Electronic Supplementary Material (ESI) for ChemComm.

Supporting Information

Saccharothriolides A-C, novel phenyl-substituted 10-membered macrolides from a rare actinomycete*Saccharothrix* sp.

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Supplementary methods

General experimental procedures. Optical rotations were measured using the sodium D line (589 nm) at 20°C in methanol. UV spectra were recorded in methanol on a spectrophotometer. IR spectra were measured using an FTIR spectrometer equipped with a ZnSe ATR plate. High resolution ESI-MS spectra were recorded on LC-IT-TOF MS. NMR spectra were recorded on a 500 MHz instrument. ^{1}H and ^{13}C chemical shifts are shown relative to the residual solvent: δ_H3.31 and δ_C49.15 for methanol-d_4. Chemical shifts (δ) are shown in parts per million (ppm), and coupling constants (J) are in hertz (Hz). CD spectra were recorded using a CD spectrometer with a 1mm pathlength cell.

Fermentation, extraction and isolation.

Saccharothrix sp. A1506 was isolated from a soil sample collected in Yamanashi Prefecture, Japan. A frozen stock culture of the strain A1506 was inoculated into 250-mL Erlenmeyer flasks, each containing 25 mL of a seed medium consisting of 2% potato starch (Tobu Tokachi Nosan Kako Agricultural Cooperative Assoc., Hokkaido, Japan), 2% glucose (Junsei Chemical, Tokyo, Japan), 2% soy bean powder (SoyPro, J-Oil Mills, Tokyo, Japan), 0.5% yeast extract powder (Oriental Yeast, Tokyo, Japan), 0.25% NaCl (Junsei Chemical), 0.32% $CaCO_3$ (Wako Pure Chemical Industries, Osaka, Japan), 0.0005% $CuSO_4{\cdot}5H_2O$ (Wako), 0.0005% $ZnSO4{\cdot}7H_2O$ (Wako), and 0.0005% $MnCl_2{\cdot}4H_2O$ (Junsei Chemical) for 3 days at 28°C on a rotary shaker at 220 r.p.m. (pH 7.4). The seed culture (0.5 ml) was transferred into 500-mL Erlenmeyer flasks containing 50 mL of the same medium, which were cultivated for 4 days at 28°C on a rotary shaker at 220 r.p.m. The whole culture broth (6 L) was extracted with *n*-BuOH to afford a residue (5.44 g)after concentration *in vacuo*. The residue was subjected to column chromatography on silica gel and eluted with $CHCl_3$/MeOH (50:1, 20:1, 10:1, 5:1, 2:1, and 1:10 v/v) to give 35 fractions. Fractions 16 and 17 were combined and subjected to RP-HPLC (YMC Carotenoid, ϕ20×250 mm, 20% MeCN, 8.0 mL/min) to yield metabolite **3** (17.8 mg, rt = 46.2 min). The fraction 18 was separated by silica gel column chromatography with $CHCl_3$/MeOH (50:1, 20:1, 10:1, and 5:1 v/v), to give 6 subfractions. The subfraction 5 was subjected to RP-HPLC (PEGASIL ODS SP100, ϕ10×250 mm, 40% MeCN, 2.0 mL/min) to yield metabolite **2** (5.4 mg, 34.1 min). The fractions 23 to 25 were combined and fractionated by silica gel column chromatography with $CHCl_3$/MeOH (50:1, 20:1, 10:1, 5:1, and 2:1 v/v), to give 11 subfractions. Subfractions 6 to 8 were combined and subjected to RP-HPLC (YMC Carotenoid, ϕ20×250 mm, 40% MeCN, 8.0 mL/min) to give metabolite **1** (24.7 mg, 28.5 min).

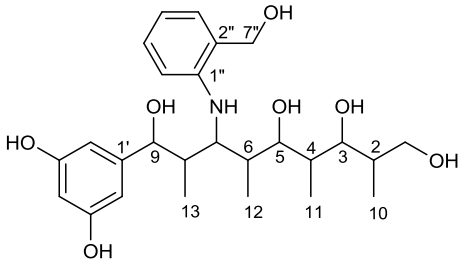
Saccharothriolide A (1): light yellow oil; $[\alpha]_D^{20}$ +18.0 (c = 0.74, MeOH); UV(MeOH)λ_{max} (log ε) 259 (4.17), 345 (3.76) nm; CD (c 4.56 ×10^{-4} M, MeOH) $\lambda_{max}(\Delta\varepsilon)$ 199 (+15.01), 227 (–25.0), 355 (+3.46) nm; IR (neat) ν_{max}3327, 2977, 2938, 1732, 1679, 1606, 1573, 1513, 1455, 1379, 1230, 1165cm^{-1}; ^{1}H and ^{13}C NMR data, see Table 1; HR-MS (ESI) $[M+H]^+$ *m/z* 486.2134 (calcd for $C_{26}H_{31}NO_8$,486.2128).

SaccharothriolideB (2): light yellow oil; $[\alpha]_D^{20}$ -81.2 (c = 0.36, MeOH); UV(MeOH)λ_{max} (log ε) 248 (3.89) nm; CD (c 2.36 ×10^{-4} M, MeOH) $\lambda_{max}(\Delta\varepsilon)$ 208 (–28.1), 250 (+10.5), 299 (-5.4)nm; IR (neat) ν_{max}3373, 2976, 2937, 2879, 2319, 1732, 1675, 1606, 1514, 1452, 1172 cm^{-1}; ^{1}H and ^{13}C NMR data see, Table S1; HR-MS (ESI) $[M+H]^+$ *m/z* 458.2162 (calcd for $C_{25}H_{31}NO_7$, 458.2179).

SaccharothriolideC (3): light yellow oil; $[\alpha]_D^{20}$ -111.8 (c = 0.58, MeOH); UV(MeOH) λ_{max} (log ε) 278 (3.40) nm; CD (c 4.74 ×10^{-4} M, MeOH) $\lambda_{max}(\Delta\varepsilon)$ 206 (–6.5), 290 (-1.5)nm; IR (neat) ν_{max}3347, 2978, 2938, 1743,

1673, 1606, 1455, 1379, 1166 cm^{-1}; ^{1}H and ^{13}C NMR data, see Table S1; HR-MS (ESI) $[M+Na]^+$ *m/z* 389.1586 (calcd for $C_{19}H_{26}O_7$, 389.1576).

Reduced derivative 4: To a solution of **1** (3.4 mg) in dry THF (0.4 mL) was added $LiAlH_4$ (30.2 mg), and the mixture was stirred at room temperature for 2 days. The solution was neutralized to pH 7 and extracted with ethyl acetate. The organic layers were combined, concentrated *in vacuo*, and fractionated by RP-HPLC (PEGASIL ODS SP100, ϕ10×250 mm, 25% CH_3CN, 8.0 mL/min) to afford **4** (0.7 mg,19.8 %, rt = 23.6 min). ^{1}H NMR (500 MHz, methanol-d_4) δ 3.59-3.46 (m, 2H, H-1), 1.85 (m, 1H, H-2), 3.45 (m, 1H, H-3), 1.96 (m, 1H, H-4), 3.57 (m , 1H, H-5), 2.24 (m, 1H, H-6), 3.79 (t, *J* = 4.8 Hz, 1H, H-7), 2.40 (m, 1H, H-8), 4.53 (d, *J* = 7.0Hz, 1H, H-9), 0.99 (d, *J* = 7.0Hz, 3H, H-10), 0.87 (d, *J* = 7.5Hz, 3H, H-11), 1.03 (d, *J* = 7.5Hz, 3H, H-12), 1.07 (d, *J* = 7.0Hz, 3H, H-13), 6.25 (d, *J* = 2.0Hz, 2H, H-2'/6'), 6.15 (t, *J* = 2.0Hz, 1H, H-4'), 7.01 (dd, *J* = 7.5, 2.0Hz, 1H, H-3"), 6.51 (t, *J* = 7.3Hz, 1H, H-4"), 7.05 (ddd, *J* = 8.0, 8.0, 2.0Hz, 1H, H-5"), 6.58 (d, *J* = 8.5Hz, 1H, H-6"), 4.59 (d, *J* = 3.5Hz, 2H,H-7"). ^{13}C NMR (500 MHz, methanol-d_4)δ 64.9 (C-1), 39.0 (C-2), 81.4 (C-3), 39.7 (C-4), 81.5 (C-5), 40.8 (C-6), 55.7 (C-7), 43.5 (C-8), 78.1 (C-9), 16.0 (C-10),16.2 (C-11), 16.0 (C-12), 10.9 (C-13),148.0 (C-1'), 106.8 (C-2'/6'), 159.4 (C-3'/5'), 102.4 (C-4'), 148.7 (C-1"), 125.6 (C-2"), 130.3 (C-3"), 116.7 (C-4"), 130.2 (C-5"), 113.0 (C-6"), 65.2 (C-7"). HR-MS (ESI) $[M+H]^+$ *m/z* 478.2719 (calcd for $C_{26}H_{39}NO_7$, 478.2805).



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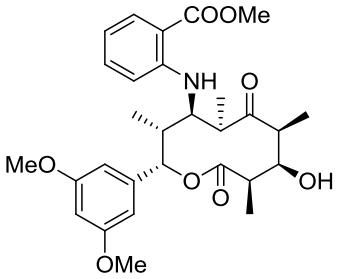
Methylatedderivative 5: To a solution of **1** (5.5 mg) in dry DMF (0.3 mL) was added CH_3I (9.6 μL) and K_2CO_3 (16.3 mg), and the mixture was stirred at room temperature for one week. The solution was neutralized to pH 7, which was extracted with ethyl acetate. The organic layers were combined, concentrated *in vacuo*, and subjected to RP-HPLC (PEGASIL ODS SP100, ϕ10×250 mm, 75% CH_3CN, 2.0 mL/min) to afford **5** (3.9 mg, 66.1%, rt =23.2 min). ^{1}H NMR (500 MHz, methanol-d_4) δ 2.91 (m, 1H, H-2), 3.81 (brs, 1H, H-3), 3.33 (m, 1H, H-4), 3.46 (m, 1H, H-6), 3.76 (brs, 1H, H-7), 2.26 (m, 1H, H-8), 5.48 (brs, 1H, H-9), 1.21 (d, *J* = 6.5Hz, 3H, H-10), 1.49 (d, *J* = 7.5Hz, 3H, H-11), 1.39 (d, *J* = 8.0Hz, 3H, H-12), 1.09 (d, *J* = 7.0Hz, 3H, H-13), 5.91 (s, 2H, H-2'/6'), 6.26 (s, 1H, H-4'), 7.96 (d, *J* = 7.5Hz, 1H, H-3"), 6.61 (t, *J* = 7.8Hz, 1H, H-4"), 7.37 (t, *J* = 7.5Hz, 1H, H-5"), 6.73 (d, *J* = 8.5Hz, 1H, H-6"), 3.94 (s, 3H, $COOCH_3$), 3.59 (s, 3H×2, OCH_3). HR-MS (ESI) $[M+H]^+$ *m/z* 528.2637 (calcd for $C_{29}H_{37}NO_8$, 528.2597).



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(*S*)-MTPA ester of 5: To a solution of **5** (0.56 mg) in dry pyridine (0.1 mL) was added (*R*)-MTPA chloride (5 mg in 50 μL toluene), and the mixture was stirred at room temperature overnight. The reaction was stopped by adding H_2O, which was extracted with ethyl acetate. The organic layers were combined and concentrated *in vacuo*. The residue was subjected to RP-HPLC (PEGASIL ODS SP100, ϕ10×250 mm, 80% CH_3CN, 2.0 mL/min) to afford the (*S*)-MTPA ester of **5** (0.16 mg, 20.3 %, rt = 53.1 min). ^{1}H NMR (500 MHz, methanol-d_4) δ 3.24 (m, 1H, H-2), 5.97 (brs, 1H, H-3), 3.58 (m, 1H, H-4), 3.54 (m, 1H, H-6), 3.77 (brs, 1H, H-7), 2.23 (m, 1H, H-8), 5.49 (brs, 1H, H-9), 1.02 (d, *J* = 7.0Hz, 3H, H-10), 1.23 (d, *J* = 6.5Hz, 3H, H-11), 1.35 (d, *J* = 6.5Hz, 3H, H-12), 1.10 (d, *J* = 6.5Hz, 3H, H-13), 5.97 (s, 2H, H-2'/6'), 6.27 (s, 1H, H-4'), 7.95 (d, *J* = 8.0Hz, 1H, H-3"), 6.62 (t, *J* = 7.3Hz, 1H, H-4"), 7.37 (t, *J* = 7.0Hz, 1H, H-5"), 6.74 (d, *J* = 8.5Hz, 1H, H-6"). HR-MS (ESI) $[M+H]^+$ *m/z* 744.2902 (calcd for $C_{39}H_{44}F_3NO_{10}$, 744.2996).

(*R*)-MTPA ester of 5: To a solution of **5** (1.21 mg) in dry pyridine (0.2 mL) was added (*S*)-MTPA chloride (10 mg in 100μL toluene) and 4-DMAP (2.0 mg), and the mixture was stirred at room temperature overnight. The reaction was stopped by adding H_2O and extracted with ethyl acetate. The organic layers were combined and concentrated *in vacuo*. The residue was subjected to RP-HPLC (PEGASIL ODS SP100, ϕ10×250 mm, 85% CH_3CN, 2.0 mL/min) to afford the (*R*)-MTPA ester of **5** (0.69 mg, 40.4 %, rt = 30.9 min). ^{1}H NMR (500 MHz, methanol-d_4) δ 3.34 (m, 1H, H-2), 5.99 (brs, 1H, H-3), 3.52 (m, 1H, H-4), 3.51 (m, 1H, H-6), 3.76 (brs, 1H, H-7), 2.22 (m, 1H, H-8), 5.49 (brs, 1H, H-9), 1.18 (d, *J* = 7.5Hz, 3H, H-10), 1.09 (d, *J* = 7.5Hz, 3H, H-11), 1.31 (d, *J* = 6.5Hz, 3H, H-12), 1.09 (d, *J* = 7.5Hz, 3H, H-13), 5.99 (s, 2H, H-2'/6'), 6.28 (s, 1H, H-4'), 7.94 (d, *J* = 7.0Hz, 1H, H-3"), 6.61 (t, *J* = 7.5Hz, 1H, H-4"), 7.36 (t, *J* = 7.3Hz, 1H, H-5"), 6.73 (d, *J* = 8.0Hz, 1H, H-6"). HR-MS (ESI) $[M+H]^+$ *m/z* 744.2932 (calcd for $C_{39}H_{44}F_3NO_{10}$, 744.2996).

Quantum chemical ECD calculation. Initial structures were constructed on Spartan'10 software (Wave function Inc.) based on information of NOESY correlations, and geometry optimization was carried out by means of Spartan'10 software on MMFF (Merck Molecular Force Field). Further optimization of the structures in methanol was performed using the Gaussian 09 program at B3LYP/6-31+G(d) with the polarizable continuum model (PCM). The optimized structures were shown in Figure S24. Optimization was confirmed by computation of frequency. Conformational distribution of the optimized structures was investigated on Spartan'10 software at PM3 level and suggested the absence of other major conformers (< 5%). Prediction of $^3J_{H\text{-}H}$ coupling constants at MPW1PW91/6-311+G (d,p) in methanol (PCM)and TDDFT calculations at B3LYP/6-31+G(d) in methanol (PCM) were performed on Gaussian 09 program. ECD spectra were generated using Gausssum 2.2 (sigma values: 0.4 eV for saccharothliolide A (**1**), 0.6eV for saccharothliolides B (**2**), and 0.8 eV for saccharothliolide C (**3**).

Cytotoxicity assay. Cytotoxicity of metabolites **1**-**3** against HeLa and HT1080 cell lines was evaluated by a WST-8 colorimetric assay (Cell Counting Kit-8, Dojindo). Briefly, cells were cultured in 96-well plates (1500 cells/well) for 24 hours followed by exposure to metabolites **1**-**3** for 72 hours, and then the viability was assessed by WST-8. Adriamycin, a control reagent, showed IC_{50} values of 0.09 μM and 0.14 μM against HeLa and HT1080 cells, respectively.

Antibacterial assay. Growth inhibitory activity of metabolites **1**-**3** against bacteria was examined by paper disc method. The test organisms *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli* and *Pseudomonas aeruginosa* were suspended in NBRC 802 media (1% of polypepton, 0.2% of yeast extract and 0.1% of $MgSO_4 \cdot 7H_2O$) with 1% agar medium and overlaid on solid medium plates with 2% agarose. Metabolites **1**-**3** (50μg per disk) and penicillin (10μg per disk) were loaded onto paper disks (ϕ6 mm) which were dried and placed on the agar plates. After incubation at 27 °C for one day, growth inhibitory zone was measured.

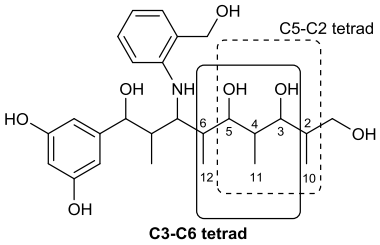
Supplementary tables

Table S1. ^{1}H NMR and ^{13}C NMR data for saccharothriolides B (**2**) and C (**3**) in methanol-d_4.

no.	**2**		**3**	
	δ_H, m, *J* (Hz)	δ_C	δ_H, m, *J* (Hz)	δ_C
1	-	173.9, C	-	173.8, C
2	2.88, qd, 6.9, 3.4	46.4, CH	2.85, brs	46.3, CH
3	3.80, d, 2.3	81.3, CH	3.78, brs	80.8, CH
4	3.29, qd, 7.5, 1.2	50.9, CH	3.27, brs	51.2, CH
5	-	225.8, C	-	224.7, C
6	3.42, qd, 6.9, 2.3	43.8, CH	3.20, brs	44.1, CH
7	3.51, dd, 4.0, 2.3	63.5, CH	3.63, brs	80.1, CH
8	2.24, qd, 7.5, 4.0	42.8, CH	2.10, brs	47.3, CH
9	5.55, brs	74.1, CH	5.59, brs	73.1, CH
10	1.20, d, 6.9	14.0, CH_3	1.19, d, 6.9	14.0, CH_3
11	1.46, d, 7.5	18.3, CH_3	1.42, d, 7.5	18.2, CH_3
12	1.39, d, 6.9	20.4, CH_3	1.42, d, 7.5	20.3, CH_3
13	1.04, d, 7.5	10.9, CH_3	0.92, d, 6.9	10.3, CH_3
1'	-	145.0, C	-	144.5, C
2'	5.87, d, 2.3	104.8, CH	6.10, s	105.0, CH
3'	-	159.5, C	-	159.7, C
4'	6.06, t, 2.3	102.2, CH	6.14, t, 2.3	102.4, CH
5'	-	159.5, C	-	159.7, C
6'	5.87, d, 2.3	104.8, CH	6.10, s	105.0, CH
1"	-	138.2, C		
2"	-	146.0, C		
3"	6.73, d, 8.1	115.2, CH		
4"	6.48, t, 6.5	117.4, CH		
5"	6.70, t, 7.5	121.6, CH		
6"	6.47, d, 7.0	111.1, CH		

Table S2. Predicted and adjusted ^{13}C NMR chemical shifts for **4** (**C3-C6** tetrad)

No. in **4**	δ_C of **4** predicted by Chemdraw 2001	No. in Kishi's model	δ_C of Kishi's model predicted by Chemdraw 2001	$\Delta\delta$ (δ_{4}- δ_{model})	observed δ_C for **4** (methanol-d_4)	Adjusted δ_C for **4** ($\delta_{observed}$-$\Delta\delta$)
3	71.2	5	70.6	0.6	81.41	80.81
4	37.6	6	40.1	-2.5	39.69	42.19
5	70.7	7	74.6	-3.9	81.47	85.37
6	36.8	8	37.3	-0.5	40.80	41.30
11	8.3	11	8.0	0.3	16.21	15.91
12	9.7	12	13.9	-4.2	16.04	20.24



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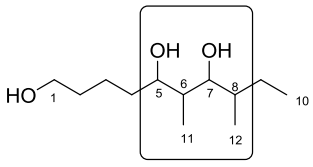


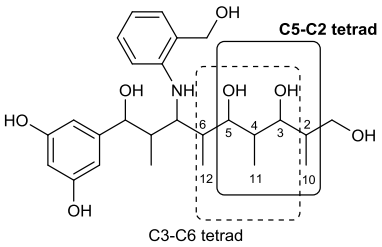
Kishi's model

Table S3. Differences between adjusted carbon chemical shifts (ppm) of **4** (**C3-C6** tetrad) and those of **1a-h** (methanol-d_4).

No. in **4**	No. in Kishi's model	Chemical shift difference $\Delta\delta$ = $\delta_{adjusted\mathbf{4}}$- $\delta_{1a\text{-}h}$							
		1a (*s*-*a*-*s*)	**1b** (*s*-*s*-*s*)	**1c** (*s*-*a*-*a*)	**1d** (*s*-*s*-*a*)	**1e** (*a*-*a*-*s*)	**1f** (*a*-*s*-*s*)	**1g** (*a*-*a*-*a*)	**1h** (*a*-*s*-*a*)
3	5	8.15	5.61	8.21	4.11	5.83	5.77	5.80	5.34
4	6	1.05	1.73	2.48	2.26	-0.53	1.15	-0.42	1.66
5	7	8.95	6.41	5.24	5.19	7.72	9.39	4.78	9.64
6	8	3.27	3.13	2.69	2.55	3.22	2.75	2.89	2.51
11	11	5.37	8.14	4.88	9.34	4.17	5.41	3.70	5.82
12	12	7.58	5.68	3.68	4.72	8.10	4.86	3.09	4.86
$\Sigma\|\Delta\delta\|$		34.37	30.7	27.18	28.17	29.57	29.33	**20.68**	29.83
$\Sigma\|\Delta\delta\|$-|4|		33.32	28.97	24.70	25.91	29.04	28.18	**20.26**	28.17
$\Sigma\|\Delta\delta\|$-|5|		25.42	24.29	21.94	22.98	21.85	19.94	**15.90**	20.19
$\Sigma\|\Delta\delta\|$-|4|-|5|		24.37	22.56	19.46	20.72	21.32	18.79	**15.48**	18.53
$\Sigma\|\Delta\delta\|$-|5|-|11|		20.05	16.15	17.06	13.64	17.68	14.53	**12.20**	14.37

Table S4. Predicted and adjusted ^{13}C NMR chemical shifts for **4** (**C5-C2** tetrad)

No. in **4**	δ_C of **4** predicted by chemdraw 2001	No. in Kishi's model	δ_C of Kishi's model predicted by Chemdraw 2001	$\Delta\delta$ (δ_{4}- δ_{model})	Observed δ_C for **4** (methanol-d_4)	Adjusted δ_C for **4** ($\delta_{observed}$-$\Delta\delta$)
5	70.7	5	70.6	0.1	81.47	81.37
4	37.6	6	40.1	-2.5	39.69	42.19
3	71.2	7	74.6	-3.4	81.41	84.81
2	38.0	8	37.3	0.7	38.95	38.25
11	8.3	11	8.0	0.3	16.21	15.91
10	10.2	12	13.9	-3.7	16.00	19.70



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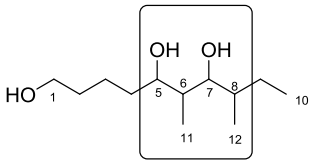


Kishi's model

Table S5. Differences between adjusted carbon chemical shifts (ppm) of **4** (**C5-C2** tetrad) and those of **1a-h** (methanol-d_4).

No. in **4**	No. in Kishi's model	Chemical shift difference $\Delta\delta = \delta_{adjusted\,4}$- $\delta_{1a\text{-}h}$							
		1a (*s*-*a*-*s*)	**1b** (*s*-*s*-*s*)	**1c** (*s*-*a*-*a*)	**1d** (*s*-*s*-*a*)	**1e** (*a*-*a*-*s*)	**1f** (*a*-*s*-*s*)	**1g** (*a*-*a*-*a*)	**1h** (*a*-*s*-*a*)
5	5	8.71	6.17	8.77	4.67	6.39	6.33	6.36	5.90
4	6	1.05	1.73	2.48	2.26	-0.53	1.15	-0.42	1.66
3	7	8.39	5.85	4.68	4.63	7.16	8.83	4.22	9.08
2	8	0.22	0.08	-0.36	-0.50	0.17	-0.30	-0.16	-0.54
11	11	5.37	8.14	4.88	9.34	4.17	5.41	3.70	5.82
10	12	7.04	5.14	3.14	4.18	7.56	4.32	2.55	4.32
$\Sigma\|\Delta\delta\|$		30.78	27.11	24.31	25.58	25.98	26.34	**17.41**	27.32
$\Sigma\|\Delta\delta\|$-|4|		29.73	25.38	21.83	23.32	25.45	25.19	**16.99**	25.66
$\Sigma\|\Delta\delta\|$-|3|		22.39	21.26	19.63	20.95	18.82	17.51	**13.19**	18.24
$\Sigma\|\Delta\delta\|$-|4|-|3|		21.34	19.53	17.15	18.69	18.29	16.36	**12.77**	16.58
$\Sigma\|\Delta\delta\|$-|3|-|11|		17.02	13.12	14.75	11.61	14.65	12.10	**9.49**	12.42

Table S6. Experimental and DFT-calculated $^{3}J_{H\text{-}H}$ coupling constants for saccharothriolides A (**1**) and B (**2**).

No.	**1**		**2**	
	experimental ^{3}J (Hz)	DFT-calculated ^{3}J (Hz)	experimental ^{3}J (Hz)	DFT-calculated ^{3}J (Hz)
H_2-H_3	3.4	4.1	3.4	4.2
H_3-H_4	very small*	1.3	1.2	1.3
H_6-H_7	very small*	3.2	2.3	2.8
H_7-H_8	5.2	5.5	4.0	5.6
H_8-H_9	very small*	1.7	very small*	1.8

*^{1}H NMR signals were broad, which hampered calculation of the exact coupling constants.

Supplementary figures

Figure S1. ^{1}H-^{1}H COSY and key HMBC correlations (A), and selected NOESY correlations (B) in saccharothiolide B (**2**).

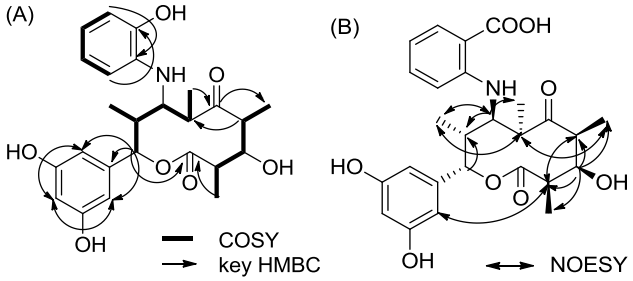


Figure S2. ^{1}H-^{1}H COSY correlations (A), and selected NOESY correlations (B) in saccharothiolide C (**3**).

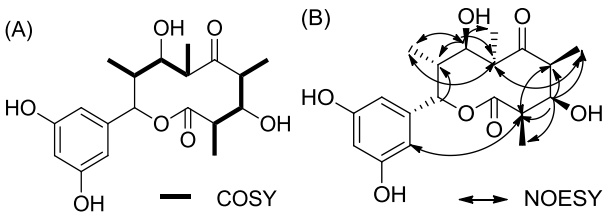
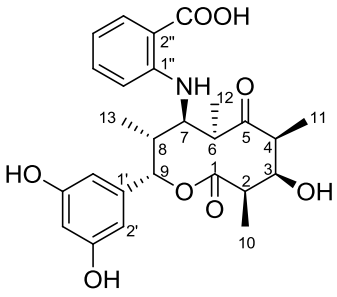
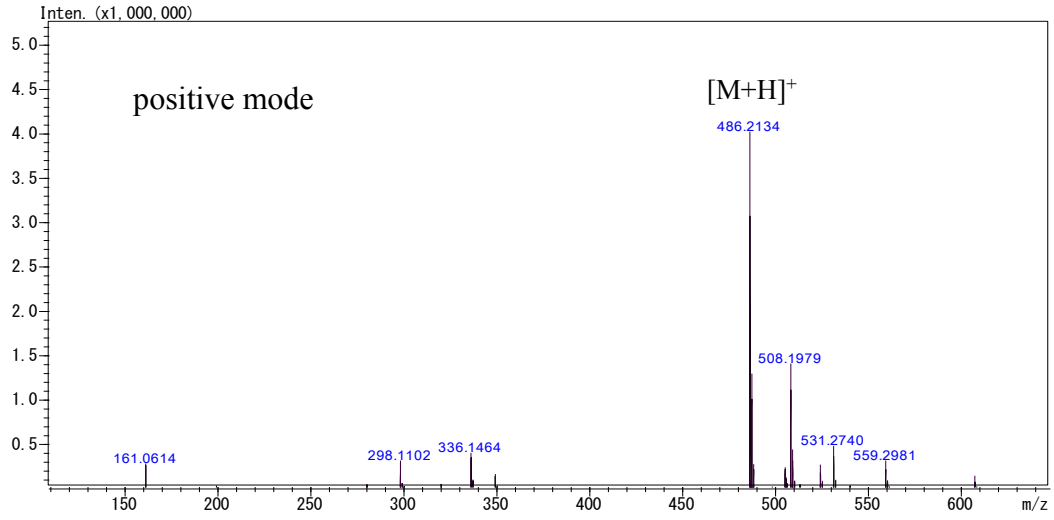


Figure S3. HR-ESI-MS spectrum of saccharothriolide A (**1**).



saccharothriolide A (**1**)



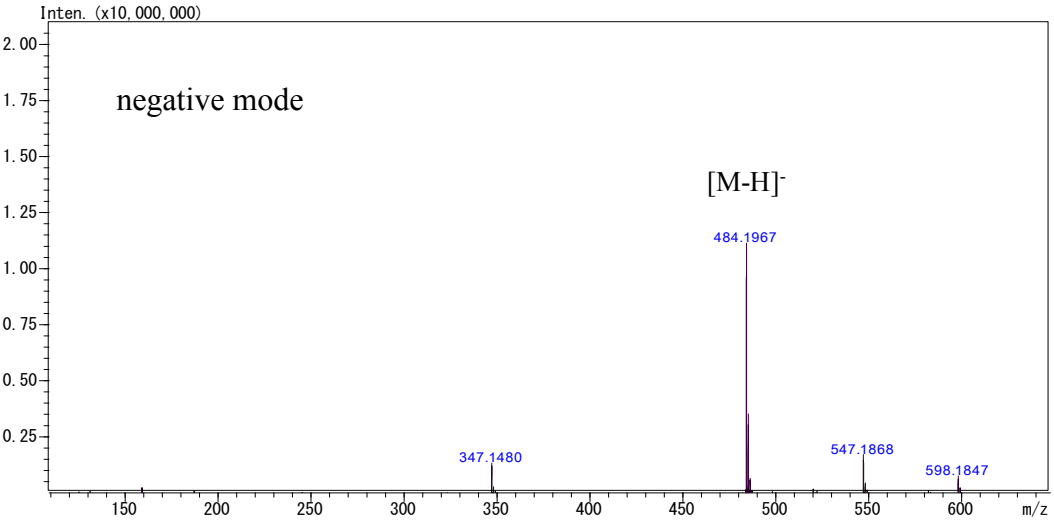
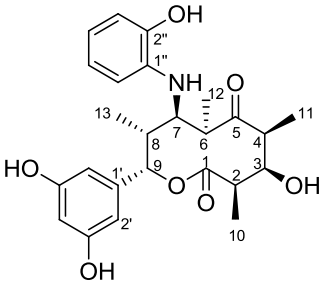
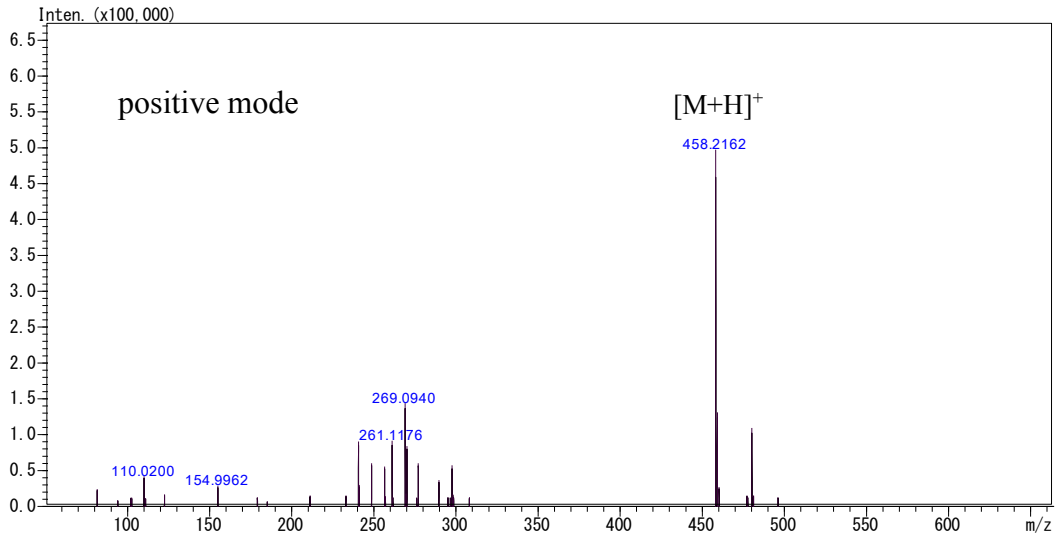


Figure S4. HR-ESI-MS spectrum of saccharothriolide B (**2**).



saccharothriolide B (**2**)



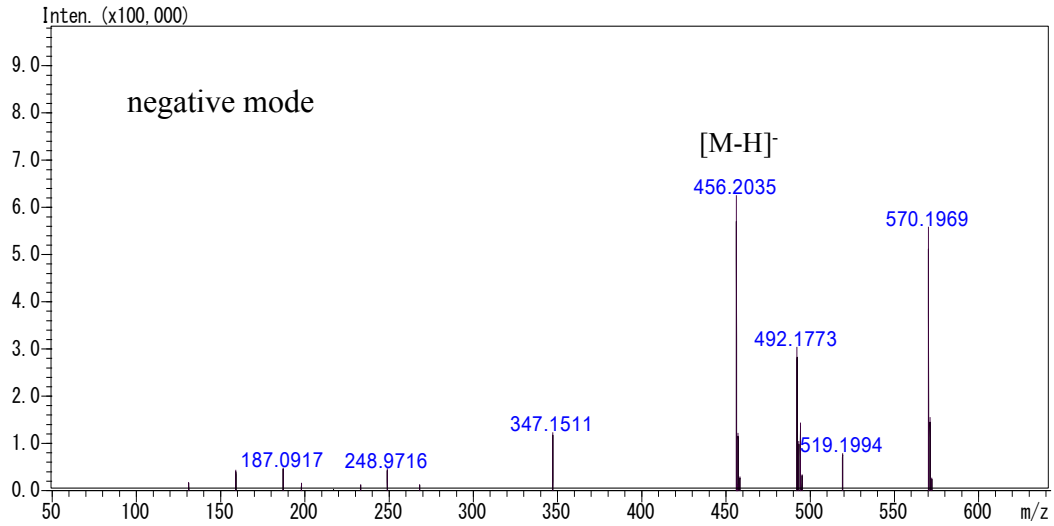
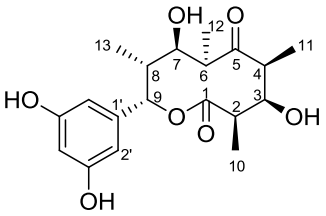
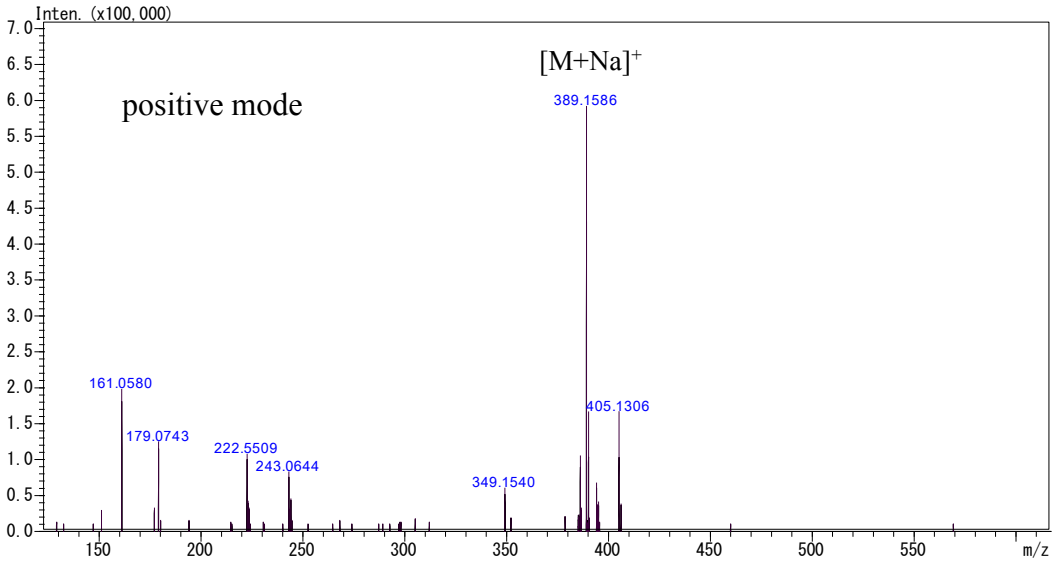


Figure S5. HR-ESI-MS spectrum of saccharothriolide C (**3**).



saccharothriolide C (**3**)



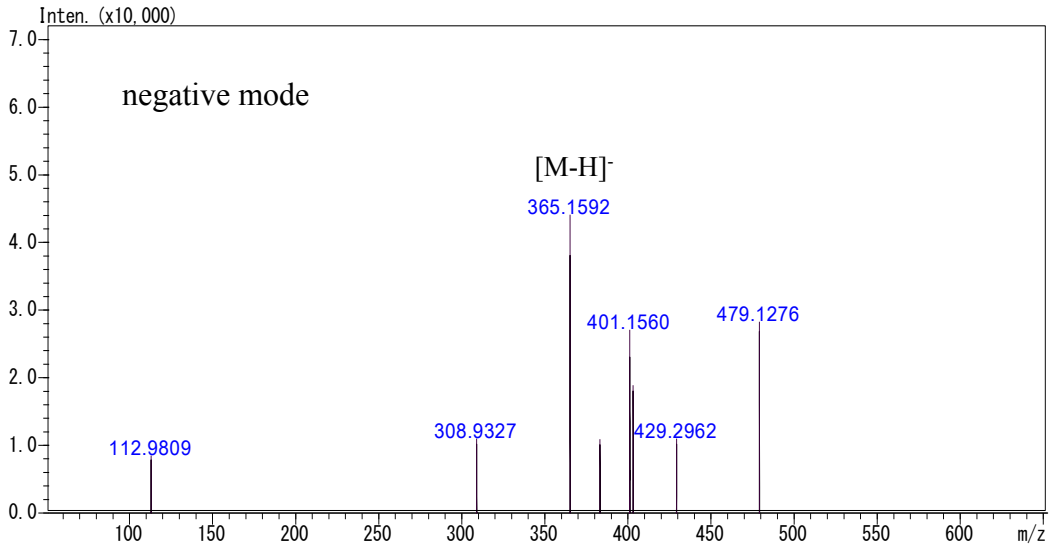
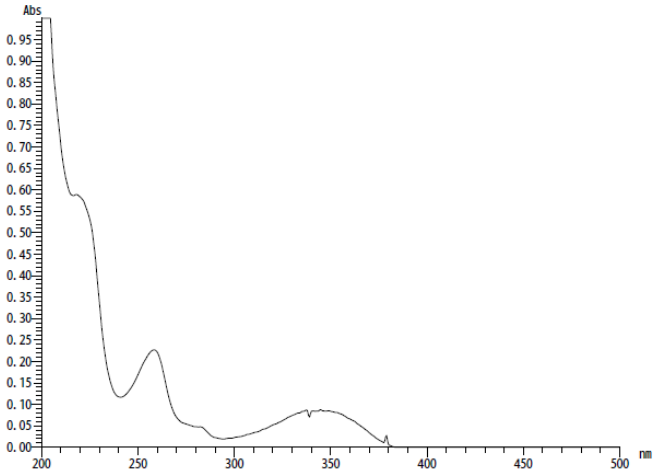
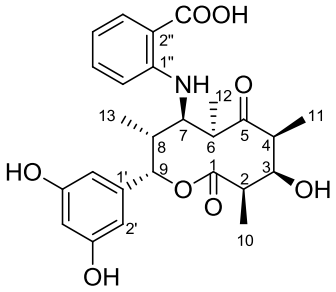
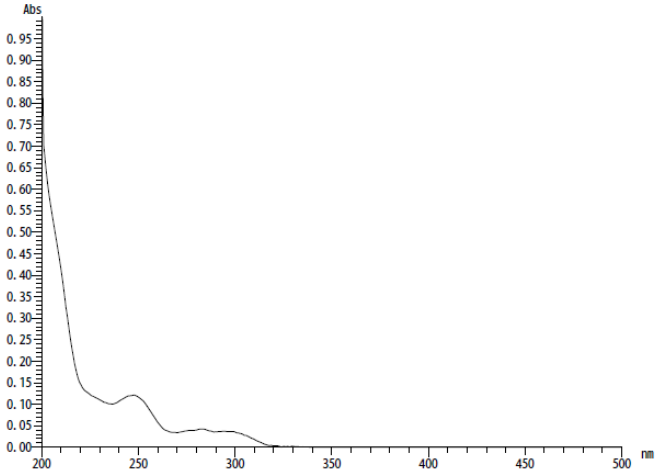


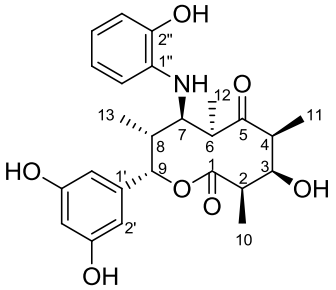
Figure S6. UV spectra of saccharothriolides A-C (**1-3**) in methanol. 2-Aminobenzoic acid in metabolite **1** is known to show a characteristic absorption around 336 nm, which is caused by forming a six-membered intramolecular H-bonded ring through the carboxylic acid and the amino group.[1]



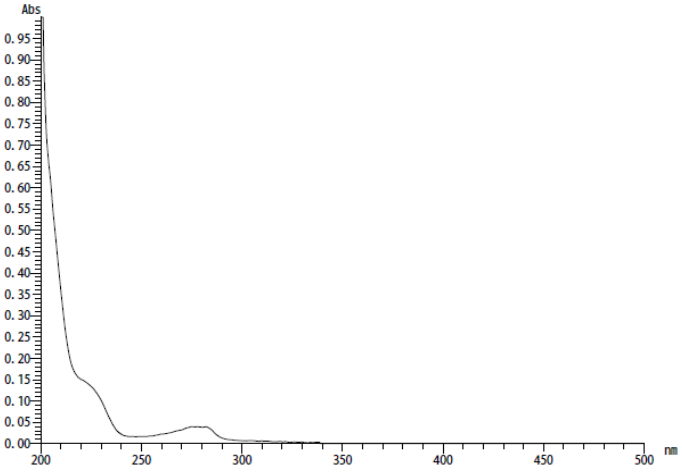


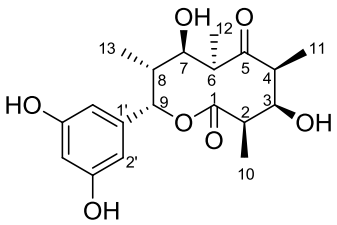
saccharothriolide A (**1**)





saccharothriolide B (**2**)





saccharothriolide C (**3**)

1. Stalin, T.;Rajendiran, N.*J. Photoch. Photobio. A.* **2006**, *182*, 137-150.

Figure S7. ^{1}H NMR spectrum of saccharothriolide A (**1**) in methanol-d_4.

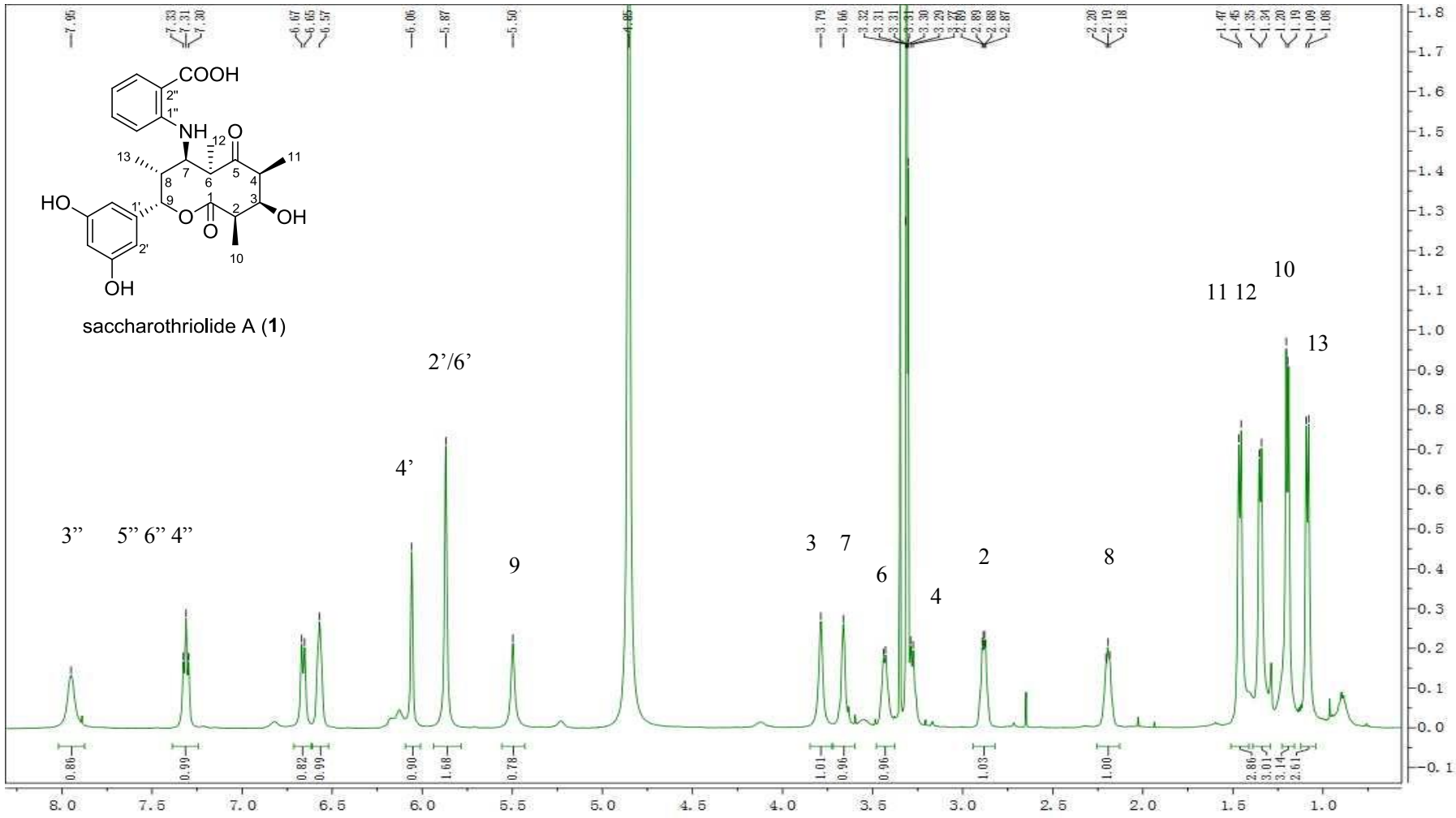


Figure S8. ^{13}C NMR spectrum of saccharothriolide A (**1**) in methanol-d_4.

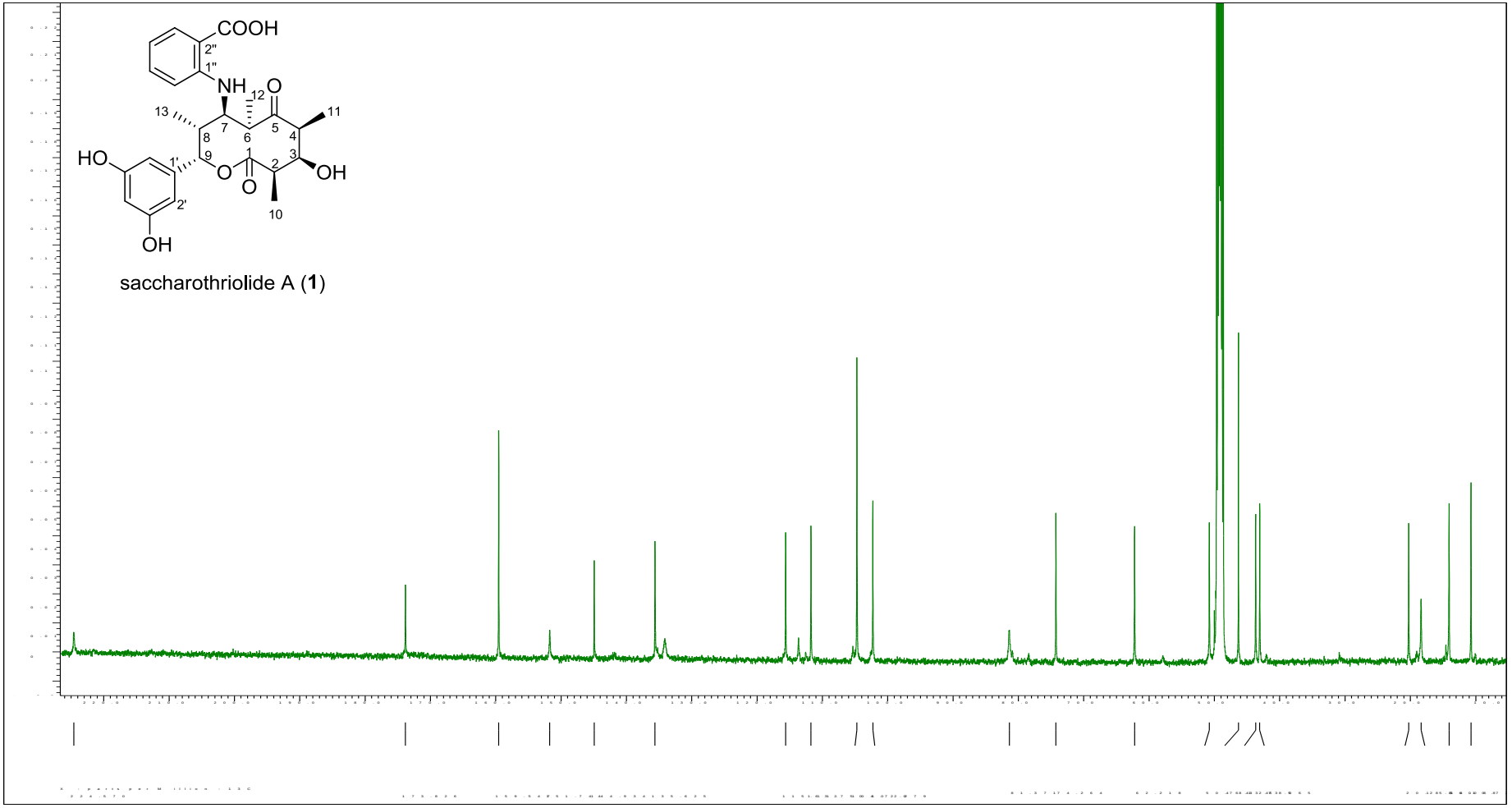


Figure S9. ^{1}H-^{1}H COSY spectrum of saccharothriolide A (**1**) in methanol-d_4.

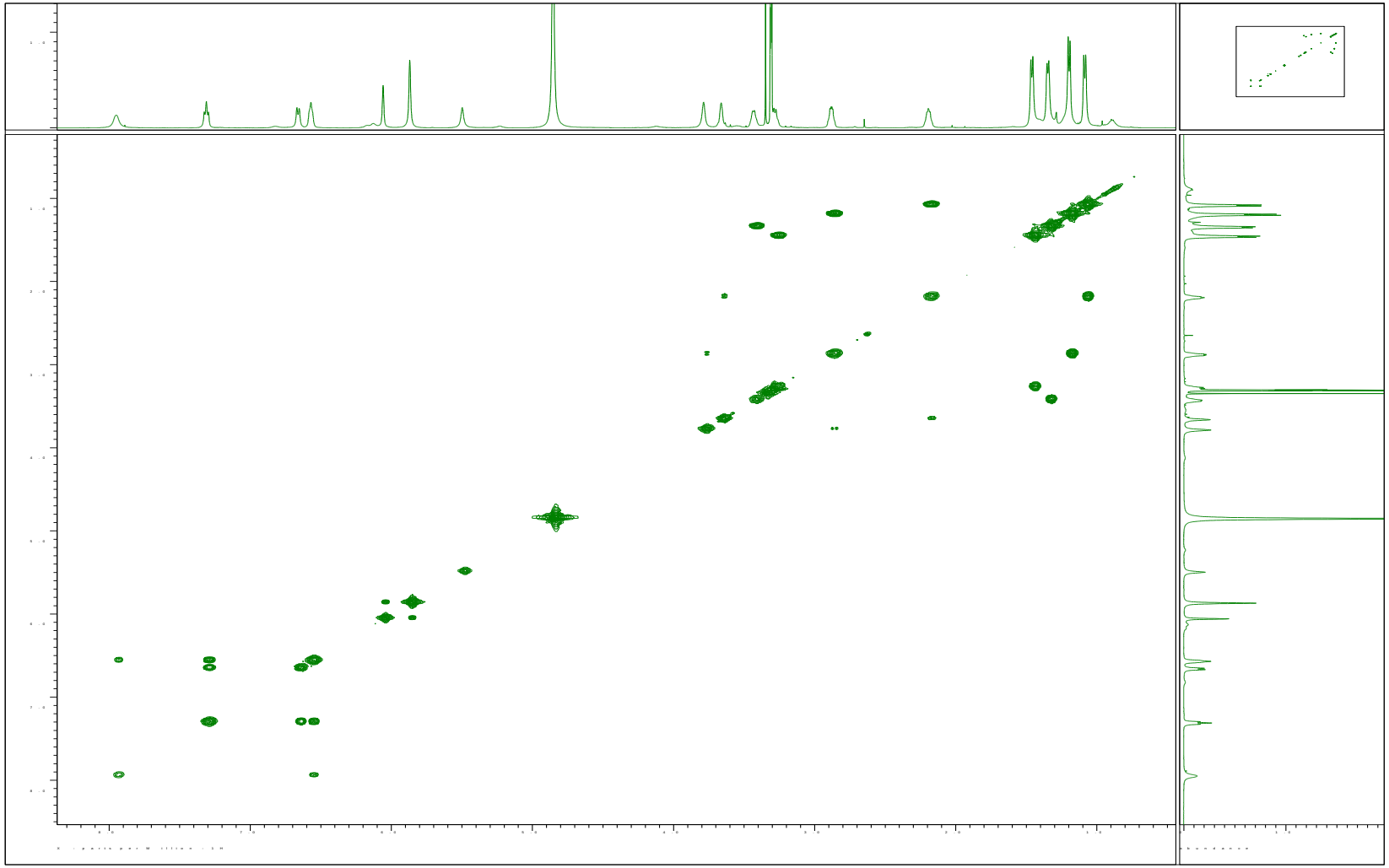


Figure S10. HMQC spectrum of saccharothriolide A (**1**) in methanol-d_4.

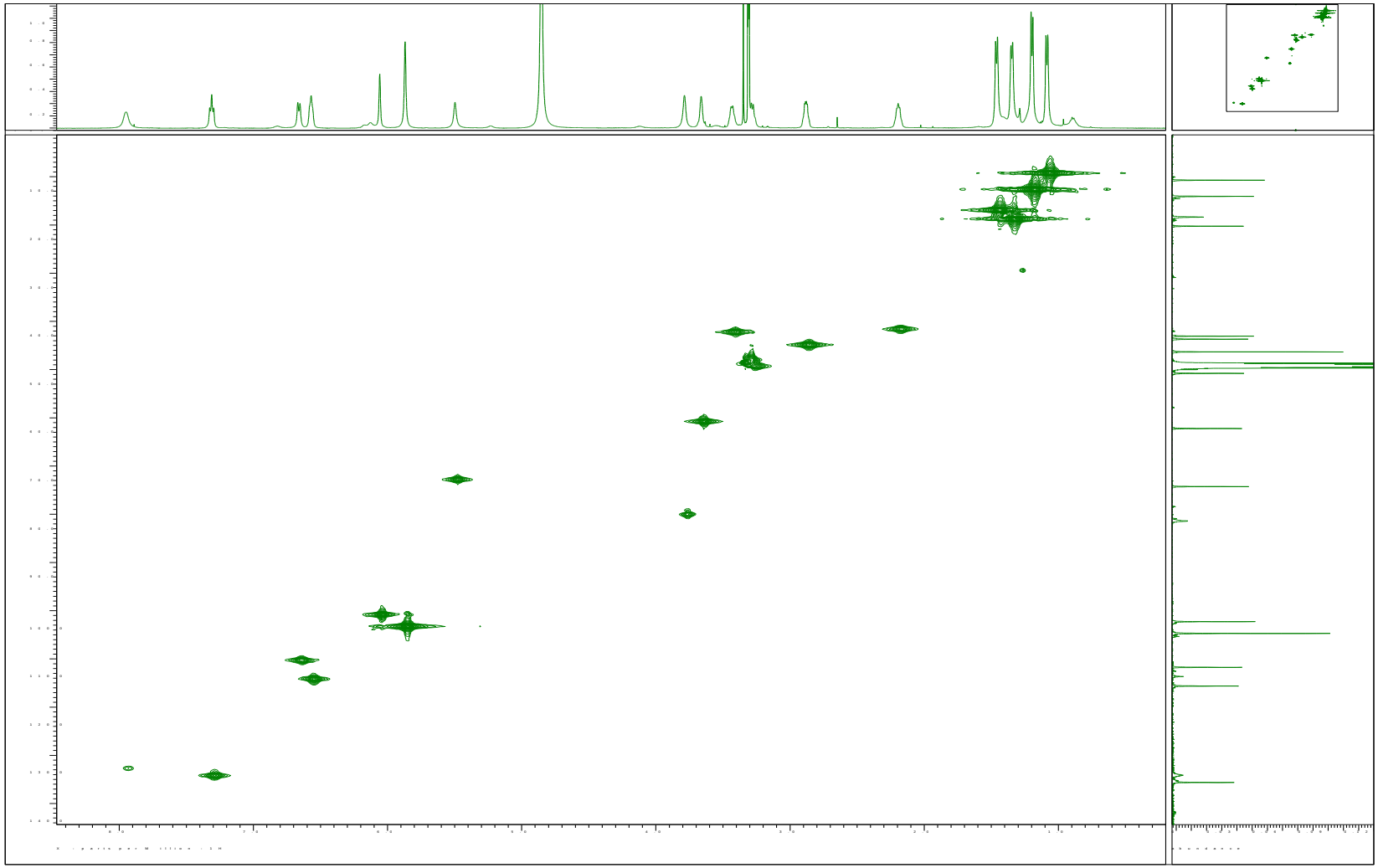


Figure S11. HMBC spectrum of saccharothriolide A (**1**) in methanol-d_4.

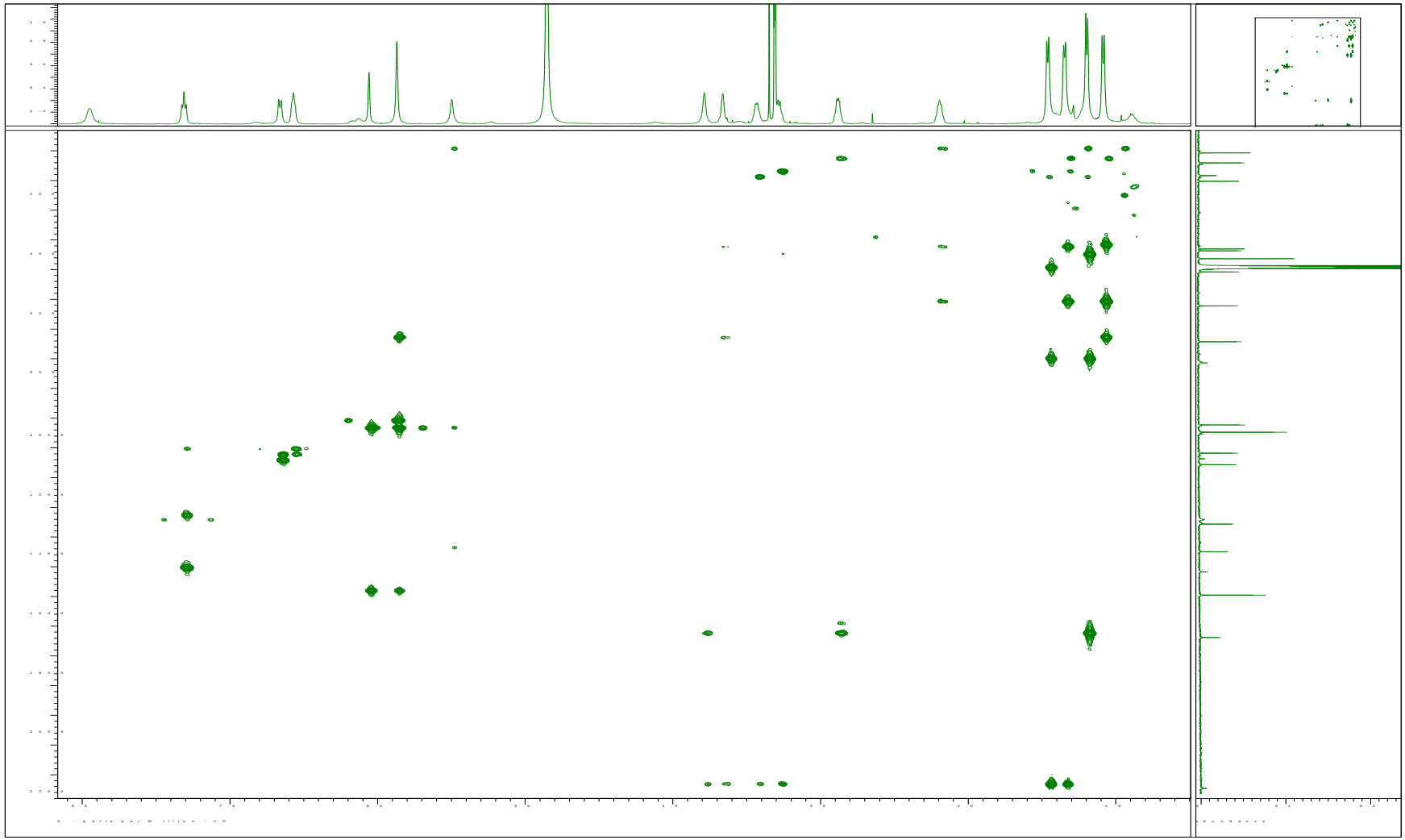


Figure S12. NOESY spectrum of saccharothriolide A (**1**) in methanol-d_4.

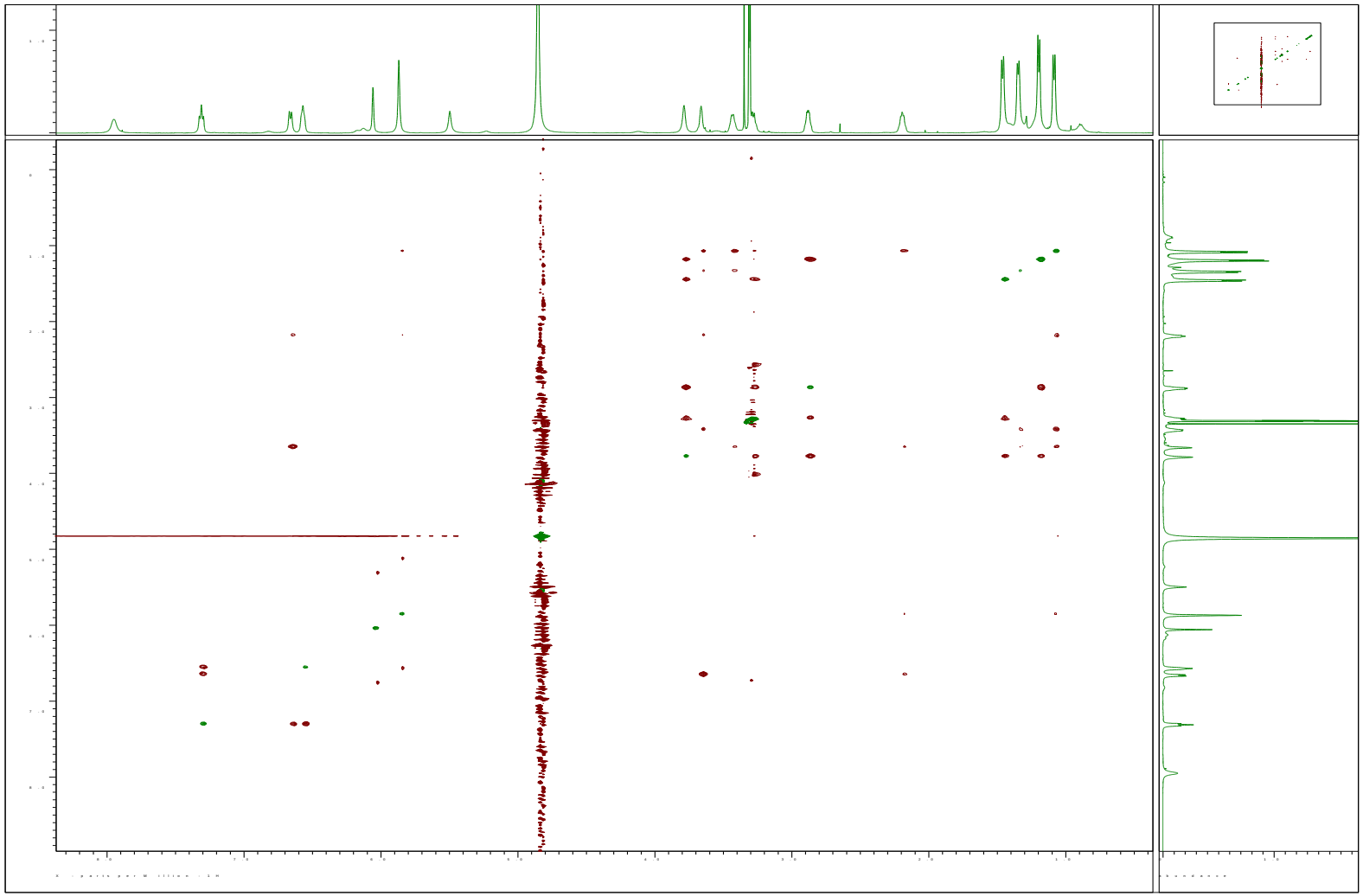


Figure S13. ^{1}H NMR spectrum of saccharothriolide B (**2**) in methanol-d_4.

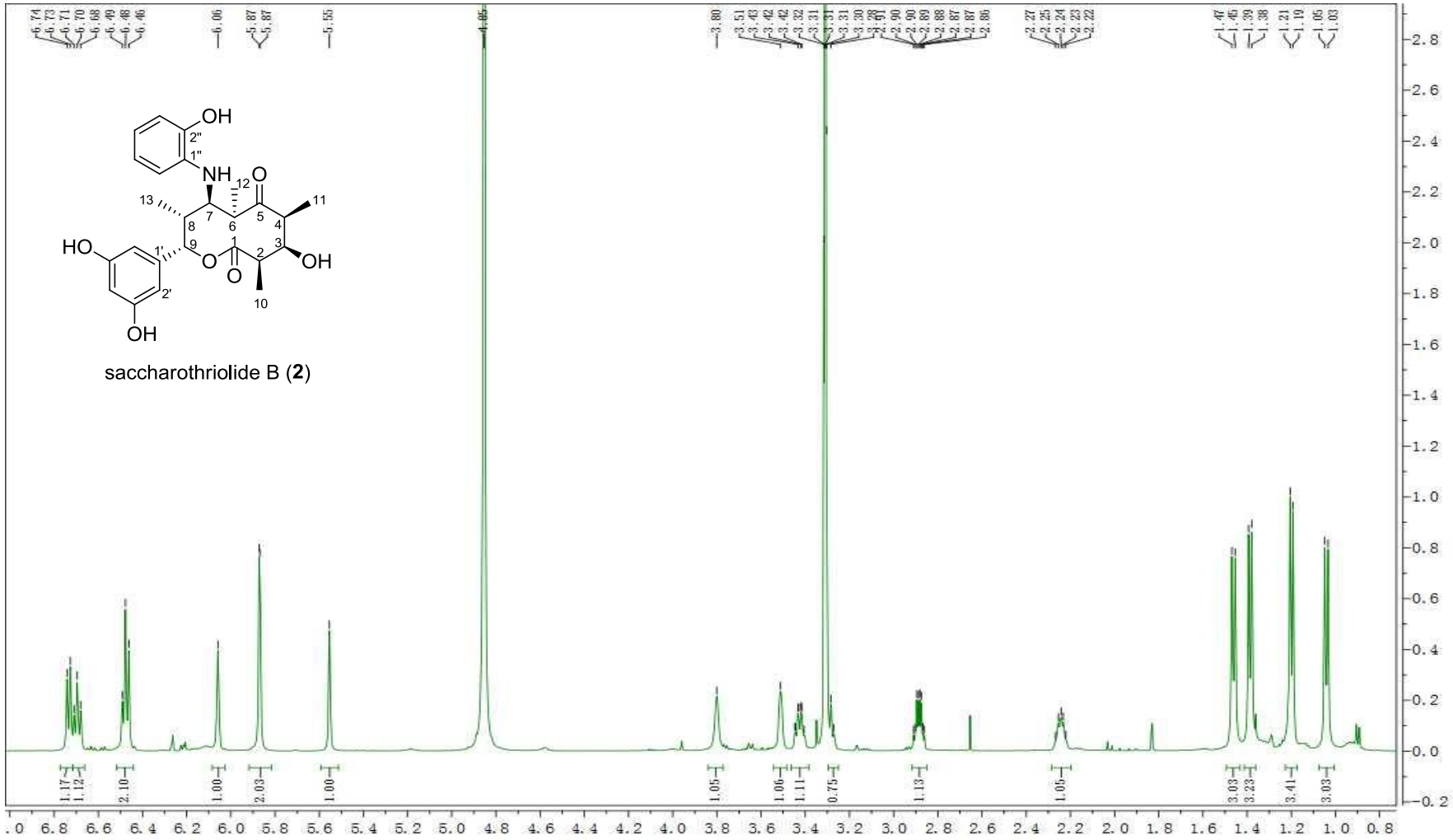


Figure S14. ^{13}C NMR spectrum of saccharothriolide B (**2**) in methanol-d_4.

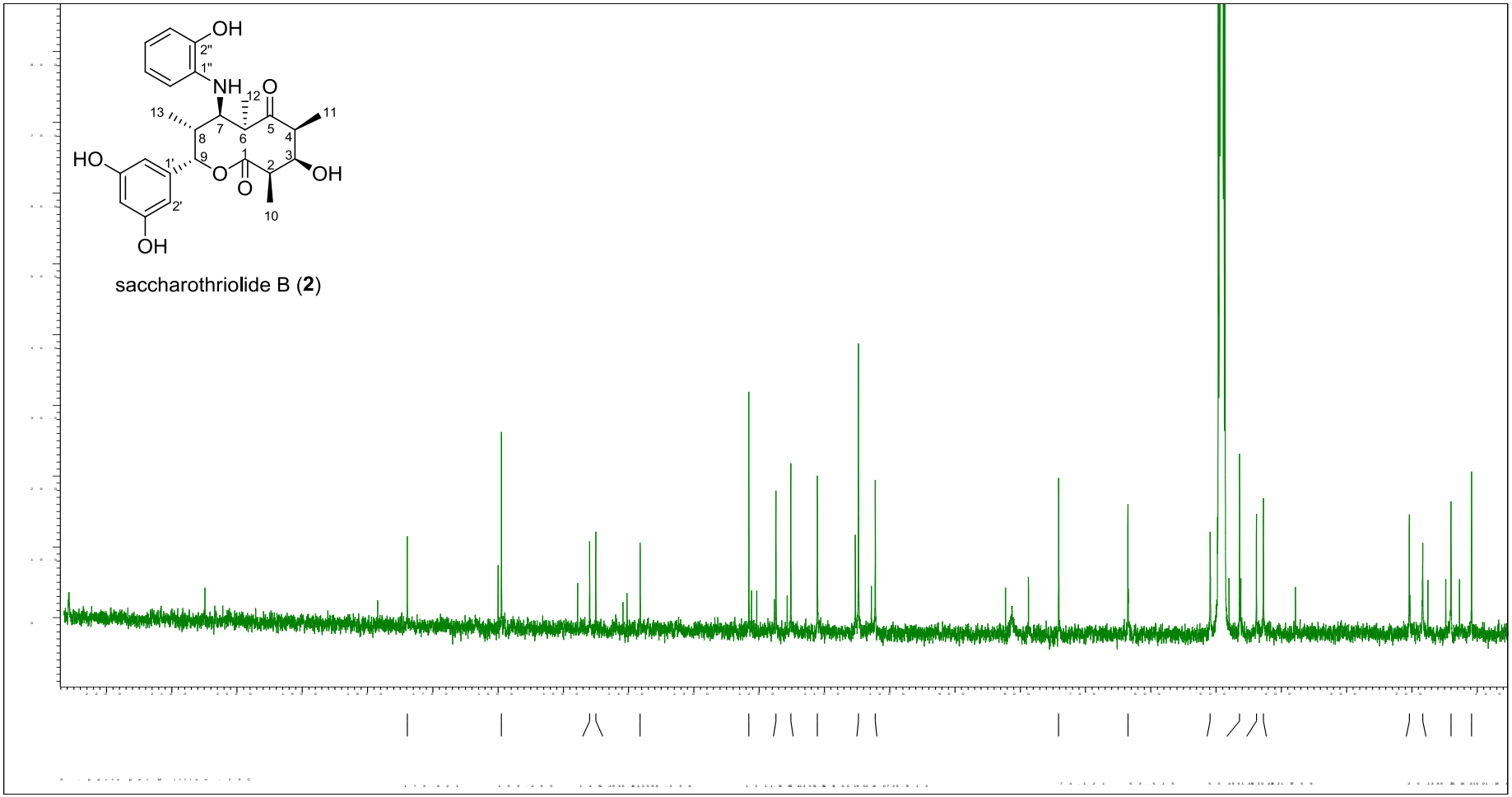


Figure S15. ^{1}H-^{1}H COSY spectrum of saccharothriolide B (**2**) in methanol-d_4.

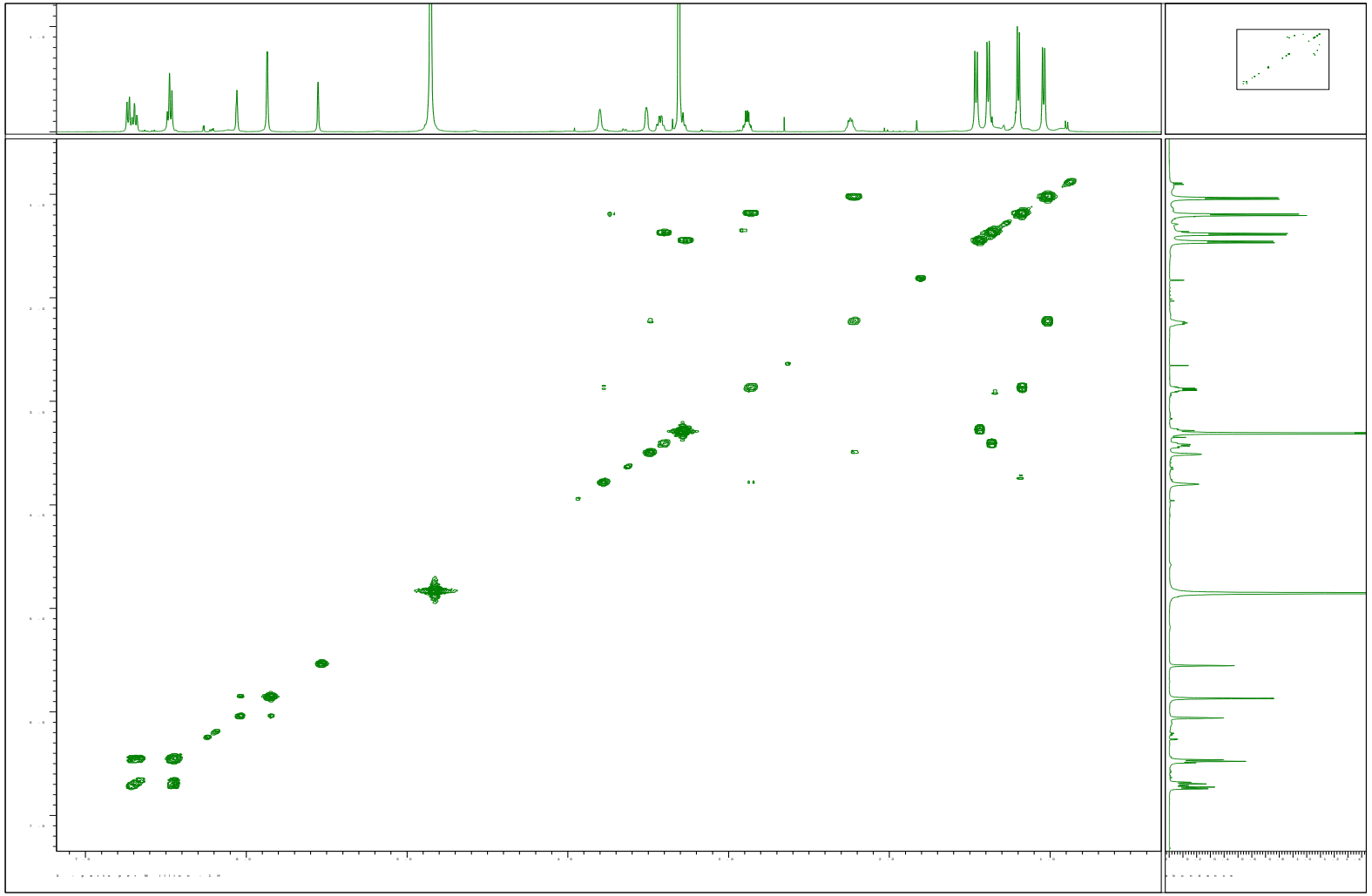


Figure S16. HMQC spectrum of saccharothriolide B (**2**) in methanol-d_4.

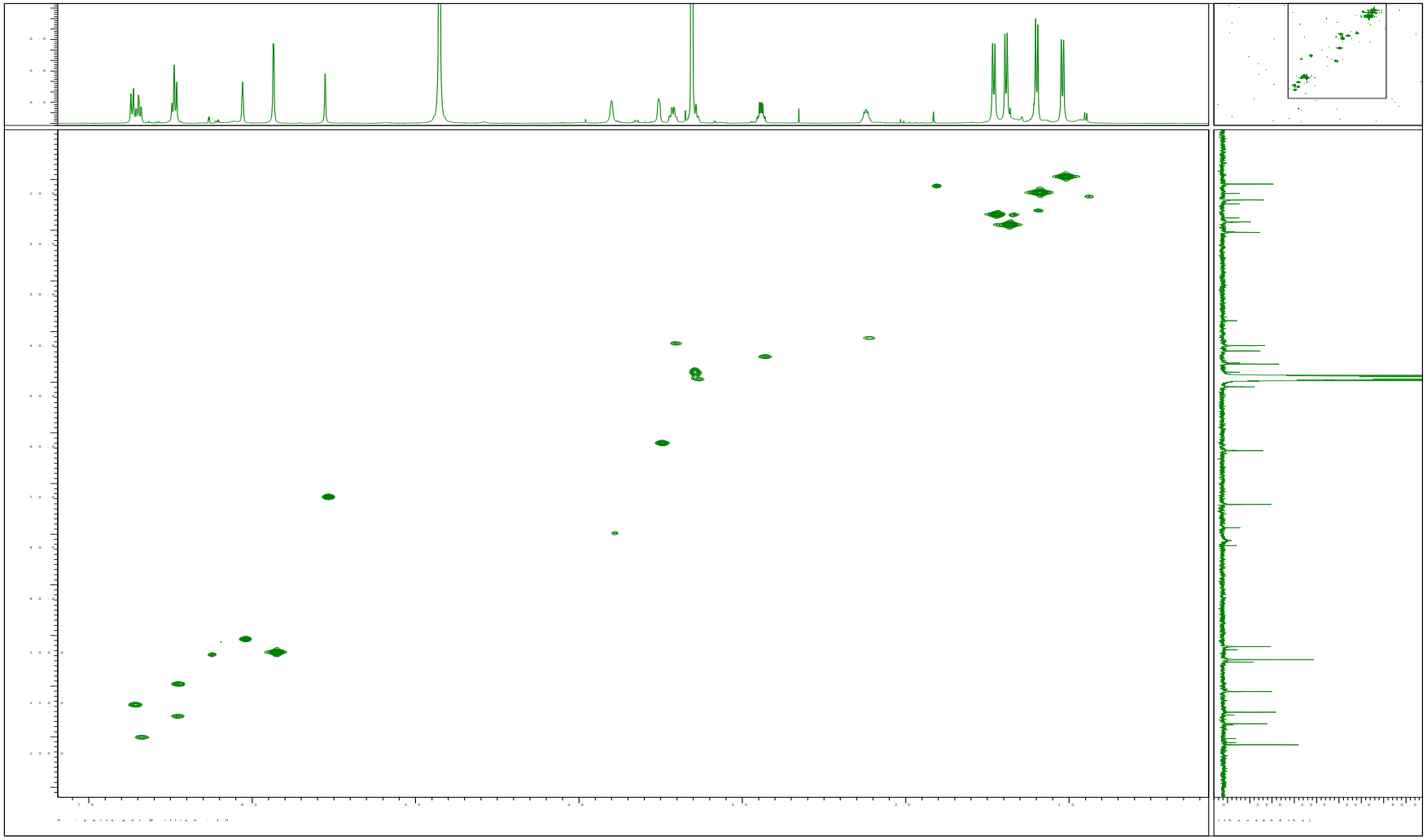


Figure S17. HMBC spectrum of saccharothriolide B (**2**) in methanol-d_4.

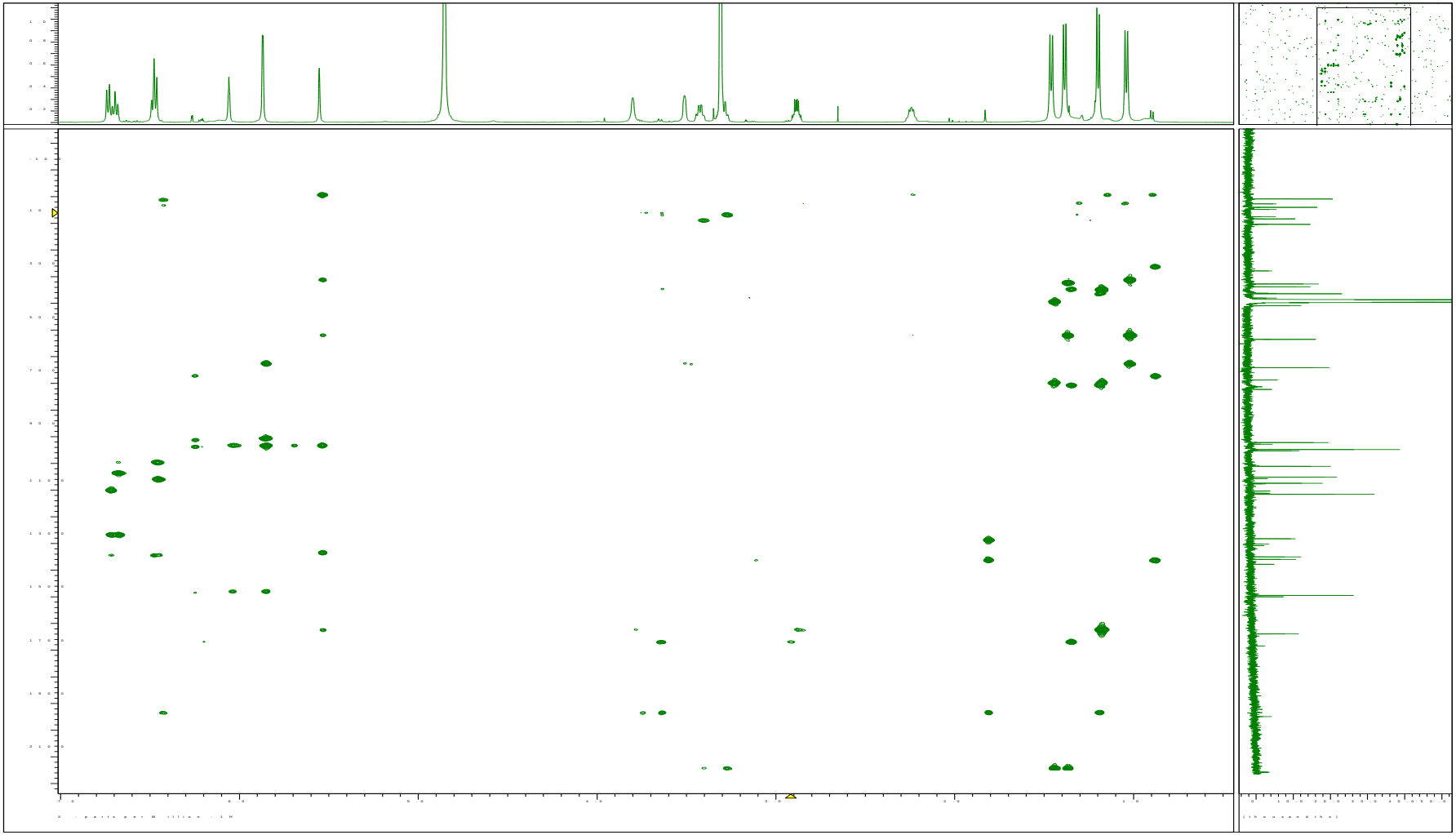


Figure S18. NOESY spectrum of saccharothriolide B (**2**) in methanol-d_4.

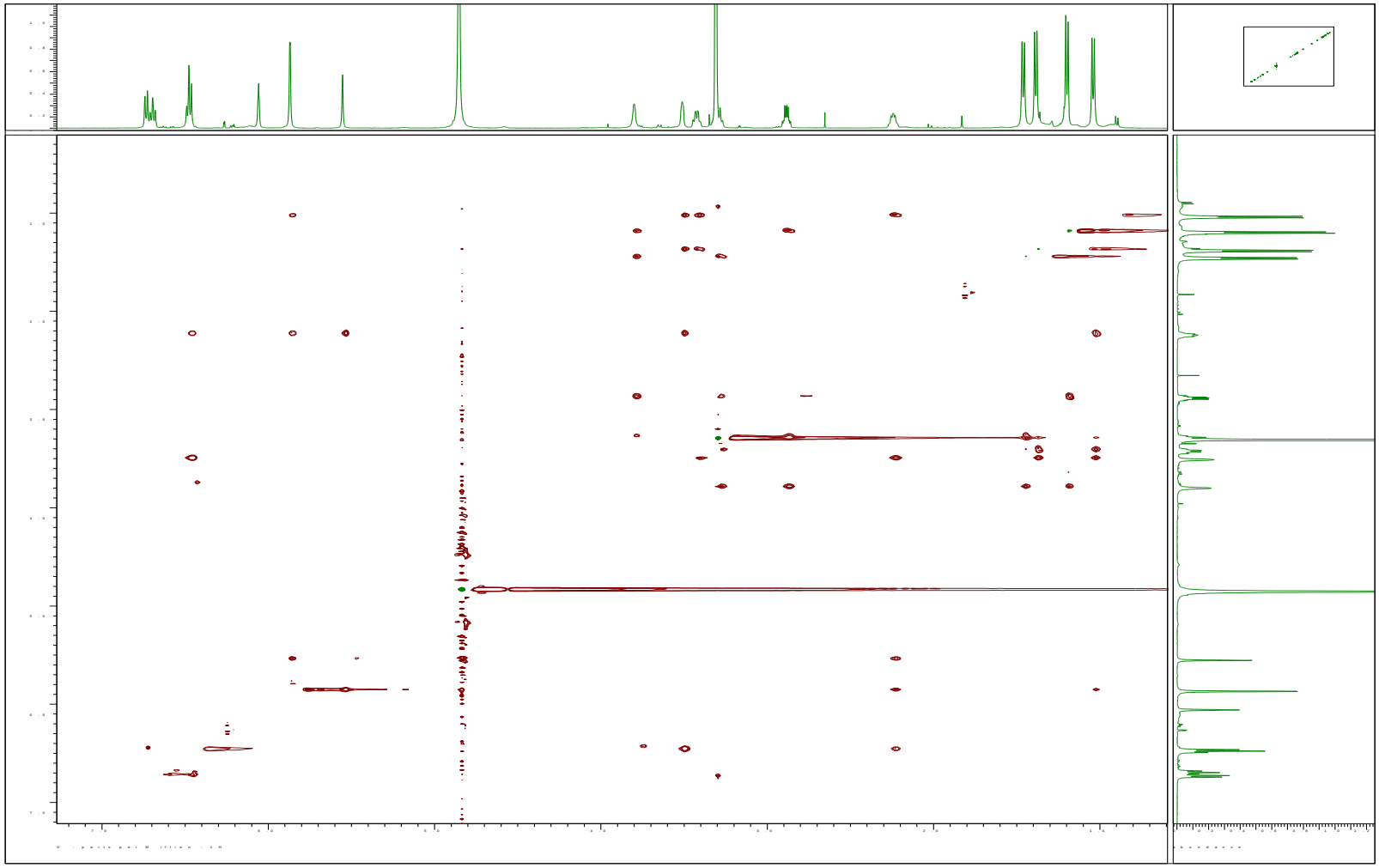


Figure S19. ^{1}H NMR spectrum of saccharothriolide C (**3**) in methanol-d_4.

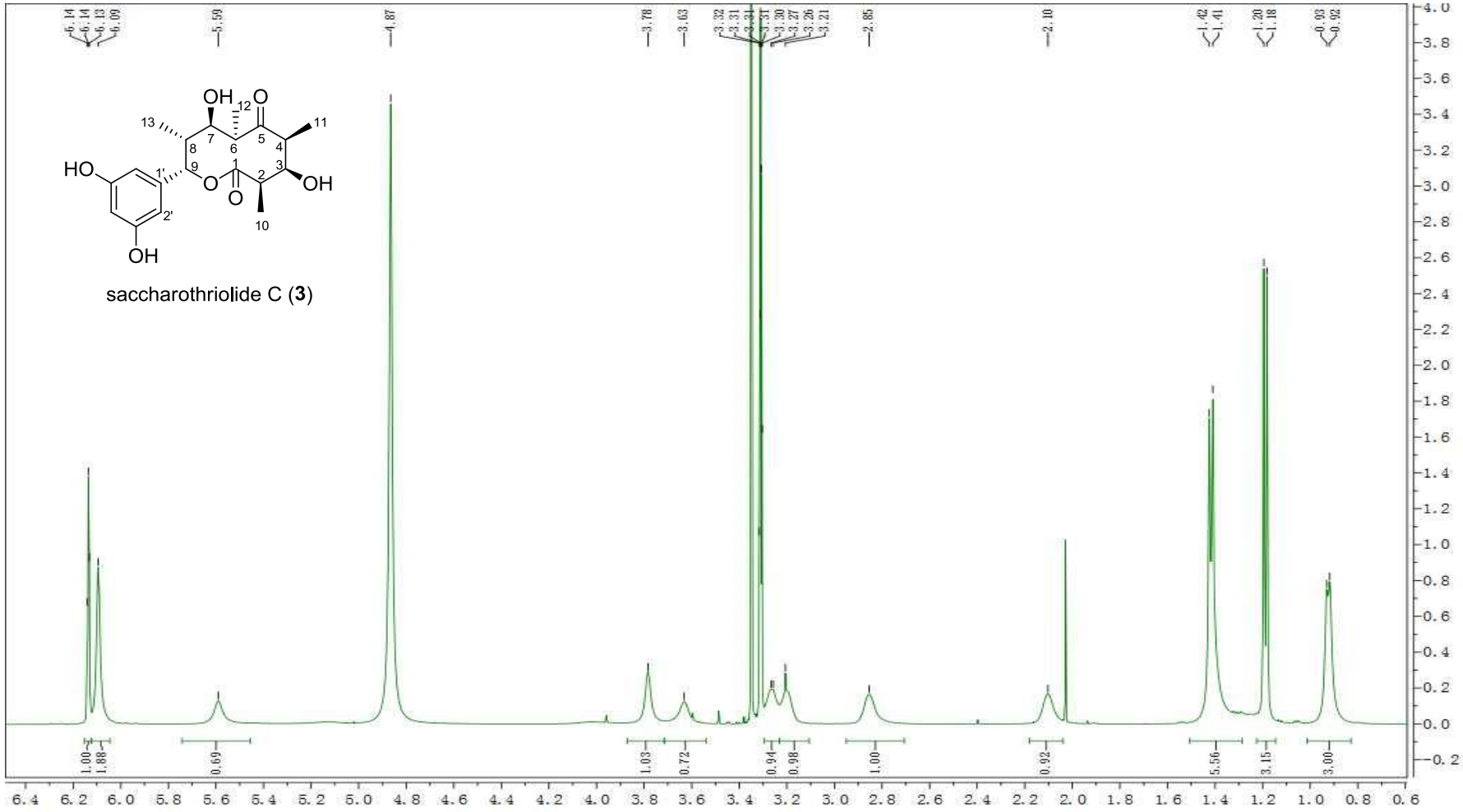


Figure S20. ^{13}C NMR spectrum of saccharothriolide C (**3**) in methanol-d_4.

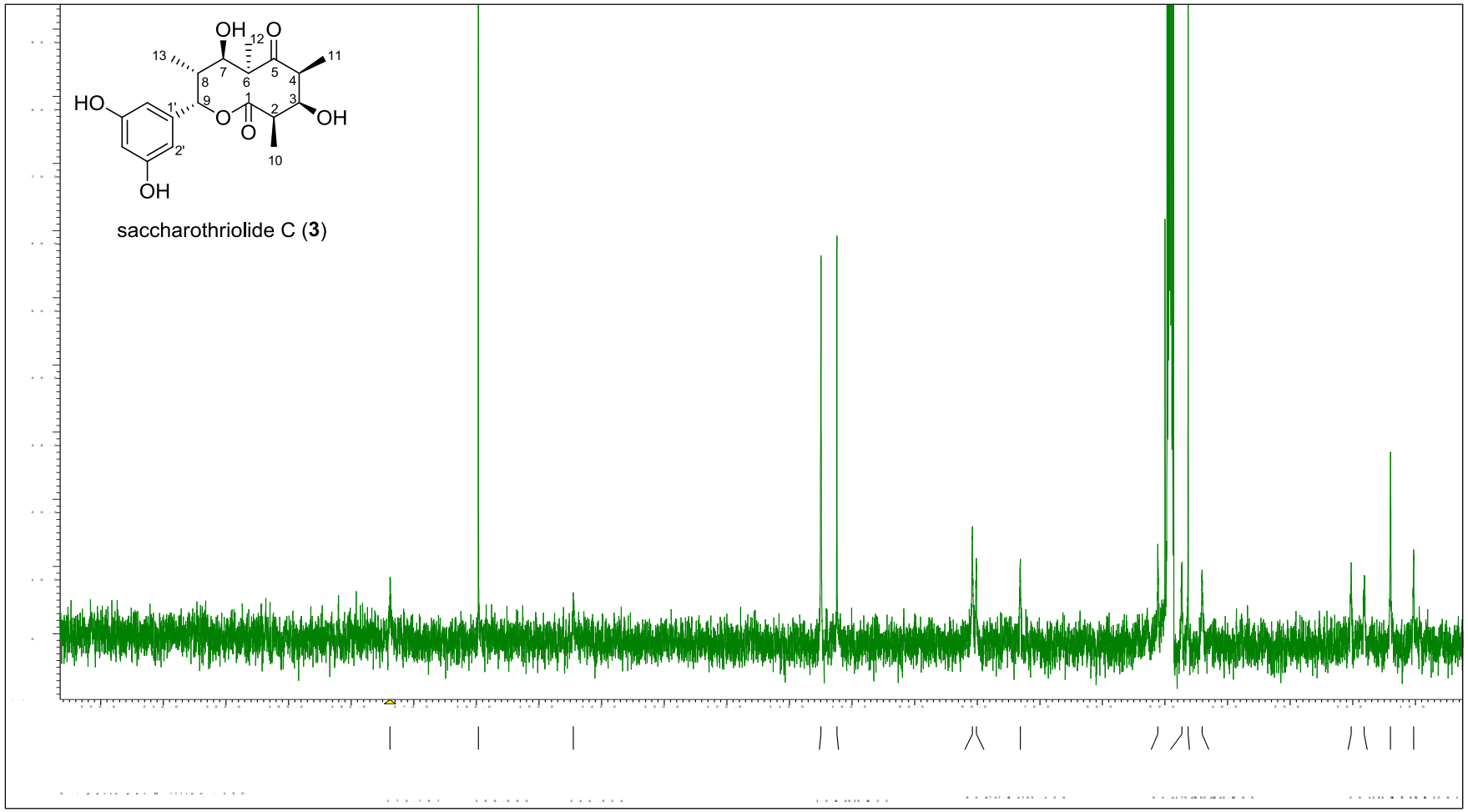


Figure S21. ^{1}H-^{1}H COSY spectrum of saccharothriolide C (**3**) in methanol-d_4.

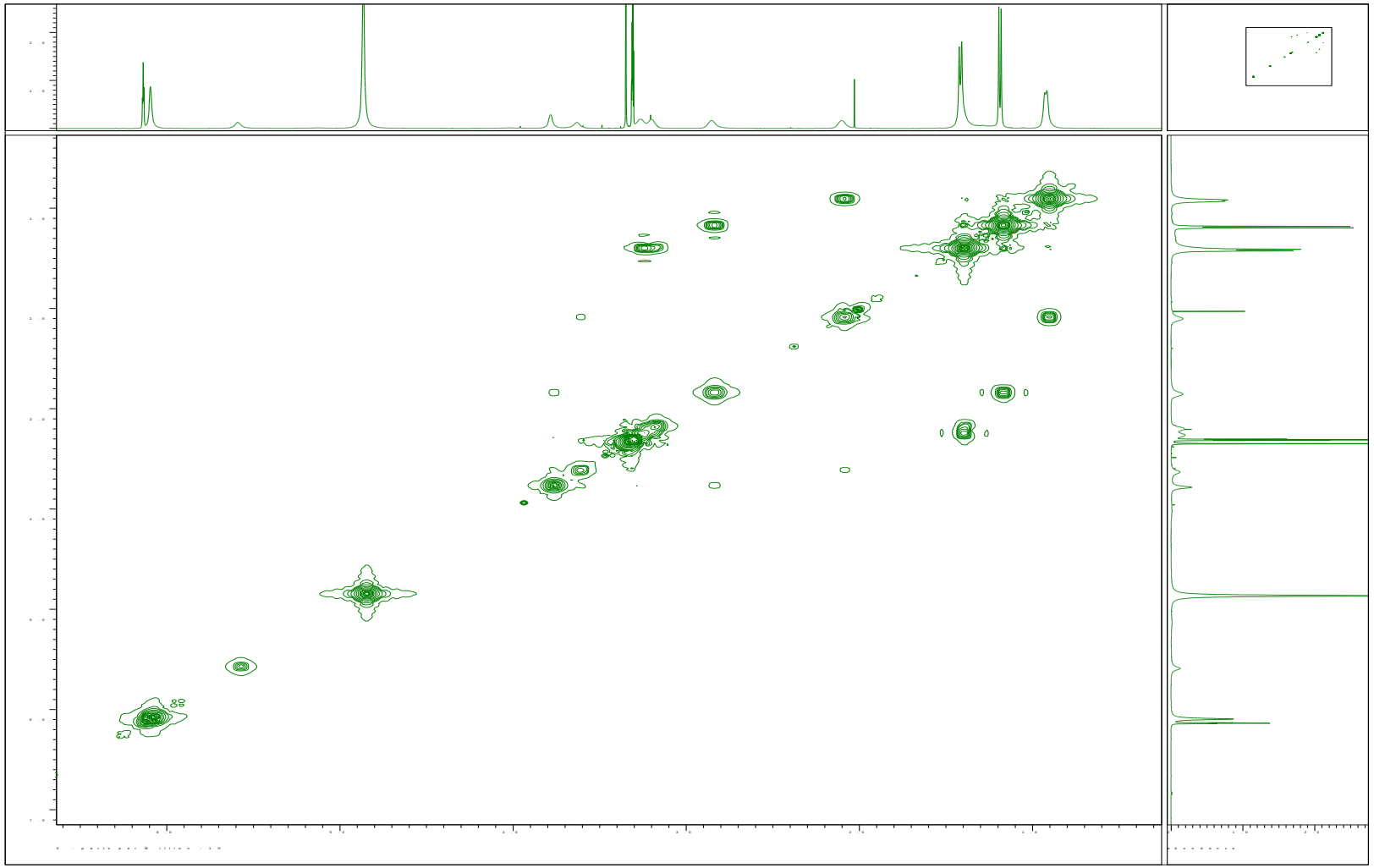


Figure S22. HMQC spectrum of saccharothriolide C (**3**) in methanol-d_4.

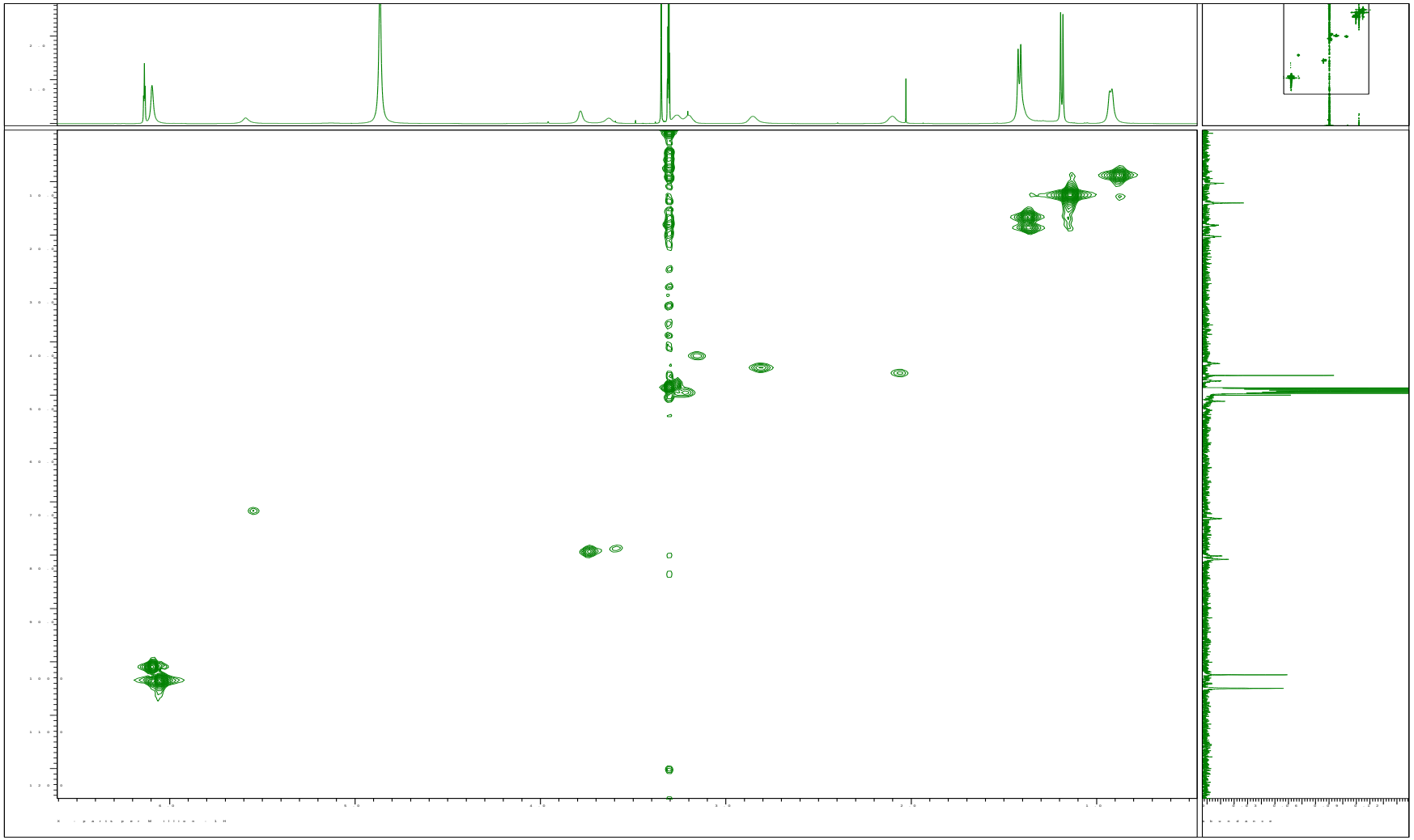


Figure S23. NOESY spectrum of saccharothriolide C (**3**) in methanol-d_4.

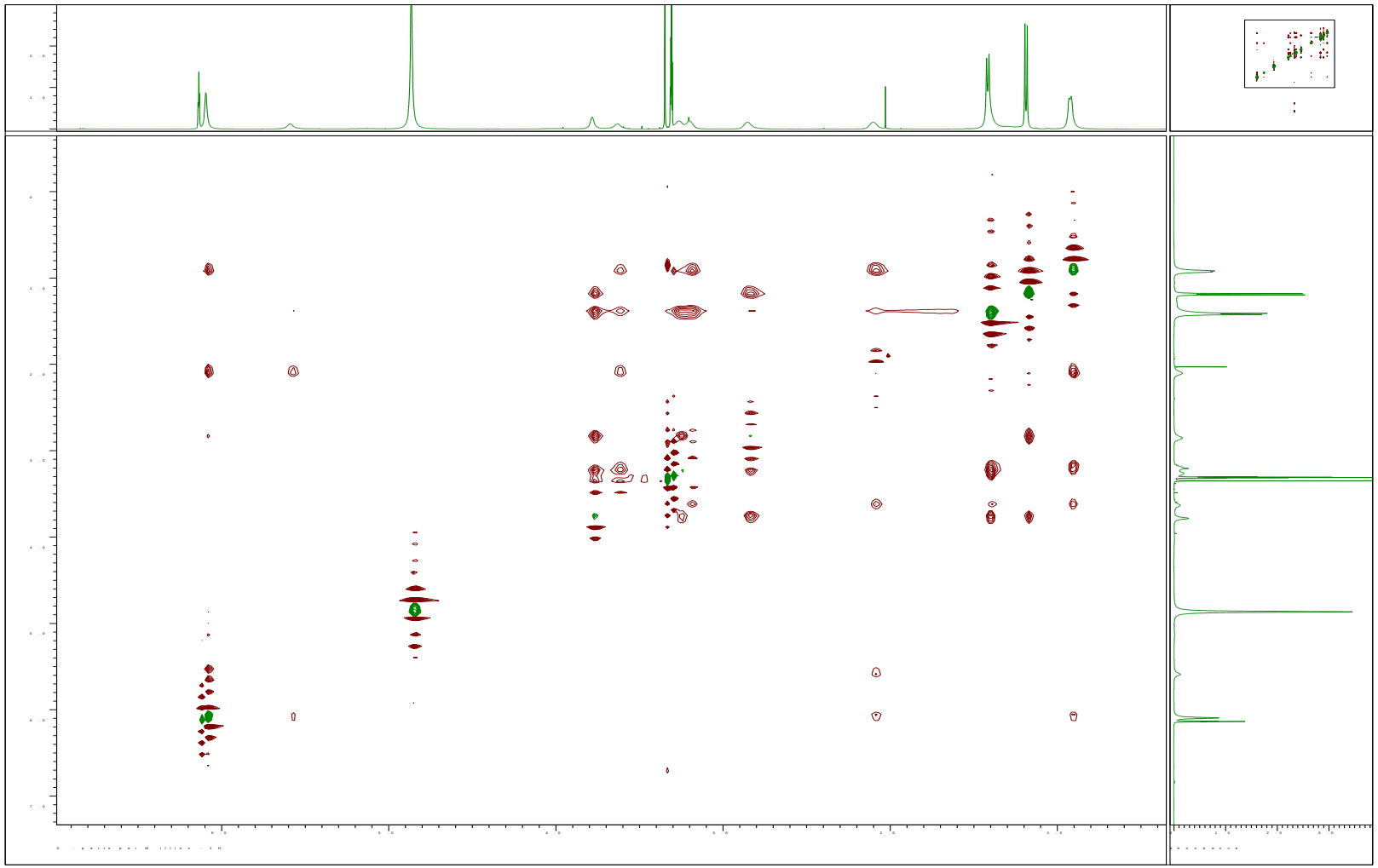


Figure S24. Optimized structures of saccharothriolides A (**1**), B (**2**), and C (**3**).