

## Supporting Information

### Scandium Triflate Catalyzed One pot Domino Approach Towards General and Efficient Synthesis of Unsymmetrical 9-substituted Xanthene Derivatives

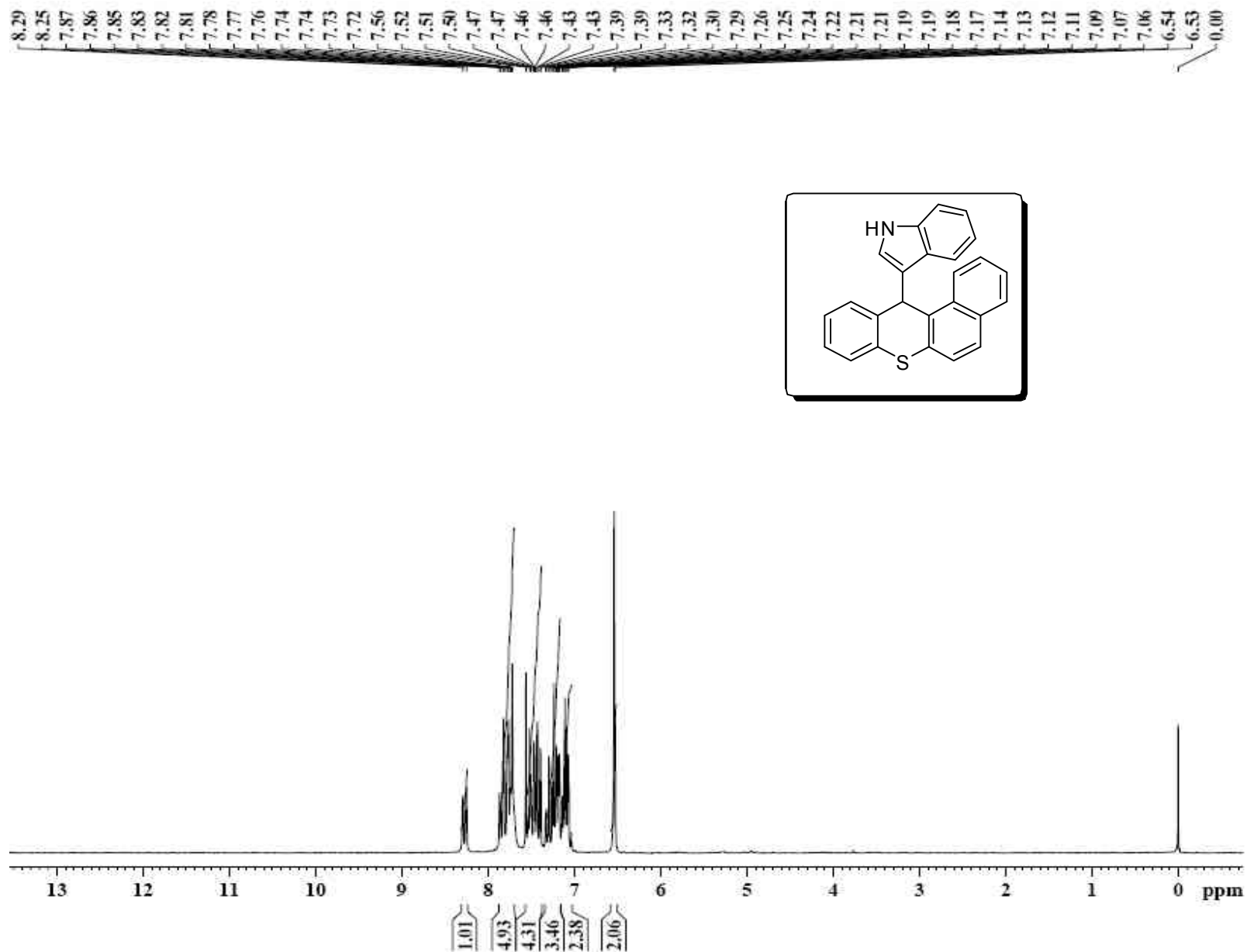
Ritesh Singh and Gautam Panda\*

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Lucknow-226001, UP, India*

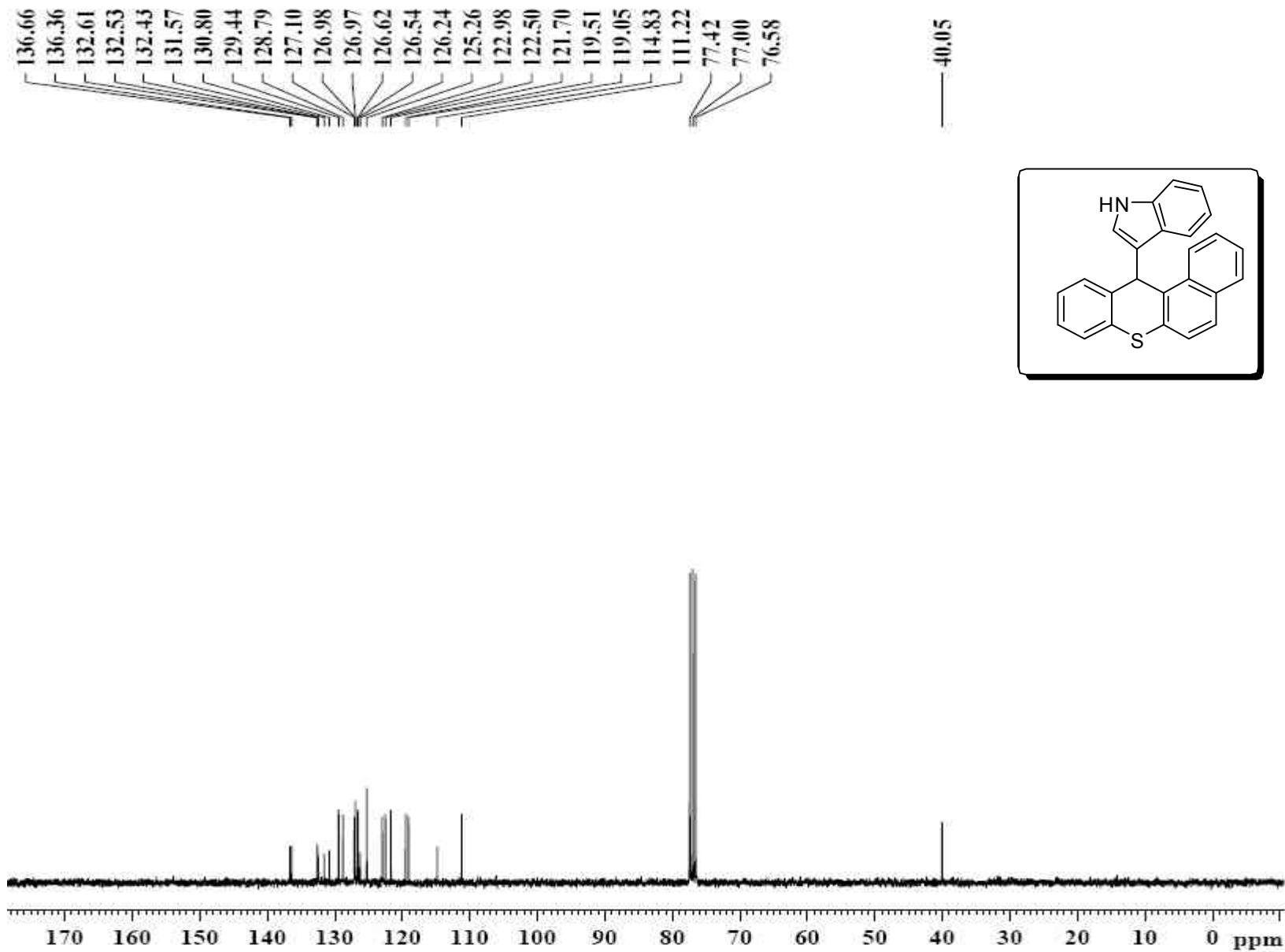
[gautam.panda@gmail.com](mailto:gautam.panda@gmail.com); [gautam\\_panda@cdri.res.in](mailto:gautam_panda@cdri.res.in)

#### Contents:

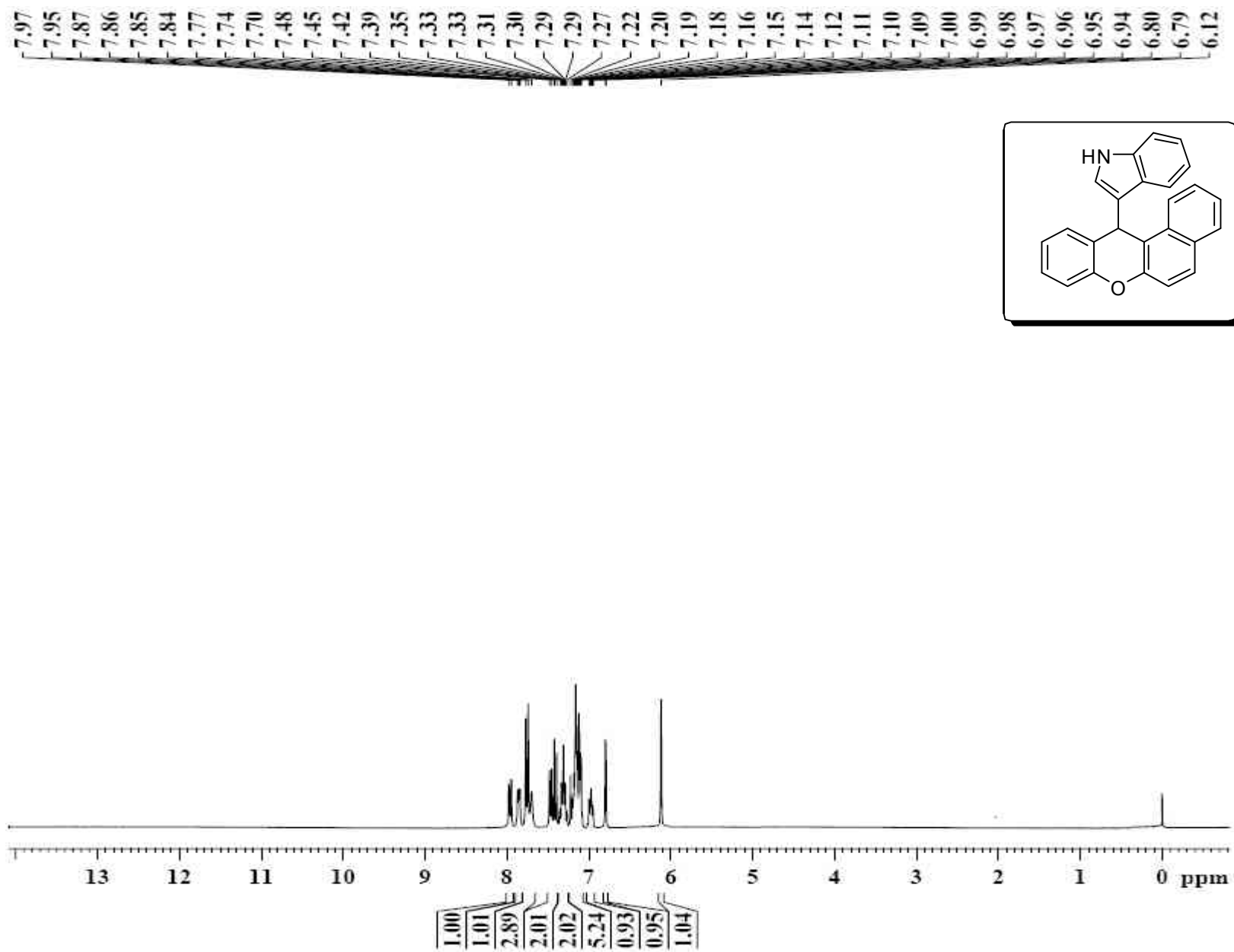
1.  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of Compounds **12a, 12b, 12c, 12d, 12e, 12f, 12g, 12h, 12i, 12j, 12k, 12l, 12m, 12n, 13b, 13g, 14c, 19d, 20a, 20b, 20c, 20d, 20e** Page: S2-S41



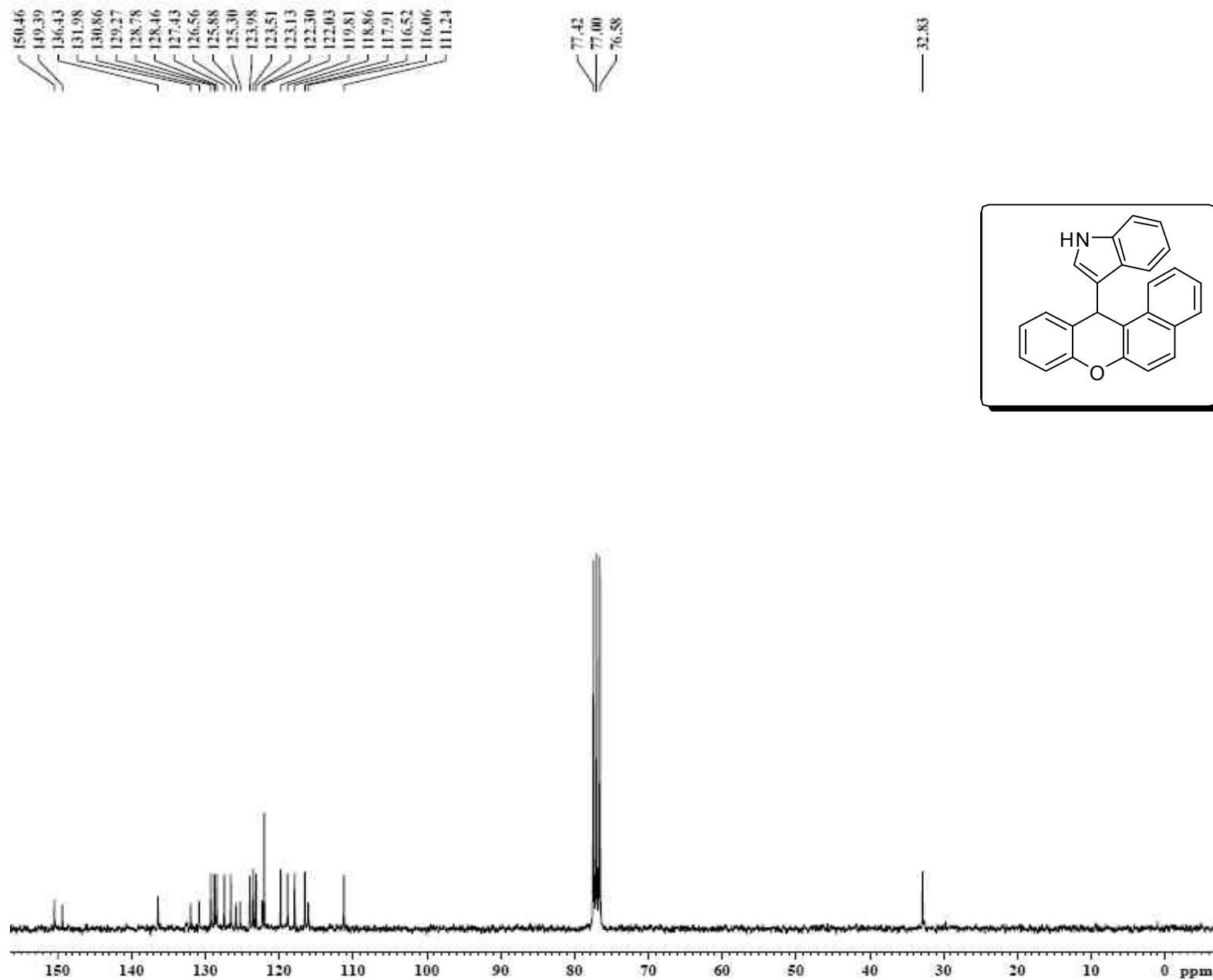
$^1\text{H NMR}$  (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **12a**



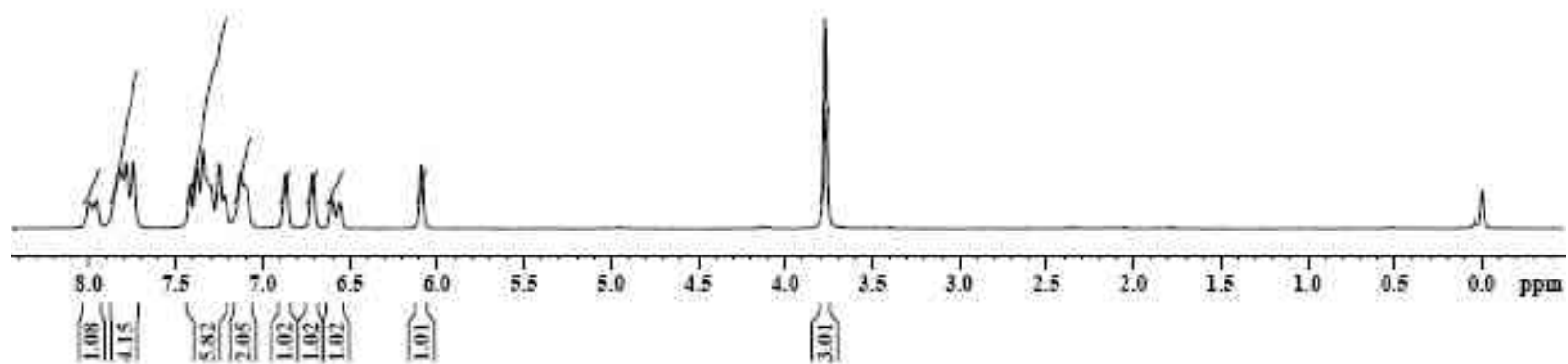
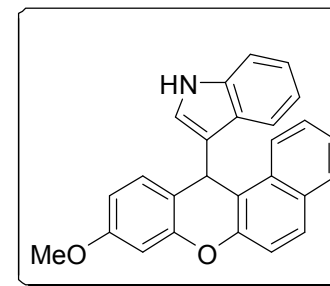
<sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz) spectrum of compound **12a**



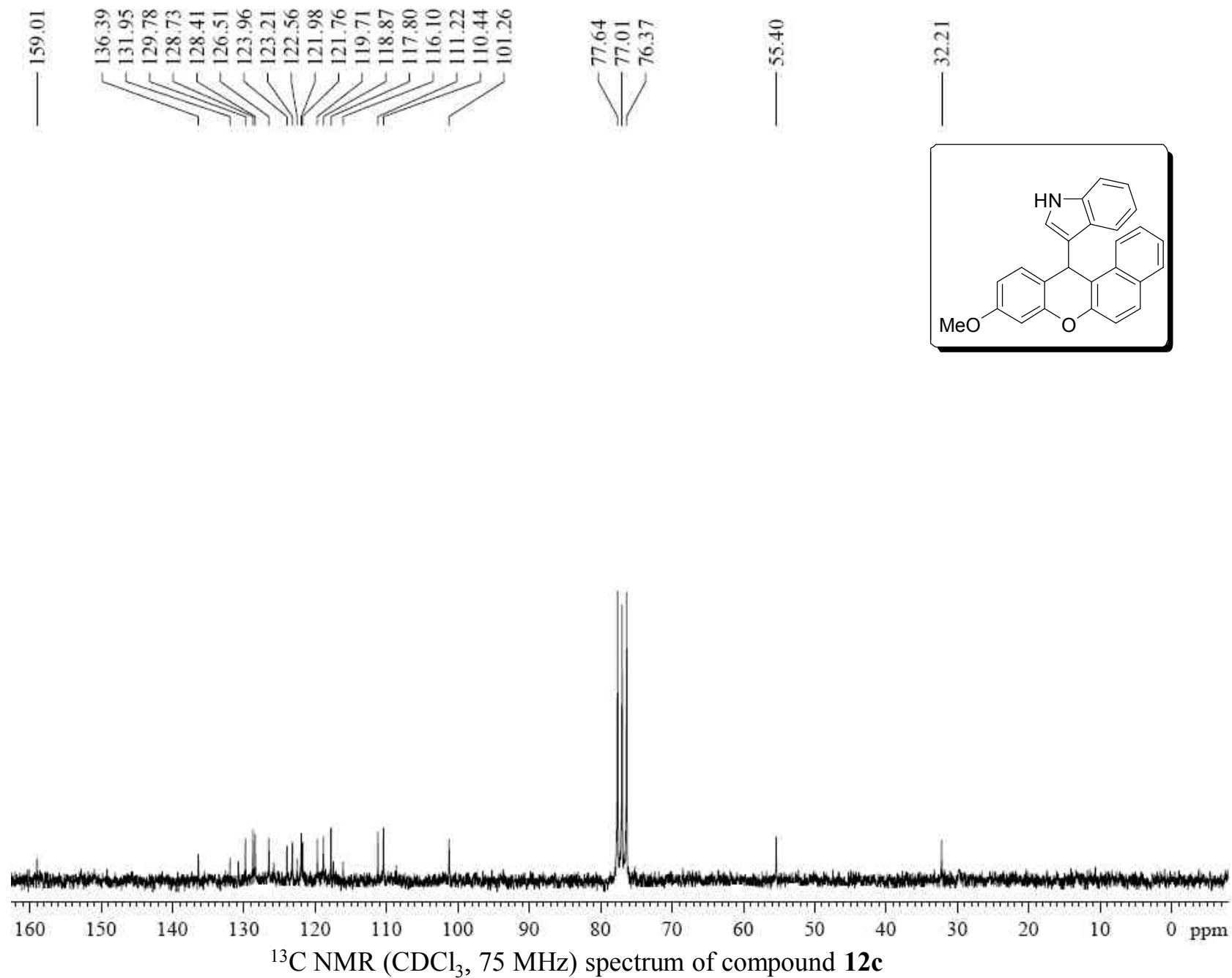
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **12b**

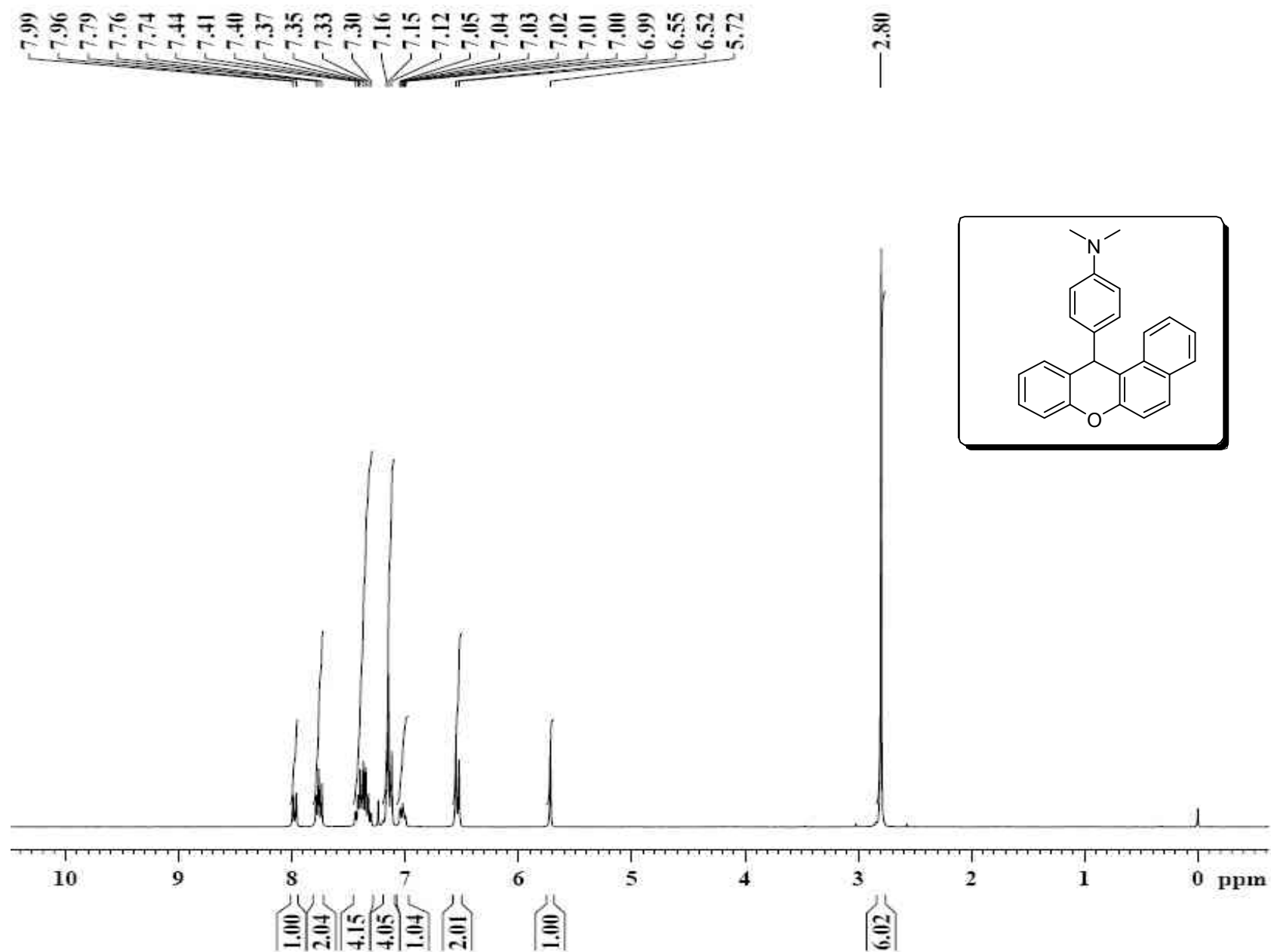


$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **12b**



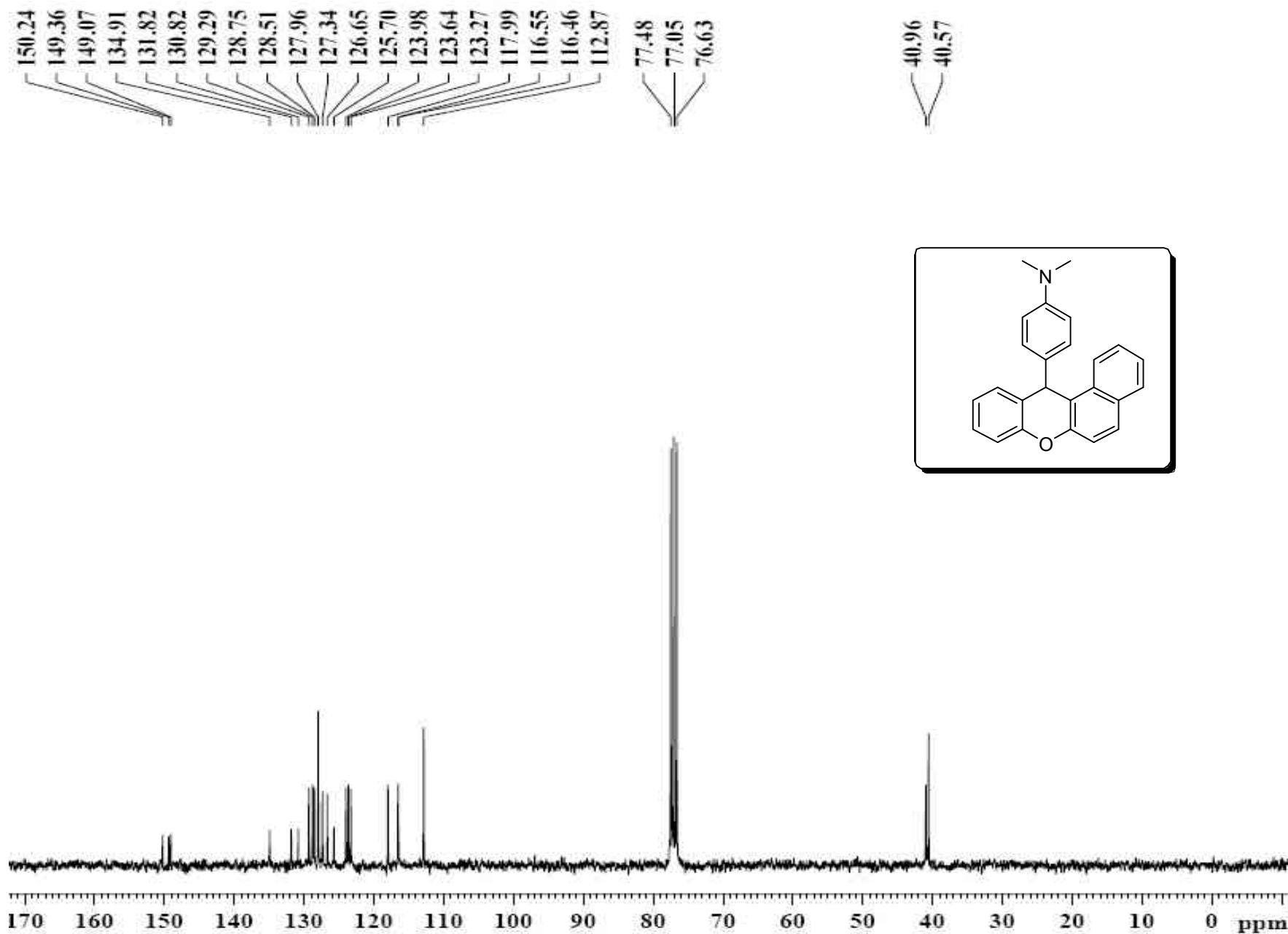
$^1\text{H}$  NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **12c**



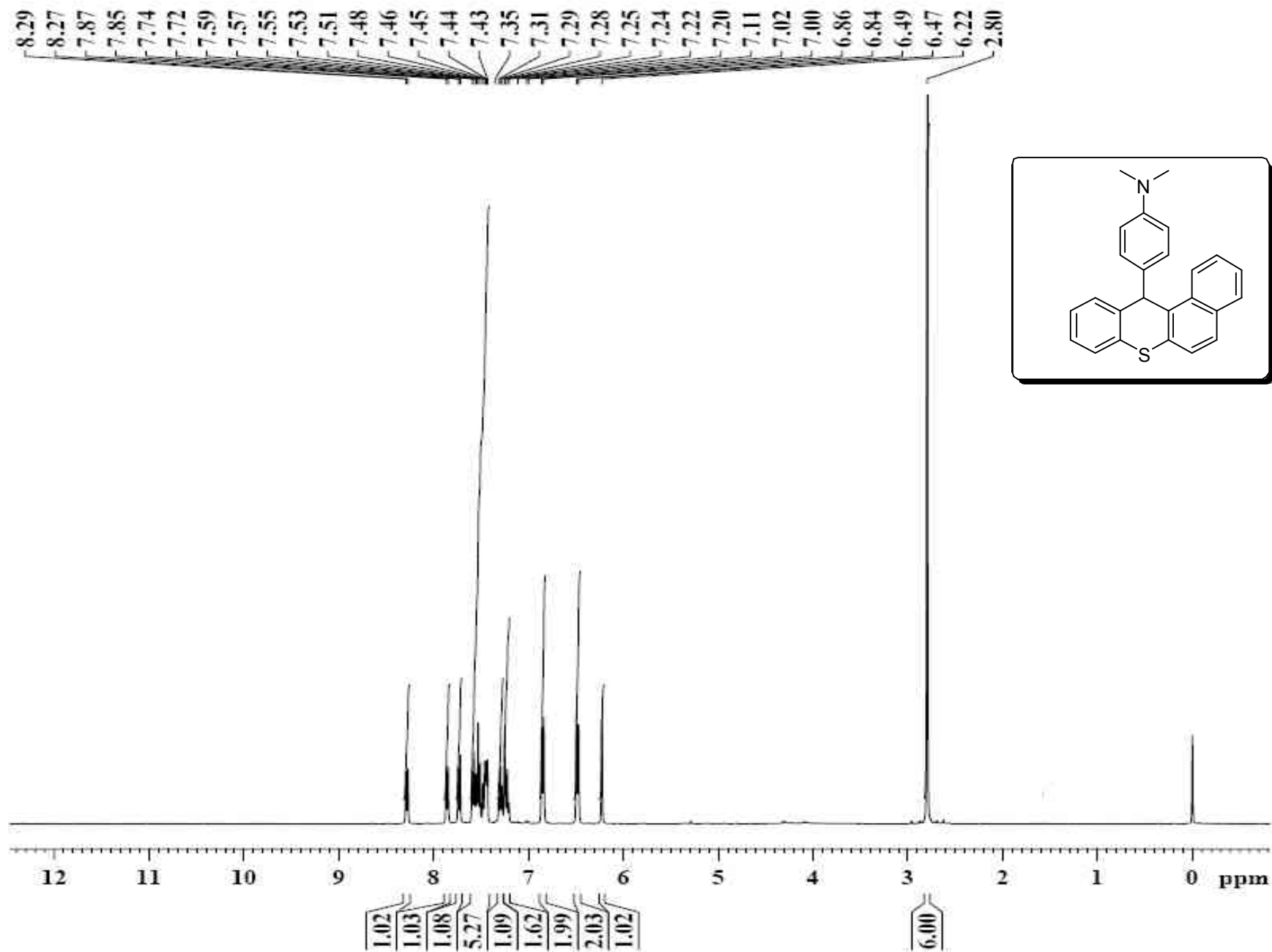


$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **12d**

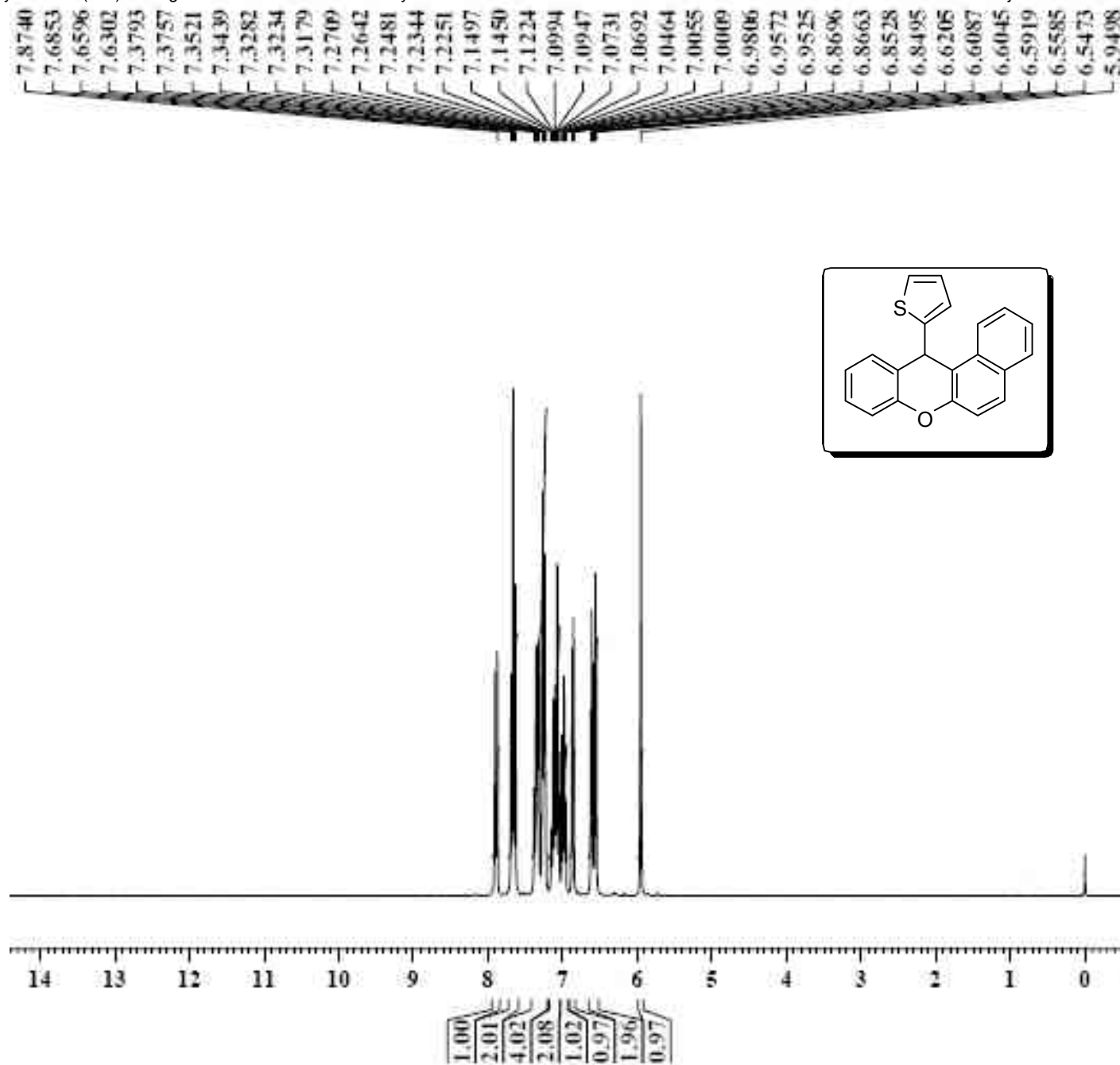




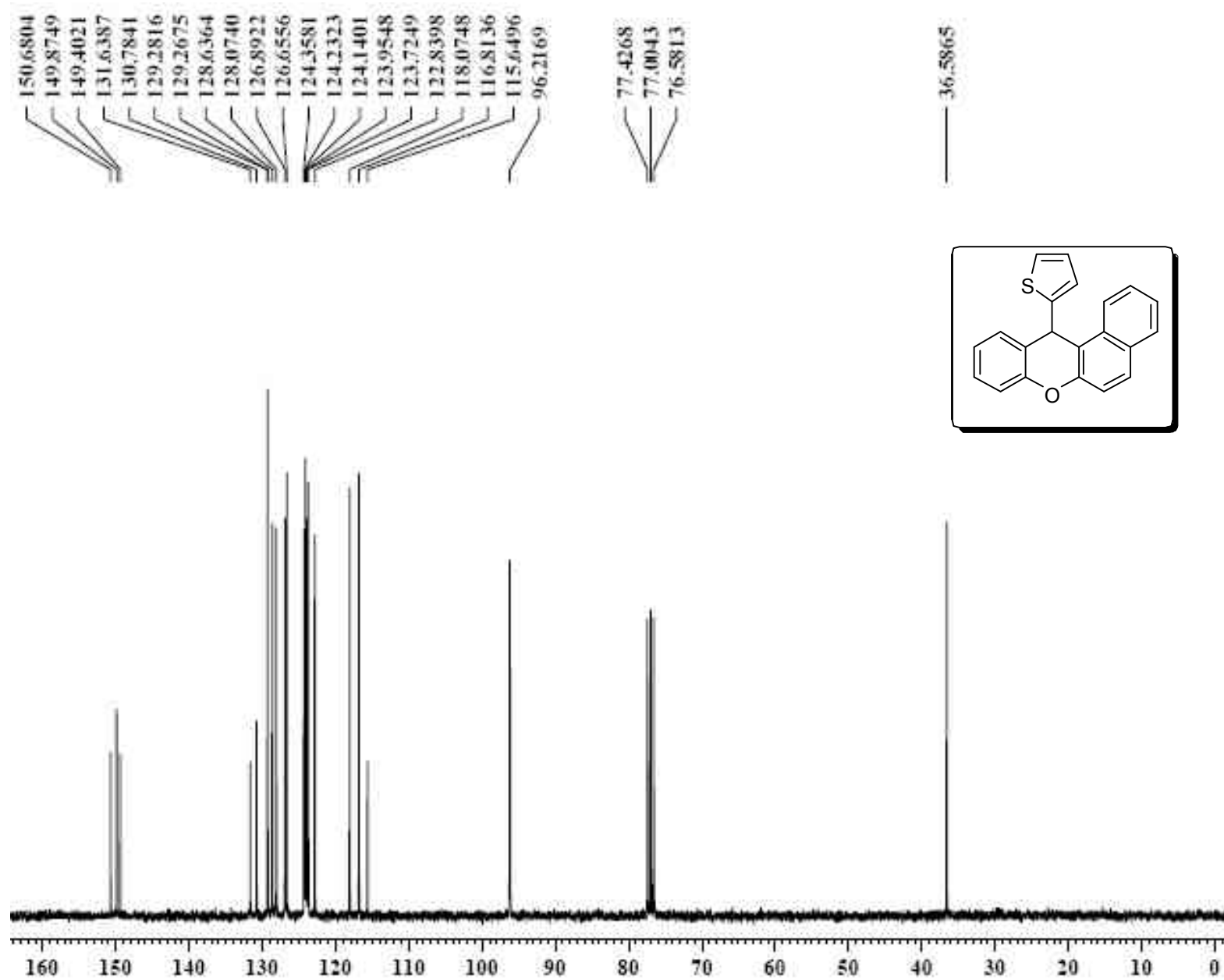
$^{13}\text{C}$  NMR (CDCl<sub>3</sub>, 75 MHz) spectrum of compound **12d**



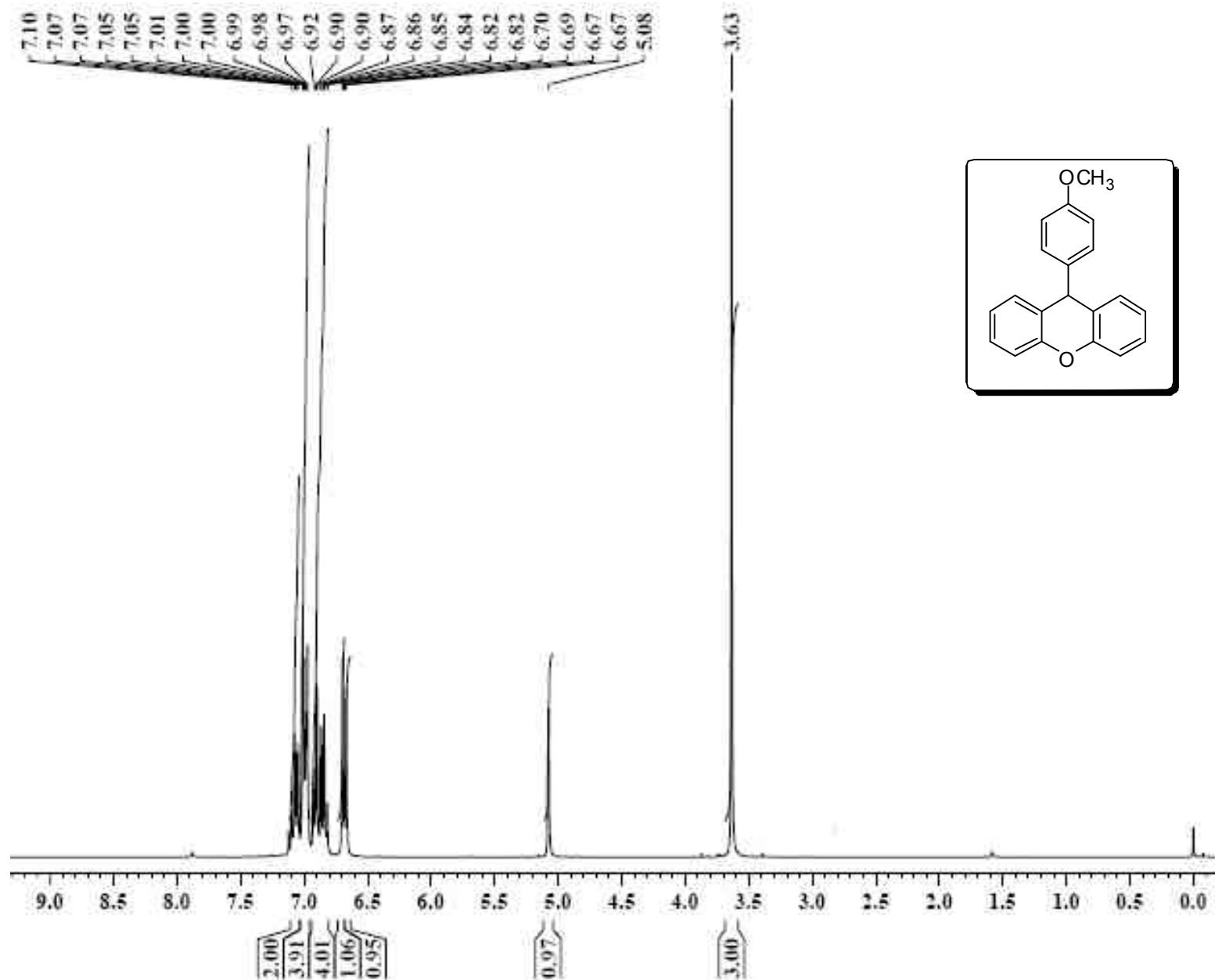
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **12e**



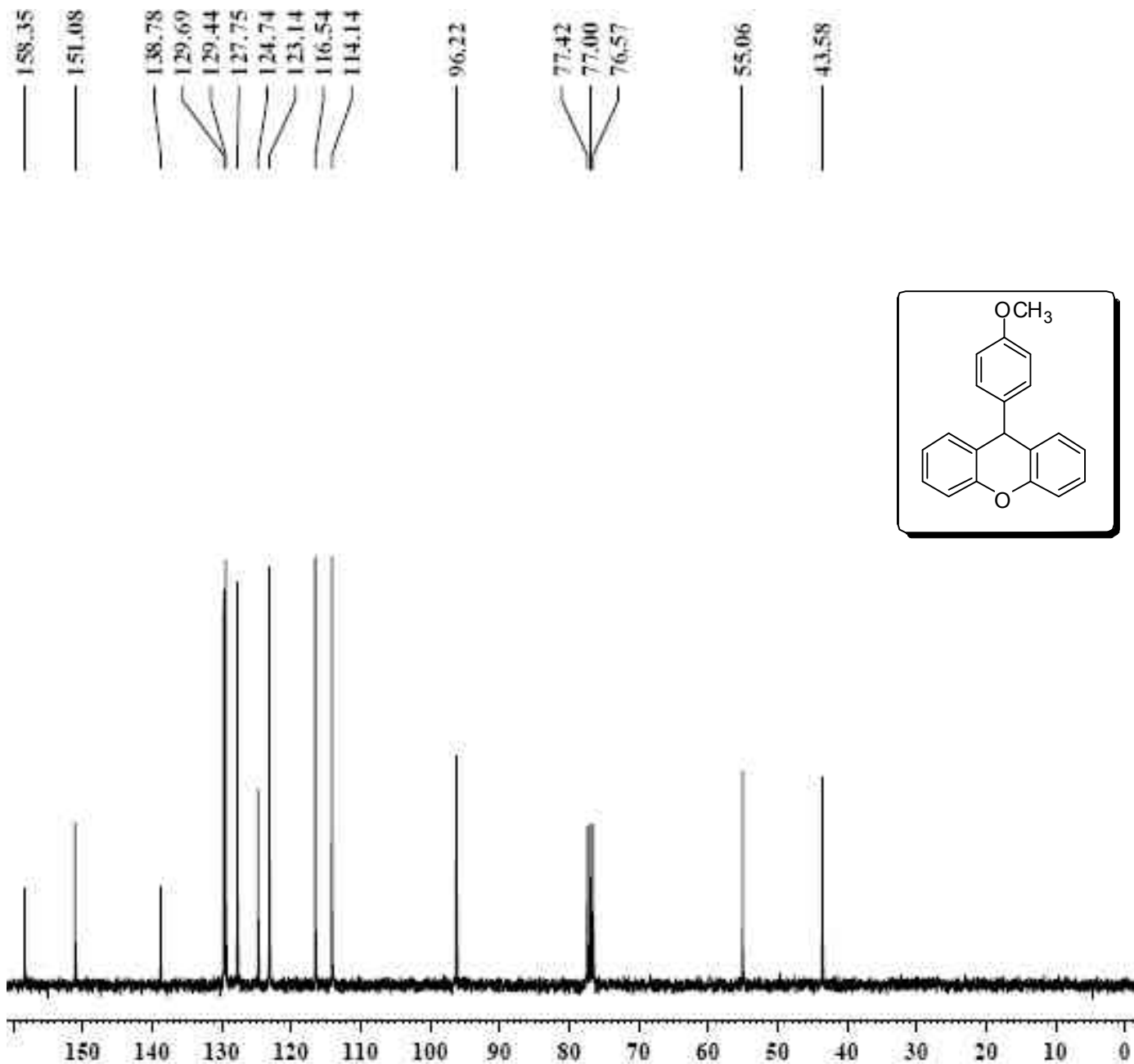
<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **12f**



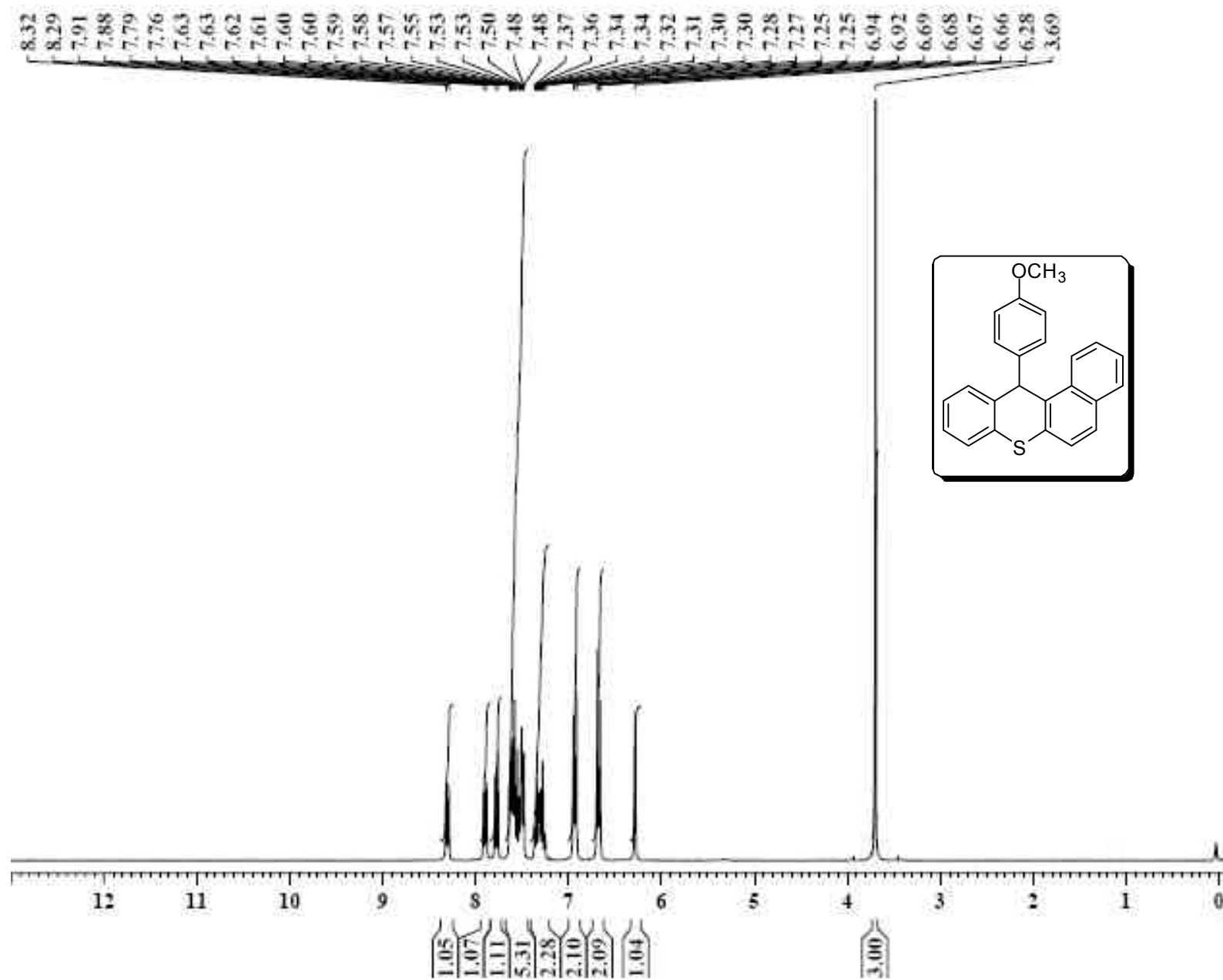
$^{13}\text{C}$  NMR ( $\text{CDCl}_3 + \text{CCl}_4$ , 75 MHz) spectrum of compound **12f**



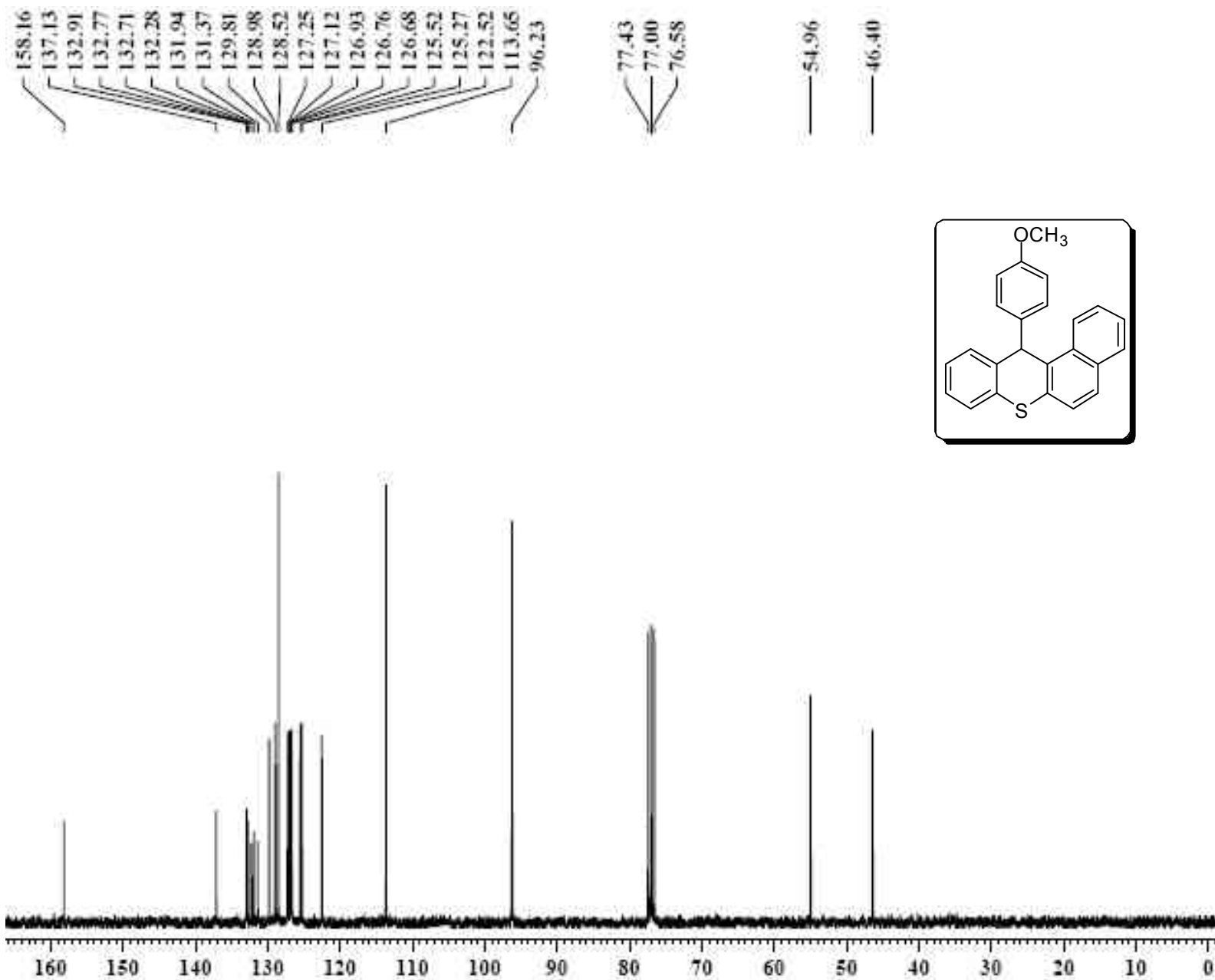
$^1\text{H}$  NMR ( $\text{CDCl}_3 + \text{CCl}_4$ , 300 MHz) spectrum of compound **12g**



<sup>13</sup>C NMR (CDCl<sub>3</sub> + CCl<sub>4</sub>, 75 MHz) spectrum of compound **12g**

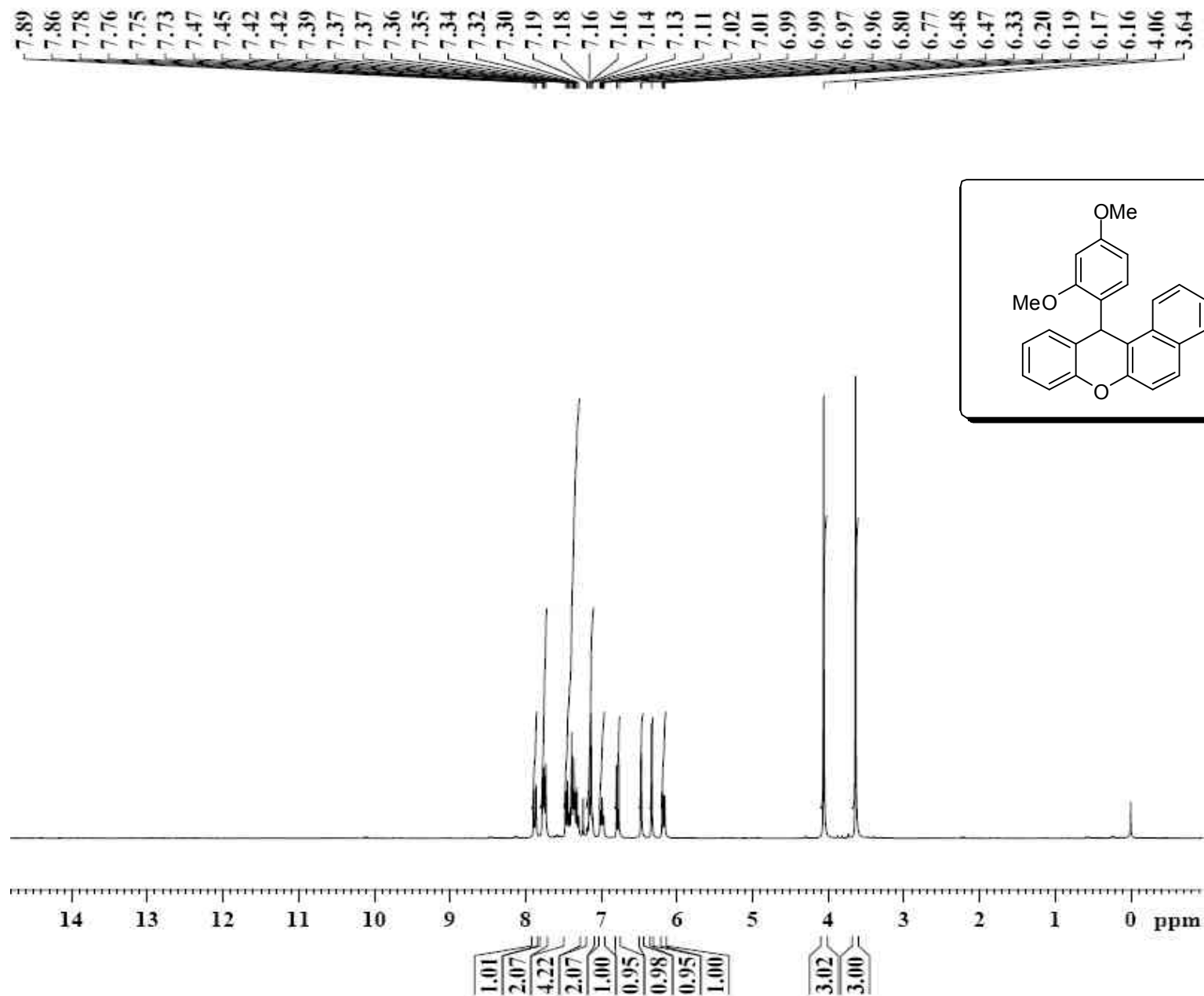


$^1\text{H}$  NMR ( $\text{CDCl}_3 + \text{CCl}_4$ , 300 MHz) spectrum of compound **12h**

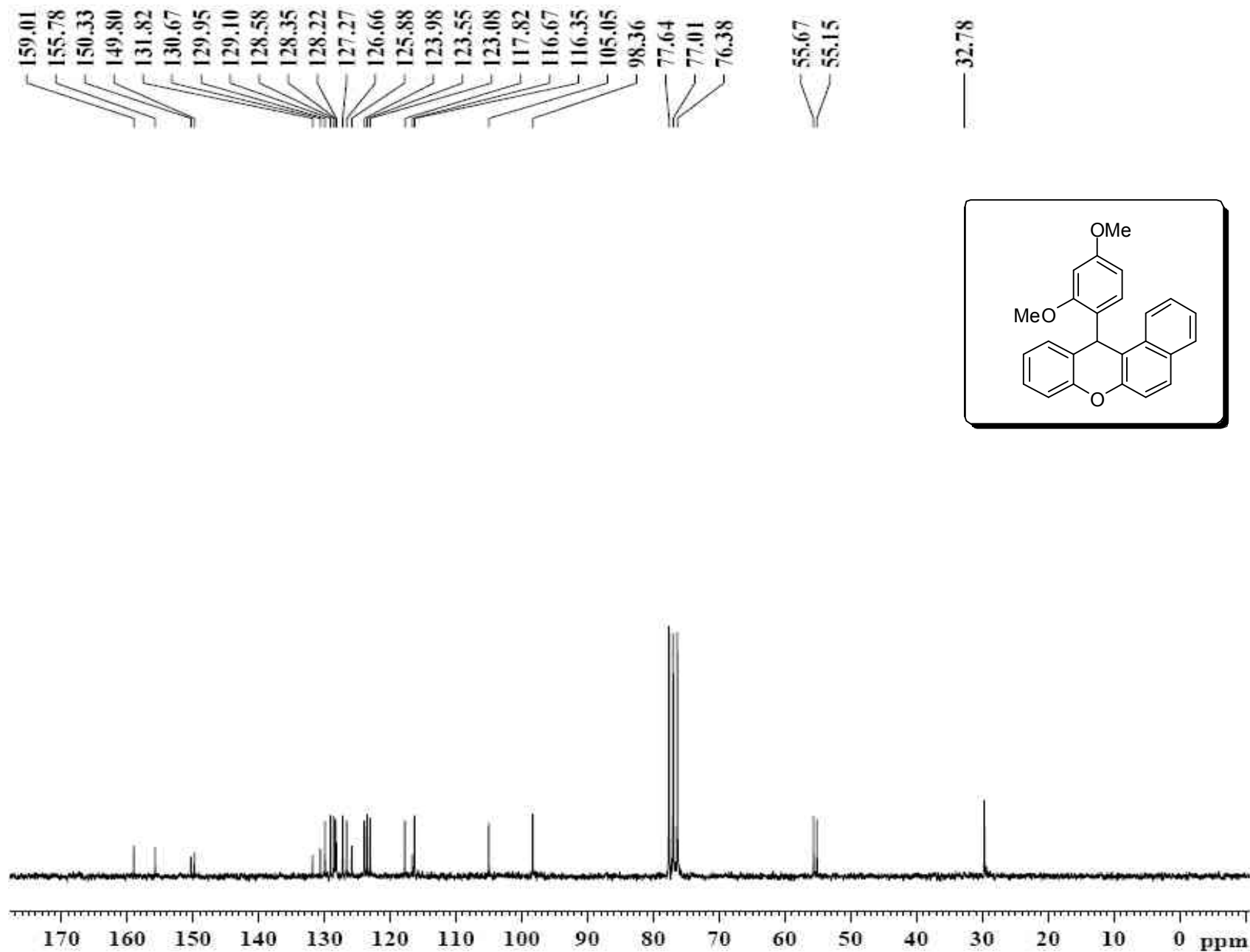


$^{13}\text{C}$  NMR ( $\text{CDCl}_3 + \text{CCl}_4$ , 75 MHz) spectrum of compound **12h**

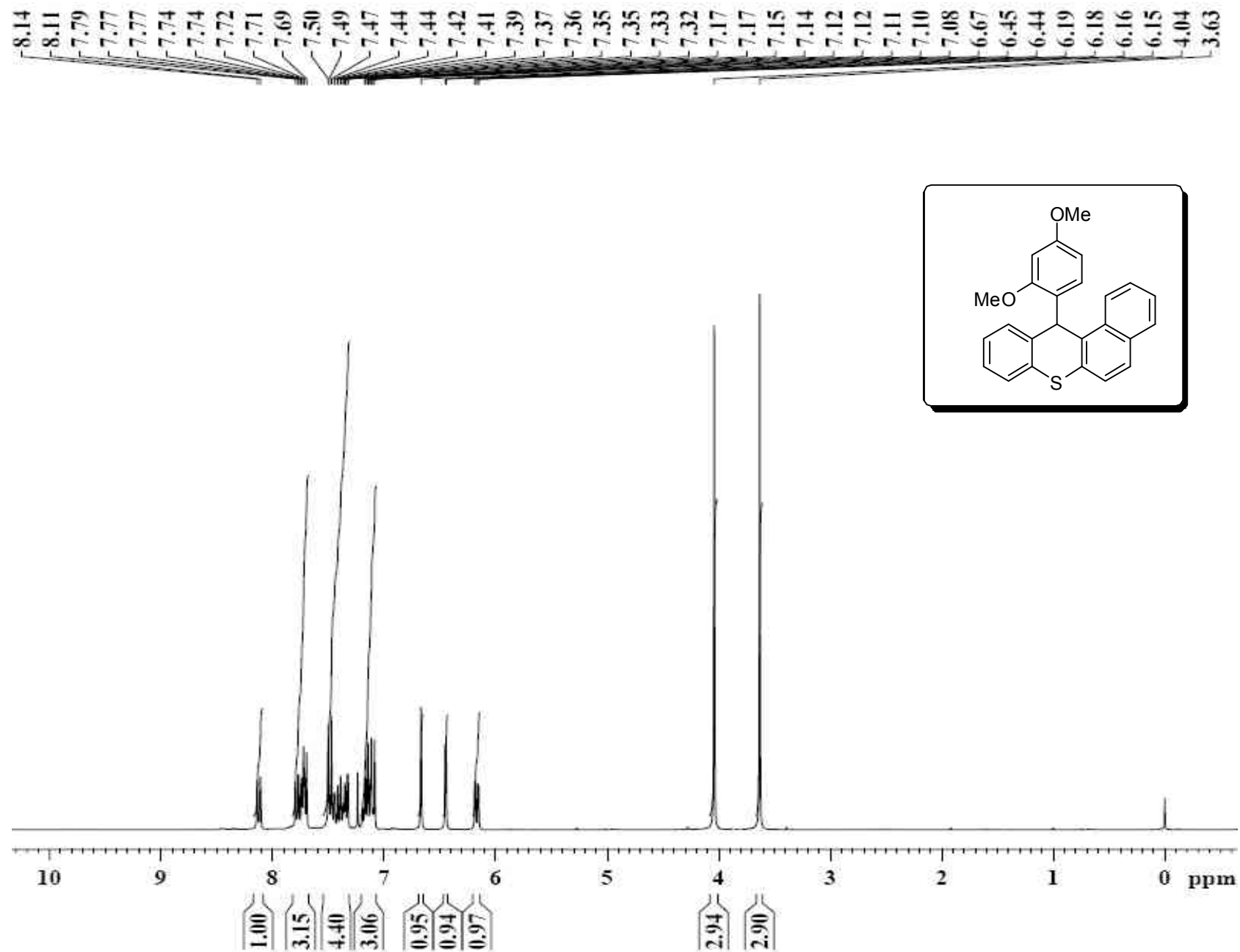




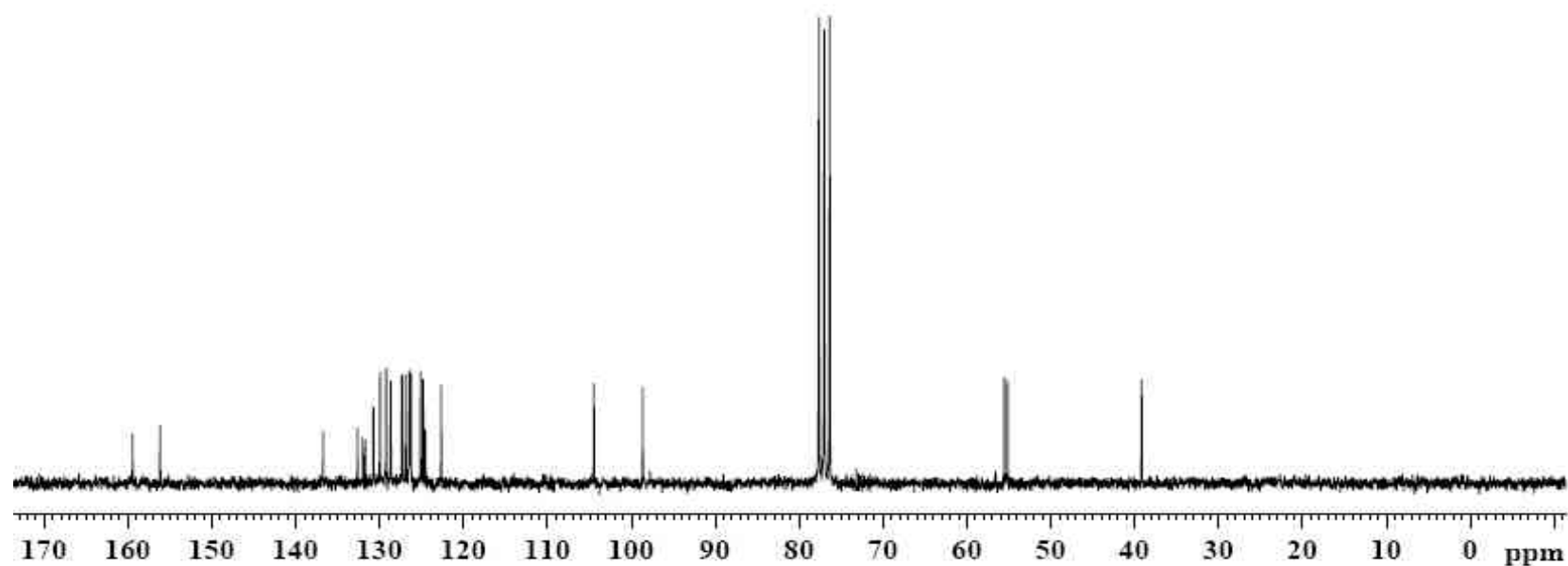
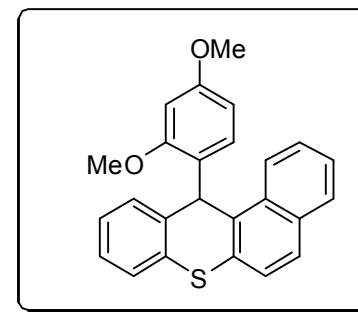
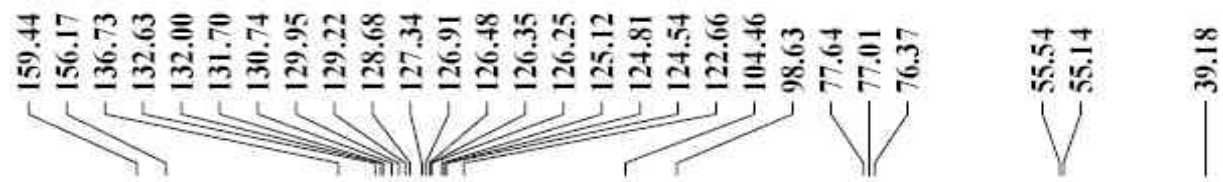
$^1\text{H NMR}$  (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **12i**



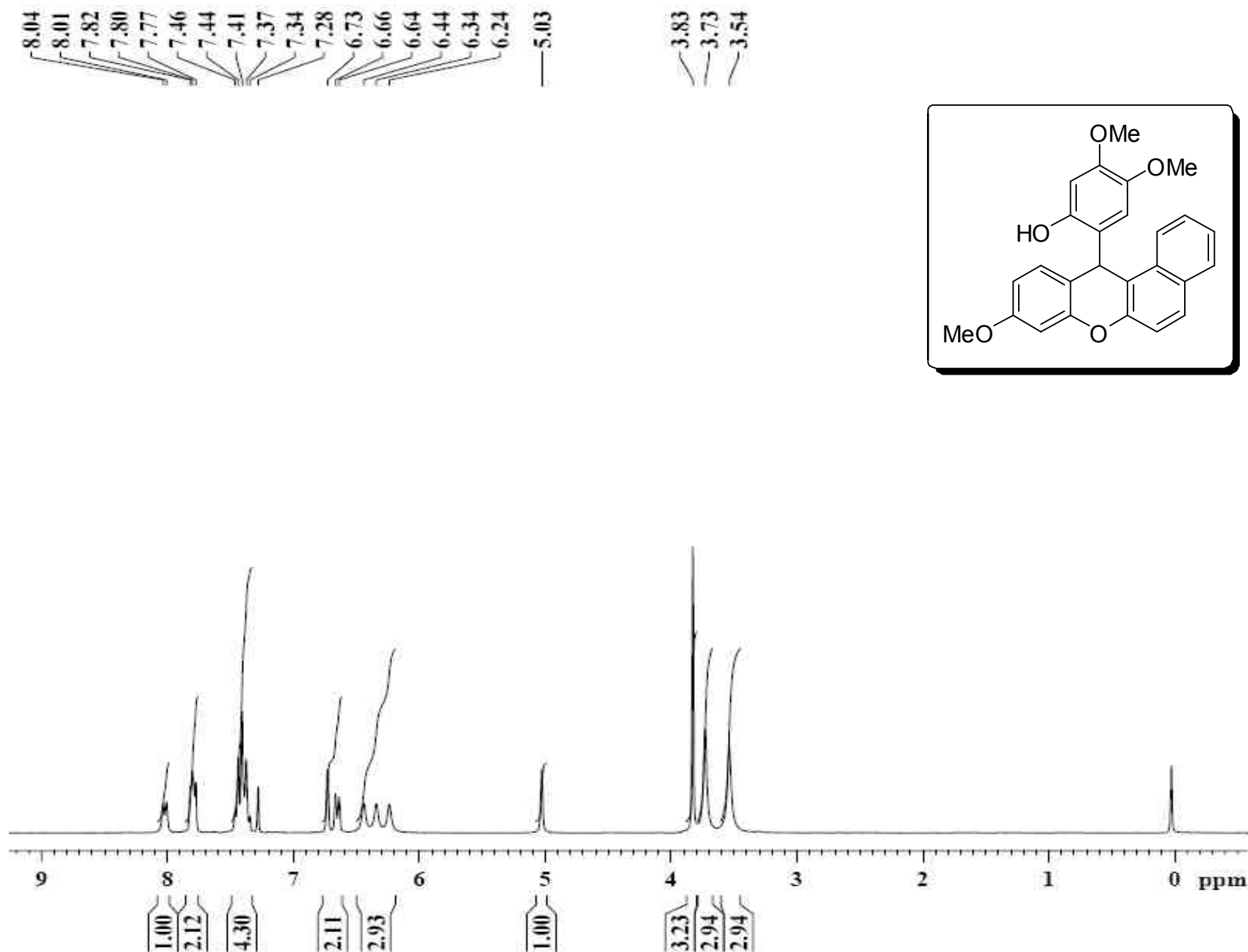
$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **12i**



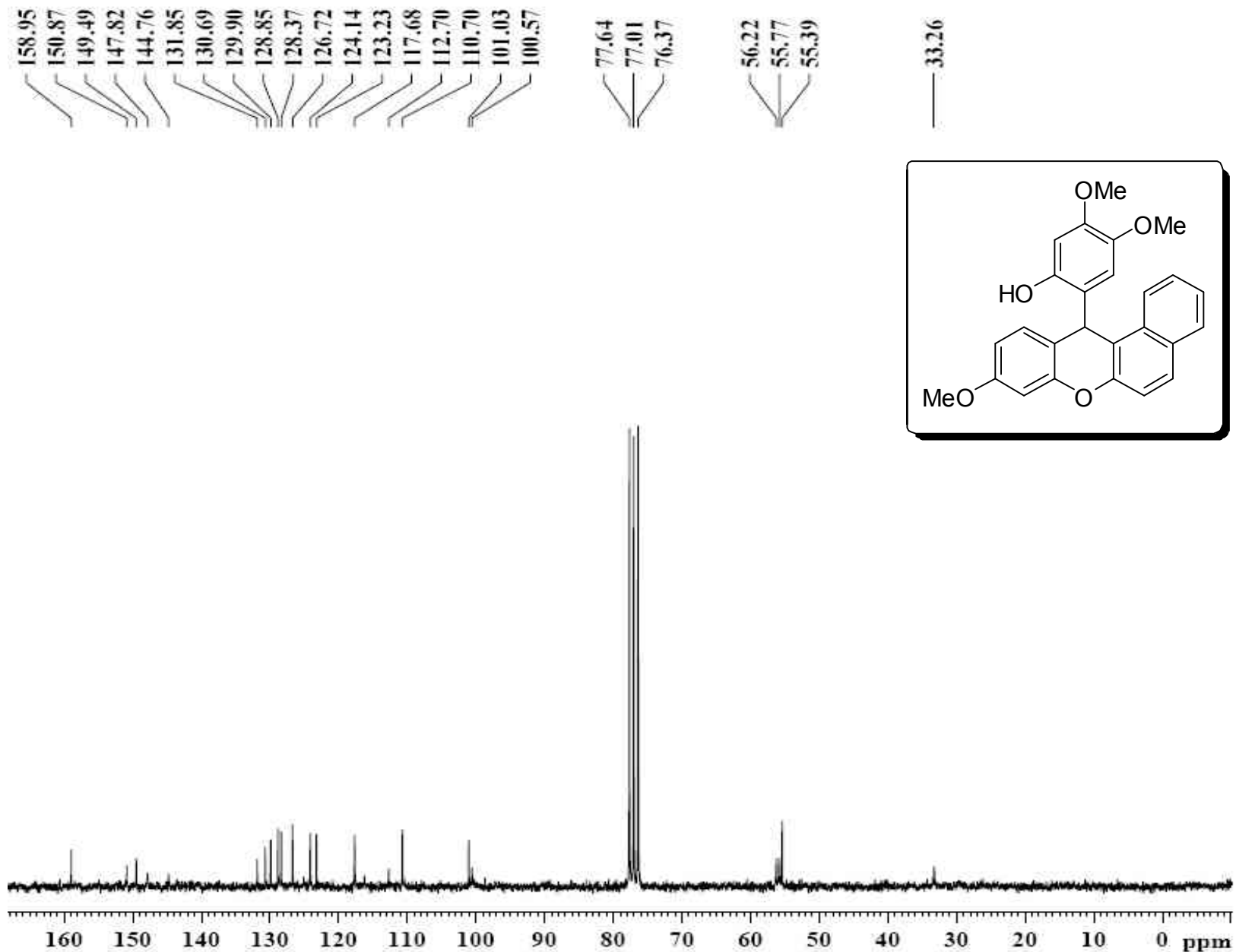
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **12j**



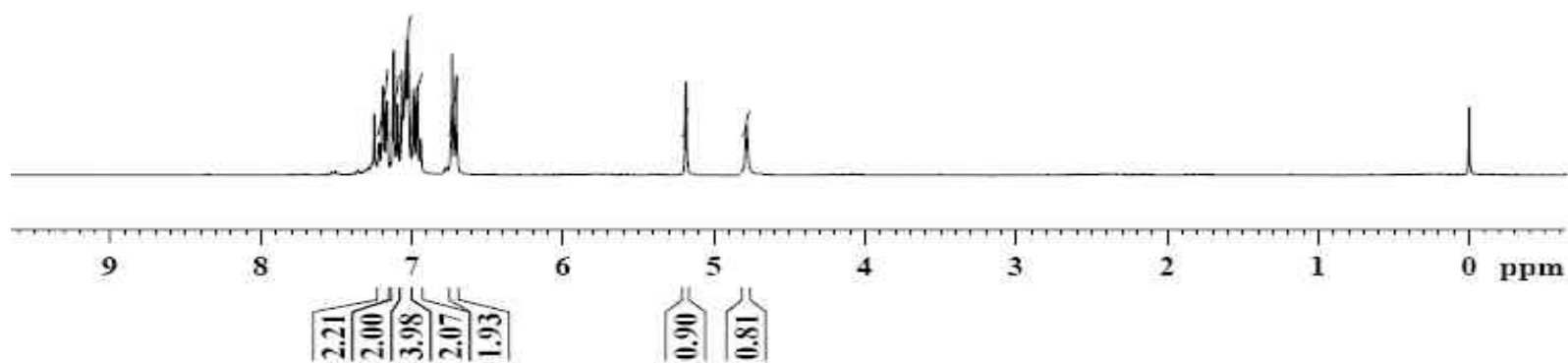
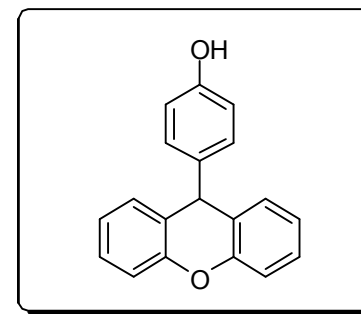
$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **12j**



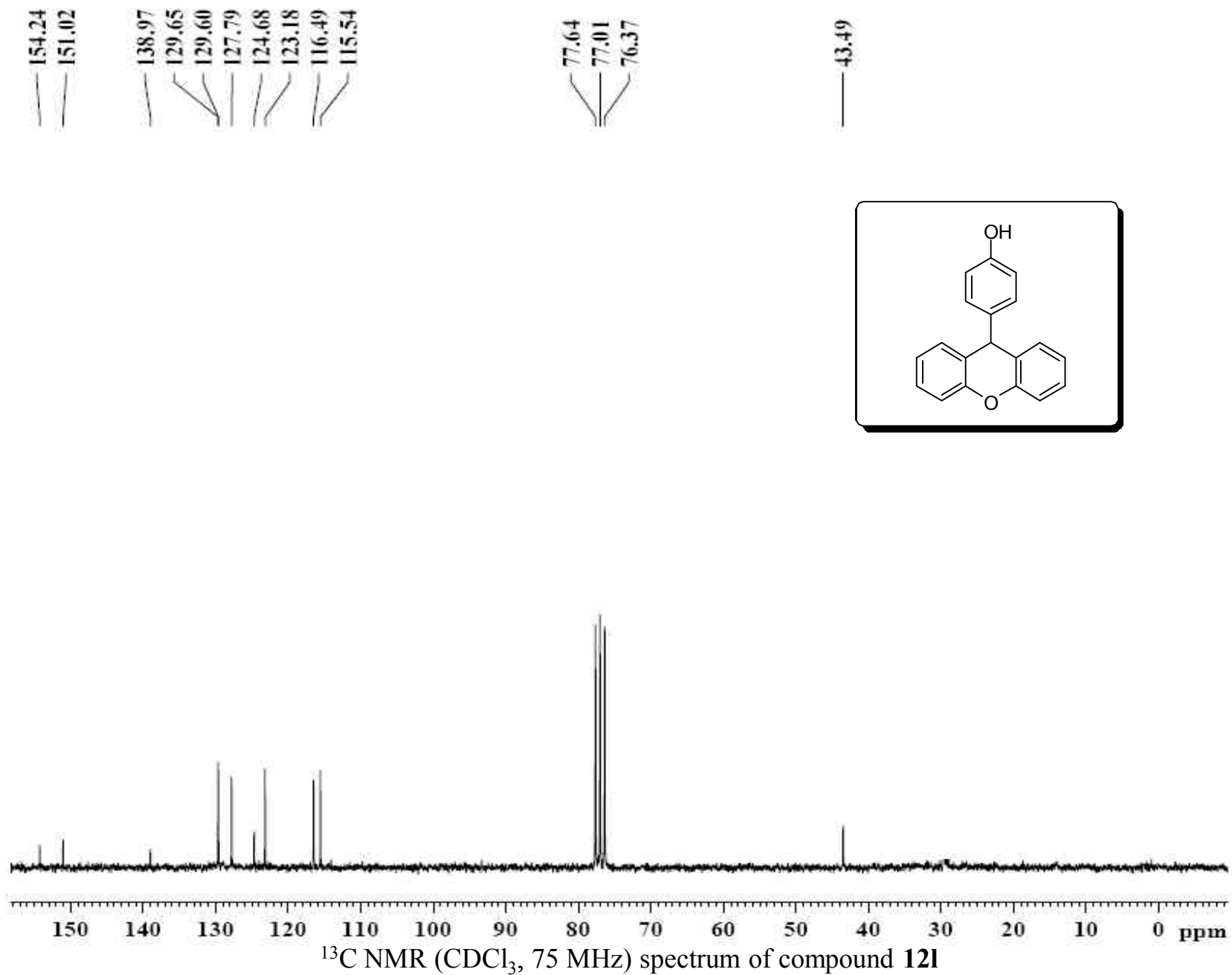
<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **12k**



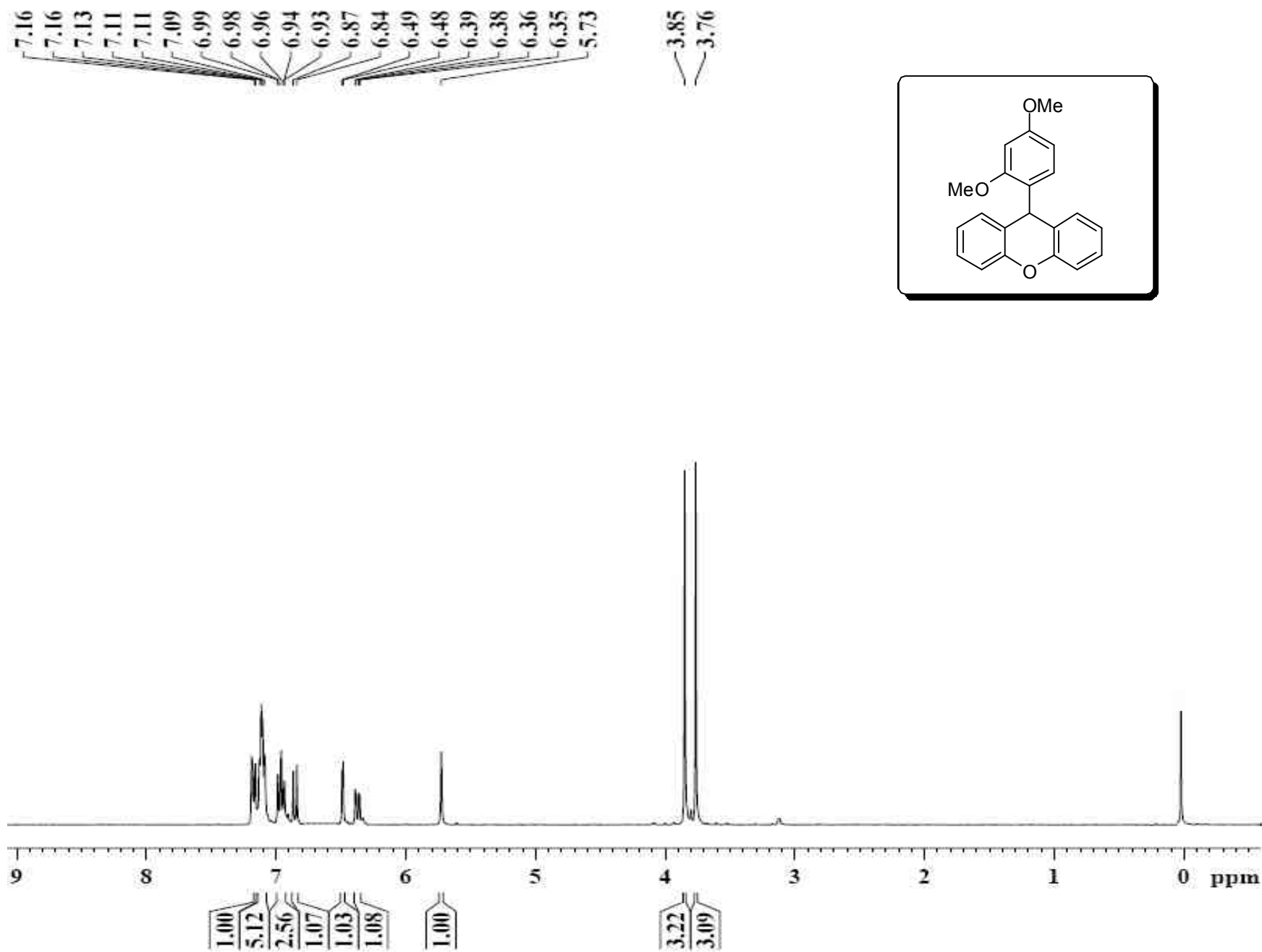
$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **12k**



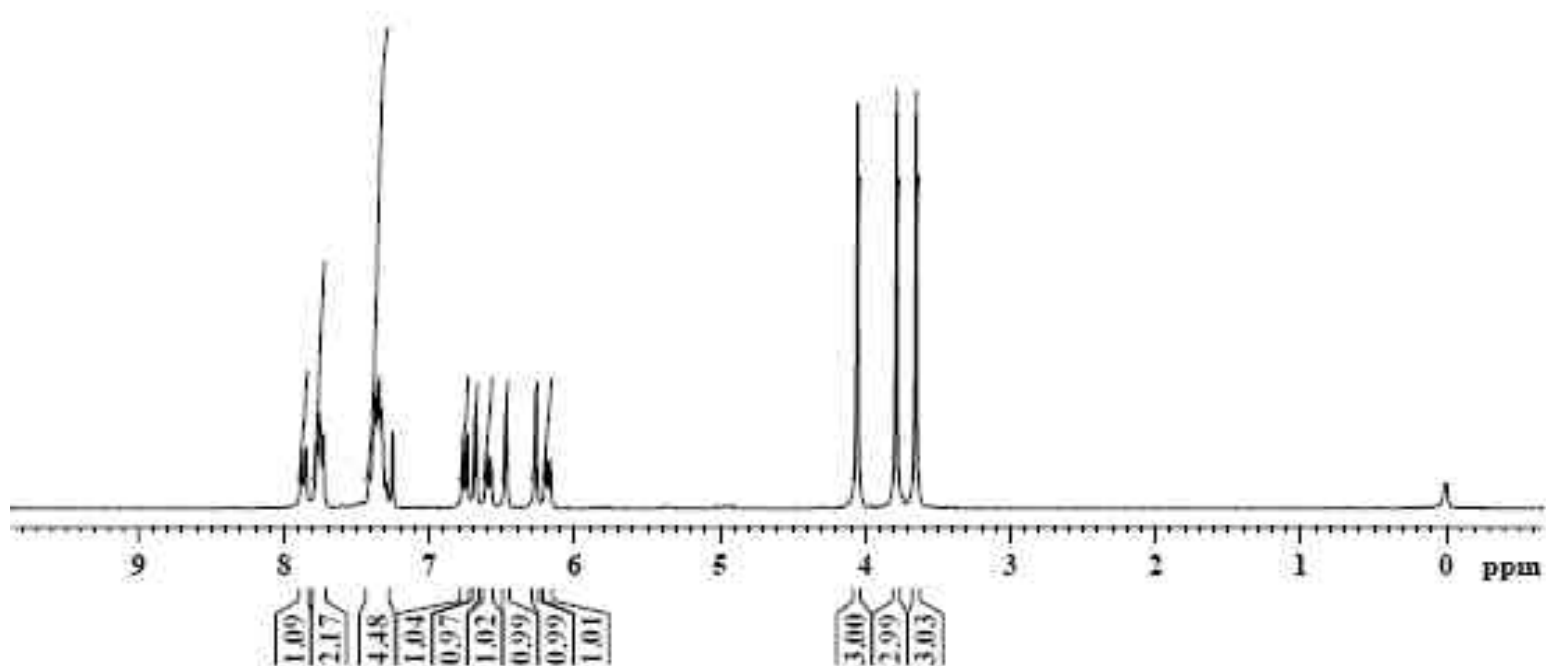
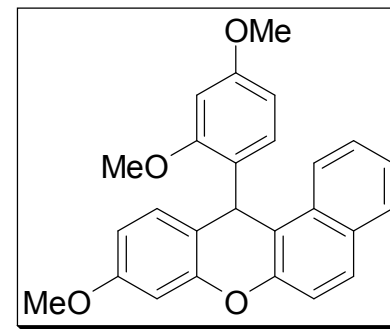
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **121**



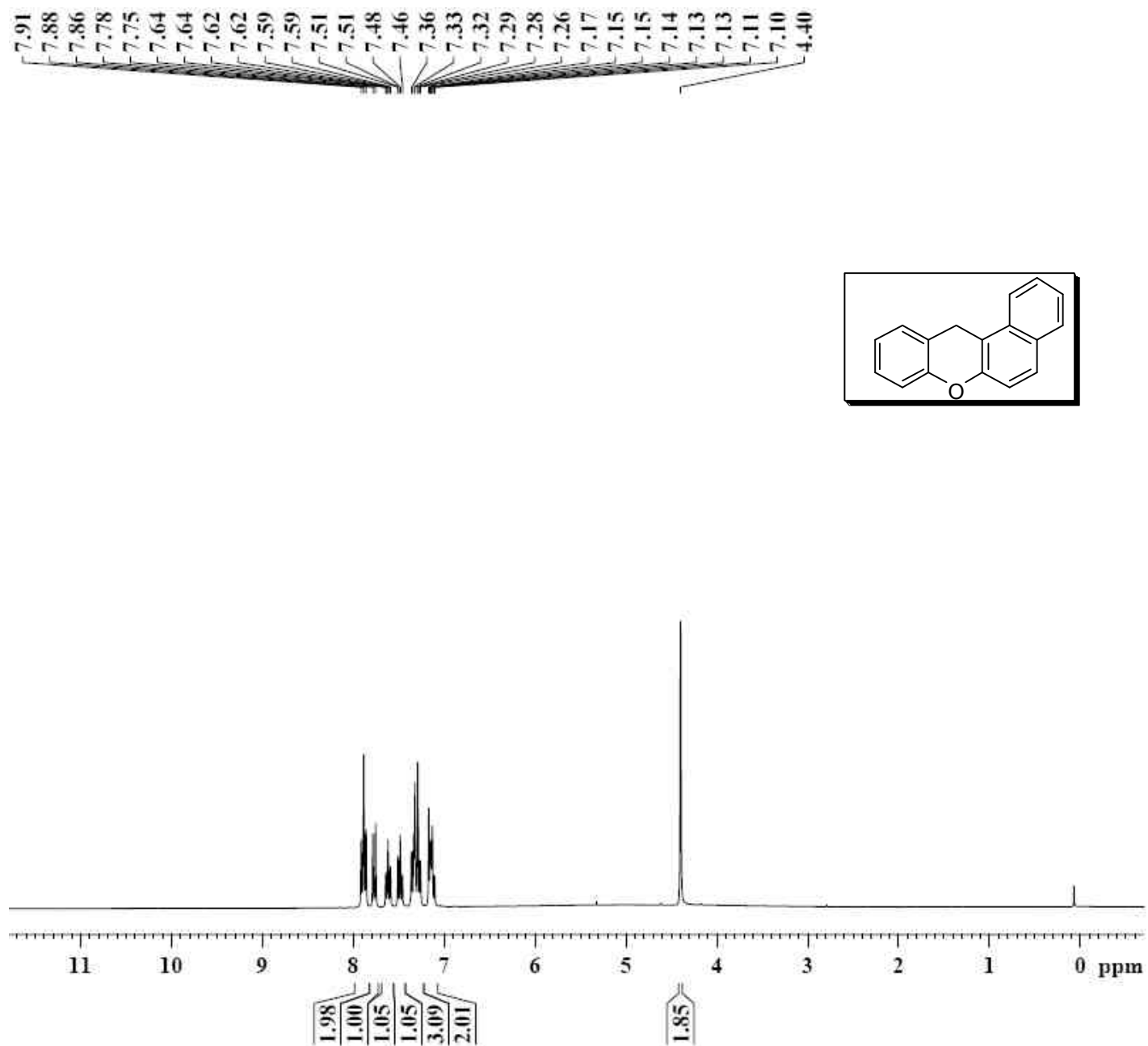




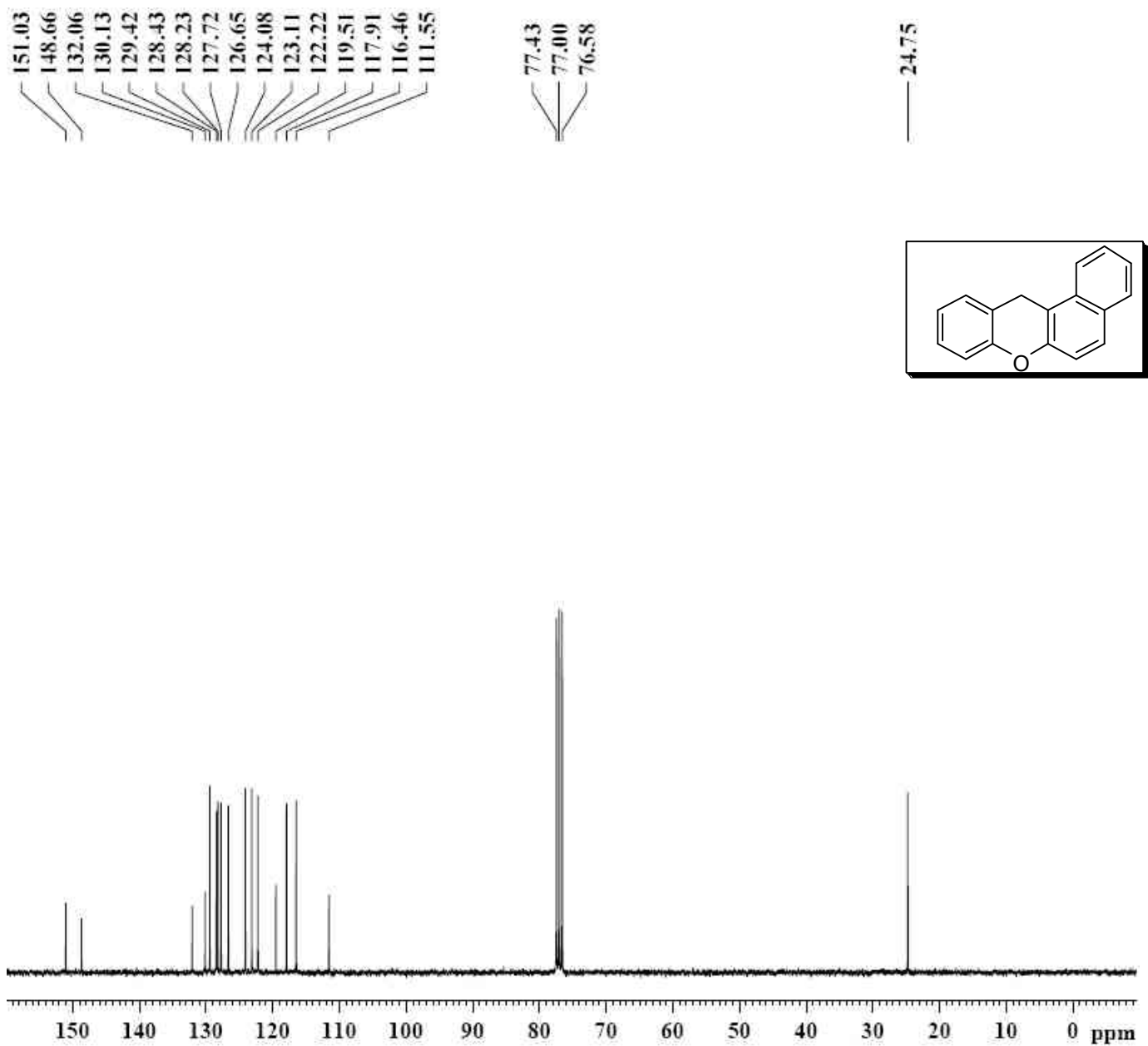
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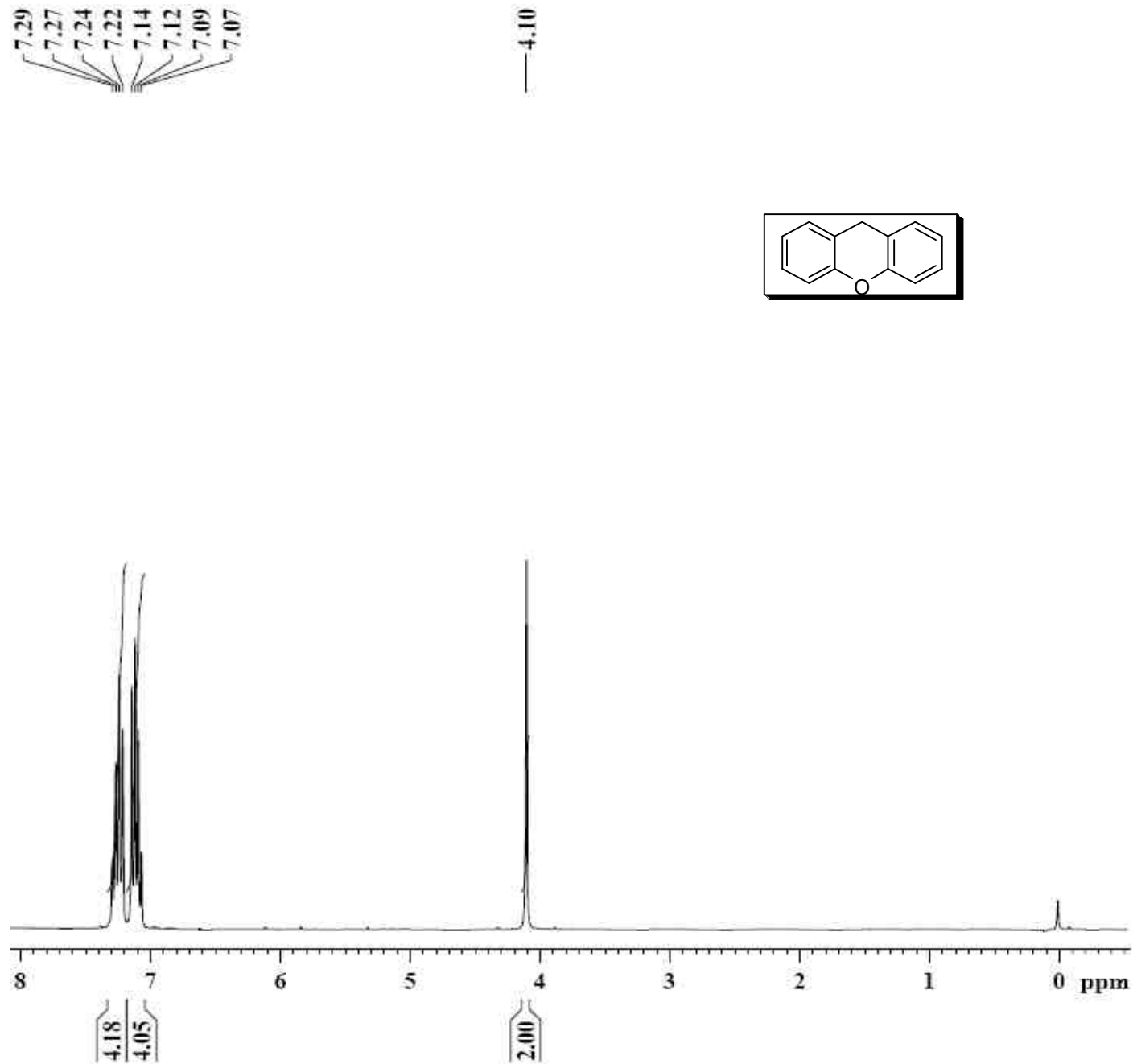
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **12n**



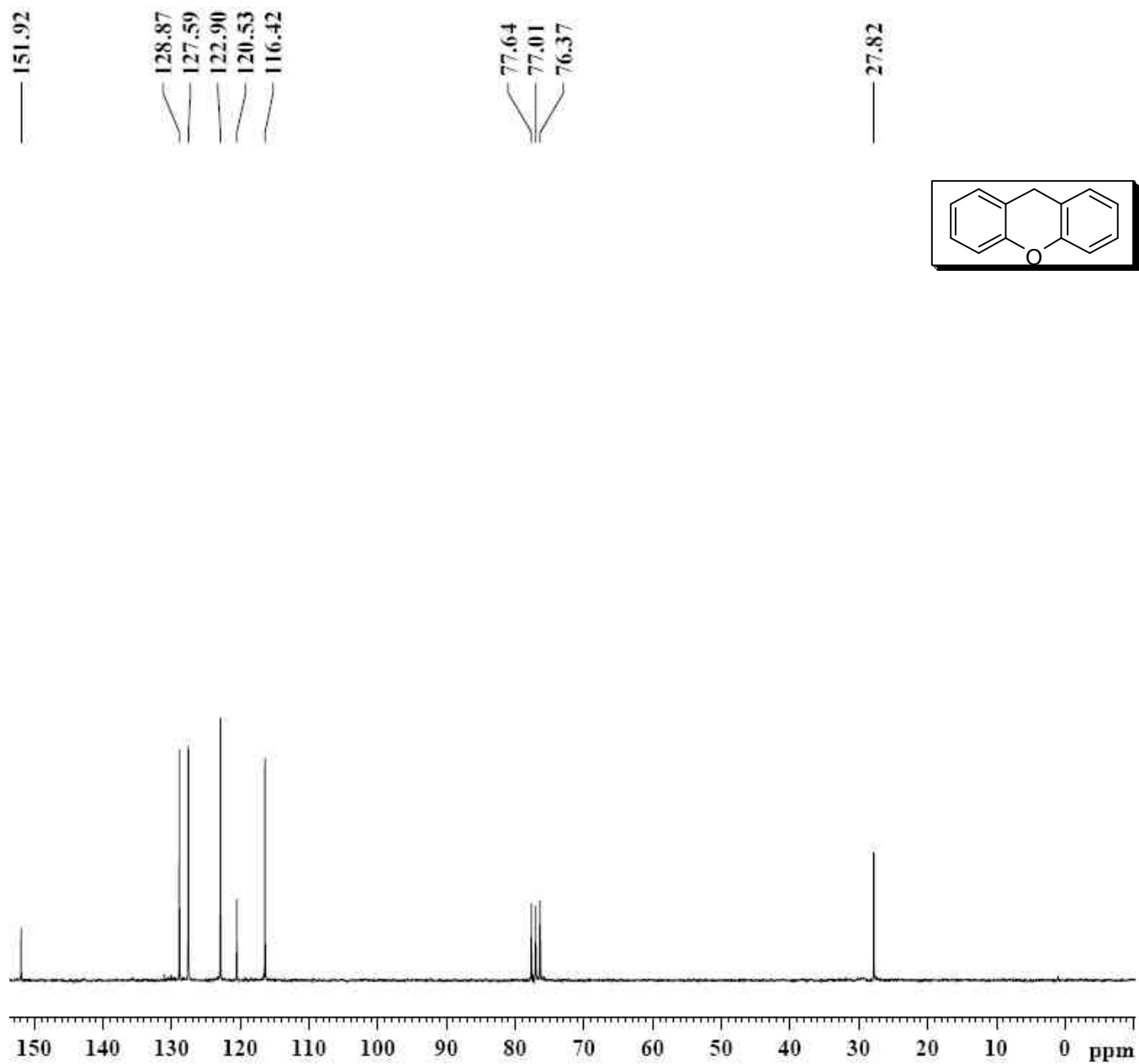
<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **13b**



<sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz) spectrum of compound **13b**

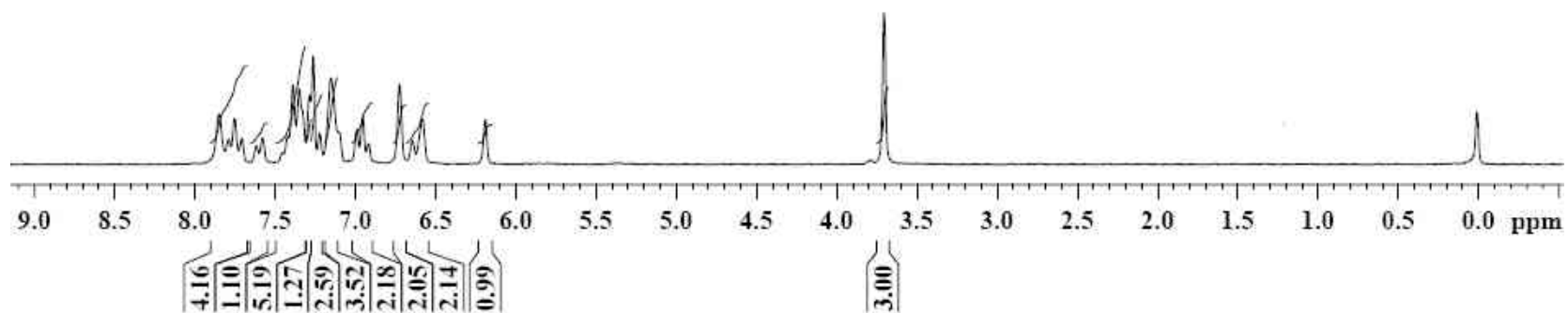
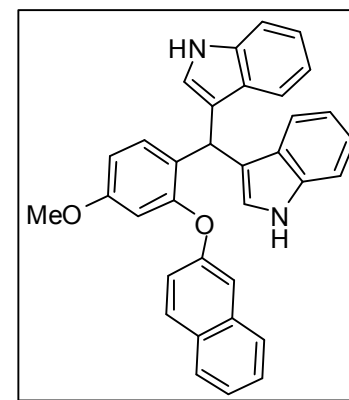


<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **13g**

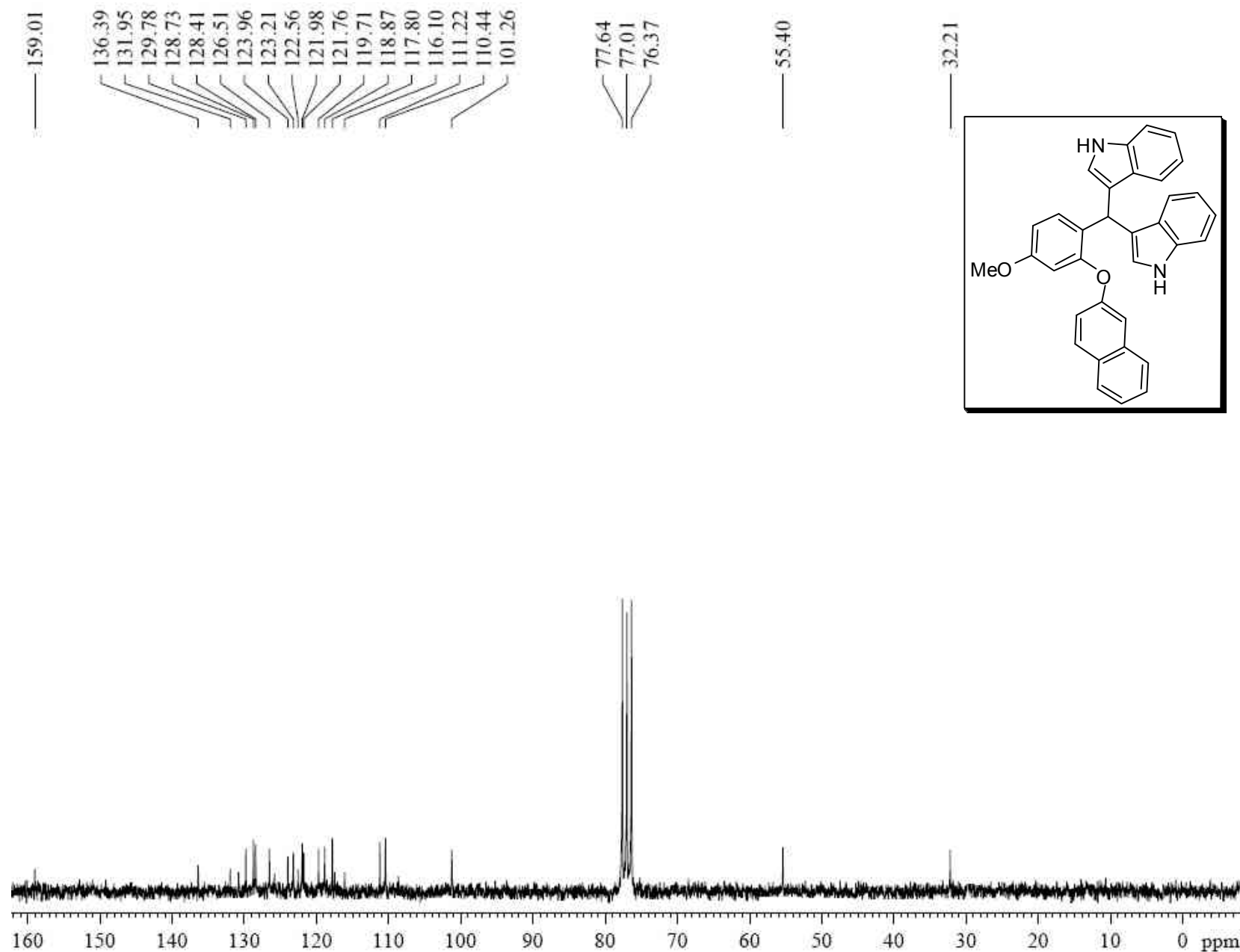


$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **13g**

7.85  
7.79  
7.75  
7.71  
7.62  
7.58  
7.42  
7.39  
7.35  
7.29  
7.26  
7.22  
7.15  
6.99  
6.96  
6.92  
6.72  
6.64  
6.59  
6.19

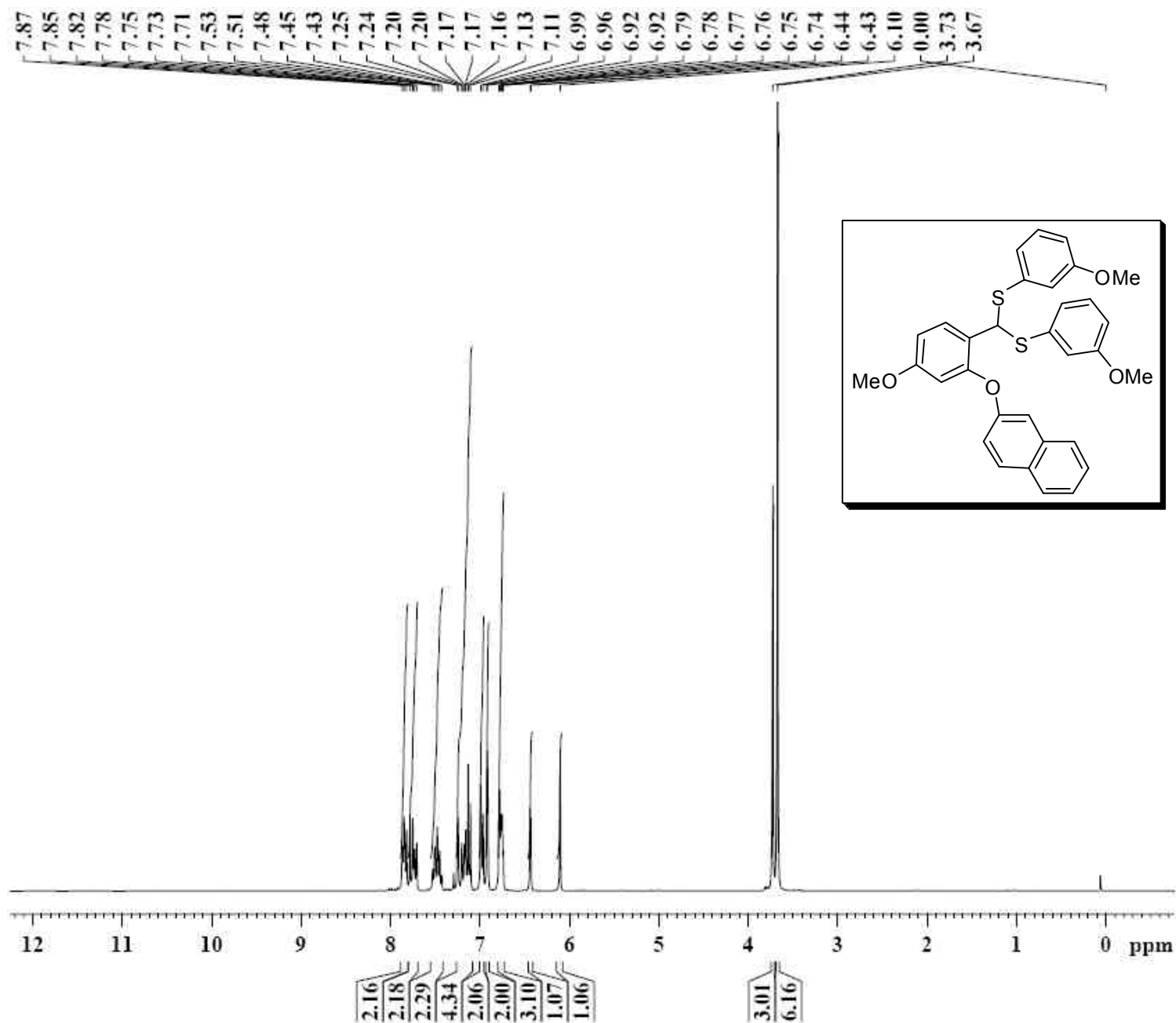


<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **14c**

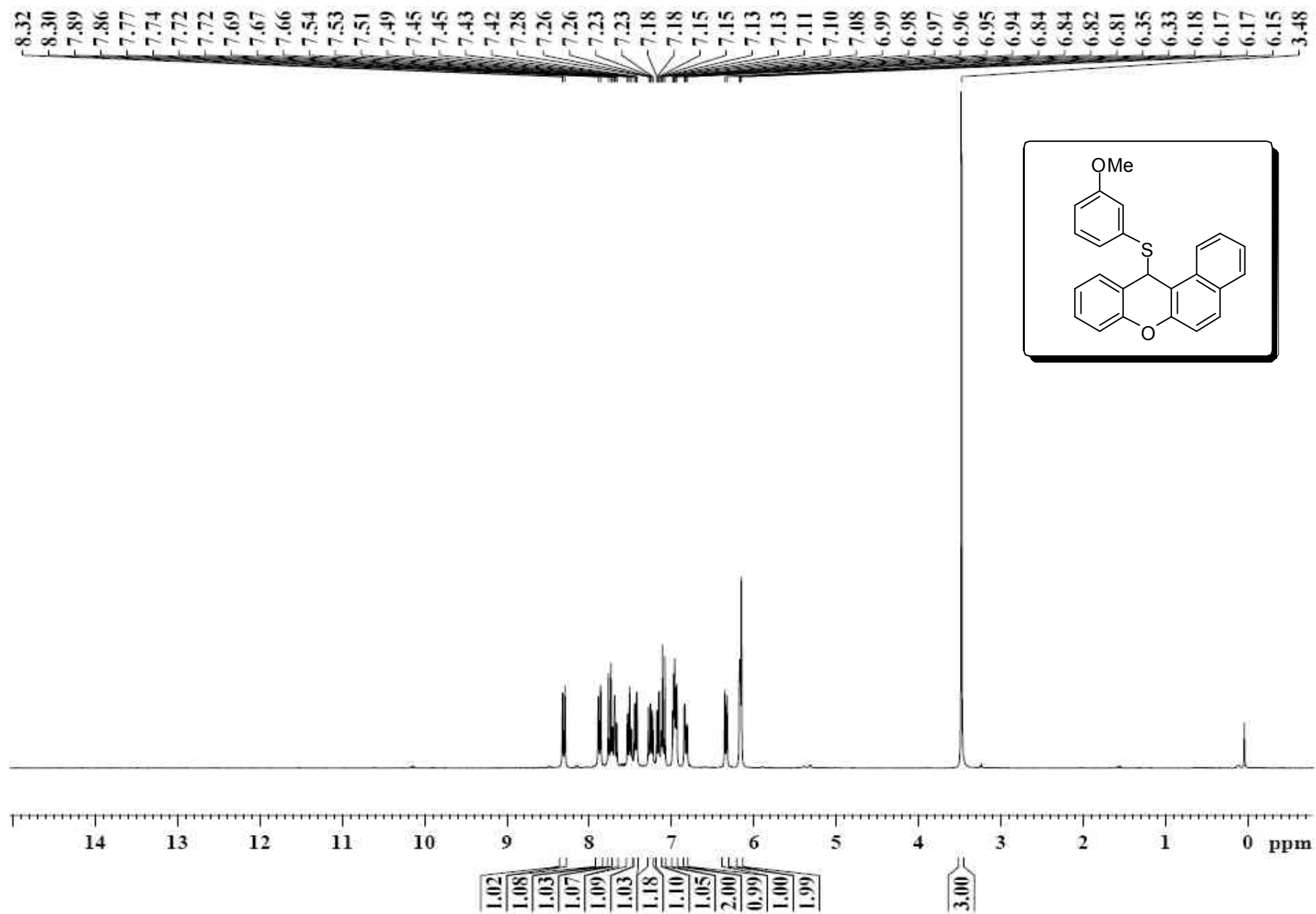


<sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz) spectrum of compound **14c**

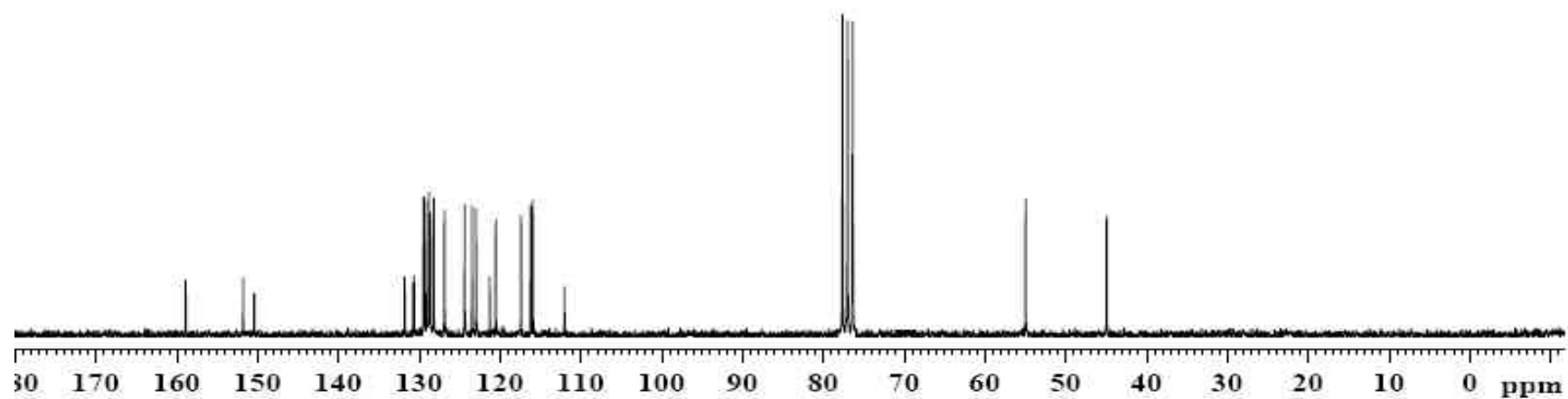
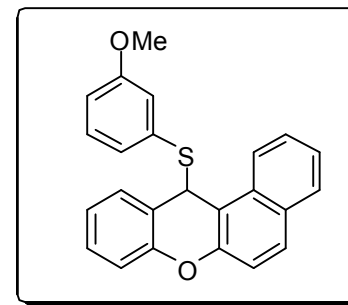
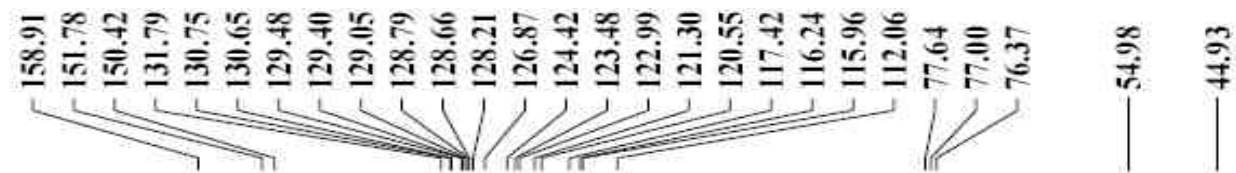




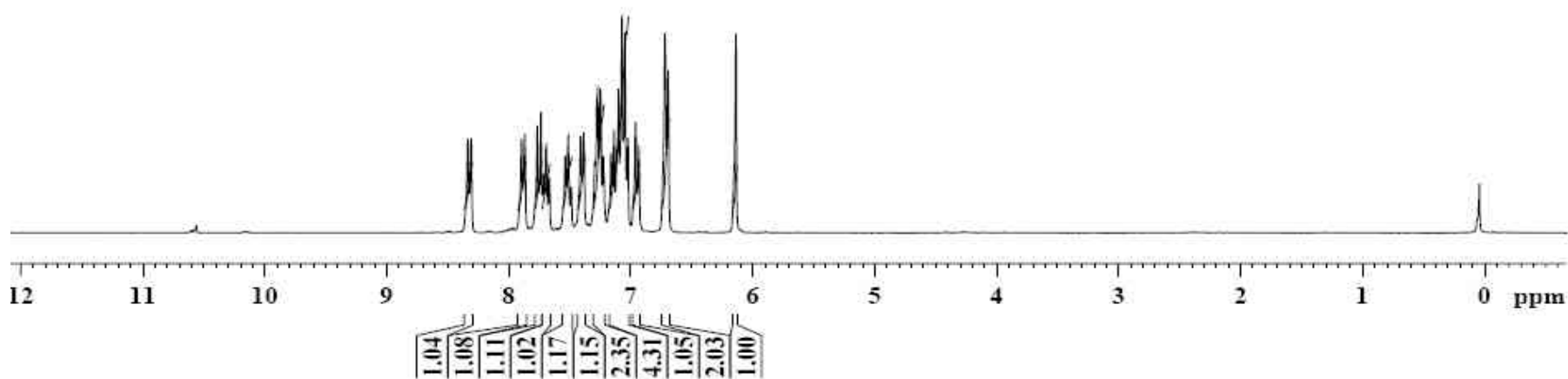
<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **19d**



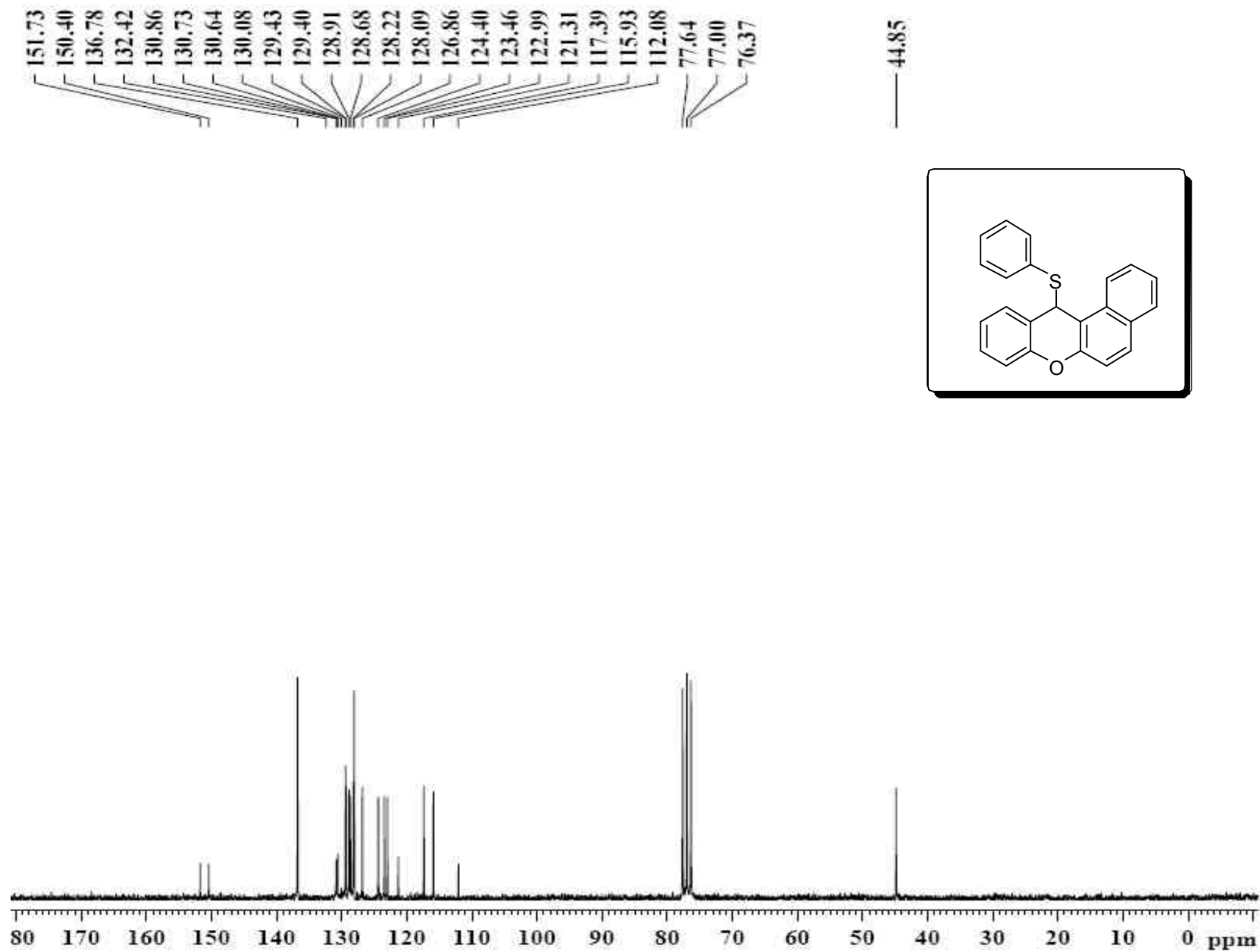
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **20a**



$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **20a**

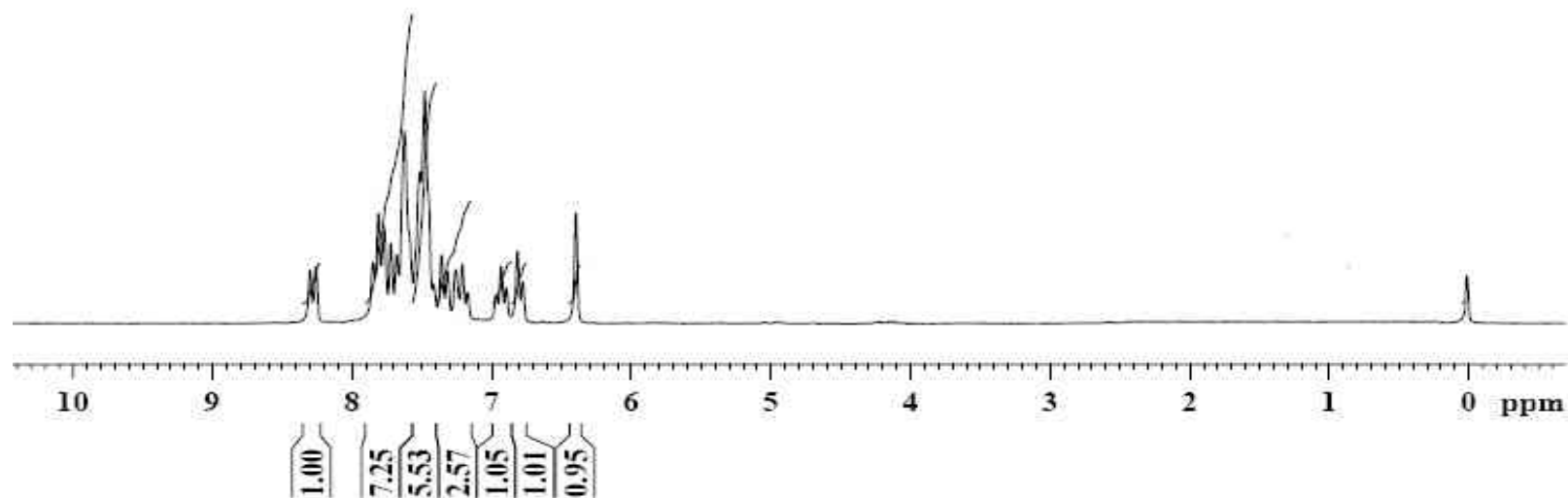
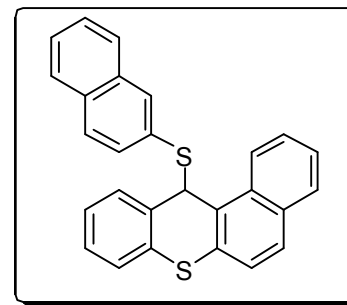


$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **20b**

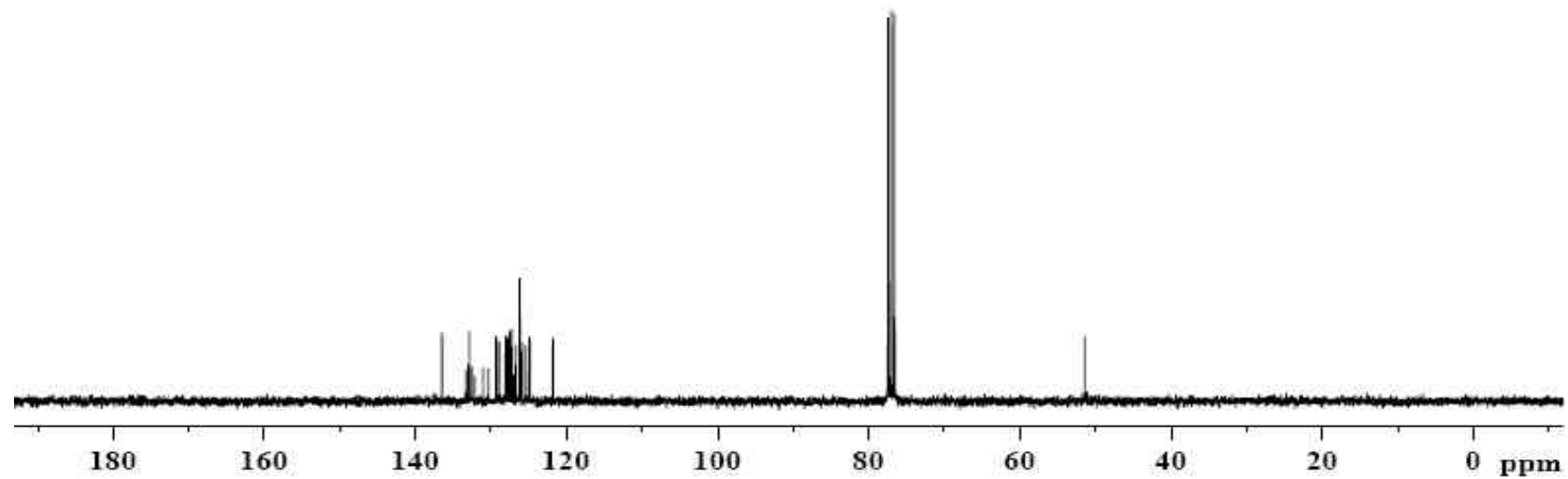
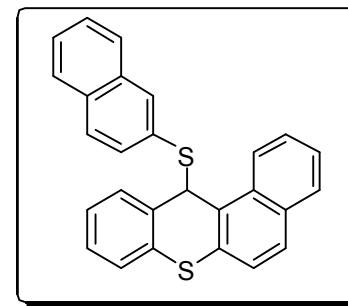
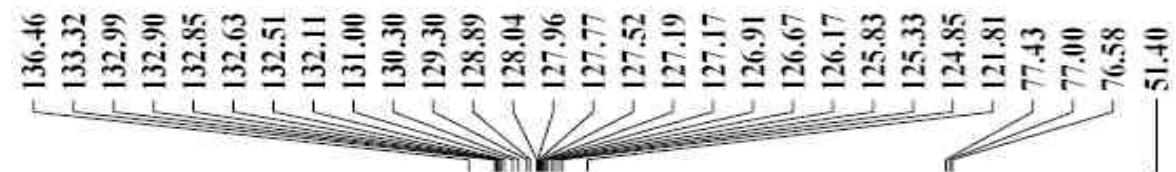


$^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz) spectrum of compound **20b**

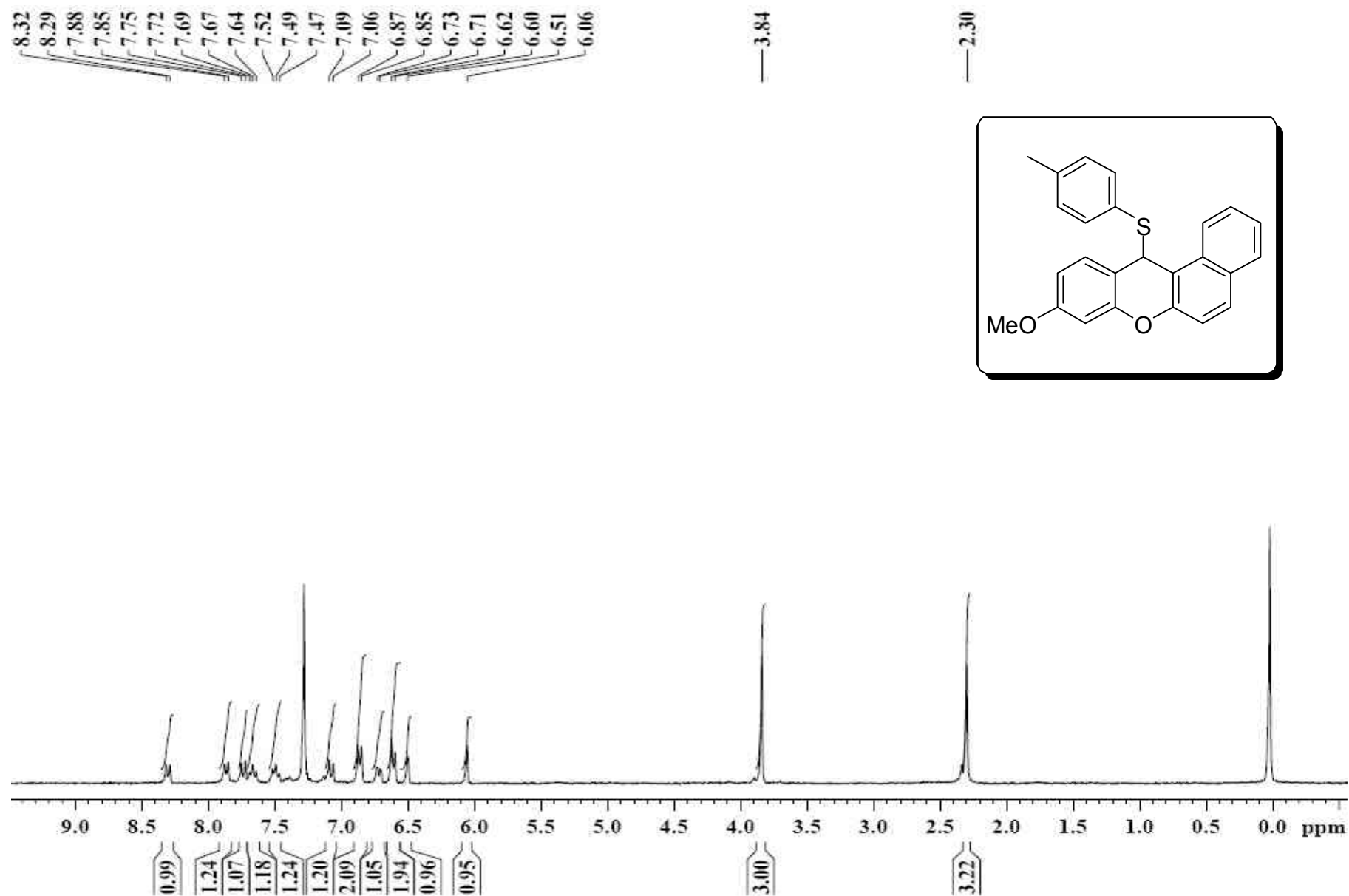
8.30  
8.26  
7.85  
7.81  
7.77  
7.72  
7.68  
7.63  
7.51  
7.48  
7.42  
7.36  
7.32  
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7.21  
7.17  
6.97  
6.93  
6.90  
6.82  
6.78  
6.40



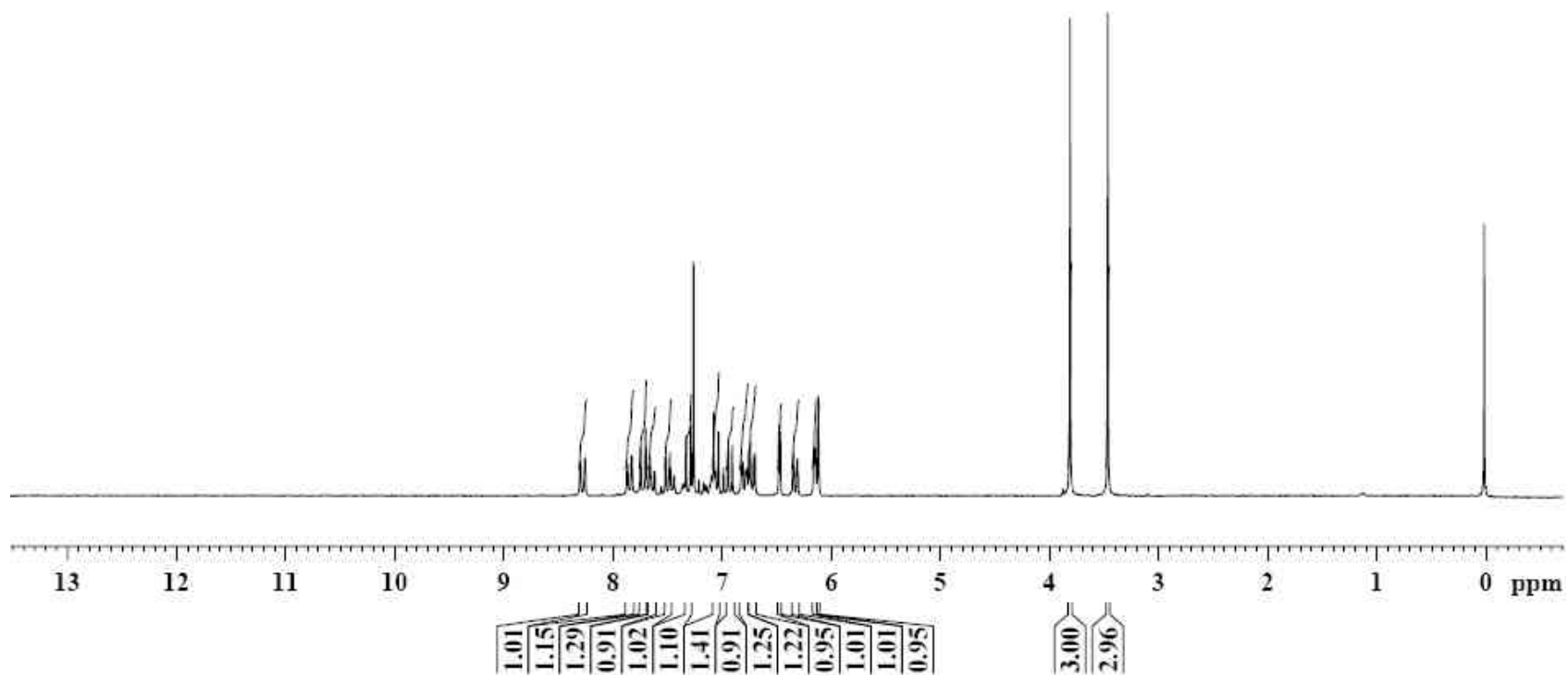
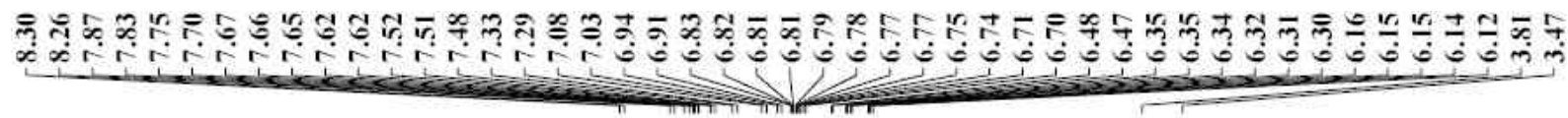
<sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **20c**



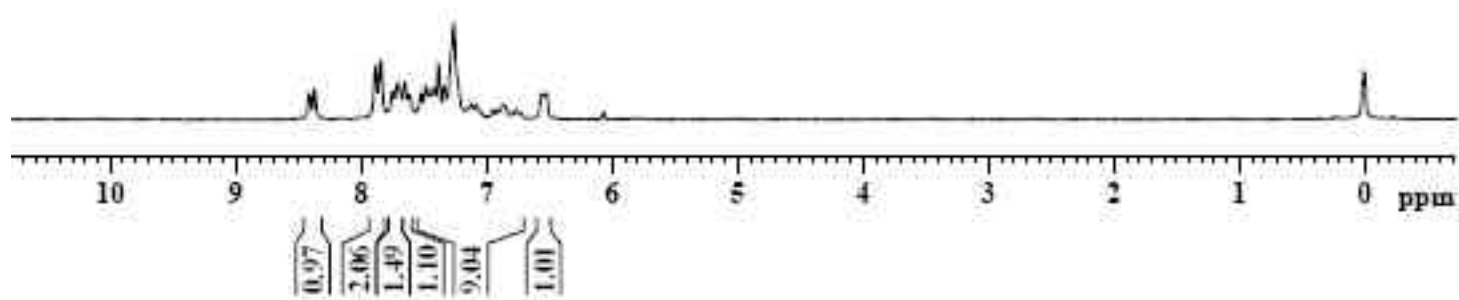
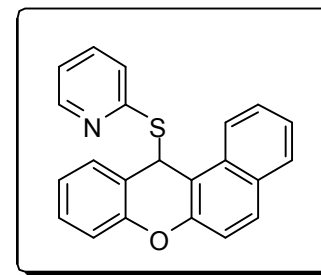
<sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz) spectrum of compound **20c**







$^1\text{H}$  NMR (CDCl<sub>3</sub>, 300 MHz) spectrum of compound **20e**



$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz) spectrum of compound **20f**