Electronic Supplementary Material (ESI) for Green Chemistry.

Electrochemically initiated formation of sulfonate radical: synthesis of oxindoles via difunctionalization of acrylamides mediated by bromide ion

Yang-Ye Jiang,[a] Sen Liang, [b] Cheng-Chu Zeng,[a,*] Li-Ming Hu,[a] and Bao-Guo Sun [b,*]

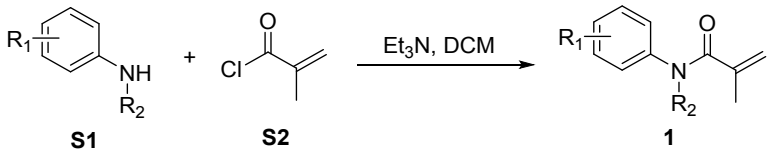
[a] College of Life Science & Bioengineering, Beijing University of Technology, Beijing 100124, China

[b] Beijing advanced innovation center for food nutrition and human health, School of Food and Chemical Engineering, Beijing Technology and Business University, Beijing 100048, China

Corresponding authors: zengcc@bjut.edu.cn, sunbg@btbu.edu.cn

Content

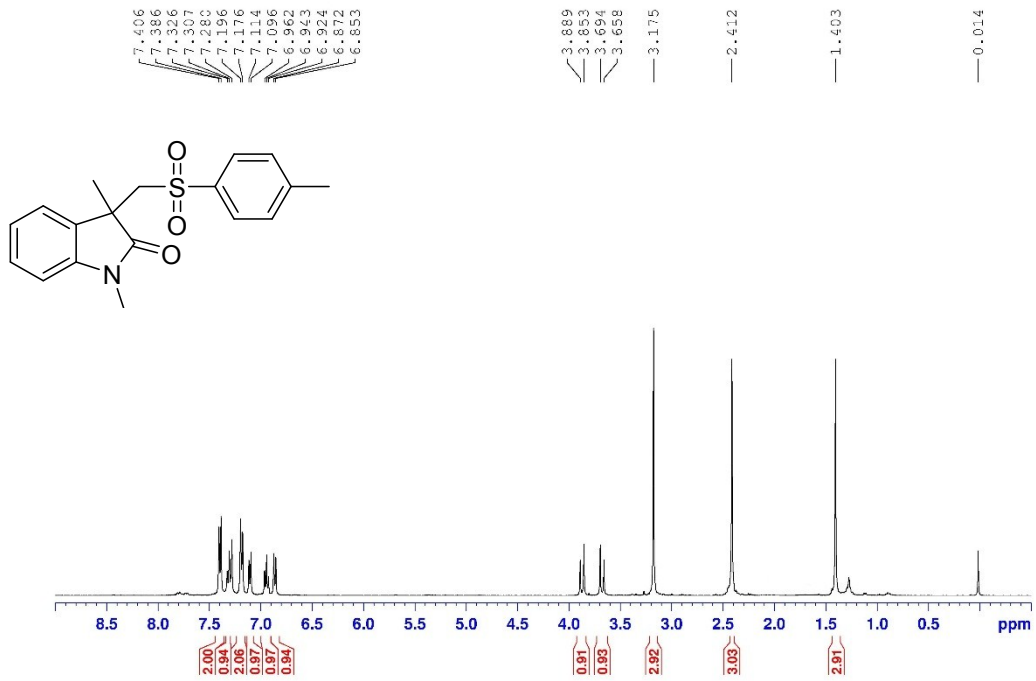
Typical procedure for the synthesis of Amides[1]



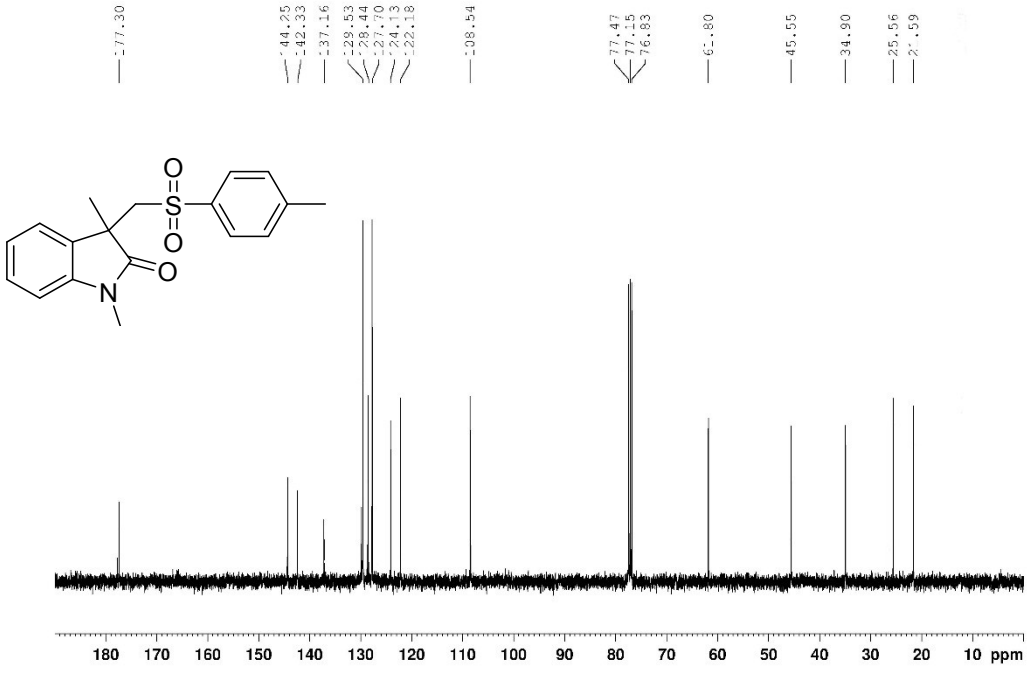
In a typical procedure, N-substituted aminobenzene **S1** (10 mmol, 1.0 equiv.) was dissolved in 40 mL dry DCM and cooled to 0 ^{o}C. After addition of Et_3N (1.2134 g, 12 mmol, 1.2 equiv.), acid chloride **S2** (12 mmol, 1.2 equiv.) was added dropwise and the mixture was stirred at RT for 6 h. Aqueous $NaHCO_3$ (20 mL) was added and the reaction mixture was extracted with DCM (3 x 20 mL). The combined organic phases were washed with 1 M HCl (3 x 10 mL), water (3 x 10 mL) and brine (3 x 10 mL), dried over Na_2SO_4, and contracted *in vacuo*. The residue was purified by column chromatography on silica gel.

Spectra of prepared compounds

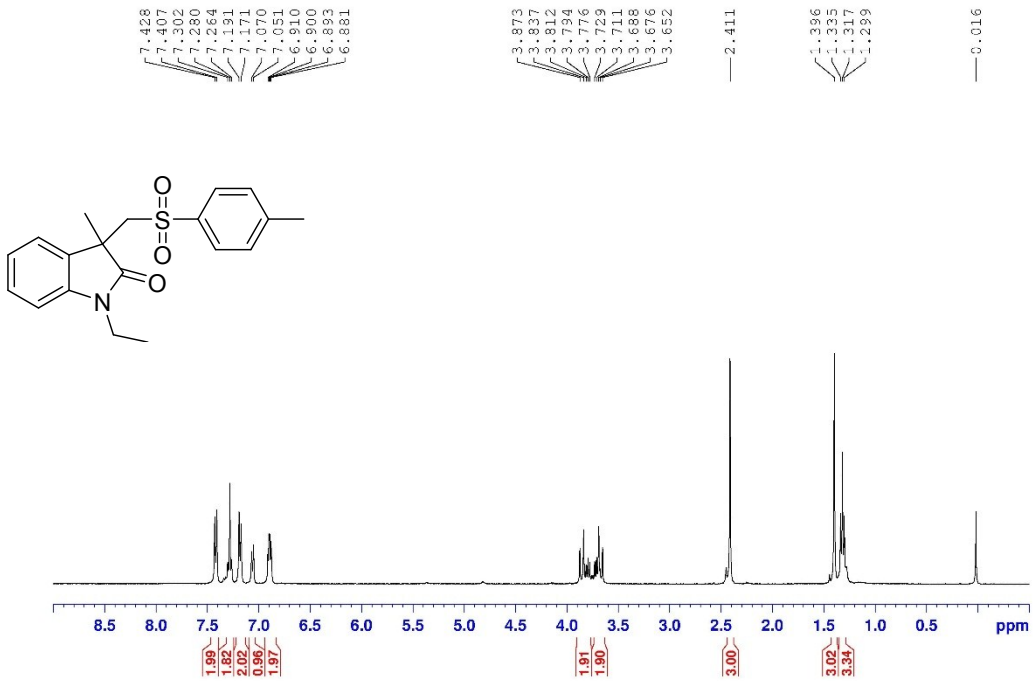
^{1}H NMR spectra of 1,3-dimethyl-3-(tosylmethyl)indolin-2-one (3a)[2]



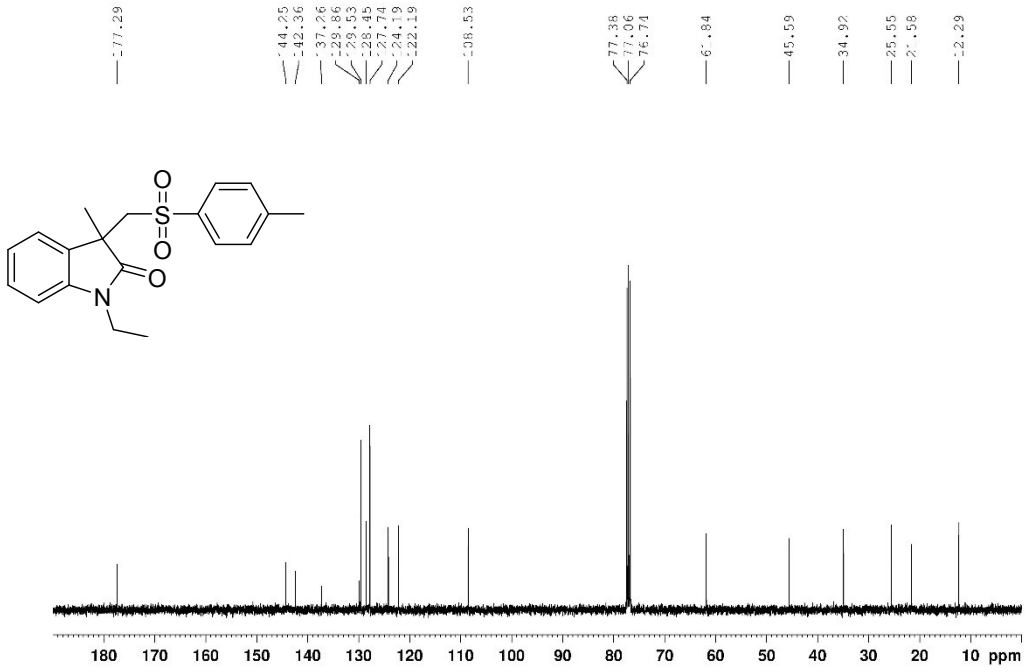
^{13}C NMR spectra of 1,3-dimethyl-3-(tosylmethyl)indolin-2-one (3a)[2]



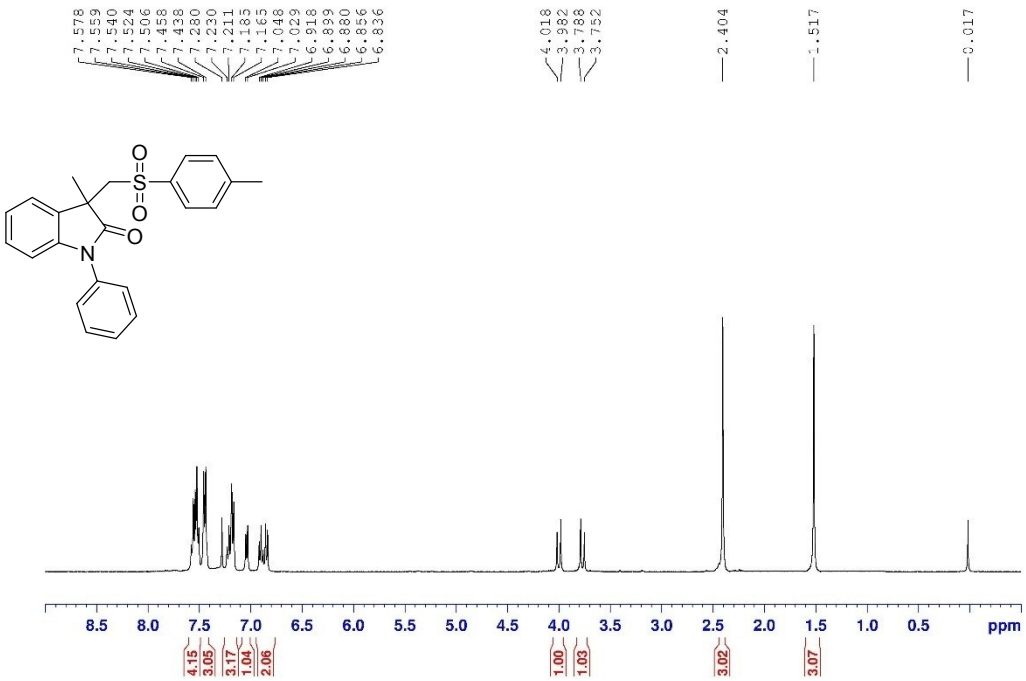
^{1}H NMR spectra of 1-ethyl-3-methyl-3-(tosylmethyl)indolin-2-one (3b)[3]



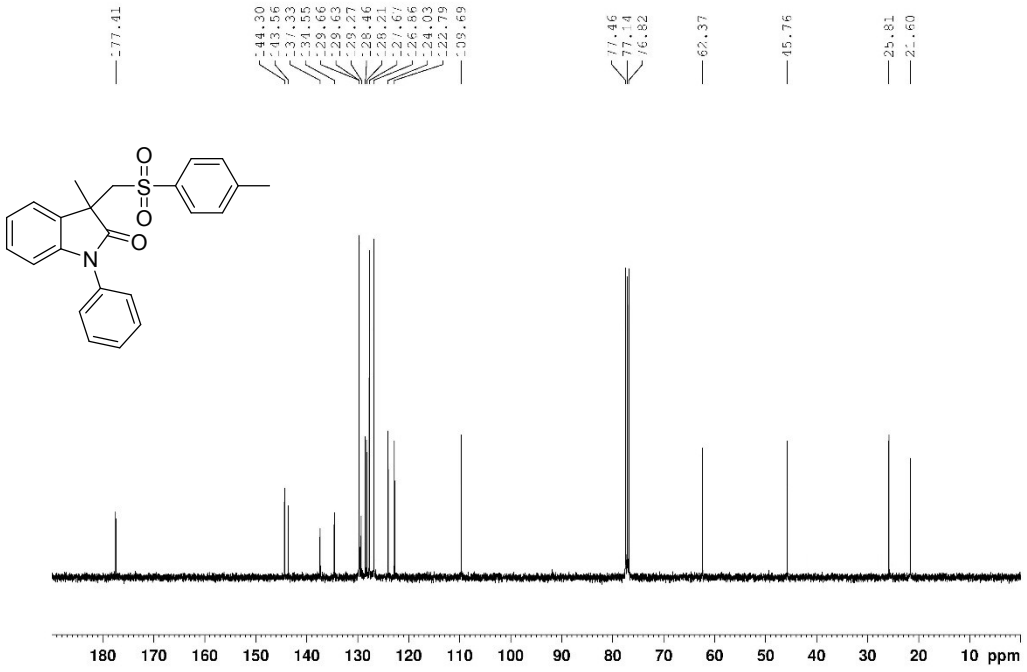
^{13}C NMR spectra of 1-ethyl-3-methyl-3-(tosylmethyl)indolin-2-one (3b)[3]



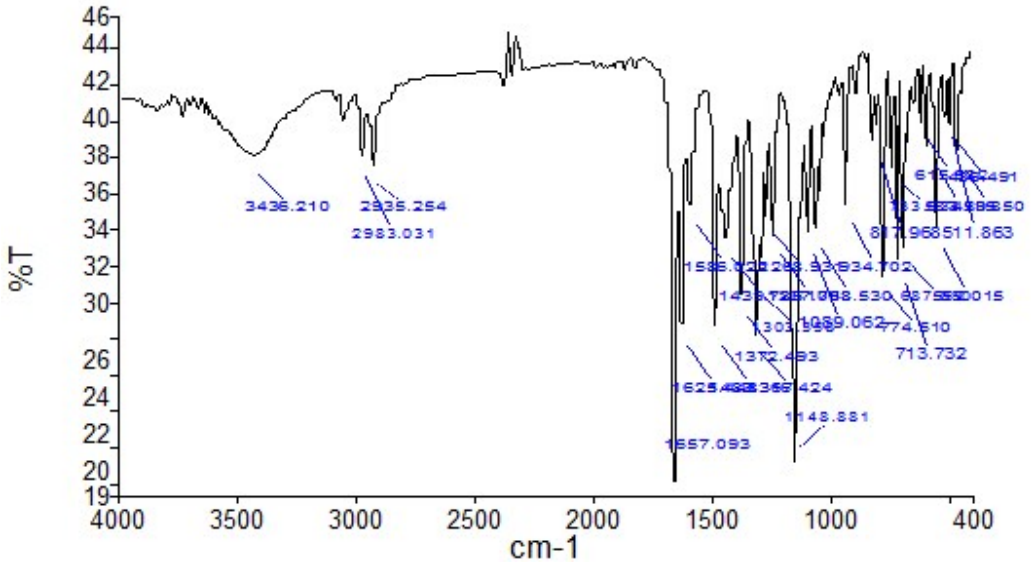
^{1}H NMR spectra of 3-methyl-1-phenyl-3-(tosylmethyl)indolin-2-one (3c)



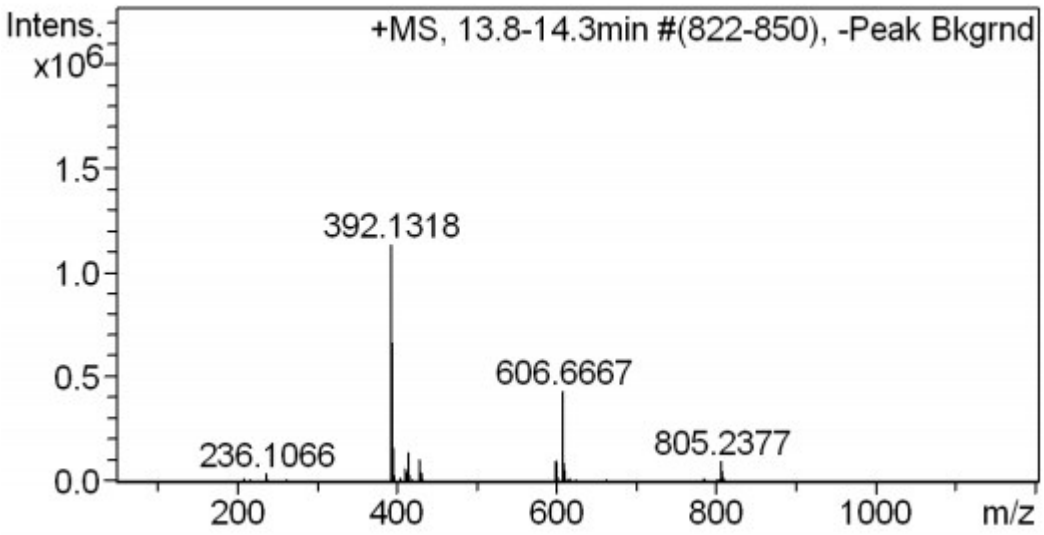
^{13}C NMR spectra of 3-methyl-1-phenyl-3-(tosylmethyl)indolin-2-one (3c)



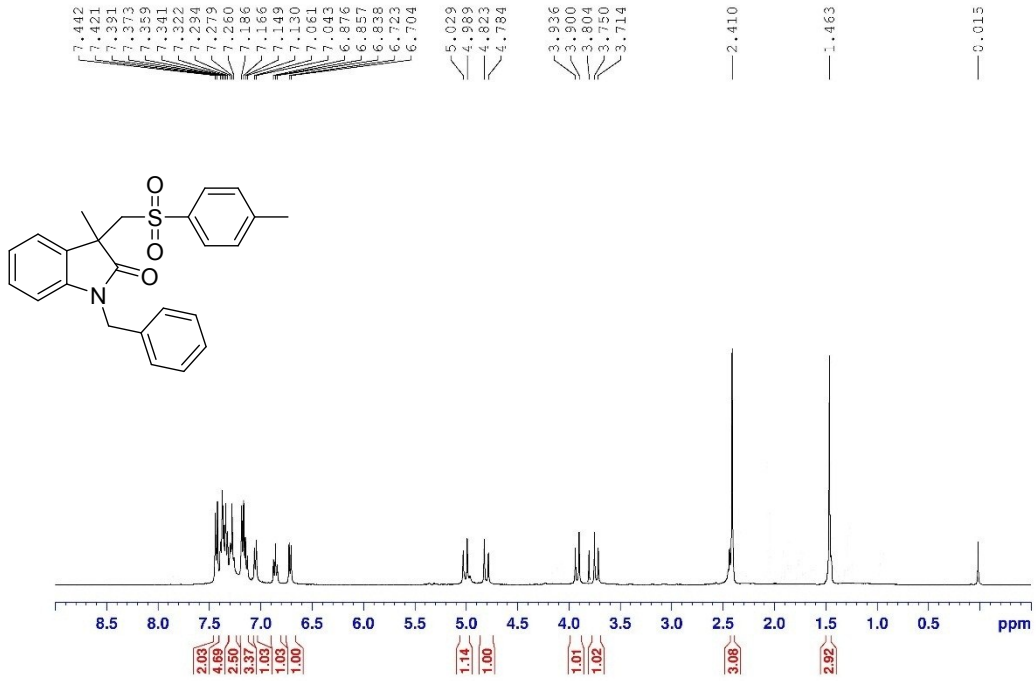
IR spectra of 3-methyl-1-phenyl-3-(tosylmethyl)indolin-2-one (3c)



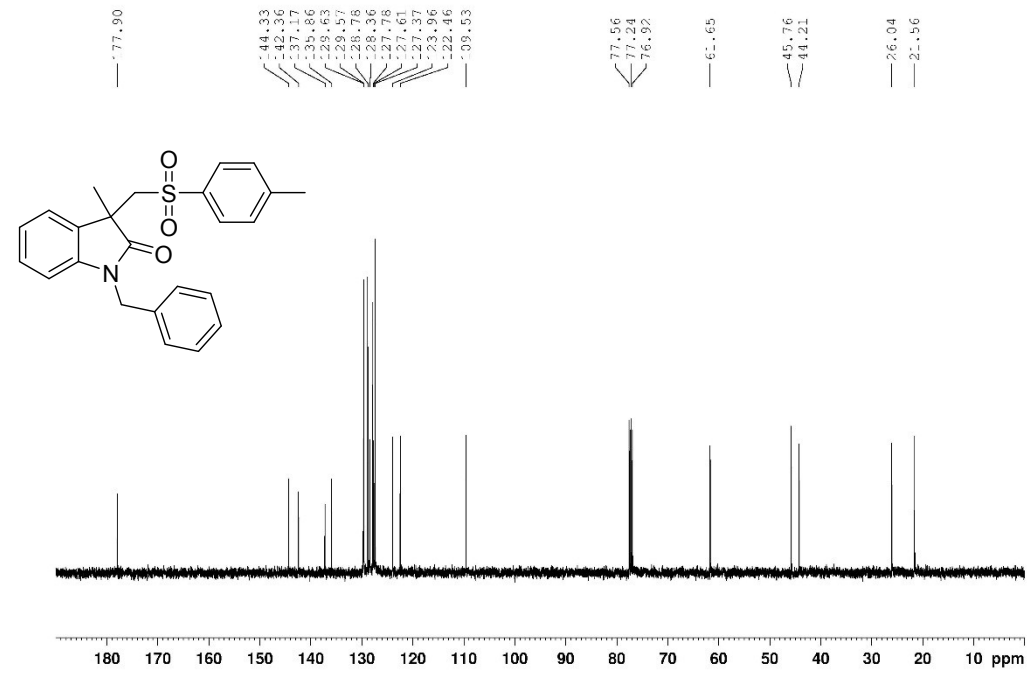
HRMS spectra of 3-methyl-1-phenyl-3-(tosylmethyl)indolin-2-one (3c)



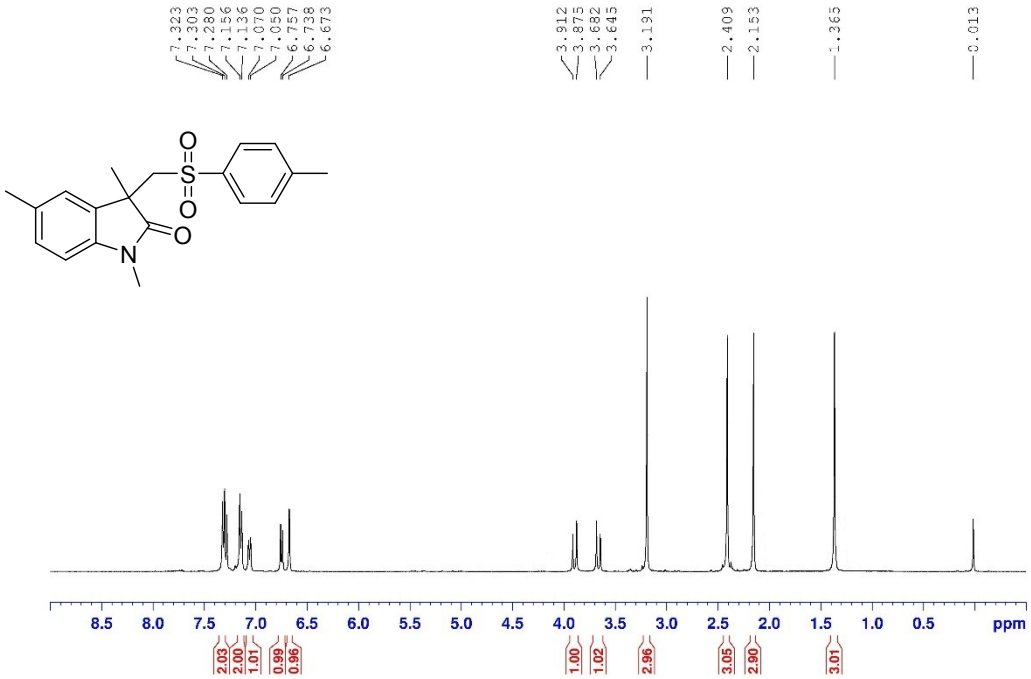
^{1}H NMR spectra of 1-benzyl-3-methyl-3-(tosylmethyl)indolin-2-one (3d)[2]



^{13}C NMR spectra of 1-benzyl-3-methyl-3-(tosylmethyl)indolin-2-one (3d)[2]



^{1}H NMR spectra of 1,3,5-trimethyl-3-(tosylmethyl)indolin-2-one (3g)[2]



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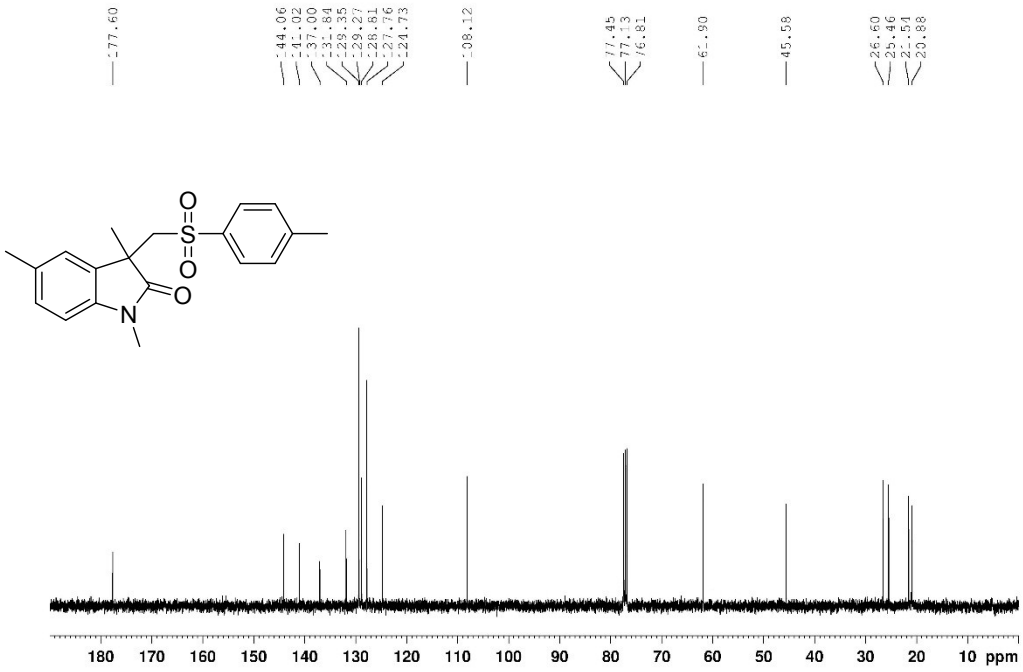
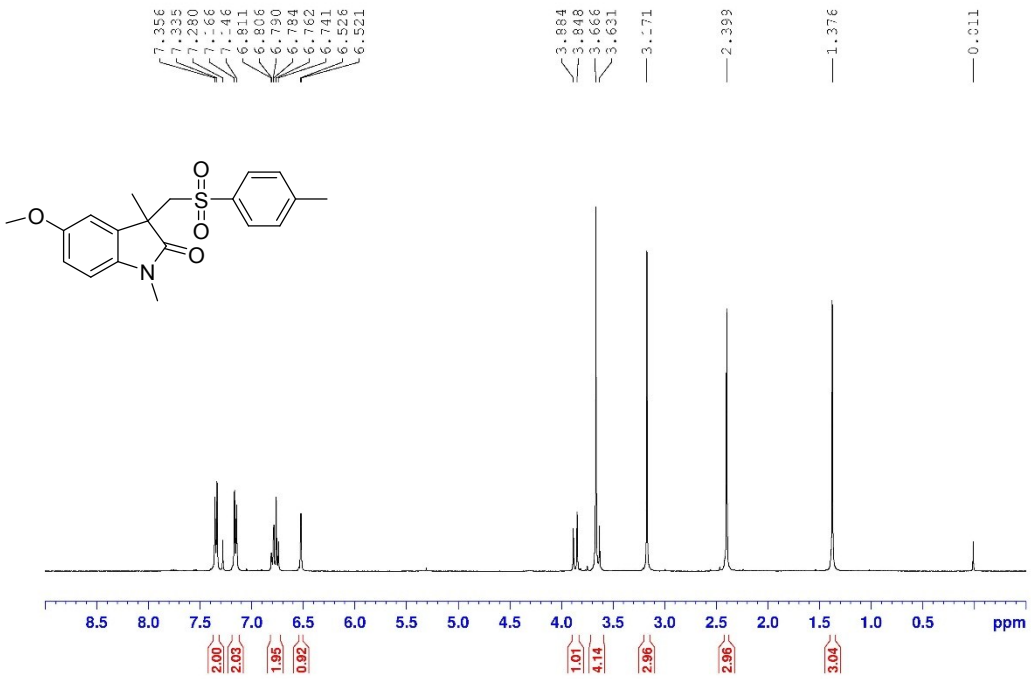
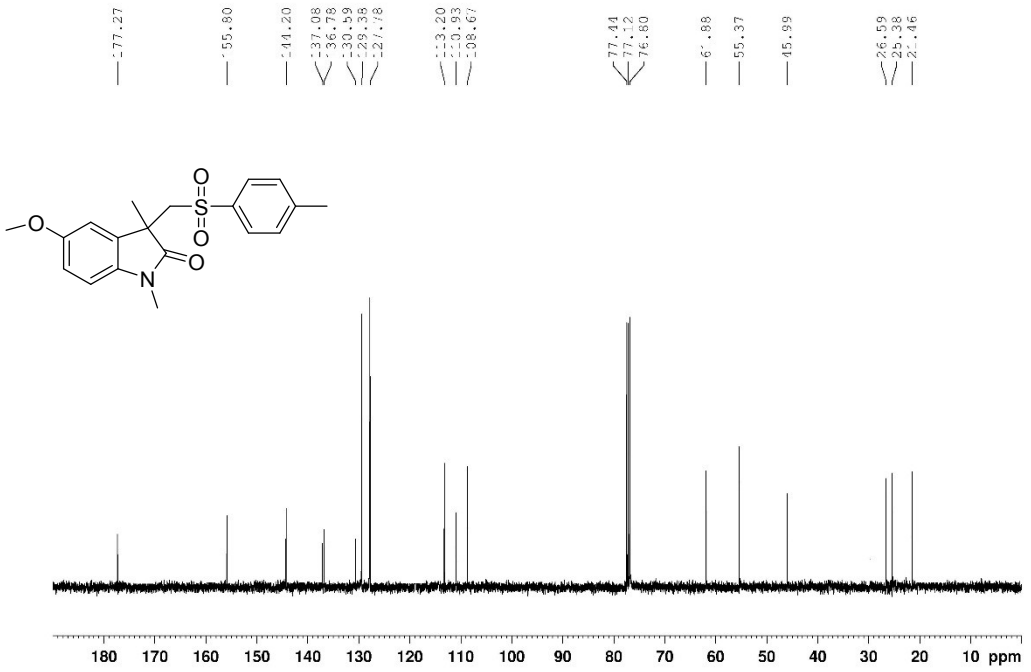


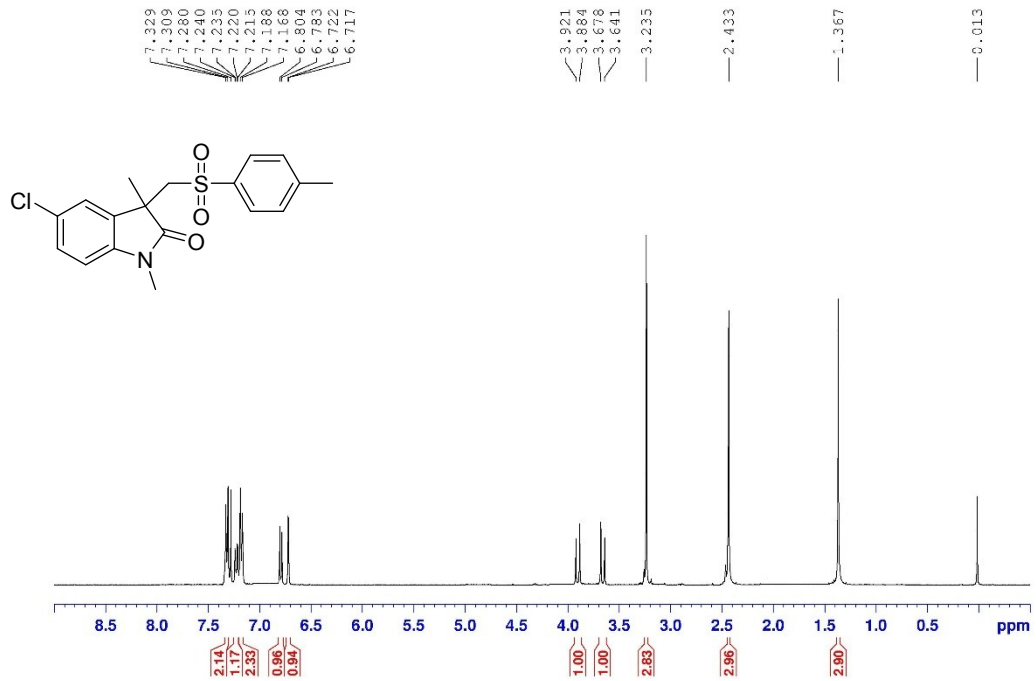
^{1}H NMR spectra of 5-methoxy-1,3-dimethyl-3-(tosylmethyl)indolin-2-one (3h)[2]



^{13}C NMR spectra of 5-methoxy-1,3-dimethyl-3-(tosylmethyl)indolin-2-one (3h)[2]



^{1}H NMR spectra of 5-chloro-1,3-dimethyl-3-(tosylmethyl)indolin-2-one (3i)[2]



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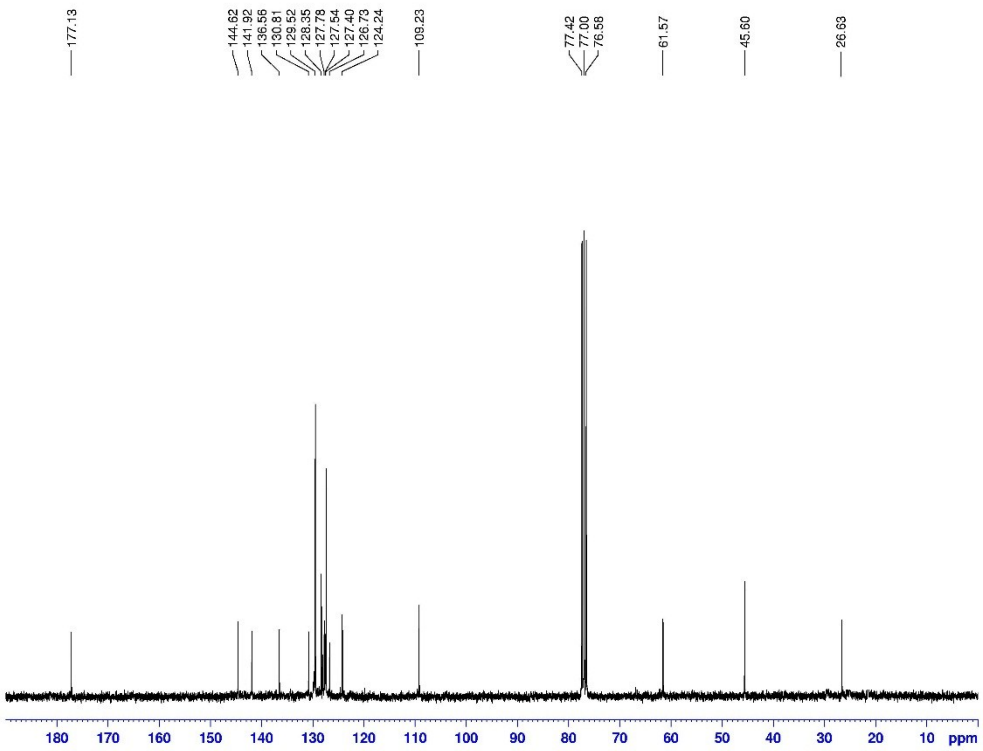
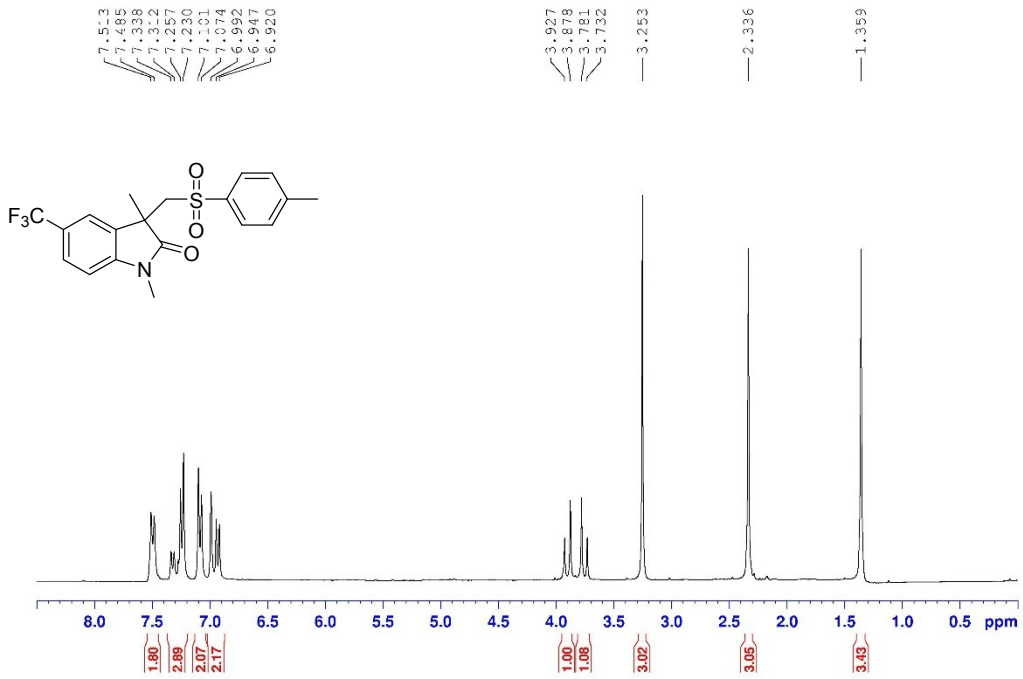
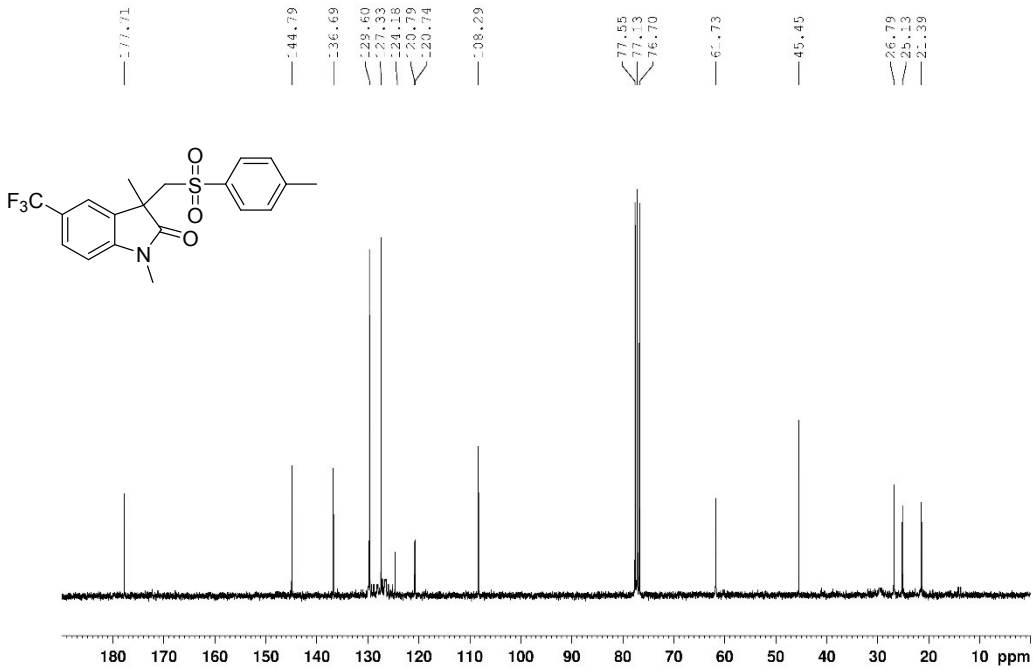


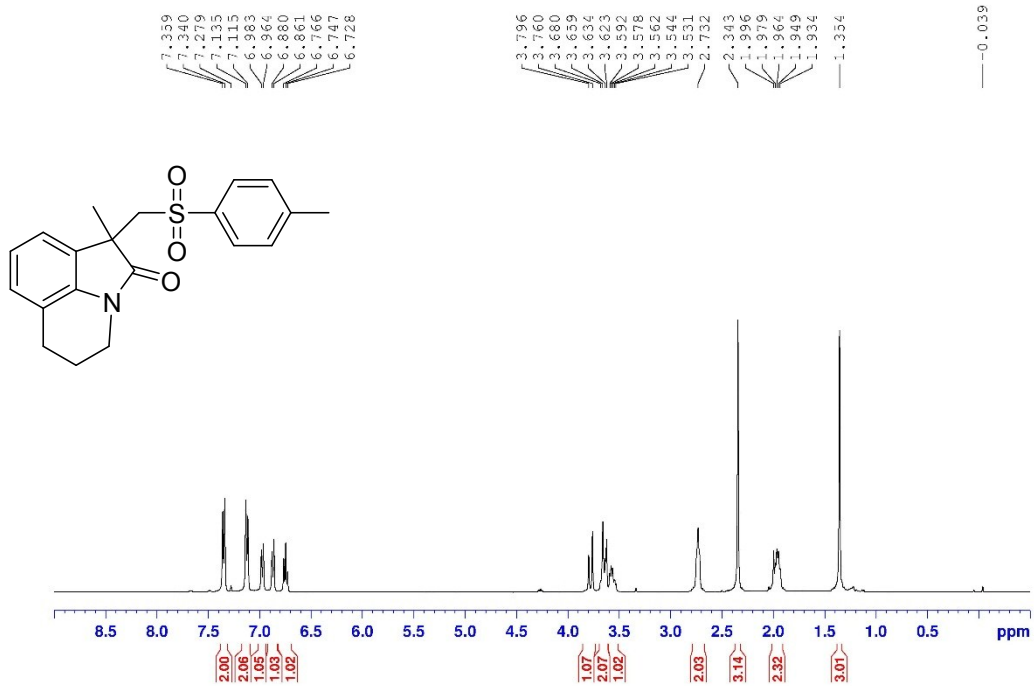
^{1}H NMR spectra of 1,3-dimethyl-3-(tosylmethyl)-5-(trifluoromethyl)indolin-2-one (3j)[4]



^{13}C NMR spectra of 1,3-dimethyl-3-(tosylmethyl)-5-(trifluoromethyl)indolin-2-one (3j)[4]



^{1}H NMR spectra of 1-methyl-1-(tosylmethyl)-5,6-dihydro-4H-pyrrolo[3,2,1-ij]quinolin-2(1H)-one (3l)[2]



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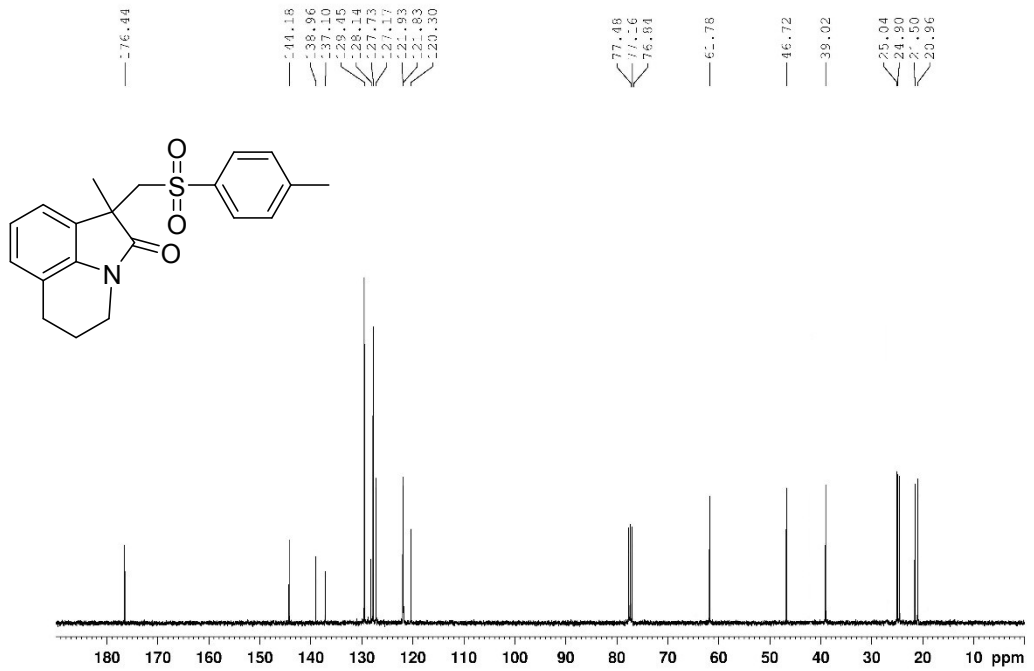
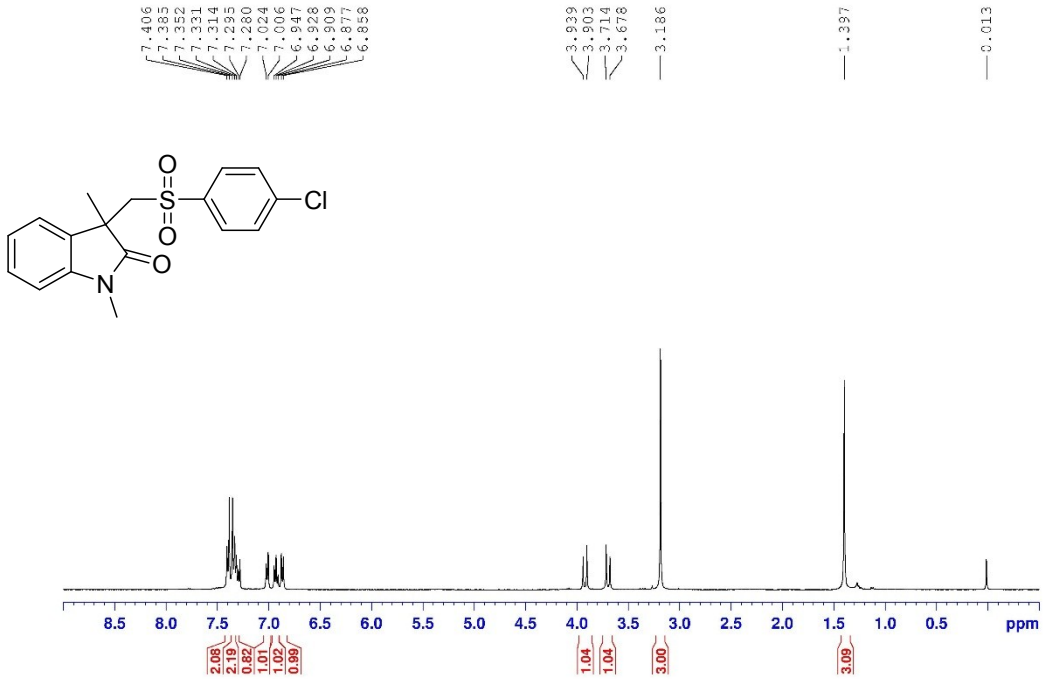
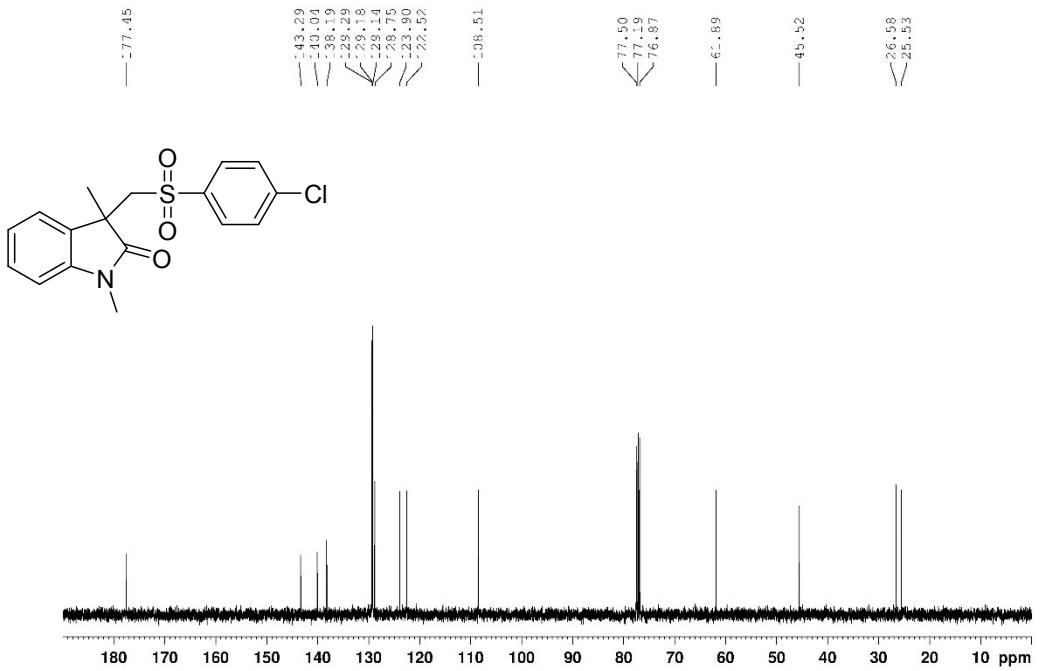


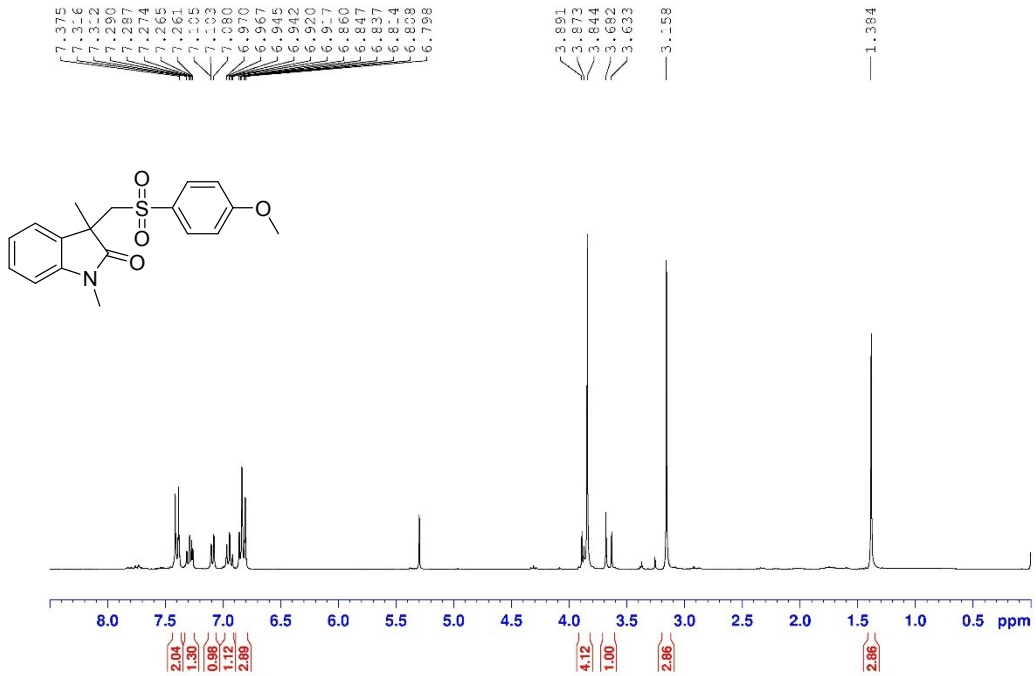
^{1}H NMR spectra of 3-(((4-chlorophenyl)sulfonyl)methyl)-1,3-dimethylindolin-2-one (3n)[5]



^{13}C NMR spectra of 3-(((4-chlorophenyl)sulfonyl)methyl)-1,3-dimethylindolin-2-one (3n)[5]



^{1}H NMR spectra of 3-(((4-methoxyphenyl)sulfonyl)methyl)-1,3-dimethylindolin-2-one (3o)[4]



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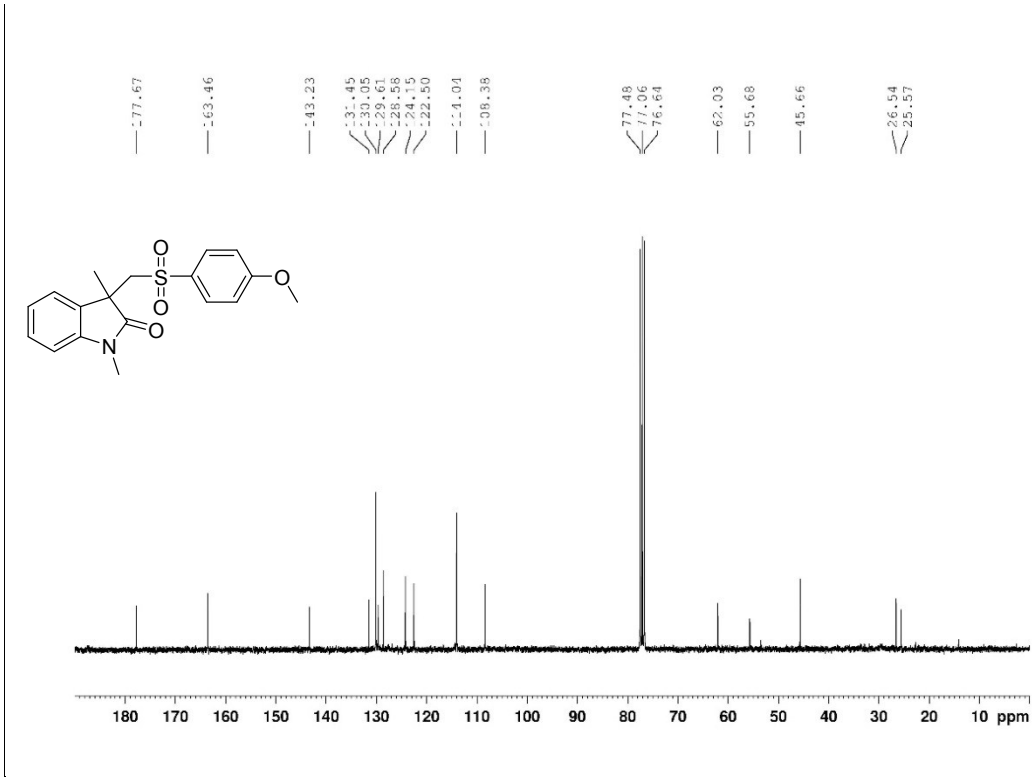
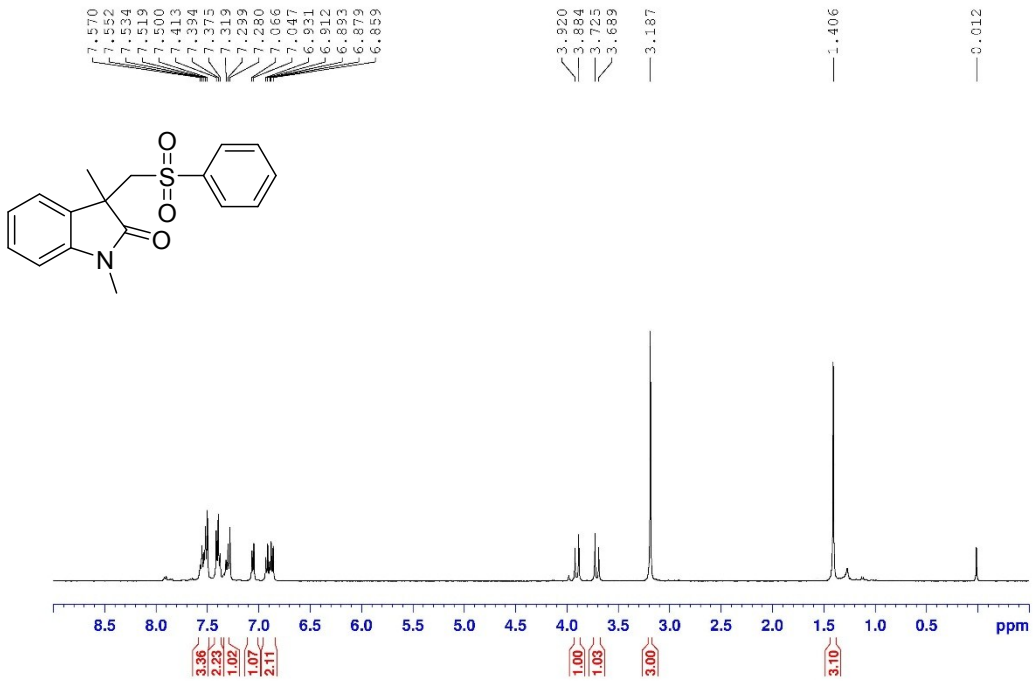
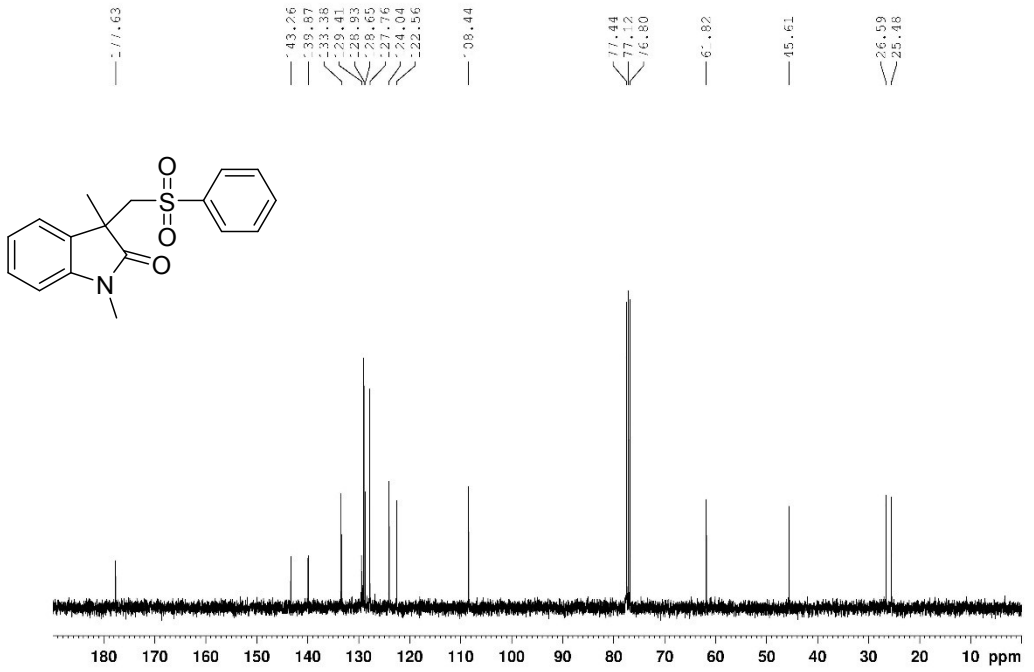


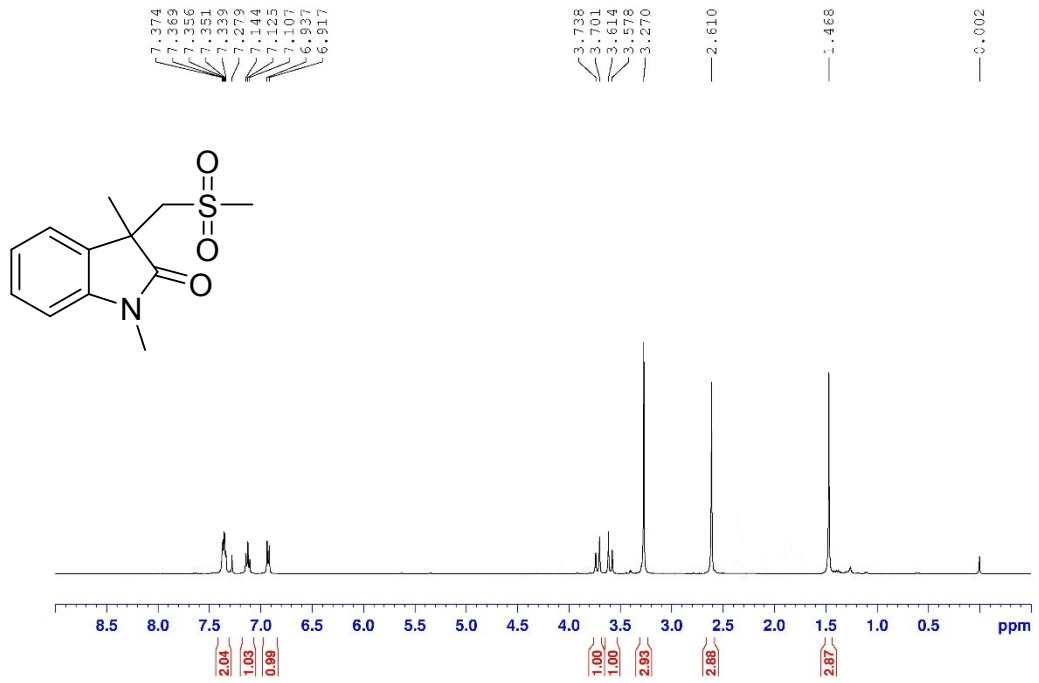
^{1}H NMR spectra of 1,3-dimethyl-3-((phenylsulfonyl)methyl)indolin-2-one (3p)[2]



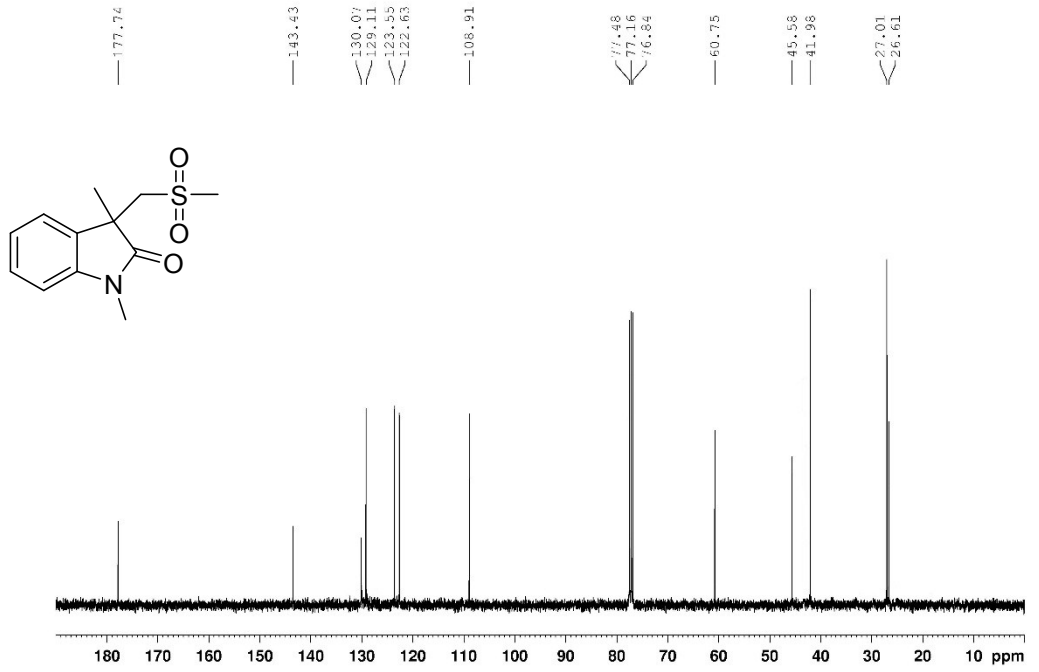
^{13}C NMR spectra of 1,3-dimethyl-3-((phenylsulfonyl)methyl)indolin-2-one (3p)[2]



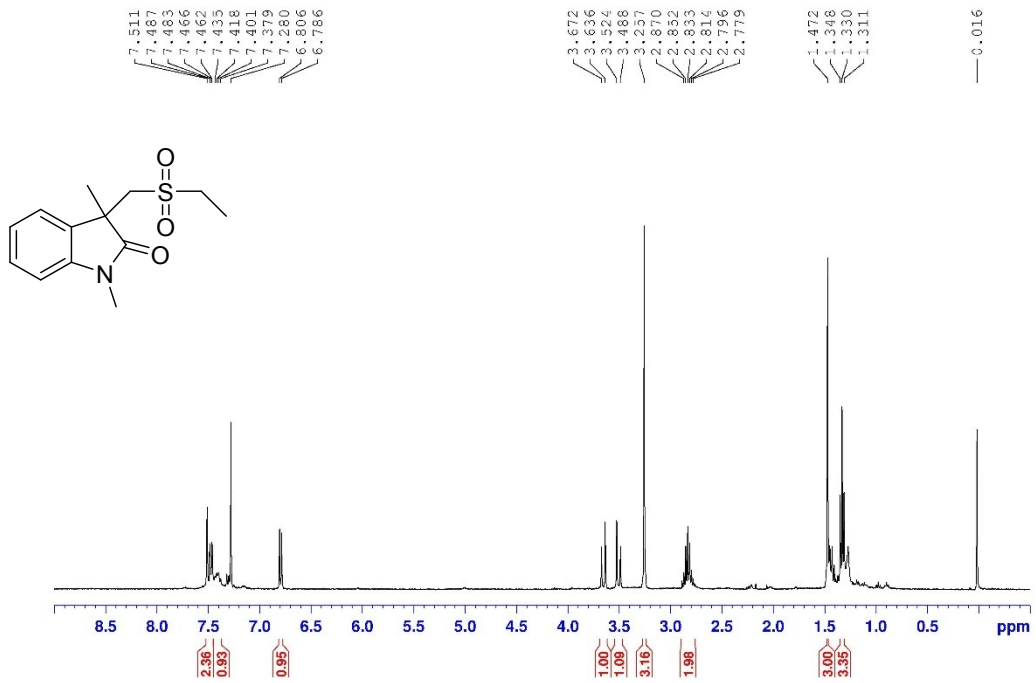
^{1}H NMR spectra of 1,3-dimethyl-3-((methylsulfonyl)methyl)indolin-2-one (3r)[5]



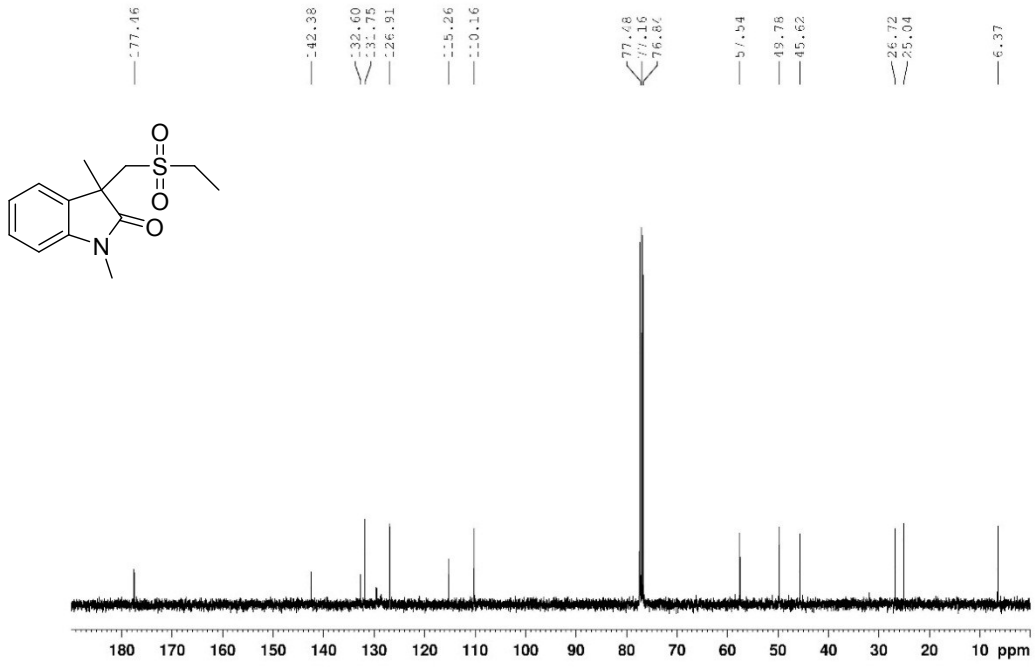
^{13}C NMR spectra of 1,3-dimethyl-3-((methylsulfonyl)methyl)indolin-2-one (3r)[5]



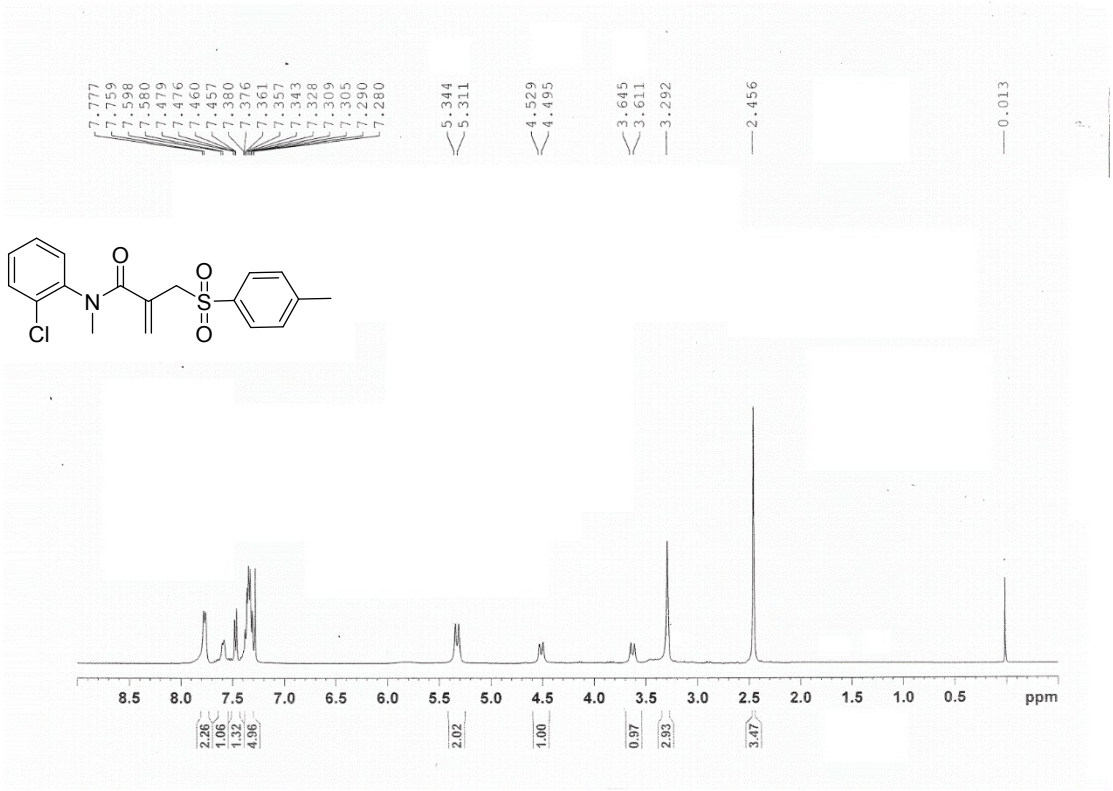
^{1}H NMR spectra of 3-((ethylsulfonyl)methyl)-1,3-dimethylindolin-2-one (3s)[5]



^{13}C NMR spectra of 3-((ethylsulfonyl)methyl)-1,3-dimethylindolin-2-one (3s)[5]



^{1}H NMR spectra of N-(2-chlorophenyl)-N-methyl-2-(tosylmethyl)acrylamide (4)



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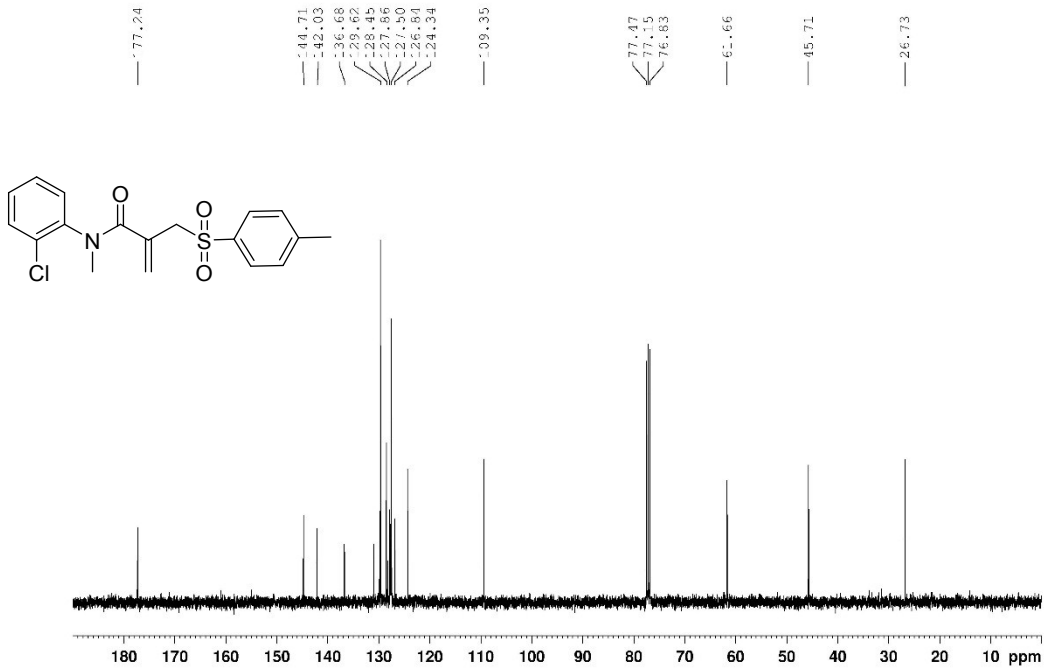

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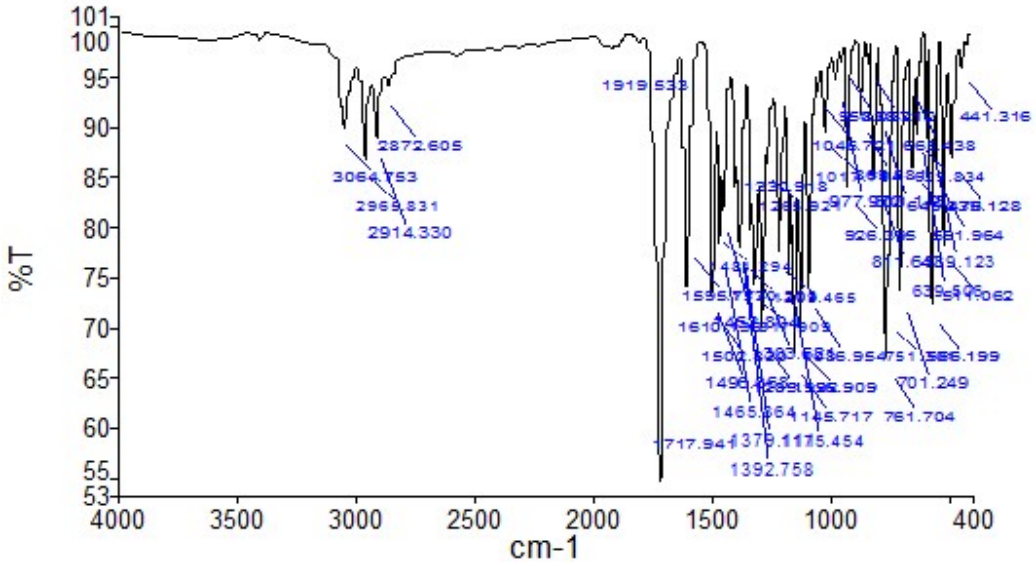
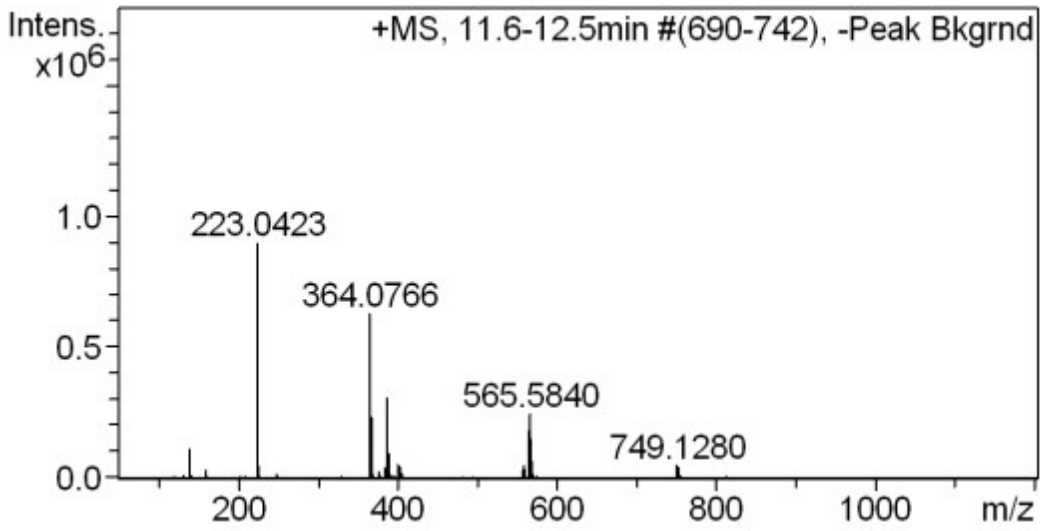


HRMS spectra of N-(2-chlorophenyl)-N-methyl-2-(tosylmethyl)acrylamide (4)



References

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2 X. Q. Li, X. S. Xu, P. Z. Hu, X. Q. Xiao and C. Zhou, *J. Org. Chem.* 2013, **78**, 7343.

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4 Q. S. Tian, P. He and C. X. Kuang, *Org. Biomol. Chem.*, 2014, **12**, 6349

5 T. Shen, Y. Z. Yuan, S. Song and N. Jiao, *Chem. Commun.*, 2014, **50**, 4115