

**Supplementary Materials**

**Catechol-*O*-methyltransferase Inhibitors from  
*Calendula officinalis* Leaf**

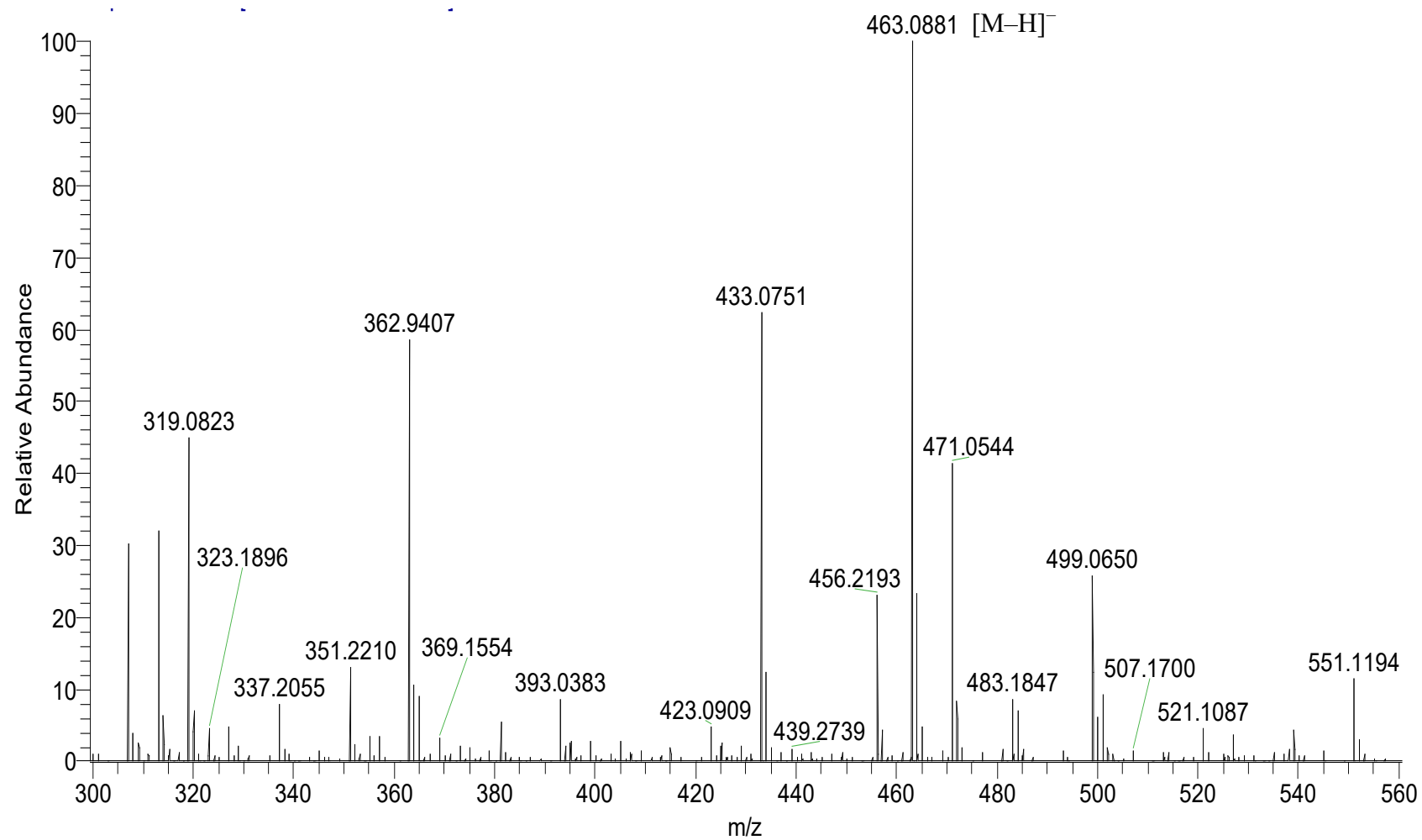
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Shizuoka, Shizuoka, Japan

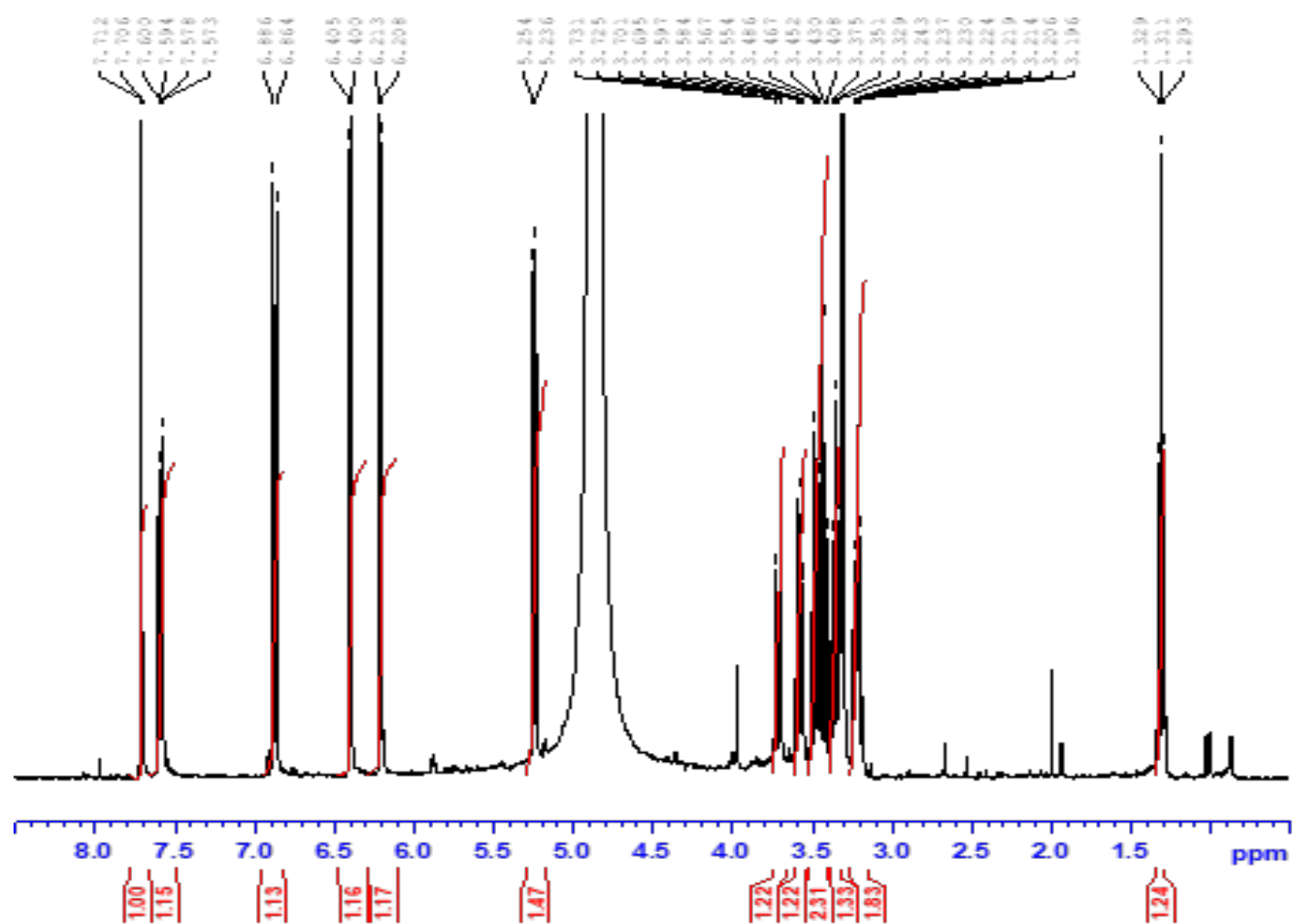
<sup>2</sup>Kisho Corporation, Tokyo, Japan

\*Correspondence: kumazawa@u-shizuoka-ken.ac.jp

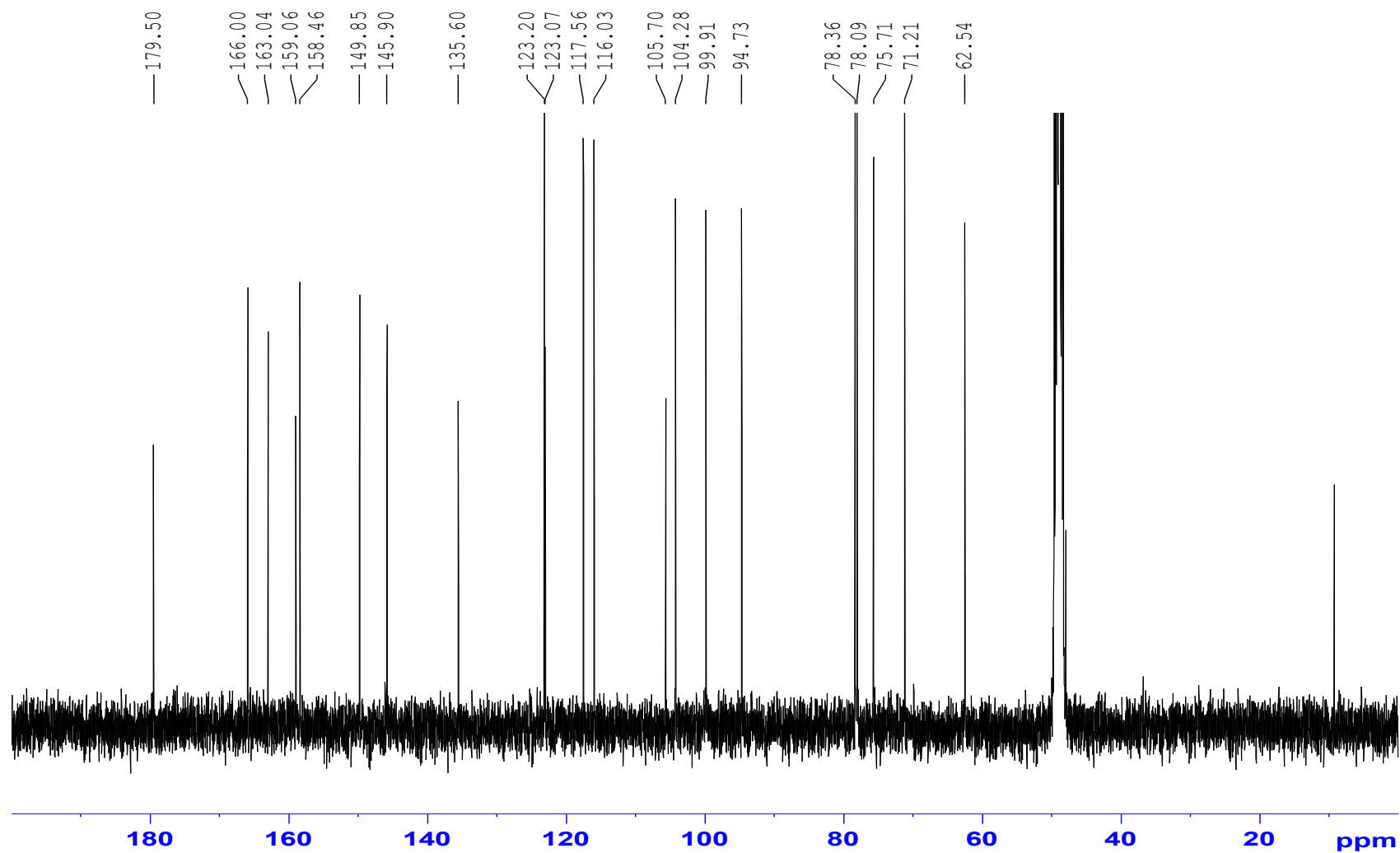
<sup>†</sup>These authors contributed equally to this work.



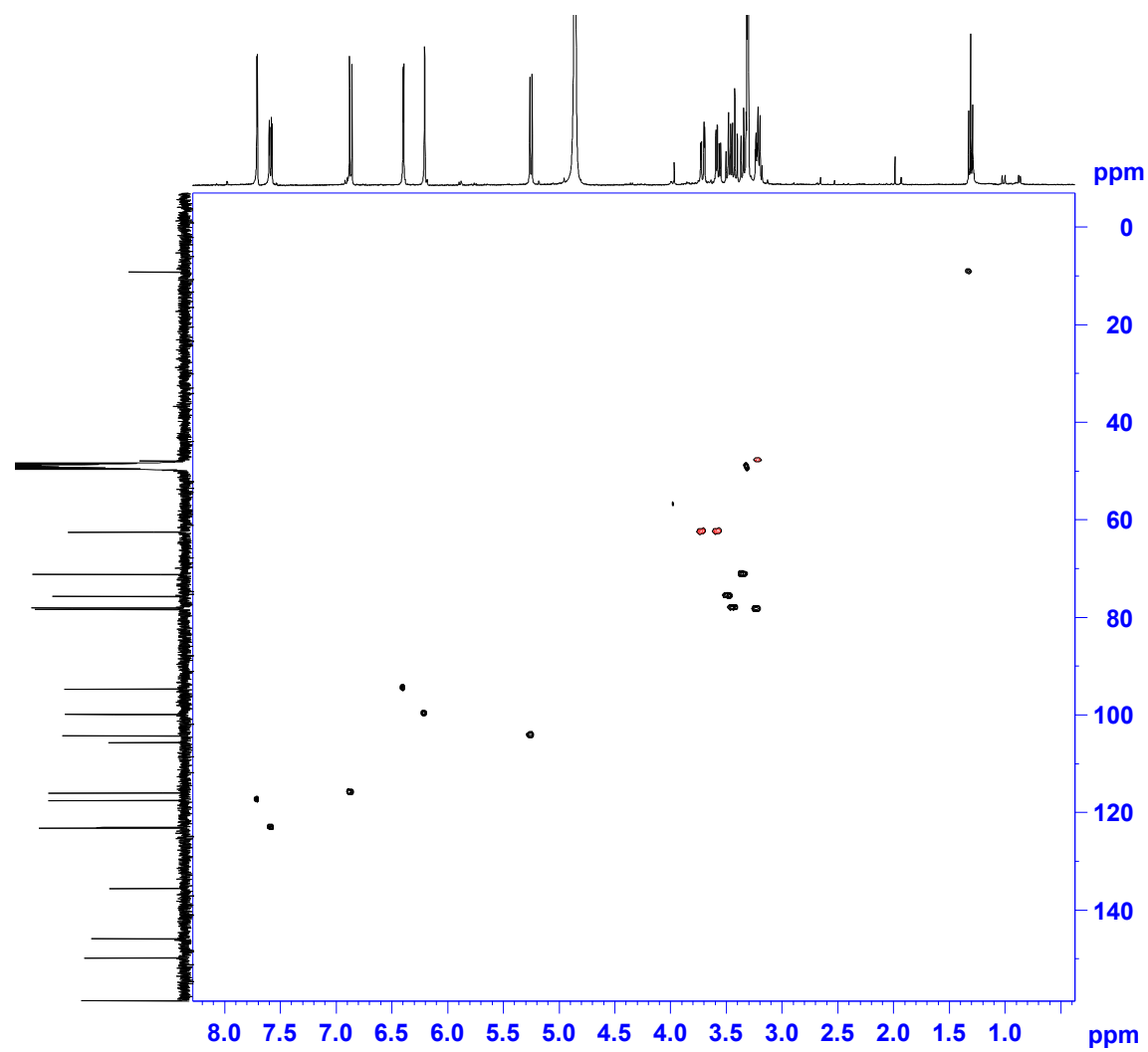
**Figure S1.** HRESIMS spectrum of **1** (negative mode).



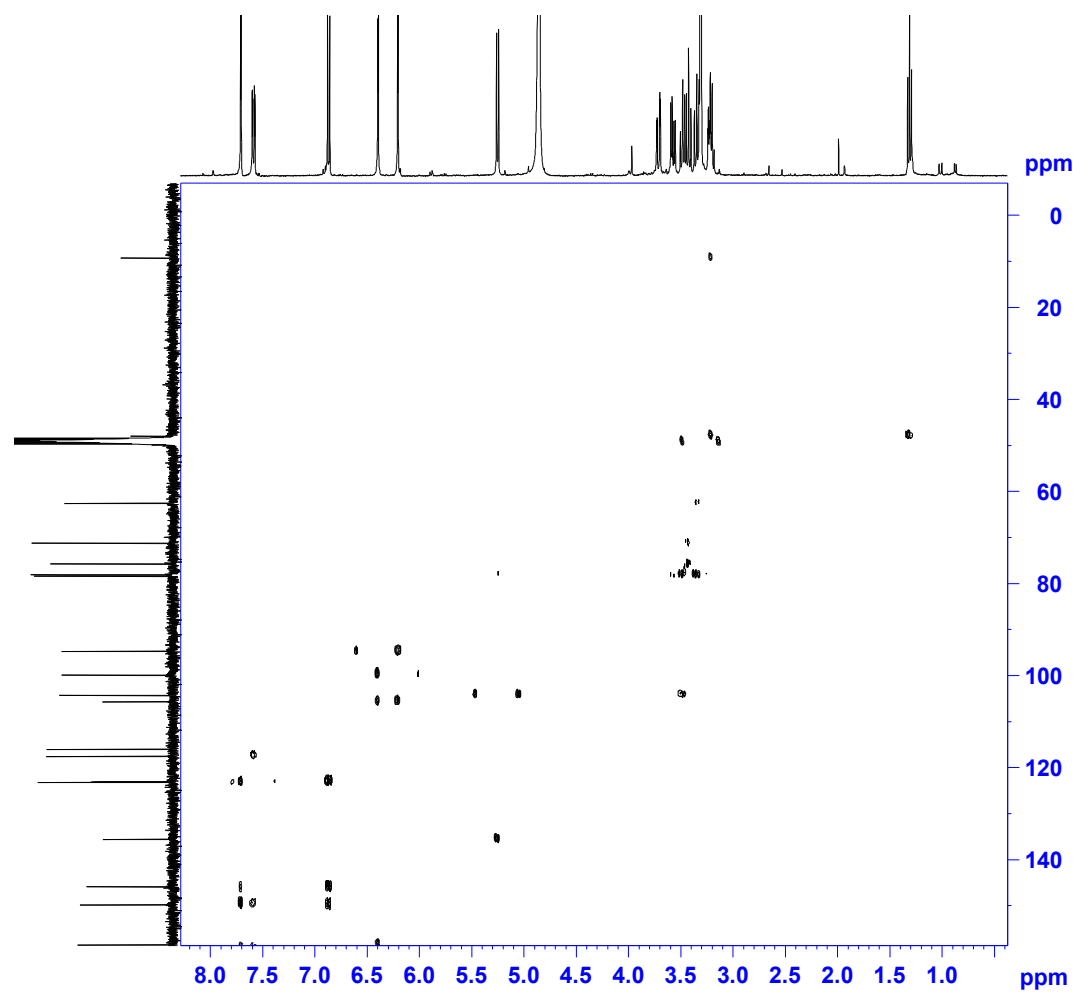
**Figure S2.**  $^1\text{H}$  NMR spectrum of **1** in  $\text{CD}_3\text{OD}$  (400 MHz).



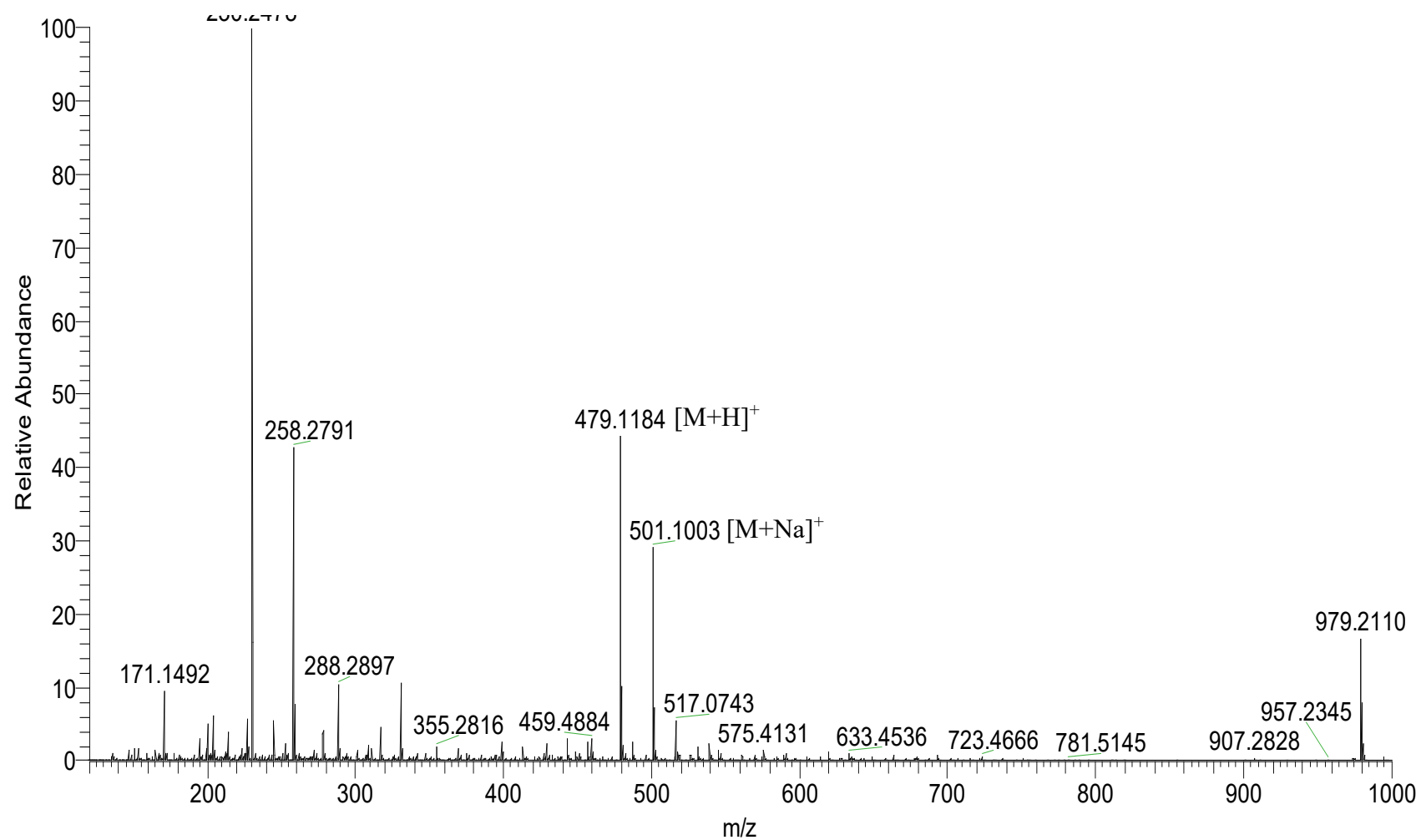
**Figure S3.** <sup>13</sup>C NMR spectrum of **1** in CD<sub>3</sub>OD (100 MHz).



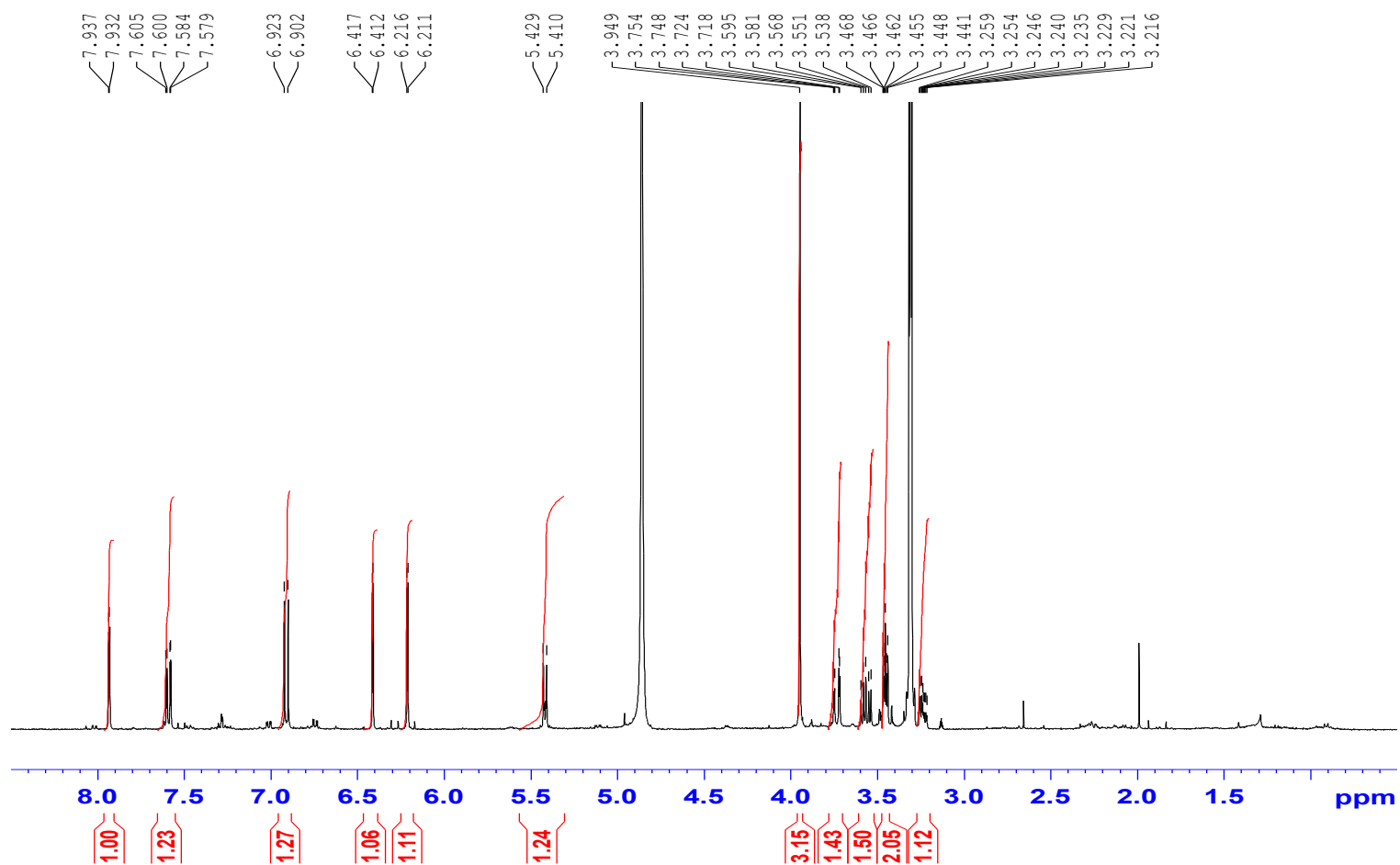
**Figure S4.** HSQC spectrum of **1** in  $\text{CD}_3\text{OD}$ .



**Figure S5.** HMBC spectrum of **1** in CD<sub>3</sub>OD.

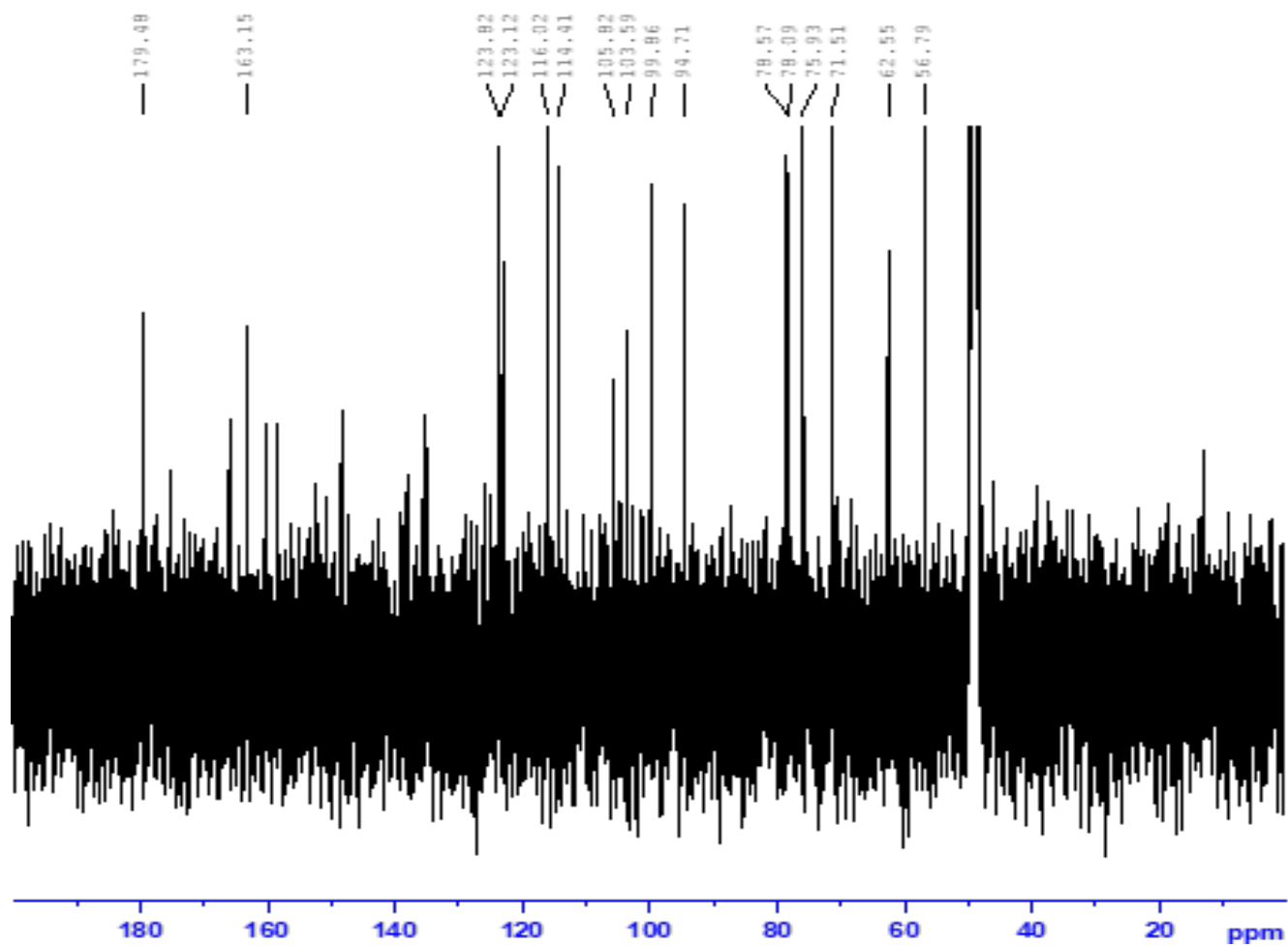


**Figure S6.** HRESIMS spectrum of **2** (positive mode).

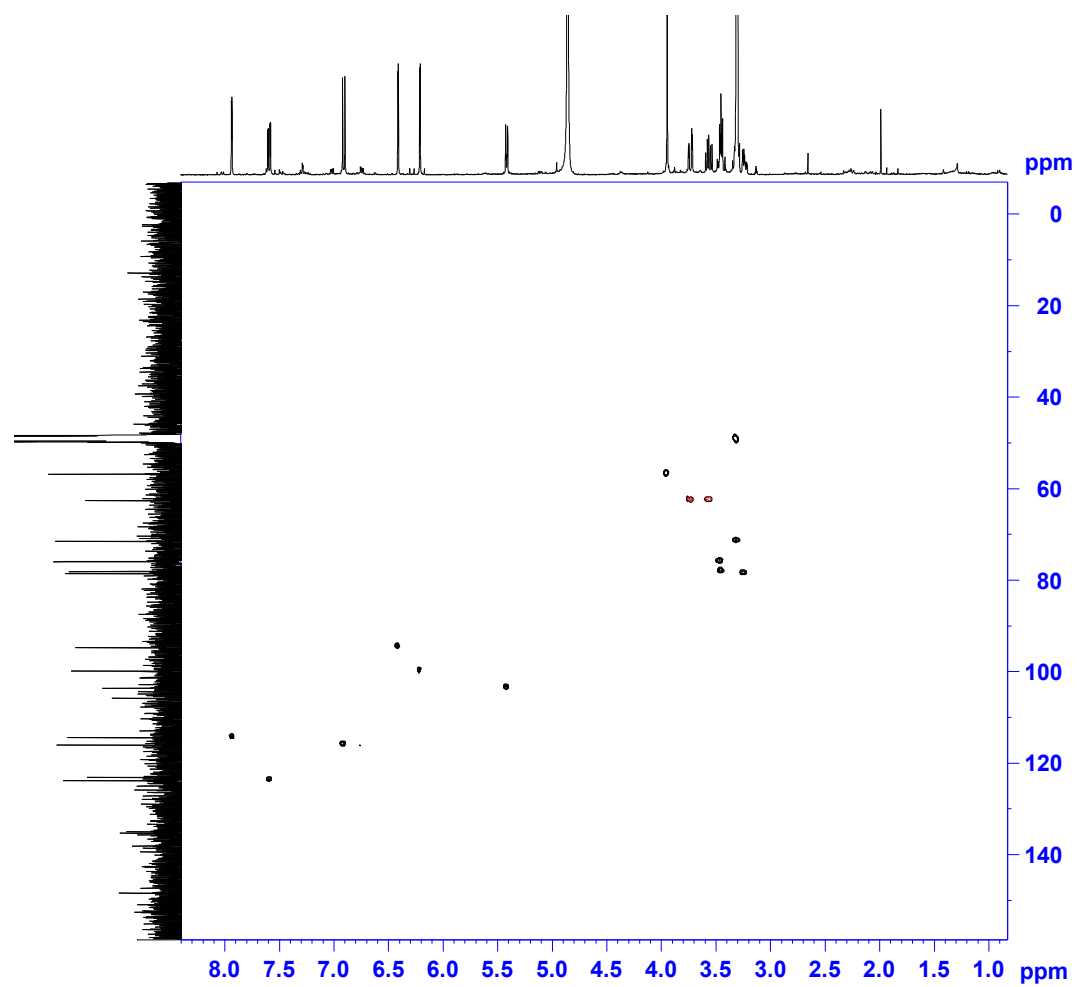


**Figure S7.** <sup>1</sup>H NMR spectrum of **2** in CD<sub>3</sub>OD (400 MHz).

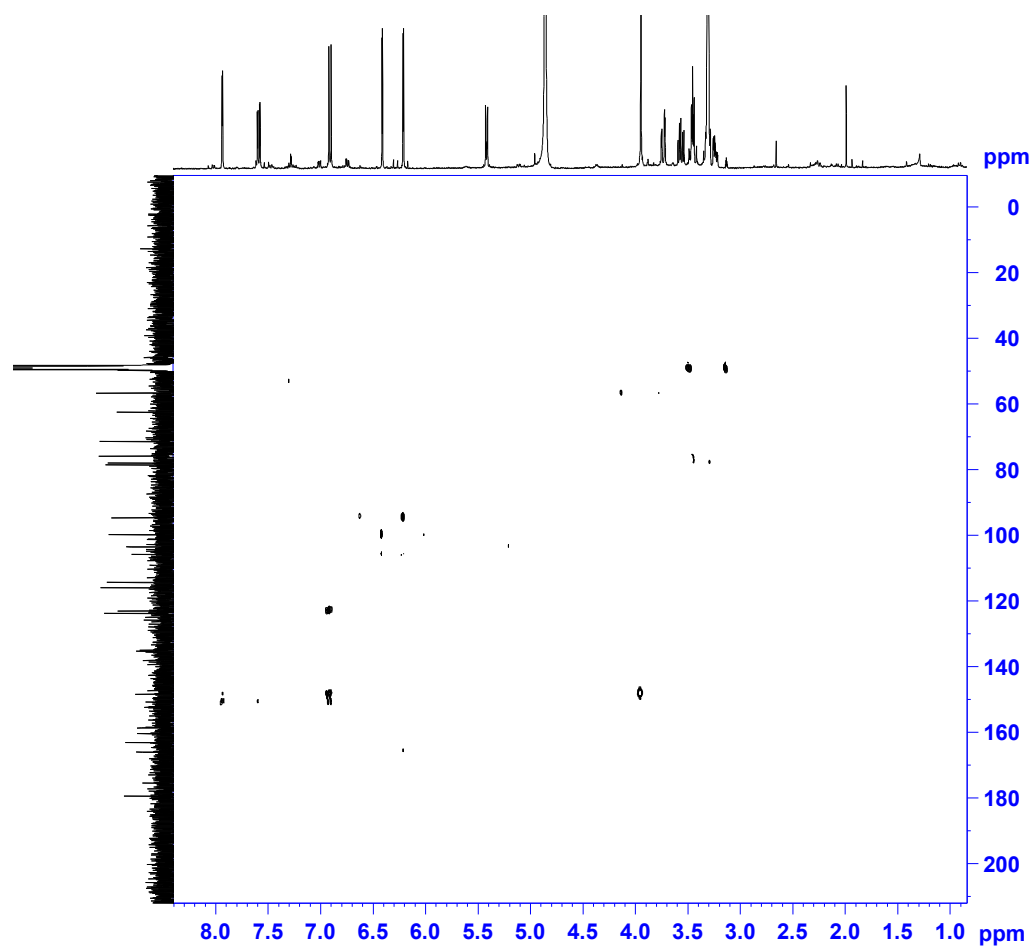




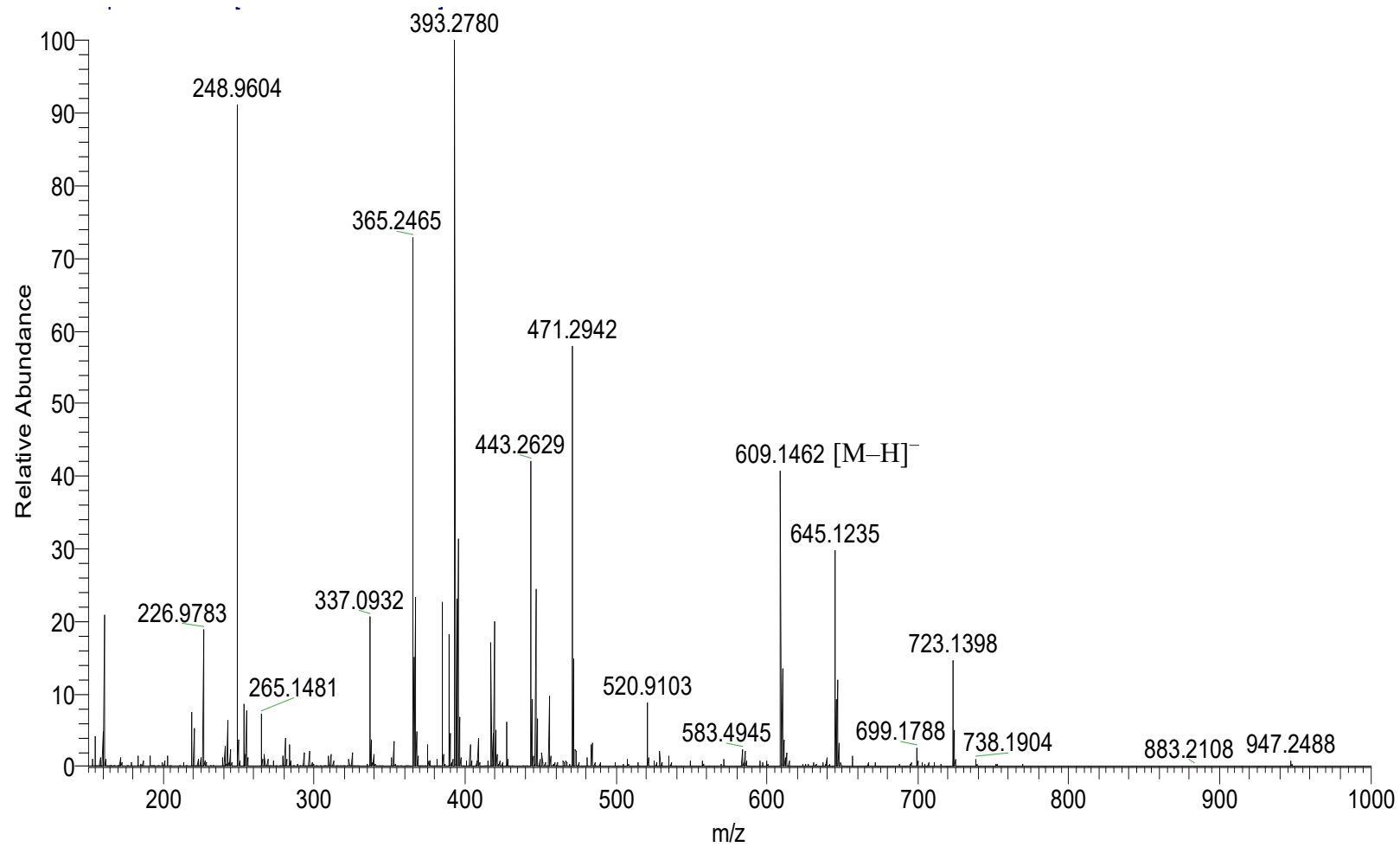
**Figure S8.**  $^{13}\text{C}$  NMR spectrum of **2** in  $\text{CD}_3\text{OD}$  (100 MHz).



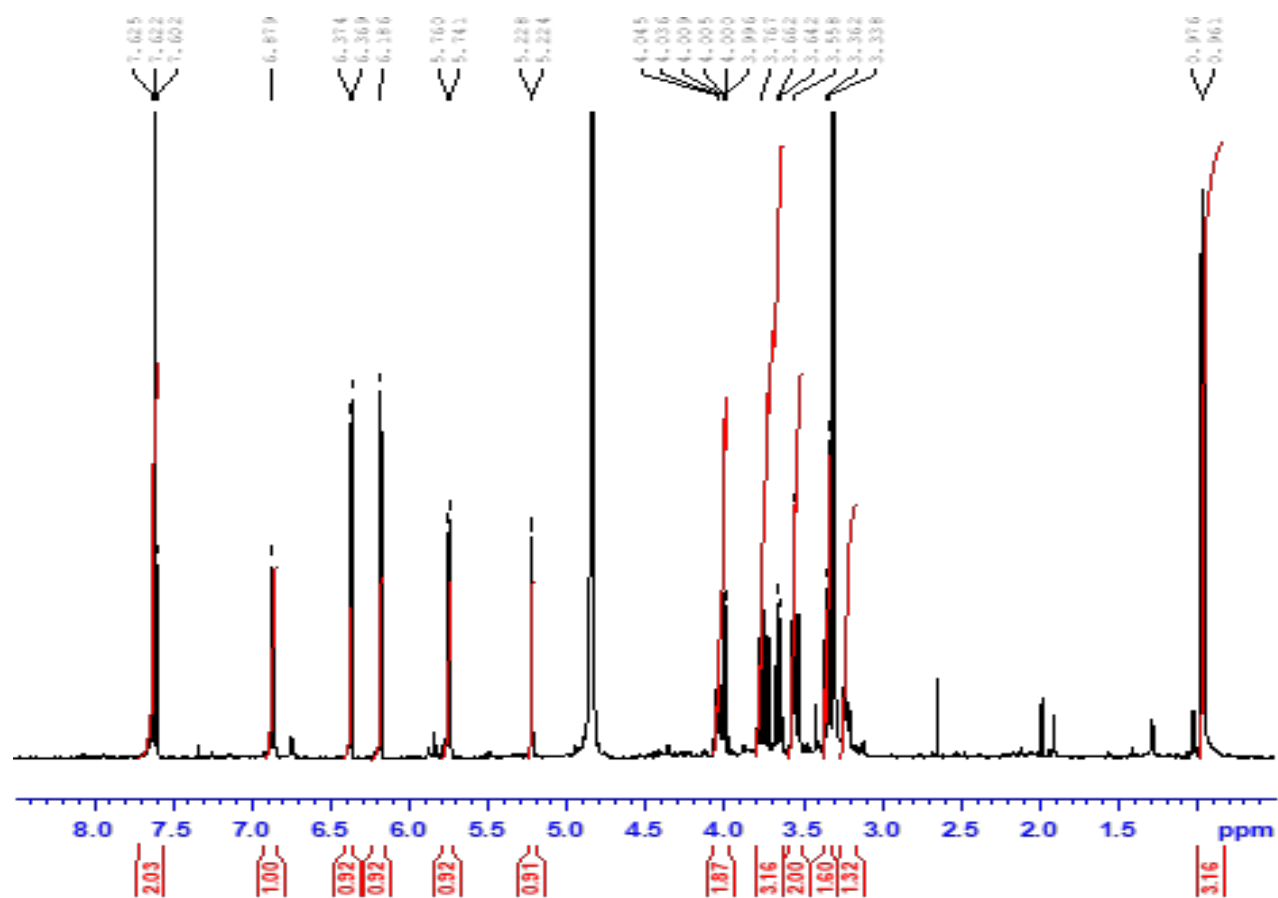
**Figure S9.** HSQC spectrum of **2** in  $\text{CD}_3\text{OD}$ .



**Figure S10.** HMBC spectrum of **2** in  $\text{CD}_3\text{OD}$ .



**Figure S11.** HRESIMS spectrum of **3** (negative mode).



**Figure S12.**  $^1\text{H}$  NMR spectrum of **3** in  $\text{CD}_3\text{OD}$  (400 MHz).

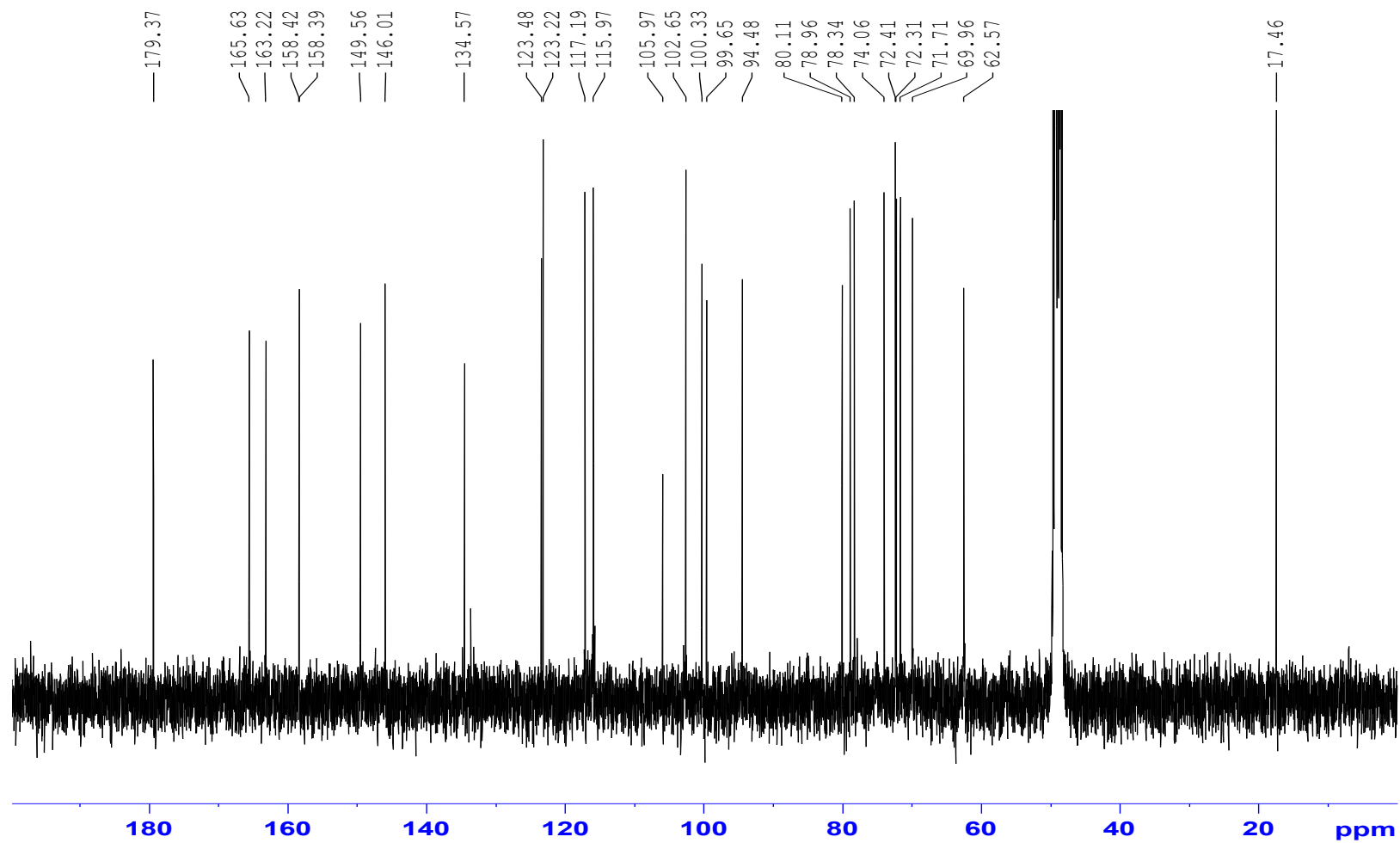


Figure S13. <sup>13</sup>C NMR spectrum of **3** in CD<sub>3</sub>OD (100 MHz).

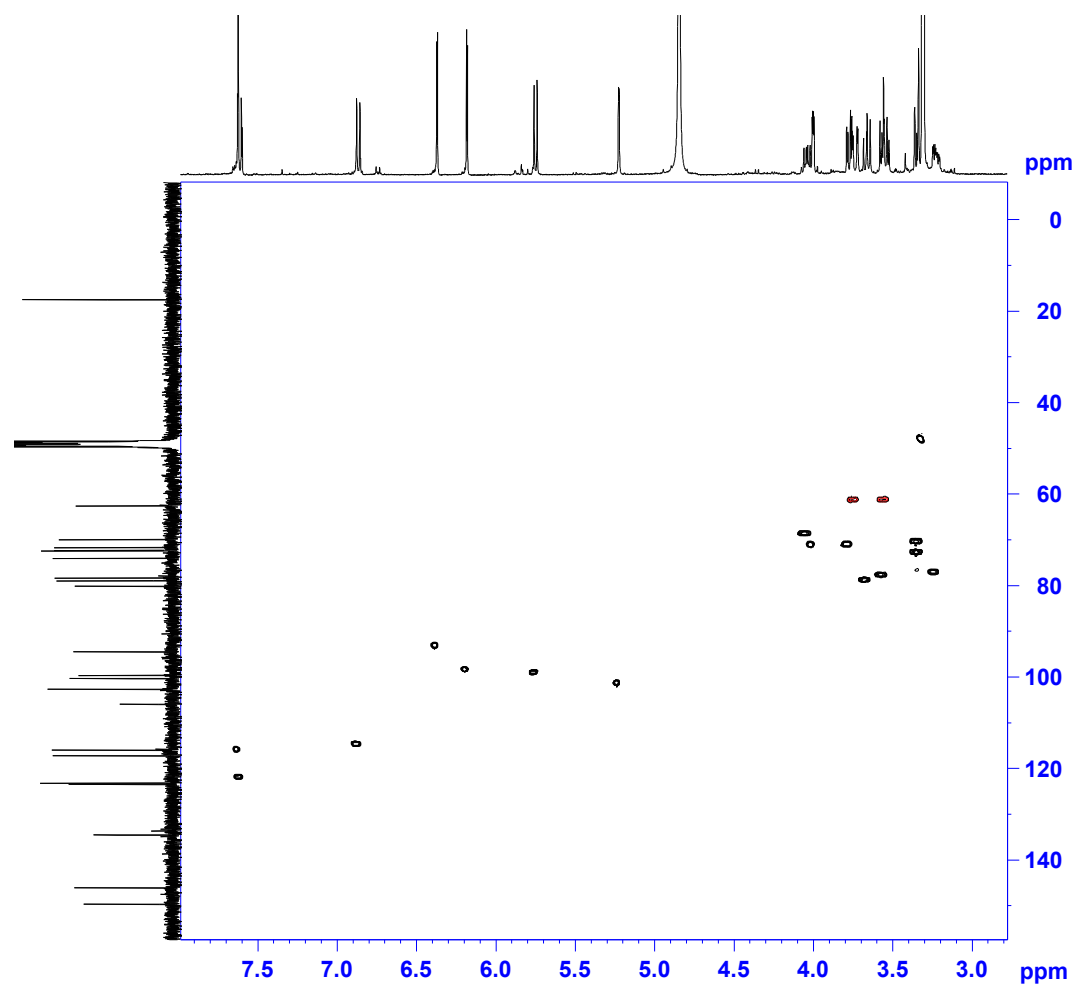


Figure S14. HSQC spectrum of **3** in  $\text{CD}_3\text{OD}$ .

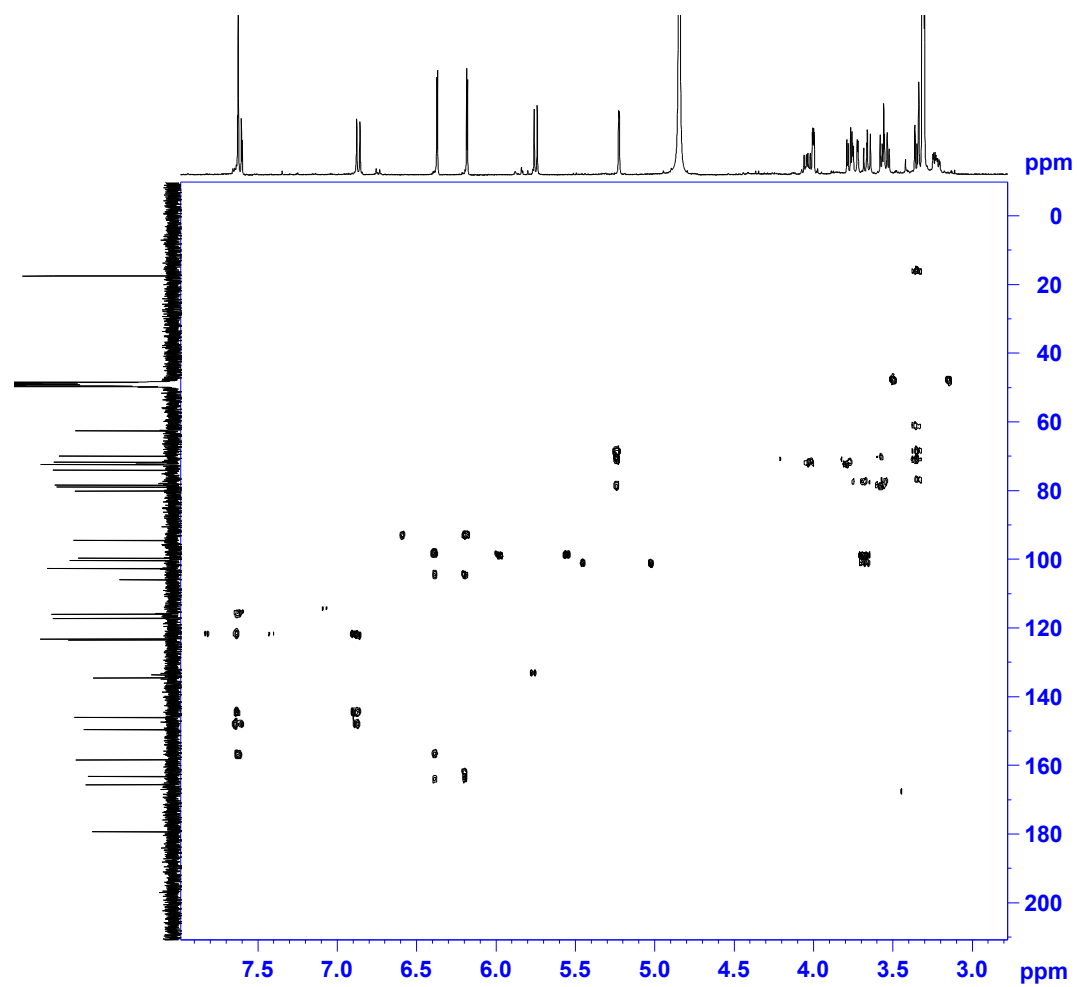
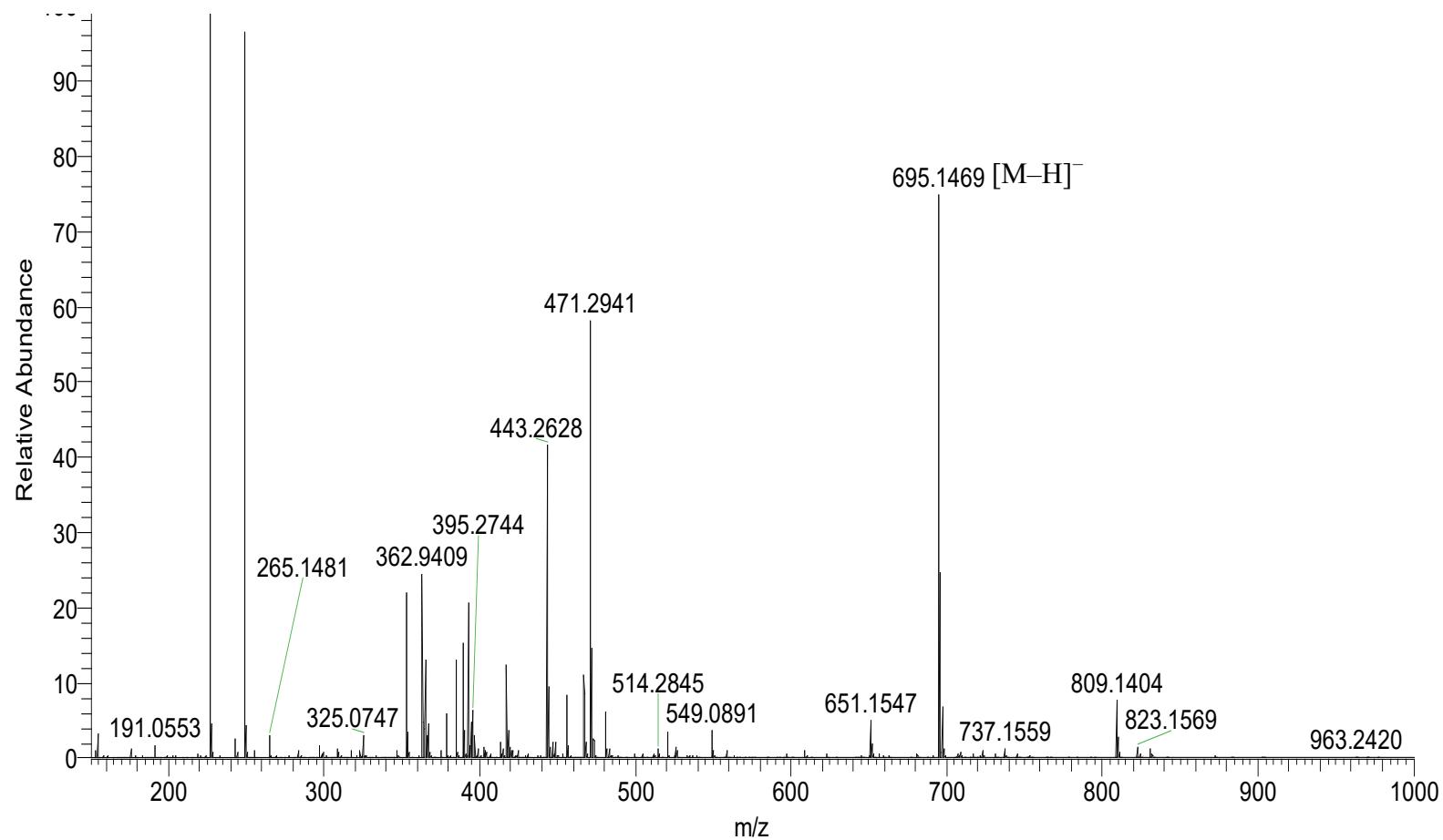
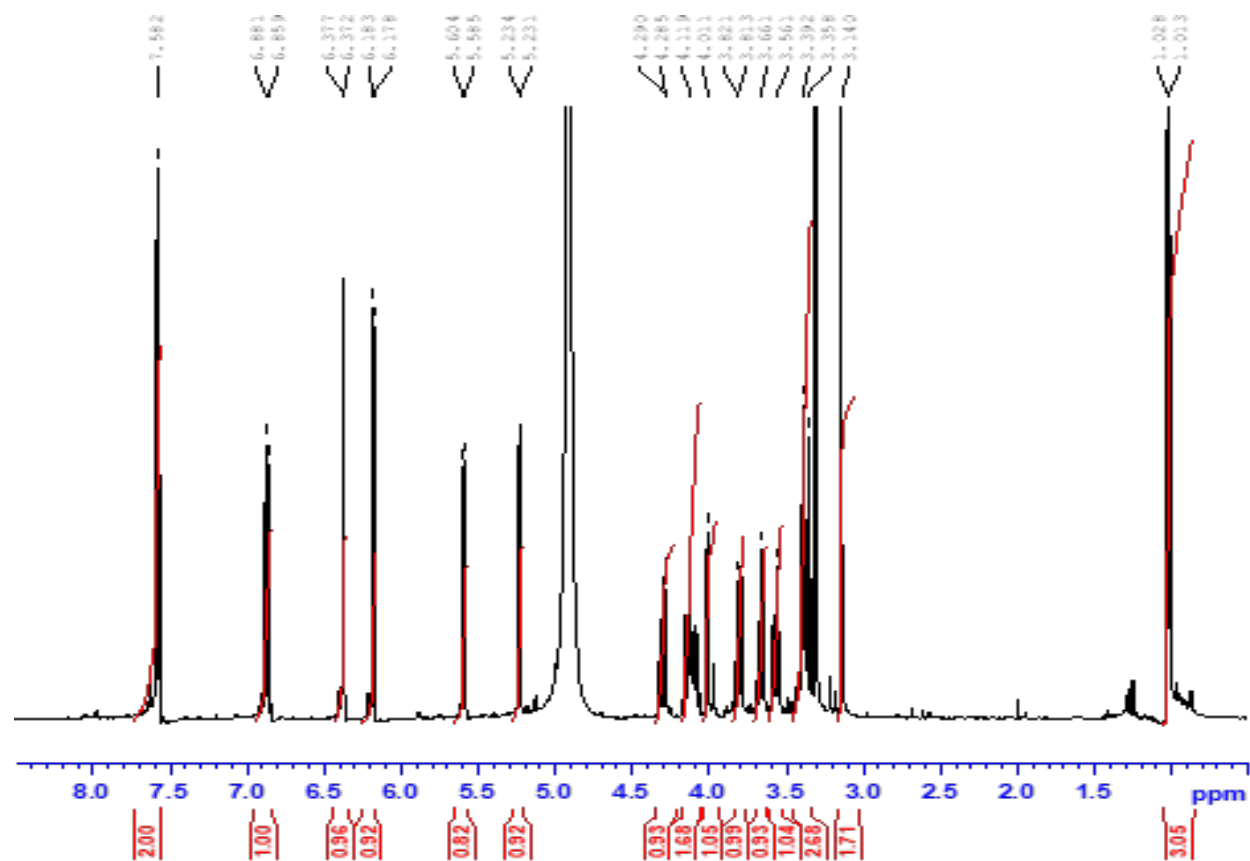


Figure S15. HMBC spectrum of **3** in  $\text{CD}_3\text{OD}$ .

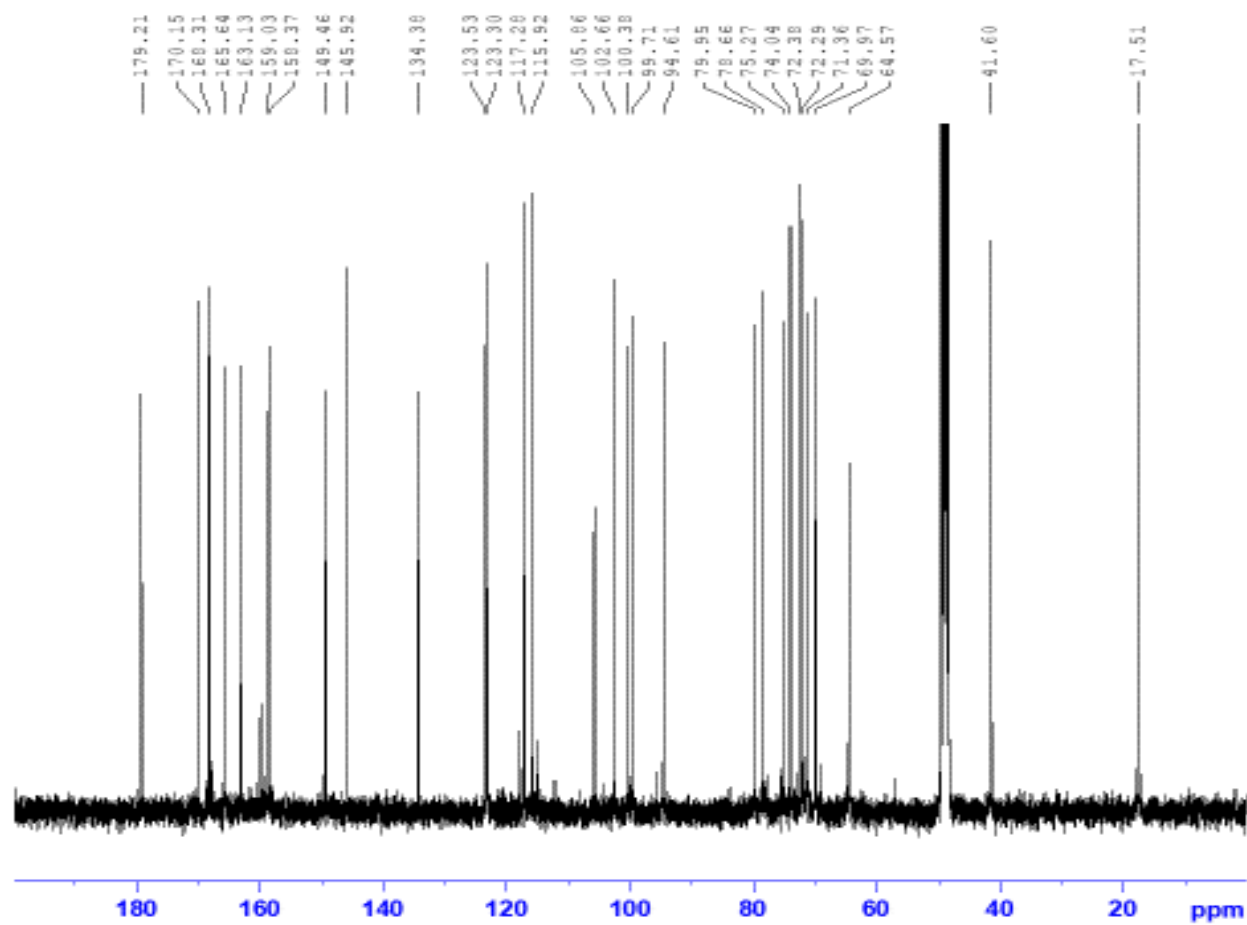




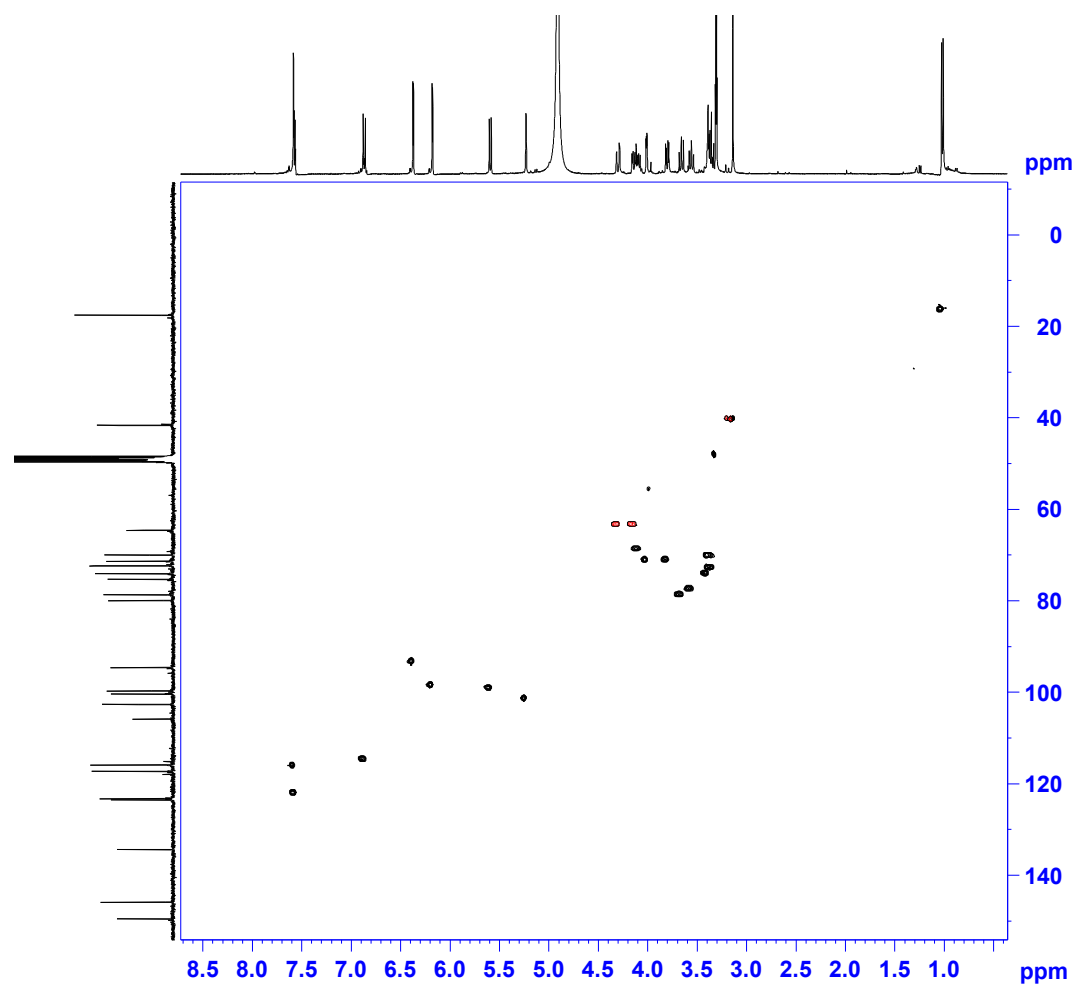
**Figure S16.** HRESIMS spectrum of **4** (negative mode).



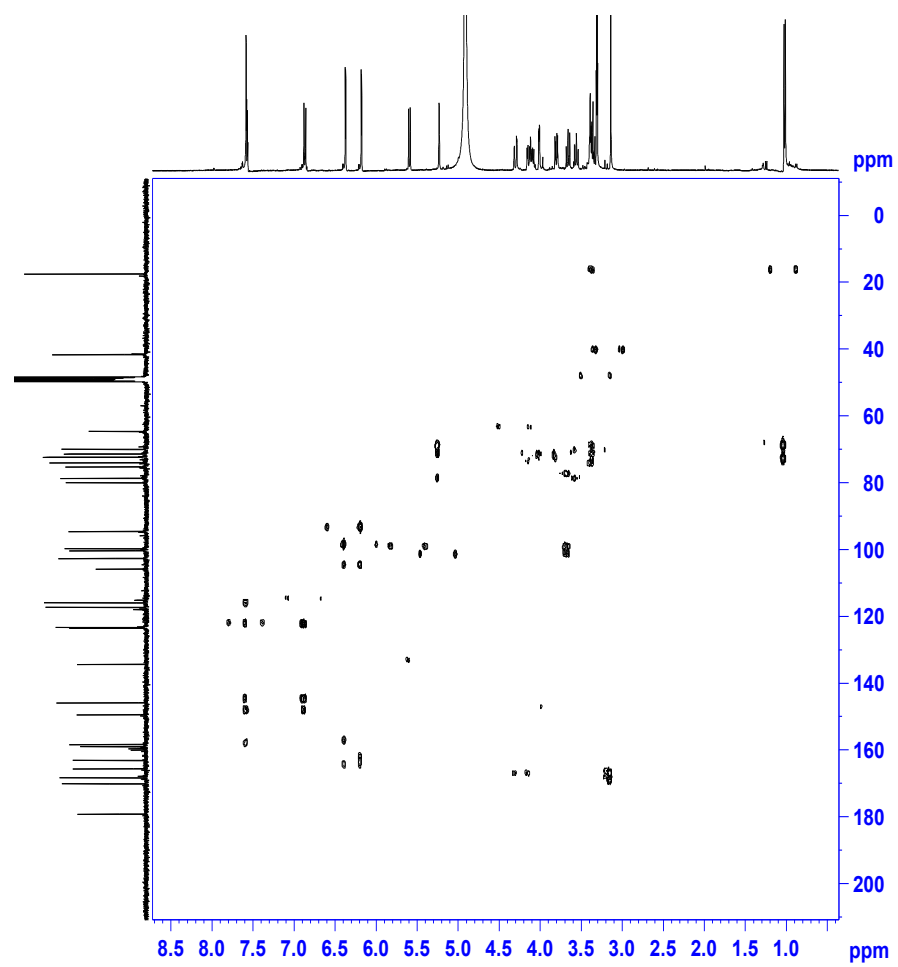
**Figure S17.** <sup>1</sup>H NMR spectrum of **4** in CD<sub>3</sub>OD (400 MHz).



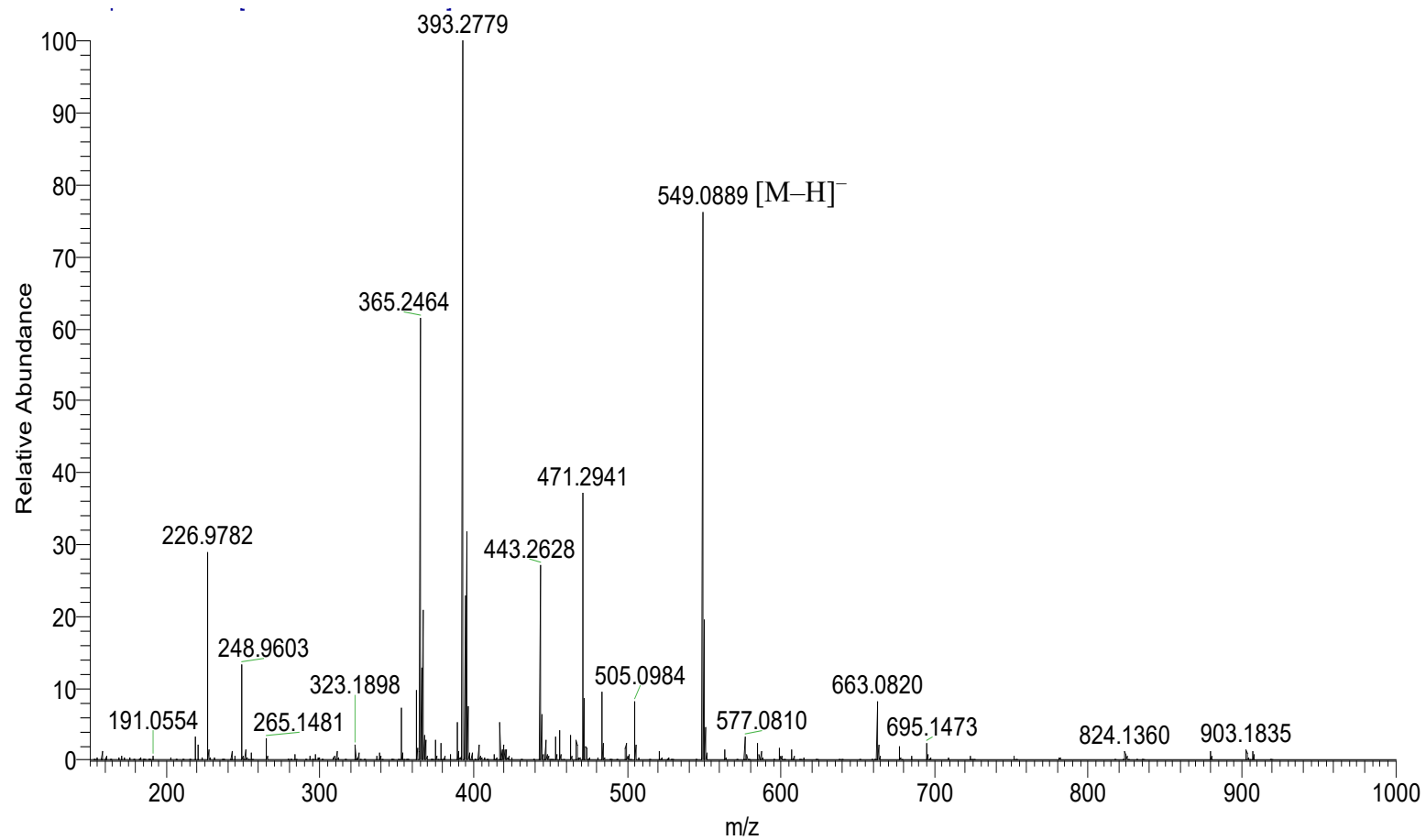
**Figure S18.**  $^{13}\text{C}$  NMR spectrum of **4** in  $\text{CD}_3\text{OD}$  (100 MHz).



**Figure S19.** HSQC spectrum of **4** in  $\text{CD}_3\text{OD}$ .



**Figure S20.** HMBC spectrum of **4** in CD<sub>3</sub>OD.



**Figure S21.** HRESIMS spectrum of **5** (negative mode).

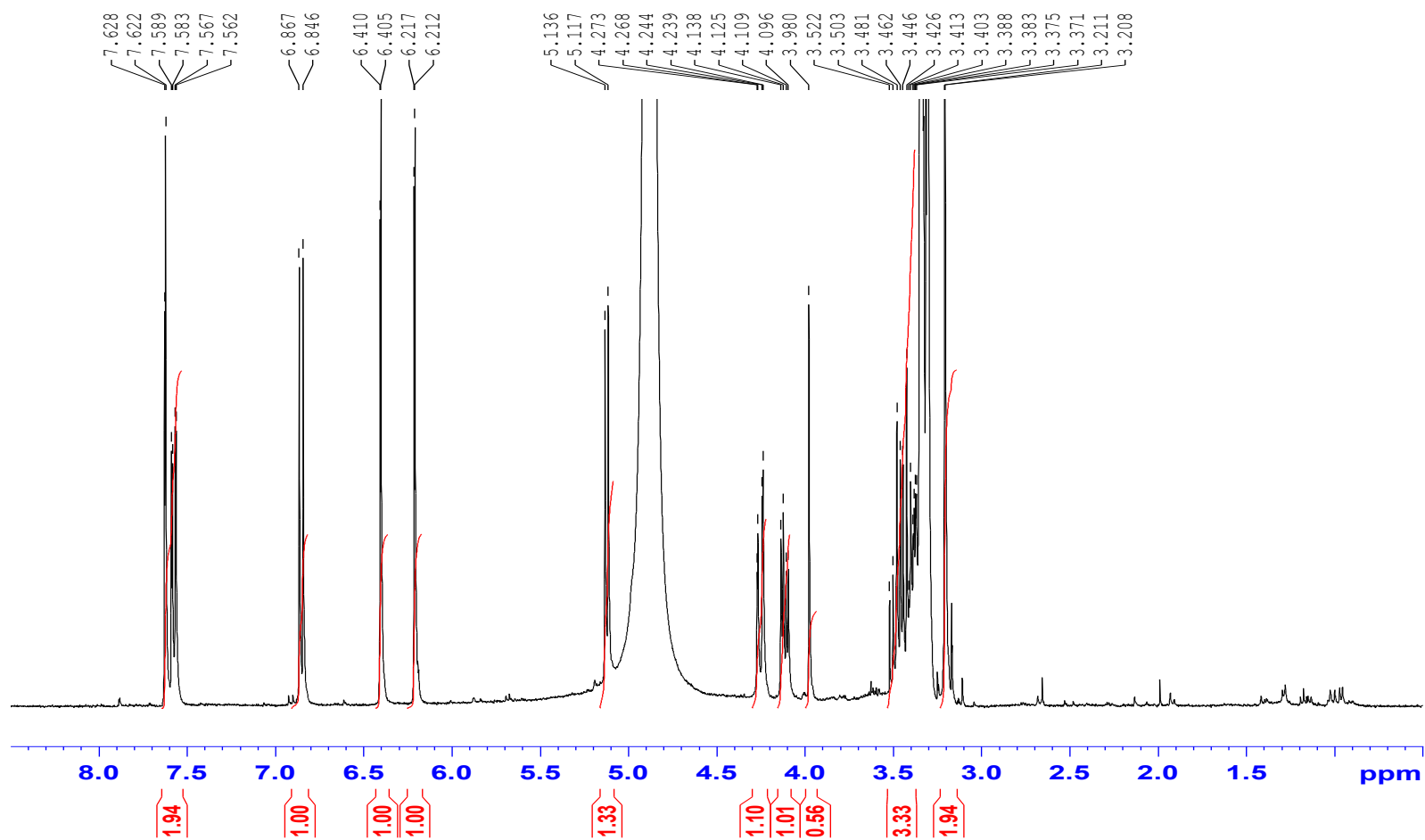


Figure S22. <sup>1</sup>H NMR spectrum of **5** in CD<sub>3</sub>OD (400 MHz).

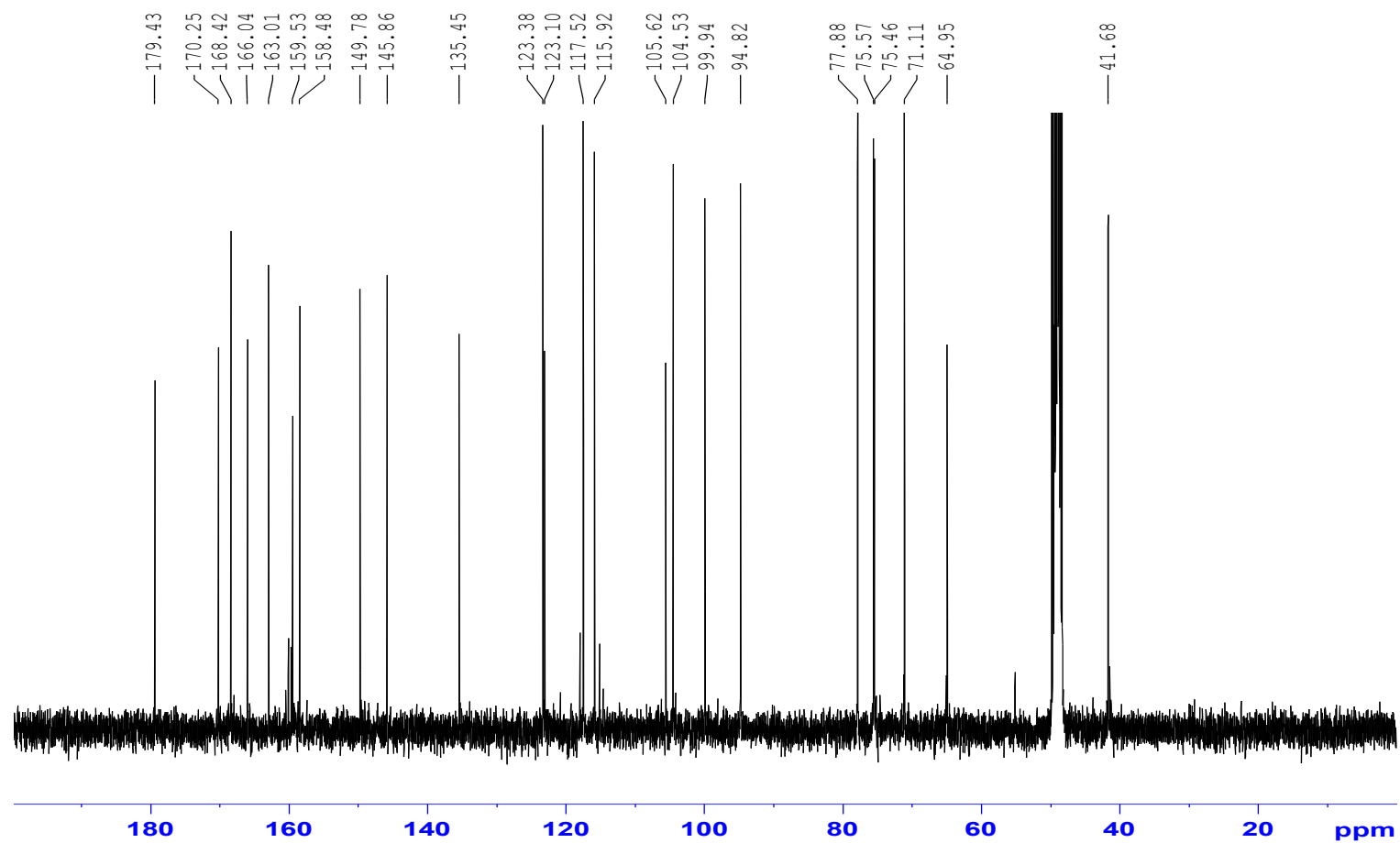
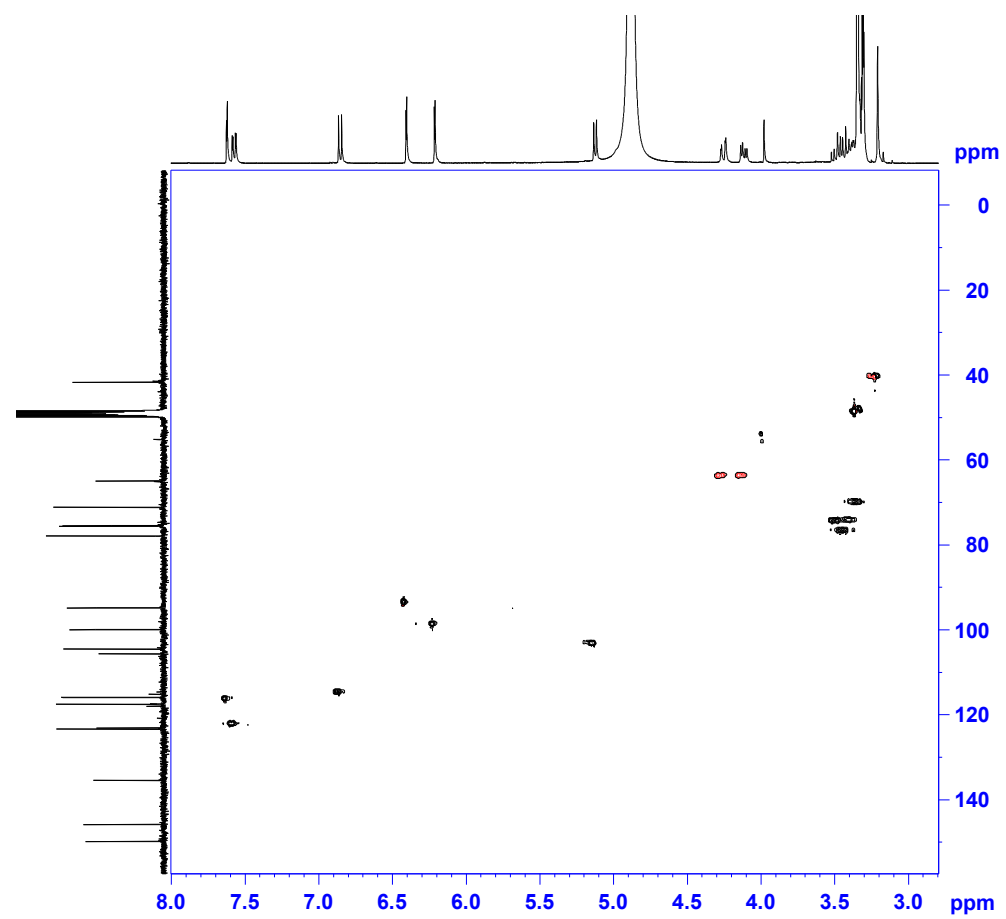


Figure S23.  $^{13}\text{C}$  NMR spectrum of **5** in  $\text{CD}_3\text{OD}$  (100 MHz).





**Figure S24.** HSQC spectrum of **5** in CD<sub>3</sub>OD.

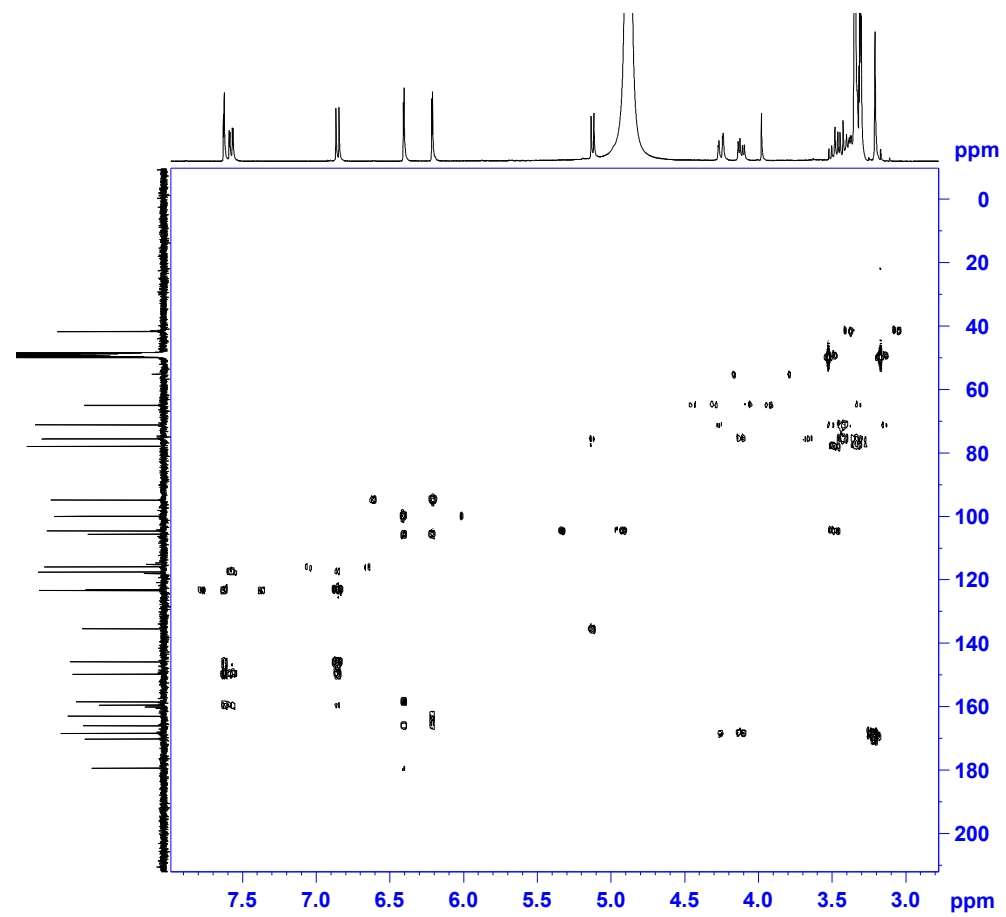
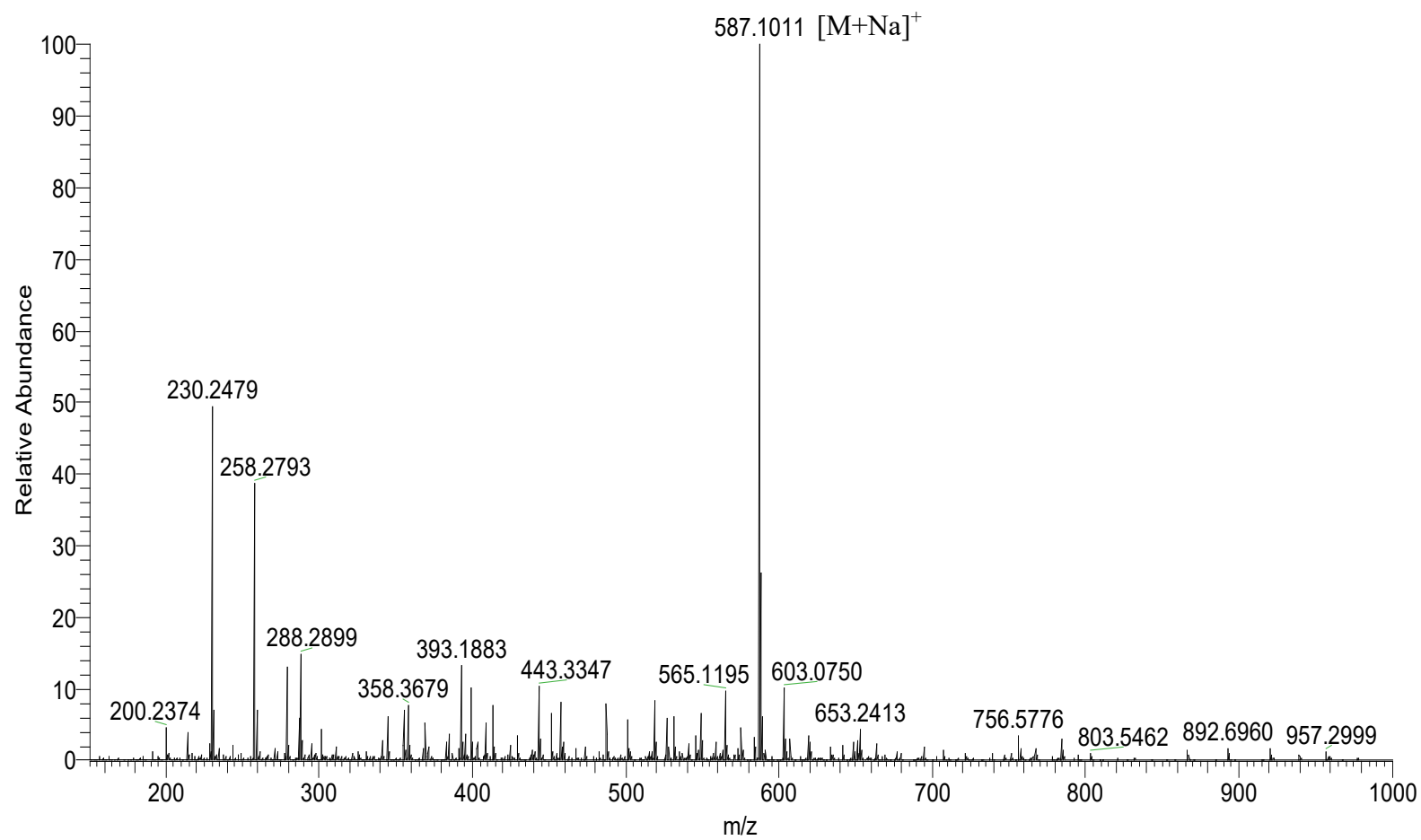
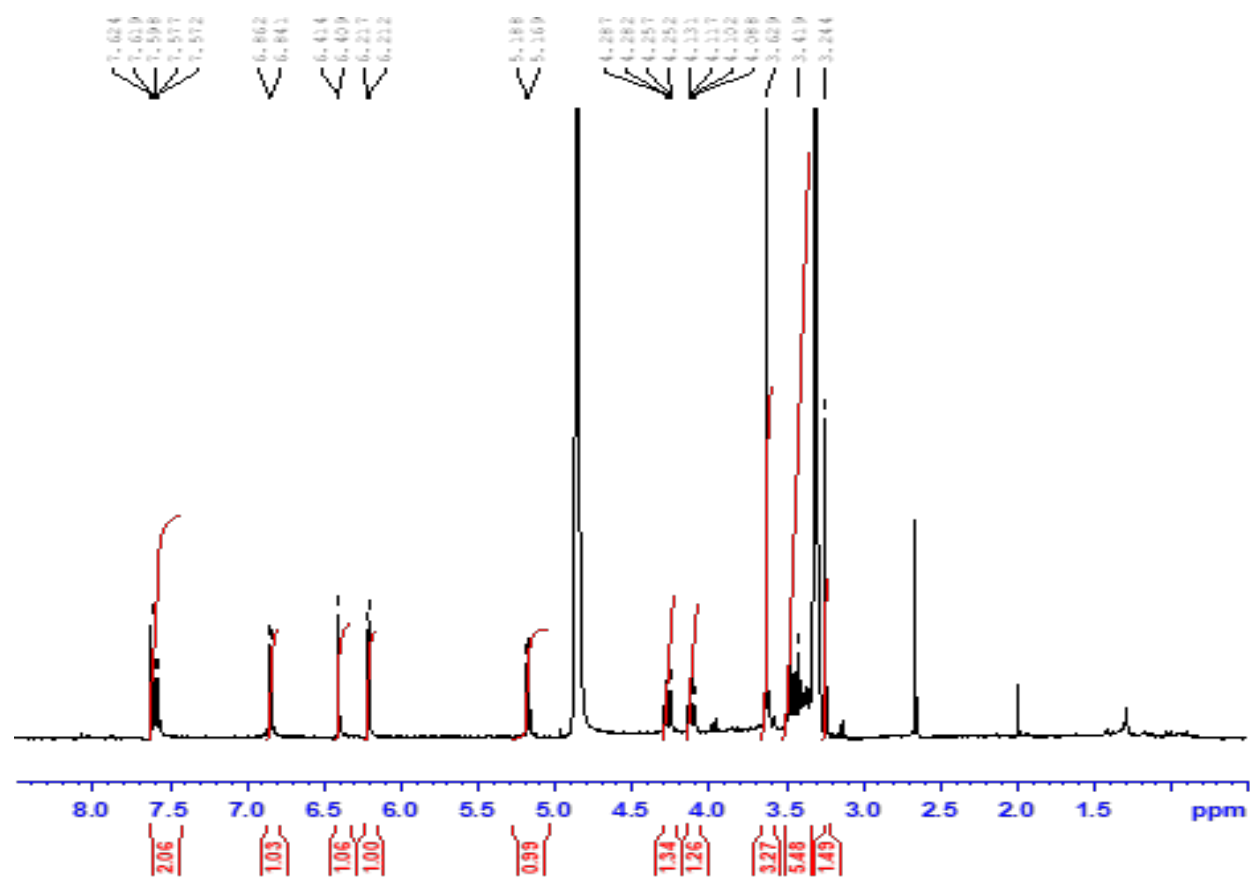


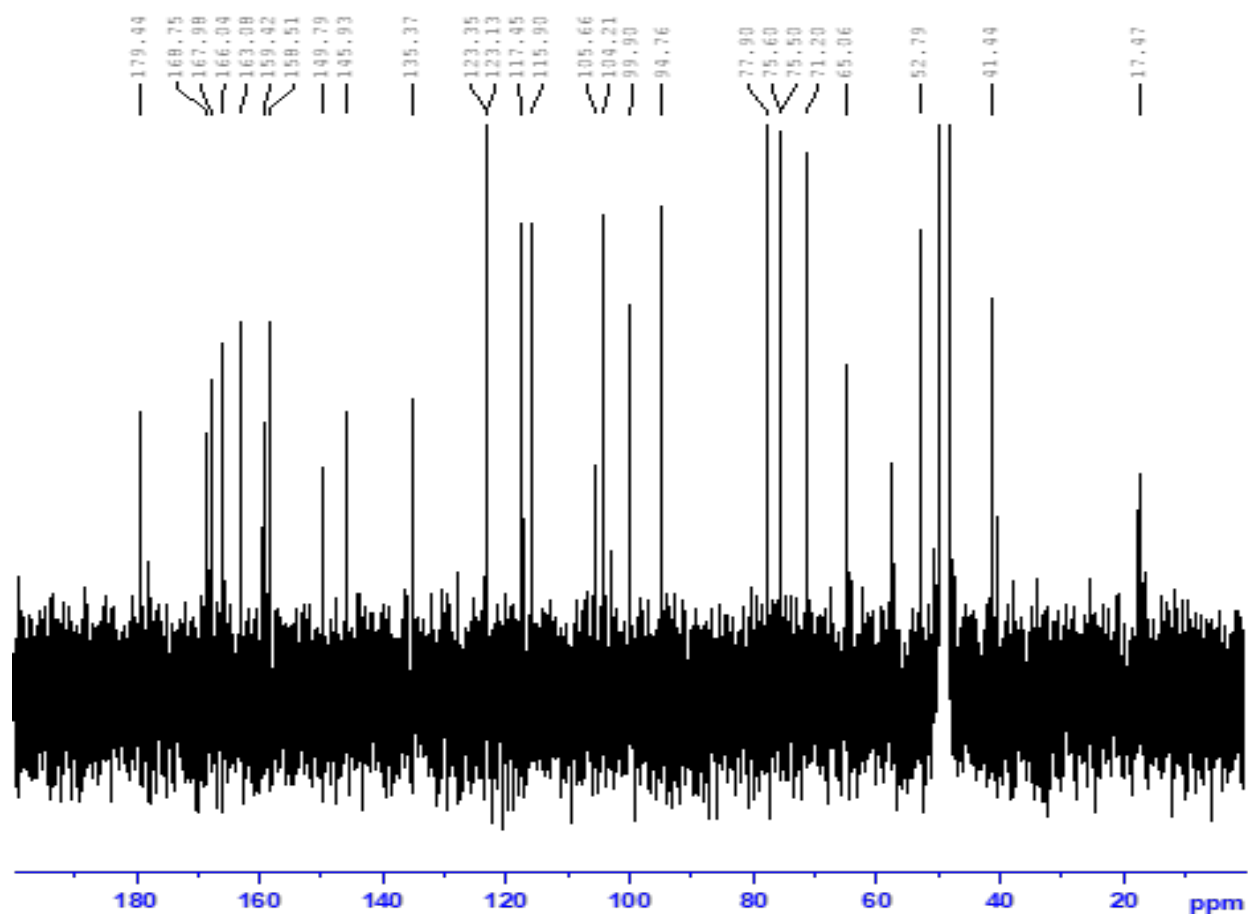
Figure S25. HMBC spectrum of **5** in CD<sub>3</sub>OD.



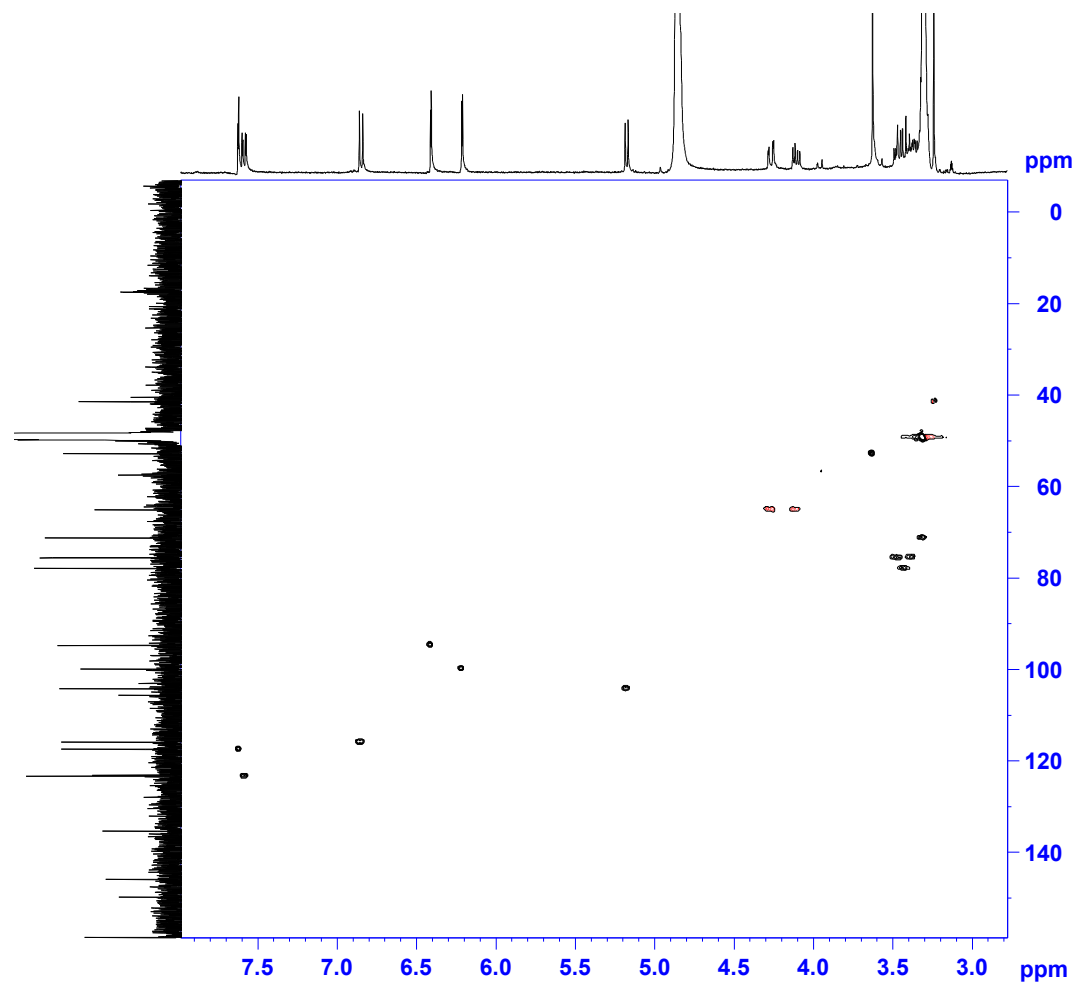
**Figure S26.** HRESIMS spectrum of **6** (positive mode).



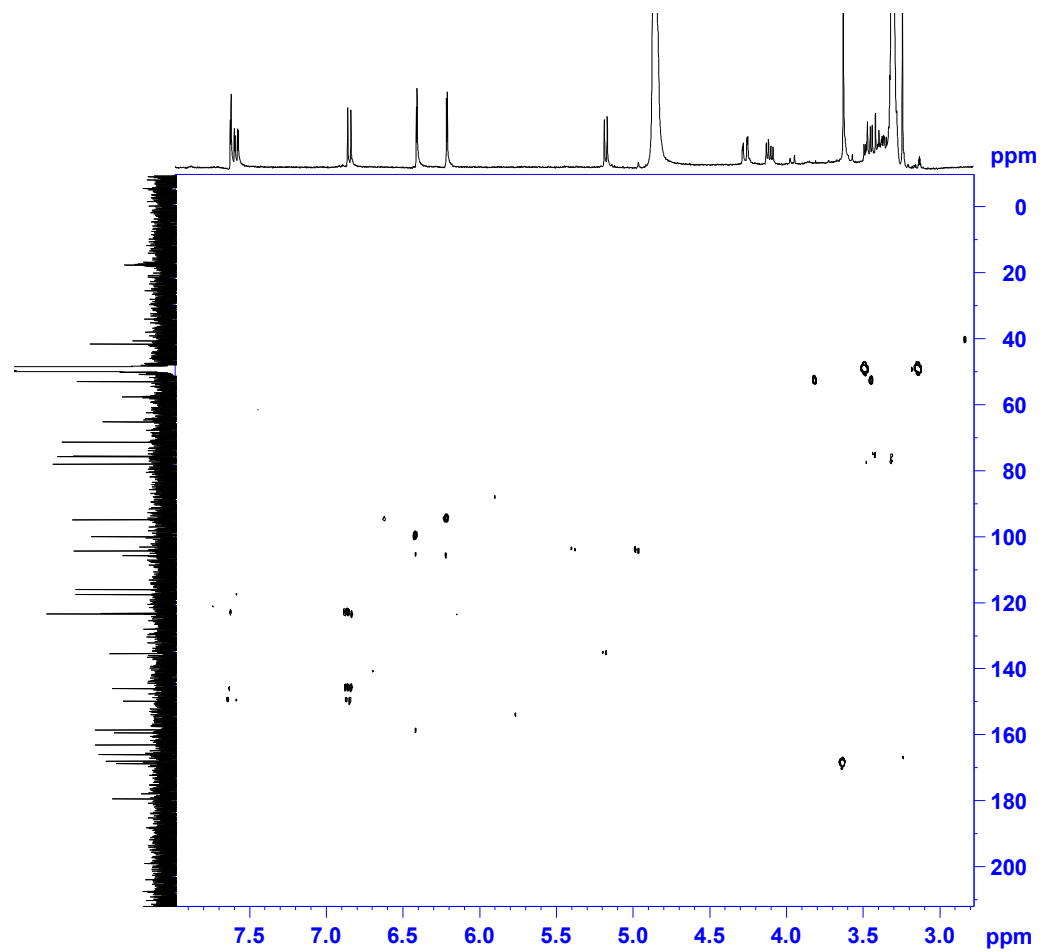
**Figure S27.**  $^1\text{H}$  NMR spectrum of **6** in  $\text{CD}_3\text{OD}$  (400 MHz).



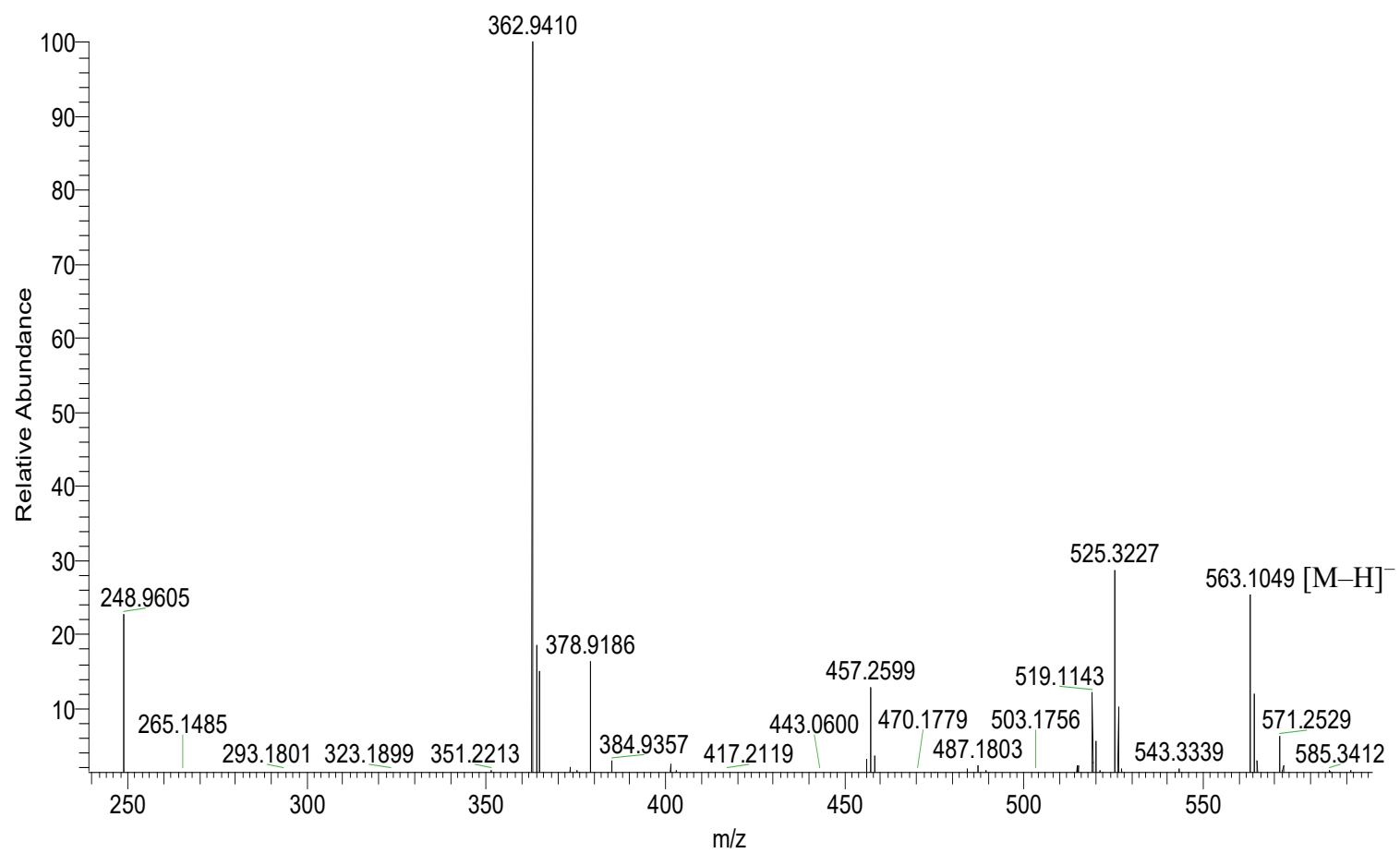
**Figure S28.** <sup>13</sup>C NMR spectrum of **6** in CD<sub>3</sub>OD (100 MHz).



**Figure S29.** HSQC spectrum of **6** in CD<sub>3</sub>OD.

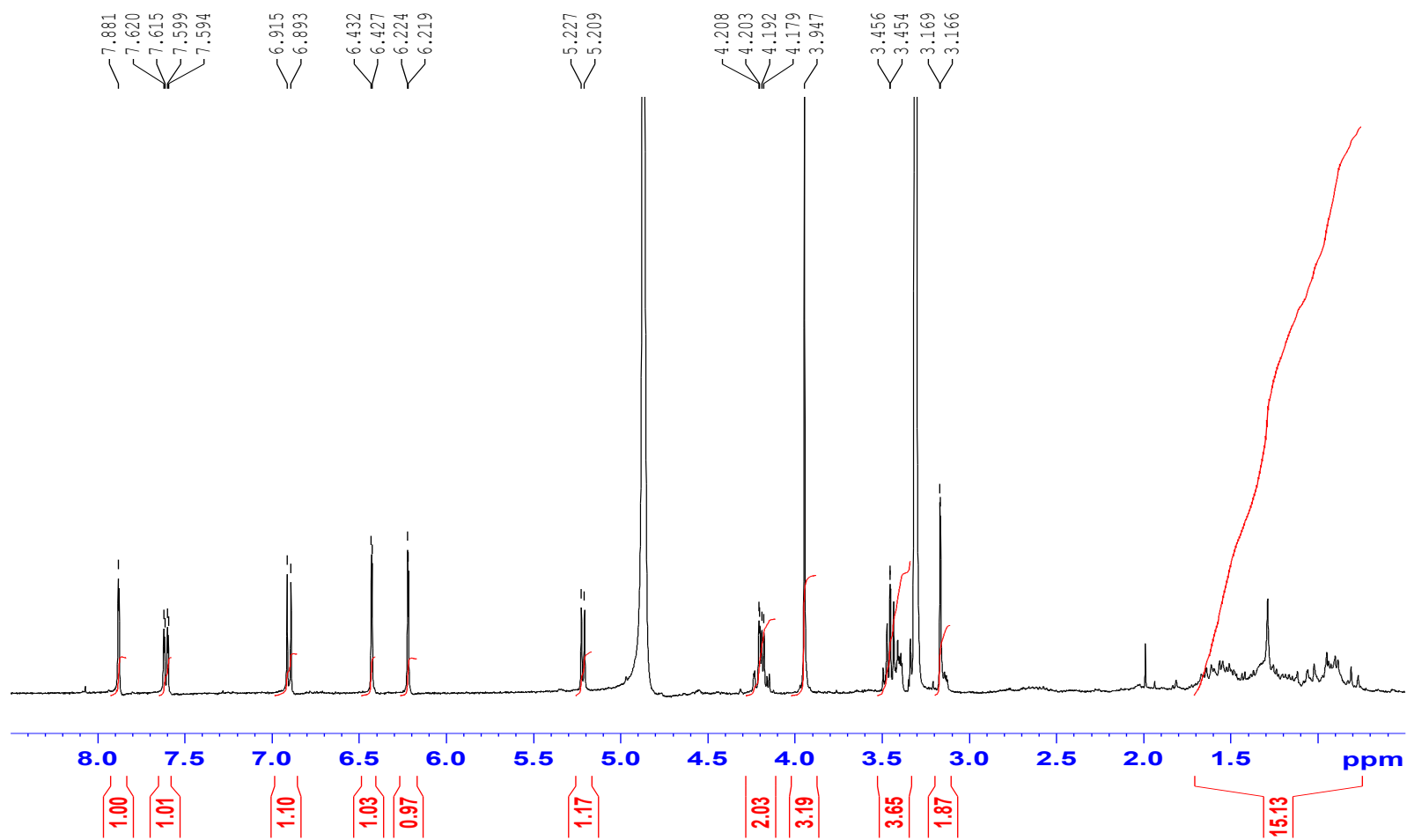


**Figure S30.** HMBC spectrum of **6** in CD<sub>3</sub>OD.



**Figure S31.** HRESIMS spectrum of **7** (negative mode).





**Figure S32.**  $^1\text{H}$  NMR spectrum of **7** in  $\text{CD}_3\text{OD}$  (400 MHz).

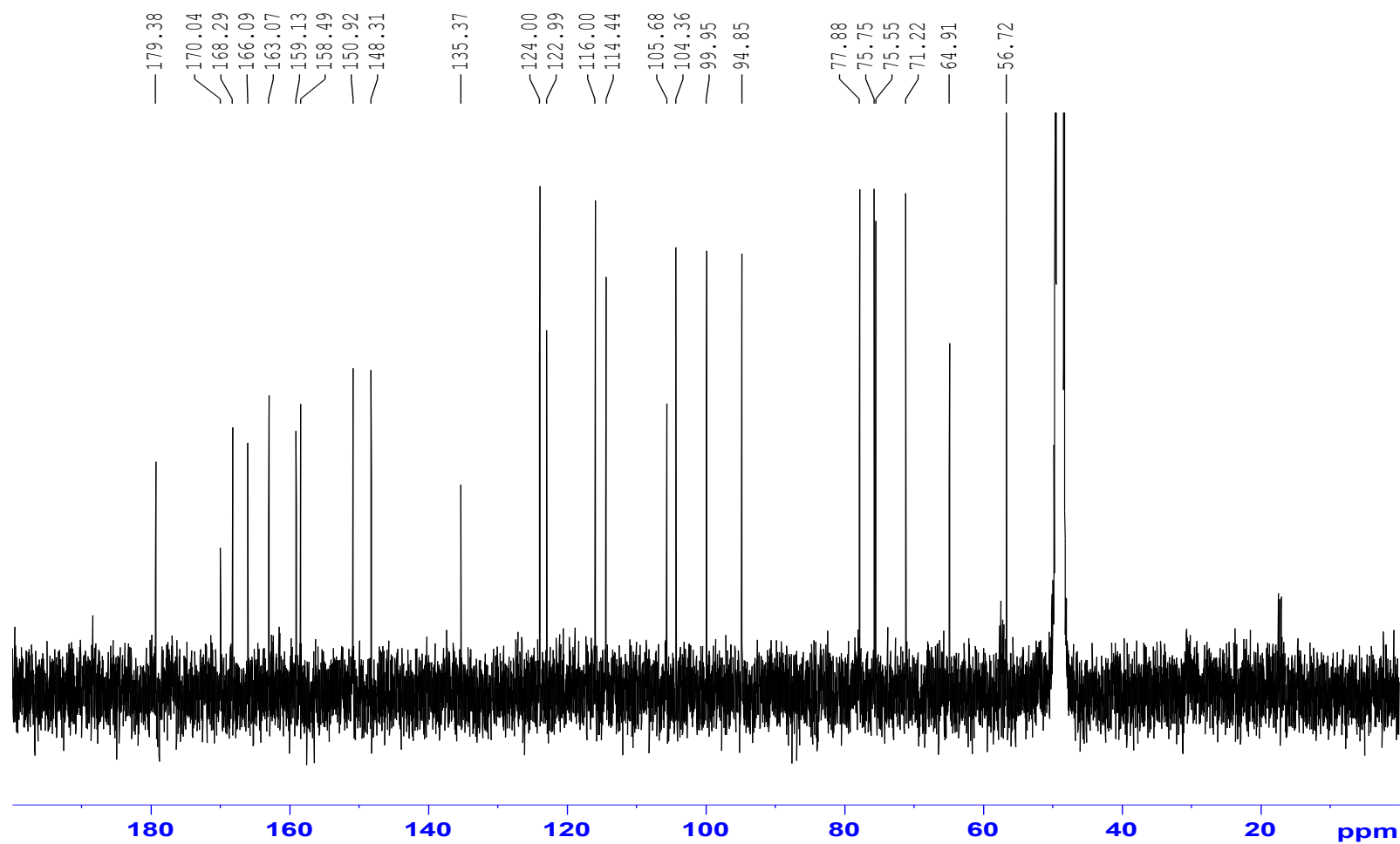


Figure S33.  $^{13}\text{C}$  NMR spectrum of **7** in  $\text{CD}_3\text{OD}$  (100 MHz).

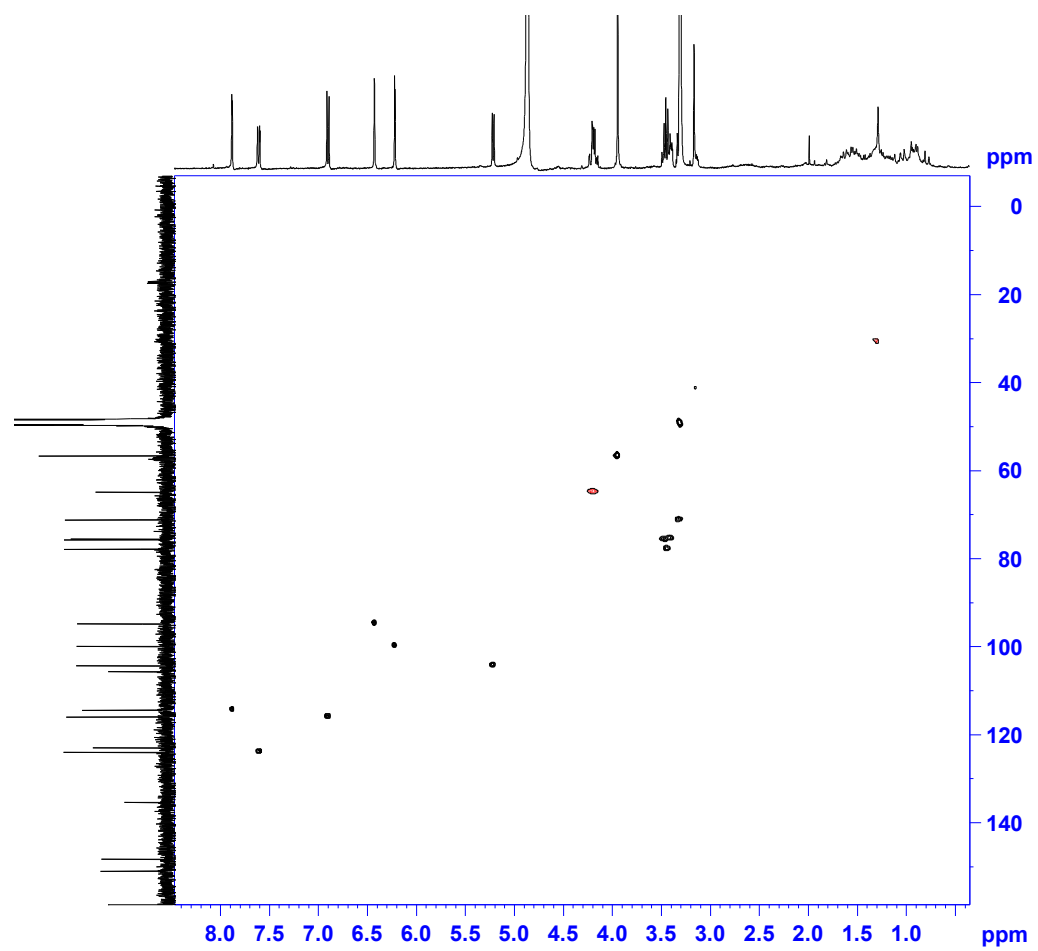
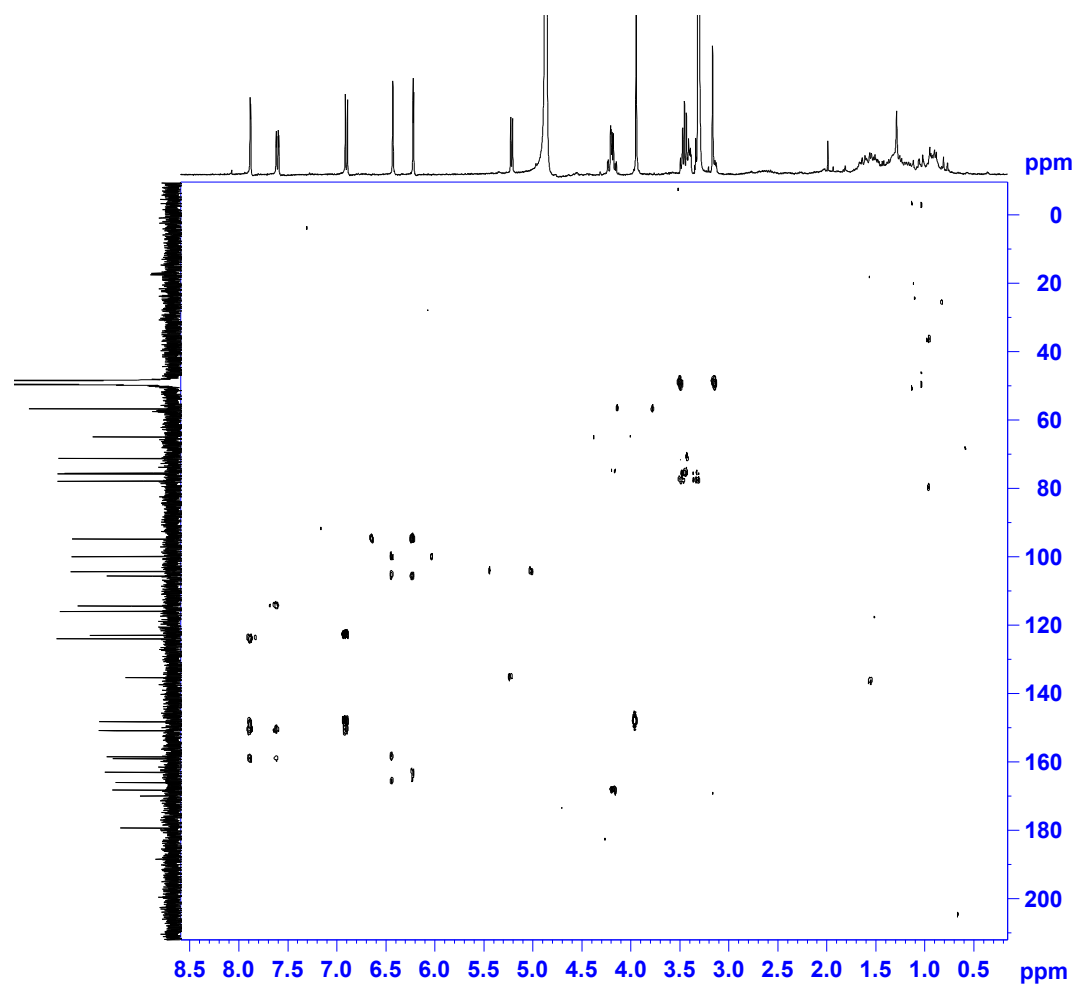
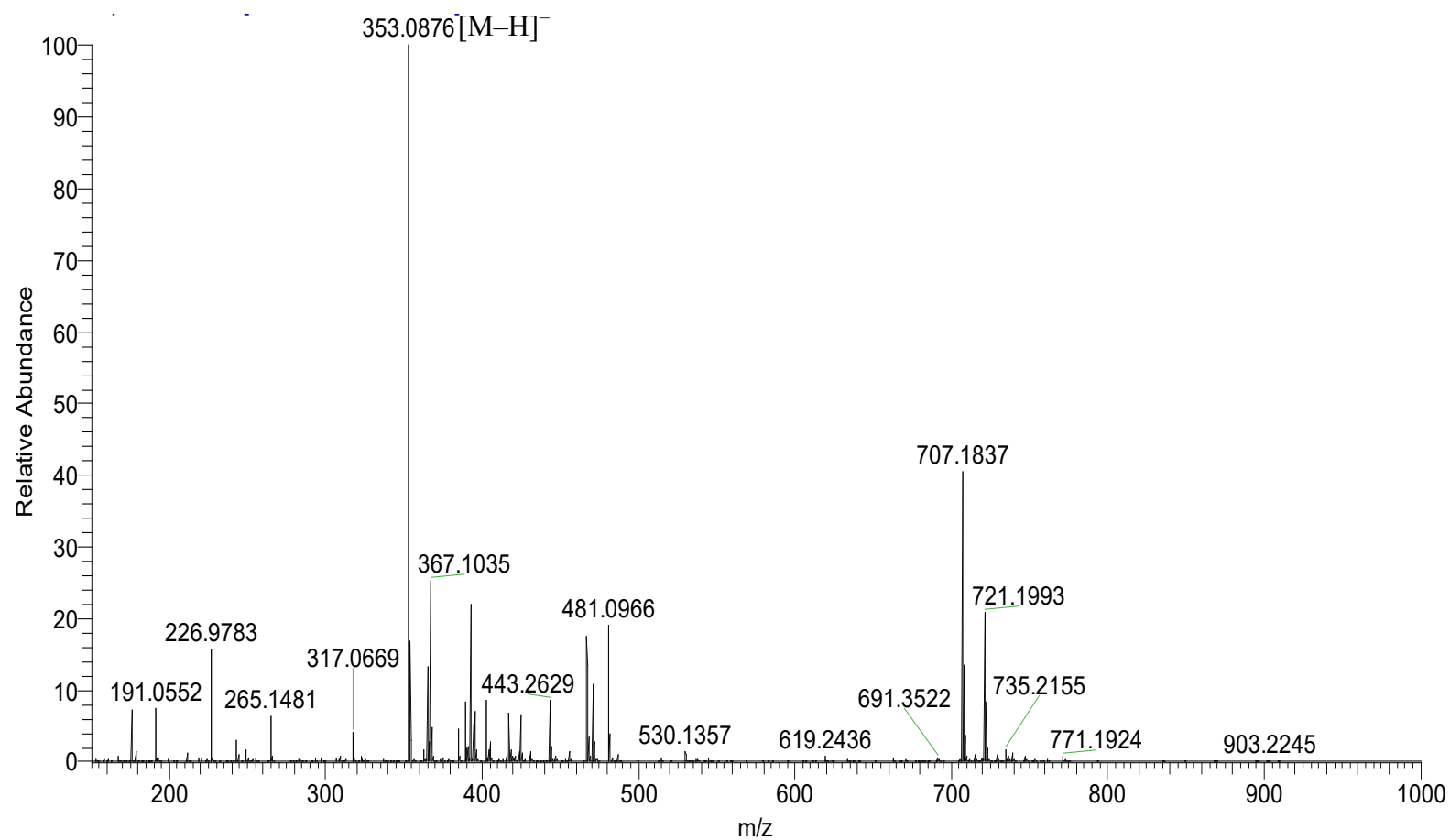


Figure S34. HSQC spectrum of 7 in CD<sub>3</sub>OD.



**Figure S35.** HMBC spectrum of **7** in CD<sub>3</sub>OD.



**Figure S36.** HRESIMS spectrum of **8** (negative mode).

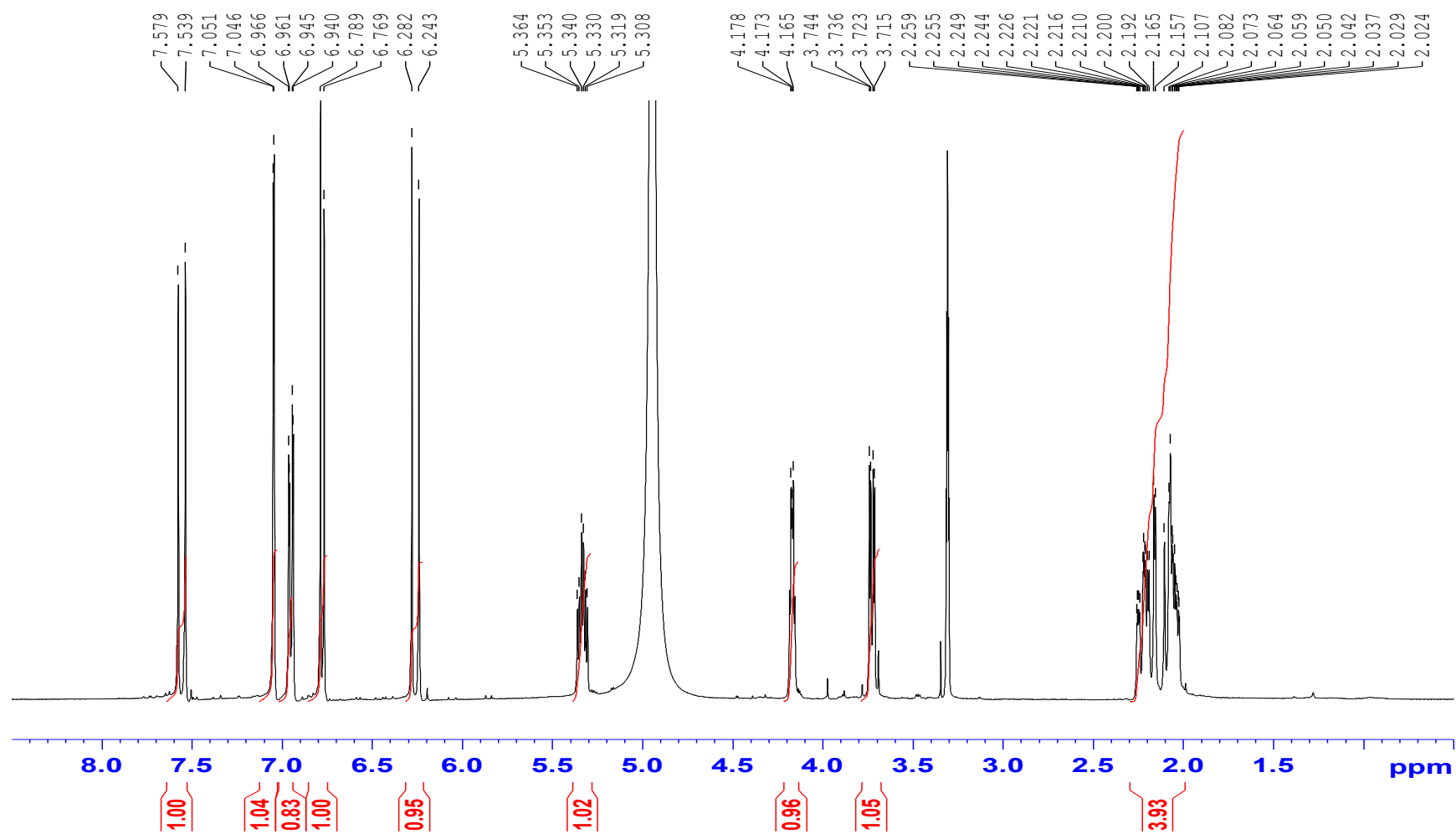


Figure S37.  $^1\text{H}$  NMR spectrum of **8** in  $\text{CD}_3\text{OD}$  (400 MHz).

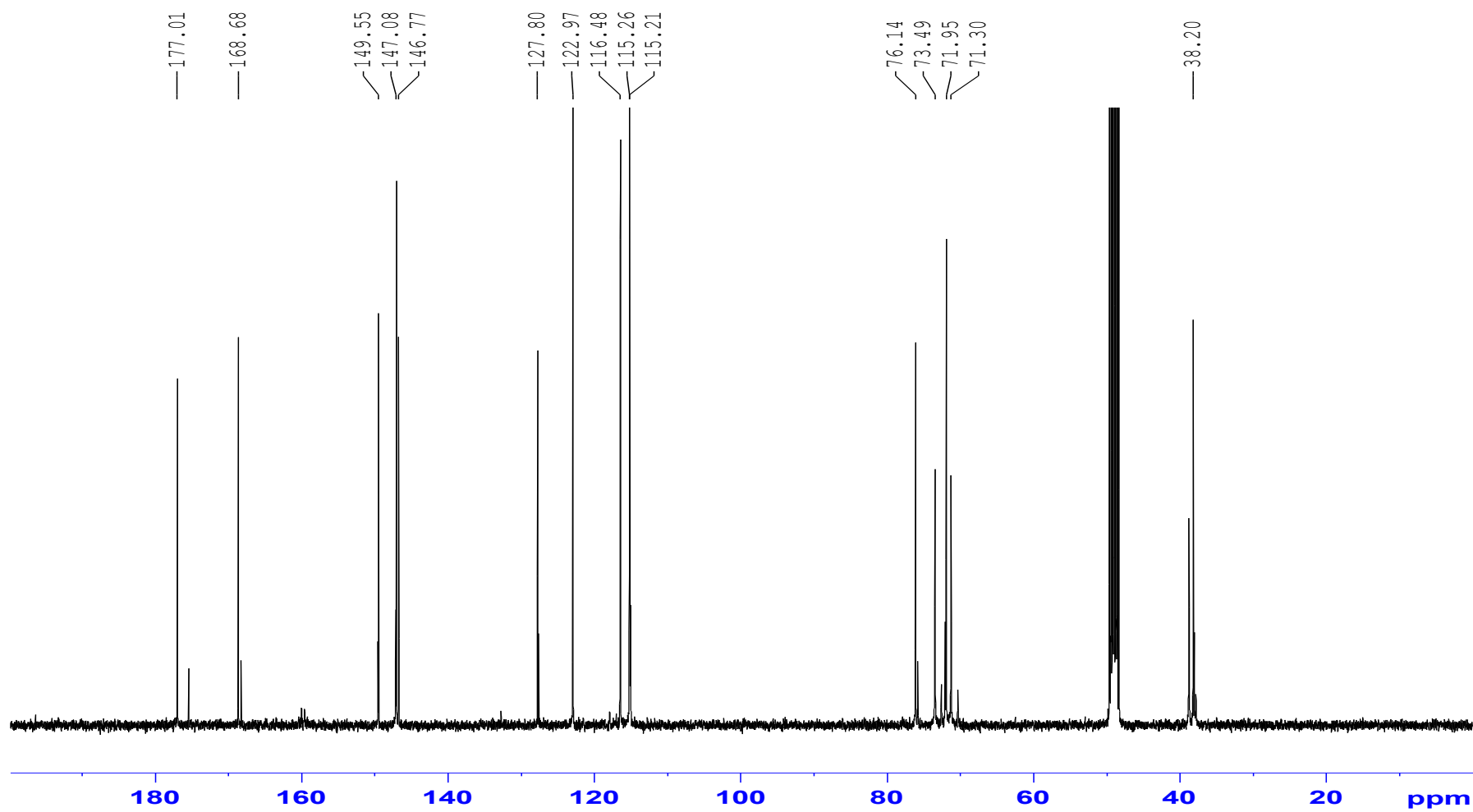
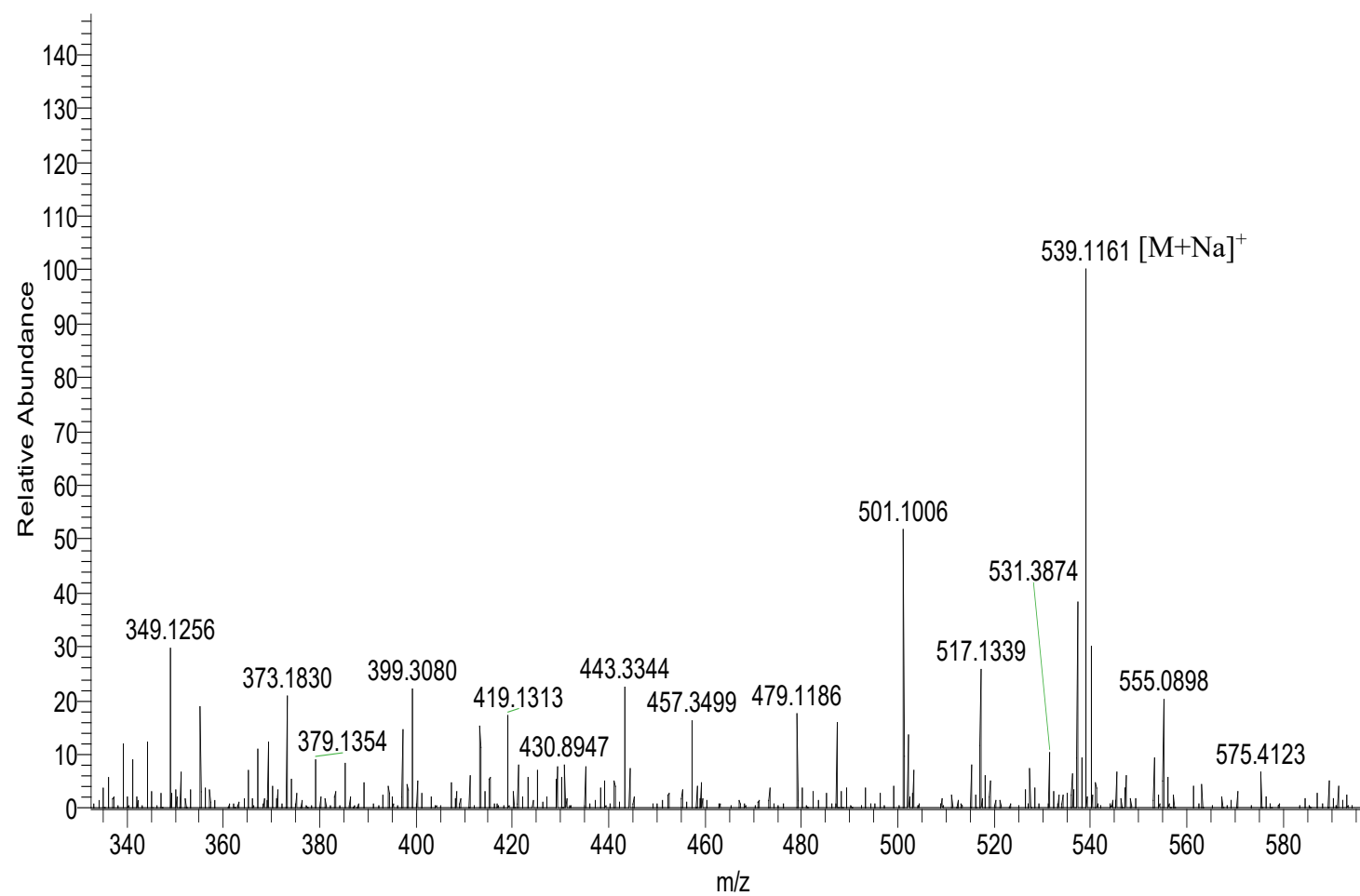
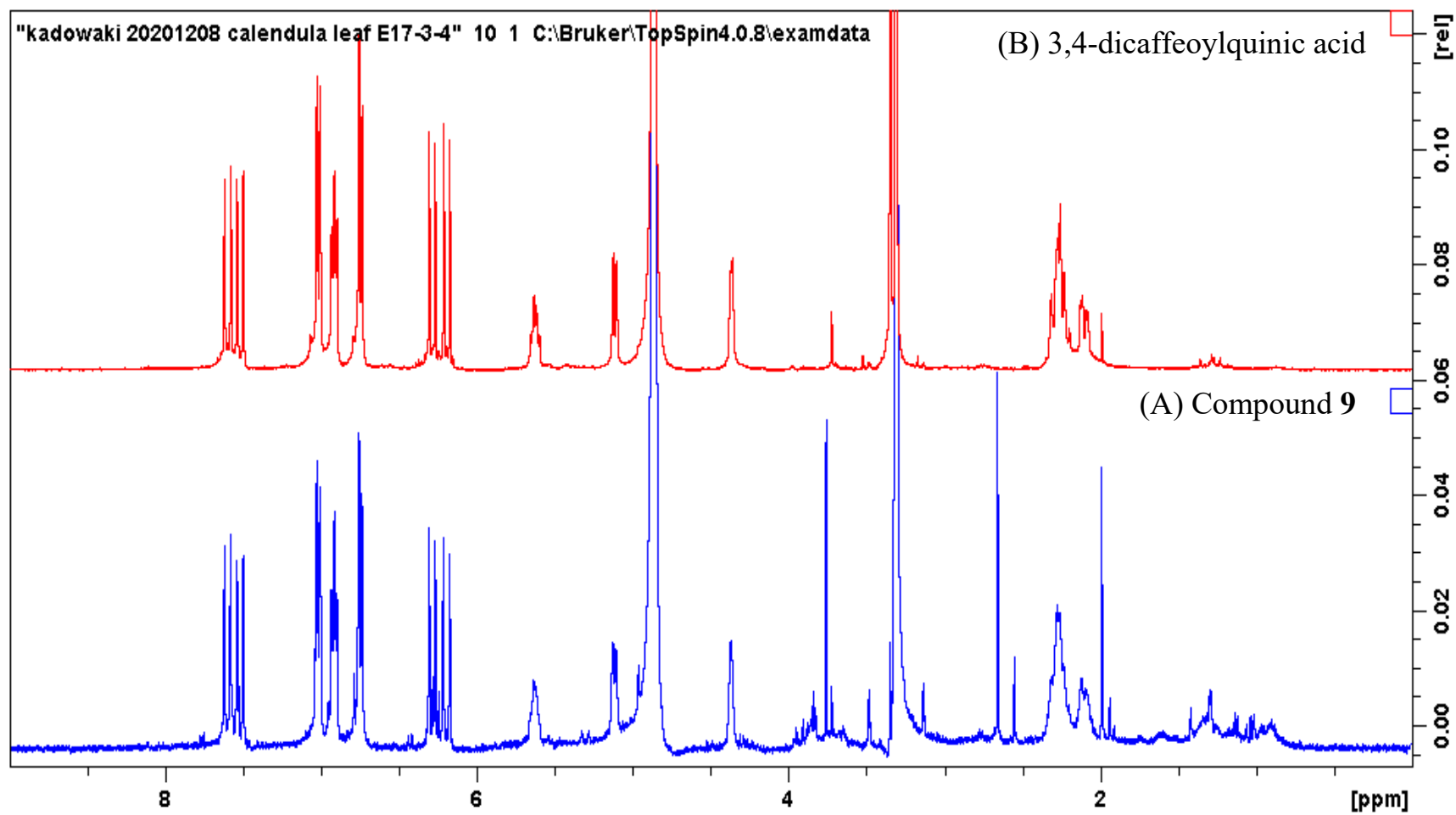


Figure S38. <sup>13</sup>C NMR spectrum of **8** in CD<sub>3</sub>OD (100 MHz).

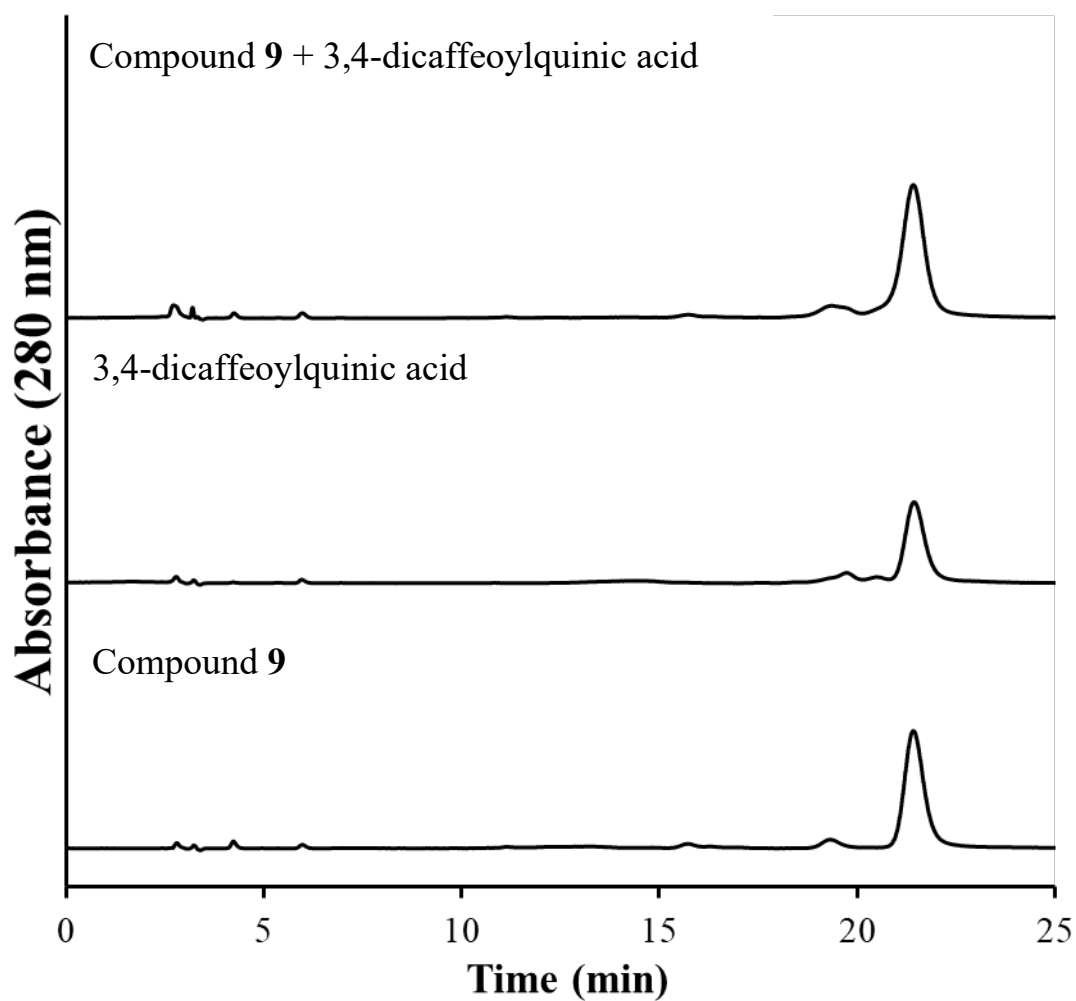


**Figure S39.** HRESIMS spectrum of **9** (positive mode).





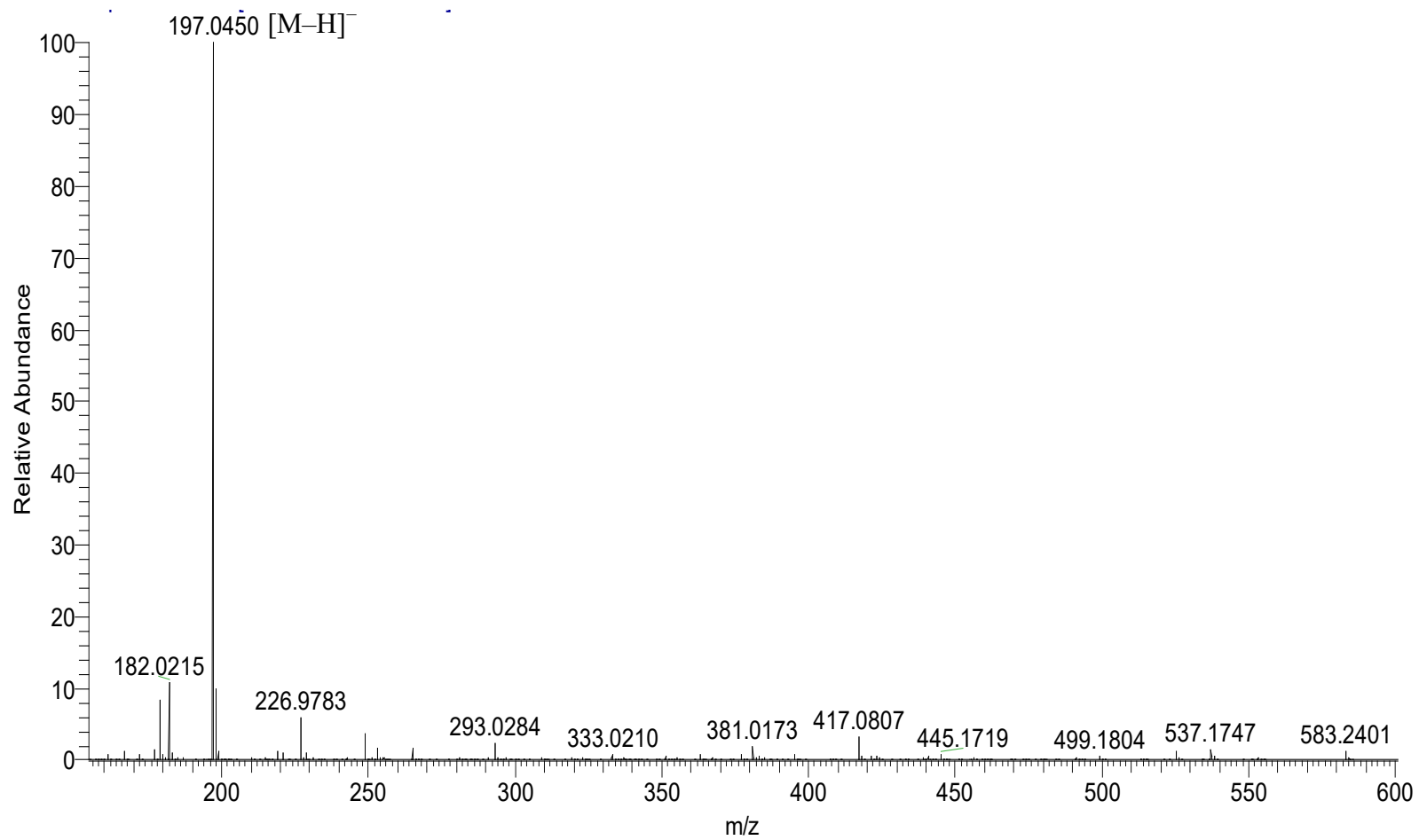
**Figure S40.**  $^1\text{H}$  NMR spectra of **9** (A) and 3,4-dicaffeoylquinic acid (B) in  $\text{CD}_3\text{OD}$  (400 MHz).



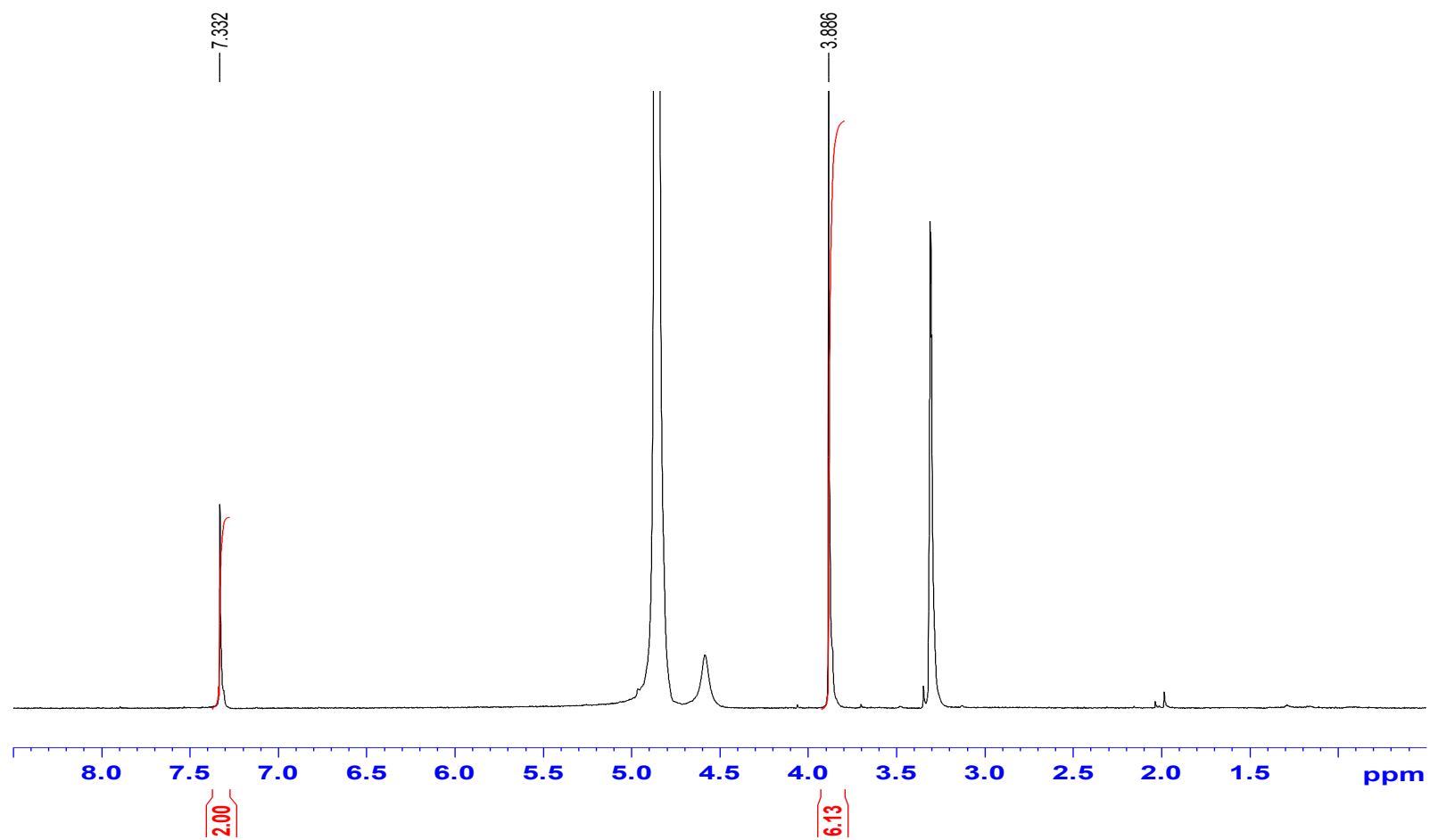
**Figure S41.** HPLC chromatograms of **9** and 3,4-dicaffeoylquinic acid.

<HPLC analysis condition>

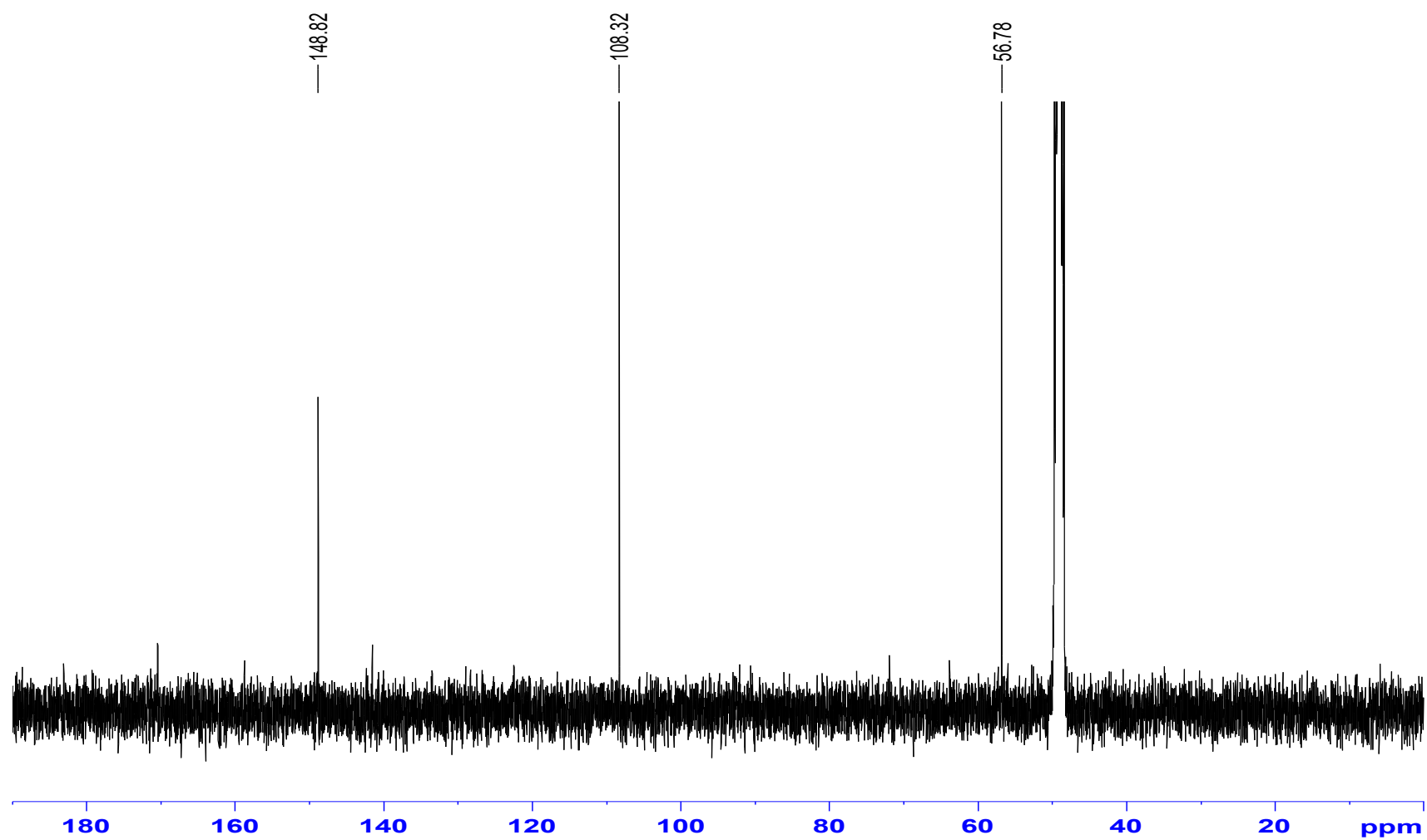
Column : Osaka Soda CAPCELL PAK C18 UG120  
 (5  $\mu$ m,  $\phi$ 4.6  $\times$  250 mm)  
 Solvent : H<sub>2</sub>O:MeCN = 80:20 (0.1% TFA)  
 Flow rate : 1.0 mL/min  
 Detection : 280 nm



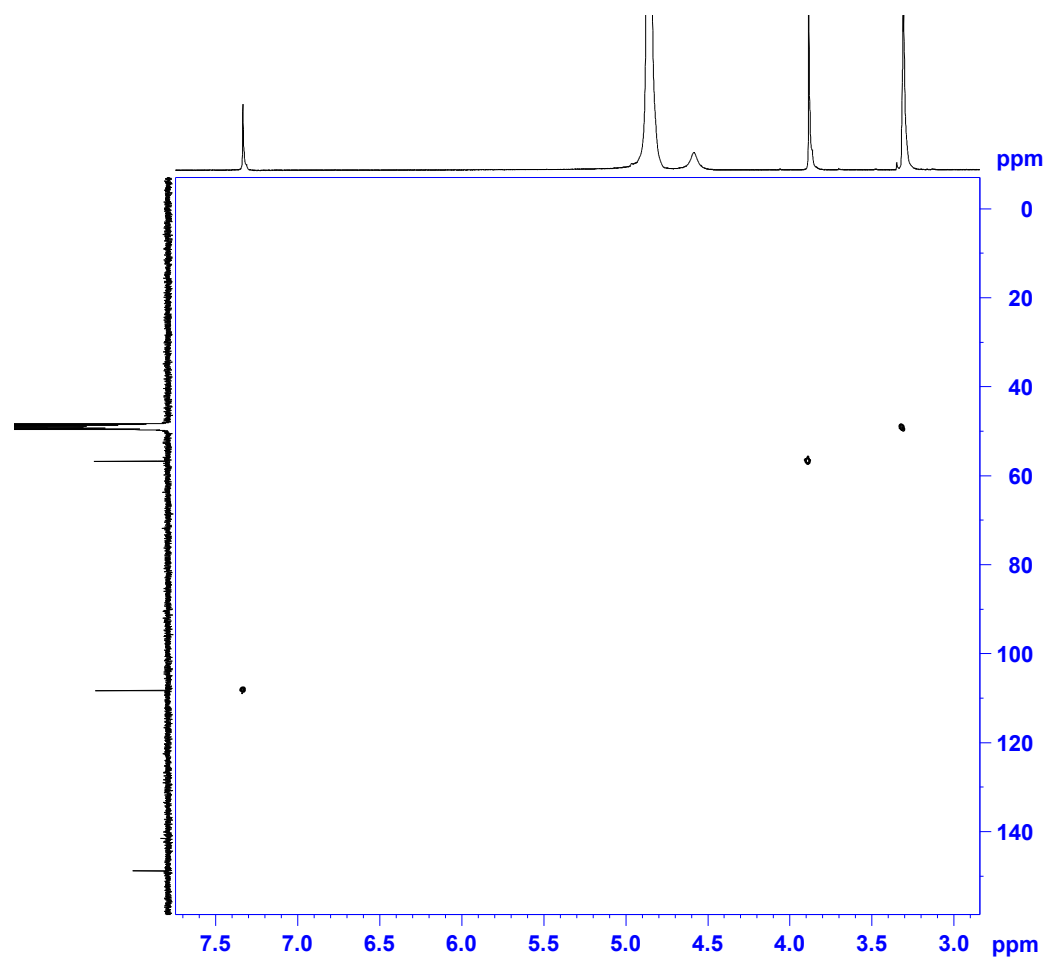
**Figure S42.** HRESIMS spectrum of **10** (negative mode).



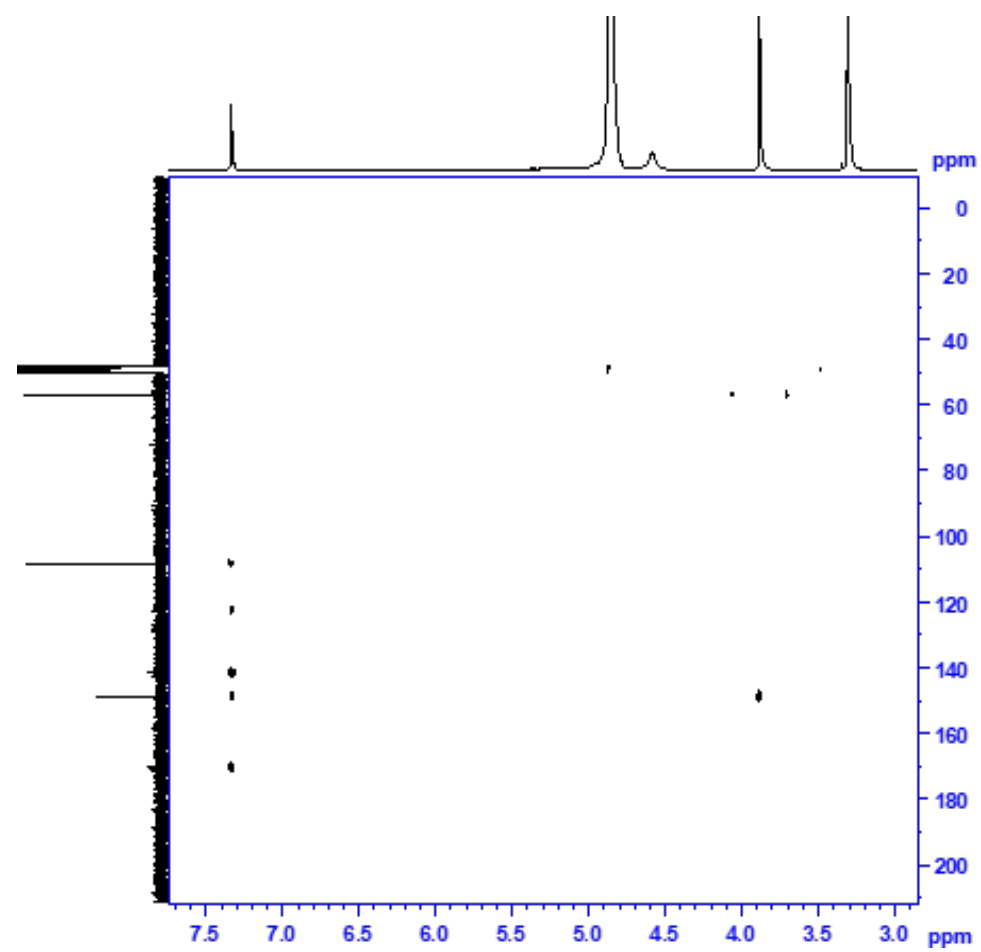
**Figure S43.**  $^1\text{H}$  NMR spectrum of **10** in  $\text{CD}_3\text{OD}$  (400 MHz).



**Figure S44.**  $^{13}\text{C}$  NMR spectrum of **10** in  $\text{CD}_3\text{OD}$  (100 MHz).



**Figure S45.** HSQC spectrum of **10** in CD<sub>3</sub>OD.



**Figure S46.** HMBC spectrum of **10** in  $\text{CD}_3\text{OD}$ .