

Supporting Information

A Straightforward Sequence to Alkyl 1*H*-Pyrrole-2,5-dicarboxylates

Starting from Acylhydrazono esters and Alkyl 2-Aroyl-1-

chlorocyclopropanecarboxylates

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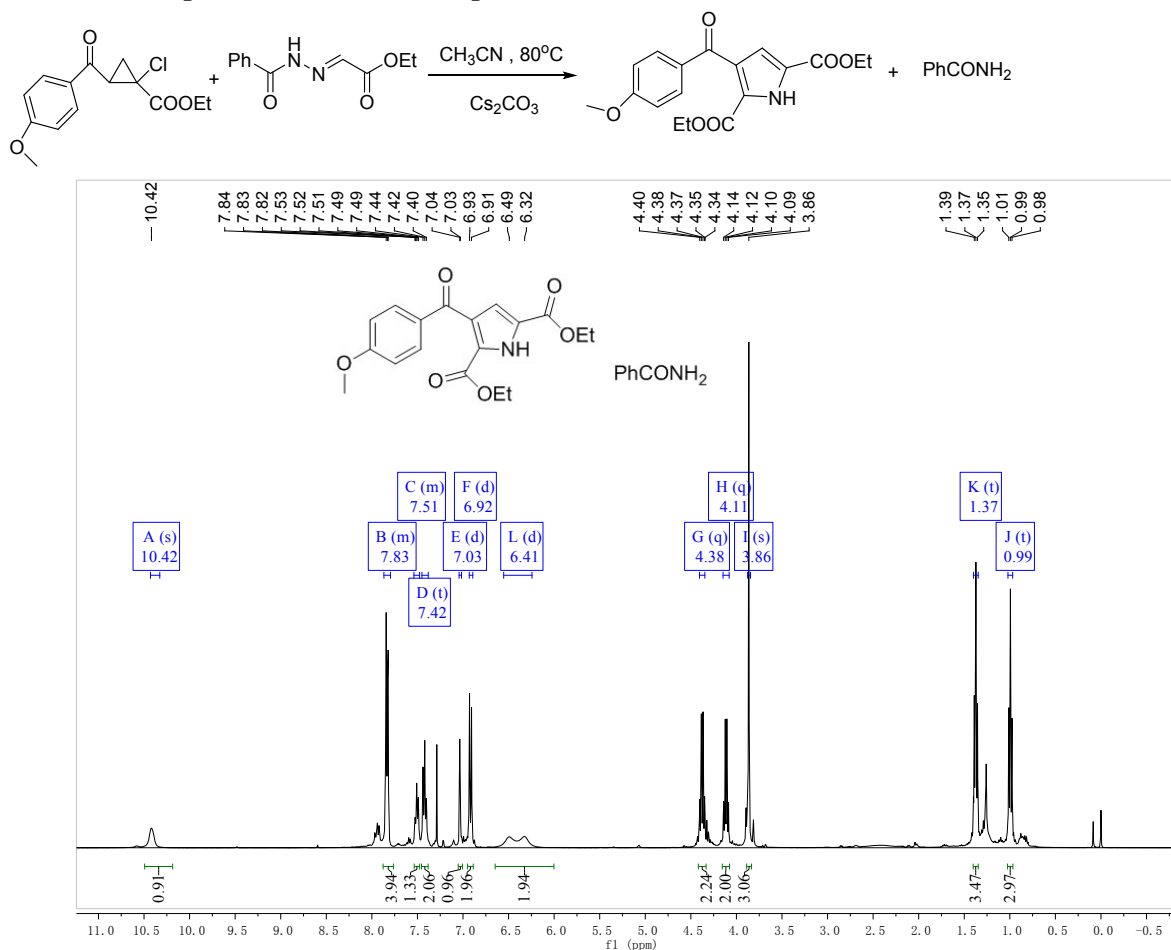
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Table of Contents

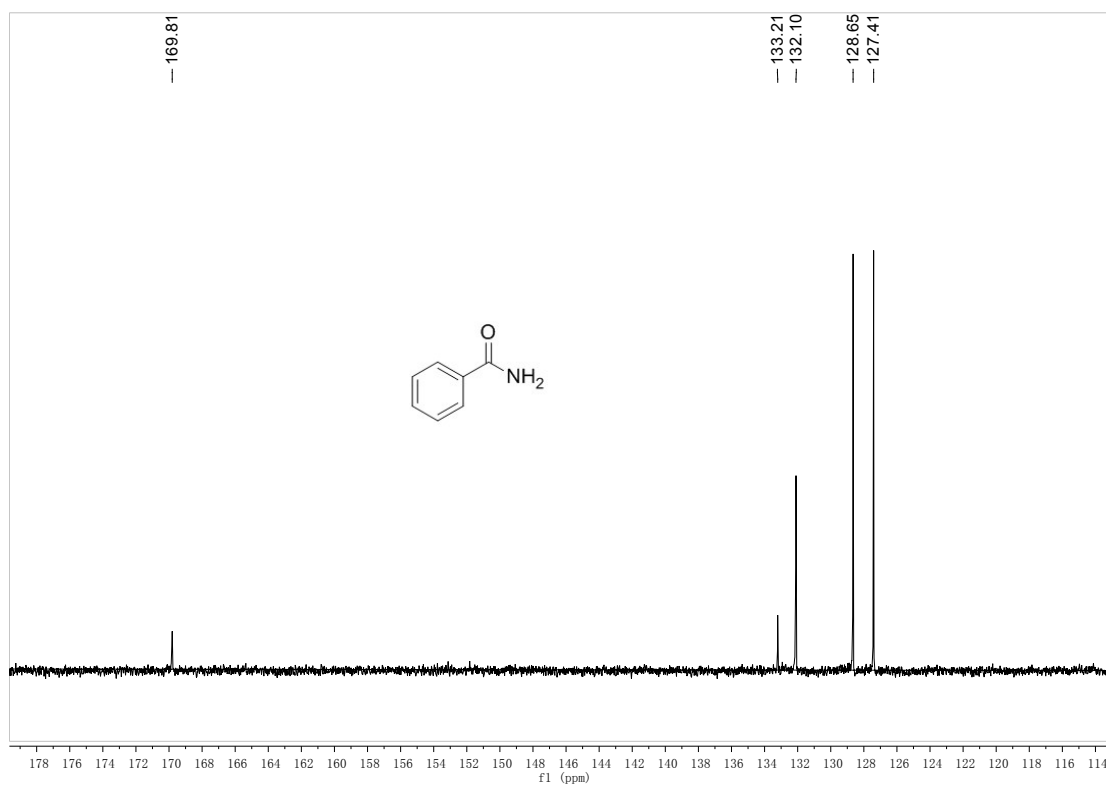
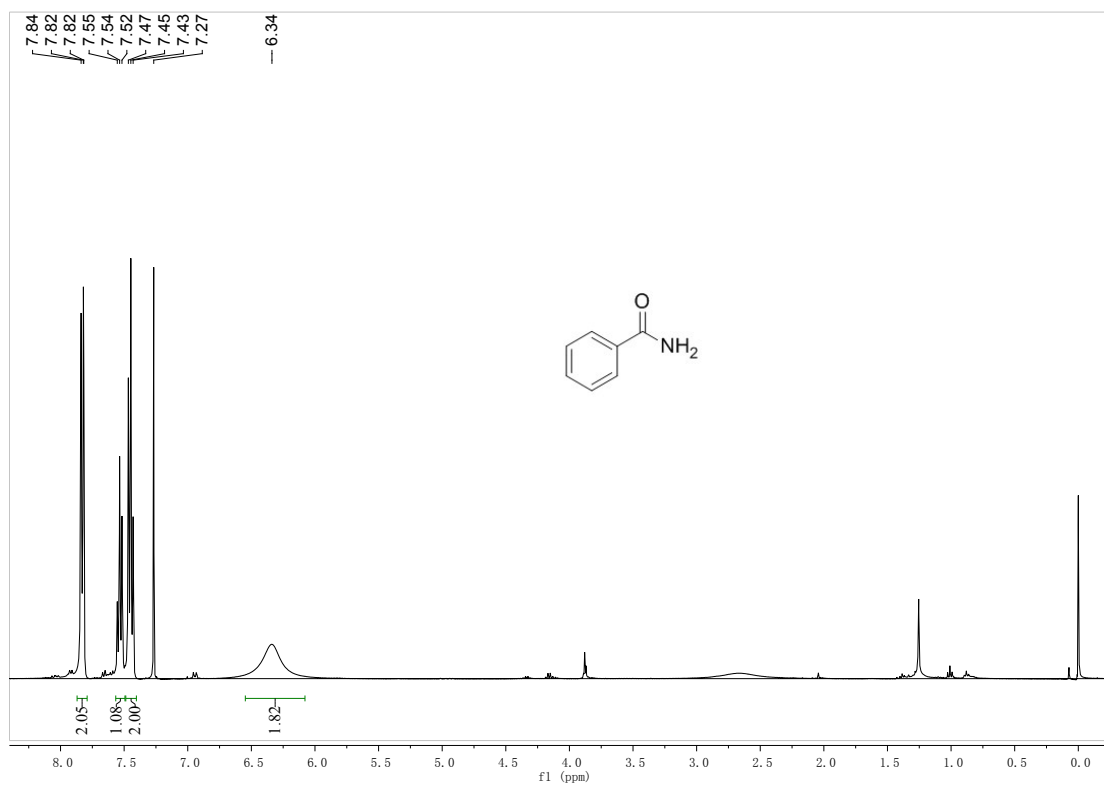
I. ¹ H NMR spectra of the reaction product.....	S2
II. NMR spectra for all new compounds.....	S4
III Crystallographic information for 3ba	S26

I, ¹H NMR spectra of the reaction product



¹H NMR (400 MHz, CDCl₃) δ 10.42 (s, 1H), 7.87 – 7.80 (m, 4H), 7.54 – 7.48 (m, 1H), 7.42 (t, *J* = 7.5 Hz, 2H), 7.03 (d, *J* = 2.7 Hz, 1H), 6.92 (d, *J* = 8.8 Hz, 2H), 6.41 (2H), 4.38 (q, *J* = 7.1 Hz, 2H), 4.11 (q, *J* = 7.1 Hz, 2H), 3.86 (s, 3H), 1.37 (t, *J* = 7.1 Hz, 3H), 0.99 (t, *J* = 7.1 Hz, 3H).

General Procedure: A mixture of 0.2 mmol of **1c**, 0.2 mmol of **2a** and 0.4 mmol of Cs₂CO₃ in 2mL CH₃CN was stirred at 80°C until the starting materials disappeared by TLC analysis. Then the solvent CH₃CN was removed under reduced pressure. The mixture was then washed with water and extracted with CH₂Cl₂ for three times. Combined extracts were dried over anhydrous Na₂SO₄ and concentrated under reduced pressure. The residue was dissolved in CDCl₃ and measured by ¹H NMR spectroscopy. The chemical shift at 6.41 was assigned to be the CONH₂ of benzamide. The residue was eluted using petroleum ether and ethyl acetate (8:1 to 2:1) on silica gel column chromatography, the product **3** and benzamide are collected.



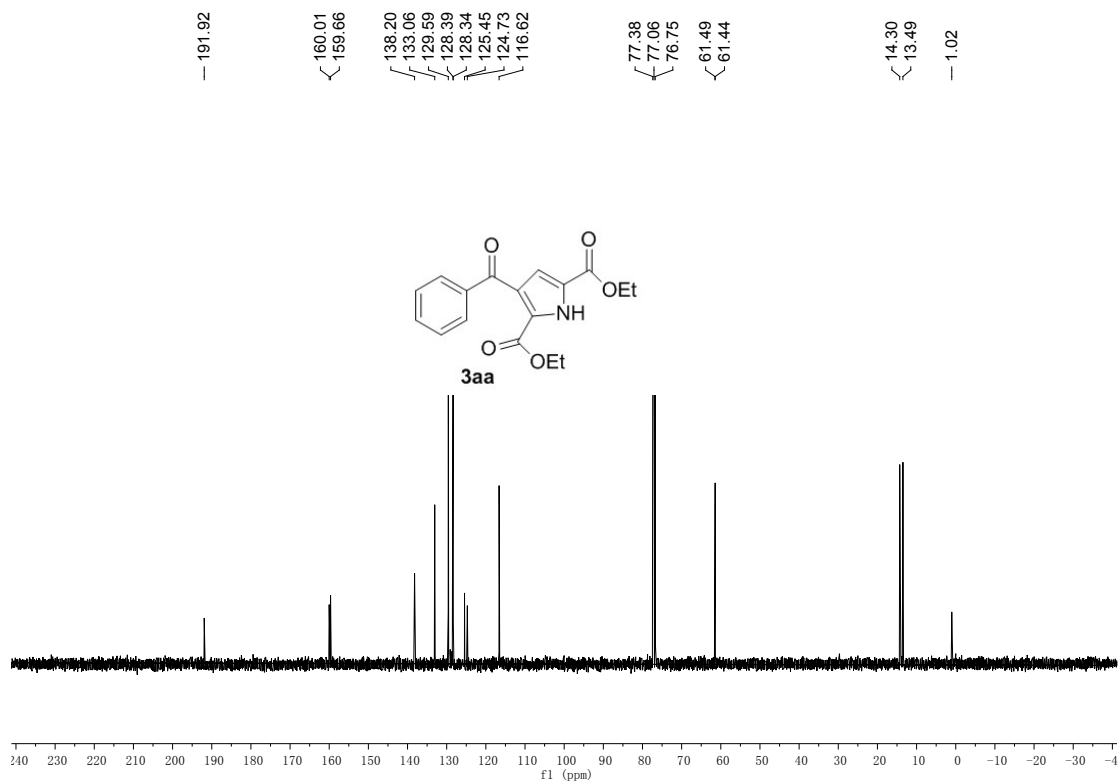
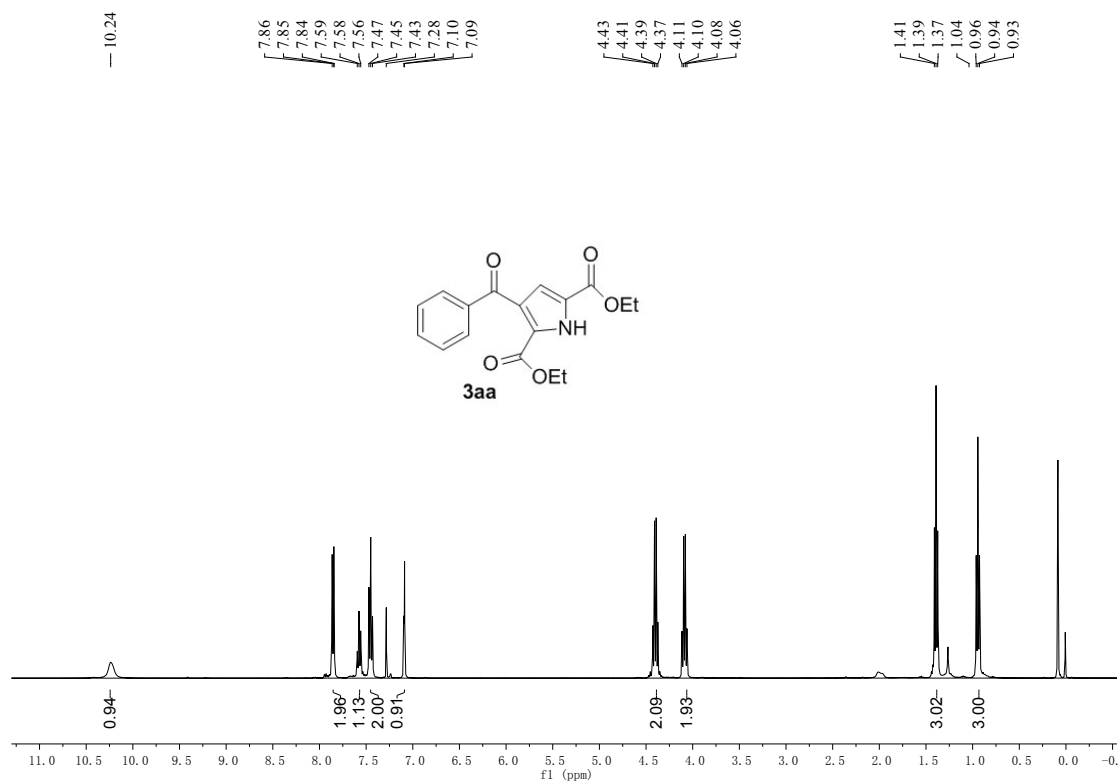
Spectroscopic data for benzamide:

¹H NMR (400 MHz, CDCl₃) δ 7.86 – 7.78 (m, 2H), 7.54 (t, *J* = 7.4 Hz, 1H), 7.45 (t, *J* = 7.5 Hz, 2H), 6.34 (s, 2H).

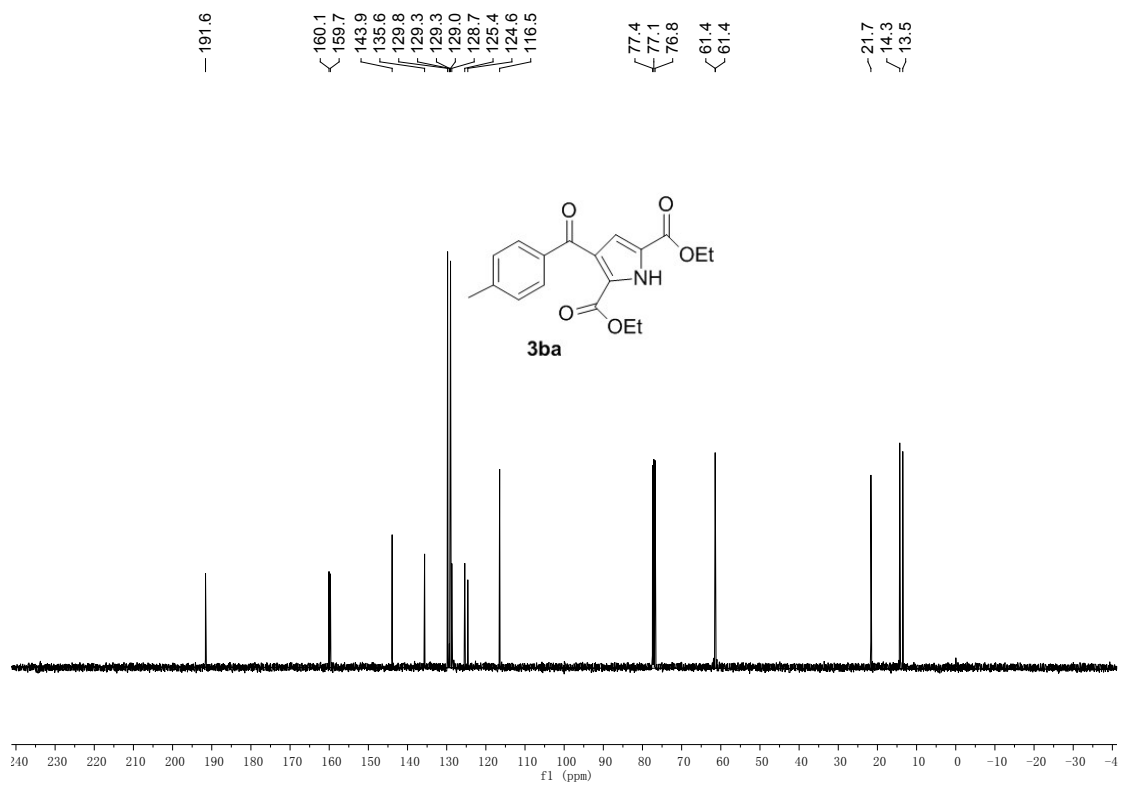
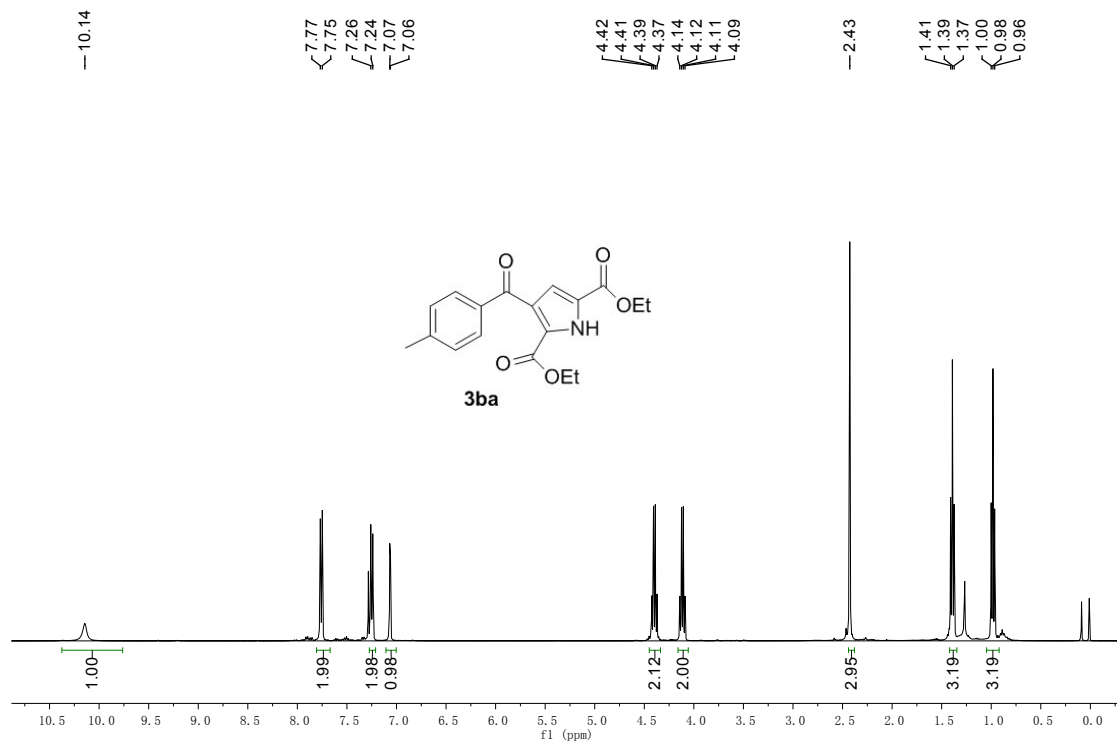
¹³C NMR (101 MHz, CDCl₃) δ 169.81, 133.21, 132.10, 128.65, 127.41.

II、NMR spectra for all new compounds

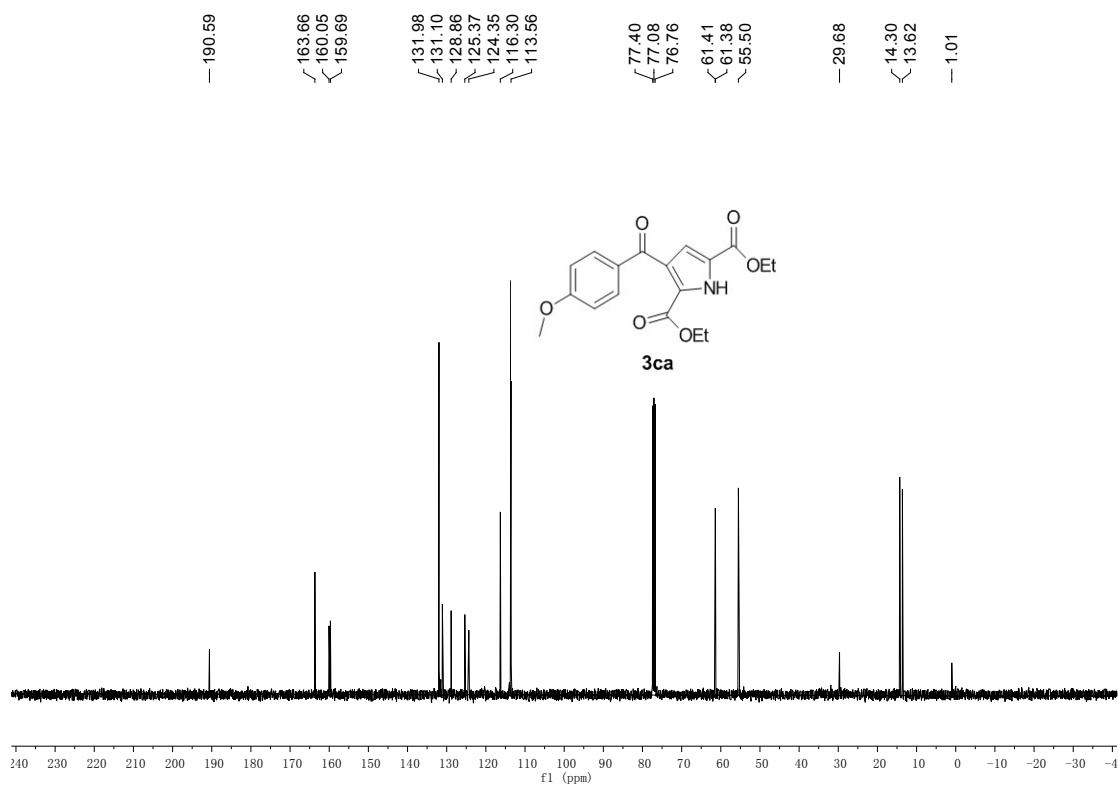
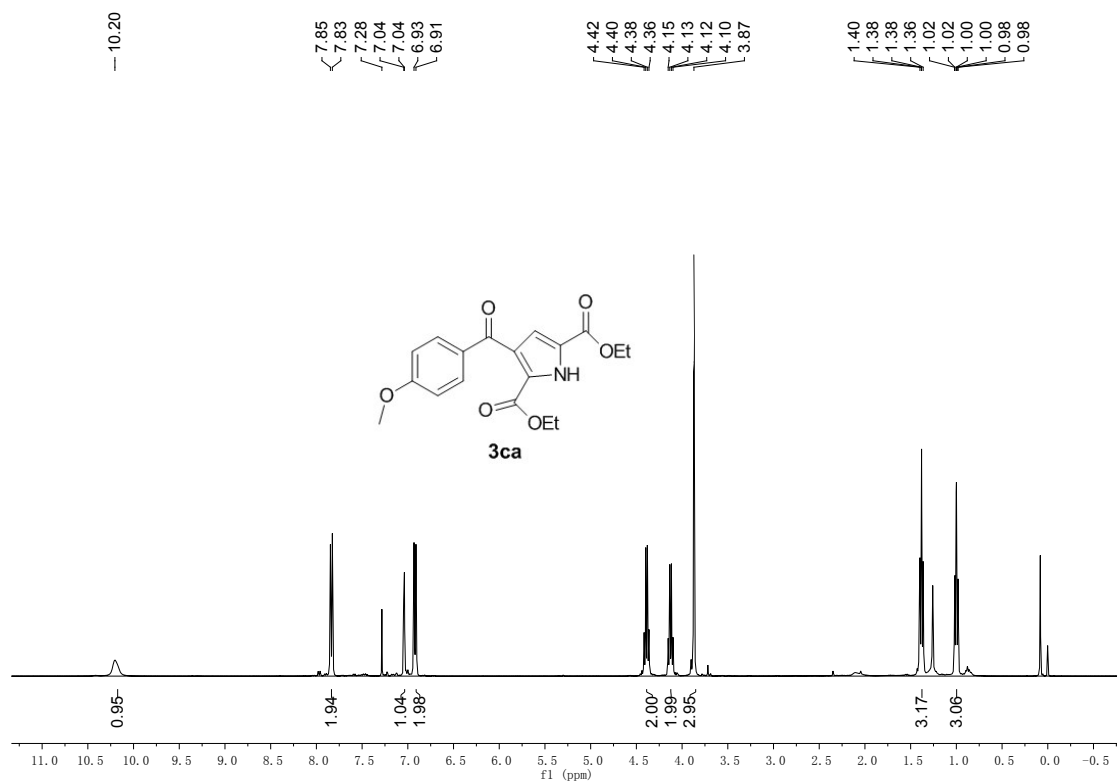
1、3aa



2. 3ba



3. 3ca



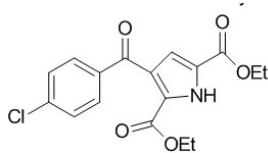
4. 3da

— 10.19

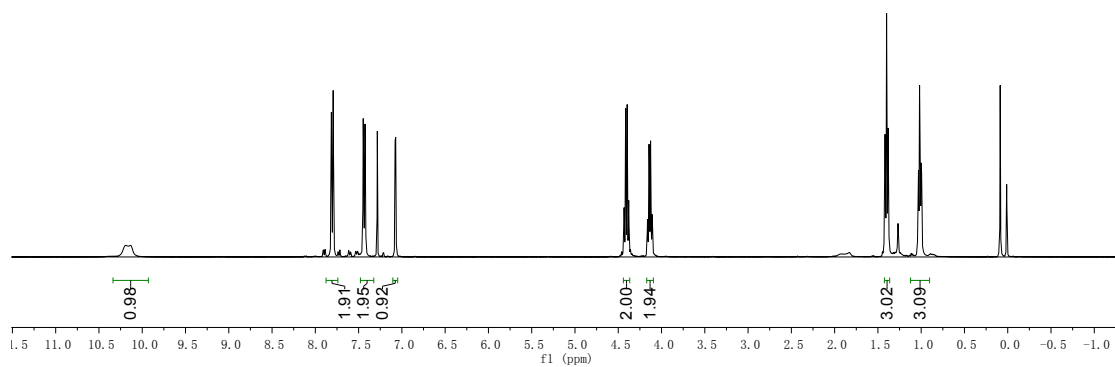
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7.79
7.45
7.43
7.08
7.07

4.43
4.41
4.40
4.38
4.16
4.14
4.13
4.11

1.42
1.40
1.38
1.03
1.02
1.01
1.00
0.09
0.01



3da

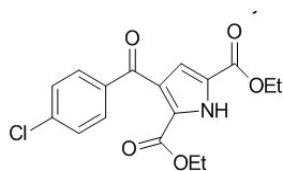


— 190.78

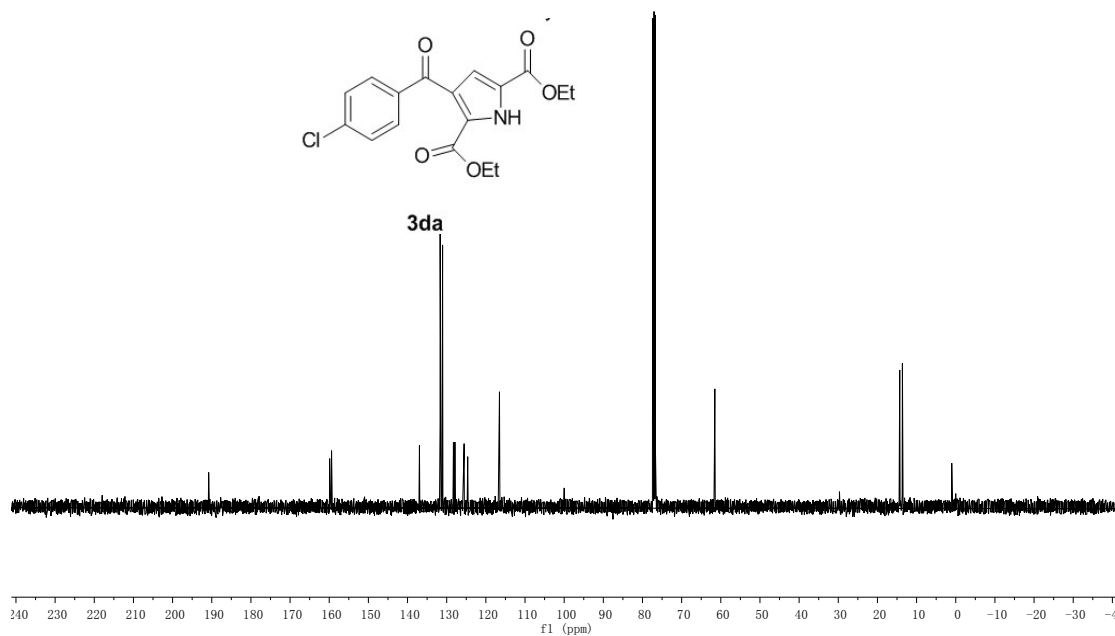
159.89
159.40
136.96
131.68
127.90
125.65
124.63
116.52

77.36
77.04
76.73
61.63
61.53

14.31
13.62
— 1.02

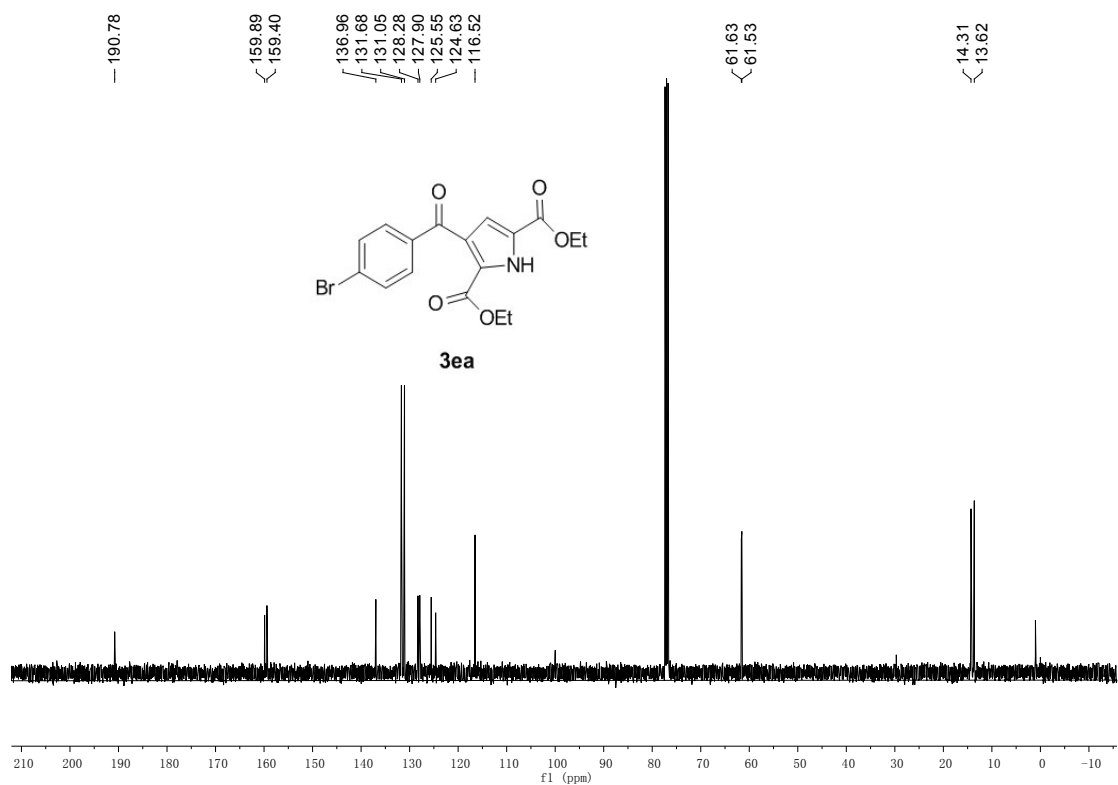
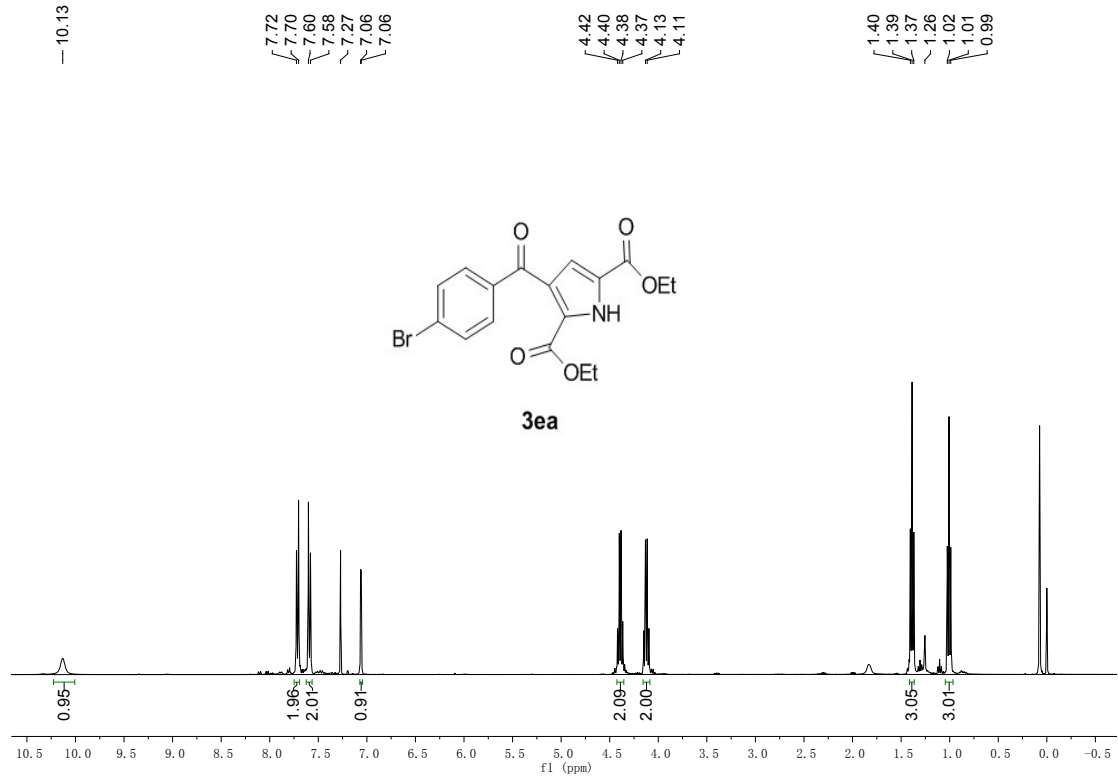


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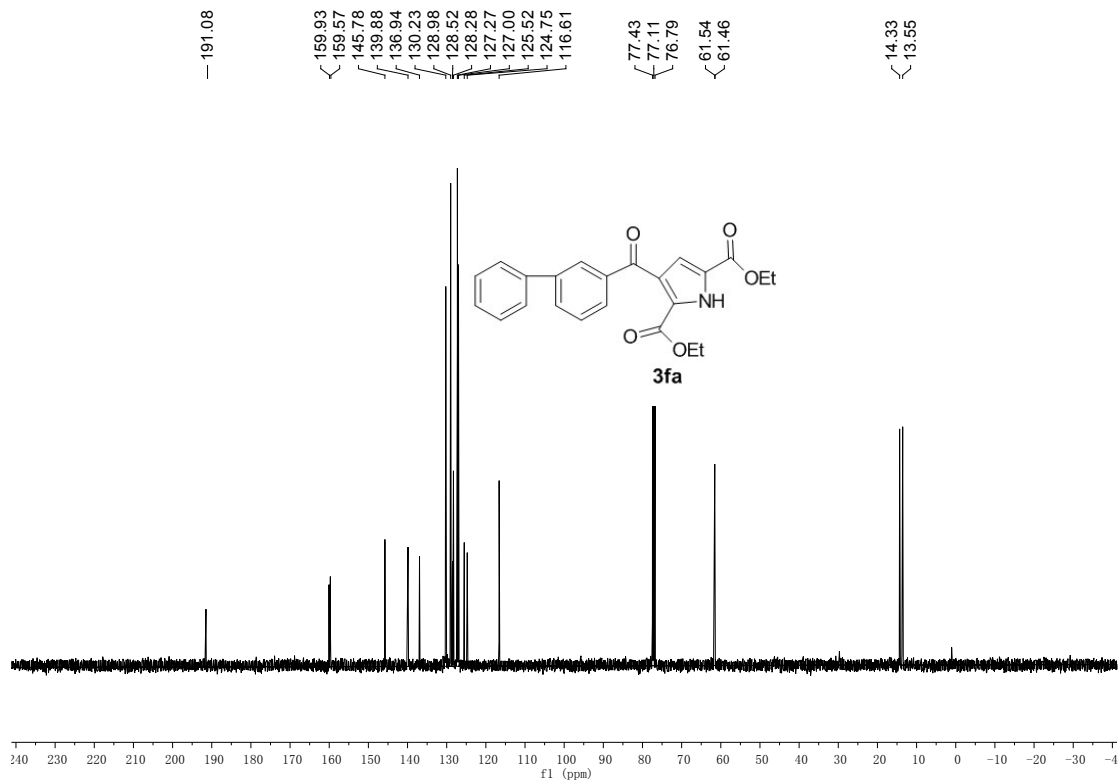
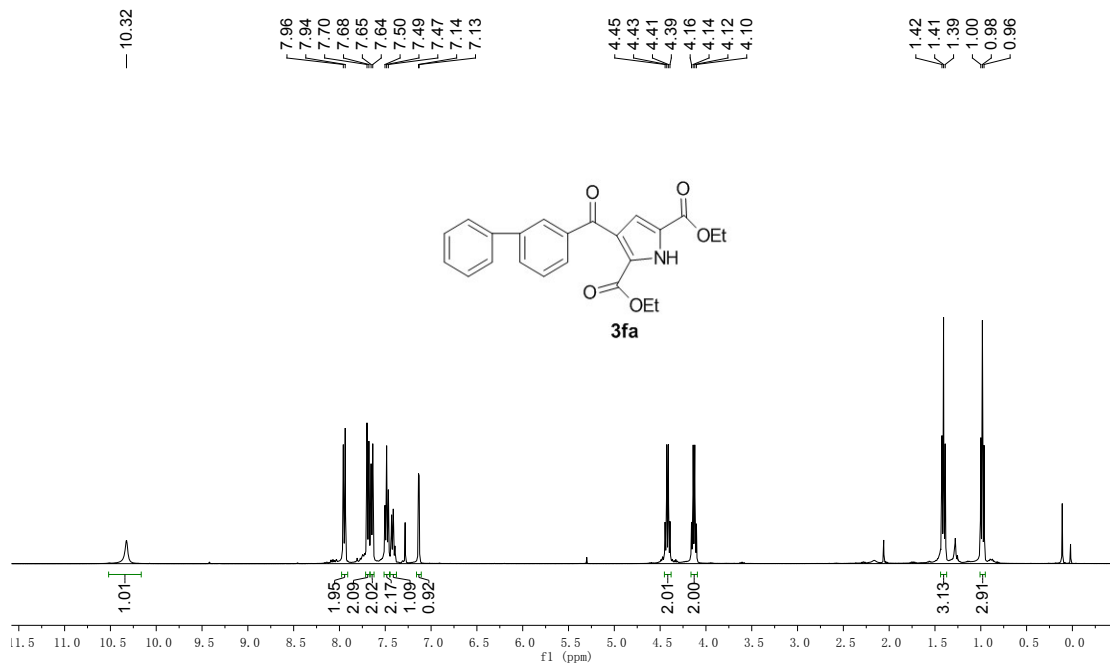


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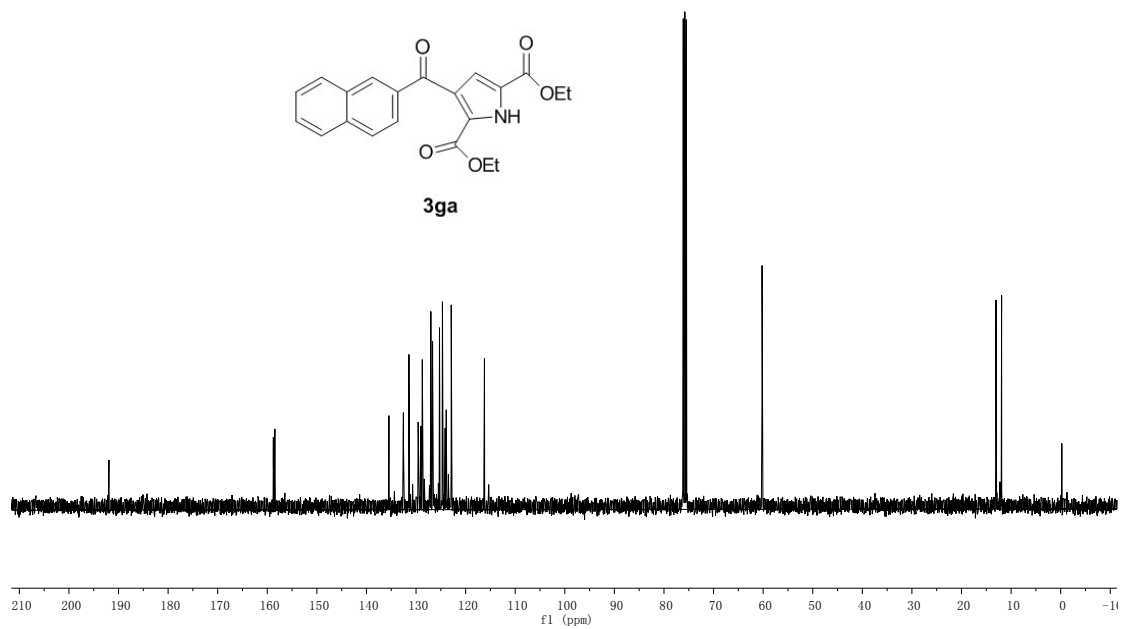
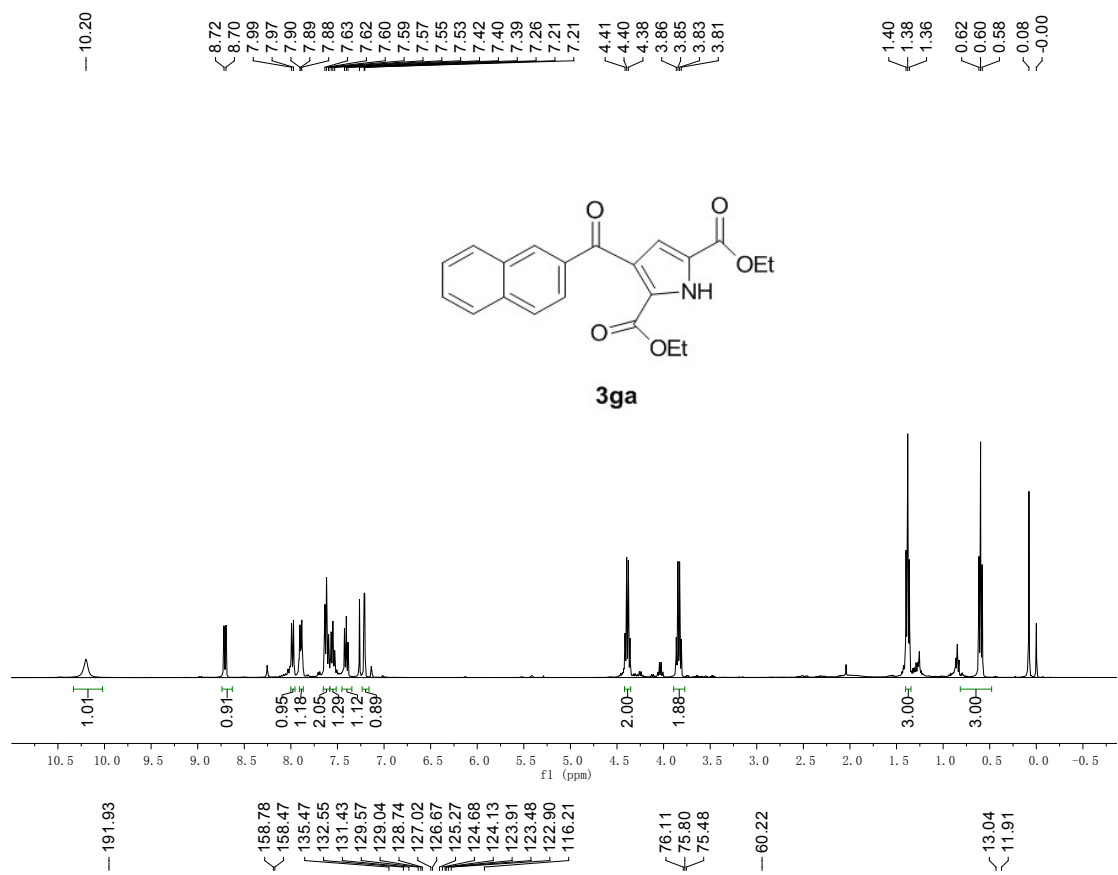
— 10.13



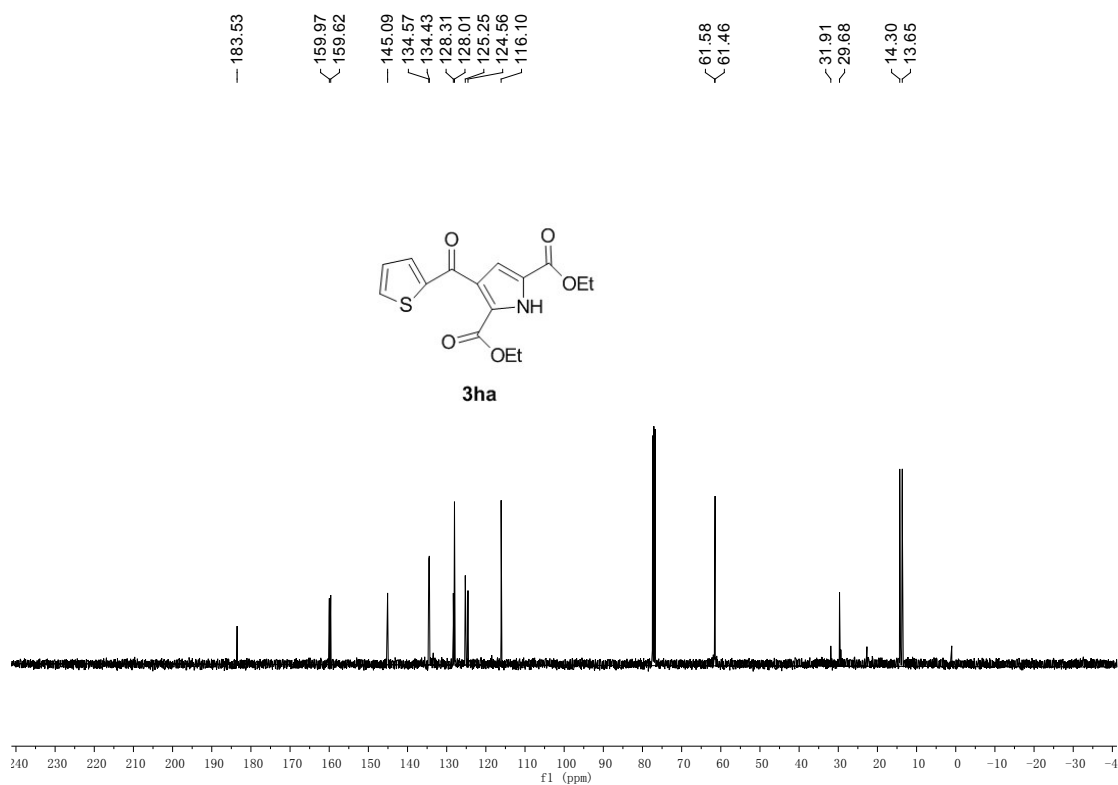
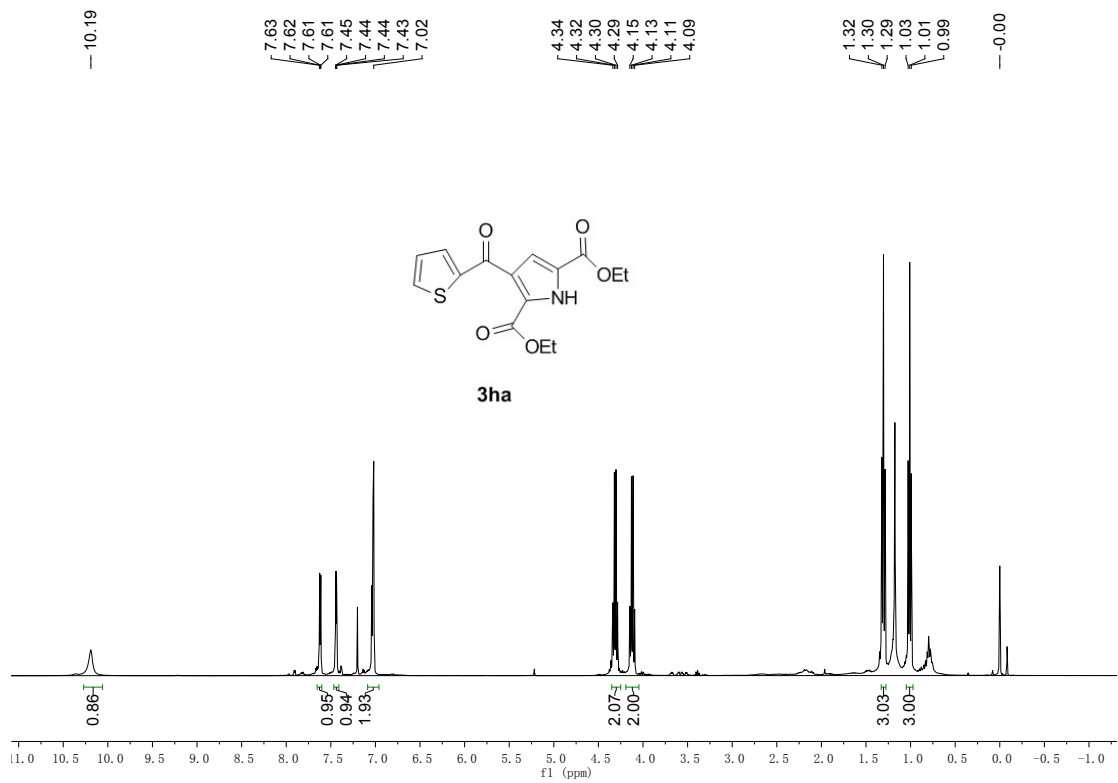
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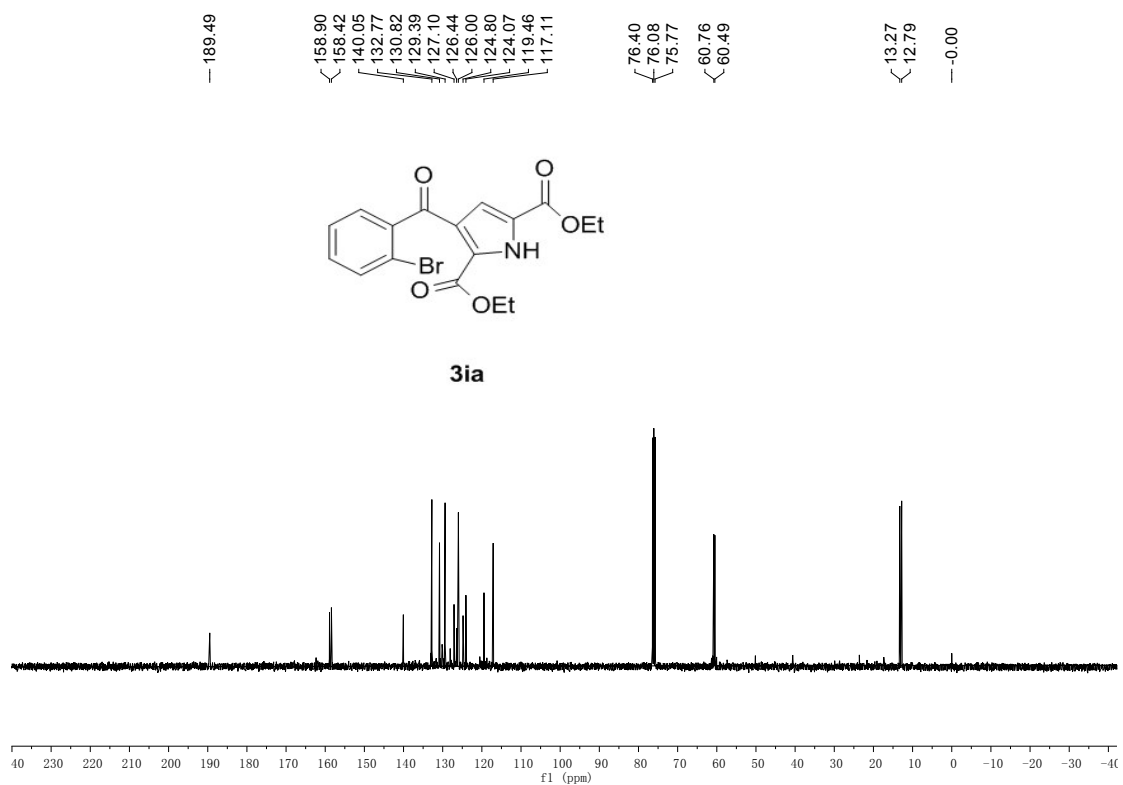
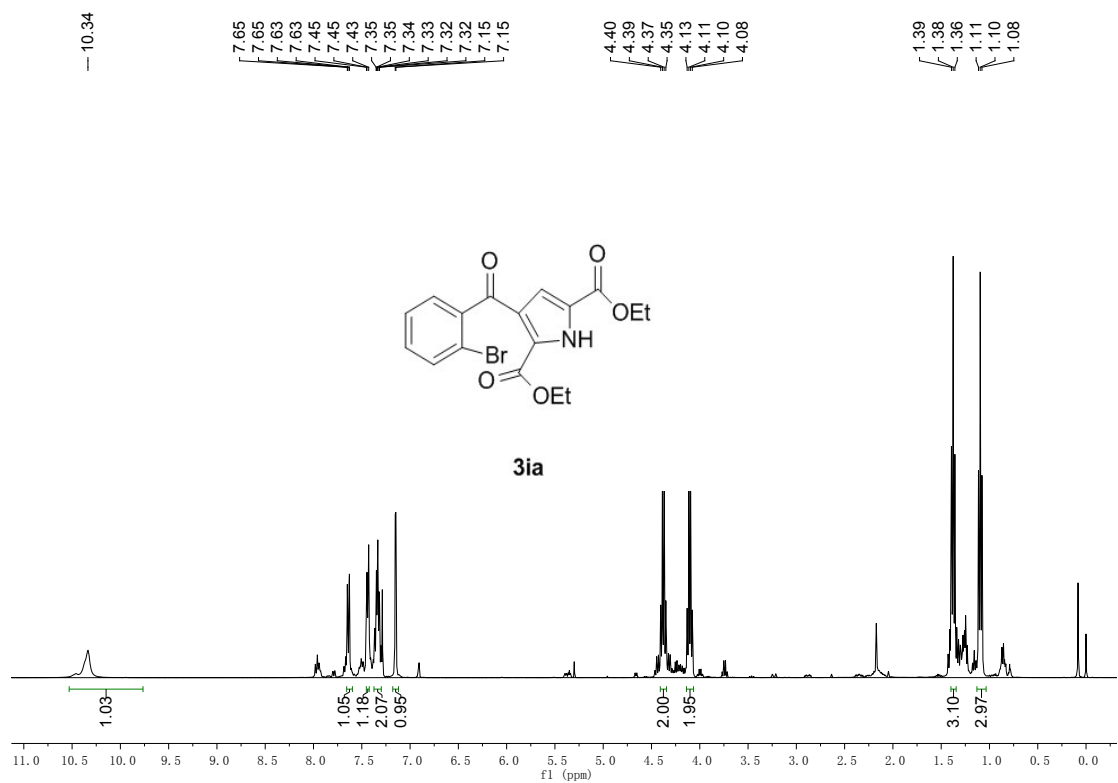
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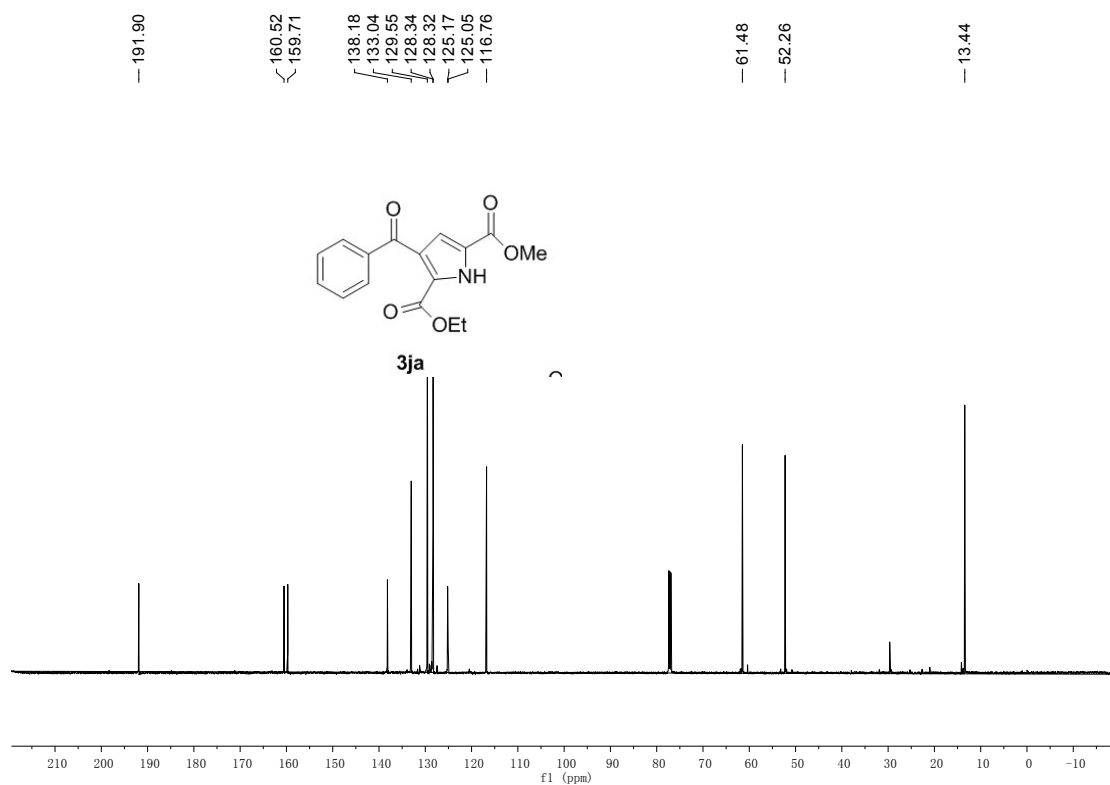
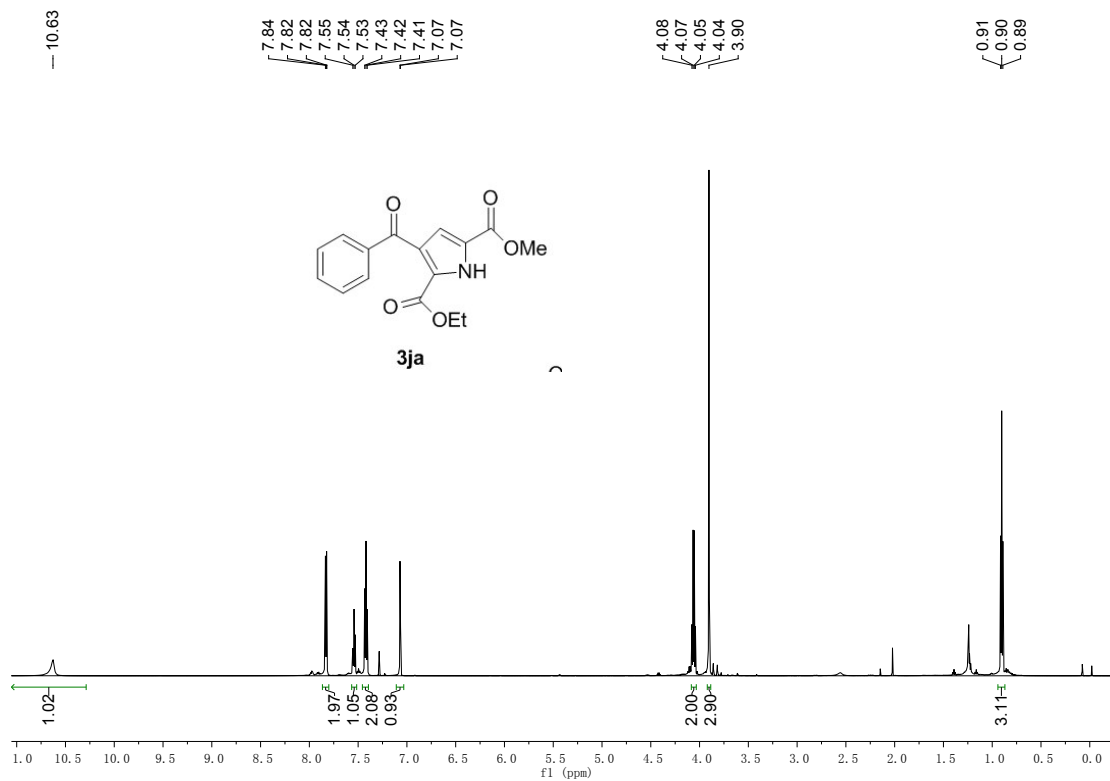
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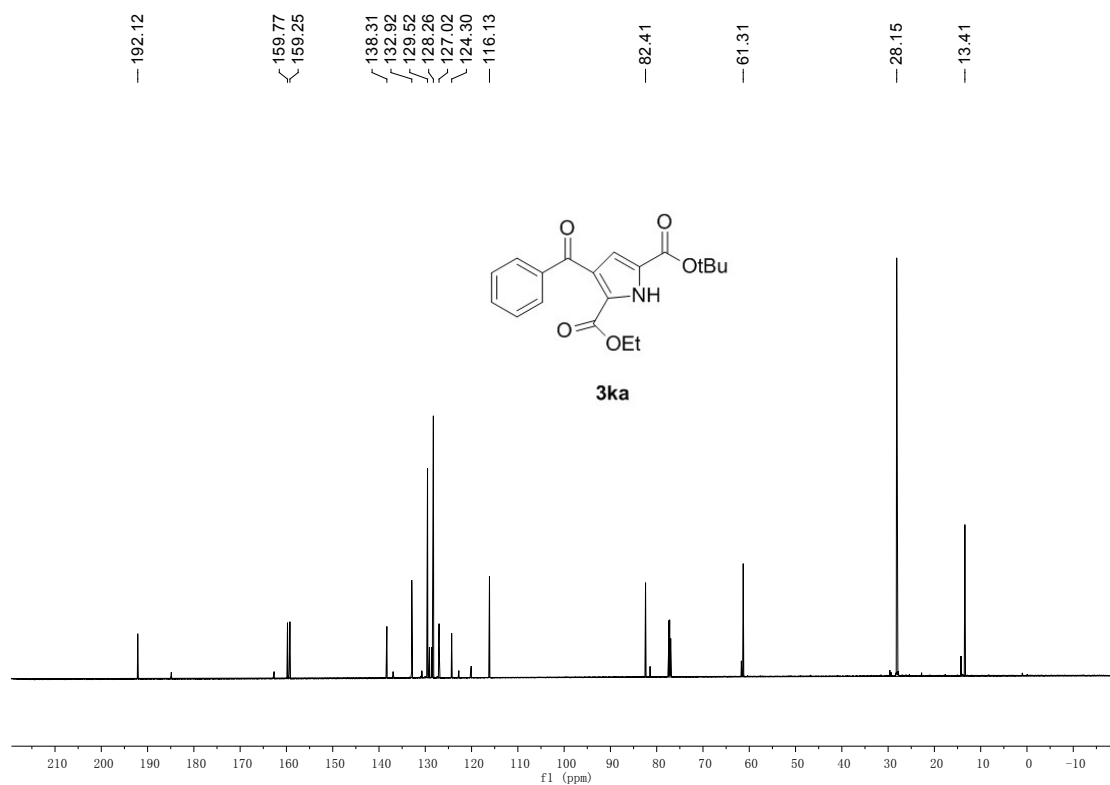
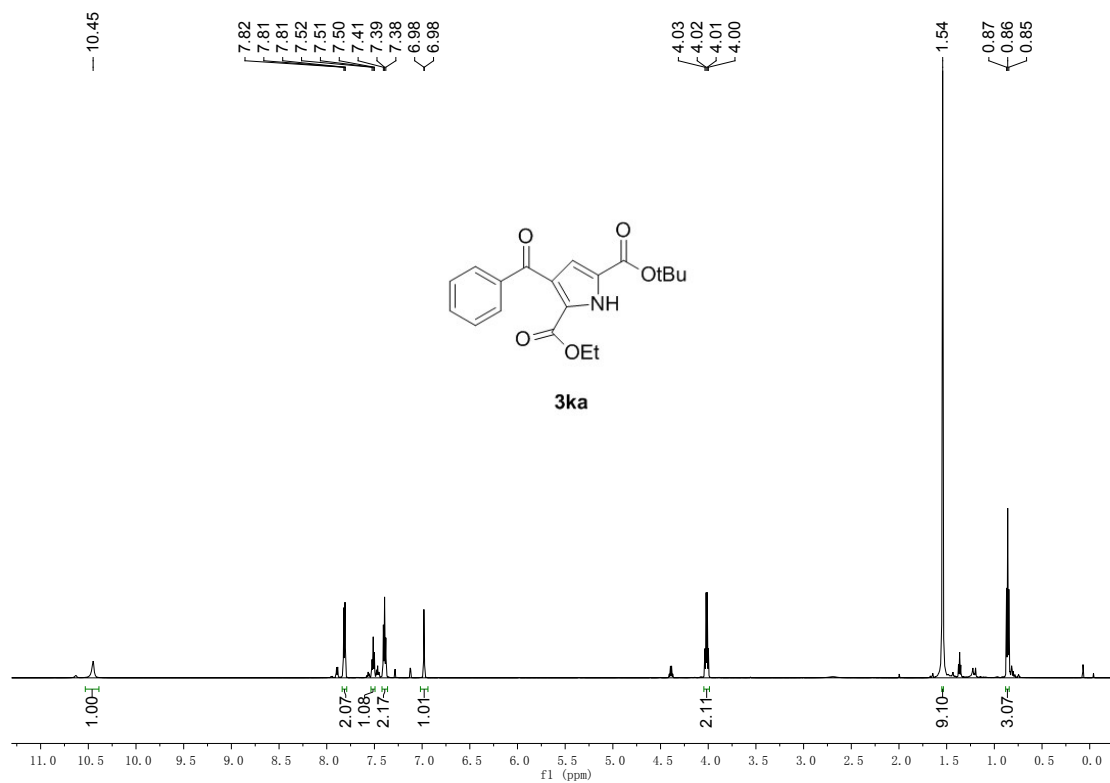
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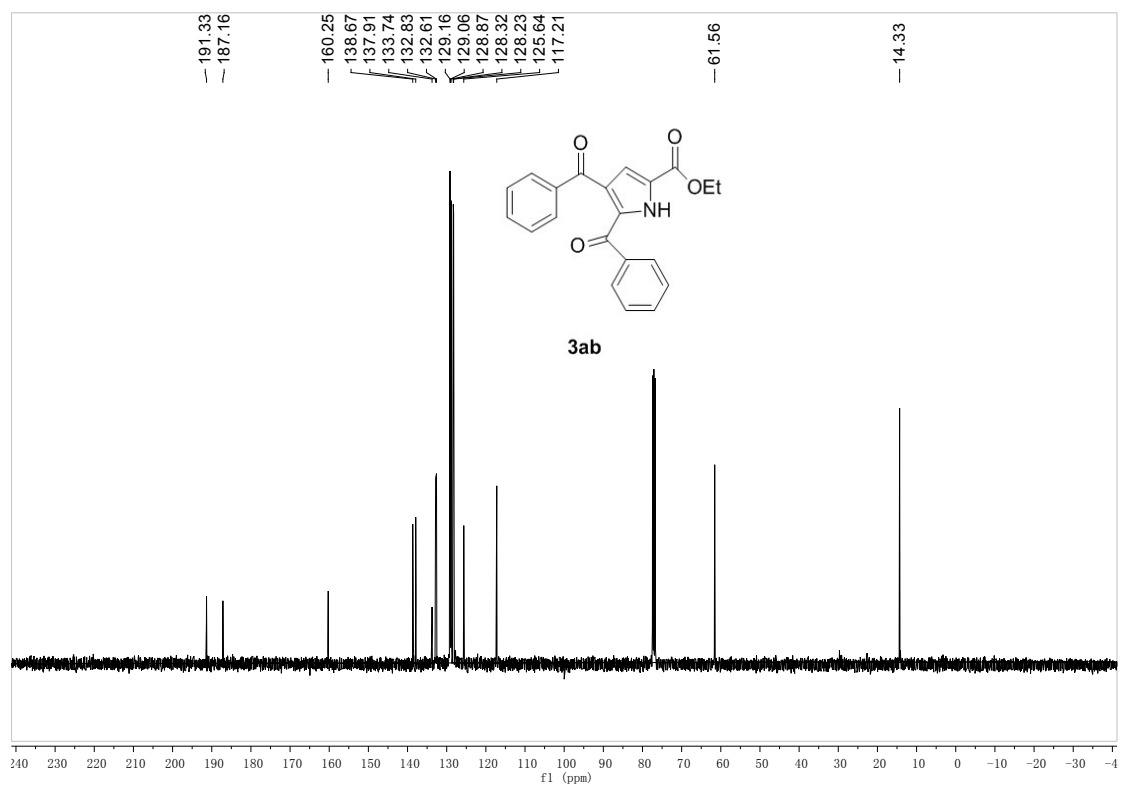
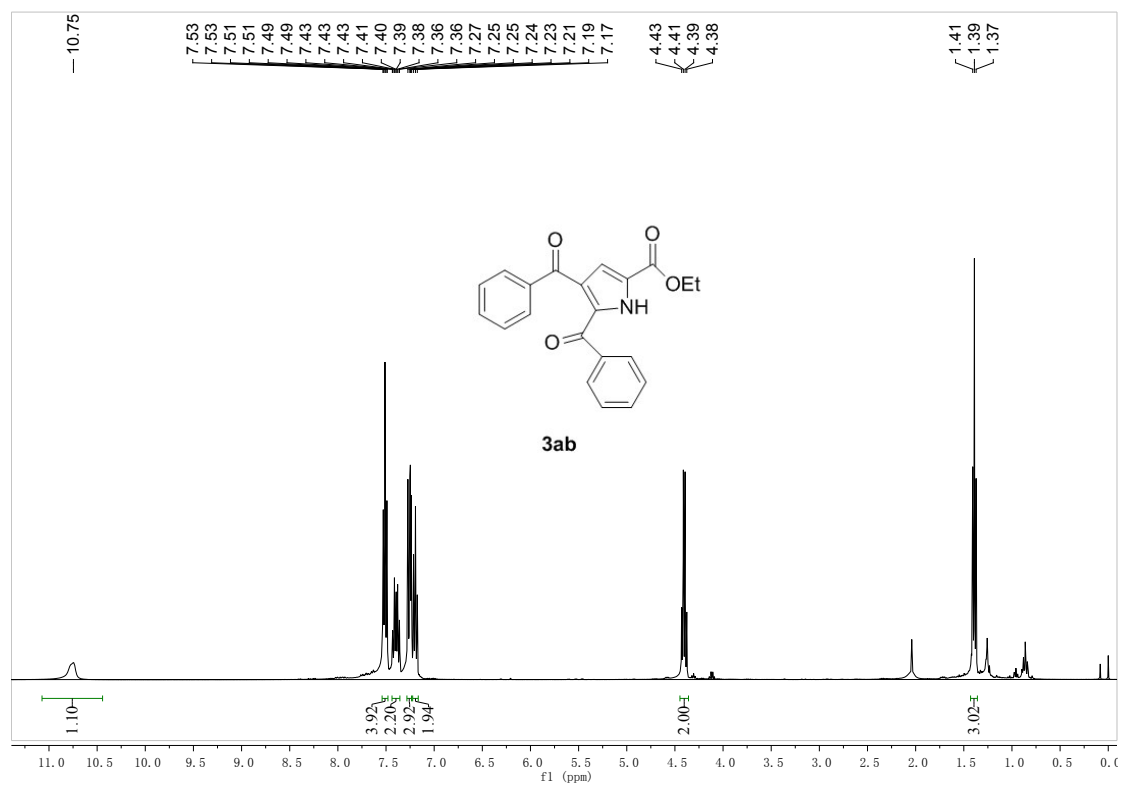
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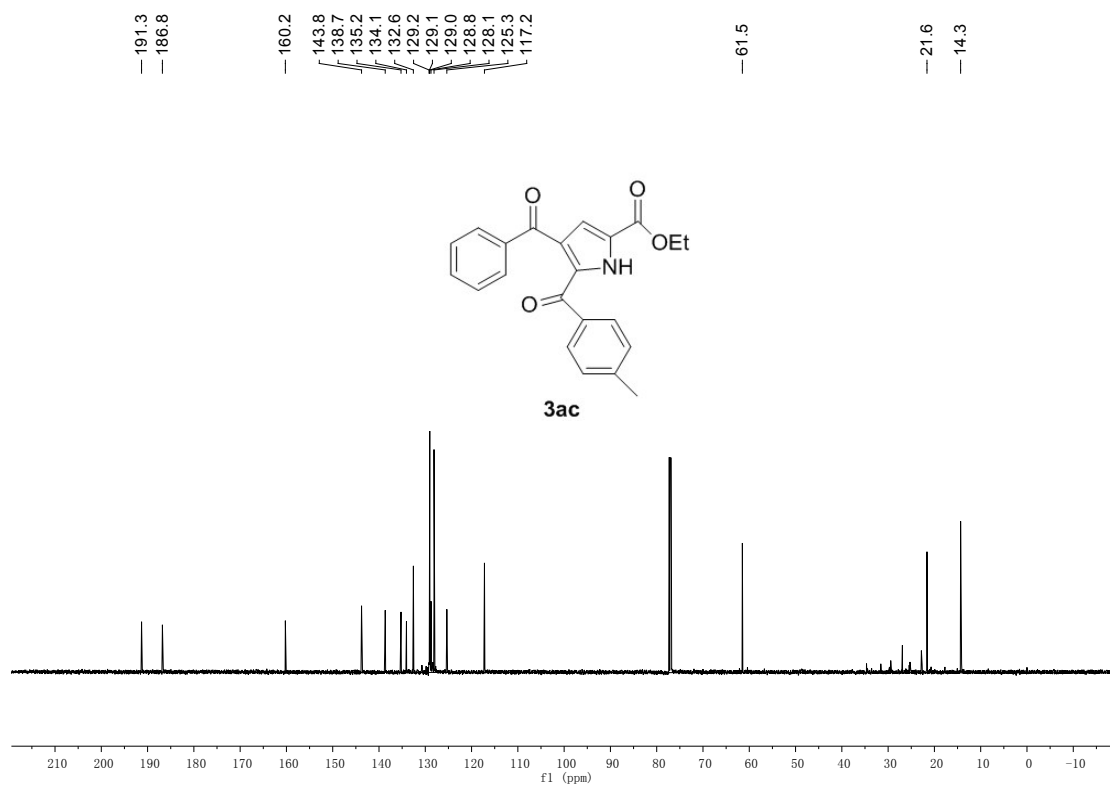
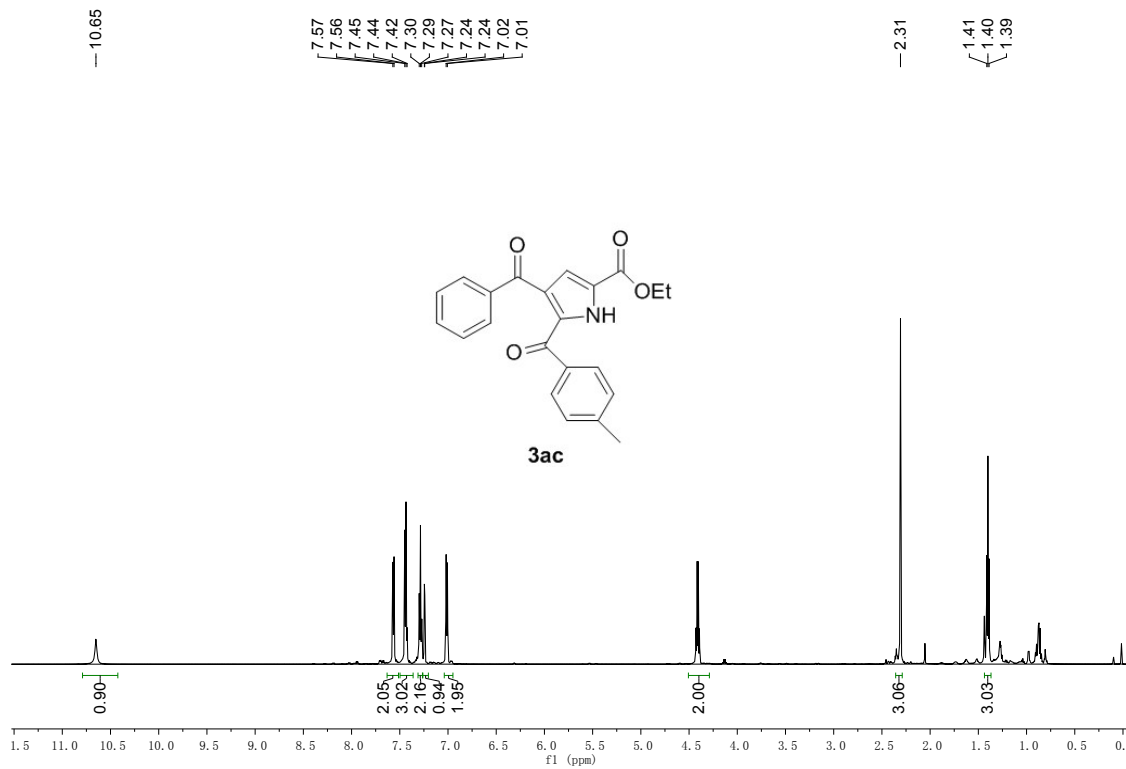
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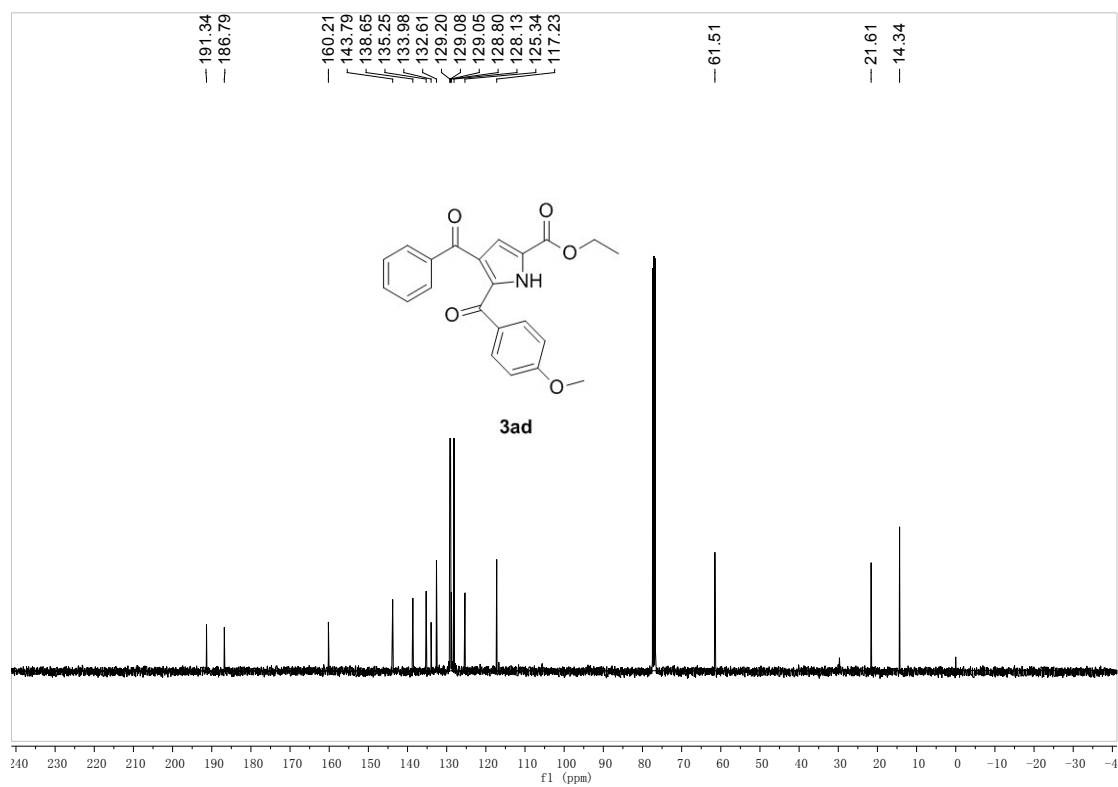
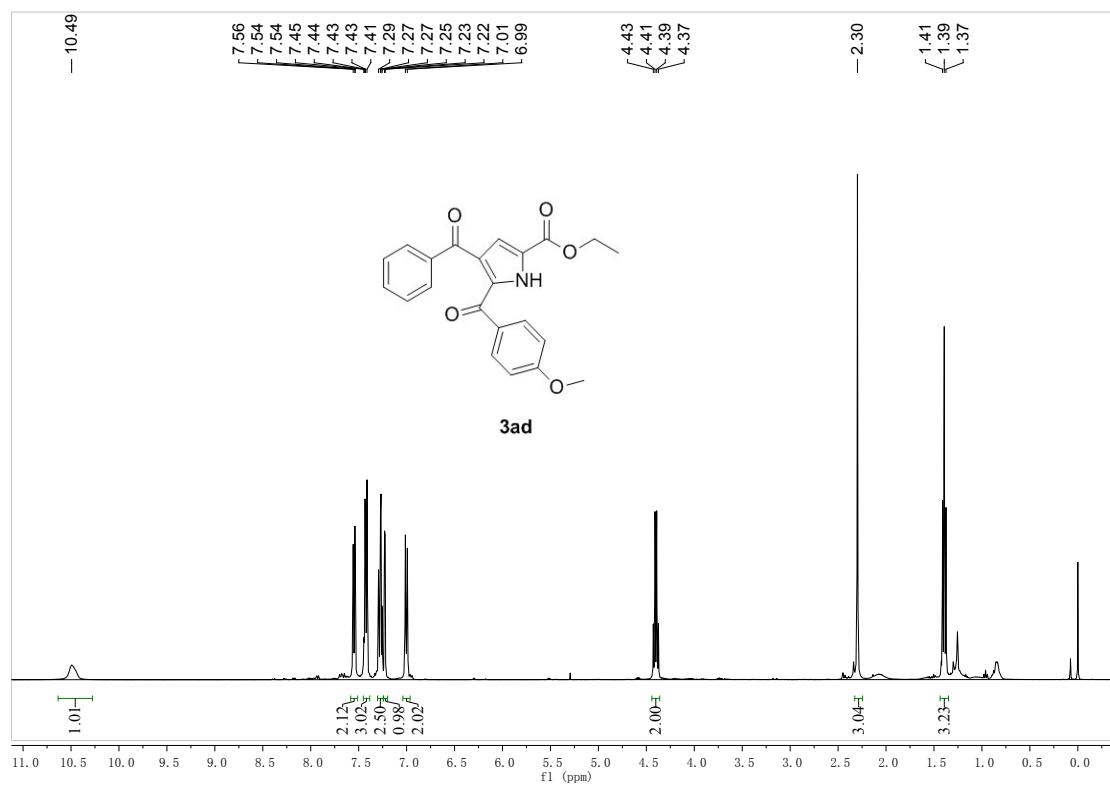
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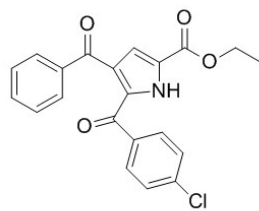
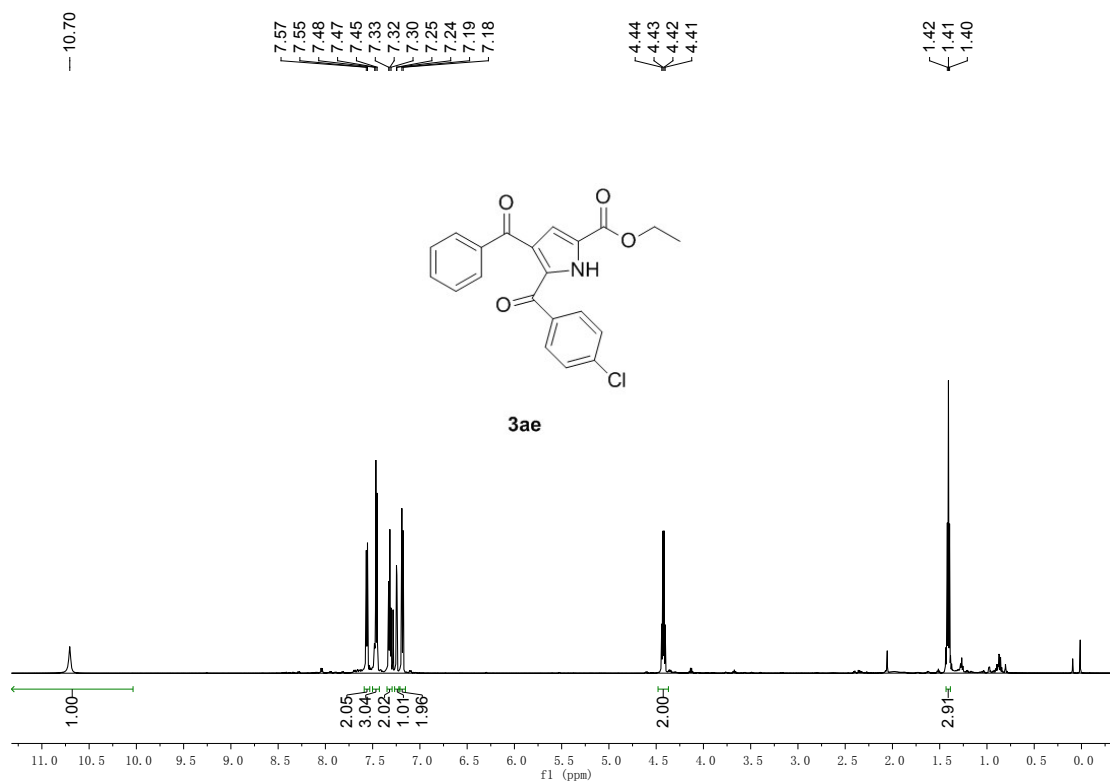
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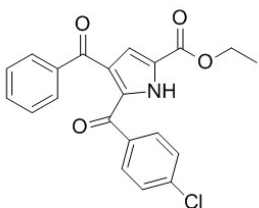
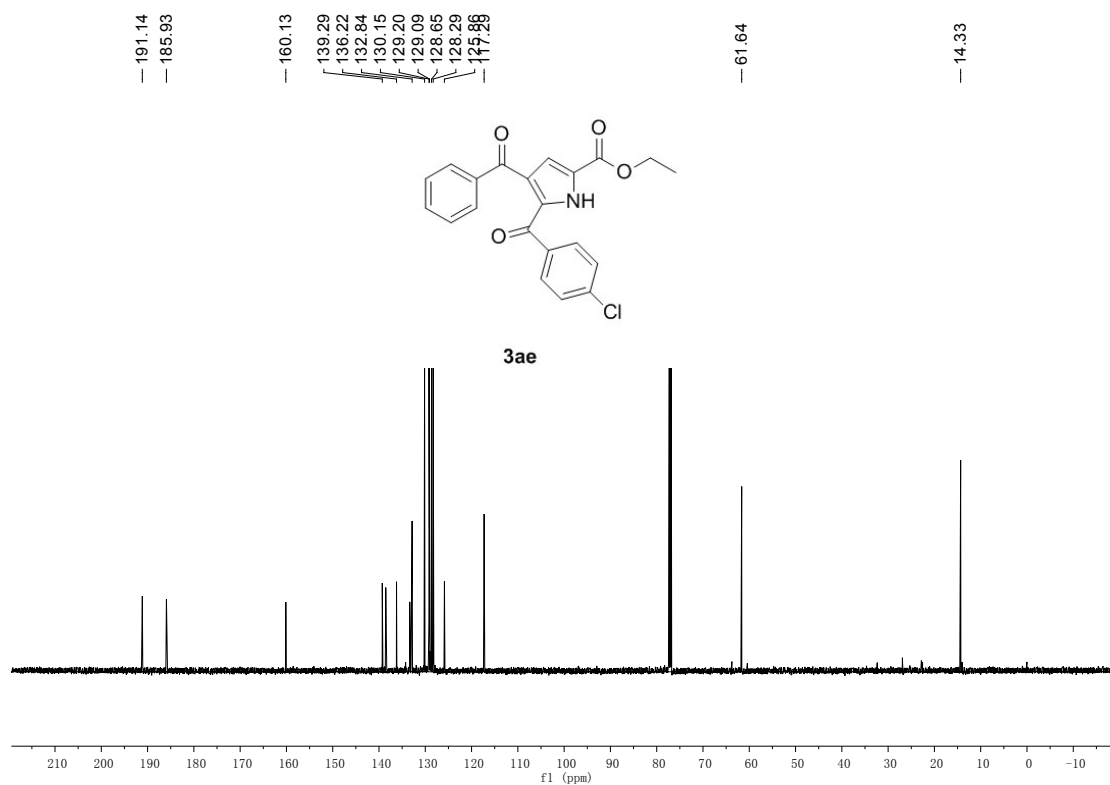
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15. 3ae

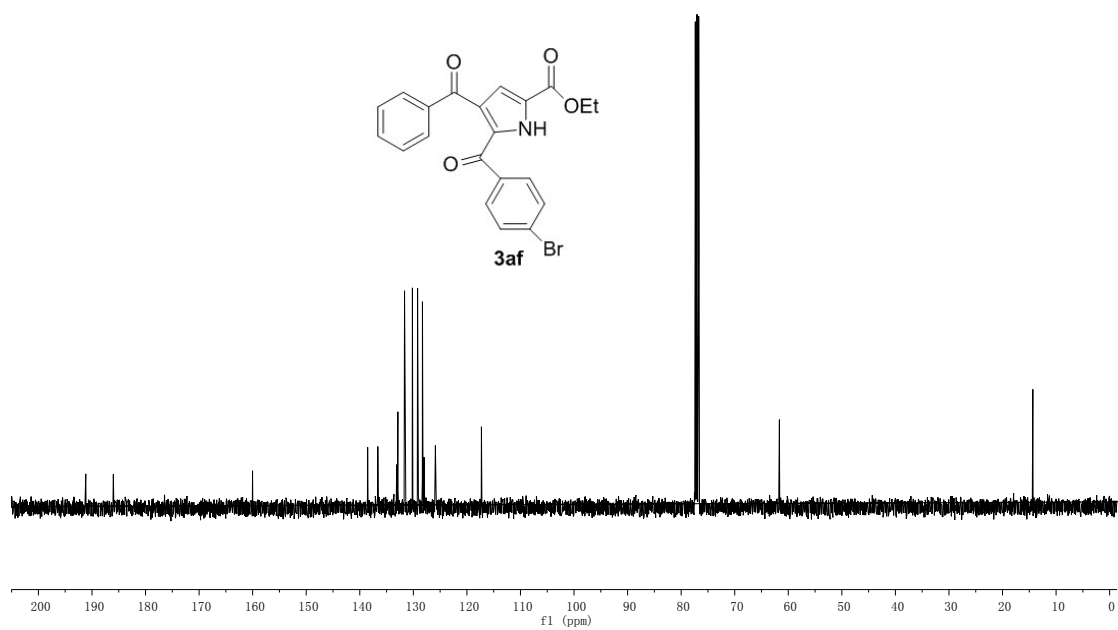
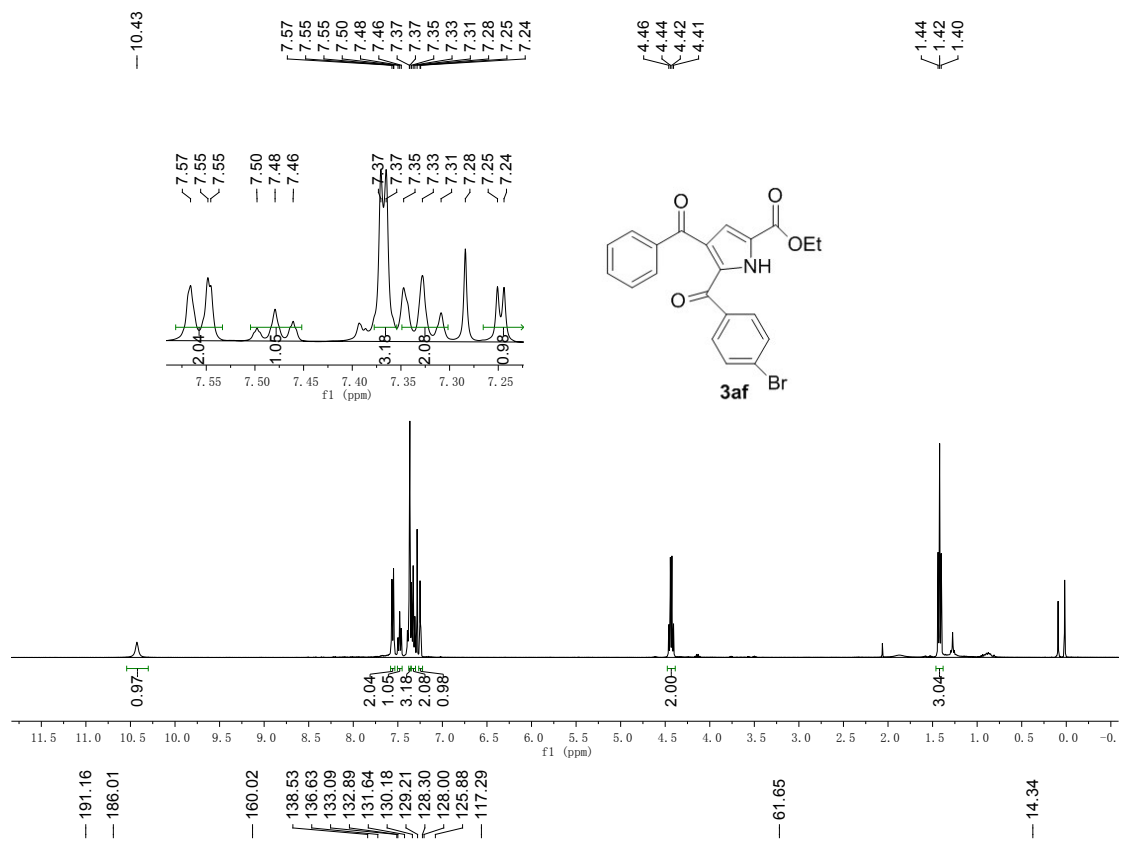


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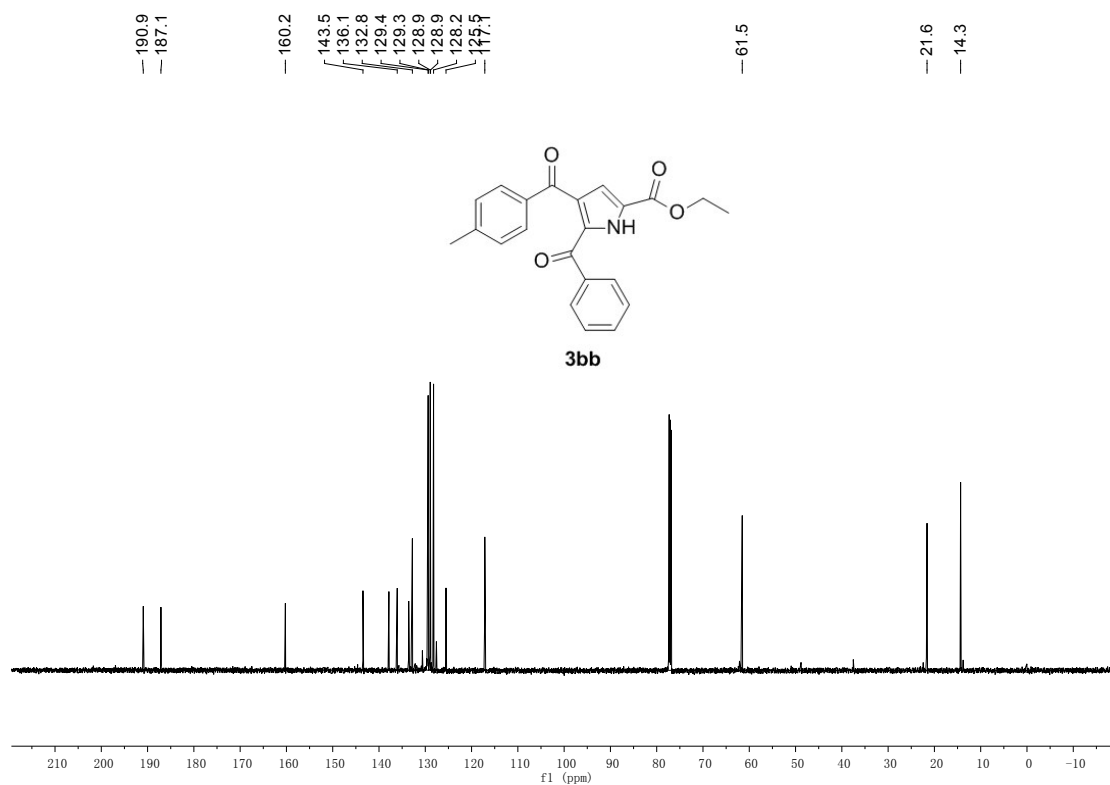
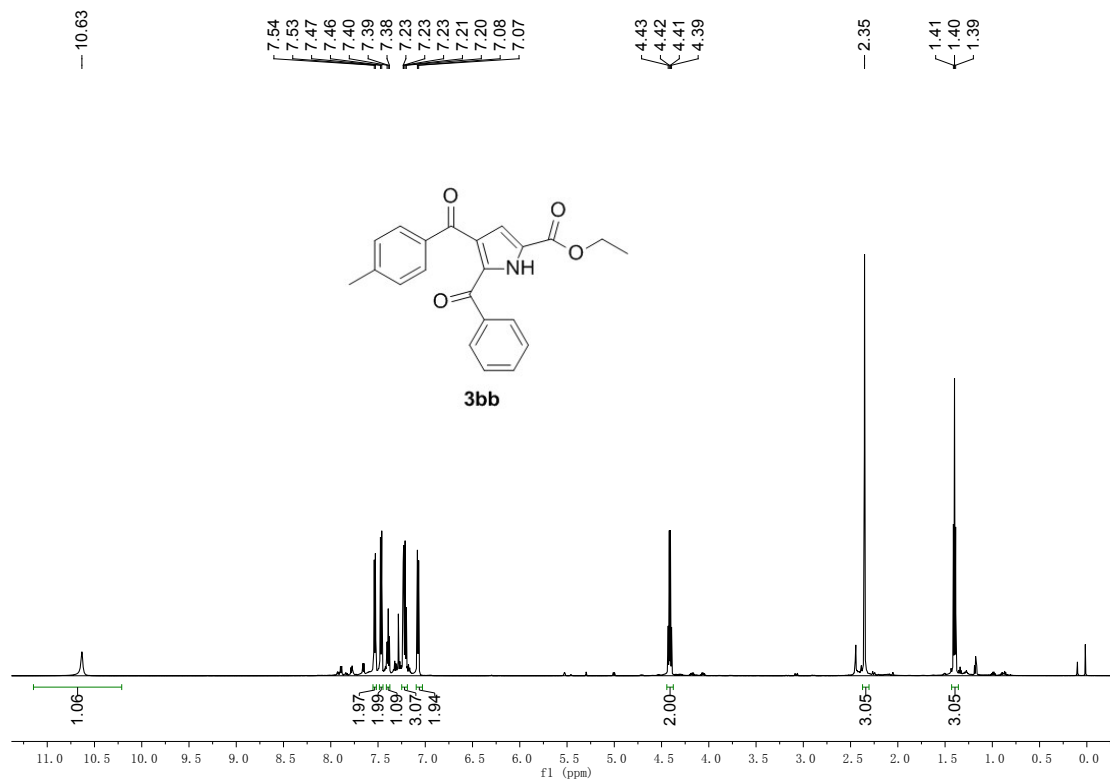


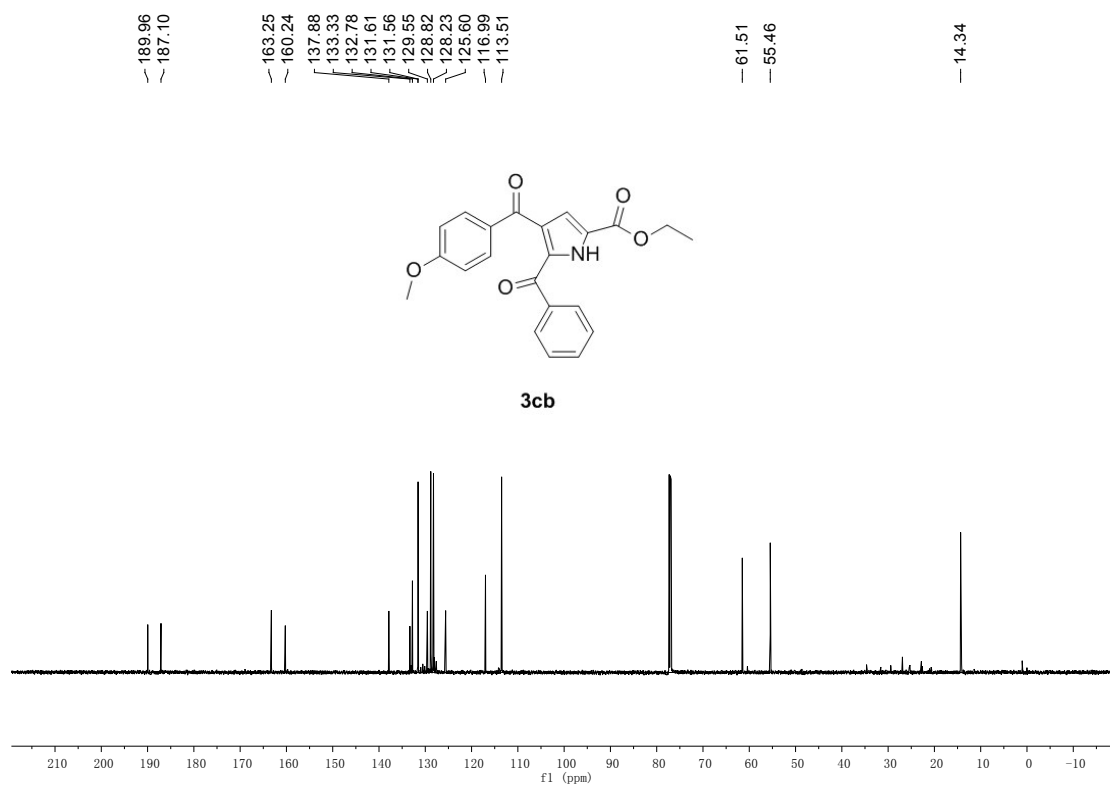
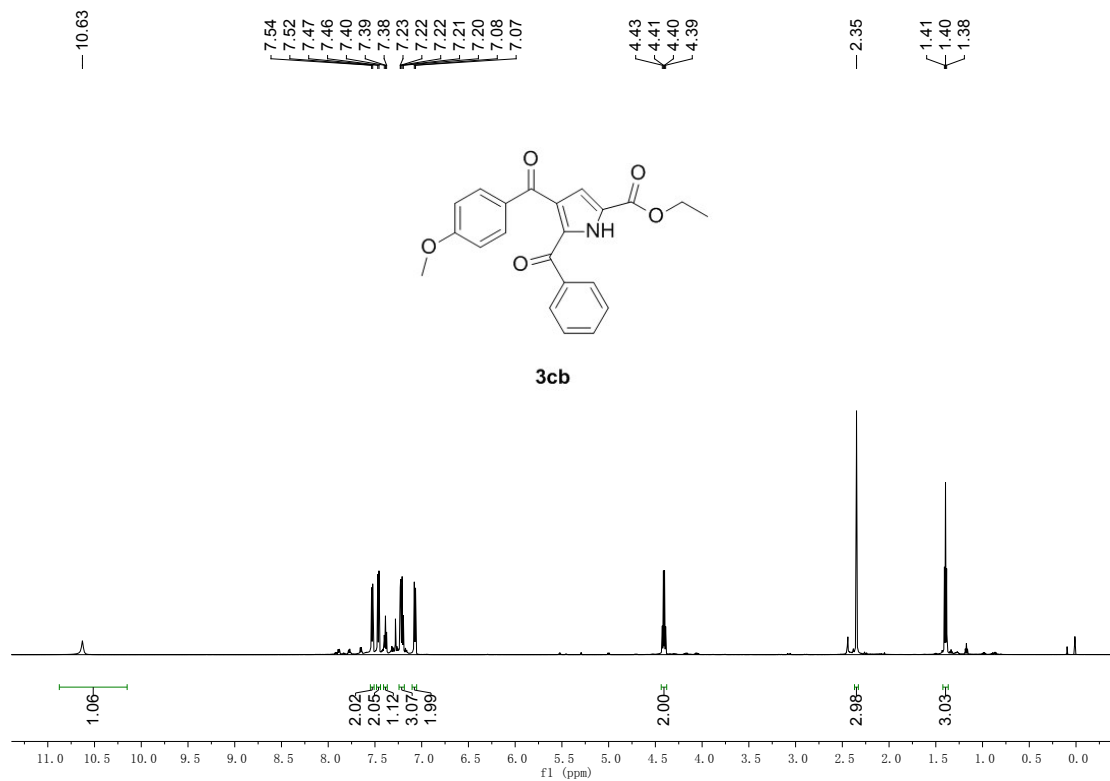
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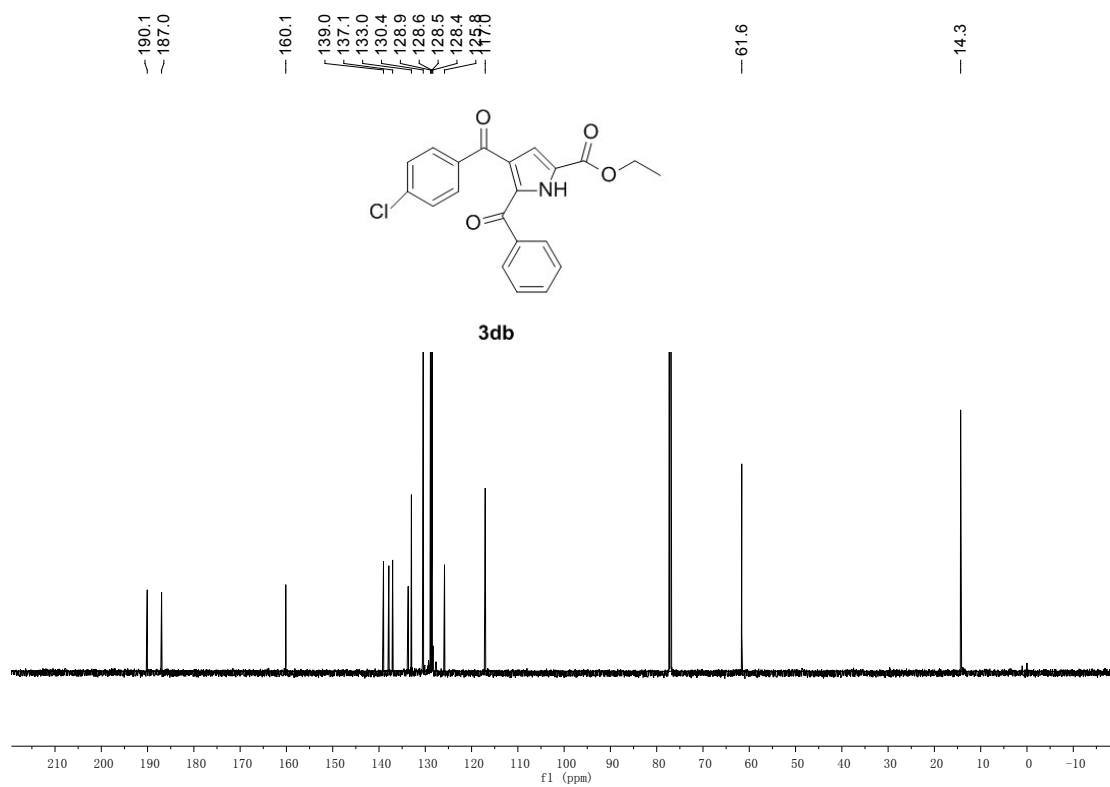
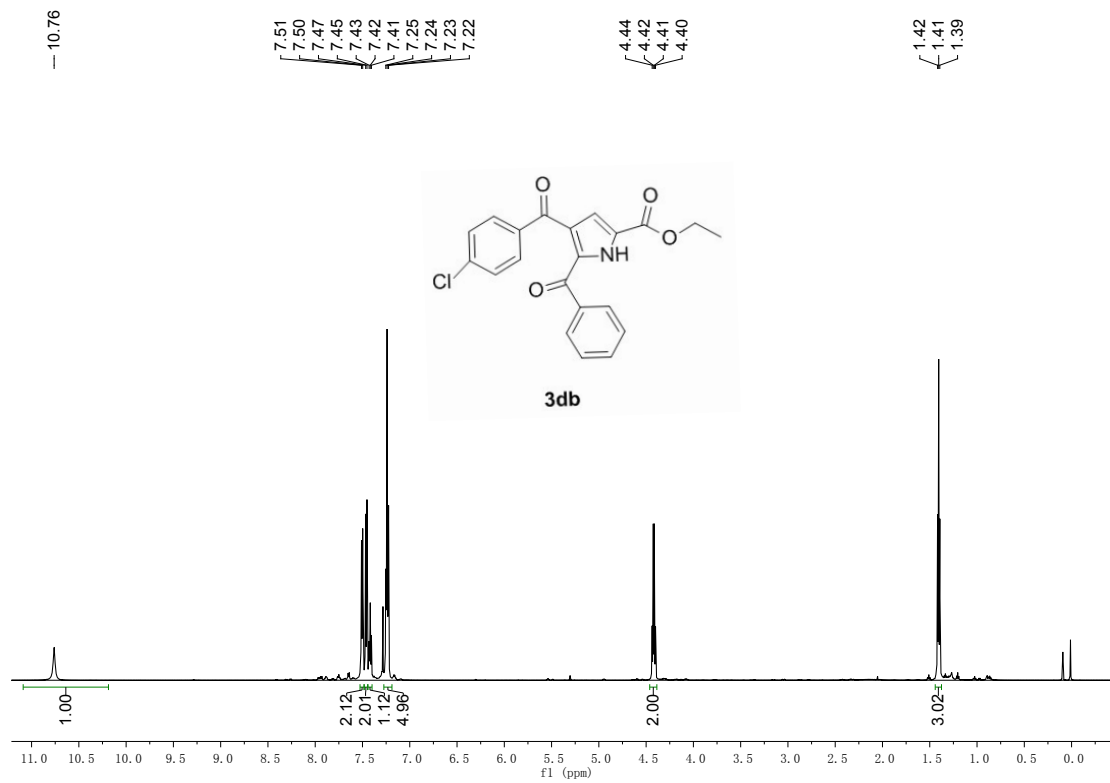


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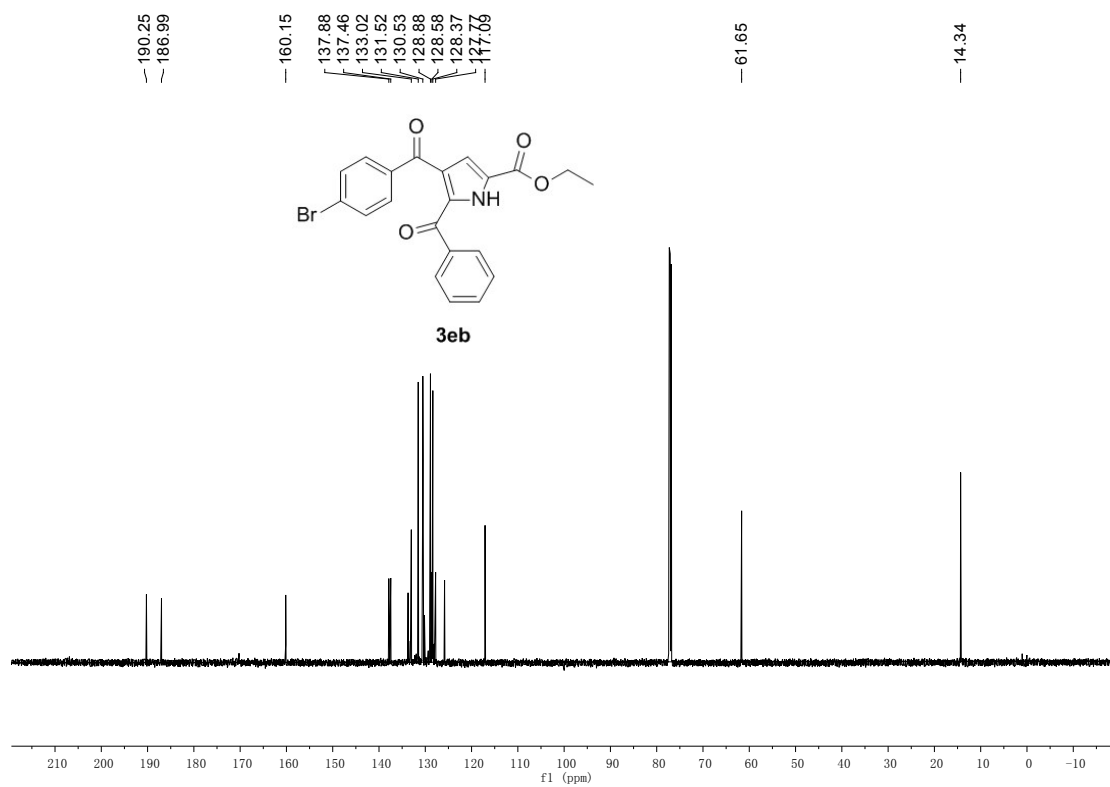
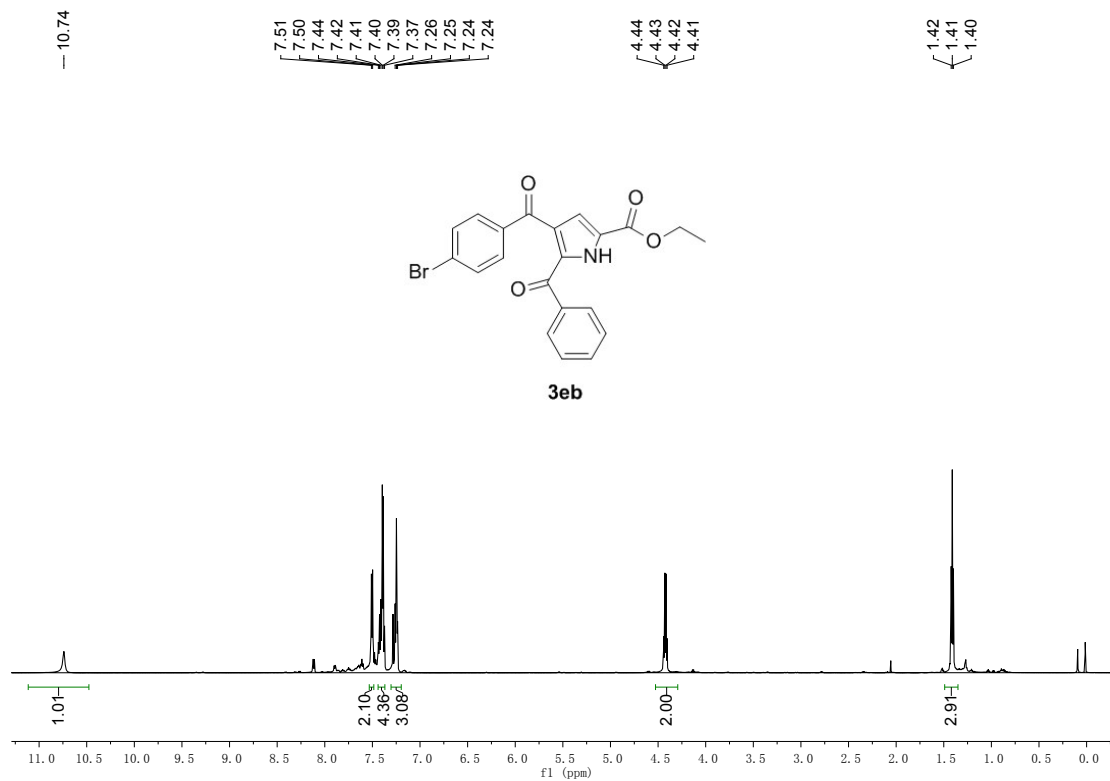




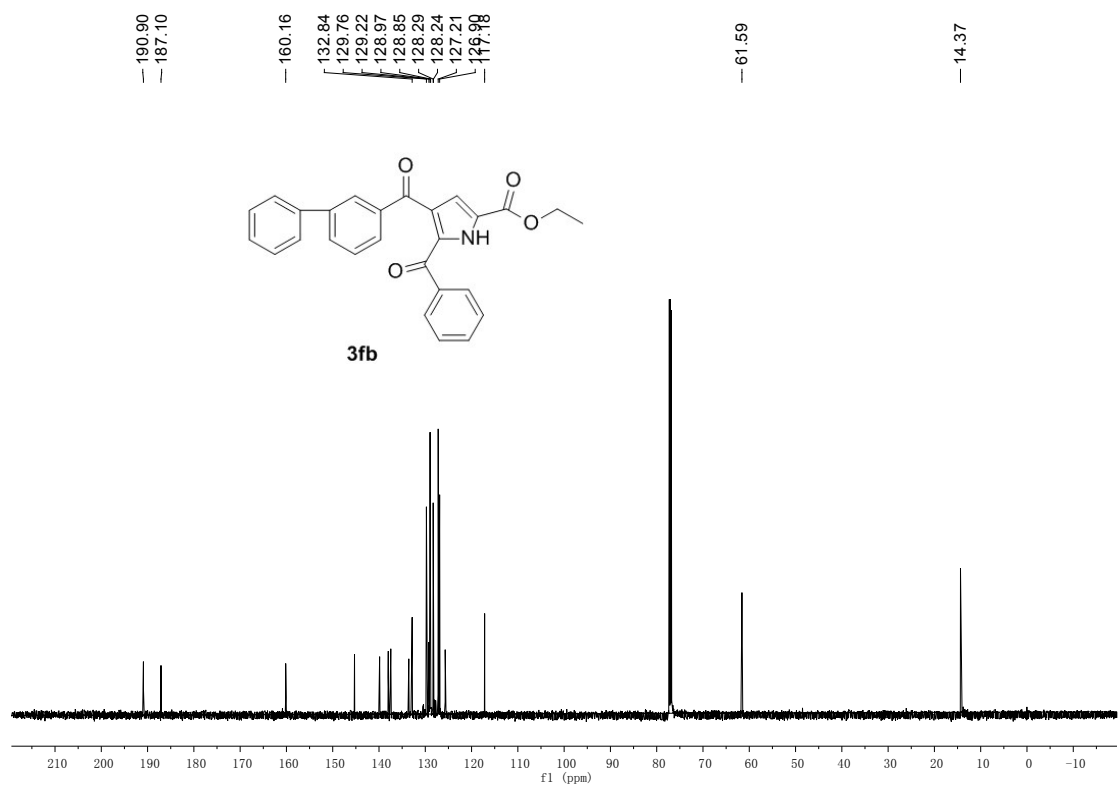
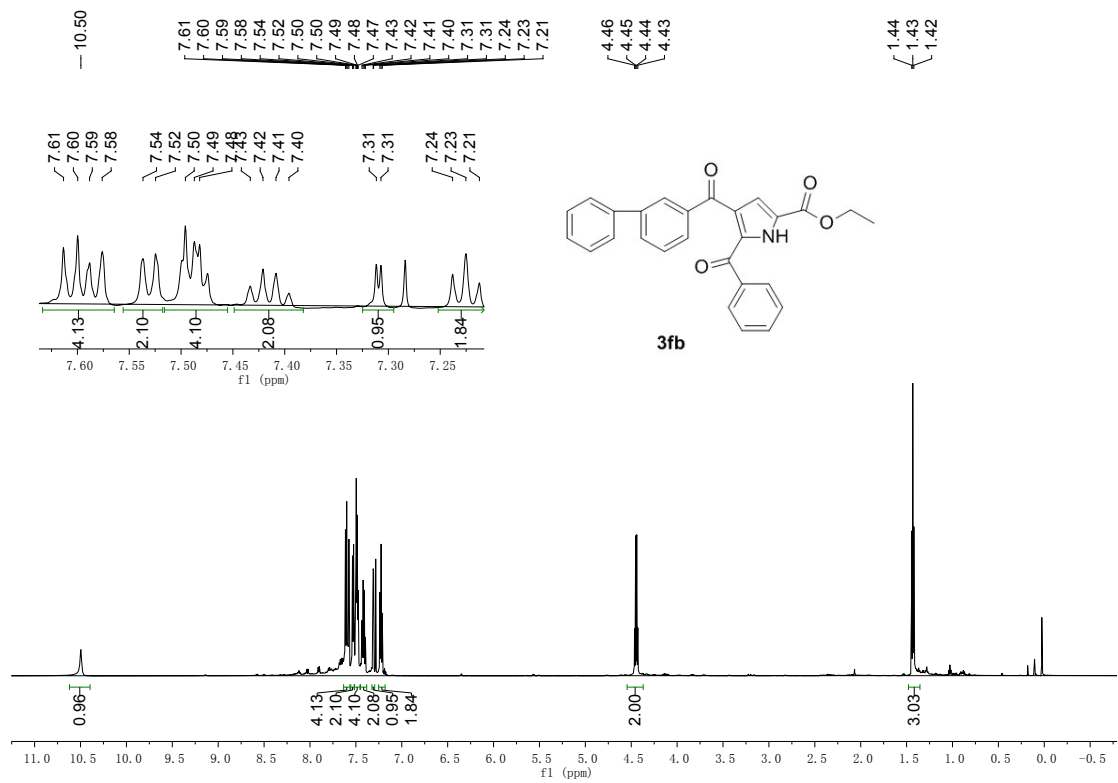
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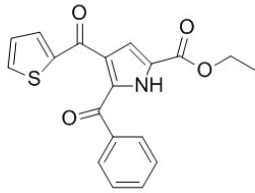
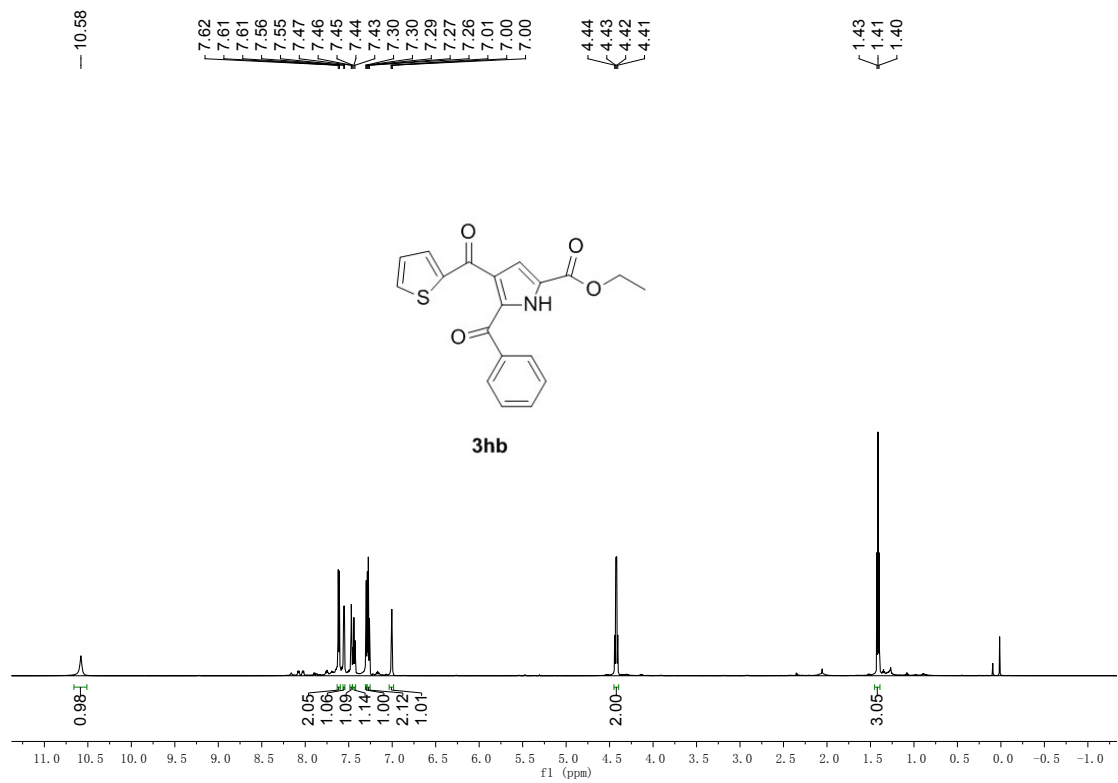
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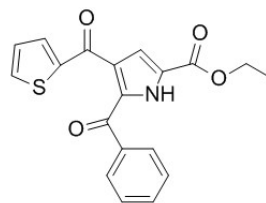
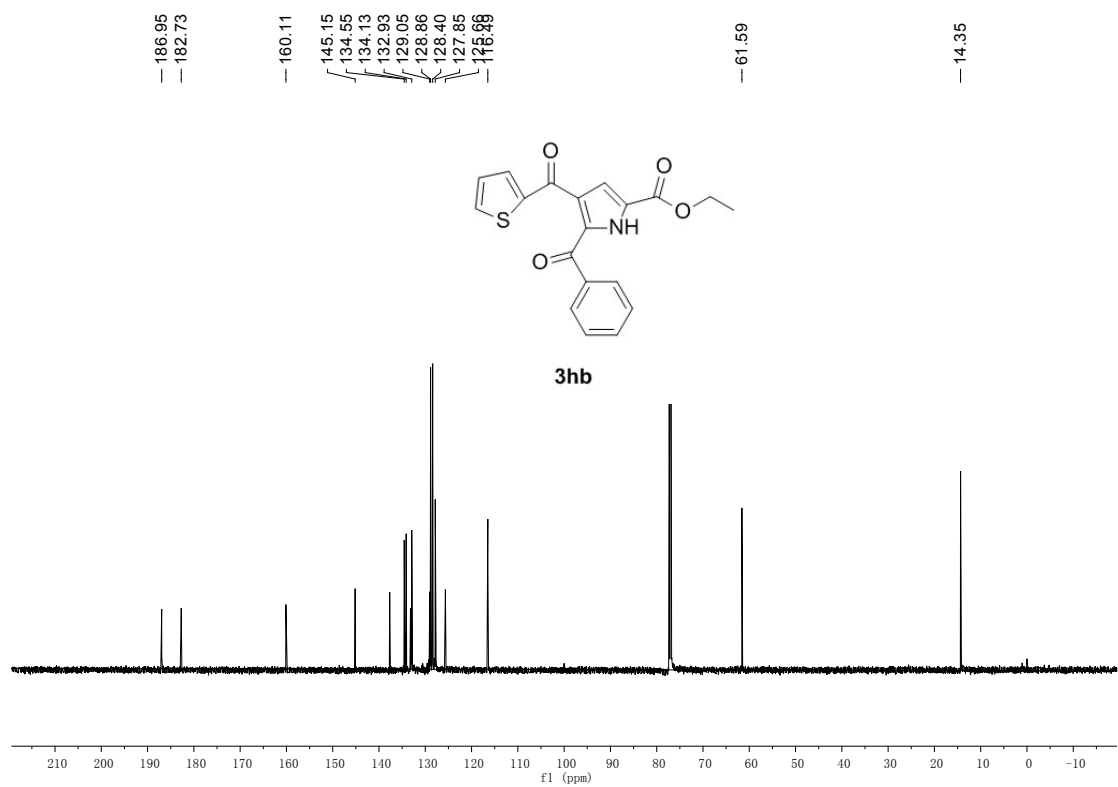
21. 3fb



22. 3hb

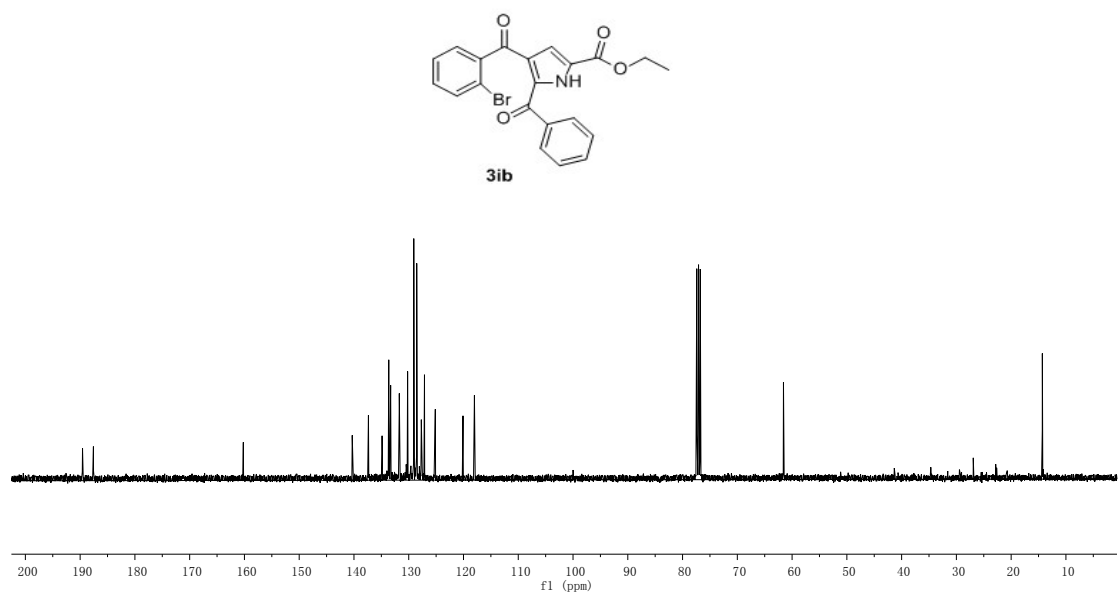
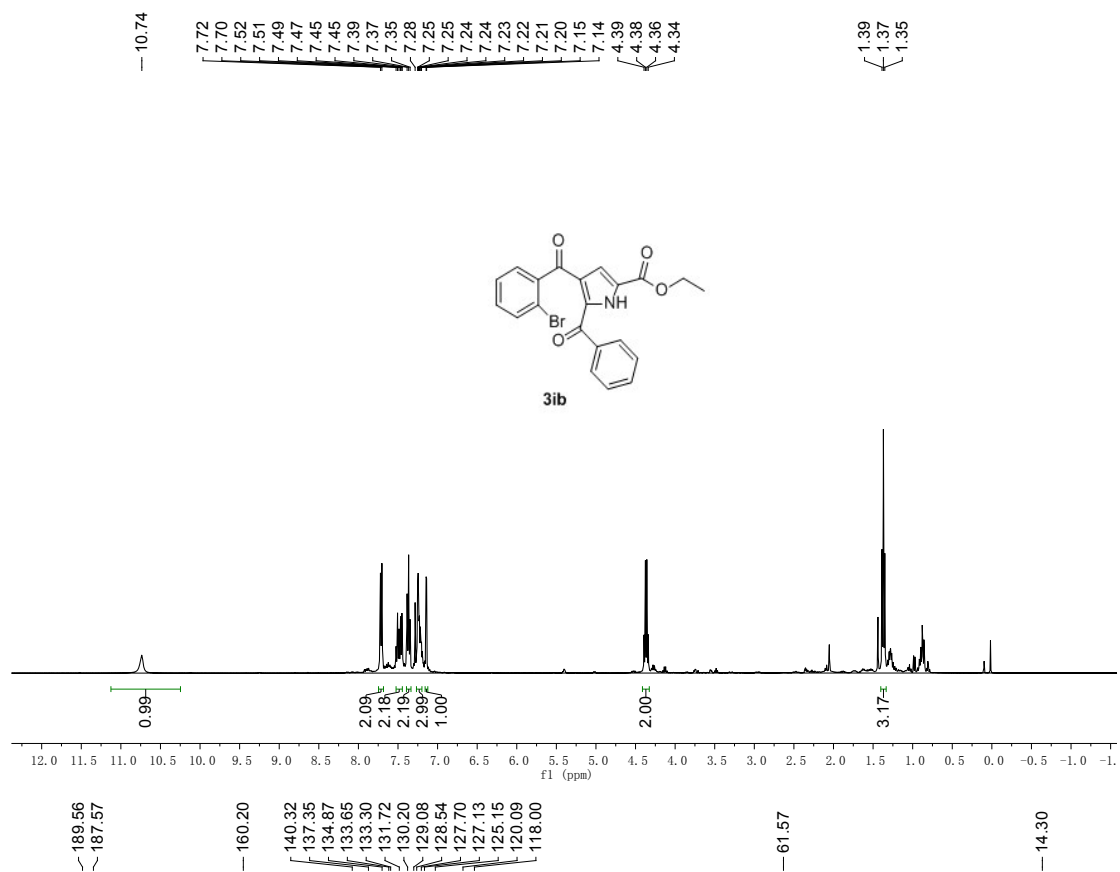


3hb



3hb

23. 3ib



III、Crystallographic information for 3ba

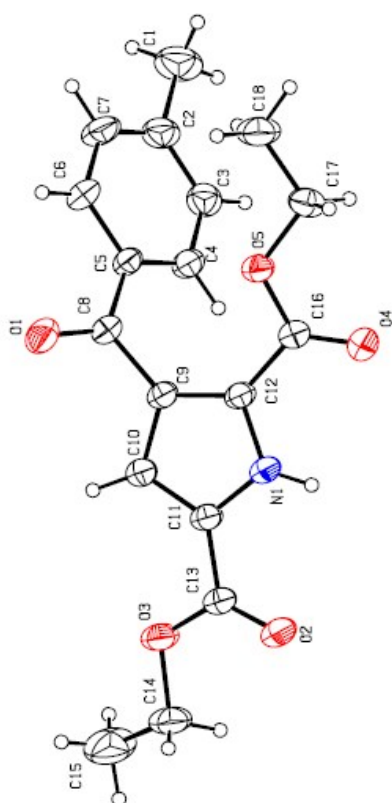


Figure 1. Crystal structure of **3ba**

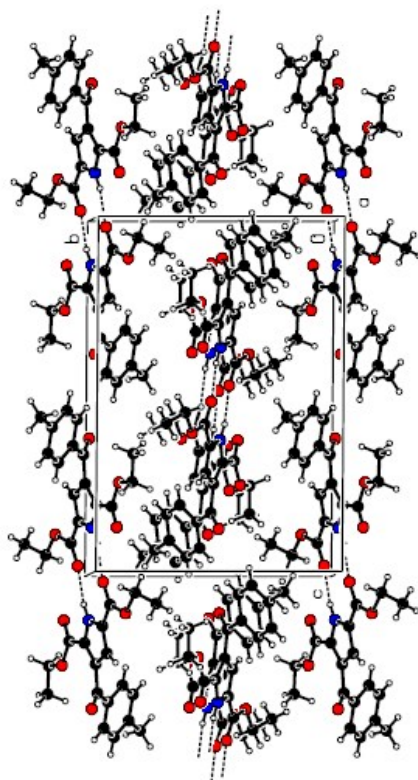


Figure 2. Projection of one unit cell