

Supporting Information

for

Synthesis of Cyclopropanes from Gold-Catalyzed [2+1] Cycloaddition of Allenamides with Sulfoxonium Ylides.

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610041, PR China.

lixiaoxiao.2005@163.com zzg63129@163.com

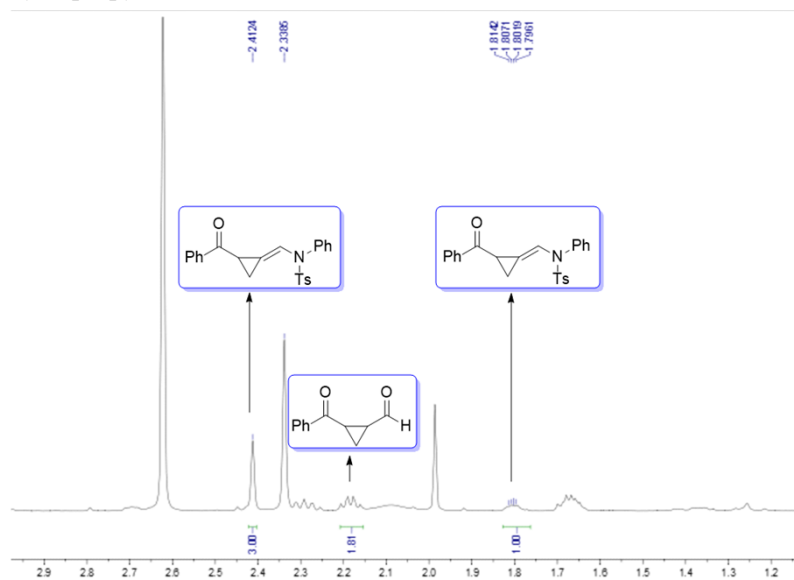
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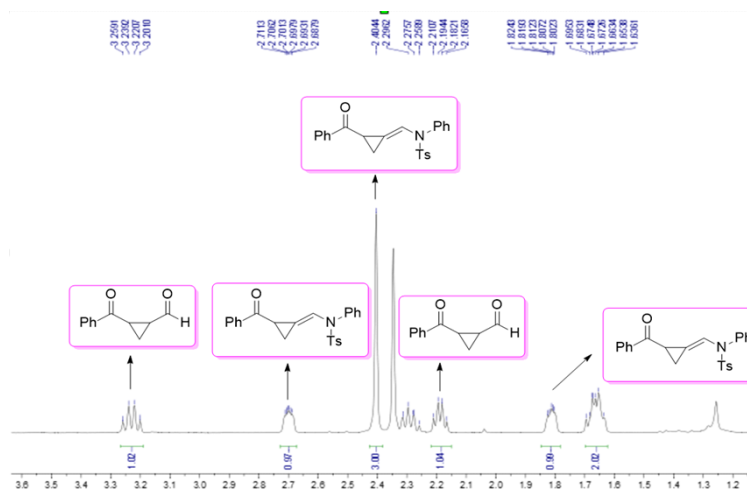
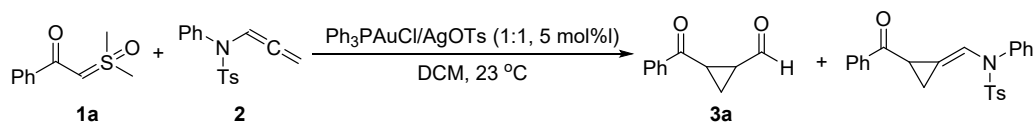
1. Control experiments

We did some control experiments to explain whether the cyclopropylidene enamide is the initial product formed in the reaction, as shown in the follow:

(1) First, we did the ^1H NMR of the mixture before acidic hydrolysis to see whether the cyclopropylidene enamide is generated in the reaction system. The ratio of the yield of the aldehyde and the cyclopropylidene enamide is 1.8:1 through the ^1H NMR of the mixture. After acidic hydrolysis, the cyclopropylidene enamide is not left in the mixture.



(2) We tried to isolate the cyclopropylidene enamide independently using Maulide's procedure (Chem. Eur. J. 2014, 20, 10636), however, the cyclopropylidene enamide is highly instable, we can't afford the cyclopropylidene enamide, the ^1H NMR of the isolated product showed that the cyclopropylidene enamide is not stable using whether acidic silica gel or basic alumina.



(3) The dr value is 4:1 before acidic hydrolysis, and the dr value increased to 10:1 after acidic hydrolysis.

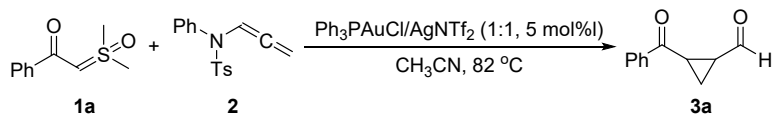


Figure 1: ^1H NMR of the mixture after acidic hydrolysis

Figure 2: ^1H NMR of the mixture before acidic hydrolysis

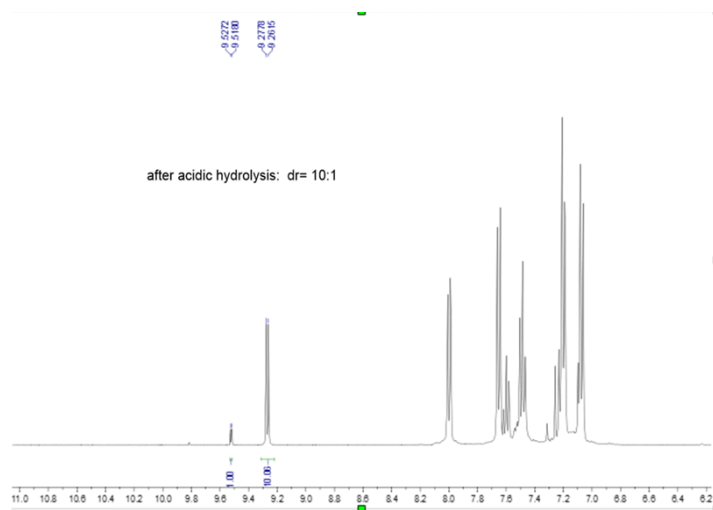


Figure 1

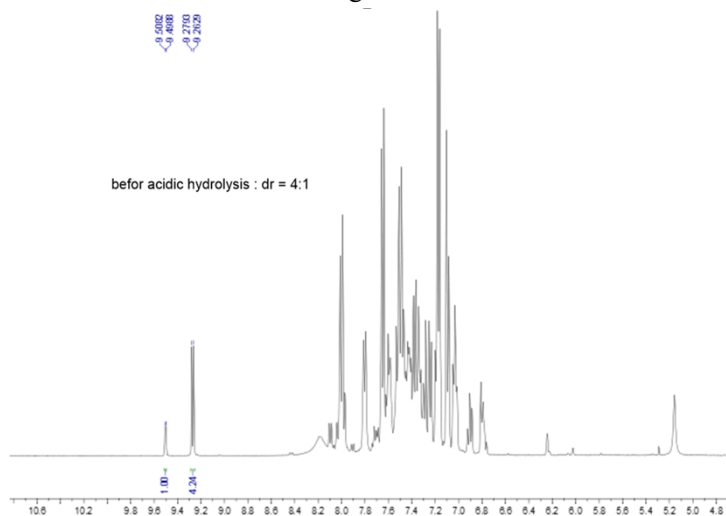
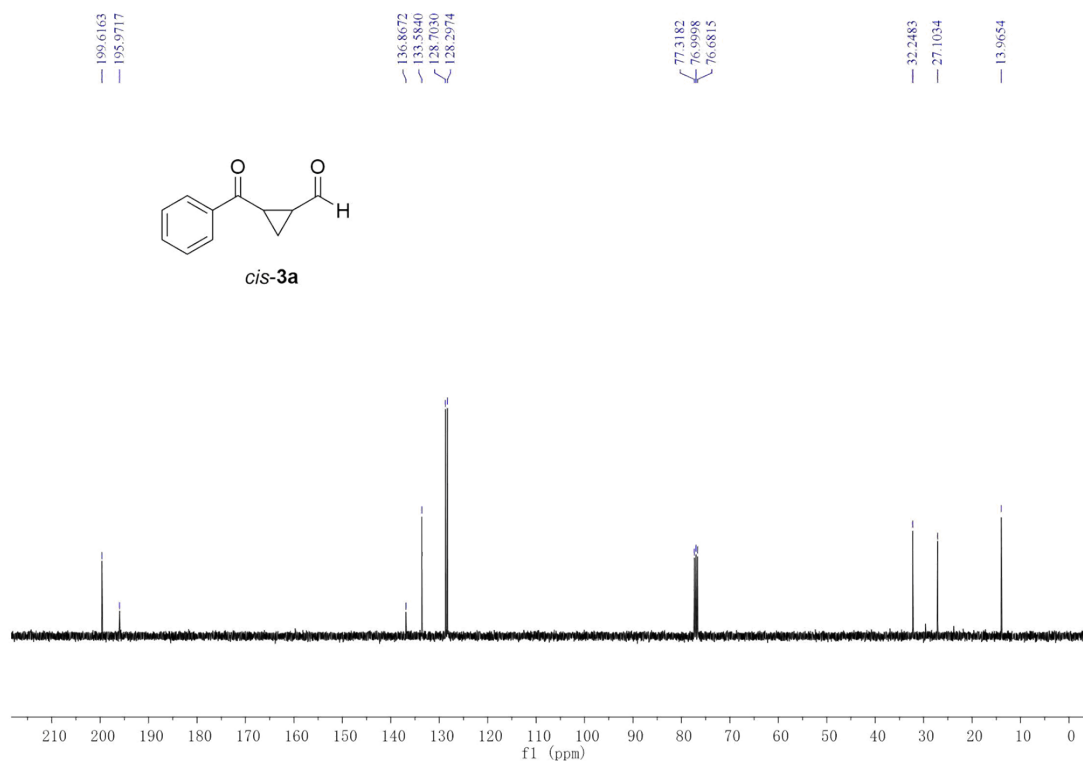
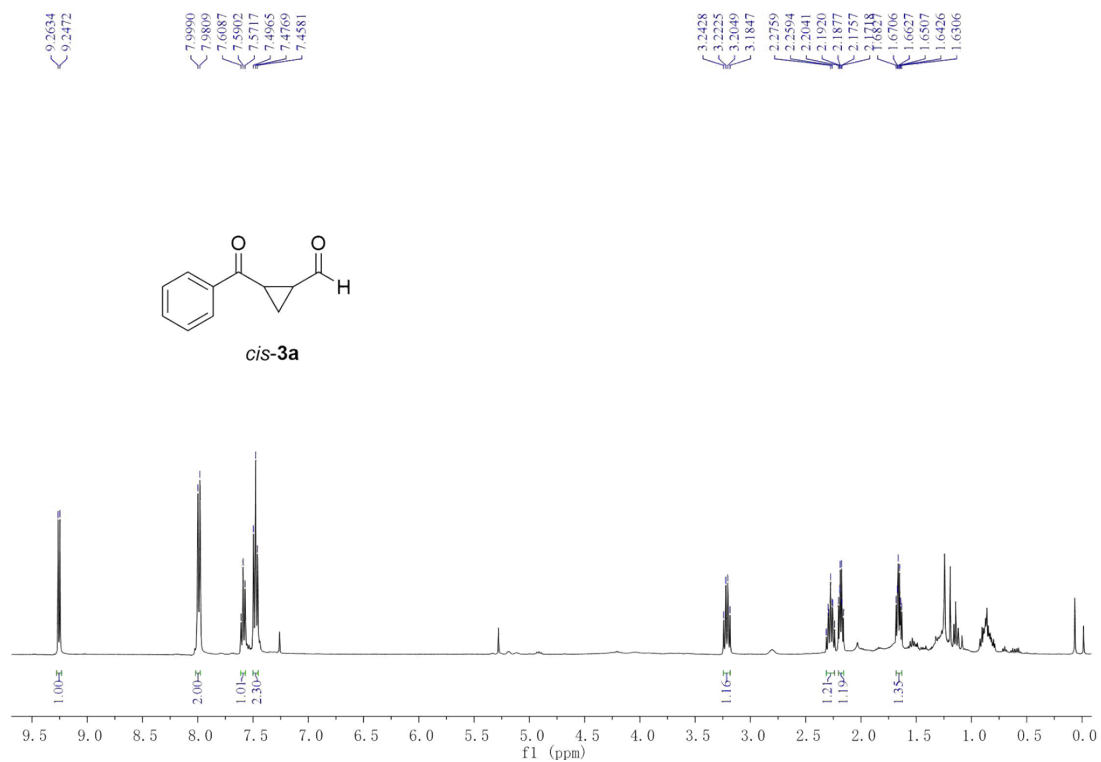


Figure 2

2. NMR Spectra of 3

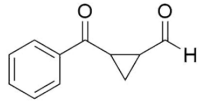


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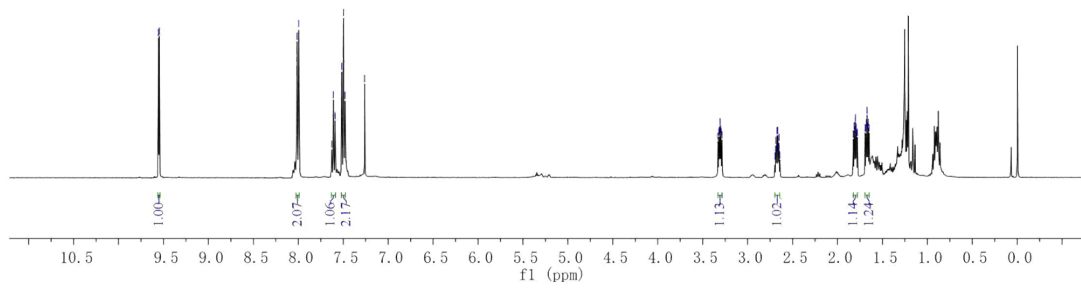
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3.3082
3.2983
3.2901
3.2839
3.2844

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2.6726
2.6650
2.6510
1.8146
1.8091
1.8019
1.8002
1.7932
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1.6478



trans-3a

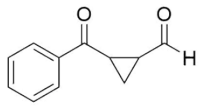


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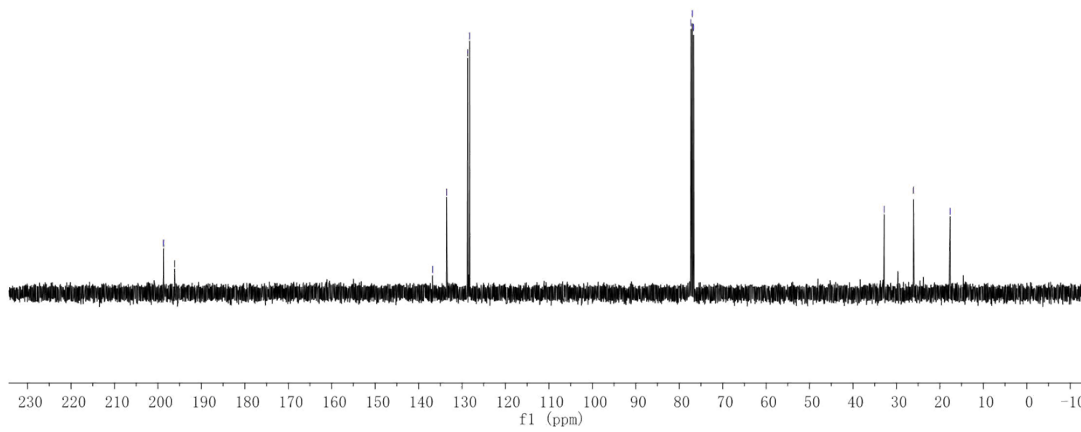
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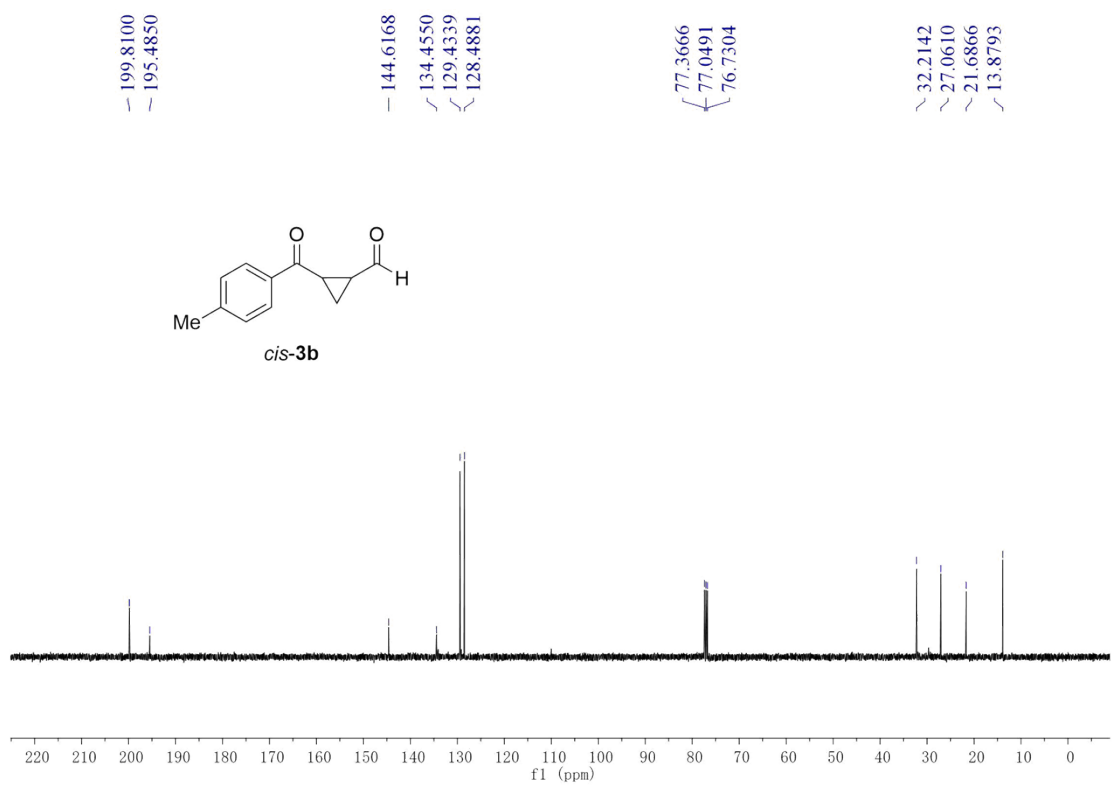
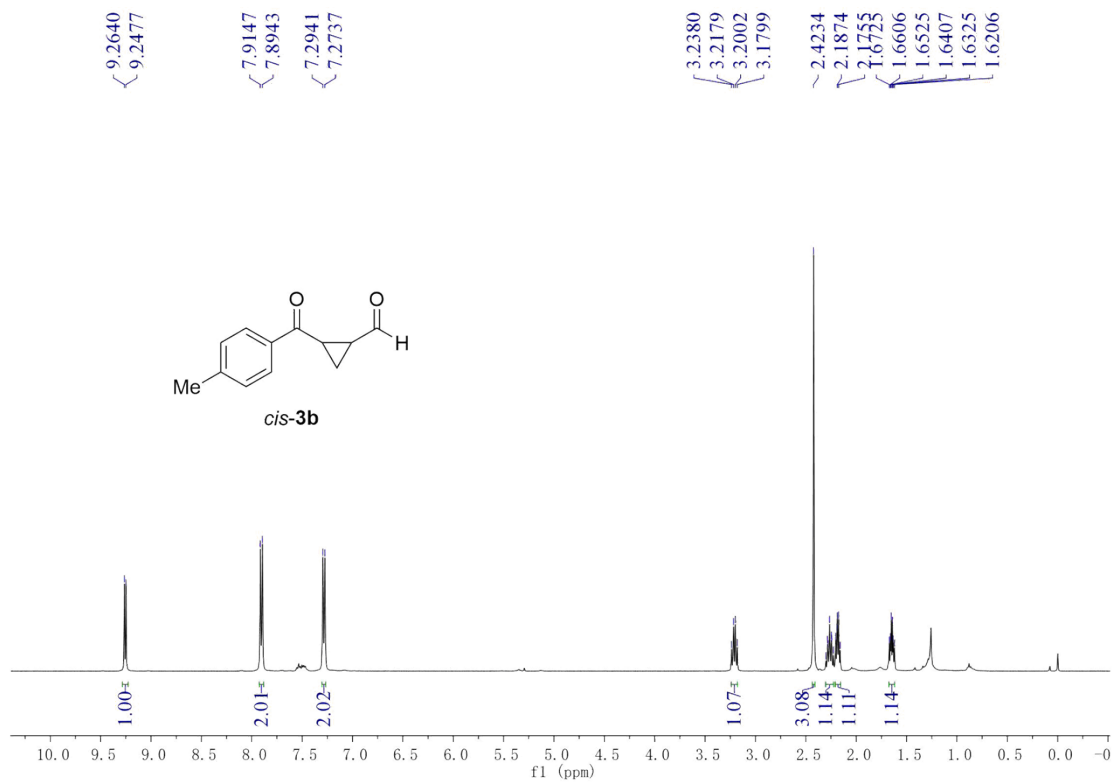
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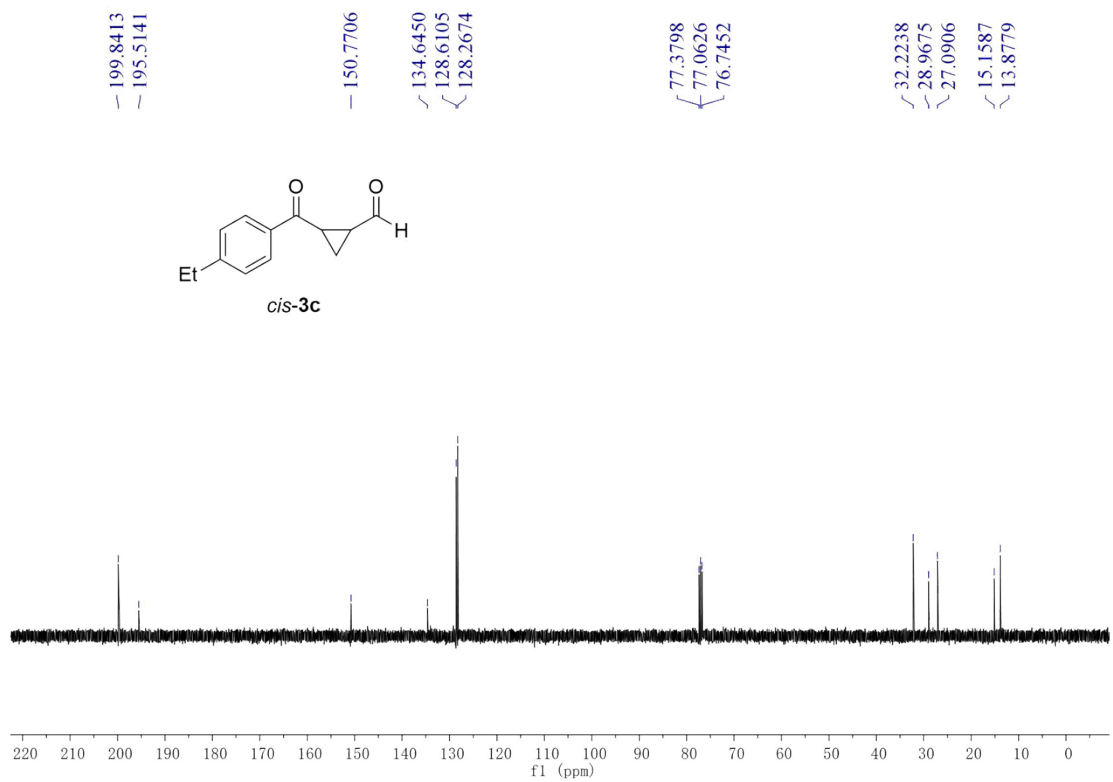
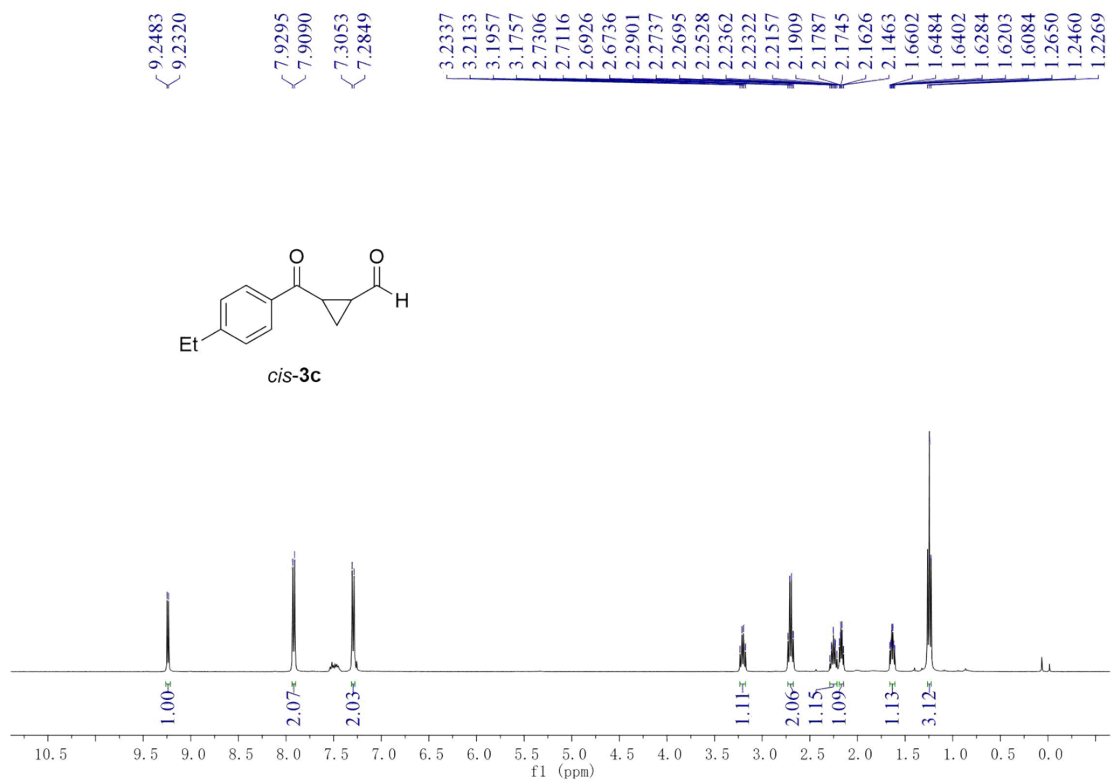
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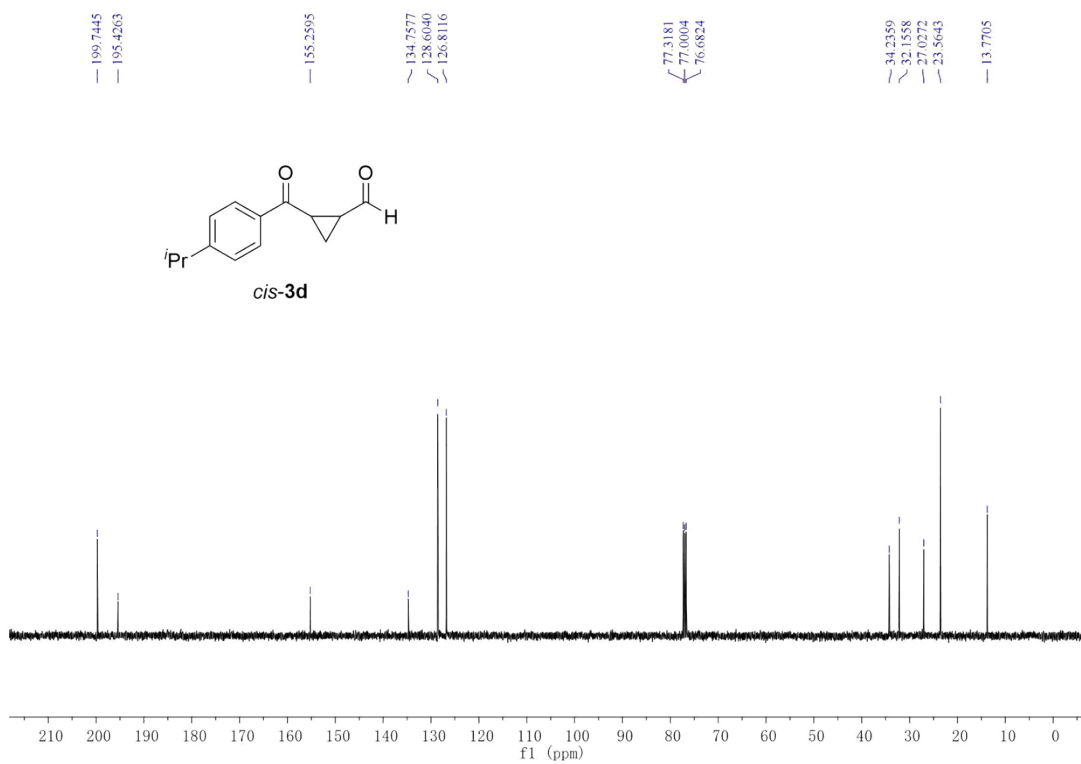
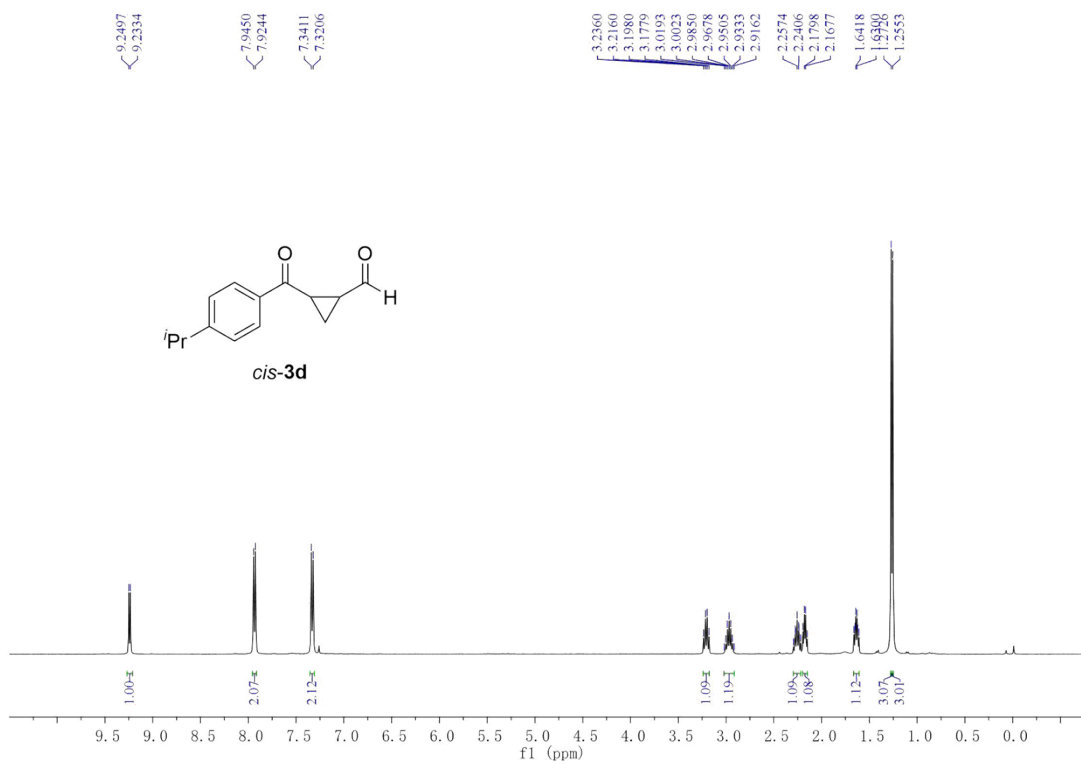


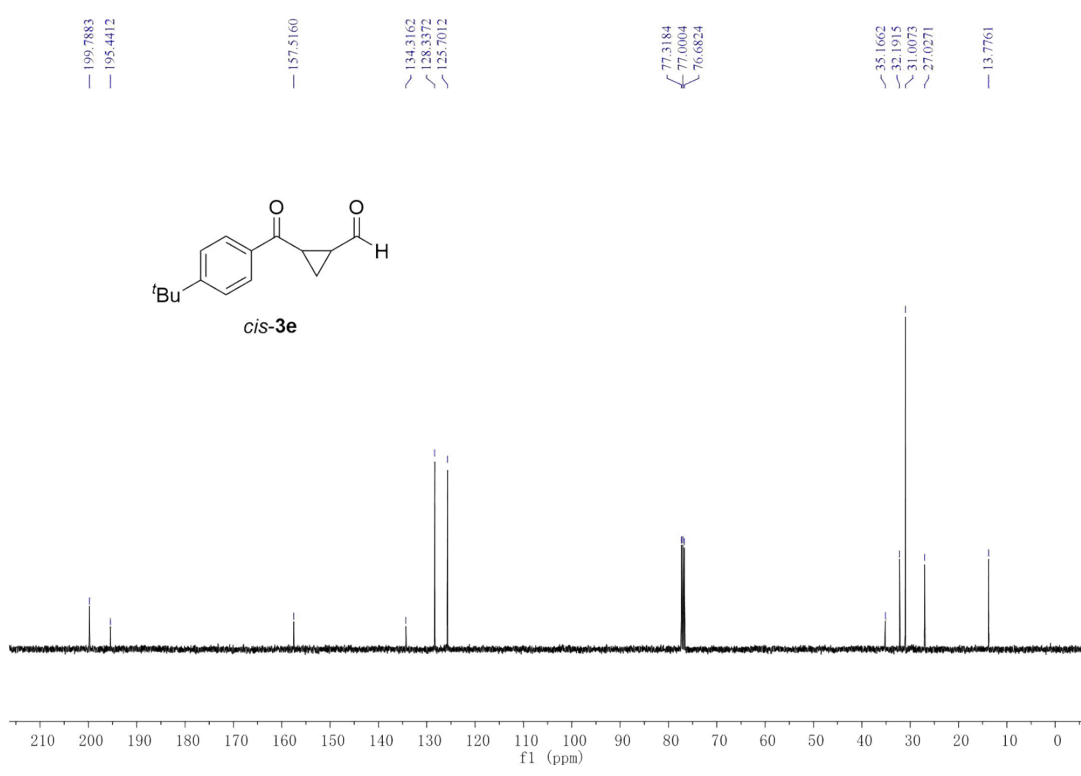
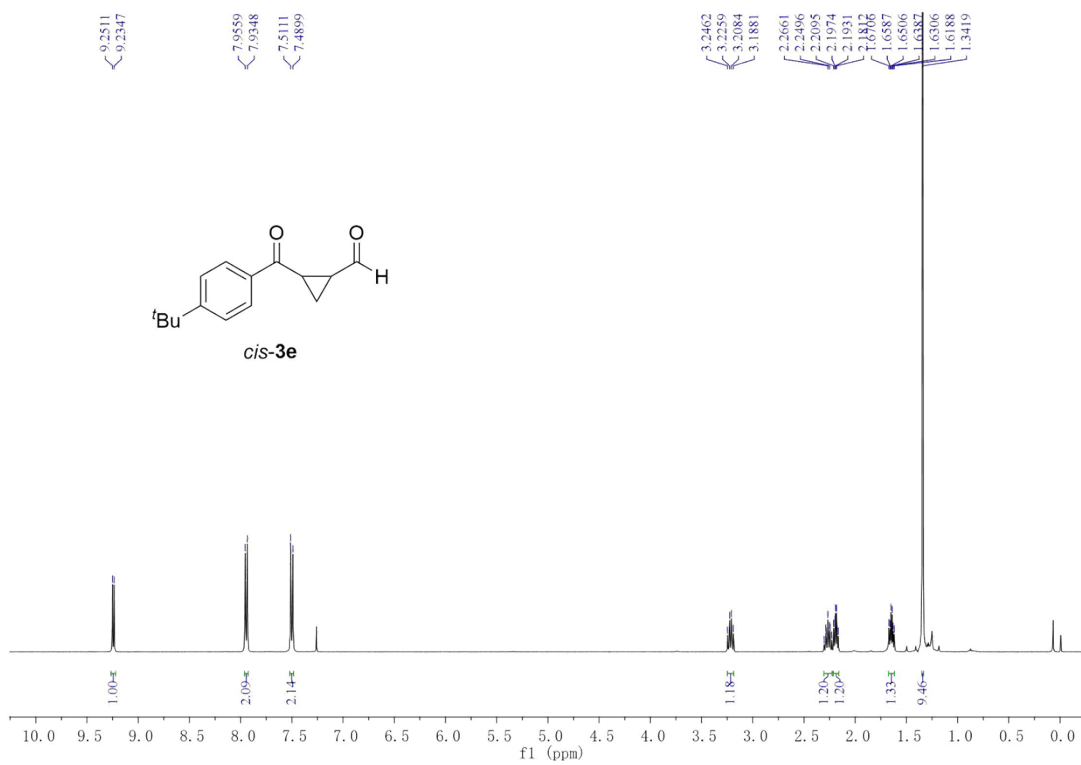
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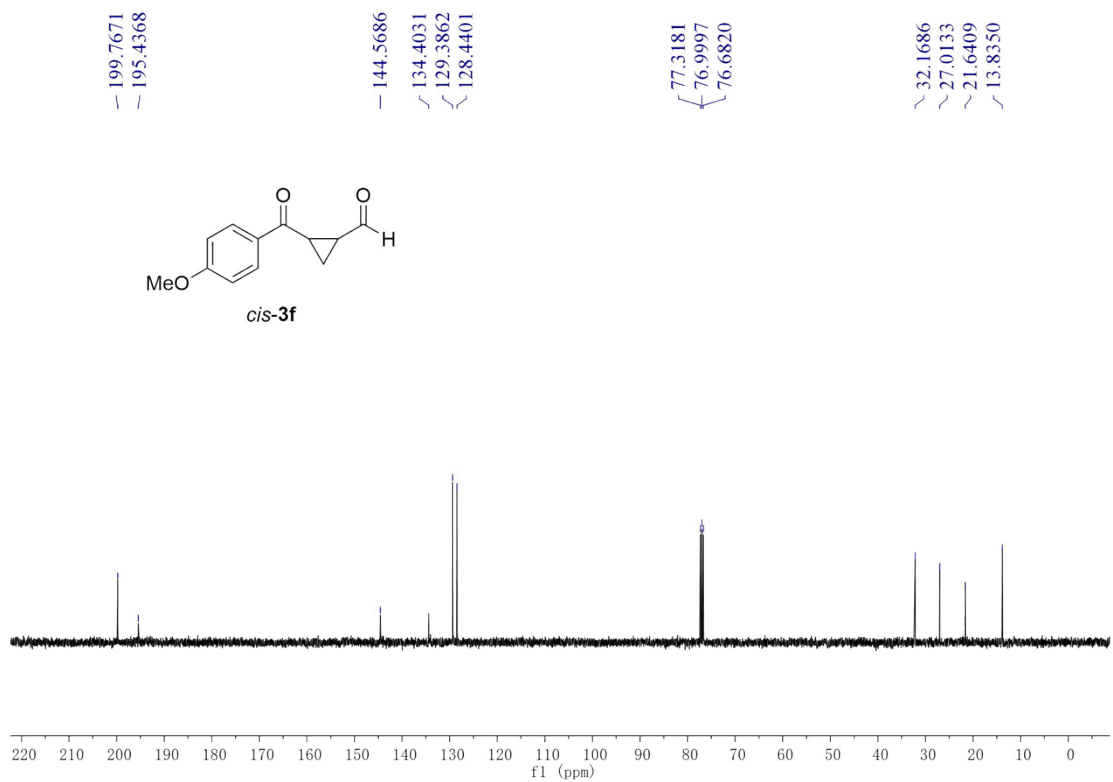
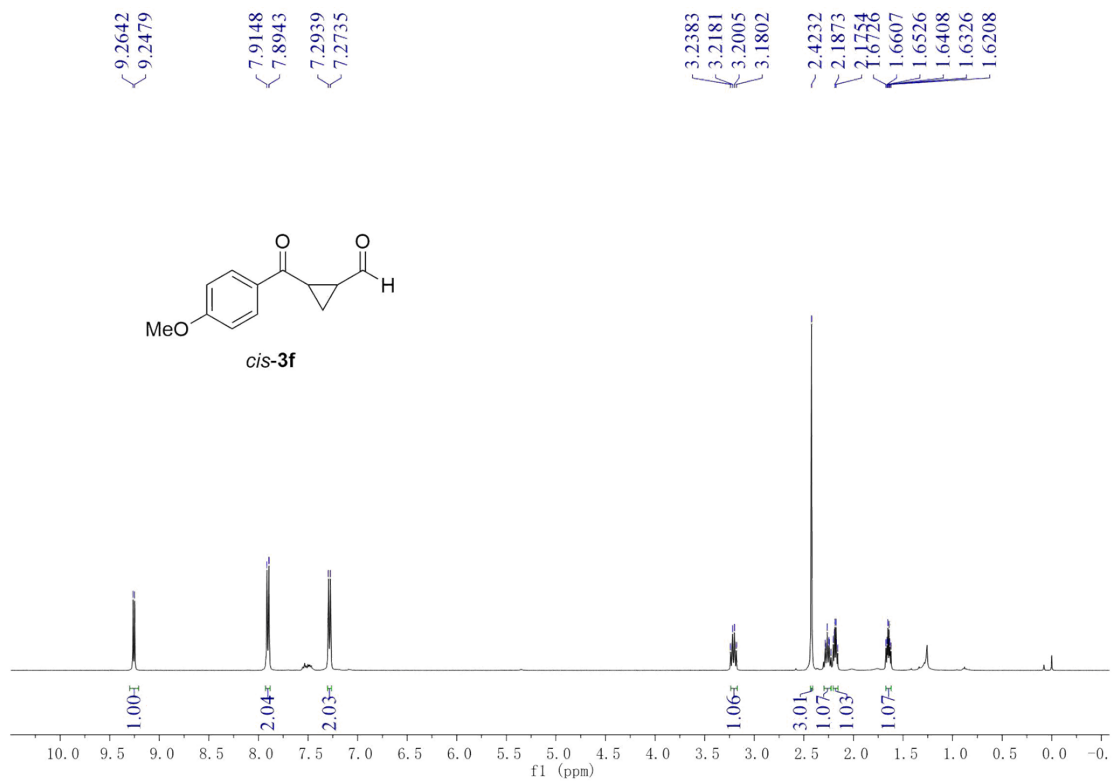












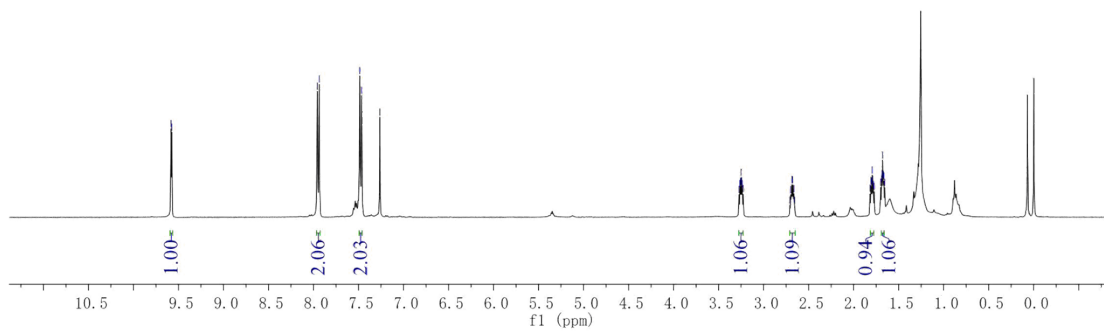
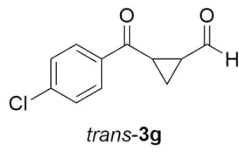
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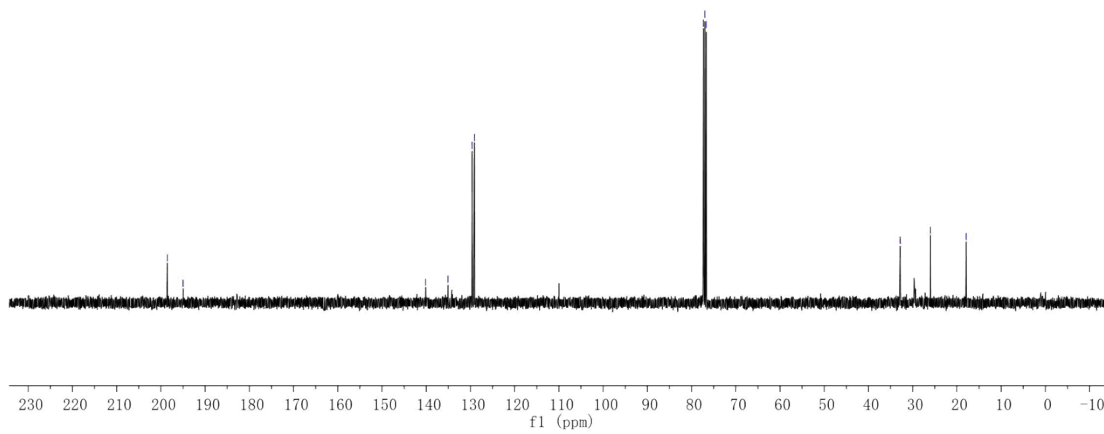
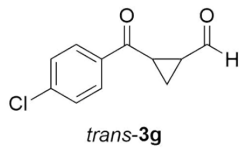


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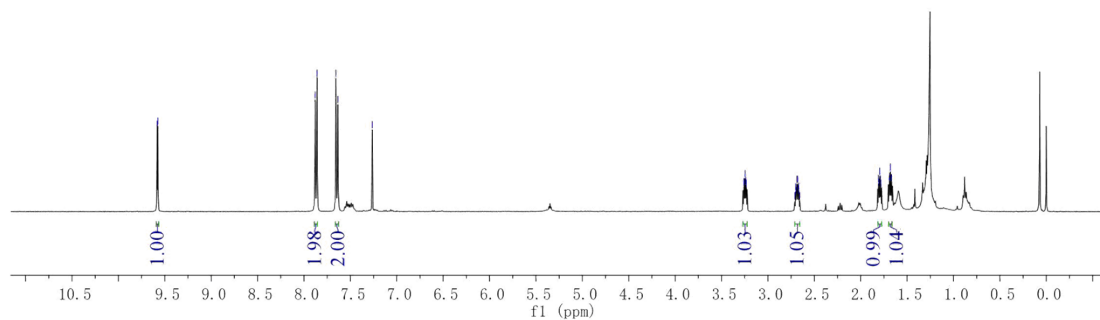
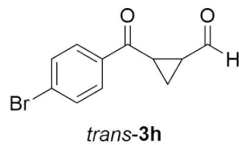


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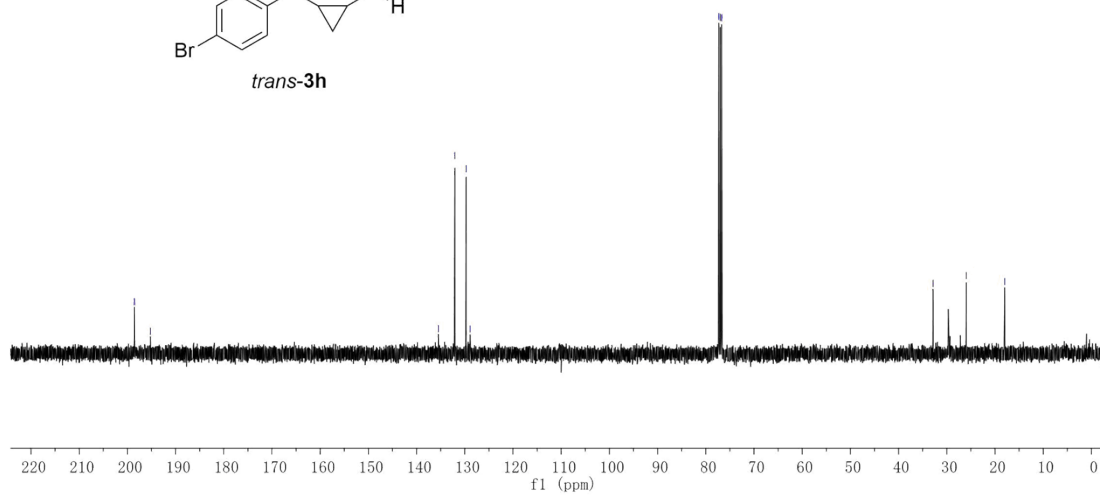
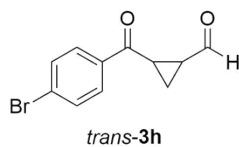


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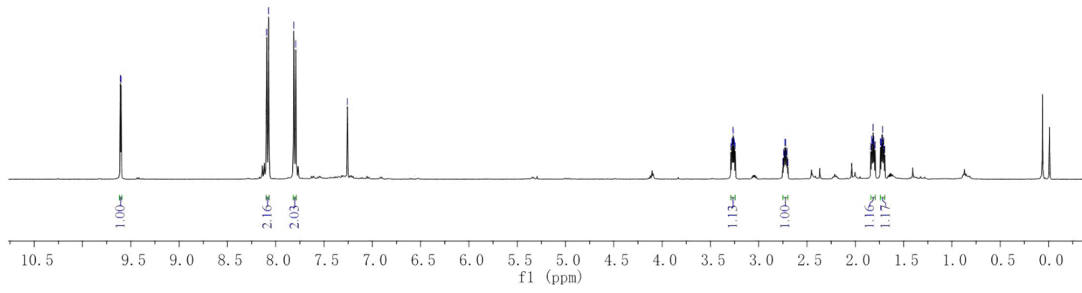
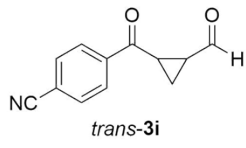
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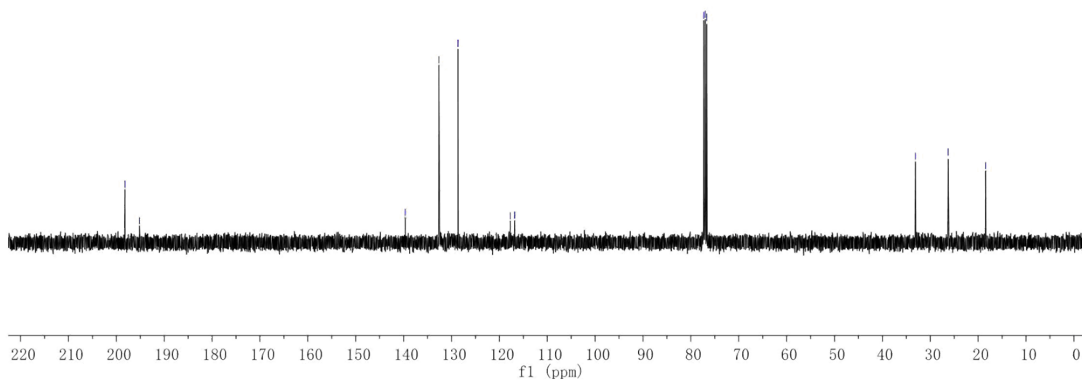
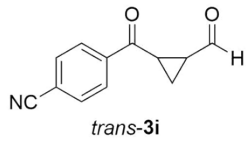
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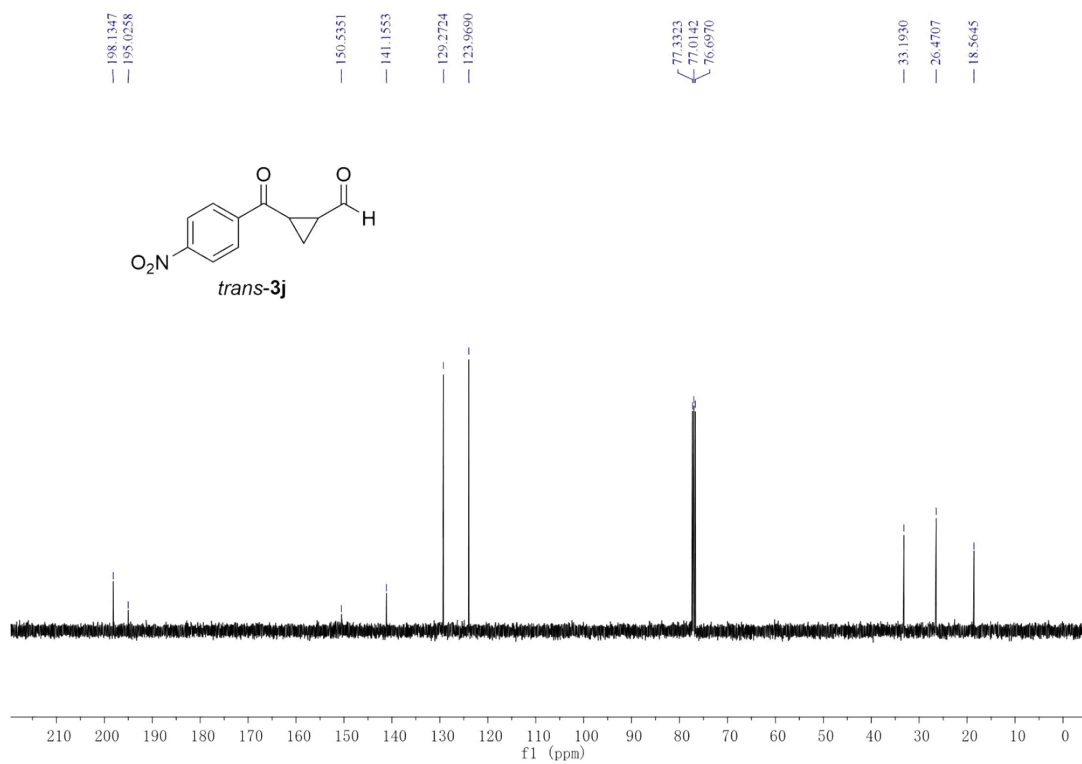
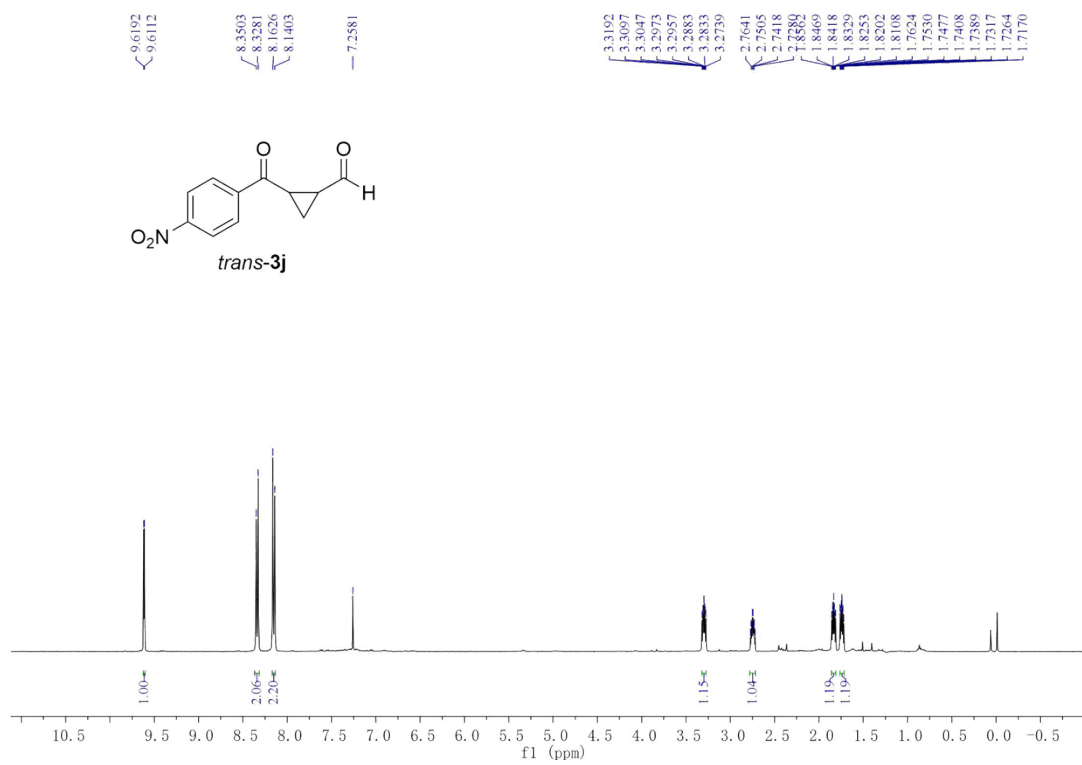
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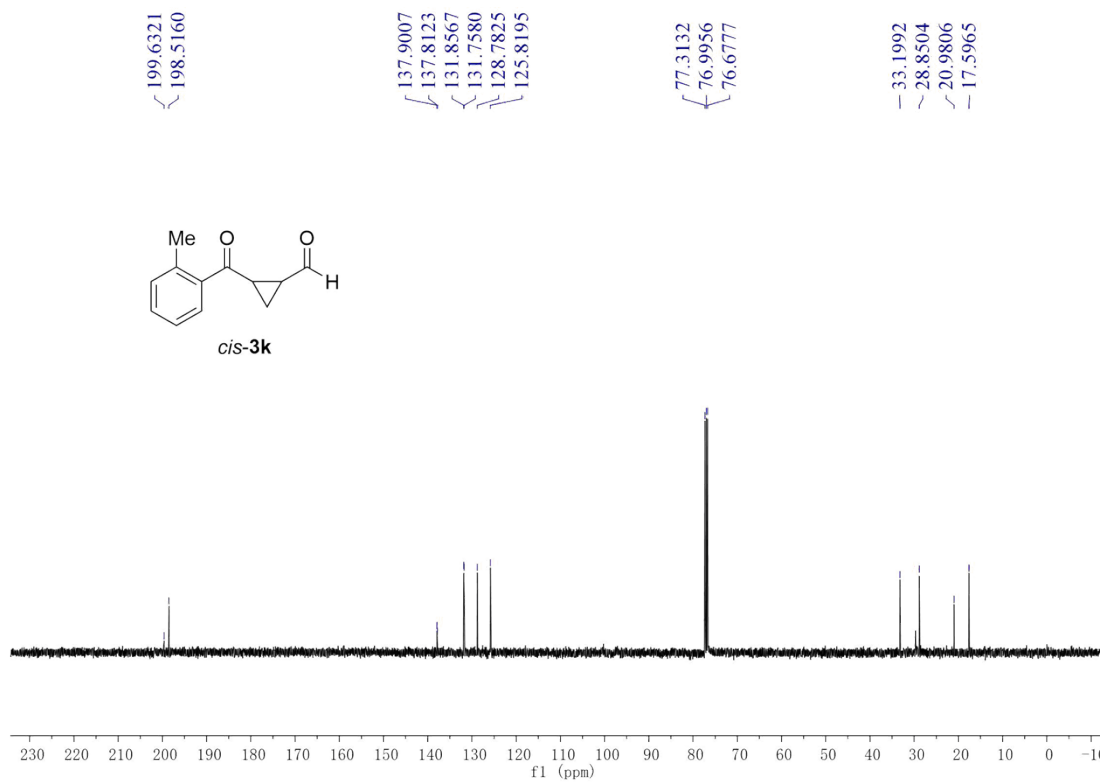
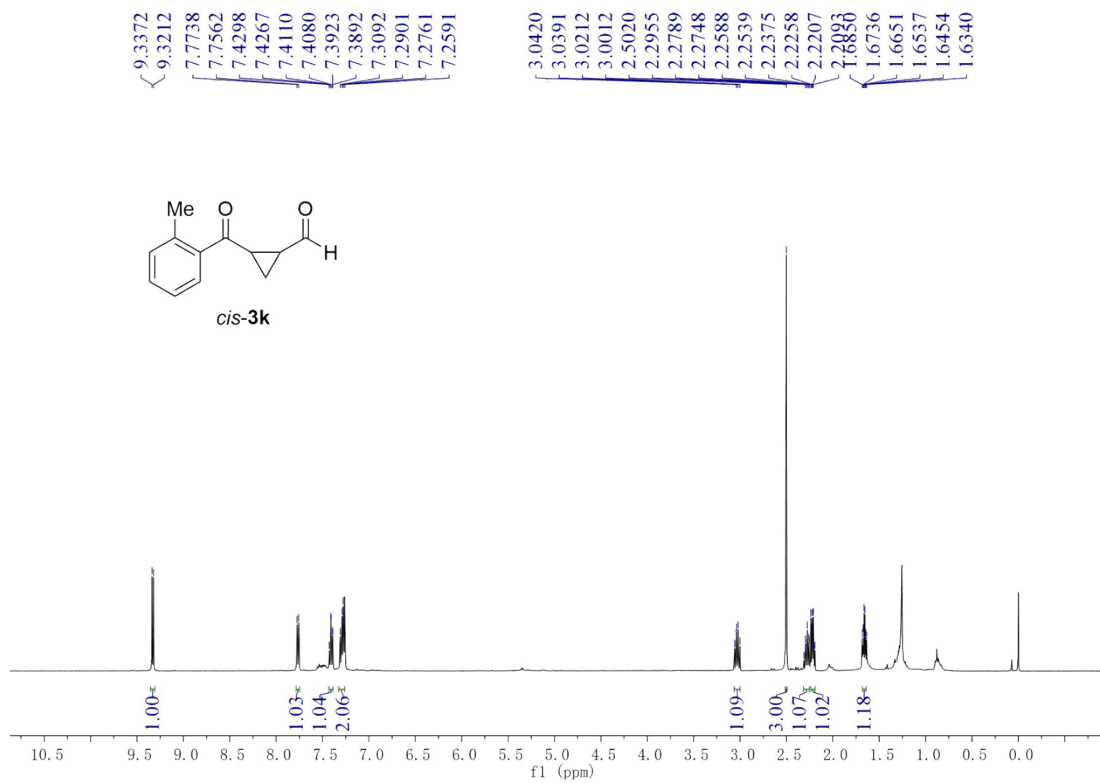
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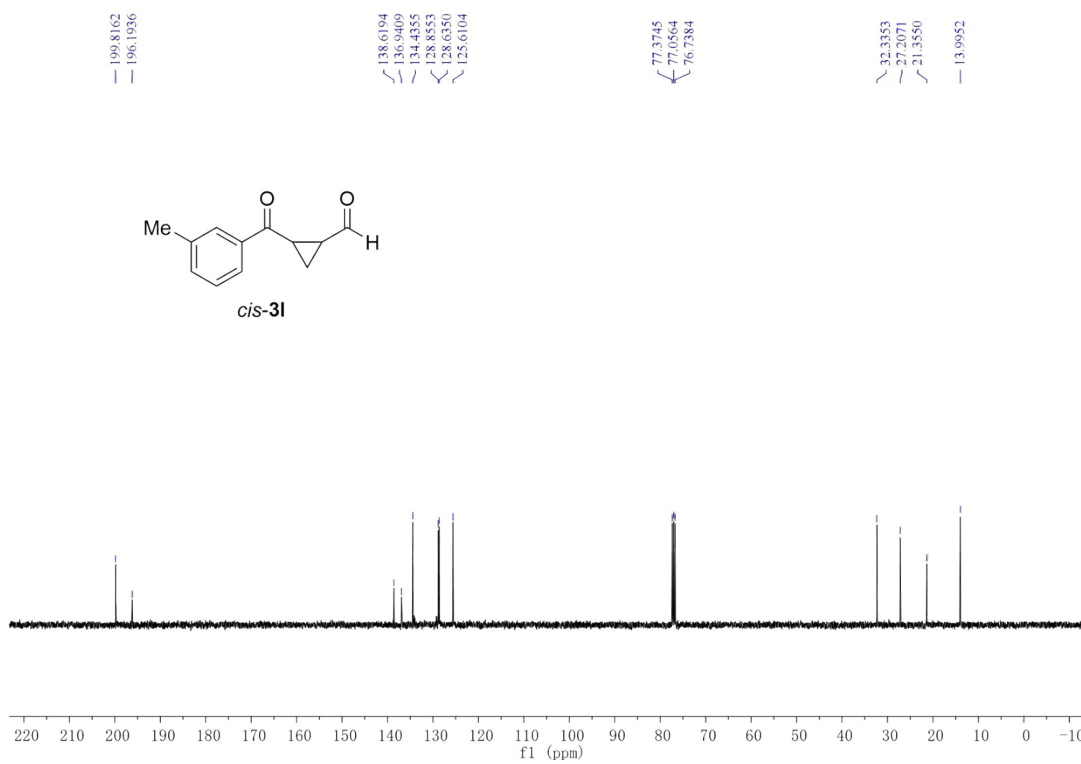
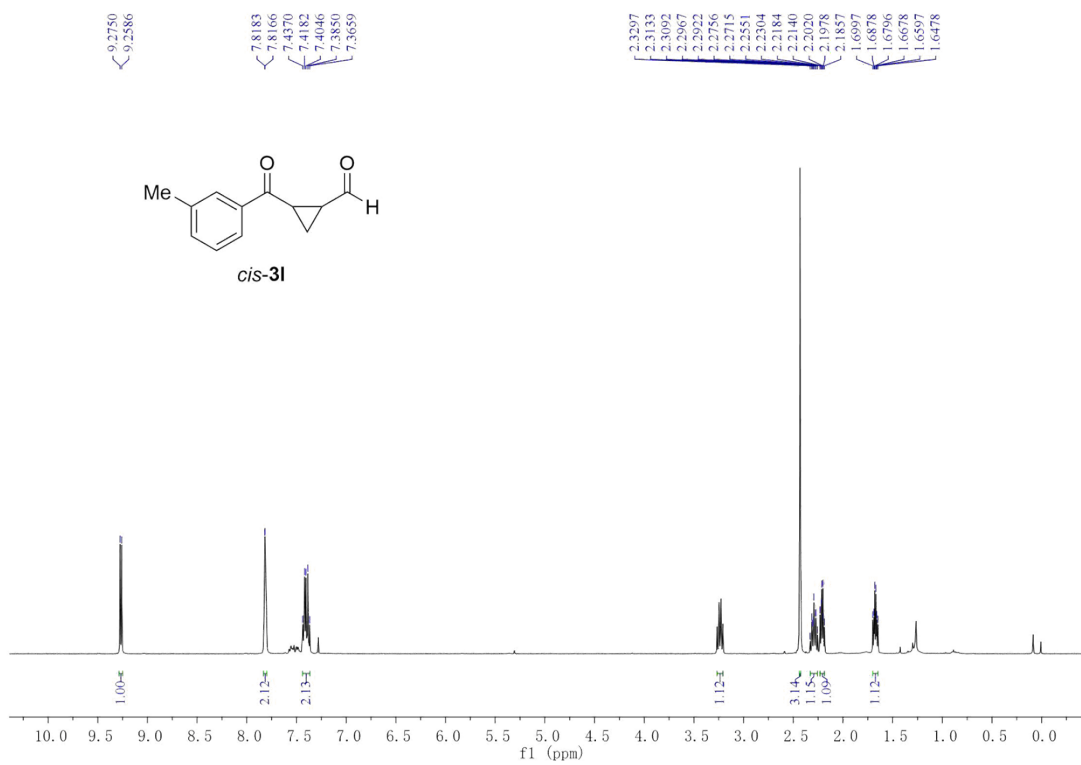
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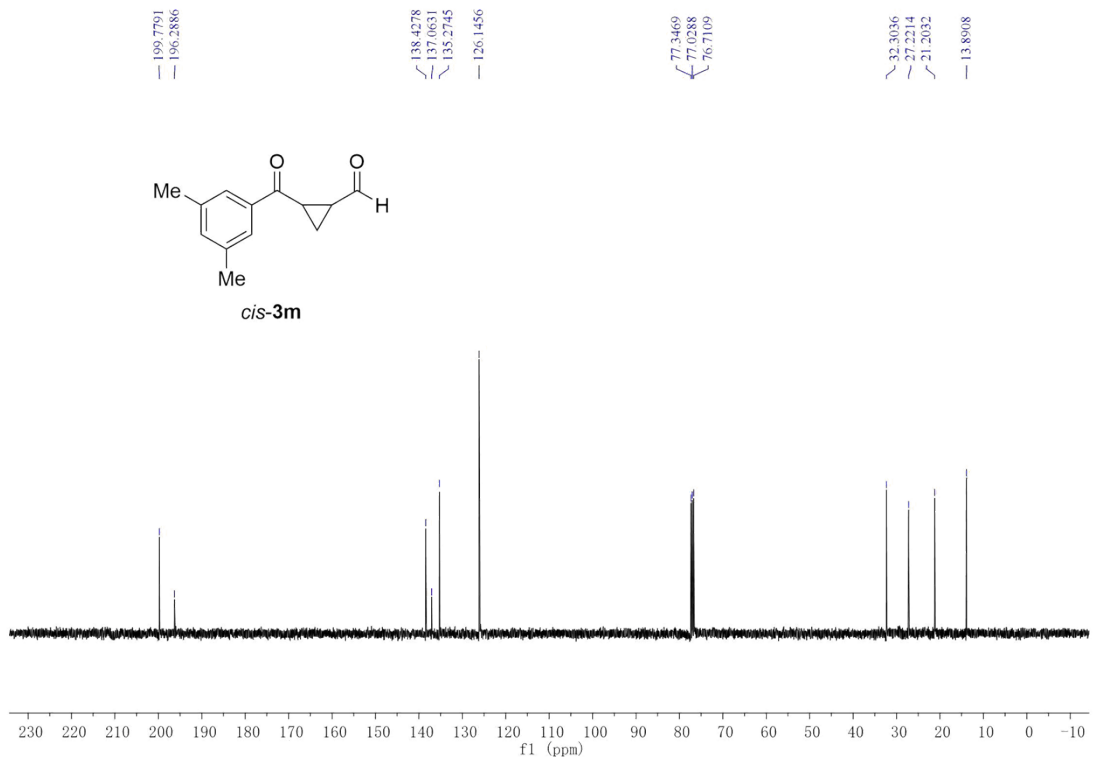
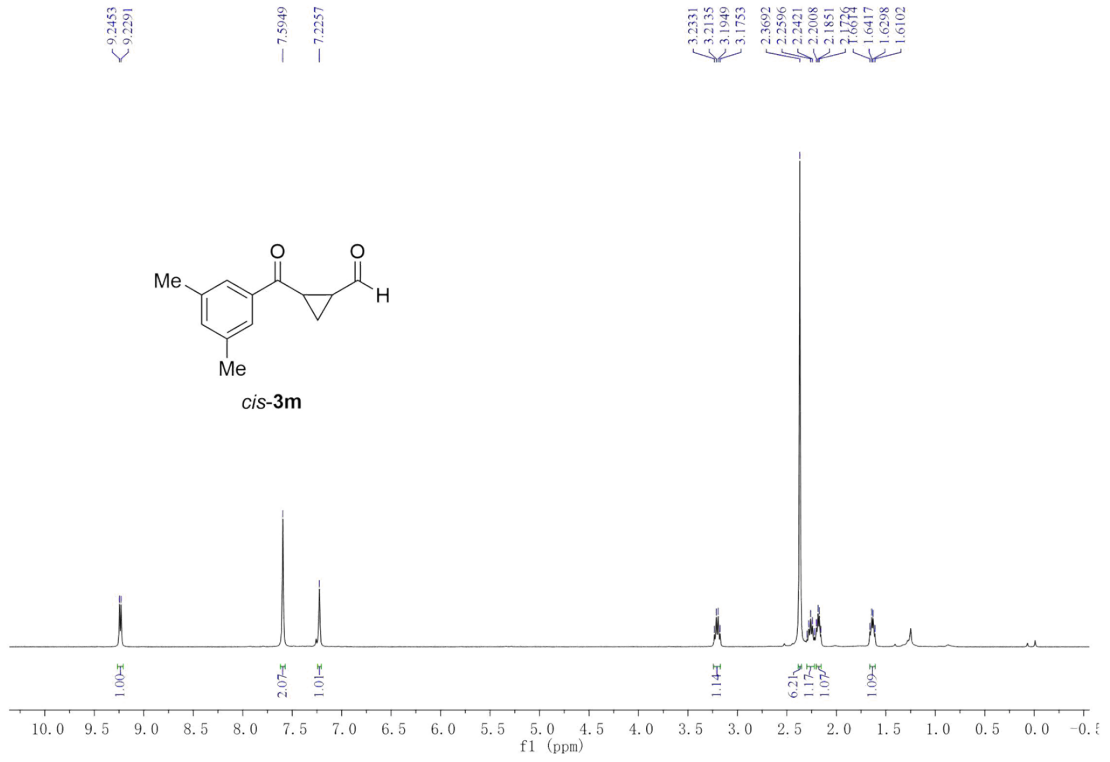
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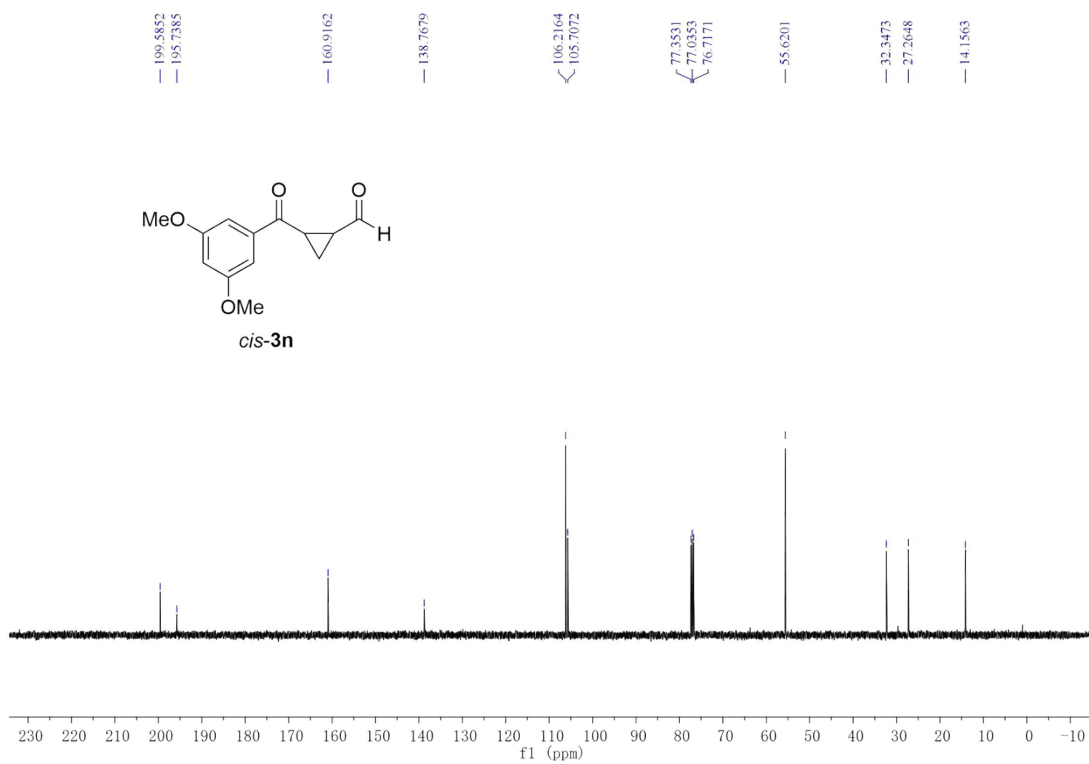
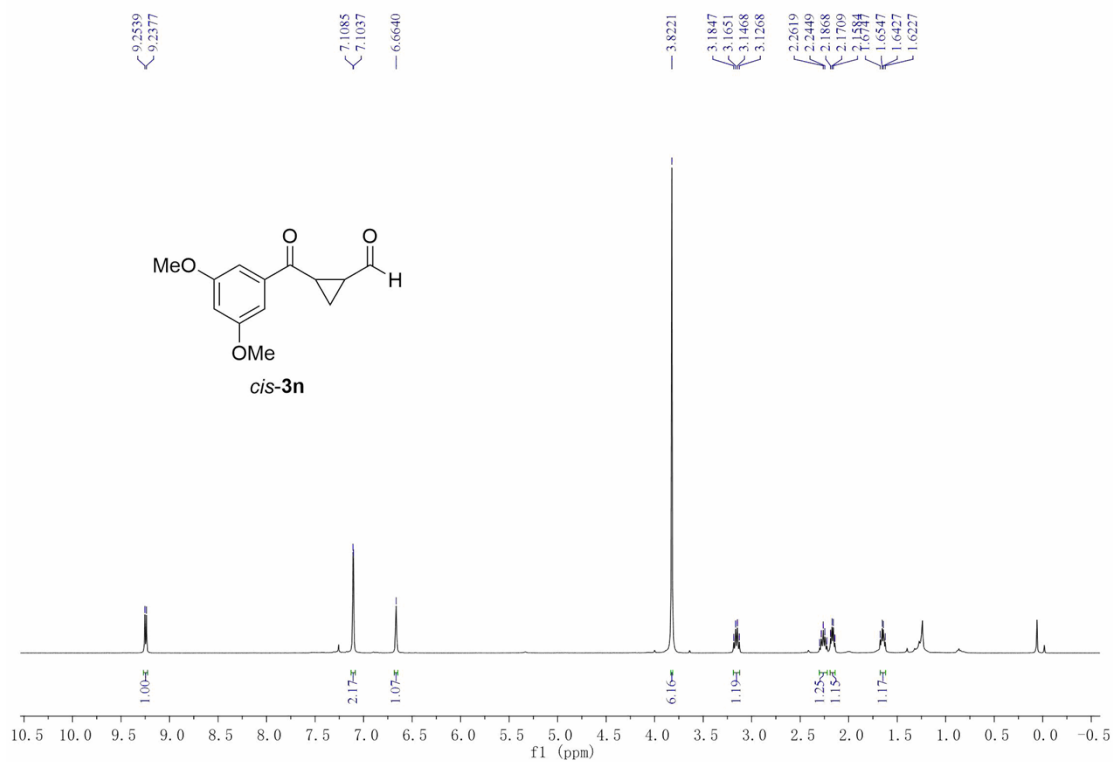


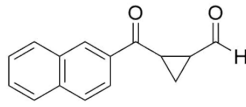




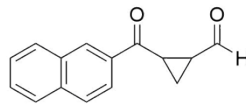
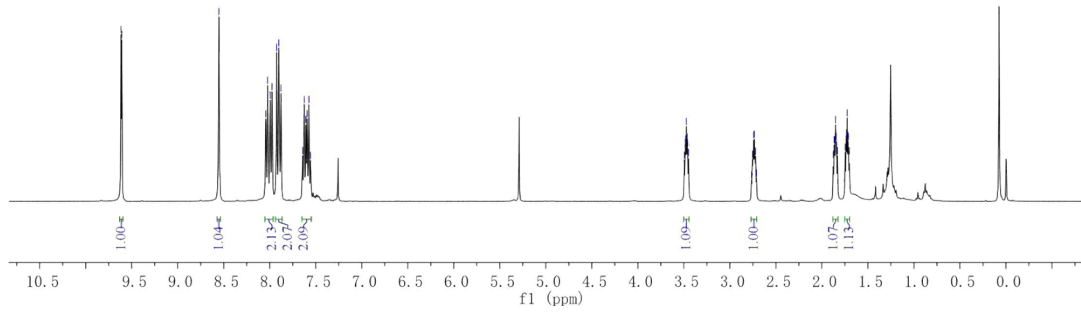




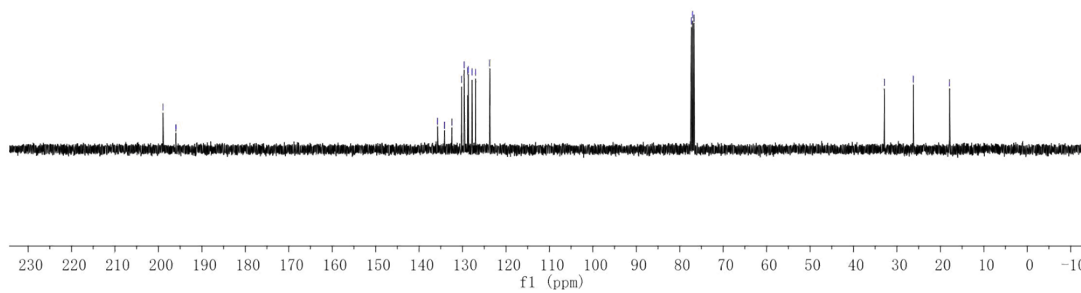




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trans-3o



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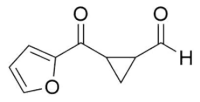
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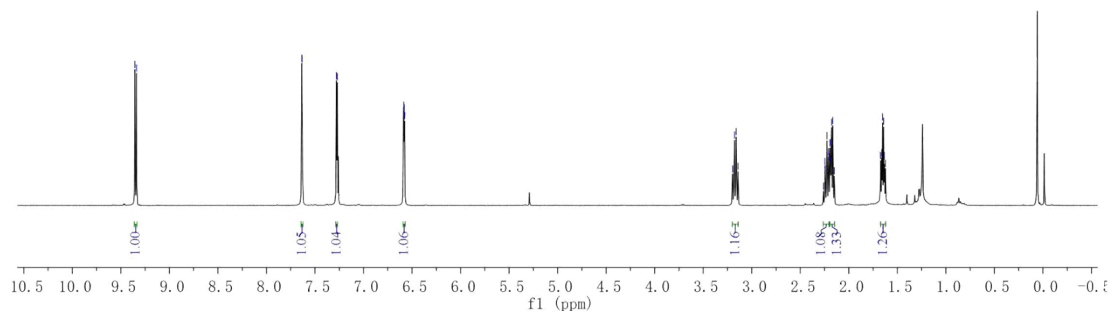
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cis-3p



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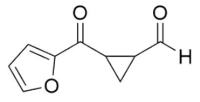
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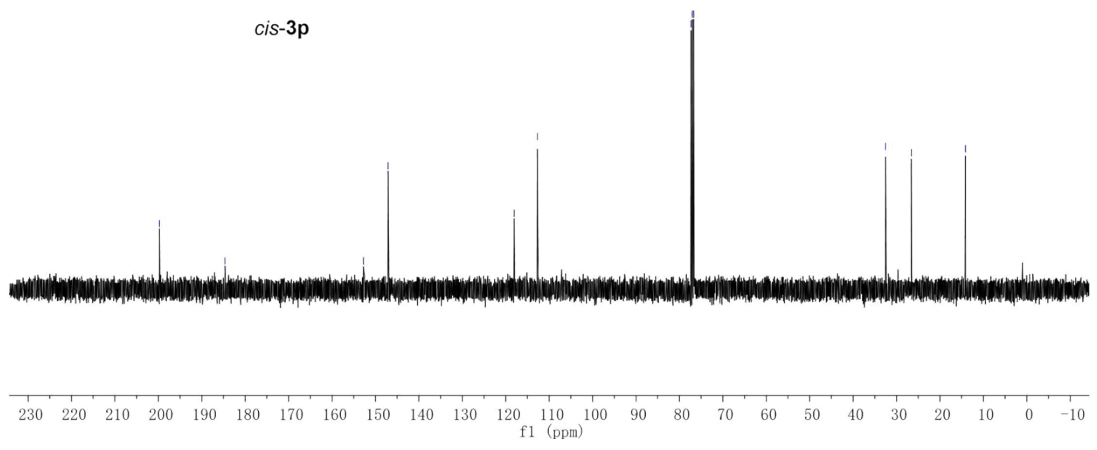
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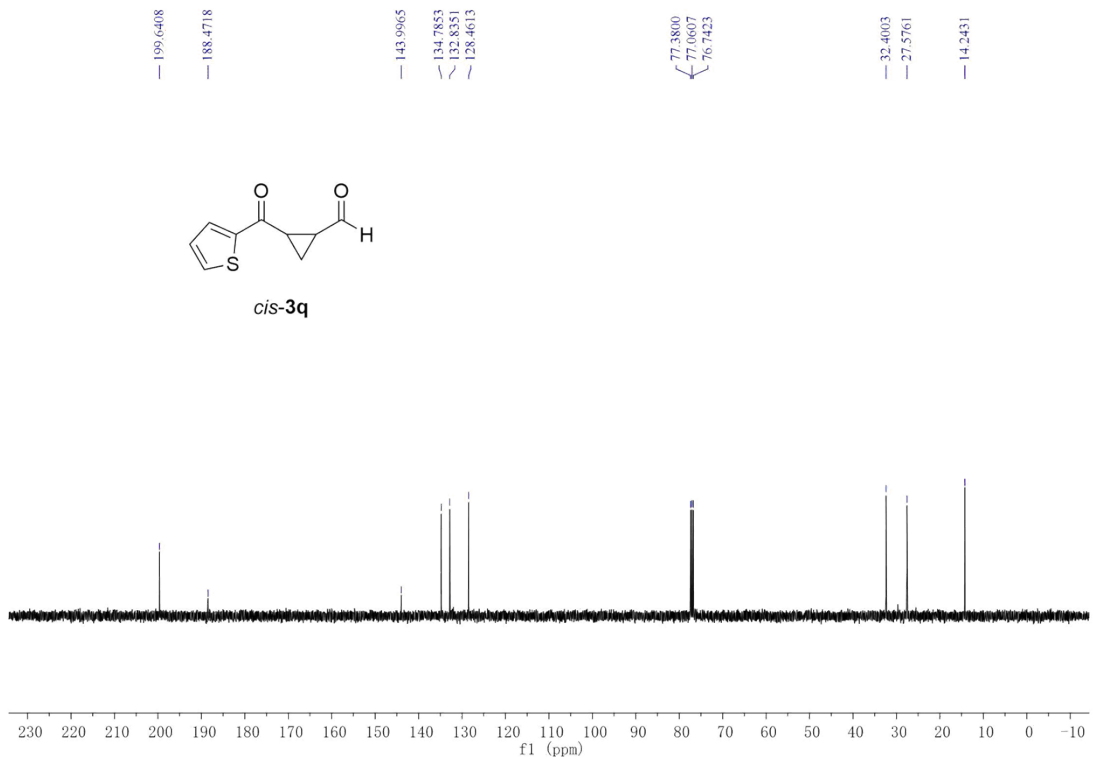
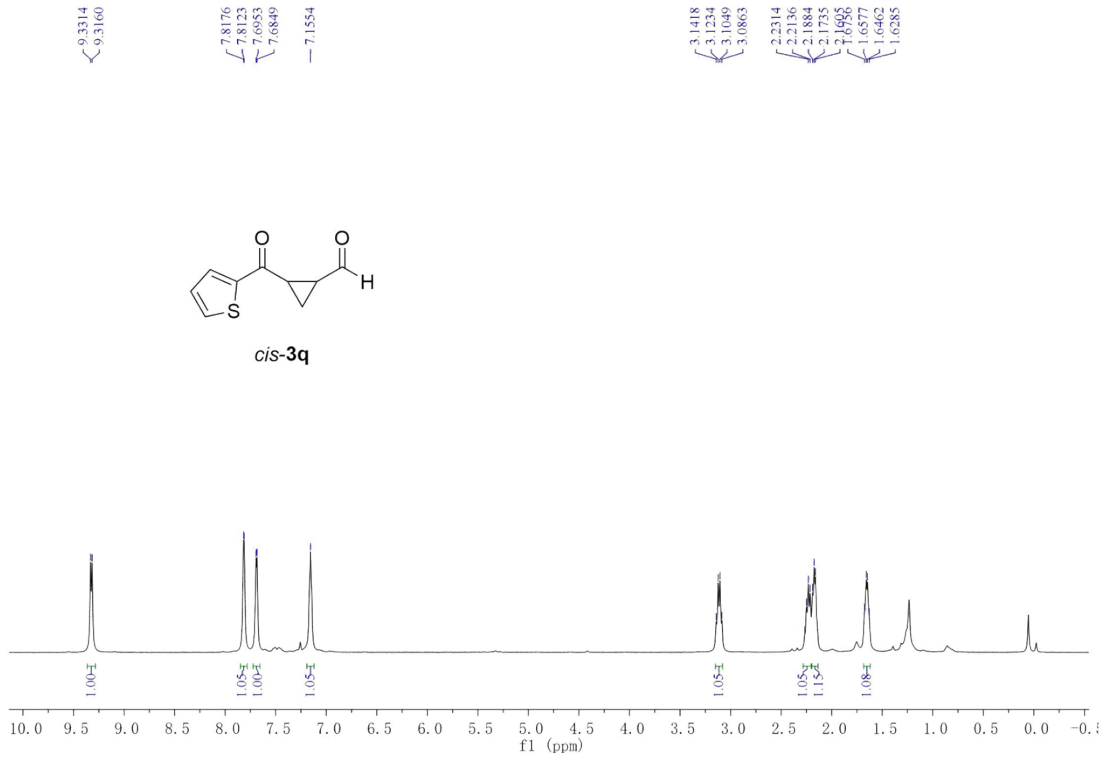
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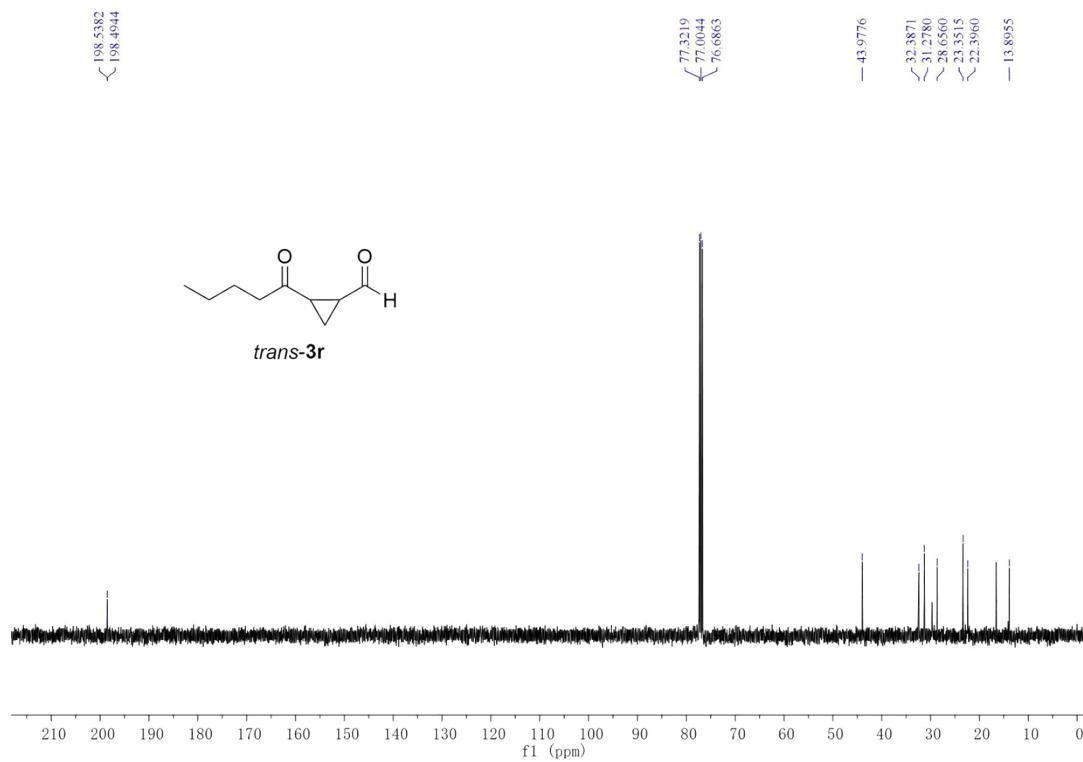
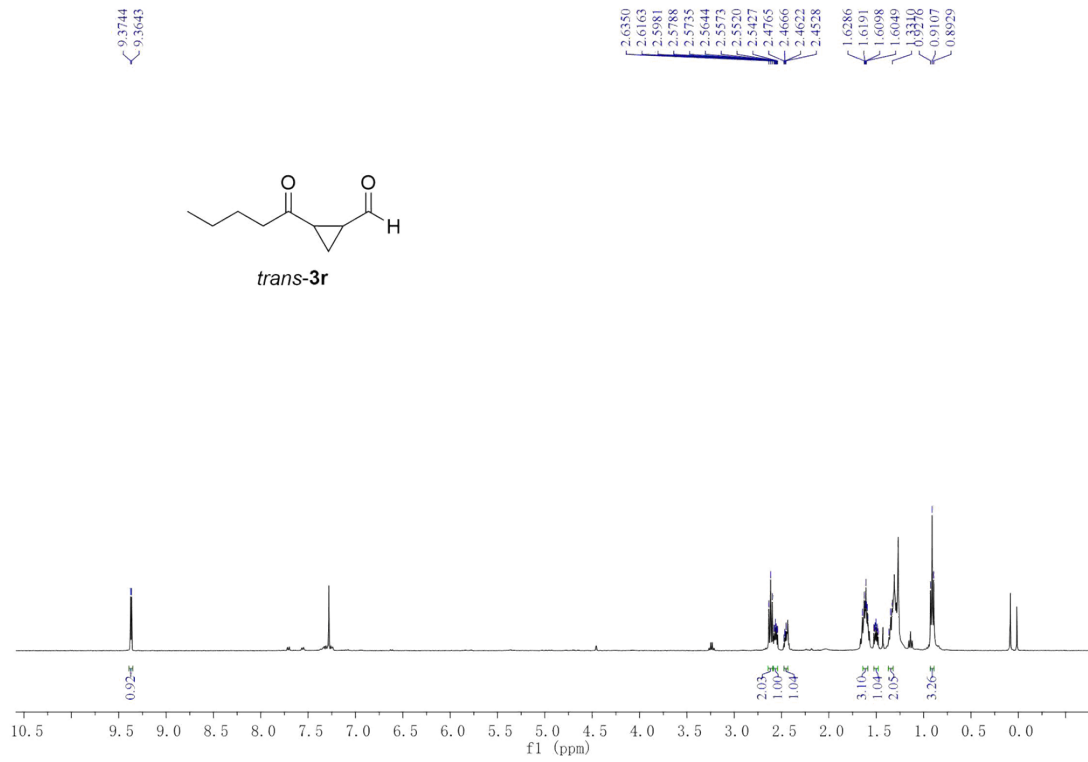
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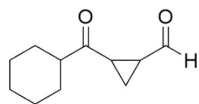




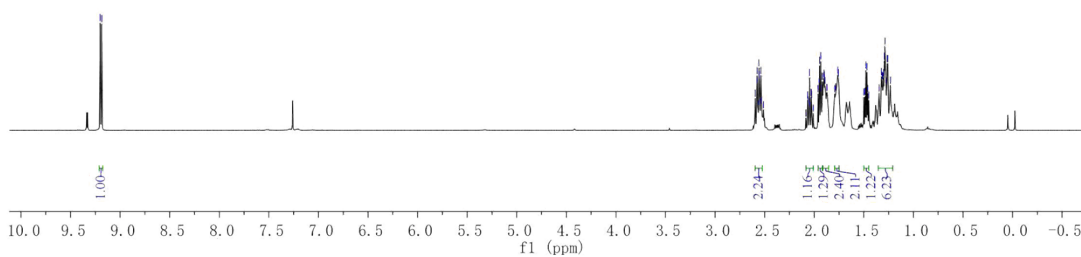


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cis-**3s**



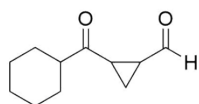
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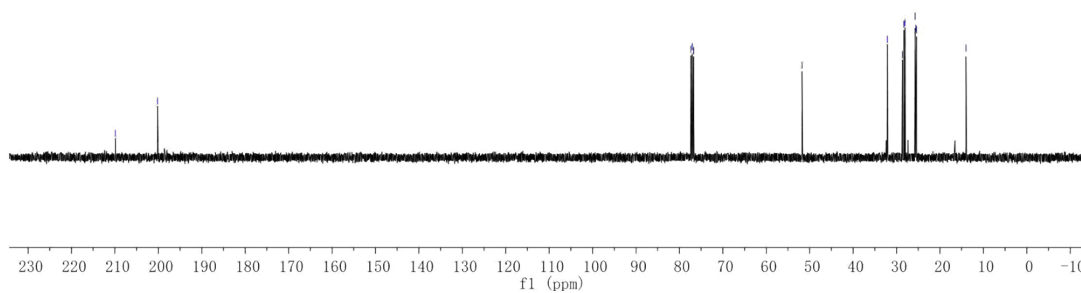
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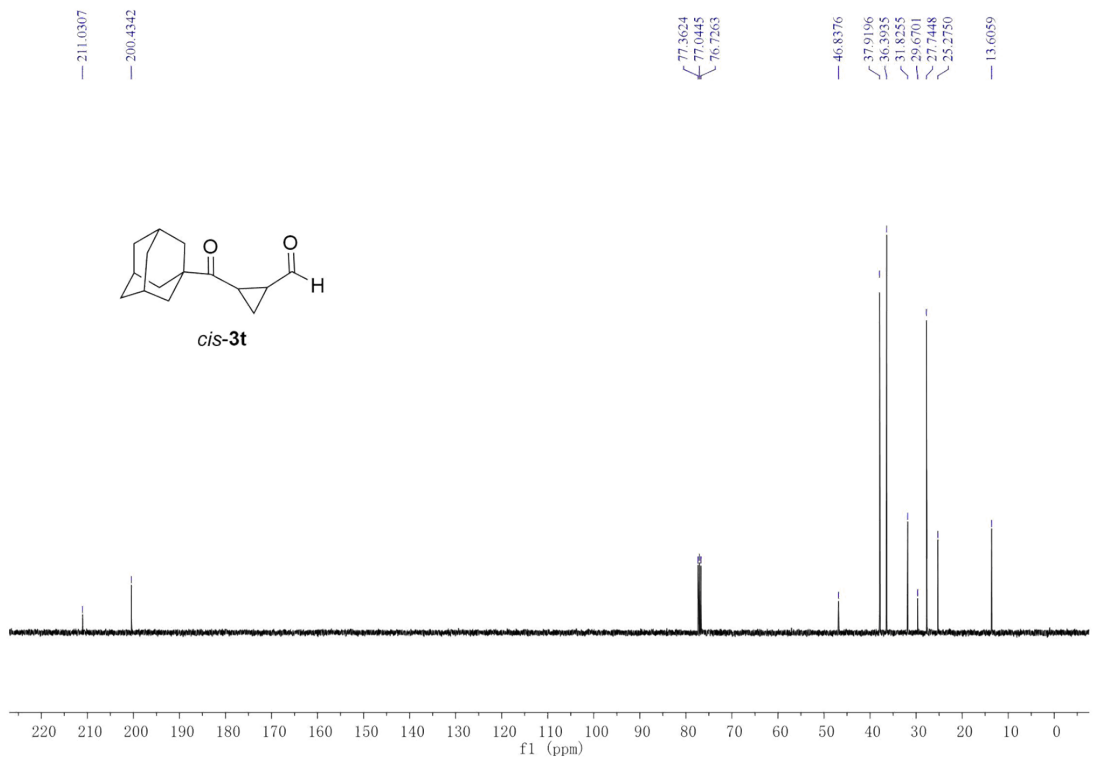
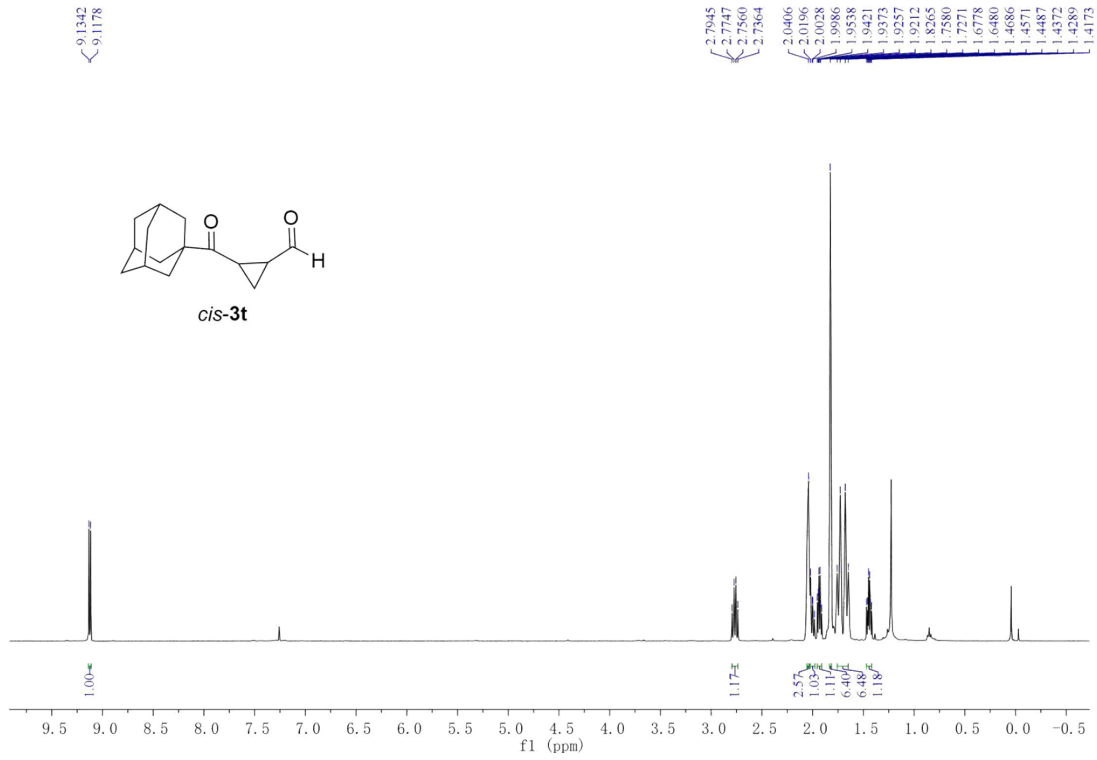
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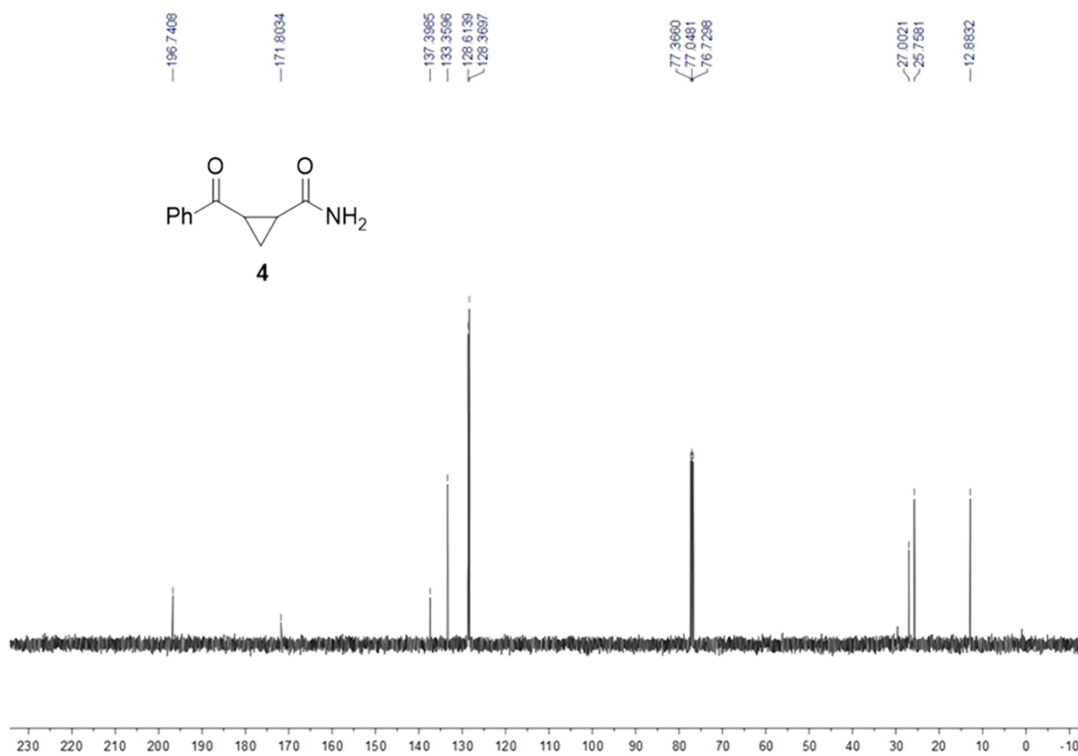
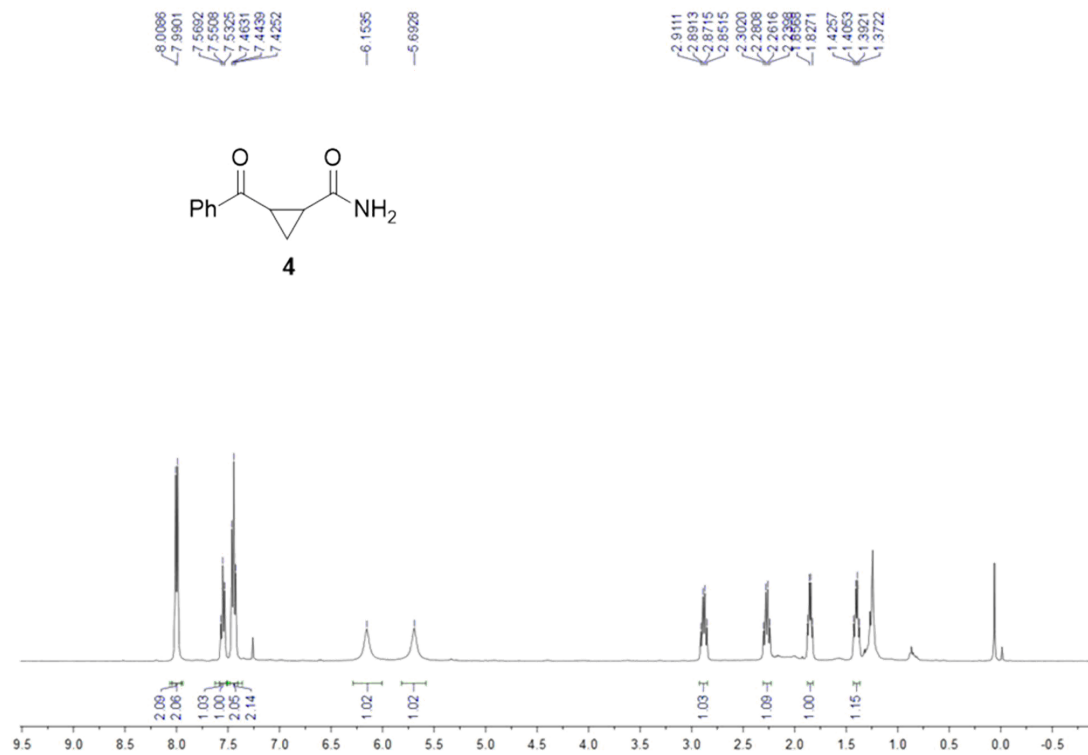


cis-**3s**





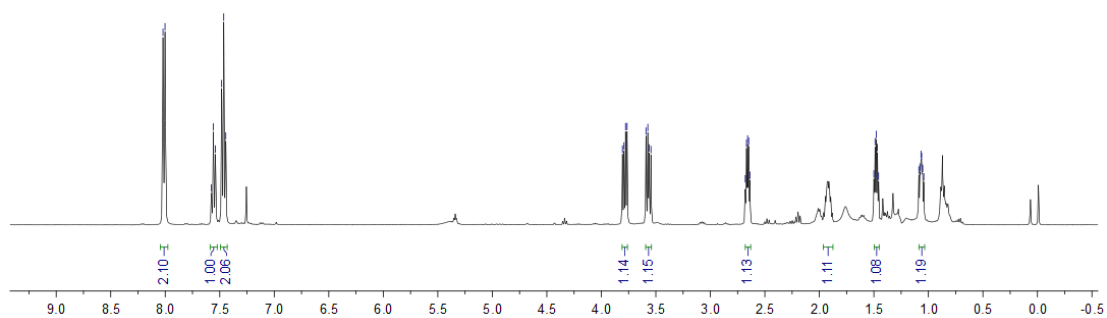
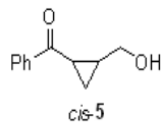
3. NMR Spectra of 4



4. NMR Spectra of 5

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