

Supplementary Materials

Kribbellichelins A and B, Two New Antibiotics from *Kribbella* sp. CA-293567 with Activity against Several Human Pathogens

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Table S1. Taxonomical classification of the 108 actinomycetes strains isolated from the aerial part, roots and rhizosphere of the endemic plant *Limonium majus* across orders, families and genus. In bold is highlighted the taxonomical classification of the *Kribbella* strain studied in detail.

Tax Order	Family	Genus	Number	Origin
<i>Corynebacteriales</i>	<i>Nocardiaceae</i>	<i>Nocardia</i>	1	Rhizosphere
<i>Micrococcales</i>	<i>Brevibacteriaceae</i>	<i>Brevibacterium</i>	3	Roots (n =1) and rhizosphere (n=2)
	<i>Microbacteriaceae</i>	<i>Microbacterium</i>	2	Roots and rhizosphere
		<i>Agrococcus</i>	2	Rhizosphere
		<i>Curtobacterium</i>	1	Roots
	<i>Micrococcaceae</i>	<i>Kocuria</i>	2	Aerial part
		<i>Micrococcus</i>	1	Aerial part
		<i>Arthrobacter</i>	2	Roots
		<i>Pseudarthrobacter</i>	1	Rhizosphere
	<i>Promicromonosporaceae</i>	<i>Promicromonospora</i>	3	Rhizosphere
		<i>Isoptericola</i>	1	Rhizosphere
	<i>Dermabacteraceae</i>	<i>Brachybacterium</i>	1	Rhizosphere
<i>Micromonosporales</i>	<i>Micromonosporaceae</i>	<i>Micromonospora</i>	17	Roots (n=3) and rhizosphere (n=10)
		<i>Xiangella</i>	1	Rhizosphere
<i>Mycobacteriales</i>	<i>Mycobacteriaceae</i>	<i>Mycolicibacterium</i>	1	Rhizosphere
<i>Propionibacteriales</i>	<i>Nocardioidaceae</i>	<i>Aeromicrobium</i>	1	Rhizosphere
		<i>Kribbella</i>	2	Rhizosphere
		<i>Nocardioides</i>	4	Rhizosphere
	<i>Propionibacteriaceae</i>	<i>Friedmanniella</i>	1	Roots
<i>Pseudonocardiales</i>	<i>Pseudonocardiaceae</i>	<i>Saccharopolyspora</i>	1	Roots
		<i>Actinokineospora</i>	2	Rhizosphere
<i>Streptomycetales</i>	<i>Streptomycetaceae</i>	<i>Streptomyces</i>	47	Aerial part (n=5), roots (n=7) and rhizosphere (n=35)
<i>Streptosporangiales</i>	<i>Streptosporangiaceae</i>	<i>Nonomuraea</i>	1	Rhizosphere
<i>Frankiales</i>	<i>Geodermatophilaceae</i>	<i>Modestobacter</i>	1	Aerial part
<i>Kineosporiales</i>	<i>Kineosporiaceae</i>	<i>Angustibacter</i>	1	Aerial part
<i>Incertae sedis</i>			8	Roots (n=5) and rhizosphere (n=3)
Total			108	Aerial part (n=10), roots (n=26) and rhizosphere (n=72)

Table S2. Taxonomical classification of the 96 actinomycetes classified based on their ribosomal 16S rDNA. Individual GenBank accession numbers indicated.

Strain Name	Accession Number	Phylum	Class	Order	Family	Genus	Species
CA-289638	OP442265	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	finlayi
CA-289639	OP442266	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	chumphonensis
CA-289640	OP442267	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	bacillaris
CA-289641	OP442268	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	bacillaris
CA-289642	OP442269	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	specialis
CA-290269	OP442270	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	vinacea
CA-290270	OP442271	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Xiangella	phaseoli
CA-290272	OP442272	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	cacaoi
CA-290273	OP442273	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	vinacea
CA-290274	OP442274	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	carpaticus
CA-290275	OP442275	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	carpaticus
CA-290555	OP442276	Actinomycetota	Actinomycetes	Pseudonocardiales	Pseudonocardaceae	Saccharopolyspora	gloriosae
CA-290924	OP442277	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	vinacea
CA-290925	OP442278	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	olivaceus
CA-291033	OP442279	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	chumphonensis
CA-291038	OP442280	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	ambofaciens
CA-291078	OP442281	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	harbinensis
CA-293550	OP442282	Actinomycetota	Actinomycetes	Propionibacteriales	Kribbellaceae	Kribbella	deserti
CA-293551	OP442283	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	pratensis
CA-293552	OP442284	Actinomycetota	Actinomycetes	Micrococcales	Promicromonosporaceae	Promicromonospora	alba
CA-293553	OP442285	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	pratensis
CA-293555	OP442286	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	galilaeus
CA-293556	OP442287	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	pratensis
CA-293557	OP442288	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	galilaeus
CA-293558	OP442289	Actinomycetota	Actinomycetes	Streptomycetales	Streptomycetaceae	Streptomyces	peucetius

CA-293559	OP442290	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	saelicesensis
CA-293560	OP442291	Actinomycetota	Actinomycetes	Mycobacteriales	Nocardiaceae	Nocardia	sungurluensis
CA-293561	OP442292	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	vinacea
CA-293562	OP442293	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	cinereus
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CA-293564	OP442295	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	cinereus
CA-293565	OP442296	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	cinereus
CA-293566	OP442297	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	cinereus
CA-293567	OP442298	Actinomycetota	Actinomycetes	Propionibacteriales	Kribbellaceae	Kribbella	ginsengisoli
CA-293568	OP442299	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	sparsus
CA-293569	OP442300	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	ambofaciens
CA-293570	OP442301	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	vinacea
CA-293571	OP442302	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	fulvissimus
CA-293572	OP442303	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	galilaeus
CA-293573	OP442304	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	galilaeus
CA-293574	OP442305	Actinomycetota	Actinomycetes	Micrococcales	Promicromonosporaceae	Promicromonospora	alba
CA-293575	OP442306	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	laurentii
CA-293576	OP442307	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	sampsonii
CA-293577	OP442308	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	pratensis
CA-293579	OP442309	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	laurentii
CA-293580	OP442310	Actinomycetota	Actinomycetes	Pseudonocardiales	Pseudonocardiaceae	Actinokineospora	acnipugnans
CA-293581	OP442311	Actinomycetota	Actinomycetes	Pseudonocardiales	Pseudonocardiaceae	Actinokineospora	acnipugnans
CA-293582	OP442312	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	pratensis
CA-293583	OP442313	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	pratensis
CA-293584	OP442314	Actinomycetota	Actinomycetes	Streptomyces	Streptomyces	Streptomyces	sampsonii
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CA-294843	OP442335	Actinomycetota	Actinomycetes	Micromonosporales	Micromonosporaceae	Micromonospora	vinacea
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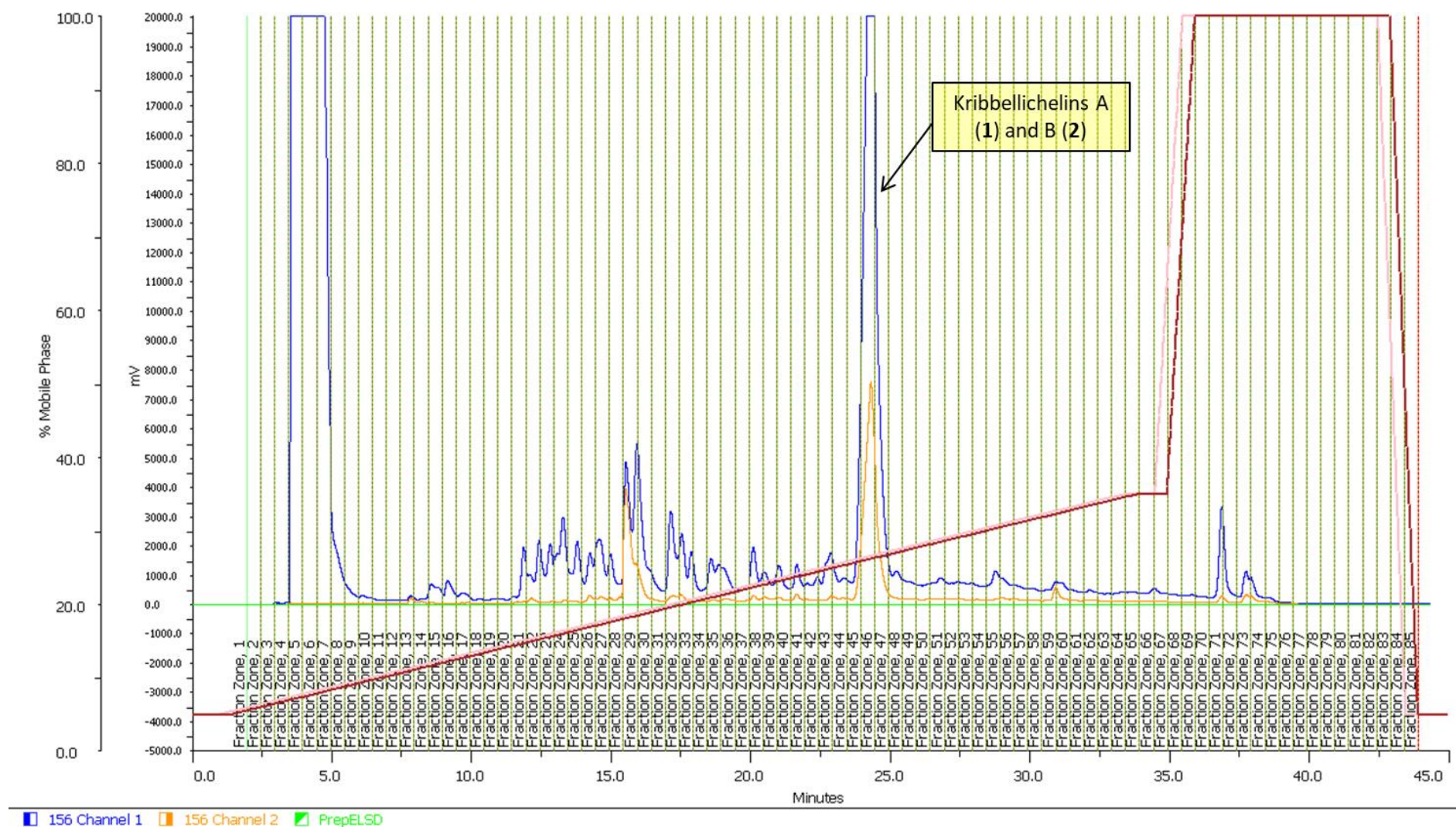


Figure S1. LC-UV (210, orange, and 280, blue trace, nm) chromatogram of fraction FS013 purification by preparative RP-HPLC applying a linear H₂O:CH₃CN gradient (5% CH₃CN: 0-1 min, 5-35%: 1-34 min, 35%: 34-35 min, 35-100%: 35-36 min, 100%: 36-43 min). Both solvents contain 0.1% TFA.

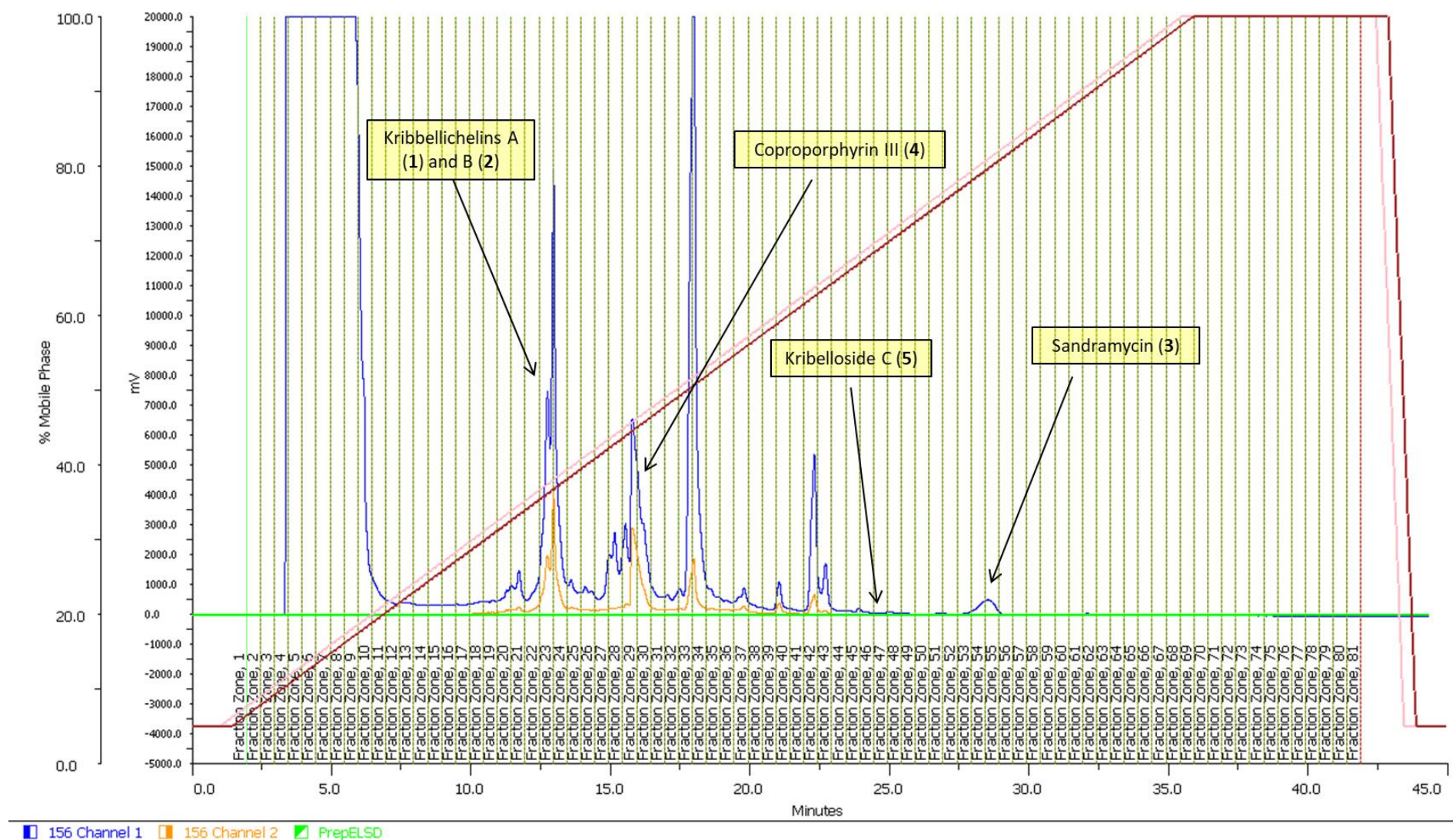


Figure S2. LC-UV (210, orange, and 280, blue trace, nm) chromatogram of FS018 purification by preparative RP-HPLC applying a linear H₂O:CH₃CN gradient (5% CH₃CN: 0-1 min, 5-100%: 1-36 min, 100%: 36-43 min). Both solvents contain 0.1% TFA.

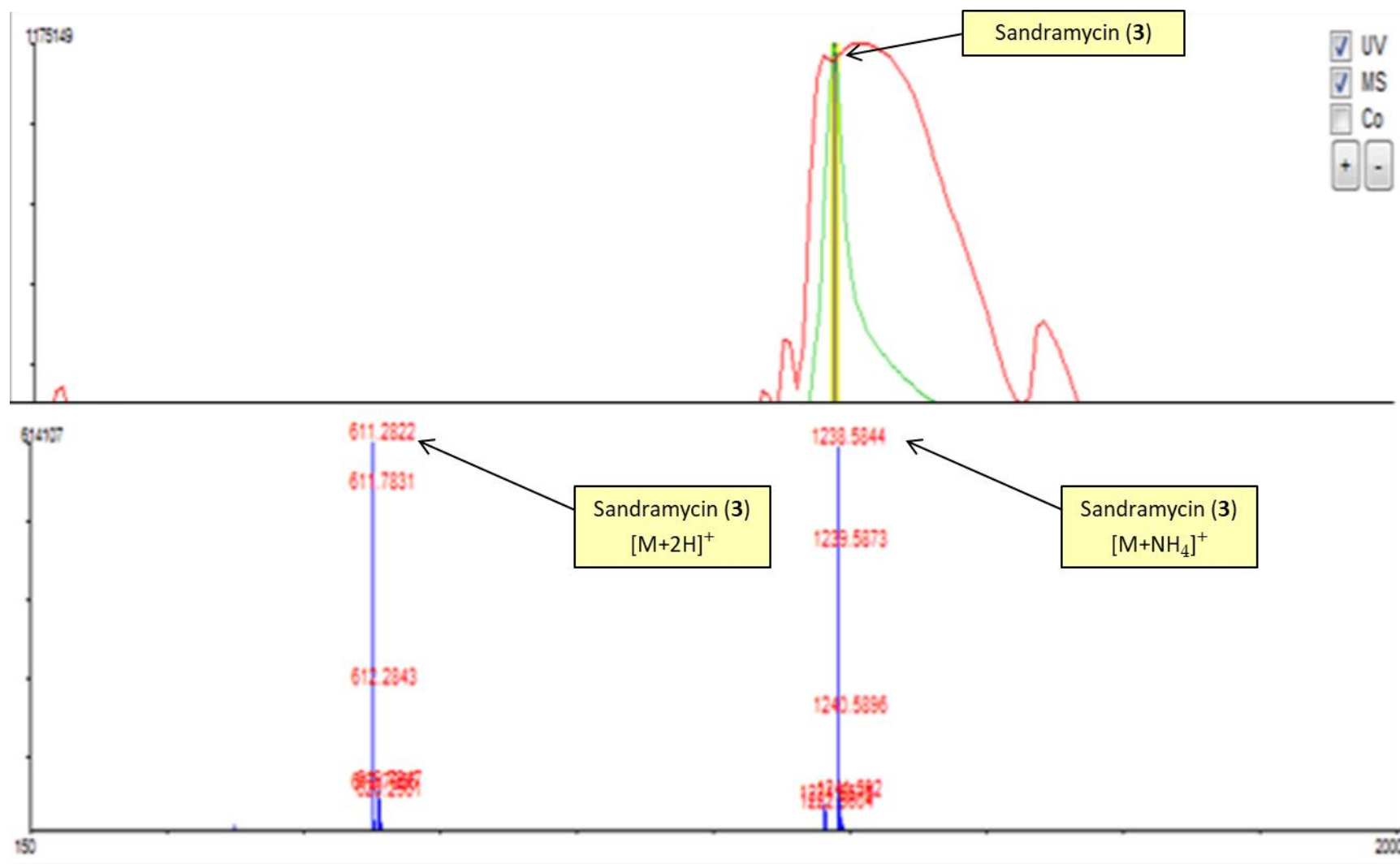


Figure S3. LC-HRMS ((+)-ESI-TOF) analysis of FS018 fractions containing compound 3.

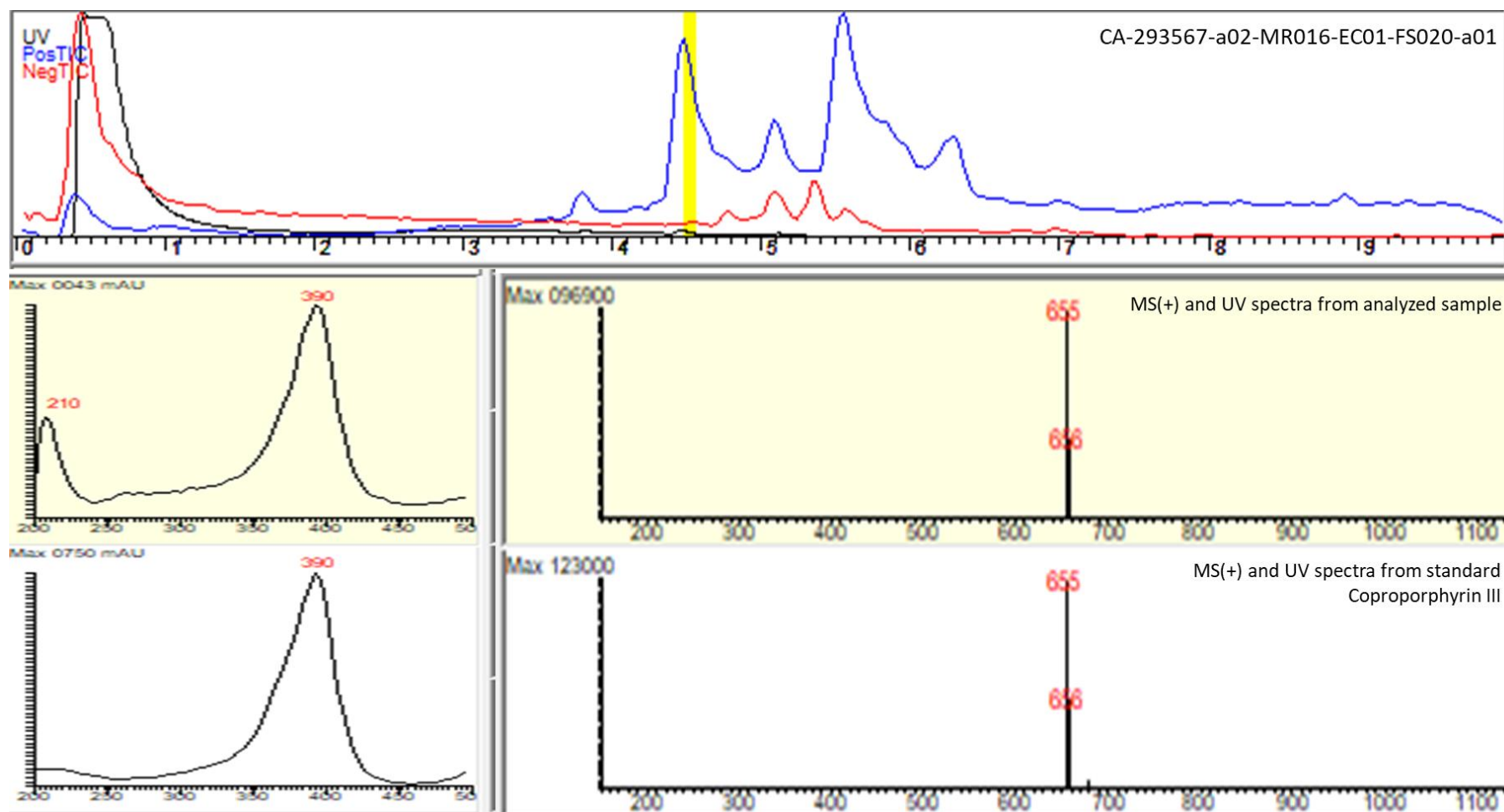


Figure S4. LC-HRMS ((+)-ESI-TOF) analysis of fractions containing compound 4.

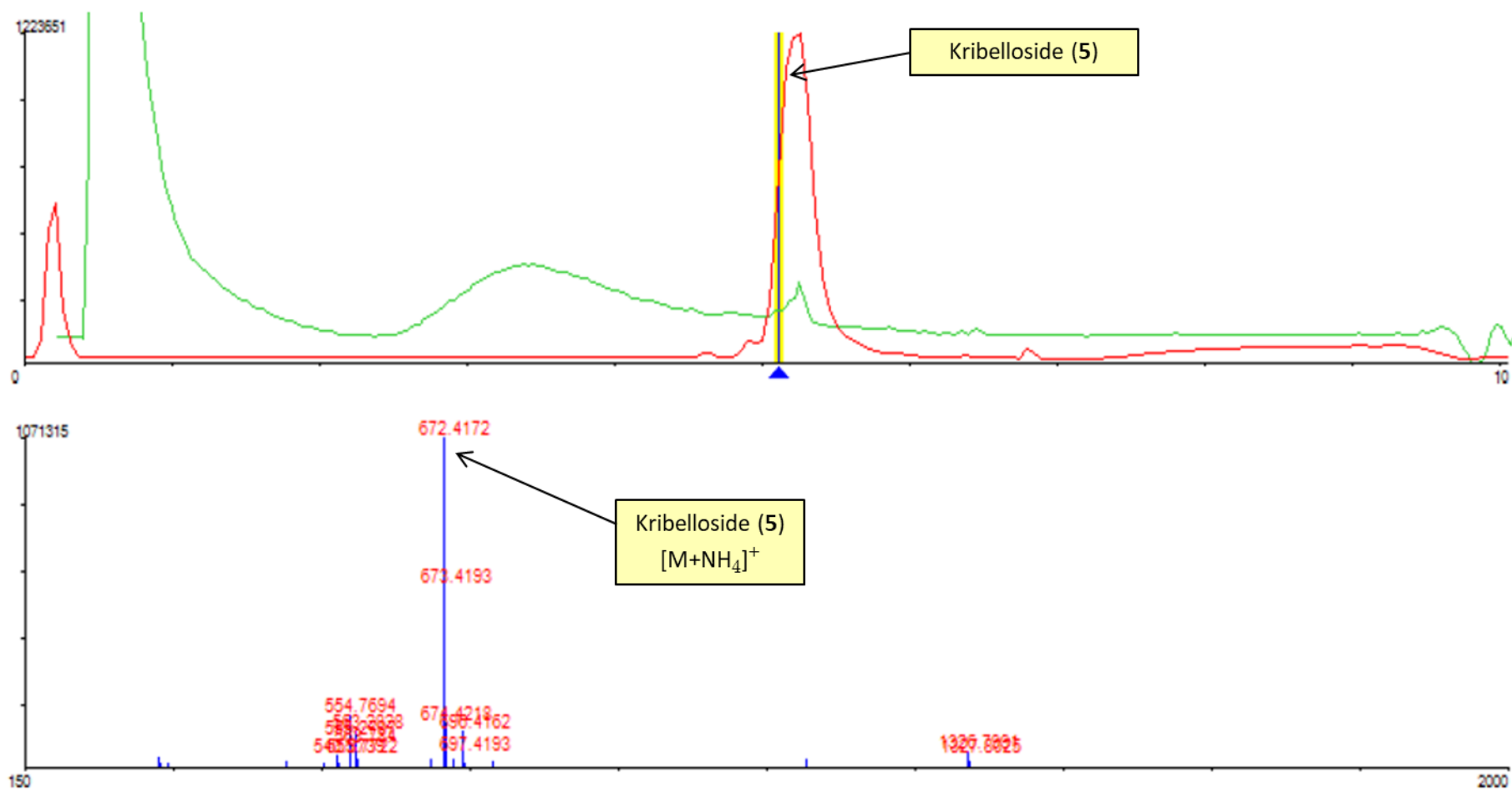


Figure S5. LC-HRMS ((+)-ESI-TOF) analysis of FS018 fractions containing compound 5.

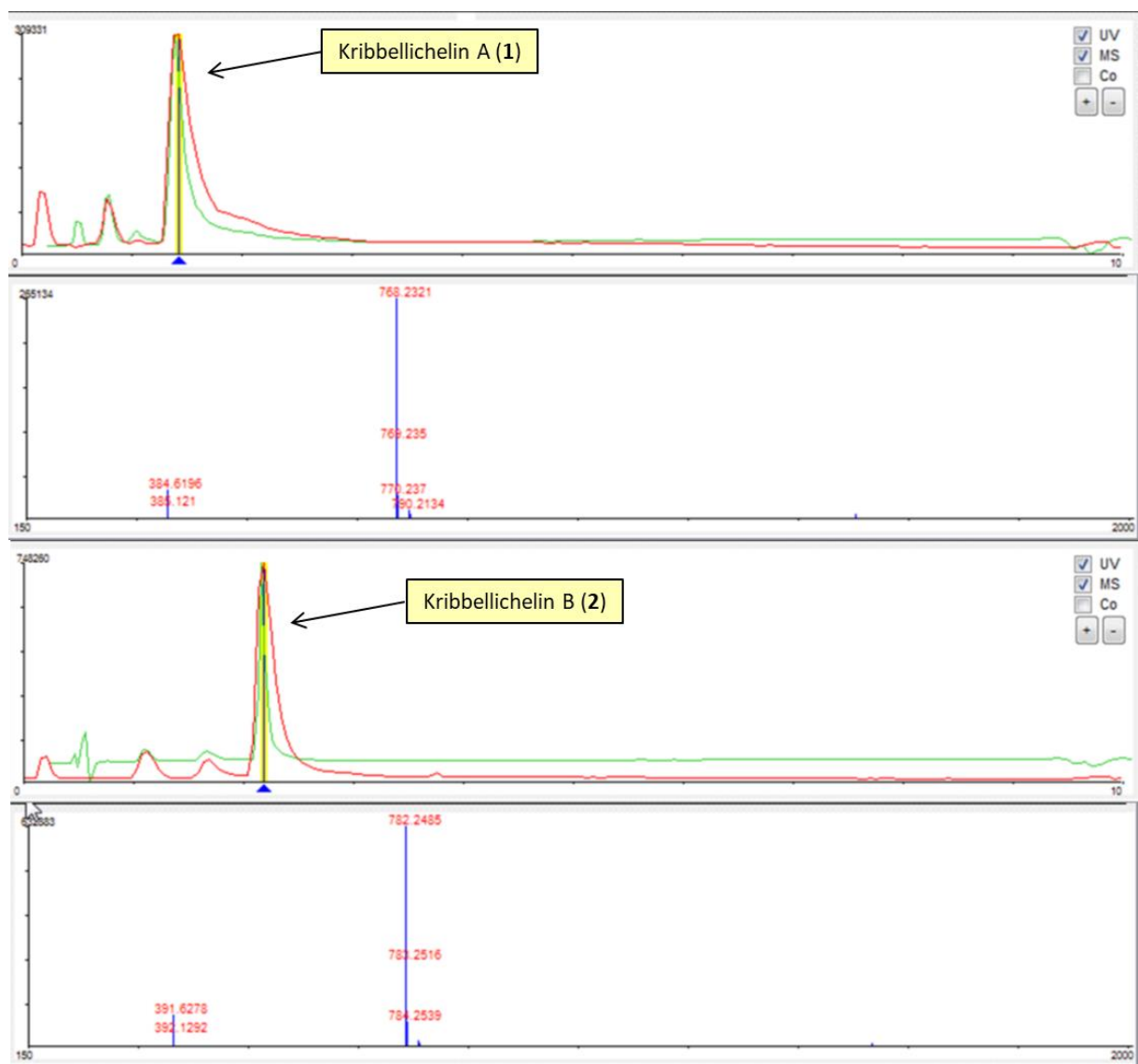


Figure S6. LC-HRMS ((+)-ESI-TOF) analysis of fractions containing compounds **1** and **2**.

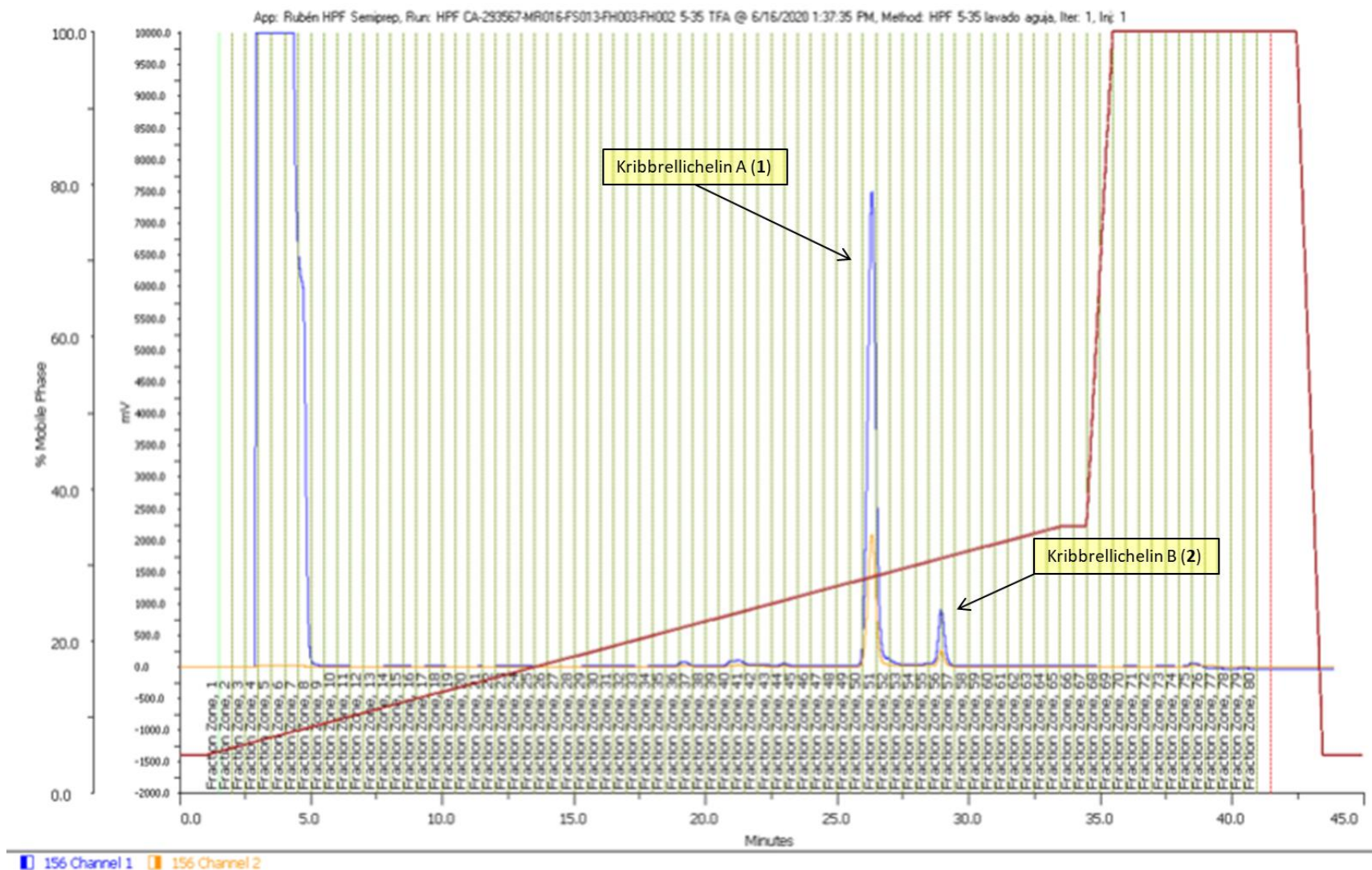


Figure S7. LC-UV (210, orange, and 280, blue trace, nm) chromatogram of the purification of fractions containing compounds **1** and **2** by semipreparative RP-HPLC applying a linear H₂O:CH₃CN gradient (5% CH₃CN: 0-1 min, 5-100%: 1-36 min, 100%: 36-43 min). Both solvents contain 0.1% TFA.

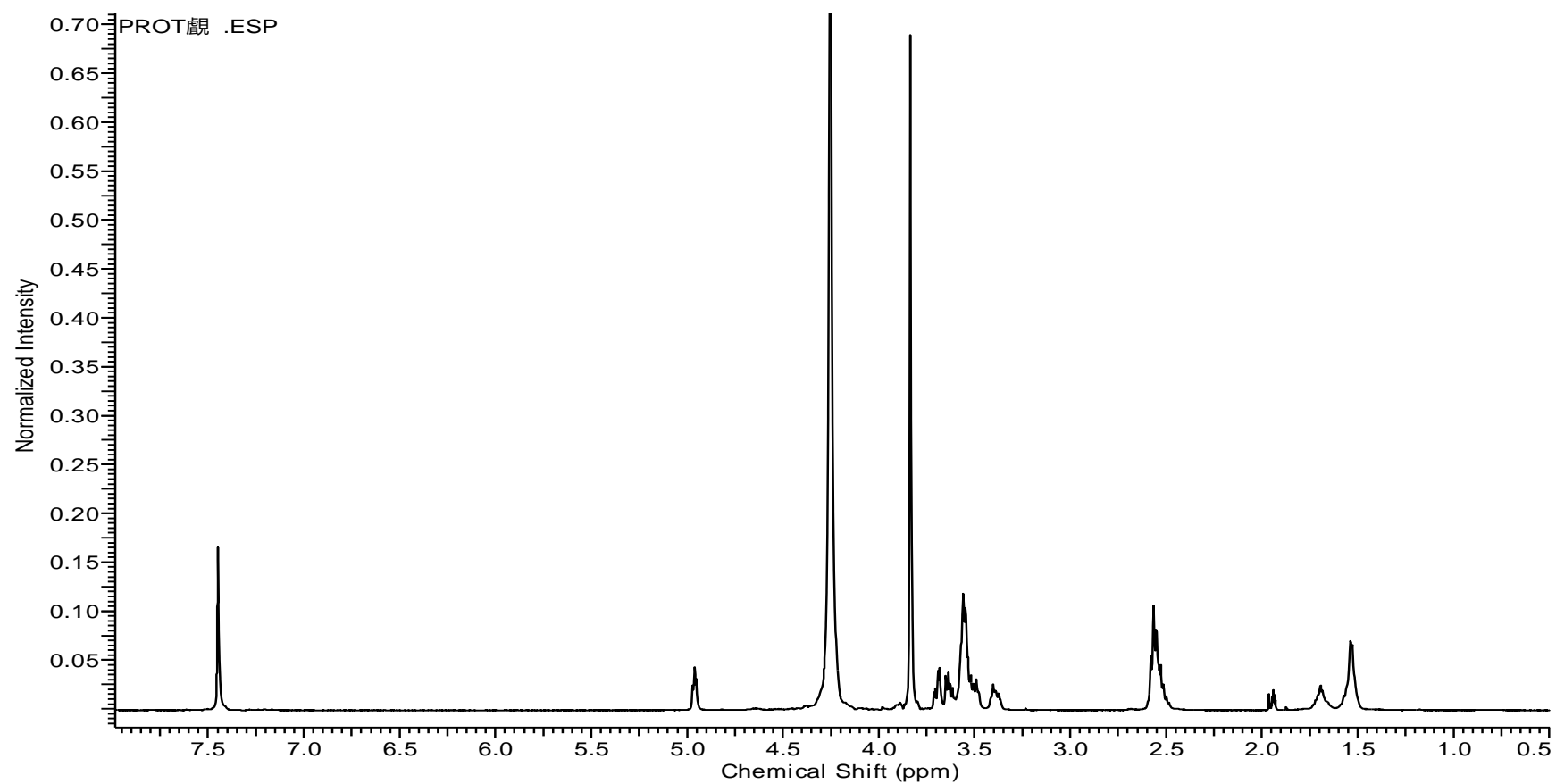


Figure S8. ^1H NMR spectrum of compound **1** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

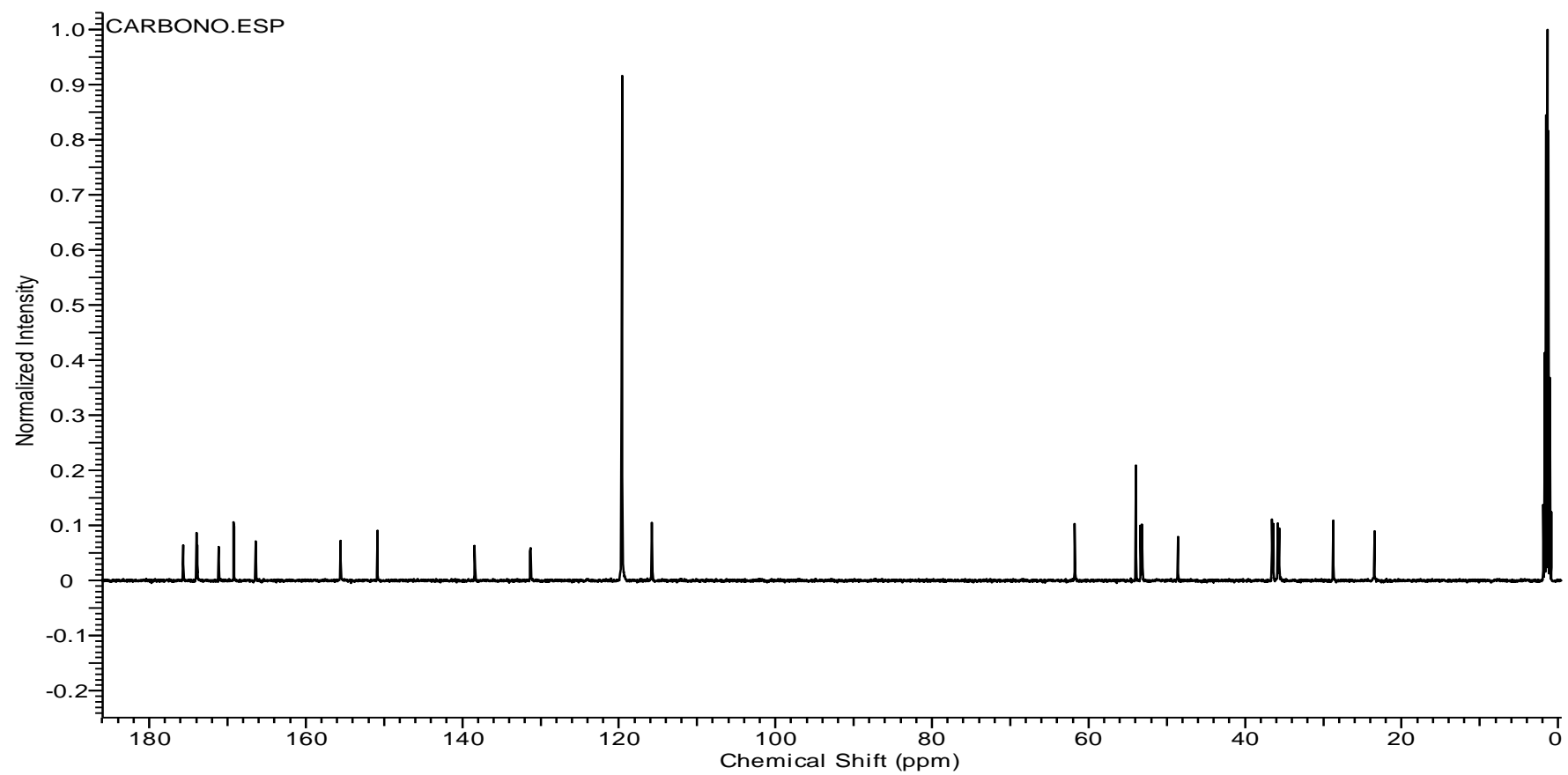


Figure S9. ^{13}C NMR spectrum of compound **1** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

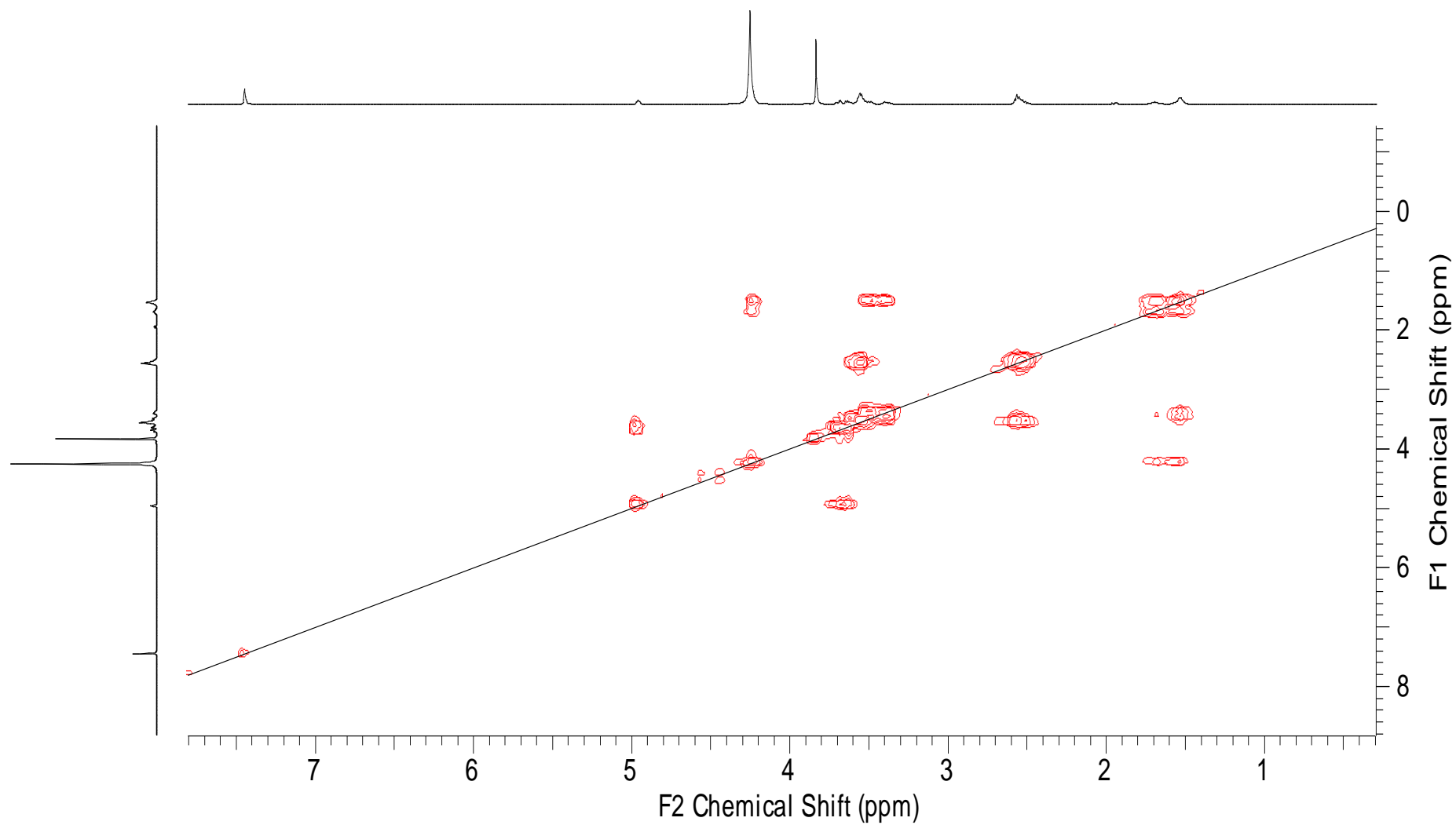


Figure S10. COSY spectrum of compound **1** (CD₃CN/D₂O 1:1).

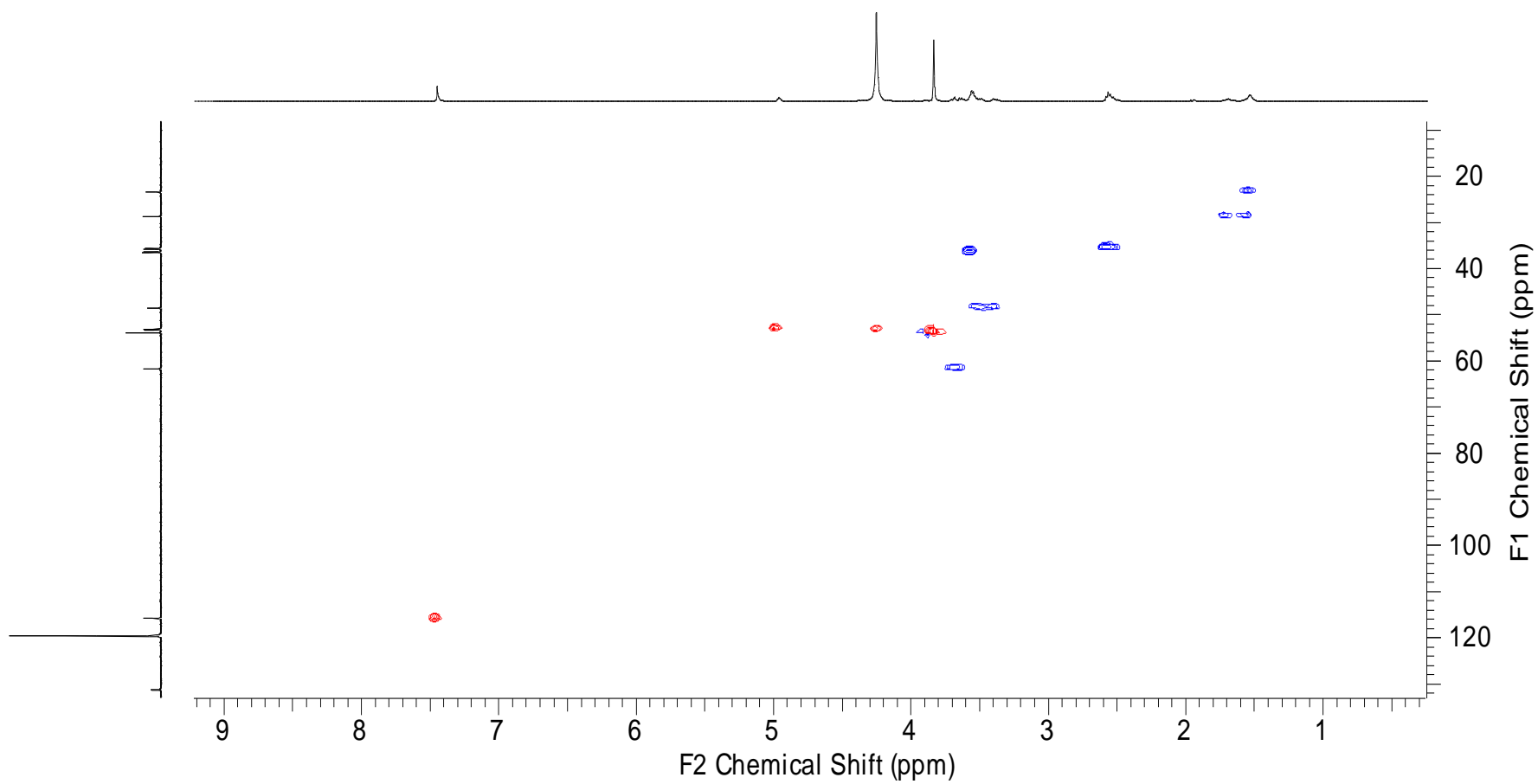


Figure S11. HSQC spectrum of compound **1** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

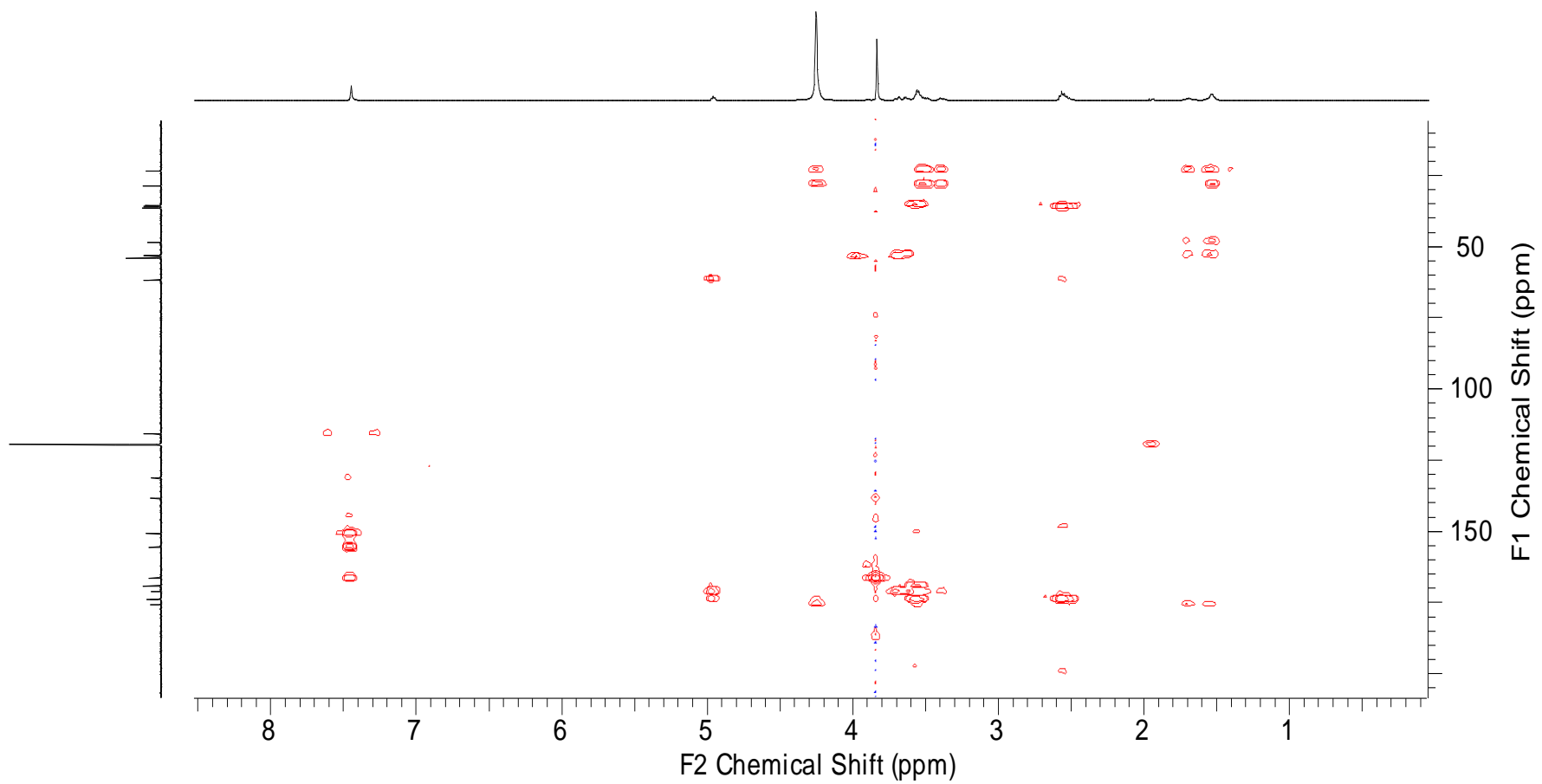


Figure S12. HMBC spectrum of compound **1** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

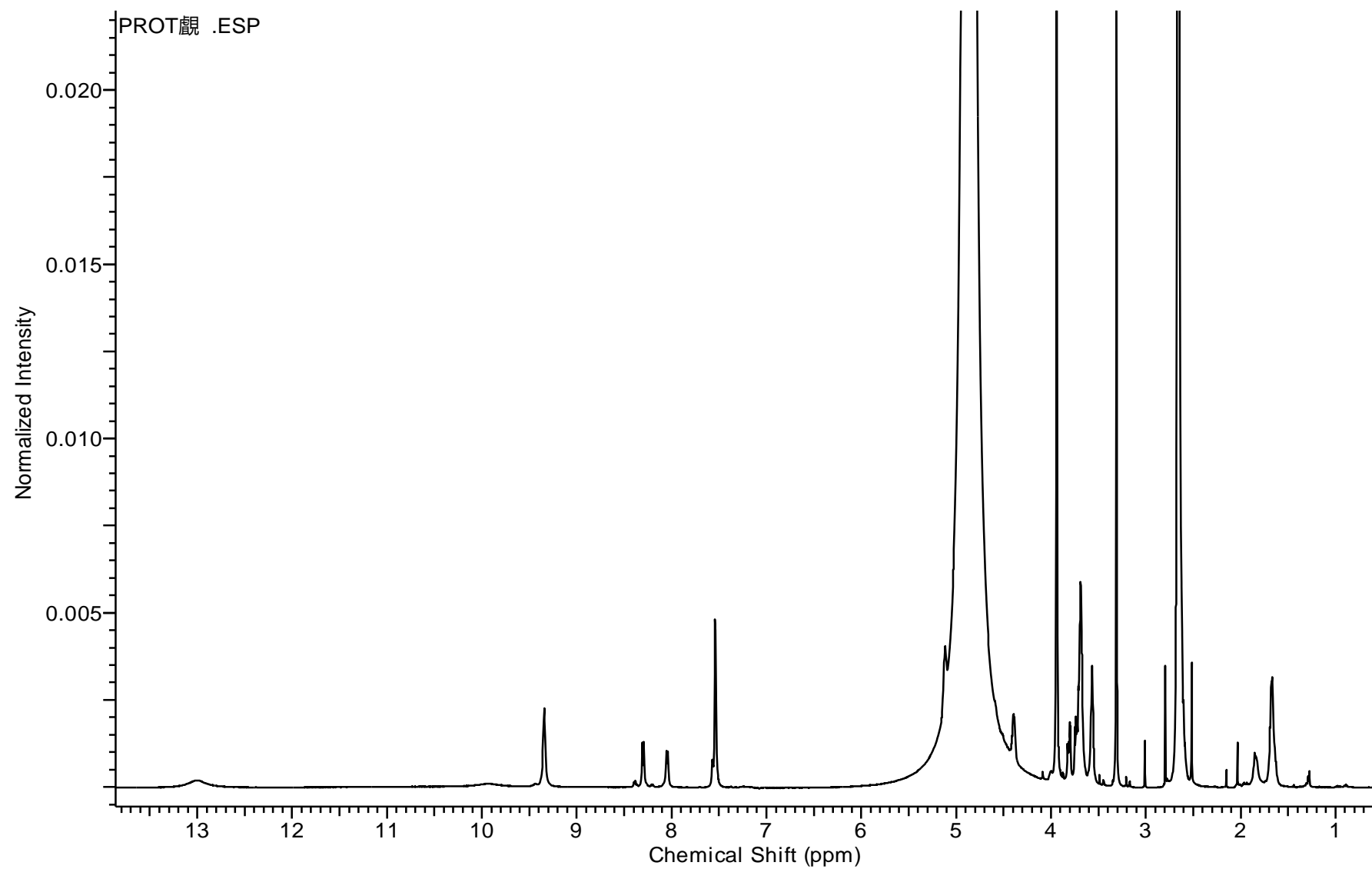


Figure S13. ^1H NMR spectrum of compound **1** (CD_3OH).

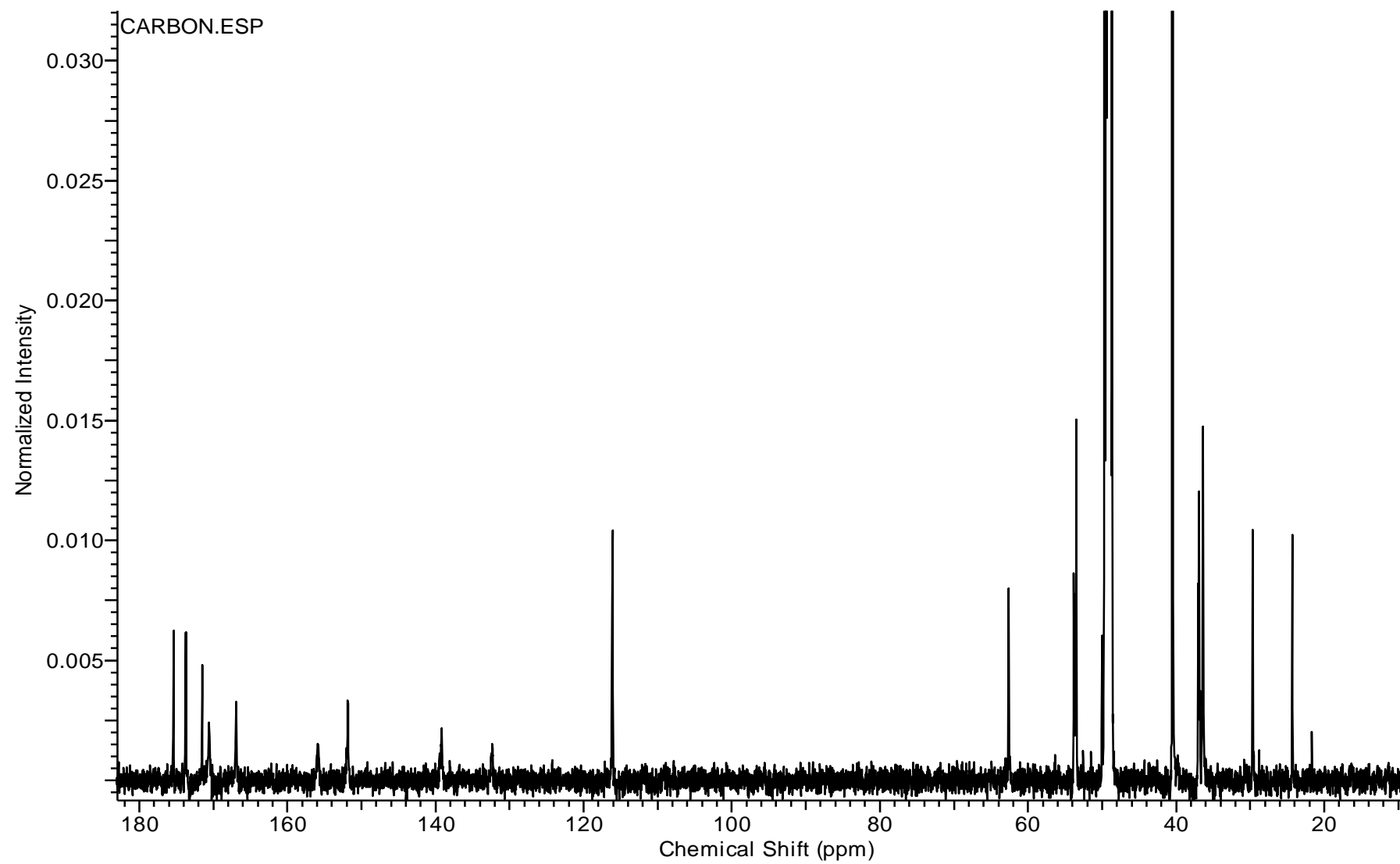


Figure S14. ^{13}C NMR spectrum of compound **1** (CD_3OH).

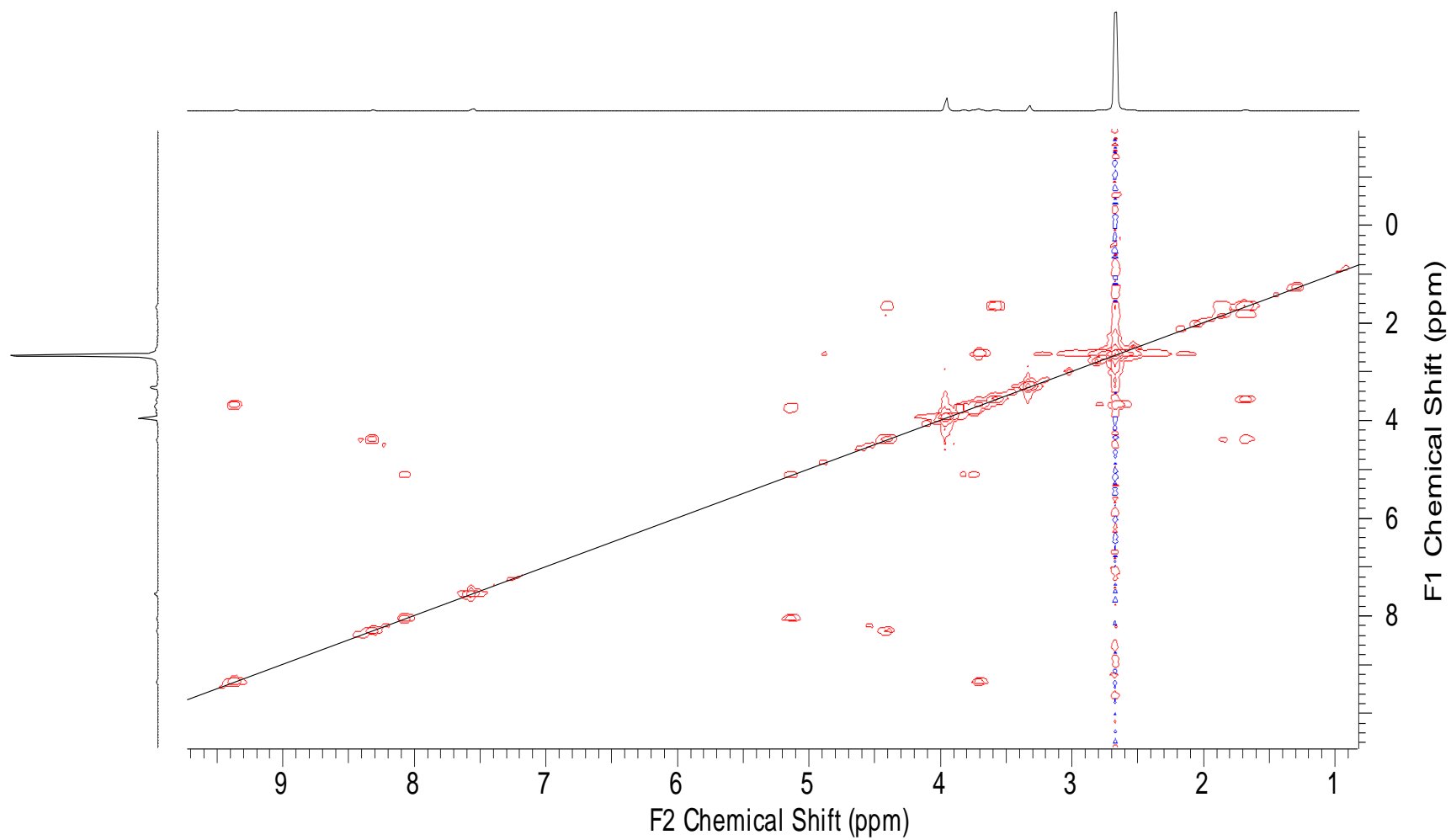


Figure S15. COSY spectrum of compound **1** (CD₃OH).

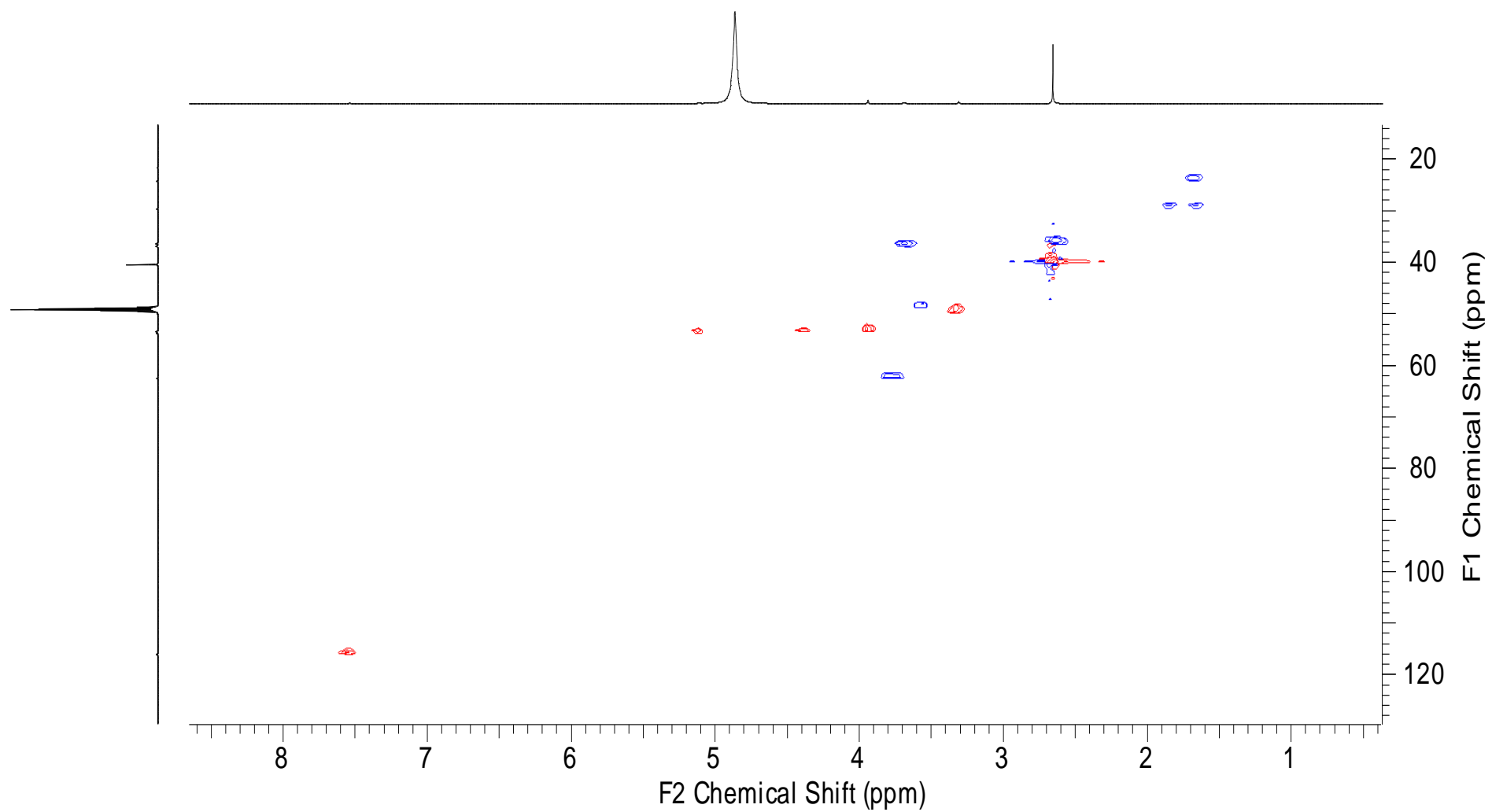


Figure S16. HSQC spectrum of compound **1** (CD_3OH).

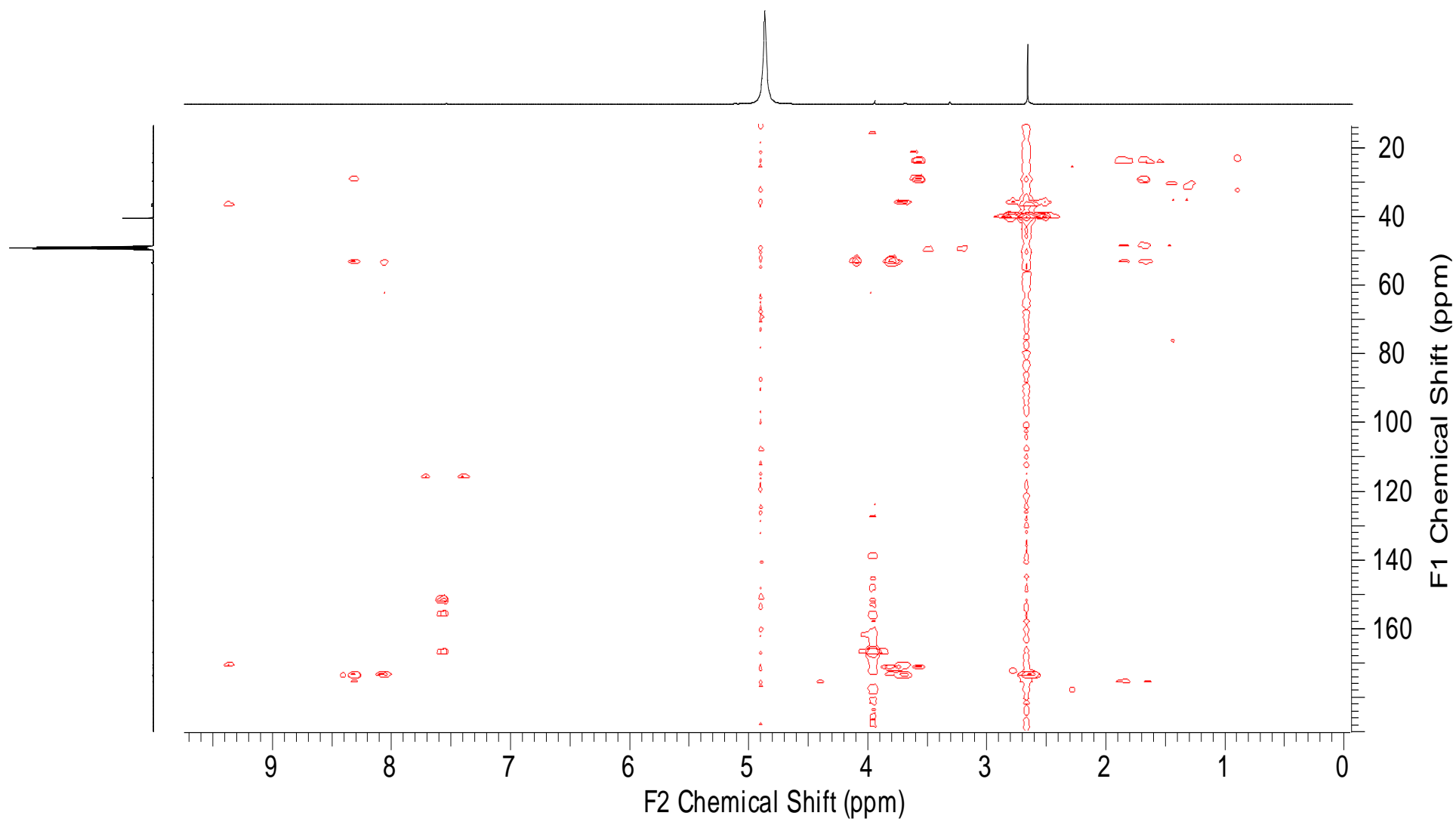


Figure S17. HMBC spectrum of compound **1** (CD₃OH).

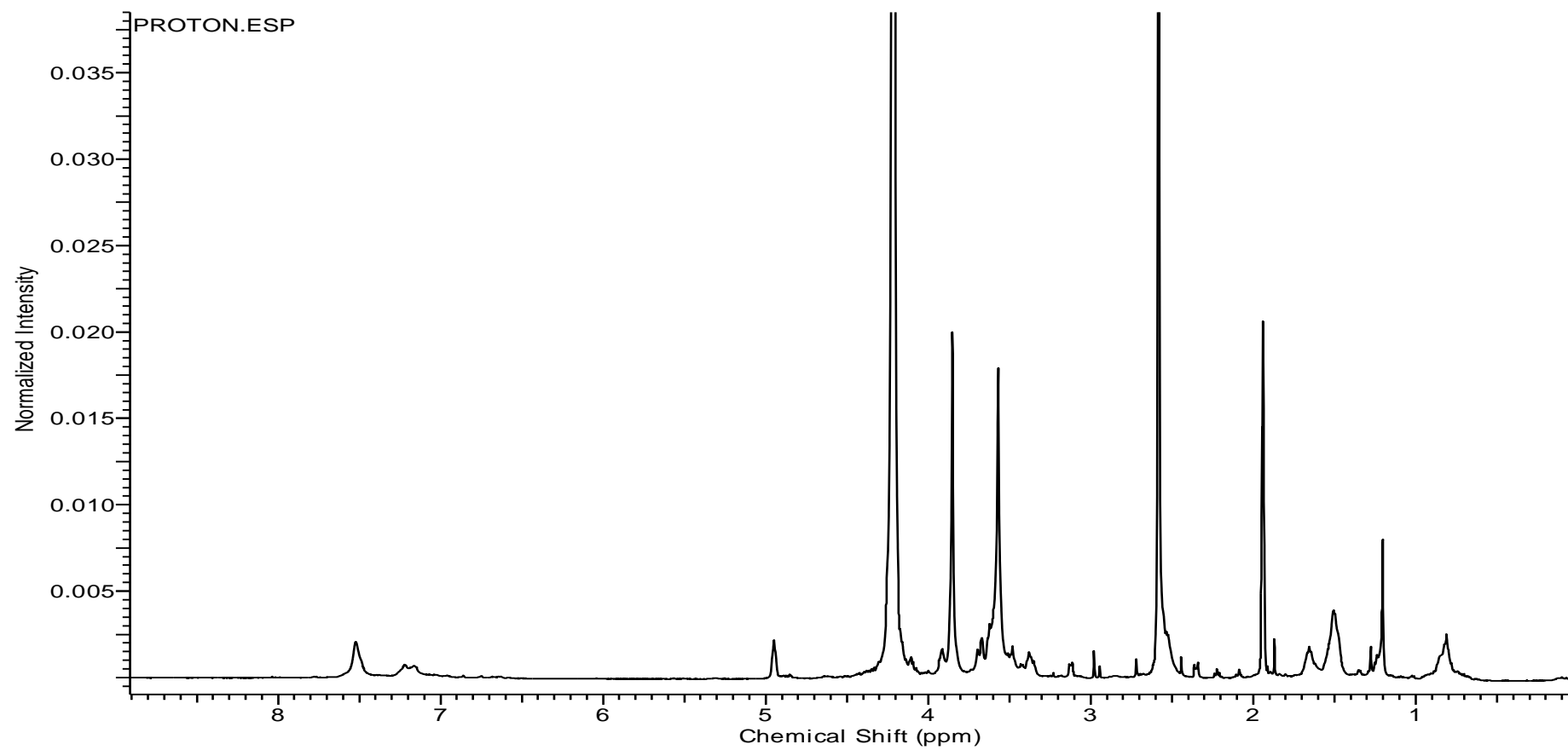


Figure S18. ^1H NMR spectrum of compound **2** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

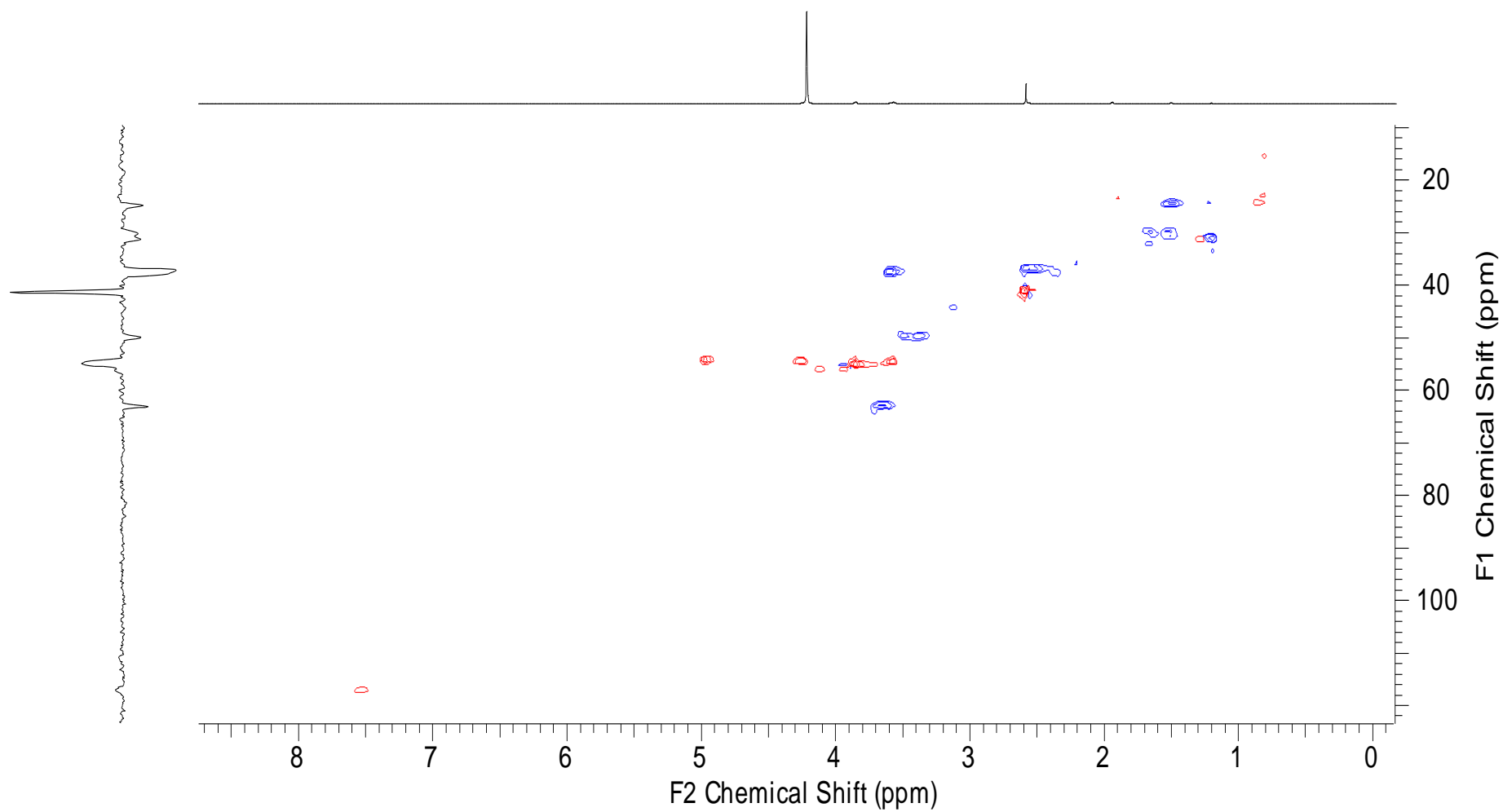


Figure S19. HSQC spectrum of compound **2** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

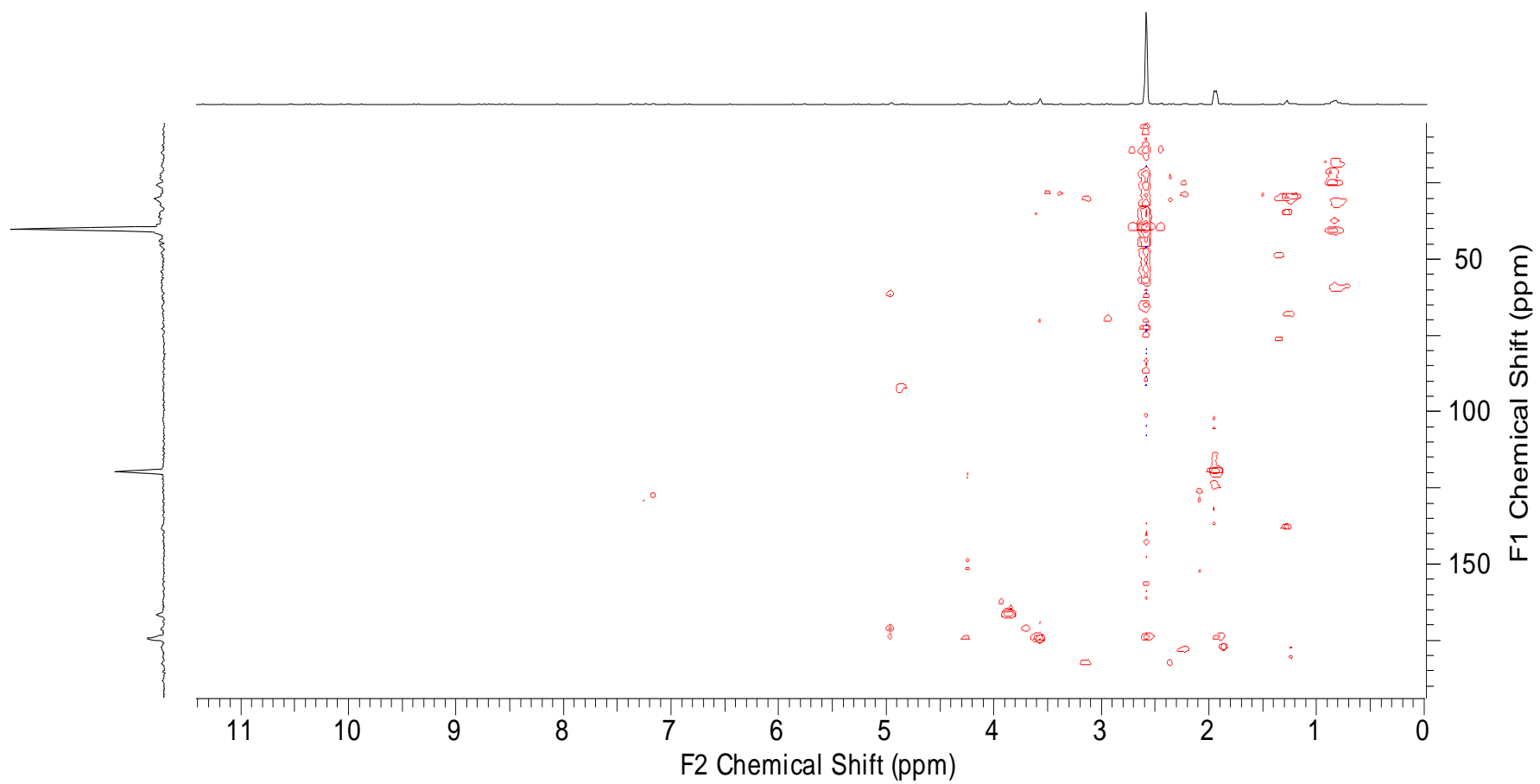


Figure S20. HMBC spectrum of compound **2** ($\text{CD}_3\text{CN}/\text{D}_2\text{O}$ 1:1).

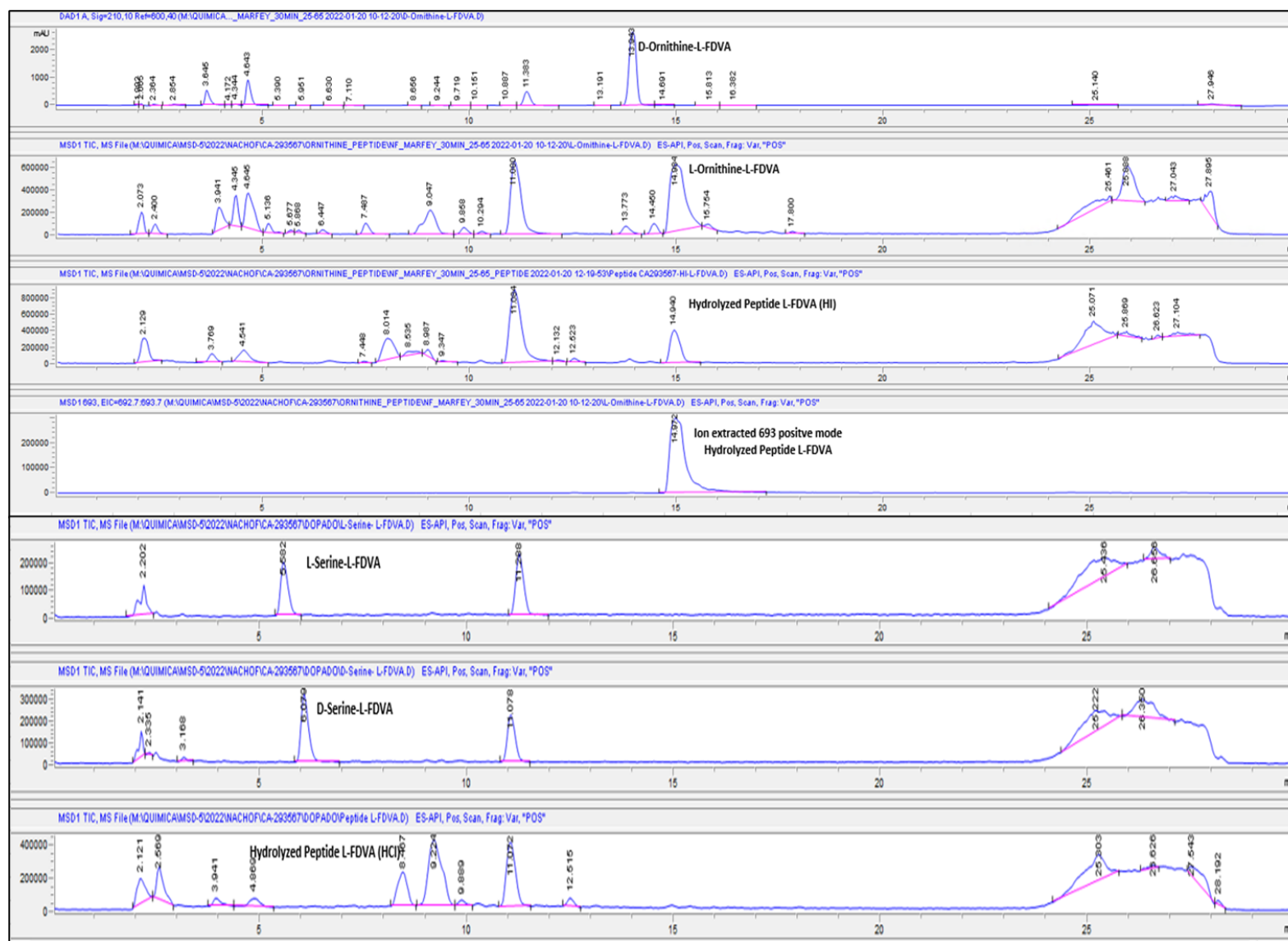


Figure S21. HPLC traces corresponding to Marfey's analysis of **1** (I).

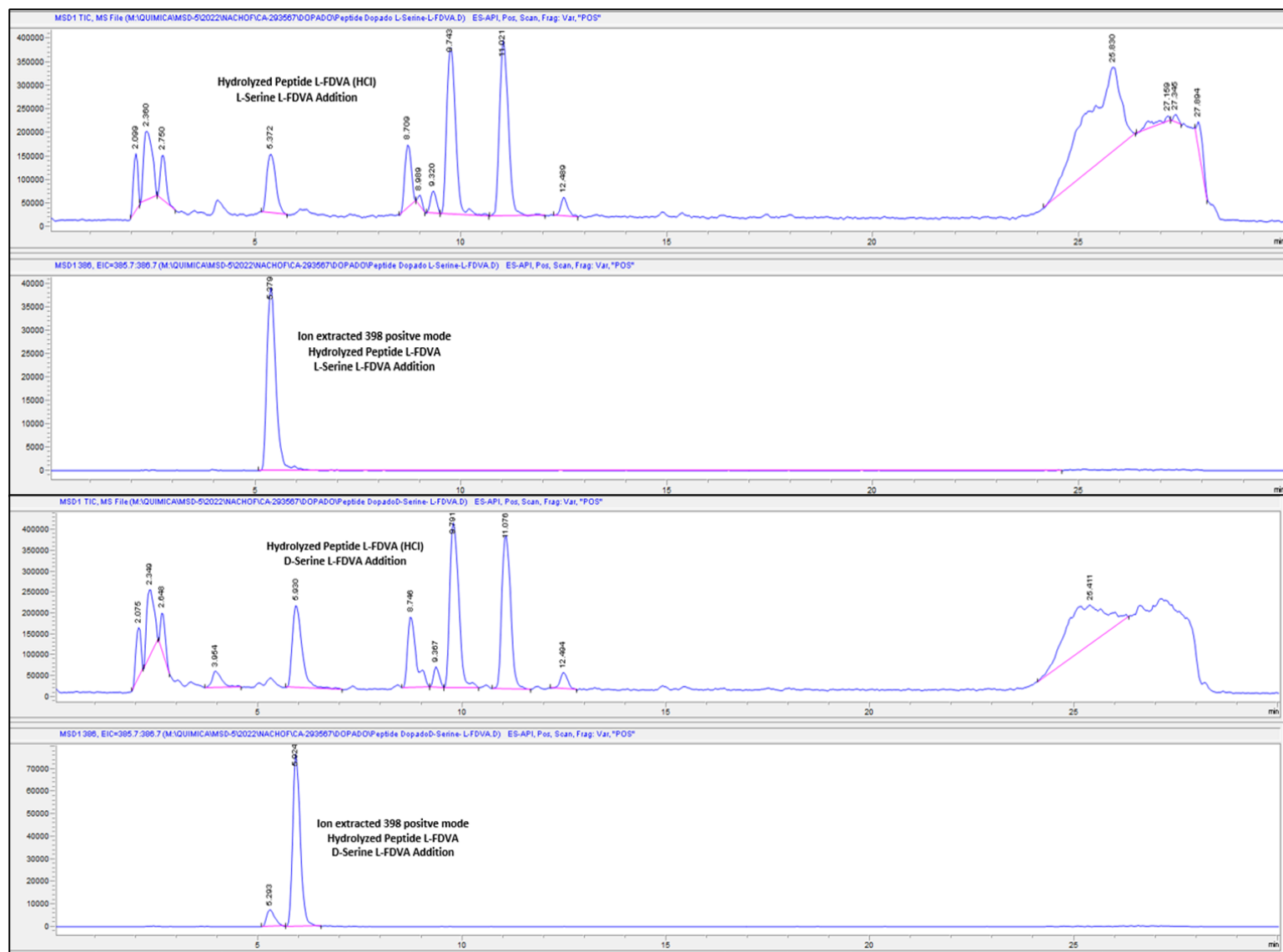


Figure S22. HPLC traces corresponding to Marfey's analysis of 1 (II).