

**Iron Halide-Mediated Regio- and Stereoselective Halosulfonylation
of Terminal Alkynes with Sulfonylhydrazides: Synthesis of
(*E*)- β -Chloro and Bromo Vinylsulfones**

Xiaoqing Li,* Xinhua Shi, Mingwu Fang, Xiangsheng Xu*

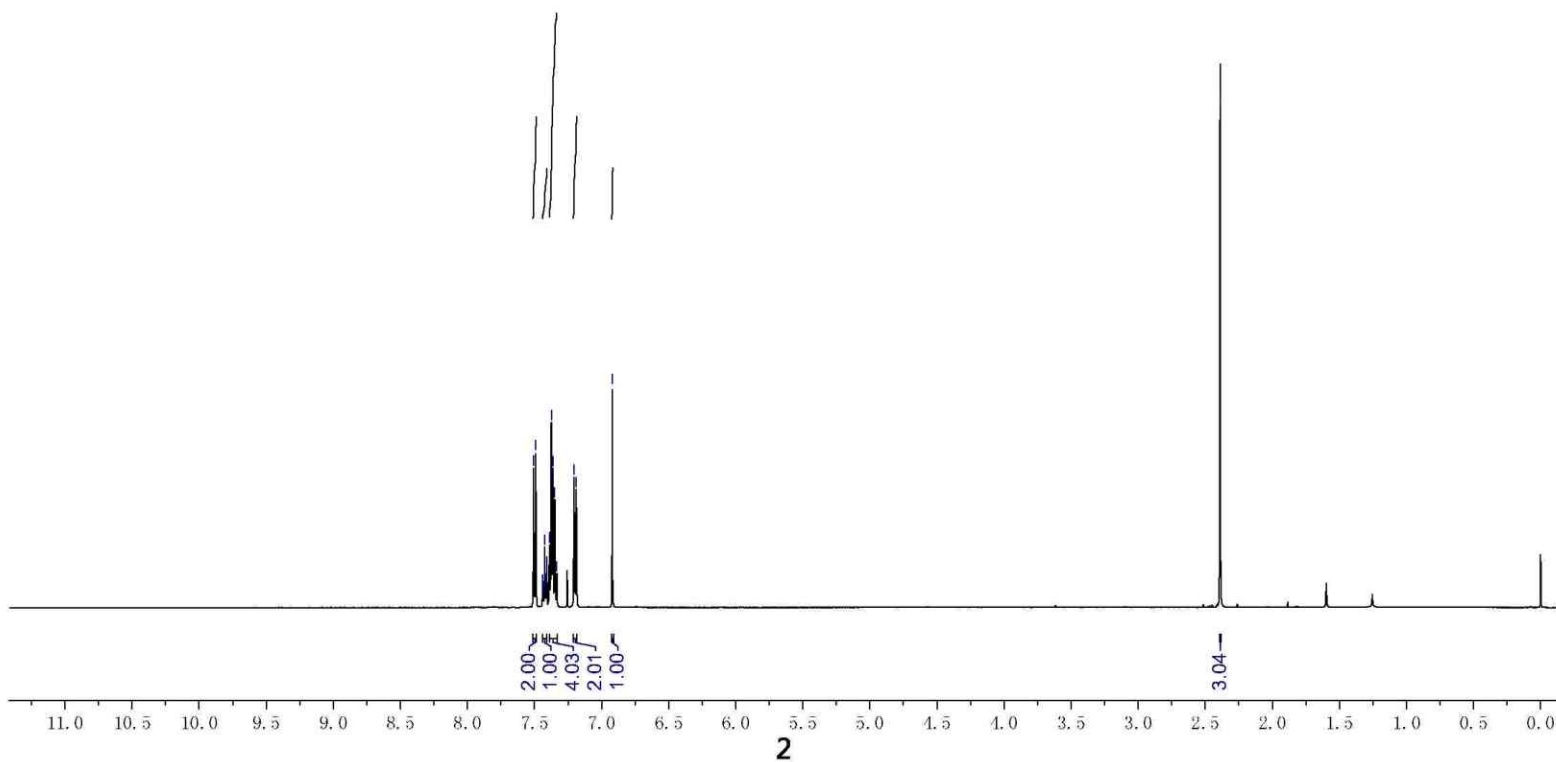
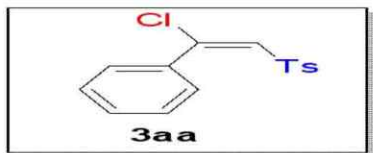
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Technology, Hangzhou 310014, P. R. China.

E-mail: xqli@zjut.edu.cn and future@zjut.edu.cn.

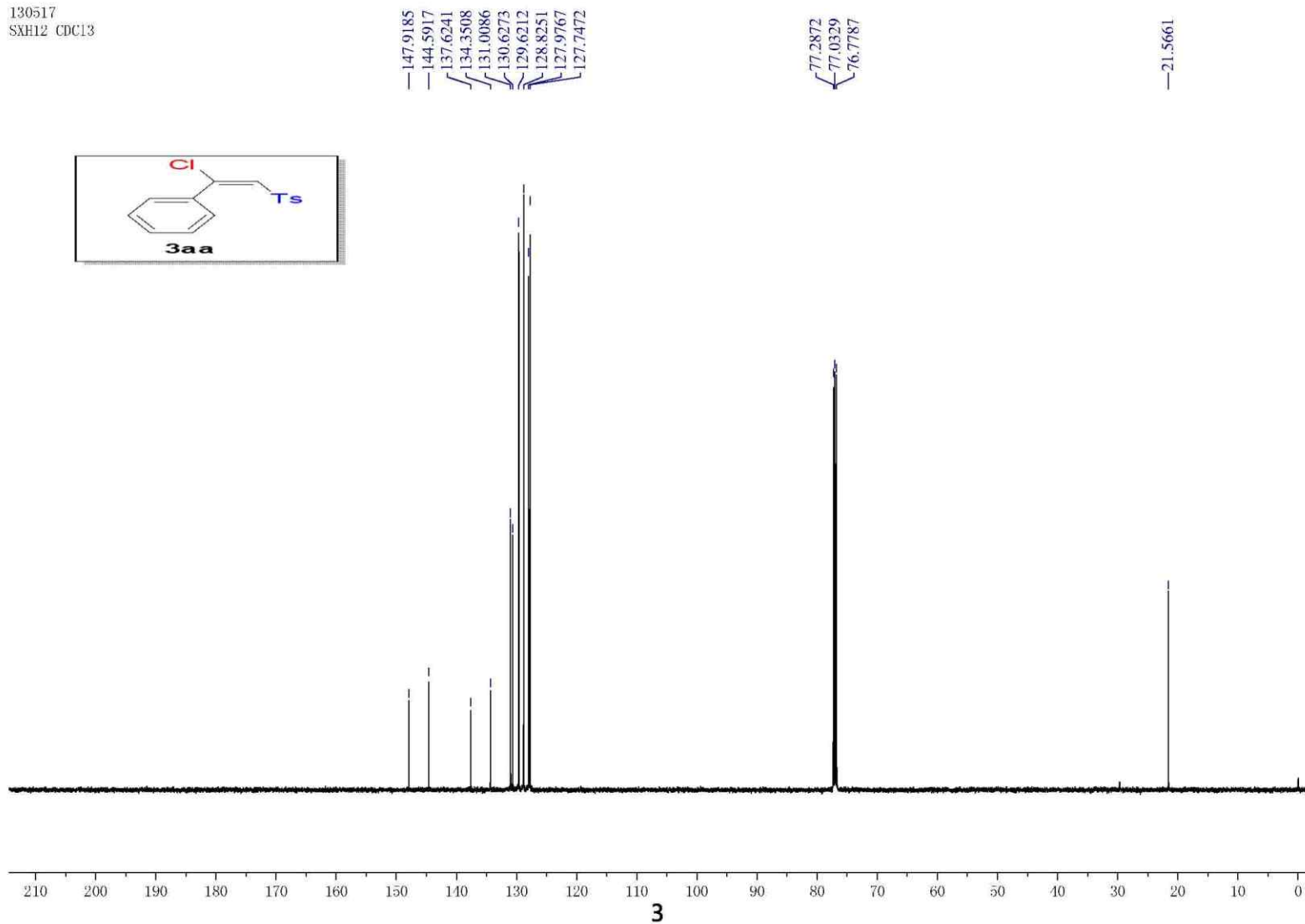
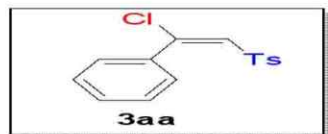
Supporting Information

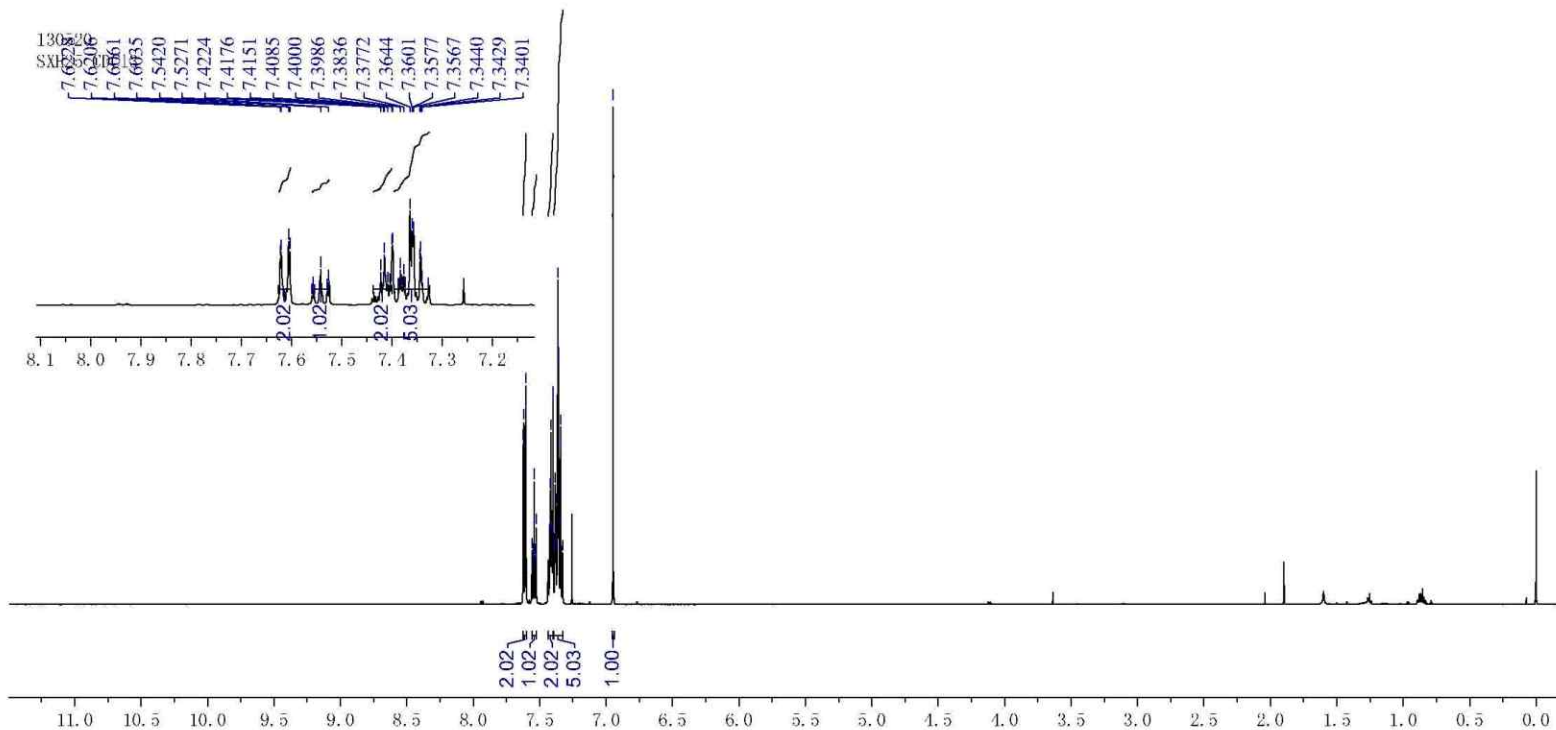
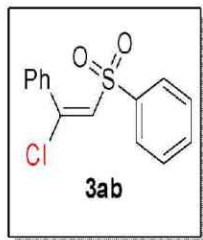
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The ^1H and ^{13}C NMR spectra of compounds **3** and **4**-----S2-S71

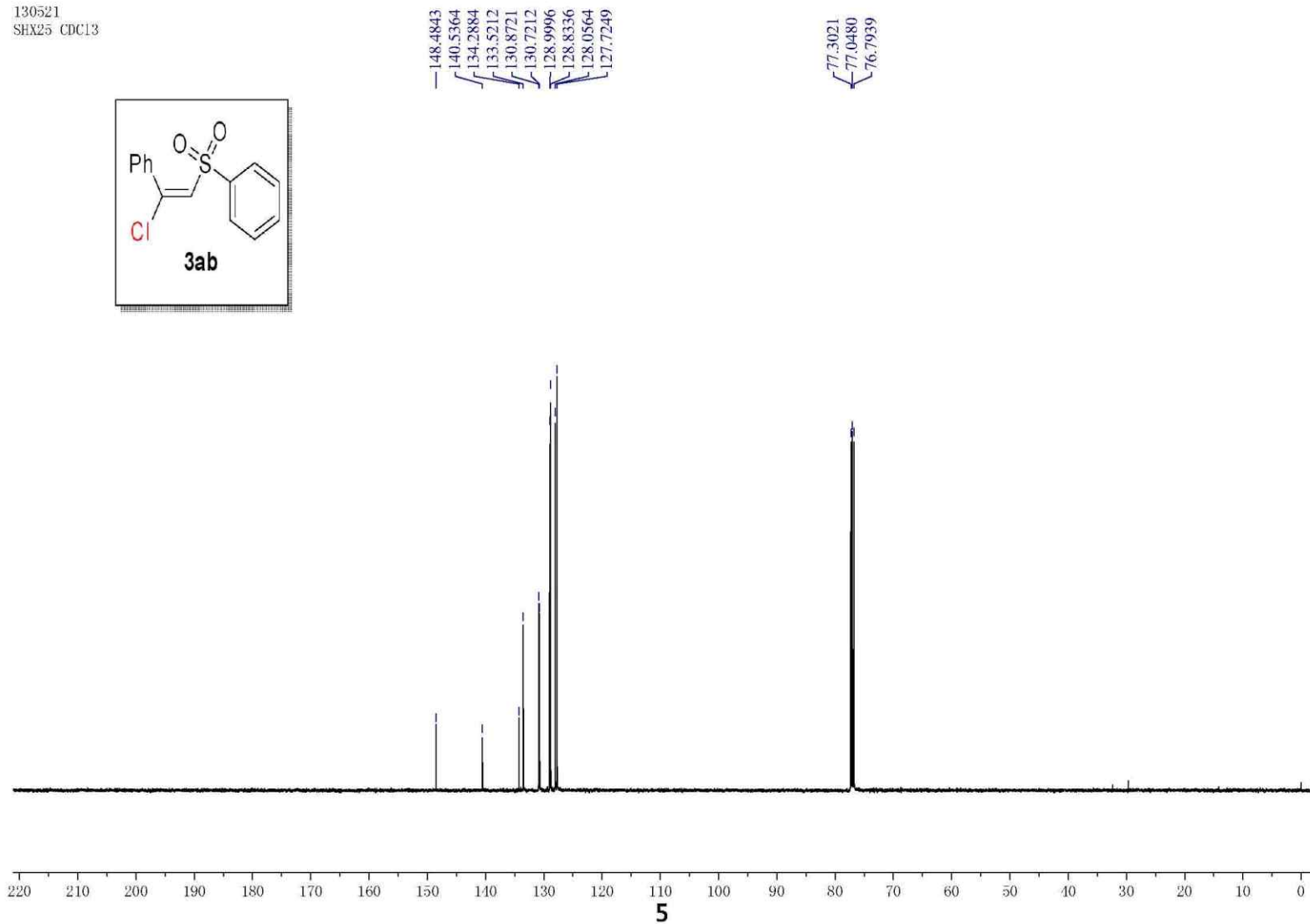
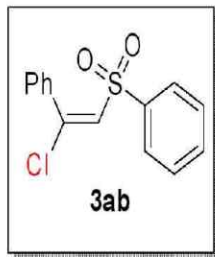


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SXH12 CDCl₃



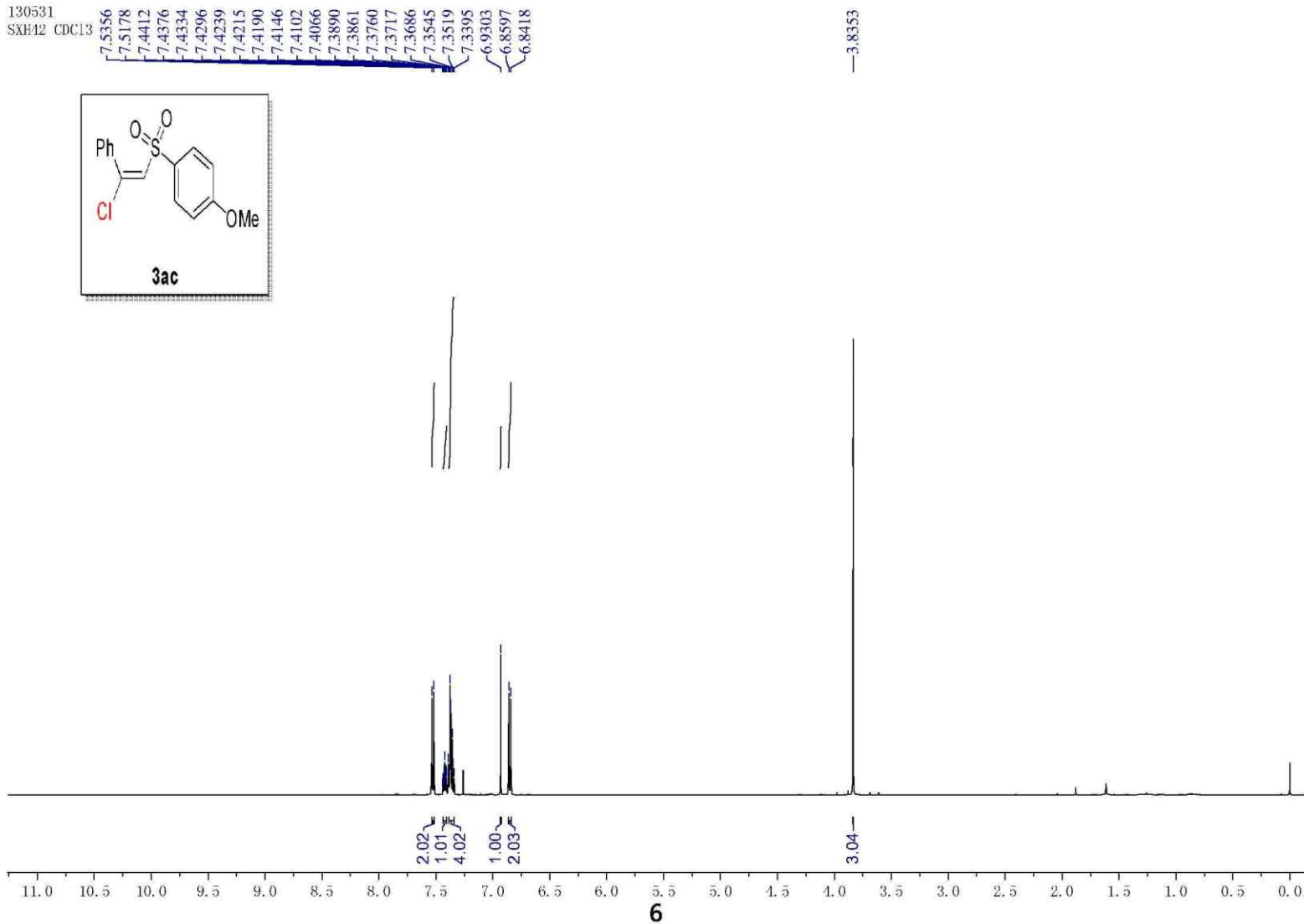
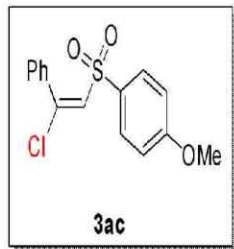


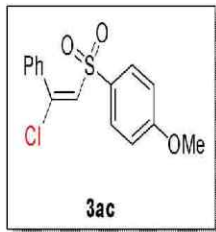
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SHX25 CDC13



130531

SXH12 CDC13





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—147.4791

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131.4177

130.6087

129.9770

128.8527

128.0232

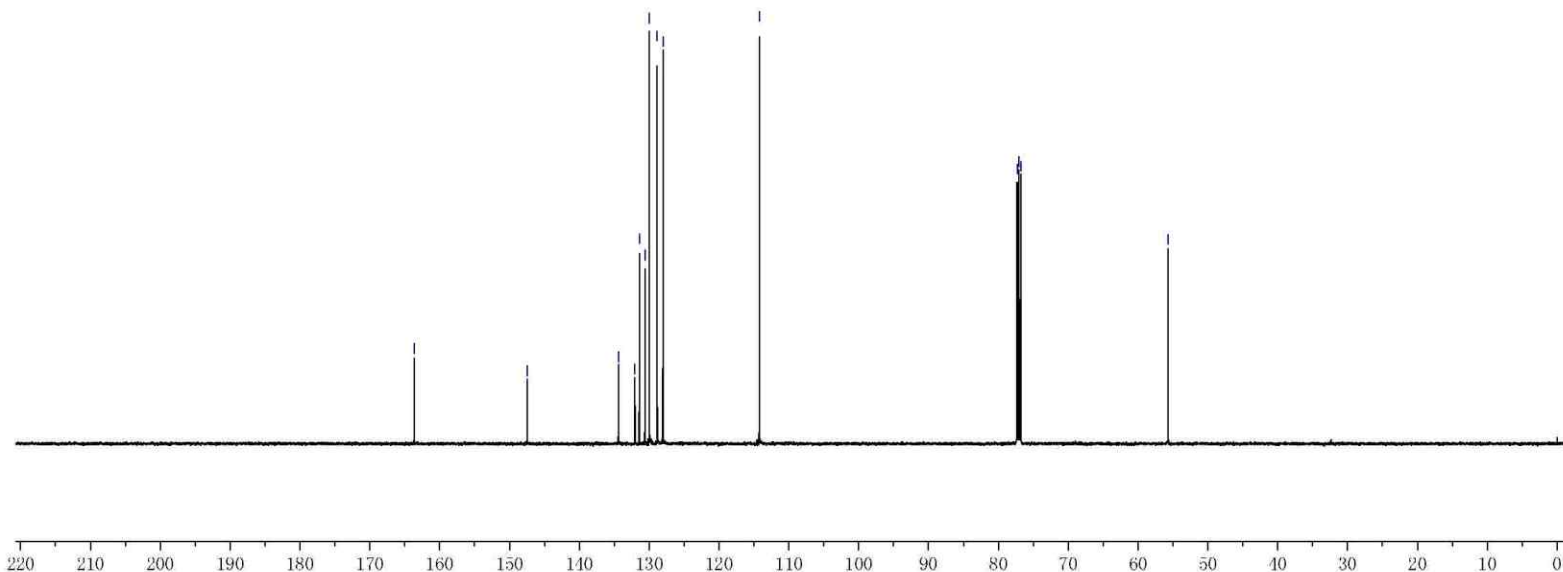
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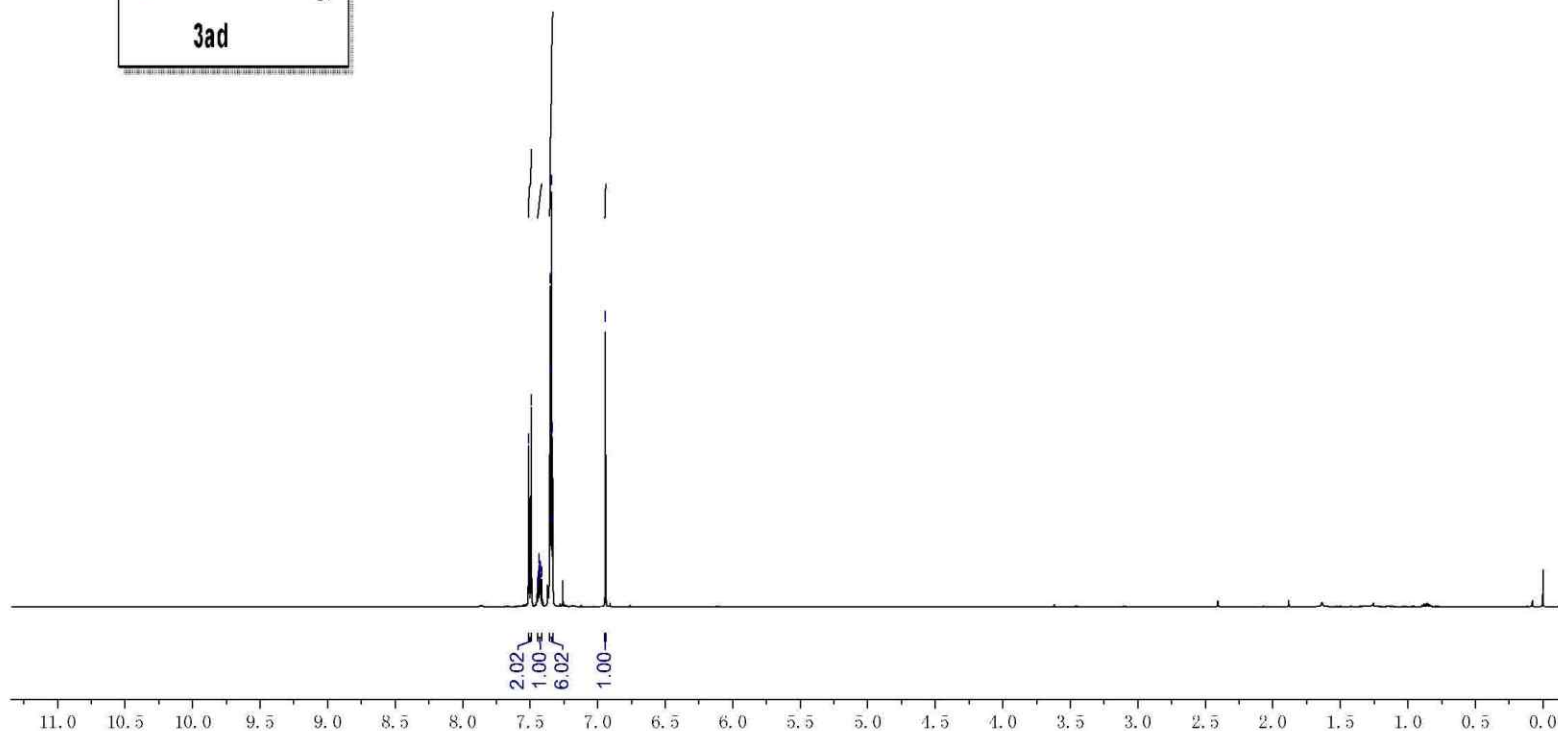
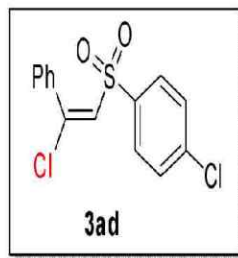
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—55.6887



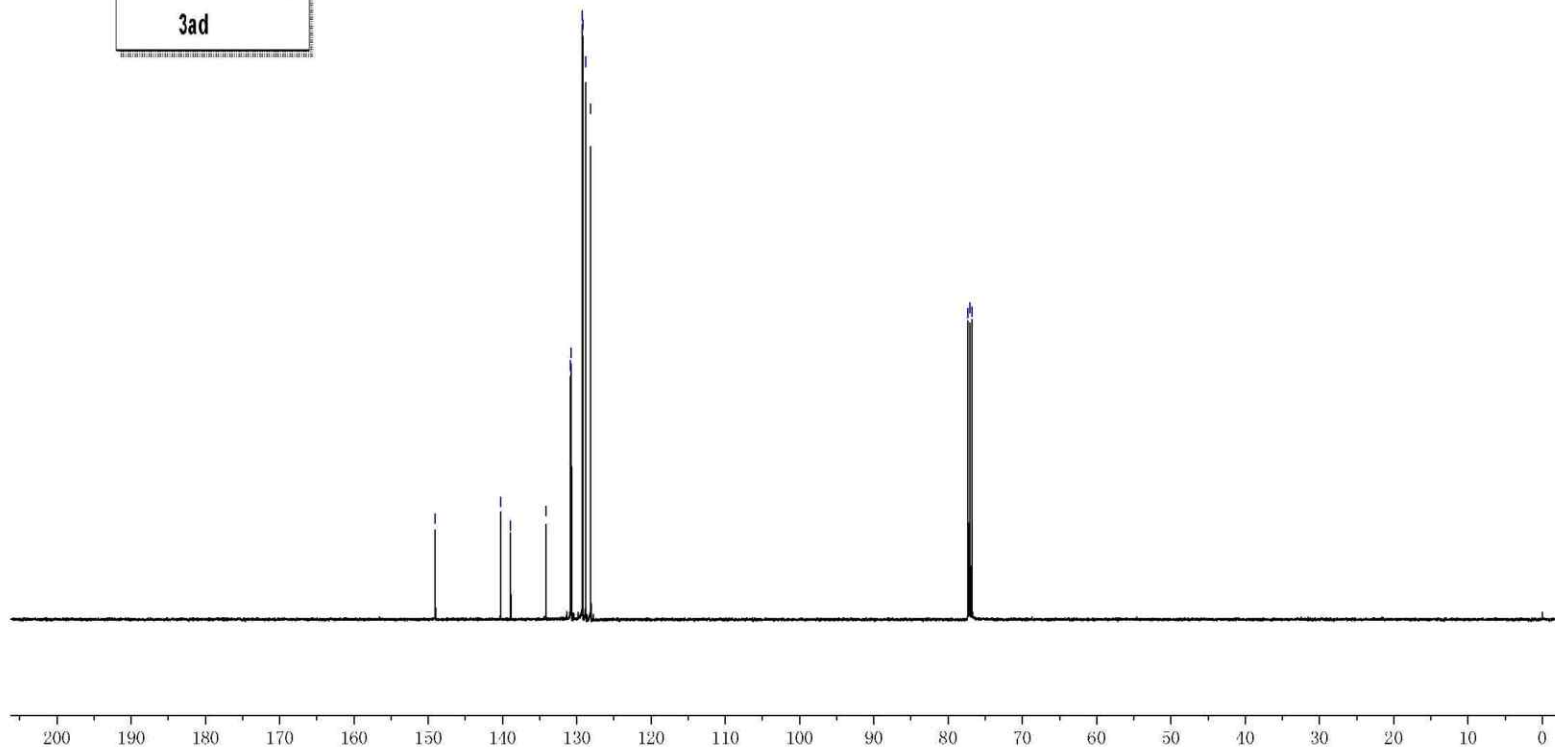
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7.3494
7.3428
7.3385
7.3345
6.9422





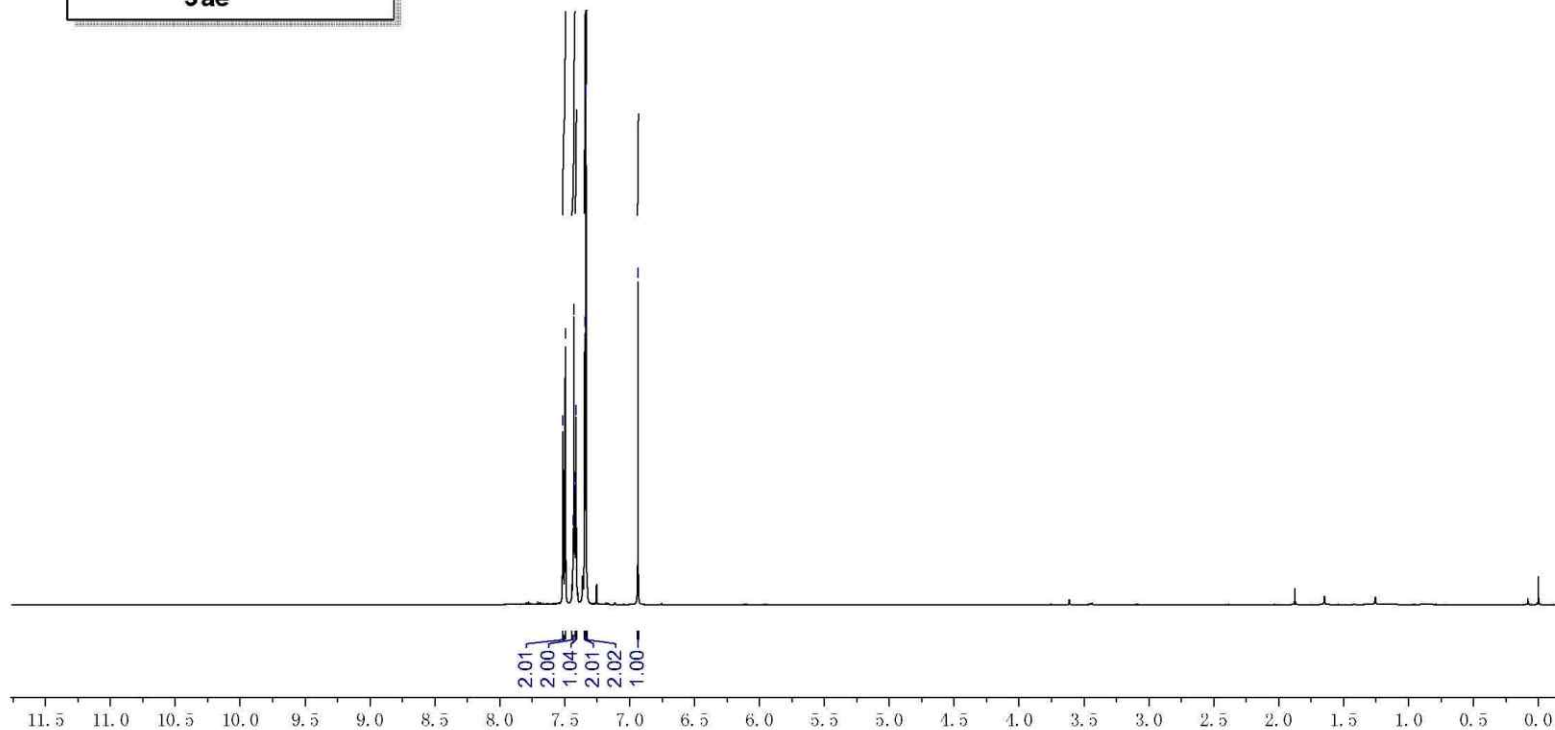
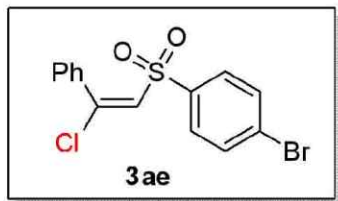
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77.0609
76.8064



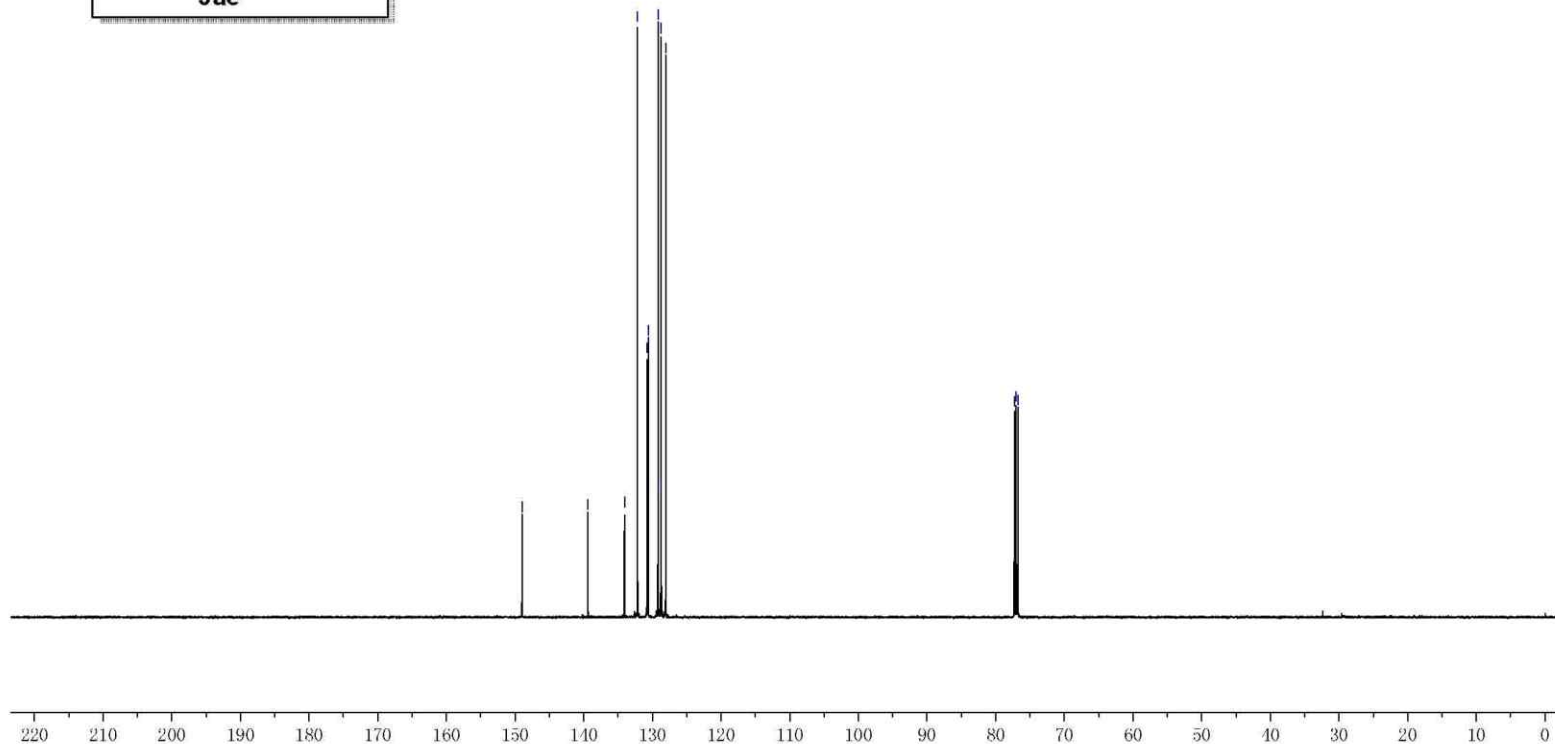
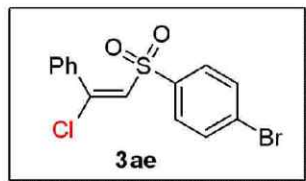
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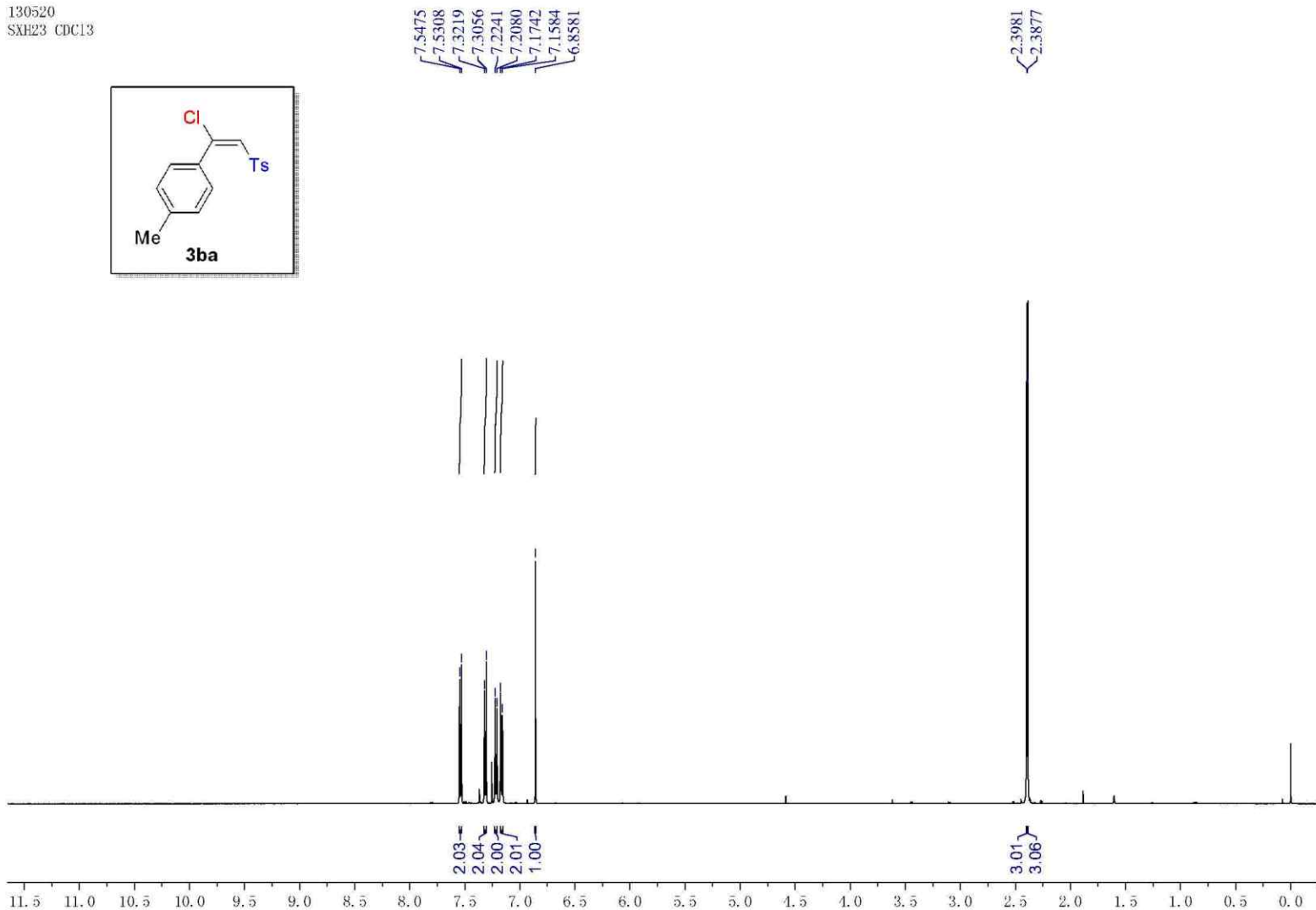
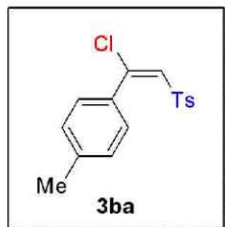
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7.3460
7.3429
7.3361
6.9355



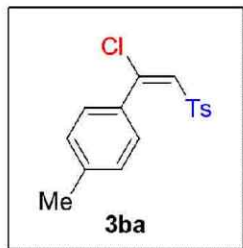
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77.2834
77.0287
76.7744





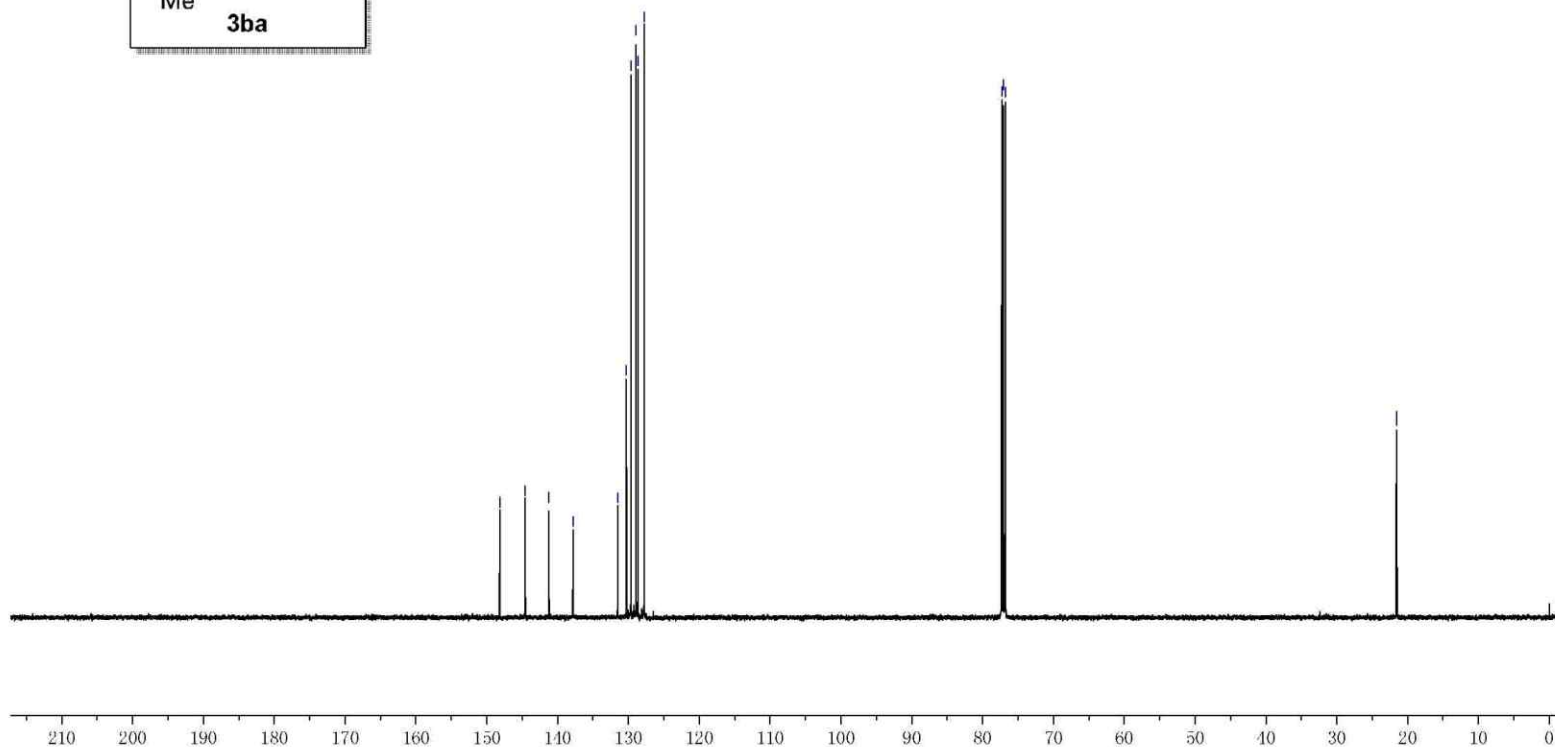
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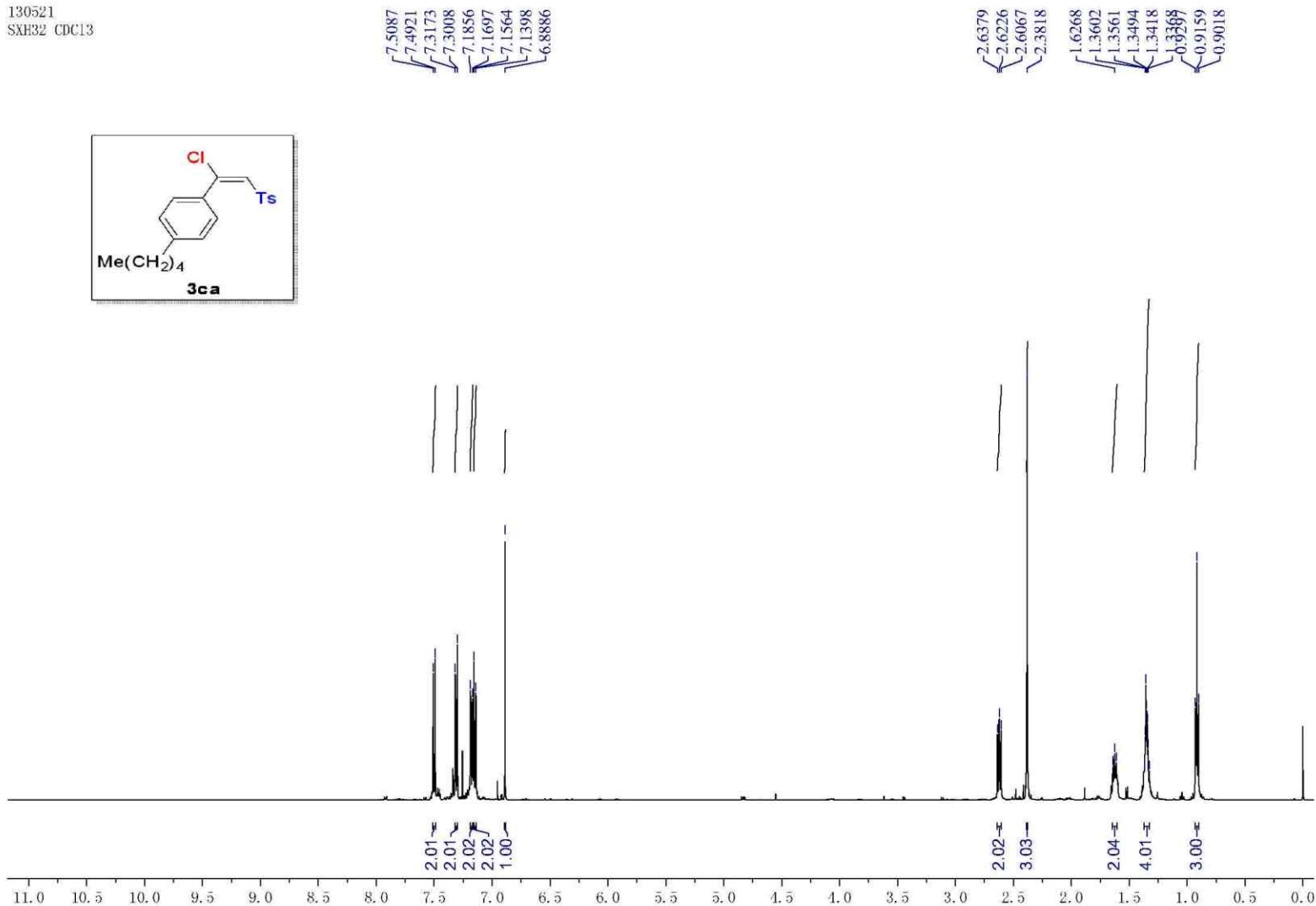
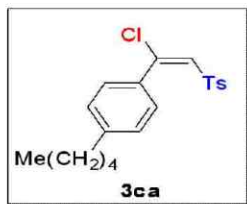


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128.6587
127.7629

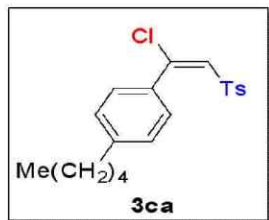
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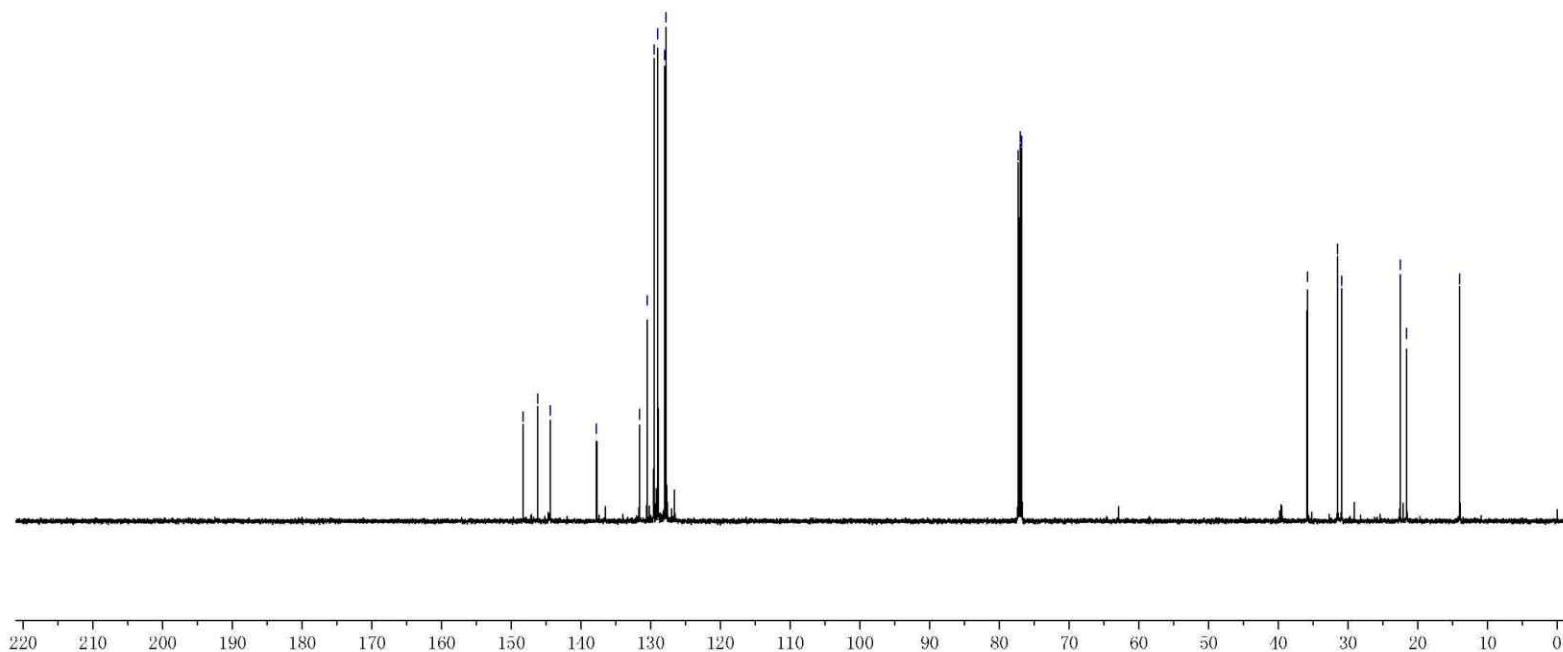
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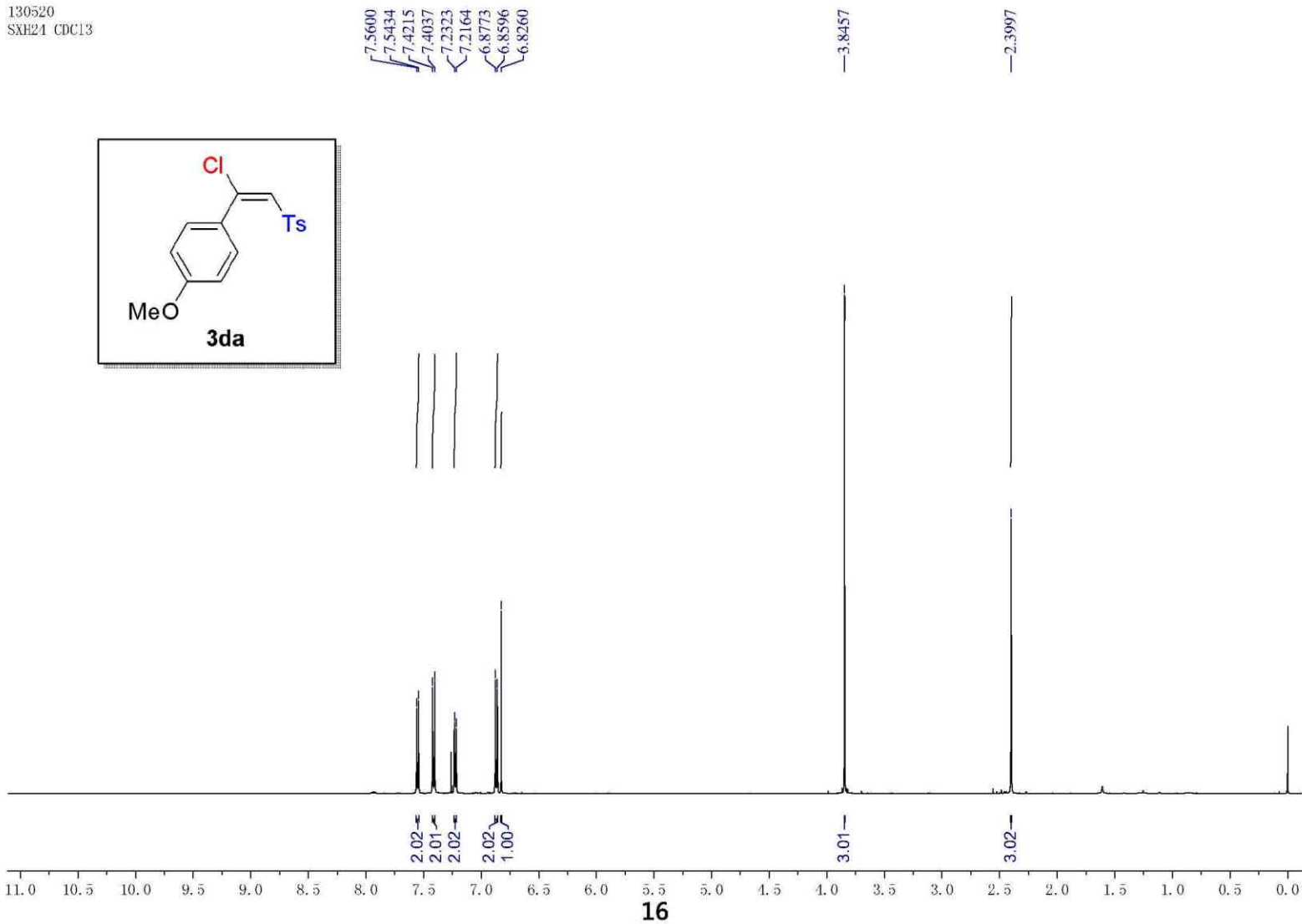
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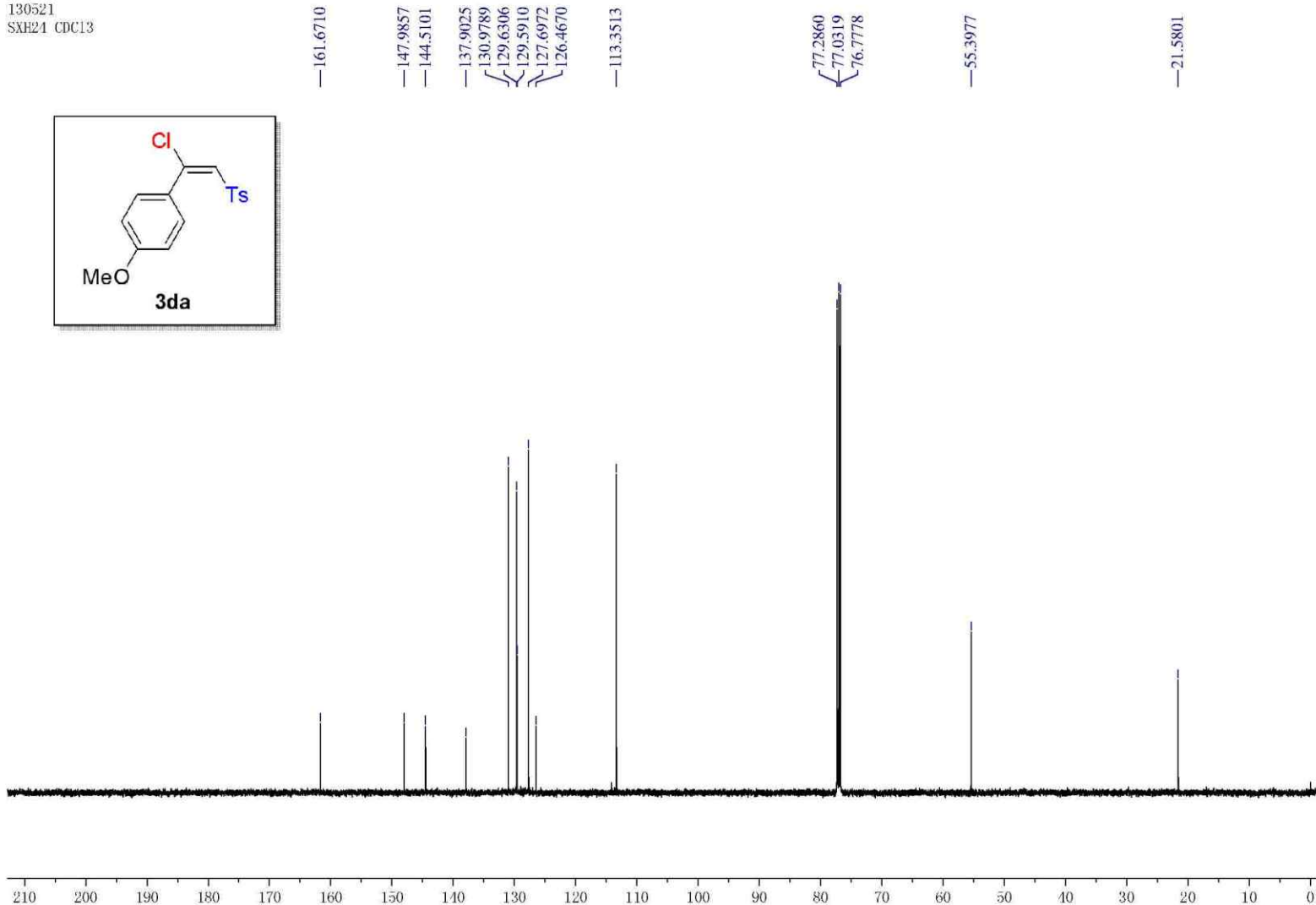
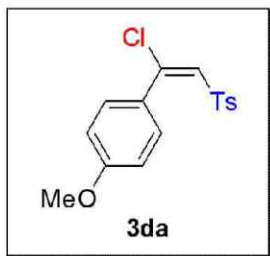
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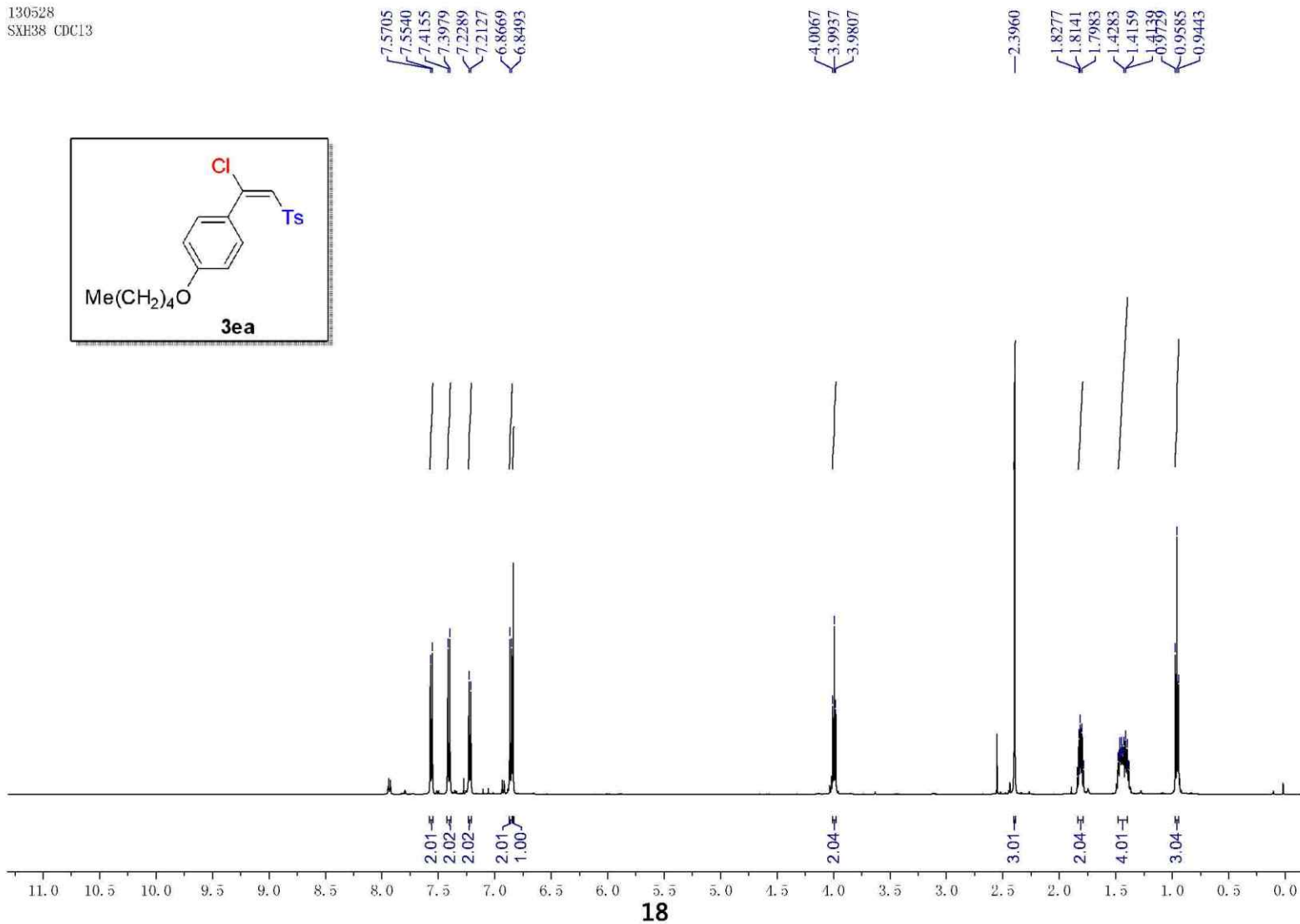
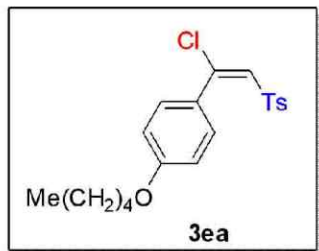
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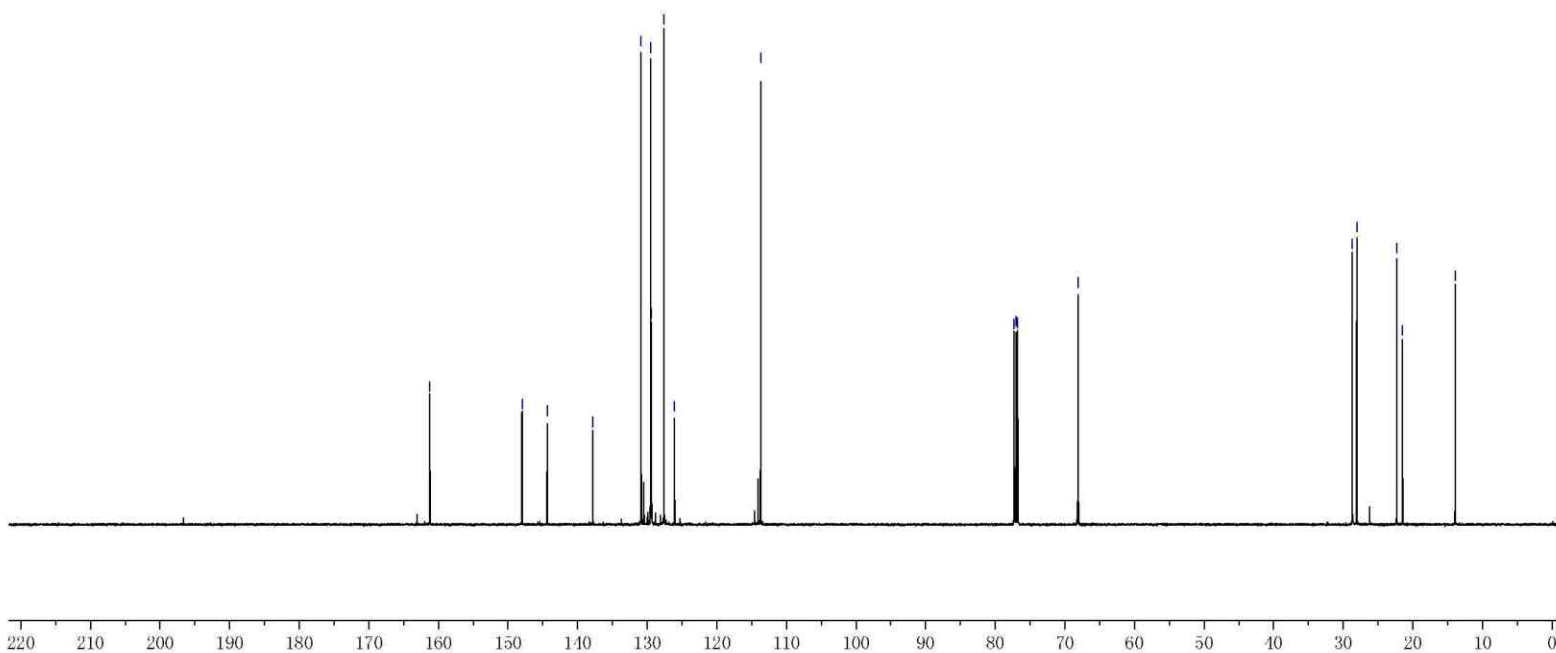
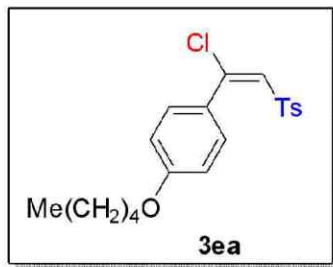


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SXH21 CDCl3









—161.2264

—147.9945

—144.3797

—137.8332

—130.8824

—129.5235

—129.3887

—127.6021

—126.0694

—113.7140

77.2833

77.0288

76.7741

—68.0699

28.7129

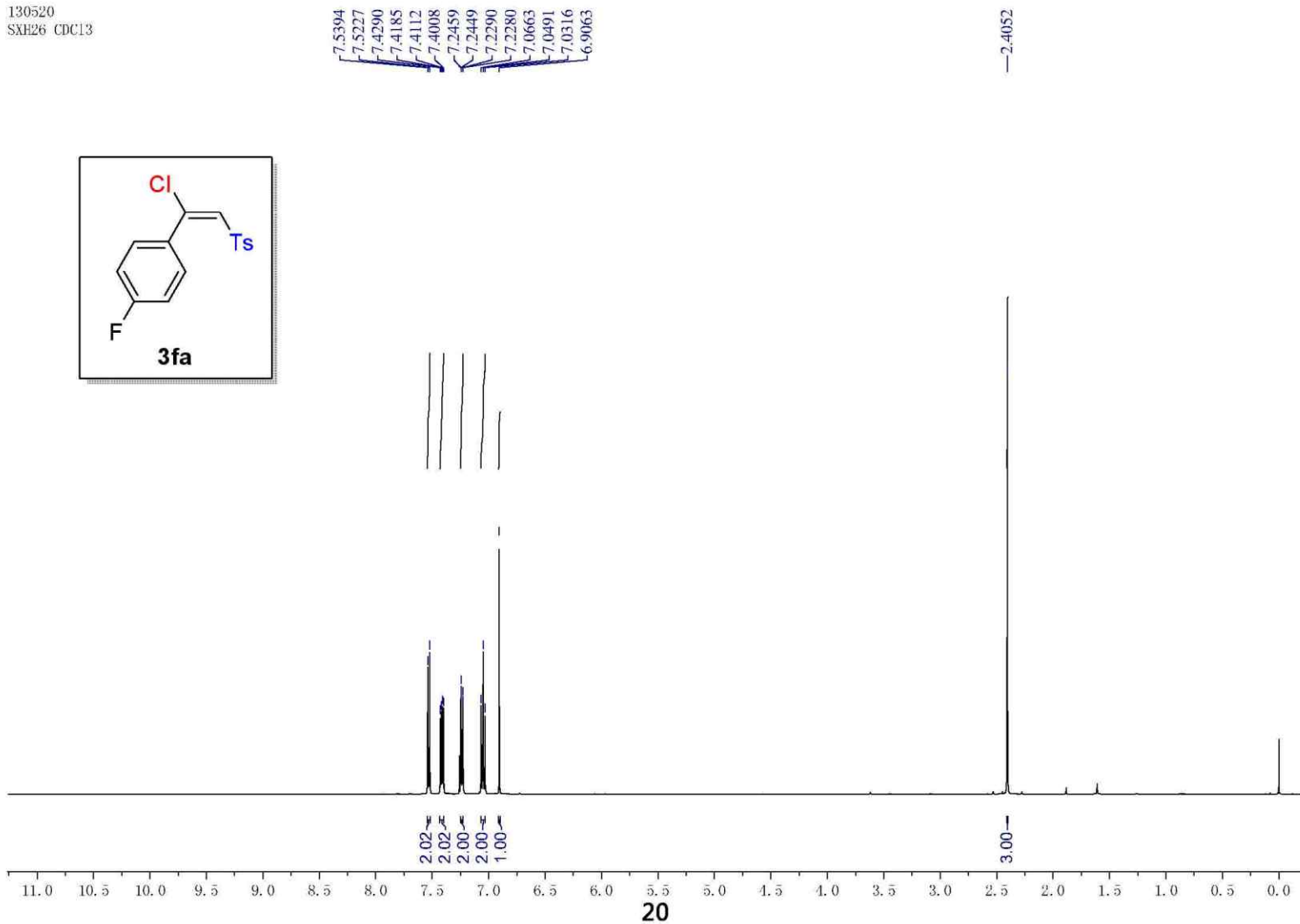
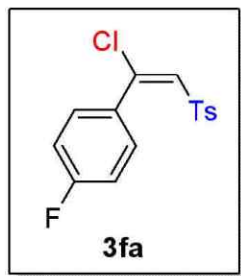
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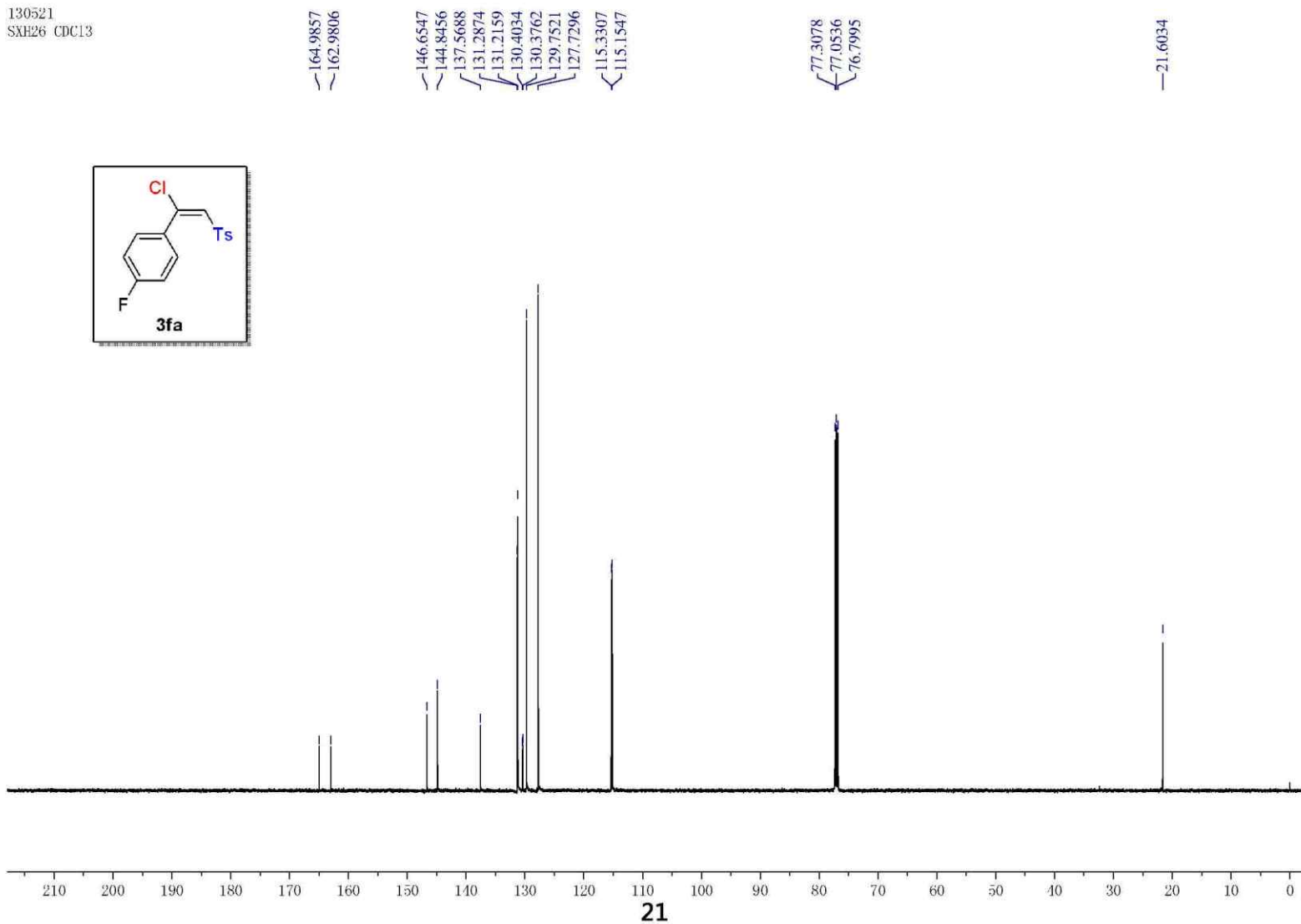
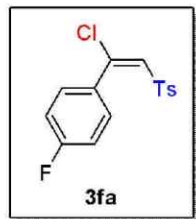
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—13.9169

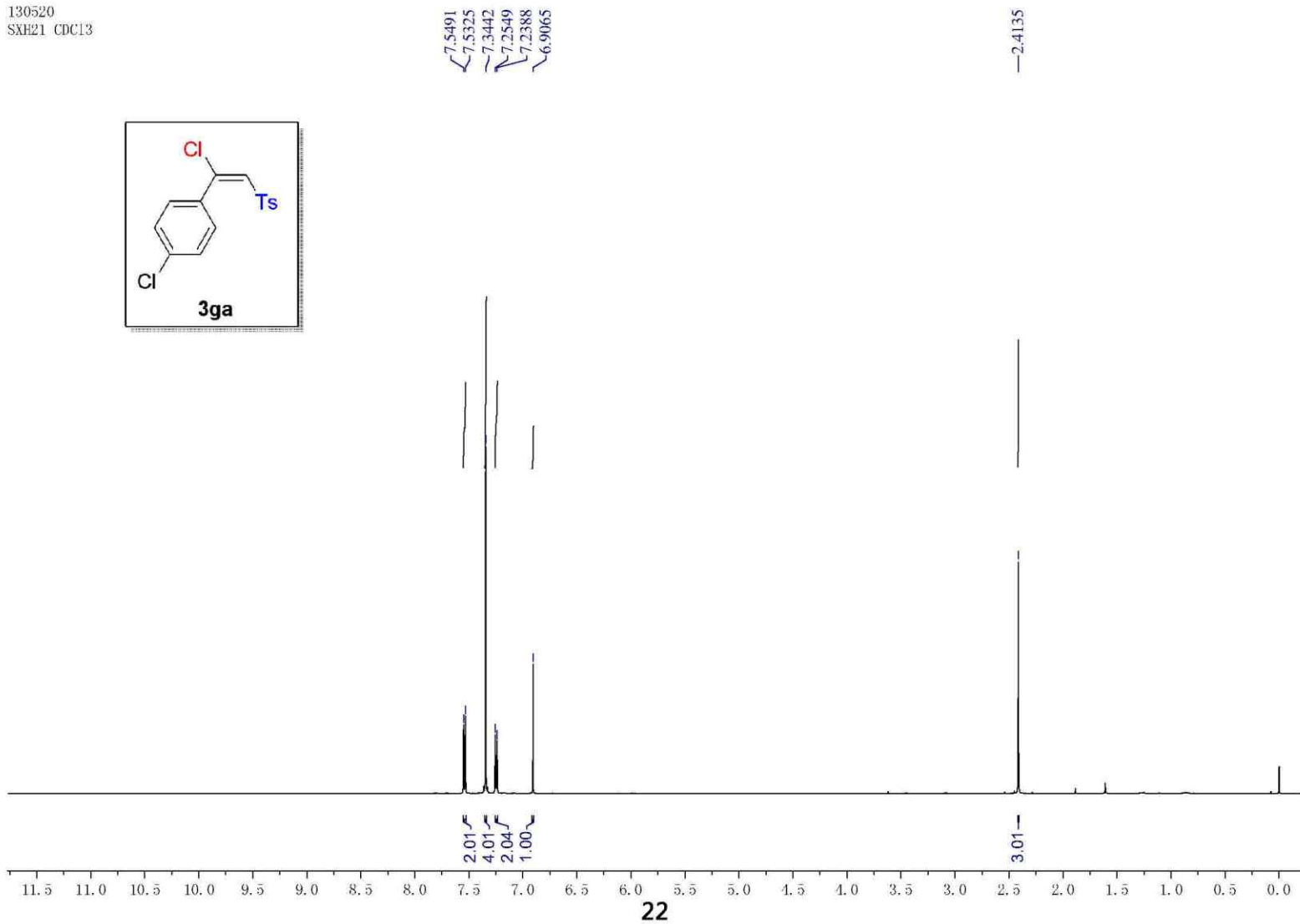
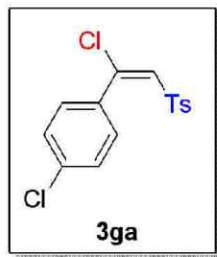
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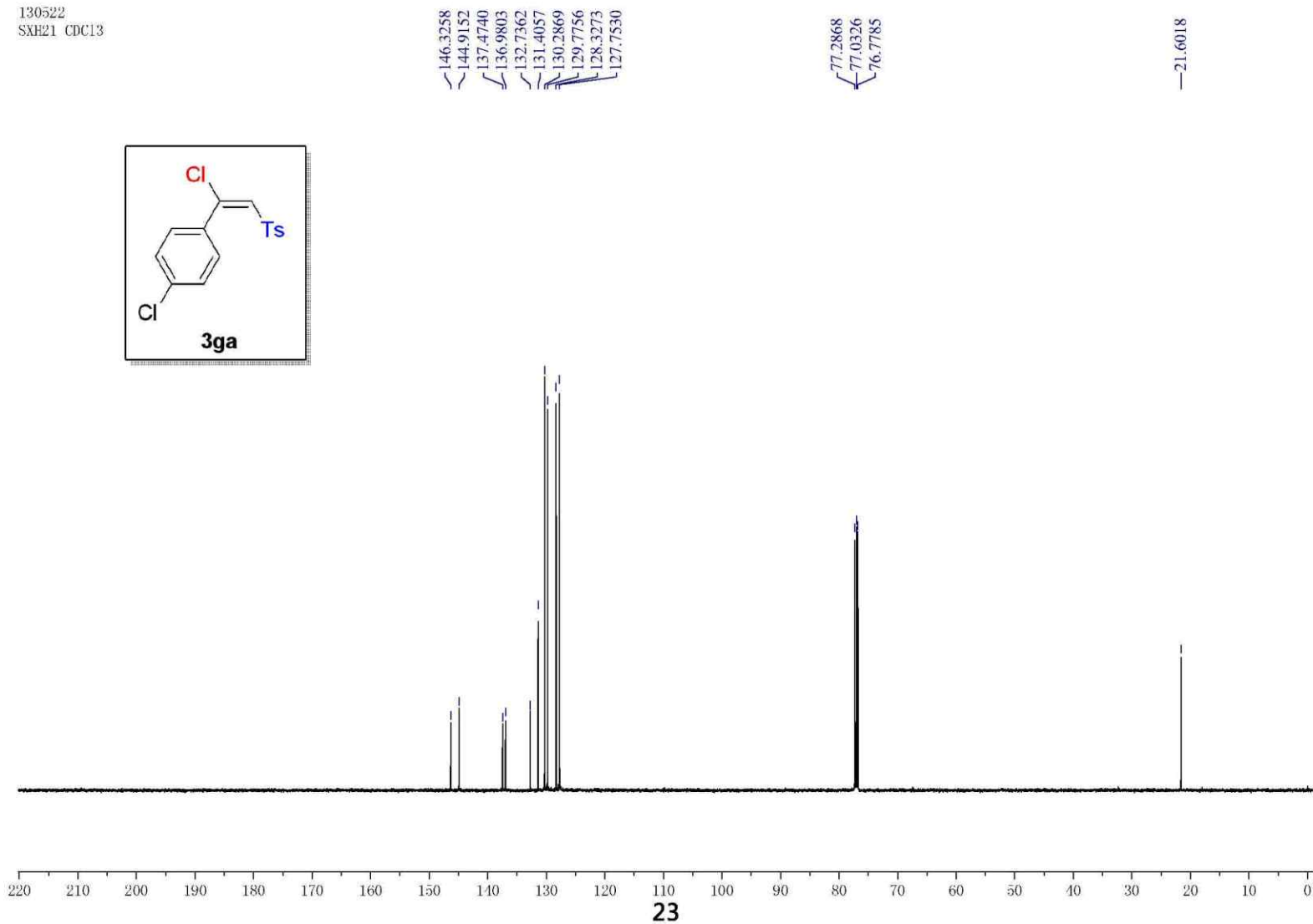
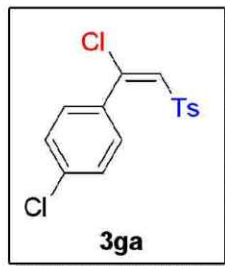
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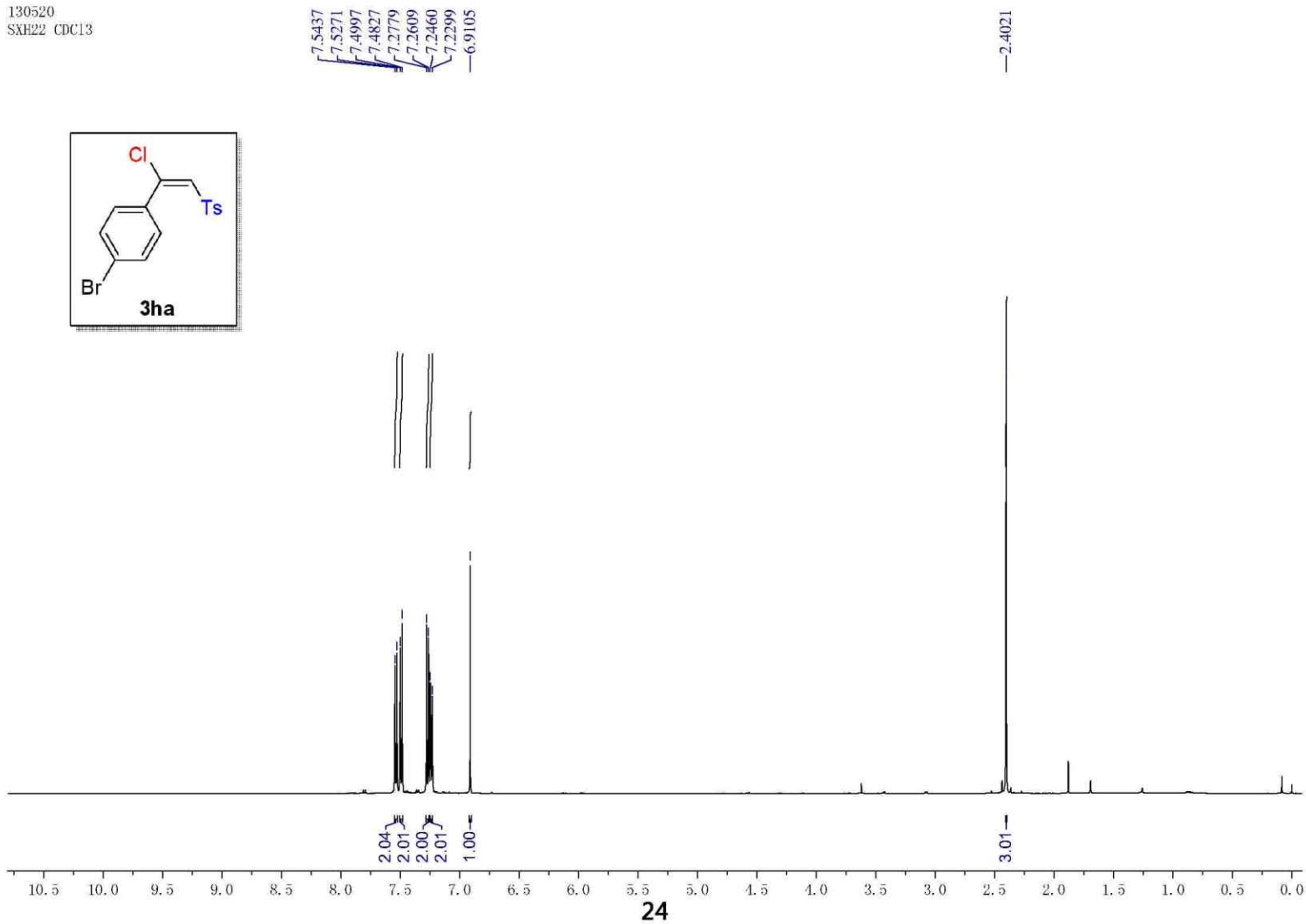
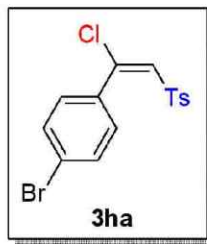


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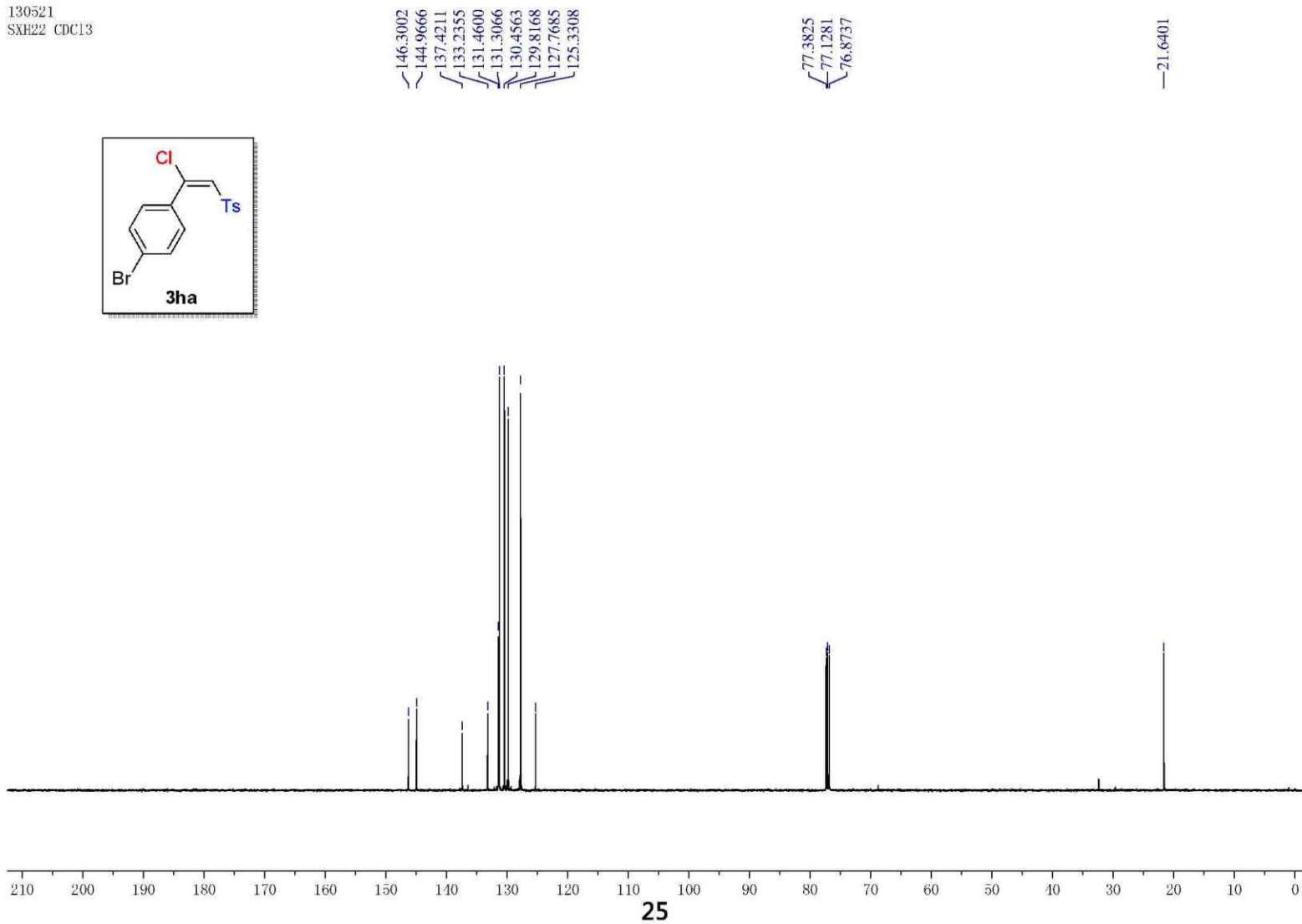
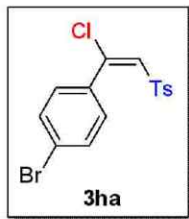


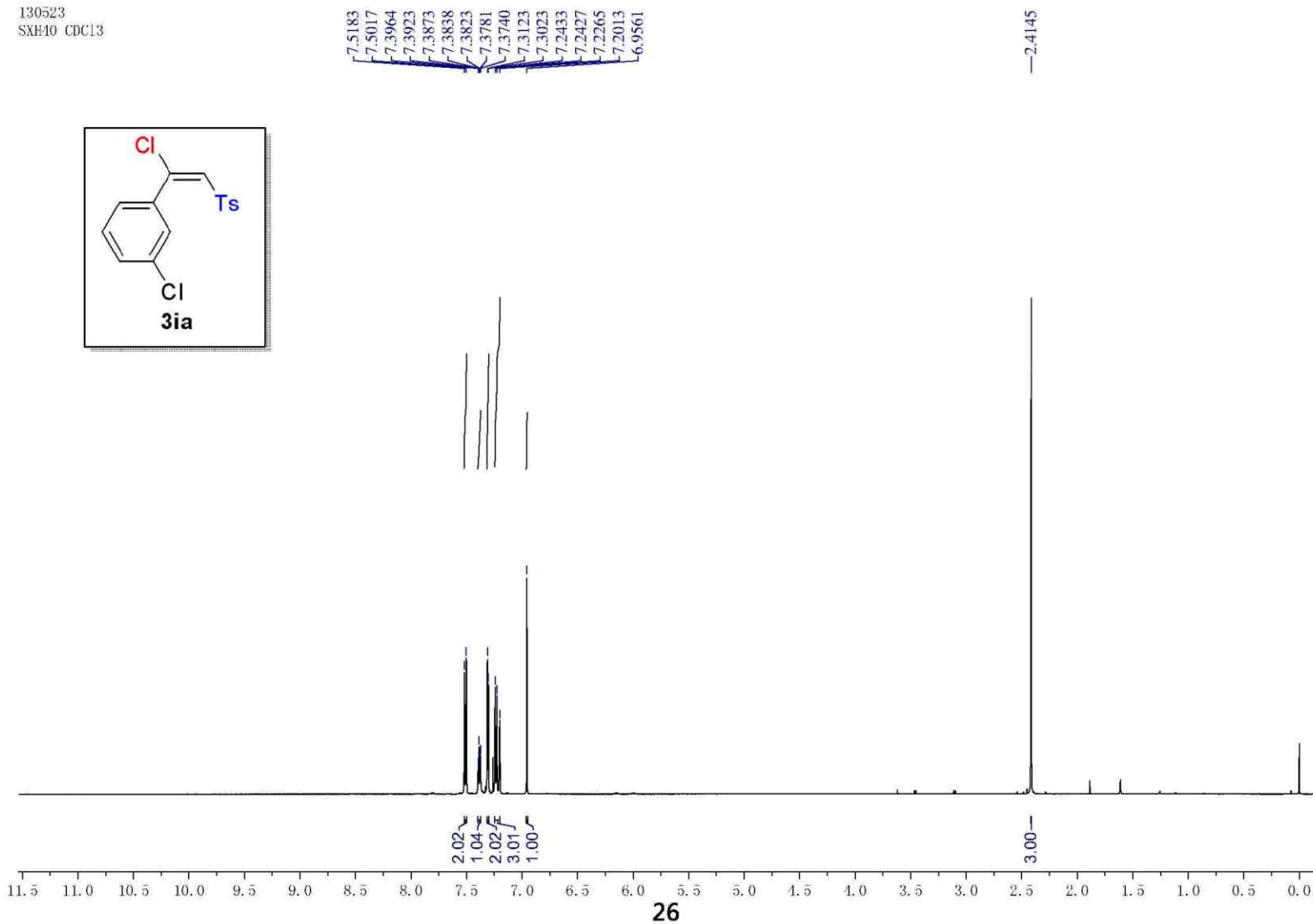
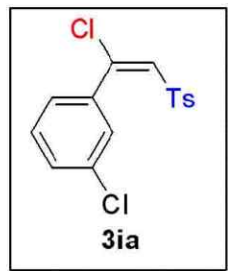
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SXH21 CDC13



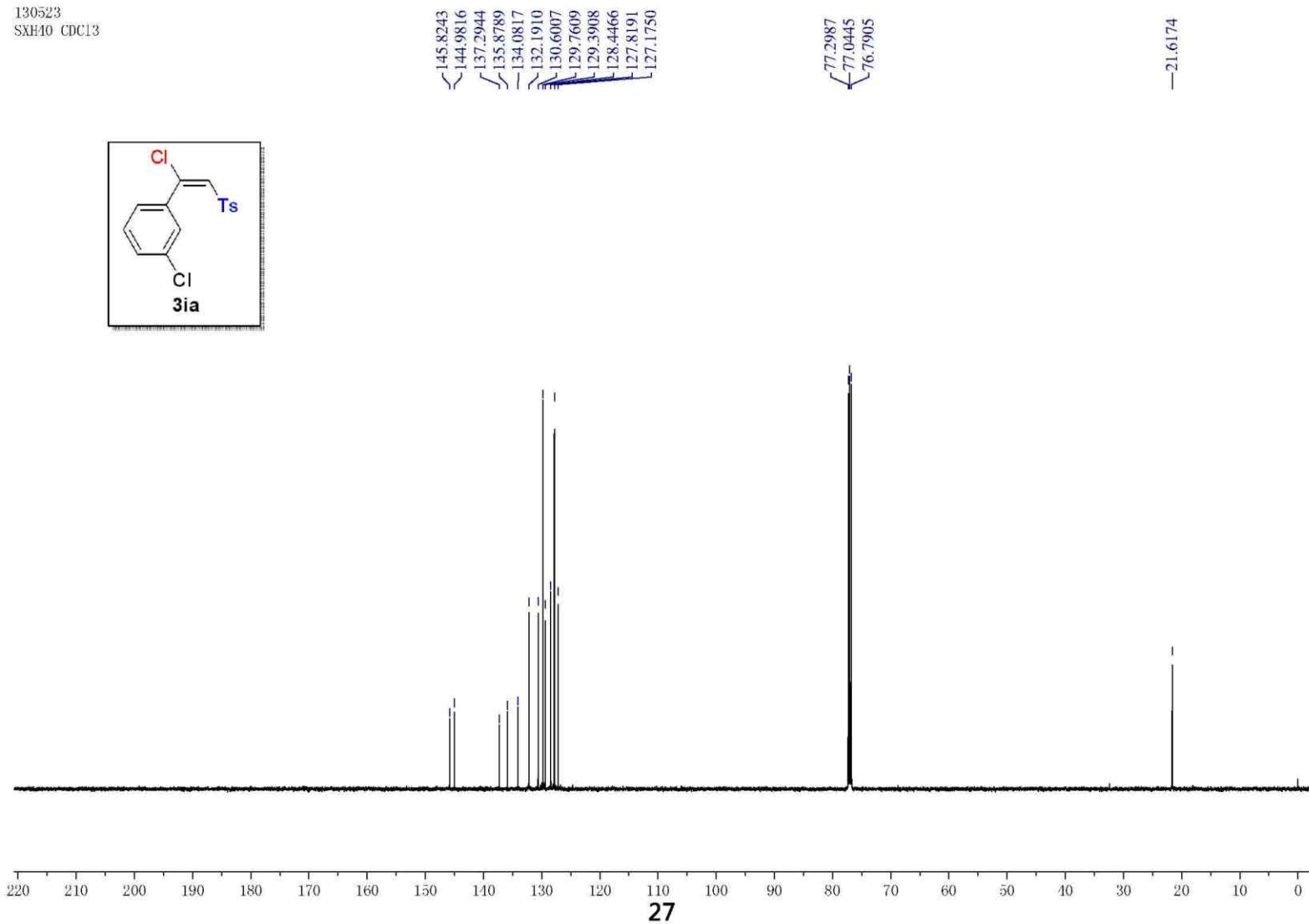
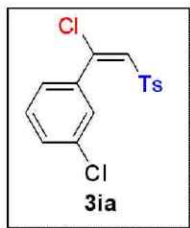


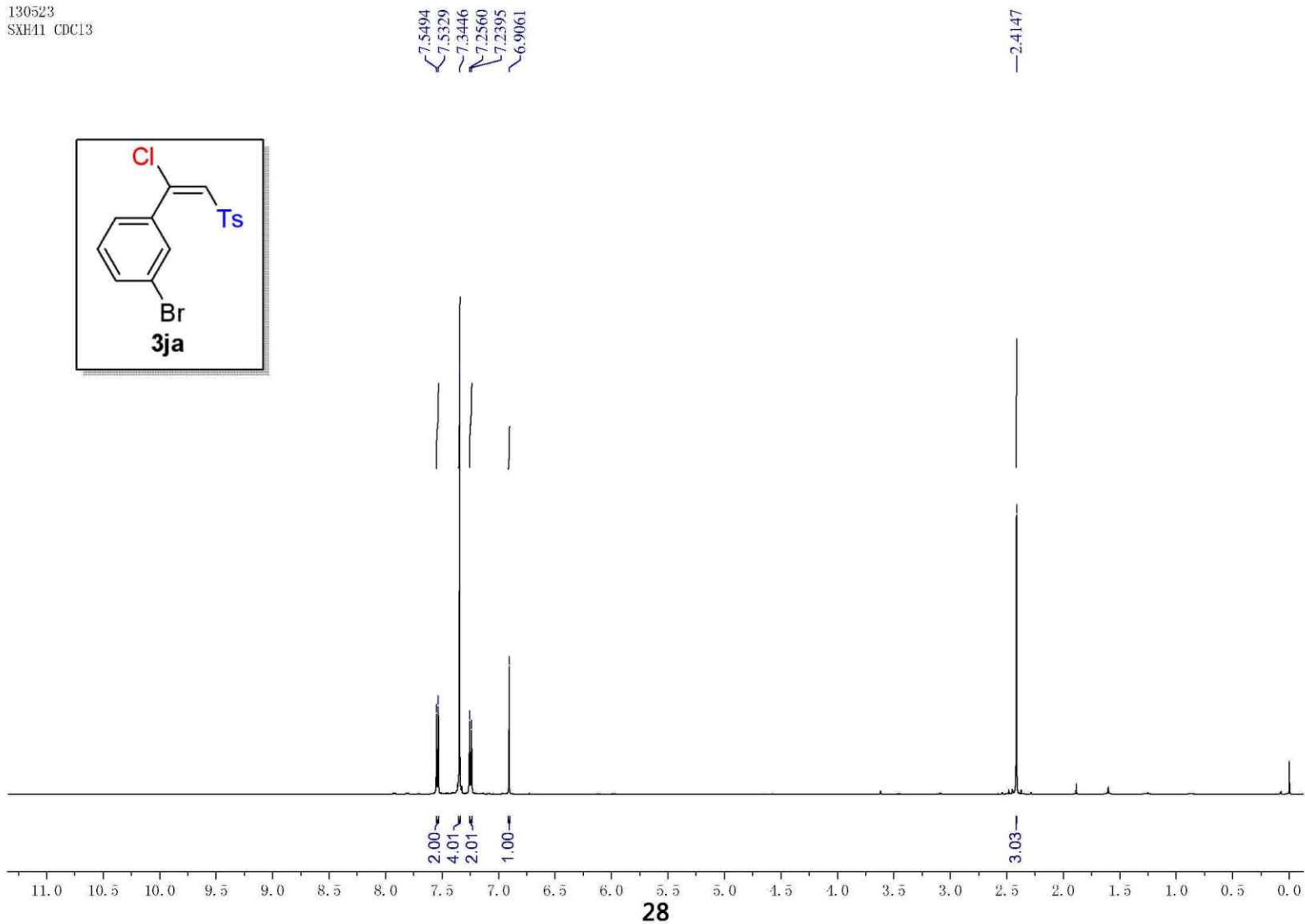
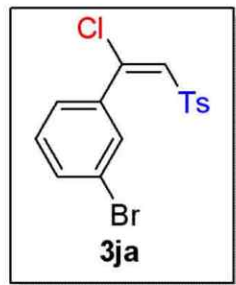
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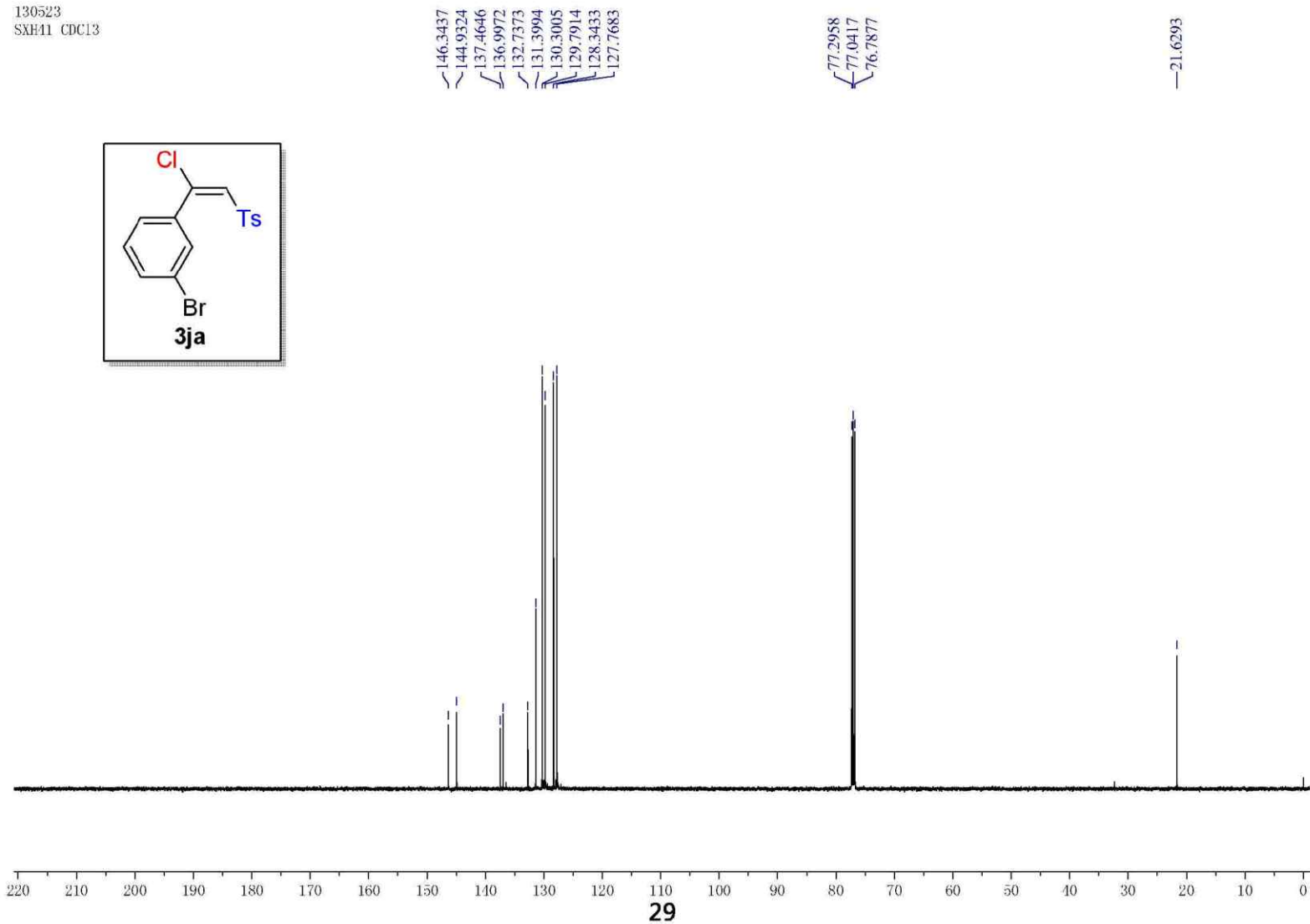
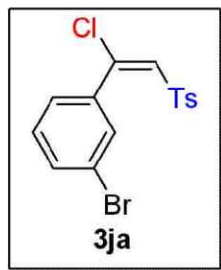


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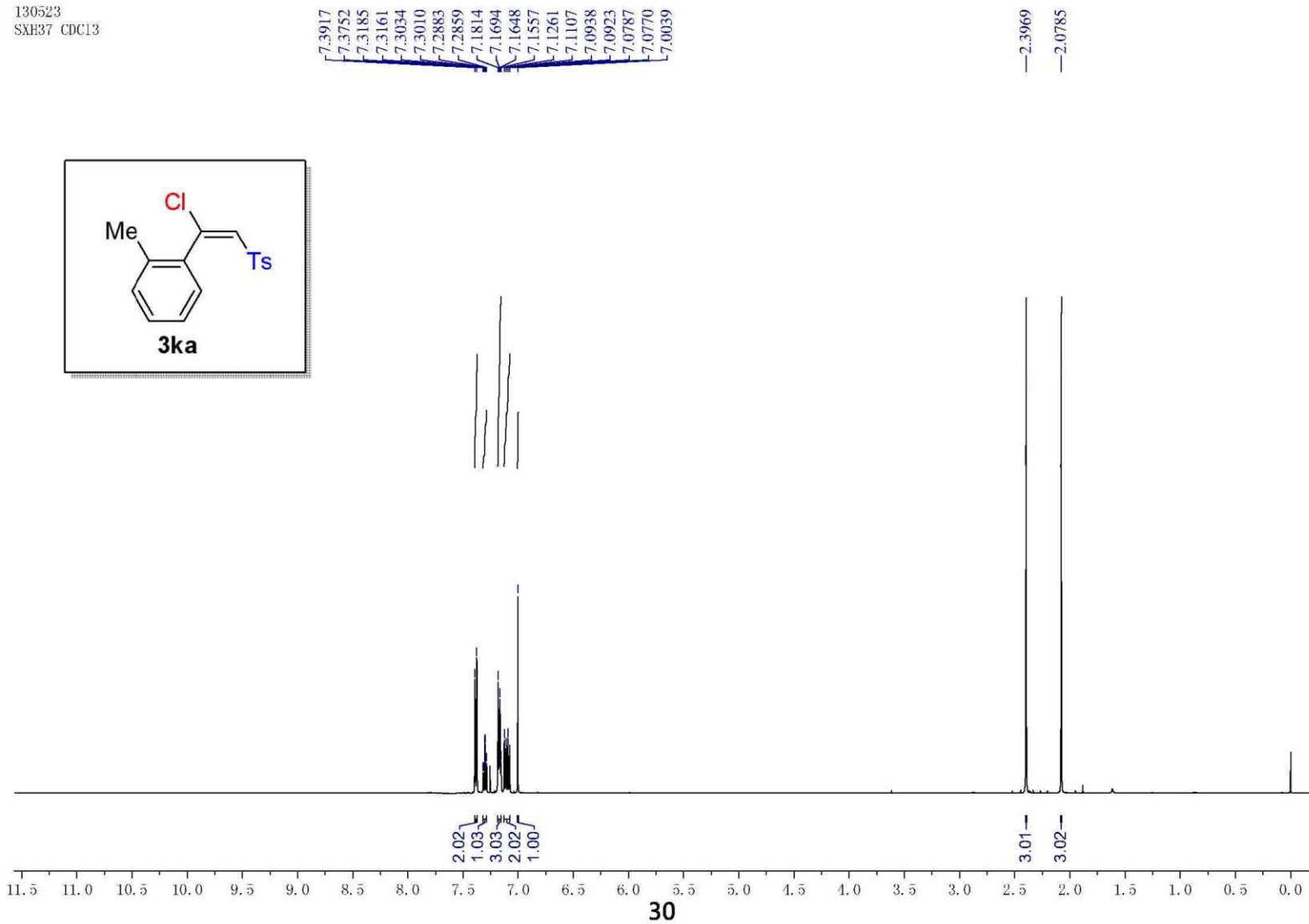
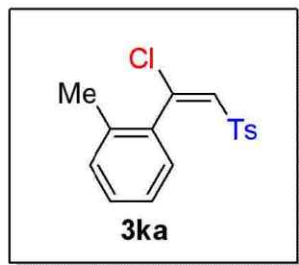




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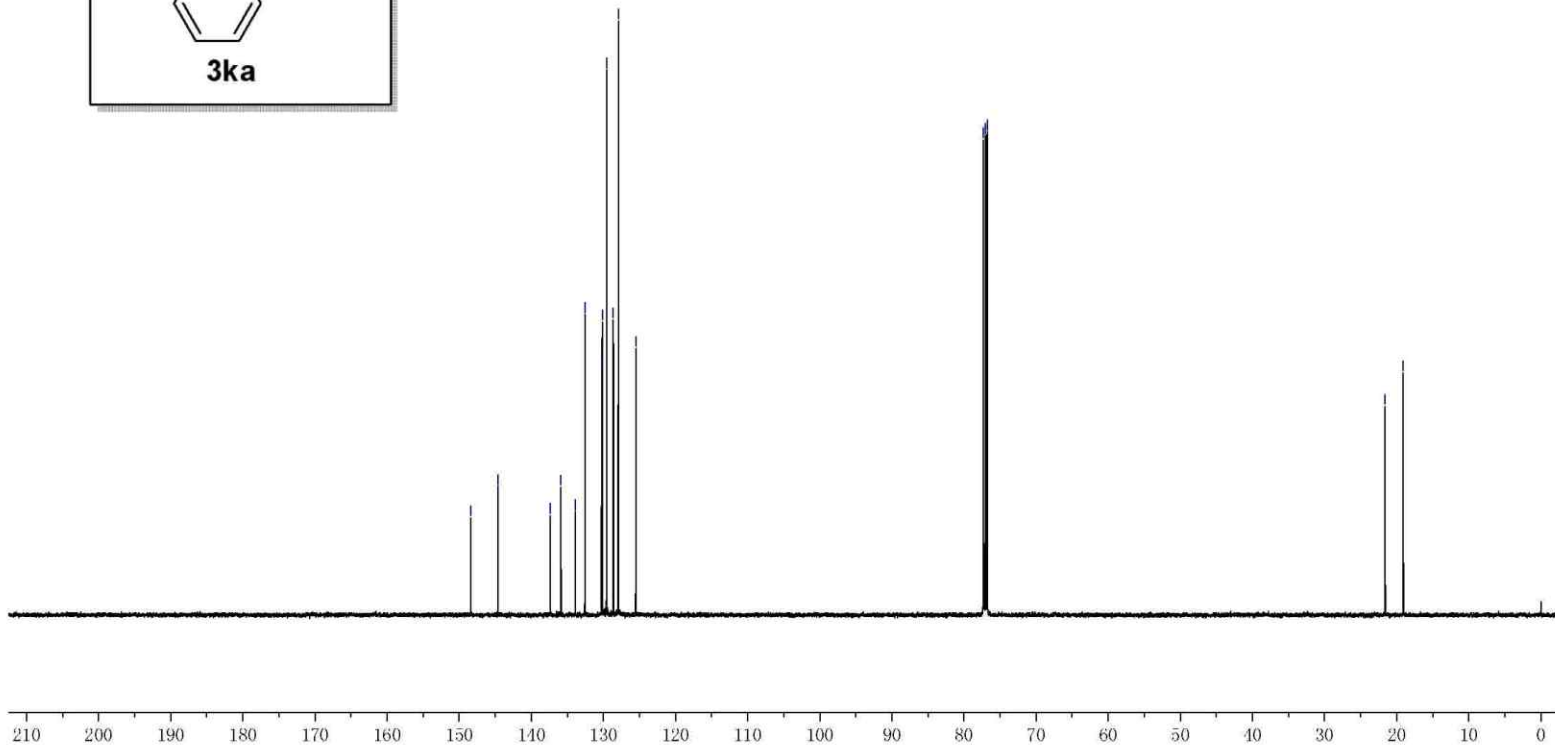
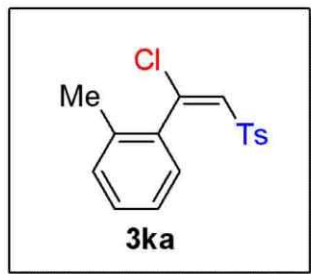


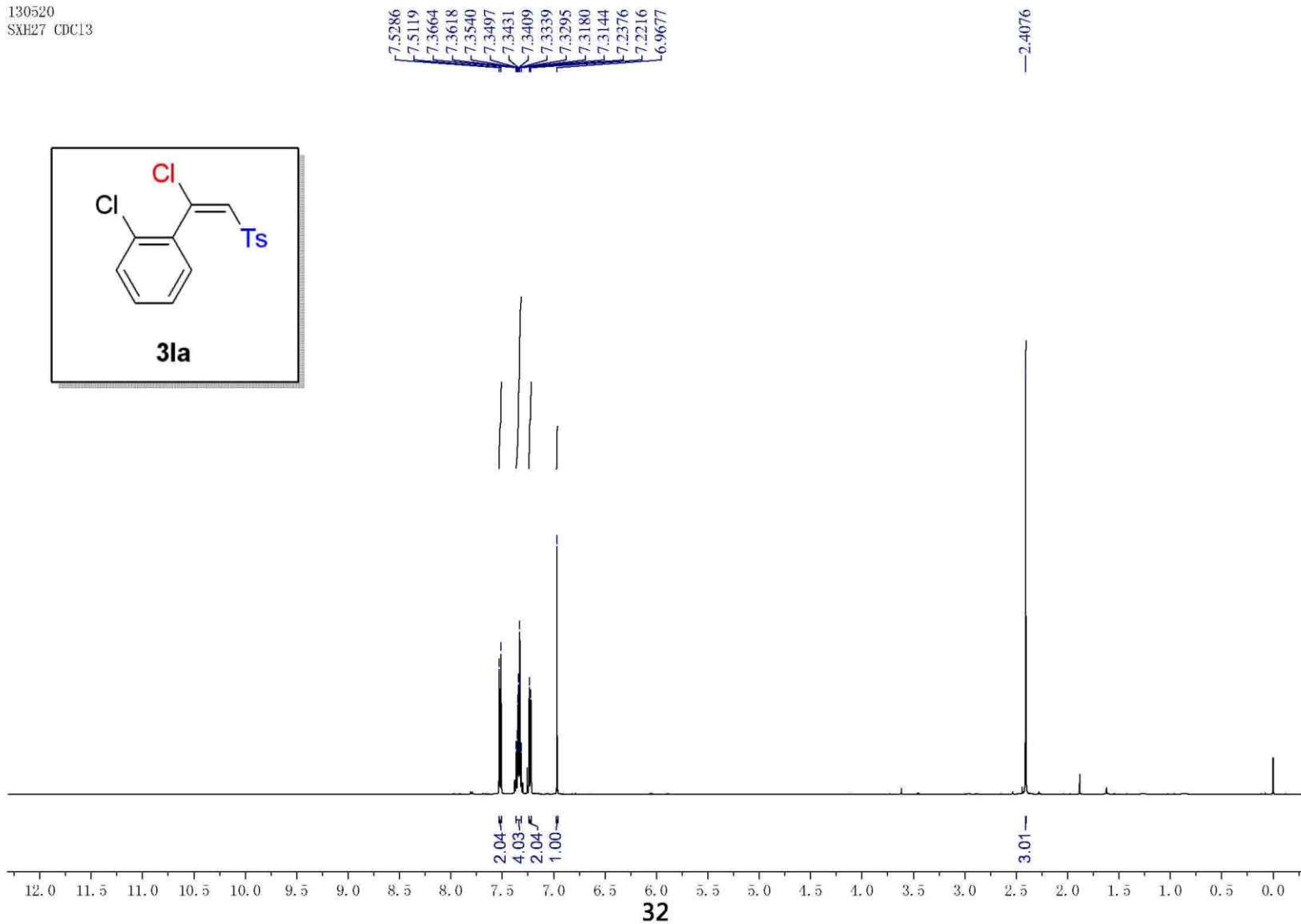
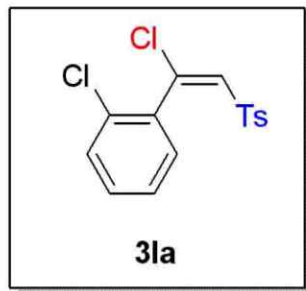
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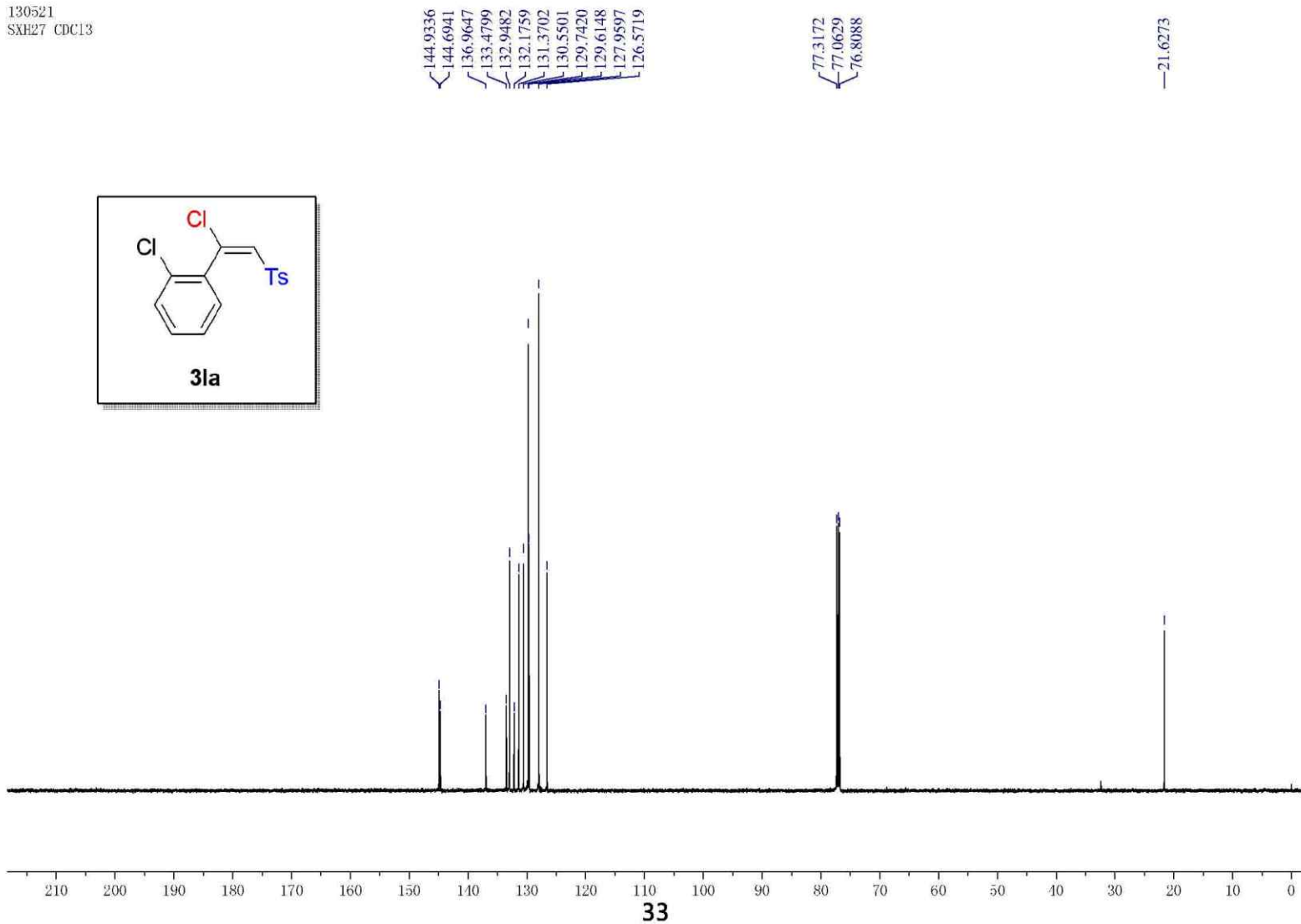
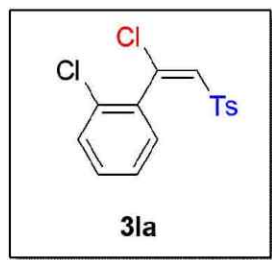
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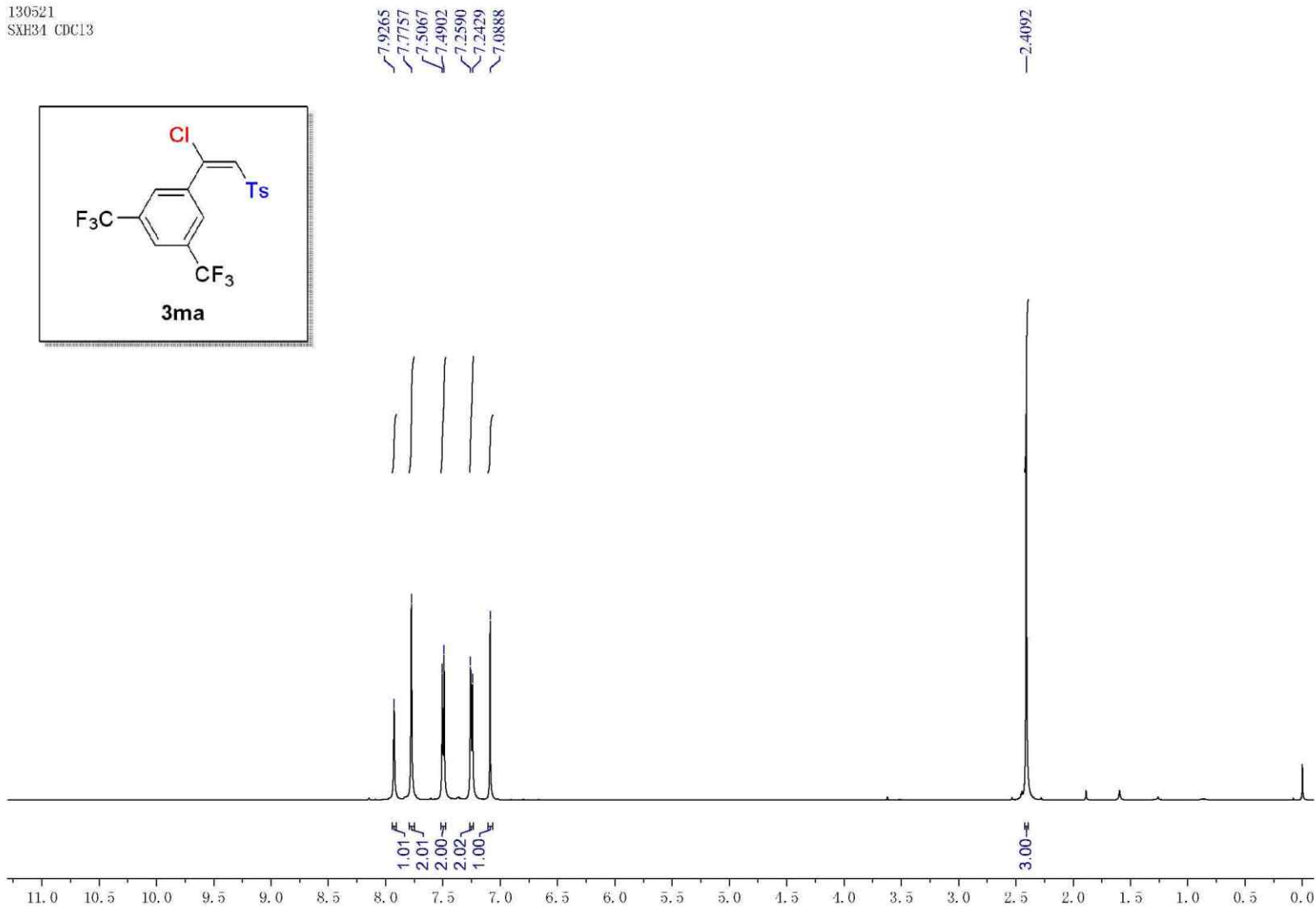
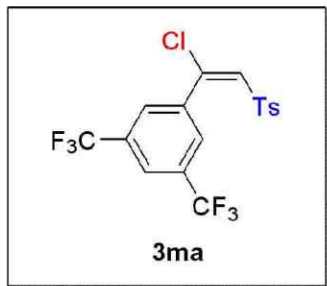
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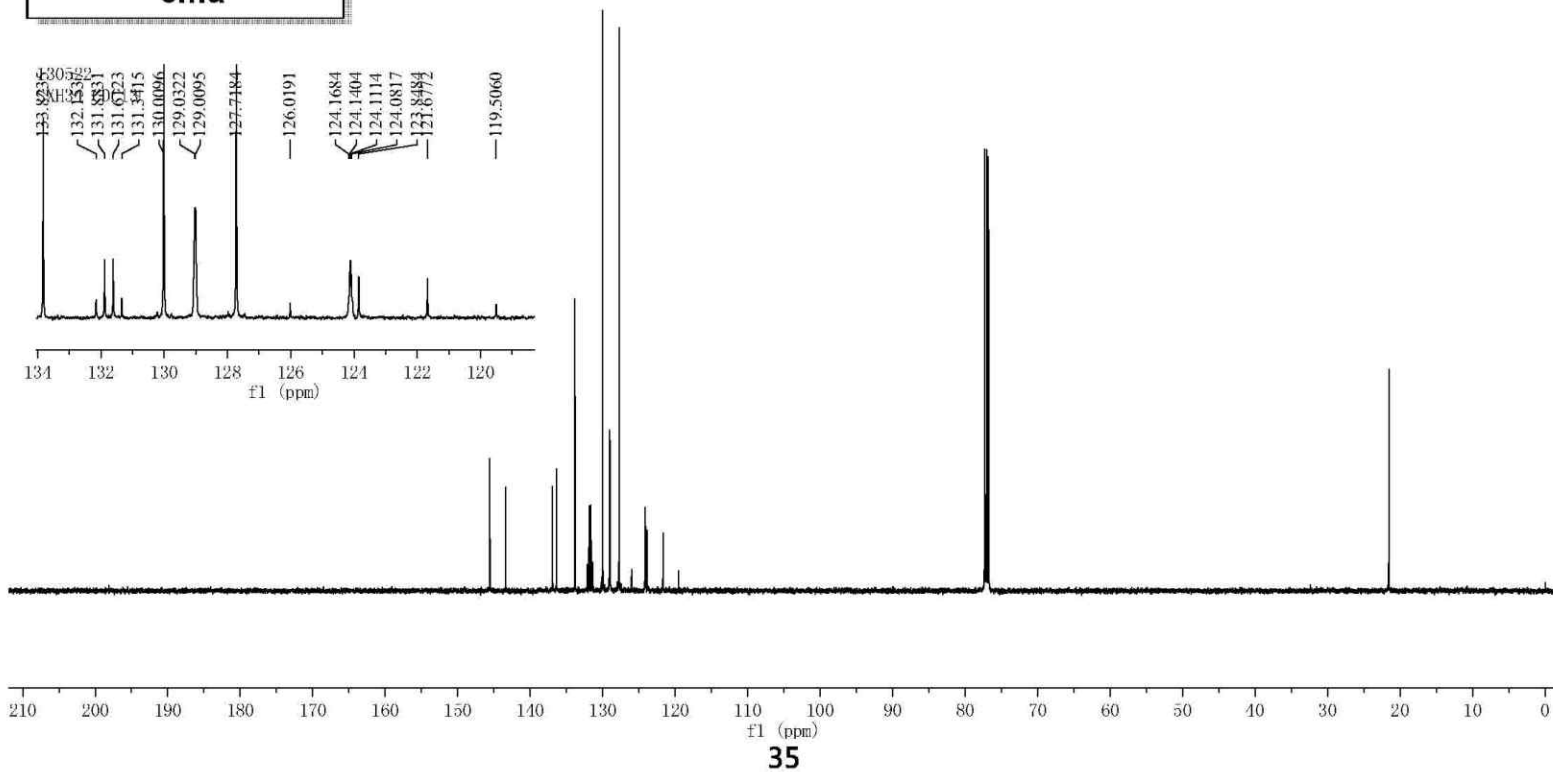
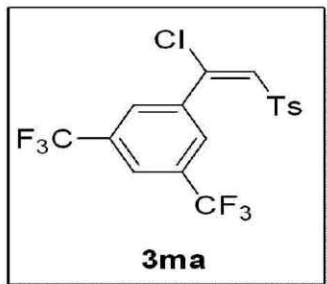


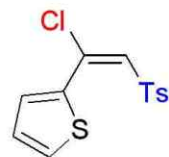


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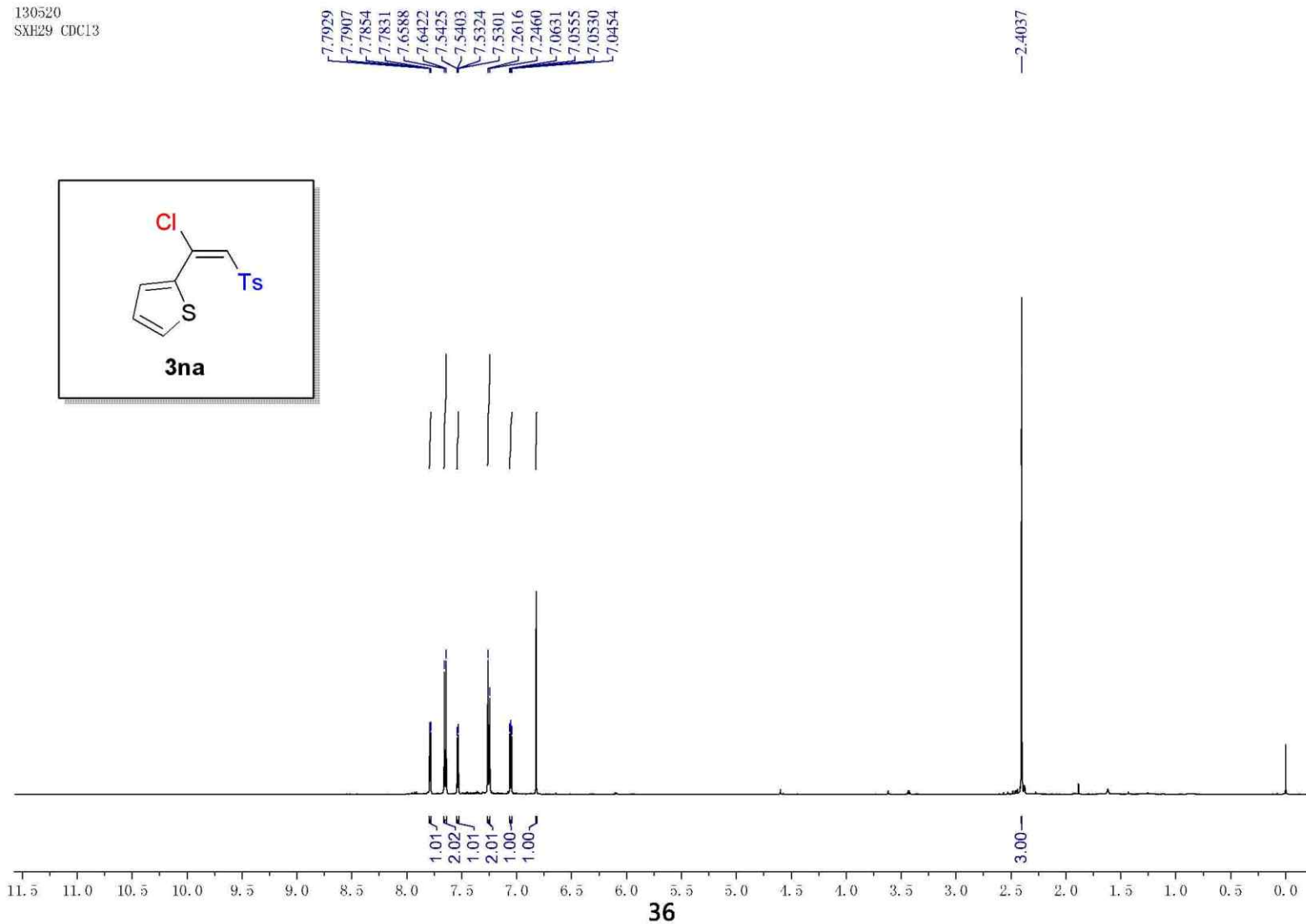








3na

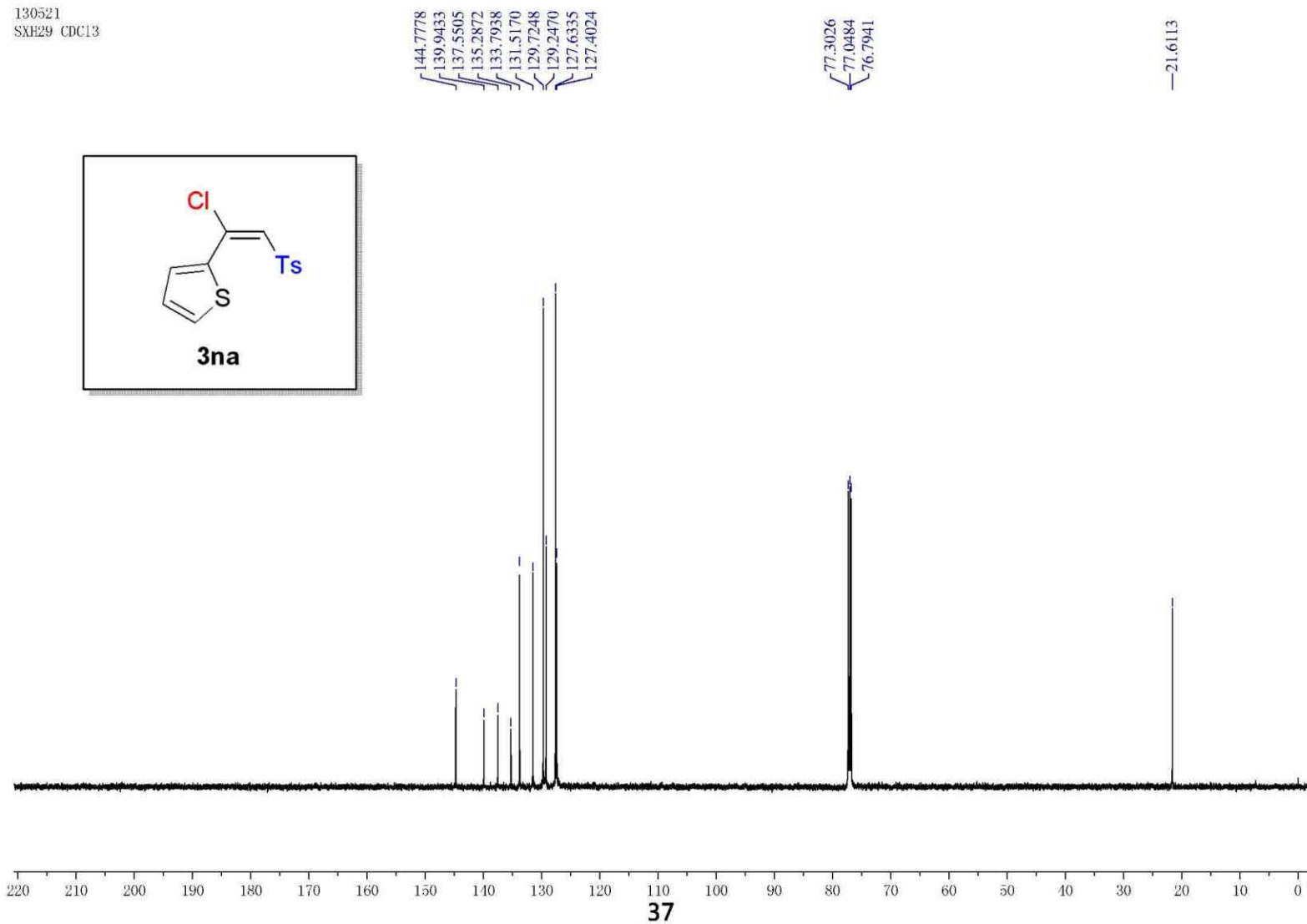
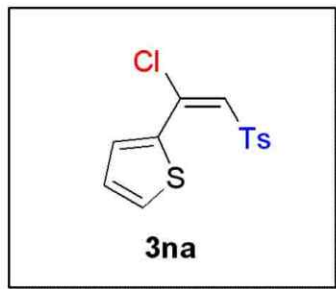


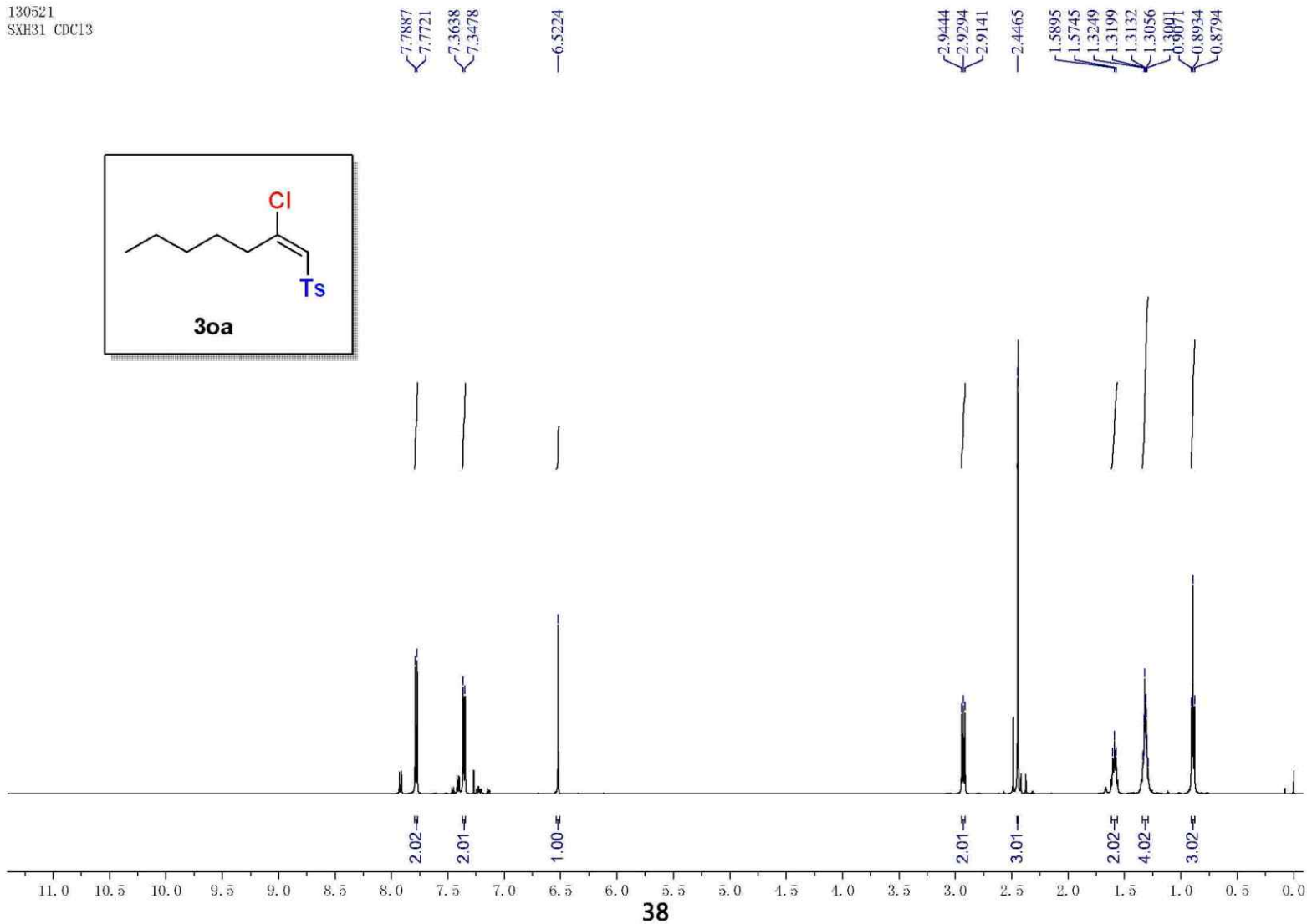
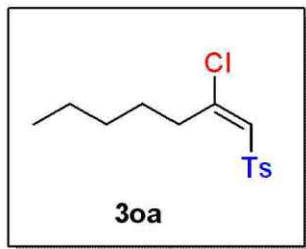
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137.5505
135.2872
133.7938
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129.2470
127.6335
127.4024

77.3026
77.0484
76.7941

21.6113





130522
SXH31 CDC13

— 154.3919

— 144.7453

— 138.4714

✓ 129.9992

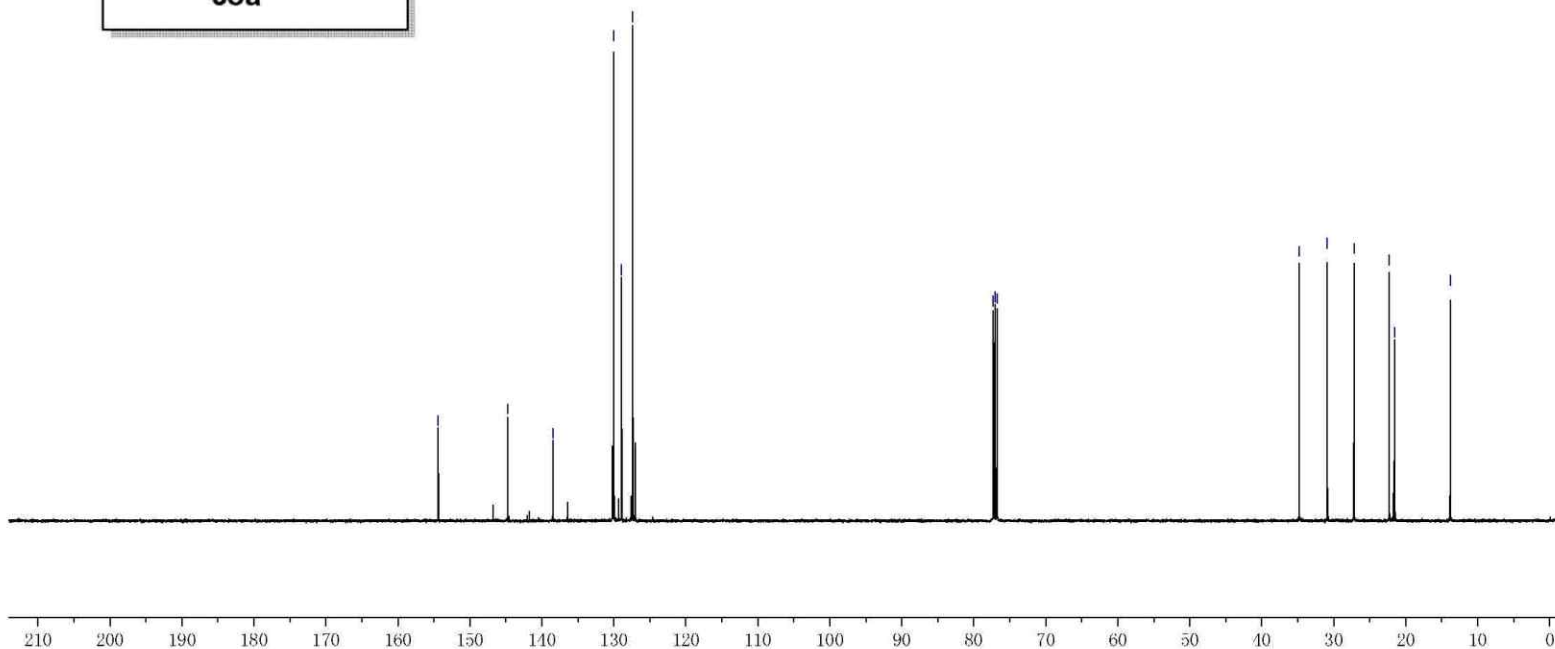
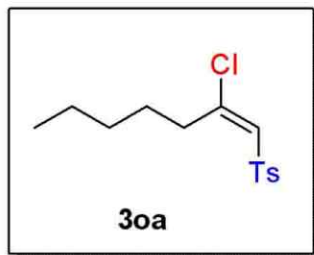
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✓ 127.3709

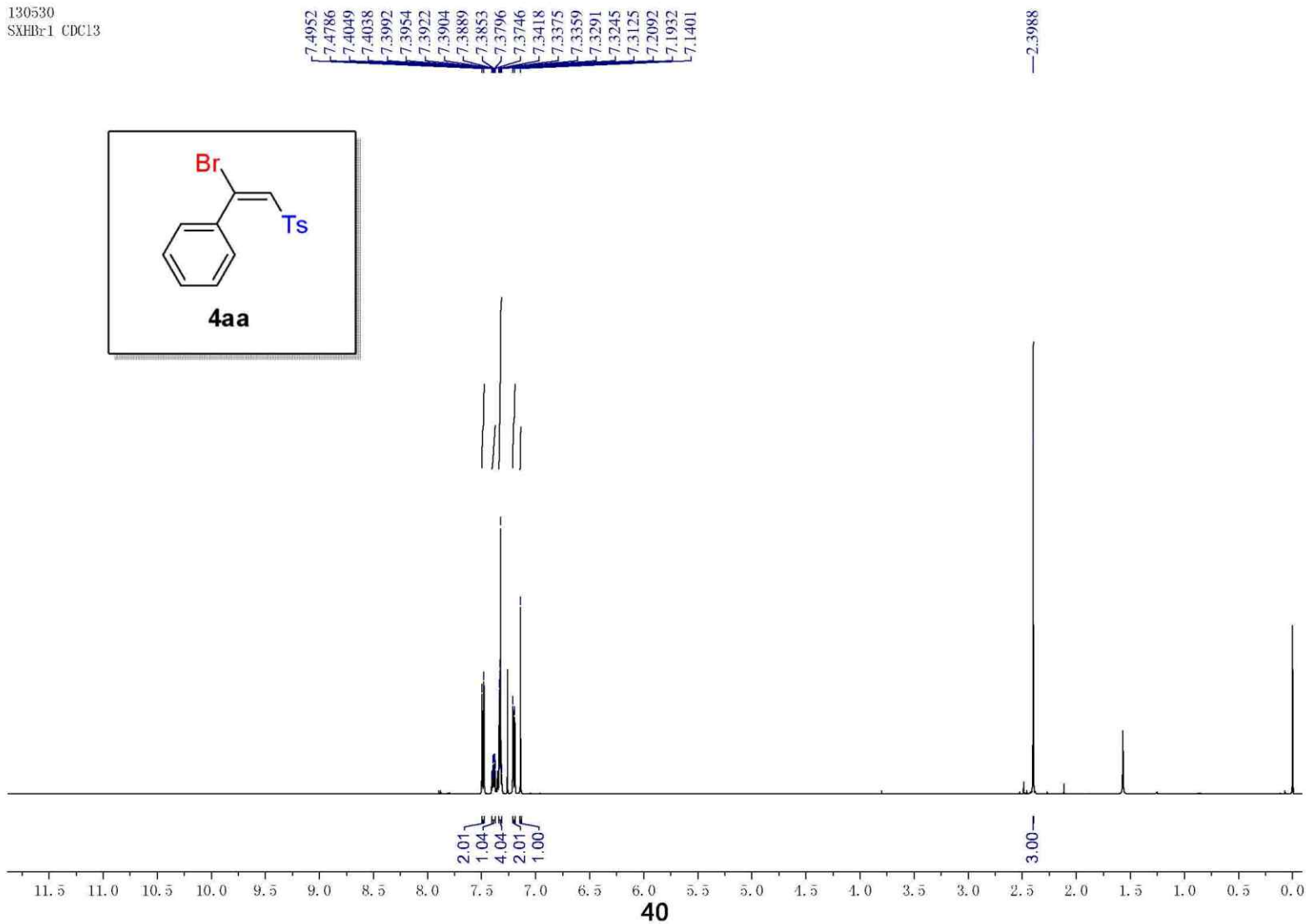
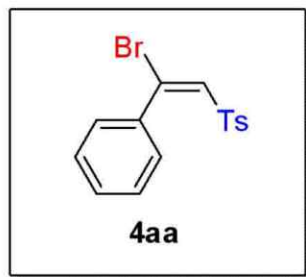
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— 13.8134



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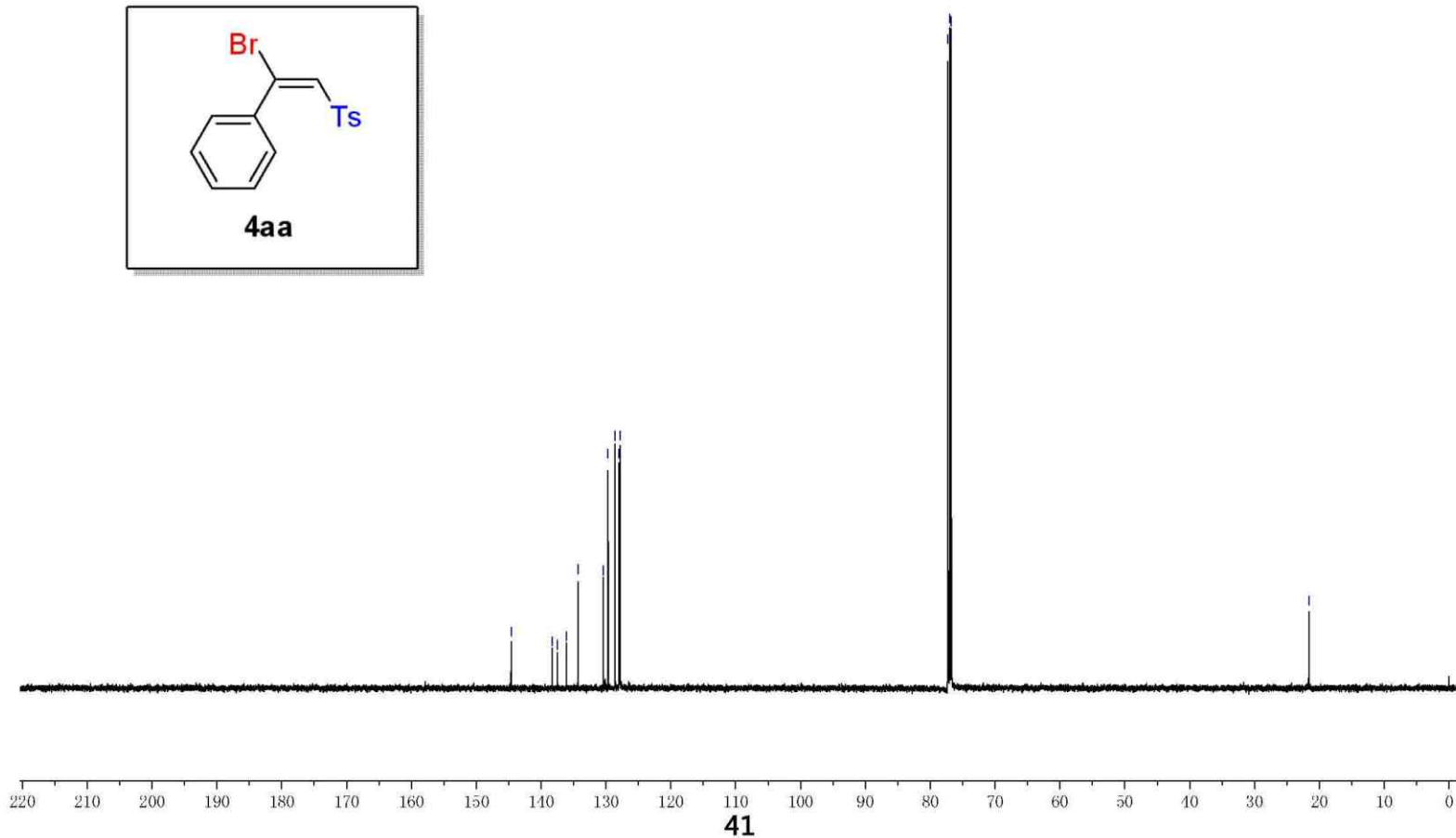
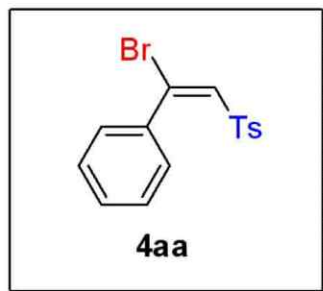


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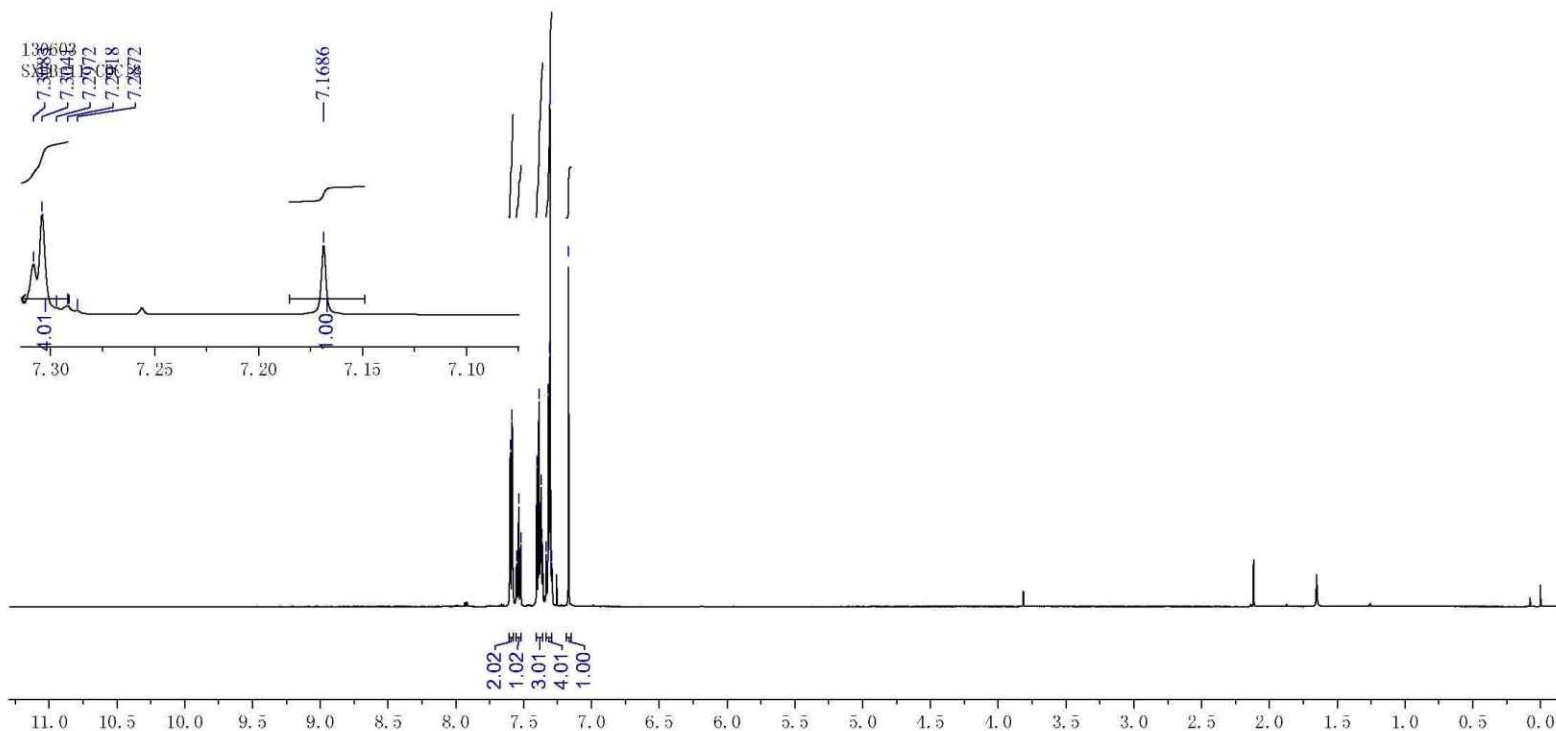
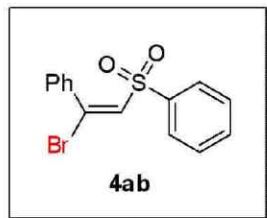
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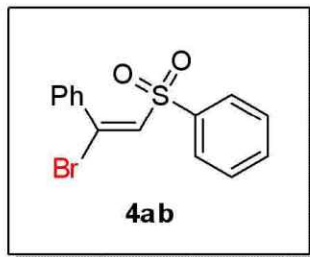
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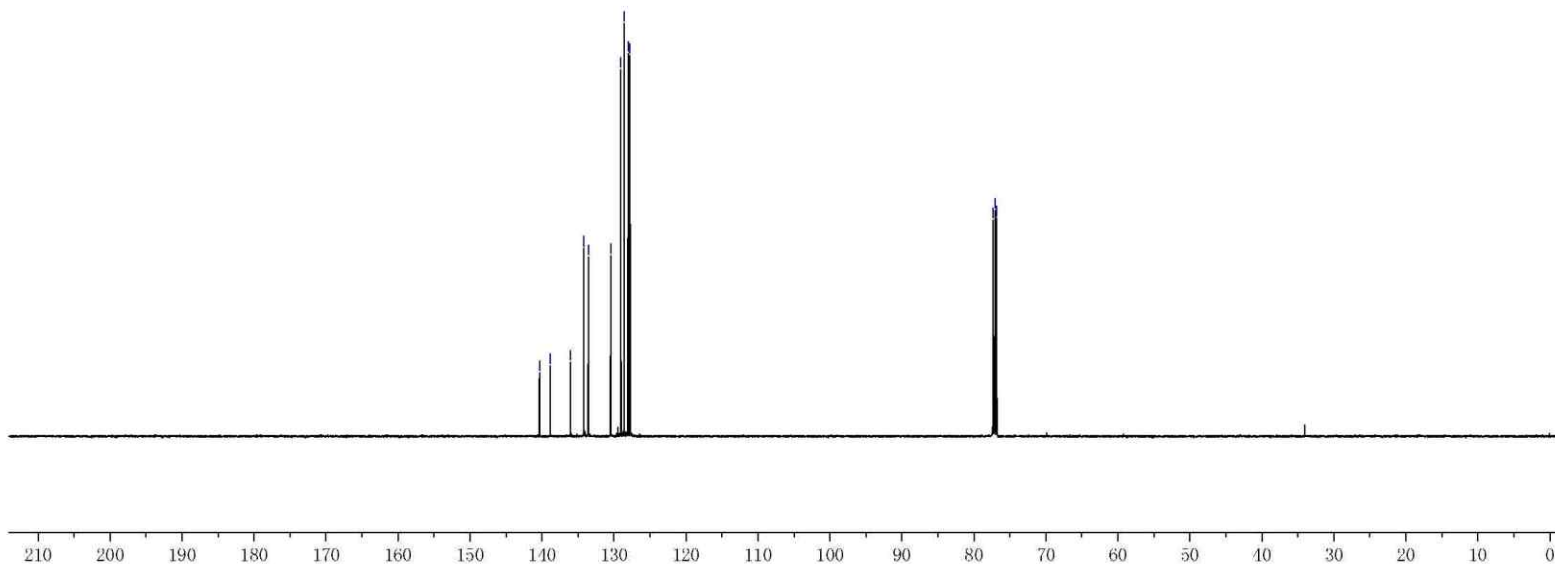
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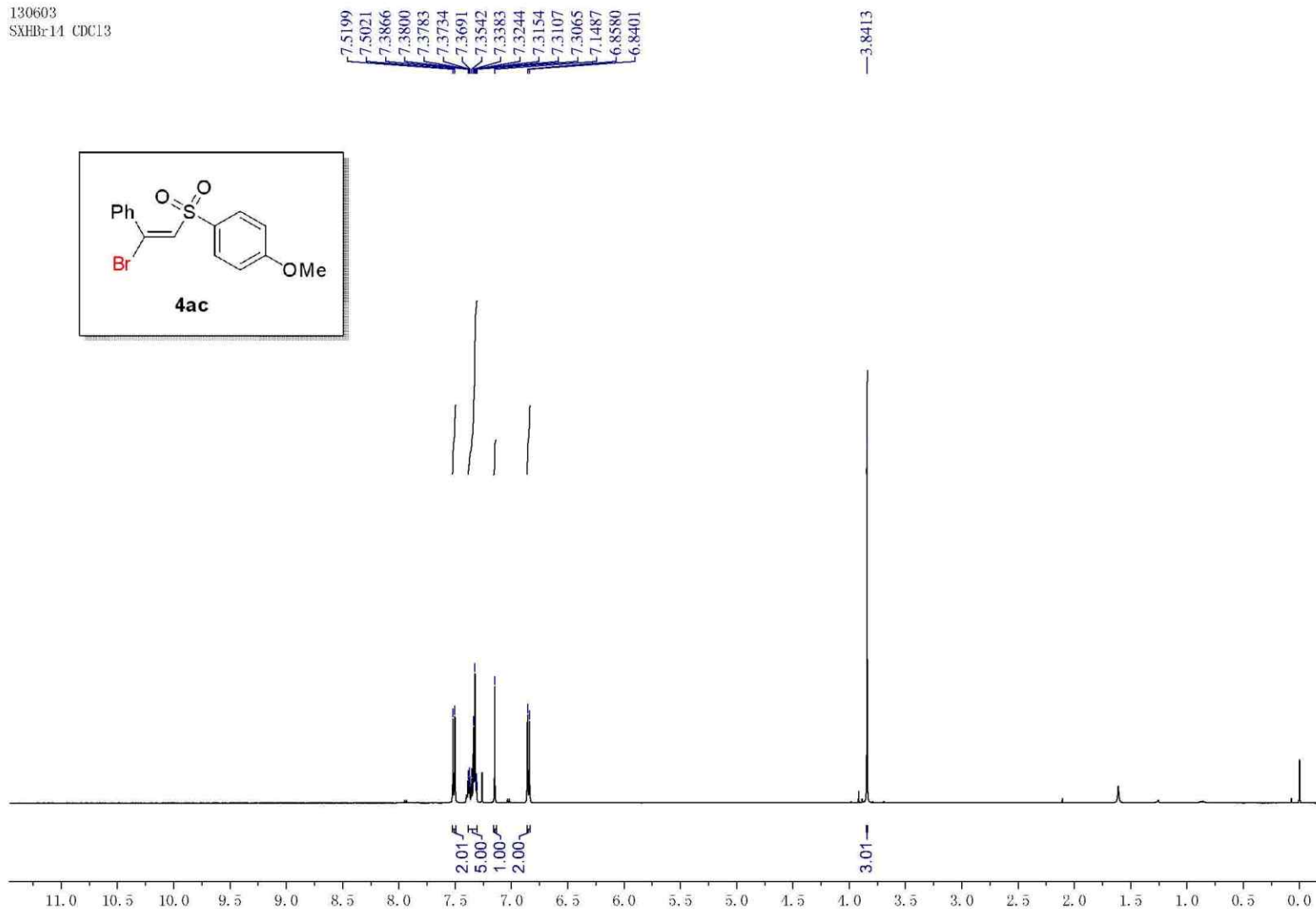
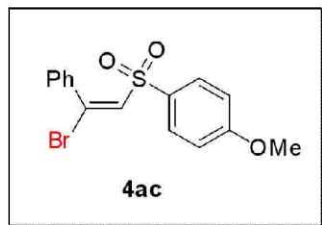


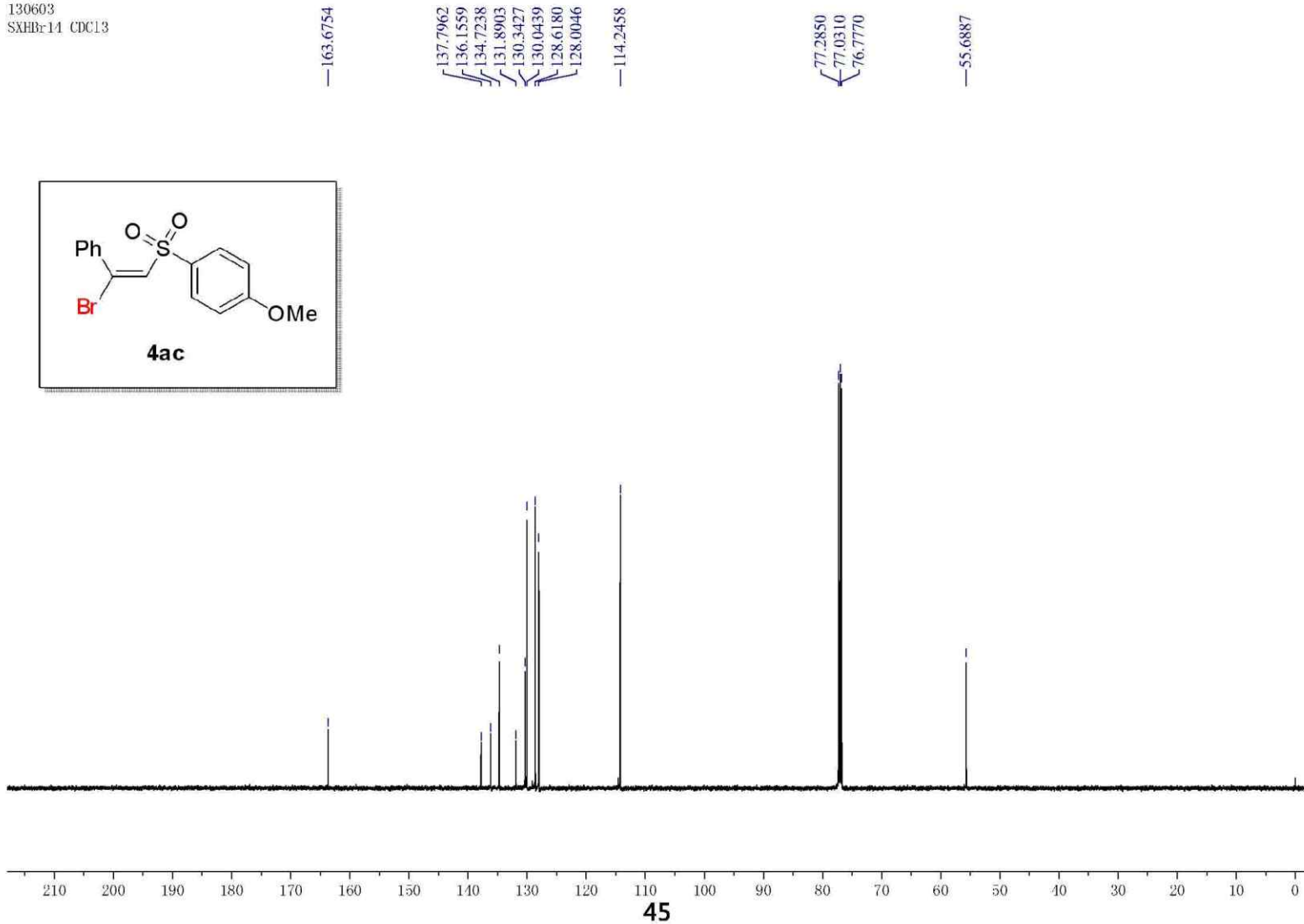
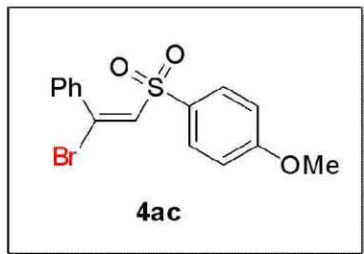


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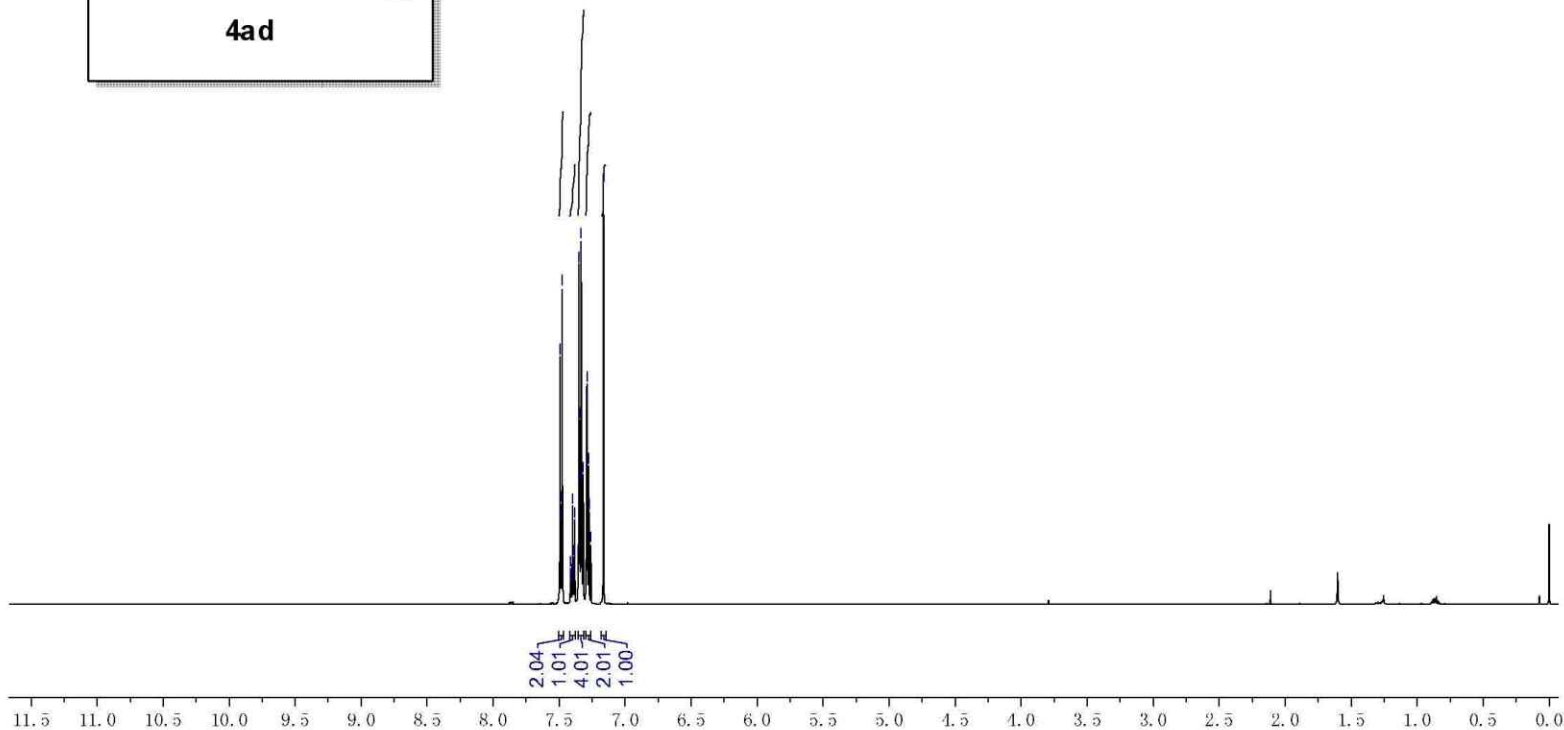
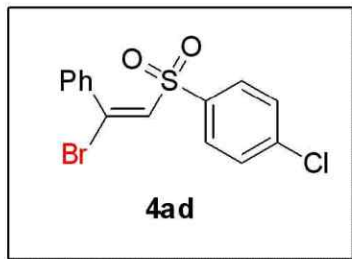
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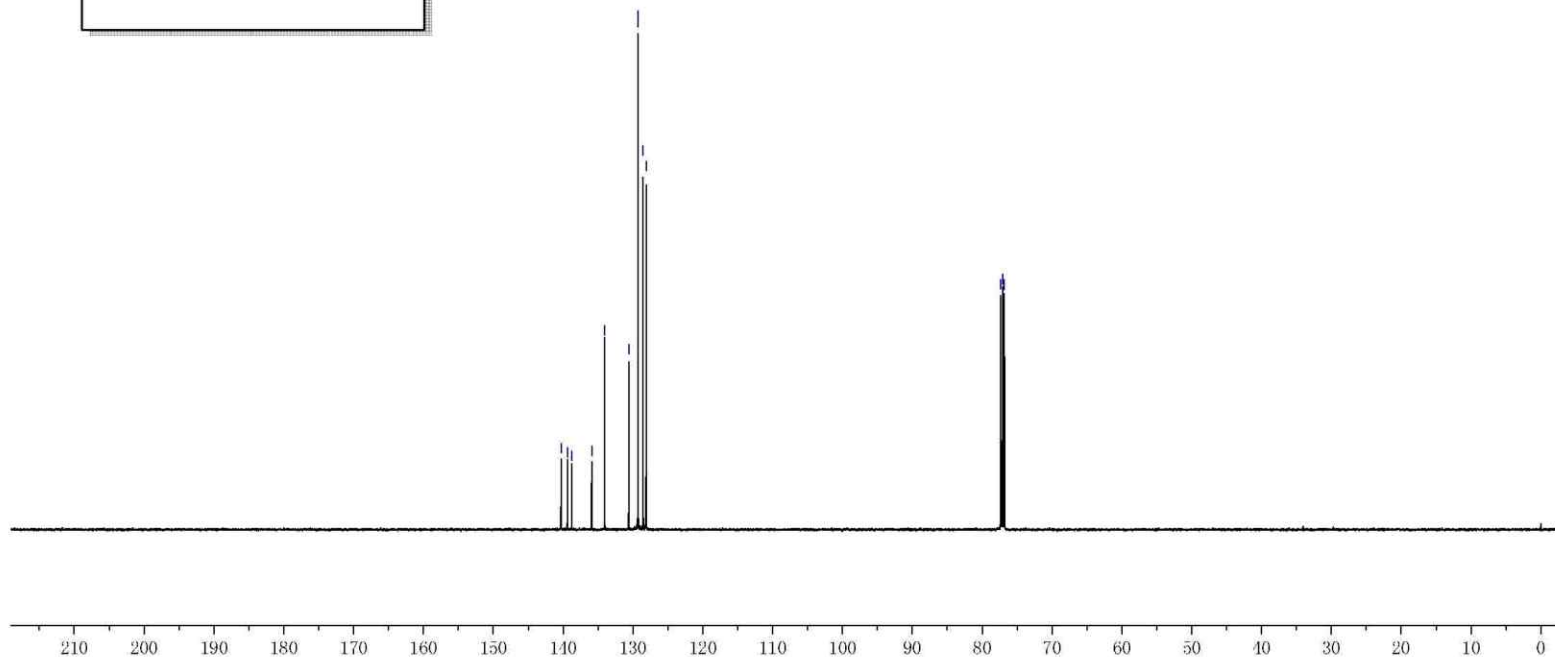
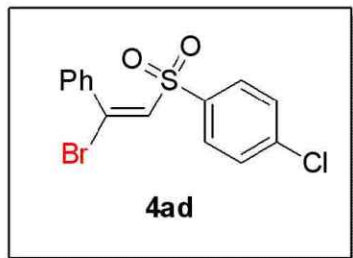


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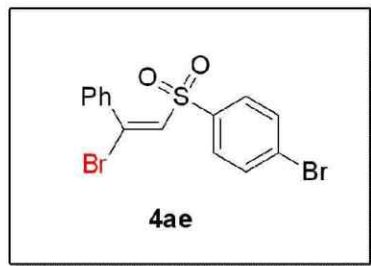


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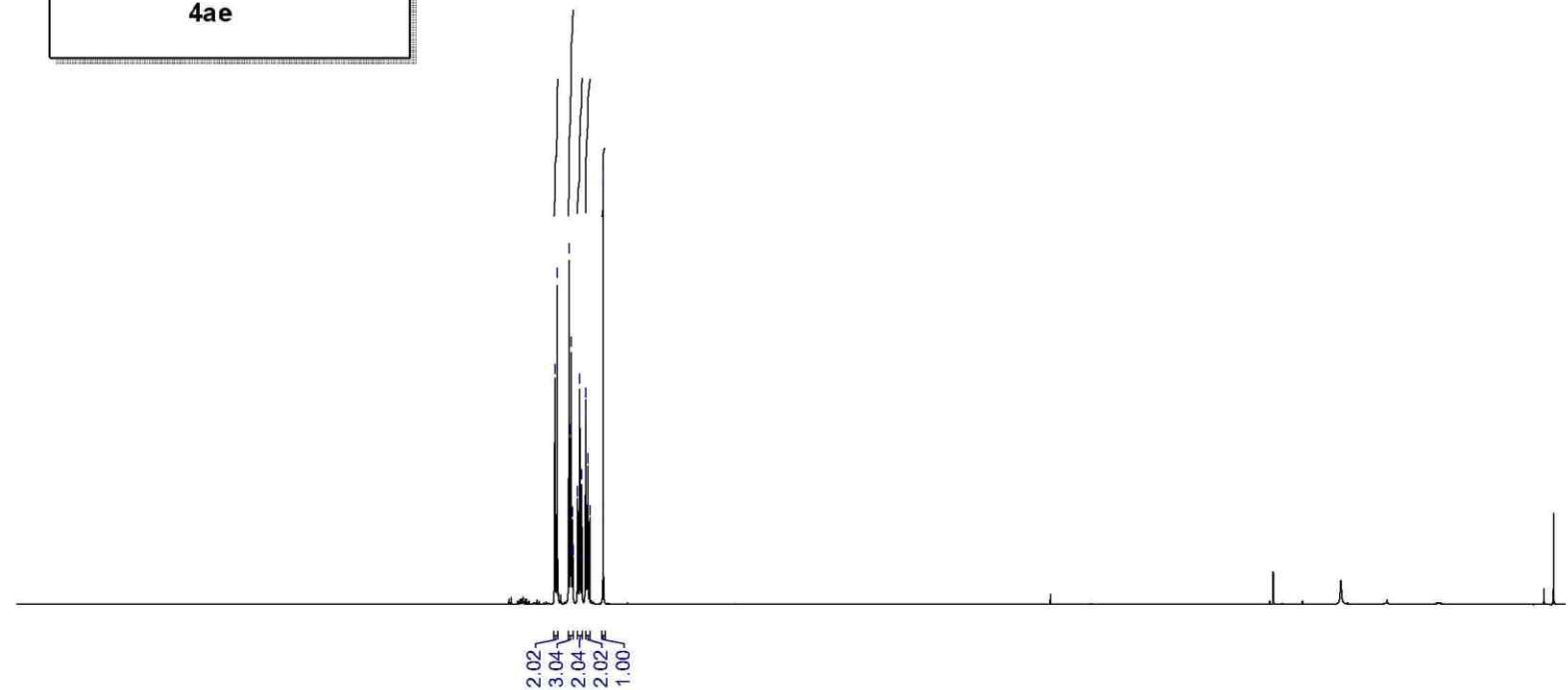
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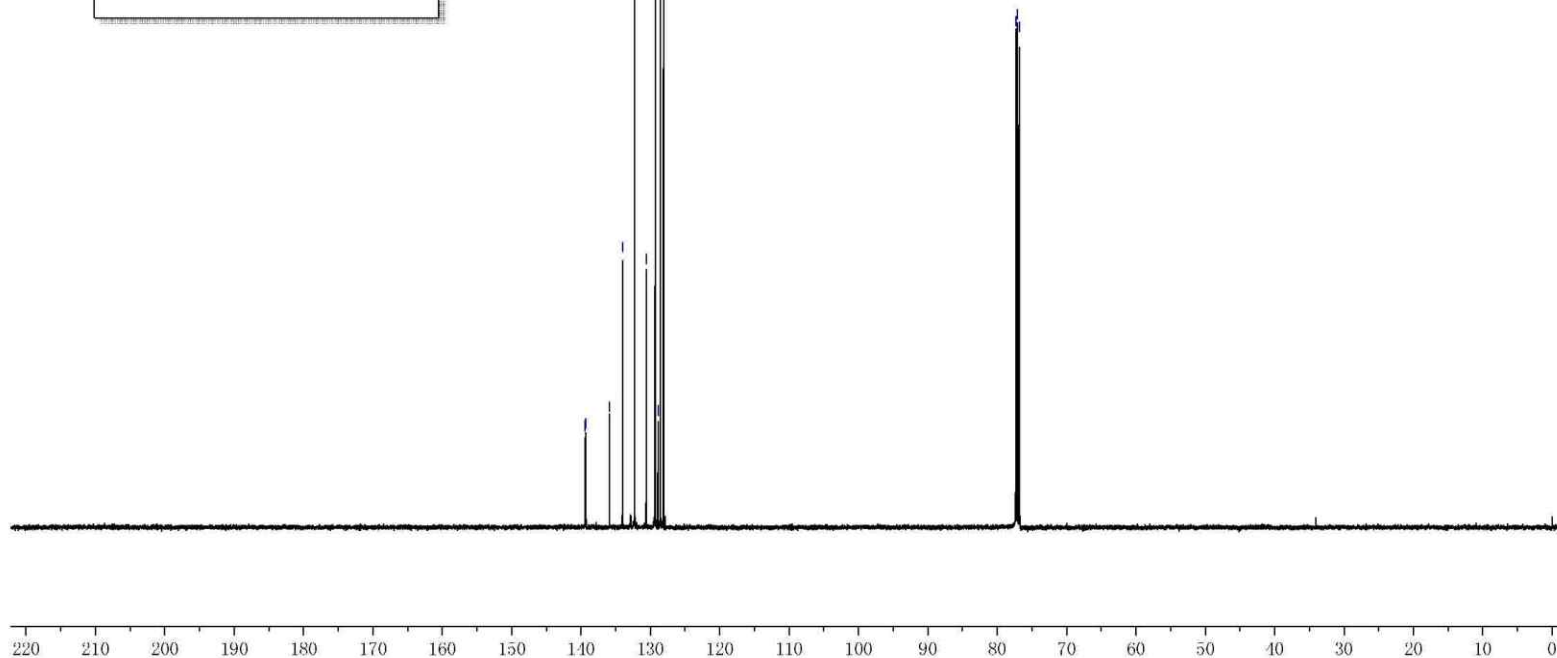
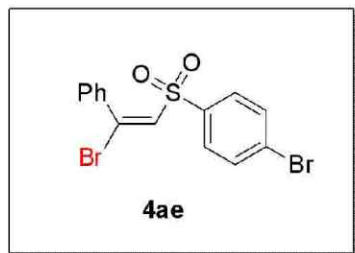


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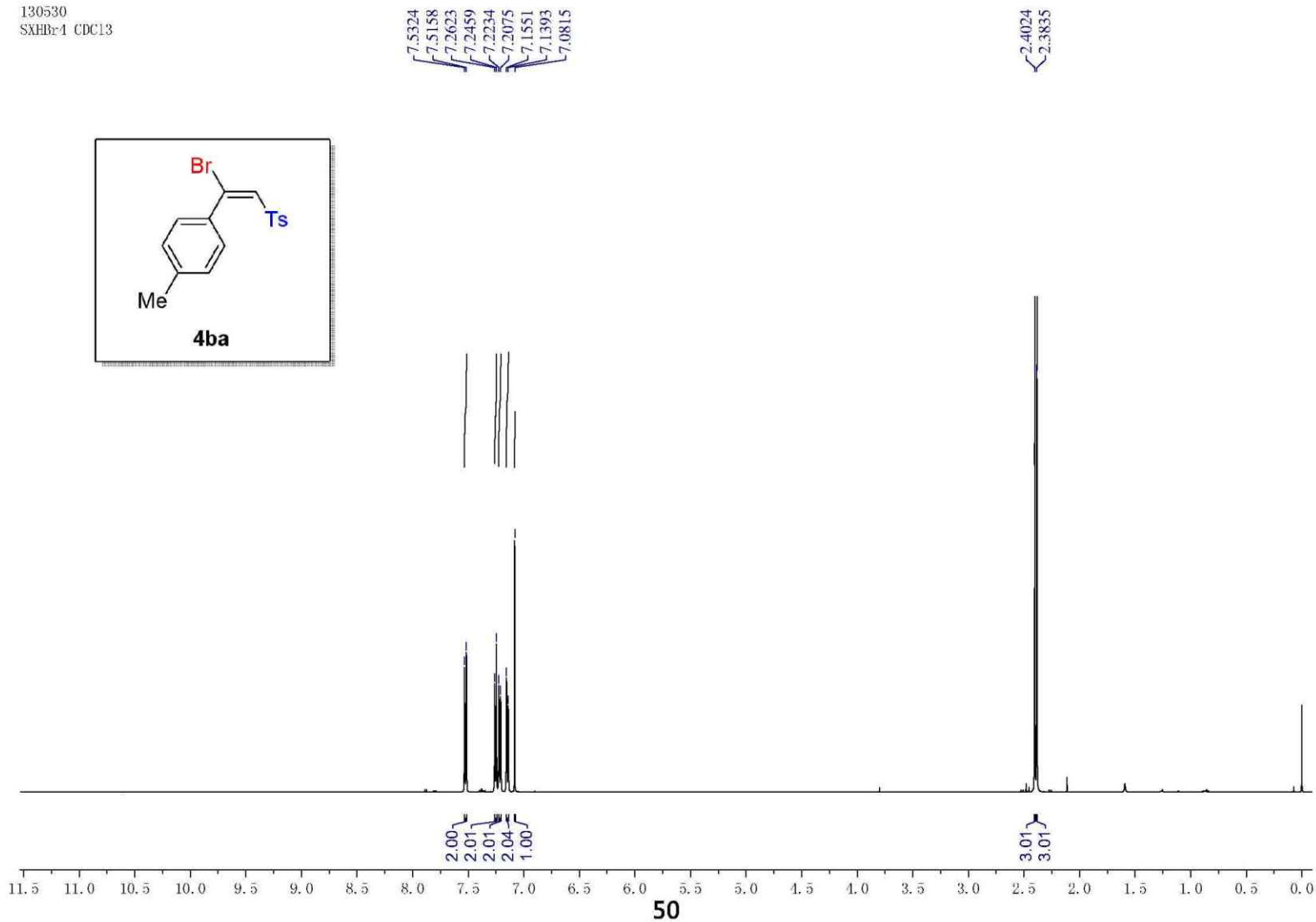
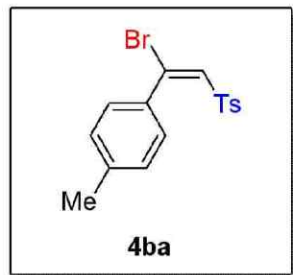


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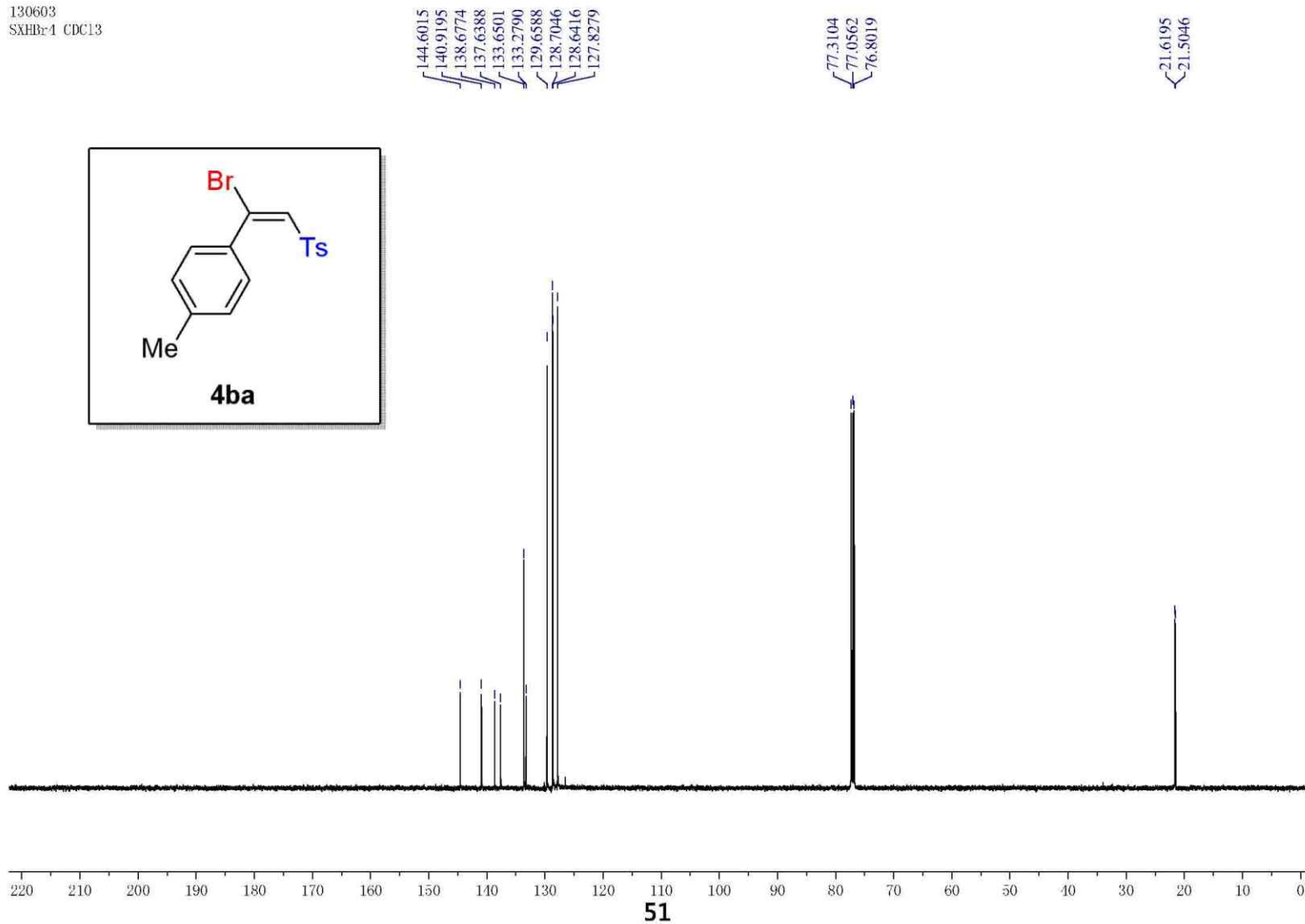
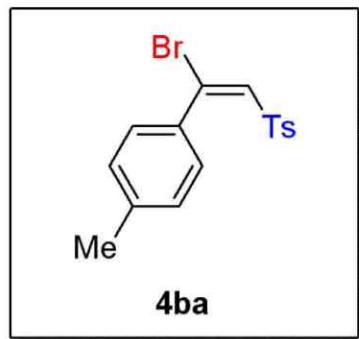
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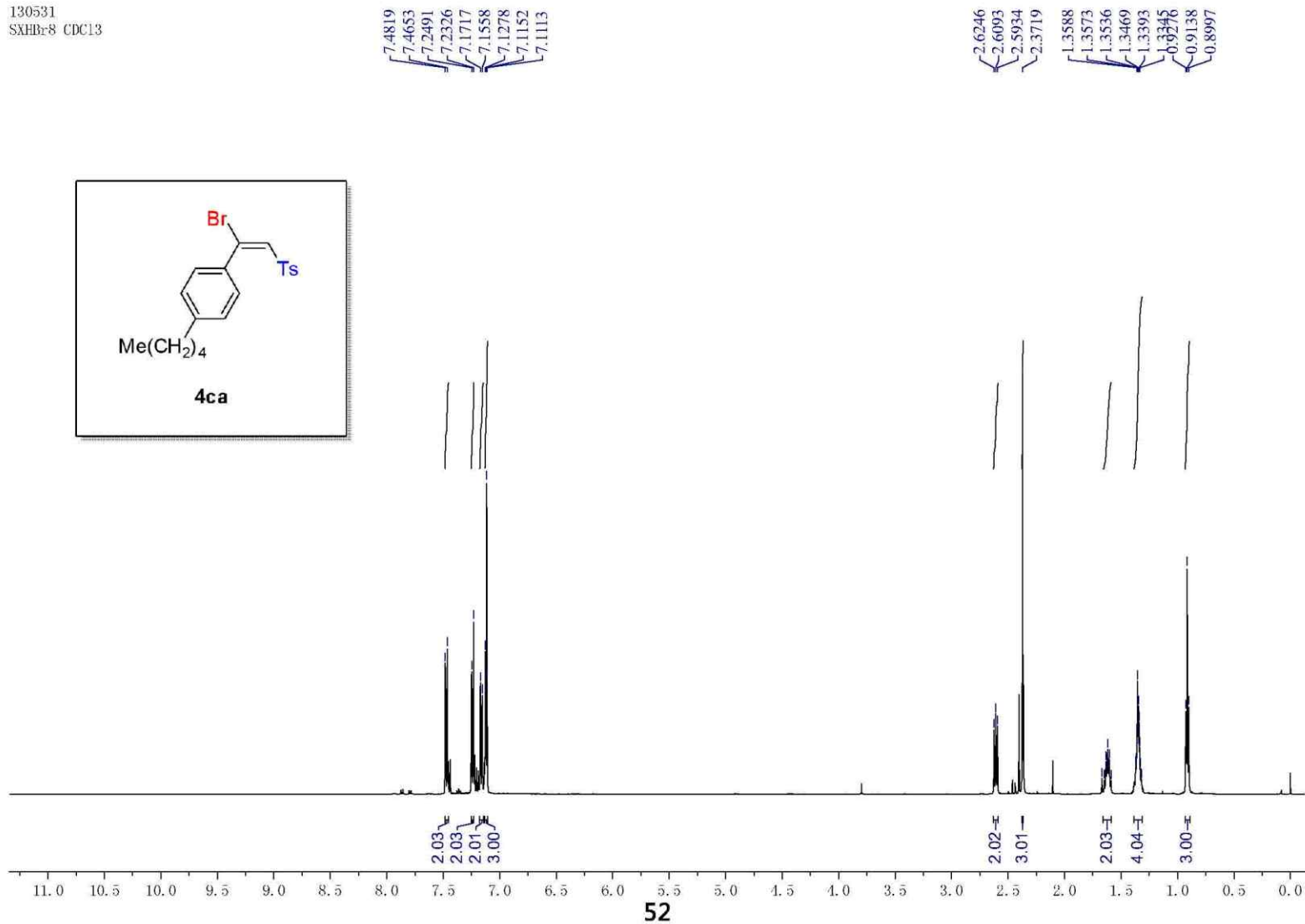
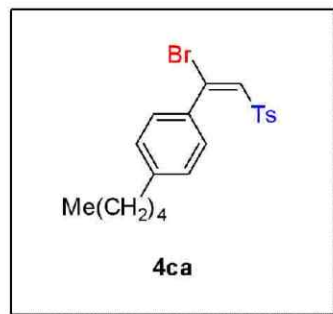


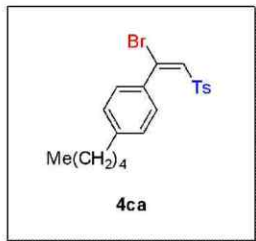
130530
SXHBr-1 CDC13



130603
SXHBr-1 CDC13



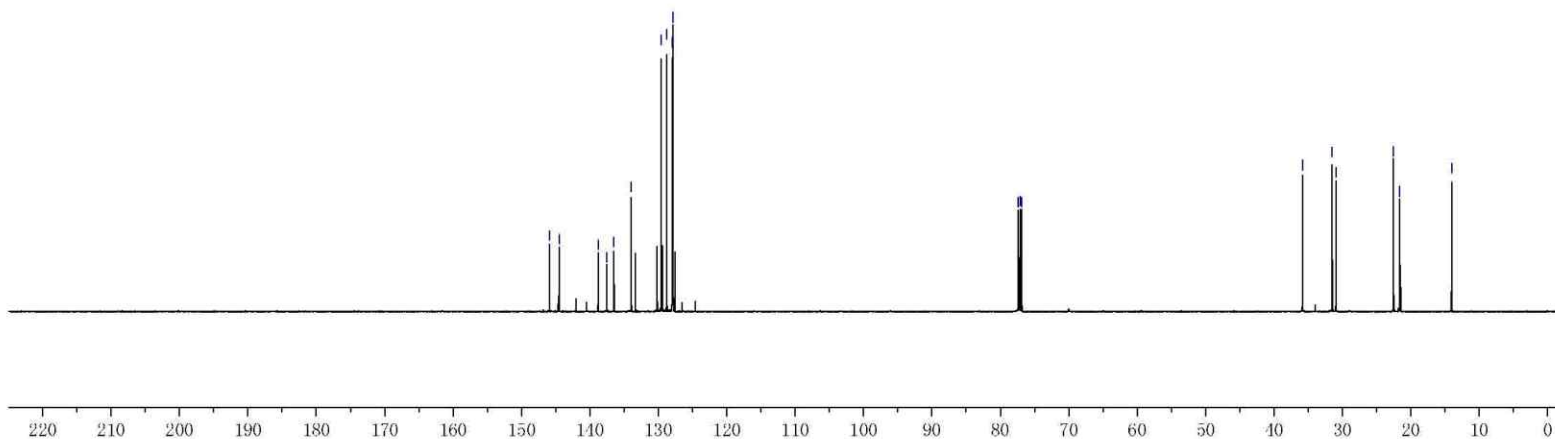




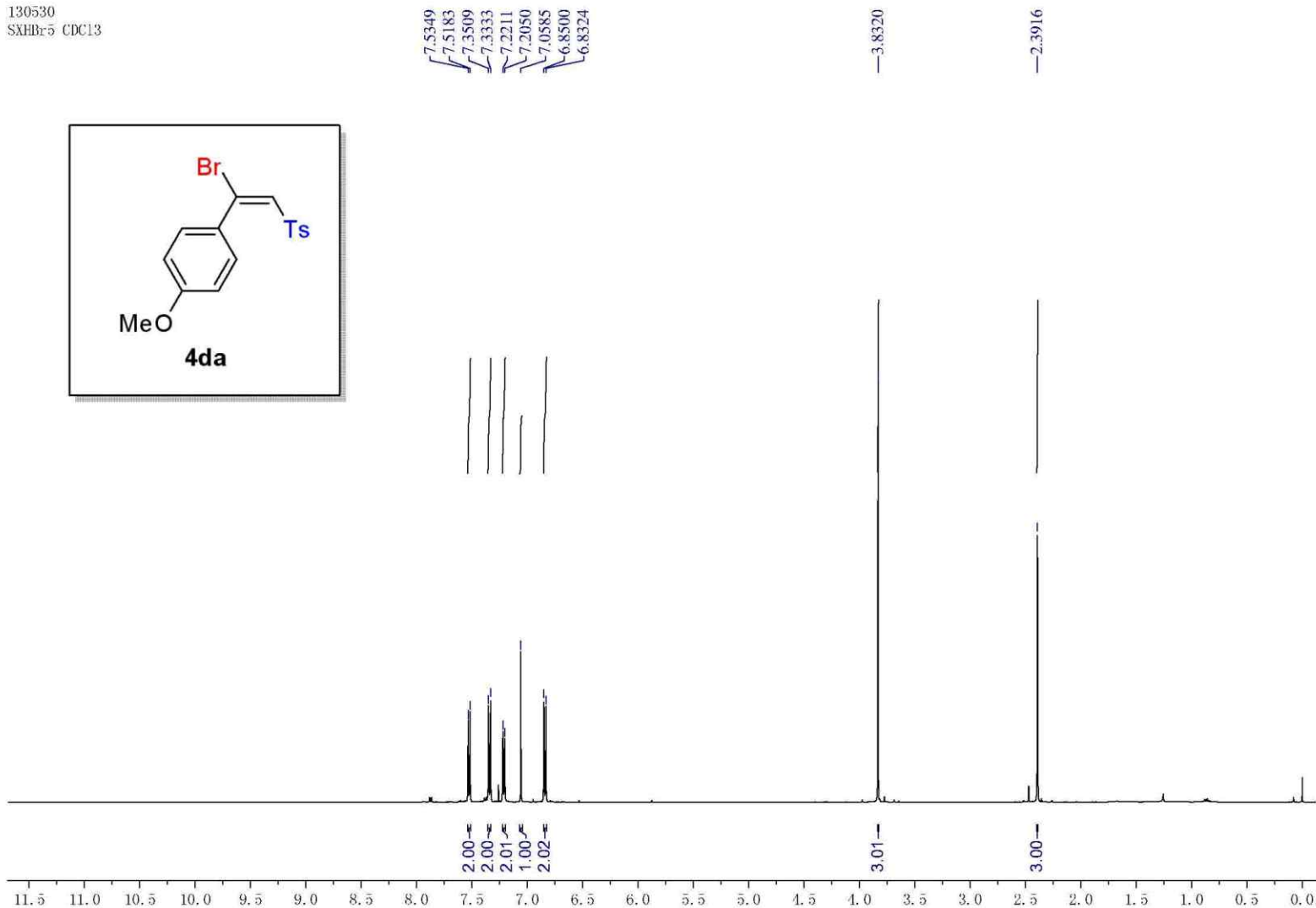
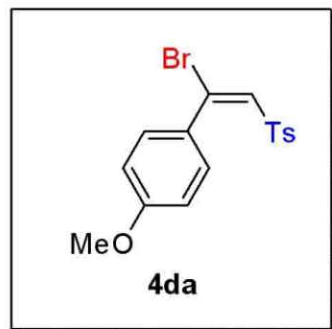
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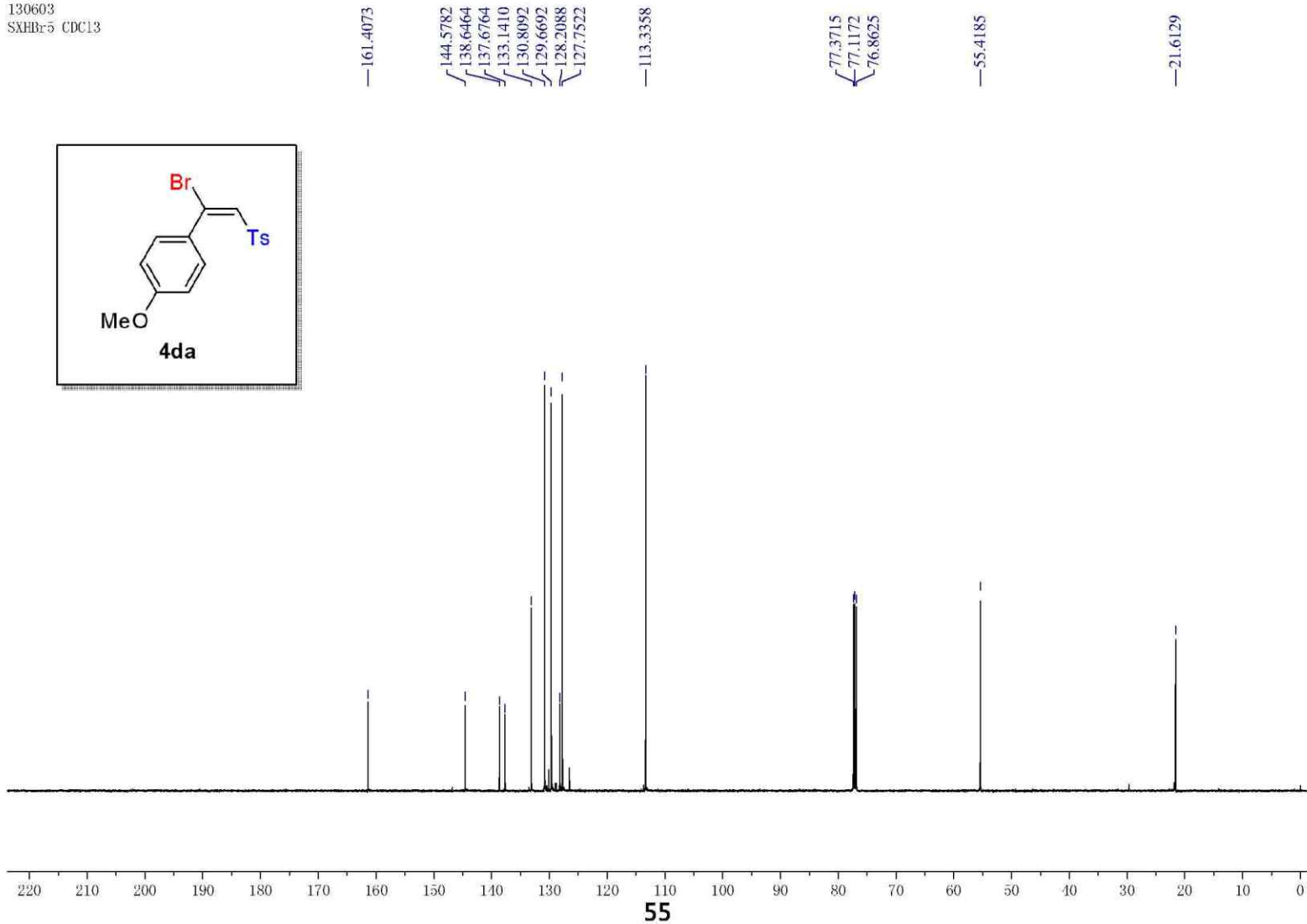
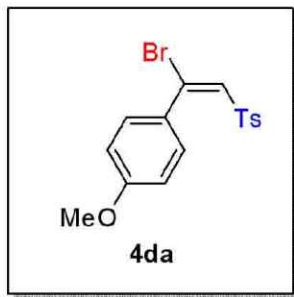
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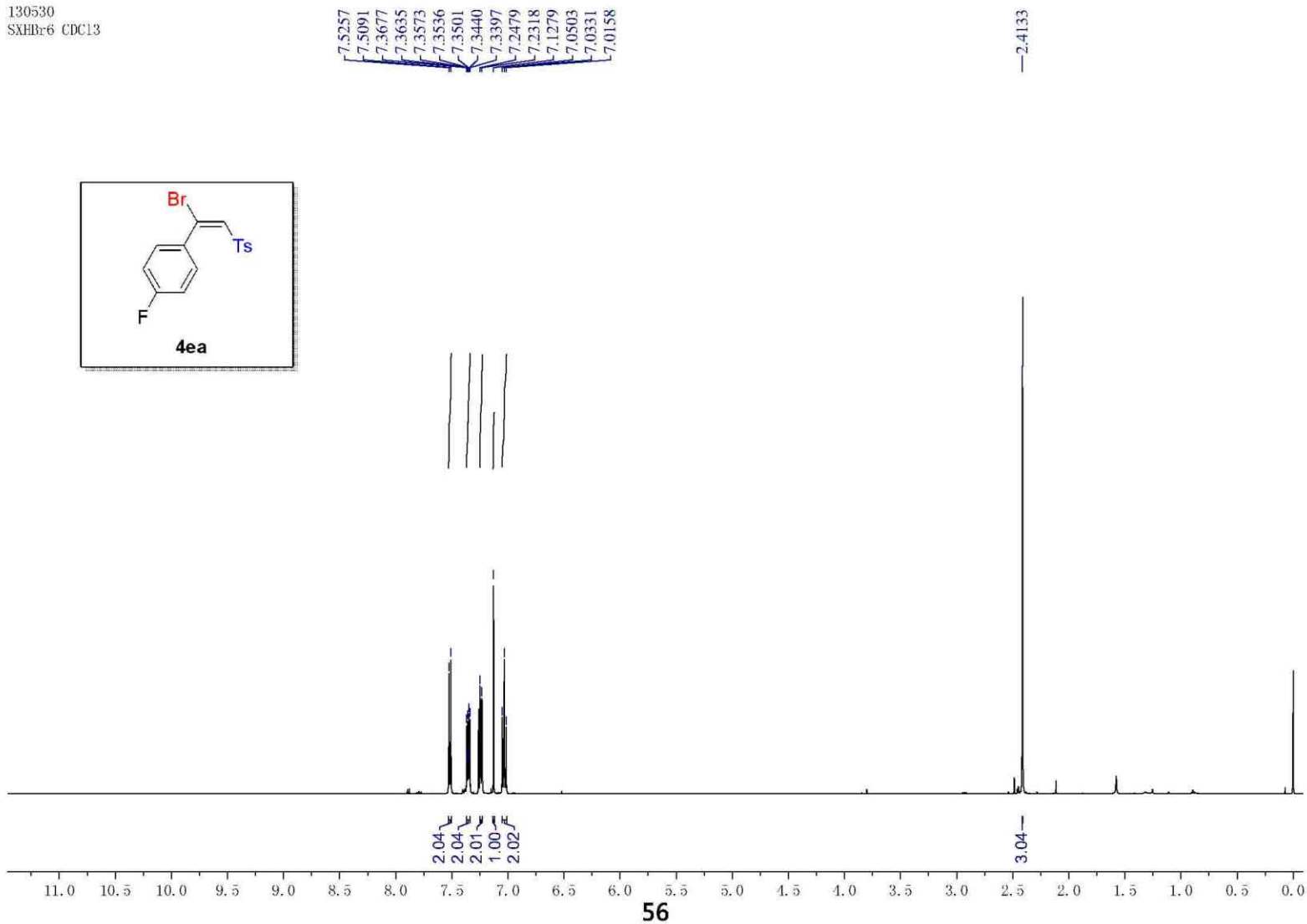
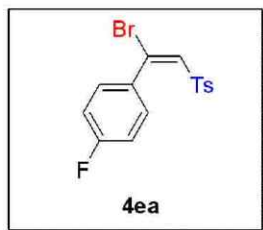


130530
SXHBr5 CDC13





130530
SXHBr6 CDC13



130603
SXHBr6 CDCl3

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134.6023

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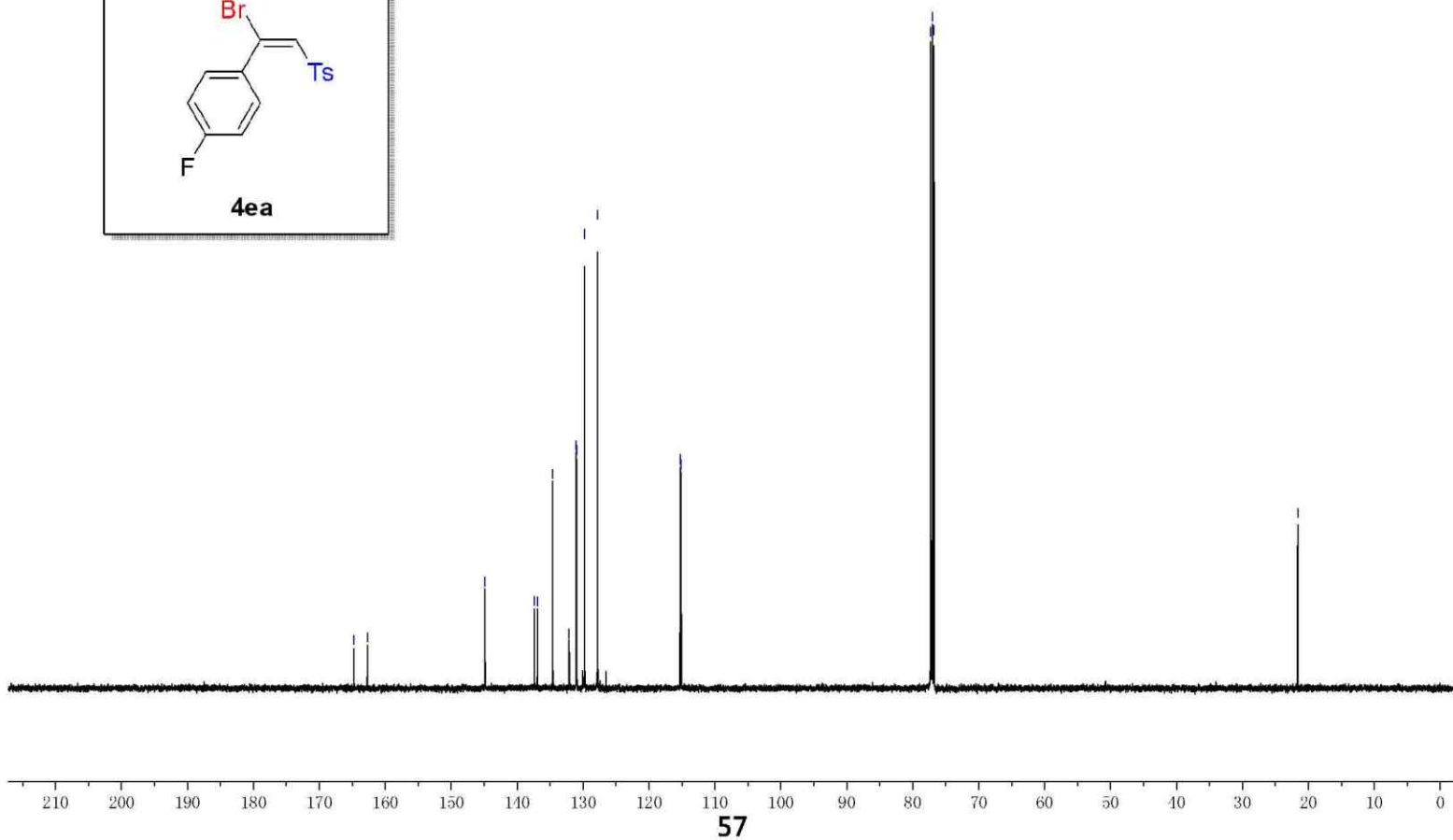
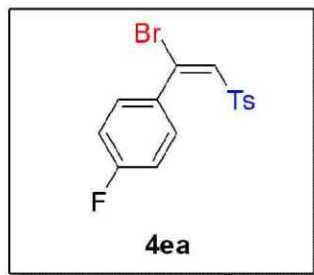
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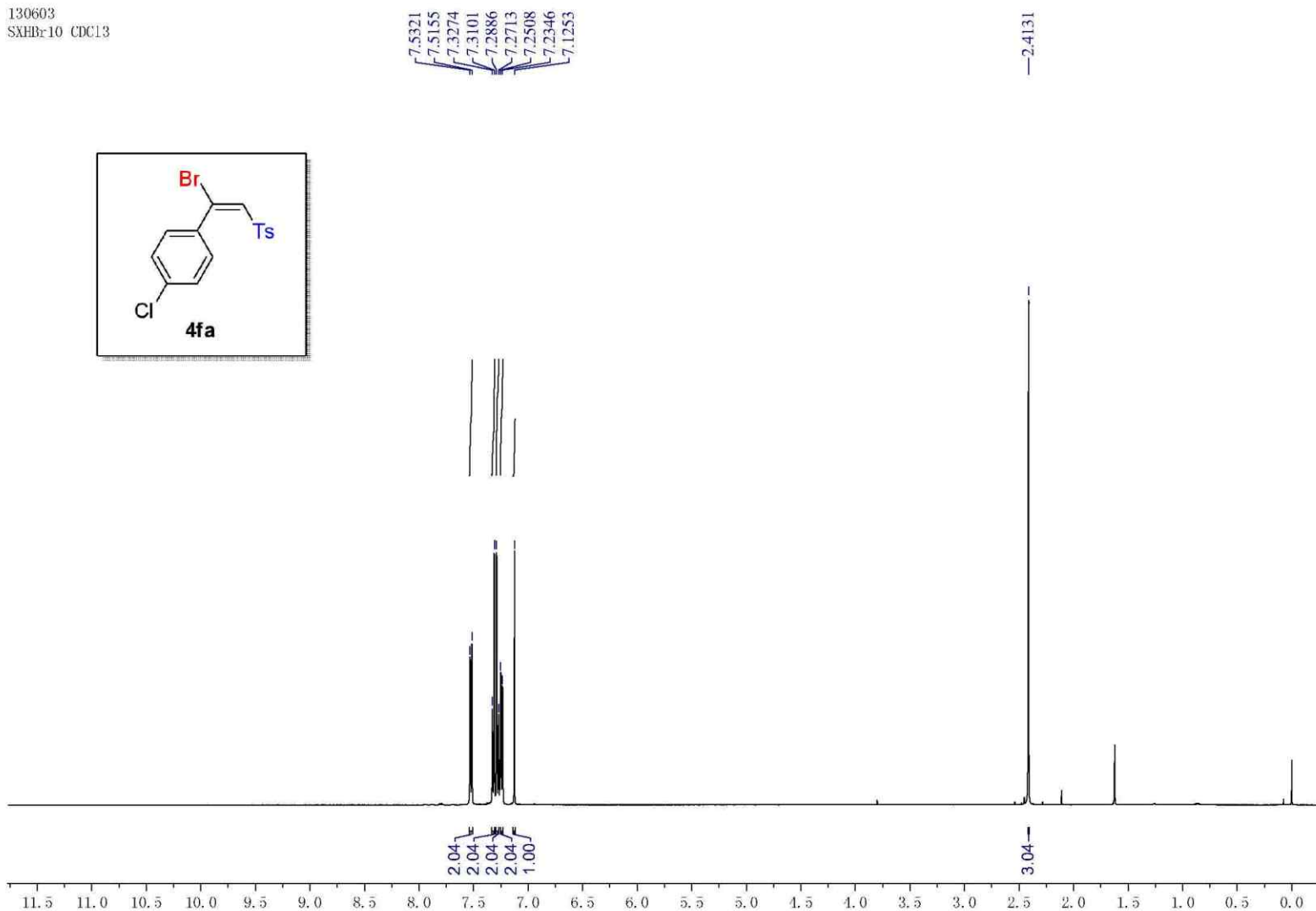
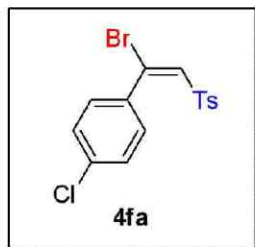
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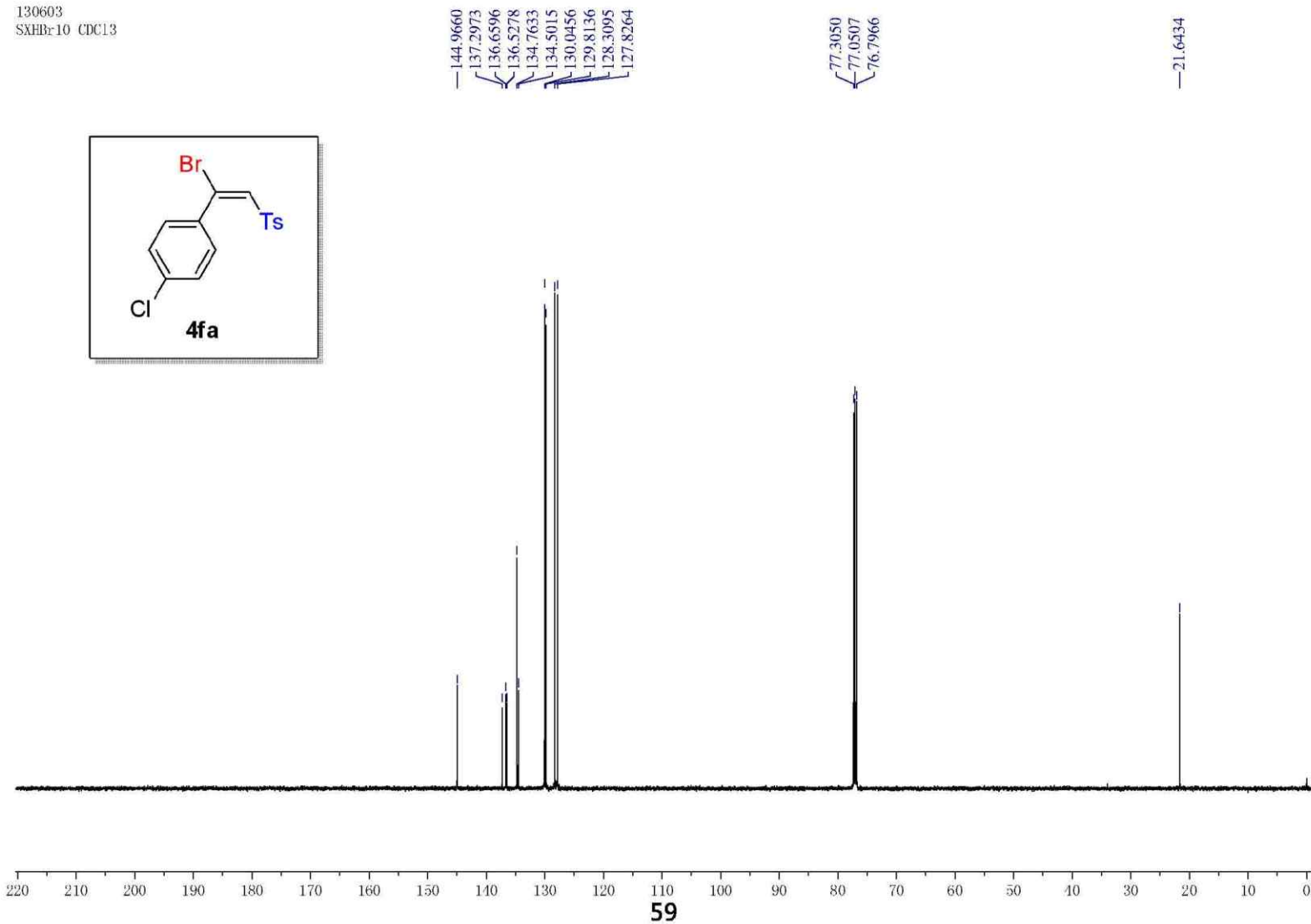
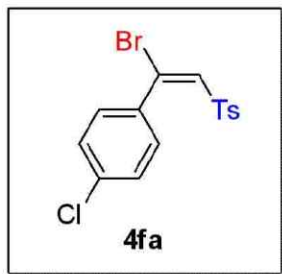
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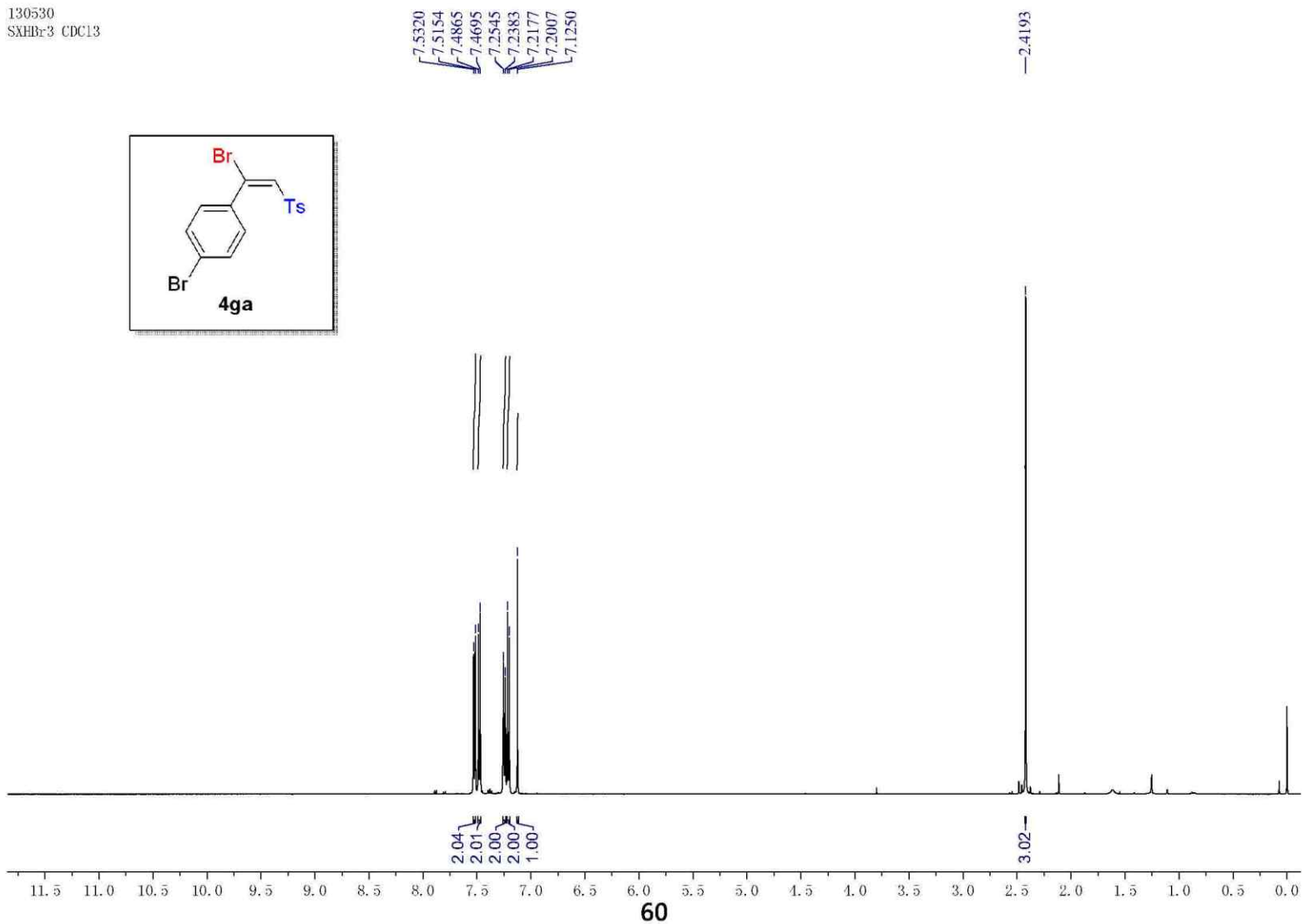
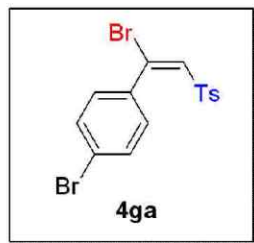
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SXHBr10 CDCl3



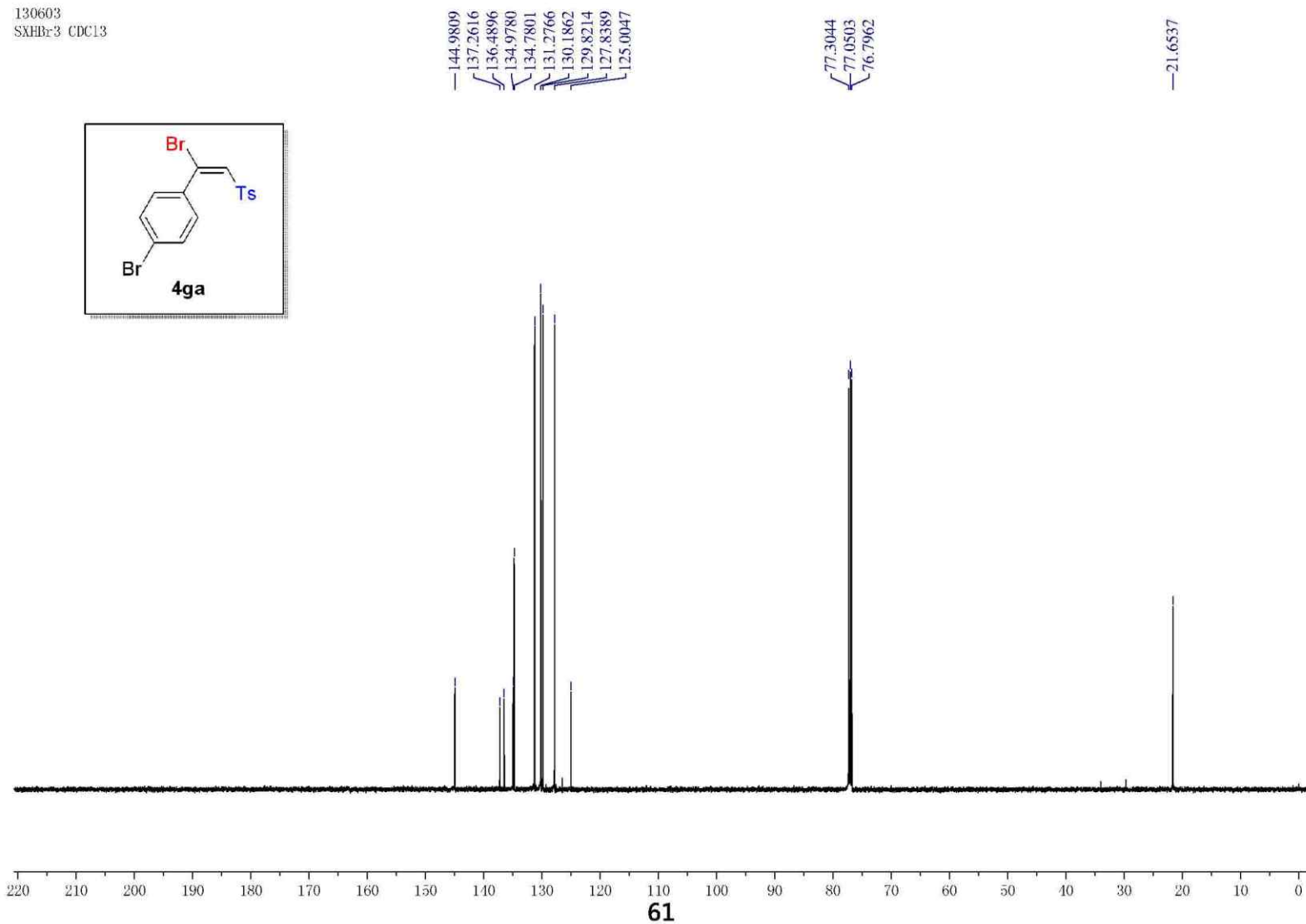
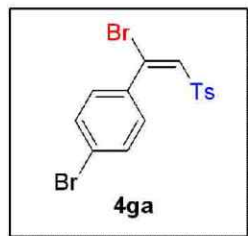
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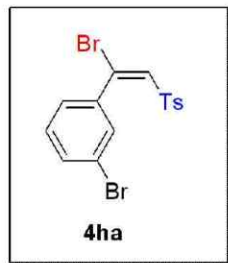


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SXHBr3 CDC13



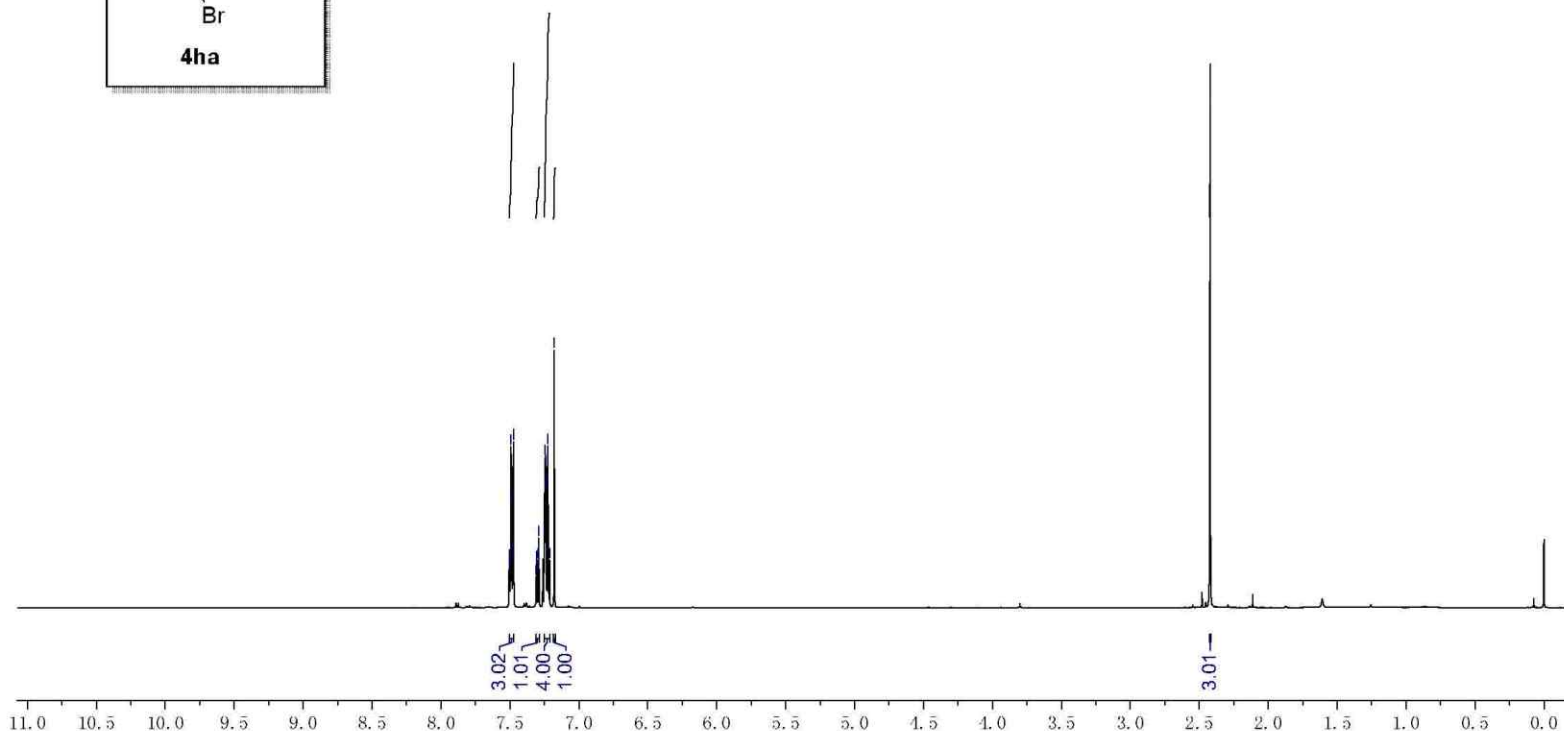
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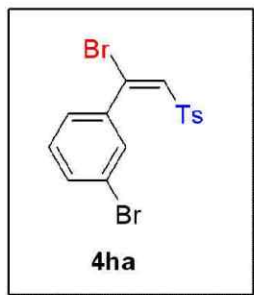


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2.4216



130603
SXHBr2 CDC13

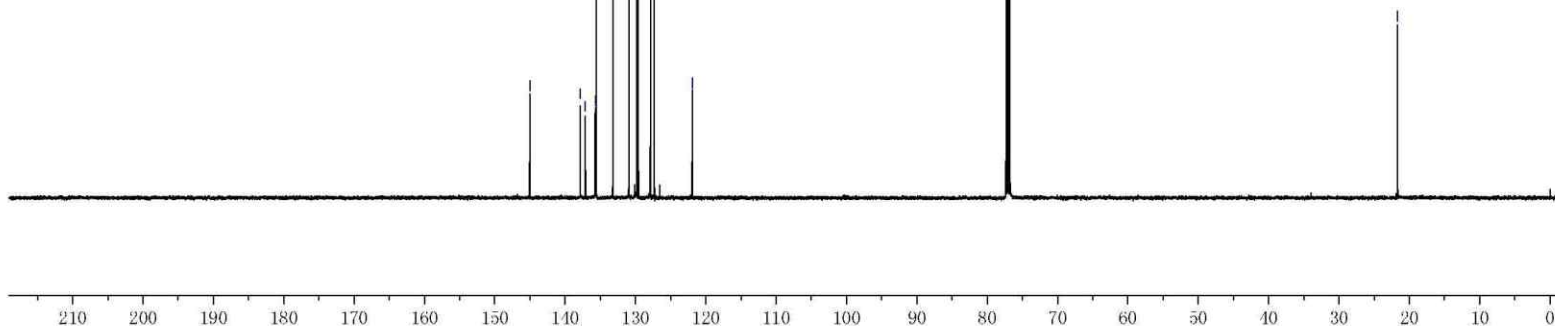
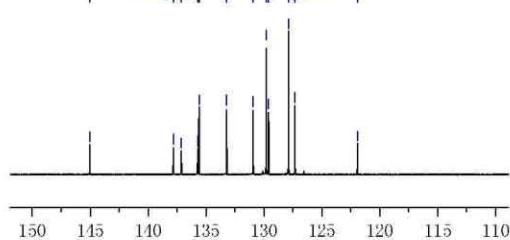


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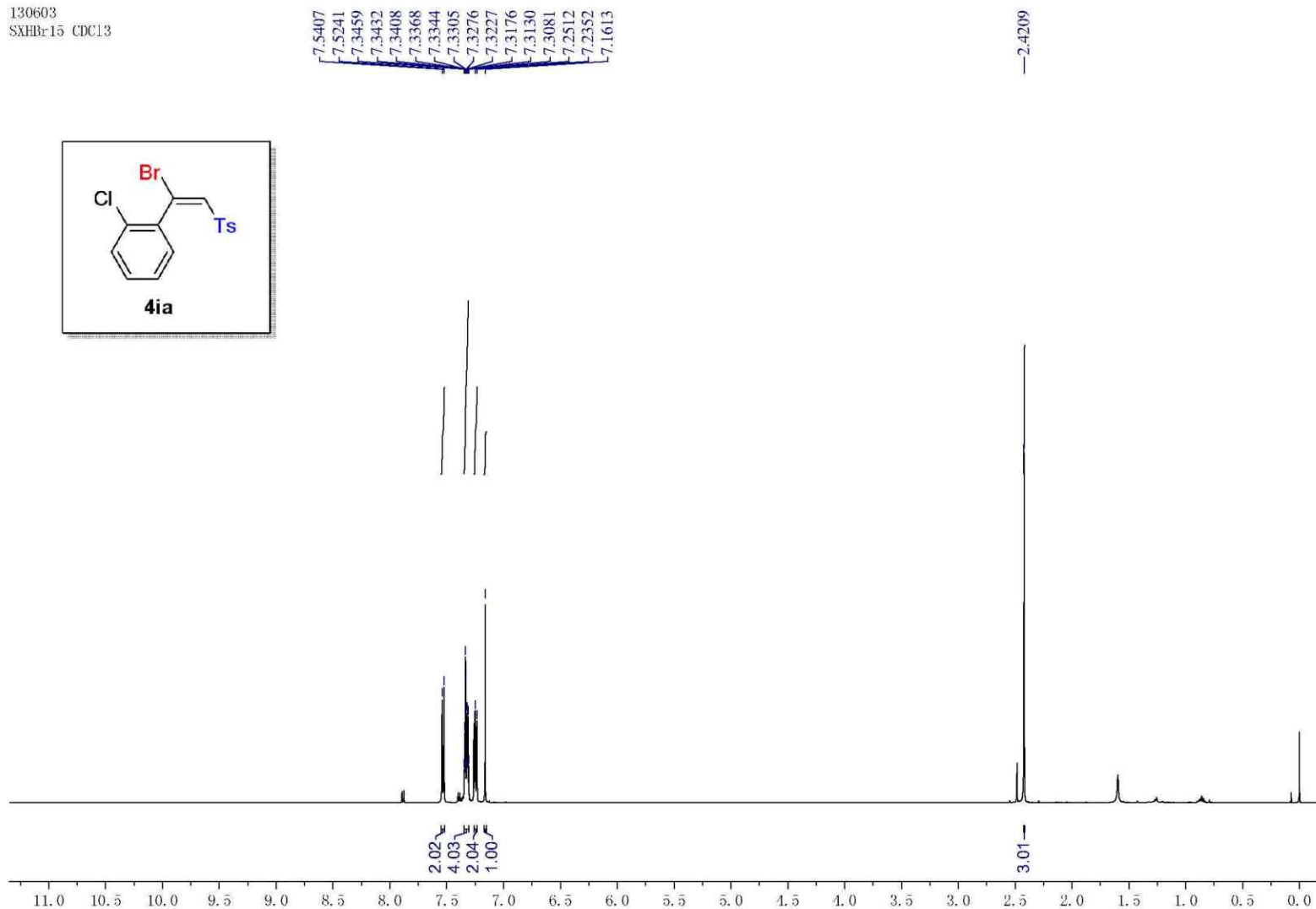
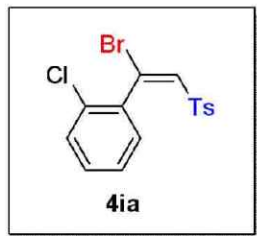
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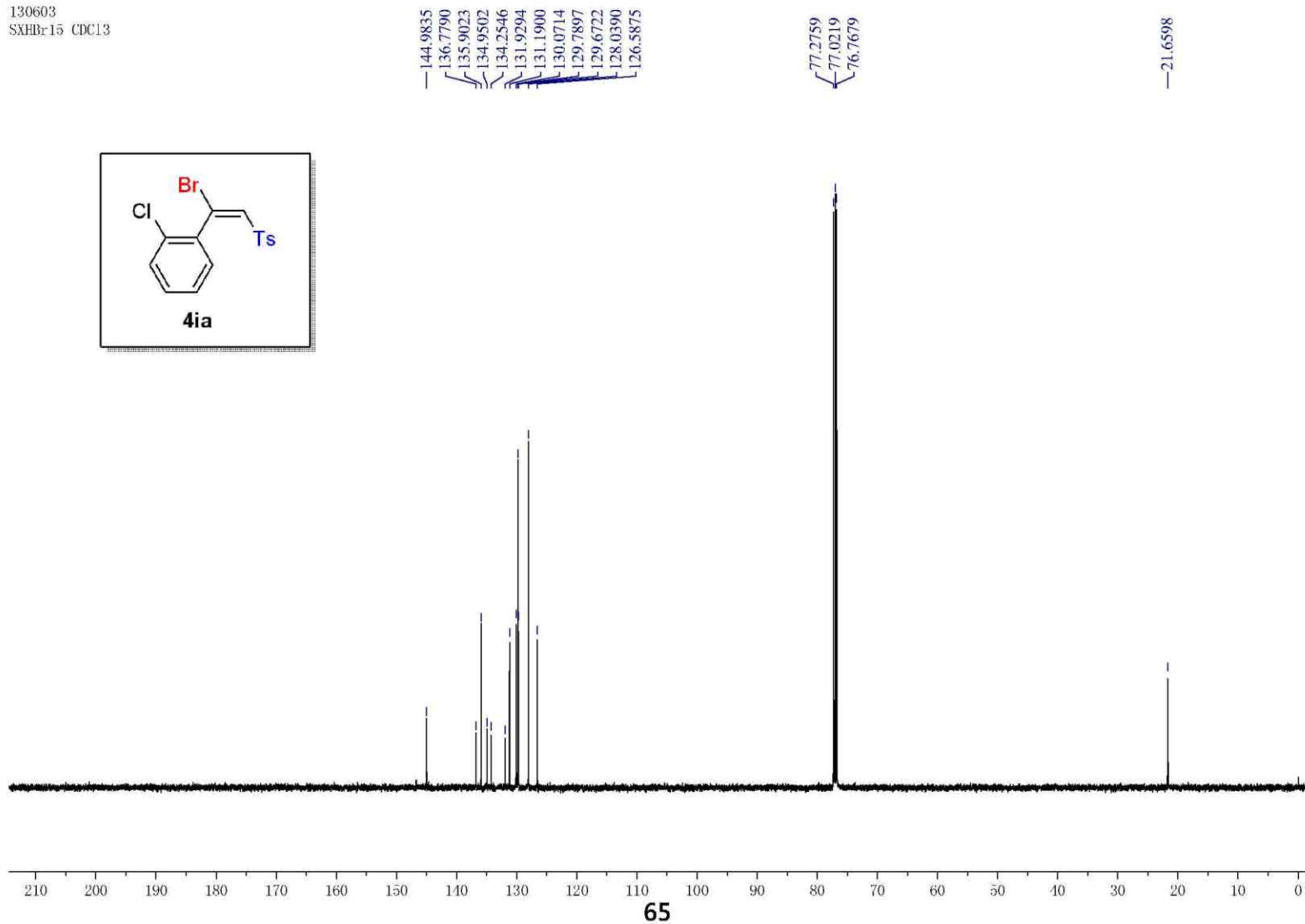
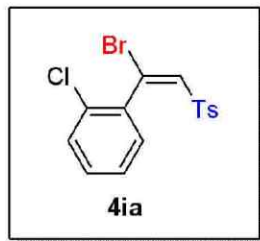
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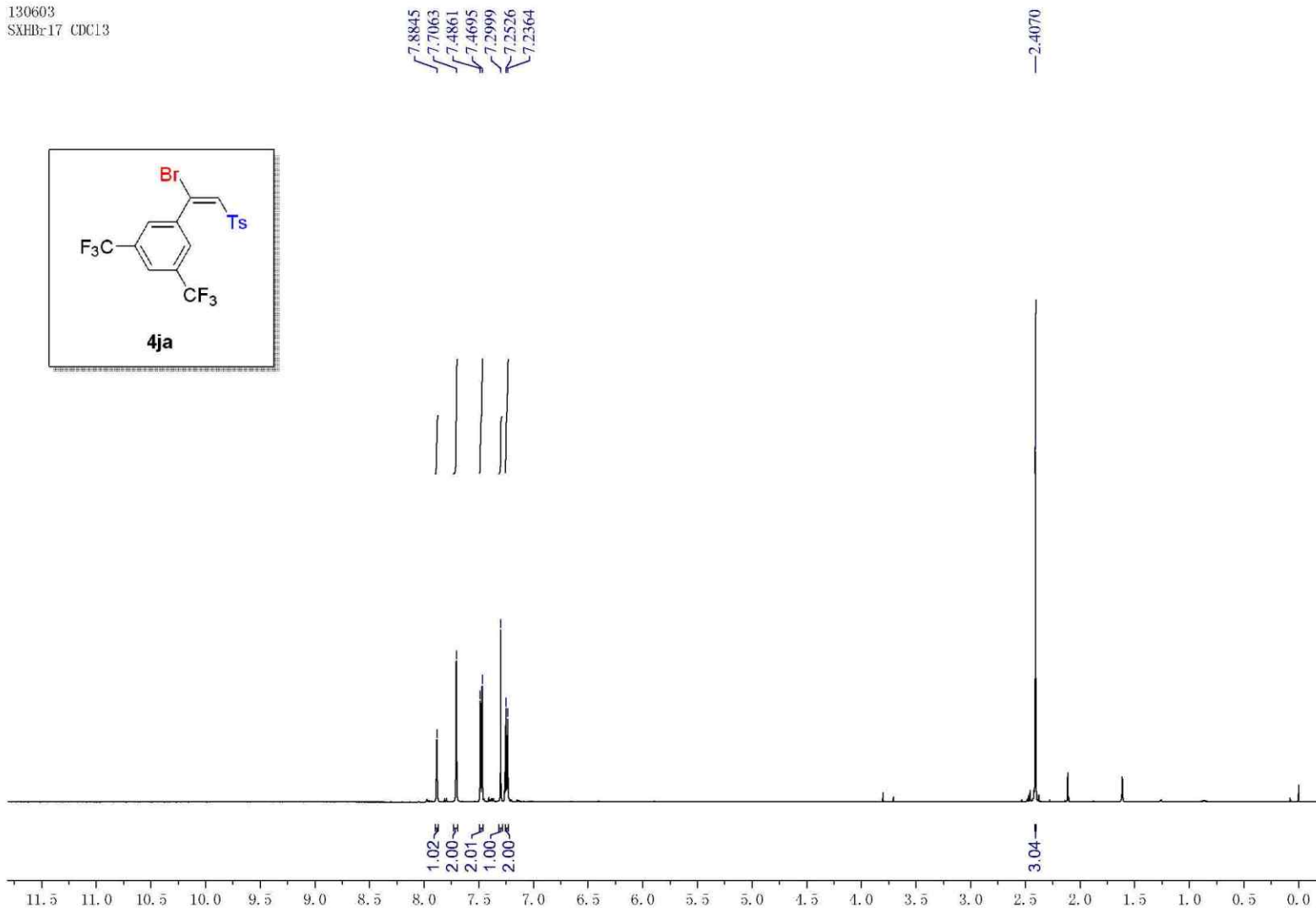
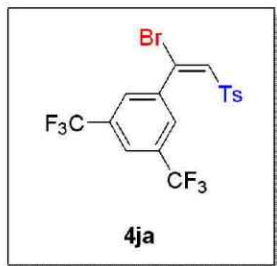


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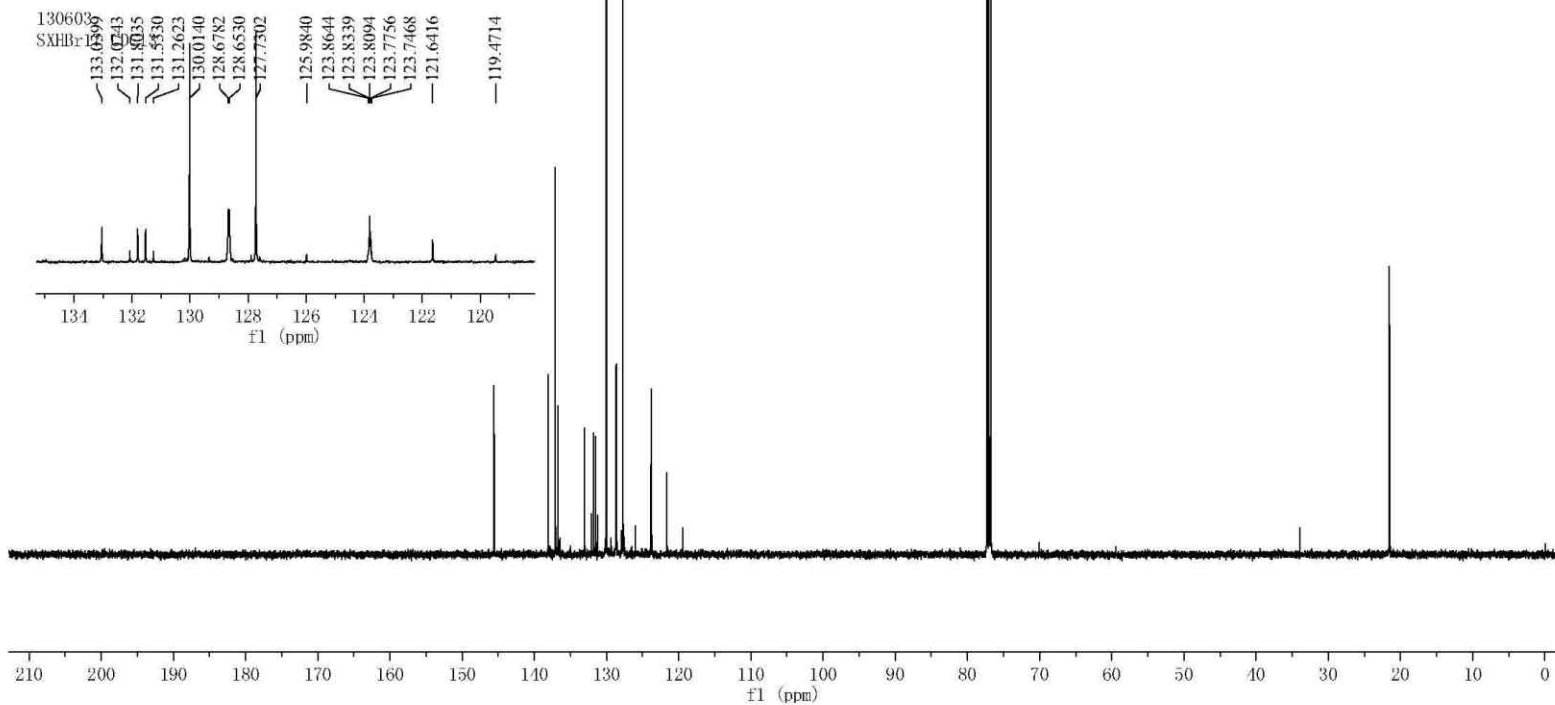
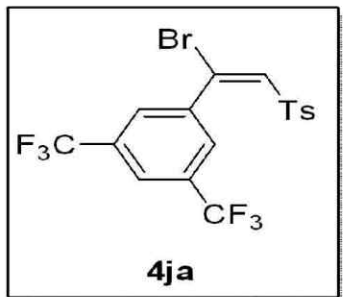


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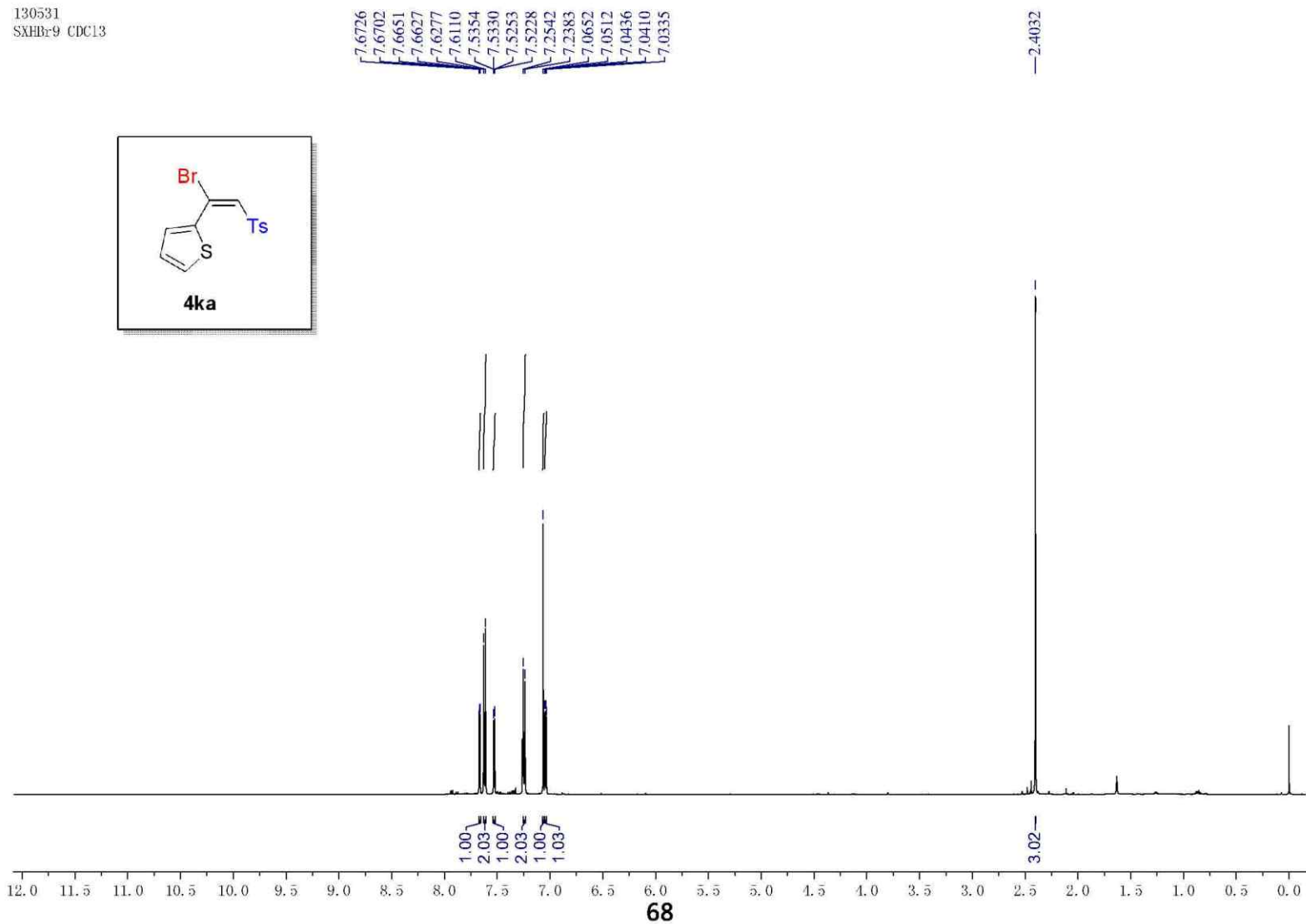
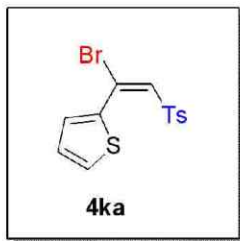




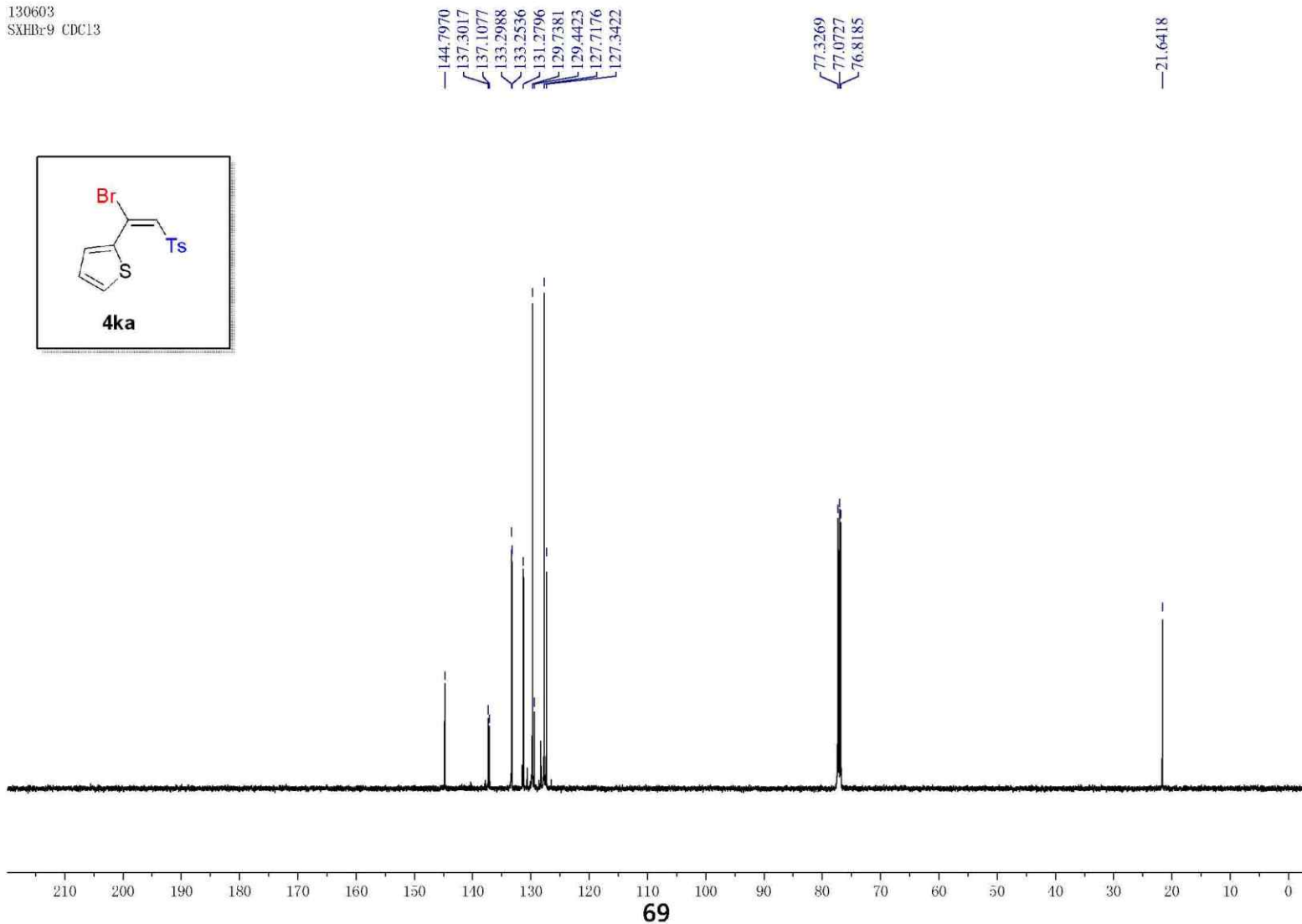
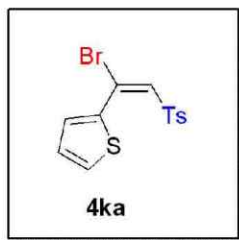
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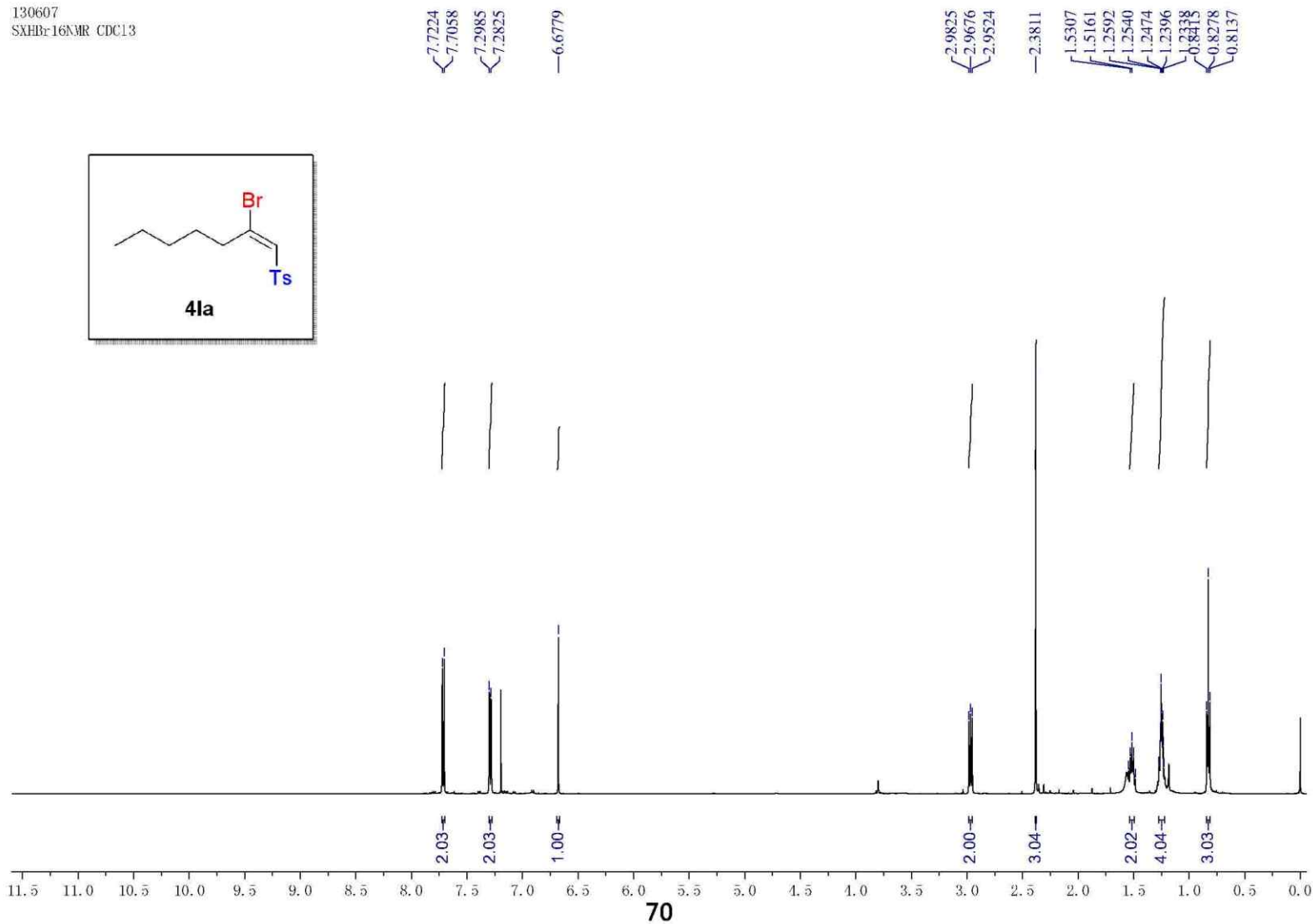
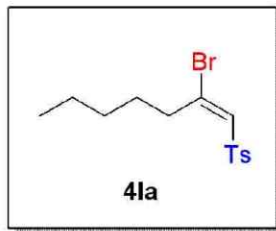


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SXHBr-9 CDC13



130603
SXHBr-9 CDC13





130607
SXHBr-16NMR CDC13

