

10.1071/CH10036\_AC

© CSIRO 2010

Australian Journal of Chemistry 2010, 63(6), 915–921

Accessory Publication

**Structural Variations to the 9-N-methyladeninium Diterpenoid Hybrid  
Commonly Isolated from *Agelas* Sponges\***

*Laurent Calcul,<sup>A</sup> Karen Tenney,<sup>A</sup> Joseline Ratnam,<sup>B,C</sup>  
James H. McKerrow,<sup>B,D</sup> and Phillip Crews<sup>A,E</sup>*

<sup>A</sup>Department of Chemistry and Biochemistry, University of California, Santa Cruz, California 95064, United States.

<sup>B</sup>Small Molecule Discovery Center, University of California, San Francisco, CA 94158, United States.

<sup>C</sup>Sandler Center for Basic Research in Parasitic Disease, University of California San Francisco, San Francisco, California 94143, United States.

<sup>D</sup>Department of Pathology, University of California, San Francisco, CA 94158, United States.

<sup>E</sup>corresponding author. Email: phil@chemistry.ucsc.edu

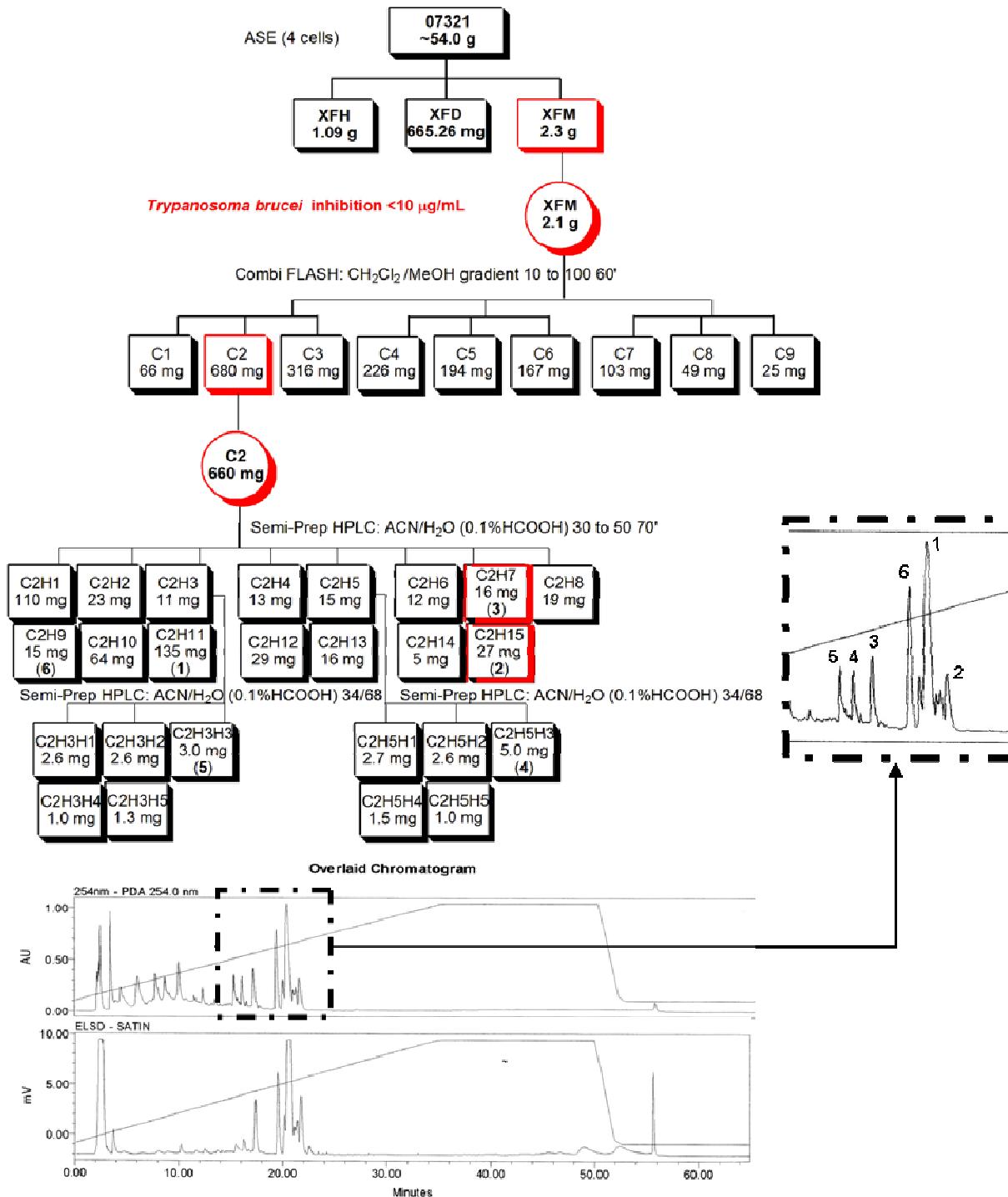
RECEIVED DATE (AJC\_Supporting\_Information\_Agelas\_8R3)

\* Marine Natural Products Chemistry Special Issue.

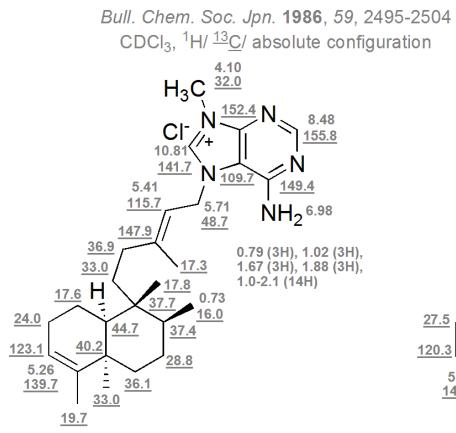
## Contents

<b>Chart S1.</b> Isolation scheme of the methanol (XFM) extract from Coll. No. 07321.	Pg 3
<b>Fig. S1.</b> $^1\text{H}$ and $^{13}\text{C}$ NMR data of sponge-derived 9-N-Methyladeninium clerodane diterpenoids	Pg 4
<b>Fig. S2.</b> $^1\text{H}$ and $^{13}\text{C}$ NMR data of sponge-derived 9-N-Methyladeninium labdane and thelepongane diterpenoids	Pg 5
<b>Fig. S3.</b> $^1\text{H}$ and $^{13}\text{C}$ NMR data of sponge-derived 9-N-Methyladeninium monocycle diterpenoids	Pg 6
<b>Fig. S4.</b> Mass data HRESIMS in positive mode of compound <b>3</b> .	Pg 7
<b>Fig. S5.</b> $^1\text{H}$ NMR spectrum of compound <b>3</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 8
<b>Fig. S6.</b> $^{13}\text{C}$ NMR spectrum of compound <b>3</b> (125 MHz, $\text{CD}_3\text{OD}$ ).	Pg 9
<b>Fig. S7.</b> DEPT spectrum of compound <b>3</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 10
<b>Fig. S8.</b> gCOSY spectrum of compound <b>3</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 11
<b>Fig. S9.</b> HMQC spectrum of compound <b>3</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 12
<b>Fig. S10.</b> gHMBC spectrum of compound <b>3</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 13
<b>Fig. S11.</b> NOESY spectrum of compound <b>3</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 14
<b>Fig. S12.</b> IR spectrum of compound <b>3</b> (NaCl).	Pg 15
<b>Fig. S13.</b> UV spectrum of compound <b>3</b> (MeOH).	Pg 16
<b>Fig. S14.</b> Mass data HRESIMS in positive mode of compound <b>4</b> .	Pg 17
<b>Fig. S15.</b> $^1\text{H}$ NMR spectrum of compound <b>4</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 18
<b>Fig. S16.</b> $^{13}\text{C}$ NMR spectrum of compound <b>4</b> (125 MHz, $\text{CD}_3\text{OD}$ ).	Pg 19
<b>Fig. S17.</b> DEPT spectrum of compound <b>4</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 20
<b>Fig. S18.</b> gCOSY spectrum of compound <b>4</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 21
<b>Fig. S19.</b> HMQC spectrum of compound <b>4</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 22
<b>Fig. S20.</b> gHMBC spectrum of compound <b>4</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 23
<b>Fig. S21.</b> NOESY spectrum of compound <b>4</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 24
<b>Fig. S22.</b> IR spectrum of compound <b>4</b> (NaCl).	Pg 25
<b>Fig. S23.</b> UV spectrum of compound <b>4</b> (MeOH).	Pg 26
<b>Fig. S24.</b> CD spectrum of compound <b>4</b> (MeOH).	Pg 27
<b>Fig. S25.</b> Mass data HRESIMS in positive mode of compound <b>5</b> .	Pg 28
<b>Fig. S26.</b> $^1\text{H}$ NMR spectrum of compound <b>5</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 29
<b>Fig. S27.</b> $^{13}\text{C}$ NMR spectrum of compound <b>5</b> (125 MHz, $\text{CD}_3\text{OD}$ ).	Pg 30
<b>Fig. S28.</b> DEPT spectrum of compound <b>5</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 31
<b>Fig. S29.</b> gCOSY spectrum of compound <b>5</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 32
<b>Fig. S30.</b> HMQC spectrum of compound <b>5</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 33
<b>Fig. S31.</b> gHMBC spectrum of compound <b>5</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 34
<b>Fig. S32.</b> NOESY spectrum of compound <b>5</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 35
<b>Fig. S33.</b> IR spectrum of compound <b>5</b> (NaCl).	Pg 36
<b>Fig. S34.</b> UV spectrum of compound <b>5</b> (MeOH).	Pg 37
<b>Fig. S35.</b> CD spectrum of compound <b>5</b> (MeOH).	Pg 38
<b>Fig. S36.</b> Mass data HRESIMS in positive mode of compound <b>6</b> .	Pg 39
<b>Fig. S37.</b> $^1\text{H}$ NMR spectrum of compound <b>6</b> (600 MHz, $\text{CD}_3\text{OD}$ ).	Pg 40
<b>Fig. S38.</b> $^{13}\text{C}$ NMR spectrum of compound <b>6</b> (125 MHz, $\text{CD}_3\text{OD}$ ).	Pg 41

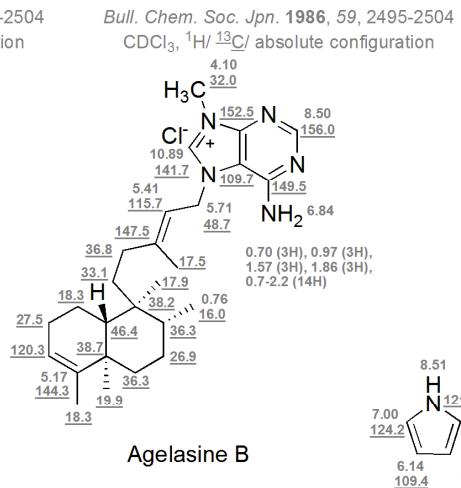
<b>Fig. S39.</b> DEPT spectrum of compound <b>6</b> (600 MHz, CD <sub>3</sub> OD).	Pg 42
<b>Fig. S40.</b> gCOSY spectrum of compound <b>6</b> (600 MHz, CD <sub>3</sub> OD).	Pg 43
<b>Fig. S41.</b> HMQC spectrum of compound <b>6</b> (600 MHz, CD <sub>3</sub> OD).	Pg 44
<b>Fig. S42.</b> gHMBC spectrum of compound <b>6</b> (600 MHz, CD <sub>3</sub> OD).	Pg 45
<b>Fig. S43.</b> NOESY spectrum of compound <b>6</b> (600 MHz, CD <sub>3</sub> OD).	Pg 46
<b>Fig. S44.</b> IR spectrum of compound <b>6</b> (NaCl).	Pg 47
<b>Fig. S45.</b> UV spectrum of compound <b>6</b> (MeOH).	Pg 48
<b>Chart S1.</b> Isolation scheme of the methanol (XFM) extract from Coll. No. 07321.	



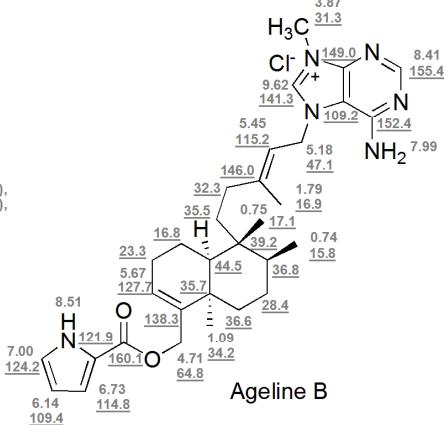
**Fig. S1.** <sup>1</sup>H and <sup>13</sup>C NMR data of sponge-derived 9-N-Methyladeninium clerodane diterpenoids



## Agelasine A

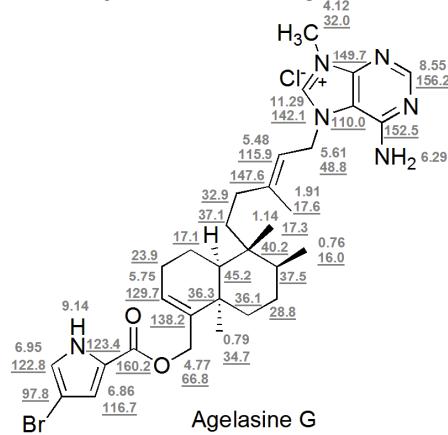


## Agelasine B

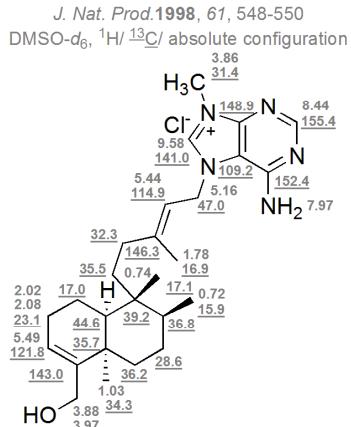


## Ageline B

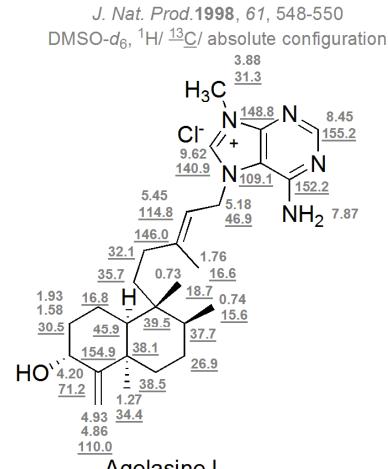
*Chem. Pharm. Bull.* **1992**, *40*, 766-767  
 $\text{CDCl}_3$ ,  $^1\text{H}$ /  $^{13}\text{C}$ / absolute configuration



## Agelasine G

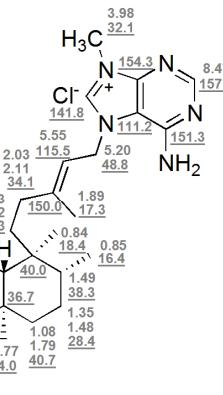


## Agelasine H

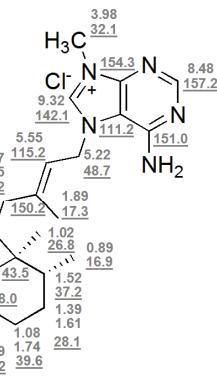


## Agelasine I

*J. Nat. Prod.* **2008**, *71*, 1451-1454  
CD<sub>3</sub>OD, <sup>1</sup>H/ <sup>13</sup>C/ relative configuration



agelasine K



## agelasine L

**Fig. S2.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR data of sponge-derived 9-*N*-Methyladeninium labdane and thelepogane diterpenoids

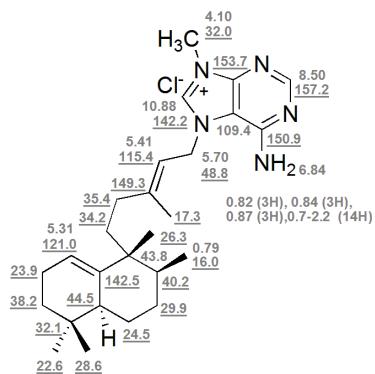
## Labdane skeleton:

Bull. Chem. Soc. Jpn. 1986, 59, 2495-2504

CDCl<sub>3</sub>, <sup>1</sup>H/ <sup>13</sup>C

Tetrahedron 2005, 61, 11672-11678

absolute configuration revised

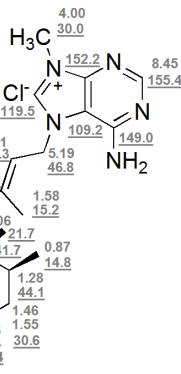


J. Nat. Prod. 1997, 60, 411-413

CD<sub>3</sub>OD, <sup>1</sup>H/ <sup>13</sup>C

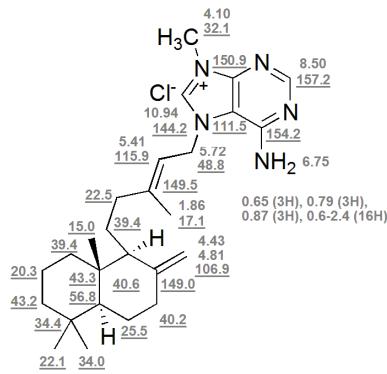
Tetrahedron 2005, 61, 11672-11678

absolute configuration revised



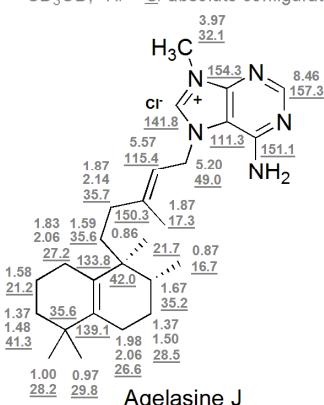
Bull. Chem. Soc. Jpn. 1986, 59, 2495-2504

CDCl<sub>3</sub>, <sup>1</sup>H/ <sup>13</sup>C/ absolute configuration



J. Nat. Prod. 2008, 71, 1451-1454

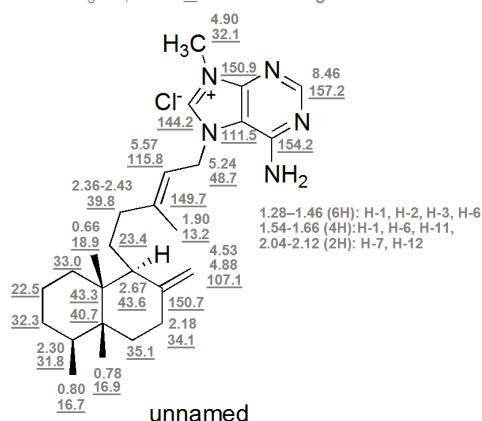
CD<sub>3</sub>OD, <sup>1</sup>H/ <sup>13</sup>C/ absolute configuration



## Thelepodane skeleton:

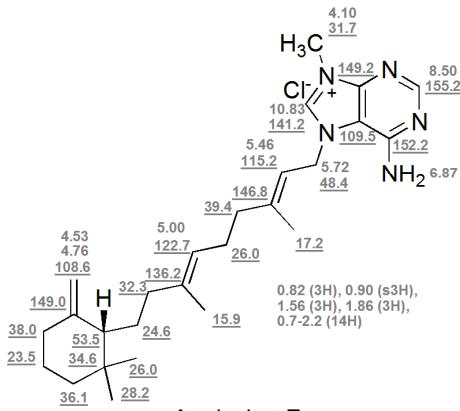
J. Nat. Prod. 1998, 61, 1310-1312

CD<sub>3</sub>OD, <sup>1</sup>H/ <sup>13</sup>C/ relative configuration



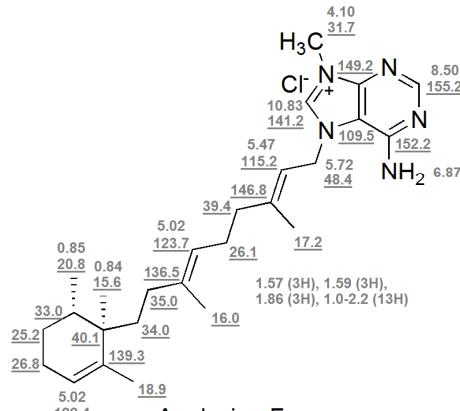
**Fig. S3.** <sup>1</sup>H and <sup>13</sup>C NMR data of sponge-derived 9-N-Methyladeninium monocyclic diterpenoids

*Bull. Chem. Soc. Jpn.* **1986**, 59, 2495-2504  
 $\text{CDCl}_3, ^1\text{H}/^{13}\text{C}$   
*Tetrahedron lett.* **1984**, 25, 3719-3722  
 absolute configuration



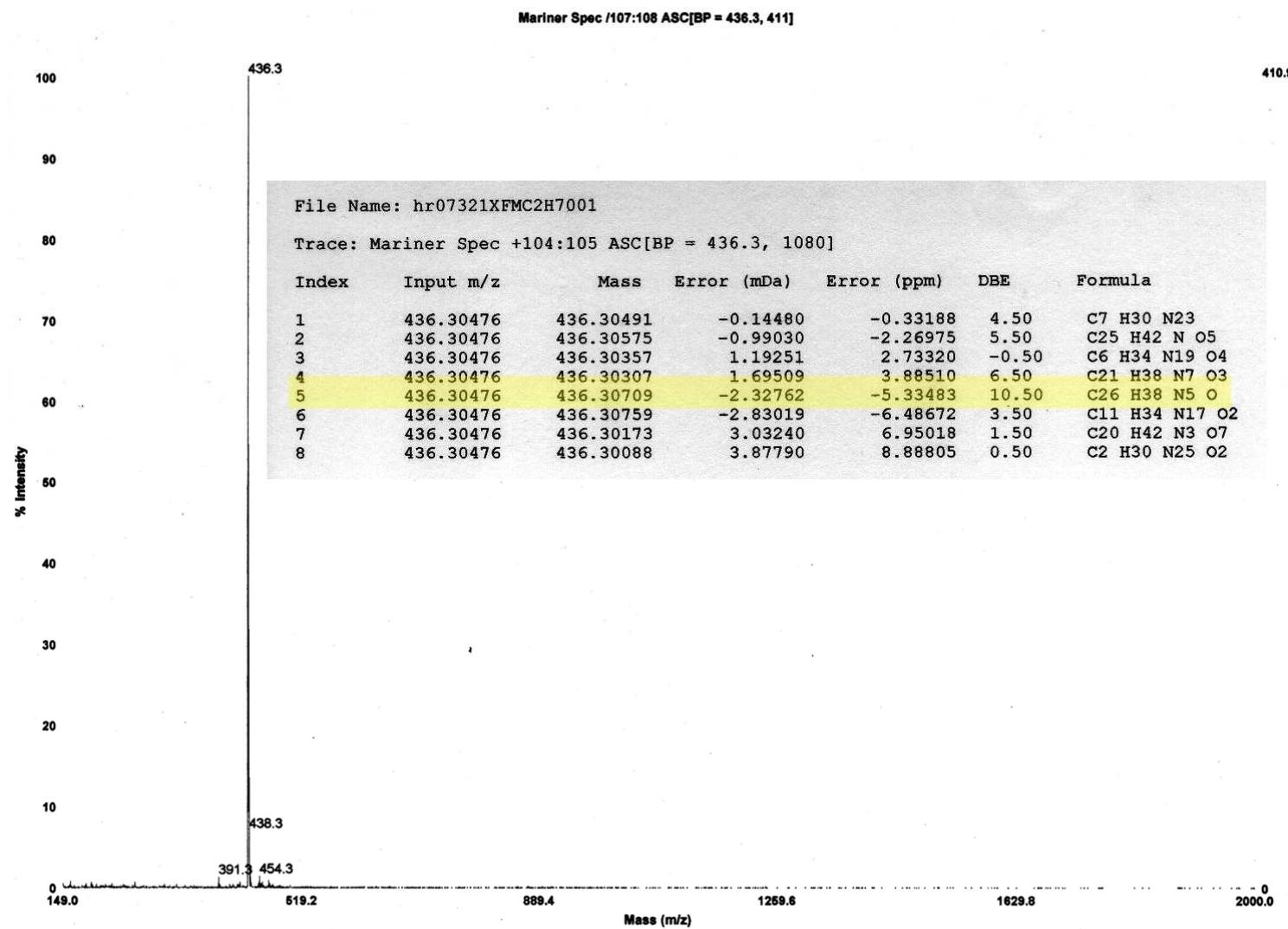
## Agelasine E

Bull. Chem. Soc. Jpn. **1986**, 59, 2495-2504  
 $\text{CDCl}_3, ^1\text{H}/^{13}\text{C}$   
Tetrahedron lett. **1984**, 25, 3719-3722  
absolute configuration

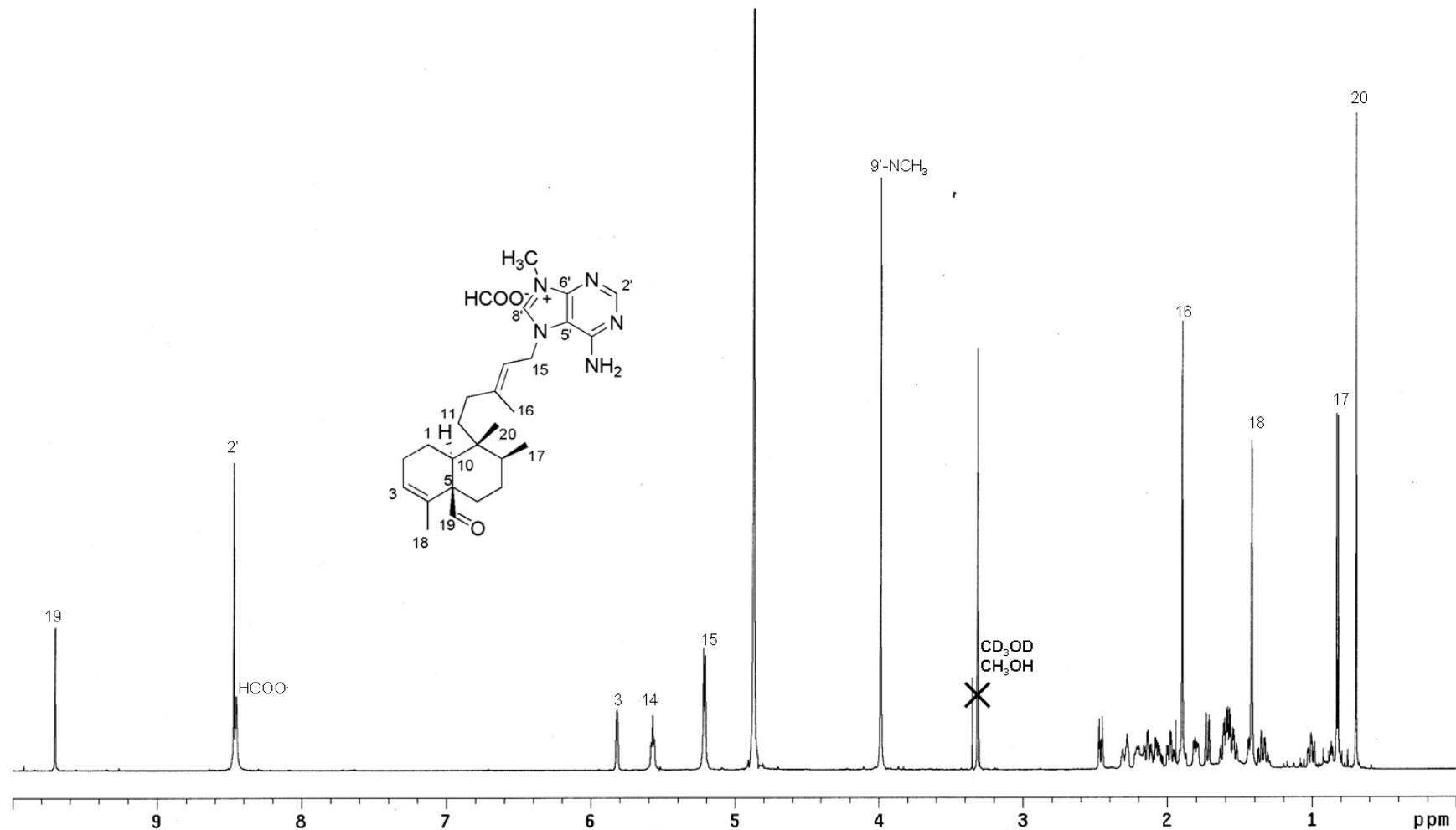


Agelasine F  
(Ageline A)

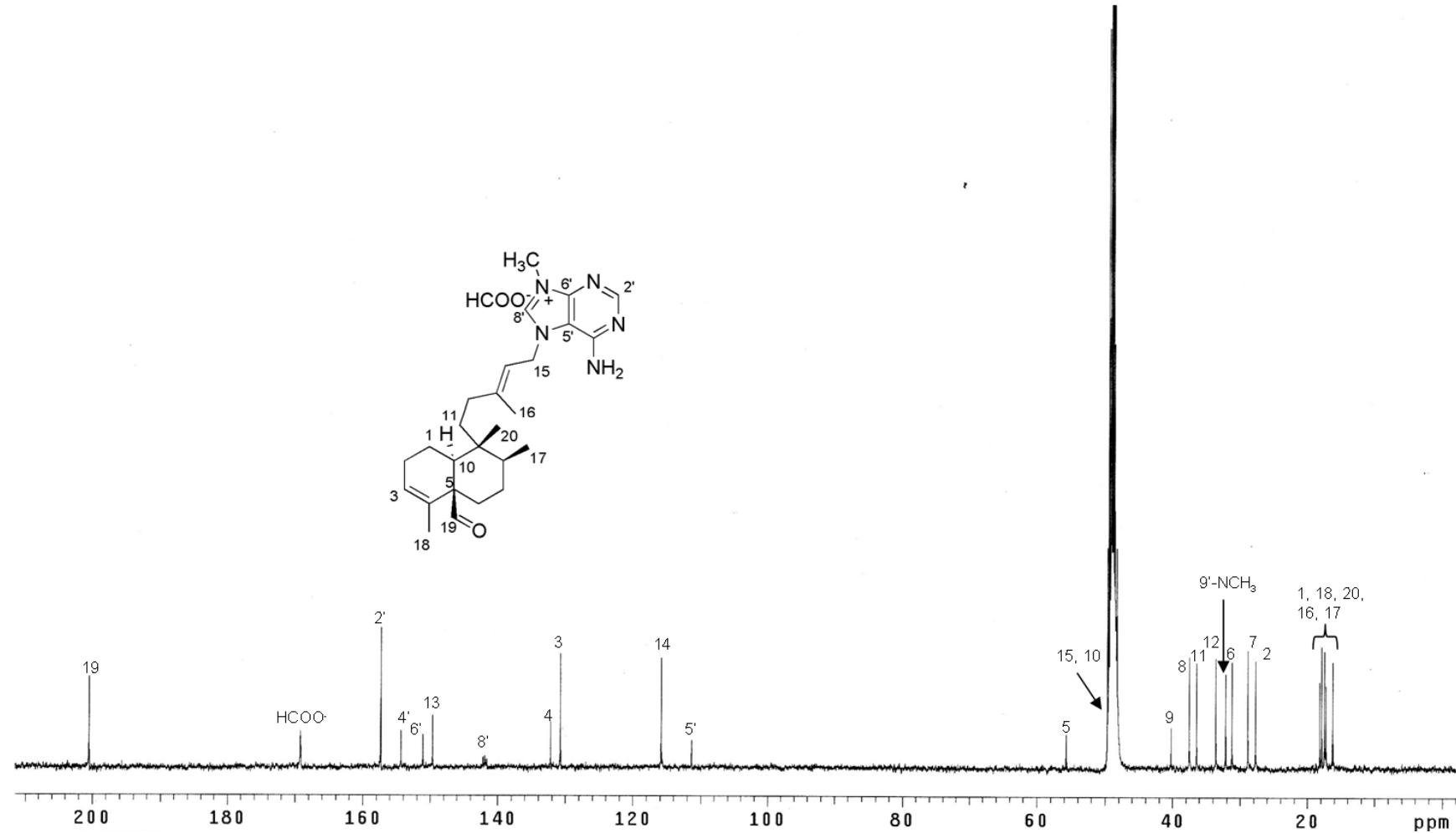
**Fig. S4.** Mass data HRESIMS in positive mode of compound 3.



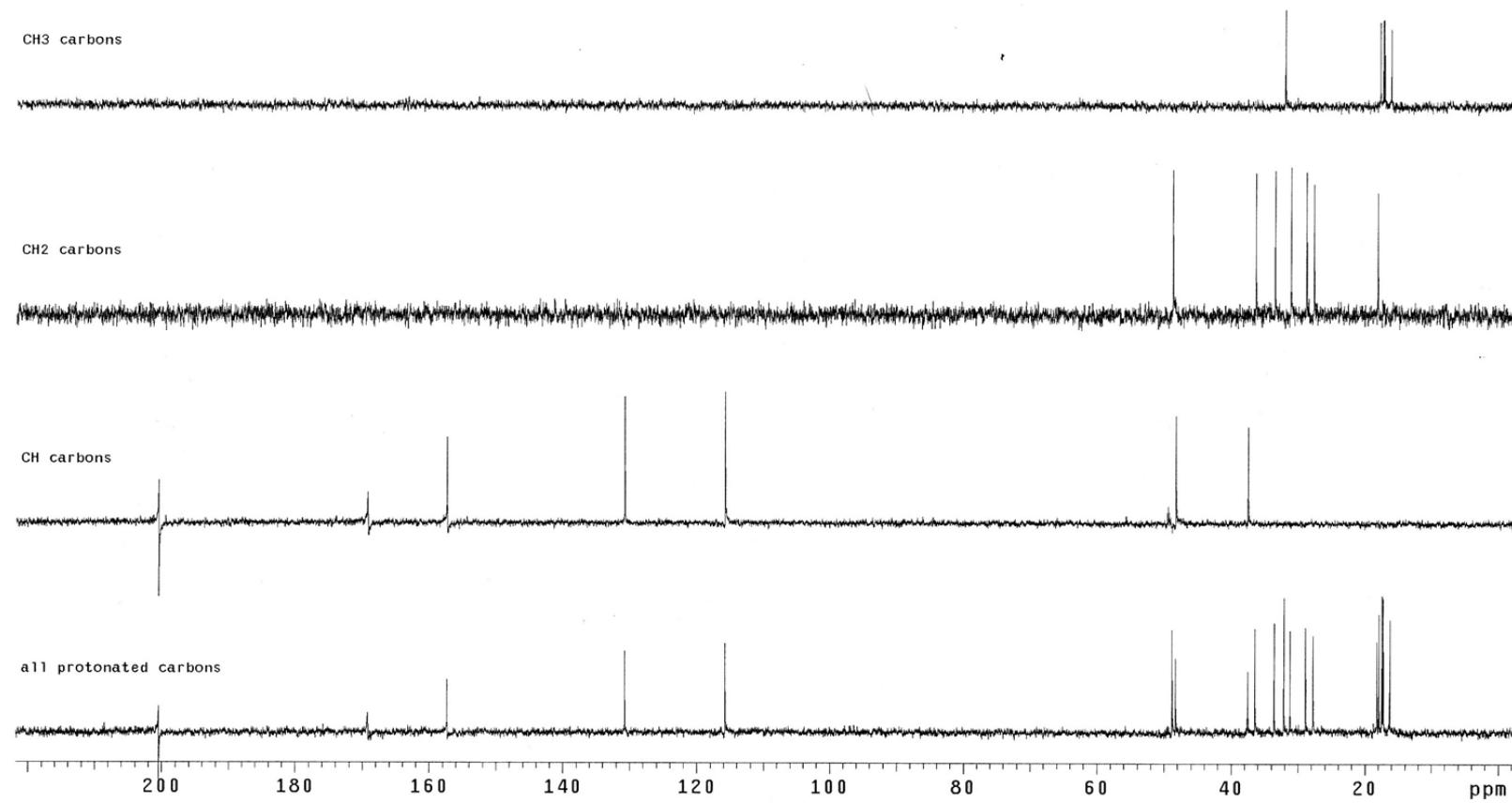
**Fig. S5.**  $^1\text{H}$  NMR spectrum of compound **3** (600 MHz,  $\text{CD}_3\text{OD}$ ).



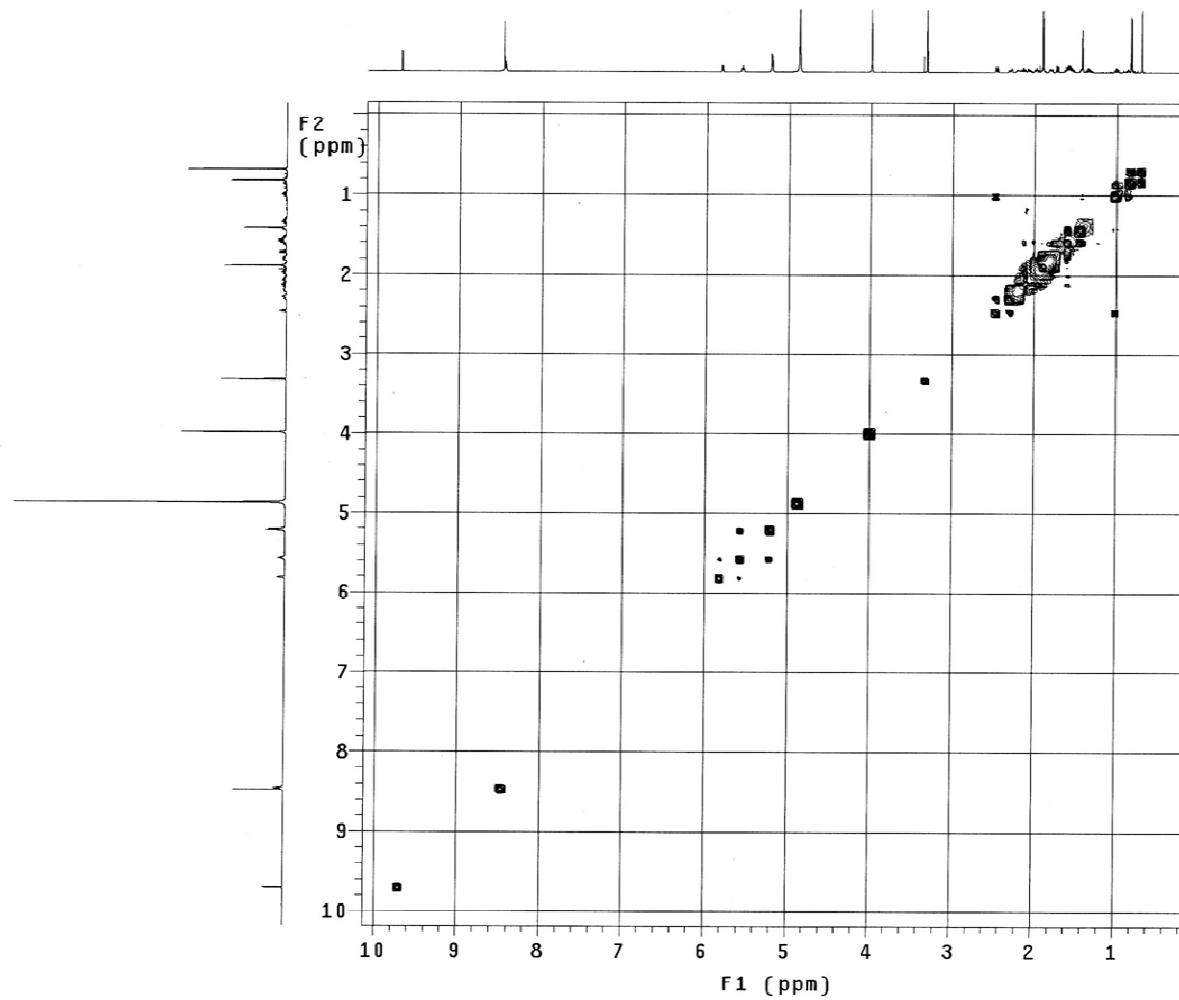
**Fig. S6.**  $^{13}\text{C}$  NMR spectrum of compound **3** (125 MHz,  $\text{CD}_3\text{OD}$ ).



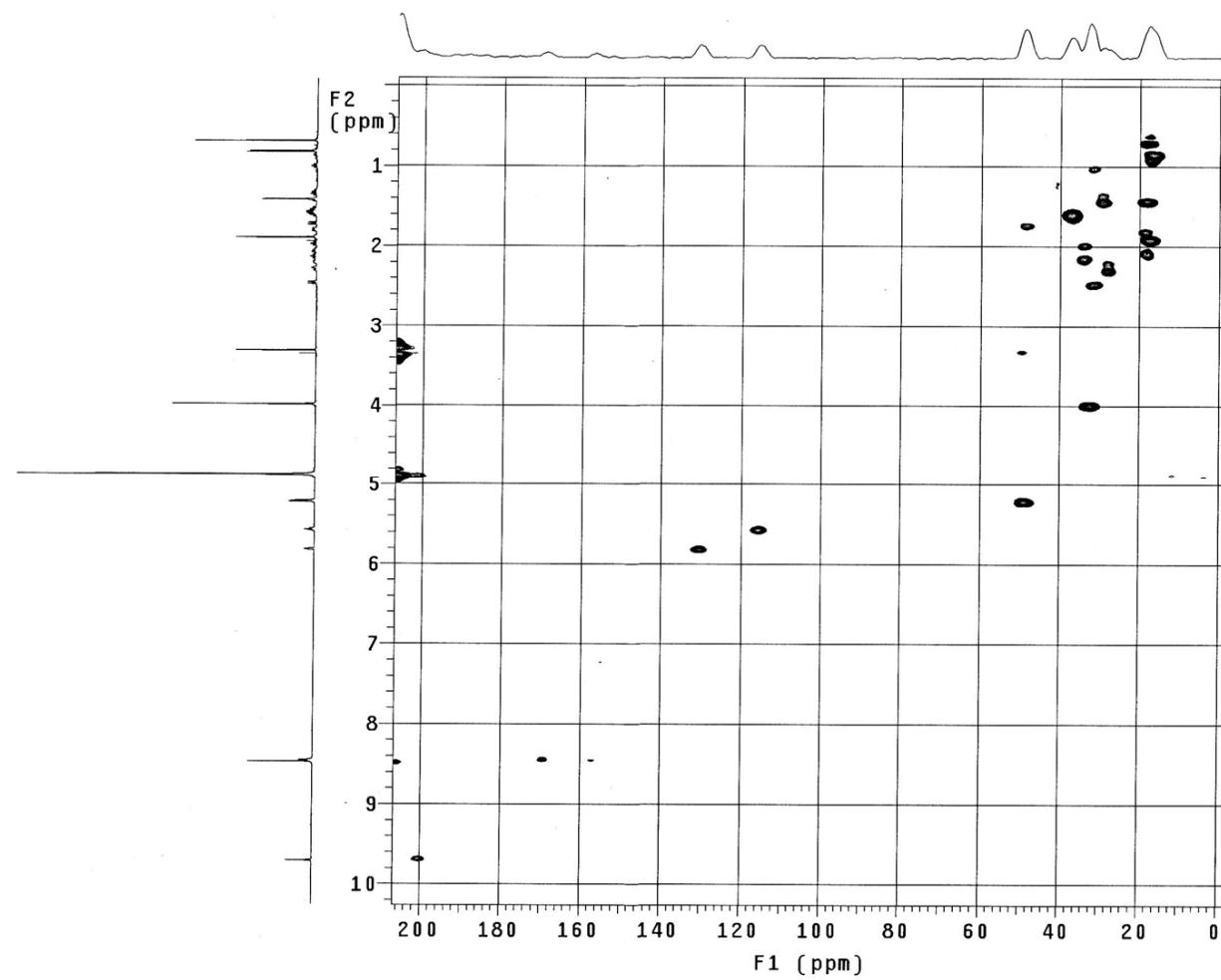
**Fig. S7.** DEPT spectrum of compound **3** (125 MHz, CD<sub>3</sub>OD).



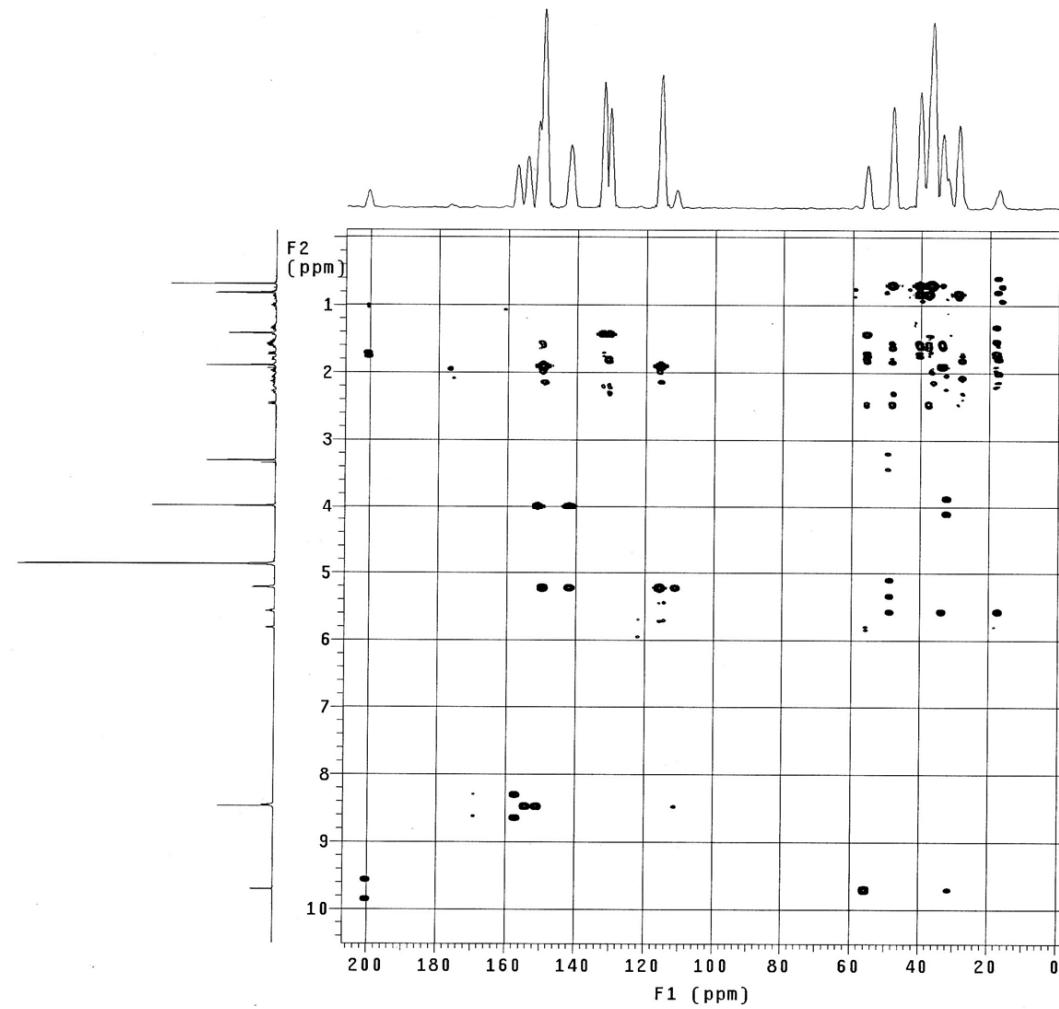
**Fig. S8.** gCOSY spectrum of compound **3** (600 MHz, CD<sub>3</sub>OD).



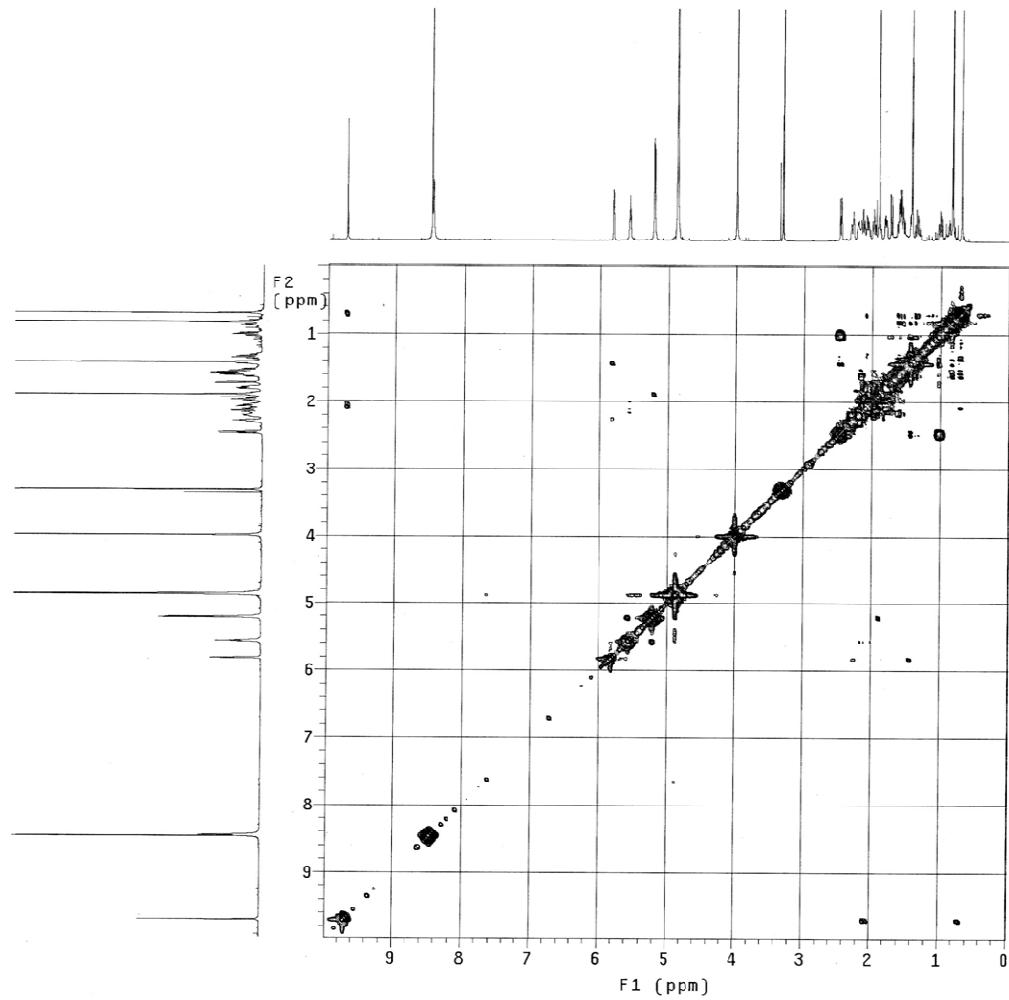
**Fig. S9.** HMQC spectrum of compound **3** (600 MHz, CD<sub>3</sub>OD).



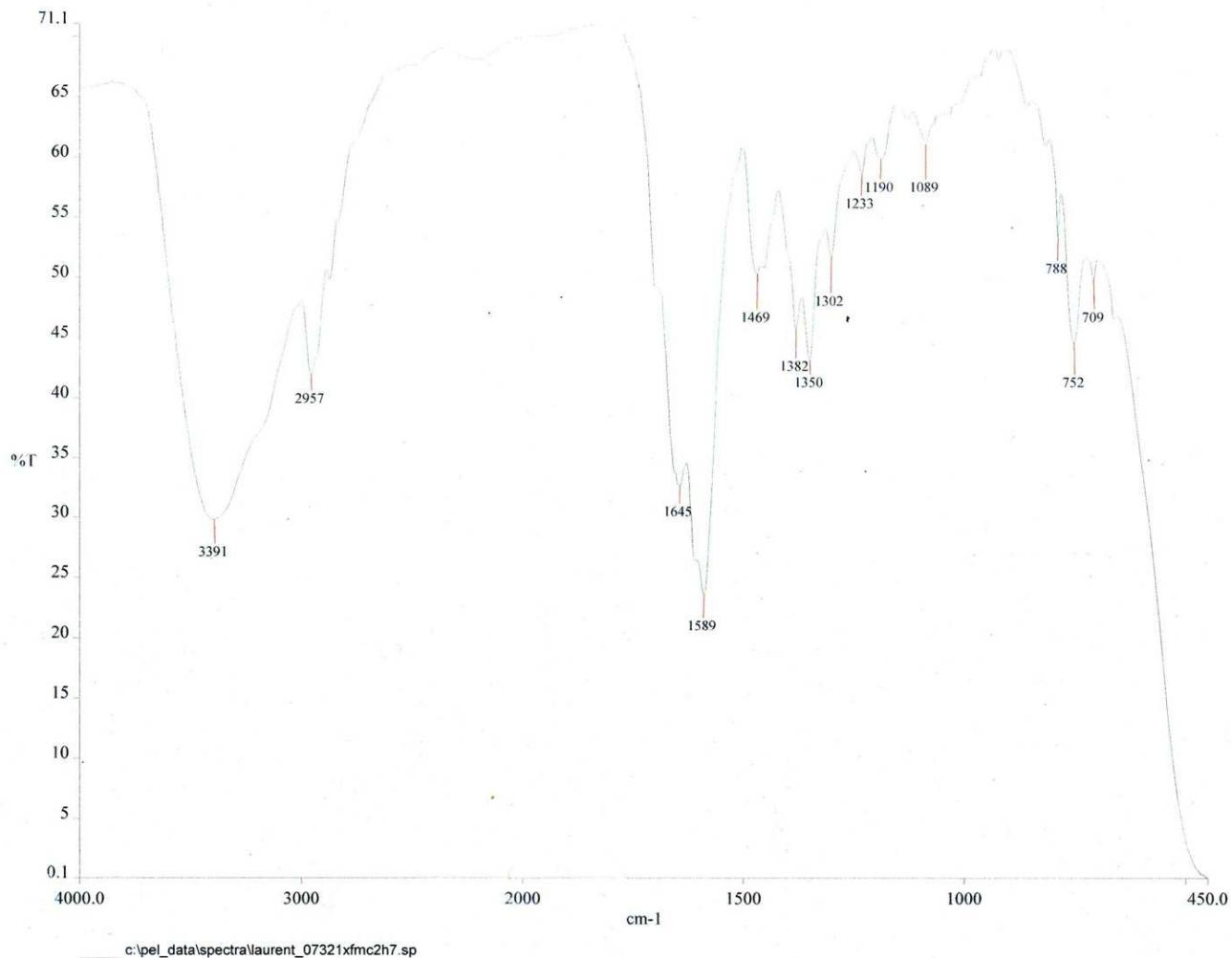
**Fig. S10.** *g*HMBC spectrum of compound **3** (600 MHz, CD<sub>3</sub>OD).



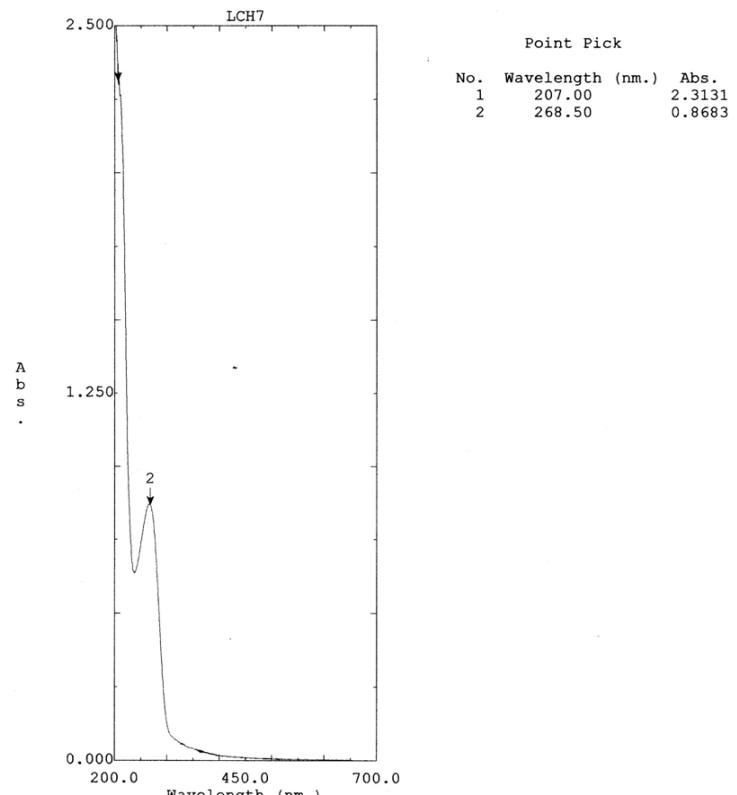
**Fig. S11.** 2D NOESY spectrum of compound **3** (600 MHz, CD<sub>3</sub>OD).



**Fig. S12.** IR spectrum of compound **3** (NaCl).



**Fig. S13.** UV spectrum of compound 3 (MeOH).

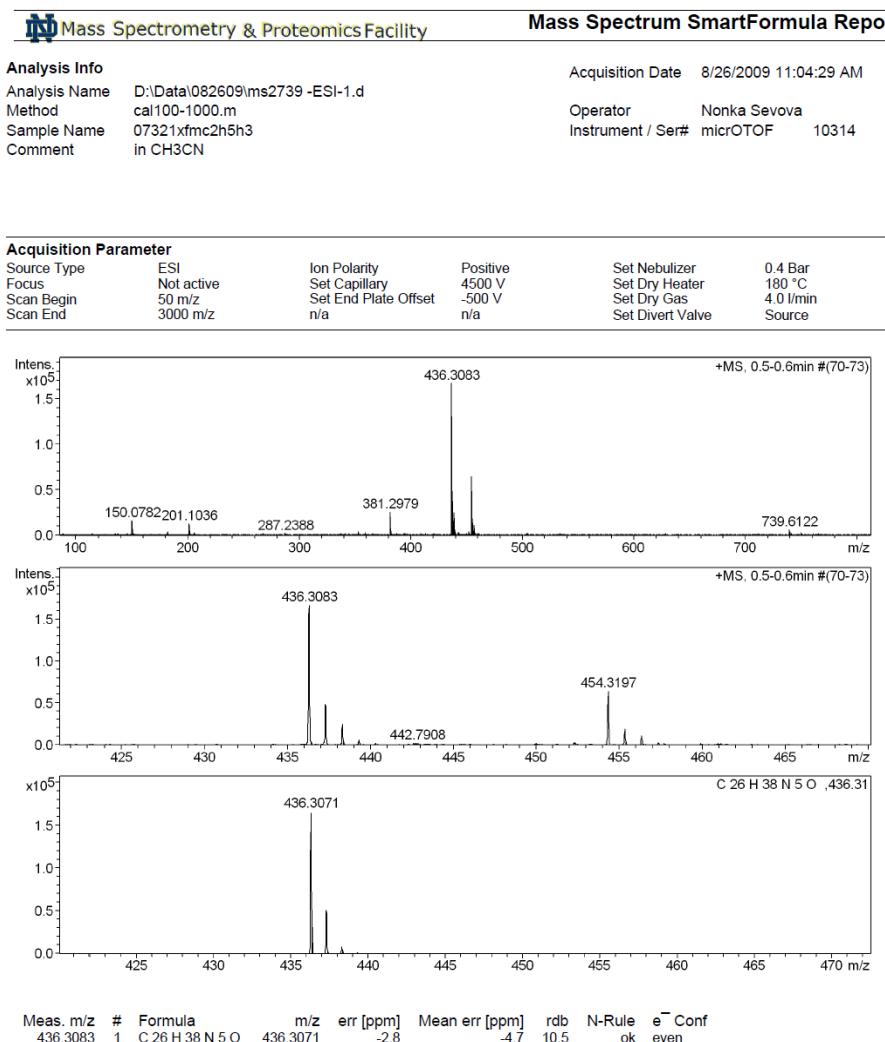


File Name: LCH7  
07321XFMC2H7\_093009

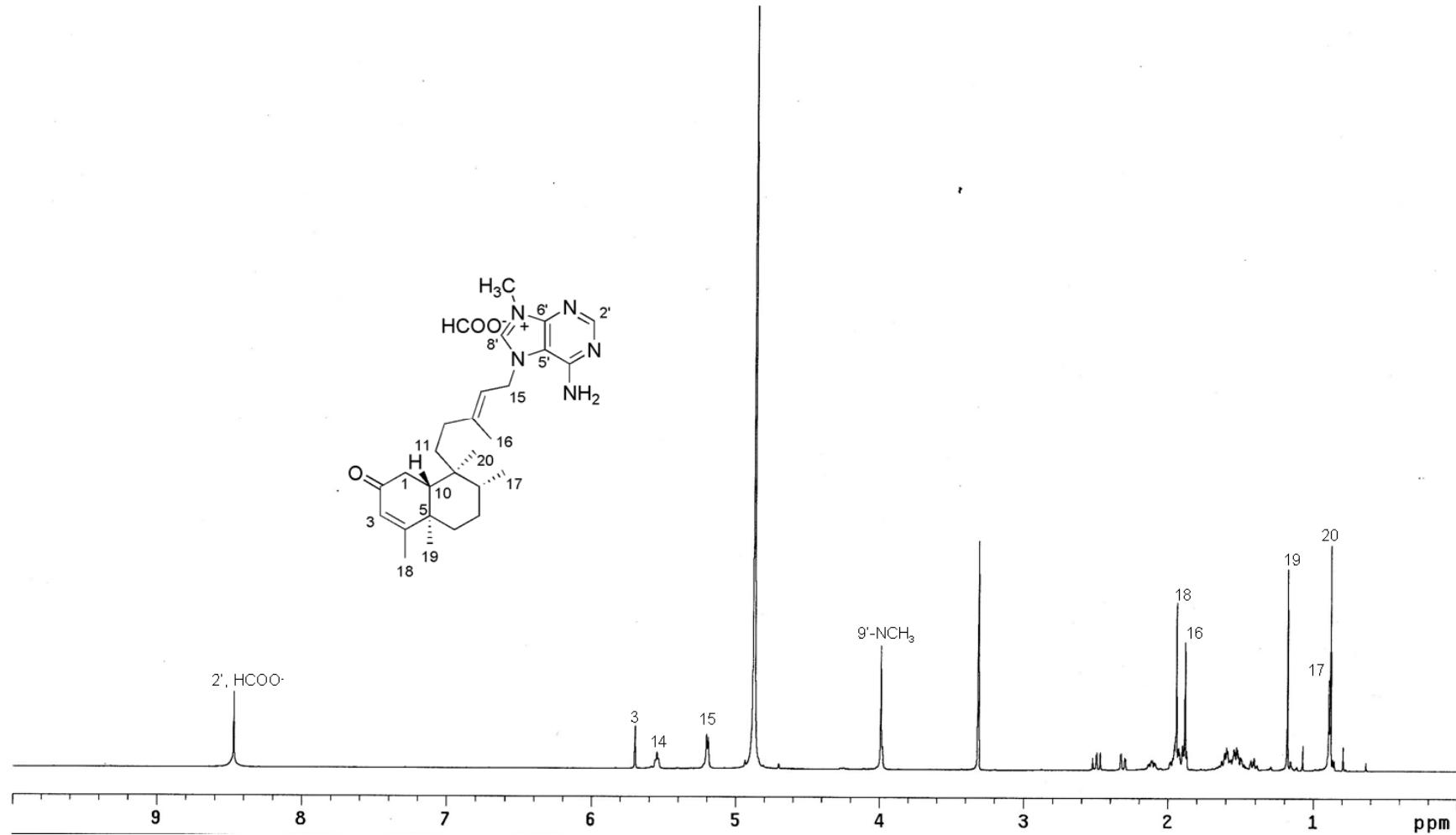
Created: 10:56 09/30/09  
Data: Original

Measuring Mode: Abs.  
Scan Speed: Fast  
Slit Width: 1.0  
Sampling Interval: 0.5

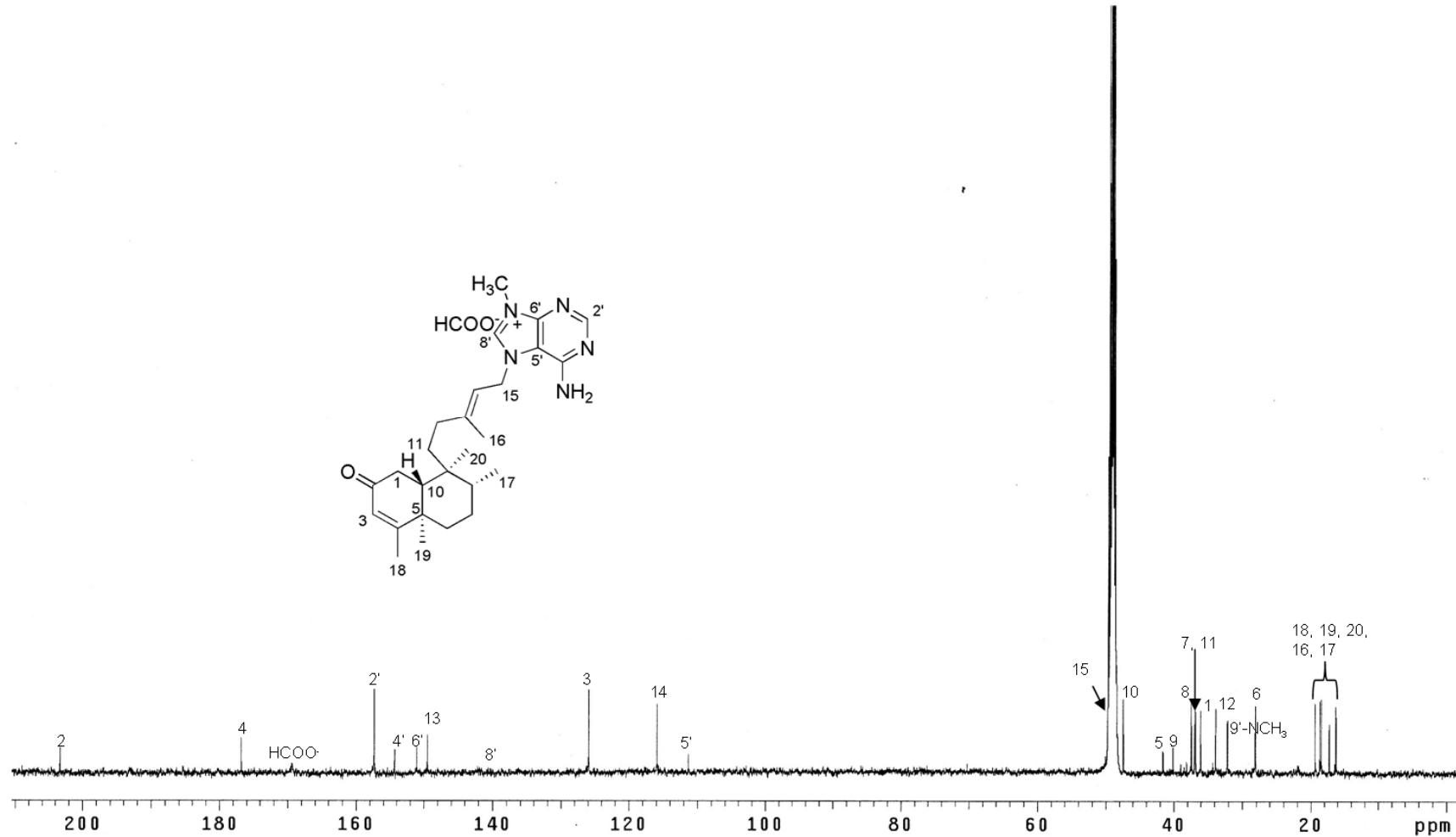
**Fig. S14.** Mass data HRESIMS in positive mode of compound 4.



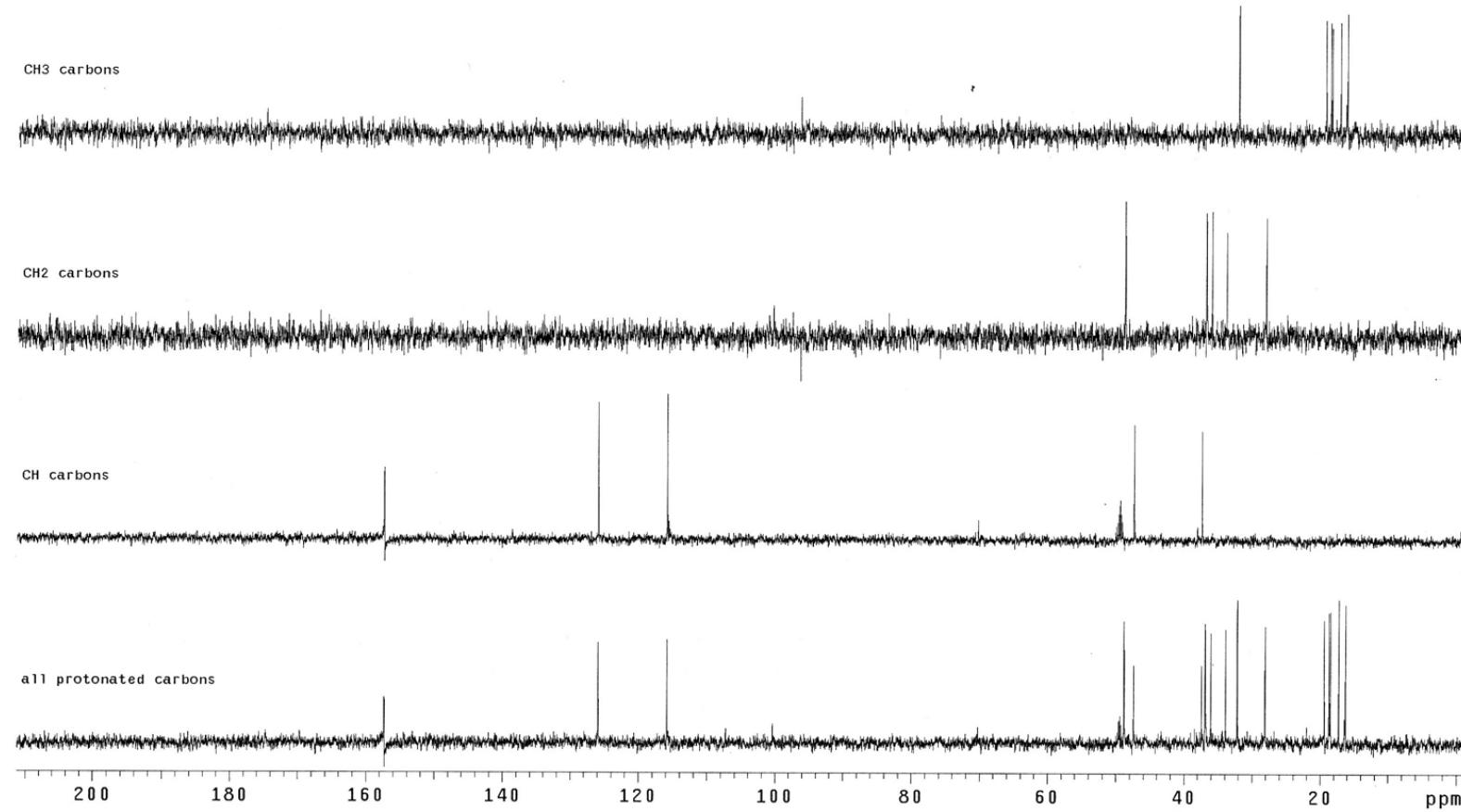
**Fig. S15.**  $^1\text{H}$  NMR spectrum of compound **4** (600 MHz,  $\text{CD}_3\text{OD}$ ).



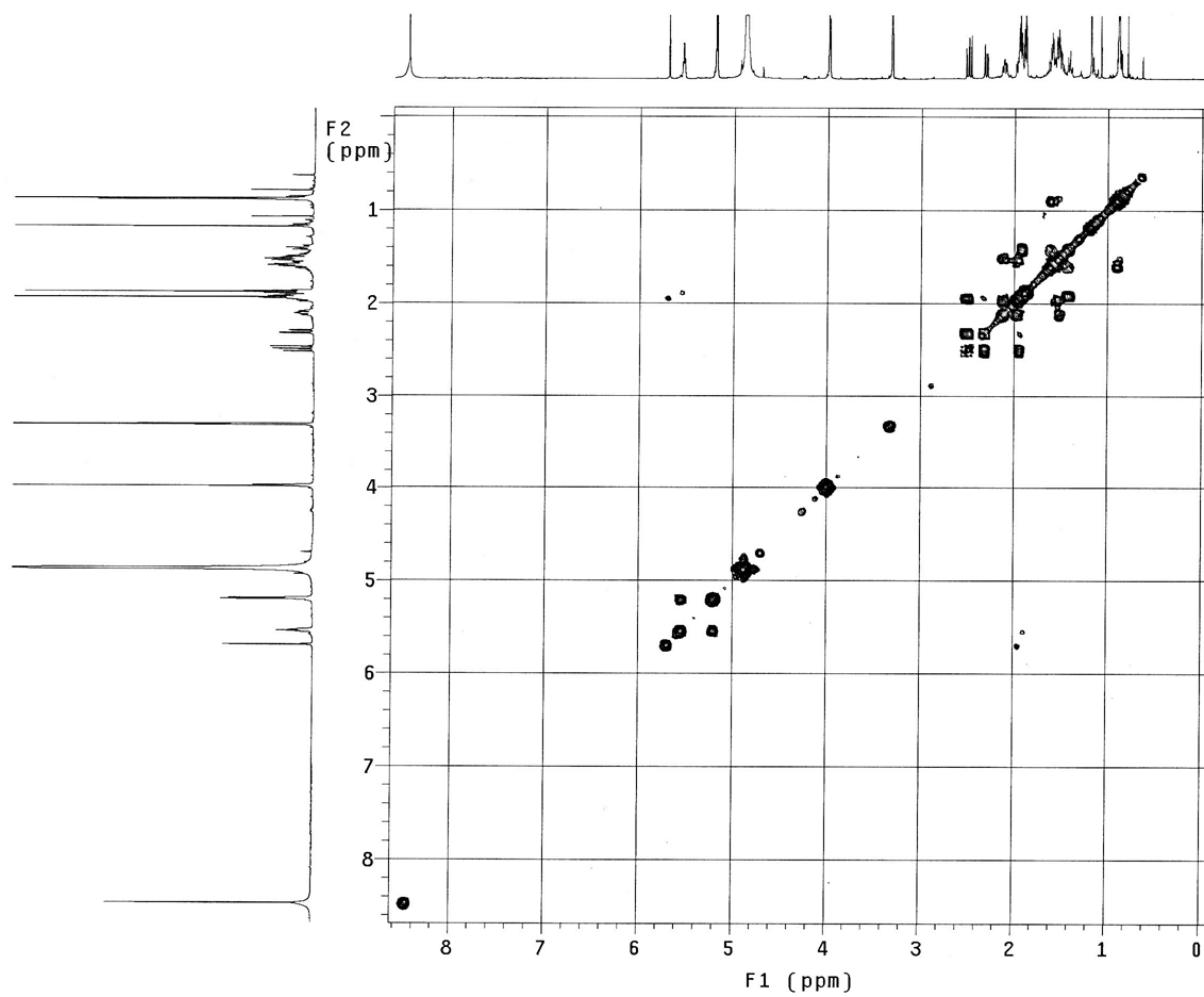
**Fig. S16.**  $^{13}\text{C}$  NMR spectrum of compound **4** (125 MHz,  $\text{CD}_3\text{OD}$ ).



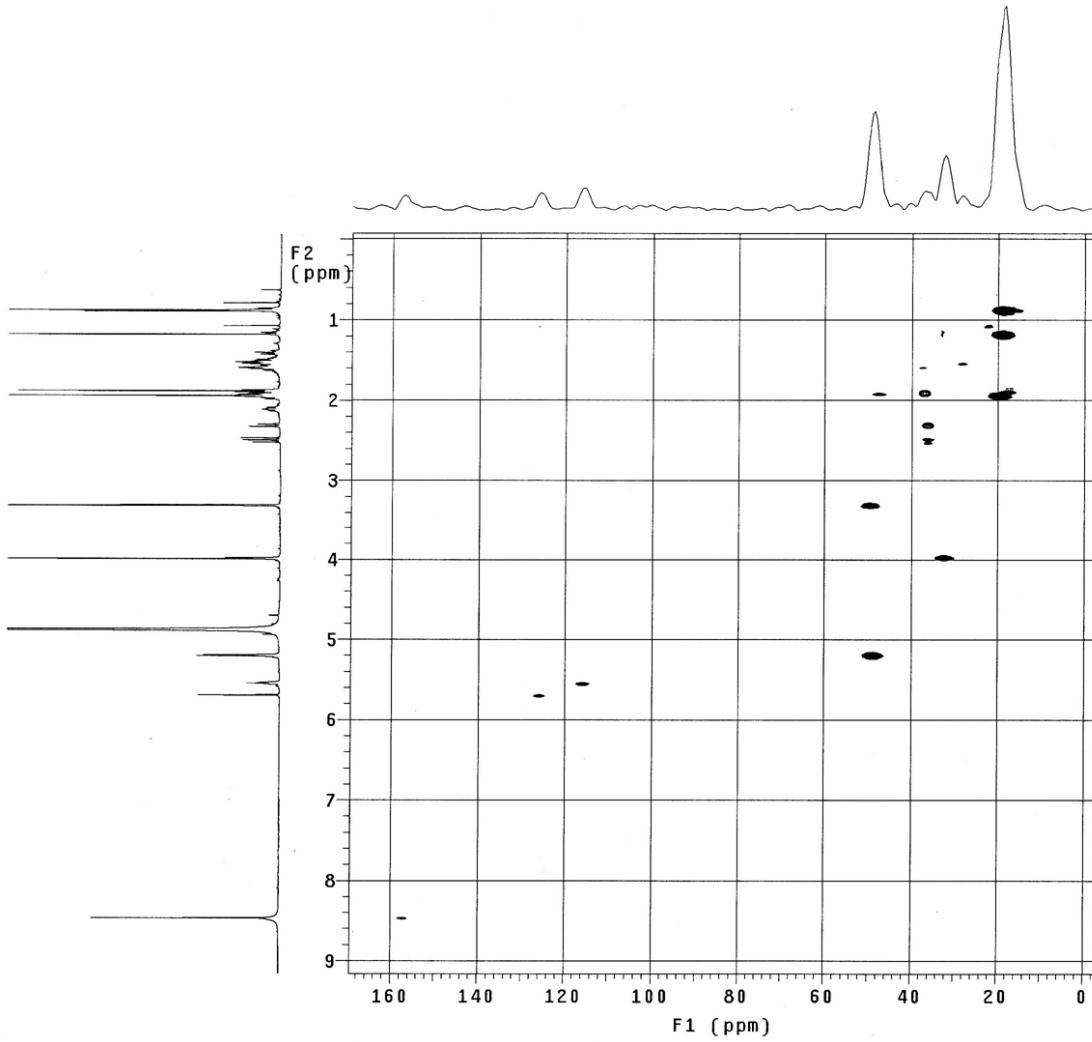
**Fig. S17.** DEPT spectrum of compound **4** (125 MHz, CD<sub>3</sub>OD).



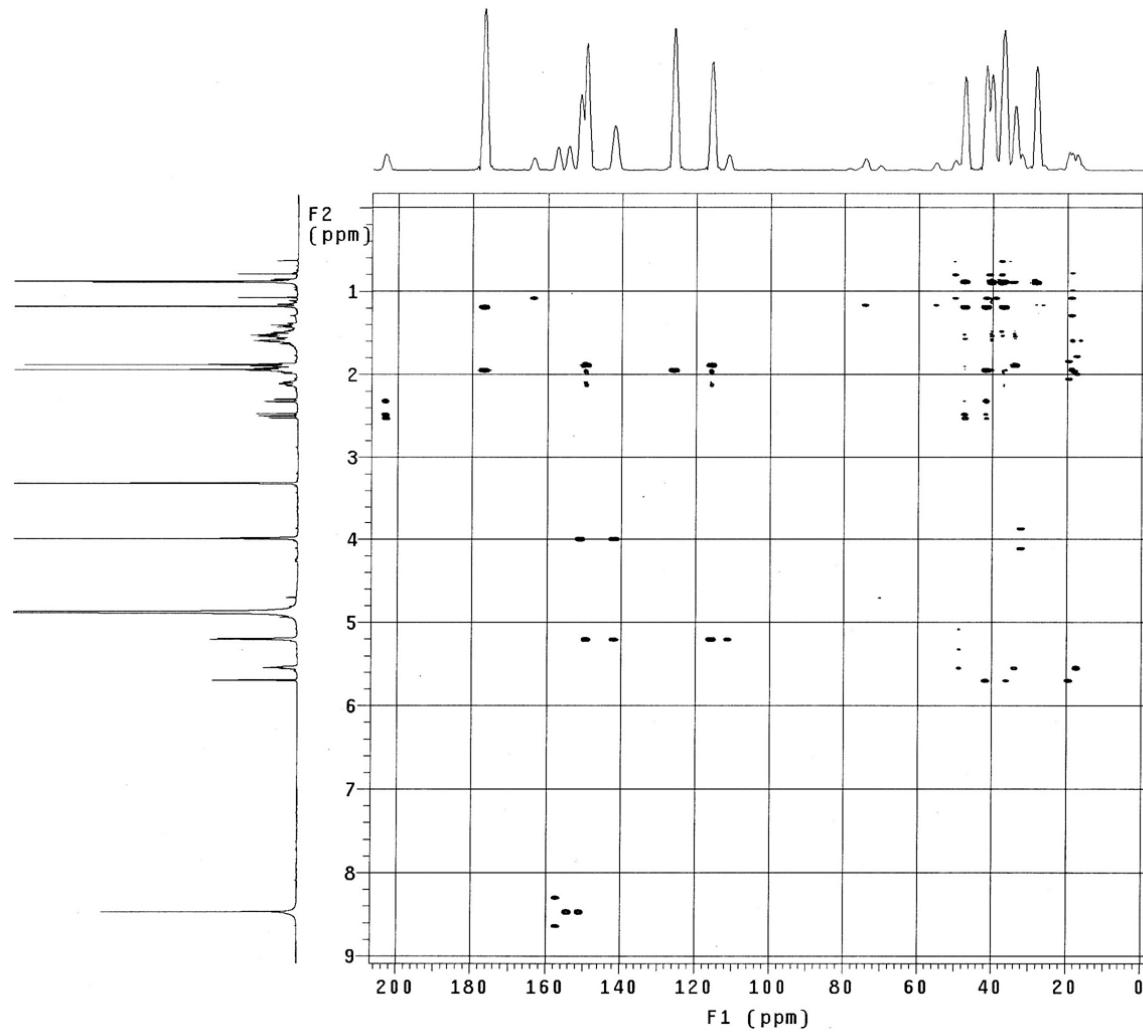
**Fig. S18.** *g*COSY spectrum of compound **4** (600 MHz, CD<sub>3</sub>OD).



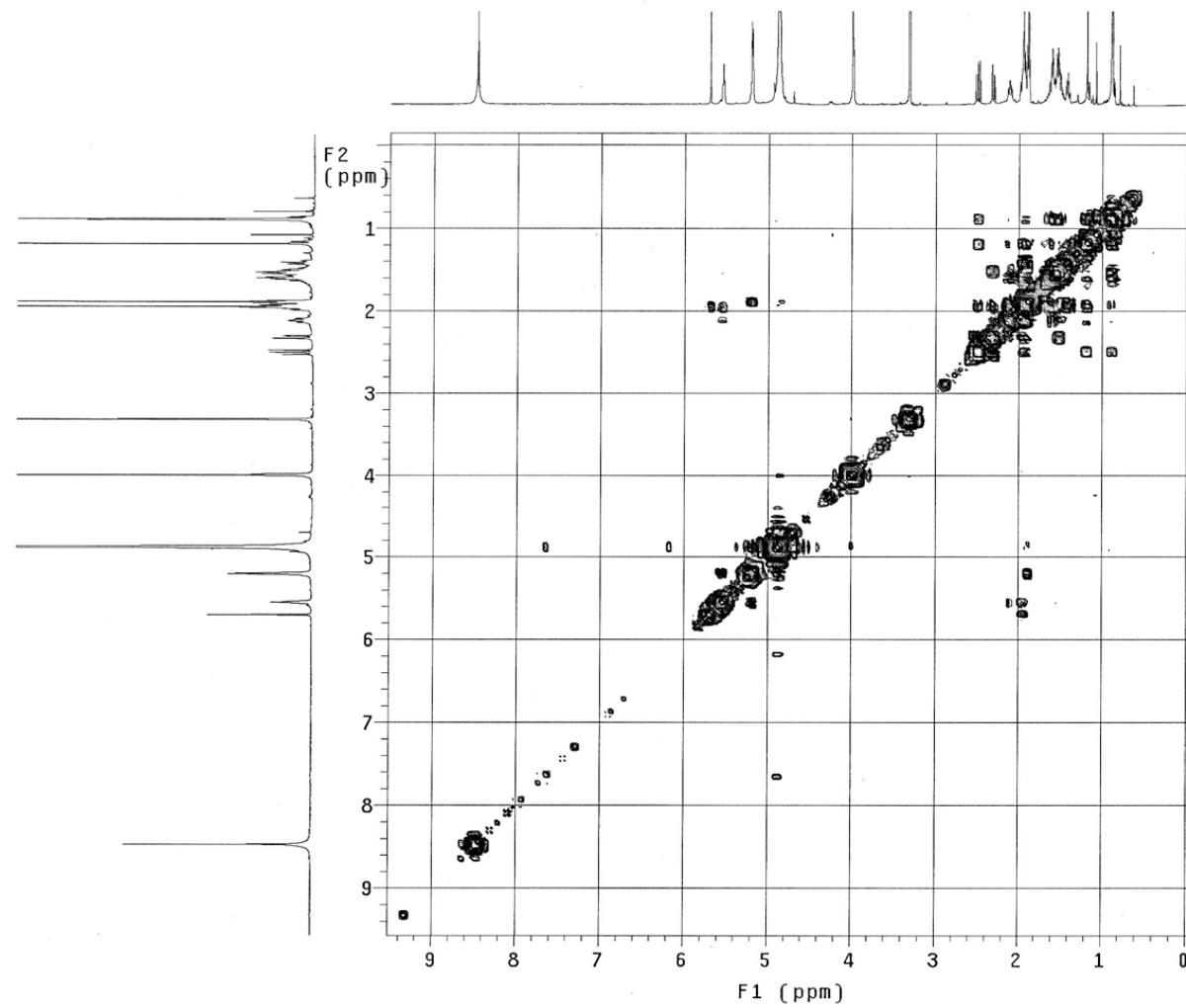
**Fig. S19.** HMQC spectrum of compound **4** (600 MHz, CD<sub>3</sub>OD).



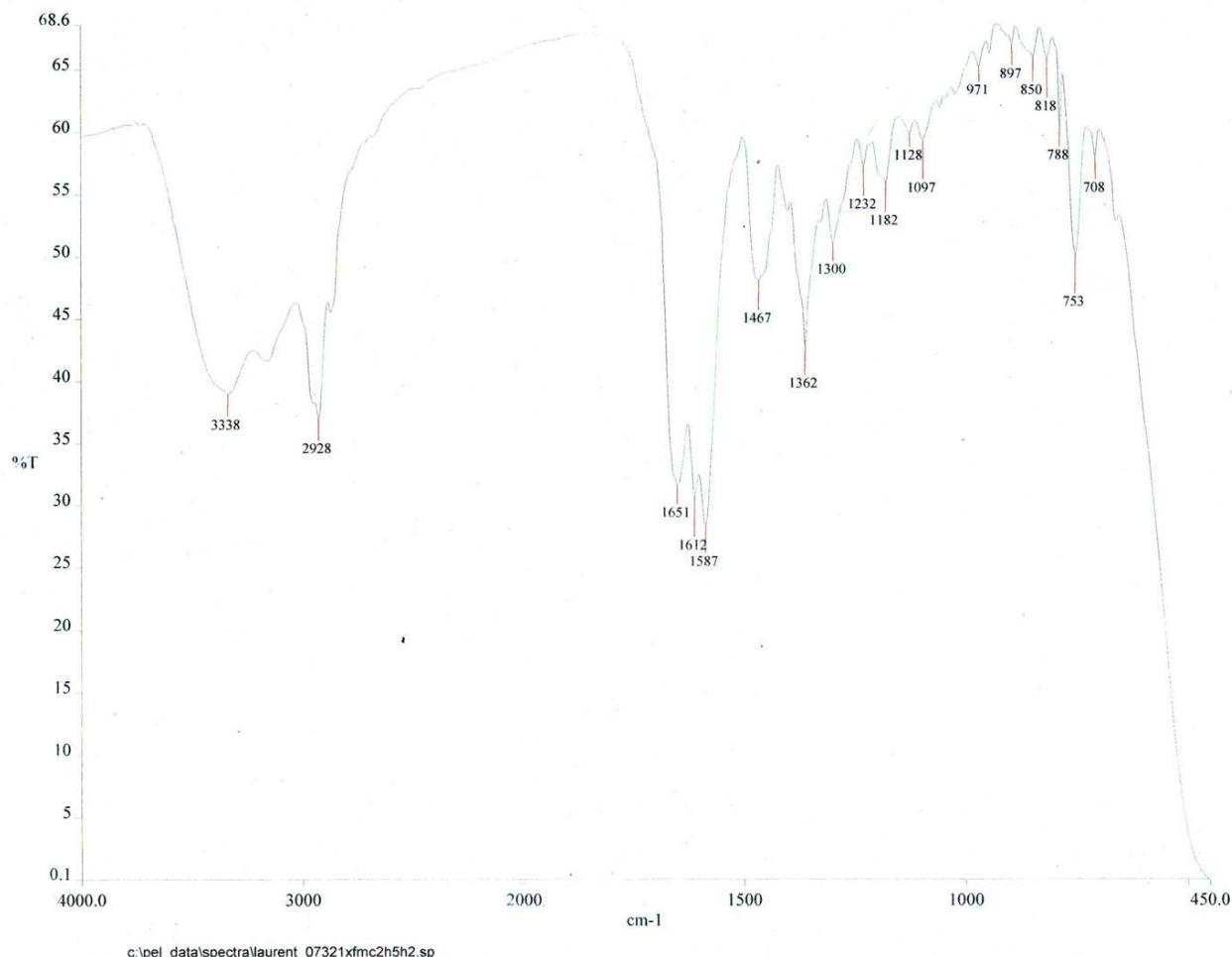
**Fig. S20.** *g*HMBC spectrum of compound **4** (600 MHz, CD<sub>3</sub>OD).



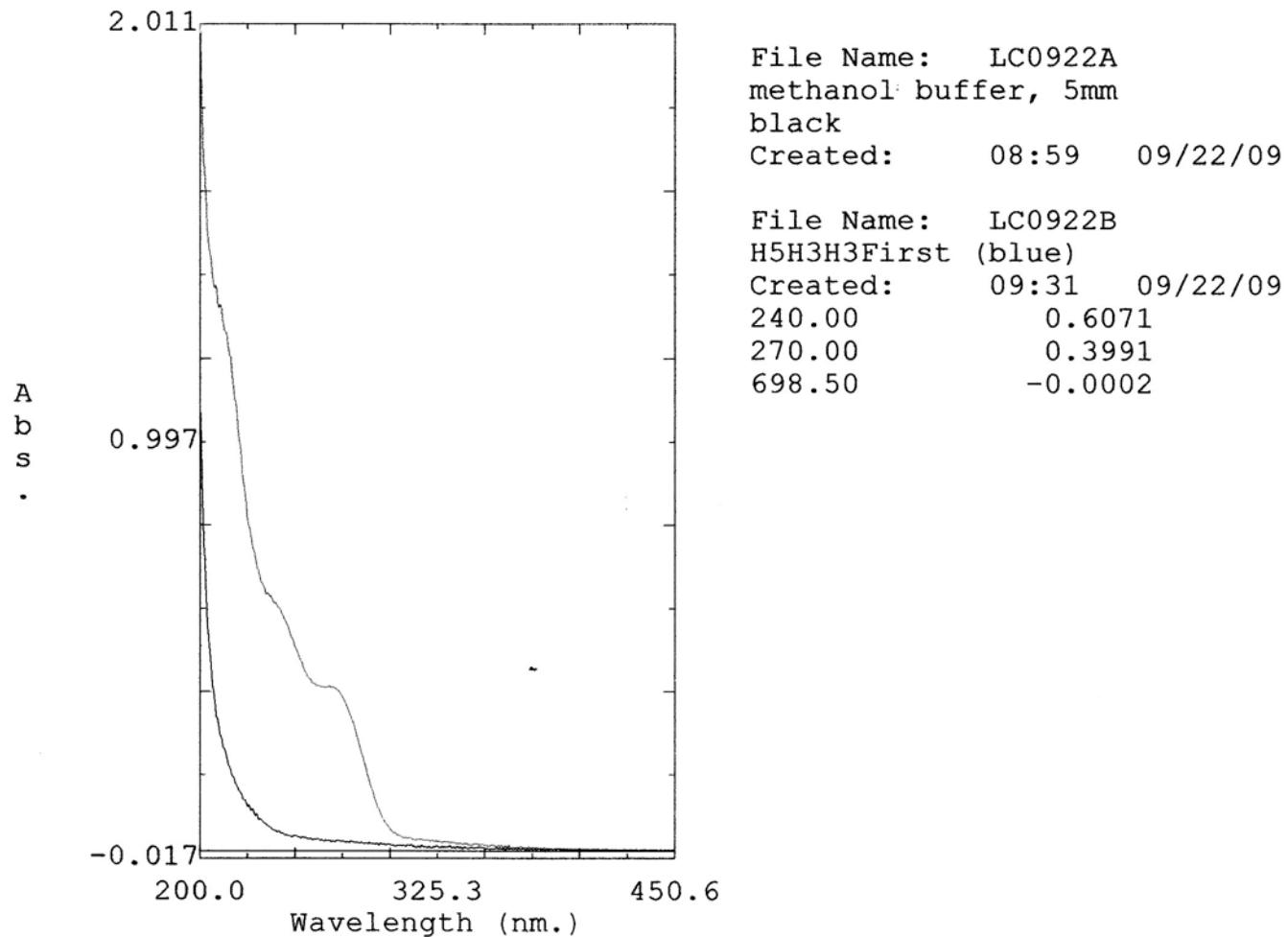
**Fig. S21.** NOESY spectrum of compound **4** (600 MHz, CD<sub>3</sub>OD).



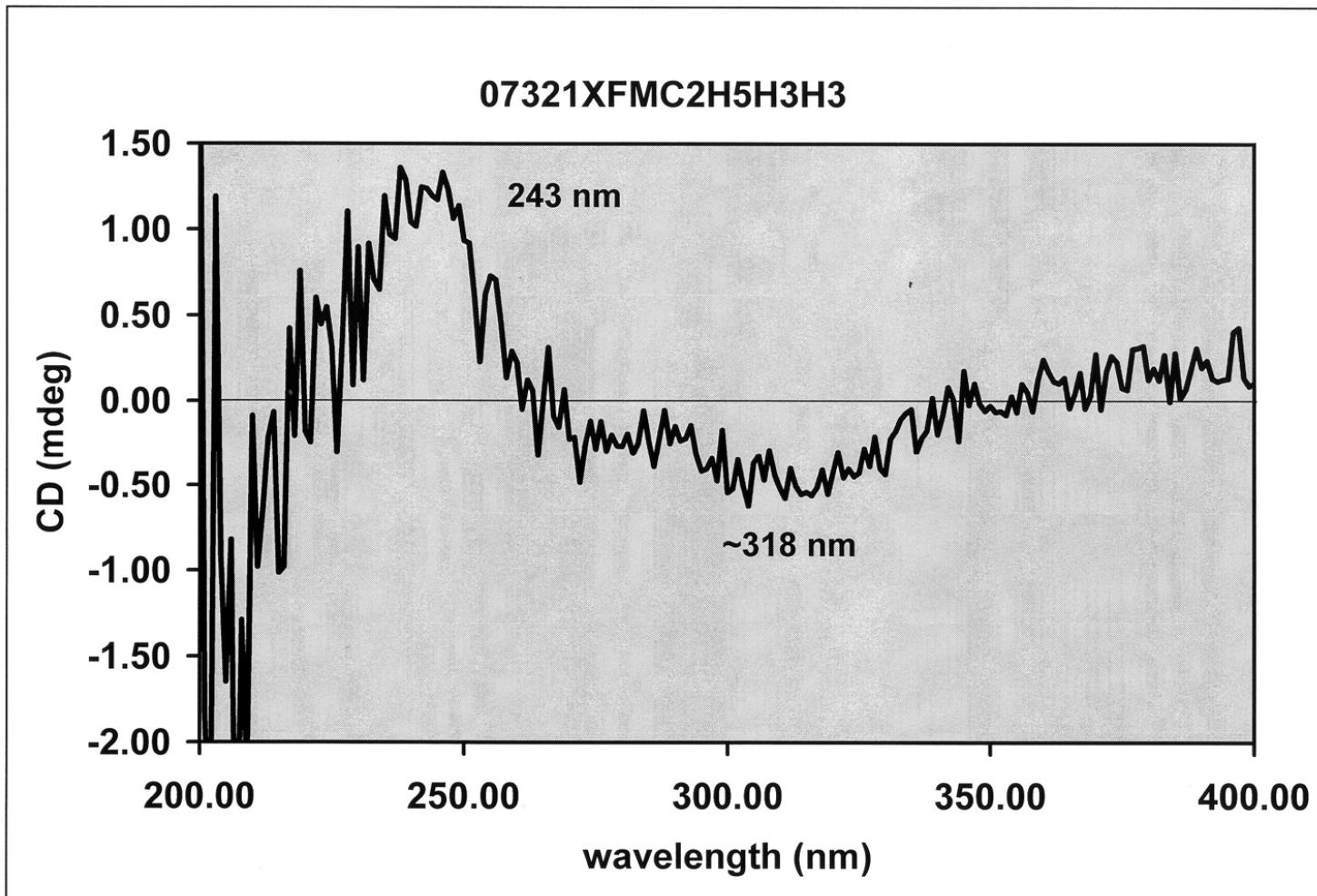
**Fig. S22.** IR spectrum of compound **4** (NaCl).



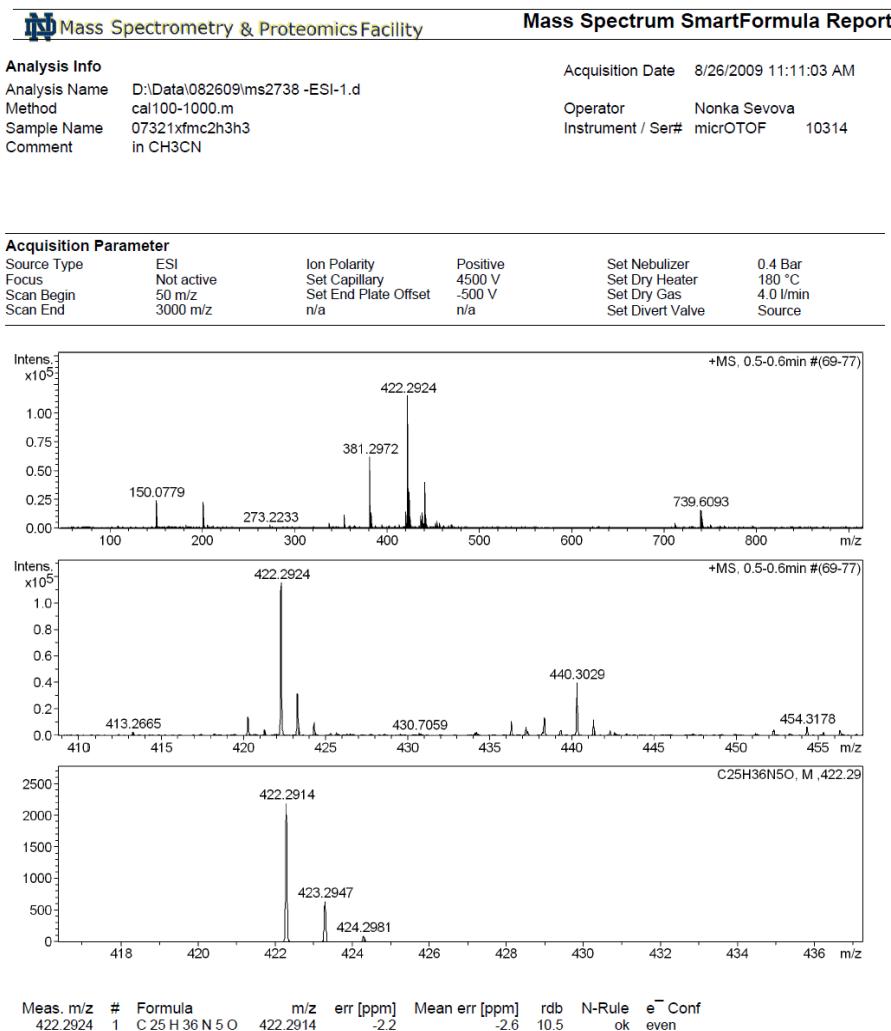
**Fig. S23.** UV spectrum of compound **4** (MeOH).



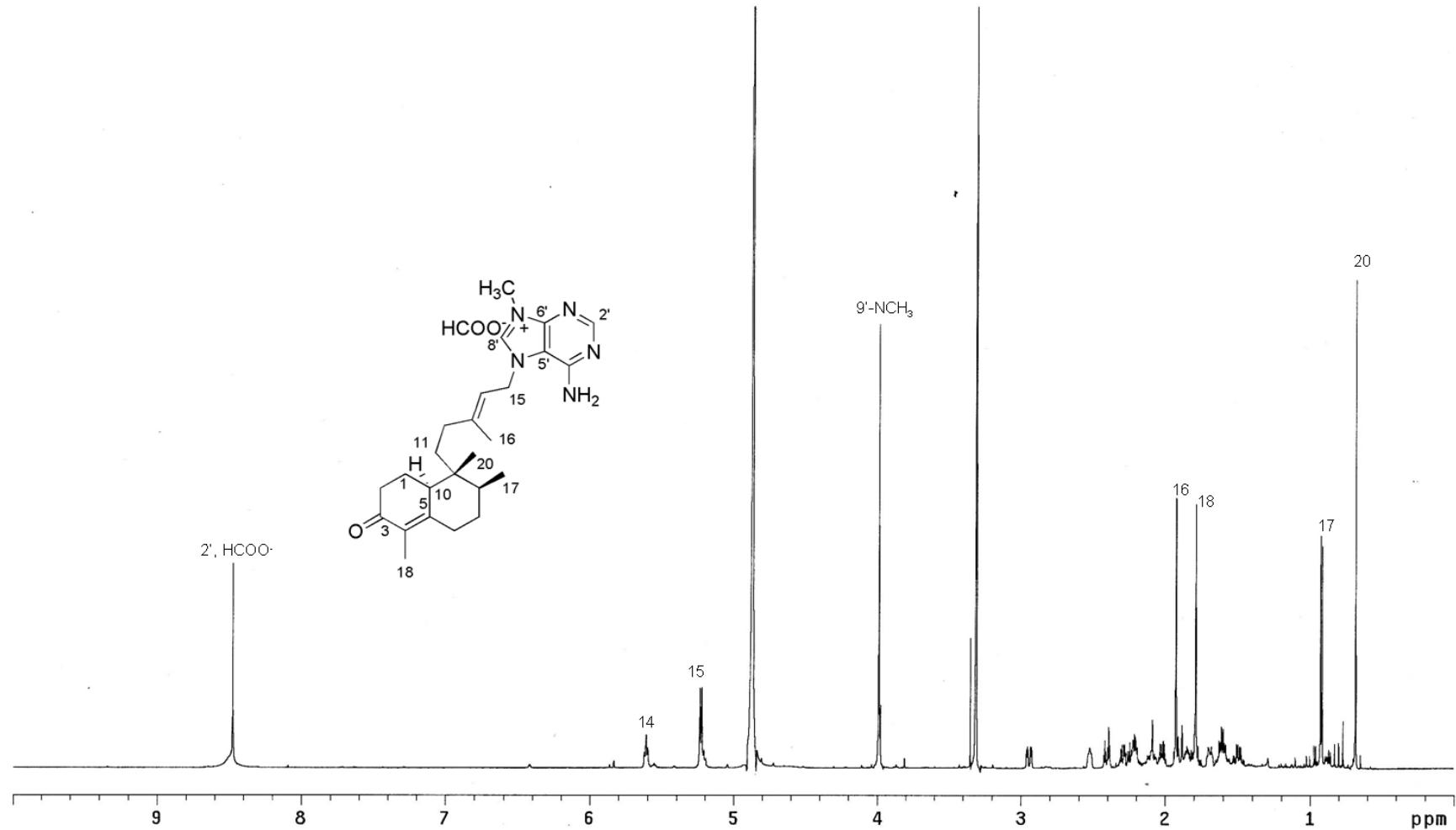
**Fig. S24.** UV spectrum of compound **4** (MeOH).



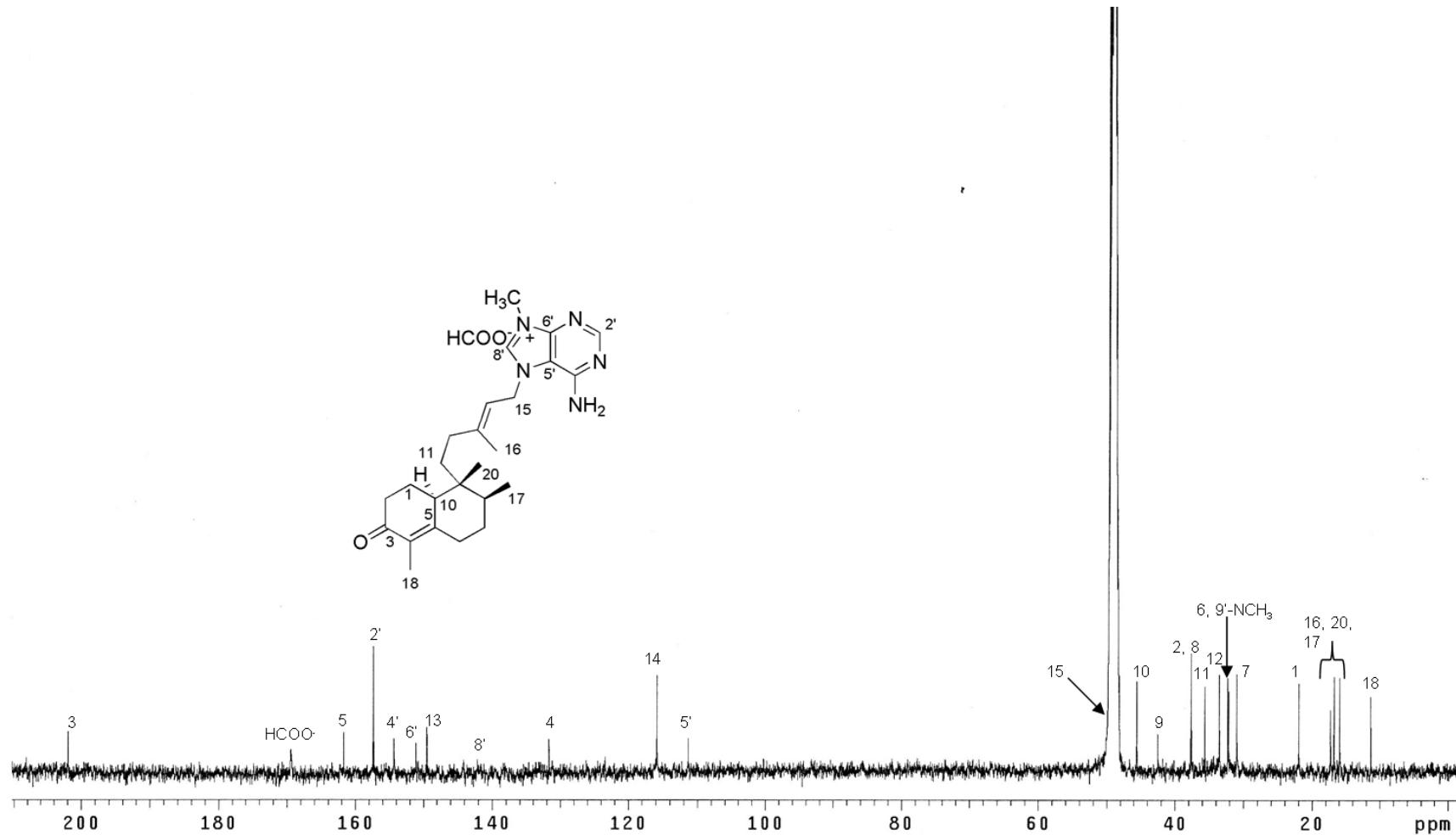
**Fig. S25.** Mass data HRESIMS in positive mode of compound 5.



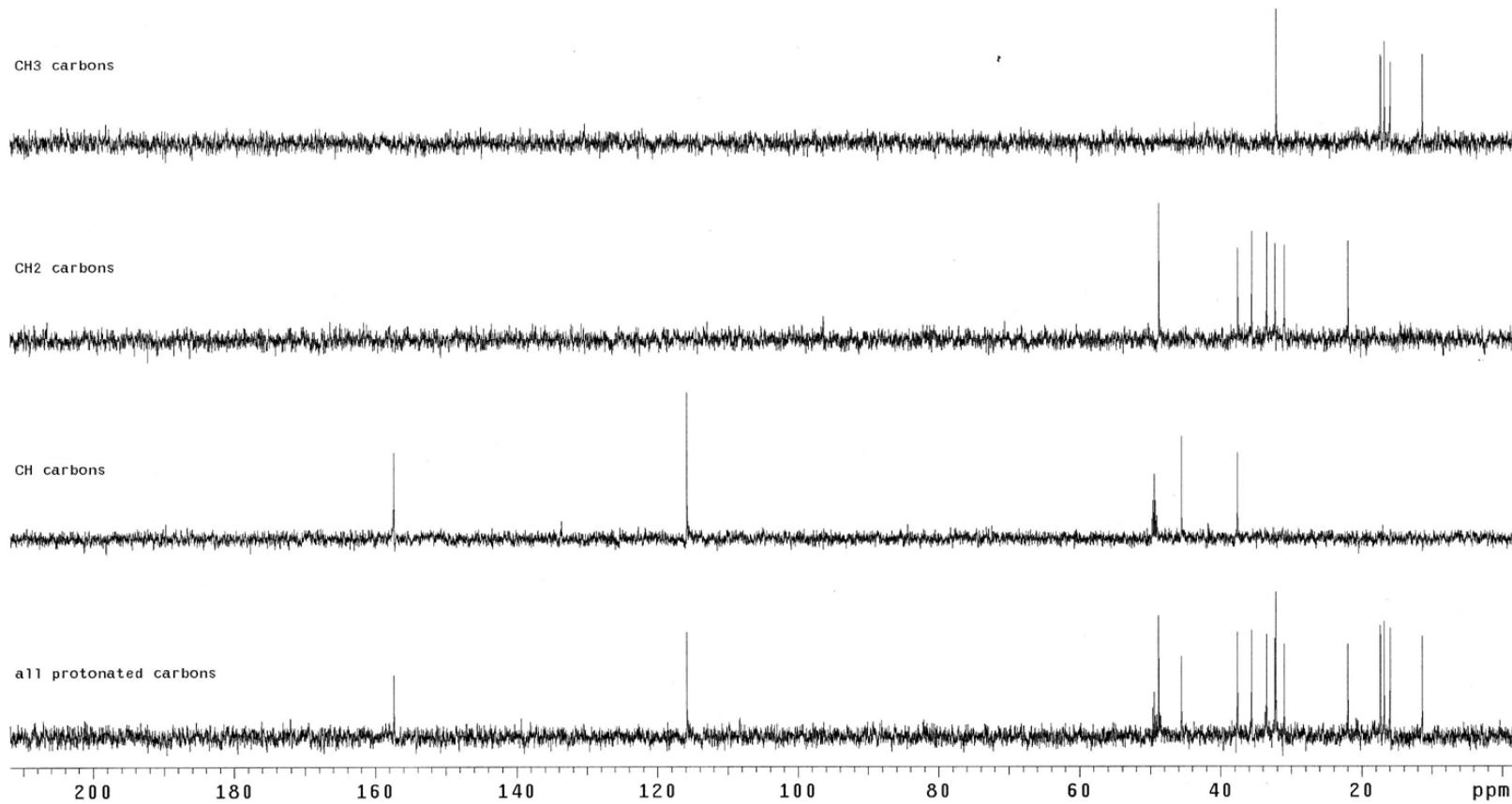
**Fig. S26.**  $^1\text{H}$  NMR spectrum of compound **5** (600 MHz,  $\text{CD}_3\text{OD}$ ).



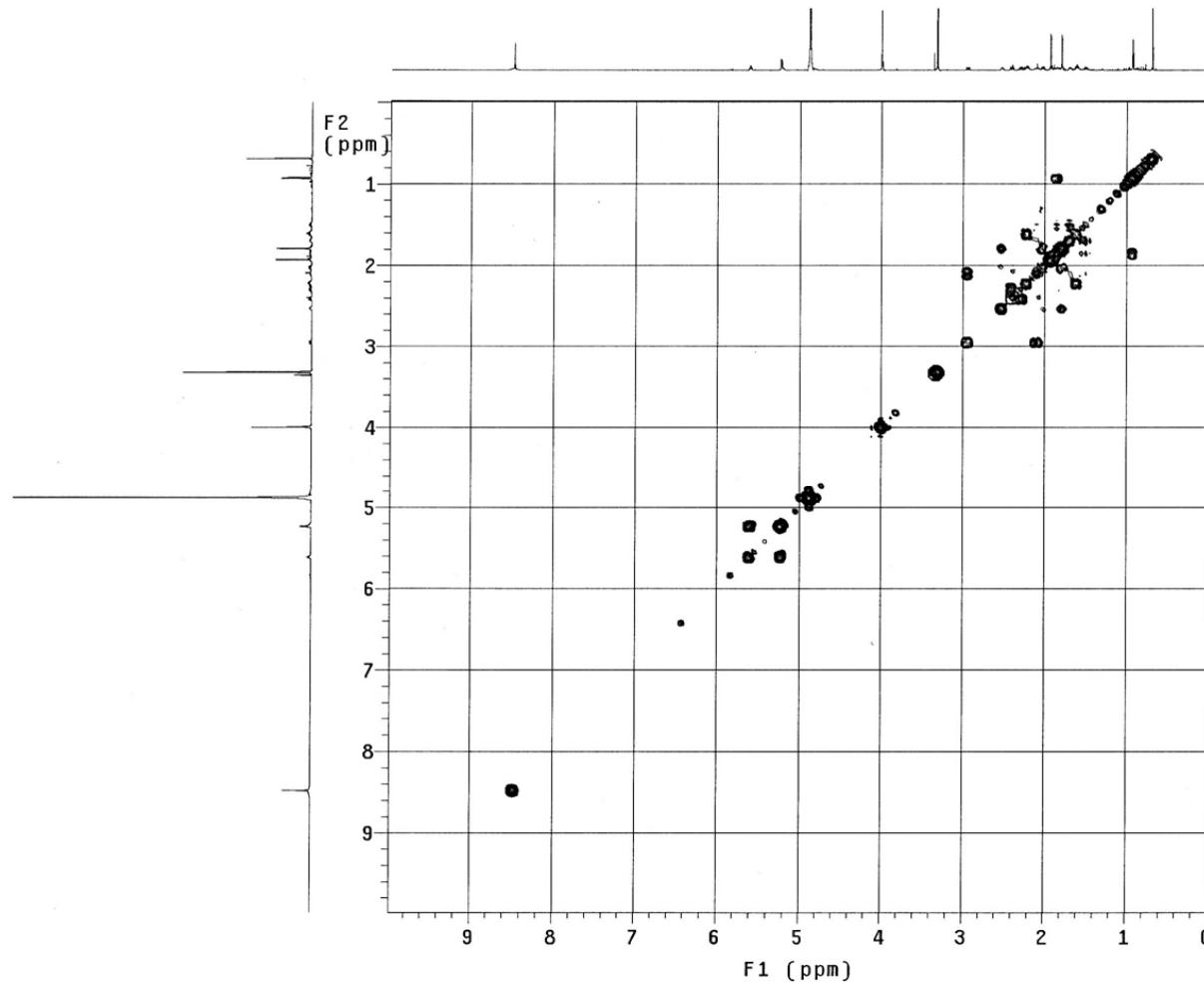
**Fig. S27.**  $^1\text{H}$  NMR spectrum of compound **5** (600 MHz,  $\text{CD}_3\text{OD}$ ).



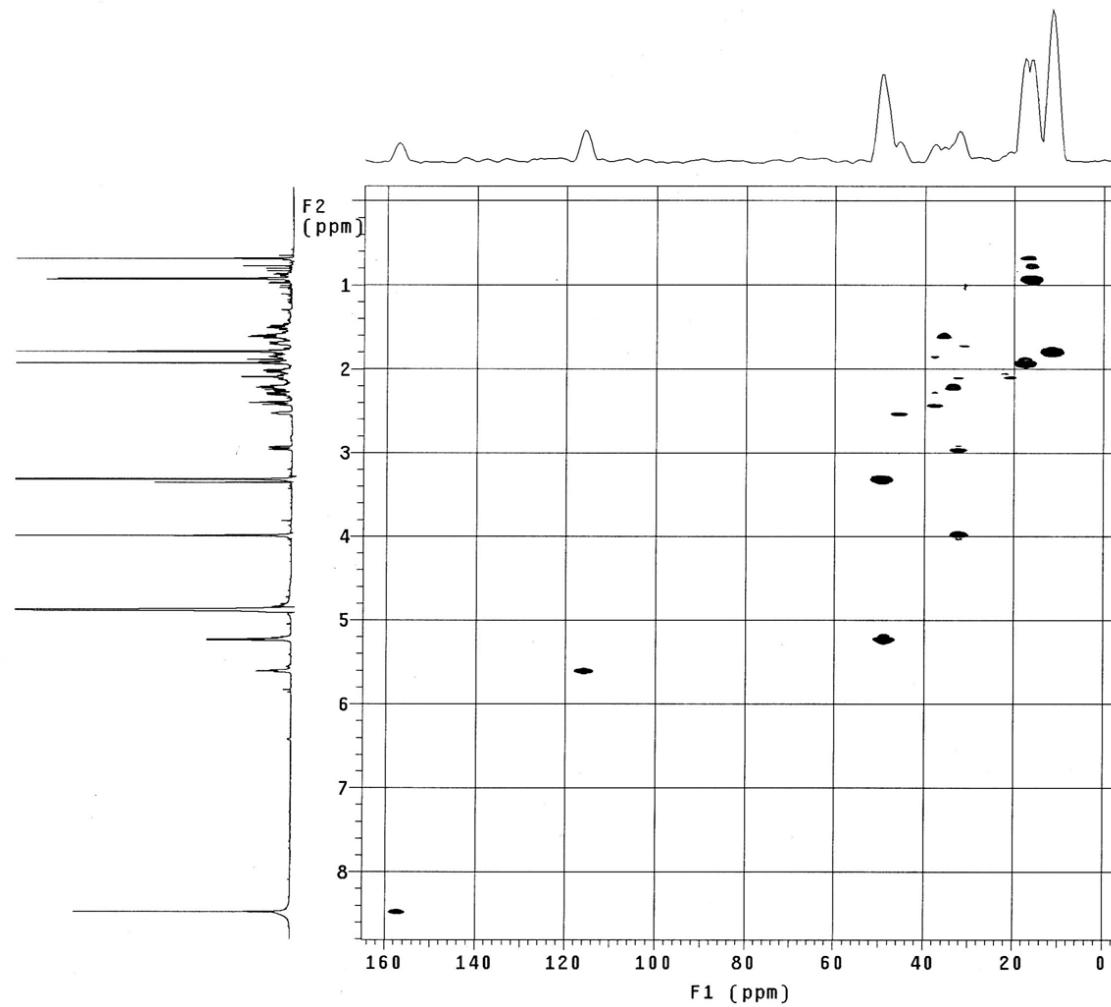
**Fig. S28.** DEPT spectrum of compound **5** (125 MHz, CD<sub>3</sub>OD).



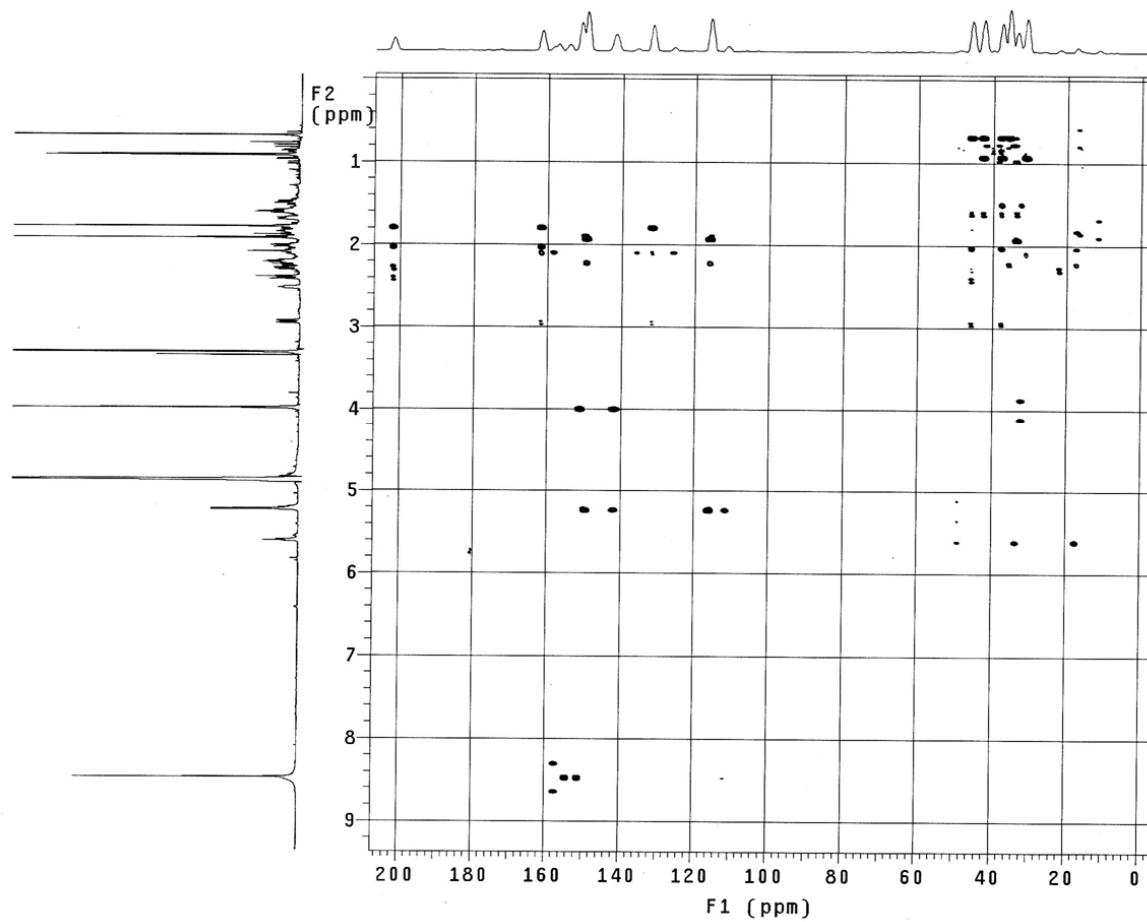
**Fig. S29.** *g*COSY spectrum of compound **5** (600 MHz, CD<sub>3</sub>OD).



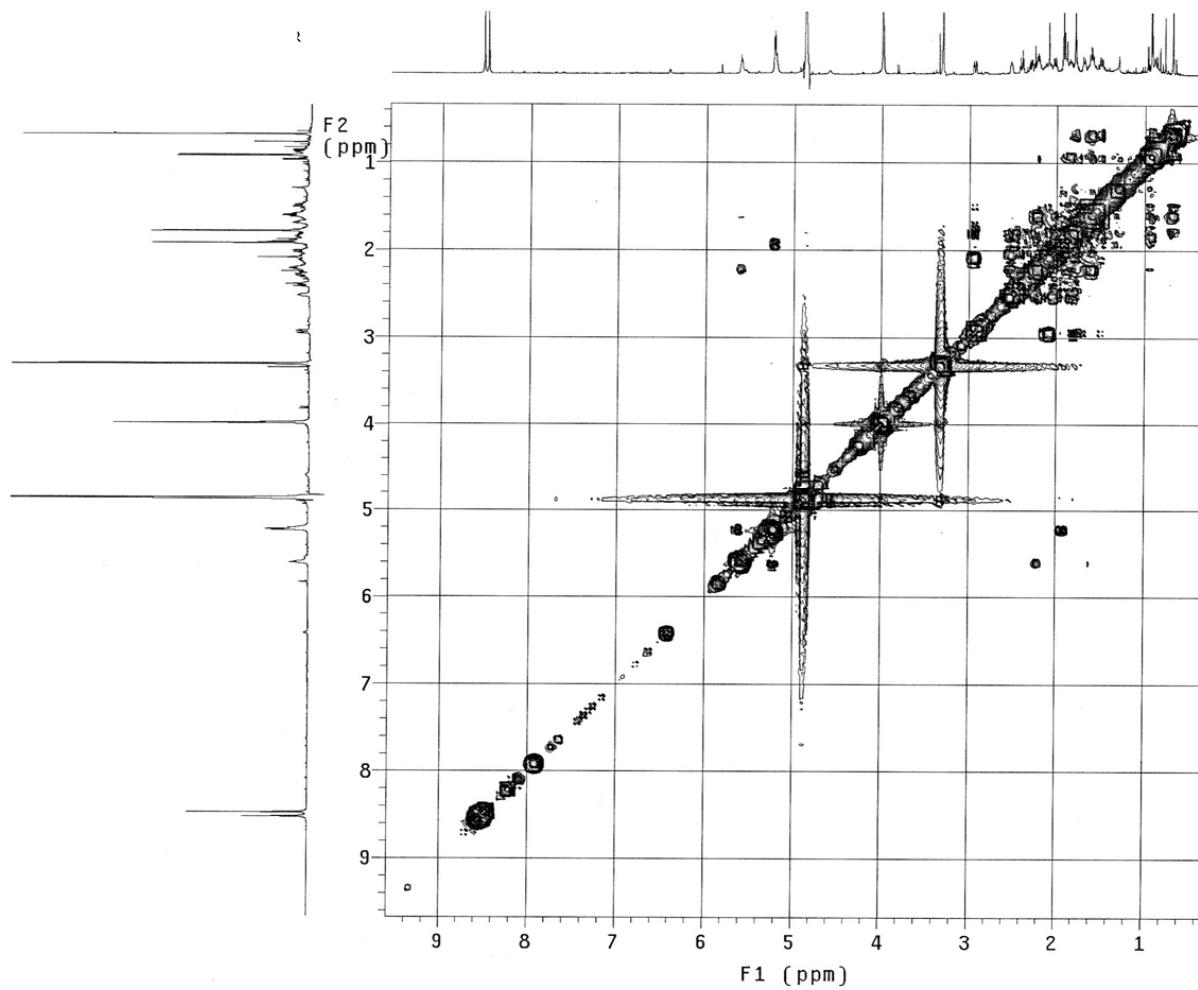
**Fig. S30.** HMQC spectrum of compound **5** (600 MHz, CD<sub>3</sub>OD).



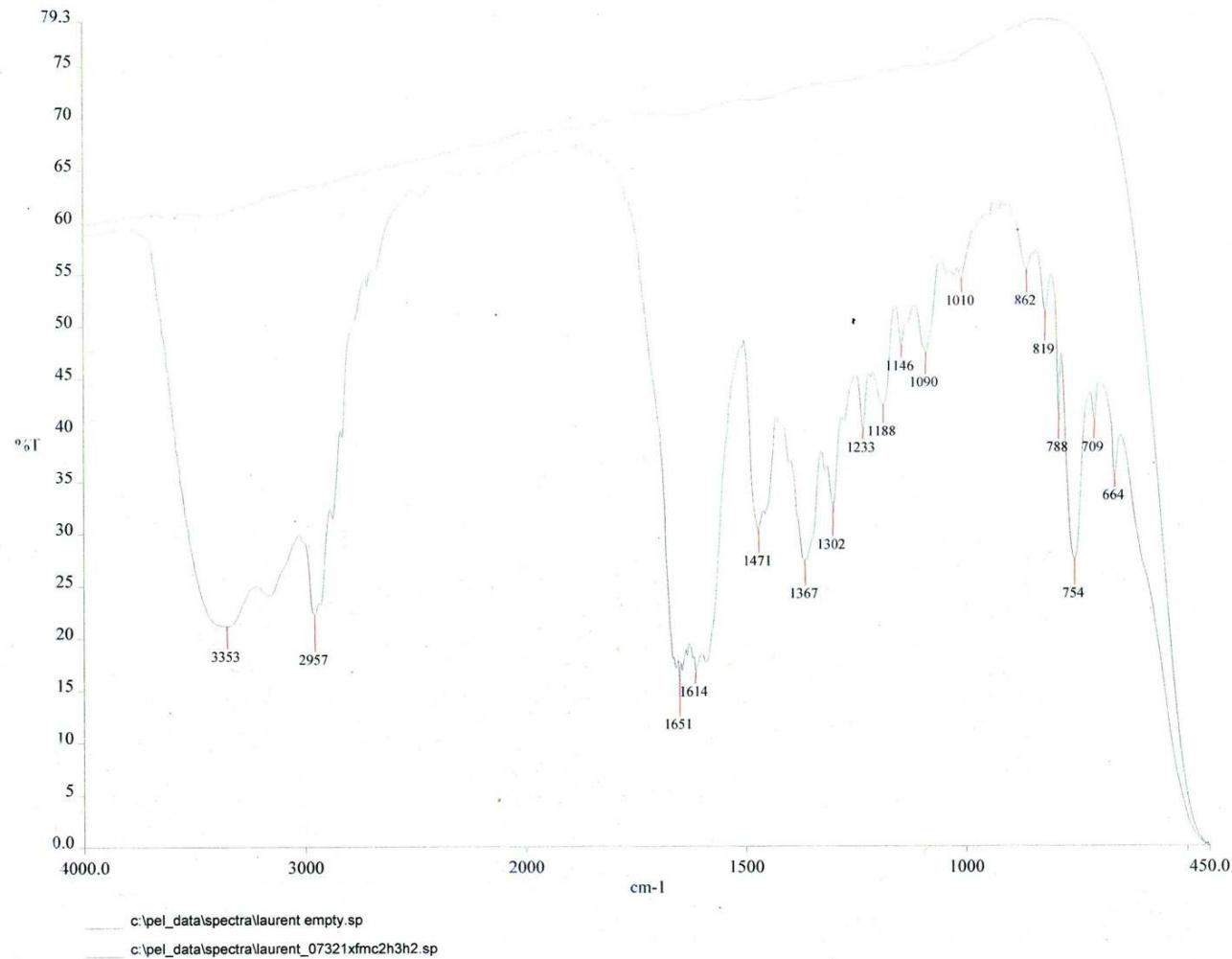
**Fig. S31.** *g*HMBC spectrum of compound **5** (600 MHz, CD<sub>3</sub>OD).



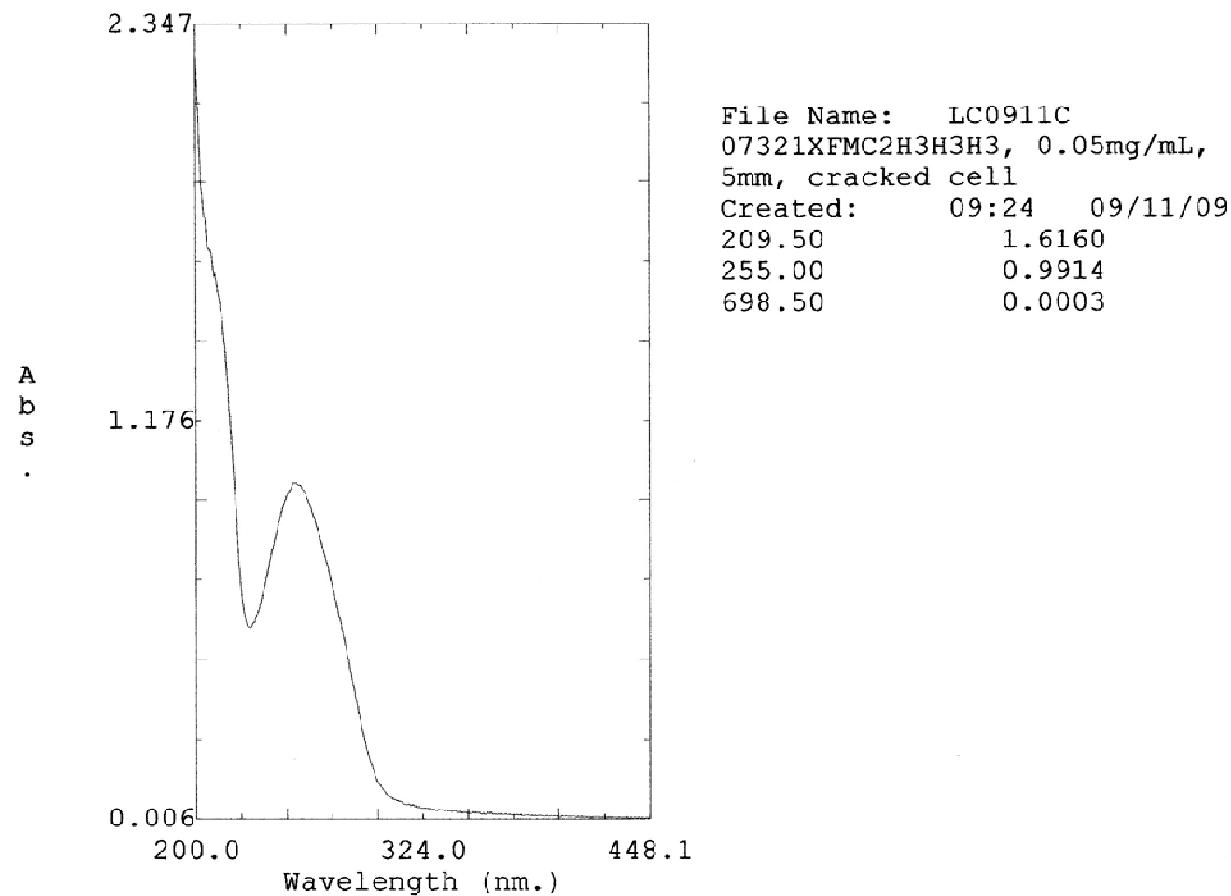
**Fig. S32.** NOESY spectrum of compound **5** (600 MHz, CD<sub>3</sub>OD).



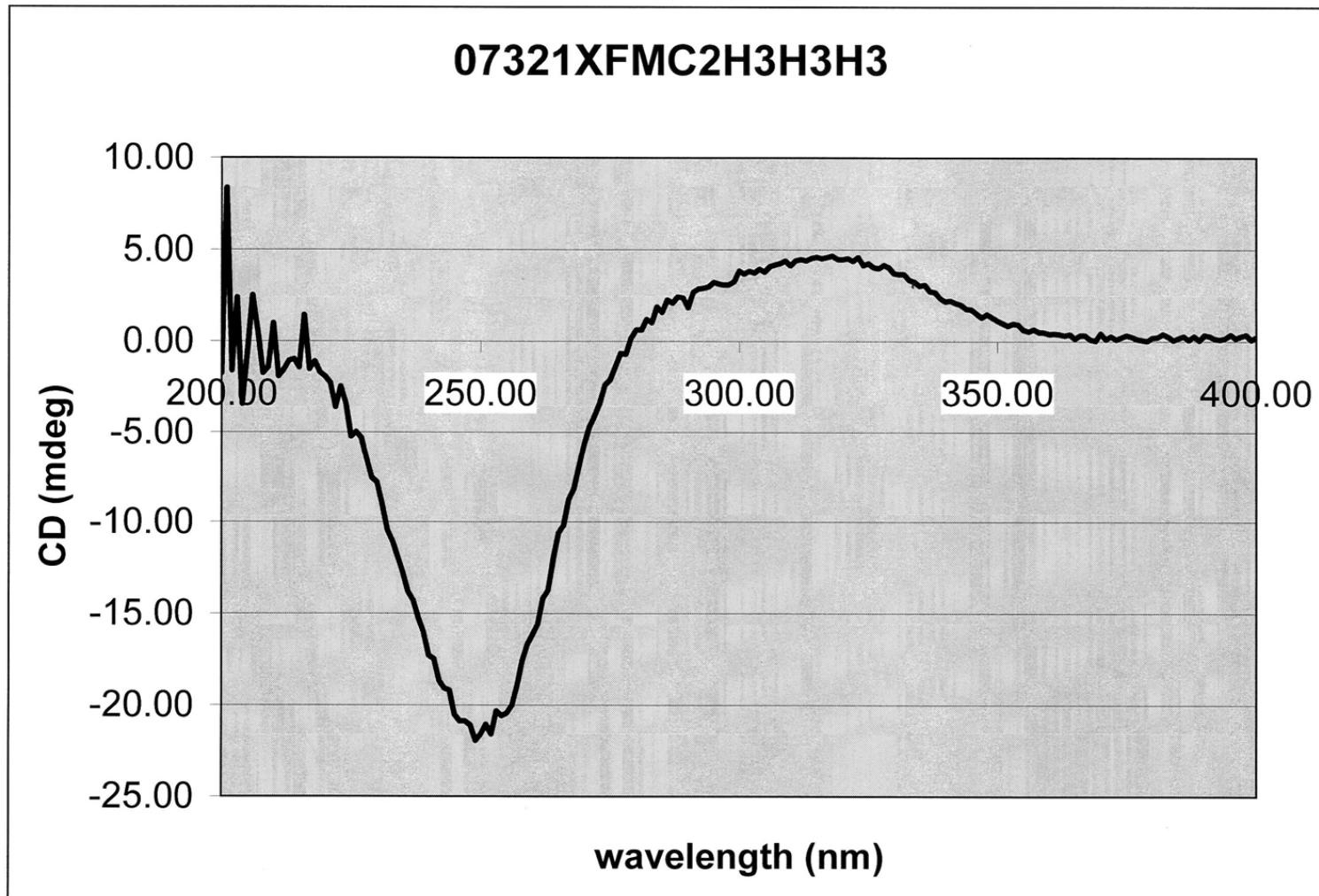
**Fig. S33.** IR spectrum of compound **5** (NaCl).



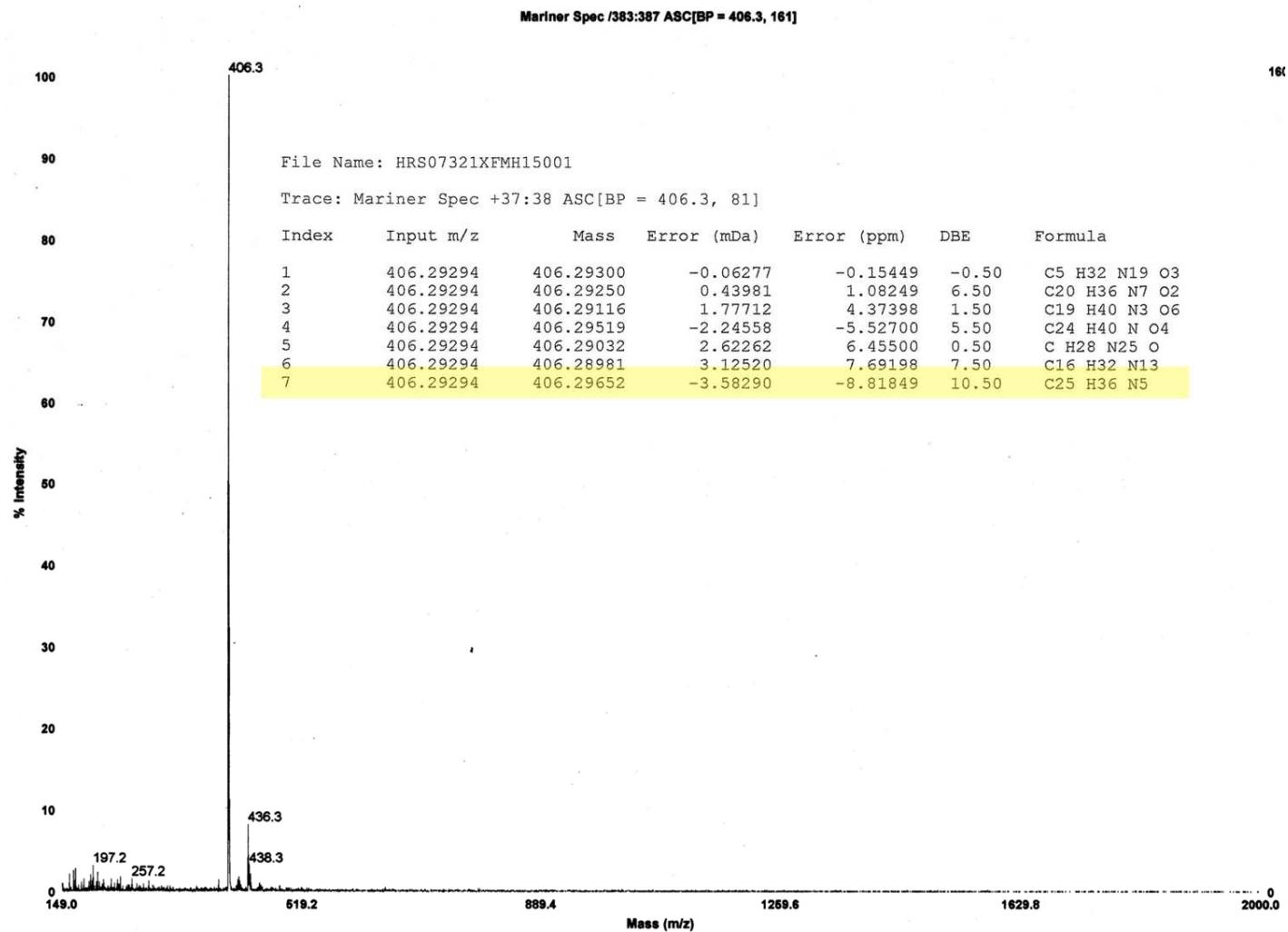
**Fig. S34.** UV spectrum of compound 5 (MeOH).



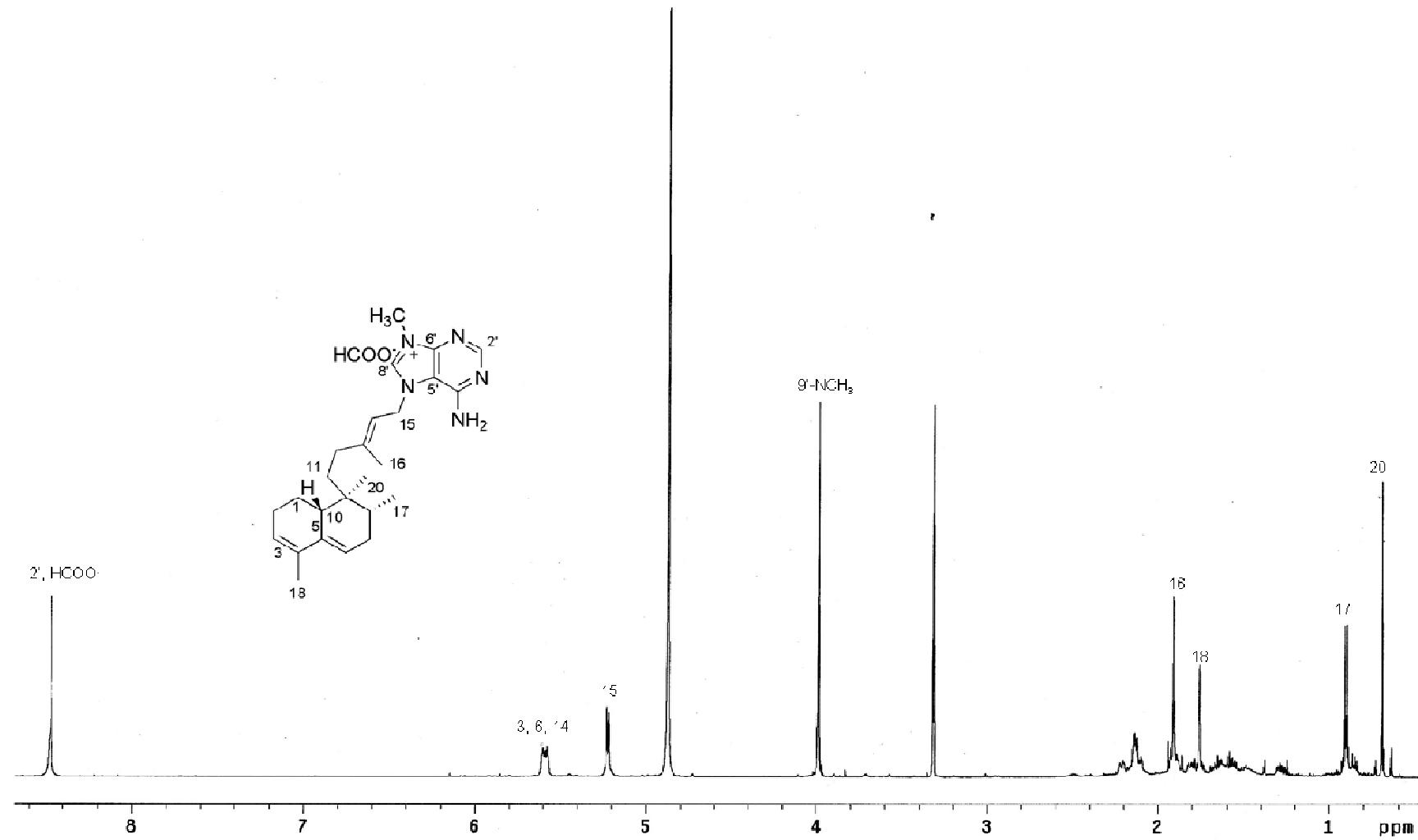
**Fig. S35.** CD spectrum of compound **5** (MeOH).



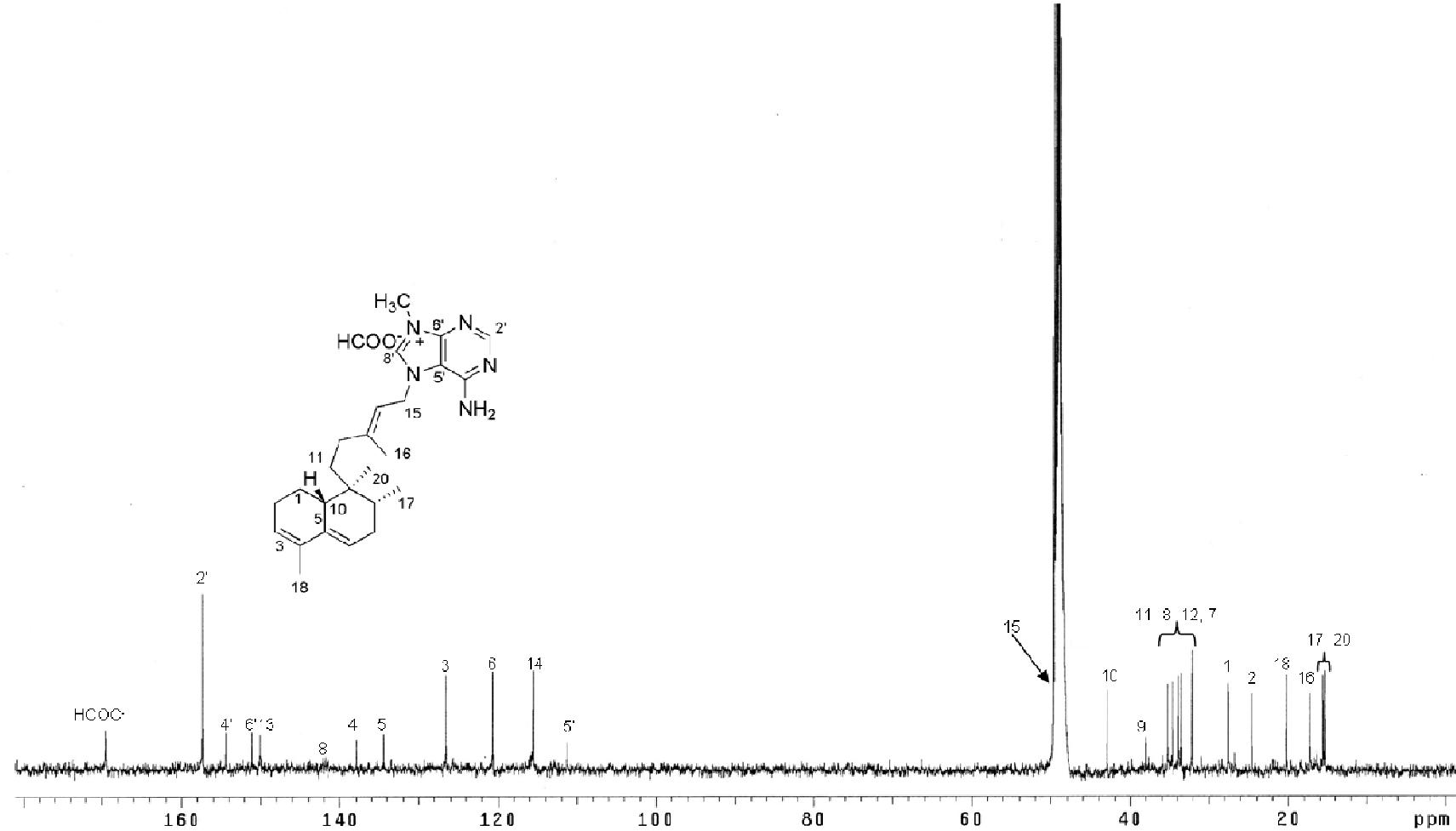
**Fig. S36.** Mass data HRESIMS in positive mode of compound **6**.



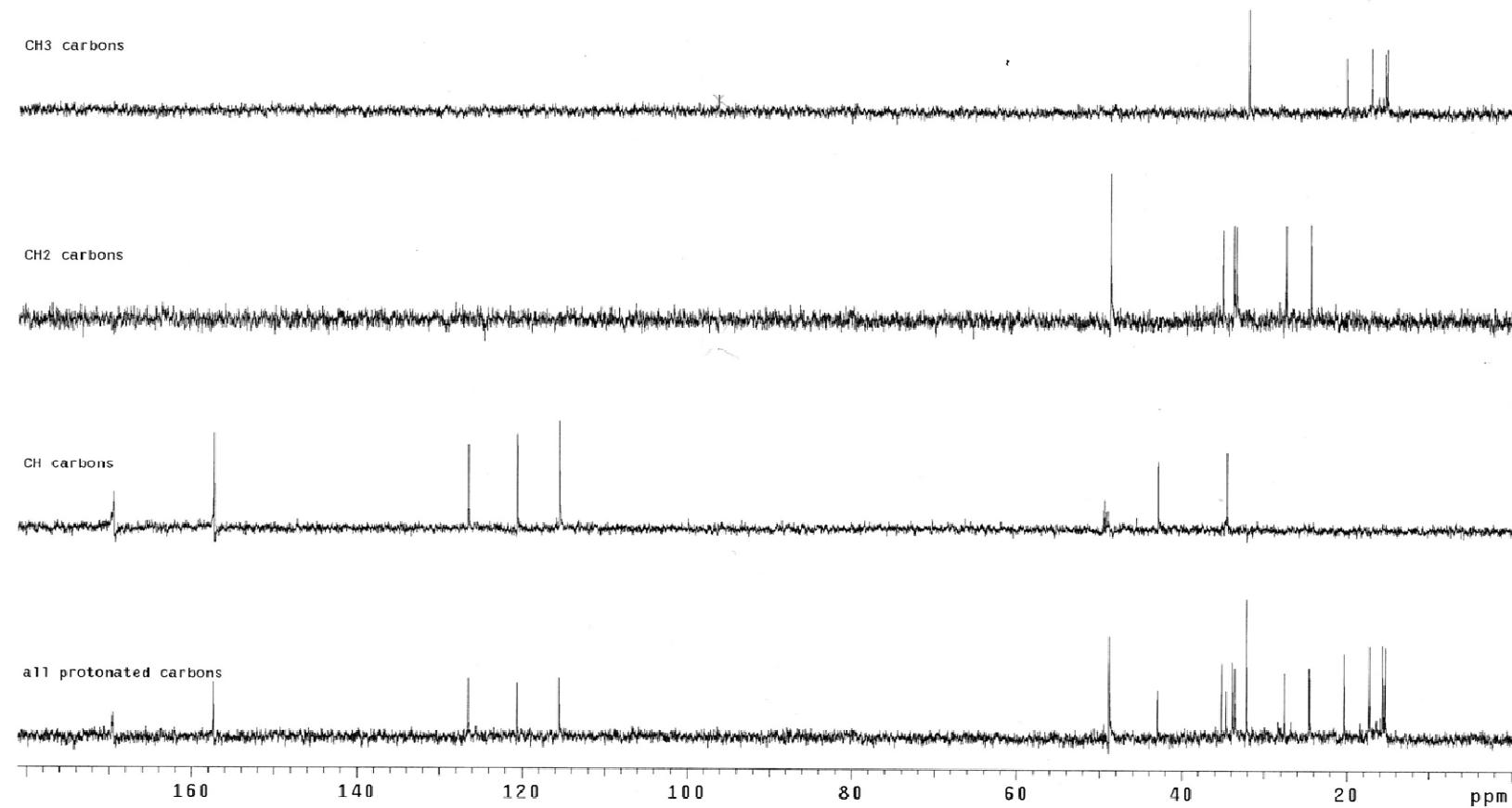
**Fig. S37.**  $^1\text{H}$  NMR spectrum of compound **6** (600 MHz,  $\text{CD}_3\text{OD}$ ).



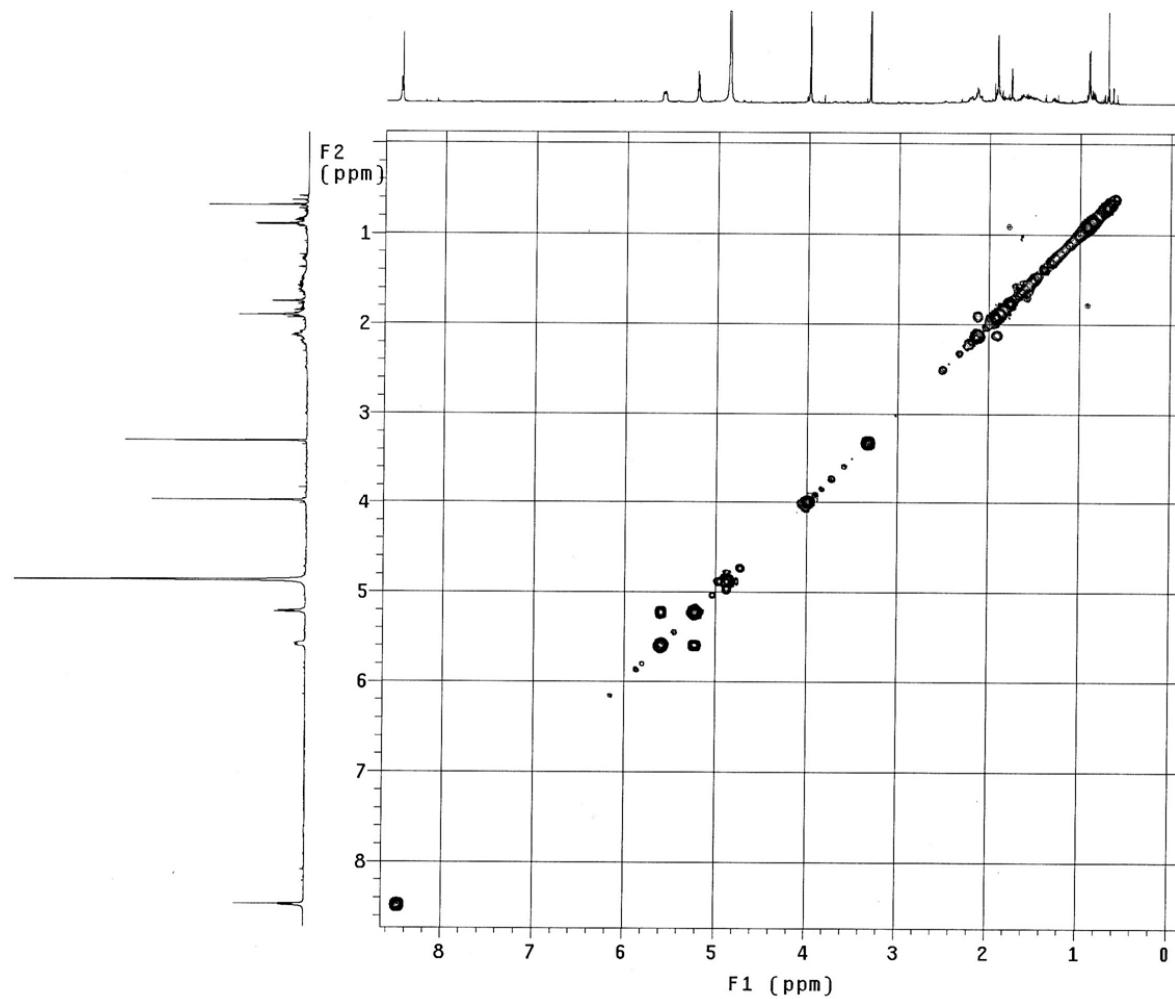
**Fig. S38.**  $^{13}\text{C}$  NMR spectrum of compound **6** (125 MHz,  $\text{CD}_3\text{OD}$ ).



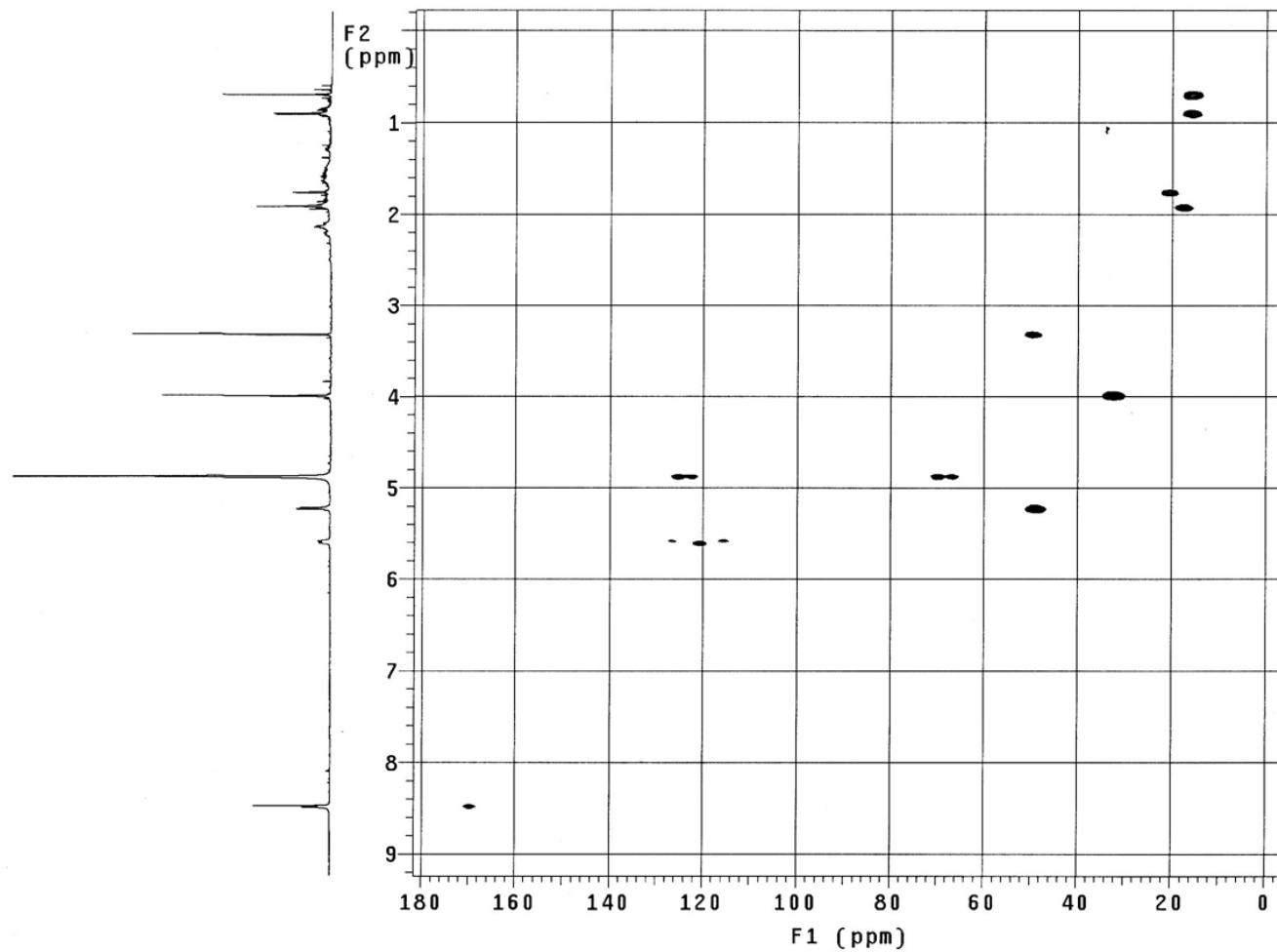
**Fig. S39.** DEPT spectrum of compound **6** (125 MHz, CD<sub>3</sub>OD).



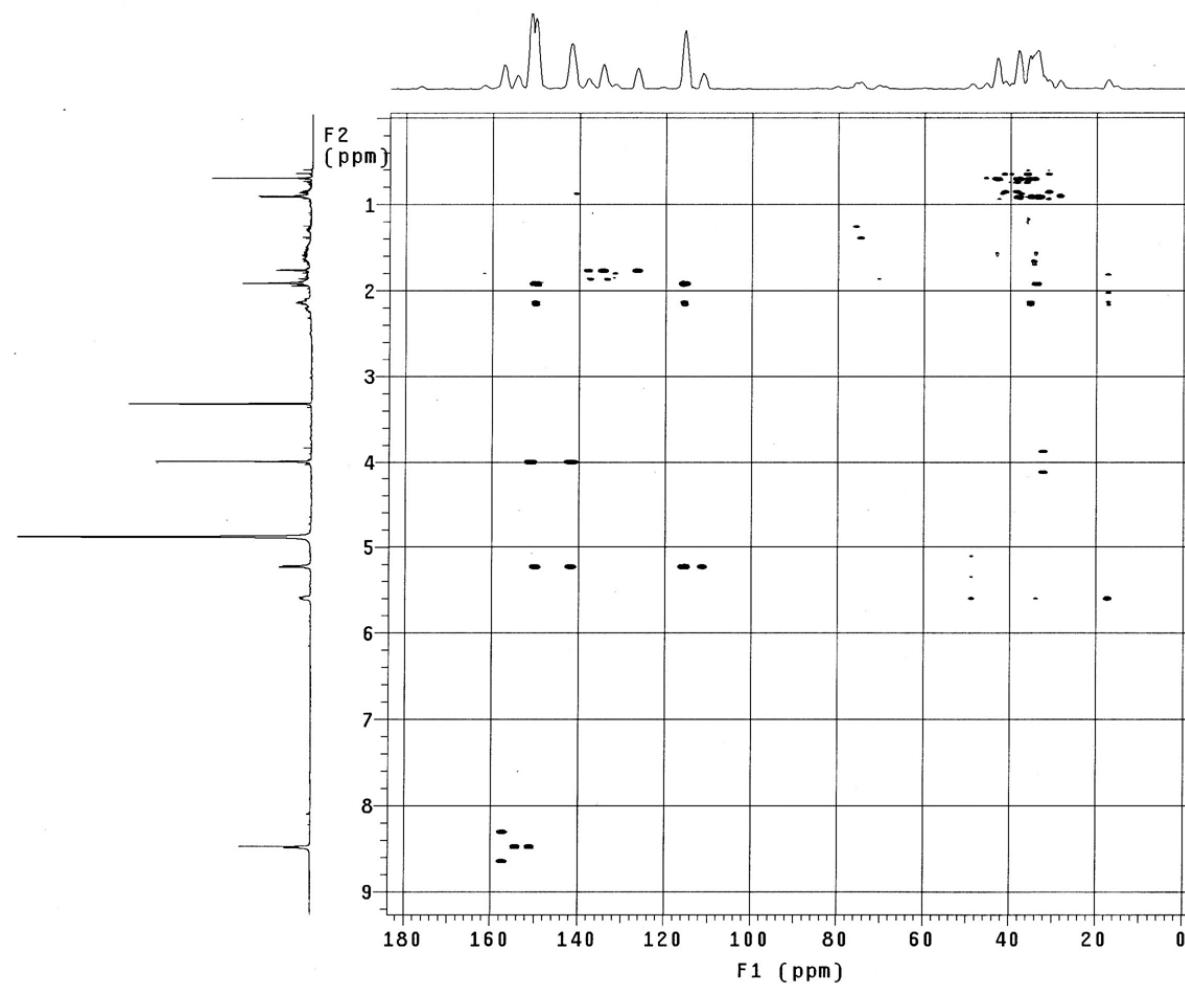
**Fig. S40.** *g*COSY spectrum of compound **6** (600 MHz, CD<sub>3</sub>OD).



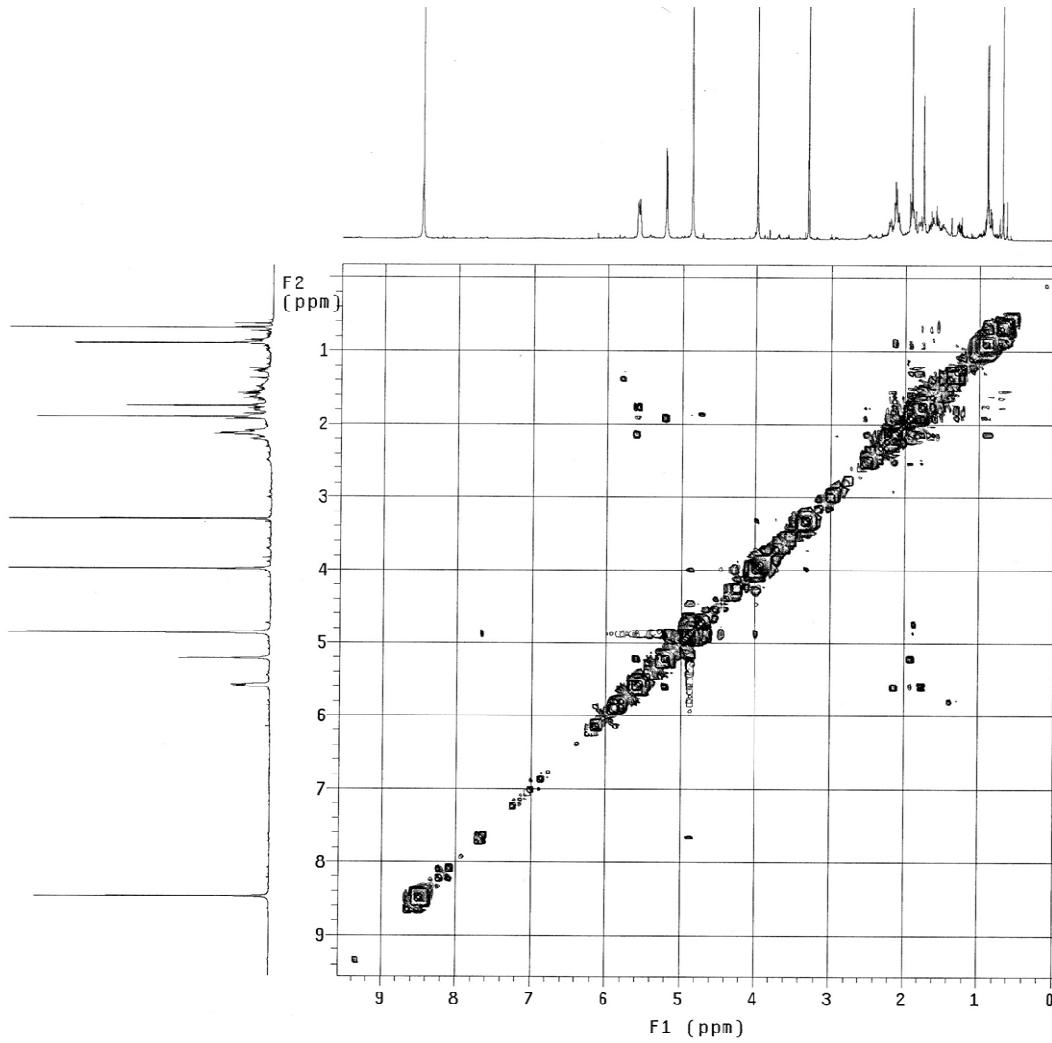
**Fig. S41.** HMQC spectrum of compound **6** (600 MHz, CD<sub>3</sub>OD).



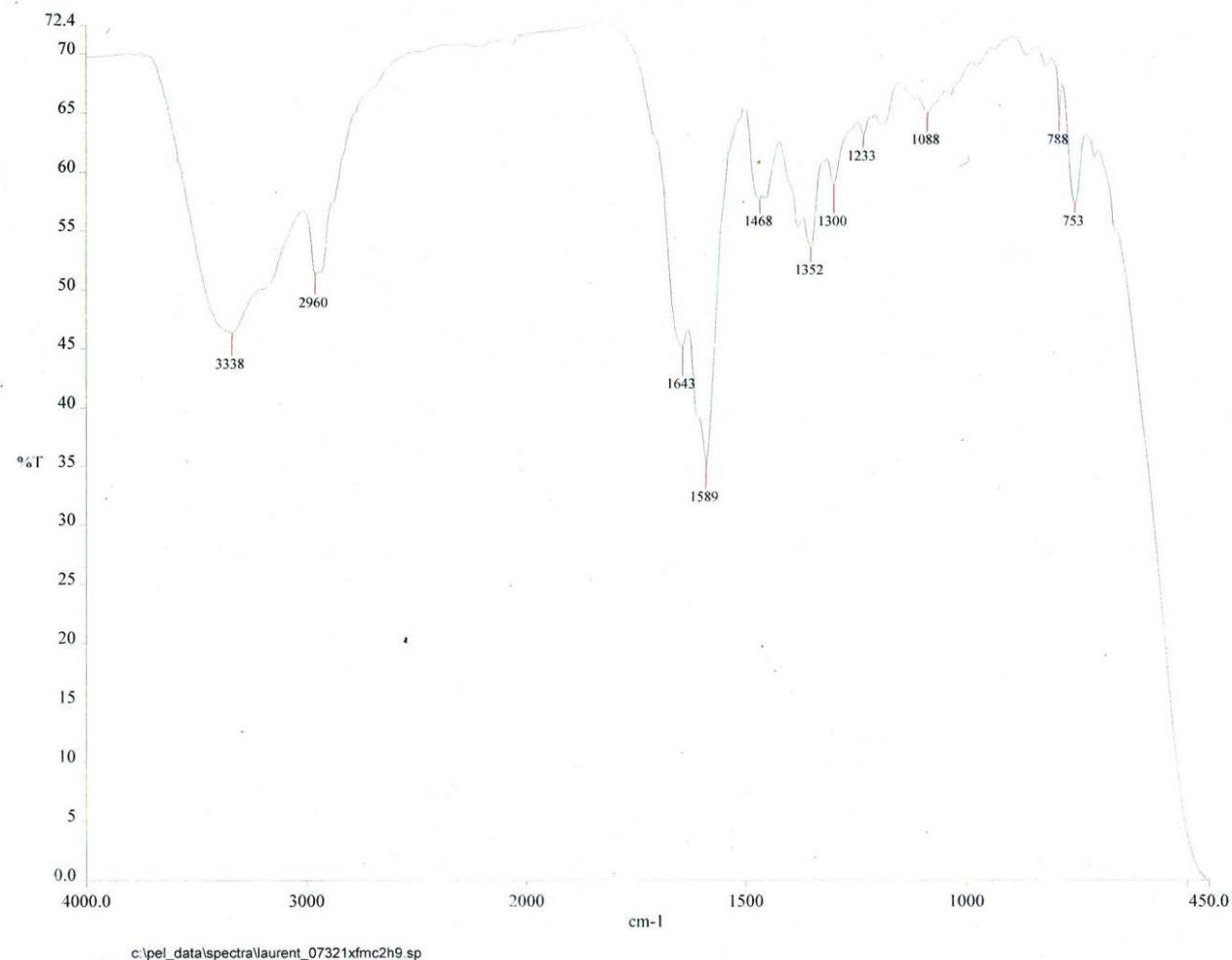
**Fig. S42.** *g*HMBC spectrum of compound **6** (600 MHz, CD<sub>3</sub>OD).



**Fig. S43.** NOESY spectrum of compound **6** (600 MHz, CD<sub>3</sub>OD).



**Fig. S44.** IR spectrum of compound **6** (NaCl).



**Fig. S45.** UV spectrum of compound **6** (MeOH).

