

## Supporting Information

# Abietane diterpenoids from the bark of *Cryptomeria japonica* and their antifungal activities against wood decay fungi

Chi-I Chang <sup>1,2</sup>, Cheng-Chi Chen <sup>3</sup>, Sheng-Yang Wang <sup>4,5,†</sup> and Yueh-Hsiung Kuo <sup>6,7,8,\*</sup>

<sup>1</sup> Department of Biological Science and Technology, National Pingtung University of Science and Technology, Pingtung 912, Taiwan; changchii@mail.npust.edu.tw

<sup>2</sup> Traditional Herbal Medicine Research Center, Taipei Medical University Hospital, Taipei 110, Taiwan

<sup>3</sup> Department of Chemistry, National Taiwan University, Taipei 106, Taiwan; [r93223083@ntu.edu.tw](mailto:r93223083@ntu.edu.tw)

<sup>4</sup> Department of Forestry, National Chung-Hsing University, Taichung 402, Taiwan

<sup>5</sup> Agricultural Biotechnology Research Center, Academia Sinica, Taipei 115, Taiwan

<sup>6</sup> Department of Chinese Pharmaceutical Sciences and Chinese Medicine Resources, College of Pharmacy, China Medical University, Taichung 404, Taiwan

<sup>7</sup> Department of Biotechnology, Asia University, Taichung 413, Taiwan

<sup>8</sup> Chinese Medicine Research Center, China Medical University, Taichung 404, Taiwan

\* Correspondence: kuoyh@mail.cmu.edu.tw; Tel.: +886-4-2205-3366 (ext. 5701); Fax: +886-4-2207-1693

† The author contributed equally to this paper.

## Table of Contents

<b>Figure S1.</b>	$^1\text{H}$ -NMR spectrum of compound <b>1</b> in $\text{CDCl}_3$
<b>Figure S2.</b>	$^{13}\text{C}$ -NMR spectrum and DEPT of compound <b>1</b> in $\text{CDCl}_3$
<b>Figure S3.</b>	HMQC spectrum of compound <b>1</b> in $\text{CDCl}_3$
<b>Figure S4.</b>	HMBC spectrum of compound <b>1</b> in $\text{CDCl}_3$
<b>Figure S5.</b>	$^1\text{H}$ - $^1\text{H}$ COSY spectrum of compound <b>1</b> in $\text{CDCl}_3$
<b>Figure S6.</b>	NOSEY spectrum of compound <b>1</b> in $\text{CDCl}_3$
<b>Figure S7.</b>	IR spectrum of compound <b>1</b>
<b>Figure S8.</b>	Mass spectrum of compound <b>1</b>
<b>Figure S9.</b>	UV-Vis spectrum of compound <b>1</b>
<b>Figure S10.</b>	$^1\text{H}$ -NMR spectrum of compound <b>2</b> in $\text{CDCl}_3$
<b>Figure S11.</b>	$^{13}\text{C}$ -NMR spectrum and DEPT of compound <b>2</b> in $\text{CDCl}_3$
<b>Figure S12.</b>	HMQC spectrum of compound <b>2</b> in $\text{CDCl}_3$
<b>Figure S13.</b>	HMBC spectrum of compound <b>2</b> in $\text{CDCl}_3$
<b>Figure S14.</b>	$^1\text{H}$ - $^1\text{H}$ COSY spectrum of compound <b>2</b> in $\text{CDCl}_3$
<b>Figure S15.</b>	NOSEY spectrum of compound <b>2</b> in $\text{CDCl}_3$
<b>Figure S16.</b>	IR spectrum of compound <b>2</b>
<b>Figure S17.</b>	Mass spectrum of compound <b>2</b>
<b>Figure S18.</b>	UV-Vis spectrum of compound <b>2</b>
<b>Figure S19.</b>	$^1\text{H}$ -NMR spectrum of compound <b>4</b> in $\text{CDCl}_3$
<b>Figure S20.</b>	$^{13}\text{C}$ -NMR spectrum and DEPT of compound <b>4</b> in $\text{CDCl}_3$
<b>Figure S21.</b>	HMQC spectrum of compound <b>4</b> in $\text{CDCl}_3$
<b>Figure S22.</b>	HMBC spectrum of compound <b>4</b> in $\text{CDCl}_3$
<b>Figure S23.</b>	$^1\text{H}$ - $^1\text{H}$ COSY spectrum of compound <b>4</b> in $\text{CDCl}_3$
<b>Figure S24.</b>	NOSEY spectrum of compound <b>4</b> in $\text{CDCl}_3$
<b>Figure S25.</b>	IR spectrum of compound <b>4</b>
<b>Figure S26.</b>	Mass spectrum of compound <b>4</b>
<b>Figure S27.</b>	UV-Vis spectrum of compound <b>4</b>
<b>Figure S28.</b>	$^1\text{H}$ -NMR spectrum of compound <b>5</b> in $\text{CDCl}_3$
<b>Figure S29.</b>	$^{13}\text{C}$ -NMR spectrum and DEPT of compound <b>5</b> in $\text{CDCl}_3$
<b>Figure S30.</b>	HMQC spectrum of compound <b>5</b> in $\text{CDCl}_3$
<b>Figure S31.</b>	HMBC spectrum of compound <b>5</b> in $\text{CDCl}_3$
<b>Figure S32.</b>	$^1\text{H}$ - $^1\text{H}$ COSY spectrum of compound <b>5</b> in $\text{CDCl}_3$
<b>Figure S33.</b>	NOSEY spectrum of compound <b>5</b> in $\text{CDCl}_3$
<b>Figure S34.</b>	IR spectrum of compound <b>5</b>
<b>Figure S35.</b>	Mass spectrum of compound <b>5</b>
<b>Figure S36.</b>	UV-Vis spectrum of compound <b>5</b>
<b>Figure S37.</b>	$^1\text{H}$ -NMR spectrum of compound <b>6</b> in $\text{CDCl}_3$

**Figure S38.**  $^{13}\text{C}$ -NMR spectrum and DEPT of compound **6** in  $\text{CDCl}_3$

**Figure S39.** HMQC spectrum of compound **6** in  $\text{CDCl}_3$

**Figure S40.** HMBC spectrum of compound **6** in  $\text{CDCl}_3$

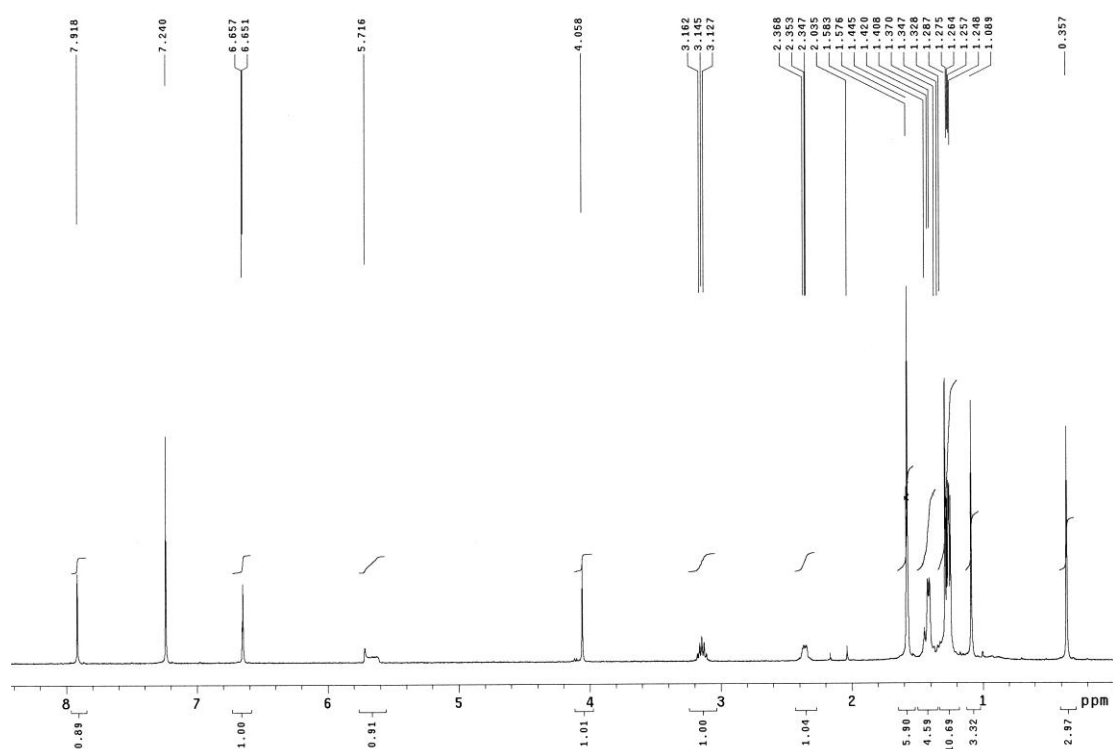
**Figure S41.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of compound **6** in  $\text{CDCl}_3$

**Figure S42.** NOSEY spectrum of compound **6** in  $\text{CDCl}_3$

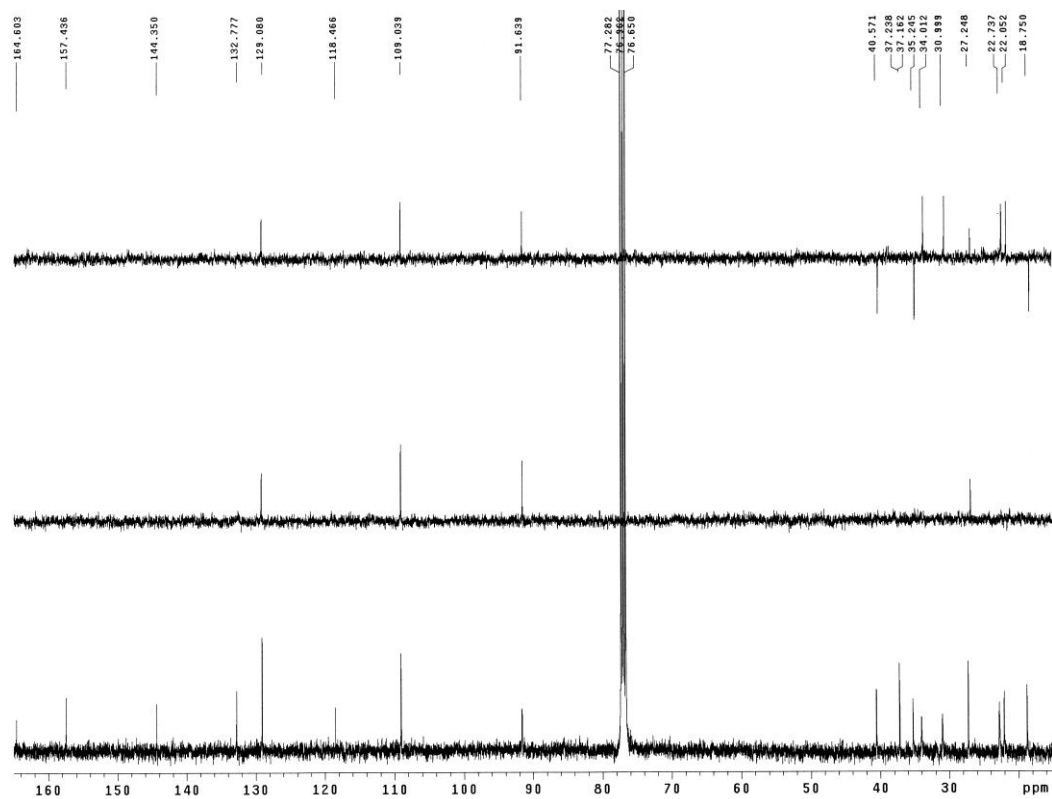
**Figure S43.** IR spectrum of compound **6**

**Figure S44.** Mass spectrum of compound **6**

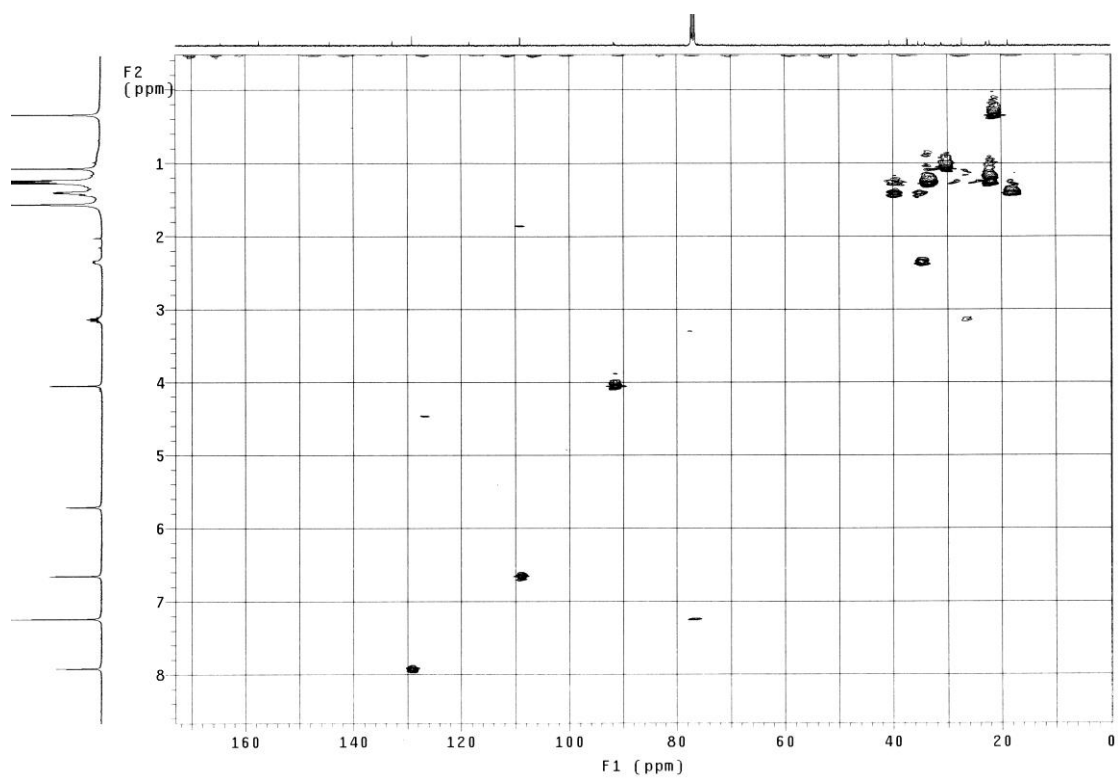
**Figure S45.** UV-Vis spectrum of compound **6**



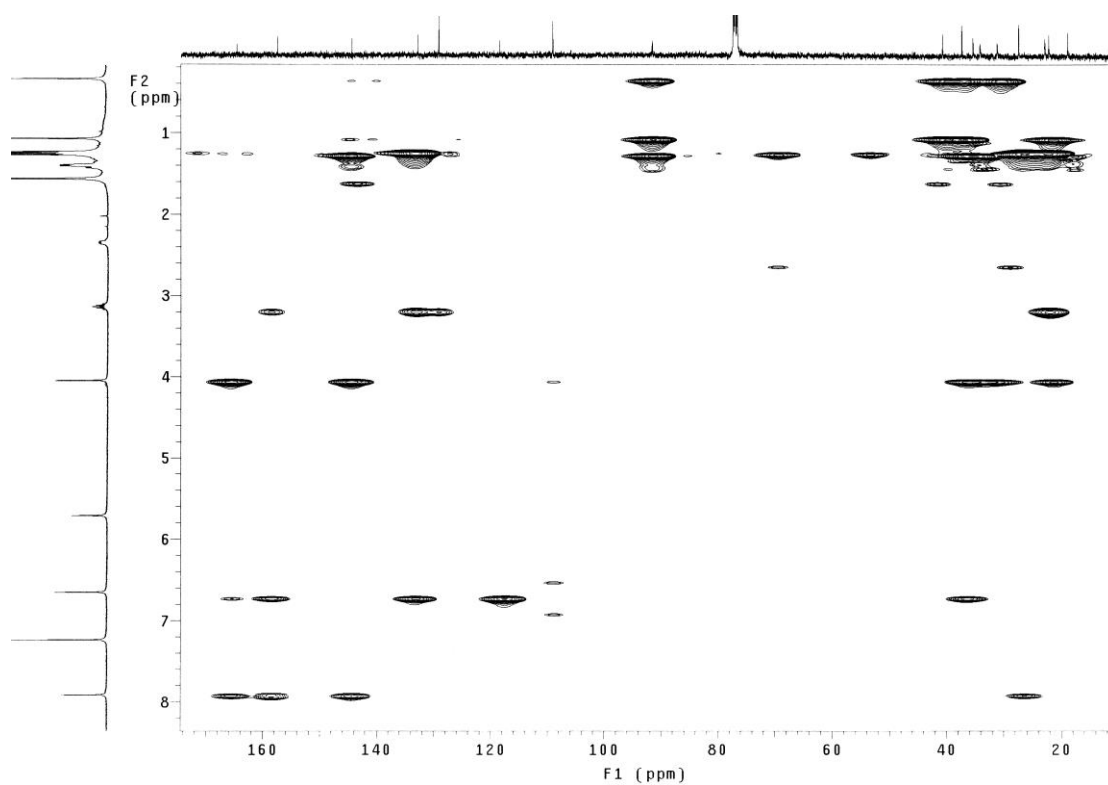
**Figure S1.**  $^1\text{H}$ -NMR spectrum of compound **1** in  $\text{CDCl}_3$



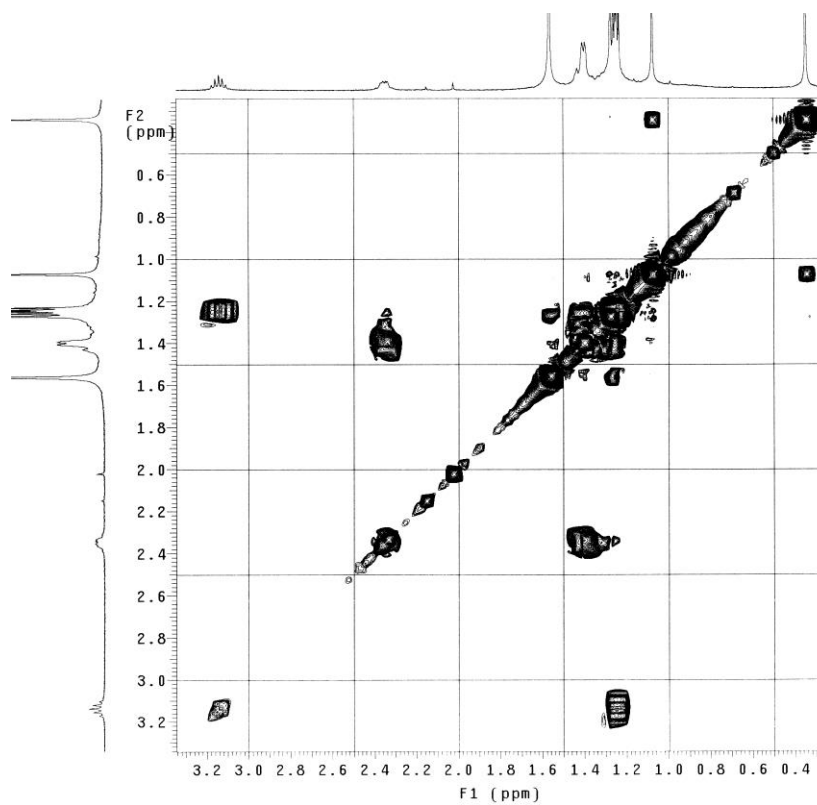
**Figure S2.**  $^{13}\text{C}$ -NMR spectrum and DEPT of compound **1** in  $\text{CDCl}_3$



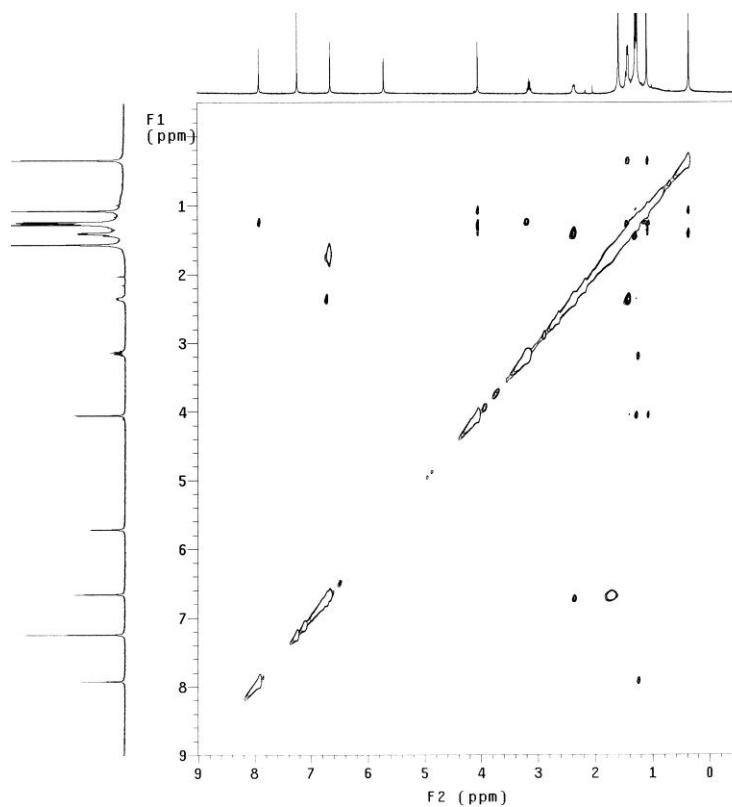
**Figure S3.** HMQC spectrum of compound **1** in  $\text{CDCl}_3$



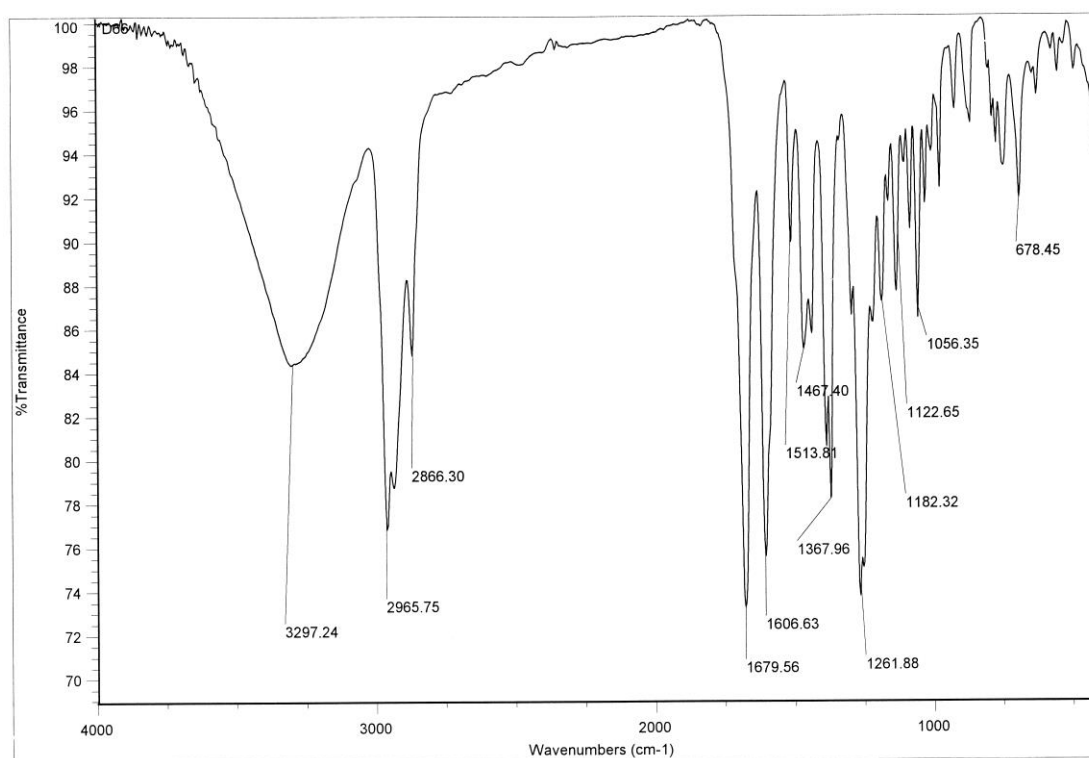
**Figure S4.** HMBC spectrum of compound **1** in  $\text{CDCl}_3$



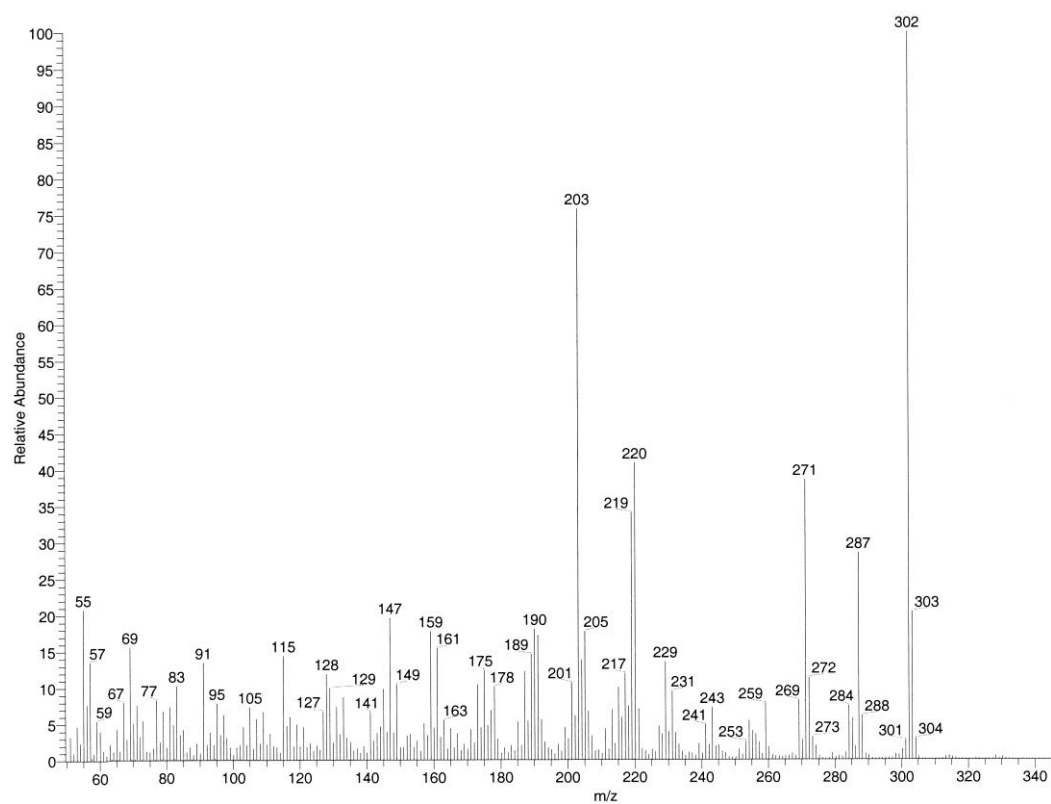
**Figure S5.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of compound **1** in  $\text{CDCl}_3$



**Figure S6.** NOESY spectrum of compound **1** in  $\text{CDCl}_3$



**Figure S7.** IR spectrum of compound **1**



**Figure S8.** Mass spectrum of compound **1**

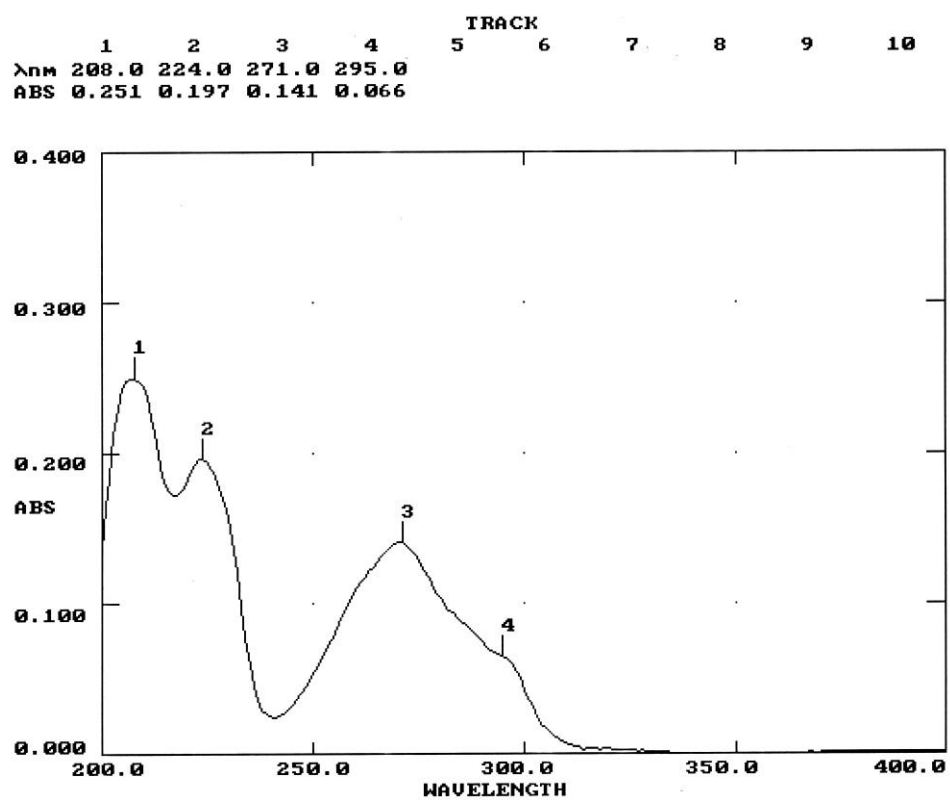


Figure S9. UV-Vis spectrum of compound 1

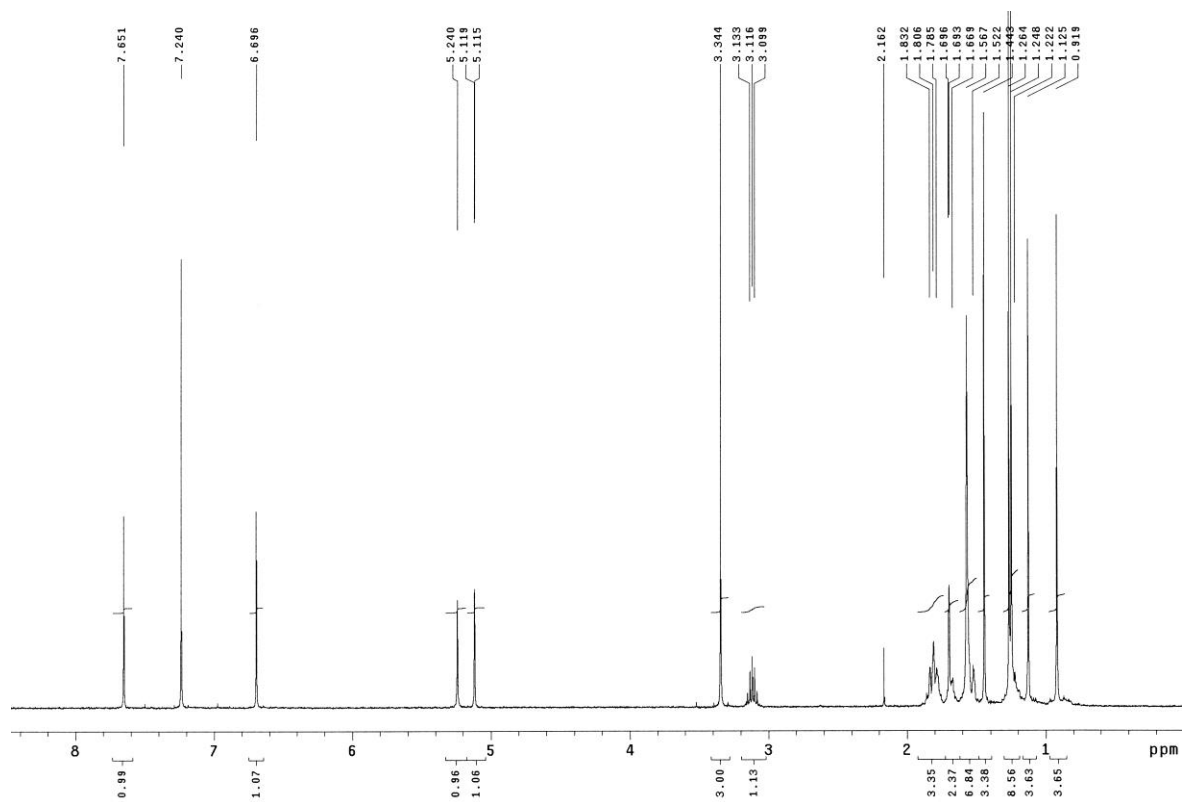
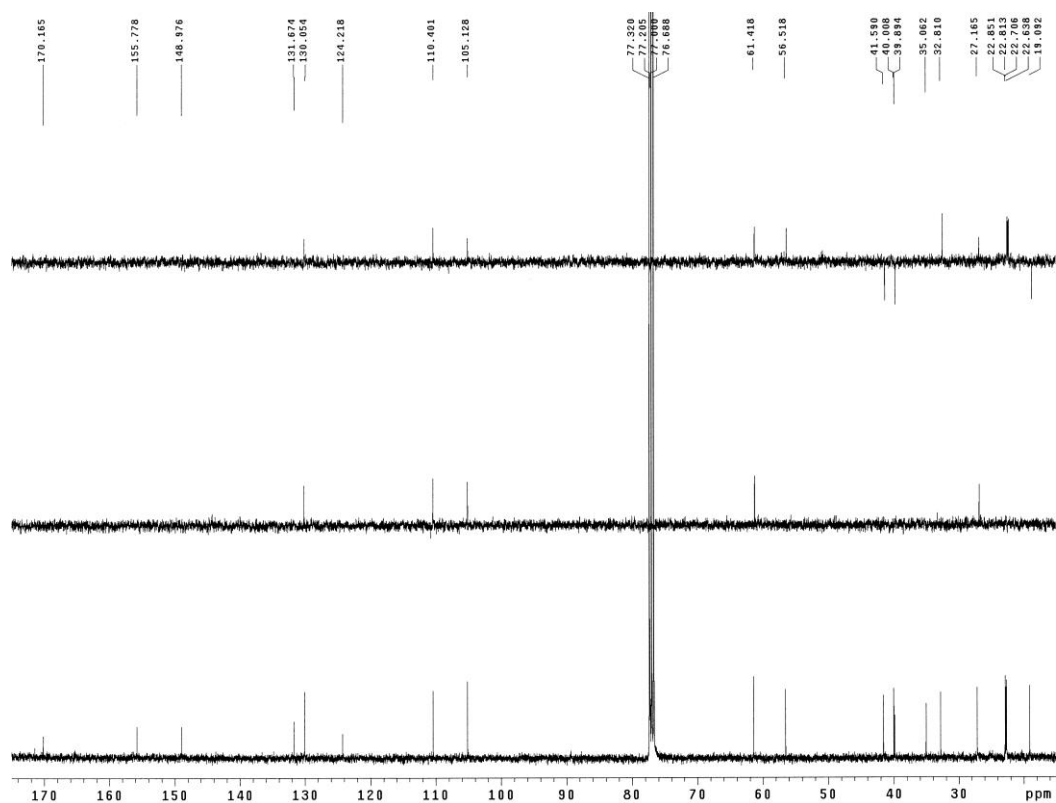
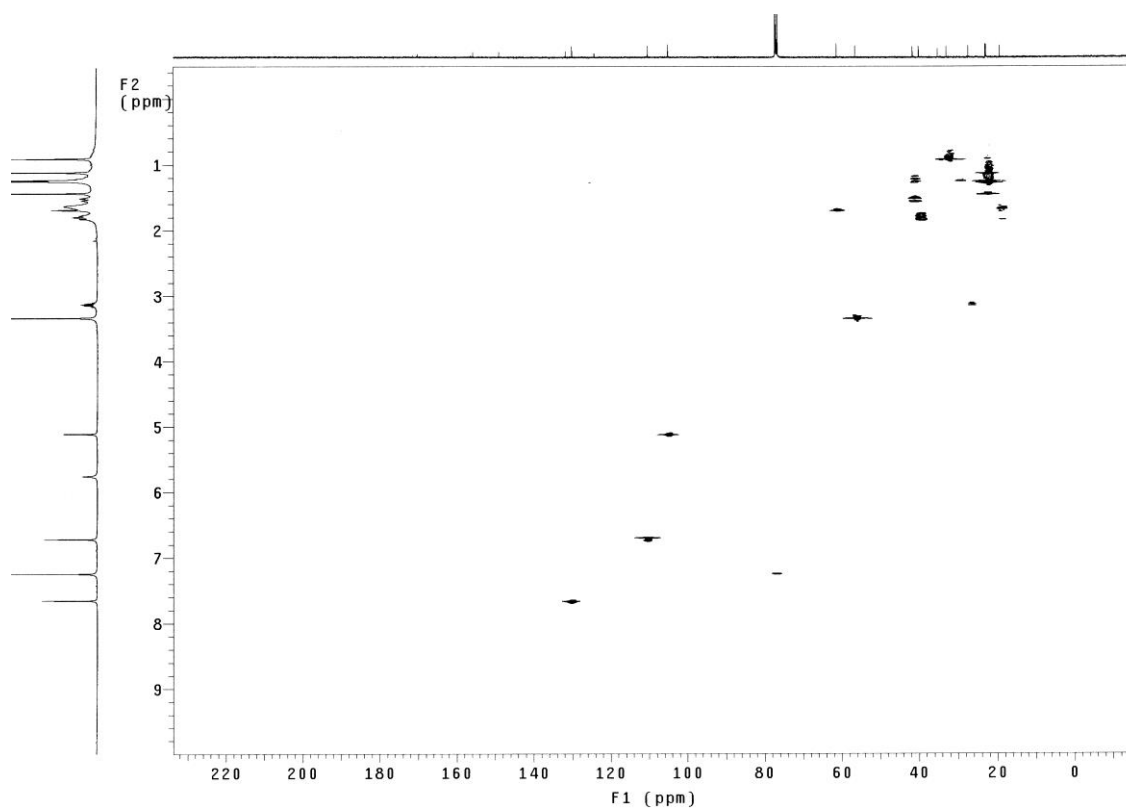


Figure S10.  $^1\text{H}$ -NMR spectrum of compound 2 in  $\text{CDCl}_3$

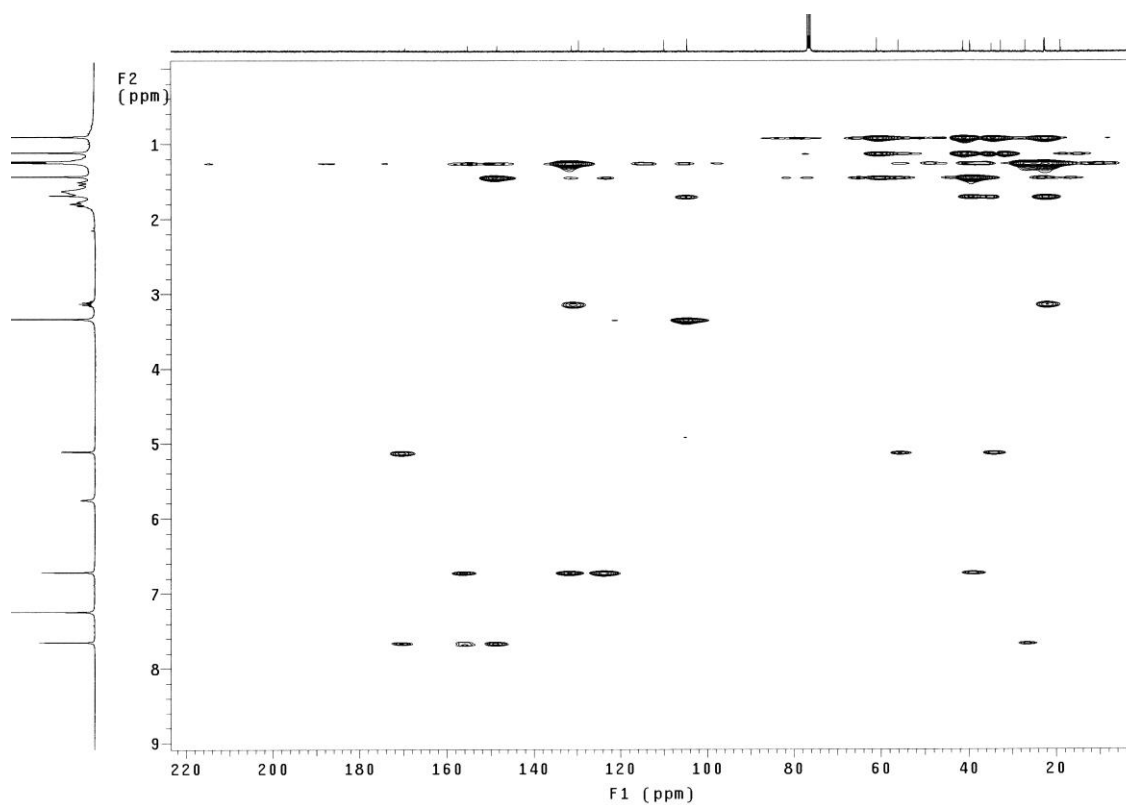




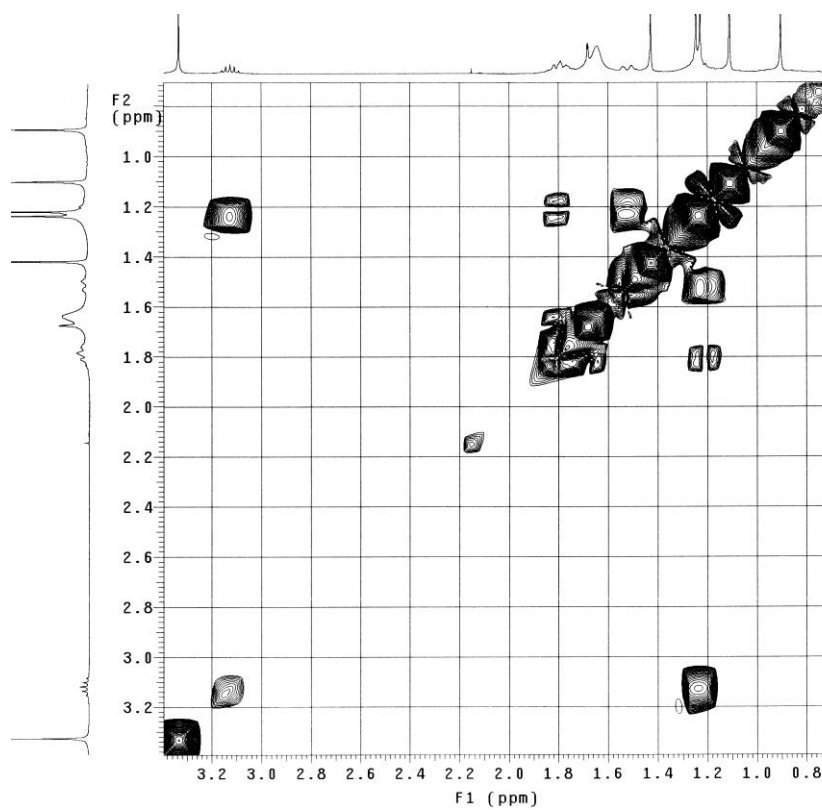
**Figure S11.**  $^{13}\text{C}$ -NMR spectrum and DEPT of compound **2** in  $\text{CDCl}_3$



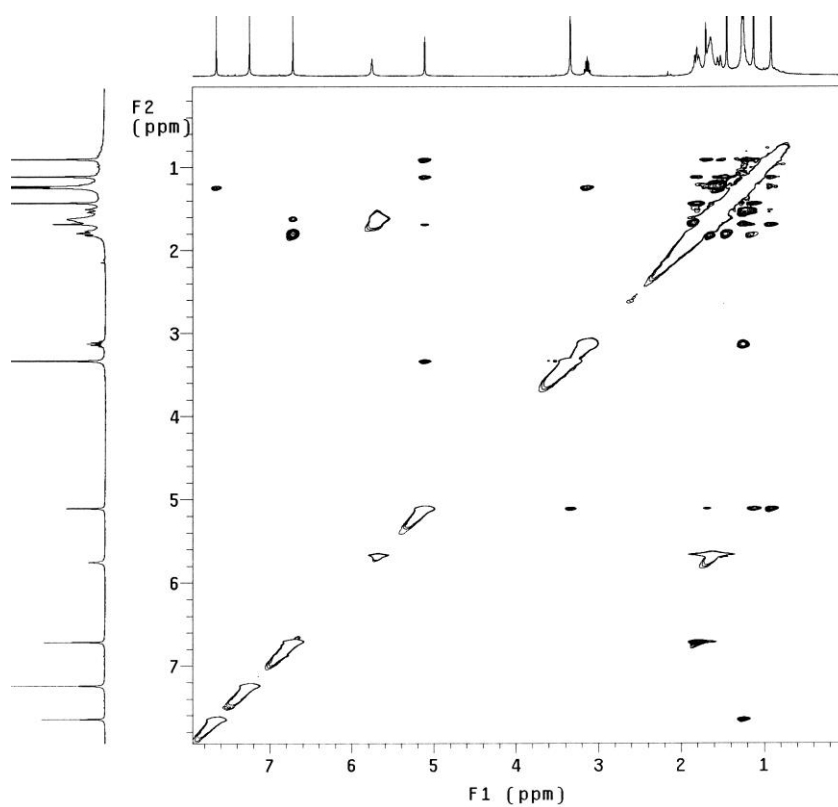
**Figure S12.** HMQC spectrum of compound **2** in  $\text{CDCl}_3$



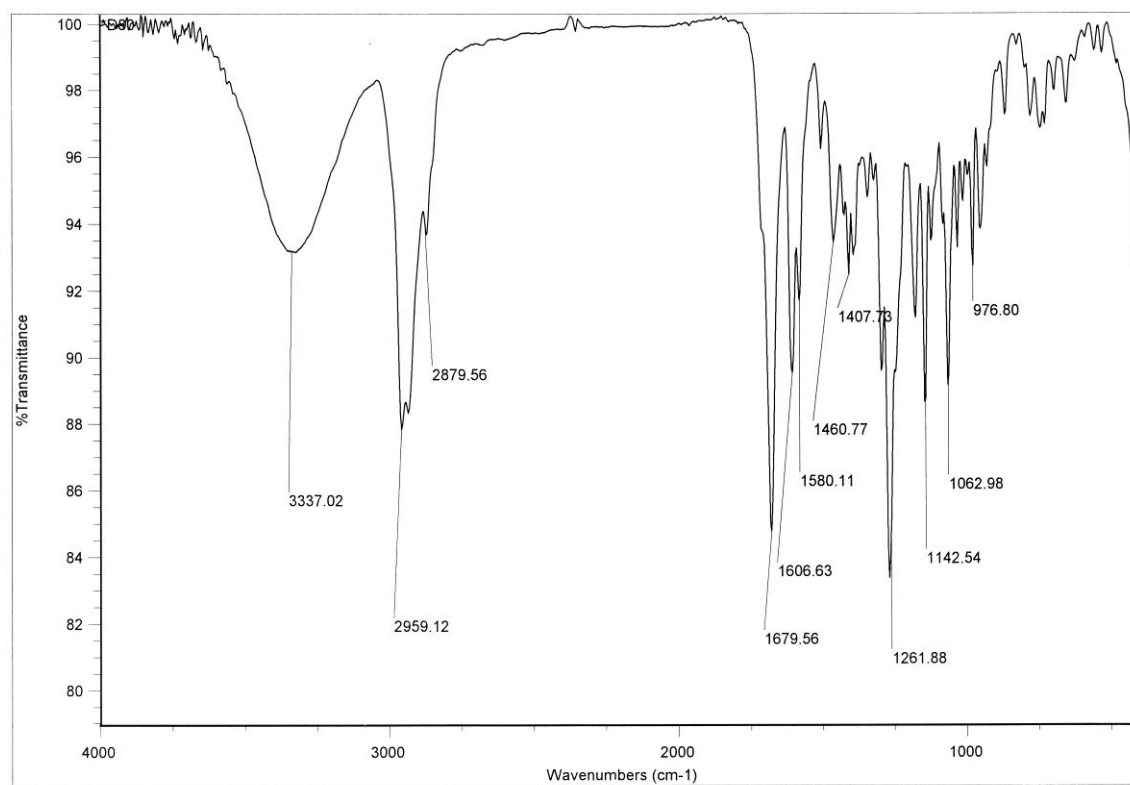
**Figure S13.** HMBC spectrum of compound **2** in  $\text{CDCl}_3$



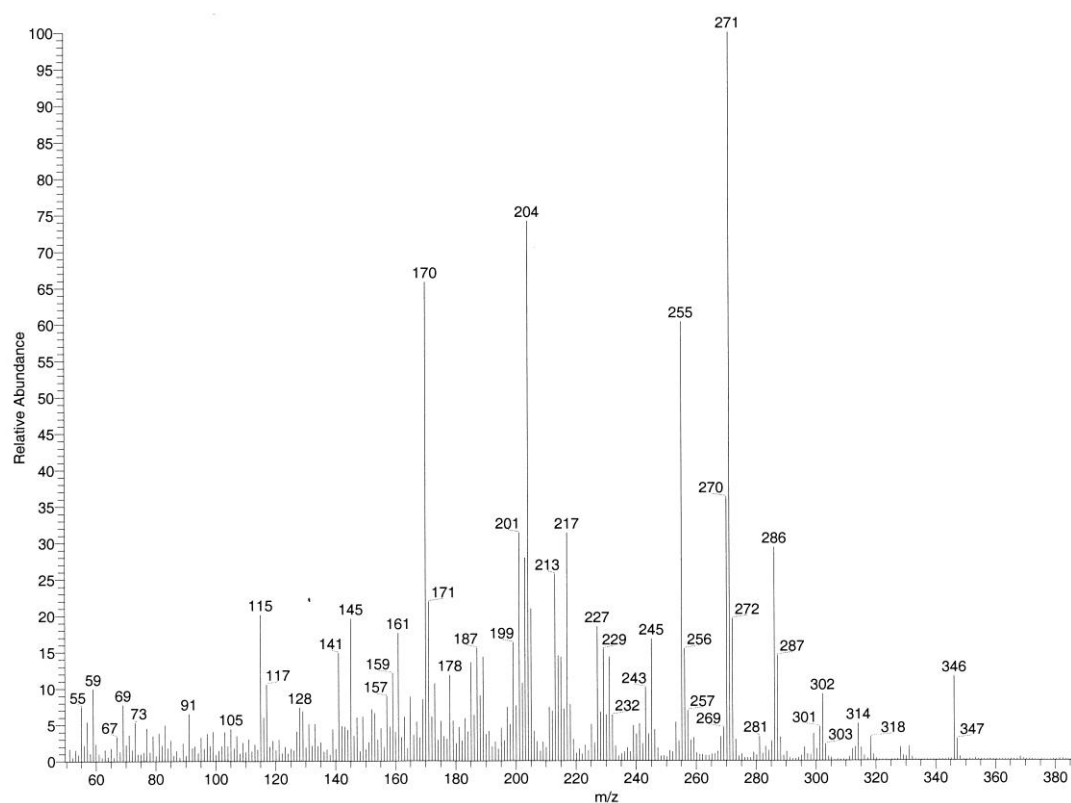
**Figure S14.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of compound **2** in  $\text{CDCl}_3$



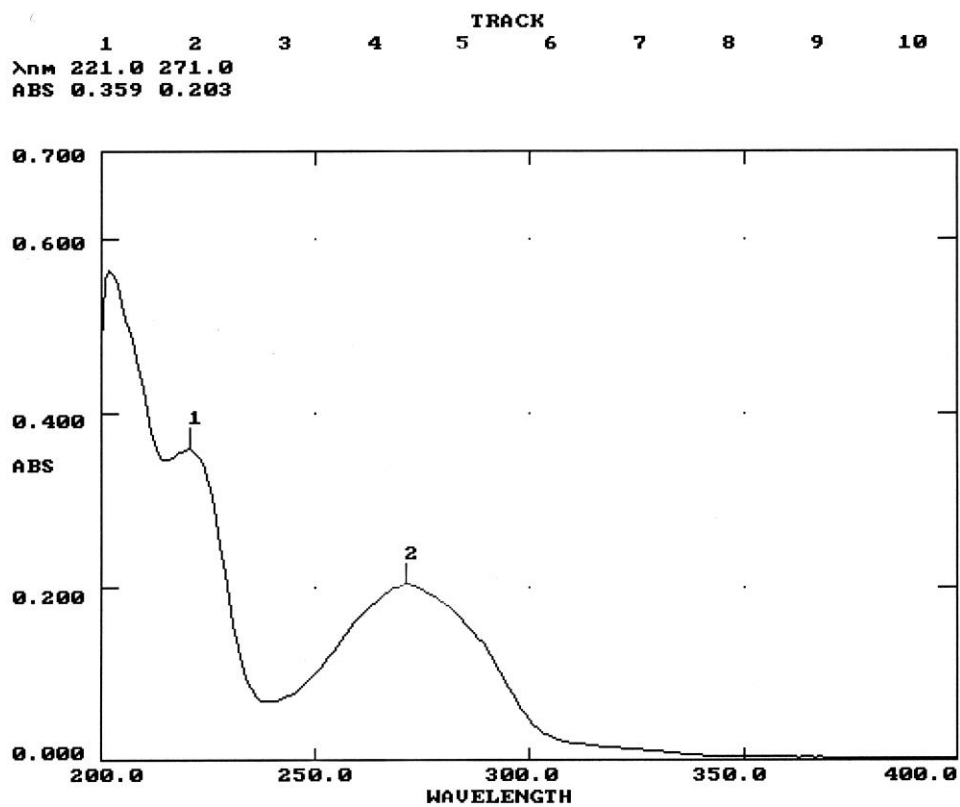
**Figure S15.** NOSEY spectrum of compound **2** in  $\text{CDCl}_3$



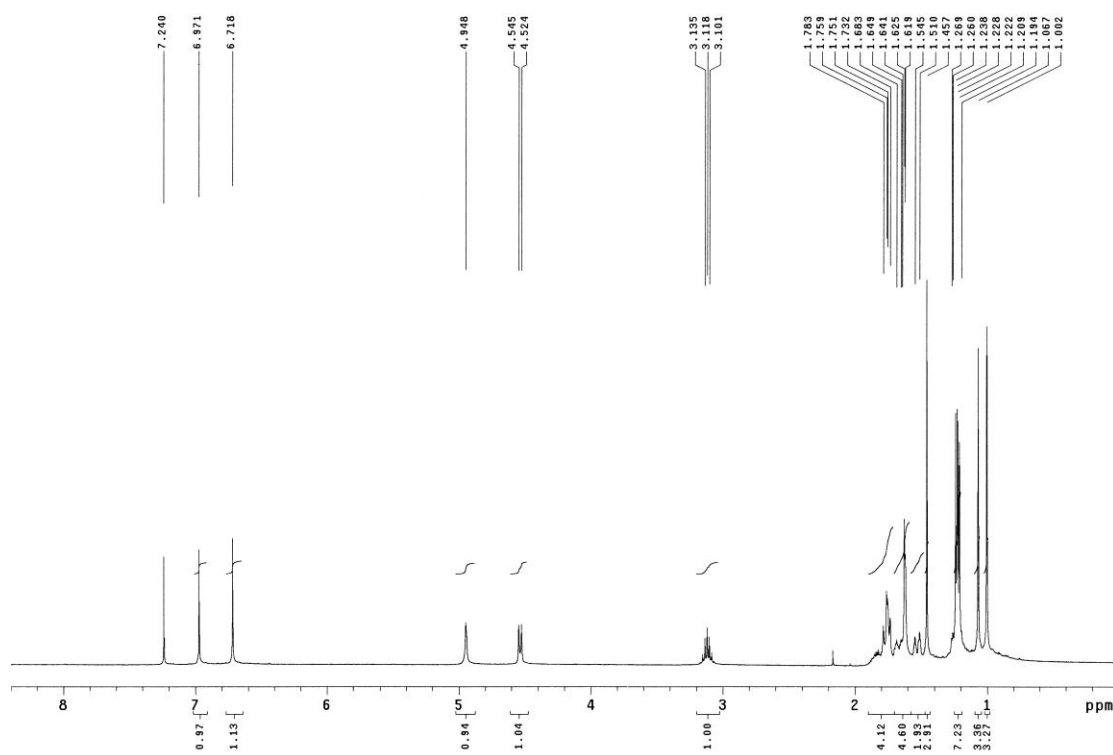
**Figure S16.** IR spectrum of compound **2**



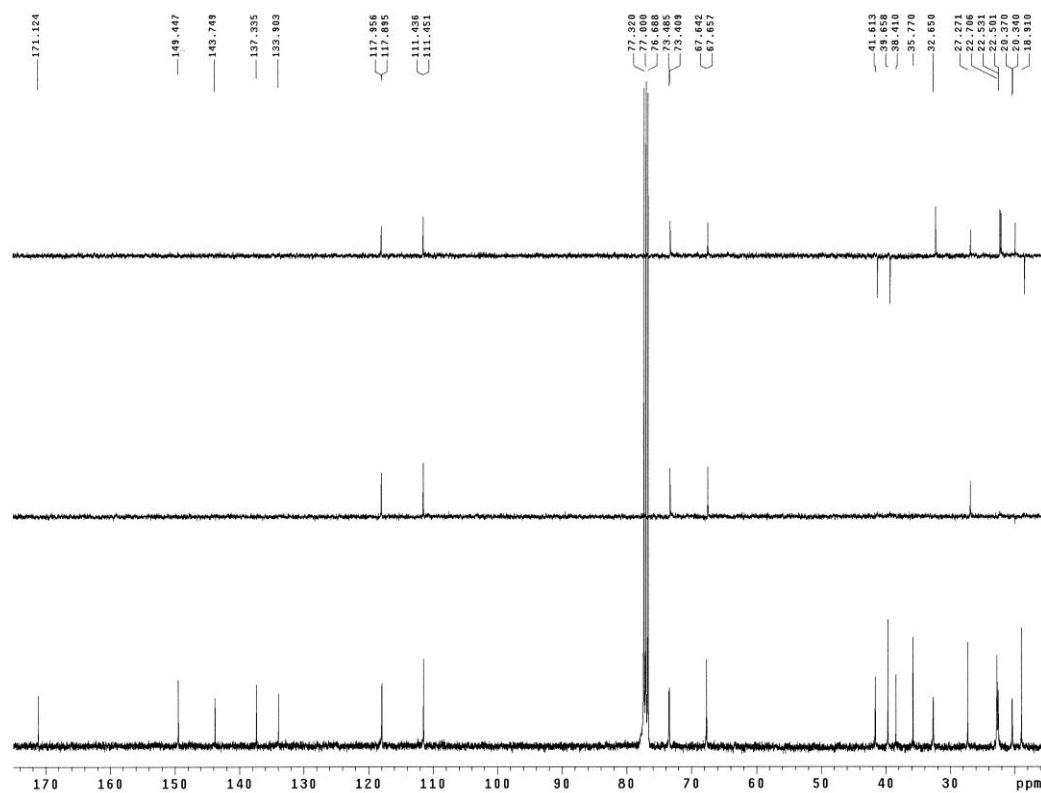
**Figure S17.** Mass spectrum of compound 2



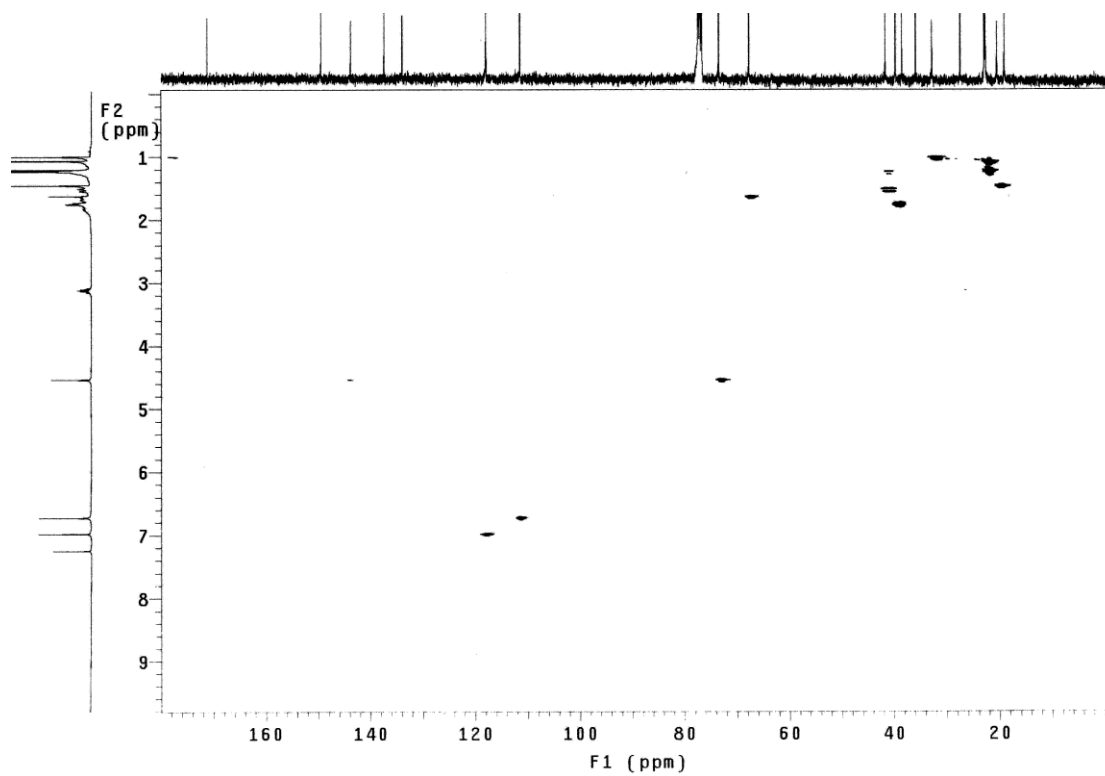
**Figure S18.** UV-Vis spectrum of compound 2



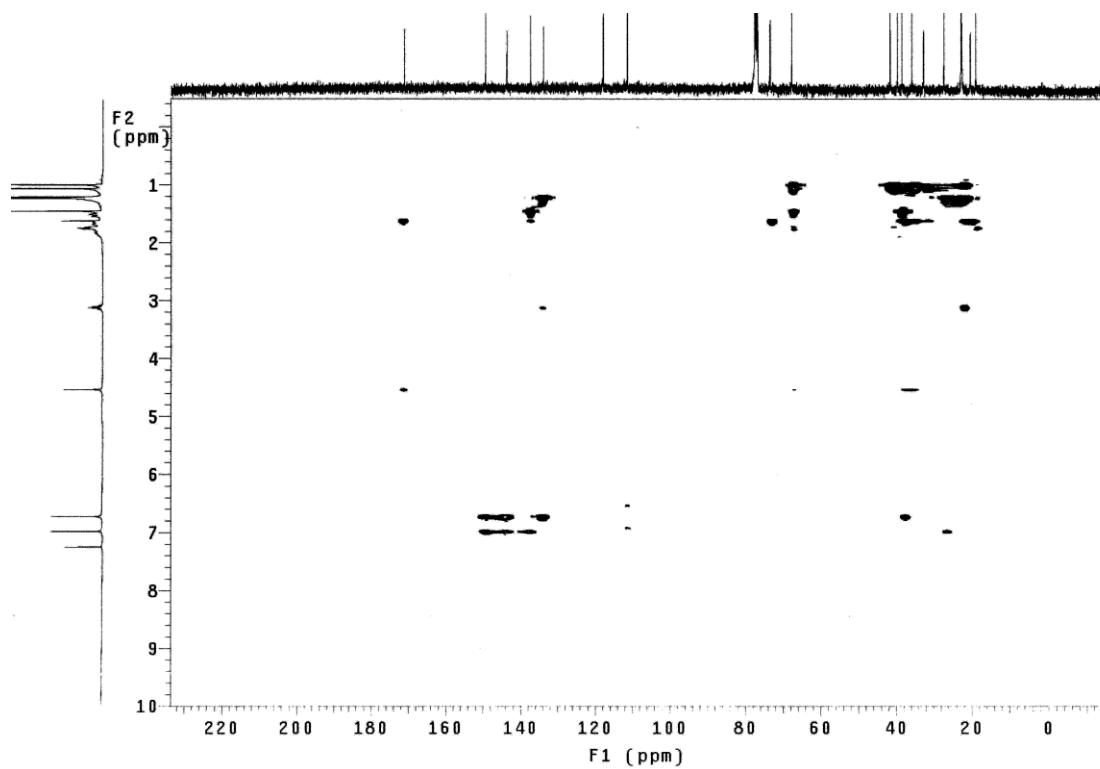
**Figure S19.** <sup>1</sup>H-NMR spectrum of compound **4** in CDCl<sub>3</sub>



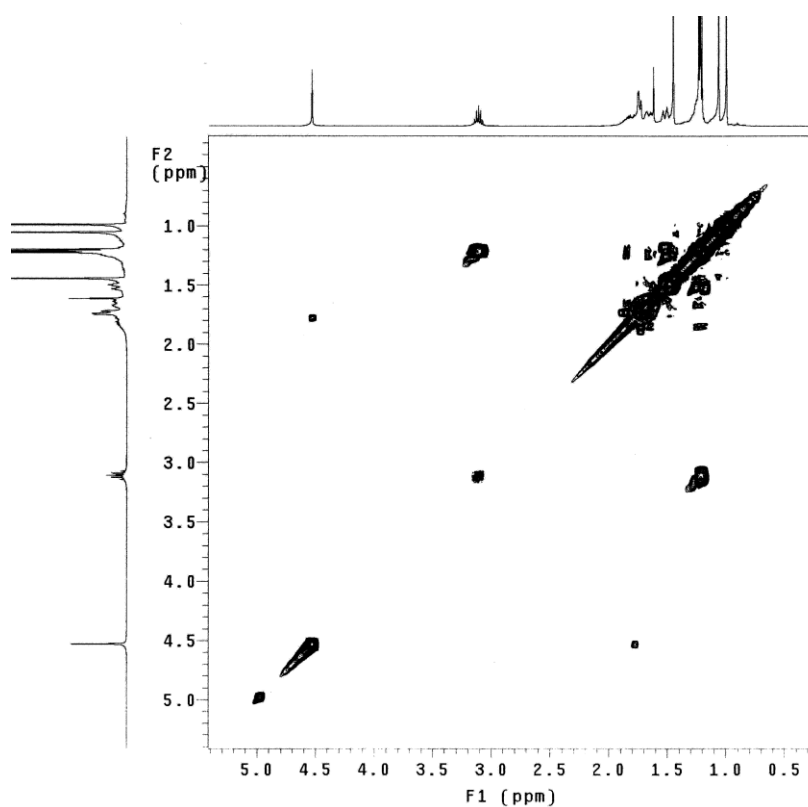
**Figure S20.** <sup>13</sup>C-NMR spectrum and DEPT of compound **4** in CDCl<sub>3</sub>



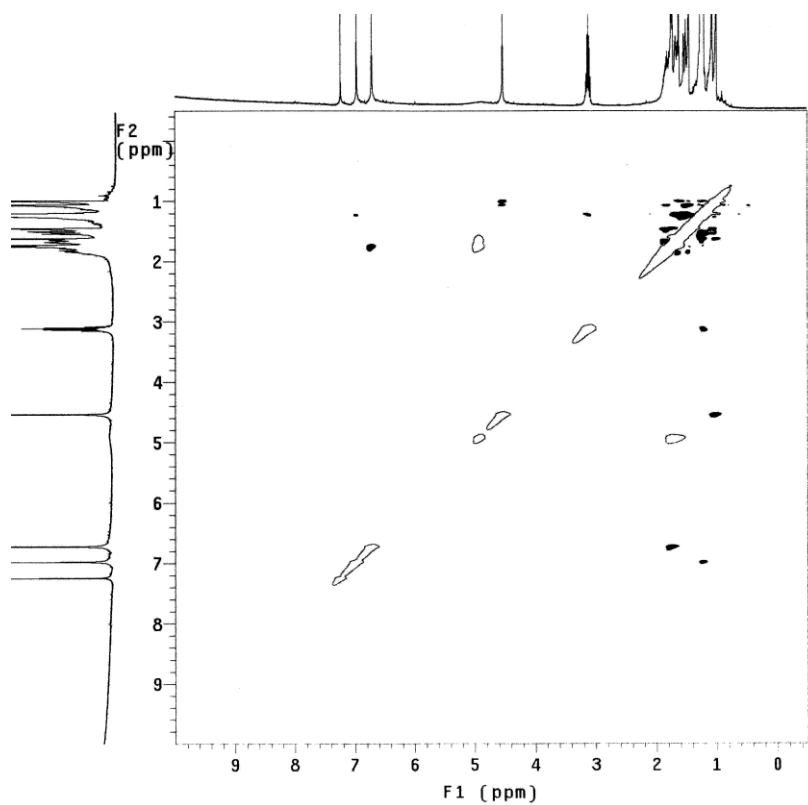
**Figure S21.** HMQC spectrum of compound **4** in  $\text{CDCl}_3$



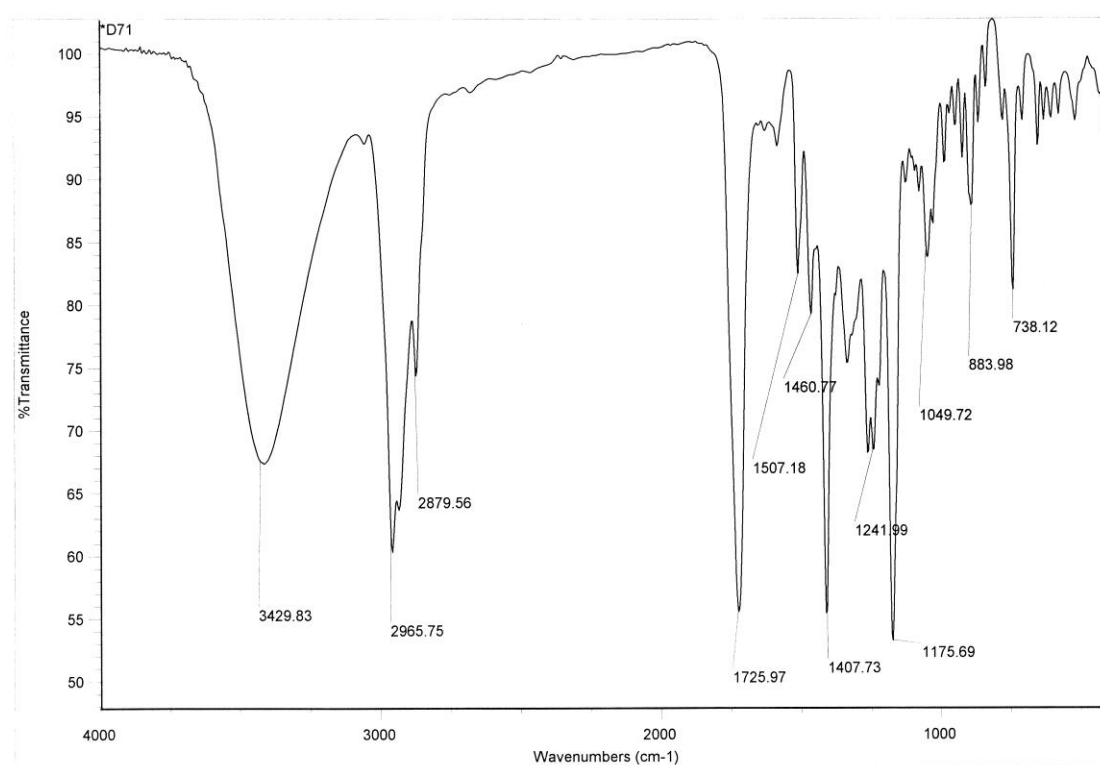
**Figure S22.** HMBC spectrum of compound **4** in  $\text{CDCl}_3$



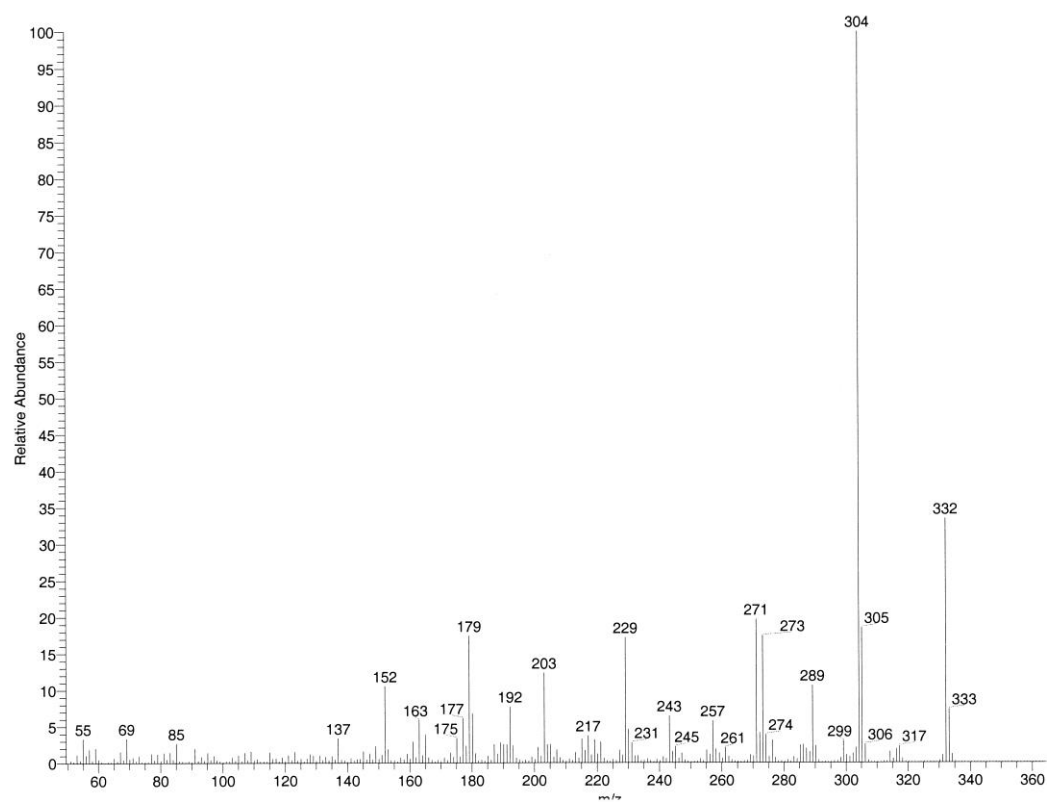
**Figure S23.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of compound **4** in  $\text{CDCl}_3$



**Figure S24.** NOSEY spectrum of compound **4** in  $\text{CDCl}_3$



**Figure S25.** IR spectrum of compound **4**



**Figure S26.** Mass spectrum of compound **4**



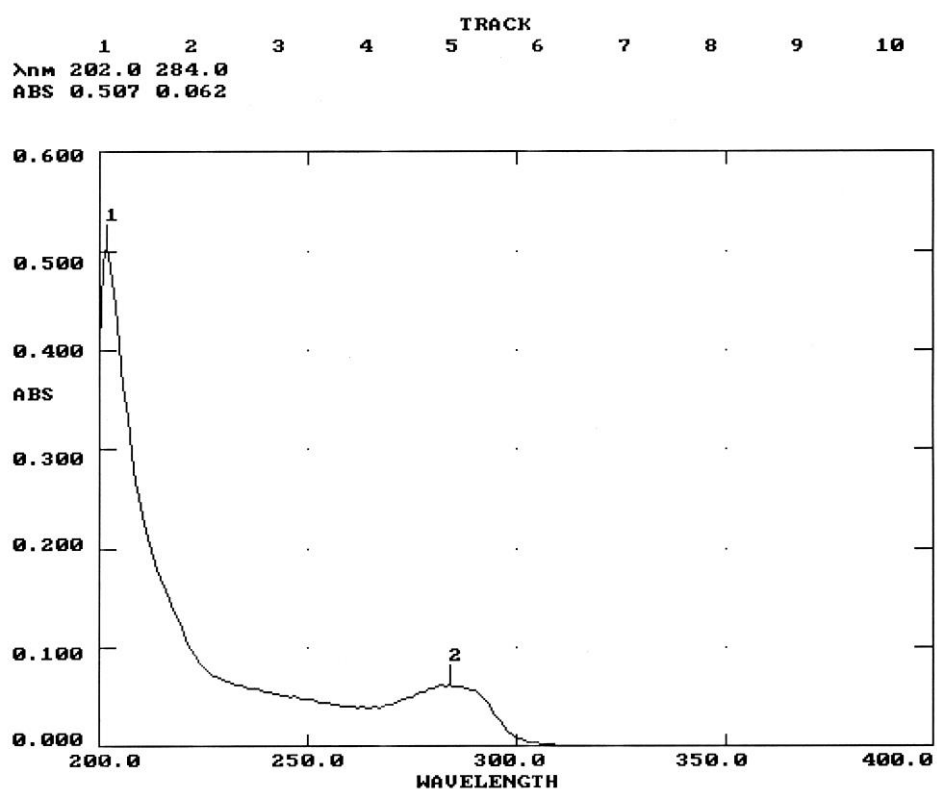


Figure S27. UV-Vis spectrum of compound 4

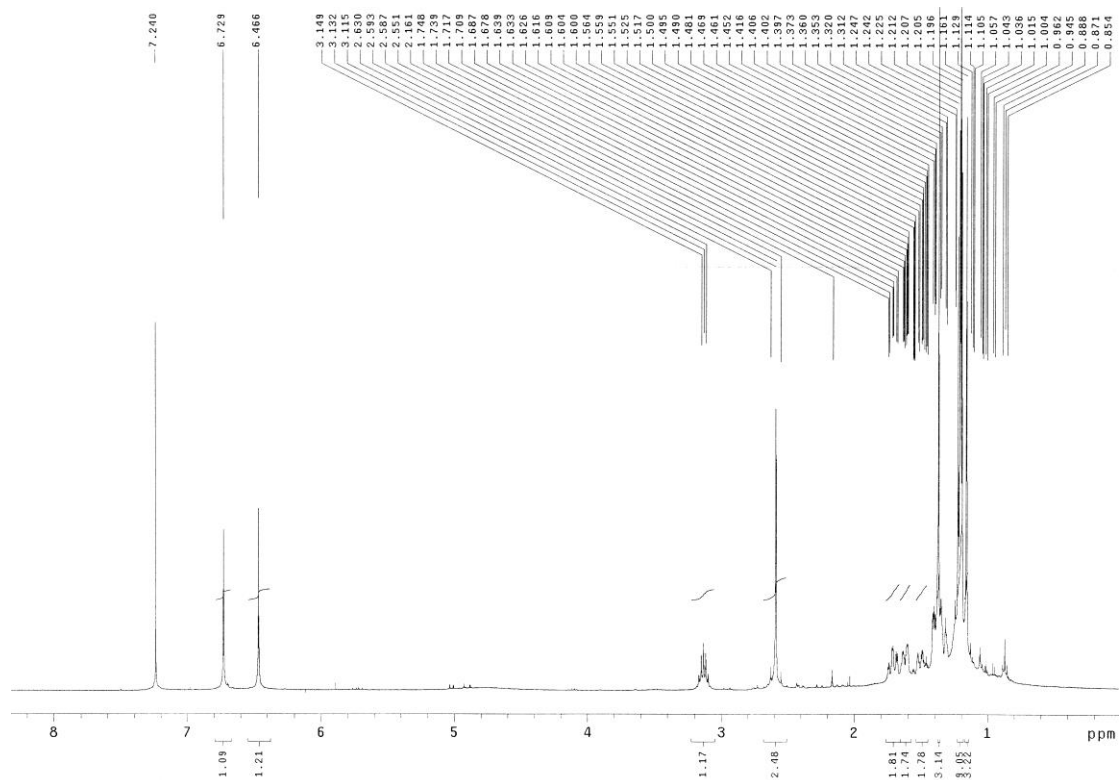
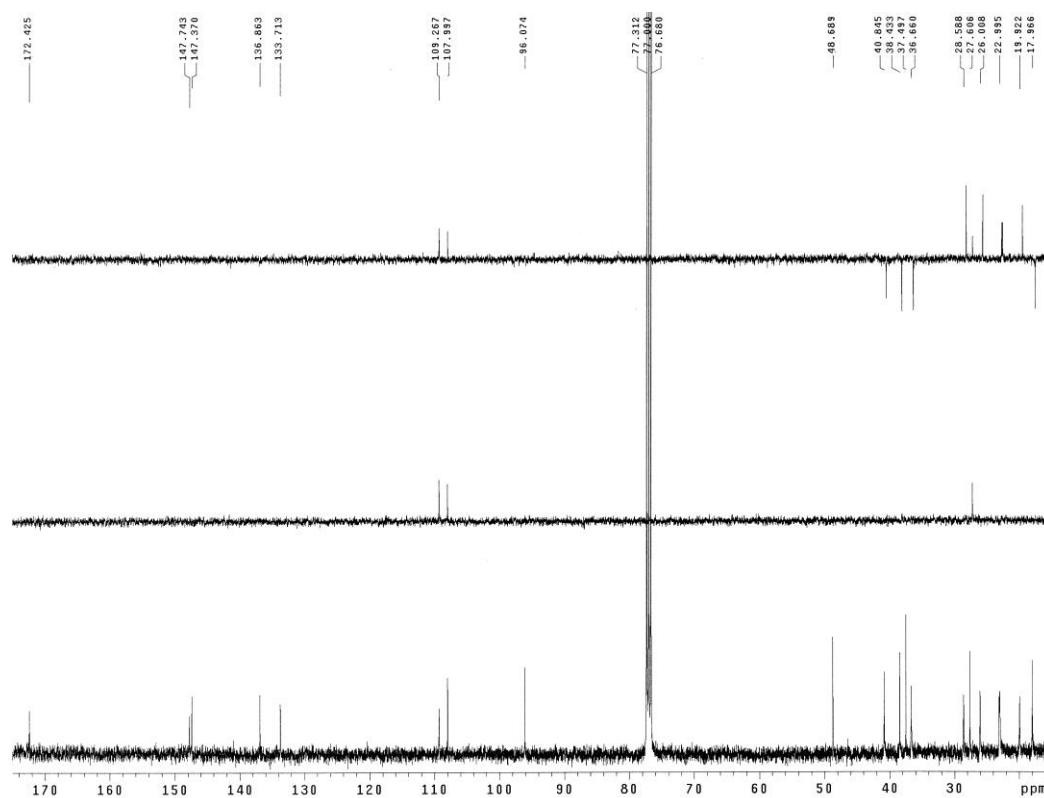
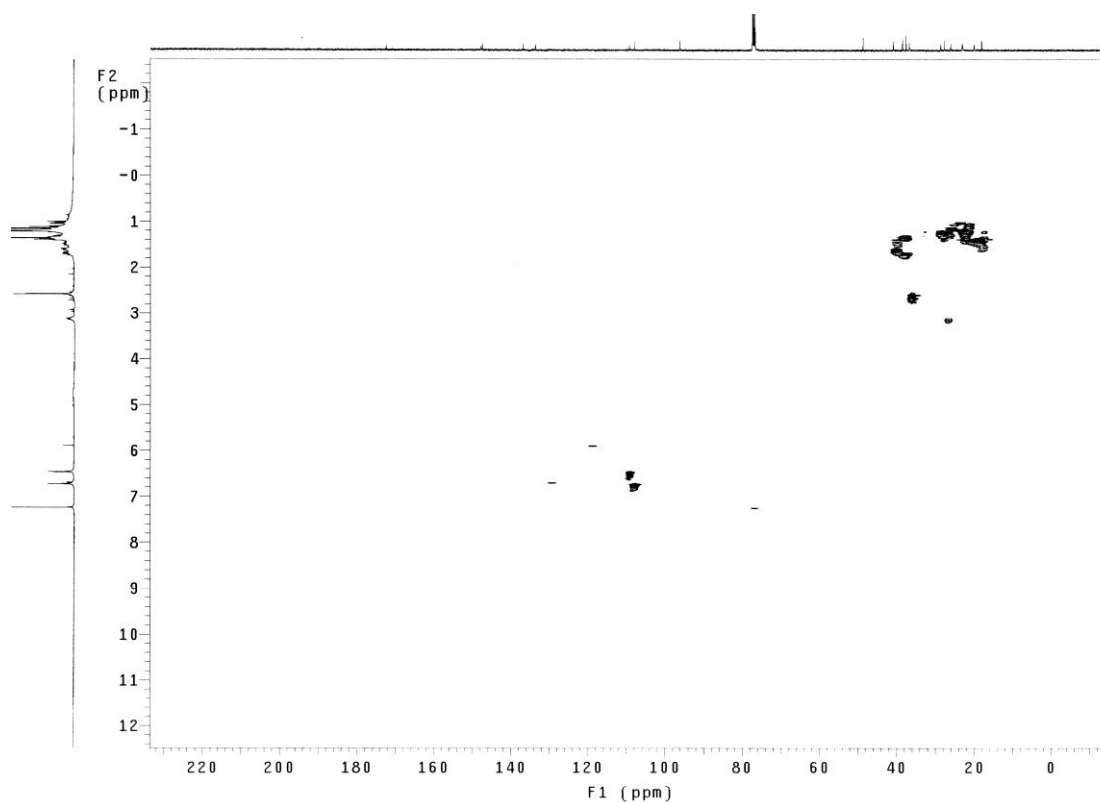


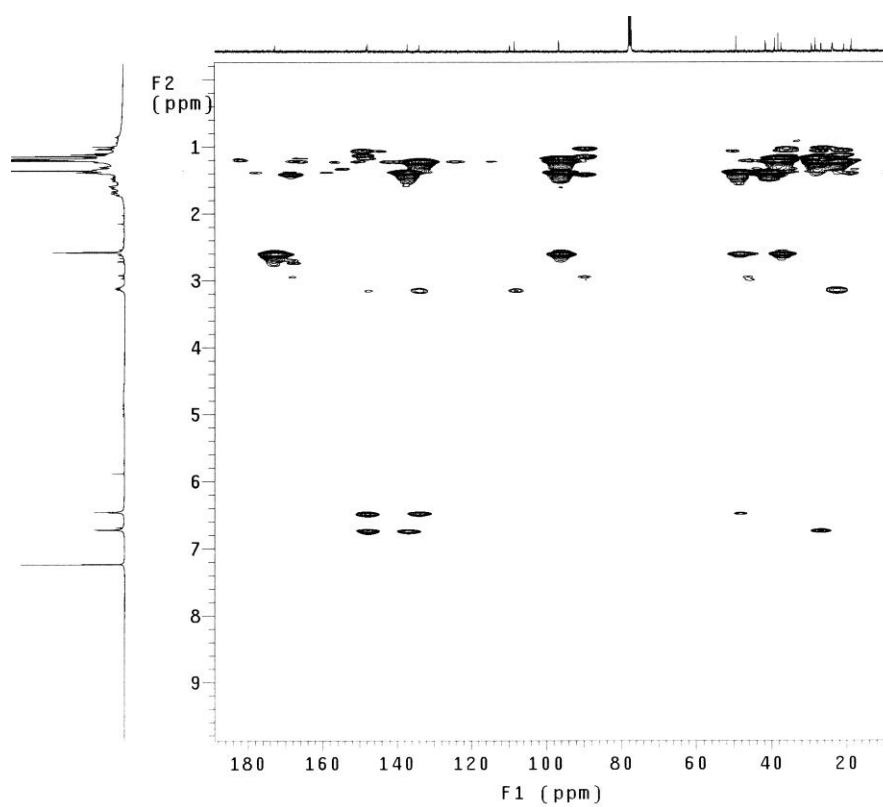
Figure S28.  $^1\text{H}$ -NMR spectrum of compound 5 in  $\text{CDCl}_3$



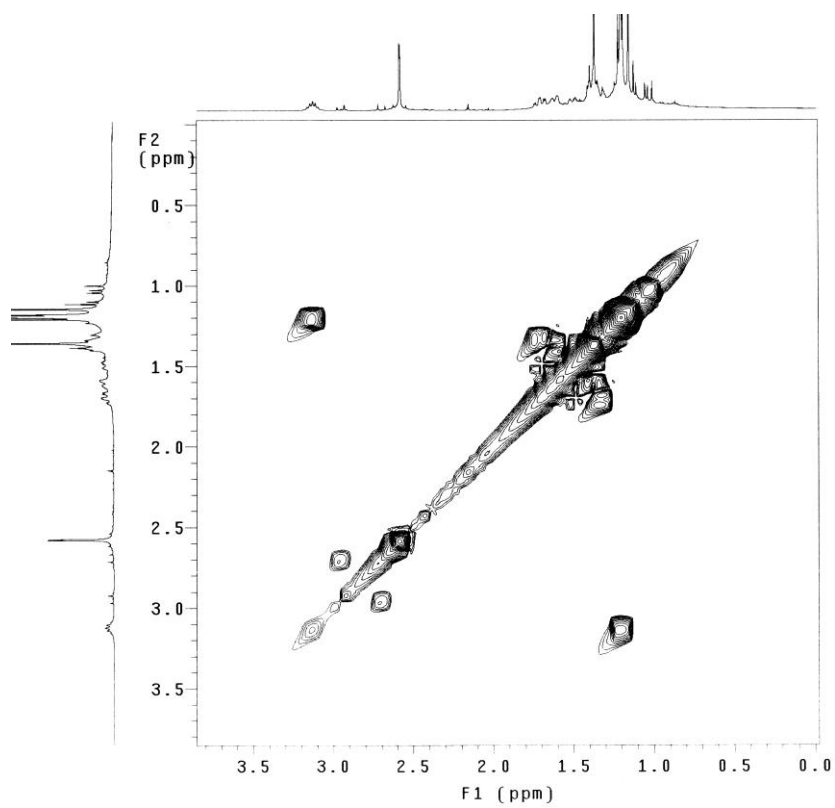
**Figure S29.**  $^{13}\text{C}$ -NMR spectrum and DEPT of compound **5** in  $\text{CDCl}_3$



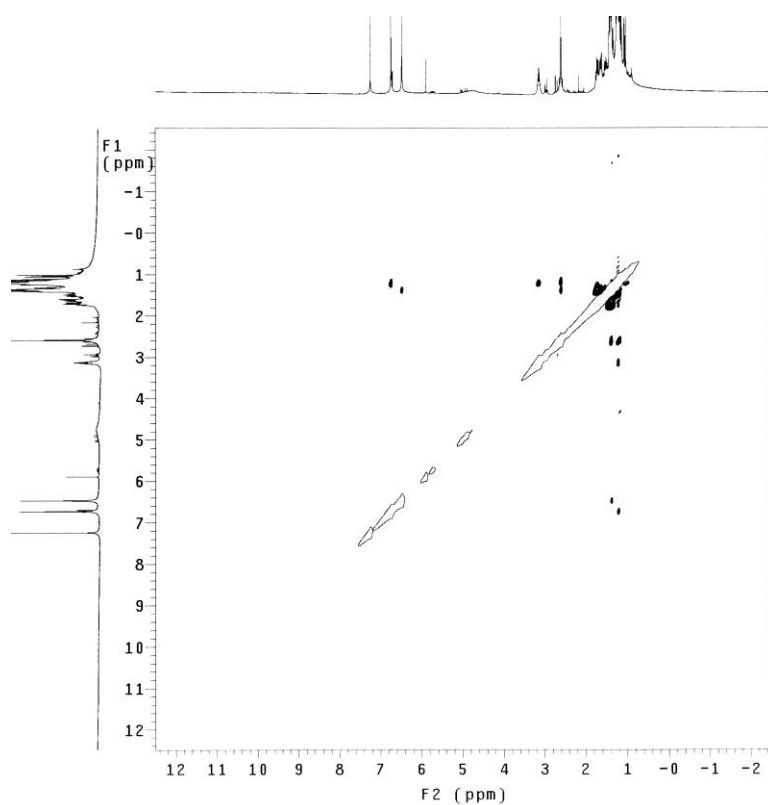
**Figure S30.** HMQC spectrum of compound **5** in  $\text{CDCl}_3$



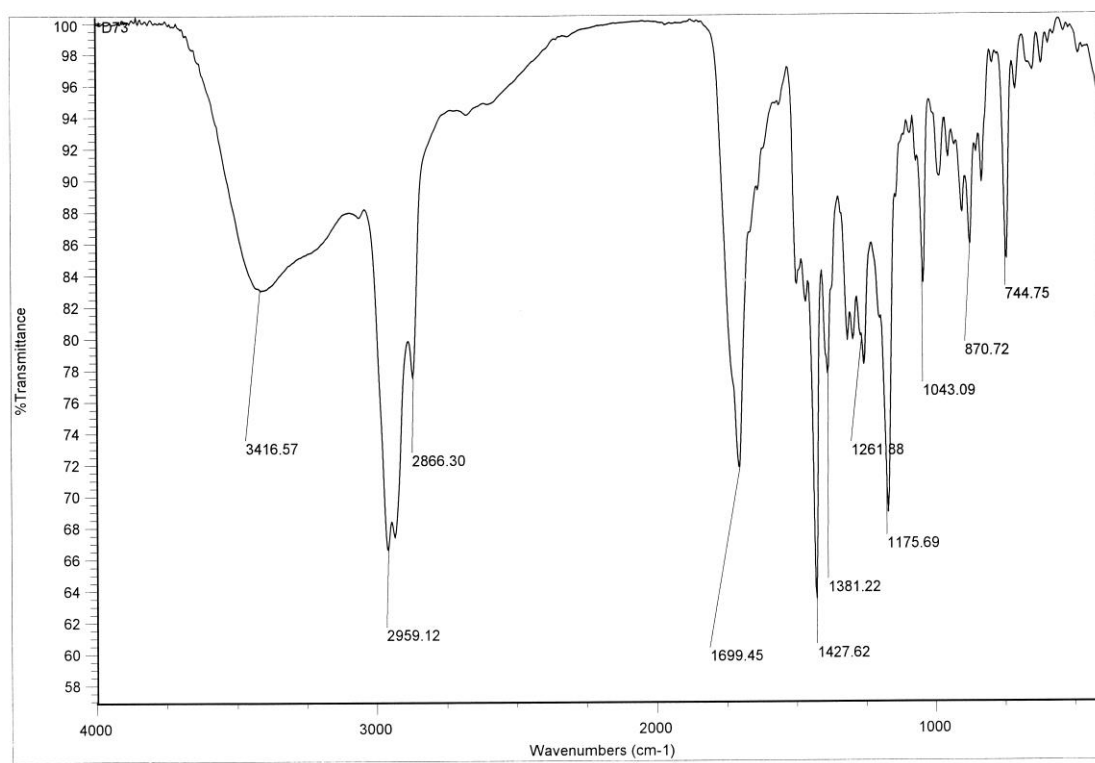
**Figure S31.** HMBC spectrum of compound **5** in  $\text{CDCl}_3$



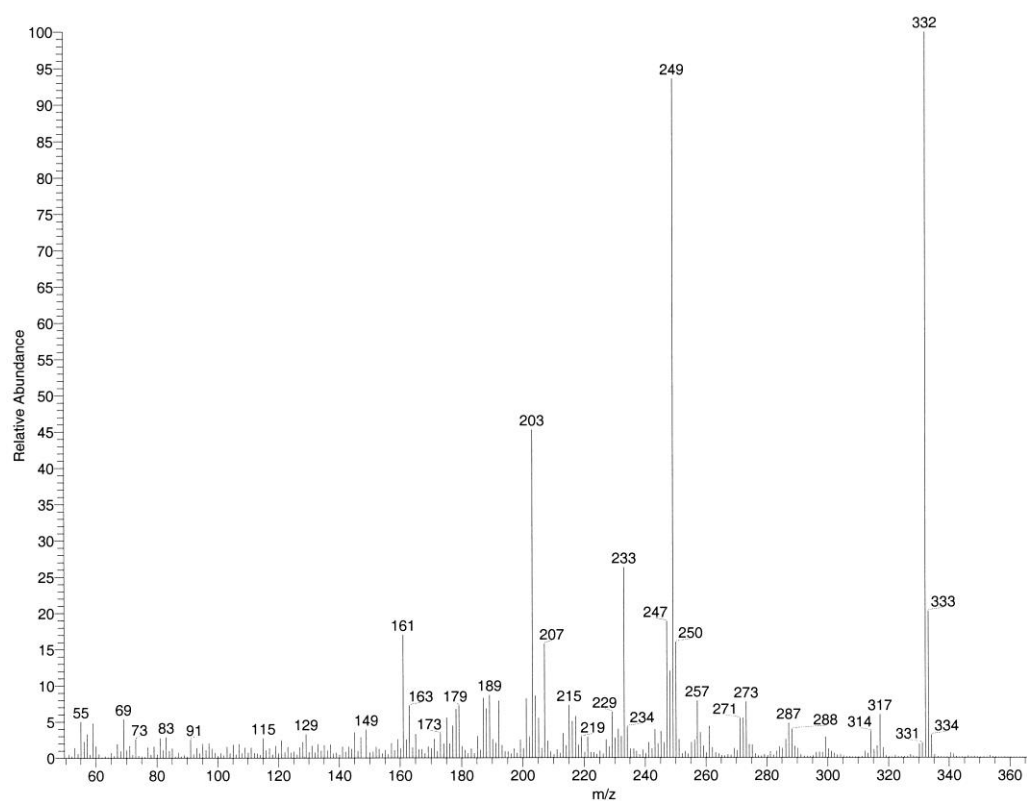
**Figure S32.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of compound **5** in  $\text{CDCl}_3$



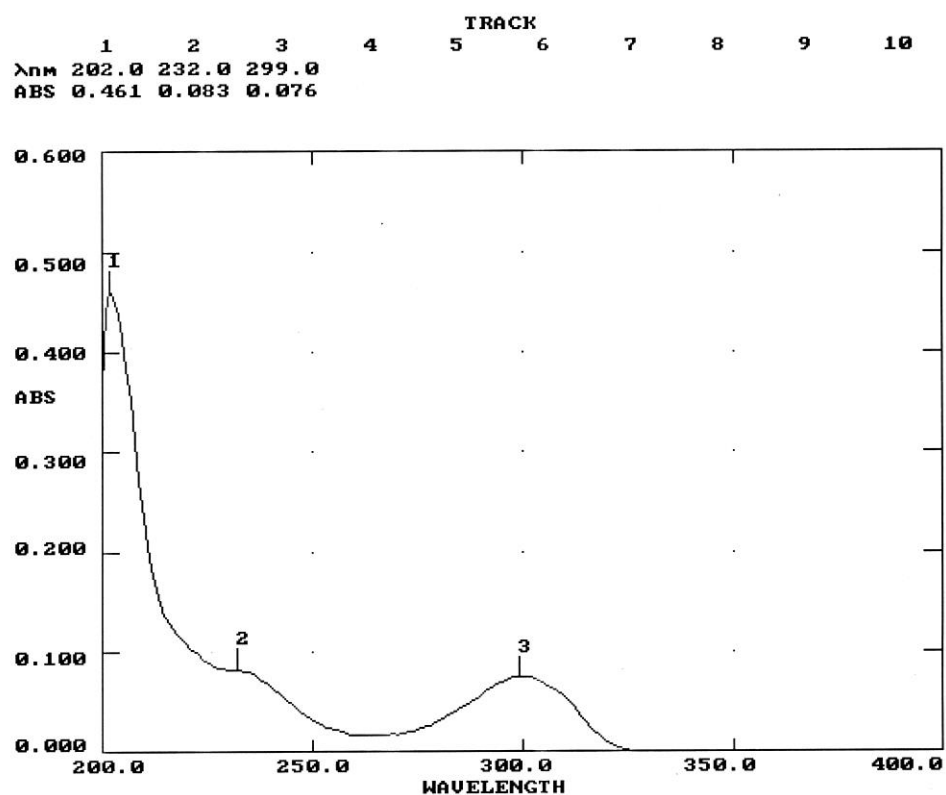
**Figure S33.** NOSEY spectrum of compound **5** in  $\text{CDCl}_3$



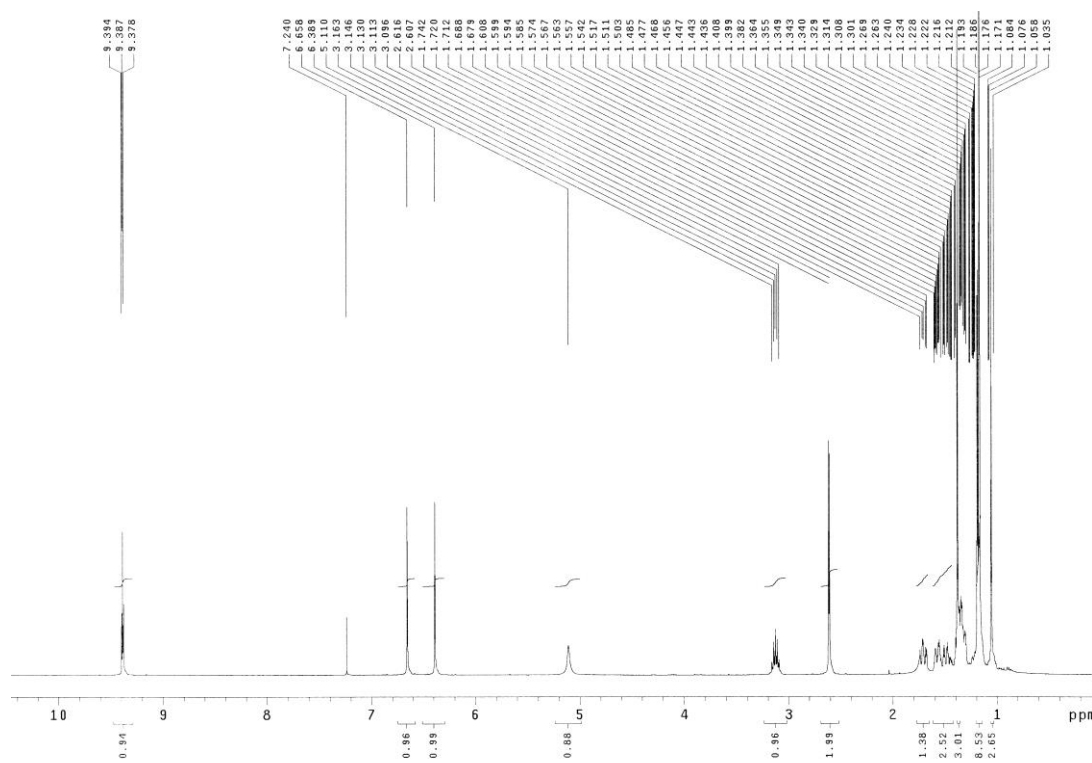
**Figure S34.** IR spectrum of compound **5**



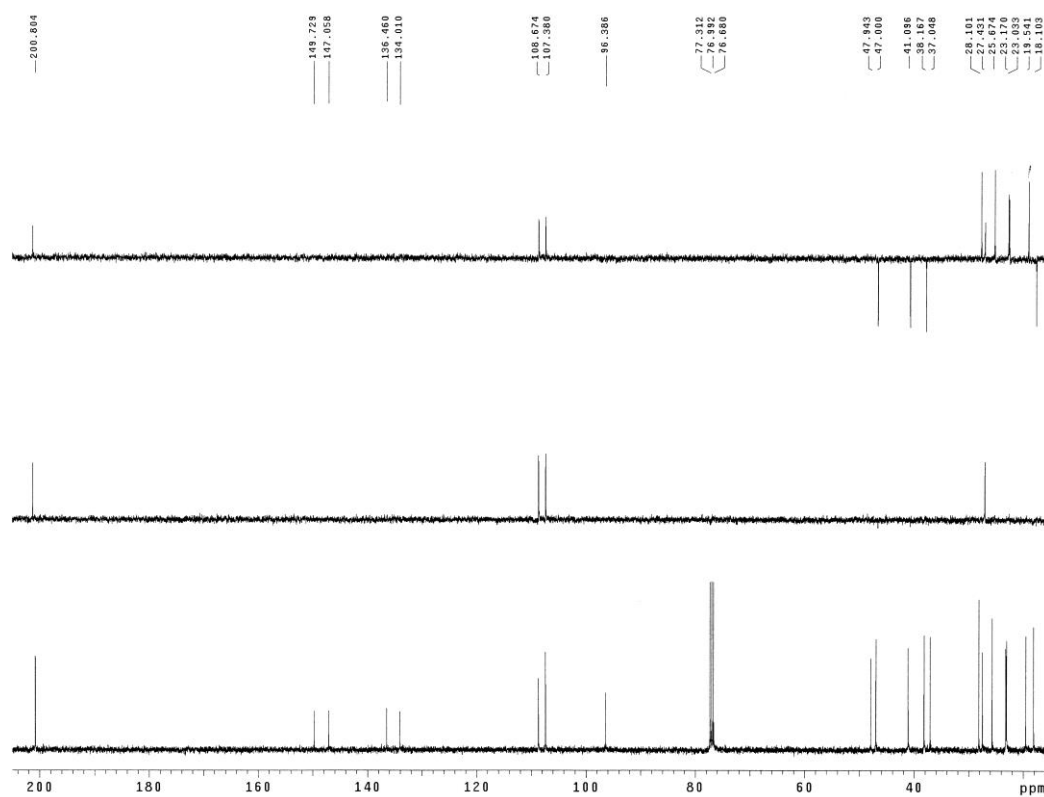
**Figure S35.** Mass spectrum of compound **5**



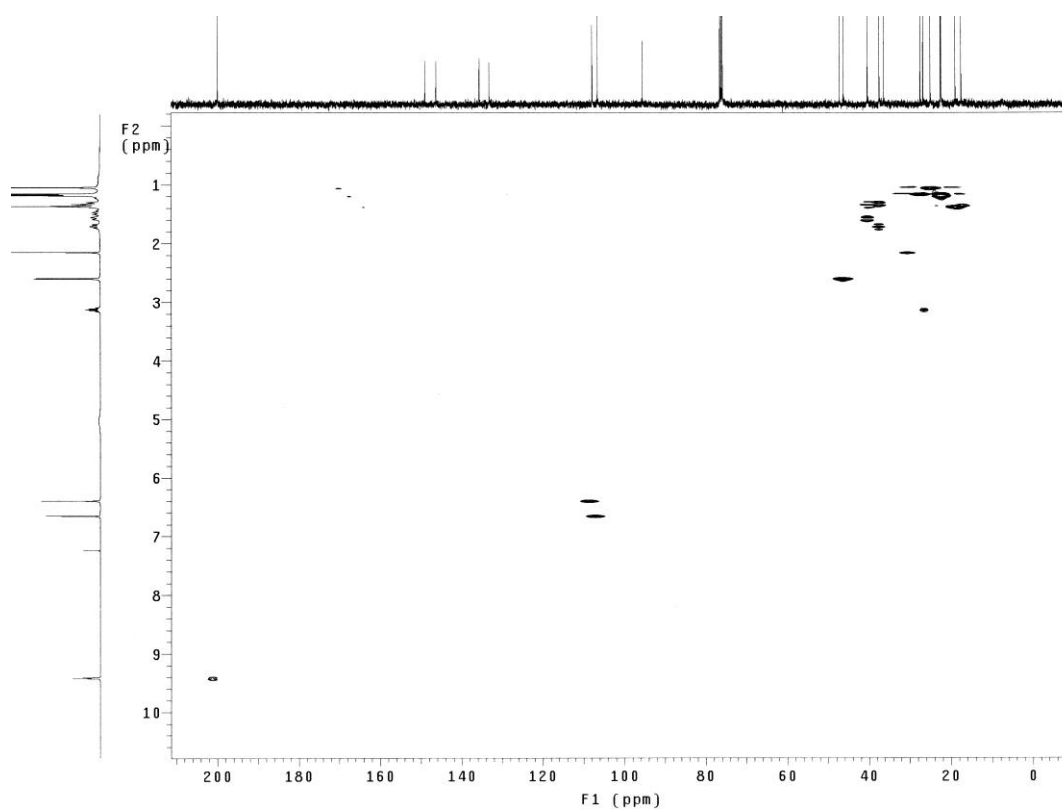
**Figure S36.** UV-Vis spectrum of compound **5**



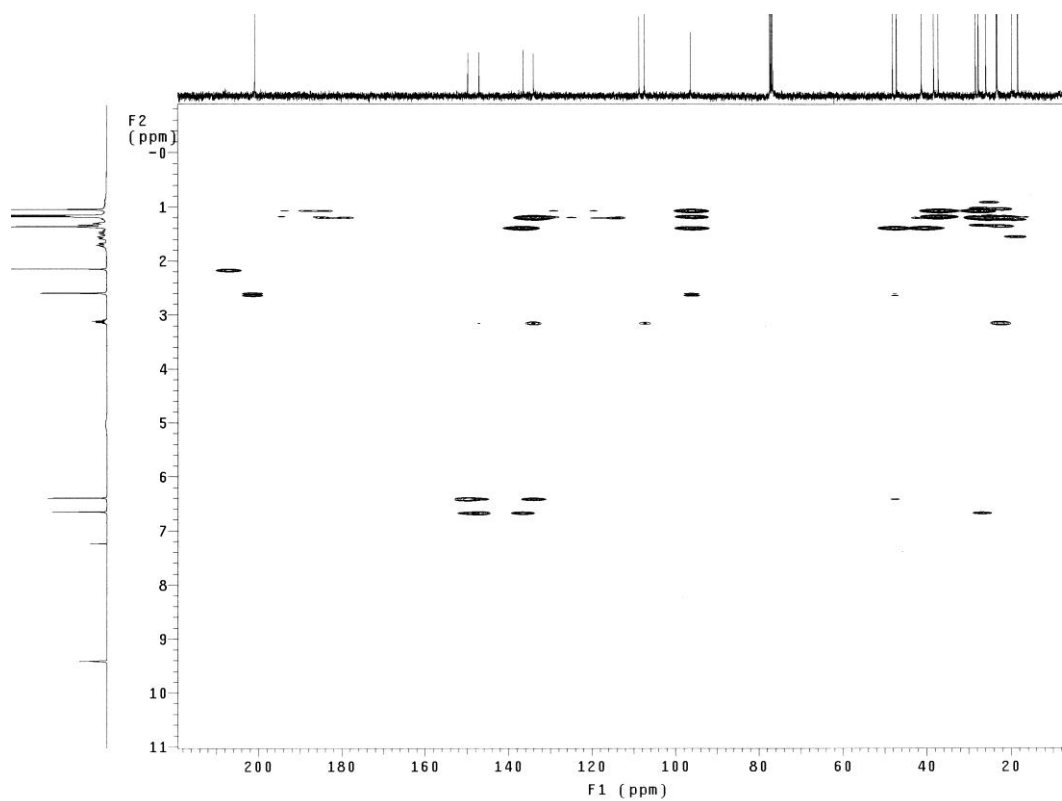
**Figure S37.** <sup>1</sup>H-NMR spectrum of compound **6** in CDCl<sub>3</sub>



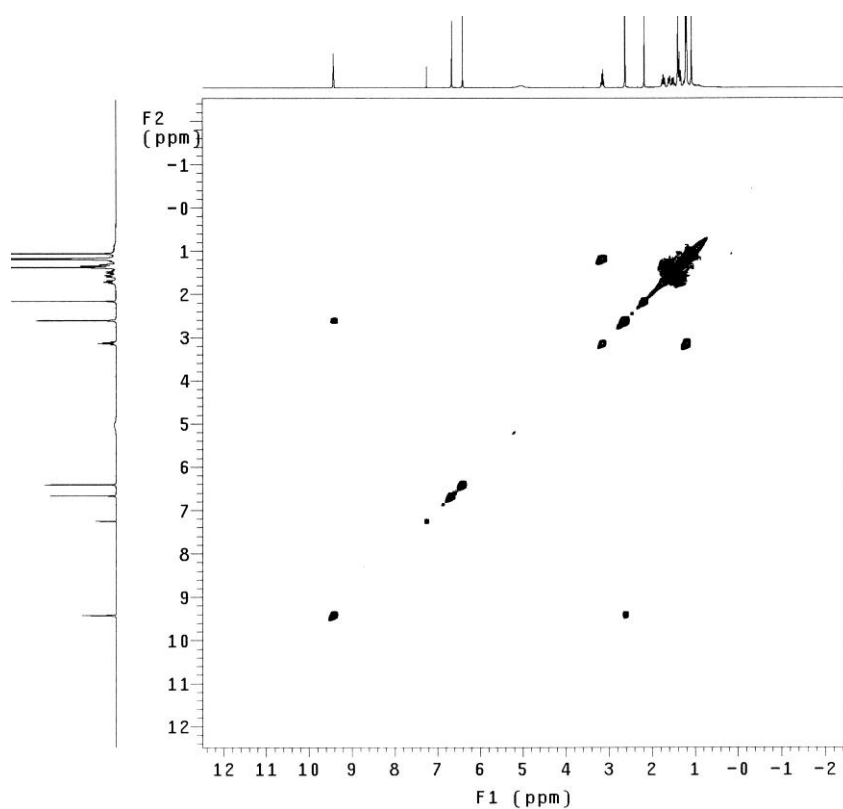
**Figure S38.** <sup>13</sup>C-NMR spectrum and DEPT of compound **6** in CDCl<sub>3</sub>



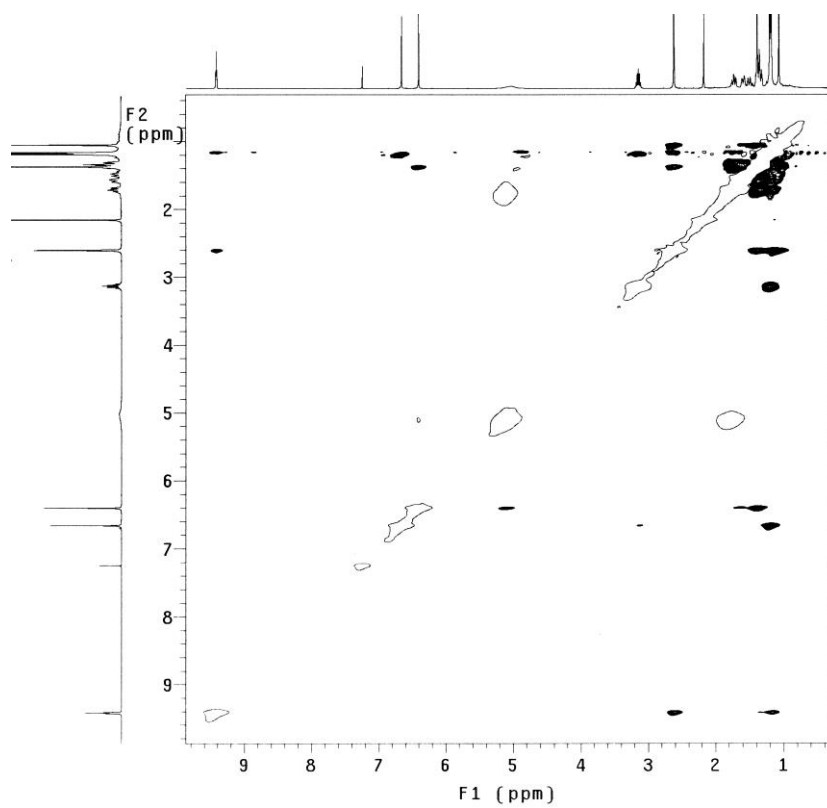
**Figure S39.** HMQC spectrum of compound **6** in  $\text{CDCl}_3$



**Figure S40.** HMBC spectrum of compound **6** in  $\text{CDCl}_3$

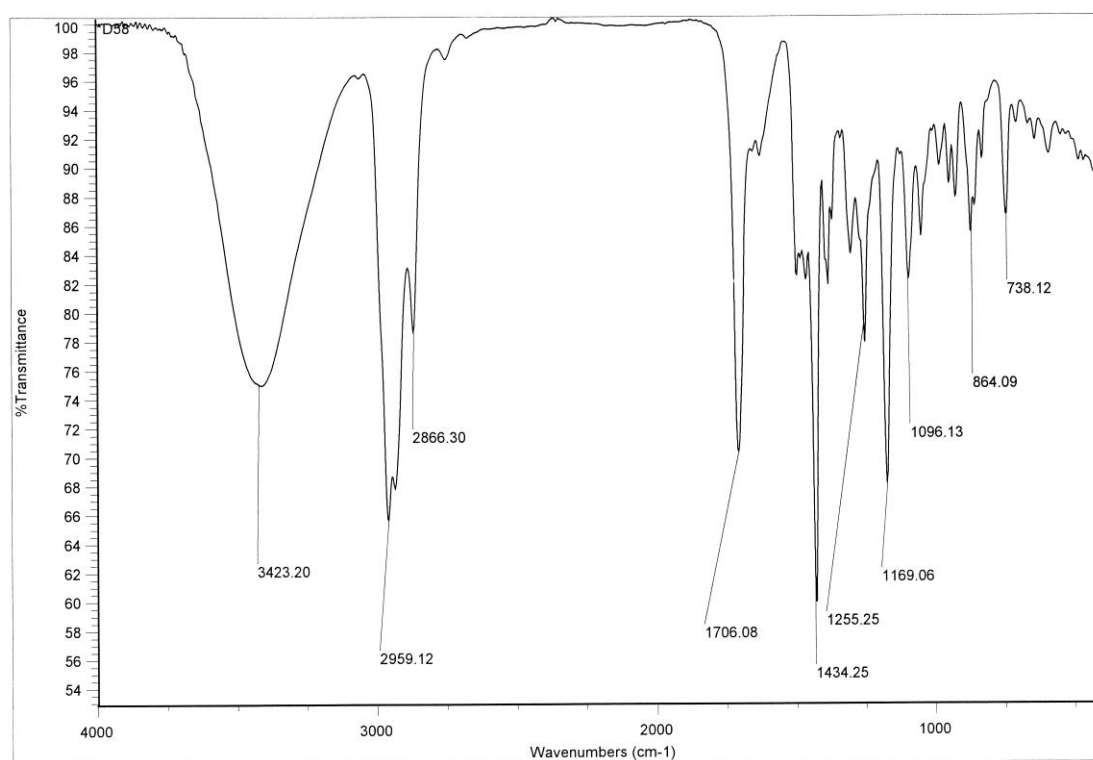


**Figure S41.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of compound **6** in  $\text{CDCl}_3$

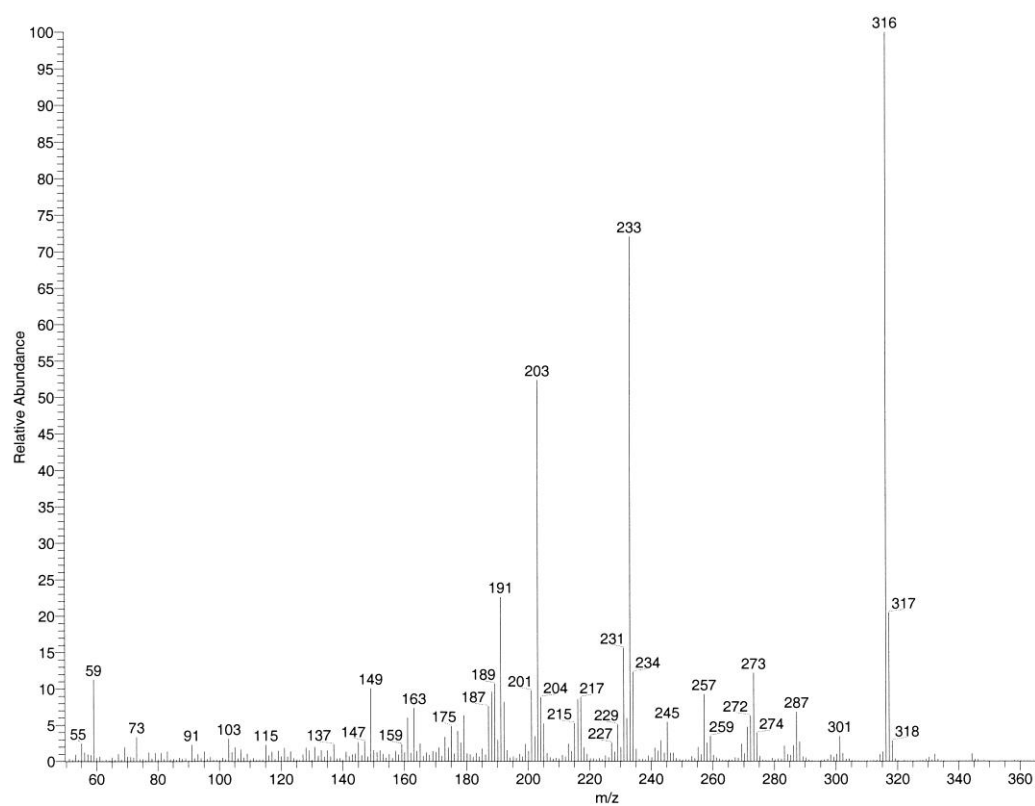


**Figure S42.** NOSEY spectrum of compound **6** in  $\text{CDCl}_3$





**Figure S43.** IR spectrum of compound **6**



**Figure S44.** Mass spectrum of compound **6**

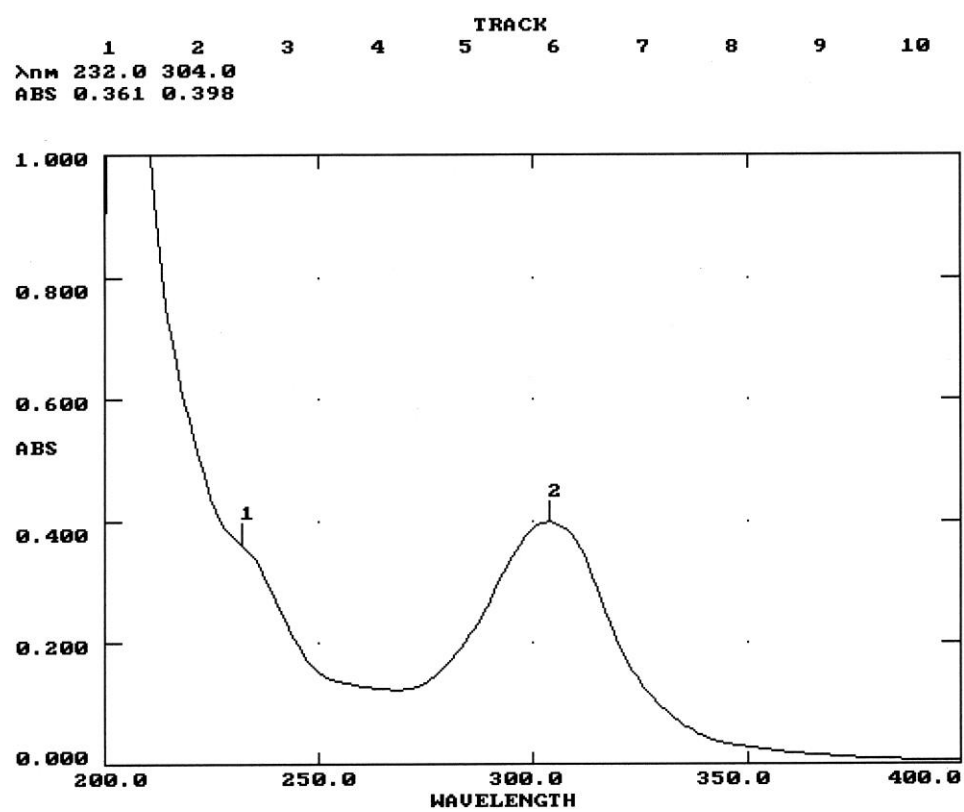


Figure S45. UV-Vis spectrum of compound 6