

Supporting Information

Cyclohexadepsipeptides of the Isaridin Class from the Marine-Derived Fungus *Beauveria felina* EN-135

Feng-Yu Du,^{†,§} Peng Zhang,^{†,‡,§} Xiao-Ming Li,^{*,†} Chun-Shun Li,[†]
Chuan-Ming Cui,[†] and Bin-Gui Wang^{*,†}

[†]Key Laboratory of Experimental Marine Biology, Institute of Oceanology, Chinese
Academy of Sciences, Nanhai Road 7, Qingdao 266071, P. R. China

[‡]University of Chinese Academy of Sciences, Yuquan Road 19A, Beijing 100049, P.
R. China

Corresponding Author

*Tel and Fax: ++86-532-82898553. E-mail: lixmqd@aliyun.com (X.-M.L.);
wangbg@ms.qdio.ac.cn (B.-G.W.).

Content

Page S1. Table S1-Main torsion angles in the crystal structures of compounds **1–3**.

Page S1. Table S2-H-bonds parameters for compounds **1–3**.

Page S2. ^1H NMR (500 MHz, Acetone- d_6) spectrum of compound **1**.

Page S3. DEPT spectrum of compound **1**.

Page S4. ^1H - ^1H COSY spectrum of compound **1**.

Page S5. HSQC spectrum of compound **1**.

Page S6. HMBC spectrum of compound **1**.

Page S7. NOESY spectrum of compound **1**.

Page S8. ^1H NMR (500 MHz, Acetone- d_6) spectrum of compound **2**.

Page S9. DEPT spectrum of compound **2**.

Page S10. ^1H - ^1H COSY spectrum of compound **2**.

Page S11. HSQC spectrum of compound **2**.

Page S12. HMBC spectrum of compound **2**.

Page S13. NOESY spectrum of compound **2**.

Page S14. ^1H NMR (500 MHz, Acetone- d_6) spectrum of compound **3**.

Page S15. DEPT spectrum of compound **3**.

Page S16. ^1H - ^1H COSY spectrum of compound **3**.

Page S17. HSQC spectrum of compound **3**.

Page S18. HMBC spectrum of compound **3**.

Page S19. NOESY spectrum of compound **3**.

Page S20. Table S3-1D NMR data in acetone- d_6 for compound **5**.

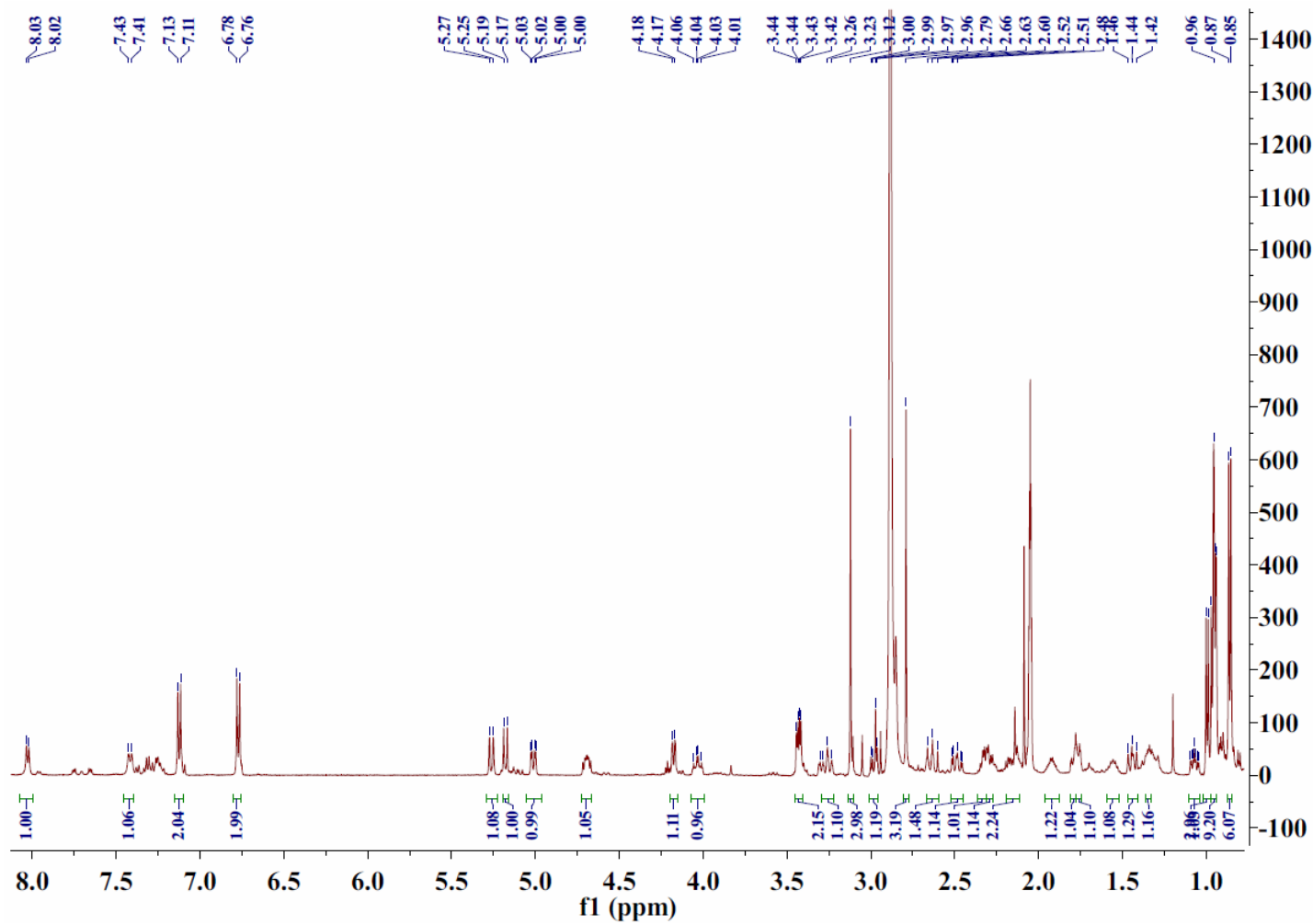
Table S1. Main torsion angles in the crystal structures of compounds **1–3**.

Residue		Torsion angle (°)		
		Isaridin G (1)	desmethyloisarinidin G (2)	desmethyloisarinidin C1 (3)
HMPA ¹	ϕ_1	-60.2	-109.4	-66.1
	ψ_1	147.7	142.1	-42.7
	ω_1	9	-9.8	176.9
Pro ²	ϕ_2	-81.4	-66.5	-68.3
	ψ_2	-2	156.4	155.0
	ω_2	166.5	175.4	177.1
Tyr ³ /Tyr ³ /Phe ³	ϕ_3	-64.3	-61.5	-97.2
	ψ_3	141.8	142.5	124.8
	ω_3	178.0	-2.6	2.8
N-Me-Val ⁴	ϕ_4	-104.7	-111.9	-114.8
	ψ_4	103.0	52.6	68.1
	ω_4	6	-178.9	-170.5
N-Me-Leu ⁵ /Leu ⁵ /Leu ⁵	ϕ_5	-124.5	-104.8	-115.3
	ψ_5	107.9	-24.2	-8.5
	ω_5	177.4	-170.4	-175.8
	ω_5'		-178.3	
β -Ala ⁶	ϕ_6	-137.5	-162.4	83.2
	ϕ_6'		82.0	
	θ_6	-59.1	-56.7	71.2
	θ_6'		60.8	
	ψ_6	124.1	-82.4	-164.5
	ψ_6'		-168.0	
	ω_6	-170.0	175.9	177.7
	ω_6'		156.9	

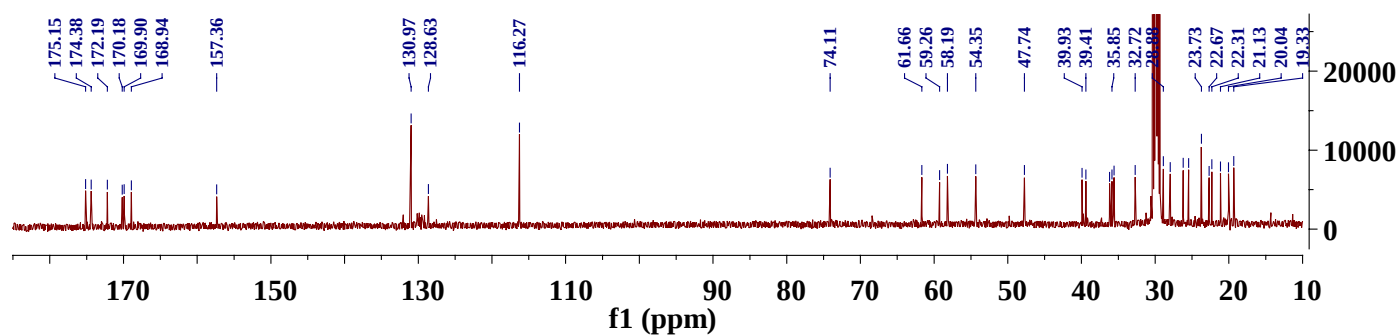
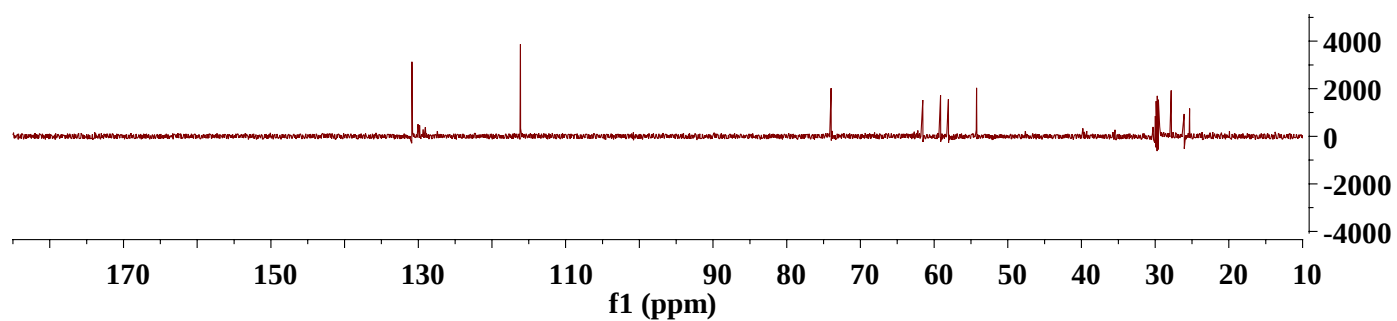
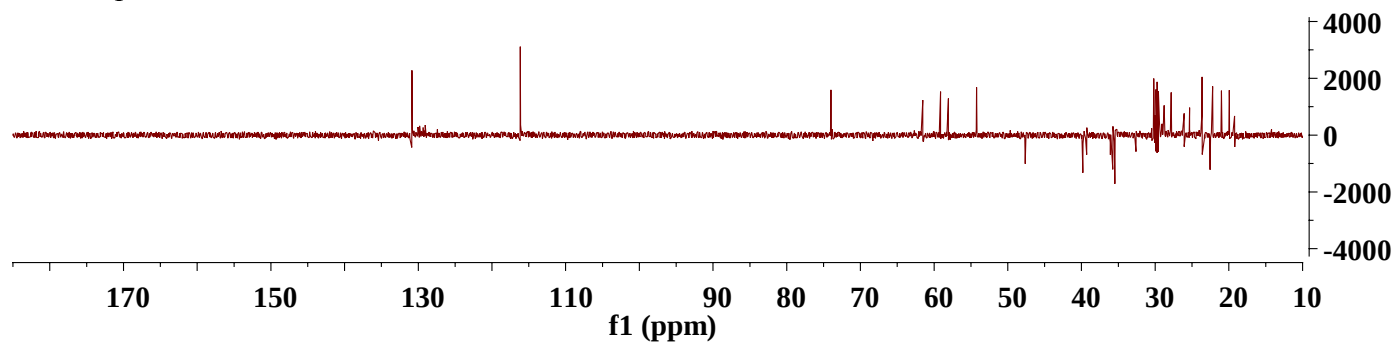
Table S2. H-bonds parameters for compounds **1–3**.

Donor	Acceptor	$d(D\cdots A)[\text{\AA}]$	$d(H\cdots A)[\text{\AA}]$
isaridin G (1)			
NH (β -Ala ⁶)	CO (Tyr ³)	2.876	2.071
NH (Tyr ³)	CO (β -Ala ⁶)	3.080	2.542
desmethyloisarinidin G (2)			
NH (Leu ⁵)	CO (Pro ²)	2.938	2.104
NH (β -Ala ⁶)	CO (β -Ala ⁶)	2.940	2.319
NH' (β -Ala ⁶)	HN (Leu ⁵)	2.714	2.293
desmethyloisarinidin C1 (3)			
NH (Leu ⁵)	CO (Pro ²)	2.820	1.986

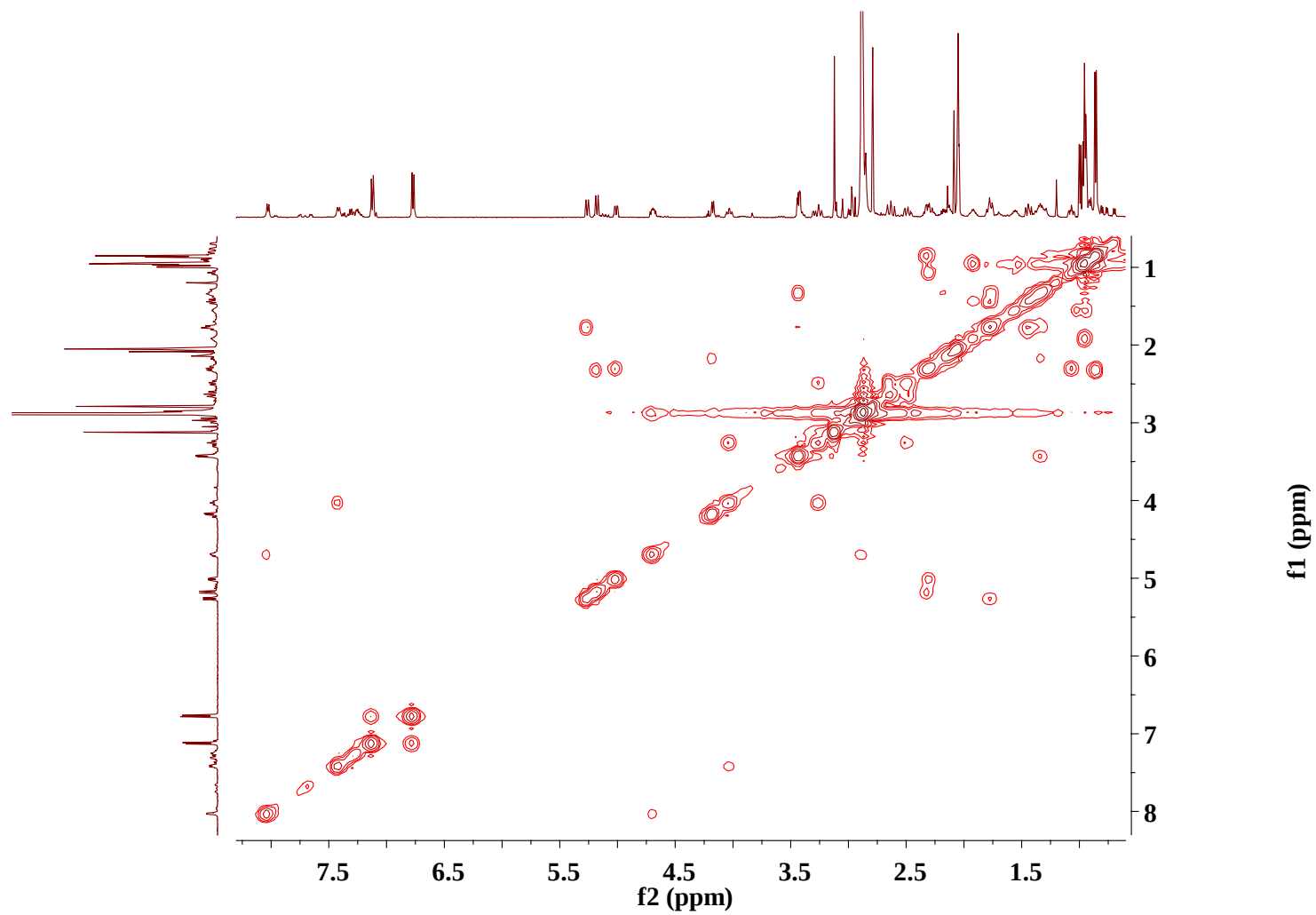
^1H NMR (500 MHz, Acetone- d_6) spectrum of compound **1**.



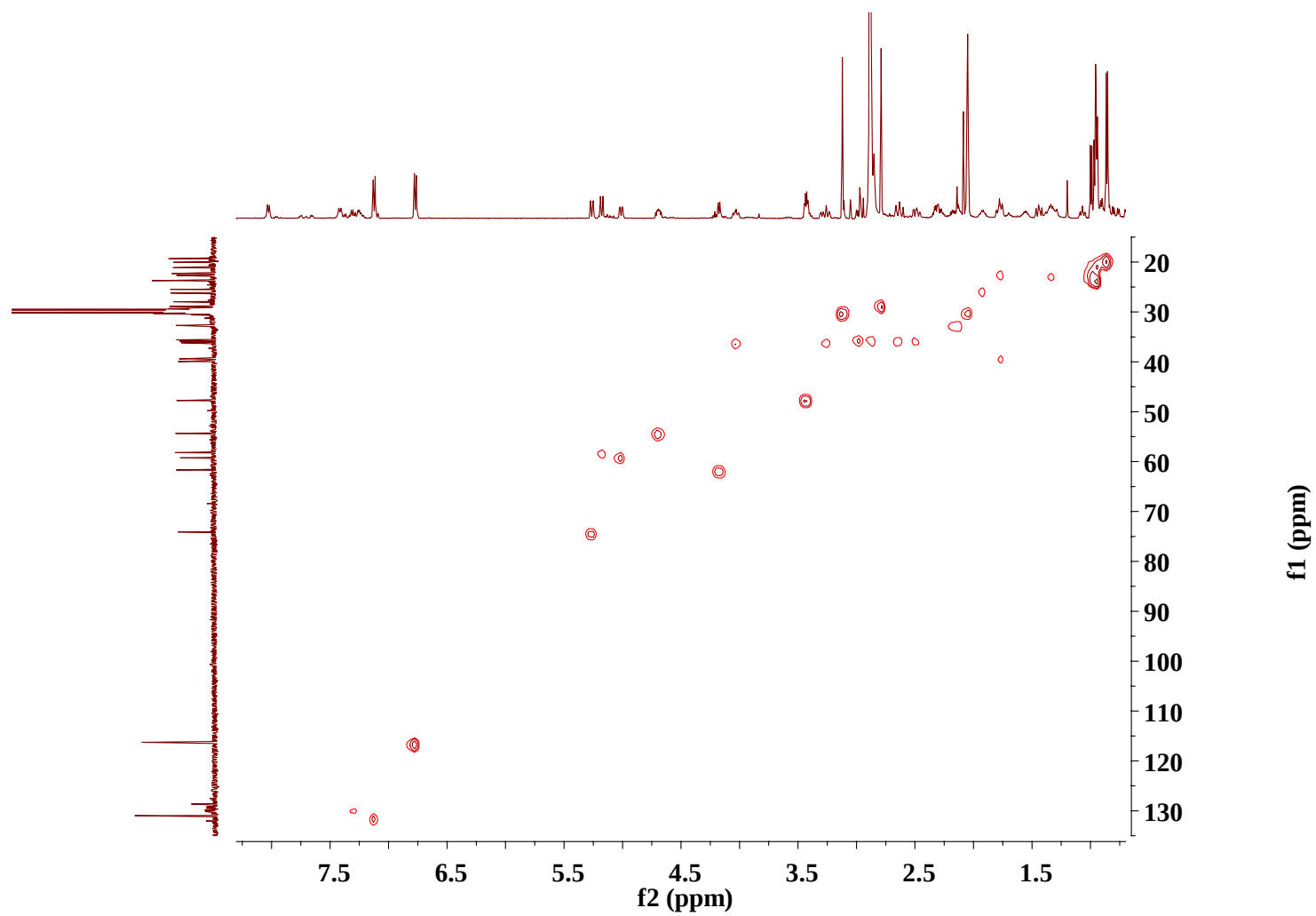
DEPT spectrum of compound 1.



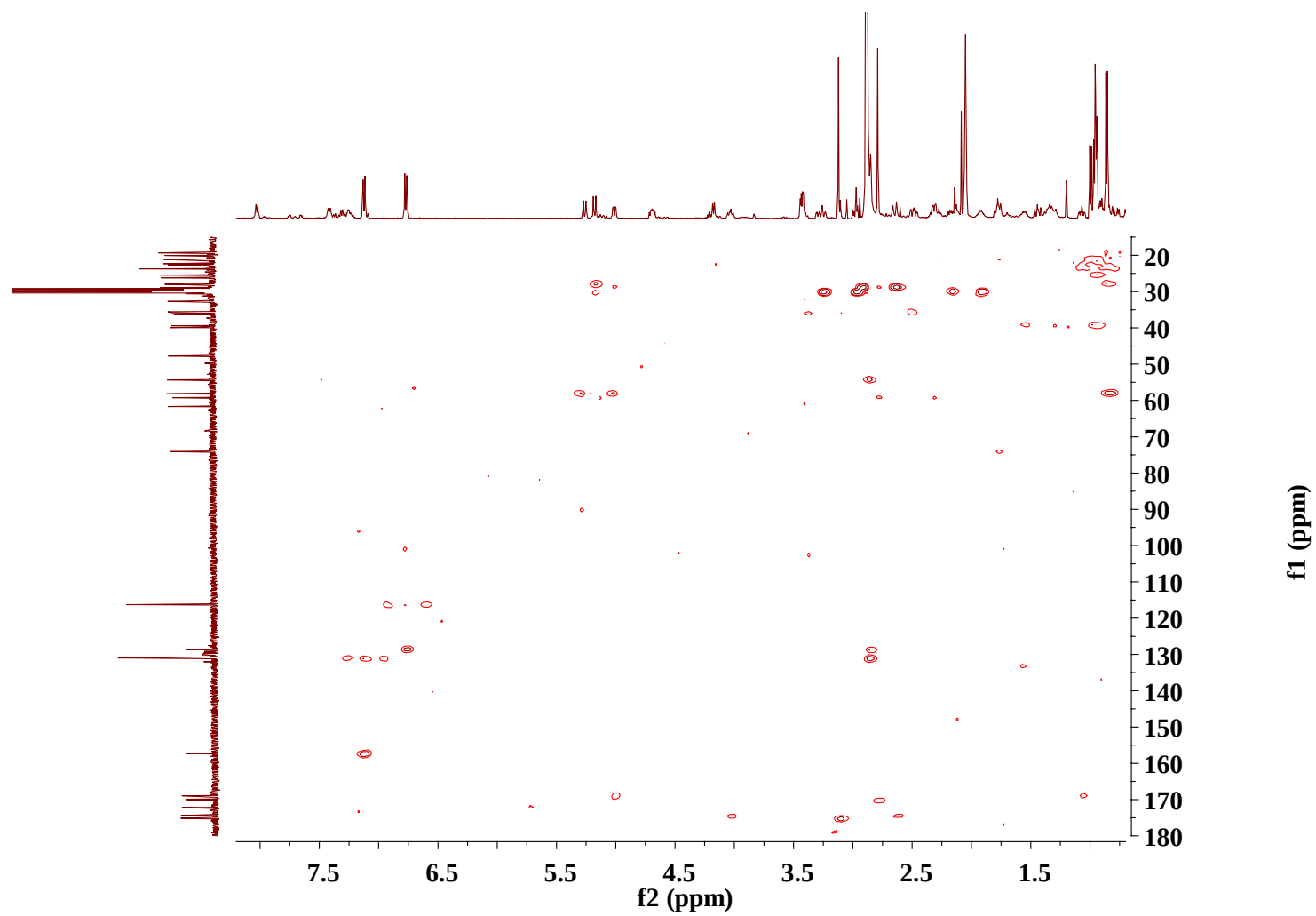
^1H - ^1H COSY spectrum of compound **1**.



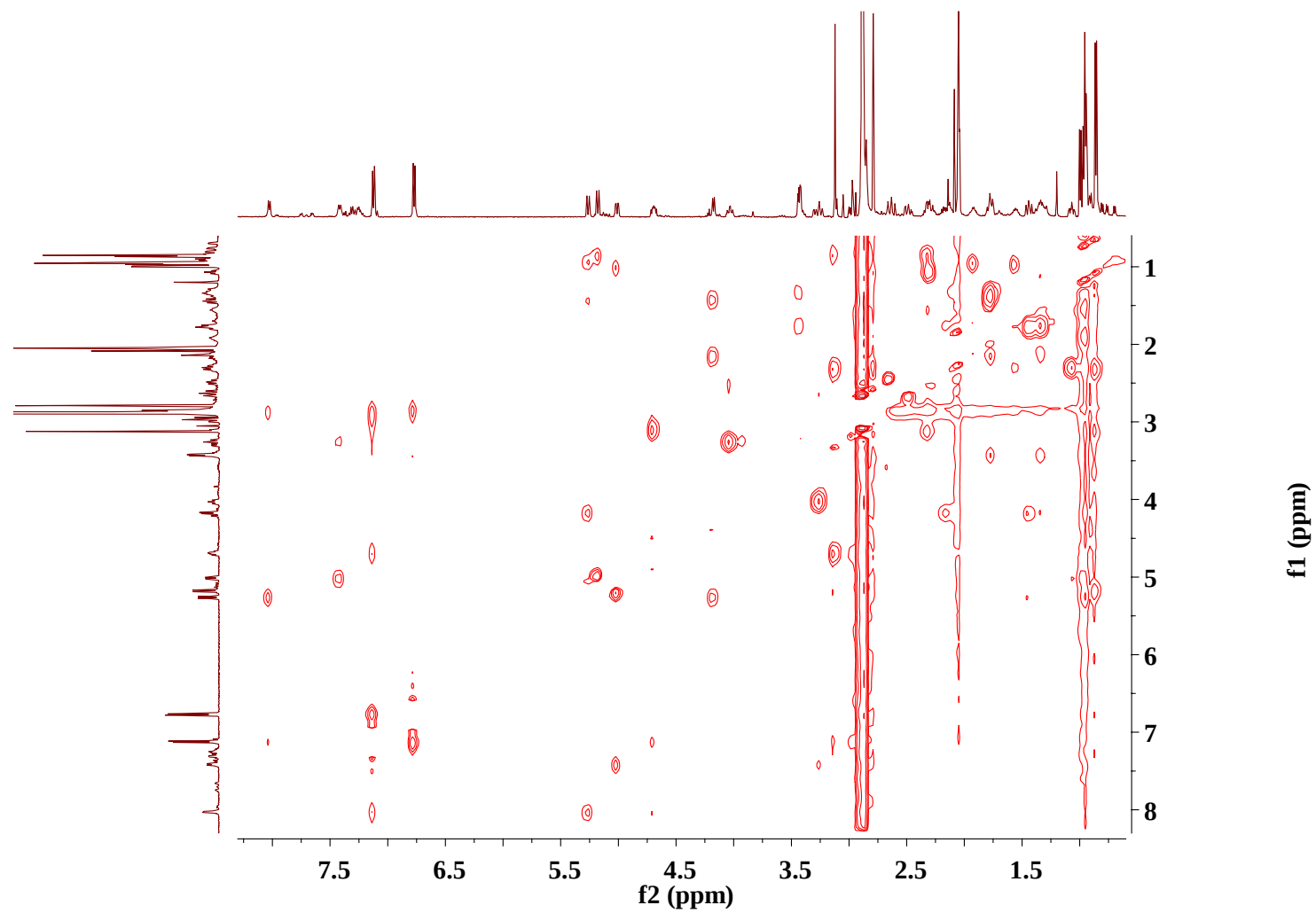
HSQC spectrum of compound **1**.



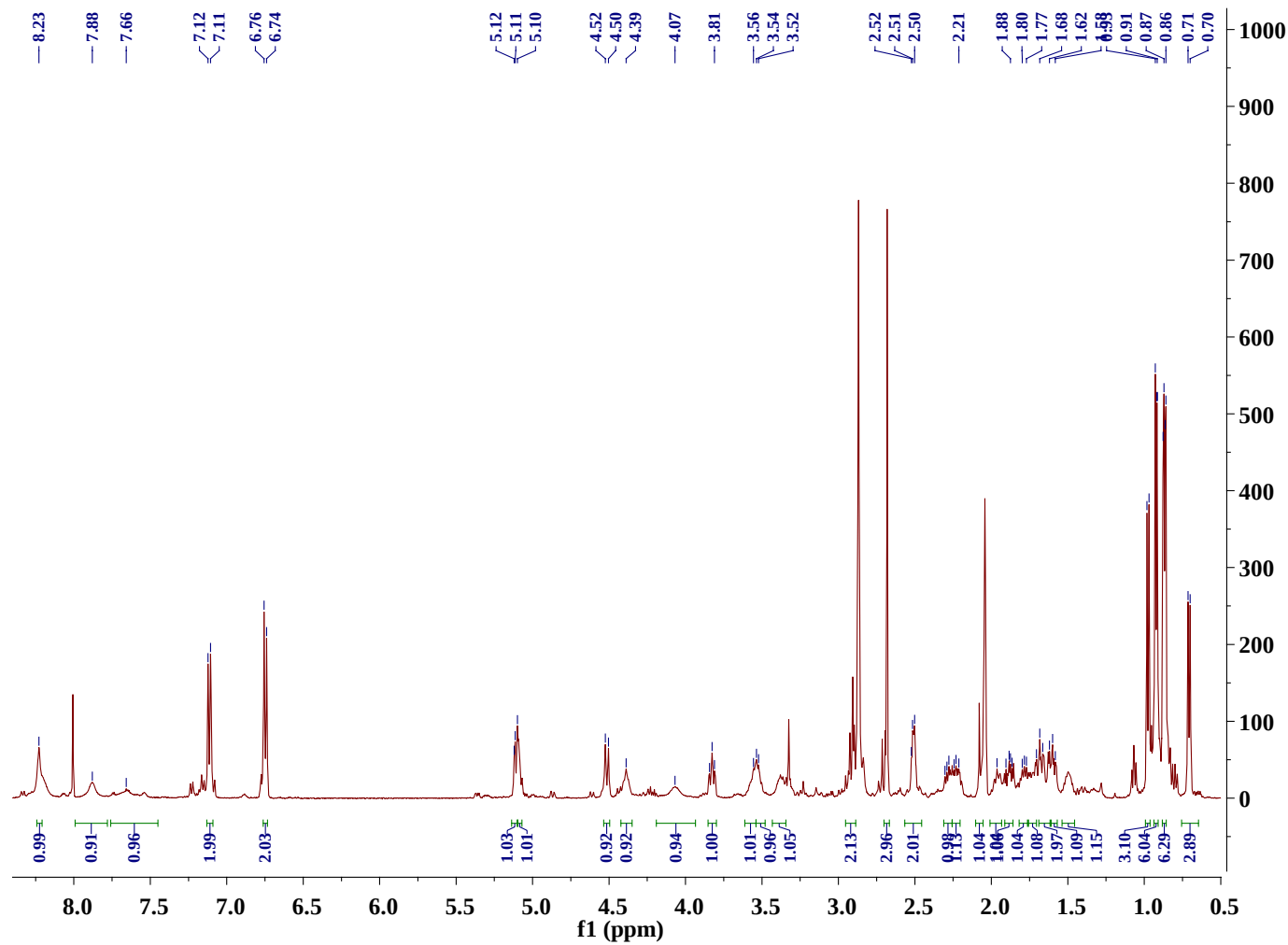
HMBC spectrum of compound **1**.



NOESY spectrum of compound **1**.

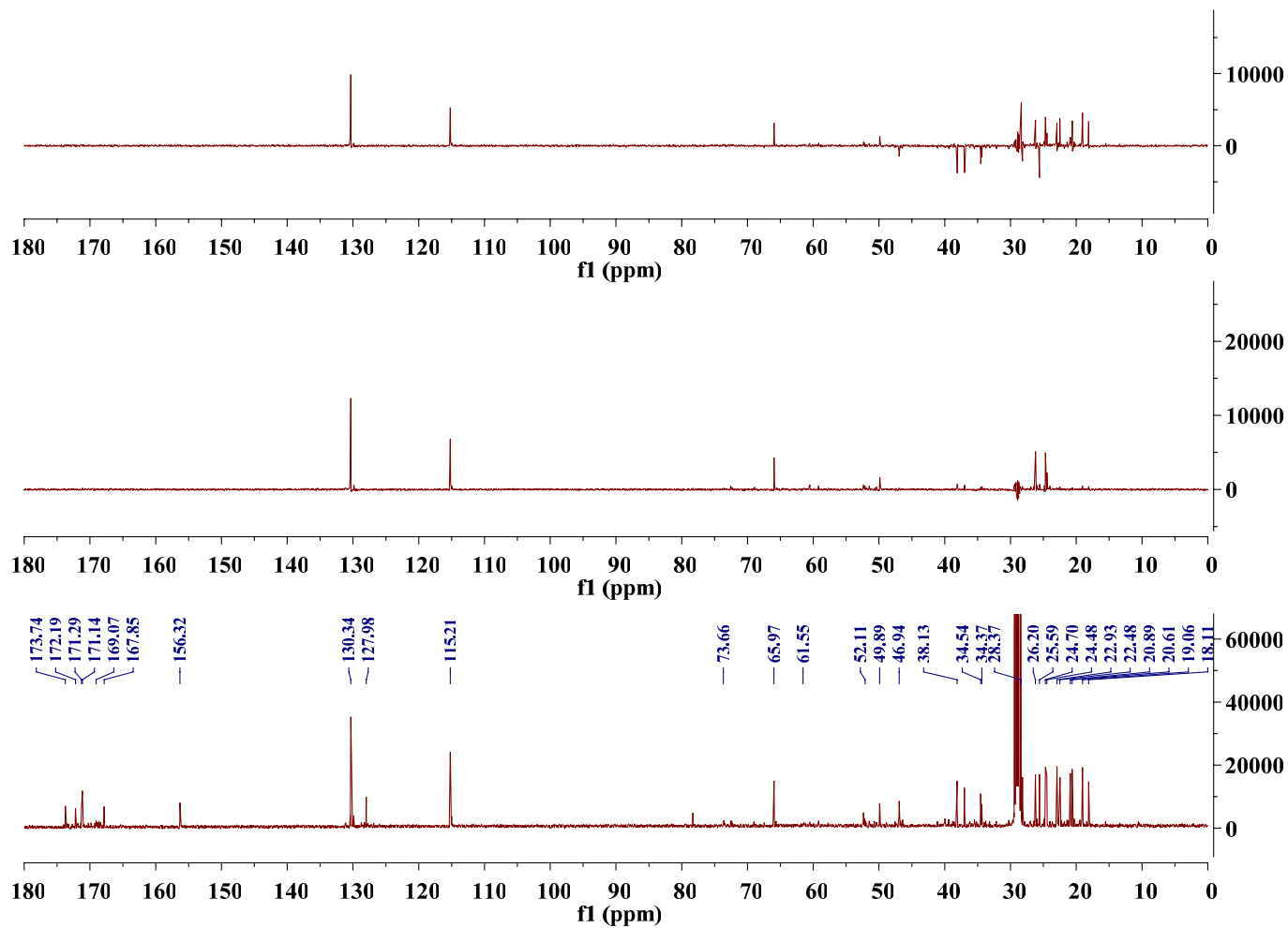


^1H NMR (500 MHz, Acetone- d_6) spectrum of compound **2**.

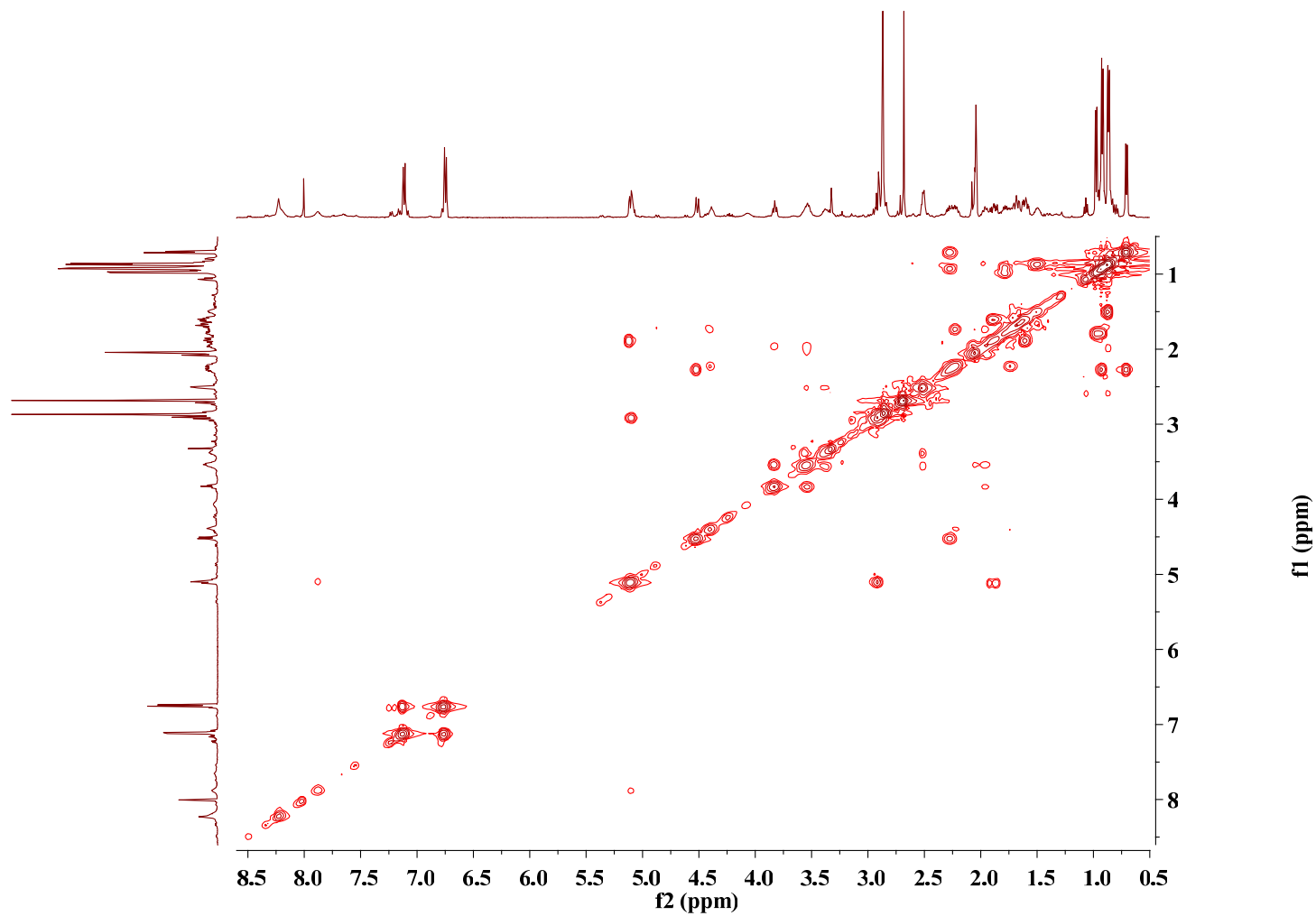


DEPT spectrum of compound 2.

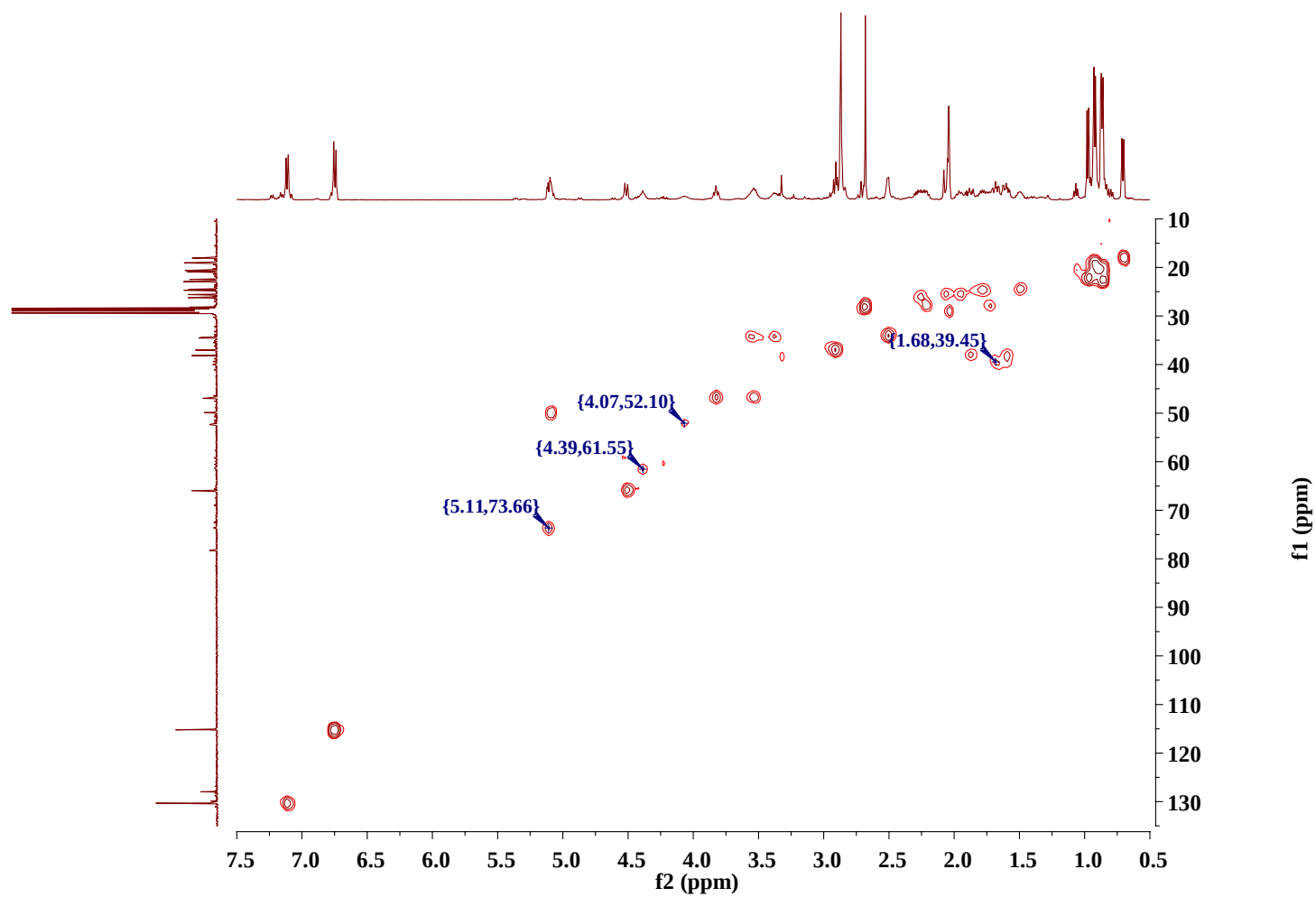
(Note: the weak signals were further confirmed by the following HSQC spectrum)



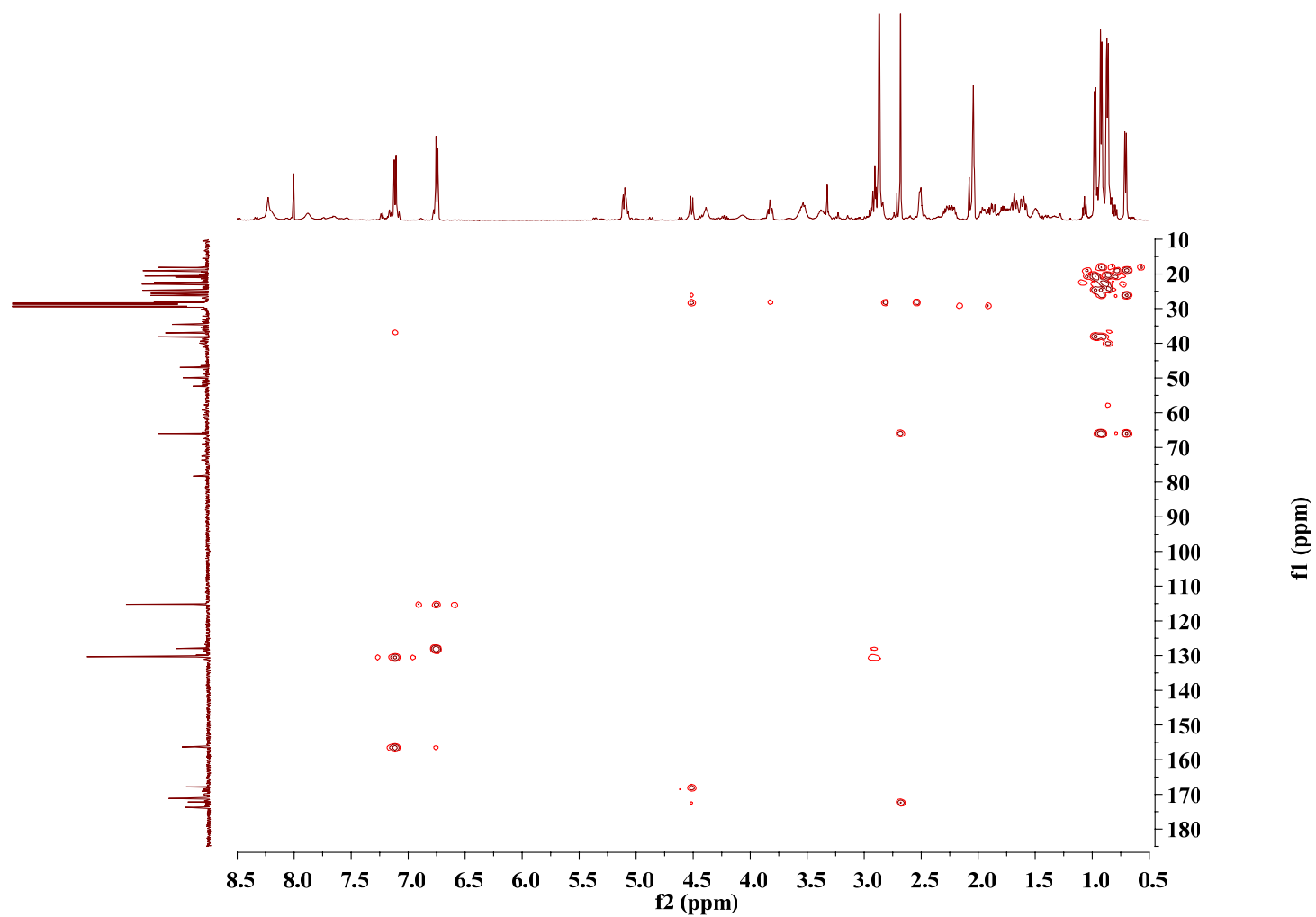
^1H - ^1H COSY spectrum of compound 2.



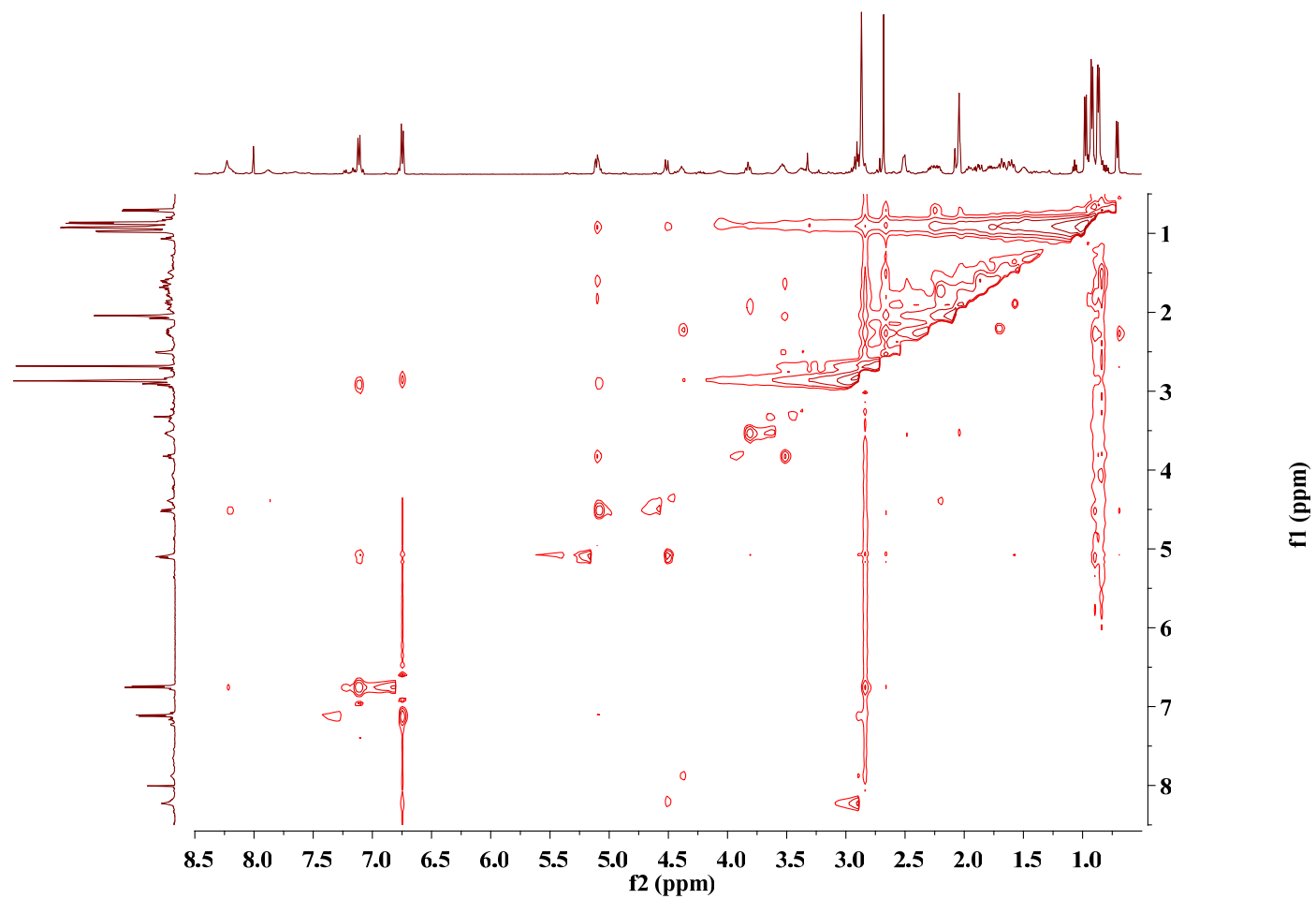
HSQC spectrum of compound 2.



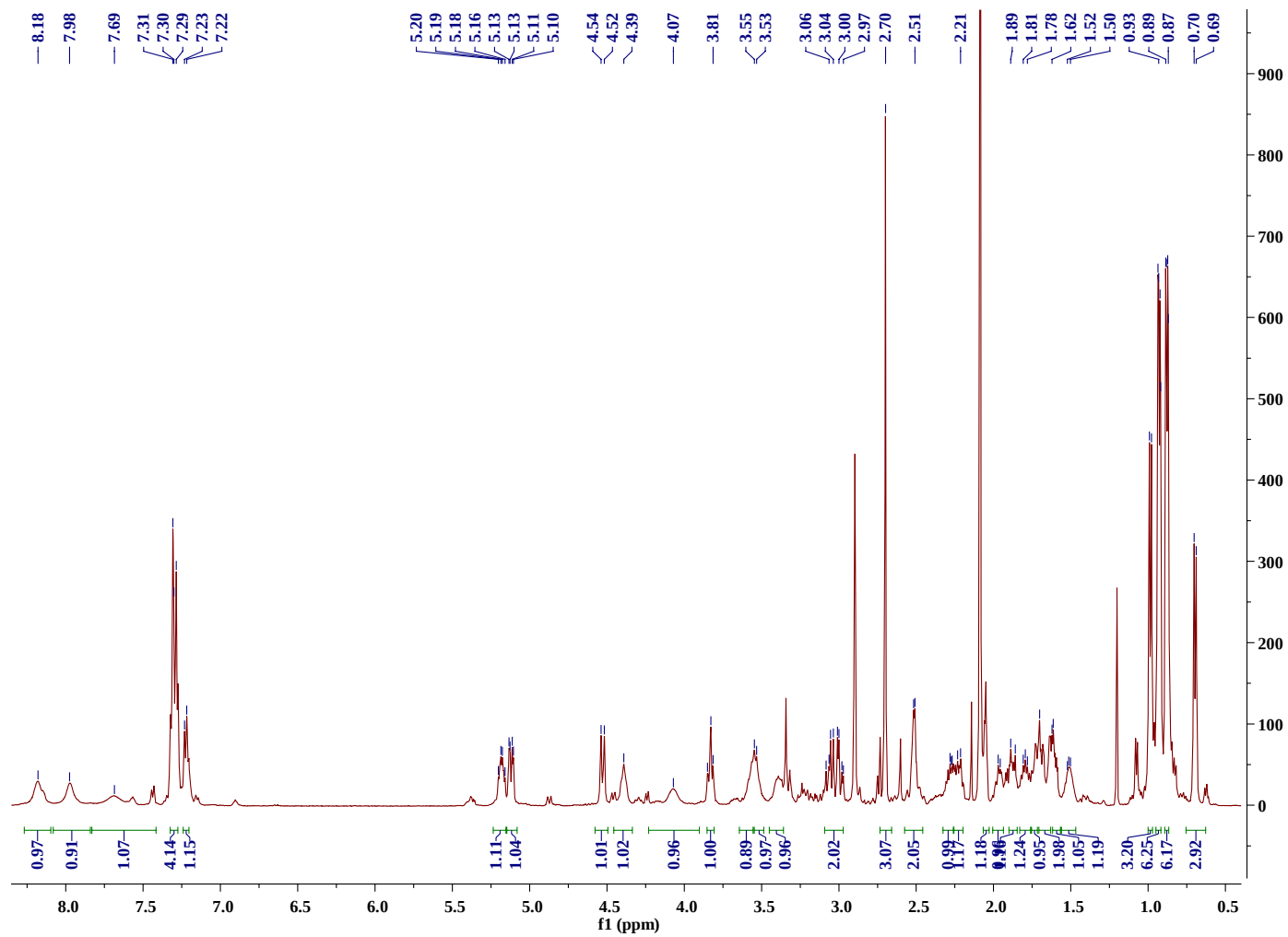
HMBC spectrum of compound 2.



NOESY spectrum of compound 2.

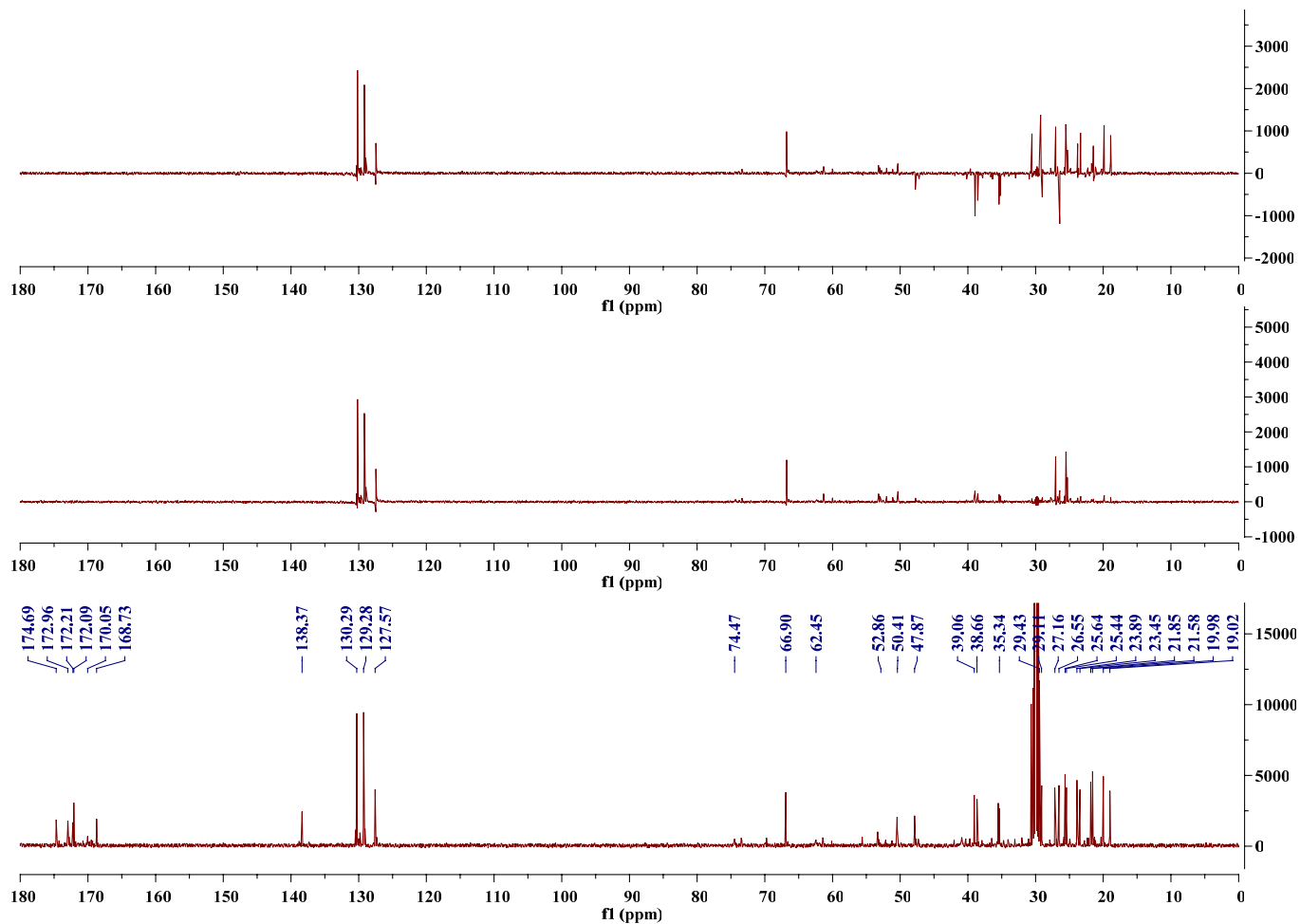


^1H NMR (500 MHz, Acetone- d_6) spectrum of compound **3**.

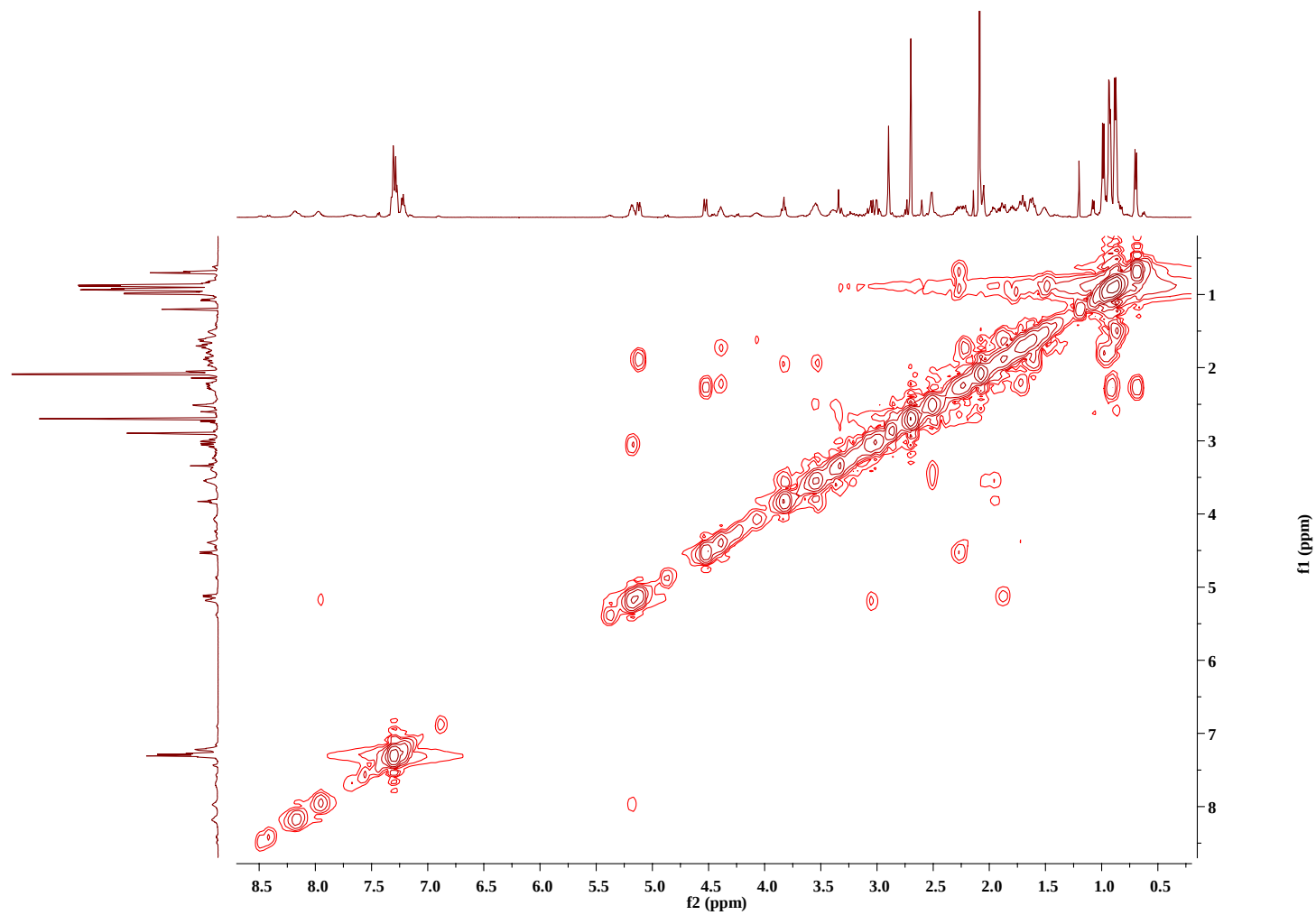


DEPT spectrum of compound **3**.

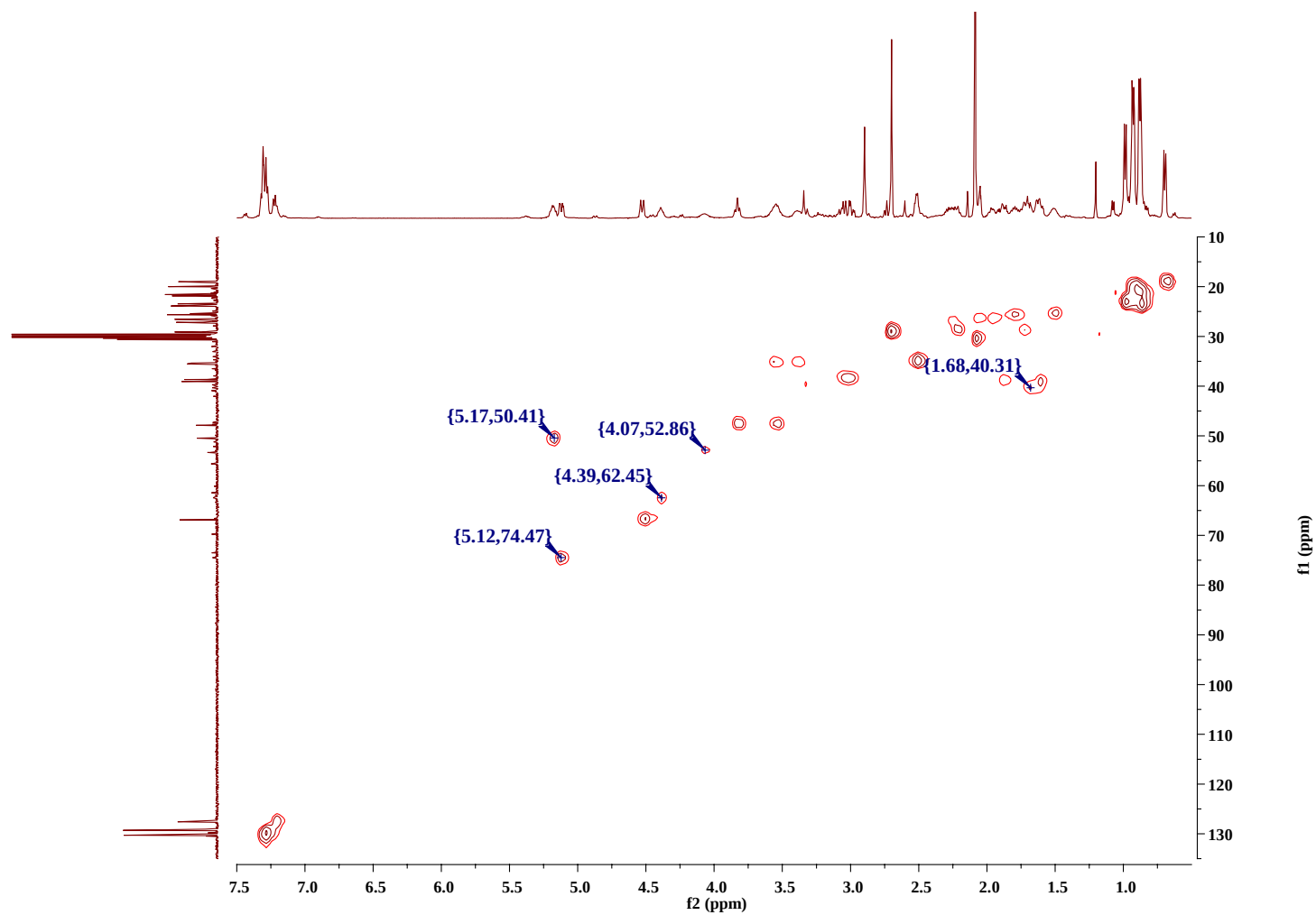
(Note: the weak signals were further confirmed by the following HSQC and HMBC spectra)



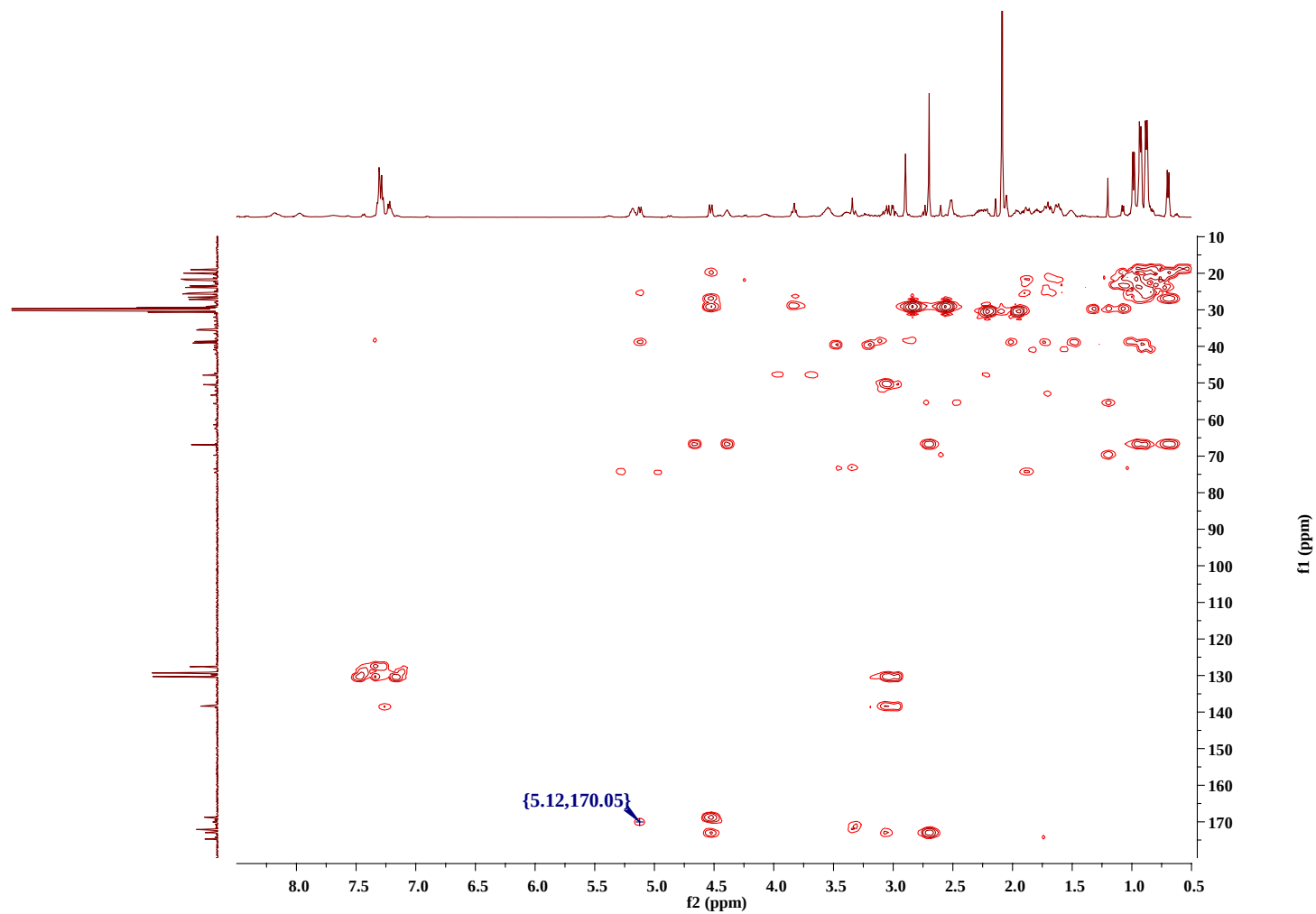
^1H - ^1H COSY spectrum of compound **3**.



HSQC spectrum of compound **3**.



HMBC spectrum of compound 3.



NOESY spectrum of compound **3**.

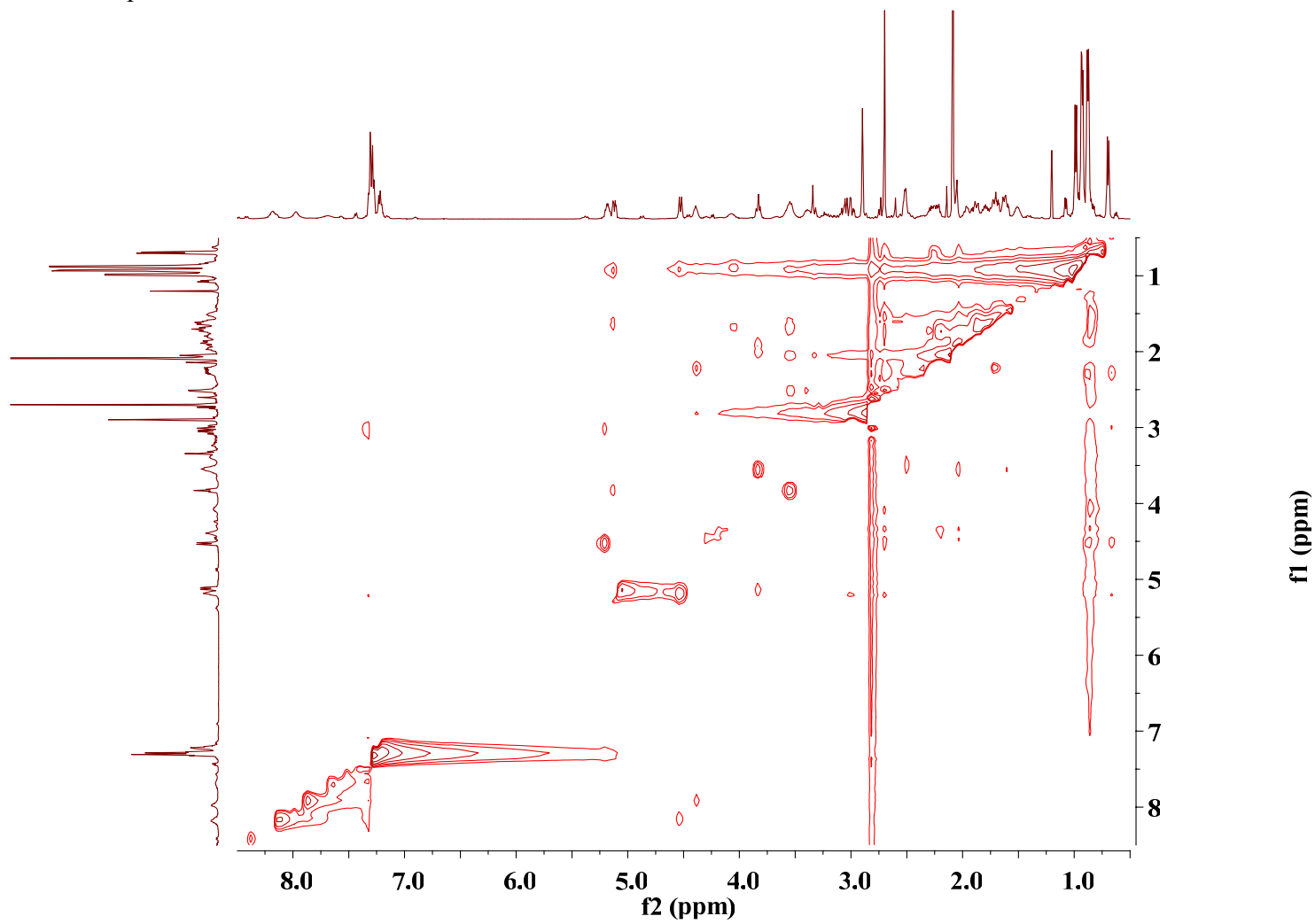


Table S3. 1D NMR data in acetone-*d*₆ for compound 5^a.

position	δ_{C} (type)	δ_{H} (mult., <i>J</i> in Hz)
HMPA¹		
CO	170.1, C	
α	73.9, CH	5.17, dd (11.7, 2.5)
β	39.7, CH ₂	1.75, dd (14.4, 2.6) 1.26, dd (13.3, 11.0)
γ	25.2, CH	1.71, m
δ	23.8, CH ₃	0.95, d (6.6)
δ'	20.8, CH ₃	0.86, d (6.6)
β-Me-Pro²		
CO	171.9, C	
α	68.5, CH	3.65, d (2.4)
β	40.7, CH	2.44, m
γ	29.8, CH ₂	1.50, m; 1.44, m
δ	45.8, CH ₂	3.68, m; 3.26, m
β -Me	19.2, CH ₃	1.06, d (7.0)
Phe³		
CO	174.8, C	
α	54.1, CH	4.70, ddd (10.4, 7.6, 5.5)
β	36.3, CH ₂	3.05, m 2.97, m
γ	138.2, C	
δ, δ'	130.0, CH	7.32, m
ϵ, ϵ'	129.4, CH	7.30, m
θ	127.6, CH	7.26, m
NH		8.00, d (7.7)
<i>N</i>-Me-Val⁴		
CO	170.2, C	
α	58.1, CH	5.11, d (10.7)
β	27.9, CH	2.26, m
γ	19.7, CH ₃	0.68, d (6.5)
γ'	19.3, CH ₃	0.81, d (6.5)
N-Me	30.3, CH ₃	3.08, s
<i>N</i>-Me-Phe⁵		
CO	168.6, C	
α	62.8, CH	5.14, m
β	37.2, CH ₂	3.59, dd (13.3, 9.5) 2.69, dd (13.4, 4.7)
γ	138.8, C	
δ, δ'	130.0, CH	7.32, m
ϵ, ϵ'	129.5, CH	7.30, m
θ	127.7, CH	7.26, m
N-Me	29.2, CH ₃	2.95, s
β-Ala⁶		
CO	174.3, C	
α	35.7, CH ₂	2.57, dt (14.8, 2.8) 2.29, m
β	36.3, CH ₂	3.92, m; 3.31, m
NH		7.39, br. s

^aRecorded at 500 and 125 MHz for ¹H and ¹³C, respectively.