

## Supporting information

# Microbial Transformation of the Sesquiterpene Lactone, Vulgarin, by *Aspergillus niger*

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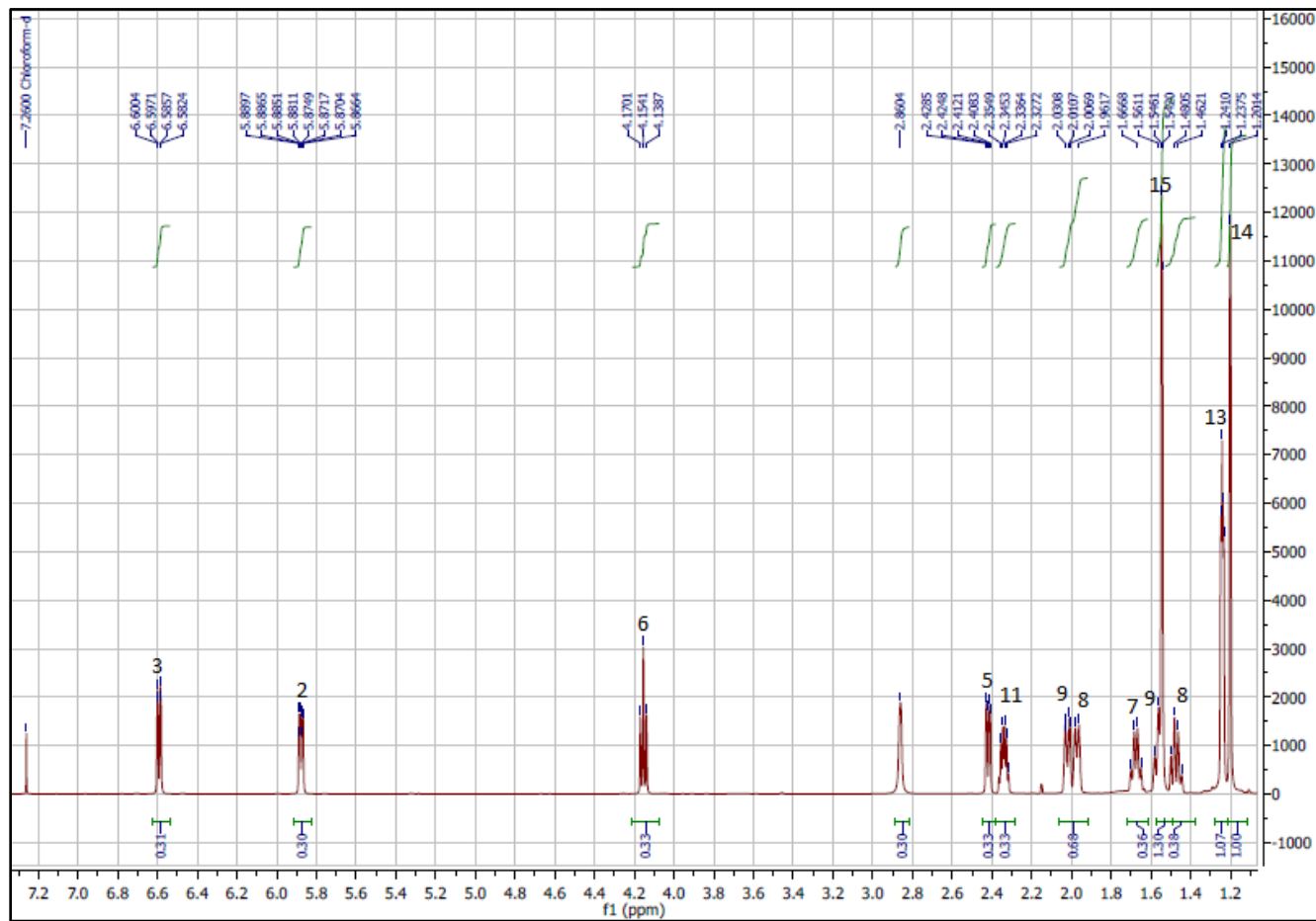
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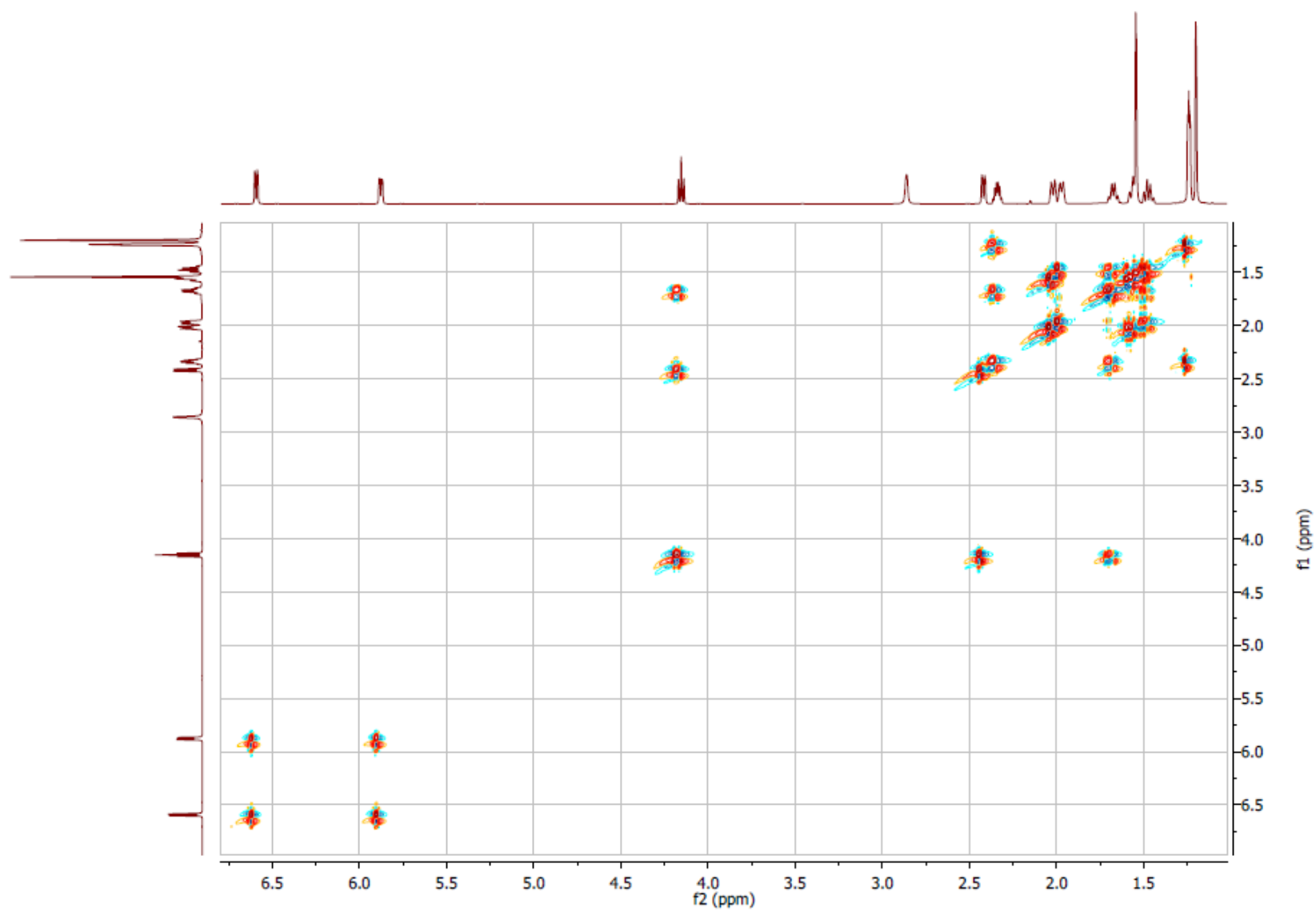
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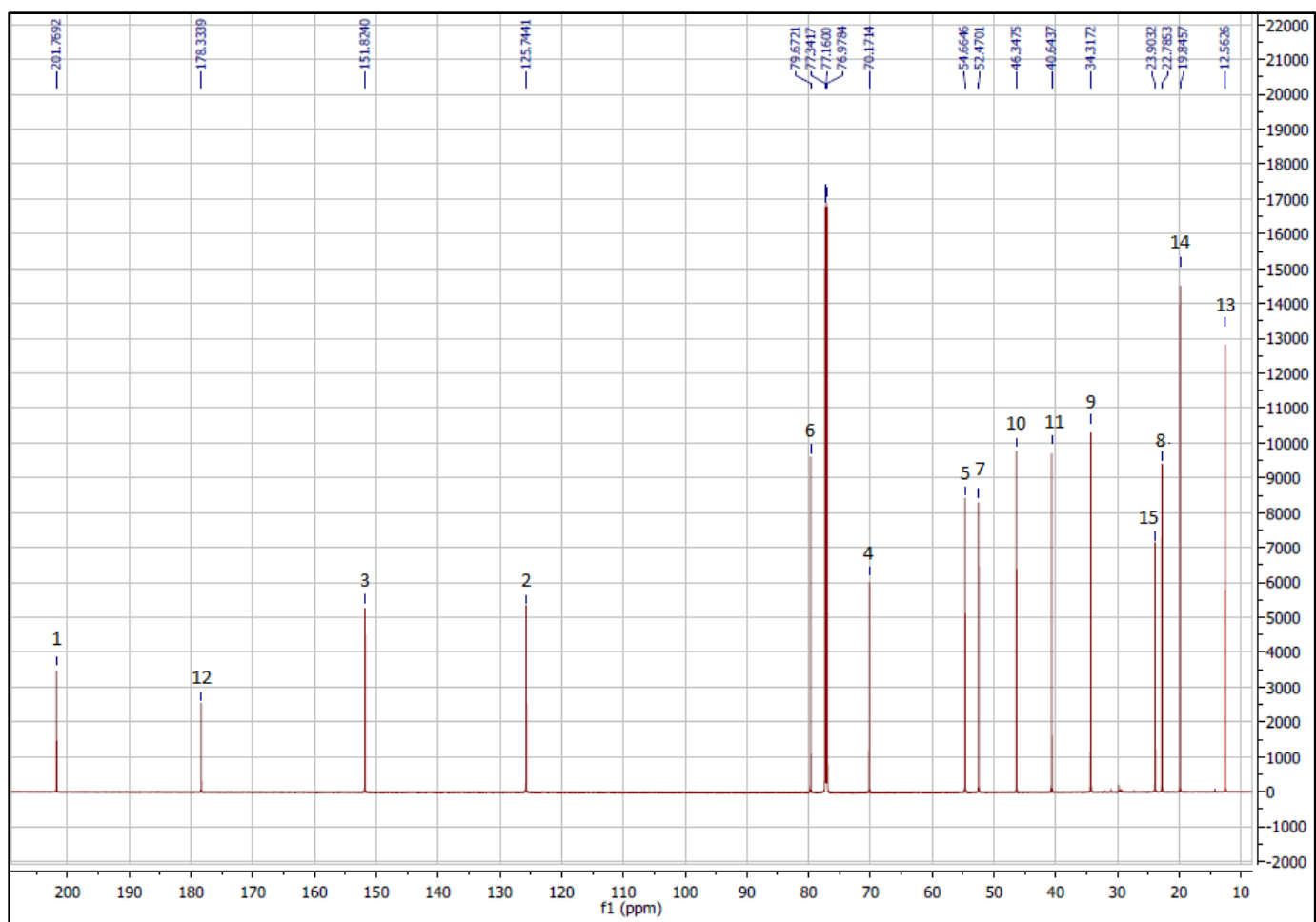
NMR spectra of vulgarin (**1**):



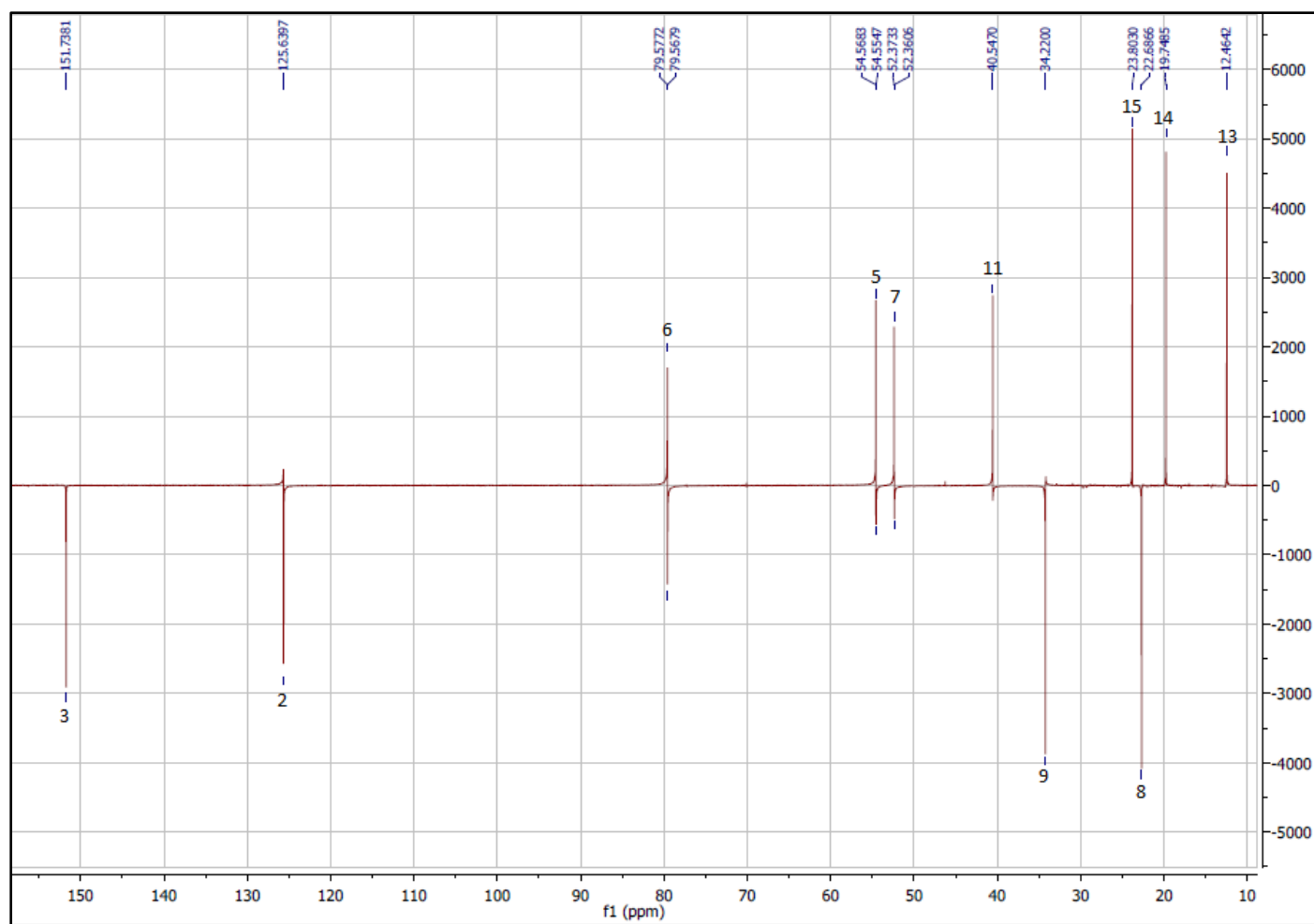
**Figure S1.**  $^1\text{H}$  NMR spectrum of vulgarin (**1**) ( $\text{CDCl}_3$ , 700 MHz).



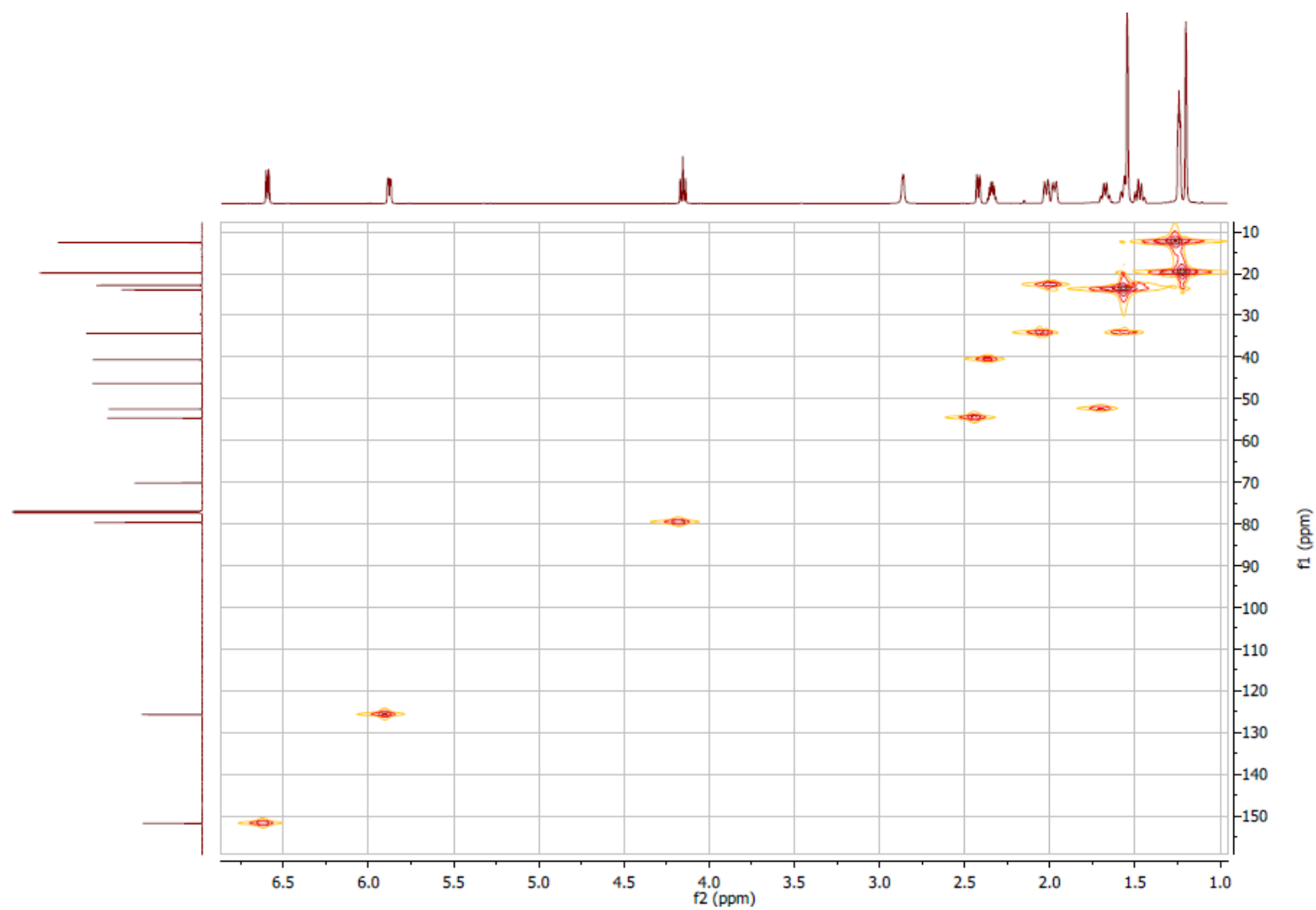
**Figure S2:** COSY spectrum of Vulgarin (1)



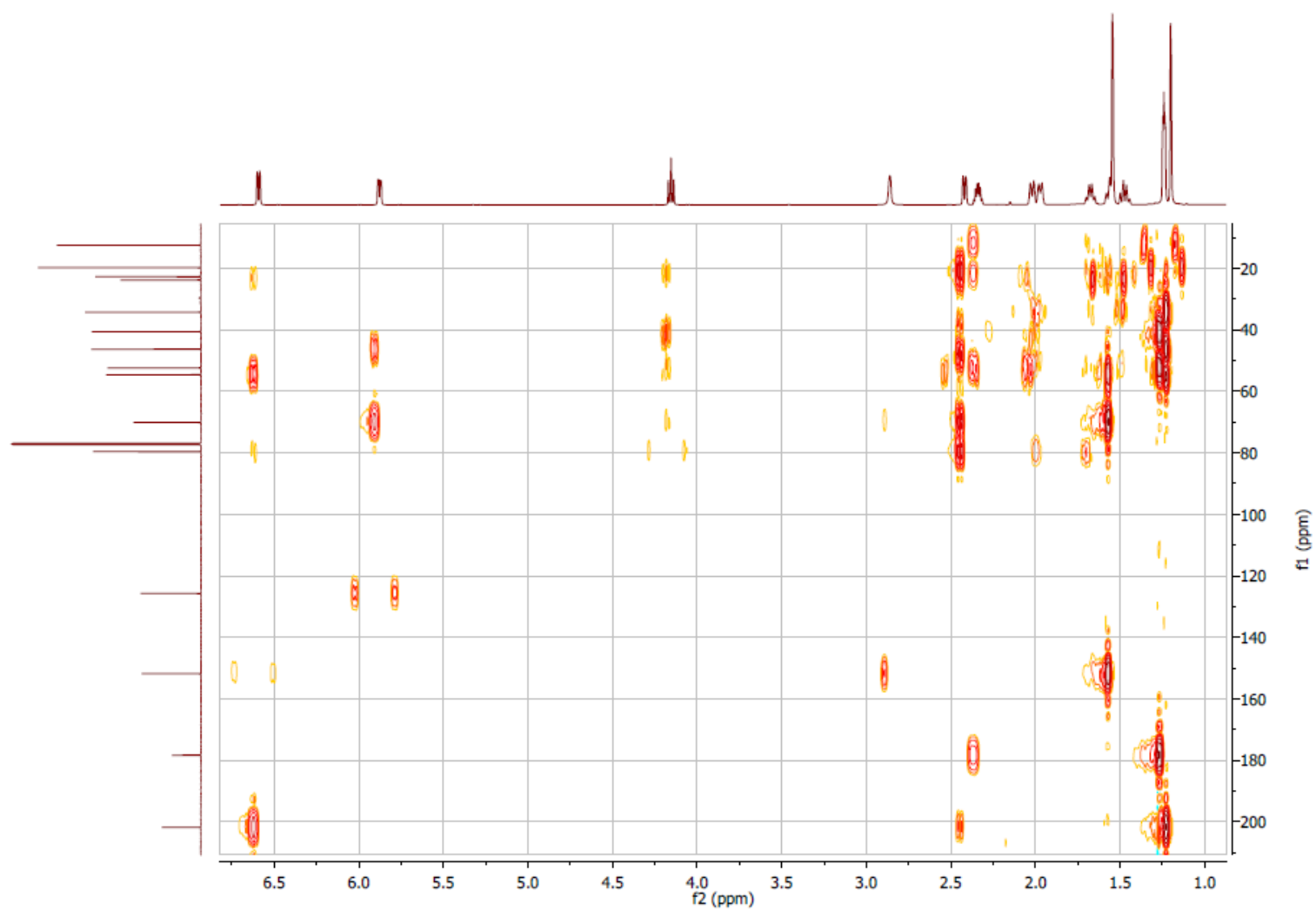
**Figure S3:**  $^{13}\text{C}$ -NMR spectrum of Vulgarin (1) ( $\text{CDCl}_3$ , 175 MHz).



**Figure S4:** DEPT 135 spectrum of Vulgarin (1)



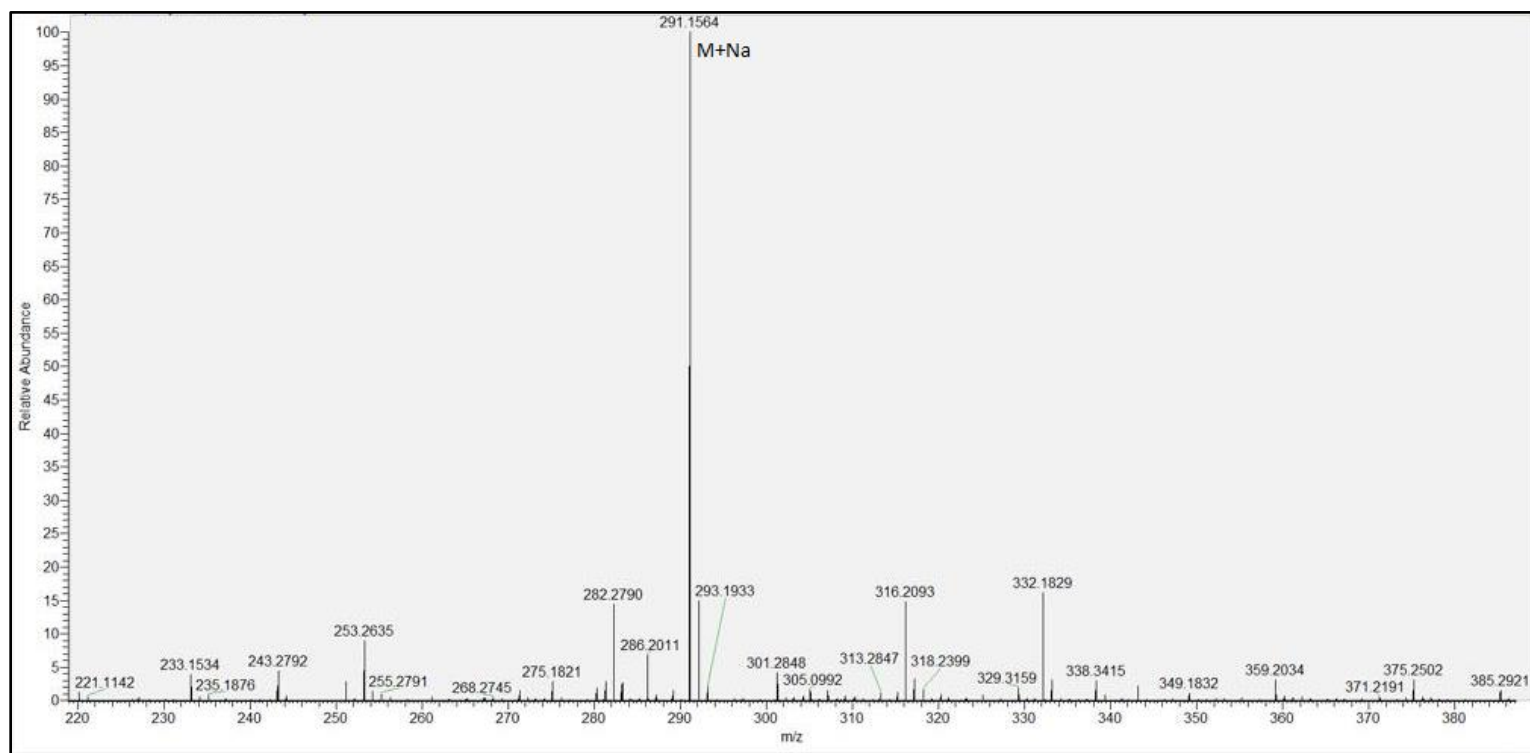
**Figure S5:** HSQC spectrum of Vulgarin (1)



**Figure S6:** HMBC spectrum of Vulgarin (**1**)



## NMR spectra of first metabolite (2)



**Figure S7:** HRESIMS spectrum of (2)

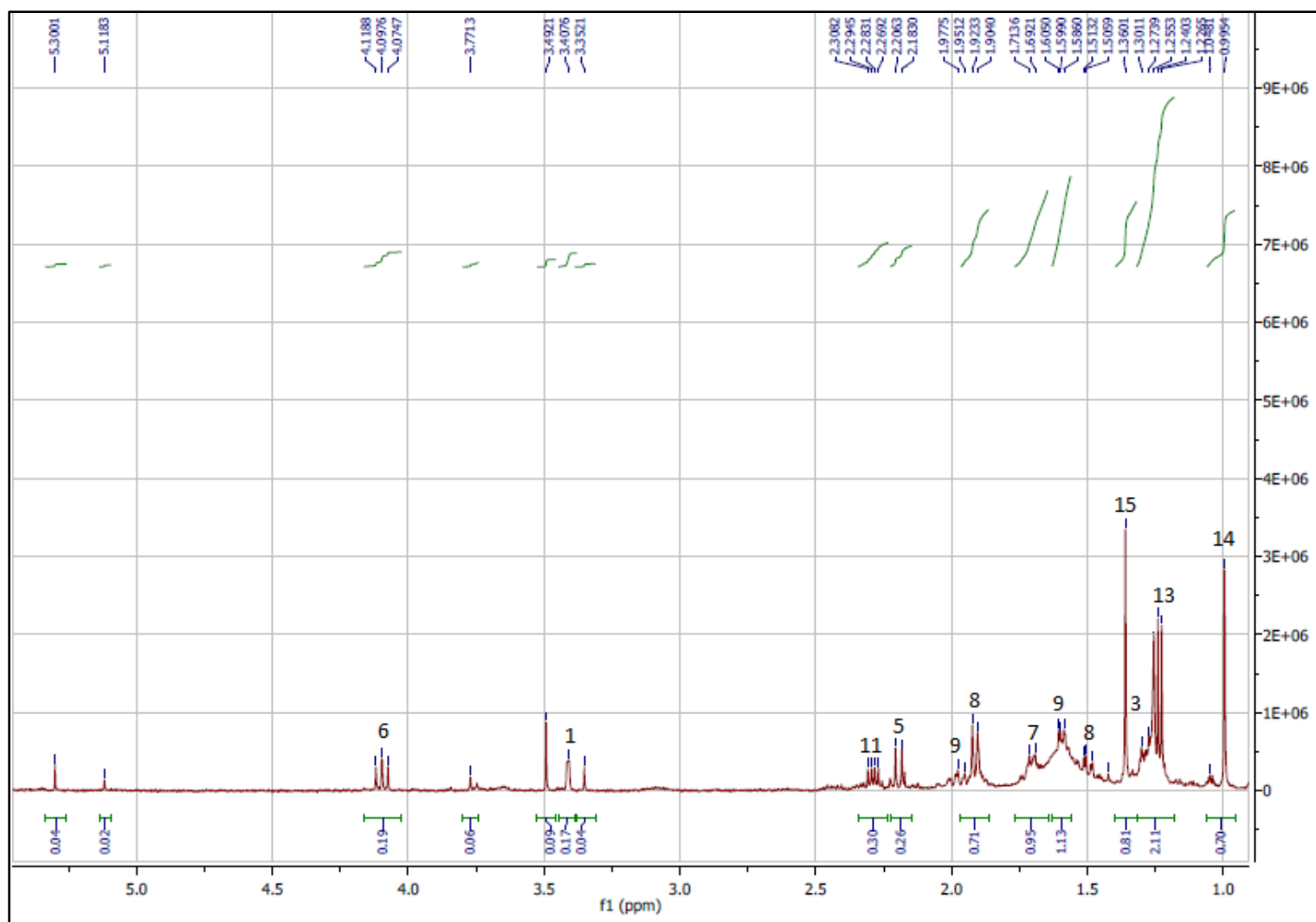
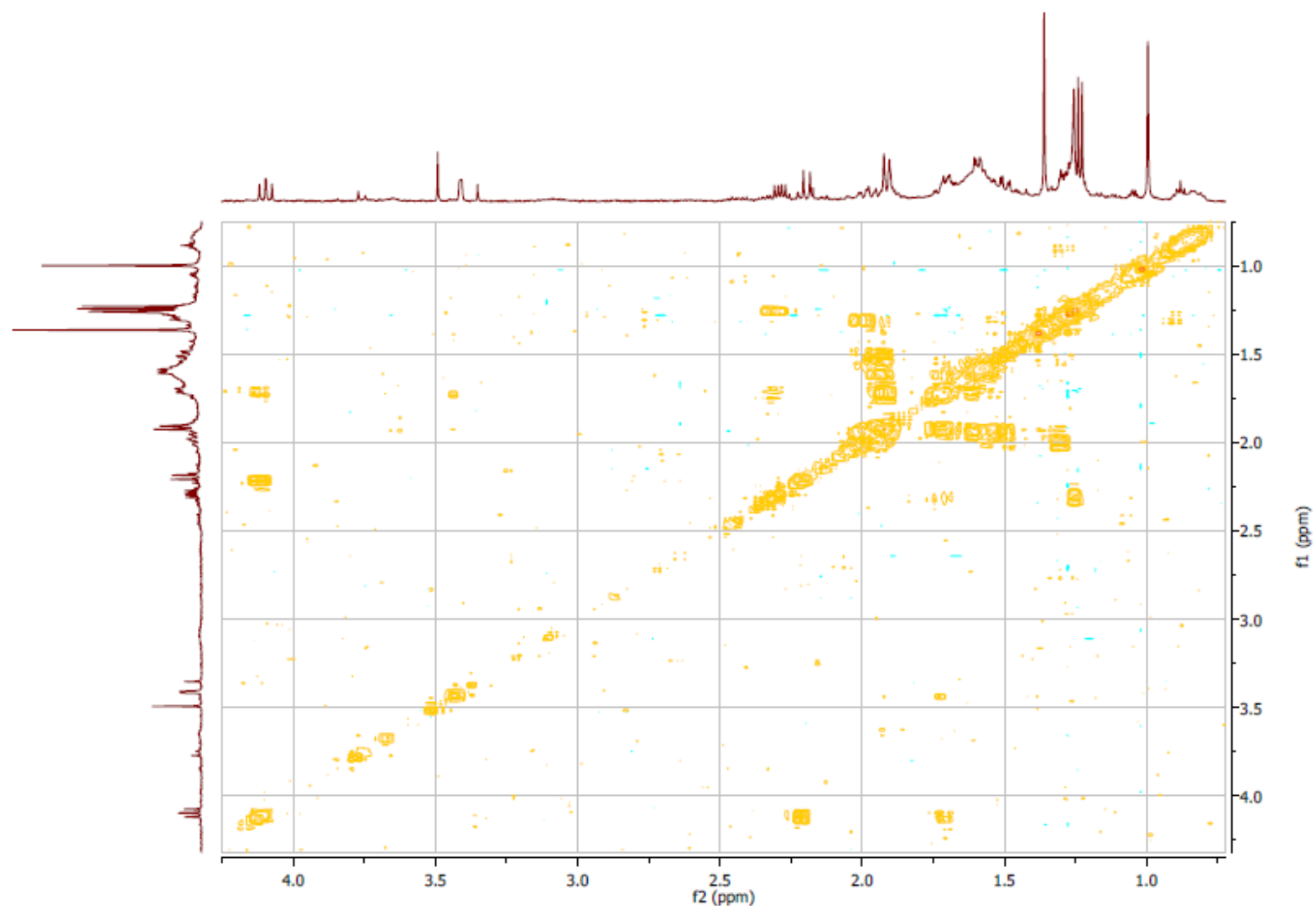


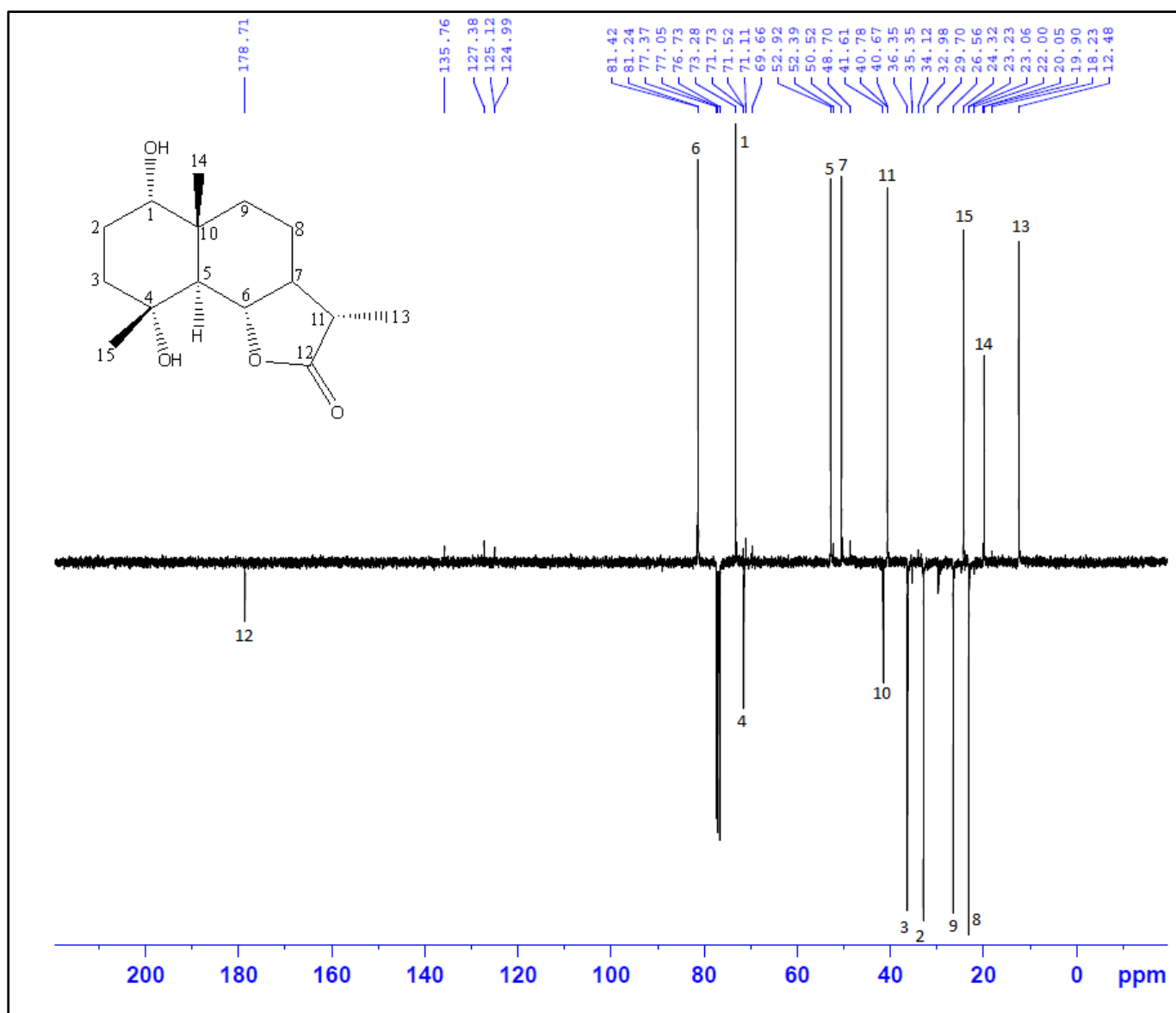
Figure S8:  $^1\text{H}$ -NMR spectrum of (2) ( $\text{CDCl}_3$ , 500 MHz).



**Figure S9:** COSY spectrum of (2)



**Figure 10:** NOESY spectrum of (2)



**Figure S11:**  $^{13}\text{C}$ -NMR spectrum of (2) ( $\text{CDCl}_3$ , 125 MHz).

### NMR spectra of second metabolite (3)

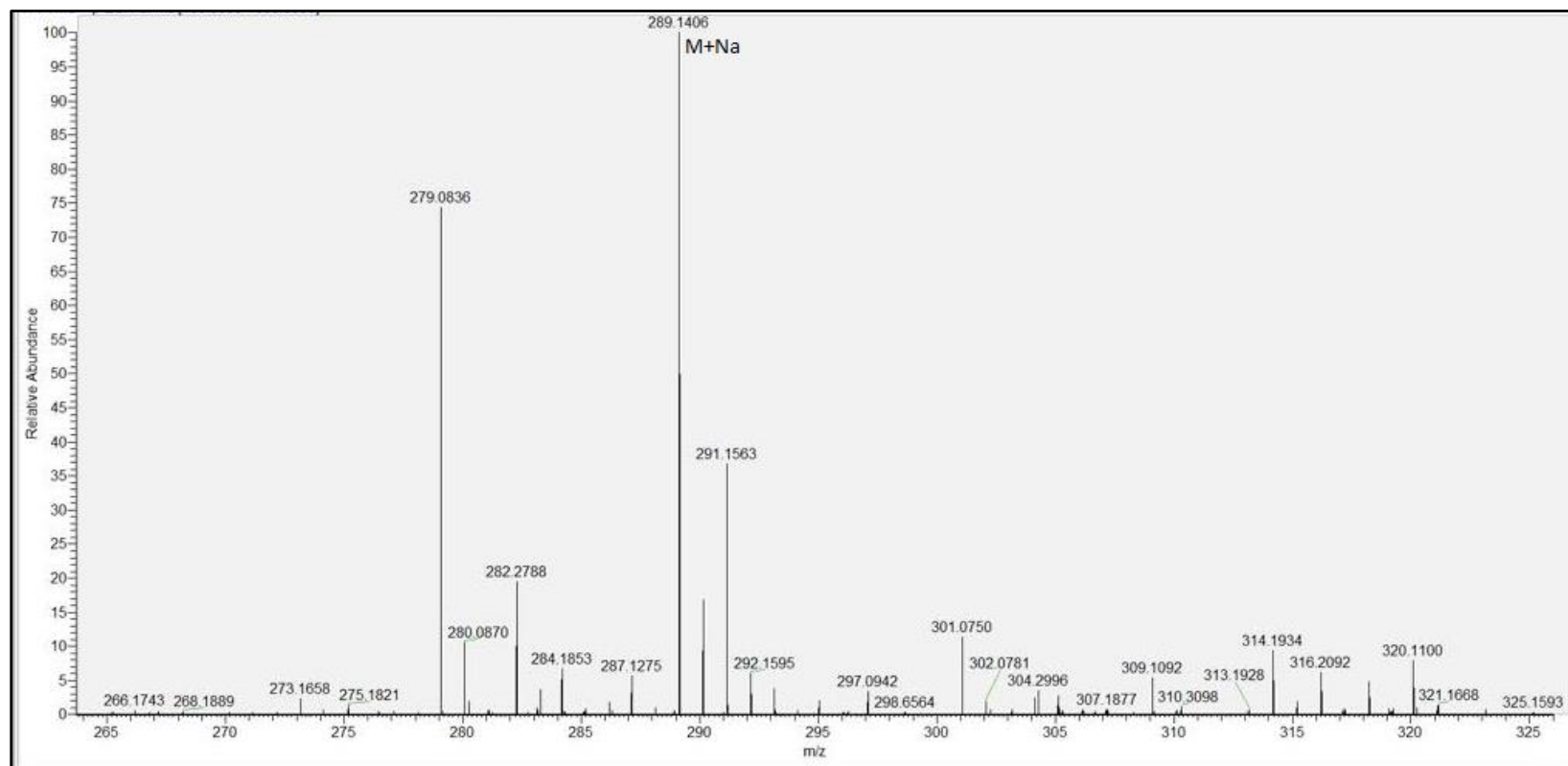
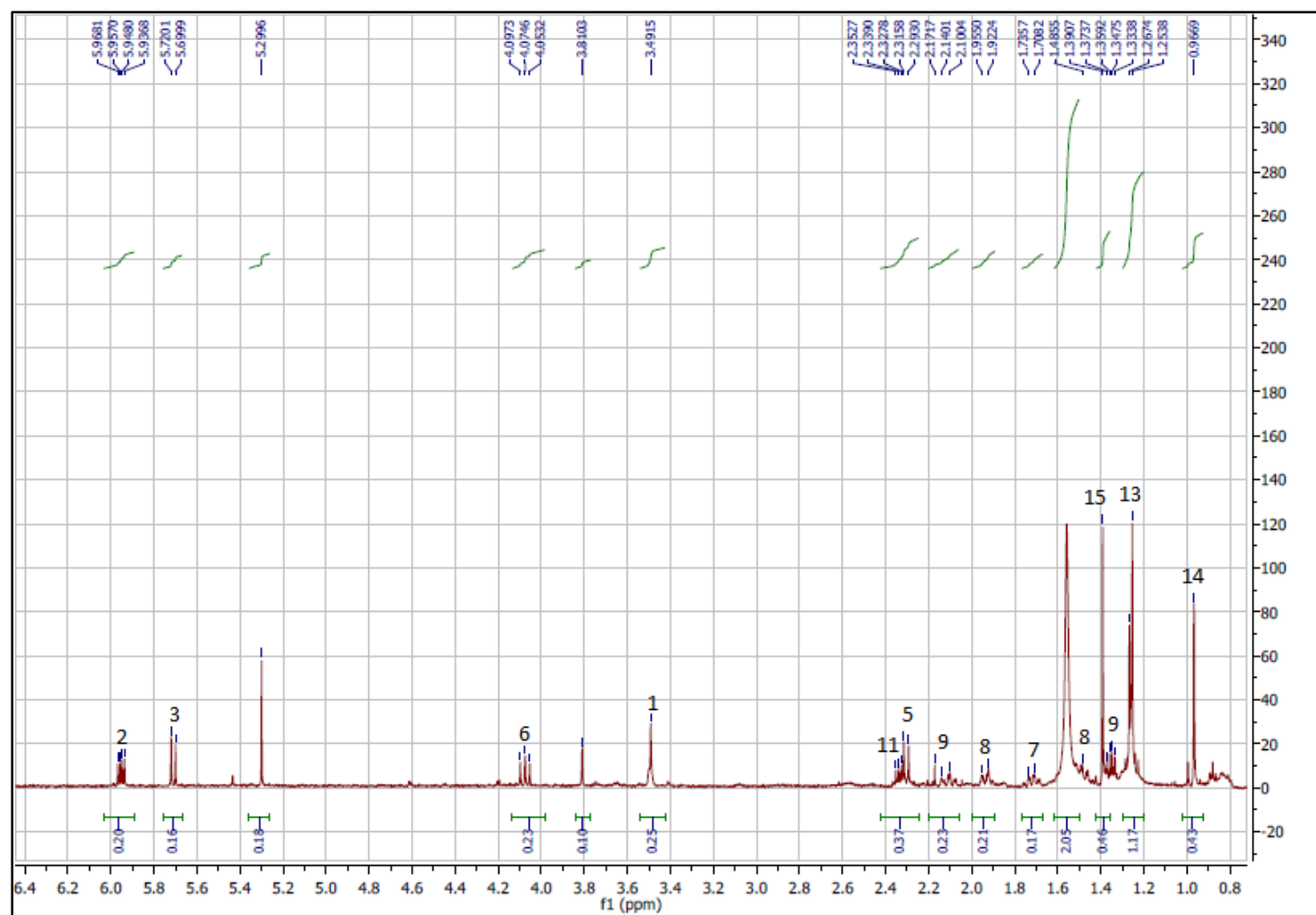
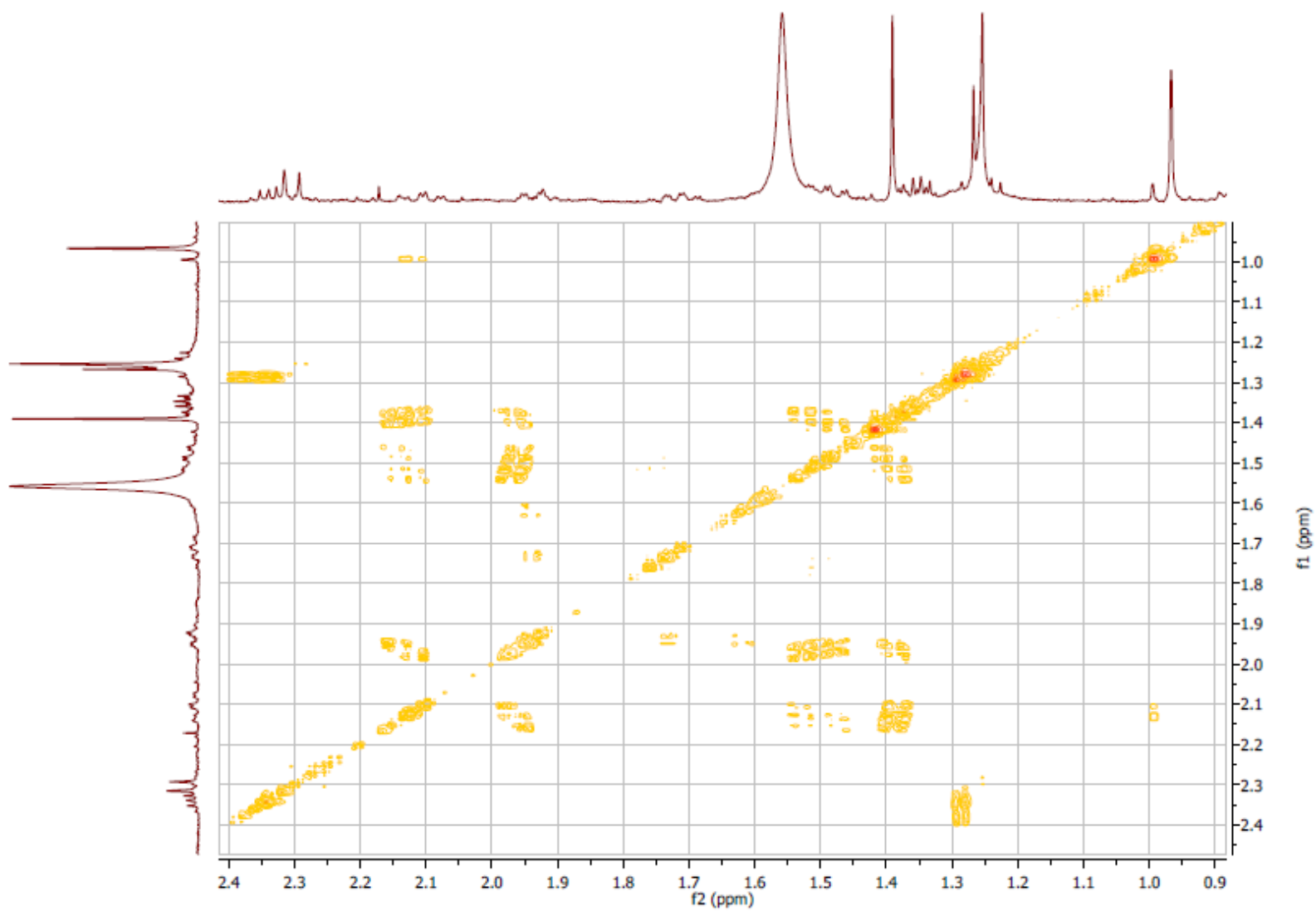


Figure S12: HRESIMS spectrum of (3a)

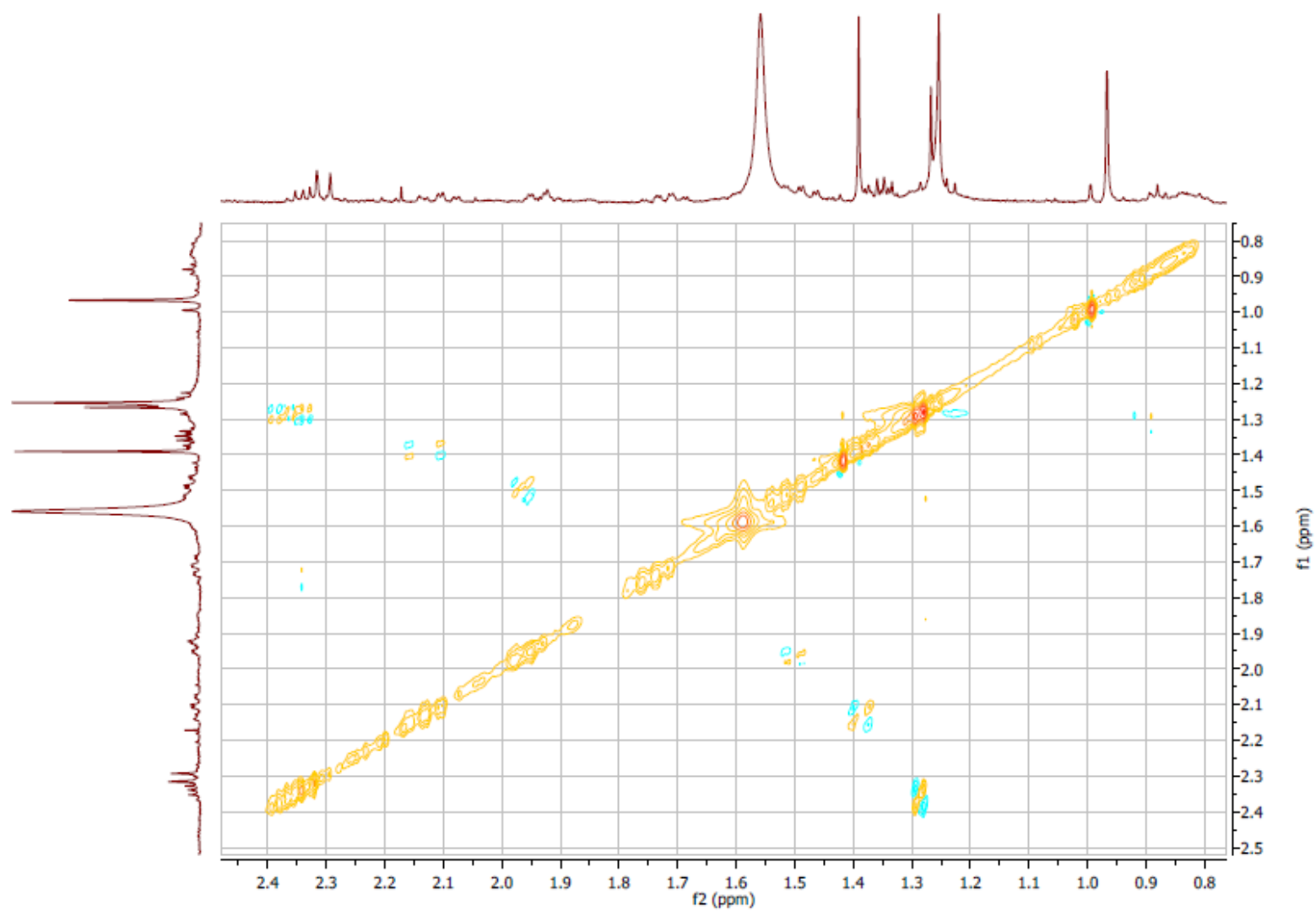


**Figure S13:**  $^1\text{H}$ -NMR spectrum of (3a) ( $\text{CDCl}_3$ , 500MHz).

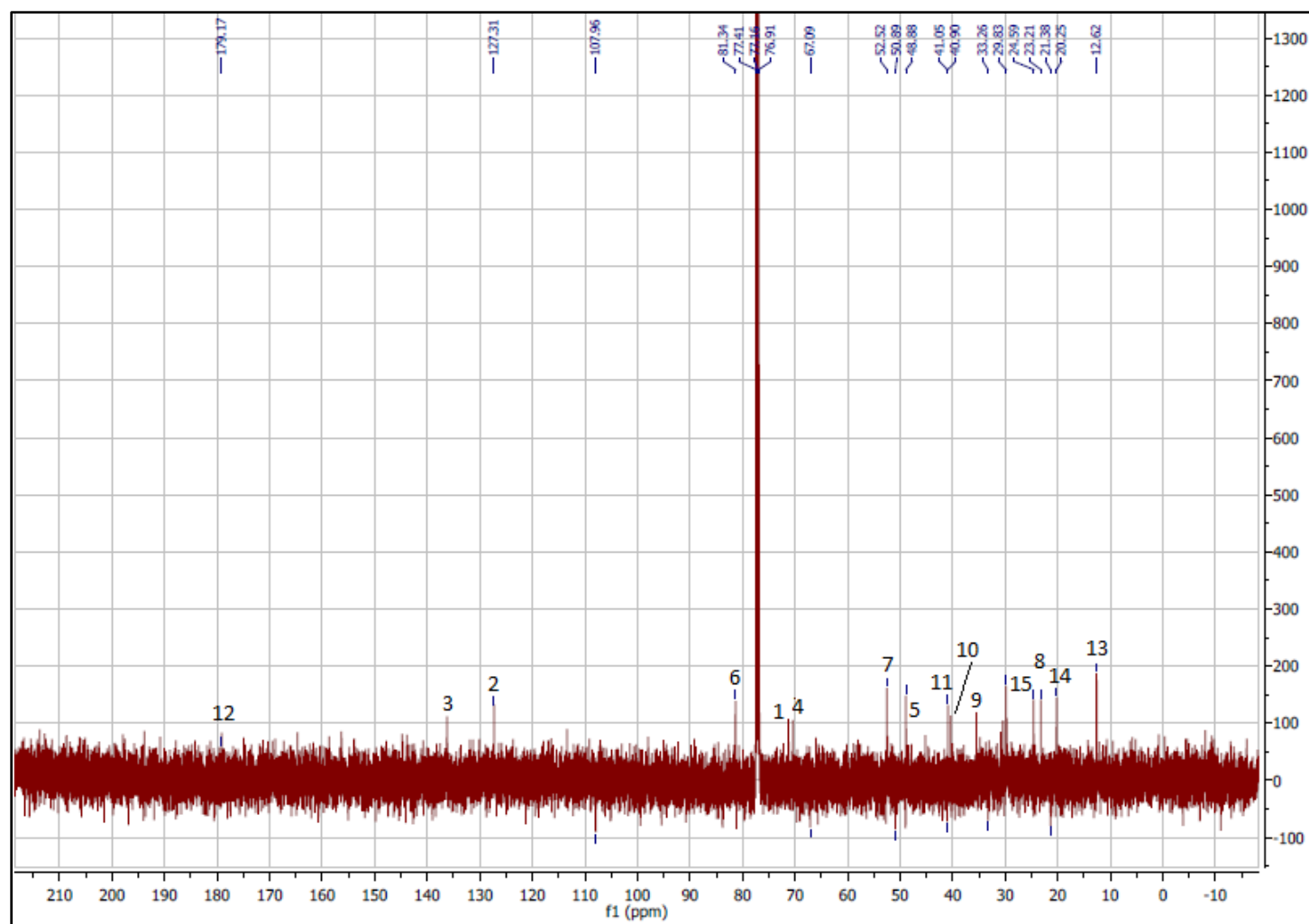


**Figure S14:** COSY spectrum of (3a)

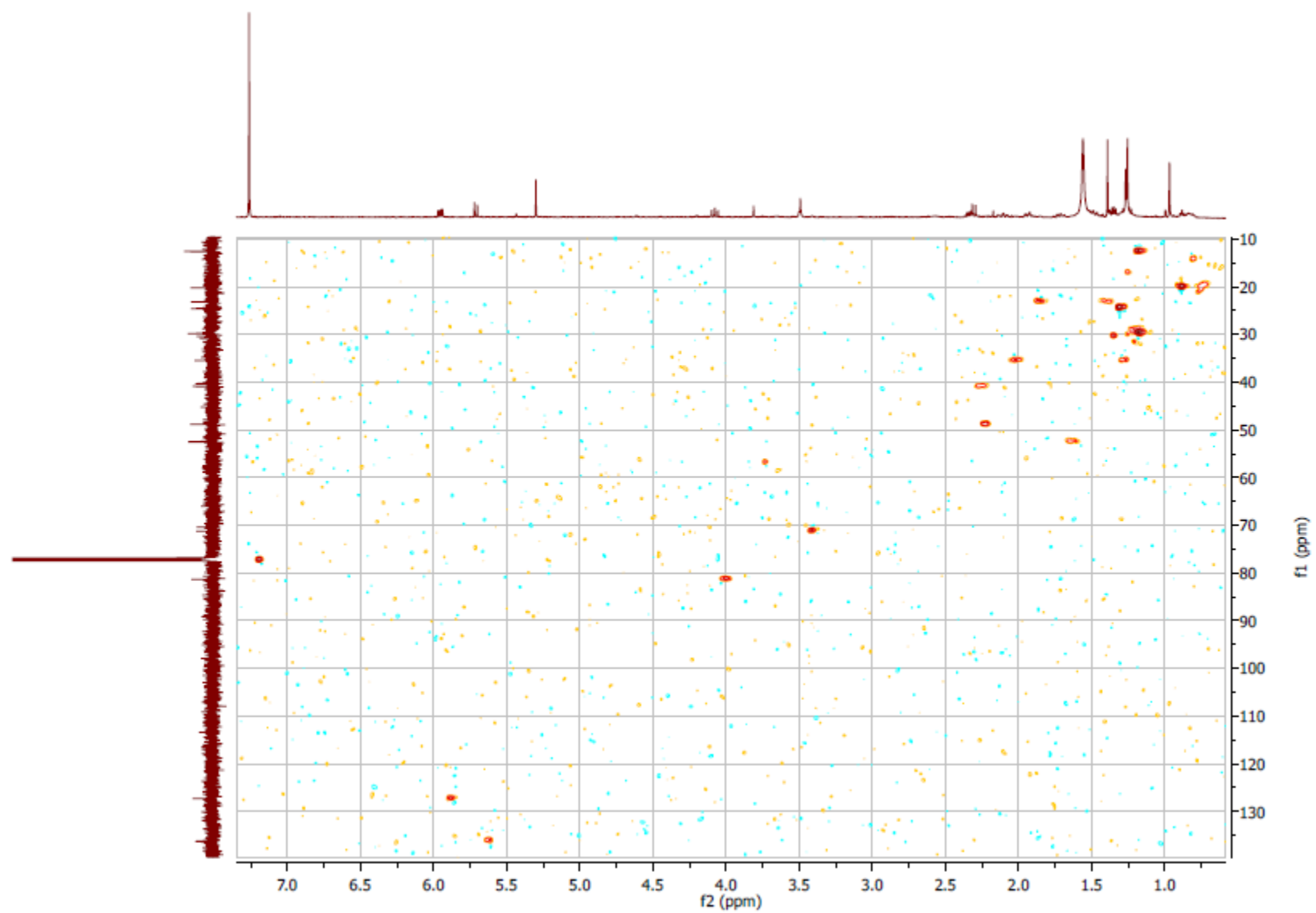




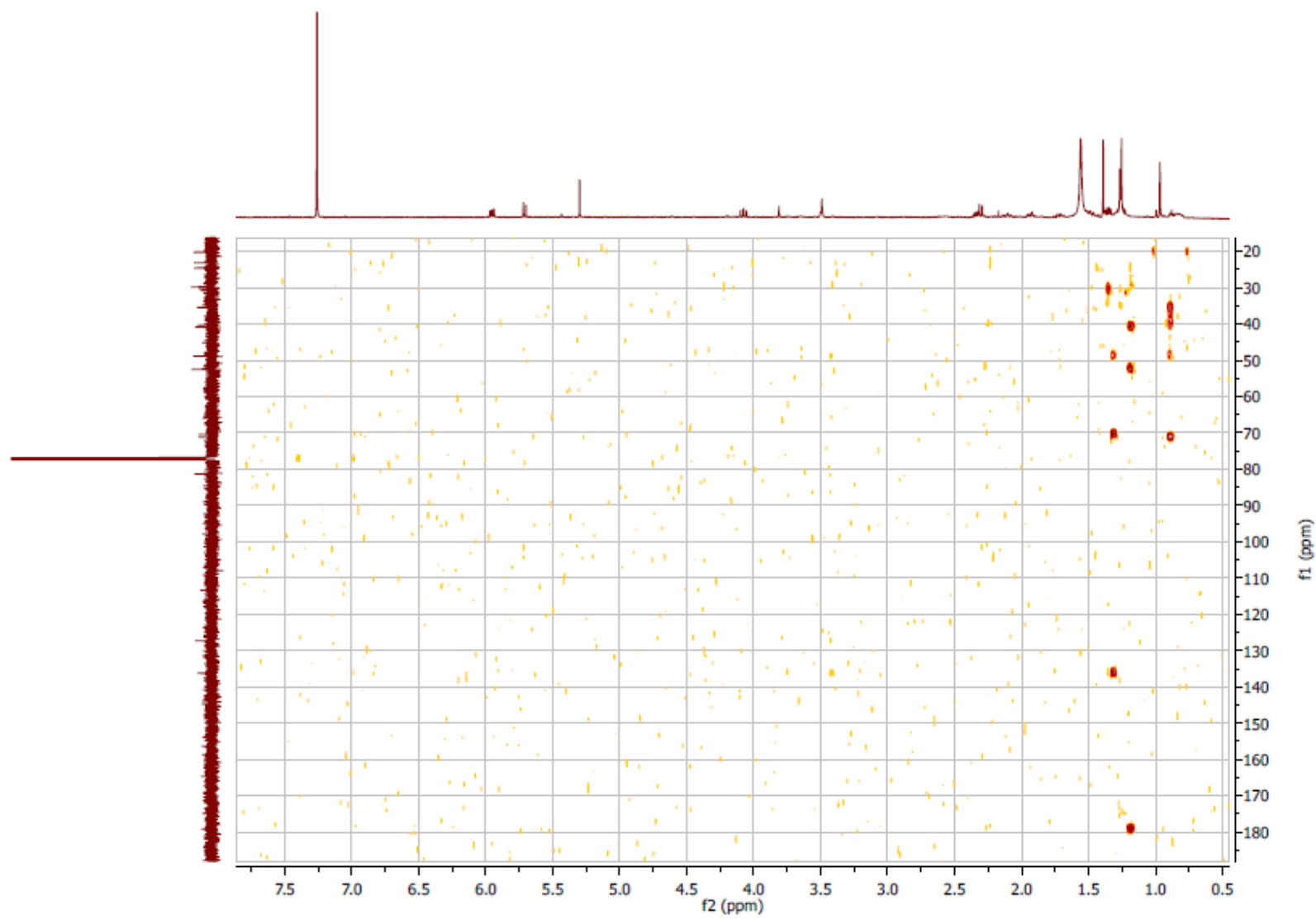
**Figure S15:** NOESY spectrum of (3a)



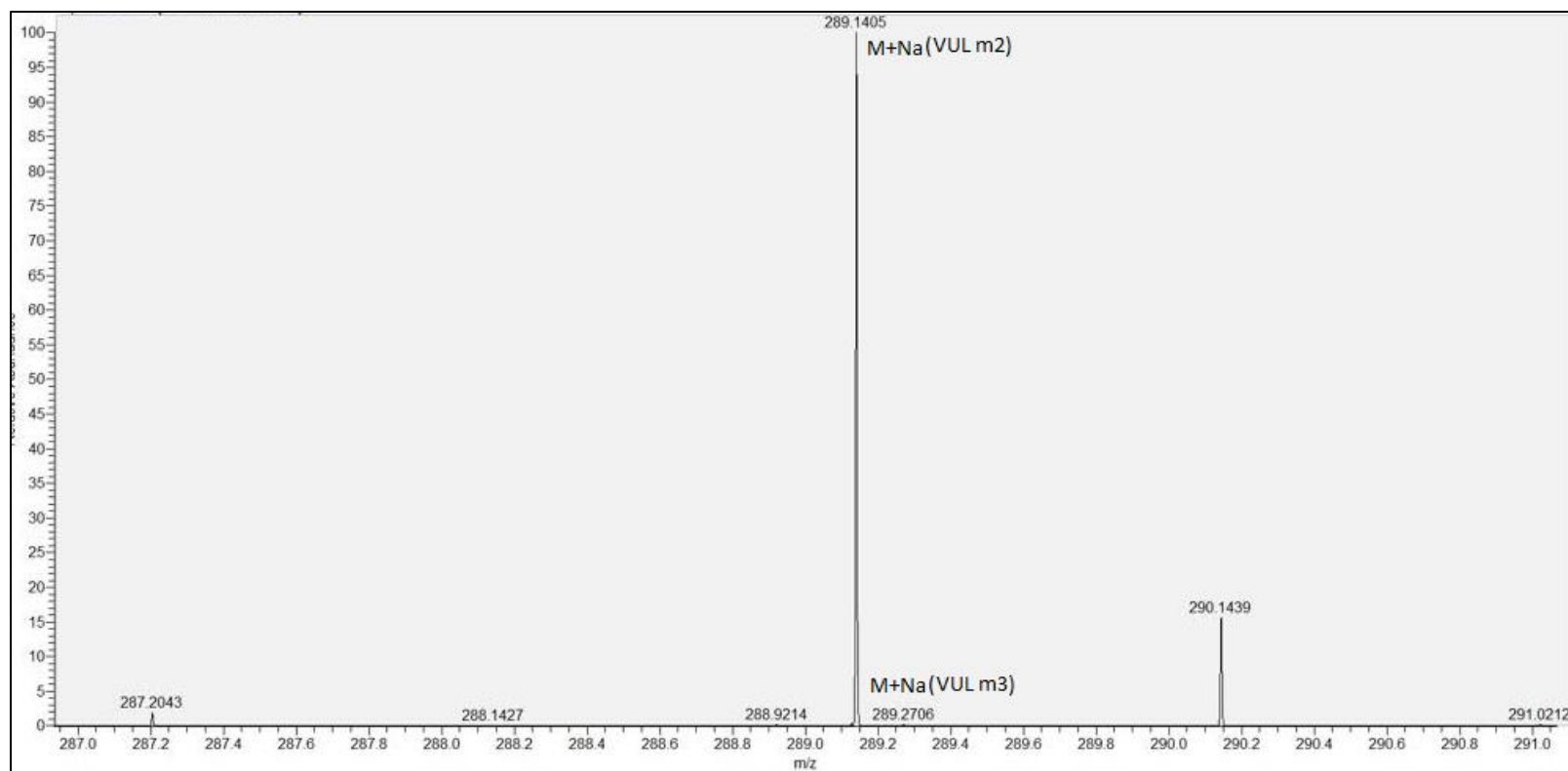
**Figure S16:**  $^{13}\text{C}$ -NMR spectrum of (3a) ( $\text{CDCl}_3$ , 125 MHz).



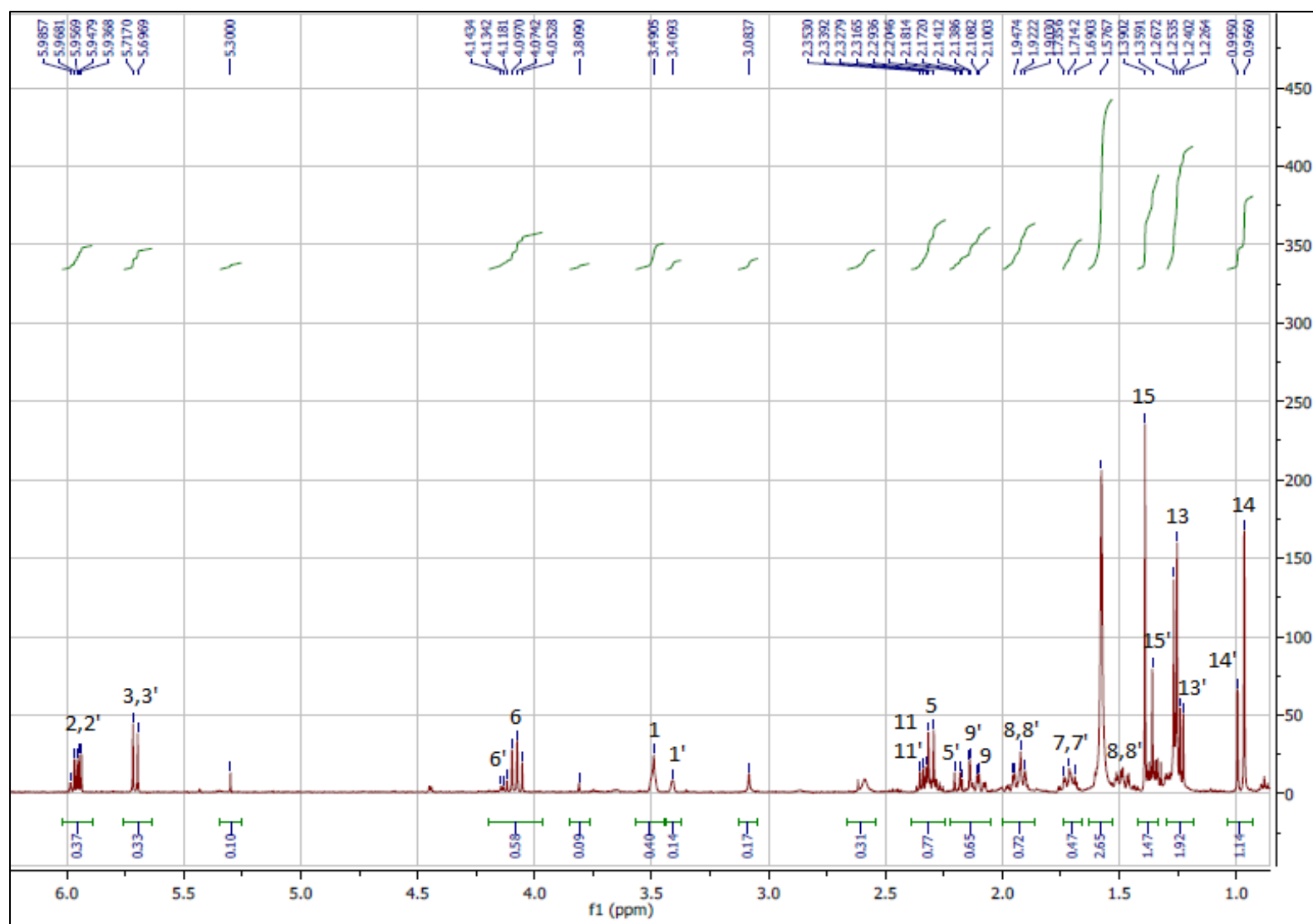
**Figure S17:** HSQC spectrum of (3a)



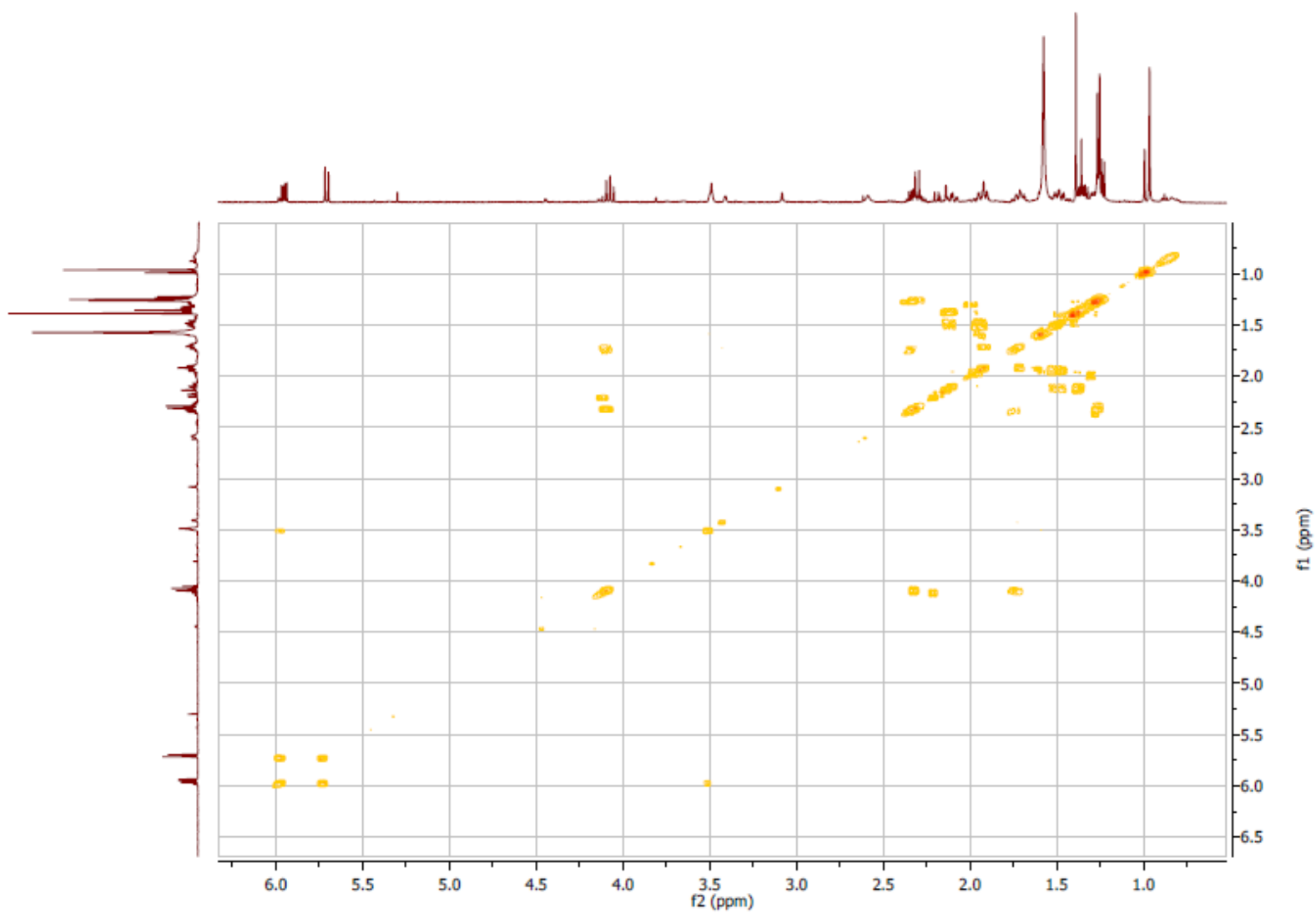
**Figure S18:** HMBC spectrum of (3a)



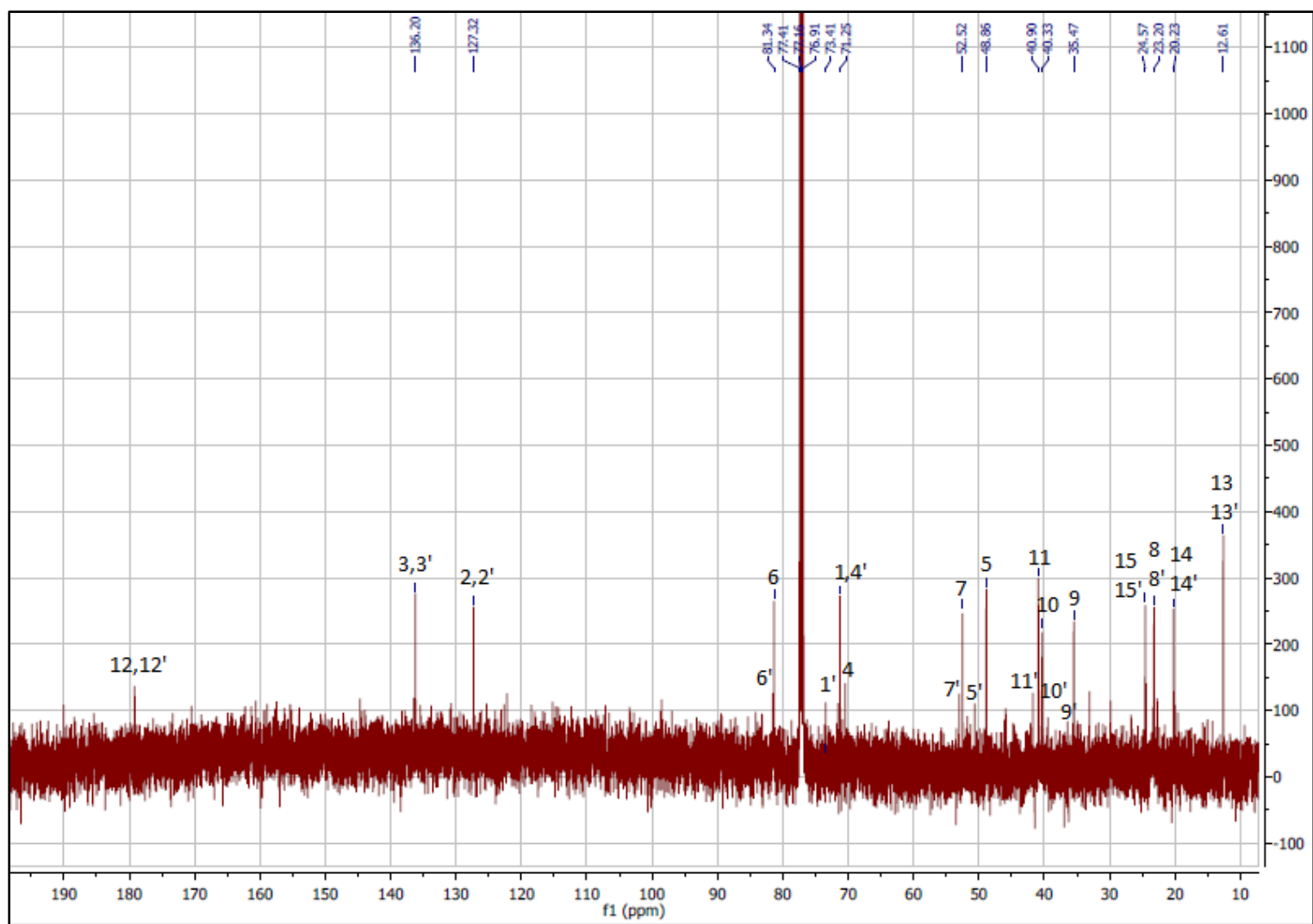
**Figure S19:** HRESIMS spectrum of (3a, b)



**Figure S20:**  $^1\text{H}$ -NMR spectrum of (3a,b) ( $\text{CDCl}_3$ , 500 MHz).

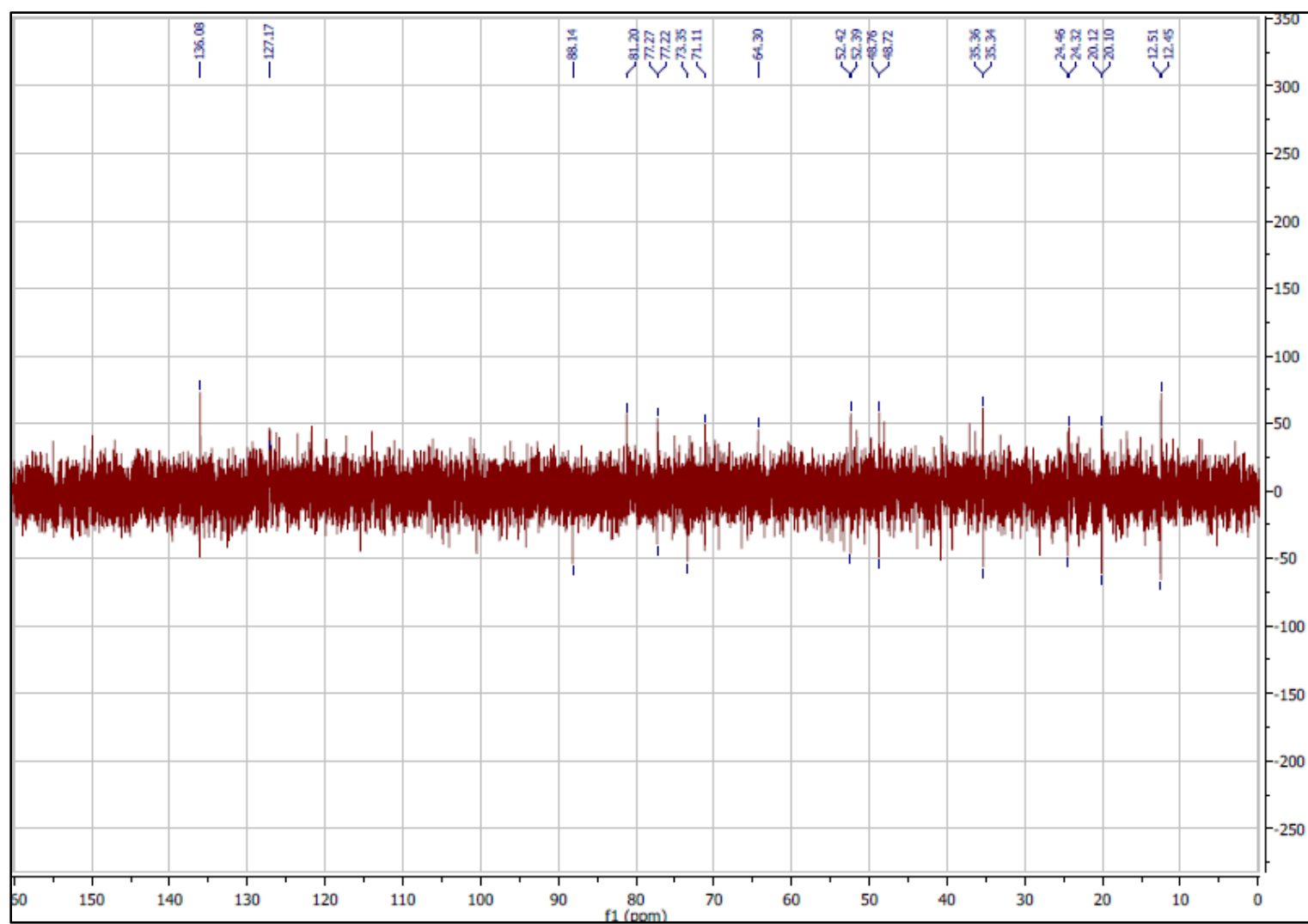


**Figure S21:** COSY spectrum of (3a,b)

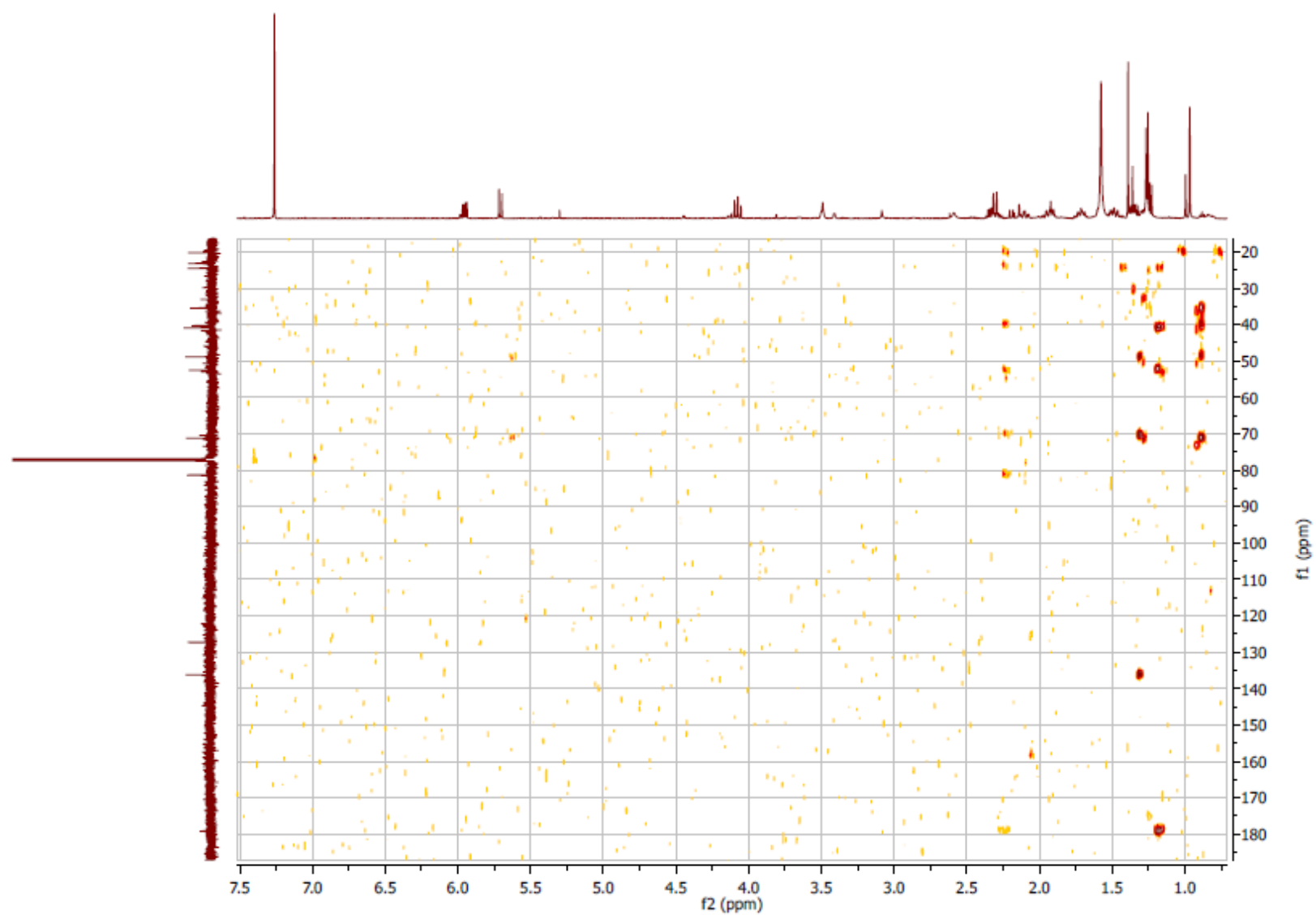


**Figure S22:**  $^{13}\text{C}$ -NMR spectrum of (3a,b) ( $\text{CDCl}_3$ , 125 MHz).

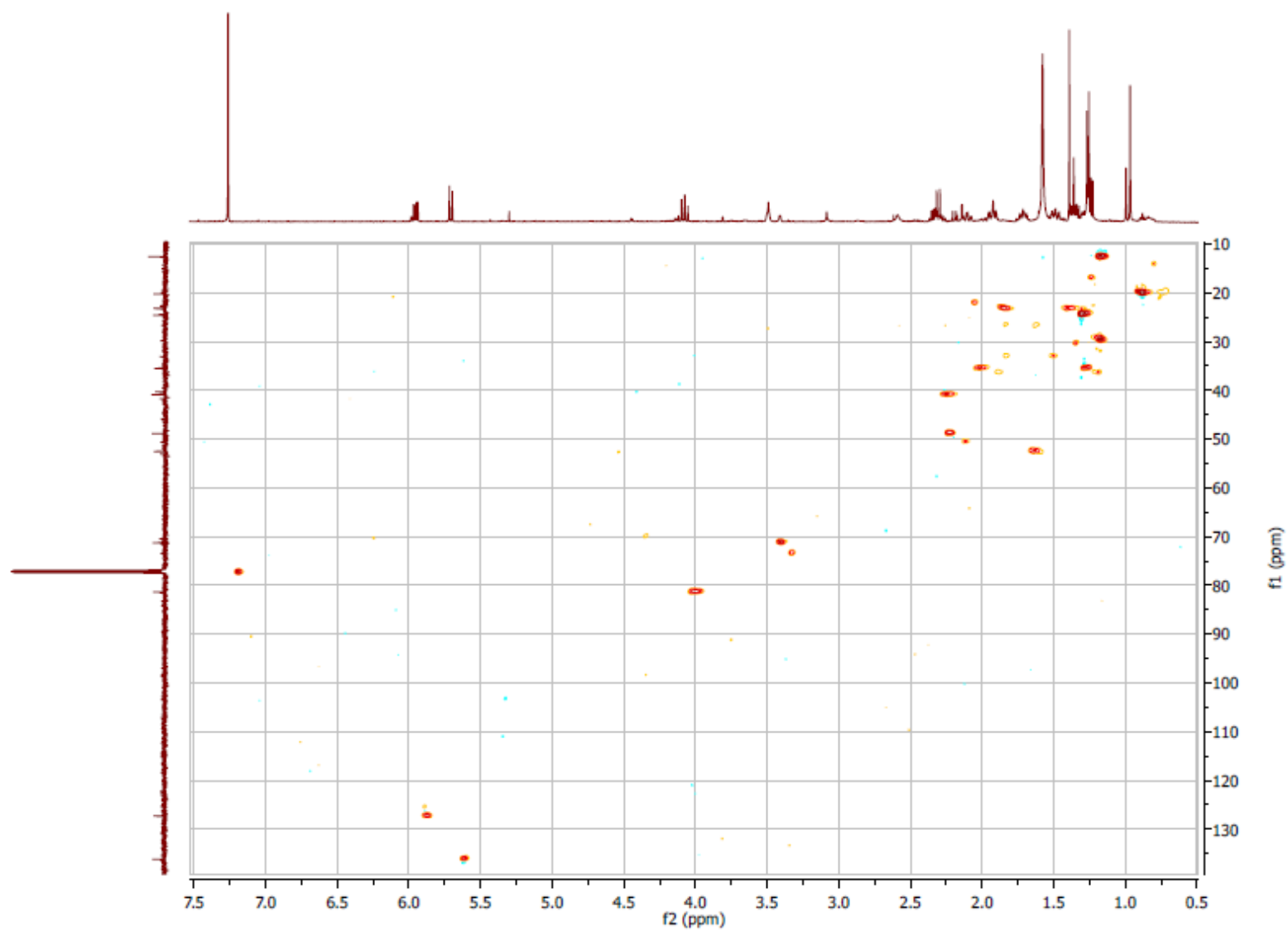




**Figure S23:** DEPT 135 spectrum of (3a,b)



**Figure S24:** HMBC spectrum of (3a,b)



**Figure S25:** HSQC spectrum of (3a,b)