Supplementary Materials

New Naphtho-γ-Pyrones Isolated from Marine-Derived Fungus *Penicillium* sp. HK1-22 and Their Antimicrobial Activities

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List of Supporting Information

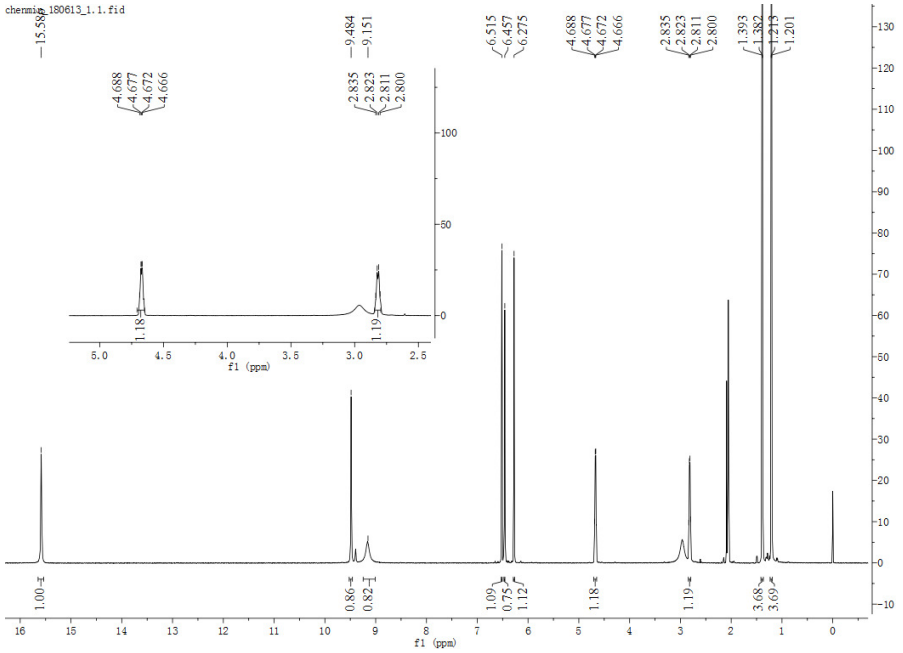


Figure S1. [1]H NMR spectrum of compound **1** in acetone-d_6 (600 MHz).

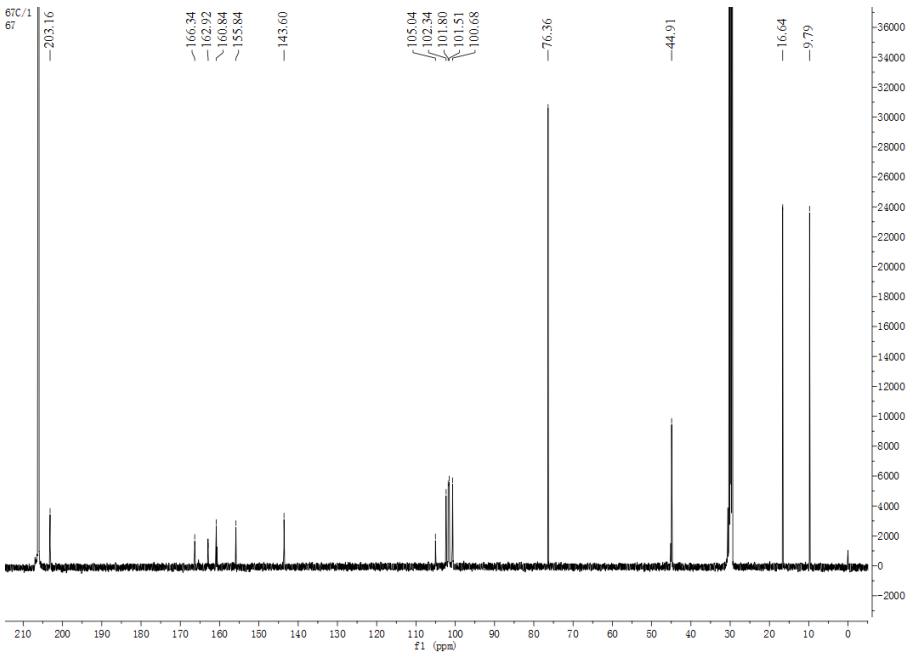


Figure S2. [13]C NMR spectrum of compound **1** in acetone-d_6 (150 MHz).

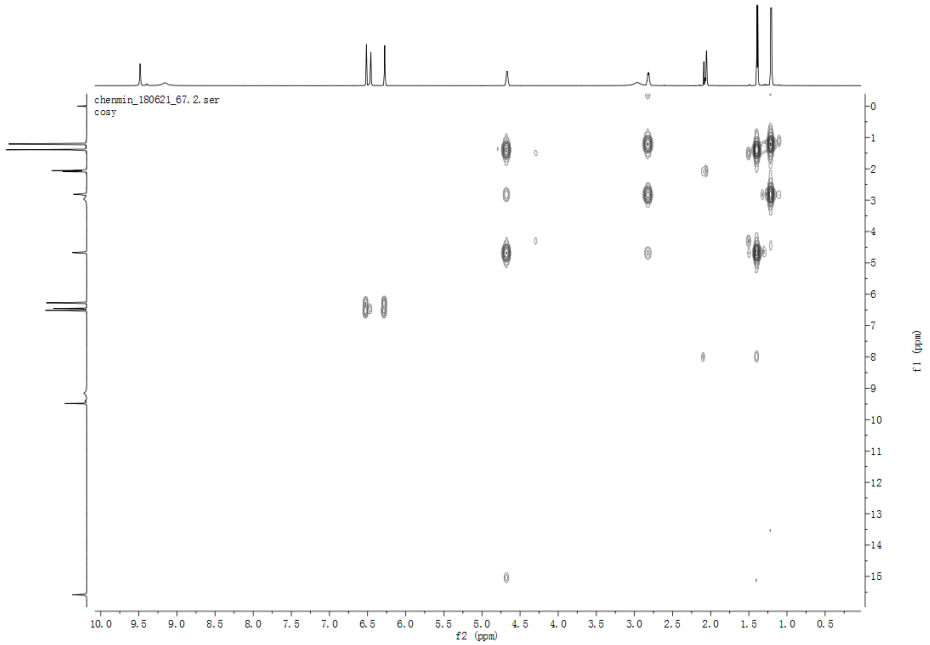


Figure S3. ^{1}H-^{1}H COSY spectrum of compound **1** in acetone-d_6 (600 MHz).

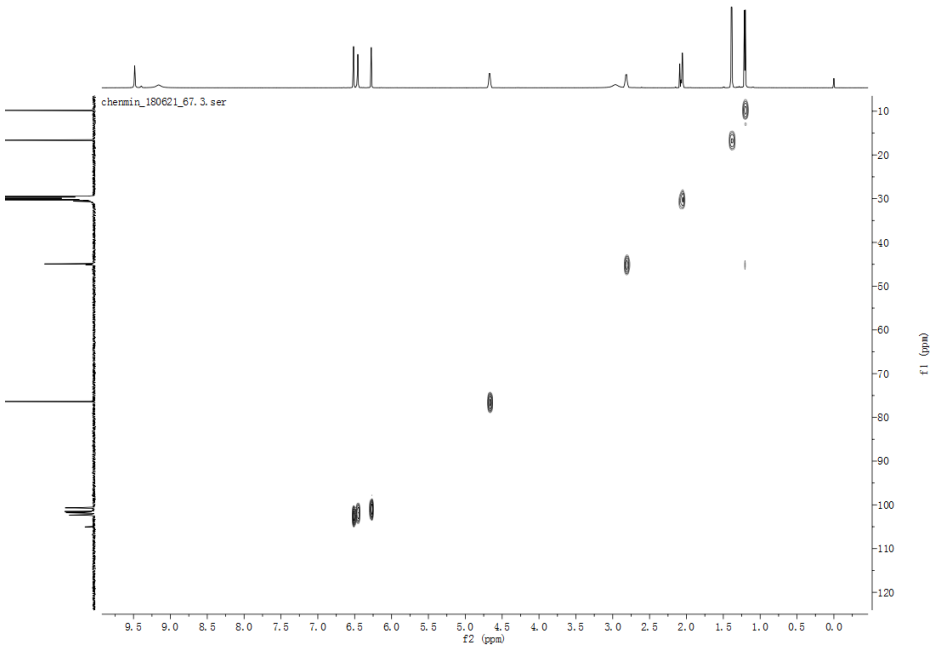


Figure S4. HSQC spectrum of compound **1** in acetone-d_6 (600 MHz).

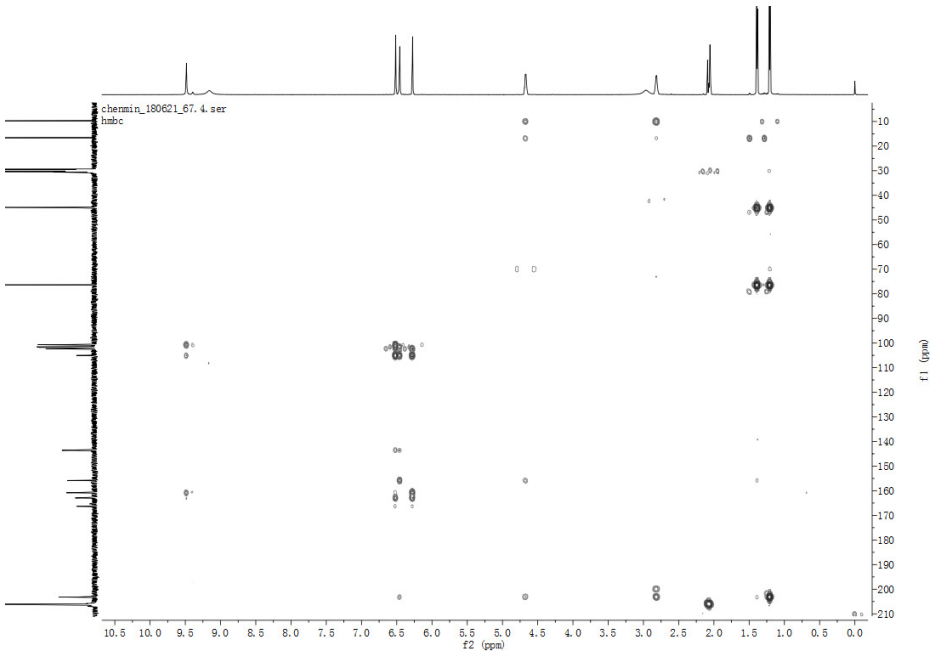
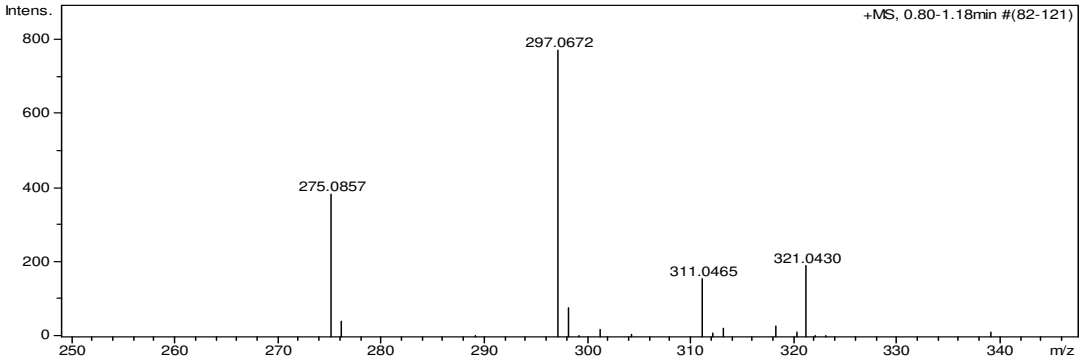


Figure S5. HMBC spectrum of compound **1** in acetone-d_6 (600 MHz).



HRESIMS *m*/z 275.0857 (calcd for $C_{15}H_{15}O_5$, 275.0860),

297.0733 (calcd for $C_{15}H_{14}NaO_5$, 275.0860)

Figure S6. HRESIMS spectrum (positive ion mode) of compound **1**.

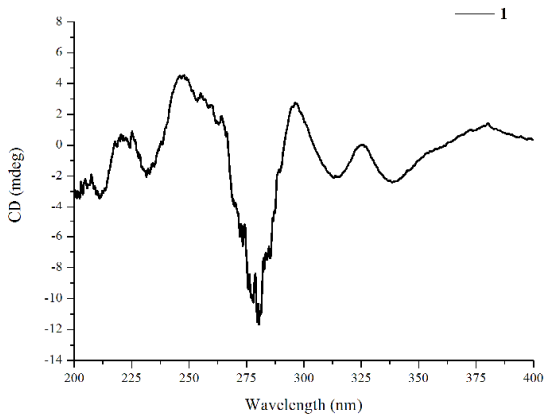


Figure S7. ECD spectrum of compound **1**.

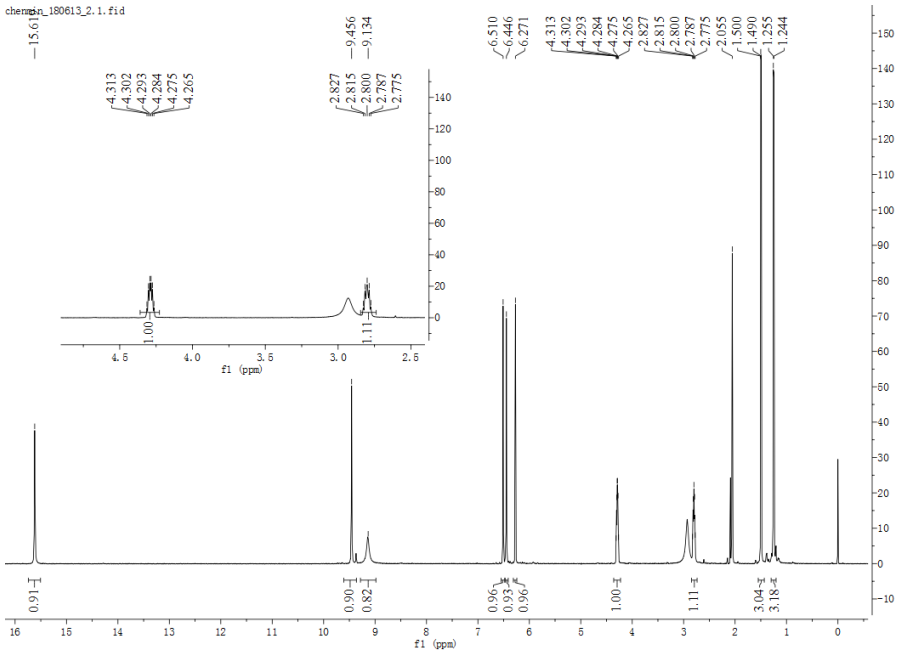


Figure S8. ^{1}H NMR spectrum of compound **2** in acetone-d_6 (600 MHz).

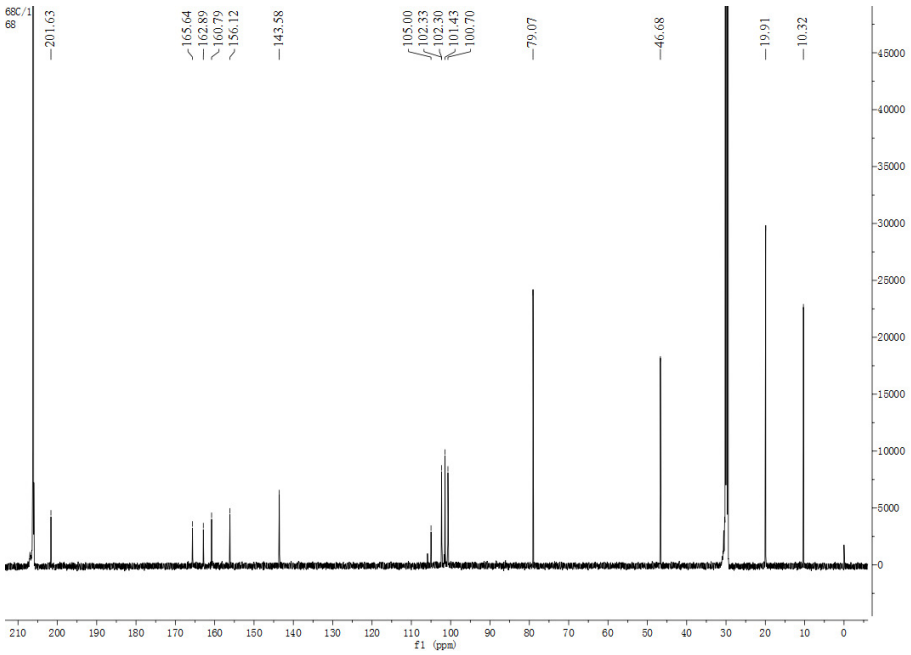


Figure S9. ^{13}C NMR spectrum of compound **2** in acetone-d_6 (150 MHz).

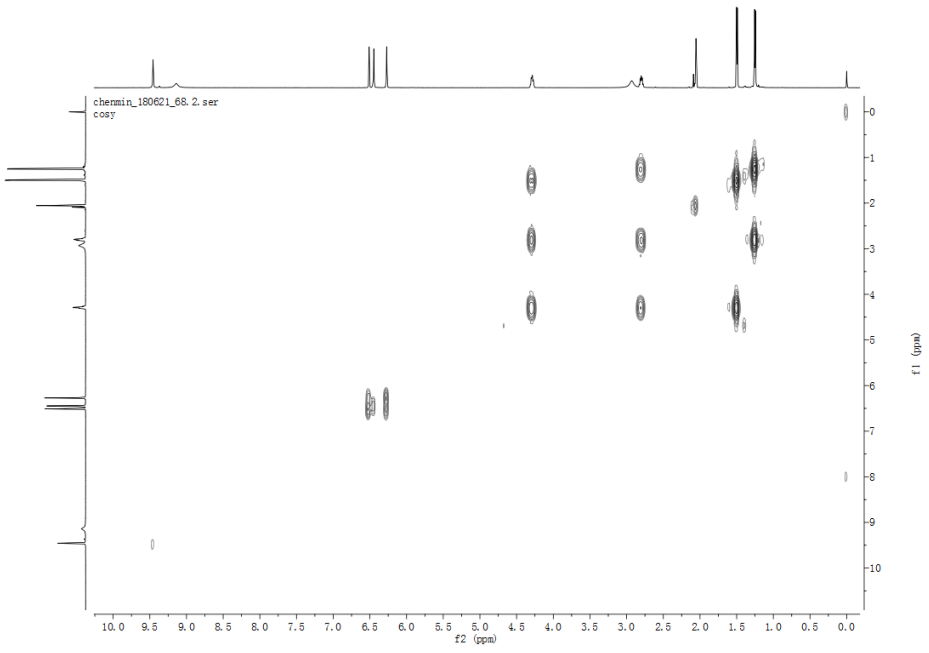


Figure S10. ^{1}H-^{1}H COSY spectrum of compound **2** in acetone-d_6 (600 MHz).

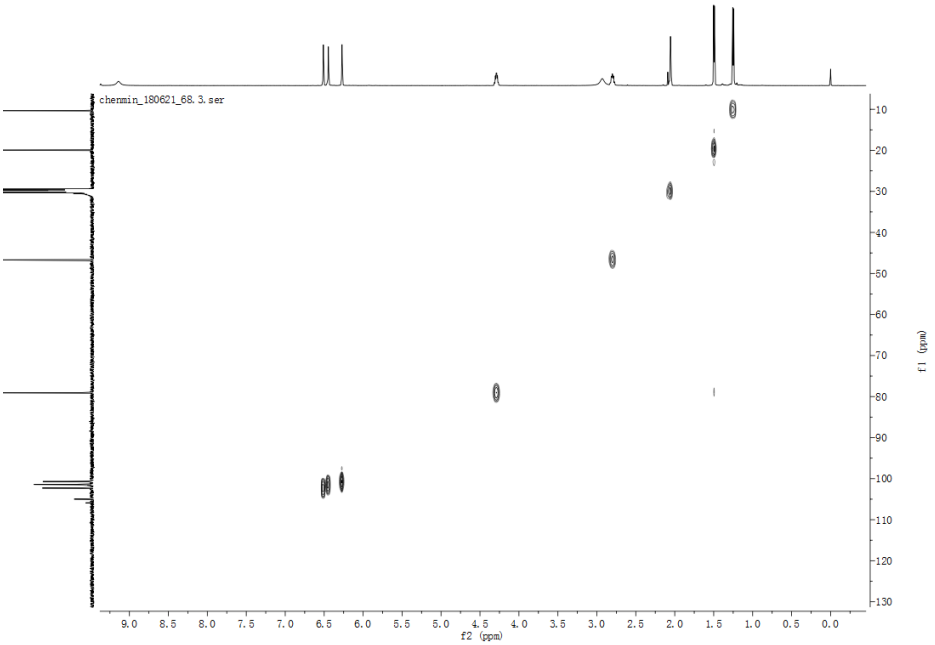


Figure S11. HSQC spectrum of compound **2** in acetone-d_6 (600 MHz).

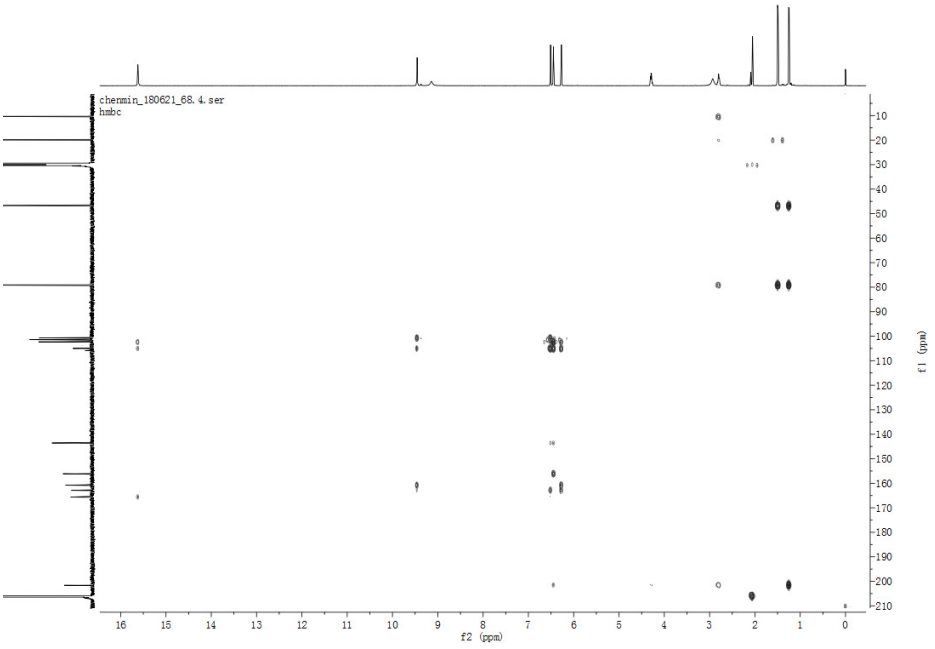
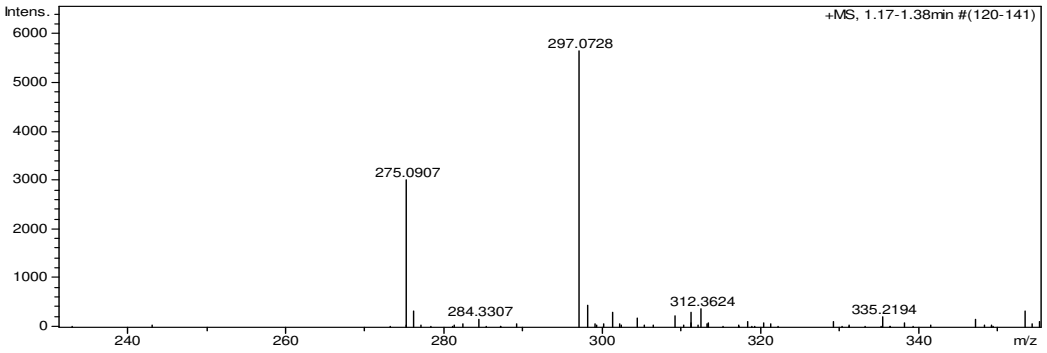


Figure S12. HMBC spectrum of compound **2** in acetone-d_6 (600 MHz).



HRESIMS *m*/z 275.0907 (calcd for $C_{15}H_{15}O_5$, 275.0914),

297.0728 (calcd for $C_{15}H_{14}NaO_5$, 297.0733)

Figure S13. HRESIMS spectrum (positive ion mode) of compound **2**.

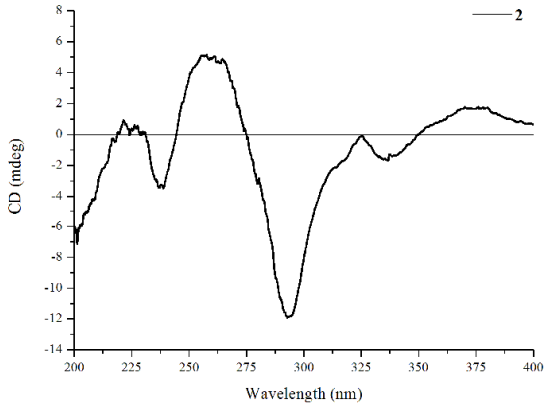


Figure S14. ECD spectrum of compound **2**.

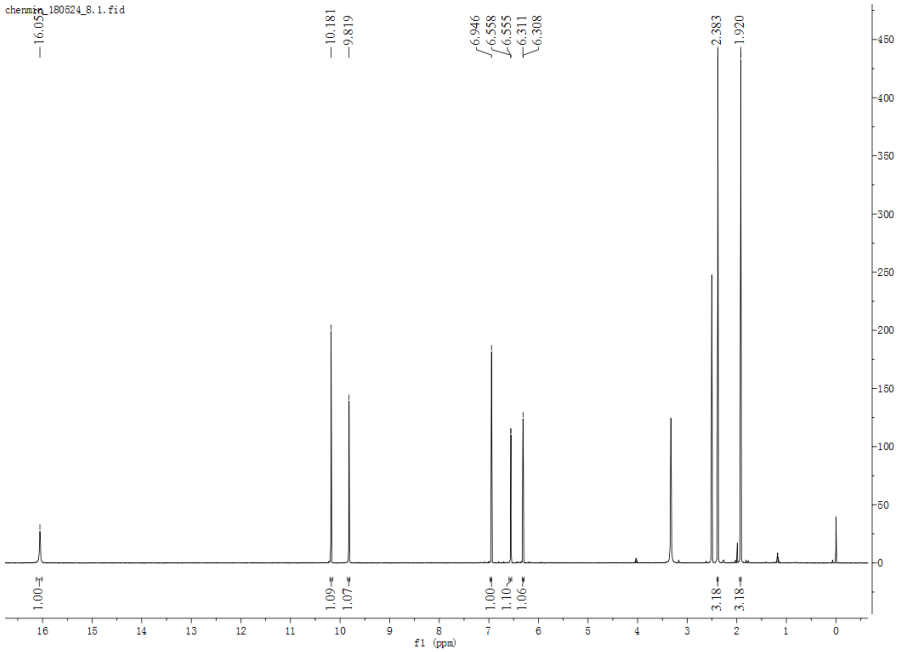


Figure S15. ^{1}H NMR spectrum of compound **3** in acetone-d_6 (600 MHz).

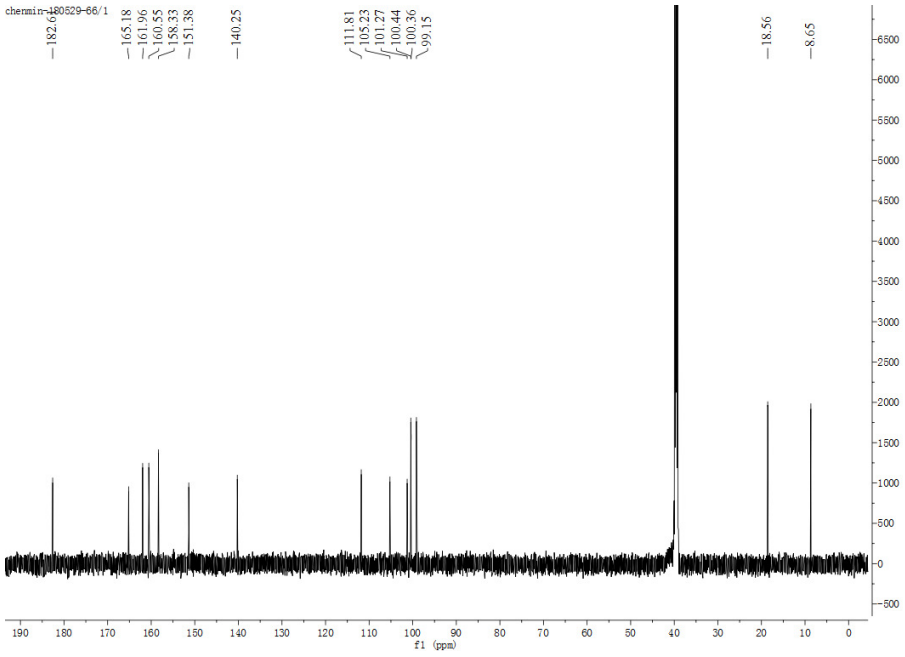


Figure S16. ^{13}C NMR spectrum of compound **3** in acetone-d_6 (150 MHz).

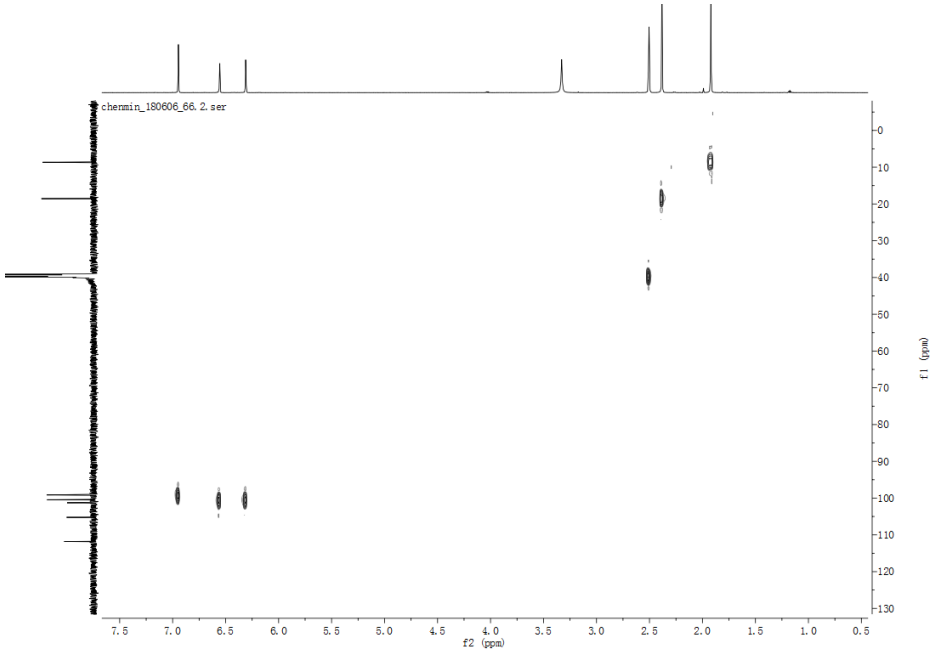


Figure S17. HSQC spectrum of compound **3** in acetone-d_6 (600 MHz).

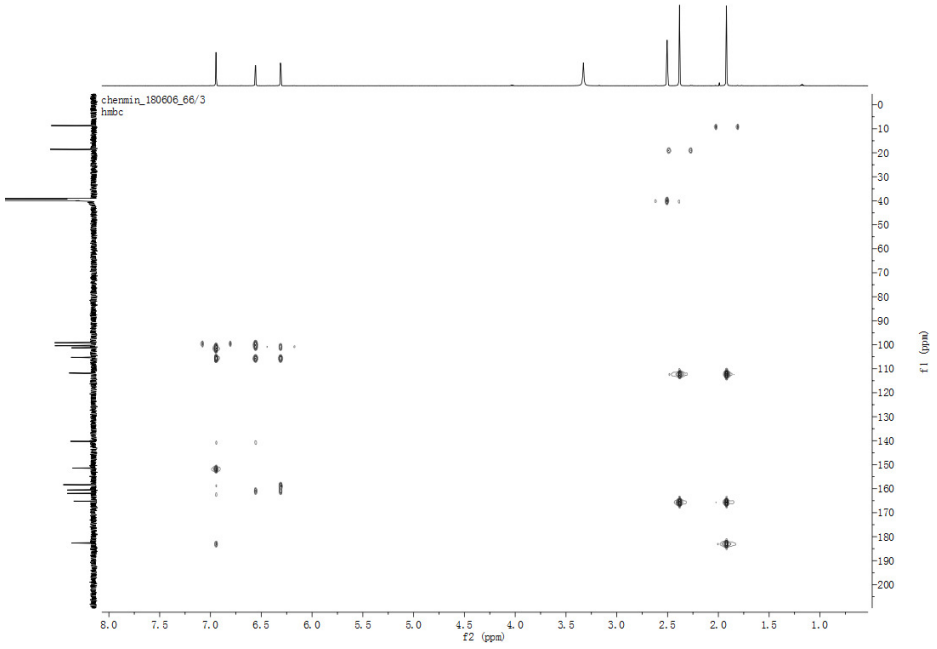
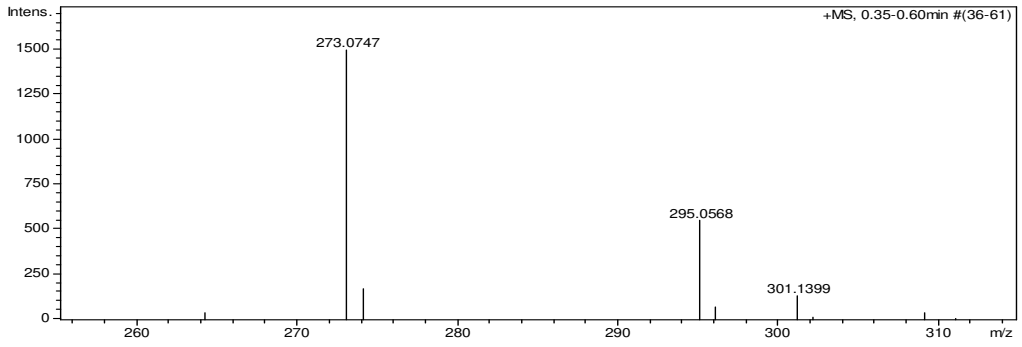


Figure S18. HMBC spectrum of compound **3** in acetone-d_6 (600 MHz).



HRESIMS *m*/*z* 273.0747 (calcd for $C_{15}H_{13}O_5$, 273.0757),

295.0568 (calcd for $C_{15}H_{12}NaO_5$, 295.0577)

Figure S19. HRESIMS spectrum (positive ion mode) of compound **3**.

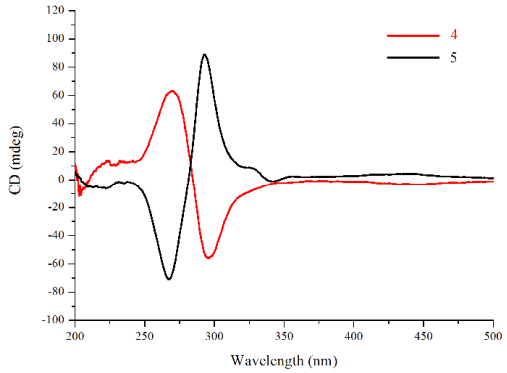


Figure S20. ECD spectrum of compounds **4** and **5**.

The ^{1}H NMR, ESIMS and ECD data of **4** and **5.**

Isochaetochromin B$_1$ (4): yellow amorphous powder; ECD (0.30 mM, MeOH) λ_{max} ($\Delta\varepsilon$) 295 (−55.52), 270 (+62.20) nm; ^{1}H NMR (acetone-d_6, 600 MHz) δ_H 6.71 (1H, s, H-10), 6.55 (1H, s, H-7), 6.43 (1H, s, H-7′), 6.13 (1H, s, H-10′), 4.71 (1H, dq, J = 3.0, 5.4 Hz, H-2), 4.23 (1H, dq, J = 13.2, 5.4 Hz, H-2′), 2.85 (1H, dq, J = 3.0, 6.6 Hz, H-3), 2.77 (1H, dq, J = 13.2, 6.6 Hz, H-3′), 1.41 (3H, d, J = 5.4 Hz, CH_3-11), 1.41 (3H, d, J = 5.4 Hz, CH_3-11′), 1.22 (3H, d, J = 6.6 Hz, CH_3-12), 1.22 (3H, d, J = 6.6 Hz, CH_3-12′). ESIMS *m*/*z* 547 $[M + H]^+$.

Isochaetochromin B_2 (5): yellow amorphous powder; ECD (0.30 mM, MeOH) λ_{max} ($\Delta\varepsilon$) 294 (+88.07), 267 (−70.79) nm; ^{1}H NMR (acetone-d_6, 600 MHz) δ_H 6.71 (1H, s, H-10), 6.56 (1H, s, H-7), 6.44 (1H, s, H-7′), 6.13 (1H, s, H-10′), 4.72 (1H, dq, J = 3.0, 5.4 Hz, H-2), 4.24 (1H, dq, J = 11.4, 5.4 Hz, H-2′), 2.85 (1H, dq, J = 3.0, 6.6 Hz, H-3), 2.77 (1H, dq, J = 11.4, 6.6 Hz, H-3′), 1.41 (3H, d, J = 5.4 Hz, CH_3-11), 1.41 (3H, d, J = 5.4 Hz, CH_3-11′), 1.23 (3H, d, J = 6.6 Hz, CH_3-12), 1.23 (3H, d, J = 6.6 Hz, CH_3-12′). ESIMS m/z 547 $[M + H]^+$.

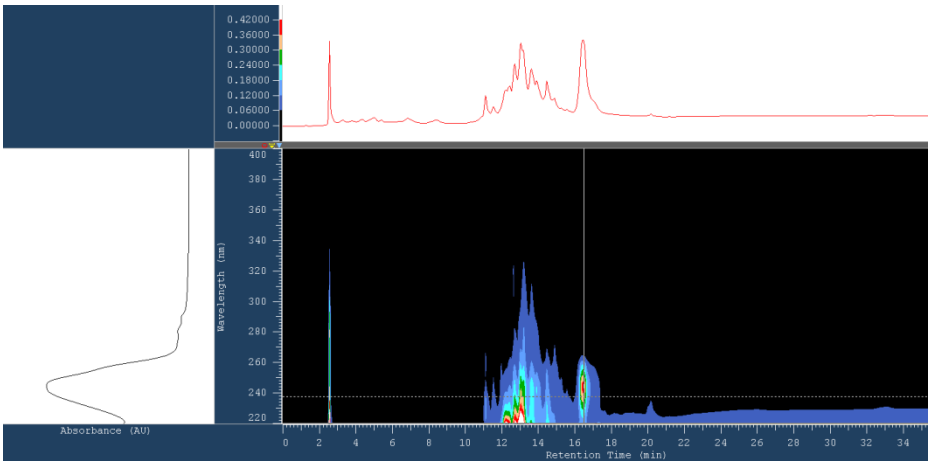


Figure S21. HPLC chromatogram of the crude extract from the fungus *Penicillium* sp. HK1-22.

HPLC was performed on a Hitachi L-2000 system using an analytical C_{18} (Apollo, 5 μm, 250 mm × 4.5mm) column coupled with a 2455 UV detector. The conditions of the HPLC analysis: solvents: A, water; B, MeOH. Linear gradient: 0 min, 20% B; 5 min, 20% B; 10 min, 80% B; 15 min 100% B; 60 min 100%. Temperature: 30 ºC. Flow rate: 1 mL/min. UV detection at λ = 220 nm.