

## SUPPLEMENTARY MATERIALS

### Antimicrobial Diterpene Alkaloids from an *Agelas citrina* Sponge Collected in Yucatán Peninsula

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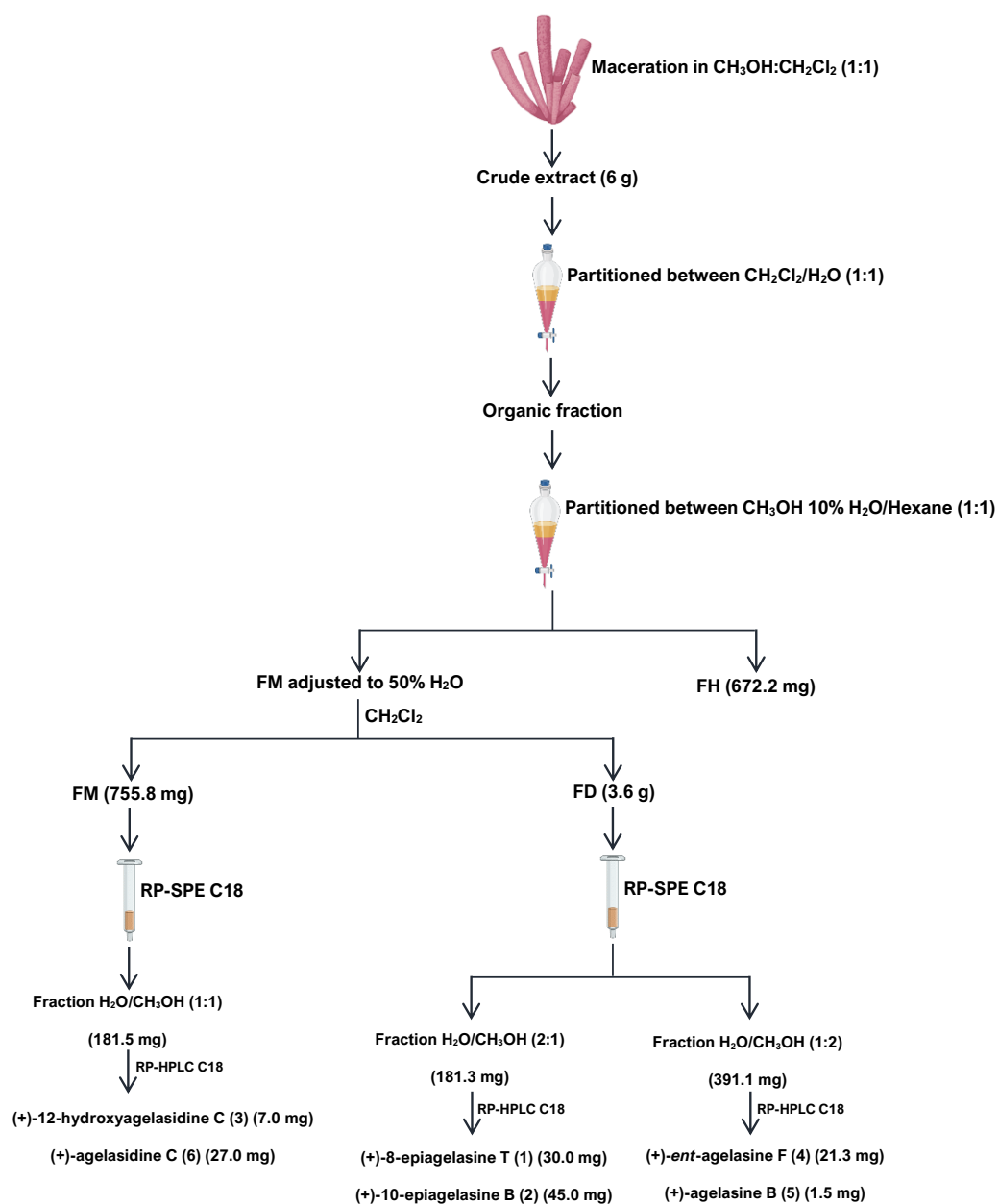
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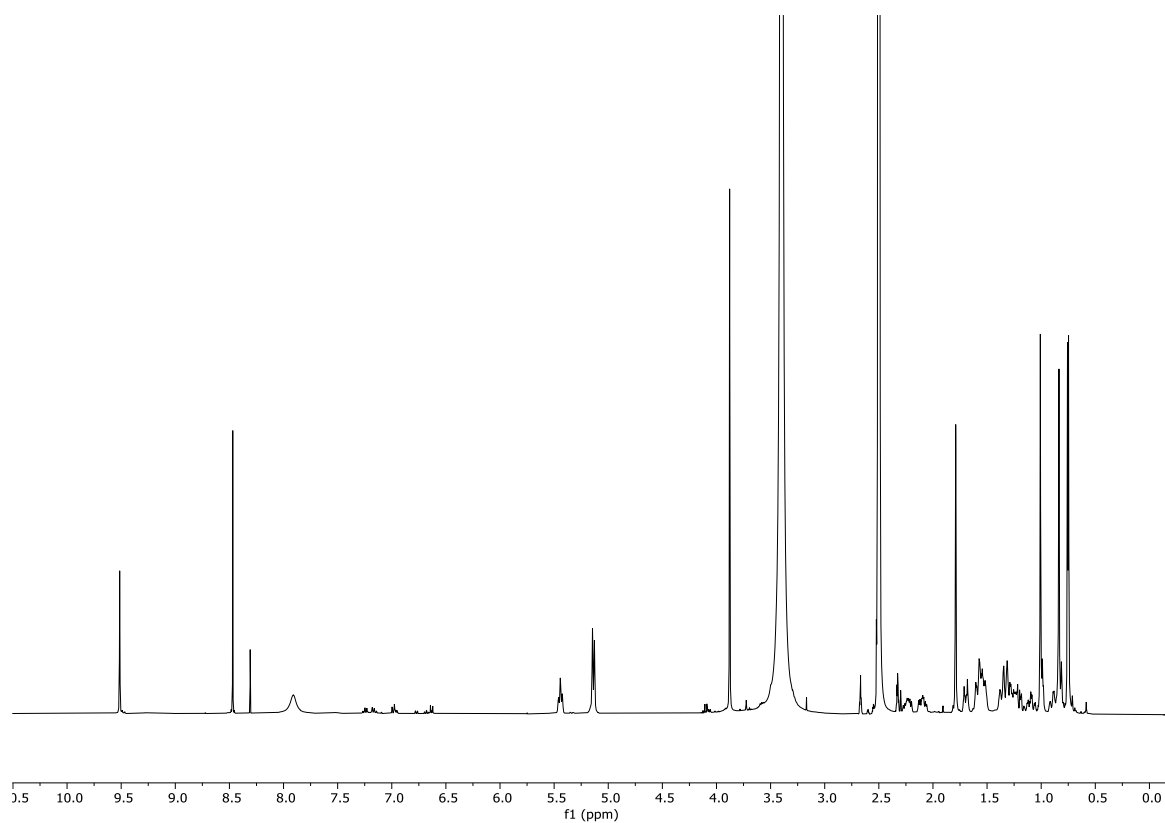
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<b>Scheme S1.</b> Extraction and fractionation scheme.....	4
<b>Figure S1.</b> $^1\text{H}$ NMR spectrum (500 MHz, $\text{DMSO}-d_6$ ) of 8-epiagelasine T ( <b>1</b> ).....	5
<b>Figure S2.</b> $^{13}\text{C}$ NMR spectrum (125 MHz, $\text{DMSO}-d_6$ ) of 8-epiagelasine T ( <b>1</b> ). ....	5
<b>Figure S3.</b> HSQC spectrum (500 MHz, $\text{DMSO}-d_6$ ) of 8-epiagelasine T ( <b>1</b> ). ....	6
<b>Figure S4.</b> $^1\text{H}$ - $^1\text{H}$ COSY spectrum (500 MHz, $\text{DMSO}-d_6$ ) of 8-epiagelasine T ( <b>1</b> ).....	6
<b>Figure S5.</b> HMBC spectrum (500 MHz, $\text{DMSO}-d_6$ ) of 8-epiagelasine T ( <b>1</b> ). ....	7
<b>Figure S6.</b> 1D-NOESY spectrum irradiating on $\text{CH}_3$ -17 ( $\delta_{\text{H}}$ 1.00) of 8-epiagelasine T ( <b>1</b> ) (500 MHz, $\text{DMSO}-d_6$ ). ....	7
<b>Figure S7.</b> 1D-NOESY spectrum irradiating on $\text{CH}_3$ -8 ( $\delta_{\text{H}}$ 0.84) and $\text{CH}_3$ -20 ( $\delta_{\text{H}}$ 0.74) of 8-epiagelasine T ( <b>1</b> ) (500 MHz, $\text{DMSO}-d_6$ ). ....	8
<b>Figure S8.</b> NOESY spectrum of 8-epiagelasine T ( <b>1</b> ) (500 MHz, $\text{DMSO}-d_6$ ). ....	8
<b>Figure S9.</b> (+)-HR-ESIMS of 8-epiagelasine T ( <b>1</b> ).....	9
<b>Table S1.</b> $^1\text{H}$ NMR (500 MHz) and $^{13}\text{C}$ NMR (125 MHz) and $^1\text{H}$ NMR (800 MHz) and $^{13}\text{C}$ NMR (200 MHz)* spectral data for 10-epiagelasine B ( <b>2</b> ) in $\text{CDCl}_3$ and $\text{C}_6\text{D}_6$ . ....	10
<b>Figure S10.</b> $^1\text{H}$ NMR spectrum (500 MHz, $\text{CDCl}_3$ ) of 10-epiagelasine B ( <b>2</b> ). ....	11
<b>Figure S11.</b> $^{13}\text{C}$ NMR spectrum (125 MHz, $\text{CDCl}_3$ ) of 10-epiagelasine B ( <b>2</b> ). ....	11
<b>Figure S12.</b> HSQC spectrum (500 MHz, $\text{CDCl}_3$ ) of 10-epiagelasine B ( <b>2</b> ). ....	12
<b>Figure S13.</b> $^1\text{H}$ - $^1\text{H}$ COSY spectrum (500 MHz, $\text{CDCl}_3$ ) of 10-epiagelasine B ( <b>2</b> ). ....	12
<b>Figure S14.</b> HMBC spectrum (500 MHz, $\text{CDCl}_3$ ) of 10-epiagelasine B ( <b>2</b> ). ....	13
<b>Figure S15.</b> NOESY spectrum (500 MHz, $\text{CDCl}_3$ ) of 10-epiagelasine B ( <b>2</b> ). ....	13
<b>Figure S16.</b> (+)-HR-ESIMS of 10-epiagelasine B ( <b>2</b> ). ....	14
<b>Figure S17.</b> $^1\text{H}$ NMR spectrum (500 MHz, $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B ( <b>2</b> ). ....	14
<b>Figure S18.</b> $^{13}\text{C}$ NMR spectrum (125 MHz, $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B ( <b>2</b> ). ....	15
<b>Figure S19.</b> HSQC NMR spectrum (500 MHz, $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B ( <b>2</b> ). ....	15
<b>Figure S20.</b> $^1\text{H}$ - $^1\text{H}$ COSY NMR spectrum (500 MHz, $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B ( <b>2</b> ). ....	16
<b>Figure S21.</b> HMBC NMR spectrum (500 MHz, $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B ( <b>2</b> ). ....	16
<b>Figure S22.</b> NOESY NMR spectrum (500 MHz, $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B ( <b>2</b> ). ....	17
<b>Figure S23.</b> $^1\text{H}$ NMR spectrum (800 MHz, $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B ( <b>2</b> ). ....	17
<b>Figure S24.</b> $^{13}\text{C}$ NMR spectrum (200 MHz, $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B ( <b>2</b> ). ....	18
<b>Figure S25.</b> HSQC spectrum (800 MHz, $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B ( <b>2</b> ). NUS parameters: 20%/384/38. ....	18
<b>Figure S26.</b> $^1\text{H}$ - $^1\text{H}$ COSY spectrum (800 MHz, $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B ( <b>2</b> ). NUS parameters: 50%/384/192. ....	19
<b>Figure S27.</b> HMBC spectrum (800 MHz, $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B ( <b>2</b> ). NUS parameters: 25%/512/64. ....	19
<b>Figure S28.</b> 1D-NOESY spectrum irradiating on $\text{CH}_3$ -17 ( $\delta_{\text{H}}$ 1.10) of 10-epiagelasine B ( <b>2</b> ) (800 MHz, $\text{CDCl}_3$ , after 24 h). ....	20
<b>Figure S29.</b> 1D-NOESY spectrum irradiating on $\text{CH}_3$ -19 ( $\delta_{\text{H}}$ 1.15) of 10-epiagelasine B ( <b>2</b> ) (800 MHz, $\text{CDCl}_3$ , after 24 h). ....	20

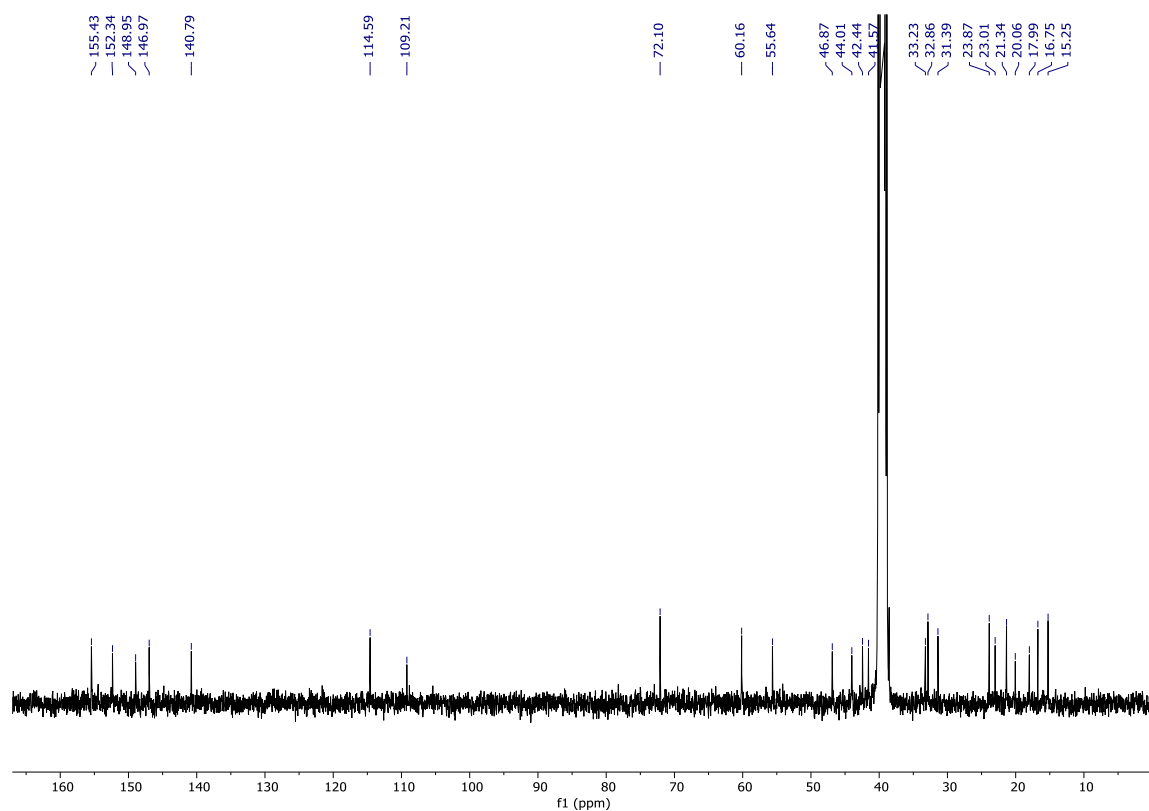
<b>Figure S30.</b> 1D-NOESY spectrum irradiating on CH <sub>3</sub> -20 ( $\delta_{\text{H}}$ 0.87) of 10-epiagelasine B ( <b>2</b> ) (800 MHz, CDCl <sub>3</sub> , after 24 h).....	21
<b>Figure S31.</b> 2D IPAP-HSQMBC spectrum (optimized to 6 Hz) after selective inversion of H-10 proton of 10-epi-agelasine B (A). Slice from C-19 to H-10 (B). Measurement of $^{2,3}J_{\text{CH}}$ values were performed by analysis of IPAP multiplet patterns. NUS parameters: 12%/512/30. ....	22
<b>Figure S32.</b> 2D IPAP-HSQMBC spectrum (optimized to 6 Hz) after selective inversion of H-5 proton of <b>7</b> . Slice from C-7 to H-5 (B). Measurement of $^{2,3}J_{\text{CH}}$ values were performed by analysis of IPAP multiplet patterns. NUS parameters: 12%/512/30.....	22
<b>Figure S33.</b> 2D IPAP-HSQMBC spectrum (optimized to 6 Hz) after selective inversion of H-5 proton of <b>8</b> . Slice from C-7 to H-5 (B). Measurement of $^{2,3}J_{\text{CH}}$ values were performed by analysis of IPAP multiplet patterns. NUS parameters: 12%/512/30.....	23
<b>Figure S34.</b> <sup>1</sup> H NMR spectrum (500 MHz, CDCl <sub>3</sub> ) of 12-hydroxyagelasidine C ( <b>3</b> ). ....	24
<b>Figure S35.</b> <sup>13</sup> C NMR spectrum (125 MHz, CDCl <sub>3</sub> ) of 12-hydroxyagelasidine C ( <b>3</b> ).....	24
<b>Figure S36.</b> HSQC spectrum (500 MHz, CDCl <sub>3</sub> ) of 12-hydroxyagelasidine C ( <b>3</b> ).....	25
<b>Figure S37.</b> <sup>1</sup> H- <sup>1</sup> H COSY spectrum (500 MHz, CDCl <sub>3</sub> ) of 12-hydroxyagelasidine C ( <b>3</b> ). ....	25
<b>Figure S38.</b> HMBC spectrum (500 MHz, CDCl <sub>3</sub> ) of 12-hydroxyagelasidine C ( <b>3</b> ). ....	26
<b>Figure S39.</b> NOESY spectrum (500 MHz, CDCl <sub>3</sub> ) of 12-hydroxyagelasidine C ( <b>3</b> ). ....	26
<b>Figure S40.</b> (+)-HR-ESIMS of 12-hydroxyagelasidine C ( <b>3</b> ).....	27



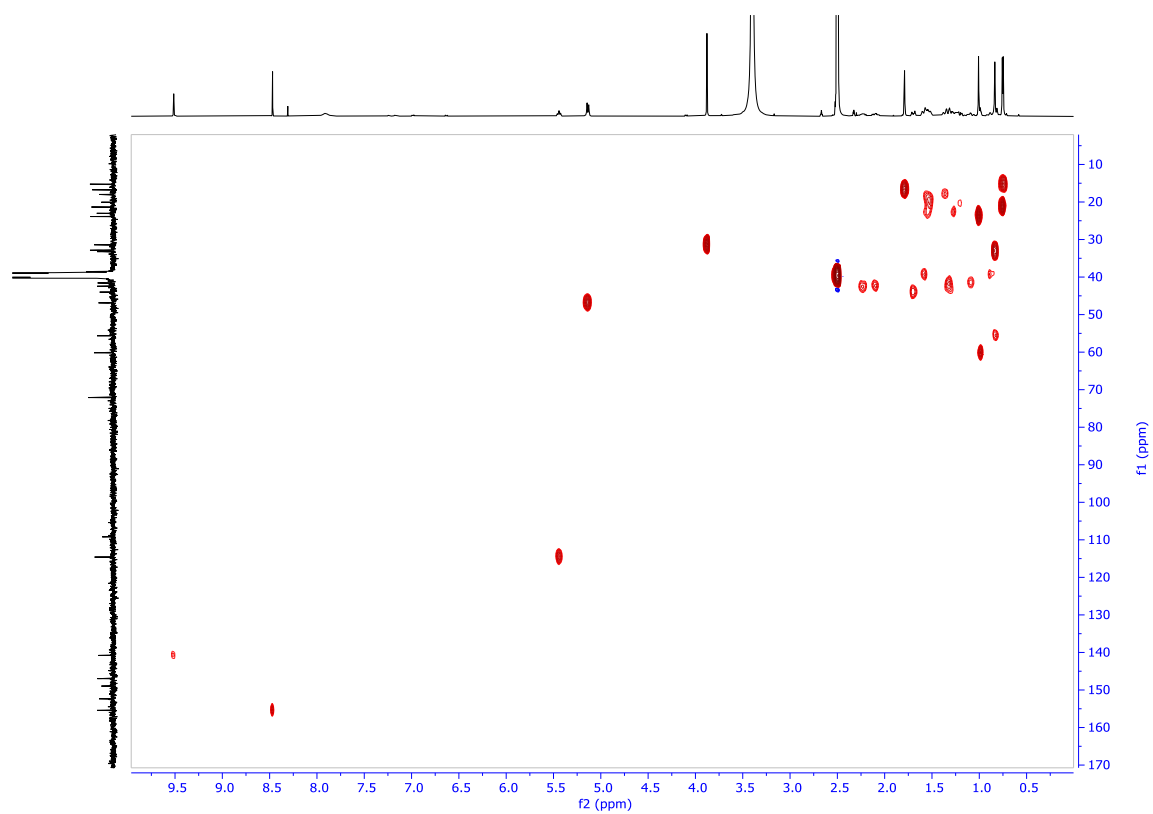
**Scheme S1.** Extraction and fractionation scheme.



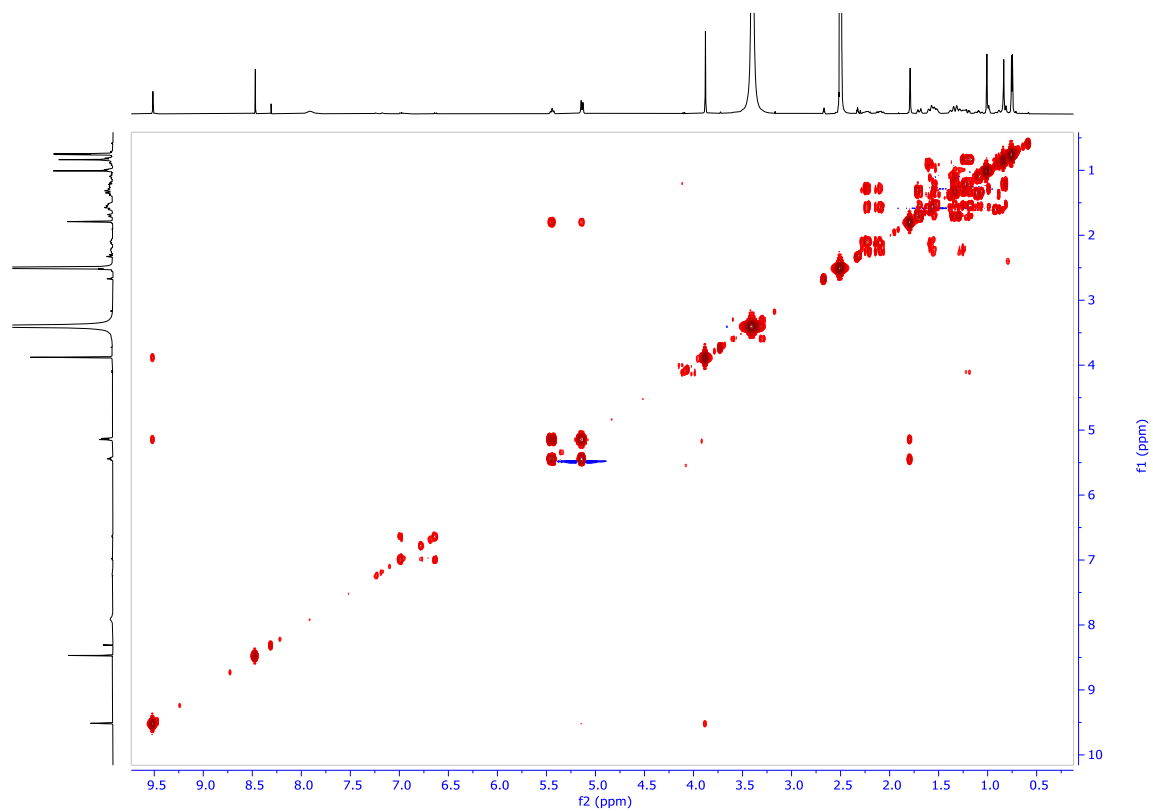
**Figure S1.**  $^1\text{H}$  NMR spectrum (500 MHz,  $\text{DMSO}-d_6$ ) of 8-epiagelasine T (**1**).



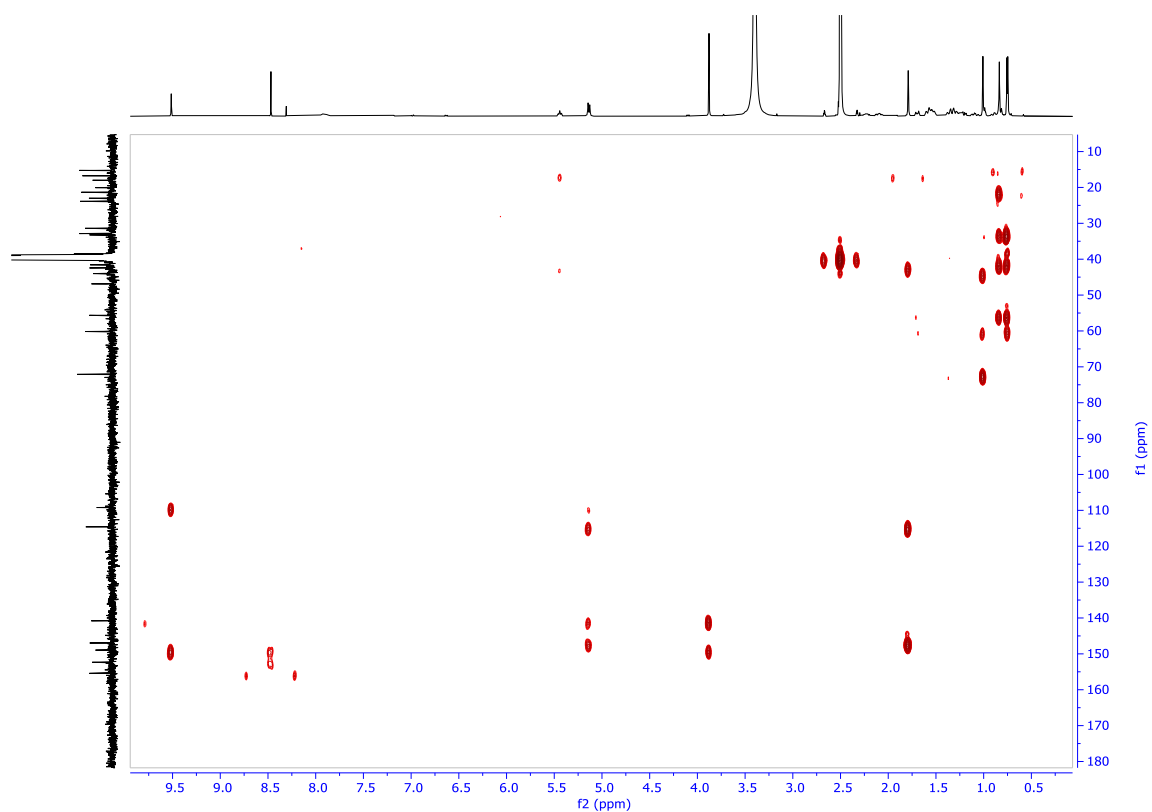
**Figure S2.**  $^{13}\text{C}$  NMR spectrum (125 MHz,  $\text{DMSO}-d_6$ ) of 8-epiagelasine T (**1**).



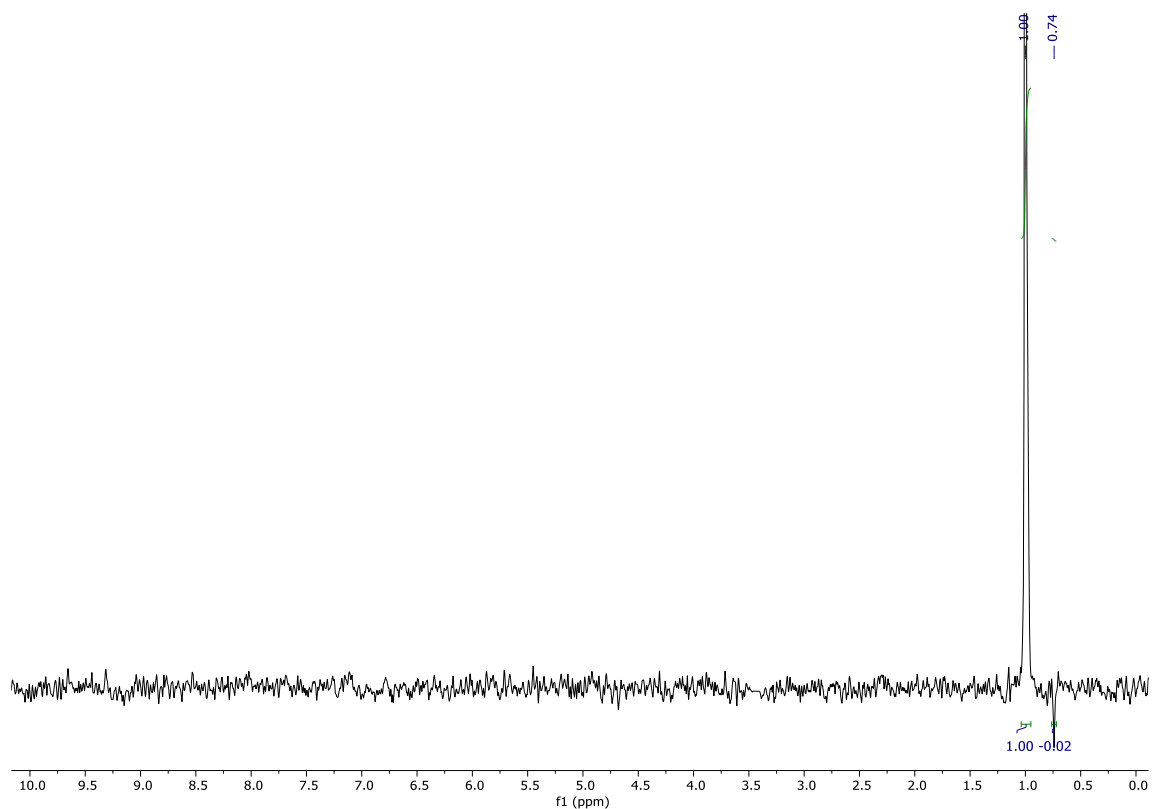
**Figure S3.** HSQC spectrum (500 MHz,  $\text{DMSO}-d_6$ ) of 8-epiagelasine T (**1**).



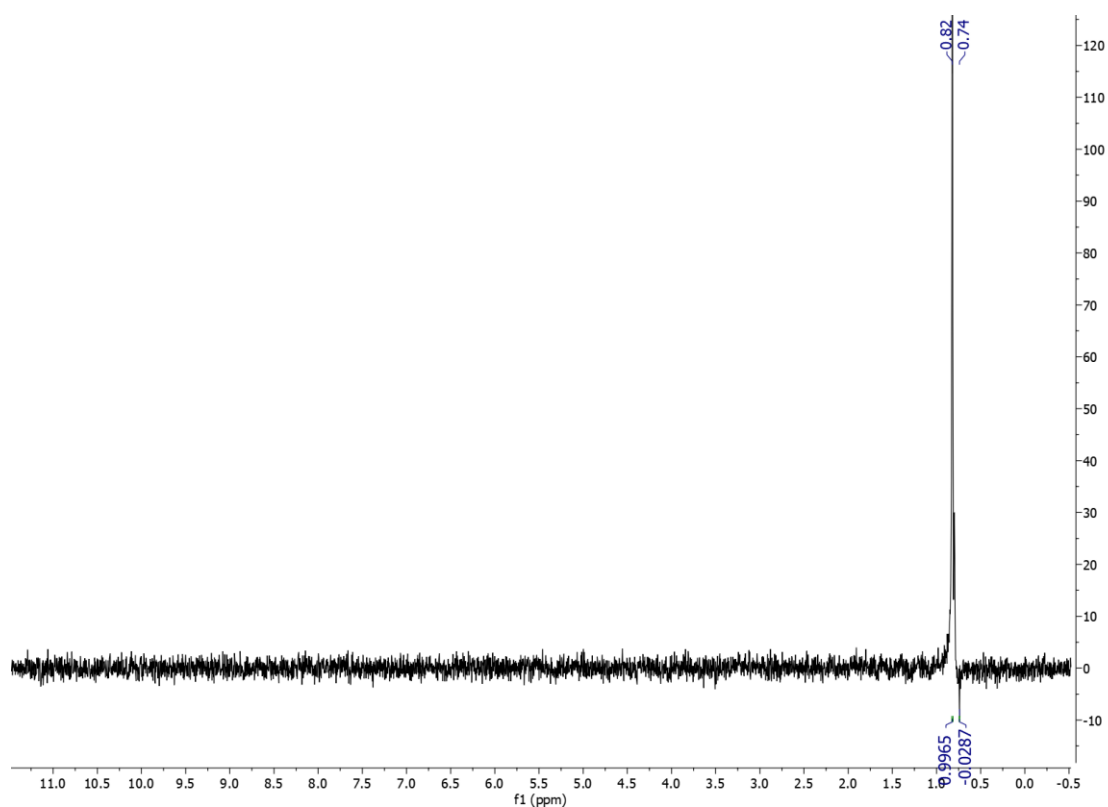
**Figure S4.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum (500 MHz,  $\text{DMSO}-d_6$ ) of 8-epiagelasine T (**1**).



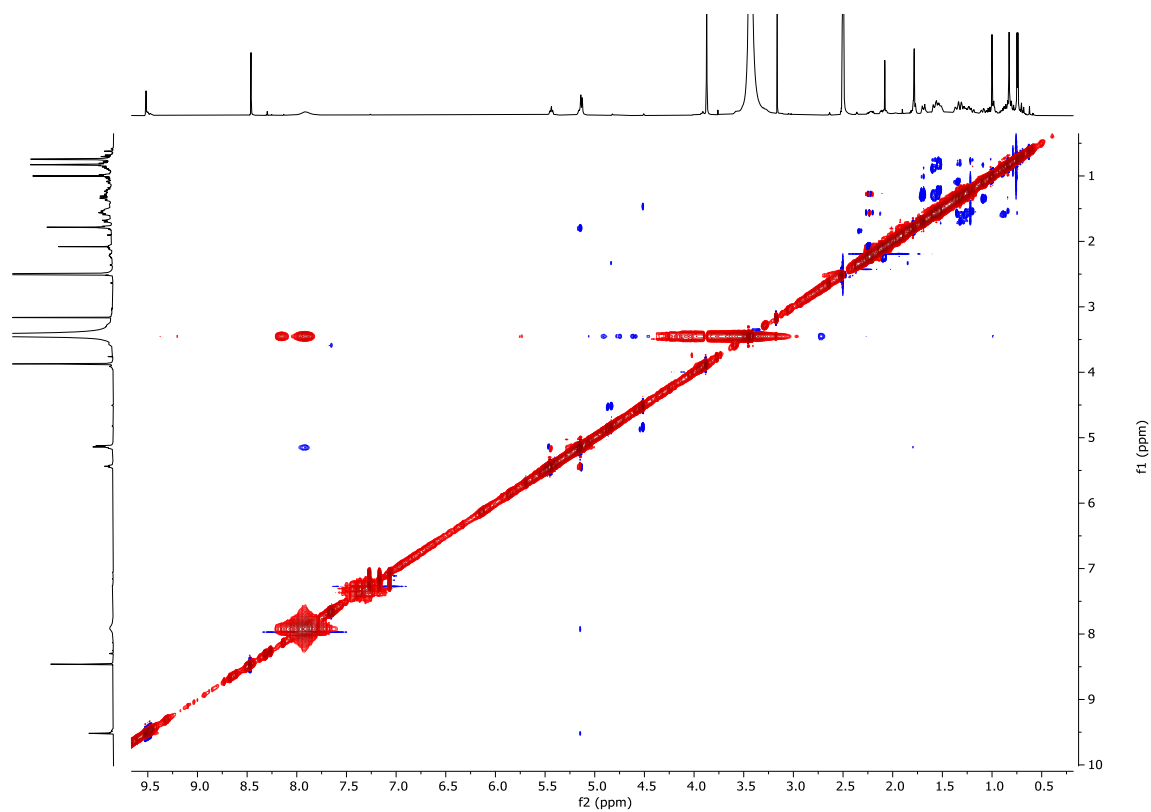
**Figure S5.** HMBC spectrum (500 MHz, DMSO- $d_6$ ) of 8-epiagelasine T (**1**).



**Figure S6.** 1D-NOESY spectrum irradiating on CH<sub>3</sub>-17 ( $\delta_H$  1.00) of 8-epiagelasine T (**1**) (500 MHz, DMSO- $d_6$ ).

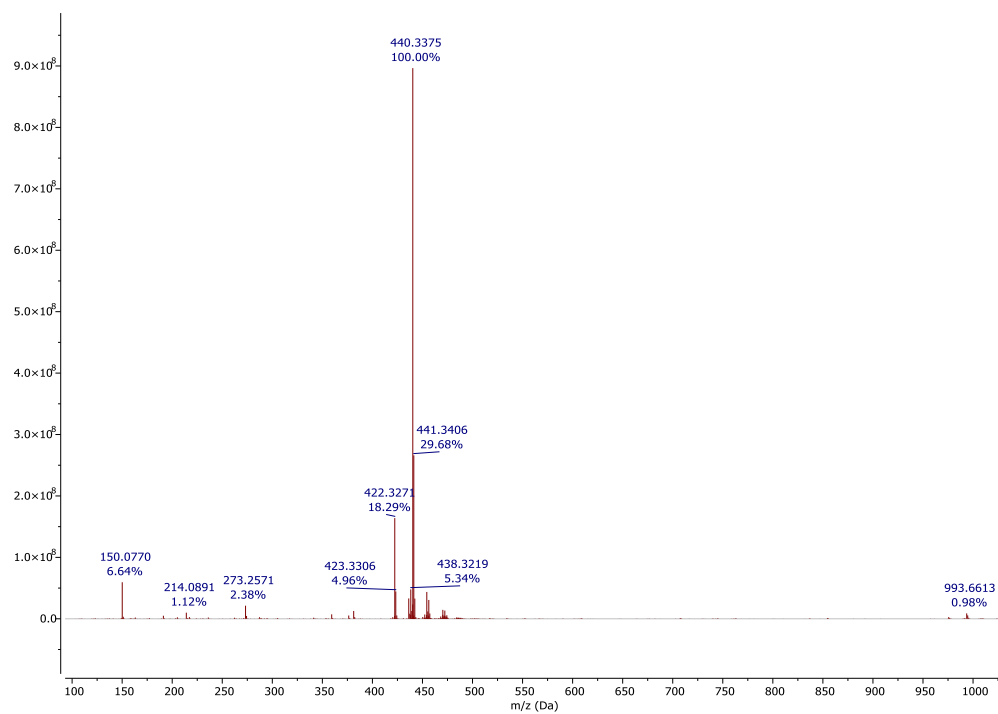


**Figure S7.** 1D-NOESY spectrum irradiating on CH<sub>3</sub>-8 ( $\delta_{\text{H}}$  0.84) and CH<sub>3</sub>-20 ( $\delta_{\text{H}}$  0.74) of 8-epiagelasine T (**1**) (500 MHz, DMSO-*d*<sub>6</sub>).



**Figure S8.** NOESY spectrum of 8-epiagelasine T (**1**) (500 MHz, DMSO-*d*<sub>6</sub>).



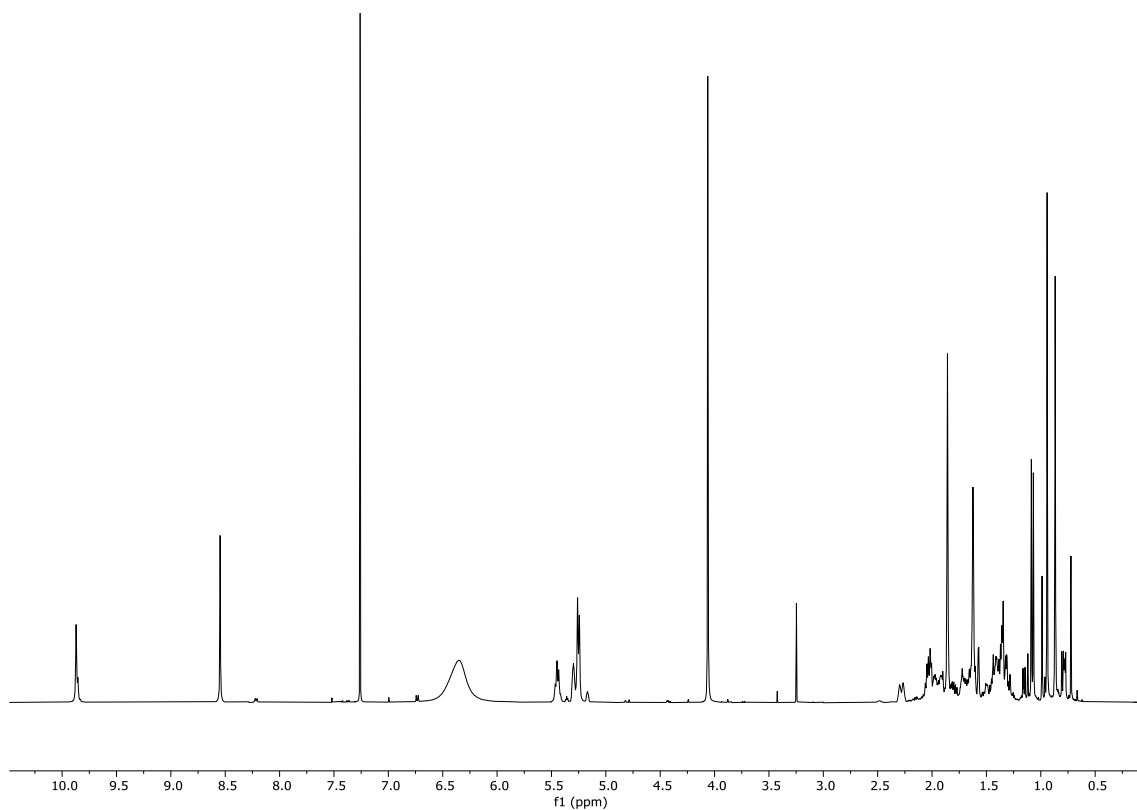


**Figure S9. (+)-HR-ESIMS of 8-epiagelasine T (1).**

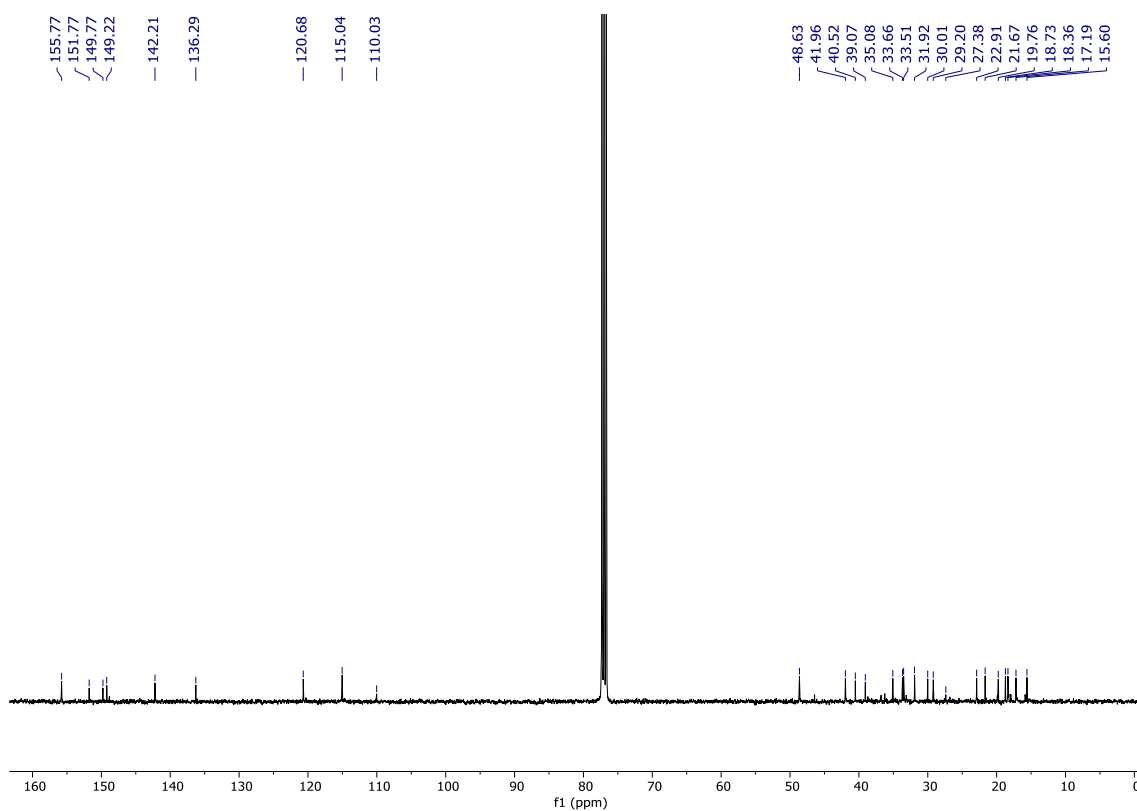
**Table S1.** <sup>1</sup>H NMR (500 MHz) and <sup>13</sup>C NMR (125 MHz) and <sup>1</sup>H NMR (800 MHz) and <sup>13</sup>C NMR (200 MHz)\* spectral data for 10-epiagelasine B (**2**) in CDCl<sub>3</sub> and C<sub>6</sub>D<sub>6</sub>.

Position	10-epiagelasine B <sup>a</sup>		10-epiagelasine B <sup>b</sup>		10-epiagelasine B <sup>c</sup>	
	$\delta_{\text{H}}$ , mult, (J in Hz)	$\delta_{\text{C}}$ , Type	$\delta_{\text{H}}$ , mult, (J in Hz)	$\delta_{\text{C}}$ , Type	$\delta_{\text{H}}$ , mult, (J in Hz)	$\delta_{\text{C}}$ , Type
1	1.64 m	19.7, CH <sub>2</sub>	1.60, m	20.1, CH <sub>2</sub>	1.65 m	31.0, CH <sub>2</sub>
	1.33, m		1.31, m		1.24, m	
2	1.98, m	22.9, CH <sub>2</sub>	1.98, m	23.4, CH <sub>2</sub>	1.93, m	32.5, CH <sub>2</sub>
	1.91, m		1.21, m		1.78, m	
3	5.30, brs	120.7, CH	5.37, brs	121.1, CH	5.20, brs	126.0, CH
4		136.2, C		136.5, C		134.0, C
5		40.5, C		39.4, C		42.6, C
6	1.80, m	33.7, CH <sub>2</sub>	1.50, m	30.3, CH <sub>2</sub>	2.39, dt (15.0, 4.1)	20.8, CH <sub>2</sub>
	1.71, m		1.34, m		2.10, m	
7	1.64, m	29.2, CH <sub>2</sub>	1.95, m	29.5, CH <sub>2</sub>	1.60, m	28.4, CH <sub>2</sub>
	1.42, m		1.70, m		1.31, m	
8	1.31, m	33.5, CH	1.40, m	33.7, CH	1.66, m	34.0, CH
9		39.1, C		40.8, C		41.0, C
10	2.28, brd, (12.9)	42.0, CH	2.38, d, (12.9)	42.3, CH	1.25, m	41.8, CH
11	1.35, m	30.0, CH <sub>2</sub>	1.90, m	33.9, CH <sub>2</sub>	1.58, m	35.5, CH <sub>2</sub>
	1.25, m		1.40, m		1.38, m	
12	2.03, dt, (11.8, 5.6)	35.1, CH <sub>2</sub>	2.01, m	35.4, CH <sub>2</sub>	2.00, dd, (13.3, 7.8)	35.2, CH <sub>2</sub>
	1.97, m				1.94, dd, (14.0, 7.0)	
13		149.2, C		149.1, C		152.2, C
14	5.45, t, (6.4)	115.0, CH	5.42, t, (6.8)	114.8, CH	5.50, m	112.7, CH
15	5.25, d, (6.5)	48.6, CH <sub>2</sub>	5.11, d, (6.6)	48.2, CH <sub>2</sub>	5.52, brs	50.2, CH <sub>2</sub>
16	1.86, s	17.2, CH <sub>3</sub>	1.80, s	16.7, CH <sub>3</sub>	1.84, s	17.1, CH <sub>3</sub>
17	1.07, d, (7.4)	18.7, CH <sub>3</sub>	1.10, d, (7.4)	18.9, CH <sub>3</sub>	1.10, d, (7.3)	17.5, CH <sub>3</sub>
18	1.62, s	21.7, CH <sub>3</sub>	1.67, s	22.0, CH <sub>3</sub>	1.62, s	19.9, CH <sub>3</sub>
19	0.86, s	17.2, CH <sub>3</sub>	1.01, s	15.9, CH <sub>3</sub>	1.15, s	24.3, CH <sub>3</sub>
20	0.94, s	15.6, CH <sub>3</sub>	0.90, s	18.6, CH <sub>3</sub>	0.87, s	18.3, CH <sub>3</sub>
2'	8.54, s	155.8, CH	8.31, s	155.5, CH	8.71, s	149.0, CH
4'		149.7, C		149.4, C		143.5, C
5'		110.0, C		110.0, C		119.7, C
6'		151.8, C		152.2, C		148.7, C
8'	9.87, s	142.2, C	9.30, s	141.0, CH	9.90, s	143.3, C
9'-N-Me	4.06, s	31.9, CH <sub>3</sub>	3.30, s	31.0, CH <sub>3</sub>	4.11, s	34.0, CH <sub>3</sub>

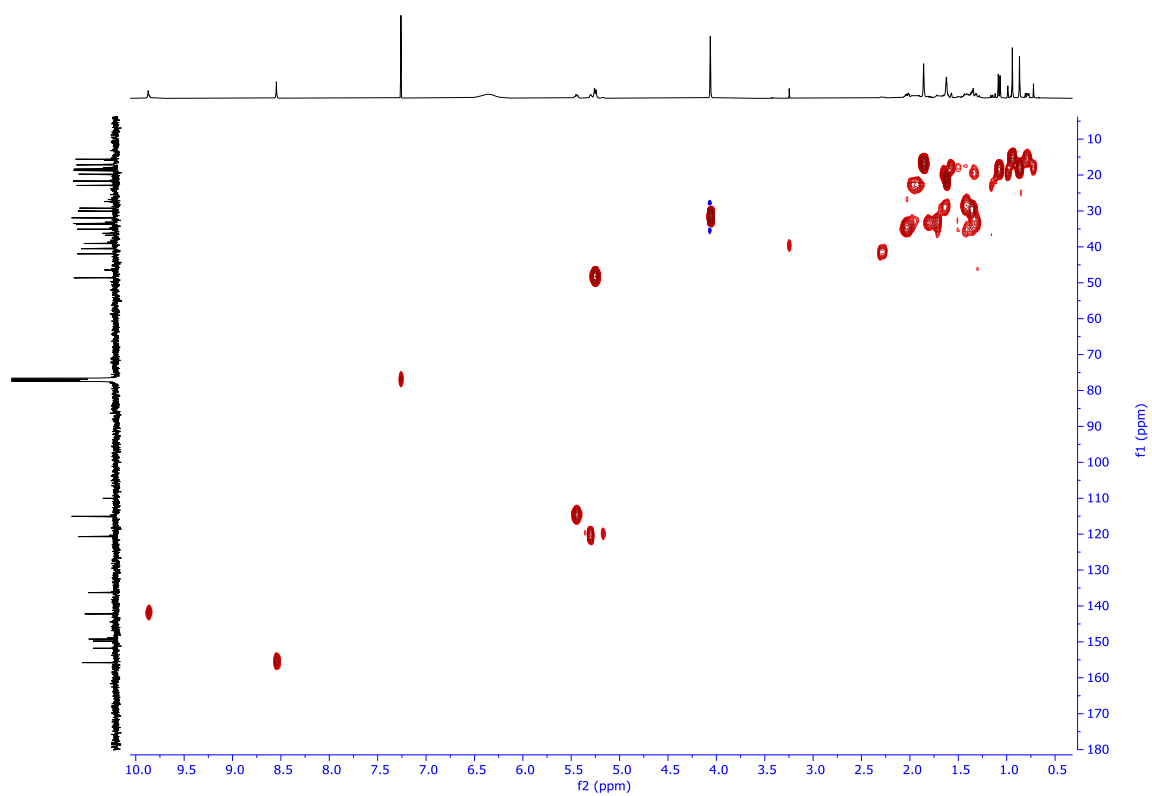
<sup>a</sup>In CDCl<sub>3</sub>. <sup>b</sup>In C<sub>6</sub>D<sub>6</sub>. <sup>c</sup>In CDCl<sub>3</sub> (after 24 h)



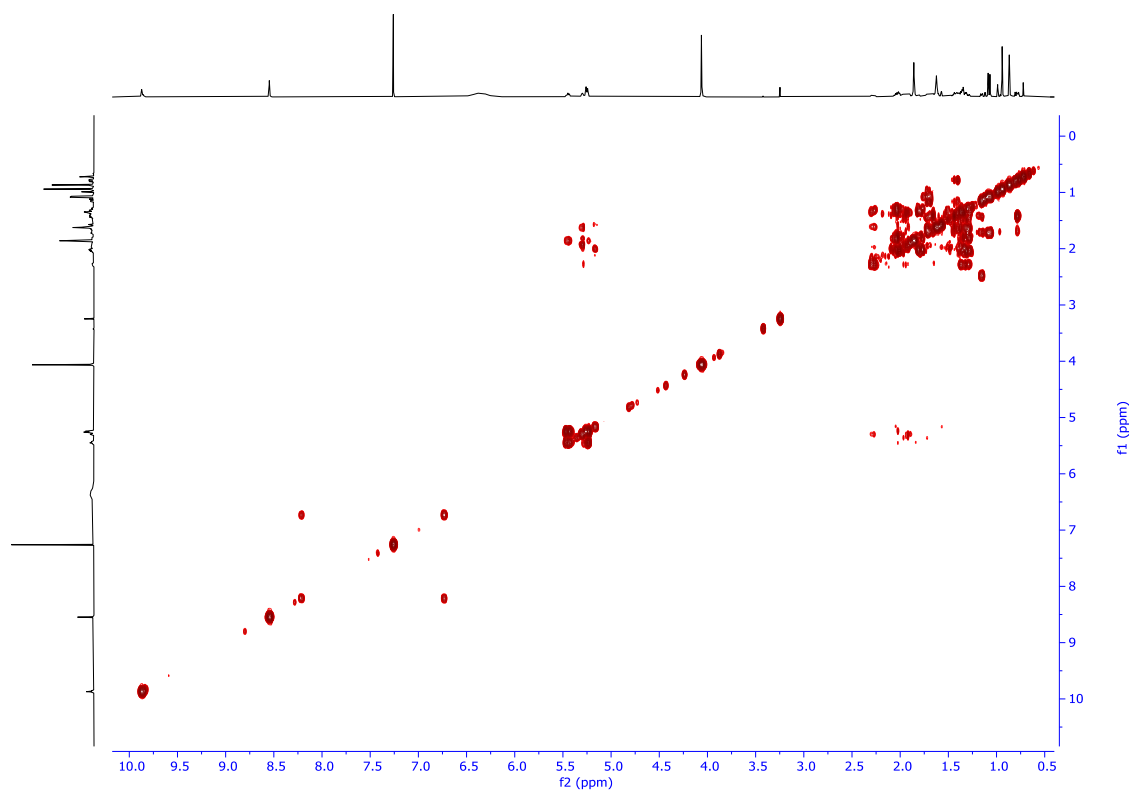
**Figure S10.**  $^1\text{H}$  NMR spectrum (500 MHz,  $\text{CDCl}_3$ ) of 10-epiagelasine B (**2**).



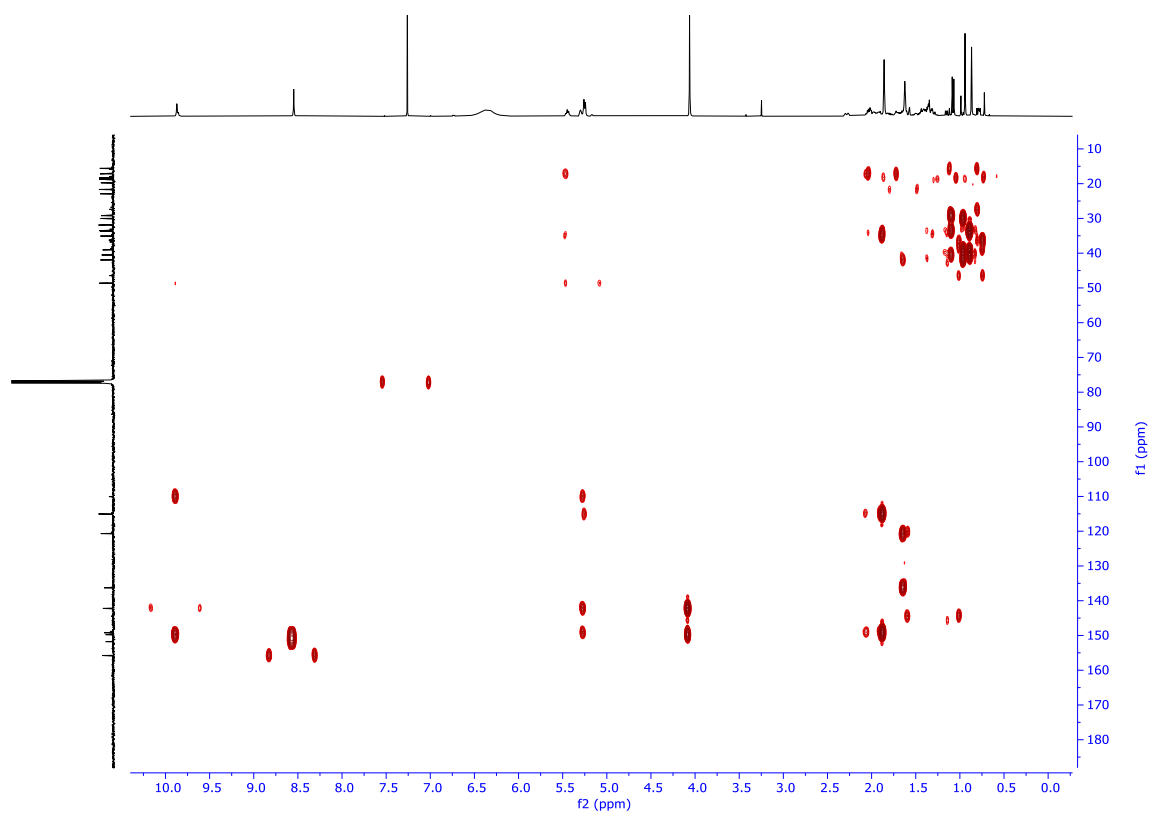
**Figure S11.**  $^{13}\text{C}$  NMR spectrum (125 MHz,  $\text{CDCl}_3$ ) of 10-epiagelasine B (**2**).



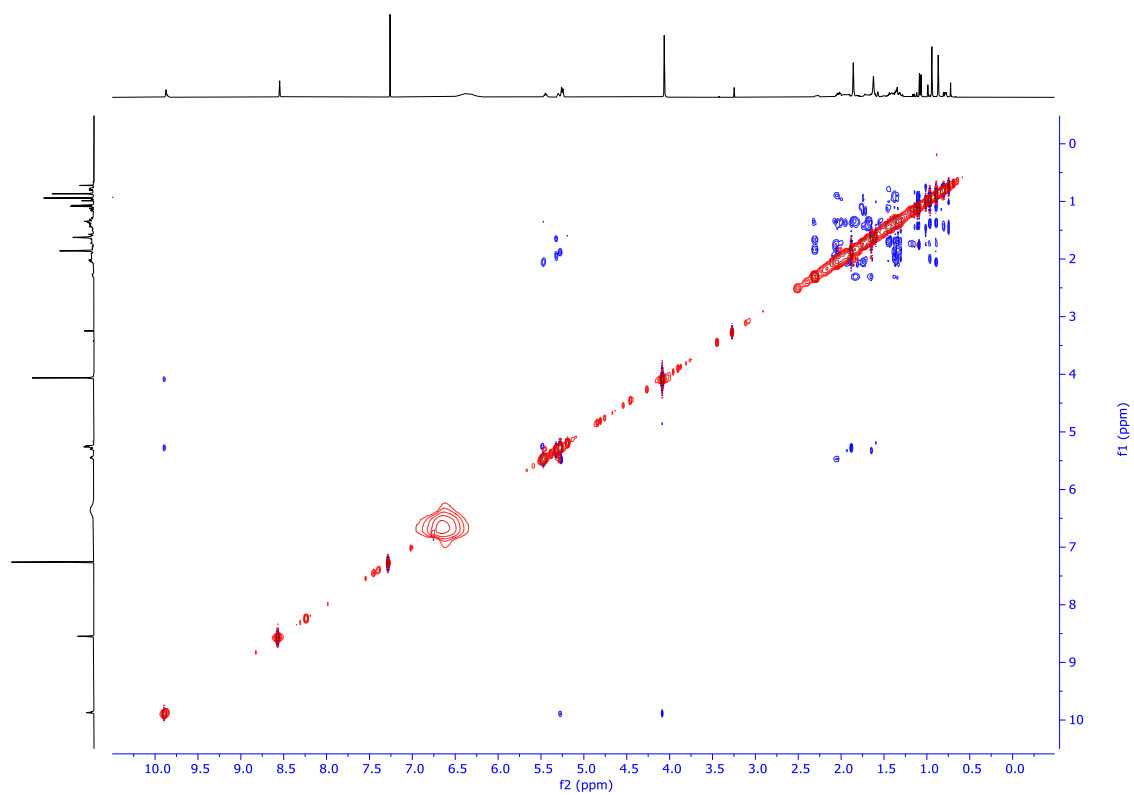
**Figure S12.** HSQC spectrum (500 MHz,  $\text{CDCl}_3$ ) of 10-epiagelastine B (2).



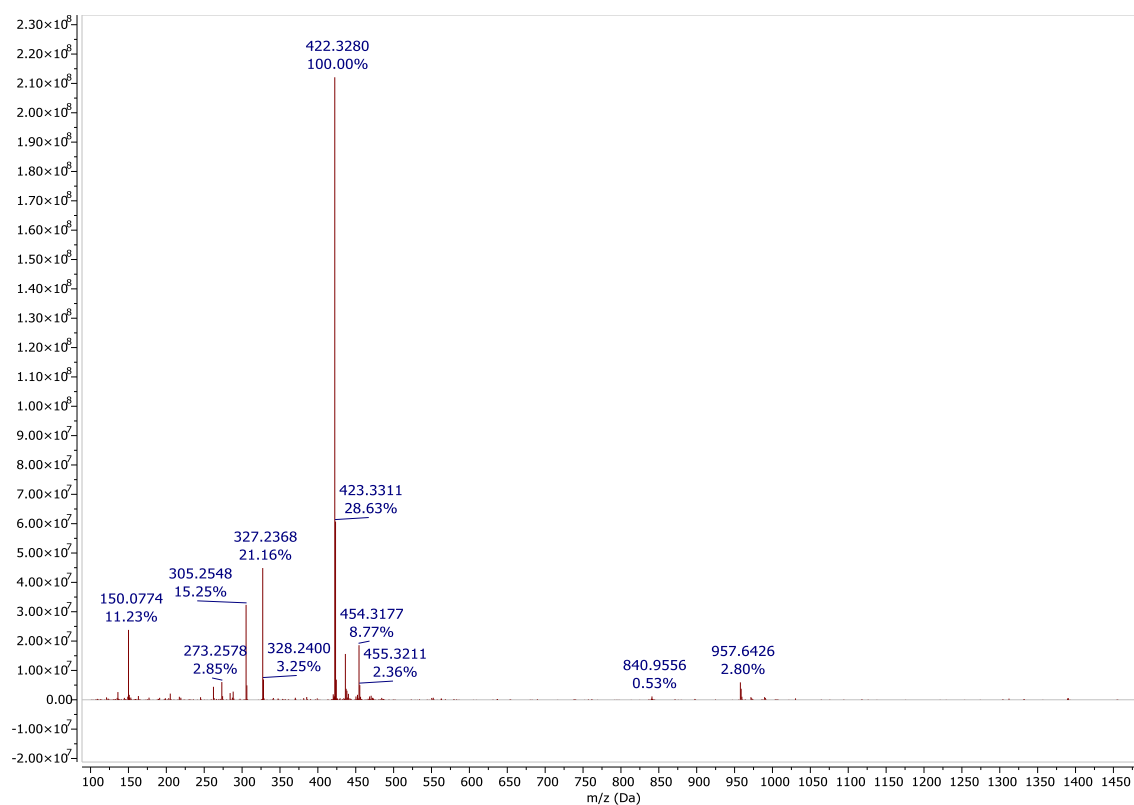
**Figure S13.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum (500 MHz,  $\text{CDCl}_3$ ) of 10-epiagelastine B (2).



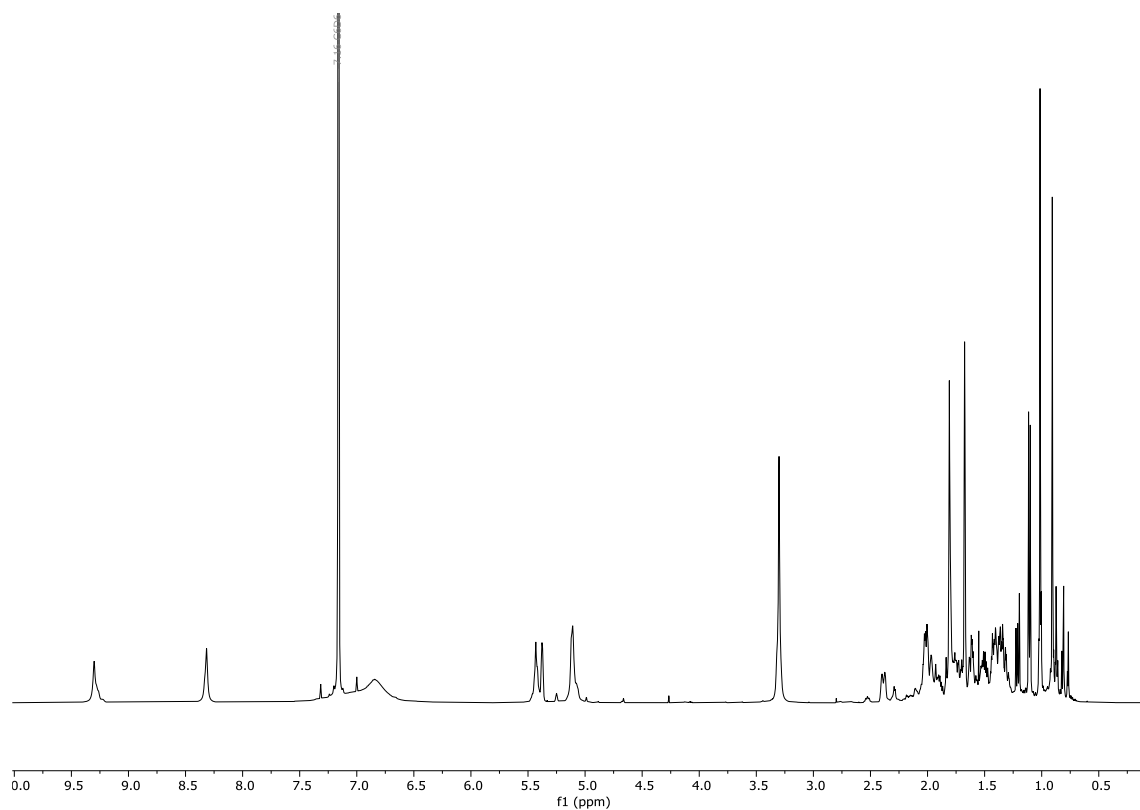
**Figure S14.** HMBC spectrum (500 MHz, CDCl<sub>3</sub>) of 10-epiagelasine B (2).



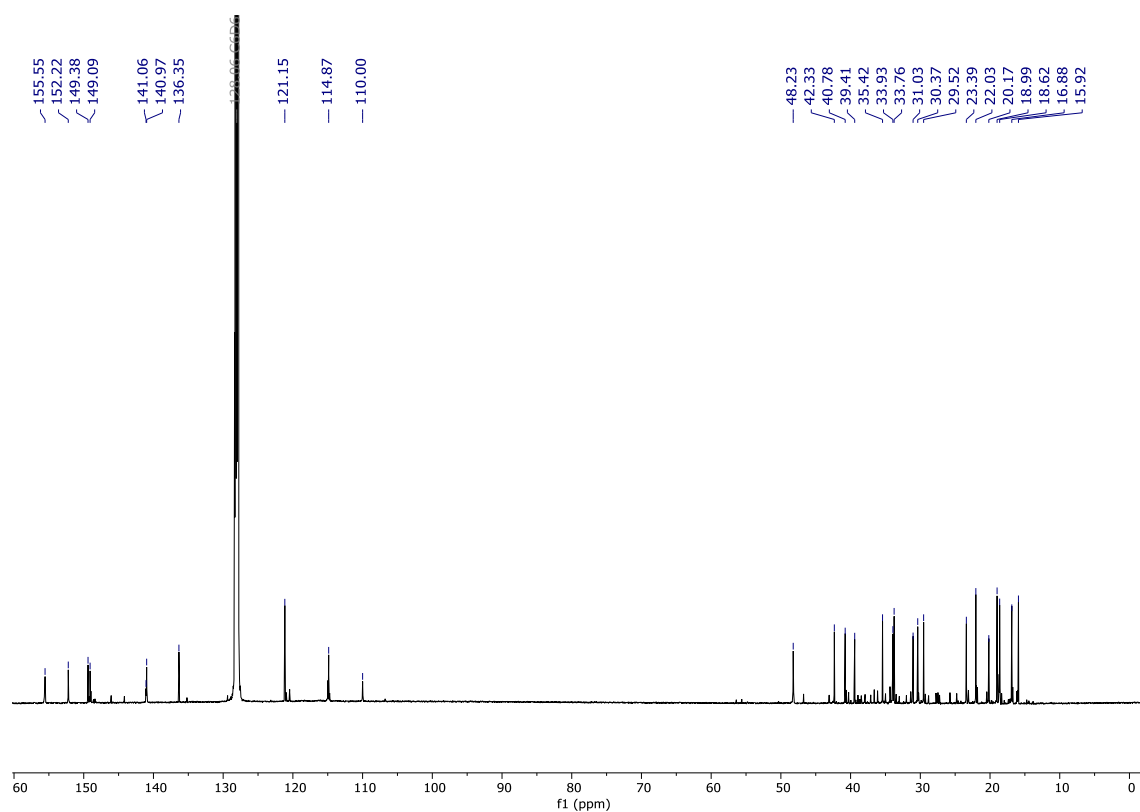
**Figure S15.** NOESY spectrum (500 MHz, CDCl<sub>3</sub>) of 10-epiagelasine B (2).



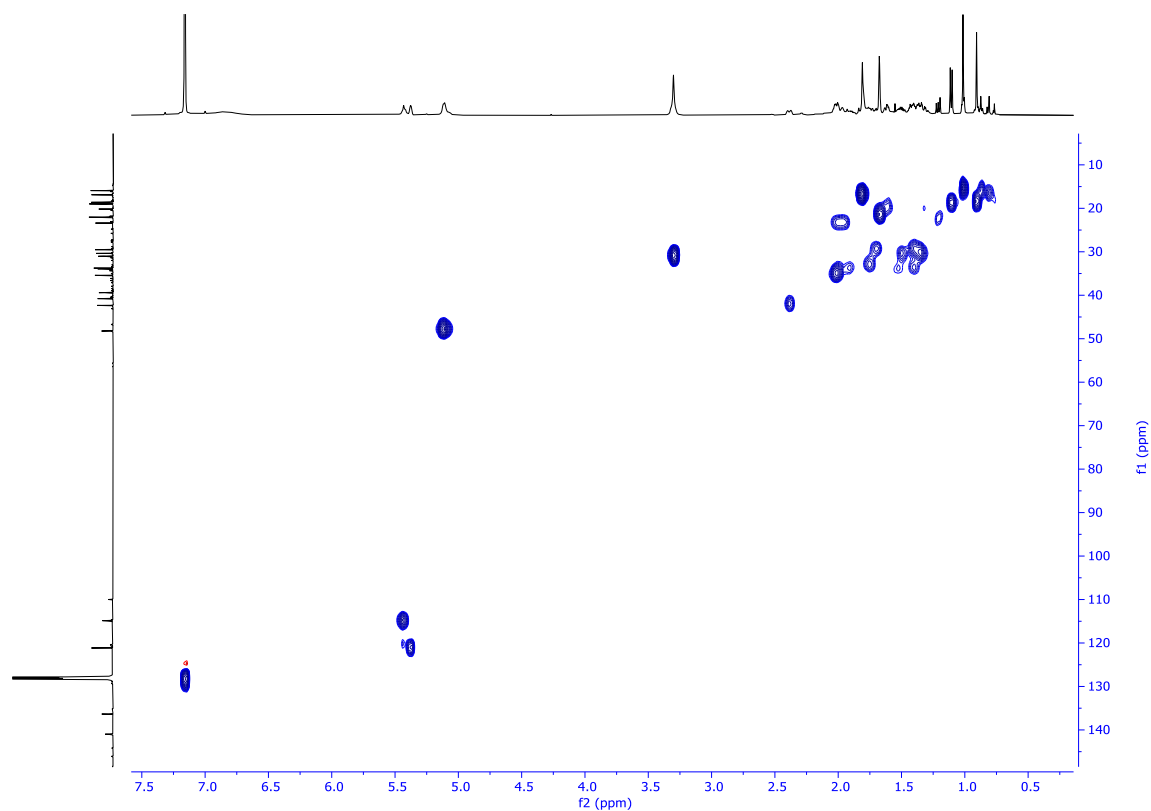
**Figure S16.** (+)-HR-ESIMS of 10-epiagelastine B (**2**).



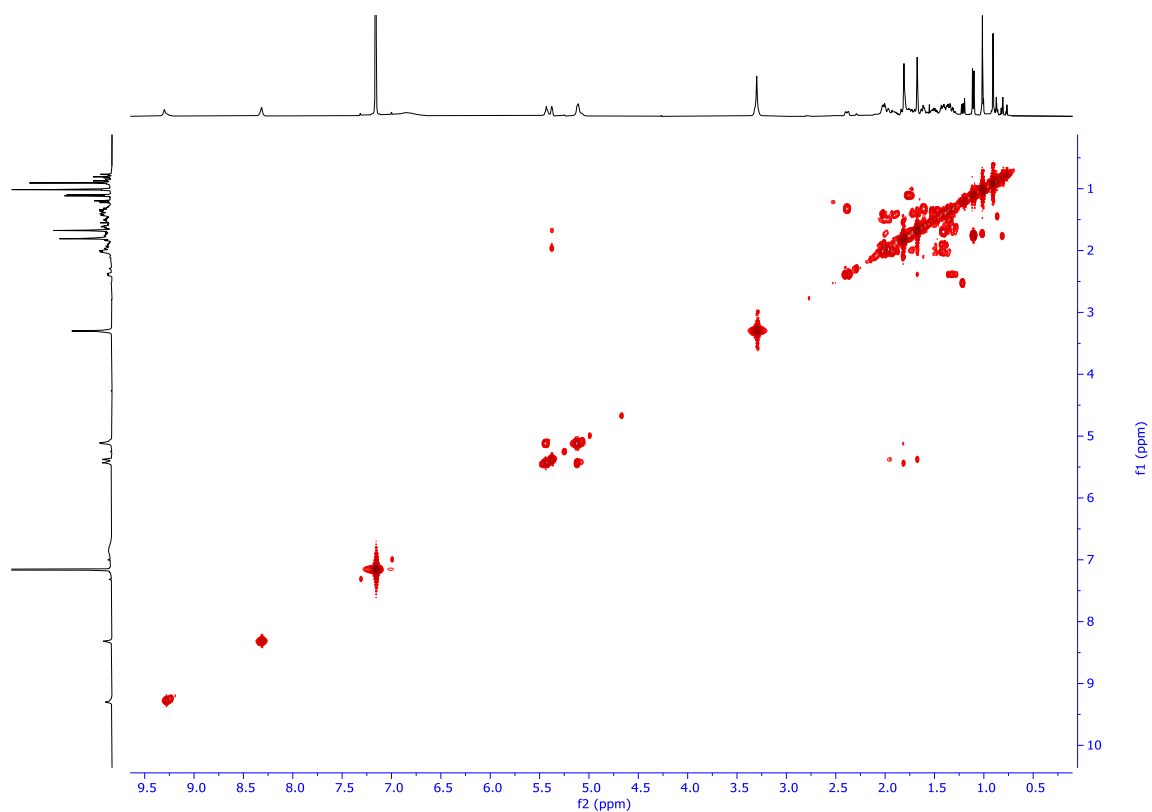
**Figure S17.**  $^1\text{H}$  NMR spectrum (500 MHz,  $\text{C}_6\text{D}_6$ ) of 10-epiagelastine B (**2**).



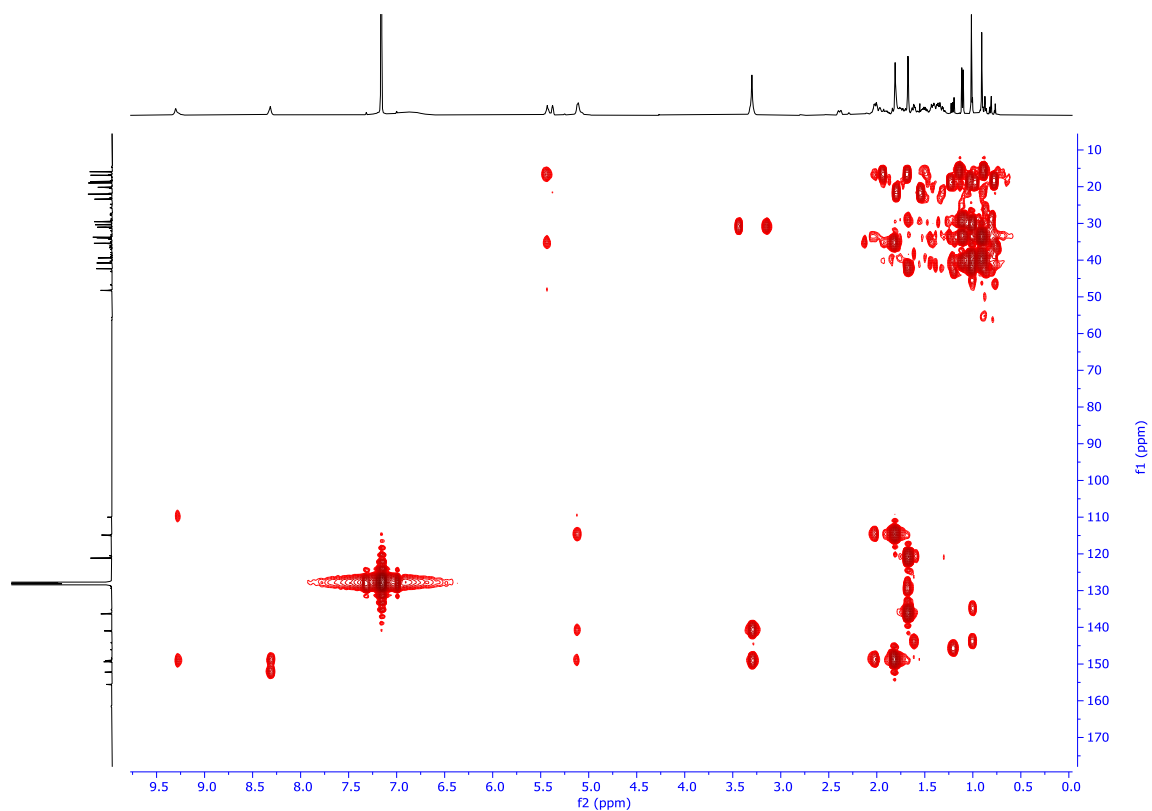
**Figure S18.**  $^{13}\text{C}$  NMR spectrum (125 MHz,  $\text{C}_6\text{D}_6$ ) of 10-epiagelastine B (**2**).



**Figure S19.** HSQC NMR spectrum (500 MHz,  $\text{C}_6\text{D}_6$ ) of 10-epiagelastine B (**2**).

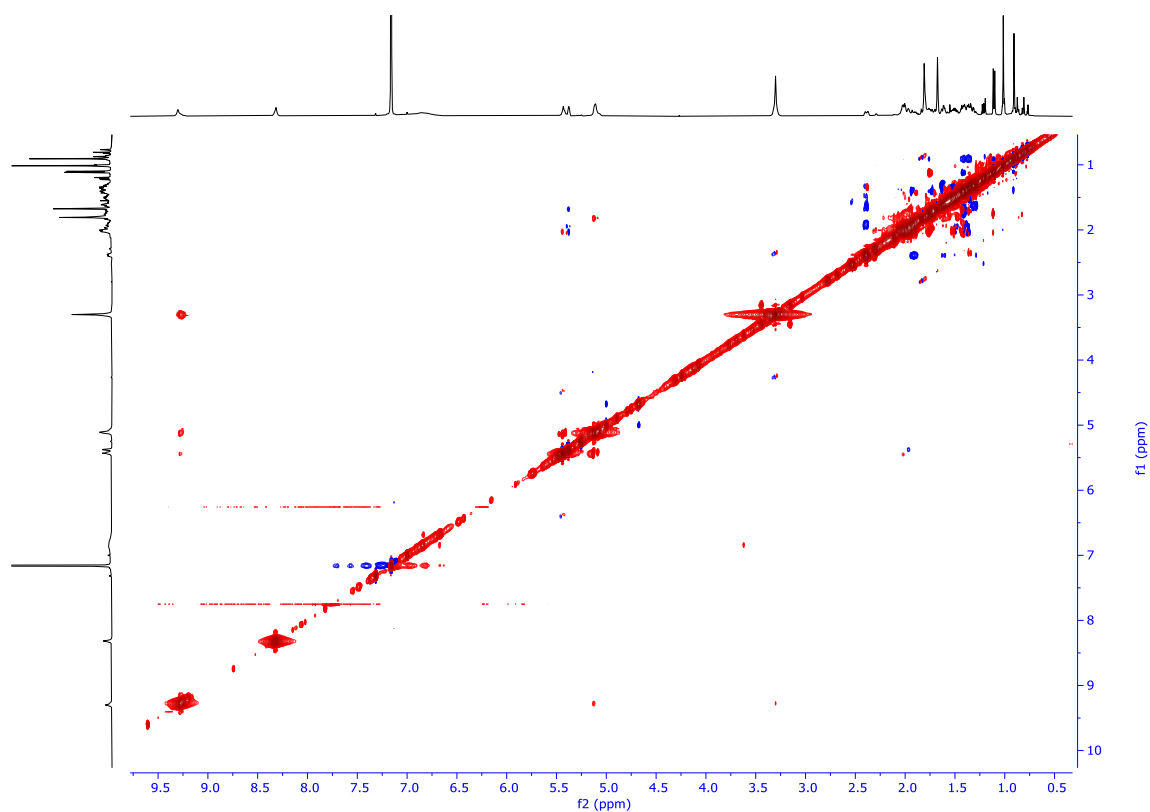


**Figure S20.**  $^1\text{H}$ - $^1\text{H}$  COSY NMR spectrum (500 MHz,  $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B (**2**).

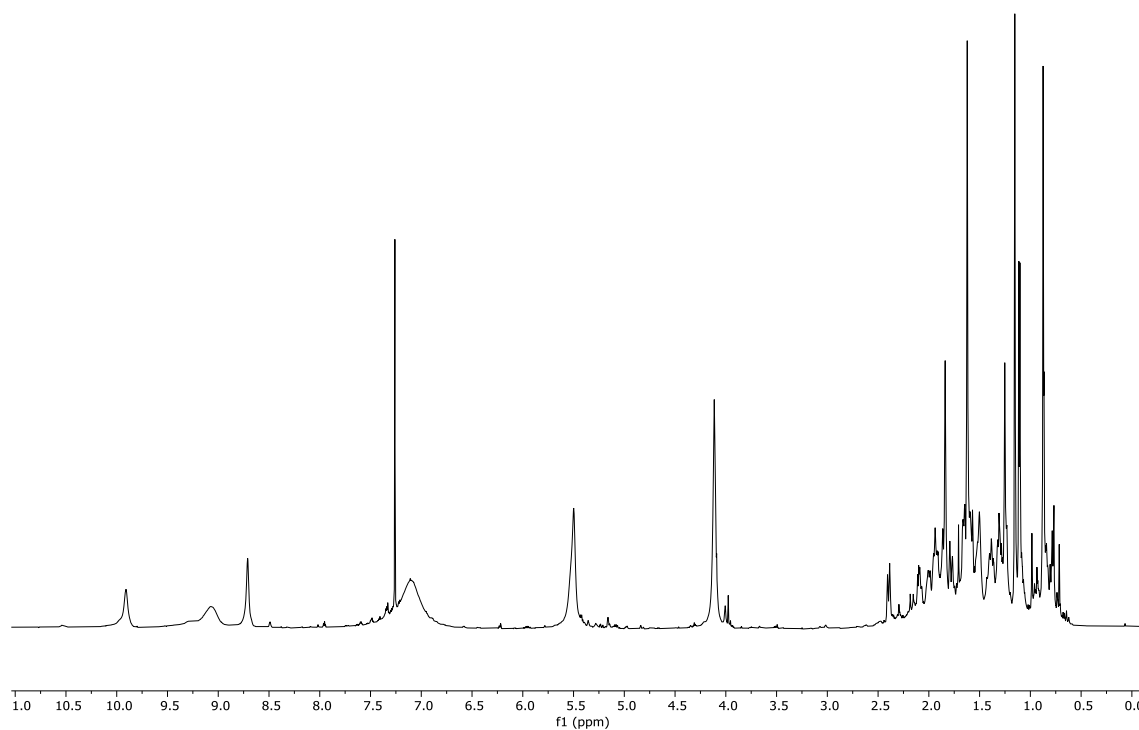


**Figure S21.** HMBC NMR spectrum (500 MHz,  $\text{C}_6\text{D}_6$ ) of 10-epiagelasine B (**2**).

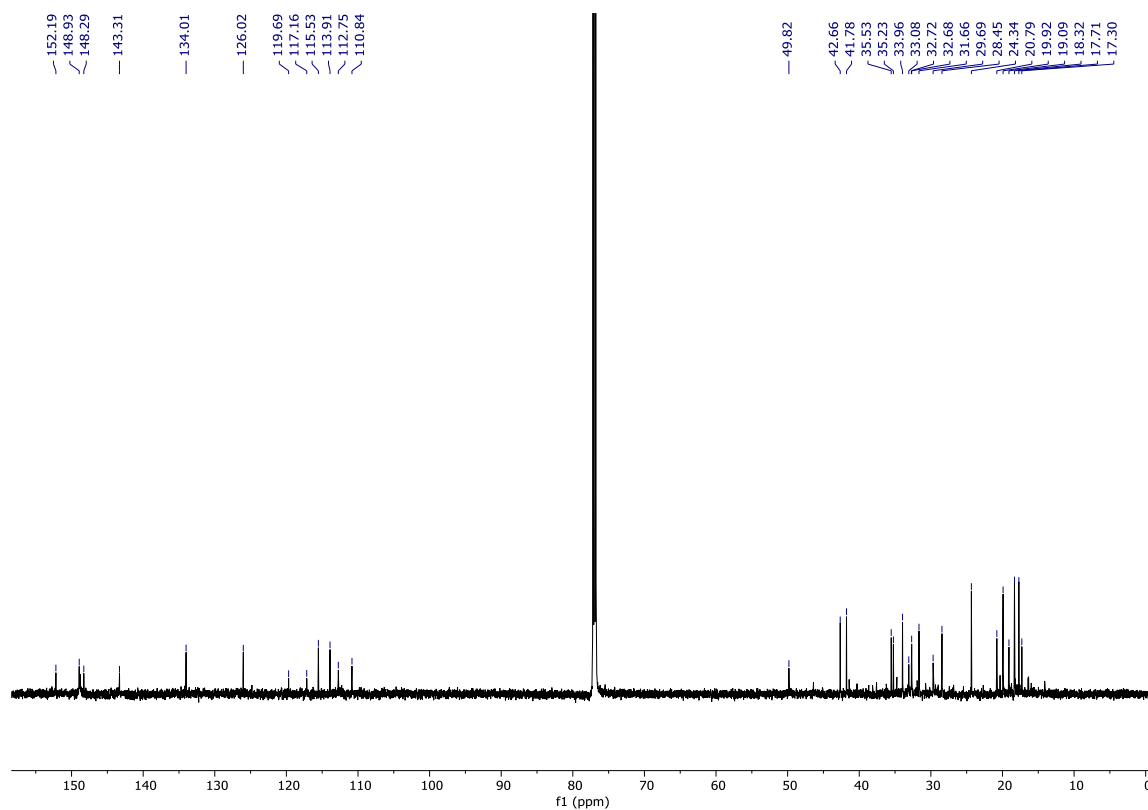




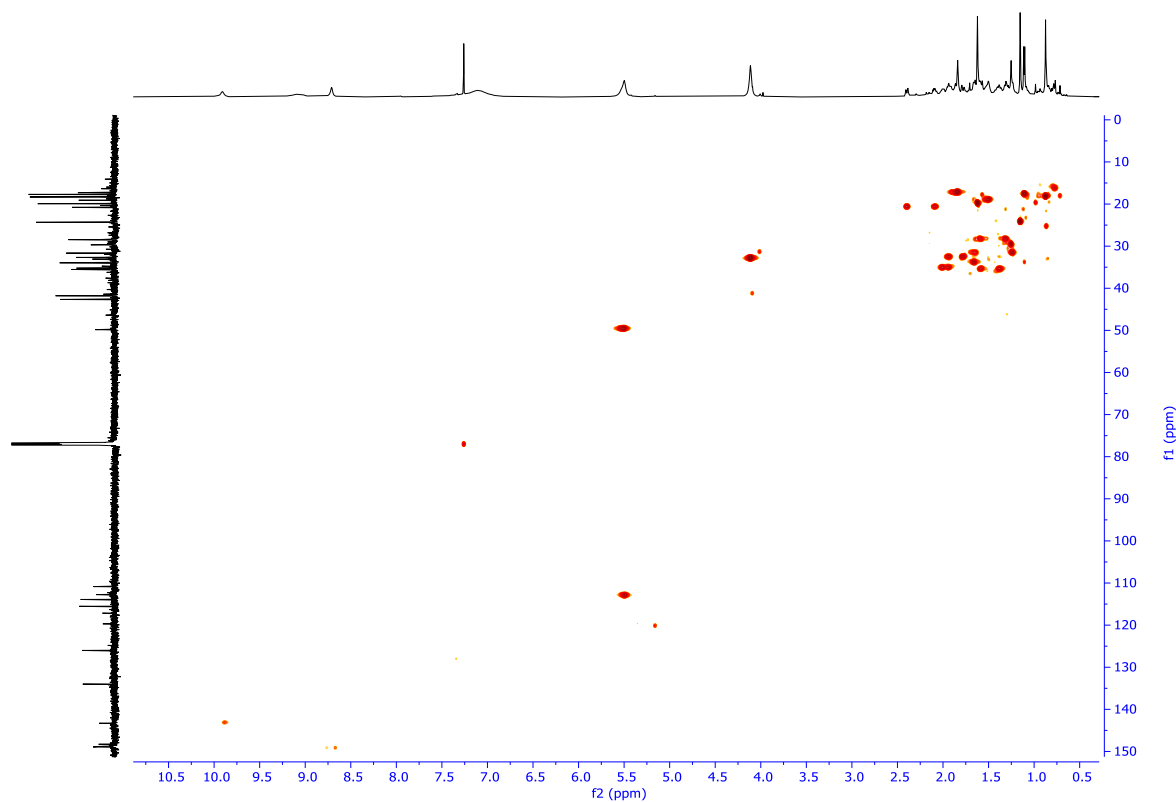
**Figure S22.** NOESY NMR spectrum (500 MHz, C<sub>6</sub>D<sub>6</sub>) of 10-epiagelastine B (**2**).



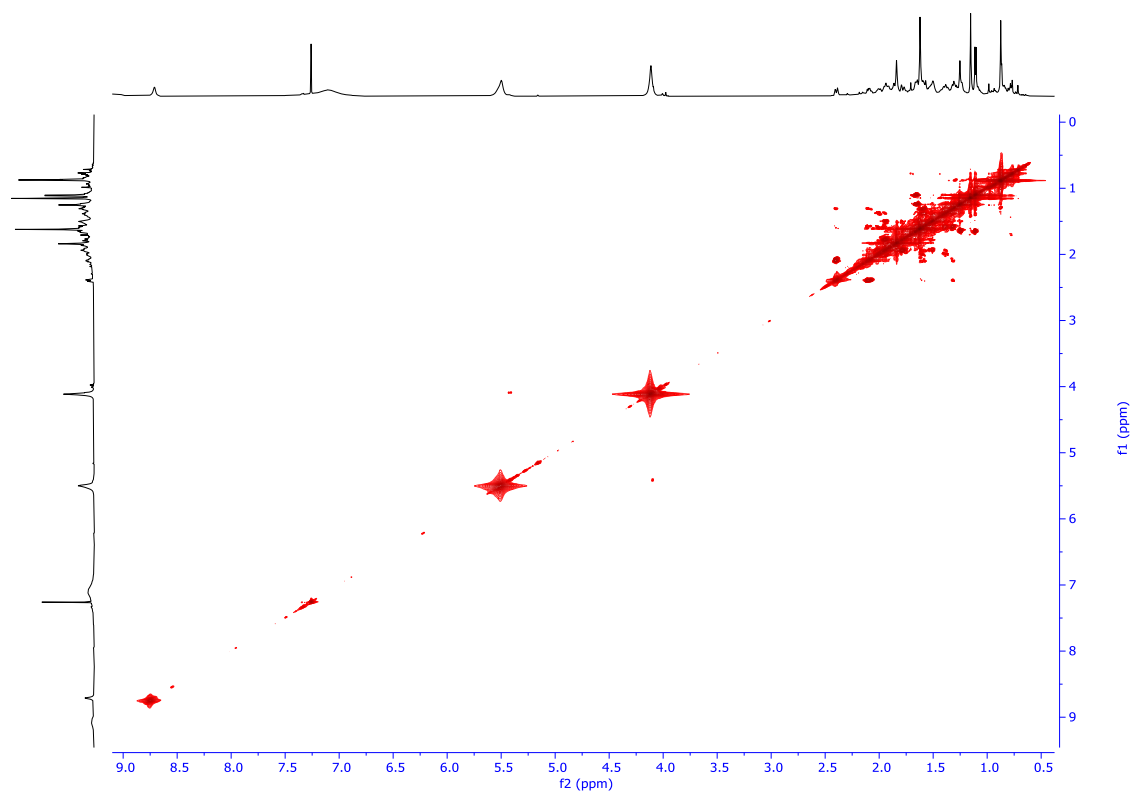
**Figure S23.** <sup>1</sup>H NMR spectrum (800 MHz, CDCl<sub>3</sub>, after 24 h) of 10-epiagelastine B (**2**).



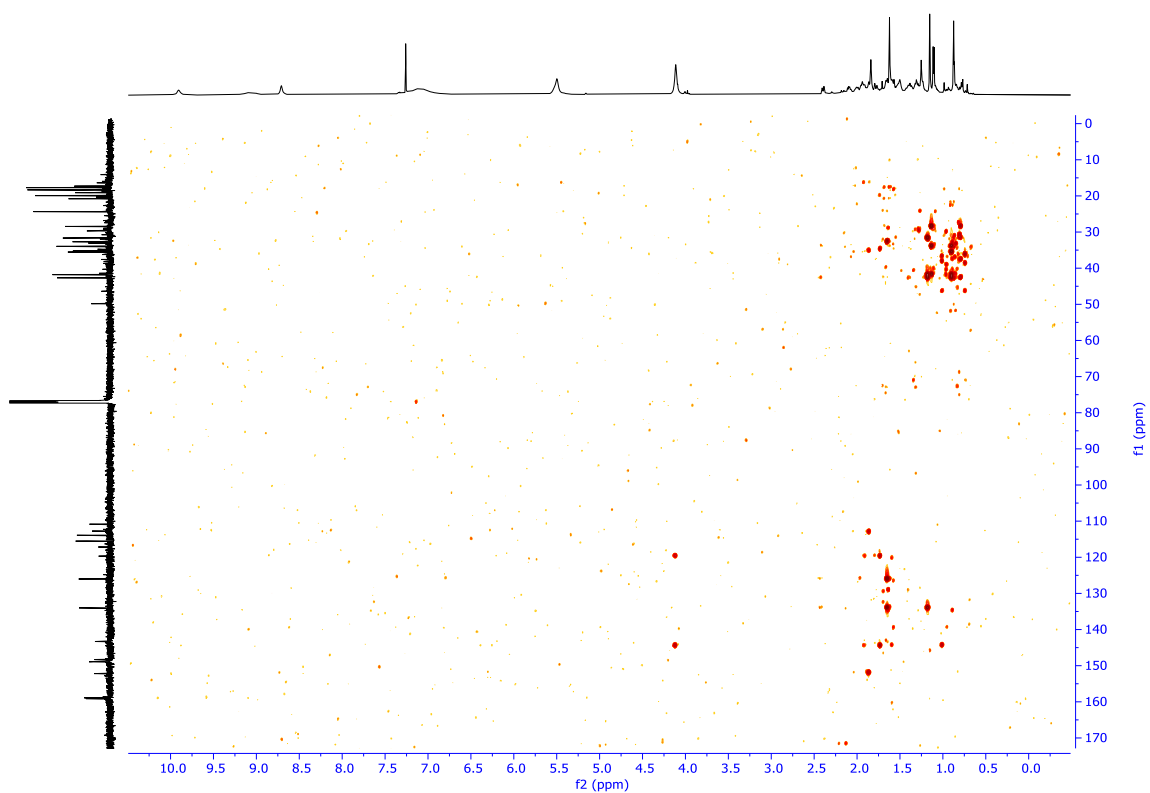
**Figure S24.**  $^{13}\text{C}$  NMR spectrum (200 MHz,  $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B (**2**).



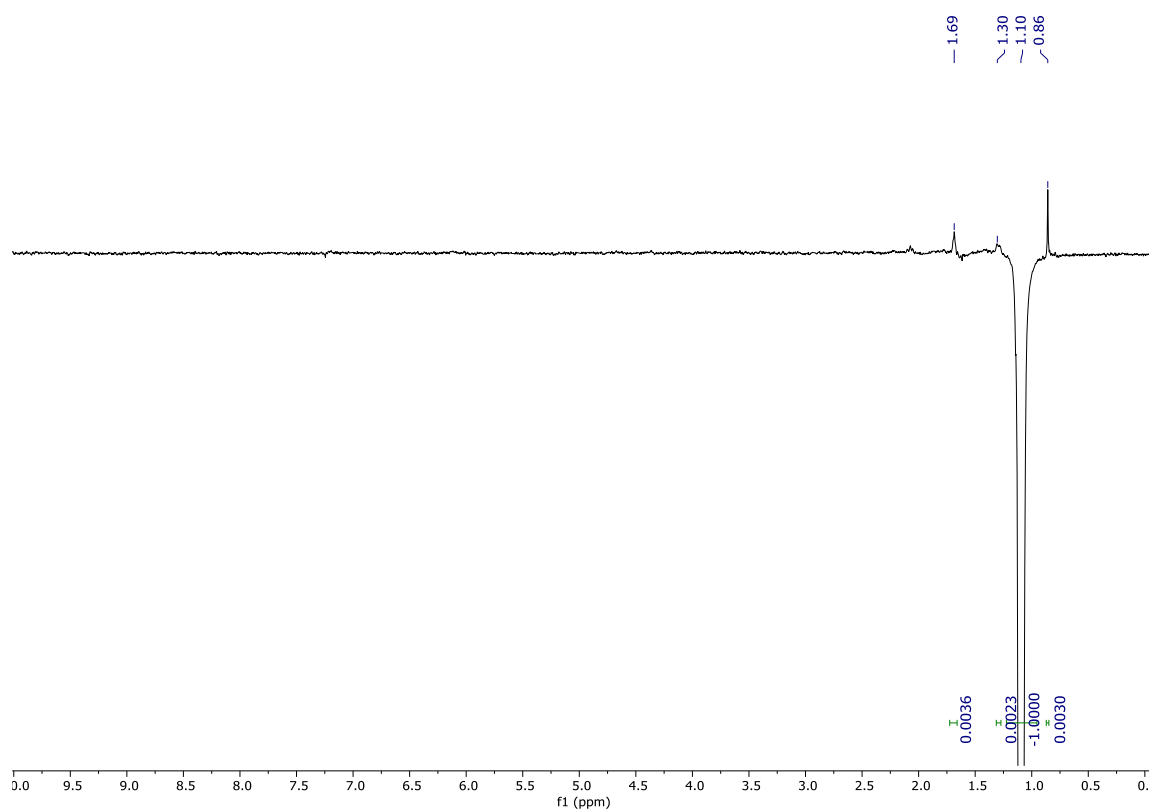
**Figure S25.** HSQC spectrum (800 MHz,  $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B (**2**). NUS parameters: 20%/384/38.



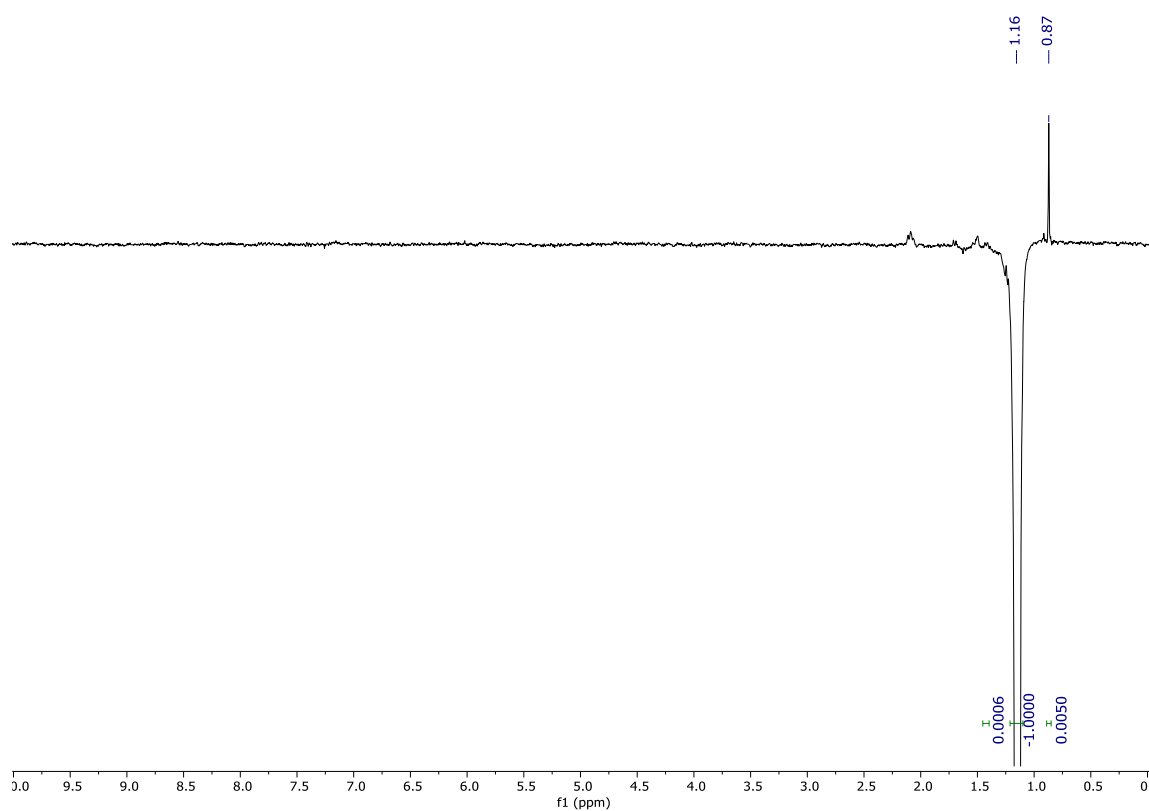
**Figure S26.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum (800 MHz,  $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B (**2**). NUS parameters: 50%/384/192.



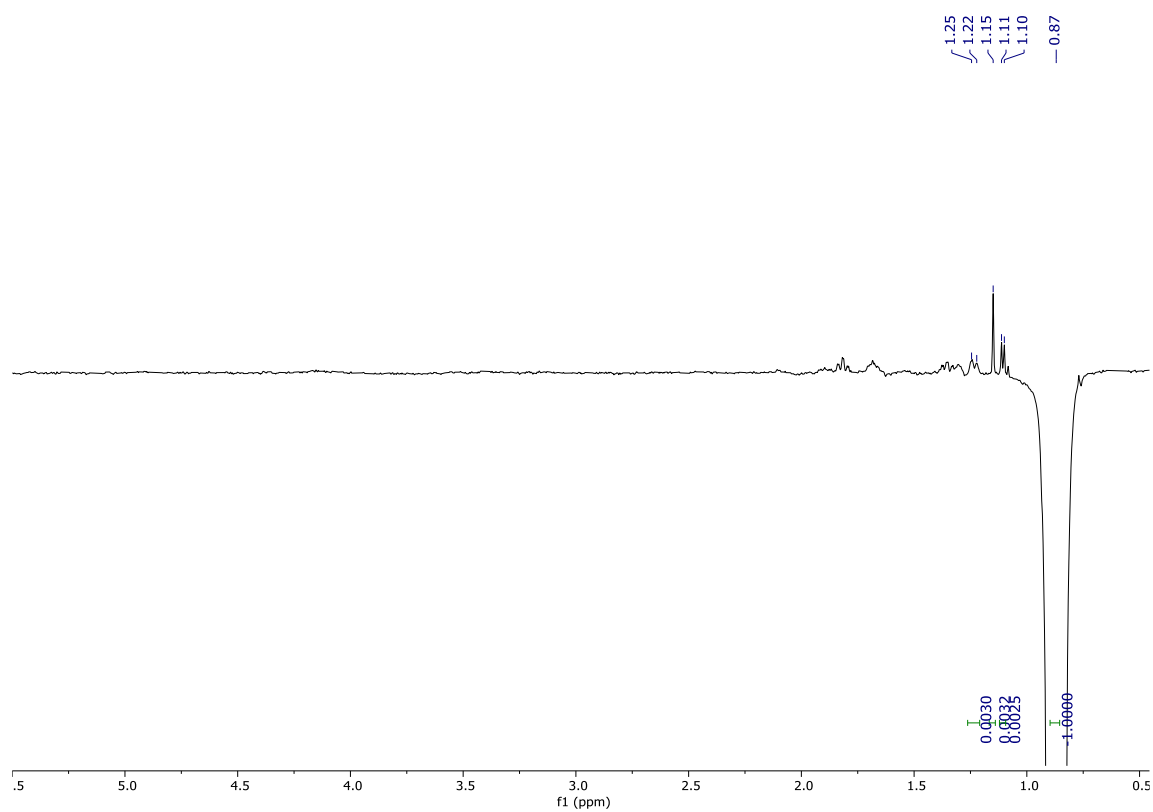
**Figure S27.** HMBC spectrum (800 MHz,  $\text{CDCl}_3$ , after 24 h) of 10-epiagelasine B (**2**). NUS parameters: 25%/512/64.



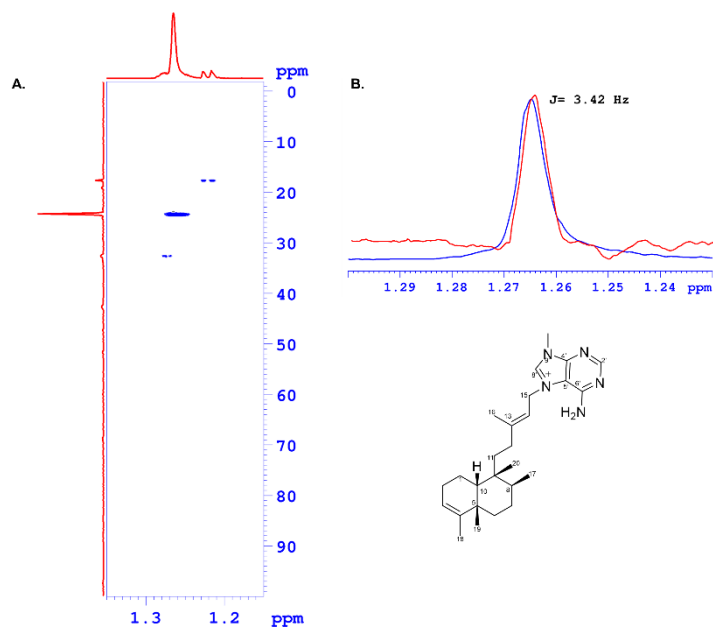
**Figure S28.** 1D-NOESY spectrum irradiating on CH<sub>3</sub>-17 ( $\delta_{\text{H}}$  1.10) of 10-epiagelasine B (**2**) (800 MHz, CDCl<sub>3</sub>, after 24 h).



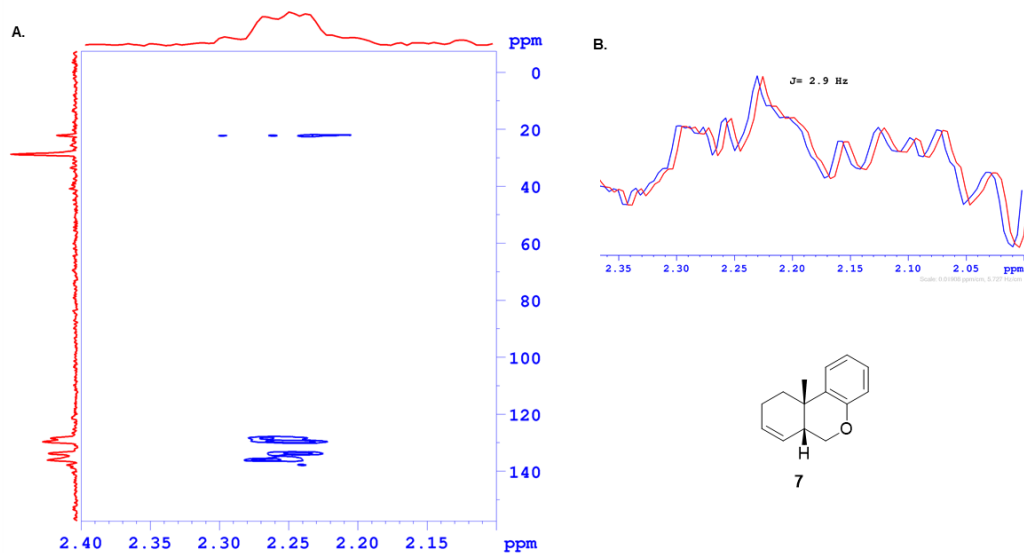
**Figure S29.** 1D-NOESY spectrum irradiating on CH<sub>3</sub>-19 ( $\delta_{\text{H}}$  1.15) of 10-epiagelasine B (**2**) (800 MHz, CDCl<sub>3</sub>, after 24 h).



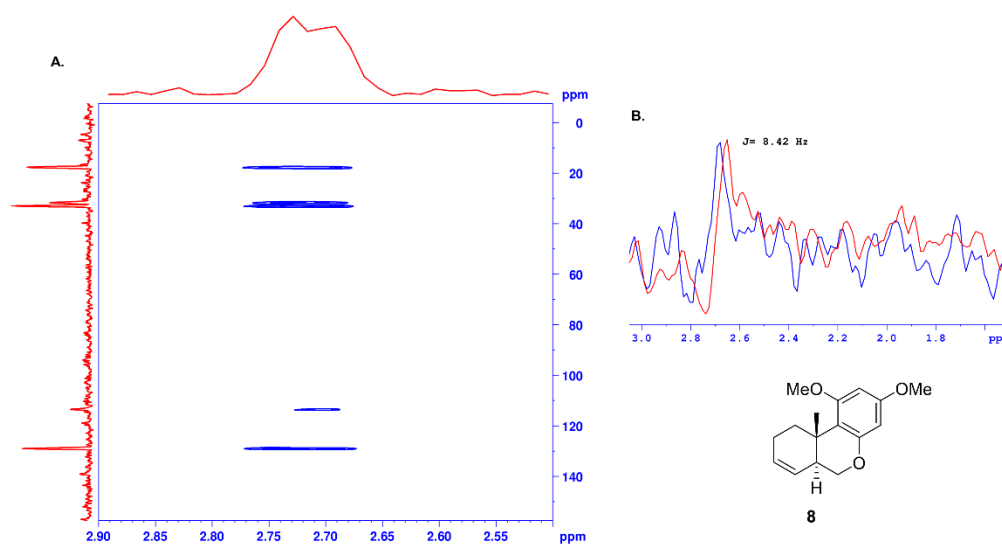
**Figure S30.** 1D-NOESY spectrum irradiating on CH<sub>3</sub>-20 ( $\delta_{\text{H}}$  0.87) of 10-epiagelasine B (**2**) (800 MHz, CDCl<sub>3</sub>, after 24 h).



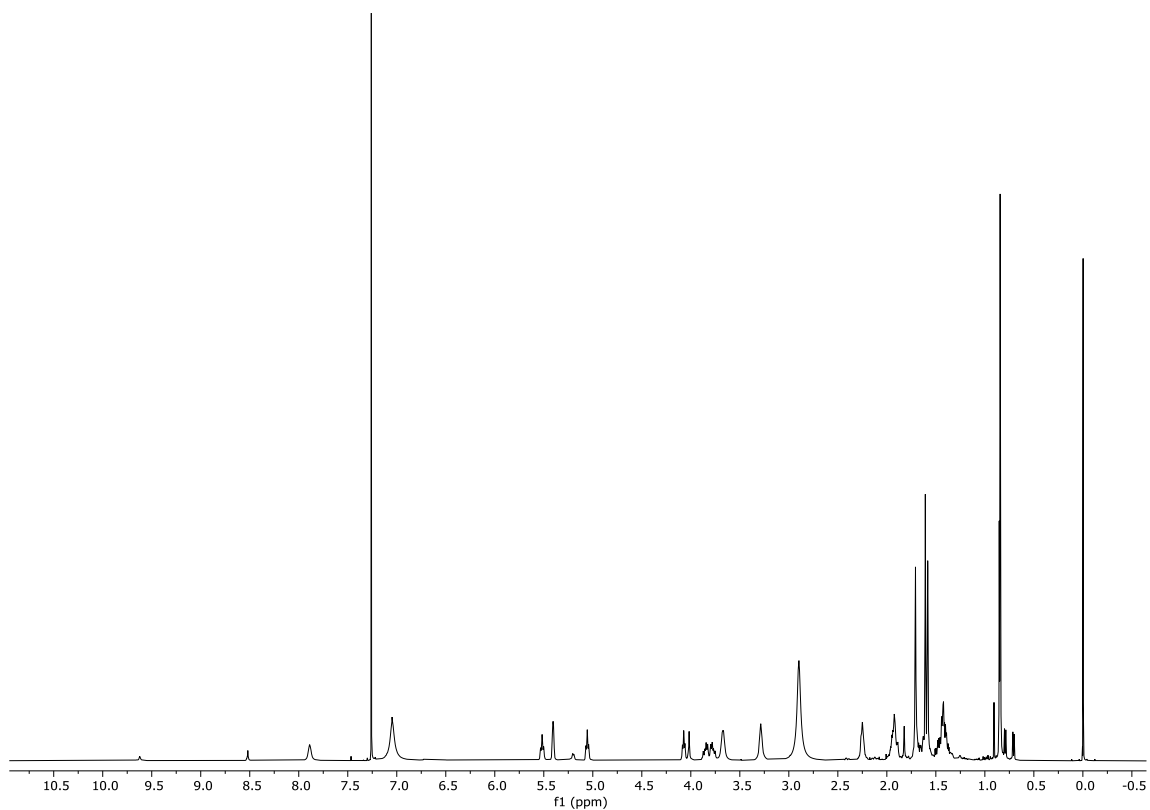
**Figure S31.** 2D IPAP-HSQMBC spectrum (optimized to 6 Hz) after selective inversion of H-10 proton of 10-epi-agelastine B (A). Slice from C-19 to H-10 (B). Measurement of  $^2,3J_{CH}$  values were performed by analysis of IPAP multiplet patterns. NUS parameters: 12%/512/30.



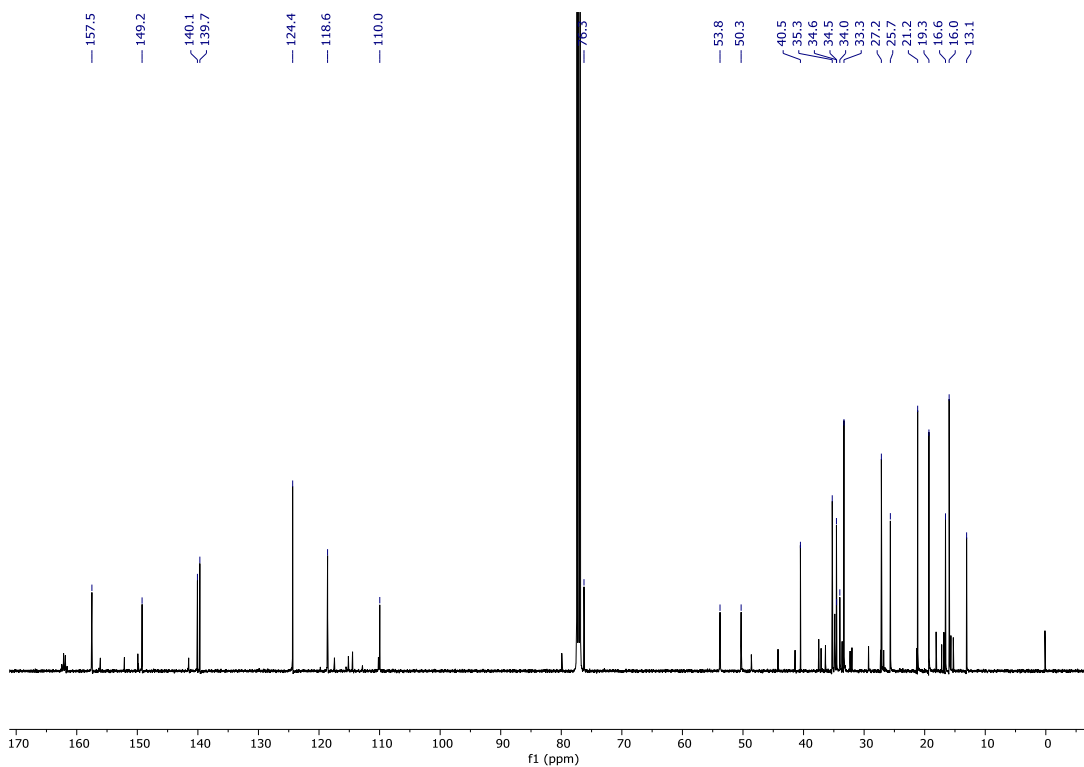
**Figure S32.** 2D IPAP-HSQMBC spectrum (optimized to 6 Hz) after selective inversion of H-5 proton of **7**. Slice from C-7 to H-5 (B). Measurement of  $^2,3J_{CH}$  values were performed by analysis of IPAP multiplet patterns. NUS parameters: 12%/512/30.



**Figure S33.** 2D IPAP-HSQMBC spectrum (optimized to 6 Hz) after selective inversion of H-5 proton of **8**. Slice from C-7 to H-5 (B). Measurement of  $^2,3J_{\text{CH}}$  values were performed by analysis of IPAP multiplet patterns. NUS parameters: 12%/512/30.

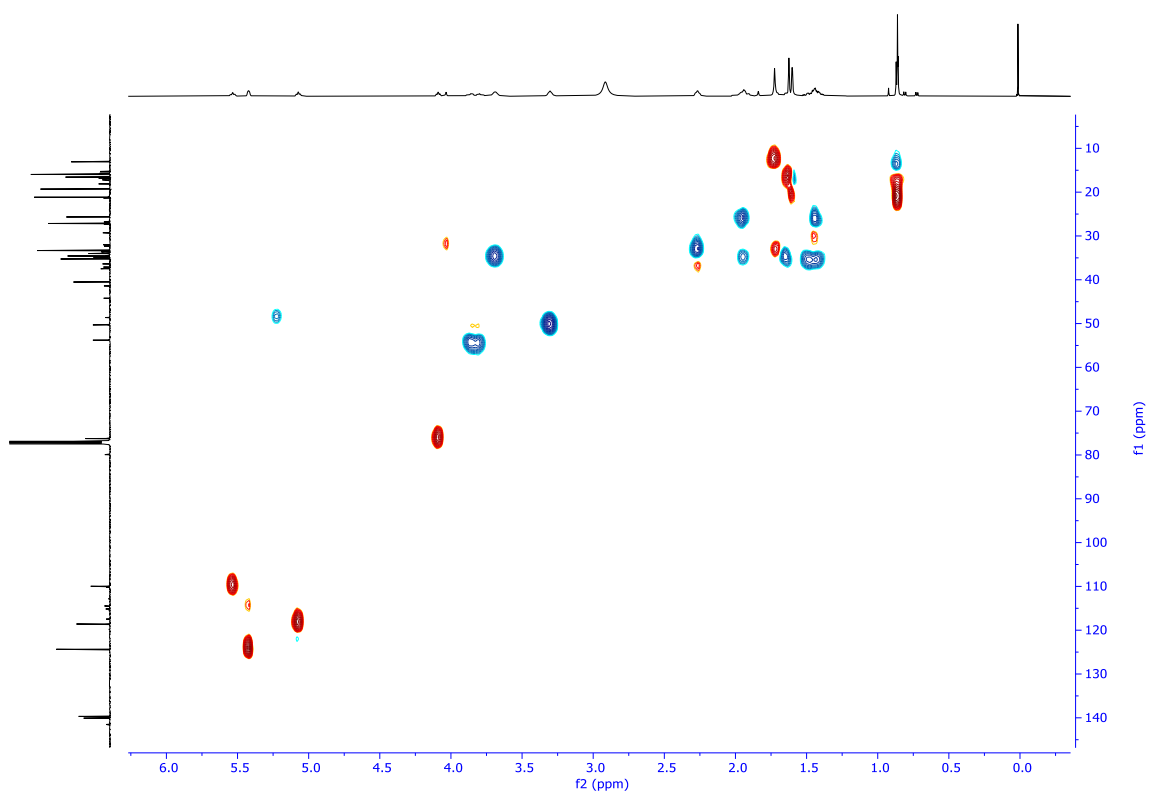


**Figure S34.**  $^1\text{H}$  NMR spectrum (500 MHz,  $\text{CDCl}_3$ ) of 12-hydroxyagelasidine C (**3**).

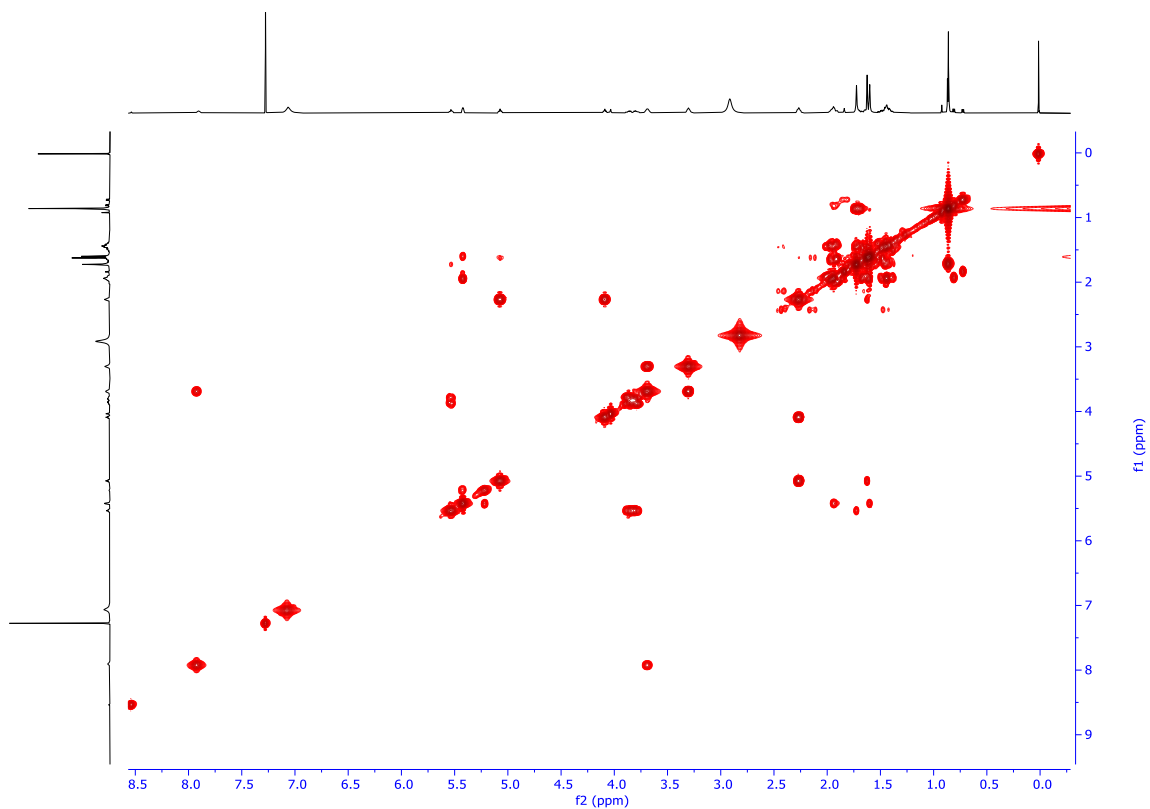


**Figure S35.**  $^{13}\text{C}$  NMR spectrum (125 MHz,  $\text{CDCl}_3$ ) of 12-hydroxyagelasidine C (**3**).

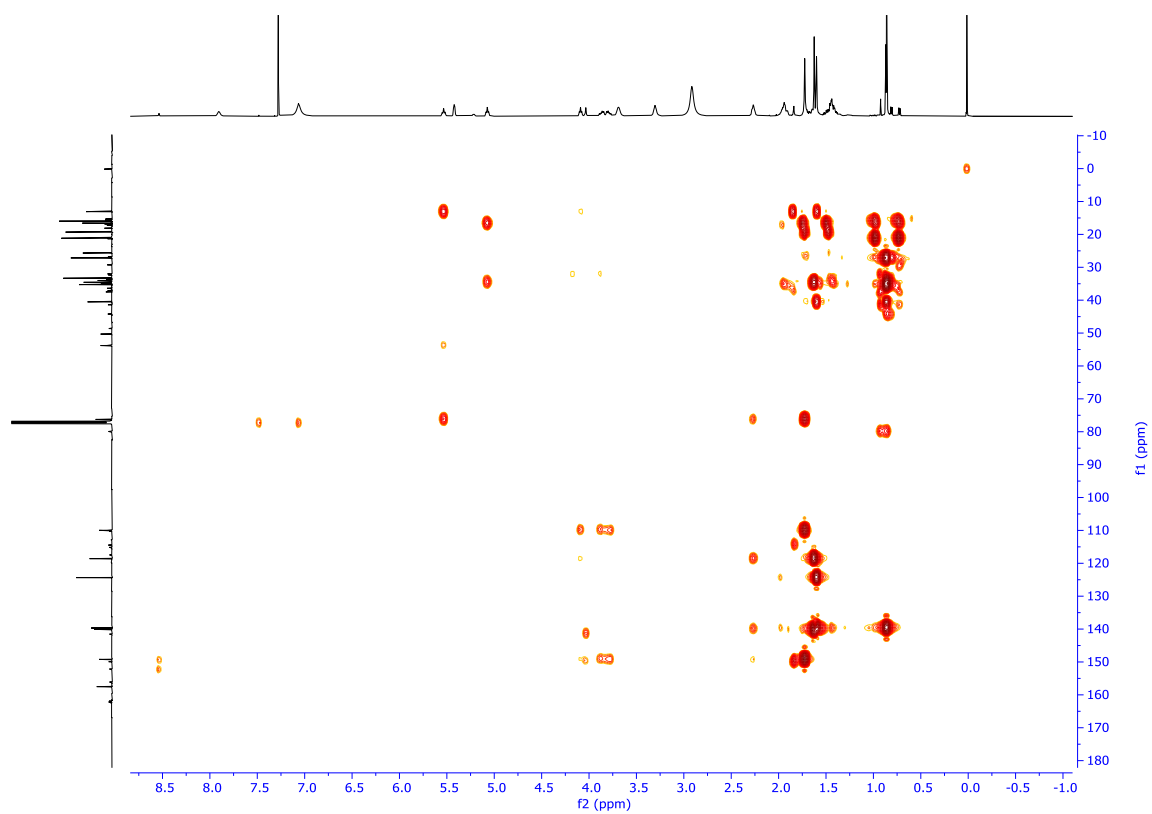




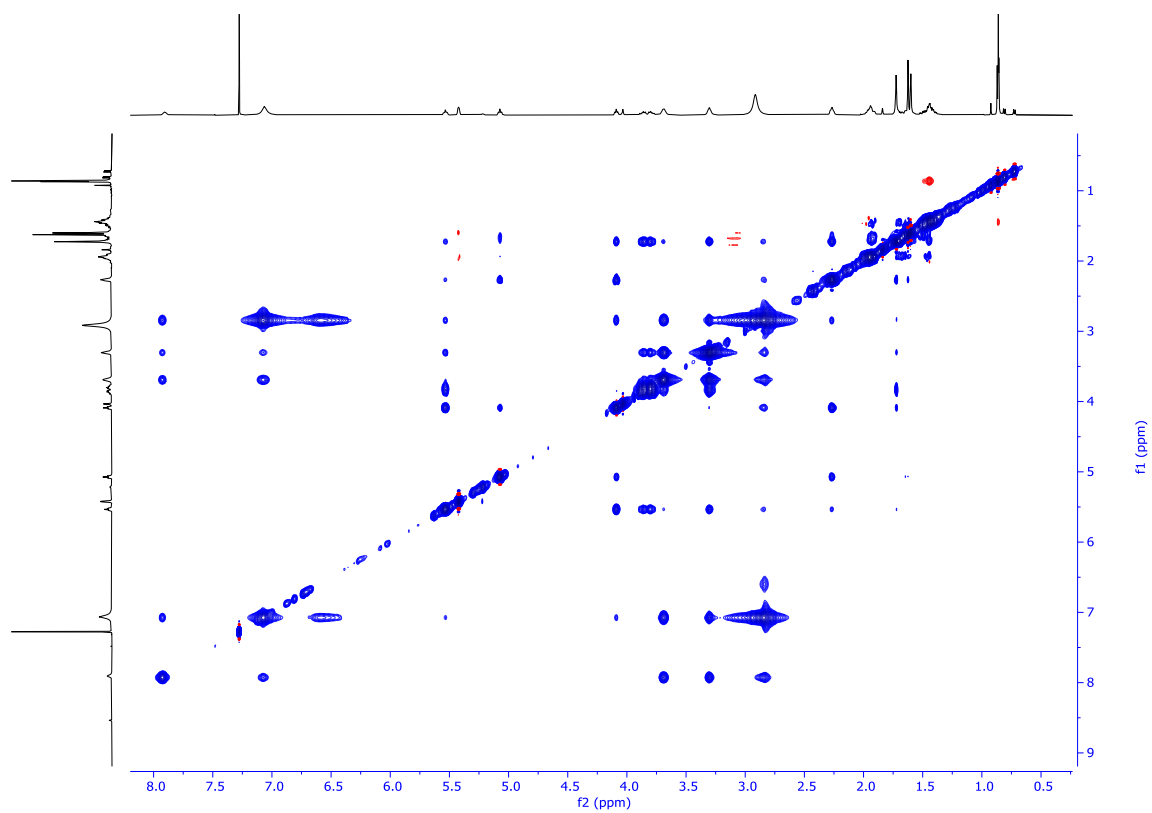
**Figure S36.** HSQC spectrum (500 MHz,  $\text{CDCl}_3$ ) of 12-hydroxyagelasidine C (**3**).



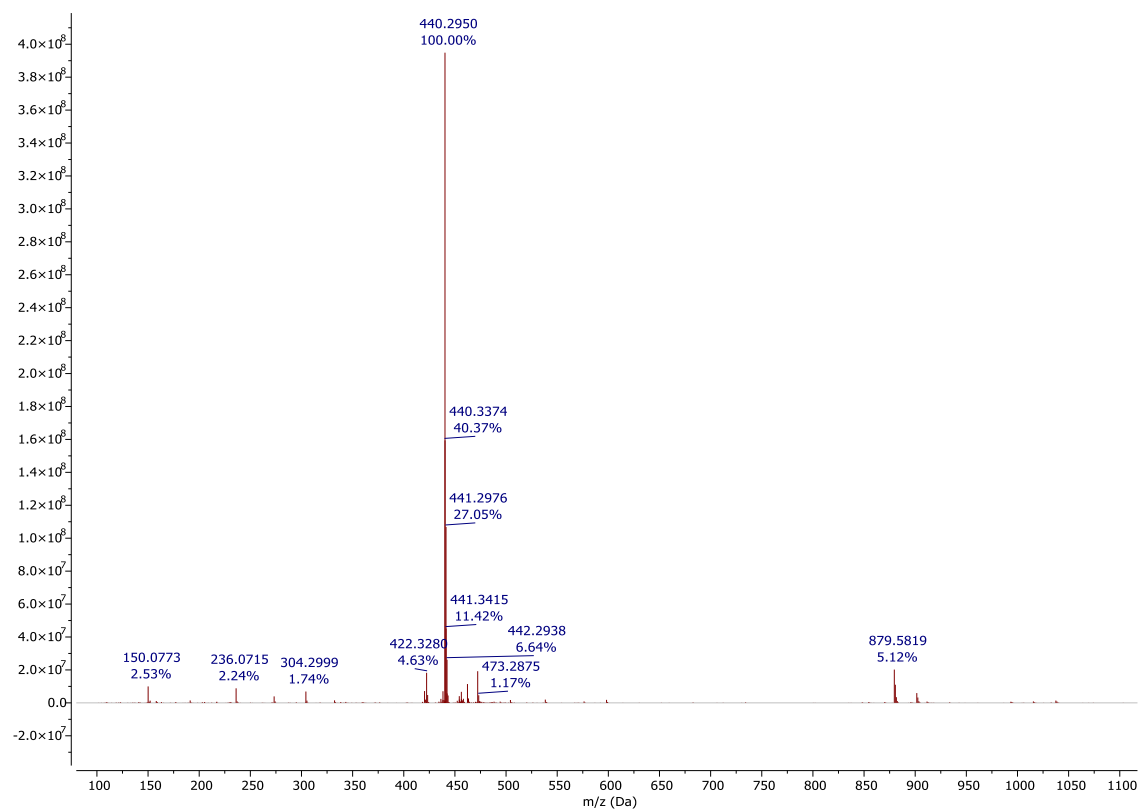
**Figure S37.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum (500 MHz,  $\text{CDCl}_3$ ) of 12-hydroxyagelasidine C (**3**).



**Figure S38.** HMBC spectrum (500 MHz, CDCl<sub>3</sub>) of 12-hydroxyagelasidine C (**3**).



**Figure S39.** NOESY spectrum (500 MHz, CDCl<sub>3</sub>) of 12-hydroxyagelasidine C (**3**).



**Figure S40.** (+)-HR-ESIMS of 12-hydroxyagelasidine C (**3**).