

## Supporting Information

# Cytotoxic Nitrogenous Terpenoids from Two South China Sea Nudibranchs *Phyllidiella pustulosa*, *Phyllidia coelestis*, and Their Sponge-Prey *Acanthella cavernosa*

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# 1. 1D, 2D NMR, MS and IR spectra of compounds 1 and 16

## 1.1 Spectra for xidaoisocyanate A (1)

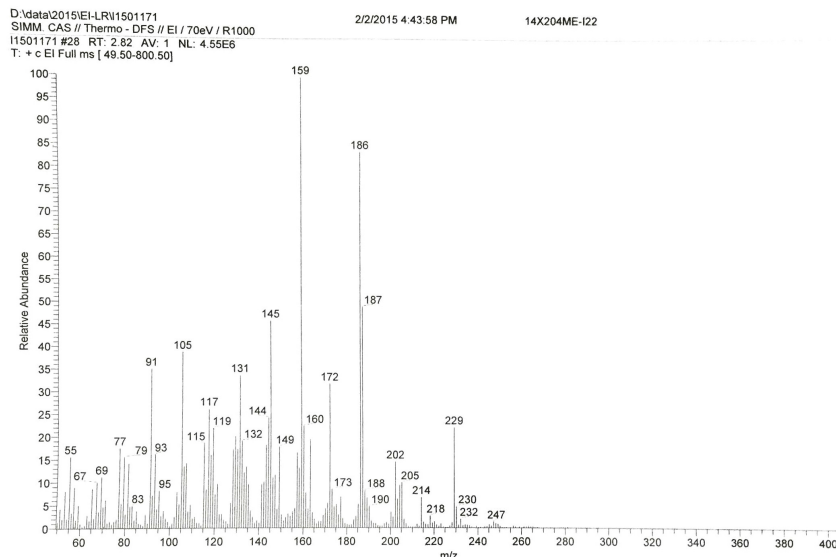
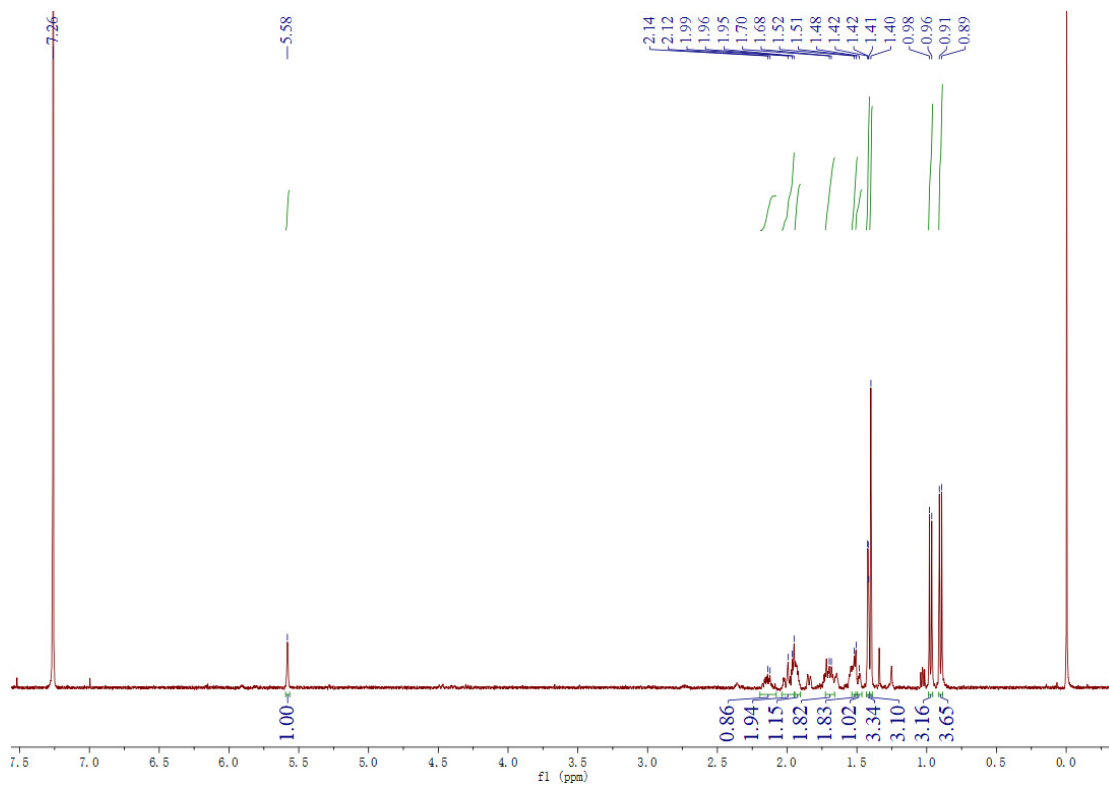


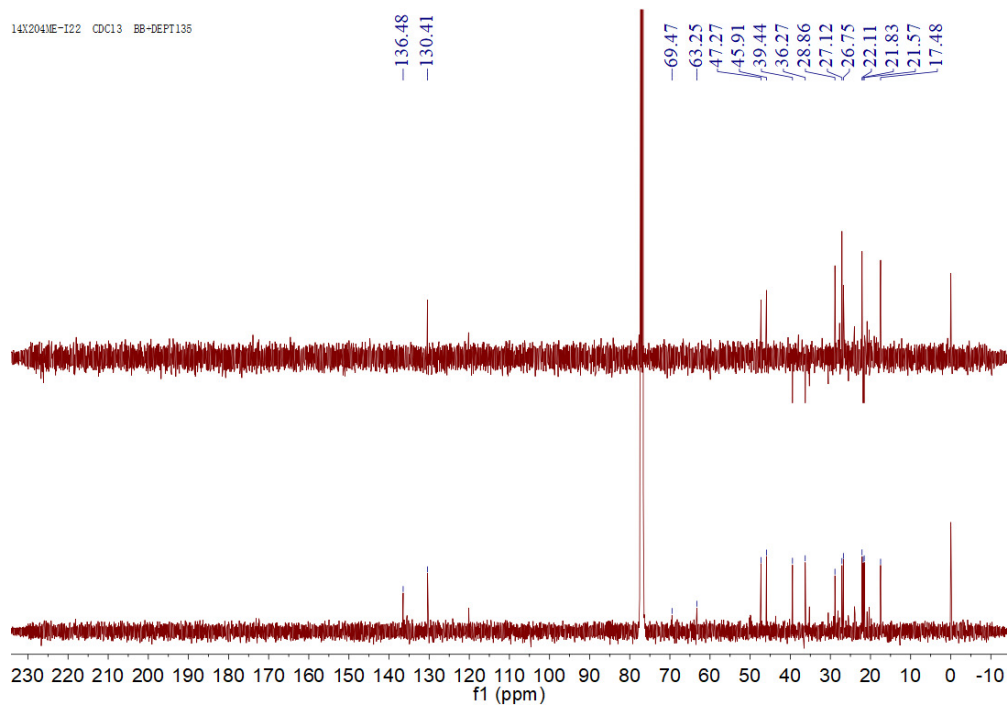
Figure S1. LREIMS spectrum of compound 1

| Mass     | Intensity | %RA     | (mmu)  | %RIC | Delta | R+D  | Composition |
|----------|-----------|---------|--------|------|-------|------|-------------|
| 148.0854 | 40103     | 3.86    | 0.15   | 0.46 | 2.3   | 11.0 | C11.H3.N    |
| 149.0242 | *         | 121093  | 11.66  | 0.42 | 0.2   | 4.5  | C10.H13.O   |
| 149.0964 | *         | 111620  | 10.74  | 0.30 | 0.5   | 3.5  | C11.H17     |
| 149.1325 | *         | 78924   | 7.60   | 0.12 | 0.8   | 7.5  | C12.H11     |
| 150.0993 | *         | 32552   | 3.13   | 0.12 | 1.7   | 6.5  | C12.H13     |
| 155.0853 | *         | 30843   | 2.97   | 0.13 | 1.5   | 6.5  | C11.H11.O   |
| 157.1000 | *         | 218253  | 21.01  | 3.62 | 1.1   | 5.5  | C12.H15     |
| 158.1015 | *         | 138331  | 13.31  | 0.83 | 2.1   | 5.5  | C11.H13.O   |
| 159.0795 | *         | 35330   | 3.40   | 0.25 | 0.25  | 0.14 |             |
| 159.1162 | *         | 960203  | 92.42  | 0.46 | 1.1   | 4.5  | C11.H15.O   |
| 160.1212 | *         | 219536  | 21.13  | 0.98 | 1.1   | 3.5  | C12.H19     |
| 161.0945 | *         | 64393   | 6.20   | 0.11 |       |      |             |
| 161.1293 | *         | 65889   | 6.34   | 0.12 | -0.8  | 7.5  | C12.H12.N   |
| 162.0969 | *         | 37040   | 3.57   | 0.17 |       |      |             |
| 163.1112 | *         | 123088  | 11.85  | 0.17 | -1.2  | 6.5  | C12.H14.N   |
| 163.1475 | *         | 260423  | 25.07  | 0.17 | -0.3  | 6.5  | C12.H13.O   |
| 164.1132 | *         | 29062   | 2.80   | 0.11 |       |      |             |
| 164.1509 | *         | 31983   | 3.08   | 0.12 |       |      |             |
| 170.0978 | *         | 31983   | 3.08   | 0.12 |       |      |             |
| 171.1098 | *         | 46229   | 4.45   | 0.12 |       |      |             |
| 172.1139 | *         | 250806  | 24.14  | 0.95 | -1.2  | 6.5  | C12.H14.N   |
| 173.0969 | *         | 44875   | 4.32   | 0.17 | -0.3  | 6.5  | C12.H13.O   |
| 173.1168 | *         | 29632   | 2.85   | 0.11 |       |      |             |
| 173.1330 | *         | 43380   | 4.18   | 0.16 | 0.0   | 5.5  | C13.H17     |
| 174.1328 | *         | 42881   | 4.13   | 0.16 |       |      |             |
| 175.1126 | *         | 136693  | 13.16  | 0.52 | -0.3  | 5.5  | C12.H15.O   |
| 175.1481 | *         | 29561   | 2.85   | 0.11 | 0.6   | 4.5  | C13.H19     |
| 176.1154 | *         | 56130   | 5.40   | 0.21 |       |      |             |
| 177.1278 | *         | 93527   | 9.00   | 0.35 | 0.1   | 4.5  | C12.H17.O   |
| 177.1605 | *         | 39747   | 3.83   | 0.15 |       |      |             |
| 178.1312 | *         | 28065   | 2.70   | 0.11 |       |      |             |
| 183.1166 | *         | 30772   | 2.96   | 0.12 | 0.7   | 7.5  | C14.H15     |
| 185.1203 | *         | 33763   | 3.25   | 0.13 | 0.1   | 7.0  | C13.H15.N   |
| 186.1276 | *         | 1038914 | 100.00 | 3.92 | 0.7   | 6.5  | C13.H16.N   |
| 187.1391 | *         | 570993  | 54.96  | 2.15 |       |      |             |
| 188.1393 | *         | 45160   | 4.35   | 0.17 |       |      |             |
| 188.1533 | *         | 35330   | 3.40   | 0.13 |       |      |             |
| 189.1574 | *         | 77143   | 7.43   | 0.29 |       |      |             |
| 190.1602 | *         | 61045   | 5.88   | 0.23 | -0.6  | 4.5  | C13.H20.N   |
| 193.1215 | *         | 29418   | 2.83   | 0.11 |       |      |             |
| 200.1542 | *         | 41955   | 4.04   | 0.16 | 2.3   | 6.0  | C15.H20     |
| 201.1610 | *         | 36114   | 3.48   | 0.14 |       |      |             |
| 202.1236 | *         | 33336   | 3.21   | 0.13 | -0.4  | 6.5  | C13.H16.N.O |
| 202.1719 | *         | 114041  | 10.98  | 0.43 | 0.9   | 5.0  | C15.H22     |
| 203.1402 | *         | 41812   | 4.02   | 0.16 |       |      |             |
| 203.1790 | *         | 68453   | 6.59   | 0.26 | 0.9   | 4.5  | C15.H23     |
| 204.1400 | *         | 124370  | 11.97  | 0.47 | -1.1  | 5.5  | C13.H18.N.O |
| 204.1780 | *         | 57911   | 5.57   | 0.22 | -2.8  | 4.5  | C14.H22.N   |
| 205.1598 | *         | 164473  | 15.83  | 0.62 | -0.5  | 4.5  | C14.H21.O   |
| 214.1602 | *         | 62897   | 6.05   | 0.24 | -0.6  | 6.5  | C15.H20.N   |
| 216.1513 | *         | 27566   | 2.65   | 0.10 | 0.1   | 6.0  | C15.H20.O   |
| 218.1667 | *         | 69308   | 6.67   | 0.26 | 0.4   | 5.0  | C15.H22.O   |
| 219.1759 | *         | 50503   | 4.86   | 0.19 | -1.0  | 4.5  | C15.H23.O   |
| 229.1825 | *         | 178791  | 17.21  | 0.67 | 0.5   | 6.0  | C16.H23.N   |
| 230.1882 | *         | 30344   | 2.92   | 0.11 | 2.7   | 5.5  | C16.H24.N   |
| 232.1668 | *         | 31270   | 3.01   | 0.12 |       |      |             |
| 247.1927 | *         | 27352   | 2.63   | 0.10 | 0.9   | 5.0  | C16.H25.N.O |

Figure S2. HREIMS spectrum of compound 1



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



**Figure S4.**  $^{13}\text{C}$  NMR spectrum of compound **1** in  $\text{CDCl}_3$

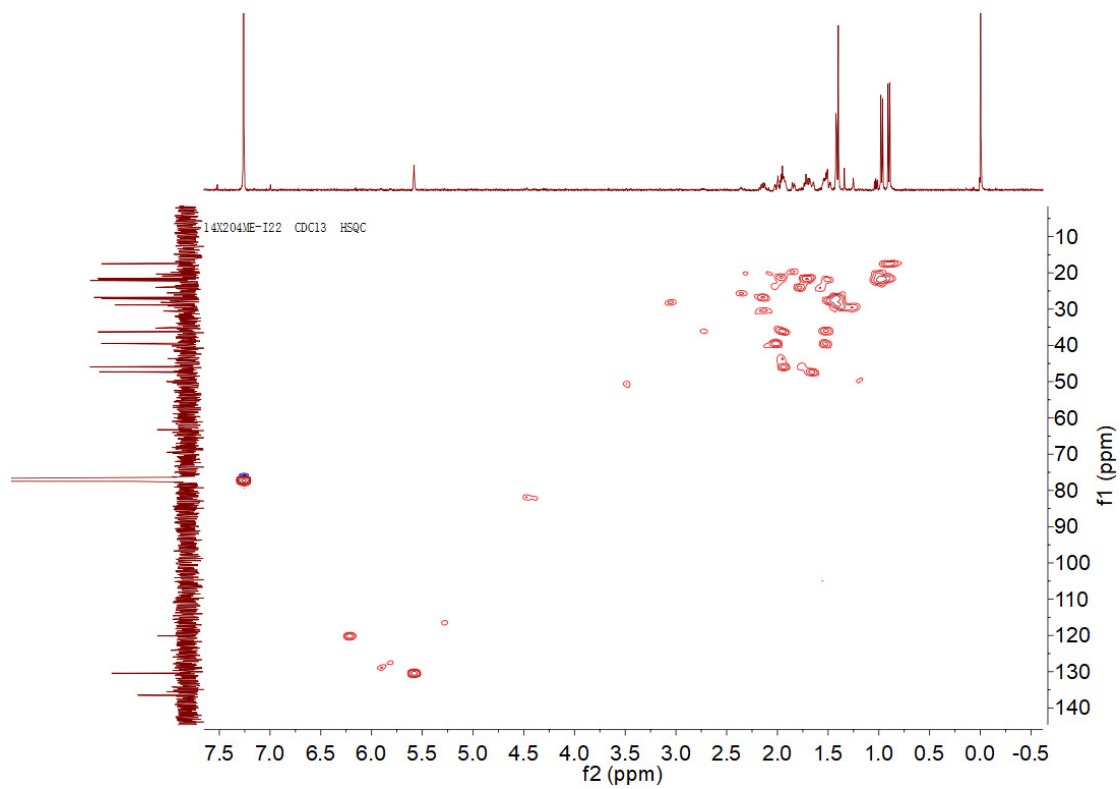


Figure S5. HSQC spectrum of compound 1 in CDCl<sub>3</sub>

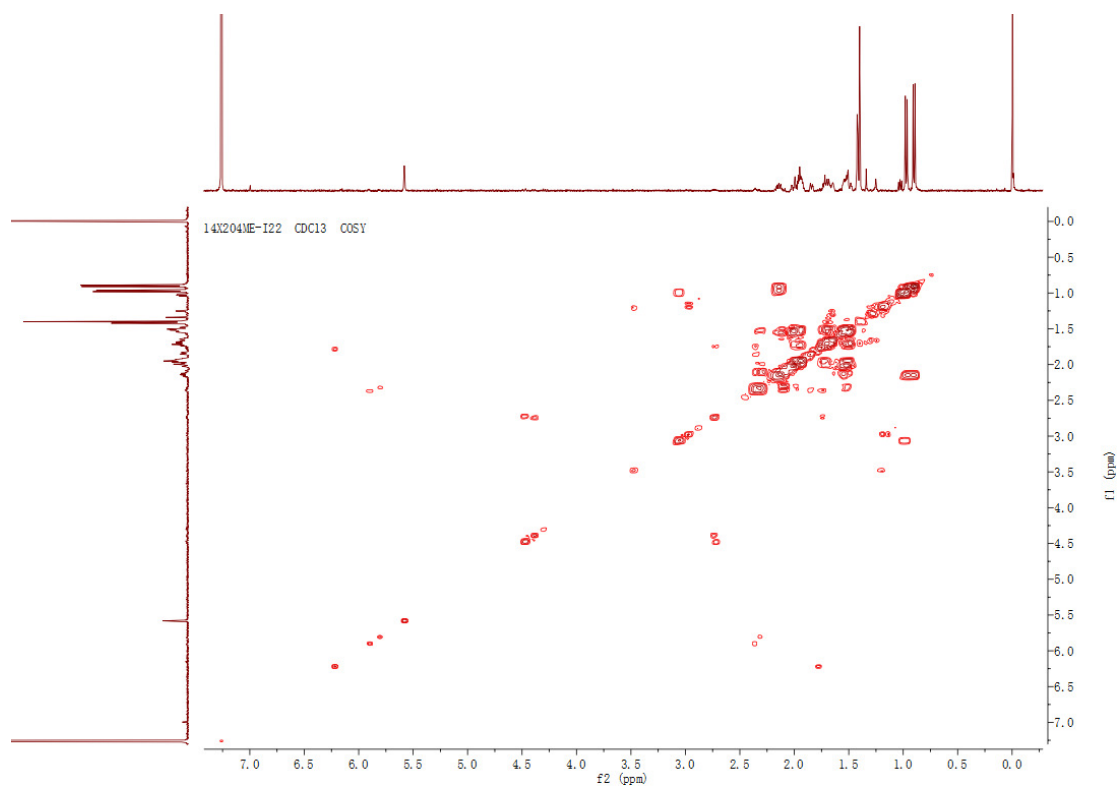


Figure S6. <sup>1</sup>H-<sup>1</sup>H COSY spectrum of compound 1 in CDCl<sub>3</sub>

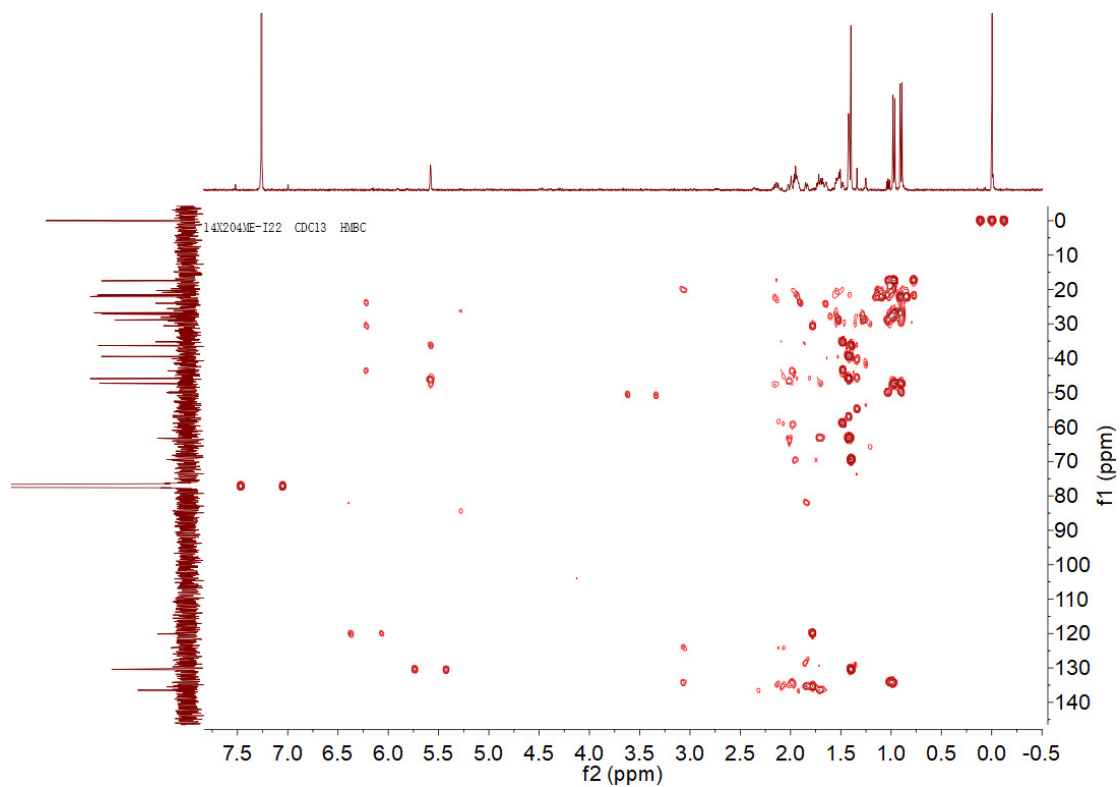


Figure S7. HMBC spectrum of compound 1 in CDCl<sub>3</sub>

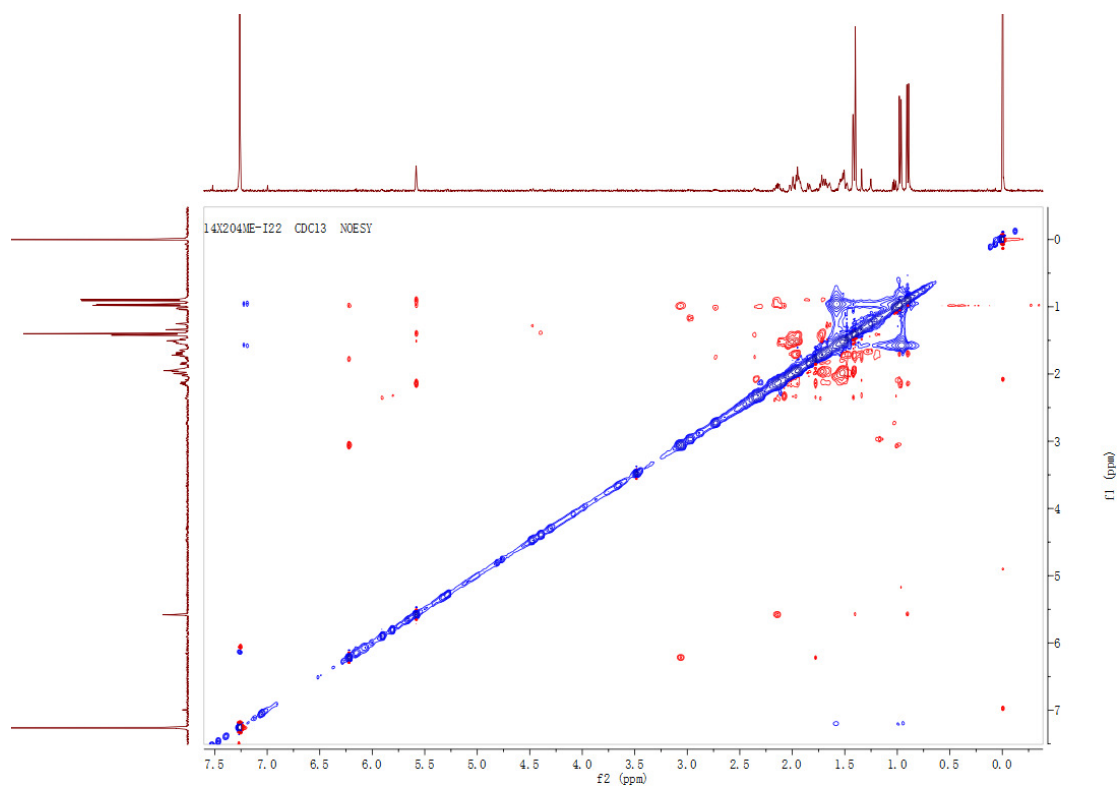


Figure 8. NOESY spectrum of compound 1 in CDCl<sub>3</sub>

## 1.2 Spectra for bisformamidokalihinol A (16)

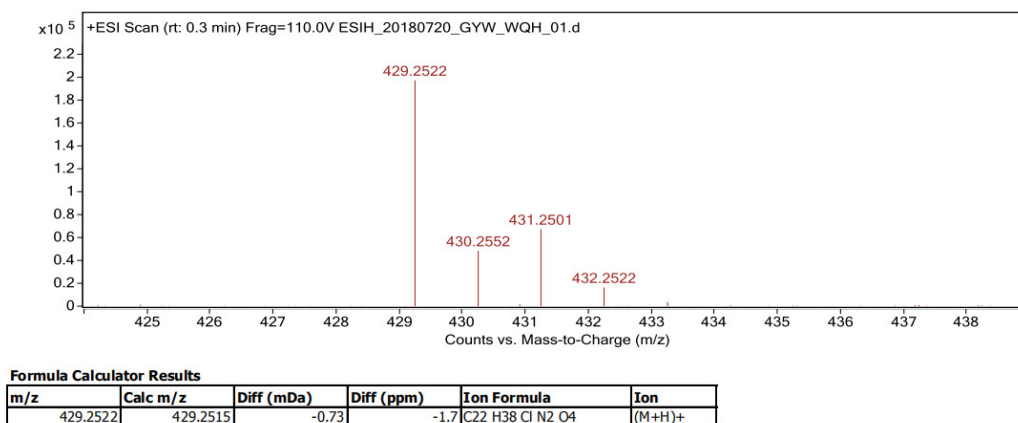


Figure S9. HRESIMS spectrum of compound 16

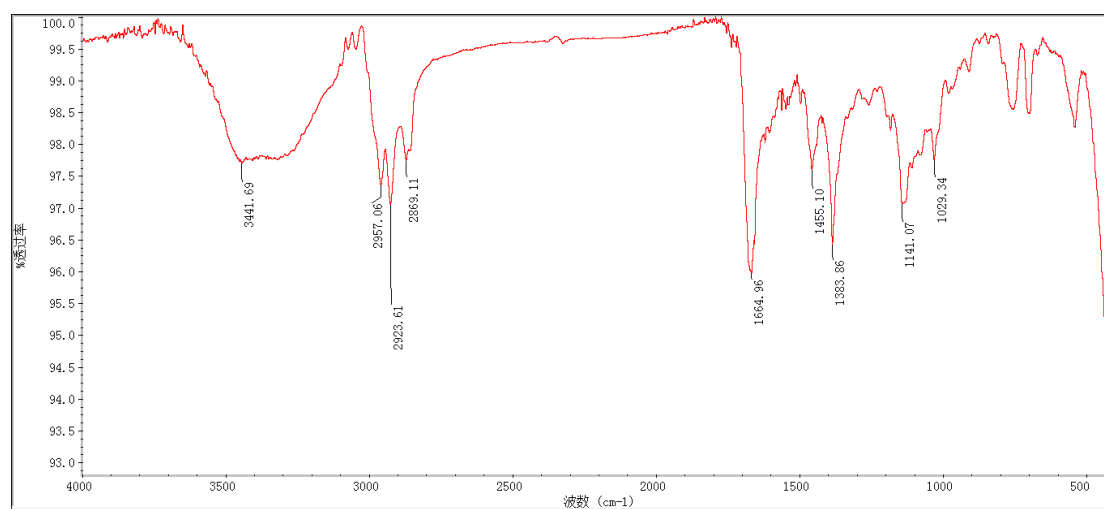
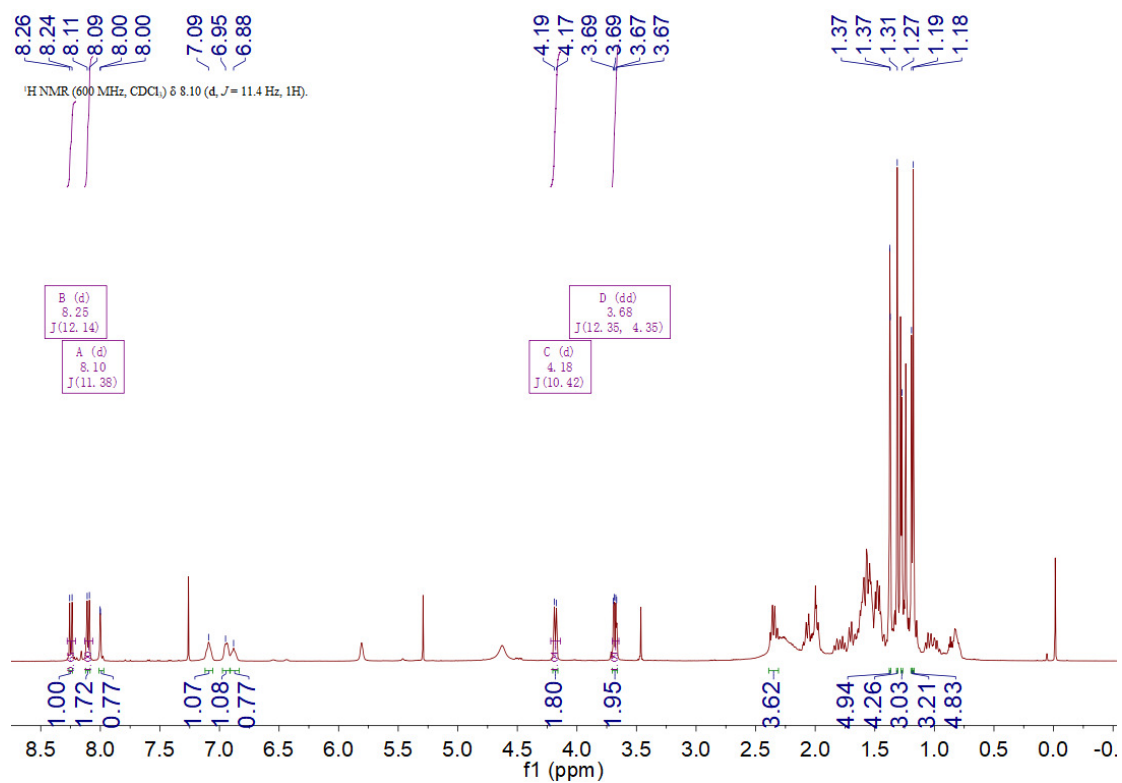
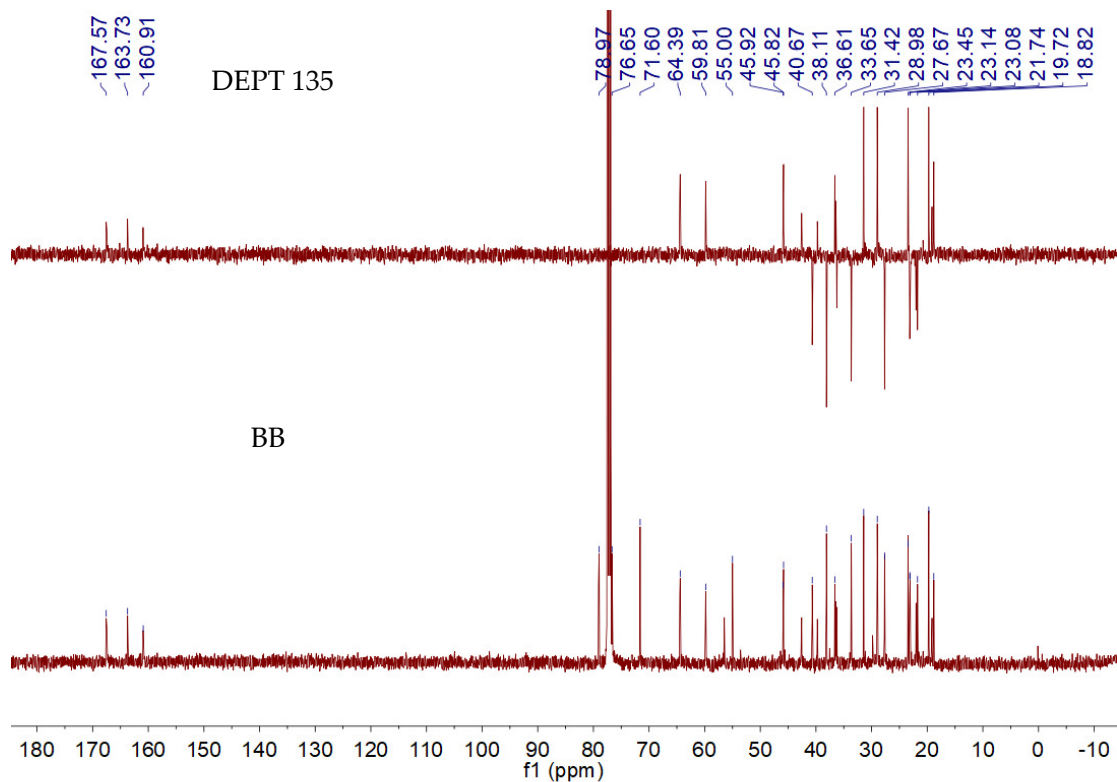


Figure S10. IR spectrum of compound 16



**Figure S11.** <sup>1</sup>H NMR spectrum of compound **16** in CDCl<sub>3</sub>



**Figure S12.** <sup>13</sup>C NMR spectrum of compound **16** in CDCl<sub>3</sub>



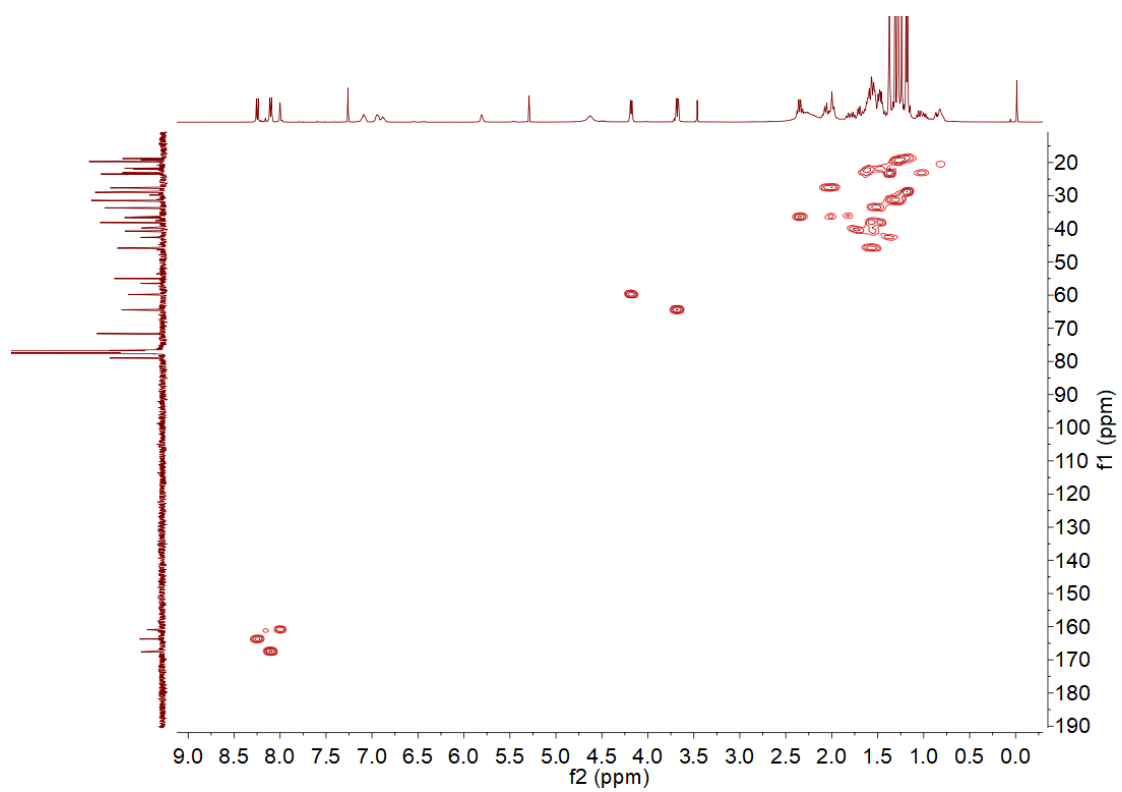


Figure S13. HSQC spectrum of compound **16** in CDCl<sub>3</sub>

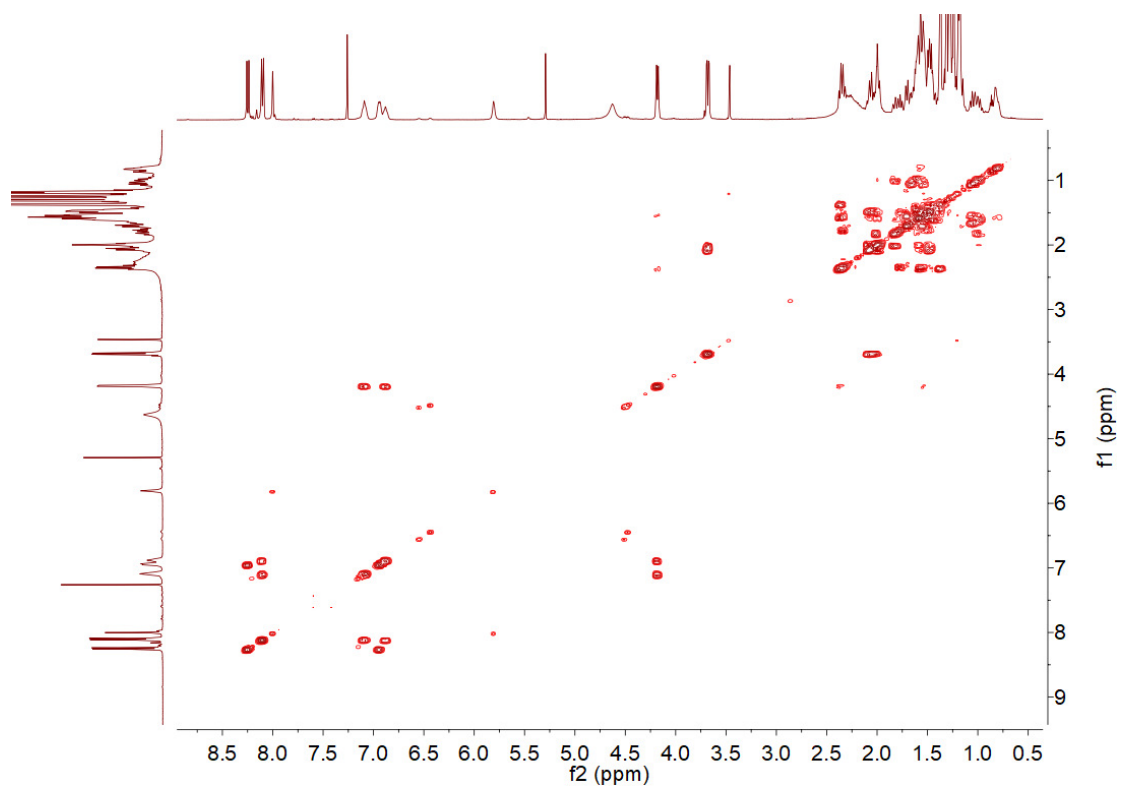


Figure S14. <sup>1</sup>H-<sup>1</sup>H COSY spectrum of compound **16** in CDCl<sub>3</sub>

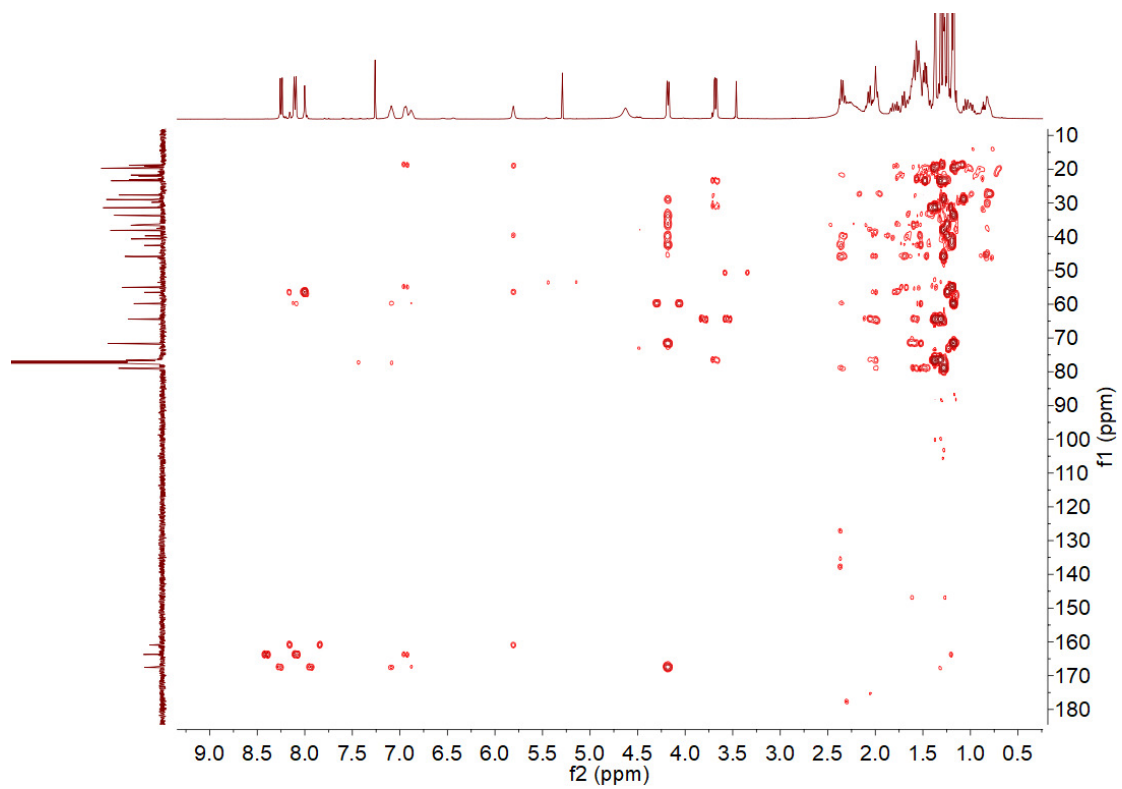


Figure S15. HMBC spectrum of compound **16** in  $\text{CDCl}_3$

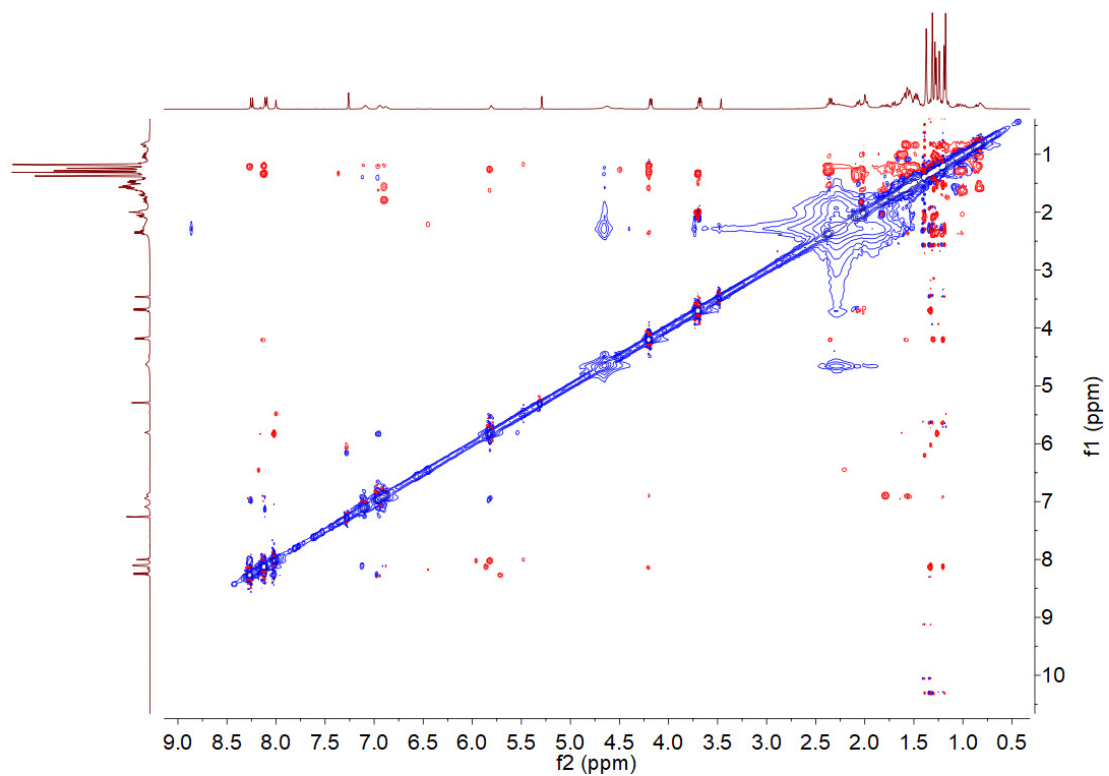


Figure S16. NOESY spectrum of compound **16** in  $\text{CDCl}_3$