

Article

# Cytotoxic tricycloalternarene compounds from endophyte *Alternaria* sp. W-1 associated with *Laminaria japonica*

Li Shen<sup>1,2,3</sup>, Shu-Juan Tian<sup>4</sup>, Hui-Liang Song<sup>1</sup>, Xi Chen<sup>1</sup>, Hao Guo<sup>1</sup>, Dan Wan<sup>1</sup>, Yu-Rou Wang<sup>1</sup>, Feng-Wu Wang<sup>4,\*</sup> and Li-Jun Liu<sup>5,\*</sup>

<sup>1</sup> Institute of Translational Medicine, Medical College, Yangzhou University, Yangzhou 225001, China; shenli@yzu.edu.cn (L.S.); 18362825104@163.com (H.-L.S.); cx0811chenxi@163.com (X.C.); 18752789443@163.com (H.G.); 18252717215@163.com (D.W.); xiaorouw@gmail.com (Y.-R.W.)

<sup>2</sup> Jiangsu Key Laboratory of Integrated Traditional Chinese and Western Medicine for Prevention and Treatment of Senile Diseases, Yangzhou University, Yangzhou 225001, China

<sup>3</sup> Jiangsu Co-innovation Center for Prevention and Control of Important Animal Infectious Diseases and Zoonoses, Yangzhou 225009, China

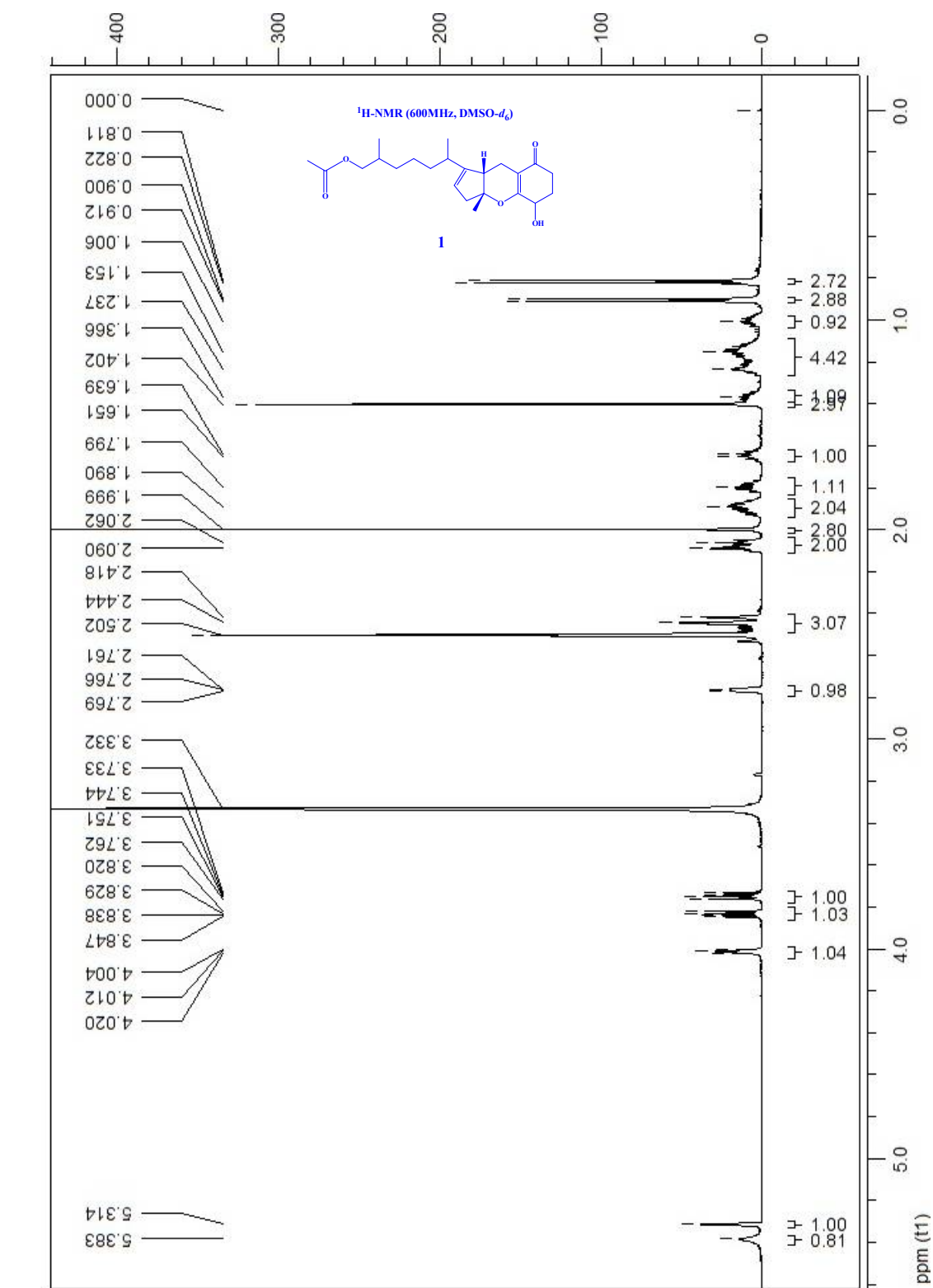
<sup>4</sup> College of Food Science and Engineering, Qingdao Agricultural University, Qingdao 266109, China; tianshajuan1992@163.com (S.-J.T.)

<sup>5</sup> Jiangsu Co-Innovation Center for Modern Production Technology of Grain Crops/Jiangsu Key Laboratory of Crop Genetics and Physiology, Yangzhou University, Yangzhou 225009, China

\* Correspondence: wangfengwude@126.com (F.-W.W.); ljliu@yzu.edu.cn (L.-J.L.); Tel./Fax: +86-532-88030473 (F.-W.W.); ; +86-514-8797-2133 (L.-J.L.)

## Content

- Figure S1.**  $^1\text{H}$ -NMR spectrum of **1** (600 MHz,  $\text{DMSO-}d_6$ ).
- Figure S2.**  $^{13}\text{C}$ -NMR spectrum of **1** (150 MHz,  $\text{DMSO-}d_6$ ).
- Figure S3.** HSQC spectrum of **1** (600 MHz,  $\text{DMSO-}d_6$ ).
- Figure S4.** HMBC spectrum of **1** (600 MHz,  $\text{DMSO-}d_6$ ).
- Figure S5.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of **1** (600 MHz,  $\text{DMSO-}d_6$ ).
- Figure S6.** NOESY spectrum of **1** (600 MHz,  $\text{DMSO-}d_6$ ).
- Figure S7.** CD spectra of **1** and **2**.

Figure S1. <sup>1</sup>H-NMR spectrum of 1 (600 MHz, DMSO-*d*<sub>6</sub>).

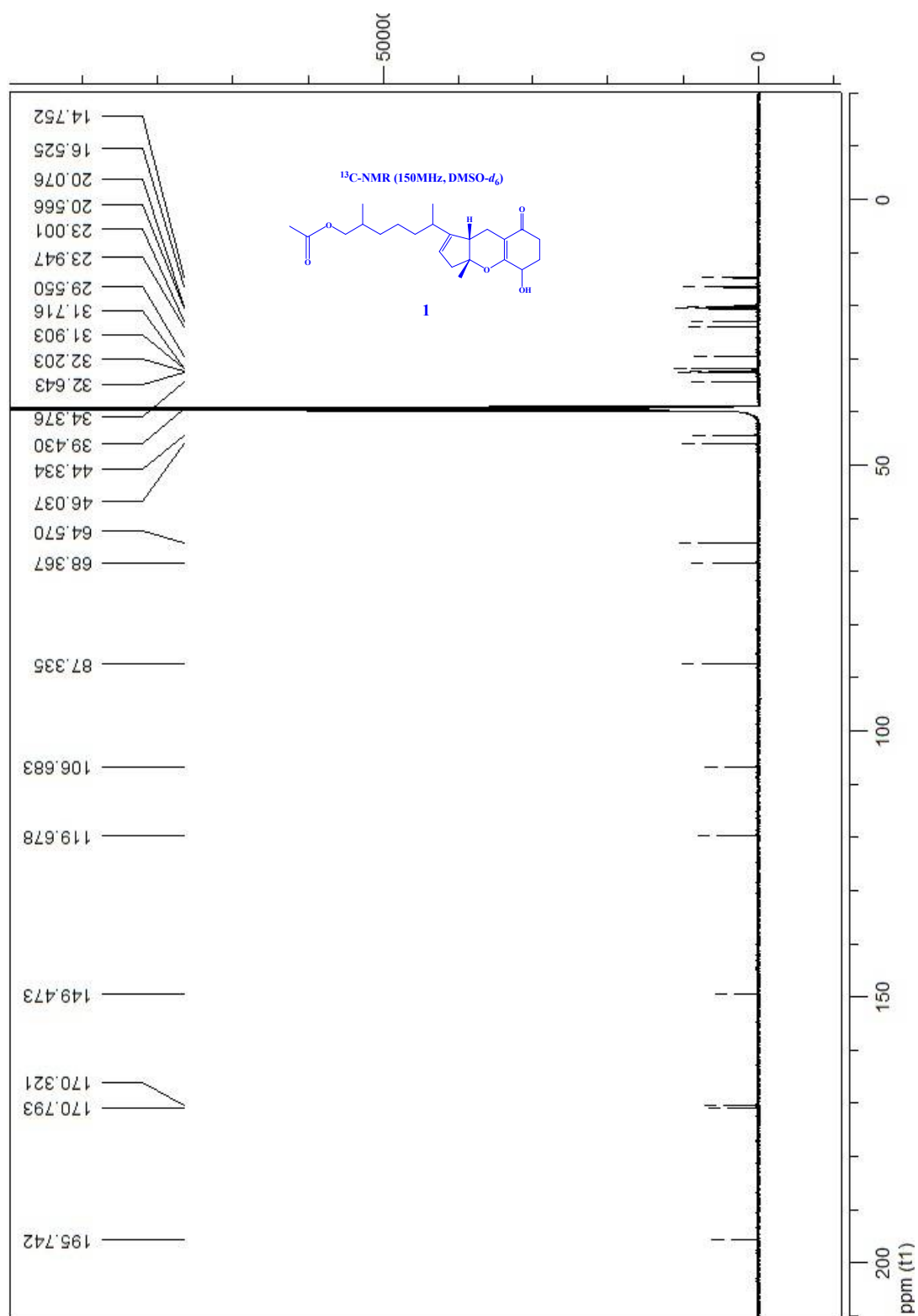


Figure S2. <sup>13</sup>C-NMR spectrum of 1 (150 MHz, DMSO-*d*<sub>6</sub>).

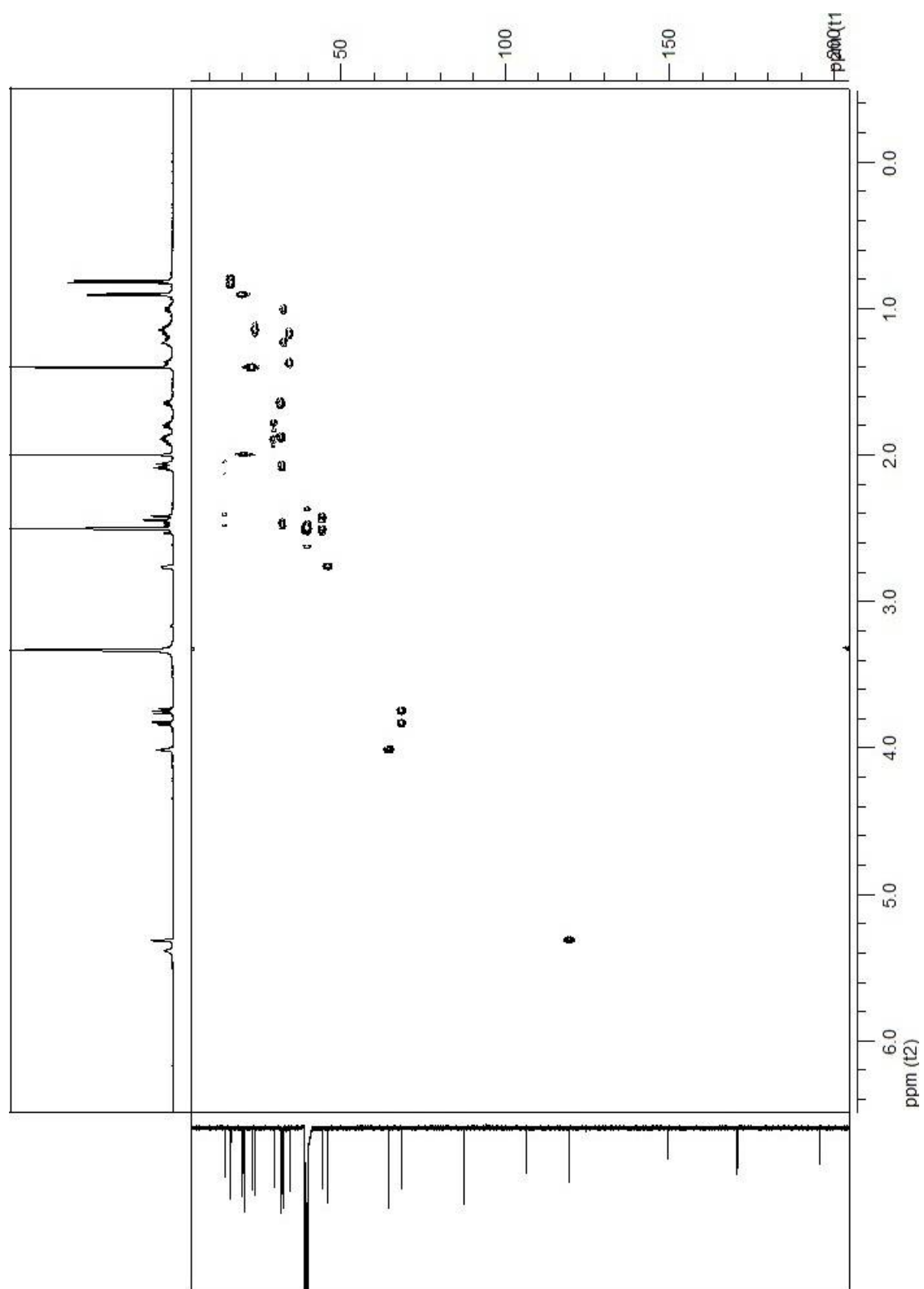


Figure S3. HSQC spectrum of 1 (600 MHz, DMSO-*d*<sub>6</sub>).

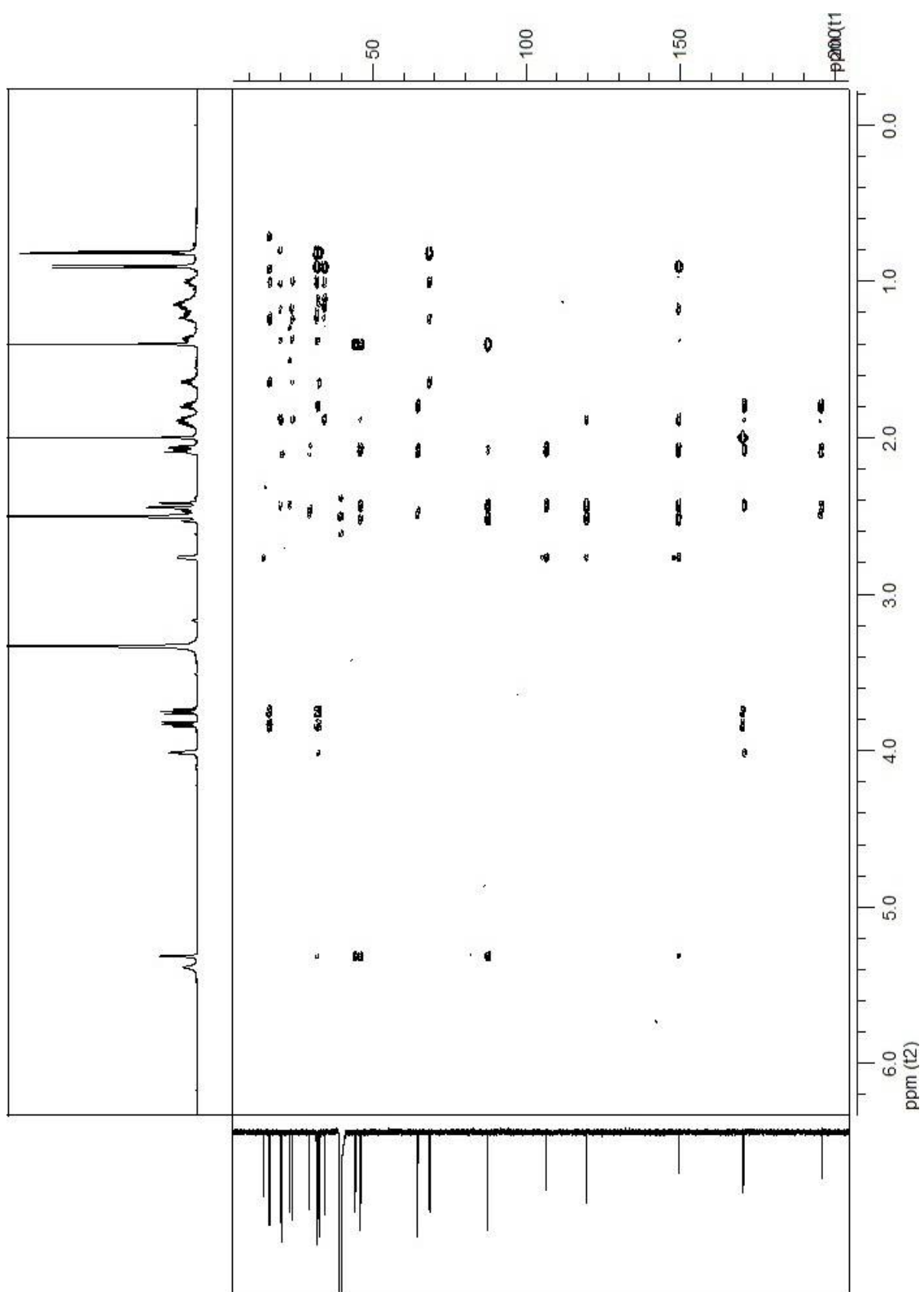


Figure S4. HMBC spectrum of 1 (600 MHz, DMSO-*d*<sub>6</sub>).

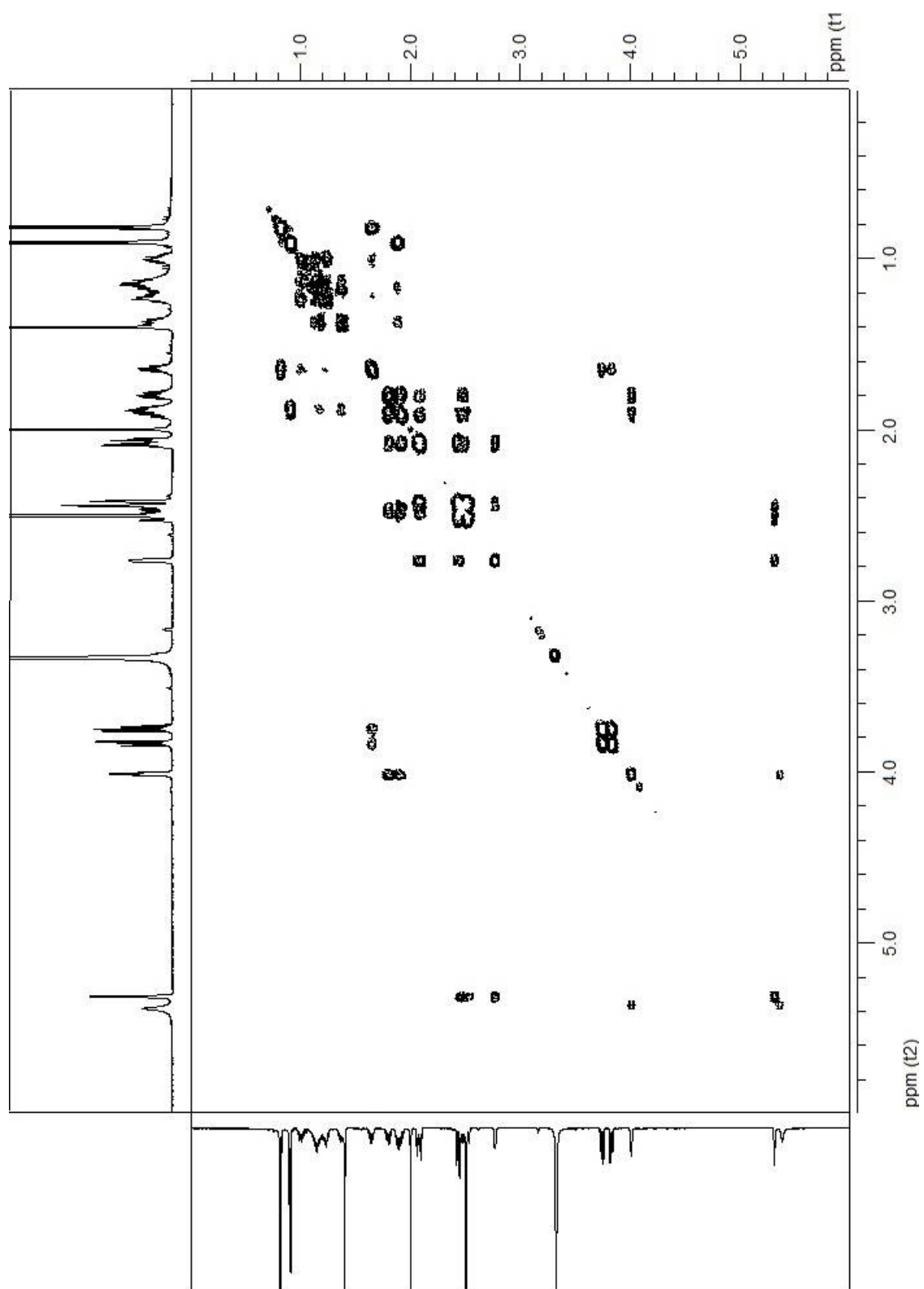


Figure S5.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of 1 (600 MHz,  $\text{DMSO-}d_6$ ).

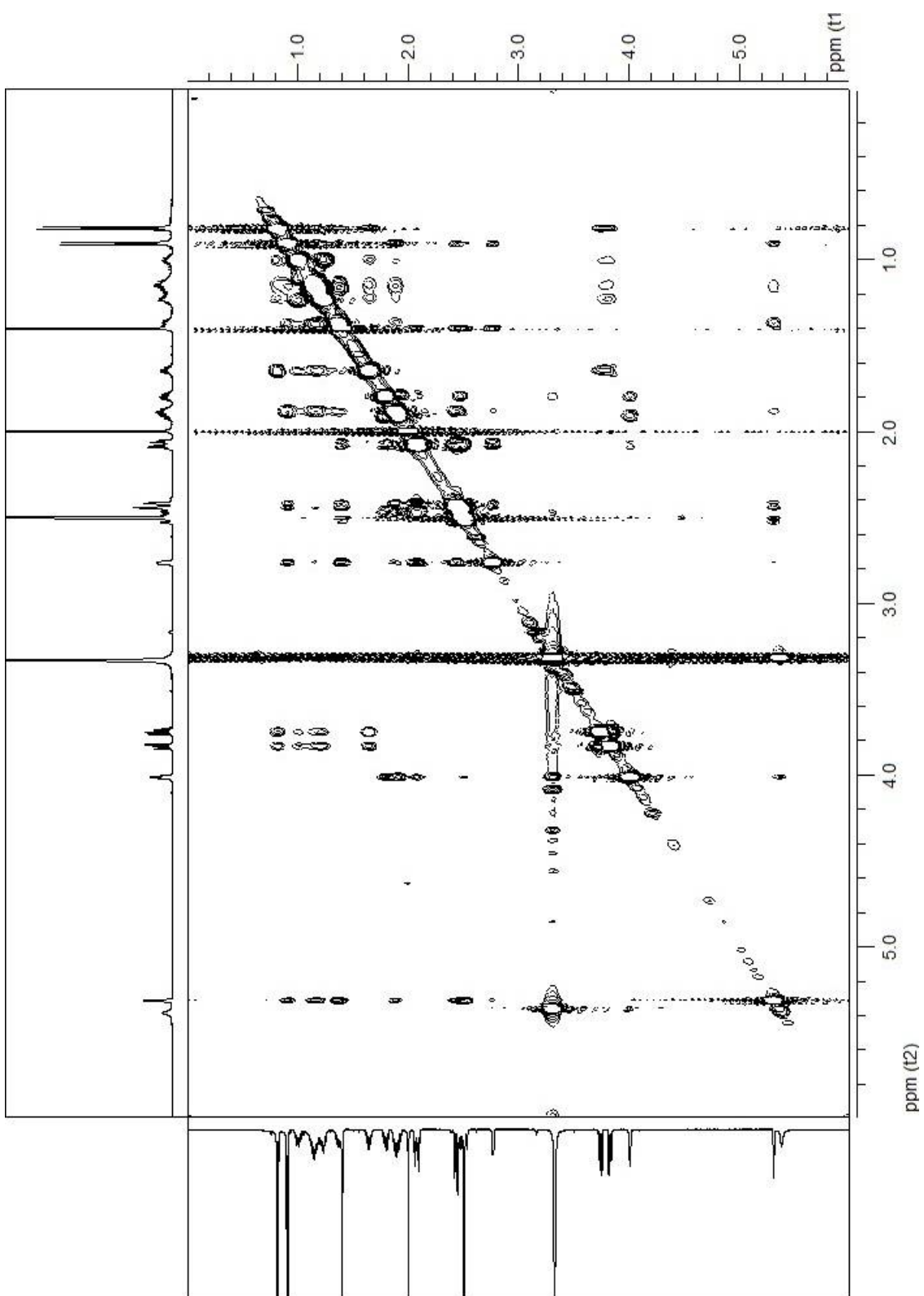


Figure S6. NOESY spectrum of 1 (600 MHz, DMSO-*d*<sub>6</sub>).



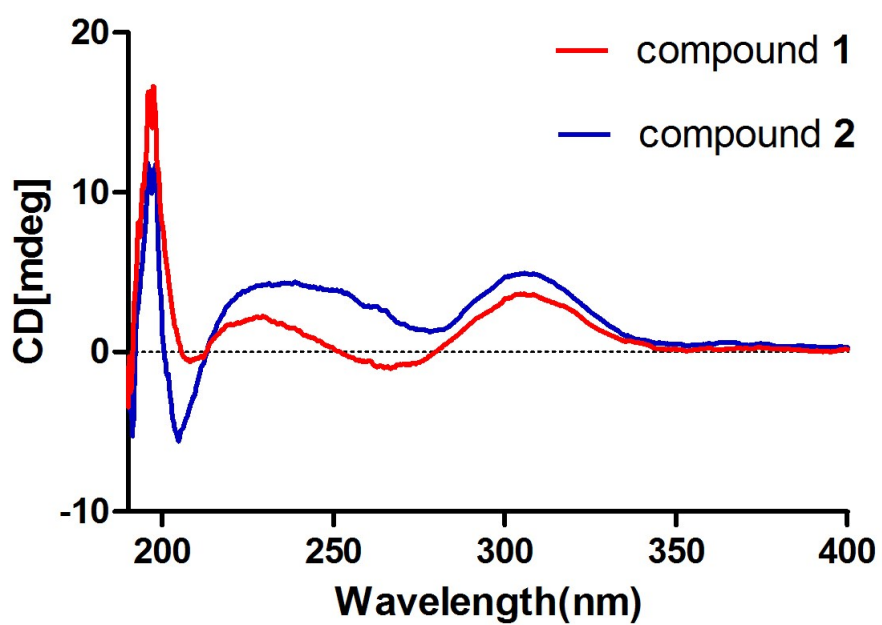


Figure S7. CD spectra of 1 and 2.