

## Supporting Information

### Potential $\alpha$ -Glucosidase Inhibitors from the Deep-Sea Sediment-Derived Fungus *Aspergillus insulicola*

**Weibo Zhao** <sup>1,2,†</sup>, **Yanbo Zeng** <sup>2,3,†</sup>, **Wenjun Chang** <sup>2,3</sup>, **Huiqin Chen** <sup>2</sup>, **Hao Wang** <sup>2</sup>, **Haofu Dai** <sup>2</sup>, and **Fang Lv** <sup>1,\*</sup>

<sup>1</sup> Beijing Key Laboratory for Separation and Analysis in Biomedicine and Pharmaceuticals, School of Life Science, Beijing Institute of Technology, Beijing, 100081, China

<sup>2</sup> Hainan Provincial Key Laboratory for Functional Components Research and Utilization of Marine Bio-resources, Institute of Tropical Bioscience and Biotechnology, Chinese Academy of Tropical Agricultural Sciences & Key Laboratory for Biology and Genetic Resources of Tropical Crops of Hainan Province, Hainan Institute for Tropical Agricultural Resources, Haikou 571101, China

<sup>3</sup> Zhanjiang Experimental Station of Chinese Academy of Tropical Agricultural Sciences, Zhanjiang, 524013, China

\* Correspondence: lvfangbeijing@bit.edu.cn (F.L.)

† These authors contributed equally to this work.

Figure S1.  $^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **1**

Figure S2.  $^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **1**

Figure S3. The DEPT spectrum of compound **1** in  $\text{DMSO-}d_6$

Figure S4. The HSQC spectrum of compound **1** in  $\text{DMSO-}d_6$

Figure S5. The HMBC spectrum of compound **1** in  $\text{DMSO-}d_6$

Figure S6. The COSY spectrum of compound **1** in  $\text{DMSO-}d_6$

Figure S7. The NOESY spectrum of compound **1** in  $\text{DMSO-}d_6$

Figure S8. The HRESIMS spectrum of compound **1**

Figure S9. The UV spectrum of compound **1**

Figure S10. The IR spectrum of compound **1**

Figure S11.  $^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **2**

Figure S12.  $^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **2**

Figure S13. The DEPT spectrum of compound **2** in  $\text{DMSO-}d_6$

Figure S14. The HSQC spectrum of compound **2** in  $\text{DMSO-}d_6$

Figure S15. The HMBC spectrum of compound **2** in  $\text{DMSO-}d_6$

Figure S16. The COSY spectrum of compound **2** in  $\text{DMSO-}d_6$

Figure S17. The ROESY spectrum of compound **2** in  $\text{DMSO-}d_6$

Figure S18. The HRESIMS spectrum of compound **2**

Figure S19. The UV spectrum of compound **2**

Figure S20. The IR spectrum of compound **2**

Figure S21.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **3**

Figure S22.  $^{13}\text{C}$  NMR (150 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **3**

Figure S23. The DEPT spectrum of compound **3** in  $\text{DMSO-}d_6$

Figure S24. The HSQC spectrum of compound **3** in  $\text{DMSO-}d_6$

Figure S25. The HMBC spectrum of compound **3** in  $\text{DMSO-}d_6$

Figure S26. The COSY spectrum of compound **3** in  $\text{DMSO-}d_6$

Figure S27. The ROESY spectrum of compound **3** in  $\text{DMSO-}d_6$

Figure S28. The HRESIMS spectrum of compound **3**

Figure S29. The UV spectrum of compound **3**

Figure S30. The IR spectrum of compound **3**

Figure S1.  $^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **1**

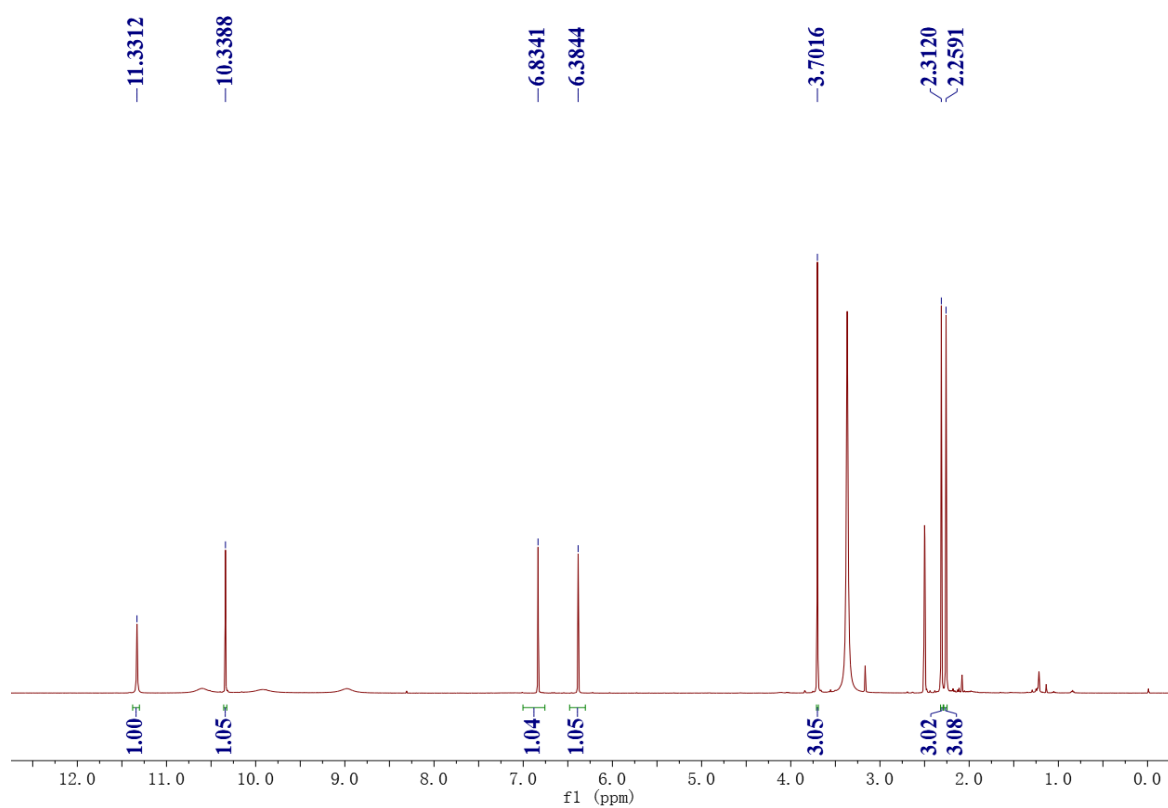


Figure S2.  $^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **1**

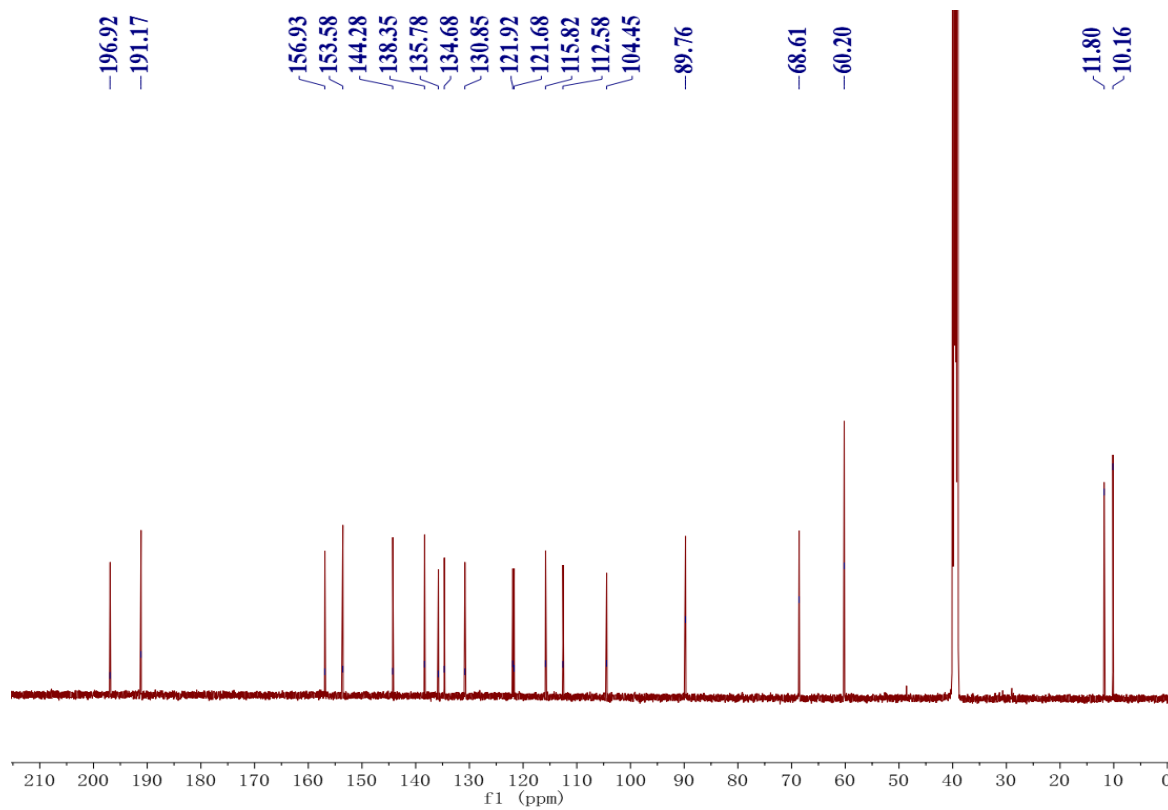


Figure S3. The DEPT spectrum of compound **1** in DMSO- $d_6$

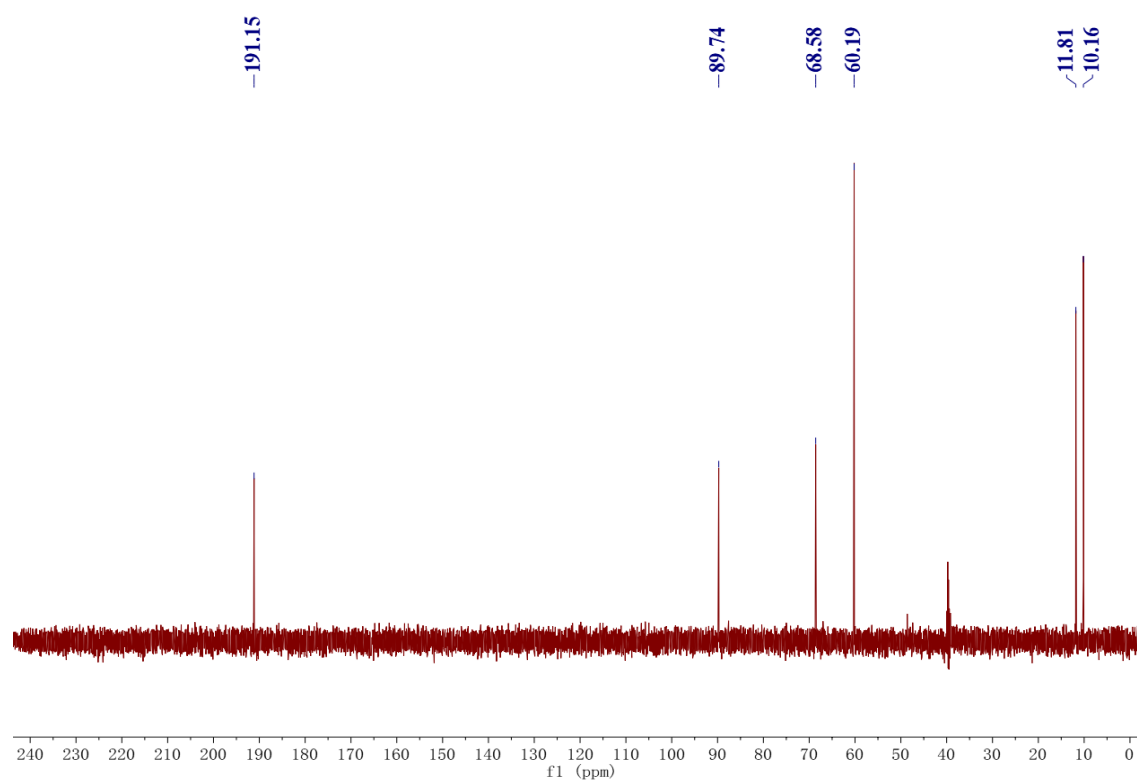


Figure S4. The HSQC spectrum of compound **1** in DMSO- $d_6$

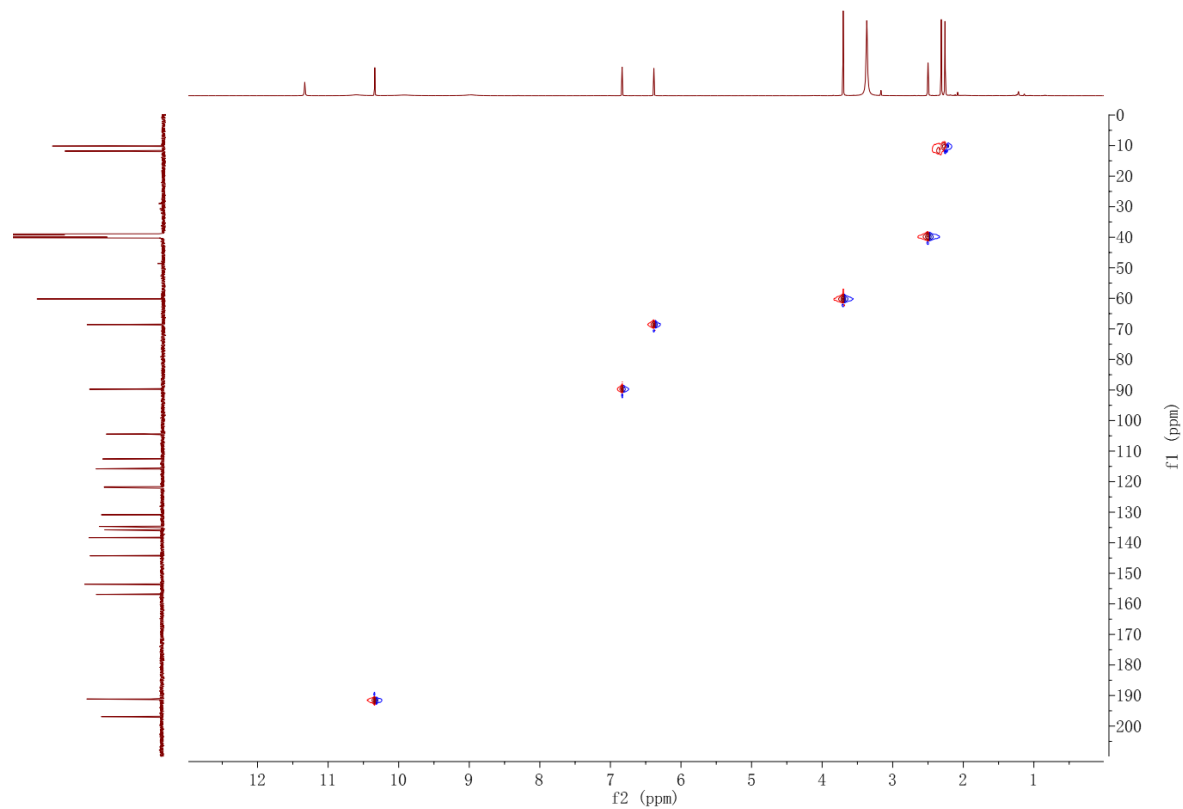


Figure S5. The HMBC spectrum of compound **1** in DMSO- $d_6$

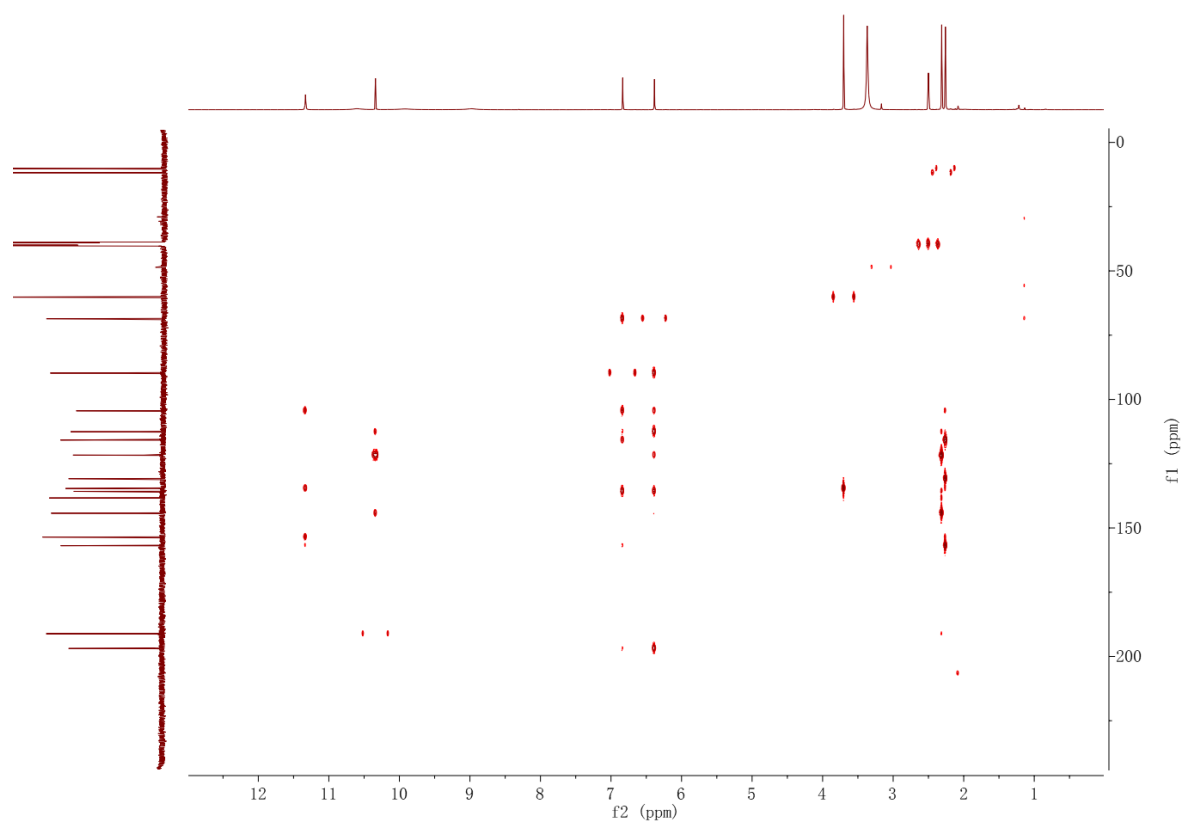


Figure S6. The COSY spectrum of compound **1** in DMSO- $d_6$

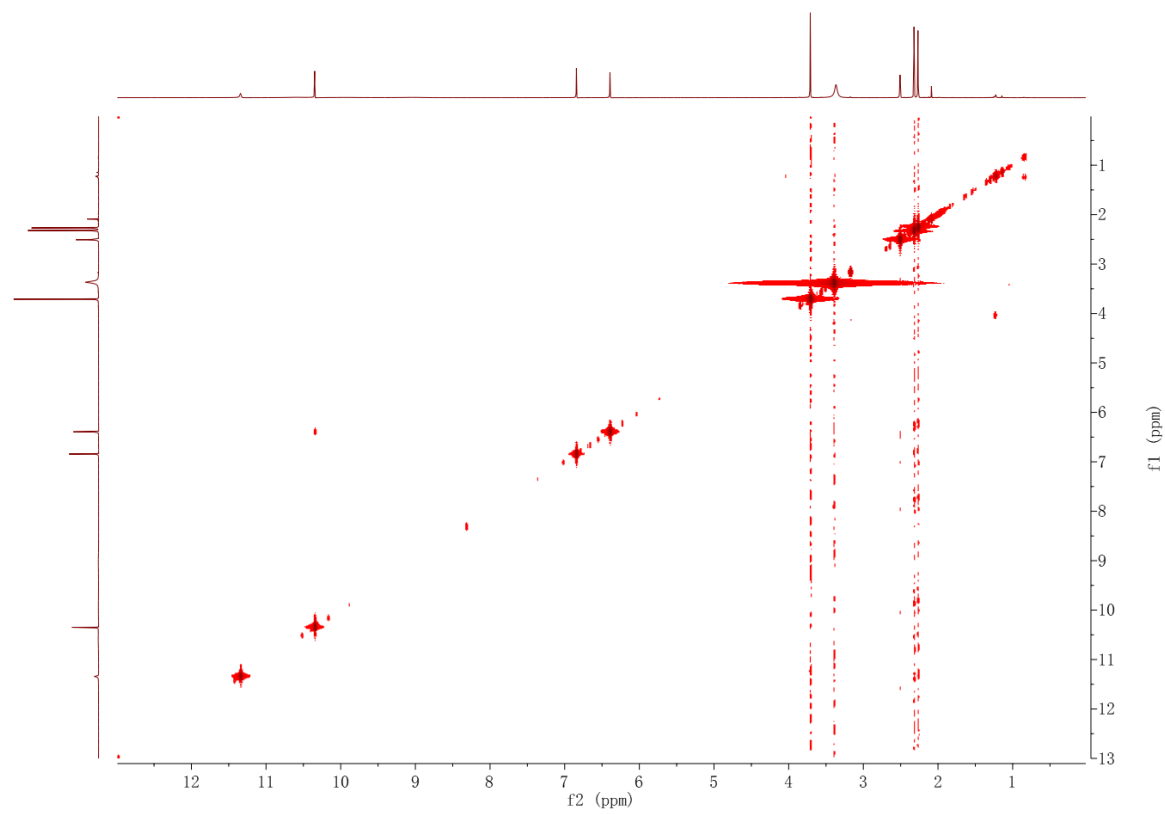


Figure S7. The NOESY spectrum of compound **1** in DMSO-*d*<sub>6</sub>

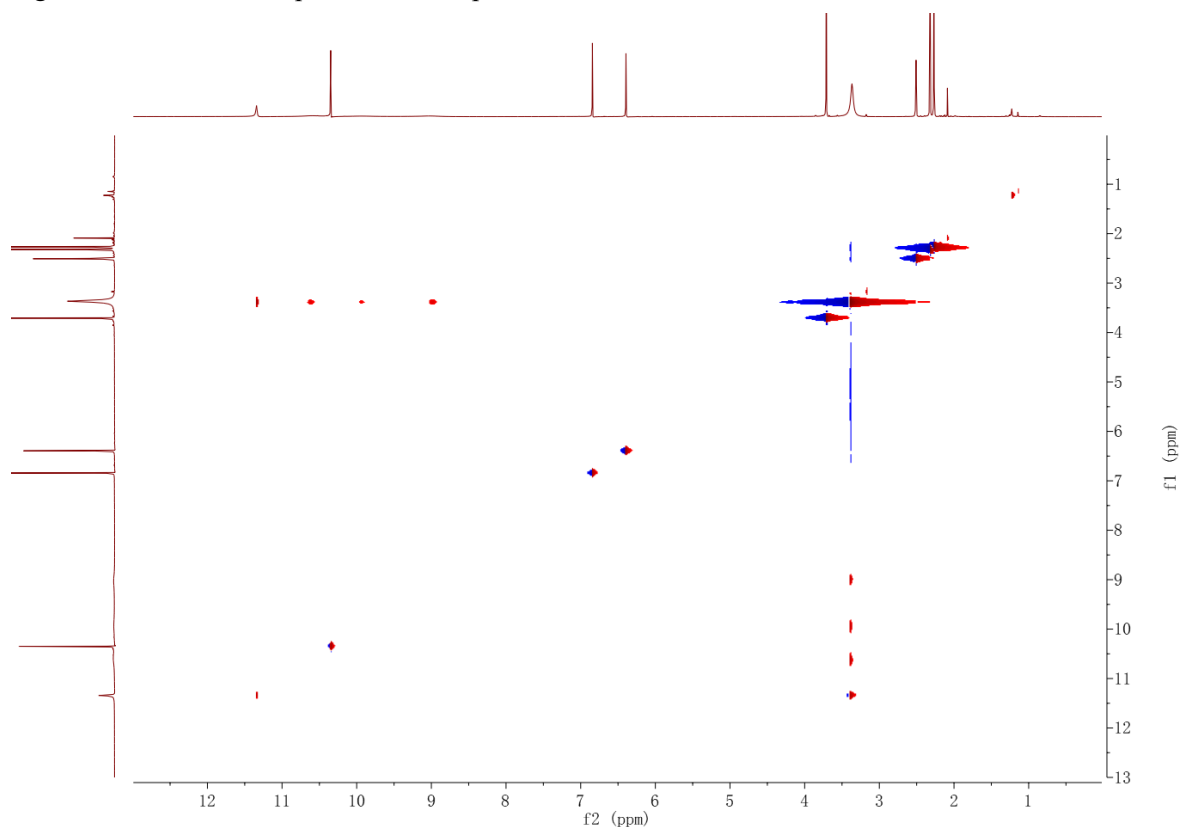
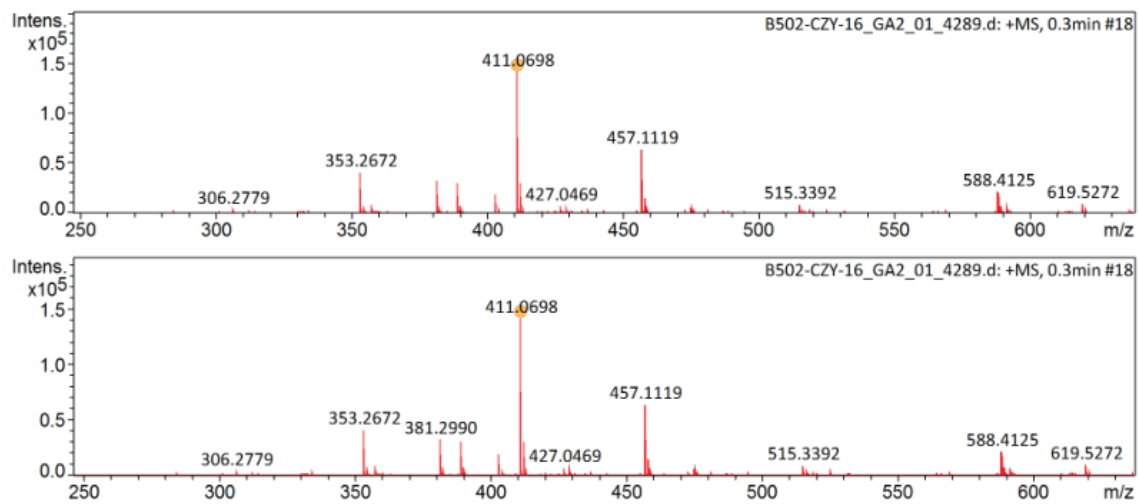


Figure S8. The HRESIMS spectrum of compound **1**



Meas. m/z	#	Ion Formula	m/z	err [ppm]	mSigma	# mSigma	Score	rdb	e <sup>-</sup> Conf	N-Rule	Adduct
411.0698	1	C <sub>19</sub> H <sub>16</sub> NaO <sub>9</sub>	411.0687	-2.7	4.0	1	100.00	12.0	even	ok	M+Na

Figure S9. The UV spectrum of compound **1**

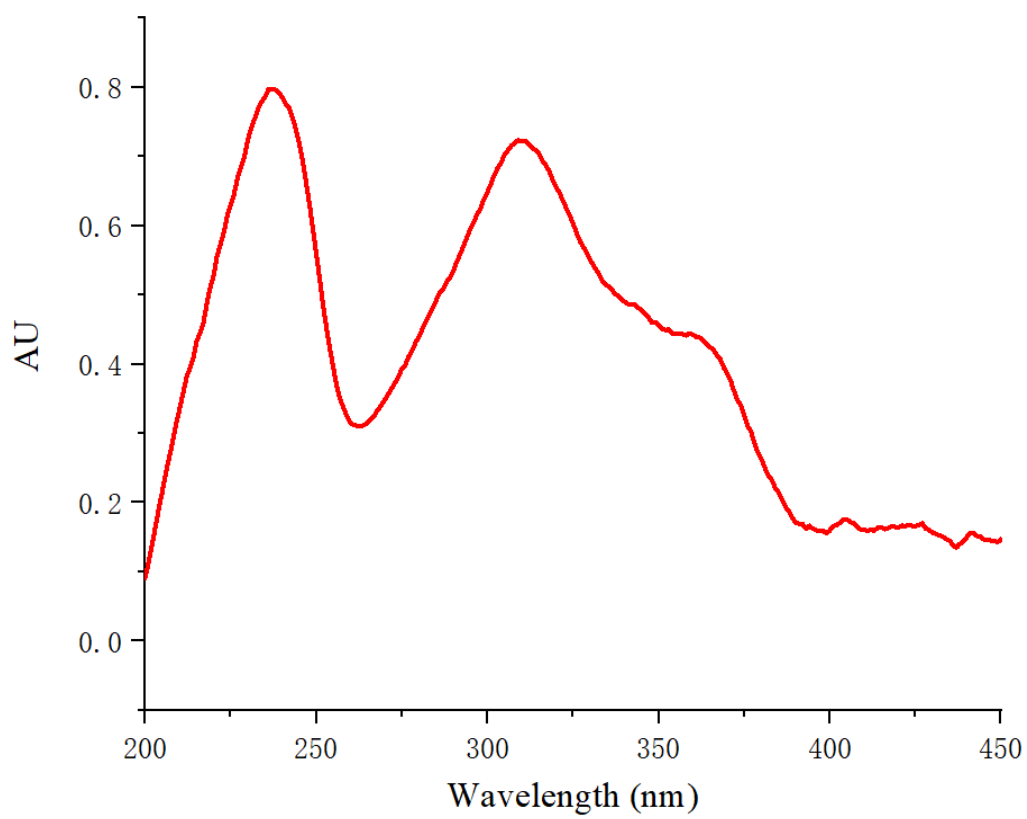


Figure S10. The IR spectrum of compound **1**

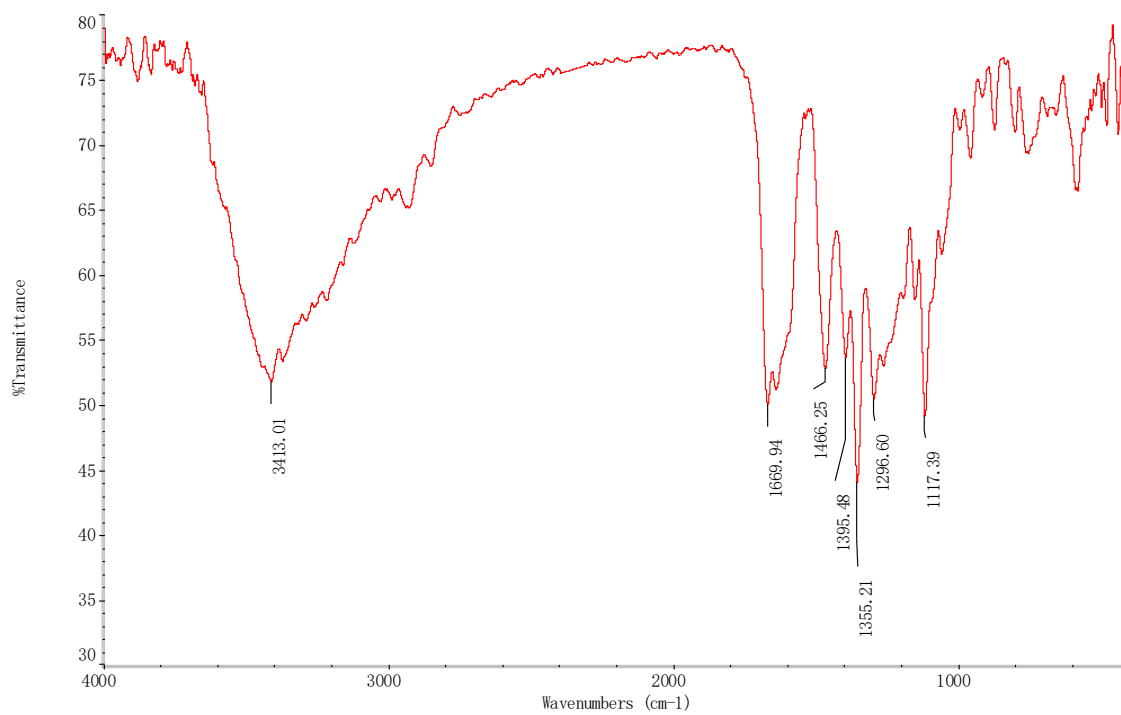


Figure S11.  $^1\text{H}$  NMR (500 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **2**

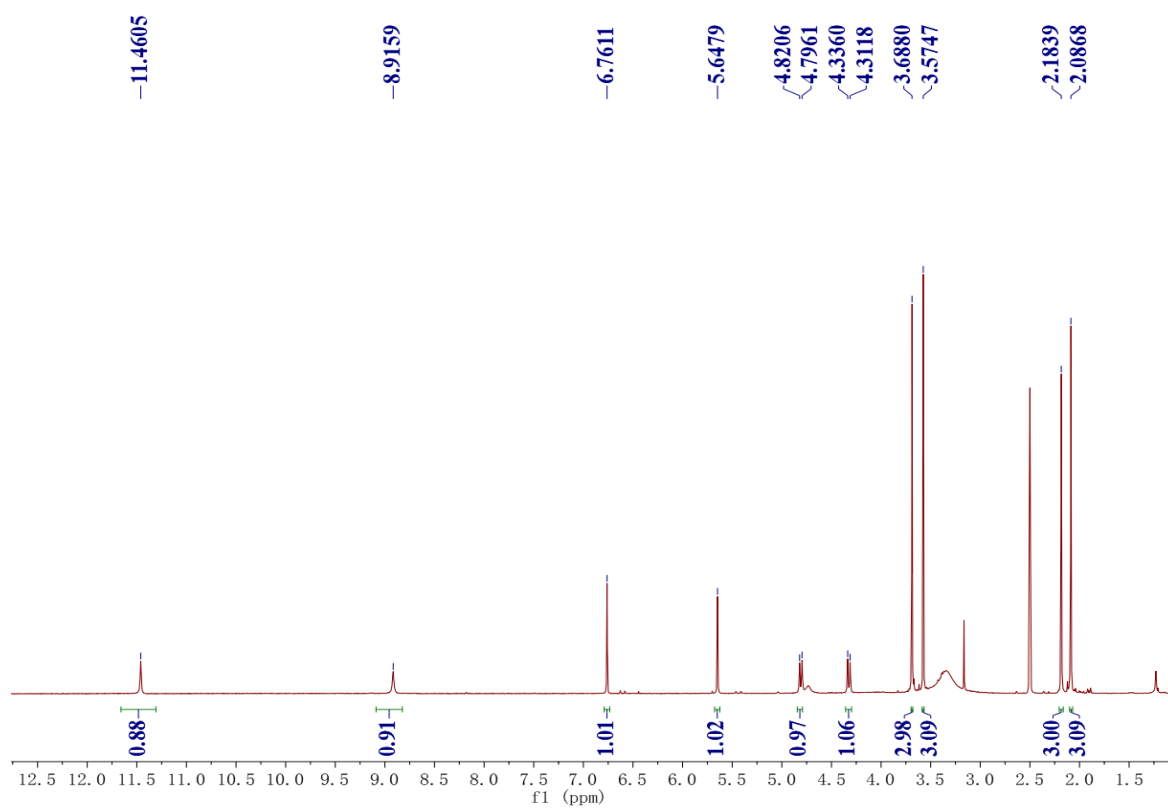


Figure S12.  $^{13}\text{C}$  NMR (125 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **2**

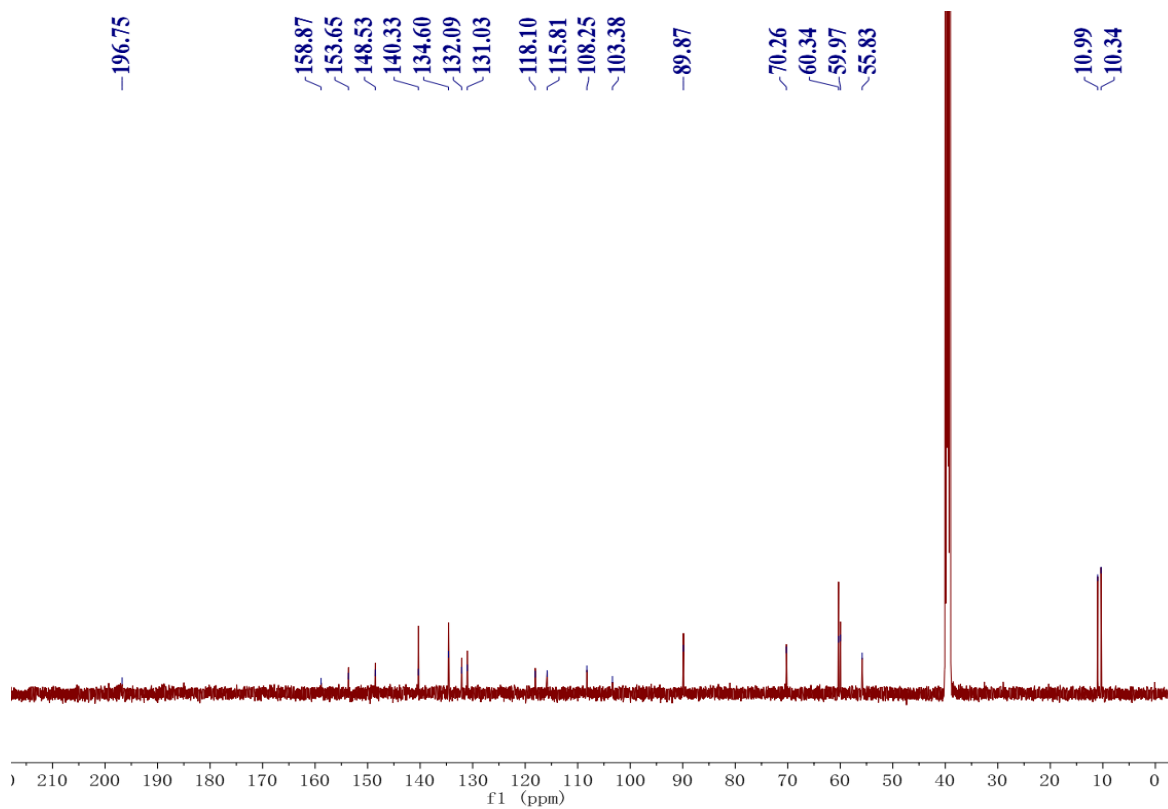




Figure S13. The DEPT spectrum of compound **2** in DMSO- $d_6$

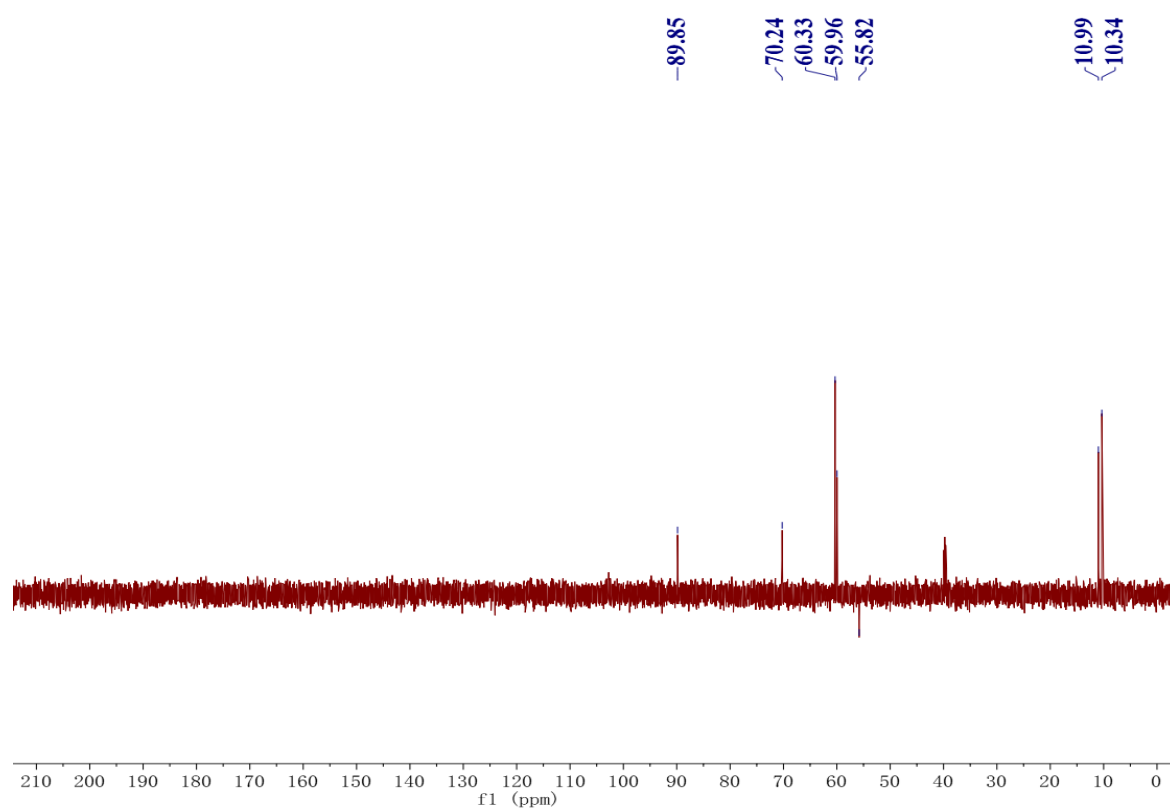


Figure S14. The HSQC spectrum of compound **2** in DMSO- $d_6$

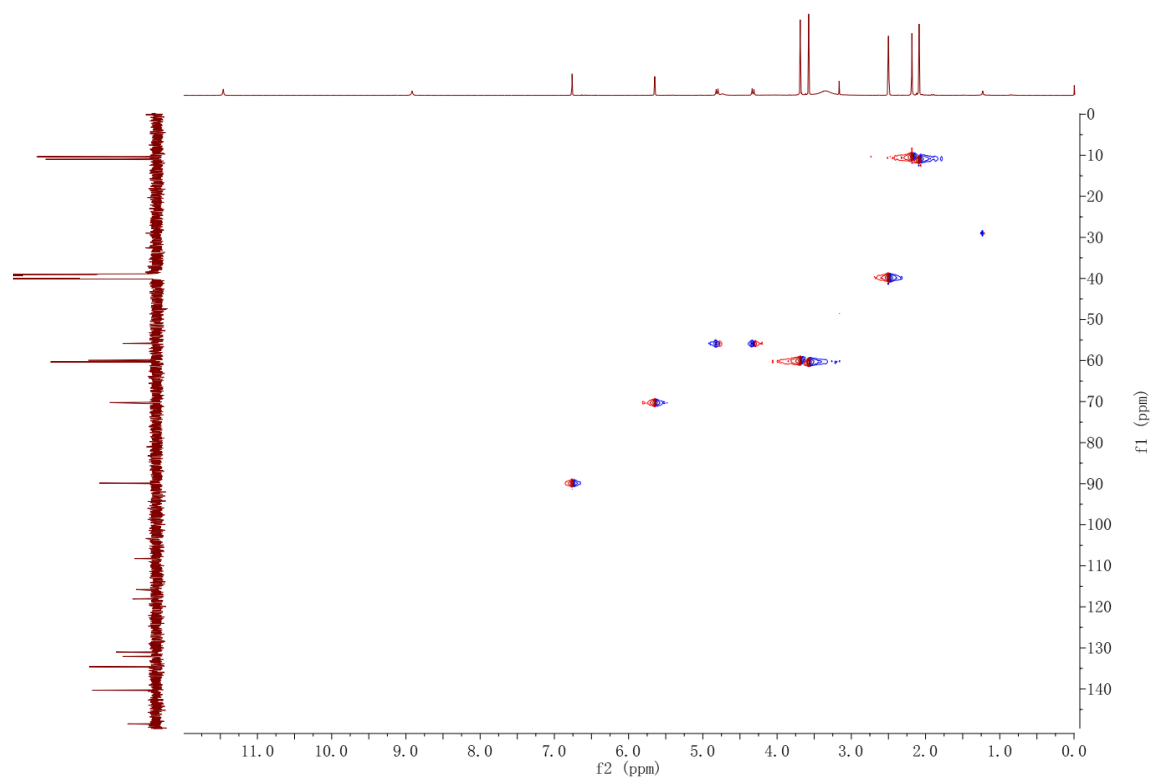


Figure S15. The HMBC spectrum of compound **2** in DMSO- $d_6$

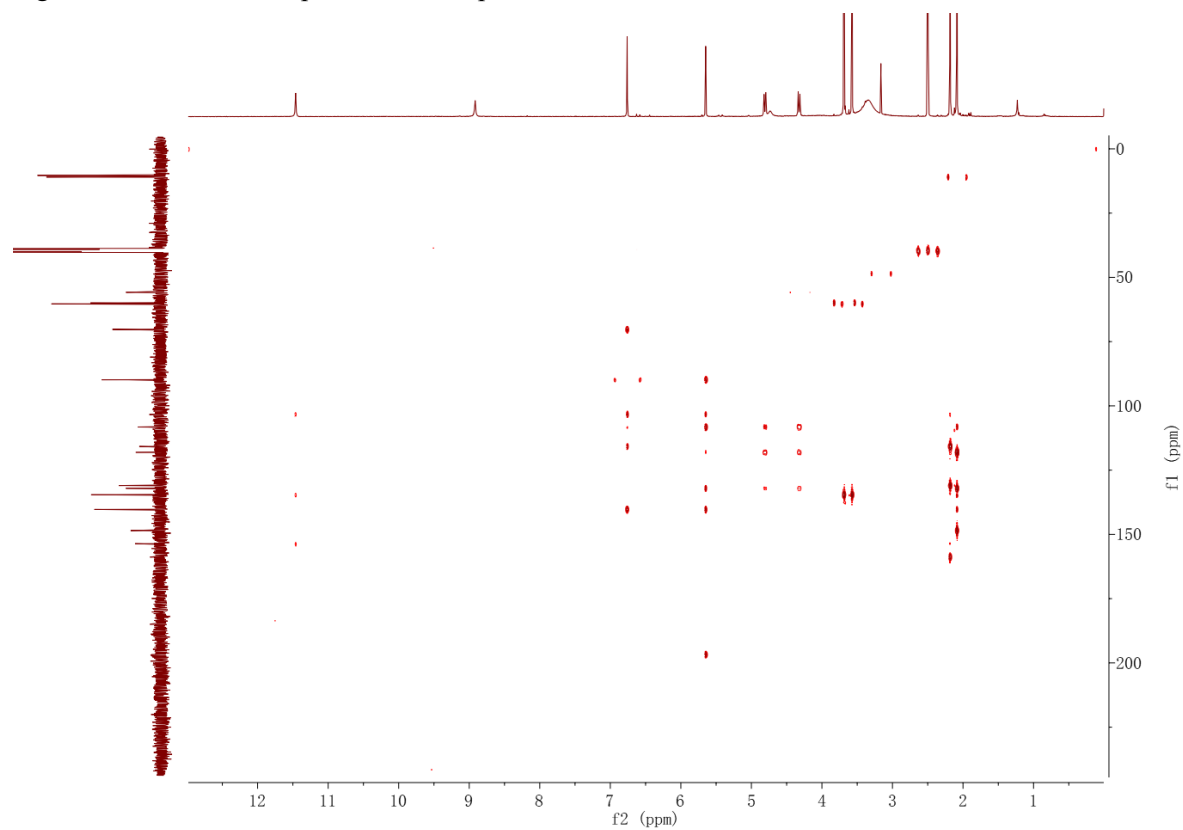


Figure S16. The COSY spectrum of compound **2** in DMSO- $d_6$

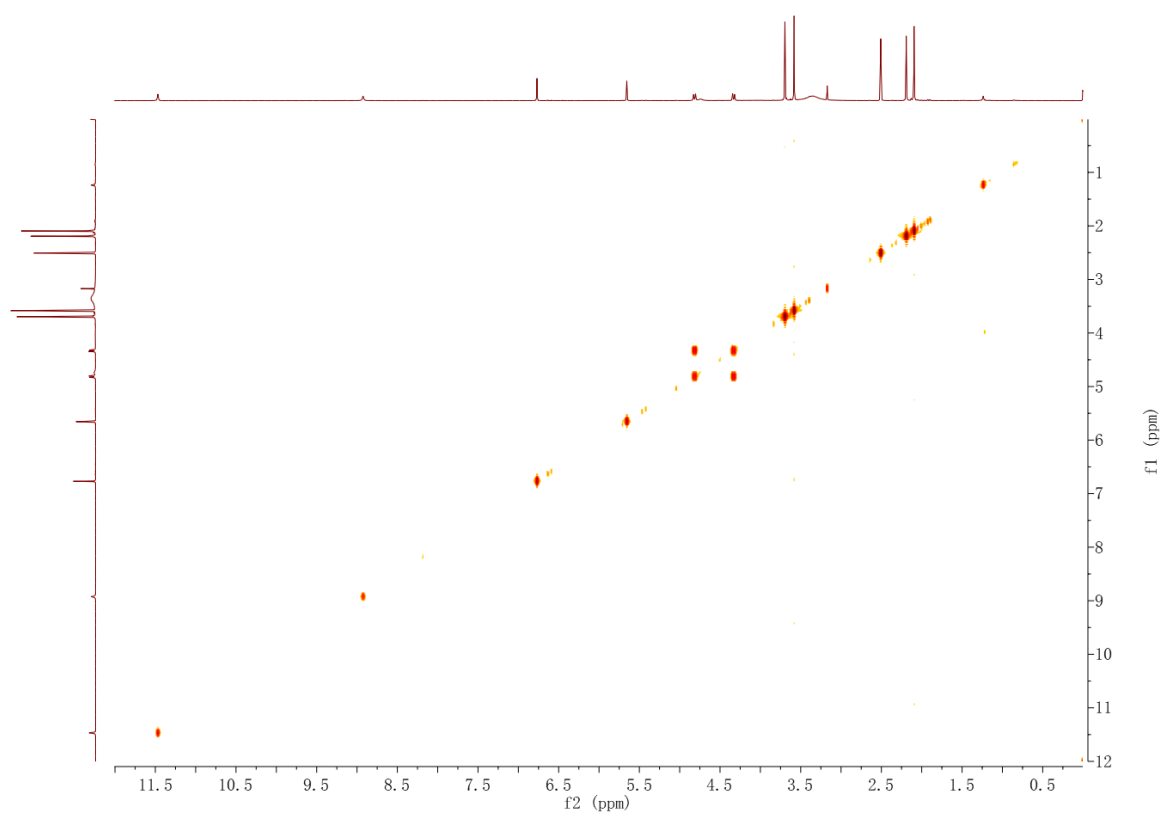


Figure S17. The ROESY spectrum of compound **2** in DMSO-*d*<sub>6</sub>

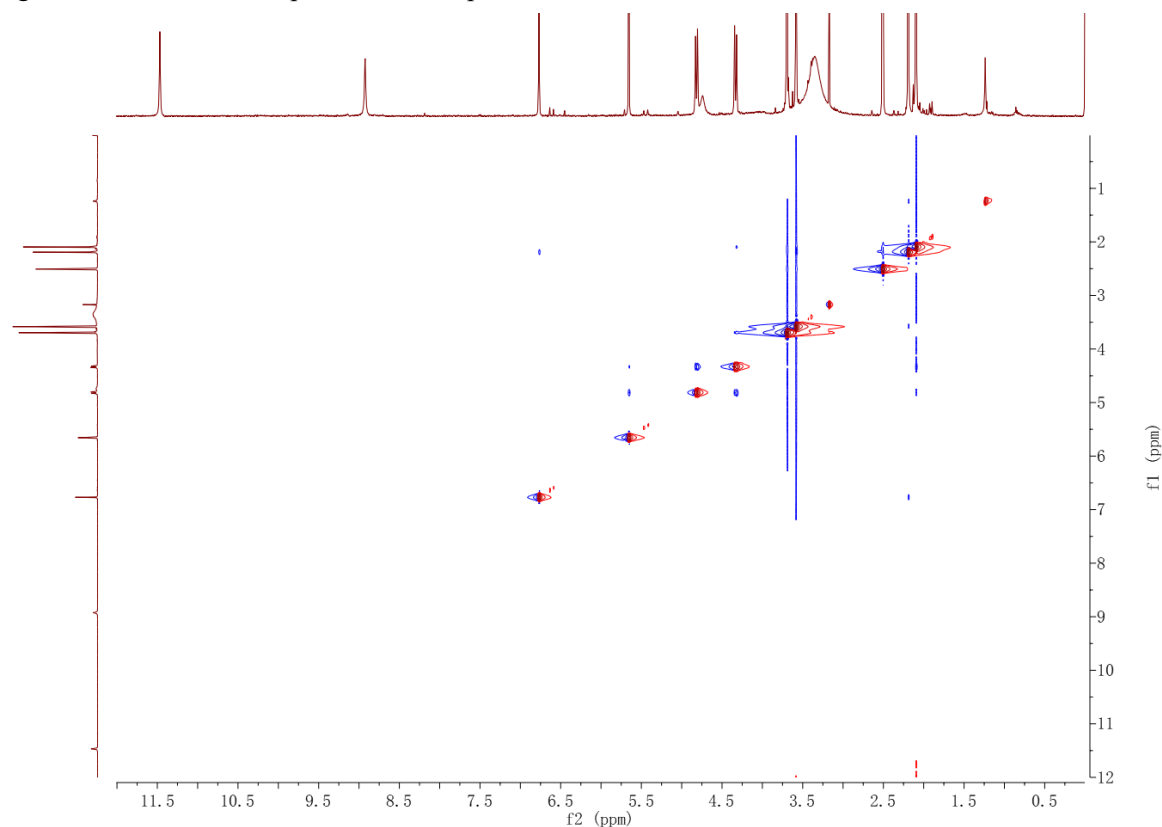
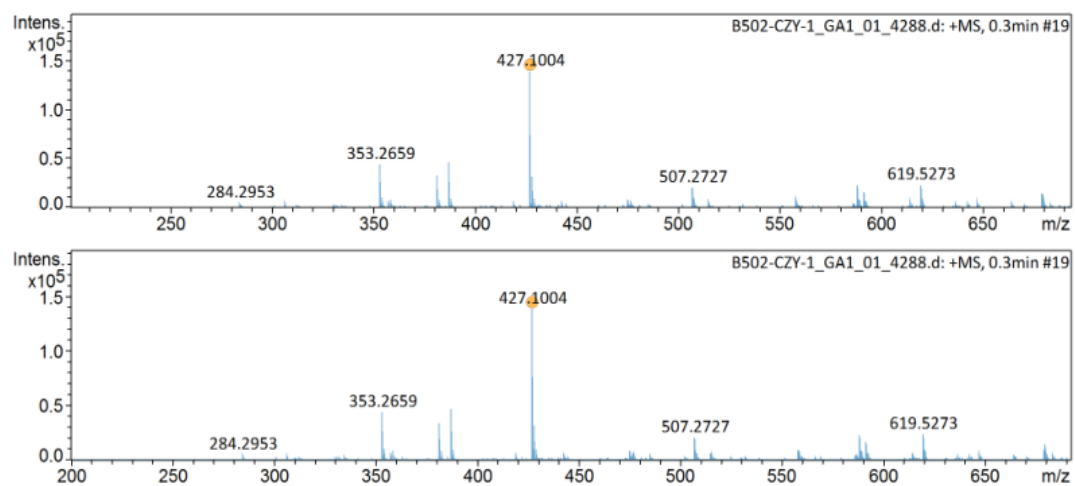


Figure S18. The HRESIMS spectrum of compound **2**



Meas. m/z	#	Ion Formula	m/z	err [ppm]	mSigma	# mSigma	Score	rdb	e <sup>-</sup> Conf	N-Rule	Adduct
427.1004	1	C <sub>20</sub> H <sub>20</sub> NaO <sub>9</sub>	427.1000	-1.1	24.4	1	100.00	11.0	even	ok	M+Na

Figure S19. The UV spectrum of compound **2**

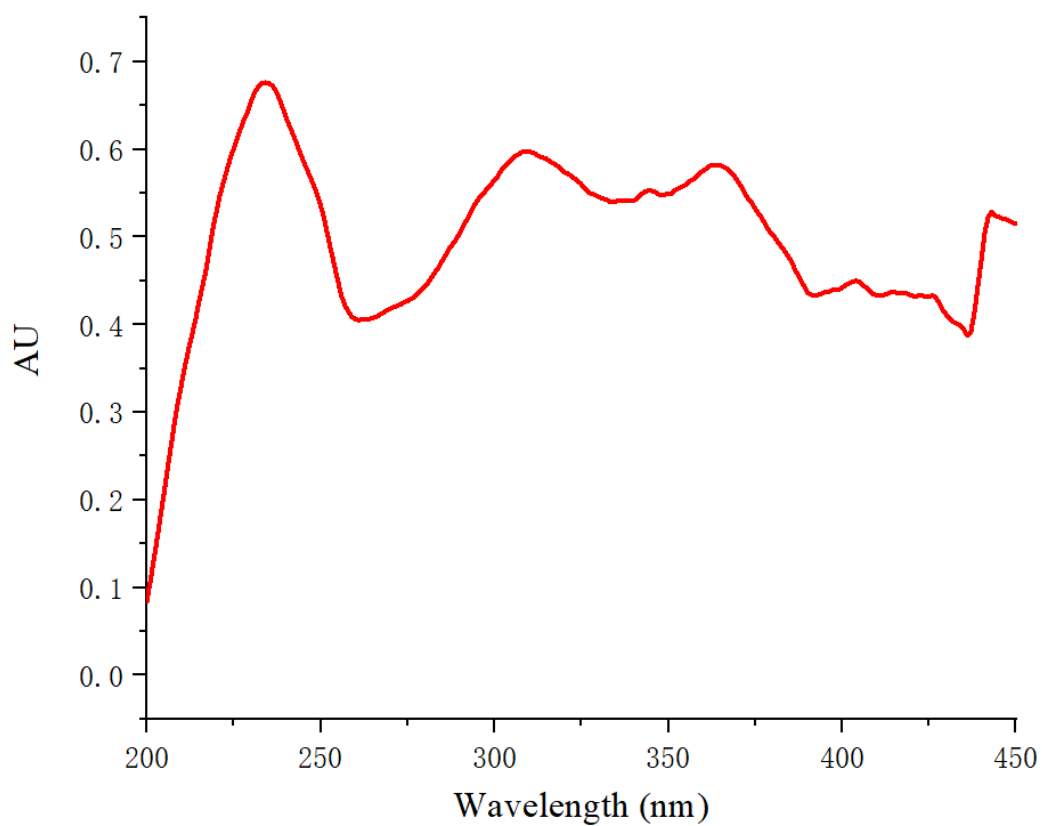


Figure S20. The IR spectrum of compound **2**

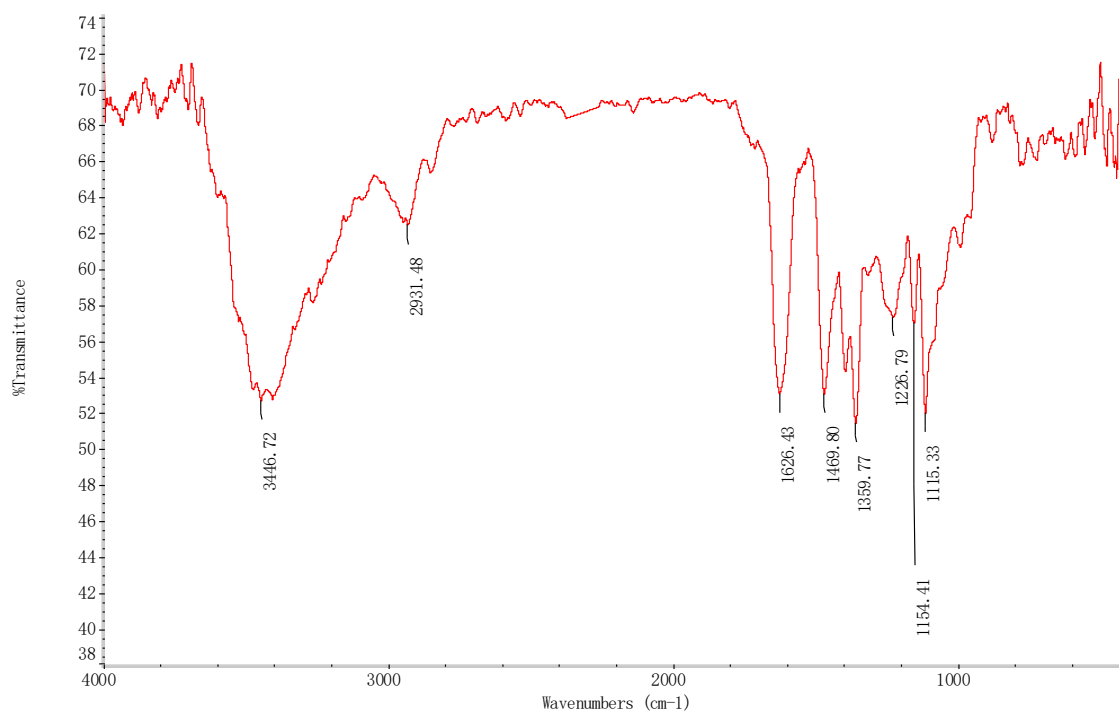


Figure S21.  $^1\text{H}$  NMR (600 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **3**

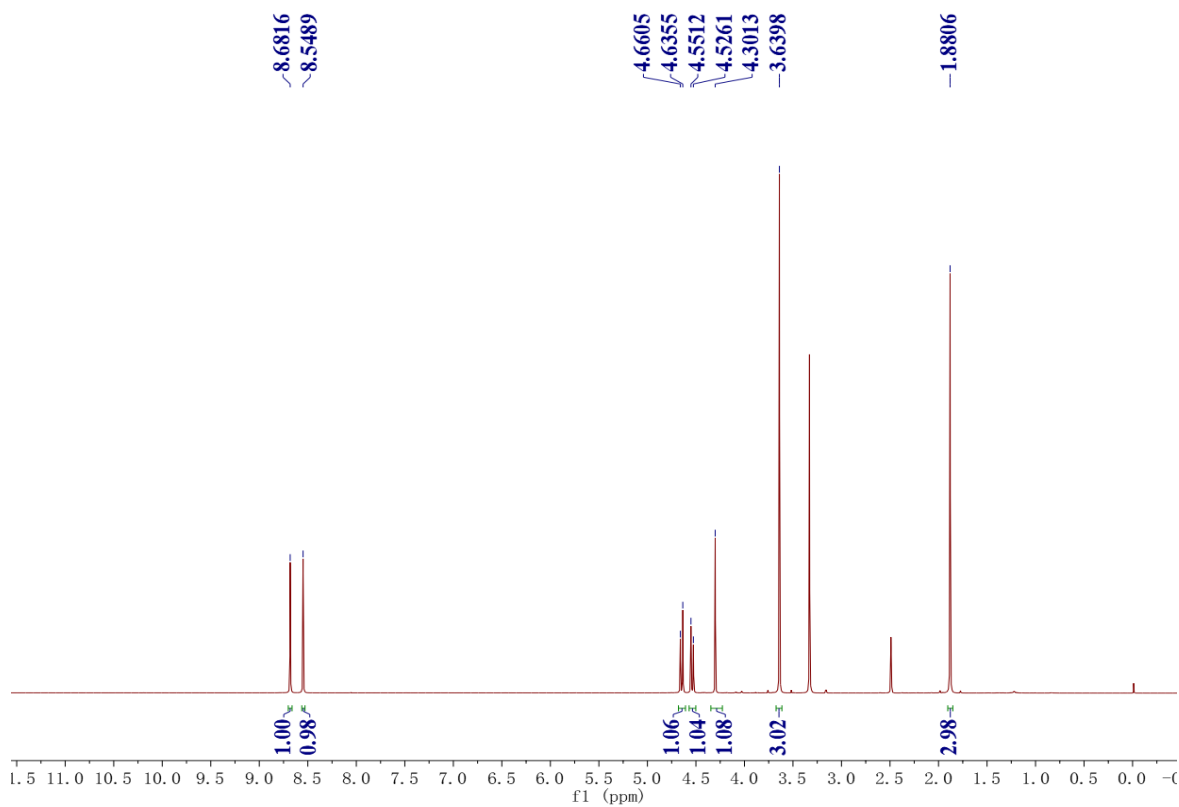


Figure S22.  $^{13}\text{C}$  NMR (150 MHz,  $\text{DMSO-}d_6$ ) spectrum of compound **3**

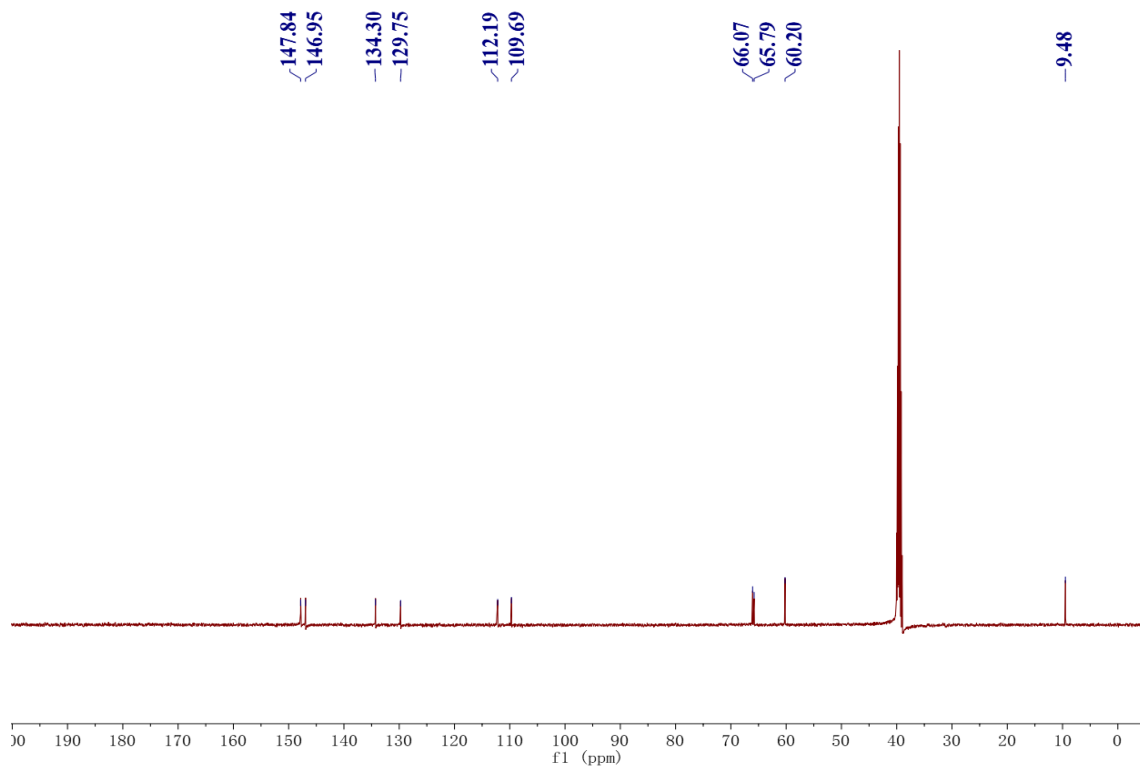


Figure S23. The DEPT spectrum of compound **3** in DMSO- $d_6$

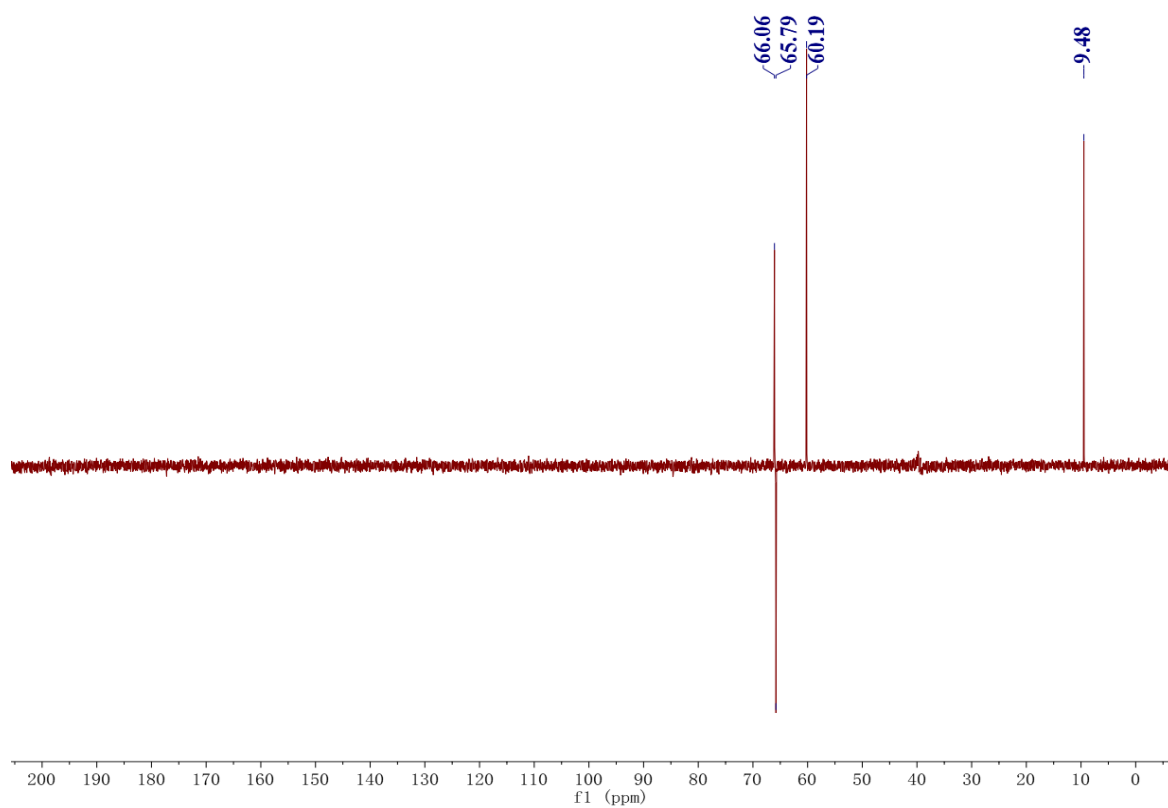


Figure S24. The HSQC spectrum of compound **3** in DMSO- $d_6$

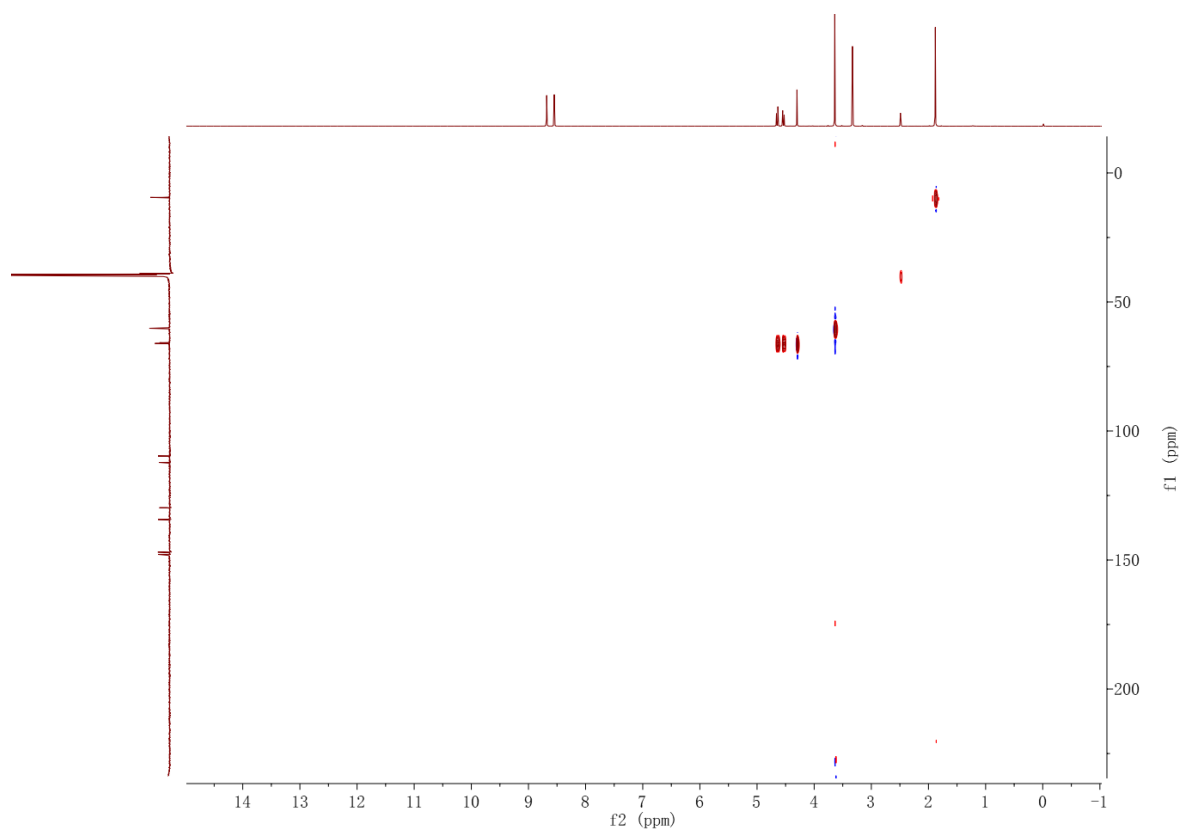


Figure S25. The HMBC spectrum of compound **3** in DMSO- $d_6$

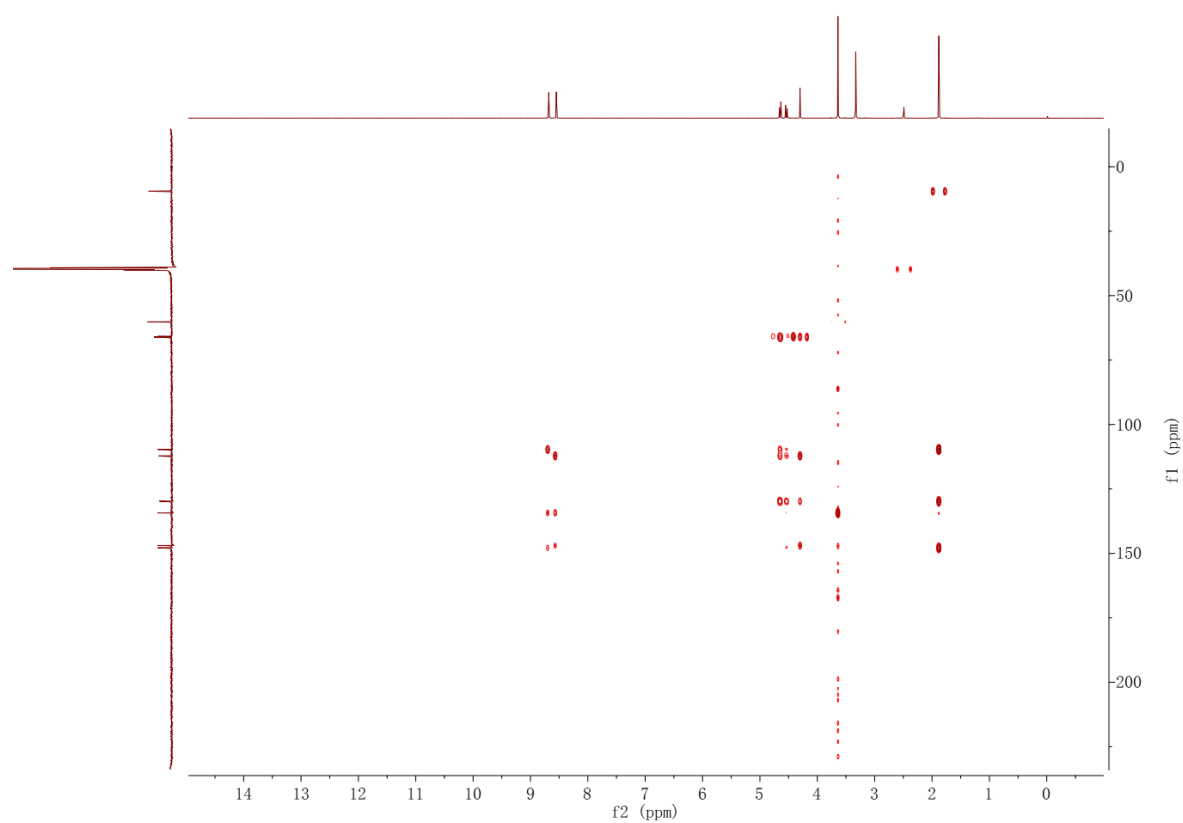


Figure S26. The COSY spectrum of compound **3** in DMSO- $d_6$

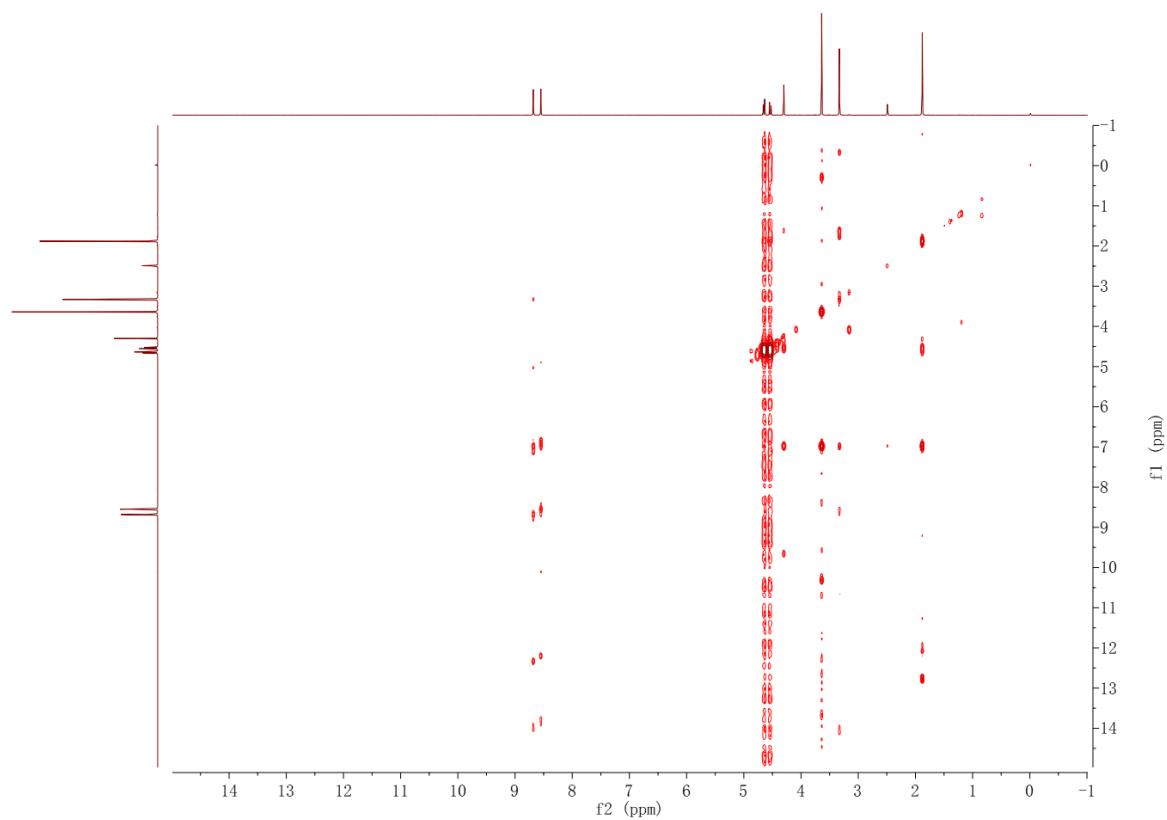


Figure S27. The ROESY spectrum of compound **3** in DMSO-*d*<sub>6</sub>

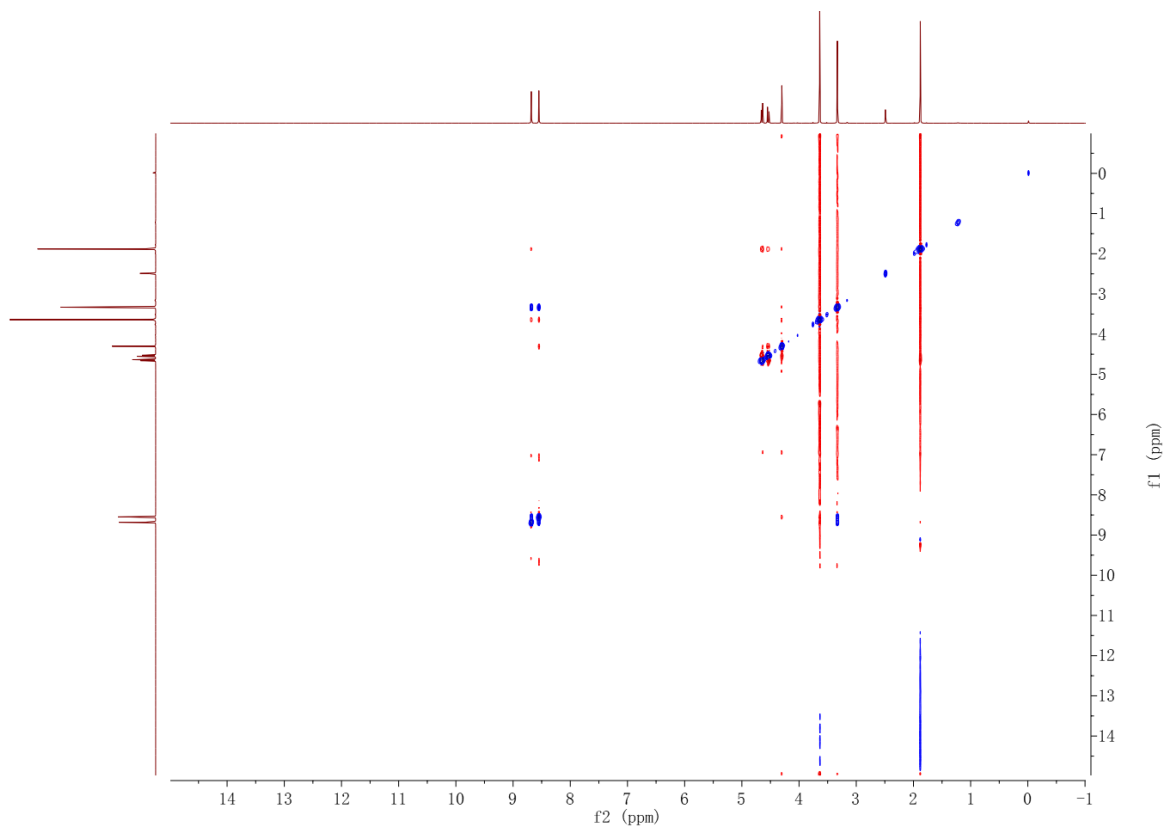
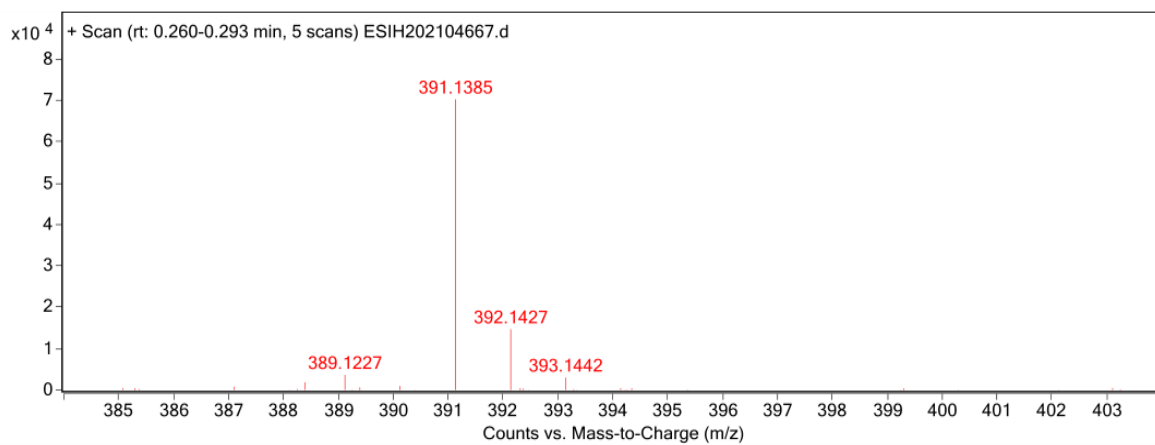


Figure S28. The HRESIMS spectrum of compound **3**



**Formula Calculator Results**

m/z	Calc m/z	Diff (mDa)	Diff (ppm)	Ion Formula	Ion
391.1385	391.1387	0.29	0.73	C <sub>20</sub> H <sub>23</sub> O <sub>8</sub>	(M+H) <sup>+</sup>



Figure S29. The UV spectrum of compound **3**

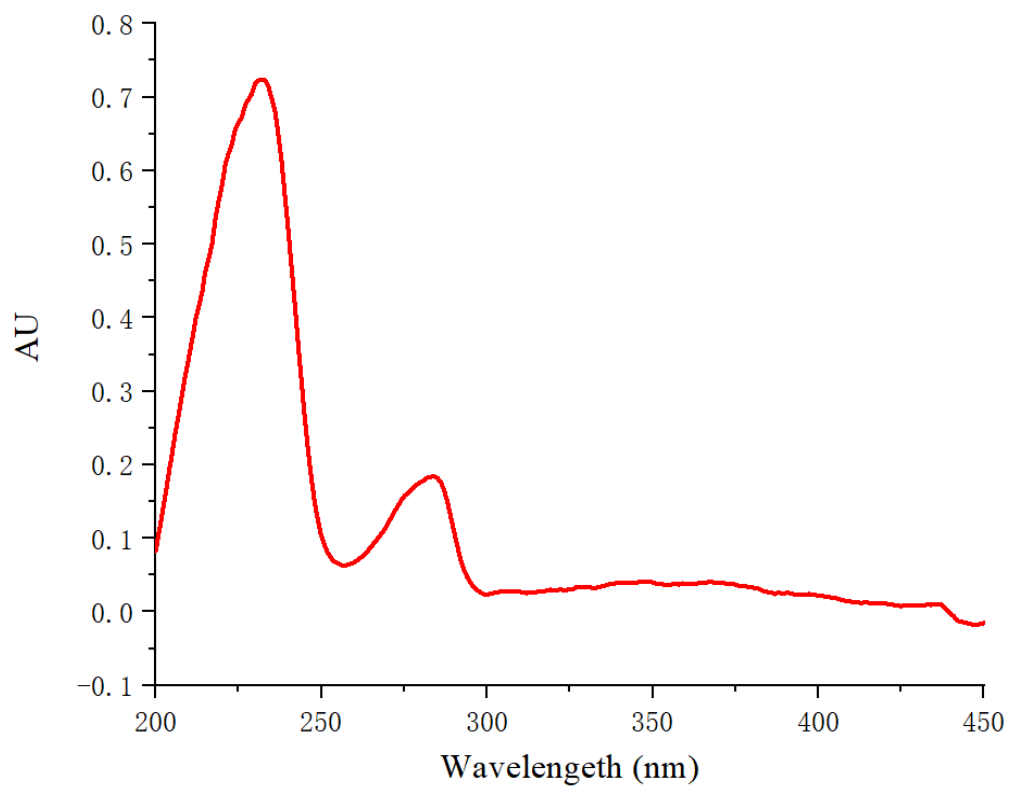


Figure S30. The IR spectrum of compound **3**

