Supporting Information

Application of Polyacrylonitrile Fiber as Support for Green Heterogeneous Base and Supported Phase-transfer Catalysts

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List of Contents:

The procedure for determining the acid exchange capacity of PANF-PA.

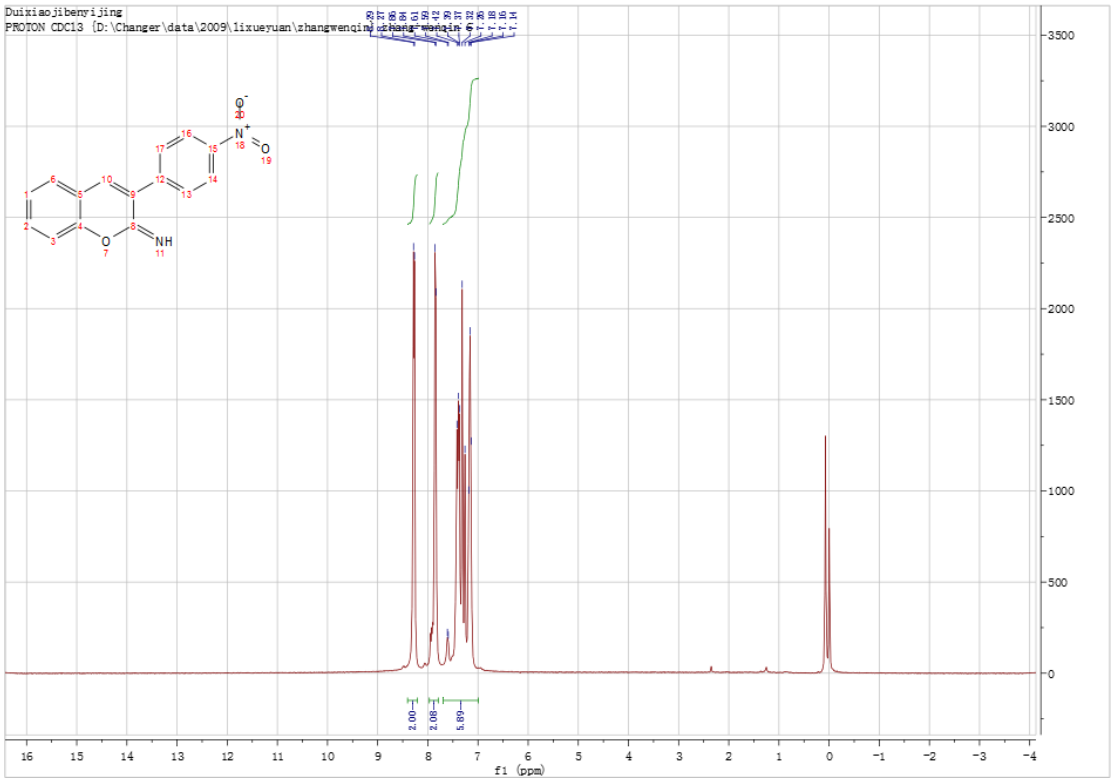
The dried PANF-PA (0.100 g) was immersed into 20 mL of 0.100 M HCl for 6 h at room temperature. The treated fiber was then filtered out. The HCl concentration of the remaining solution was determined by titration with 0.100 M NaOH. The exchange capacity was calculated based on the amount of acid consumed. Parallel titration for three times and the acid exchange capacity of PANF-EA was 4.02 $mmol \cdot g^{-1}$.

Scaleup experimental procedures

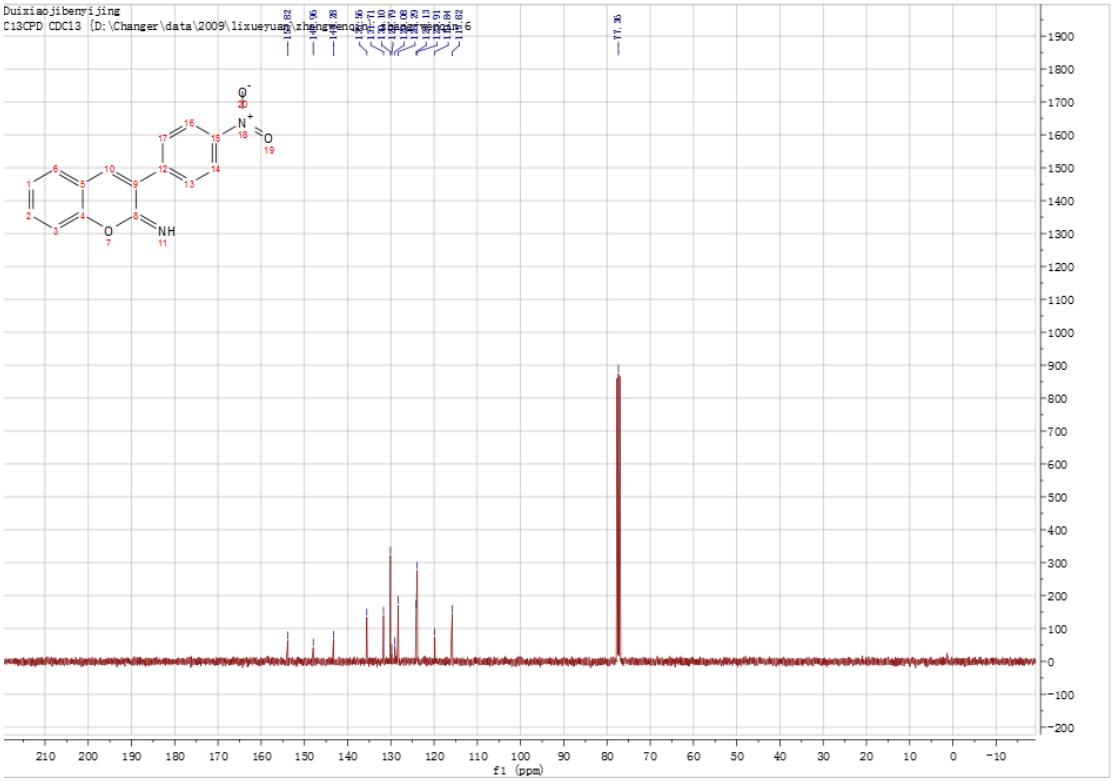
Scaleup procedure for the synthesis of iminocoumarin. A mixture of salicylaldehyde (40 mmol, 4.89 g), activated nitrile (40 mmol, 6.49 g), and PANF-PA (0.5 g, 5% mol based on acid exchange capacity) in water-EtOH mixtures (200 mL, 40: 160 v/v) was stirred under refluxing for 1.0 h. The work-up procedure as shown in the general procedure, and 10.21 g product was obtained, with the isolated yield of 96%.

Scaleup procedure for the synthesis of sulfone. A mixture of benzyl bromide (40 mmol, 6.84 g), *p*-toluenesulfinic acid sodium salt (50 mmol，8.91 g), and PANF-PA (0. 5 g, 5% mol based on acid exchange capacity) in water (100 mL) was stirred under 90 ^{o}C for 0.5 h. The work-up procedure as shown in the general procedure, and the recovered PANF-PA was used again. Finally, 8.68 g and 9.57 g product was obtained respectively, with the isolated yield of 88% and 97%.

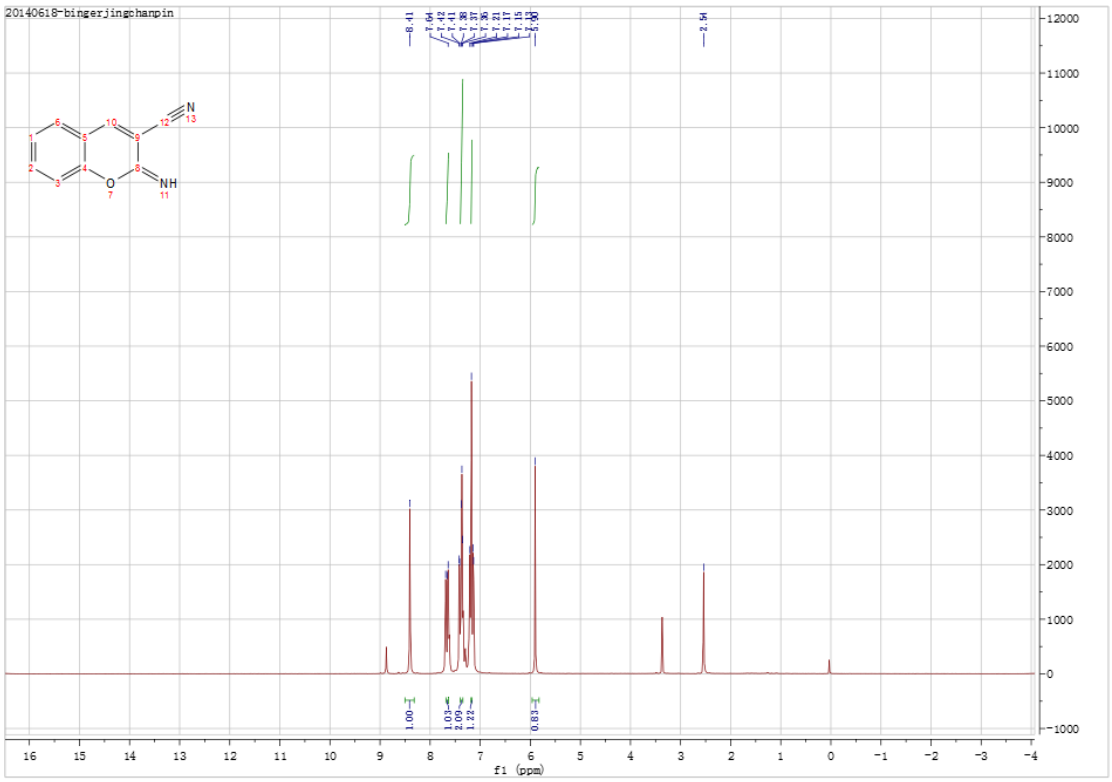
^{1}H and ^{13}C NMR Spectra of All Compounds



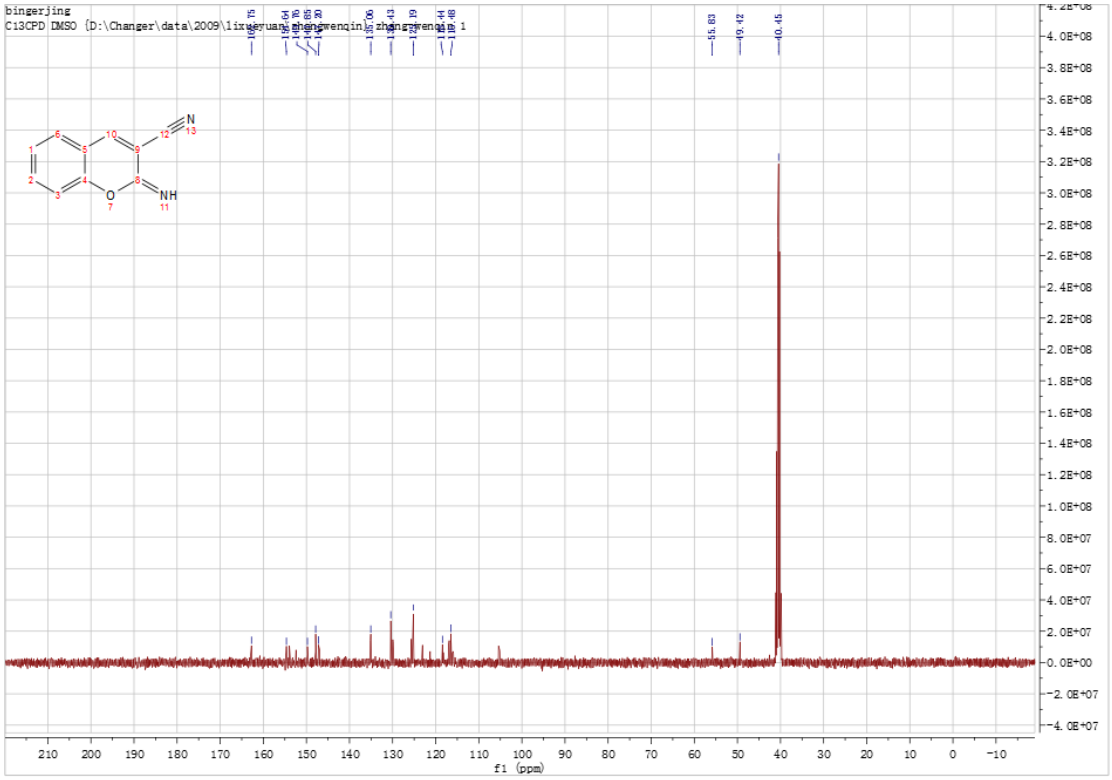
The ^{1}H NMR spectrum of 3-(4-Nitrophenyl)iminocoumarin (1a).



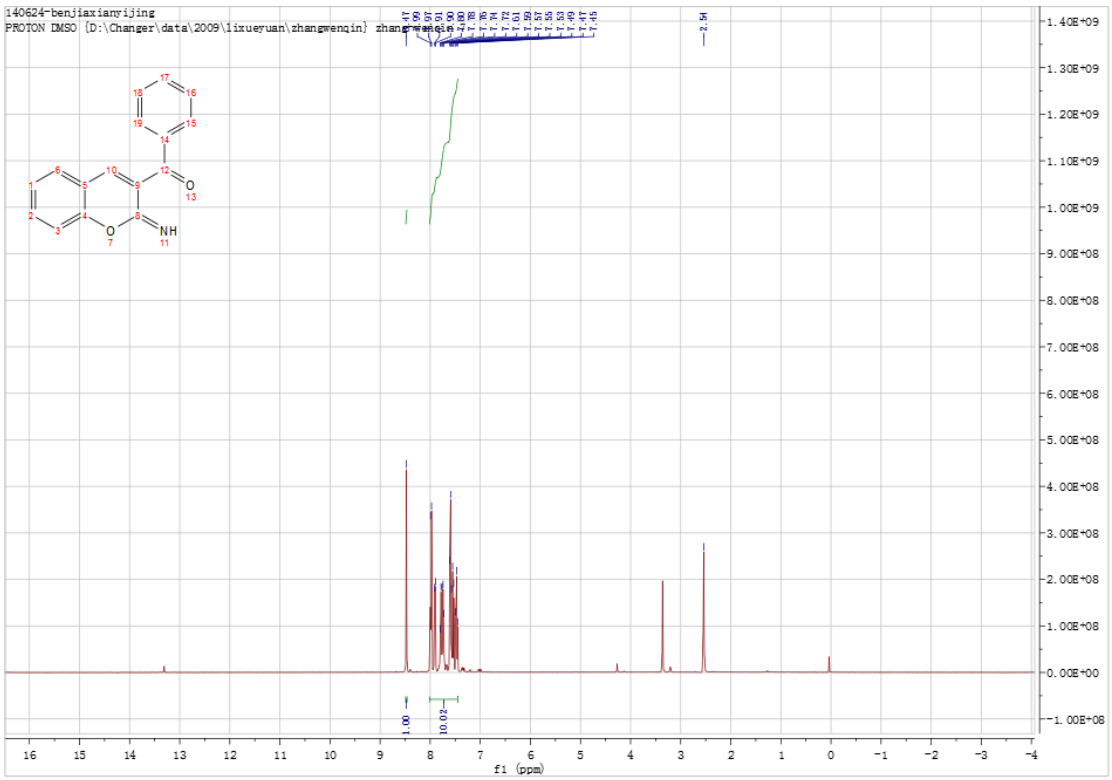
The ^{13}C NMR spectrum of 3-(4-Nitrophenyl)iminocoumarin (1b).



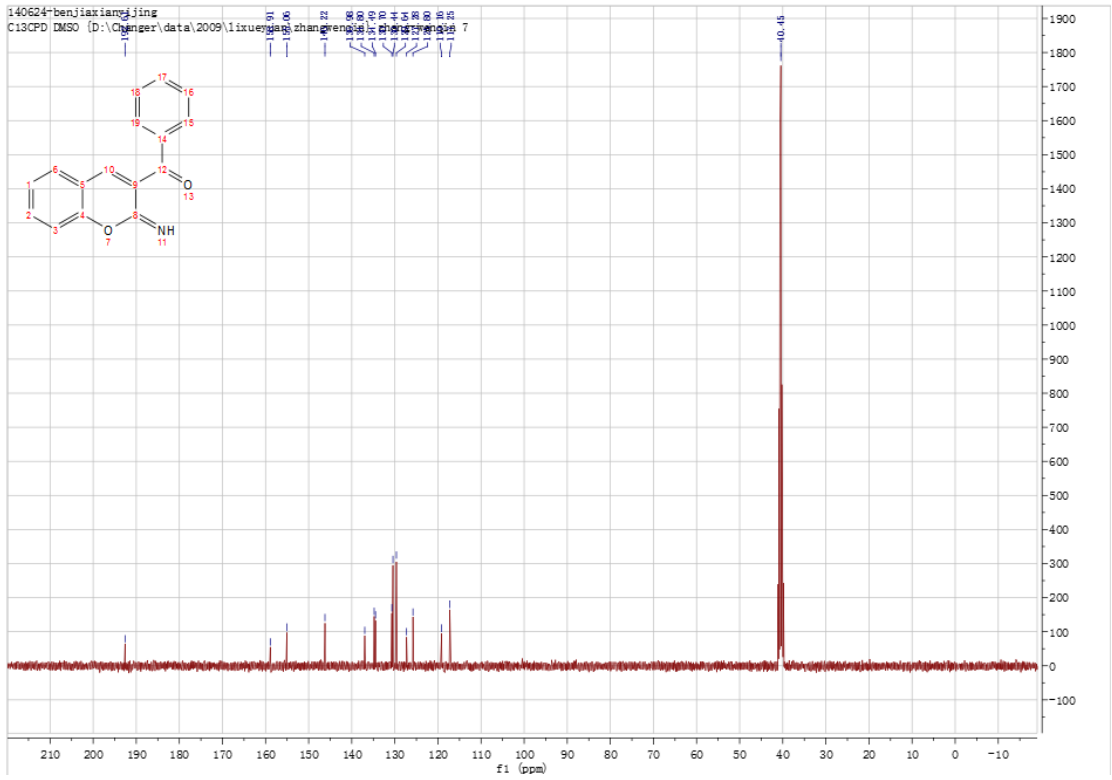
The ^{1}H NMR spectrum of 3-Cyaniminocoumarin (1b).



The ^{13}C NMR spectrum of 3-Cyaniminocoumarin (1b).



The ^{1}H NMR spectrum of 3-Benzoyliminocoumarin (1c).



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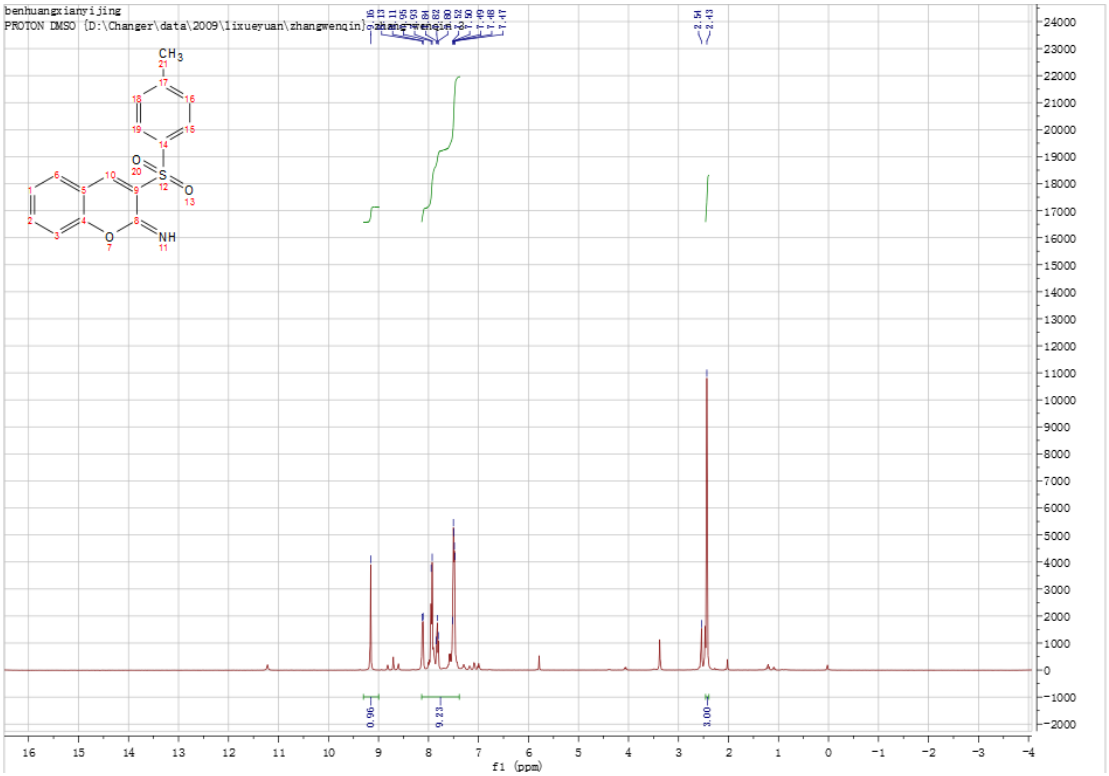
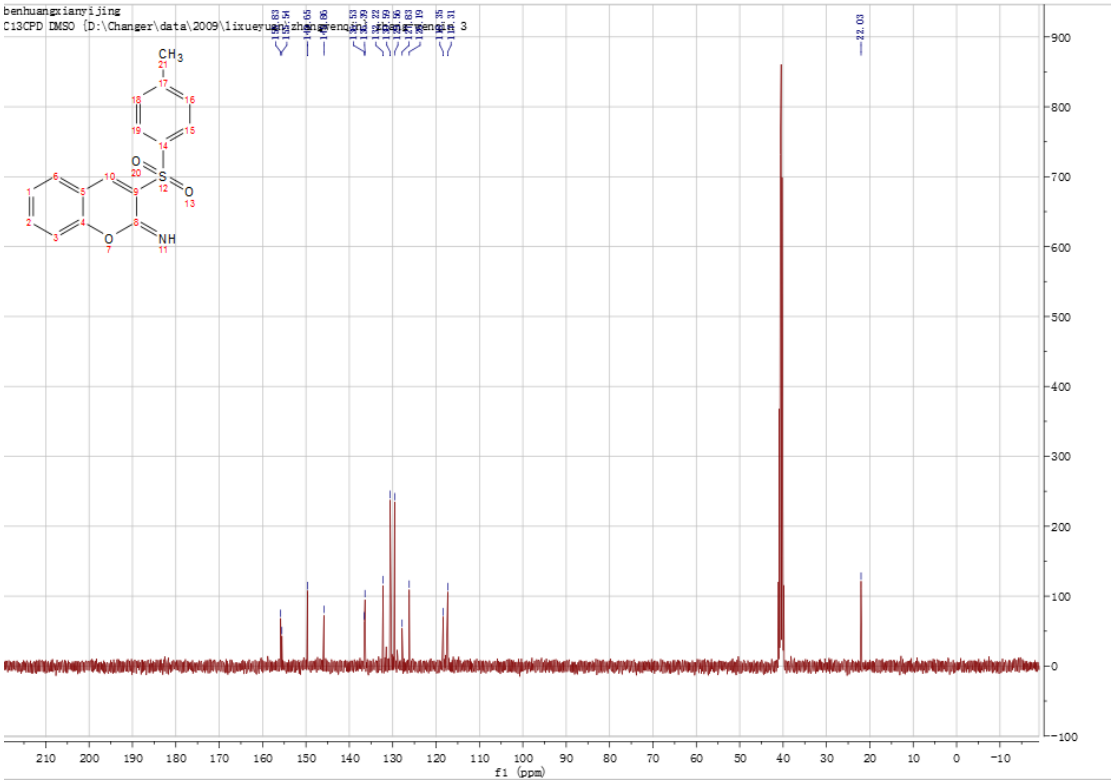
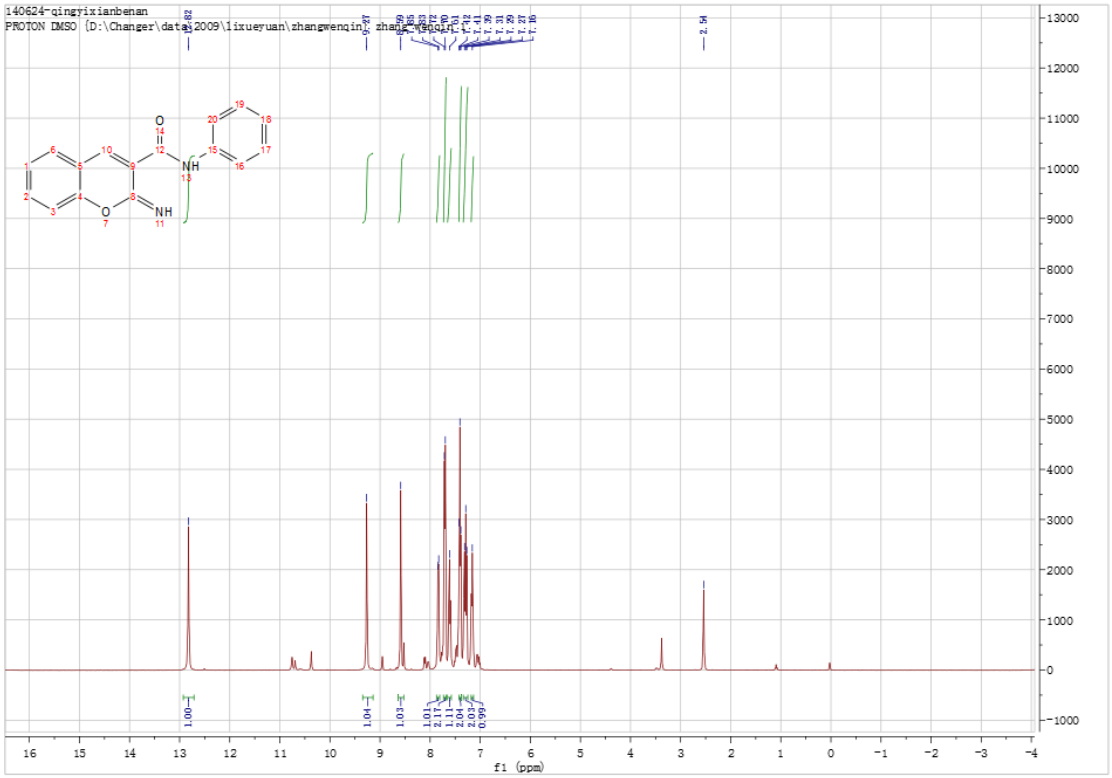


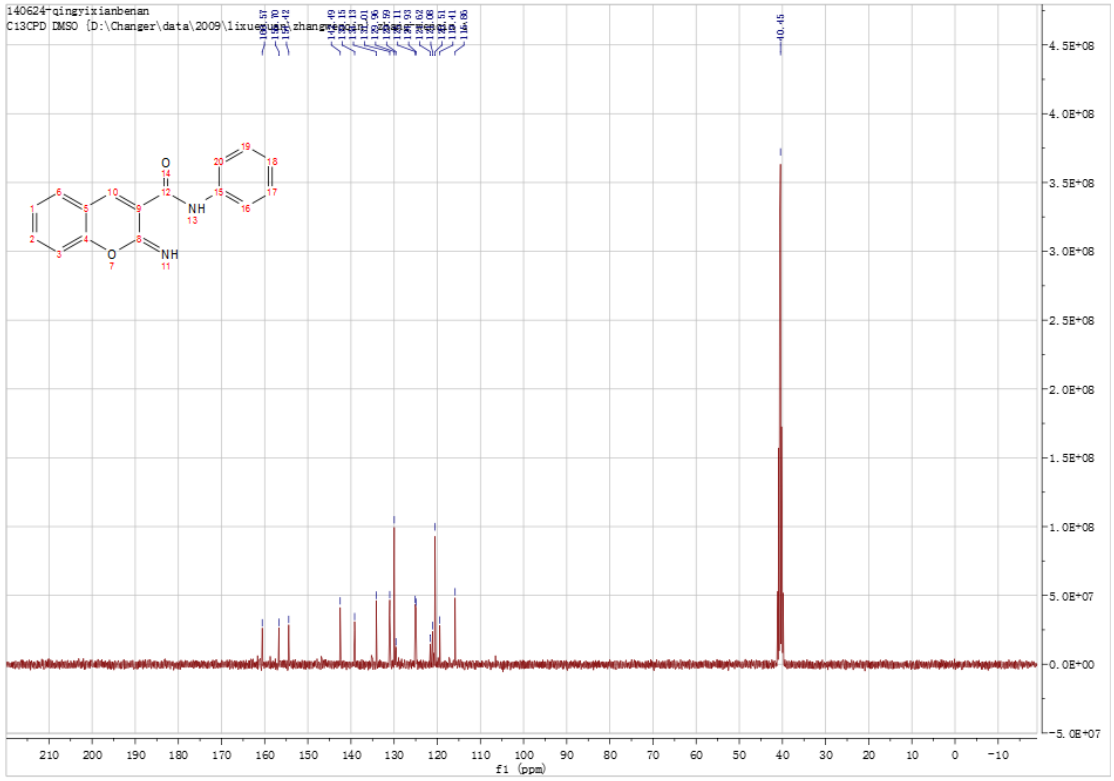
The ^{1}H NMR spectrum of 3-(4-Tolylsulfonyl)iminocoumarin (1d).



The ^{13}C NMR spectrum of 3-(4-Tolylsulfonyl)iminocoumarin (1d).



The ^{1}H NMR spectrum of 3-(*N*-Phenylcarboxamide)iminocoumarin (1e).



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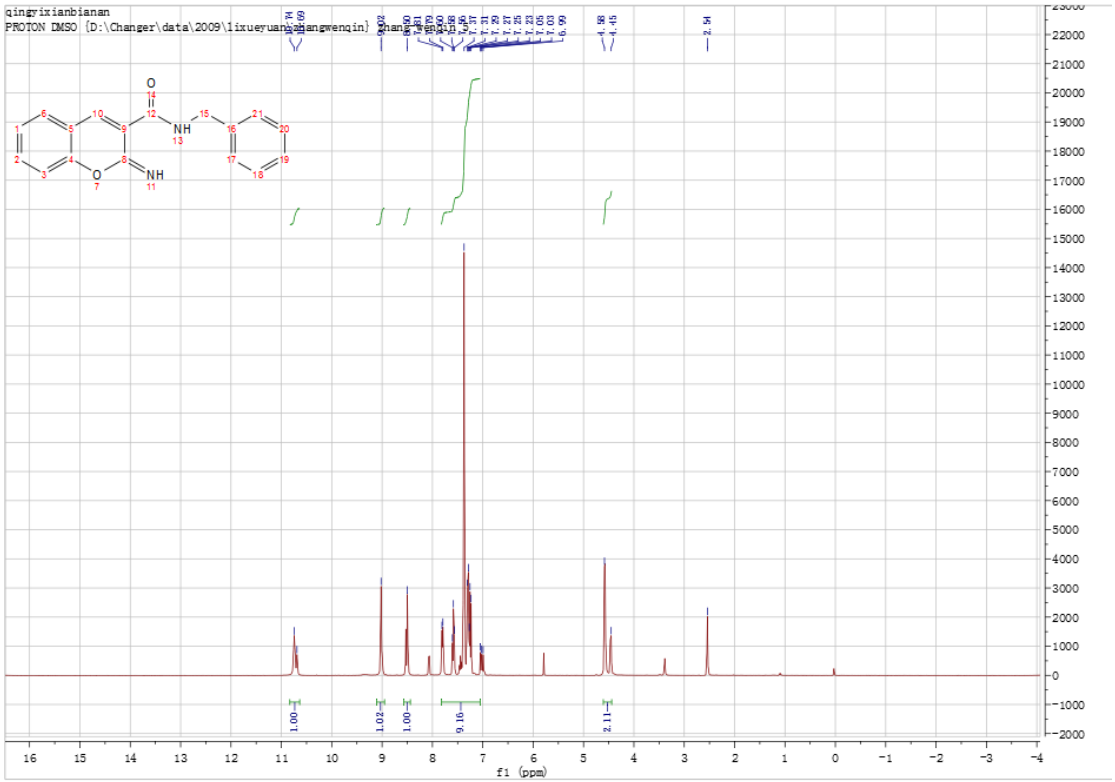
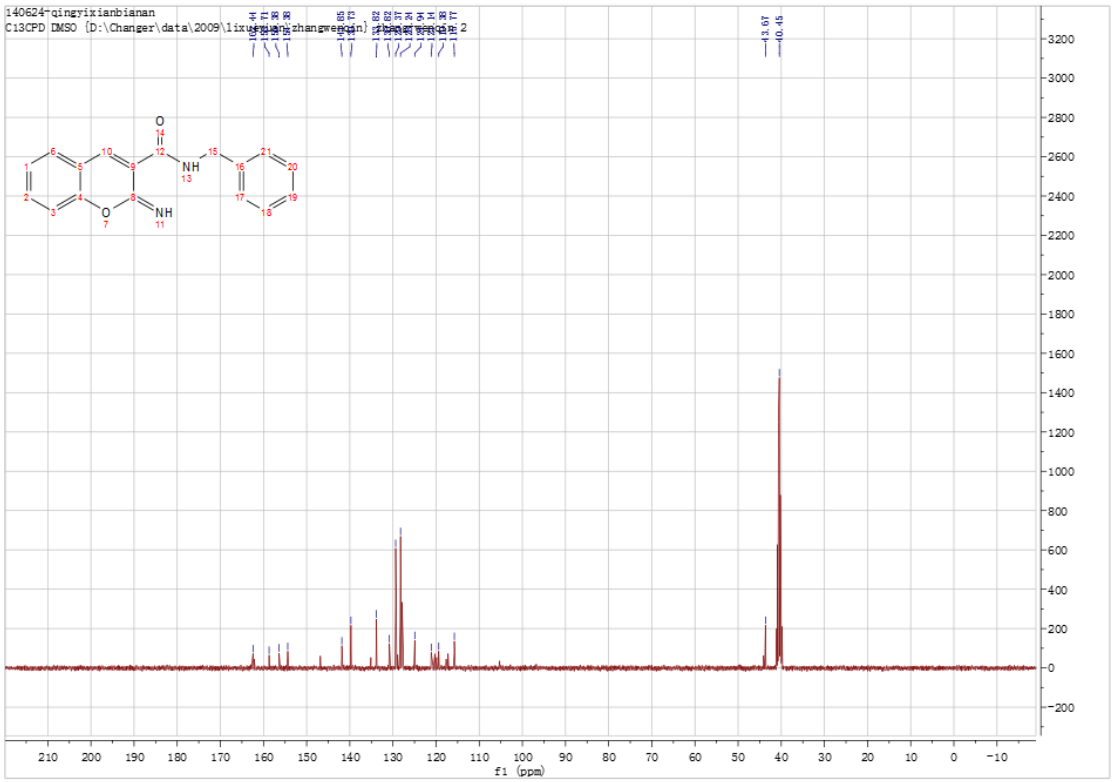


The ^{1}H NMR spectrum of 3-(*N*-Benzylcarboxamide)iminocoumarin (1f).



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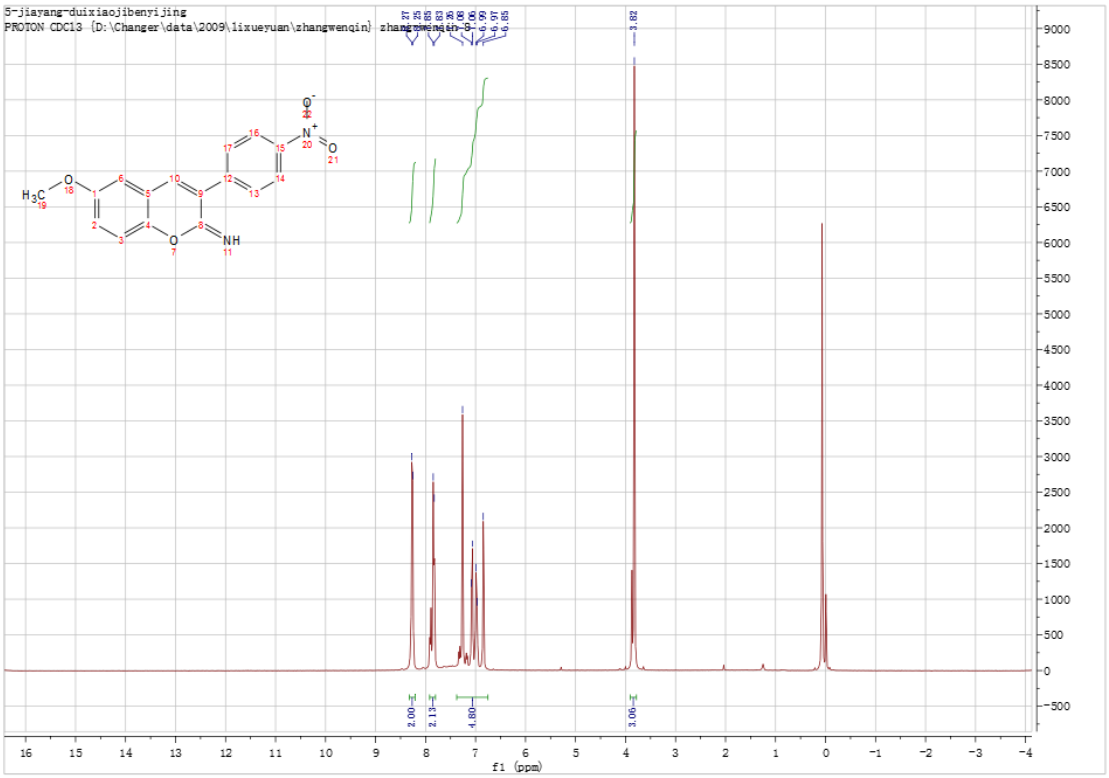
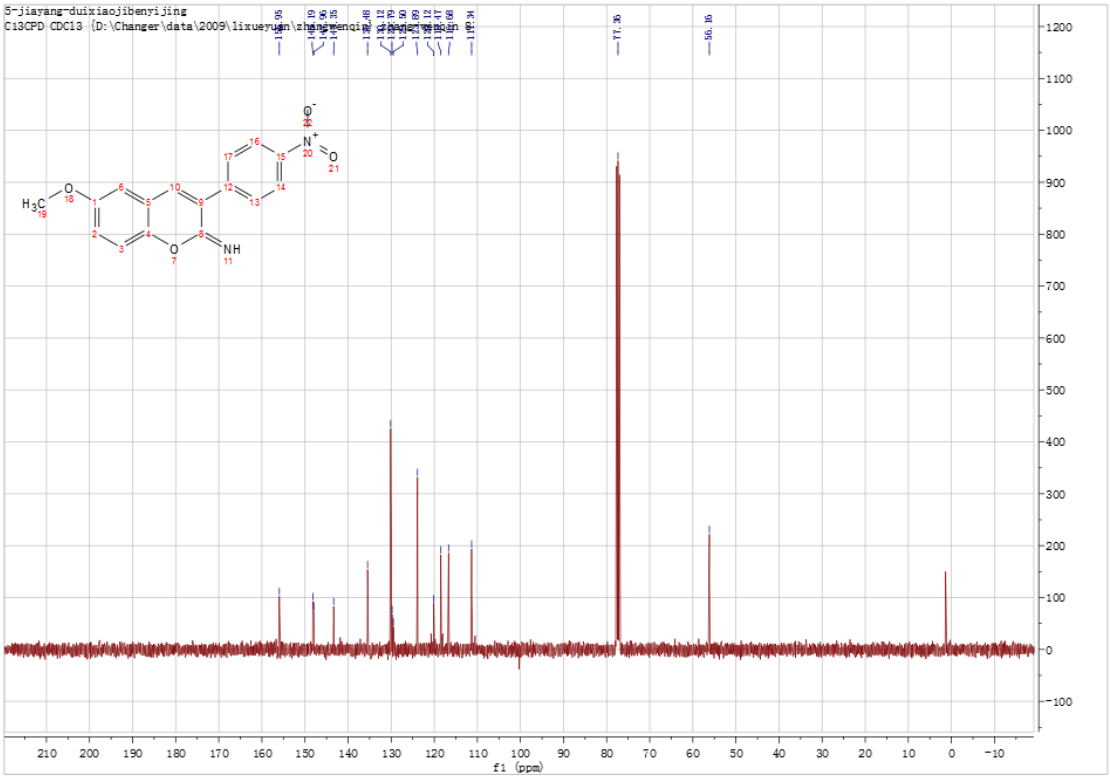


The ^{1}H NMR spectrum of 6-Methoxy-3-(4-nitrophenyl)iminocoumarin (1g).



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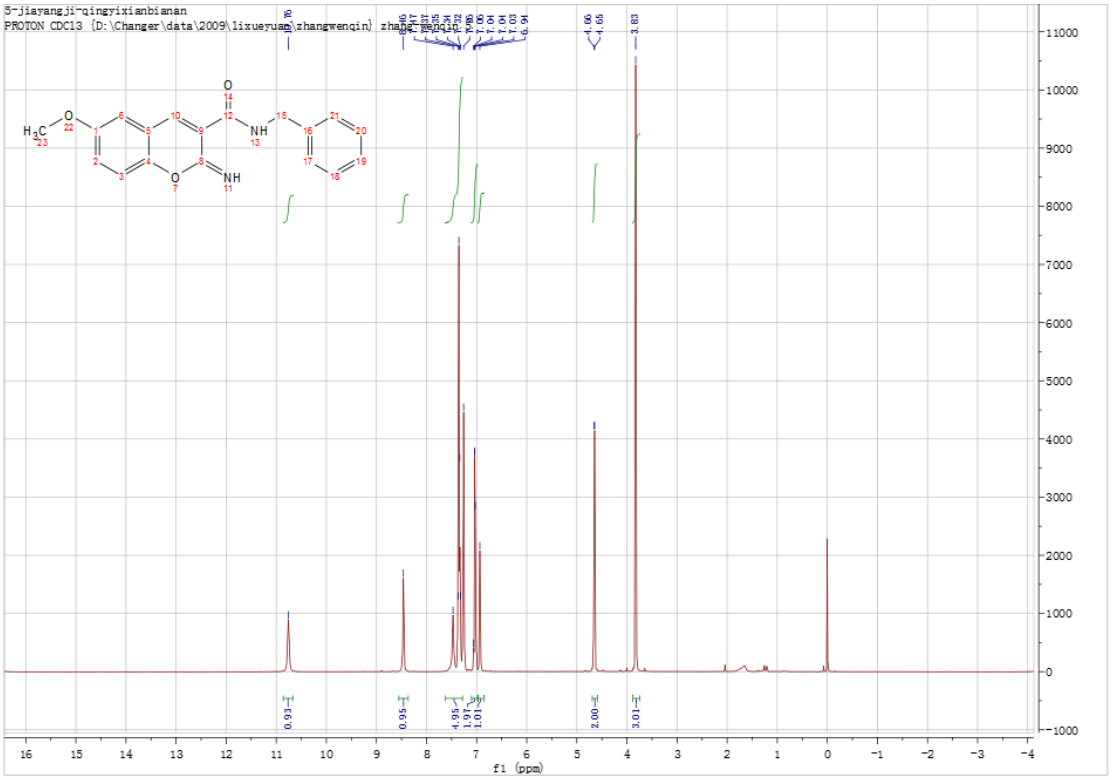
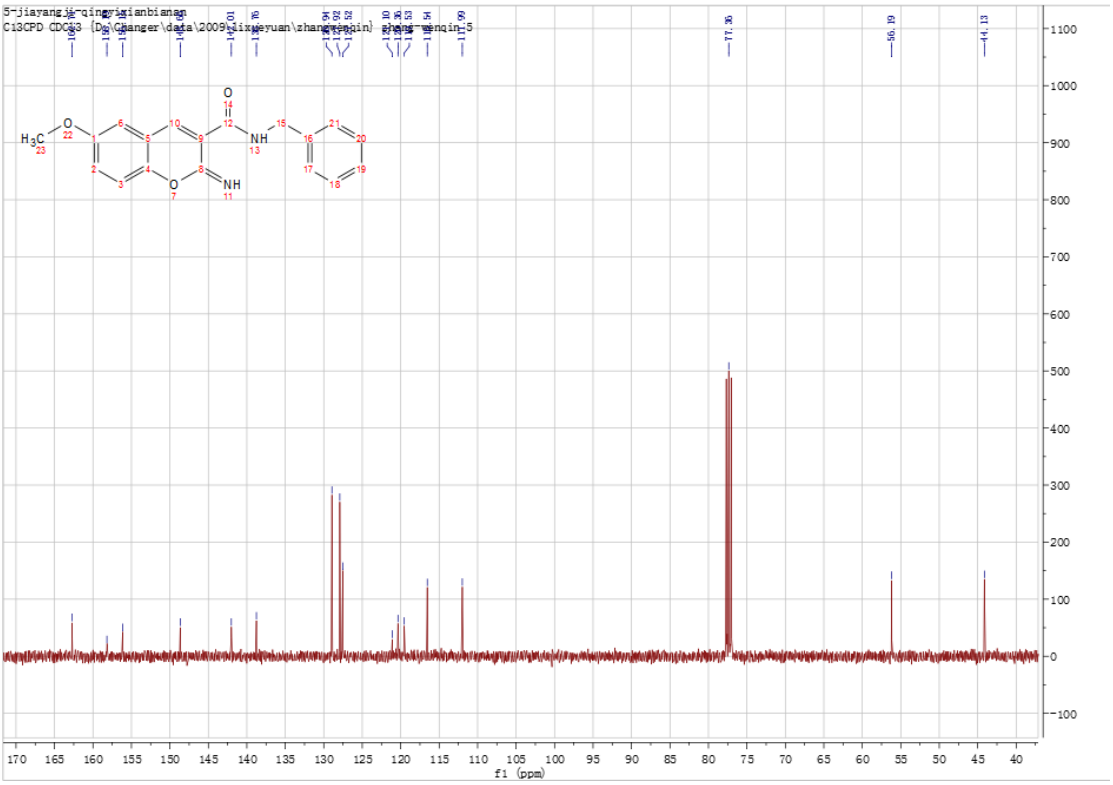
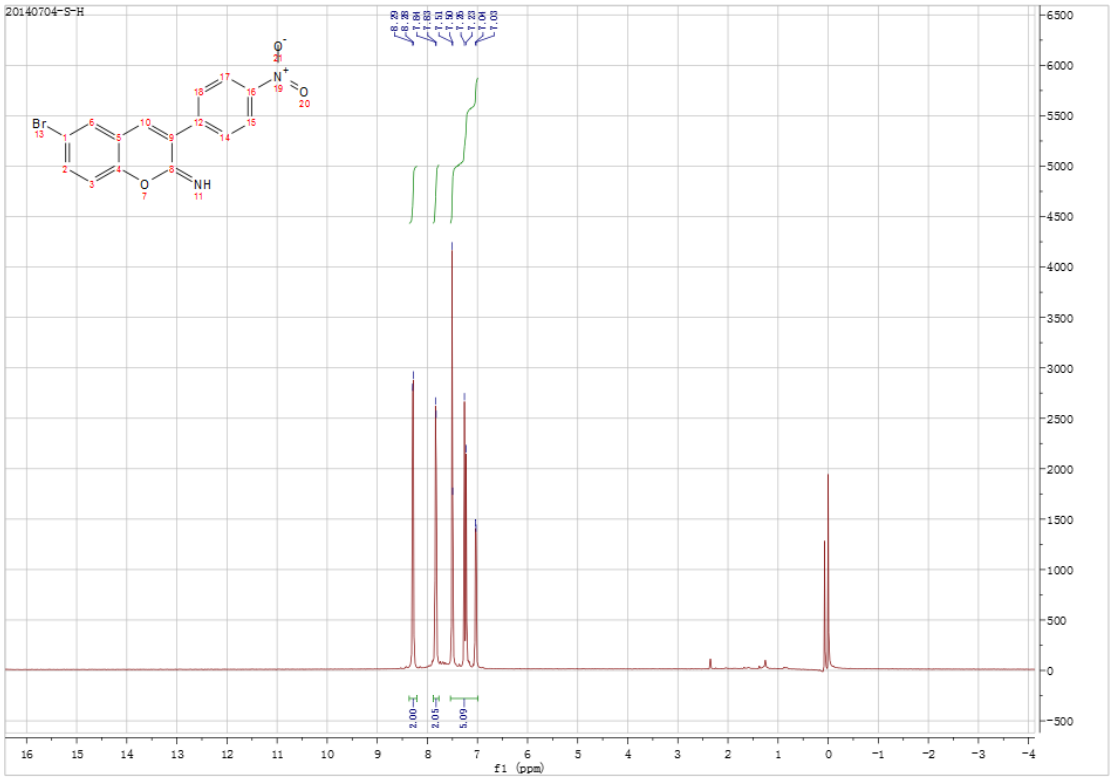


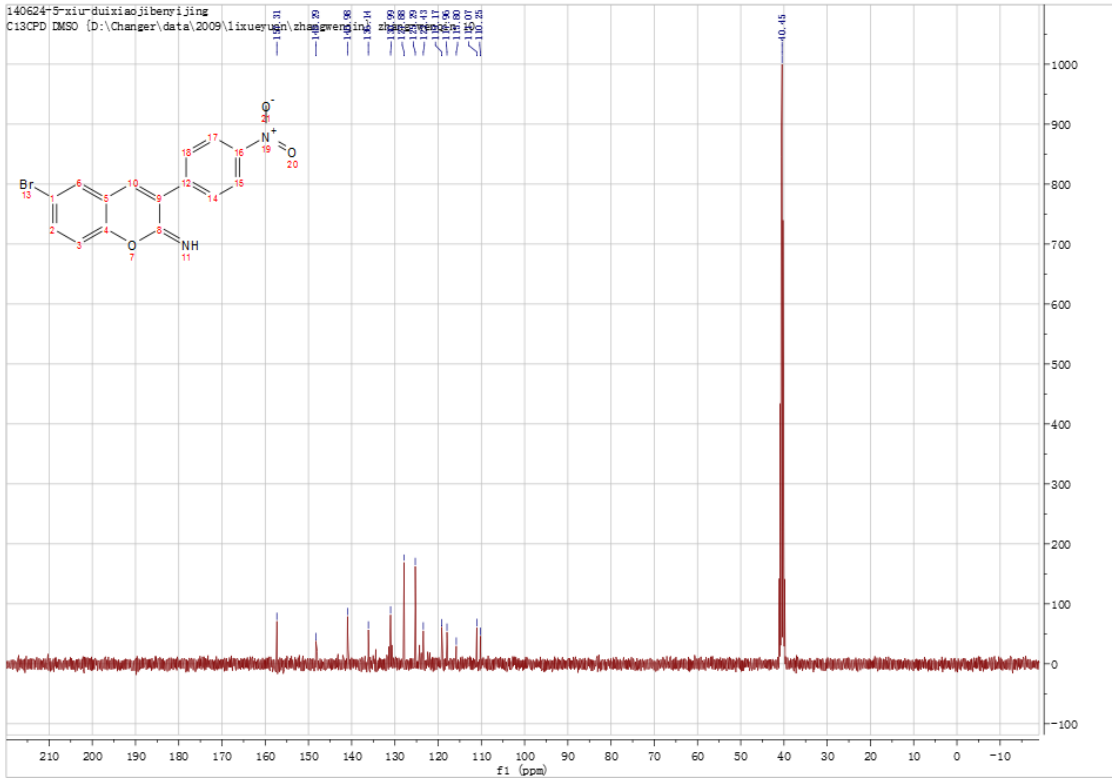
The ^{1}H NMR spectrum of 3-(*N*-Benzylcarboxamide)-6-methoxyiminocoumarin (1h).



The ^{13}C NMR spectrum of 3-(*N*-Benzylcarboxamide)-6-methoxyiminocoumarin (1h).



The ^{1}H NMR spectrum of 6-Bromo-3-(4-nitrophenyl)iminocoumarin (1i).



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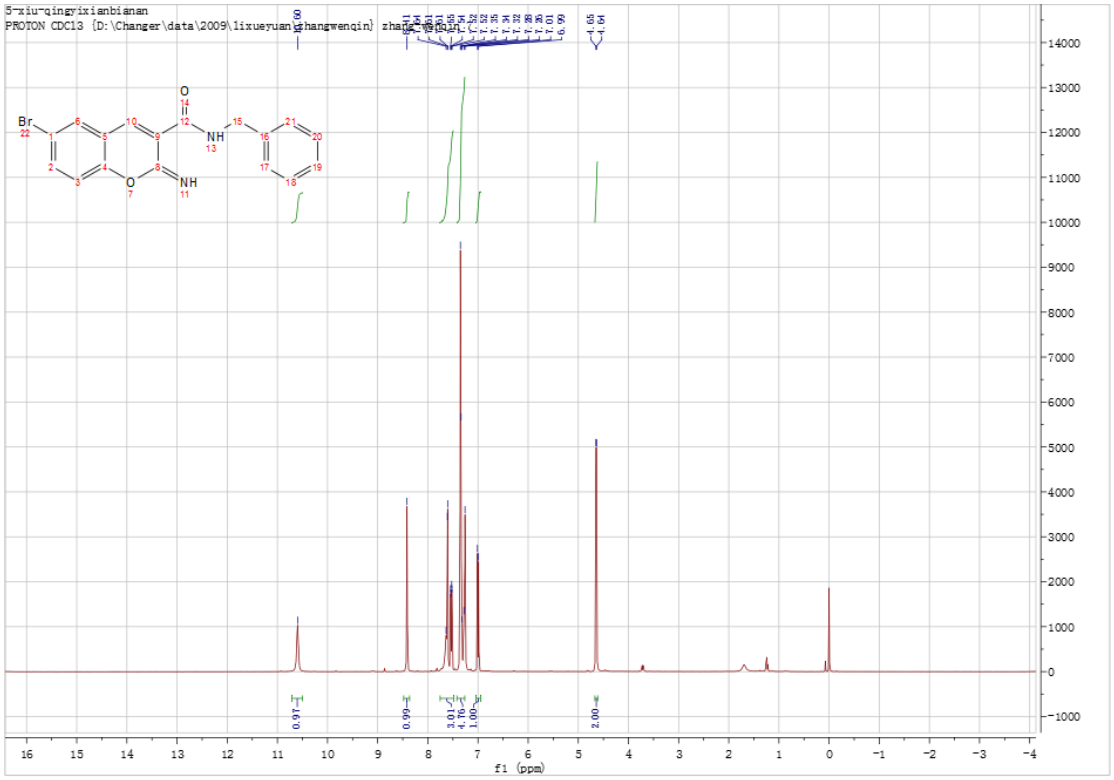
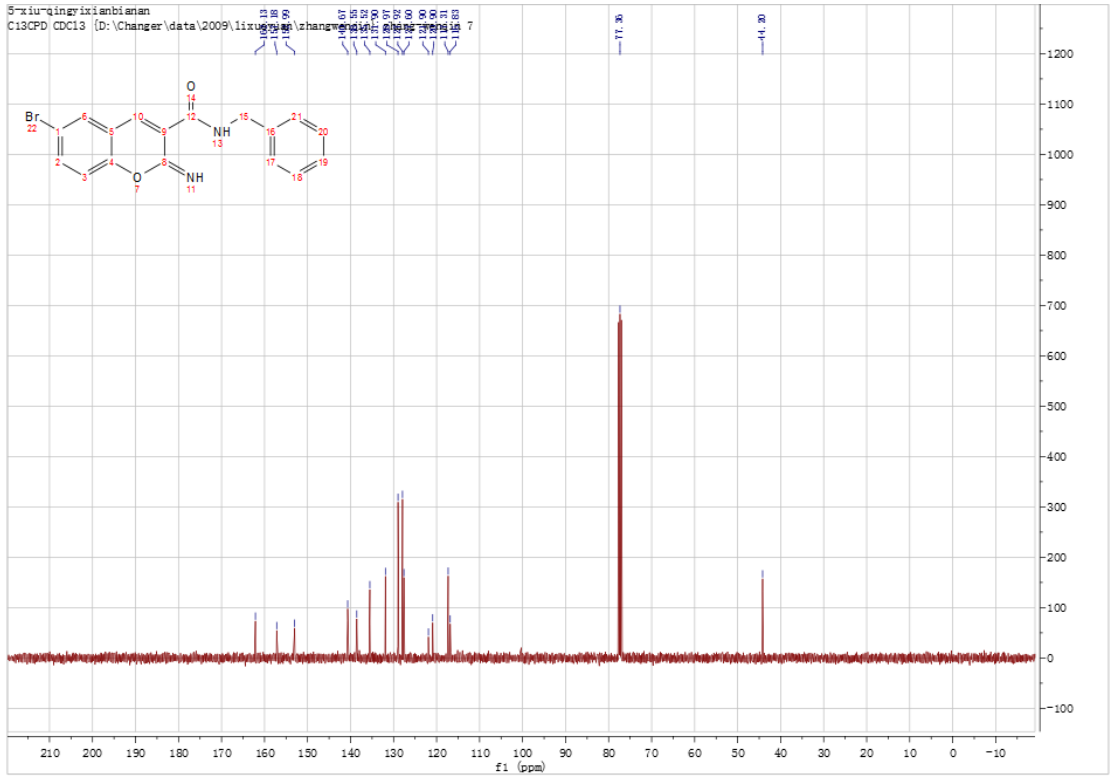
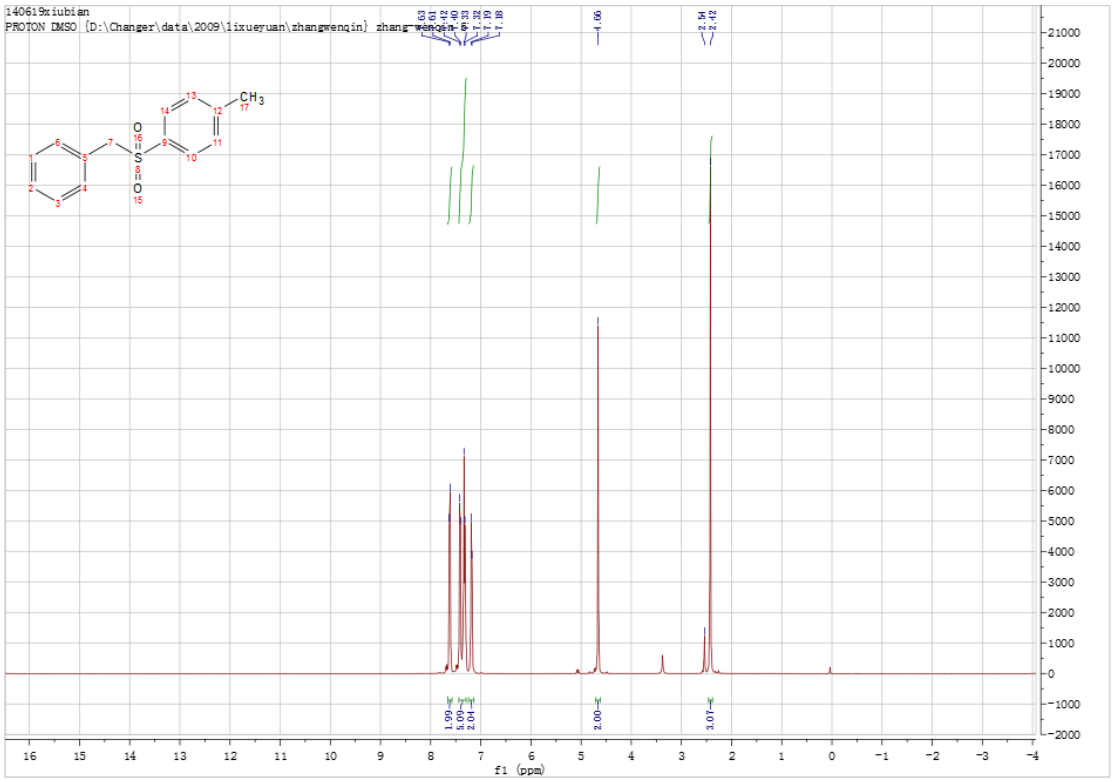


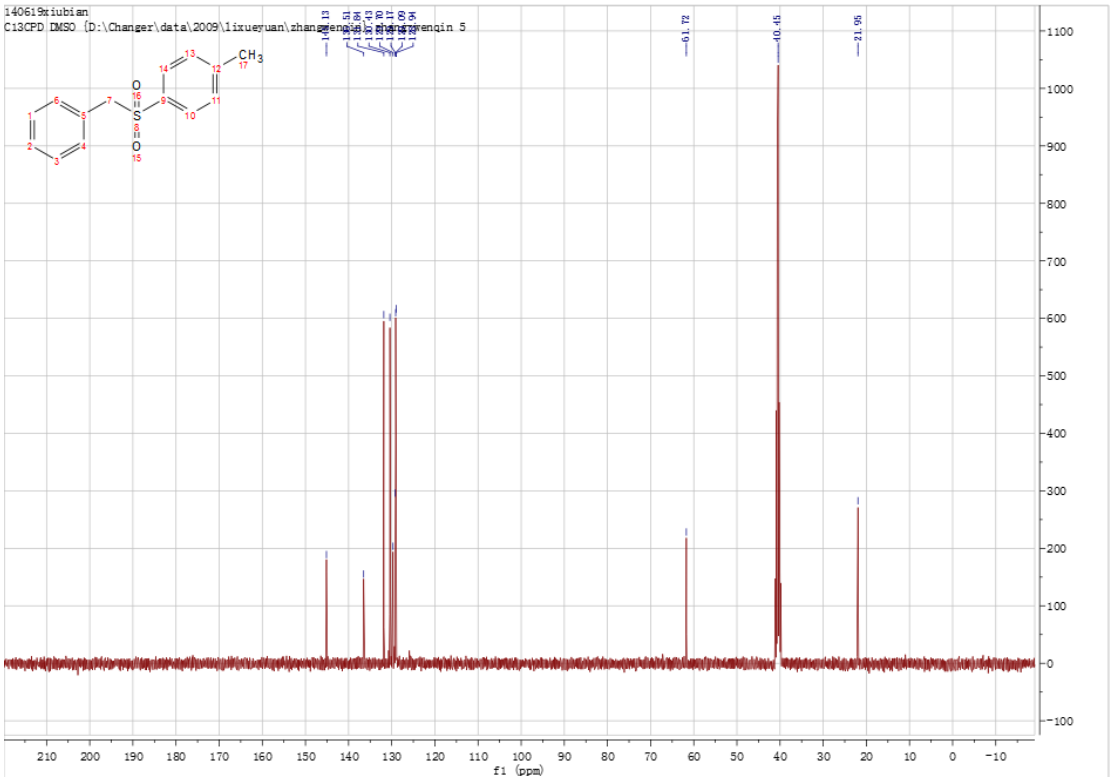
The ^{1}H NMR spectrum of 3-(*N*-Benzylcarboxamide)-6-bromoiminocoumarin (1j).



The ^{13}C NMR spectrum of 3-(*N*-Benzylcarboxamide)-6-bromoiminocoumarin (1j).



The ^{1}H NMR spectrum of 1-(Benzylsulfonyl)-4-methylbenzene (2a).



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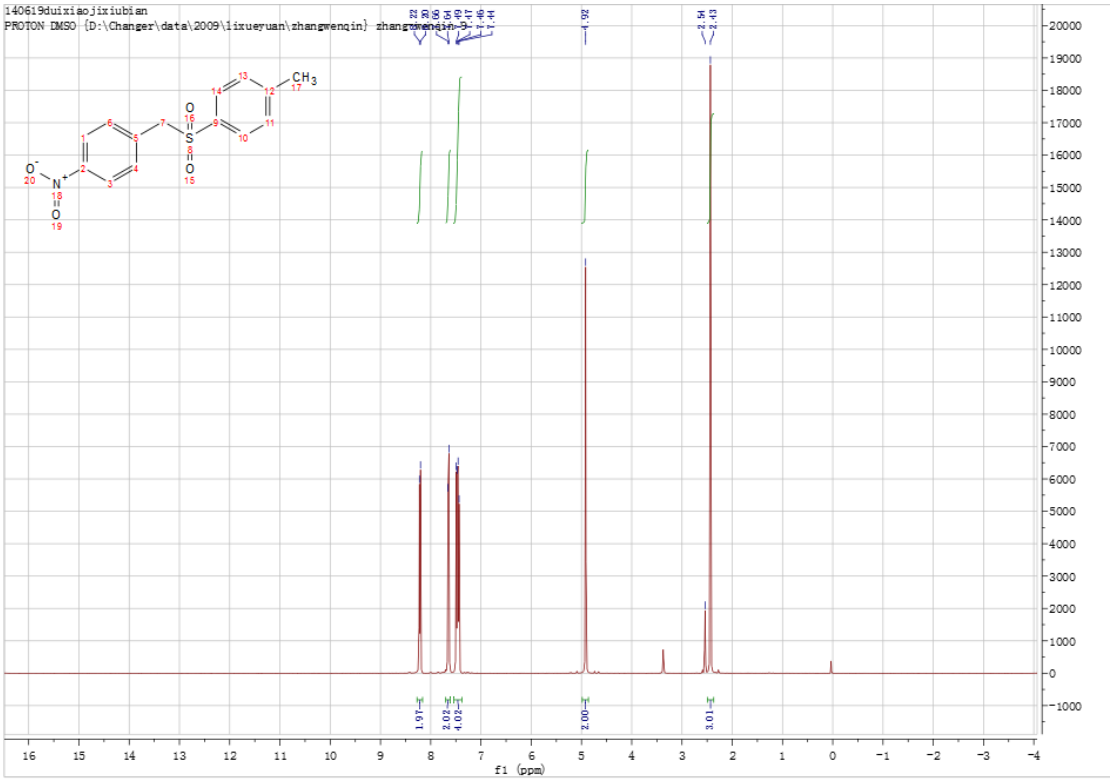
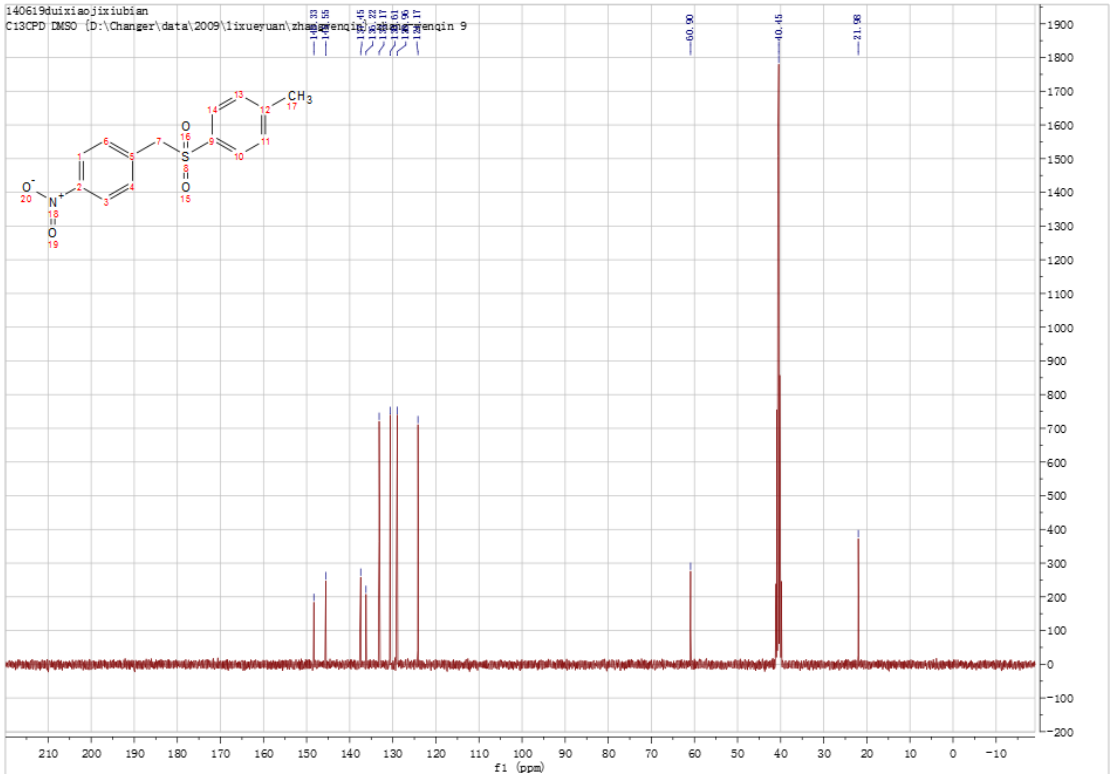
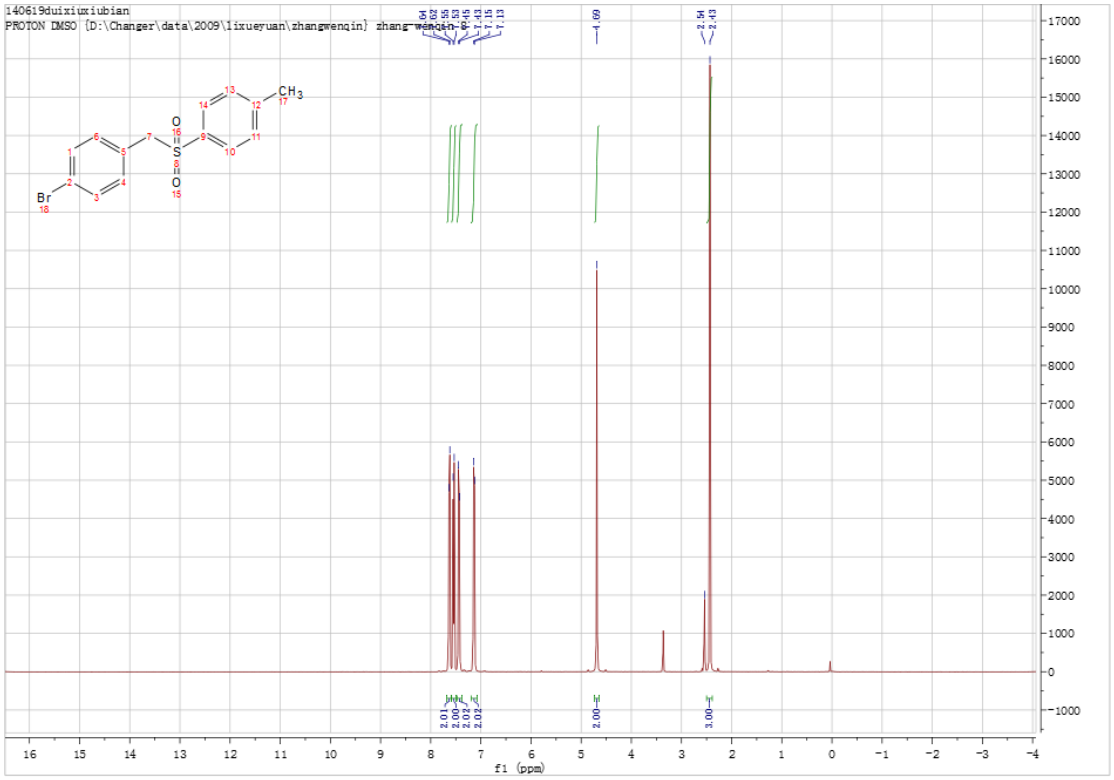


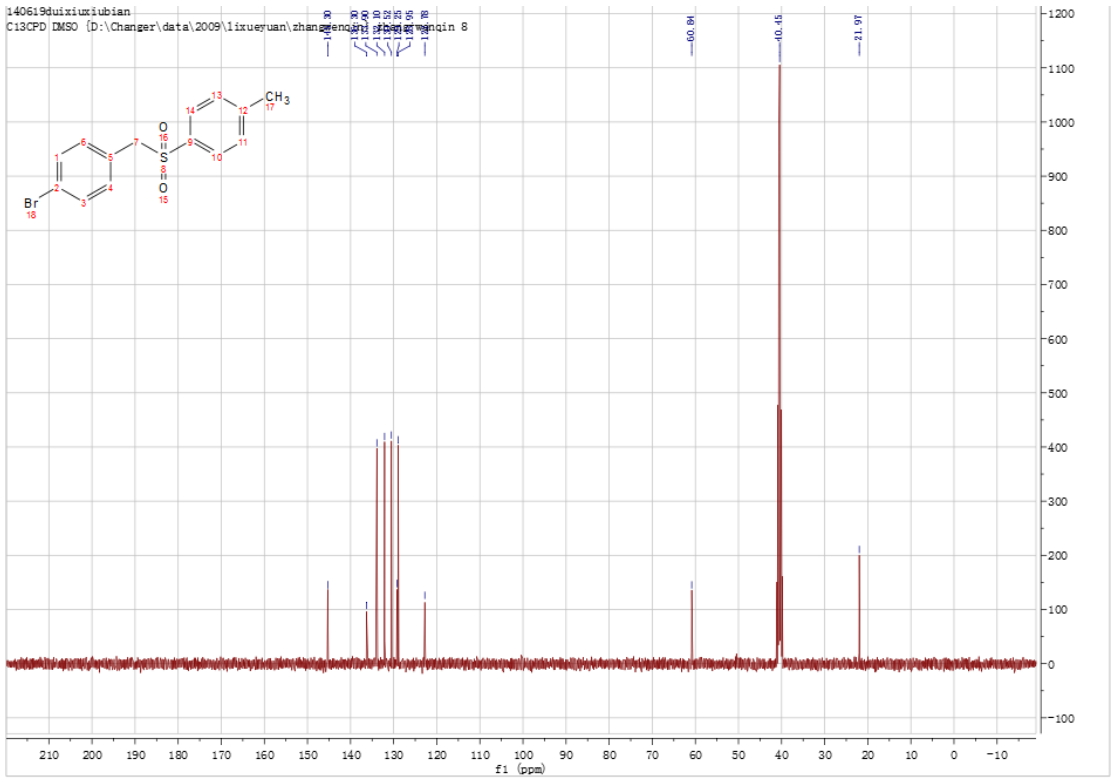
The ^{1}H NMR spectrum of 1-Nitro-4-(4-tolylsulfonylmethyl)benzene (2b).



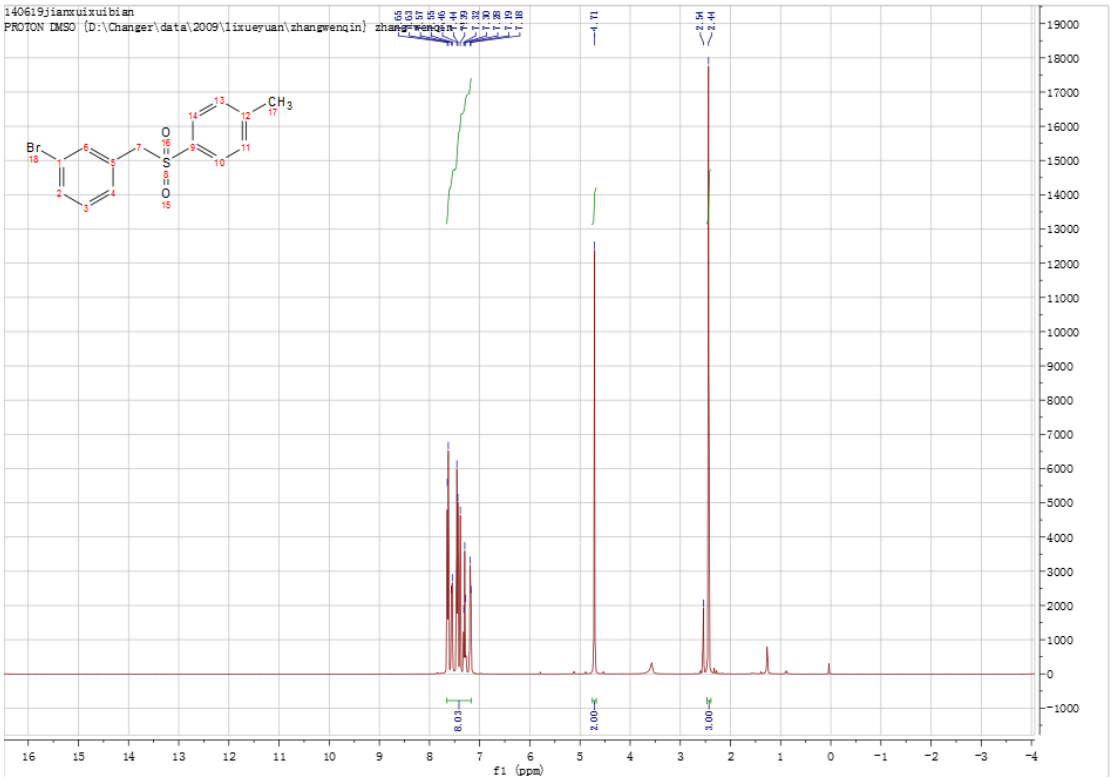
The ^{13}C NMR spectrum of 1-Nitro-4-(4-tolylsulfonylmethyl)benzene (2b).



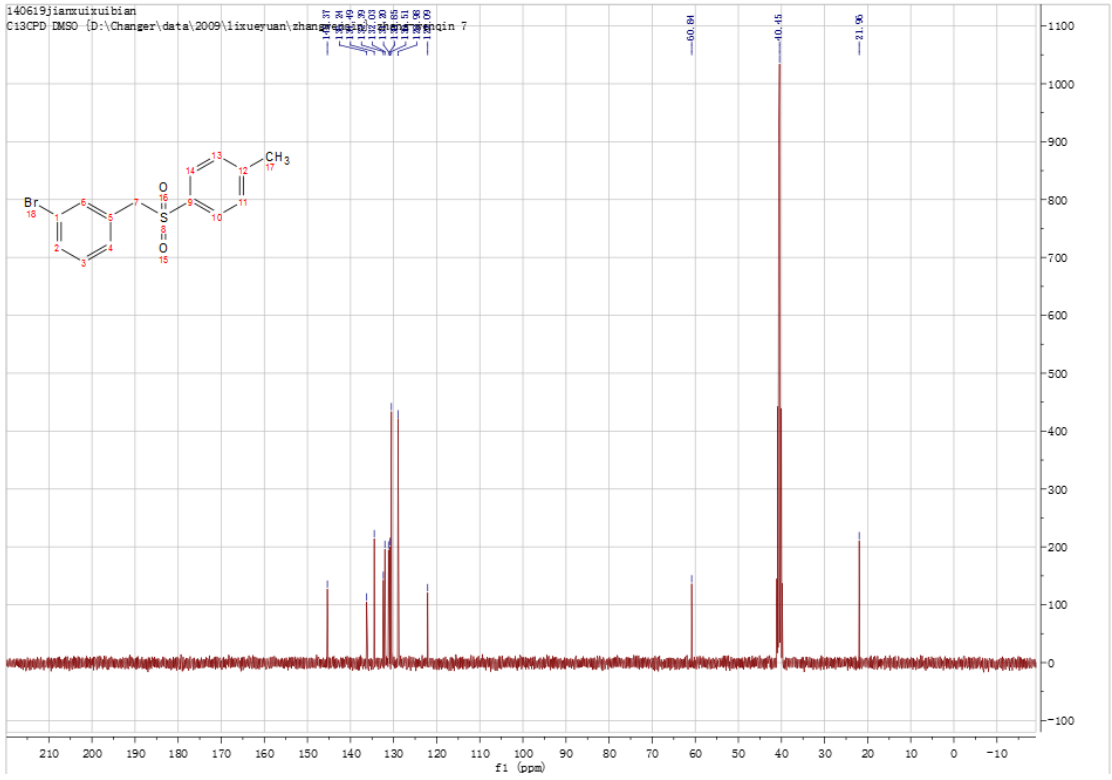
The ^{1}H NMR spectrum of 1-Bromo-4-(4-tolylsulfonylmethyl)benzene (2c).



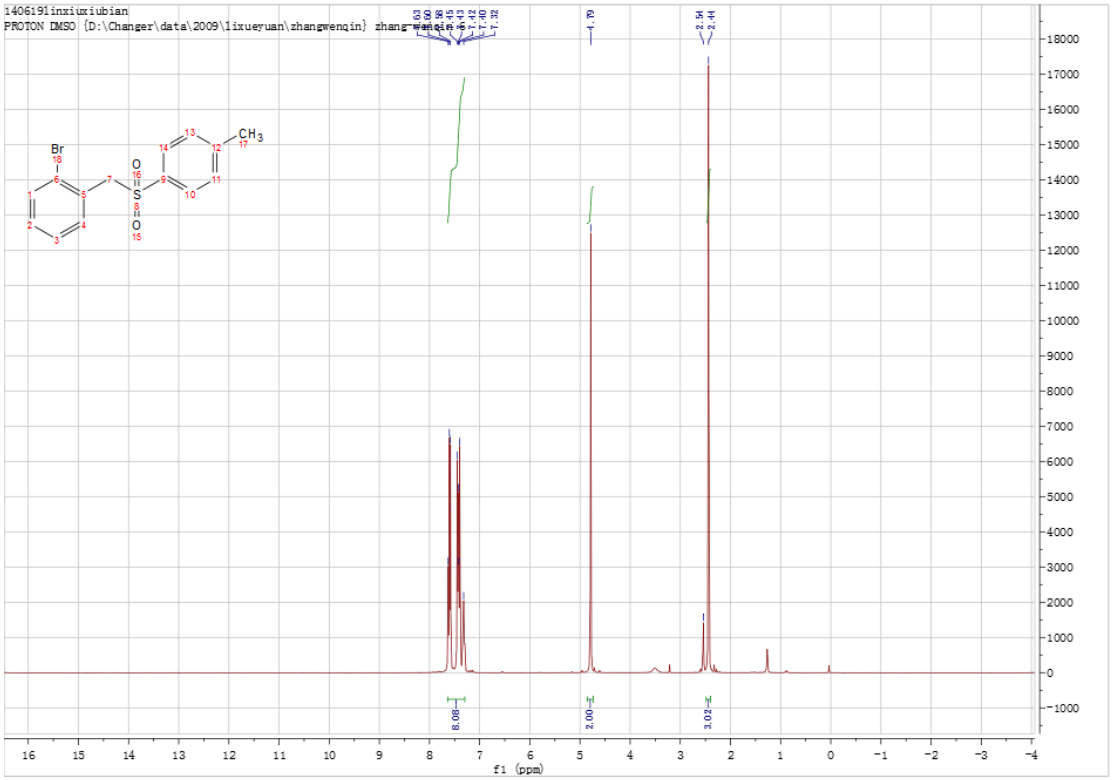
The ^{13}C NMR spectrum of 1-Bromo-4-(4-tolylsulfonylmethyl)benzene (2c).



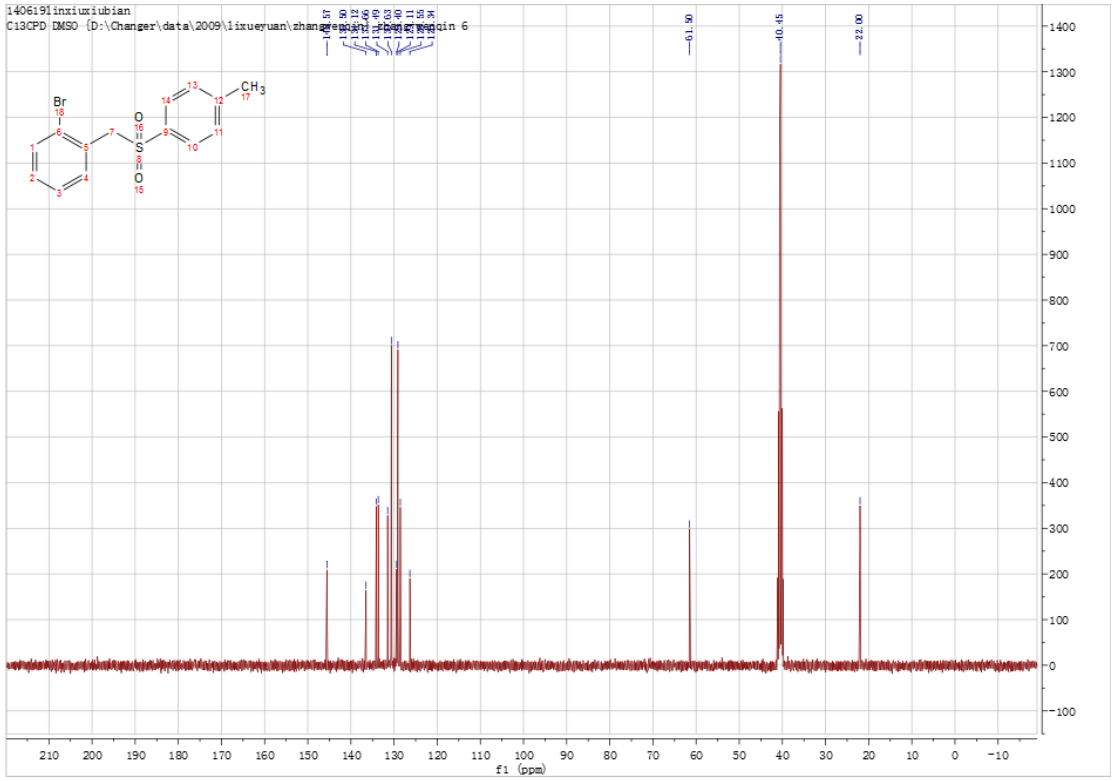
The ^{1}H NMR spectrum of 1-Bromo-3-(4-tolylsulfonylmethyl)benzene (2d).



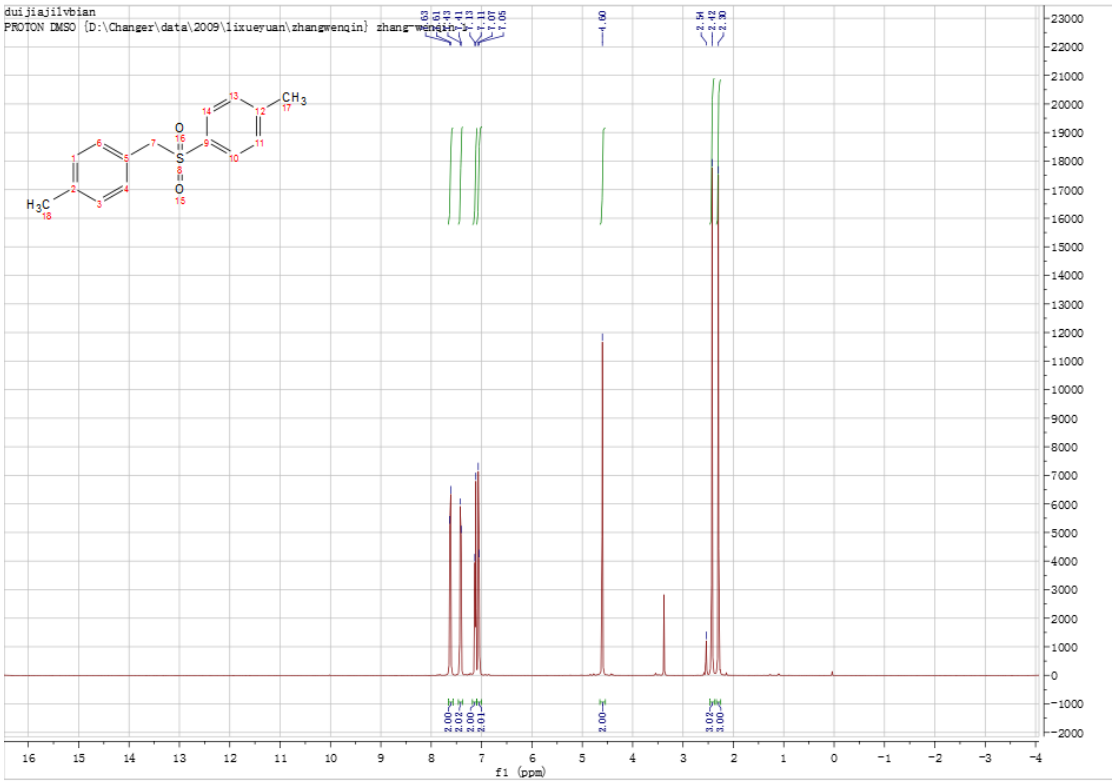
The ^{13}C NMR spectrum of 1-Bromo-3-(4-tolylsulfonylmethyl)benzene (2d).



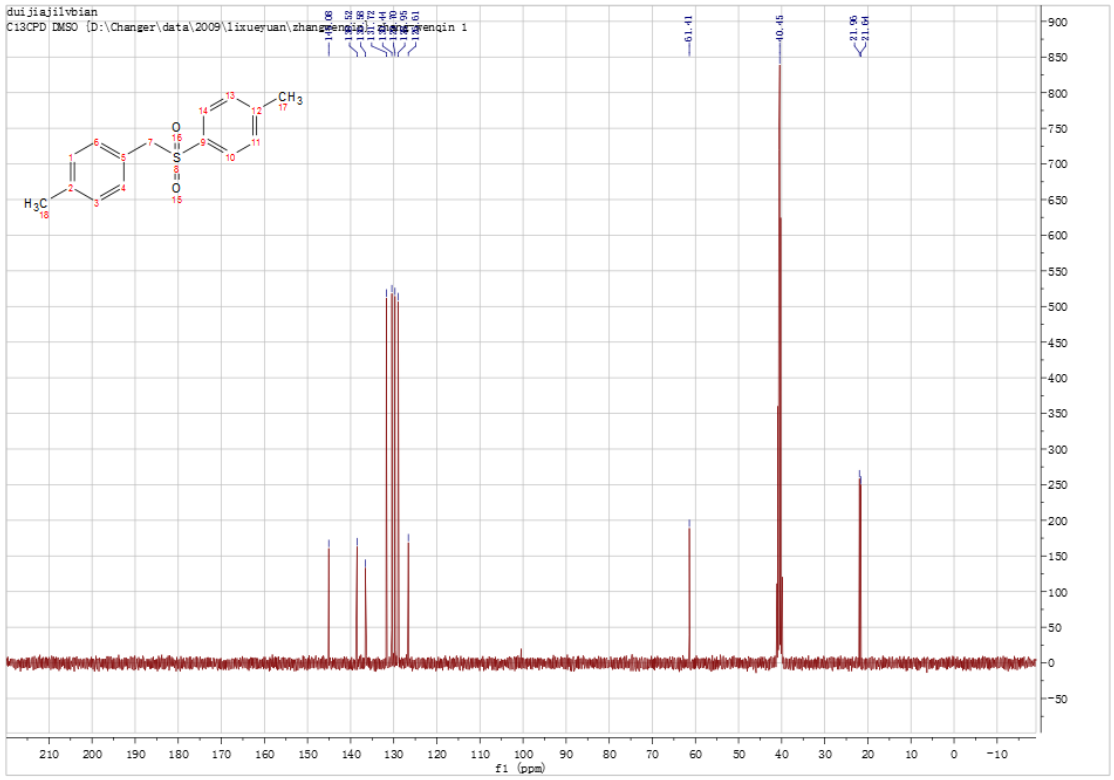
The ^{1}H NMR spectrum of 1-Bromo-2-(4-tolylsulfonylmethyl)benzene (2e).



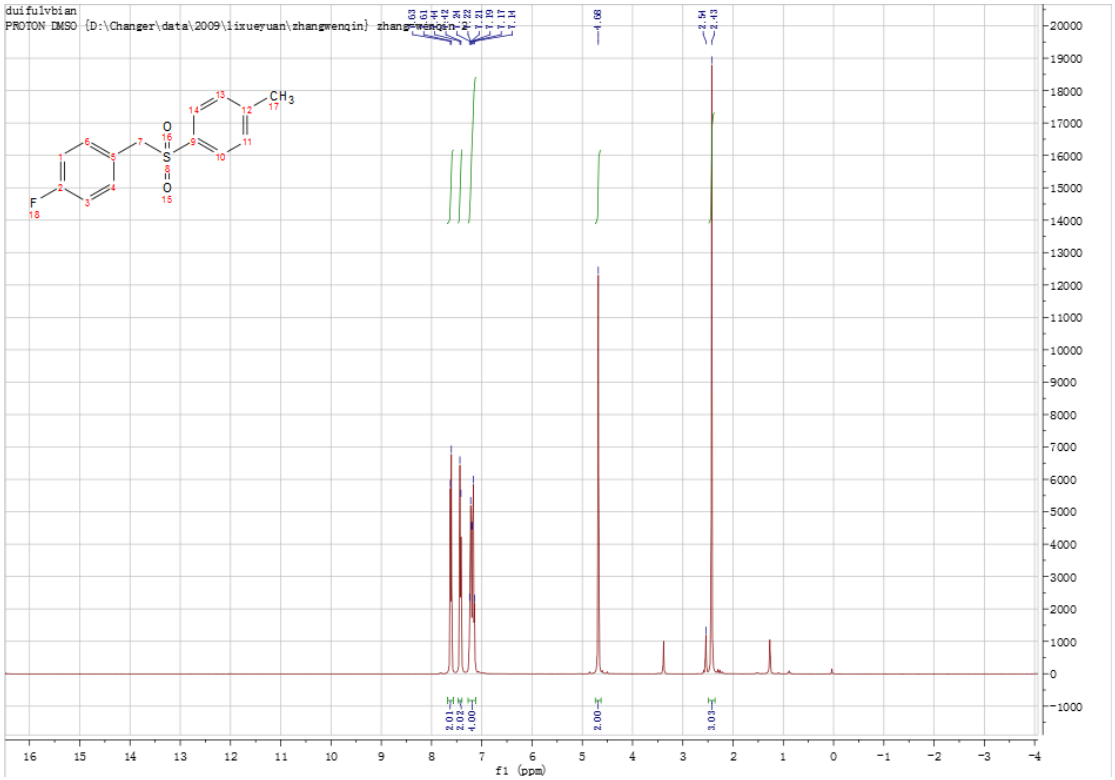
The ^{13}C NMR spectrum of 1-Bromo-2-(4-tolylsulfonylmethyl)benzene (2e).



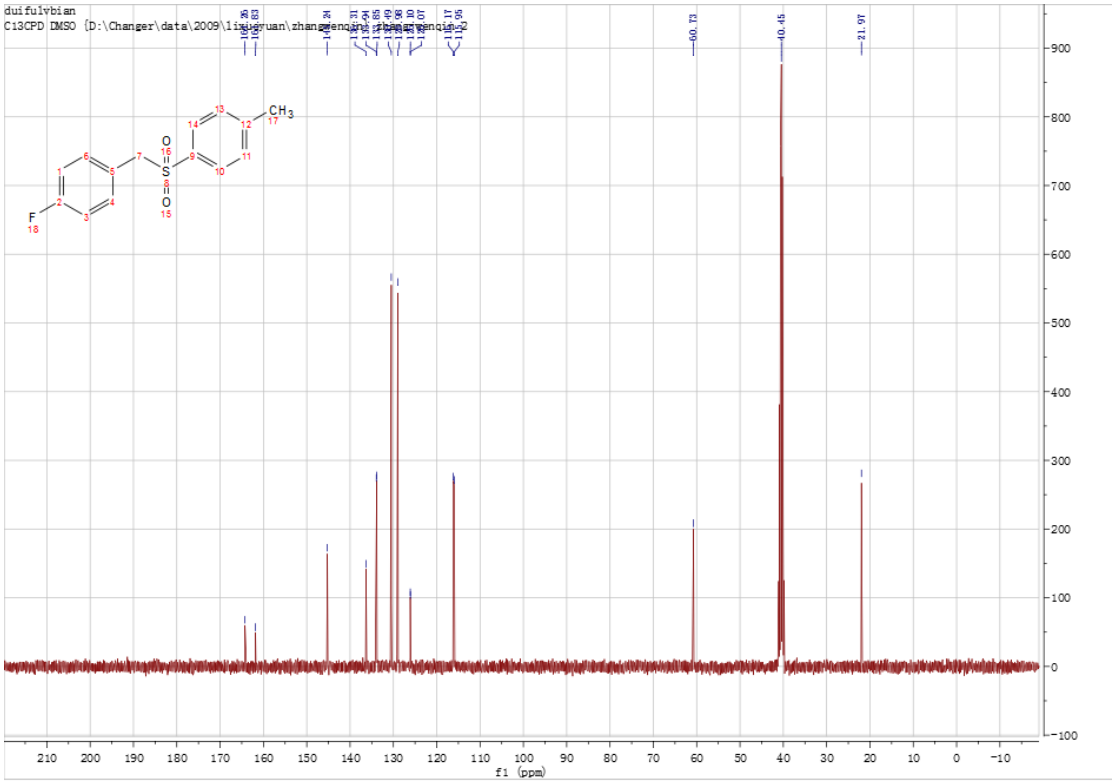
The ^{1}H NMR spectrum of 1-Methyl-4-(4-tolylsulfonylmethyl)benzene (2f).



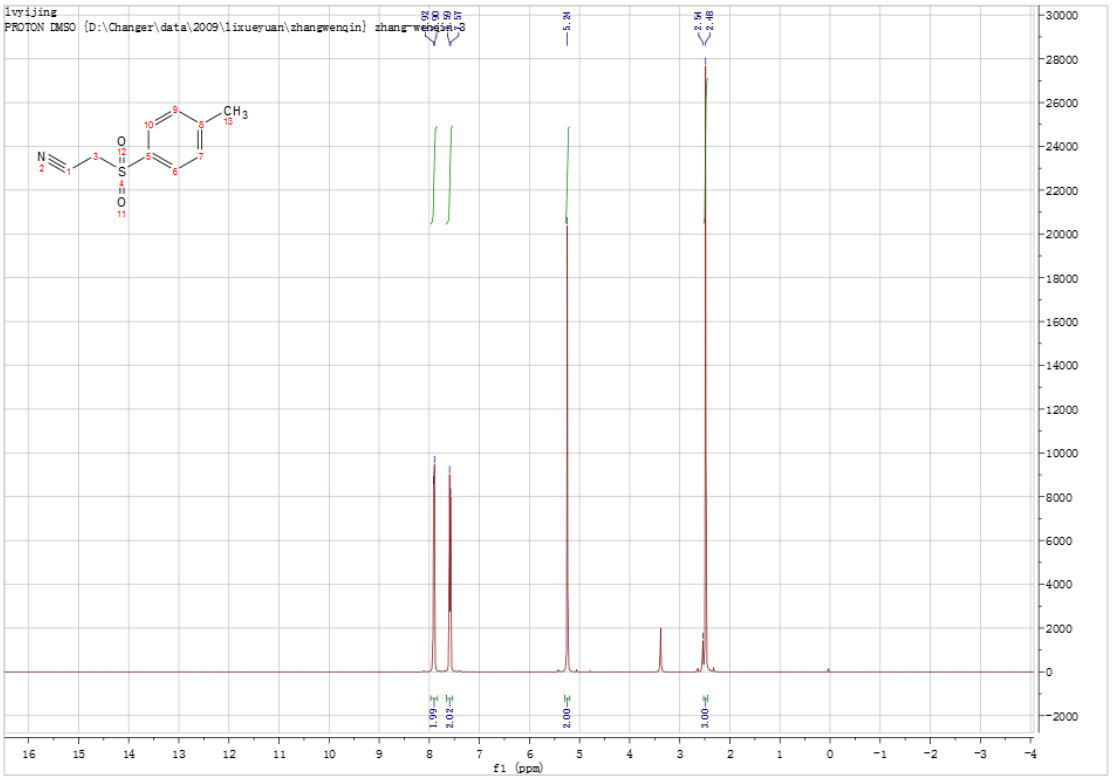
The ^{13}C NMR spectrum of 1-Methyl-4-(4-tolylsulfonylmethyl)benzene (2f).



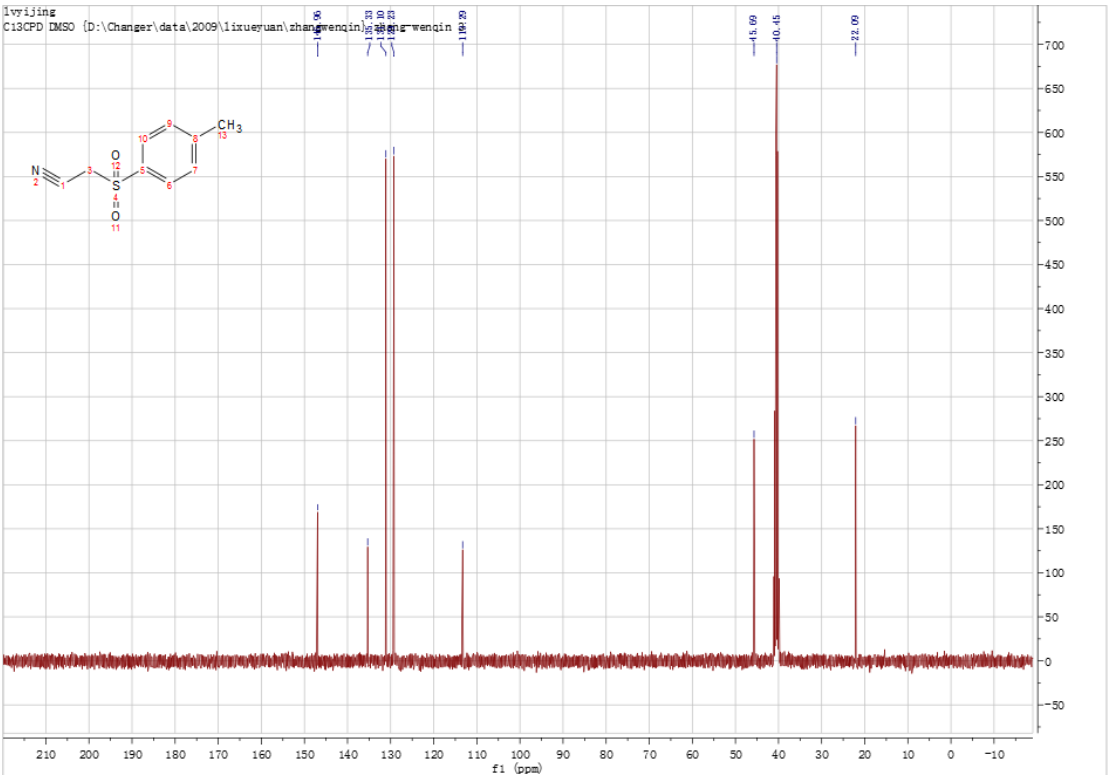
The ^{1}H NMR spectrum of 1-Fluoro-4-(4-tolylsulfonylmethyl)benzene (2g).



The ^{13}C NMR spectrum of 1-Fluoro-4-(4-tolylsulfonylmethyl)benzene (2g).



The ^{1}H NMR spectrum of 4-Tosylacetonitrile (2h).



The ^{13}C NMR spectrum of 4-Tosylacetonitrile (2h).