

*Electronic supplementary information for:*

## **Novel selenoesters fluorescent liquid crystalline exhibiting a rich phase polymorphism.**

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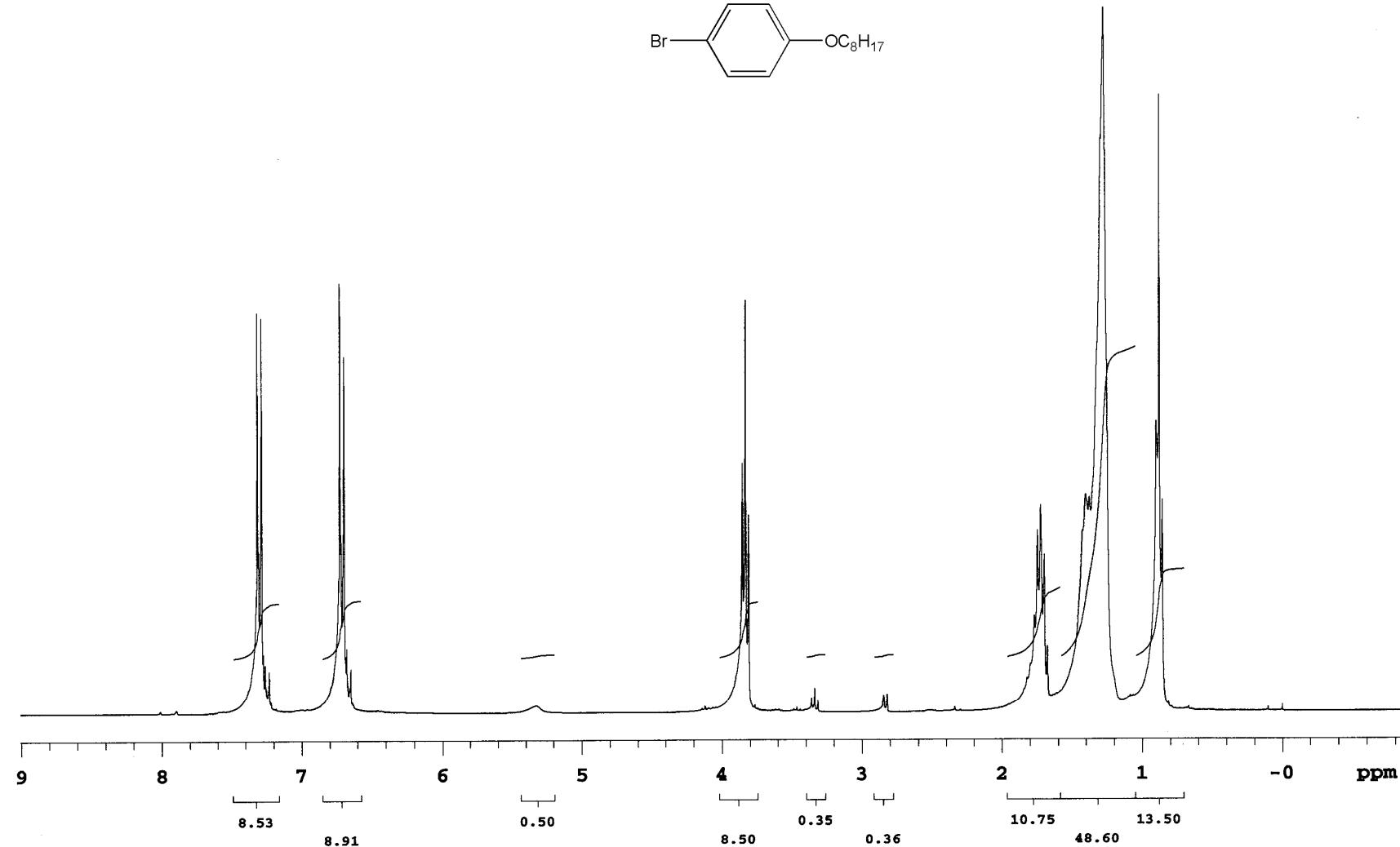
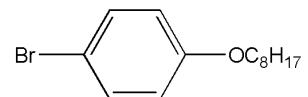
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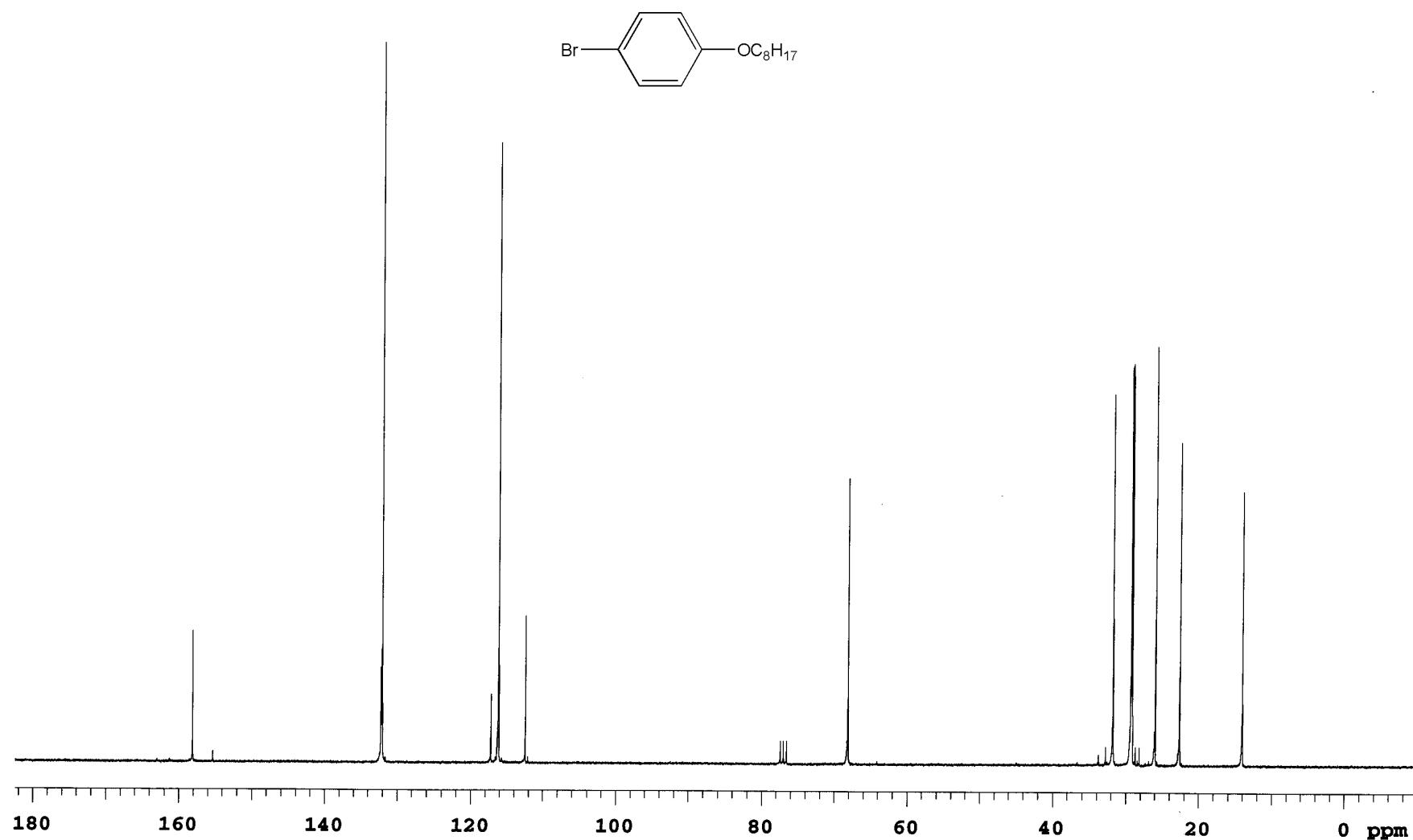
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## **NMR Spectra of compounds:**



**Figure 1.**  $^1\text{H}$  NMR spectrum of compound **1**-bromo-4-octyloxybenzene ( $\text{CDCl}_3$ , 300 MHz).



**Figure 2.**  $^{13}\text{C}$  NMR spectrum of compound **1**-bromo-4-octyloxybenzene ( $\text{CDCl}_3$ , 75 MHz).

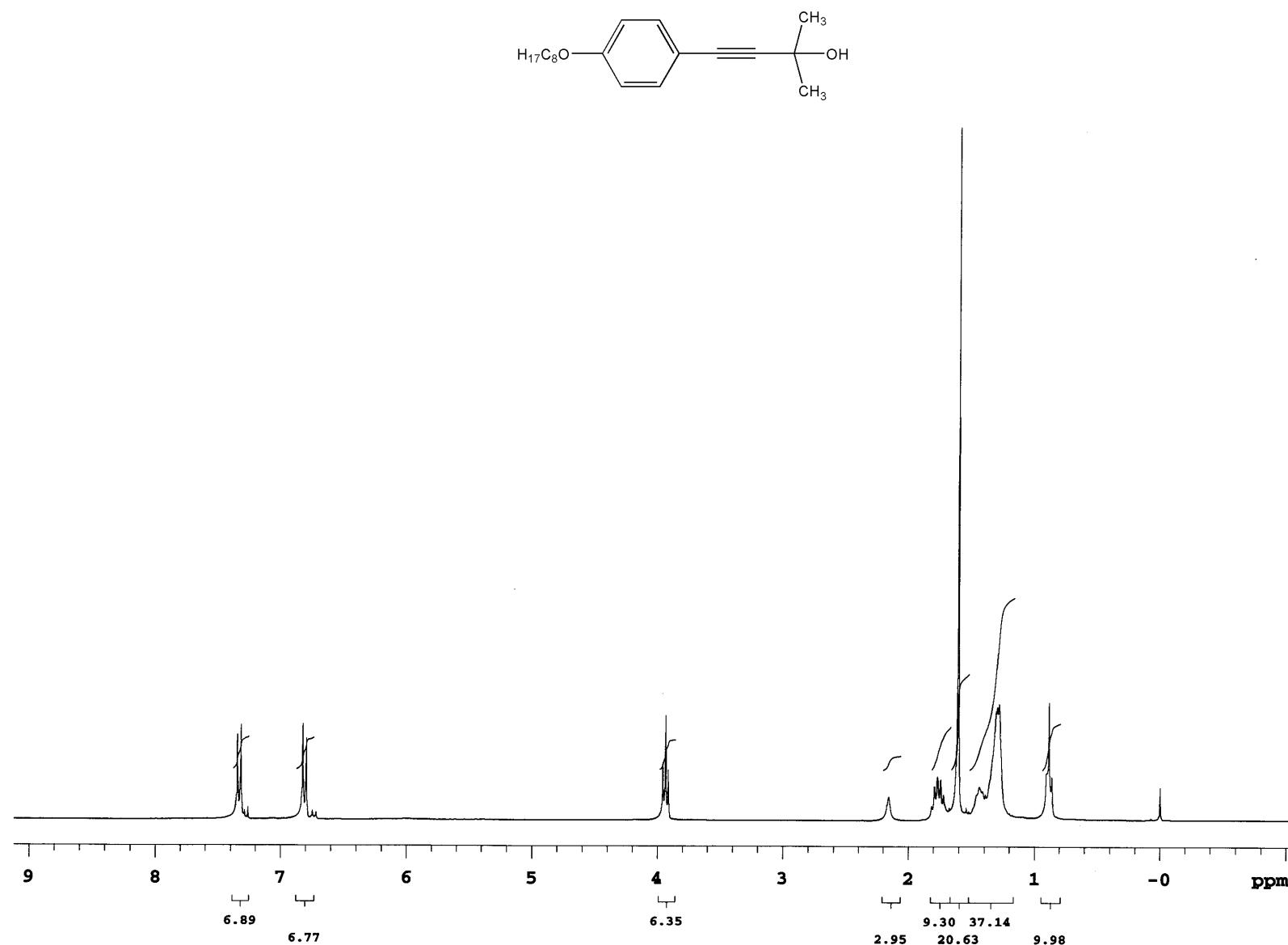
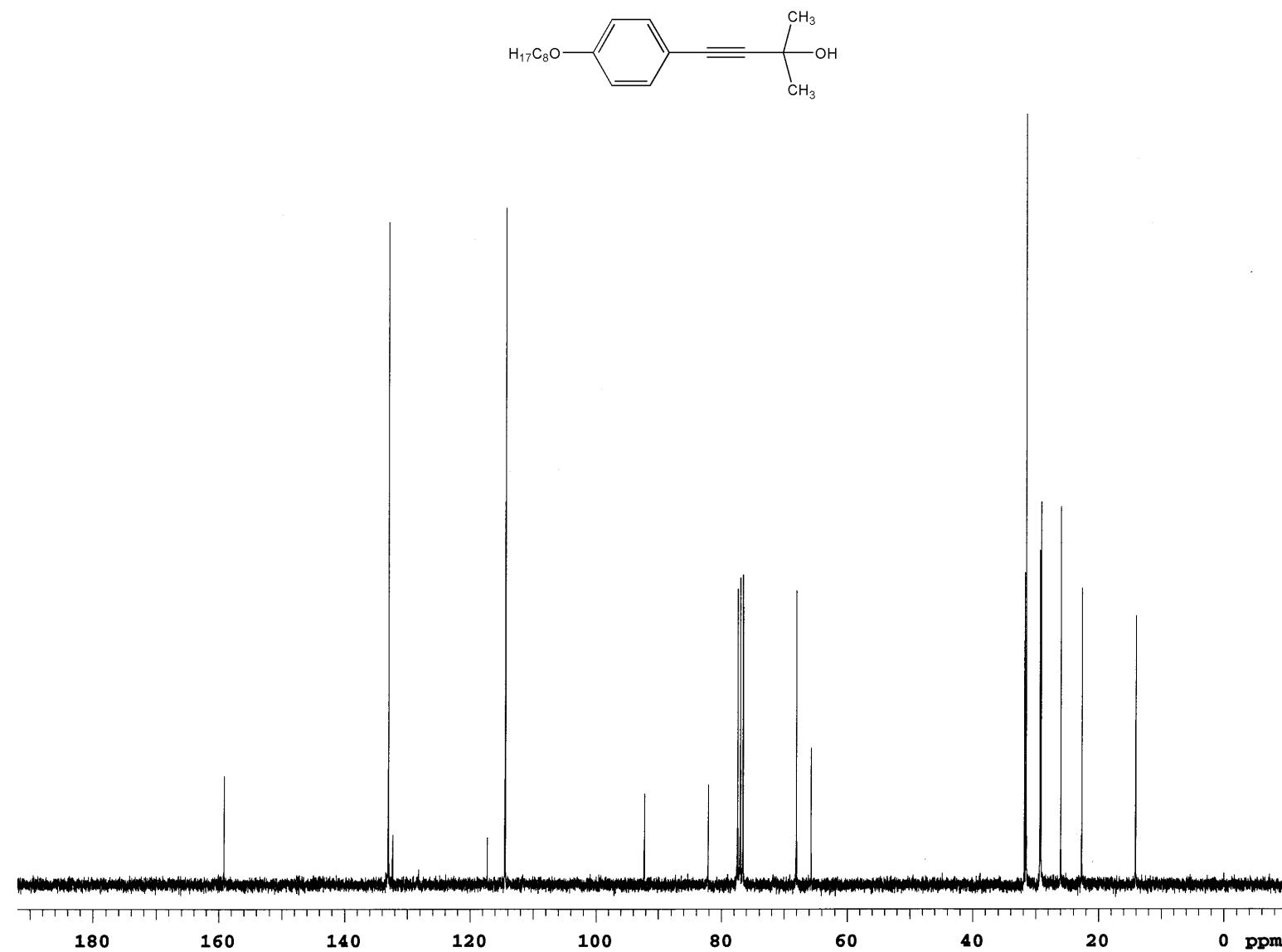
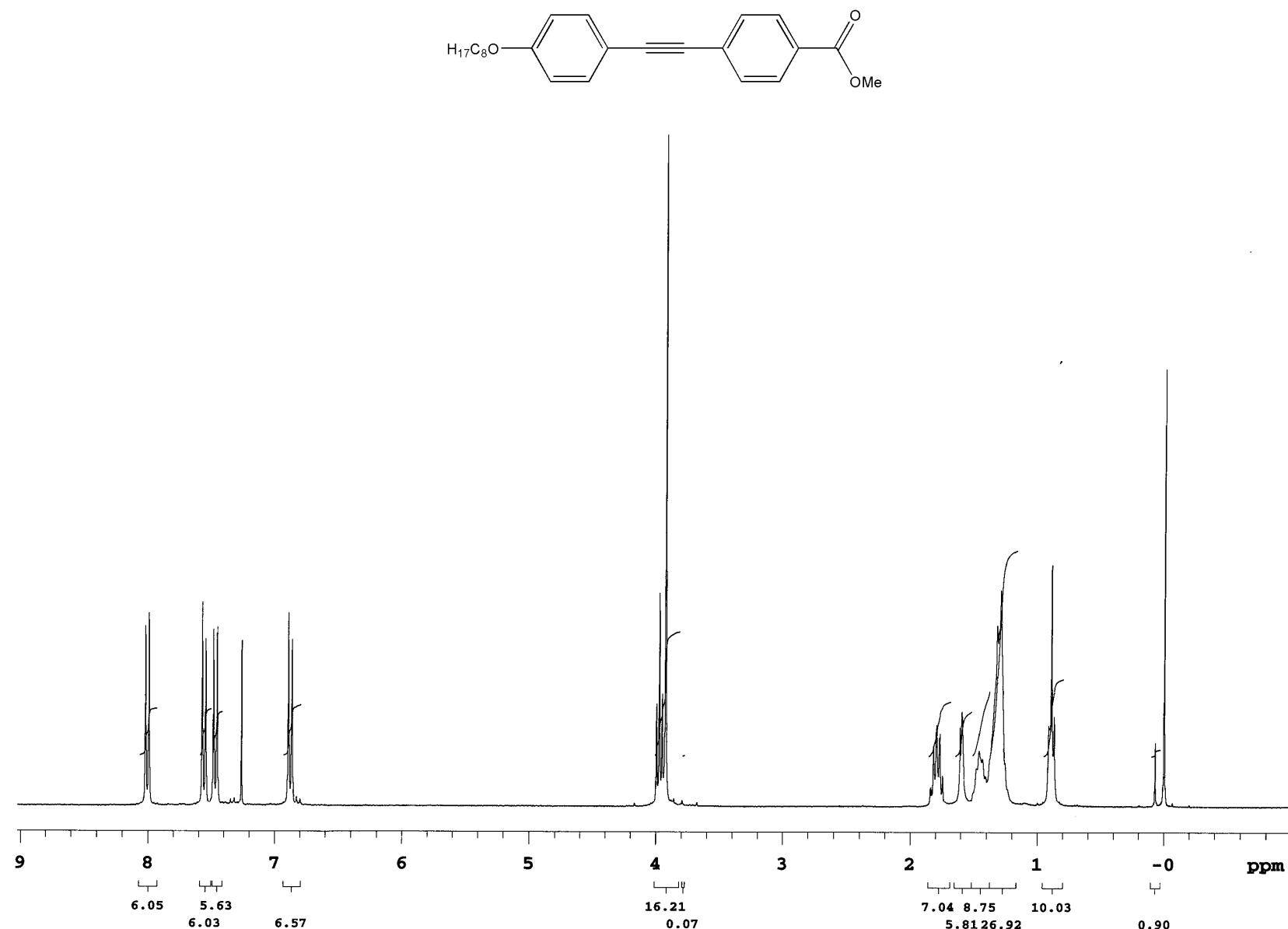


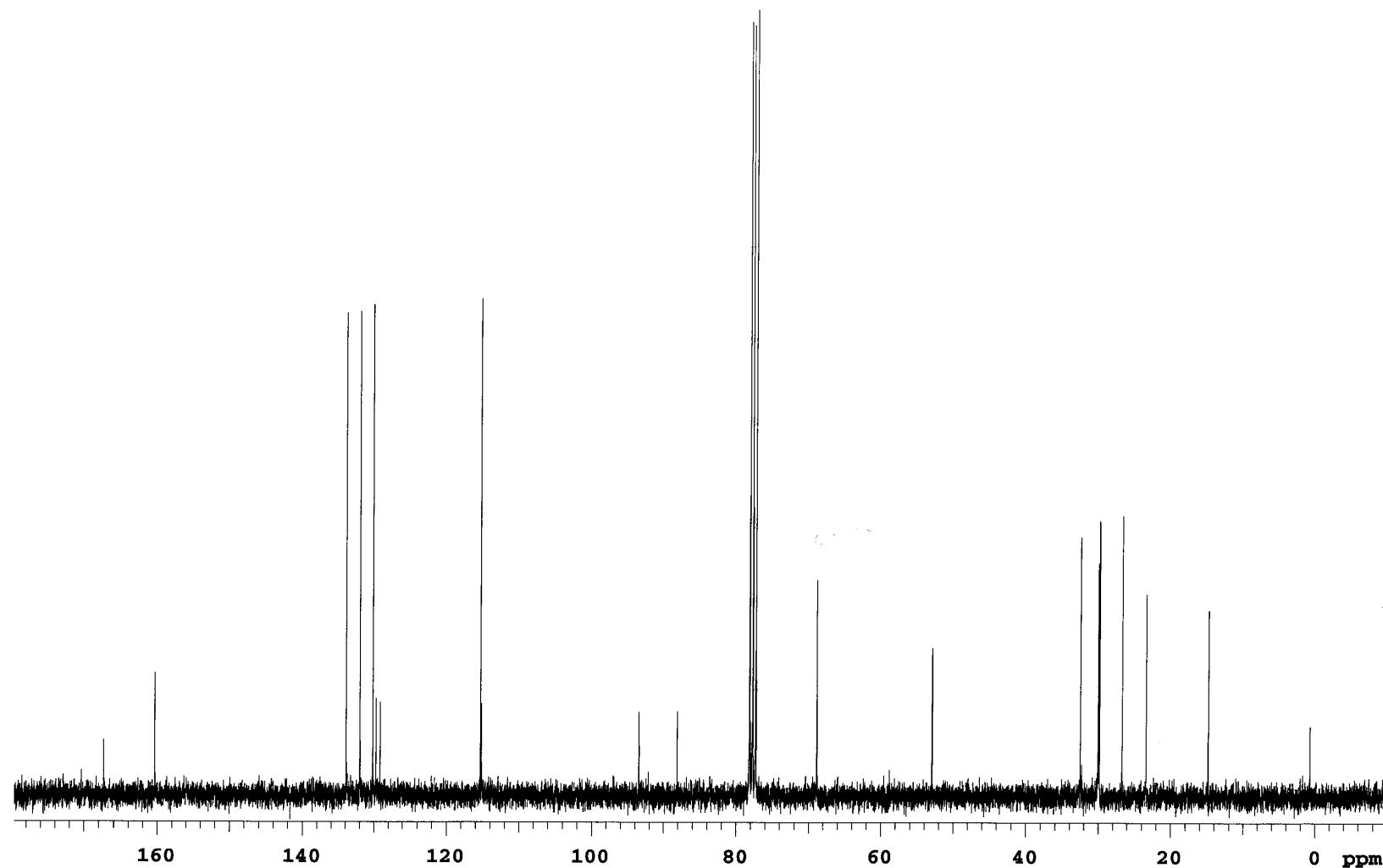
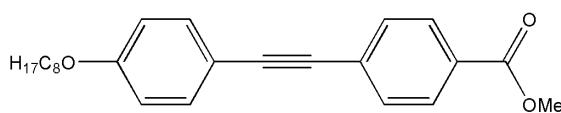
Figure 3.  $^1\text{H}$  NMR spectrum of compound 4-(4-octyloxyphenyl)-2-methylbut-3-yn-2-ol ( $\text{CDCl}_3$ , 300 MHz).



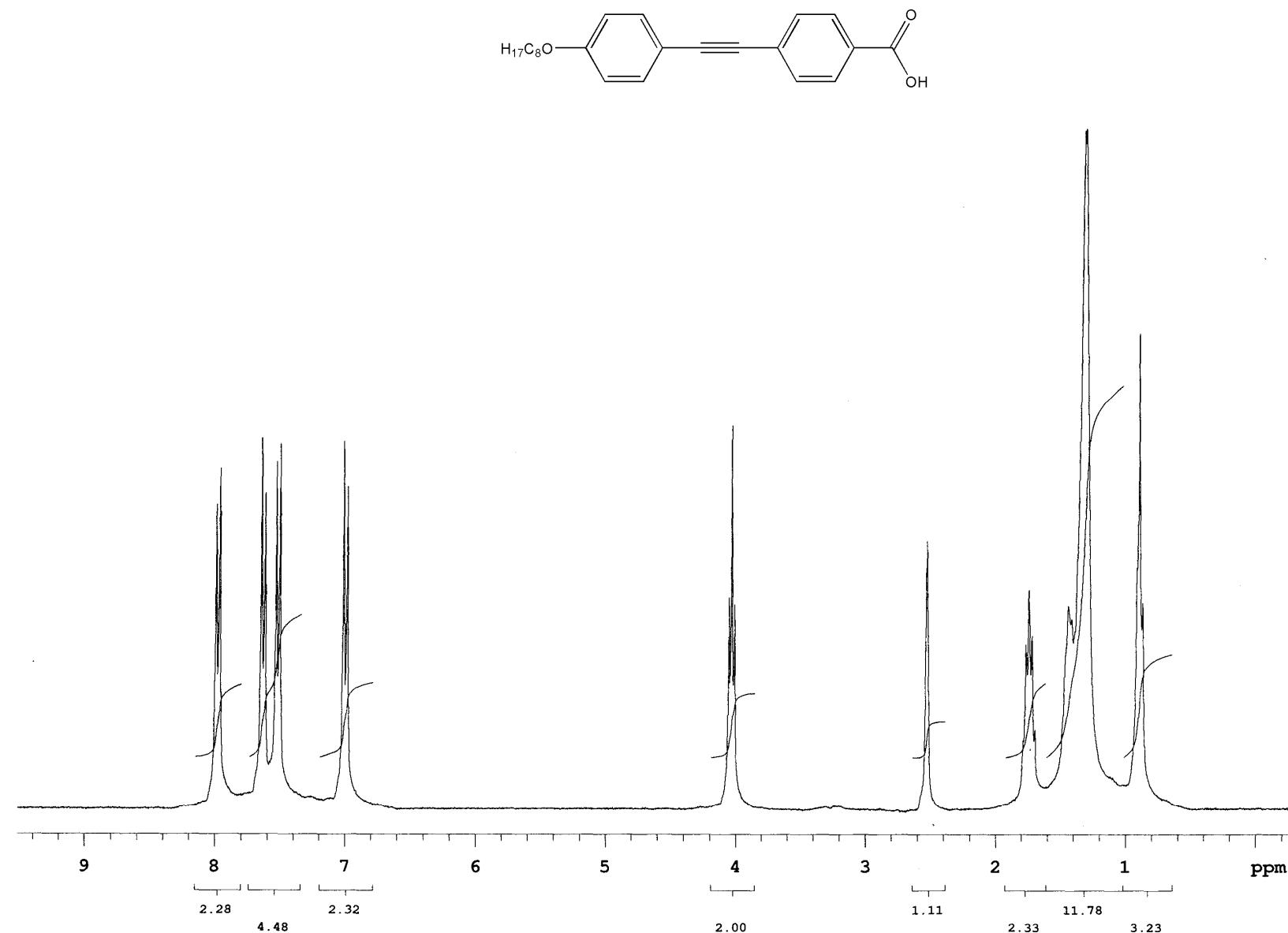
**Figure 4.**  $^{13}\text{C}$  NMR spectrum of compound 4-(4-octyloxyphenyl)-2-methylbut-3-yn-2-ol ( $\text{CDCl}_3$ , 75 MHz).



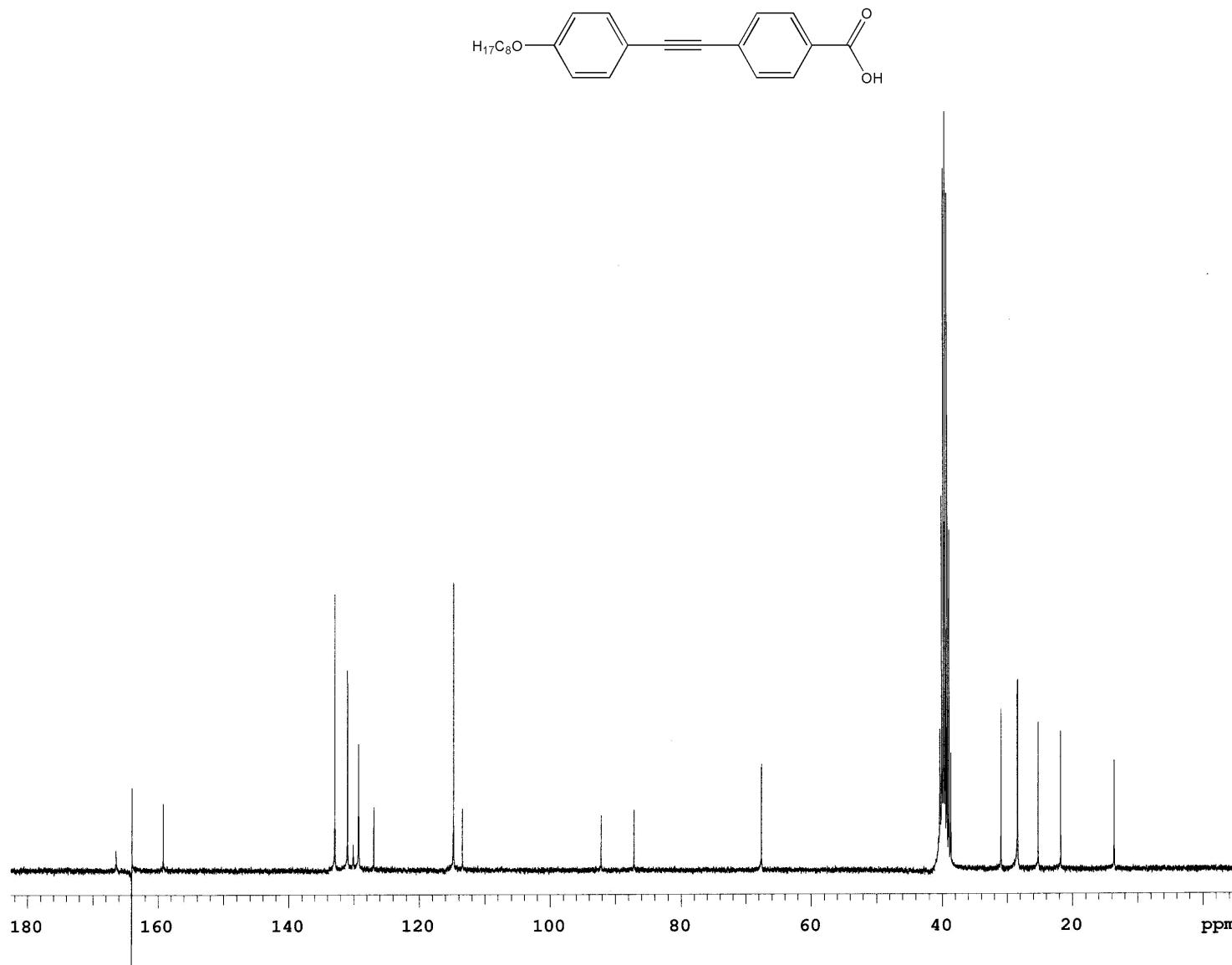
**Figure 5.**  $^1\text{H}$  NMR spectrum of compound **Methyl-4-(4-octyloxyphenylethyynyl)benzoate** ( $\text{CDCl}_3$ , 300 MHz).



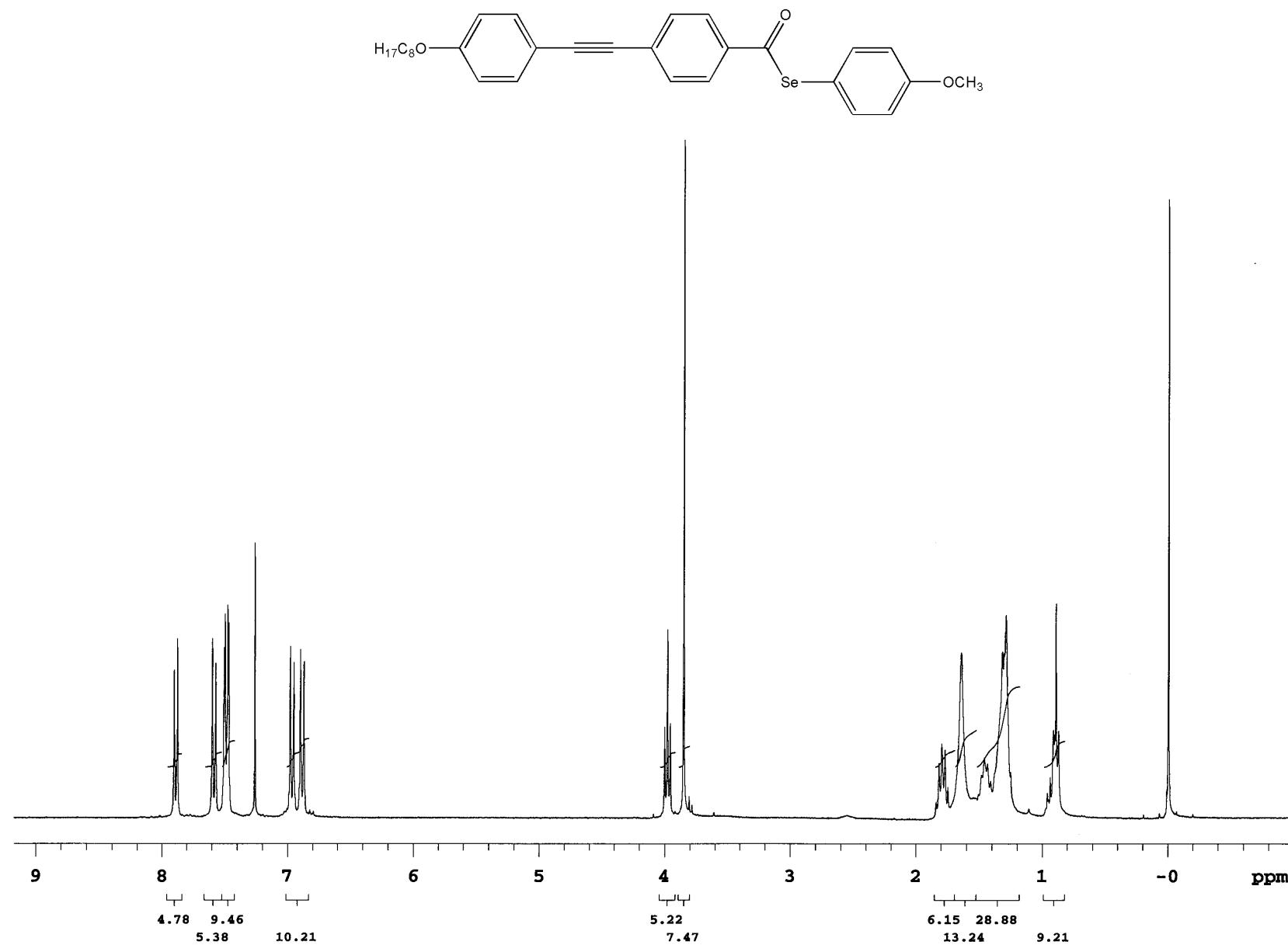
**Figure 6.** <sup>13</sup>C NMR spectrum of compound **Methyl-4-(4-octyloxyphenylethynyl)benzoate** (CDCl<sub>3</sub>, 75 MHz).



**Figure 7.**  $^1\text{H}$  NMR spectrum of compound 4-[4-(Octyloxyphenylethynyl)]benzoic acid 3 (DMSO-d<sub>6</sub>, 300 MHz).



**Figure 8.**  $^{13}\text{C}$  NMR spectrum of compound 4-[4-(Octyloxyphenylethyynyl)]benzoic acid 3 (DMSO-d<sub>6</sub>, 75 MHz).



**Figure 9.**  $^1\text{H}$  NMR spectrum of compound **Methoxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4a** ( $\text{CDCl}_3$ , 300 MHz).

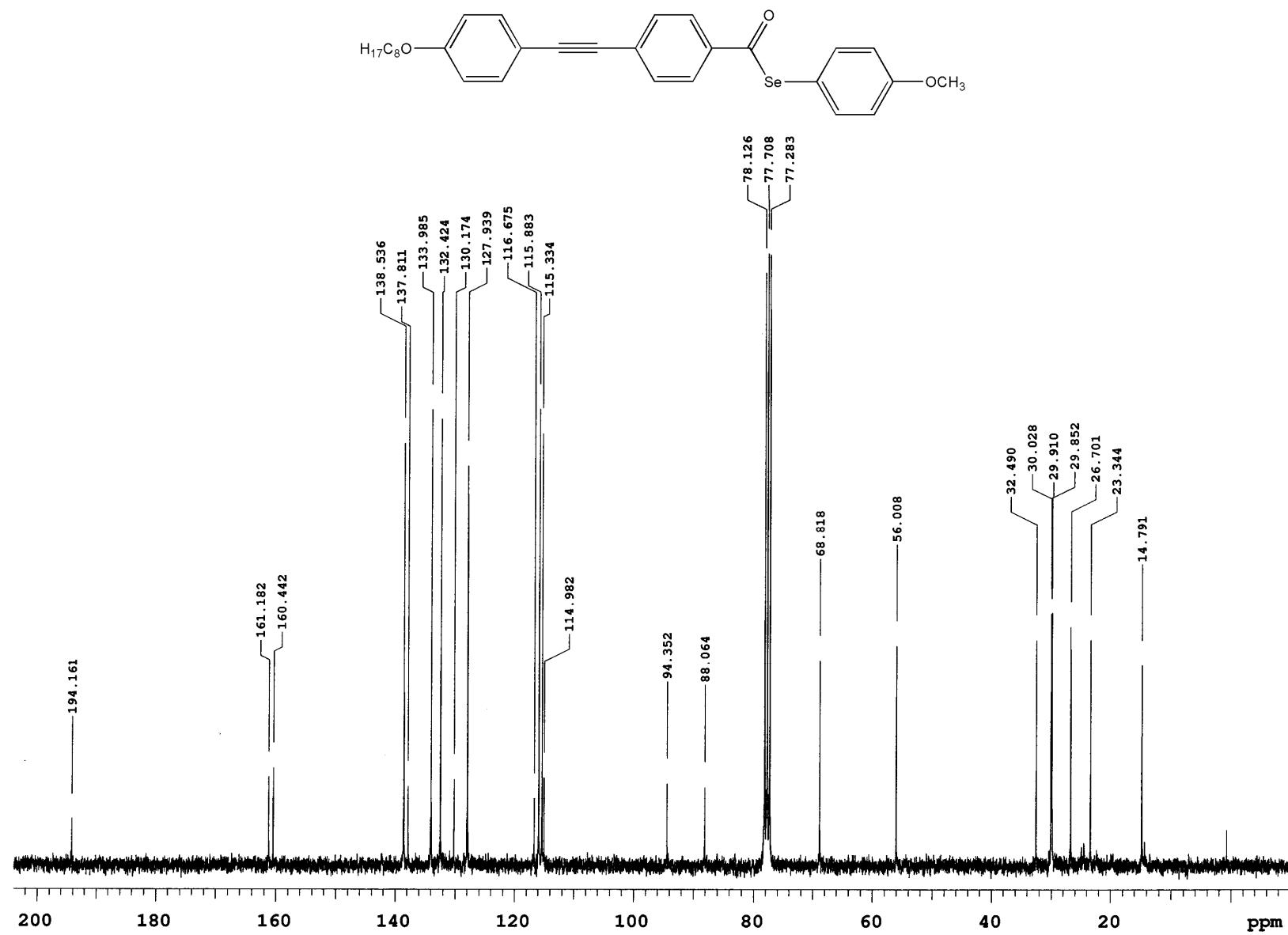
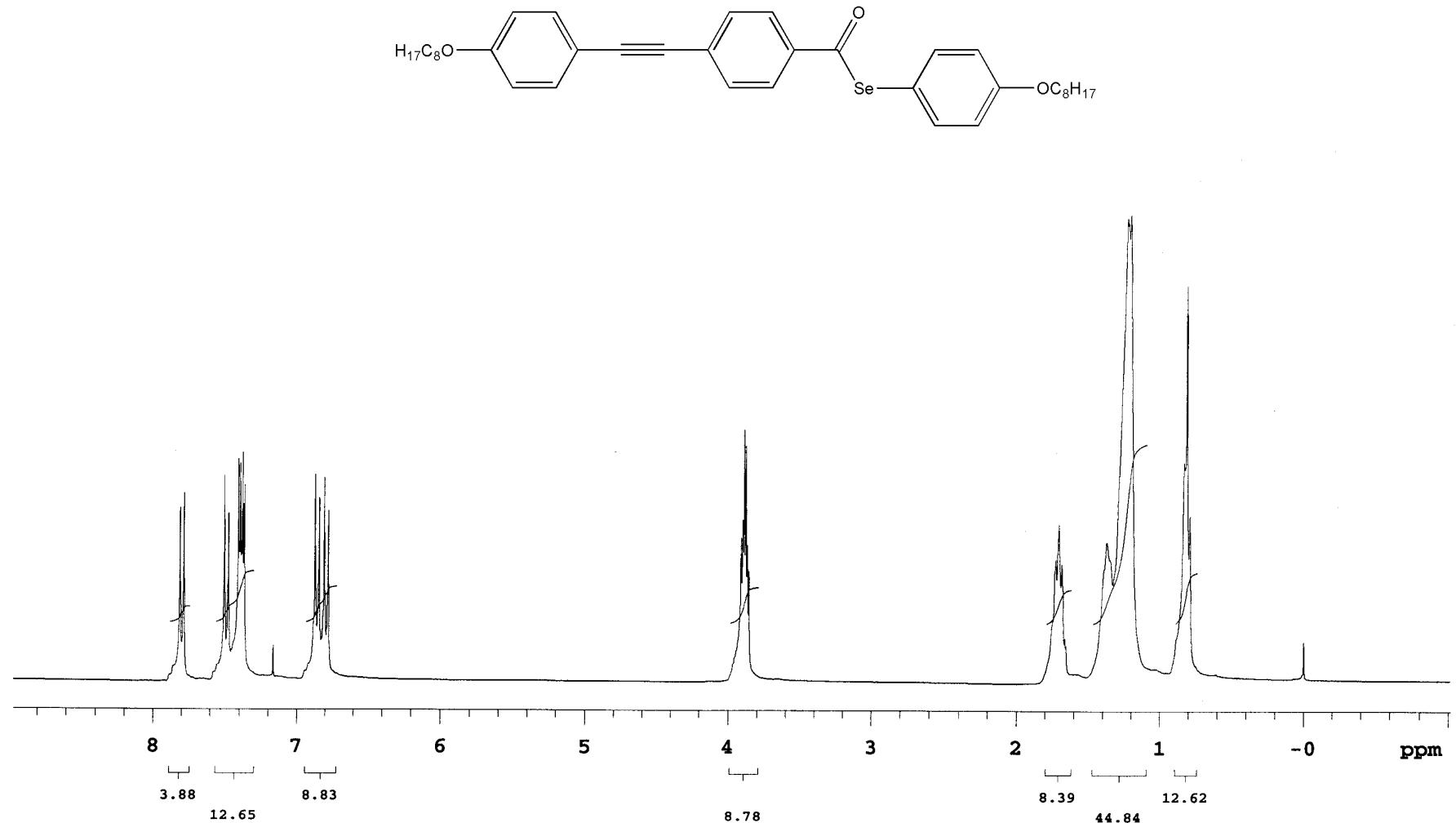


Figure 10.  $^{13}\text{C}$  NMR spectrum of compound **Methoxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4a** ( $\text{CDCl}_3$ , 75 MHz).



**Figure 11.**  $^1\text{H}$  NMR spectrum of compound 4-Octyloxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4b ( $\text{CDCl}_3$ , 300 MHz).

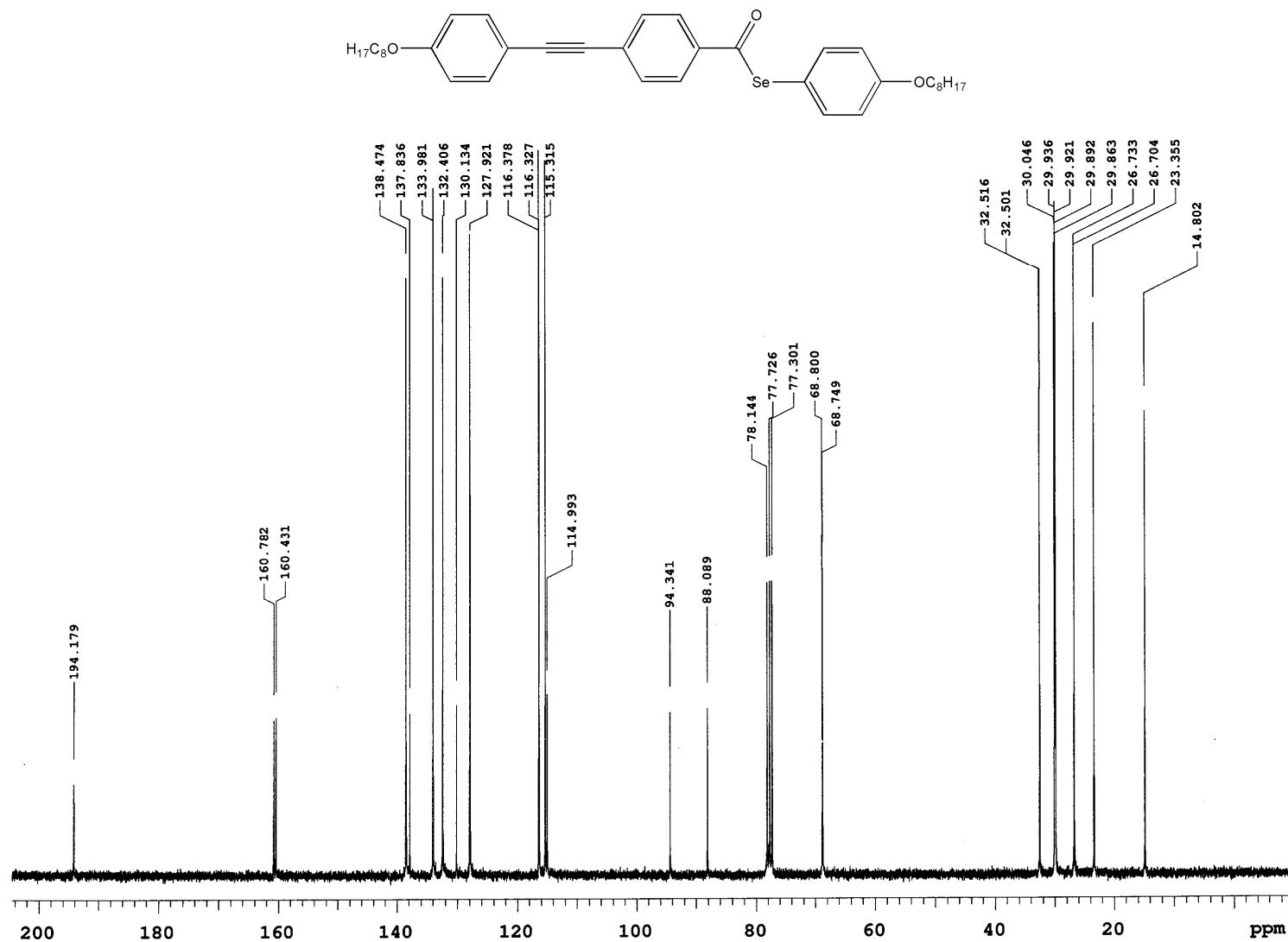
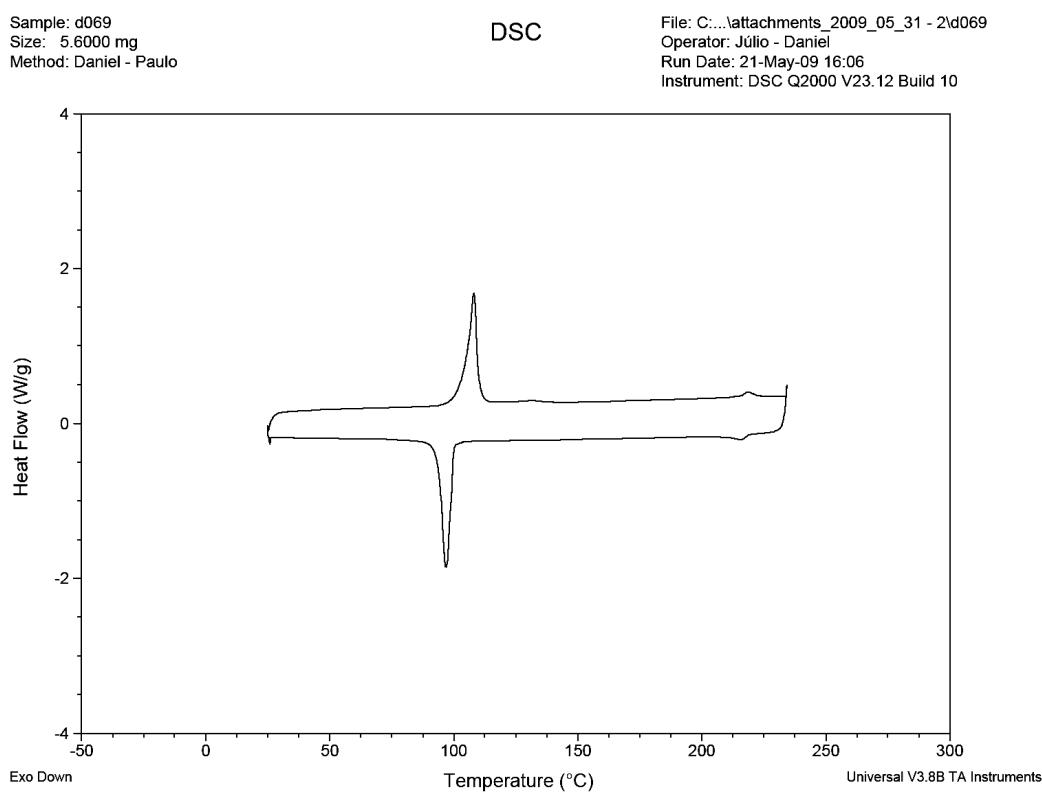


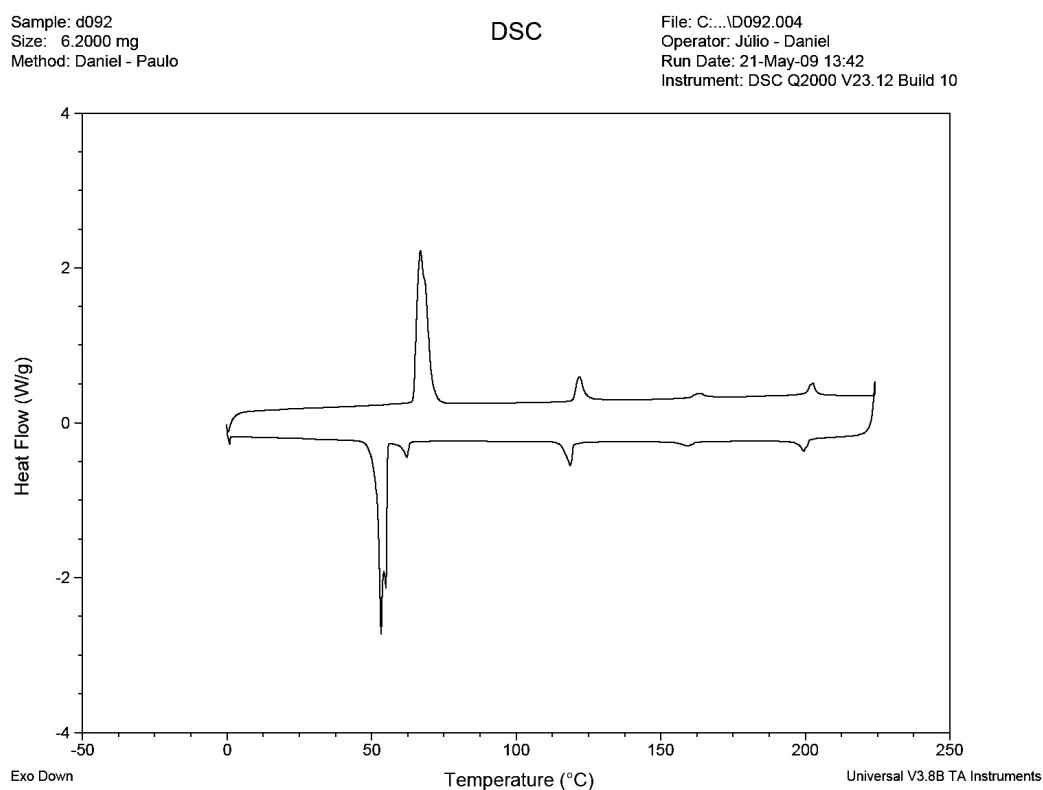
Figure 12.  $^{13}\text{C}$  NMR spectrum of compound 4-Octyloxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4b ( $\text{CDCl}_3$ , 75 MHz)

**DSC thermograms:**

Thermograms set for compounds **4a-b** on heating at  $10^{\circ}\text{C min}^{-1}$ .



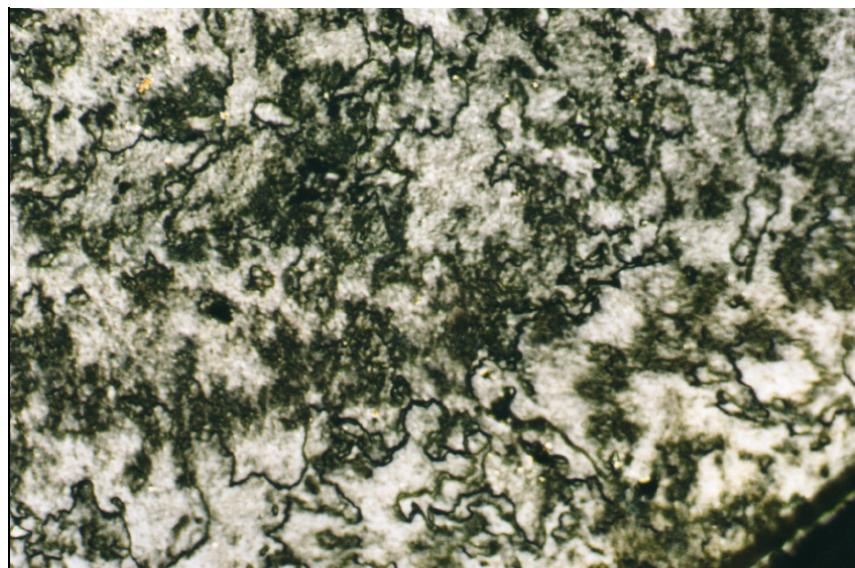
**Figure 13.** Thermogram for compound **Methoxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4a.**



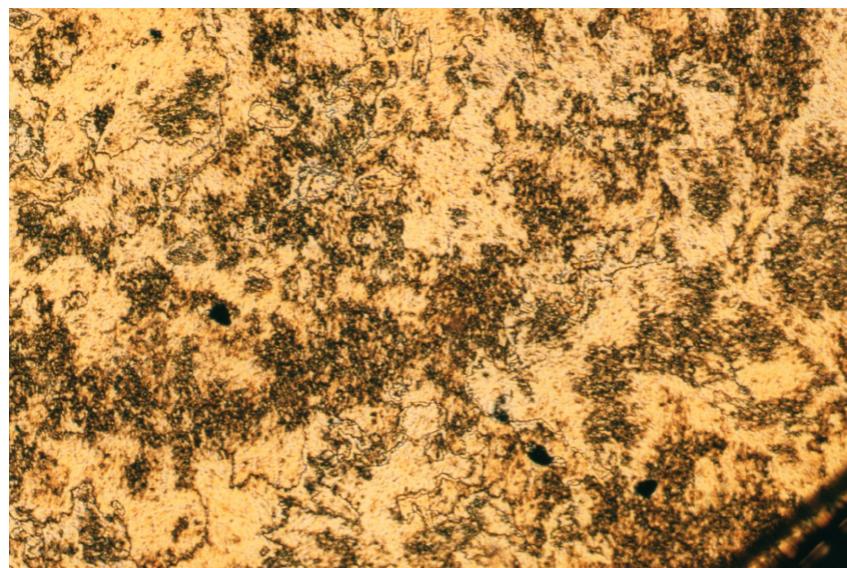
**Figure 14.** Thermogram for compound **4-Octyloxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4b.**

### **Microscopic Analysis:**

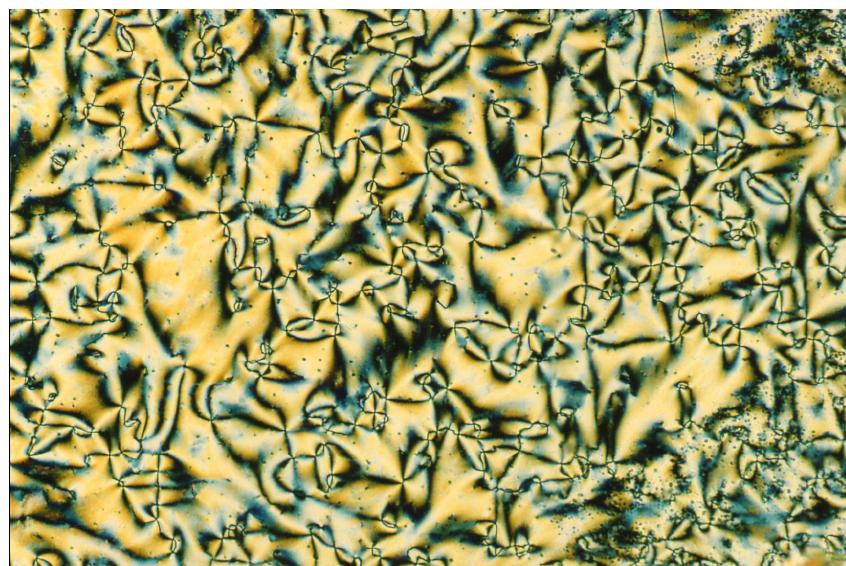
Polarized-light optical microscopy analysis for compound **4-Octyloxyphenyl-4-[(4-octyloxyphenyl)ethynyl]-benzoselenoate 4b.**



**Figure 15.** Planar thread-like nematic texture occurring at 164 °C.



**Figure 16.** Schlieren texture grainy at 144 °C of the smectic C phase.



**Figure 17.** Schlieren type texture of smectic I phase with loops of disclination lines at 105 °C.



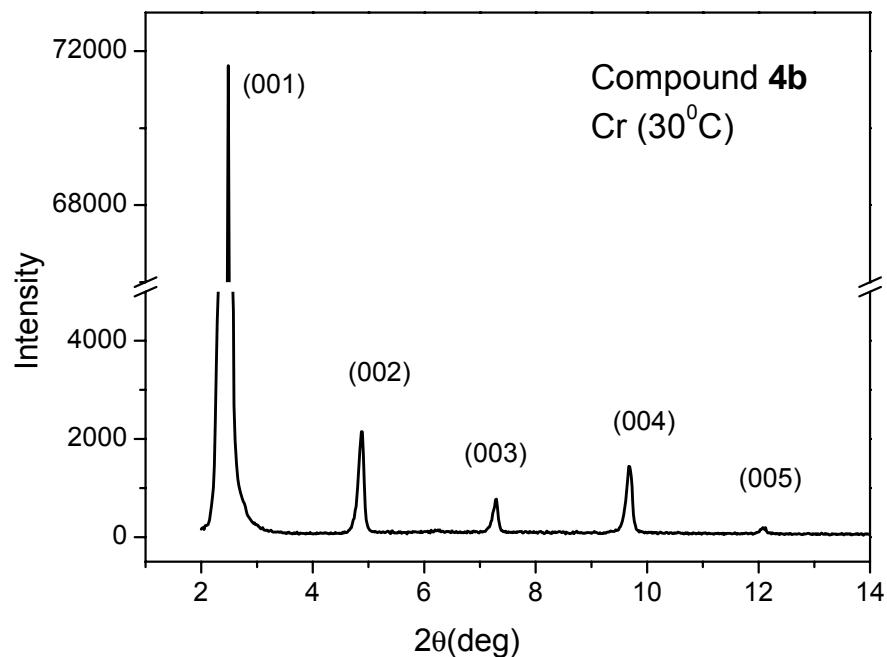
**Figure 18.** Paramorphotic mosaic texture of the smectic I at 82.0 °C.



**Figure 19.** Mosaic texture of the smectic I at 100.5 °C.



**Figure 20.** Mosaic texture of the smectic X at 58.0 °C.



**Figure 21.** XRD spectrum of compound **4b** in solid state at 30 °C.