

## Supporting Information

### Pyranoflavanones and Pyranochalcones from the Fruits of *Amomum tsao-ko*

Jun Gu Kim,<sup>†</sup> Hari Jang,<sup>†</sup> Thi Phuong Linh Le,<sup>†</sup> Hye Ryoung Hong,<sup>†</sup> Mi Kyeong Lee,<sup>†</sup> Jin Tae Hong,<sup>†</sup> Dongho Lee,<sup>‡</sup> and Bang Yeon Hwang<sup>\*,†</sup>

<sup>†</sup>College of Pharmacy, Chungbuk National University, Cheongju 28610, Korea

<sup>‡</sup>Department of Biosystems and Biotechnology, College of Life Sciences and Biotechnology, Korea University, Seoul 02841, Korea

Corresponding author:

Prof. Bang Yeon Hwang, Ph.D.

College of Pharmacy

Chungbuk National University

Cheongju 28610, Republic of Korea

Tel.: +82-43-261-2814; Fax: +82-43-268-2732. E-mail: byhwang@chungbuk.ac.kr

**Figure S1.**  $^1\text{H}$  NMR spectrum of compound **1** ( $\text{CD}_3\text{OD}$ , 400 MHz)

**Figure S2.**  $^{13}\text{C}$  NMR spectrum of compound **1** ( $\text{CD}_3\text{OD}$ , 100 MHz)

**Figure S3.** HSQC spectrum of compound **1**

**Figure S4.** HMBC spectrum of compound **1**

**Figure S5.** HRESIMS spectrum of compound **1**

**Figure S6.**  $^1\text{H}$  NMR spectrum of compound **2** ( $\text{CD}_3\text{OD}$ , 400 MHz)

**Figure S7.**  $^{13}\text{C}$  NMR spectrum of compound **2** ( $\text{CD}_3\text{OD}$ , 100 MHz)

**Figure S8.** HSQC spectrum of compound **2**

**Figure S9.** HMBC spectrum of compound **2**

**Figure S10.** HRESIMS spectrum of compound **2**

**Figure S11.**  $^1\text{H}$  NMR spectrum of compound **3** ( $\text{CD}_3\text{OD}$ , 400 MHz)

**Figure S12.**  $^{13}\text{C}$  NMR spectrum of compound **3** ( $\text{CD}_3\text{OD}$ , 100 MHz)

**Figure S13.** HSQC spectrum of compound **3**

**Figure S14.** HMBC spectrum of compound **3**

**Figure S15.** HRESIMS spectrum of compound **3**

**Figure S16.**  $^1\text{H}$  NMR spectrum of compound **4** ( $\text{CD}_3\text{OD}$ , 400 MHz)

**Figure S17.**  $^{13}\text{C}$  NMR spectrum of compound **4** ( $\text{CD}_3\text{OD}$ , 100 MHz)

**Figure S18.** HSQC spectrum of compound **4**

**Figure S19.** HMBC spectrum of compound **4**

**Figure S20.** HRESIMS spectrum of compound **4**

**Figure S21.**  $^1\text{H}$  NMR spectrum of compound **5** ( $\text{CD}_3\text{OD}$ , 400 MHz)

**Figure S22.**  $^{13}\text{C}$  NMR spectrum of compound **5** ( $\text{CD}_3\text{OD}$ , 100 MHz)

**Figure S23.** HSQC spectrum of compound **5**

**Figure S24.** HMBC spectrum of compound **5**

**Figure S25.** HRESIMS spectrum of compound **5**

**Figure S26.**  $^1\text{H}$  NMR spectrum of compound **6** ( $\text{CD}_3\text{OD}$ , 400 MHz)

**Figure S27.**  $^{13}\text{C}$  NMR spectrum of compound **6** ( $\text{CD}_3\text{OD}$ , 100 MHz)

**Figure S28.** HSQC spectrum of compound **6**

**Figure S29.** HMBC spectrum of compound **6**

**Figure S30.** HRESIMS spectrum of compound **6**

**Figure S31.**  $^1\text{H}$  NMR spectrum of compound **7** ( $\text{CDCl}_3$ , 500 MHz)

**Figure S32.**  $^{13}\text{C}$  NMR spectrum of compound **7** ( $\text{CDCl}_3$ , 125 MHz)

**Figure S33.** HSQC spectrum of compound **7**

**Figure S34.** HMBC spectrum of compound **7**

**Figure S35.** HRESIMS spectrum of compound **7**

**Figure S36.**  $^1\text{H}$  NMR spectrum of compound **8** ( $\text{CDCl}_3$ , 500 MHz)

**Figure S37.**  $^{13}\text{C}$  NMR spectrum of compound **8** ( $\text{CDCl}_3$ , 125 MHz)

**Figure S38.** HSQC spectrum of compound **8**

**Figure S39.** HMBC spectrum of compound **8**

**Figure S40.** HRESIMS spectrum of compound **8**

**Figure S41.**  $^1\text{H}$  NMR spectrum of compound **9** ( $\text{CDCl}_3$ , 500 MHz)

**Figure S42.**  $^{13}\text{C}$  NMR spectrum of compound **9** ( $\text{CDCl}_3$ , 125 MHz)

**Figure S43.** HSQC spectrum of compound **9**

**Figure S44.** HMBC spectrum of compound **9**

**Figure S45.** HRESIMS spectrum of compound **9**

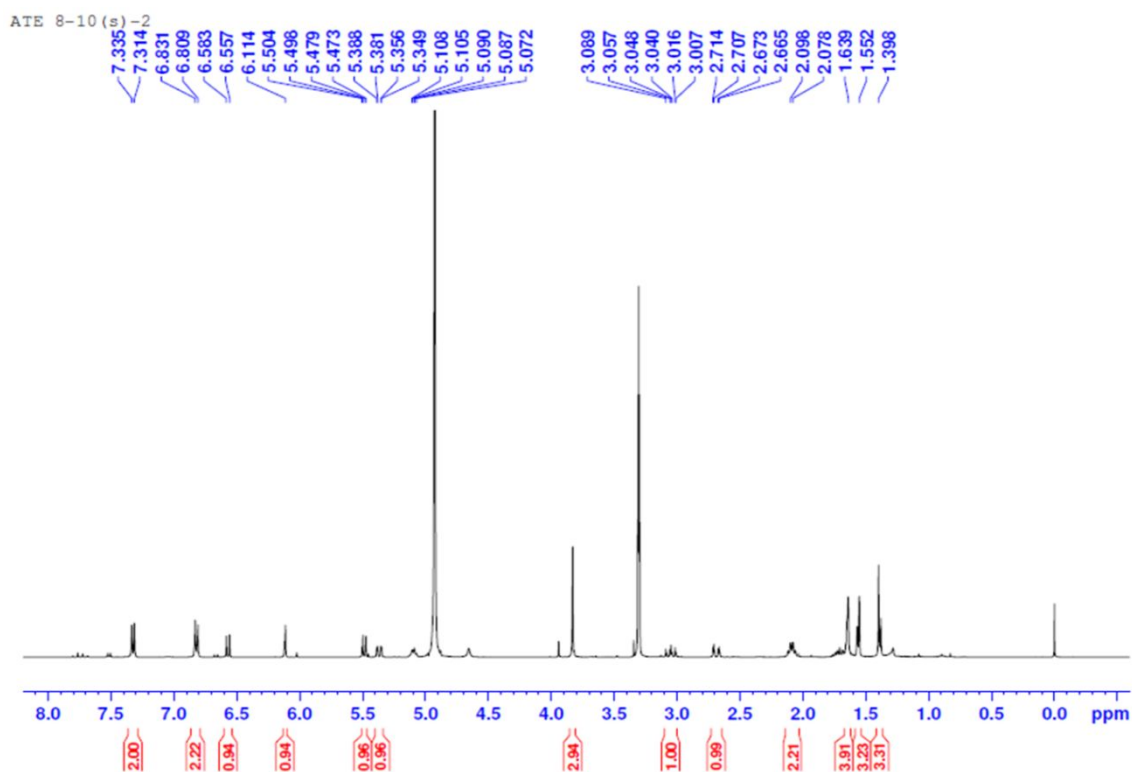
**Figure S46.**  $^1\text{H}$  NMR spectrum of compound **10** ( $\text{CDCl}_3$ , 400 MHz)

**Figure S47.**  $^{13}\text{C}$  NMR spectrum of compound **10** ( $\text{CDCl}_3$ , 100 MHz)

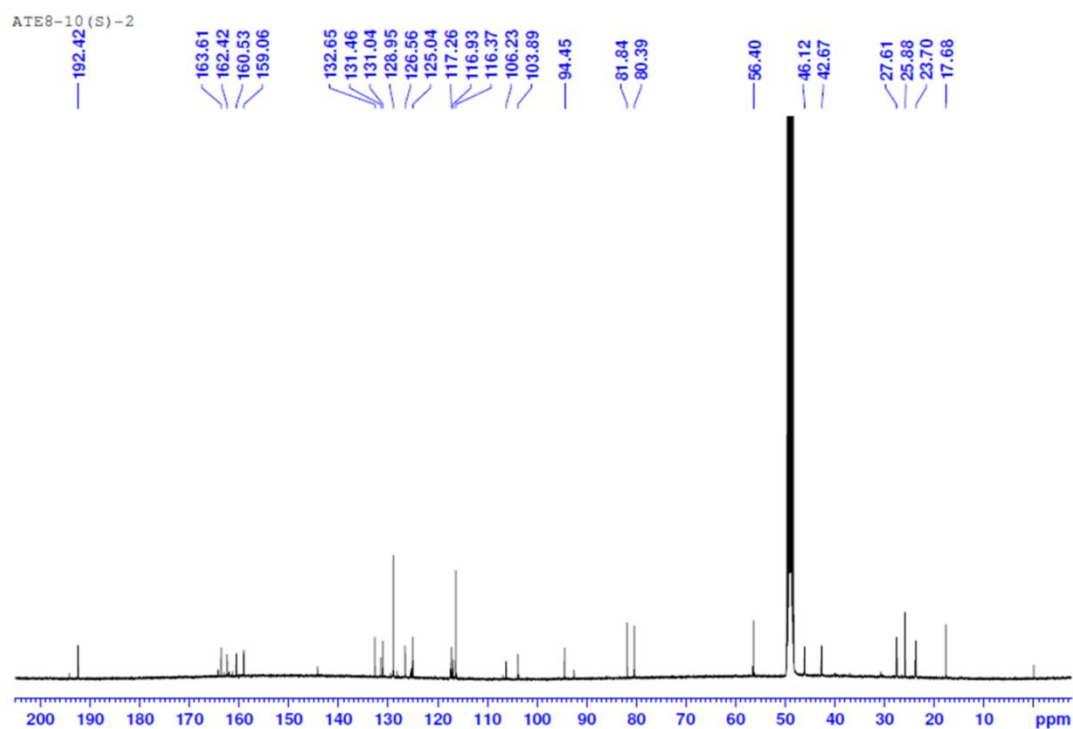
**Figure S48.** HSQC spectrum of compound **10**

**Figure S49.** HMBC spectrum of compound **10**

**Figure S50.** HRESIMS spectrum of compound **10**

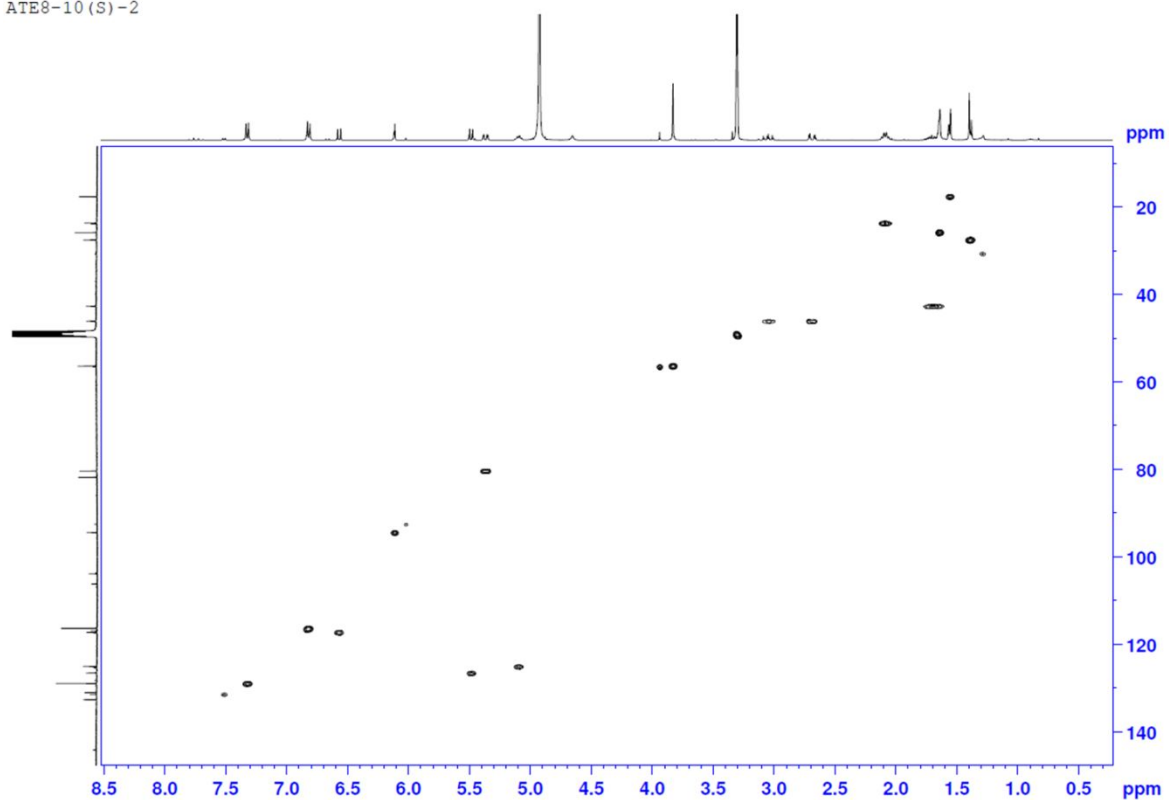


**Figure S1.**  $^1\text{H}$  NMR spectrum of compound **1** ( $\text{CD}_3\text{OD}$ , 400 MHz)



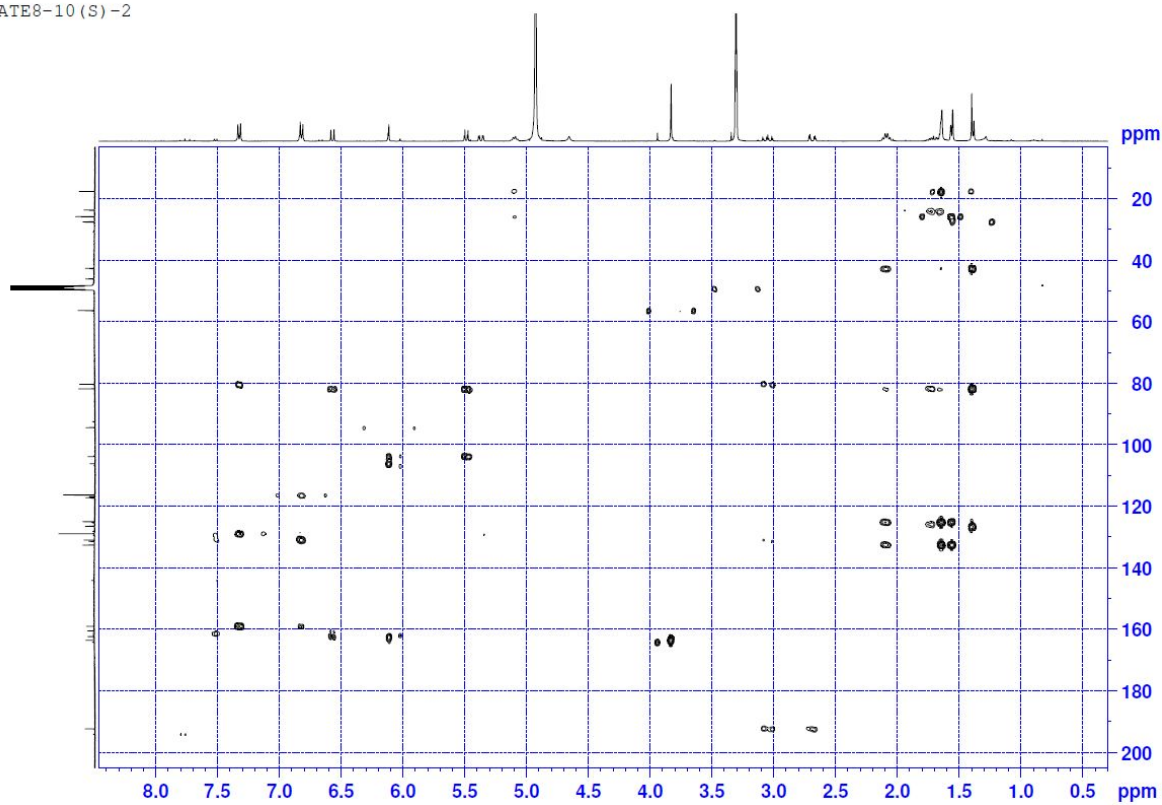
**Figure S2.**  $^{13}\text{C}$  NMR spectrum of compound **1** ( $\text{CD}_3\text{OD}$ , 100 MHz)

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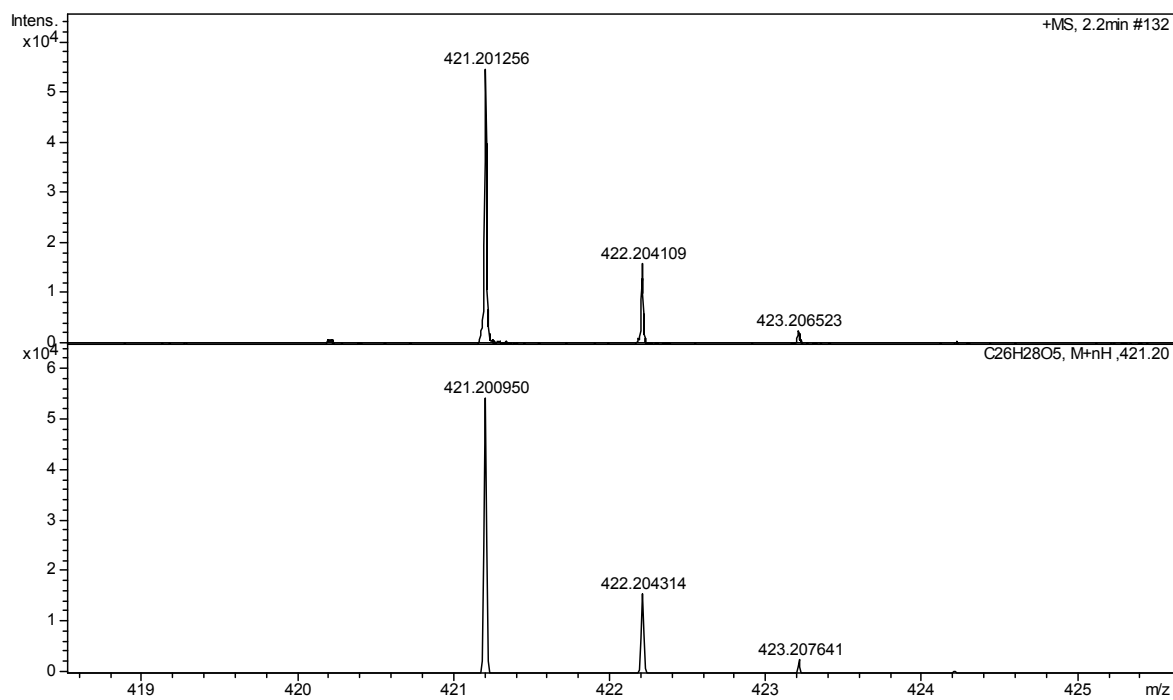


**Figure S3.** HSQC spectrum of compound **1**

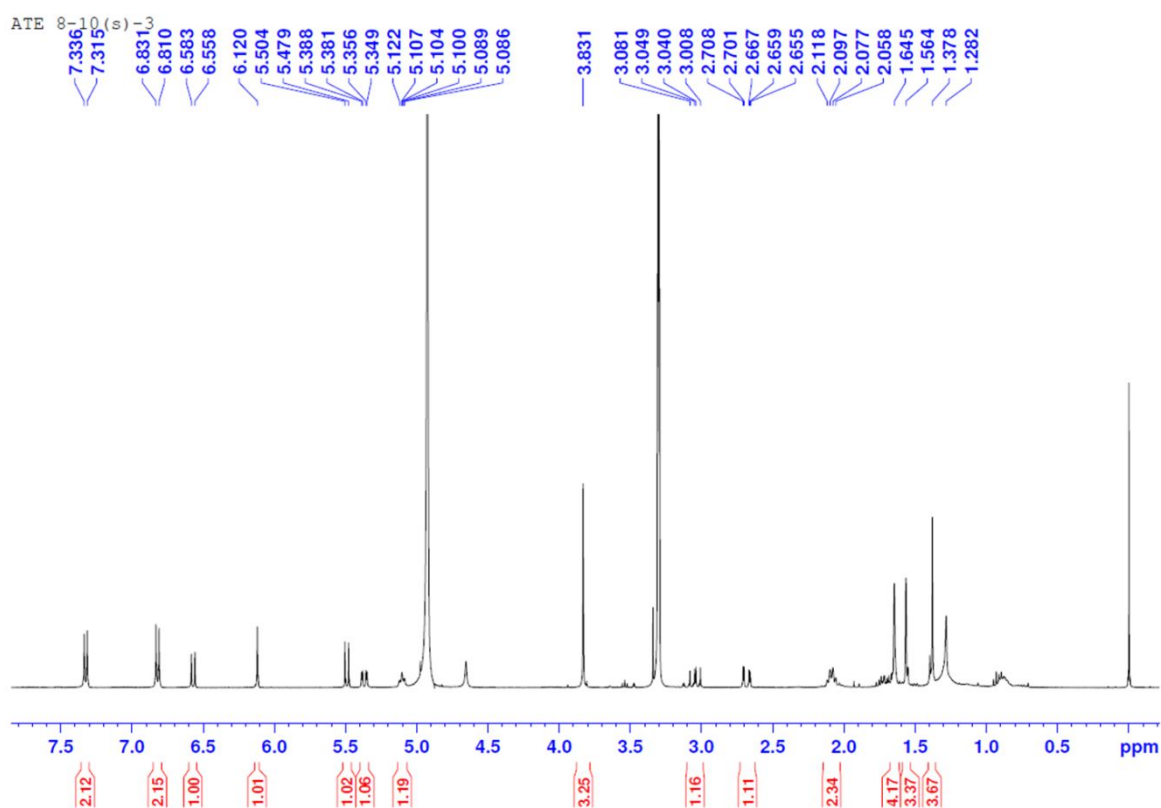
ATE8-10(S)-2



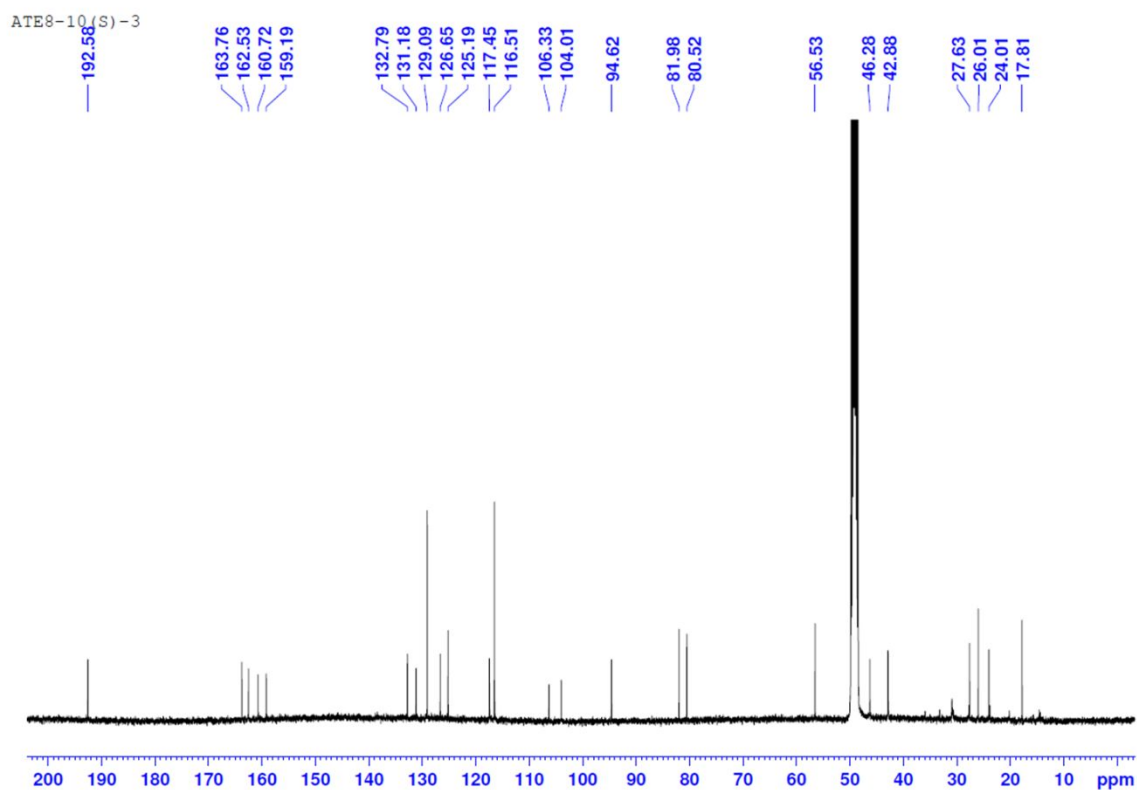
**Figure S4.** HMBC spectrum of compound **1**



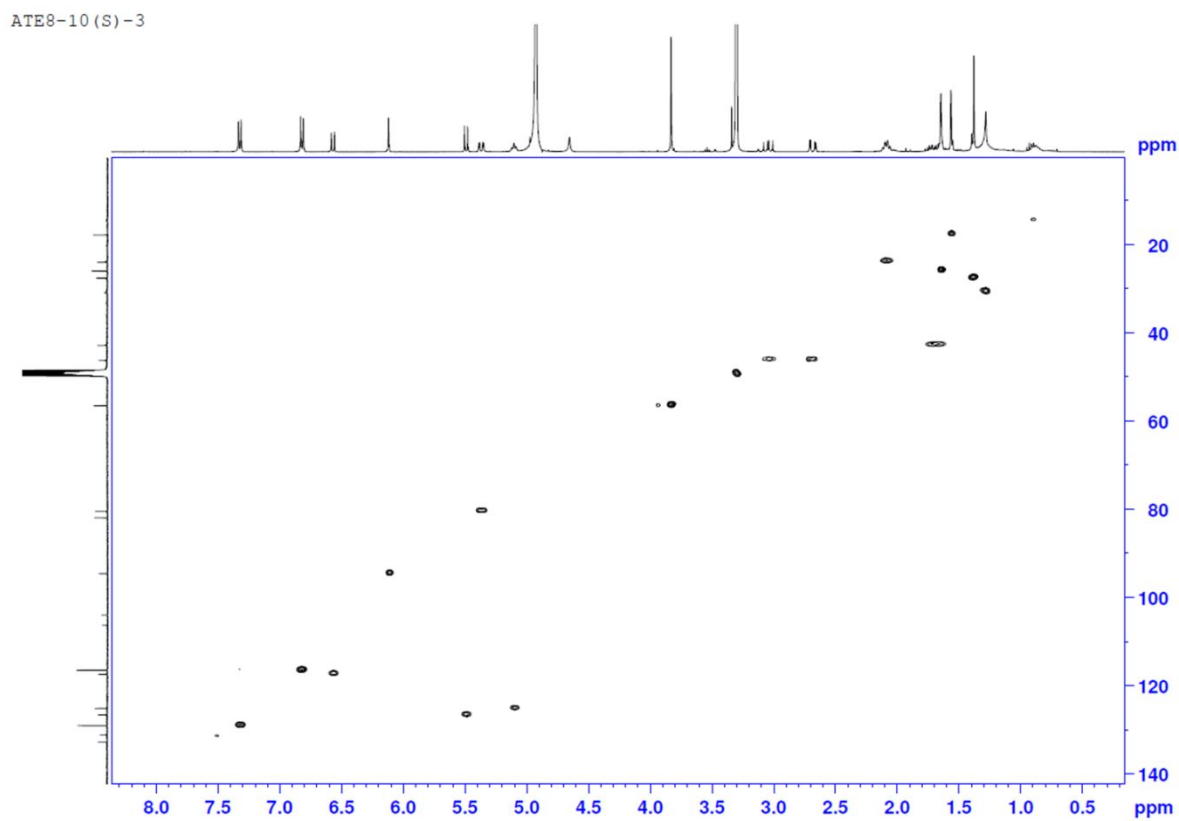
**Figure S5.** HRESIMS spectrum of compound **1**



**Figure S6.** <sup>1</sup>H NMR spectrum of compound **2** (CD<sub>3</sub>OD, 400 MHz)

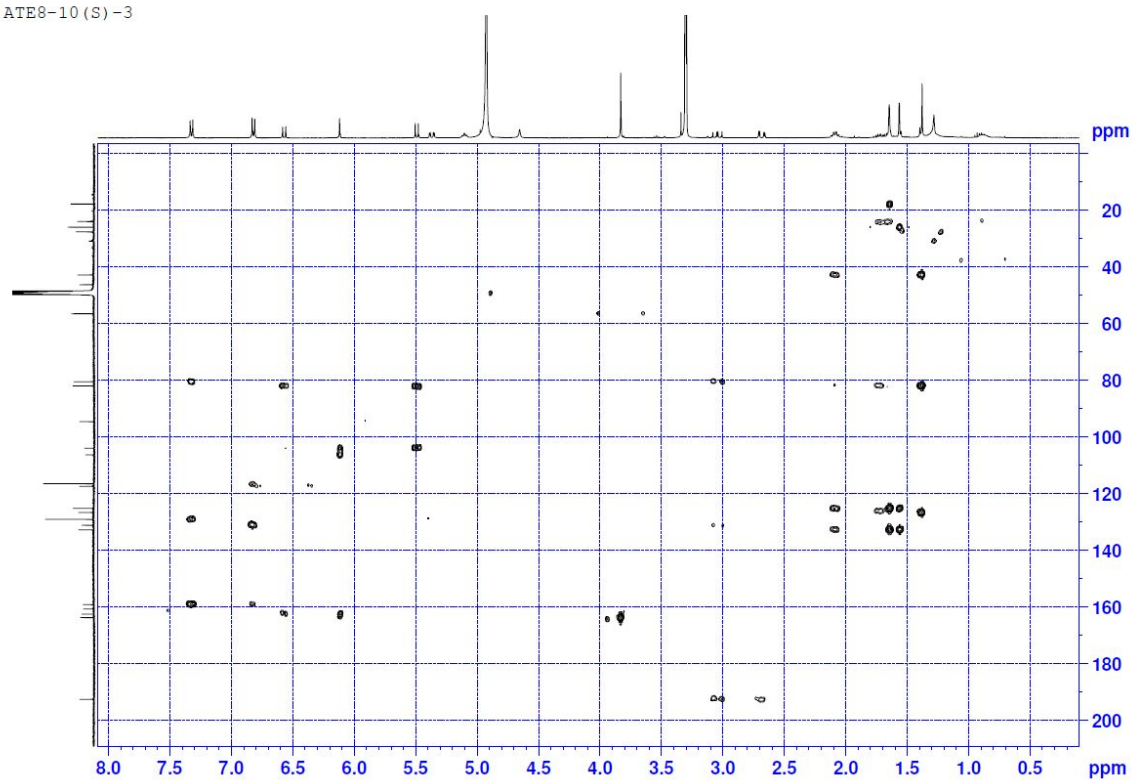


**Figure S7.**  $^{13}\text{C}$  NMR spectrum of compound **2** ( $\text{CD}_3\text{OD}$ , 100 MHz)

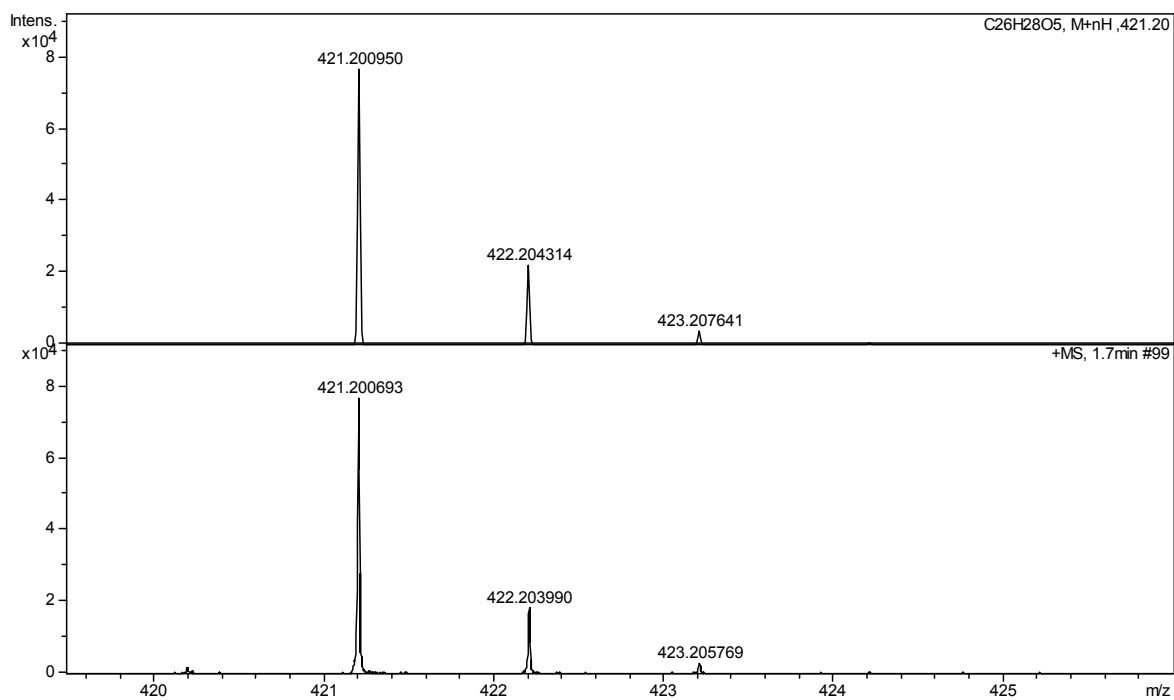


**Figure S8.** HSQC spectrum of compound **2**

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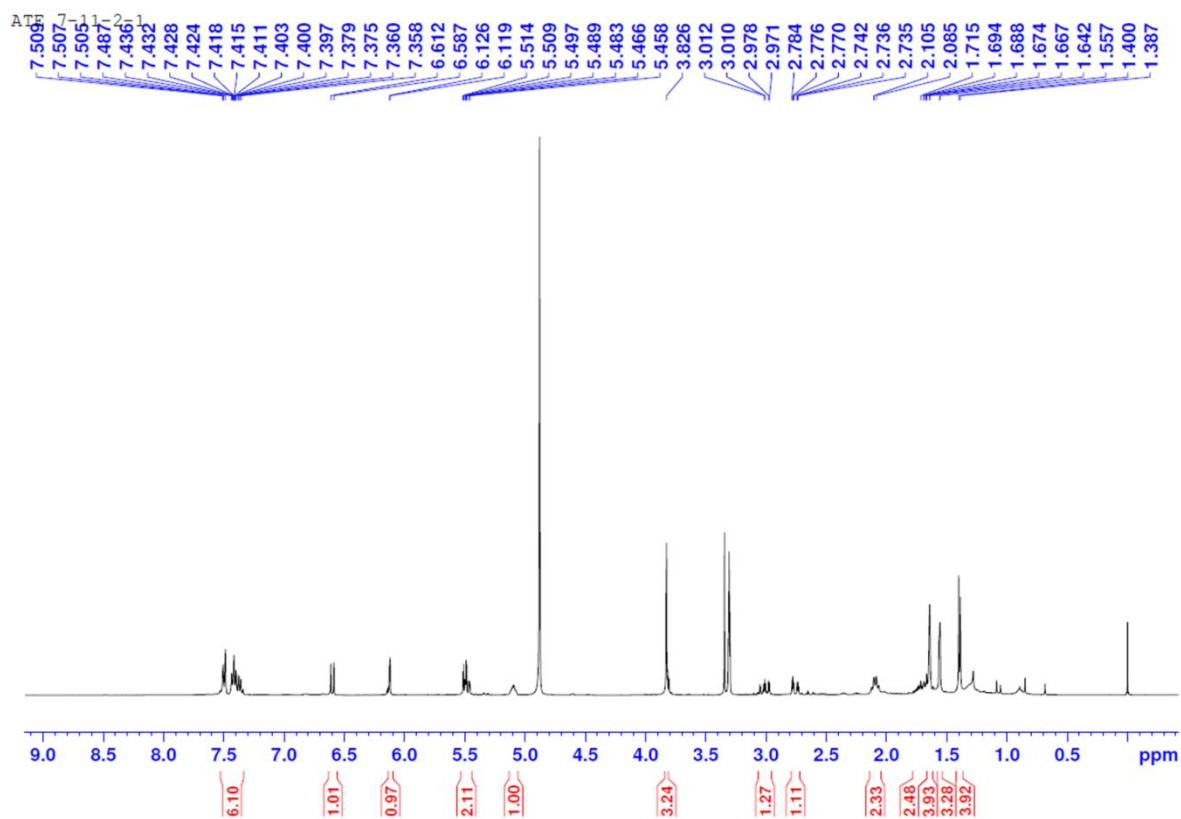


**Figure S9.** HMBC spectrum of compound **2**

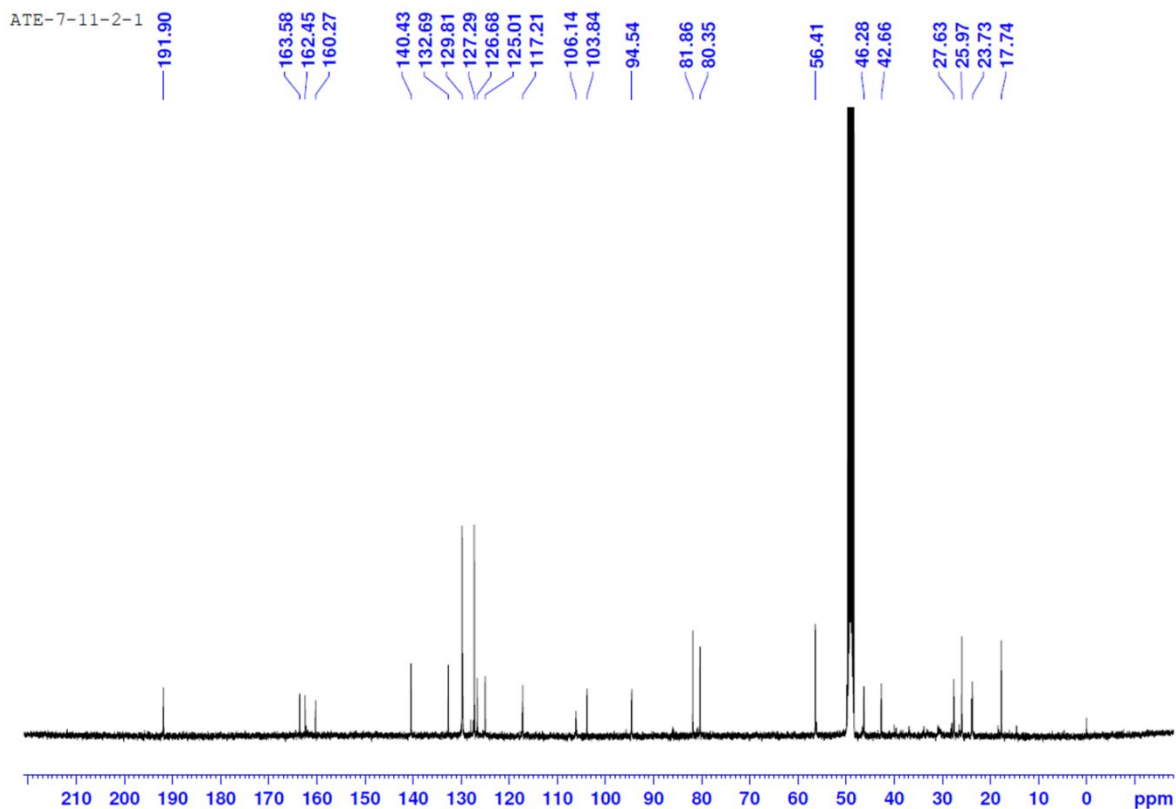


**Figure S10.** HRESIMS spectrum of compound **2**



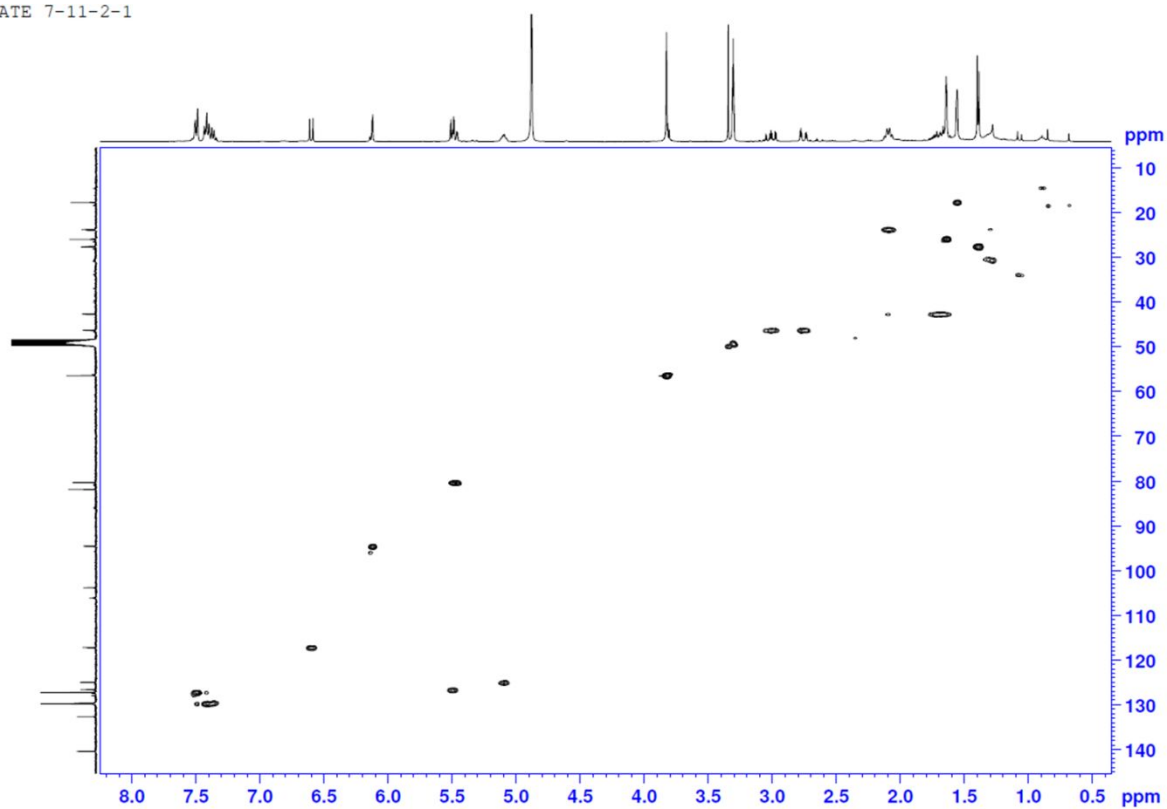


**Figure S11.**  $^1\text{H}$  NMR spectrum of compound **3** ( $\text{CD}_3\text{OD}$ , 400 MHz)



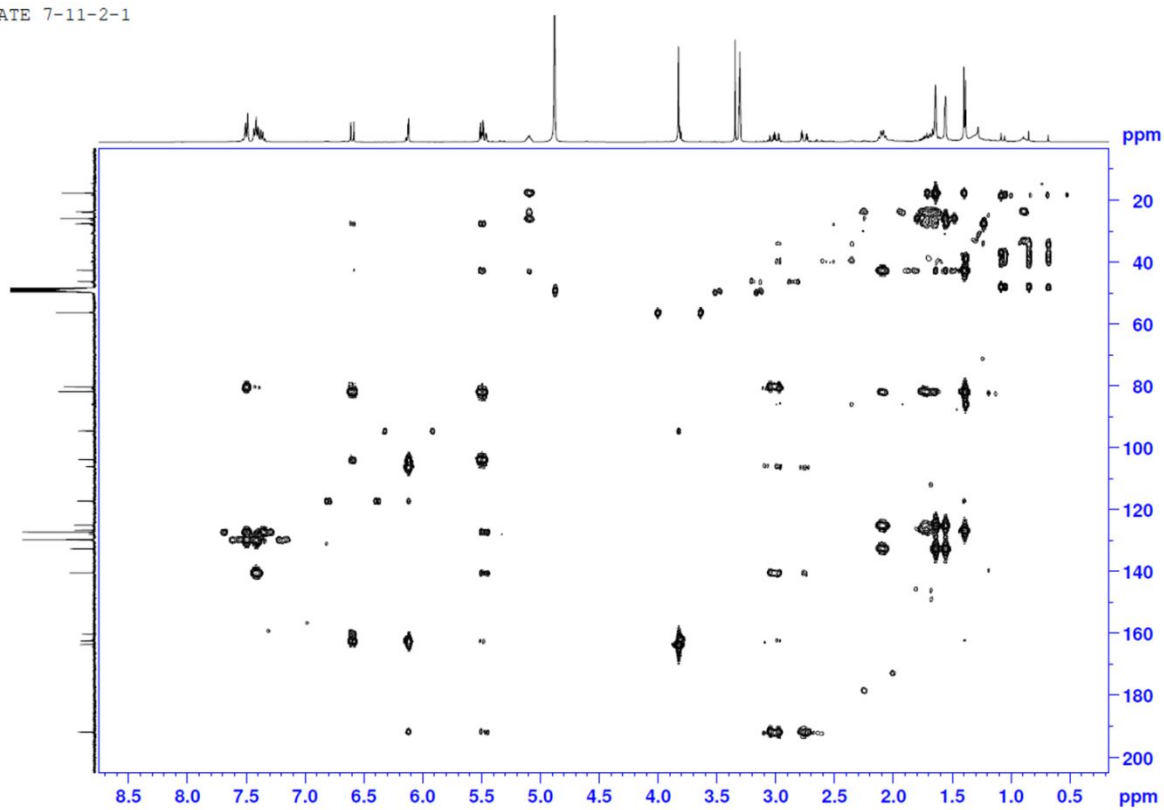
**Figure S12.**  $^{13}\text{C}$  NMR spectrum of compound **3** ( $\text{CD}_3\text{OD}$ , 100 MHz)

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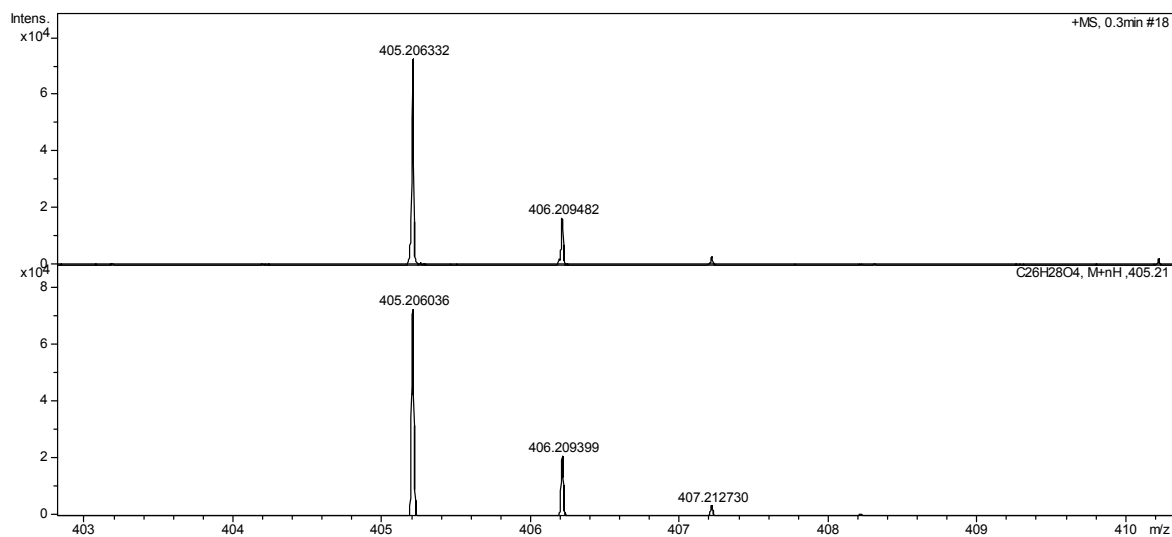


**Figure S13.** HSQC spectrum of compound **3**

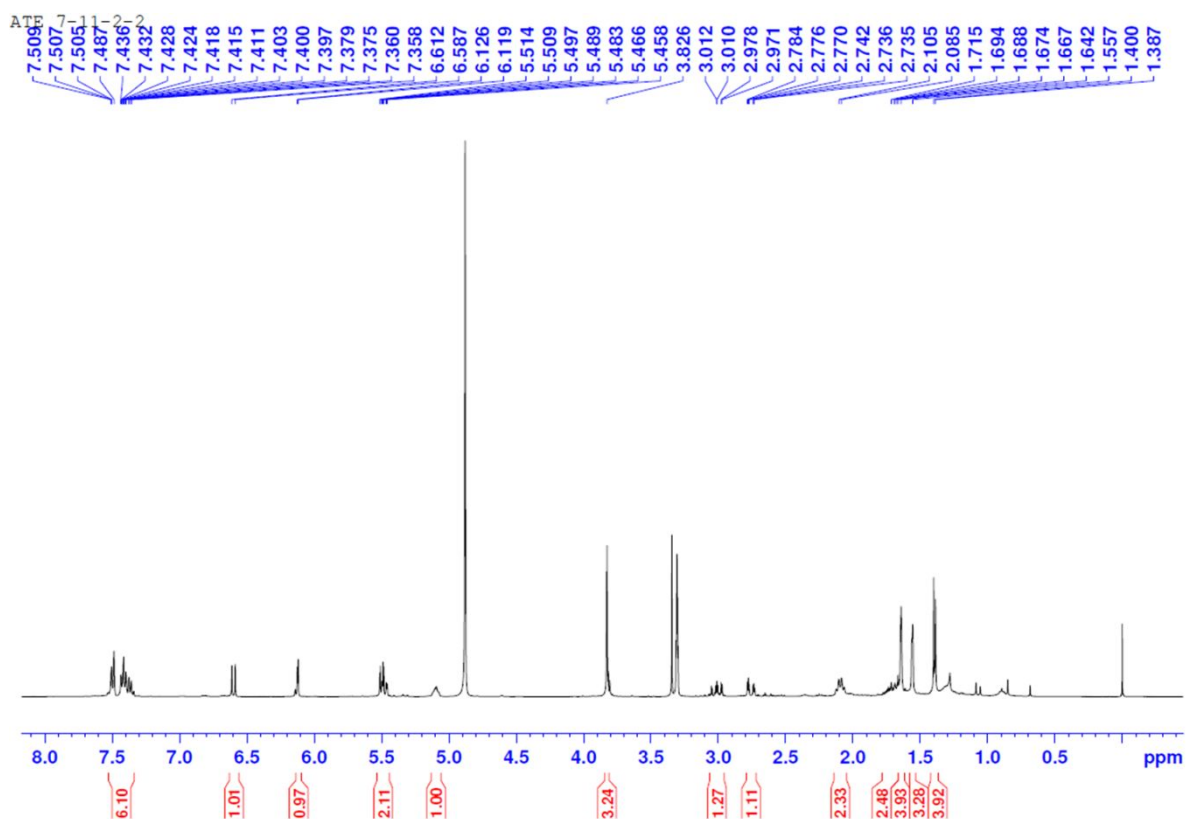
ATE 7-11-2-1



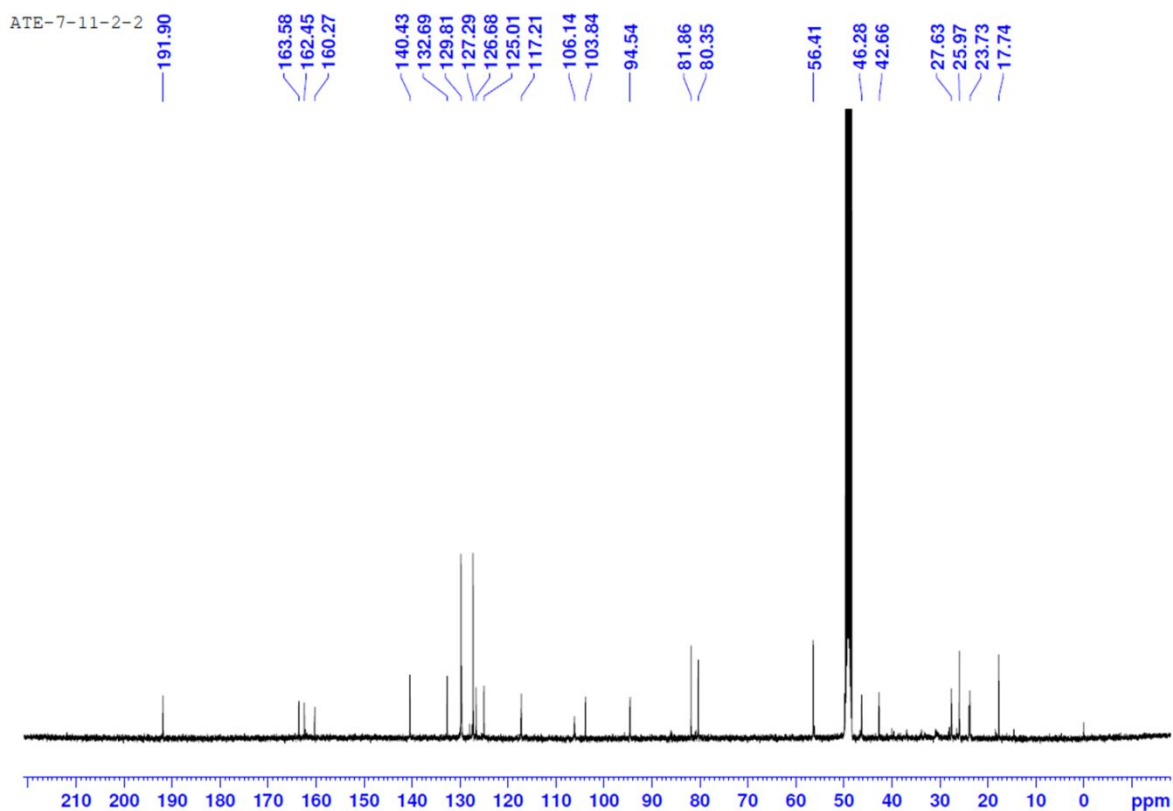
**Figure S14.** HMBC spectrum of compound **3**



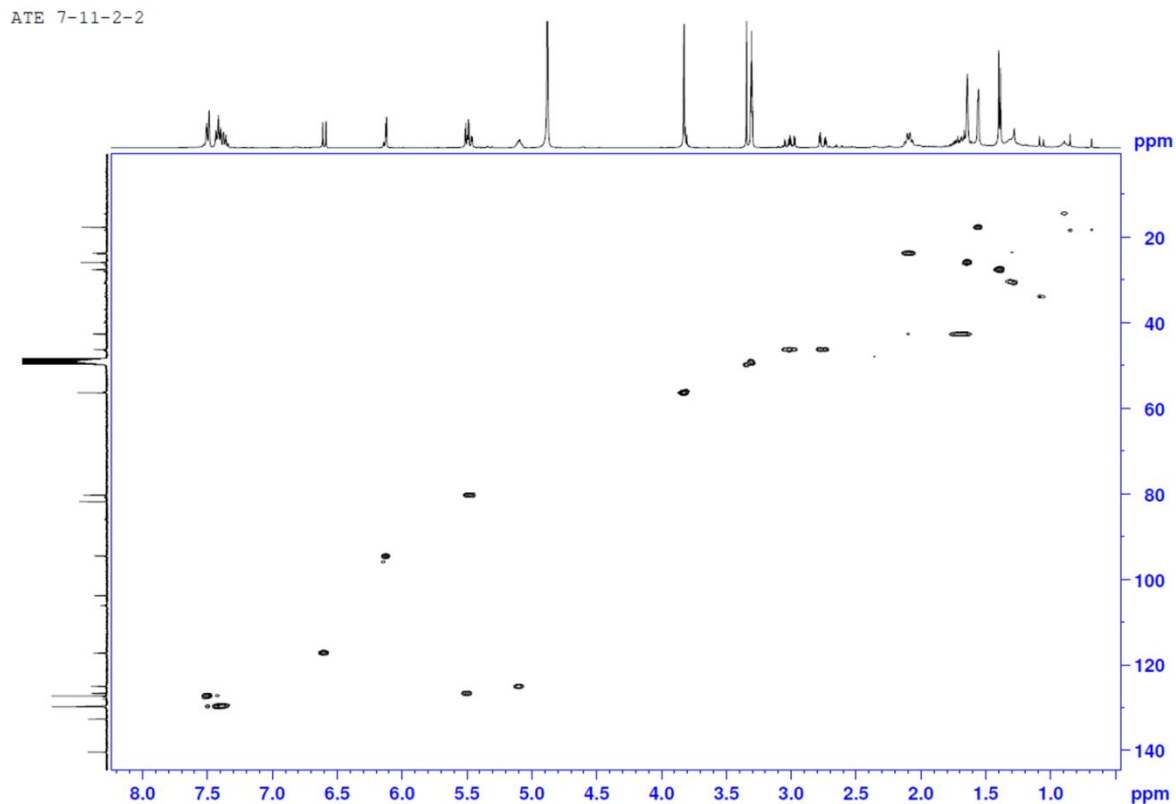
**Figure S15.** HRESIMS spectrum of compound **3**



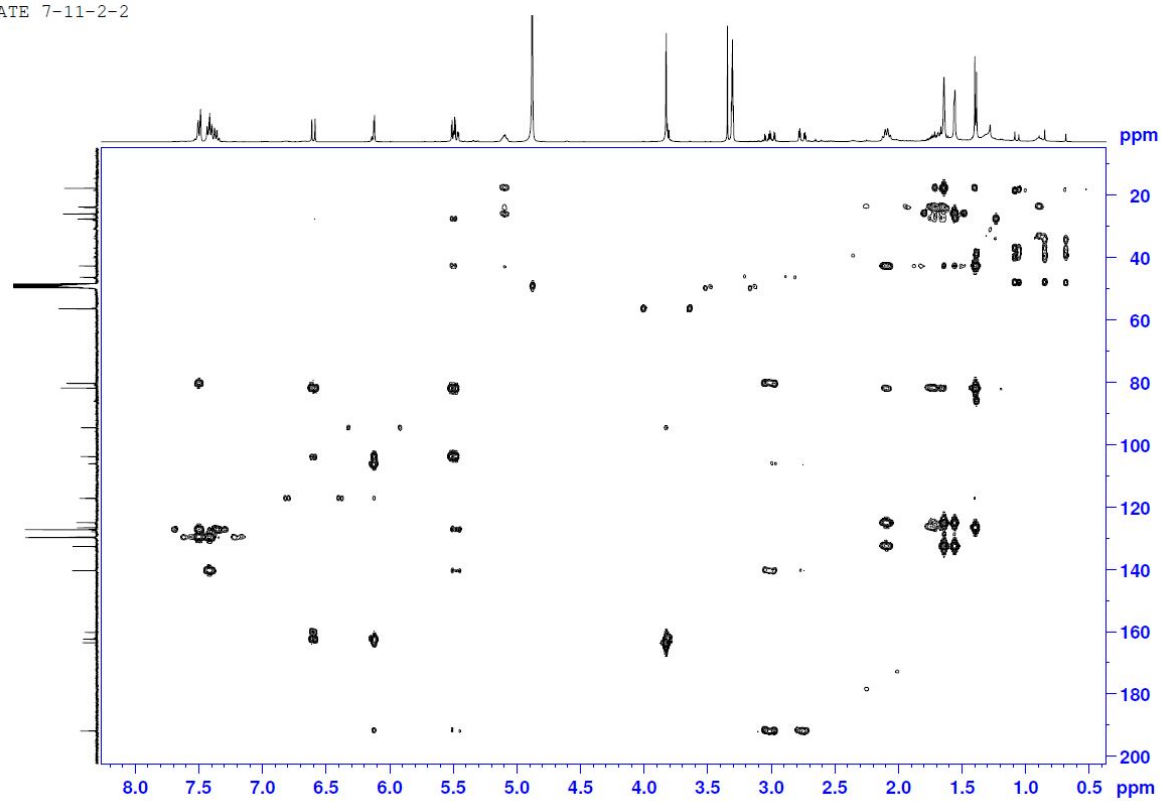
**Figure S16.**  $^1\text{H}$  NMR spectrum of compound **4** ( $\text{CD}_3\text{OD}$ , 400 MHz)



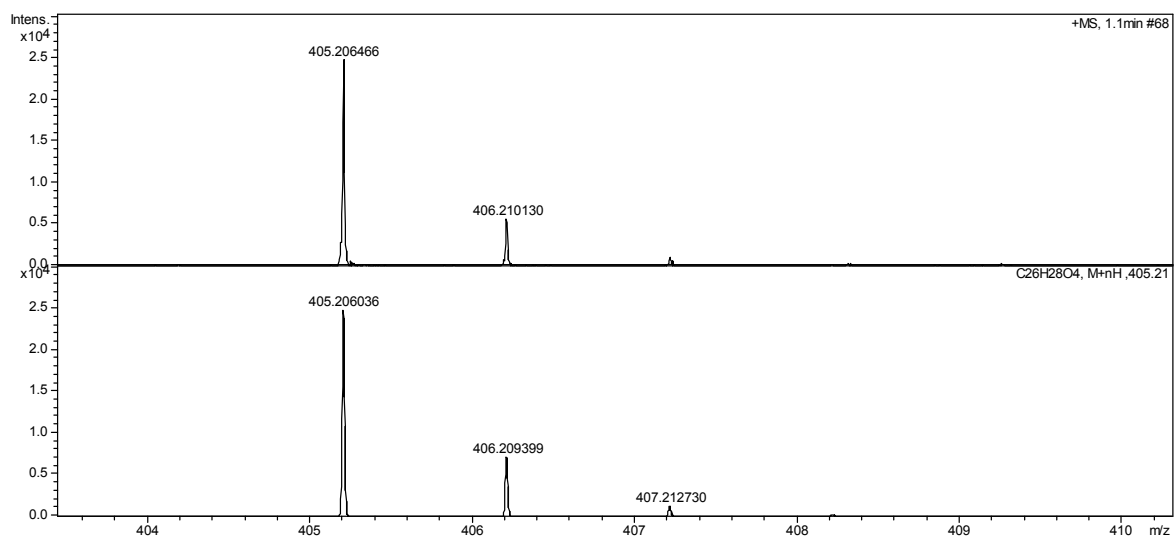
**Figure S17.**  $^{13}\text{C}$  NMR spectrum of compound **4** ( $\text{CD}_3\text{OD}$ , 100 MHz)



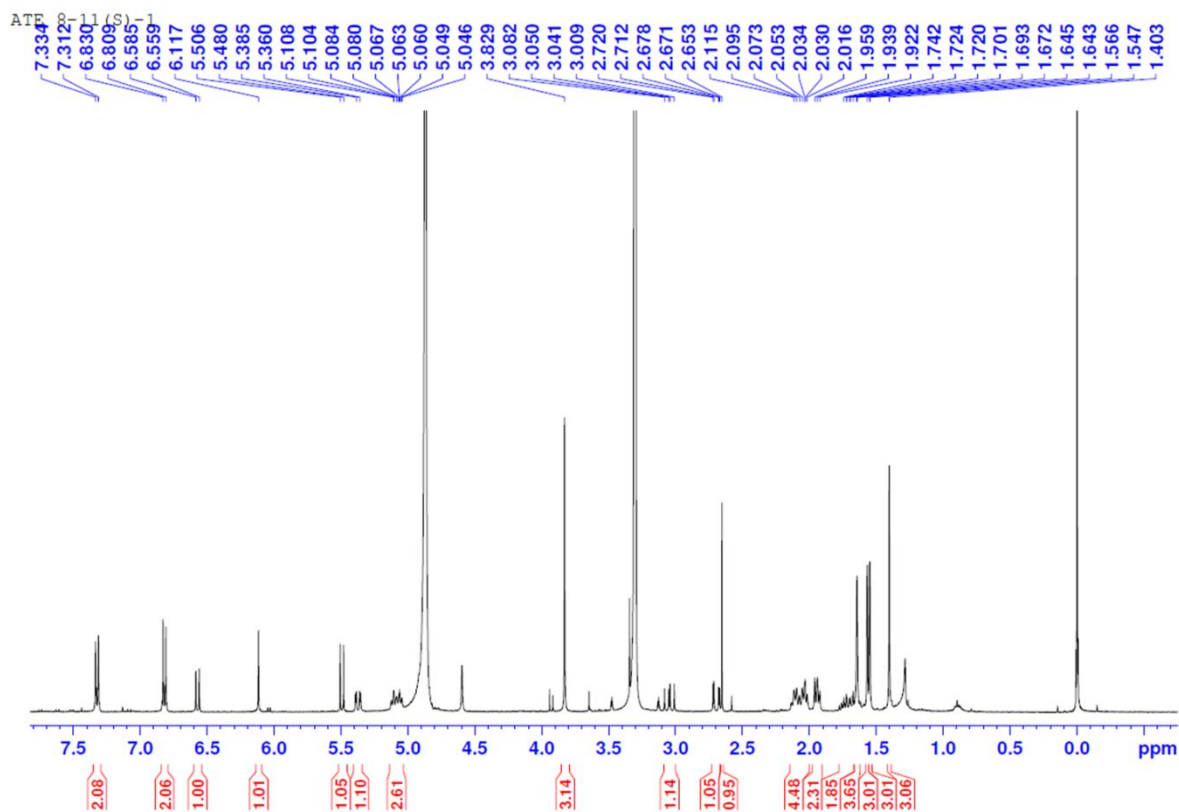
**Figure S18.** HSQC spectrum of compound **4**



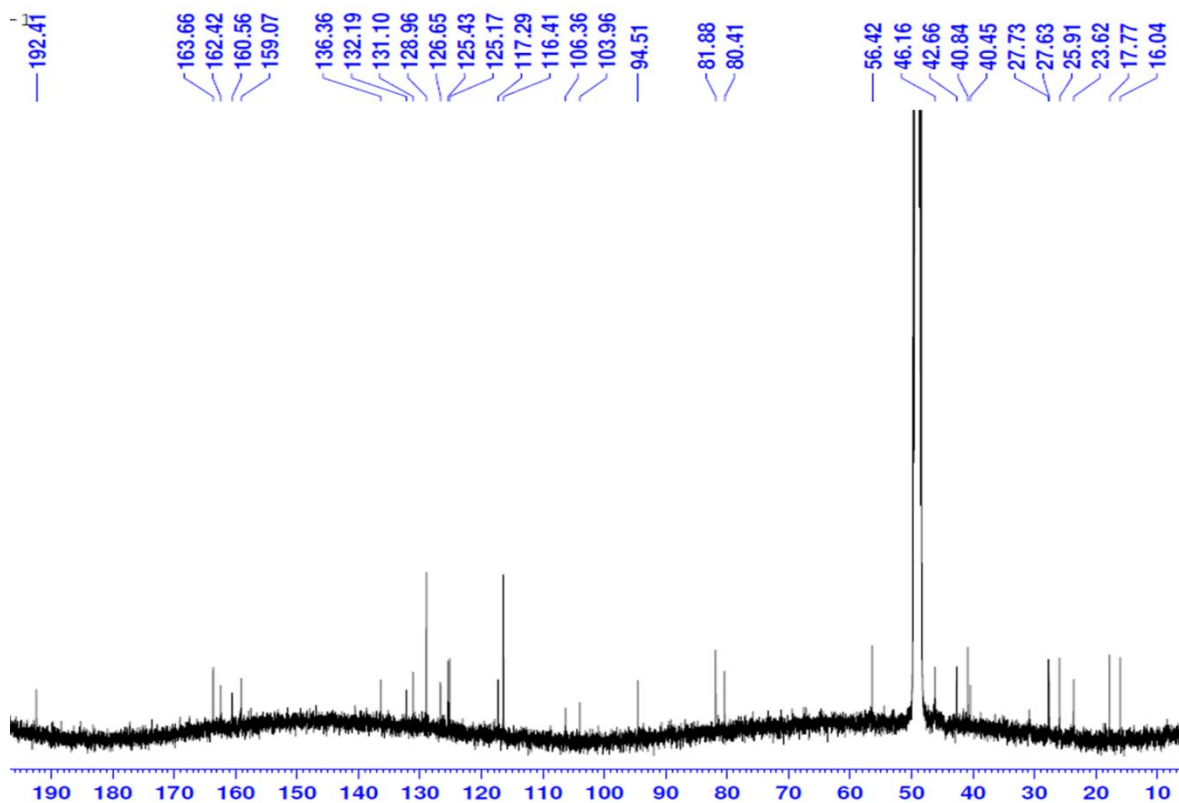
**Figure S19.** HMBC spectrum of compound **4**



**Figure S20.** HRESIMS spectrum of compound **4**

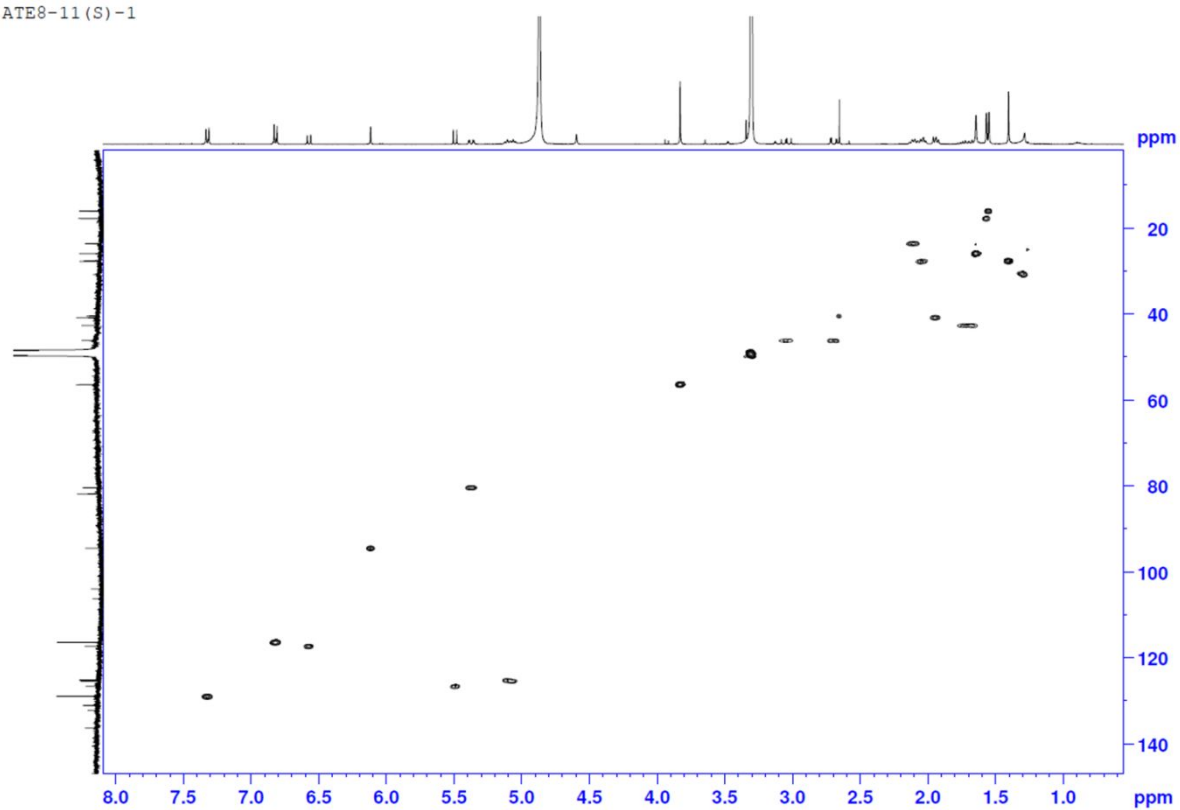


**Figure S21.** <sup>1</sup>H NMR spectrum of compound **5** (CD<sub>3</sub>OD, 400 MHz)



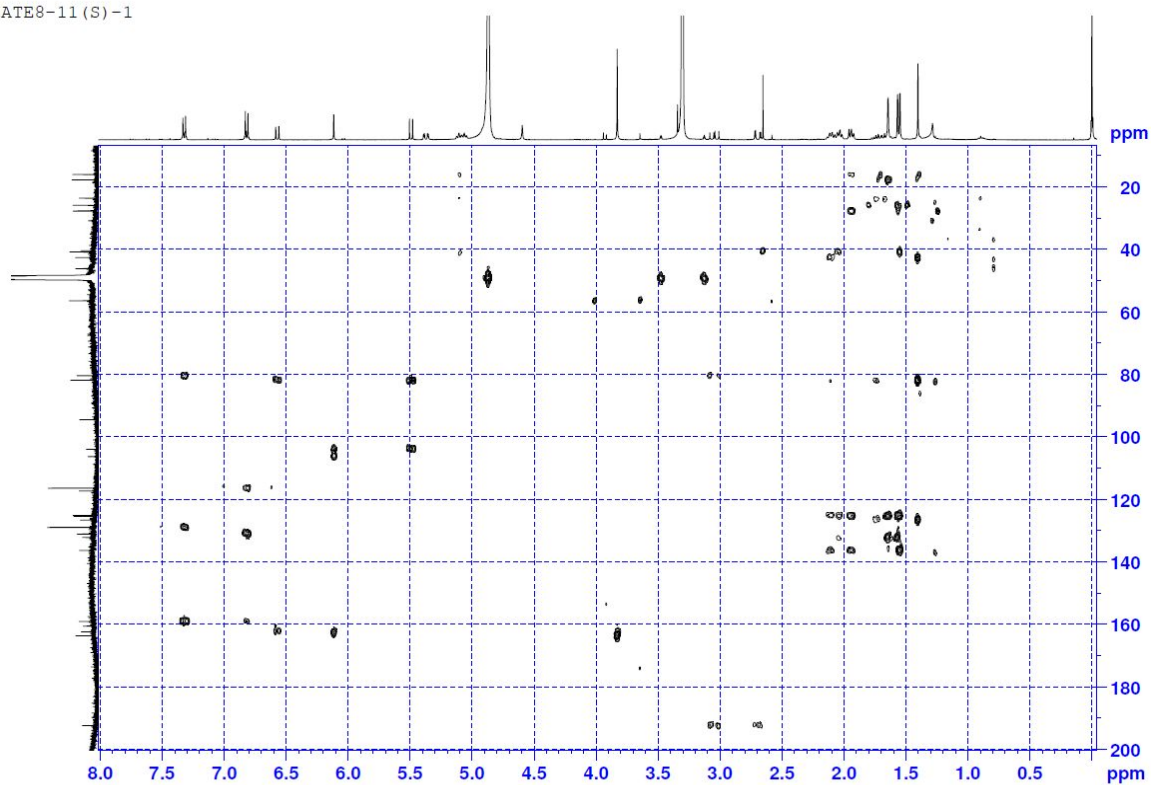
**Figure S22.** <sup>13</sup>C NMR spectrum of compound **5** (CD<sub>3</sub>OD, 100 MHz)

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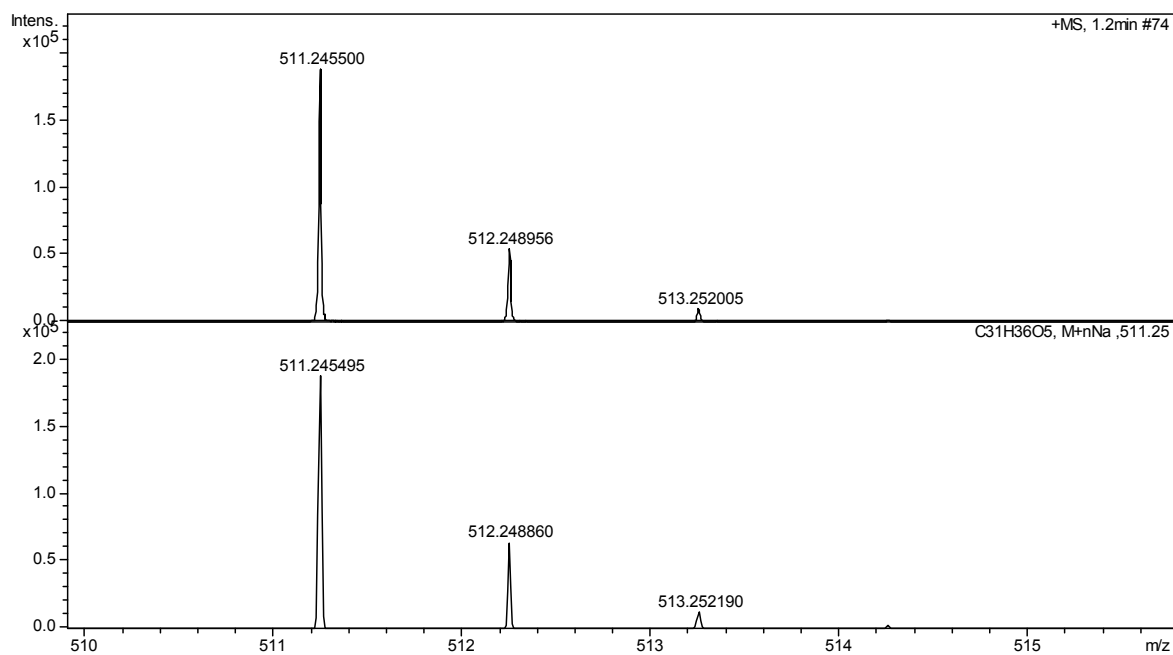


**Figure S23.** HSQC spectrum of compound **5**

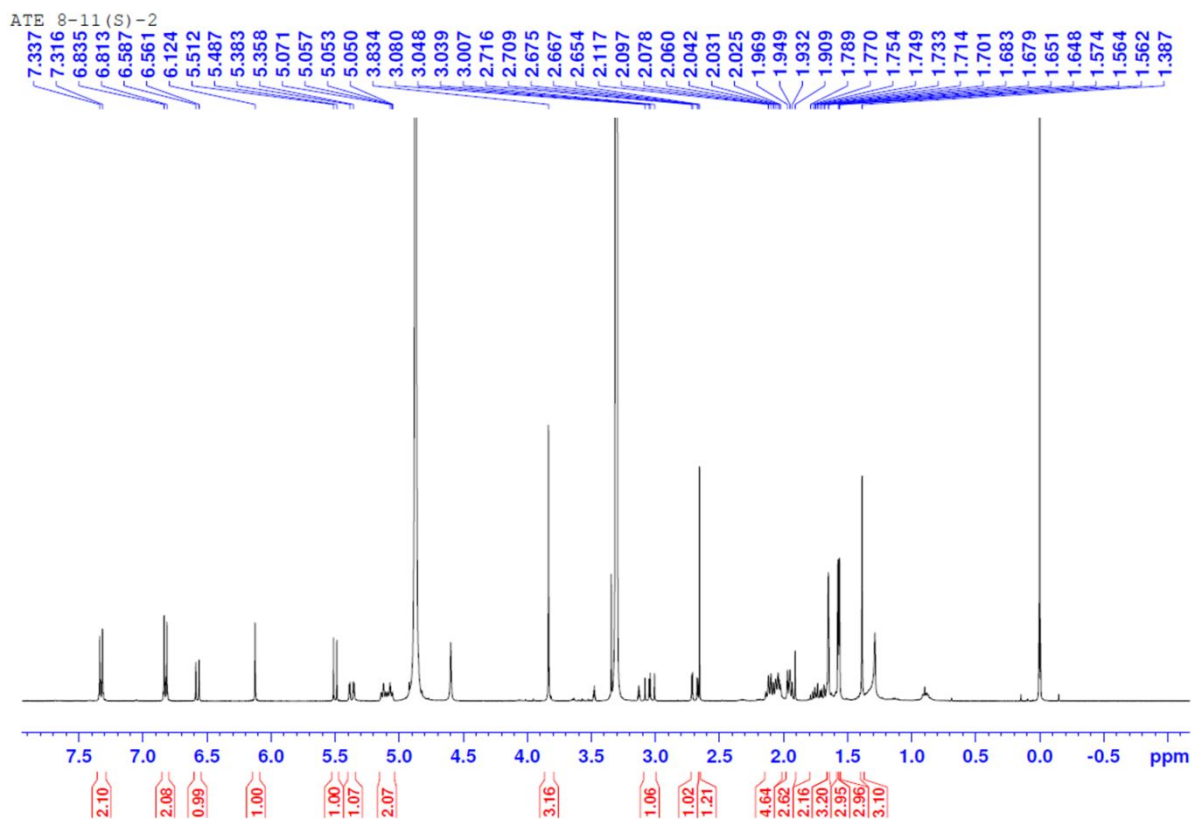
ATE8-11(S)-1



**Figure S24.** HMBC spectrum of compound **5**

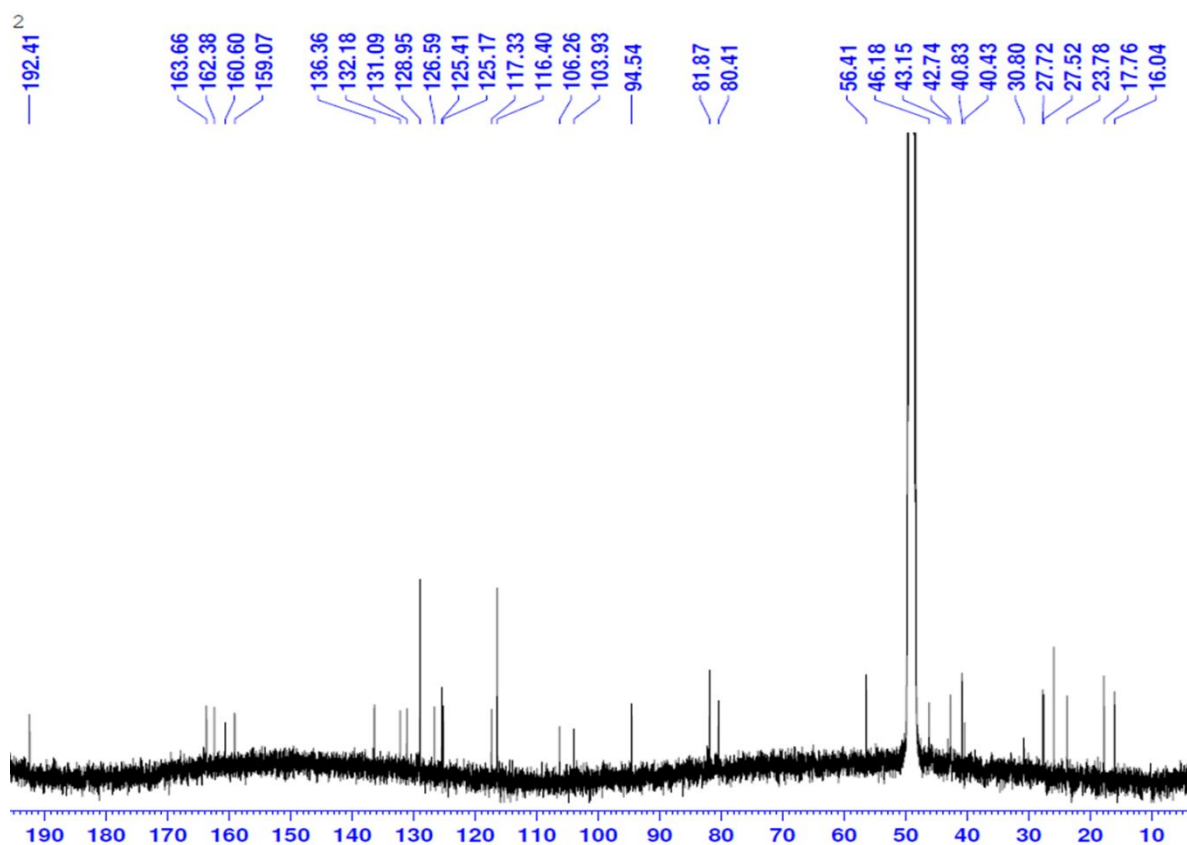


**Figure S25.** HRESIMS spectrum of compound **5**



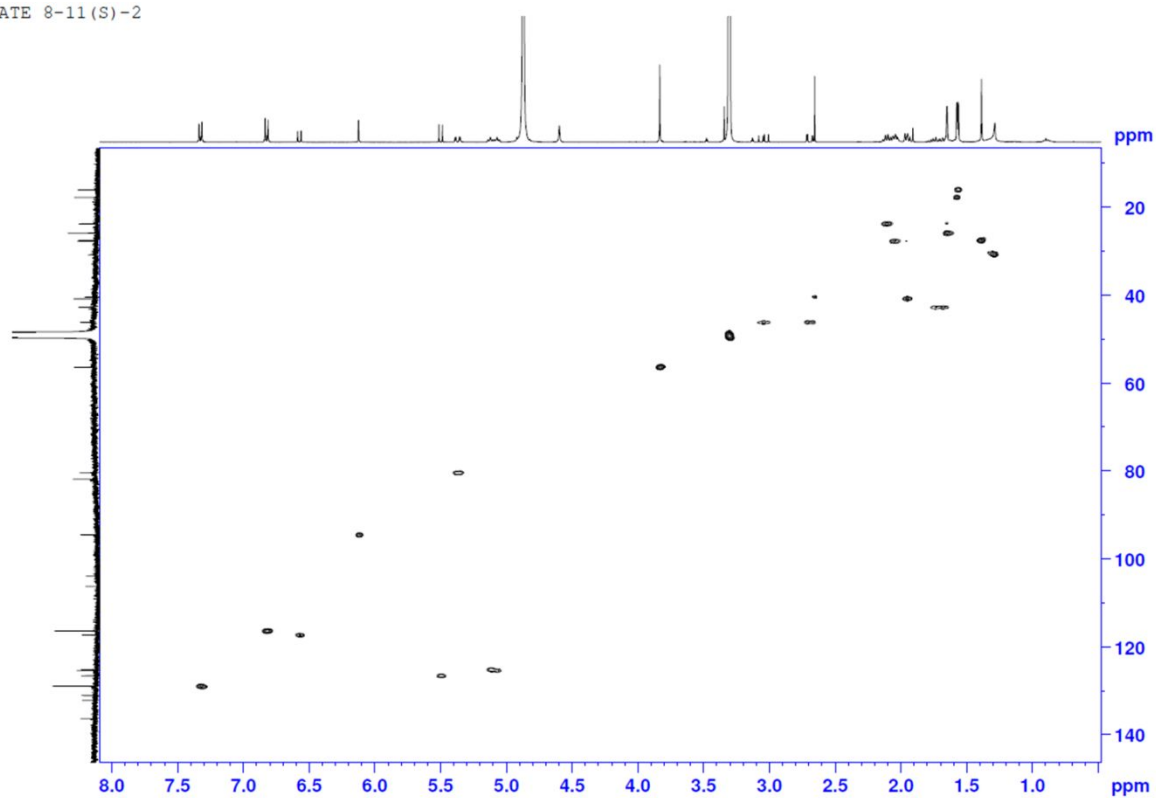
**Figure S26.** <sup>1</sup>H NMR spectrum of compound **6** (CD<sub>3</sub>OD, 400 MHz)





**Figure S27.**  $^{13}\text{C}$  NMR spectrum of compound **6** ( $\text{CD}_3\text{OD}$ , 100 MHz)

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**Figure S28.** HSQC spectrum of compound **6**

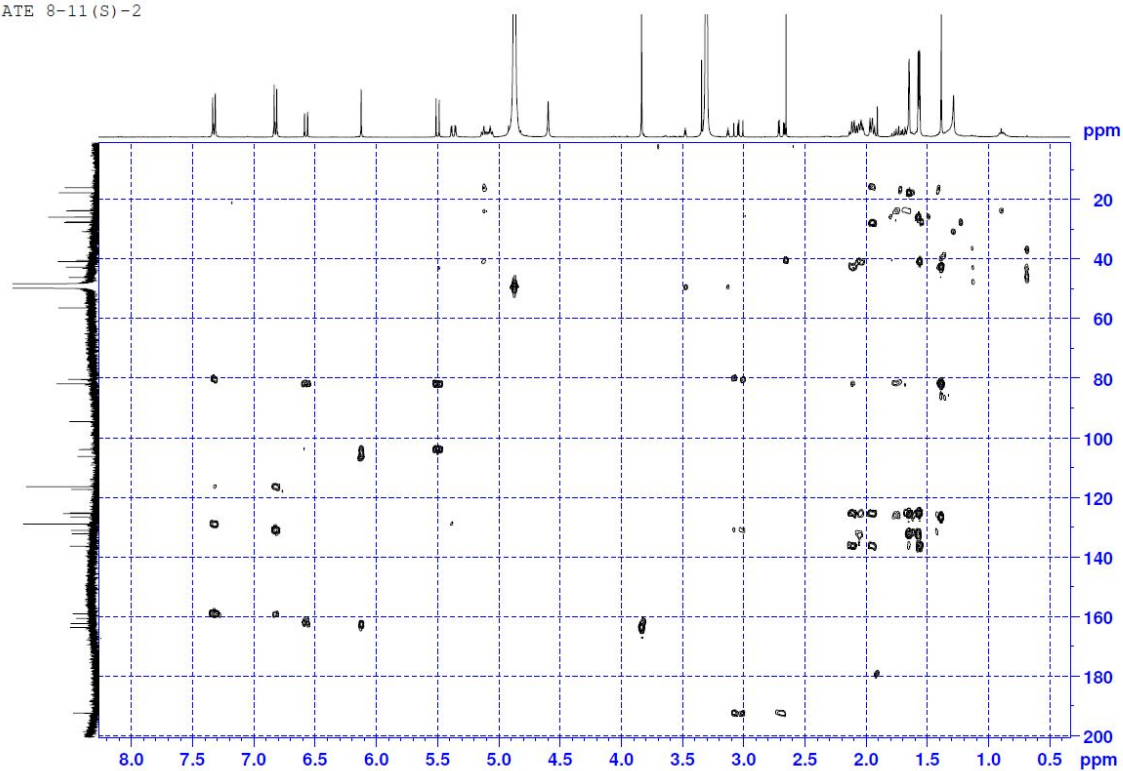


Figure S29. HMBC spectrum of compound 6

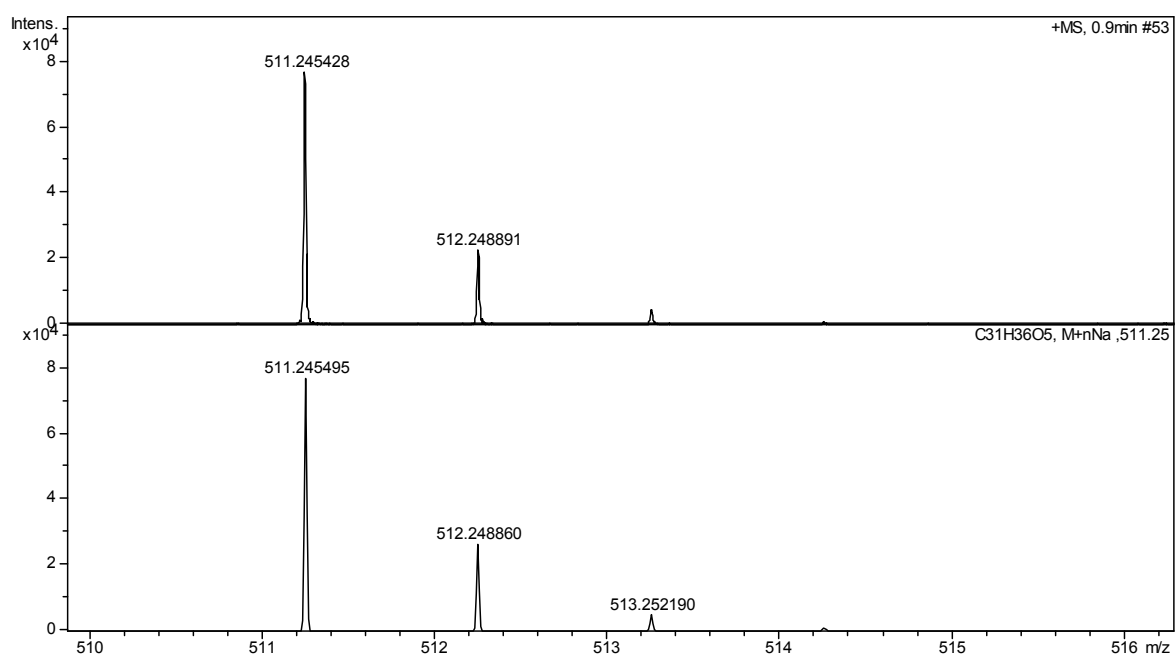
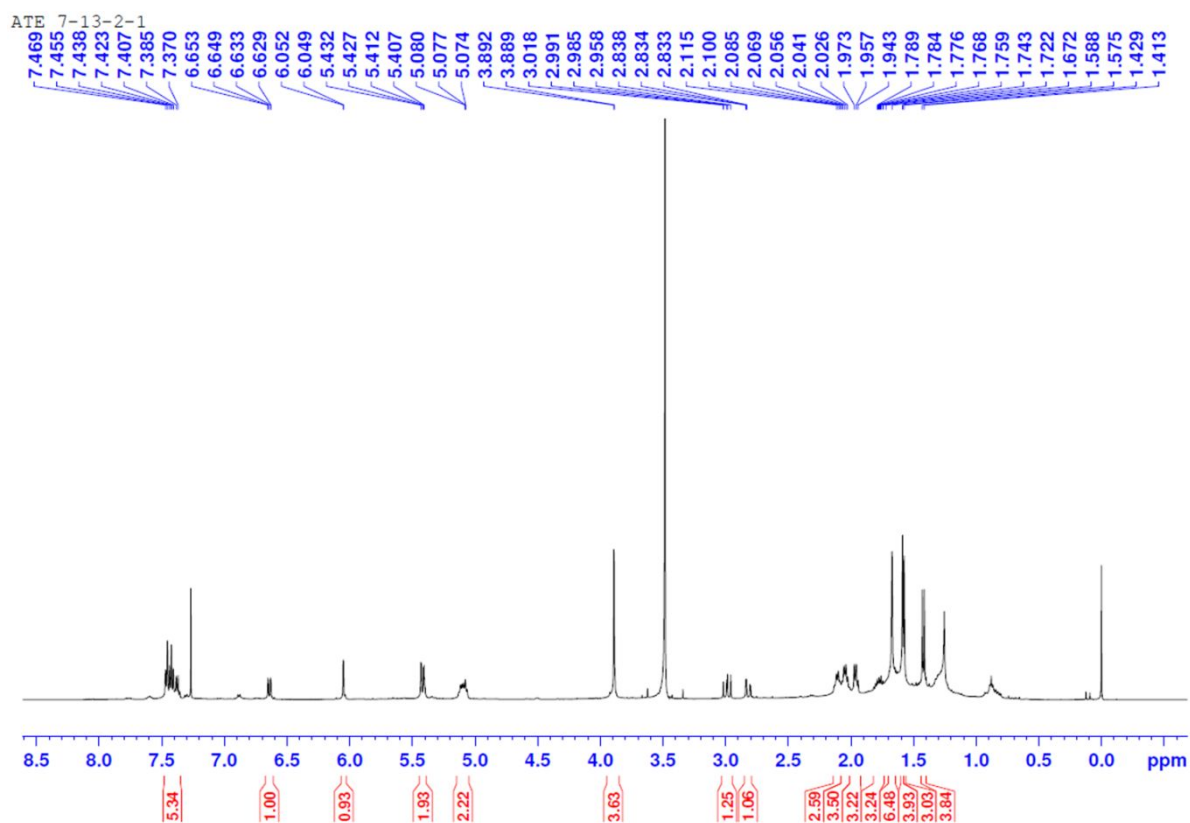
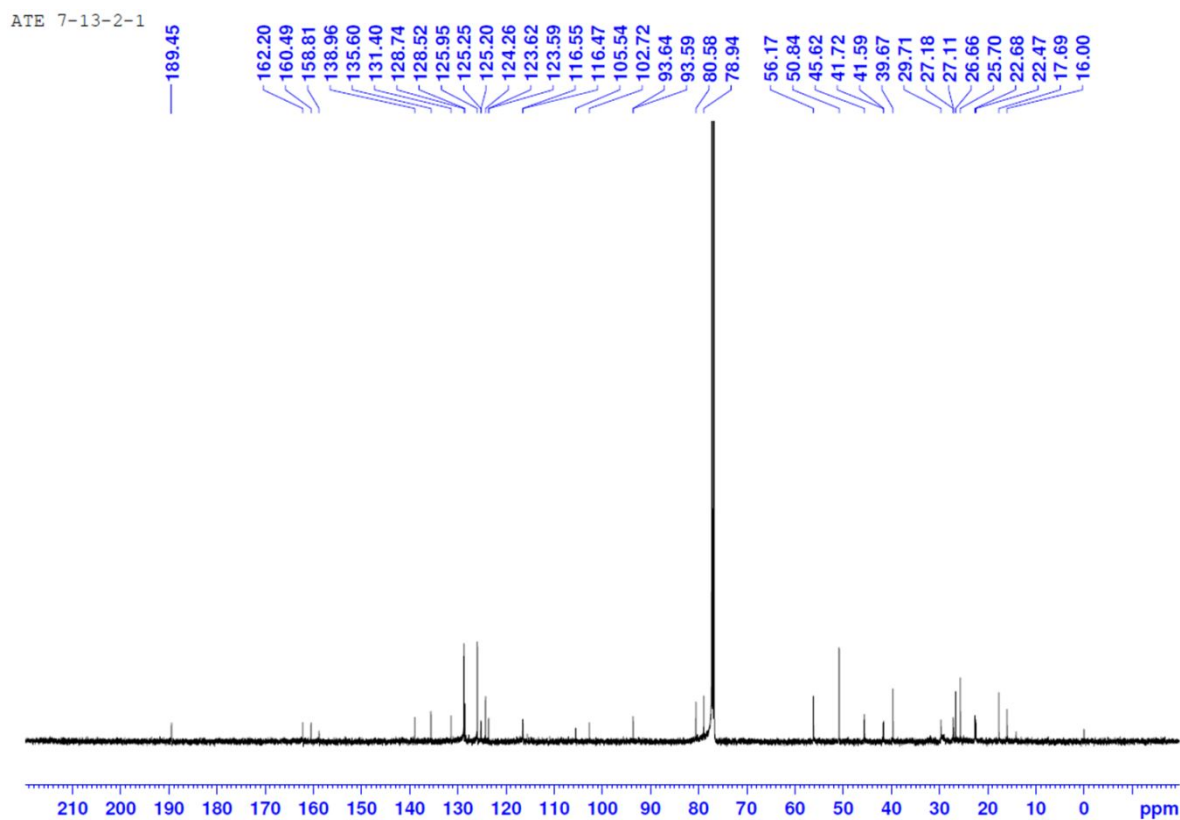


Figure S30. HRESIMS spectrum of compound 6

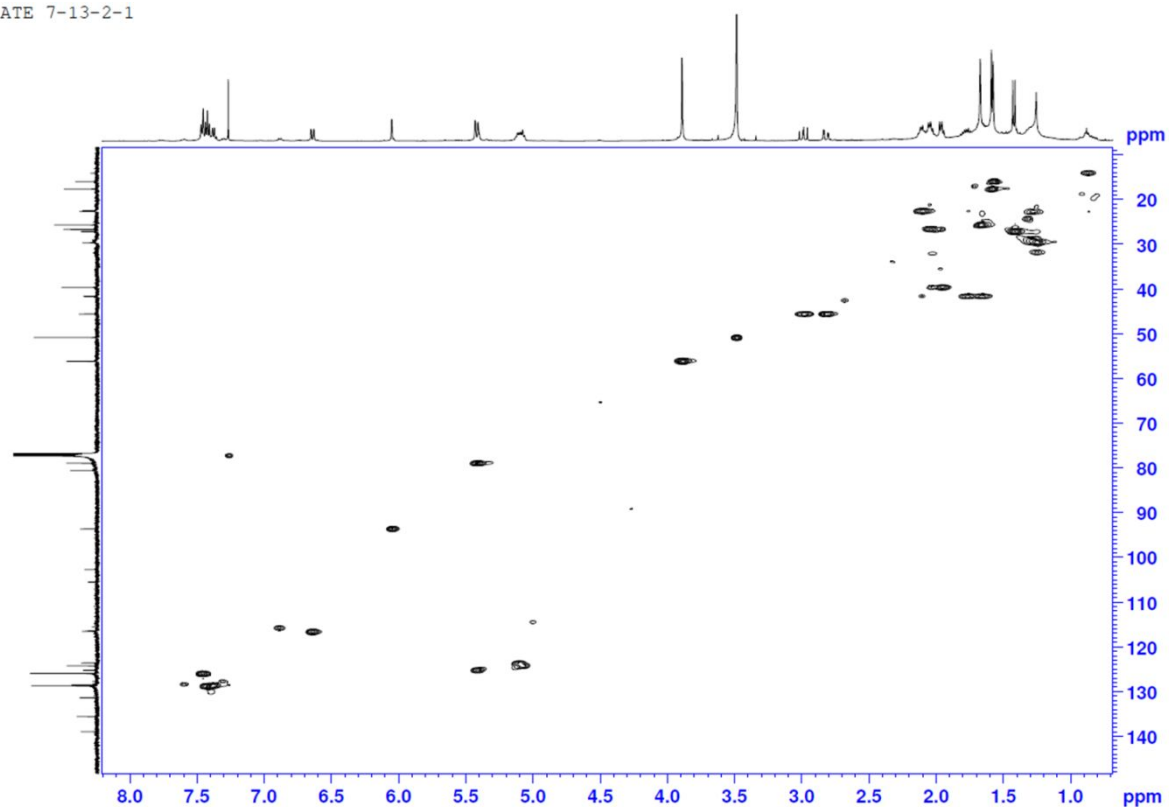


**Figure S31.**  $^1\text{H}$  NMR spectrum of compounds **7** ( $\text{CDCl}_3$ , 500 MHz)



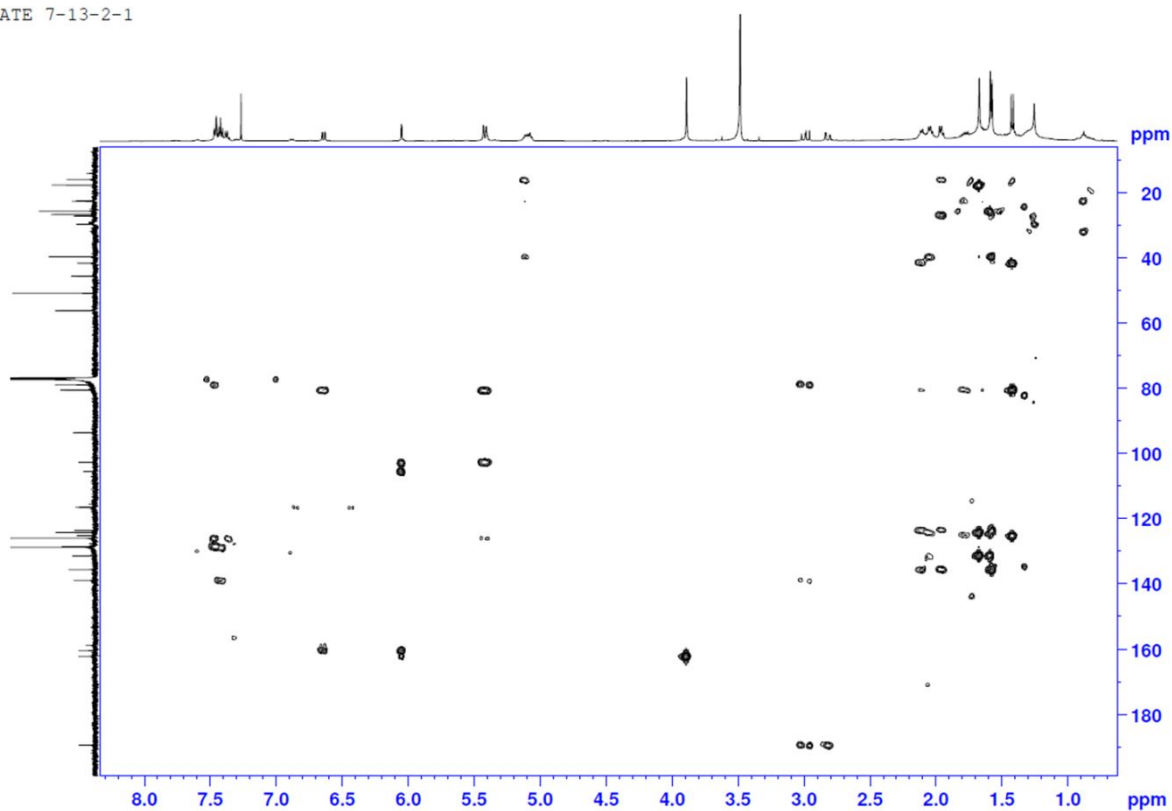
**Figure S32.**  $^{13}\text{C}$  NMR spectrum of compounds **7** ( $\text{CDCl}_3$ , 125 MHz)

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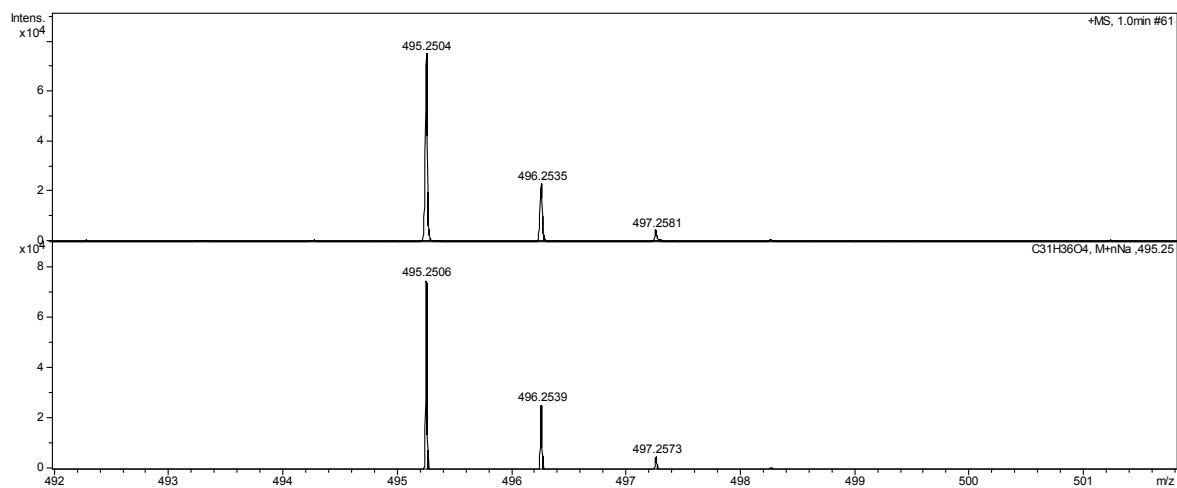


**Figure S33.** HSQC spectrum of compounds **7**

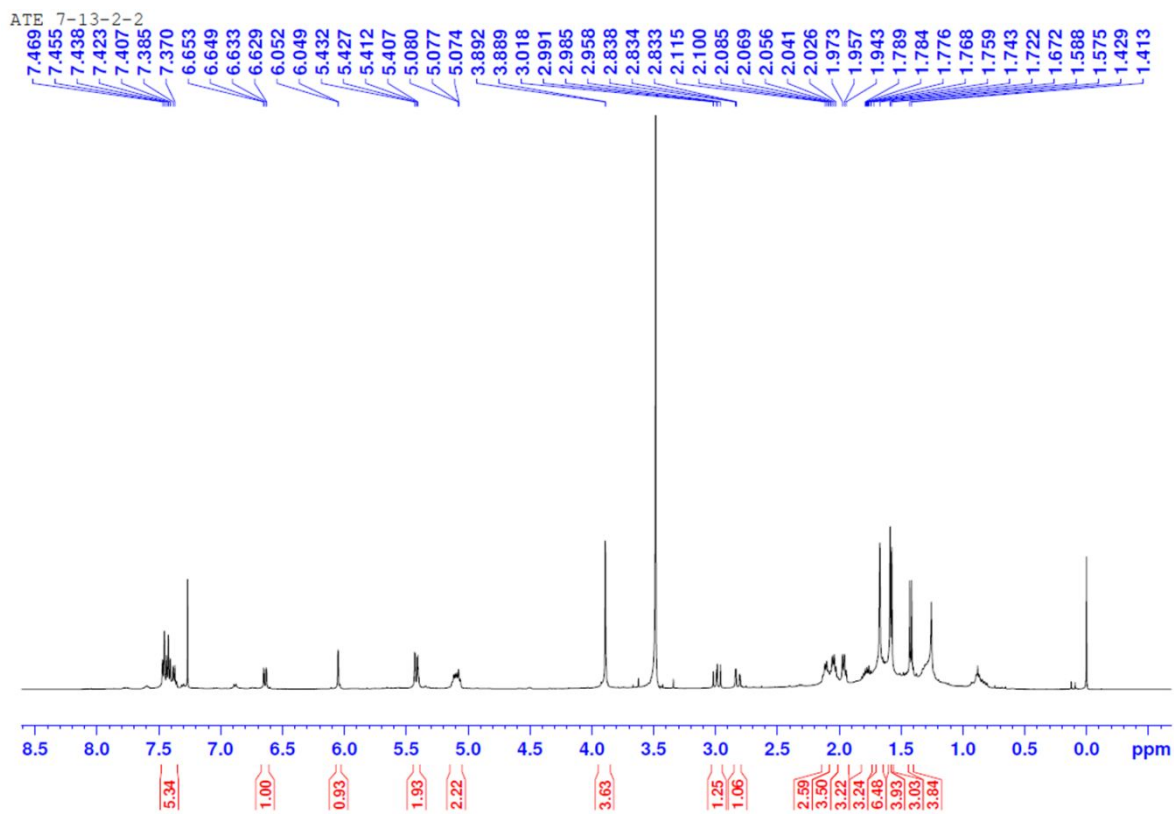
ATE 7-13-2-1



**Figure S34.** HMBC spectrum of compounds **7**

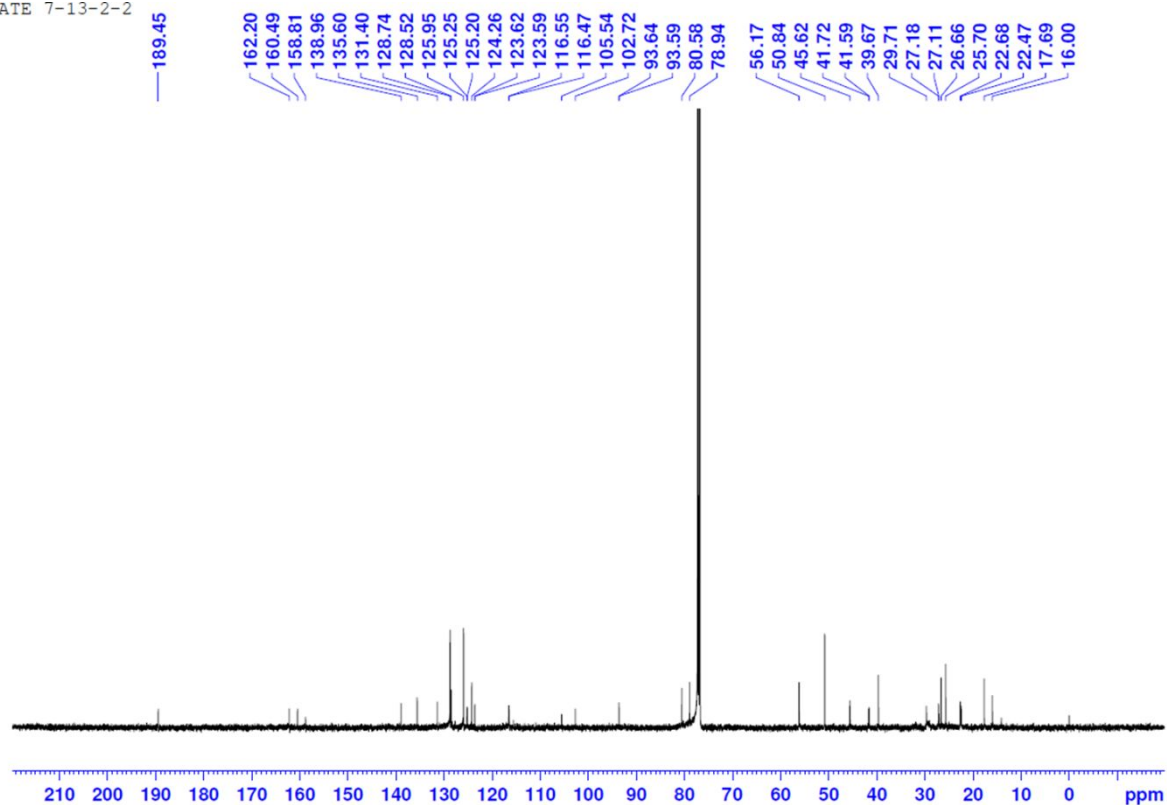


**Figure S35.** HRESIMS spectrum of compounds **7**



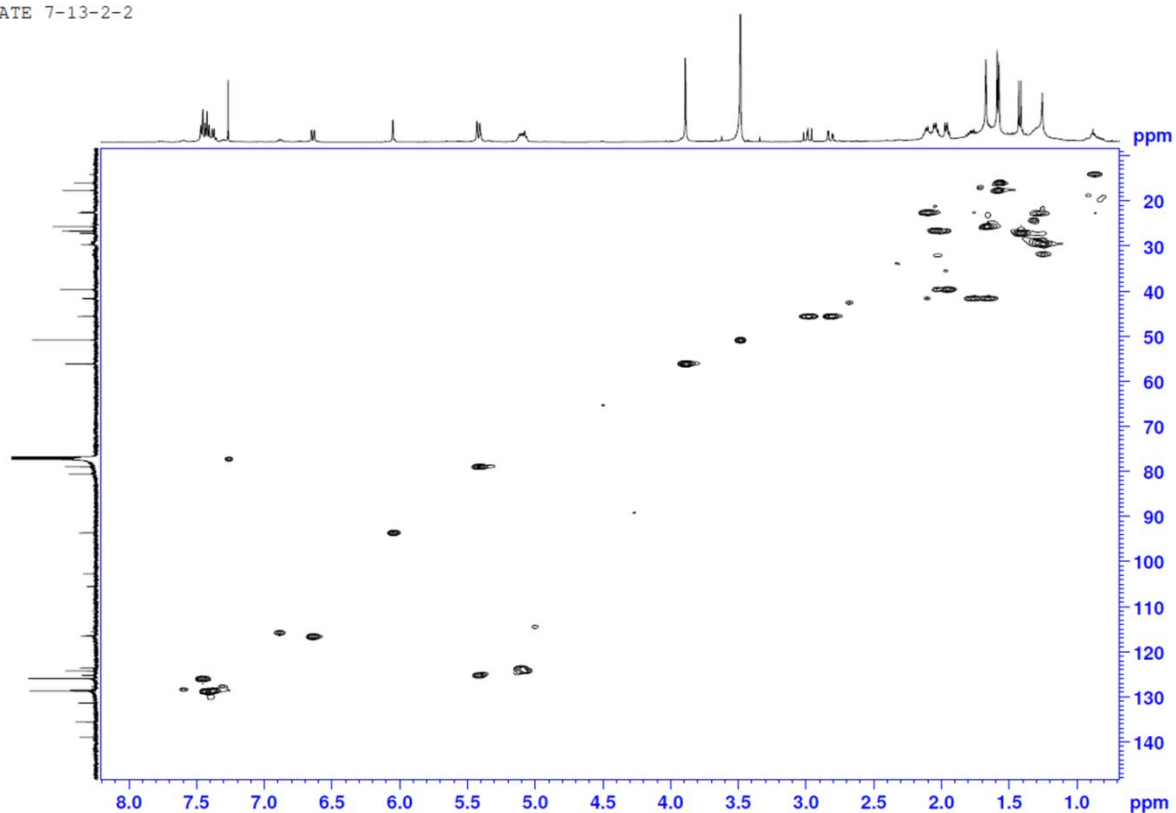
**Figure S36.** <sup>1</sup>H NMR spectrum of compounds **8** (CDCl<sub>3</sub>, 500 MHz)

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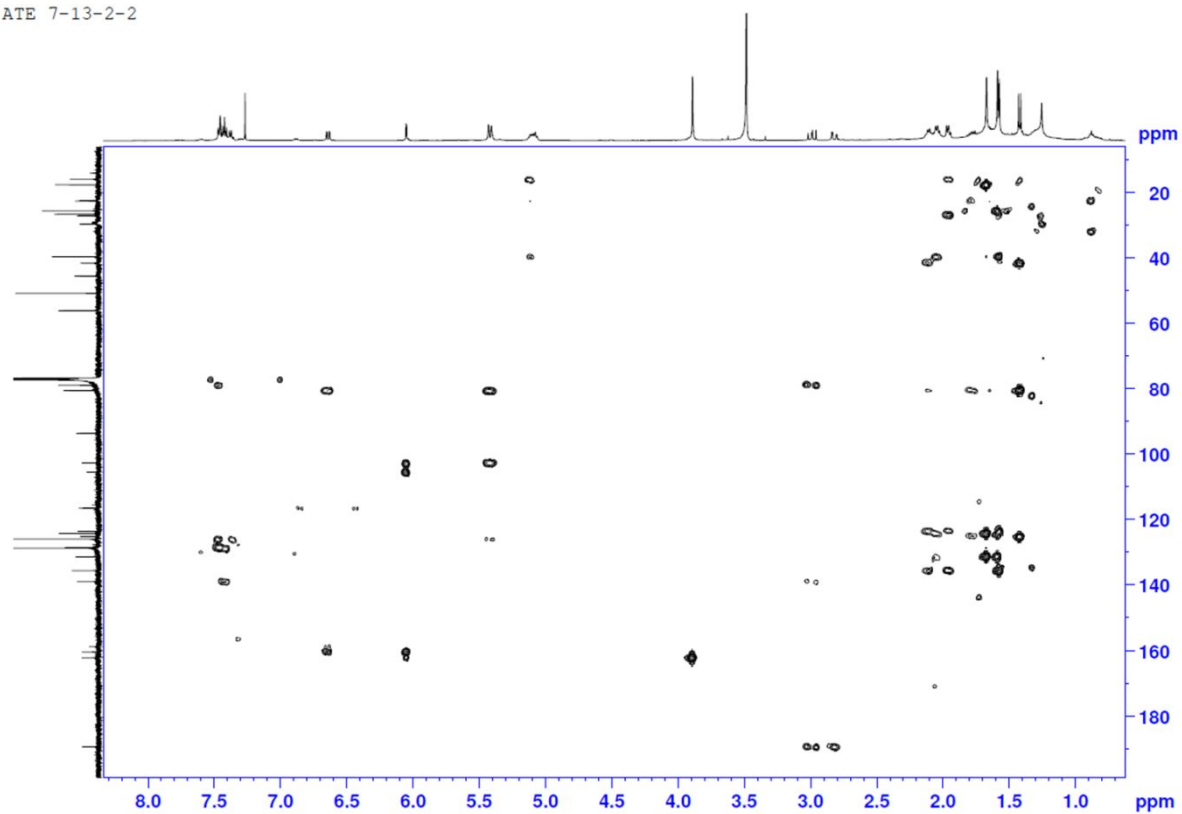


**Figure S37.** <sup>13</sup>C NMR spectrum of compounds **8** (CDCl<sub>3</sub>, 125 MHz)

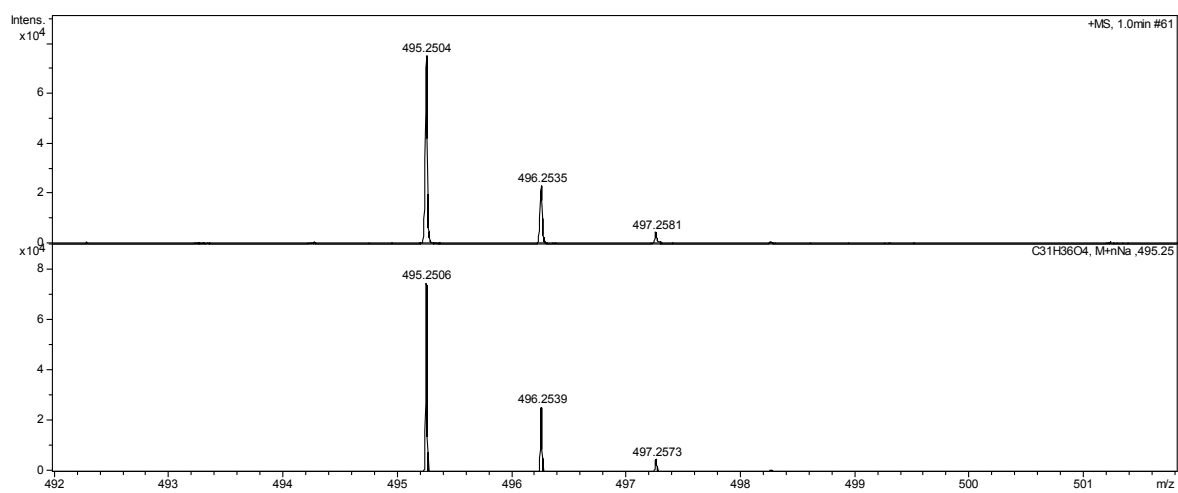
ATE 7-13-2-2



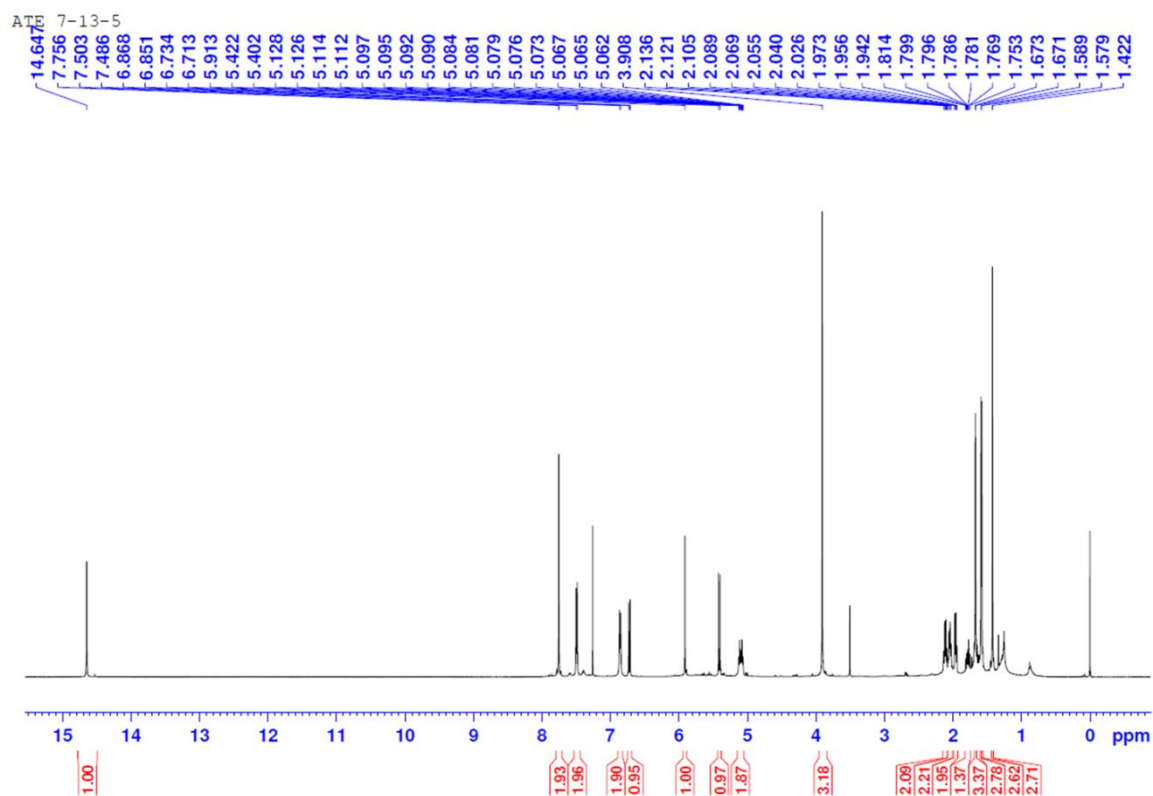
**Figure S38.** HSQC spectrum of compounds **8**



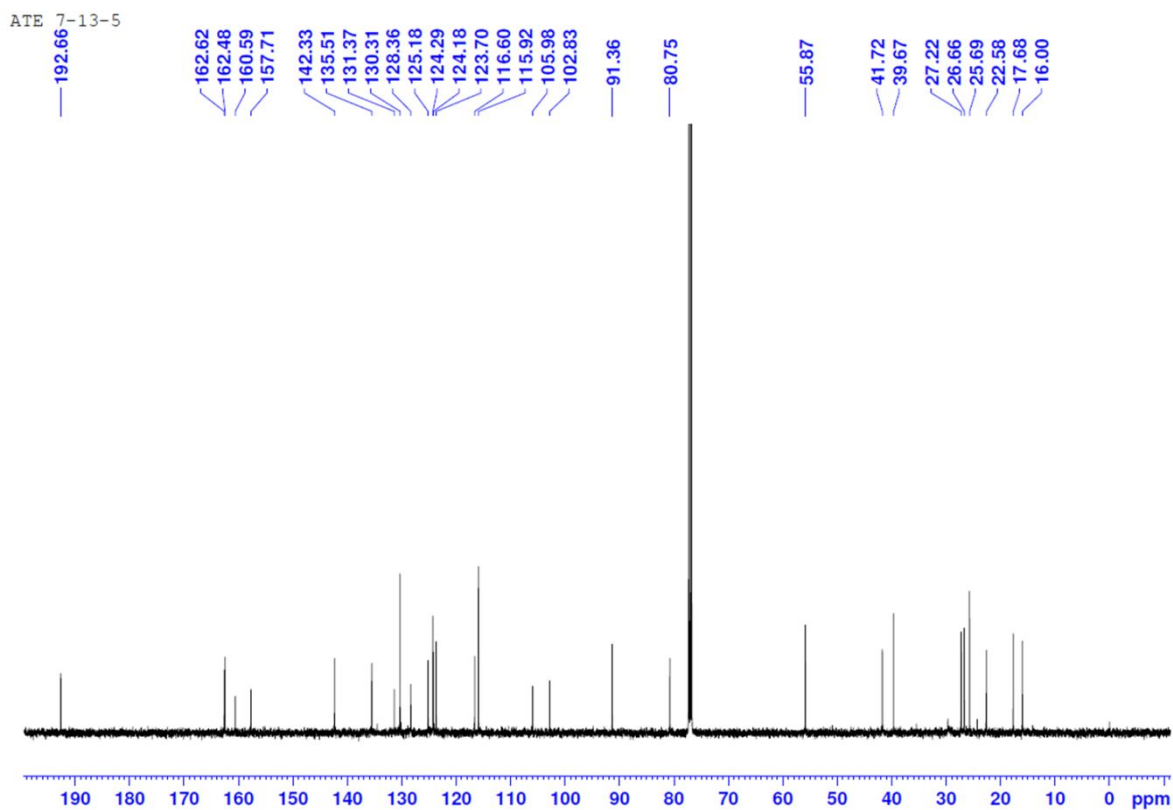
**Figure S39.** HMBC spectrum of compounds **8**



**Figure S40.** HRESIMS spectrum of compounds **8**



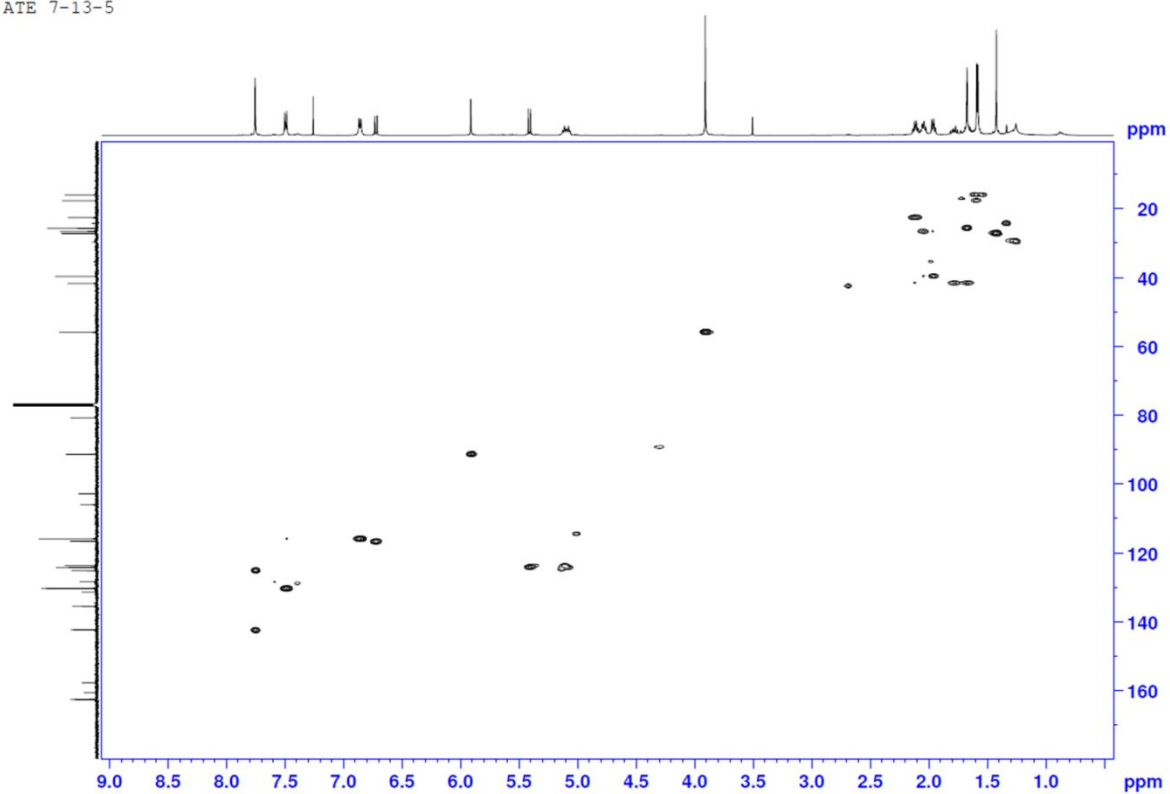
**Figure S41.**  $^1\text{H}$  NMR spectrum of compounds **9** ( $\text{CDCl}_3$ , 500 MHz)



**Figure S42.**  $^{13}\text{C}$  NMR spectrum of compounds **9** ( $\text{CDCl}_3$ , 125 MHz)

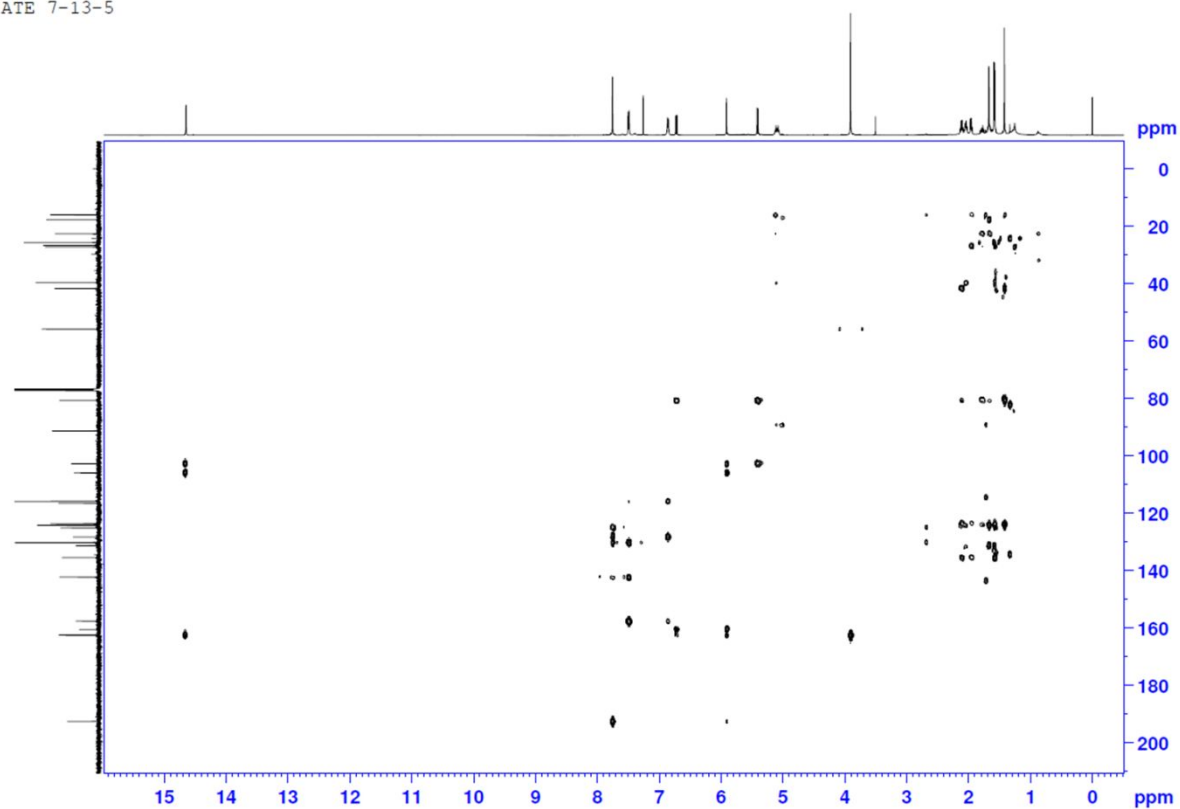


ATE 7-13-5

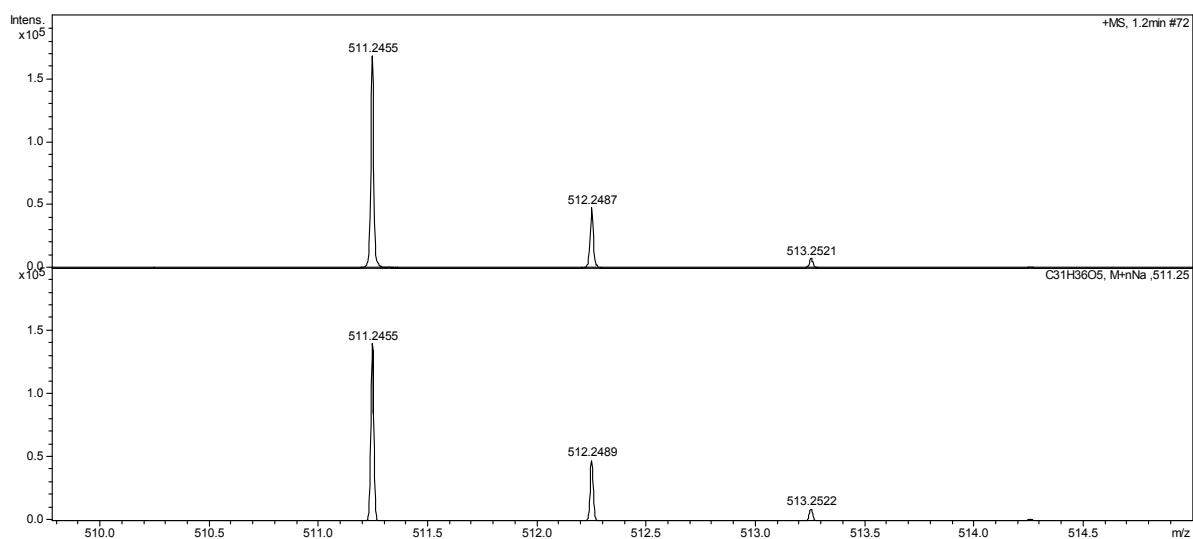


**Figure S43.** HSQC spectrum of compounds **9**

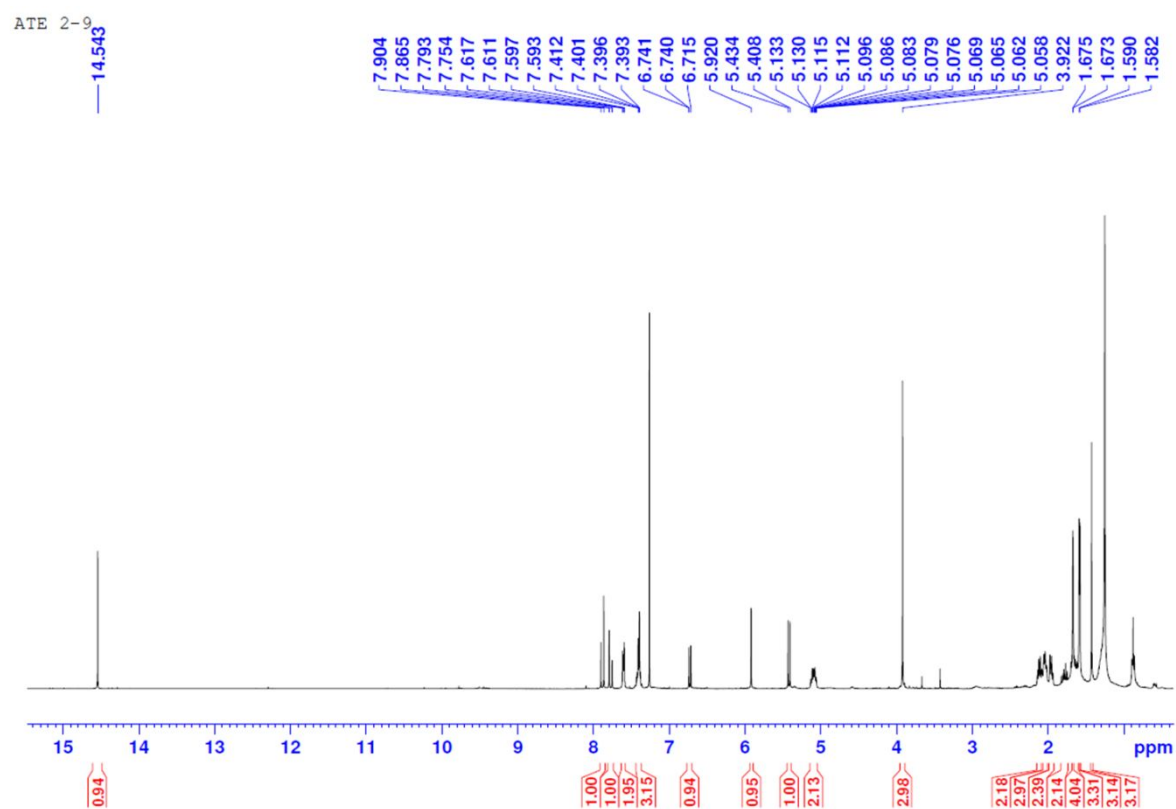
ATE 7-13-5



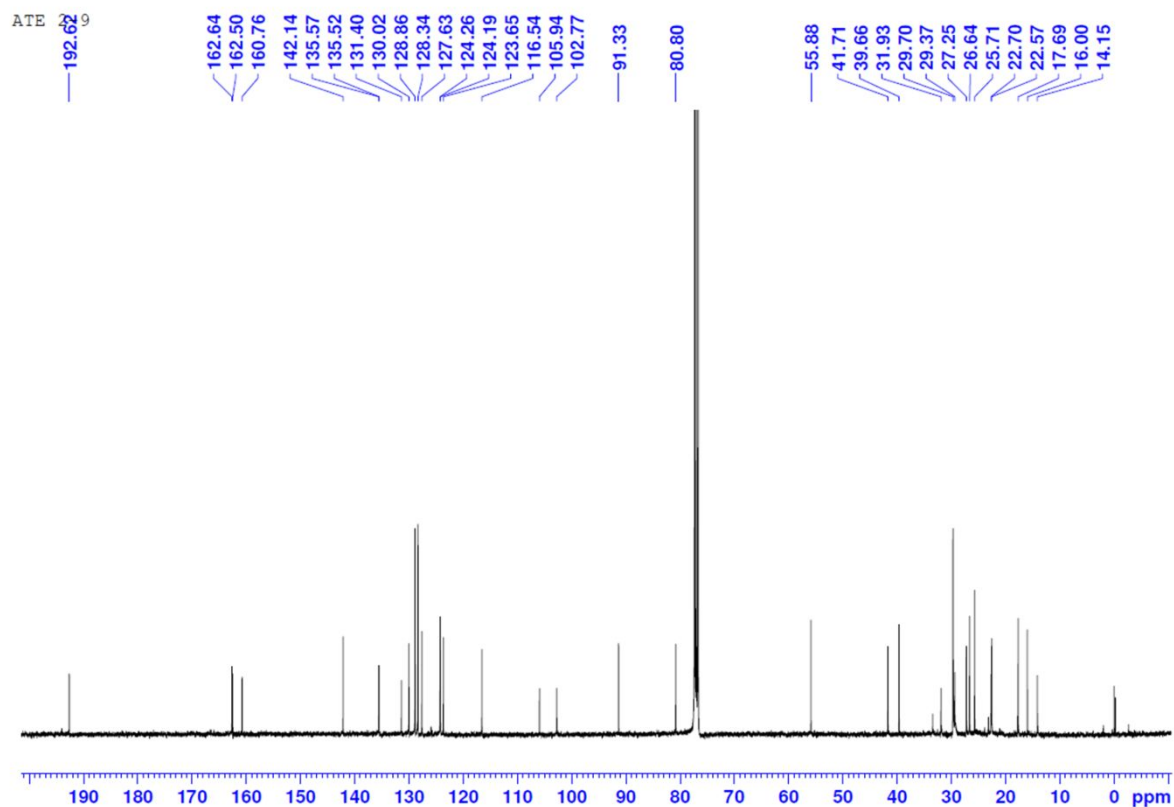
**Figure S44.** HMBC spectrum of compounds **9**



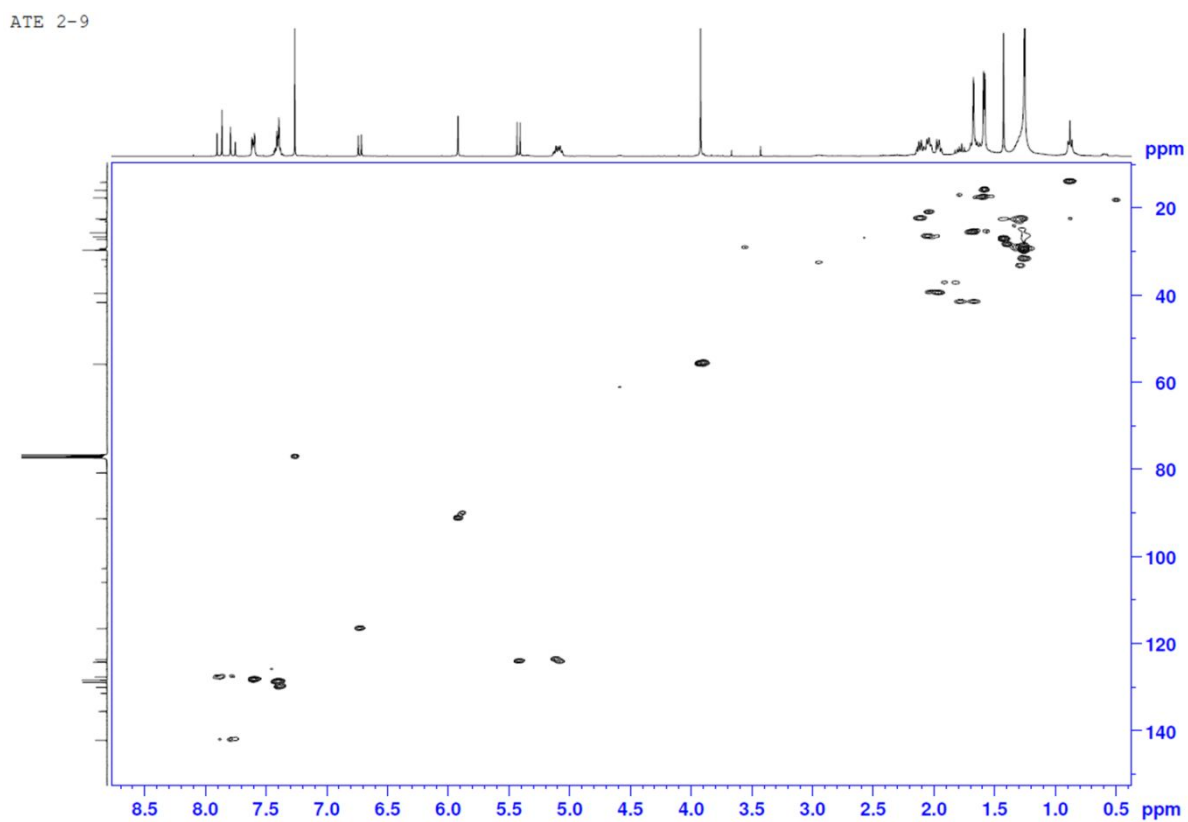
**Figure S45.** HRESIMS spectrum of compounds **9**



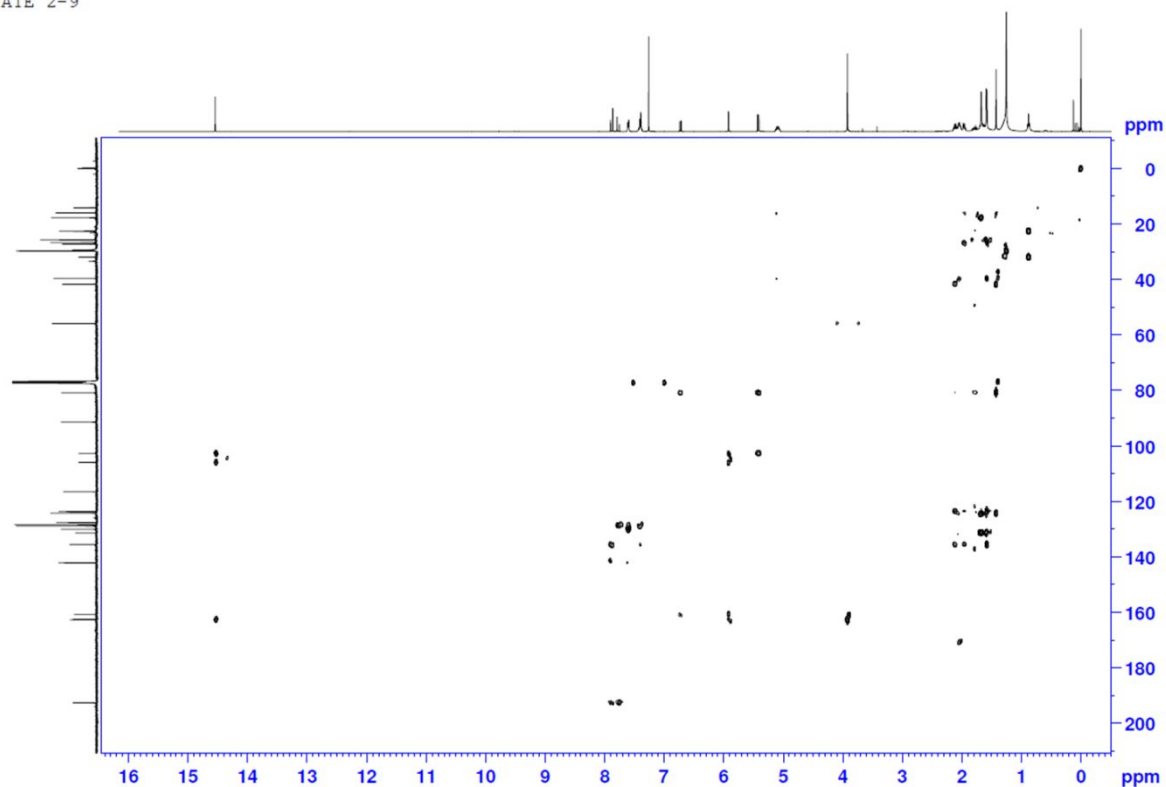
**Figure S46.** <sup>1</sup>H NMR spectrum of compounds **10** (CDCl<sub>3</sub>, 400 MHz)



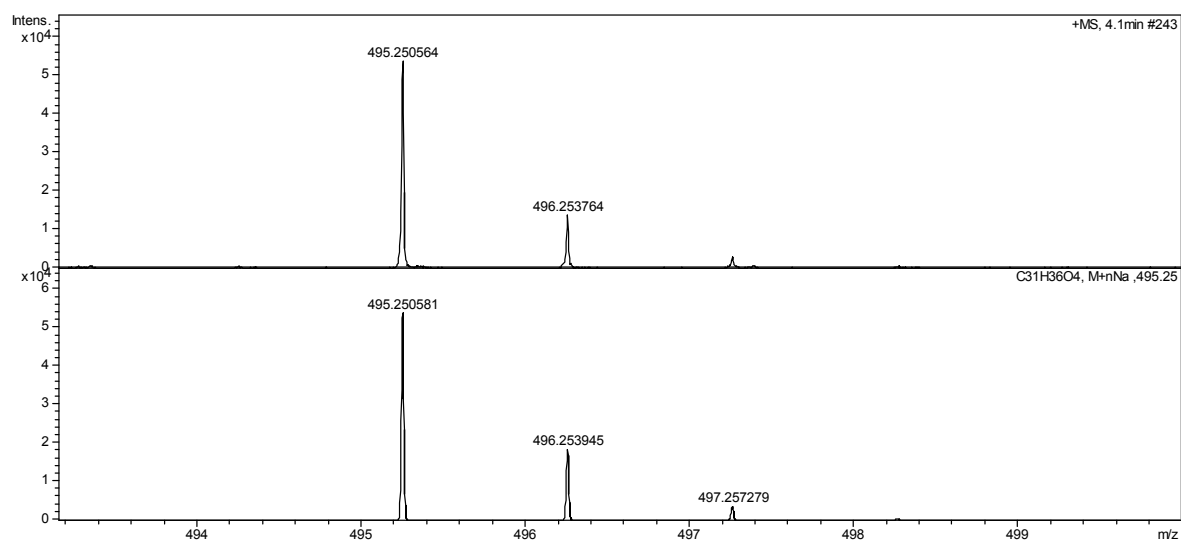
**Figure S47.**  $^{13}\text{C}$  NMR spectrum of compounds **10** ( $\text{CDCl}_3$ , 100 MHz)



**Figure S48.** HSQC spectrum of compounds **10**



**Figure S49.** HMBC spectrum of compounds **10**



**Figure S50.** HRESIMS spectrum of compounds **10**