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# **Supporting Information**

Characteristic guaiane sesquiterpenes from *Daphne penicillate* and ECD/NMR-based assignment of C-1 configuration

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# **Experimental section**

### **General experimental procedures**

HRESIMS measurements were tested on a Micro Q-TOF spectrometer (Bruker Daltonics, Billerica, USA). Optical rotations and ECD spectra were recorded on JASCO DIP-370 digital polarimeter (JASCO Corp., Japan) at 20 °C and Bio-Logic Science MOS-450 spectrometer (Bio-Logic Science Instruments, Seyssinet-Pariset, France). IR and UV spectra were obtained on Bruker IFS-55 spectrometer (Bruker Corp., Karlsruhe, Germany) and Shimadzu UV-1700 spectrometer (Shimadzu, Tokyo, Japan), respectively. NMR spectra were performed on Bruker AVIII-600 spectrometers (Bruker Corp., Bremen, Germany) and TMS was employed as internal standard. Column chromatography was used with silica gel (200-300 mesh, Marine Chemical Inc., China). CHP20 (25–100  $\mu$ m, Green Herbs Science and Technology Development Corp., Beijing, China). Preparative HPLC separations were carried out by Shimadzu LC-20AR liquid chromatography system with an SPD-20A UV detector (Shimadzu, Kyoto, Japan), and a YMC Pack ODS column (C<sub>18</sub>, 250 × 10 mm, 5  $\mu$ m, YMC Corp, Kyoto, Japan) were used. The melting point was obtained on an X-6 melting point apparatus (Beijing TECH Instrument Corp., China).

#### **Plant material**

The aerial parts of *Daphne penicillata* were collected from Wenchuan County, Aba Prefecture, Sichuan Province, China, in July 2019 (N31°29'51.52", E103°38'14.35"). and authenticated by Prof. Jincai Lu (School of Traditional Chinese Materia Medica, Shenyang Pharmaceutical University). The voucher sample (No. MJ20190701) was deposited in the herbarium of Shenyang Pharmaceutical University.

### **Extraction and isolation**

The dried herbs of *Daphne penicillata* (48.0 kg) were extracted under reflux conditions using 75% aqueous EtOH (50 L  $\times$  3 times  $\times$  4 hours). The percolates were combined and evaporated under reduced pressure to afford a crude extract. The extract was suspended in water and successively partitioned with EtOAc and *n*-BuOH. The EtOAc extract (600 g) and *n*-BuOH (1200 g) were subjected

to silica gel column using CH<sub>2</sub>Cl<sub>2</sub>-MeOH (100:1-1:1, v/v) as gradient eluents to afford four fractions (Fr.A-D). Fr.A (200 g) was separated by polyamide chromatography eluted with 20% and 70% EtOH to obtain two fractions (Fr.A1 to Fr.A2), then Fr.A1 (90 g) was subjected to column chromatography on HP20 resin with H<sub>2</sub>O, 20%, 50% and 90% EtOH to give two fractions (Fr.A1-1 and Fr.A1-2). Fr.A1-2 (35 g) were separated by ODS column chromatography, eluted with a gradient of MeOH-H<sub>2</sub>O from 10:90 to 60:40, respectively. and then redistributed in five fractions (Fr.1-5) based on HPLC analysis. Among them, Fr.3 (15 g) was subjected to silica gel CC eluting with petroleum ether/EtOAc (v/v, 100:1 to 5:1) to yield five fractions (Fr.3.1–Fr.3.4). Fr.3.1 (2.4 g) was separated by RP-C18 preparative HPLC using MeOH/H<sub>2</sub>O (55:45) to obtain three fractions (Fr.3.1.1–Fr.3.1.4). **1** (5.0 mg,  $t_R = 10.3 \text{ min}$ , **2** (3.0 mg,  $t_R = 12.5 \text{ min}$ ) **5** (3.0 mg,  $t_R = 20.4 \text{ min}$ ) and **6** (10.0 mg,  $t_R = 28.3 \text{ min}$ ) was obtained from Fr.3.1.1 (91.5 mg) by semipreparative HPLC eluted with CH<sub>3</sub>CN-H<sub>2</sub>O (20:80, 2.5 mL/min). **3** (2.0 mg,  $t_R = 15.8 \text{ min}$ ), **4** (5.0 mg,  $t_R = 21.2 \text{ min}$ ), **7** (2.0 mg,  $t_R = 22.9 \text{ min}$ ) and **9** (1.5 mg,  $t_R = 30.5 \text{ min}$ ) was isolated from Fr.3.1.3 (52.6 mg) and Fr.3.1.4 (80.5 mg) by semipreparative HPLC eluted with CH<sub>3</sub>CN-H<sub>2</sub>O (25:75, 2.5 mL/min).

Fr.3.2 (3.9 g) and Fr.3.3 (2.9 g) were separated by preparative HPLC using MeOH/H<sub>2</sub>O (50:50) to obtain the following fractions (Fr.3.2.1–Fr.3.2.8 and Fr.3.3.1–Fr.3.3.5). **8** (6.5 mg,  $t_R = 20.1$  min), **10** (3.0 mg,  $t_R = 20.9$  min), **12** (4.0 mg,  $t_R = 32.3$  min), **13** (4.5 mg,  $t_R = 33.5$  min) and **15** (1.5 mg,  $t_R = 38.3$  min) was obtained from Fr.3.2.2 (81.5 mg) and Fr.3.2.3 (87.3 mg) by semipreparative HPLC (CH<sub>3</sub>CN-H<sub>2</sub>O, 26:74, 2.5 mL/min). Fr.3.2.5 (101.5 mg) and Fr.3.2.7 (79.2 mg) were separated by semipreparative HPLC with CH<sub>3</sub>CN-H<sub>2</sub>O (22:78, 2.5 mL/min) to afford **11** (2.5 mg,  $t_R = 16.7$  min), **14** (3.5 mg,  $t_R = 19.3$  min), **16** (2.5 mg,  $t_R = 20.2$  min), **17** (2.5 mg,  $t_R = 24.3$  min) and **20** (6.7 mg,  $t_R = 34.2$  min). Similarly, **18** (3.5 mg,  $t_R = 21.3$  min), **19** (4.0 mg,  $t_R = 23.5$  min), **21** (4.5 mg,  $t_R = 26.2$  min), **22** (2.5 mg,  $t_R = 29.6$  min), **24** (1.5 mg,  $t_R = 32.8$  min) and **25** (1.5 mg,  $t_R = 39.1$  min) was obtained from Fr.3.3.1 (79.2 mg) and Fr.3.3.3 (64.3 mg) by semipreparative HPLC with CH<sub>3</sub>CN-H<sub>2</sub>O (20:80, 2.5 mL/min).

Fr.4 (3.9 g) and Fr.5 (4.2 g) was separated by RP-C18 preparative HPLC using MeOH/H<sub>2</sub>O (42:58) to obtain the following fractions (Fr.4.1.1–Fr.4.2.4 and Fr.5.1.1–Fr.5.2.4). Among them, Fr.4.1.2 (78.3 mg) and Fr 4.1.3 (64.5 mg) were separated by semipreparative HPLC with CH<sub>3</sub>CN-H<sub>2</sub>O (33:67, 2.5 mL/min) to afford **23** (3.0 mg,  $t_R = 12.8$  min), **26** (3.0 mg,  $t_R = 13.5$  min), **27** (1.5 mg,  $t_R = 16.1$  min), **29** (2.0 mg,  $t_R = 17.4$  min) **33** (4.5 mg,  $t_R = 19.2$  min) and **34** (5.0 mg,  $t_R = 22.5$  min). Fr.5.2.3 (110.8 mg) was separated by semipreparative HPLC eluting with CH<sub>3</sub>CN/H<sub>2</sub>O (28:72, 2.5 mL/min) to give **28** (1.5 mg,  $t_R = 7.8$  min), **30** (2.0 mg,  $t_R = 12.1$  min), **31** (3.5 mg,  $t_R = 13.9$  min), **32** (2.0 mg,  $t_R = 15.4$  min), **35** (5.5 mg,  $t_R = 19.2$  min). Fr.5.2.4 (94.7 mg) was purified by HPLC eluting with CH<sub>3</sub>CN/H<sub>2</sub>O (25:75, 2.5 mL/min) to give **36** (1.5 mg,  $t_R = 17.3$  min), **37** (2.5 mg,  $t_R = 22.6$  min), **38** (1.5 mg,  $t_R = 24.3$  min), **39** (2.5 mg,  $t_R = 25.7$  min) and **40** (1.5 mg,  $t_R = 32.4$  min).

*Daphnenicillata A (1)*: colorless oil  $[\alpha]_D^{20}$  +28.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 240 nm (1.43), 287 nm (0.56); ECD (MeOH)  $\lambda_{max}$  (Δε) 193 (-9.22), 209 (-5.75), 240 (+2.13), 290 (-4.75) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S1; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd

for C<sub>18</sub>H<sub>22</sub>O<sub>2</sub>Na, 309.1461; Found 309.1471.

*Daphnenicillata B* (5): colorless oil;  $[\alpha]_D^{20}$  +40.2 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 241 nm (0.84), 292 nm (0.01); ECD (MeOH)  $\lambda_{max}$  (Δε) 260 (+15.13), 313 (-213.75) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S1; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>22</sub>O<sub>3</sub>Na, 273.1461; Found 273.1472.

*Daphnenicillata C (6)*: colorless oil;  $[\alpha]_D^{20}$  +46.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 240 nm (3.50), 299 nm (0.06); ECD (MeOH)  $\lambda_{max}$  (Δε) 267 (+15.65), 317 (-195.85) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S2; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>22</sub>O<sub>4</sub>Na, 289.1410; Found 289.1411.

*Daphnenicillata D* (7): colorless oil;  $[\alpha]_D^{20}$  +53.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 238 nm (0.31), 298 nm (0.01); ECD (MeOH)  $\lambda_{max}$  (Δε) 193 (-5.13), 226 (+6.34), 247 (-11.87), 315 (+1.98) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S2; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>24</sub>O<sub>3</sub>Na, 287.1618; Found 287.1609.

*Daphnenicillata E (8)*: colorless oil;  $[\alpha]_D^{20}$  +27.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 239 nm (1.01), 297 nm (0.06); ECD (MeOH)  $\lambda_{max}$  (Δε) 225 (-7.21), 247 (+11.87), 315 (-1.98) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S2; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>24</sub>O<sub>3</sub>Na, 287.1618; Found 287.1609.

*Daphnenicillata F (9)*: colorless oil;  $[\alpha]_D^{20}$  +47.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 236 nm (0.46); ECD (MeOH)  $\lambda_{max}$  (Δε) 195 (-3.27), 214 (+13.76), 247 (-35.65), 321 (+7.95) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S2; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>24</sub>O<sub>4</sub>Na, 303.1567; Found 303.1570.

*Daphnenicillata G (10)*: colorless crystal; m.p.: 180–182 °C;  $[\alpha]_D^{20}$  +29.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 236 nm (0.46); ECD (MeOH)  $\lambda_{max}$  (Δε) 215 (+3.27), 251 (-35.47), 323 (+13.63) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S2; HRMS (ESI) m/z: [M+Na]<sup>+</sup> calcd

for C<sub>14</sub>H<sub>20</sub>O<sub>3</sub>Na, 259.1305; Found 259.1307.

*Daphnenicillata H (11)*: colorless oil;  $[\alpha]_D^{20}$  +64.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 237 nm (1.13); ECD (MeOH)  $\lambda_{max}$  (Δε) 261 (+38.88), 317 (-150.32) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S3; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>14</sub>H<sub>18</sub>O<sub>3</sub>Na, 257.1148; Found 257.1182.

*Daphnenicillata I (12)*: colorless oil;  $[\alpha]_D^{20}$  +32.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 239 nm (2.00), 295 nm (0.05); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 263 (-37.38), 317 (-59.76) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S3; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>20</sub>O<sub>2</sub>Na, 255.1356; Found 255.1351.

*Daphnenicillata J (13)*: colorless oil;  $[\alpha]_D^{20}$  +48.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 237 nm (3.14), 303 nm (0.04); ECD (MeOH)  $\lambda_{max}$  (Δε) 197 (-7.35), 213 (-11.42), 247 (+27.89), 315 (-6.06) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S3; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>20</sub>O<sub>3</sub>Na, 271.1305; Found 271.1295.

*Daphnenicillata K (14)*: colorless oil;  $[\alpha]_D^{20}$  +40.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 279 nm (0.03); ECD (MeOH)  $\lambda_{max}$  (Δε) 195 (-2.99), 245 (+13.89), 315 (-6.57) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S3; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>20</sub>O<sub>3</sub>Na, 271.1305; Found 271.1307.

*Daphnenicillata L (15)*: colorless oil;  $[α]_D^{20}$  +41.0 (c 0.10, MeOH); UV (MeOH)  $λ_{max}$  (logε): 279 nm (0.07); ECD (MeOH)  $λ_{max}$  (Δε) 195 (-9.87), 243 (-17.96), 313 (+7.65) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S3; HRMS (ESI) *m/z*: [M+H]<sup>+</sup> calcd for C<sub>15</sub>H<sub>21</sub>O<sub>3</sub>, 249.1485; Found 249.1486.

*Daphnenicillata M* (16): colorless oil;  $[\alpha]_D^{20}$  +21.5 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 275 nm (1.52); ECD (MeOH)  $\lambda_{max}$  (Δε) 209 (-22.44), 245 (+37.73), 321 (-10.84) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S4; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>20</sub>O<sub>3</sub>Na, 273.1305; Found 271.1294.

*Daphnenicillata* N (17): colorless oil;  $[\alpha]_D^{20}$  +58.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 236 nm (1.22); ECD (MeOH)  $\lambda_{max}$  (Δε) 195 (-7.26), 214 (-4.96), 247 (+31.65), 314 (-10.85) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S4; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>20</sub>O<sub>4</sub>Na, 287.1254; Found 287.1232.

*Daphnenicillata O (18)*: colorless oil;  $[\alpha]_D^{20}$  +56.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 242 nm (0.98); ECD (MeOH)  $\lambda_{max}$  (Δε) 193 (-15.95), 221 (+20.96), 310 (-6.75) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S4; HRMS (ESI) *m/z*: [M+H]<sup>+</sup> calcd for C<sub>15</sub>H<sub>23</sub>O<sub>2</sub>, 235.1693; Found 235.1692.

*Daphnenicillata P (23)*: colorless oil;  $[\alpha]_D^{20}$  +50.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 244 nm (1.95), 288 nm (0.02); ECD (MeOH)  $\lambda_{max}$  (Δε) 193 (-8.95), 247 (+25.64), 313 (-3.75) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S5; HRMS (ESI) *m/z*: [M+H]<sup>+</sup> calcd for C<sub>15</sub>H<sub>23</sub>O<sub>2</sub>, 235.1693; Found 235.1697.

*Daphnenicillata Q (24)*: colorless oil;  $[\alpha]_D^{20}$  +62.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 242 nm (1.35), 286 nm (0.09); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 220 (+35.32), 264 (+17.84) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S5; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>22</sub>O<sub>2</sub>Na, 257.1512; Found 257.1509.

*Daphnenicillata R (25)*: colorless oil;  $[α]_D^{20}$  +38.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 239 nm (0.65); ECD (MeOH)  $\lambda_{max}$  (Δε) 208 (-11.37), 245 (+31.34) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S5; HRMS (ESI) *m/z*: [M+H]<sup>+</sup> calcd for C<sub>15</sub>H<sub>25</sub>O<sub>2</sub>, 237.1849; Found 237.1846. *Daphnenicillata S (26)*: colorless oil;  $[α]_D^{20}$  +30.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 240 nm (2.03); ECD (MeOH)  $\lambda_{max}$  (Δε) 203 (-27.84), 245 (-8.32), 265 (+20.34), 310 (-14.25) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S6; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>24</sub>O<sub>2</sub>Na, 259.1669; Found 259.1668. *Daphnenicillata T (27)*: colorless crystal; m.p.: 192–194 °C;  $[\alpha]_D^{20}$  +32.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 233 nm (0.29), 287 nm (0.02); ECD (MeOH)  $\lambda_{max}$  (Δε) 195 (–42.94), 252 (+4.15) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S6; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>22</sub>O<sub>3</sub>Na, 273.1461; Found 273.1462.

*Daphnenicillata U (28)*: colorless crystal; m.p.: 185–187 °C;  $[\alpha]_D^{20}$  +24.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 243 nm (1.11), 287 nm (0.04); ECD (MeOH)  $\lambda_{max}$  (Δε) 216 (+53.65), 251 (–107.95) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S6; HRMS (ESI) *m/z*: [M+H]<sup>+</sup> calcd for C<sub>15</sub>H<sub>23</sub>O<sub>2</sub>, 235.1693; Found 235.1739.

*Daphnenicillata V (29)*: colorless crystal; m.p.: 200–202 °C;  $[\alpha]_D^{20}$  +44.0 (c 0.10, MeOH); UV (MeOH) λ<sub>max</sub> (logε): 226 nm (1.31); ECD (MeOH) λ<sub>max</sub> (Δε) 220 (+12.65), 248 (-9.85) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S6; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>22</sub>O<sub>3</sub>Na, 273.1461; Found 273.1466.

*Daphnenicillata W (30)*: colorless oil;  $[\alpha]_D^{20}$  +29.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 240 nm (0.38), 299 nm (0.17); ECD (MeOH)  $\lambda_{max}$  (Δε) 192 (-16.13), 214 (-14.85), 251 (+22.64), 313 (-8.75) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S6; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>15</sub>H<sub>20</sub>O<sub>2</sub>Na, 255.1356; Found 255.1353.

*Daphnenicillata X (33)*: colorless oil;  $[\alpha]_D^{20}$  +65.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 241 nm (1.49); ECD (MeOH)  $\lambda_{max}$  (Δε) 213 (-22.43), 230 (+5.34), 265 (+37.34), 312 (-43.37) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S7; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>23</sub>O<sub>2</sub>Na, 247.1693; Found 247.1697.

*Daphnenicillata Y (34)*: colorless oil;  $[α]_D^{20}$  +29.0 (c 0.10, MeOH); UV (MeOH)  $λ_{max}$  (logε): 243 nm (0.28), 293 nm (0.09); ECD (MeOH)  $λ_{max}$  (Δε) 210 (-16.76), 247 (+31.45), 314 (-15.13) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S7; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>22</sub>O<sub>3</sub>Na, 285.1461; Found 285.1469. *Daphnenicillata Z (35)*: colorless oil;  $[\alpha]_D^{20}$  +53.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (logε): 236 nm (0.66), 293 nm (0.35); ECD (MeOH)  $\lambda_{max}$  (Δε) 191 (-6.53), 206 (-7.76), 225 (+8.34), 247 (-11.34), 285 (-8.13) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S7; HRMS (ESI) *m/z*: [M+H]<sup>+</sup> calcd for C<sub>16</sub>H<sub>23</sub>O<sub>3</sub>, 263.1642; Found 263.1619.

*Minjiangpenicillata A (36)*: colorless oil;  $[\alpha]_D^{20}$  +58.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (log $\varepsilon$ ): 233 nm (0.29), 287 nm (0.02); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 195 (-42.94), 252 (+4.15) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S8; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>26</sub>O<sub>4</sub>Na, 305.1723; Found 305.1722.

*Minjiangpenicillata B (37)*: colorless oil;  $[\alpha]_D^{20}$  +39.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (log $\varepsilon$ ): 206 nm (1.91); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 183 (+23.65), 195 (-8.25), 210 (+4.93), 251 (+51.93), 309 (-5.34) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S8; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>26</sub>O<sub>4</sub>Na, 305.1723; Found 305.1737.

*Minjiangpenicillata C (38)*: colorless oil;  $[\alpha]_D^{20}$  +27.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (log $\varepsilon$ ): 243 nm (0.43); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 193 (-8.73), 210 (+14.72), 258 (+5.34) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S8; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>26</sub>O<sub>3</sub>Na, 289.1774; Found 289.1743.

*Minjiangpenicillata D (39)*: colorless oil;  $[\alpha]_D^{20}$  +65.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (log $\varepsilon$ ): 234 nm (0.22); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 212 (+9.15), 237 (-21.15) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S8; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>22</sub>O<sub>4</sub>Na, 301.1410; Found 301.1420.

*Minjiangpenicillata E (40)*: colorless oil;  $[\alpha]_D^{20}$  +59.0 (c 0.10, MeOH); UV (MeOH)  $\lambda_{max}$  (log $\varepsilon$ ): 234 nm (0.68); ECD (MeOH)  $\lambda_{max}$  ( $\Delta \varepsilon$ ) 227 (-29.94) nm. The <sup>1</sup>H NMR (CDCl<sub>3</sub>, 600 MHz) and <sup>13</sup>C NMR data (CDCl<sub>3</sub>, 150 MHz), see Table S8; HRMS (ESI) *m/z*: [M+Na]<sup>+</sup> calcd for C<sub>16</sub>H<sub>22</sub>O<sub>4</sub>Na, 301.1410; Found 301.1432.

# **Crystal data for 3:**

orthorhombic,  $C_{15}H_{22}O_3$ , P 21 21 21, a = 5.9836(2) Å, b = 12.5695(4) Å, c = 17.9850(6) Å, V = 1352.67(8) Å Å3, Z = 4, T = 153(2) K,  $\mu$ (Cu K $\alpha$ ) = 0.673 mm<sup>-1</sup>, Dcalc = 1.229 g/cm<sup>3</sup>, 8192 reflections measured (4.29°  $\leq \theta \leq 68.28^{\circ}$ ), 2458 unique (Rint = 0.0260), which were used in all calculations. The final R1 was 0.0289 (I > 2 $\sigma$ (I)), and wR2 was 0.0698 (all data). Flack parameter = -0.04(5). CCDC No: 2195139.

#### **Crystal data for 4:**

monoclinic,  $C_{15}H_{22}O_3$ , P 1 21 1, a = 5.3597(3) Å, b = 8.4494(4) Å, c = 8.4494(4) Å, V = 678.39(6) Å3, Z = 2, T = 164(2) K,  $\mu$ (Cu K $\alpha$ ) = 0.671 mm<sup>-1</sup>, Dcalc = 1.225 g/cm<sup>3</sup>, 3899 reflections measured (2.95°  $\leq \theta \leq$  68.40°), 2107 unique (Rint = 0.0317), which were used in all calculations. The final R1 was 0.0648 (I > 2 $\sigma$ (I)), and wR2 was 0.1962 (all data). Flack parameter = -0.20(3). CCDC No: 2195138.

#### **Crystal data for 10:**

orthorhombic, C<sub>14</sub>H<sub>20</sub>O<sub>3</sub>, P 21 21 21, a = 5.1817(2) Å, b = 9.2698(4) Å, c = 27.2715(13) Å, V = 1309.94(10) Å3, Z = 4, T = 153(2) K,  $\mu$ (Cu K $\alpha$ ) = 0.667 mm<sup>-1</sup>, Dcalc = 1.198 g/cm<sup>3</sup>, 6483 reflections measured (3.24°  $\leq \theta \leq 53.74°$ ), 1574 unique (Rint = 0.0463), which were used in all calculations. The final R1 was 0.0297 (I > 2 $\sigma$ (I)), and wR2 was 0.0634 (all data). Flack parameter = -0.01(5). CCDC No: 2195140.

### **Crystal data for 20:**

orthorhombic, C<sub>15</sub>H<sub>22</sub>O<sub>2</sub>, P 21 21 21, a = 6.9215(2) Å, b = 12.7299(3) Å, c = 15.0170(4) Å, V = 1323.15(6) Å3, Z = 4, T = 155(2) K,  $\mu$ (Cu K $\alpha$ ) = 0.596 mm<sup>-1</sup>, Dcalc = 1.176 g/cm<sup>3</sup>, 8405 reflections measured (4.29°  $\leq \theta \leq 68.28^{\circ}$ ), 2389 unique (Rint = 0.0459), which were used in all calculations. The final R1 was 0.0405 (I > 2 $\sigma$ (I)), and wR2 was 0.0823 (all data). Flack parameter = -0.12(15). CCDC No: 2195142.

### **Crystal data for 21:**

orthorhombic,  $C_{15}H_{22}O_3$ , P 21 21 21, a = 8.1320(2) Å, b = 11.3145(2) Å, c = 14.8559(3) Å, V = 1366.88(5) Å3, Z = 4, T = 193(2) K,  $\mu$ (Cu K $\alpha$ ) = 0.577 mm<sup>-1</sup>, Dcalc = 1.139 g/cm<sup>3</sup>, 8183 reflections measured (4.91°  $\leq \theta \leq 68.32^{\circ}$ ), 2492 unique (Rint = 0.0225), which were used in all calculations. The final R1 was 0.0343 (I > 2 $\sigma$ (I)), and wR2 was 0.0873 (all data). Flack parameter = -0.03(6). CCDC No: 2195143.

### Crystal data for 27:

orthorhombic, C<sub>15</sub>H<sub>20</sub>O<sub>3</sub>, P 21 21 21, a = 20.4454(19) Å, b = 8.2080(6) Å, c = 8.1965(5) Å, V = 1375.50(18) Å3, Z = 4, T = 150(10) K,  $\mu$ (Cu K $\alpha$ ) = 0.661 mm<sup>-1</sup>, Dcalc = 1.199 g/cm<sup>3</sup>, 5028 reflections measured (8.65°  $\leq \theta \leq$  148.55°), 2681 unique (Rint = 0.0512), which were used in all calculations. The final R1 was 0.0826 (I > 2 $\sigma$ (I)), and wR2 was 1976 (all data). Flack parameter = -0.10(4). CCDC No: 2195144.

#### **Crystal data for 28:**

monoclinic, C<sub>15</sub>H<sub>22</sub>O<sub>2</sub>, I2, a = 8.7052(8) Å, b = 10.0397(7) Å, c = 16.0048(12) Å, V = 1351.41(19) Å, Z = 4, T = 100(10) K,  $\mu$ (Cu K $\alpha$ ) = 0.583 mm<sup>-1</sup>, Dcalc = 1.152 g/cm<sup>3</sup>, 3623 reflections measured (10.51°  $\leq \theta \leq$  147.49°), 2115 unique (Rint = 0.0302), which were used in all calculations. The final R1 was 0.0492 (I > 2 $\sigma$ (I)), and wR2 was 0.1333 (all data). Flack parameter = 0.10(3). CCDC No: 2195145.

### **Crystal data for 29:**

monoclinic,  $C_{15}H_{22}O_3$ , P 1 21 1, a = 8.7124(4) Å, b = 6.5713(3) Å, c = 12.0658(6) Å, V = 690.76(6) Å, Z = 2, T = 153(2) K,  $\mu$ (Cu K $\alpha$ ) = 0.659 mm<sup>-1</sup>, Dcalc = 1.204 g/cm<sup>3</sup>, 3297 reflections measured (6.24°  $\leq \theta \leq$  72.38°), 2024 unique (Rint = 0.0343), which were used in all calculations. The final R1 was 0.0343 (I > 2 $\sigma$ (I)), and wR2 was 0.0943 (all data). Flack parameter = 0.13(6). CCDC No: 2195146.

# **Crystal data for 31:**

orthorhombic,  $C_{15}H_{20}O_2$ ,  $C222_1$ , a = 8.1880(3) Å, b = 23.4706(8) Å, c = 13.8857(4) Å, V = 2668.51(16) Å, Z = 8, T = 150(10) K,  $\mu$ (Cu K $\alpha$ ) = 0.590 mm<sup>-1</sup>, Dcalc = 1.156 g/cm<sup>3</sup>, 6932 reflections measured (7.53°  $\leq \theta \leq 146.39^{\circ}$ ), 2610 unique (Rint = 0.0396), which were used in all calculations. The final R1 was 0.0508 (I >  $2\sigma$ (I)), and wR2 was 0.1332 (all data). Flack parameter = 0.00(2). CCDC No: 2195147.

#### **Molecular networking**

The aerial parts of *Daphne penicillate* were extracted by 75% EtOH, which was successively partitioned into ethyl acetate and *n*-butanol. The ethyl acetate extract was subjected to silica gel column chromatography, followed by polyamide chromatography to afford a series of fractions. Then, they was analyzed by HPLC-

ESI-MS/MS. MSConvert software was applied to converted from .wiff format of MS/MS data to .mzXML format. Then, these converted files were conducted by the MZmine 2. The mass detection was realized keeping the noise level at 15, and peaks without an associated MS/MS spectrum were finally filtered out. The data were submitted the online platform at the Global Natural Products Social Molecular Networking website (gnps.ucsd.edu) to generate the molecular network with edges that were filtered to have a cosine score above 0.65 and more than 6 matched peaks. The parameters include parent ion mass tolerance (0.02 Da), fragment ion mass tolerance (0.5 Da), and a minimum cluster size of 1. The resulting molecular network was visualized using the Cytoscape 3.8.2 program.

### **NMR** calculations

The conformational analysis of isolated compounds was performed on the CONFLEX software by using MMFF94s molecular force field. All the conformers whose Boltzmann distribution is more than 1% were chosen, and then they were initially optimized at B3LYP/6-31G(d) level in chloroform using the polarizable continuum model (PCM) solvent model by Gaussian 09 program package. The gauge independent atomic orbital (GIAO) shielding constants of these conformers were calculated at the mPW1PW91/6-311+G(d,p) level after geometry optimization. Boltzmann-weighted averages of the chemical shifts were calculated to scale them against the experimental values. The <sup>1</sup>H NMR and <sup>13</sup>C NMR chemical shift of tetramethylsilane were calculated at the same level and used as reference. The shielding constants obtained were converted into chemical shifts by referencing to TMS at 0 ppm ( $\delta cal = \sigma TMS - \sigma cal$ ). The MAE<sub>AAdd</sub> values, DP4+ and CP3 probability were calculated for evaluation of the deviations between the experimental and calculated results.

#### **ECD** calculations

Conformational analysis of all the possible conformers of isolated compounds were performed by using the MMFF94 force field in CONFLEX software. All the conformers obtained were screened based on the energy of optimized structures at the B3LYP/6-31G(d) level in an energy window of 3 kcal/mol in the Gaussian 09 software. Then, the ECD data of all the selected conformers were calculated with the time-dependent density functional theory (TDDFT) method at the B3LYP/6-311++G(2d, p) levels with the CPCM model in methanol solution. Finally, the Boltzmann-averaged ECD curve was generated using SpecDis 1.51.

### Inflammatory mediator and cytokine assay

BV2 cells were cultured in DMEM medium containing contained 10% heat-inactivated FBS with 100 U/ml penicillin and 100  $\mu$ g/mL streptomycin at 37 °C with 5% CO<sub>2</sub>. BV2 cells were seeded in 96 well plates at a density of 5 × 10<sup>3</sup> cells/well for 24 h. Then, the isolated compounds were added and the cells were further cultured for 1 h. After that, 10  $\mu$ g/ml of LPS were added to each well and the cells were incubated for an additional 24 h. Then, the supernatants were collected. The nitrite concentration in the medium, which is an indicator of NO production, was measured using the Griess reaction. The concentration of NO was measured using a commercially available NO assay kit according to the manufacturer's instructions.

Table S1.  $^{1}$ H (600 MHz) and  $^{13}$ C (150 MHz) NMR data of 1–5 in CDCl<sub>3</sub>.



No.	1		2		3		4		5	
	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$
1		143.2		84.9		85.6		83.0		81.7
2	3.19, d, (20.5)	39.7	3.03, d, (17.7)	48.8	3.09, d, (18.6)	49.0	3.02, d, (17.7)	47.0	2.56, d, (18,0)	46.7
	3.15, d, (20.5)		2.26, d, (17.7)		2.29, d, (18.6)		2.21, d, (17.7)		2.39, d, (18.0)	
3		203.0		205.2		205.7		205.9		206.9
4		143.4		140.2		139.7		139.1		137.8
5		166.2		169.9		169.9		170.4		173.2
6	2.84, dd, (15.3, 4.7)	32.8	2.77, m	35.4	2.75, m	36.0	2.70, dd, (12.9, 11.5)	28.7	2.74, dd, (12.0, 11.5)	30.6
	2.79, dd, (15.3, 8.7)		2.63, dd, (17.6,		2.50, dd, (19.4, 12.0)		2.53, dd, (12.9, 4.4)		2.49, dd, (12.0, 2.6)	
			10.7)							
7	2.52, overlapped	42.8	2.70, m	43.0	2.87, m	42.3	2.43, m	42.1	2.06, overlapped	47.1
8	2.00, dddd, (14.3, 9.8, 7.0,	31.8	1.68, m	29.2	1.79, m	30.8	1.85, m	25.2	1.92, m	27.5
	3.0)									
	1.82, dtd, (14.2, 8.1, 3.1)		1.55, m		1.27, m		1.61, m		1.58, m	
9	2.65, ddd, (16.7, 9.8, 3.1)	25.6	2.21, m	39.7	2.25, m	40.6	2.28, ddd, (15.2, 12.1,	33.1	2.04, overlapped	35.3
							3.1)			
	2.55, overlapped		1.72, overlapped		1.70, ddd, (13.6, 5.6,		1.52, ddd, (15.2, 6.2,		1.41, ddd, (14.8, 9,9,	
					2.3)		3.1)		2.9)	
10		133.5		75.3		77.1		74.7		74.3
11		148.9		150.5		150.6		149.9		149.8
12	4.76, d, (1.5)	110.1	4.77, d, (1.6)	109.5	4.75, d, (1.6)	109.4	4.79, d, (1.6)	109.8	4.76, d, (1.6)	109.8

	4.75, d, (1.5)		4.72, d, (1.6)		4.72, d, (1.6)		4.76, d, (1.6)		4.72, d, (1.6)	
13	1.77, s	20.8	1.77, s	20.3	1.75, s	20.5	1.78, s	20.4	1.76, s	20.0
14	7.56, d, (15.6)	143.8	1.39, s	27.6	1.02, s	22.4	1.37, s	27.3	1.23, s	26.0
15	1.85, s	118.4	1.71, s	8.5	1.67, s	8.2	1.74, s	8.0	1.68, s	7.7
16	6.04, d, (15.6)	167.7								
17		9.1								
-OCH <sub>3</sub>	3.78, s	51.9								

# Table S2. $^{1}$ H (600 MHz) and $^{13}$ C (150 MHz) NMR data of 6-10 in CDCl<sub>3</sub>.



No.	6		7		8		9		10	
	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{ m H}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$
1		80.9		90.3		88.4		90.2		82.6
2	2.50, d, (17.7)	45.3	2.76, d, (18.3)	41.3	2.37, d (18.2)	38.4	2.92, d, (18.1)	40.2	2.87, d (17.6)	50.9
	2.42, d, (17.7)		2.39, d, (18.3)		2.70, d (18.2)		2.37, d, (18.1)		2.40, d (17.6)	
3		206.1		205.3		205.9		204.9		204.8
4		137.9		143.0		141.7		143.4		140.8
5		172.4		167.9		169.3		167.0		168.6
6	2.72, dd, (11.6, 11.4)	31.7	2.66, m	36.8	2.41, overlapped	28.8	2.68, m	35.2	2.72, ddd (18.7, 3.1)	35.0
	2.59, brd, (11.6)		2.58, overlapped		2.46, overlapped		2.60, overlapped		2.61, ddd (18.5, 11.3)	
7	1.94, m	49.4	2.58, overlapped	42.5	2.40, overlapped	41.7	2.56, overlapped	42.9	2.78, m	43.2
8	2.09, m	27.5	1.65, m	29.5	1.52, m	25.1	1.70, m	28.0	1.65, m	27.9
	1.59, m		1.51, m		1.85, m		1.58, m		1.57, m	
9	1.83, ddd, (14.8, 6.0, 2.4)	30.2	2.24, m	39.8	1.47, m	32.8	2.20, ddd, (15.2, 12.8, 2.6)	34.3	2.20, m	32.4
	1.22, ddd, (14.8, 12.6, 2.2)		1.65, m		2.37, overlapped		1.87, ddd, (15.2, 6.1, 2.6)		1.87, m	
10		74.1		75.8		74.8		76.0	4.09, brs	74.1
11		149.6		150.7		150.0		150.3		150.6
12	4.80, d, (1.6)	109.9	4.76, d, (1.7)	109.3	4.77, d (1.5)	109.4	4.78, d, (1.5)	109.6	4.77, d, (1.6)	109.5
	4.76, d, (1.6)		4.72, d, (1.7)		4.73, d (1.5)		4.75, d, (1.5)		4.72, d, (1.6)	
13	1.79, s	20.3	1.77, s	20.4	1.77, s	20.1	1.79, s	20.7	1.77, s	20.3
14	3.79, d, (10.5)	68.4	1.33, s	28.1	1.29, s	27.8	3.70, d, (11.0)	69.2	1.71, s	
	3.48, d, (10.5)						3.63, d, (11.0)			
15	1.72, s	7.7	1.75, s	8.4	1.78, s	8.05	1.75, s	8.6		8.4

Table S3.  $^{1}$ H (600 MHz) and  $^{13}$ C (150 MHz) NMR data of 11–15 in CDCl<sub>3</sub>.



No.	11		12		13		14		15	
	$\delta_{ m H},$ multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$
1		82.9		80.4		81.4		77.5		78.1
2	2.52, overlapped	45.5	2.63, d, (18.5)	49.7	2.98, d (18.4)	48.2	2.99, d (17.4)	49.0	2.94, d (17.9)	48.4
	2.52, overlapped		2.48, d, (18.5)		2.48, d (18.4)		2.48, d (17.4)		2.49, d (17.9)	
3		205.1		207.0		205.6		204.7		204.9
4		141.2		137.8		138.6		138.2		138.8
5		167.7		172.2		170.6		169.6		169.9
6	2.77, m	32.3	2.69, brd, (12.1)	32.2	2.58, brd (12.5)	32.3	2.73, dd (13.6, 3.2)	32.9	2.87, overlapped	30.9
					2.26, m					
	2.17, overlapped		2.23, dd, (12.1,				2.64, dd (13.6, 12.1)		2.78, dd (14.4, 6.9)	
			11.9)							
7	2.16, overlapped	48.9	2.44, m	48.9	2.09, m	40.2	2.27, overlapped	42.6	2.71, m	40.3
8	2.07, m	33.1	2.03, overlapped	37.7	2.20, ddd (15.4,	33.8	2.24, overlapped	33.7	2.41, ddd, (14.1, 6.9,	29.3
					12.2, 0.9)				5.5)	
	1.60, m		1.44, m		2.35, m		2.03, ddd, (13.7, 11.6, 8.1)		2.16, ddd, (14.1, 8.2,	
									2.8)	
9	2.54, overlapped(2H)	37.8	2.05, overlapped	33.4	3.12, dd (5.6, 0.9)	65.7	3.04, dd (8.1, 7.2)	64.0	2.89, overlapped	63.7
			1.68, m							
10		211.9		153.1		63.7		61.3		61.4
11		148.1		149.3		148.7		148.7		147.6
12	4.80, d (1.5)	111.0	4.78, overlapped	110.1	4.78, d (1.5)	110.4	4.81, d (1.5)	110.5	4.78, d (1.5)	110.5
	4.78, d (1.3)		4.77, overlapped		4.77, d (1.5)		4.78, d (1.5)		4.61, d (1.5)	

13	1.75, s	20.4	1.77, s	20.5	1.77, s	20.3	1.77, s	19.9	1.80, s	22.7
14	1.84, s		5.44, d, (1.1)	112.5	1.50, s	21.4	1.19, s	18.4	1.19, s	19.0
			5.15, d, (1.1)							
15	4.21, s	8.1	1.77, s	7.9	1.65, s	8.0	1.76, s	8.4	1.78, s	8.8

# **Table S4.** <sup>1</sup>H (600 MHz) and <sup>13</sup>C (150 MHz) NMR data of **16–20** in CDCl<sub>3</sub>.



No.	16		17		18		19		20	
-	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}},$ multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}},$ multi, $J(\mathrm{Hz})$	$\delta_{ m C}$
1		70.4		81.4	3.19, m	44.3		79.7		82.9
2	2.72, d, (18.7)	40.8	3.04, d, (18.2)	48.3	2.64, dd, (18.8, 6.8)	41.5	2.58, d, (18.1)	51.0	2.55, d, (18.2)	51.2
	2.50, d, (18.7)		2.61, d, (18.2)		2.29, brd, (18.8)		2.43, d, (18.1)		2.40, d, (18.2)	
3		203.8		204.8		208.0		205.8		205.7
4		142.1		139.4		137.7		137.5		138.4
5		167.1		168.8		174.4		173.8		172.1
6	2.76, dd, (11.9, 2.3)	34.5	2.64, overlapped	32.1	2.79, brd, (19.4)	37.8	2.70, dd, (12.6, 12.2)	28.0	2.68, brd, (19.1)	35.8
	2.30, overlapped		2.35, dd, (12.1, 11.9)		2.49, dd, (19.4, 12.1)		2.52, dd, (12.6, 5.0)		2.46, dd, (19.1, 11.6)	
7	2.31, overlapped	36.5	2.13, m	40.4	2.38, m	44.4	2.43, overlapped	41.7	2.82, m	42.8
8	2.00, m	38.3	2.41, m	33.6	1.82, m	31.6	1.81, overlapped	30.9	1.63, m	30.0
	1.88, m		2.26, ddd, (15.5, 11.9, 1.2)		1.57, overlapped		1.51, m		1.43, m	
9	4.41, brd, (5.7)	74.4	3.38, dd, (5.4, 1.2)	63.6	2.21, overlapped	31.4	1.80, overlapped	27.4	2.15, m	30.8
					1.61, overlapped		1.38, m		1.48, overlapped	
10		67.7		63.8	2.19, overlapped	43.0	1.43, m	45.9	2.23, m	40.0
11		149.7		148.5		150.7		149.7		151.0
12	4.79, d, (1.5)	110.1	4.82, d, (1.5)	110.6	4.76, d, (1.6)	109.3	4.78, d, (1.5)	109.5	4.70, d, (1.7)	109.1
	4.76, d, (1.5)		4.80, d, (1.5)		4.71, d, (1.6)		4.75, d, (1.5)		4.65, d, (1.7)	
13	1.76, s	20.3	1.80, s	20.4	1.77, s	20.4	1.78, s	20.7	1.71, s	20.4
14	1.57, s	23.0	4.25, d, (11.6)	67.0	3.41, dd, (10.8, 4.9)	60.9	1.09, d, (6.9)	17.6	0.71, d, (7.1)	14.5
			3.59, d, (11.6)		3.47, dd, (10.8, 8.7)					
15	1.80, s	8.8	1.72, s	8.1	1.64, s	8.2	1.72, s	7.8	1.59, s	7.9

# **Table S5.** <sup>1</sup>H (600 MHz) and <sup>13</sup>C (150 MHz) NMR data of **21–25** in CDCl<sub>3</sub>.







No.	21		22		23		24		25	
	$\delta_{ m H}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}},$ multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$
1	3.19, m	52.1	3.12, m	46.1	3.24, m	43.5	3.06, m	46.0	3.11, ddd, (5.9, 3.8, 1.9)	46.0
2	2.57, dd, (19.3, 2.1)	37.6	2.03, dd (18.8, 1.5)	41.3	2.61, dd, (18.6, 6.6)	42.5	2.60, dd (19.1, 6.7)	41.5	2.55, dd, (18.8, 6.6)	41.5
	2.46, dd, (19.3, 6.5)		2.57, ddd (18.8, 6.6,		2.08, brd, (18.6)		2.10, dd (19.1, 1.8)		2.03, brd, (18.8)	
			1.5)							
3		208.2		208.4		209.1		209.1		208.5
4		138.4		137.8		143.3		143.1		137.9
5		172.1		175.4		171.3		172.3		175.9
6	2.79, brd, (19.3)	37.8	2.76, brd (19.5)	38.1	4.41, d, (10.5)	69.9	4.60, brs	68.1	2.67, brd, (18.8)	33.8
	2.44, overlapped		2.45,dd, (19.5, 12.2)		2.45, ddd, (11.1, 10.0,		2.31, dd (11.2, 1.5)		2.27, m	
					1.0)					
7	2.38, m	44.0	2.32, m	44.7	1.57, m	53.5	1.52, m	50.0	1.90, m	37.5
8	1.89, ddd, (14.2, 4.5, 3.4)	32.0	1.74, m	31.5	1.48, m	25.6	2.21, m	22.5	1.62, m	30.5
	1.41, ddd, (14.2, 13.2,		1.57, m		1.76, overlapped		1.71, m		1.47, m	
	10.4)									
9	2.02, ddd, (13.3, 4.5, 3.4)	46.7	1.83, m	36.9	1.78, overlapped	36.4	1.82, m	36.9	1.83, overlapped	37.0
	1.82, m		1.71, m		2.15, m		2.09, overlapped		1.72, m	
10		74.8	2.11, m	35.5		36.1		35.9	2.10, m	35.6
11		150.3		151.0		147.2		149.2	1.78, overlapped	42.6
12	4.76, d, (1.5)	109.5	1.76, s	109.1	4.95, d, (1.7)	113.0	4.98, d (1.6)	112.2	3.60, dd, (10.7, 7.3)	65.9
	4.73, d, (1.5)		4.74, d (1.6)		4.92, d, (1.7)		4.87, d (1.6)		3.53, dd, (10.7, 6.6)	
13	1.77, s	20.4	4.69, d (1.6)	20.3	1.78, s	18.5	1.85, s	23.6	0.92, d, (7.0)	12.6
14	0.94, s	21.0	0.64, d (7.1)	12.2	0.58, d, (7.1)	12.7	0.75, d (7.1)	12.2	0.62, d, (7.1)	12.3
15	1.66, s	8.3	1.65, s	8.1	1.87, s	8.9	1.85, s	9.0	1.66, s	8.2

H

HO 23

# Table S6. $^{1}$ H (600 MHz) and $^{13}$ C (150 MHz) NMR data of 26–30 in CDCl<sub>3</sub>.



No.	26		27		28		29		30	
	$\delta_{ m H}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$
1	3.13, m	46.0		141.4		142.0		184.6		132.6
2	2.56, dd, (18.8, 6.6)	41.5	2.33, overlapped	30.0		208.3	6.00, s	127.3	2.98, d, (20.6)	41.2
	2.03, brd, (18.8)		2.27, overlapped						2.93, d, (20.6)	
3		208.5	2.12, m	32.0	4.22, d (6.5)	74.3		209.1		204.0
4		137.7	1.37, m	41.0	2.90, overlapped	44.2		80.3		140.5
5		176.0	2.58, m	135.3		176.2		80.7		165.2
6	2.42, dd, (19.6, 12.4)	37.3		35.4	2.61, dd (16.3, 12.1)	38.2	2.20, brd (15.0)	40.5	2.93, overlapped	36.5
	1.93, dd, (19.6, 10.2)		2.34, overlapped		2.33, brd, (16.3)		1.98, dd (15.0,		2.59, dd, (17.1, 11.4)	
							10.7)			
7	2.64, m	37.5	2.28, overlapped	87.2	2.07, m	46.2	1.84, overlapped	44.8	2.69, m	37.6
8	1.65, overlapped	26.7		80.6	1.85, overlapped	30.7	1.80, overlapped	32.0	2.15, ddd, (14.4, 6.2,	41.5
									3.2)	
	1.30, m		4.19, dd (7.4, 5.3)		1.82, overlapped		1.70, m		2.02, ddd, (14.4, 9.3,	
									3.0)	
9	1.83, m	36.9	2.62, dd (12.3, 7.4)	52.5	1.78, overlapped	32.7	2.04, m	34.9	4.49, m	72.5
	1.67, overlapped		1.61, dd (12.3, 5.2)		1.56, m		1.62, m			
10	2.11, m	35.6		79.2	2.93, m	27.9	3.19, m	38.2		134.9
11	1.74, m	42.3		148.2		150.8		150.1		149.5
12	3.60, dd, (10.6, 7.4)	66.1	5.38, d (1.4)	113.9	4.75, d (1.6)	109.4	4.65, d (1.6)	109.3	4.80, d, (1.5)	110.0
	3.54, dd, (10.6, 6.4)		5.29, d (1.4)		4.72, d (1.6)		4.64, d (1.6)		4.78, d, (1.5)	
13	0.90, d, (7.0)	12.3	4.32, dd (12.2, 1.2)	65.1	1.77, s	20.4	1.73, s	19.7	1.80, s	20.5
			4.29, dd (12.2, 0.9)							

14	0.62, d, (7.1)	12.1	1.43, s	21.6	1.02, d (7.2)	17.7	1.35, d, (7.2)	18.7	1.97, s	21.0
15	1.67, s	8.2	0.97, d (6.9)	19.5	1.03, d (7.2)	14.6	1.30, s	21.6	1.77, s	8.7

# **Table S7.** <sup>1</sup>H (600 MHz) and <sup>13</sup>C (150 MHz) NMR data of **31–35** in CDCl<sub>3</sub>.



No.	31		32		33		34		35	
	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}},$ multi, $J(\mathrm{Hz})$	$\delta_{ m C}$
1		132.1		152.7		133.3		135.6		136.2
2	3.00, d, (20.6)	41.2	3.40, d, (20.5)	37.5	2.97, d, (20.6)	41.1	3.12, d, (20.5)	39.6	3.10, d, (20.5)	39.6
	2.93, d, (20.6)		3.40, d, (20.5)		2.90, d, (20.6)		3.00, d, (20.5)		3.07, d, (20.5)	
3		204.0		202.8		204.1		203.5		203.6
4		140.5		144.4		140.4		142.4		142.4
5		165.4		166.3		165.3		165.0		165.3
6	2.81, dd, (16.7, 10.2)	35.5	2.86, overlapped	32.5	2.93, overlapped	36.2	2.93, dd, (15.9,	35.3	2.91, m	34.3
							2.6)			
	2.75, brd, (16.7)		2.84 overlapped		2.59, m		2.61, dd, (15.9,		2.71, dd, (16.5, 3.4)	
			2.84, overlapped				11.2)			
7	2.40, m	40.3	2.55, m	42.9	2.70, m	37.5	2.68, m	37.8	2.41, m	40.7
8	2.25, ddd, (13.8, 5.0,	42.1	1.95, m	31.6	2.26, ddd, (14.6, 6.1, 3.3)	35.8	2.26, ddd, (14.6,	35.9	2.24, ddd, (14.0, 4.6,	37.2
	3.5)						7.0, 4.2)		1.3)	
	1.88, ddd, (13.8, 9.6,		1.78, overlapped		1.82, ddd, (14.6, 9.4, 2.4)		1.93, ddd, (14.6,		1.91, ddd, (14.0, 9.8,	
	8.8)						8.6, 2.8)		8.0)	
9	4.33, m	73.9	2.68, m	21.5	3.88, dd, (6.2, 2.3)	81.8	4.28, overlapped	80.1	4.16, dd, (8.0, 4.6)	81.4
			2.65, m							
10		136.0		135.4		134.2		135.3		135.5
11		149.3		148.7		149.7		149.2		149.0
12	4.78, d, (1.5)	110.1	4.75, d, (1.5)	110.2	4.78, d, (1.5)	109.8	4.80, d, (1.5)	110.1	4.78, d, (1.5)	110.3
	4.75, d, (1.5)		4.73, d, (1.5)		4.75, d, (1.5)		4.79, d, (1.5)		4.76, d, (1.5)	
13	1.79, s	20.1	1.76, s	20.8	1.78, s	20.4	1.80, s	20.5	1.78, s	20.1

14	1.97, s	20.7	9.94, s	191.4	1.92, s	21.5	4.28, d, (12.5)	64.7	4.25, d, (12.5)	64.6
							4.25, d, (12.5)		4.23, d, (12.5)	
15	1.77, s	8.7	1.89, s	9.1	1.75, s	8.7	1.79, s	8.8	1.79, s	8.8
-OCH <sub>3</sub>					3.41, s	57.8	3.44, s	57.4	3.42, s	57.0

# **Table S8.** <sup>1</sup>H (600 MHz) and <sup>13</sup>C (150 MHz) NMR data of **36–40** in CDCl<sub>3</sub>.



No.	36		37		38		39		40	
	$\delta_{ m H}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J(\mathrm{Hz})$	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{\mathrm{H}}$ , multi, $J$ (Hz)	$\delta_{ m C}$	$\delta_{ m H}$ , multi, $J$ (Hz)	$\delta_{ m C}$
1		146.5		144.6		144.0		187.8		189.5
2	4.21, brd, (4.7)	82.2	4.30, t, (6.0)	83.2	4.22, dd, (5.6, 4.8)	82.4	6.22, d, (1.7)	128.8	6.22, s	128.1
	1.95, dd, (13.4, 5.7)		2.00, m		1.88, overlapped					
3	1.27, overlapped	38.8	1.51, overlapped	39.4	1.58, ddd, (12.5, 7.2, 4.8)	38.0		210.3		211.3
4	2.35, m	35.7	2.09, m	35.7	2.13, m	35.3	2.02, overlapped	50.1	2.52, m	50.7
5	2.97, m	39.4	2.92, m	40.2	2.46, m	45.5	2.70, m	50.8	2.06, qd, (7.4, 1.3)	51.4
6	1.56, dd, (13.9, 1.6)	39.3	1.60, dd, (13.9, 2.2)	40.1	1.66, m	33.6	2.07, overlapped	40.4	2.21, m	43.2
	1.32, dd, (13.9, 12.7)		1.55, dd, (13.9,		1.31, m		1.91, ddd, (14.0, 7.7,		1.28, m	
			11.9)				1.5)			
7		80.5		80.4	2.23, overlapped	55.6	2.80, m	43.2	2.77, m	42.8
8	3.56, dd, (11.1, 1.9)	72.5	3.62, dd, (11.0, 2.0)	72.8	3.55, m	71.0	1.96, m	30.6	1.77, m	29.0
	3.13, dd, (13.6, 11.1)		3.10, dd, (14.0, 11.0)				1.51, overlapped		1.63, overlapped	
9	1.81, dd, (13.6, 1.9)	39.3	1.79, dd, (14.0, 2.0)	39.6	2.54, dd, (14.0, 11.4)	44.5	2.04, overlapped	39.2	2.01, ddd, (15.2, 8.4, 1.3)	40.8
					2.25, dd, (14.0, 2.2)		1.46, m		1.91, ddd, (15.2, 10.9, 1.3)	
10		134.3		133.2		131.4		73.7		74.5
11		157.0		157.1		152.0		145.4		145.4
12	5.25, d, (1.5)	111.1	5.28, d, (1.4)	111.0	5.20, brs	112.7	6.18, d, (0.8)	123.7	6.17, d, (0.7)	123.7
	5.20, d, (1.5)		5.21, d, (1.4)		5.05, brs		5.54, d, (0.8)		5.53, d, (0.7)	
13	1.84, s	63.7	1.81, s	63.6	1.85, s	65.4		167.4		167.5

14	4.15, d, (15.5)	22.1	4.18, d, (14.9)	21.7	4.14, d, (23.4)	22.2	1.55, s	30.1	1.43, s	32.2
	4.12, d, (15.5)		4.15, d, (14.9)		4.11, d, (23.4)					
15	0.94, d, (7.0)	15.7	0.96, d, (7.1)	16.7	0.98, d, (7.2)	16.6	1.19, d, (7.4)	14.3	1.18, d, (7.4)	16.9
-OCH <sub>3</sub>	3.30, s	56.1	3.32, s	55.8	3.30, s	55.8	3.78, s	52.1	3.77, s	52.2

Table S9. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–D corresponds to 2–5.

			O HO OH	O O O O O O O O O O O O O O O O O O O		
	Calculated structures A	В	С	D		
	↓	Ļ	Ļ	↓		
	Obtained compounds 4	5	2	3		
No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$	$\delta_{ ext{calcd}} ext{-}\mathbf{C}^{ ext{a}}$		$\delta_{ m calcd}$ - ${f D}^{ m a}$	
9-C	31.6	37.3	33.7		39.5	
8-C	21.4	29.4	25.1		30.4	
7-C	41.9	42.4	44.4		41.5	
6-C	26.4	37.9	26.9		36.5	
5-C	82.7	84.1	81.3		85.4	
4-C	174.8	179.6	177.9		177.8	
3-C	142.6	141.6	142.4		142.7	
2-С	208.3	208.3	208.7		206.9	
1-C	47.3	48.2	47.5		49.0	
17 <b>-</b> C	23.6	24.1	18.0		18.8	
15-C	110.3	109.8	110.6		110.0	
14 <b>-</b> C	18.6	17.1	15.9		18.0	
13-C	157.8	159.9	157.5		159.7	
12 <b>-</b> C	6.5	4.3	6.0		4.0	
10 <b>-</b> C	73.1	74.3	75.7		75.7	
39-Н	1.33	1.36	1.04		0.92	
38-H	1.33	1.36	1.04		0.92	
37-Н	1.33	1.36	1.04		0.92	
35-Н	5.17	5.08	5.10		5.13	
34-Н	5.19	5.15	5.10		5.17	
33-Н	1.98	1.93	1.91	1.93		
---------------	------	------	------	------		
32-Н	1.98	1.93	1.91	1.93		
31-Н	1.98	1.93	1.91	1.93		
30-Н	1.86	1.76	1.81	1.75		
29-Н	1.86	1.76	1.81	1.75		
28-Н	1.86	1.76	1.81	1.75		
27-Н	1.35	1.61	1.29	1.64		
26-Н	2.36	2.46	2.87	2.36		
25-Н	1.80	1.90	1.66	1.47		
24-H	1.50	1.65	1.66	1.72		
23-Н	2.69	3.06	2.43	3.33		
22-Н	2.67	2.80	2.51	2.80		
21-Н	2.82	2.89	3.00	2.76		
20-Н	3.14	3.04	3.07	3.41		
19 <b>-</b> H	2.03	2.25	2.24	2.18		

Table S10. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–D corresponds to 6.

		OH HO O O HO		-
	Calculated structures A	В	C D	
		Ļ		
	Obtained compounds	6		
		•		
No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{ a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$	$\delta_{ ext{calcd-}}\mathbf{C}^{ ext{ a}}$	$\delta_{ m calcd} ext{-} \mathbf{D}^{ m a}$
1-C	87.1	87.3	81.5	86.9
2-C	180.9	180.6	186.0	184.1
3-C	30.8	39.8	35.5	39.3
4-C	46.2	45.2	53.5	46.0
5-C	26.5	32.5	31.6	32.0
6-C	29.5	36.5	31.9	34.3
7-C	75.9	79.9	76.5	77.6
8-C	162.5	163.4	162.8	163.4
9-C	22.6	22.7	22.7	22.6
10-C	114.5	114.7	114.8	114.3
11 <b>-</b> C	70.6	63.9	66.5	69.6
12-C	50.4	54.0	47.4	51.4
14-C	147.5	147.4	144.1	145.4
15-C	212.3	210.3	213.3	212.2
17 <b>-</b> C	10.1	8.6	8.5	9.1
20-Н	2.68	2.68	2.91	2.69
21-Н	2.68	2.71	2.54	2.89
22-Н	2.54	3.24	1.98	2.72
23-Н	1.97	1.55	1.50	1.52

24-Н	1.39	1.24	2.18	1.97
25-Н	1.70	1.92	1.33	2.04
26-Н	2.22	1.98	1.93	1.94
27-Н	1.87	1.88	1.94	1.93
28-Н	1.95	1.75	1.92	1.86
29-Н	1.80	1.85	1.73	1.77
30-Н	5.06	5.08	5.06	4.99
31-Н	5.09	5.06	5.06	5.03
32-Н	3.85	2.93	3.38	3.81
33-Н	3.73	3.28	3.75	3.59
34-Н	1.96	3.07	2.09	3.17
35-Н	3.11	2.26	2.13	1.95
37-Н	1.68	1.38	1.39	1.46
38-Н	1.77	2.21	1.57	1.41
39-Н	1.83	1.28	2.10	2.04

Table S11. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 11.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{ a}}$	$\delta_{ ext{calcd}} ext{-}\mathbf{B}^{ ext{a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$
9-С	17.88	18.43	35-Н	2.00	1.98
8-C	158.10	157.38	34-Н	2.00	1.98

7-C	222.83	222.79	33-Н	2.00	1.98
6-C	37.94	36.03	31-Н	2.62	2.53
5-C	34.15	29.32	30-Н	2.52	2.68
4-C	50.61	42.17	29-Н	5.28	5.27
3-С	31.74	33.51	28-Н	5.31	5.32
2-C	176.69	176.77	27-Н	1.95	1.99
1-C	84.57	85.43	26-Н	1.95	1.99
17 <b>-</b> C	6.97	6.28	25-Н	1.95	1.99
15-C	212.05	210.31	24-Н	2.82	2.69
14-C	146.10	146.22	23-Н	2.66	2.87
12 <b>-</b> C	46.65	47.12	22-Н	2.10	1.97
10-C	113.32	113.94	21-Н	1.81	2.09
			20-Н	2.47	2.95
			19-Н	2.80	2.91
			18 <b>-</b> H	2.56	3.03

Table S12. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 12.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{ a}}$	$\delta_{ ext{calcd}} ext{-}\mathbf{B}^{ ext{a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$
9-С	17.5	18.8	37-Н	1.92	1.81
8-C	158.4	158.9	36-Н	1.92	1.81

7-C	161.3	161.0	35-Н	1.92	1.81
6-C	33.0	32.5	33-Н	2.58	2.74
5-C	37.7	35.2	32-Н	2.65	2.87
4-C	51.2	42.4	31-Н	5.97	5.52
3-C	32.3	34.2	30-Н	5.66	5.67
2-C	181.4	182.3	29-Н	5.27	5.27
1-C	82.4	83.3	28-Н	5.24	5.23
17 <b>-</b> C	6.4	5.0	27-Н	1.98	2.00
15-C	213.3	210.7	26-Н	1.98	2.00
14-C	141.9	140.4	25-Н	1.98	2.00
12-C	50.3	51.8	24-Н	1.93	2.78
11 <b>-</b> C	115.2	114.2	23-Н	2.59	2.29
			22-Н	1.95	1.89
			21-Н	1.82	1.93
			20-Н	2.37	3.29
			19 <b>-</b> H	2.77	2.77
			18-H	2.42	2.93

## Table S13. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–D corresponds to 13–15.



1-C	51.6	52.7	52.5	53.2
2-C	212.2	211.4	210.9	211.3
3-С	145.7	145.8	149.2	145.7
4-C	182.3	182.5	178.3	181.7
5-C	84.6	81.0	85.8	80.7
6-C	36.2	35.3	36.7	36.4
7-C	43.5	45.2	44.4	46.5
8-C	37.6	32.8	34.8	36.6
9-С	67.9	66.2	67.1	66.9
10 <b>-</b> C	66.0	63.9	64.8	63.9
12 <b>-</b> C	8.7	10.1	9.4	9.9
14 <b>-</b> C	161.6	159.8	161.1	161.7
15-C	115.5	117.0	115.5	115.5
16-C	22.1	25.6	22.1	21.7
17 <b>-</b> C	22.9	19.3	21.9	18.63
19-Н	2.36	2.38	2.18	2.36
20-Н	2.86	2.84	2.94	2.83
21-Н	2.31	2.91	2.70	2.64
22-Н	2.52	3.01	2.70	2.90
23-Н	2.08	2.63	2.86	2.19
24-Н	2.14	2.25	1.38	2.14
25-Н	2.24	2.42	1.92	2.05
26-Н	2.99	2.71	2.93	2.85
27-Н	1.67	1.83	1.70	1.74
28-Н	1.67	1.83	1.70	1.74
29-Н	1.67	1.83	1.70	1.74
31-Н	5.08	5.09	5.07	5.05
32-Н	5.05	4.99	5.07	5.08
33-Н	1.83	1.85	1.81	1.84
34-Н	1.83	1.85	1.81	1.84
35-Н	1.83	1.85	1.81	1.84
36-Н	1.36	0.99	1.33	0.99
37-Н	1.36	0.99	1.33	0.99

38-Н	1.36	0.99	1.33	0.99

Table S14. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 17.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$
9-C	64.2	62.4	<b>38-</b> Н	3.45	3.40
8-C	30.5	32.8	37-Н	4.45	3.78
7 <b>-</b> C	41.6	44.2	36-Н	2.03	2.00
6-C	33.0	33.5	35-Н	2.03	2.00
5-C	84.9	78.5	34-Н	2.03	2.00
<b>4-</b> C	174.8	179.0	33-Н	5.23	5.28
3-С	145.9	143.1	32-Н	5.30	5.25
2-C	209.6	210.2	30-Н	1.89	1.91
1-C	49.7	48.7	29-Н	1.89	1.91
17 <b>-</b> C	68.0	60.1	28-Н	1.89	1.91
16-C	18.7	17.4	27-Н	1.64	2.27
15 <b>-</b> C	112.7	112.8	26-Н	2.16	2.37
14 <b>-</b> C	157.9	158.2	25-Н	3.14	2.44
12 <b>-</b> C	6.8	7.1	24-Н	3.01	2.90
10 <b>-</b> C	63.5	65.2	23-Н	2.86	3.03
			22-Н	3.12	3.49

21-Н	2.52	2.58
19 <b>-</b> H	3.38	3.49

Table S15. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–D corresponds to 19–20.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$	$\delta_{ ext{calcd}} ext{-}\mathbf{C}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-}\mathbf{D}^{ ext{a}}$
9-C	17.9	17.8	18.2	17.2
8-C	158.1	160.1	157.0	160.4
7 <b>-</b> C	46.7	42.3	39.3	40.1
6-C	25.9	33.2	25.5	29.4
5-C	29.1	33.3	27.1	29.4
4-C	42.5	43.0	42.1	42.4
3-С	27.0	37.2	31.5	37.0
2-С	180.1	182.1	179.5	180.2
1-C	79.2	81.7	81.1	82.6
17 <b>-</b> C	6.3	4.9	4.6	3.8
15-C	208.4	208.0	208.4	206.5
14-C	140.4	139.2	140.4	141.3
12 <b>-</b> C	51.0	51.3	49.6	52.1
11 <b>-</b> C	14.4	15.9	13.5	11.8
10-C	110.7	109.8	111.8	109.8

39-Н	1.82	1.75	1.79	1.74
38-H	1.82	1.75	1.79	1.74
37-Н	1.82	1.75	1.79	1.74
35-Н	2.64	2.78	2.54	2.64
34-Н	2.29	2.40	2.49	2.44
33-Н	1.12	1.13	0.82	0.73
32-Н	1.12	1.13	0.82	0.73
31-Н	1.12	1.13	0.82	0.73
30-Н	5.17	5.11	5.30	5.09
29-Н	5.14	5.15	5.28	5.18
28-Н	1.98	1.93	1.92	1.91
27-Н	1.98	1.93	1.92	1.91
26-Н	1.98	1.93	1.92	1.91
25-Н	1.19	1.59	2.19	2.20
24-Н	1.40	1.67	1.53	1.53
23-Н	1.93	1.86	2.17	2.45
22-Н	1.39	1.59	1.81	1.80
21-Н	1.90	1.79	2.13	1.58
20-Н	2.73	3.06	2.59	3.38
19 <b>-</b> H	2.66	2.83	2.71	2.71
18-H	2.96	2.92	2.89	2.77

Table S16. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 25-26.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$
1-C	214.5	214.8	18 <b>-</b> H	3.20	3.23
2-C	144.9	145.1	19 <b>-</b> H	1.91	1.89
3-С	189.5	188.8	20-Н	2.55	2.53
4-C	50.8	50.8	21-Н	2.76	2.69
5-C	46.4	46.4	22-Н	2.39	2.56
6-C	37.2	41.2	23-Н	2.00	2.06
7-C	39.8	39.9	24-H	1.49	1.52
8-C	34.3	30.2	25-Н	1.57	1.36
9-C	40.1	40.2	26-Н	1.82	1.78
10-C	41.2	41.4	27-Н	1.77	1.69
11 <b>-</b> C	9.0	9.5	28-Н	1.93	1.97
13-C	47.0	46.9	29-Н	1.46	1.54
14-C	12.6	12.8	30-Н	1.64	1.77
15-C	69.4	68.8	31-Н	1.90	1.73
17 <b>-</b> C	14.2	14.1	32-Н	1.66	1.60
			33-Н	0.85	0.98
			34-H	0.99	0.96
			35-Н	0.69	0.67
			36-H	3.59	3.62
			37-Н	3.60	3.52

39-Н	0.37	0.41
40-H	0.57	0.53
41-H	0.66	0.61

Table S17. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 30-31.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$
9-C	17.4	17.2	36-Н	1.76	2.12
8-C	158.0	158.8	35-Н	2.34	2.06
7-C	145.7	144.6	34-Н	1.62	1.61
6-C	72.1	75.2	33-Н	3.19	3.23
5-C	40.3	39.9	32-Н	3.13	3.11
4-C	39.8	42.4	31-Н	2.03	2.02
3-C	35.8	35.6	30-Н	2.12	2.08
2-C	173.7	174.2	29-Н	2.10	2.38
1-C	136.0	137.0	28-Н	5.24	5.22
16-C	5.2	5.2	27-Н	5.24	5.21
14-C	206.9	206.6	26-Н	2.06	2.04
13-C	142.6	142.8	25-Н	1.96	2.14
12 <b>-</b> C	41.4	41.5	24-H	2.20	1.94
11 <b>-</b> C	18.8	20.5	23-Н	4.69	4.46

10-C	112.6	112.5	22-Н	2.49	2.13
			21-Н	2.20	2.18
			20-Н	2.84	2.56
			19 <b>-</b> H	2.99	2.83
			18 <b>-</b> H	2.78	3.38

## Table S18. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 33.



No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{ a}}$
9-C	82.8	80.7	40-H	3.35	3.75
8-C	37.5	33.5	39-Н	3.40	3.24
7-C	40.5	39.7	38-Н	3.61	3.62
6-C	34.7	34.9	37-Н	2.00	1.96
5-C	143.0	142.7	36-Н	1.92	2.05
4-C	207.3	207.2	35-Н	2.18	2.04
3-C	41.1	41.2	34-Н	2.24	2.27
2-C	137.6	137.9	33-Н	1.83	1.84
1-C	173.8	173.9	32-Н	1.74	1.60
18 <b>-</b> C	53.6	54.8	31-Н	1.95	2.02
15-C	20.7	18.2	30-Н	2.10	2.33
14-C	6.3	5.1	29-Н	2.29	2.08

13-C	21.2	20.0	28-Н	5.25	5.23
12-C	110.5	112.2	27-Н	5.29	5.23
11 <b>-</b> C	160.0	157.9	26-Н	3.87	4.02
10-C	143.6	144.9	25-Н	2.45	2.26
			24-Н	1.90	1.97
			23-Н	2.27	3.01
			22-Н	2.98	3.15
			21-Н	3.32	2.89
			20-Н	3.22	3.19
			19 <b>-</b> H	3.11	3.10

Table S19. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 34–35.



No	$\delta_{ m calcd}$ -A $^{ m a}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$	No	$\delta_{ ext{calcd}} ext{-}\mathbf{A}^{ ext{a}}$	$\delta_{ ext{calcd}} ext{-} \mathbf{B}^{ ext{a}}$
9-C	81.9	84.2	41 <b>-</b> H	3.77	3.74
8-C	34.6	36.9	40-H	3.28	3.60
7-C	40.2	40.5	39-Н	3.67	3.48
6-C	33.3	36.2	37-Н	2.00	1.97
5-C	144.4	146.3	36-Н	2.05	1.99
4-C	207.4	206.5	35-Н	2.11	2.16
3-C	39.8	40.3	34-Н	2.27	2.56

2-C	138.8	140.2	33-Н	1.70	1.68
1-C	173.7	172.4	32-Н	1.91	1.65
19 <b>-</b> C	54.1	54.5	31-Н	4.42	4.23
15-C	18.3	17.7	30-Н	4.36	4.31
14-C	5.4	5.7	29-Н	5.24	5.26
13-C	64.0	64.9	28-Н	5.29	5.24
12-C	112.6	111.8	27-Н	4.46	4.15
11 <b>-</b> C	156.8	158.4	26-Н	2.08	2.35
10-C	145.04	142.87	25-Н	2.28	1.92
			24-Н	2.77	2.39
			23-Н	2.91	2.88
			22-Н	2.88	3.21
			21-Н	3.29	3.25
			20-Н	3.17	3.33

Table S20. Calculated chemical shifts of <sup>1</sup>H NMR and <sup>13</sup>C NMR for A–B corresponds to 39–40.



4-C	39.18	40.08	24-Н	2.32	2.32
5-C	34.75	35.01	25-Н	1.83	1.64
6-C	46.13	46.55	26-Н	1.51	1.67
7-C	77.05	78.25	27-Н	1.95	1.96
8-C	155.27	154.59	28-Н	1.52	1.65
9-C	173.49	173.28	29-Н	6.83	6.78
10-C	132.87	132.86	30-Н	5.92	5.92
11 <b>-</b> C	134.01	134.17	31-Н	5.95	6.38
12-C	52.76	53.89	32-Н	2.36	2.41
13-C	216.91	215.61	33-Н	1.62	1.62
14-C	13.86	13.89	34-Н	1.10	1.09
16-C	30.96	26.15	35-Н	0.46	0.45
20-С	53.08	53.20	36-Н	1.81	1.81
			37-Н	1.32	1.20
			38-Н	1.24	1.27
			40-H	3.64	3.59
			41-H	3.64	3.66
			42-H	3.58	3.66



**Figure S1.** The molecular network was built by HPLC-MS/MS analyses of fractions in *Daphne penicillata*. The molecule cluster including the novel sesquiterpenes is highlighted. The parent m/z of nodes are displayed; The pie charts of nodes represent the source of the compounds.



Figure S2. Linear correlation ( $R^2$ ), DP4+, CP3 and MAE<sub> $\Delta\Delta\delta$ </sub> parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 2–3 and

A-D.



Number/isomers	Α	В
4	100.0%	0.0%
5	1.2%	98.8%

Figure S3. Linear correlation ( $R^2$ ), DP4+, CP3 and MAE<sub> $\Delta\Delta\delta$ </sub> parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 4–5 and

A-D.



Number/isomers	Α	В	С	D
6	0.0%	100.0%	0.0%	0.0%

Figure S4. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 6 and A–D.



**DP4+ calculation Probabilities:** 

Number/isomers	Α	В
11	100.0%	0.0%

Figure S5. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 11 and A–B.



Number/isomers	Α	В
12	100.0%	0.0%

Figure S6. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 12 and A–B.



Number/isomers	Α	В	С	D
13	100.0%	0.0%	0.0%	0.0%

Figure S7. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 13 and A–D.



**DP4+** calculation Probabilities:

Number/isomers	Α	В	С	D
14	0.0%	100.0%	0.0%	0.0%

Figure S8. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 14 and A–D.



Number/isomers	Α	В	С	D
15	0.0%	0.0%	100.0%	0.0%

Figure S9. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 15 and A–D.



Number/isomers	Α	В
17	0.0%	100.0%

Figure S10. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 17 and A–B.



**DP4+ calculation Probabilities:** 

Number/isomers	Α	В	С	D
19	100.0%	0.0%	0.0%	0.0%

Figure S11. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 19 and A–D.



**DP4+ calculation Probabilities:** 

Number/isomers	Α	В	С	D
20	0.0%	0.0%	100.0%	0.0%

Figure S12. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 20 and A–D.



Figure S13. Linear correlation ( $R^2$ ), DP4+, CP3 and MAE<sub> $\Delta\Delta\delta$ </sub> parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 25–26 and A–D.



Figure S14. Linear correlation ( $R^2$ ), DP4+, CP3 and MAE<sub> $\Delta\Delta\delta$ </sub> parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between **30–31** and **A–B**.



Number/isomers	Α	В
33	93.2%	0.0%

Figure S15. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 33 and A–B.



Figure S16. Linear correlation ( $R^2$ ), DP4+, CP3 and MAE<sub> $\Delta\Delta\delta$ </sub> parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 34–35 and A–B.



**DP4+ calculation Probabilities:** 

Number/isomers	Α	В
39	100.0%	0.0%
40	0.0%	100.0%

Figure S17. Linear correlation ( $R^2$ ) and DP4+ parameter between the experimental and calculated <sup>13</sup>C NMR chemical shifts between 39–40 and A–B.



Figure S18. Calculated ECD spectra of model compounds (M1A-M1D and M2A-M2D) and experimental spectra of 21 and 22.



Figure S19 HRESIMS and UV spectra of compound 1



Figure S20<sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 1



Figure S21<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 1



Figure S22 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 1


Figure S23 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 1



Figure S24 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 1



Figure S25 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 1



Figure S26 HRESIMS and UV spectra of compound 5



Figure S27 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 5



Figure S28<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 5



Figure S29 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 5





Figure S30 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 5



Figure S31 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 5



Figure S32 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 5



Figure S33 HRESIMS and UV spectra of compound 6



Figure S34 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 6



Figure S35 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 6



Figure S36 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 6



Figure S37 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 6





Figure S38 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 6





Figure S39 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 6



Figure S40 HRESIMS and UV spectra of compound 7



Figure S41 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 7



Figure S42 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 7



Figure S43 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 7



Figure S44 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 7



Figure S45 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 7



Figure S46 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 7



Figure S47 HRESIMS and UV spectra of compound 8



Figure S48 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 8



Figure S49<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 8



Figure S50 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 8



Figure S51 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 8



Figure S52 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 8



Figure S53 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 8



Figure S54 HRESIMS and UV spectra of compound 9



Figure S55 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 9



Figure S56<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 9



Figure S57 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 9





Figure S58 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 9




Figure S59 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 9





Figure S60 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 9



Figure S61 HRESIMS and UV spectra of compound 10



Figure S62 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 10



Figure S63 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 10



Figure S64 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 10





Figure S65 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 10





Figure S66 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 10





Figure S67 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 10



Figure S68 HRESIMS and UV spectra of compound 11



Figure S69 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 11



Figure S70<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 11



Figure S71 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 11





Figure S72 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 11





Figure S73 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 11





Figure S74 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 11



Figure S75 HRESIMS and UV spectra of compound 12



Figure S76 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 12



Figure S77 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 12



Figure S78 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 12



Figure S79 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 12





Figure S80 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 12



Figure S81 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 12



Figure S82 HRESIMS and UV spectra of compound 13



Figure S83 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 13



Figure S84 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 13



Figure S85 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 13



Figure S86 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 13



Figure S87 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 13



Figure S88 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 13



Figure S89 HRESIMS and UV spectra of compound 14



Figure S90 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 14



Figure S91 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 14



Figure S92 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 14





Figure S93 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 14





Figure S94 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 14




Figure S95 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 14



Figure S96 HRESIMS and UV spectra of compound 15





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Figure S97 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 15



Figure S98 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 15



Figure S99 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 15





Figure S100 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 15



Figure S101 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 15



Figure S102 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 15



Figure S103 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 16



Figure S104 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 16



Figure S105 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 16



Figure S106 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 16



Figure S107 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 16



Figure S108 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 16



Figure S109 HRESIMS and UV spectra of compound 17



Figure S110 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 17



Figure S111 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 17



Figure S112 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 17



Figure S113 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 17



Figure S114 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 17



Figure S115 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 17



Figure S116 HRESIMS and UV spectra of compound 18



Figure S117 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 18



Figure S118<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 18



Figure S119 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 18



Figure S120 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 18



Figure S121 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 18



Figure S122 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 18



Figure S123 HRESIMS and UV spectra of compound 23



Figure S124 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 23



Figure S125 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 23



Figure S126 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 23





Figure S127 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 23



Figure S128 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 23



Figure S129 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 23



Figure \$130 HRESIMS and UV spectra of compound 24


Figure S131 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 24



Figure S132 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 24



Figure S133 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 24



Figure S134 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 24



Figure S135 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 24



Figure S136 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 24



Figure S137 HRESIMS and UV spectra of compound 25



Figure S138 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 25



Figure S139 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 25



Figure S140 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 25





Figure S141 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 25





Figure S142 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 25



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Figure S143 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 25



Figure S144 HRESIMS and UV spectra of compound 27



Figure S145 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 27



Figure S146<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 27



Figure S147 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 27



Figure S148 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 27





Figure S149 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 27



Figure S150 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 27



Figure S151 HRESIMS and UV spectra of compound 28



Figure S152 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 28



Figure S153 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 28



Figure S154 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 28



Figure S155 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 28



Figure S156 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 28



Figure S157 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 28



Figure S158 HRESIMS and UV spectra of compound 29



Figure S159 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 29



Figure S160 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 29



Figure S161 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 29





Figure S162 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 29



Figure S163 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 29



Figure S164 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 29



Figure S165 HRESIMS and UV spectra of compound 30



Figure S166 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 30


Figure S167 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 30



Figure S168 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 30



Figure S169 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 30



Figure S170 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 30



Figure S171 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 30



Figure S172 HRESIMS and UV spectra of compound 33



Figure S173 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 33



Figure S174 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 33



Figure S175 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 33



Figure S176 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 33





Figure S177 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 33



Figure S178 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 33



Figure S179 HRESIMS and UV spectra of compound 34



Figure S180 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 34



Figure S181 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 34



Figure S182 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 34





Figure S183 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 34





Figure S184 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 34





Figure S185 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 34



Figure S186 HRESIMS and UV spectra of compound 35



Figure S187 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 35



Figure S188 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 35



Figure S189 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 35



Figure S190 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 35





Figure S191 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 35





Figure S192 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 35



Figure S193 HRESIMS and UV spectra of compound 36



Figure S194 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 36



Figure S195 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 36



Figure S196 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 36



Figure S197 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 36



Figure S198 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 36



Figure S199 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 36



Figure S200 HRESIMS and UV spectra of compound 37



Figure S201 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 37



Figure S202 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 37


Figure S203 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 37



Figure S204 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 37



Figure S205 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 37



Figure S206 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 37



Figure S207 HRESIMS and UV spectra of compound 38



Figure S208 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 38



Figure S209 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 38



Figure S210 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 38



Figure S211 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 38



Figure S212 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 38





Figure S213 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 38



Figure S214 HRESIMS and UV spectra of compound 39



Figure S215 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 39



Figure S216<sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 39



Figure S217 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 39





Figure S218 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 39





Figure S219 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 39



Figure S220 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 39



Figure S221 HRESIMS and UV spectra of compound 40



Figure S222 <sup>1</sup>H NMR spectrum (600 MHz, CDCl<sub>3</sub>) of compound 40



Figure S223 <sup>13</sup>C NMR spectrum (150 MHz, CDCl<sub>3</sub>) of compound 40



Figure S224 HSQC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 40



Figure S225 HMBC spectrum (600 MHz, CDCl<sub>3</sub>) of compound 40



Figure S226 <sup>1</sup>H-<sup>1</sup>H COSY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 40



Figure S227 NOESY spectrum (600 MHz, CDCl<sub>3</sub>) of compound 40



30/31 34/35

Figure S228 Key correlations from COSY and HMBC of compounds 7–8, 10–12, 16, 18, 23–26, 30–31 and 34–35.









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Figure S229 Key NOESY correlations for 18, 23-31 and 33-40.



Figure S230 Experimental and calculated ECD spectra for 23-31 and 33-40.





Figure S231 HPLC analysis of compound 15.



Figure S231 HPLC analysis of compound 16.

