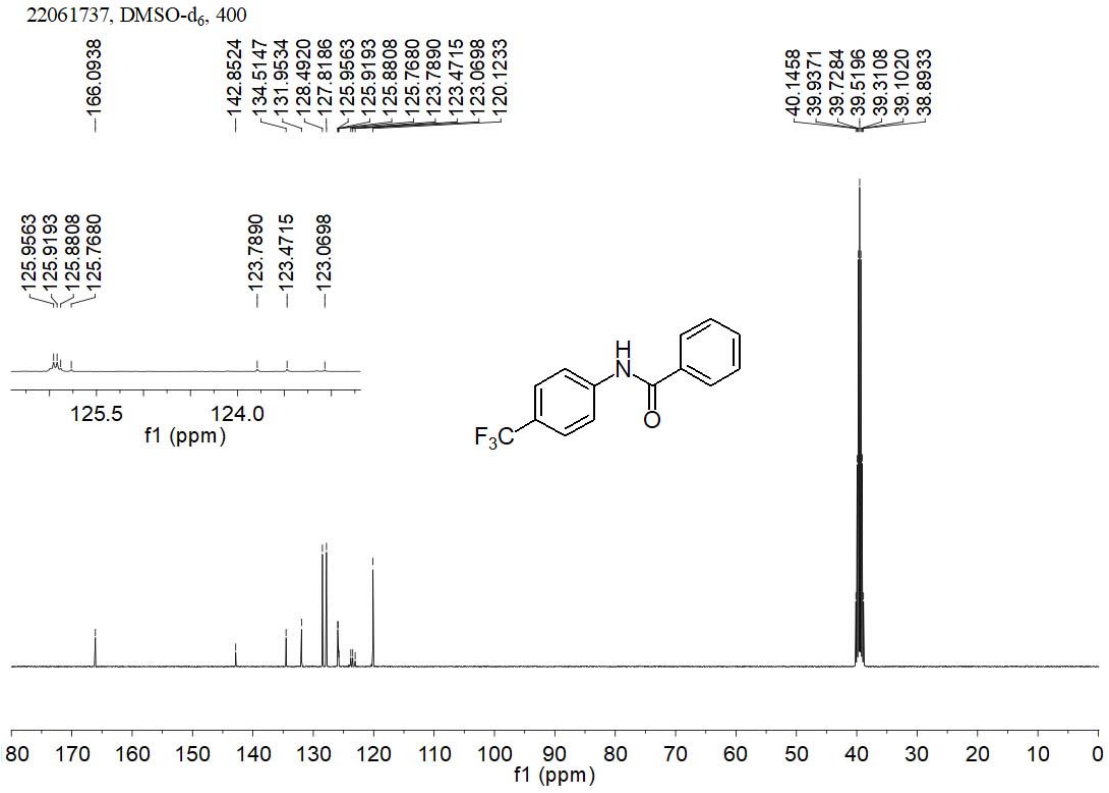


[1] HNMR of **3k**



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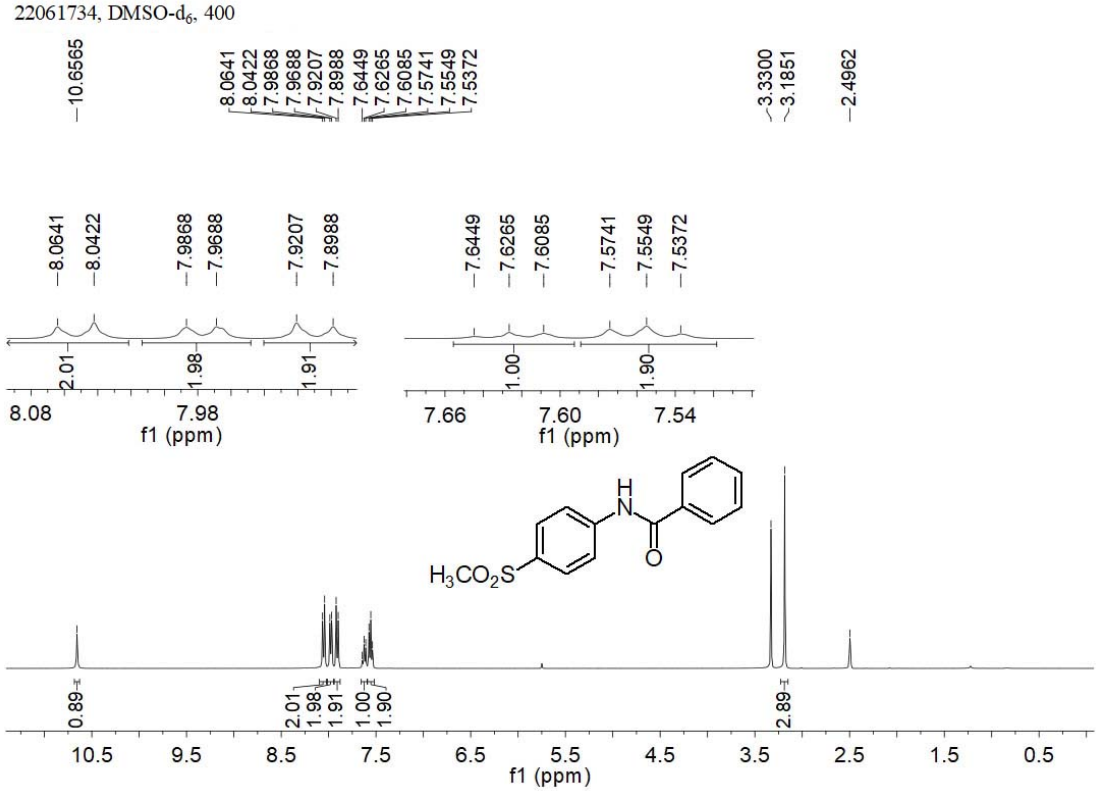

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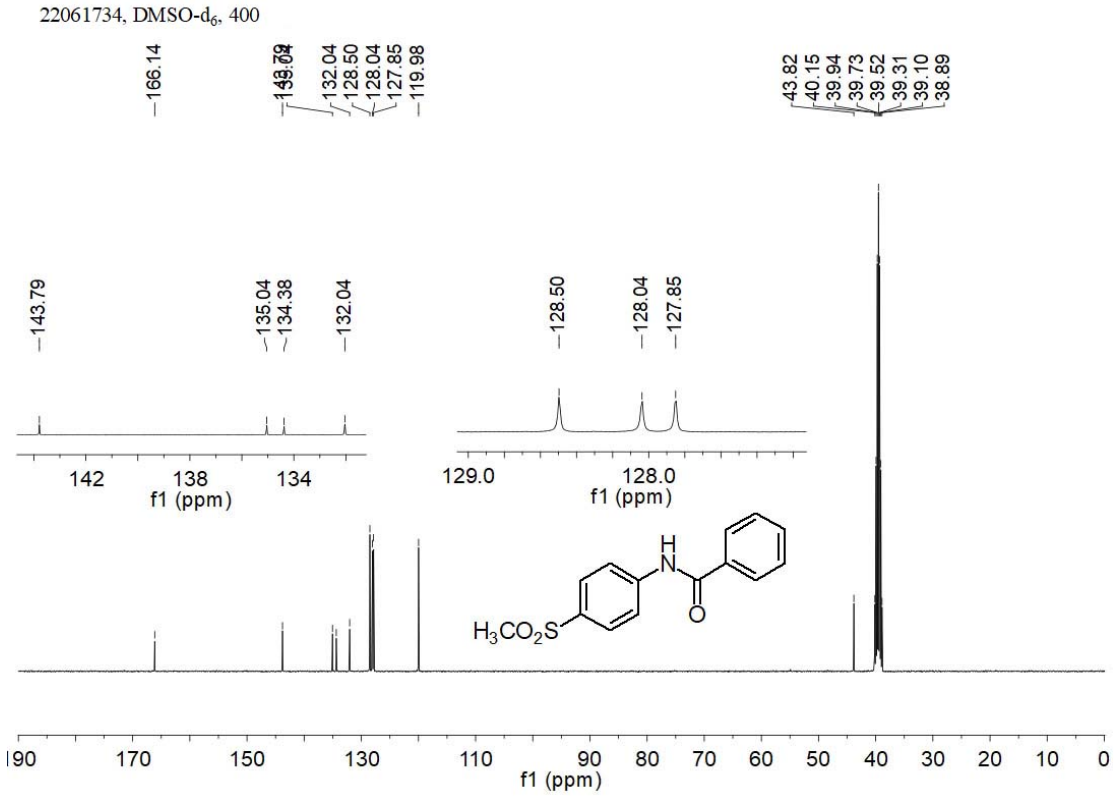

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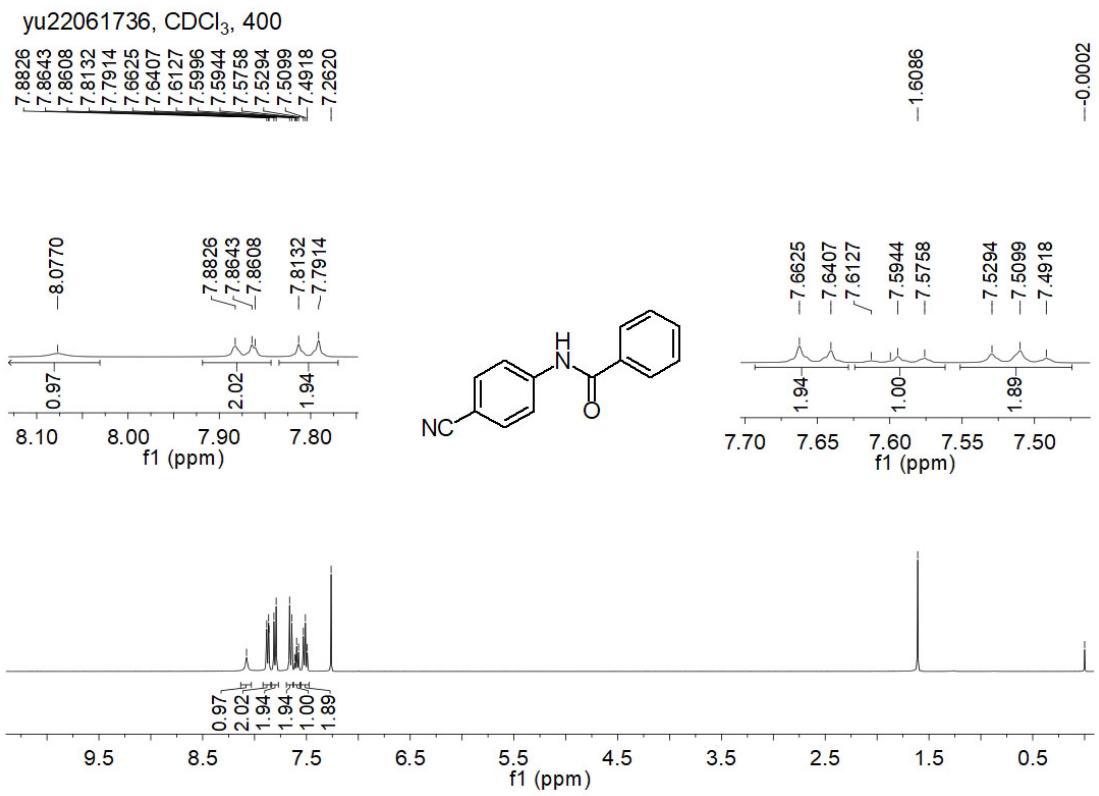

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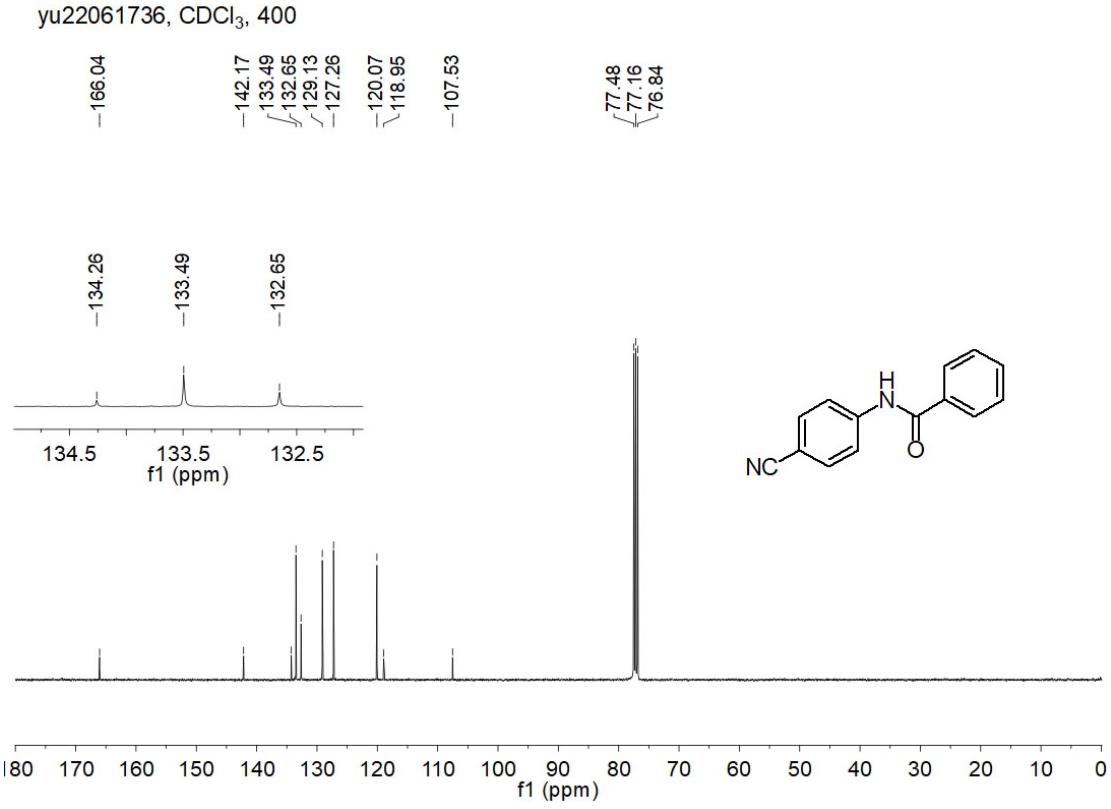

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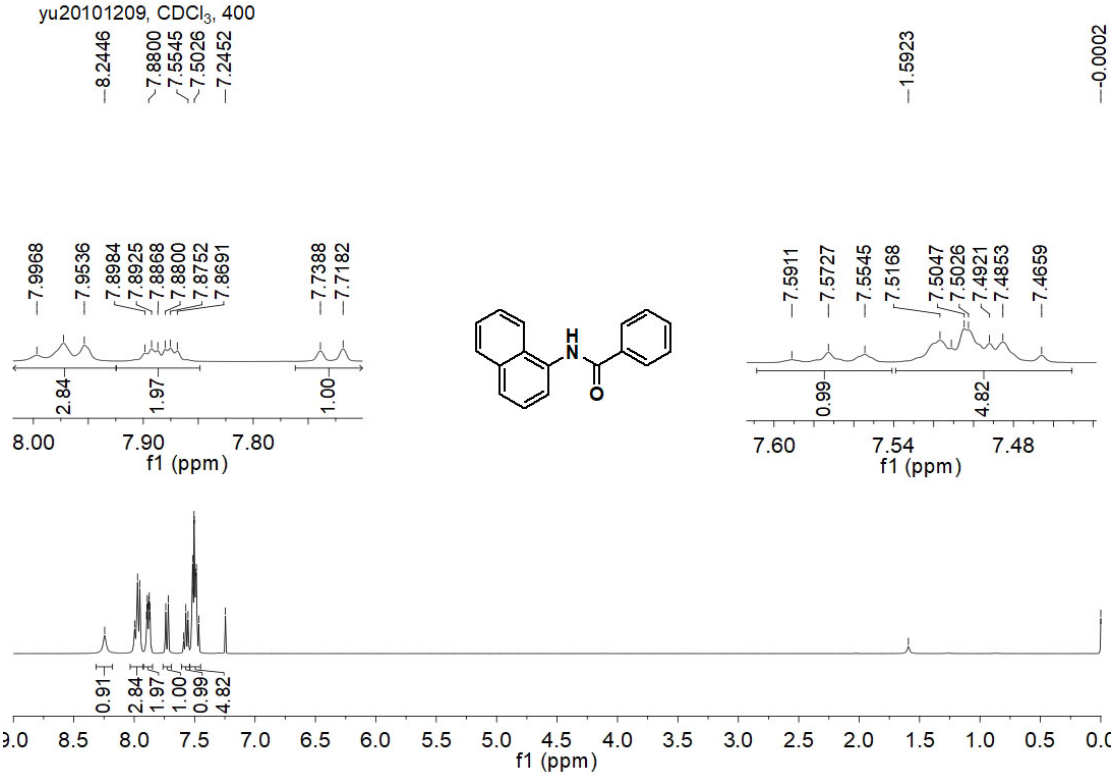

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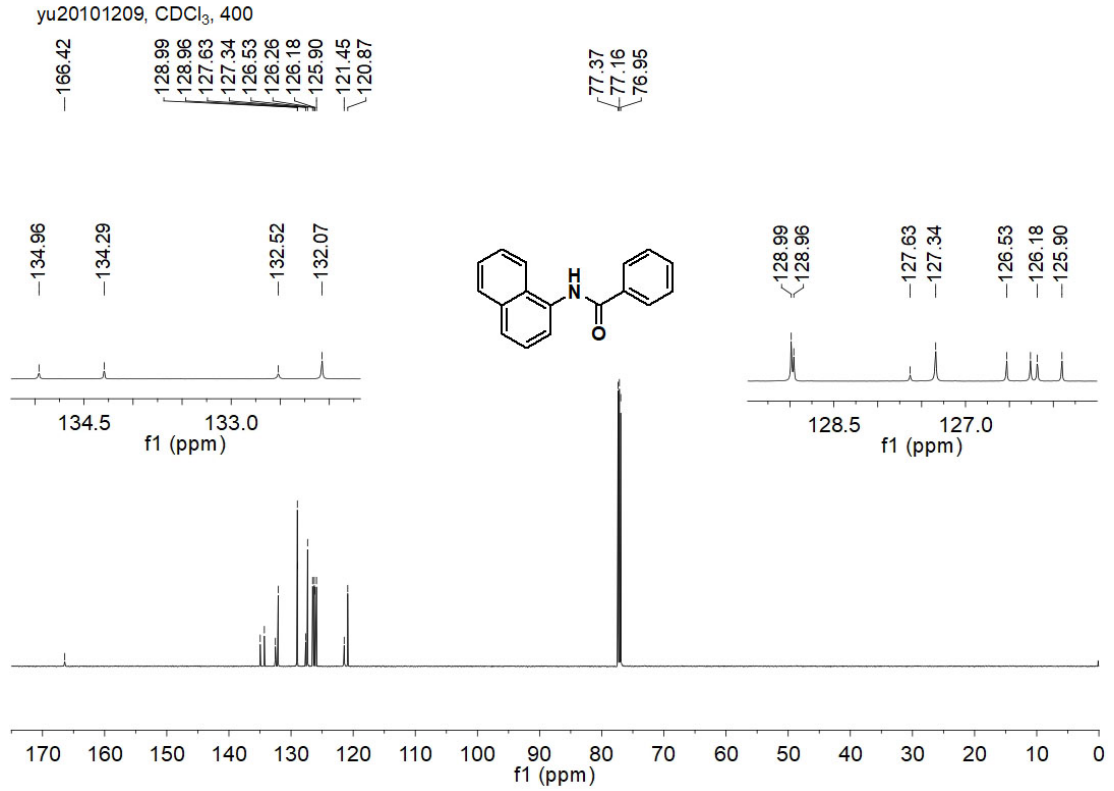

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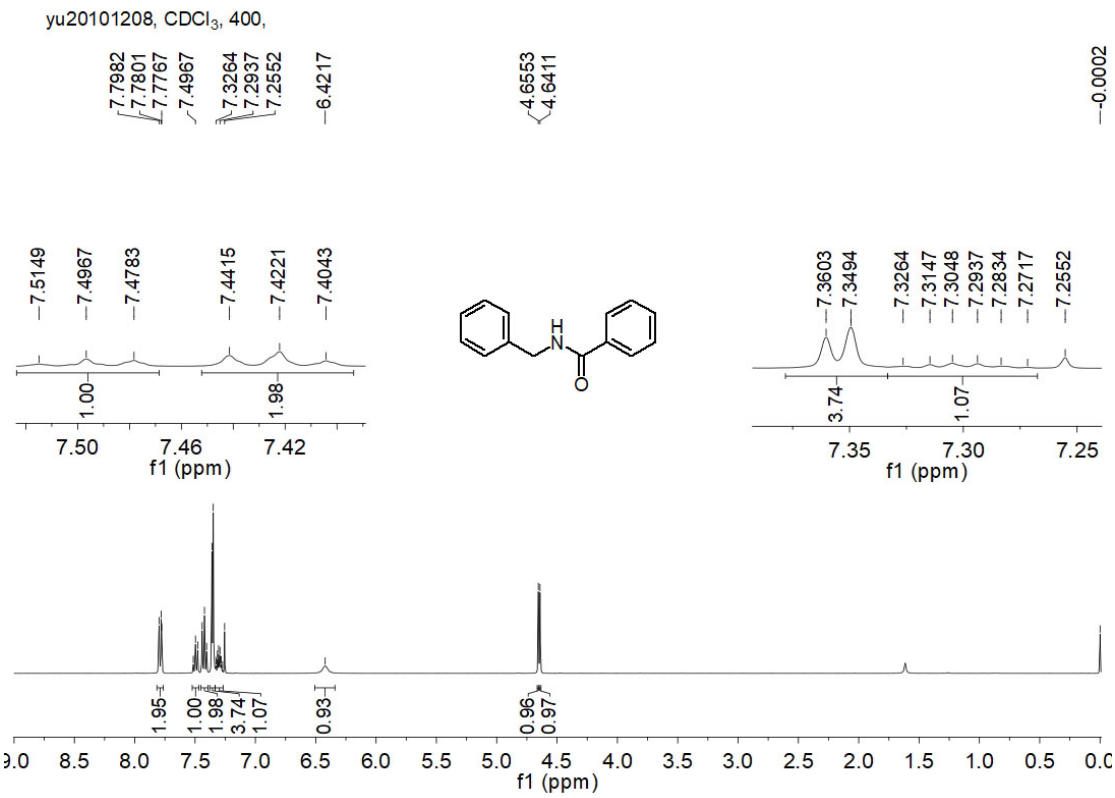
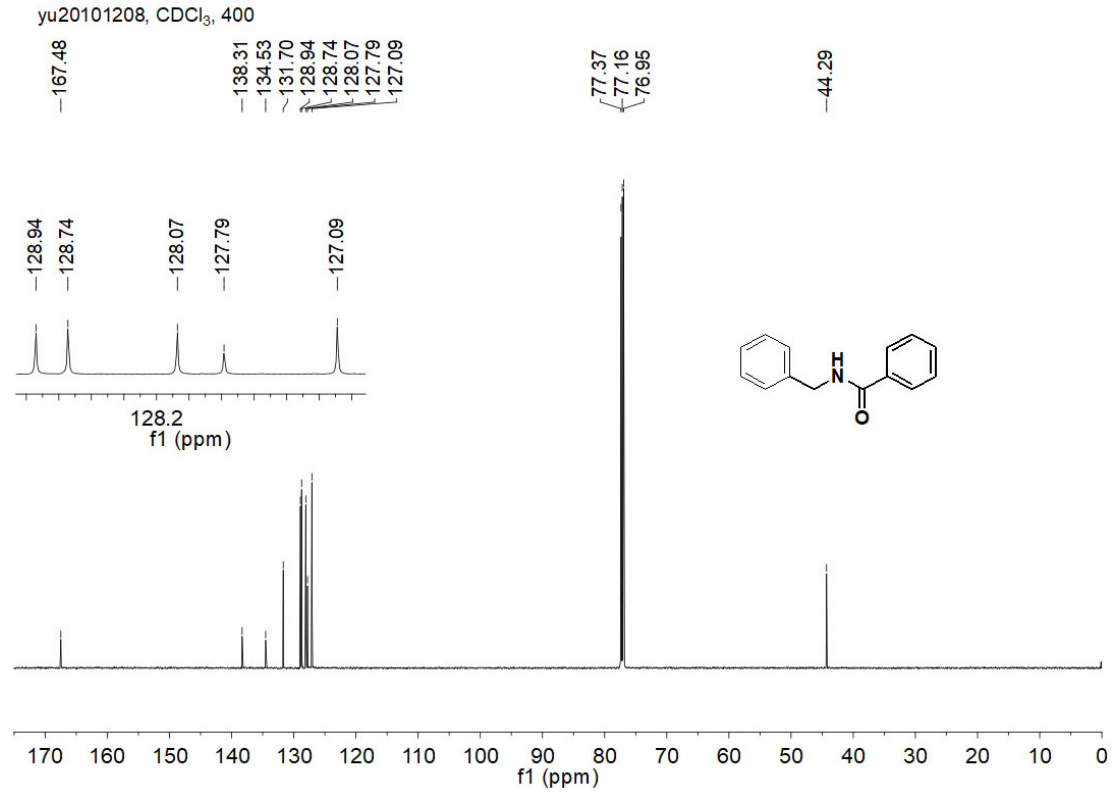
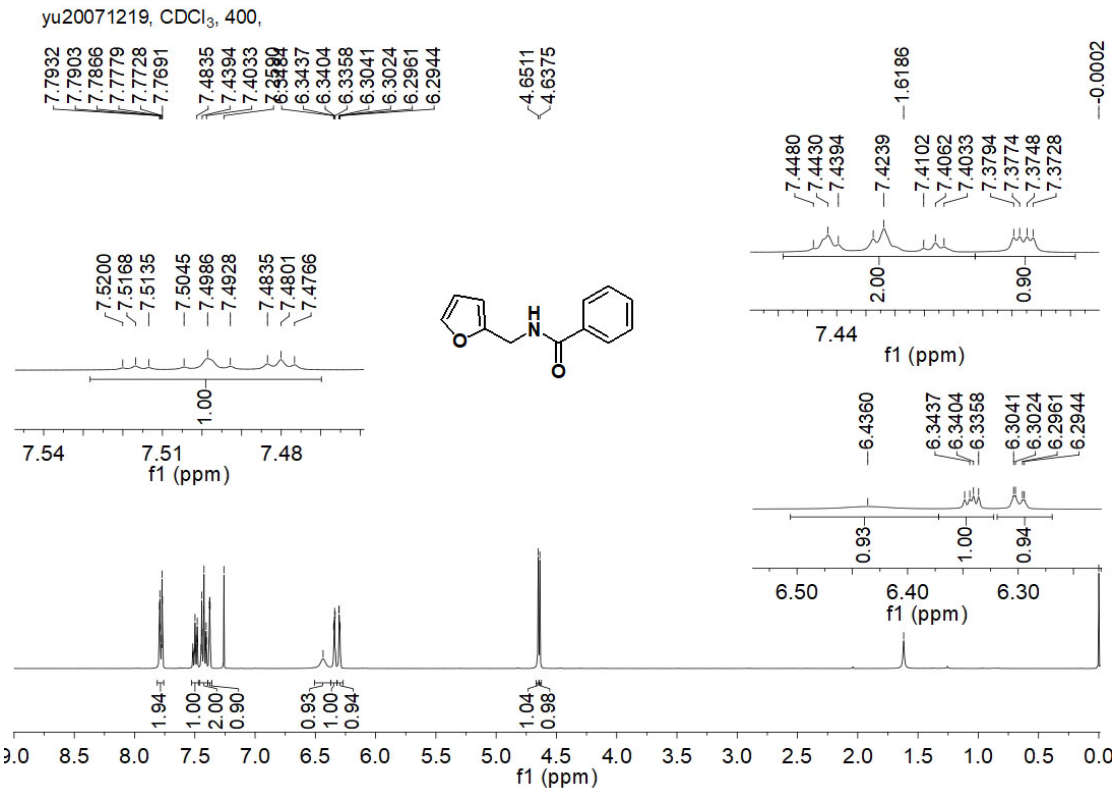


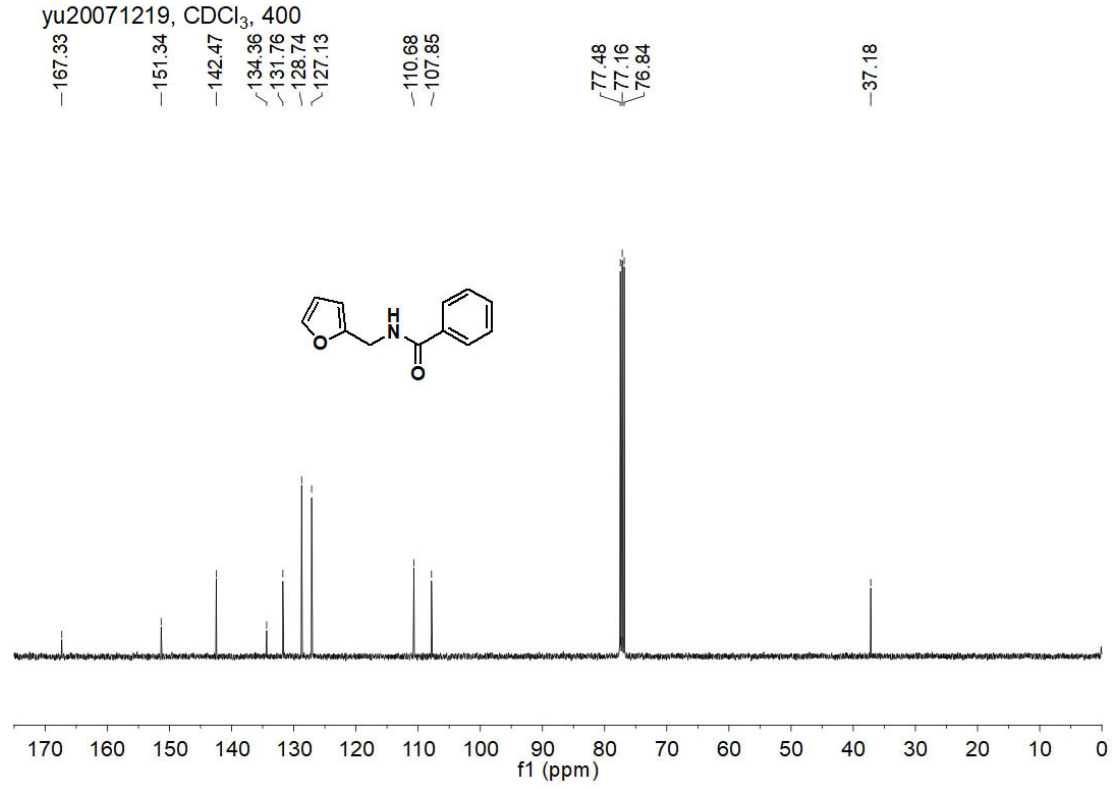
[1] HNMR of **3o**



13 CNMR of **3o**



[1] HNMR of **3p**



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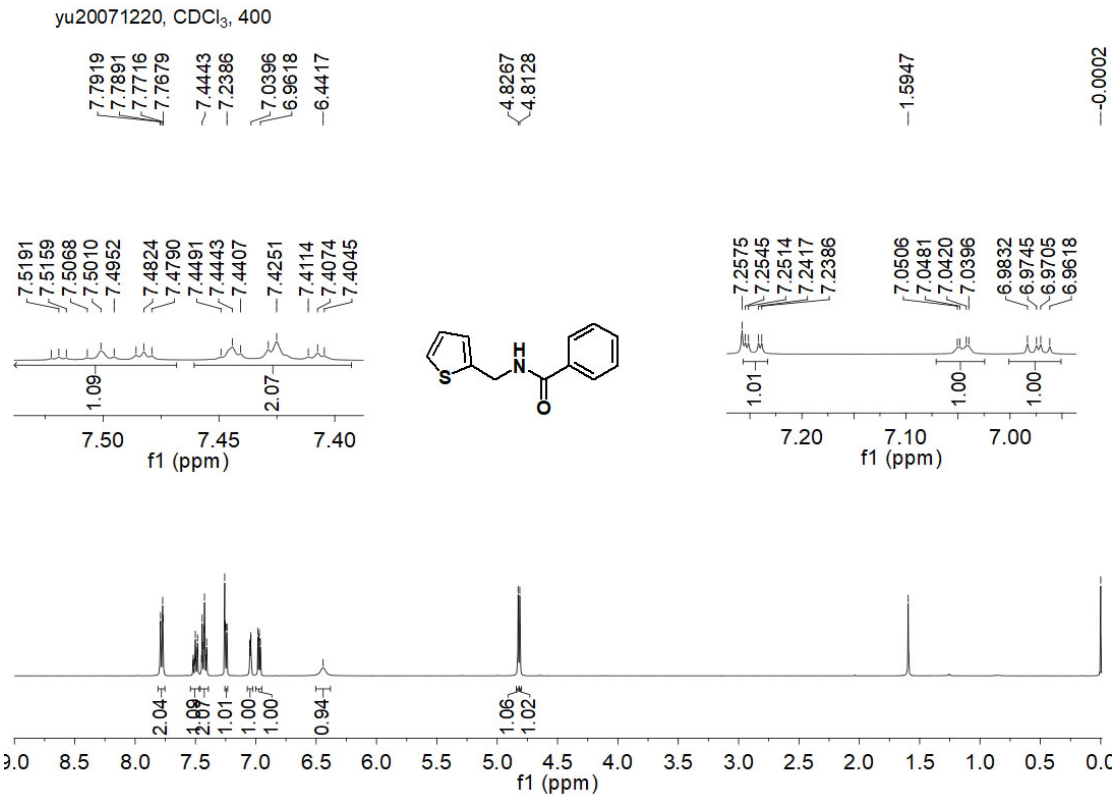
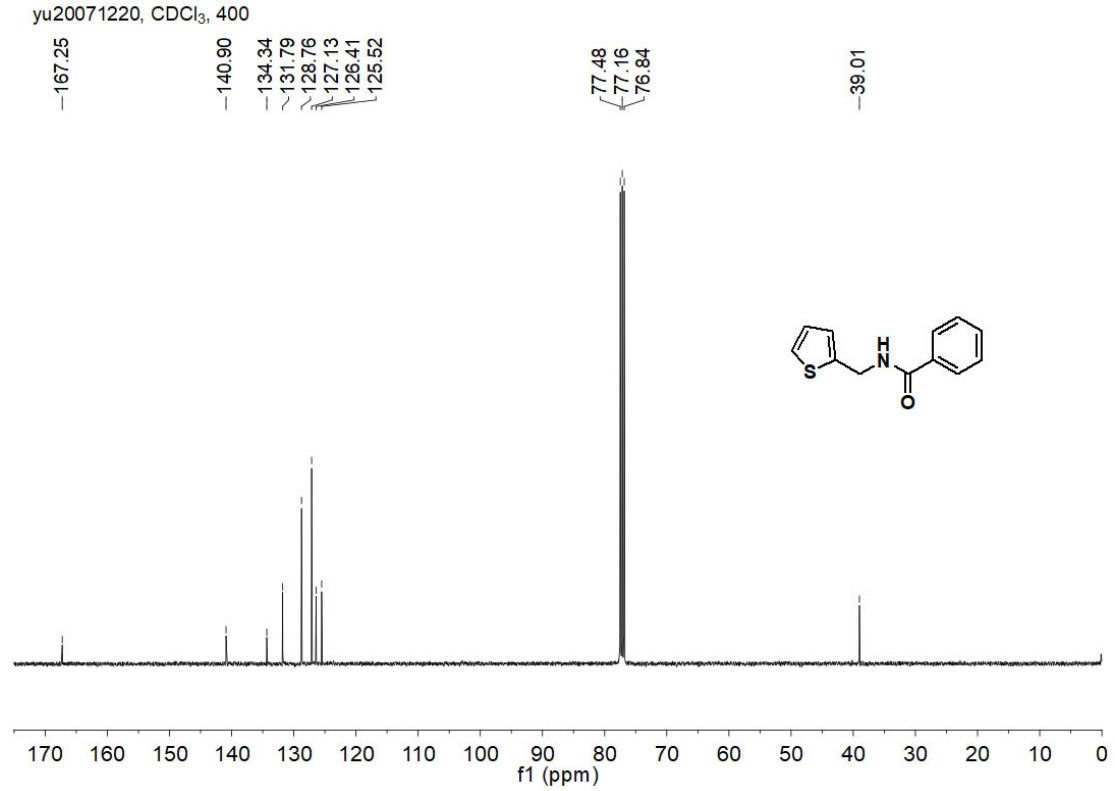


[1] HNMR of **3q**



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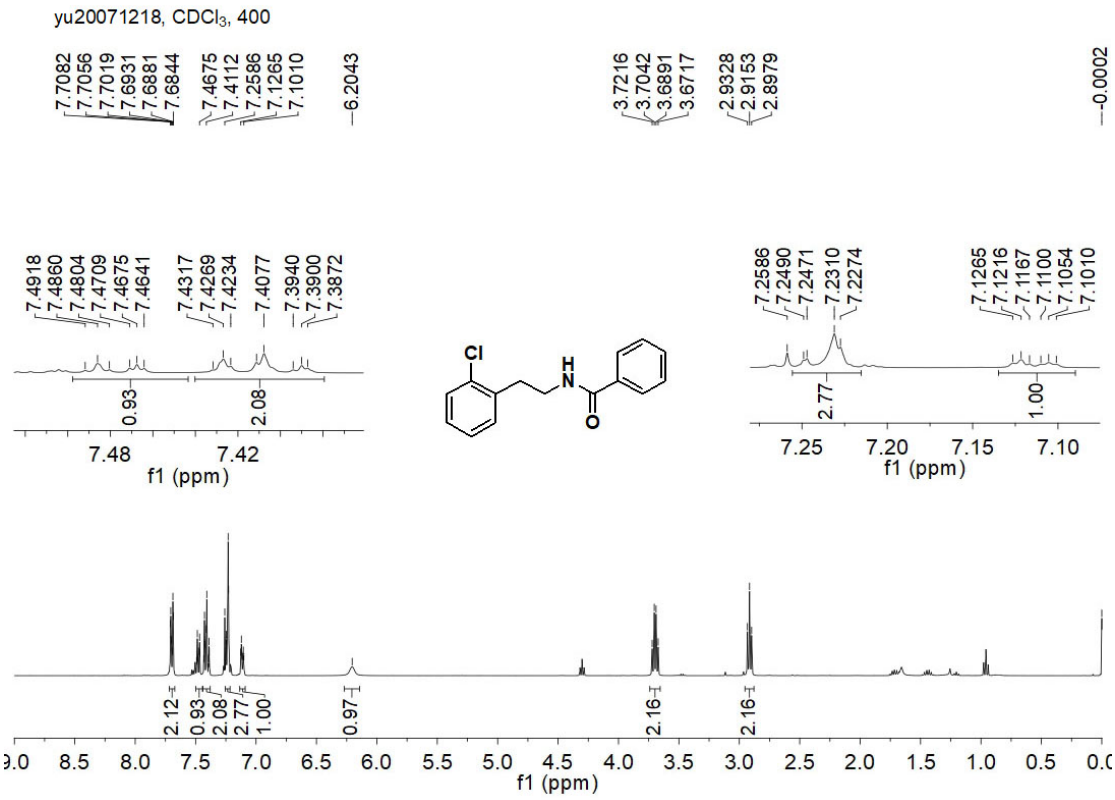

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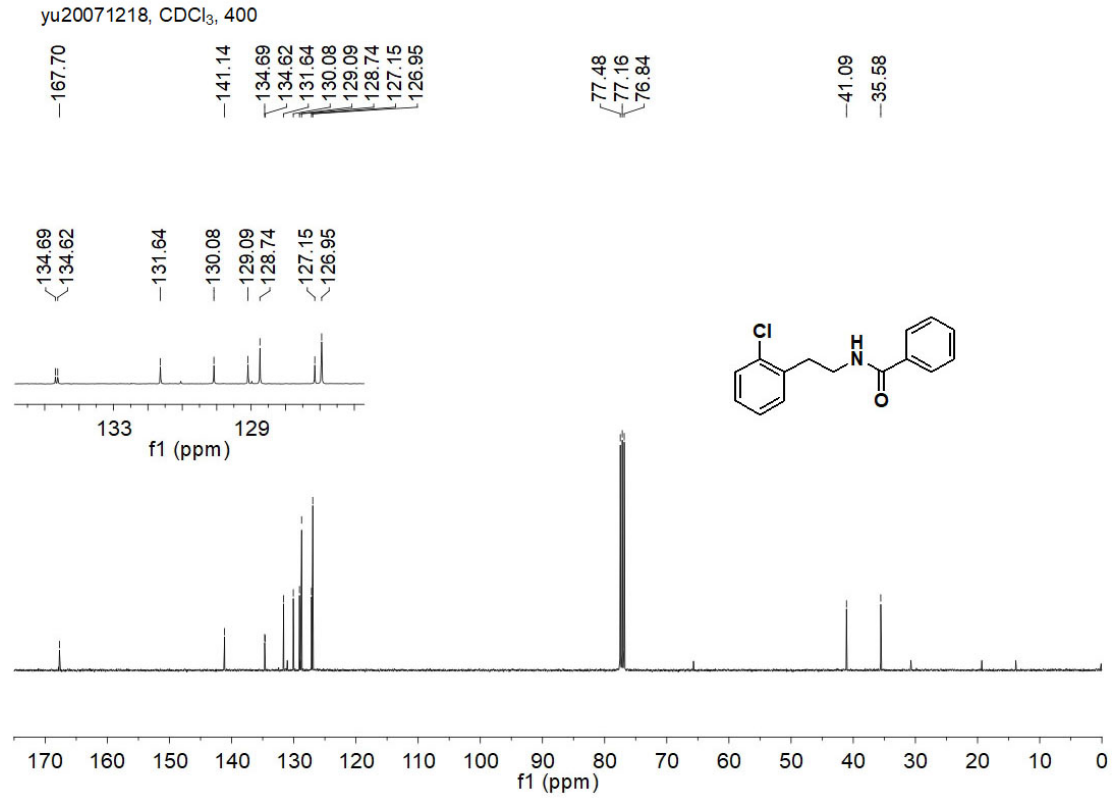

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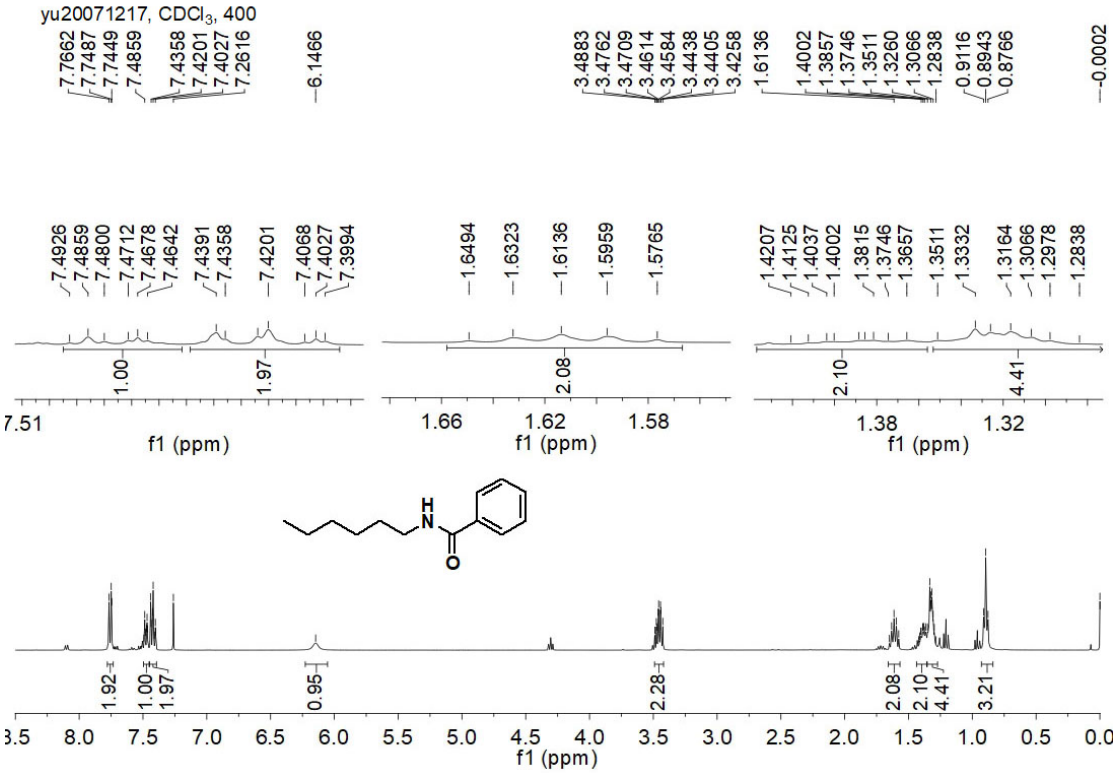

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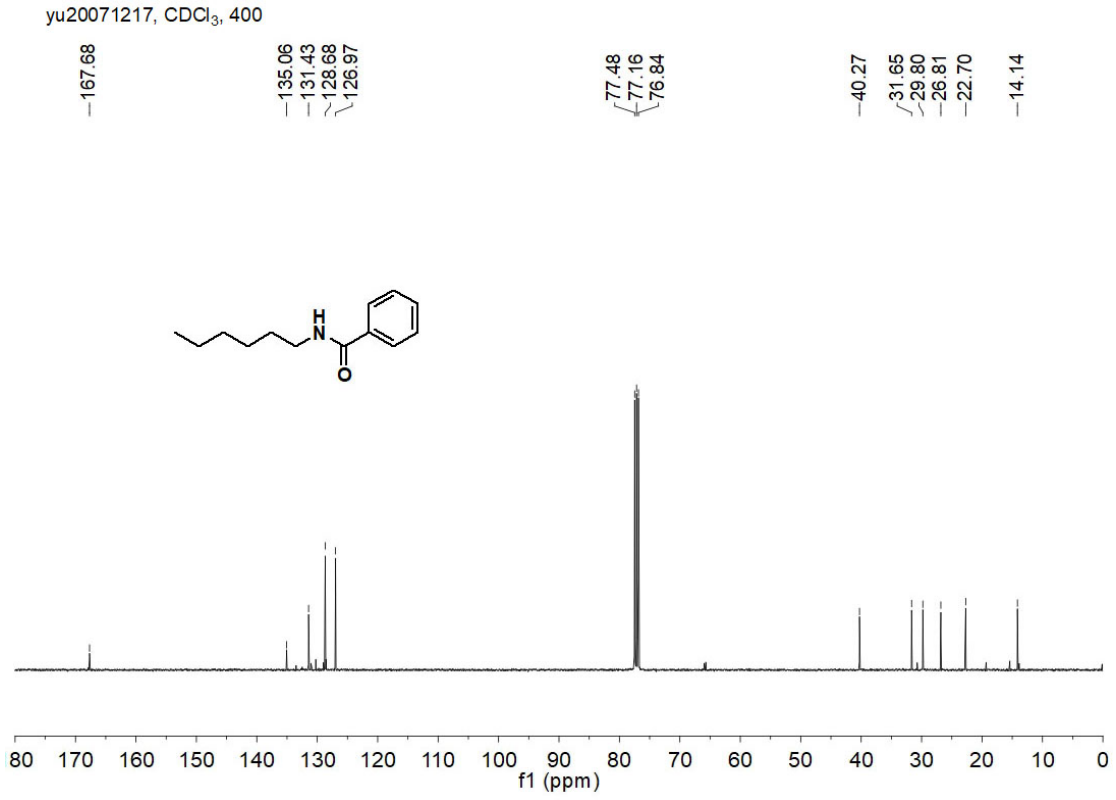

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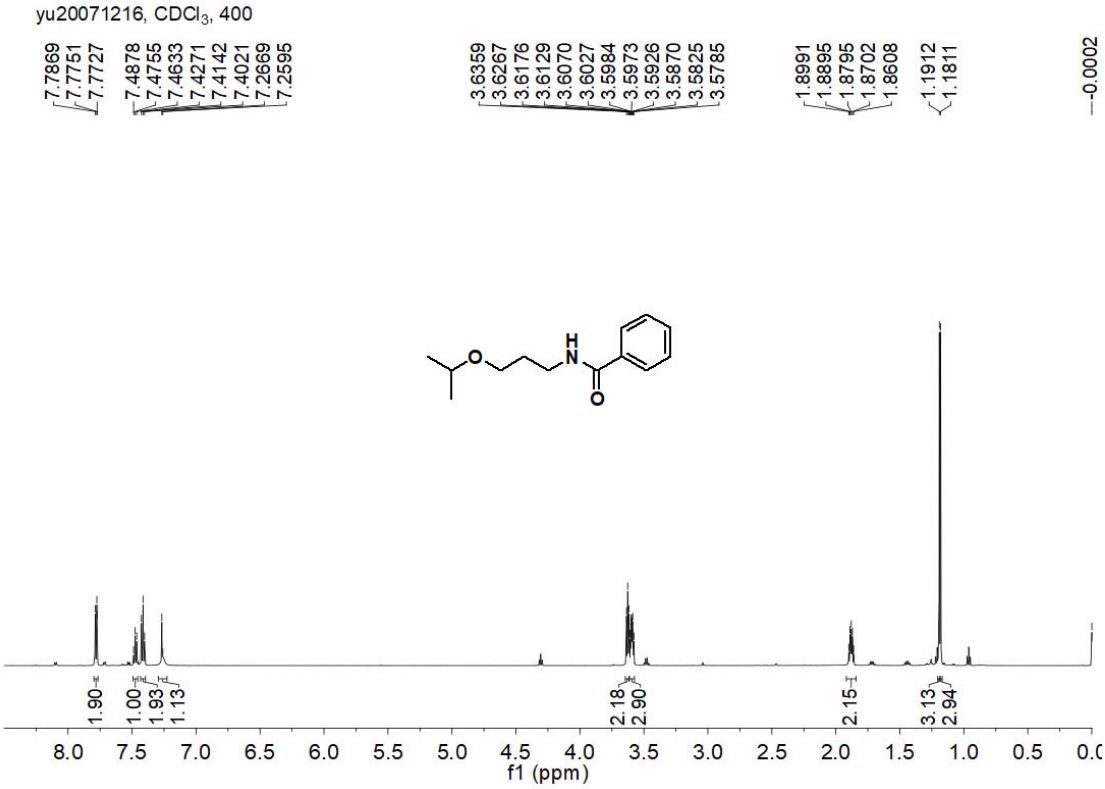
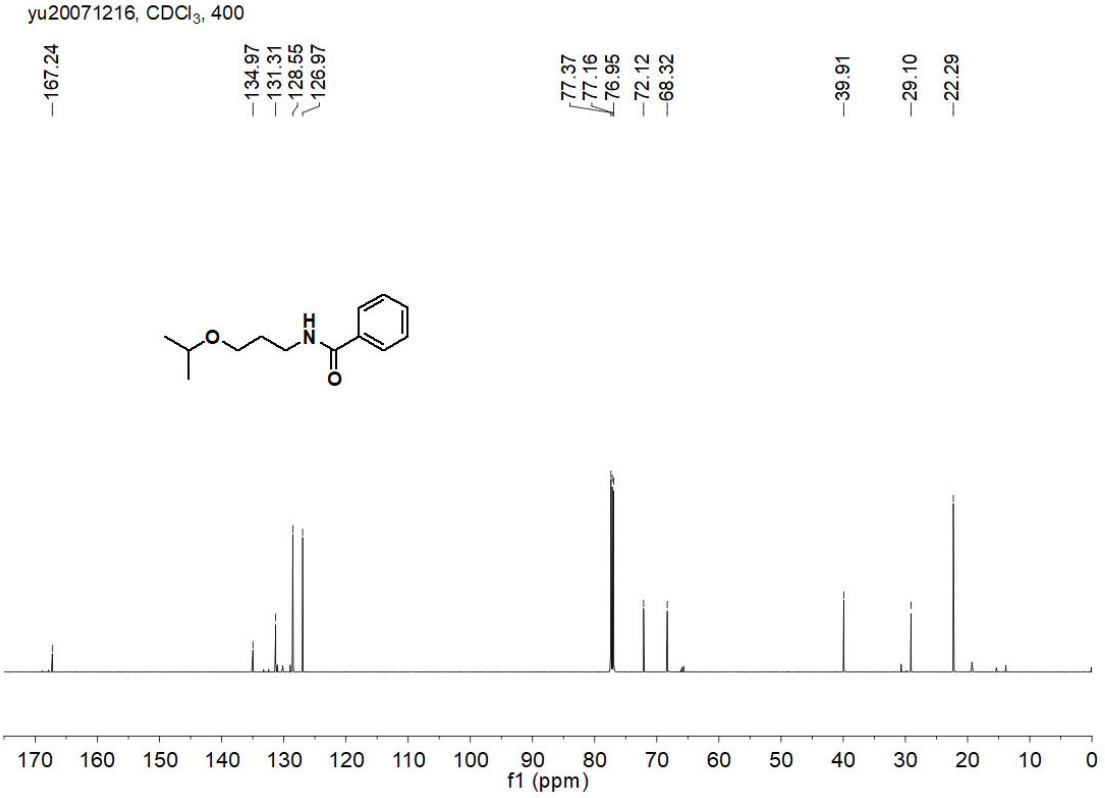
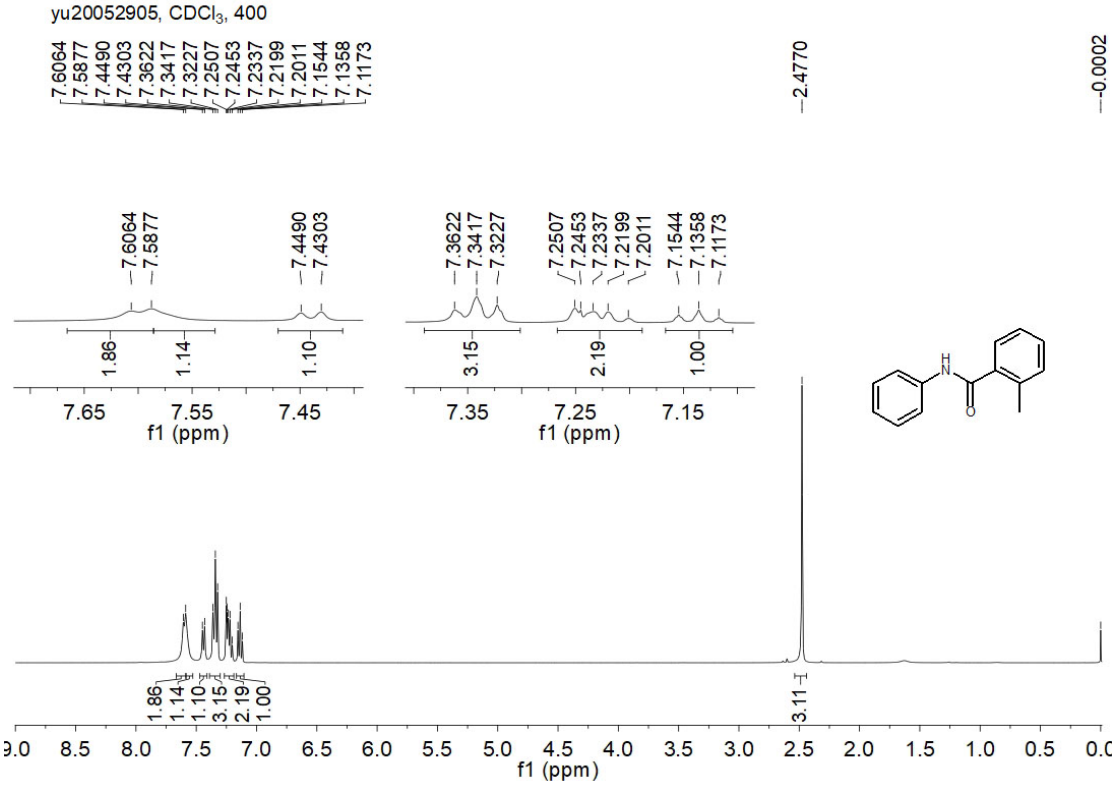


[1] HNMR of **3t**

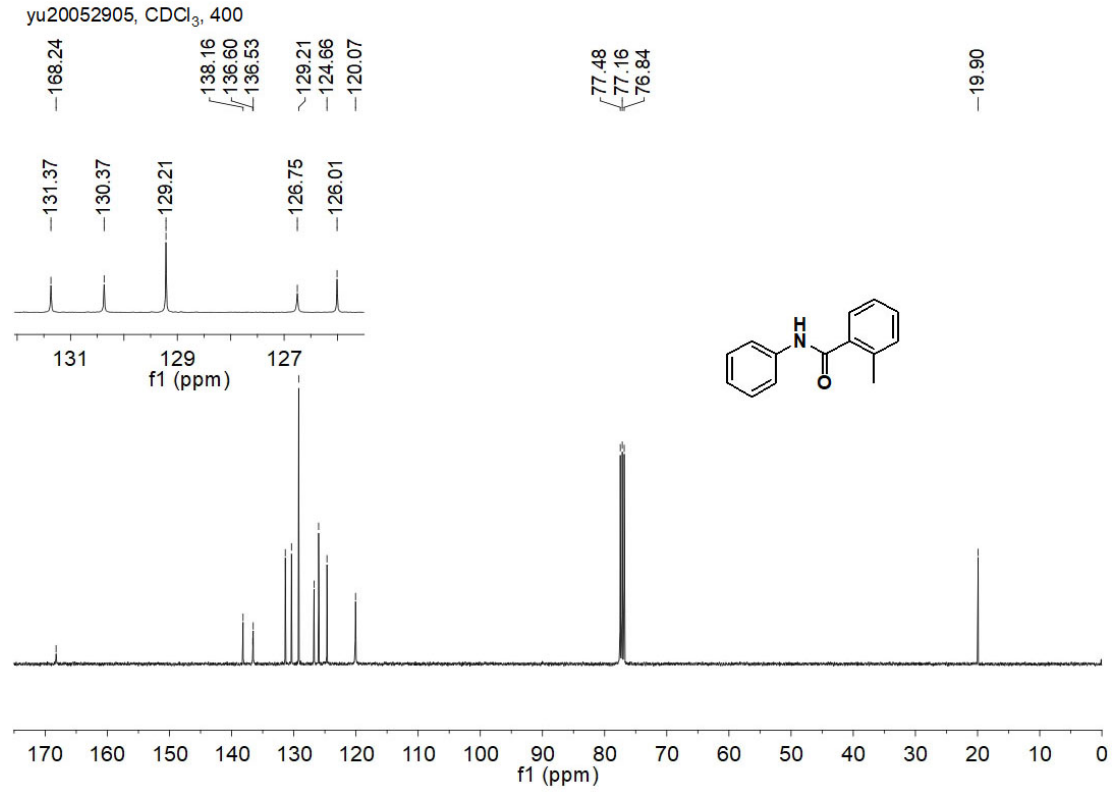


[13] CNMR of **3t**

IV. Copies of NMR spectra for 4



[1] HNMR of **4a**



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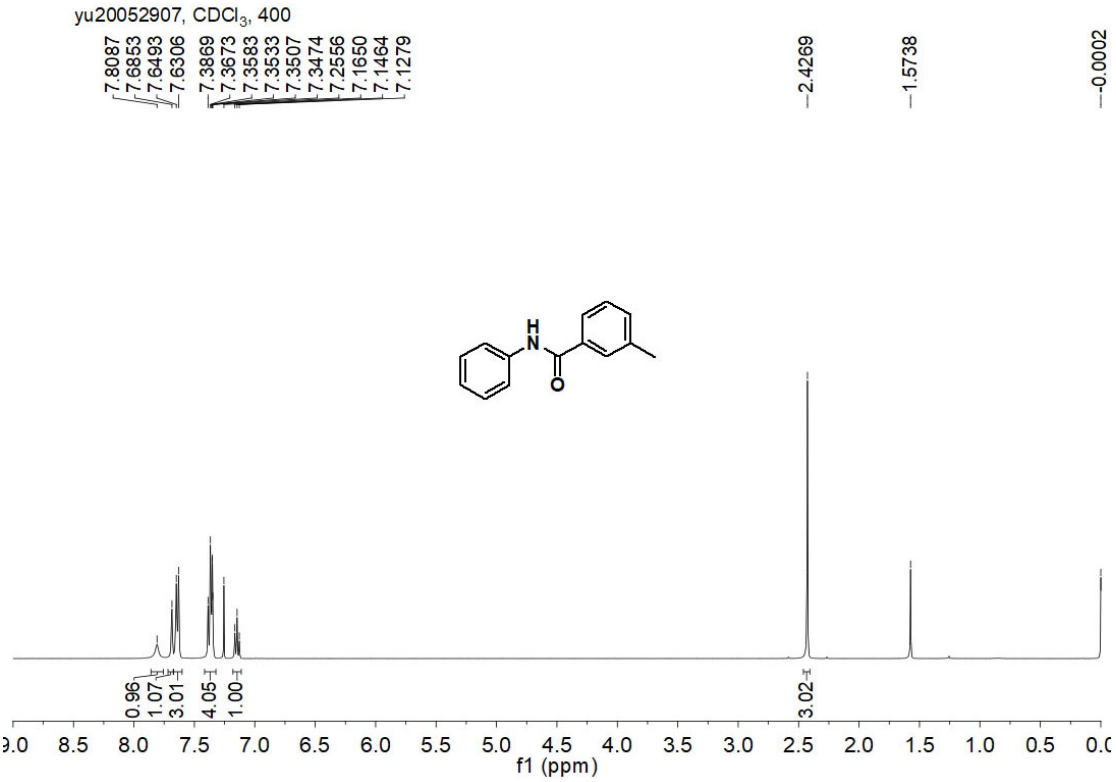

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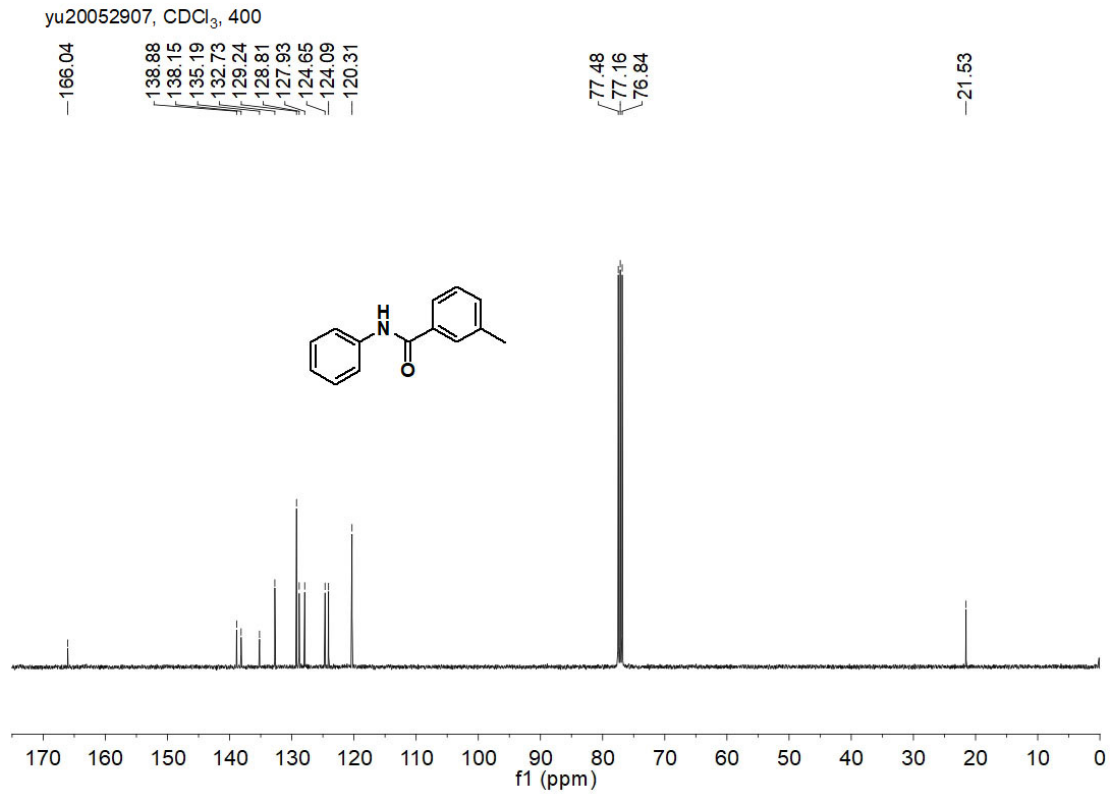

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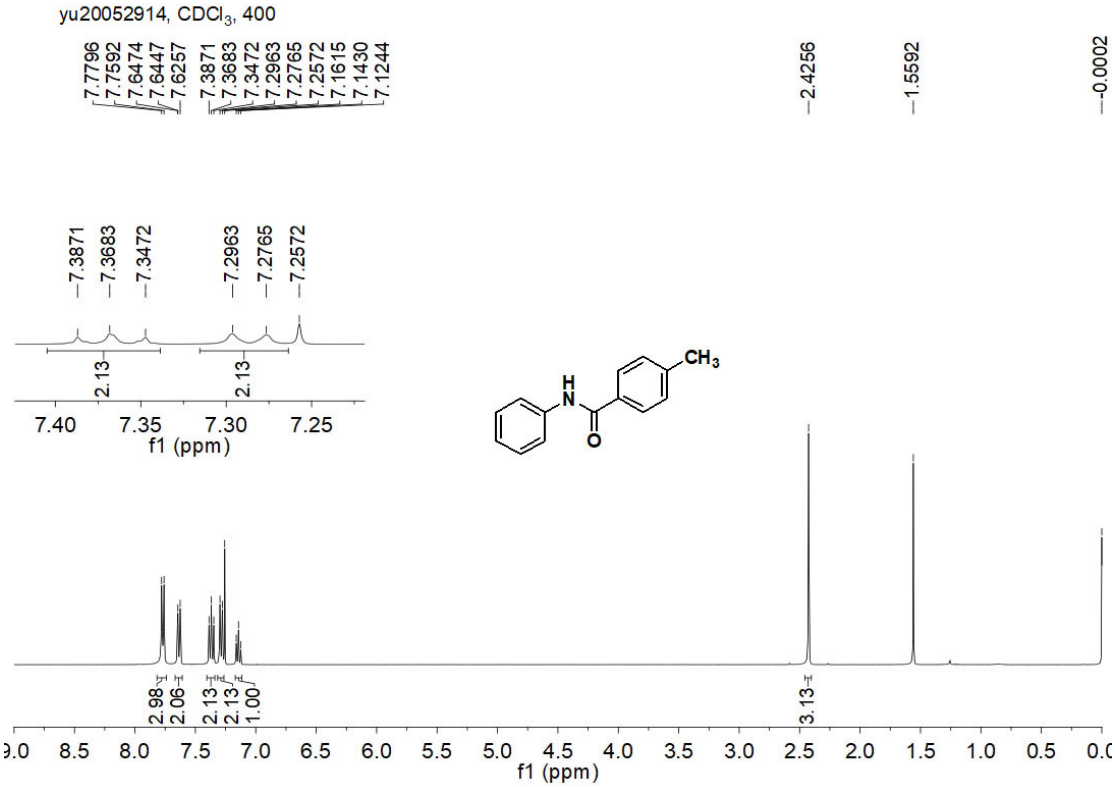

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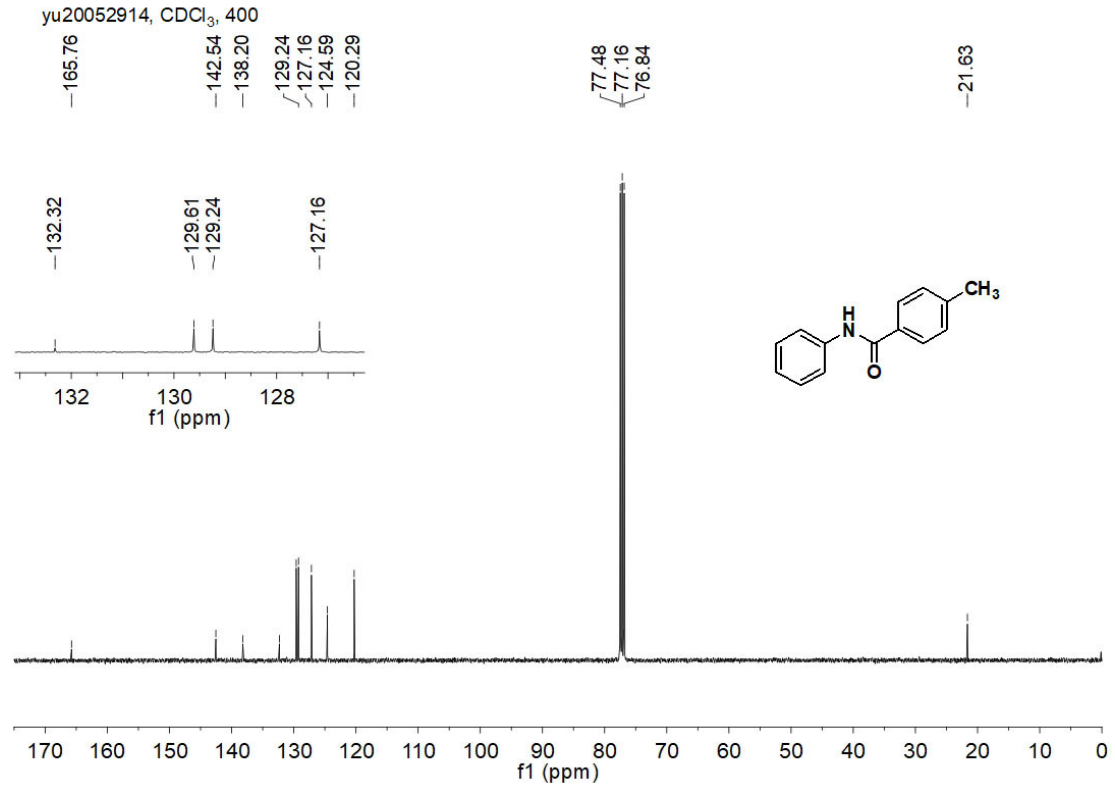

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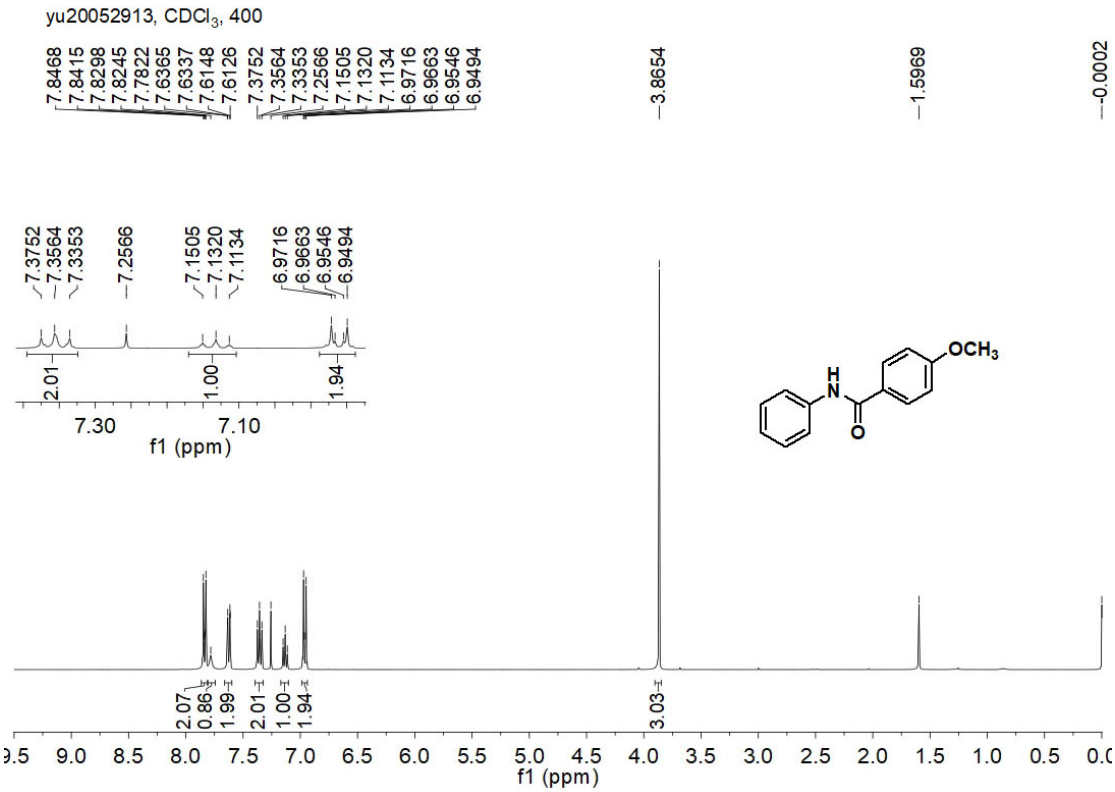

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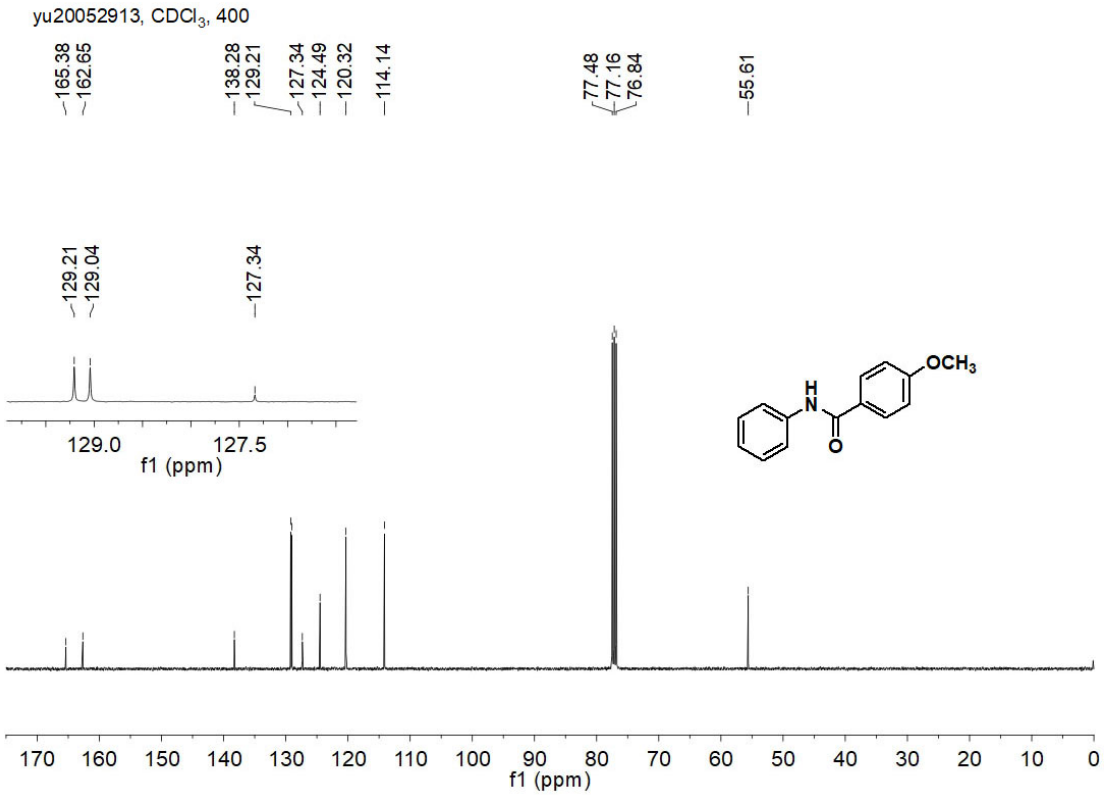

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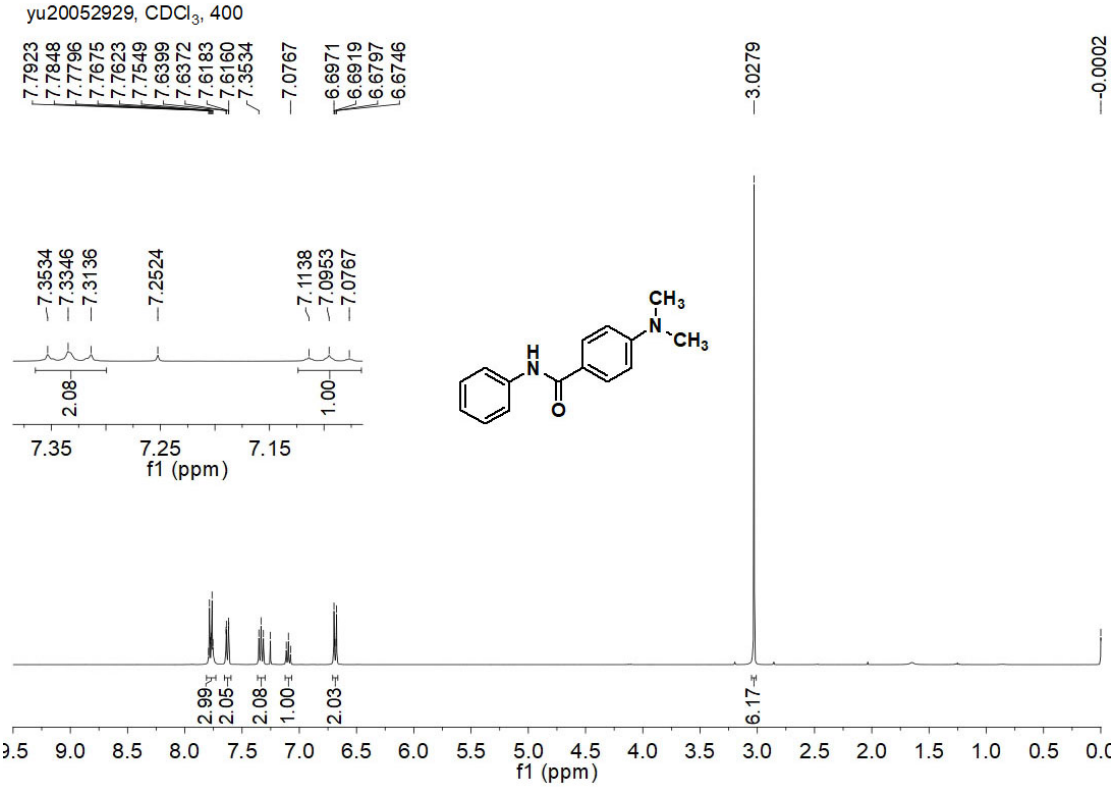

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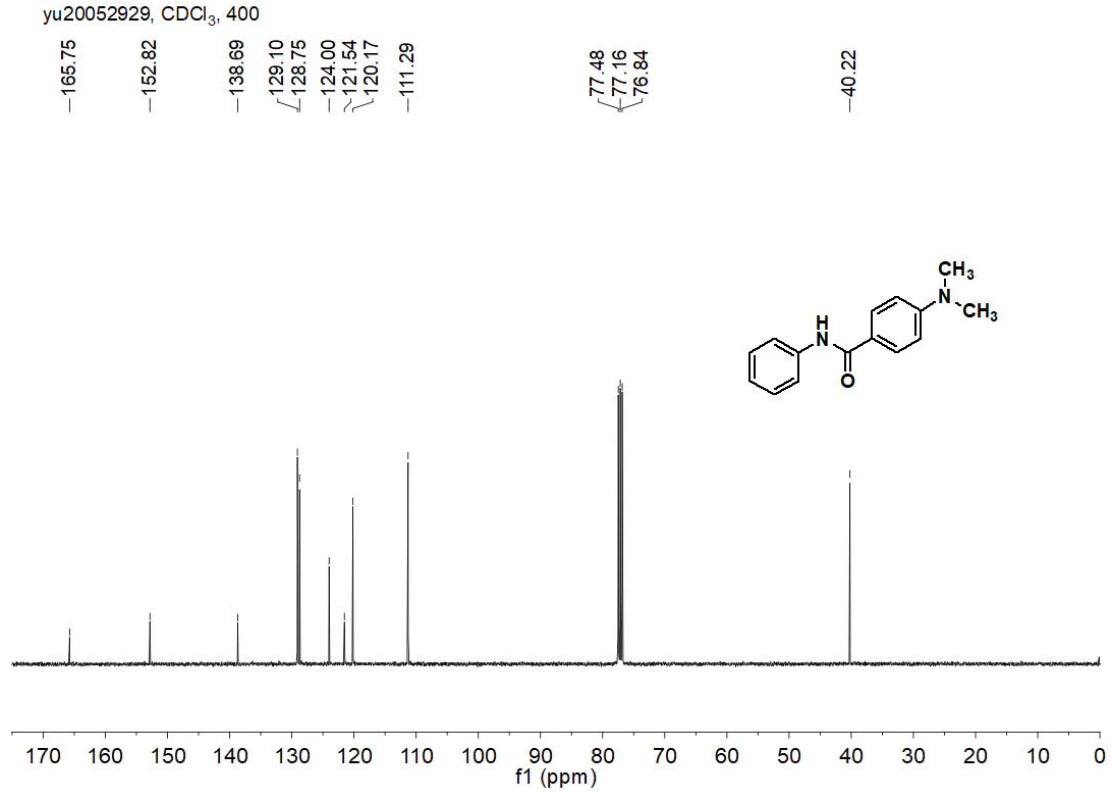

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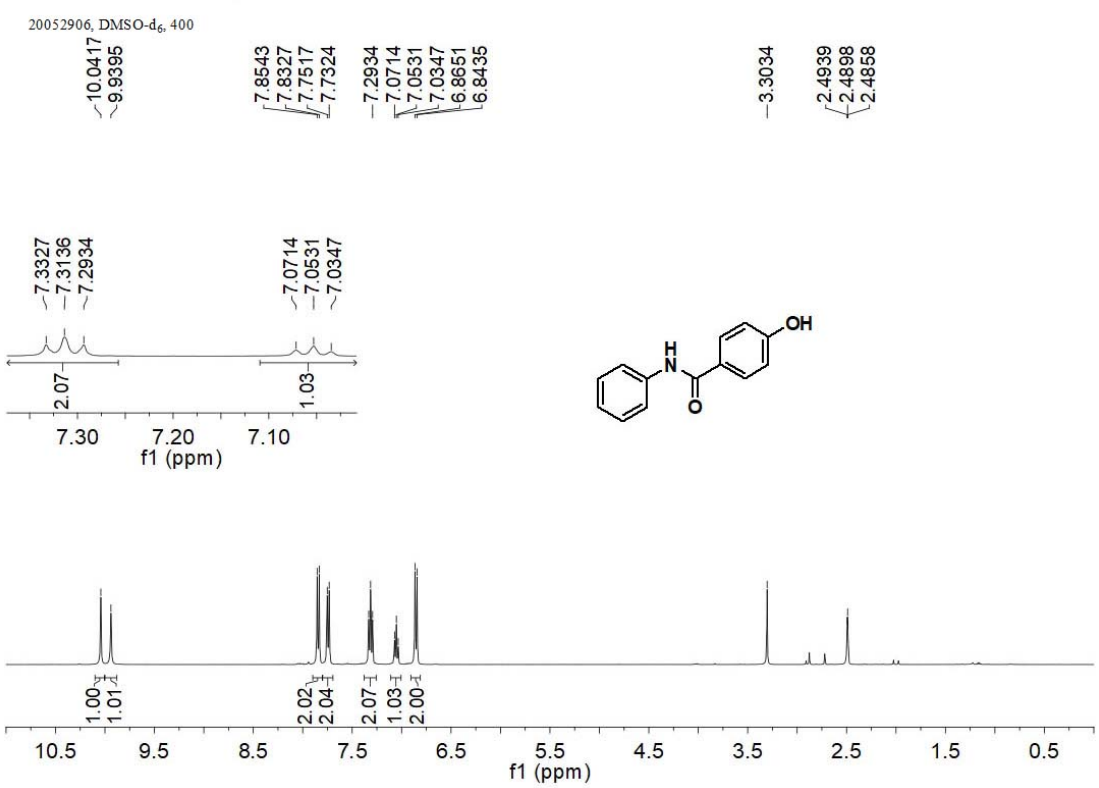

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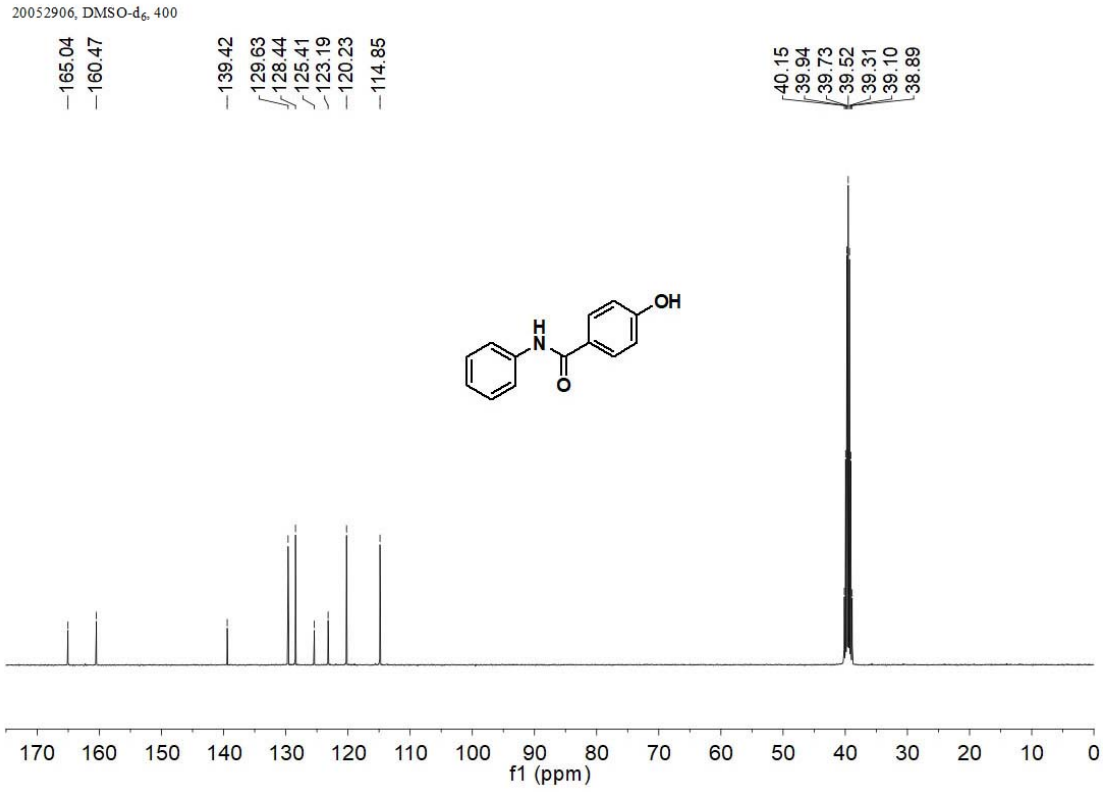
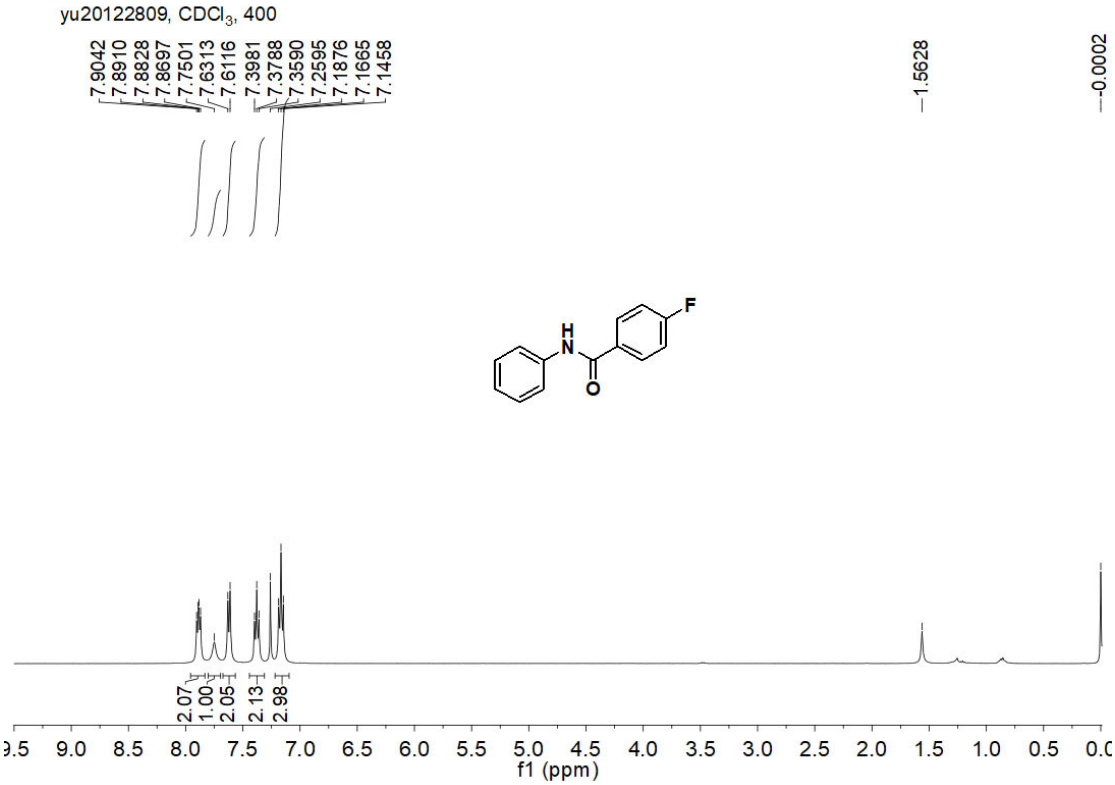


[13] CNMR of **4f**



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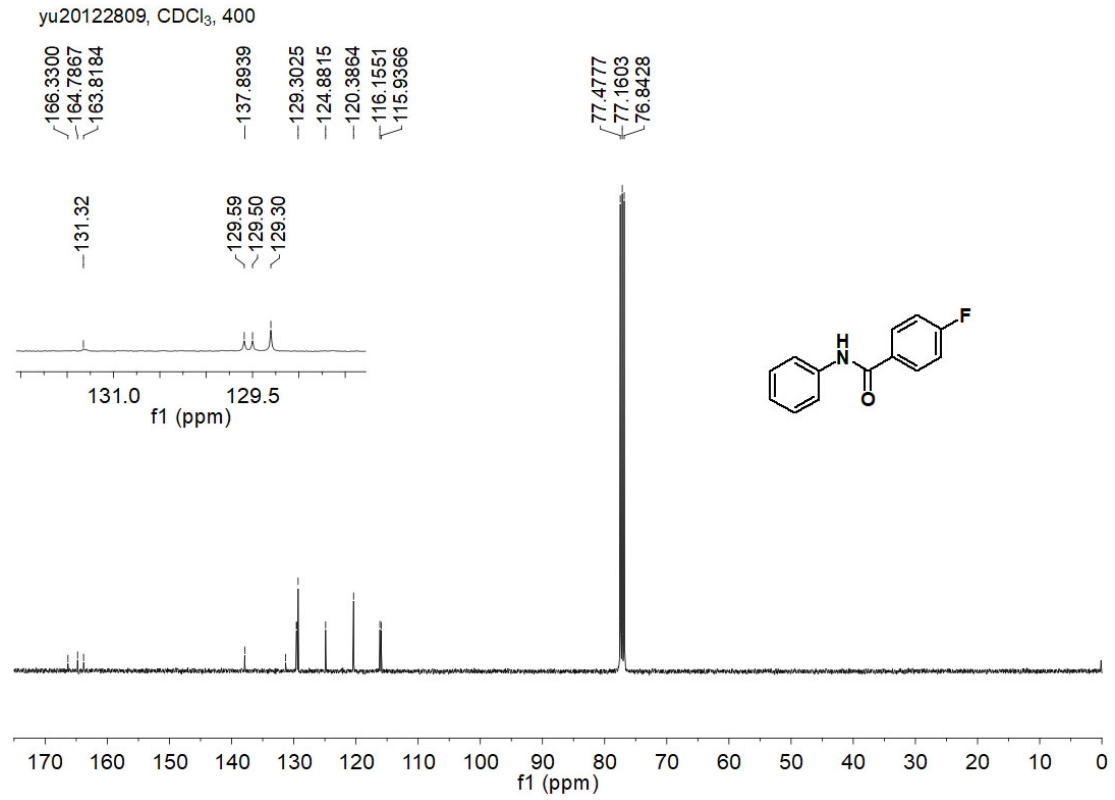

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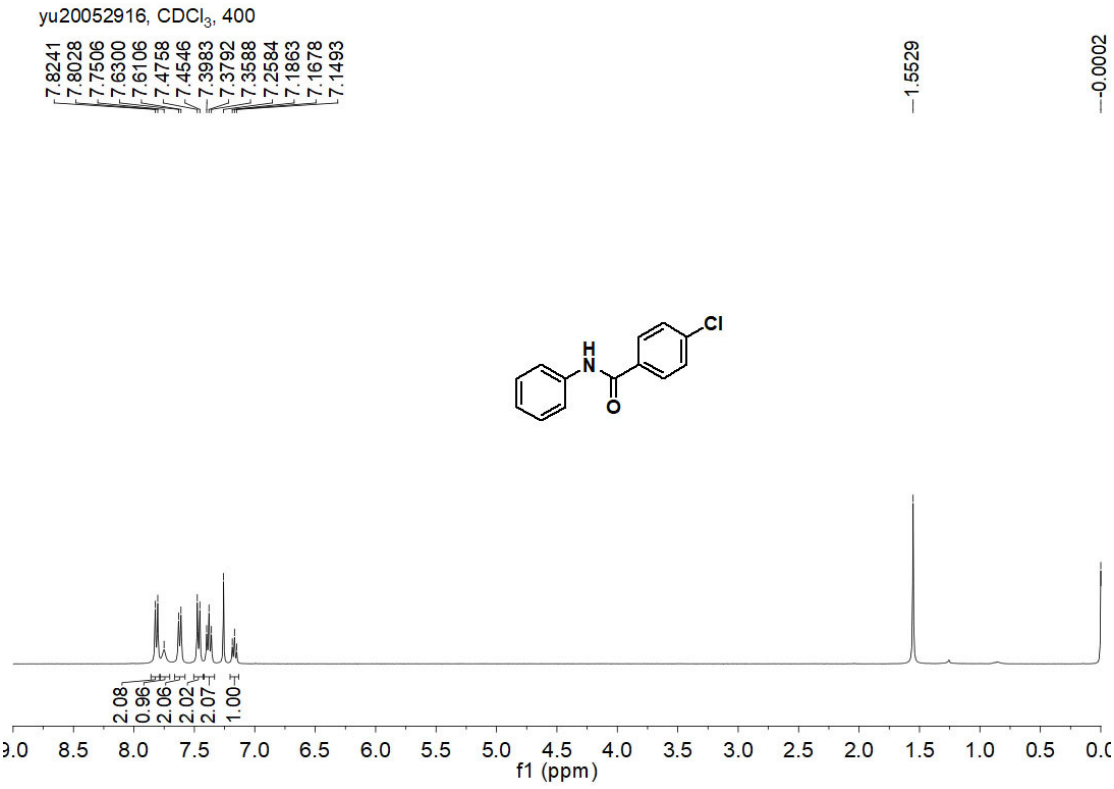

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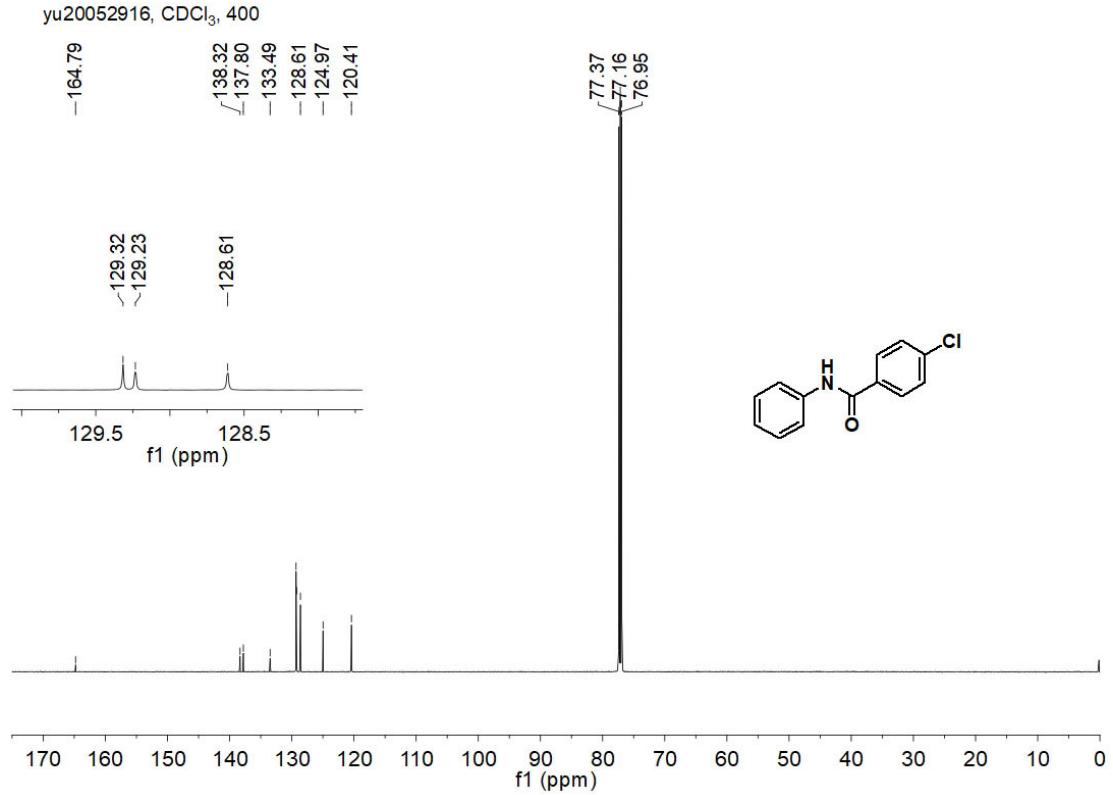

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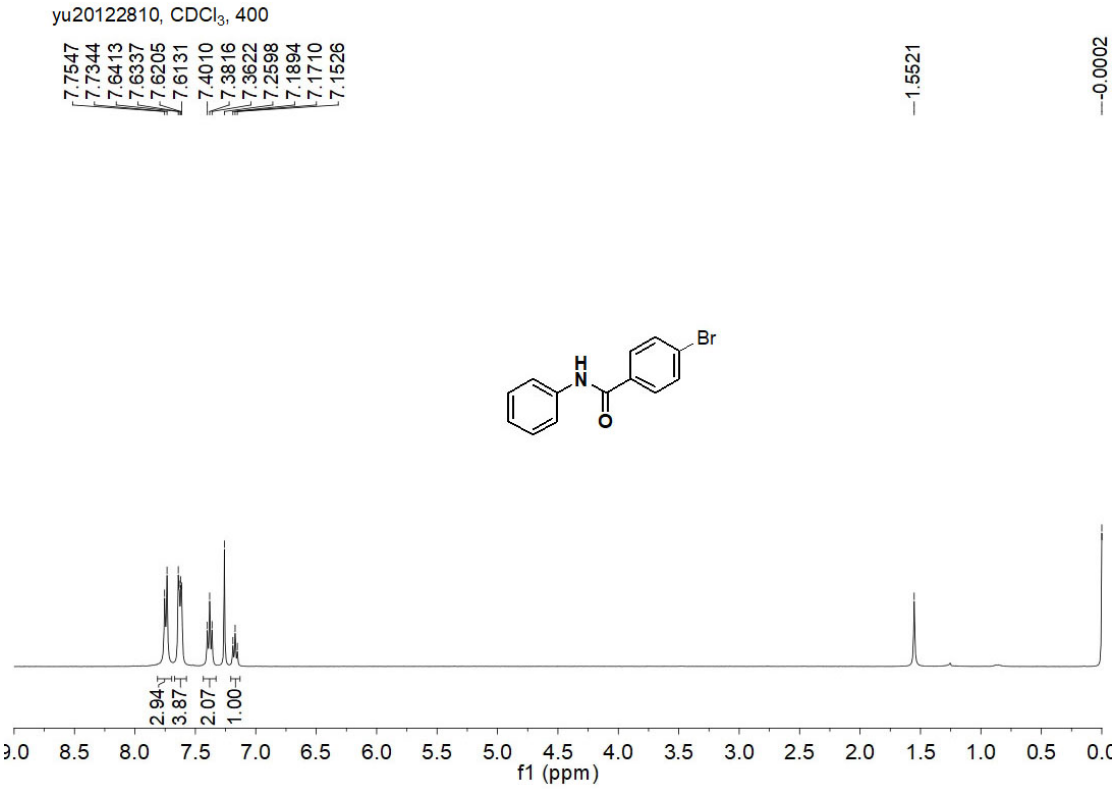

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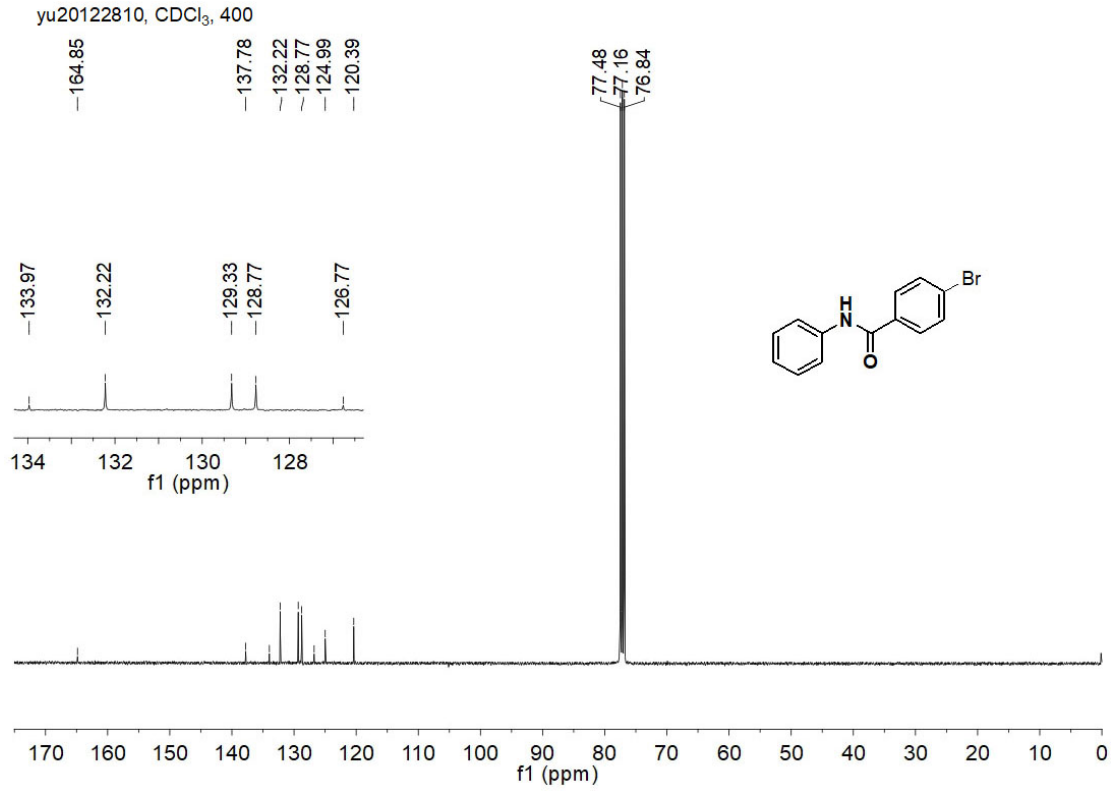

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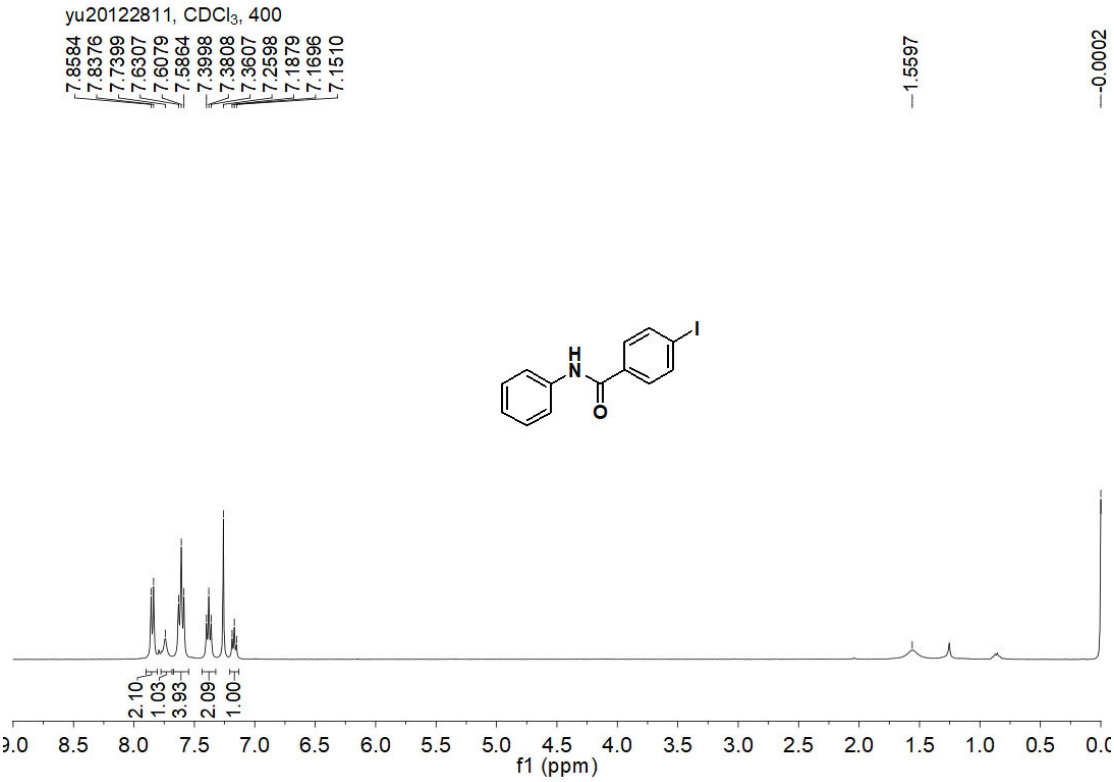

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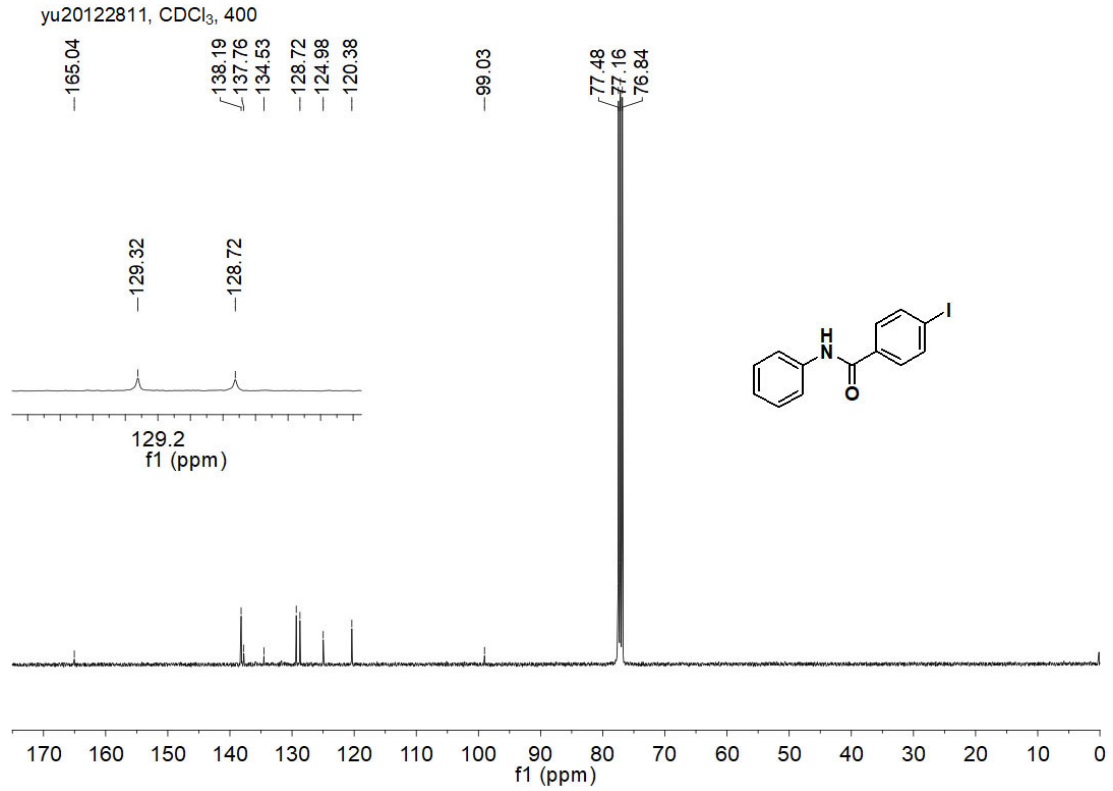

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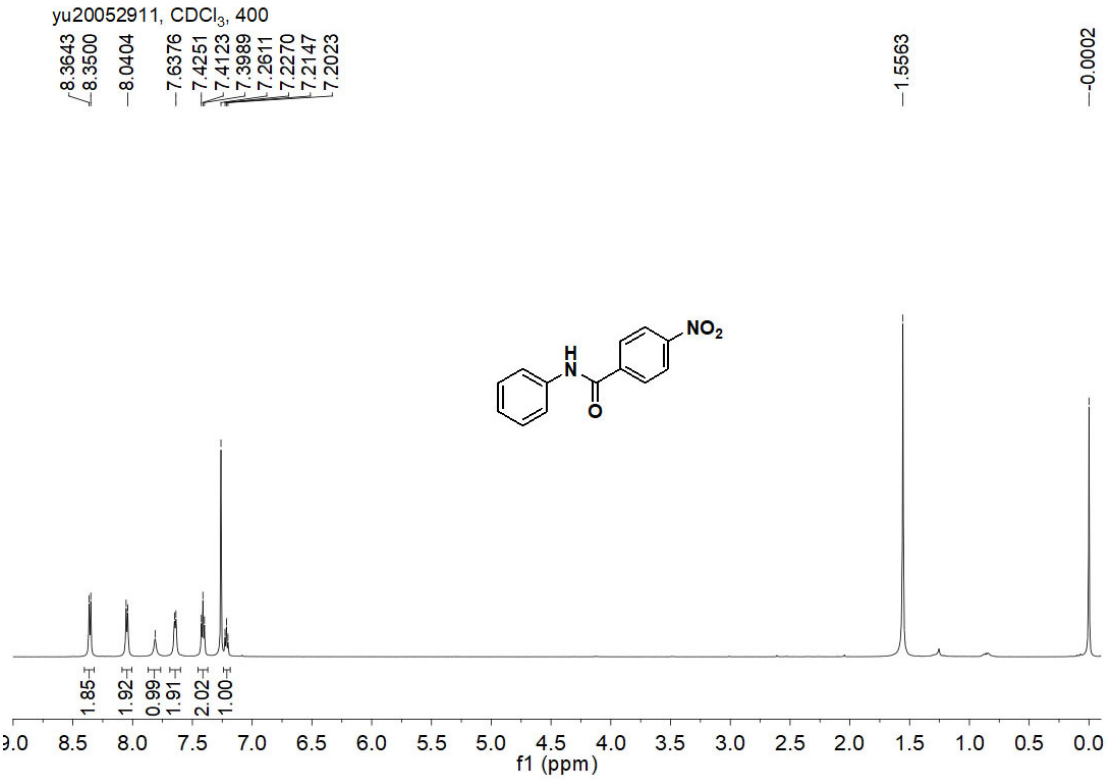

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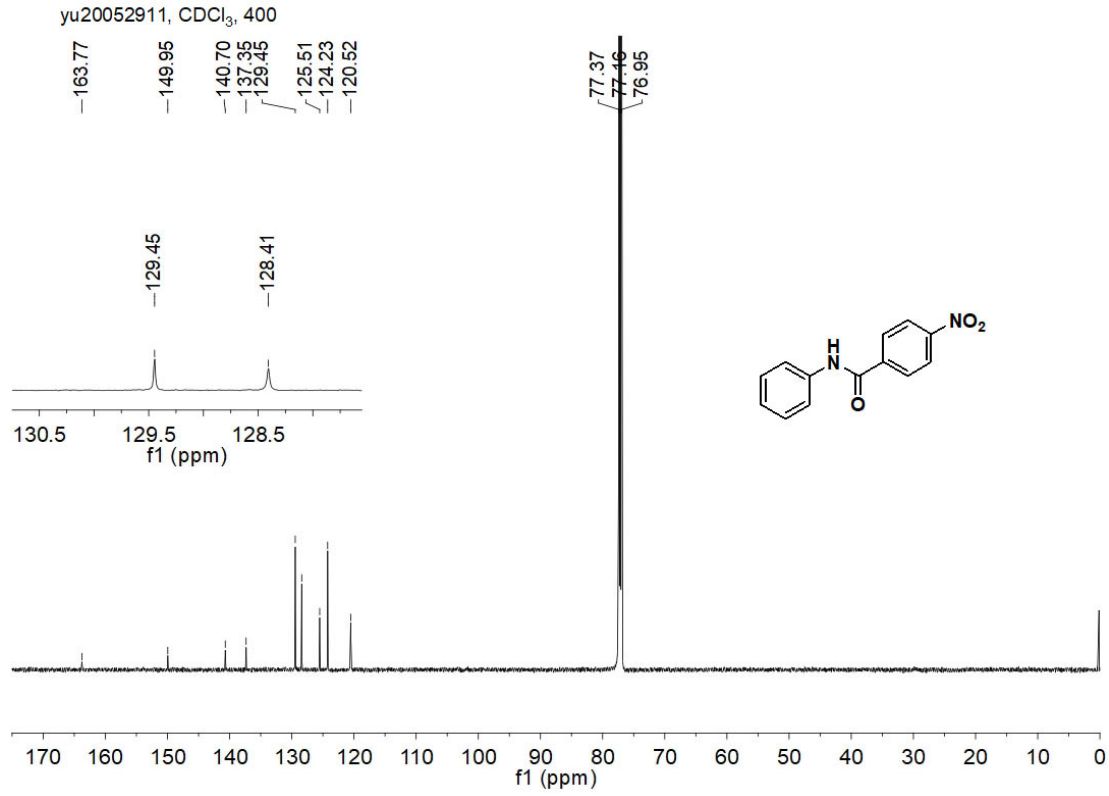

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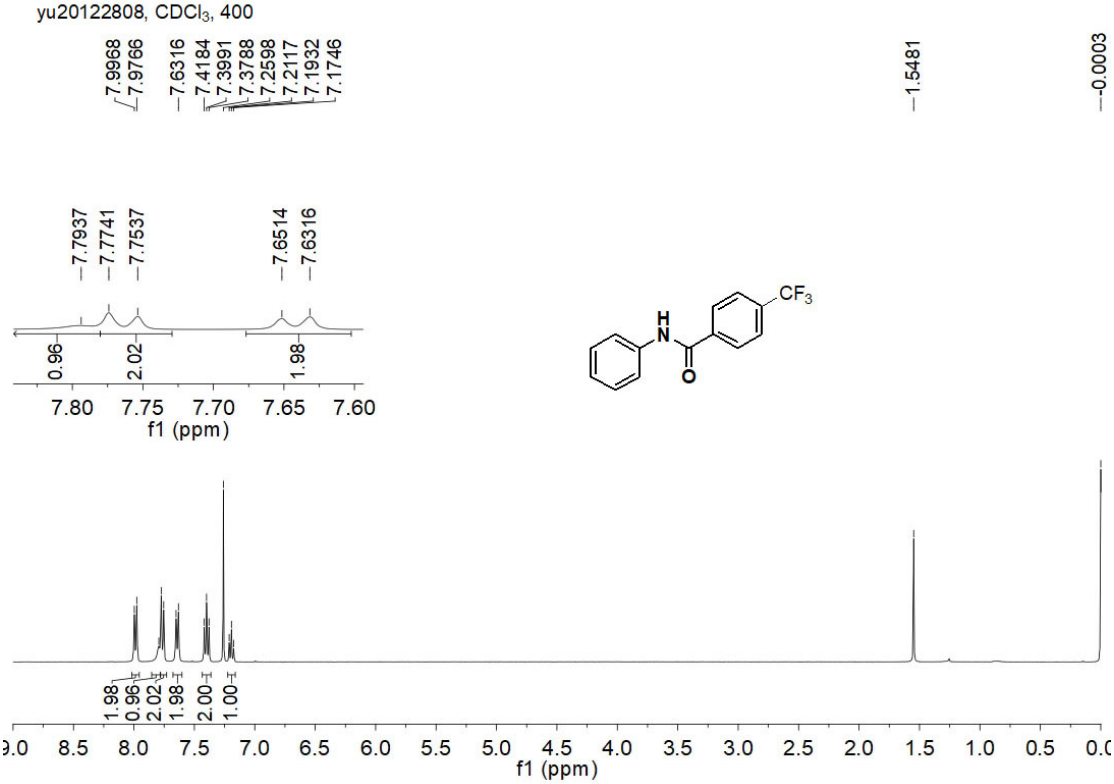

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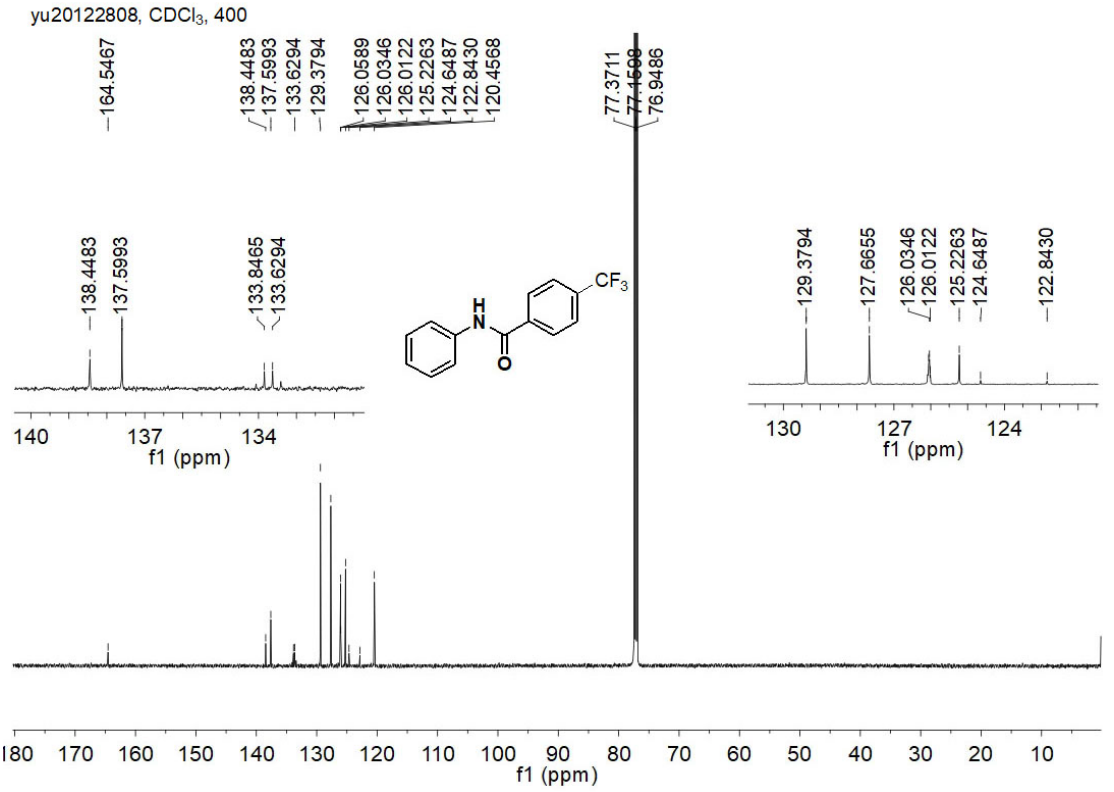

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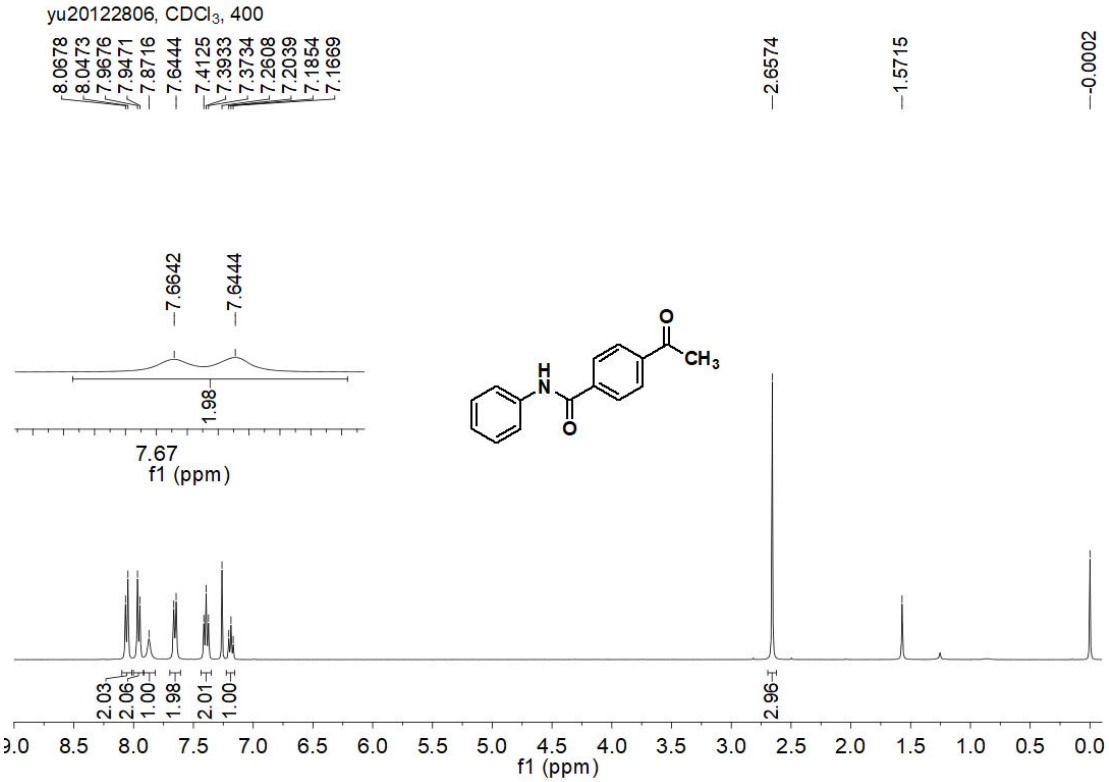

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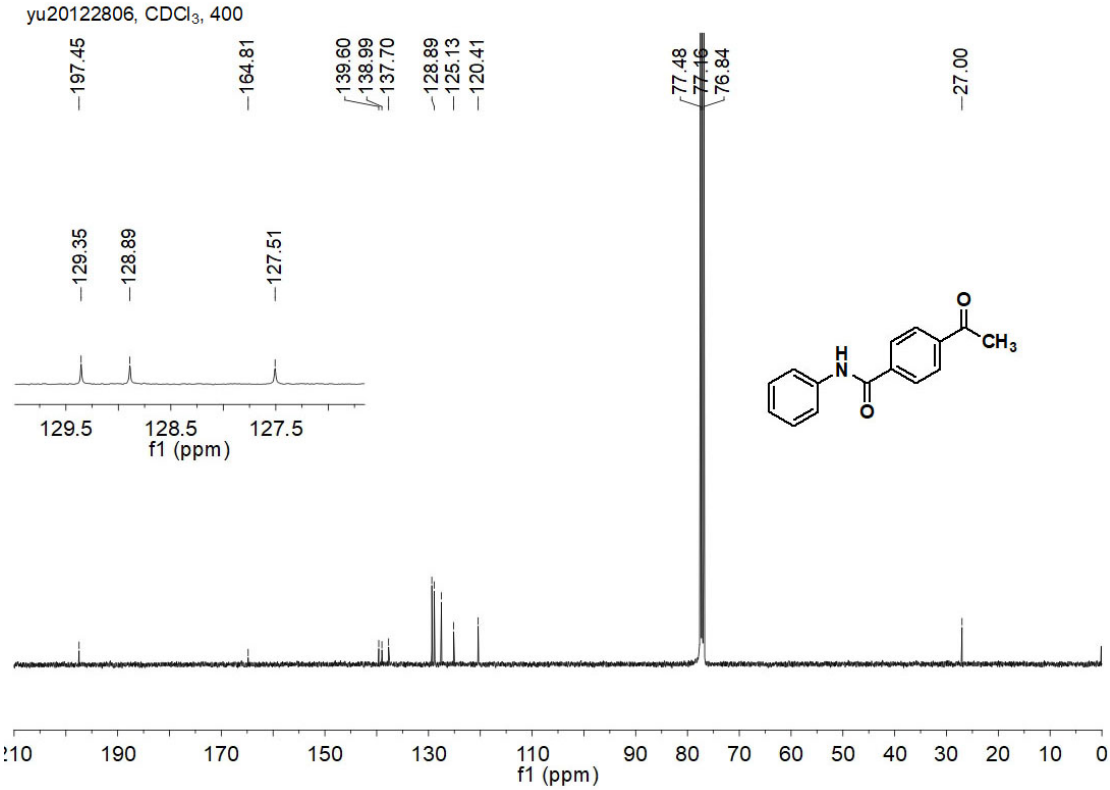
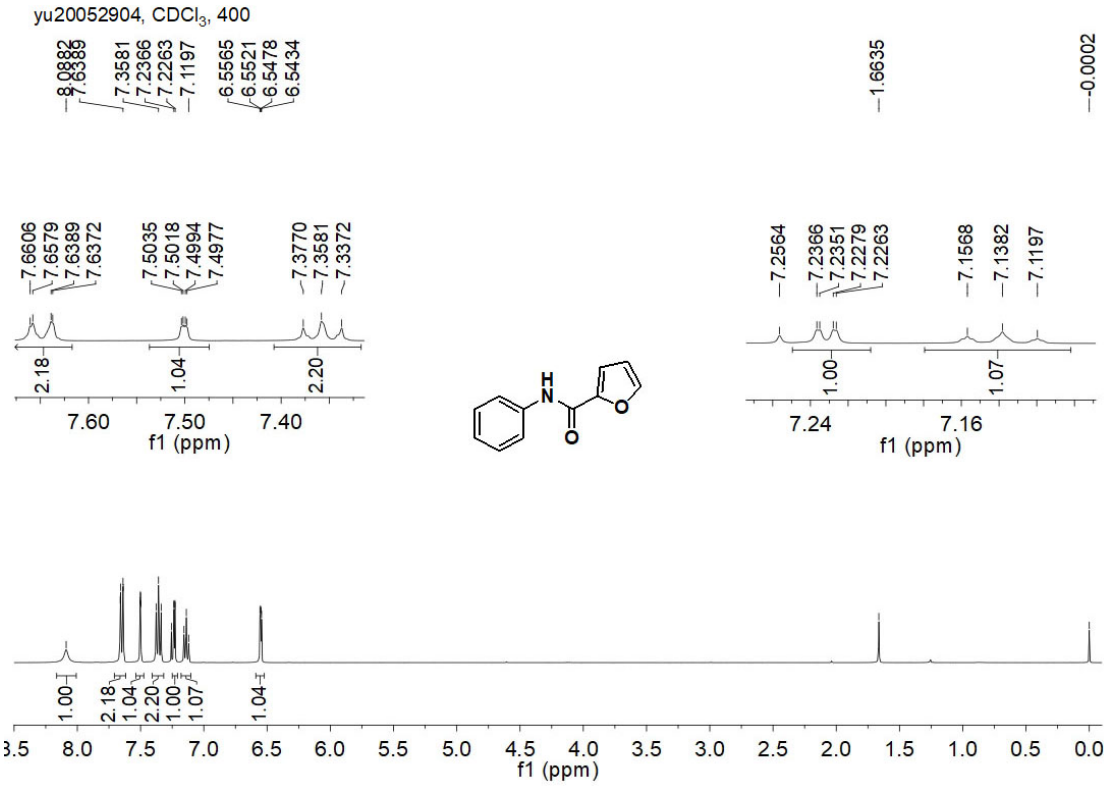


13 CNMR of **4m**



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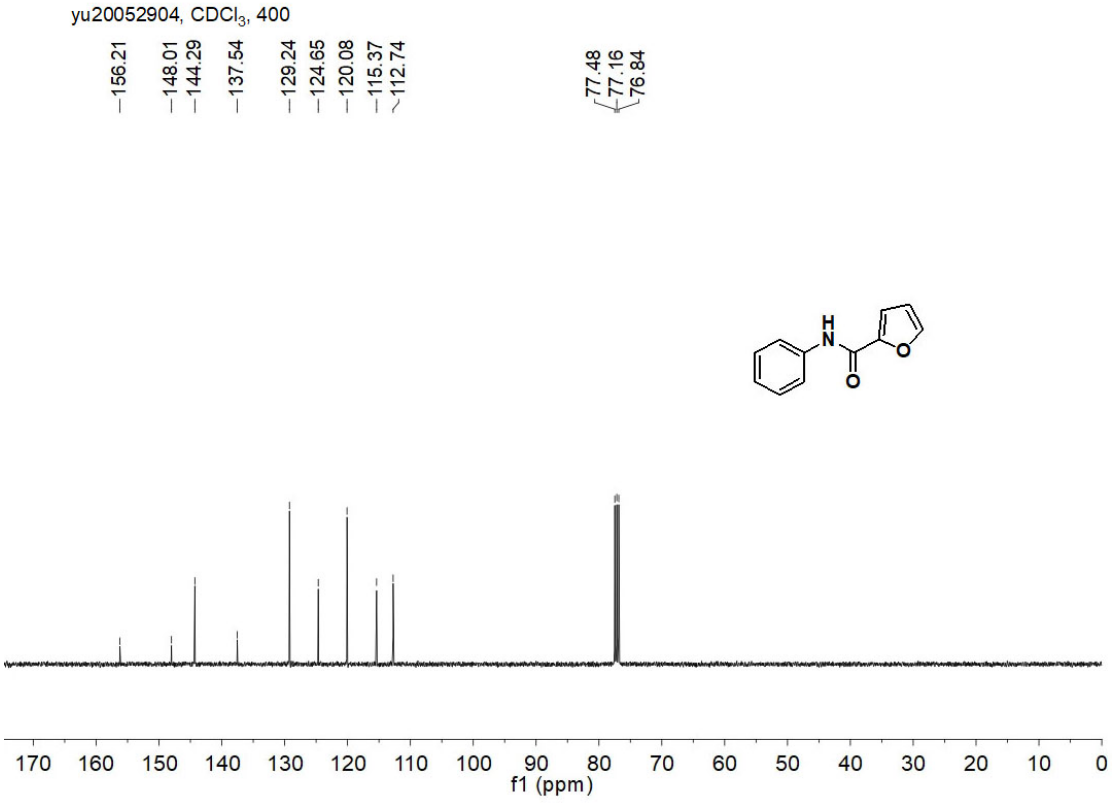

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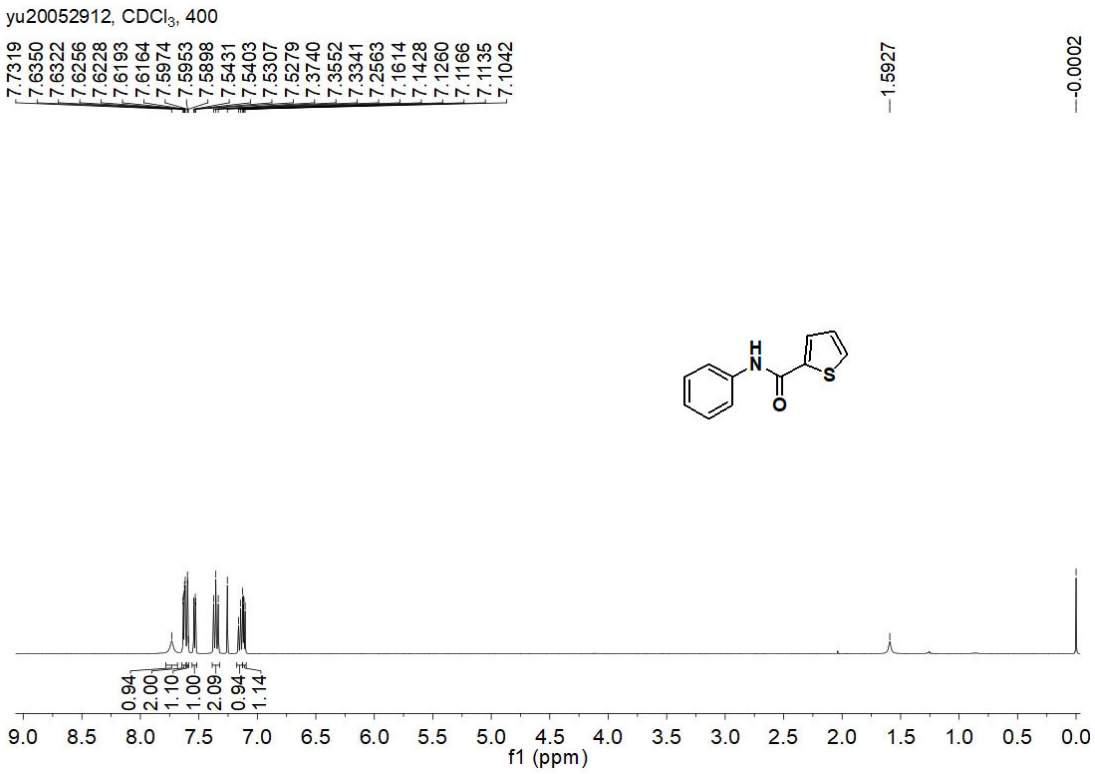

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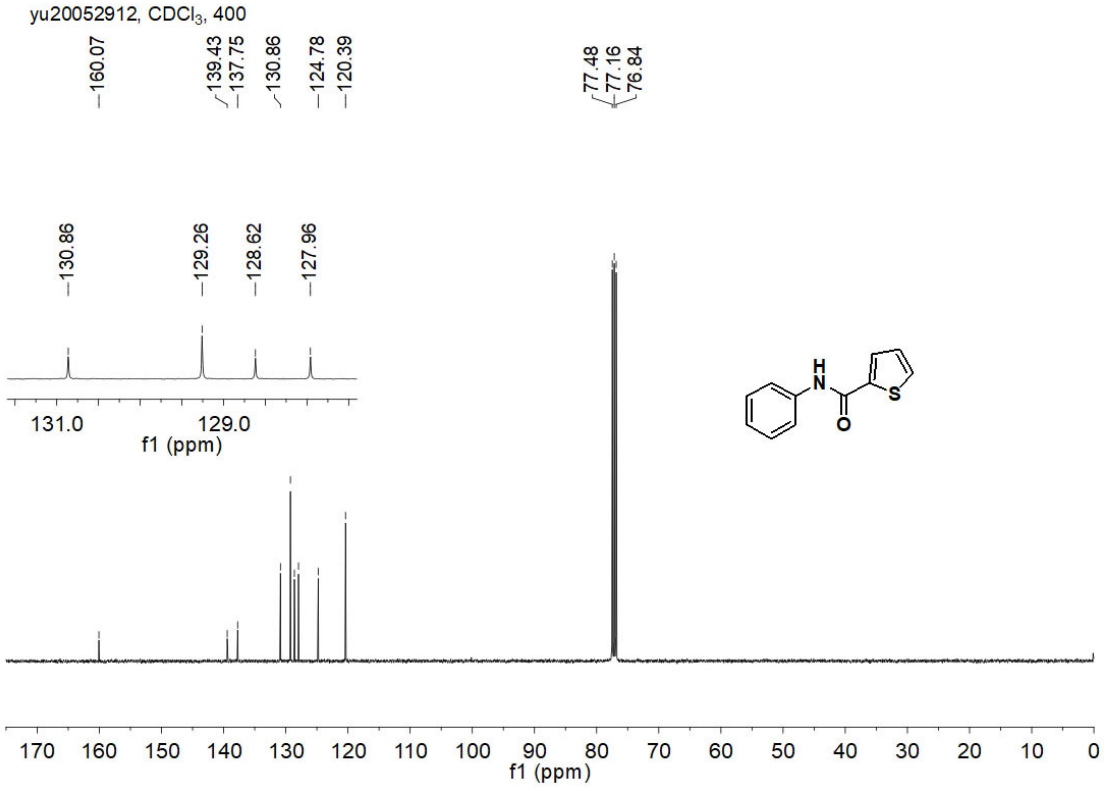
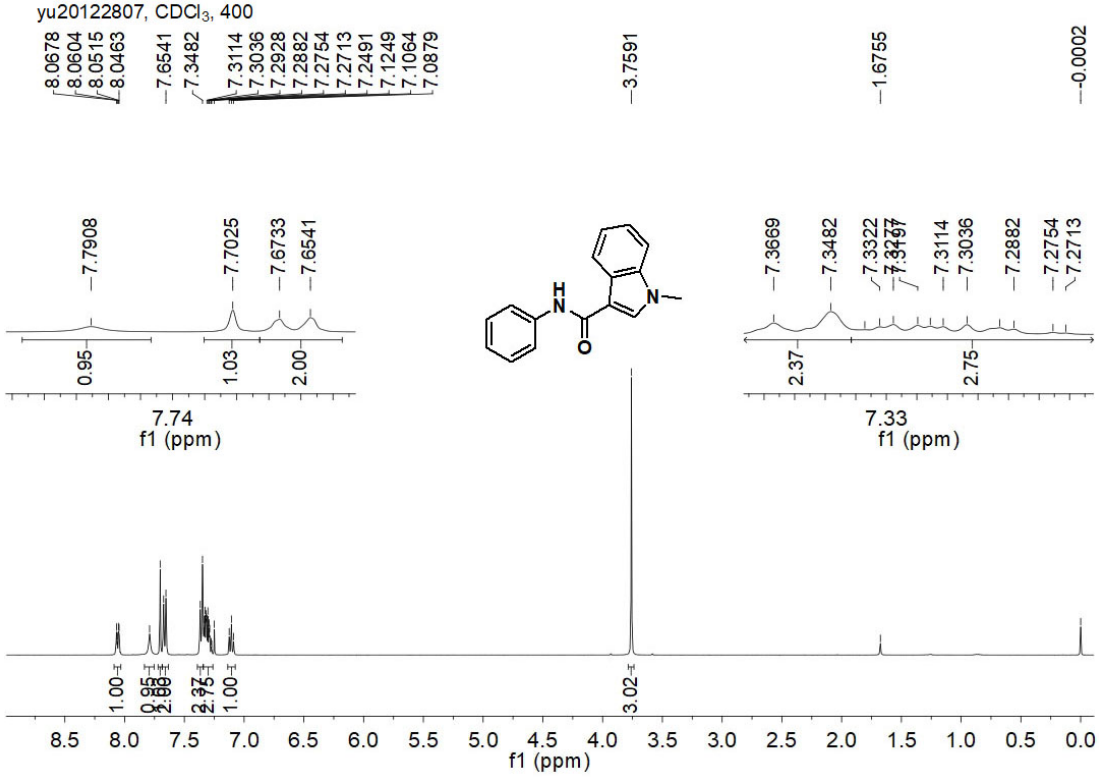
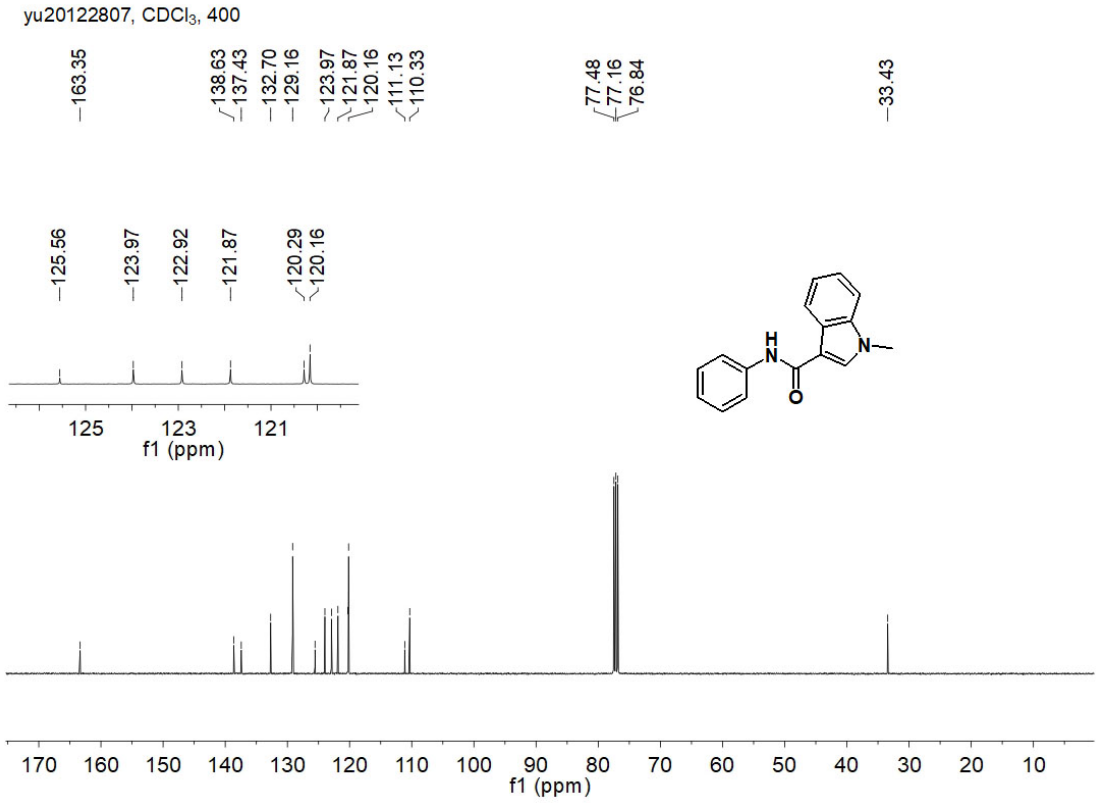


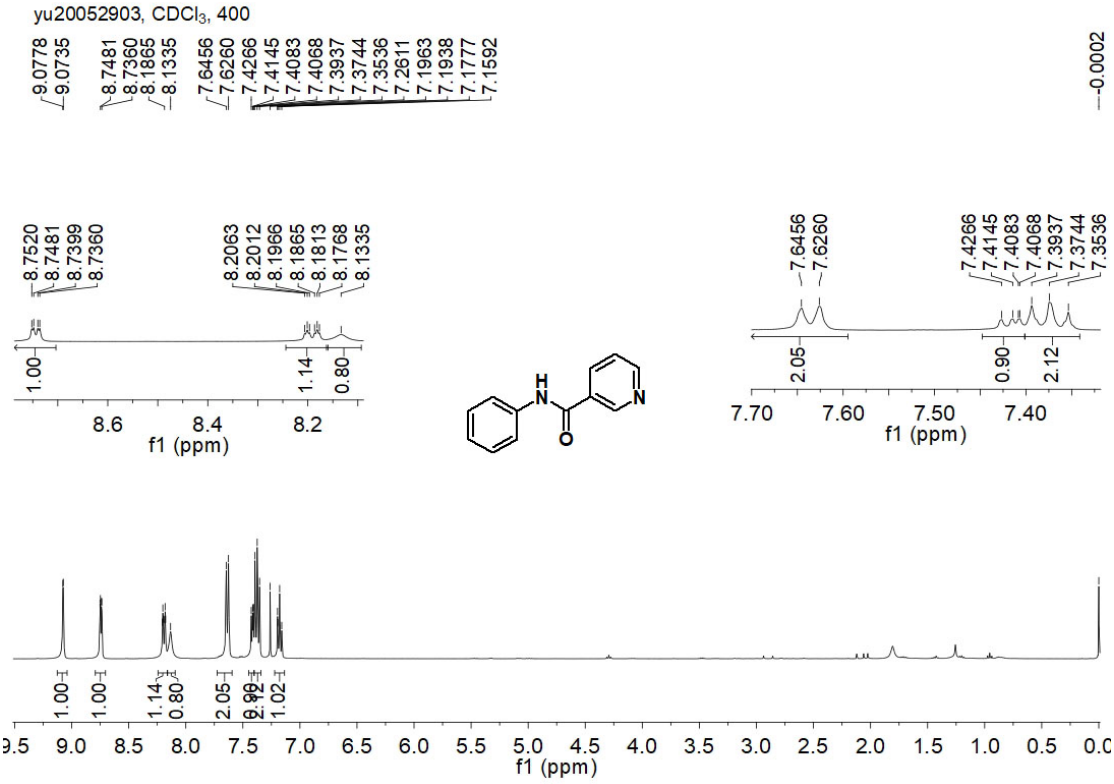
[13] CNMR of **4o**



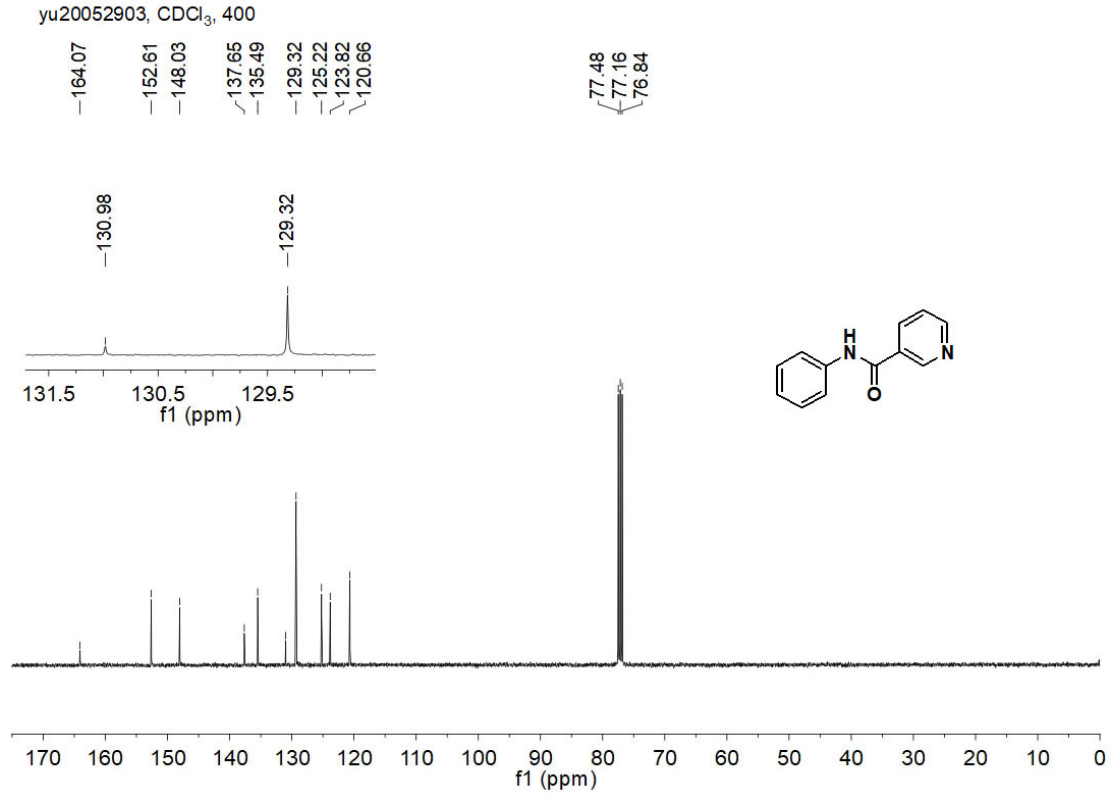
[1] HNMR of **4p**



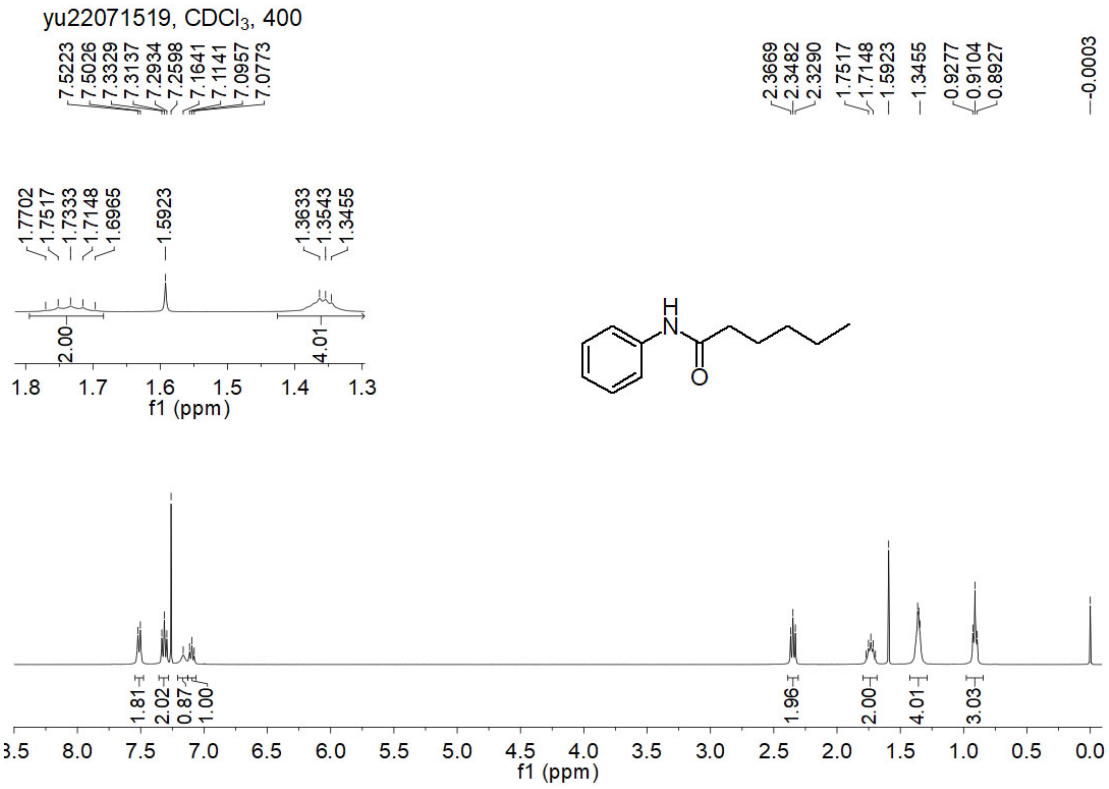
[13] CNMR of **4p**



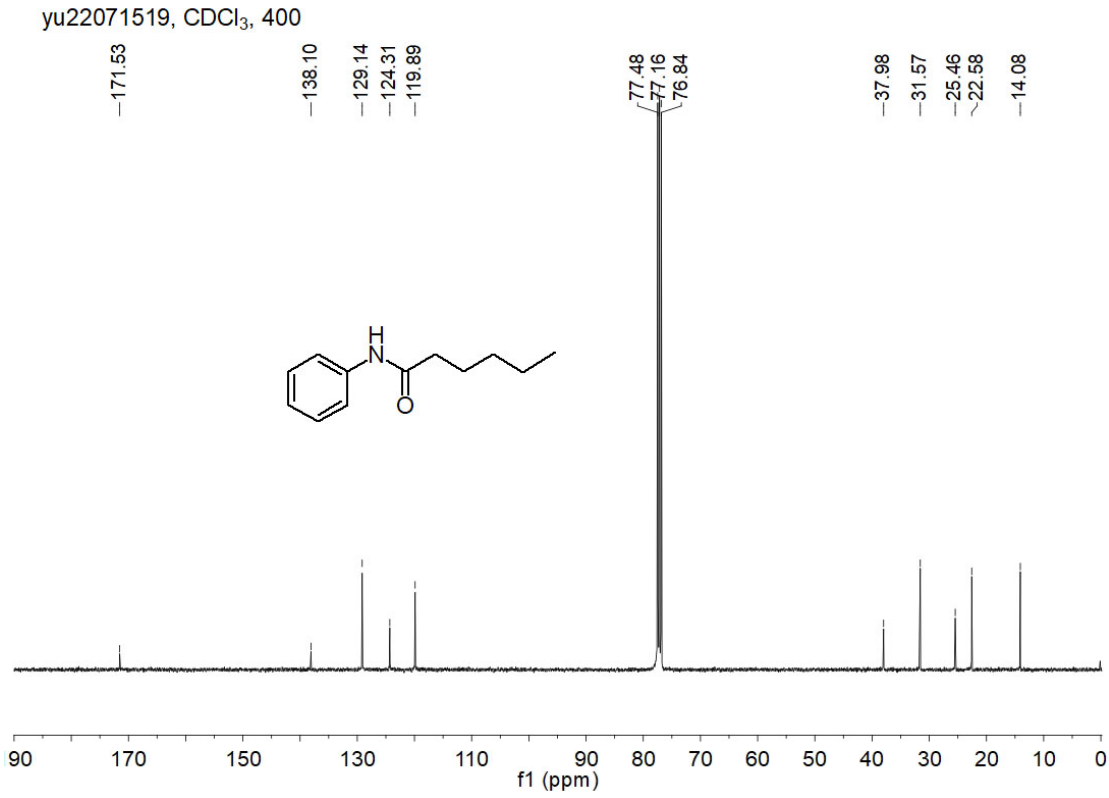
[1] HNMR of **4q**



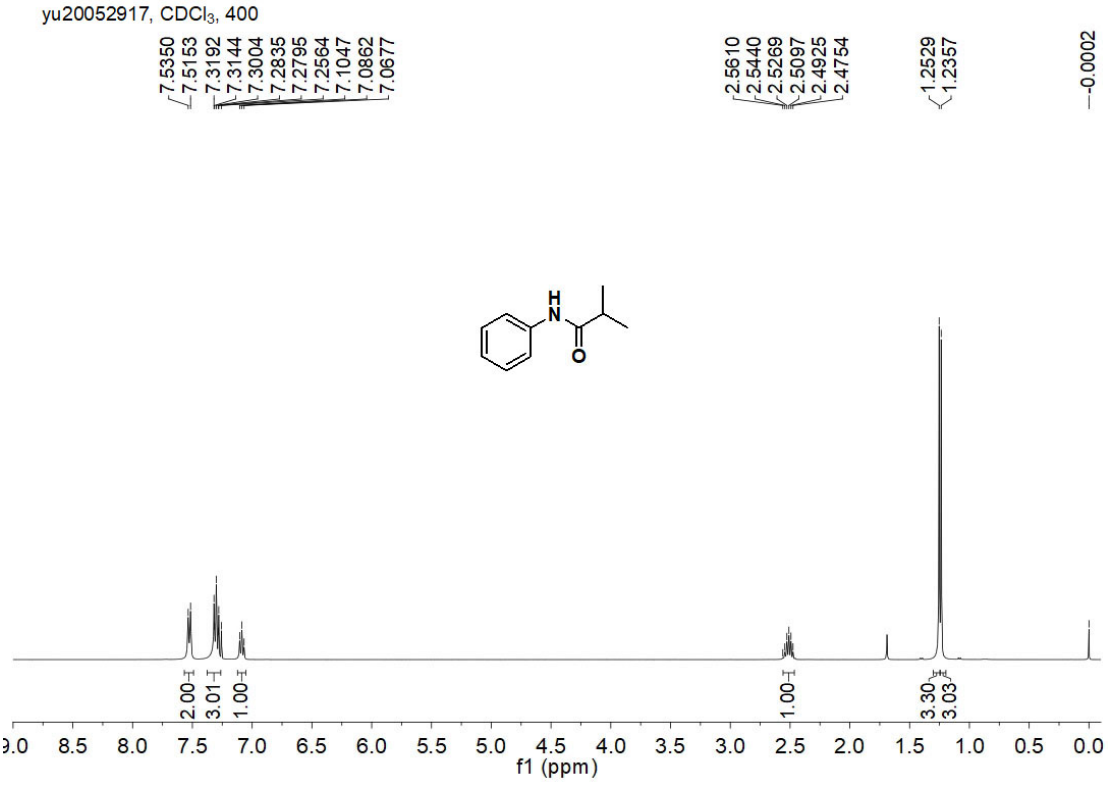
[13] CNMR of **4q**



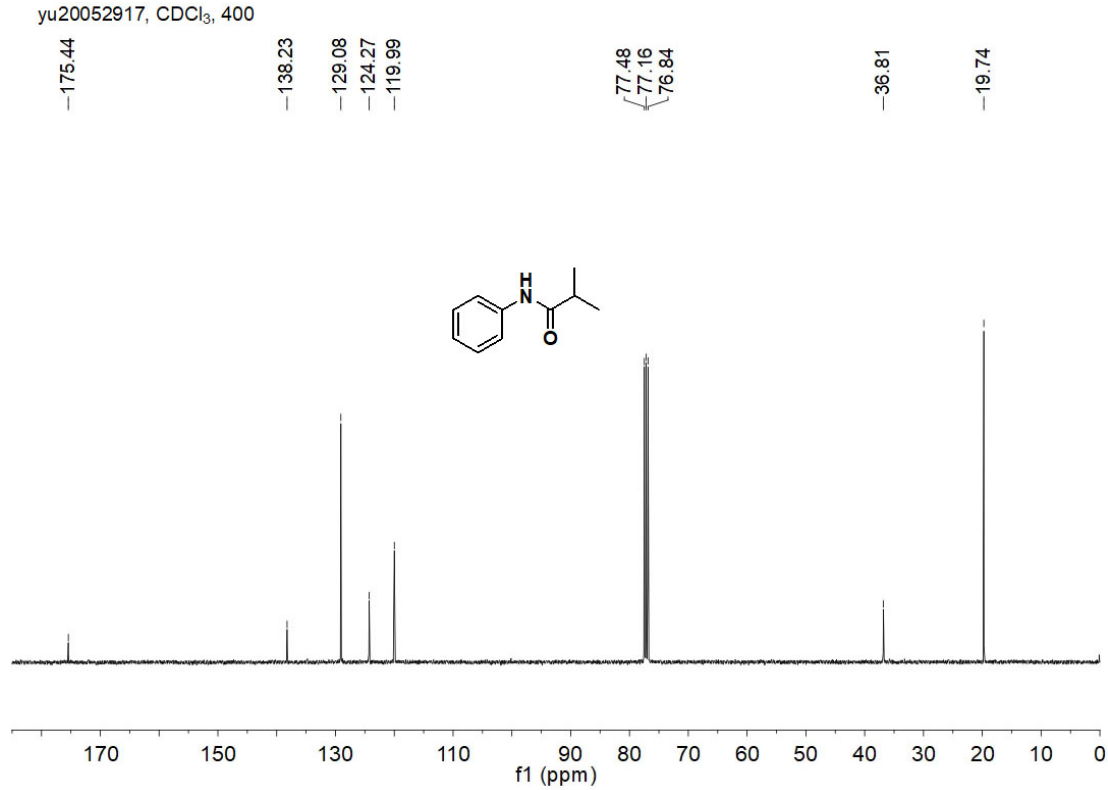
[1] HNMR of **4r**



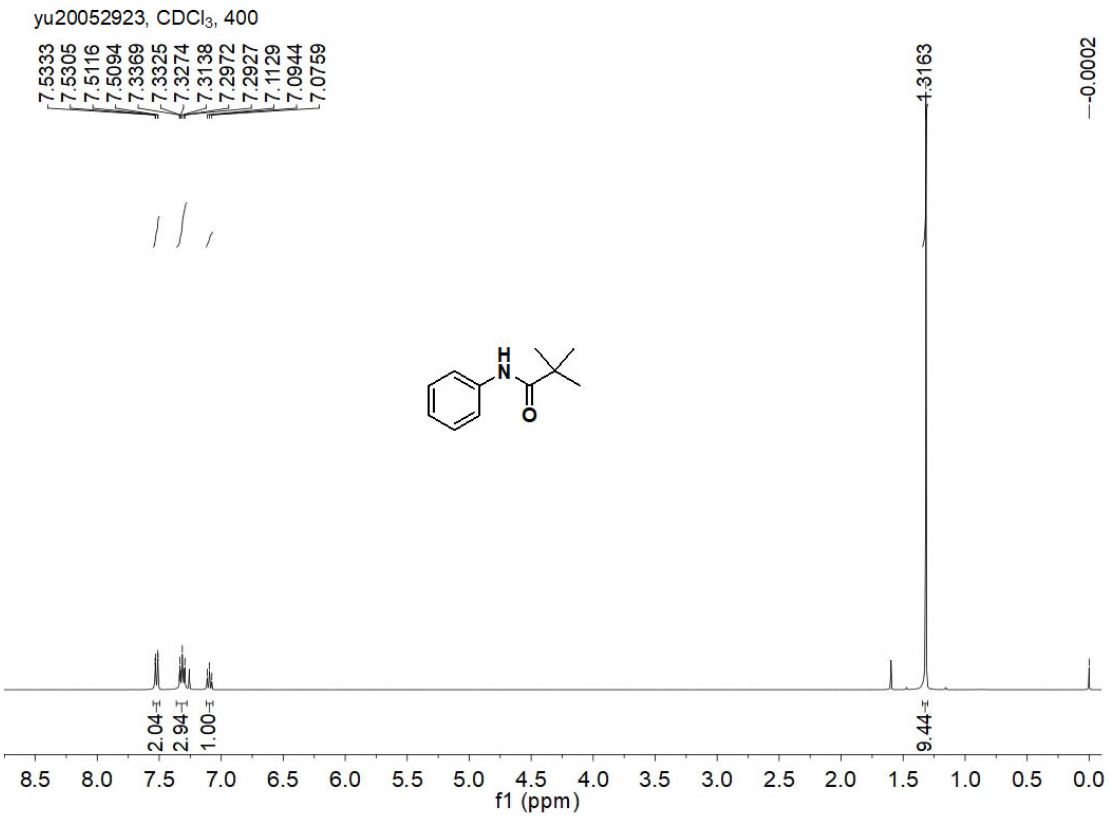
[13] CNMR of **4r**



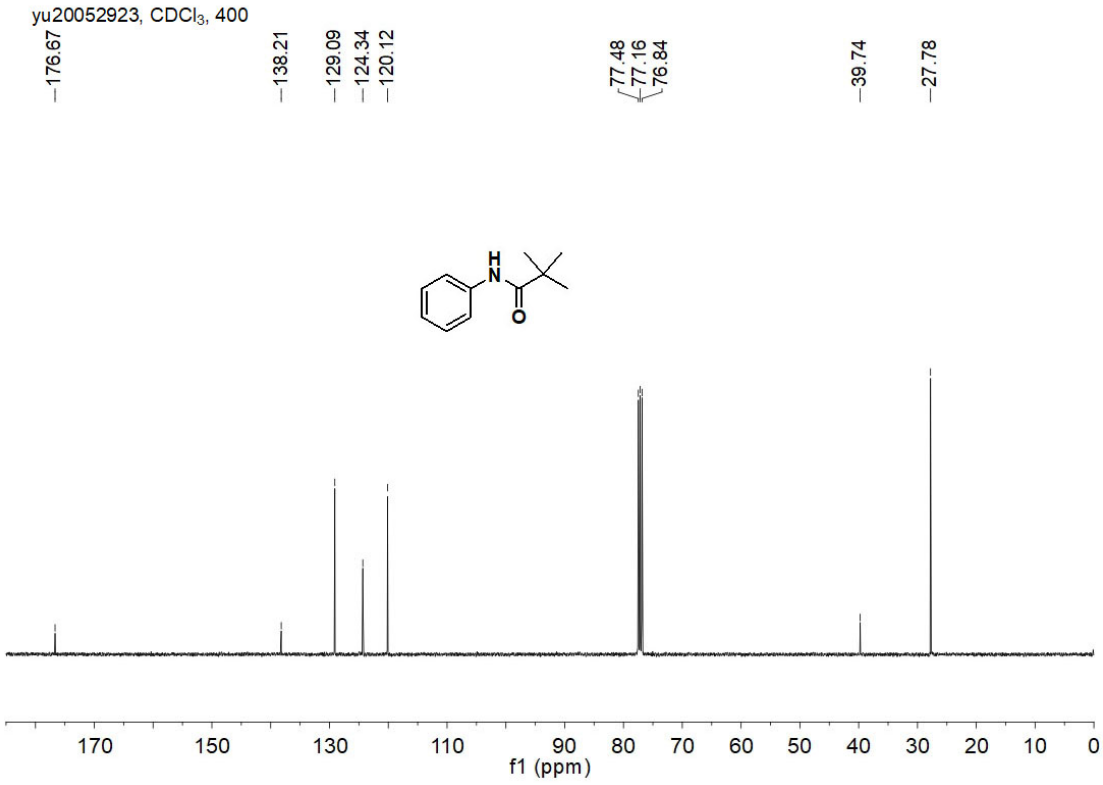
[1] HNMR of **4s**



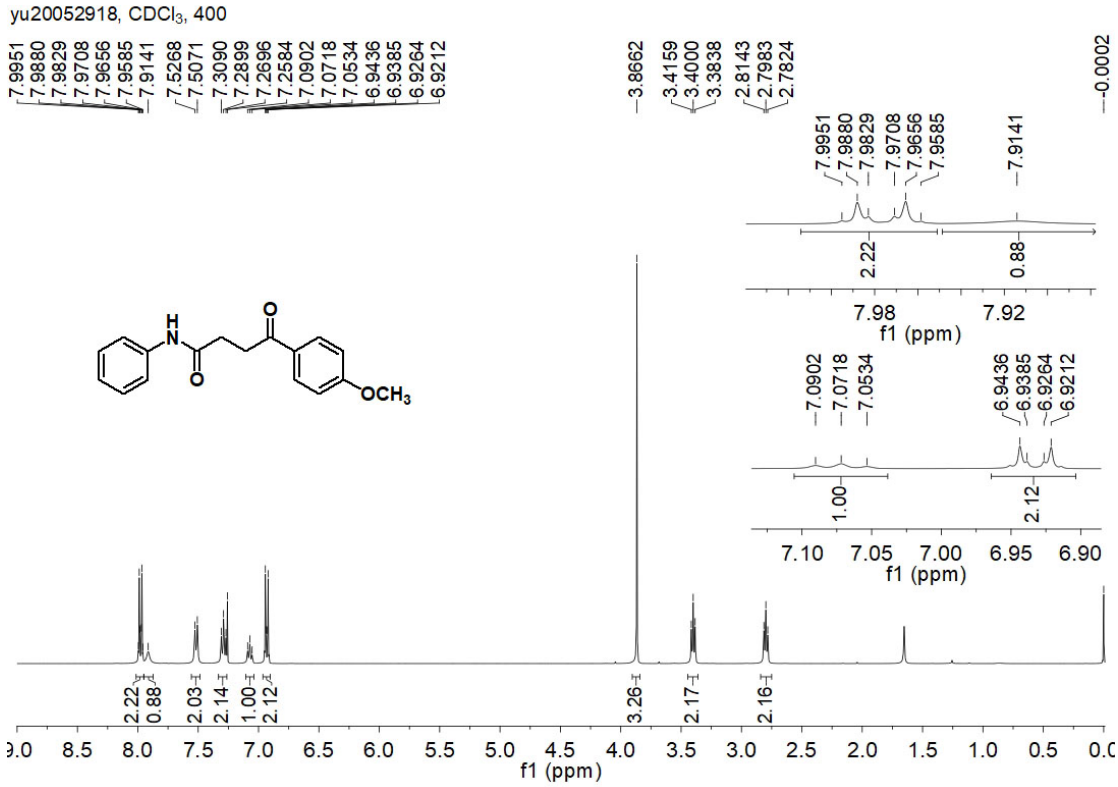
[13] CNMR of **4s**



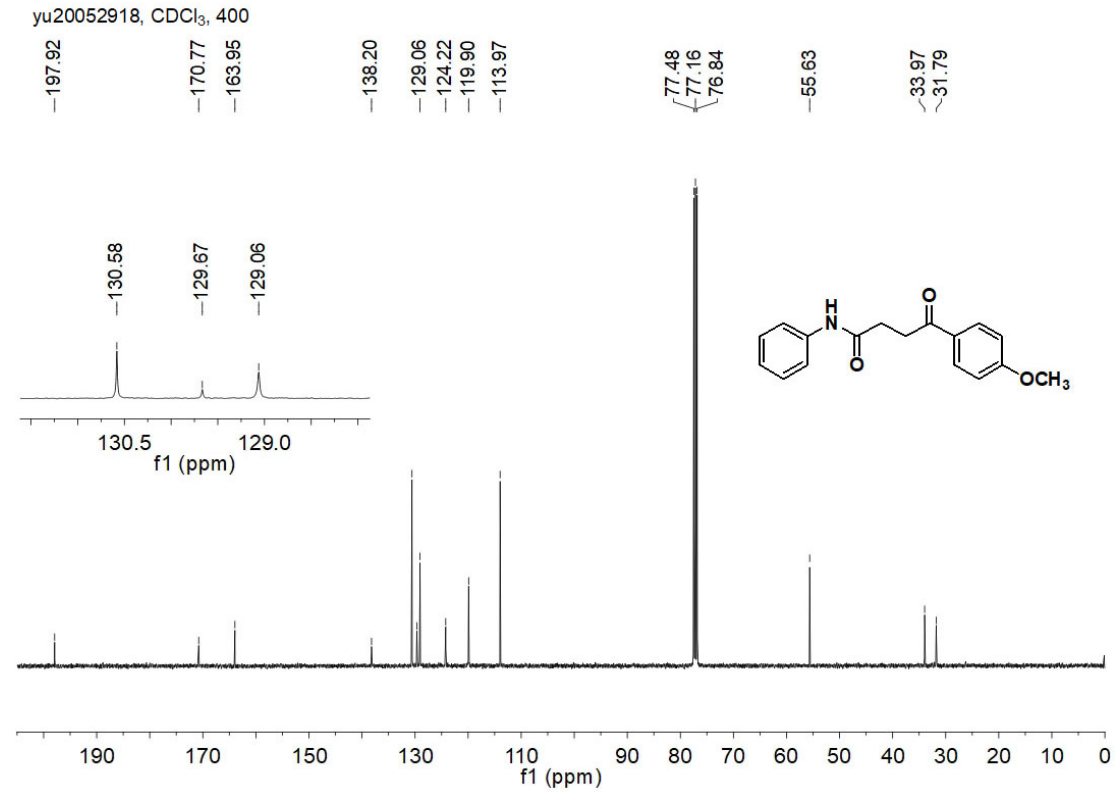
[1] HNMR of **4t**



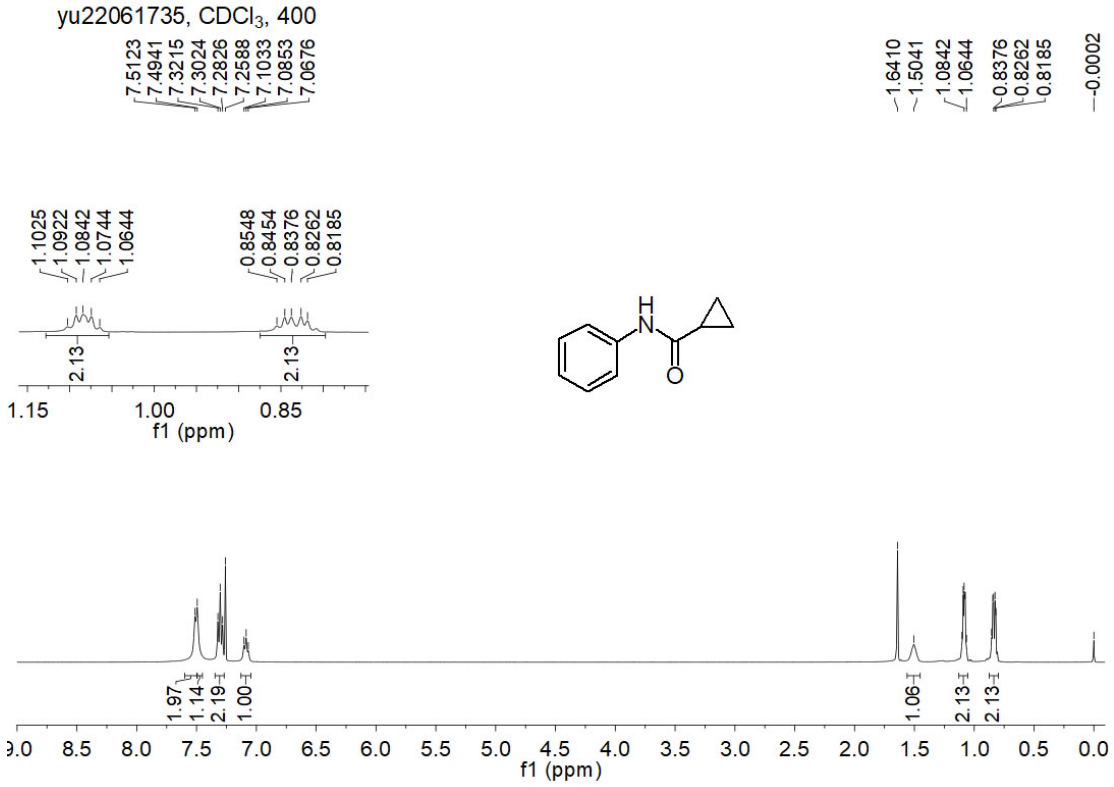
[13] CNMR of **4t**



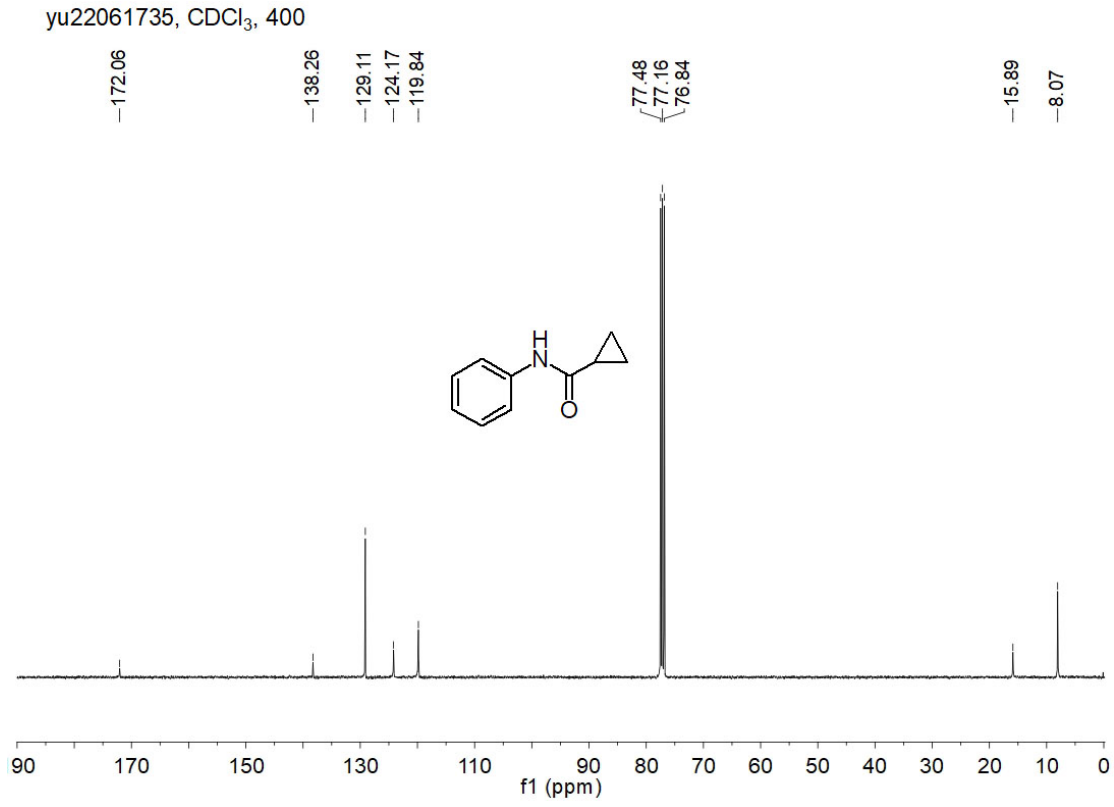
[1] HNMR of **4u**



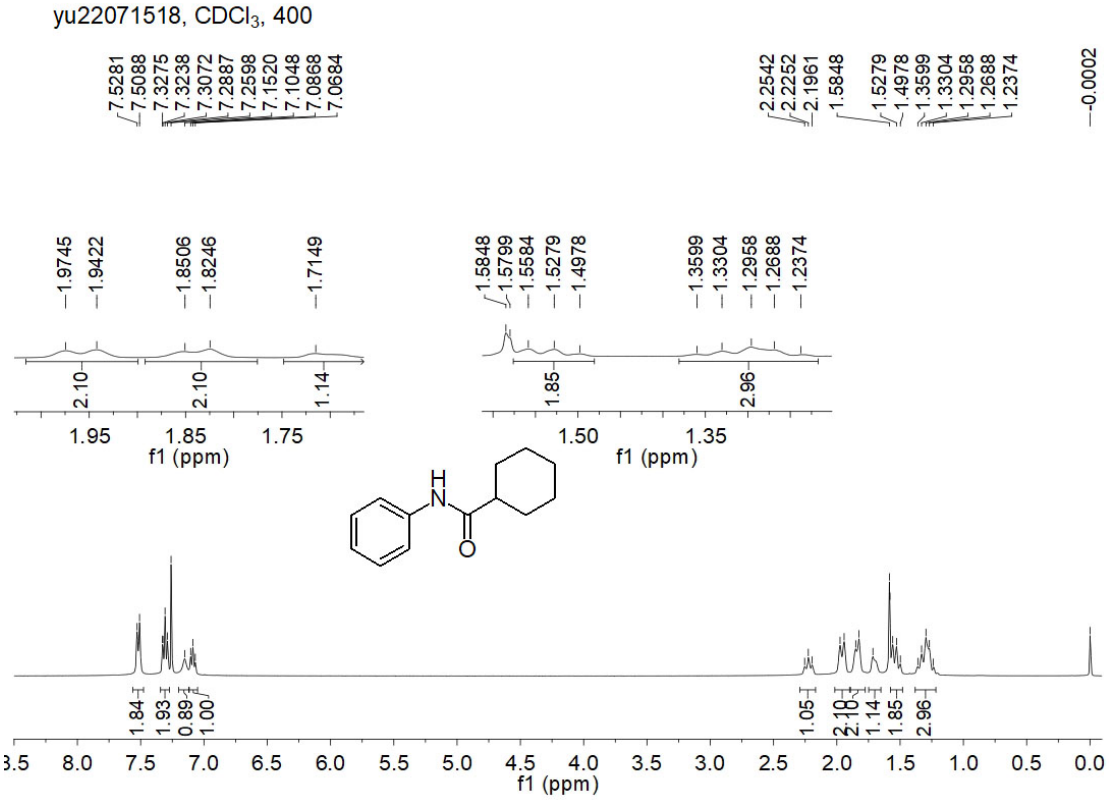
[13] CNMR of **4u**



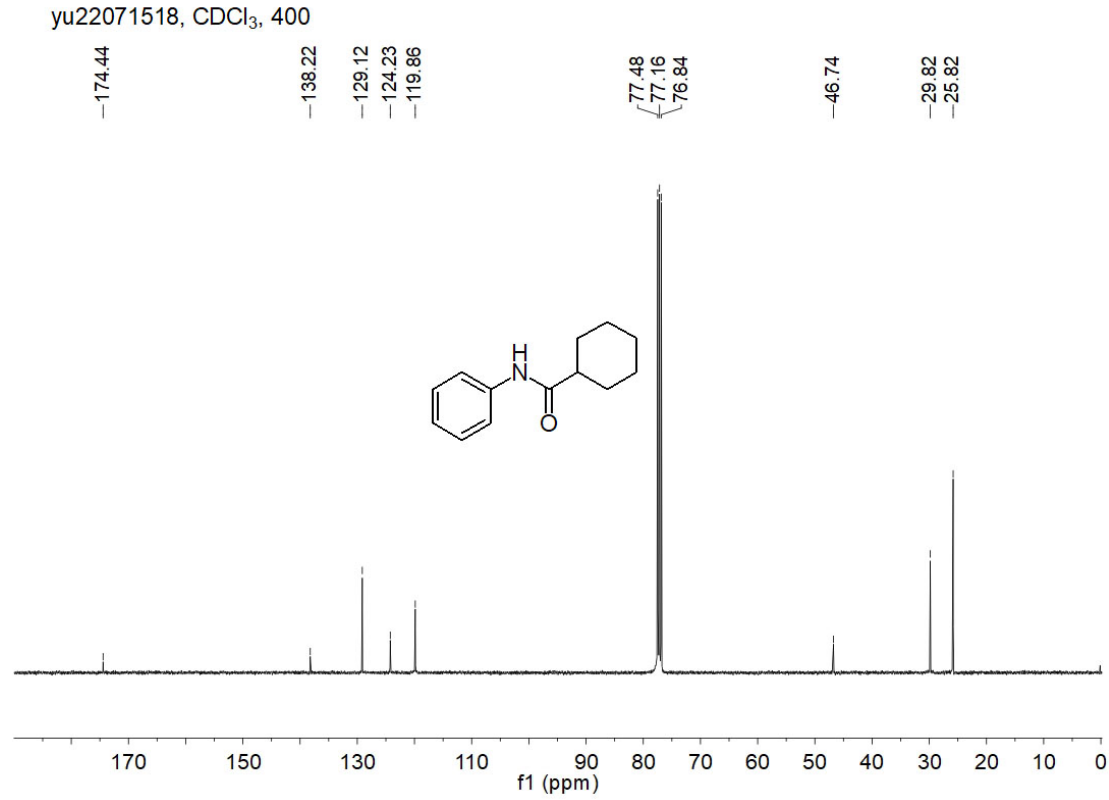
[1] HNMR of **4v**



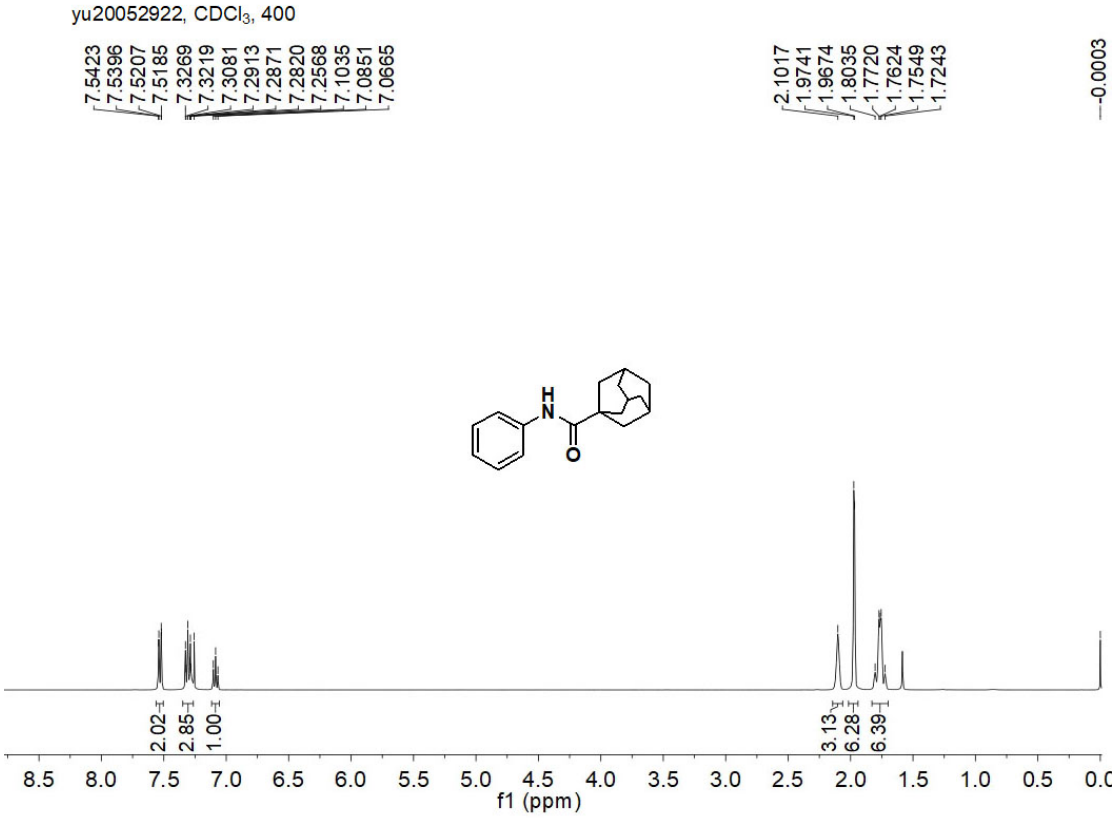
[13] CNMR of **4v**



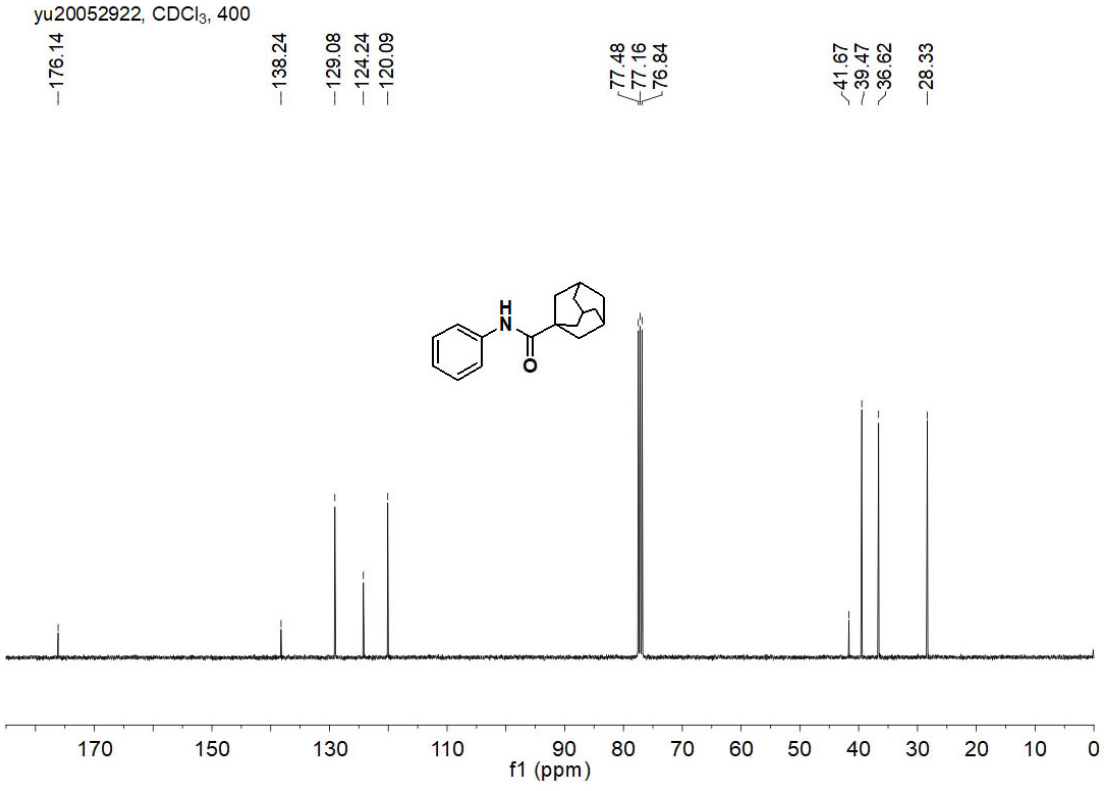
[1] HNMR of **4w**



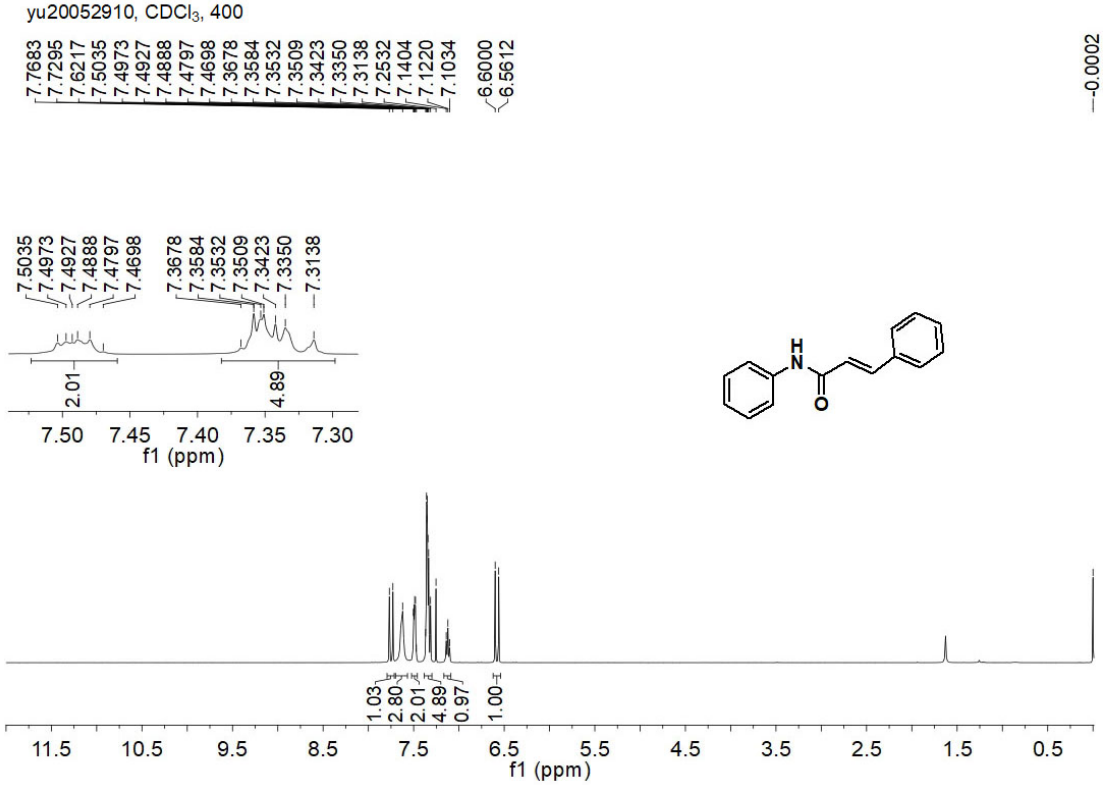
[13] CNMR of **4w**



[1] HNMR of **4x**



[13] CNMR of **4x**



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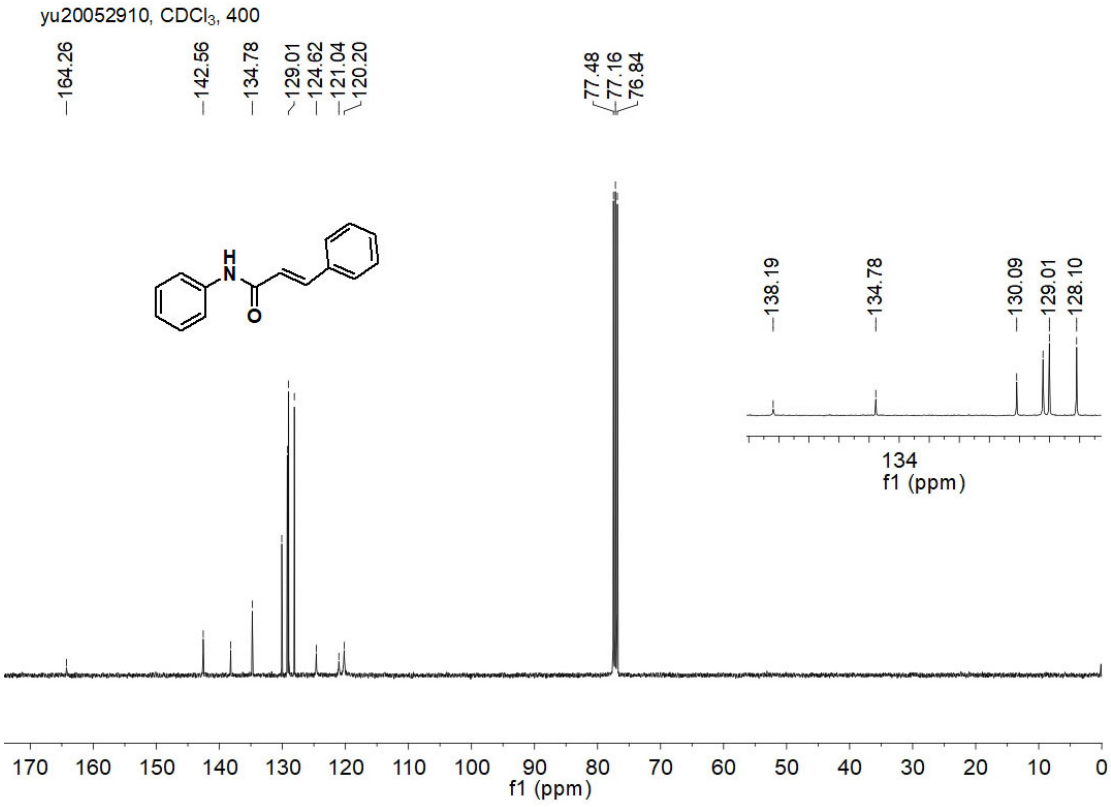
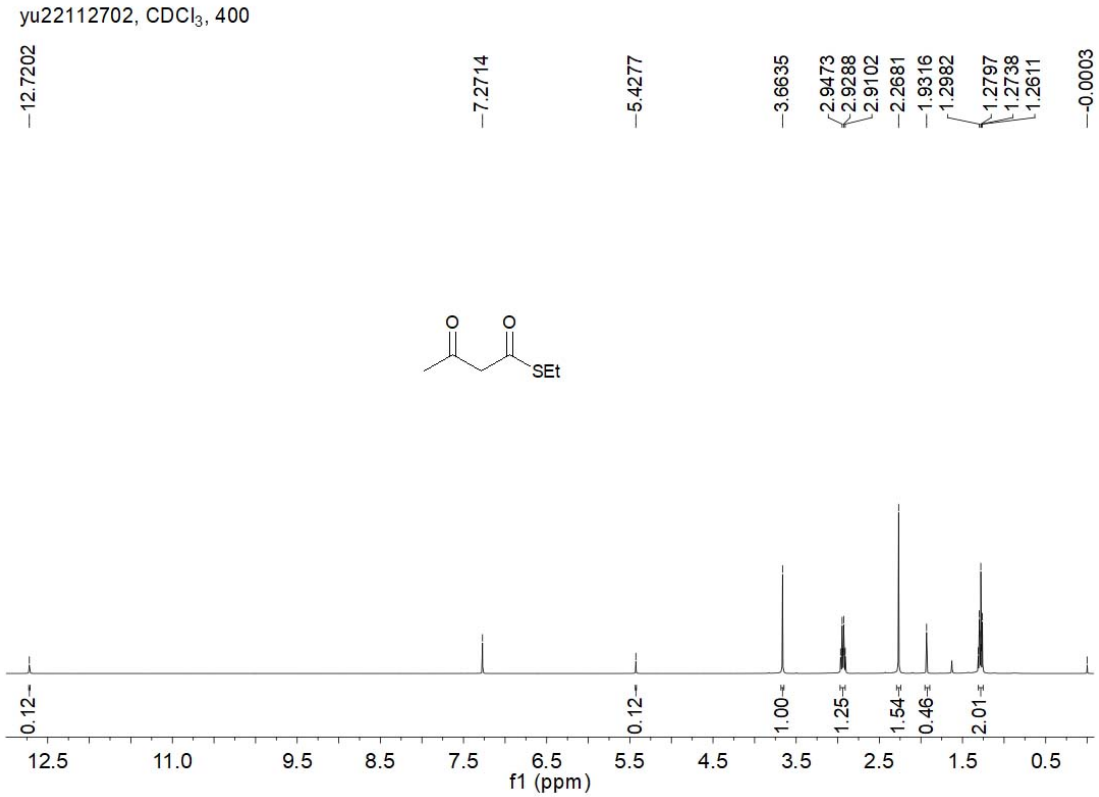
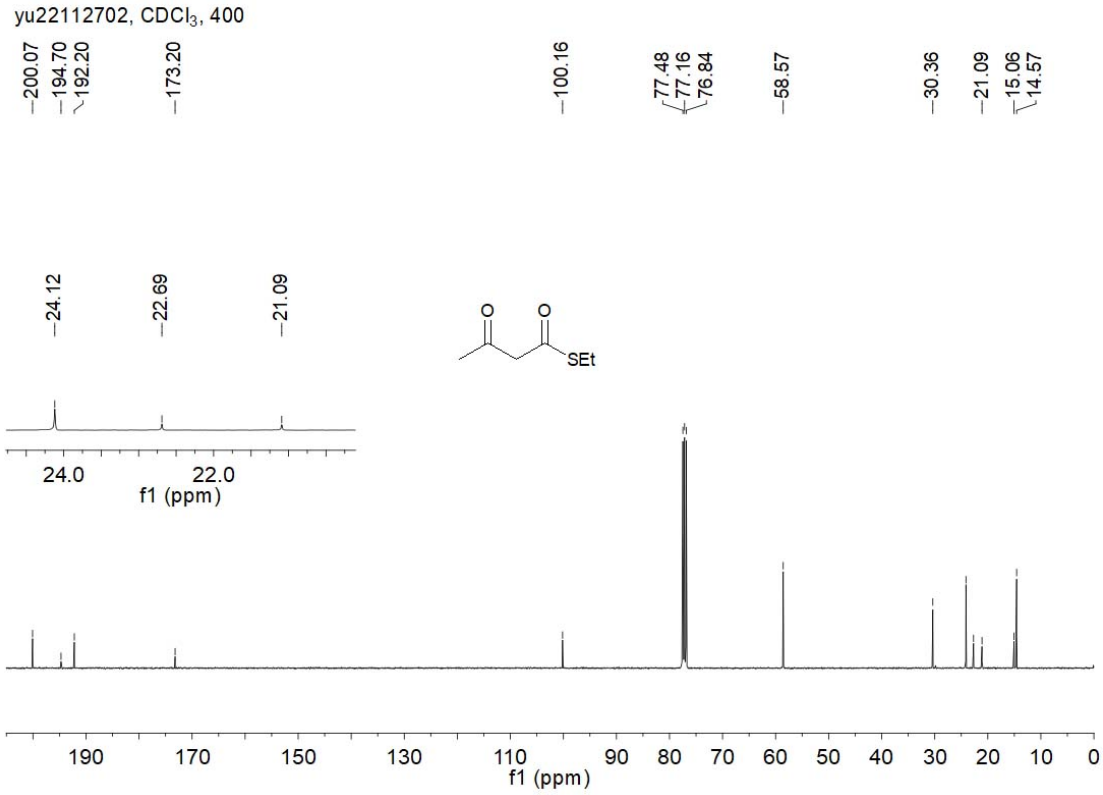


[13] CNMR of **4y**



[1] HNMR of A



[13] CNMR of A