Oxidative Dearomative Cross-Dehydrogenative Coupling of Indoles with Diverse C-H Nucleophiles: Efficient Approach to 2,2-Disubstituted Indolin-3-ones

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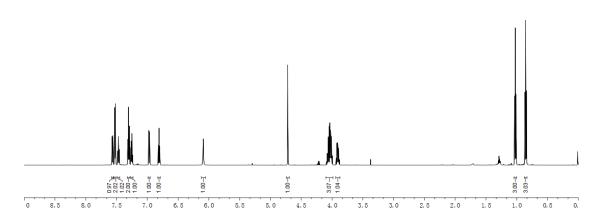
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¹H and ¹³C NMR spectra of synthesized compounds





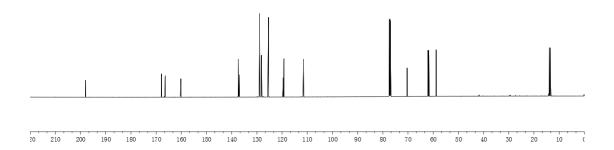




^{13}C NMR spectrum of compound 3a in CDCl3 (151 MHz)

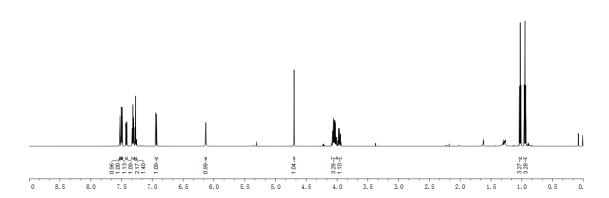




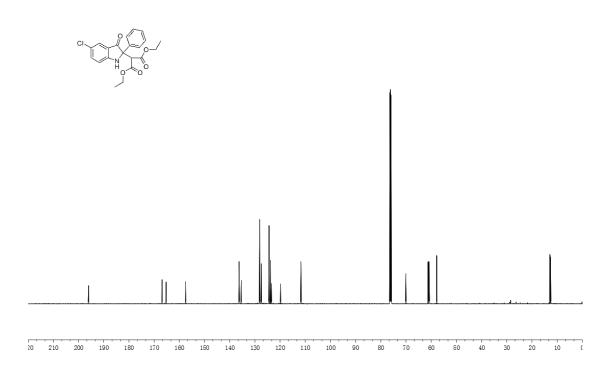


^{1}H NMR spectrum of compound 3b in CDCl $_{3}$ (600 MHz)



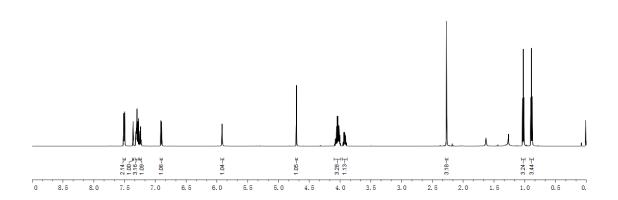


$^{13}C\ NMR\ spectrum\ of\ compound\ 3b\ in\ CDCl_{3}\,(151\ MHz)$

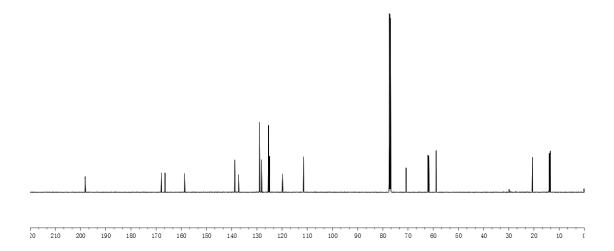


^{1}H NMR spectrum of compound 3c in CDCl $_{3}$ (600 MHz)





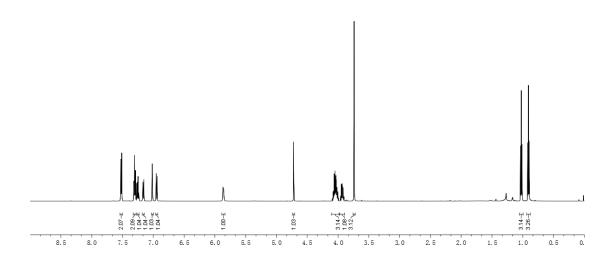
^{13}C NMR spectrum of compound 3c in CDCl3 (151 MHz)



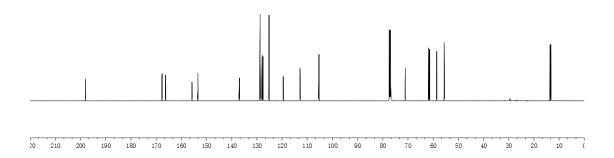
^{1}H NMR spectrum of compound 3d in CDCl $_{3}$ (600 MHz)







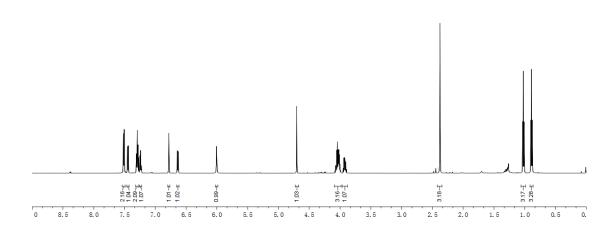
$^{13}C\ NMR\ spectrum\ of\ compound\ 3d\ in\ CDCl_3\,(151MHz)$



^{1}H NMR spectrum of compound 3e in CDCl $_{3}$ (600 MHz)

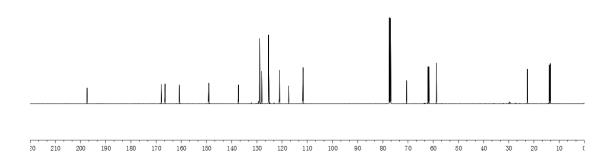






^{13}C NMR spectrum of compound 3e in CDCl3 (151 MHz)

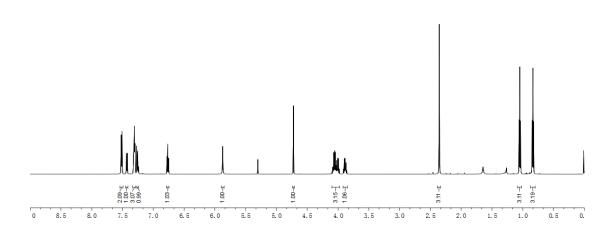




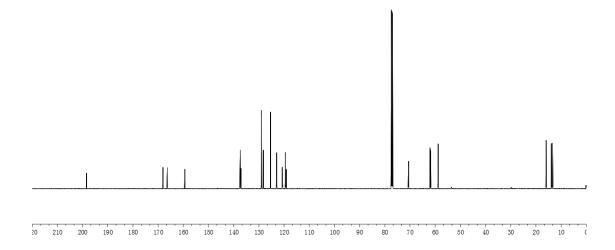
$^1H\ NMR\ spectrum\ of\ compound\ 3f\ in\ CDCl_3\,(600\ MHz)$





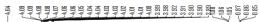


^{13}C NMR spectrum of compound 3f in CDCl3 (151 MHz)

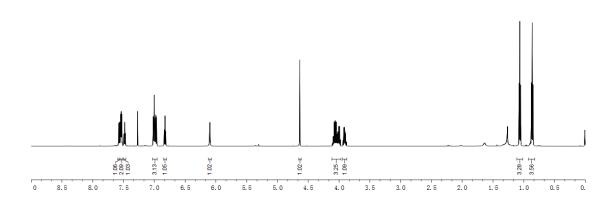


¹H NMR spectrum of compound 3g in CDCl₃ (600 MHz)







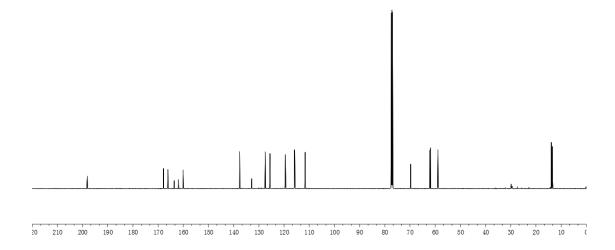


^{13}C NMR spectrum of compound 3g in CDCl $_{\!3}\,(151~MHz)$

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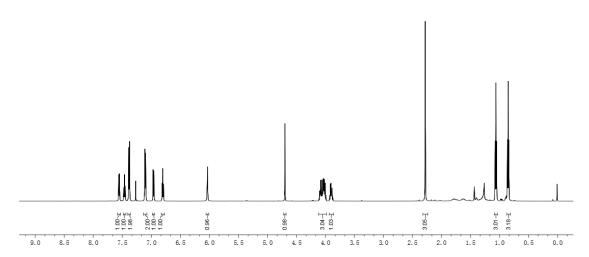






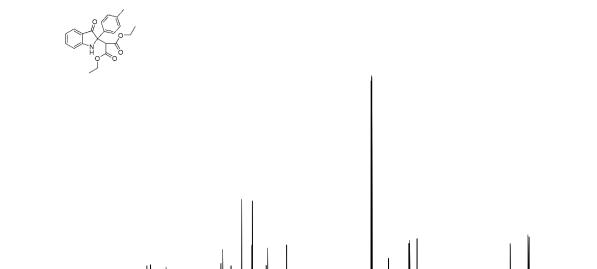






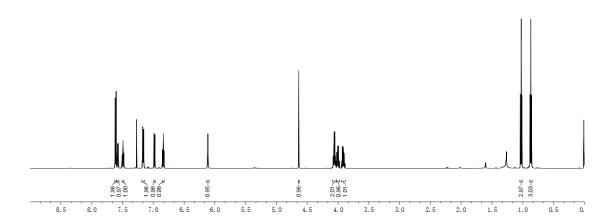
$^{13}C\ NMR\ spectrum\ of\ compound\ 3h\ in\ CDCl_{3}\,(151\ MHz)$





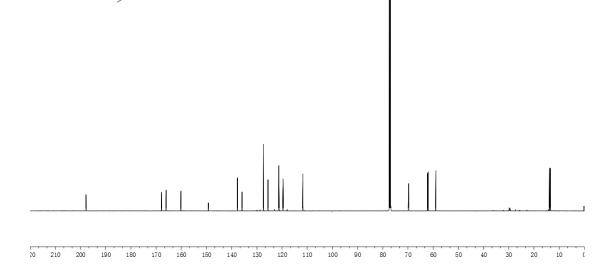




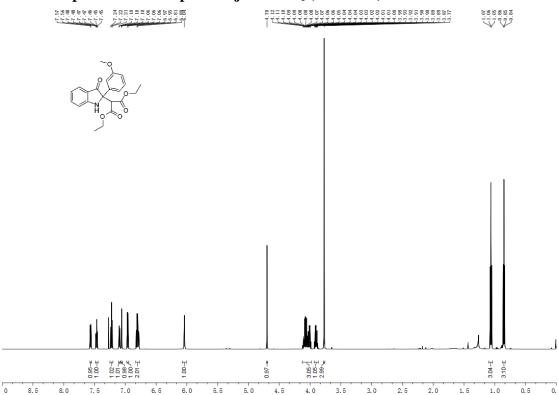


^{13}C NMR spectrum of compound 3i in CDCl $_{\!3}\,(151~MHz)$

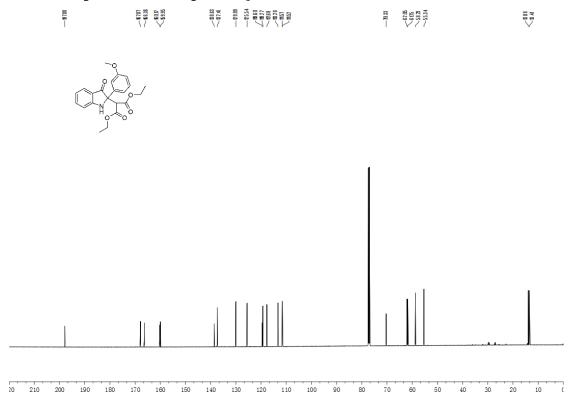




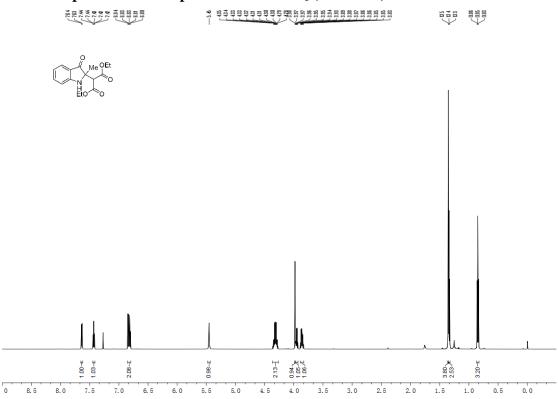
1H NMR spectrum of compound 3j in CDCl3 (600 MHz)



^{13}C NMR spectrum of compound 3j in CDCl $_{\!3}\,(151\;MHz)$

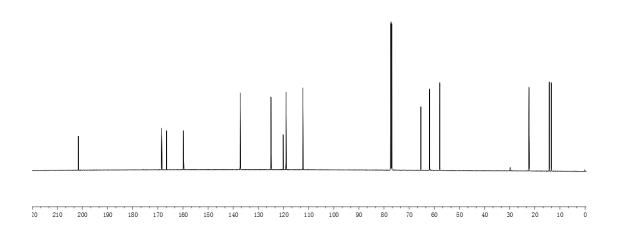




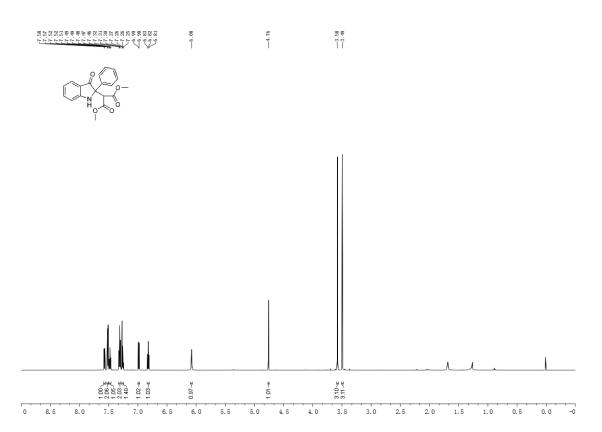


$^{13}C\ NMR\ spectrum\ of\ compound\ 3k\ in\ CDCl_{3}\,(151\ MHz)$



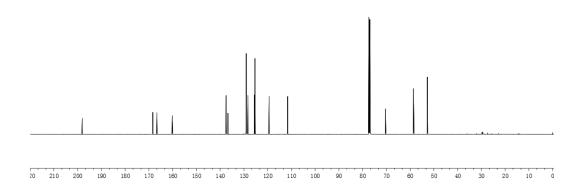


¹H NMR spectrum of compound 3l in CDCl₃ (600 MHz)



^{13}C NMR spectrum of compound 3l in CDCl₃ (151 MHz)

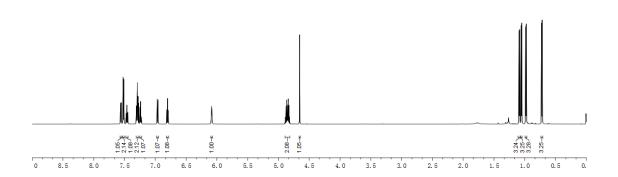




^{1}H NMR spectrum of compound 3m in CDCl $_{3}$ (600 MHz)

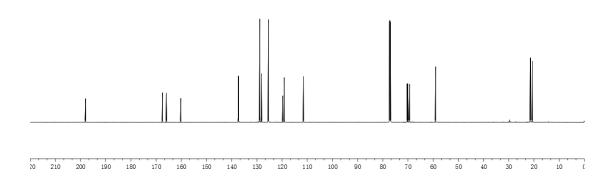




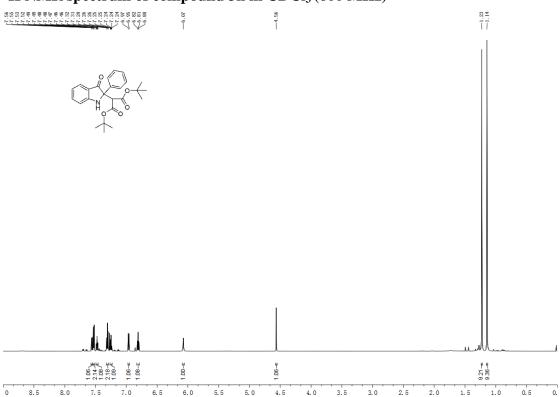


^{13}C NMR spectrum of compound 3m in CDCl $_{\!3}\,(151~MHz)$

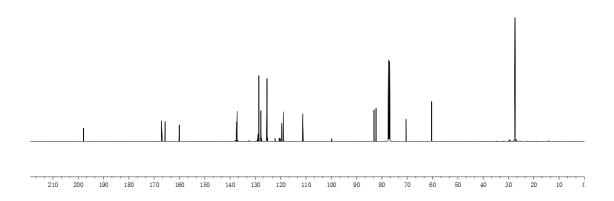
- 1515 - 1516 - 1517



¹H NMR spectrum of compound 3n in CDCl₃ (600 MHz)



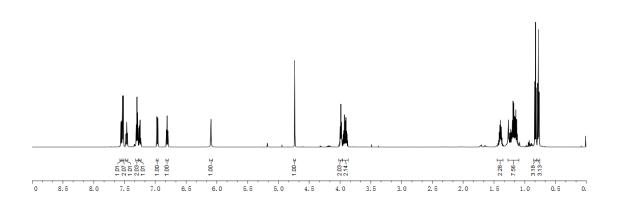
$^{13}C\ NMR\ spectrum\ of\ compound\ 3n\ in\ CDCl_{3}\,(151\ MHz)$



^{1}H NMR spectrum of compound 30 in CDCl $_{3}$ (600 MHz)

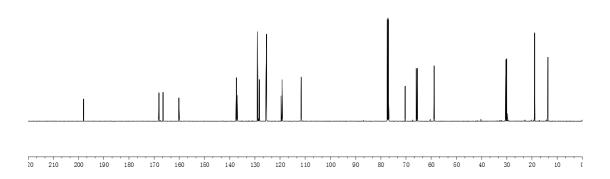






^{13}C NMR spectrum of compound 30 in CDCl3 (151 MHz)



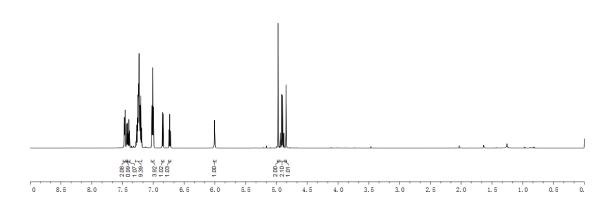


¹H NMR spectrum of compound 3p in CDCl₃ (600 MHz)

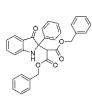


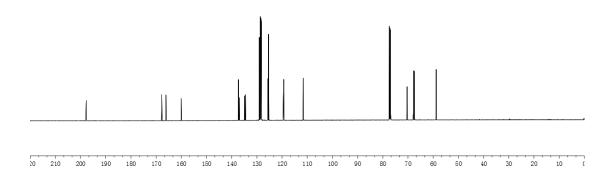


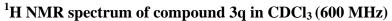


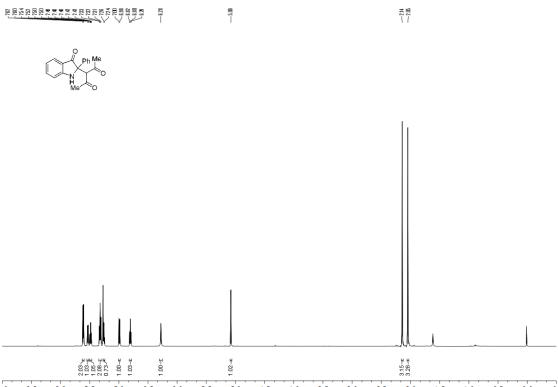


^{13}C NMR spectrum of compound 3p in CDCl $_{3}\,(151\;MHz)$

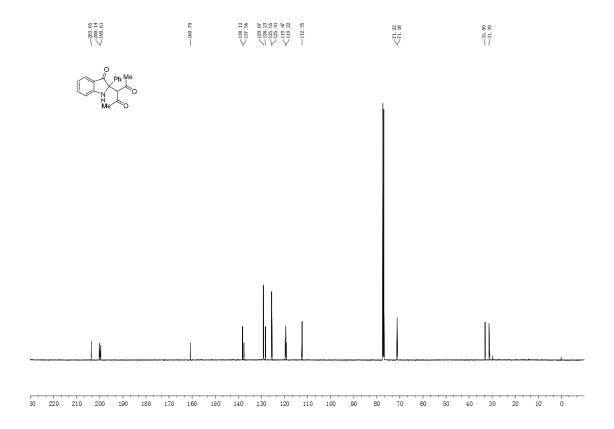






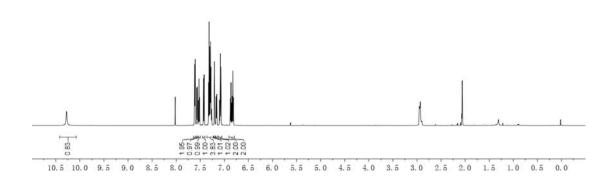


$^{13}C\ NMR\ spectrum\ of\ compound\ 3q\ in\ CDCl_3\ (151\ MHz)$

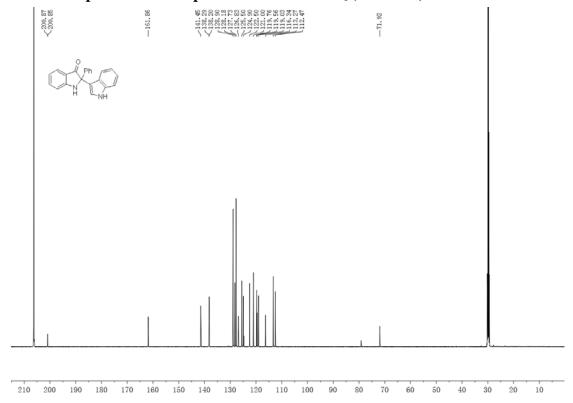


$^1 \rm H~NMR~spectrum~of~compound~5a~in~acetone- \it d_6~(600~MHz)$

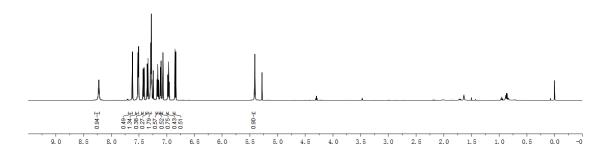




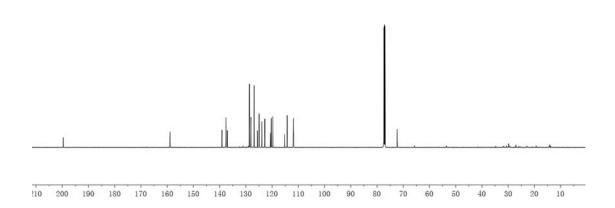
$^{13}\mathrm{C}$ NMR spectrum of compound 5a in acetone- $d_6\,(151~\mathrm{MHz})$



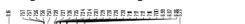
^{1}H NMR spectrum of compound 5b in CDCl $_{3}$ (600 MHz)

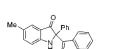


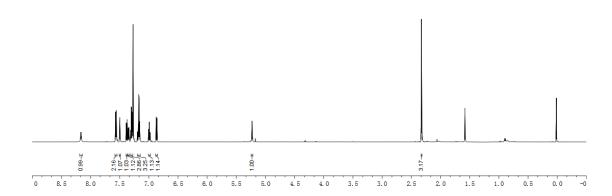
^{13}C NMR spectrum of compound 5b in CDCl $_{\!3}\,(151~MHz)$



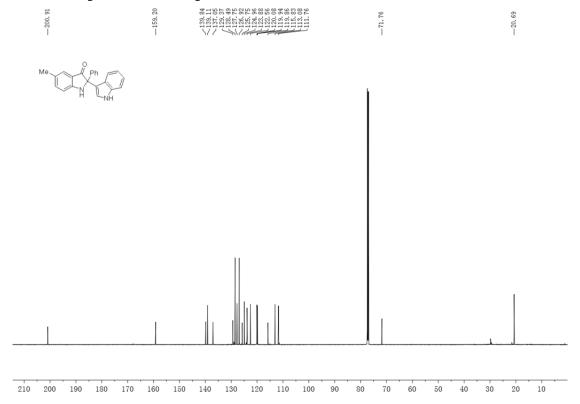
^{1}H NMR spectrum of compound 5c in CDCl $_{3}$ (600 MHz)



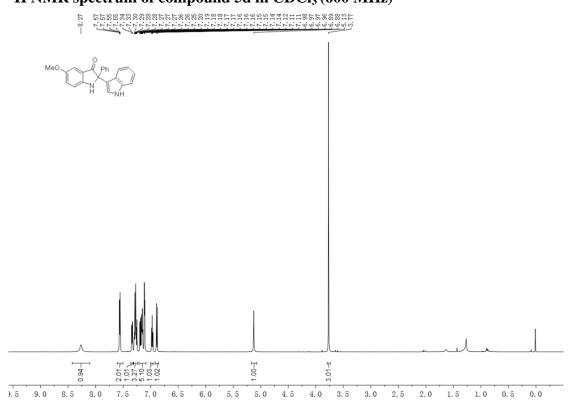




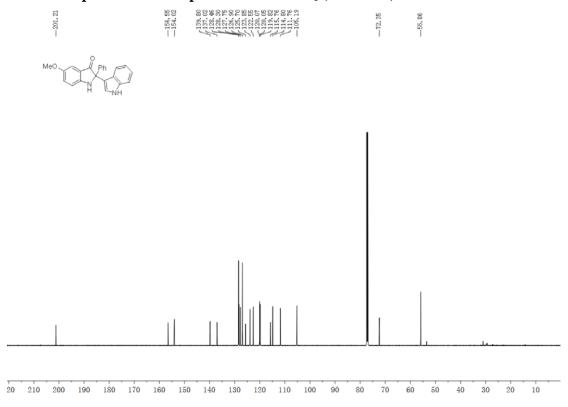
^{13}C NMR spectrum of compound 5c in CDCl3 (151 MHz)



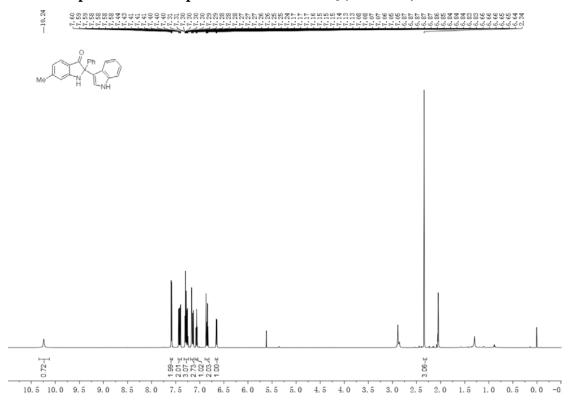
^{1}H NMR spectrum of compound 5d in CDCl $_{3}$ (600 MHz)



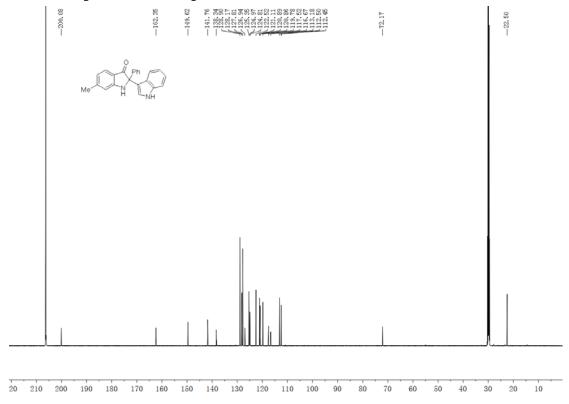
^{13}C NMR spectrum of compound 5d in CDCl $_{3} (151 \ MHz)$



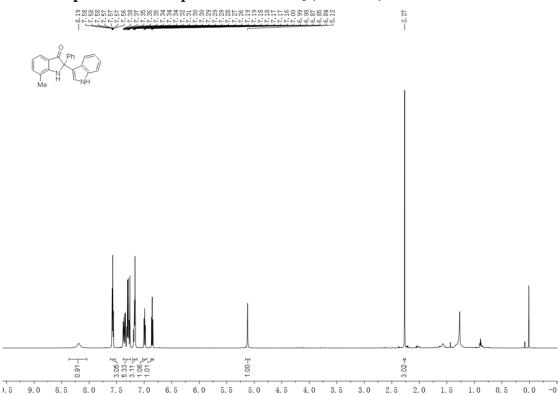
$^{1}\mathrm{H}$ NMR spectrum of compound 5e in acetone- $d_{6}\left(600\ \mathrm{MHz}\right)$



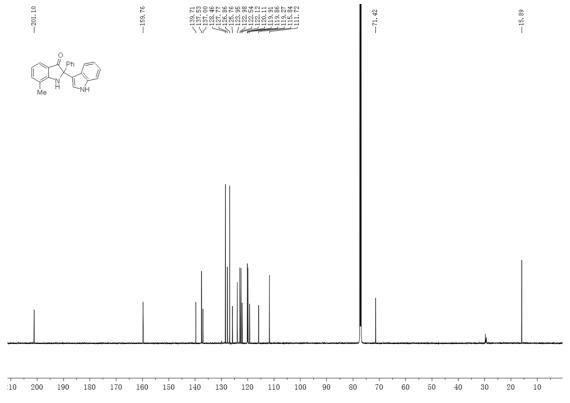
$^{13}\mathrm{C}$ NMR spectrum of compound 5e in acetone- $d_6\,(151~\mathrm{MHz})$



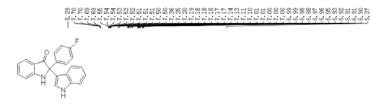
^{1}H NMR spectrum of compound 5f in CDCl $_{3}$ (600 MHz)

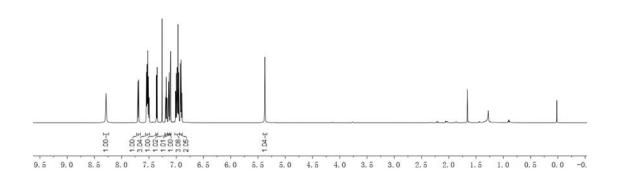


^{13}C NMR spectrum of compound 5f in CDCl3 (151 MHz)

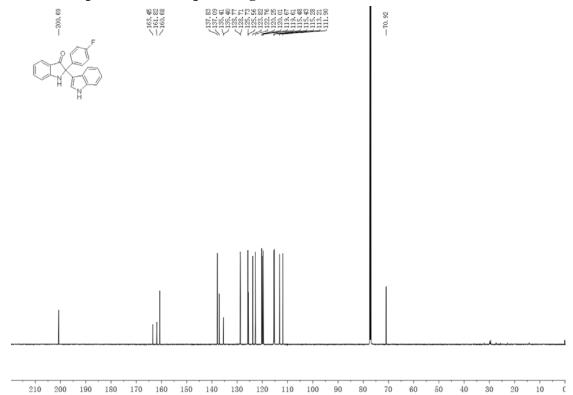


^{1}H NMR spectrum of compound 5g in CDCl $_{3}$ (600 MHz)

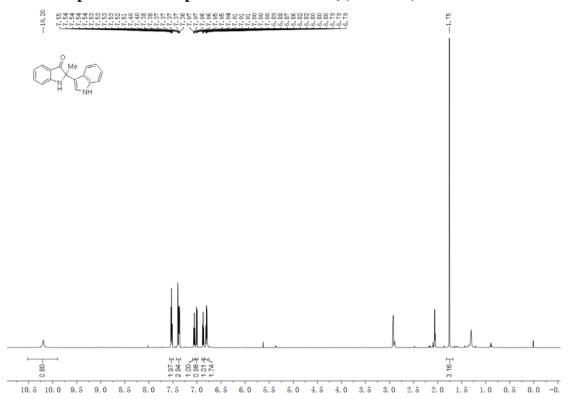




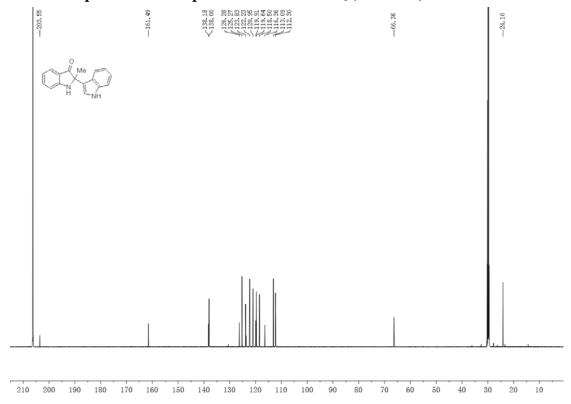
^{13}C NMR spectrum of compound 5g in CDCl3 (151 MHz)



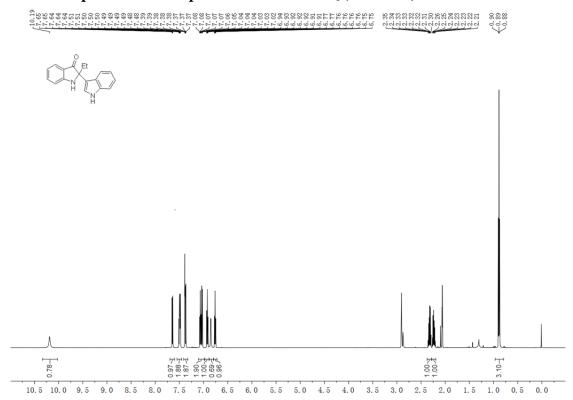
$^{1}\mathrm{H}$ NMR spectrum of compound 5h in acetone- $d_{6}\left(600\ \mathrm{MHz}\right)$



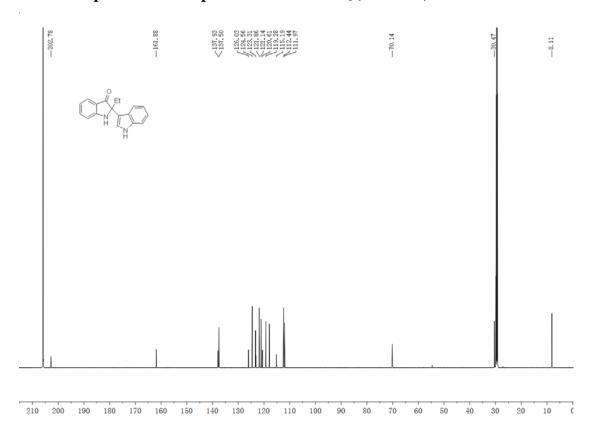
$^{13}\mathrm{C}$ NMR spectrum of compound 5h in acetone- $d_6\,(151~\mathrm{MHz})$



1 H NMR spectrum of compound 5i in acetone- d_{6} (600 MHz)

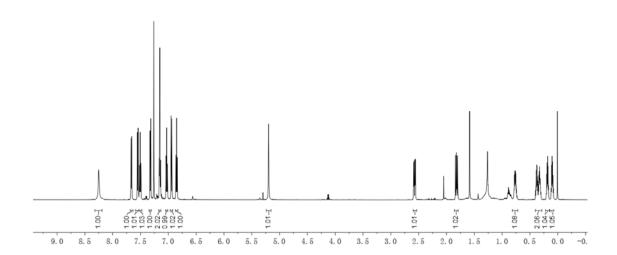


$^{13}\mathrm{C}$ NMR spectrum of compound 5i in acetone- $d_6\,(151~\mathrm{MHz})$

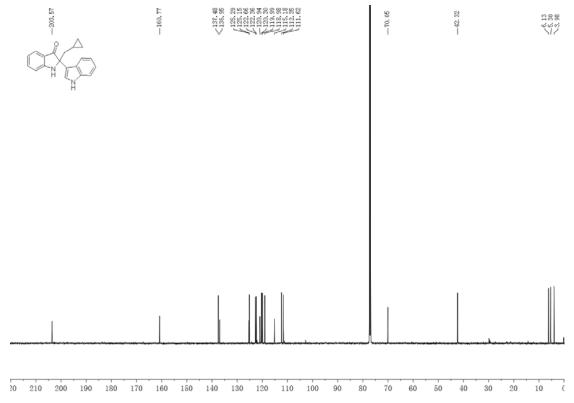


^{1}H NMR spectrum of compound 5j in CDCl $_{3}$ (600 MHz)

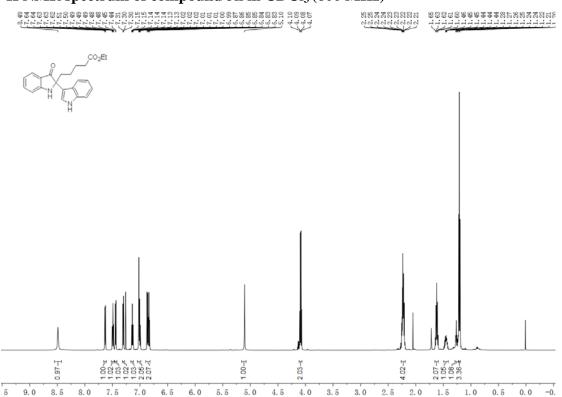




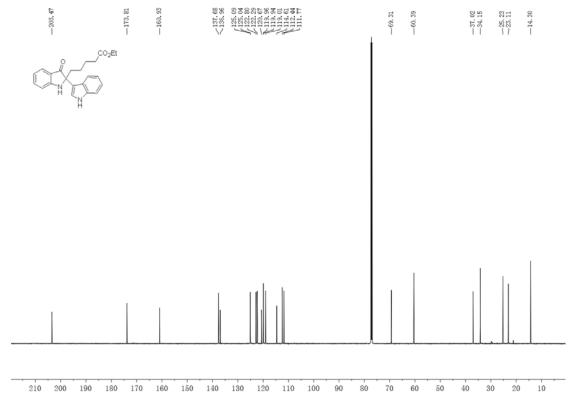
$^{13}\text{C NMR}$ spectrum of compound 5j in CDCl₃ (151 MHz)

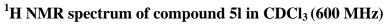


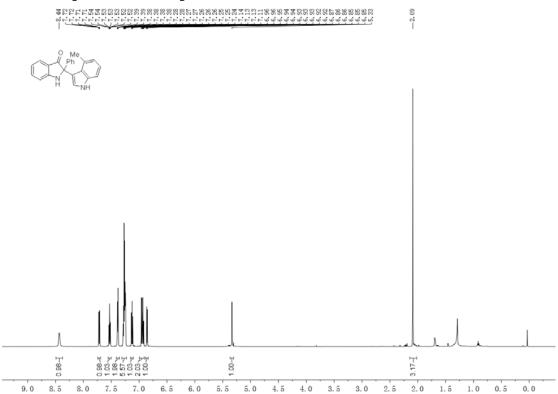
^{1}H NMR spectrum of compound 5k in CDCl $_{3}$ (600 MHz)



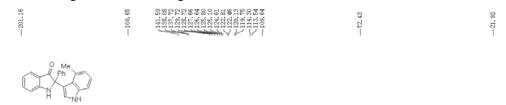
^{13}C NMR spectrum of compound 5k in CDCl $_{\!3}\,(151~MHz)$

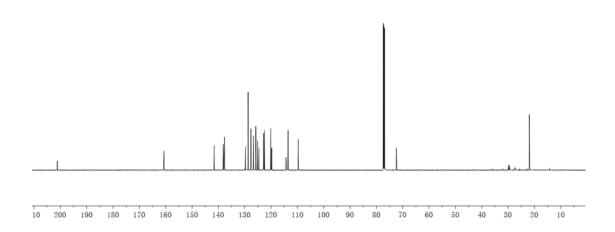






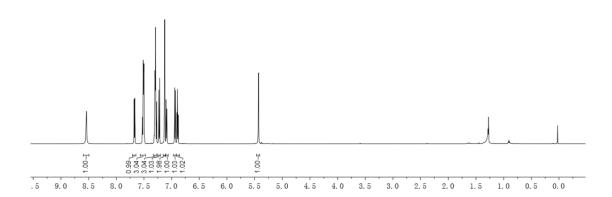
^{13}C NMR spectrum of compound 51 in CDCl $_{\!3}\,(151~MHz)$



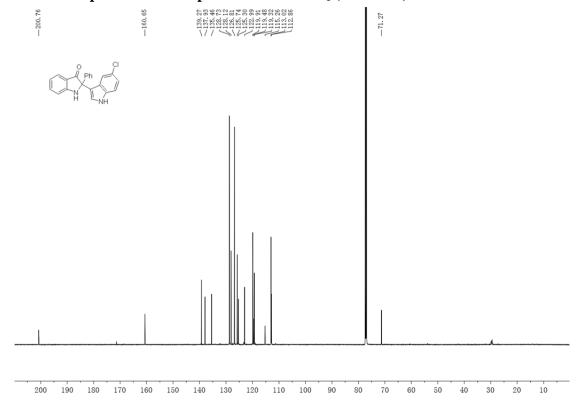


$^1H\ NMR\ spectrum\ of\ compound\ 5m\ in\ CDCl_3\,(600\ MHz)$



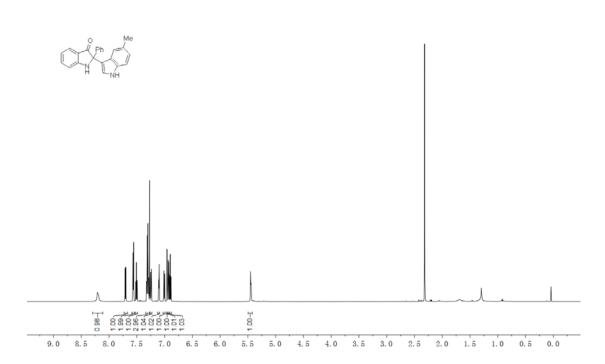


^{13}C NMR spectrum of compound 5m in CDCl $_{\!3}\,(151~MHz)$



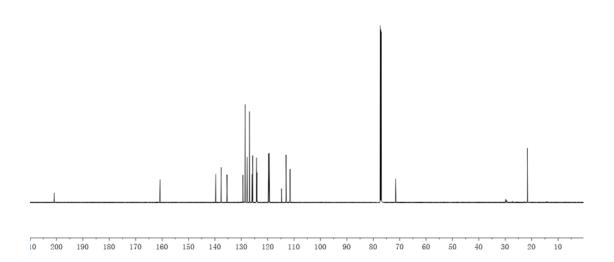
^{1}H NMR spectrum of compound 5n in CDCl $_{3}$ (600 MHz)





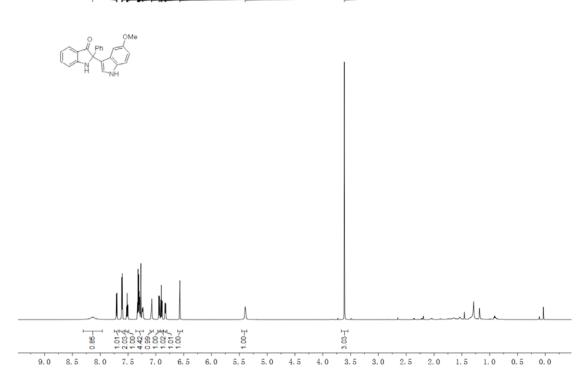
^{13}C NMR spectrum of compound 5n in CDCl $_{\!3}\,(151~MHz)$





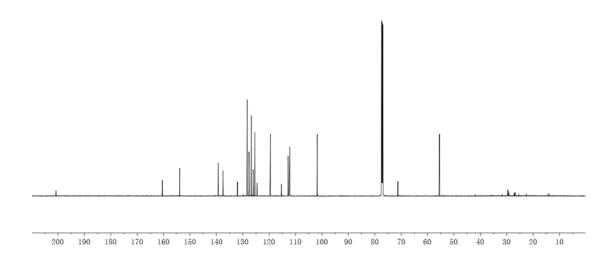
^{1}H NMR spectrum of compound 50 in CDCl $_{3}$ (600 MHz)



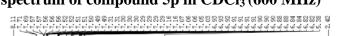


^{13}C NMR spectrum of compound 50 in CDCl3 (151 MHz)

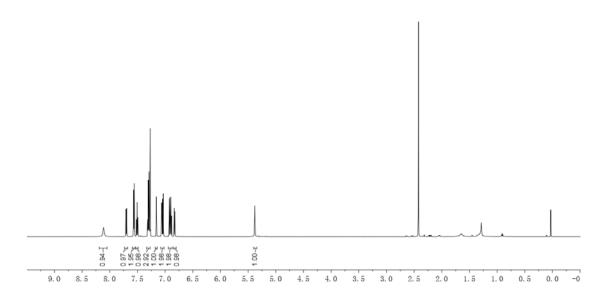








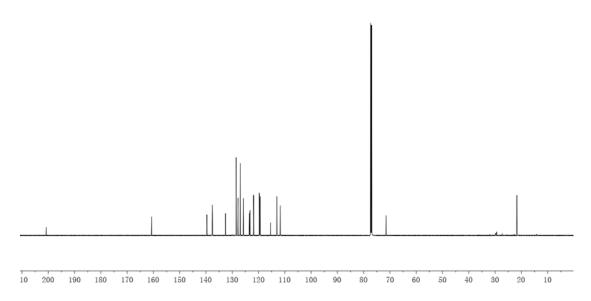




^{13}C NMR spectrum of compound 5p in CDCl $_{\!3}\,(151~MHz)$

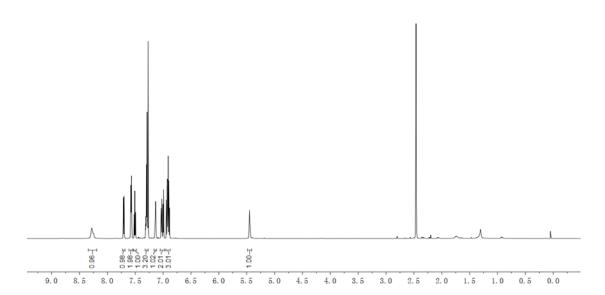






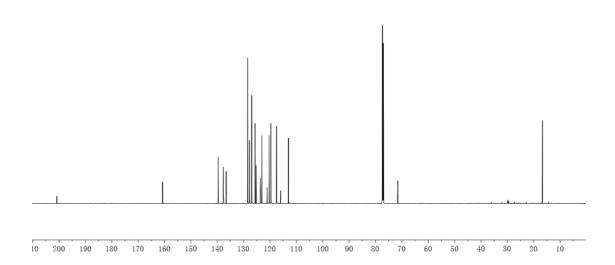




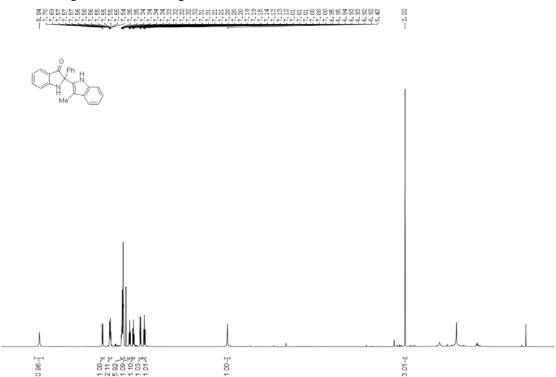


^{13}C NMR spectrum of compound 5q in CDCl $_{\!3}\,(151~MHz)$



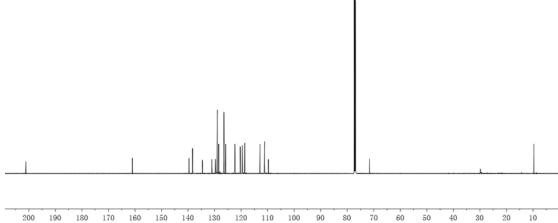




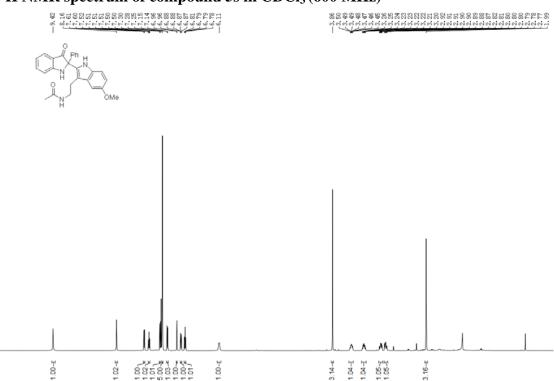


^{13}C NMR spectrum of compound 5r in CDCl3 (151 MHz)



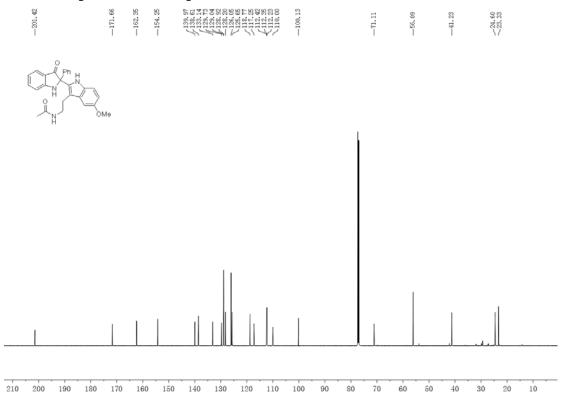


^{1}H NMR spectrum of compound 5s in CDCl $_{3}$ (600 MHz)

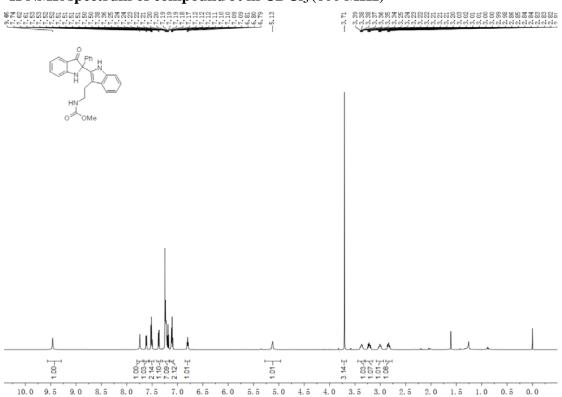


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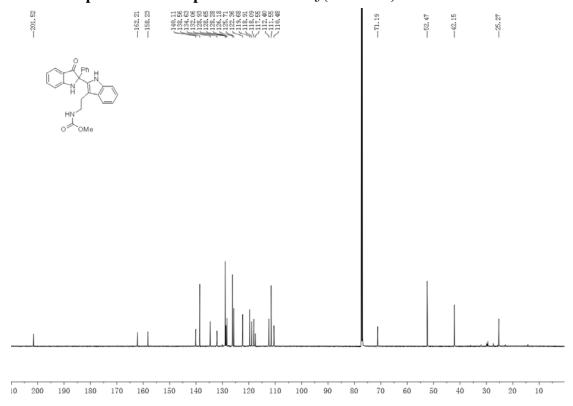
^{13}C NMR spectrum of compound 5s in CDCl3 (151 MHz)



^{1}H NMR spectrum of compound 5t in CDCl $_{3}$ (600 MHz)

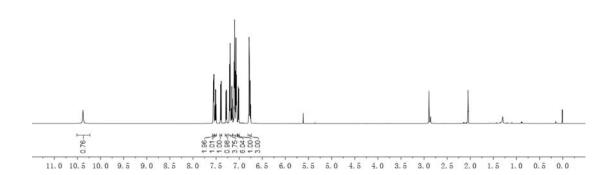


^{13}C NMR spectrum of compound 5t in CDCl3 (151 MHz)

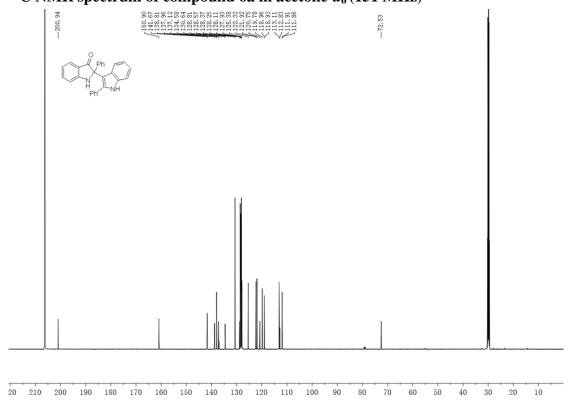


$^1\mathrm{H}$ NMR spectrum of compound 6a in acetone- $d_6\,(600~\mathrm{MHz})$

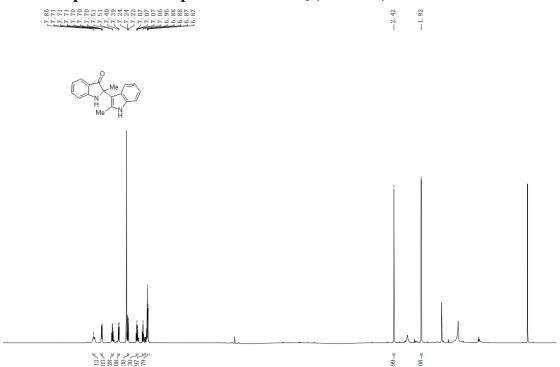




$^{13}\mathrm{C}$ NMR spectrum of compound 6a in acetone- $d_6\,(151~\mathrm{MHz})$





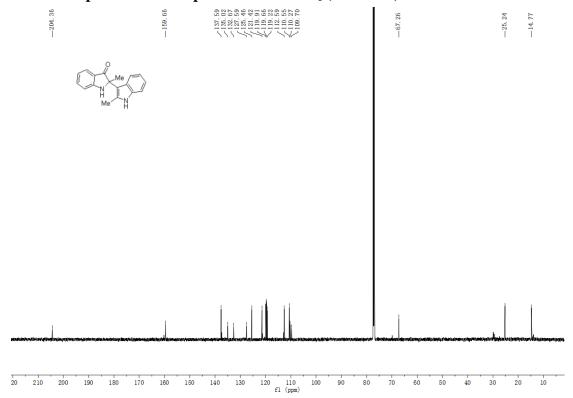


0.0

^{13}C NMR spectrum of compound 6b in CDCl $_{\!3}\,(151~MHz)$

6. 5

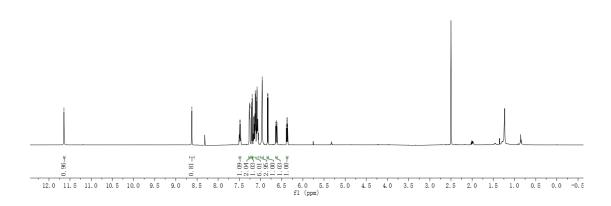
8. 0



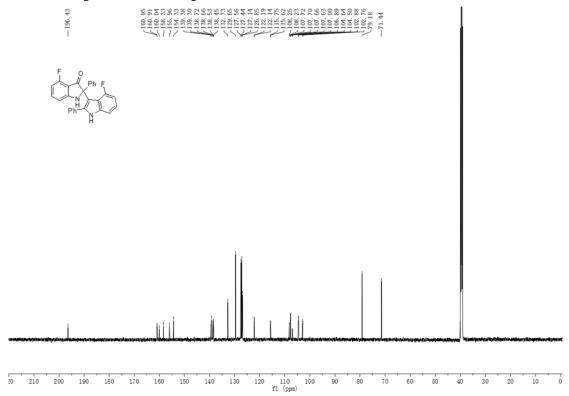








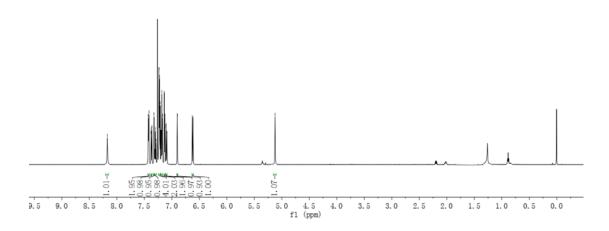
$^{13}\mathrm{C}$ NMR spectrum of compound 6c in DMSO- $d_6\,(151~\mathrm{MHz})$



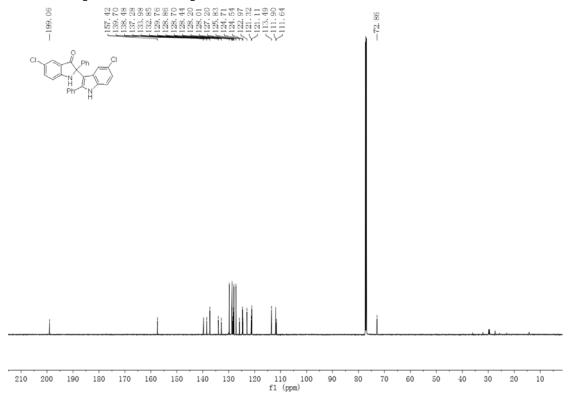




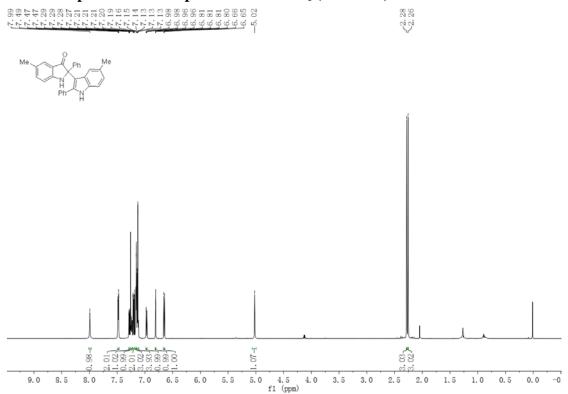




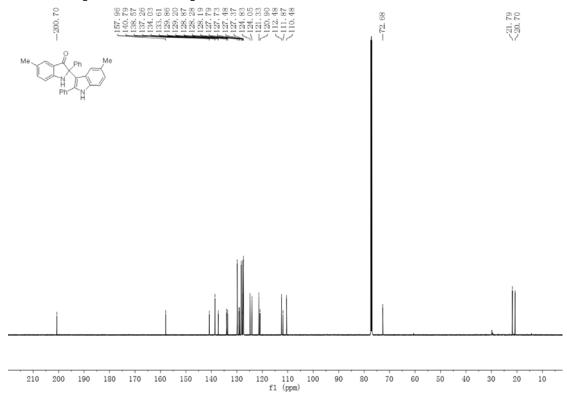
$^{13}\text{C NMR}$ spectrum of compound 6d in CDCl $_3\,(151\;\text{MHz})$



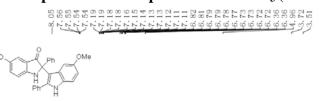


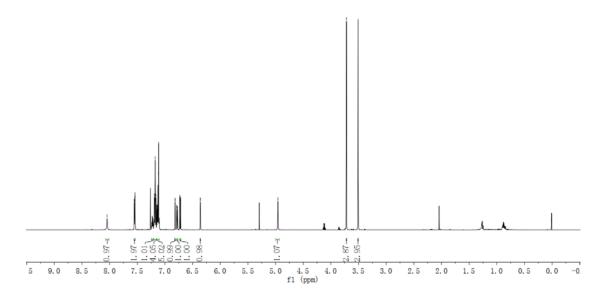


^{13}C NMR spectrum of compound 6e in CDCl3 (151 MHz)

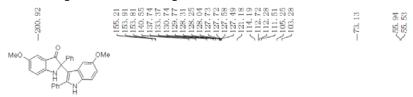


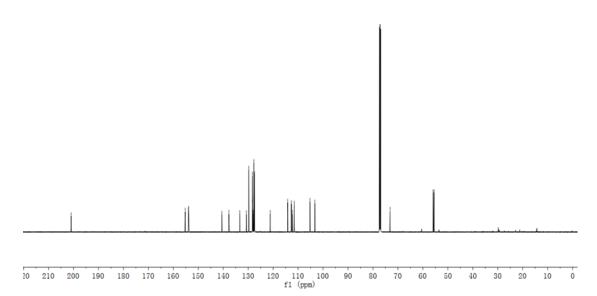
¹H NMR spectrum of compound 6f in CDCl₃ (600 MHz)



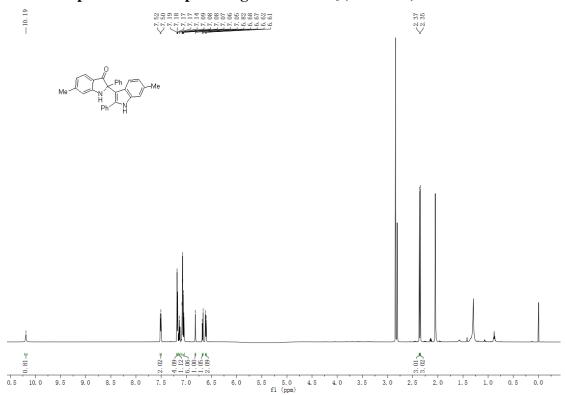


^{13}C NMR spectrum of compound 6f in CDCl $_{\!3}\,(151~MHz)$

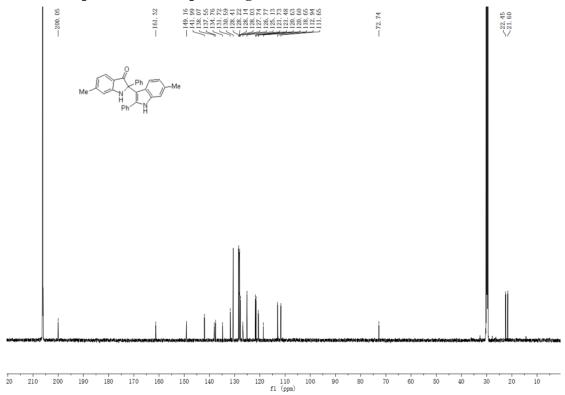




$^1 H$ NMR spectrum of compound 6g in acetone- $d_6 \, (600 \; \mathrm{MHz})$



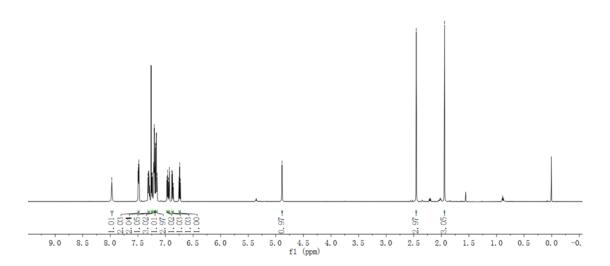
$^{13}\mathrm{C}$ NMR spectrum of compound 6g in acetone- $d_6\,(151~\mathrm{MHz})$



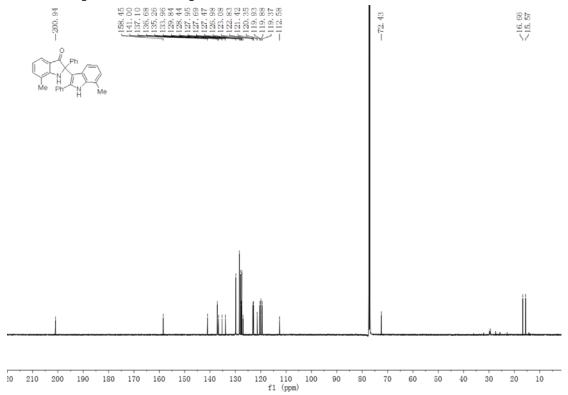






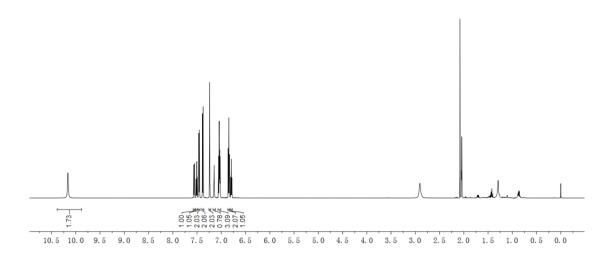


$^{13}\text{C NMR}$ spectrum of compound 6h in CDCl $_3\,(151\;\text{MHz})$

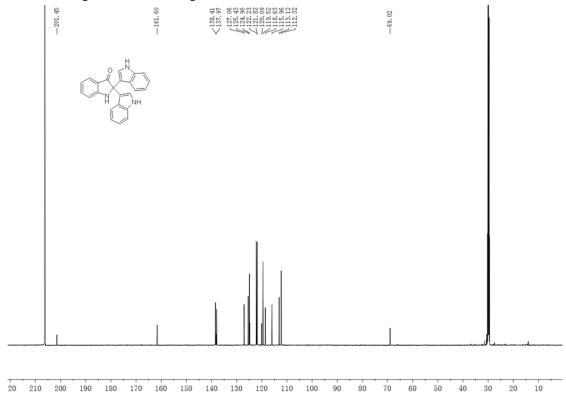


$^{1}\mathrm{H}$ NMR spectrum of compound 7a in acetone- $d_{6}\,(600~\mathrm{MHz})$



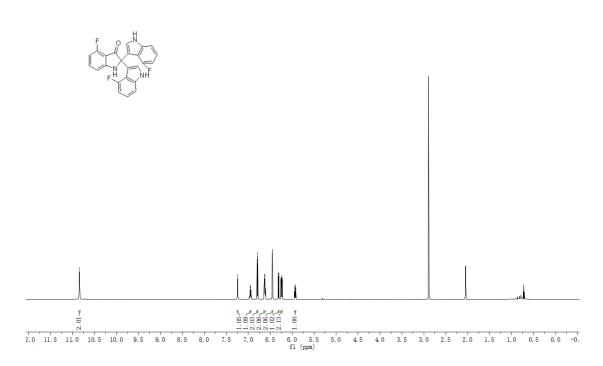


$^{13}\mathrm{C}$ NMR spectrum of compound 7a in acetone- $d_6\,(151~\mathrm{MHz})$

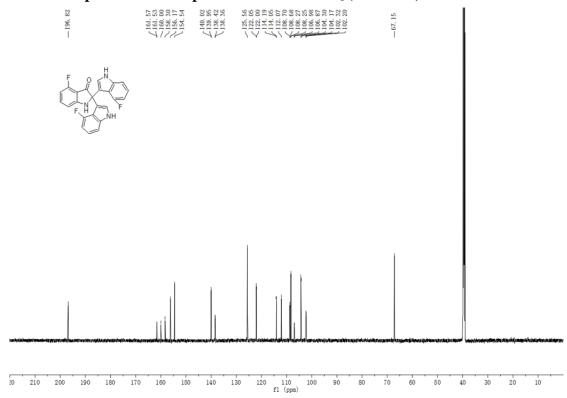






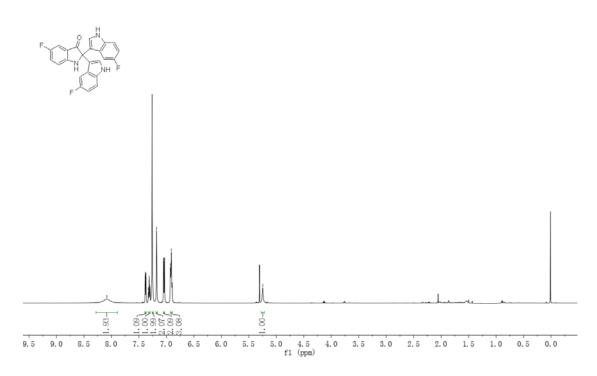


$^{13}\mathrm{C}$ NMR spectrum of compound 7b in DMSO- $d_6\,(151~\mathrm{MHz})$

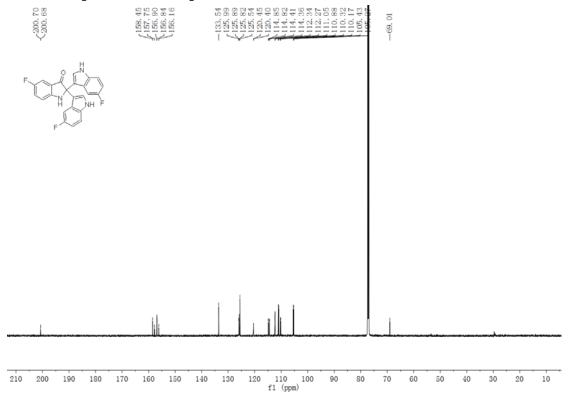


^{1}H NMR spectrum of compound 7c in CDCl $_{3}$ (600 MHz)



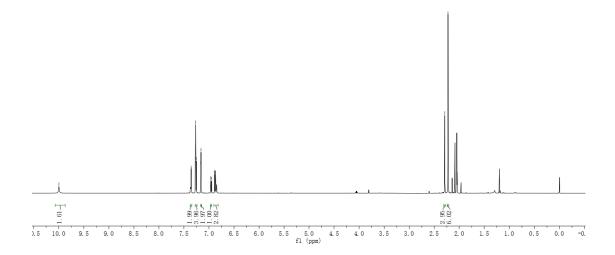


^{13}C NMR spectrum of compound 7c in CDCl3 (151 MHz)

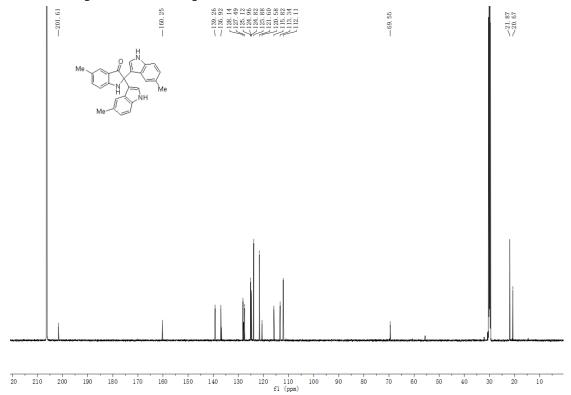


$^{1}\mathrm{H}$ NMR spectrum of compound 7d in acetone- $d_{6}\,(600~\mathrm{MHz})$

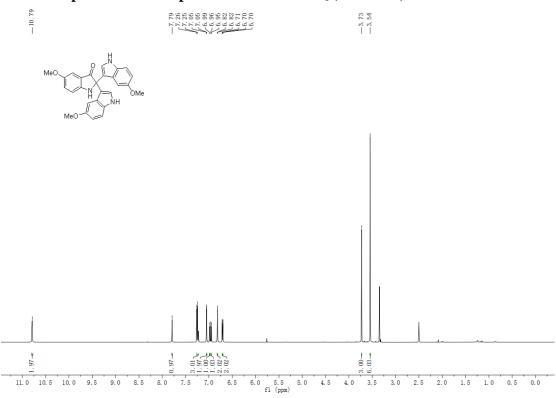




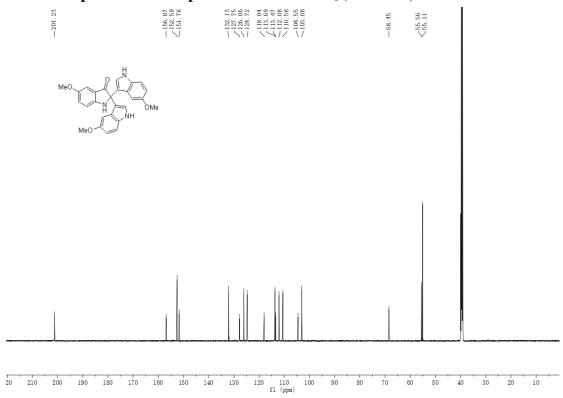
$^{13}\mathrm{C}$ NMR spectrum of compound 7d in acetone- $d_6\,(151~\mathrm{MHz})$



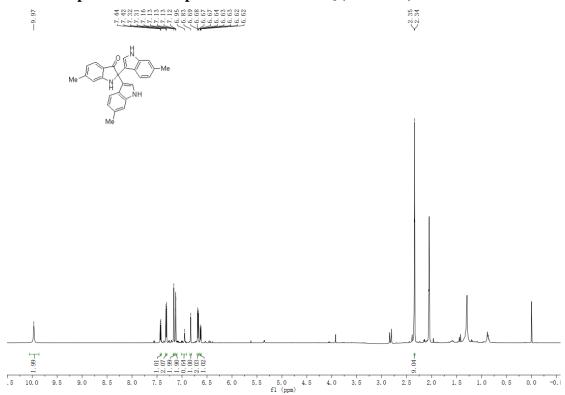




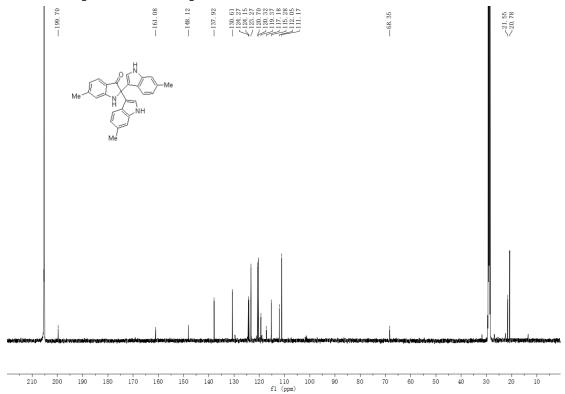
$^{13}\mathrm{C}$ NMR spectrum of compound 7e in DMSO- $d_6\,(151~\mathrm{MHz})$



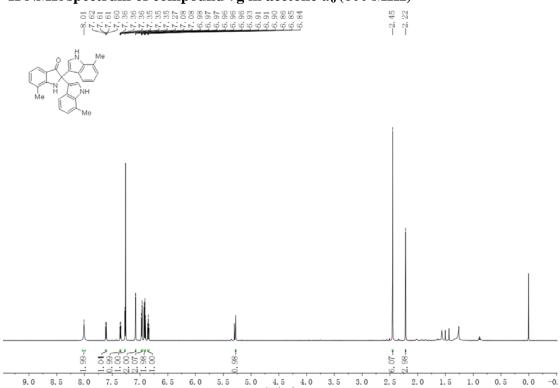
$^{1}\mathrm{H}$ NMR spectrum of compound 7f in acetone- $d_{6}\,(600~\mathrm{MHz})$



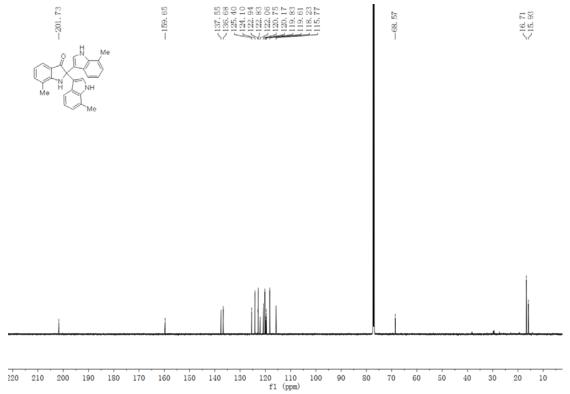
$^{13}\mathrm{C}$ NMR spectrum of compound 7f in acetone- $d_6\,(151~\mathrm{MHz})$



$^1\mathrm{H}$ NMR spectrum of compound 7g in acetone- $d_6\,(600~\mathrm{MHz})$

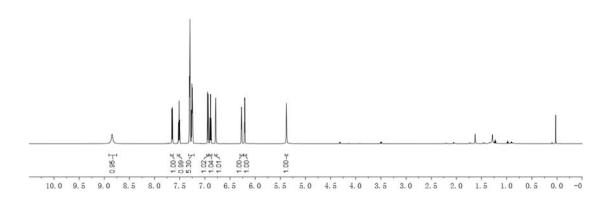


$^{13}\mathrm{C}$ NMR spectrum of compound 7g in acetone- $d_6\,(151~\mathrm{MHz})$



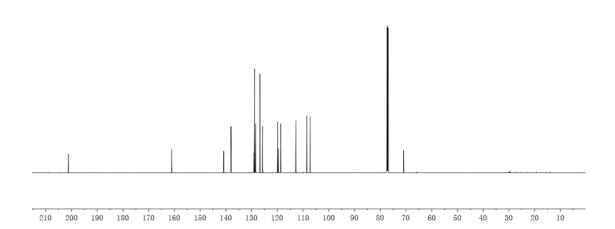
^{1}H NMR spectrum of compound 8 in CDCl $_{3}$ (600 MHz)



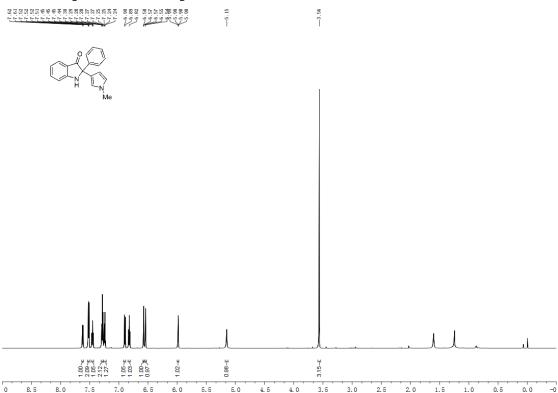


^{13}C NMR spectrum of compound 8 in CDCl $_{\!3}\,(151~MHz)$

-201.17
-161.03
-162.03
-163.03
-163.03
-163.03
-163.03
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-163.03
-163.03
-163.03
-163.03
-163.03
-163.03
-163.03
-163.03

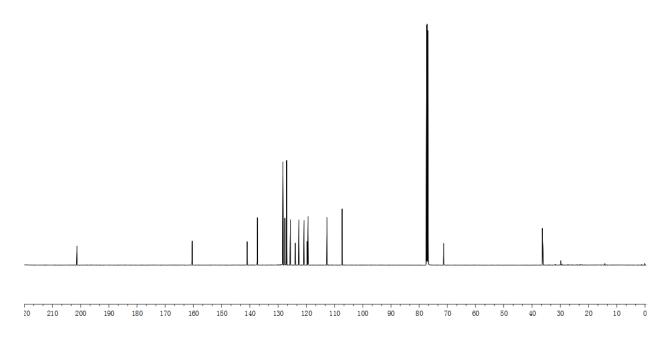






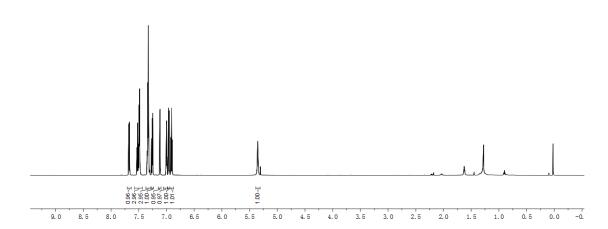




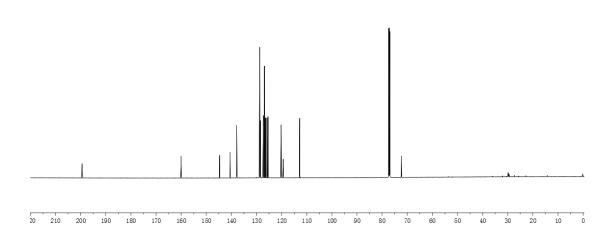


¹H NMR spectrum of compound 10 in CDCl₃ (600 MHz)





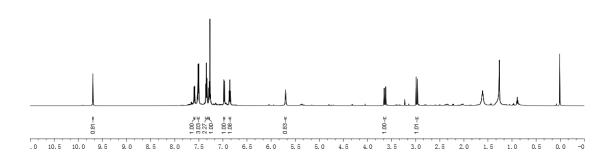
^{13}C NMR spectrum of compound 10 in CDCl $_{3}\,(151\;MHz)$



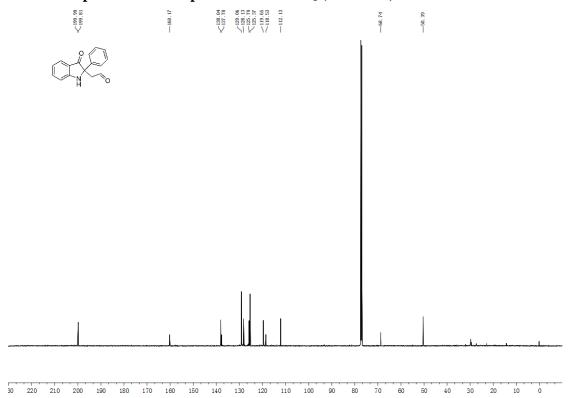


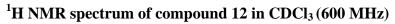


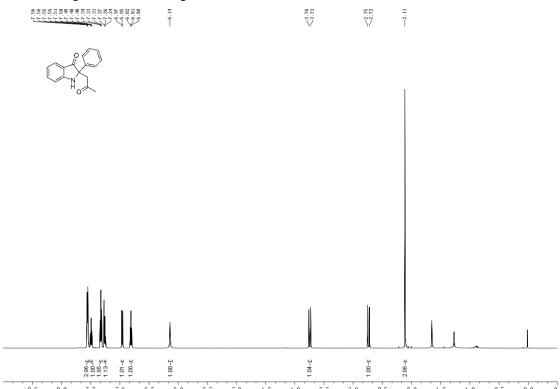




^{13}C NMR spectrum of compound 11 in CDCl3 (151 MHz)







^{13}C NMR spectrum of compound 12 in CDCl $_{\!3}\,(151~MHz)$





