

## Manuscript of Valérie Jullian

**Title:** Bolivianine, a new sesterpene with an unusual skeleton from *Hedyosmum angustifolium*, and its isomer, isobolivianine

### Supporting informations:

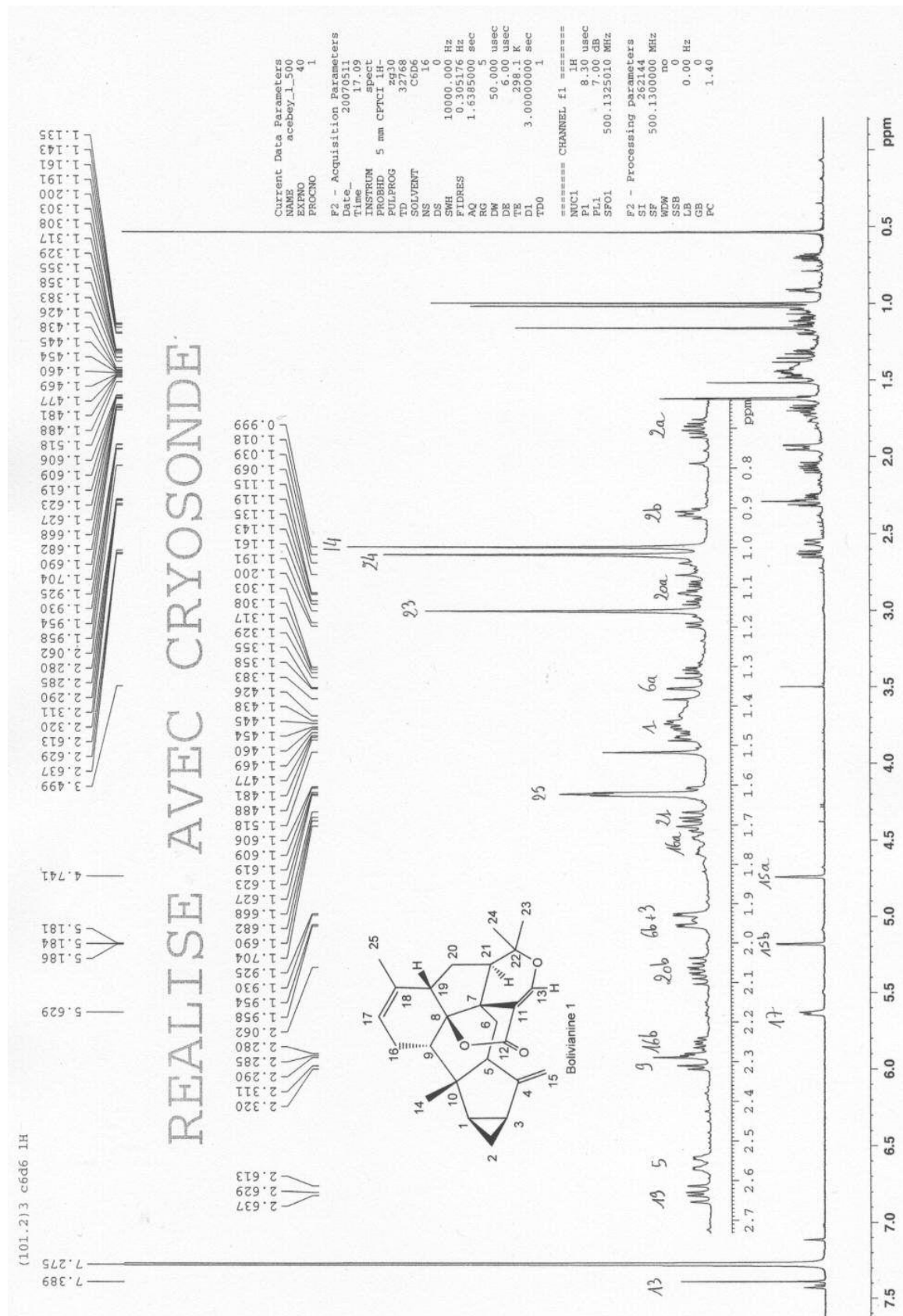
#### Spectra:

- p. S2: **Supporting information 1:**  $^1\text{H}$  spectra of Bolivianine 500 MHz,  $\text{C}_6\text{D}_6$
- p. S3: **Supporting information 2:**  $^{13}\text{C}$  spectra of Bolivianine, 125 MHz,  $\text{C}_6\text{D}_6$
- p. S4: **Supporting information 3:** HSQC spectra of Bolivianine  $\text{C}_6\text{D}_6$
- p. S5: **Supporting information 4:** COSY spectra of Bolivianine  $\text{C}_6\text{D}_6$  (enlargement of the most interesting part)
- p. S6: **Supporting information 5:** HMBC spectra of Bolivianine  $\text{C}_6\text{D}_6$
- p. S7: **Supporting information 6:** HMBC spectra of Bolivianine  $\text{C}_6\text{D}_6$  (enlargement)
- p. S8: **Supporting information 7:** NOESY spectra of Bolivianine  $\text{C}_6\text{D}_6$  (enlargement of the most interesting part)
- p. S9: **Supporting information 8:**  $^1\text{H}$  spectra of Isobolivianine 500 MHz,  $\text{CDCl}_3$  + TMS
- p. S10: **Supporting information 9:**  $^{13}\text{C}$  spectra of Isobolivianine, 125 MHz,  $\text{CDCl}_3$  +TMS
- p. S11: **Supporting information 10:** HSQC spectra of Isobolivianine  $\text{CDCl}_3$
- p. S12: **Supporting information 11:** COSY spectra of Isobolivianine  $\text{CDCl}_3$  (enlargement of the most interesting part)
- p. S13: **Supporting information 12:** HMBC spectra of Isobolivianine  $\text{CDCl}_3$
- p. S14: **Supporting information 13:** HMBC spectra of Isobolivianine  $\text{CDCl}_3$  (enlargement)
- p. S15: **Supporting information 14:** NOESY spectra of Isobolivianine  $\text{CDCl}_3$  (enlargement of the most interesting part)

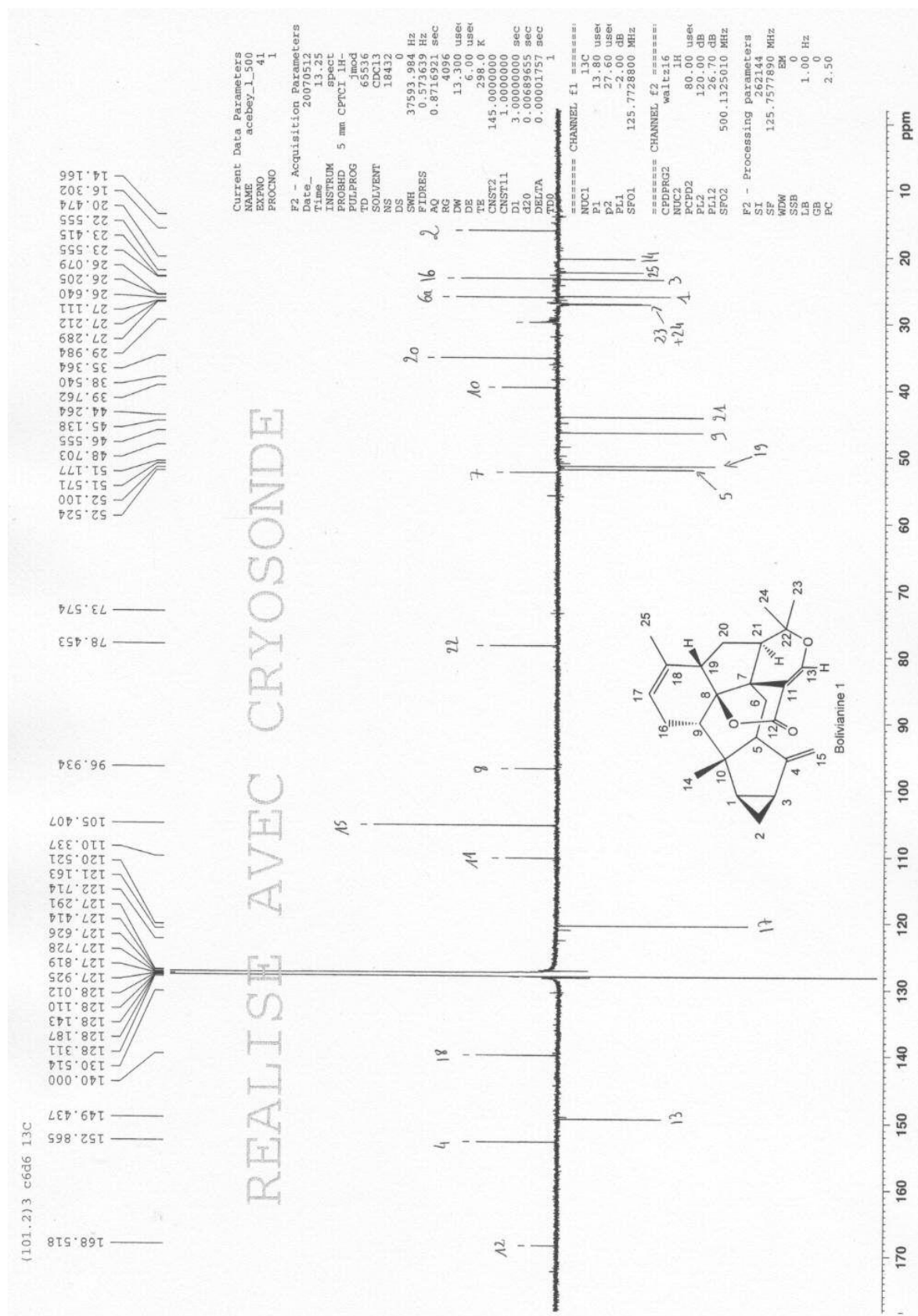
#### Obtention of Bolivianine and Isobolivianine :

- p. S16: **Supporting information S15:** Purification scheme for Bolivianine, from 1 kg *H. angustifolium* trunk bark.
- p. S17: **Supporting information S16:** Experimental procedure for the isomerization of Bolivianine into Isobolivianine

**Supporting information S17:** Biological evaluation for Bolivianine (1) and isobolivianine (2)



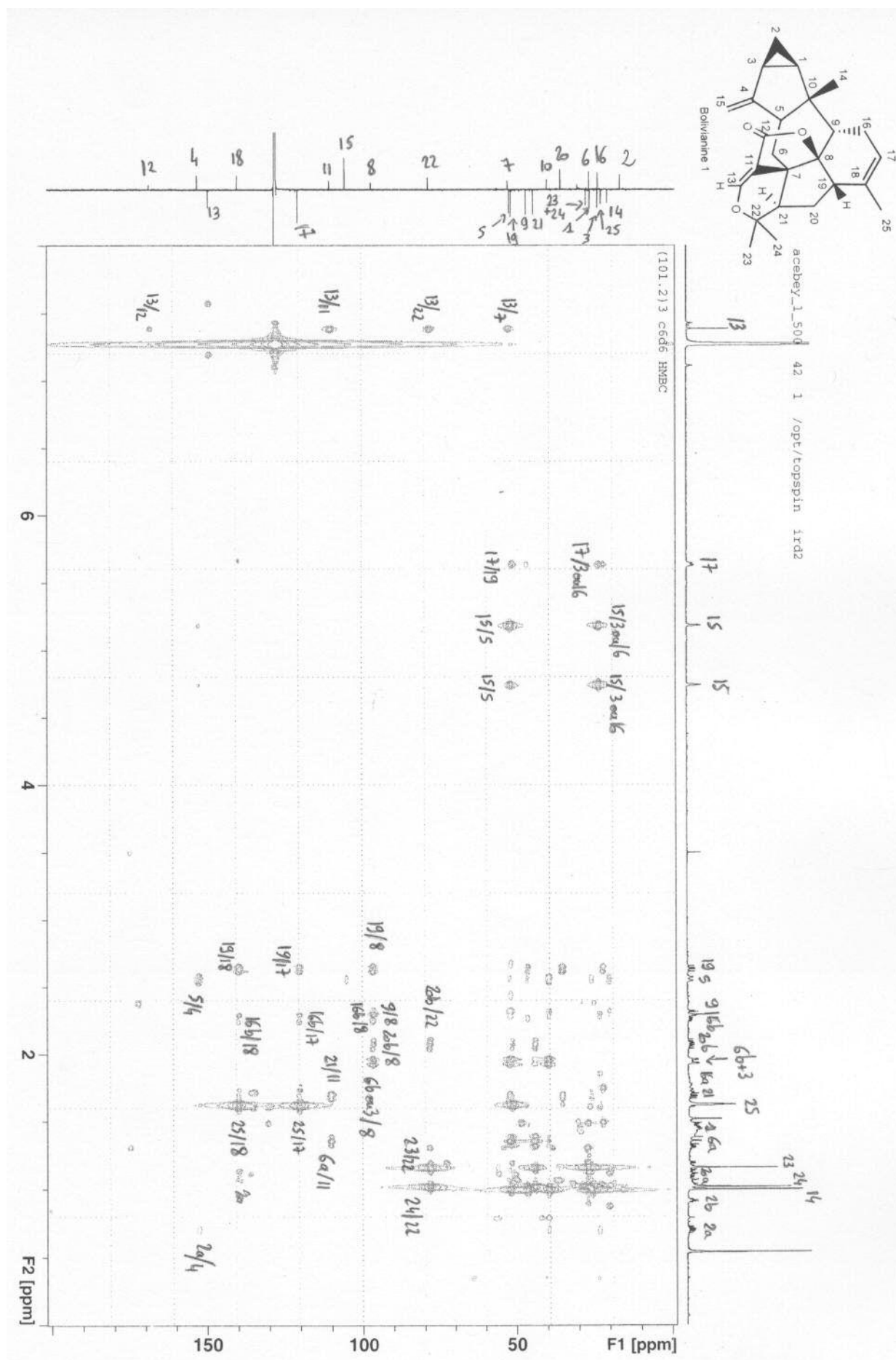
Supporting information 1:  $^1\text{H}$  Bolivianine 500 MHz,  $\text{C}_6\text{D}_6$



Supporting information 2:  $^{13}\text{C}$  spectra of Bolivianine, 125 MHz,  $\text{C}_6\text{D}_6$







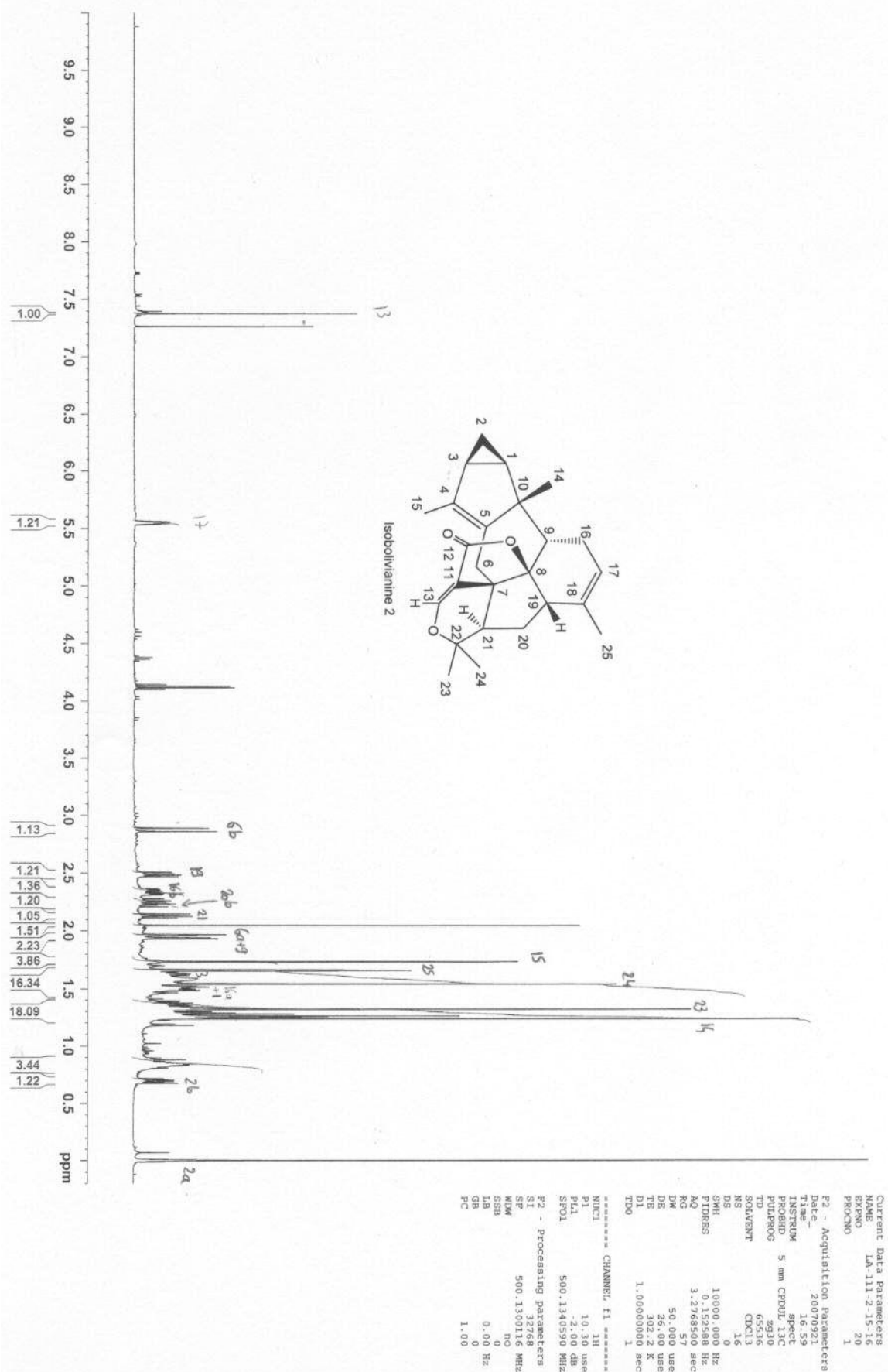
Supporting information 5: HMBC spectra of Bolivianine  $\text{C}_6\text{D}_6$









Supporting information 8: <sup>1</sup>H spectra of Isobolivialanine 500 MHz, CDCl<sub>3</sub> + TMS

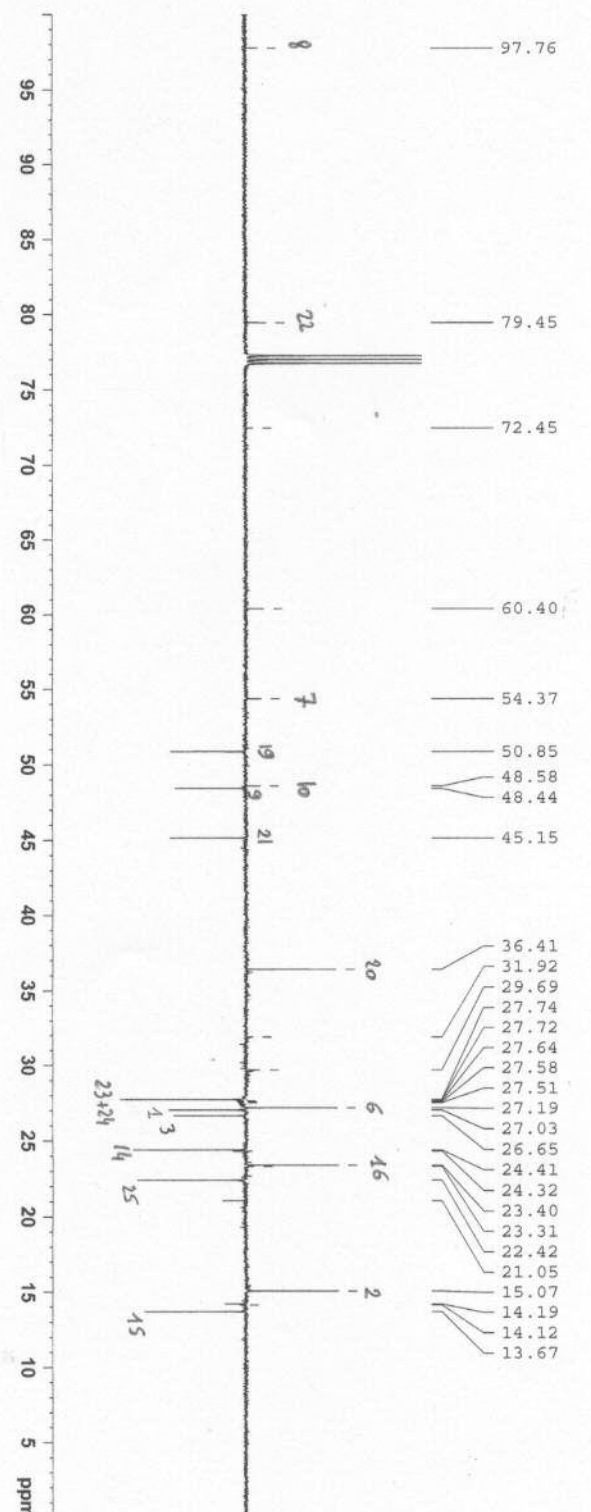
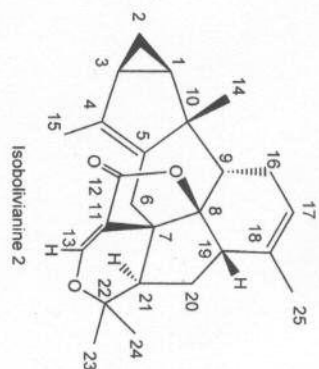
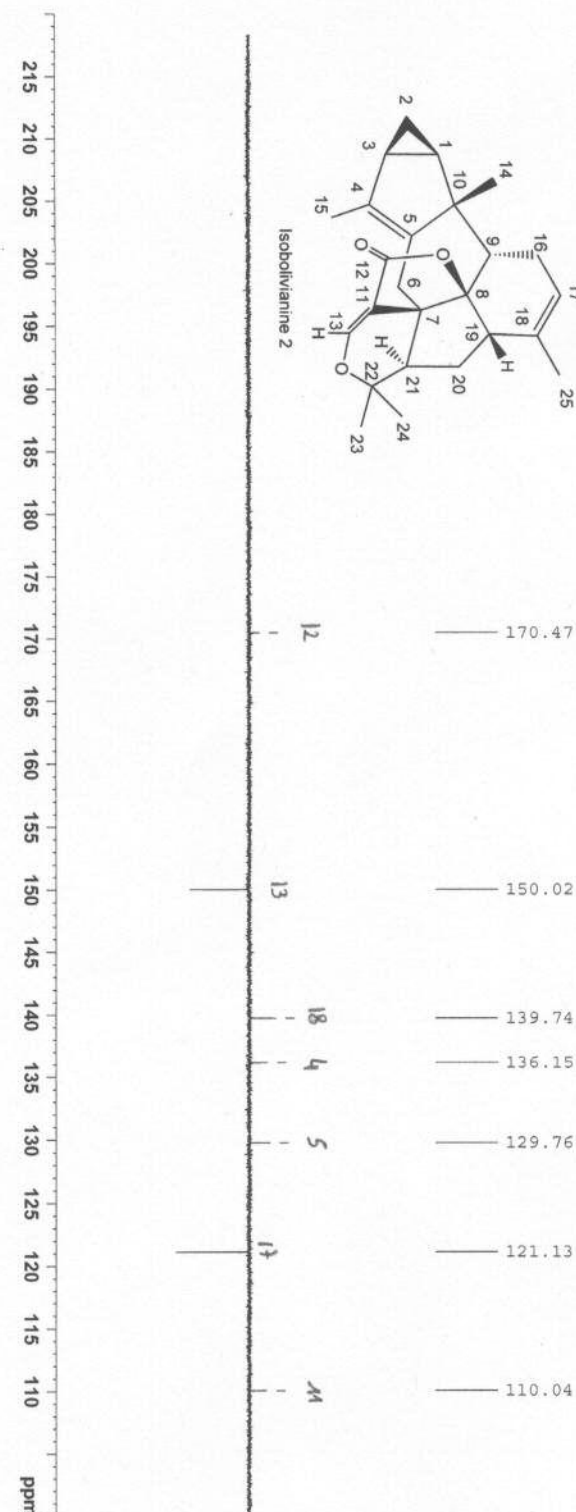


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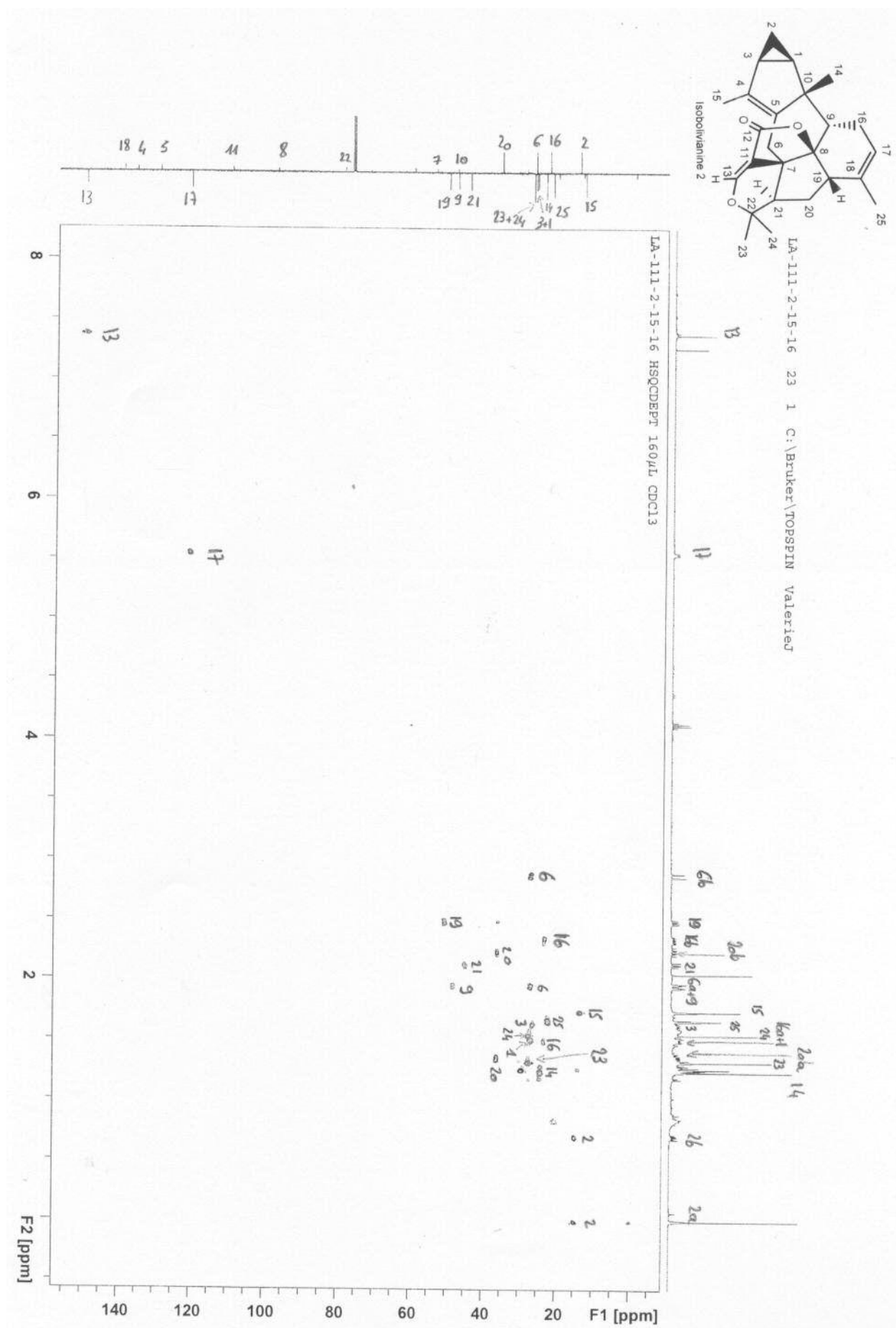
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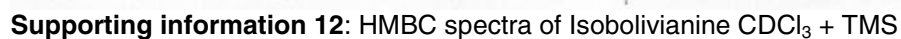


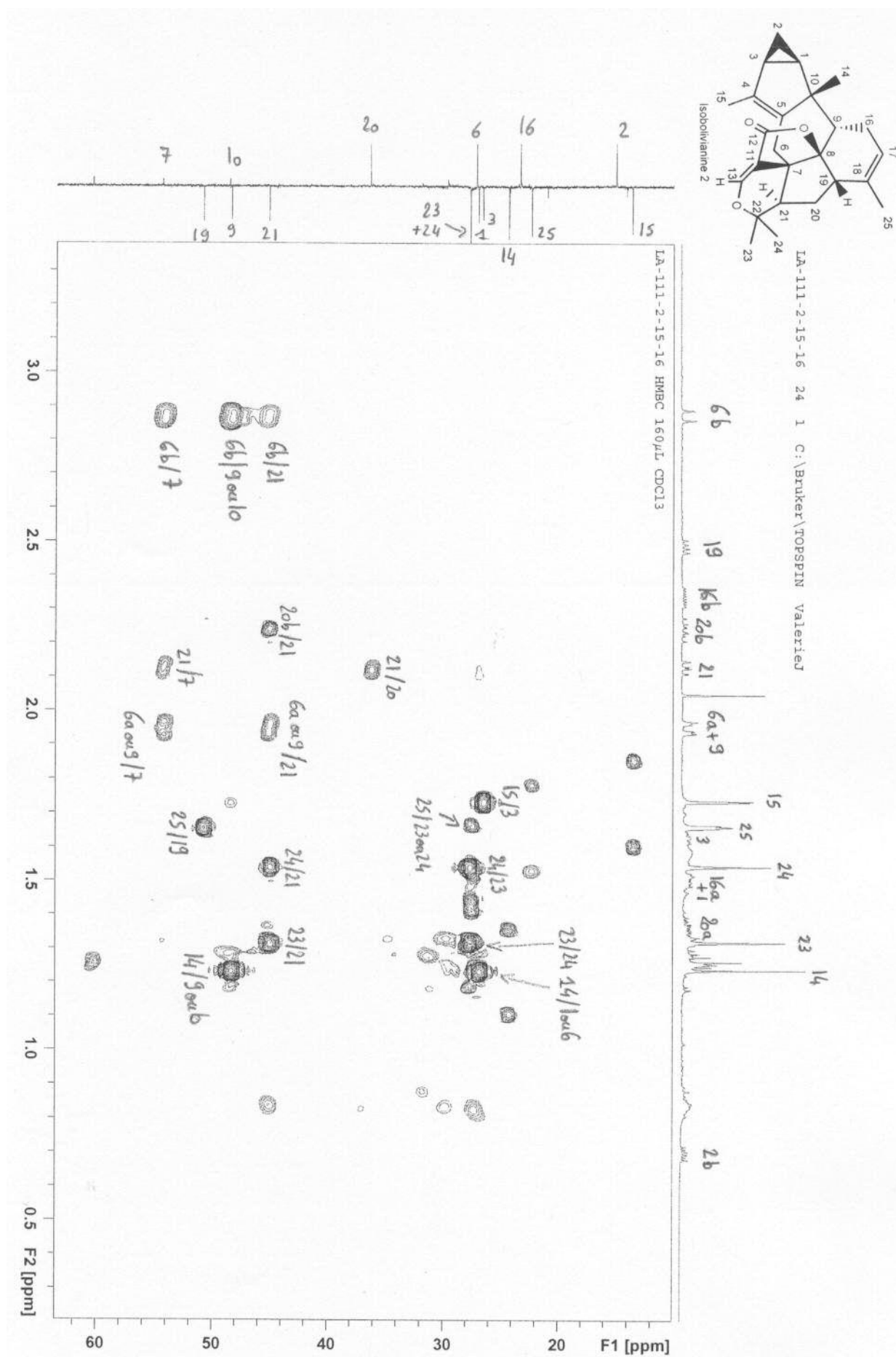
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 P16 1500.00 use  
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Supporting information 9:  $^{13}\text{C}$  spectra of Isobolivanine, 125 MHz,  $\text{CDCl}_3$  + TMS



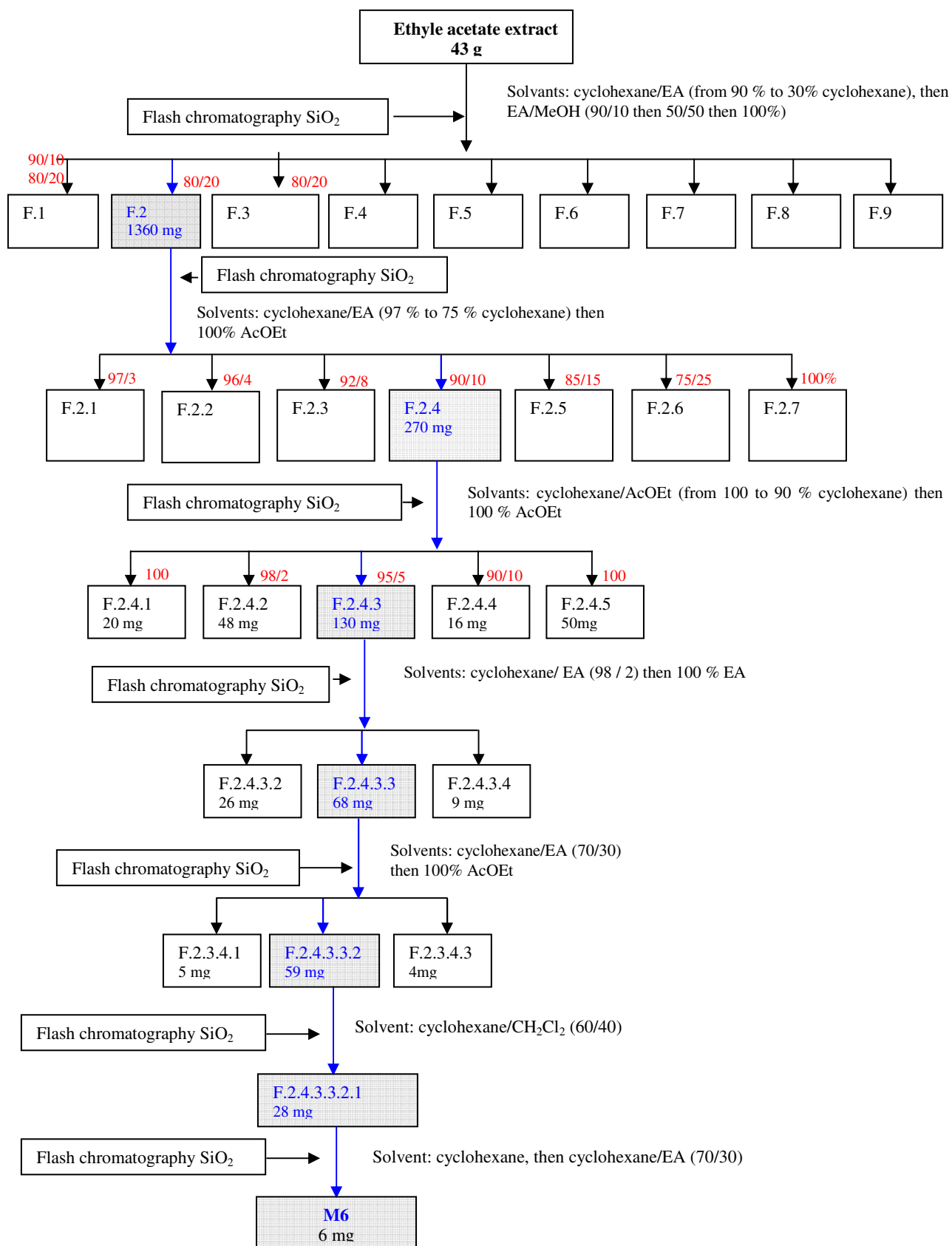












**Supporting information 15:** Purification scheme for Bolivianine, from 1Kg of *H. Angustifolium* trunk bark

**Supporting information 16:** Experimental procedure for the isomerization of bolivianine into isobolivianine

Bolivianine (2 mg) was dissolved in 600  $\mu$ L of deuterated chloroform. Then, the solvent was removed under reduced pressure at 40°C. After 18 hours, a mixture of 80% Isobolivianine and 20% Bolivianine was obtained. After 72 hours at 40°C, without solvent, under atmospheric pressure, the isomerization was complete. Isomerization rate was determined by  $^1\text{H}$  NMR. After flash column chromatography (1g of silica gel, eluted with cyclohexane, then cyclohexane/ ethyl acetate 40/60) 0.6 mg of isobolivianine were obtained.

**Supporting information 17:** Biological evaluation for bolivianine (1) and isobolivianine (2)

The biological evaluations were performed on *Plasmodium falciparum* culture in vitro, and on MCF7, a mammalian tumoral cell line, following previously published procedure<sup>1</sup>, and the results are summarized in the table T1

**Table T1:** Biological activities ( $\text{IC}_{50}$ ,  $\mu\text{M}$ ) of the sesterpenes (1) and (2)

	<i>P. falciparum</i> (FCB1)	MCF7 Cell line
<b>1</b>	>60	37
<b>2</b>	>60	108
CQ <sup>a</sup>	0.145	
Dox <sup>b</sup>		0.4

<sup>a</sup> : CQ, chloroquine, positive control for *P. falciparum* inhibition

<sup>b</sup> : Dox, doxorubicine, positive control for MCF7 inhibition

(1) Jullian, V.; Bonduelle, C.; Valentin, A.; Acebey, L.; Duigou, A.-G.; Prevost, M.-F.; Sauvain, M. *Bioorganic & Medicinal Chemistry Letters* **2005**, 15, 5065-5070, and ref. cited.