

Supporting Information for

Copper-Catalyzed Oxidative Cyclization of 1,5-Enynes with Concomitant C-C Bond Cleavage: An Unexpected Access to 3-Formyl-1-indenone Derivatives

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State Key Laboratory Breeding Base of Green Chemistry-Synthesis Technology,

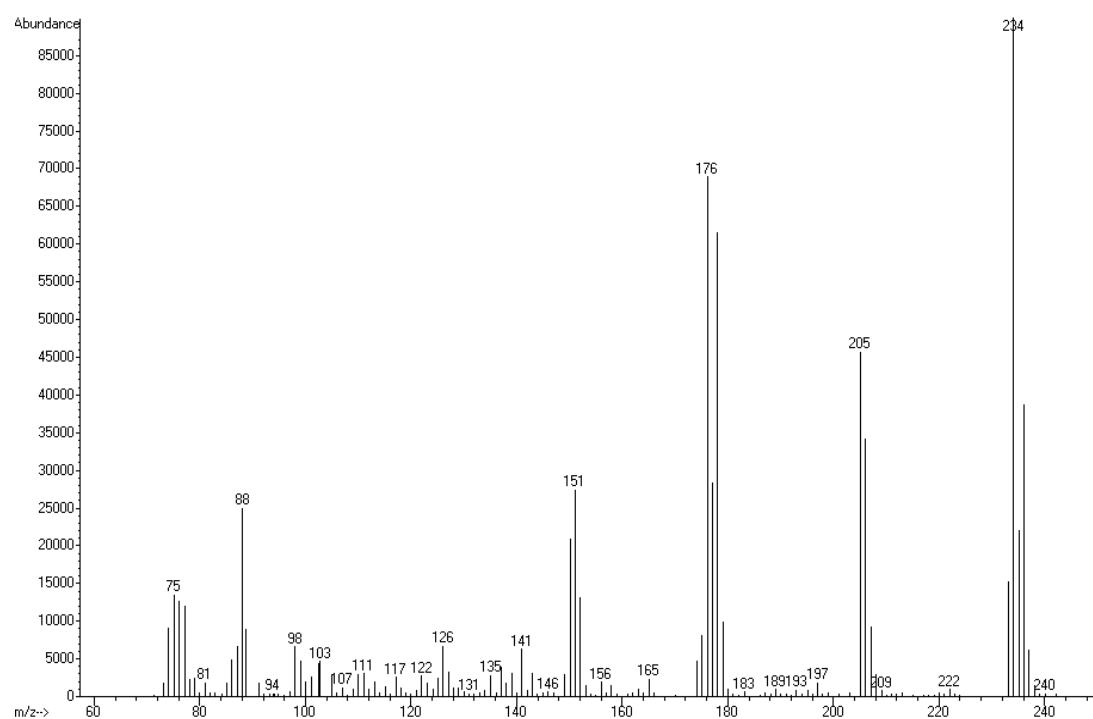
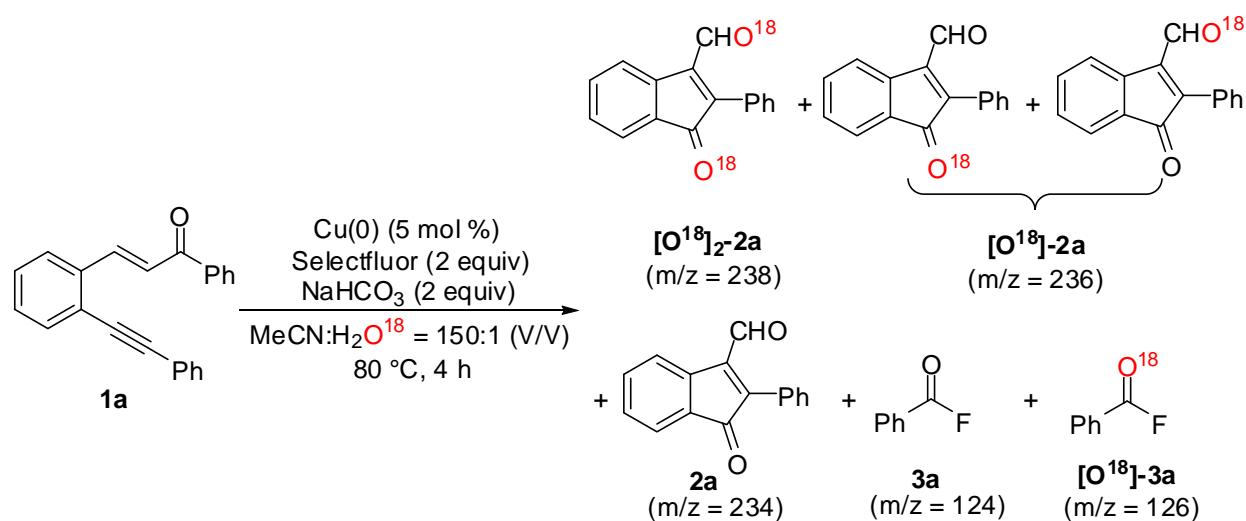
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1. Charts for Mechanism Studies

1.1. Reaction of **1a** in $\text{CH}_3\text{CN}-\text{H}_2\text{O}^{18}$ (150:1, V/V) versus in $\text{CH}_3\text{CN}-\text{H}_2\text{O}$ (150:1, V/V)



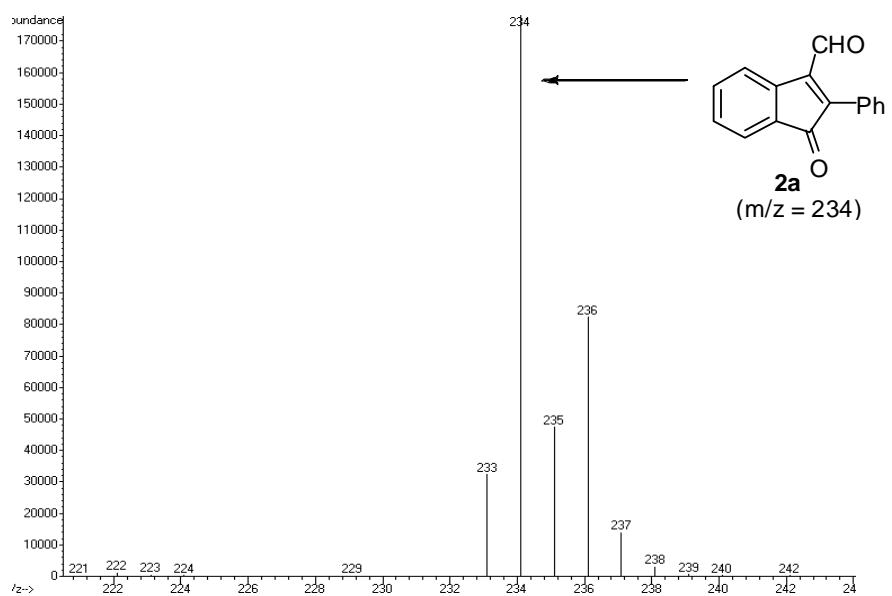


Figure S1. GC-MS Spectra of **2a** resulting from reaction of **1a** in CH₃CN-H₂O (150:1, V/V)

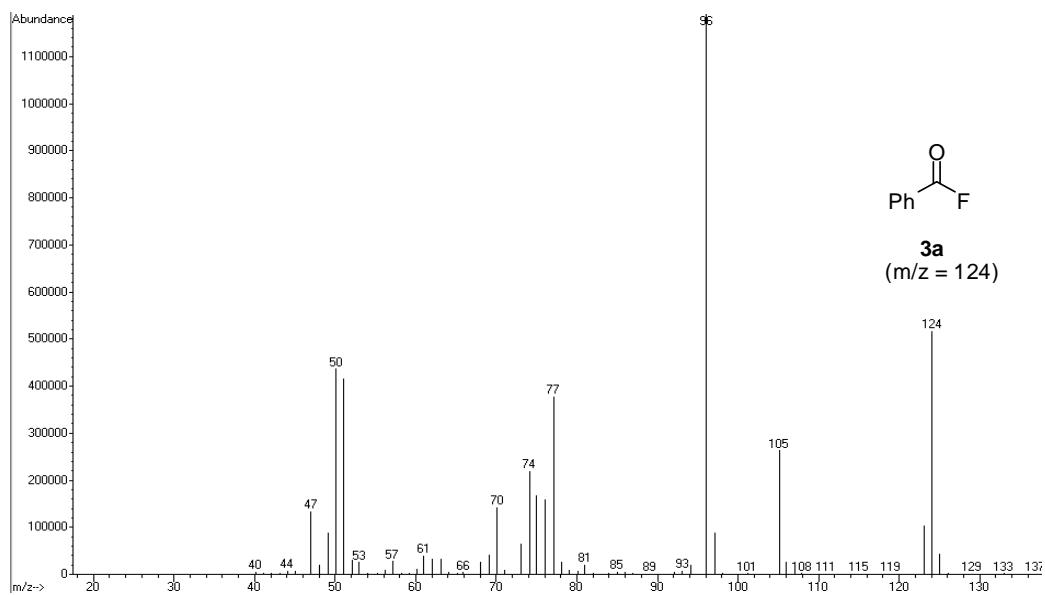


Figure S2. GC-MS Spectra of **3a** resulting from reaction of **1a** in CH₃CN-H₂O (150:1, V/V)

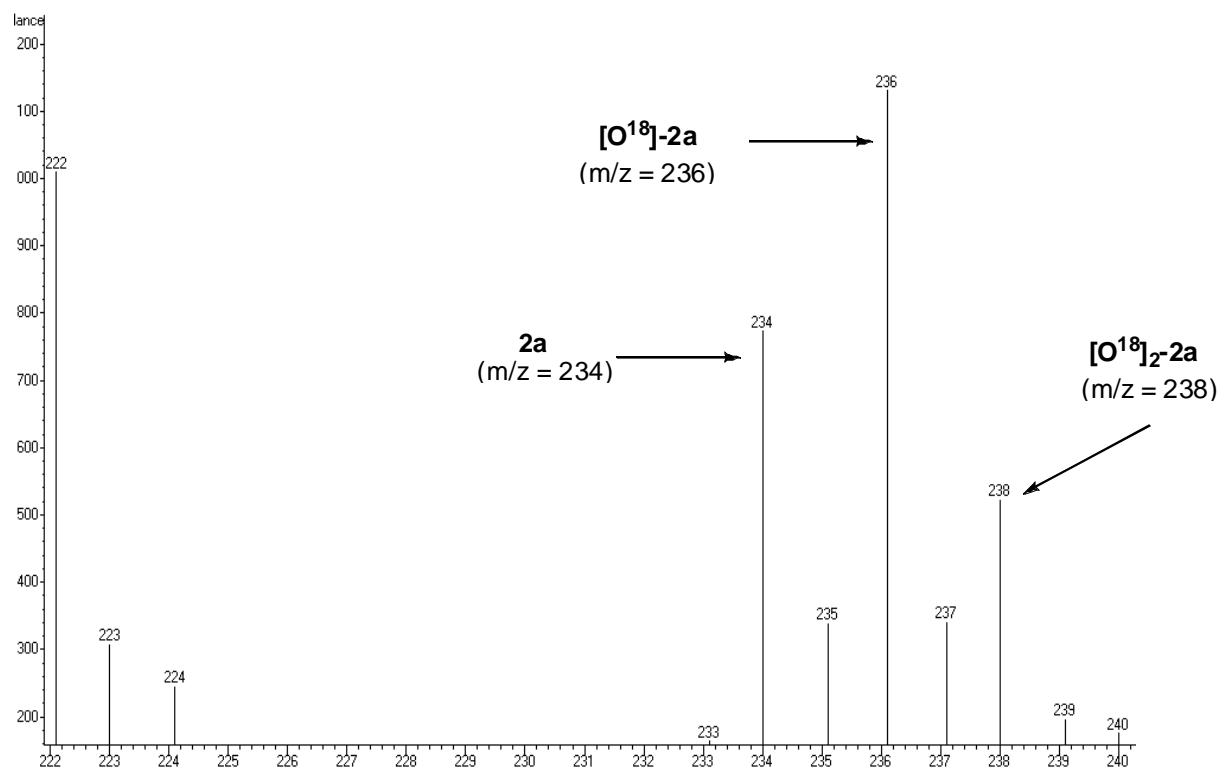
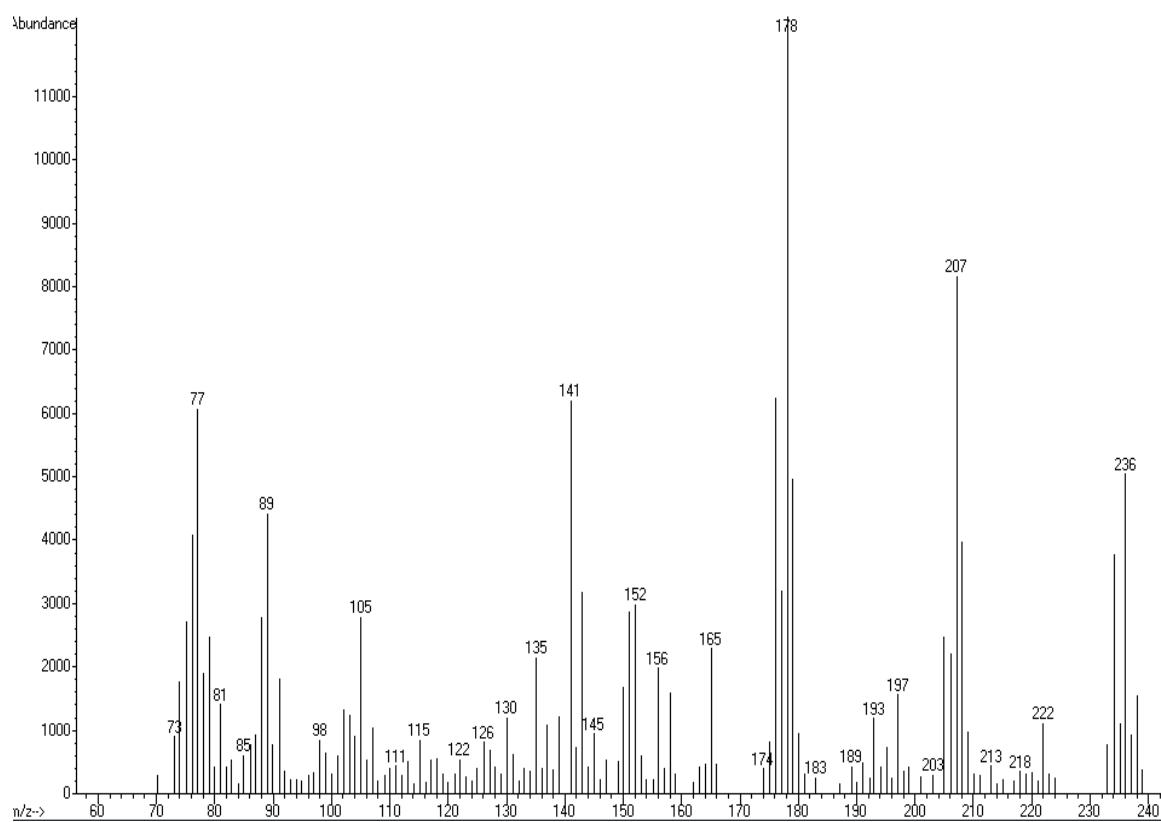


Figure S3. GC-MS Spectra of **2a** resulting from reaction of **1a** in $\text{CH}_3\text{CN}-\text{H}_2\text{O}^{18}$ (150:1, V/V)

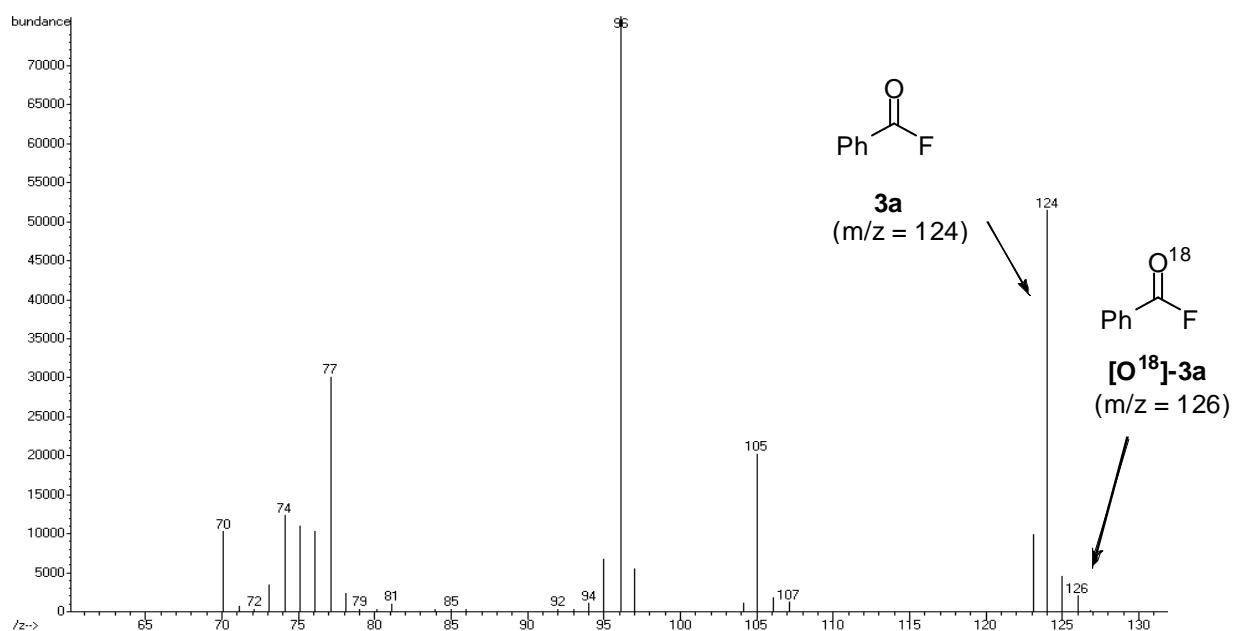


Figure S4. GC-MS Spectra of **3a** resulting from reaction of **1a** in CH₃CN-H₂O¹⁸ (150:1, V/V)

1.2. Reaction of **5** under the Standard Reaction Conditions and ¹⁸O-Labeling Experiment

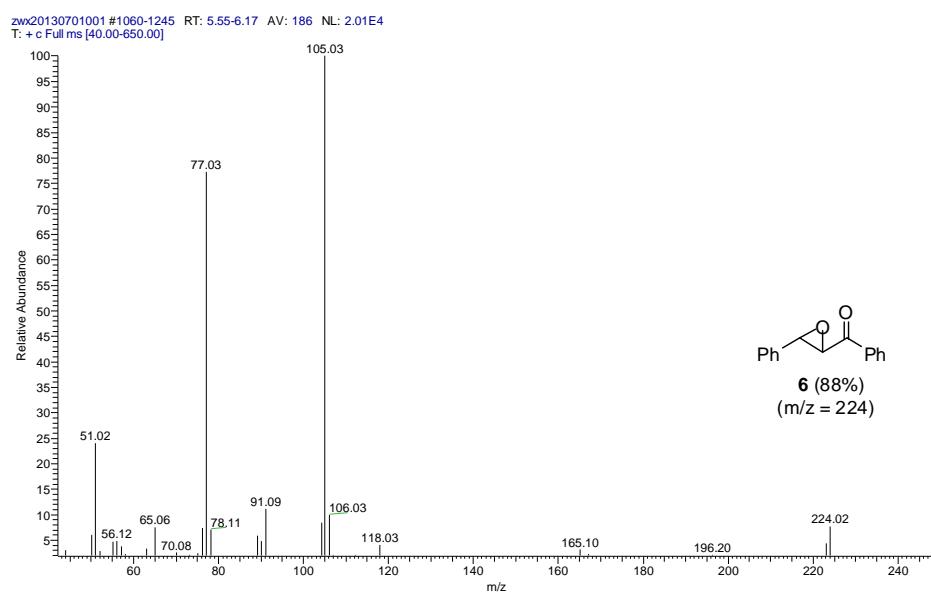
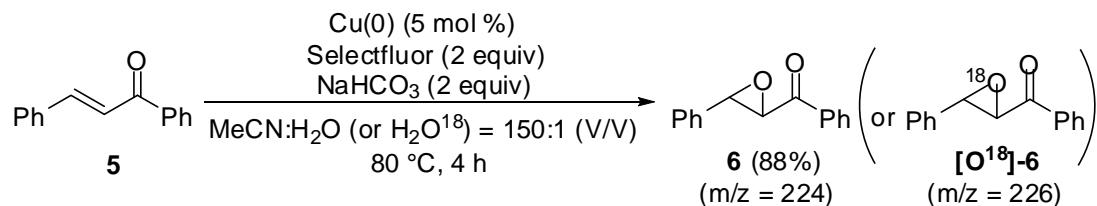


Figure S5 GC-MS Spectra of **6** resulting from reaction of **5** in CH₃CN-H₂O (150:1, V/V)

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T: + c Full ms [40.00-650.00]

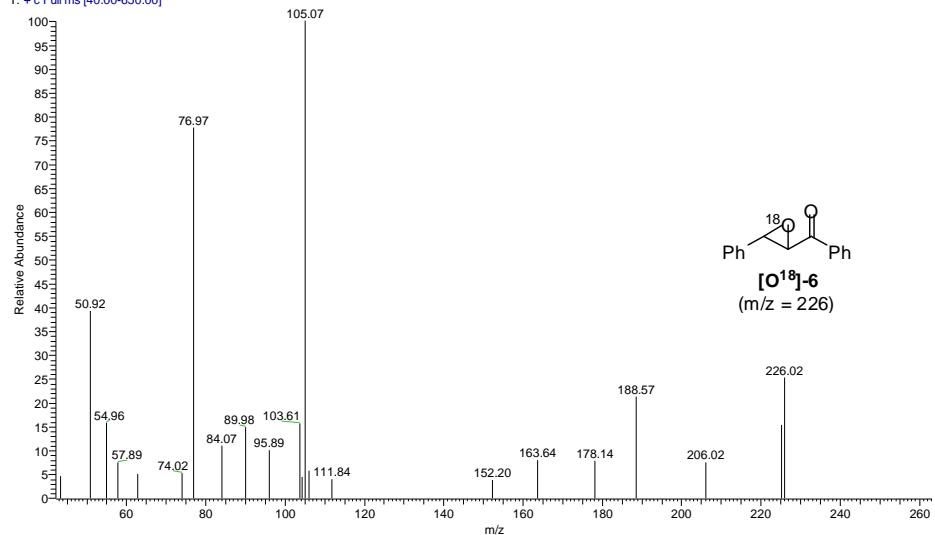
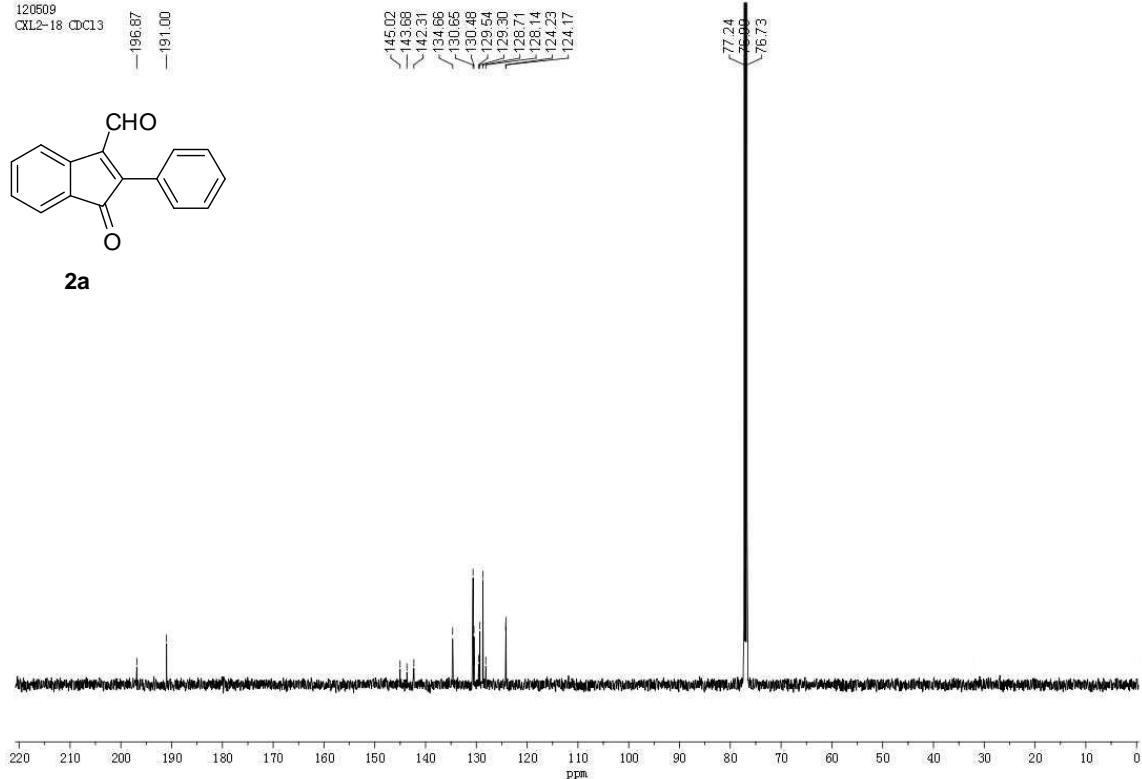
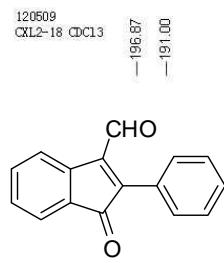
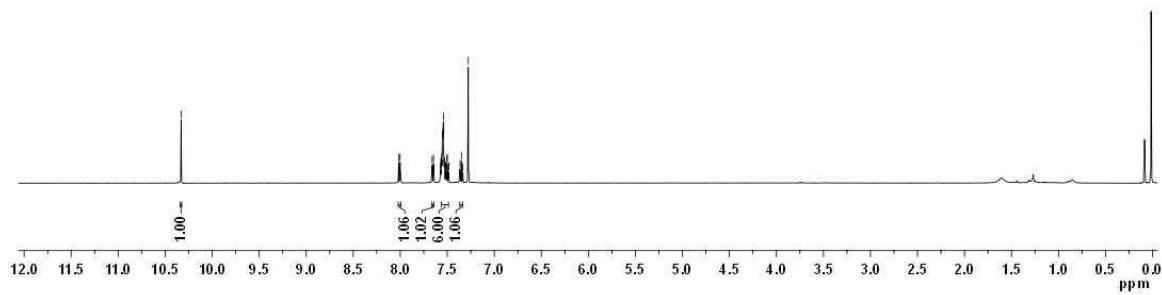
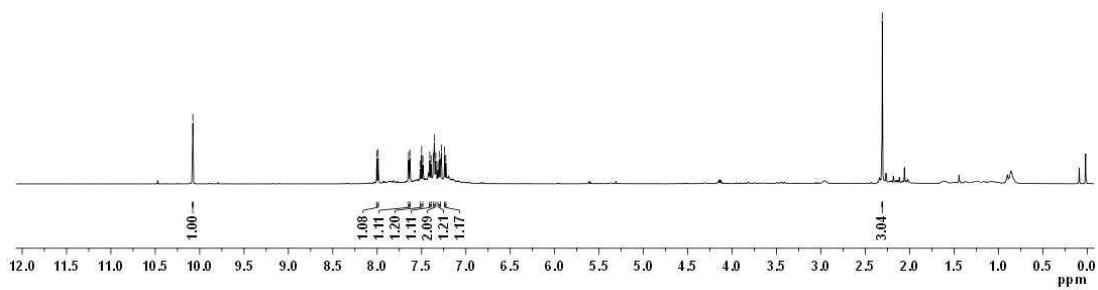
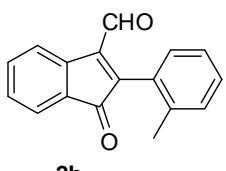


Figure S6 GC-MS Spectra of [O¹⁸]-6 resulting from reaction of **5** in CH₃CN-H₂O¹⁸ (150:1, V/V)

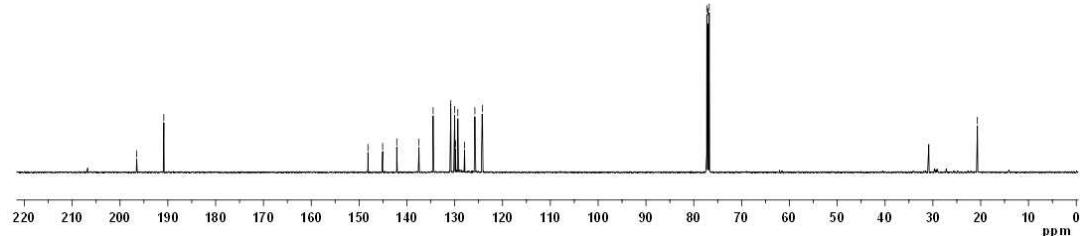
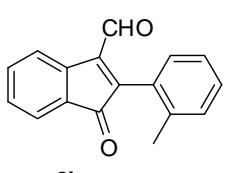
2. NMR Spectra of Products

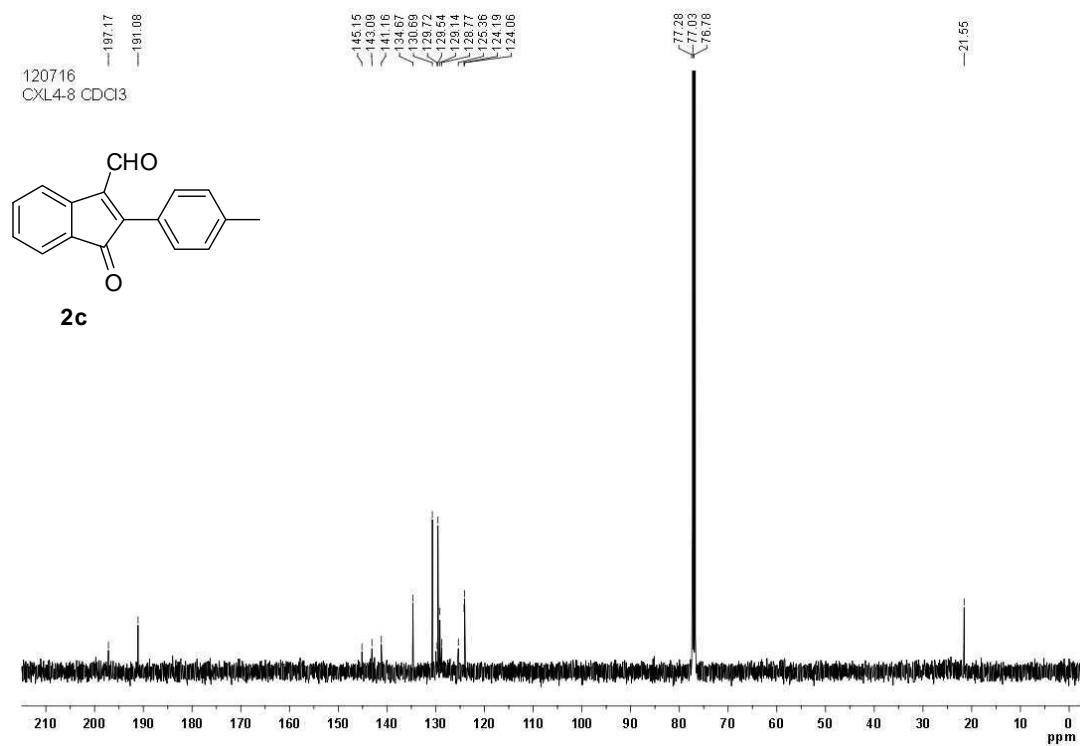
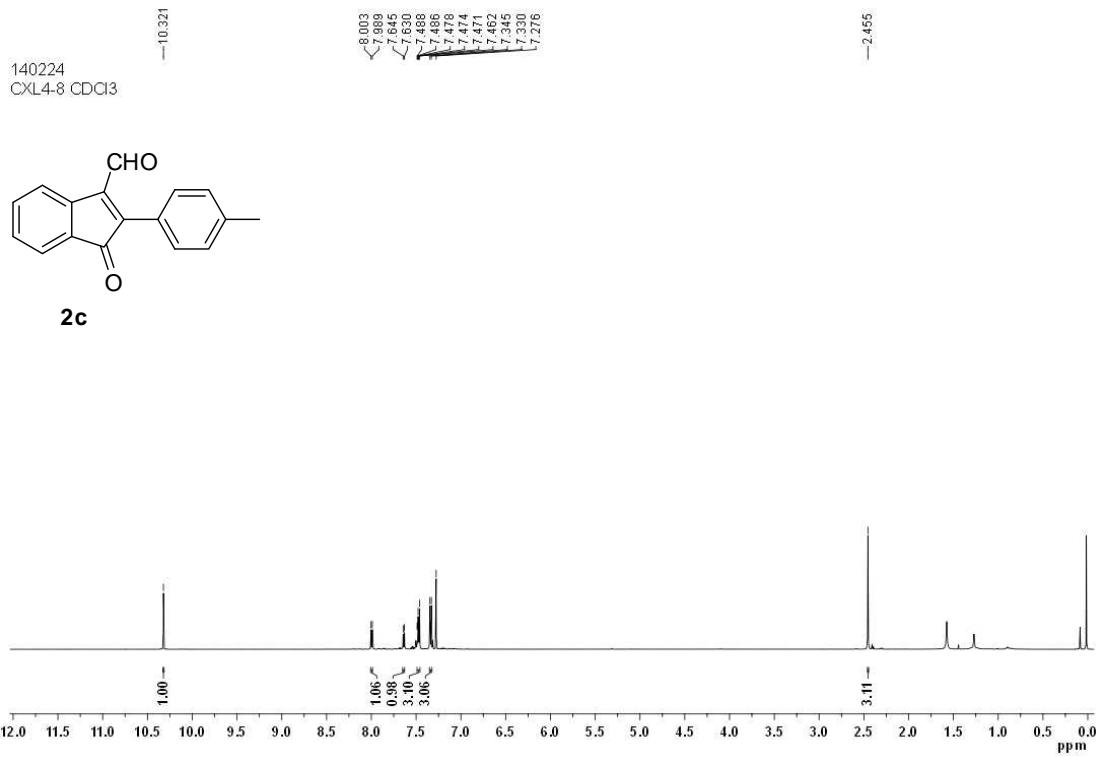


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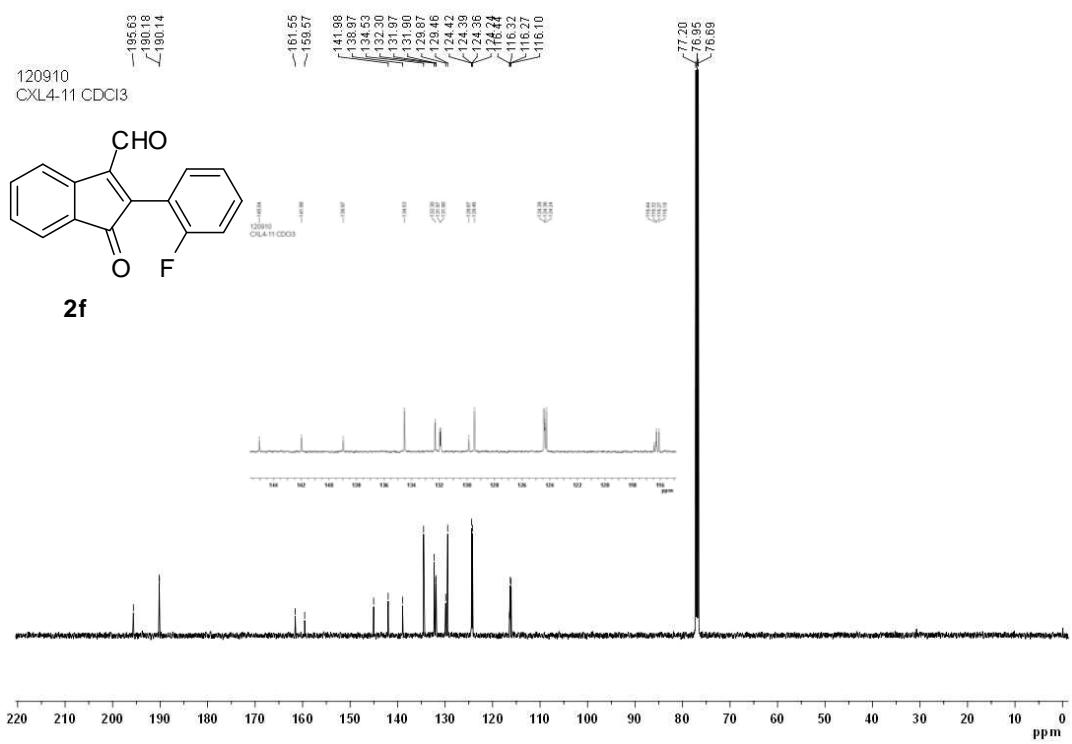
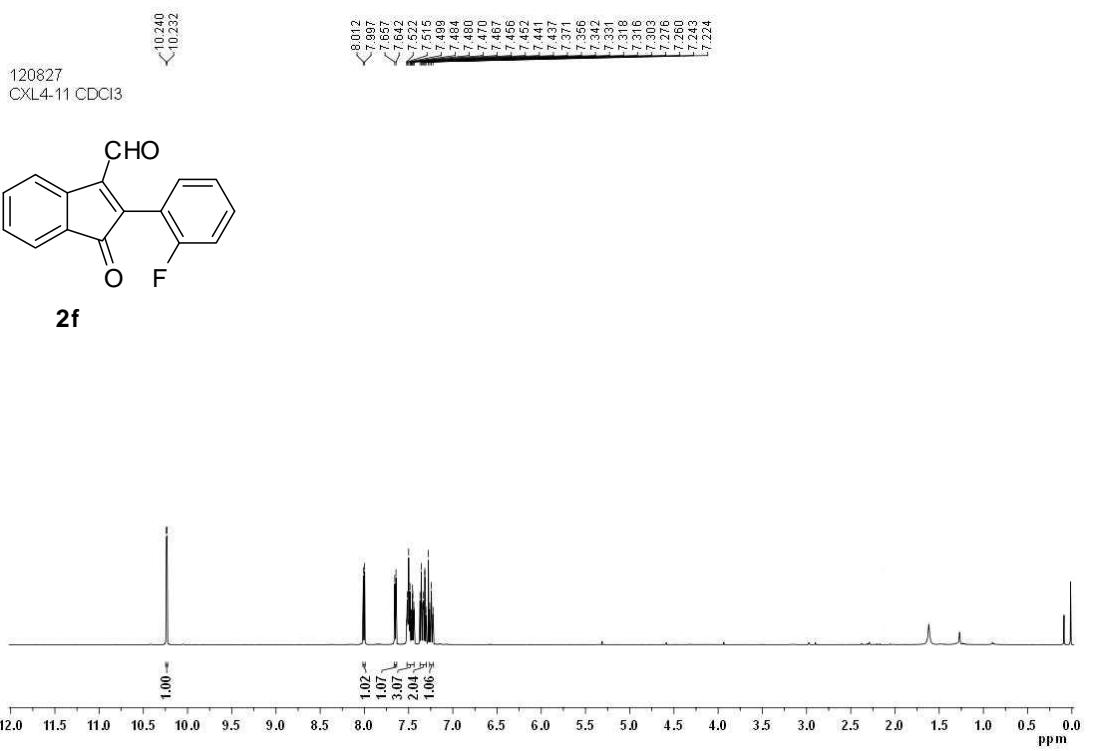


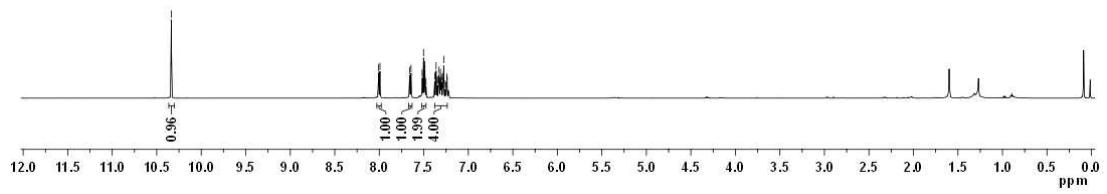
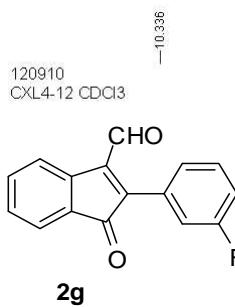
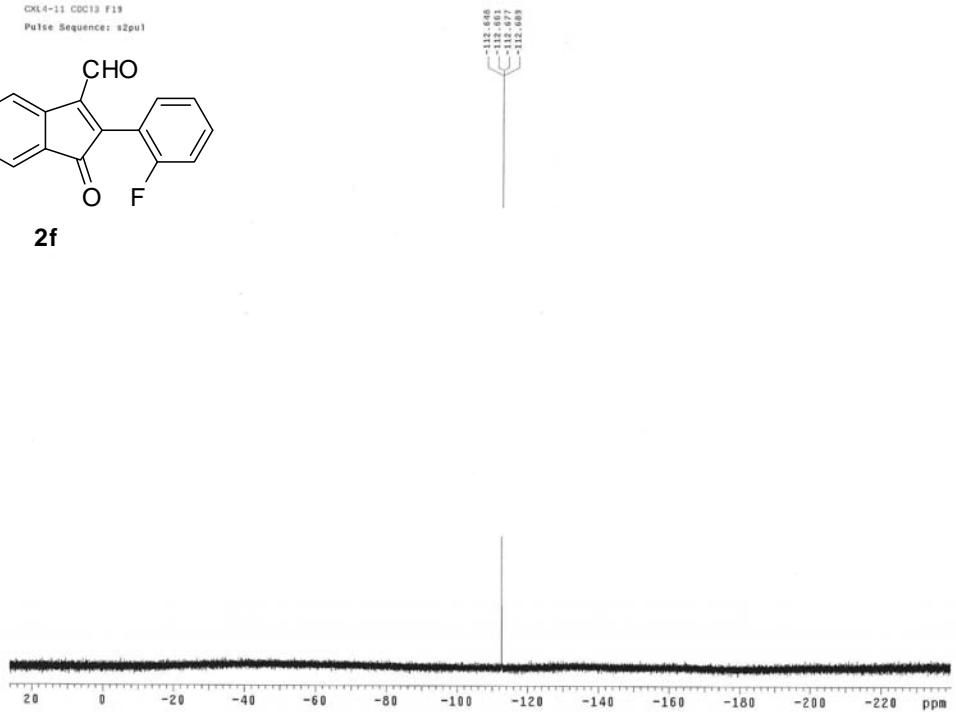
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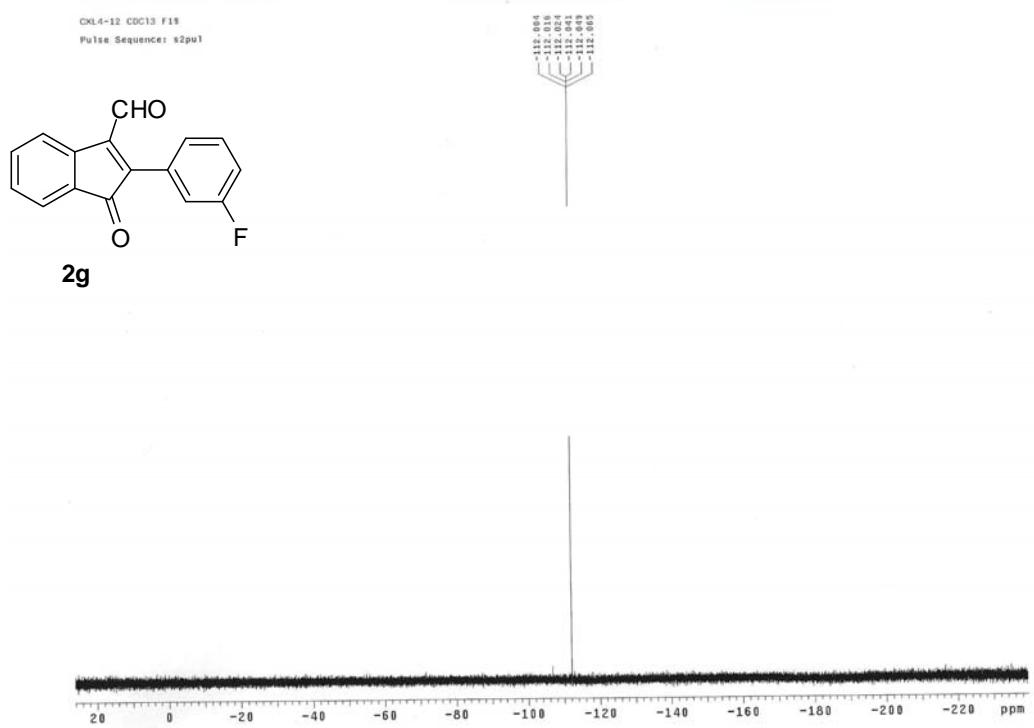
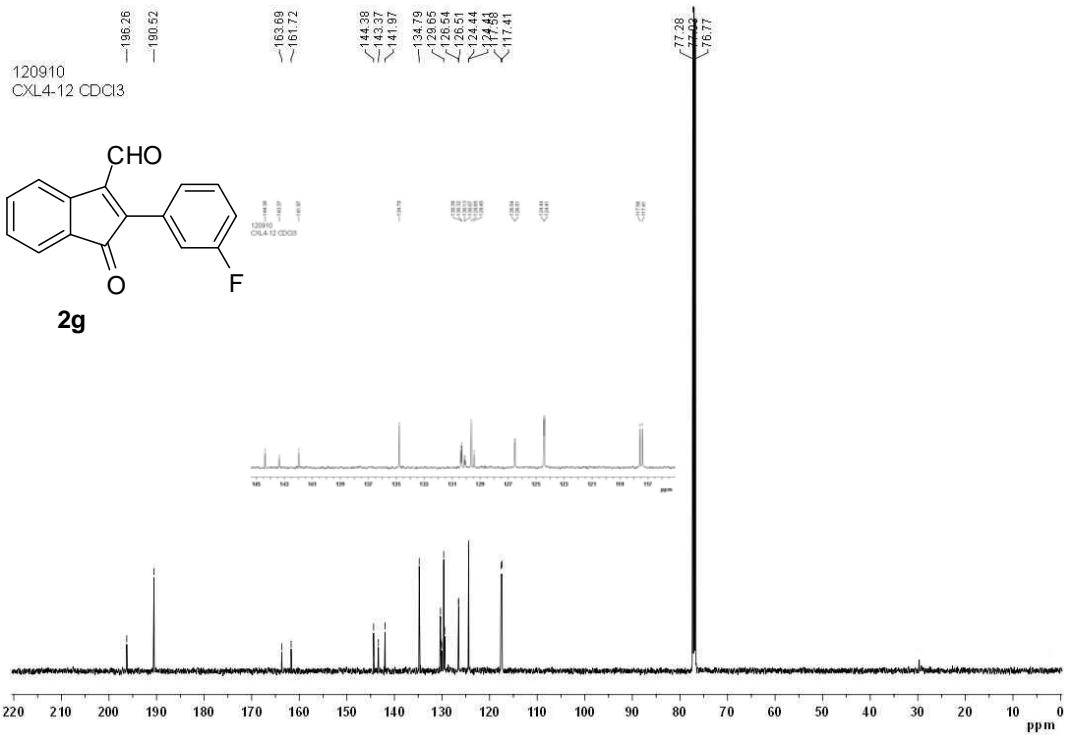


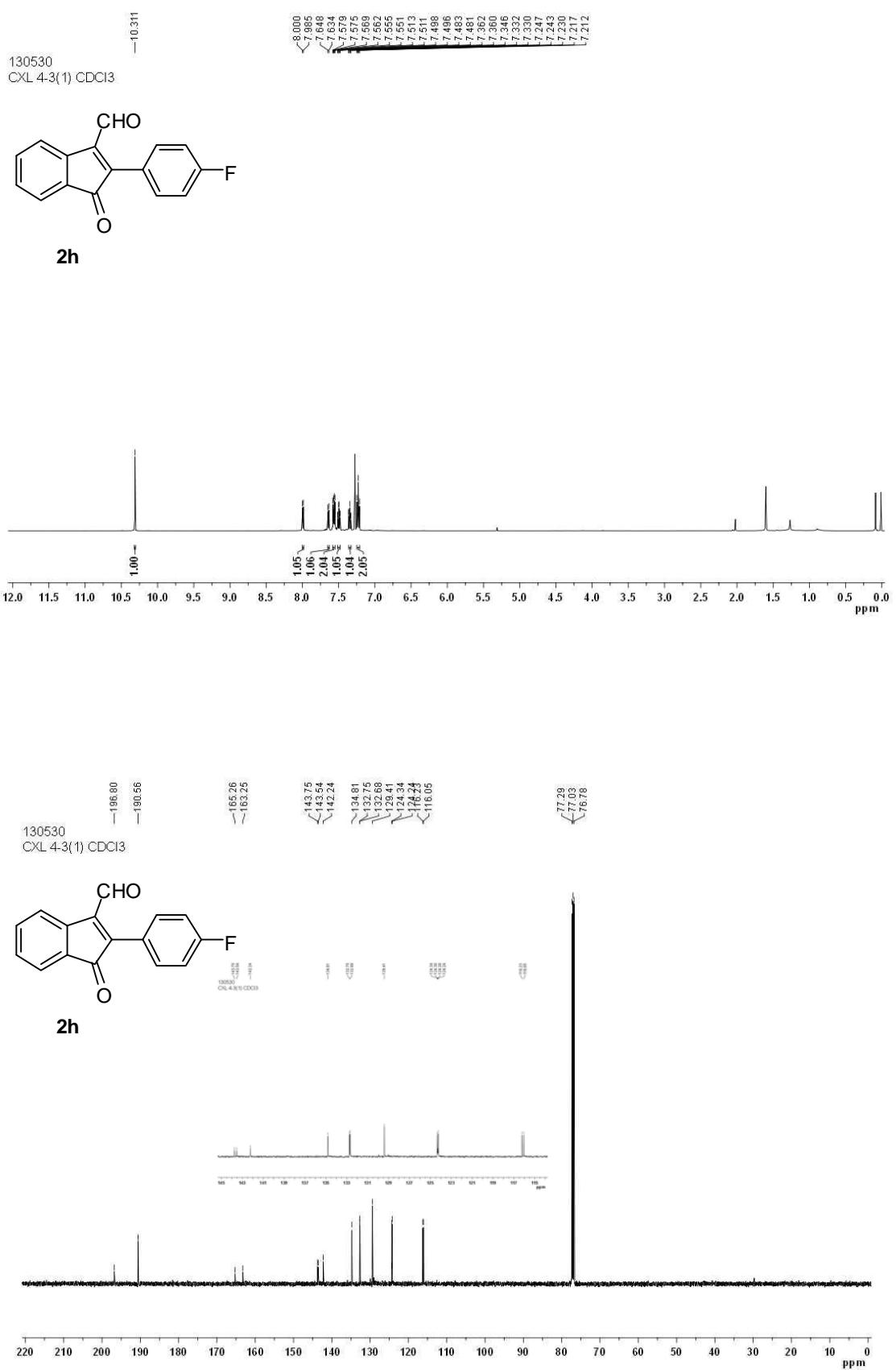


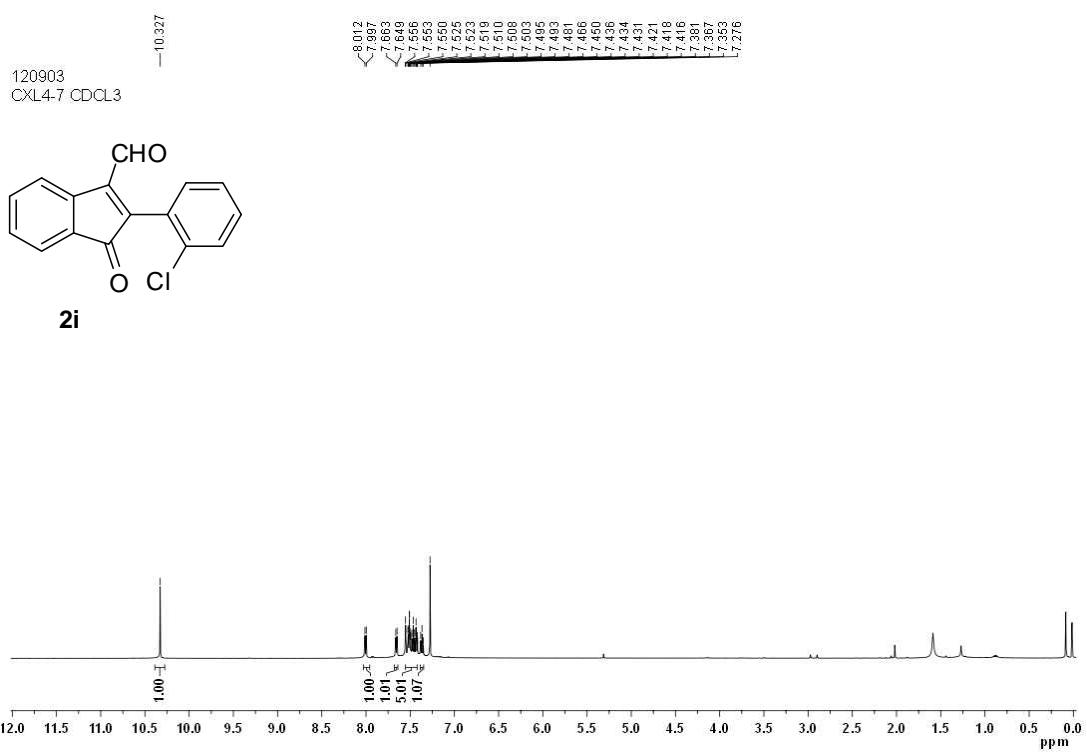
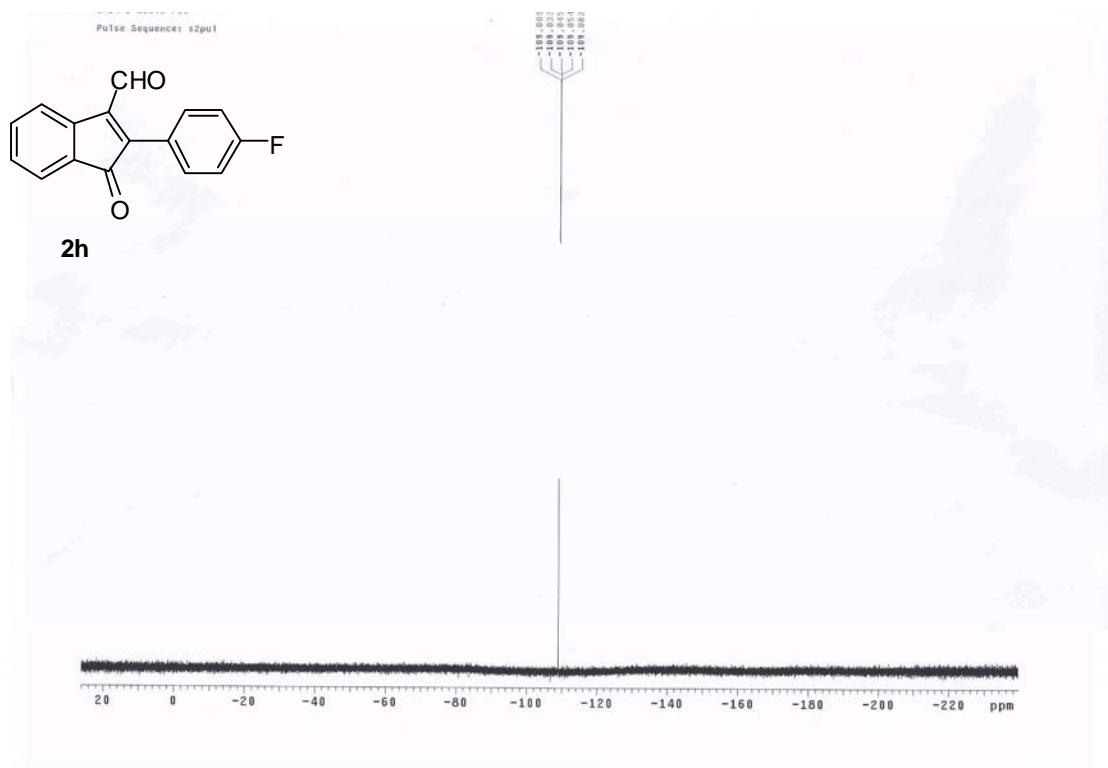


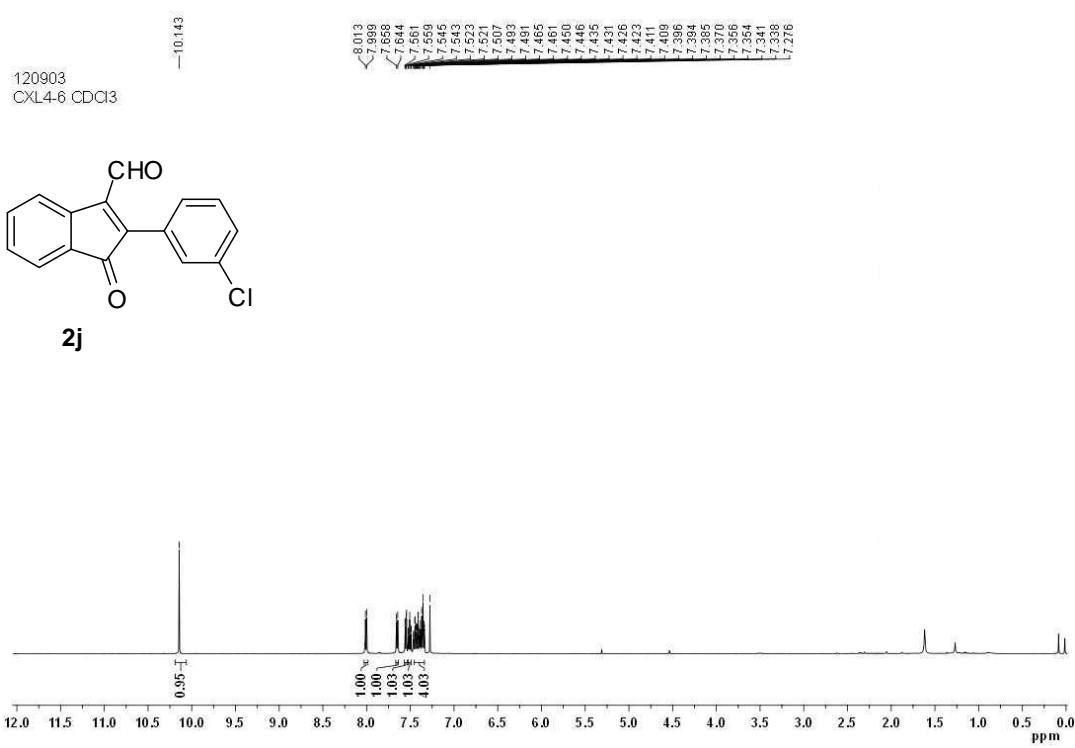
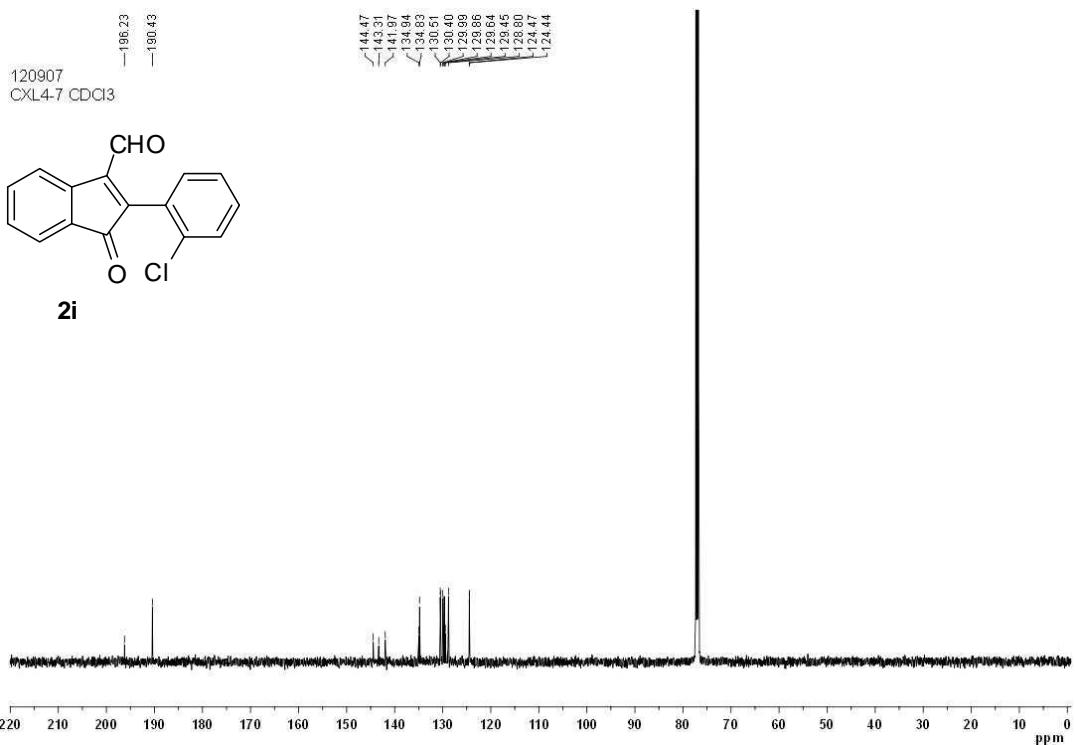


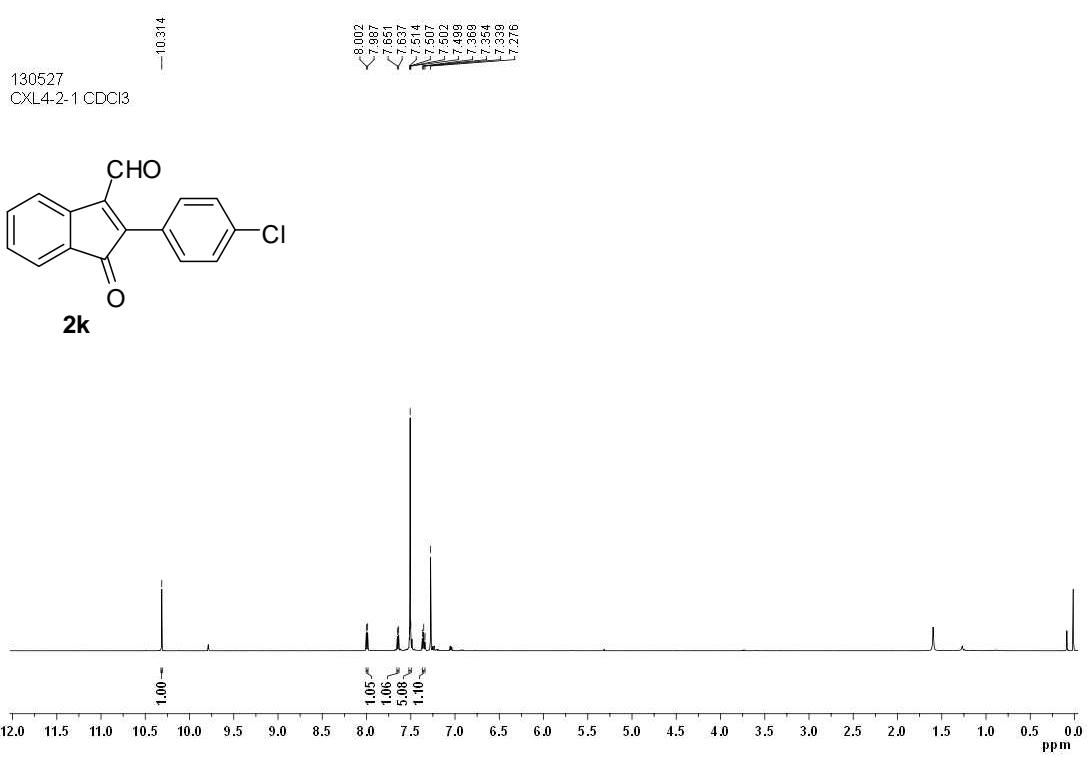
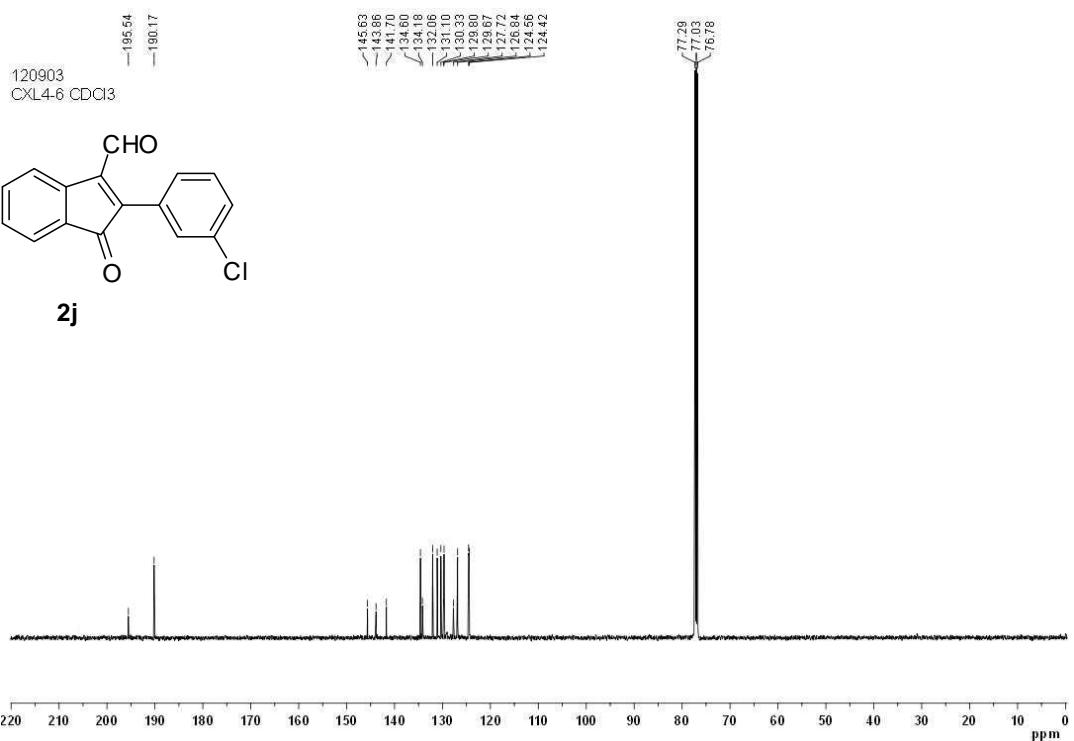


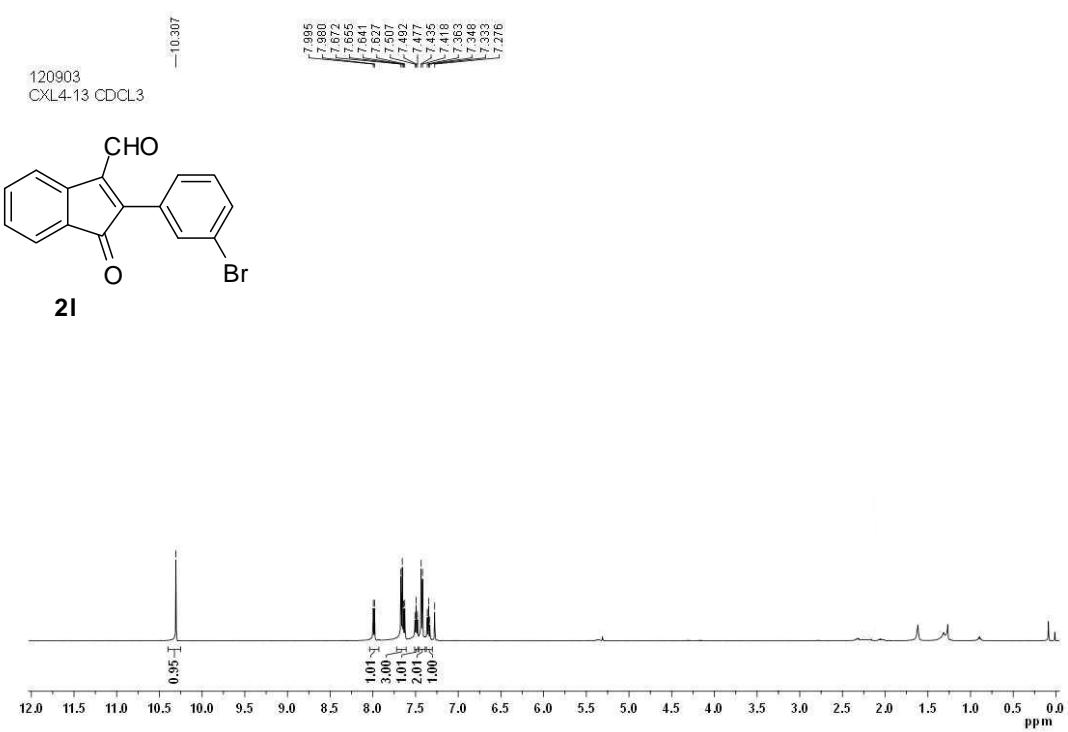
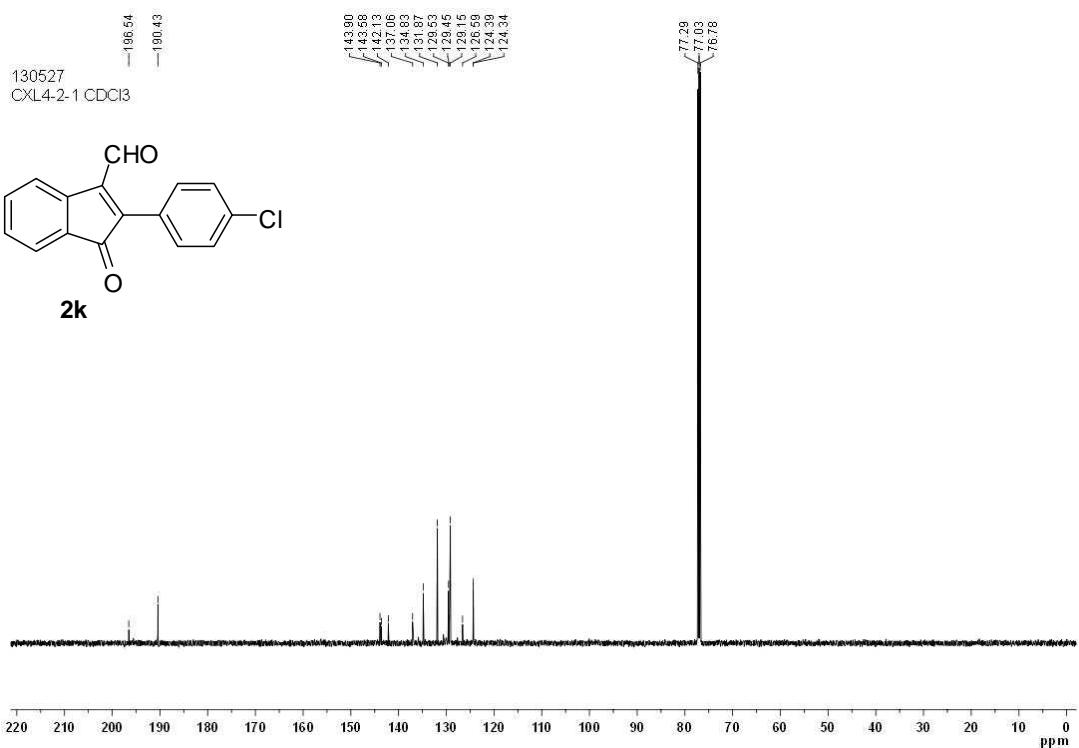


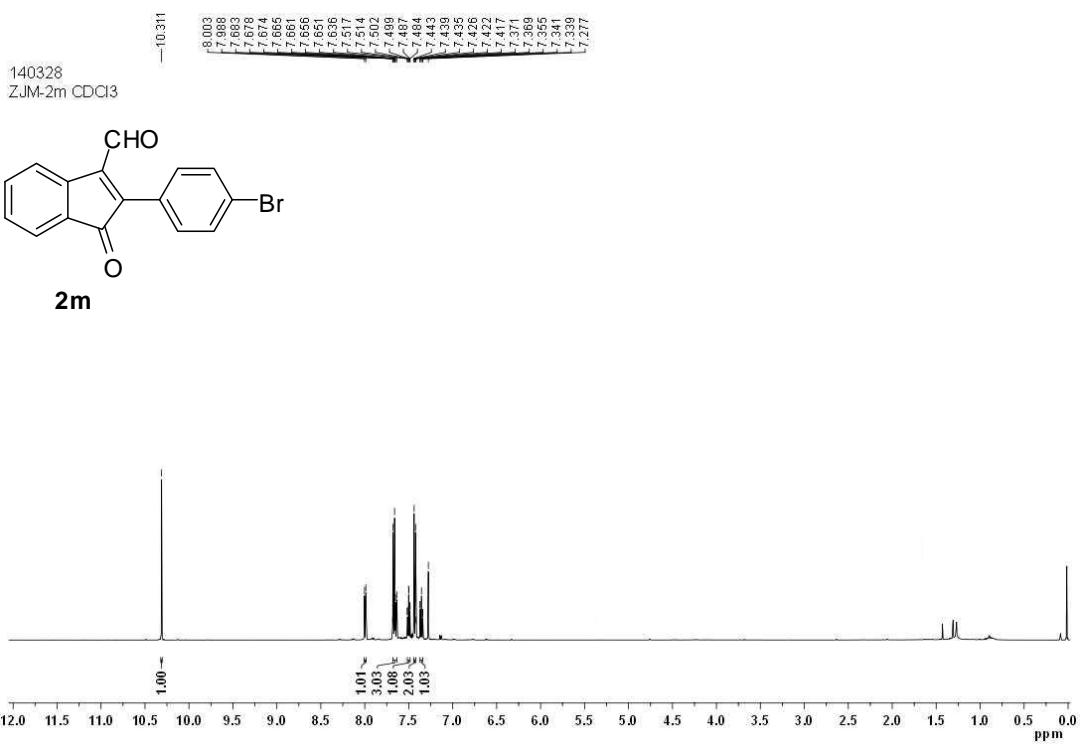
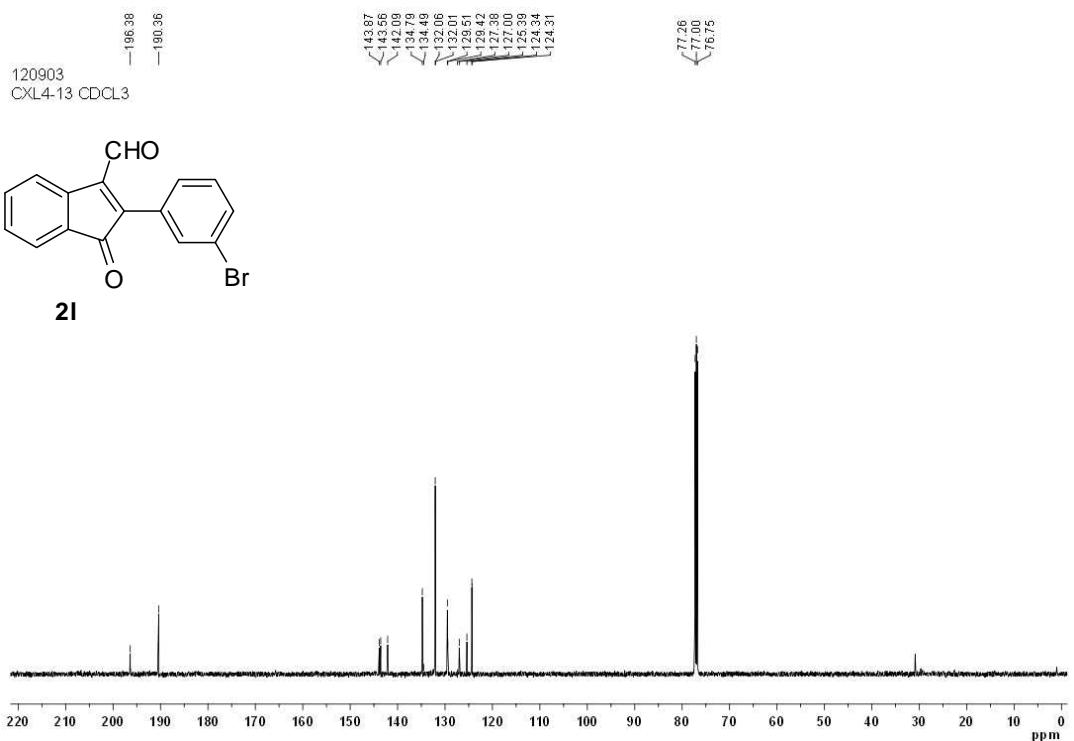


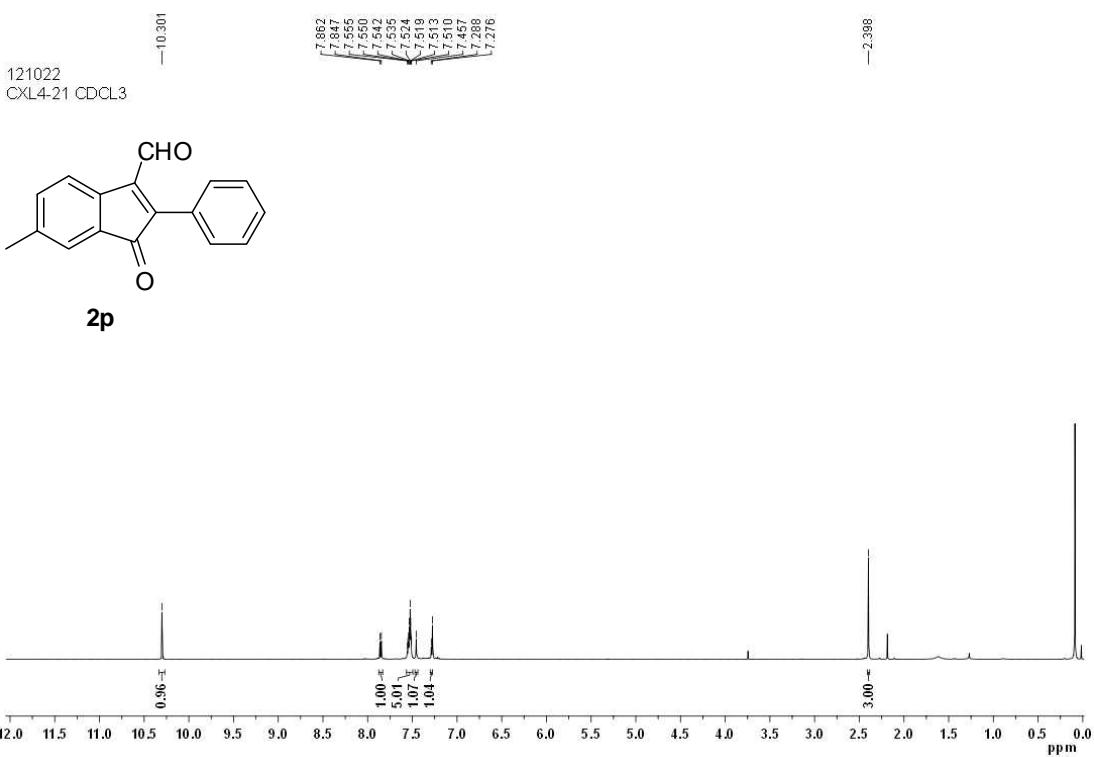
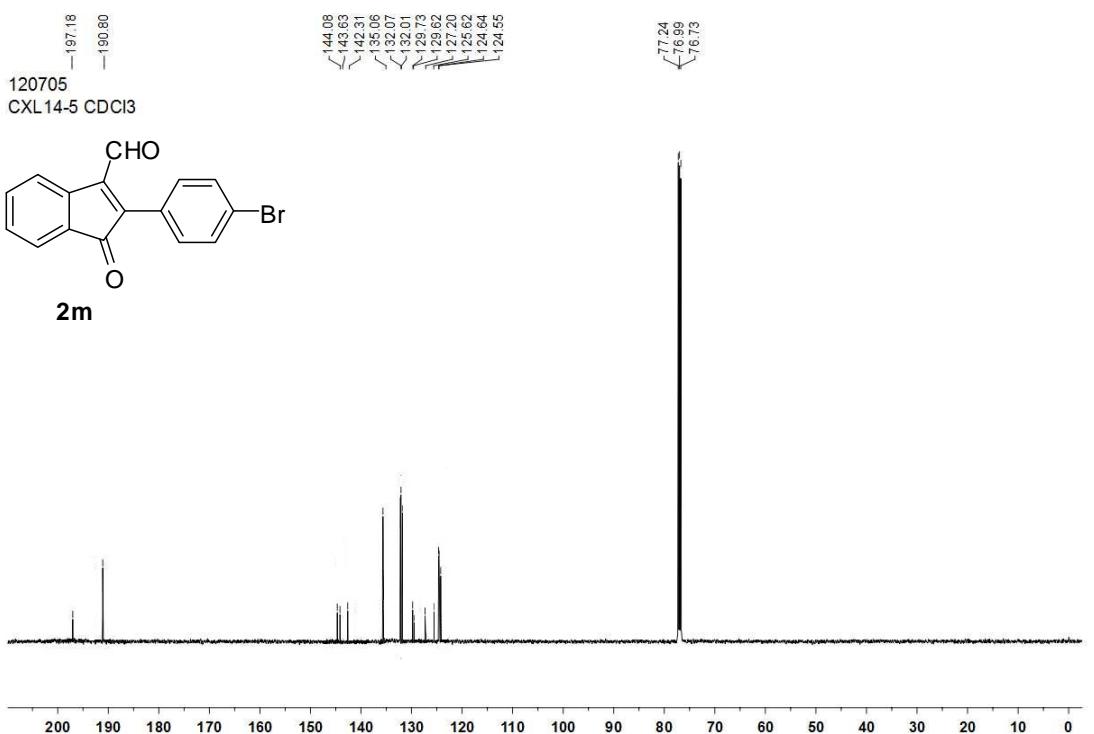


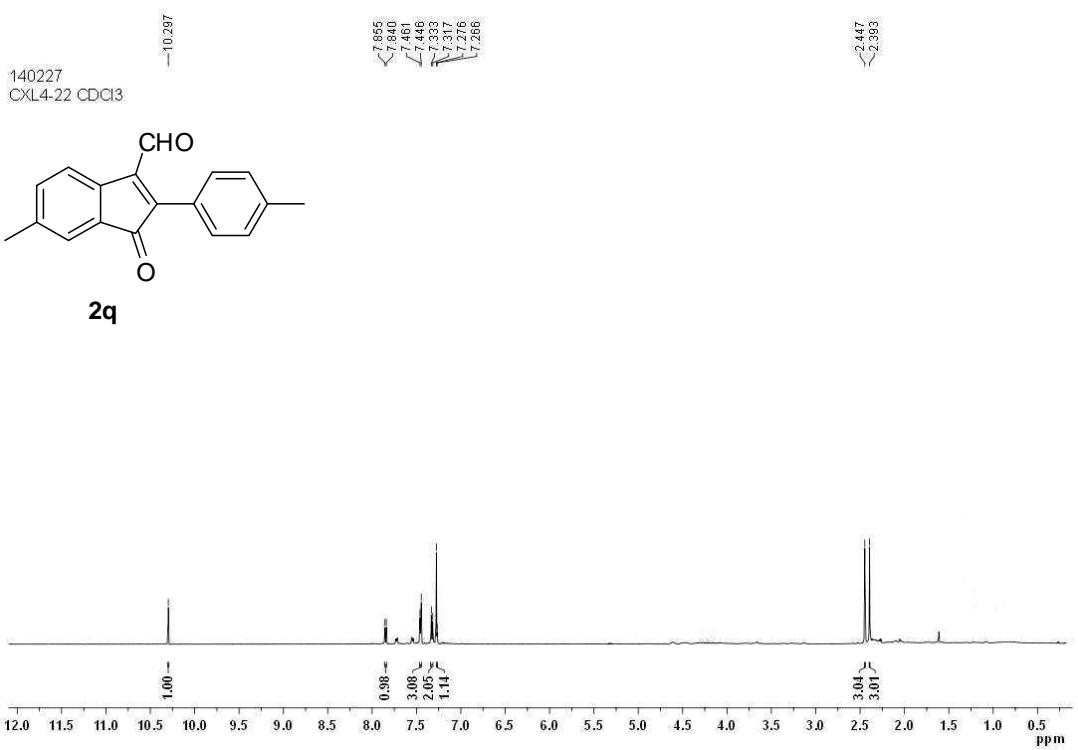
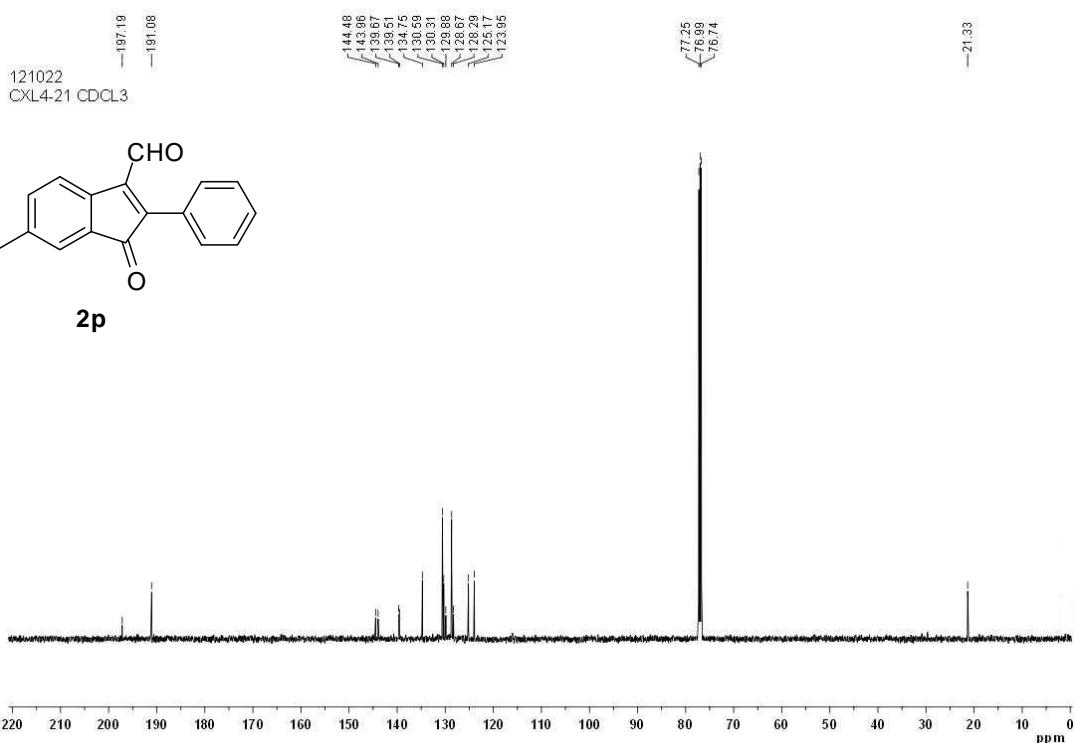


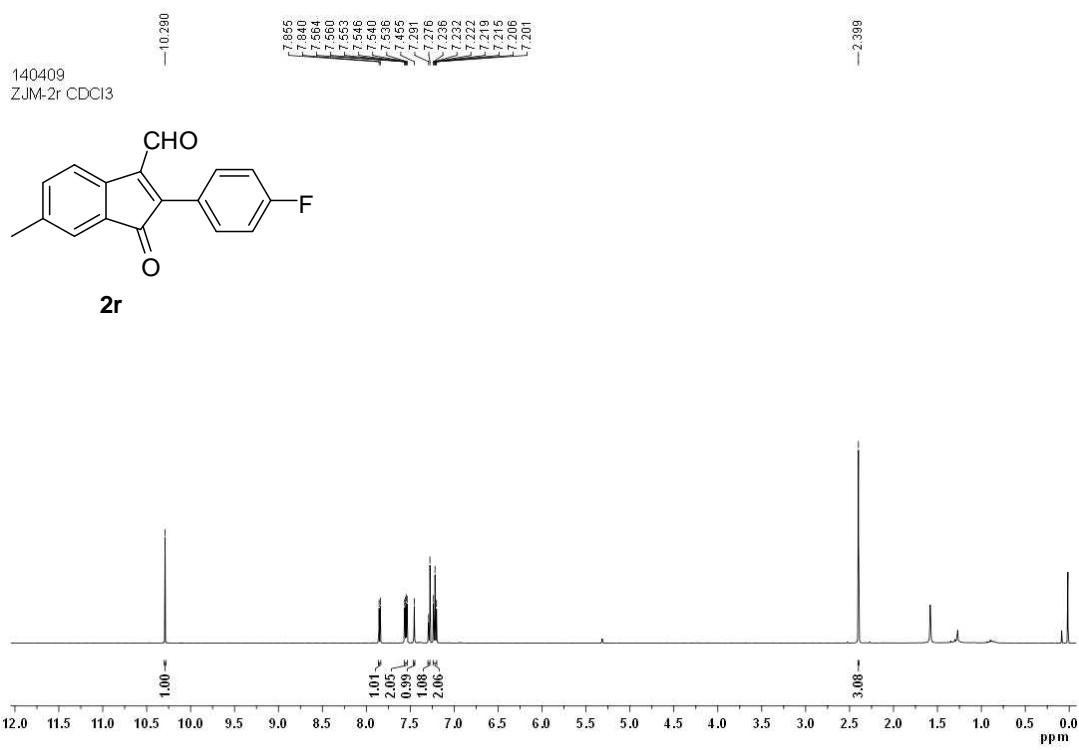
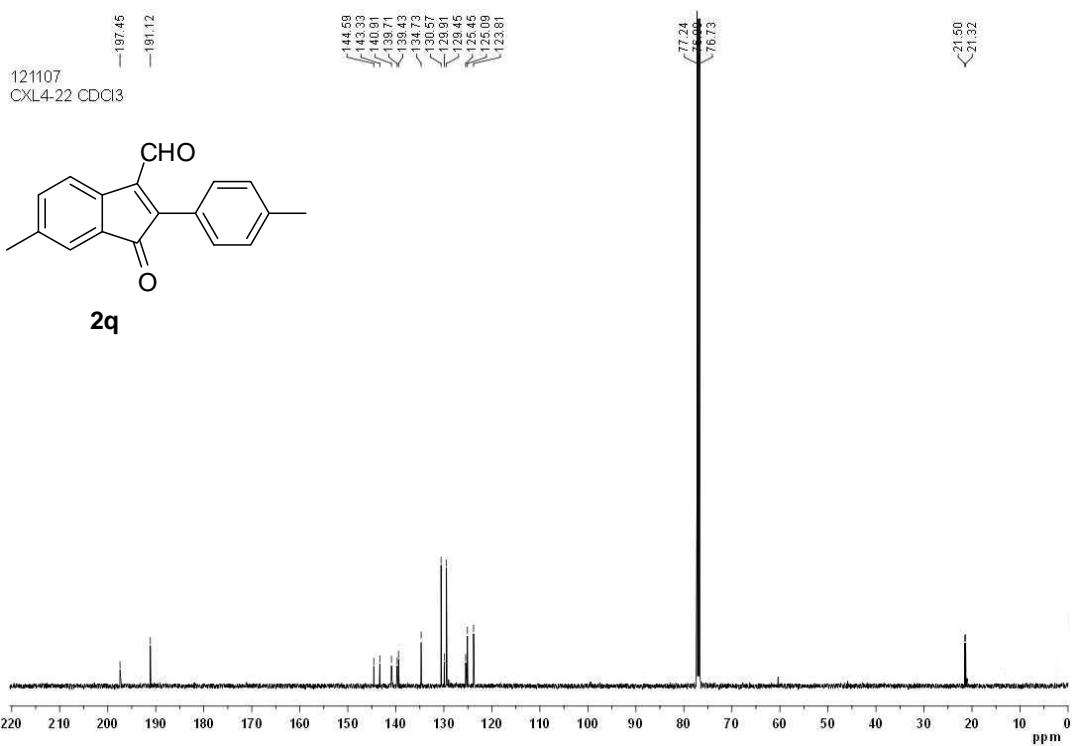


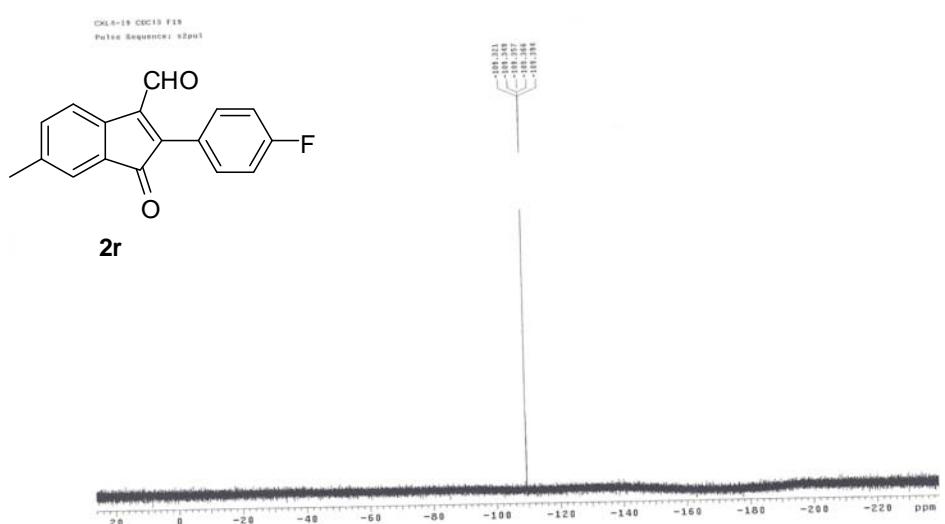
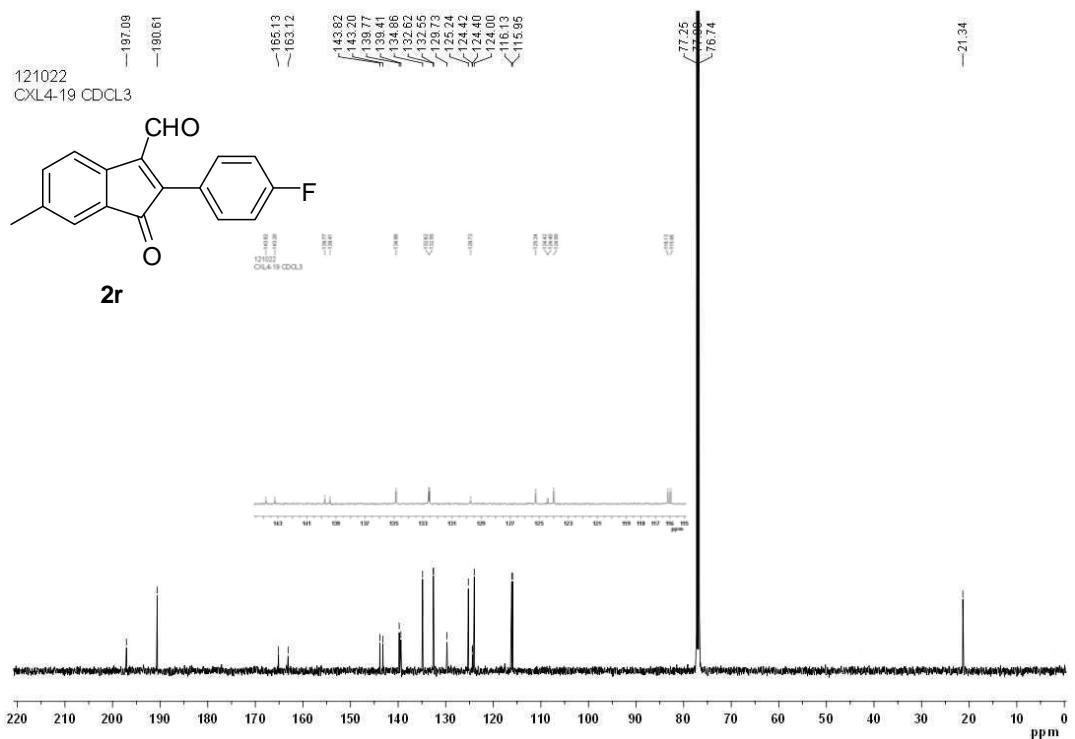


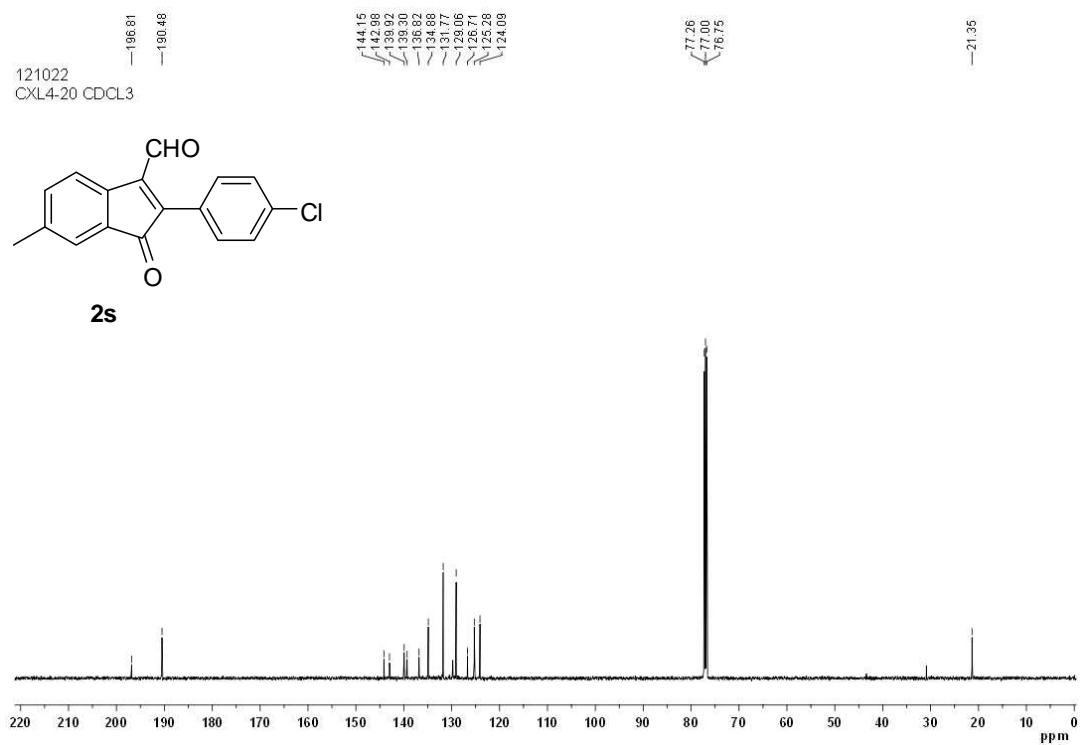
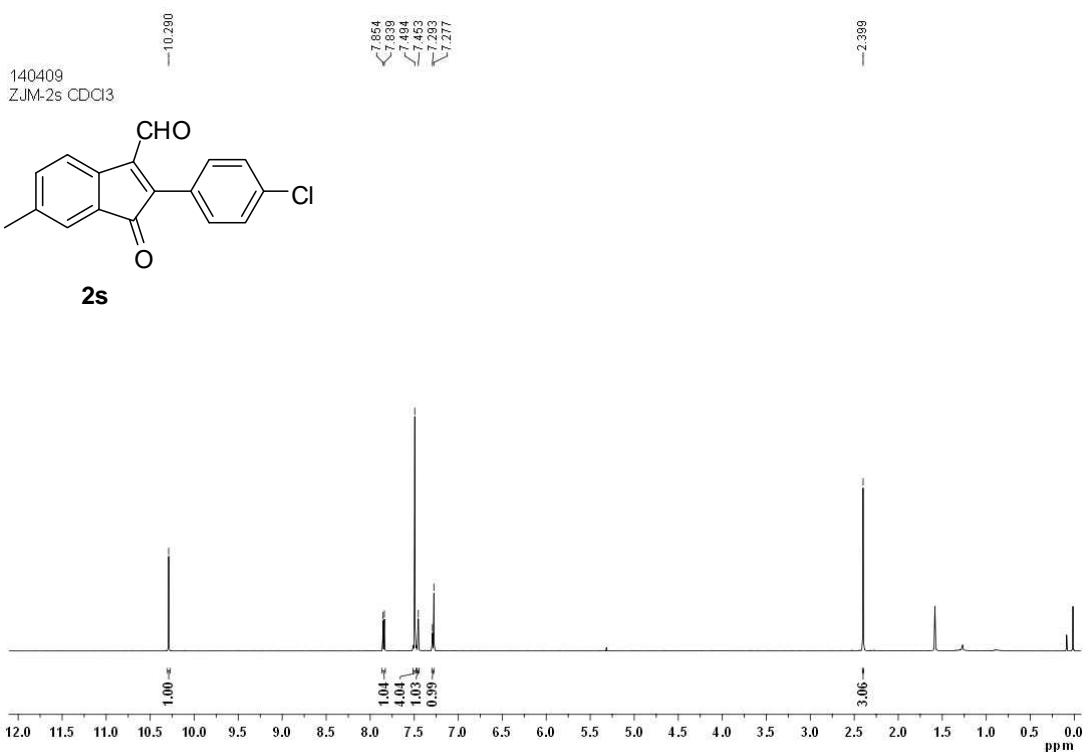




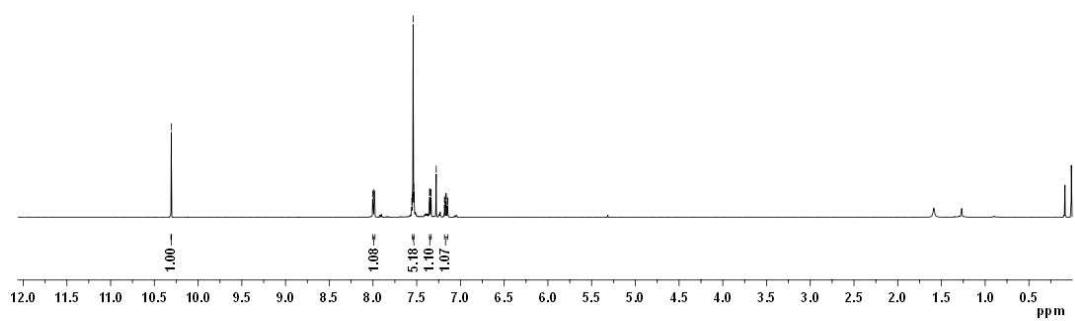
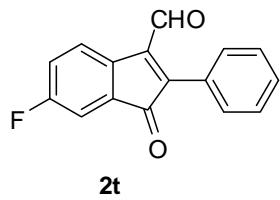




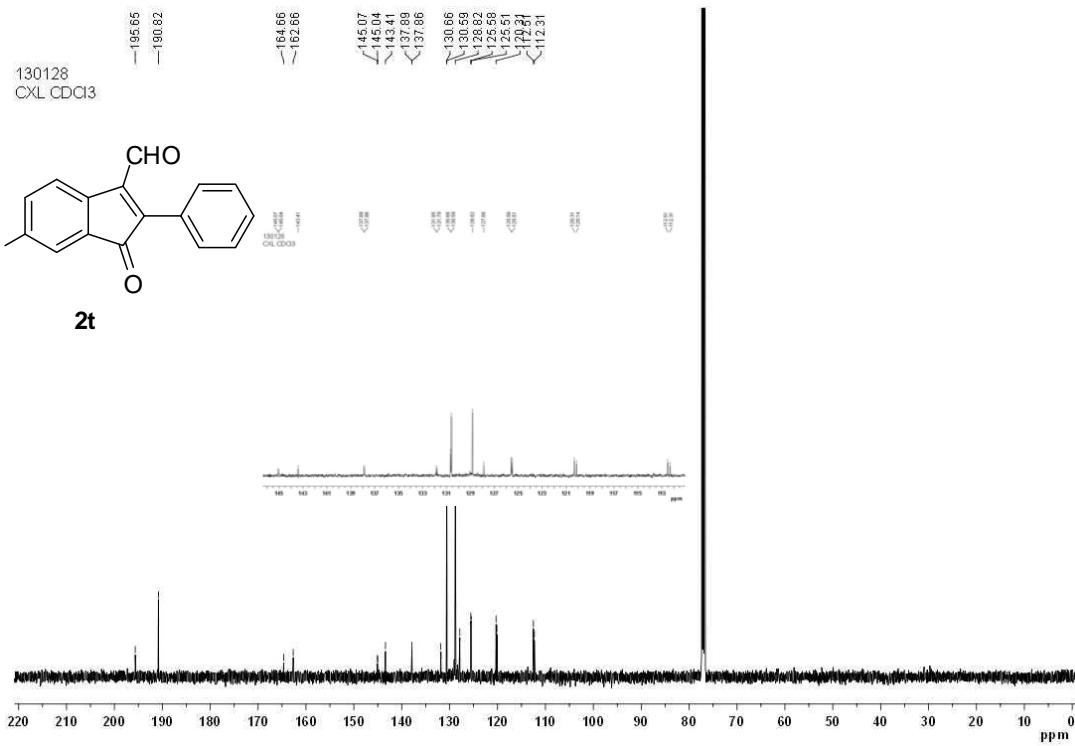
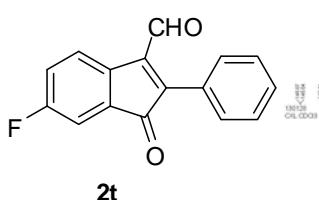


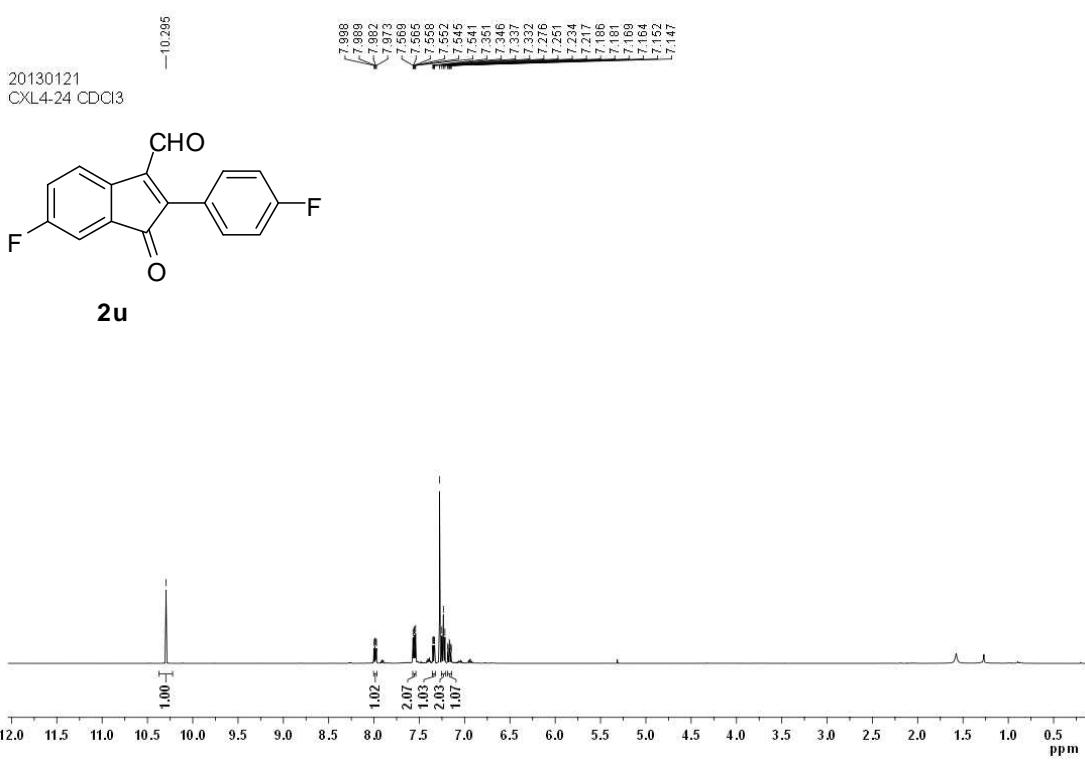
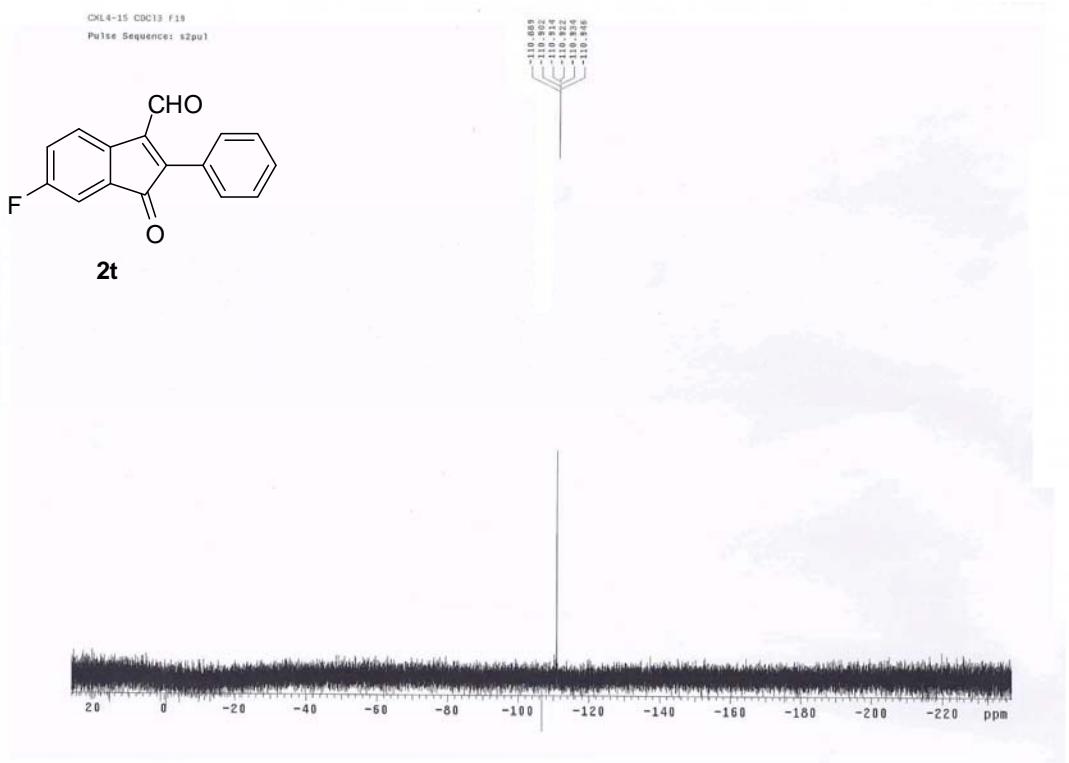


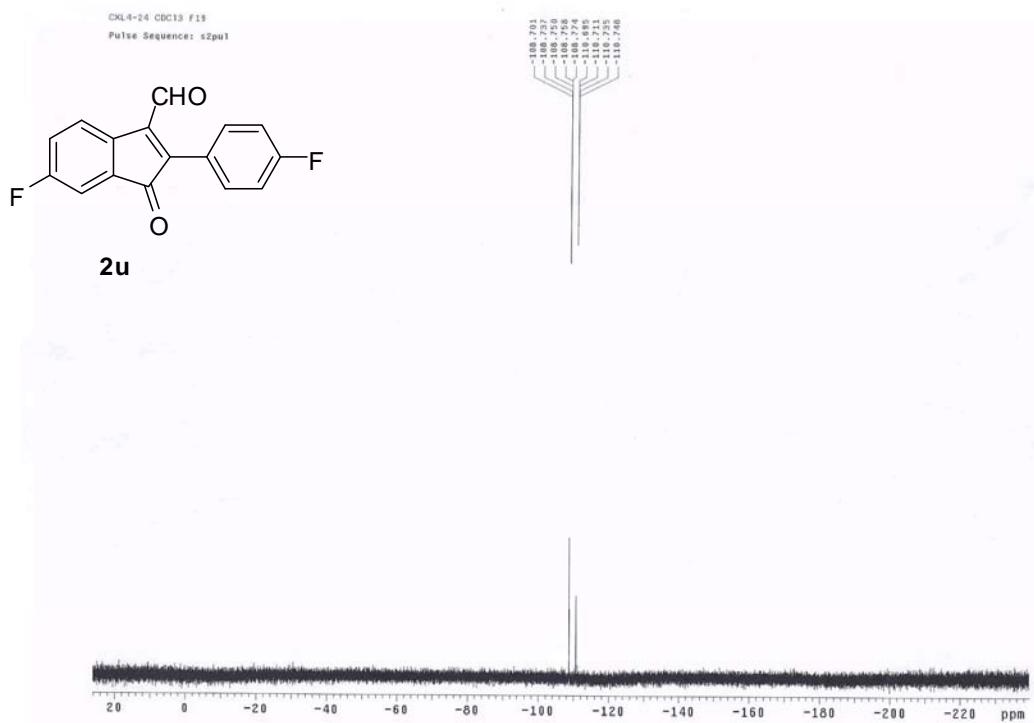
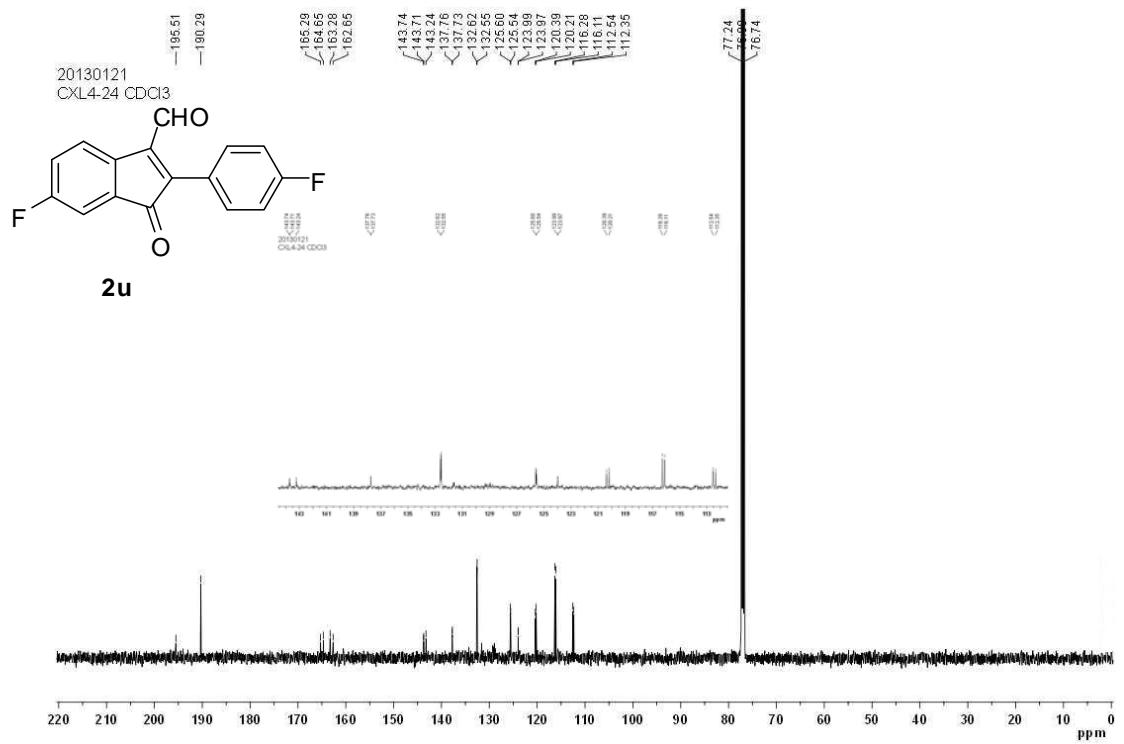
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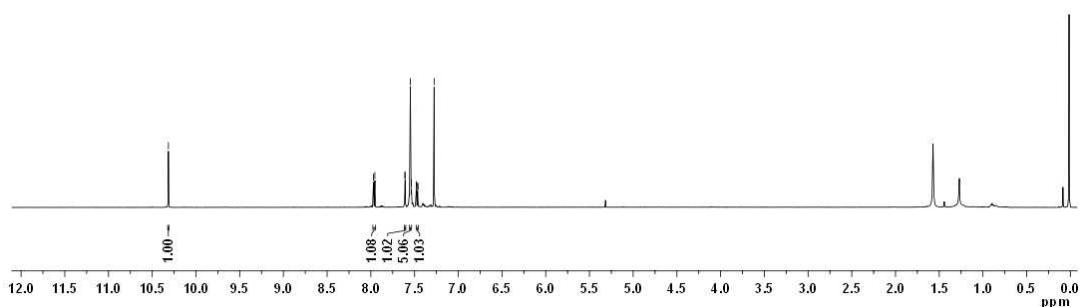
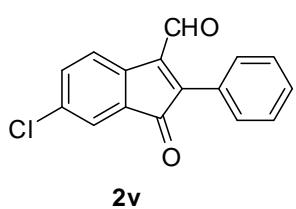
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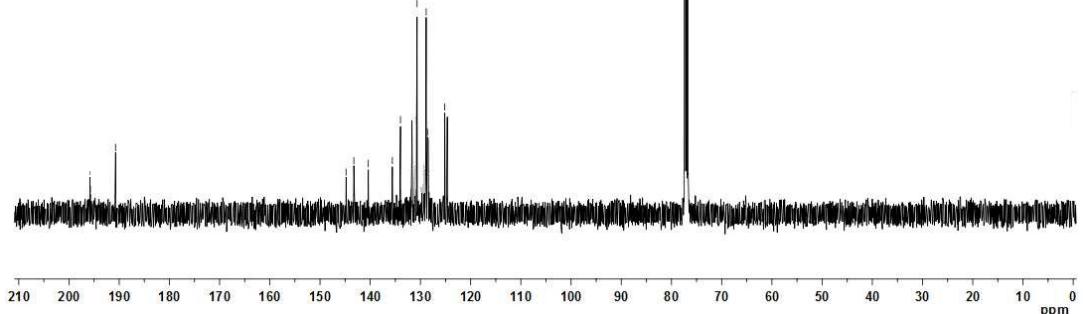
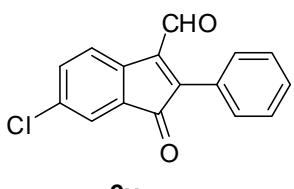




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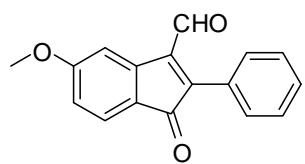


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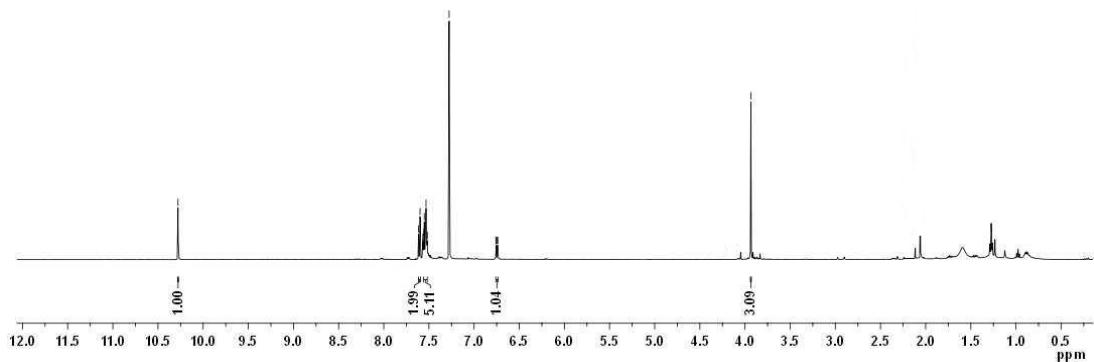
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—3.936



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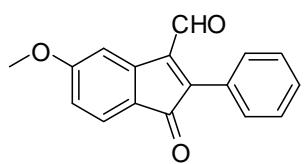


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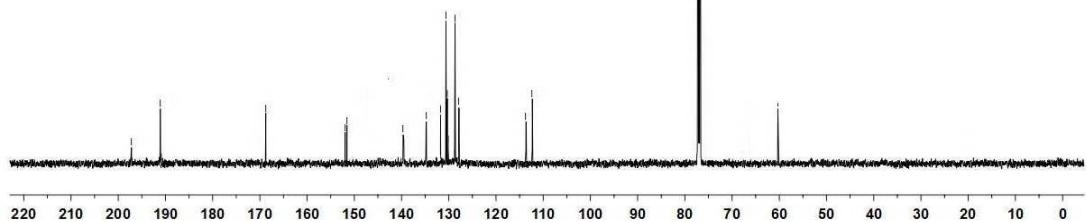
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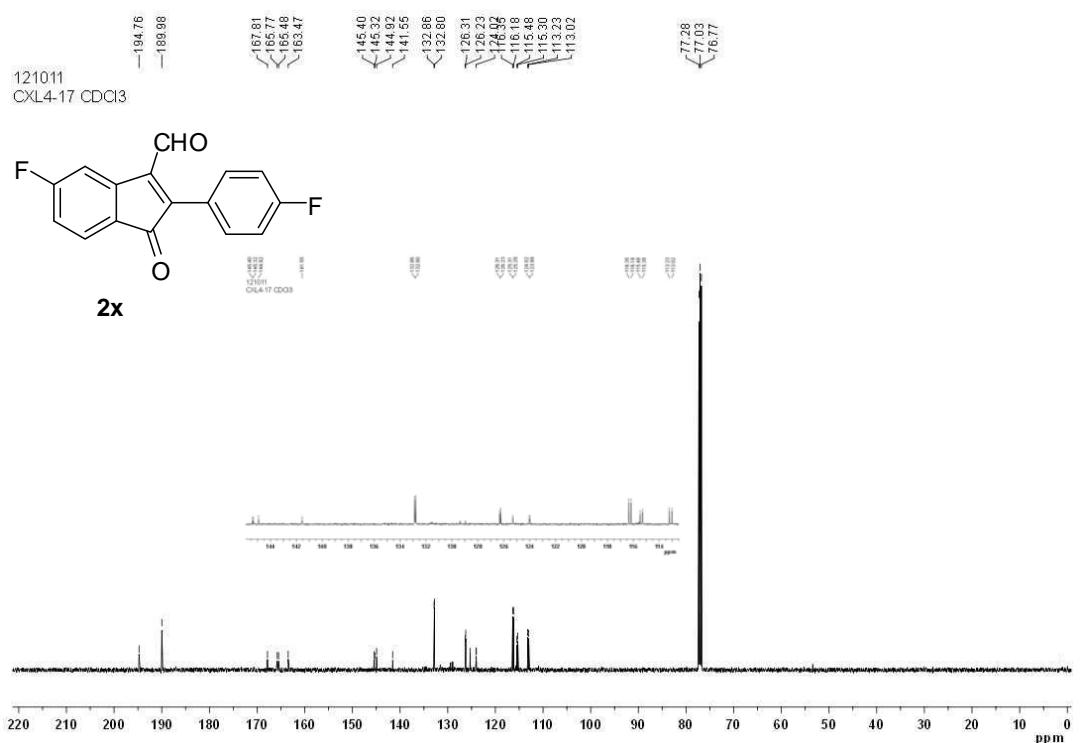
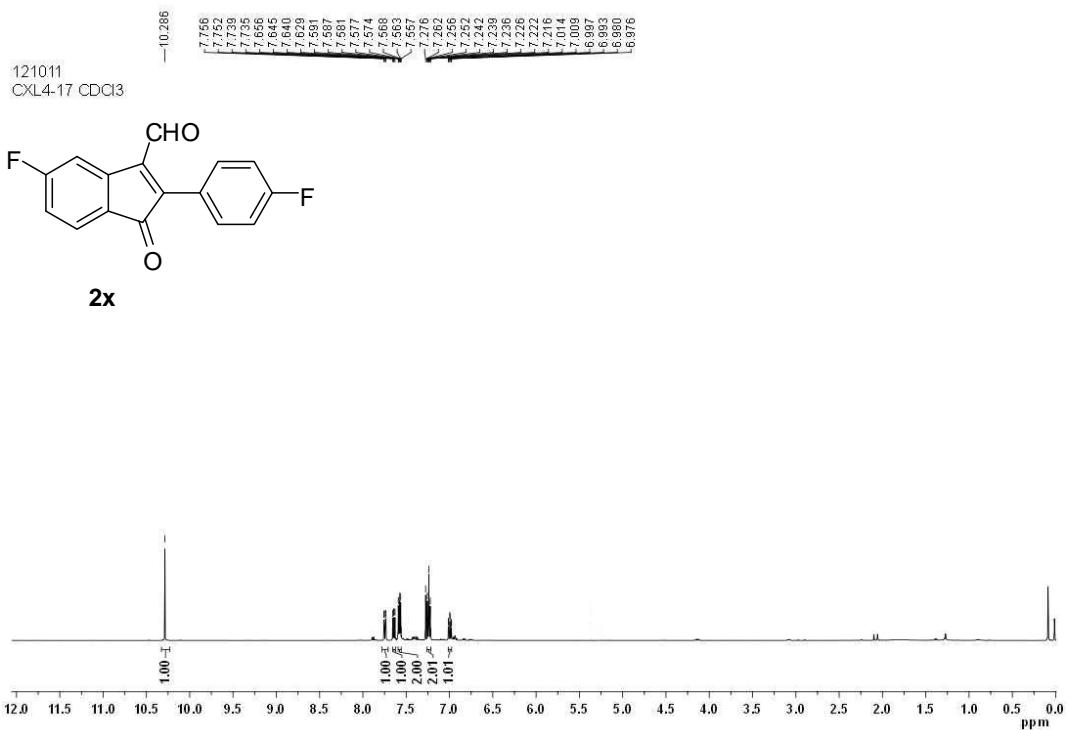
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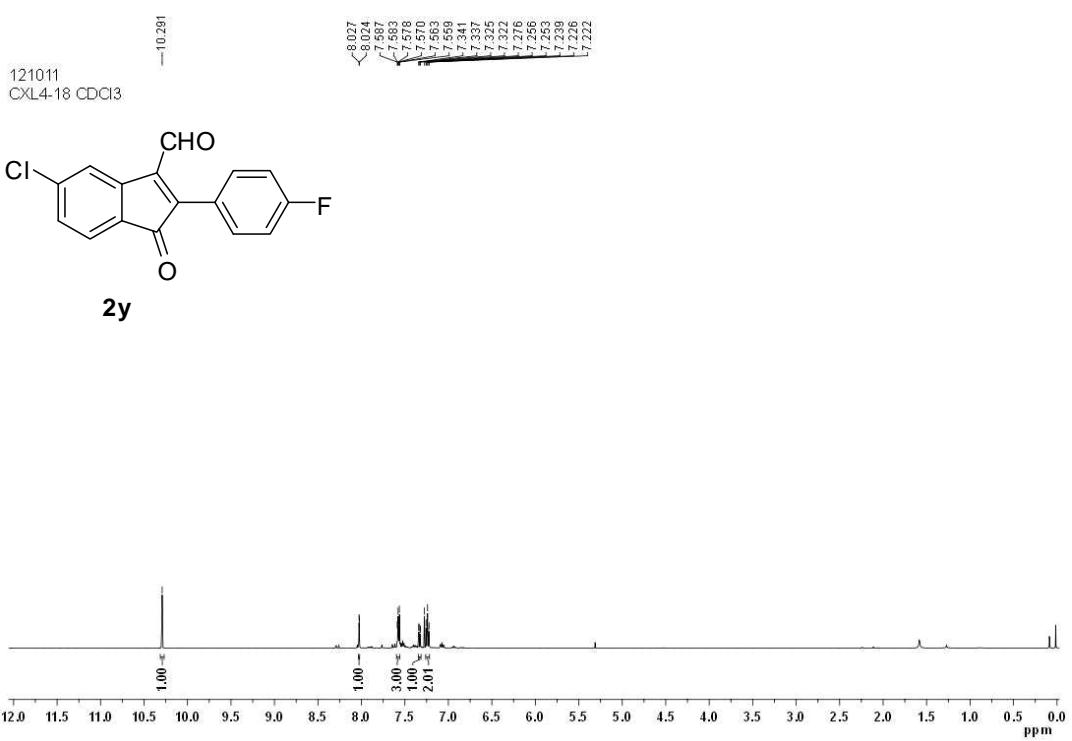
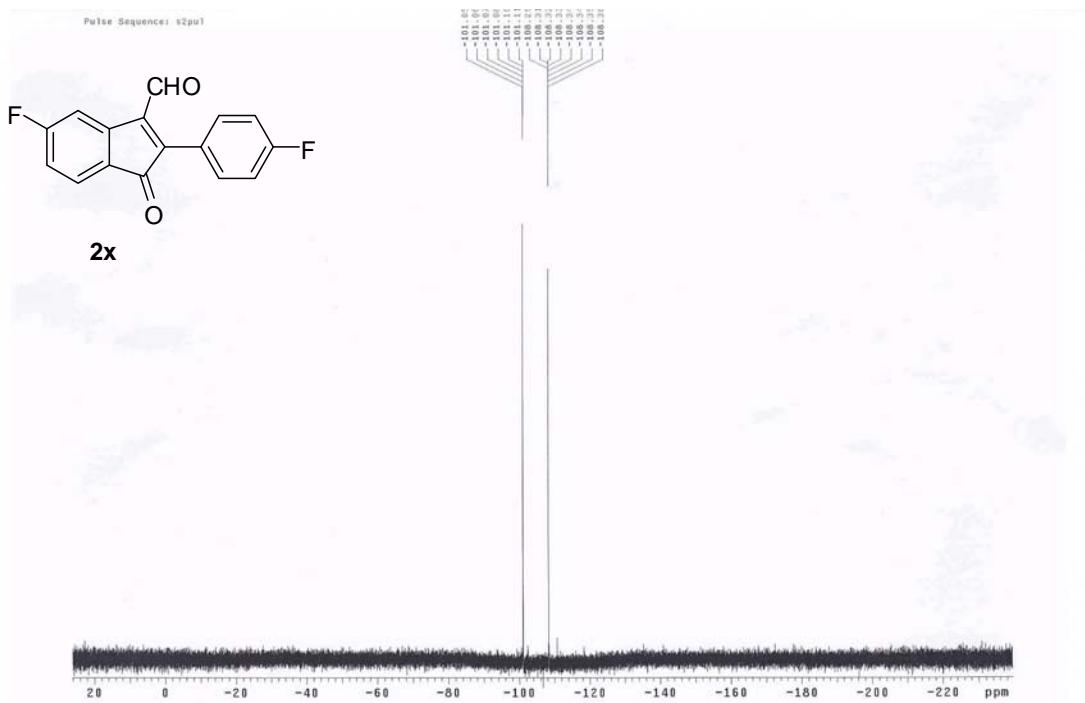
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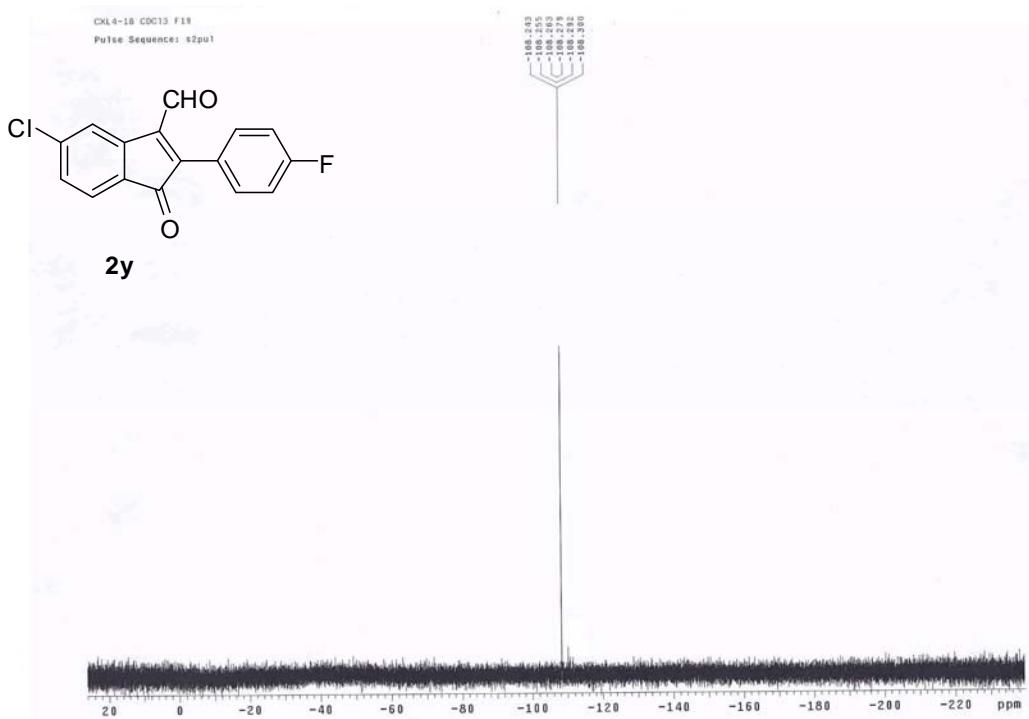
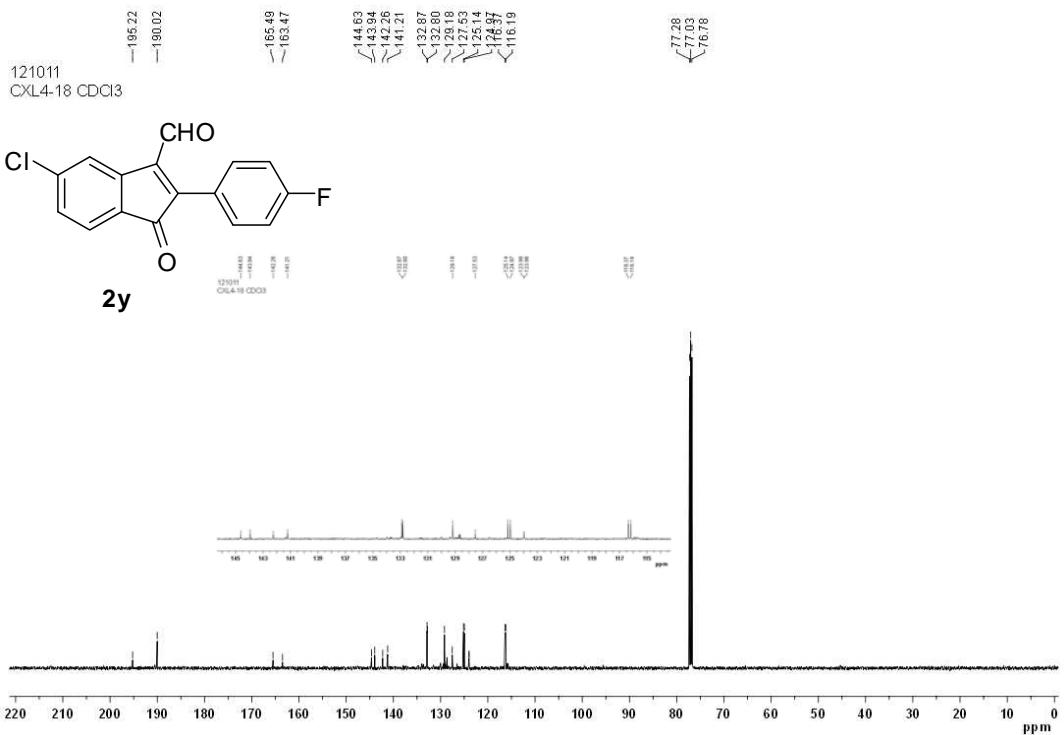


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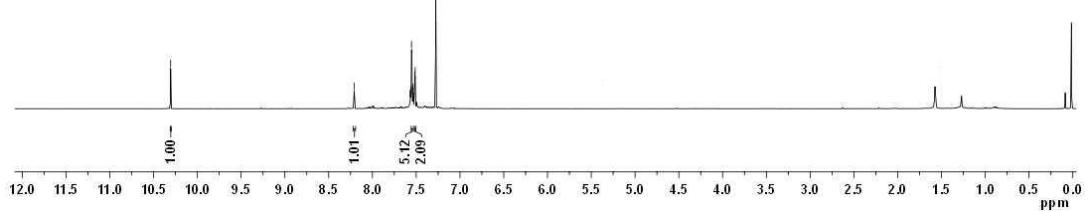
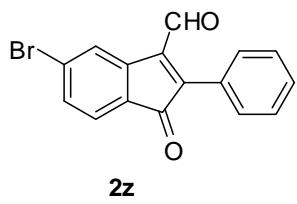








130712
ZJ-M-1 CDCl₃



130712
ZJ-M-1 CDCl₃

