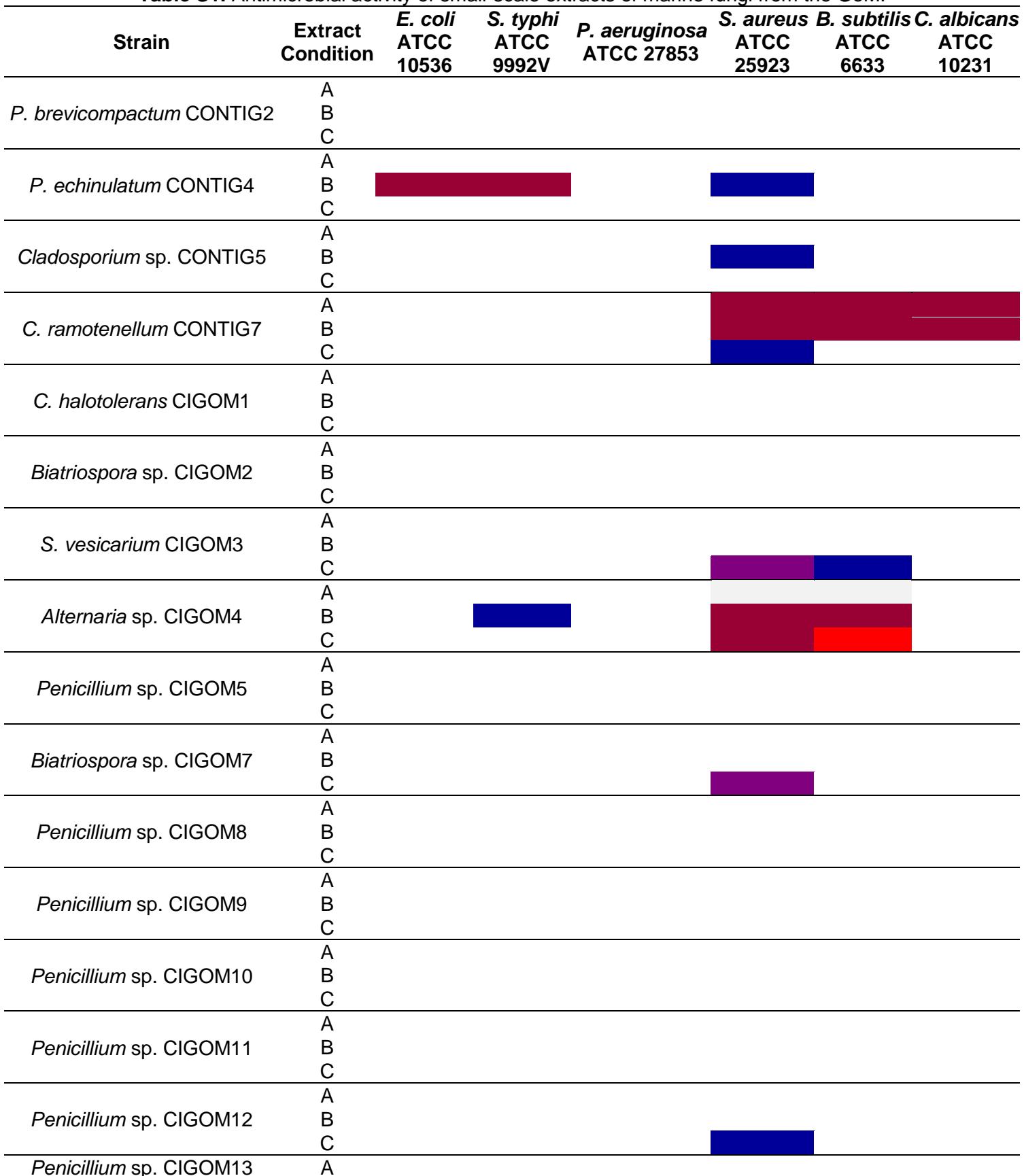
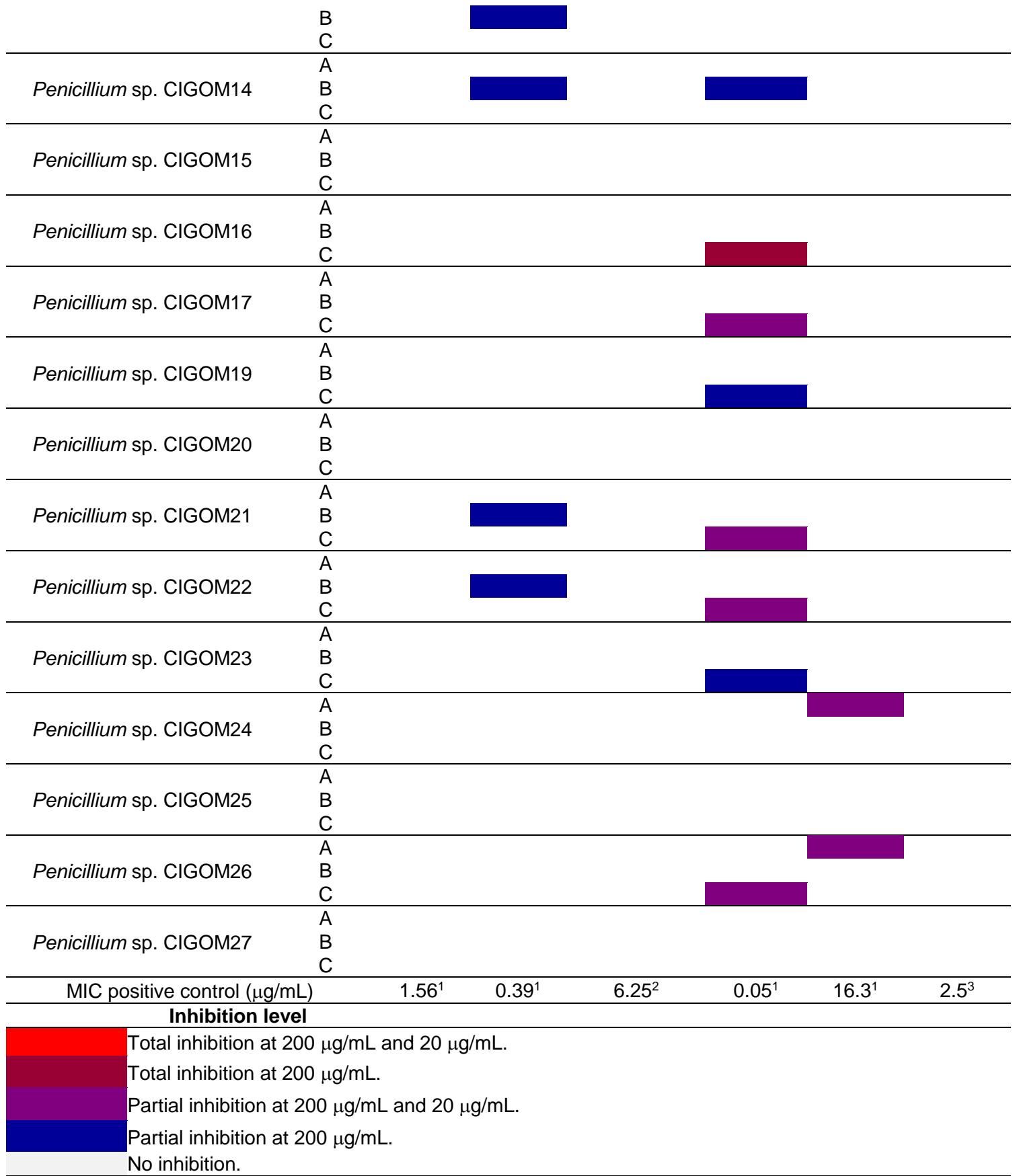


SUPPORTING INFORMATION TABLES

Table S1. Antimicrobial activity of small-scale extracts of marine fungi from the GoM.





¹ Ampicillin; ² Gentamicin, ³ Nystatin.

Rice medium at A) RT, light/darkness 12/12 h, 21 d; B) 20 °C, darkness, 30 d; and C) 4 °C, darkness, 60 d.

Table S2. LC-MS data of the 87 fungal extracts used for PCA analysis (features after blank removal).
 (Table attached in separate file)

Table S3. Antimicrobial activity of primary fractions of *Alternaria* sp. CIGOM4 and *P. echinulatum* CONTIG4 scaled-up extracts.

	<i>B. subtilis</i> ATCC 6633	<i>S. aureus</i> ATCC 25923	<i>C. albicans</i> ATCC 10231	<i>S. typhi</i> ATCC 9992V	<i>E. coli</i> ATCC 10536	<i>P. aeruginosa</i> ATCC 27853
Extract CIGOM4 ^a						
F1						
F2		NT	NT	NT	NT	NT
F3						
F4						
F6						
F7						
F8						
F9						
F10						
Extract CONTIG4 ^b						
F1						
F2						
F3						
F4						
F5						
F6						
F7						
F8						
F9						
F10						
F11						
F12						
F13						
MIC positive control (μ g/mL)	1.25 ¹	0.05 ²	20.0 ³	1.25 ¹	5.00 ²	1.25 ⁴
Inhibition level						
	Total inhibition at 200 μ g/mL and 20 μ g/mL.					
	Total inhibition at 200 μ g/mL and partial at 20 μ g/mL.					
	Total inhibition at 200 μ g/mL.					
	Partial inhibition at 200 μ g/mL.					
	No inhibition.					

¹ Vancomycin; ² Ampicillin; ³ Nystatin; ⁴ Gentamicin.

^a Rice medium at 4 °C in darkness for 60 d; ^a Rice medium at 20 °C in darkness for 30 d.

Table S4. Spectroscopic and spectrometric data of isolated compounds.

Alternariol (1): ^1H NMR (methanol- <i>d</i> ₄ , 400 MHz): δ_{H} 7.28 (1H, d, <i>J</i> = 2.2 Hz, H-6), 6.71 (1H, d, <i>J</i> = 2.7 Hz, H-5'), 6.63 (1H, d, <i>J</i> = 2.6 Hz, H-3'), 6.38 (1H, d, <i>J</i> = 2.1 Hz, H-4), 2.77 (3H, s, 6-Me); HRESIMS <i>m/z</i> 257.0452 [M-H] ⁺ (calcd. for C ₁₄ H ₉ O ₅ 257.0445, -1.3 ppm, IHD = 10).
Methyl alternariol (2): ^1H NMR (DMSO- <i>d</i> ₆ , 400 MHz): δ_{H} 11.83 (1H, s, 3-OH), 10.41 (1H, s, 4'-OH), 7.24 (1H, d, <i>J</i> = 2.0 Hz, H-6), 6.74 (1H, d, <i>J</i> = 2.4 Hz, H-5'), 6.66 (1H, d, <i>J</i> = 2.4 Hz, H-3'), 6.63 (1H, d, <i>J</i> = 2.1 Hz, H-4), 3.92 (3H, s, 5-OMe), 2.75 (3H, s, 6'-Me); HRESIMS <i>m/z</i> 273.0755 [M+H] ⁺ (calcd. for C ₁₅ H ₁₃ O ₅ 273.0758, -0.9 ppm, IHD = 10).
Cyclopenin (3): ^1H NMR (DMSO- <i>d</i> ₆ , 400 MHz): δ_{H} 10.86 (1H, s, 1-NH), 7.54 (1H, m, H-8), 7.30 (1H, m, H-16), 7.22 (2H, t, <i>J</i> = 7.6 Hz, H-15/H-17), 7.16 (1H, d, <i>J</i> = 8.0 Hz, H-9), 7.09 (1H, t, <i>J</i> = 7.5 Hz, H-7), 6.91 (1H, dd, <i>J</i> = 7.7 Hz, 1.4, H-6), 6.63 (2H, d, <i>J</i> = 7.6 Hz, H-14/H-18), 4.02 (1H, s, H-10), 3.07 (3H, s, 4-N-Me). ^{13}C NMR (DMSO- <i>d</i> ₆ , 100 MHz): δ_{C} 165.9 (C-2), 165.3 (C-5), 135.2 (C-11), 132.4 (C-8), 131.0 (C-9), 130.5 (C-13), 128.7 (C-16), 127.9 (C-14/C-18), 126.4 (C-12), 126.1 (C-15/C-17), 124.2 (C-7), 121.2 (C-6), 70.1 (C-3), 30.9 (4-N-Me); HRESIMS <i>m/z</i> 295.1074 [M+H] ⁺ (calcd. for C ₁₇ H ₁₅ N ₂ O ₃ 295.1077, -1.1 ppm, IHD = 12.0).
Cyclopeptin (4): ^1H NMR (CDCl ₃ , 400 MHz): δ_{H} 8.56 (1H, br s, 1-NHb), 8.26 (1H, br s, 1-NHa), 8.11 (1H, d, <i>J</i> = 7.7 Hz, H-6b), 7.96 (1H, d, <i>J</i> = 7.4 Hz, H-6a), 7.53 (1H, t, <i>J</i> = 7.4 Hz, H-8b), 7.46 (1H, t, <i>J</i> = 7.3 Hz, H-8a), 7.25 (12H, m, H-7, H-13, H-14, H-15, H-16, H-17, H-18), 7.02 (1H, d, <i>J</i> = 7.5 Hz, H-9b), 6.94 (1H, d, <i>J</i> = 7.9 Hz, H-9a), 4.35 (1H, m, H-3a), 4.26 (1H, m, H-3b), 3.49 (1H, m, H _a -10b), 3.22 (1H, m, H _a -10a), 3.15 (3H, s, 4-N-Mea), 2.91 (3H, s, 4-N-Meb), 2.85 (1H, m, H _b -10b), 2.71 (1H, m, H _b -10a). HRESIMS <i>m/z</i> 281.1282 [M+H] ⁺ (calcd. for C ₁₇ H ₁₇ N ₂ O ₂ 281.1285, -0.9 ppm, IHD = 11).
Dehydrocyclopeptin (5): ^1H NMR (CDCl ₃ , 400 MHz): δ_{H} 8.22 (1H, s, 1-NH), 8.02 (1H, dd, <i>J</i> = 7.9 Hz, 1.5, H-6), 7.47 (1H, td, <i>J</i> = 8.0, 8.0, 1.6 Hz, H-8), 7.37 (5H, m, H-14, H-15, H-16, H-17, H-18), 6.99 (1H, dd, <i>J</i> = 8.1, 0.9 Hz, H-9), 6.95 (1H, s, H-10), 7.27 (1H, m, H-7), 3.19 (3H, s, 4-N-Me). ^{13}C NMR (CDCl ₃ , 100 MHz): δ_{C} 171.5 (C-2), 166.8 (C-5), 135.5 (C-11), 133.4 (C-13), 132.8 (C-6), 132.1 (C-3), 131.6 (C-7/C-8), 130.0 (C-16), 129.6 (C-14/C-18), 129.1 (C-15, C-17), 125.7 (C-12), 125.3 (C-9), 120.5 (C-10), 36.2 (4-N-Me); HRESIMS <i>m/z</i> 279.1126 [M+H] ⁺ (calcd. for C ₁₇ H ₁₅ N ₂ O ₂ 279.1128, -0.7 ppm, IHD = 12).
Viridicatin (6): ^1H NMR (methanol- <i>d</i> ₄ , 400 MHz): δ_{H} 7.52 (2H, t, <i>J</i> = 7.3 Hz, H-3'/H-5'), 7.45 (1H, d, <i>J</i> = 7.3 Hz, H-8), 7.37 (4H, m, H-6/H-2'/H-4'/H-6'), 7.19 (1H, d, <i>J</i> = 8.1 Hz, H-5), 7.11 (1H, m, H-7). ^{13}C NMR (methanol- <i>d</i> ₄ , 100 MHz): 160.5 (C-2), 143.4 (C-3), 135.1 (C-10), 134.1 (C-1'), 131.2 (C-2'/C-6'), 129.5 (C-3'/C-5'), 129.0 (C-4), 128.0 (C-5), 126.1 (C-4'), 123.9 (C-6'/C-7'), 123.0 (C-9), 116.5 (C-8); HRESIMS <i>m/z</i> 238.0859 [M+H] ⁺ (calcd. for C ₁₅ H ₁₂ NO ₂ 238.0863, -1.5 ppm, IHD = 11).
Cytochalasin D (7): ^1H NMR (CDCl ₃ , 400 MHz): δ_{H} 7.31 (2H, t, <i>J</i> = 7.6 Hz, H-2',H-6'), 7.24 (1H, m, H-4'), 7.13 (2H, d, <i>J</i> = 6.9 Hz, H-3',H-5'), 6.11 (1H, dd, <i>J</i> = 15.7, 2.7 Hz, H-19), 5.69 (1H, dd, <i>J</i> = 15.6, 9.8 Hz, H-21), 5.48 (1H, br s, 2-NH) 5.33 (1H, dt, <i>J</i> = 10.0, 5.1 Hz, H-20), 5.30 (1H, br s, H _a -12), 5.14 (1H, dd, <i>J</i> = 15.8, 2.3 Hz, H-14), 5.09 (1H, br s, H _b -12), 4.65 (1H, br s, H-13), 3.81 (1H, d, <i>J</i> = 10.5 Hz, H-7), 3.23 (1H, dt, <i>J</i> = 8.4, 3.7 Hz, H-3), 2.83 (1H, m, H-10), 2.73 (1H, m, H-5), 2.67 (1H, m, H-4), 2.51 (1H, dt, <i>J</i> = 13.0, 11.0 Hz, H-16), 2.26 (3H, s, H-25), 2.14 (1H, dd, <i>J</i> = 4.5, 3.5 Hz, H-8), 2.02 (1H, dd, <i>J</i> = 12.9, 5.1 Hz, H-15), 1.51 (3H, s, H-23), 1.19 (3H, d, <i>J</i> = 6.8 Hz, H-22), 0.95 (3H, d, <i>J</i> = 6.7 Hz, H-11). HRESIMS <i>m/z</i> 508.2689 [M+H] ⁺ (calcd. for C ₃₀ H ₃₈ NO ₆ 508.2693, -0.9 ppm, IHD = 13).
Meleagrin A (8): ^1H NMR (CDCl ₃ , 400 MHz): 12.90 (1H, br s, 14-NH), 8.29 (1H, s, H-15), 7.97 (1H, d, <i>J</i> = 7.8 Hz, H-7), 7.73 (1H, s, H-18), 7.57 (1H, d, <i>J</i> = 7.5 Hz, H-4), 7.38 (1H, s, H-20), 7.29 (1H, t, <i>J</i> = 7.6 Hz, H-6), 7.09 (1H, t, <i>J</i> = 7.6 Hz, H-5), 6.80 (1H, br s, 17-NH), 6.13 (1H, br s, H-22), 5.51 (1H, s, H-8), 5.12 (1H, d, <i>J</i> = 18.6 Hz, H _a -23), 5.08 d (1H, d, <i>J</i> = 13.0 Hz, H _b -23), 3.74 (3H, s, 1-OMe), 1.35 (3H, s, Me-25), 1.25 (3H, s, Me-24). HRESIMS <i>m/z</i> 434.1820 [M+H] ⁺ (calcd. for C ₂₃ H ₂₄ N ₅ O ₄ 434.1823, -0.6 ppm, IHD = 15).

Table S5. Anti-ESKAPE activity of compounds 1-8.

Compound	MSSA	MRSA	VREF	VSRF	<i>K. aerogenes</i> ATCC 13048	<i>E. cloacae</i> ATCC 700324	<i>K. pneumoniae</i> ATCC 700603	<i>A. baumannii</i> strain 564	<i>A. baumannii</i> ATCC 17978
Alternariol (1)	■	■							
Alternariol methyl ether (2)									
Cyclopenin (3)									
Cyclopeptin (4)									
Dehydrocyclopeptin (5)									
Viridicatin (6)									
Cytochalasin D (7)									
Meleagrin A (8)		■							
MIC positive control (μ g/mL)	572.41 ¹	0.86 ²	4.31 ²	2.59 ²	2.62 ³	2.09 ³	39.26 ³	>7328.31 ³	5.23 ³
Inhibition level									
Total inhibition at 100 μ g/mL and partial at 10 μ g/mL.	■								
Total inhibition at 100 μ g/mL.	■								
Partial inhibition at 100 μ g/mL.		■							
No inhibition.									

¹ Ampicillin; ² Vancomycin; ³ Gentamicin.**Table S6.** Anti-Mycobacteria and cytotoxic activities of compounds 1-8.

Compound	<i>M. tuberculosis</i> H37Rv		<i>M. abscessus</i> ATCC 19977	<i>M. chelonae</i> ATCC 35752	<i>M. marinum</i> ATCC 927	<i>M. avium</i> ATCC 15769	<i>M. kansasii</i> ATCC 12478	Vero cell ATCC CCL-81 ⁴
	MABA ¹	LORA ²	MABA ³					
Alternariol (1)	87 (ND)	>50	ND	ND	ND	ND	ND	ND
Alternariol methyl ether (2)	68 (ND)	ND	ND	ND	ND	ND	ND	ND
Cyclopenin (3)	29 (ND)	ND	ND	ND	ND	ND	ND	ND
Cyclopeptin (4)	20 (ND)	ND	ND	ND	ND	ND	ND	ND
Dehydrocyclopeptin (5)	30 (ND)	ND	ND	ND	ND	ND	ND	ND
Viridicatin (6)	100 (43.8)	>50	>50 (0)	>50 (37)	>50 (10)	>50 (21)	>50 (48)	>50
Cytochalasin D (7)	29 (ND)	ND	ND	ND	ND	ND	ND	ND
Meleagrin A (8)	101 (48.0)	>50	>50 (0)	>50 (18)	>50 (81)	12.25	>50 (19)	>50
MIC Rifampicin (μ g/mL)	100 (0.03)	0.08	>8.0	4.25	0.09	0.05	0.41	>8.0

¹ % Inhibition at 50 μ g/mL (MIC μ M); ² MIC μ M; ³ MIC μ M (% Inhibition); ⁴ CC₅₀, cytotoxic concentration to 50% inhibition of the cell line. ND, not determined

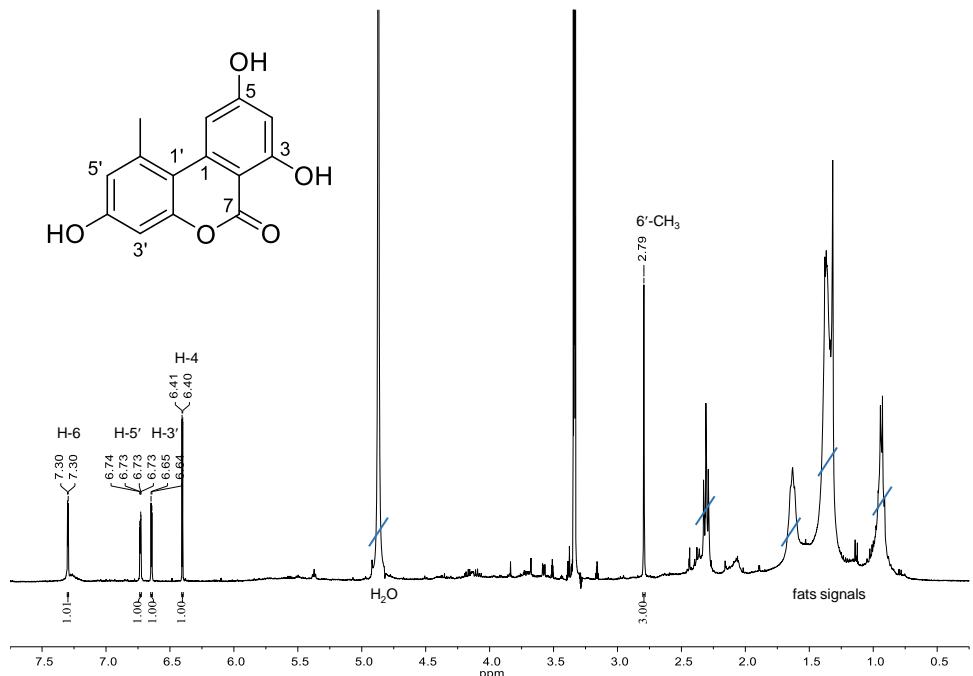


Figure S1. ^1H NMR spectrum of alternariol (**1**) in methanol- d_4 (400 MHz).

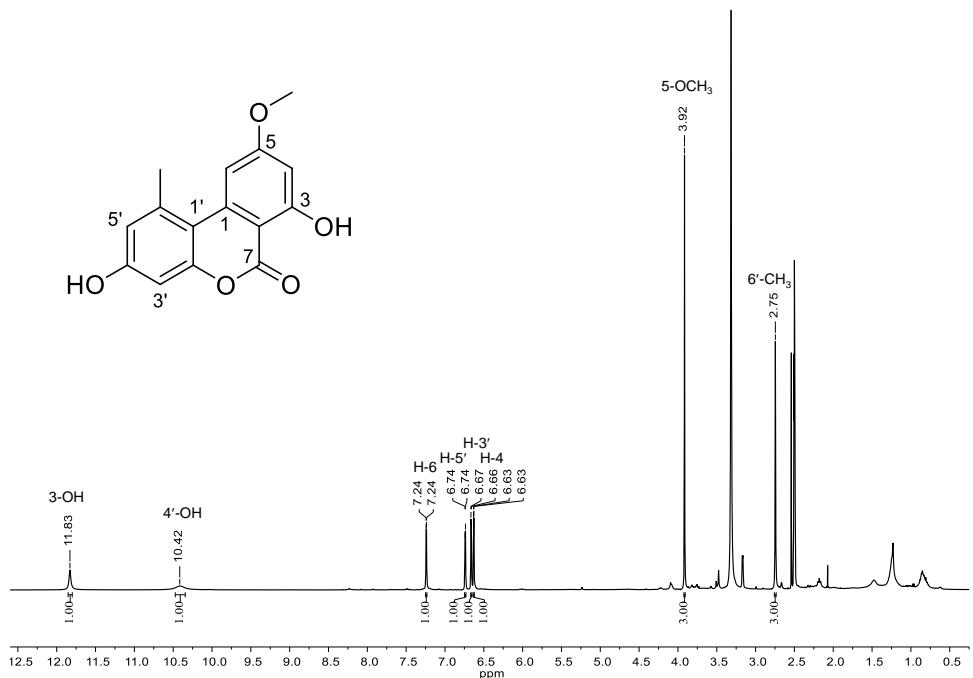


Figure S2. ^1H NMR spectrum of methyl alternariol (**2**) in DMSO- d_6 (400 MHz).

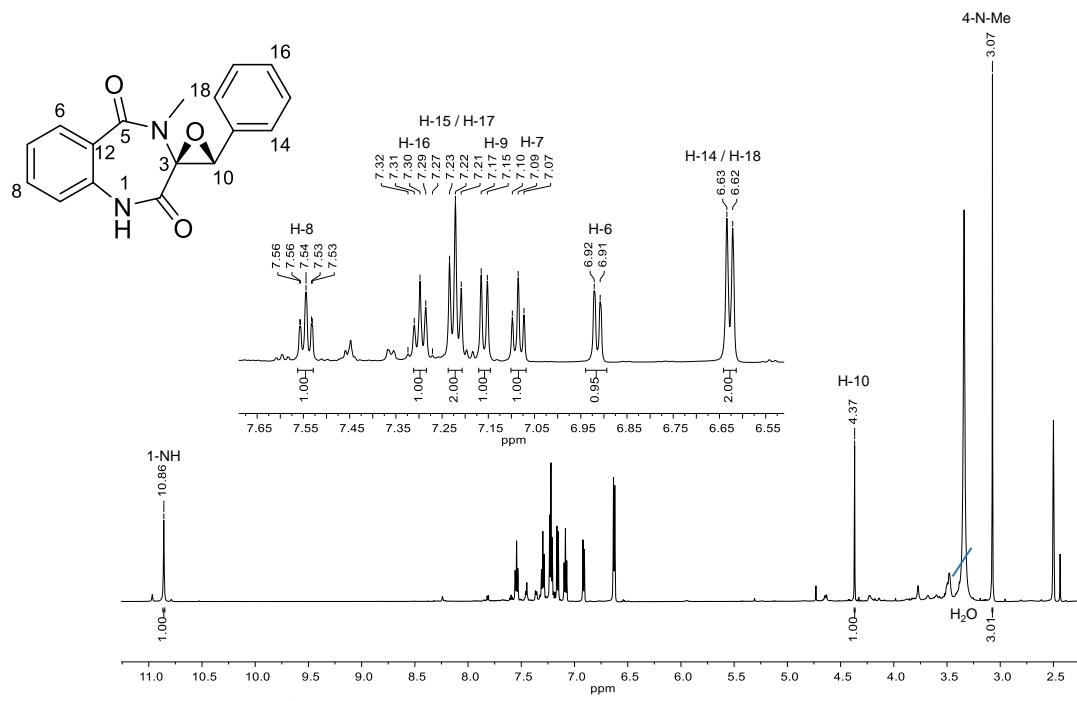


Figure S3. ^1H NMR spectrum of cycloopenin (**3**) in $\text{DMSO}-d_6$ (400 MHz).

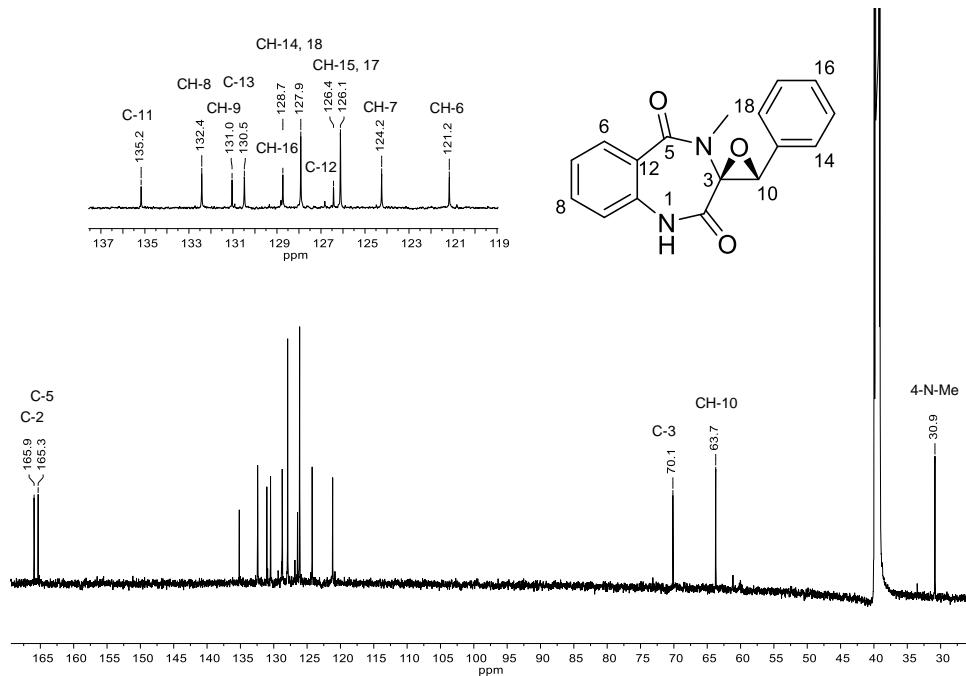


Figure S4. ^{13}C NMR spectrum of cycloopenin (**3**) in $\text{DMSO}-d_6$ (100 MHz).

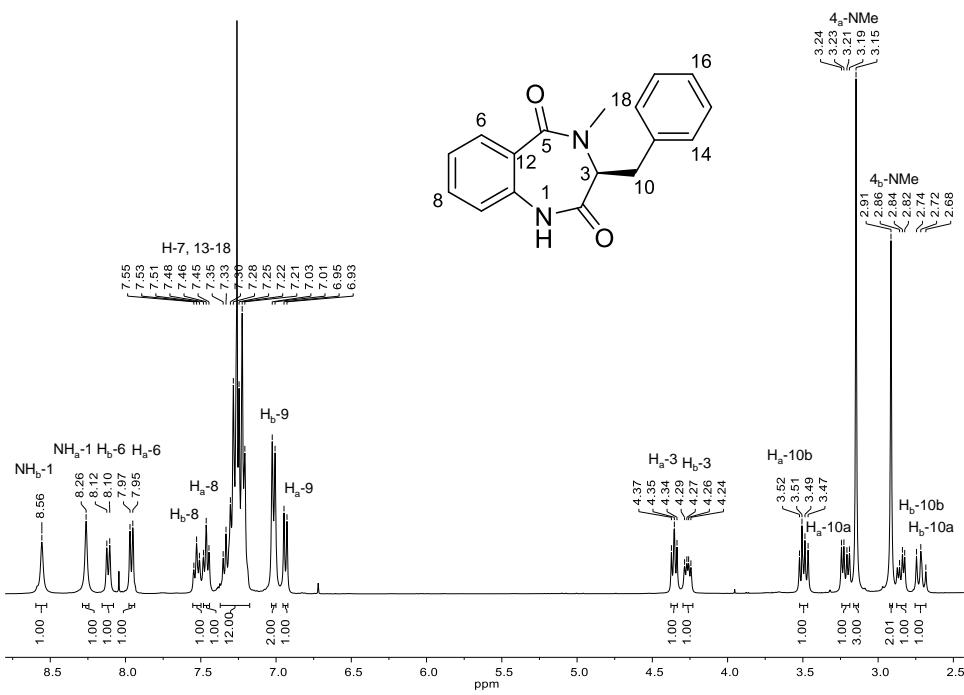


Figure S5. ^1H NMR spectrum of cyclopeptin (**4**) in CDCl_3 (400 MHz).

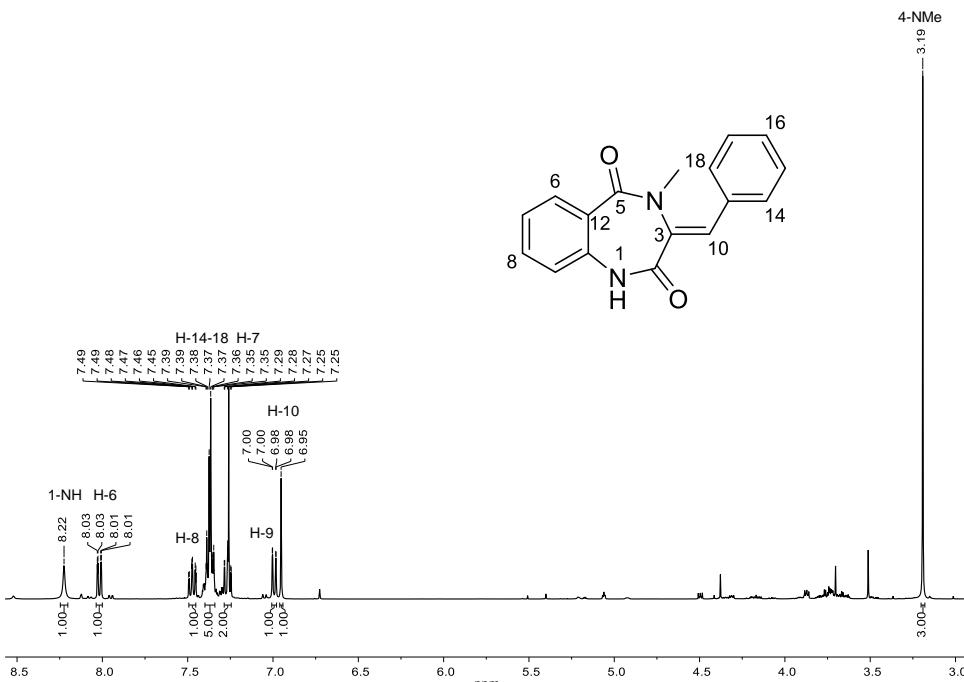


Figure S6. ^1H NMR spectrum of dehydrocyclopeptin (**5**) in CDCl_3 (400 MHz).

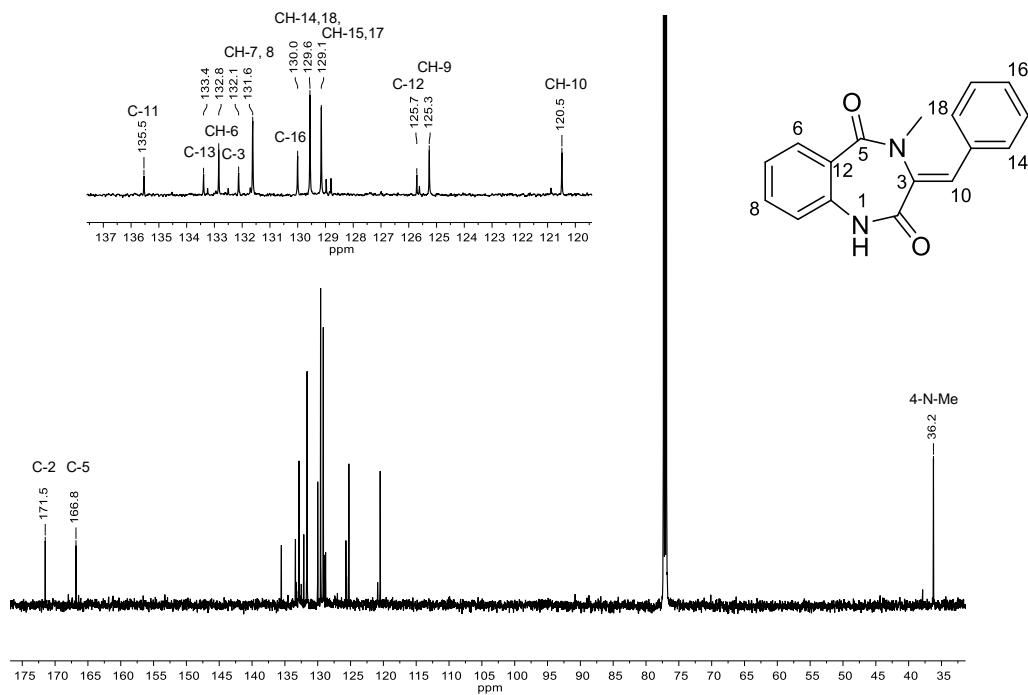


Figure S7. ^{13}C NMR spectrum of dehydrocyclopeptin (**5**) in CDCl_3 (100 MHz).

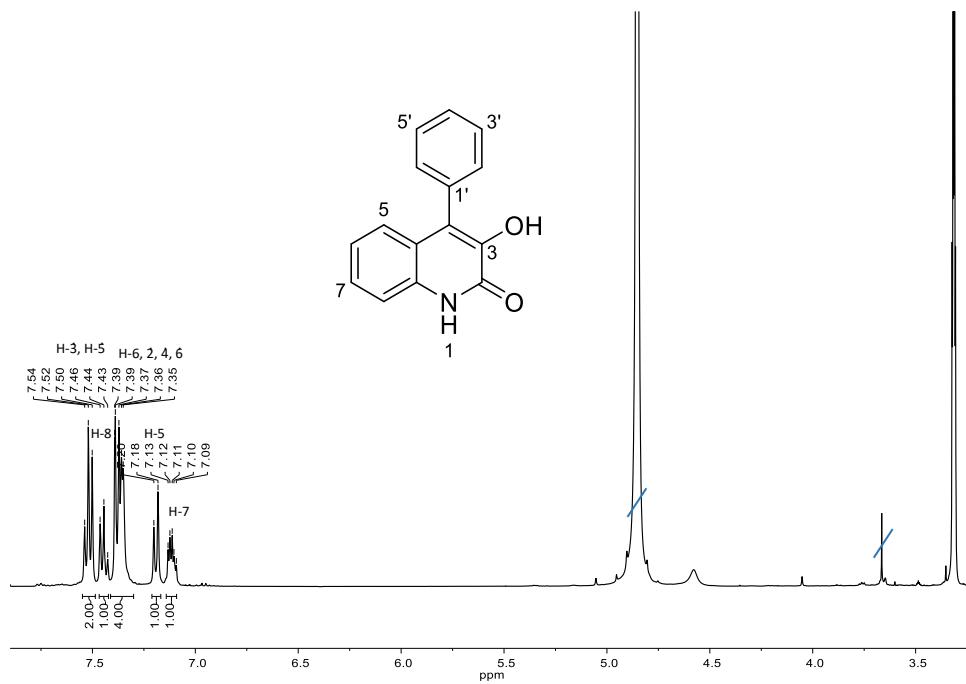


Figure S8. ^1H NMR spectrum of viridicatin (**6**) in methanol- d_4 (400 MHz).

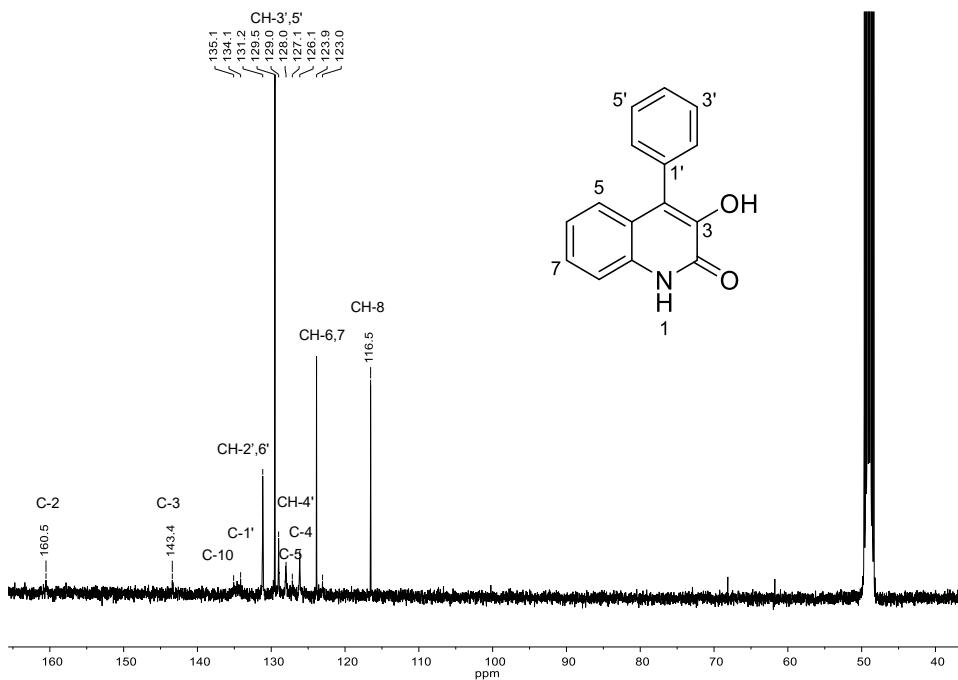


Figure S9. ^{13}C NMR spectrum of viridicatin (**6**) in methanol- d_4 (100 MHz).

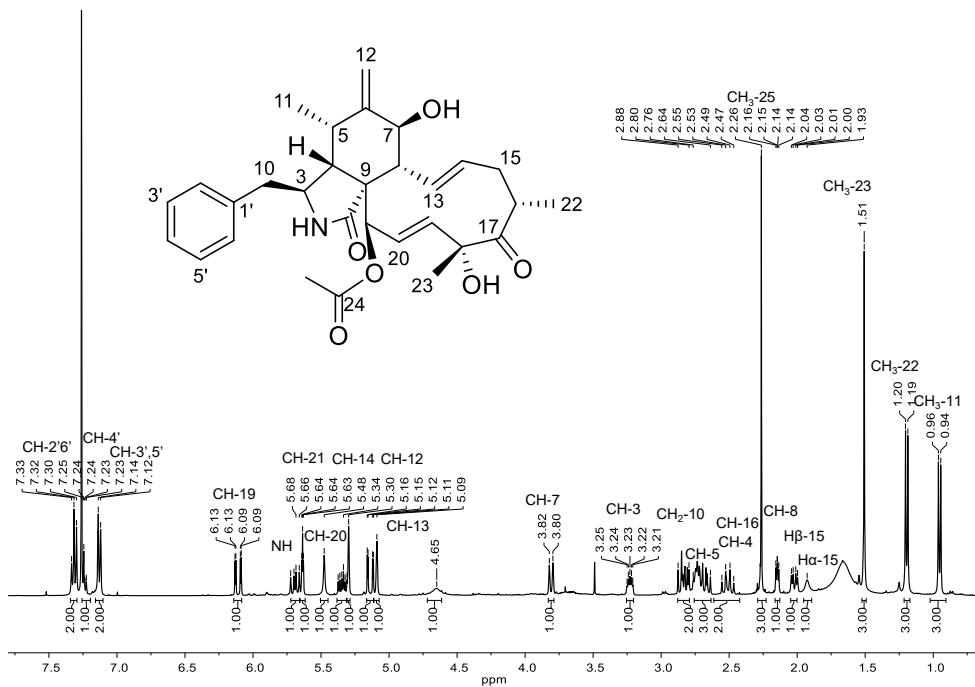


Figure S10. ^1H NMR spectrum of cytochalasin D (**7**) in CDCl_3 (400 MHz).

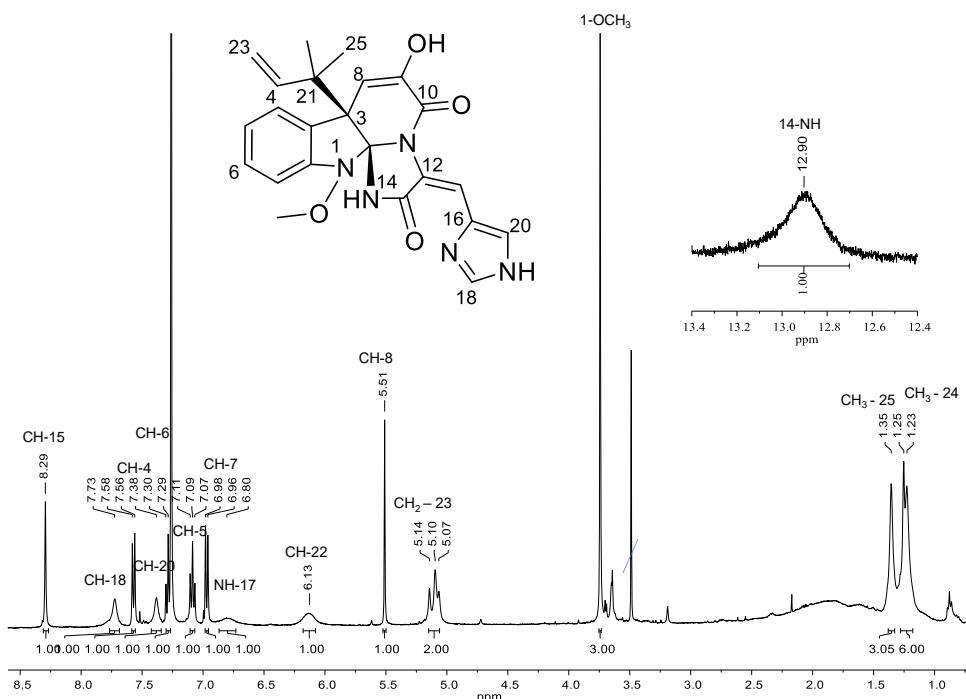


Figure S11. ^1H NMR spectrum of meleagrin A (**8**) in CDCl_3 (400 MHz).