

## Supporting Information

### Decarbonylative Cycloaddition of 1*H*-Indene-1,2,3-trione and Norbornene *via* Rhodium(I)-Catalyzed Carbon–Carbon Bond Cleavage

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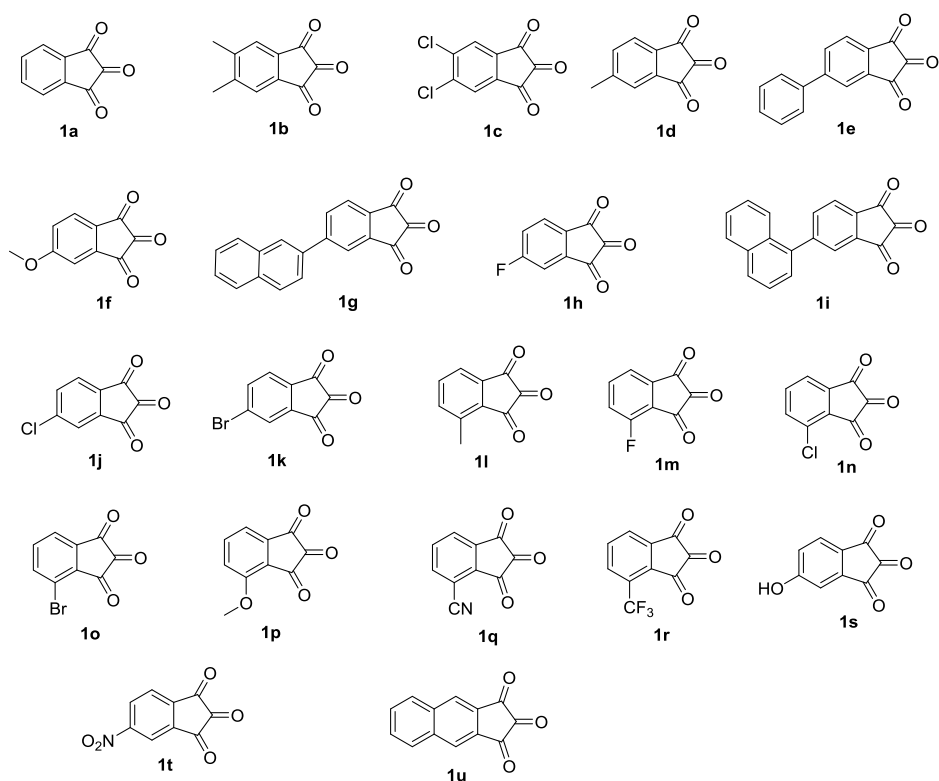
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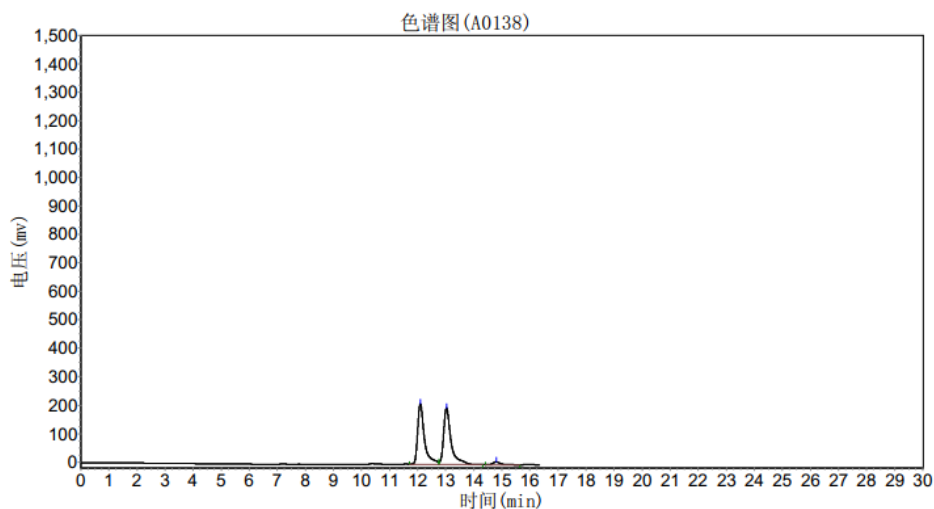
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## S1. Preparation of substituted ninhydrin



The substituted ninhydrin **1a-d**<sup>[1,2]</sup>, **1e**, **1g**, **1i**<sup>[3]</sup>, **1f**, **1h**, **1j-lu**<sup>[1,2]</sup> were synthesized according to the literature.

## S2. Chiral HPLC of compound 3a



分析结果表

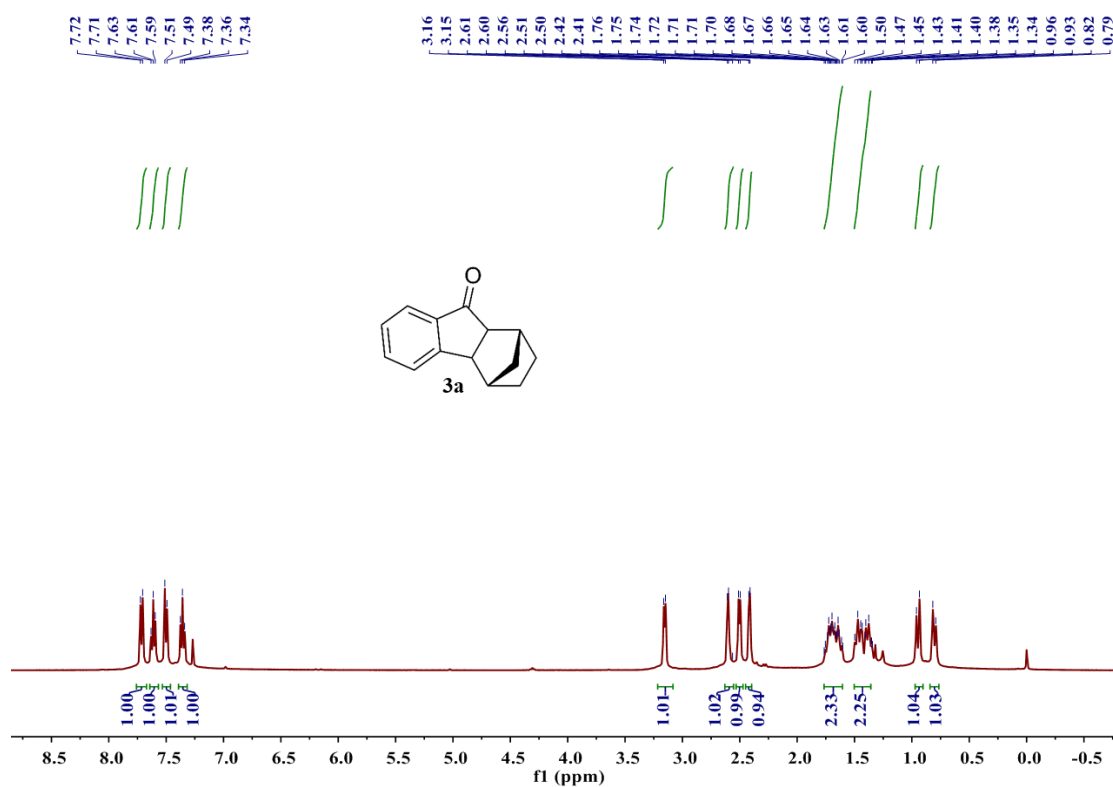
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2		13.032	199782.141	3721031.250	49.0031
3		14.798	10137.442	198055.141	2.6082
总计			424336.192	7593461.641	100.000

Chiral HPLC (Chiralcel OD-H, hexane:isopropanol = 90:1, 0.4mL/min, 230 nm) of compound **3a**.

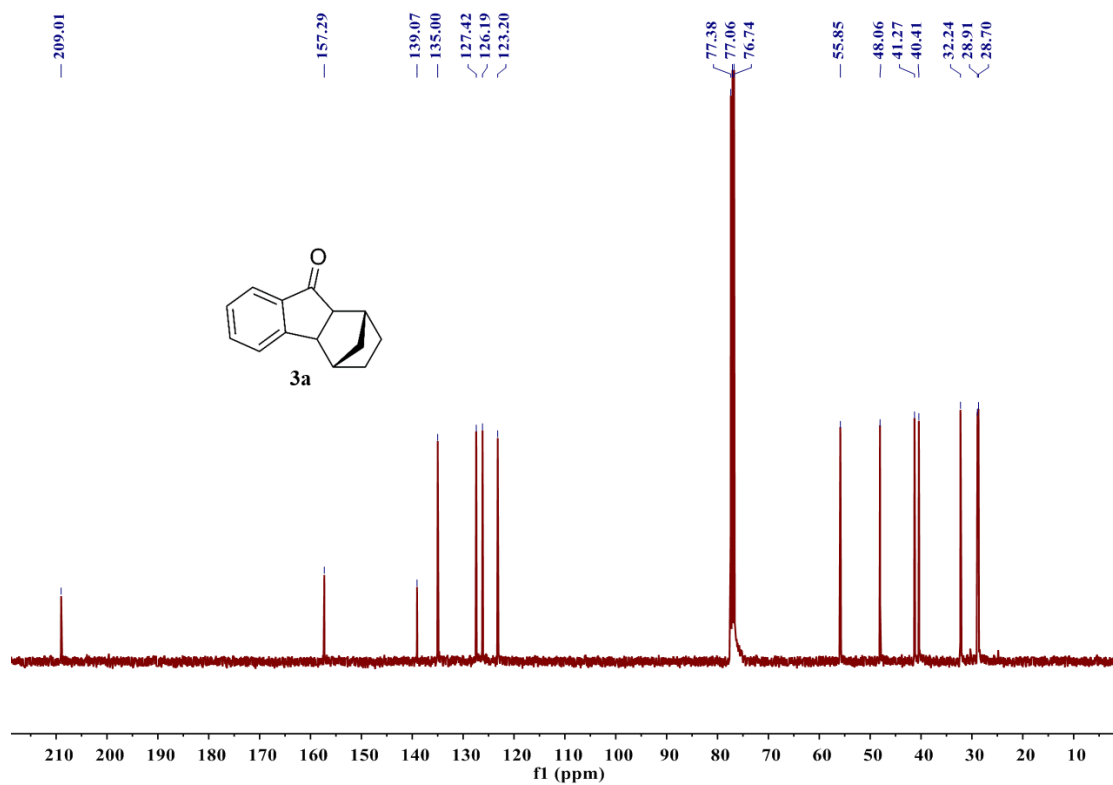
## S3. References

1. G. Xu, Y. Yang, Y. Yang, G. Song, S. Li, J. Zhang, W. Yang, L.-L. Wang, Z. Weng, Z. Zuo, *Eur. J. Med. Chem.*, 2020, **191**, 112.
2. C. Marminon, A. Nacereddine, Z. Bouaziz, P. Nebois, J. Jose, M. Borgne, *Tetrahedron Lett.*, 2015, **56**, 1840.
3. W. Guo, S. Wu, T. Wang, Q. Xie, Y. Duan, S. Luo, J. Wang, X. Yu, *Org. Chem. Front.*, 2018, **5**, 1613.

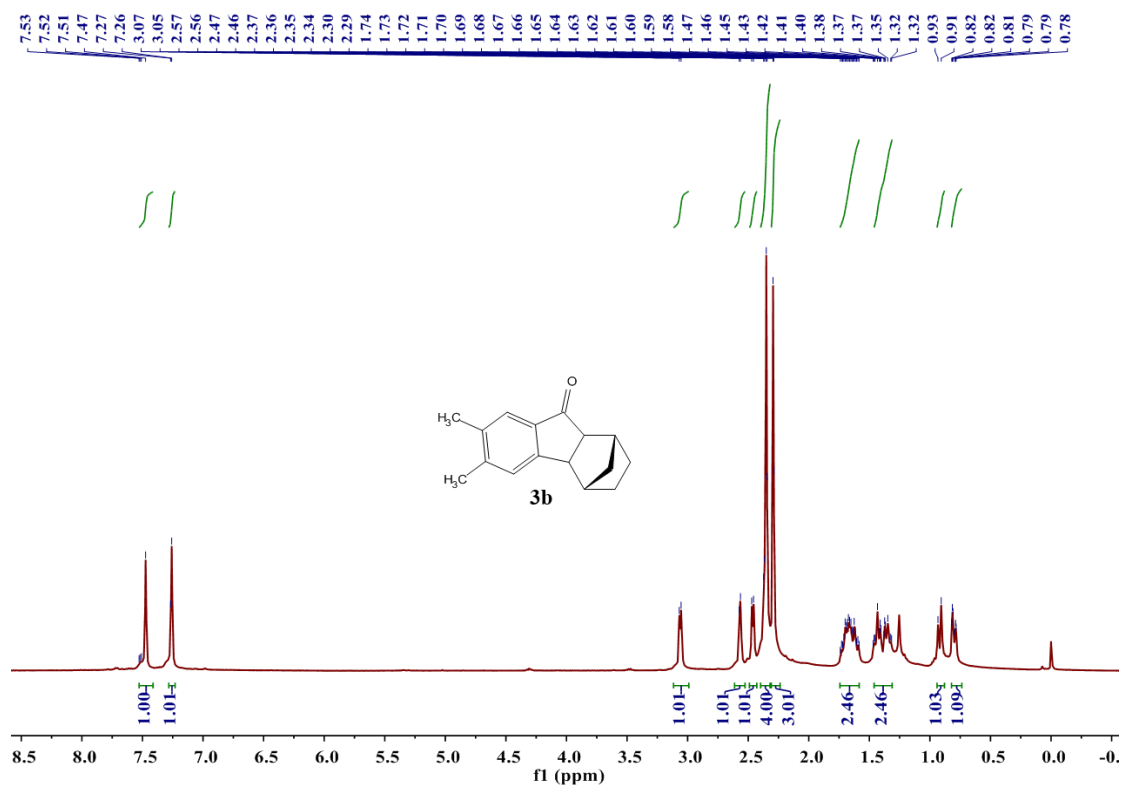
S4.  $^1\text{H}$  NMR,  $^{19}\text{F}$  NMR and  $^{13}\text{C}$  NMR spectrum of products



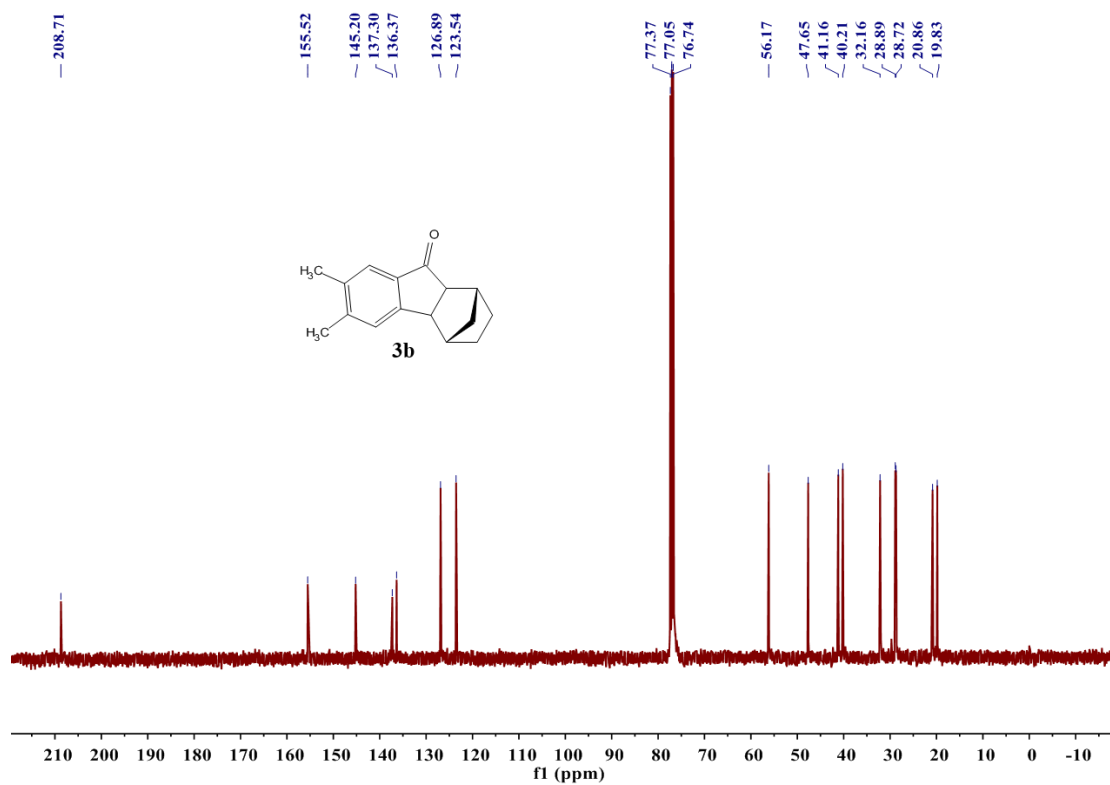
$^1\text{H}$  NMR for compound **3a**



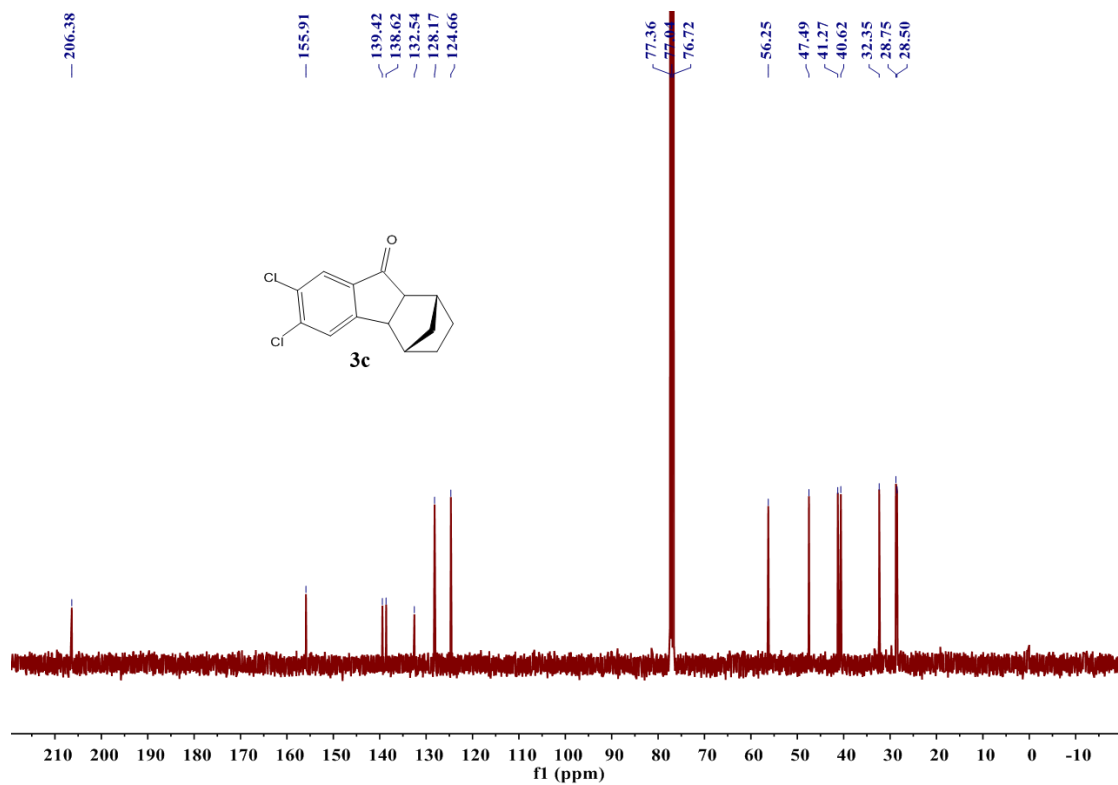
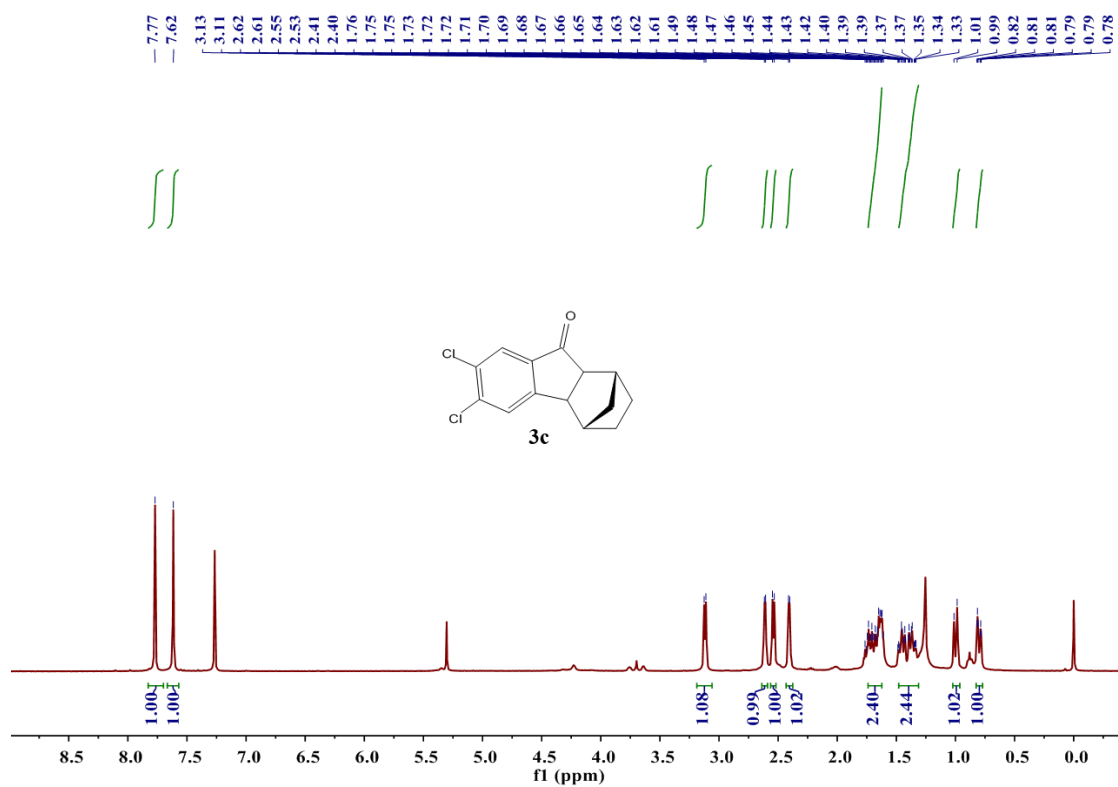
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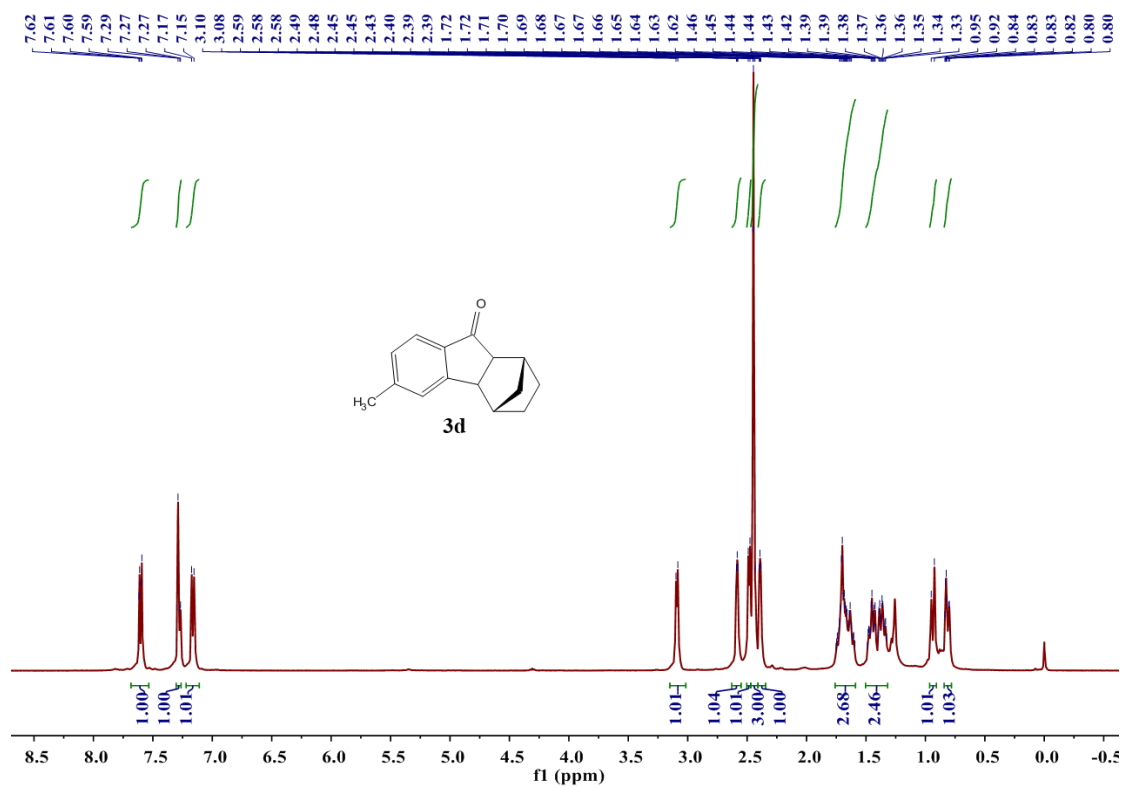


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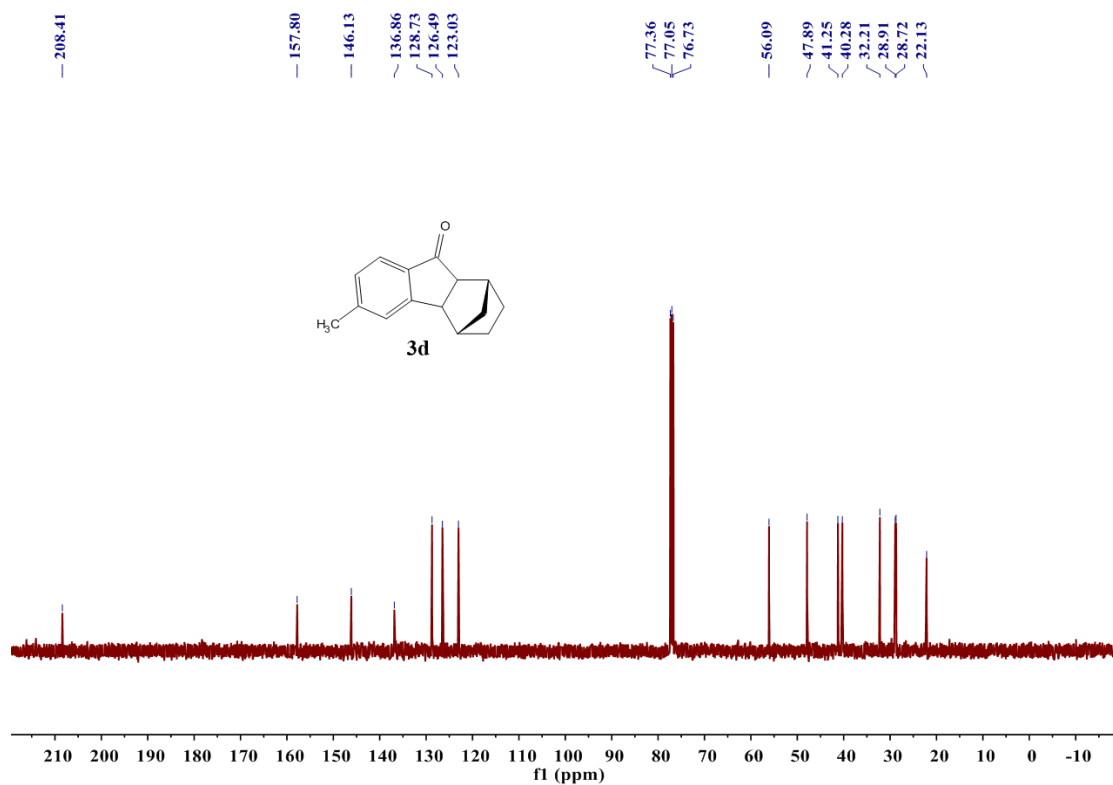


<sup>13</sup>C NMR for compound 3b

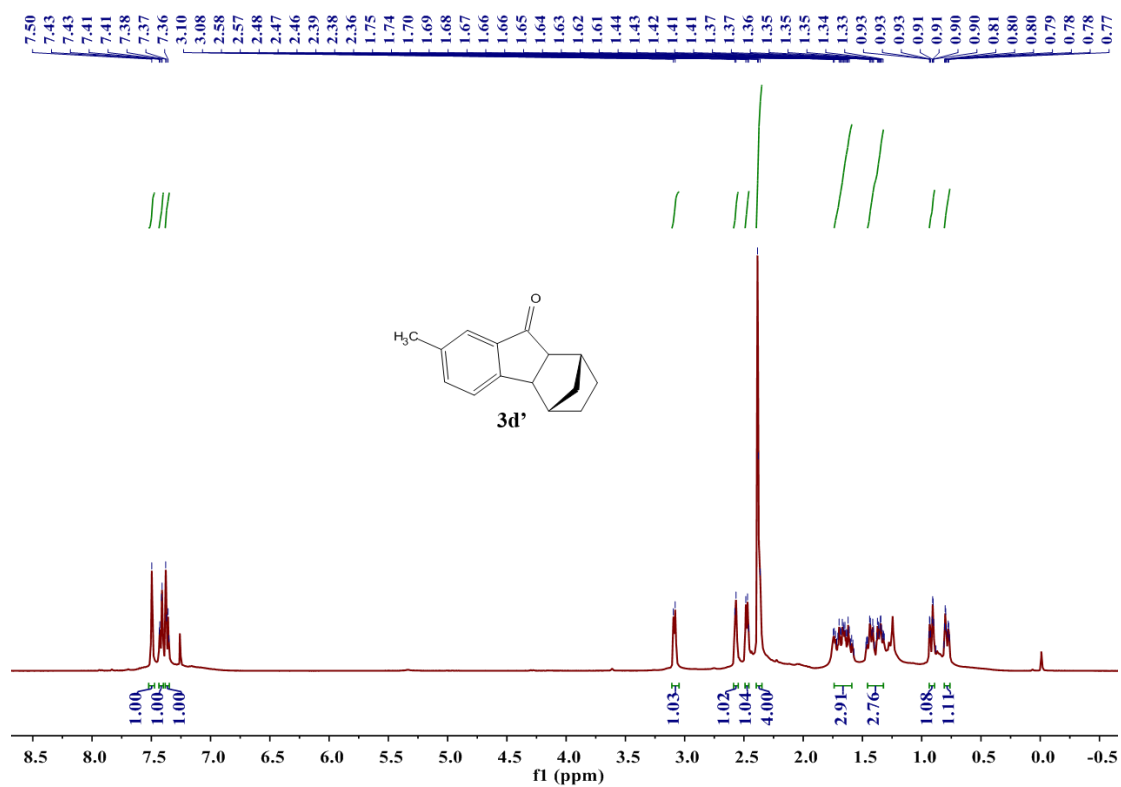




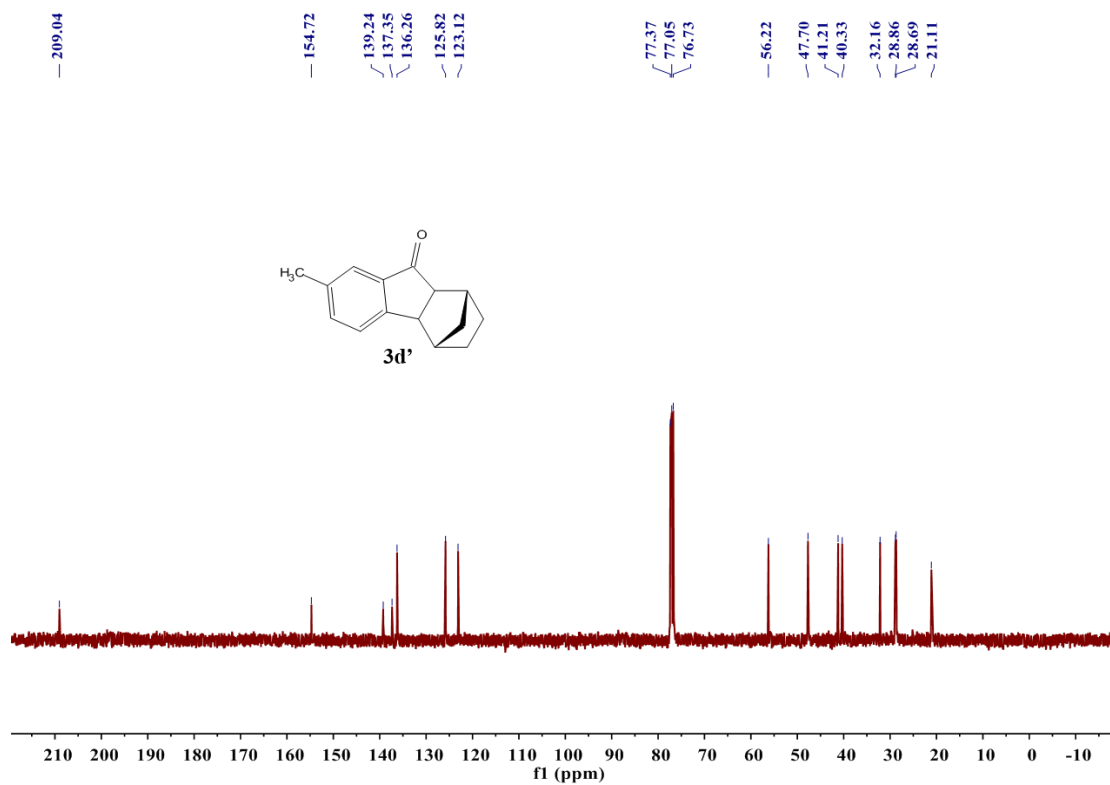
**<sup>1</sup>H NMR for compound 3d**



**<sup>13</sup>C NMR for compound 3d**

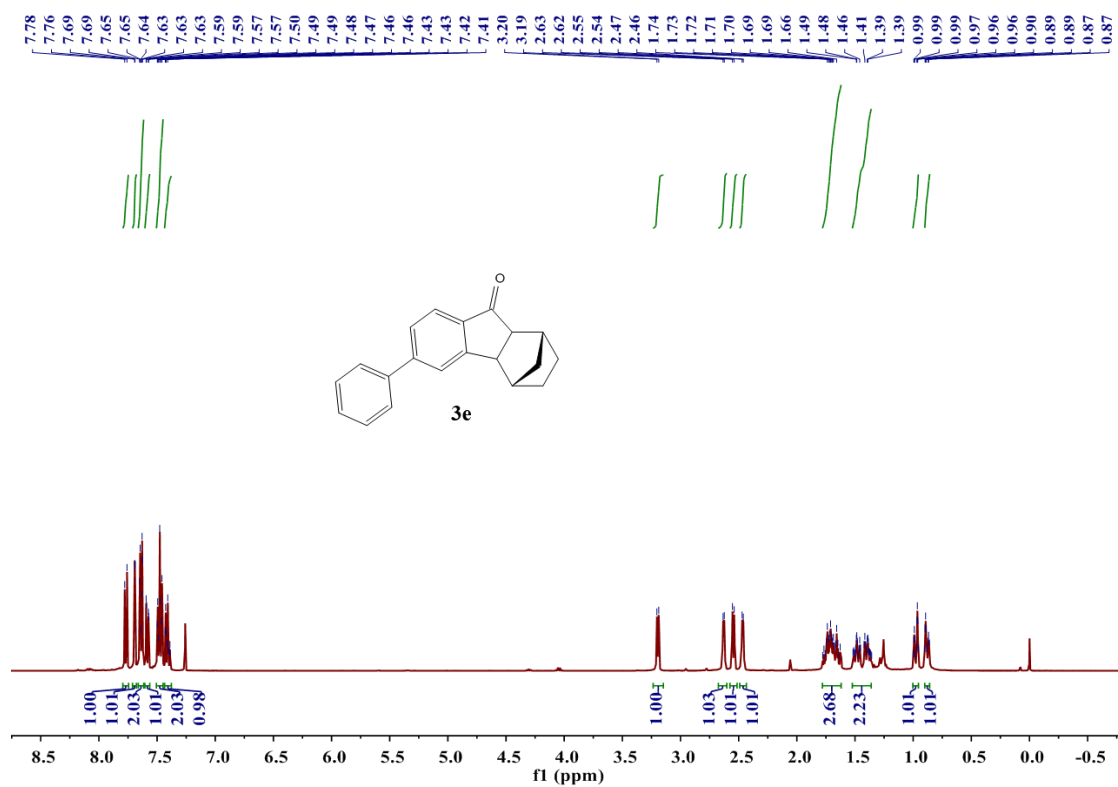


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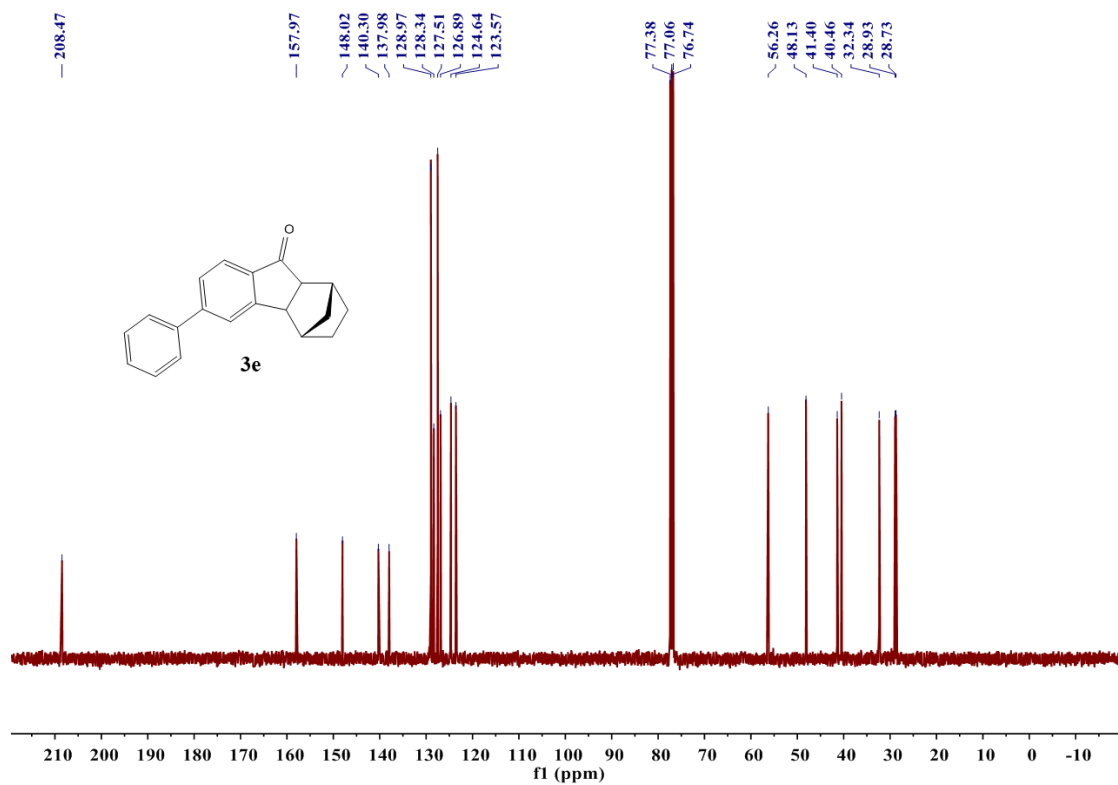


**<sup>13</sup>C NMR for compound 3d'**

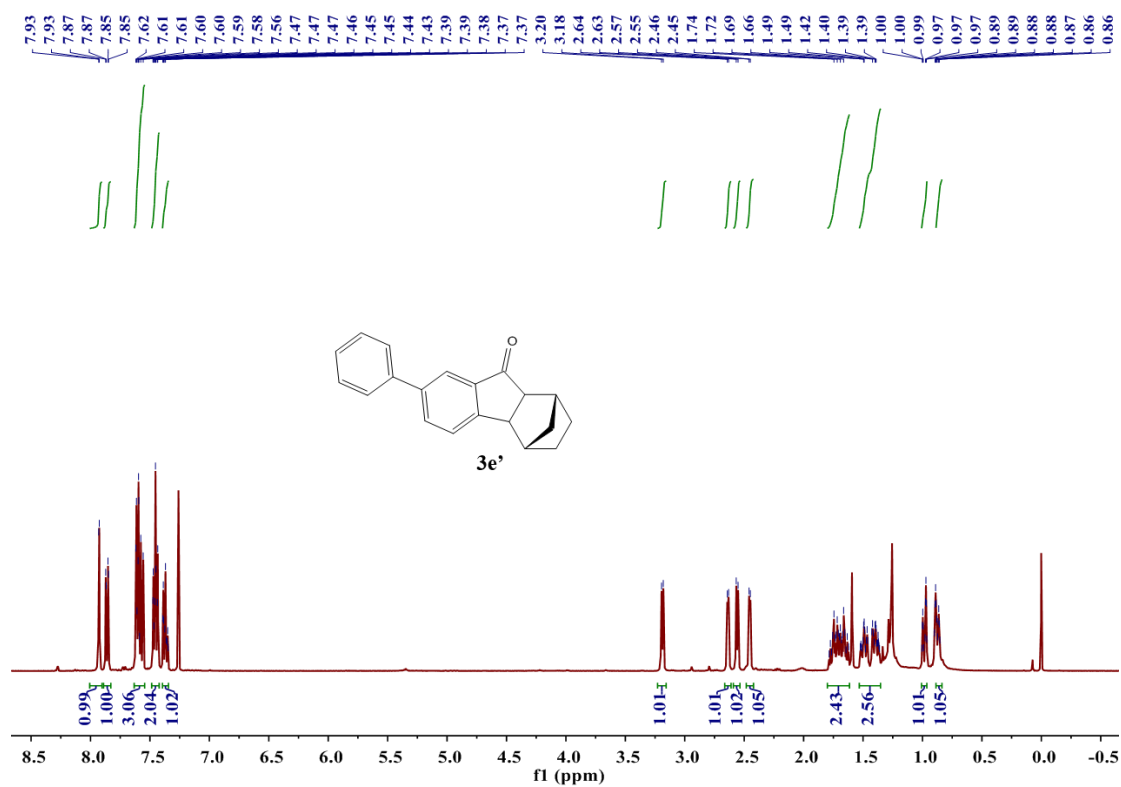




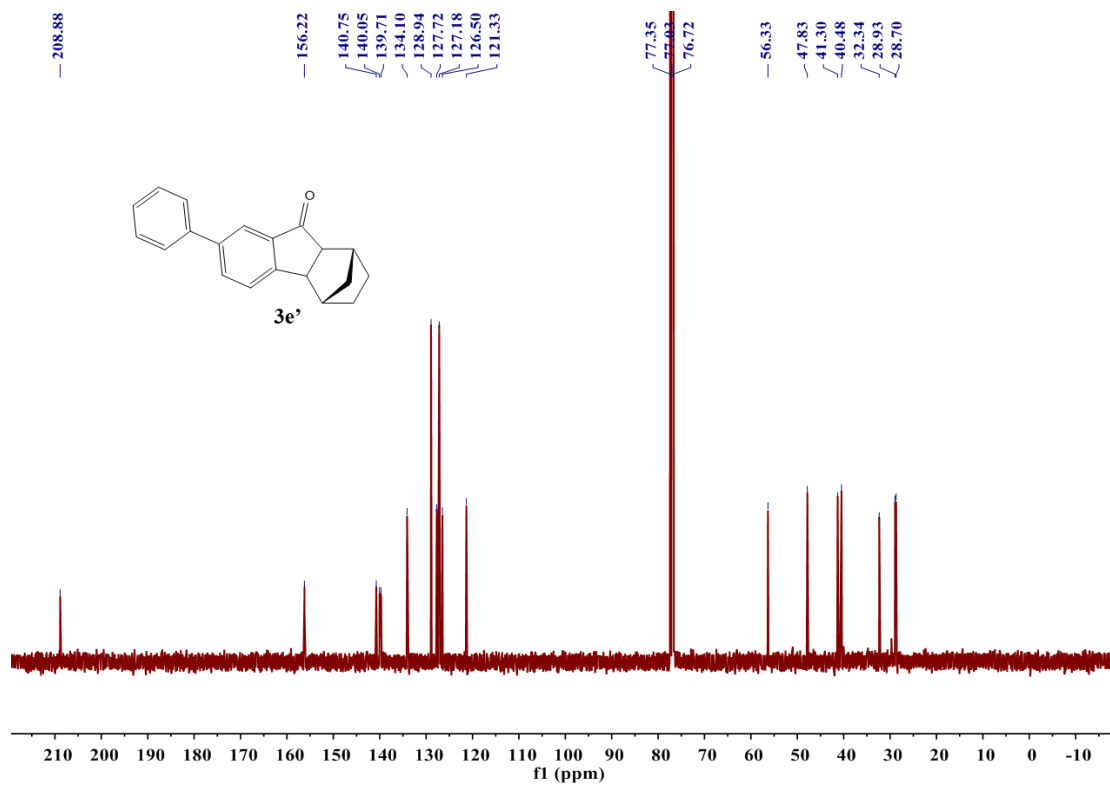
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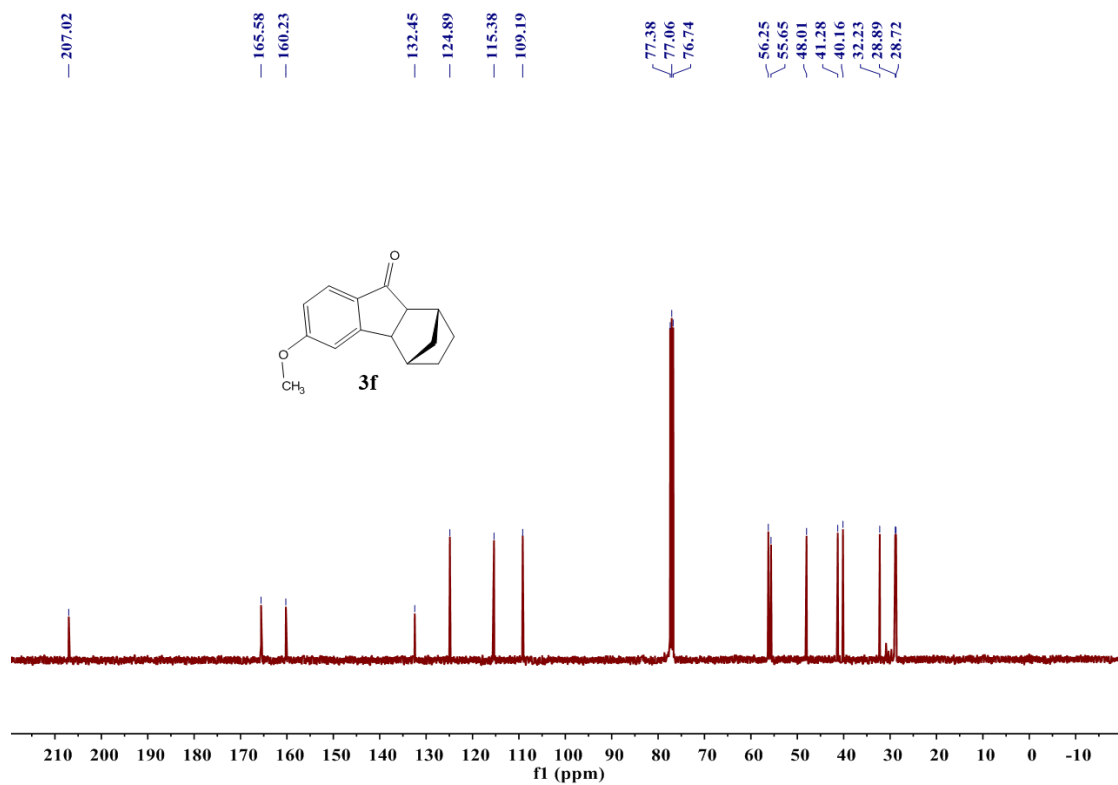
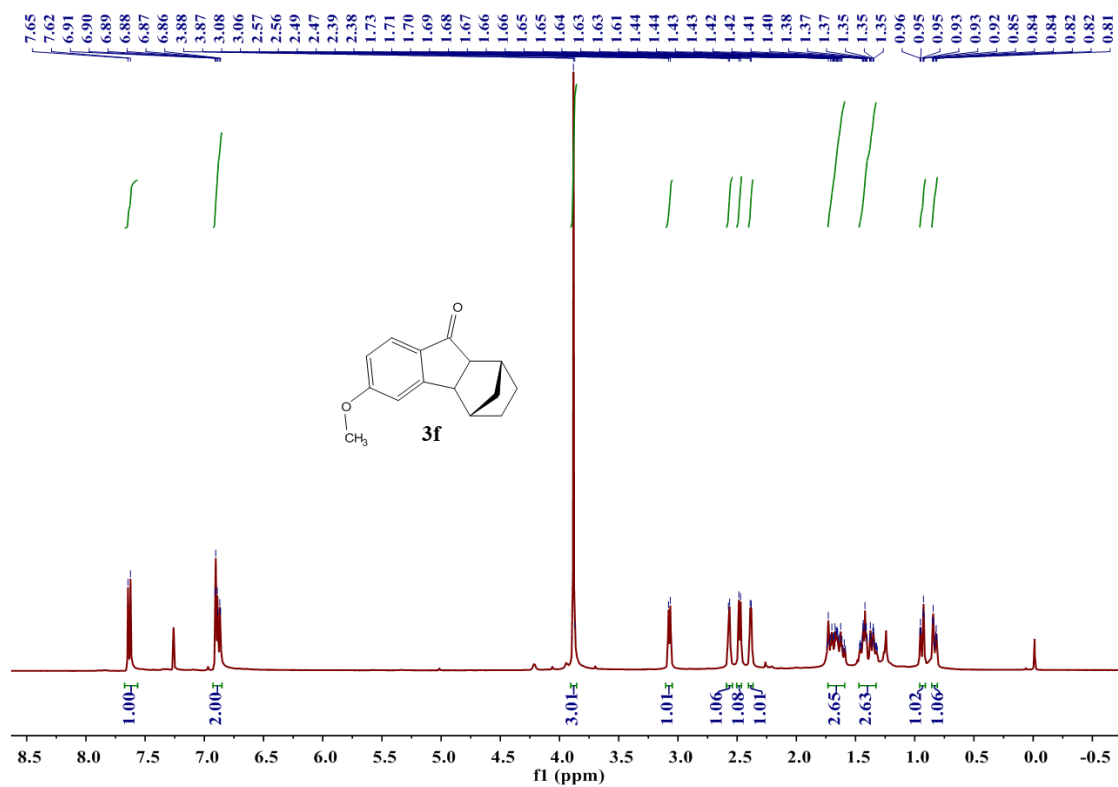
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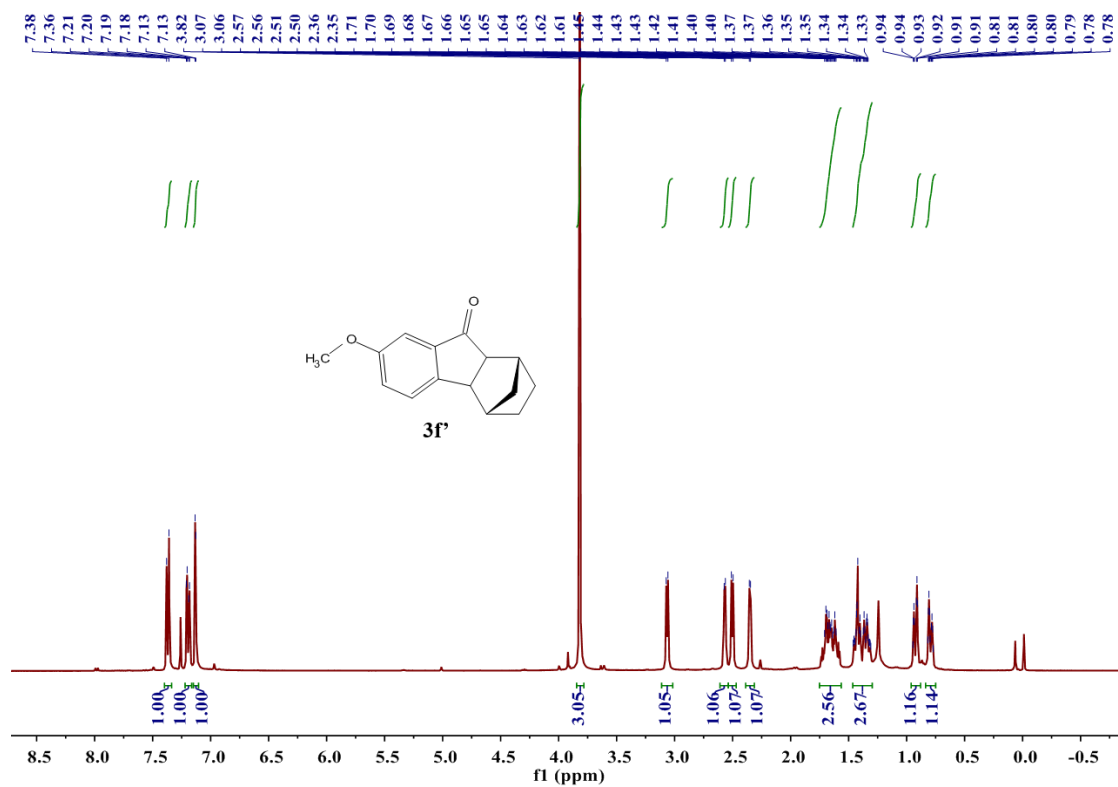


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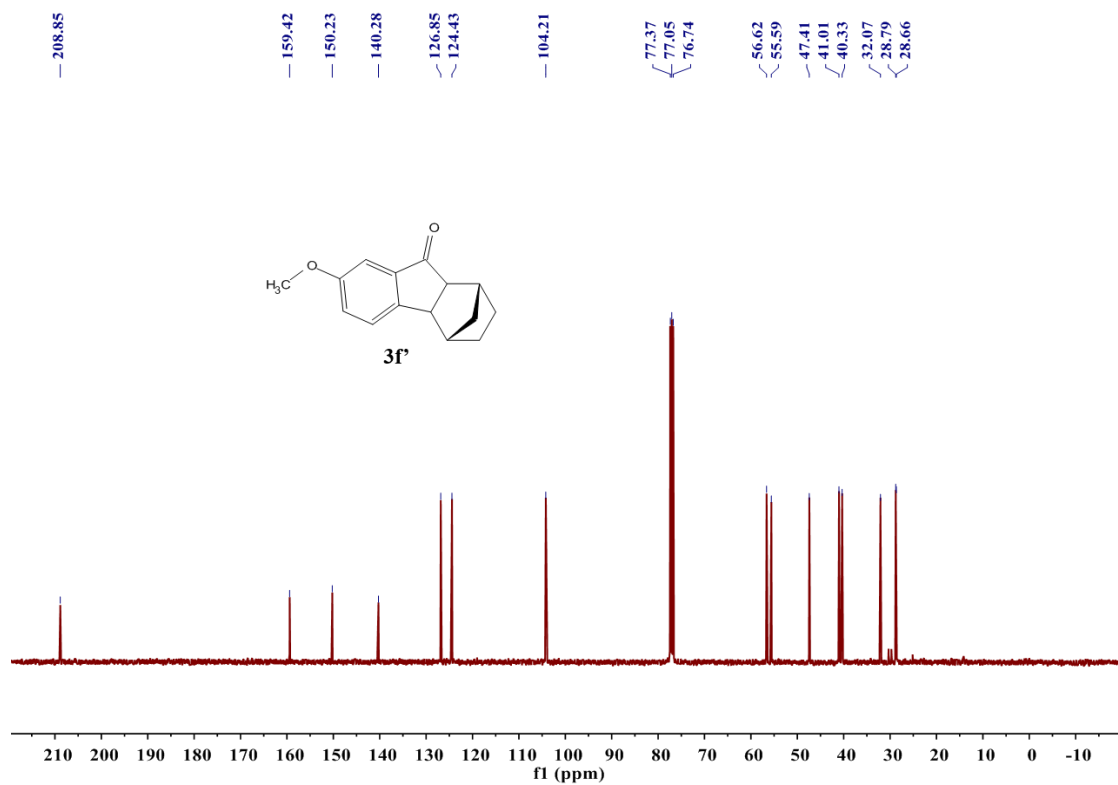


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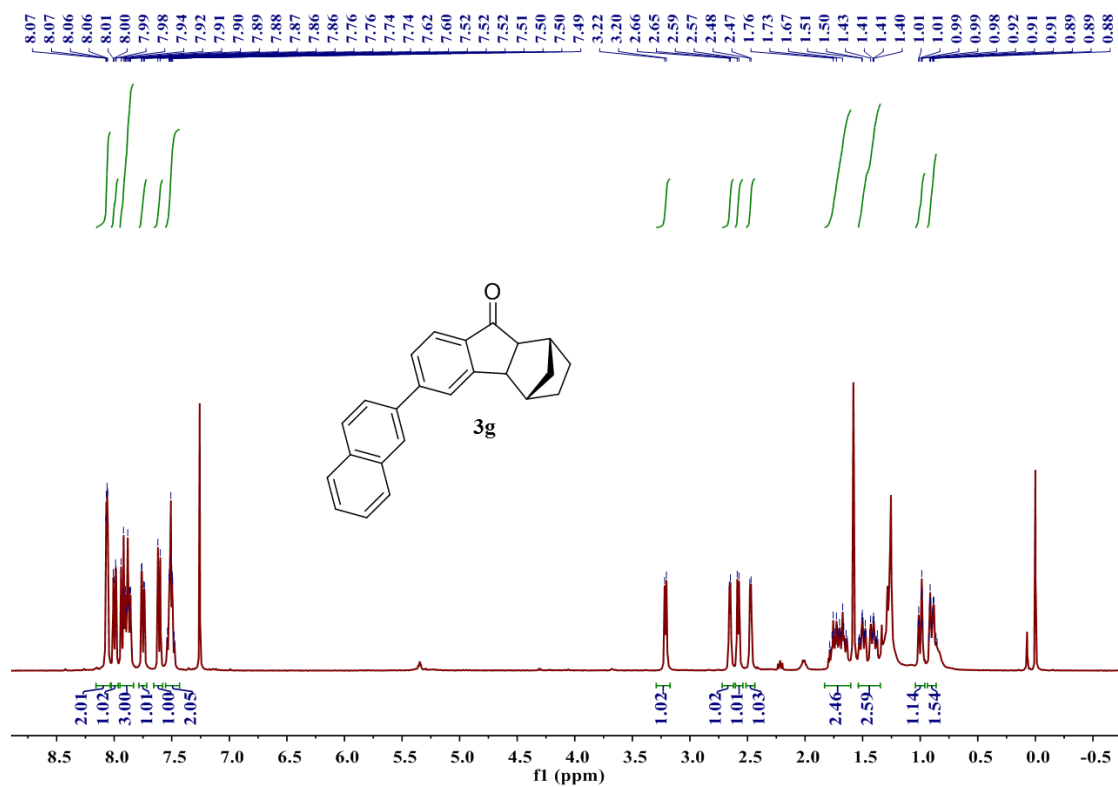




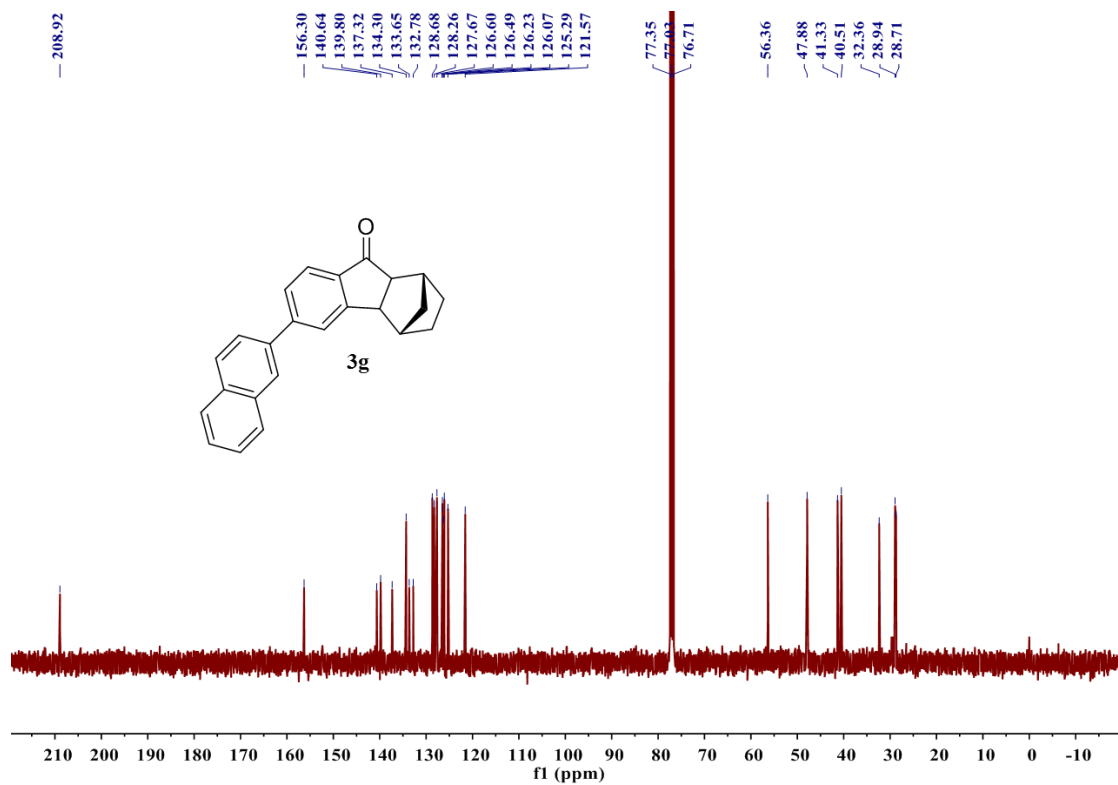
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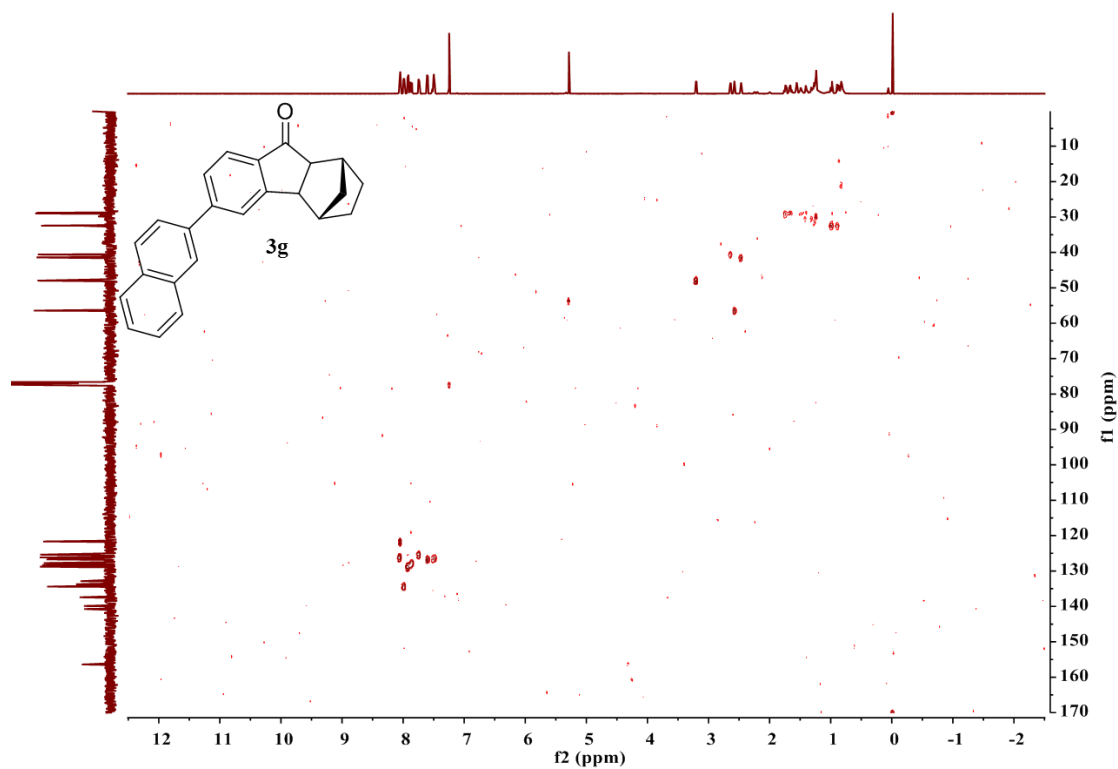
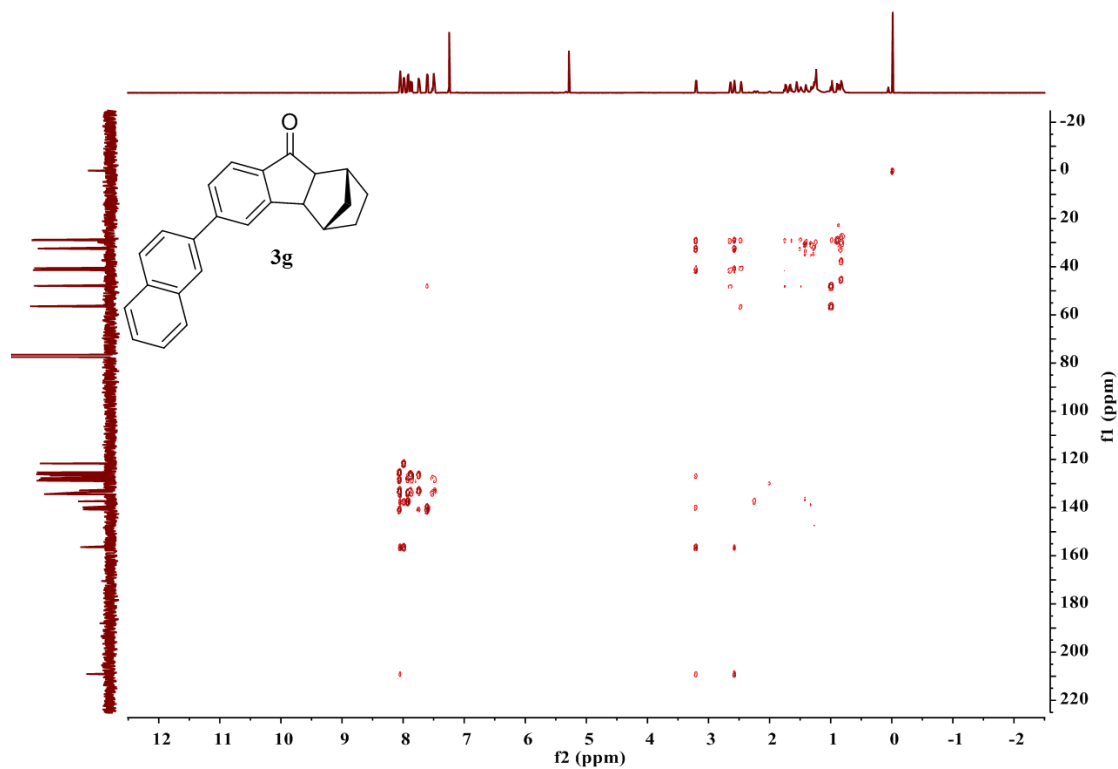
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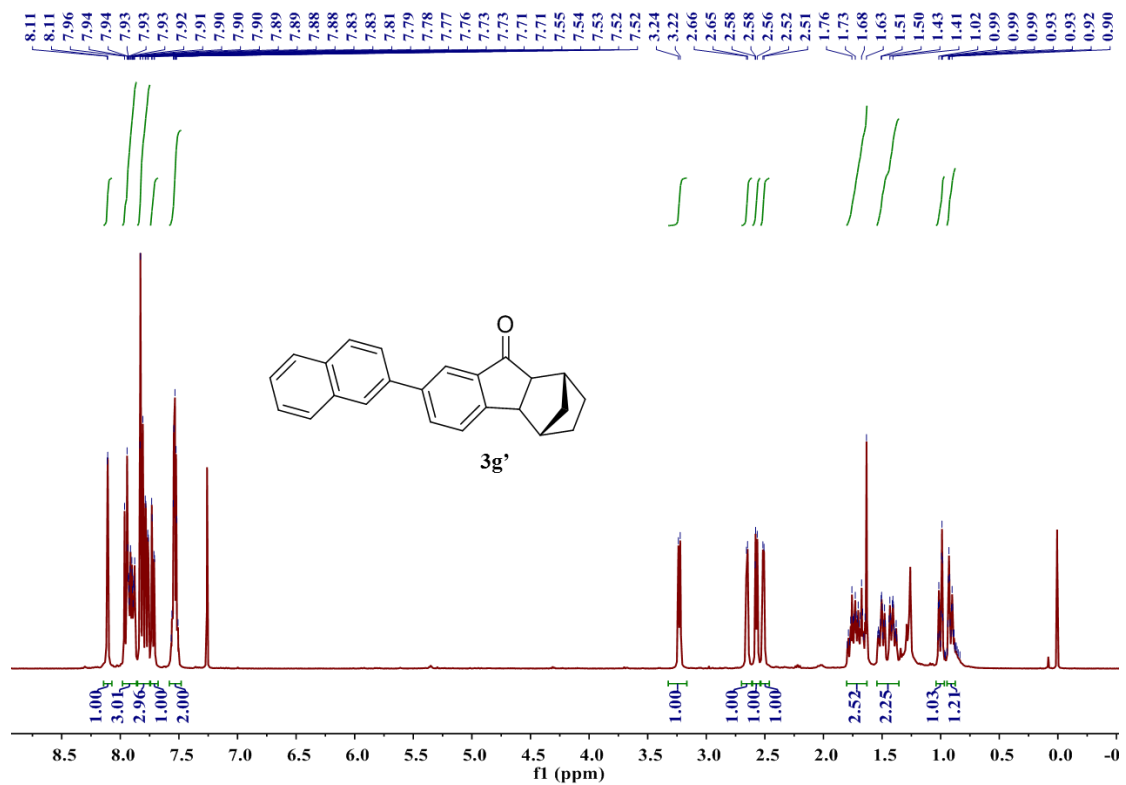


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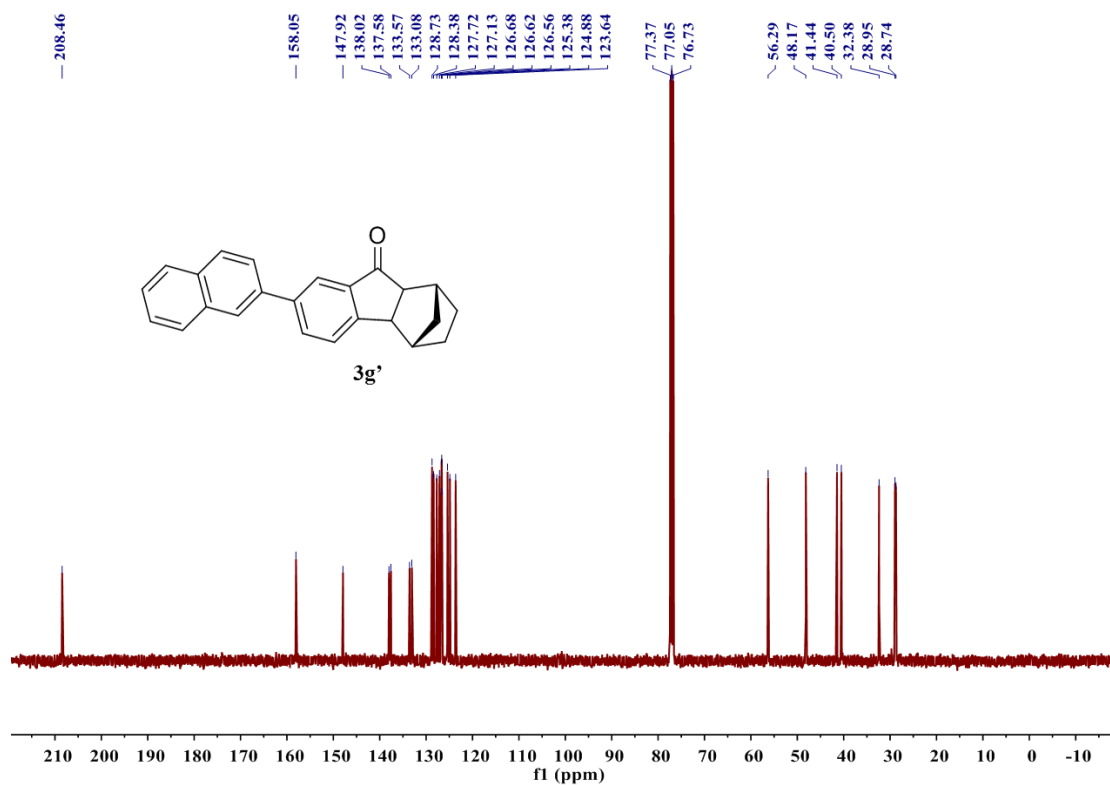


<sup>13</sup>C NMR for compound 3g

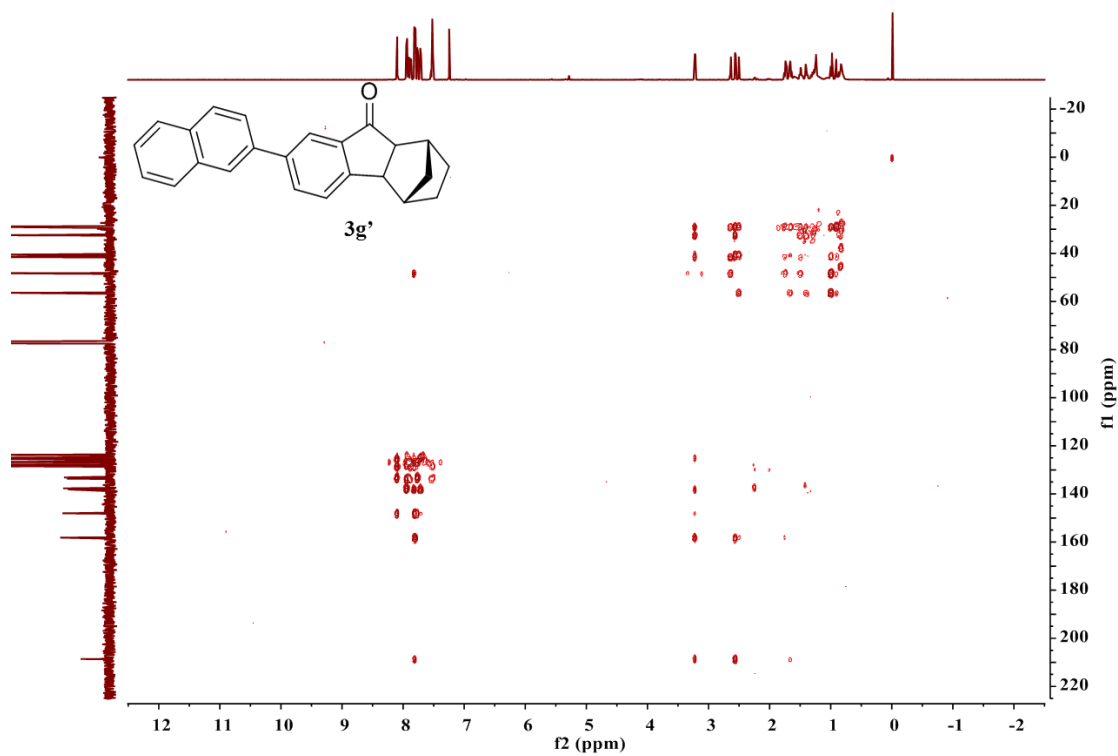




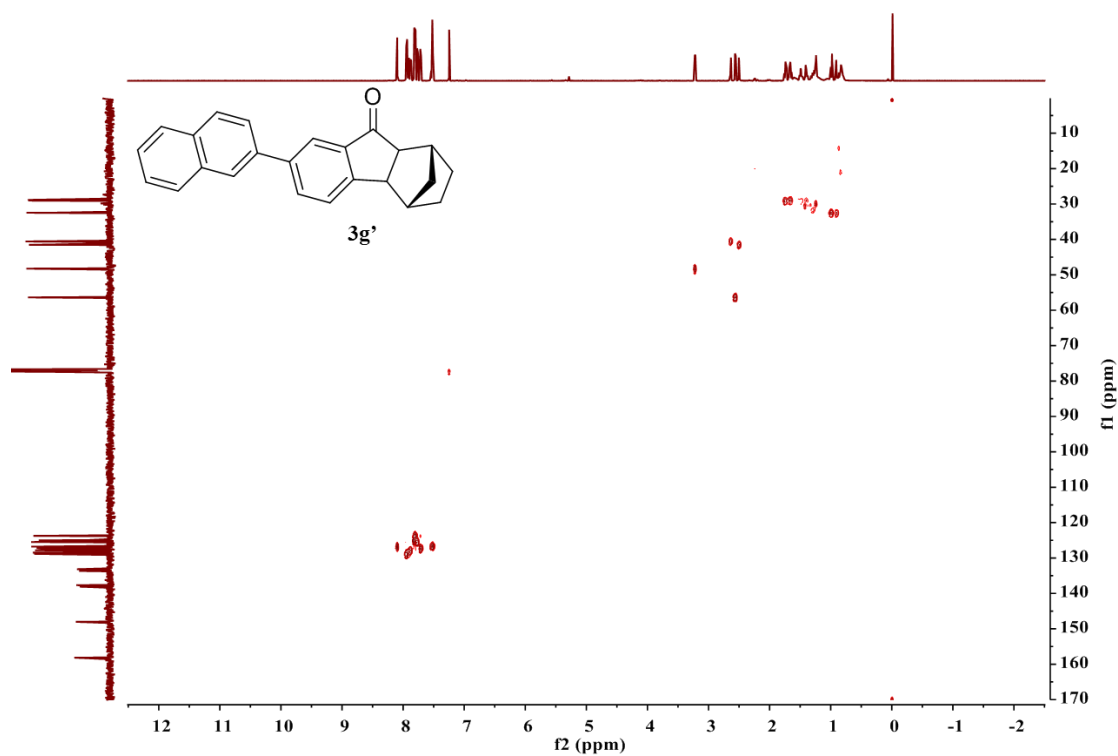
**<sup>1</sup>H NMR for compound 3g'**



**<sup>13</sup>C NMR for compound 3g'**

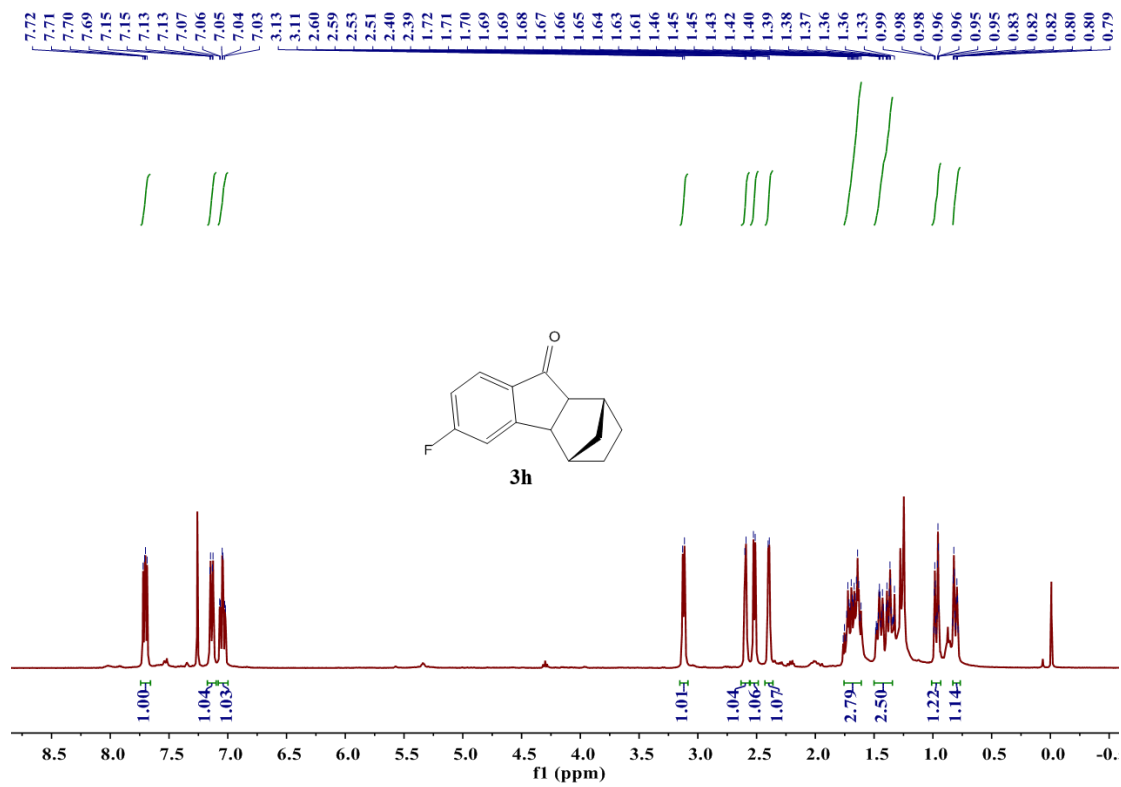


The HMBC spectrum of the compound **3g'** in CDCl<sub>3</sub>.

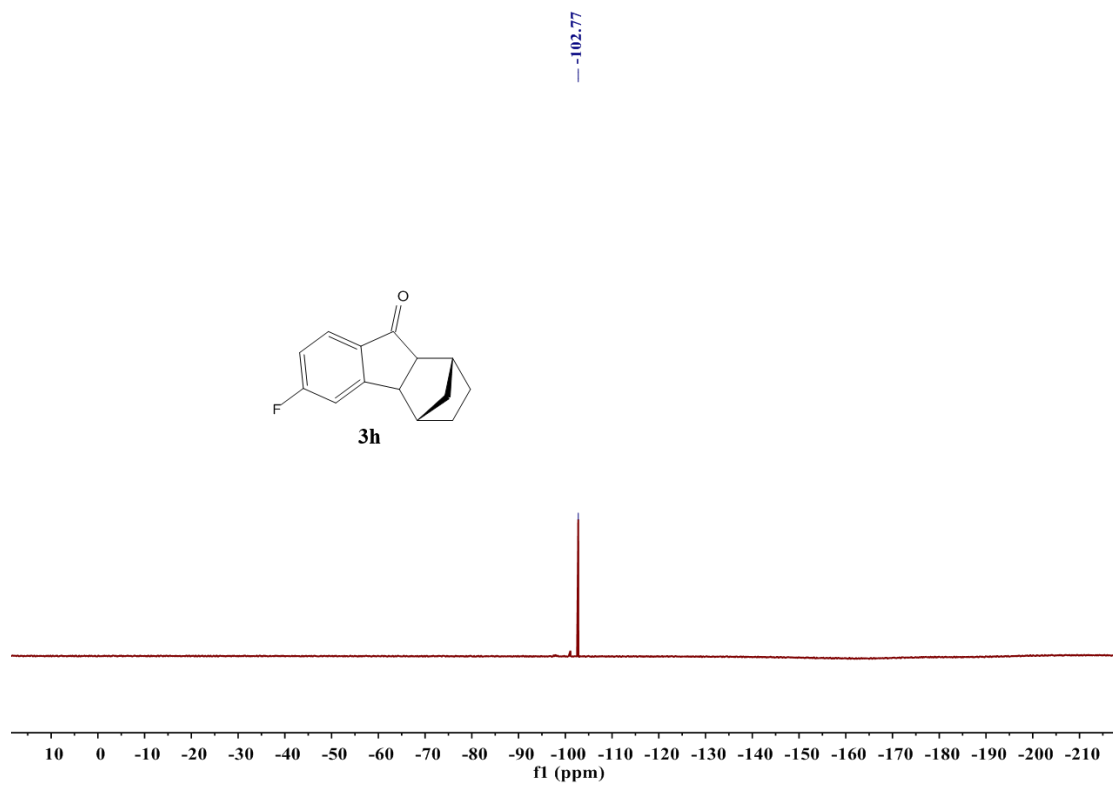


The HMQC spectrum of the compound **3g'** in CDCl<sub>3</sub>.

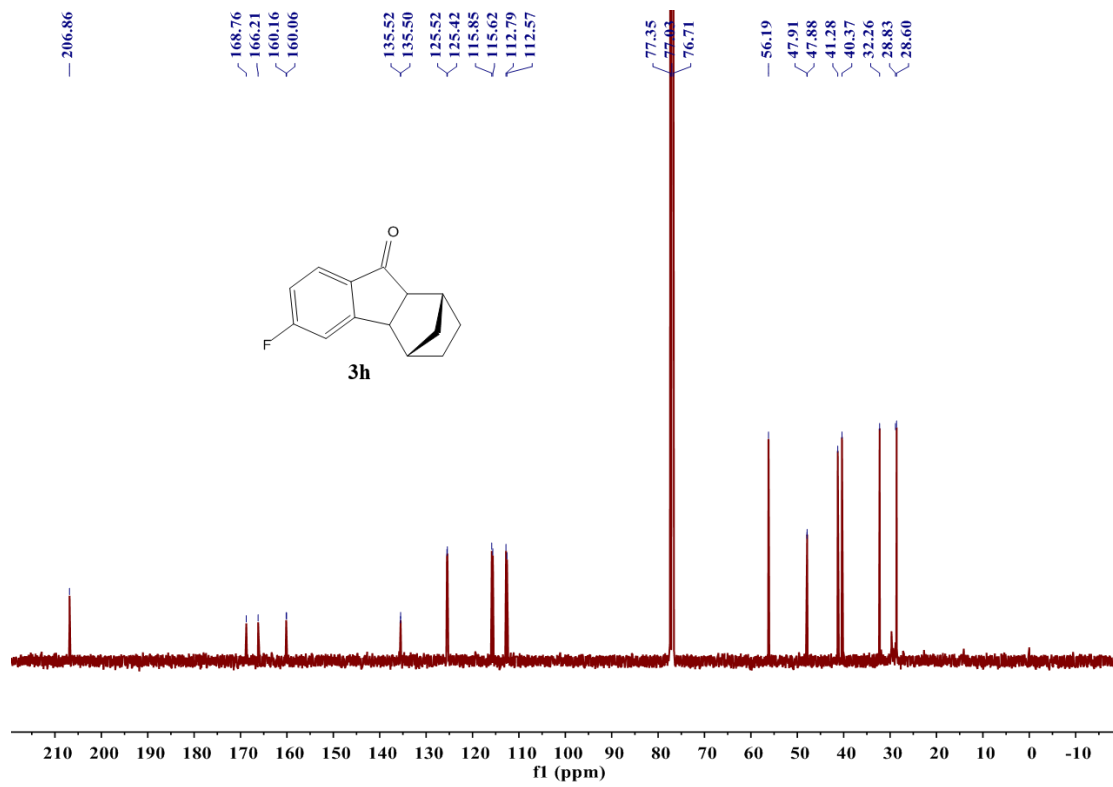




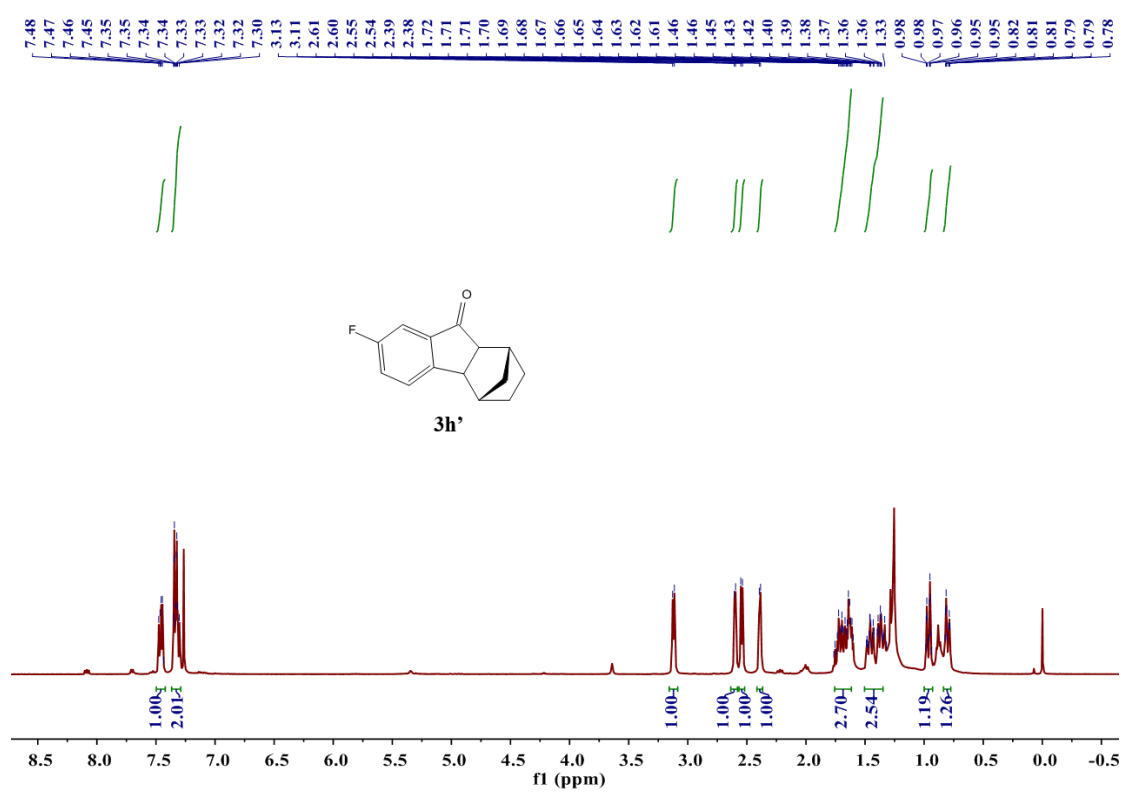
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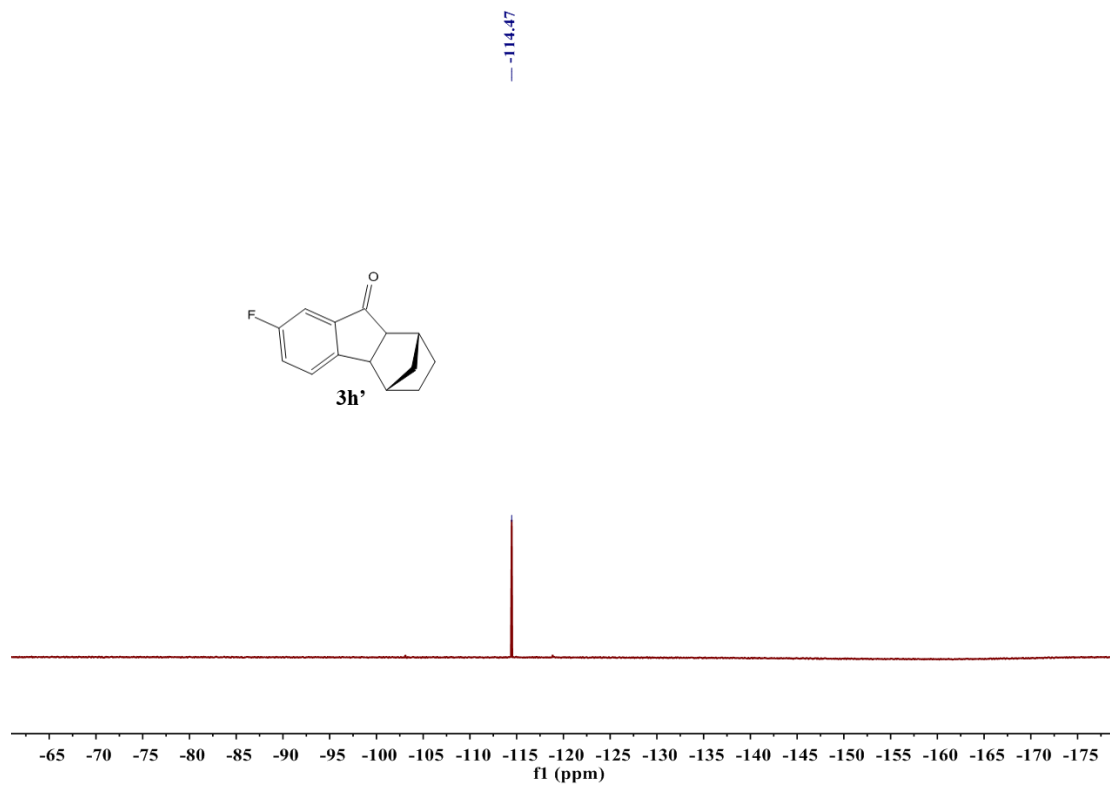
<sup>19</sup>F NMR for compound **3h**



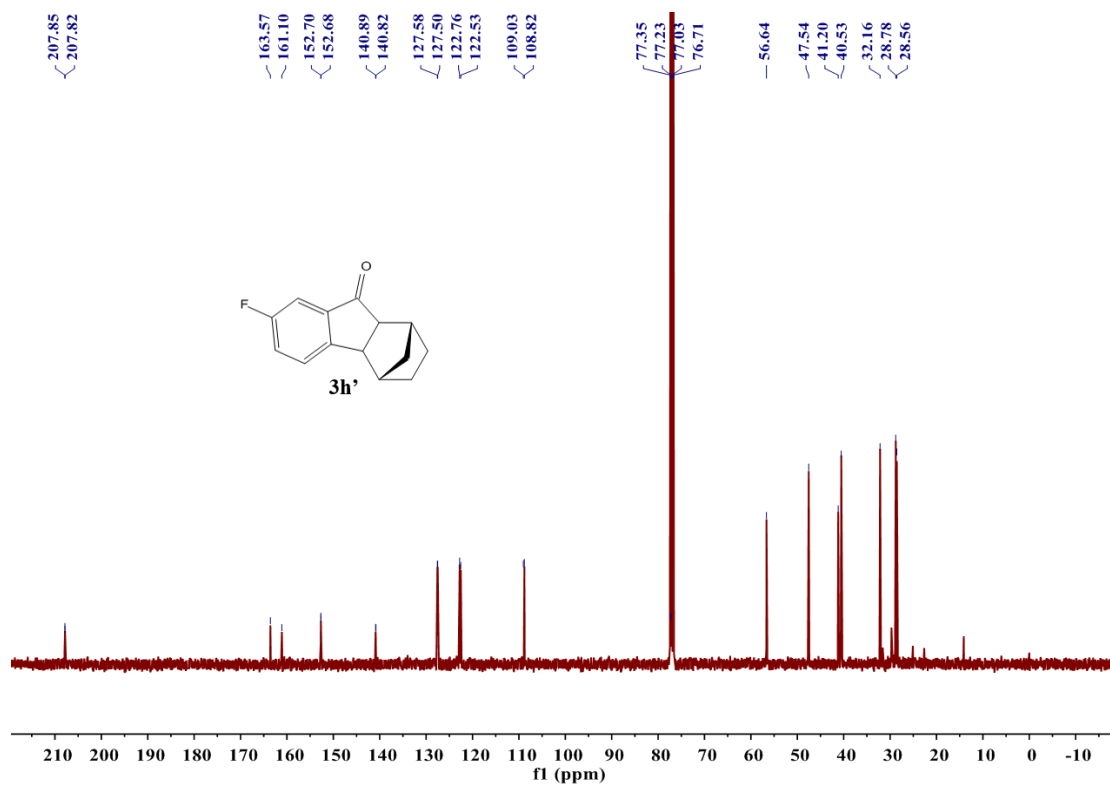
<sup>13</sup>C NMR for compound **3h**



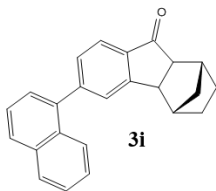
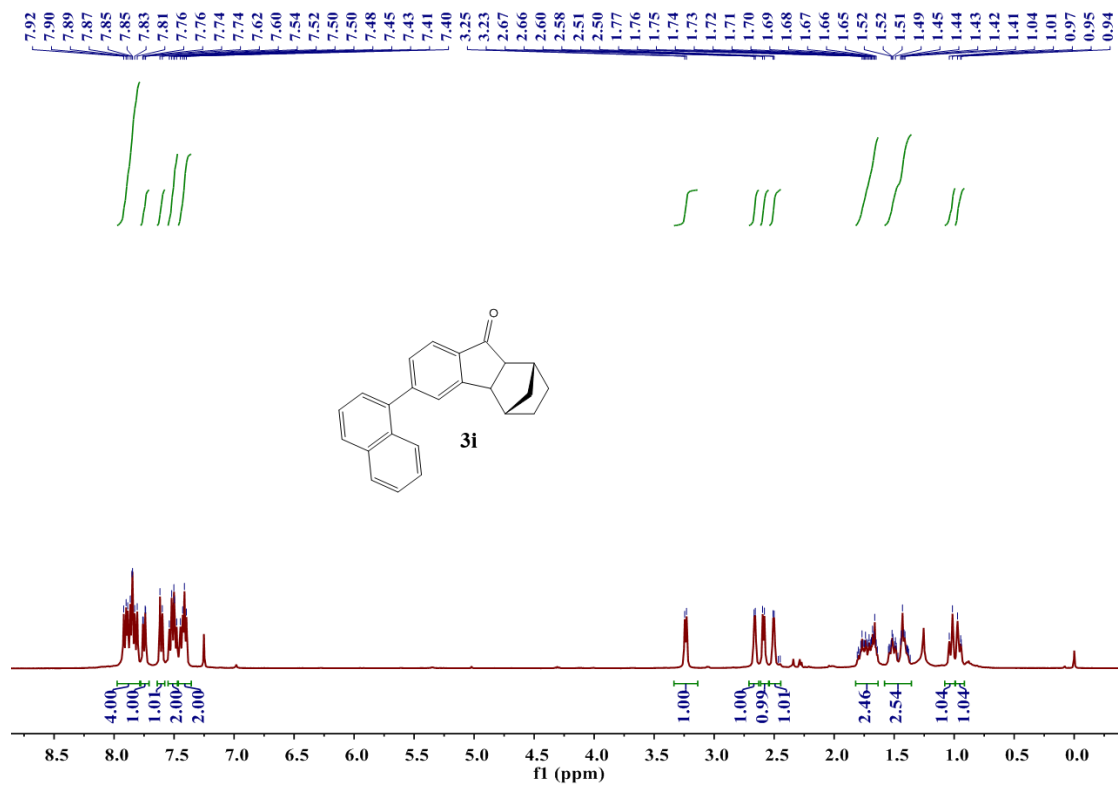
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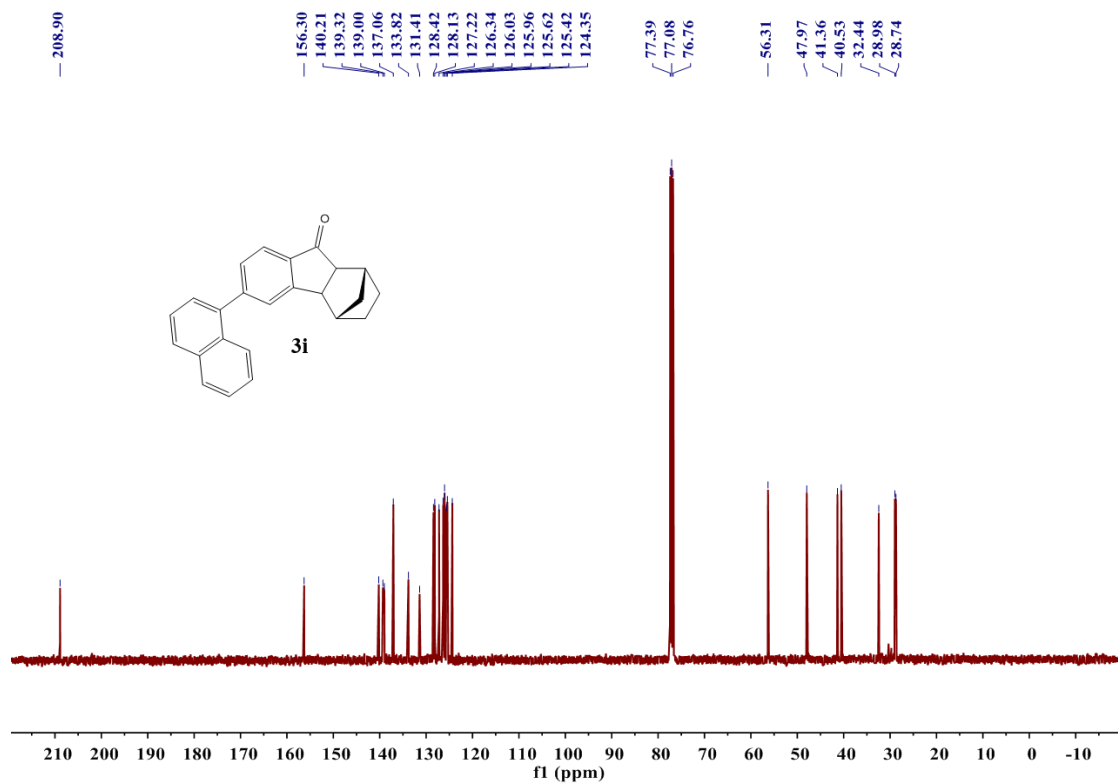
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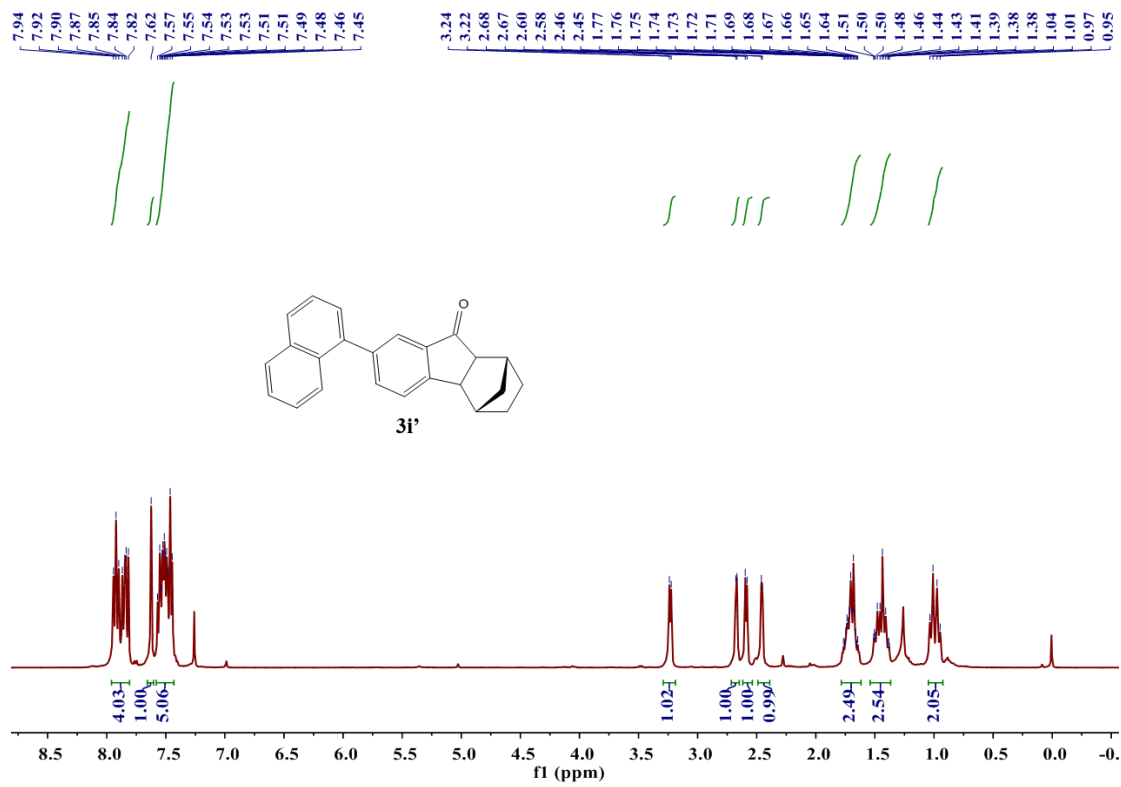
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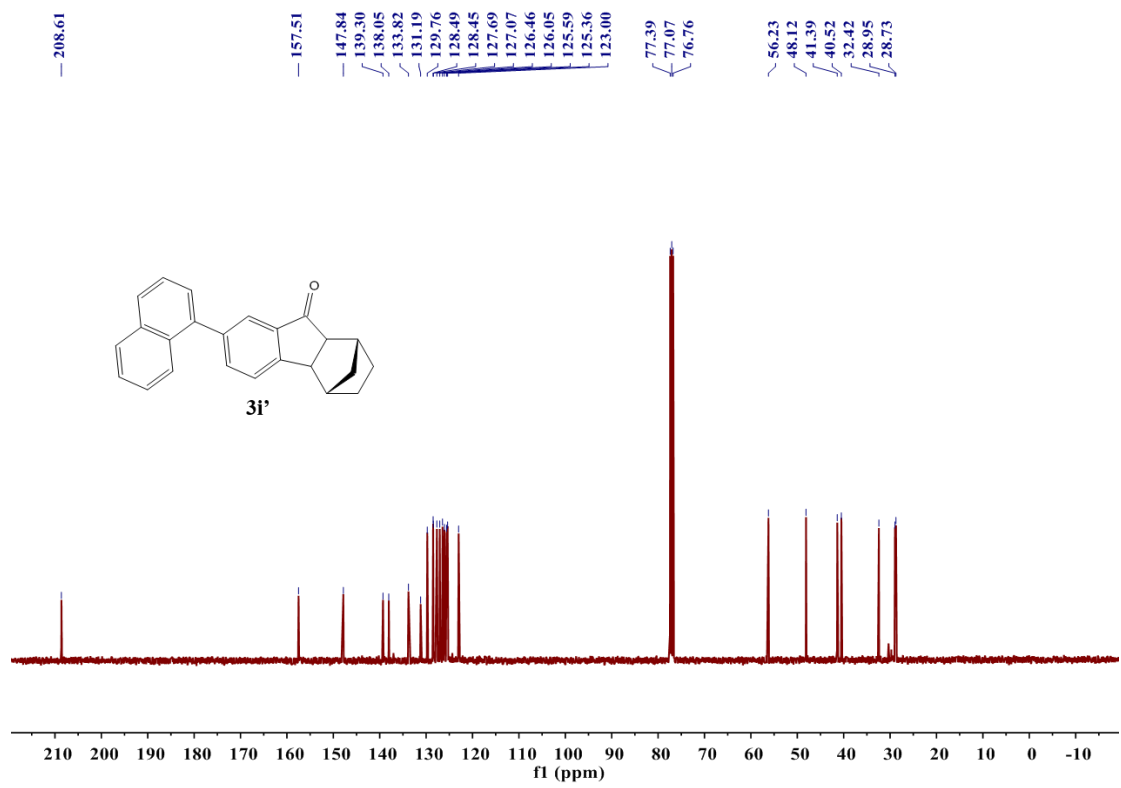
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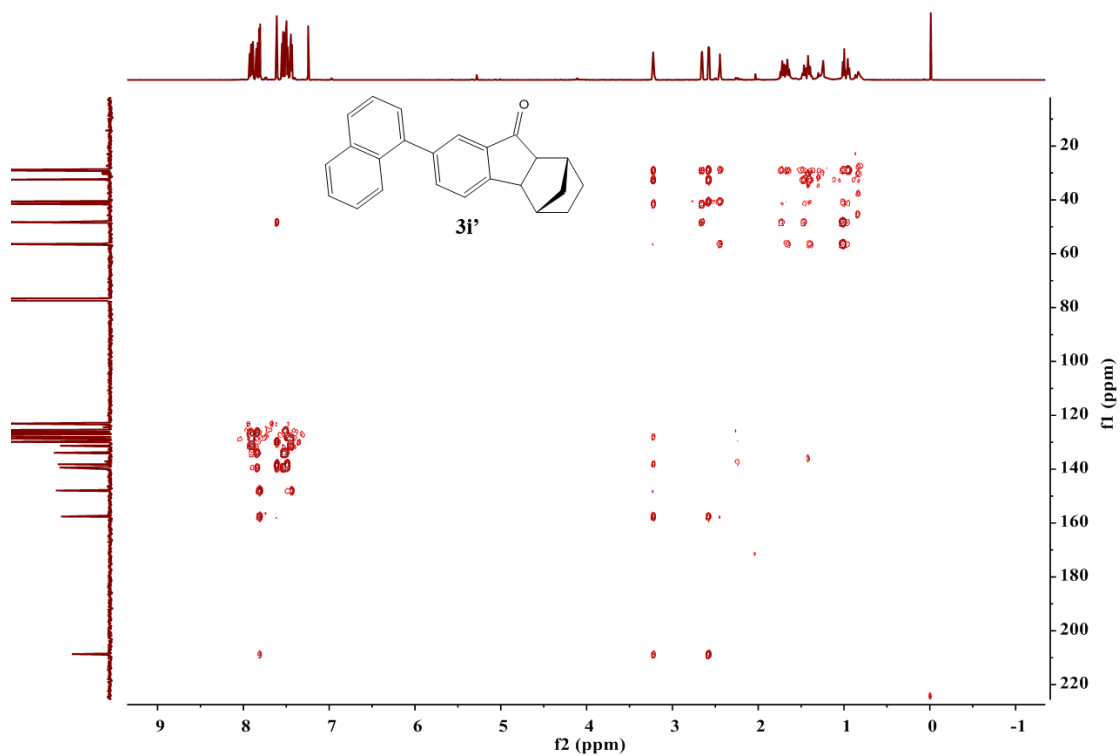
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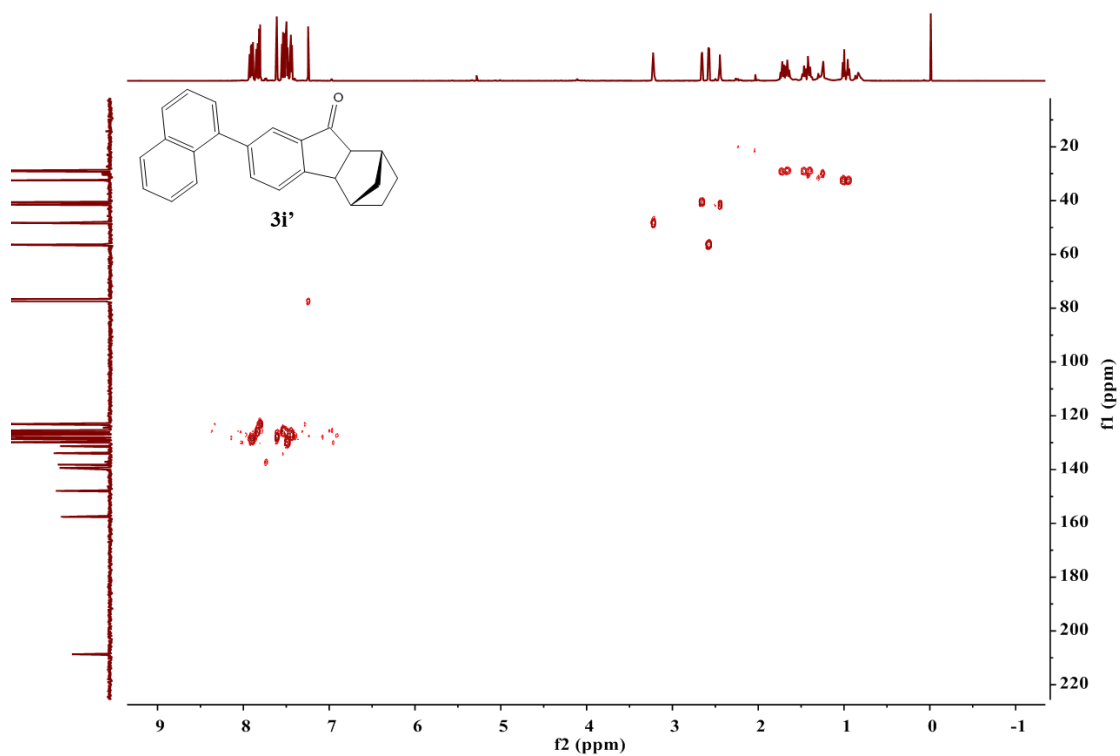
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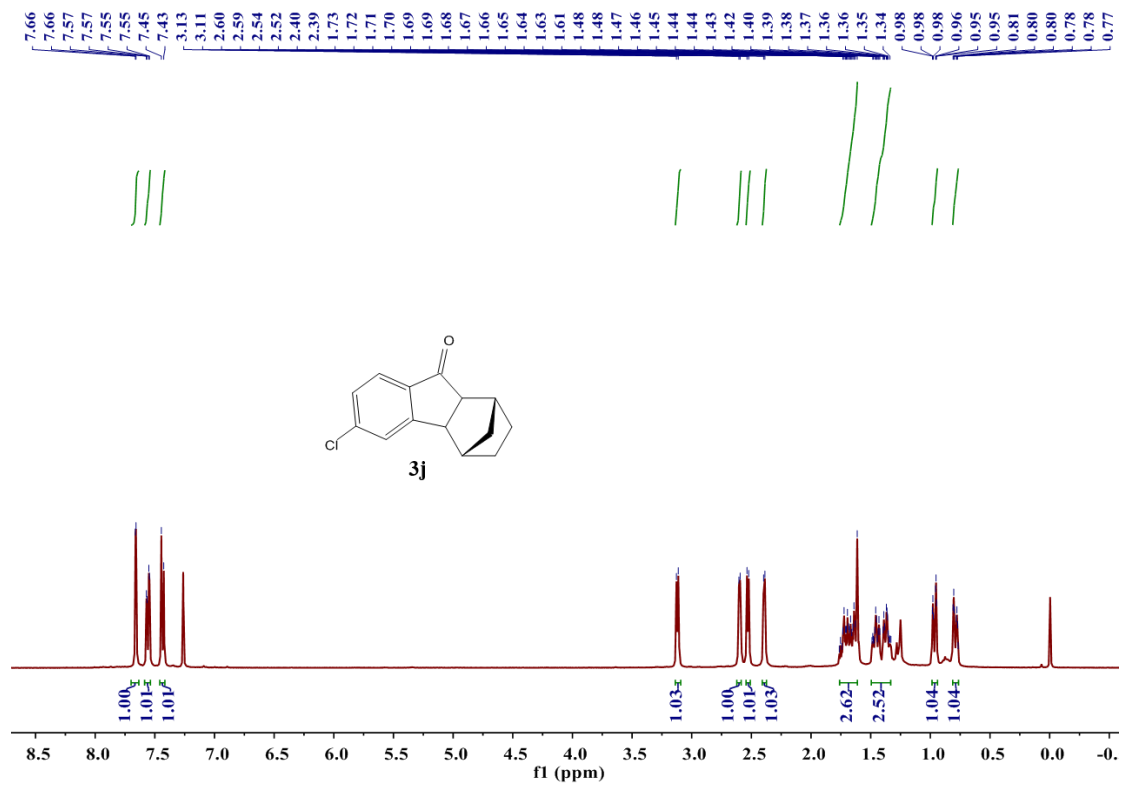
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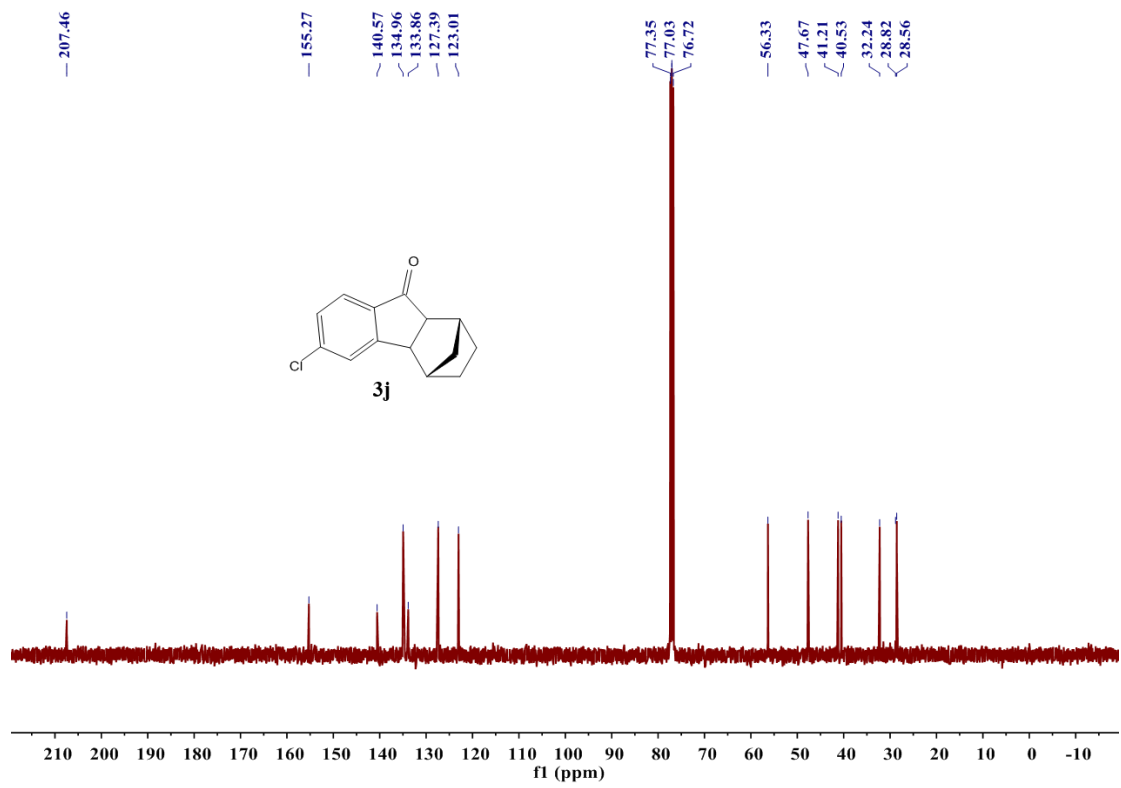
The HMBC spectrum of the compound **3i'** in CDCl<sub>3</sub>.



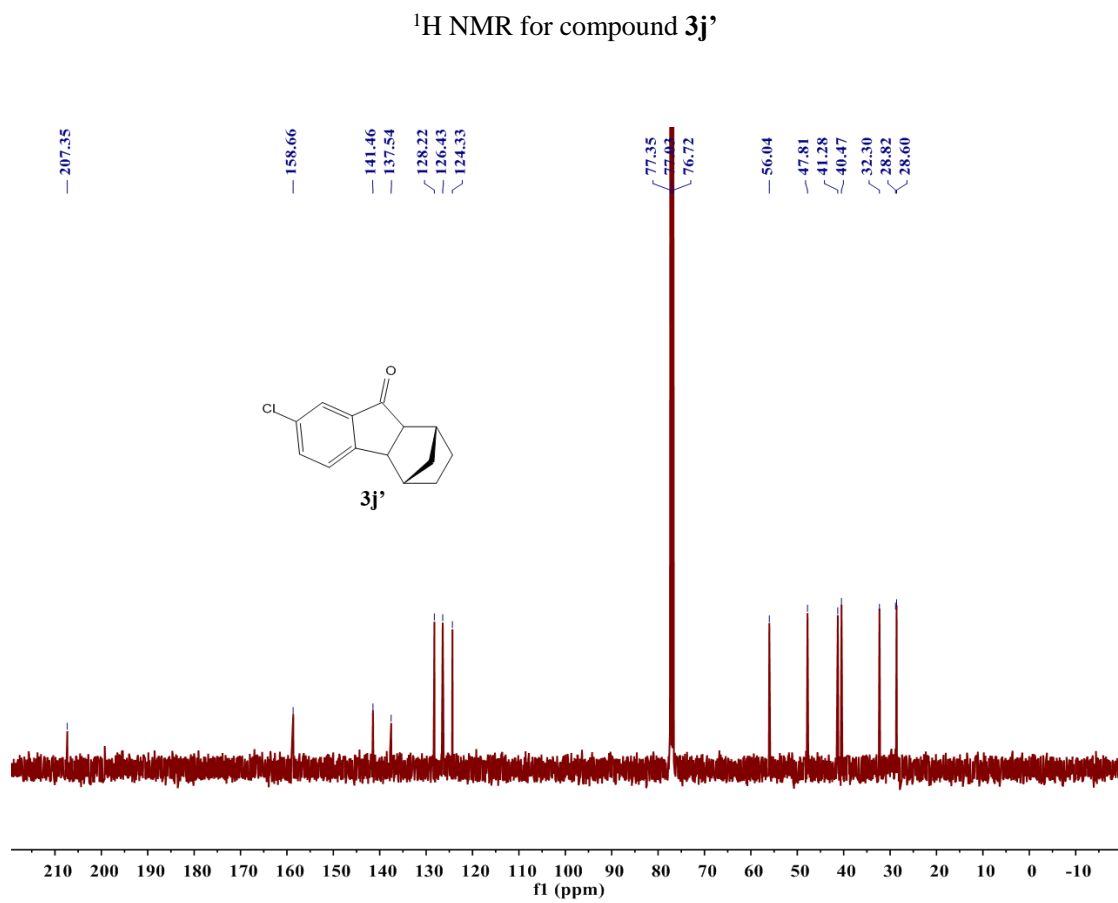
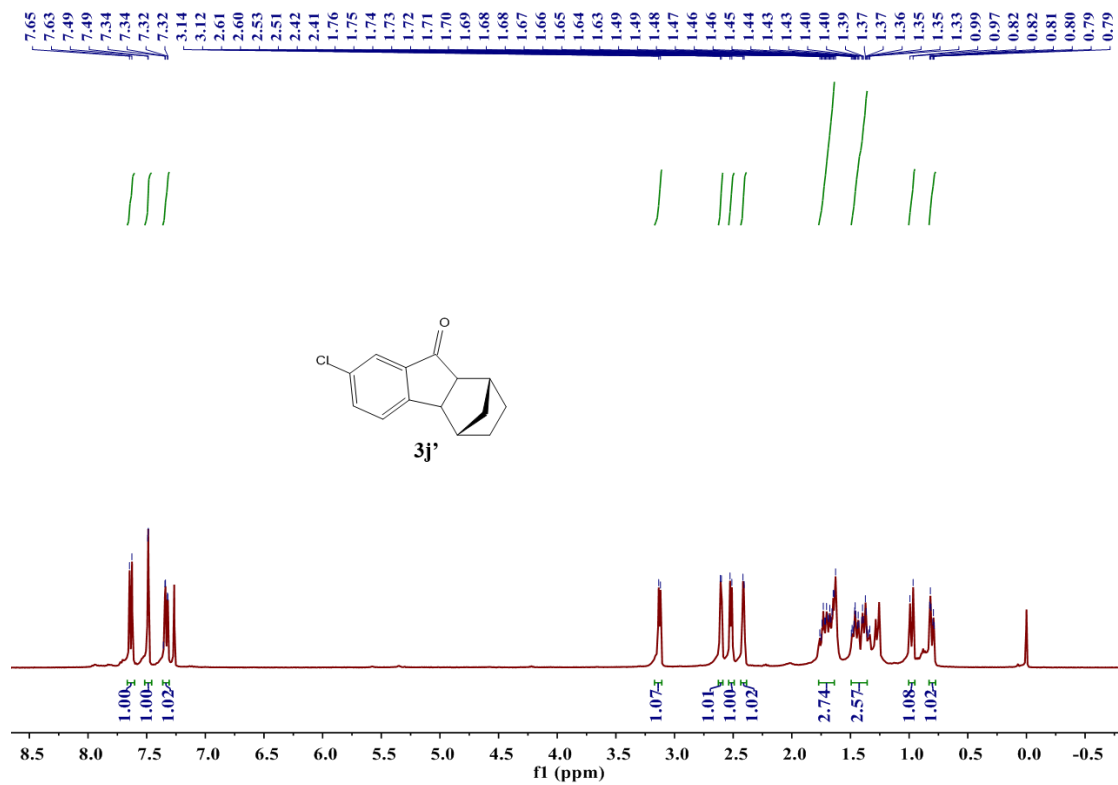
The HMQC spectrum of the compound **3i'** in CDCl<sub>3</sub>.



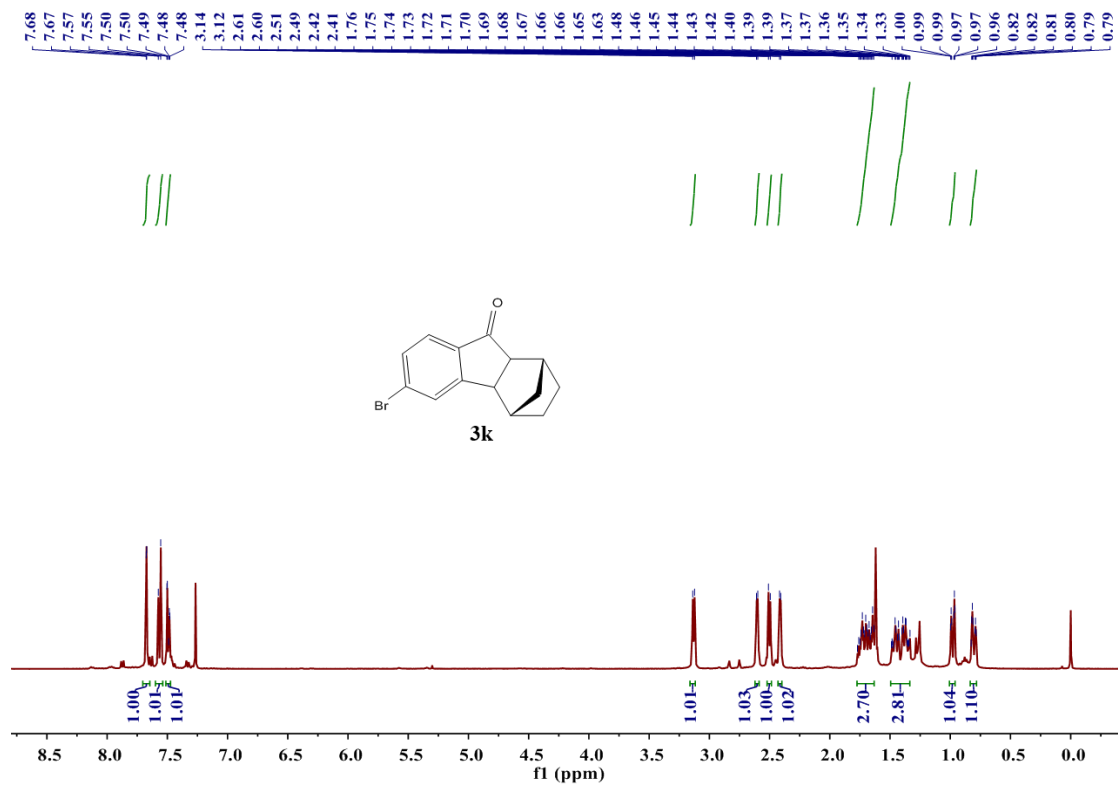
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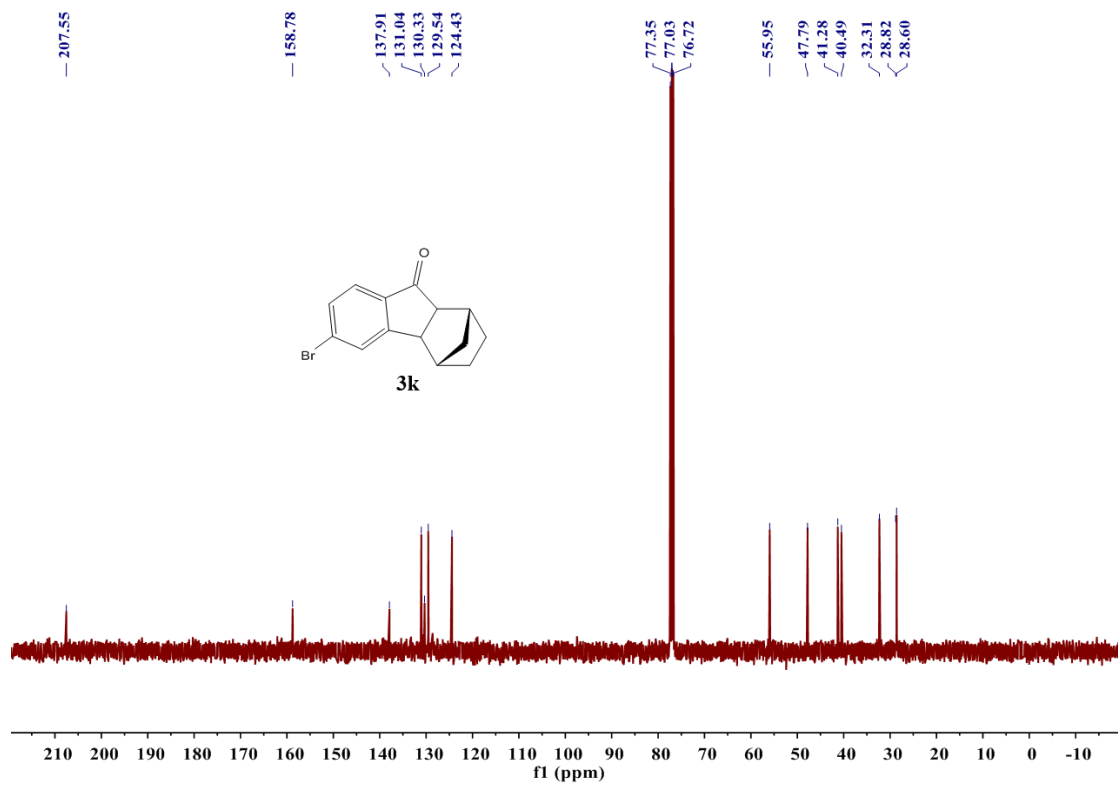
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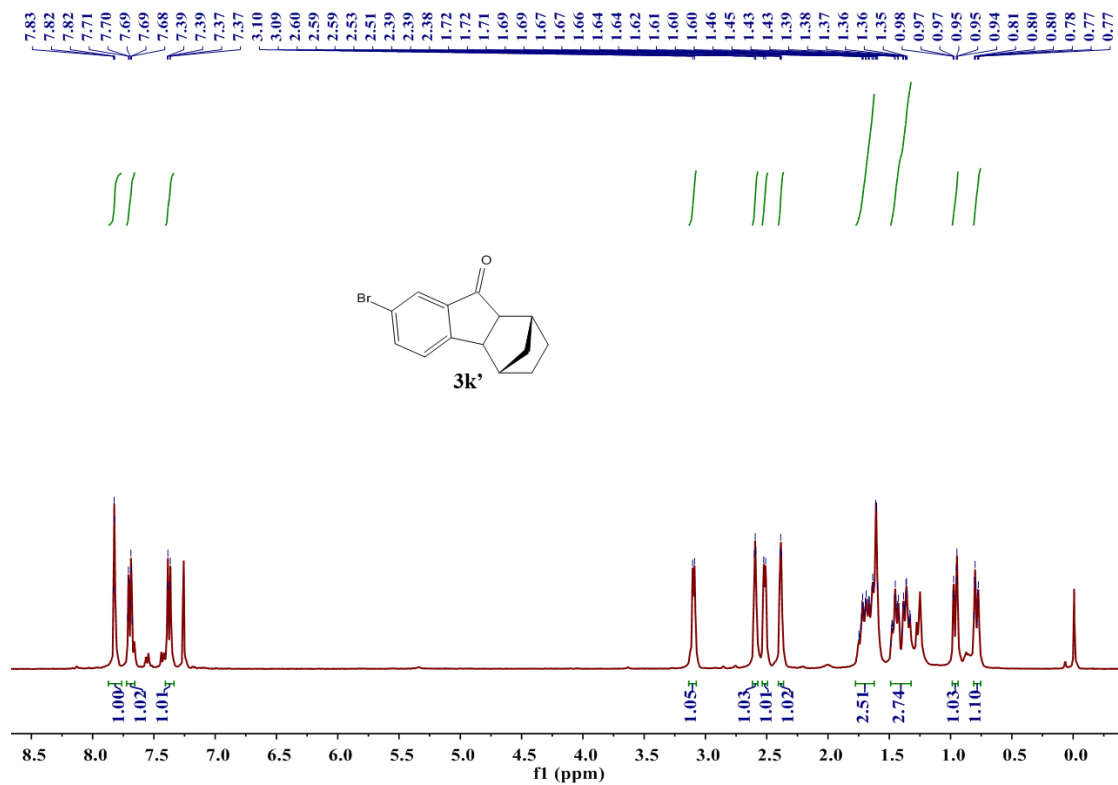




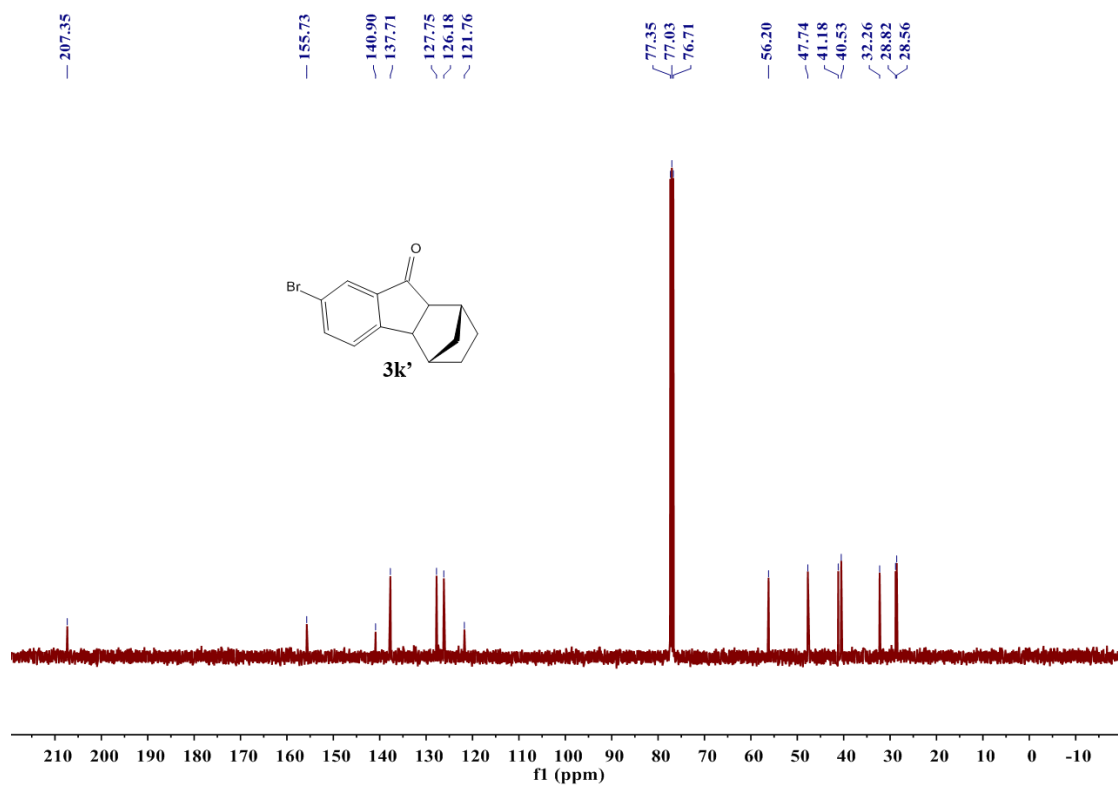
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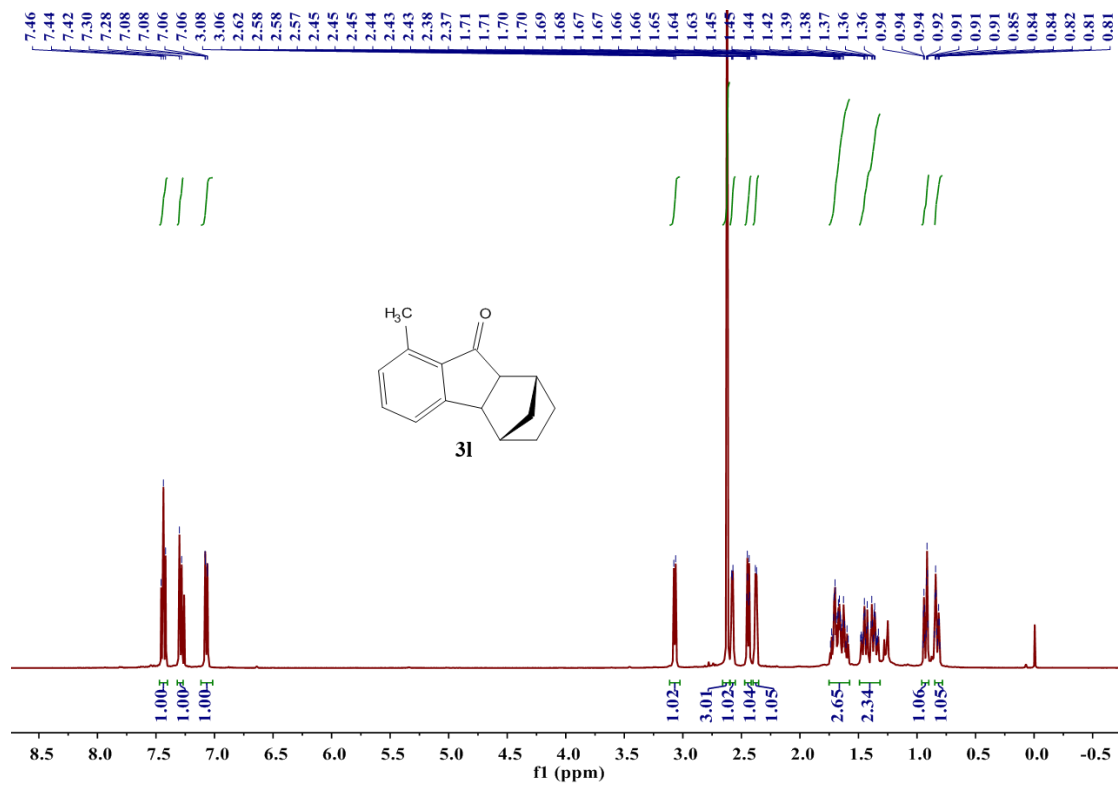
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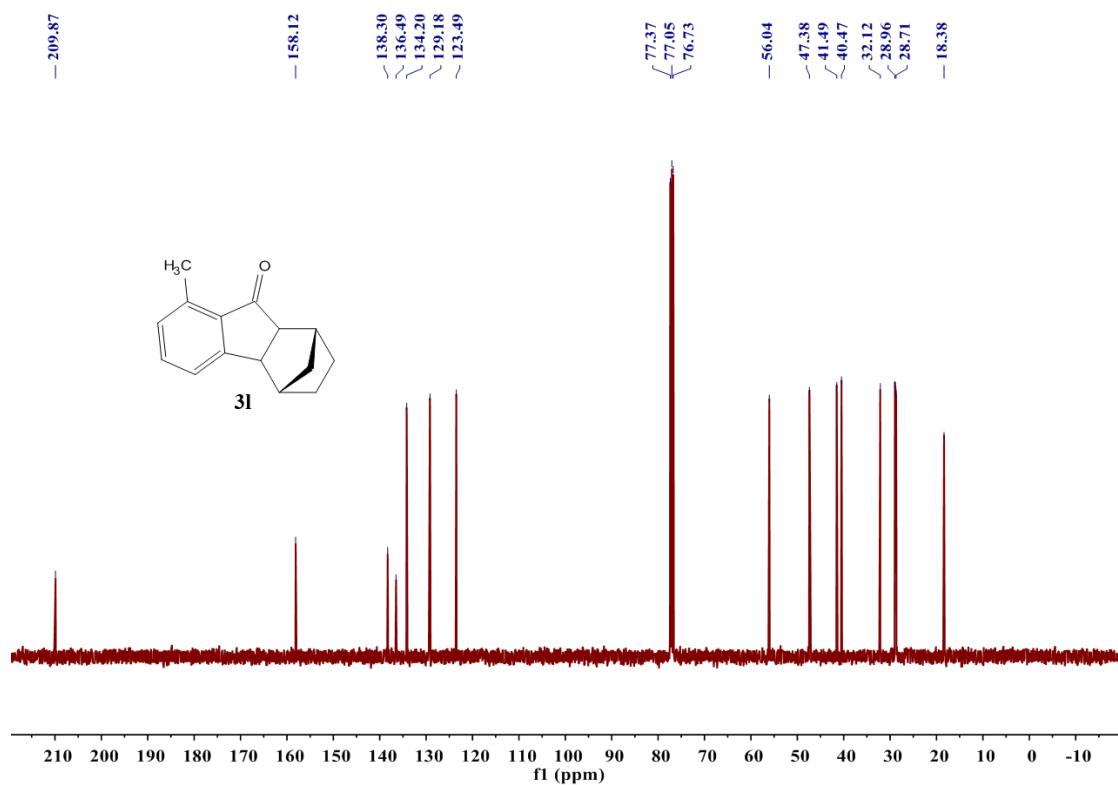
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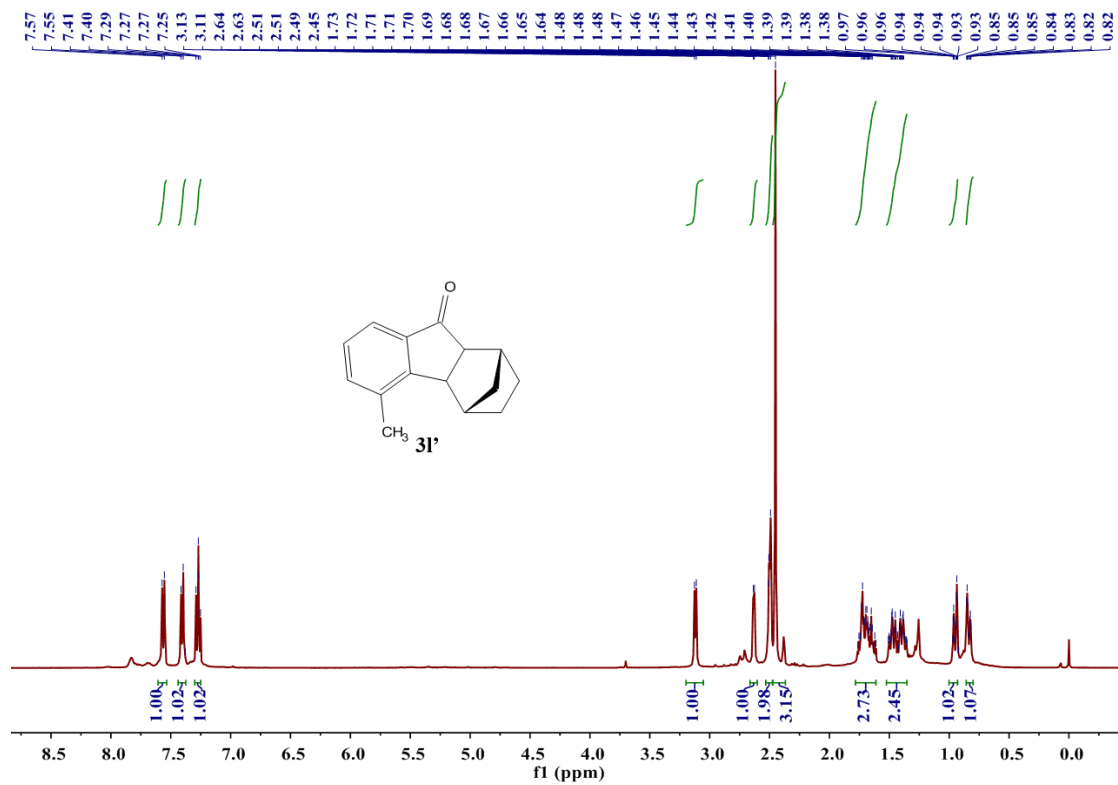
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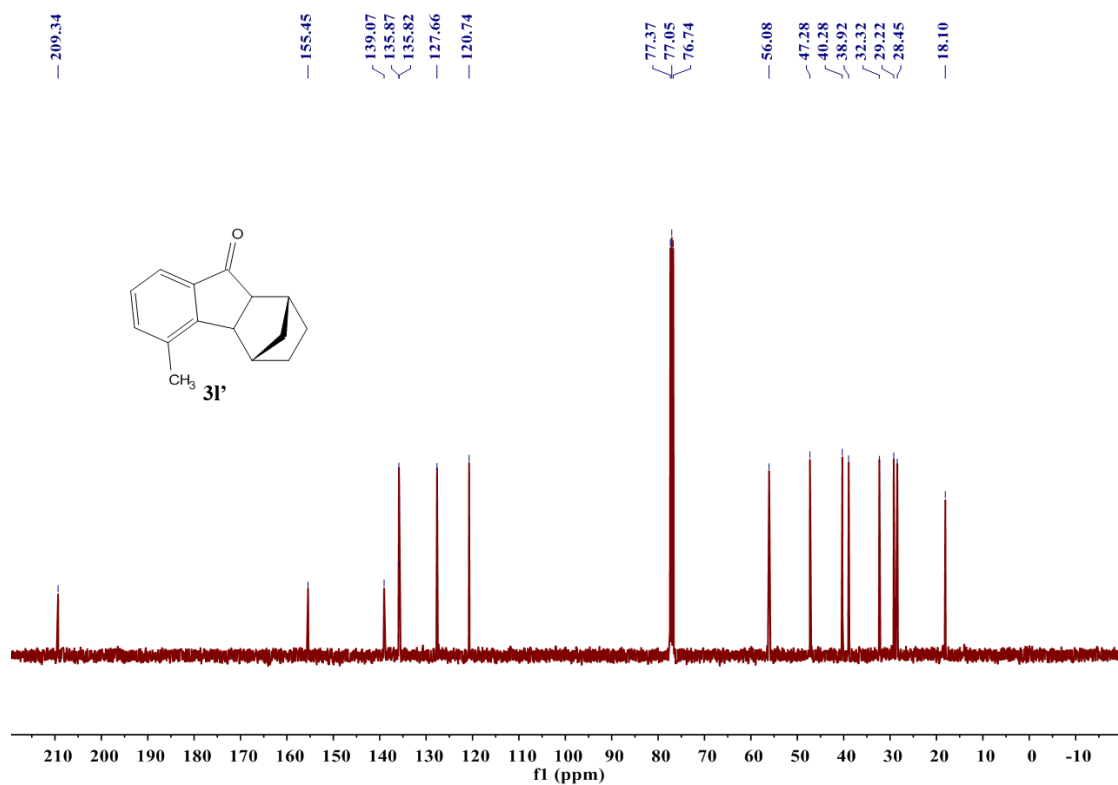
<sup>1</sup>H NMR for compound 31



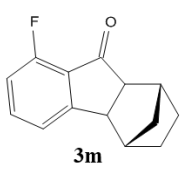
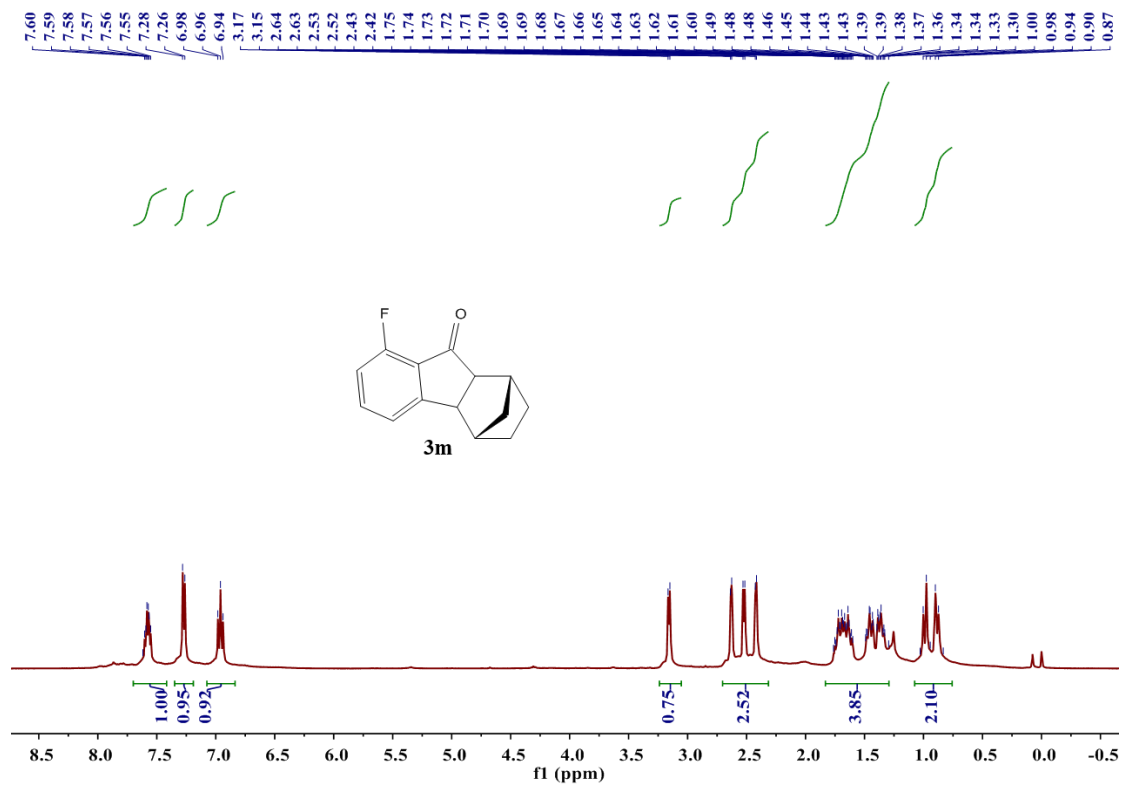
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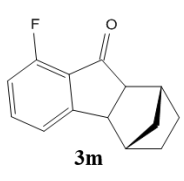
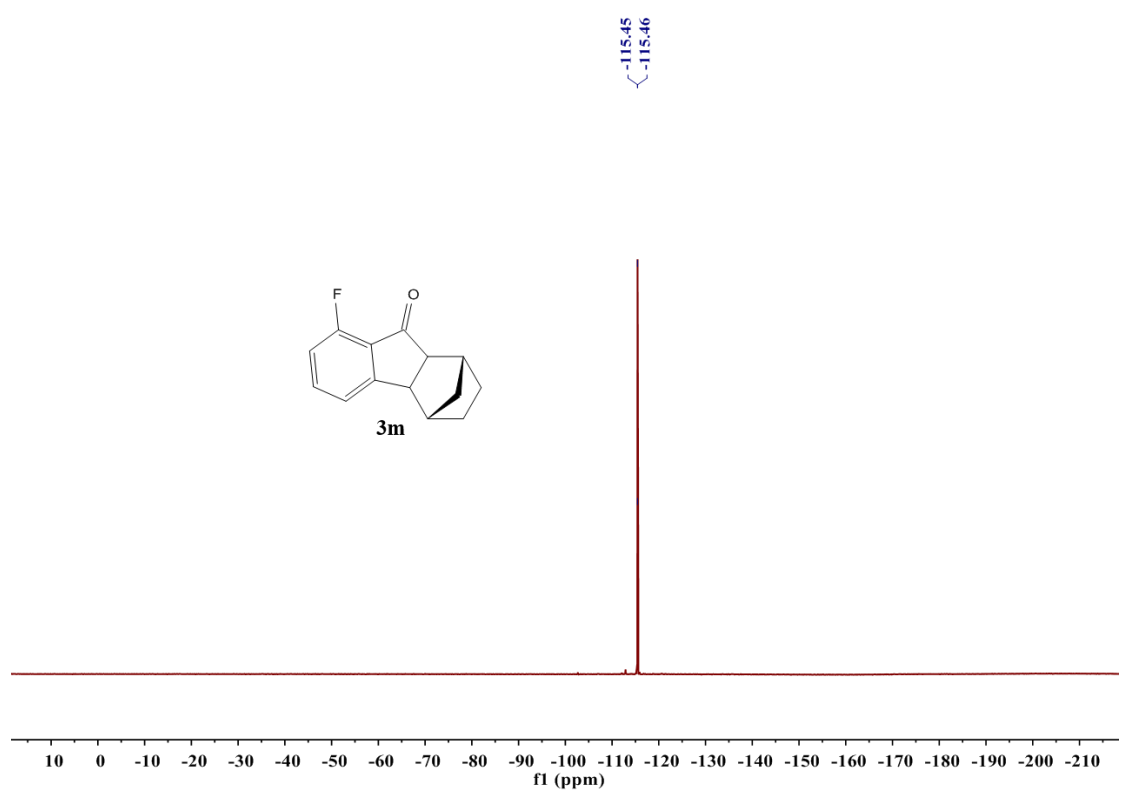
**<sup>1</sup>H NMR for compound 31'**



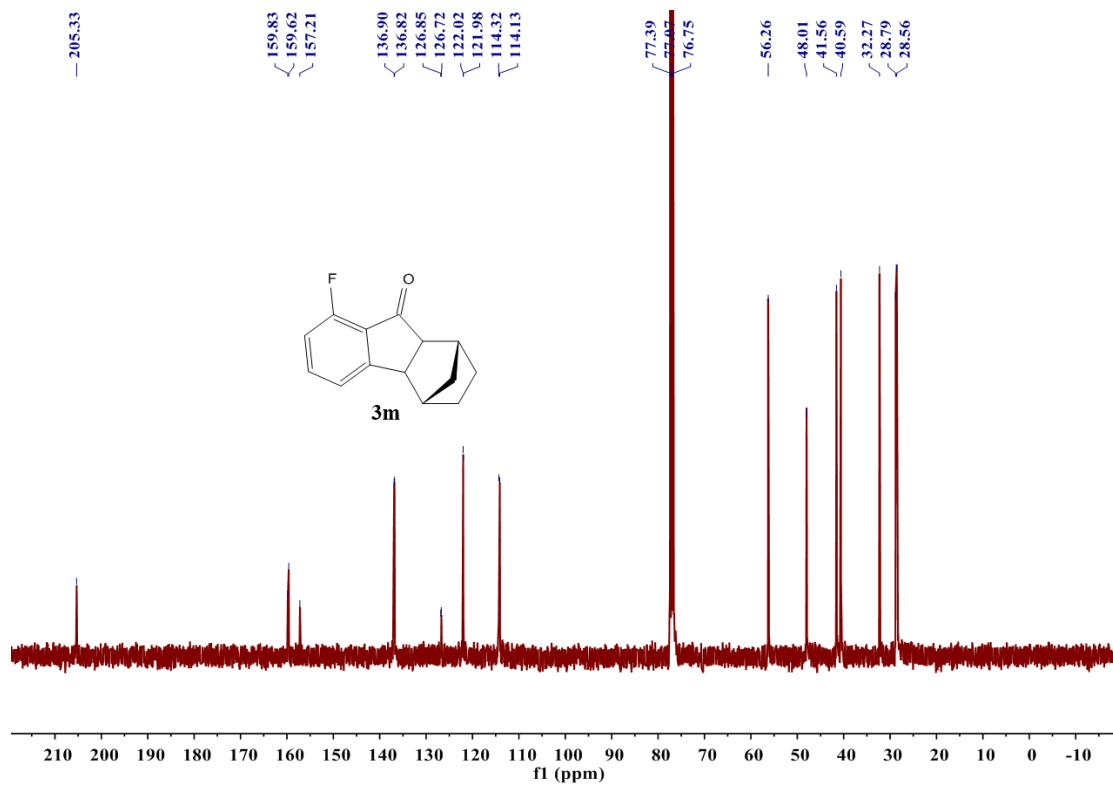
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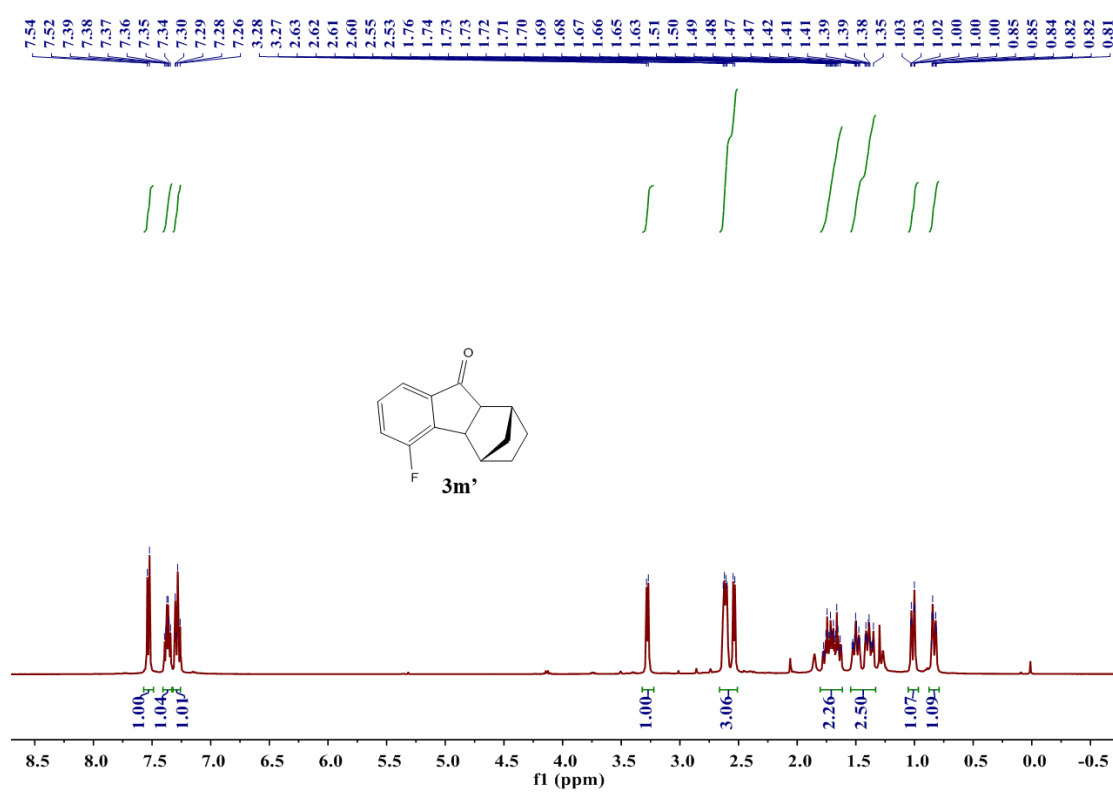
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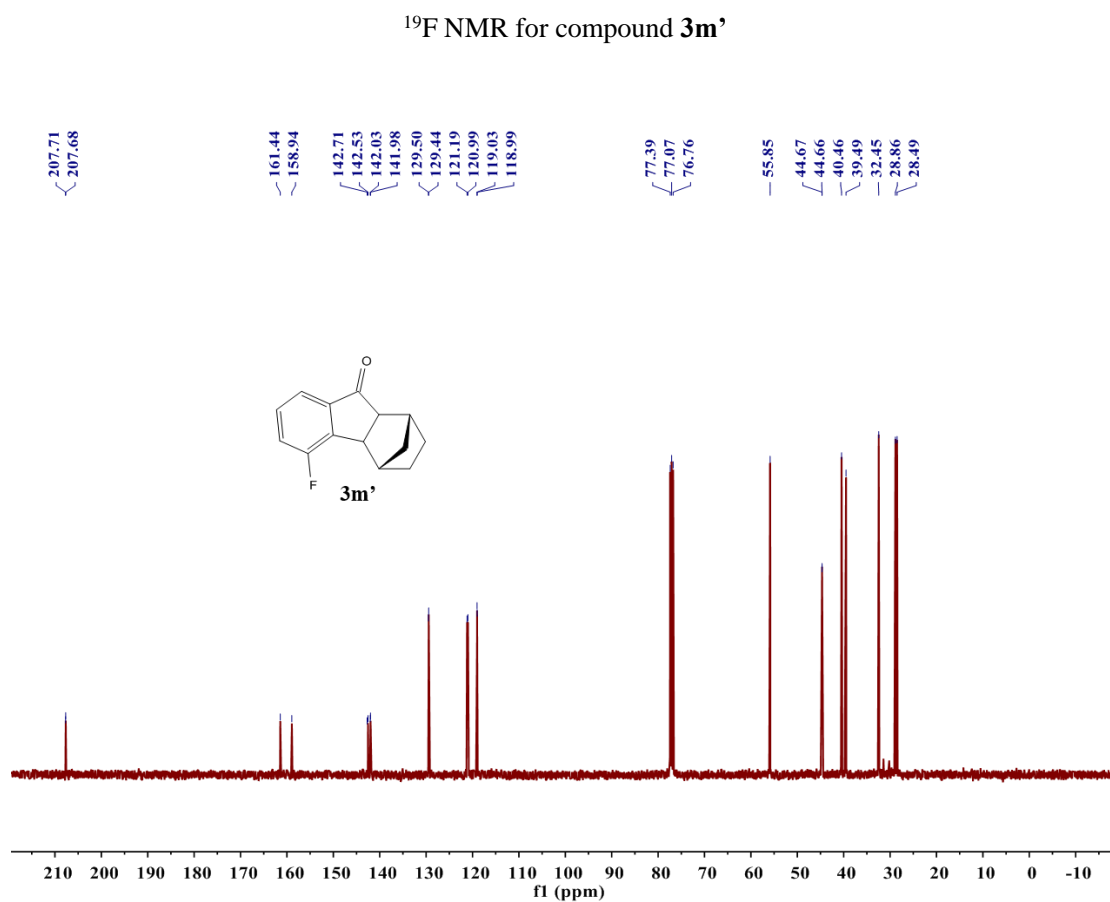
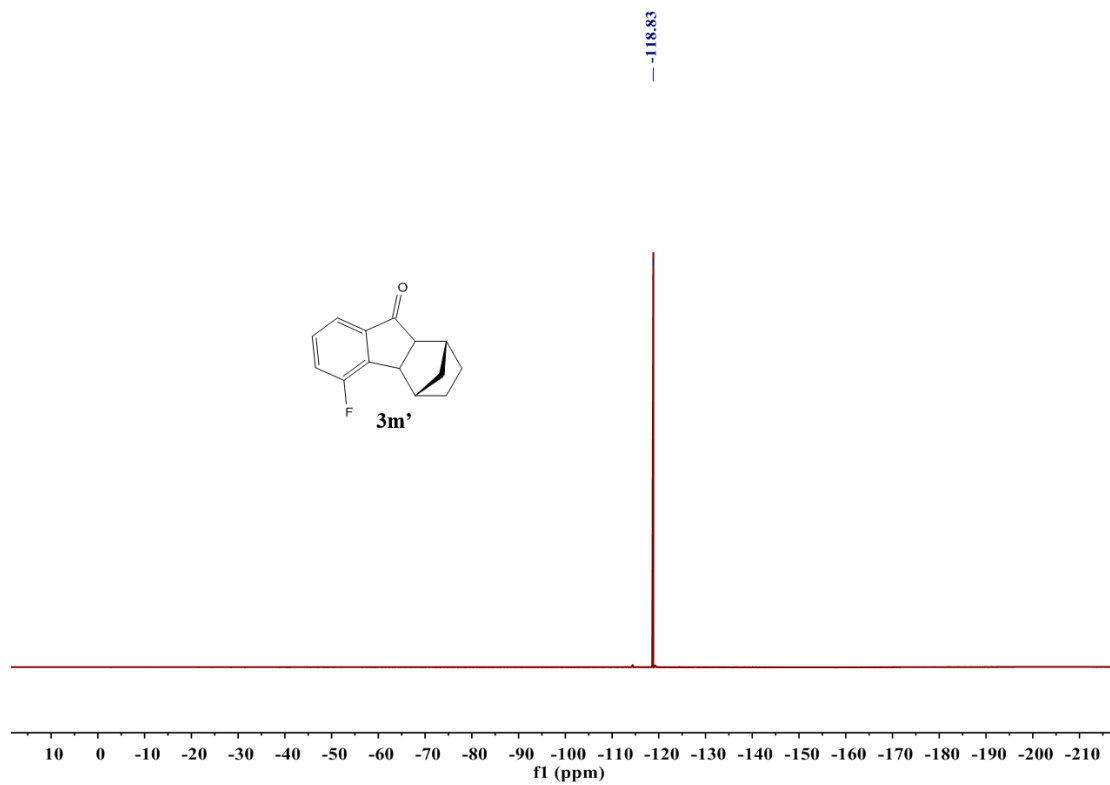
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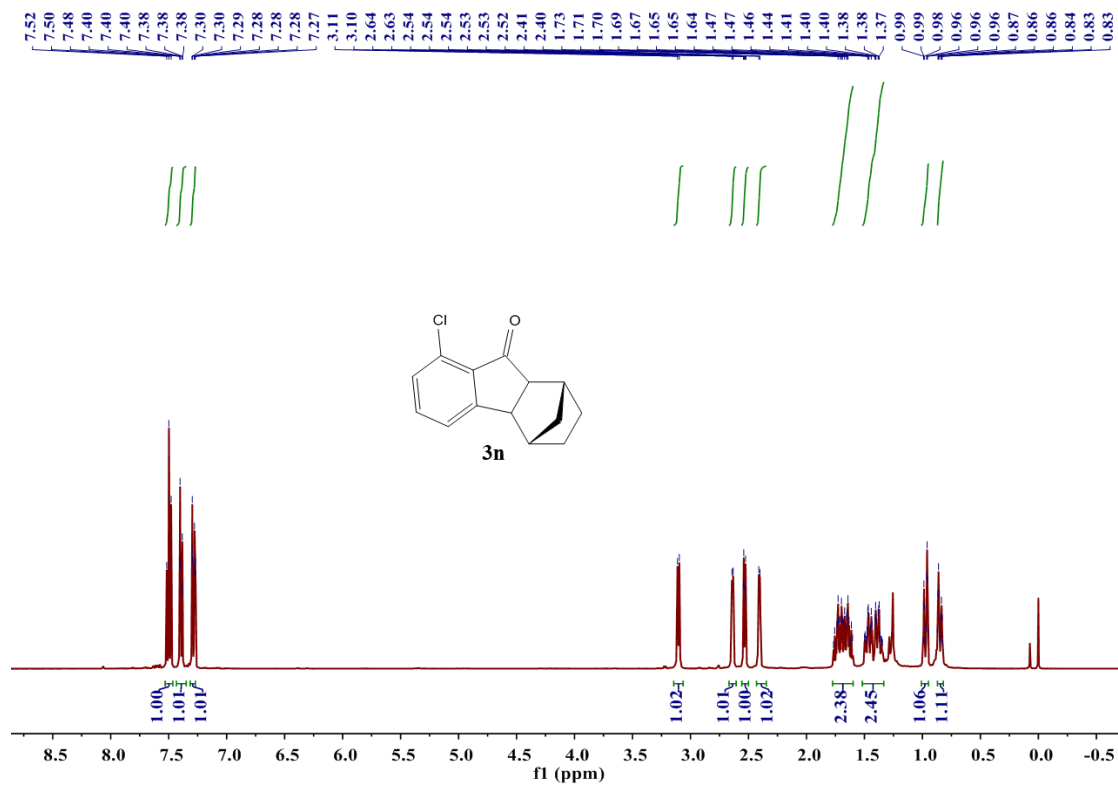


<sup>13</sup>C NMR for compound **3m**

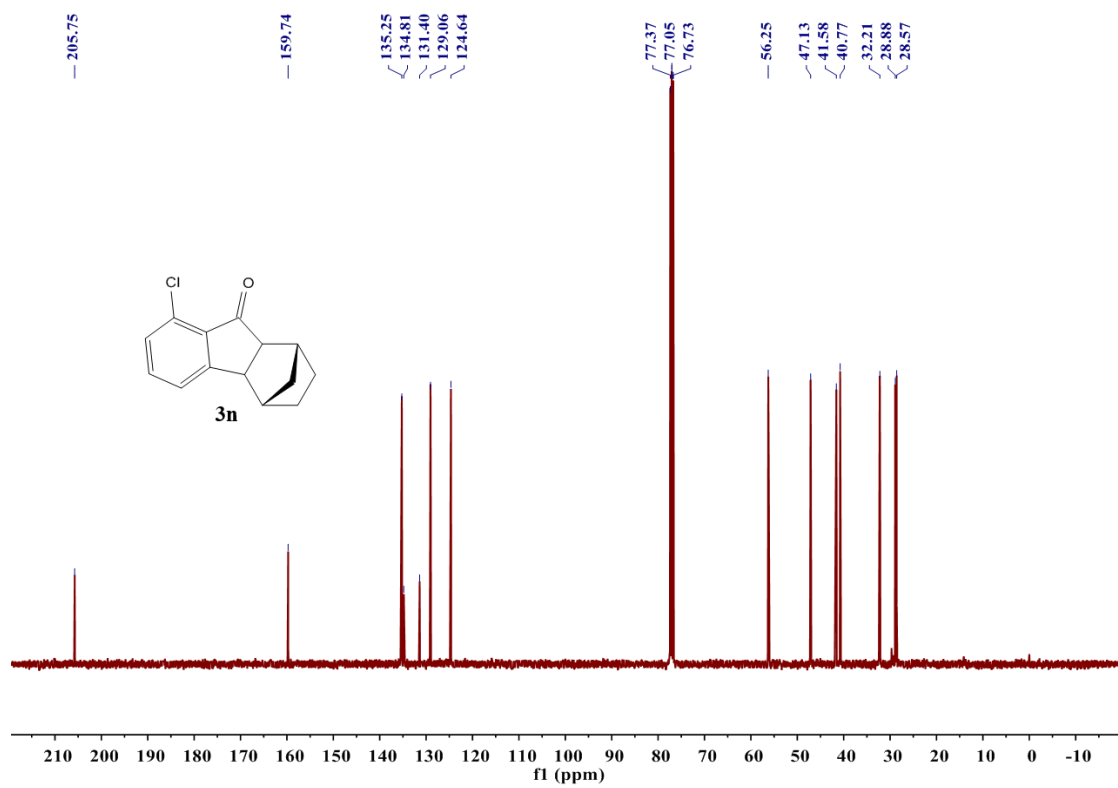


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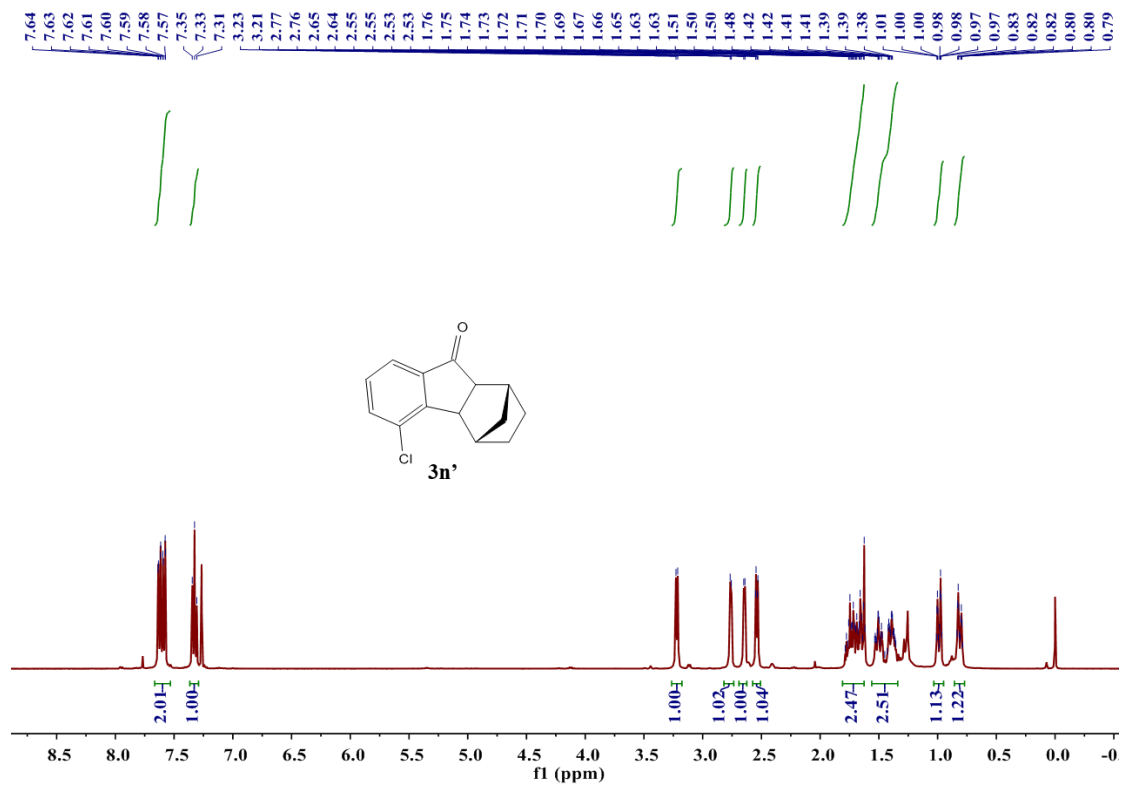


**<sup>1</sup>H NMR for compound 3n**

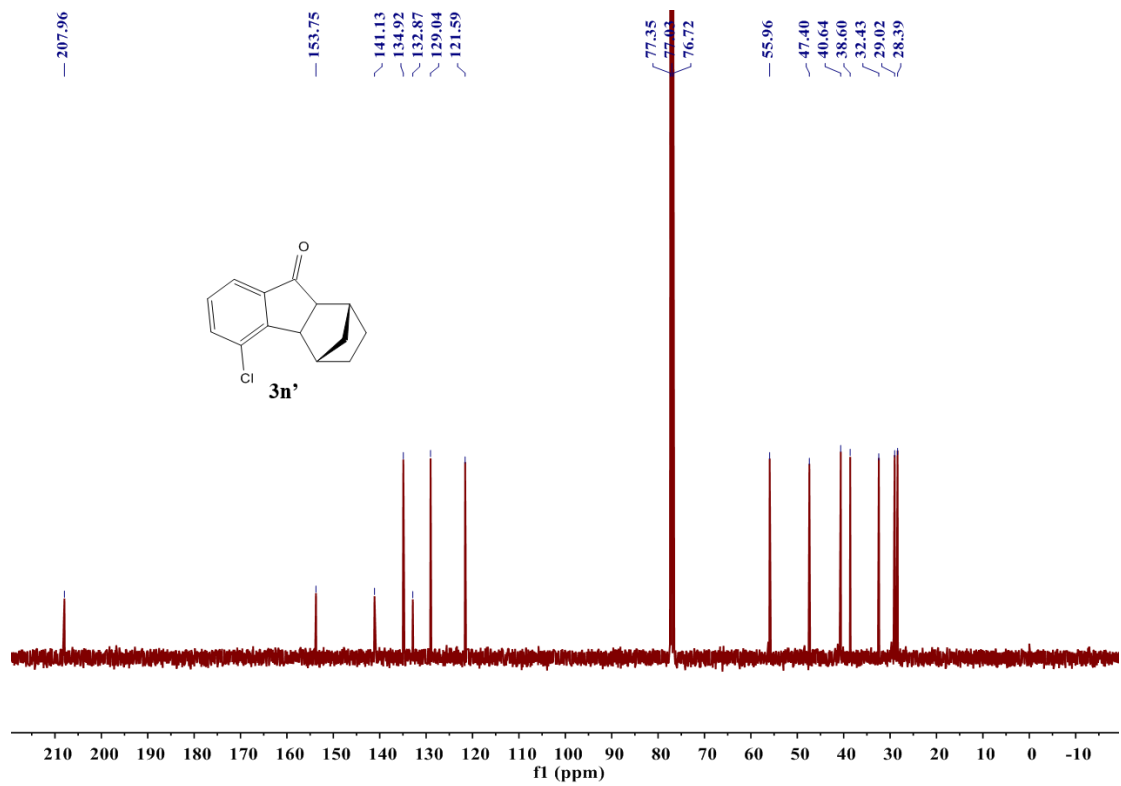


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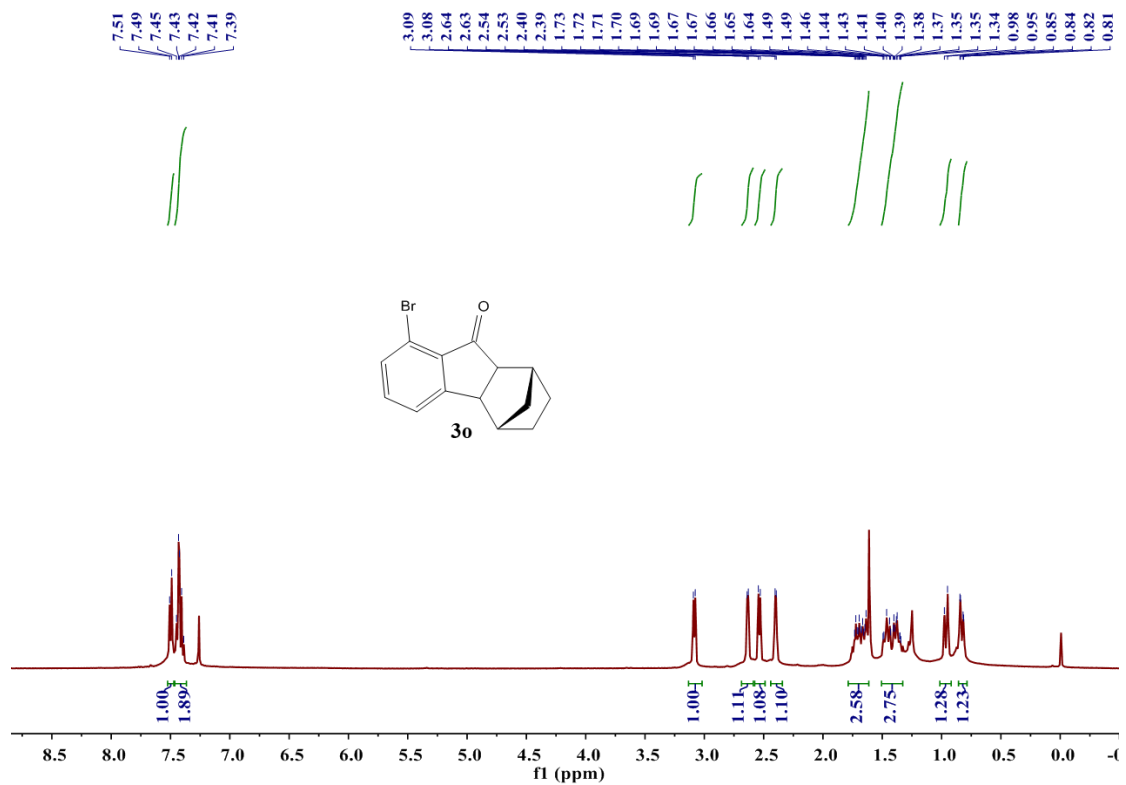




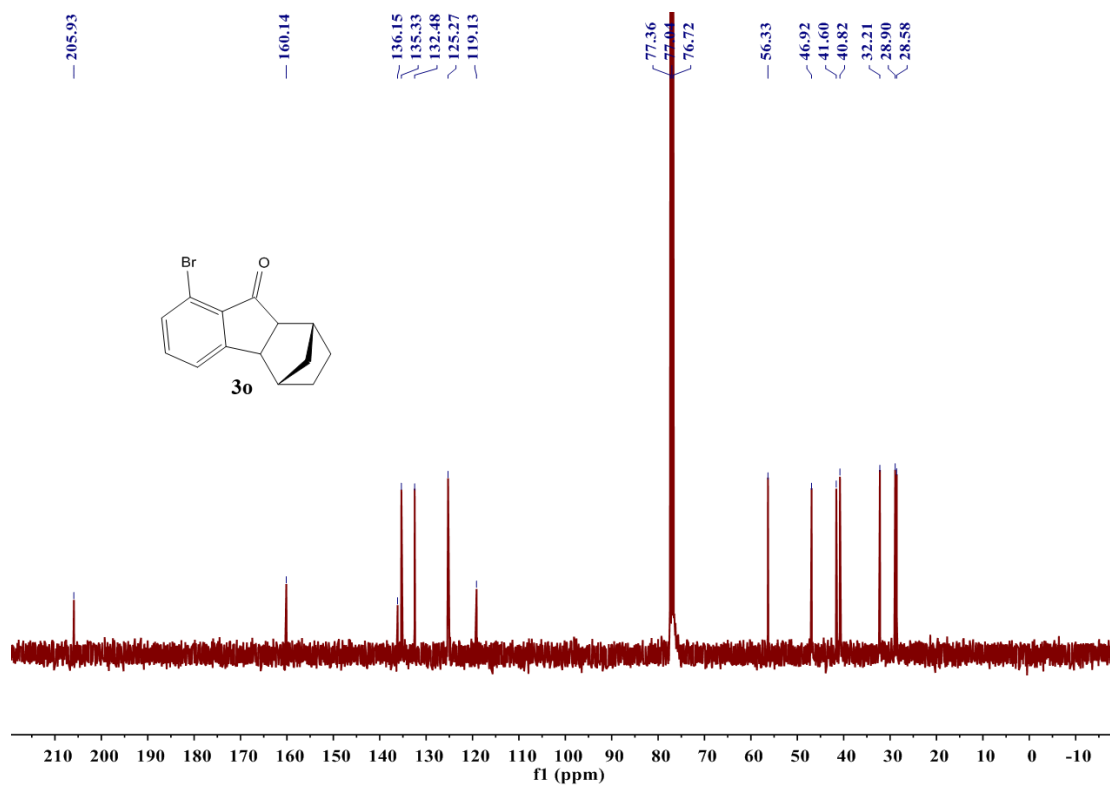
<sup>1</sup>H NMR for compound 3n'



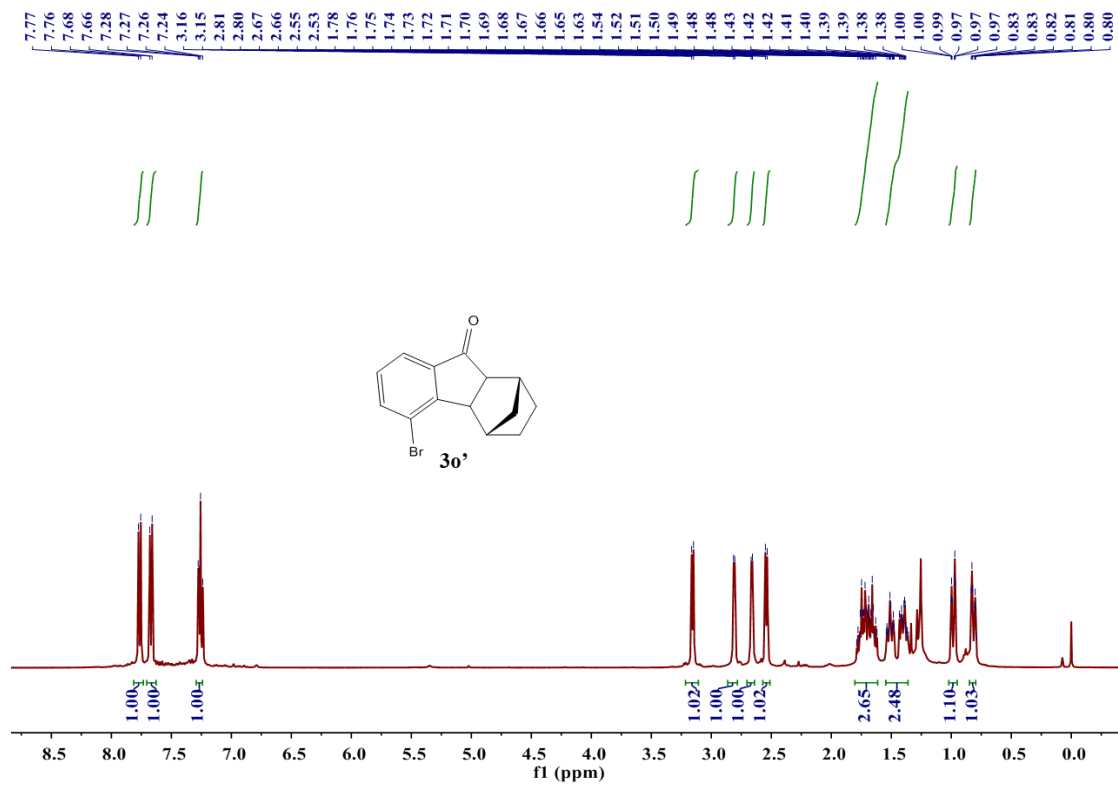
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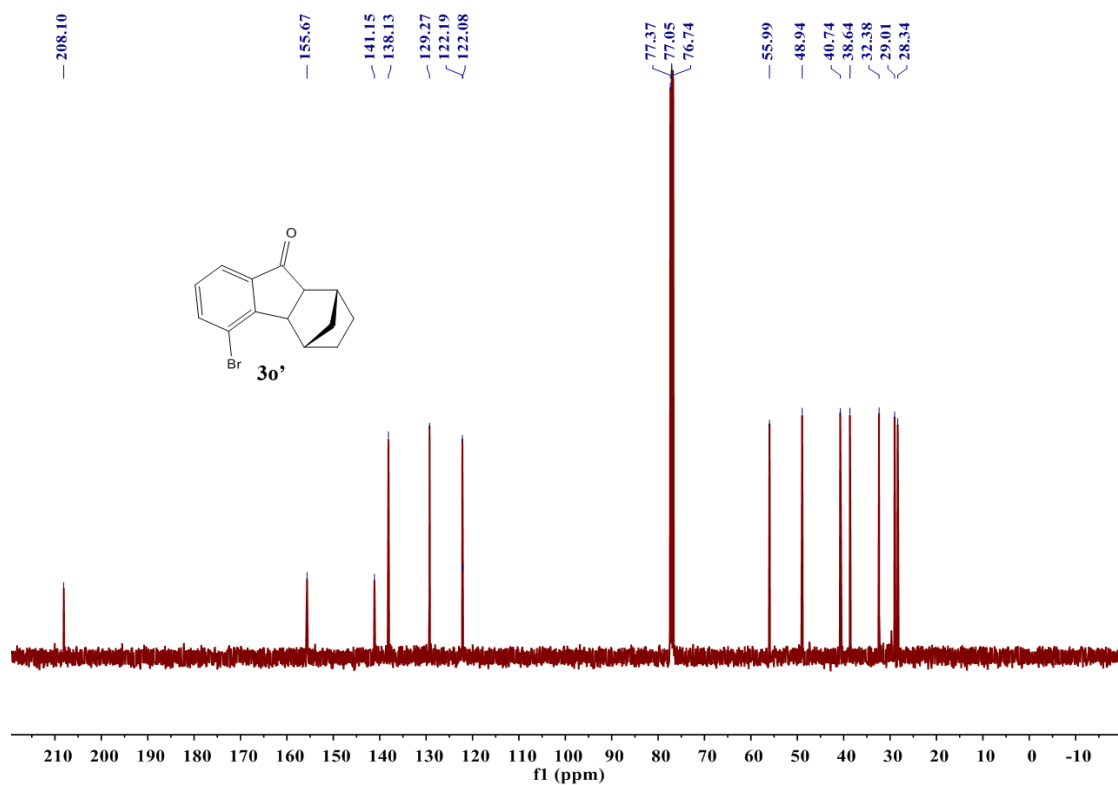
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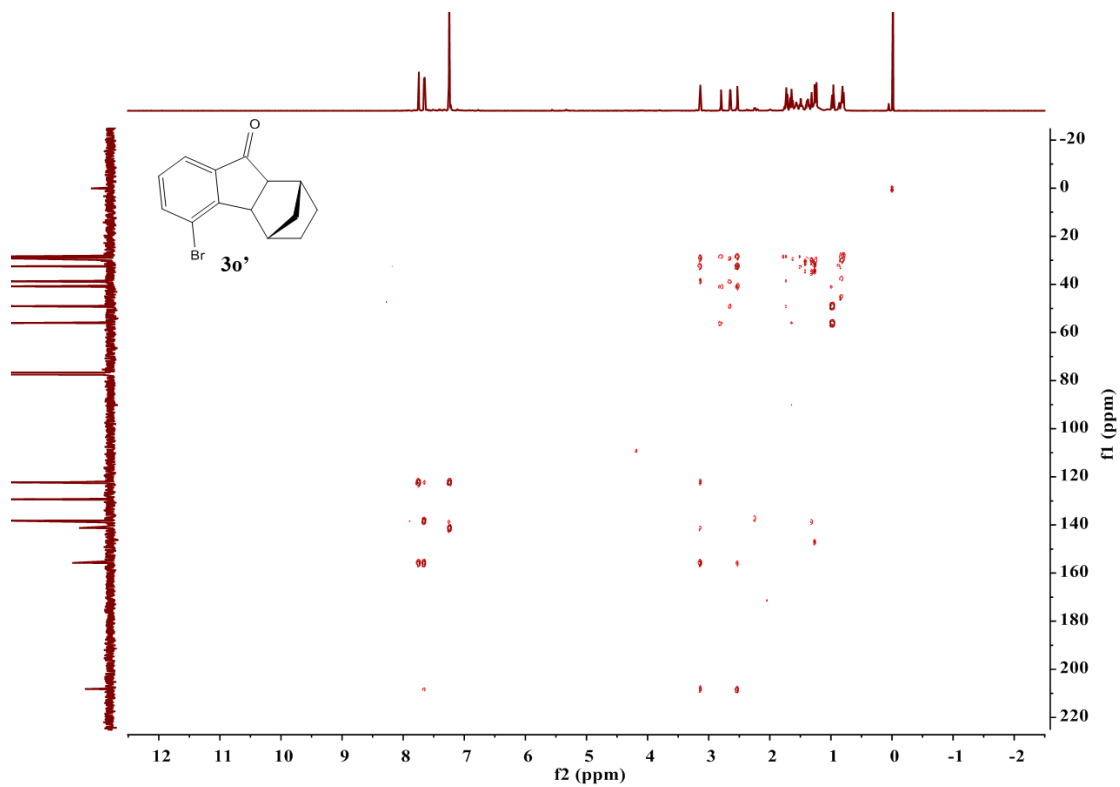
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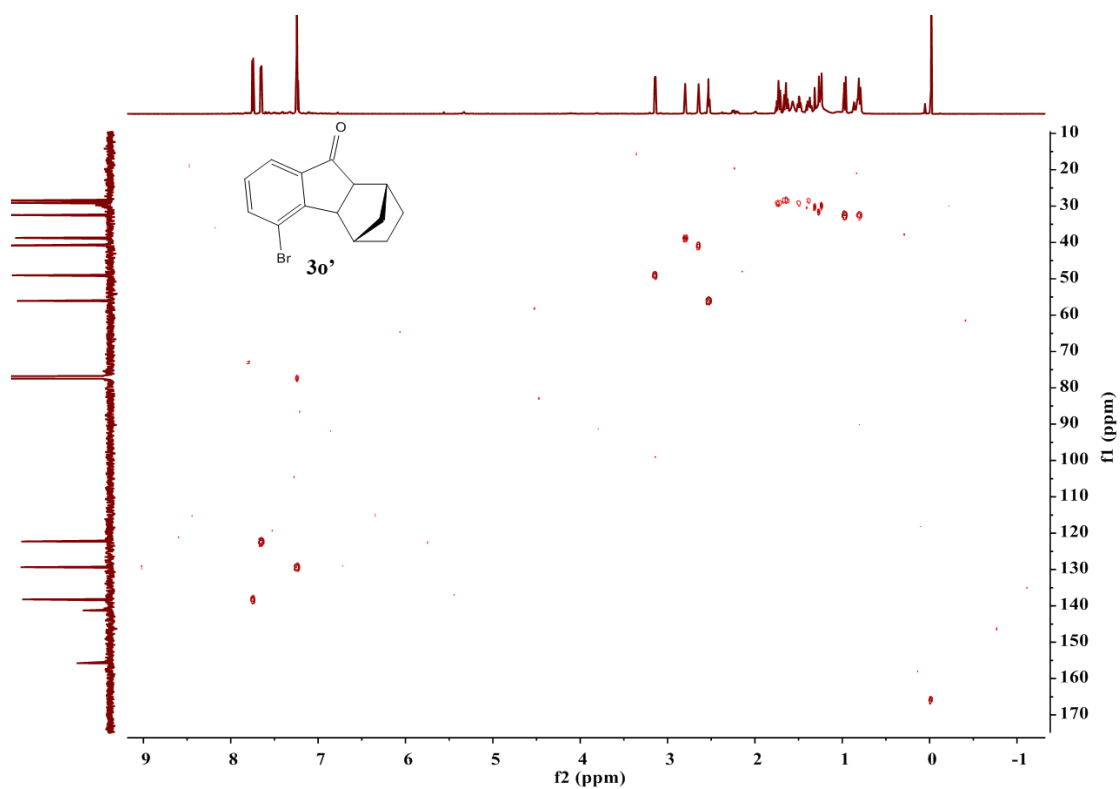
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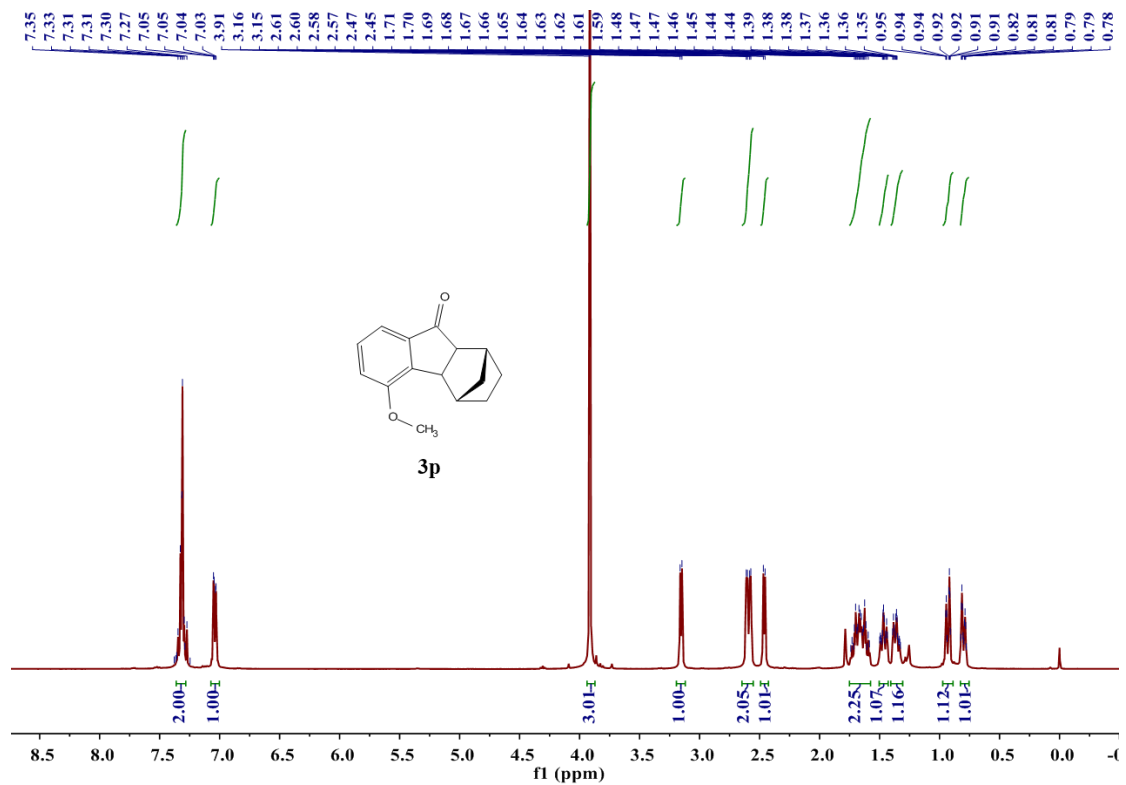
<sup>13</sup>C NMR for compound 30'



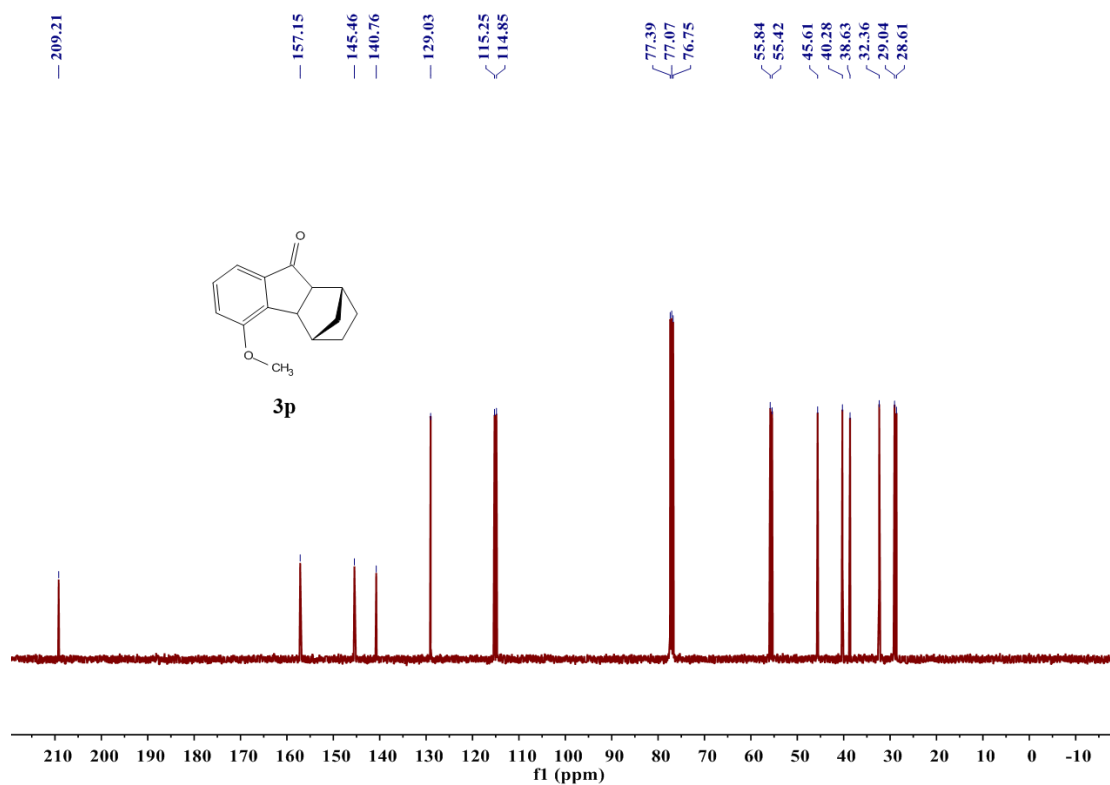
The HMBC spectrum of the compound **30'** in  $\text{CDCl}_3$ .



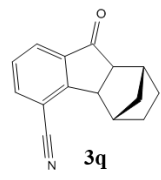
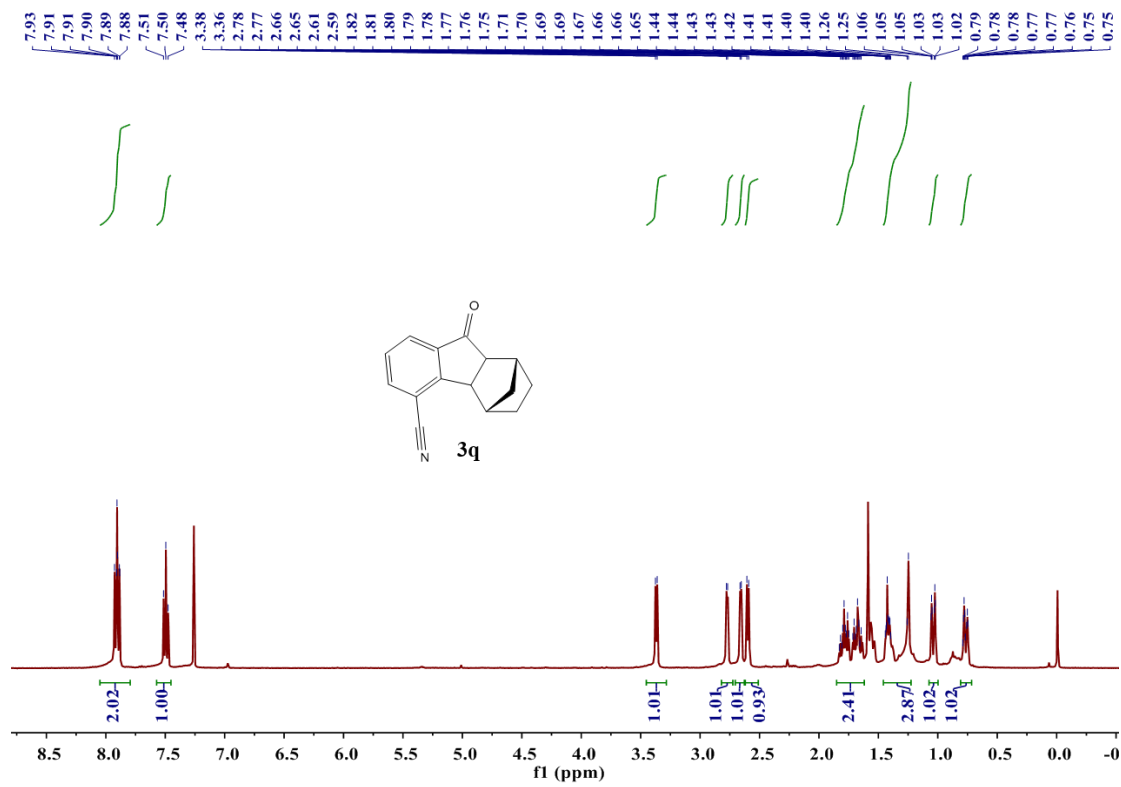
The HMQC spectrum of the compound **30'** in  $\text{CDCl}_3$ .



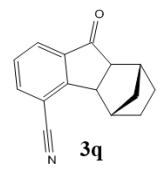
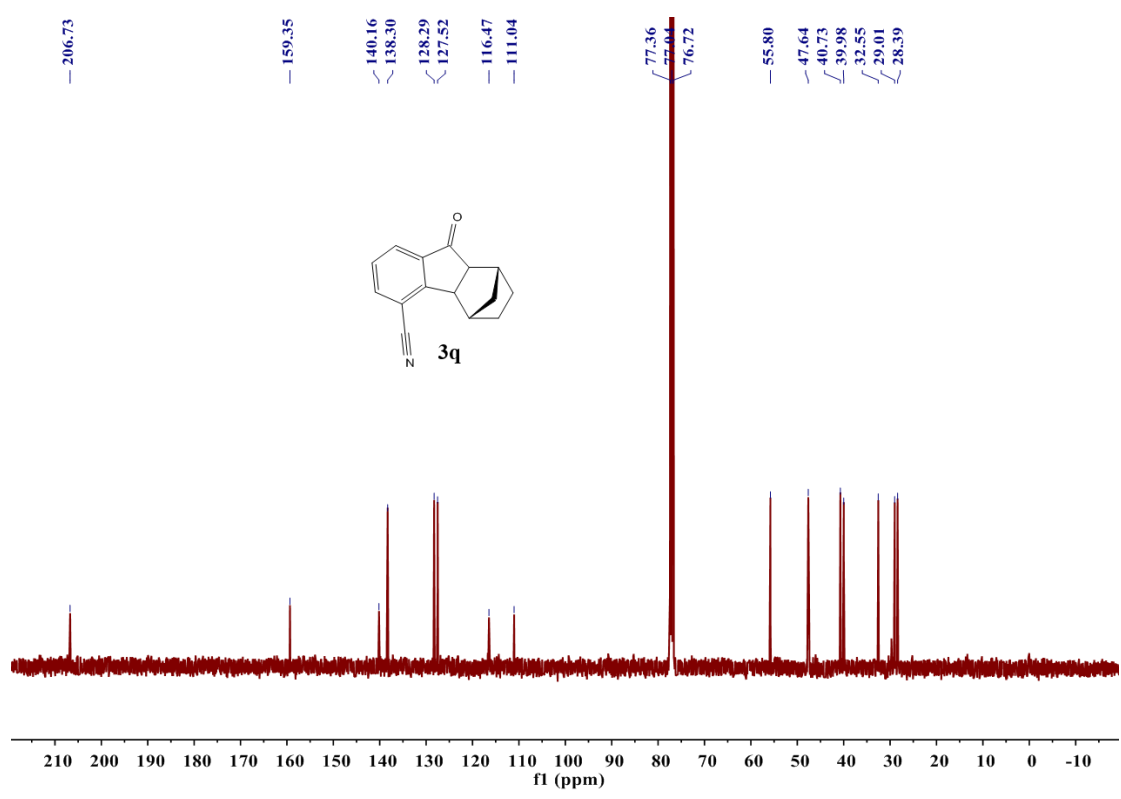
<sup>1</sup>H NMR for compound **3p**



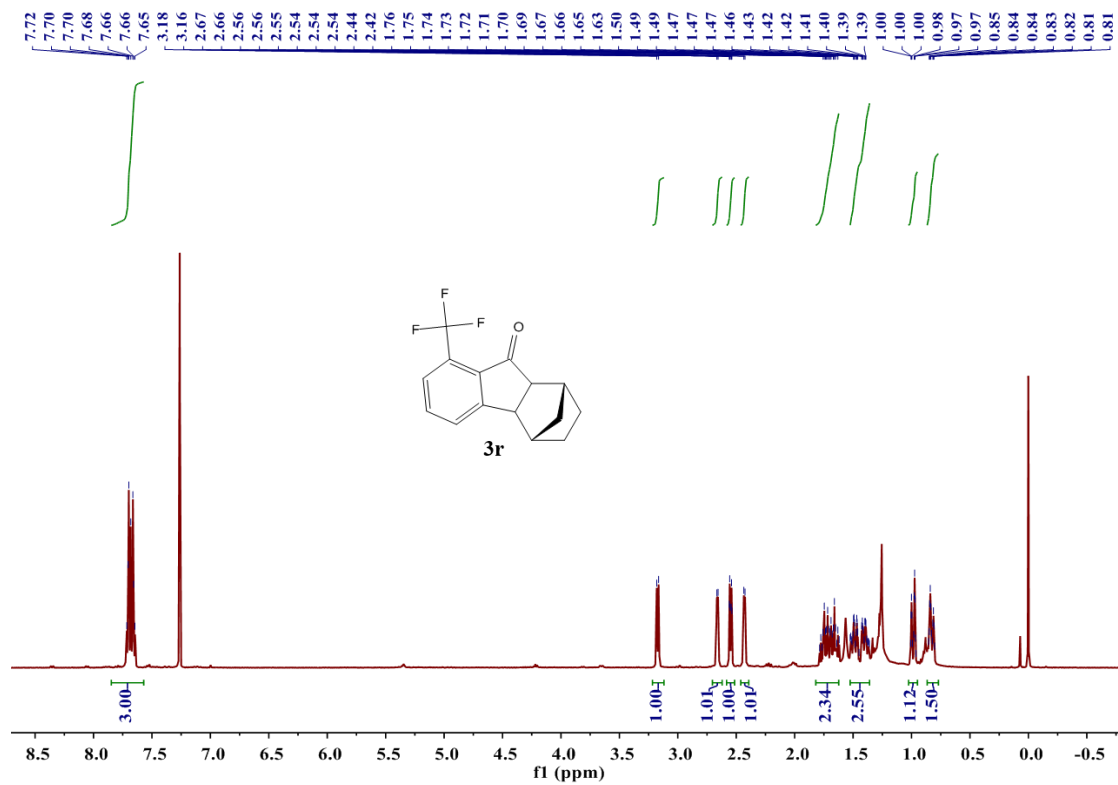
<sup>13</sup>C NMR for compound **3p**



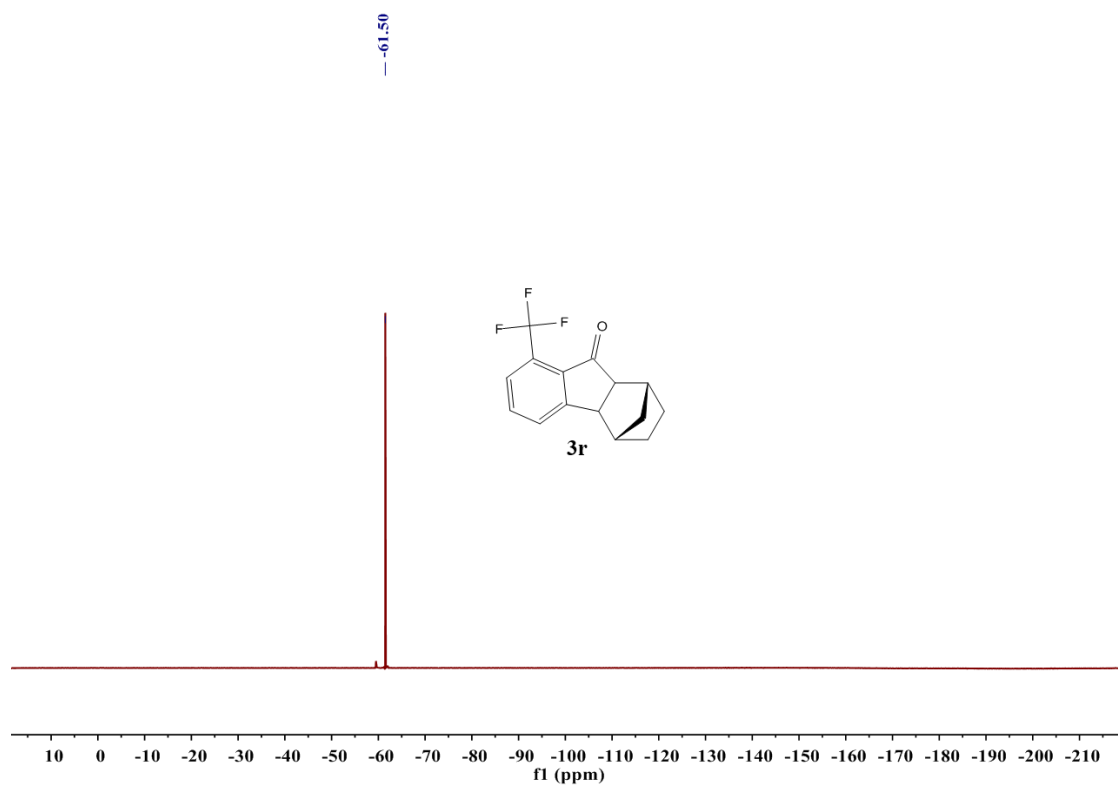
<sup>1</sup>H NMR for compound **3q**



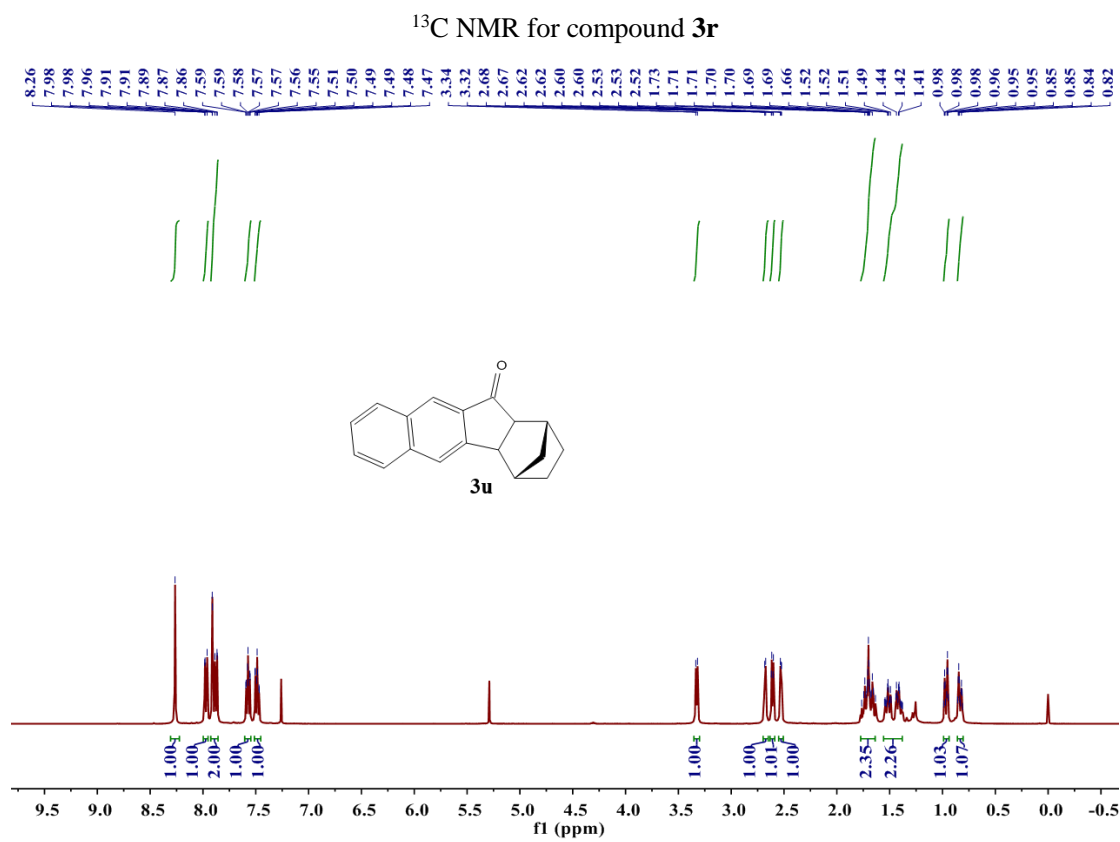
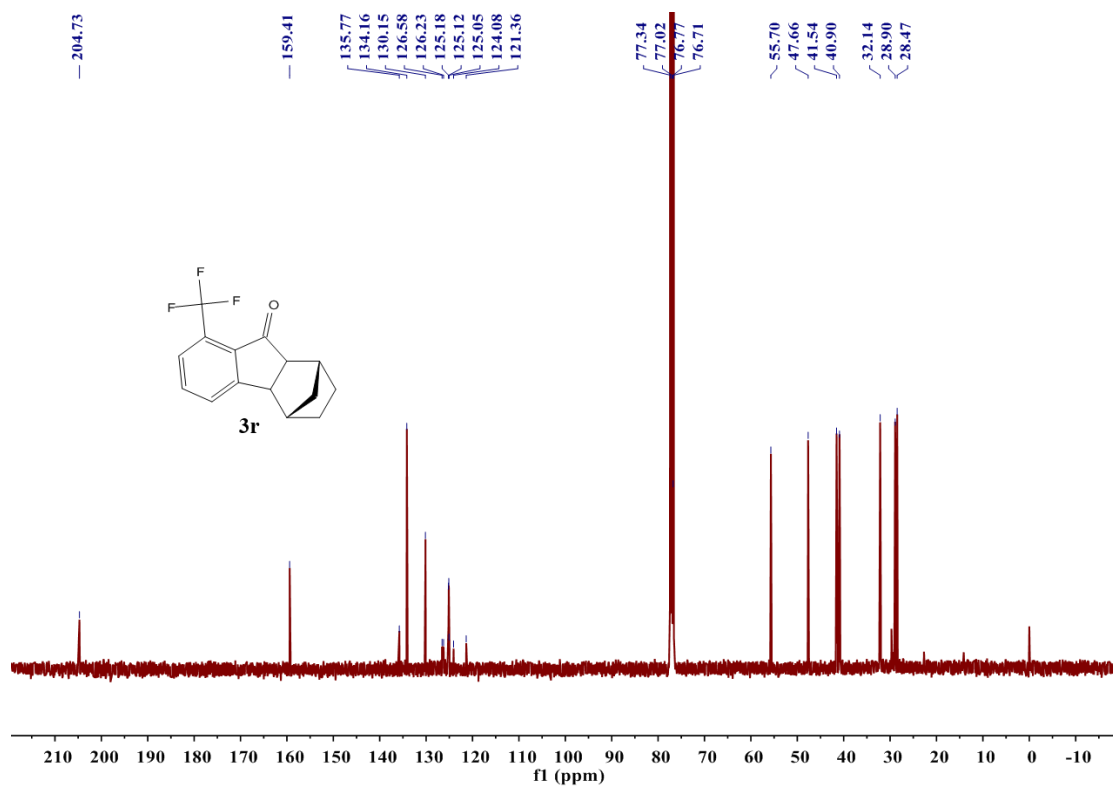
<sup>13</sup>C NMR for compound **3q**



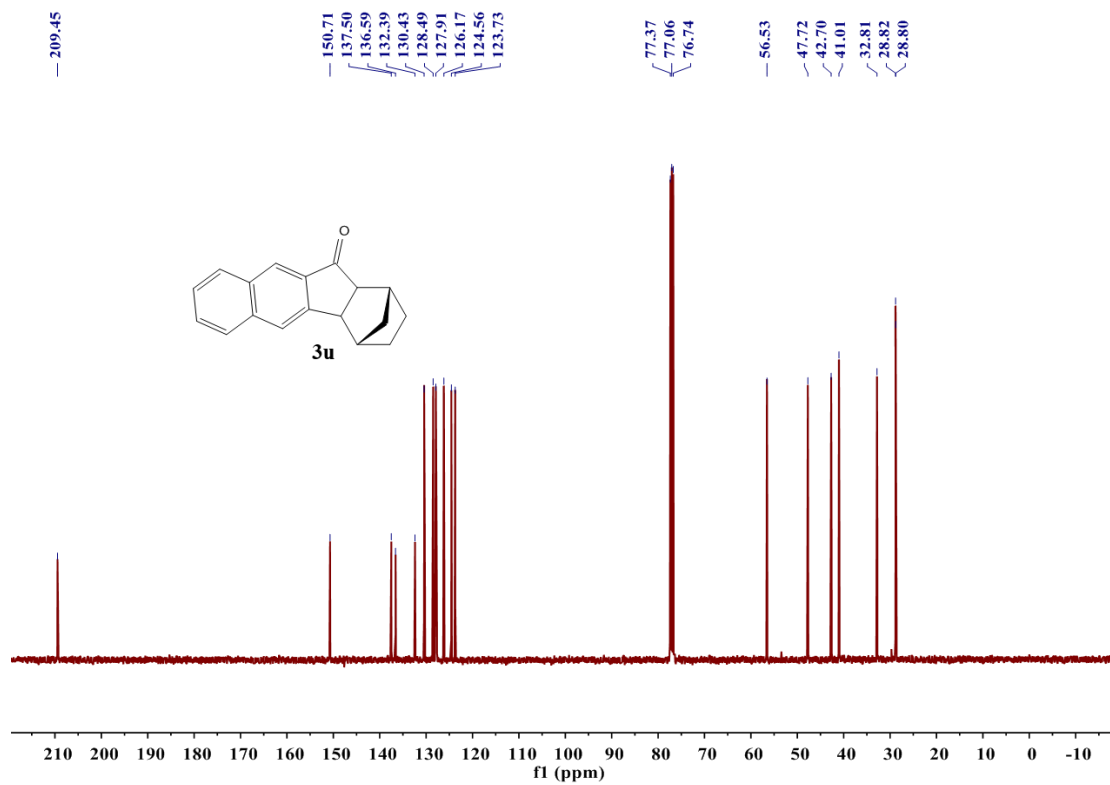
<sup>1</sup>H NMR for compound **3r**



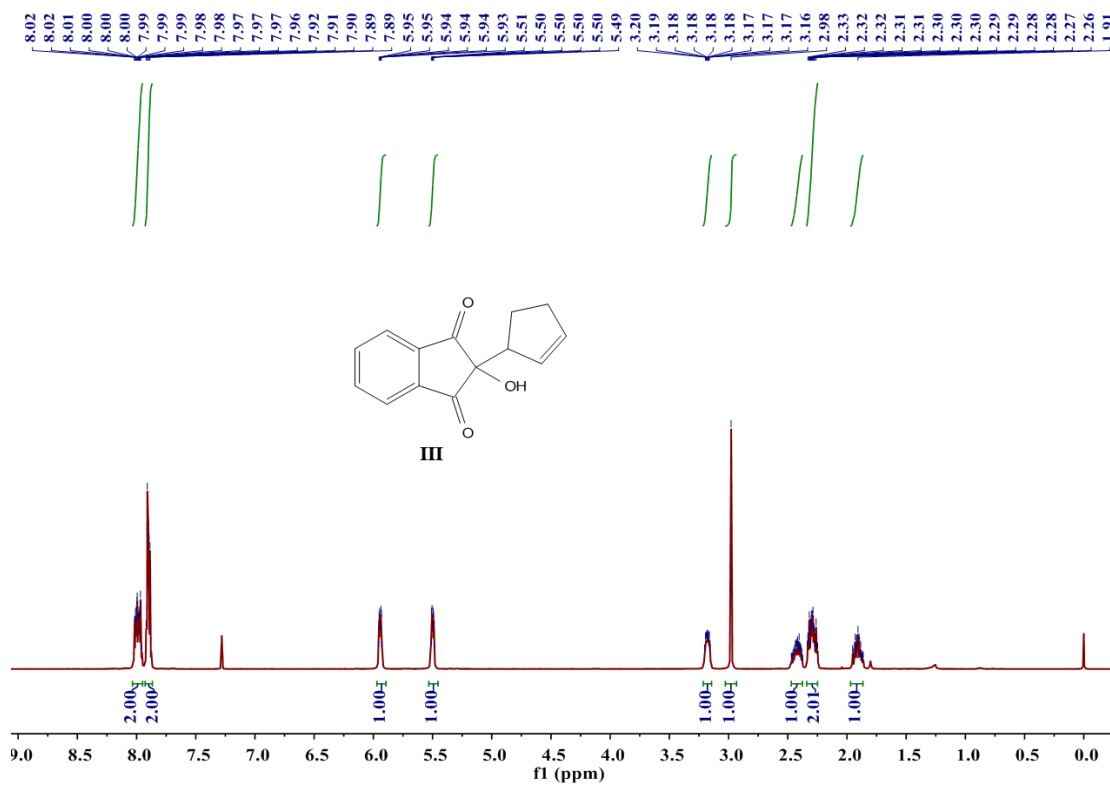
<sup>19</sup>F NMR for compound **3r**



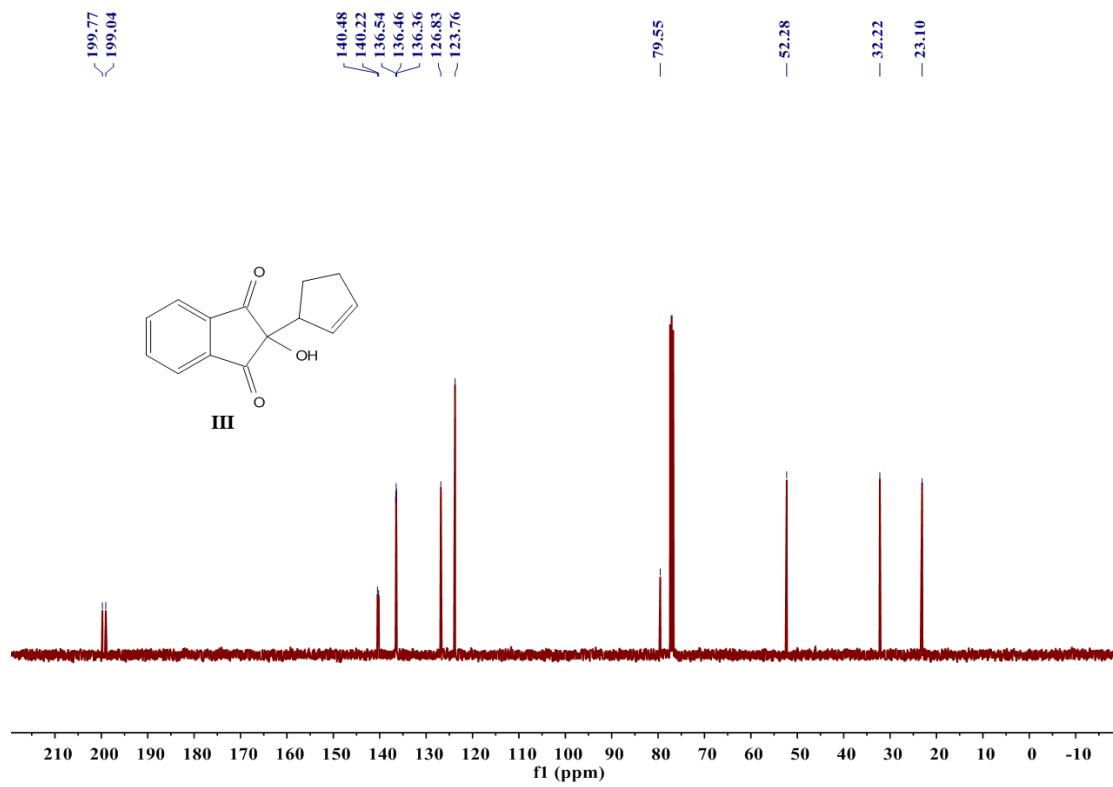




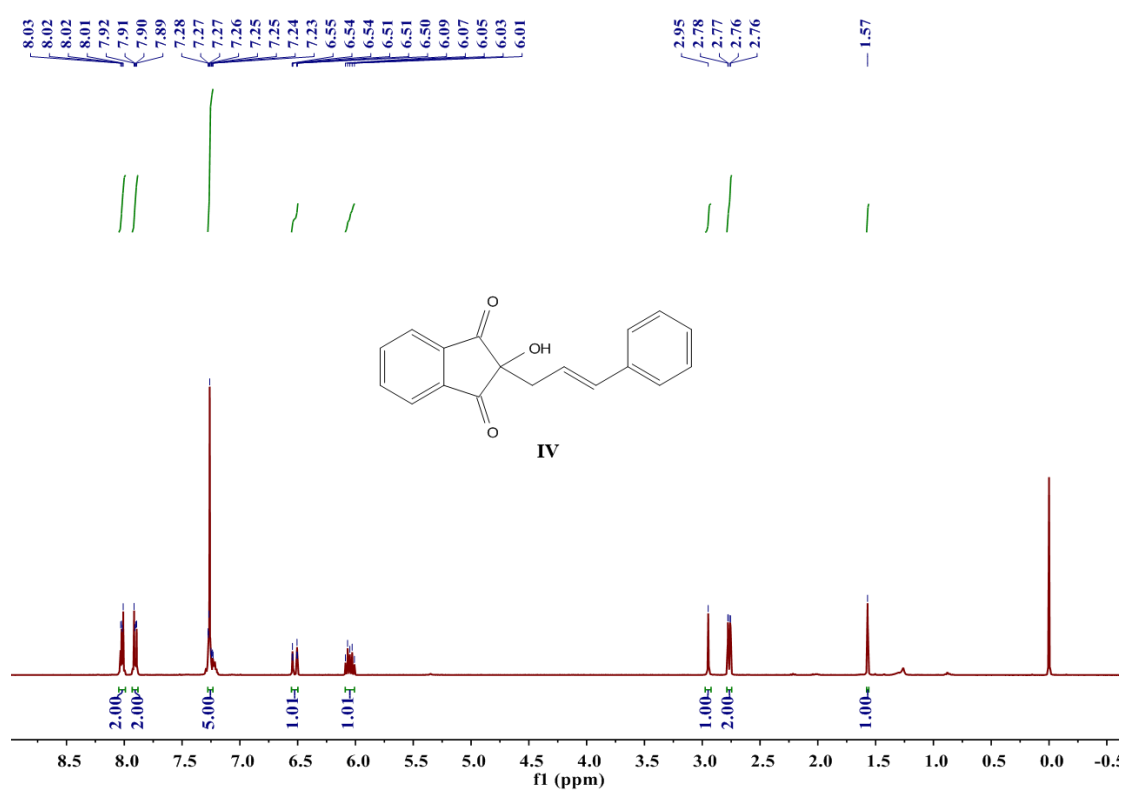
$^{13}\text{C}$  NMR for compound **3u**



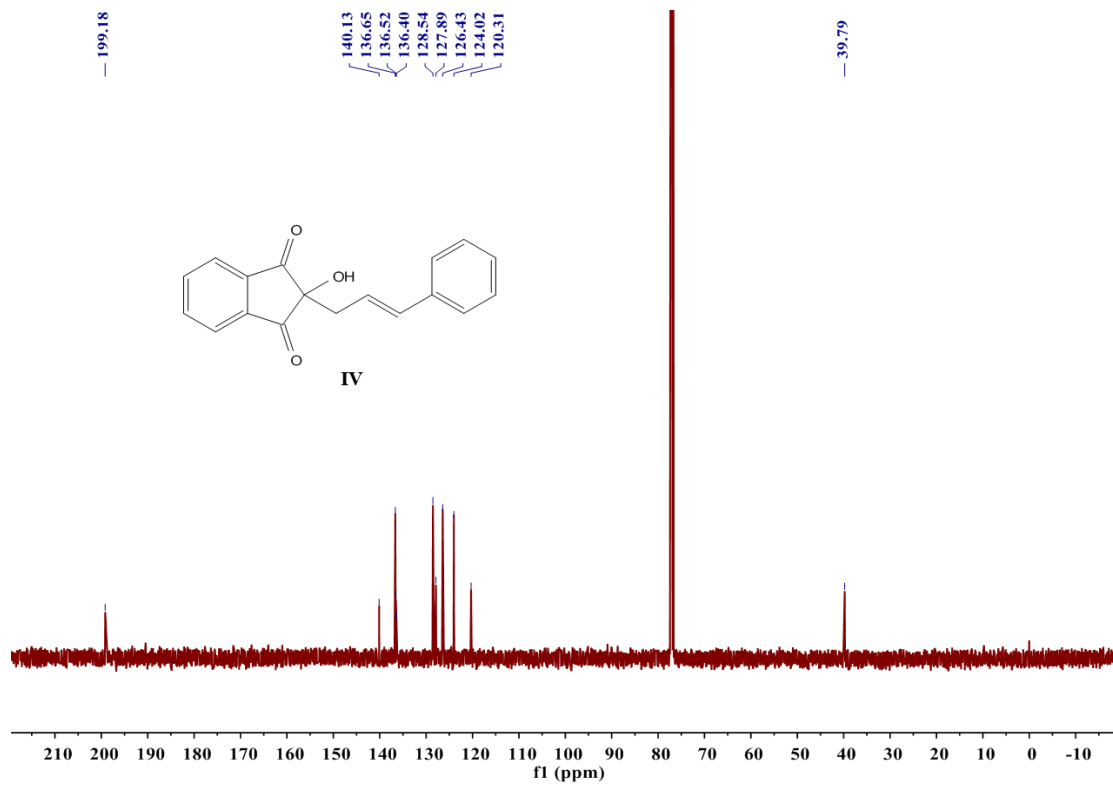
$^1\text{H}$  NMR for compound **III**



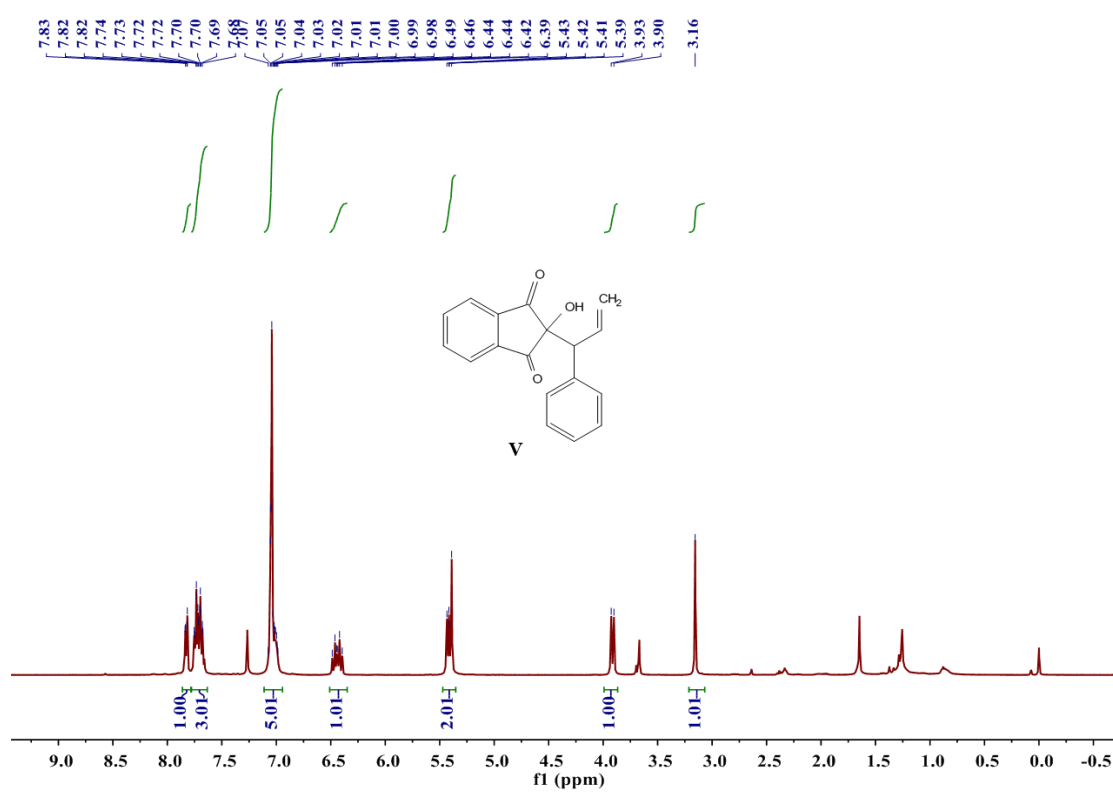
$^{13}\text{C}$  NMR for compound III



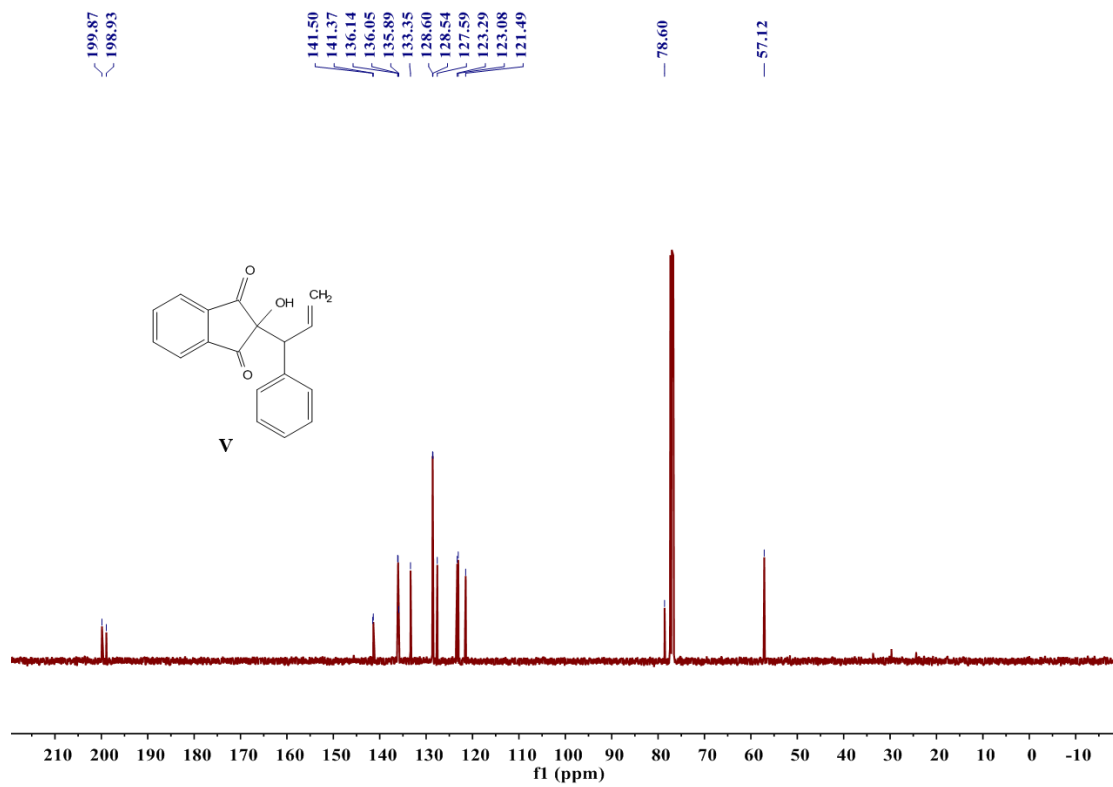
$^1\text{H}$  NMR for compound IV



$^{13}\text{C}$  NMR for compound IV



$^1\text{H}$  NMR for compound V



<sup>13</sup>C NMR for compound V