

Supporting Information

Alkylation/1,2-Aryl Migration of α -Aryl Allylic Alcohols with α -Carbonyl Alkyl Bromides Using Visible-Light Photoredox Catalysis

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List of Contents

(A) Typical experimental procedure	S2
(B) Spectra	S3-S44
(C) The X-ray single-crystal diffraction analysis of 3na	S44

(A) Typical experimental procedure

(a) Figure S1. An off/on light profile over time

As shown in Figure S1, the additional visible light is necessary for the current reaction: the reaction successfully proceeds upon irradiation with light, but the absence of the additional visible light results in no further conversion of **1a**. These results suggest that the current reaction follows a photoredox mechanism.

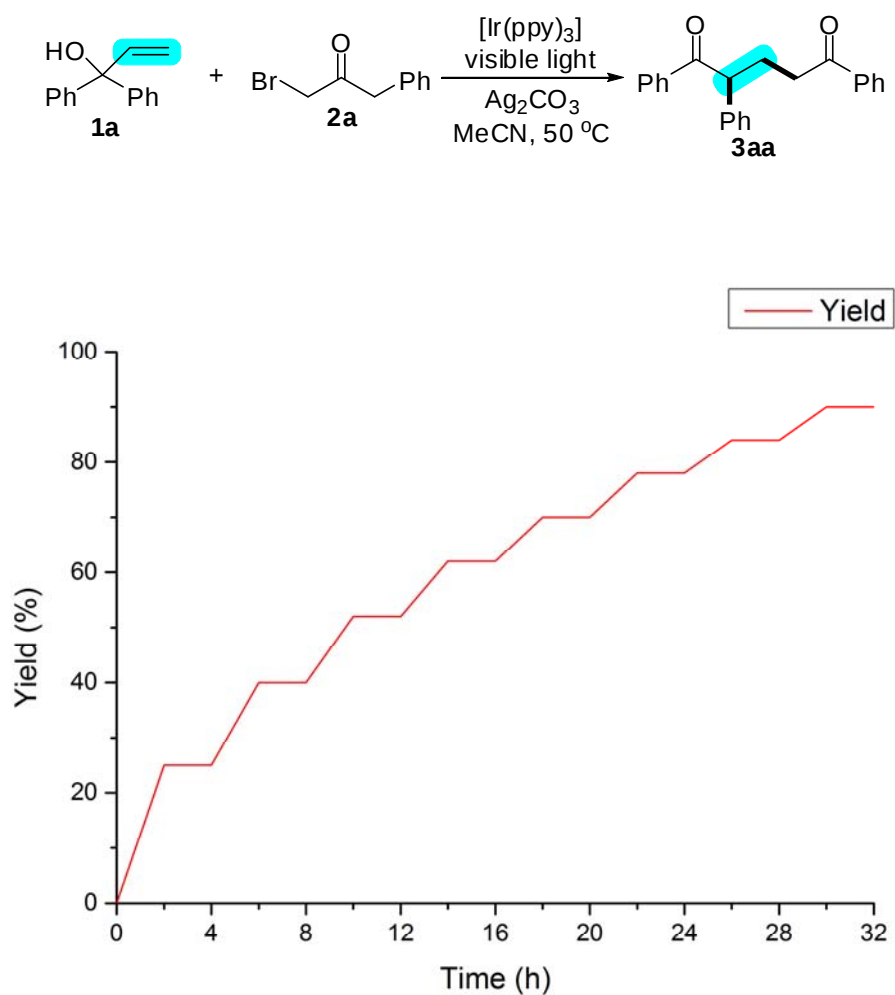
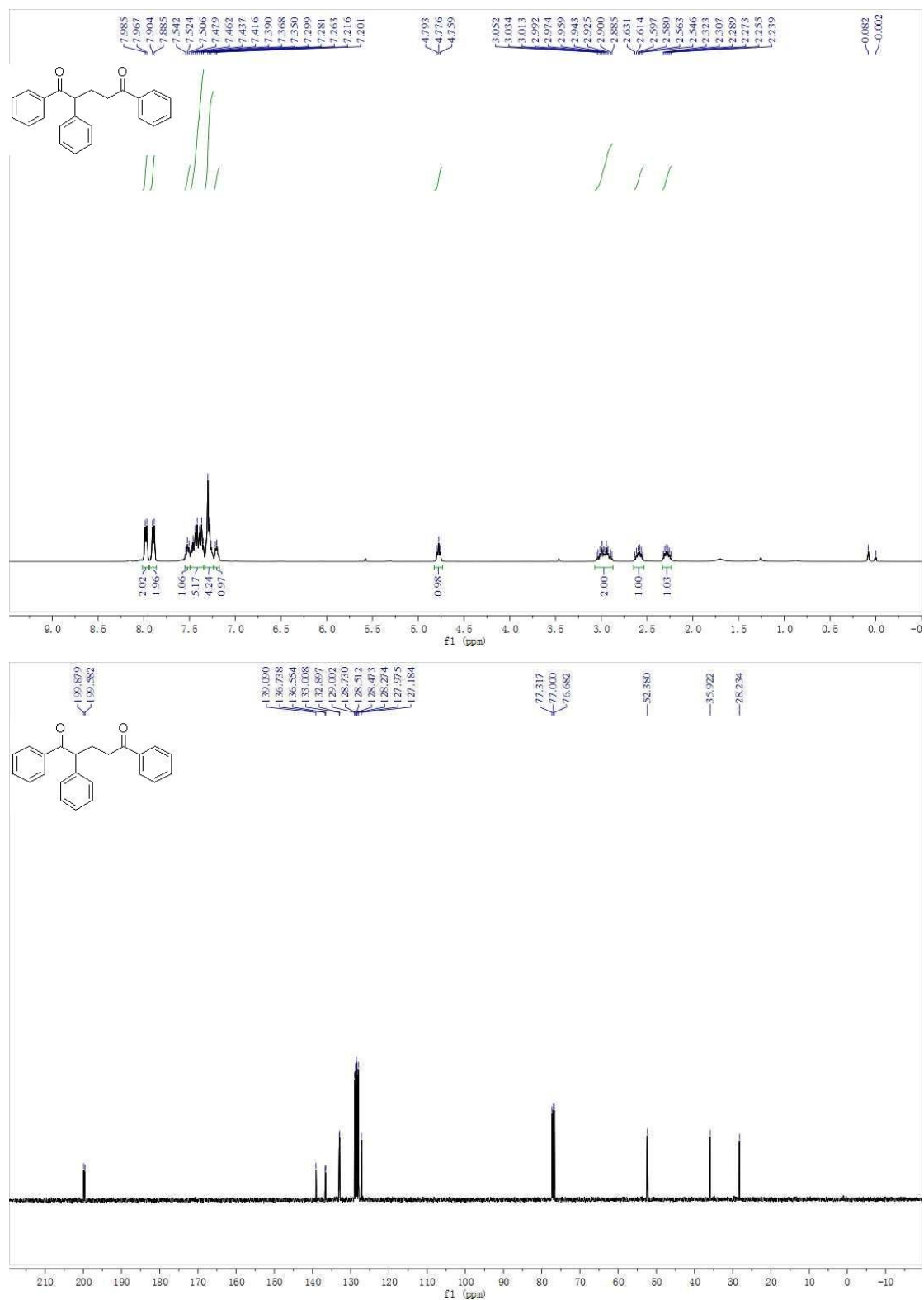


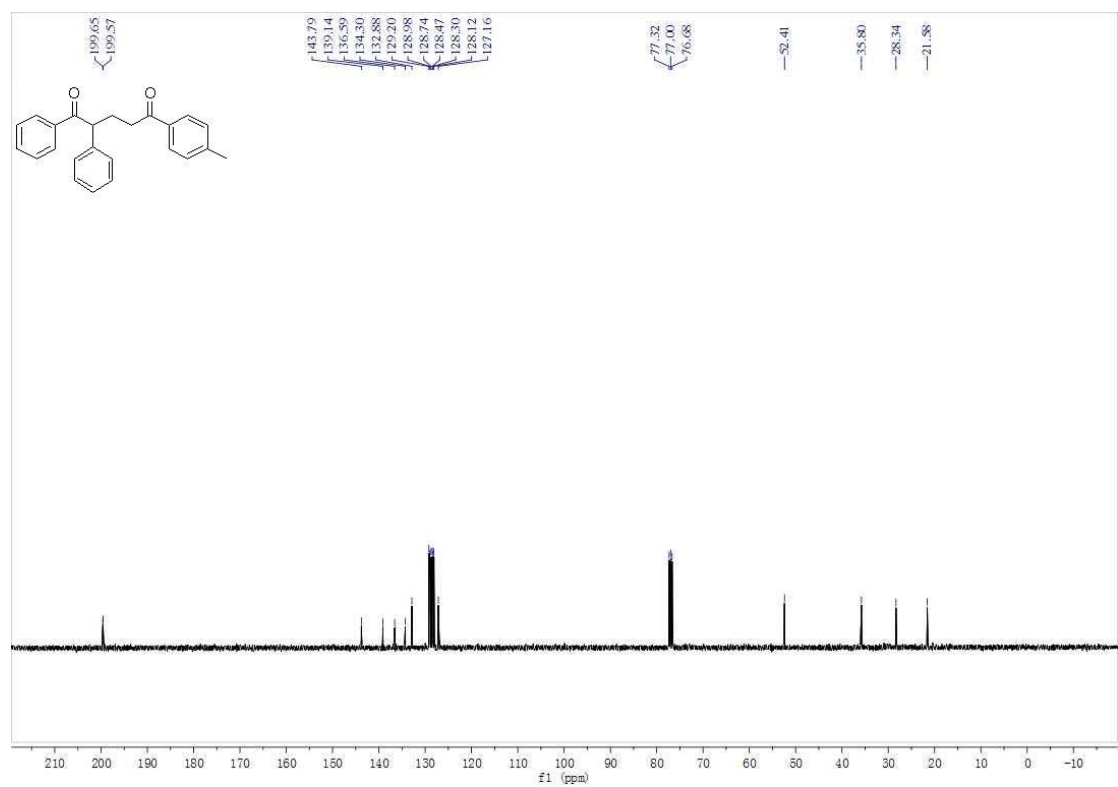
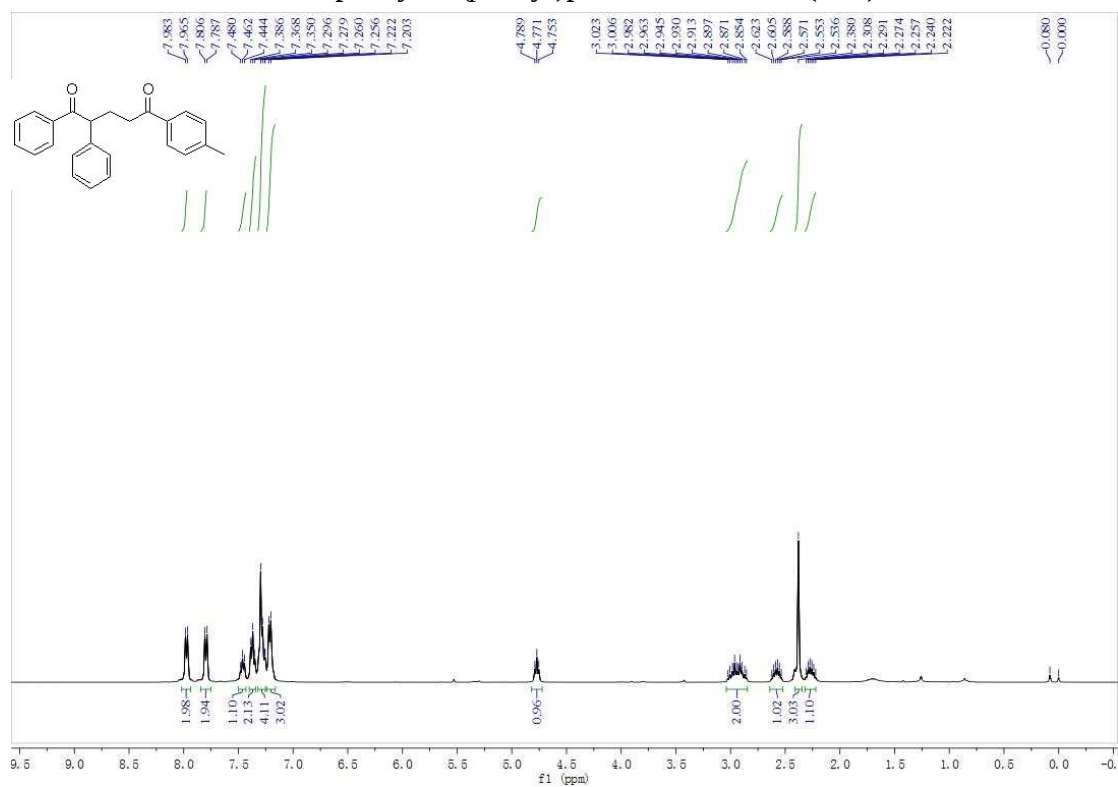
Figure S1. An off/on light profile over time

(B) Spectra

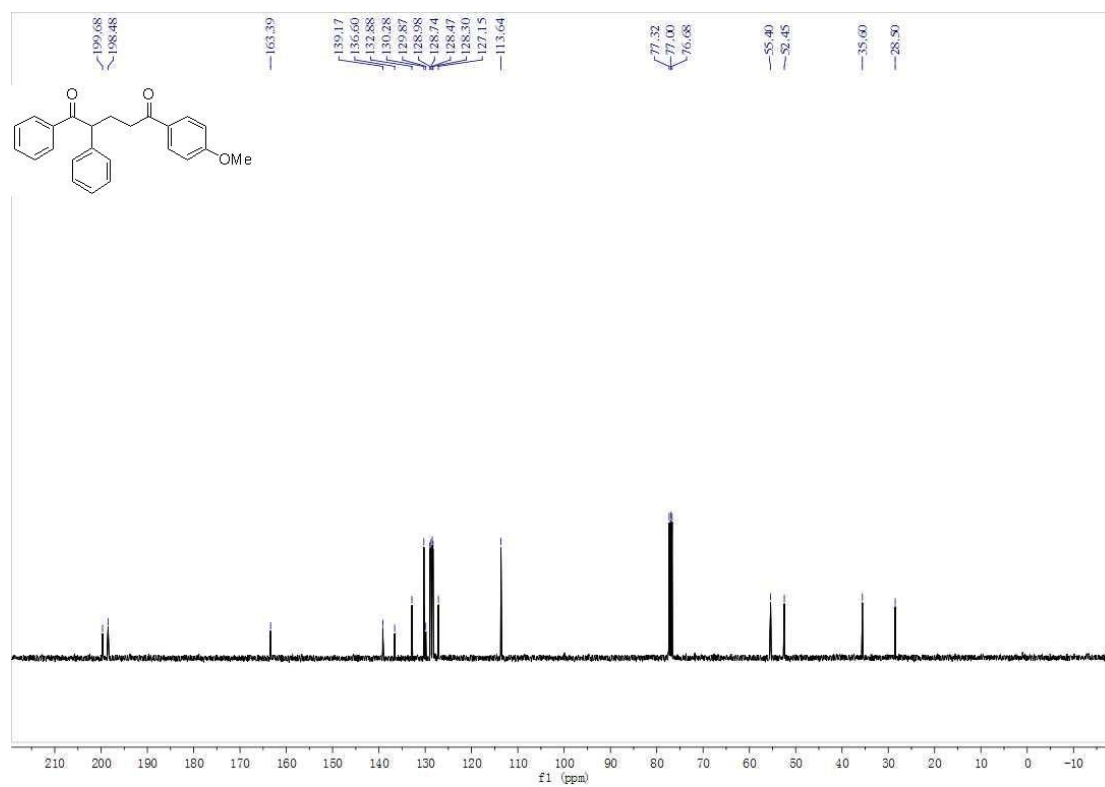
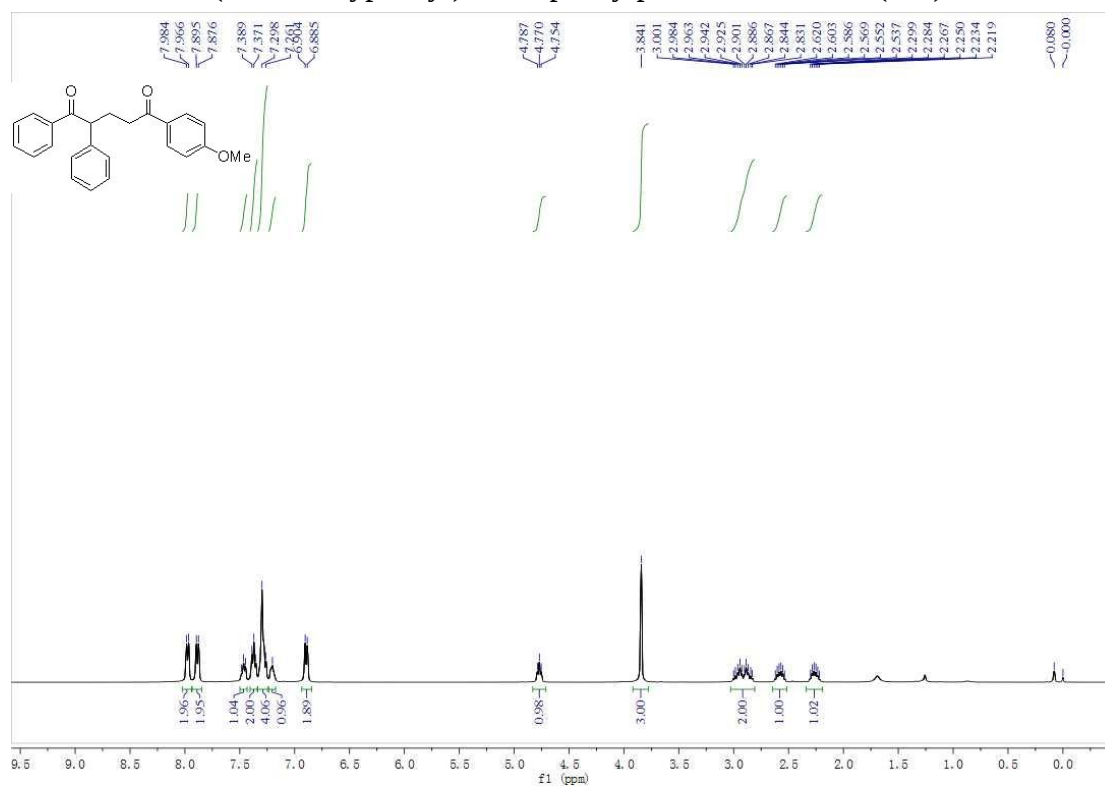
1,2,5-Triphenylpentane-1,5-dione (3aa)



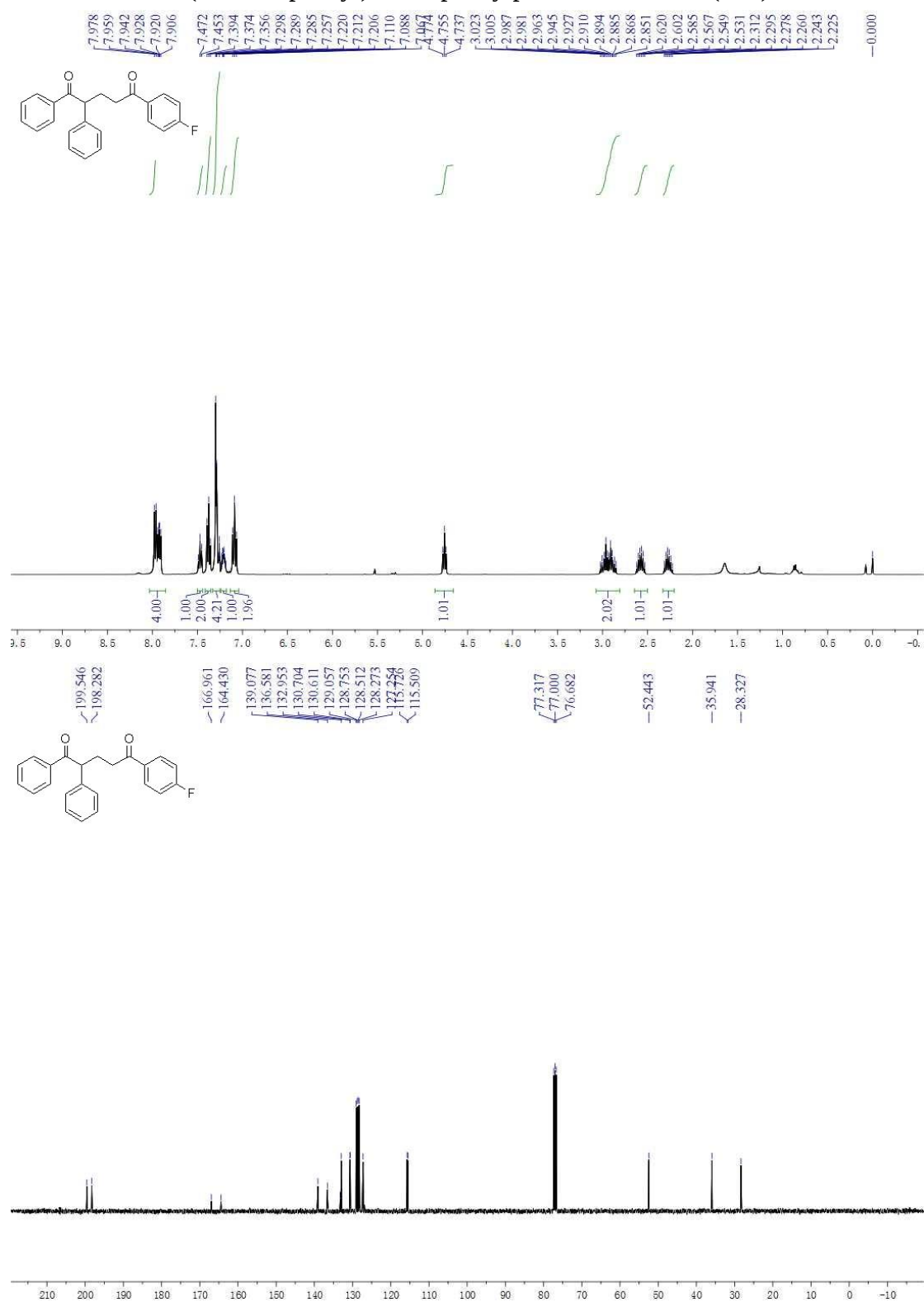
1,2-Diphenyl-5-(*p*-tolyl)pentane-1,5-dione (**3ab**)

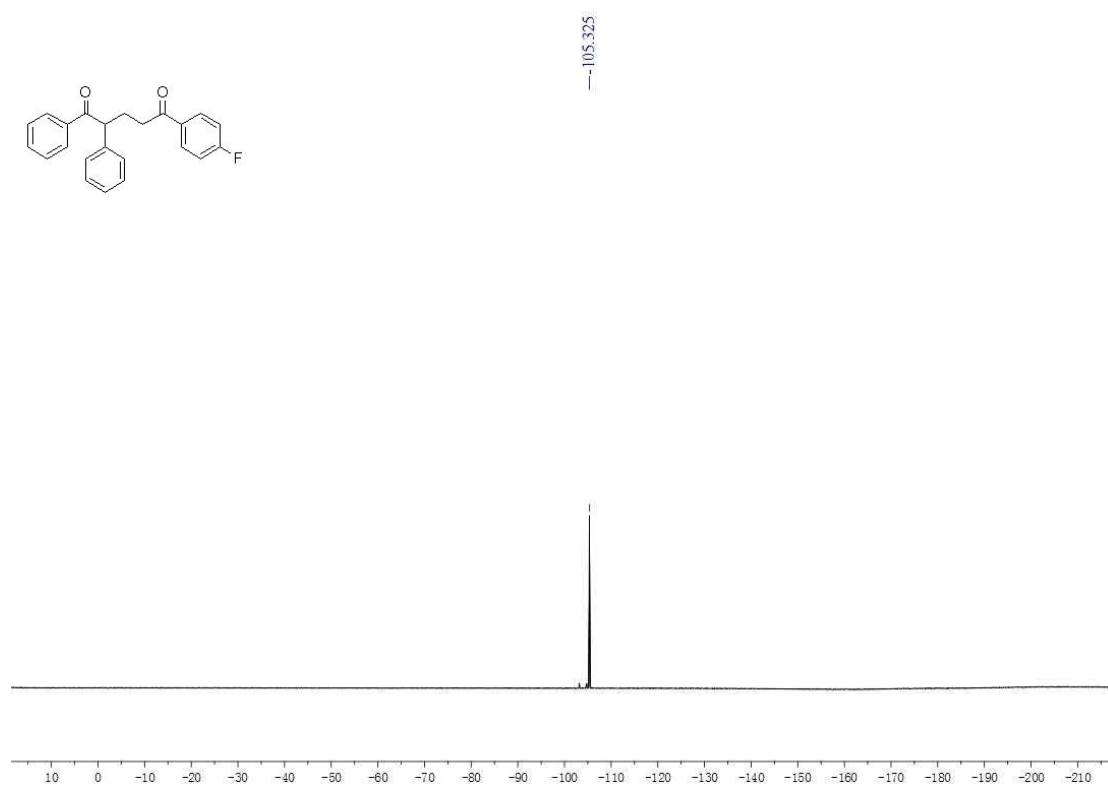


5-(4-Methoxyphenyl)-1,2-diphenylpentane-1,5-dione (**3ac**)

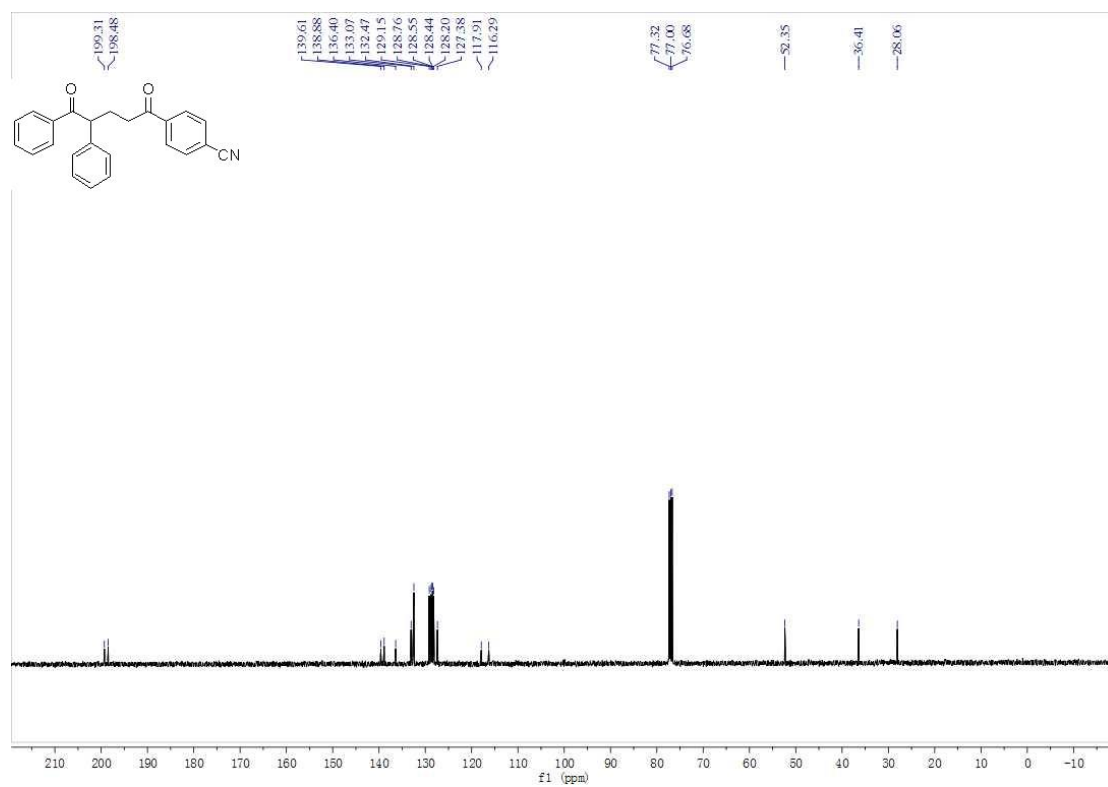
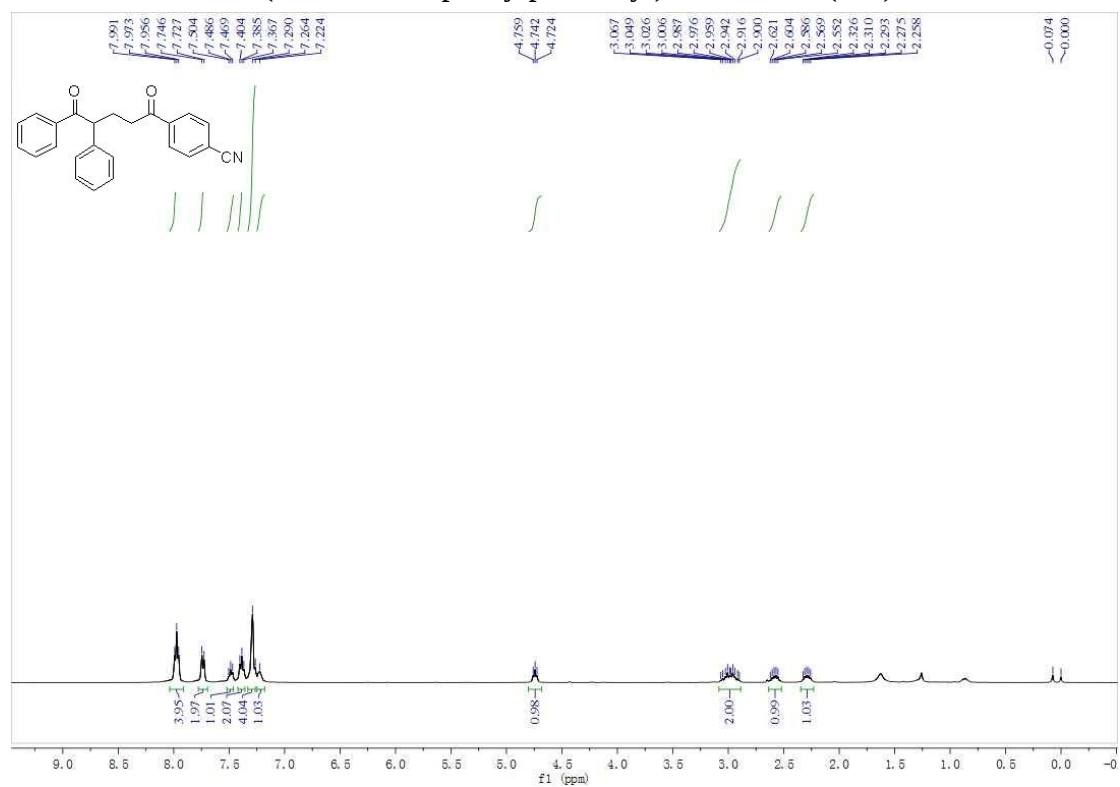


5-(4-Fluorophenyl)-1,2-diphenylpentane-1,5-dione (**3ad**)

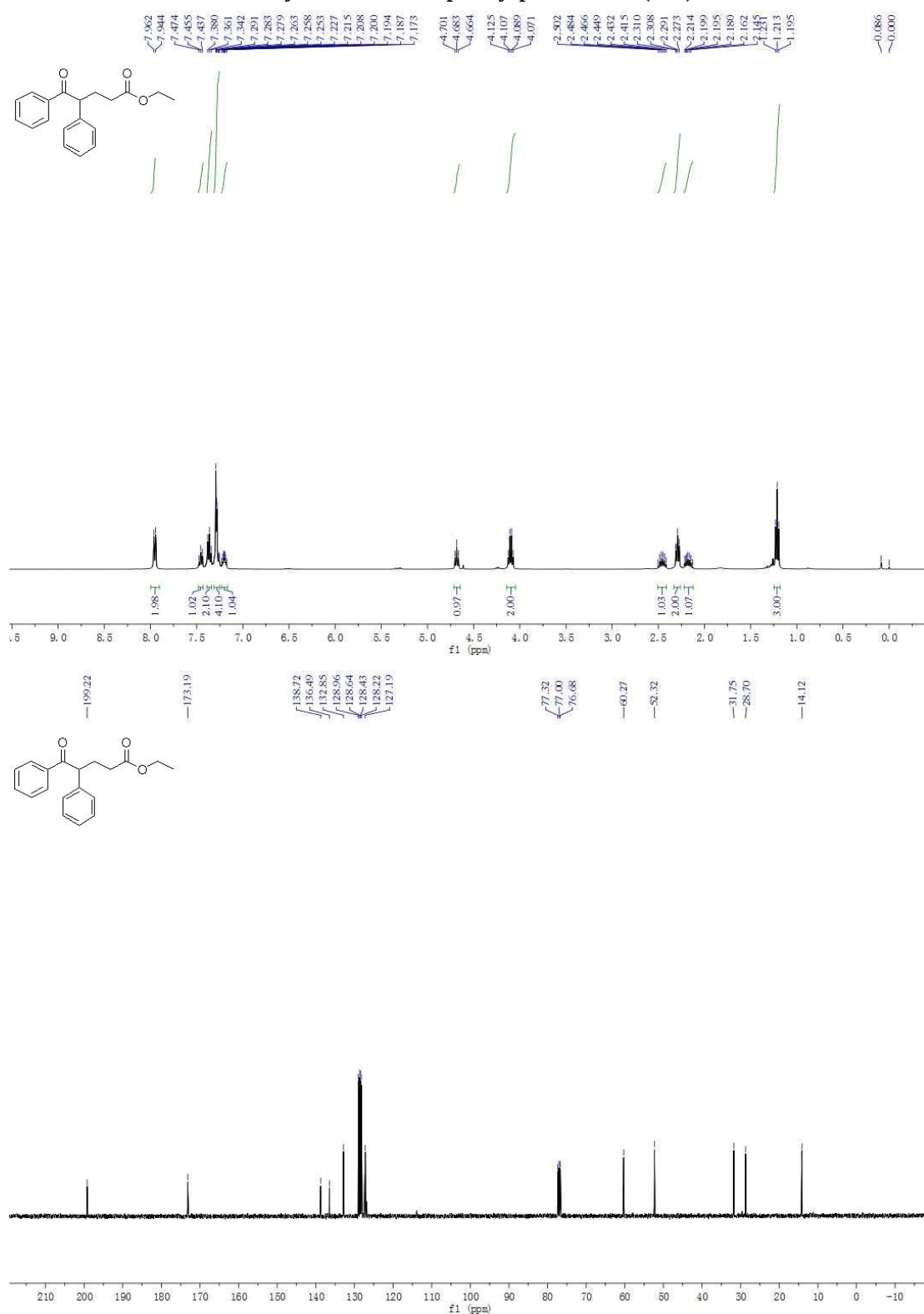




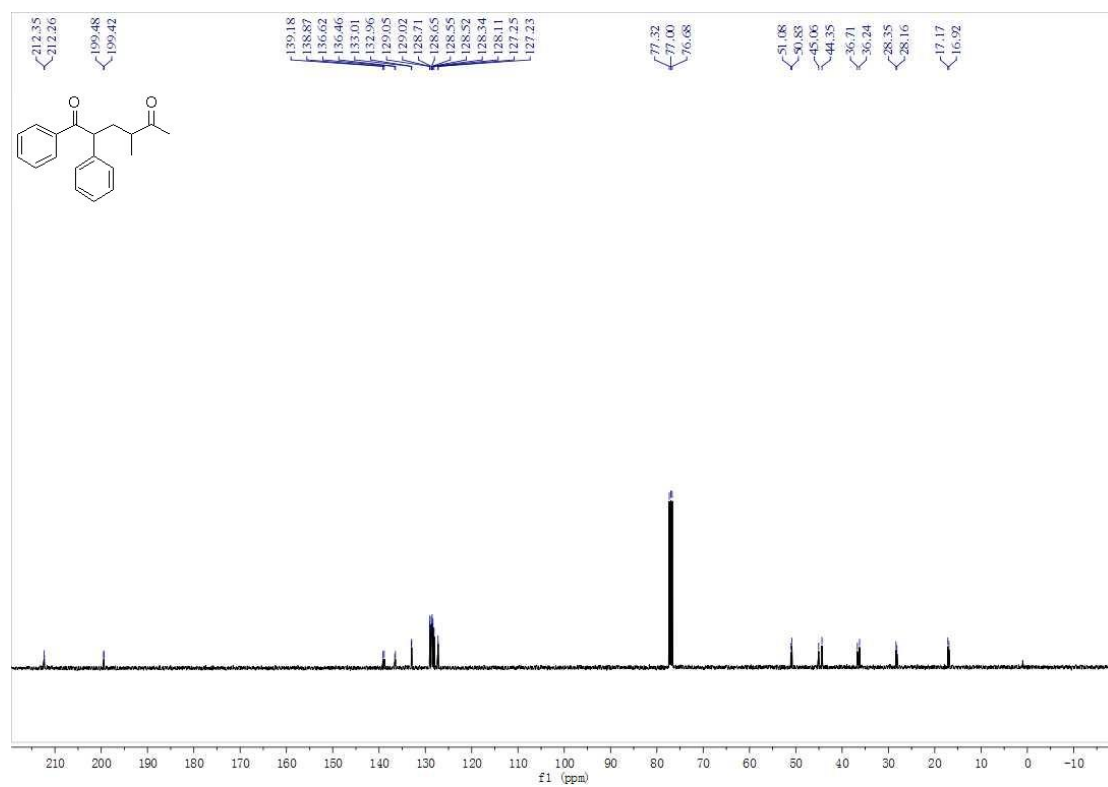
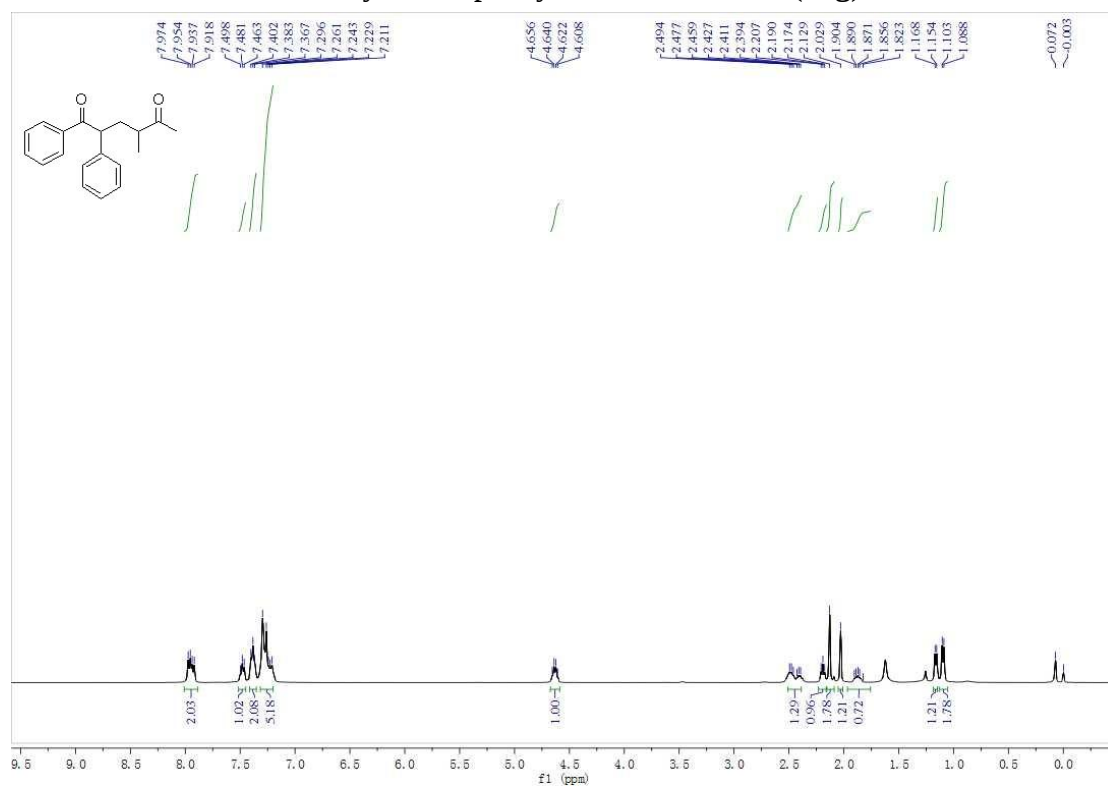
4-(5-Oxo-4,5-diphenylpentanoyl)benzonitrile (**3ae**)



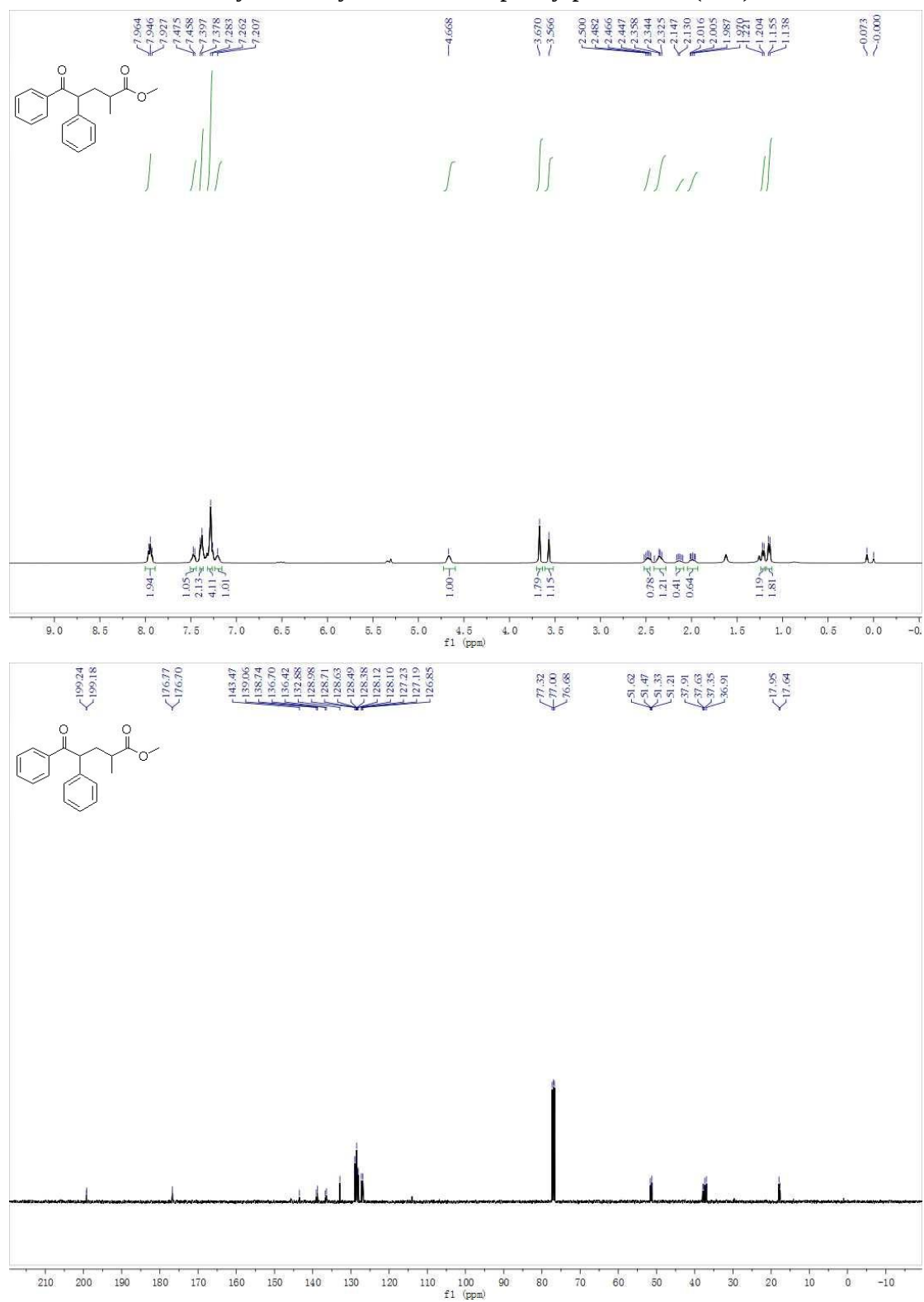
Ethyl 5-oxo-4,5-diphenylpentanoate (3af)



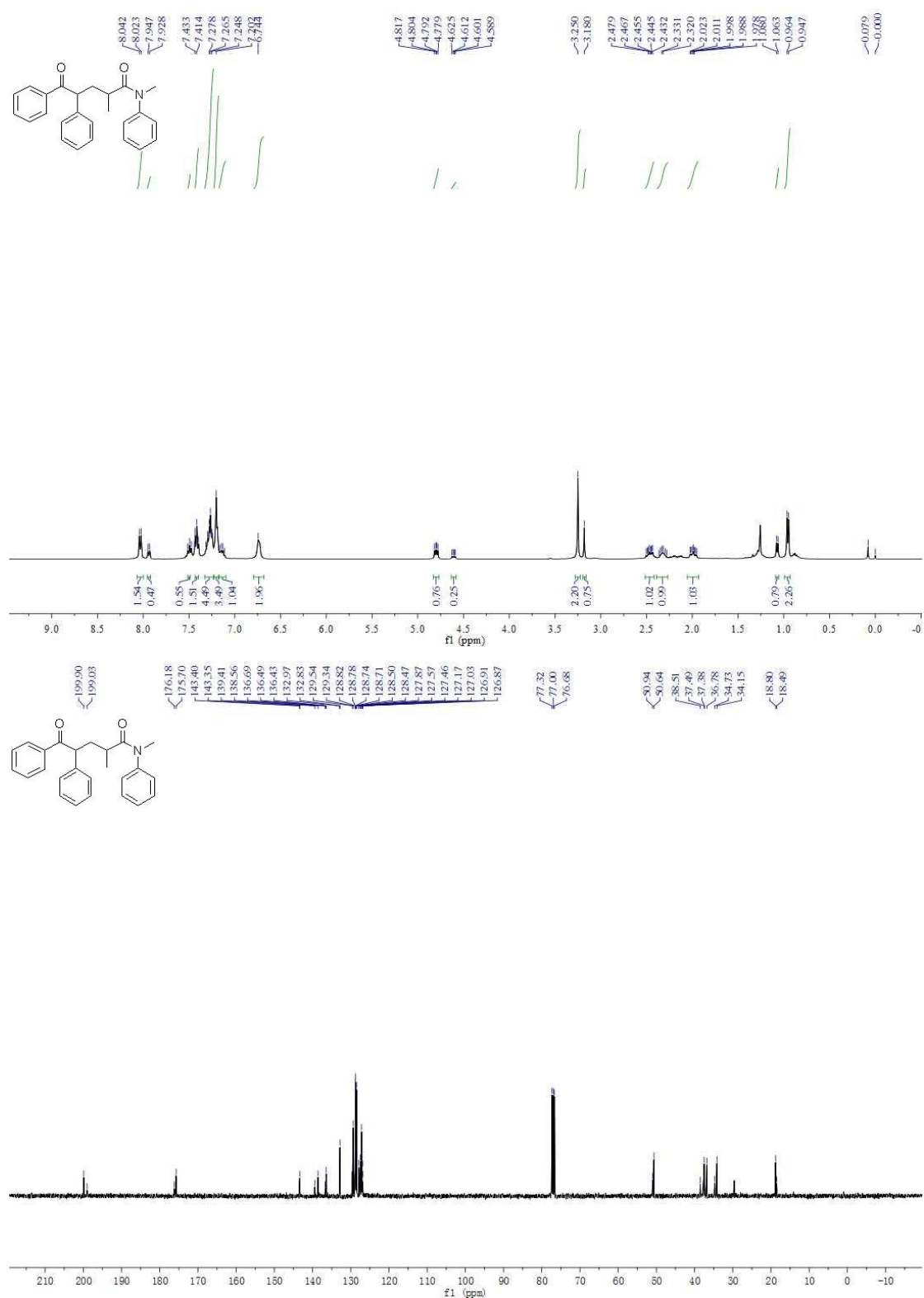
4-Methyl-1,2-diphenylhexane-1,5-dione (**3ag**)



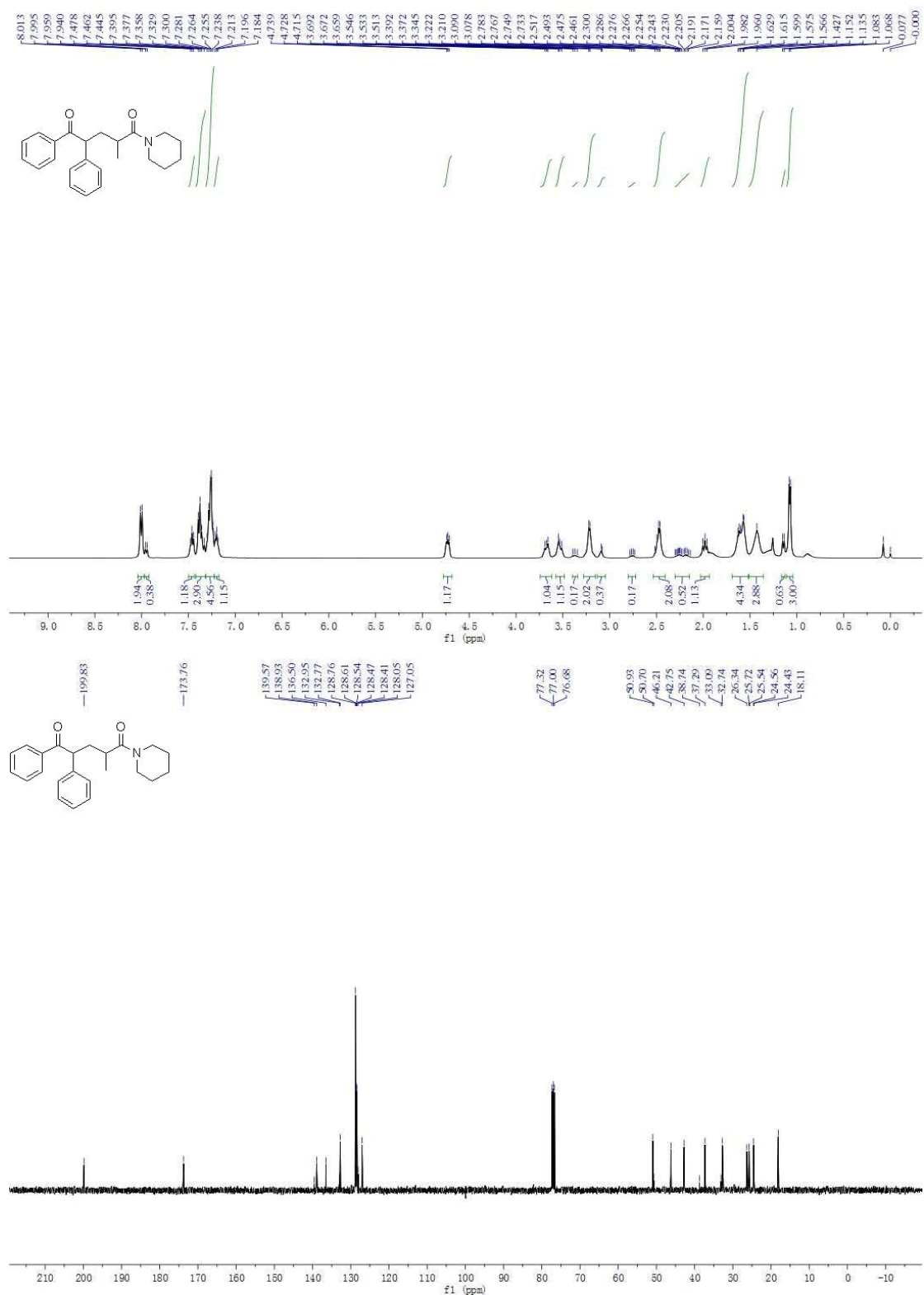
Methyl 2-methyl-5-oxo-4,5-diphenylpentanoate (**3ah**)



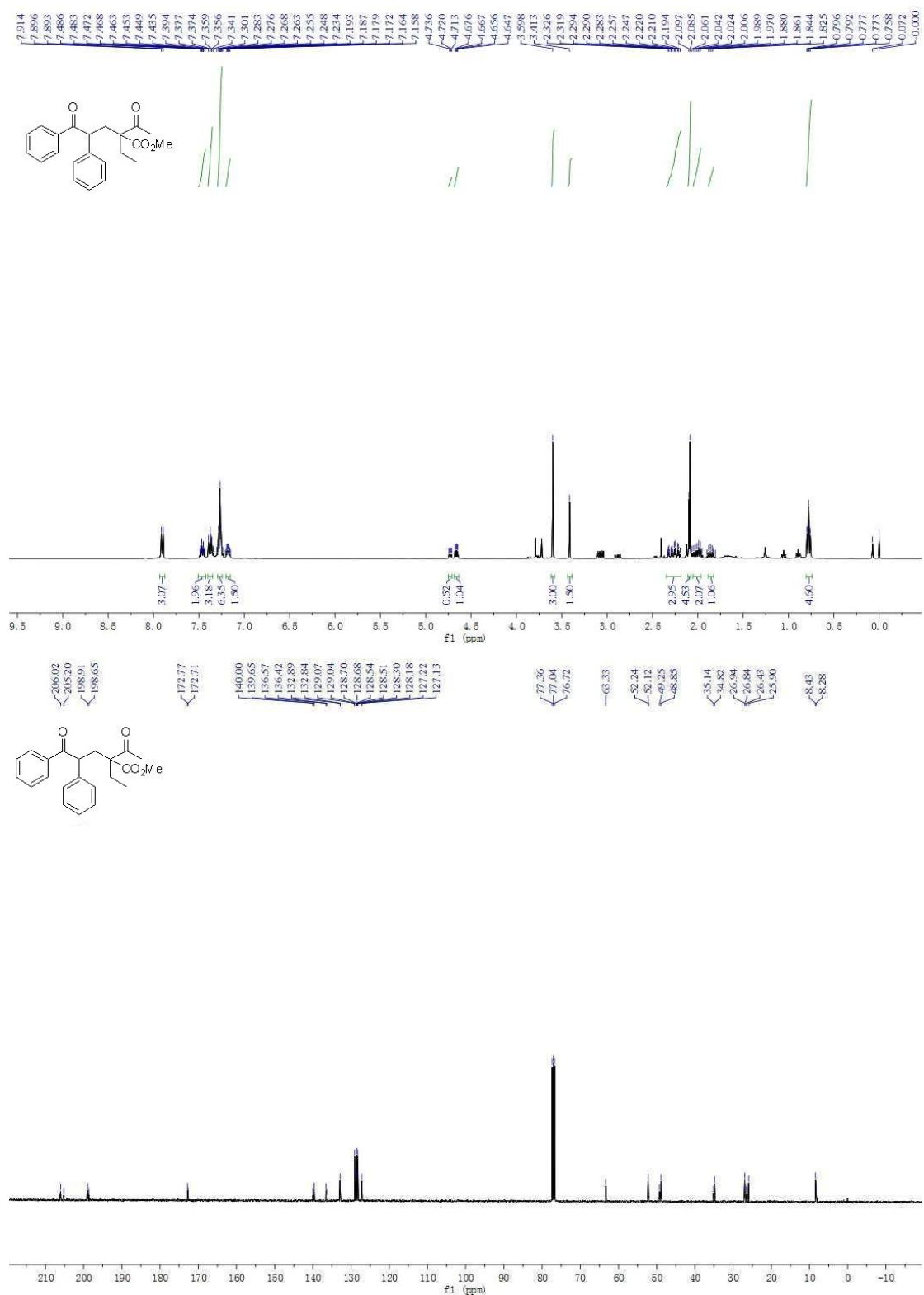
N,2-Dimethyl-5-oxo-N,4,5-triphenylpentanamide (3ai)



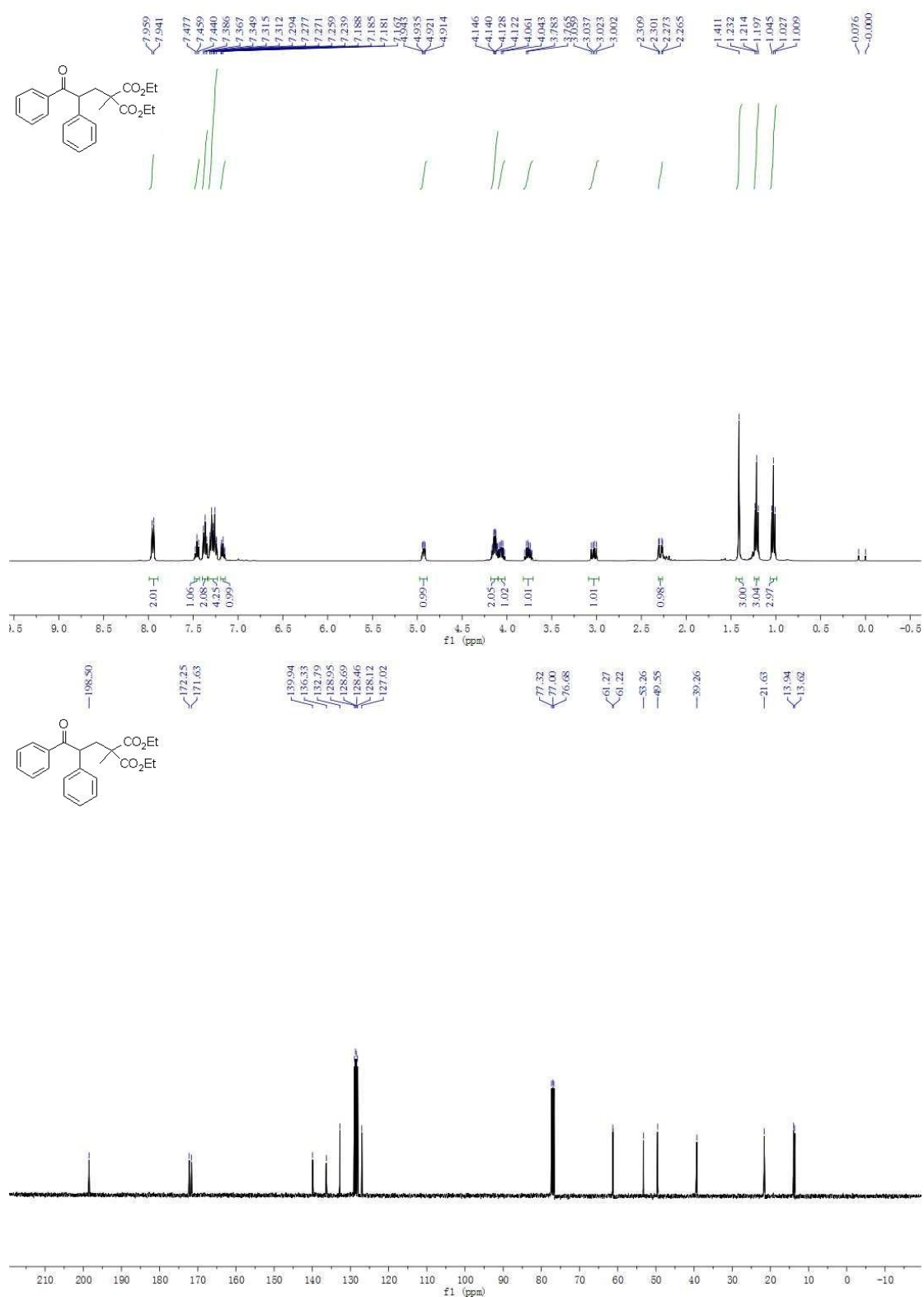
2-Methyl-4,5-diphenyl-1-(piperidin-1-yl)pentane-1,5-dione (**3aj**)



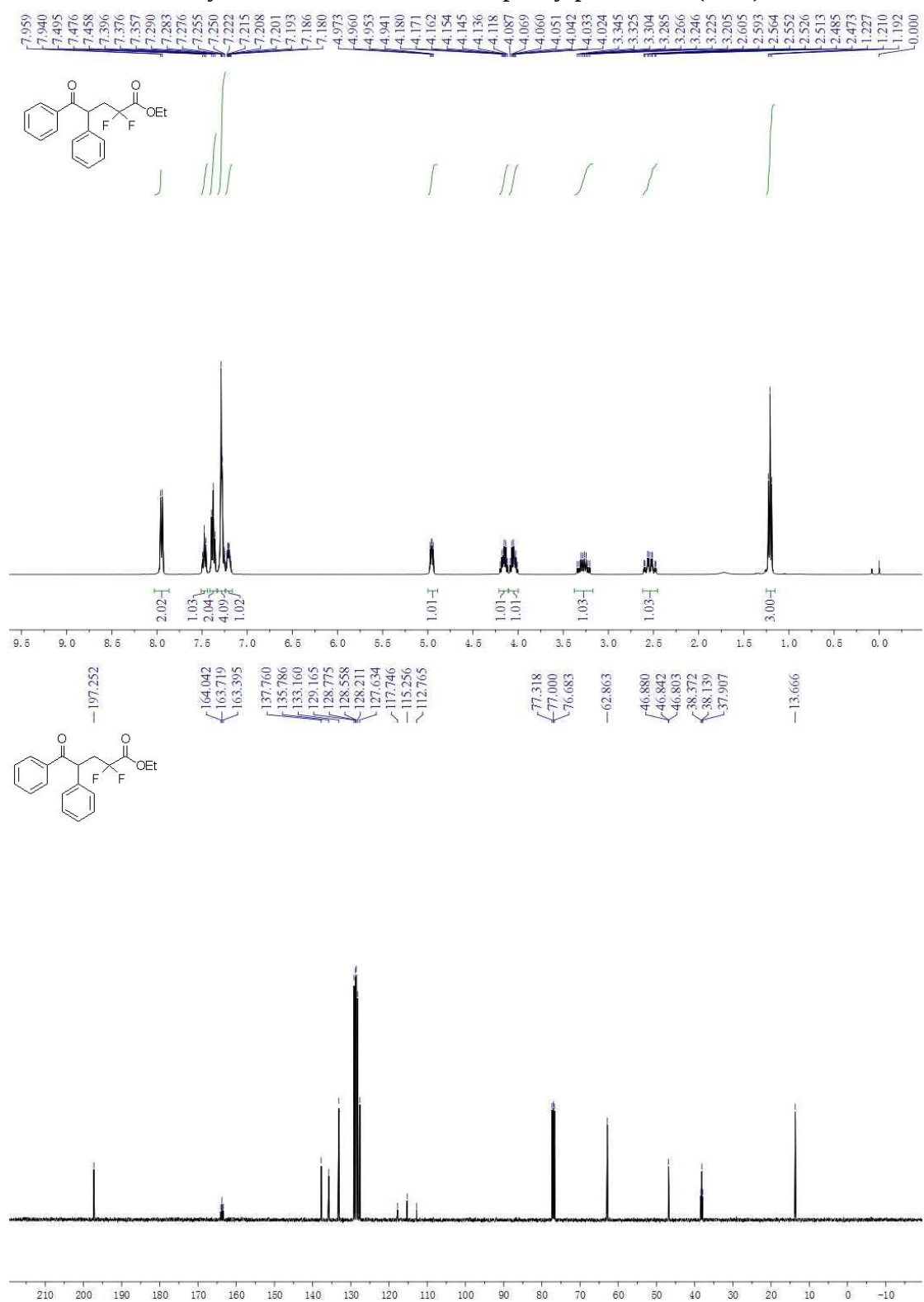
Methyl 2-acetyl-2-ethyl-5-oxo-4,5-diphenylpentanoate (3ak)

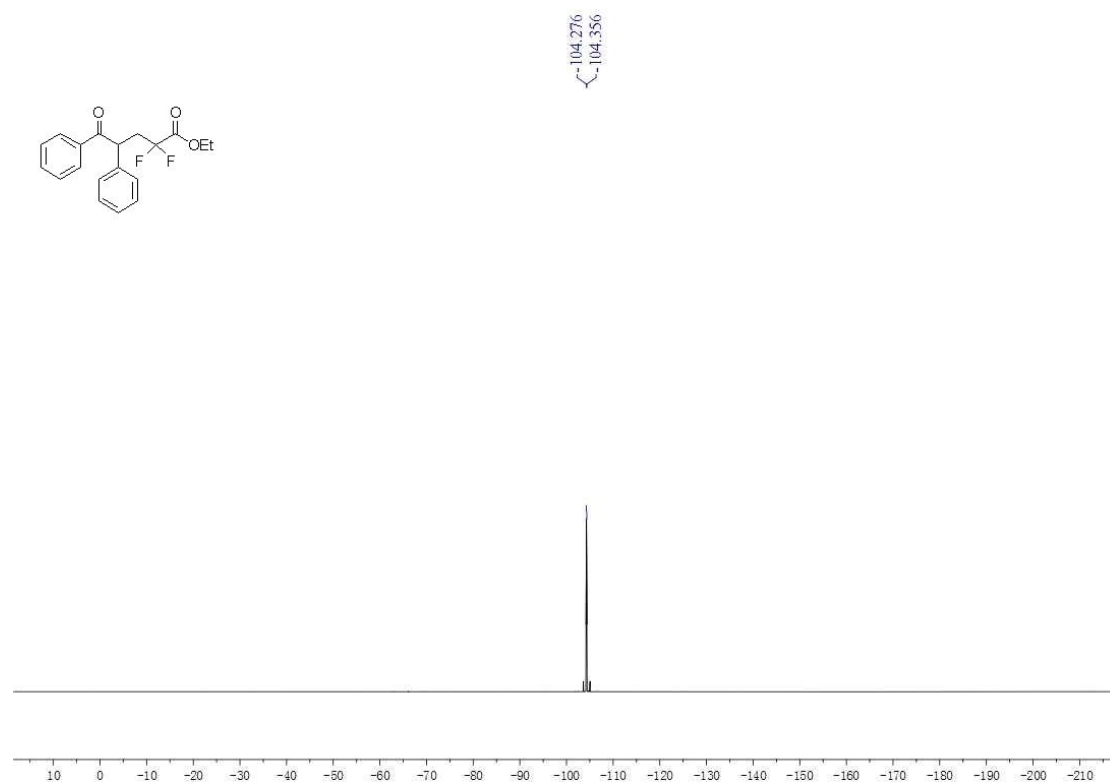


Diethyl 2-methyl-2-(3-oxo-2,3-diphenylpropyl)malonate (**3al**)

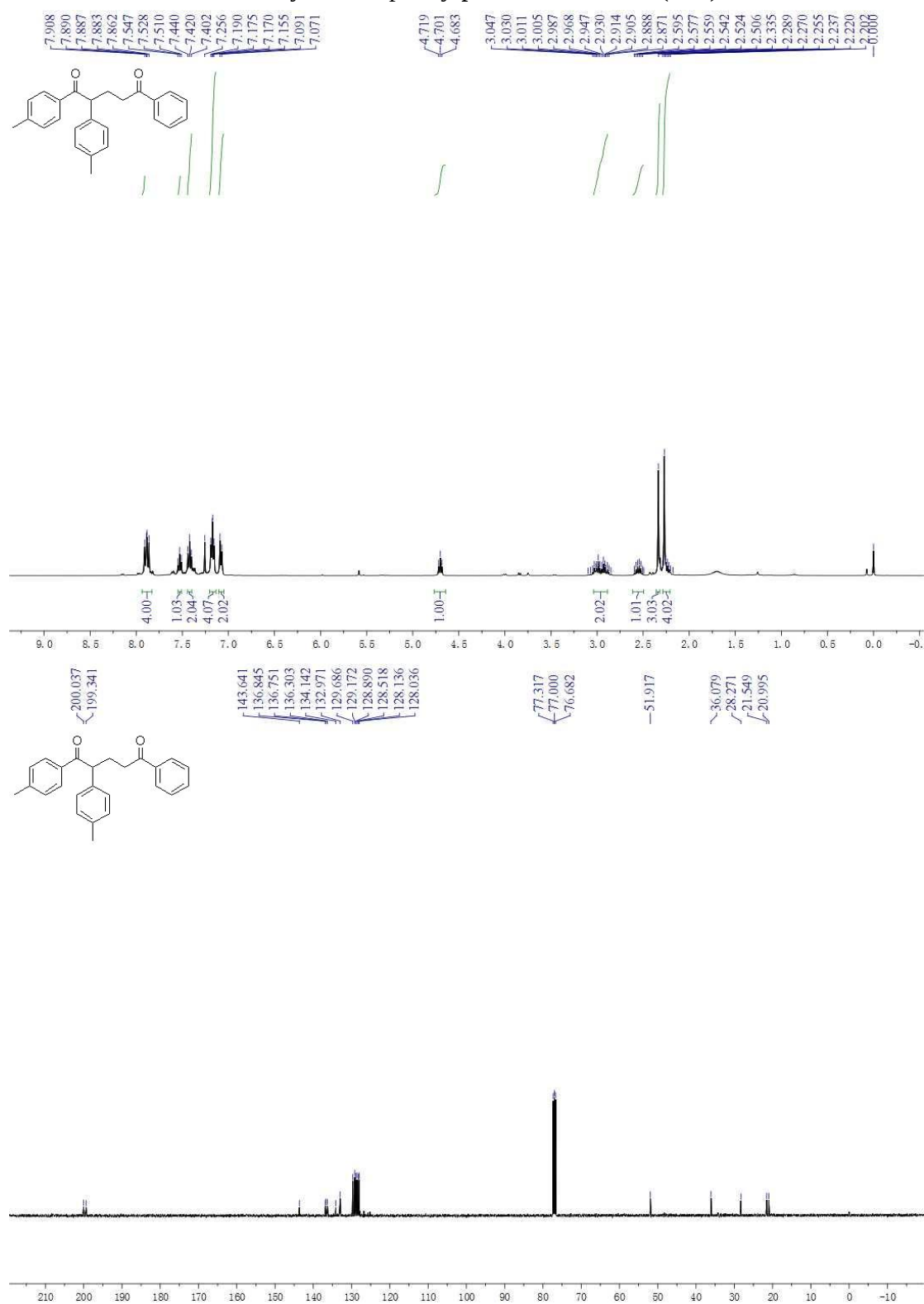


Ethyl 2,2-difluoro-5-oxo-4,5-diphenylpentanoate (**3am**)

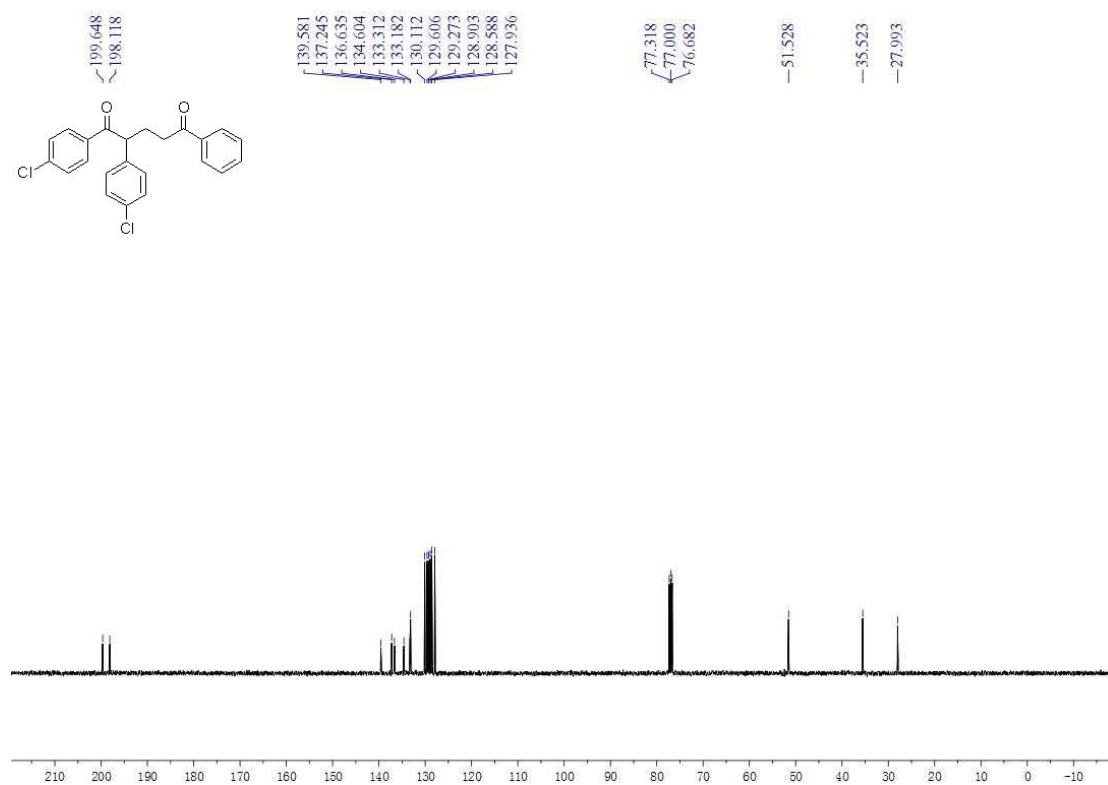
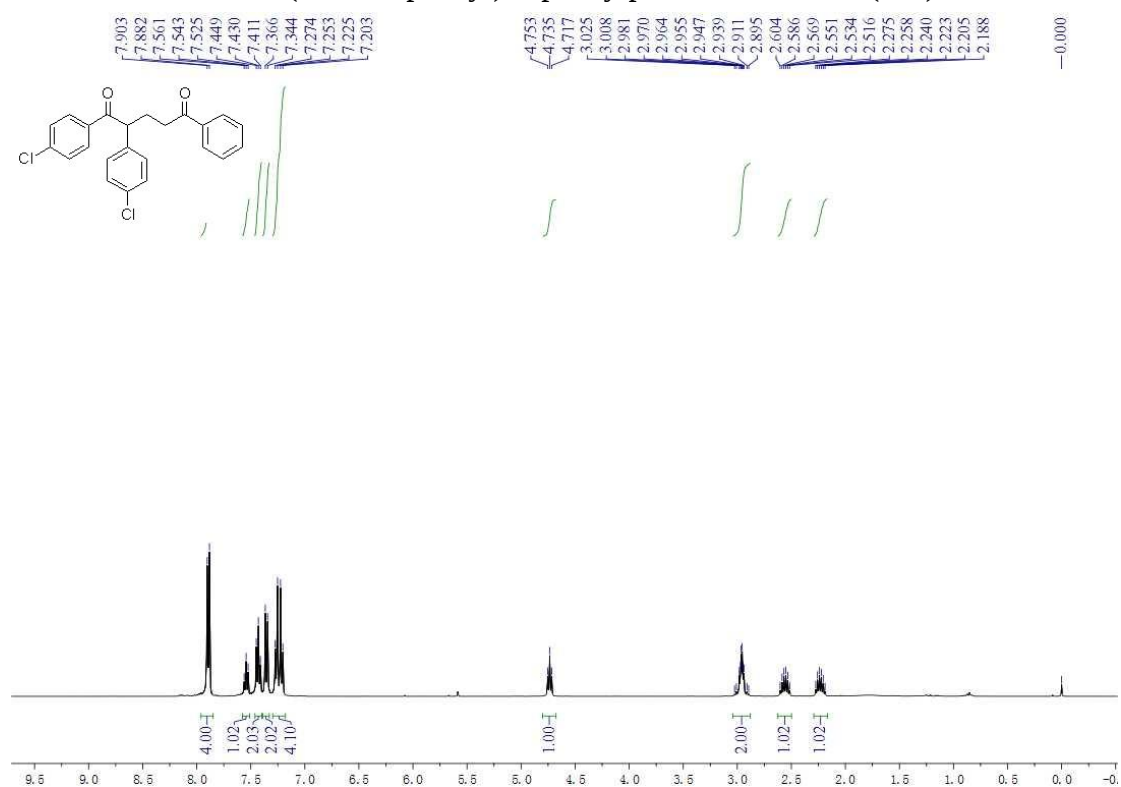




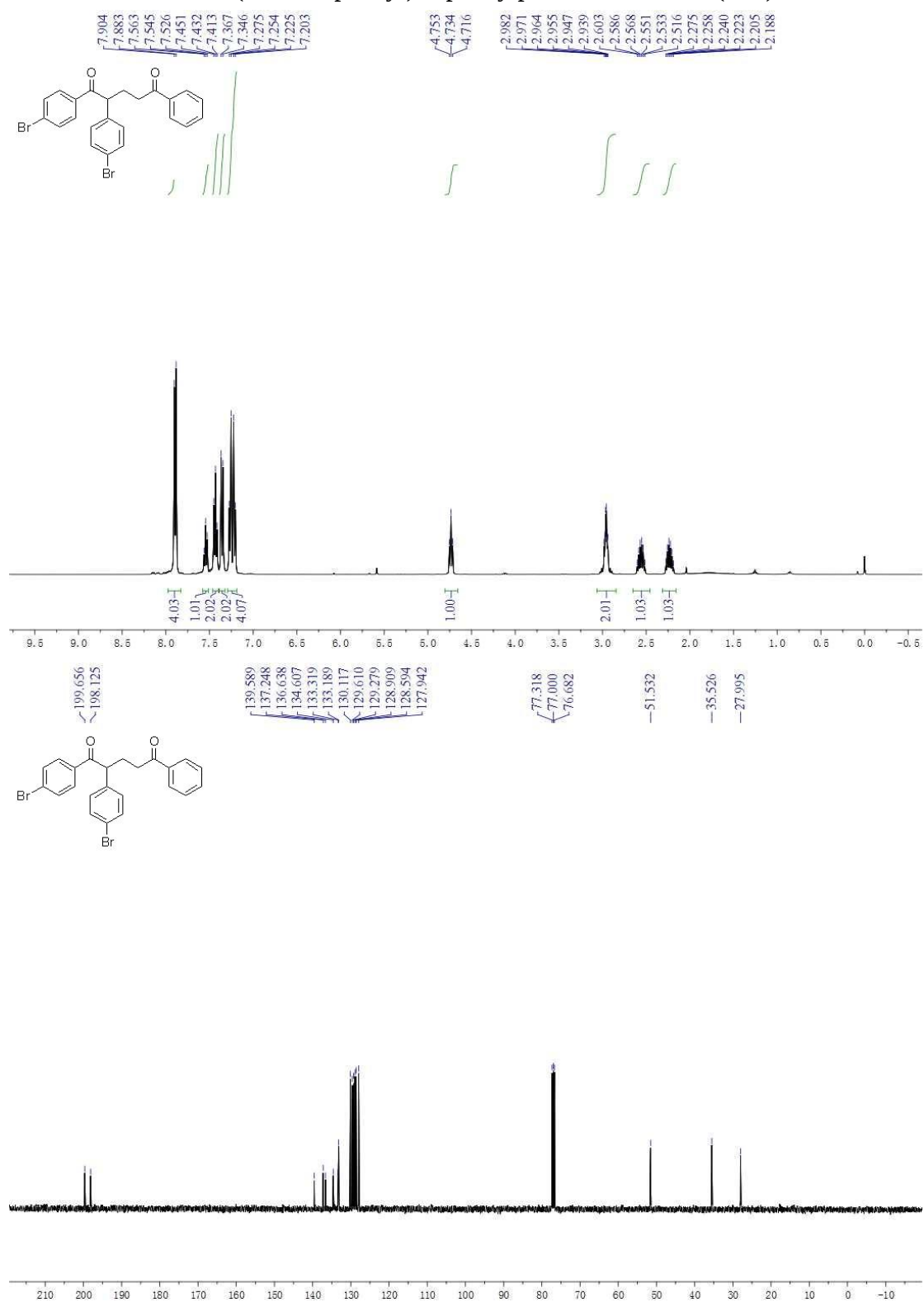
5-Phenyl-1,2-di-*p*-tolylpentane-1,5-dione (**3ba**)



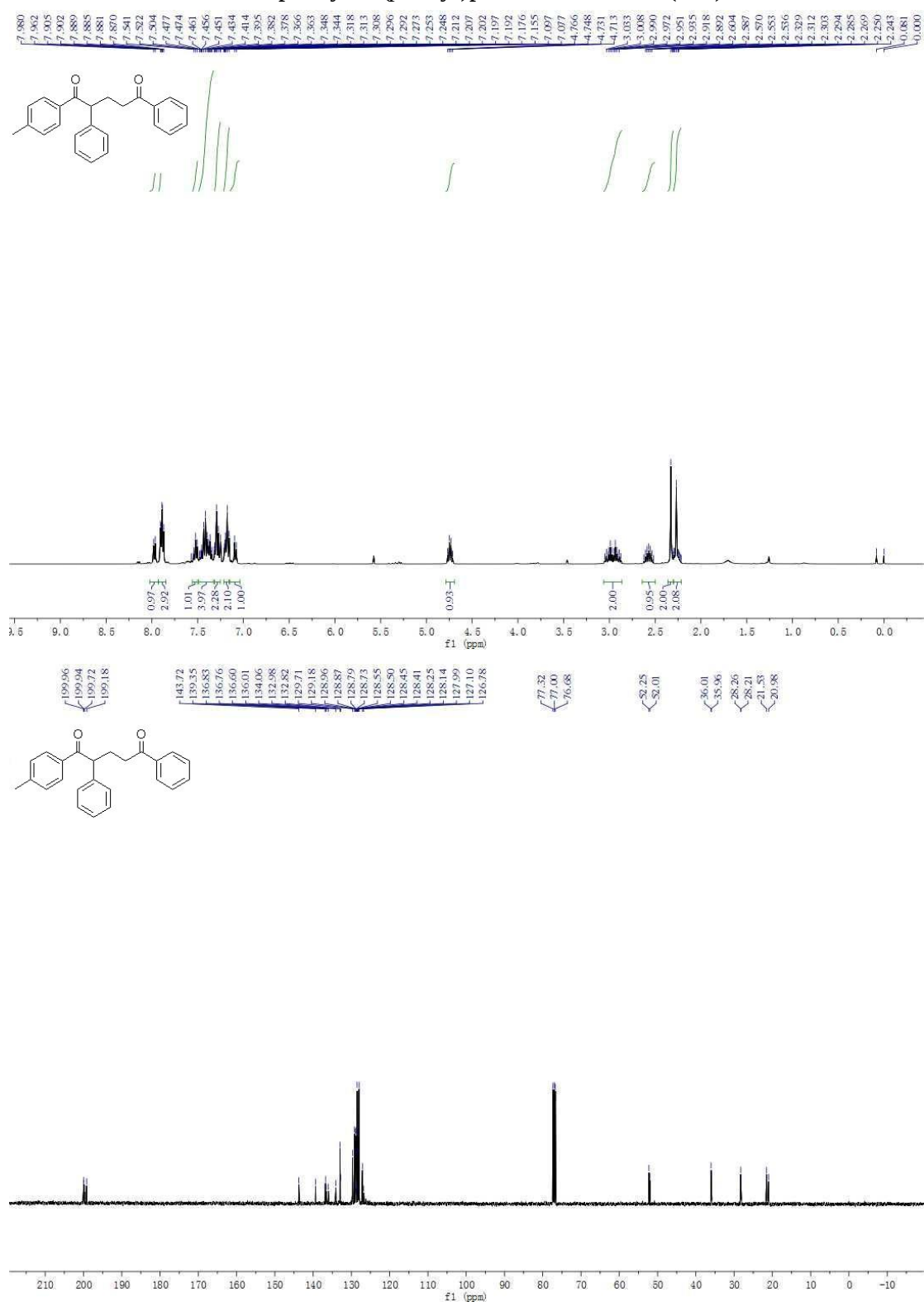
1,2-Bis(4-chlorophenyl)-5-phenylpentane-1,5-dione (**3ca**)



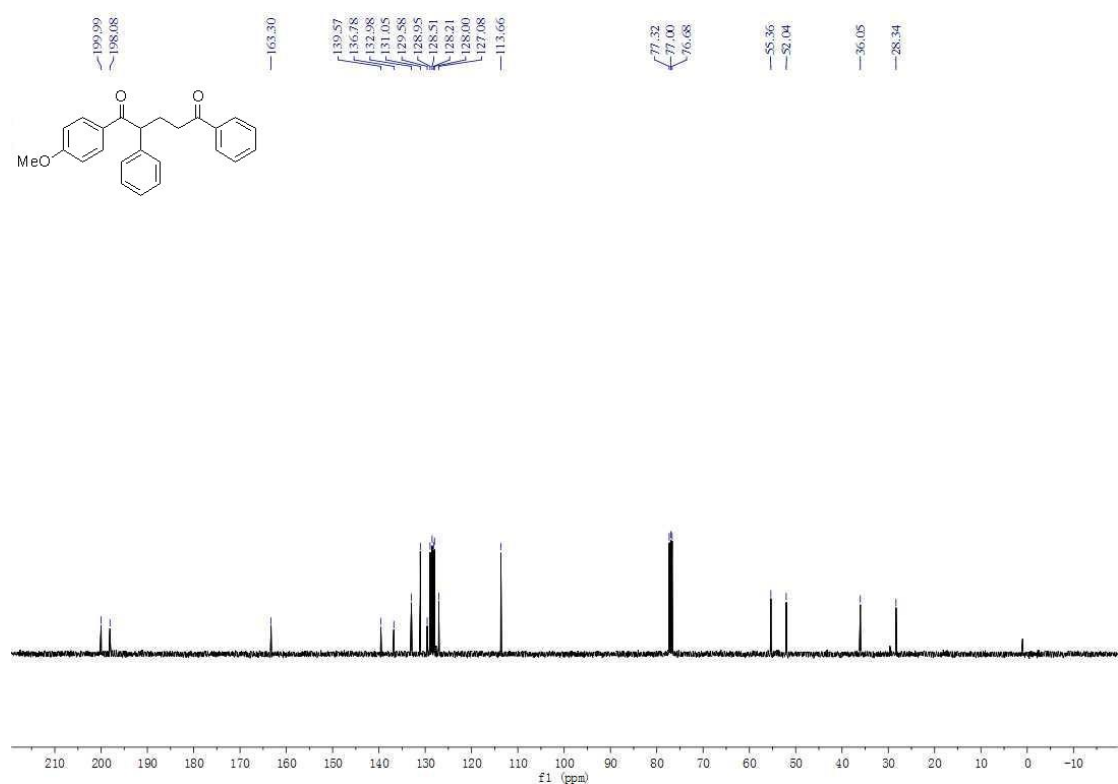
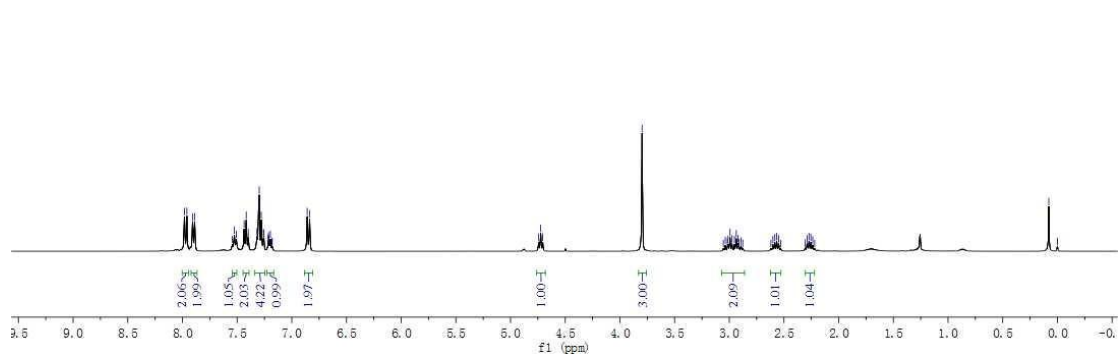
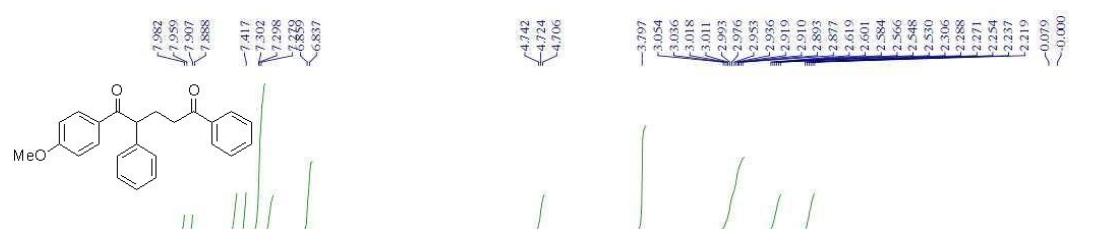
1,2-Bis(4-bromophenyl)-5-phenylpentane-1,5-dione (**3da**)

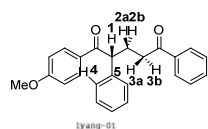


2,5-Diphenyl-1-(*p*-tolyl)pentane-1,5-dione (**3ea**)

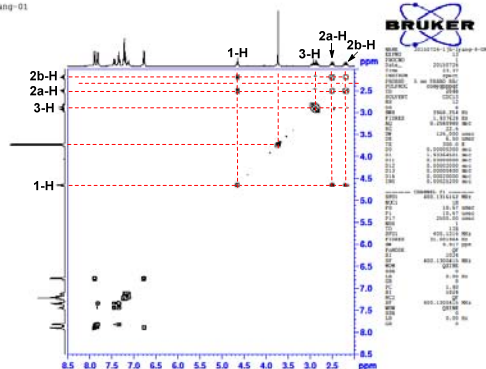


1-(4-Methoxyphenyl)-2,5-diphenylpentane-1,5-dione (**3fa**)

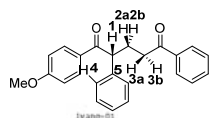




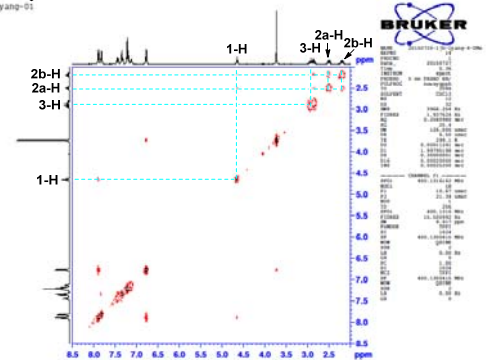
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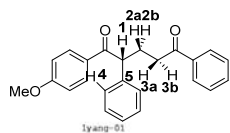
H-H COSY



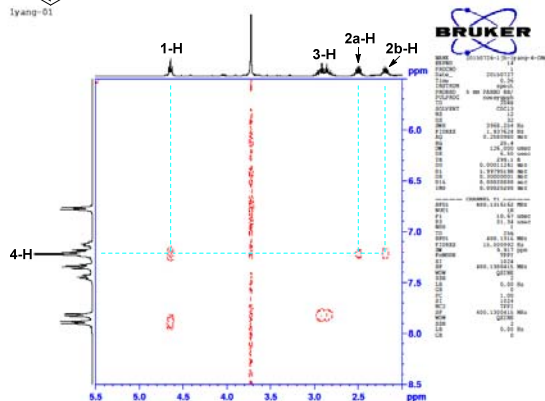
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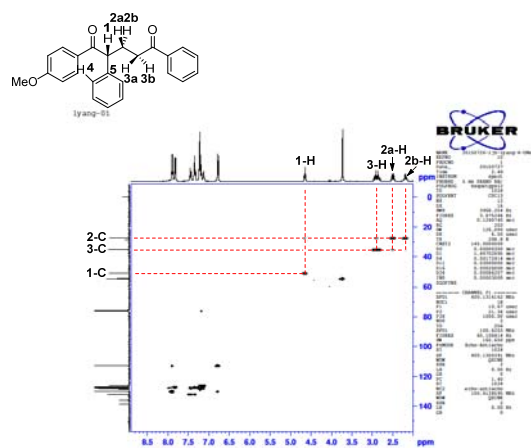
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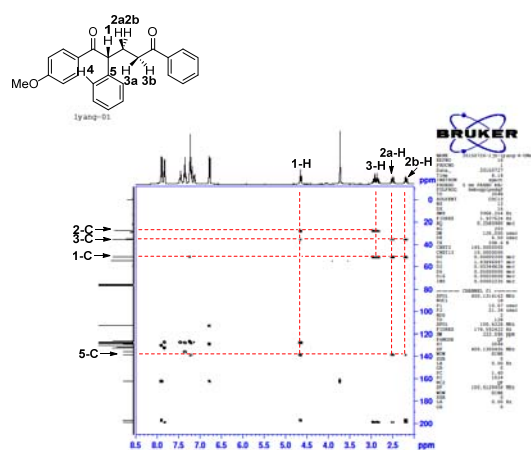
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H-H NOSEY

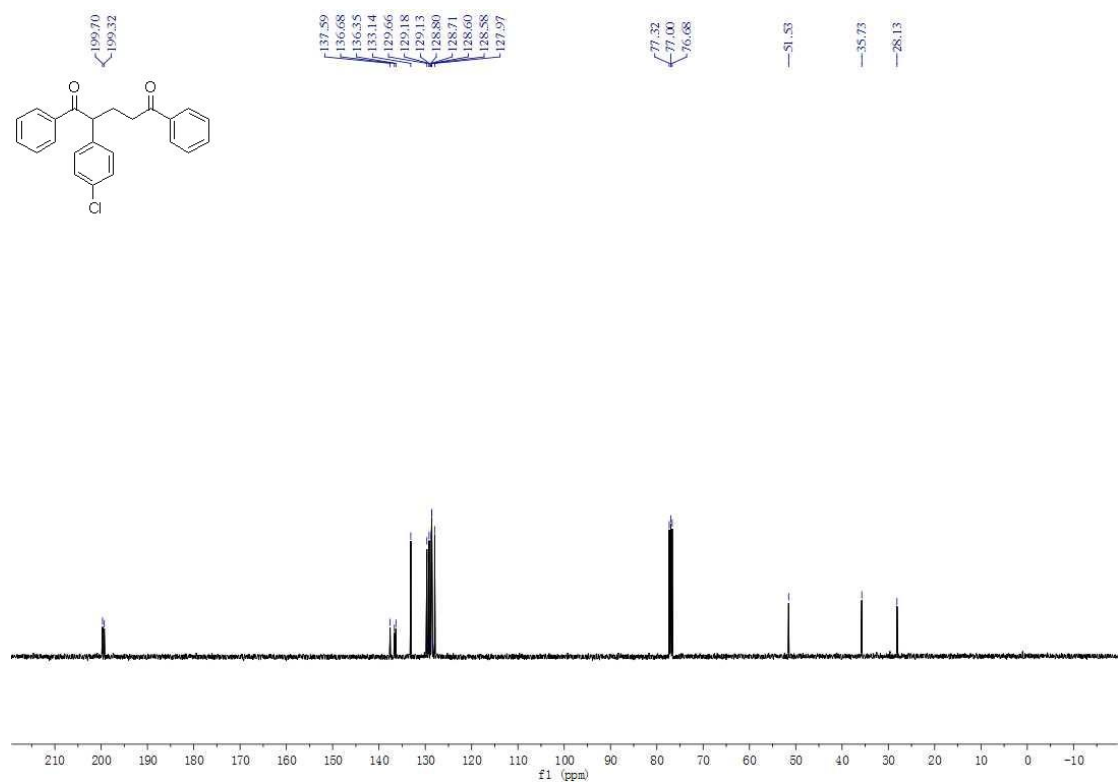
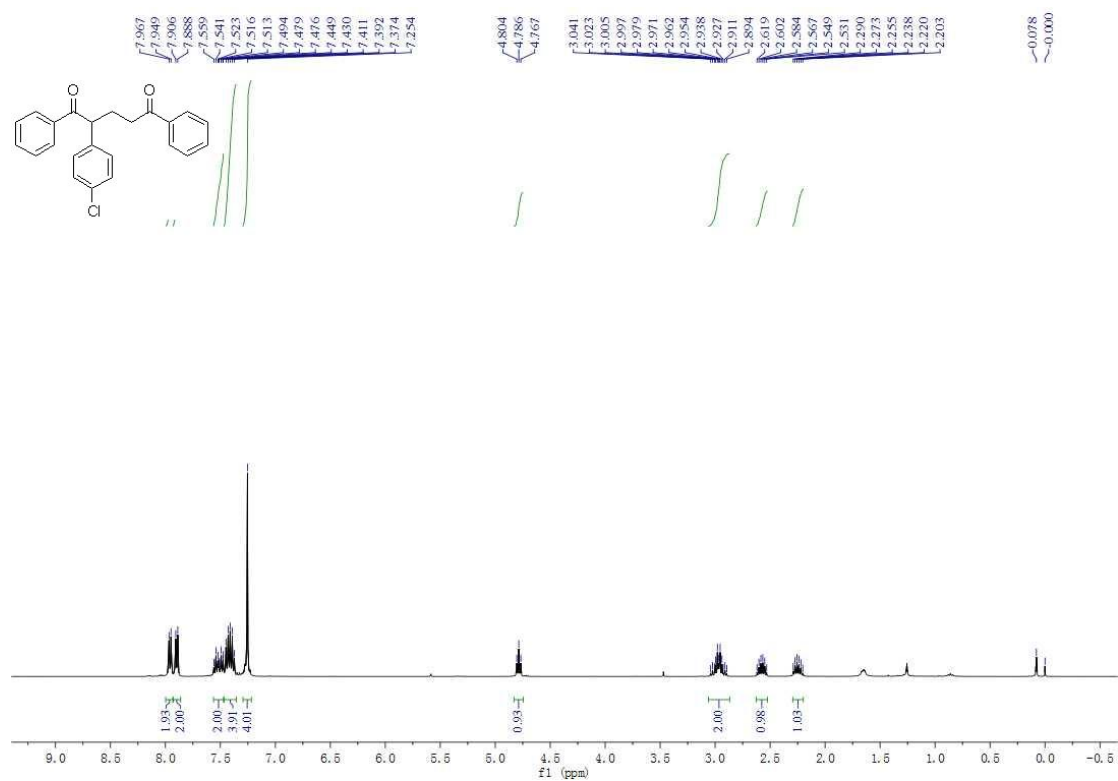


HSQC

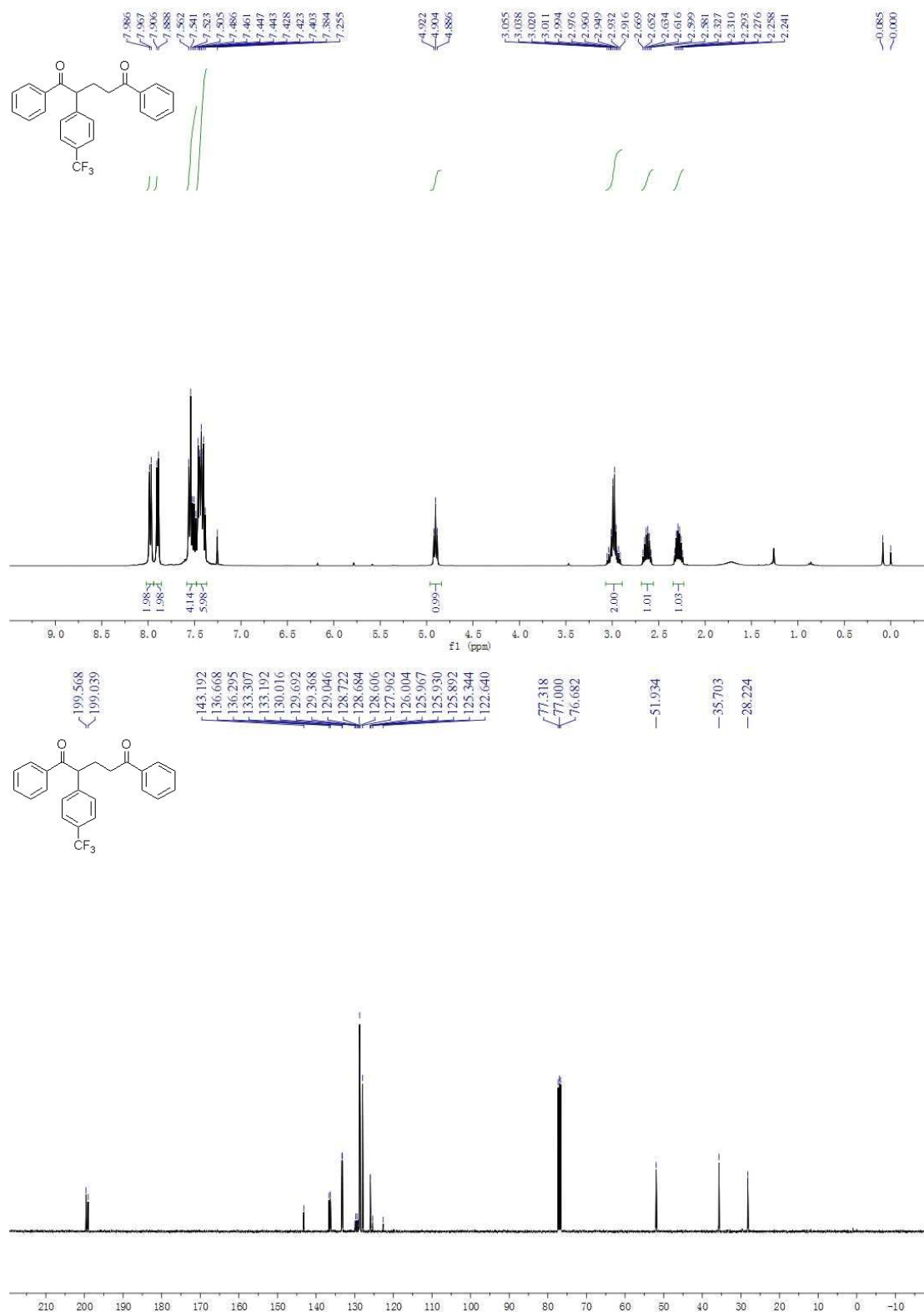


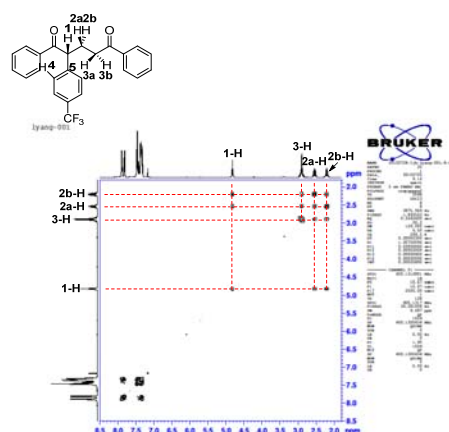
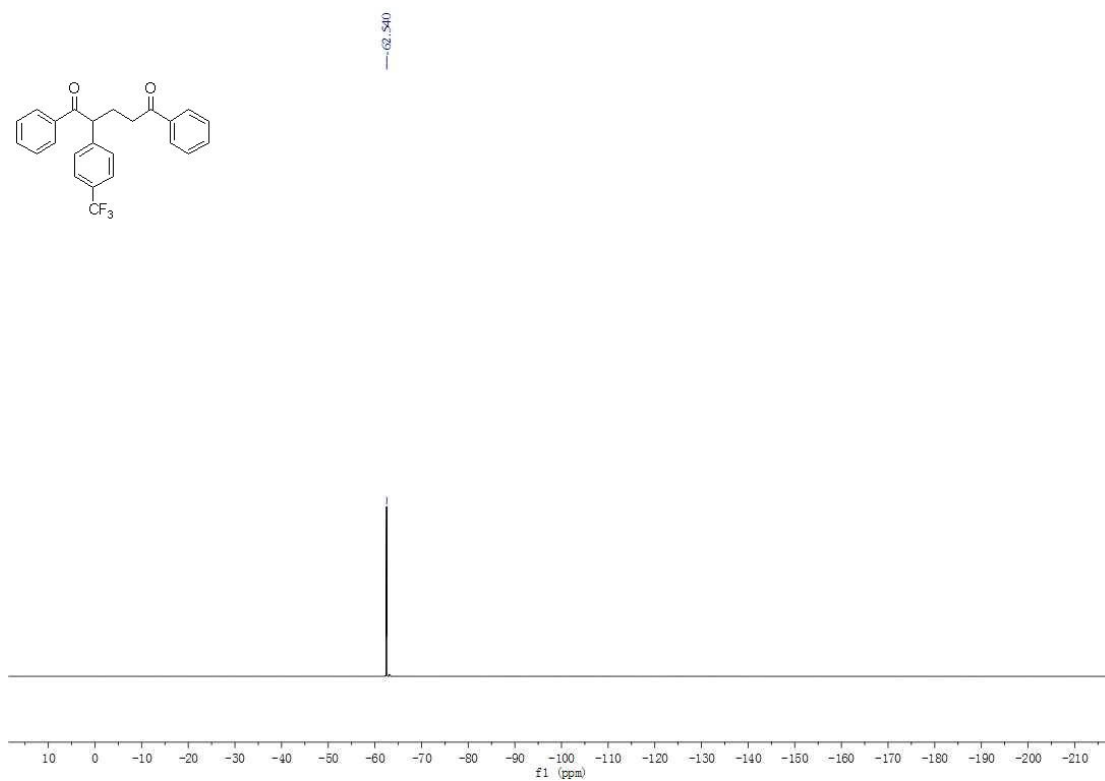
HMBC

2-(4-Chlorophenyl)-1,5-diphenylpentane-1,5-dione (3ga)

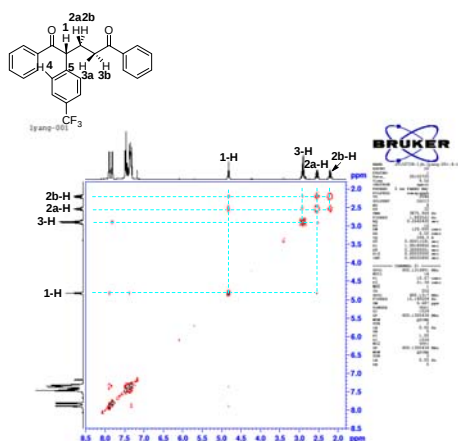


1,5-Diphenyl-2-(4-(trifluoromethyl)phenyl)pentane-1,5-dione (**3ha**)

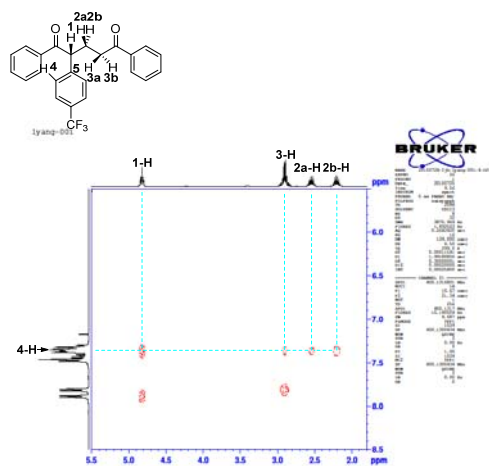




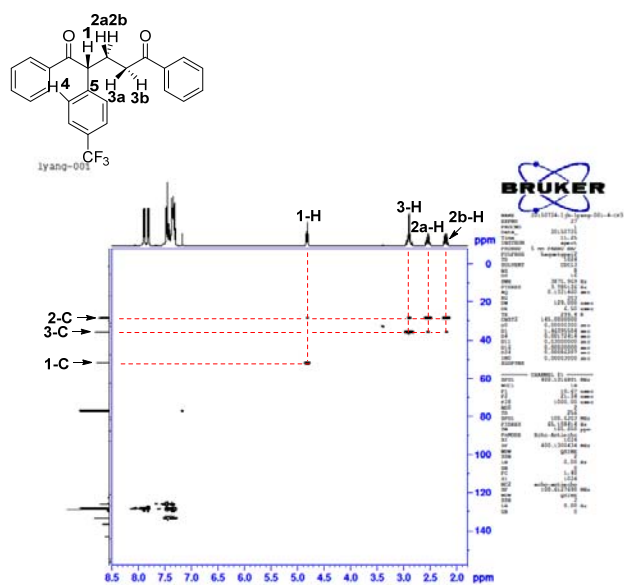
H-H COSY



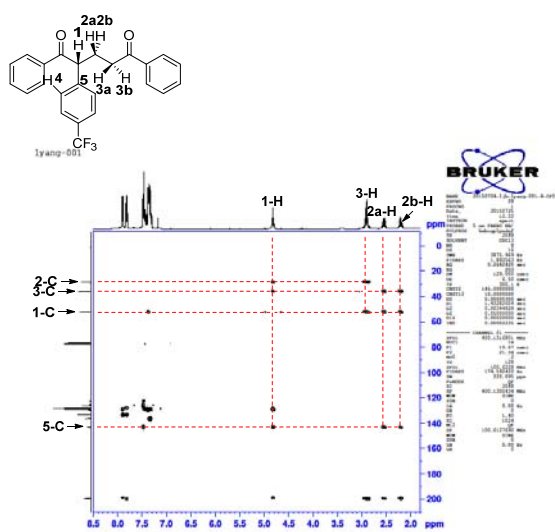
H-H NOSEY



H-H NOSEY

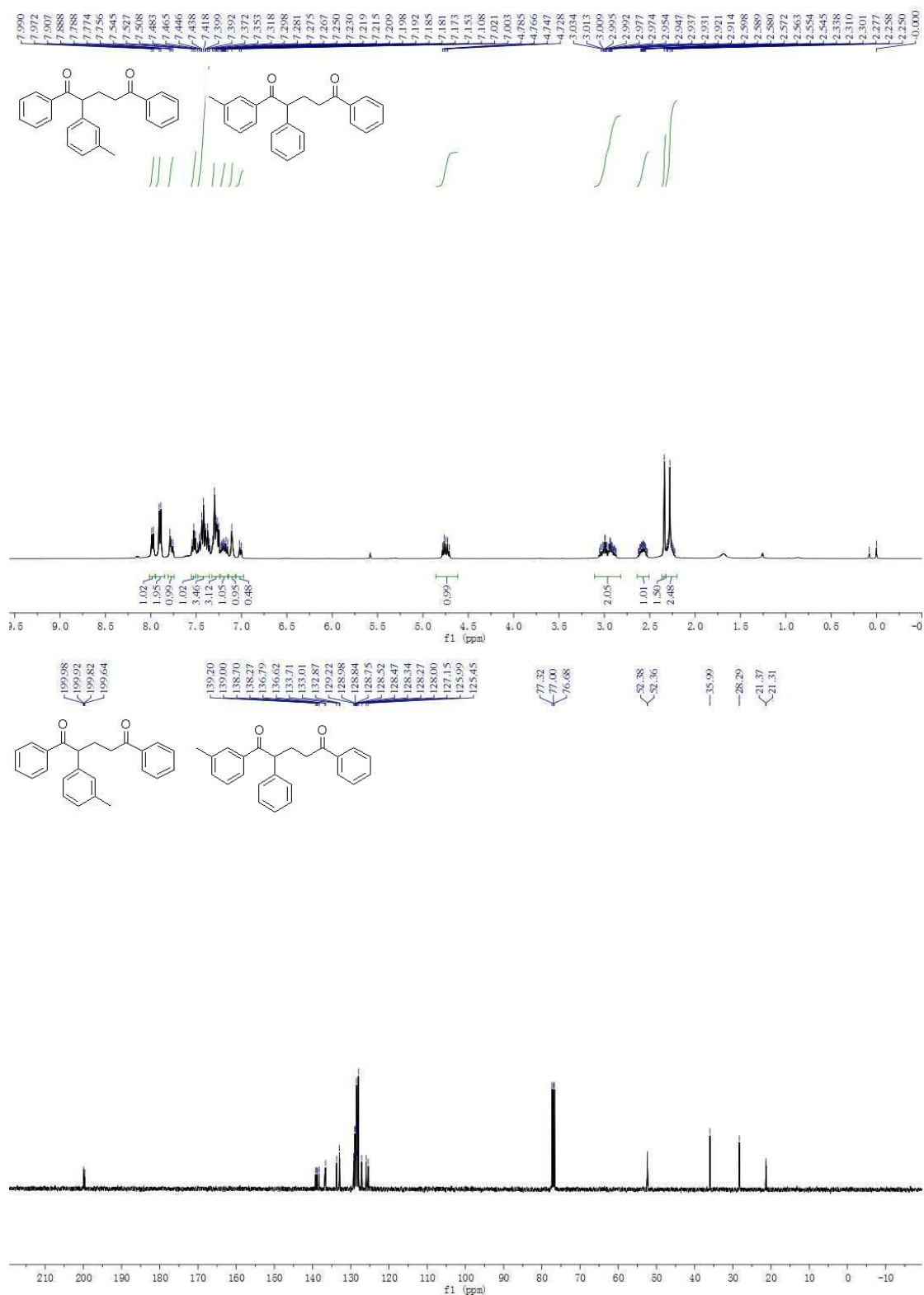


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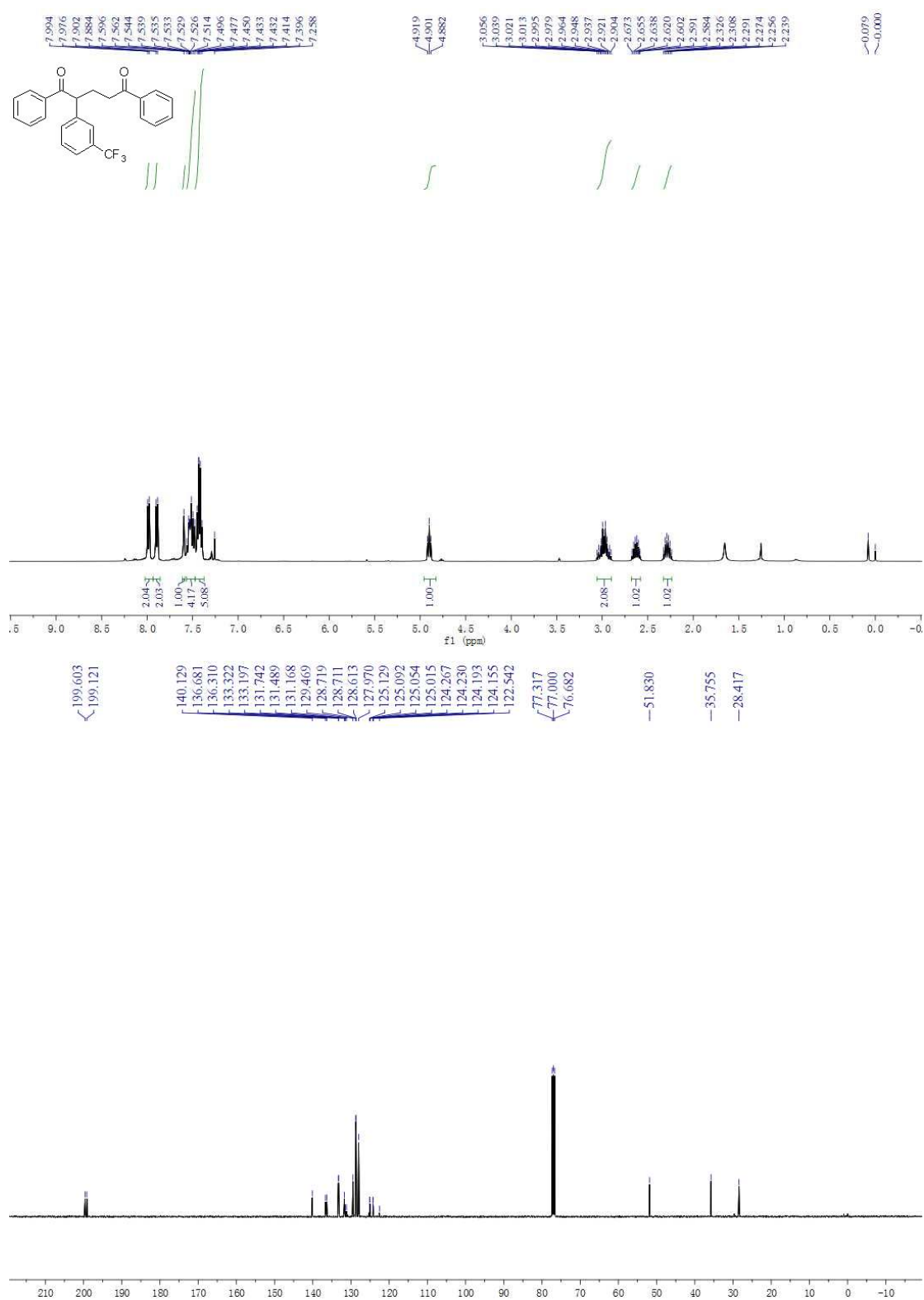


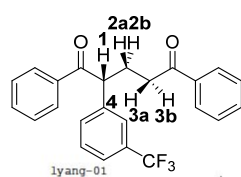
HMBC

1,5-Diphenyl-2-(*m*-tolyl)pentane-1,5-dione (**3ia**)



1,5-Diphenyl-2-(3-(trifluoromethyl)phenyl)pentane-1,5-dione (**3ja**)







H-H NOSEY

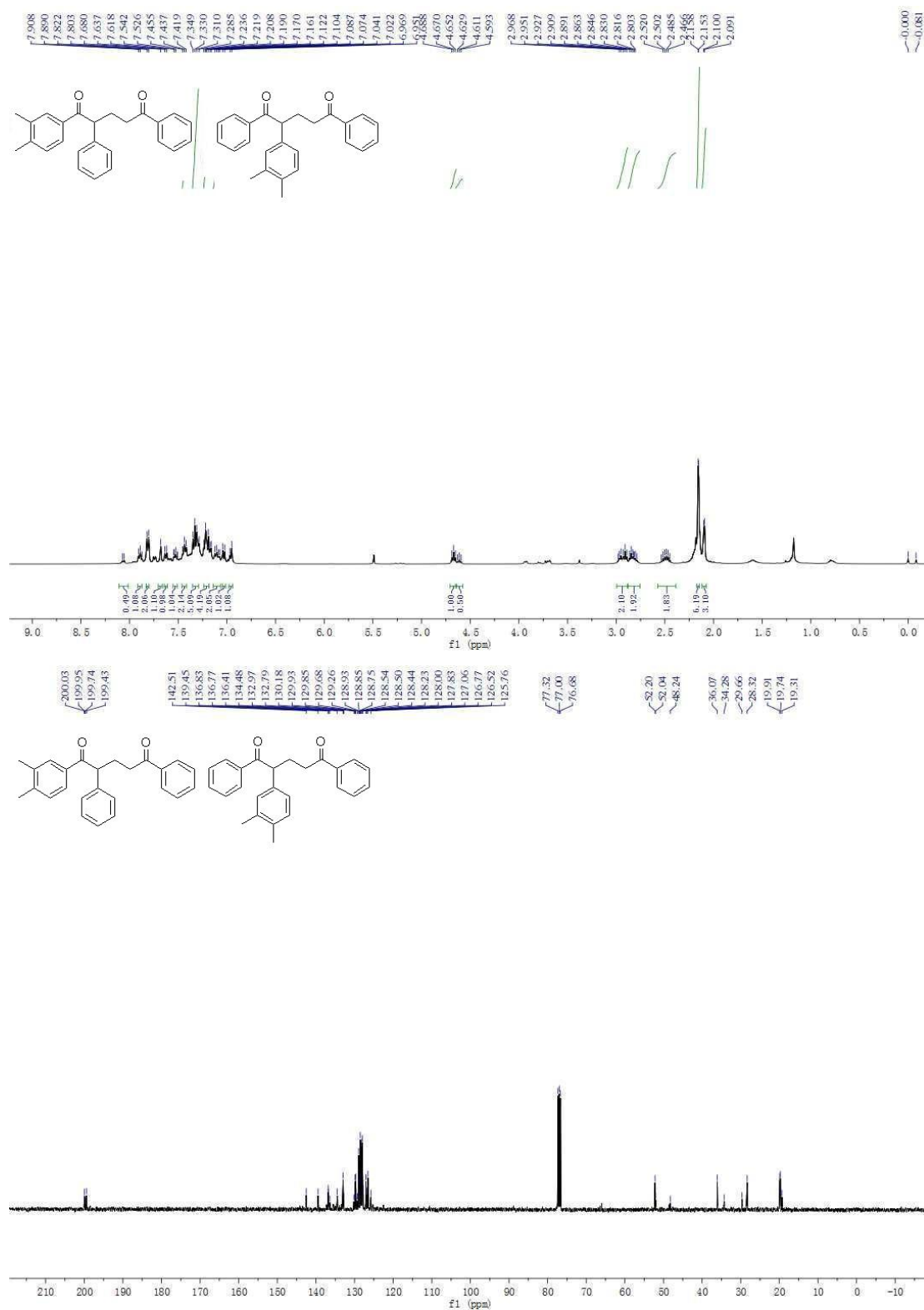


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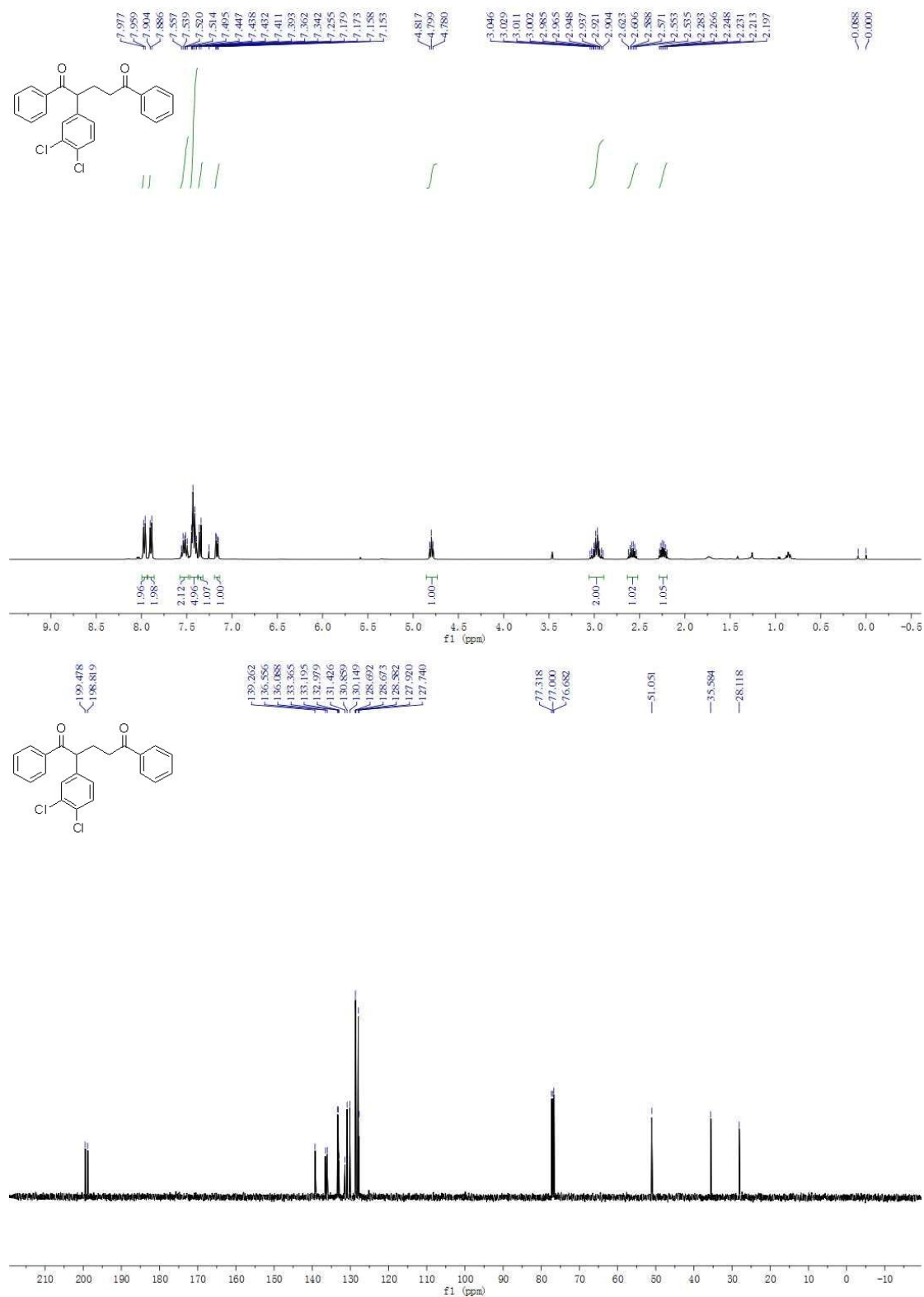


S33

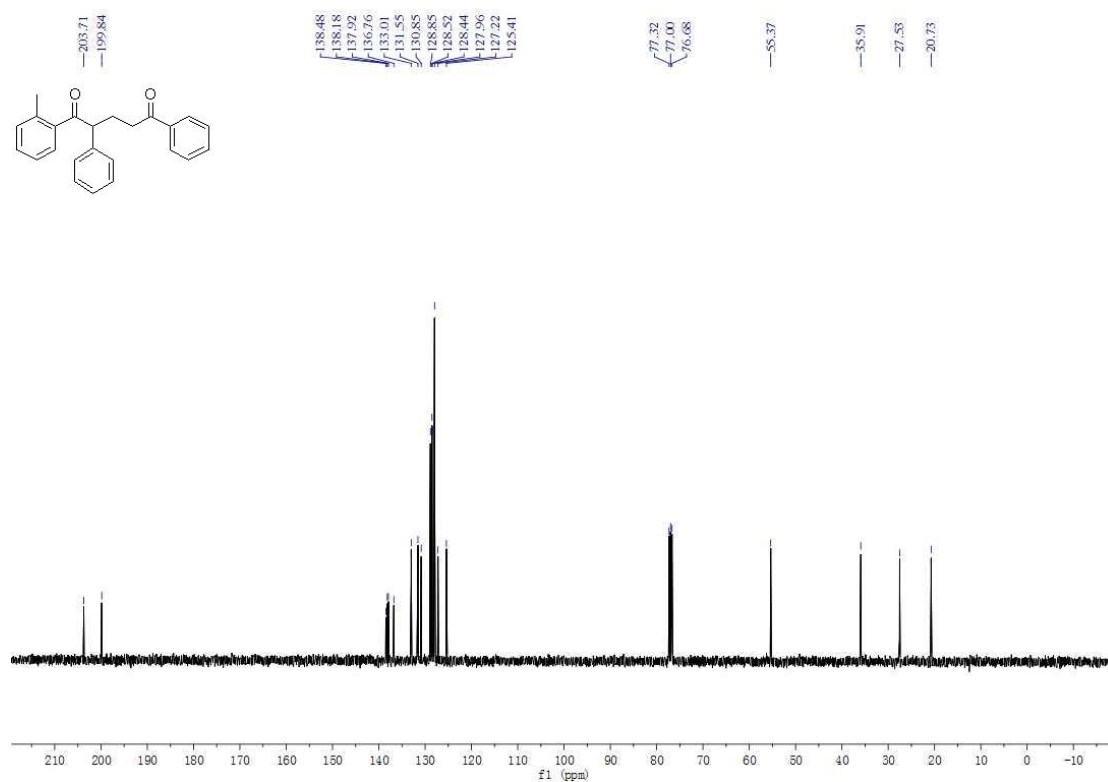
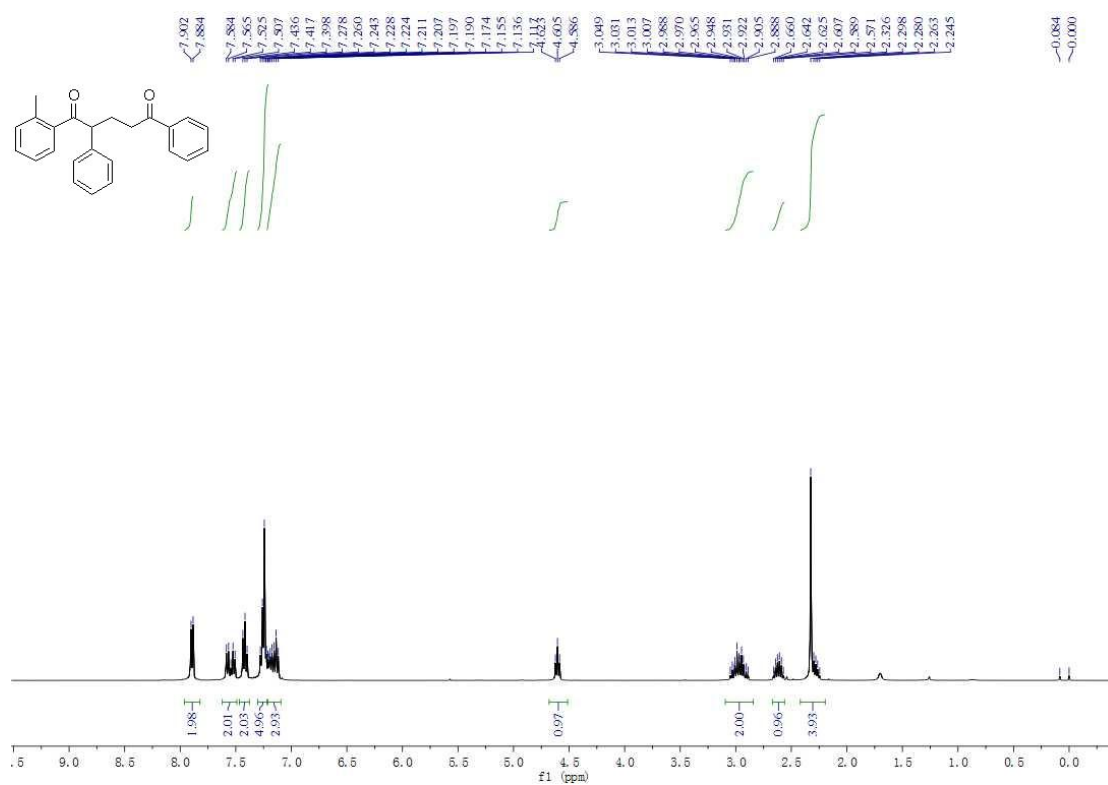
1-(3,4-Dimethylphenyl)-2,5-diphenylpentane-1,5-dione (3ka)



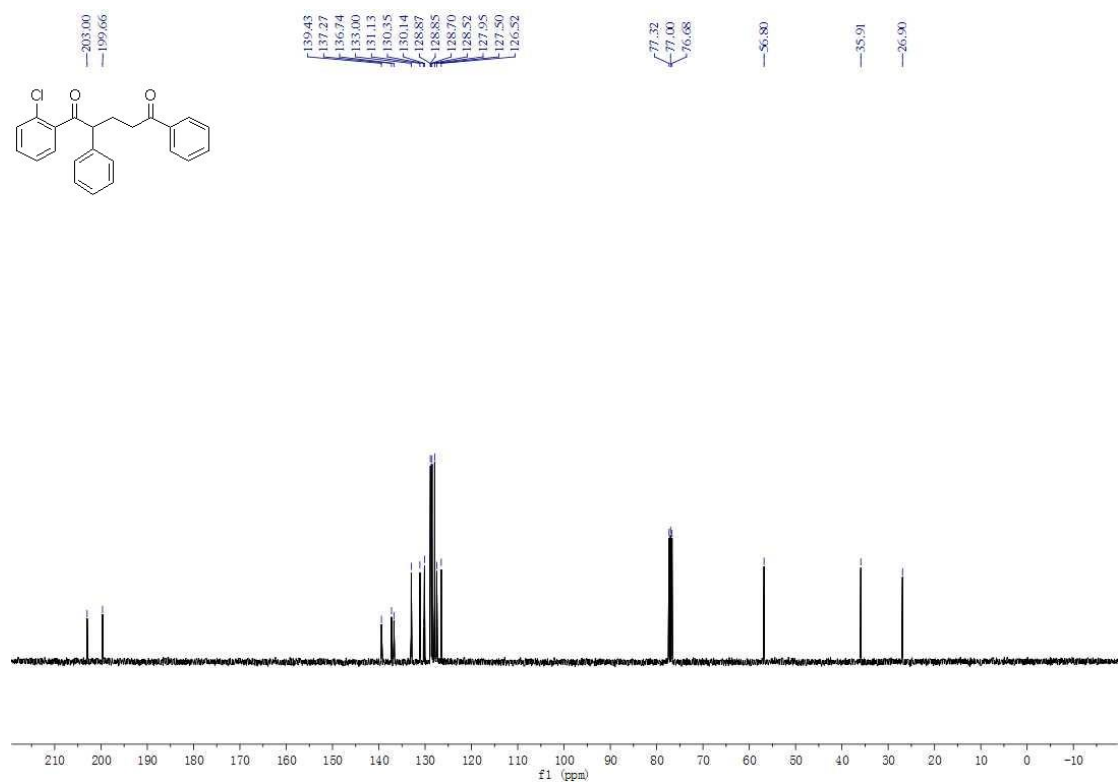
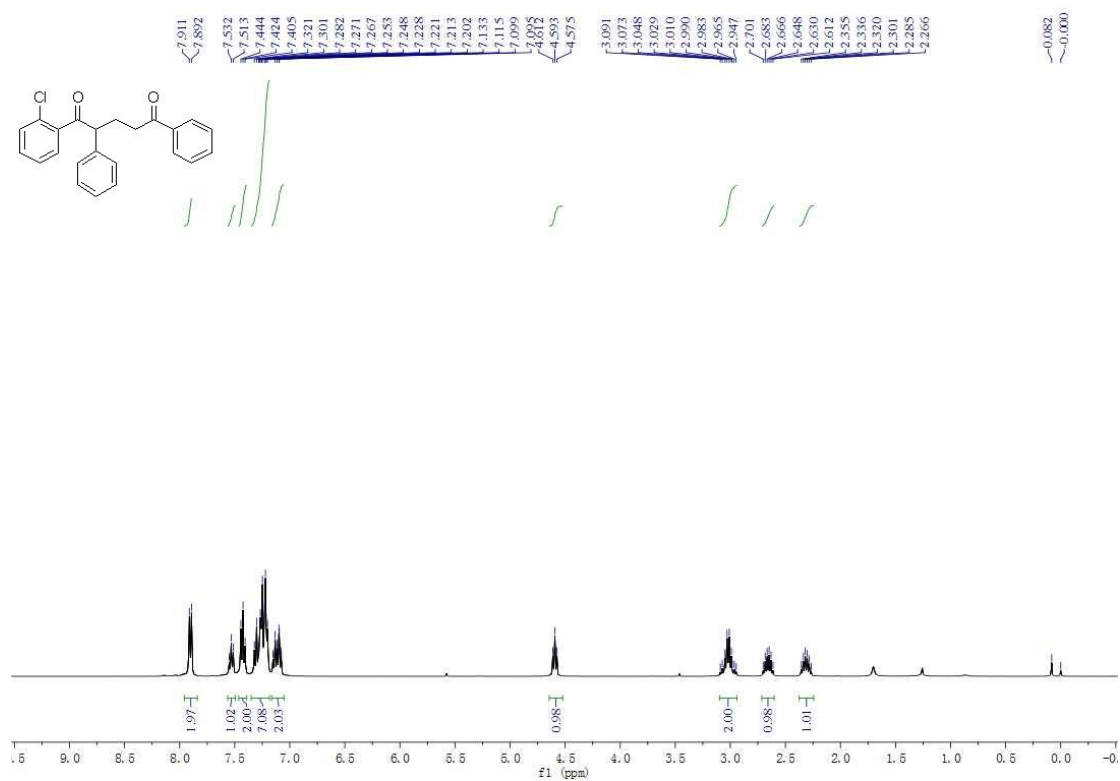
2-(3,4-Dichlorophenyl)-1,5-diphenylpentane-1,5-dione (**3la**)



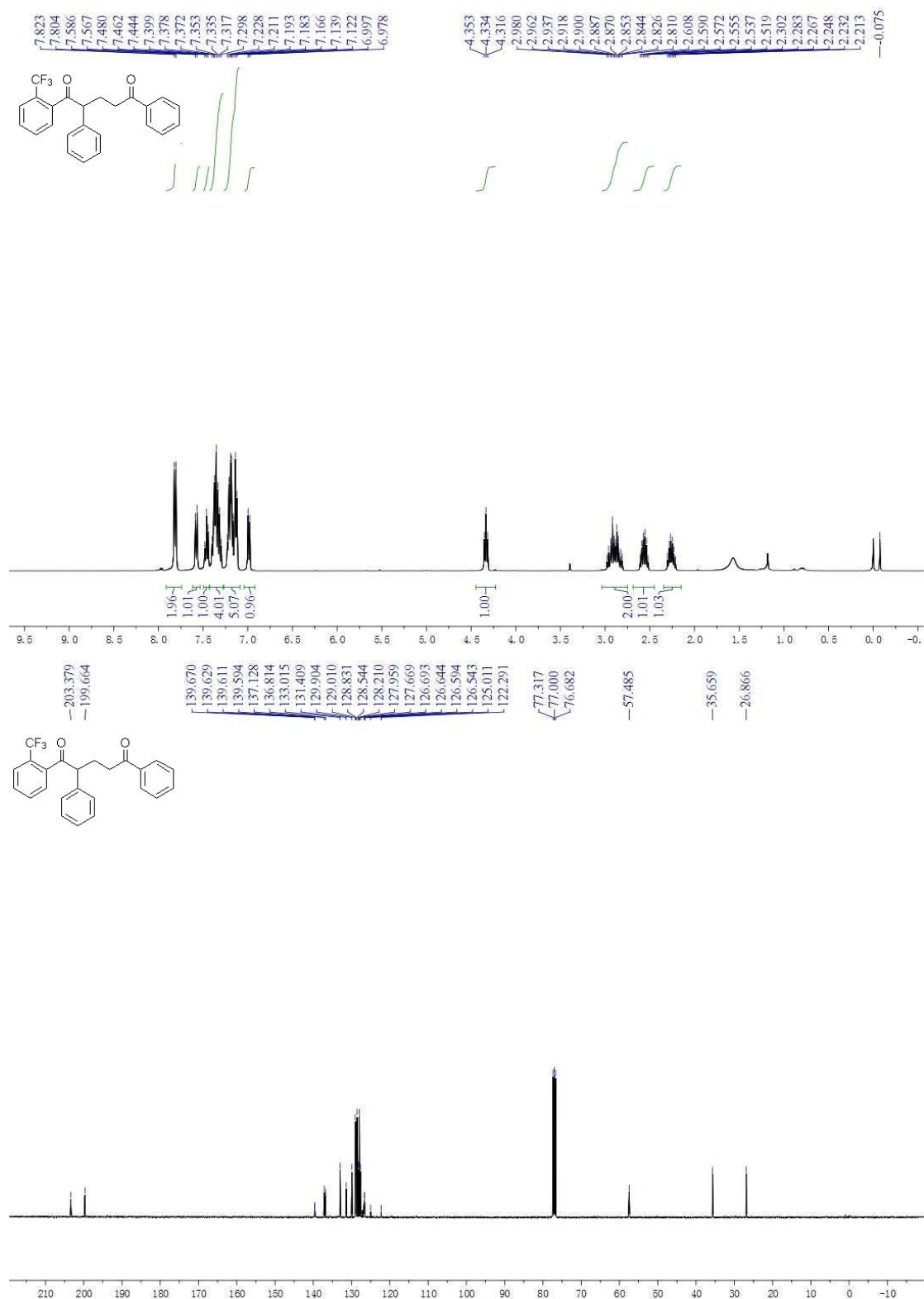
2,5-Diphenyl-1-(o-tolyl)pentane-1,5-dione (**3ma**)

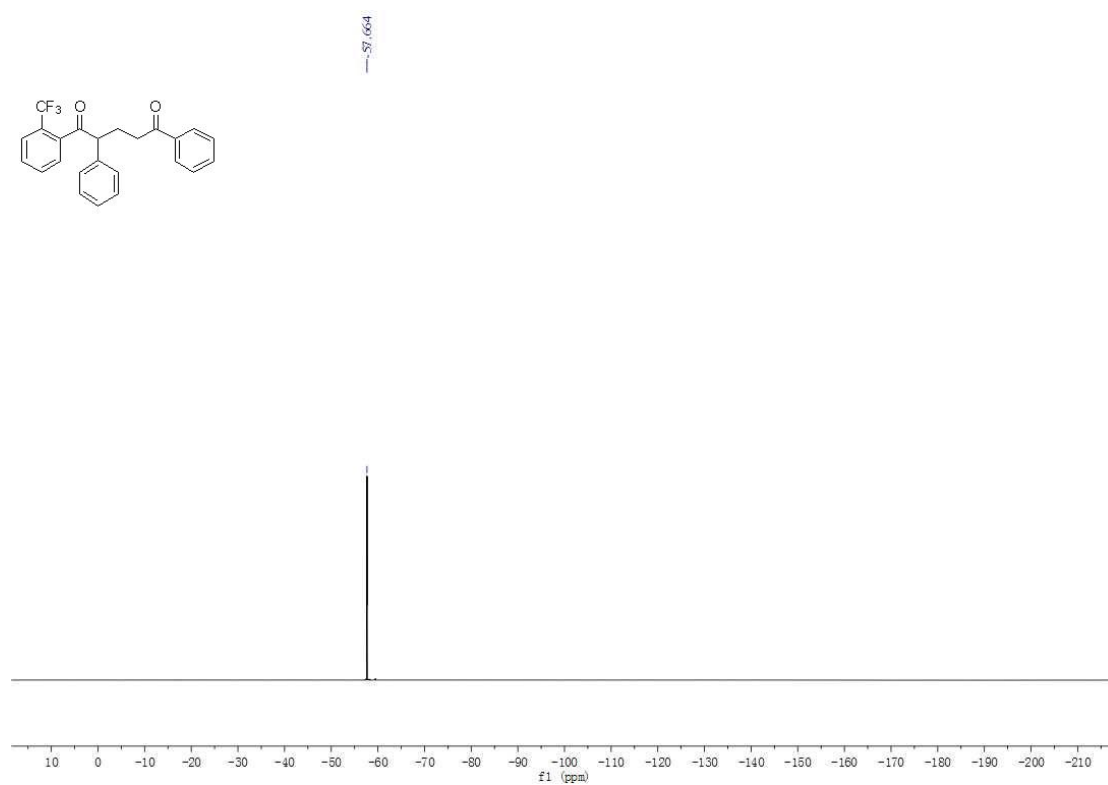


1-(2-Chlorophenyl)-2,5-diphenylpentane-1,5-dione (**3na**)

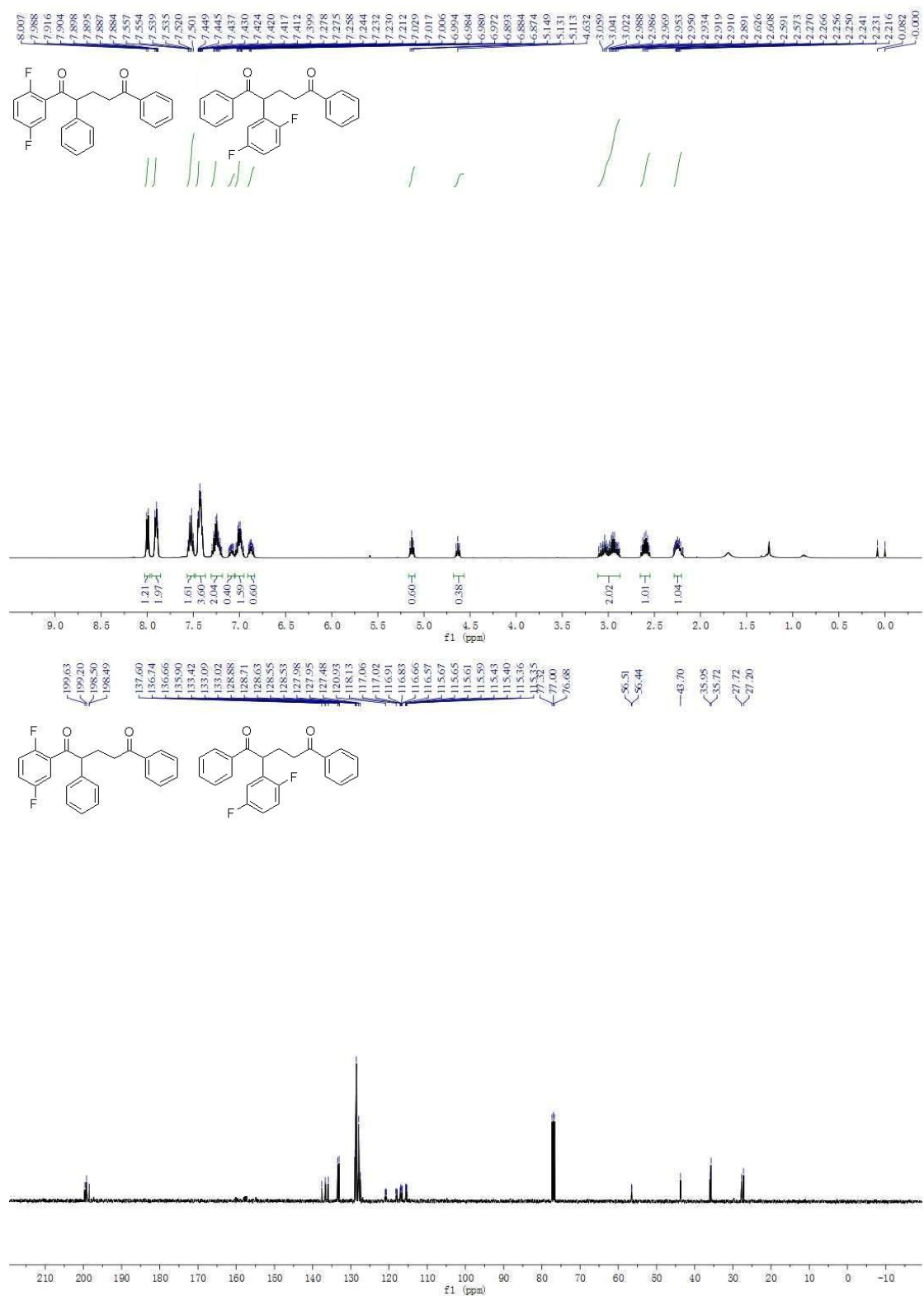


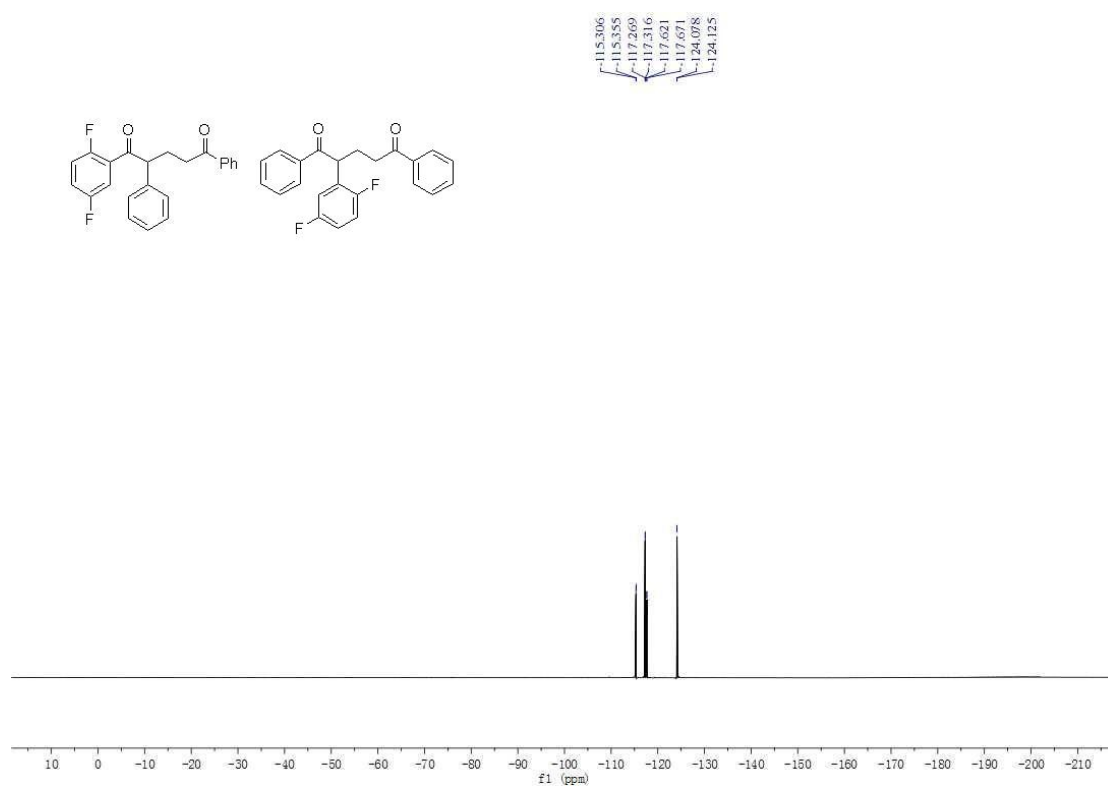
2,5-Diphenyl-1-(2-(trifluoromethyl)phenyl)pentane-1,5-dione (**30a**)



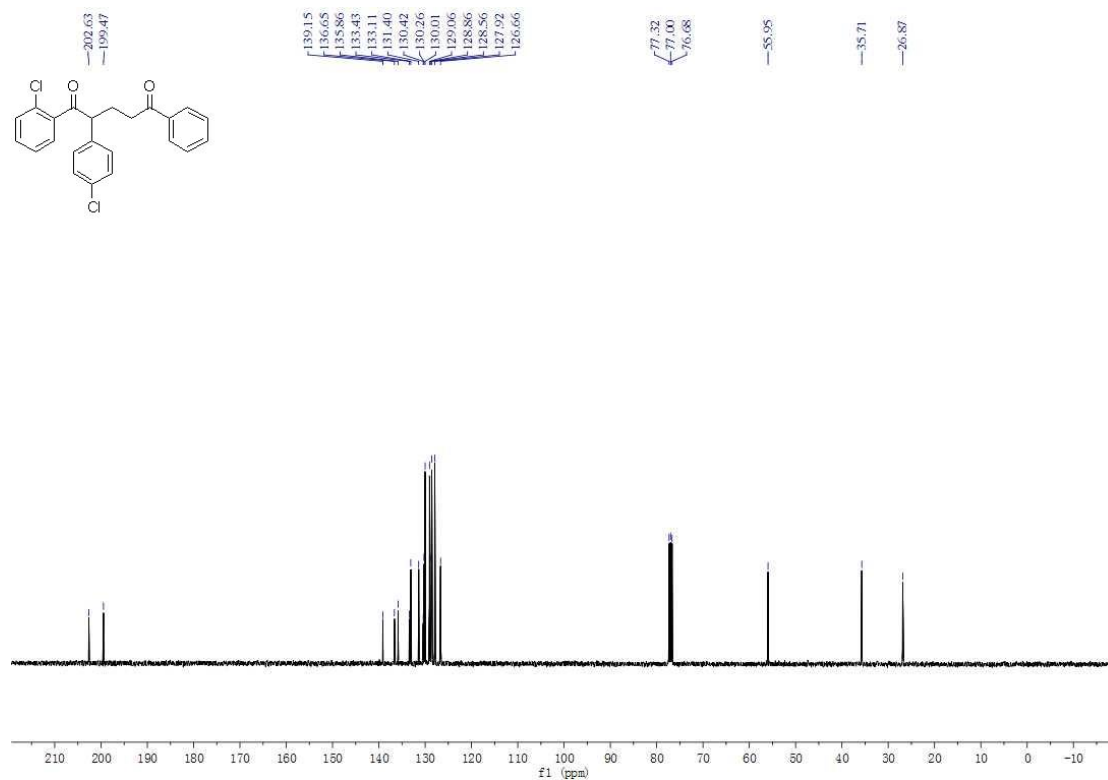
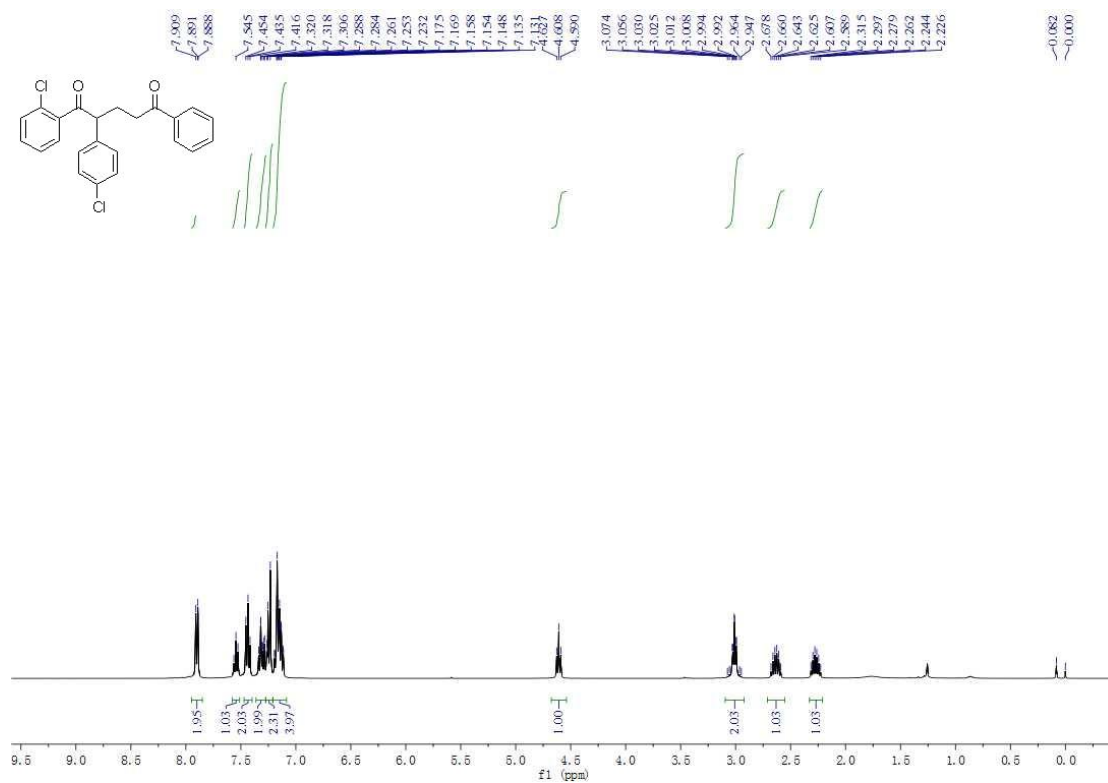


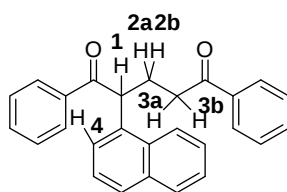
1-(2,5-Difluorophenyl)-2,5-diphenylpentane-1,5-dione (**3pa**)



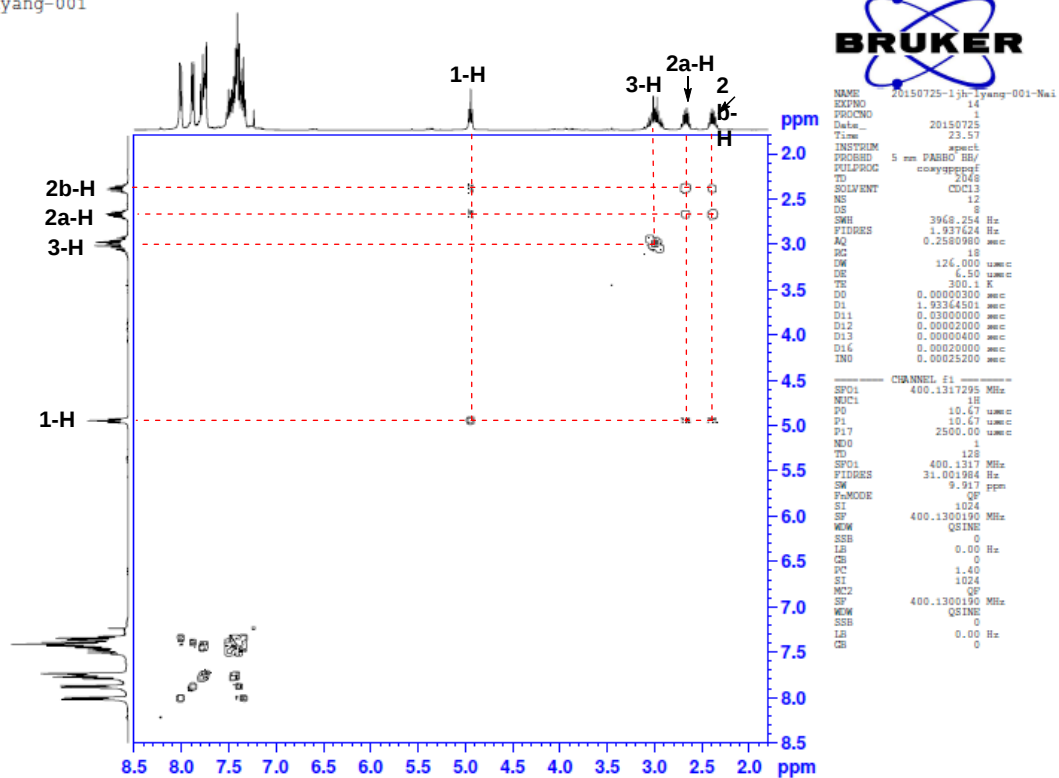


1-(2-Chlorophenyl)-2-(4-chlorophenyl)-5-phenylpentane-1,5-dione (**3qa**)



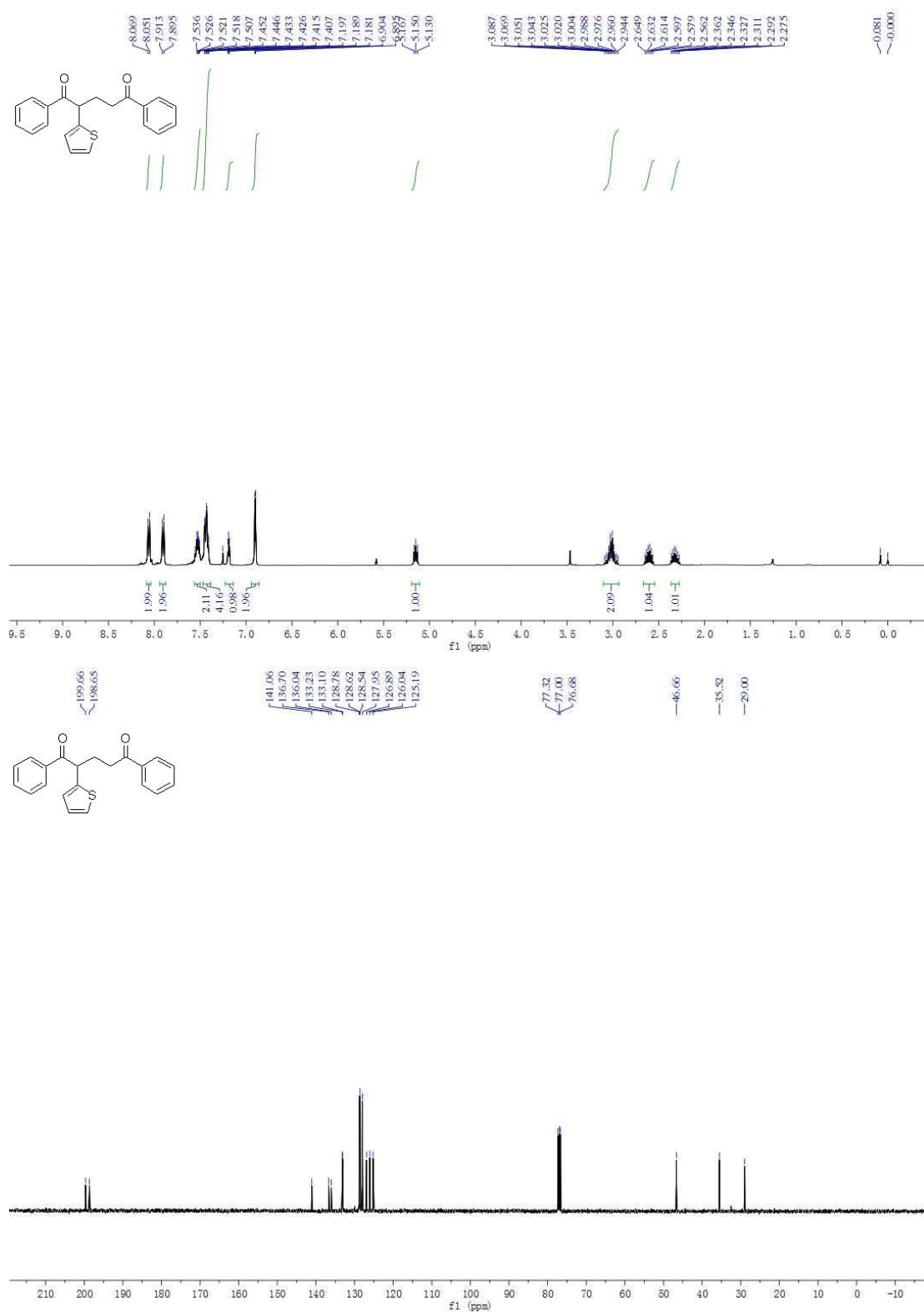


lyang-001

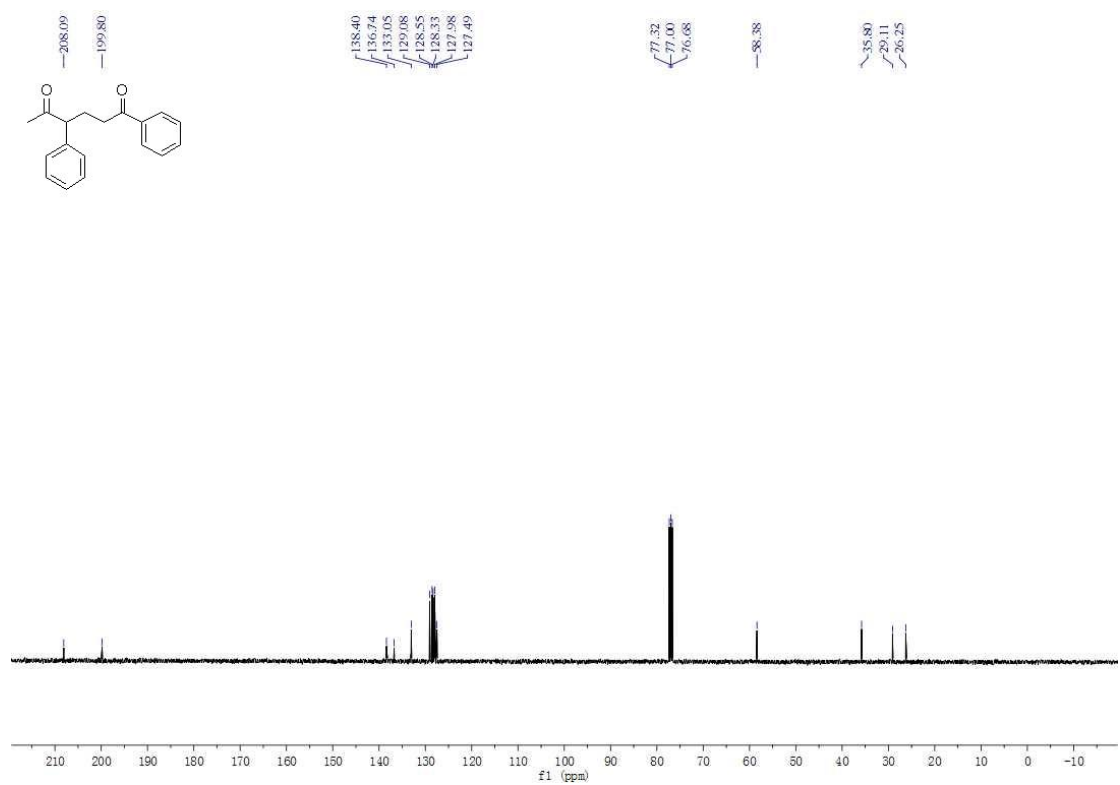
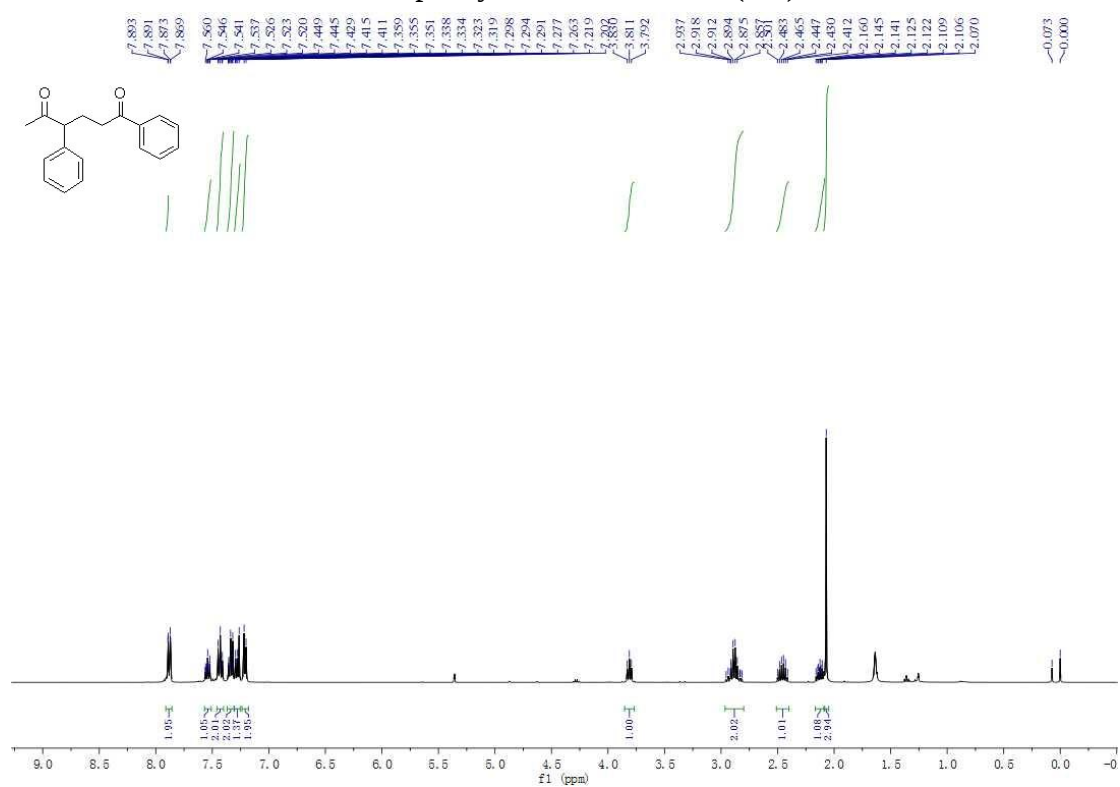


H-H cosy

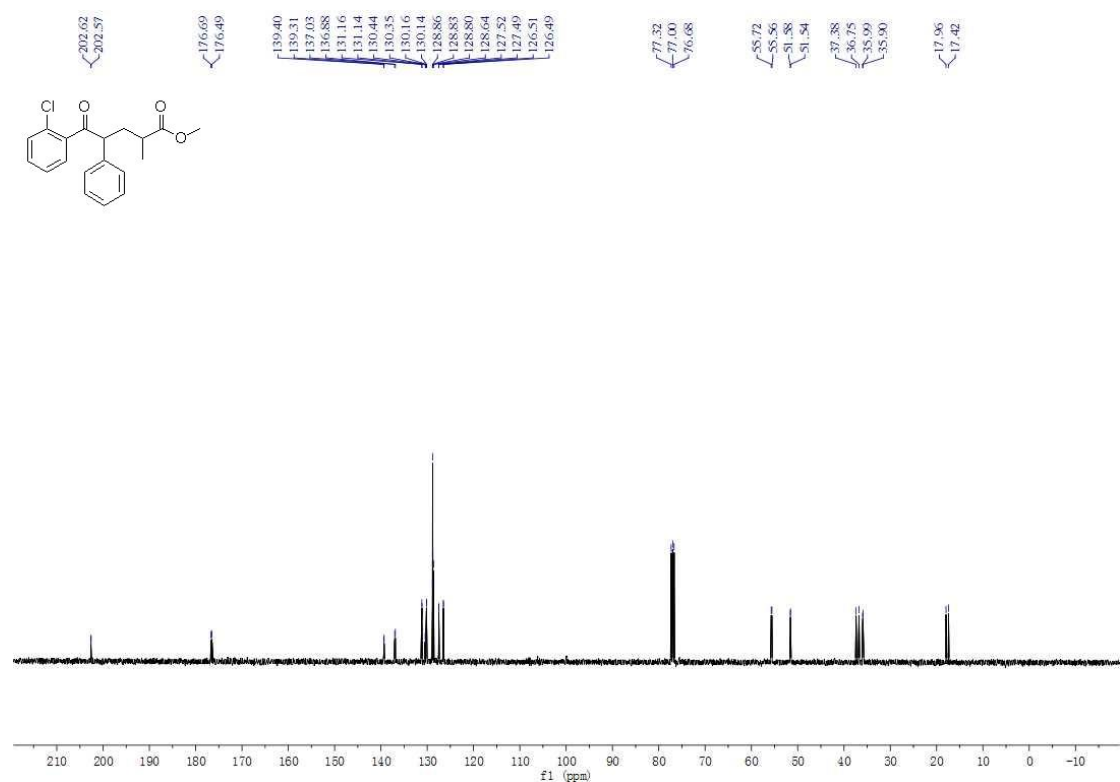
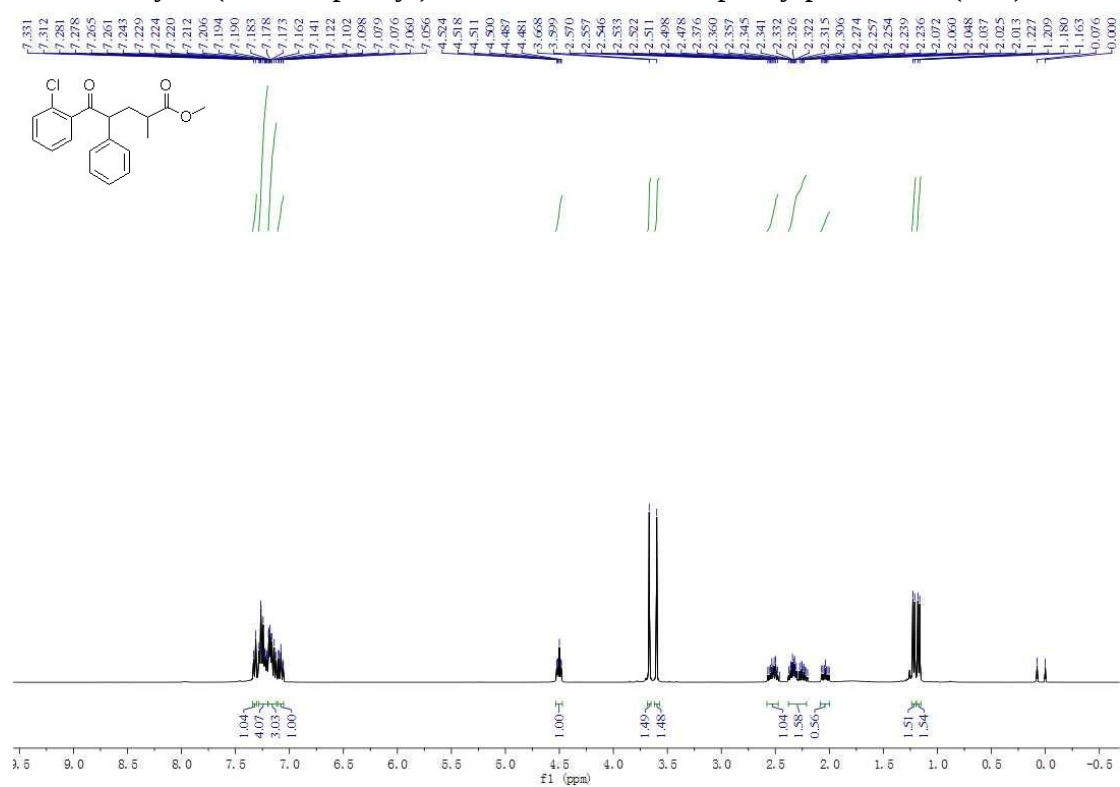
1,5-Diphenyl-2-(thiophen-2-yl)pentane-1,5-dione (**3a**)



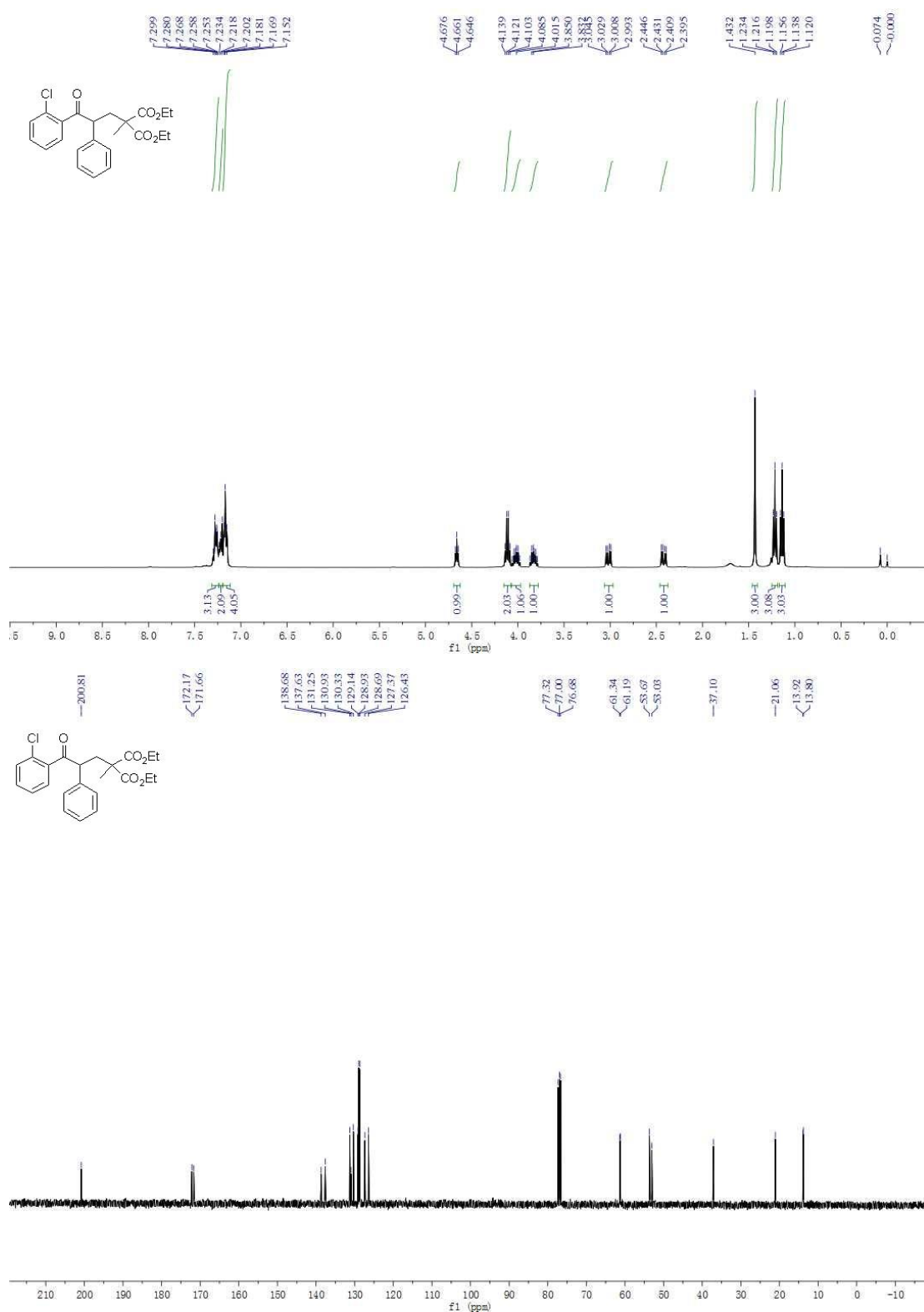
1,4-Diphenylhexane-1,5-dione (3ta)



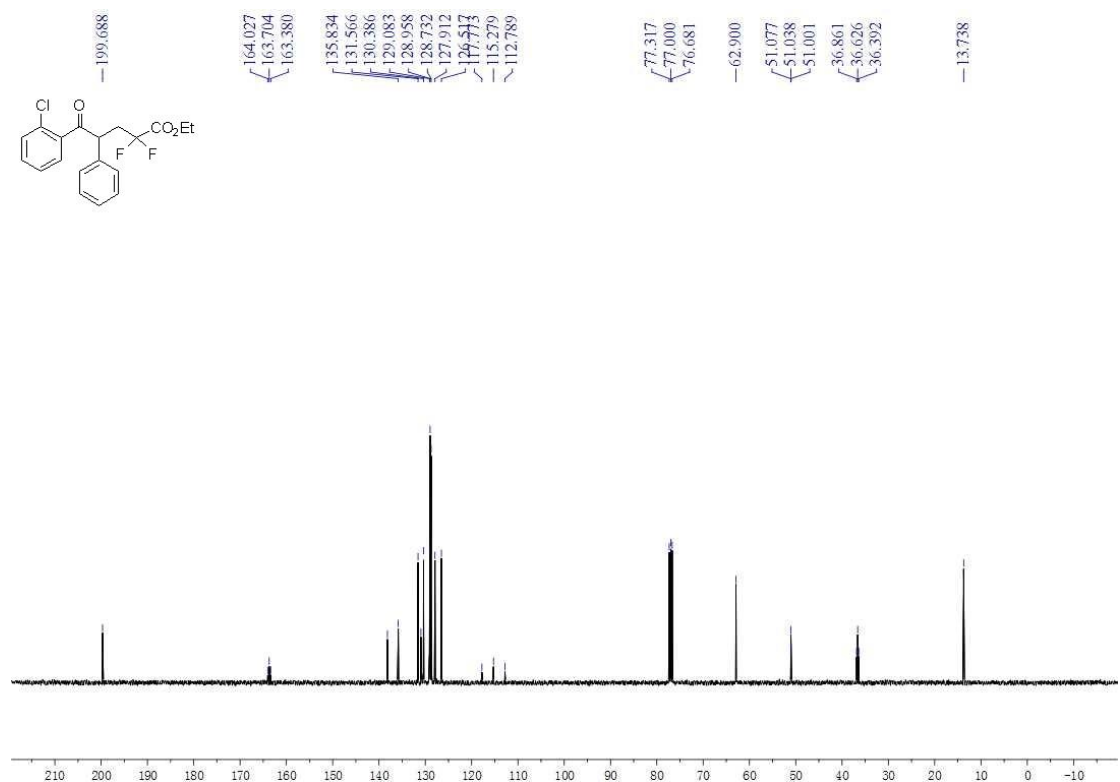
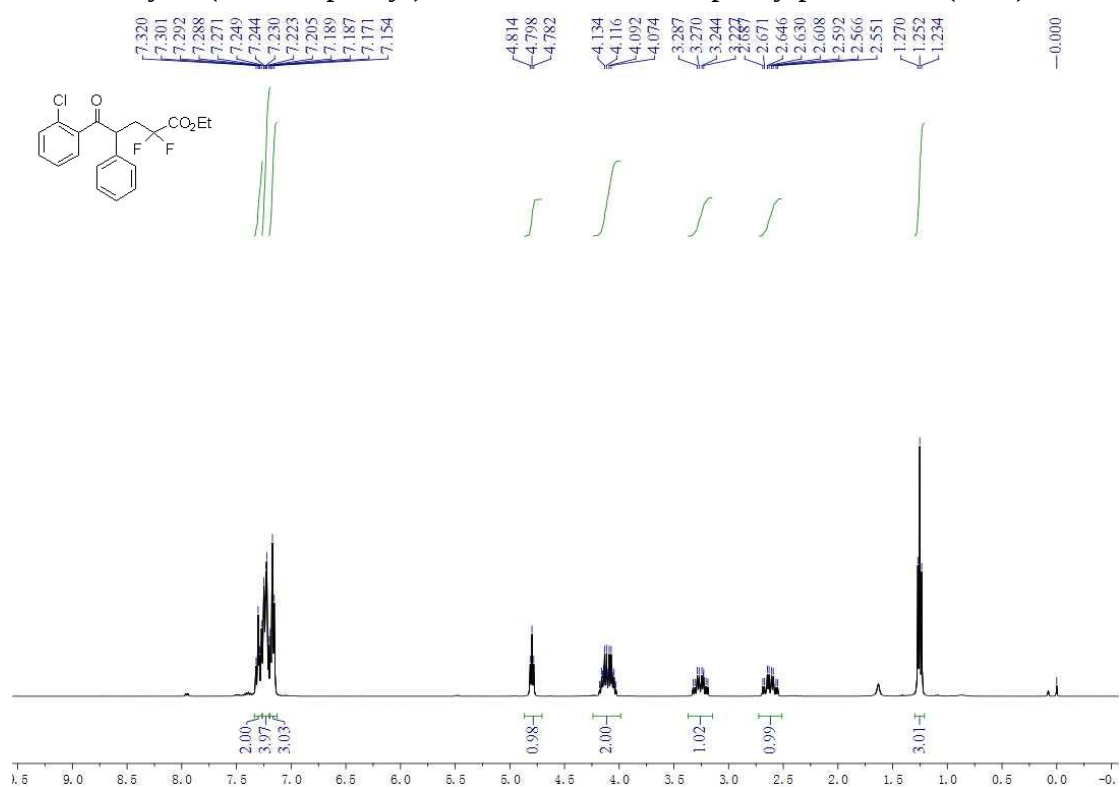
Ethyl 5-(2-chlorophenyl)-2,2-difluoro-5-oxo-4-phenylpentanoate (**3nh**)

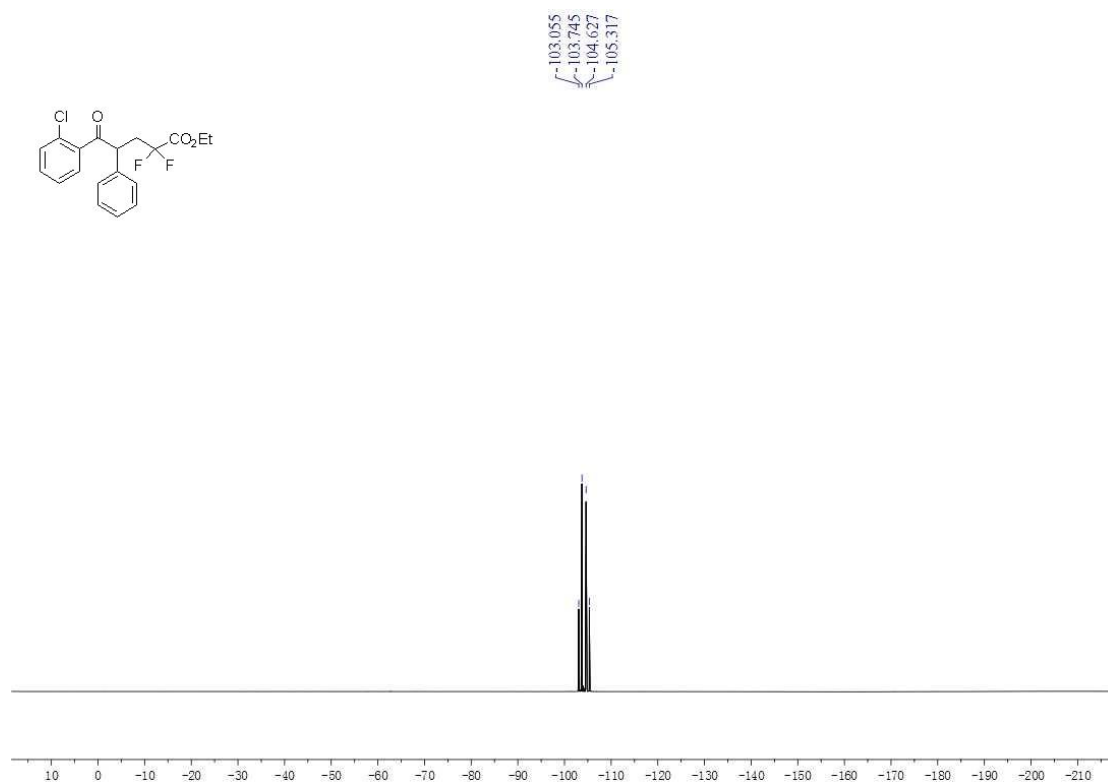


Diethyl 2-(3-(2-chlorophenyl)-3-oxo-2-phenylpropyl)-2-methylmalonate (**3nl**)

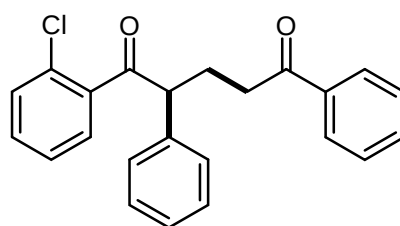


Ethyl 5-(2-chlorophenyl)-2,2-difluoro-5-oxo-4-phenylpentanoate (**3nm**)





(C) The X-ray single-crystal diffraction analysis of 3na



3na

