

**Supporting informations**  
**for**  
**Synthesis and transformation of isopulegol-based**  
**chiral ligands**

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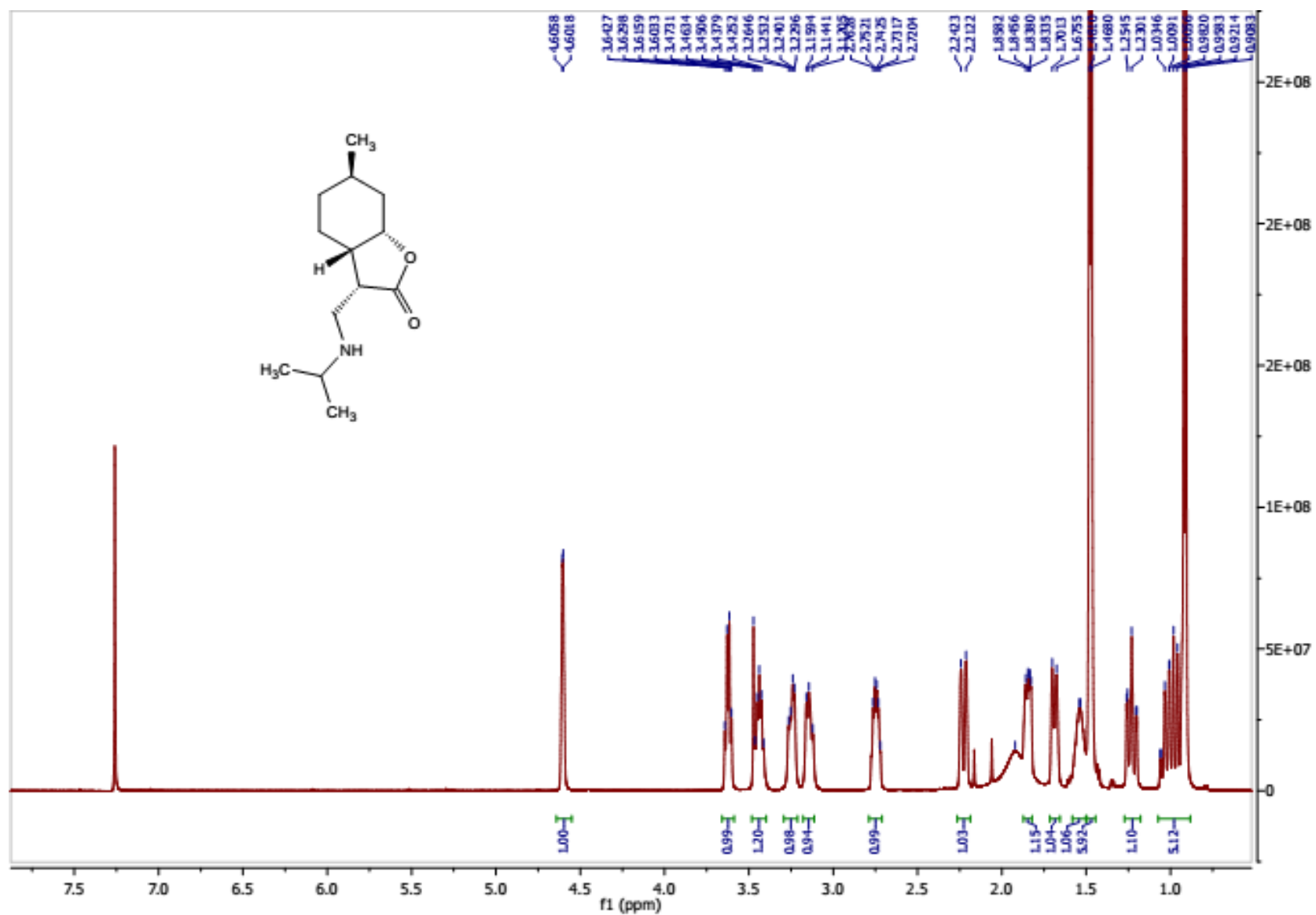
<sup>4</sup> Interdisciplinary Centre of Natural Products, University of Szeged, H-6720 Szeged, Eötvös utca 6, Hungary

\* Correspondence: szakonyi@pharm.u-szeged.hu; Tel.: +36-62-546809; Fax: +36-62-545705

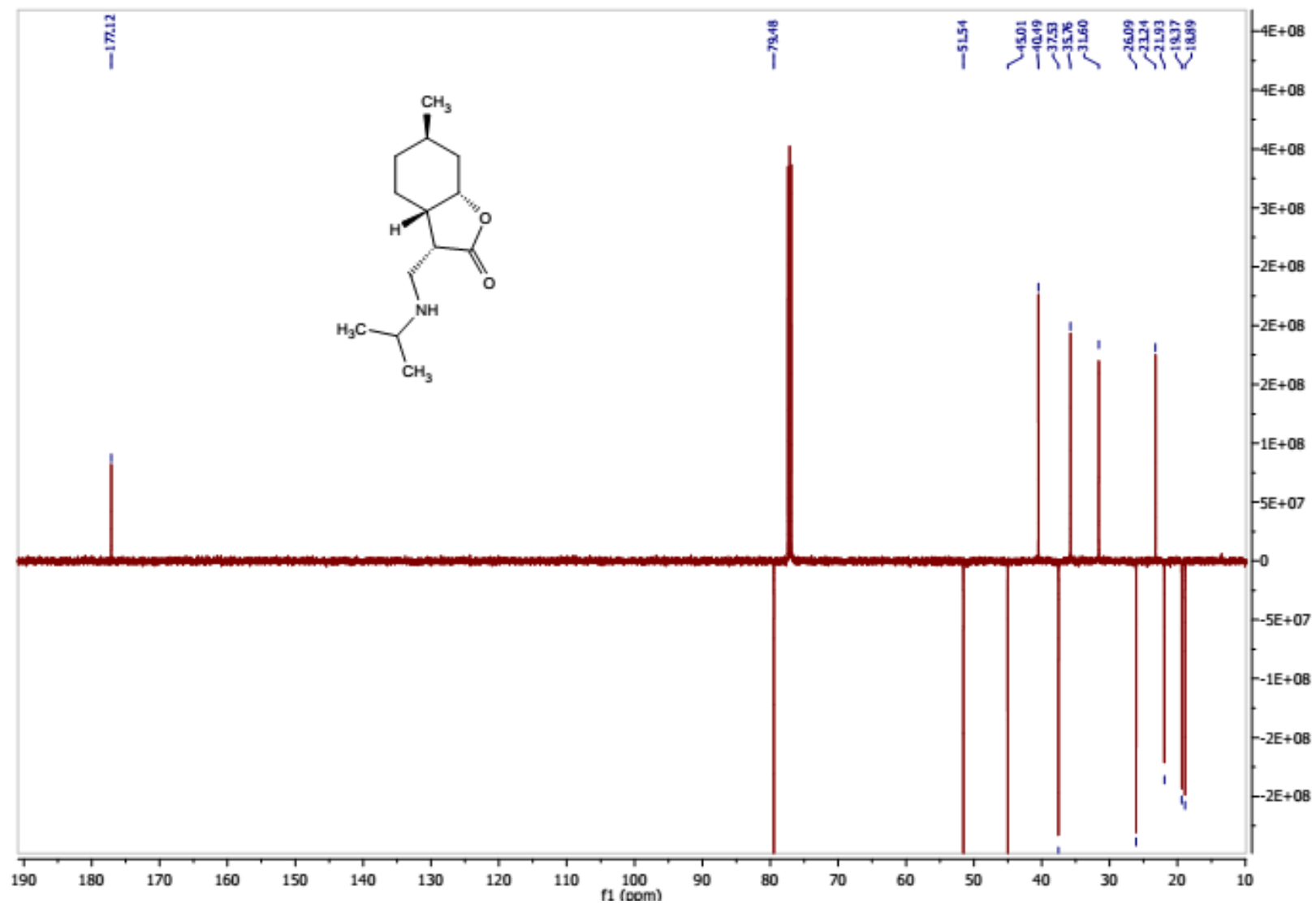
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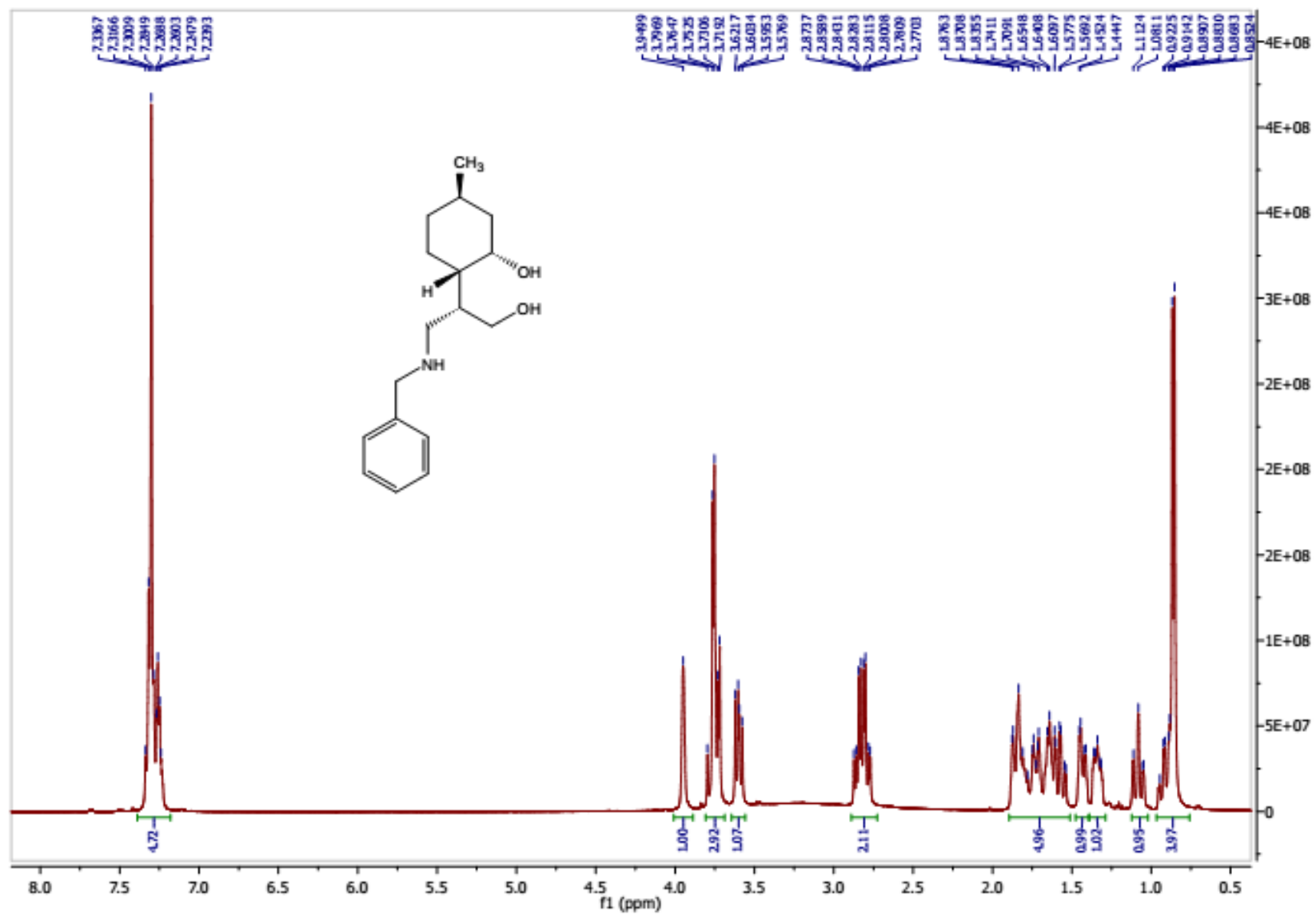
<sup>1</sup>H-NMR of compound **8**



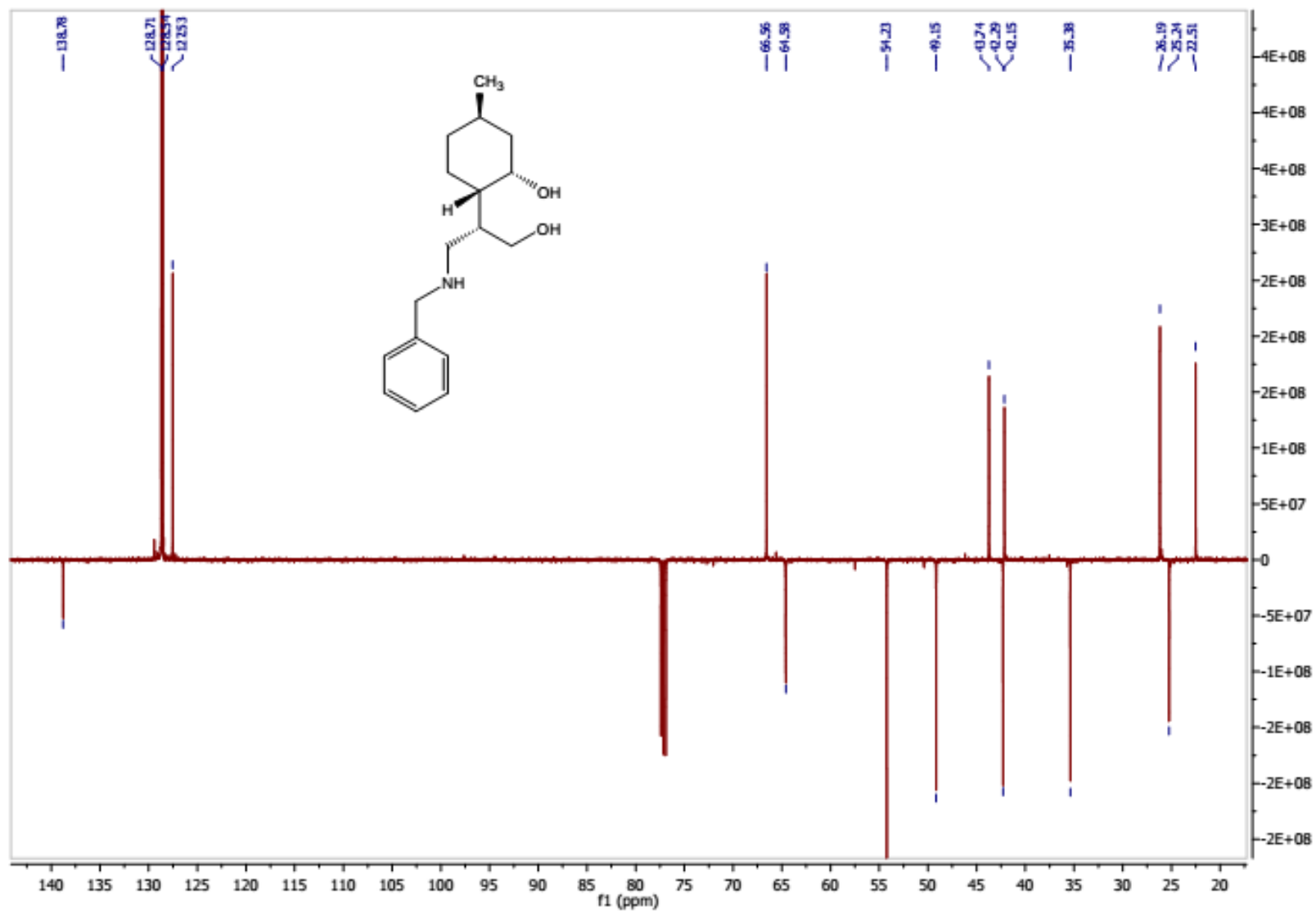
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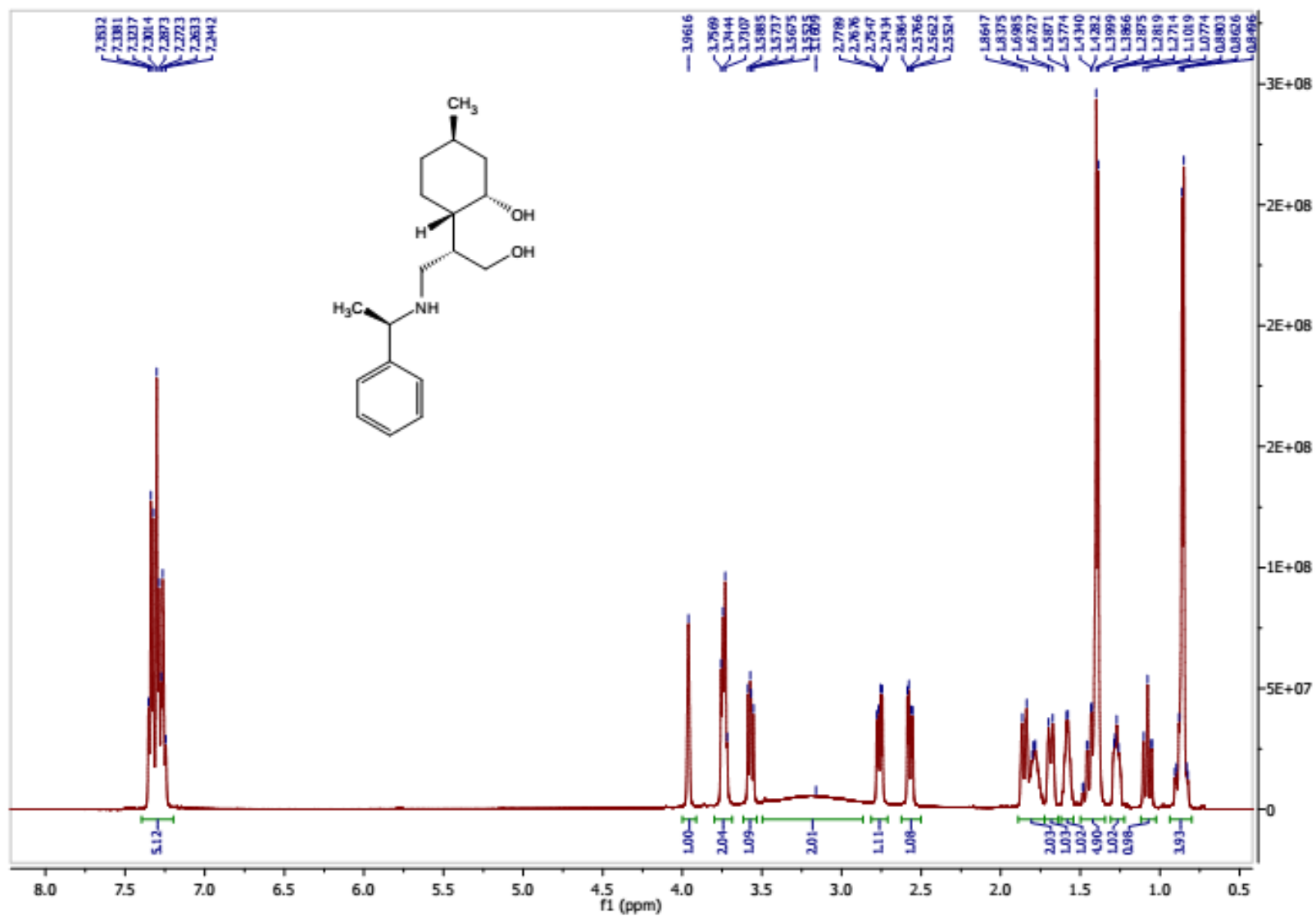
<sup>1</sup>H-NMR of compound **9**



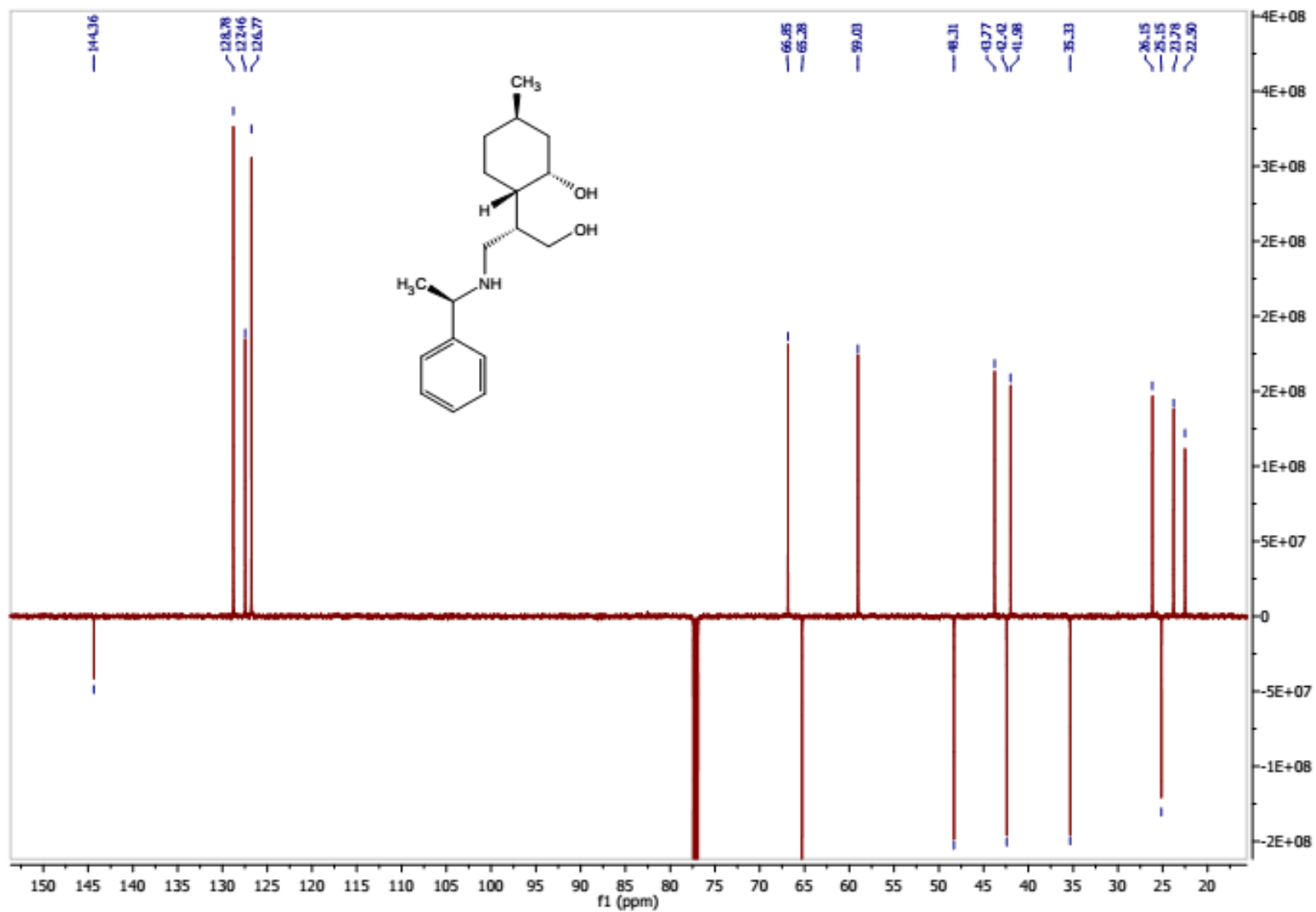
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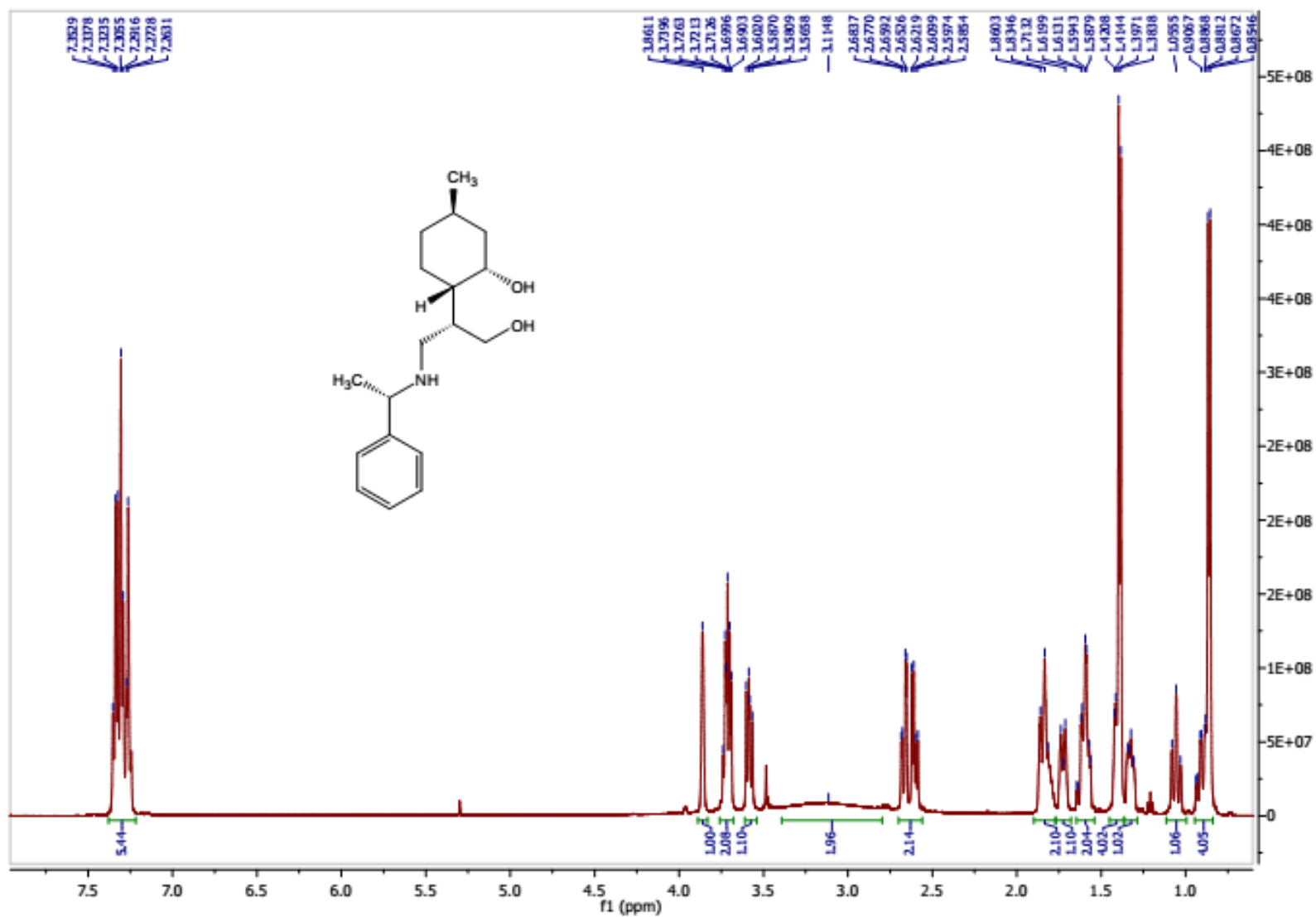


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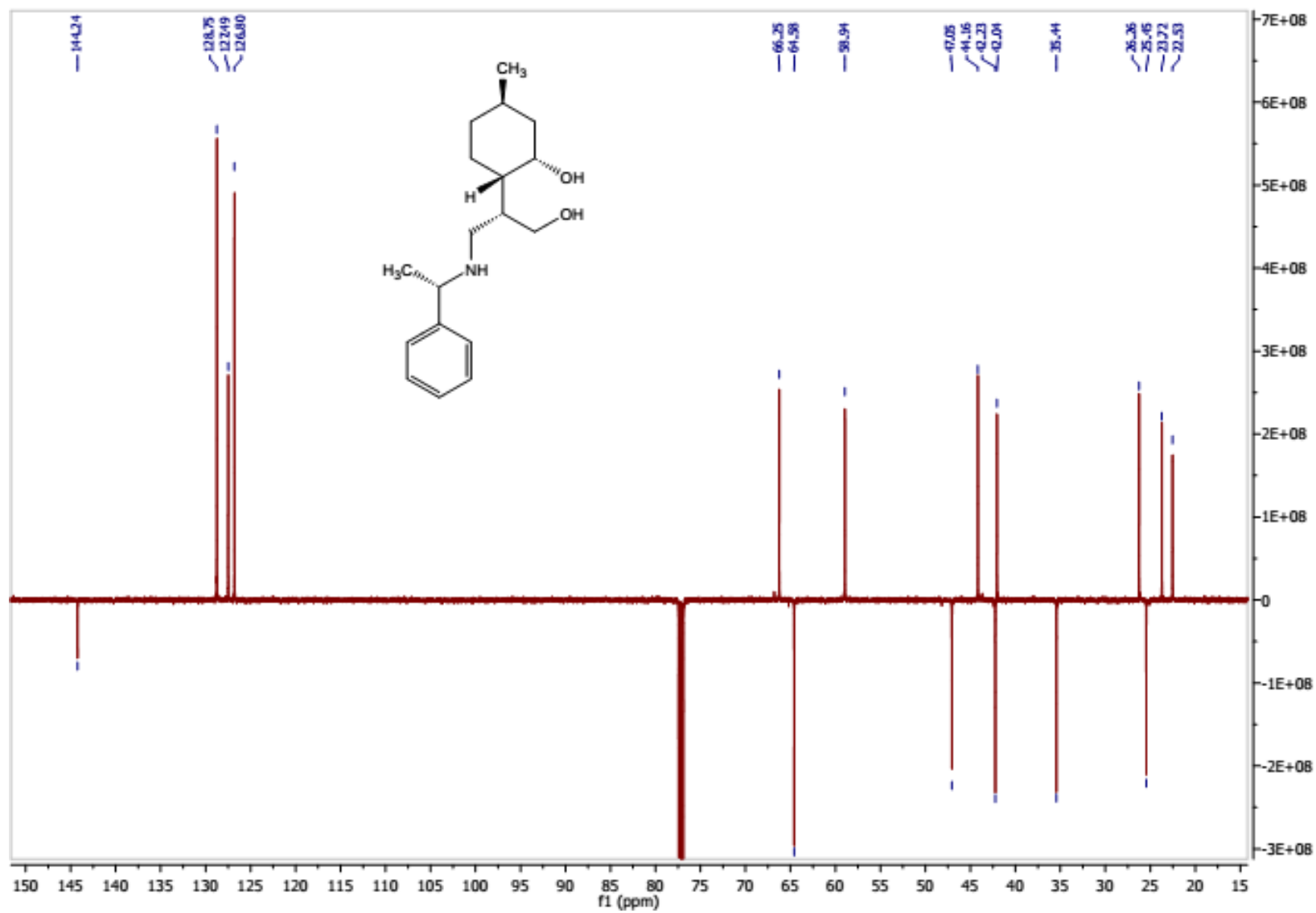




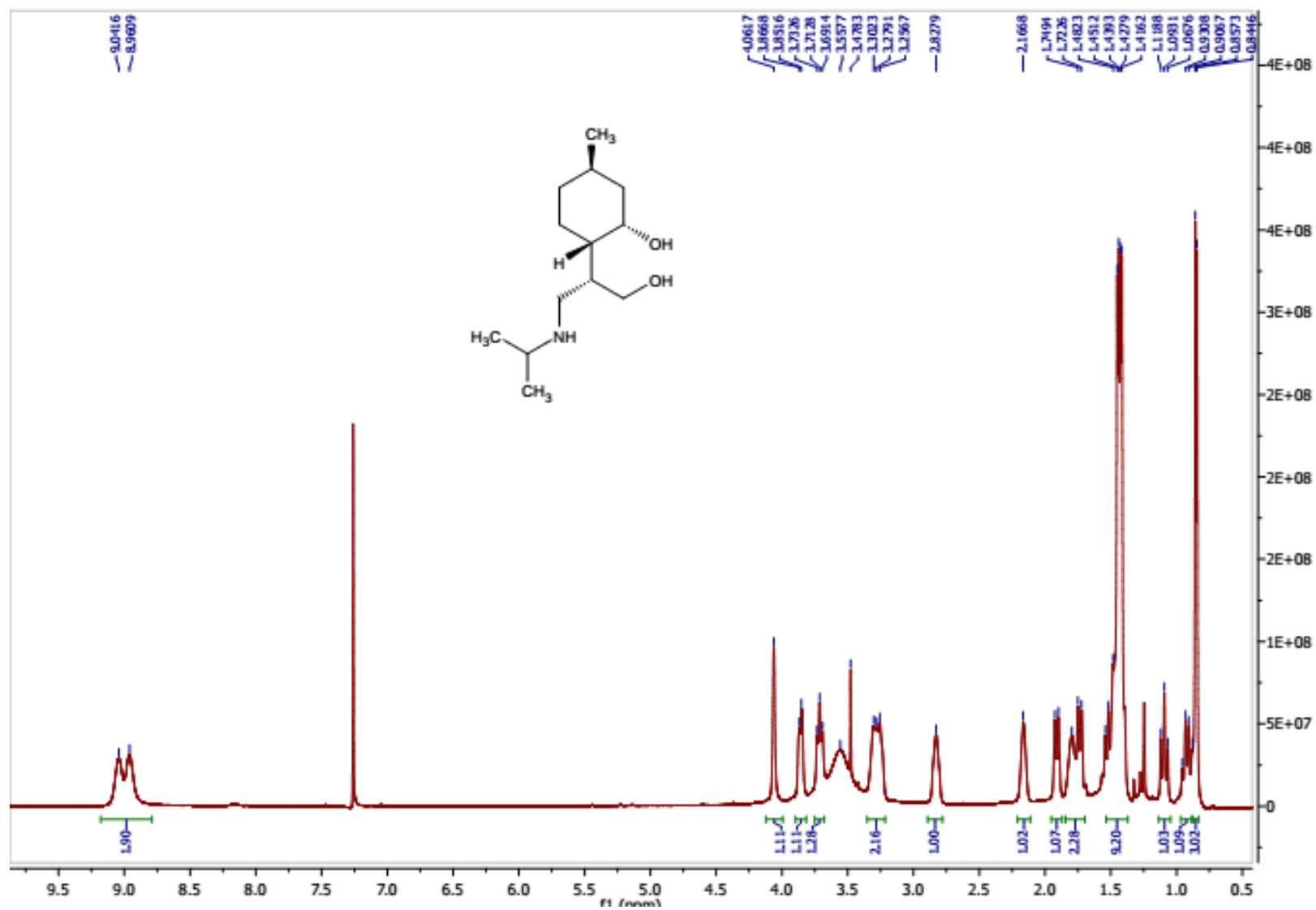
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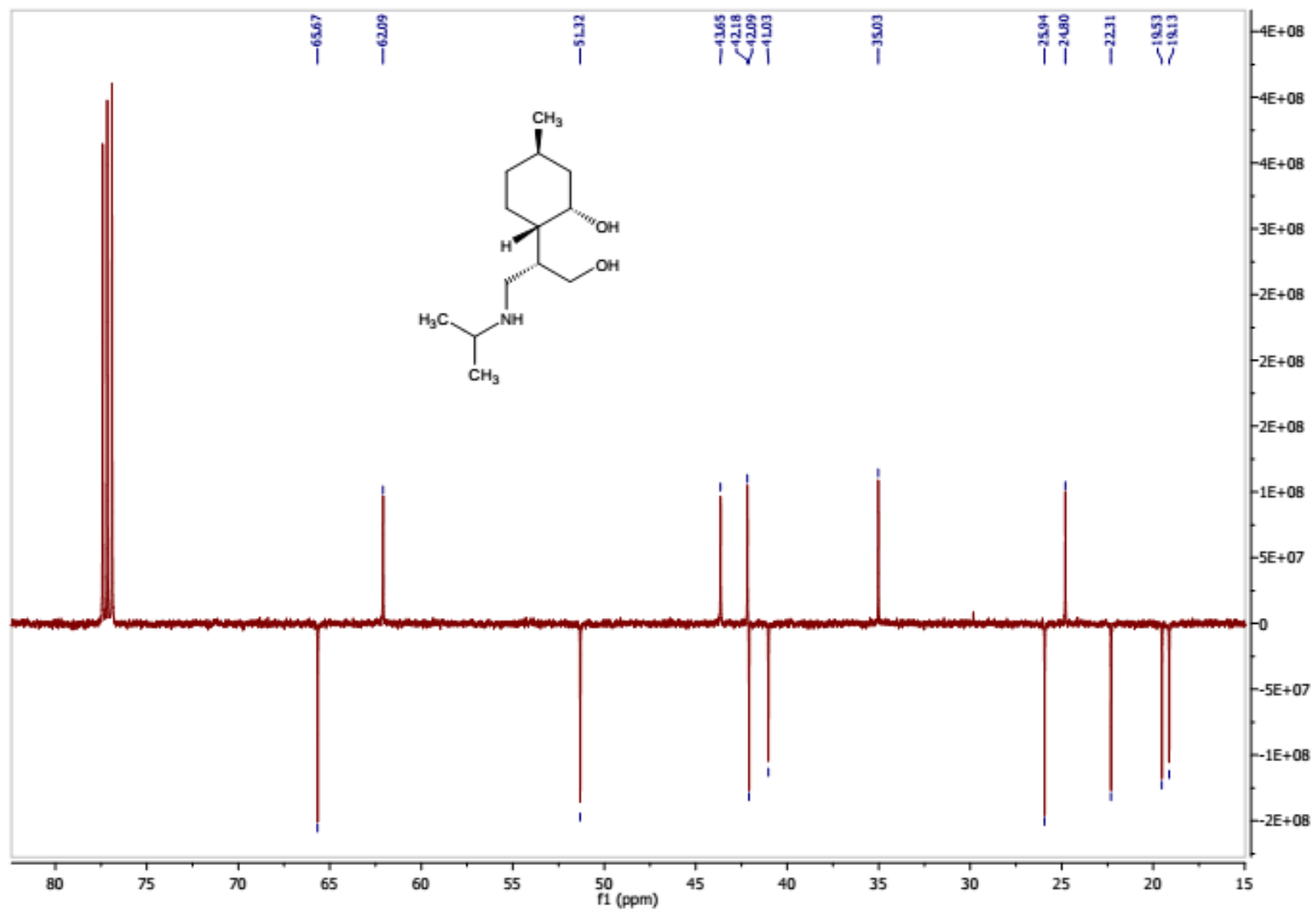
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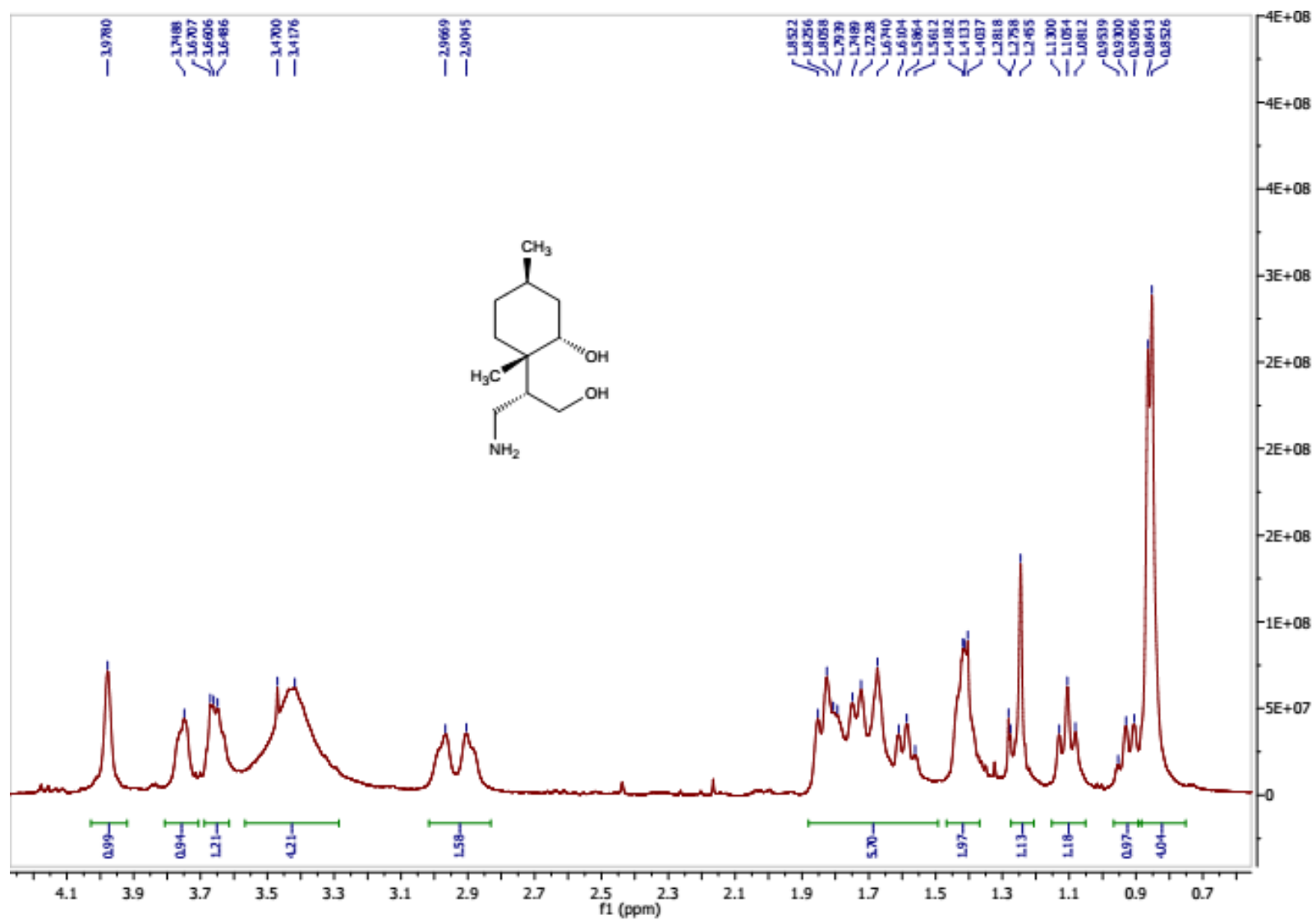
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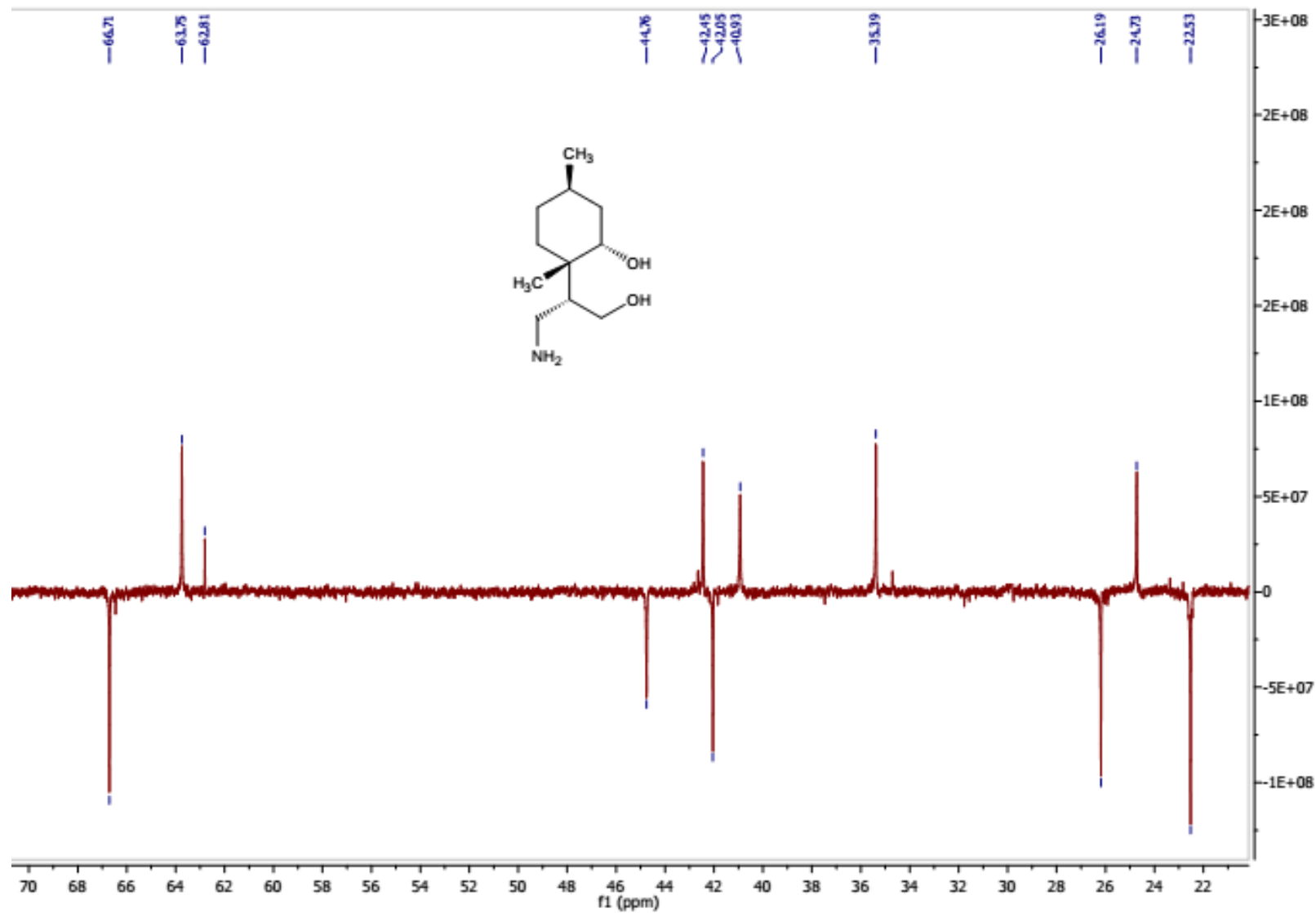
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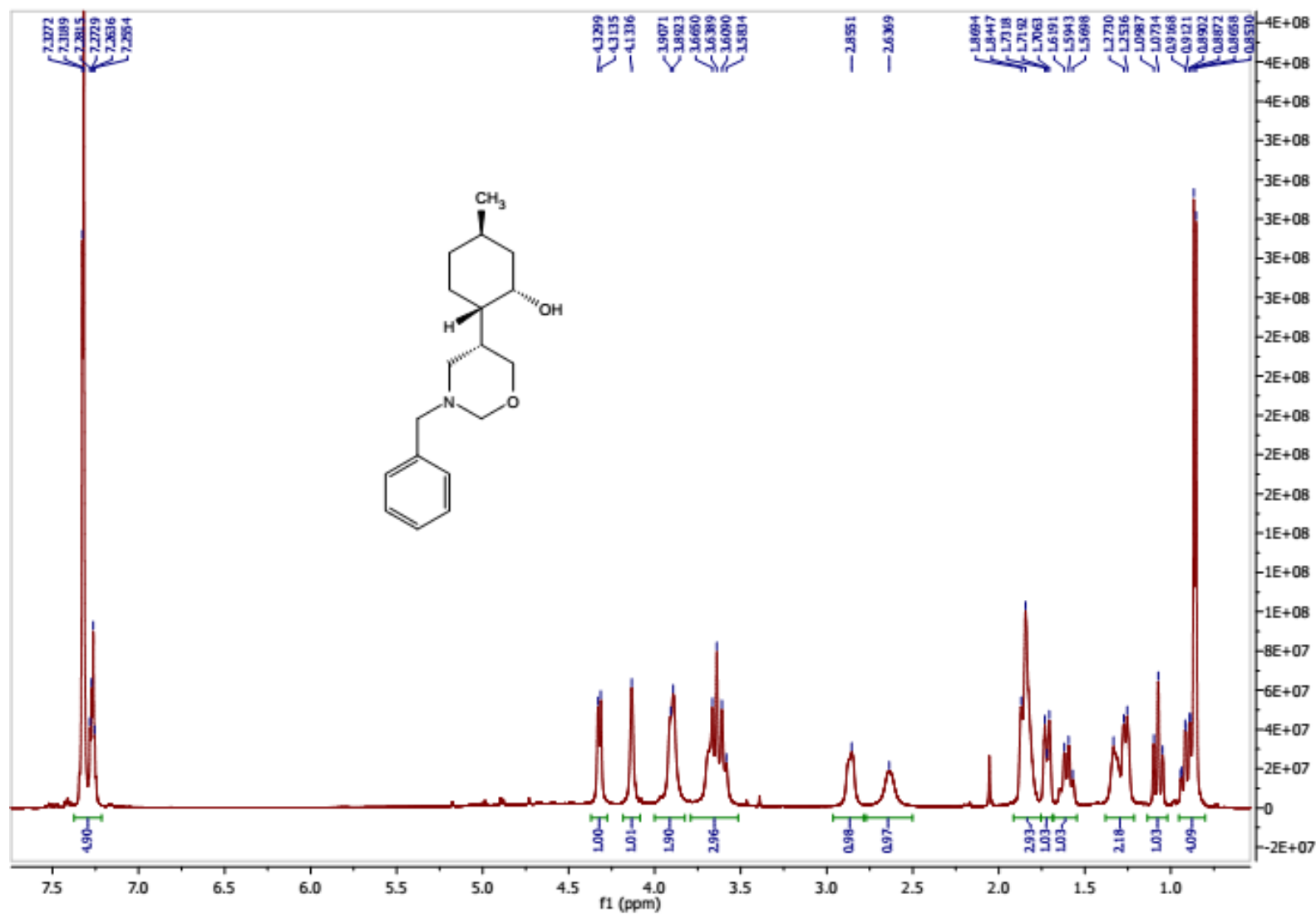
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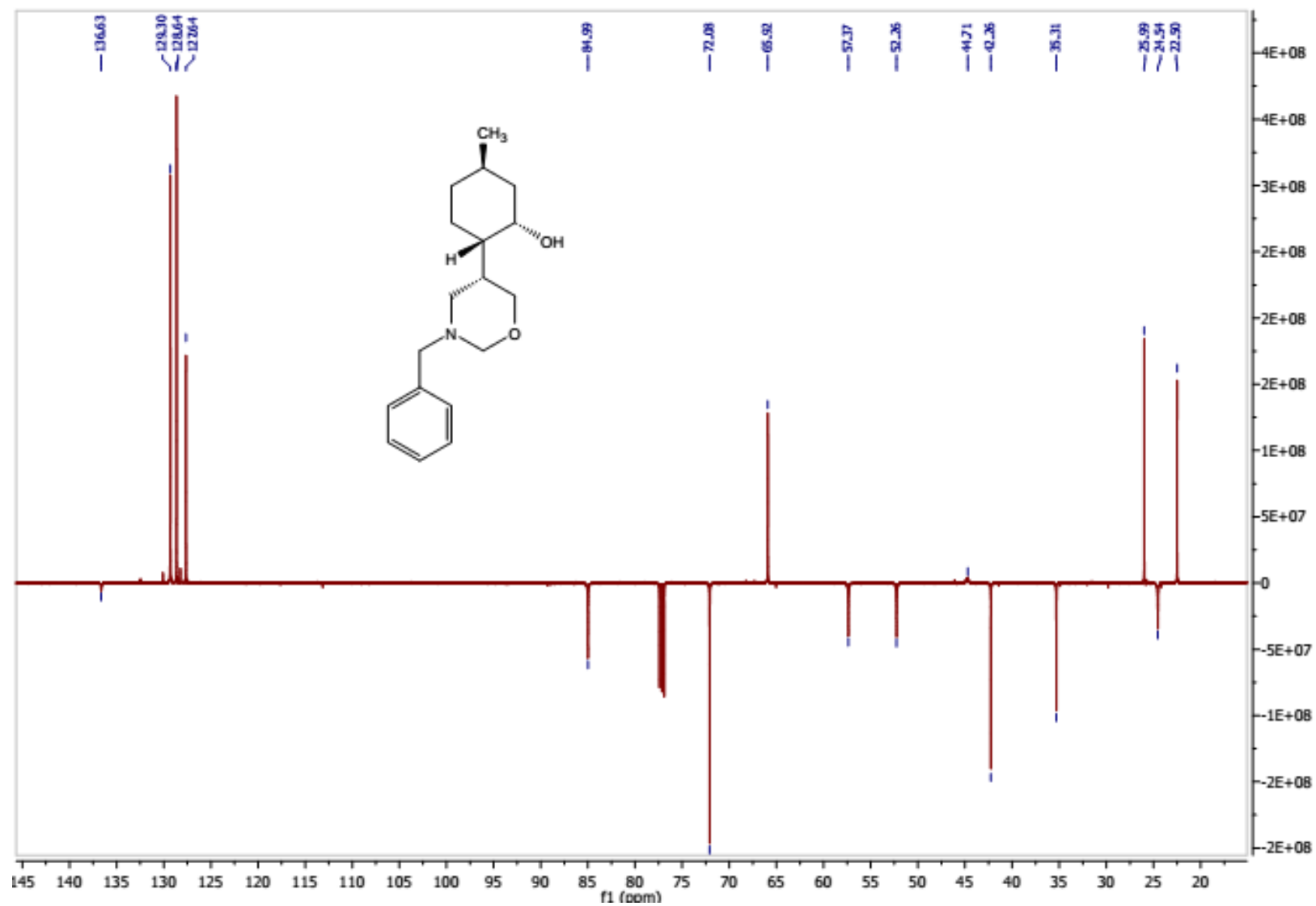
$^{13}\text{C}$ -NMR of compound **13**



<sup>1</sup>H-NMR of compound **14**

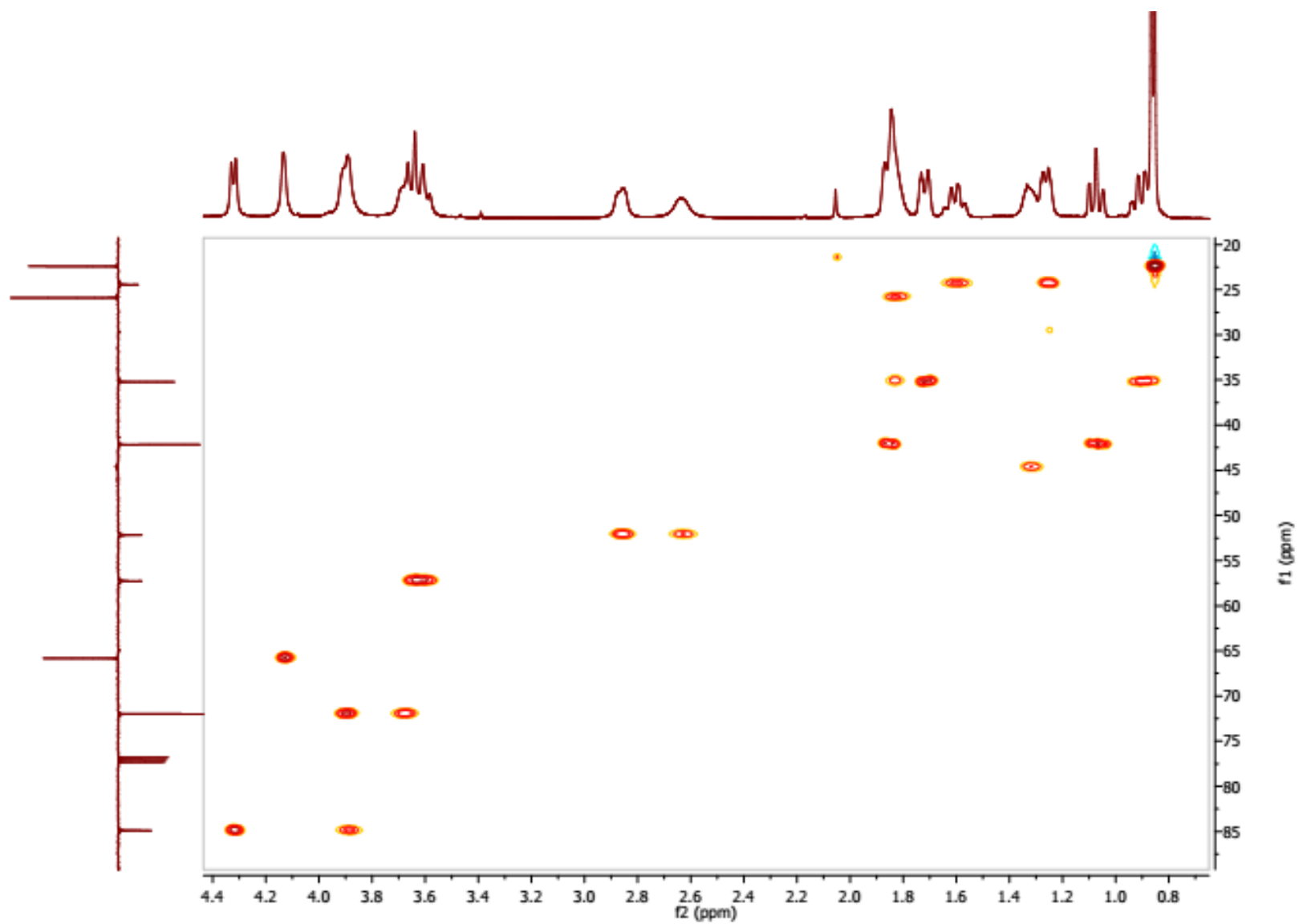


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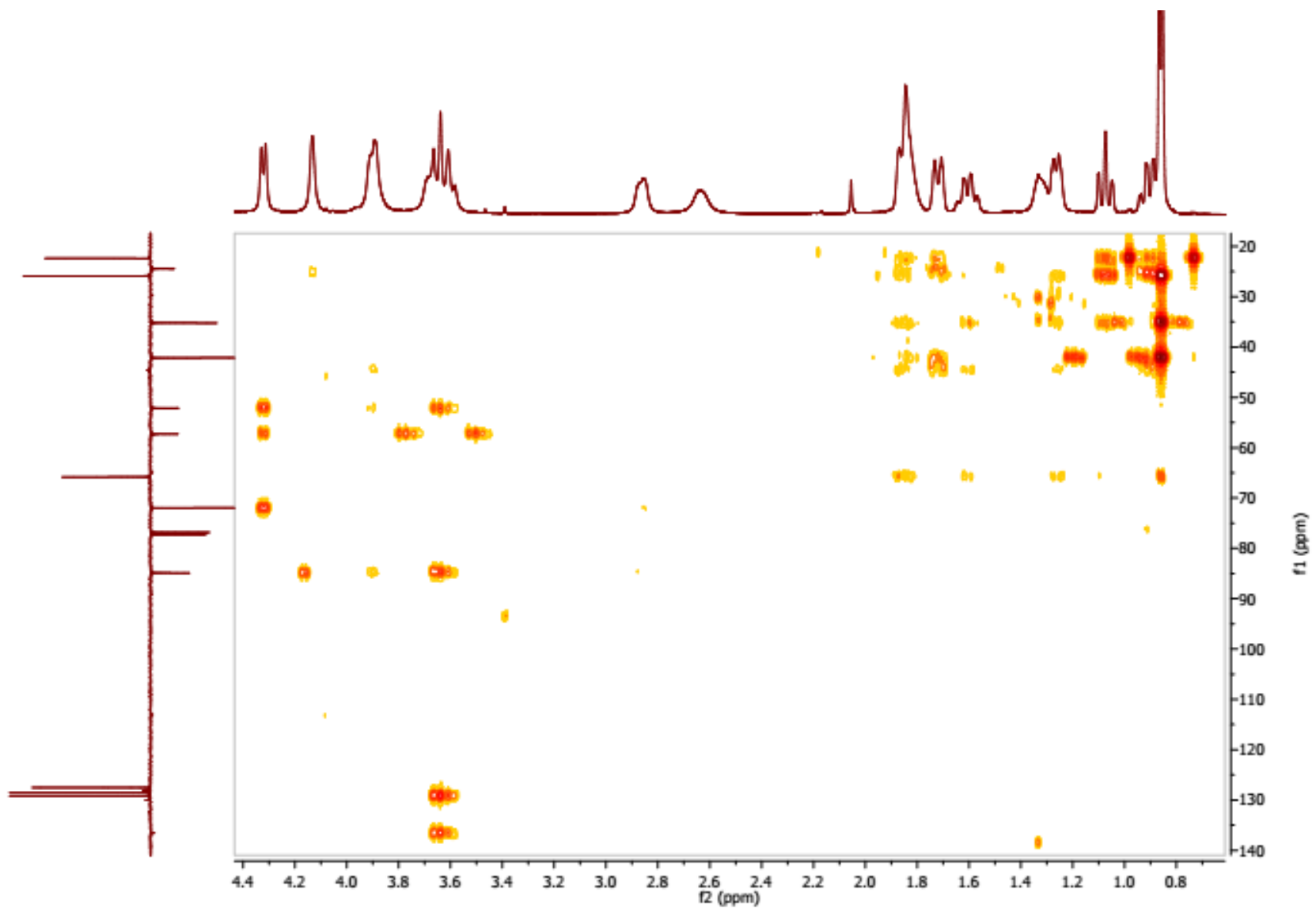




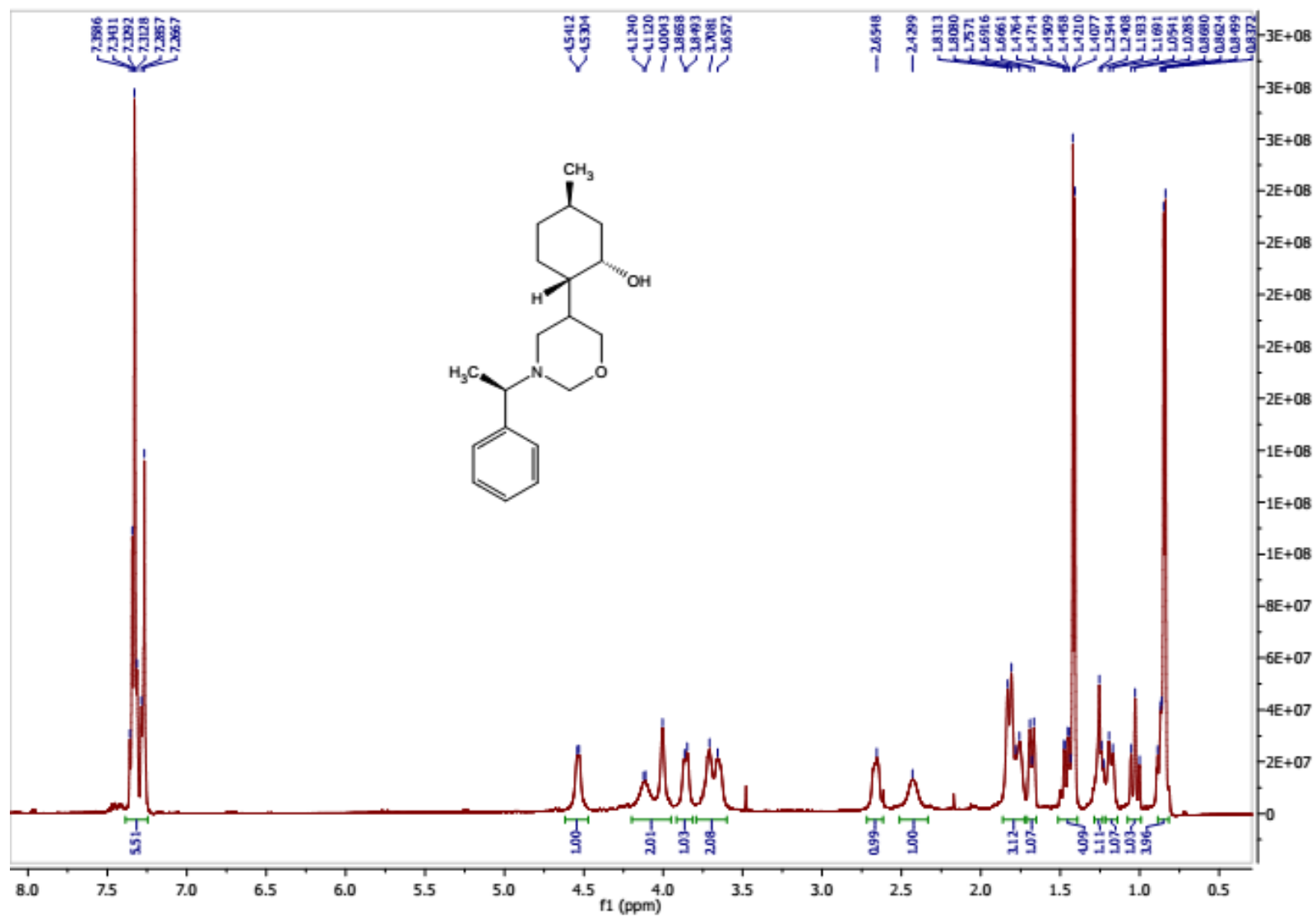
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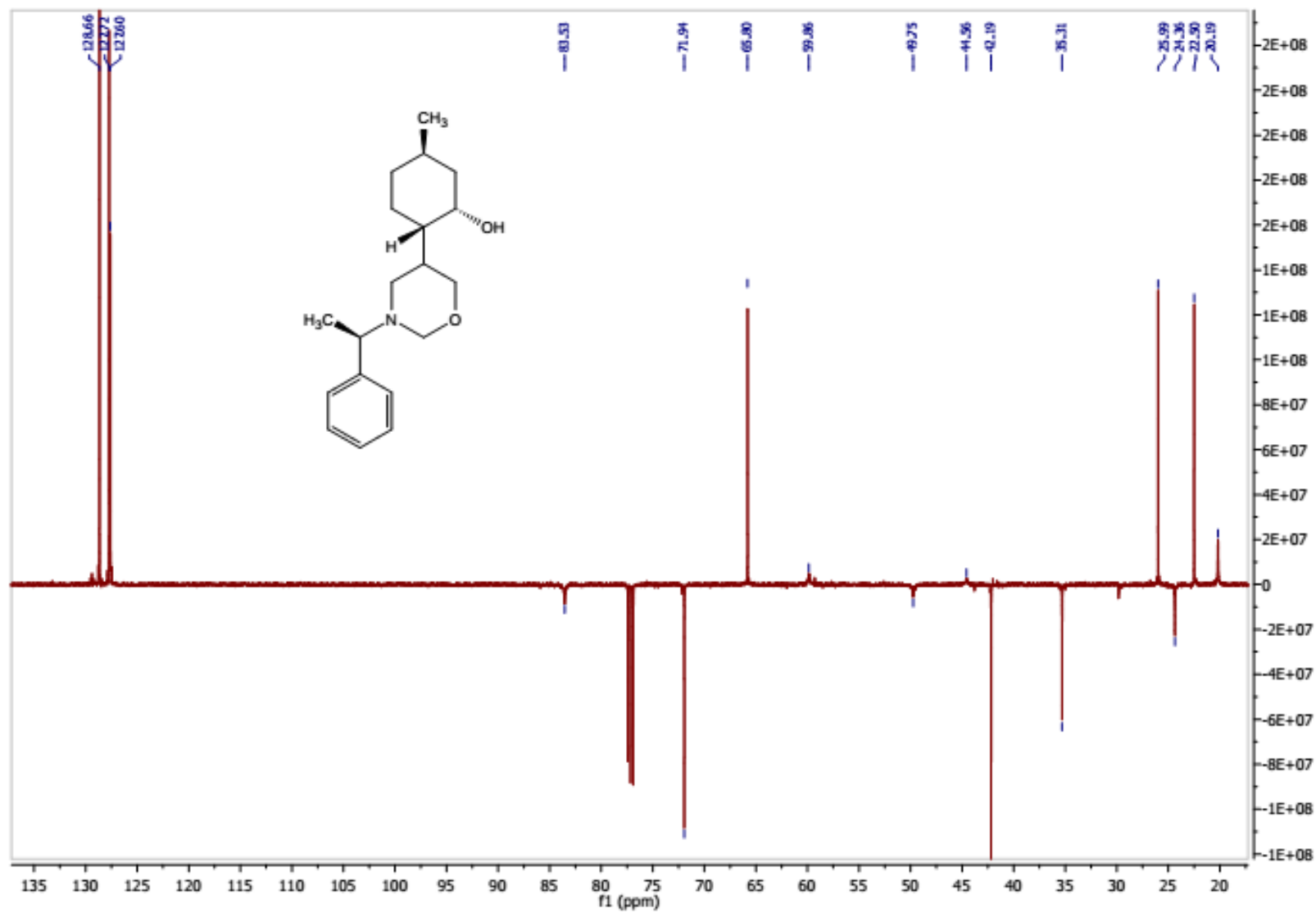
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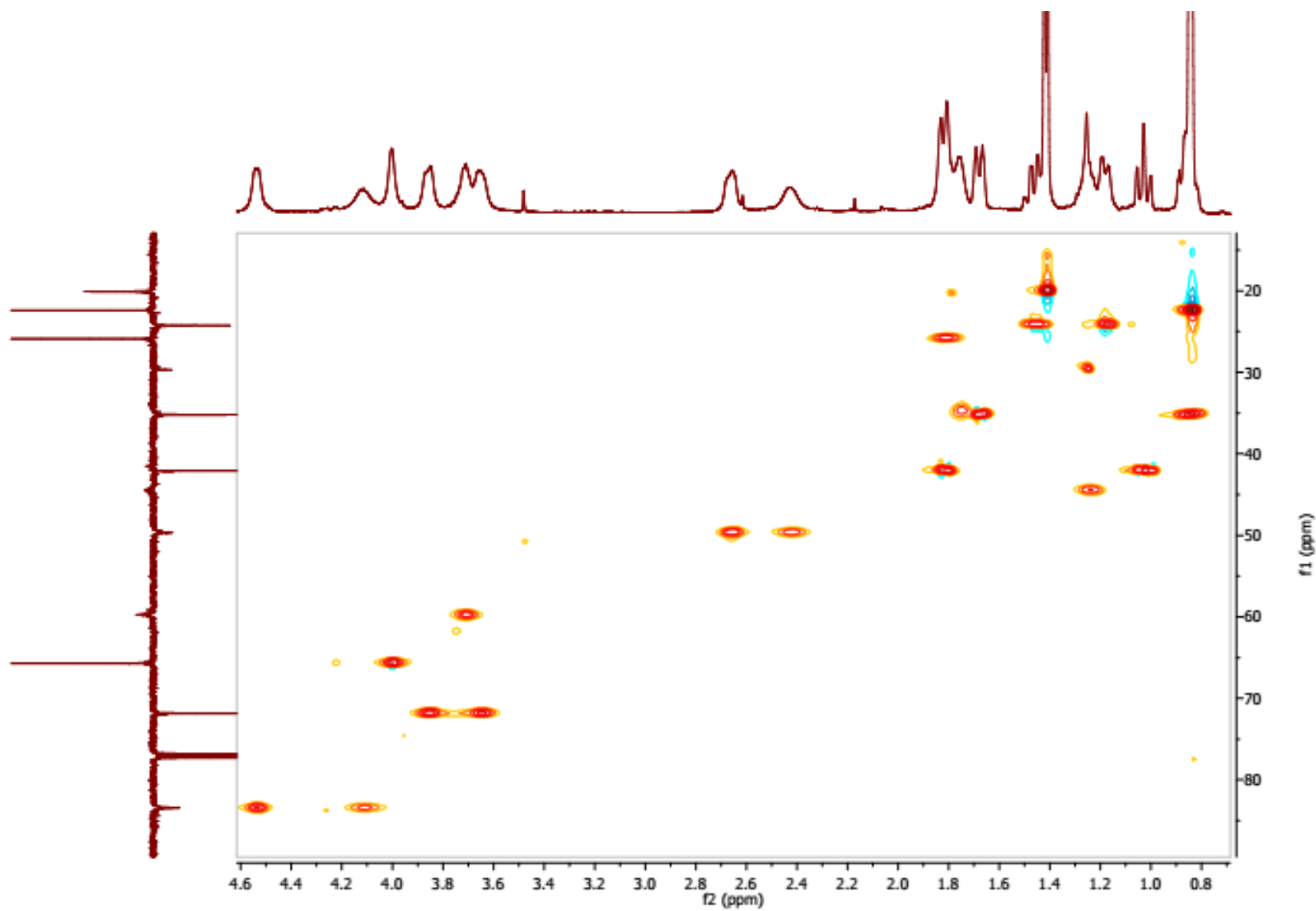
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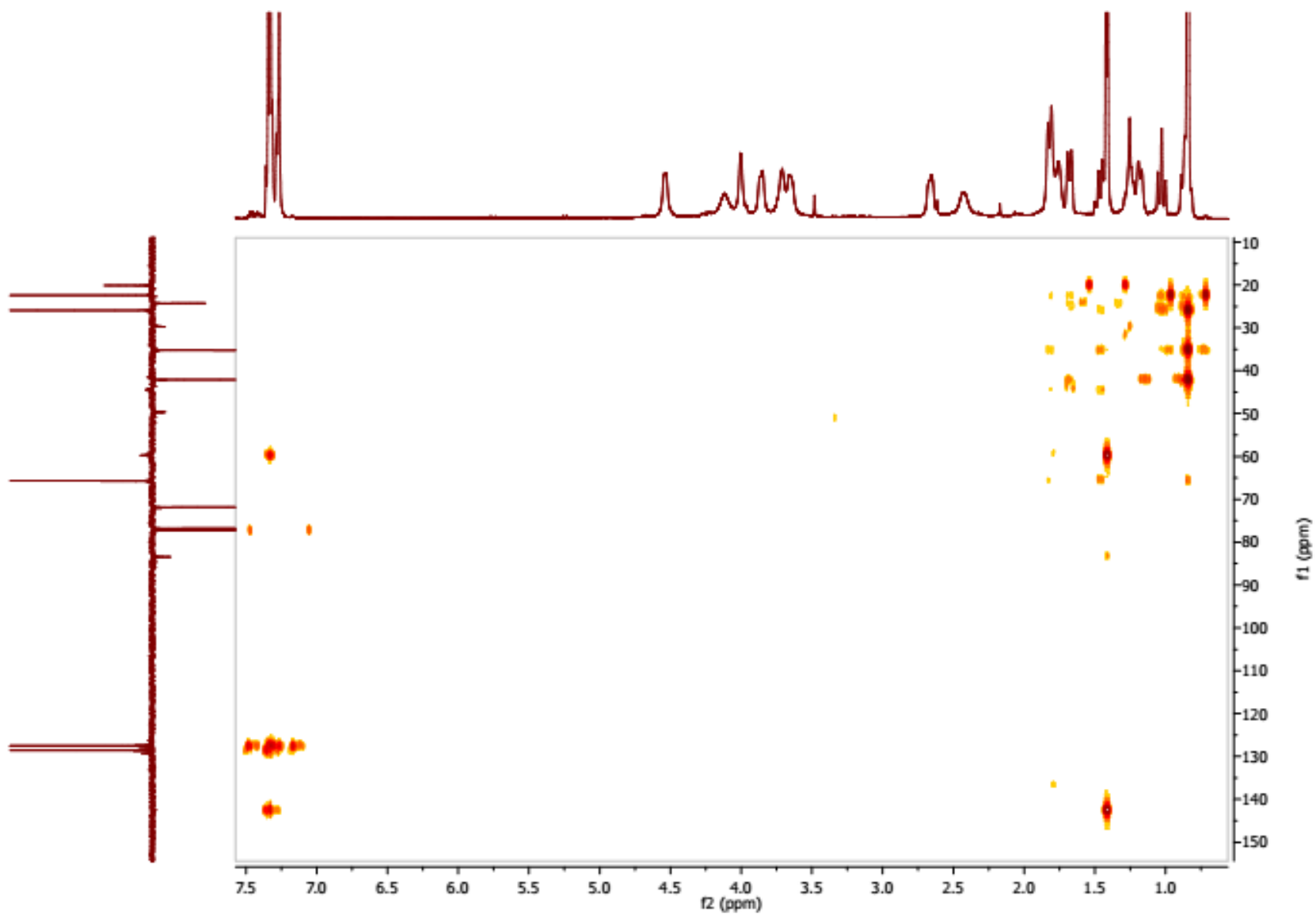
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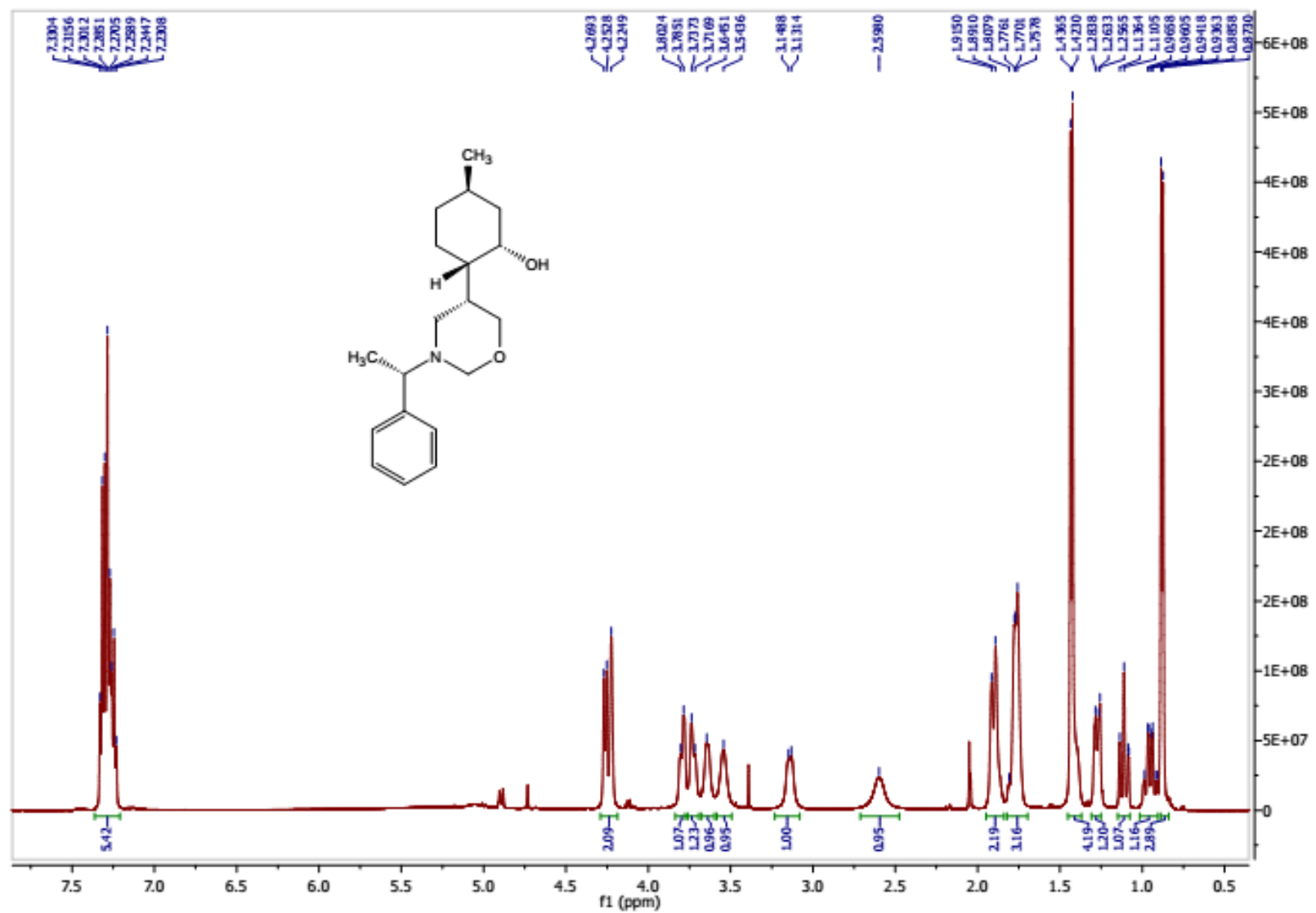
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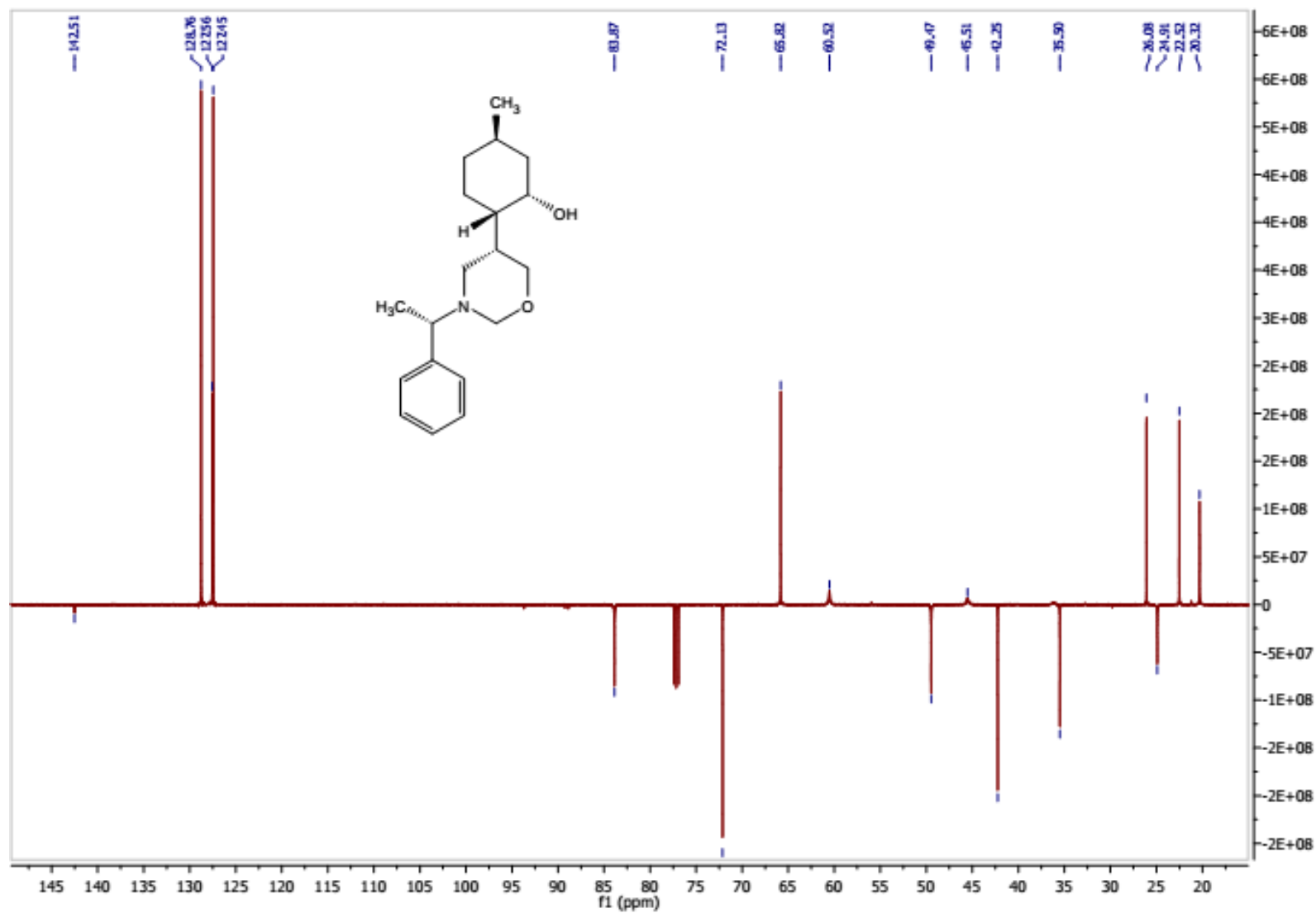
HMBC of compound 15



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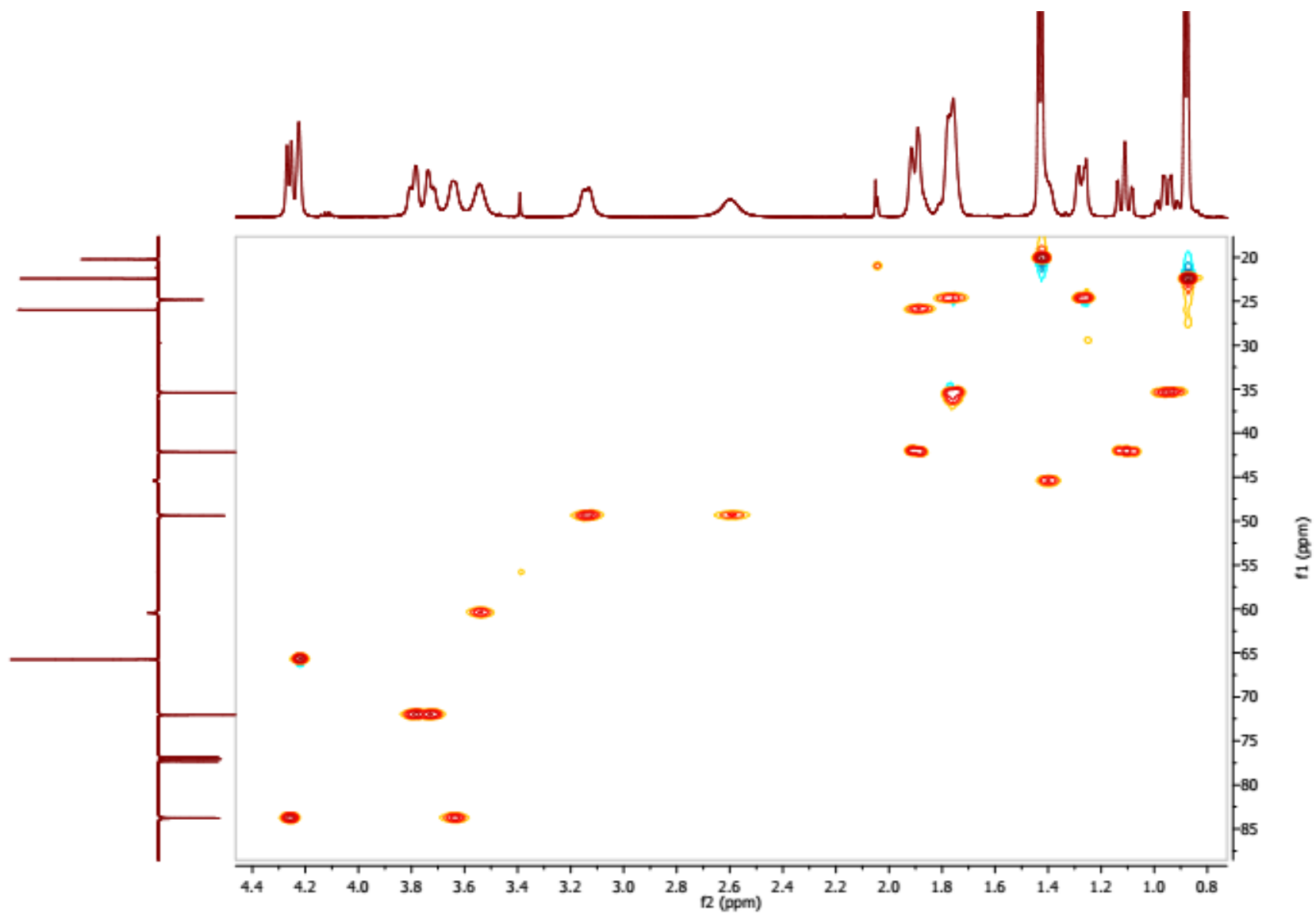


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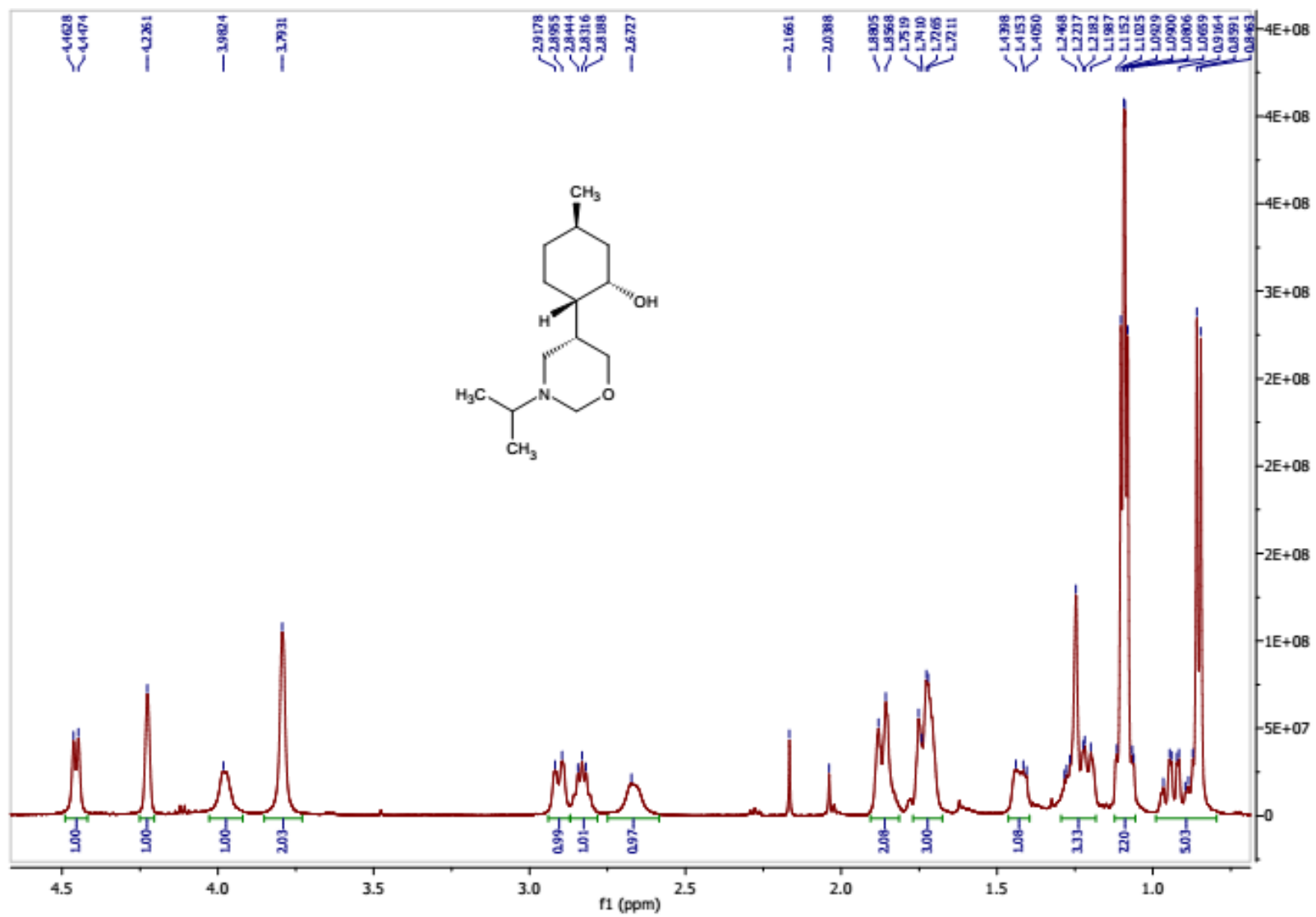




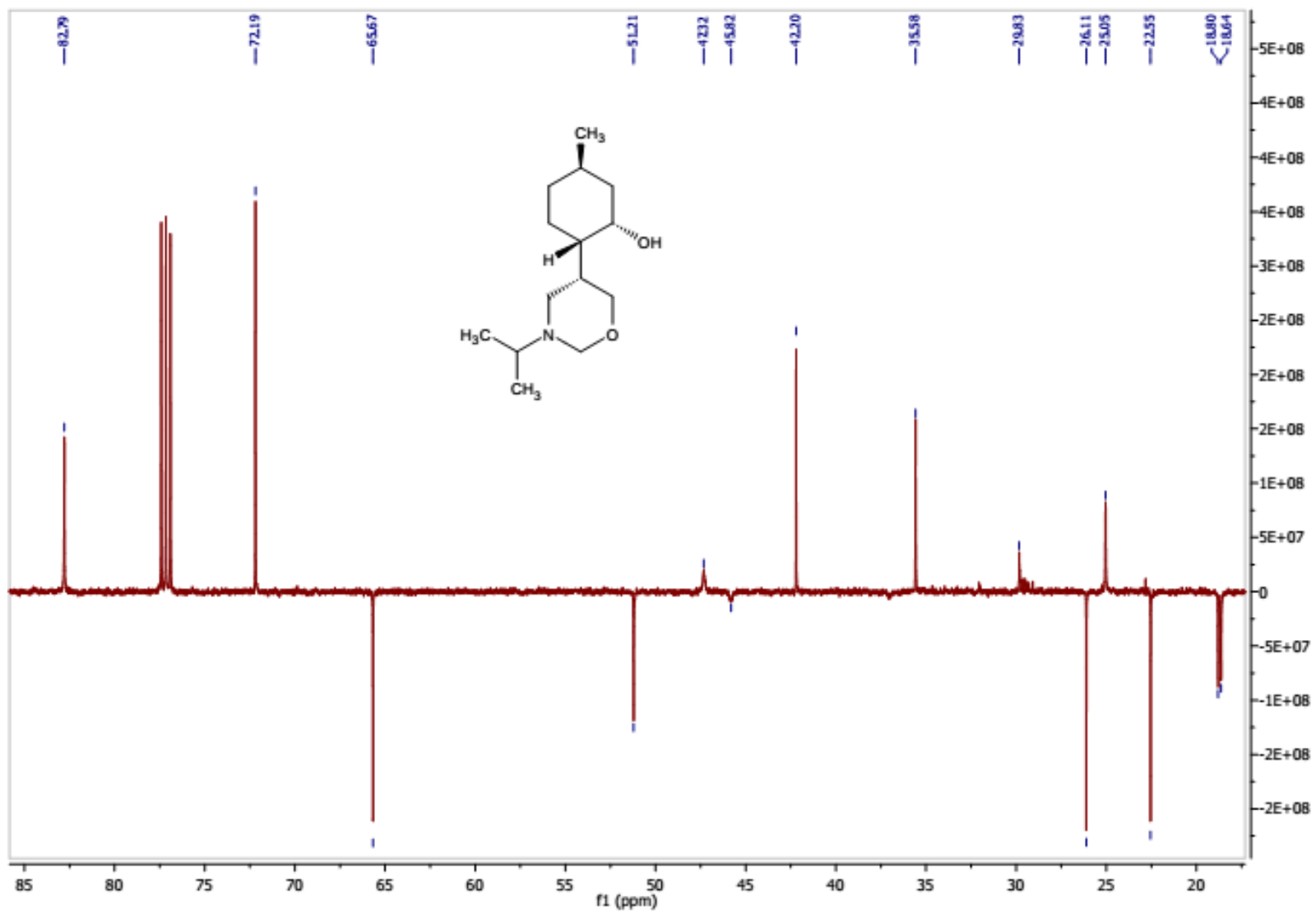
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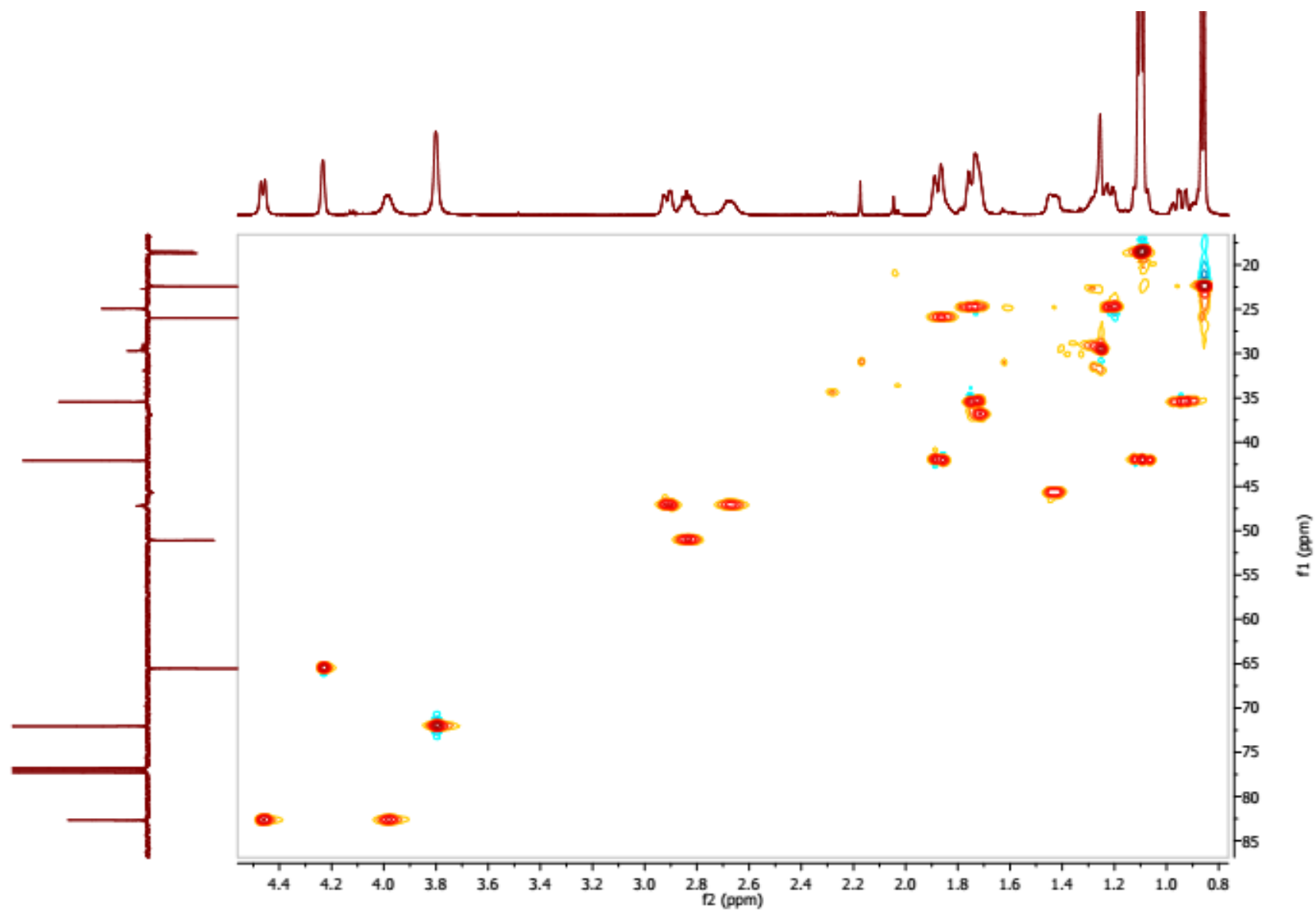
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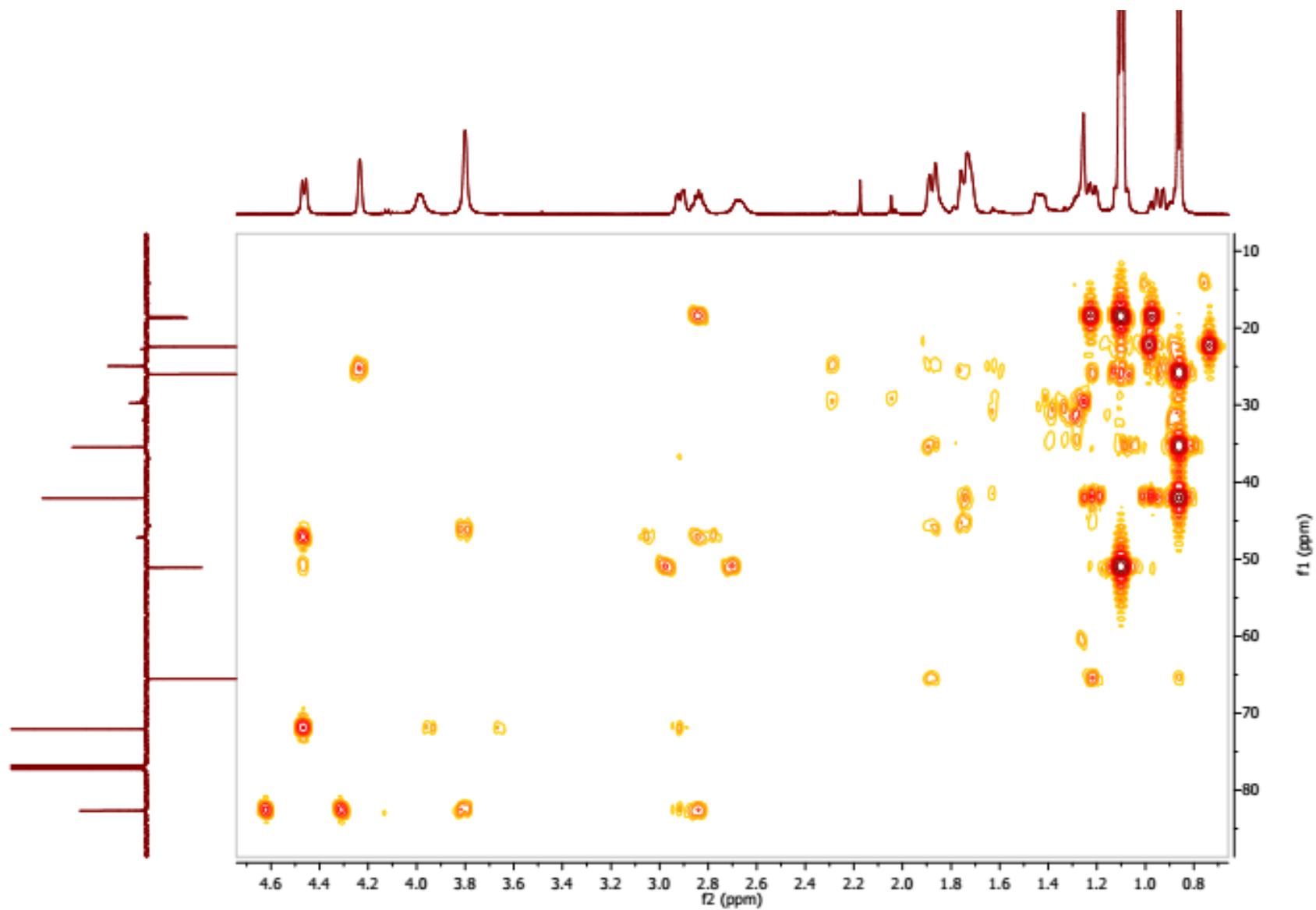
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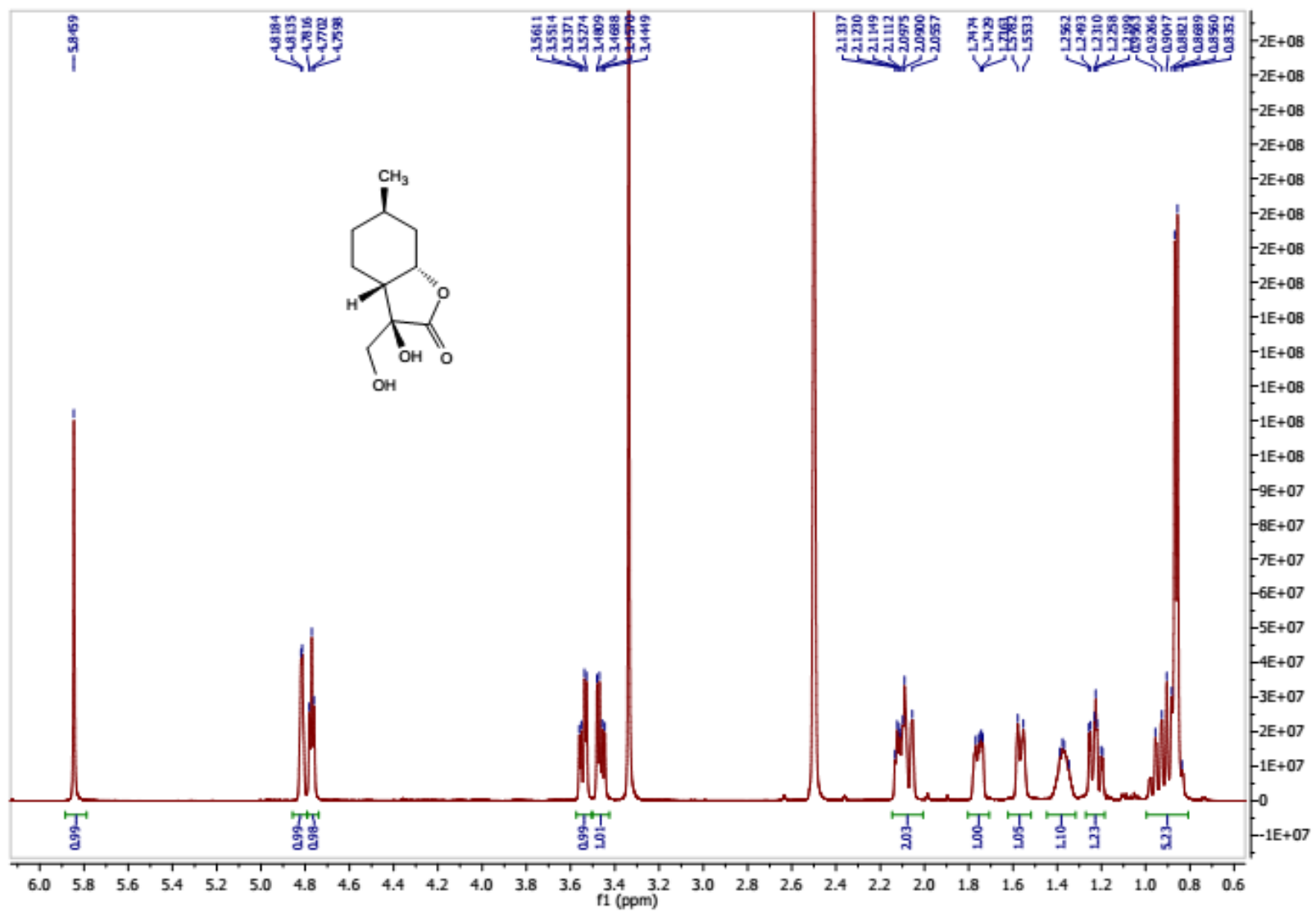
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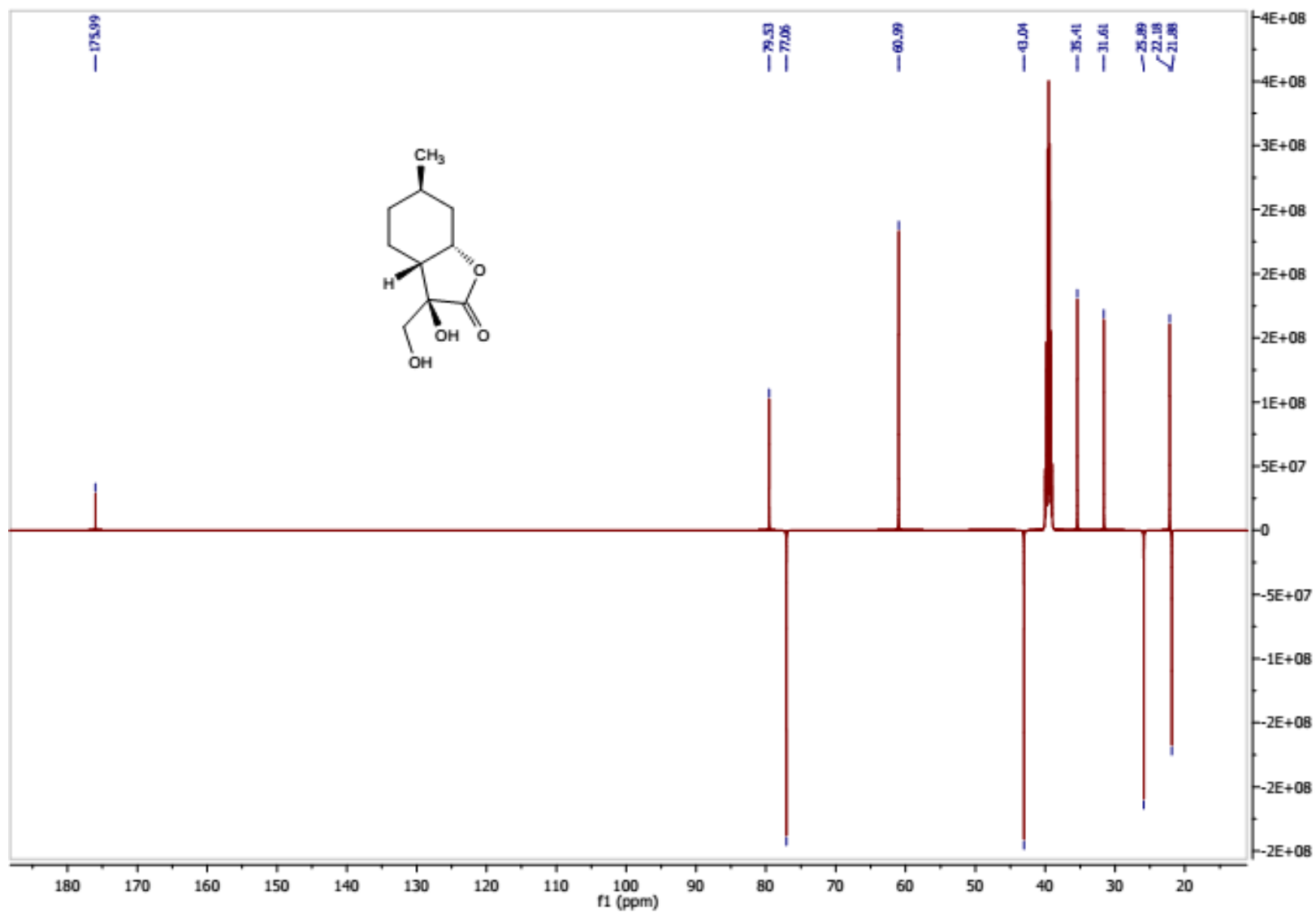
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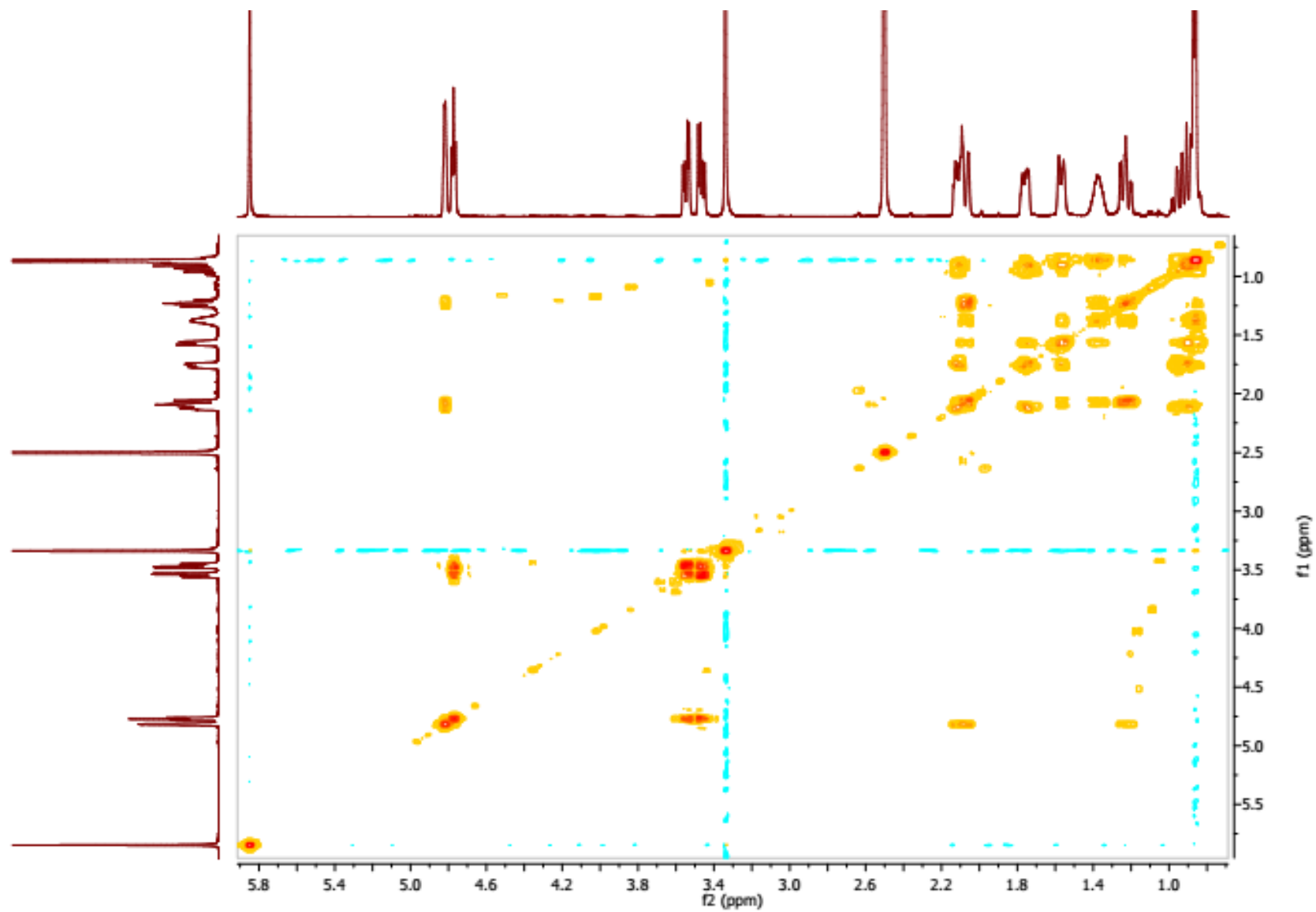
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$^{13}\text{C}$ -NMR of compound **18**

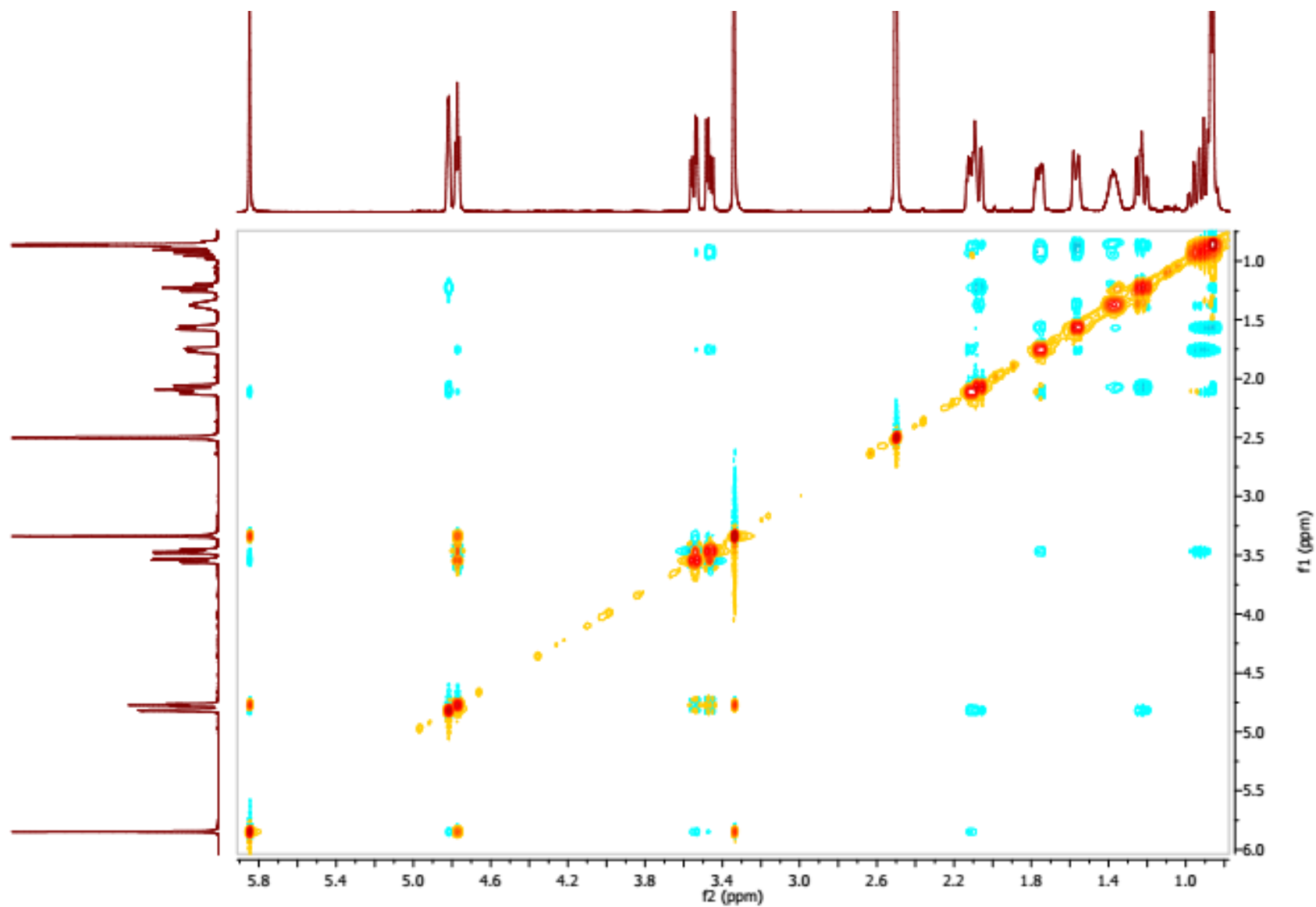


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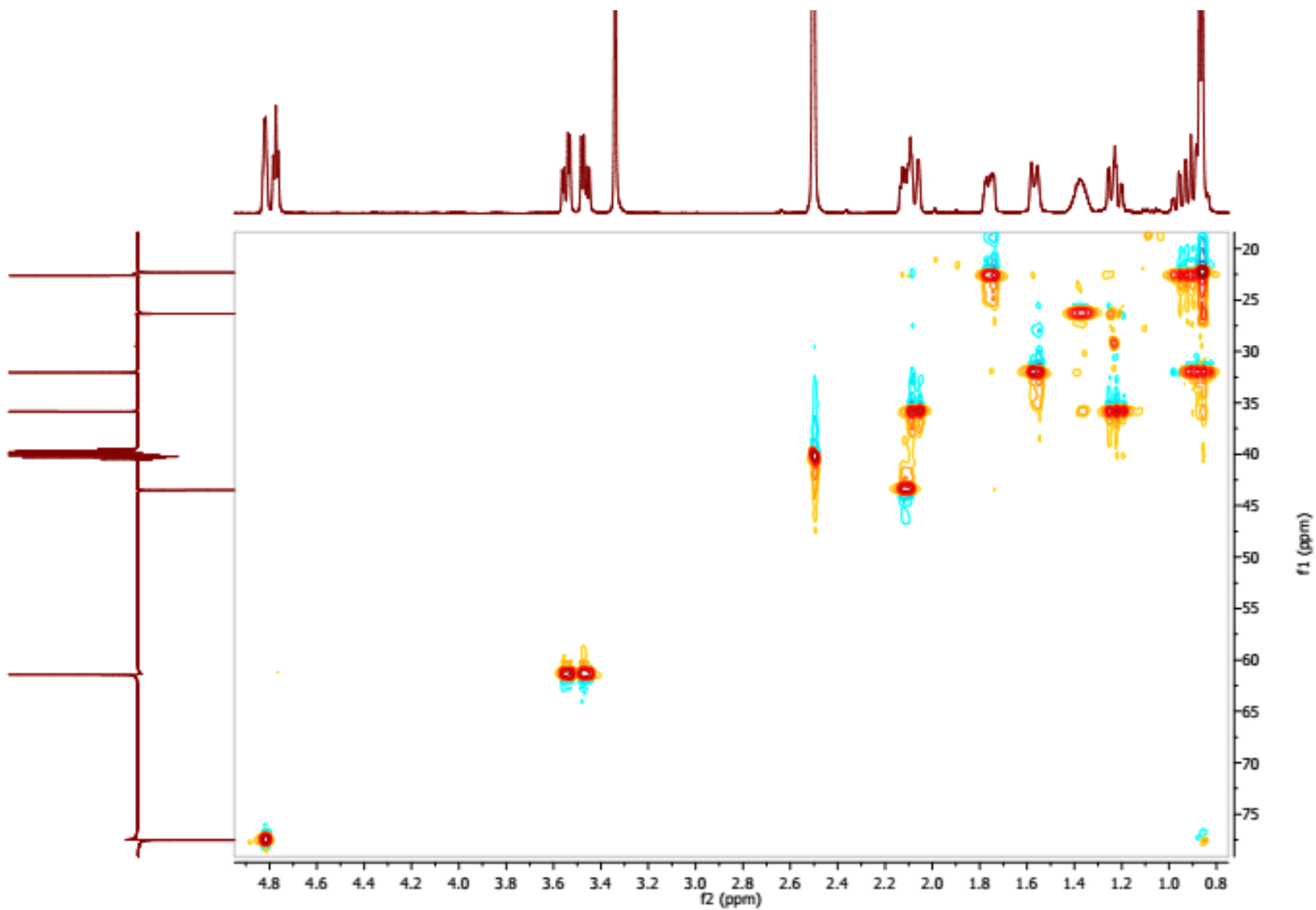




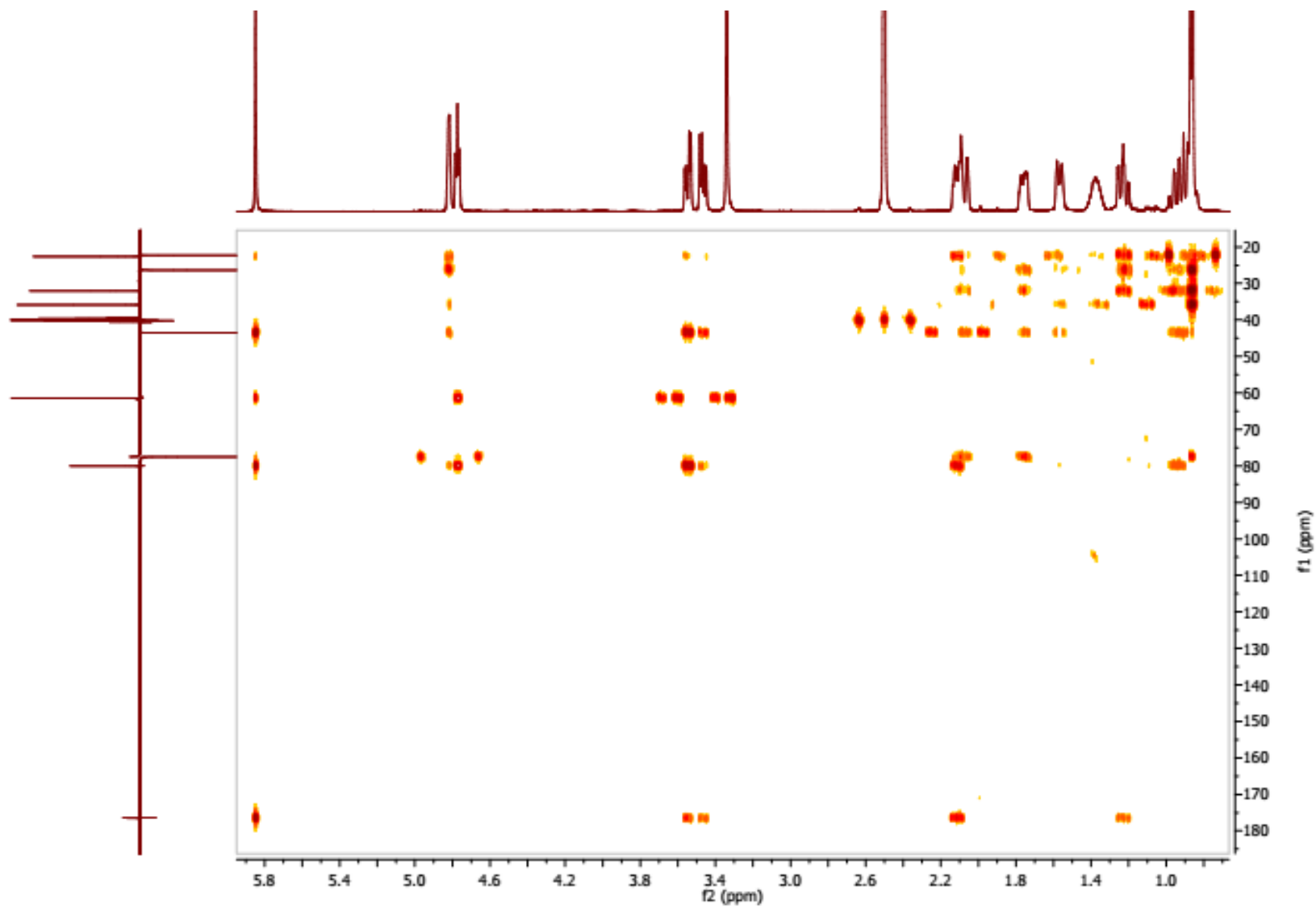
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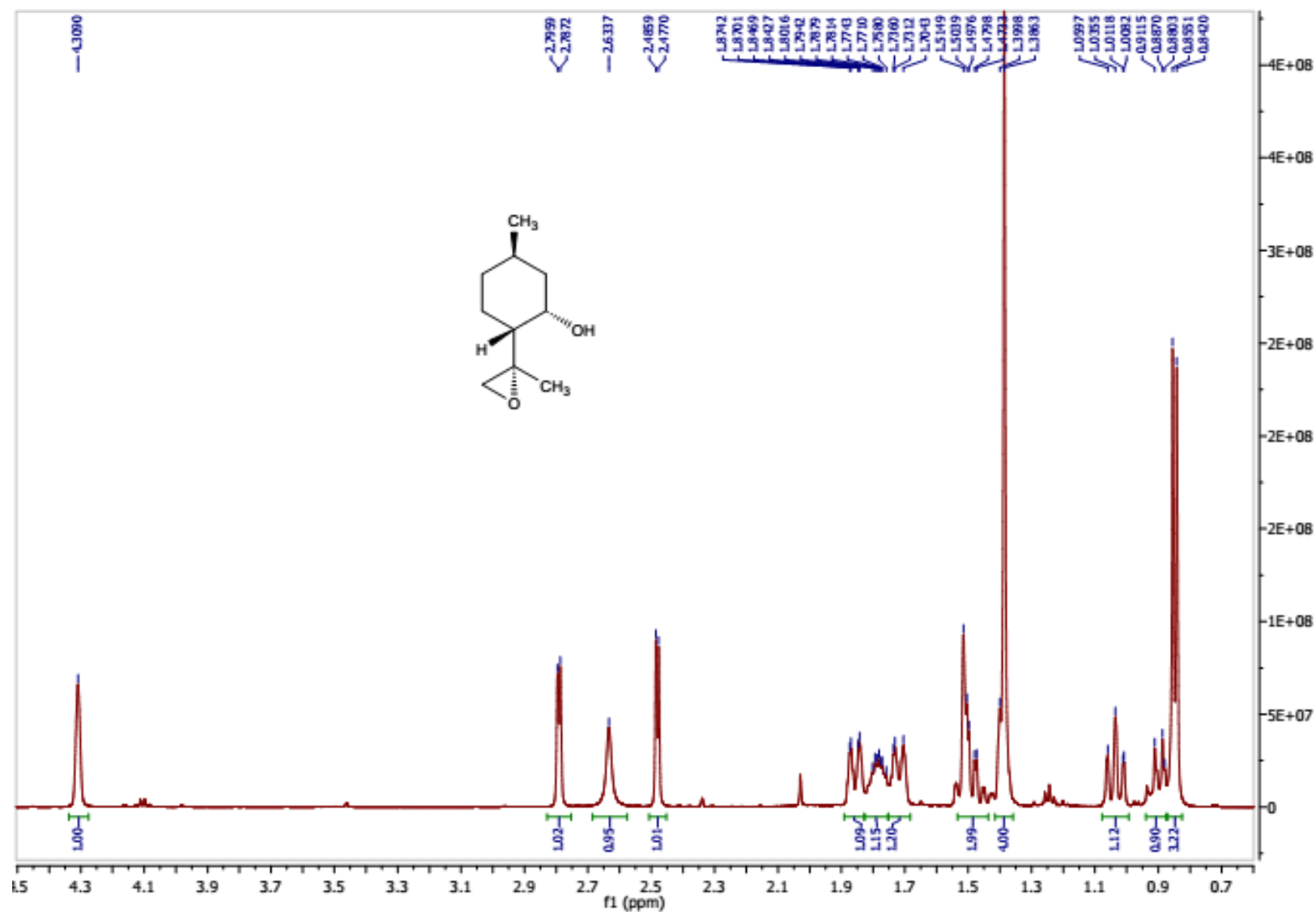
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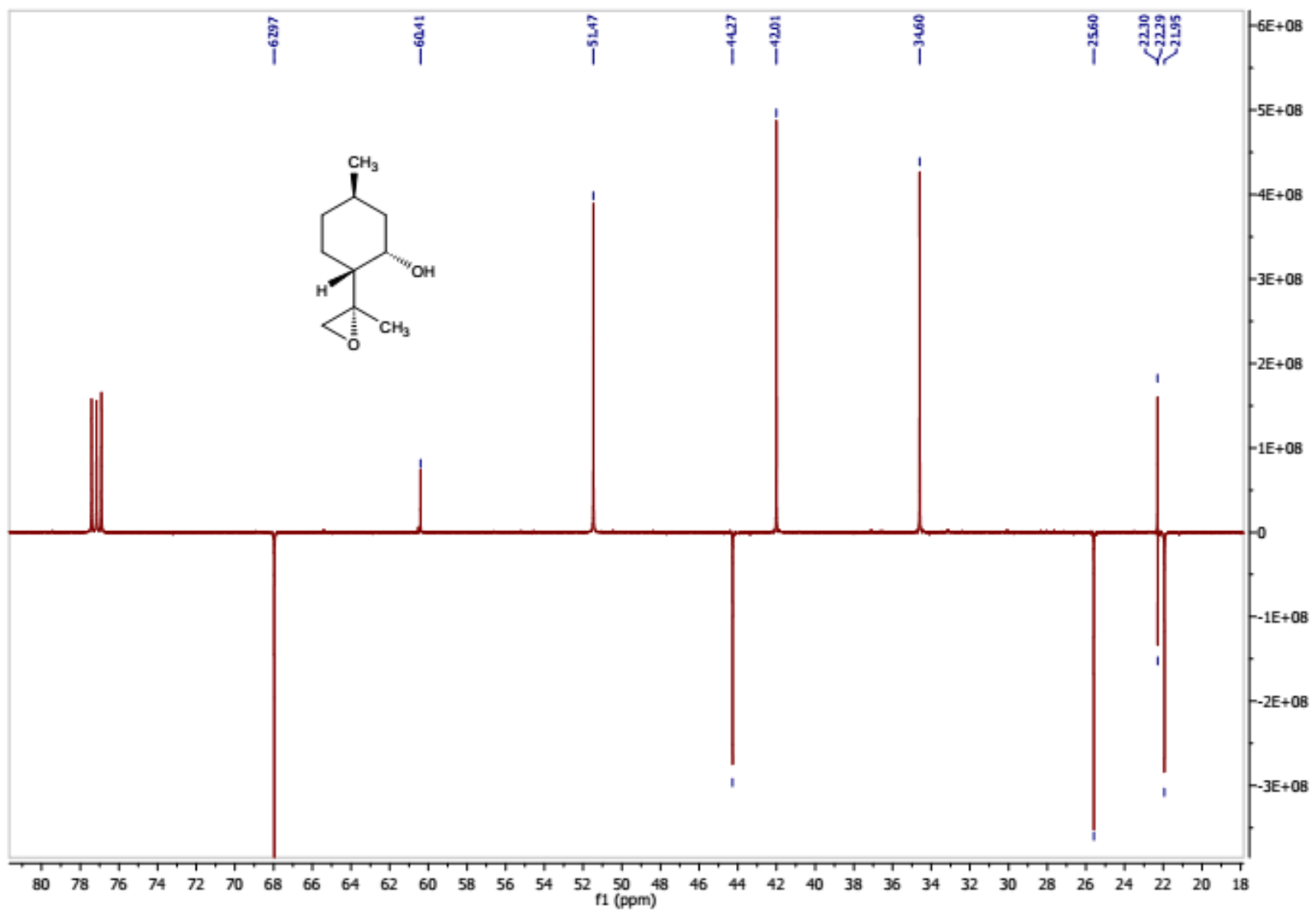
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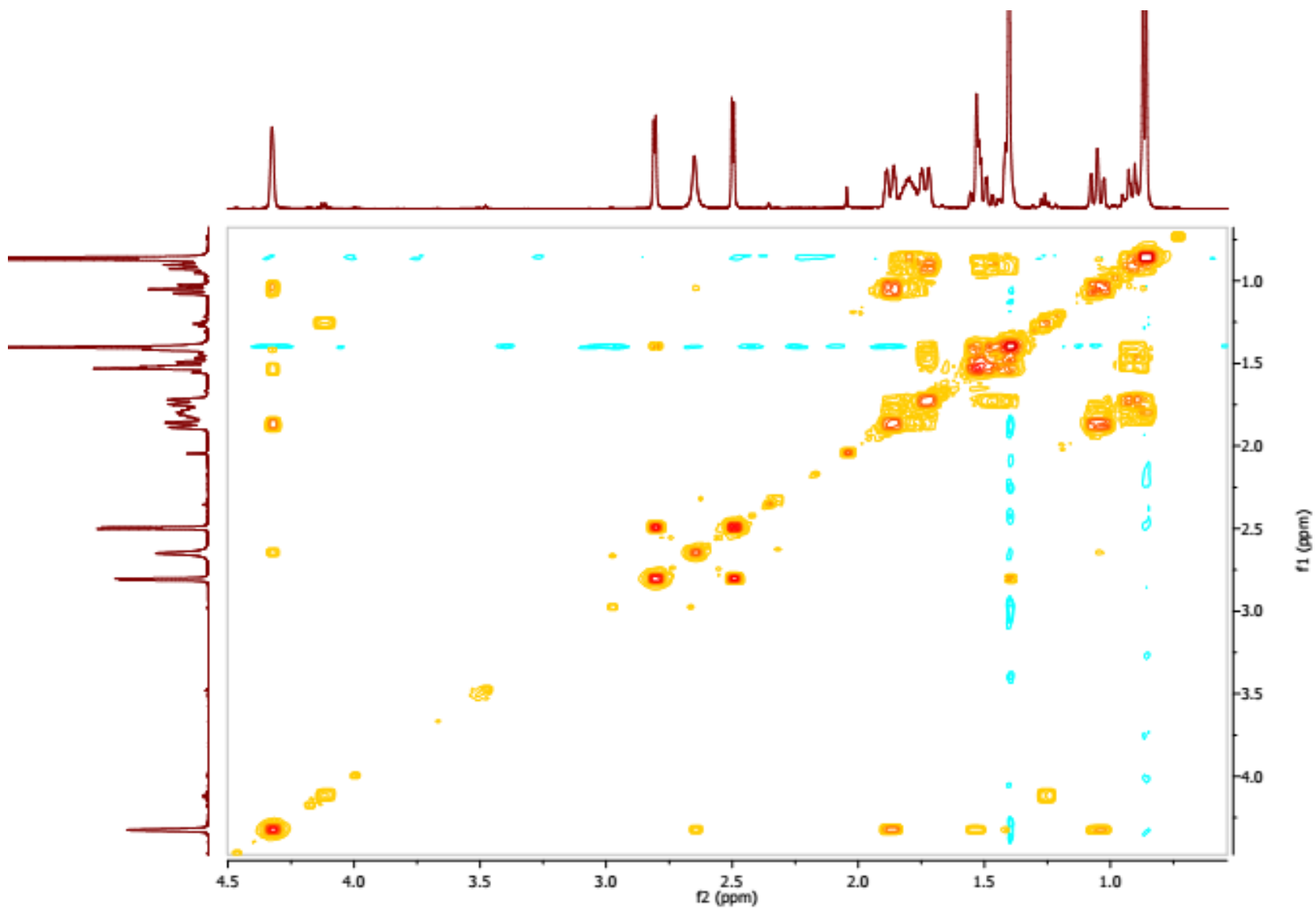
<sup>1</sup>H-NMR of compound **19**



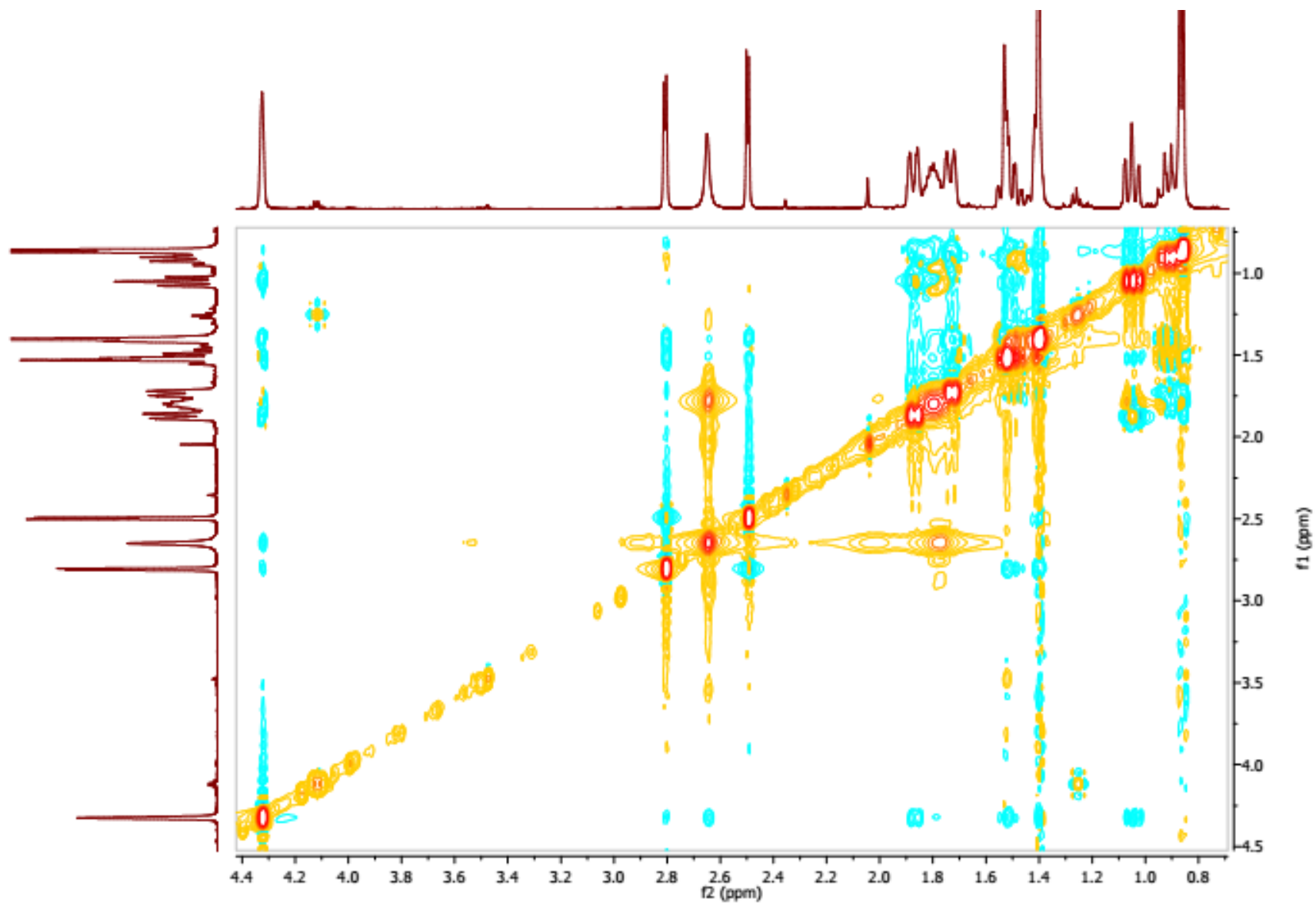
$^{13}\text{C}$ -NMR of compound **19**



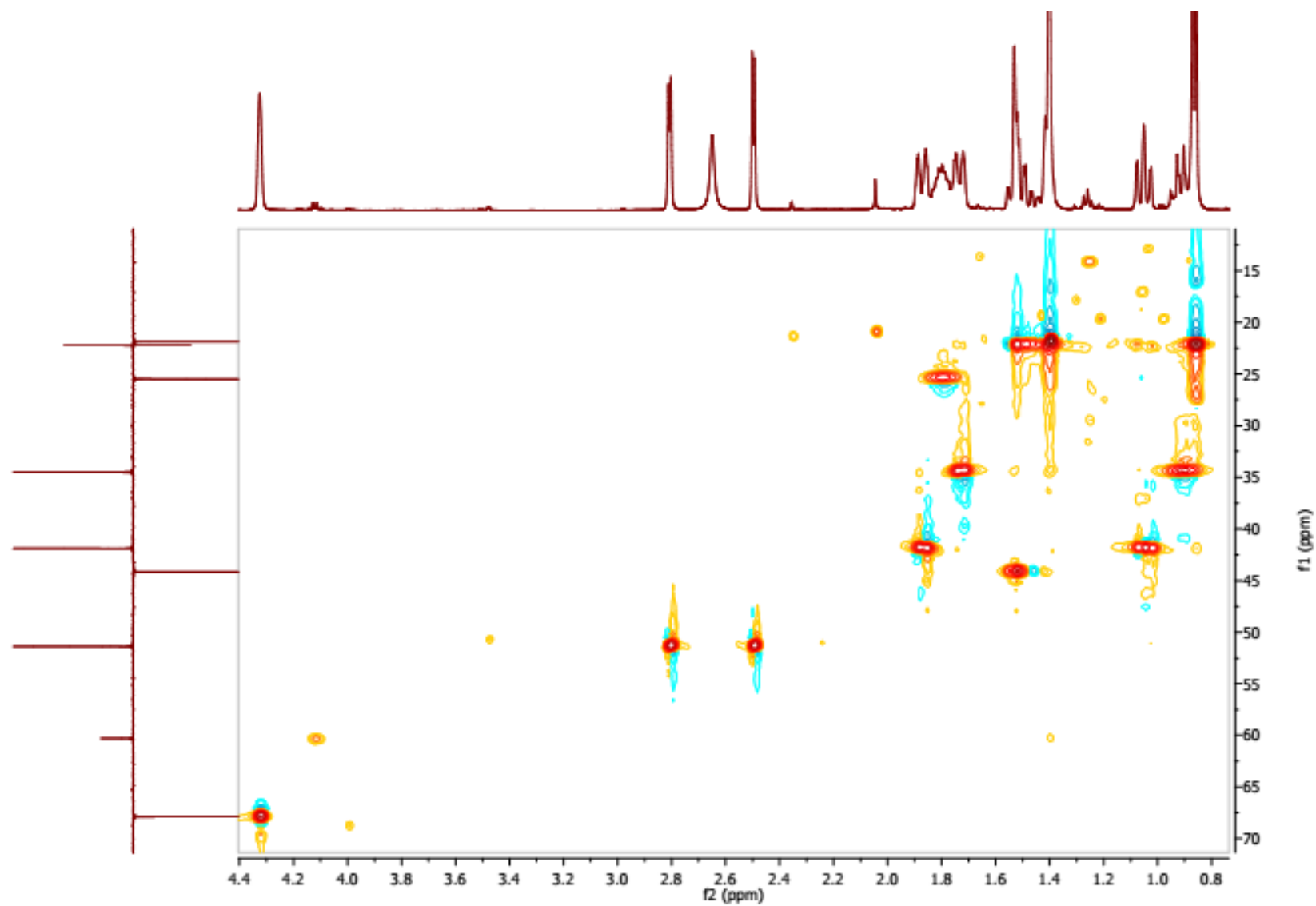
COSY of compound **20**



NOESY of compound **19**

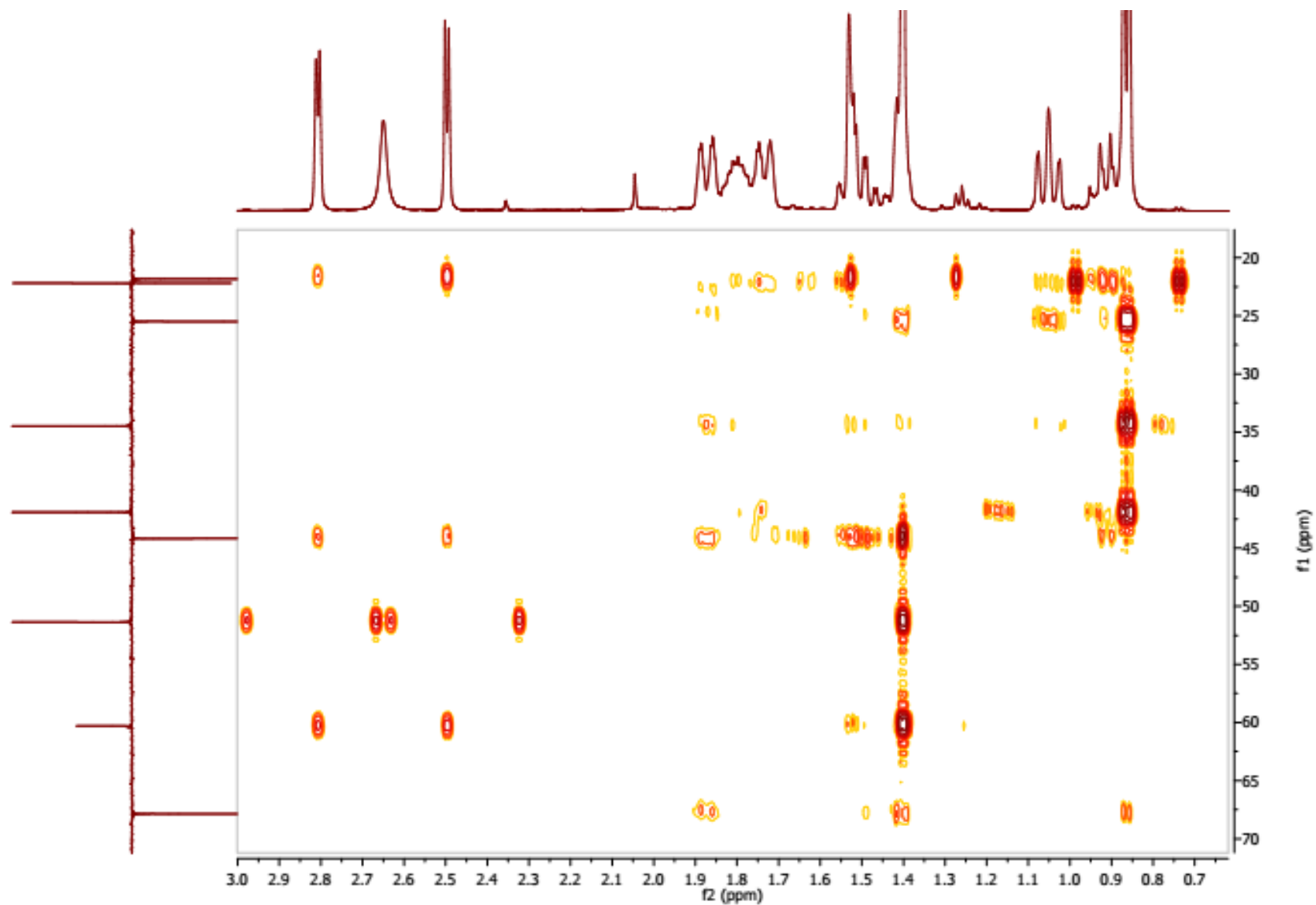


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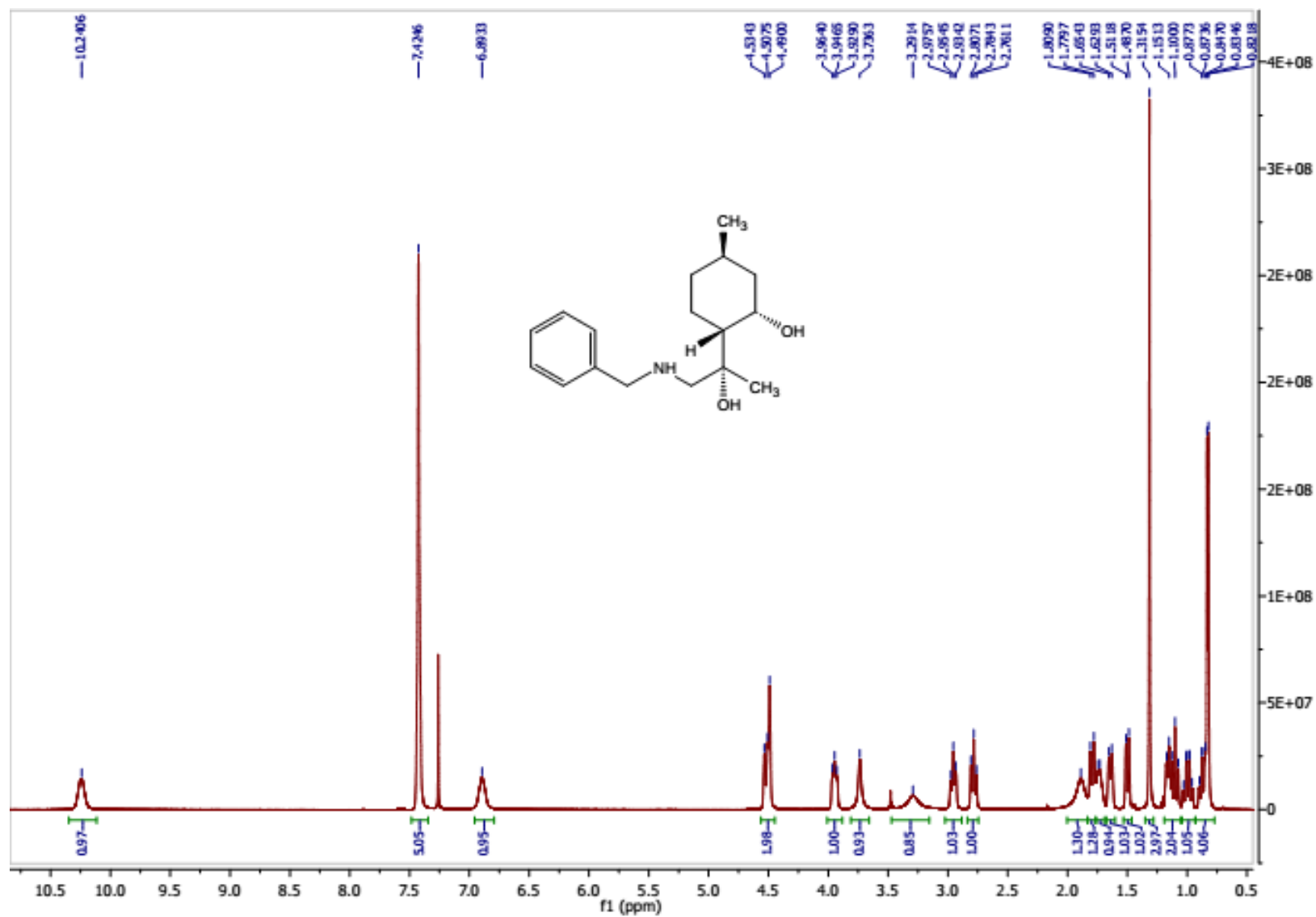




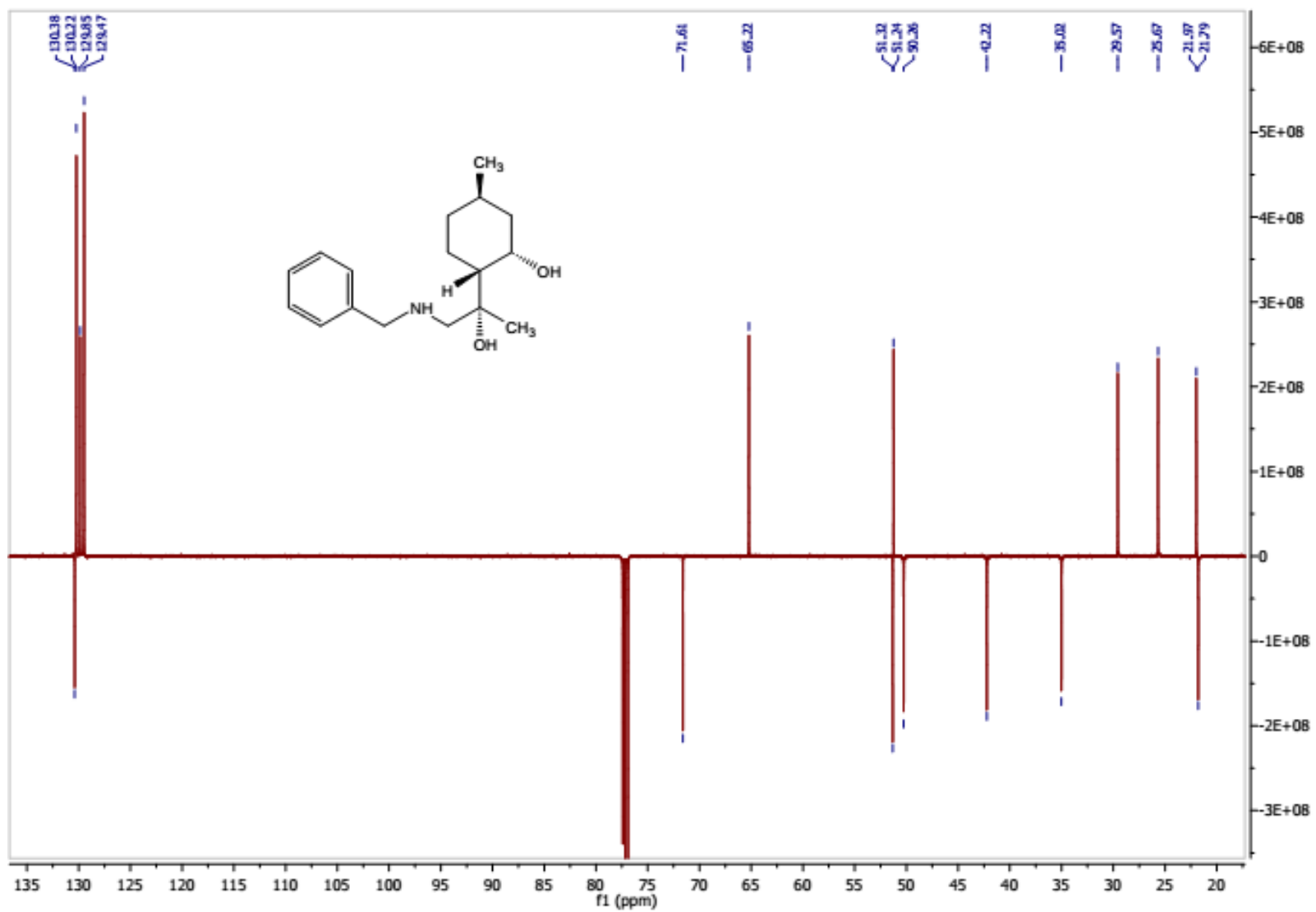
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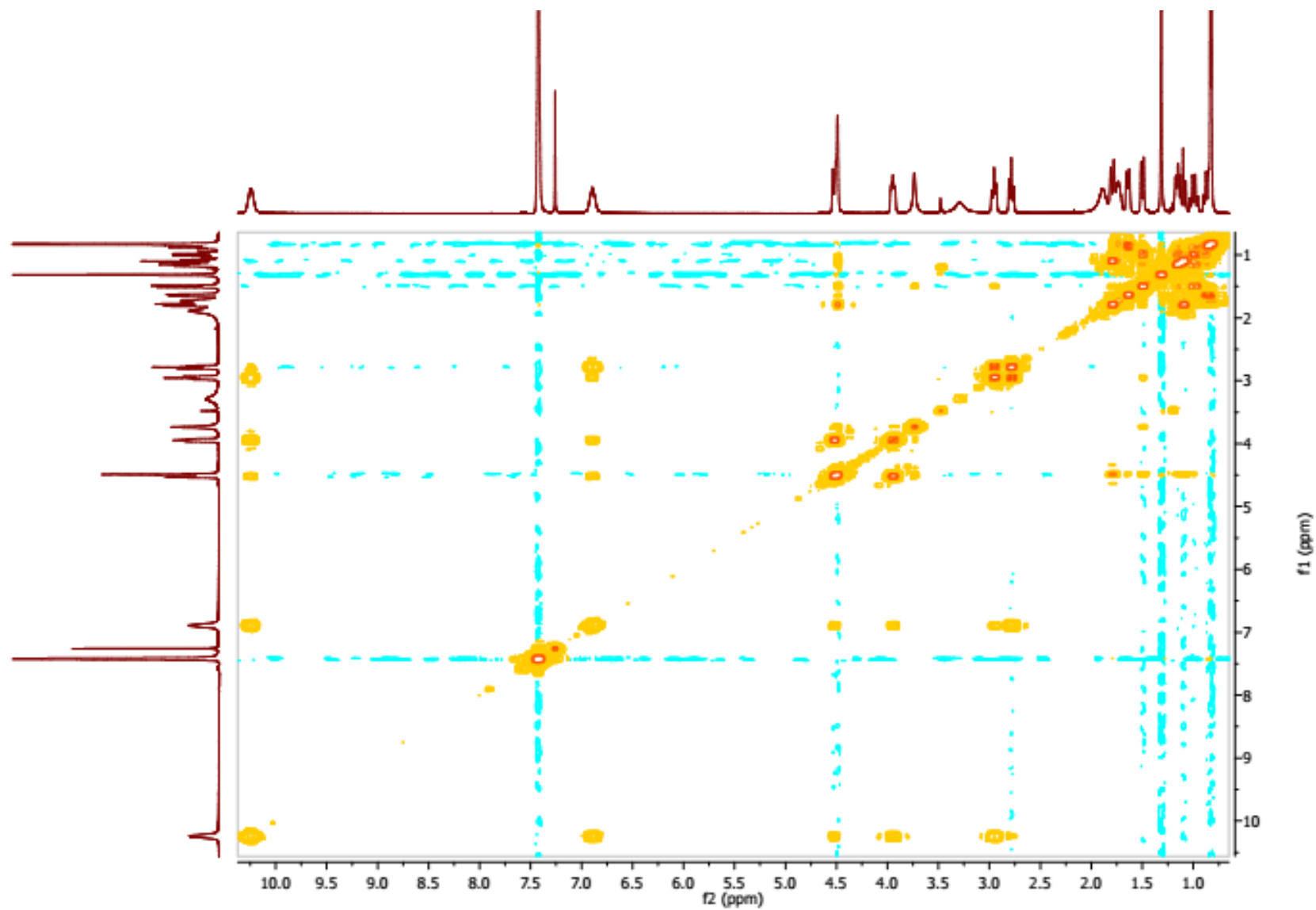
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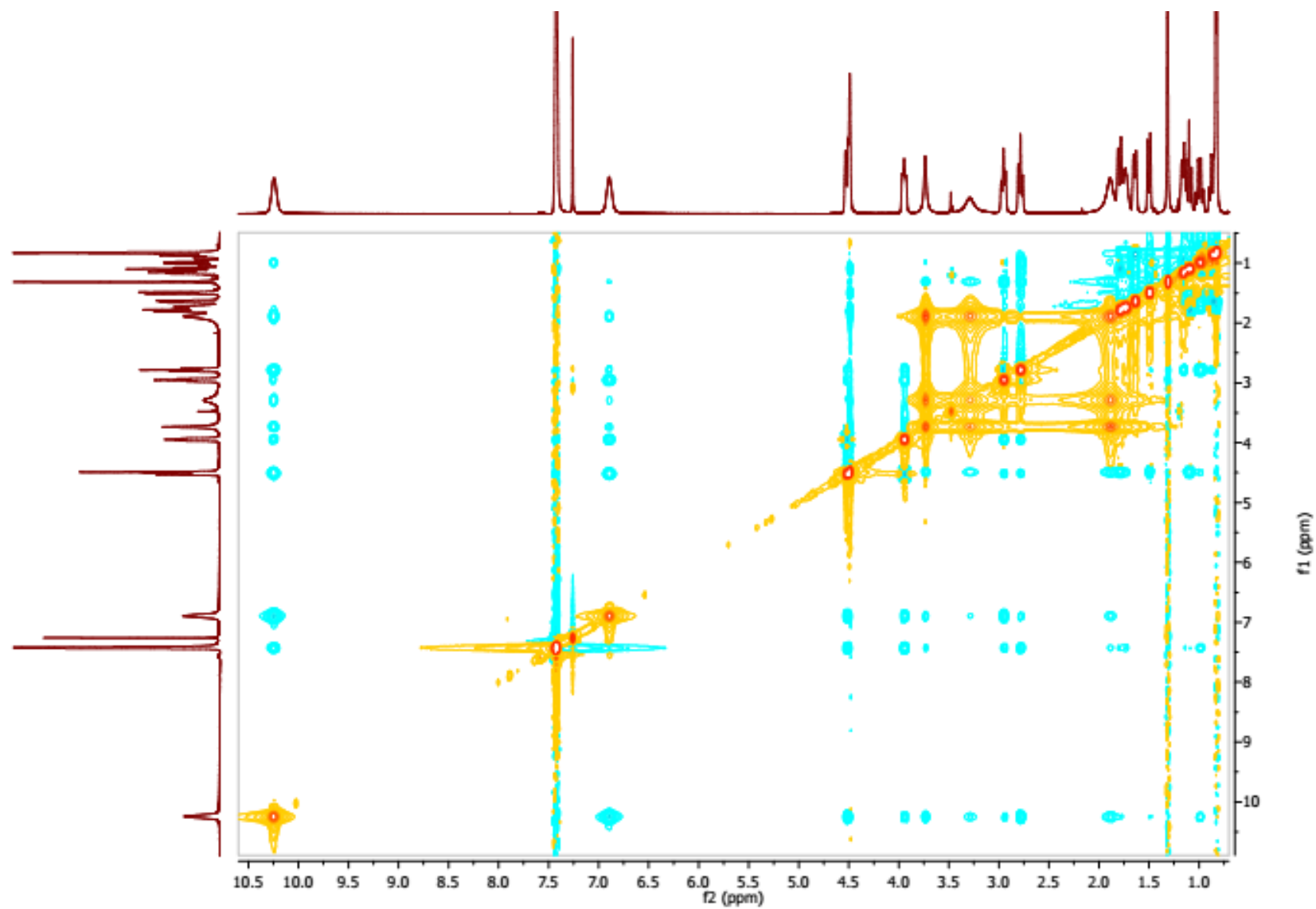
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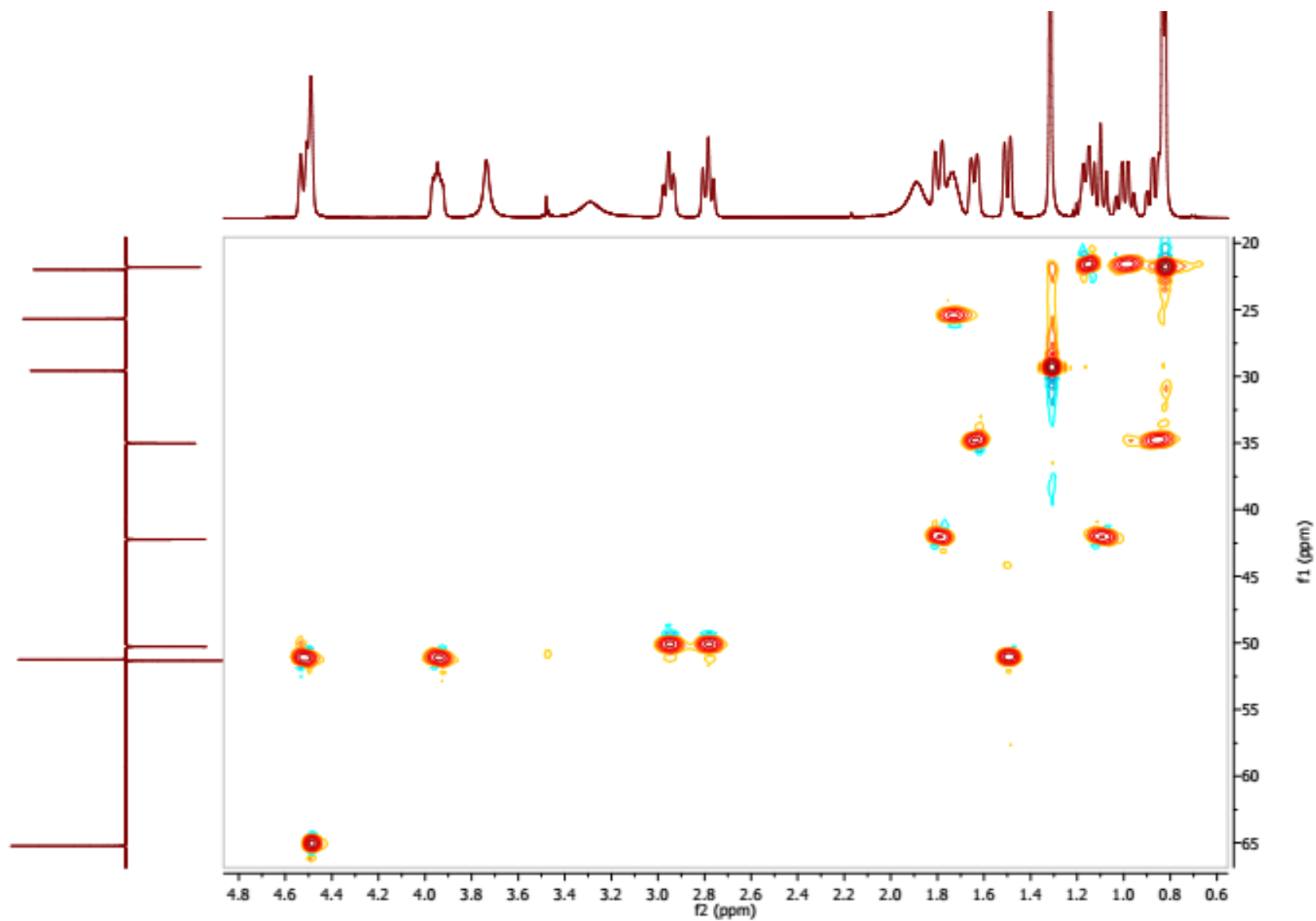
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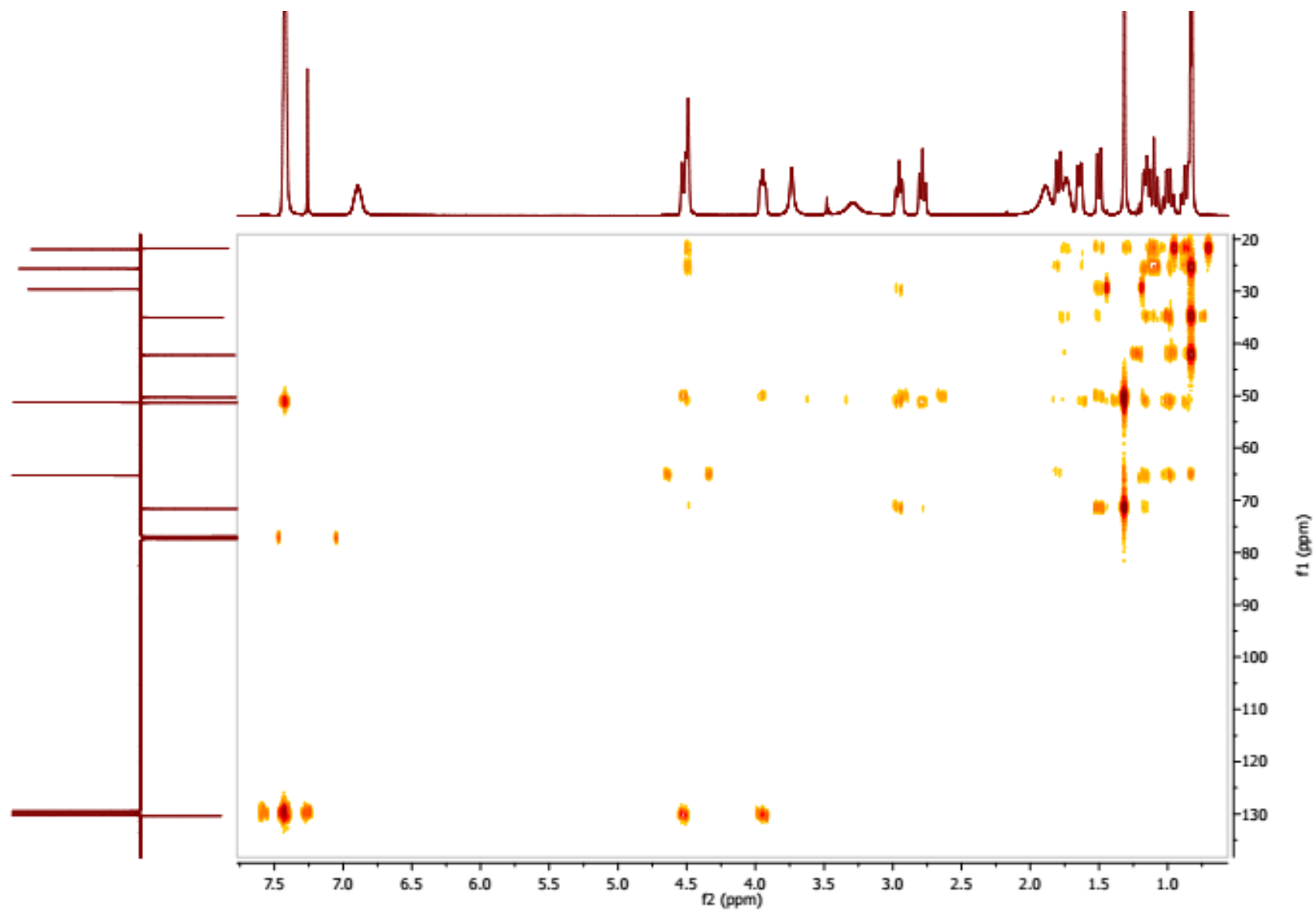
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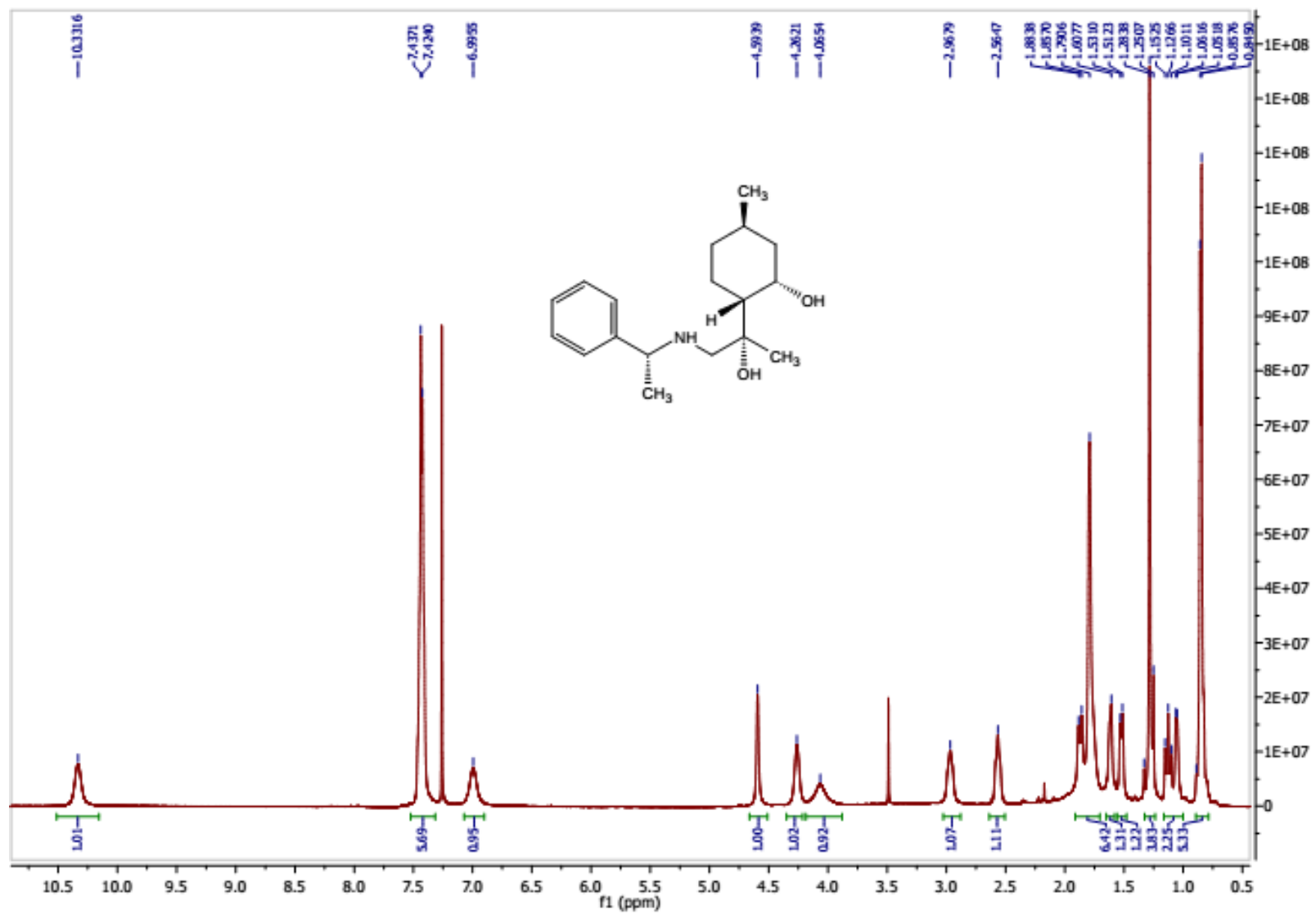
HSQC of compound **20**



HMBC of compound 20

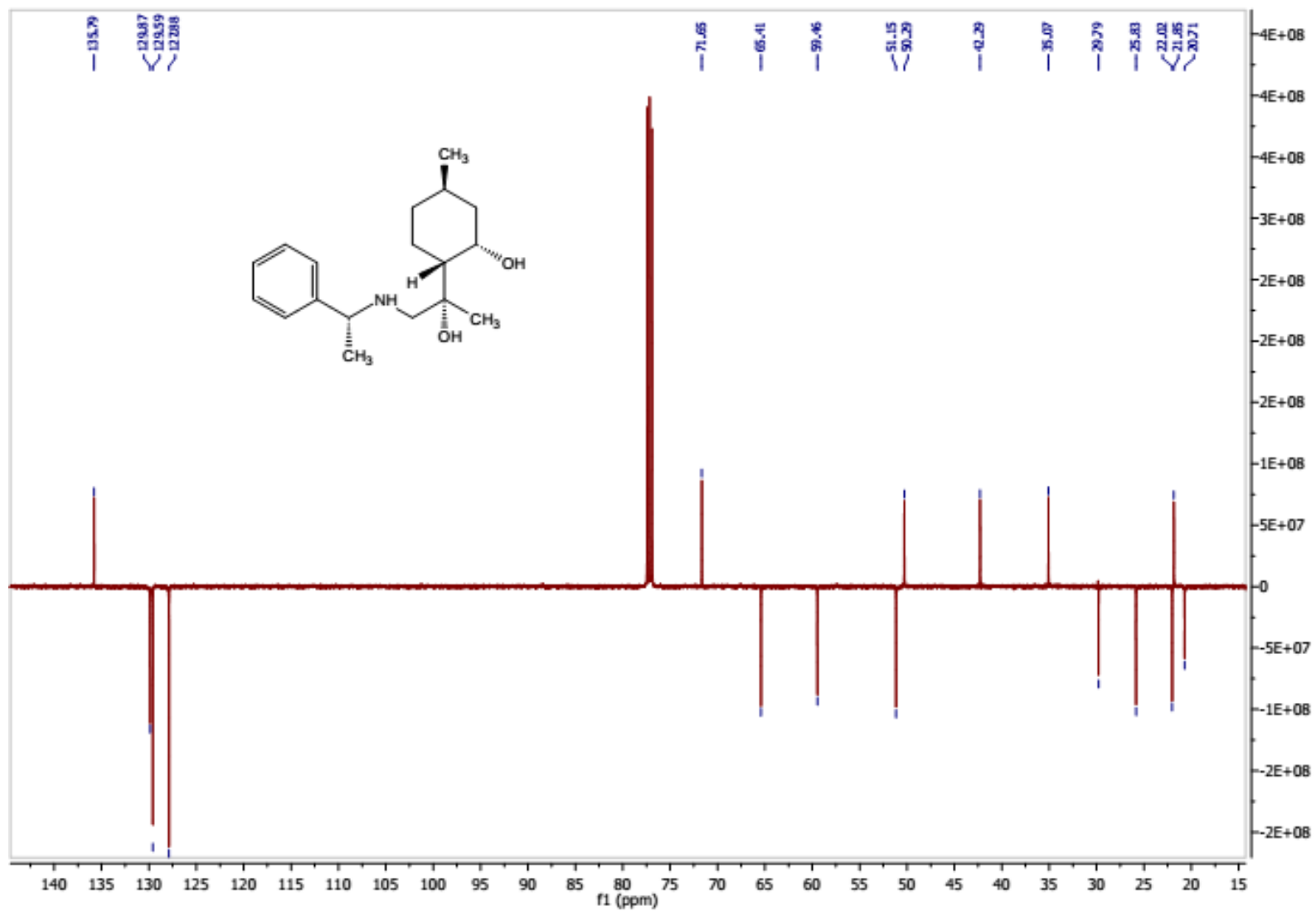


<sup>1</sup>H-NMR of compound **21**

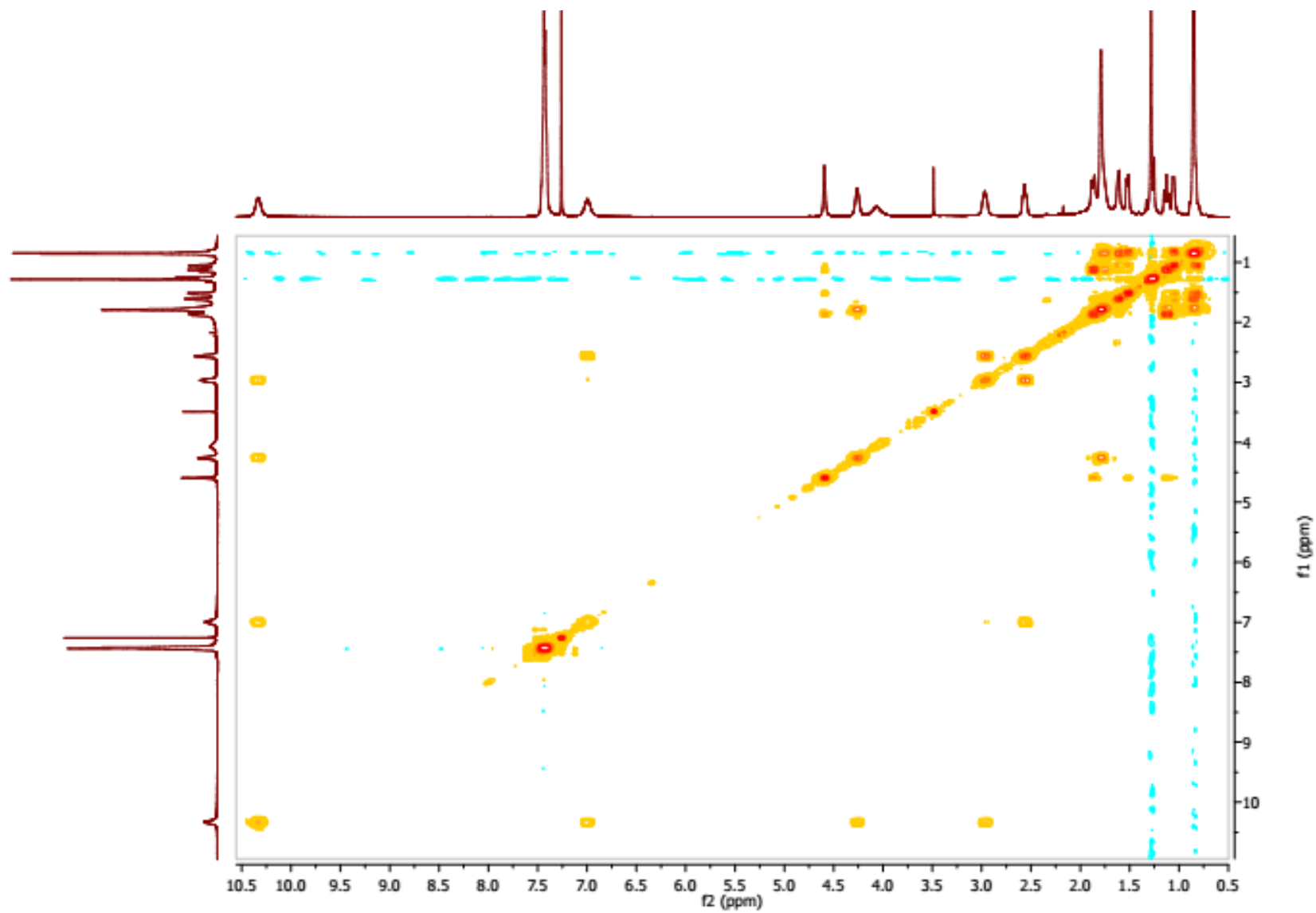




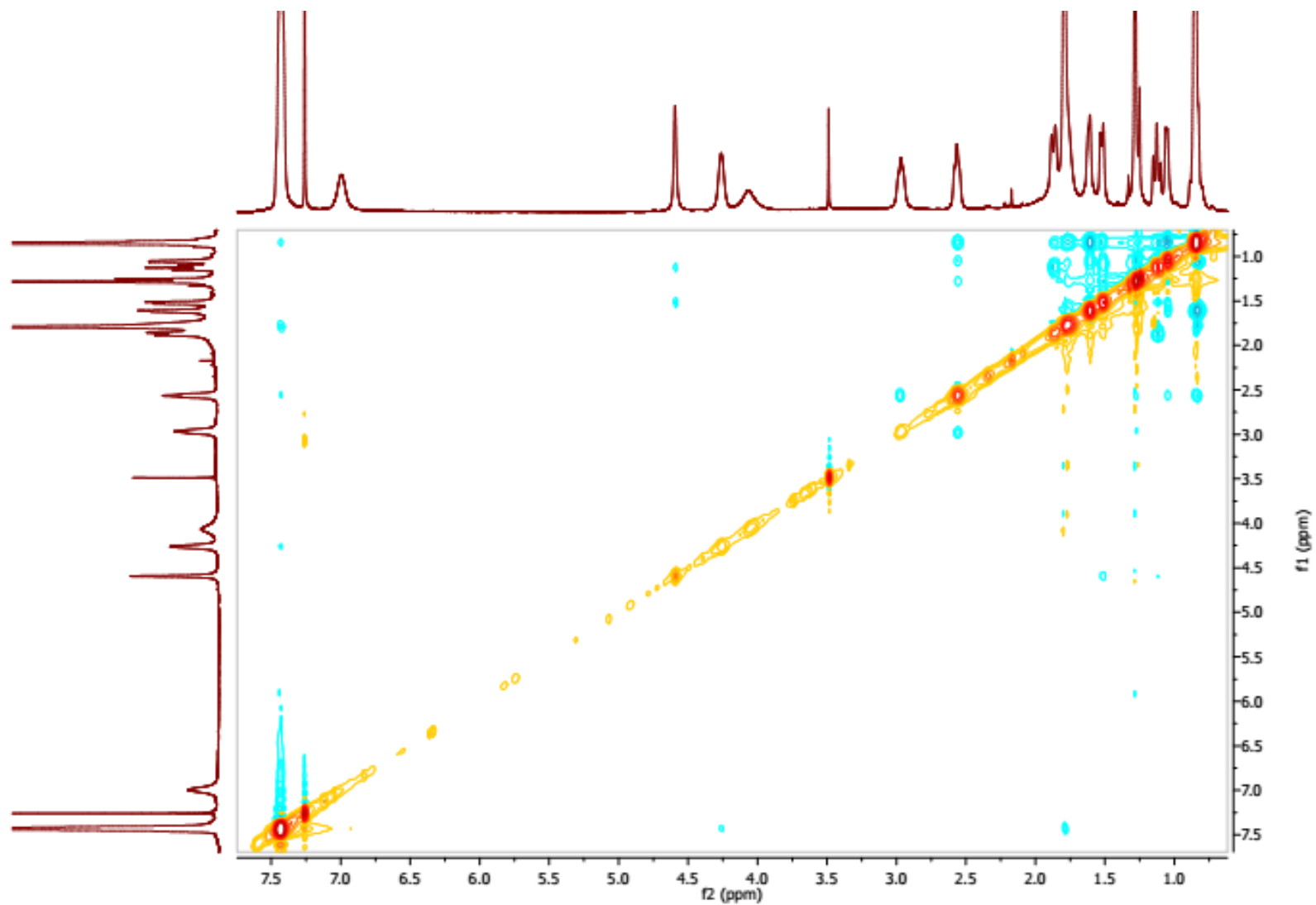
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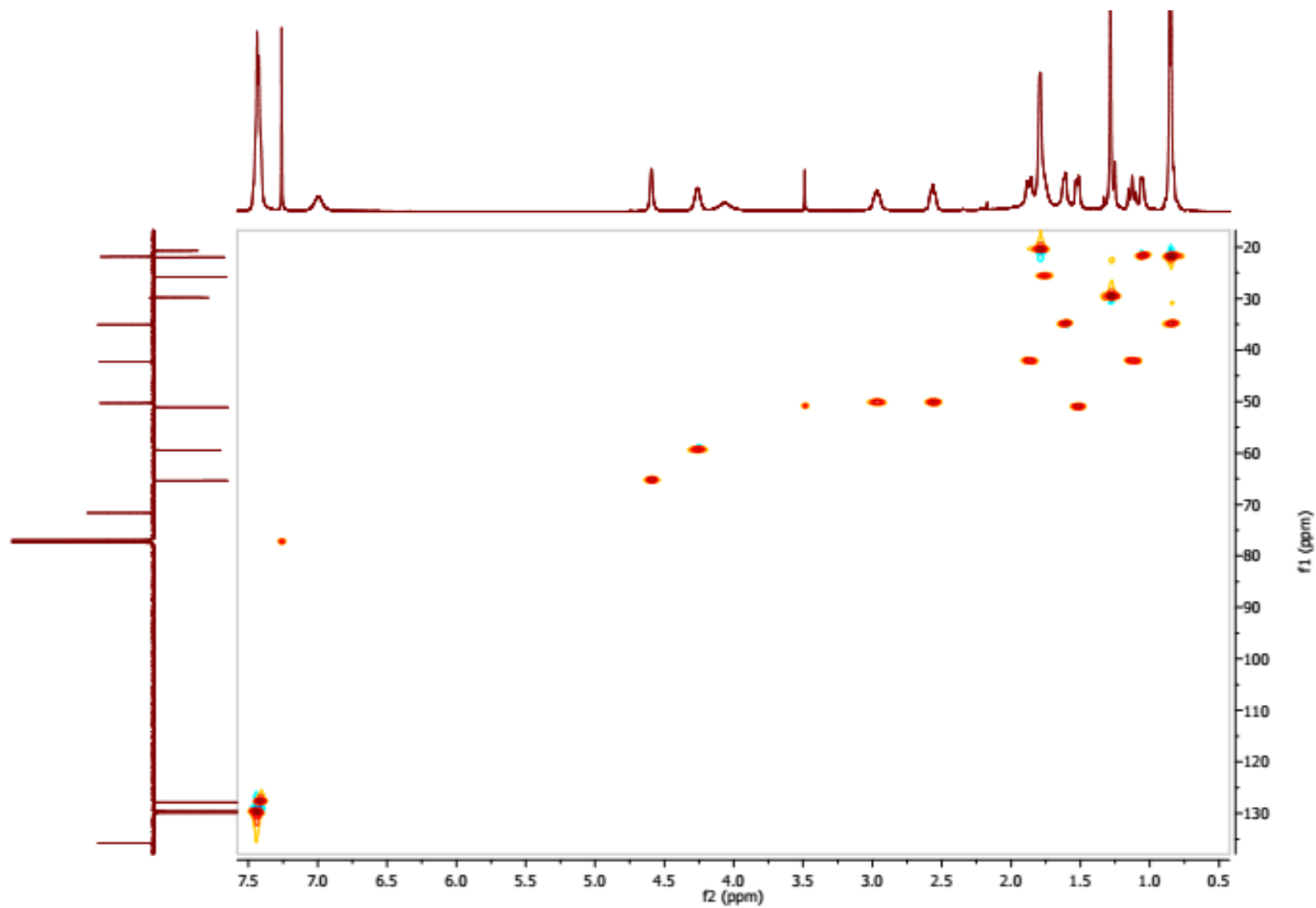
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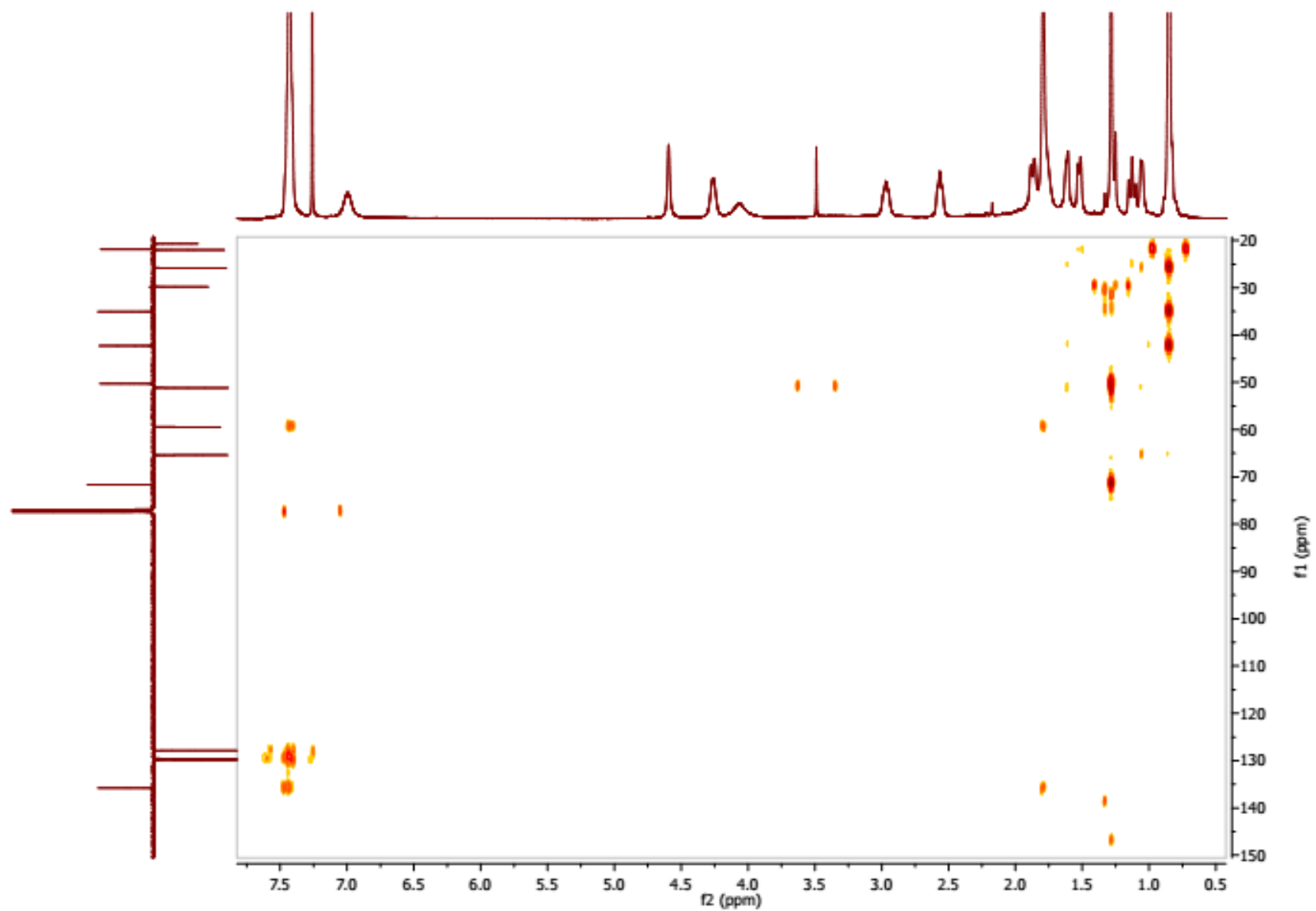
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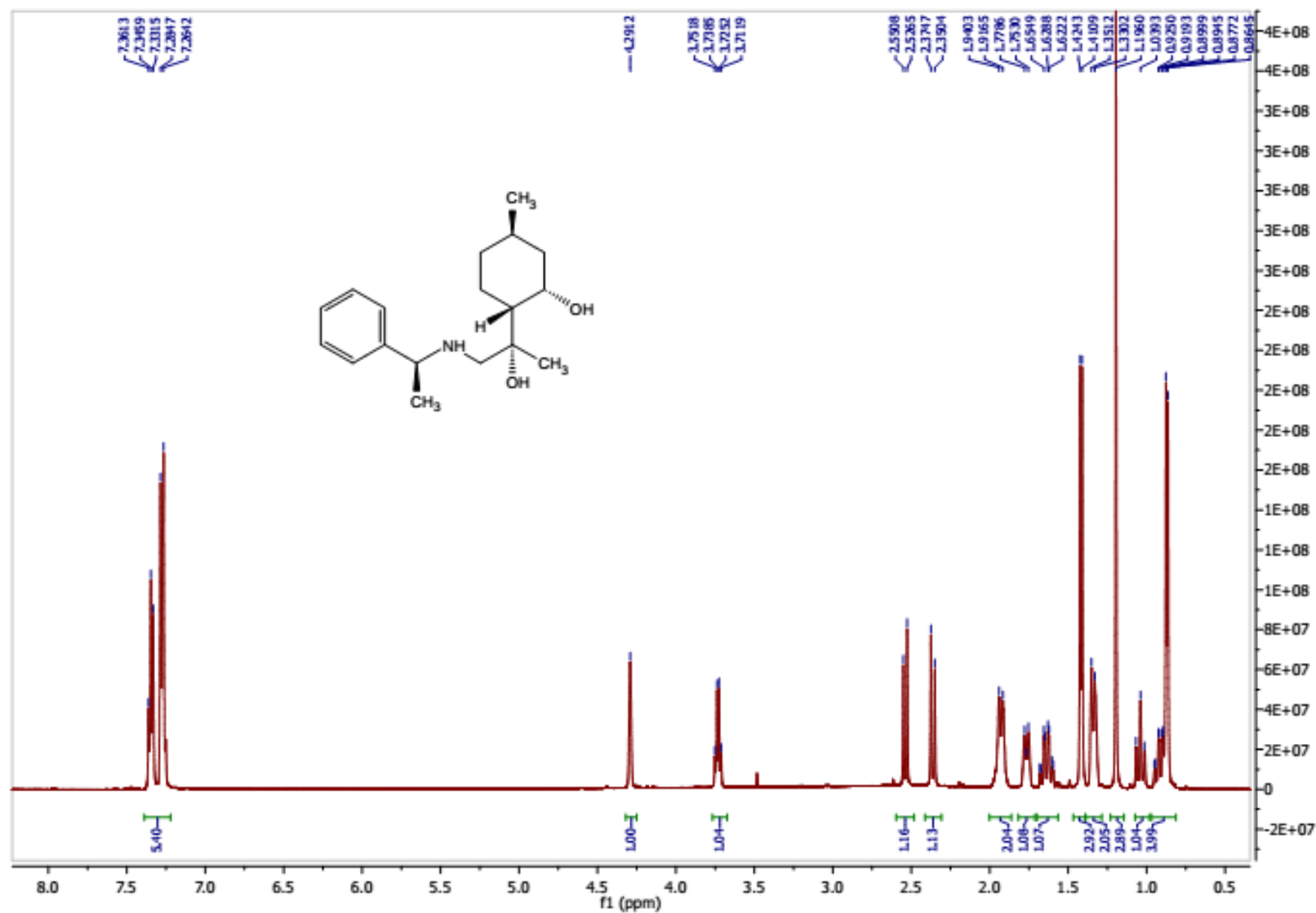
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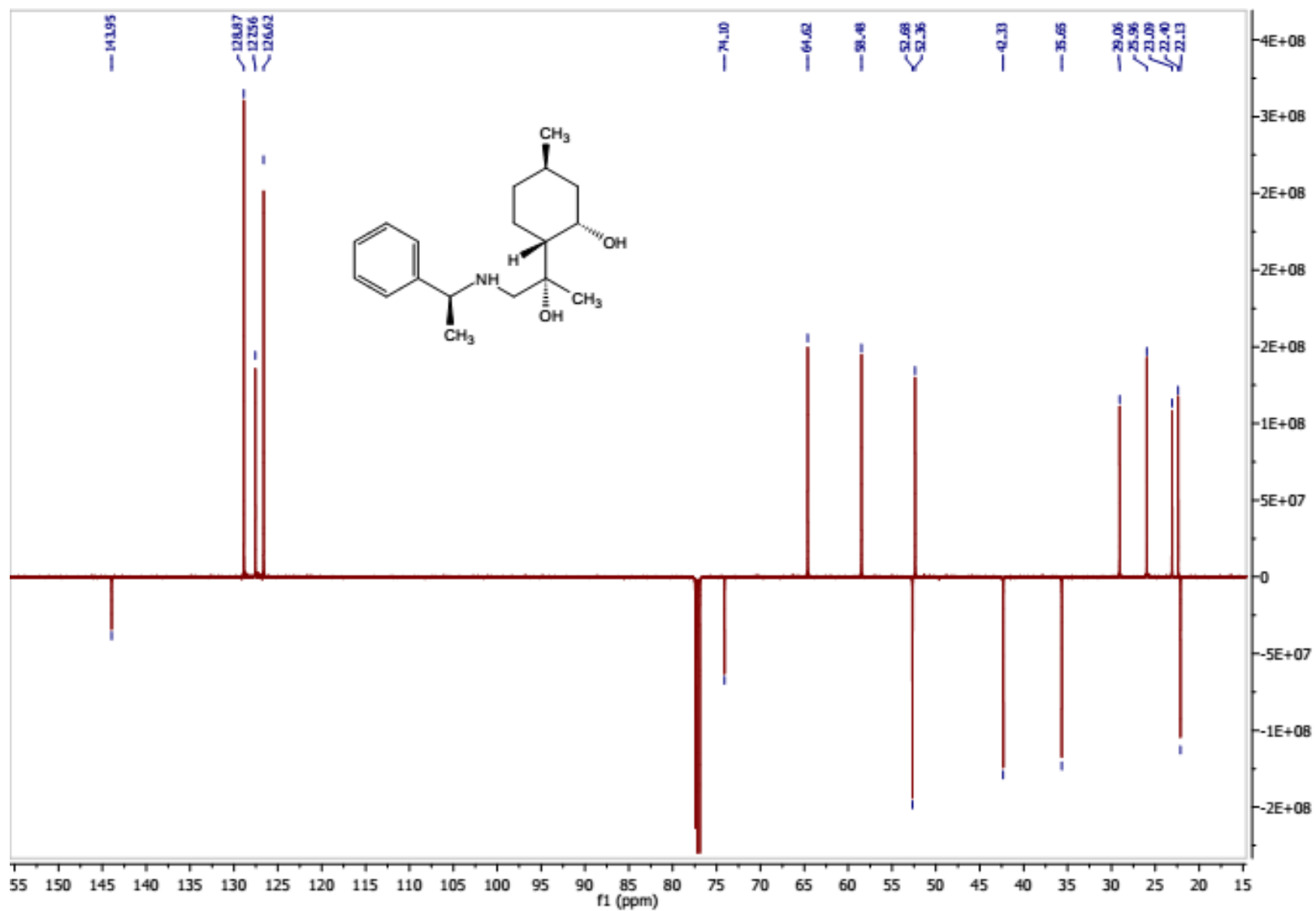
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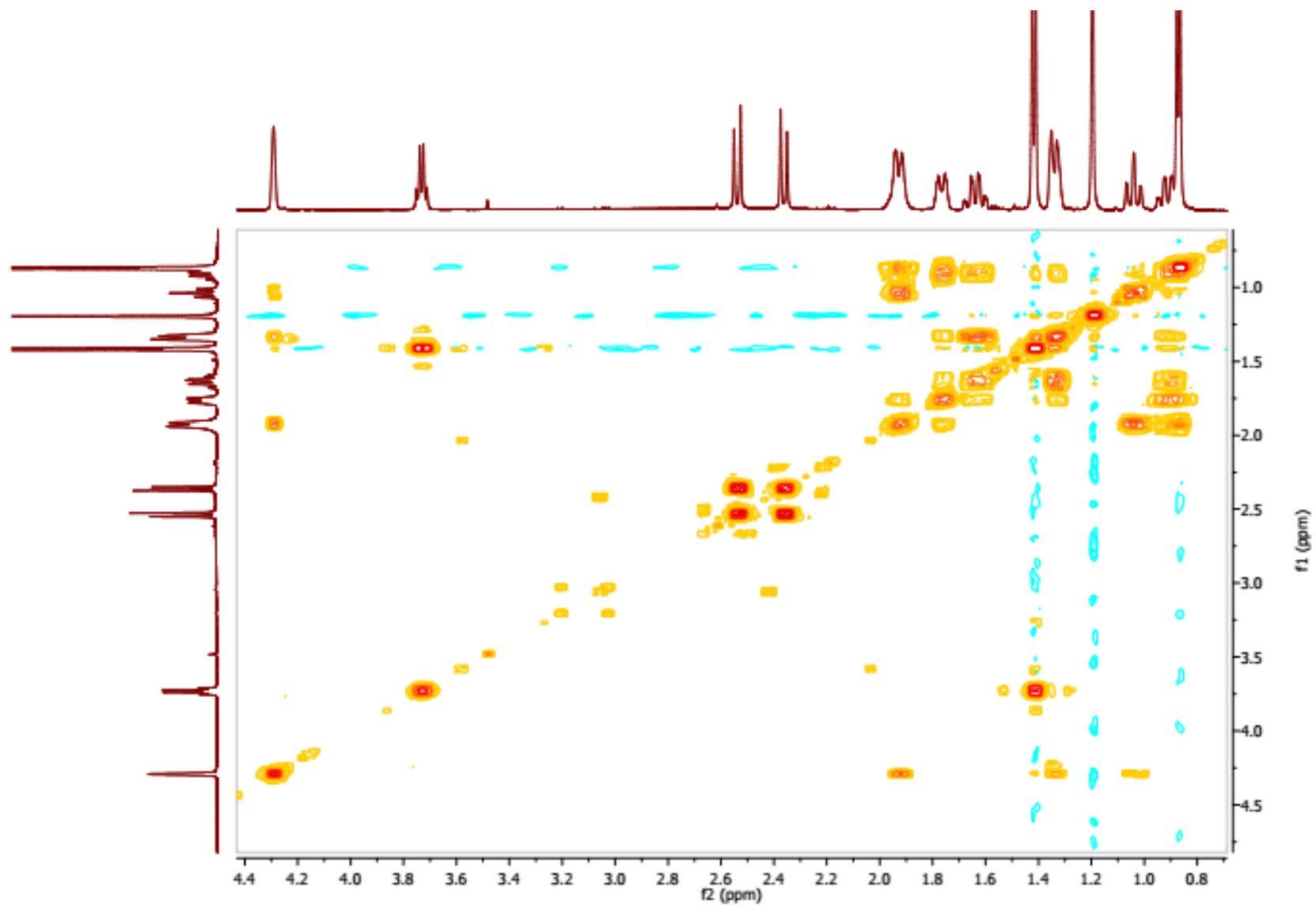
$^1\text{H-NMR}$  of compound **22**



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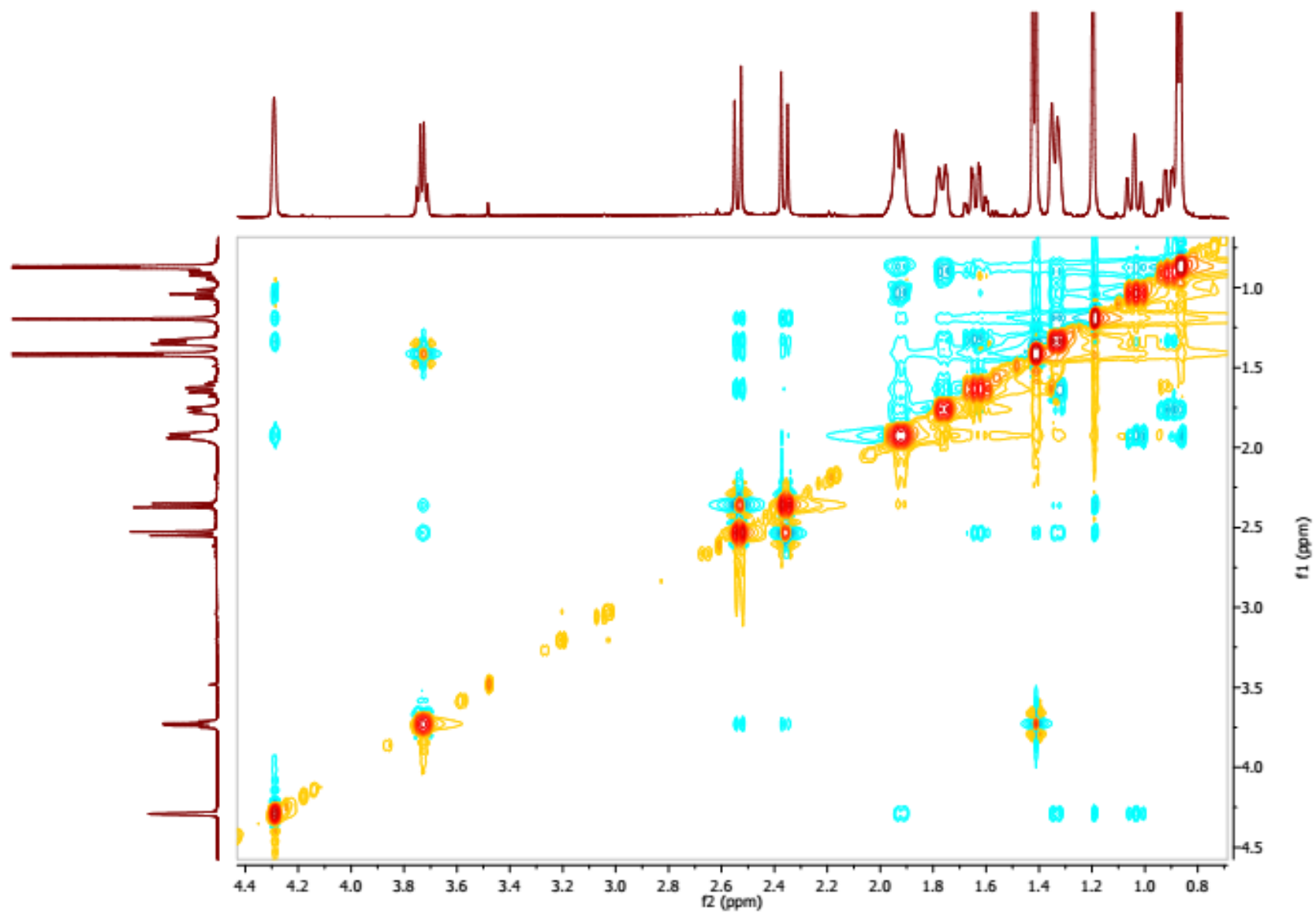


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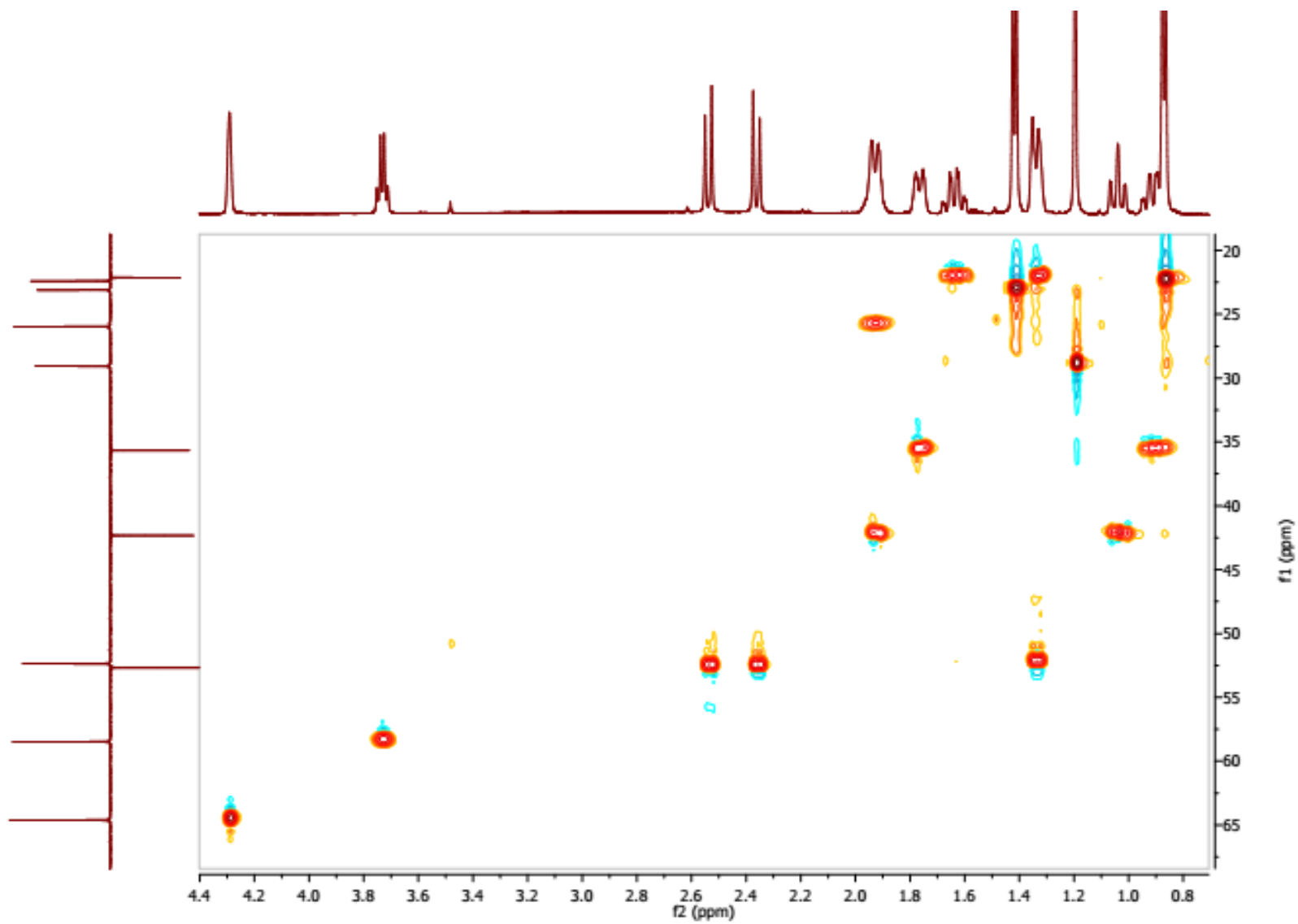




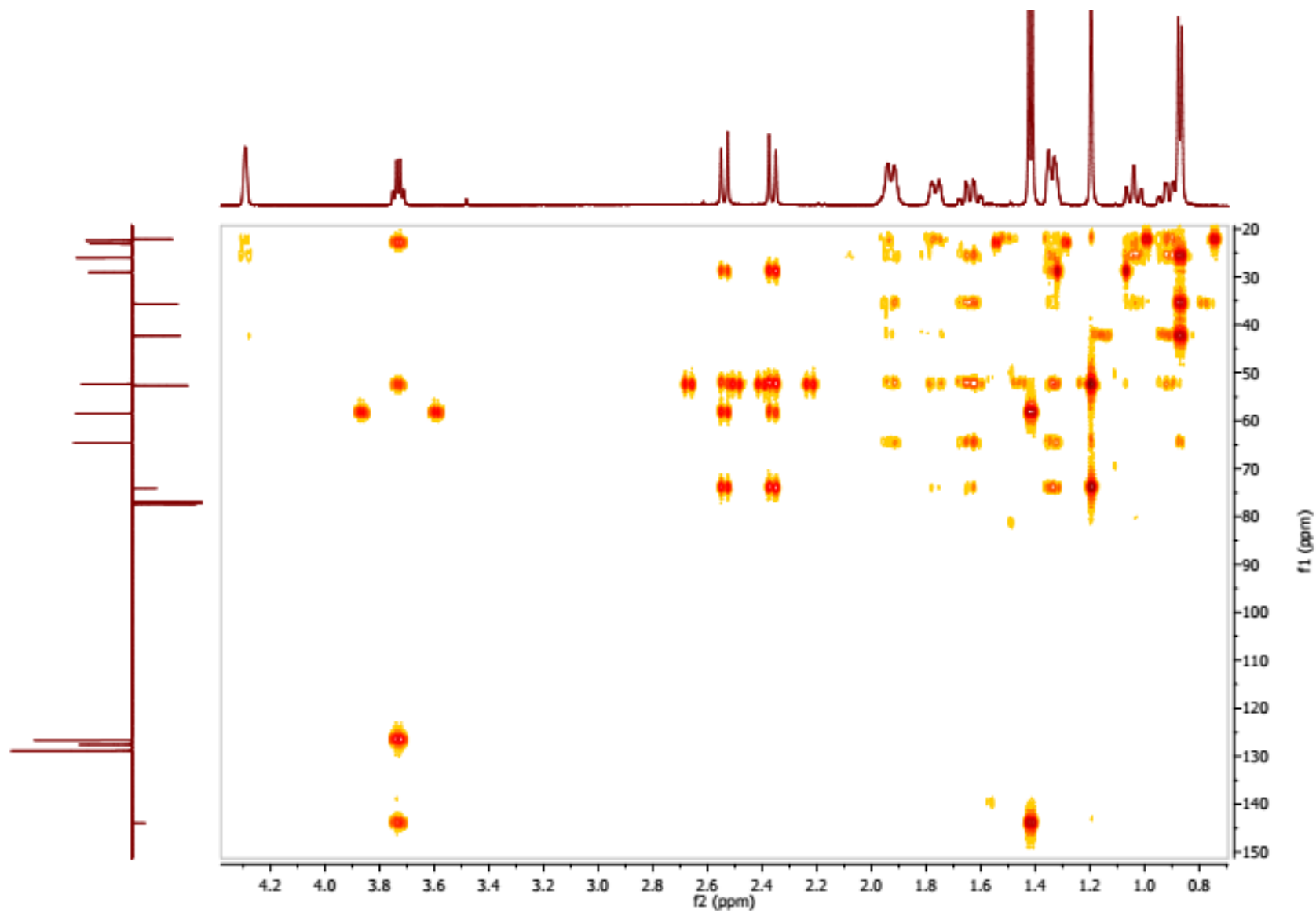
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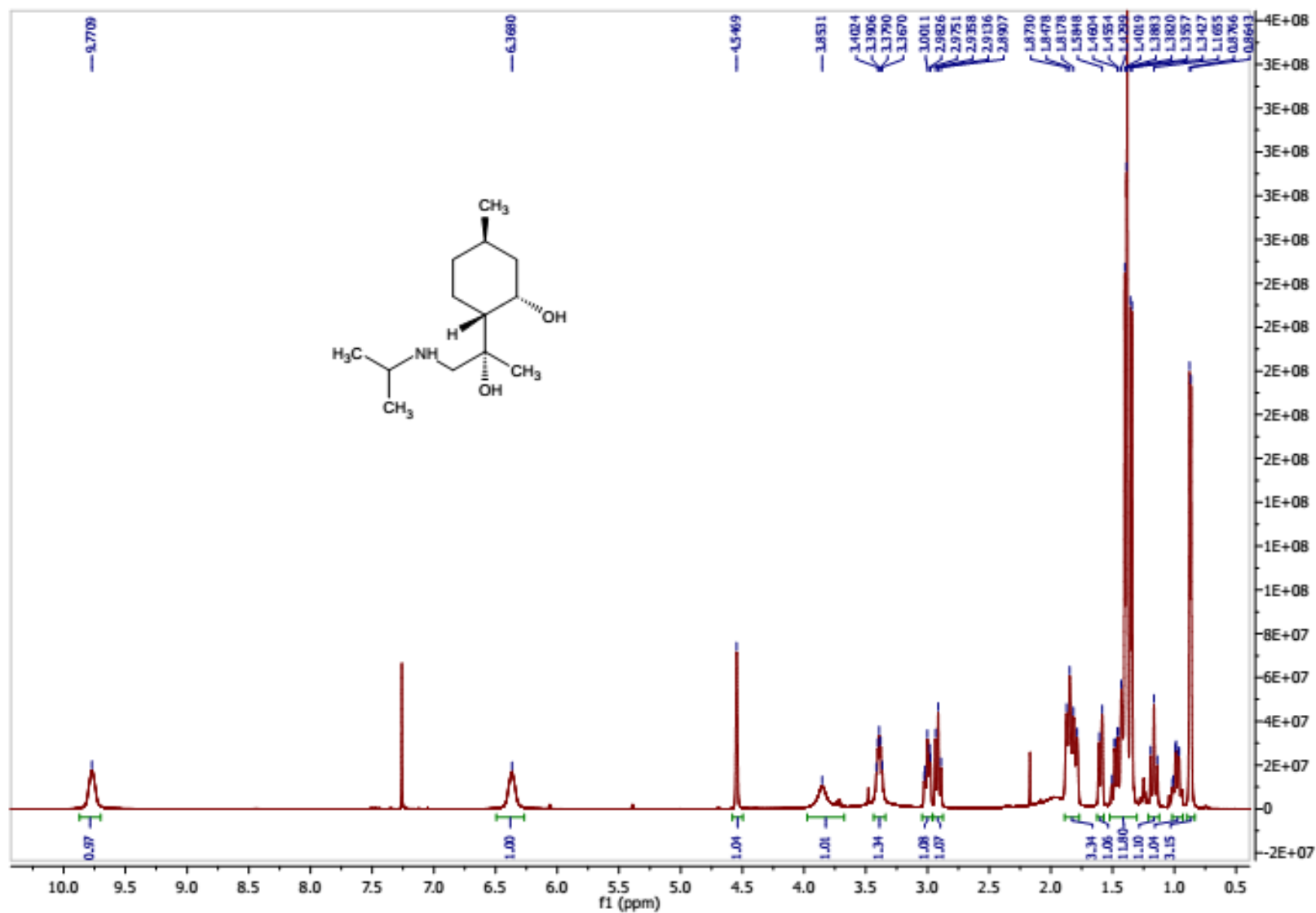
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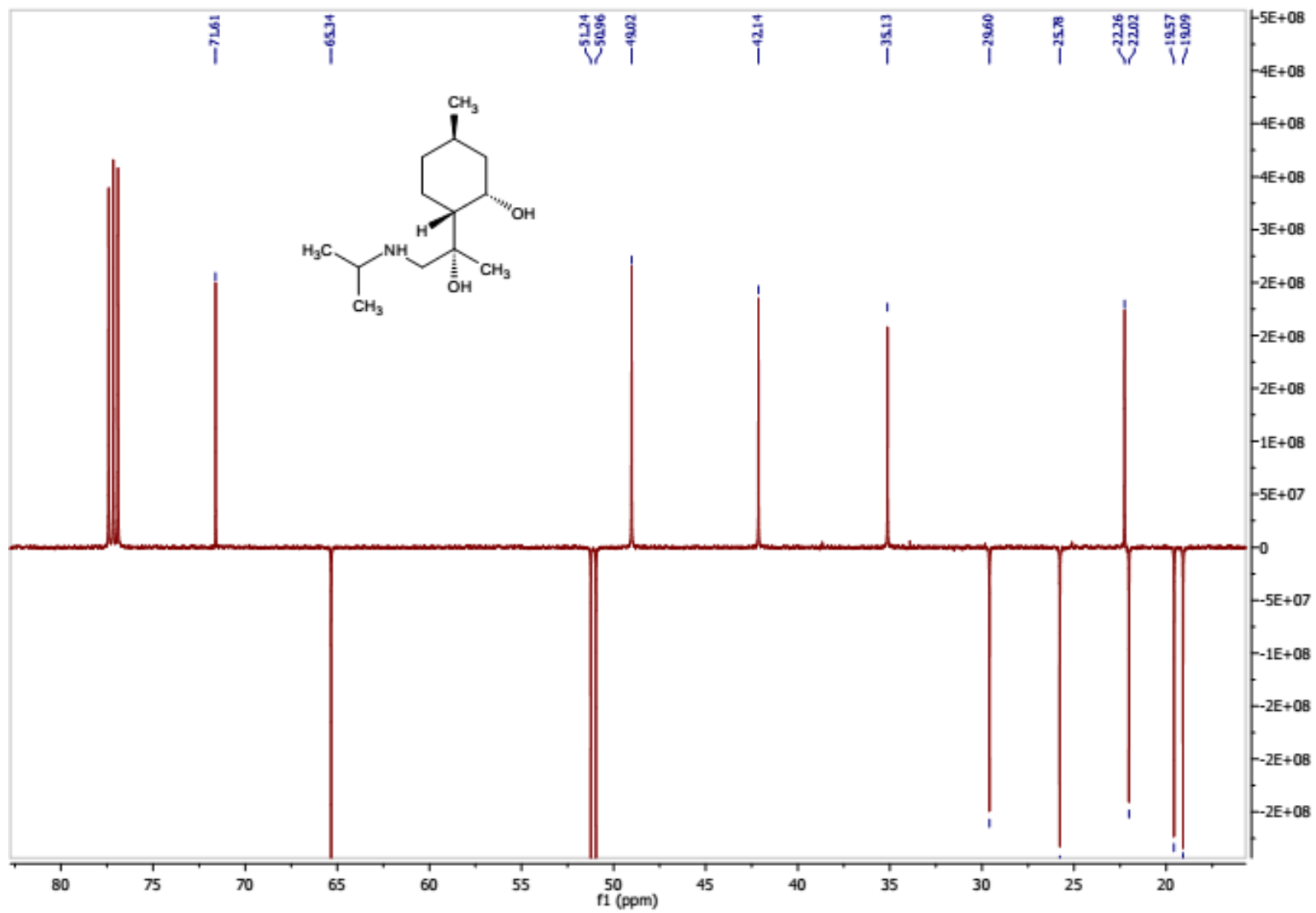
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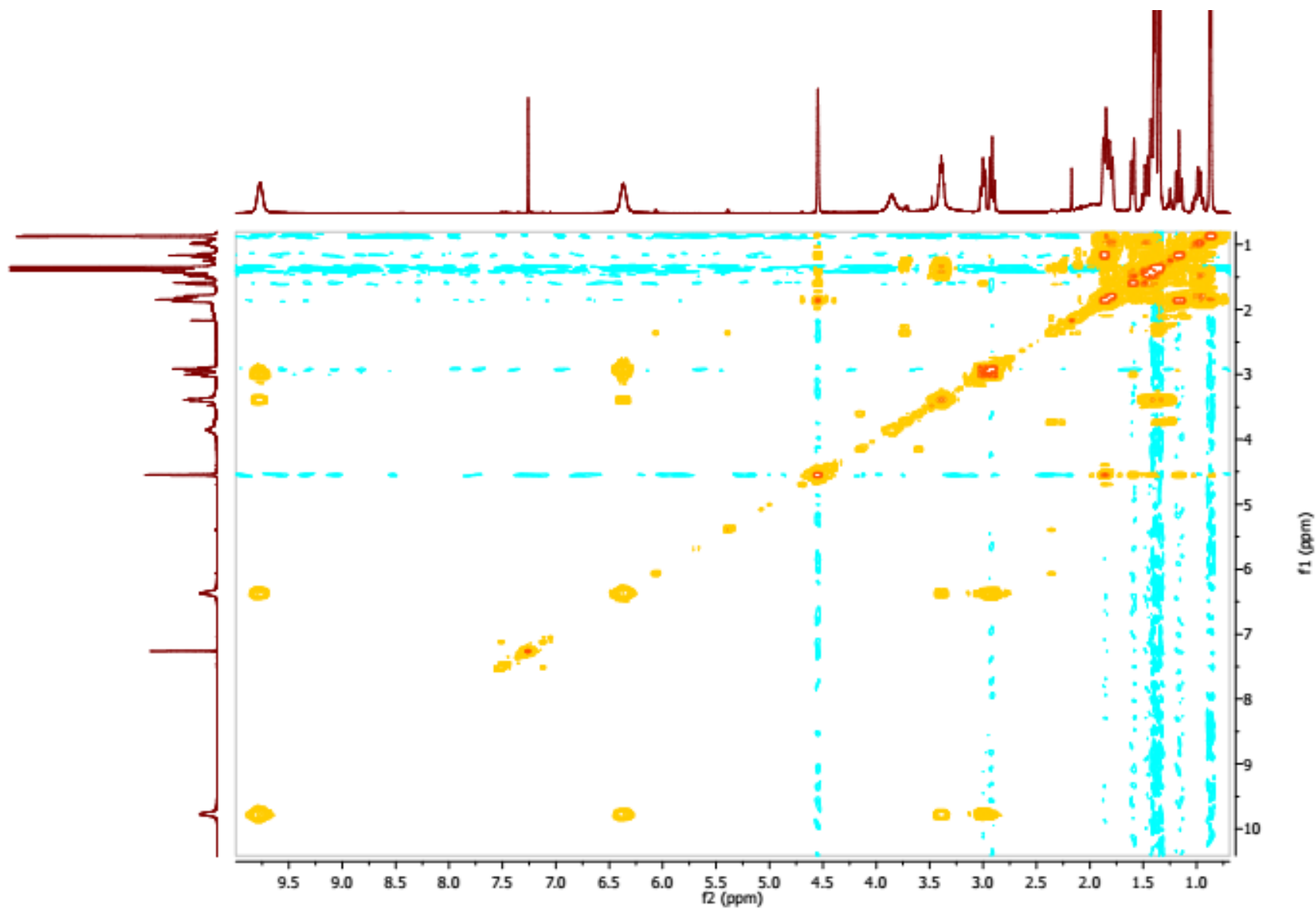
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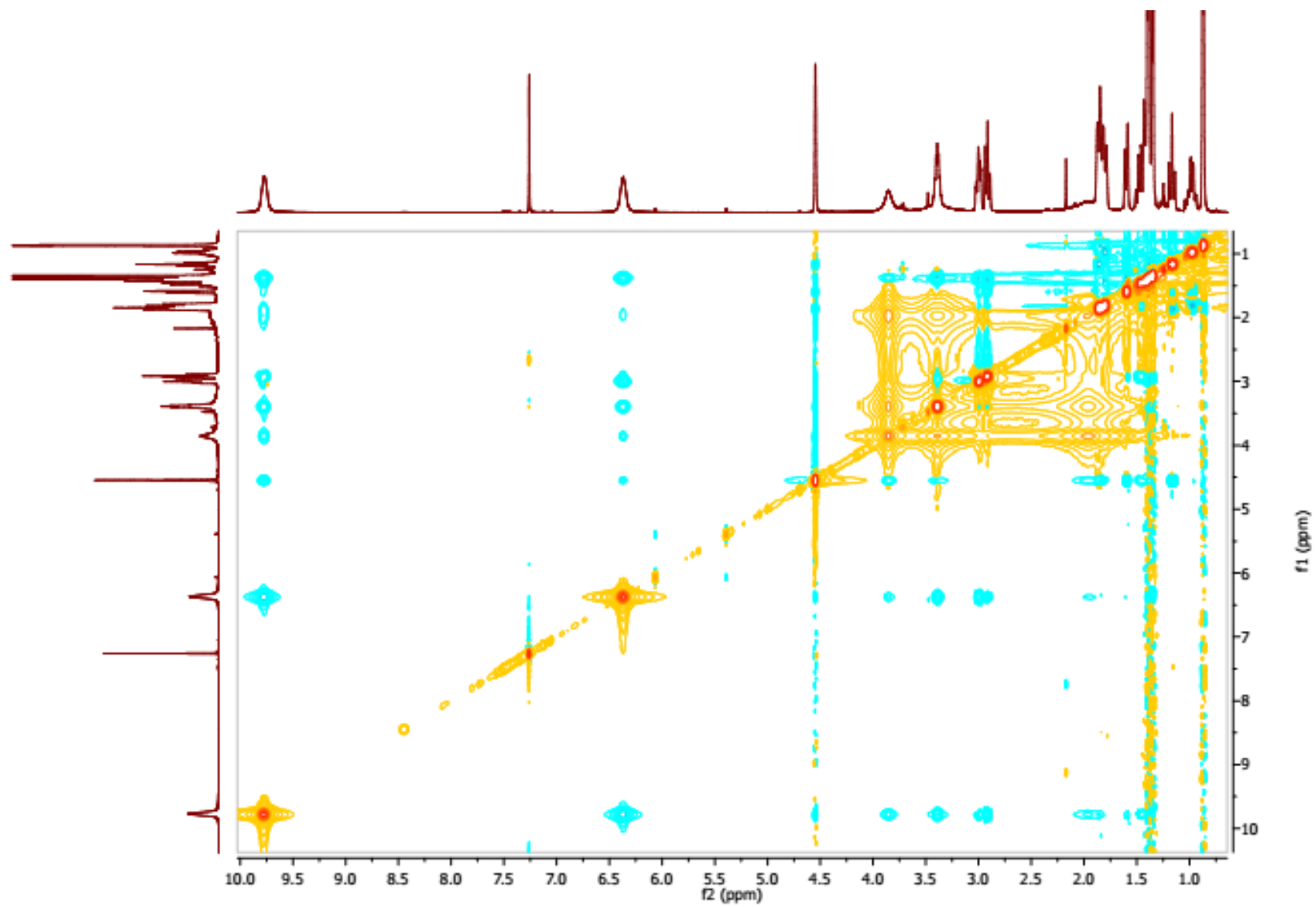
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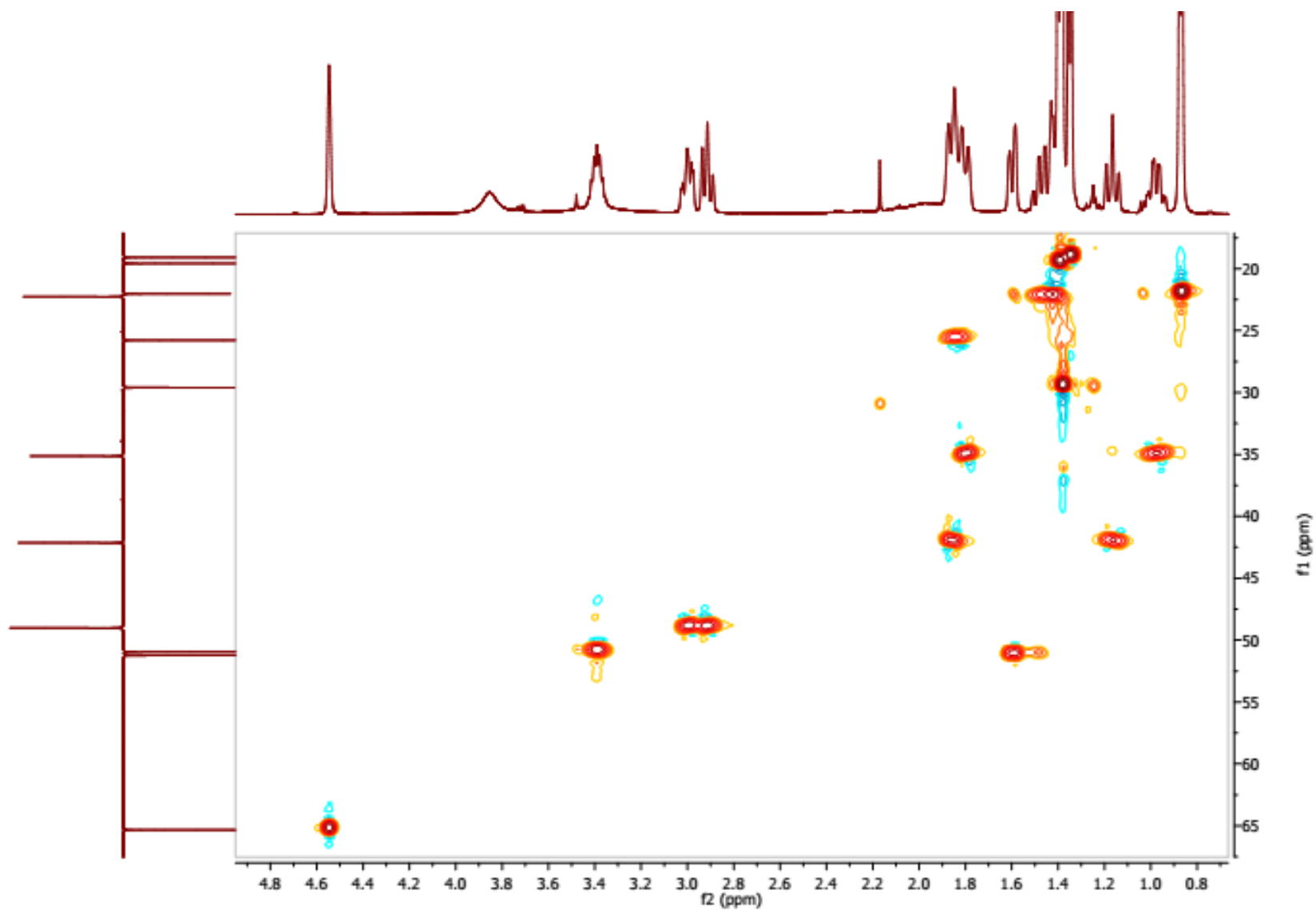
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NOESY of compound 23



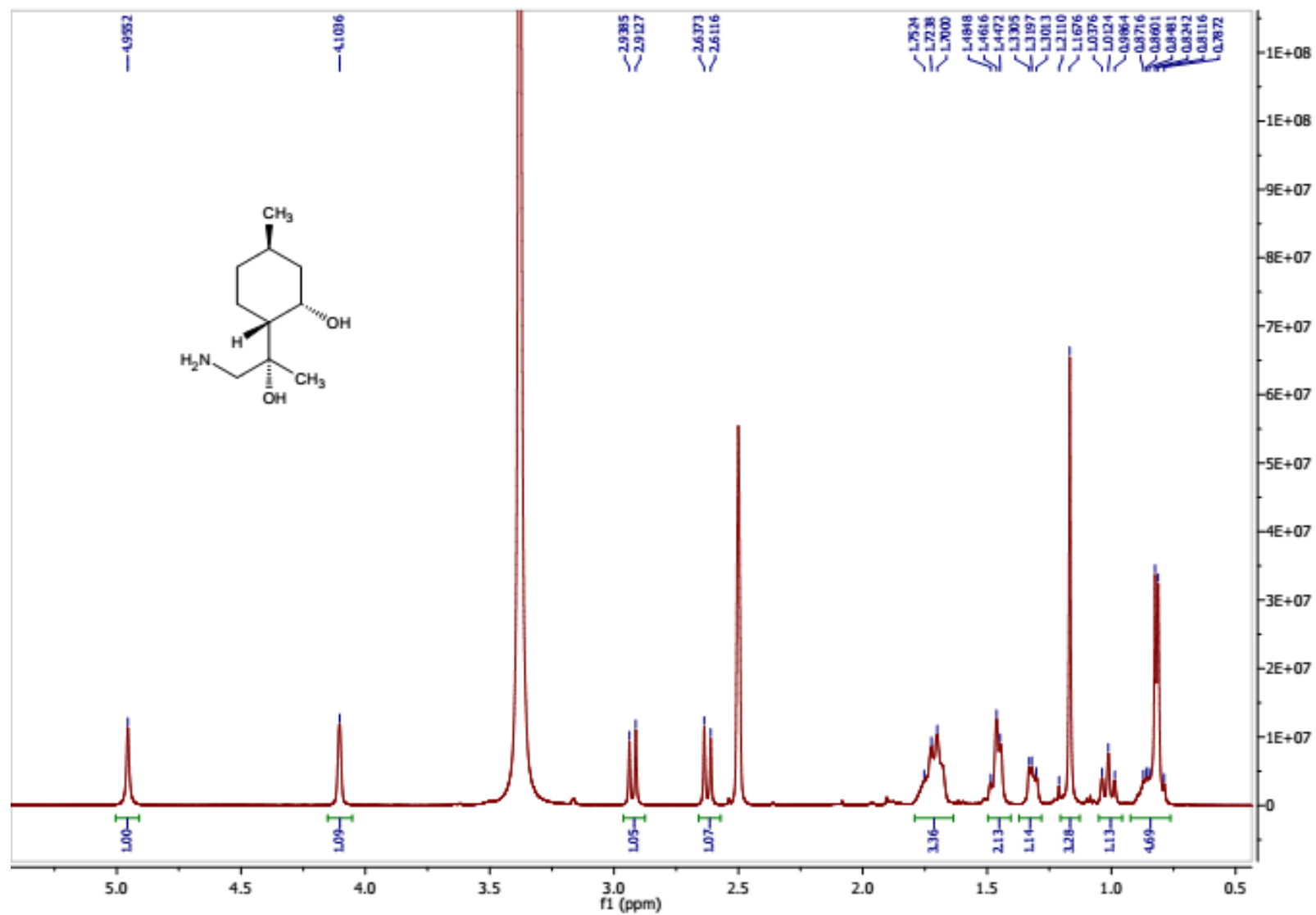
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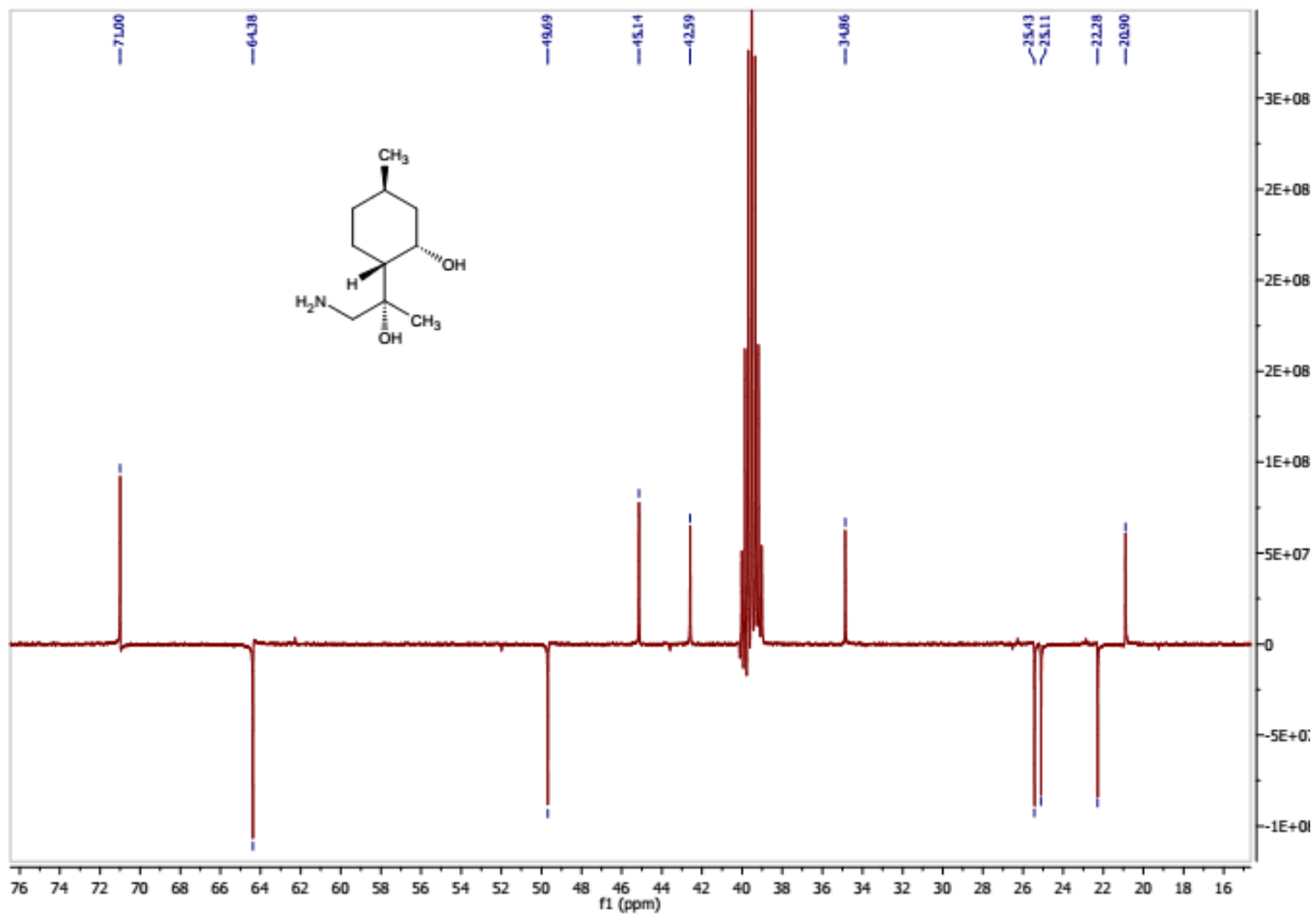




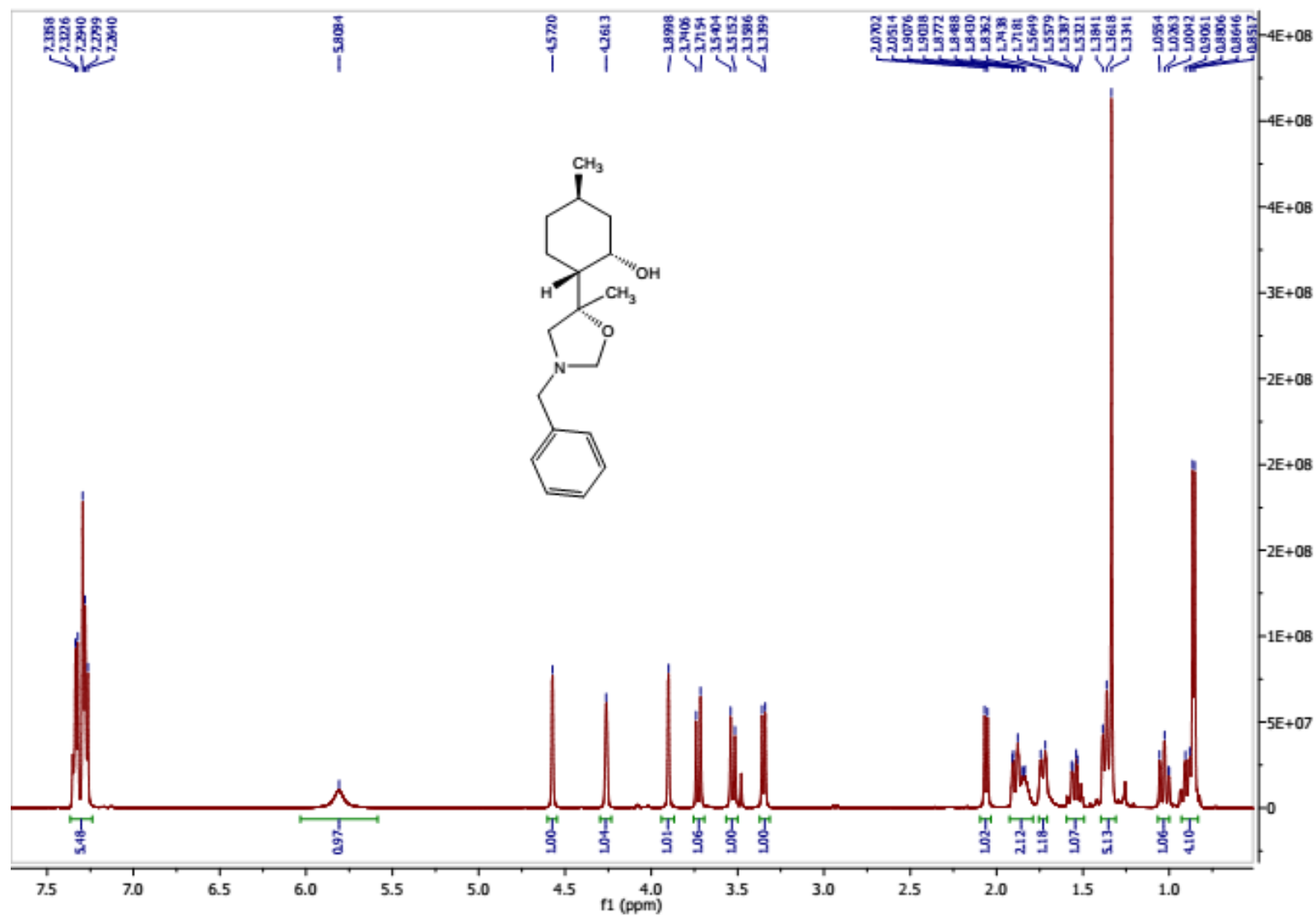
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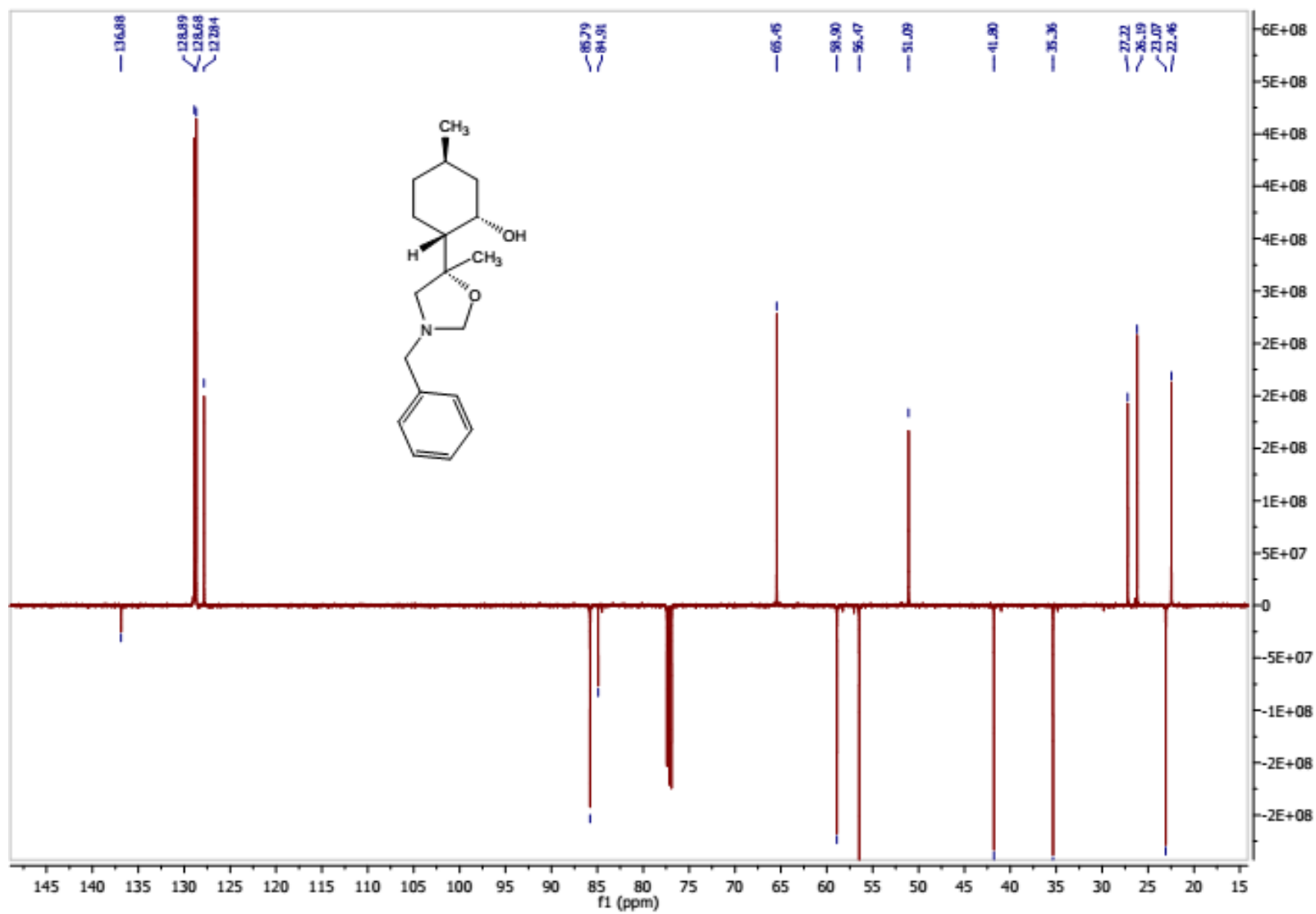
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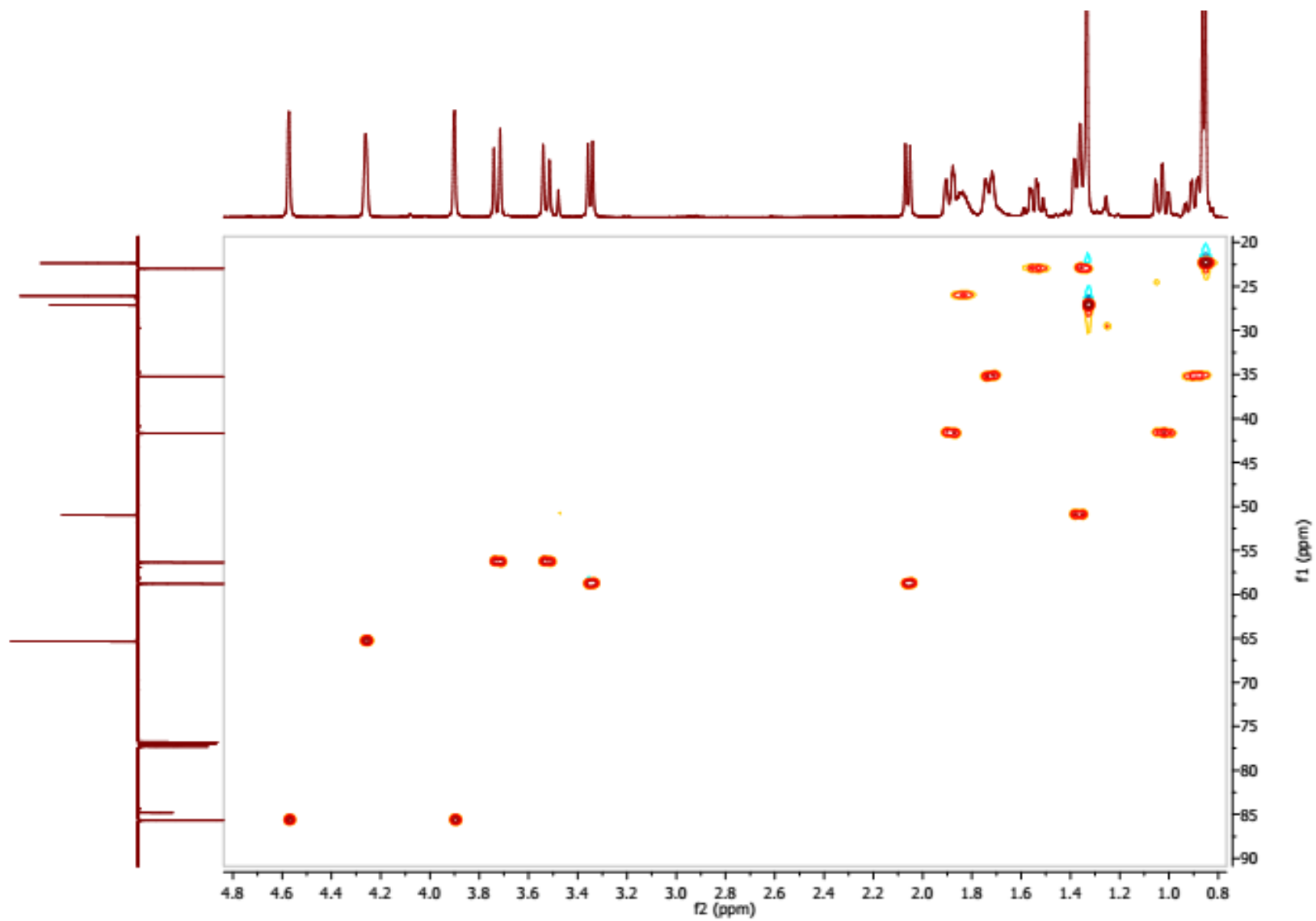
<sup>1</sup>H-NMR of compound 25



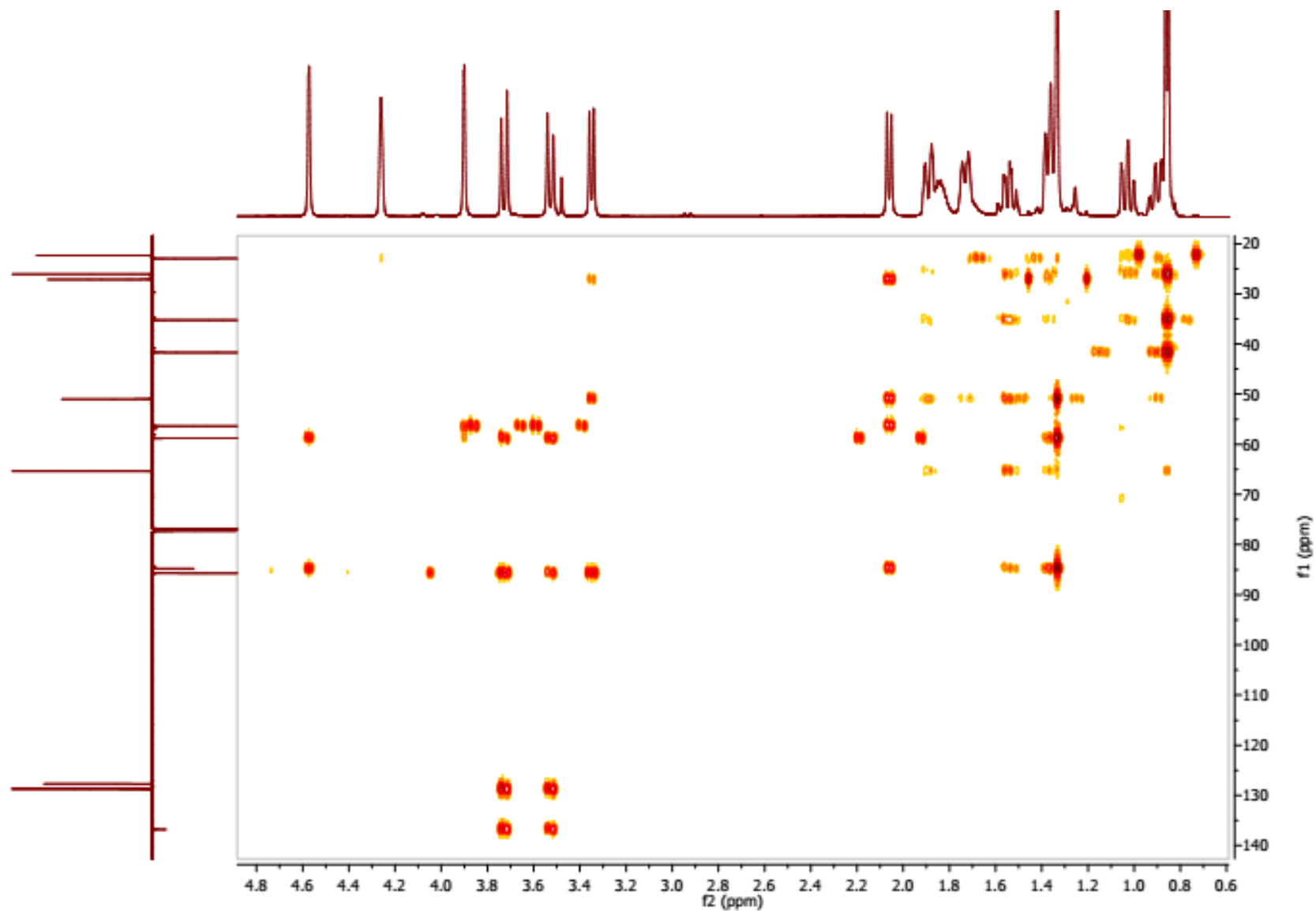
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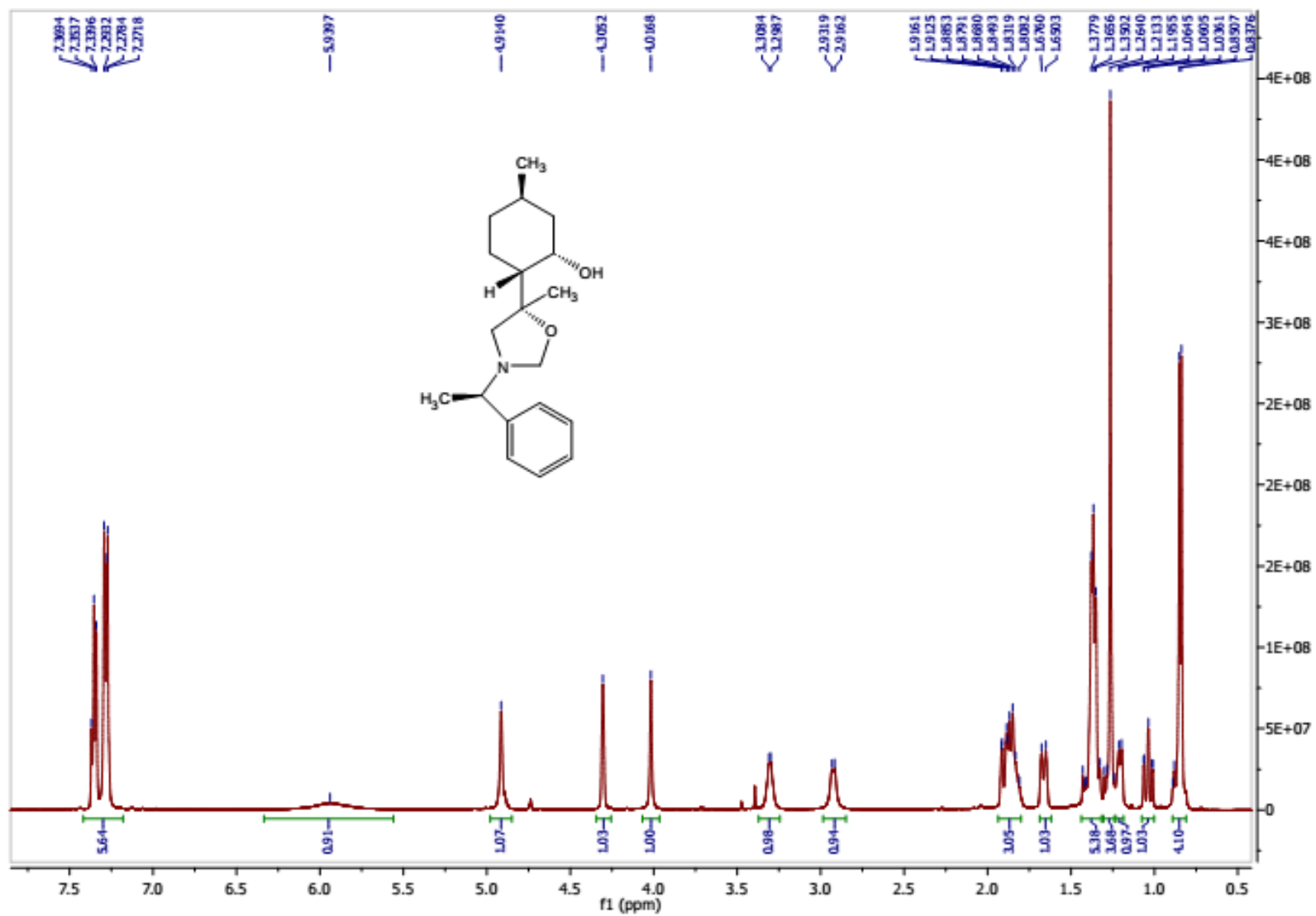
HSQC of compound 25



HMBC of compound 25

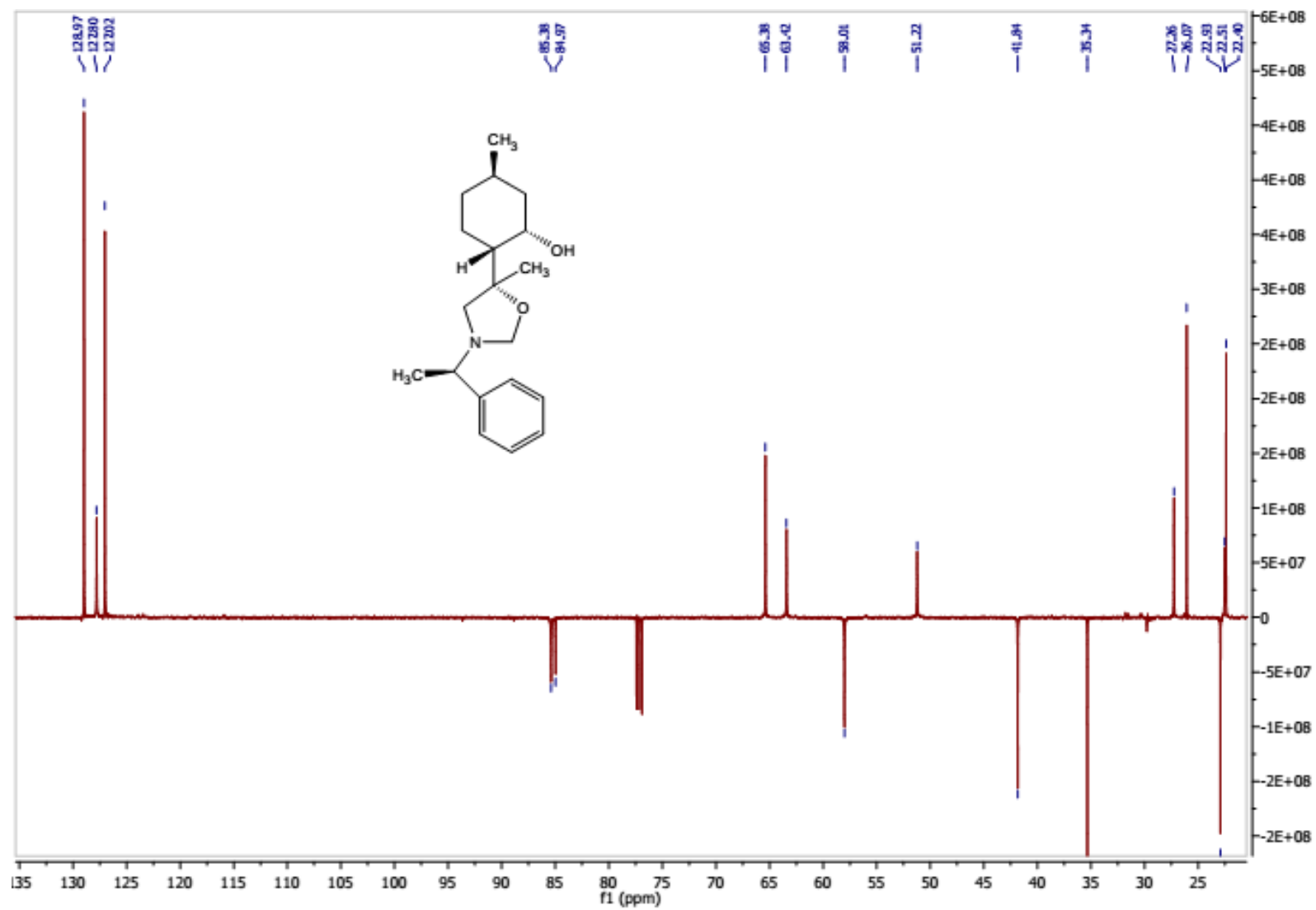


<sup>1</sup>H-NMR of compound 26

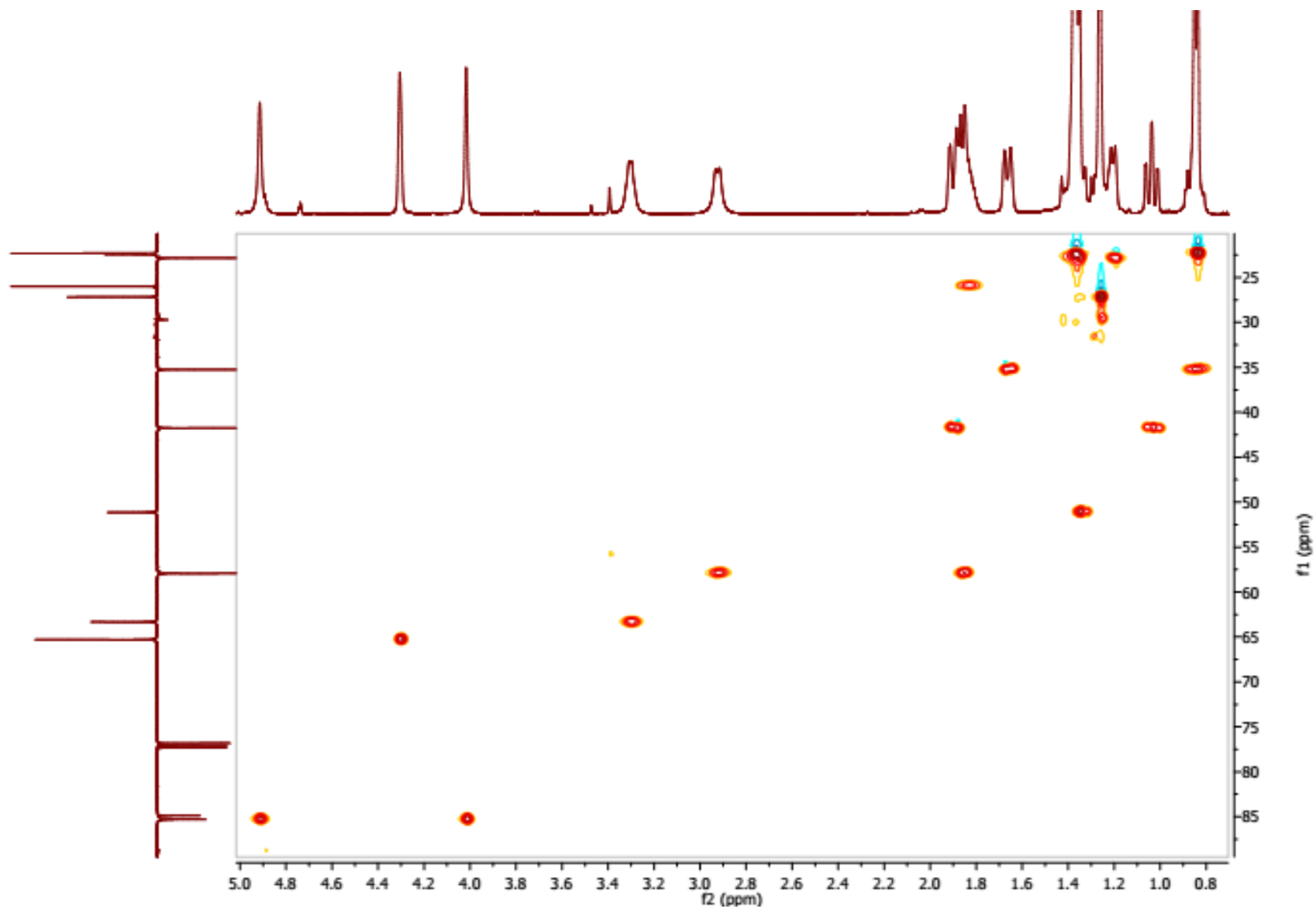




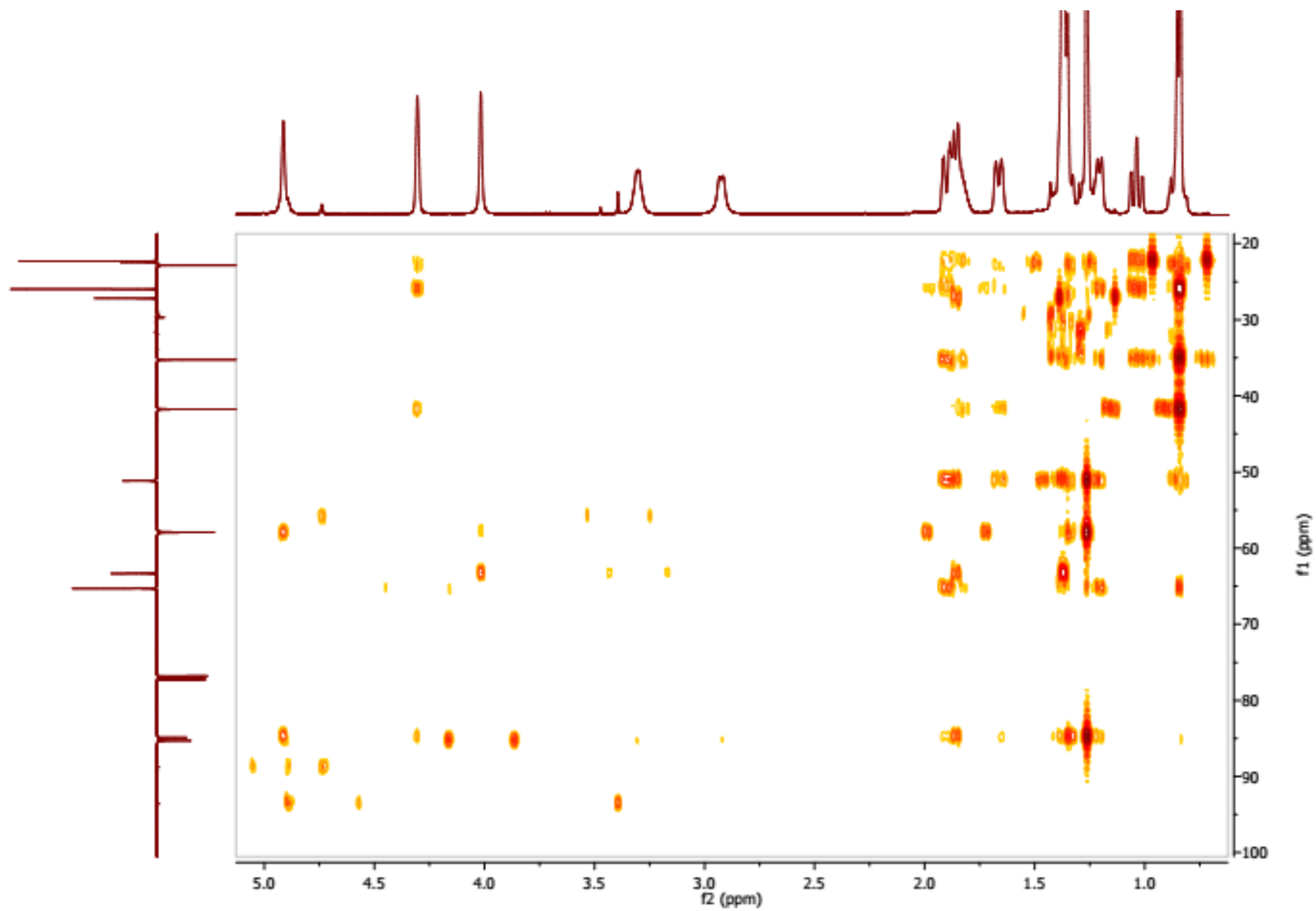
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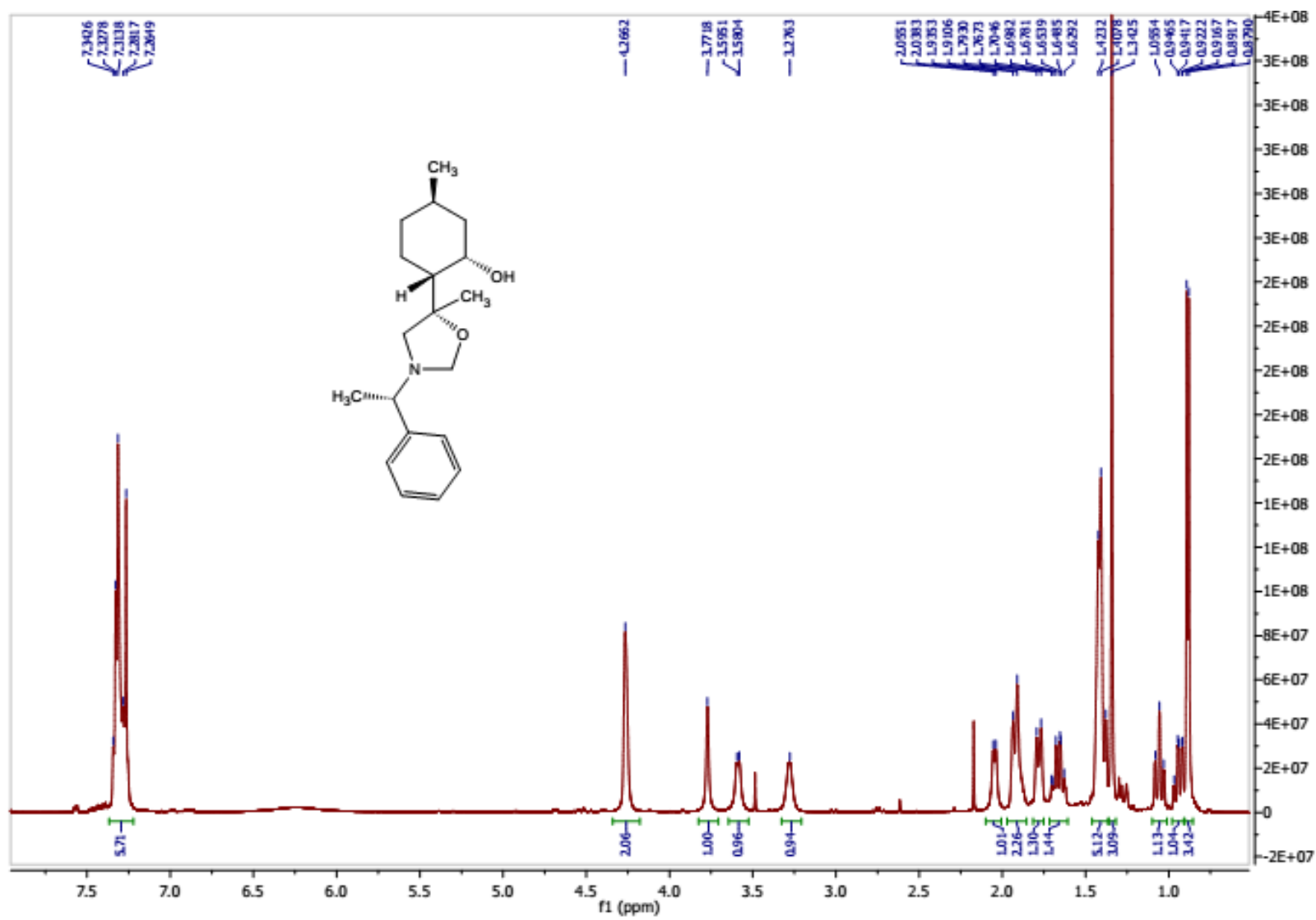
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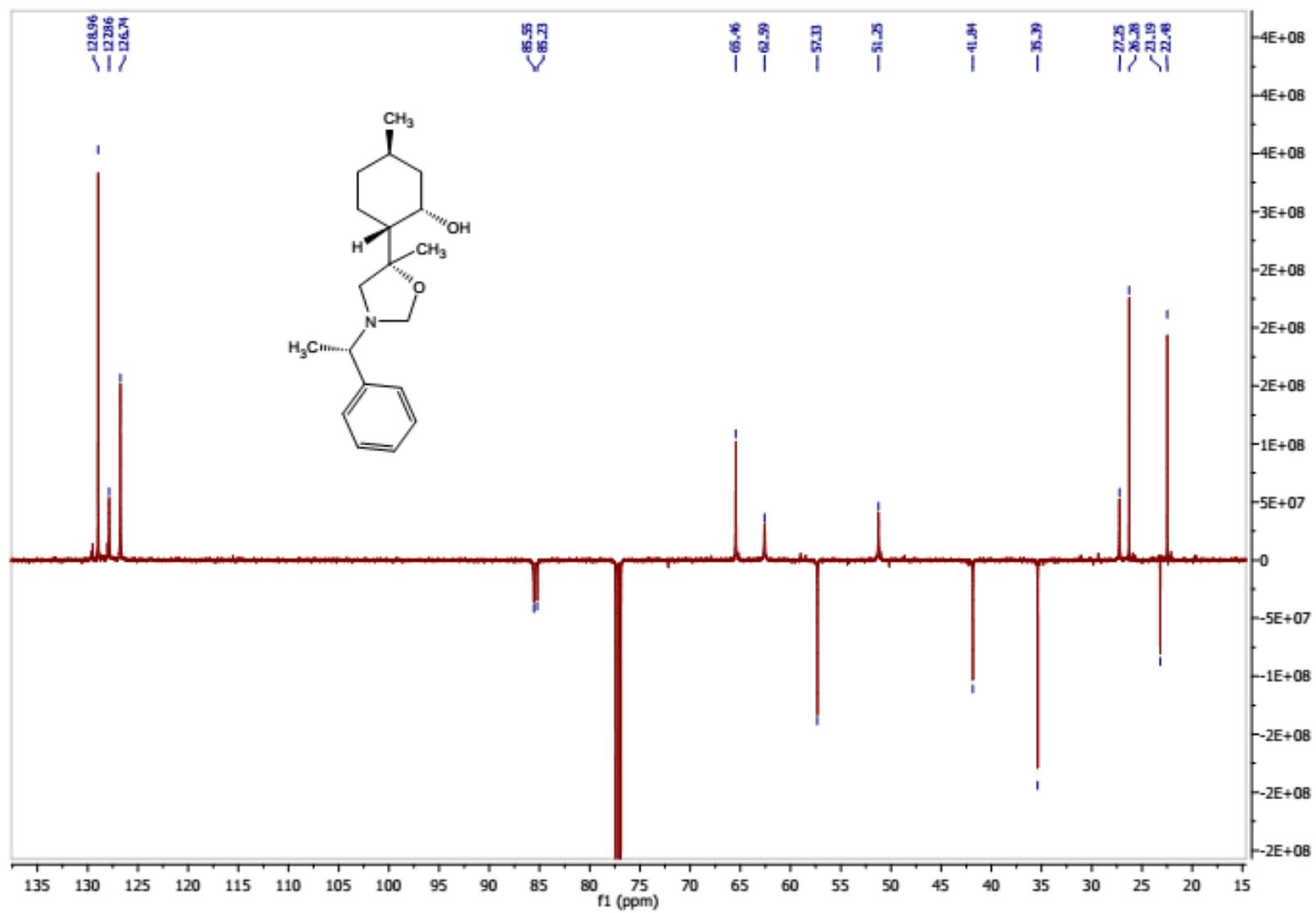
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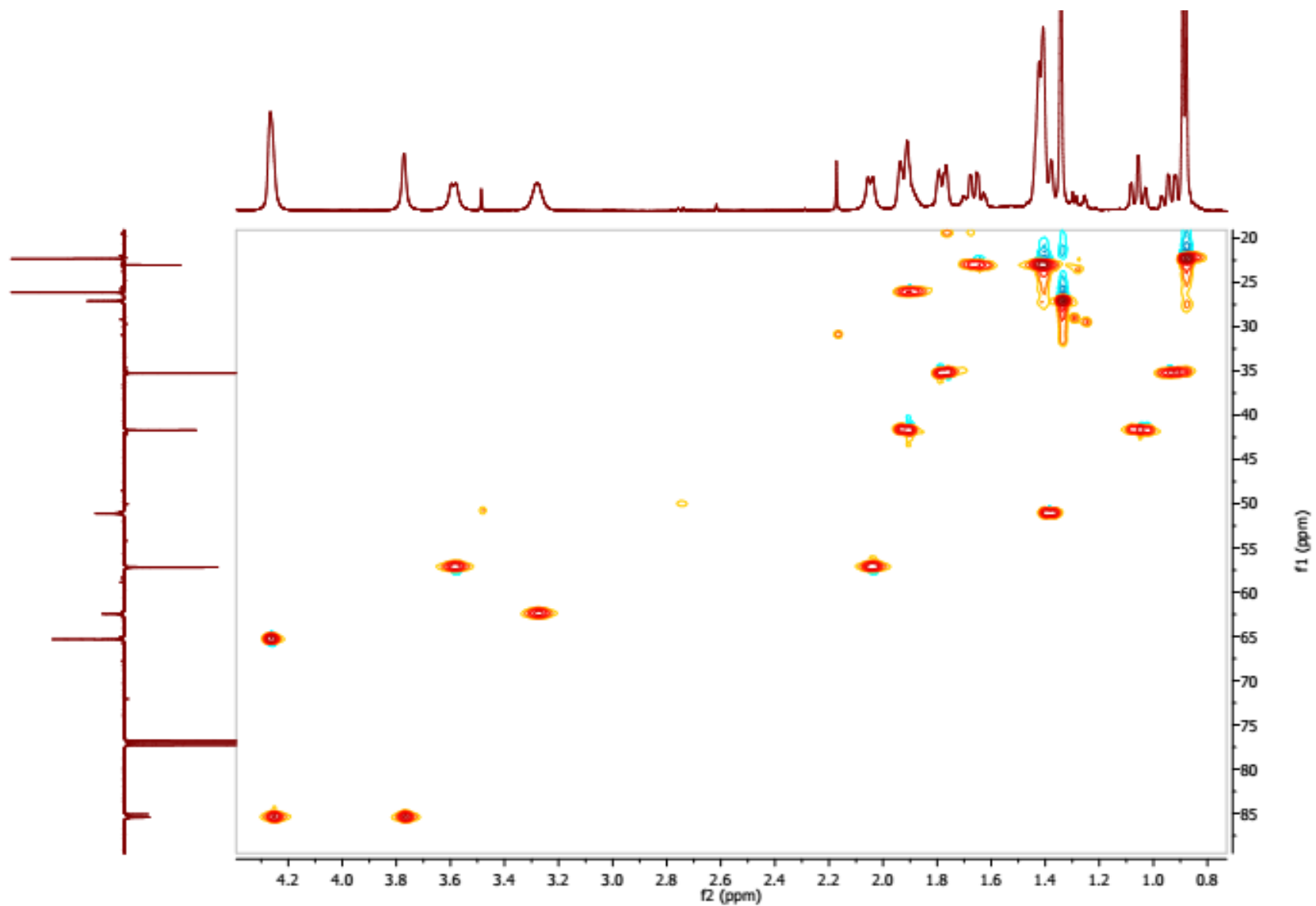
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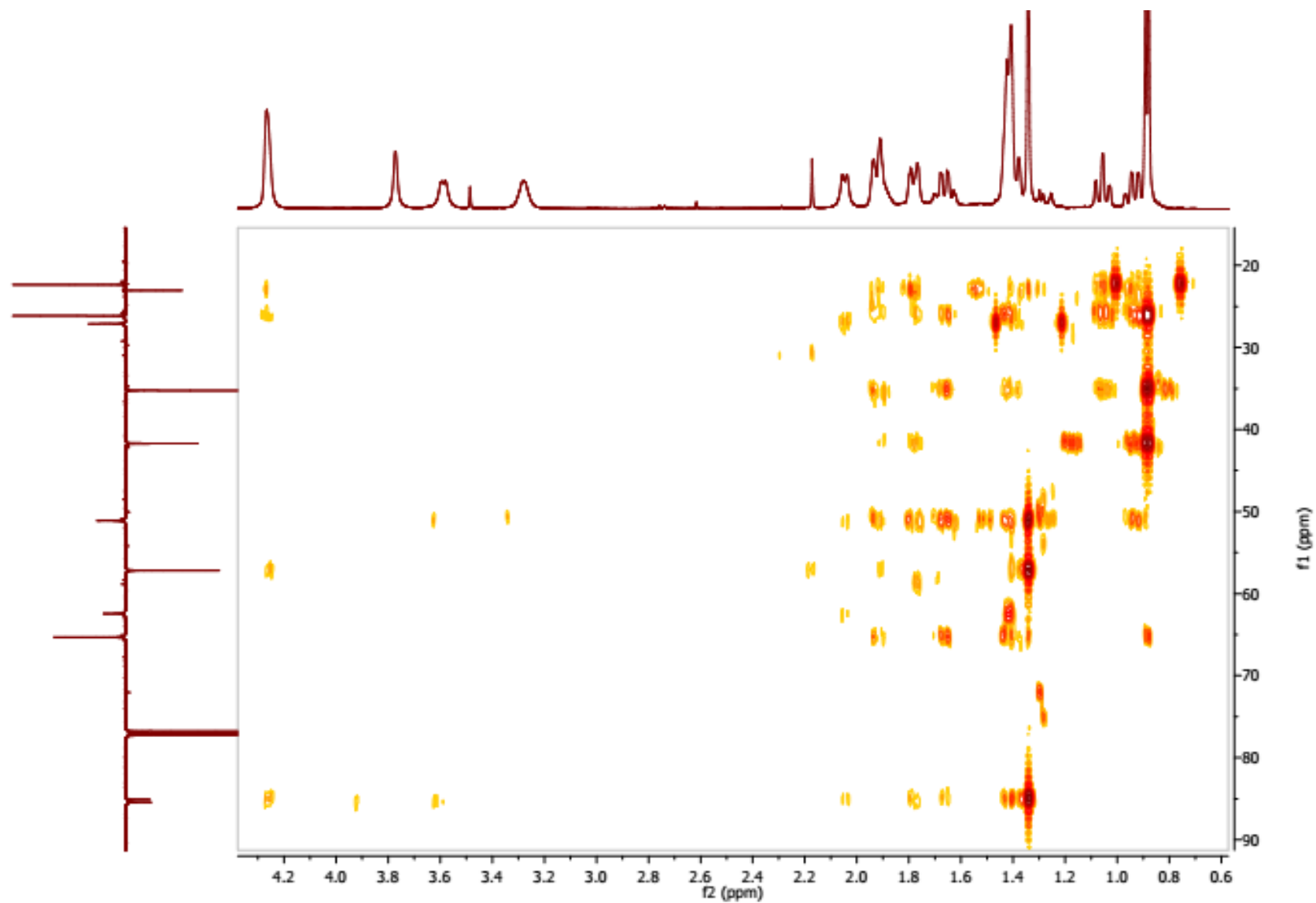
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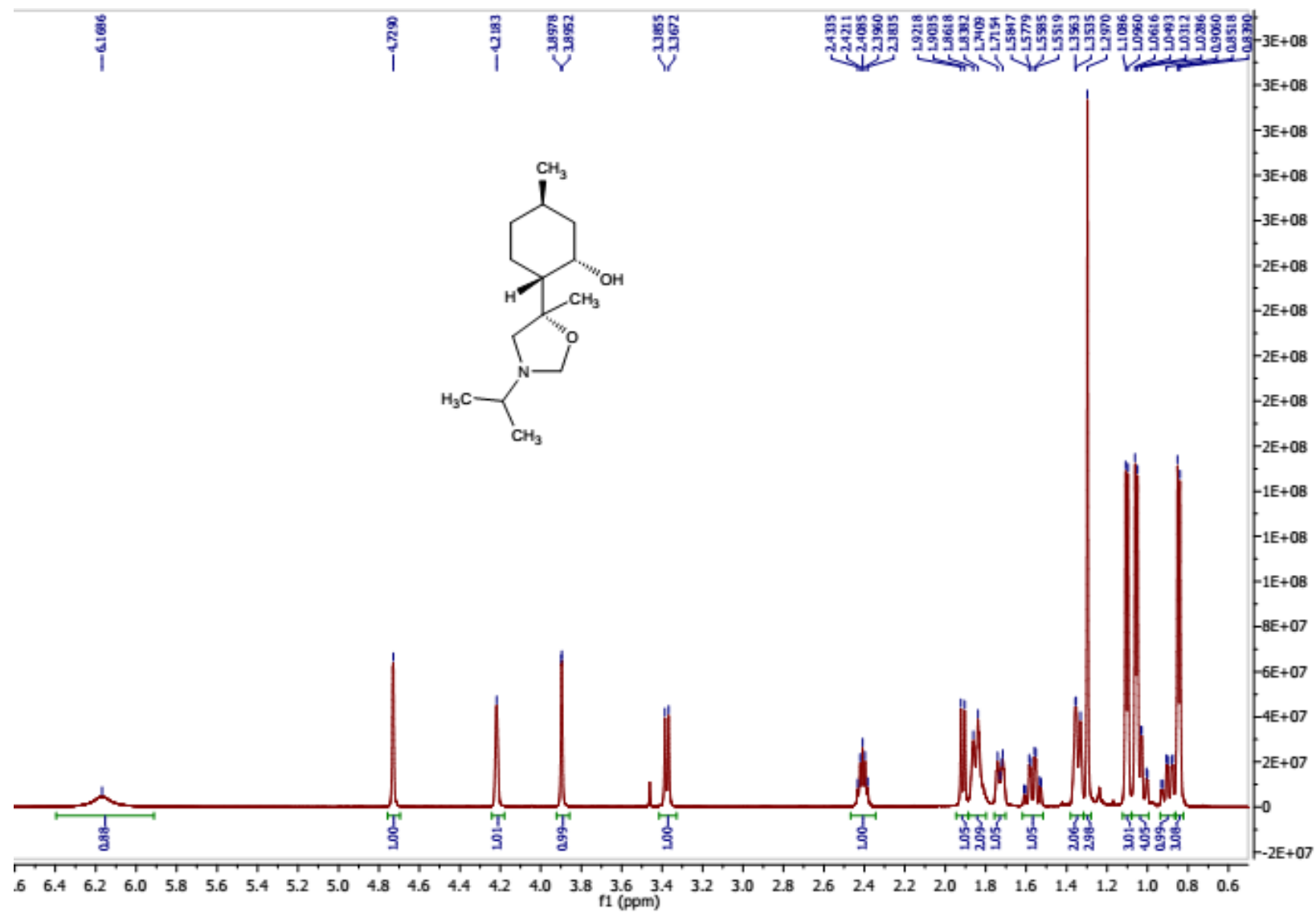
HSQC of compound **27**



HMBC of compound 27

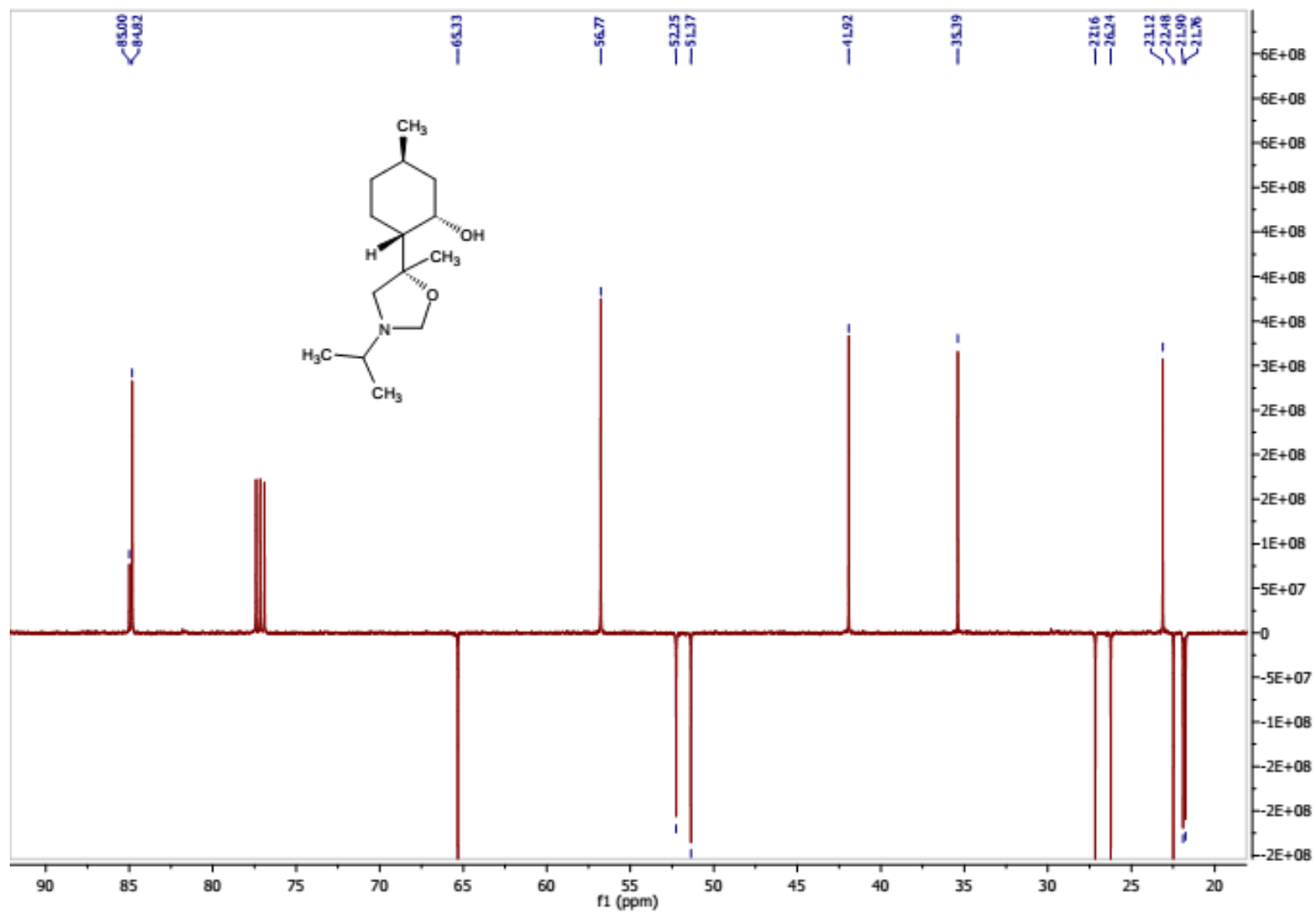


$^1\text{H-NMR}$  of compound **28**

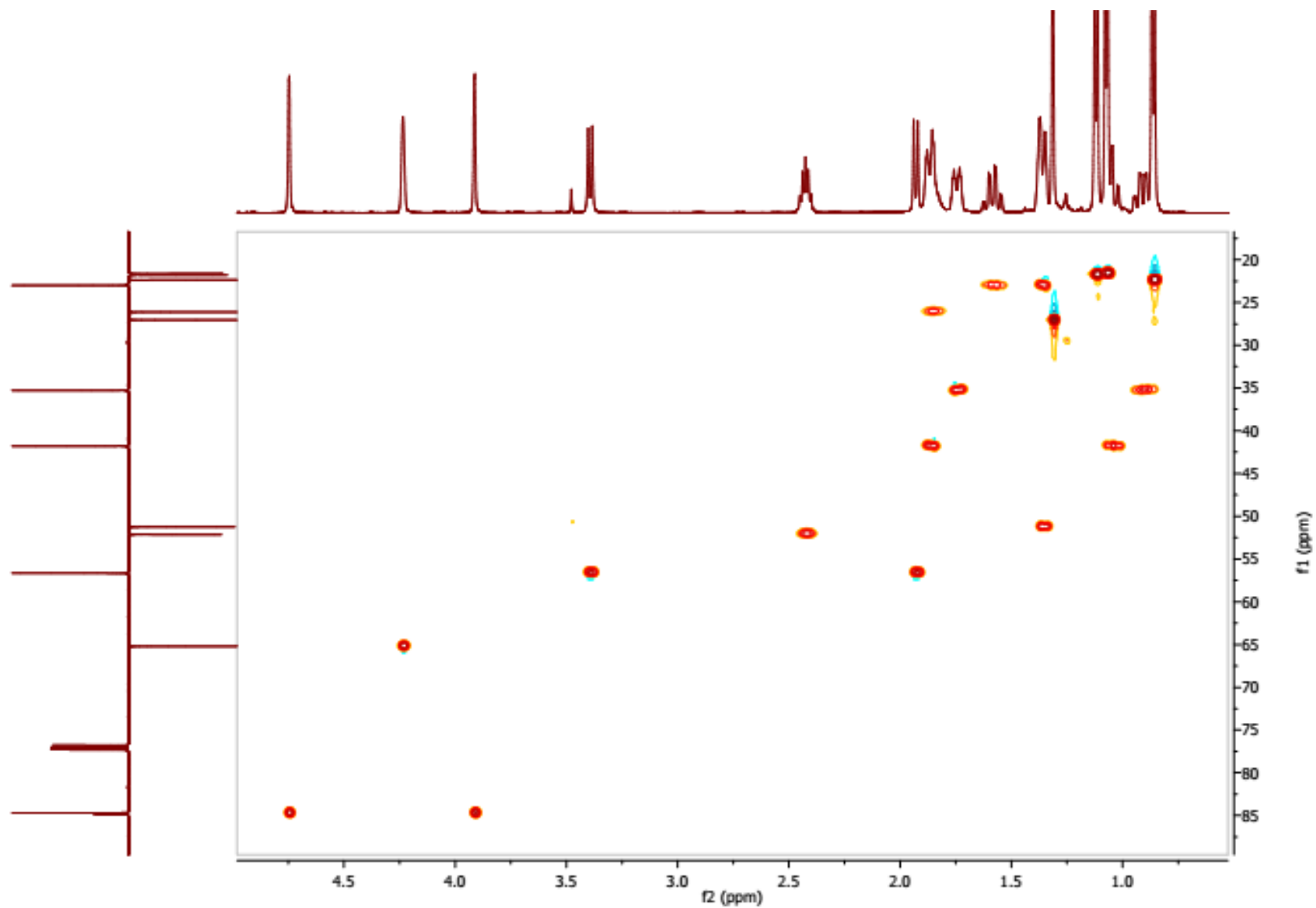




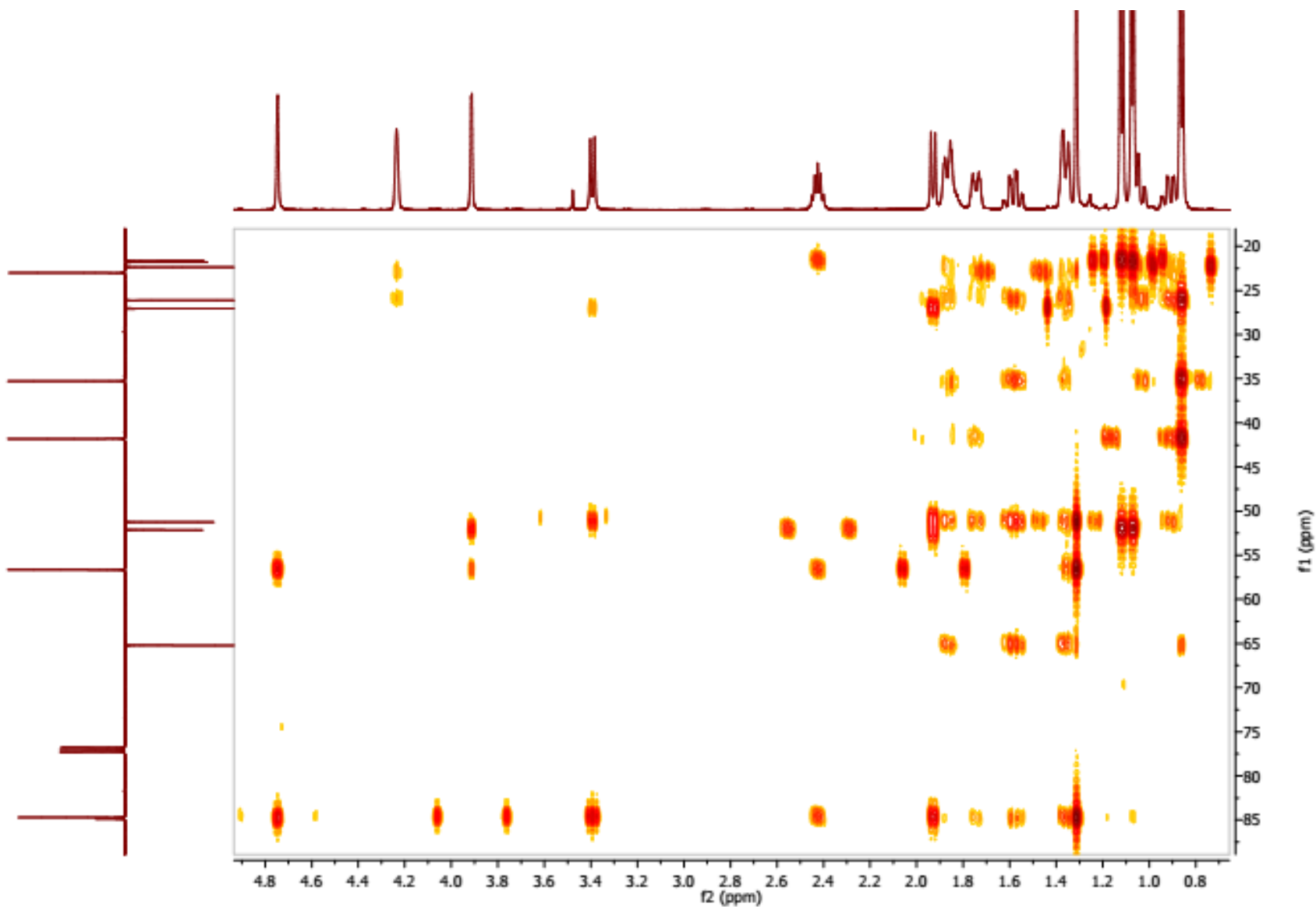
$^{13}\text{C}$ -NMR of compound **28**



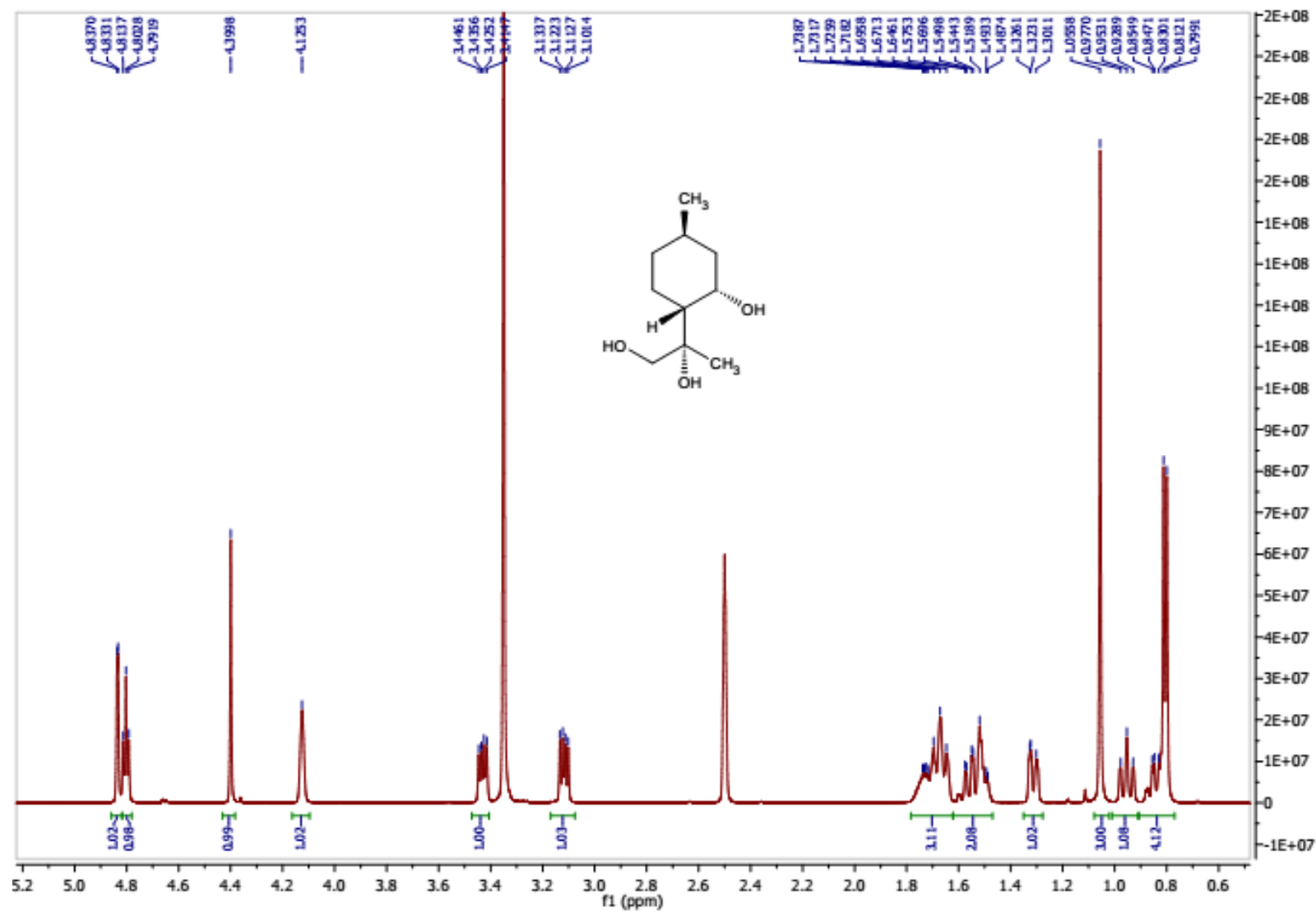
HSQC of compound **28**



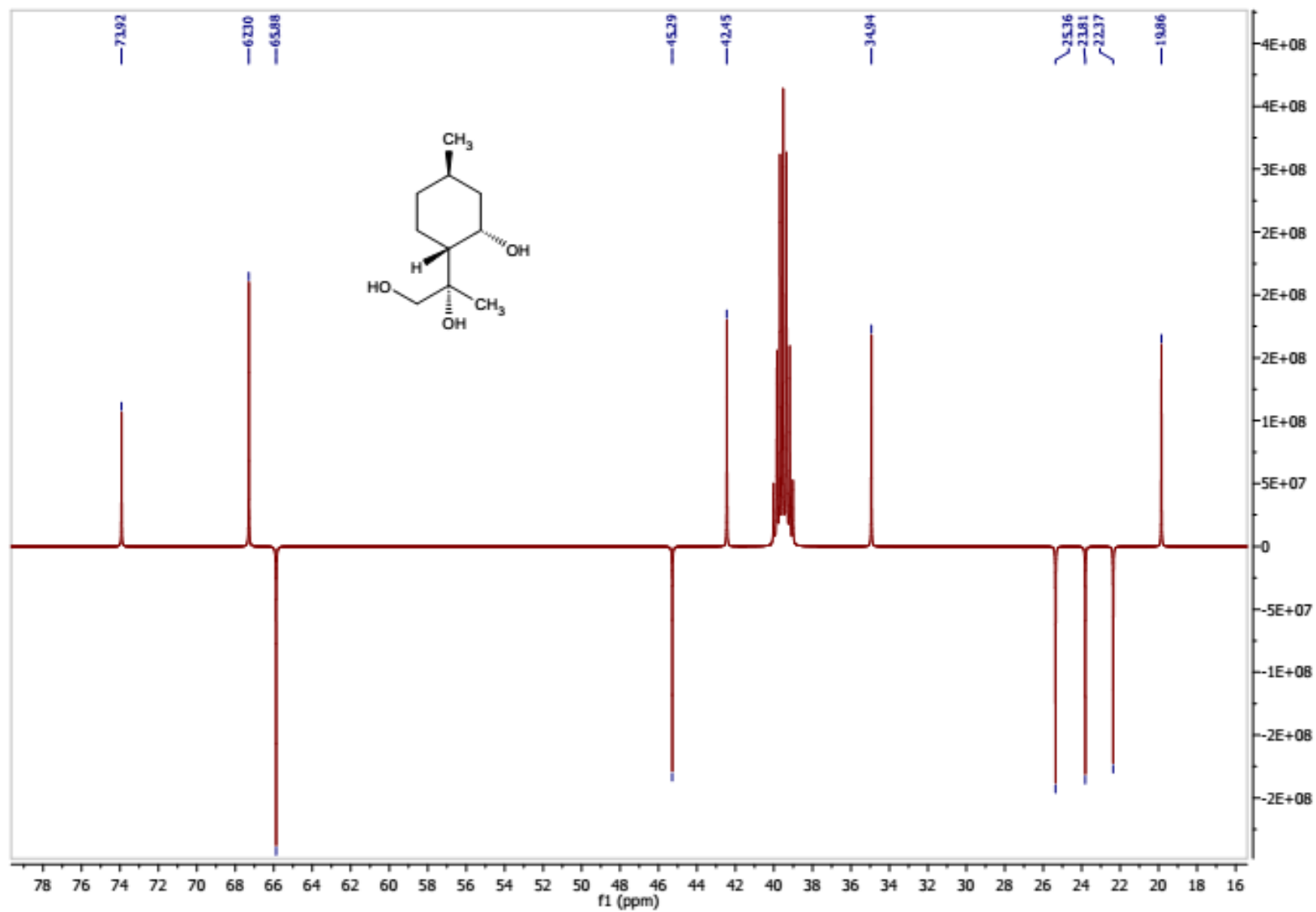
HMBC of compound 28



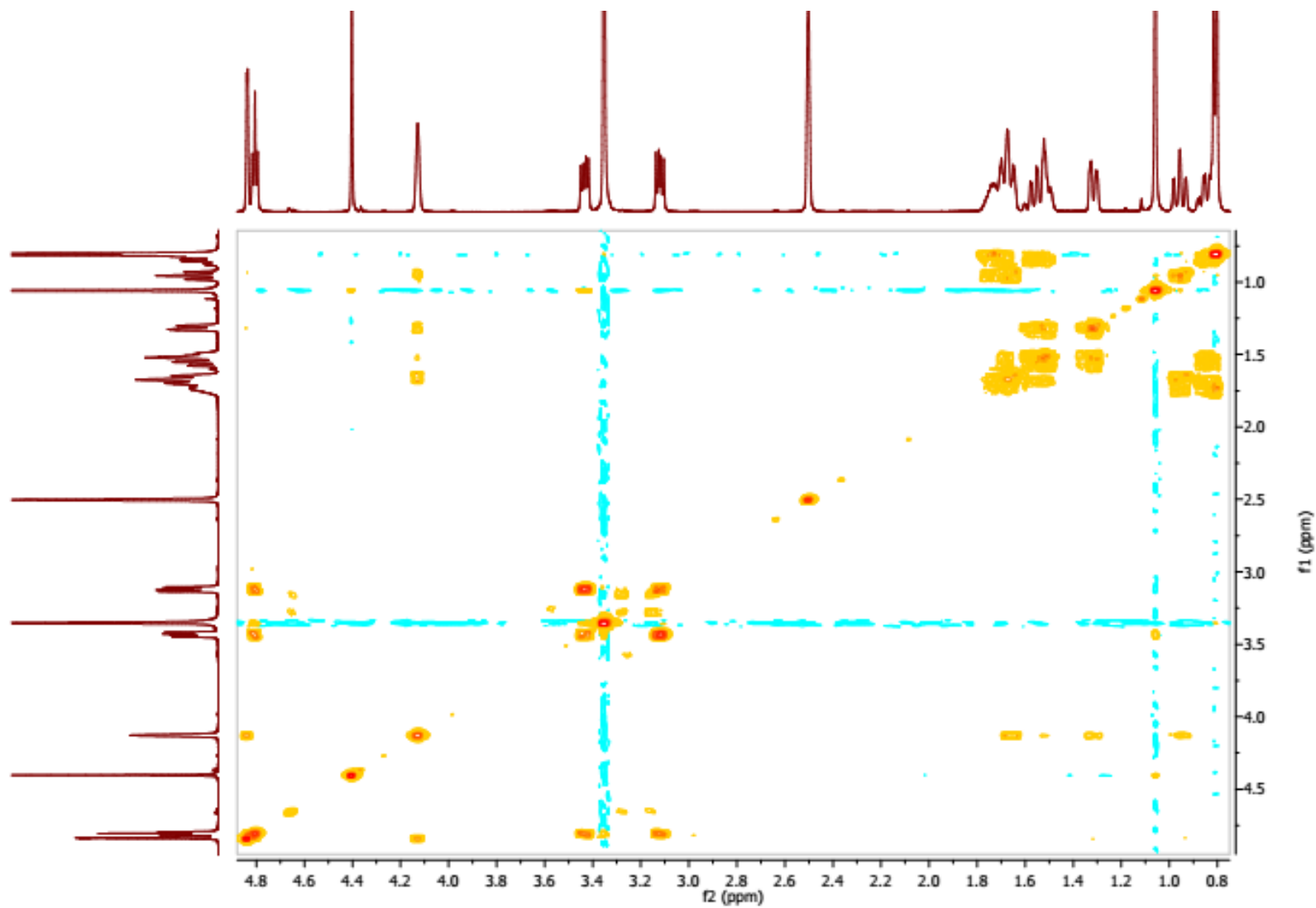
$^1\text{H-NMR}$  of compound **29**



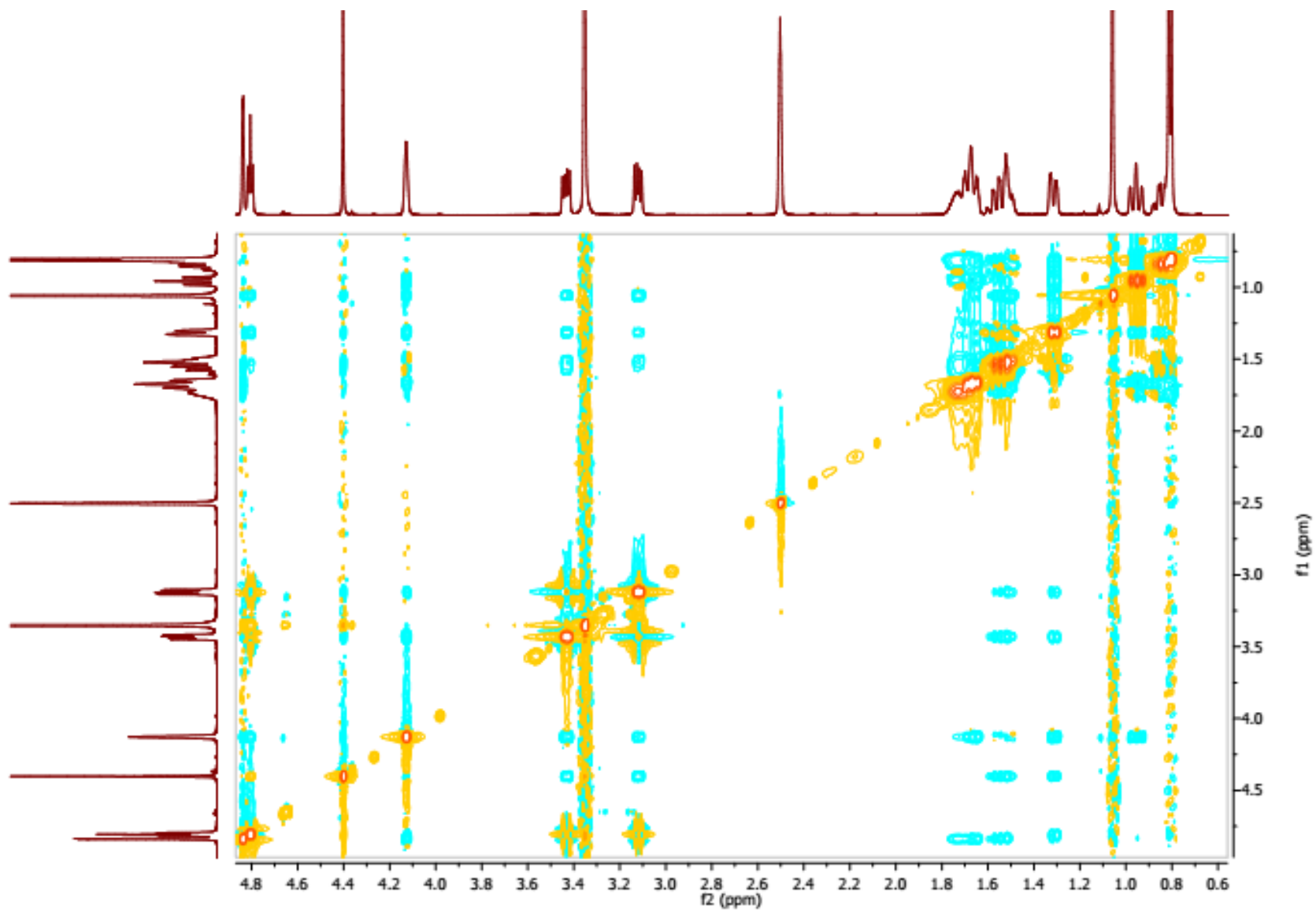
$^{13}\text{C}$ -NMR of compound **29**



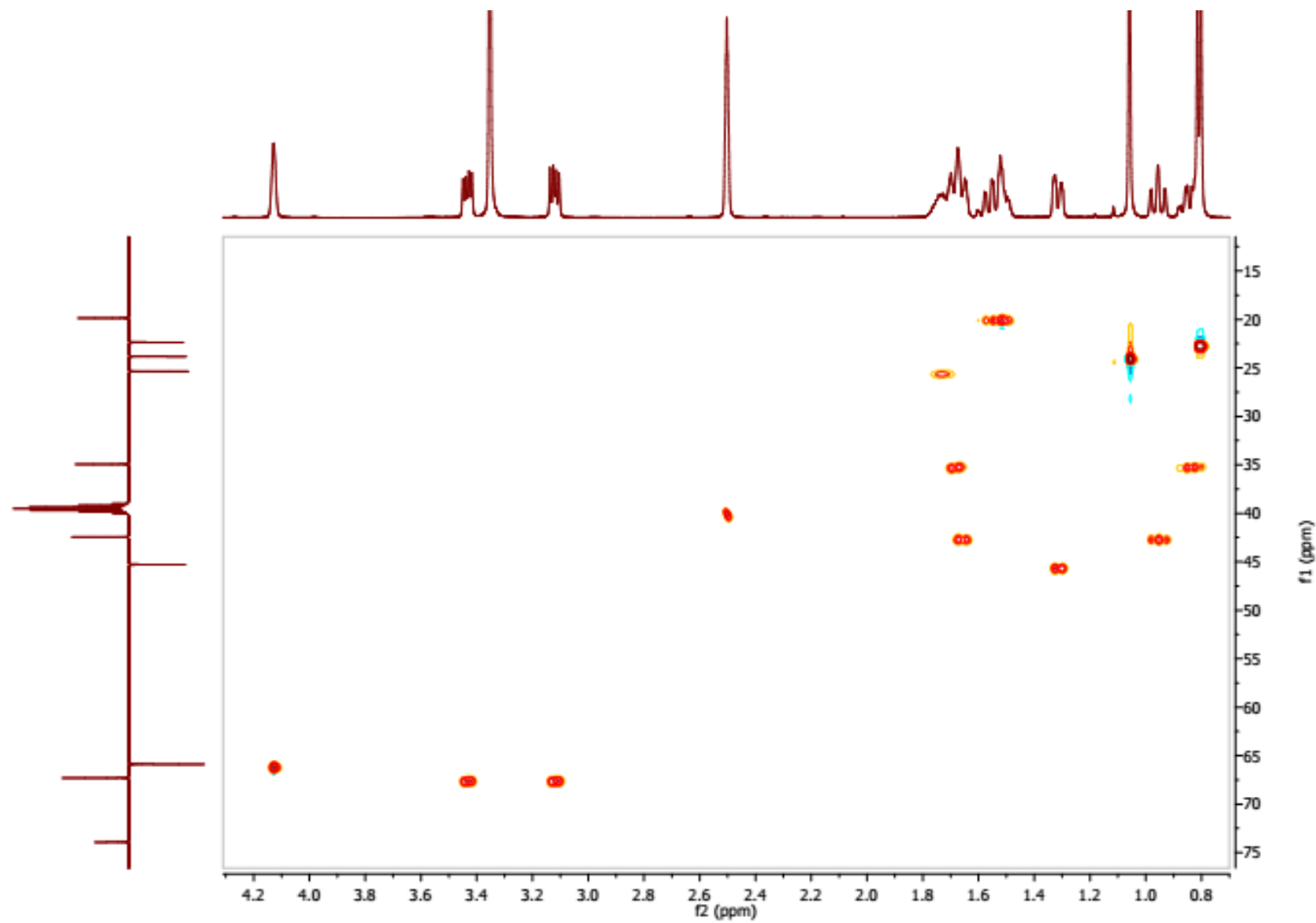
COSY of compound **29**



NOESY of compound **29**

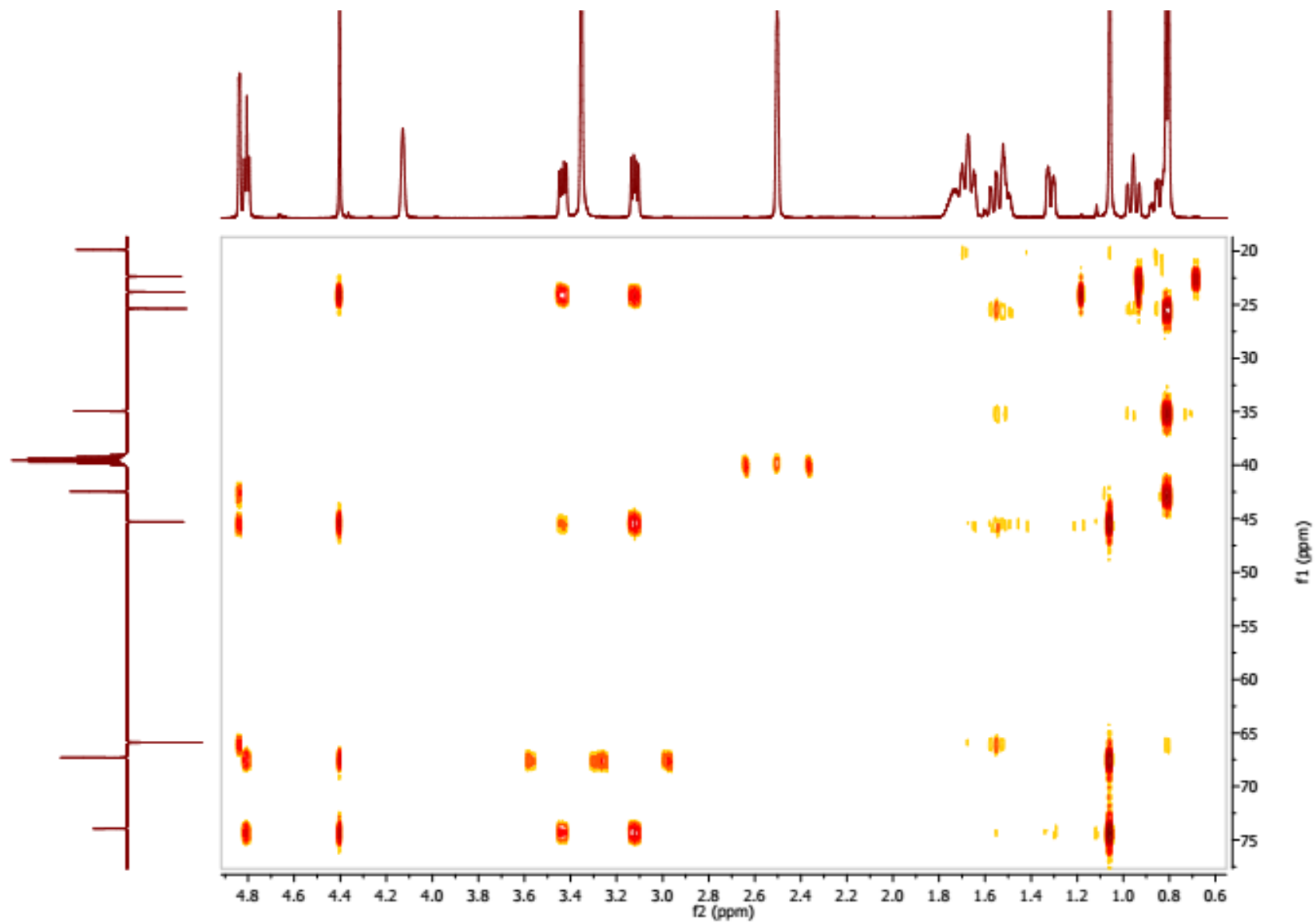


HSQC of compound **29**

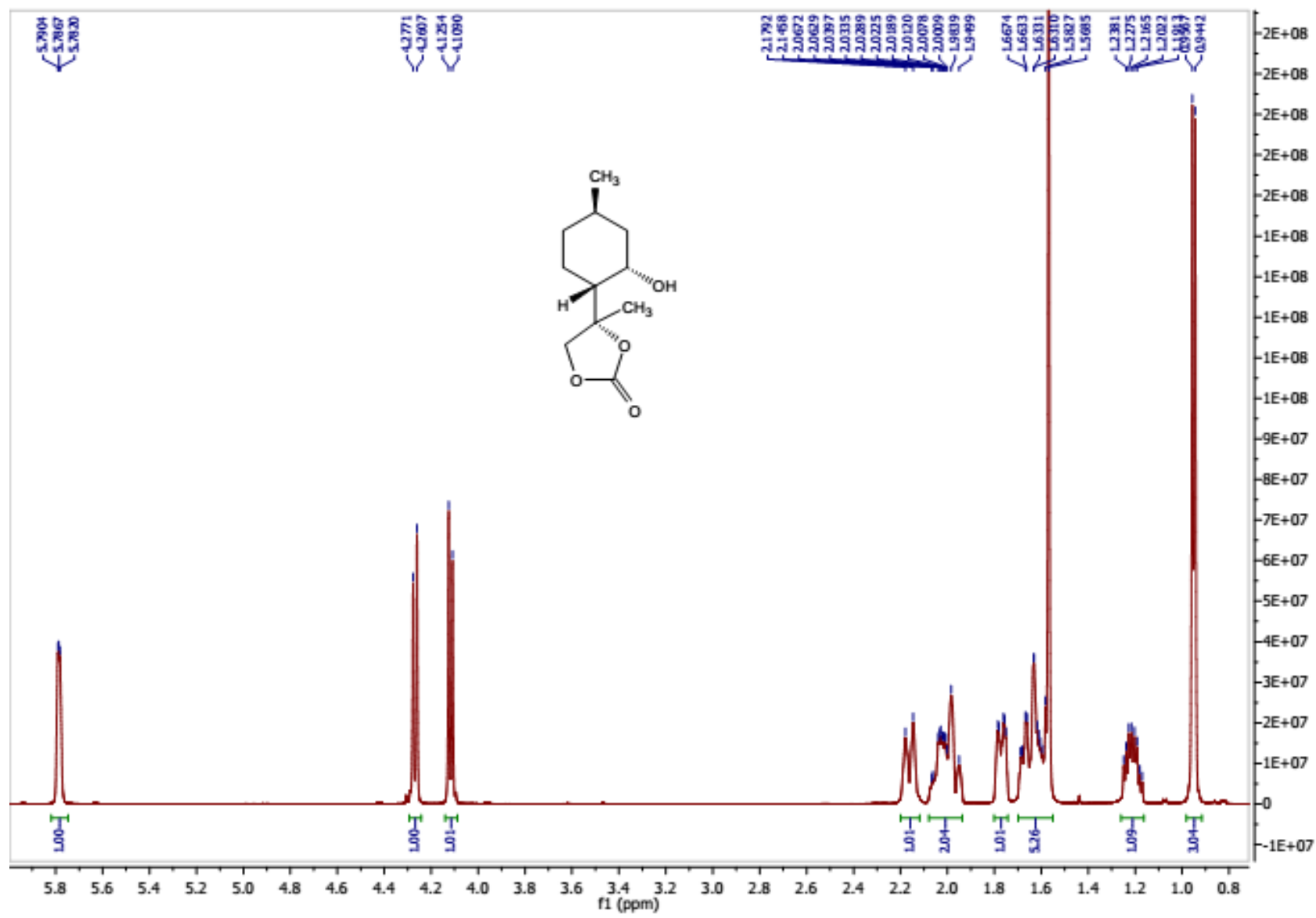




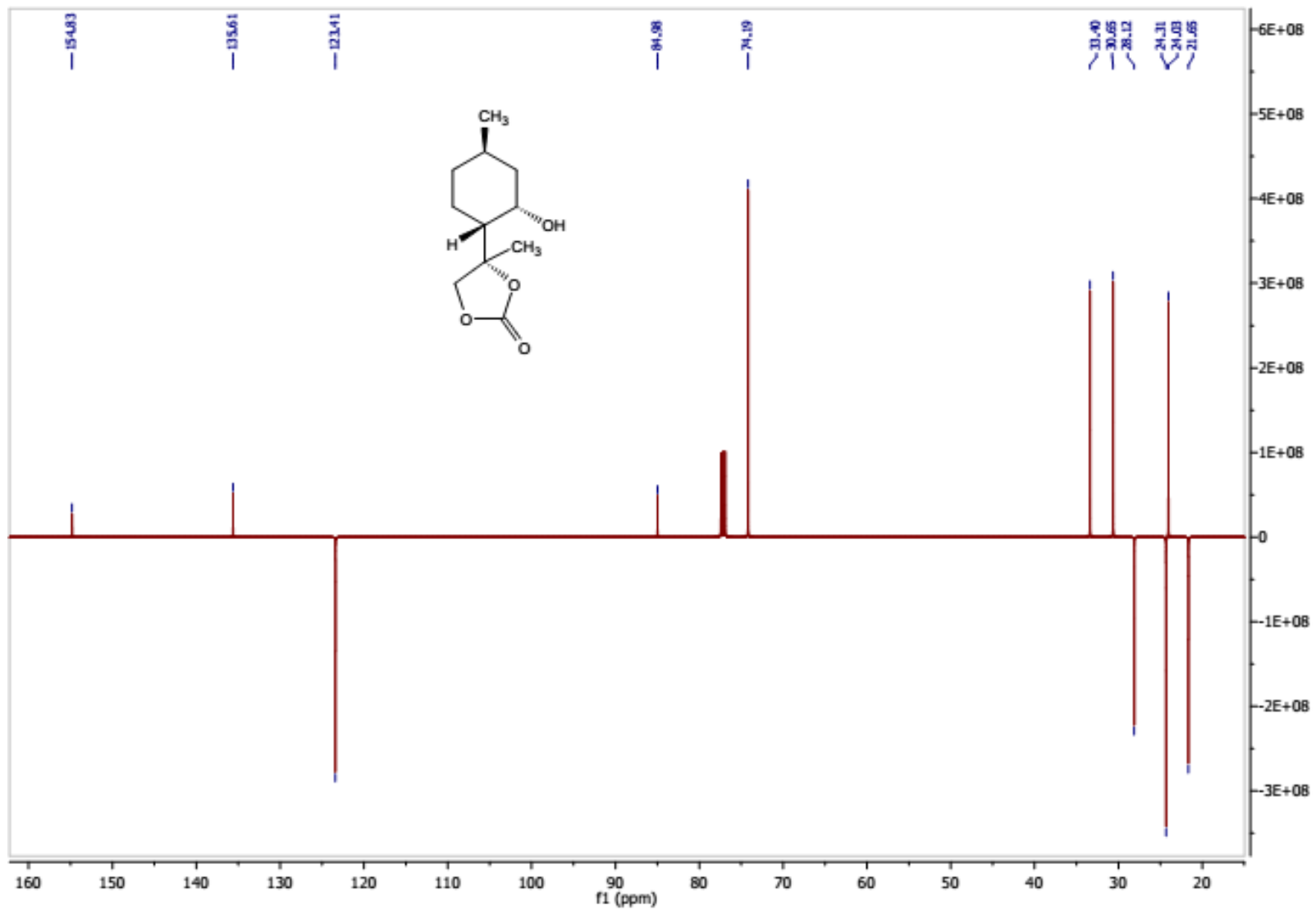
HMBC of compound 29



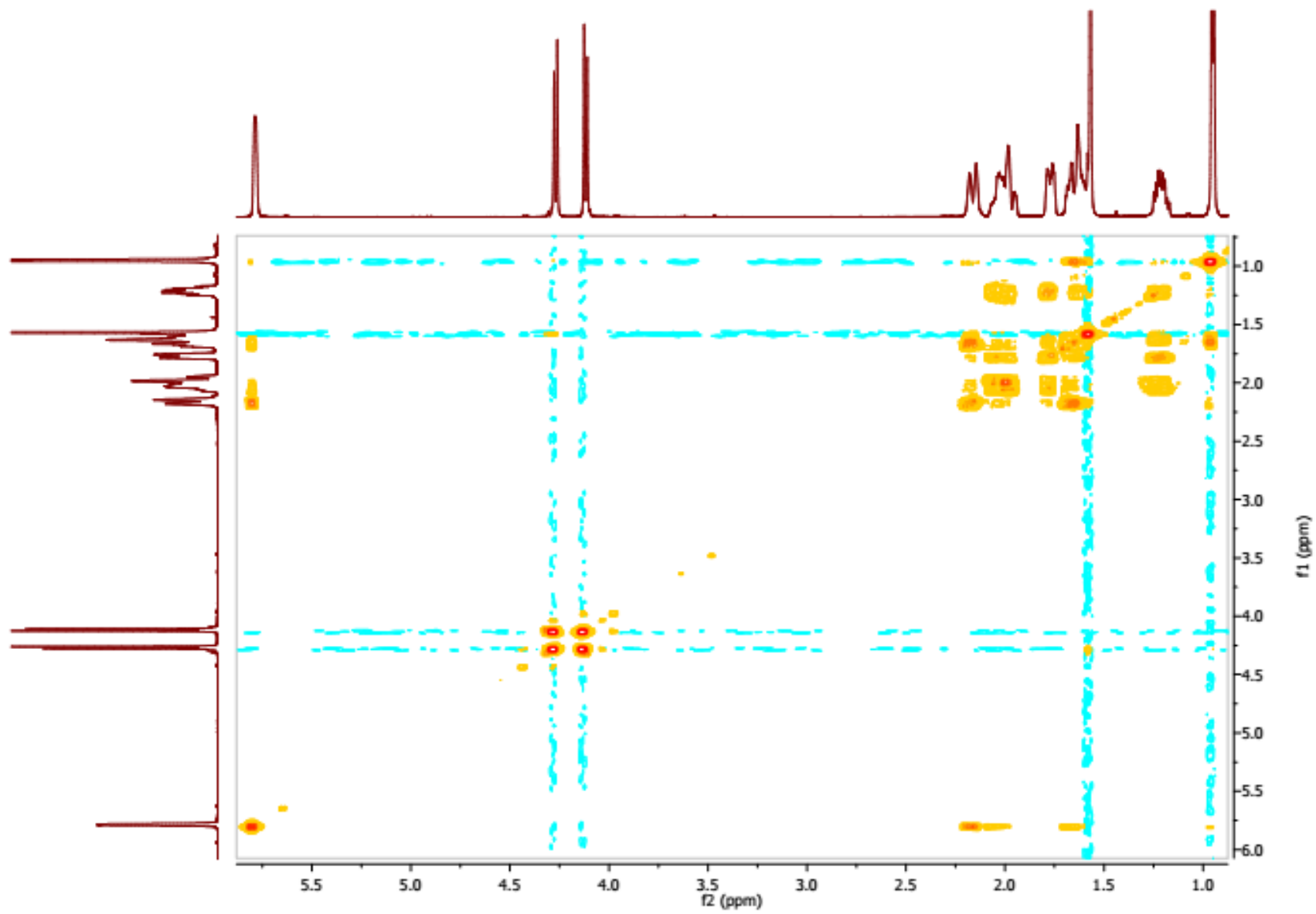
$^1\text{H-NMR}$  of compound **30**



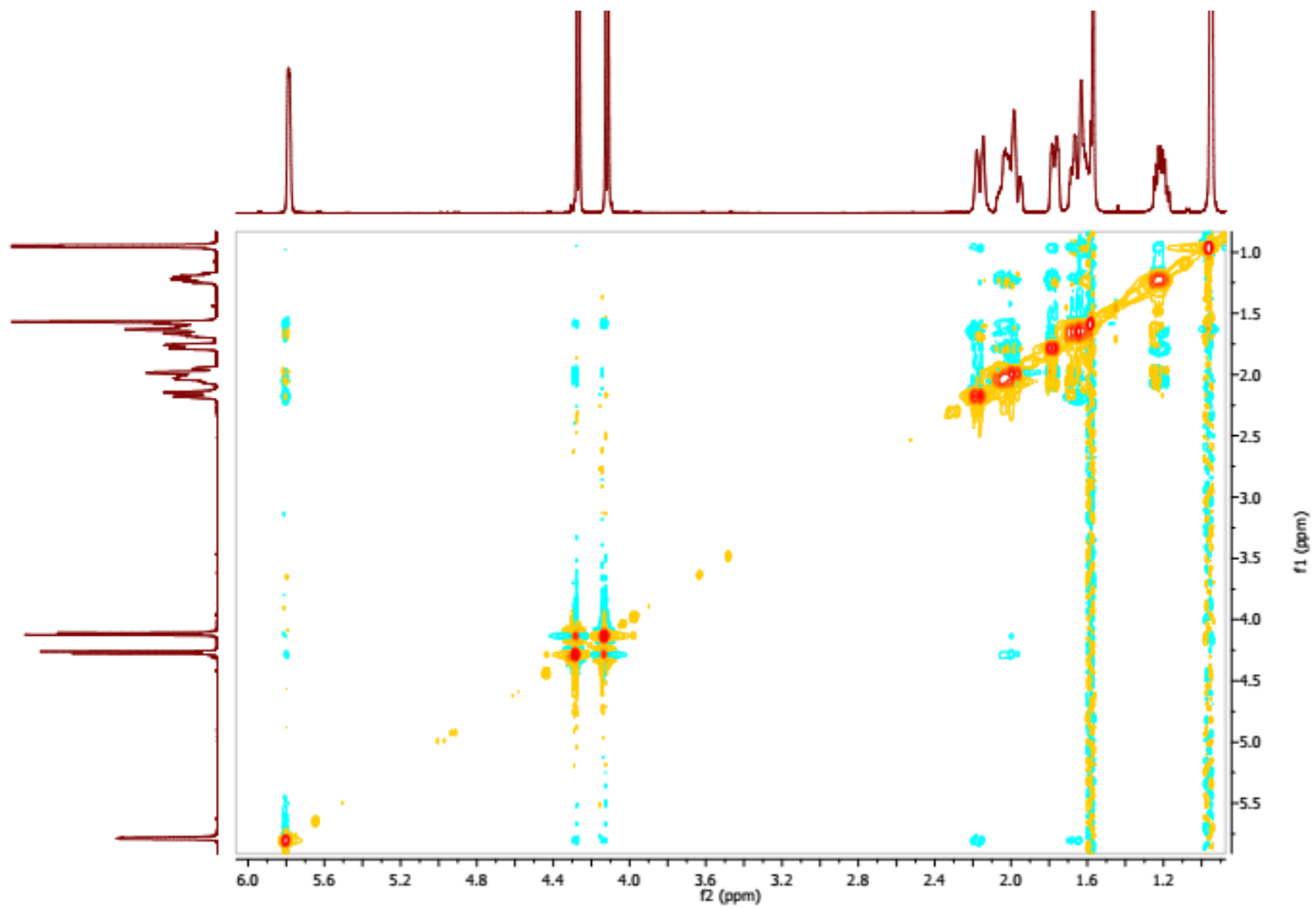
$^{13}\text{C}$ -NMR of compound **30**



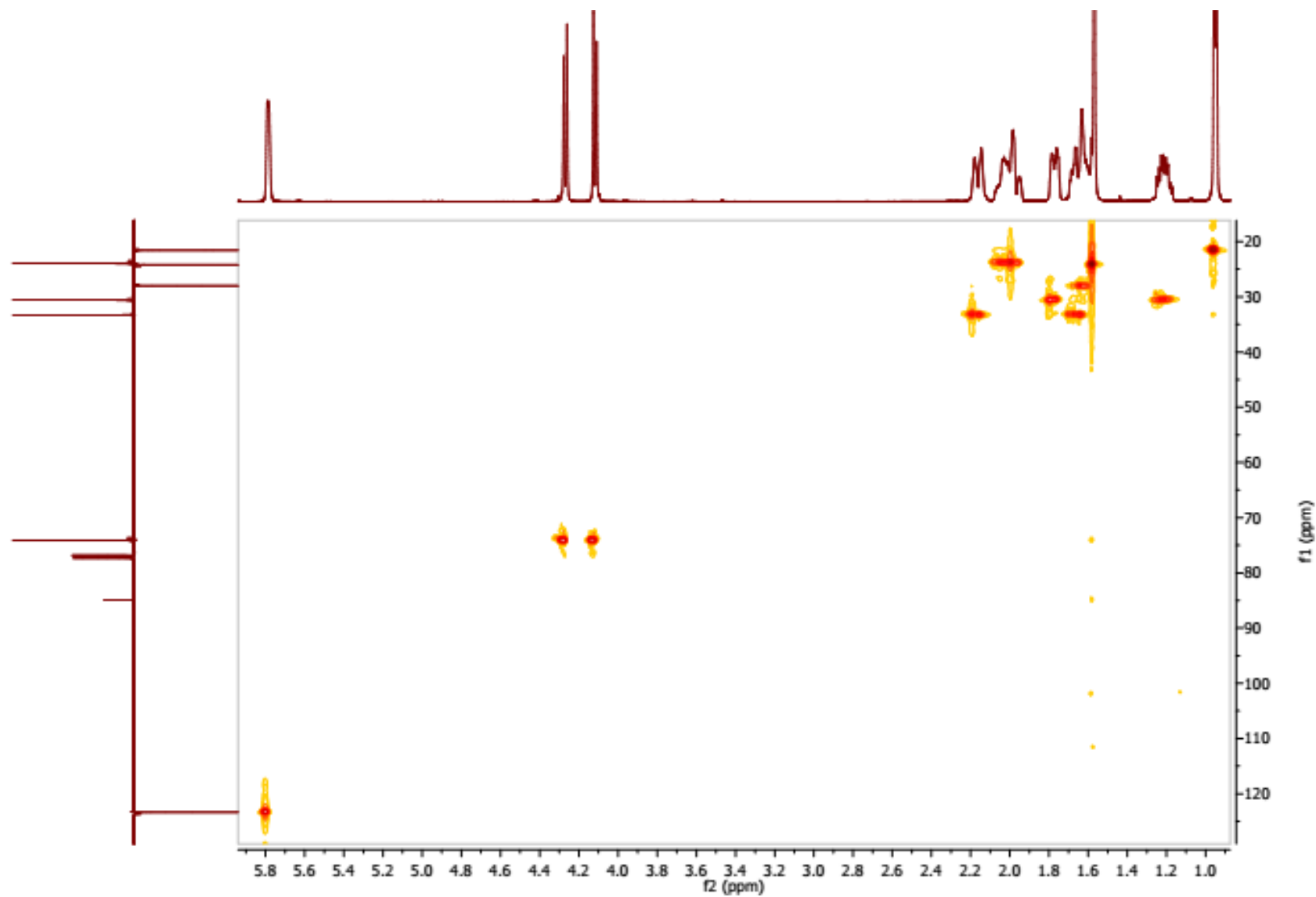
COSY of compound **30**



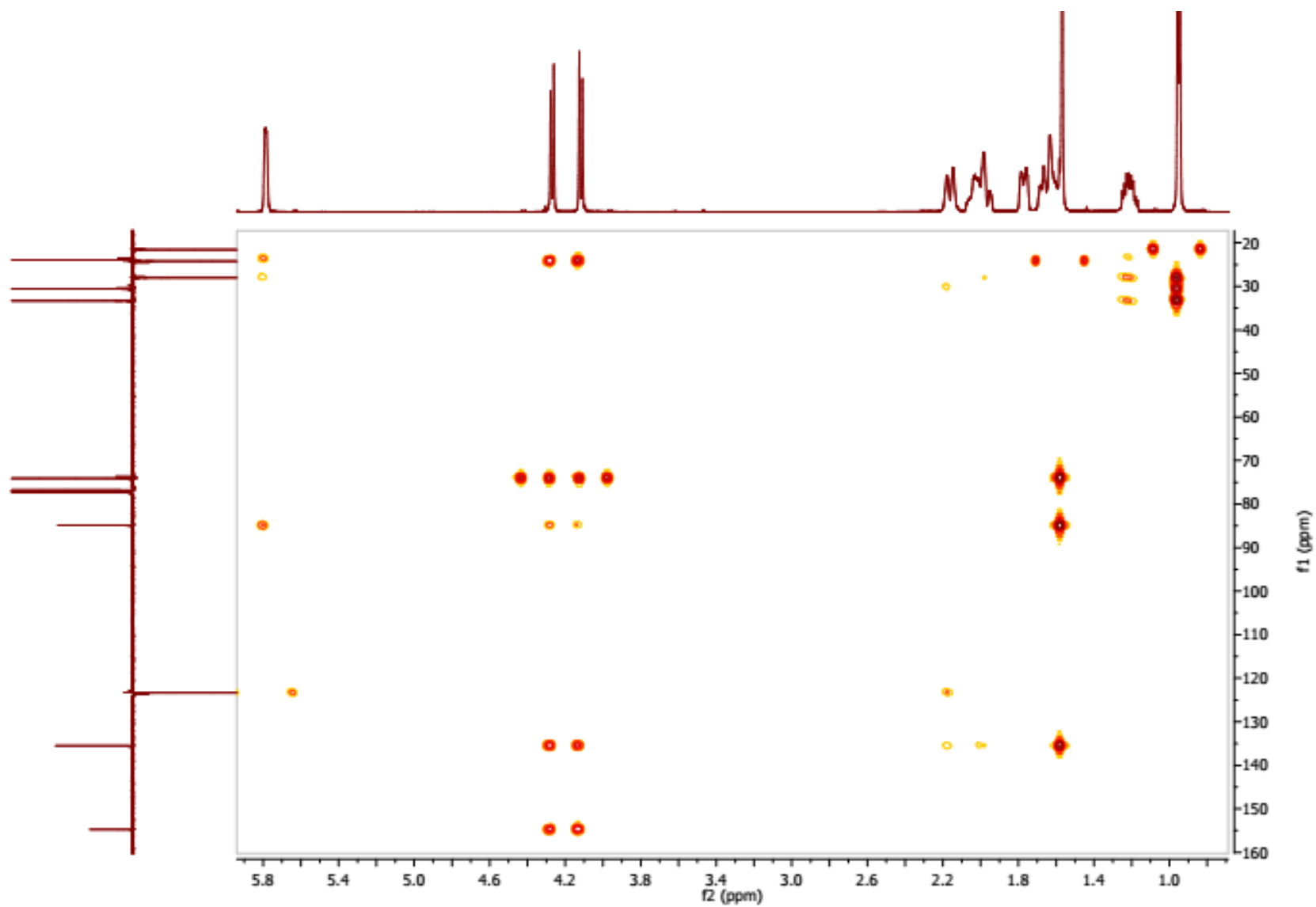
NOESY of compound **30**



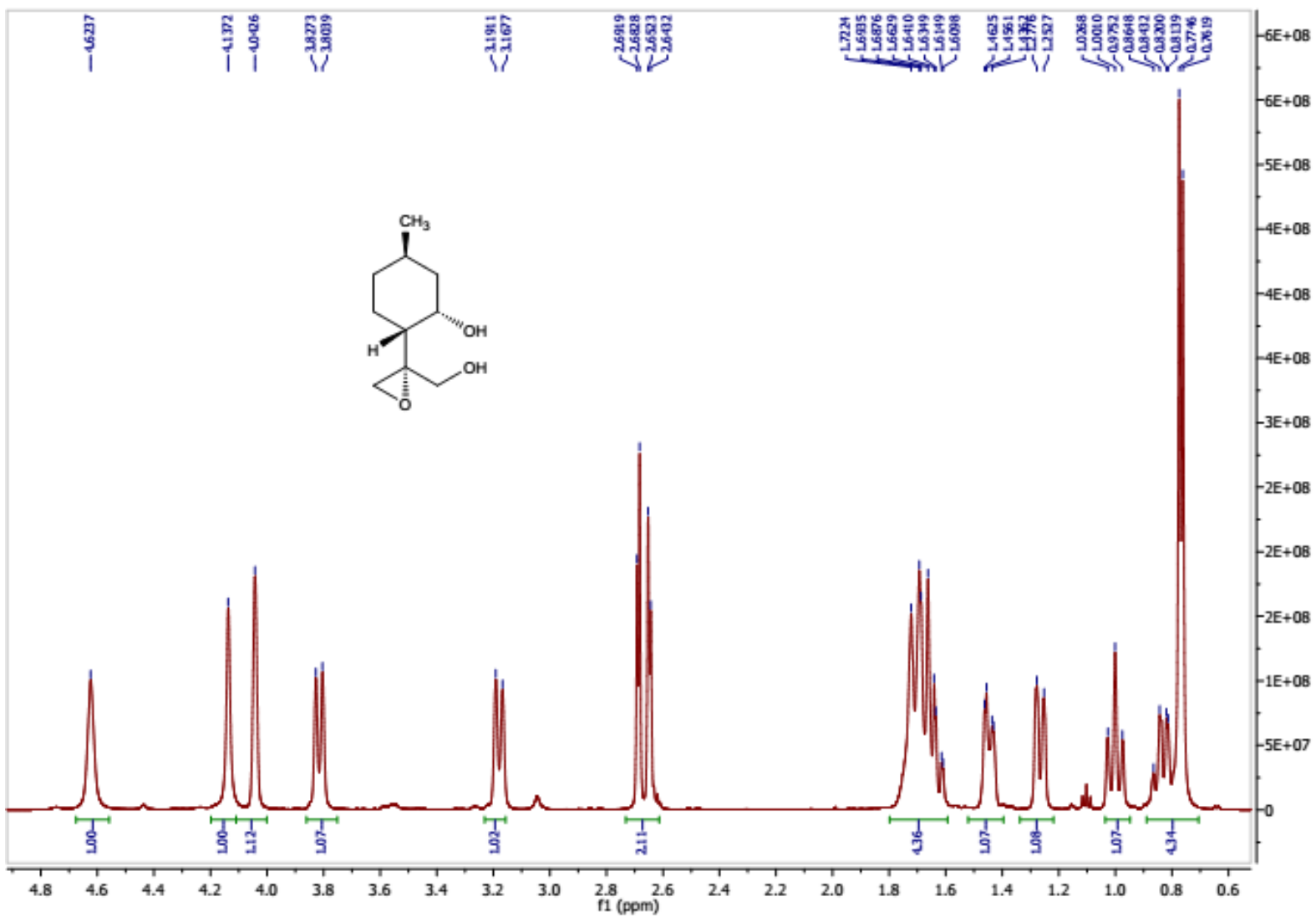
HSQC of compound **30**



HMBC of compound 30

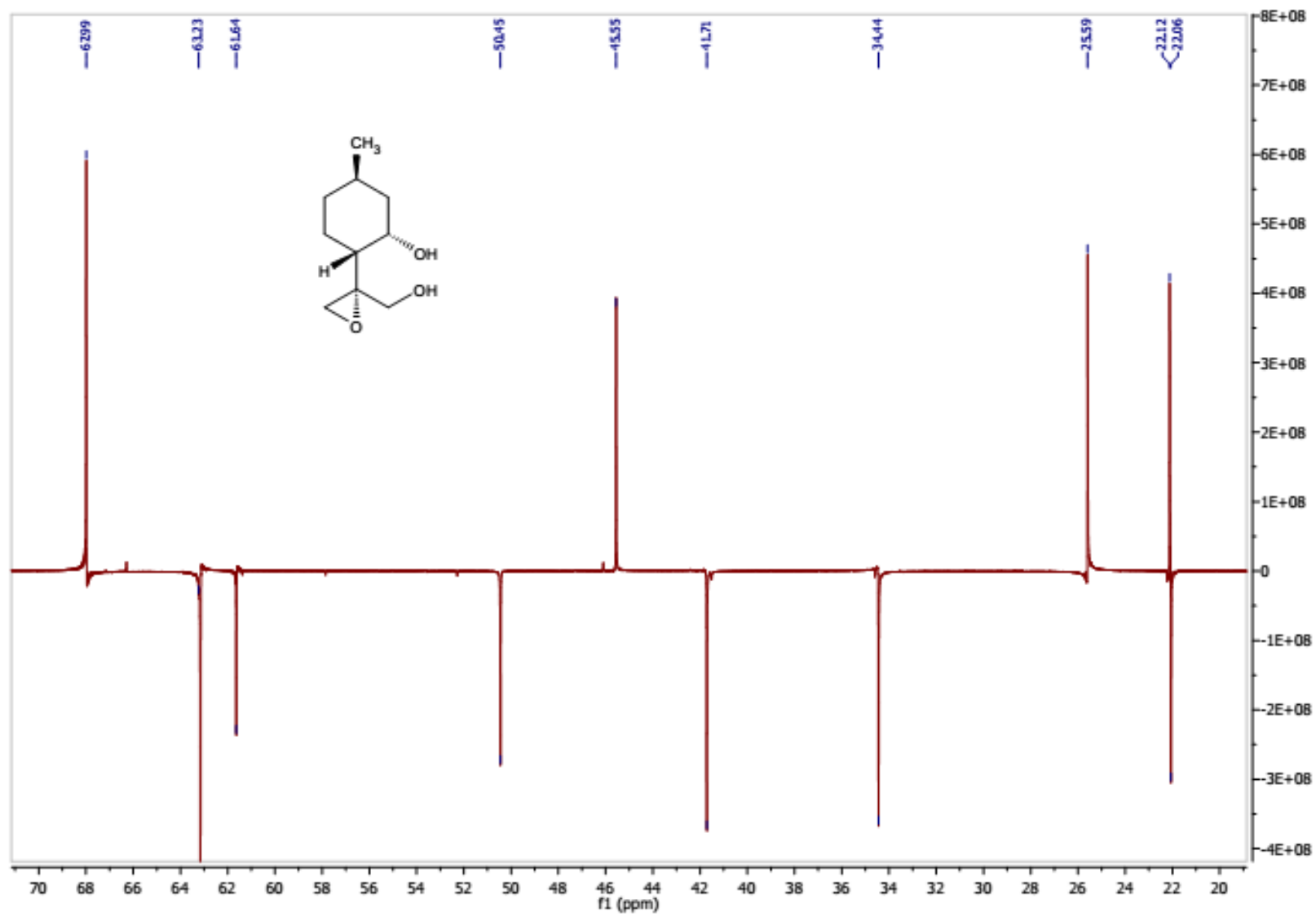


$^1\text{H-NMR}$  of compound **31**

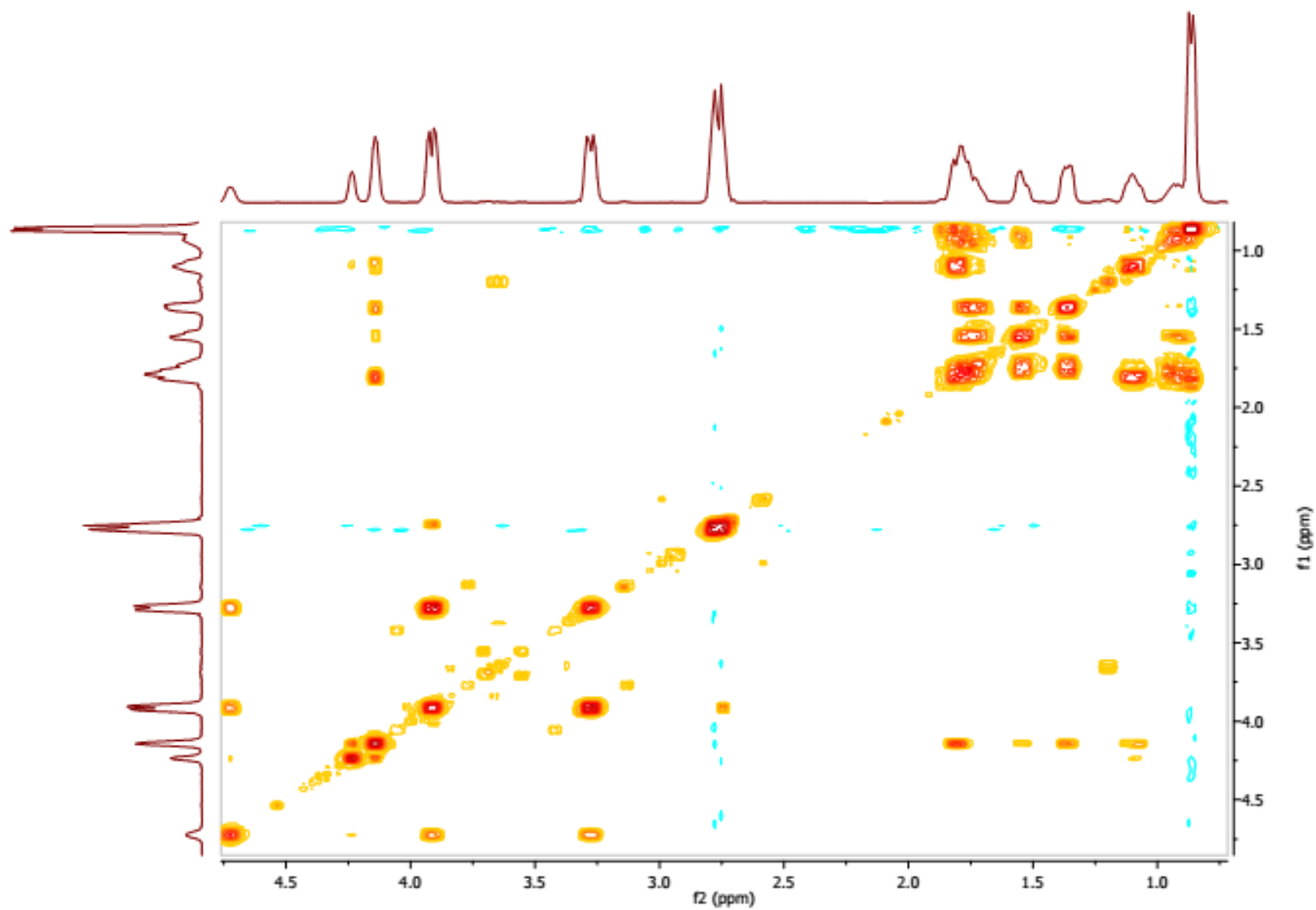




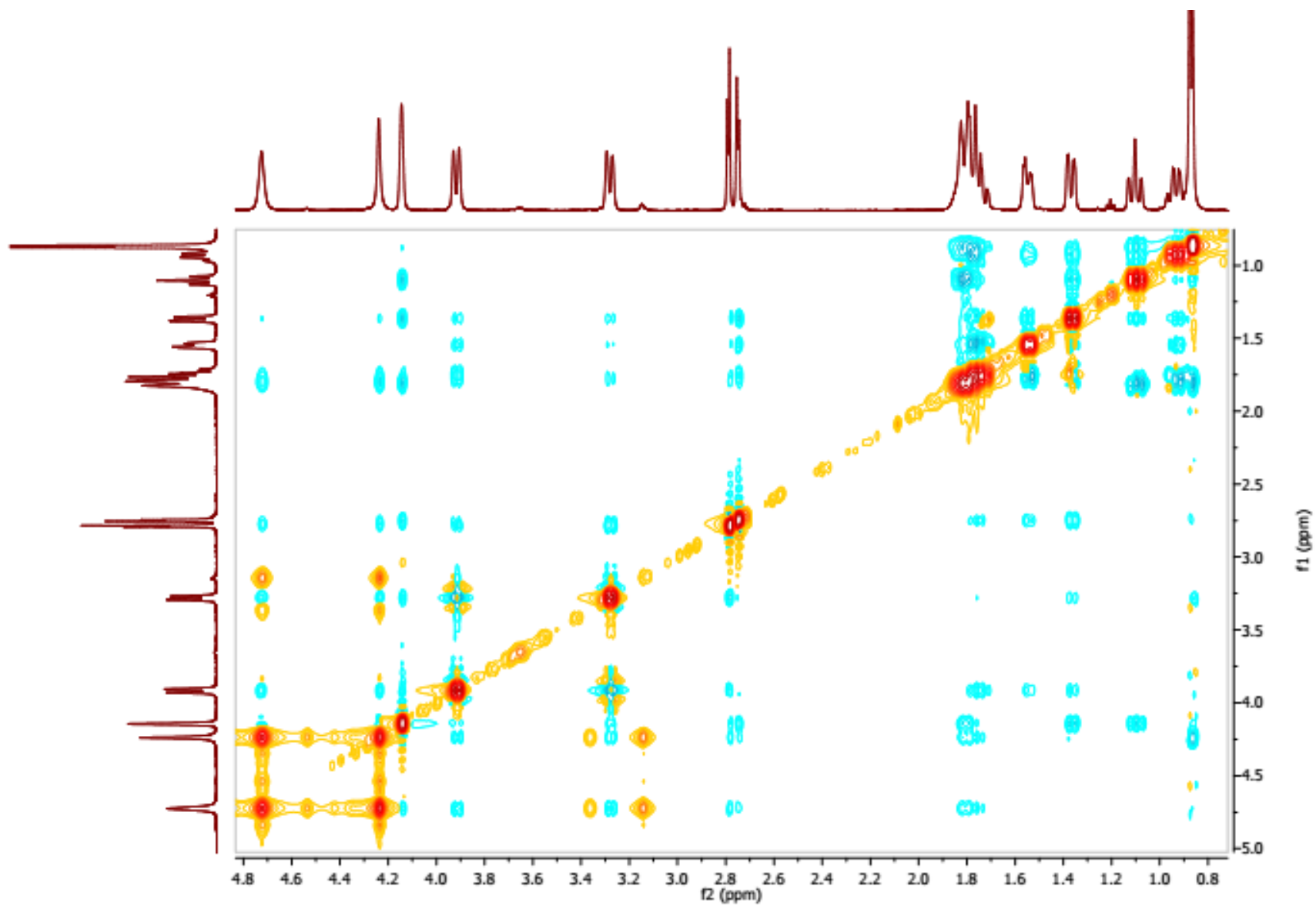
$^{13}\text{C}$ -NMR of compound **31**



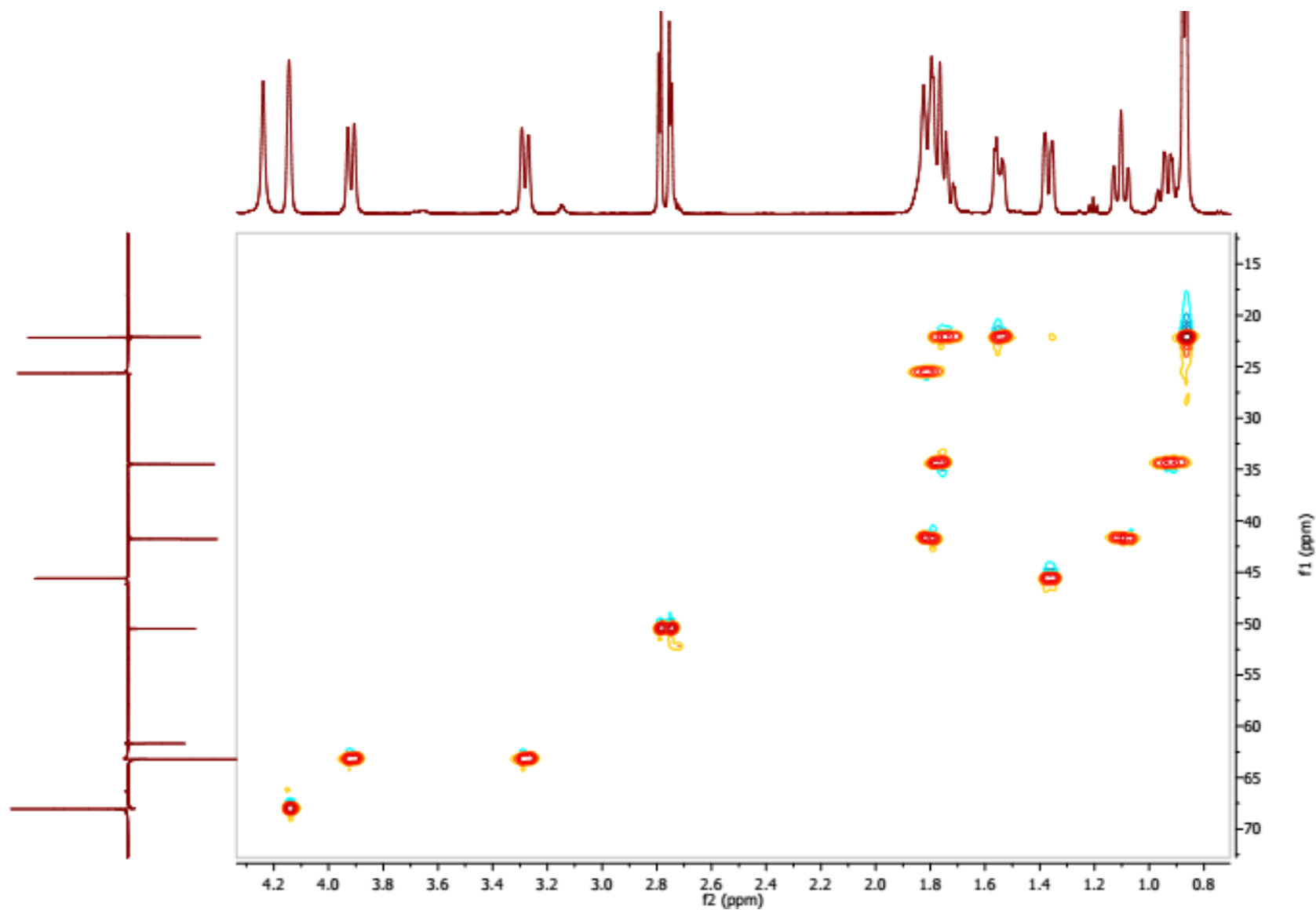
COSY of compound **31**



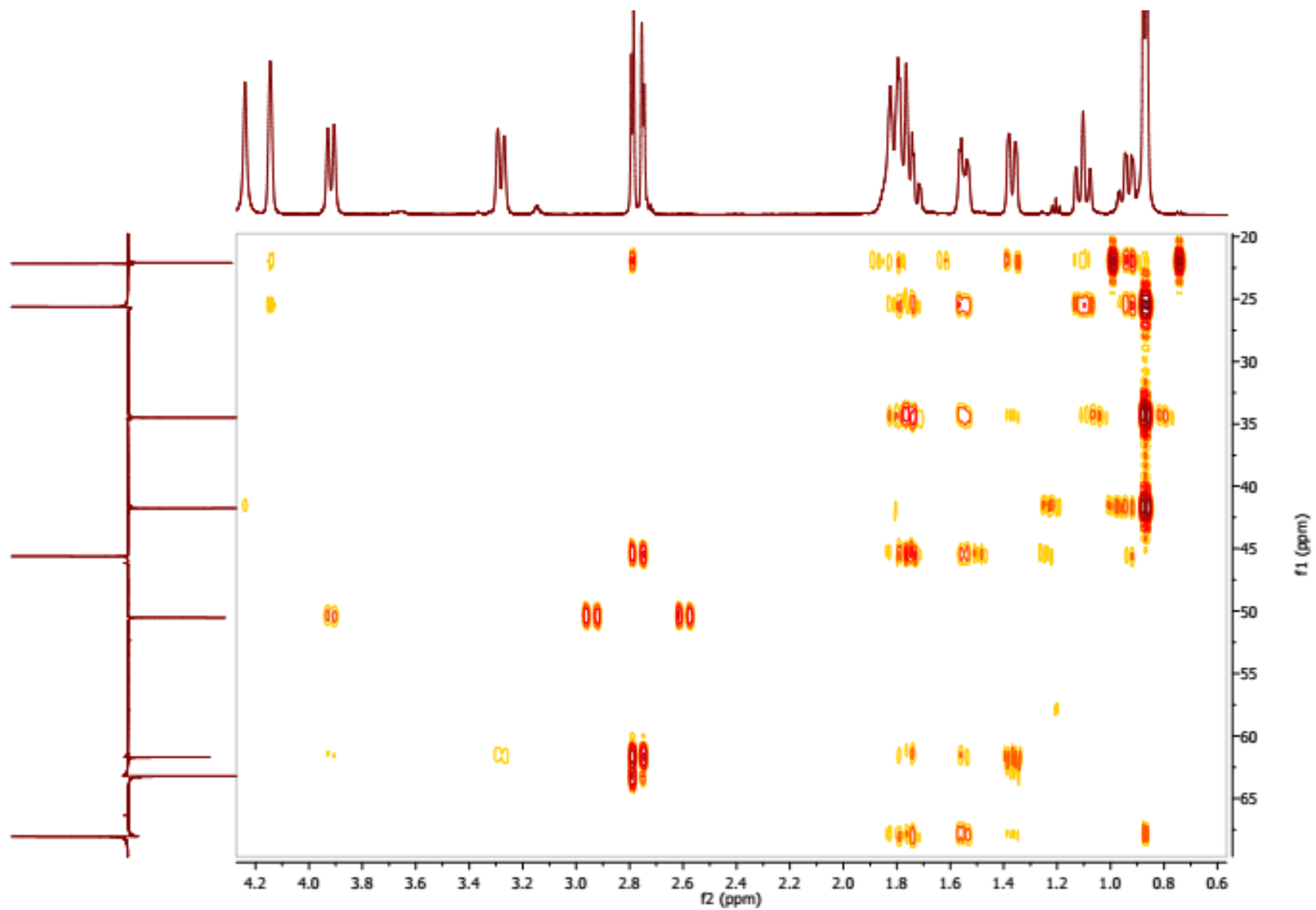
NOESY of compound **31**



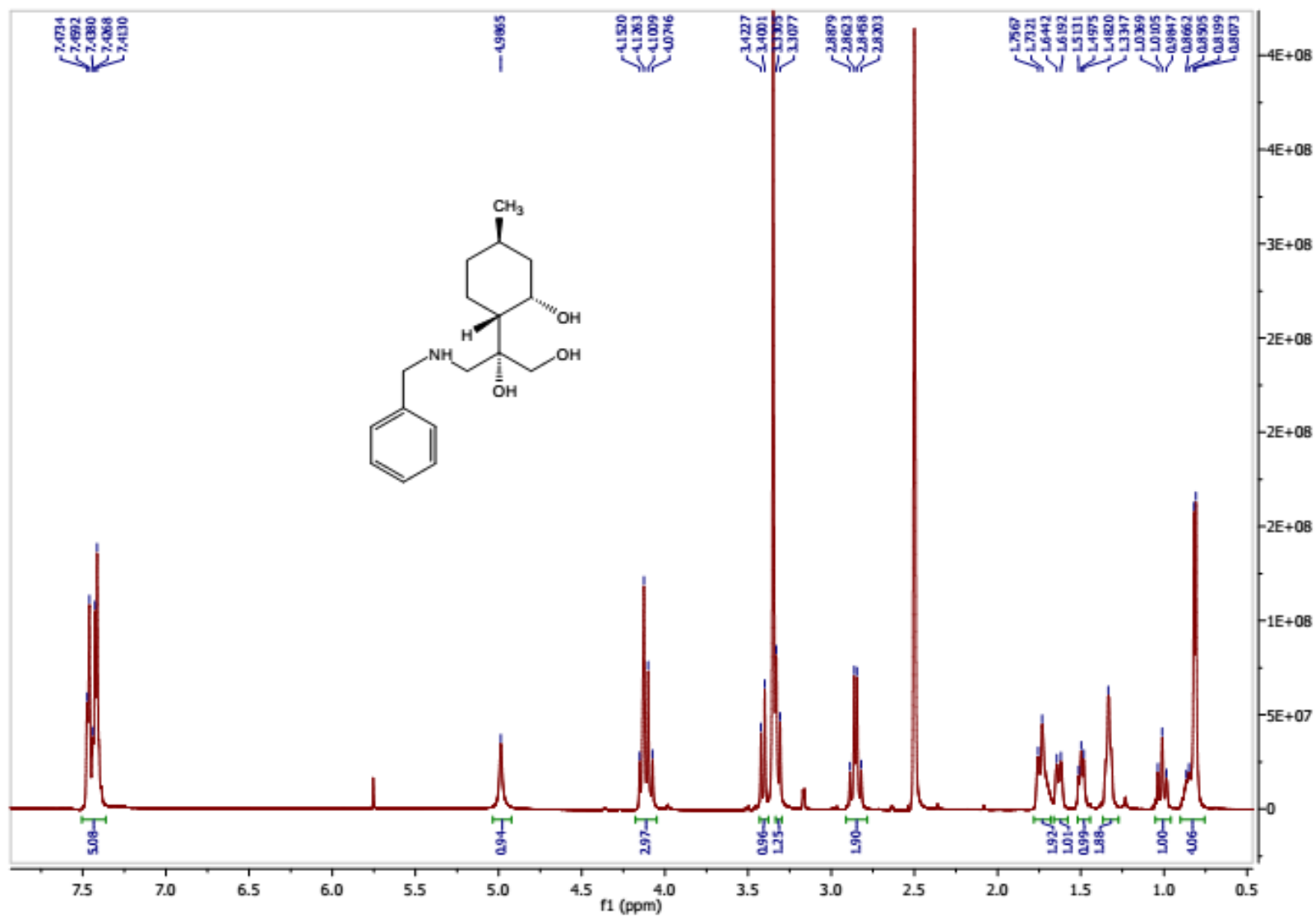
HSQC of compound **31**



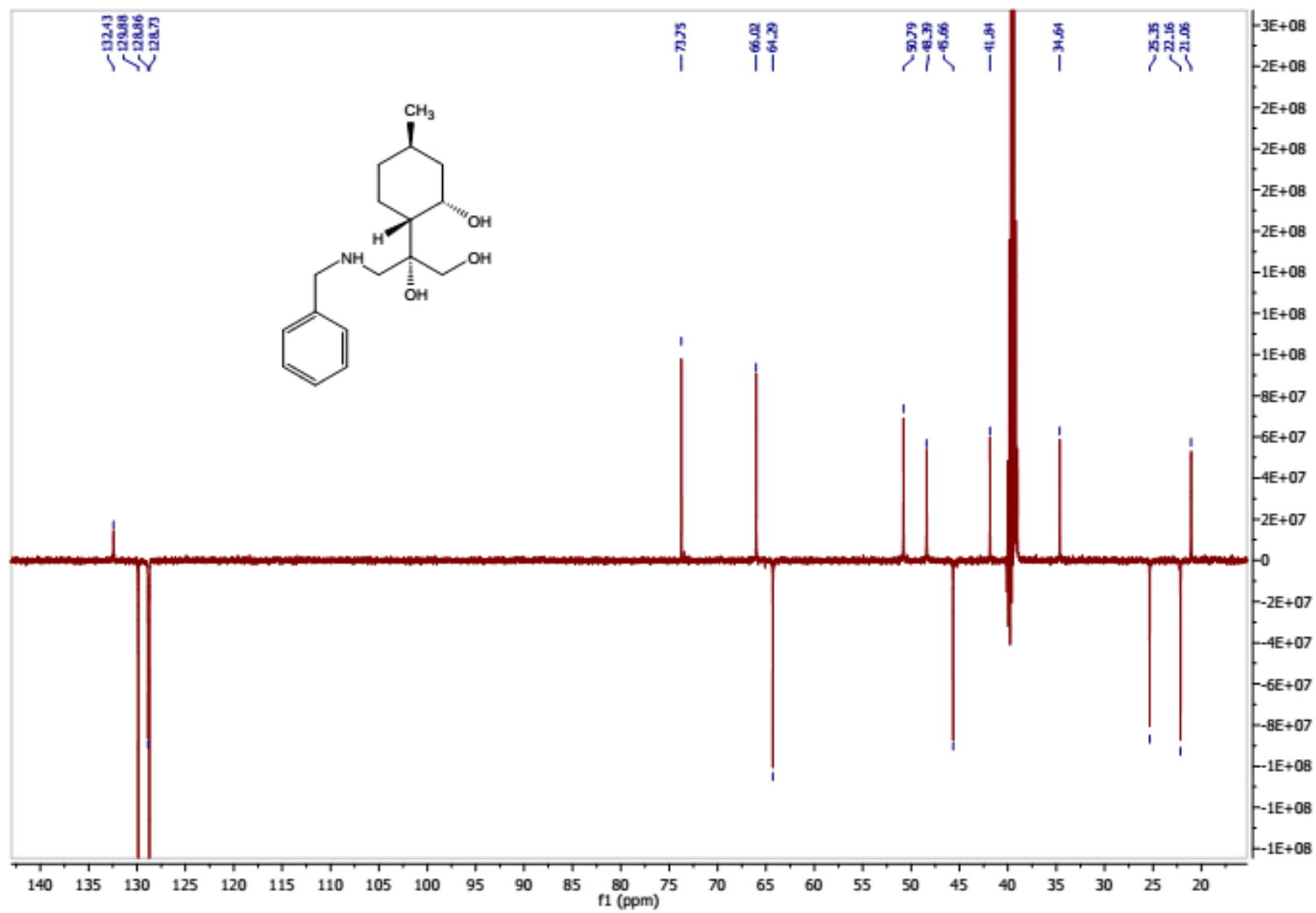
HMBC of compound 31



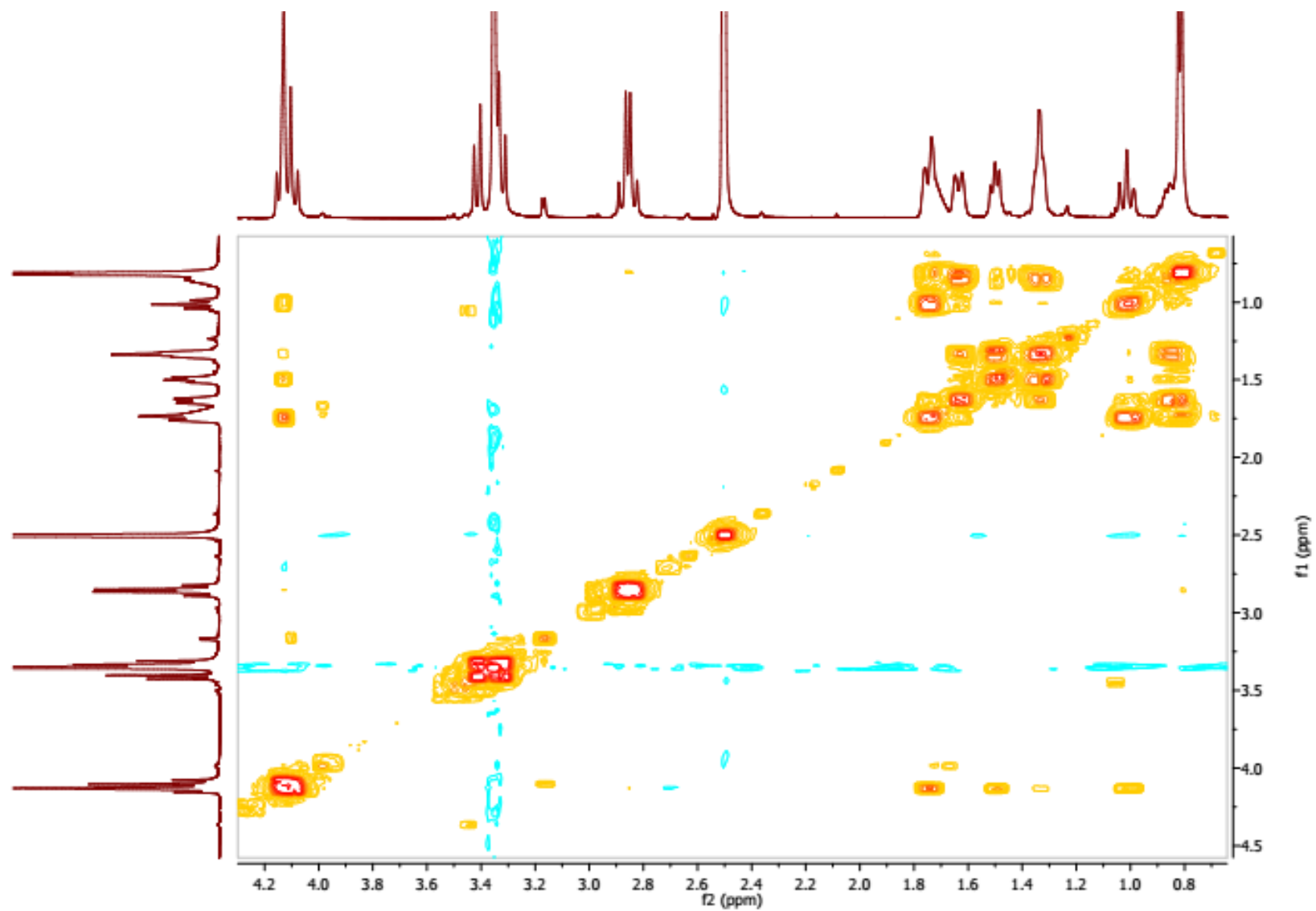
<sup>1</sup>H-NMR of compound 32



$^{13}\text{C}$ -NMR of compound 32

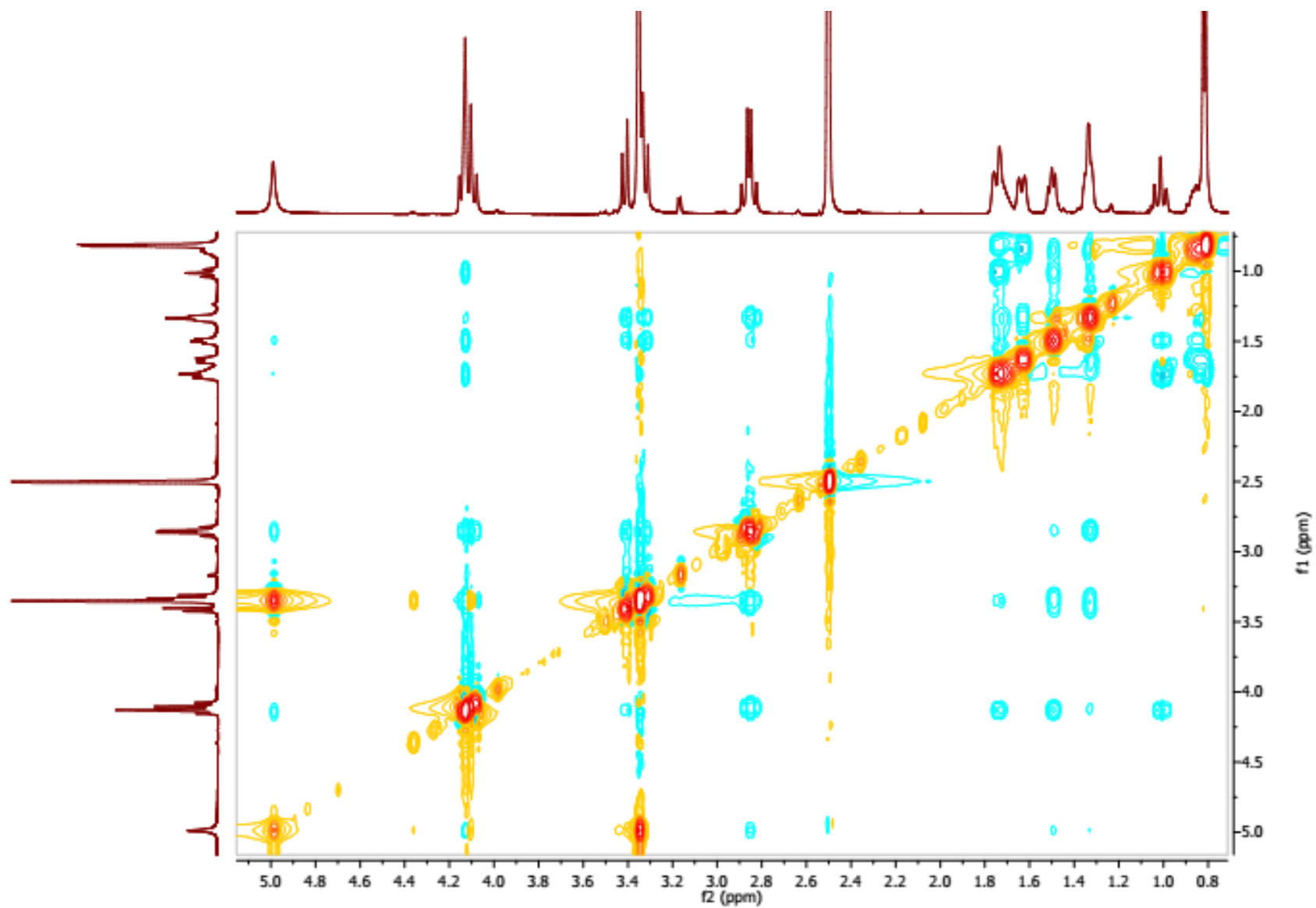


COSY of compound 32

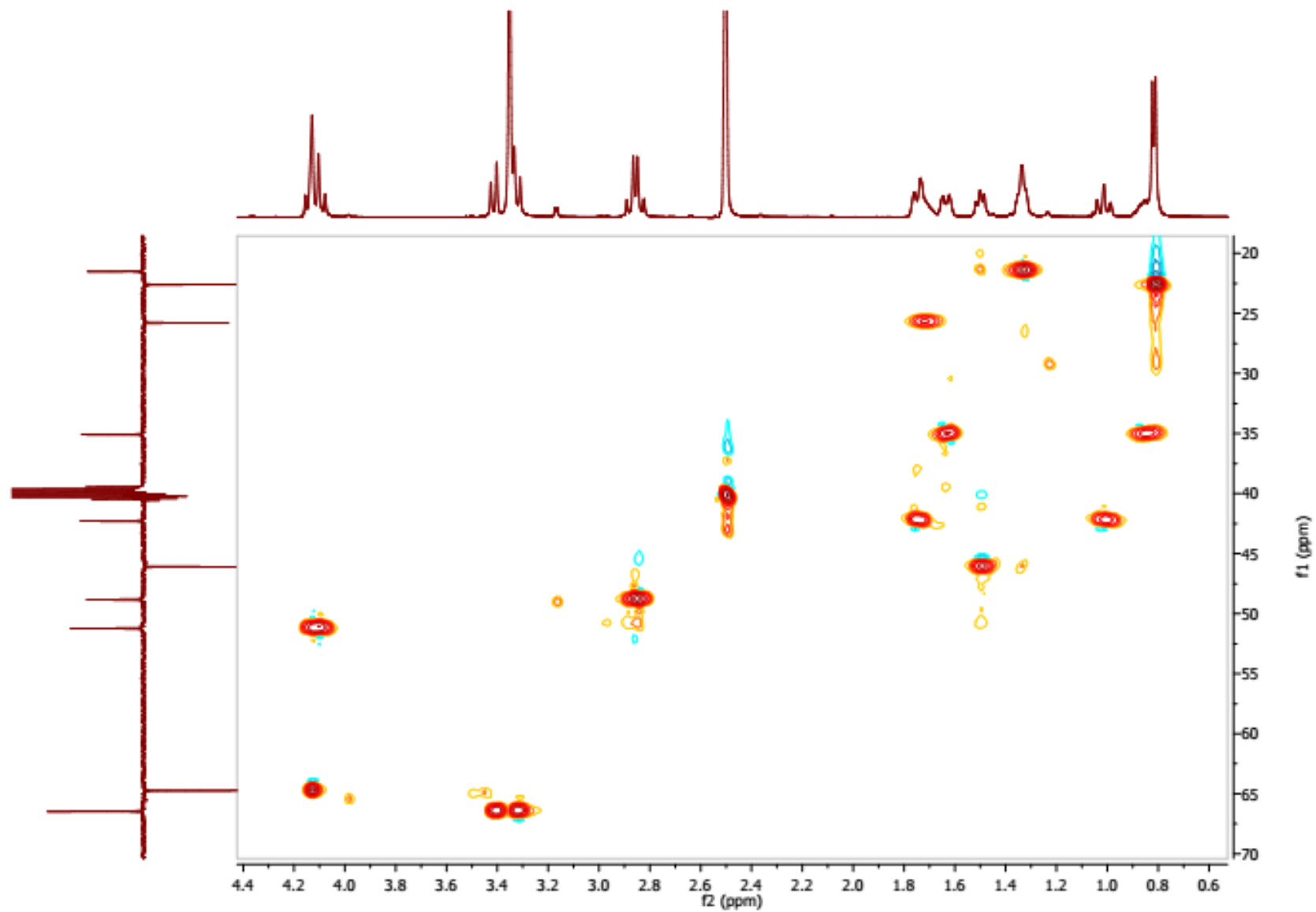




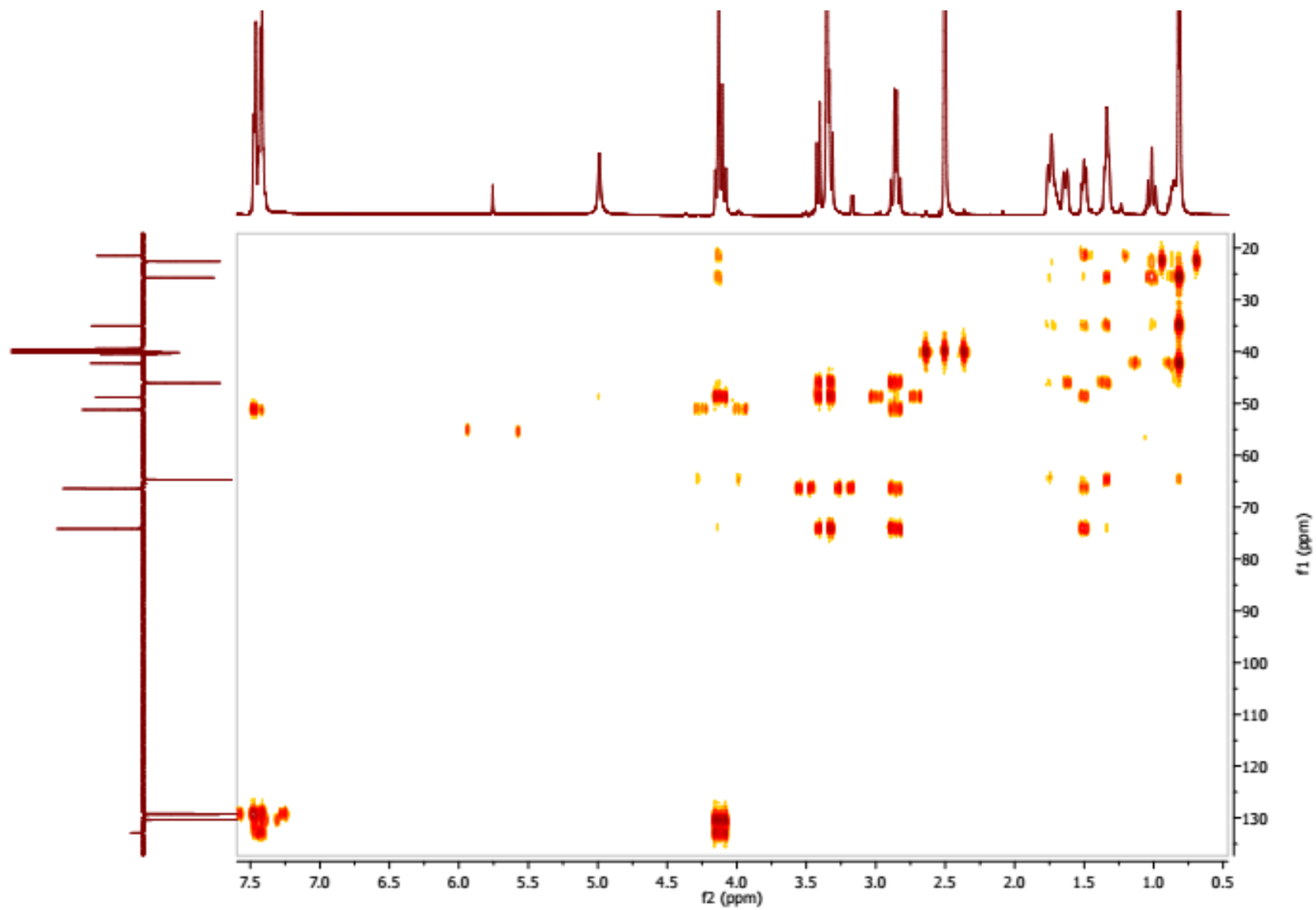
NOESY of compound 32



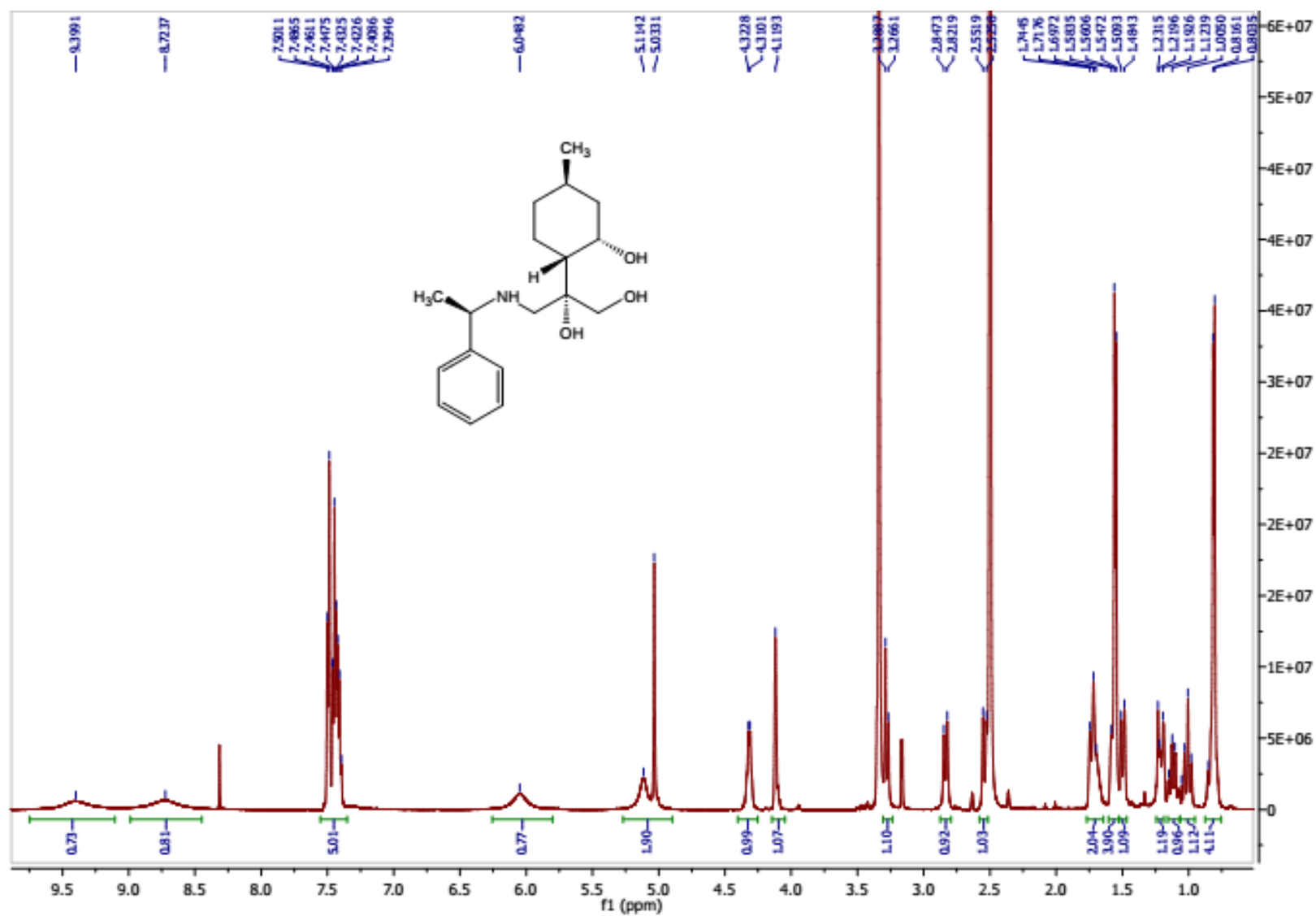
HSQC of compound 32



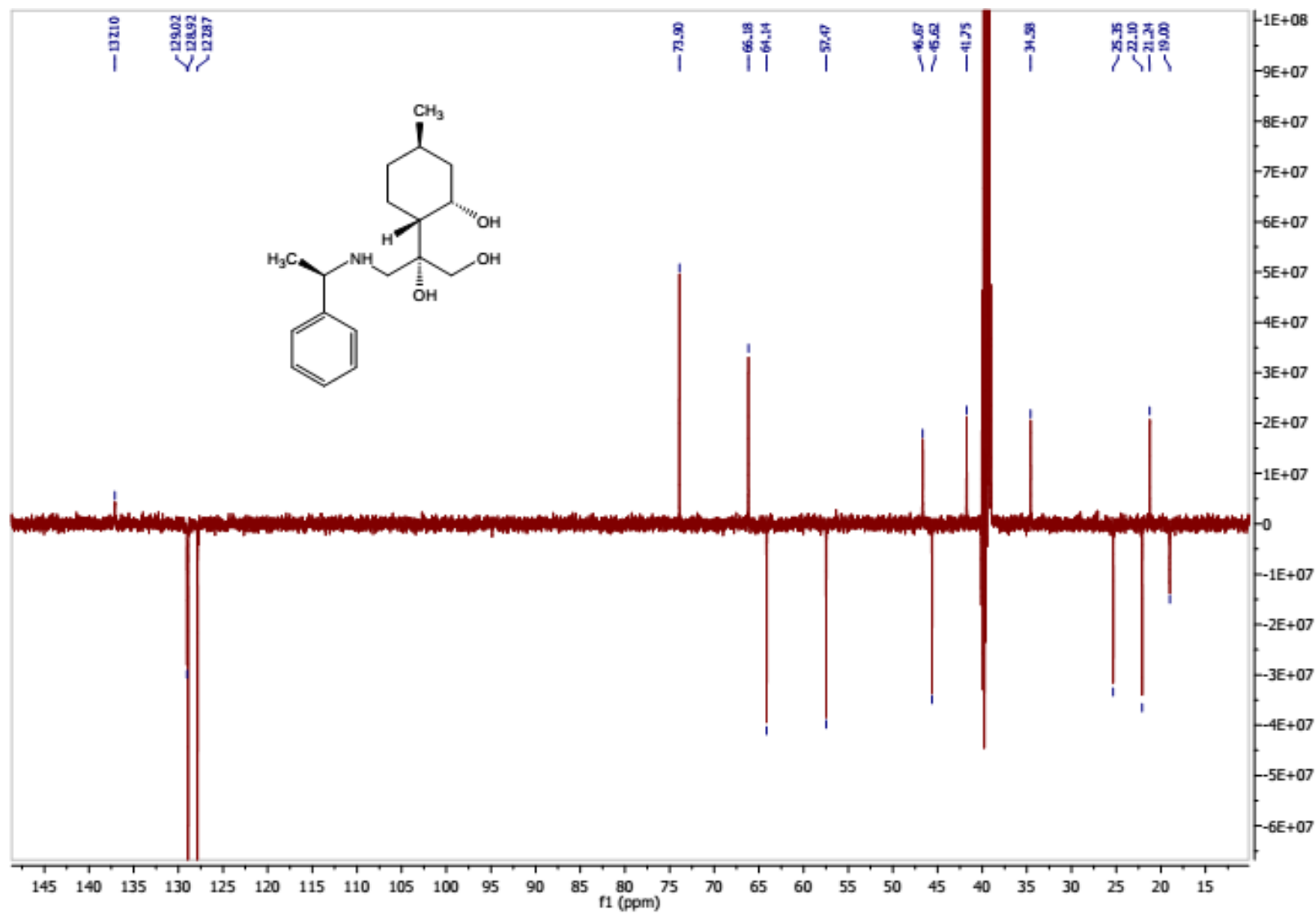
HMBC of compound 32



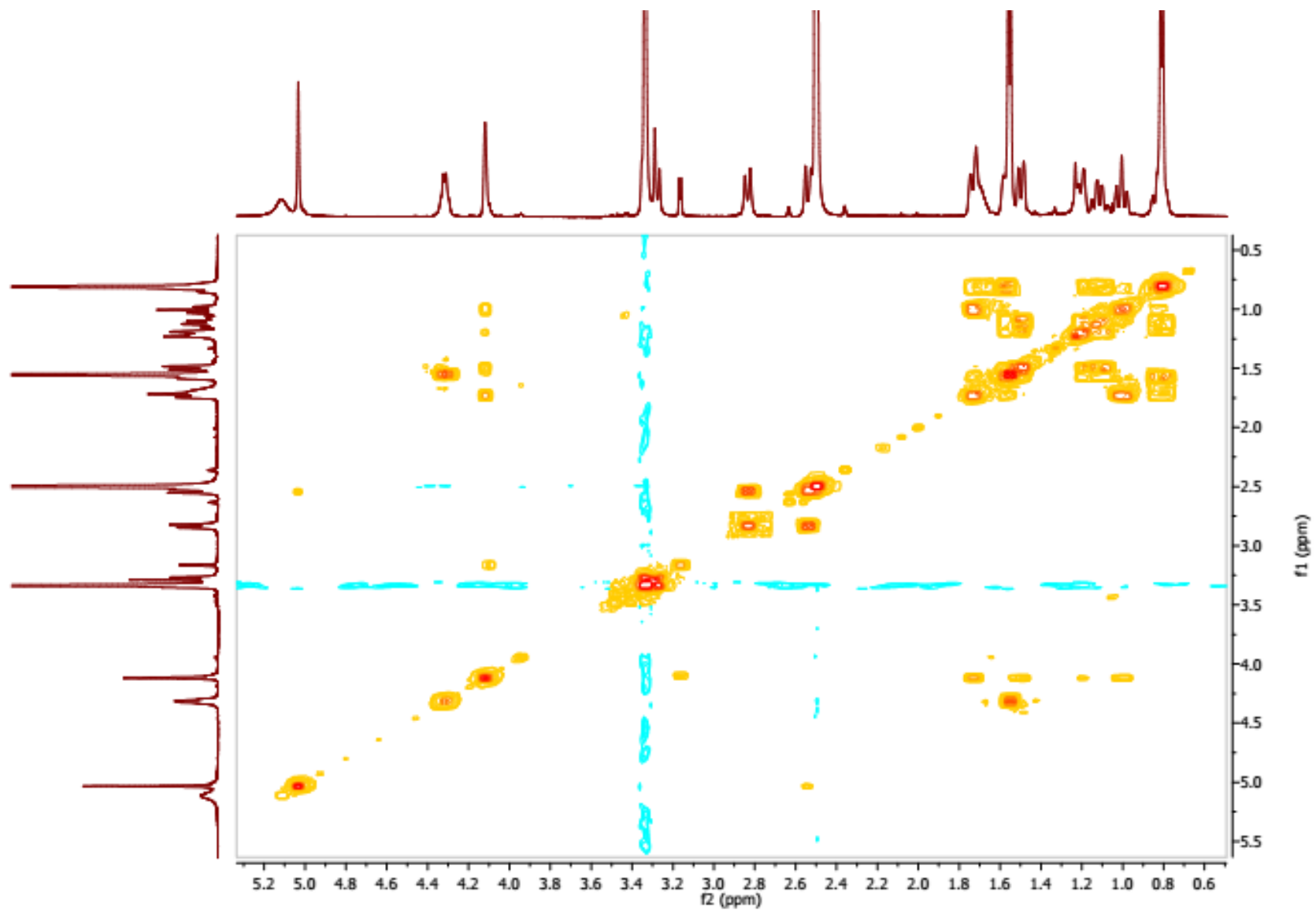
$^1\text{H-NMR}$  of compound **33**



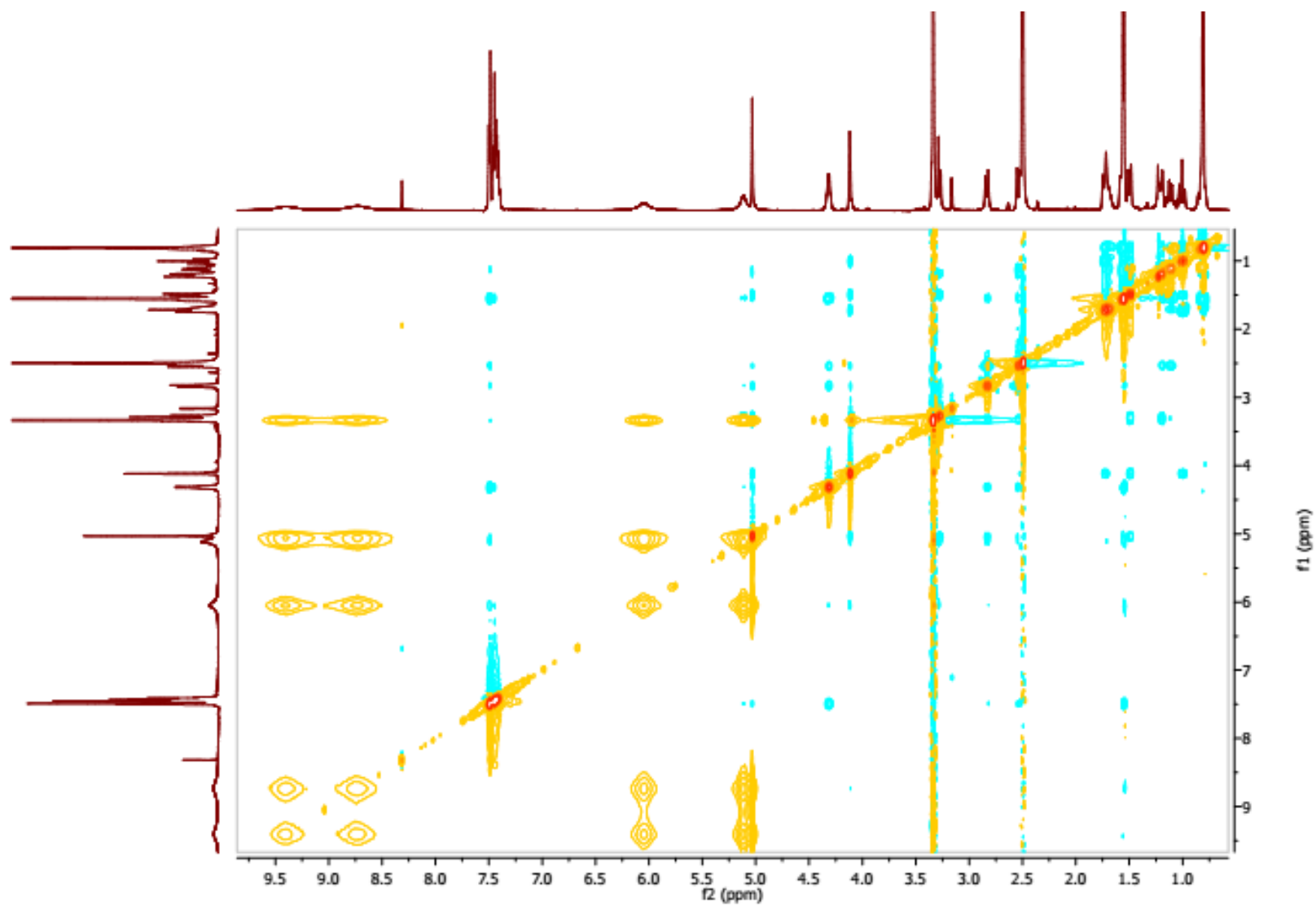
$^{13}\text{C}$ -NMR of compound 33



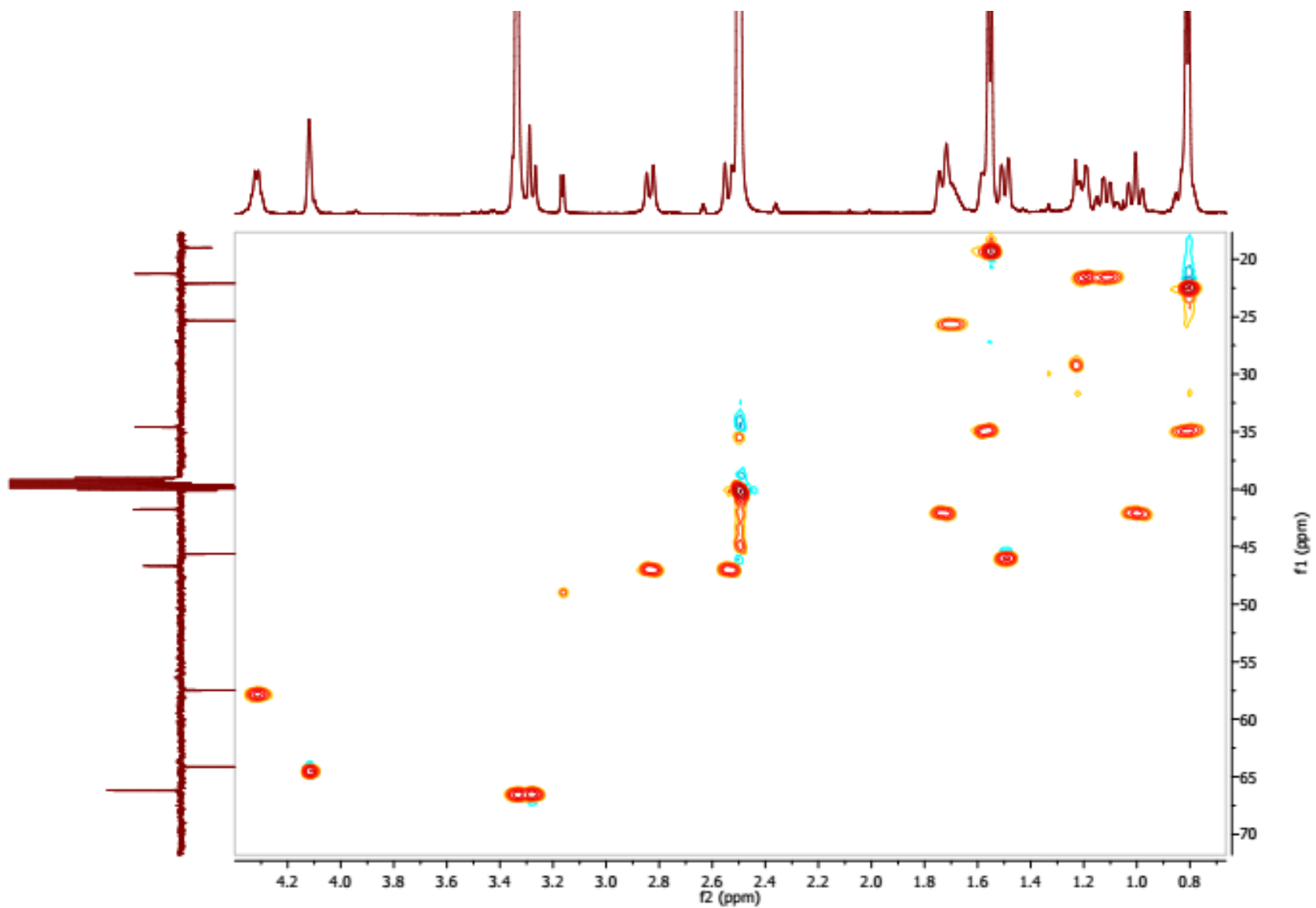
COSY of compound 33



NOESY of compound 33

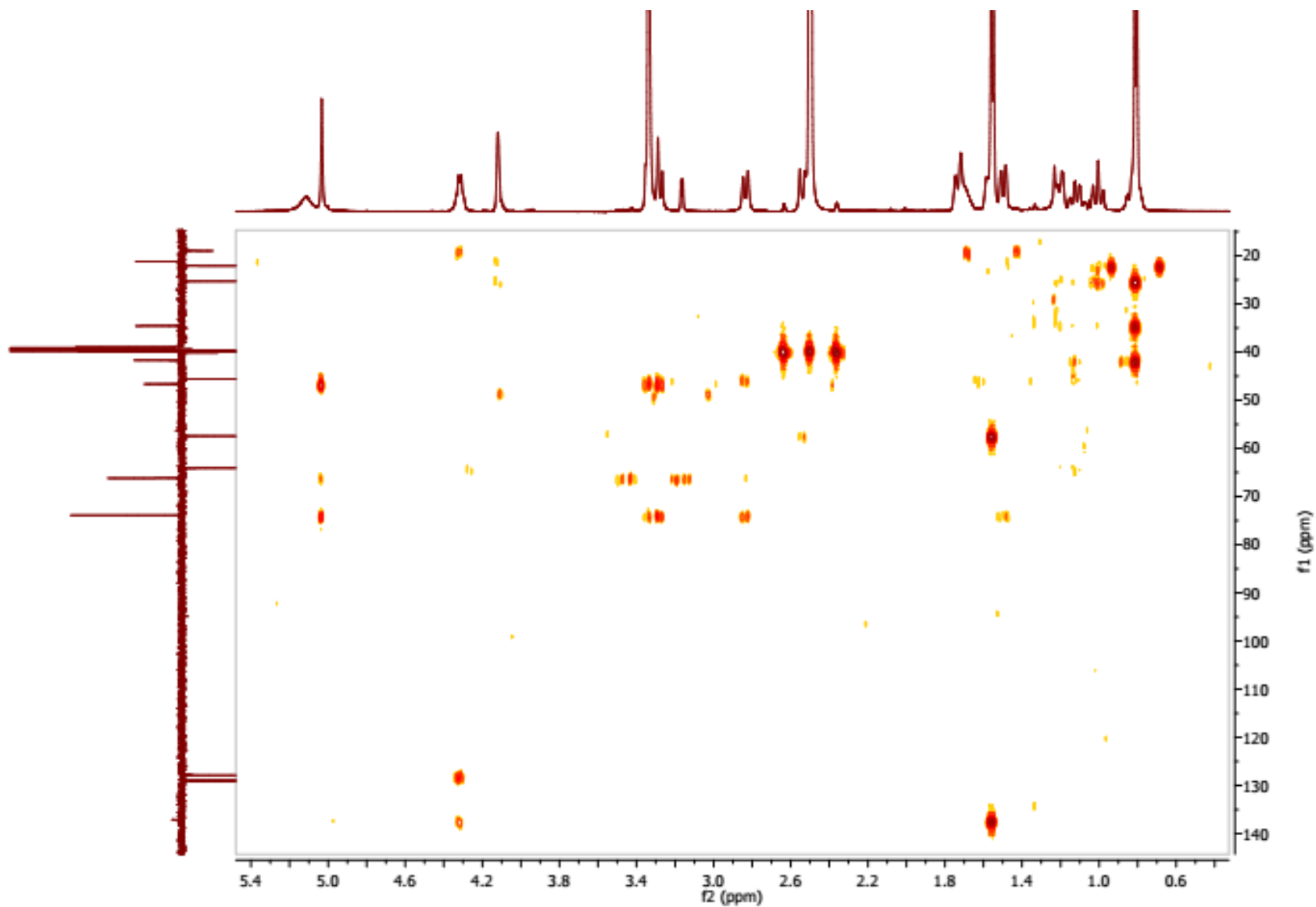


HSQC of compound 33

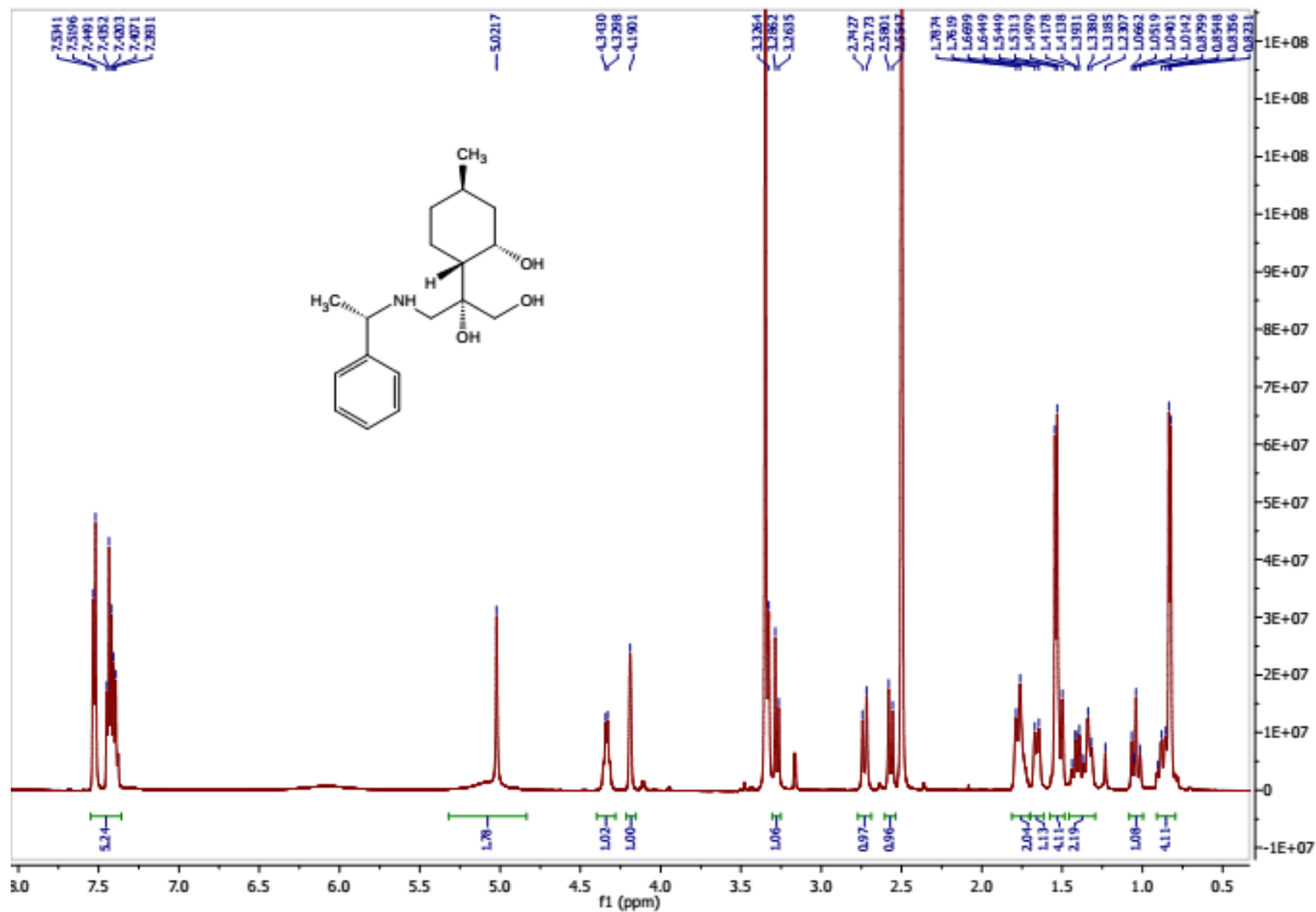




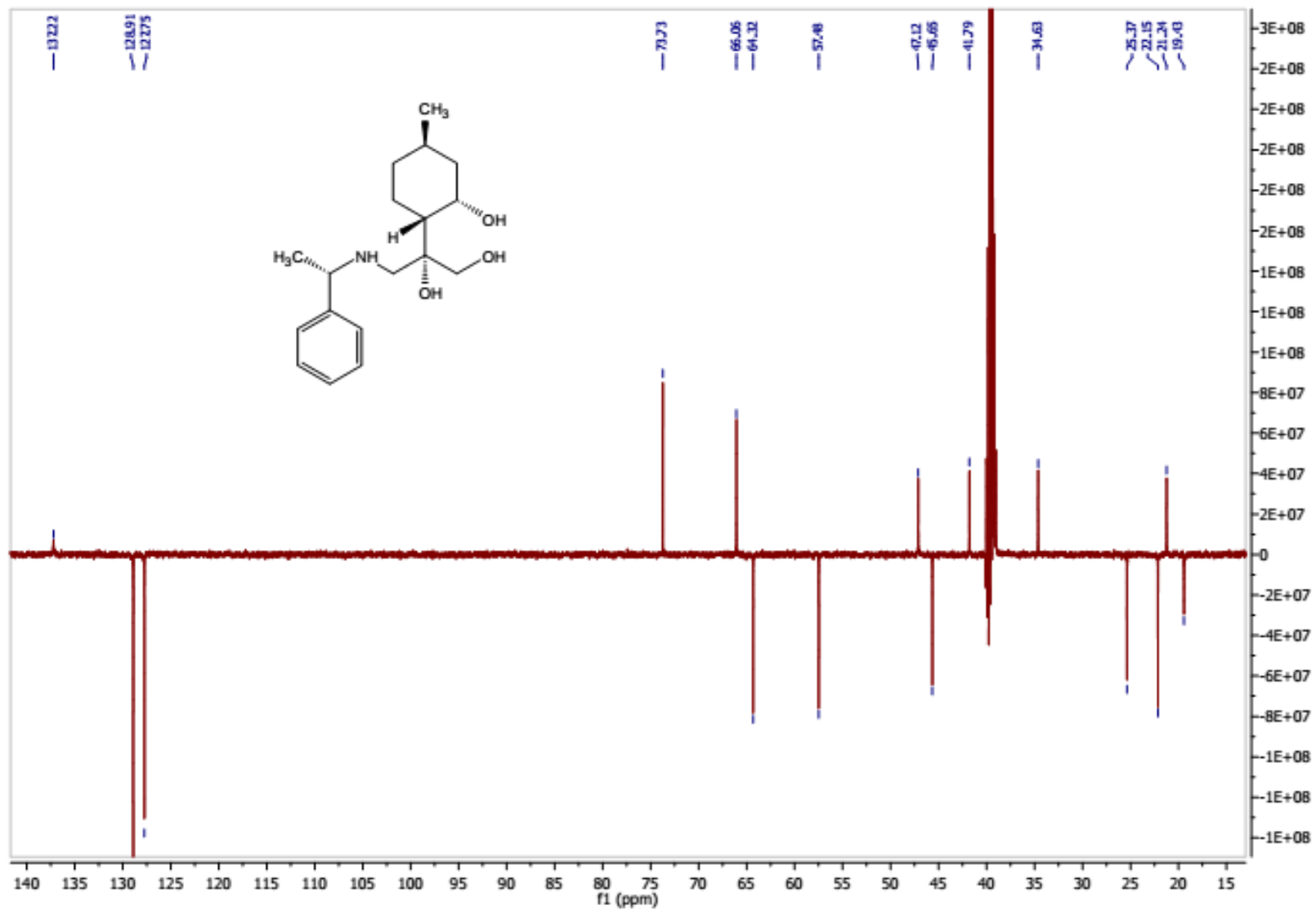
HMBC of compound 33



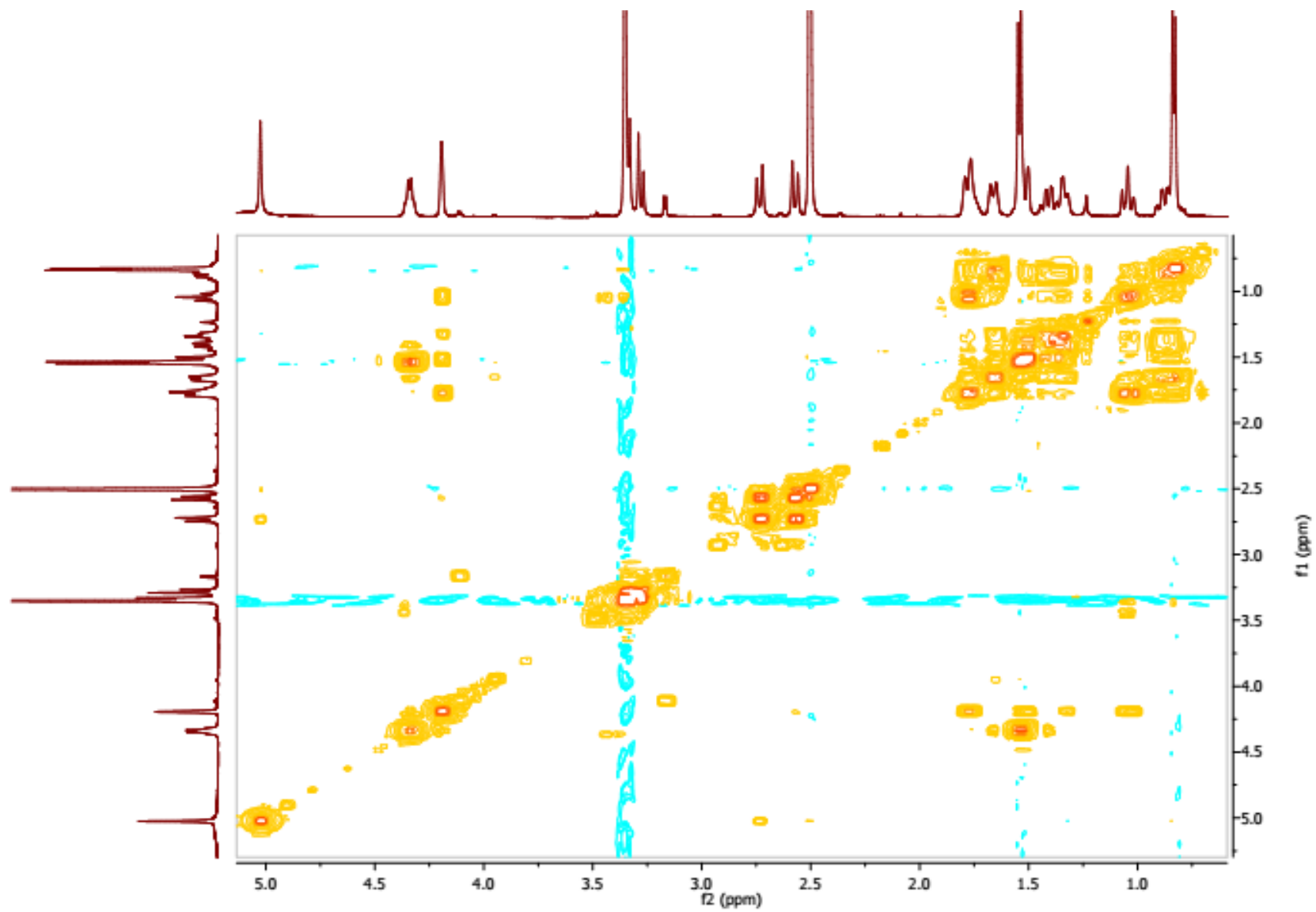
<sup>1</sup>H-NMR of compound 34



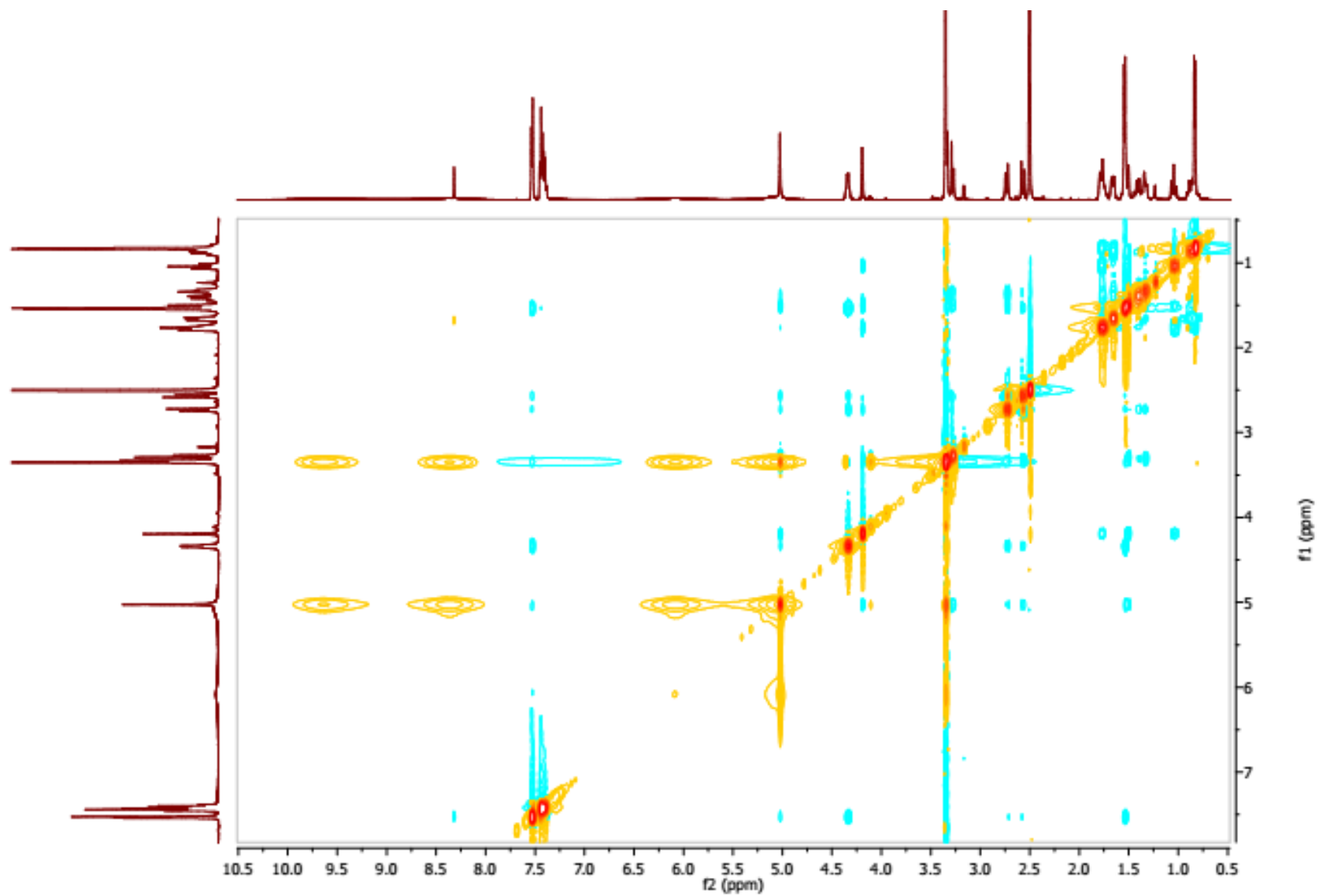
$^{13}\text{C}$ -NMR of compound 34



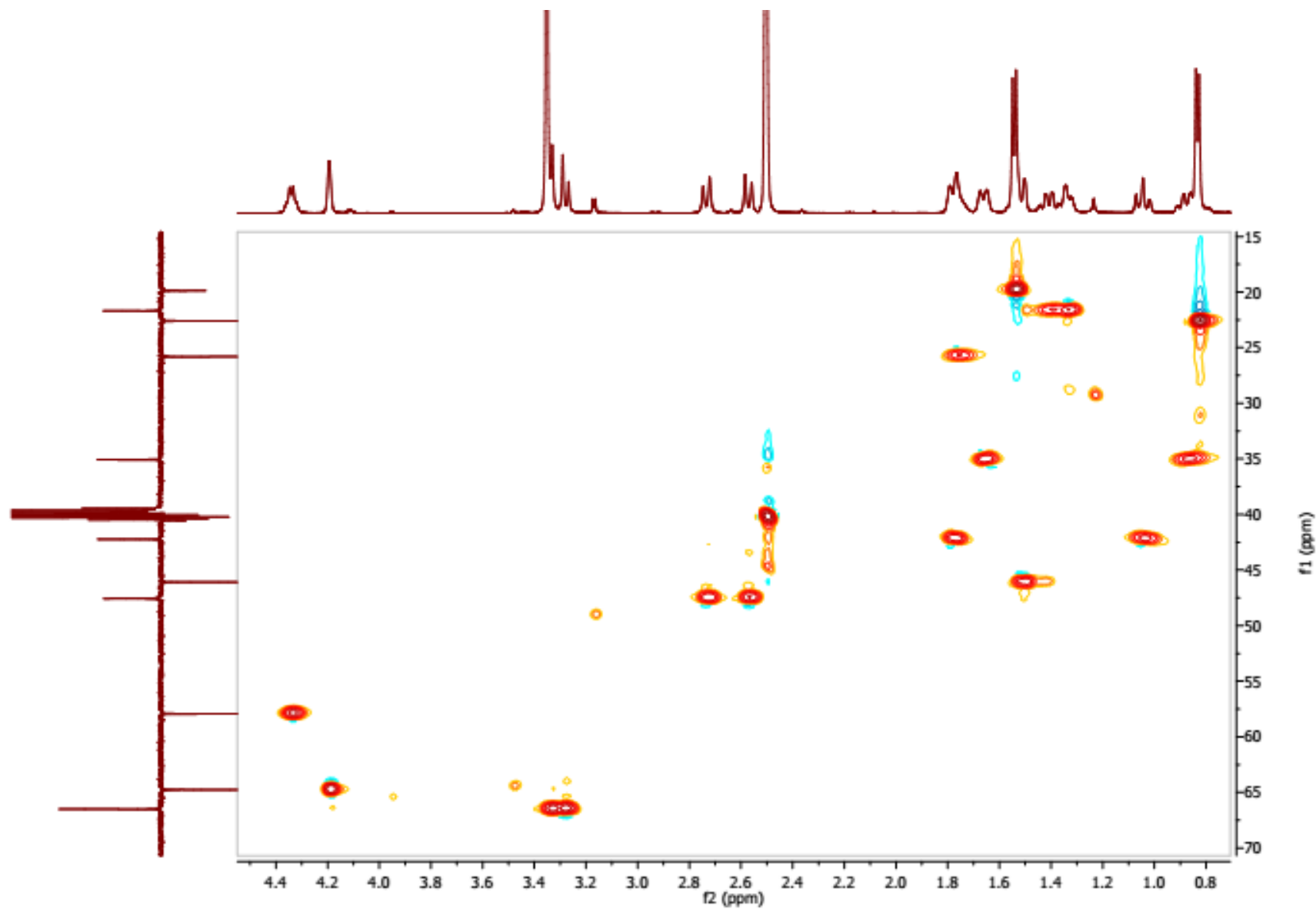
COSY of compound 34



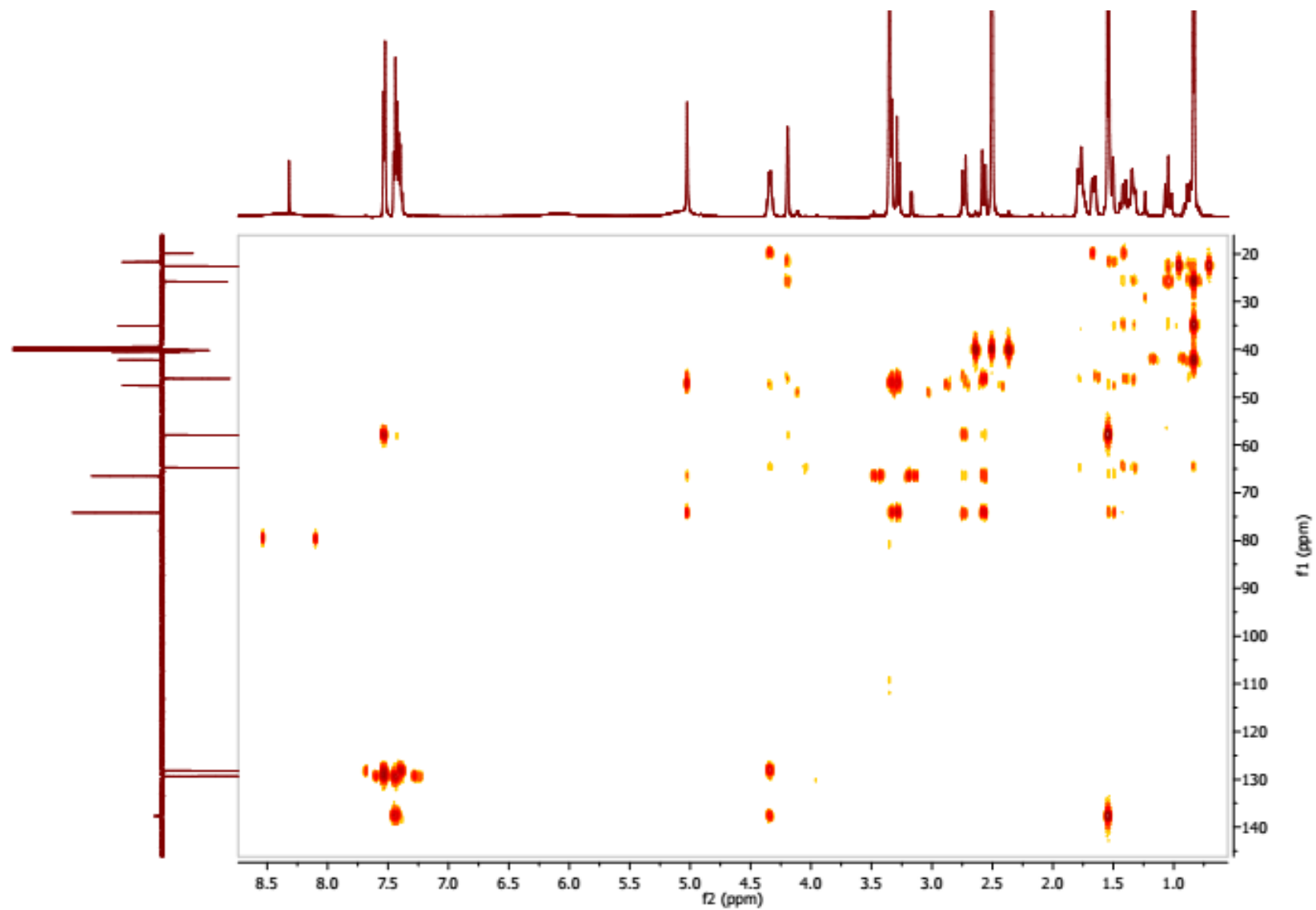
NOESY of compound 34



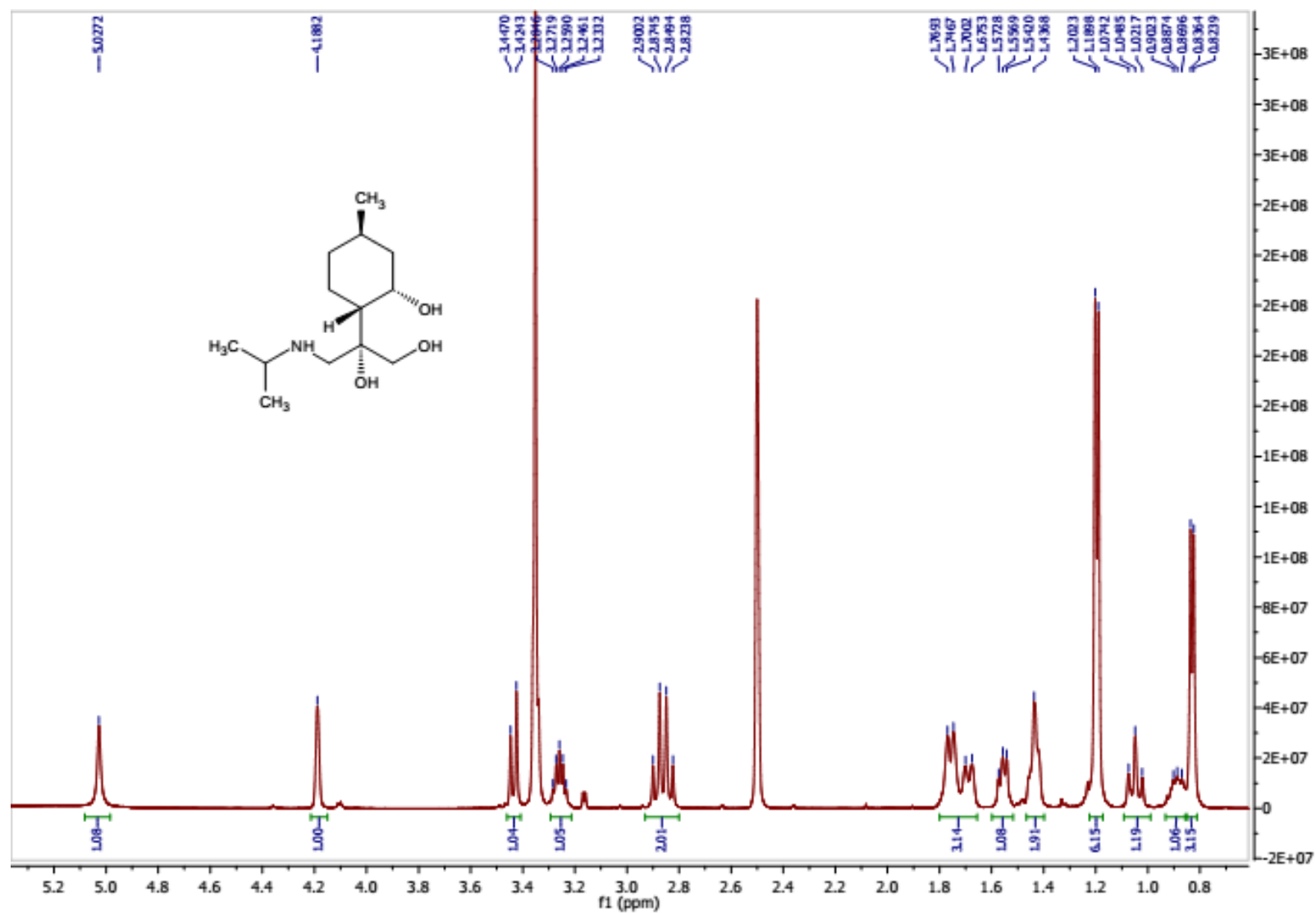
HSQC of compound **34**



HMBC of compound 34

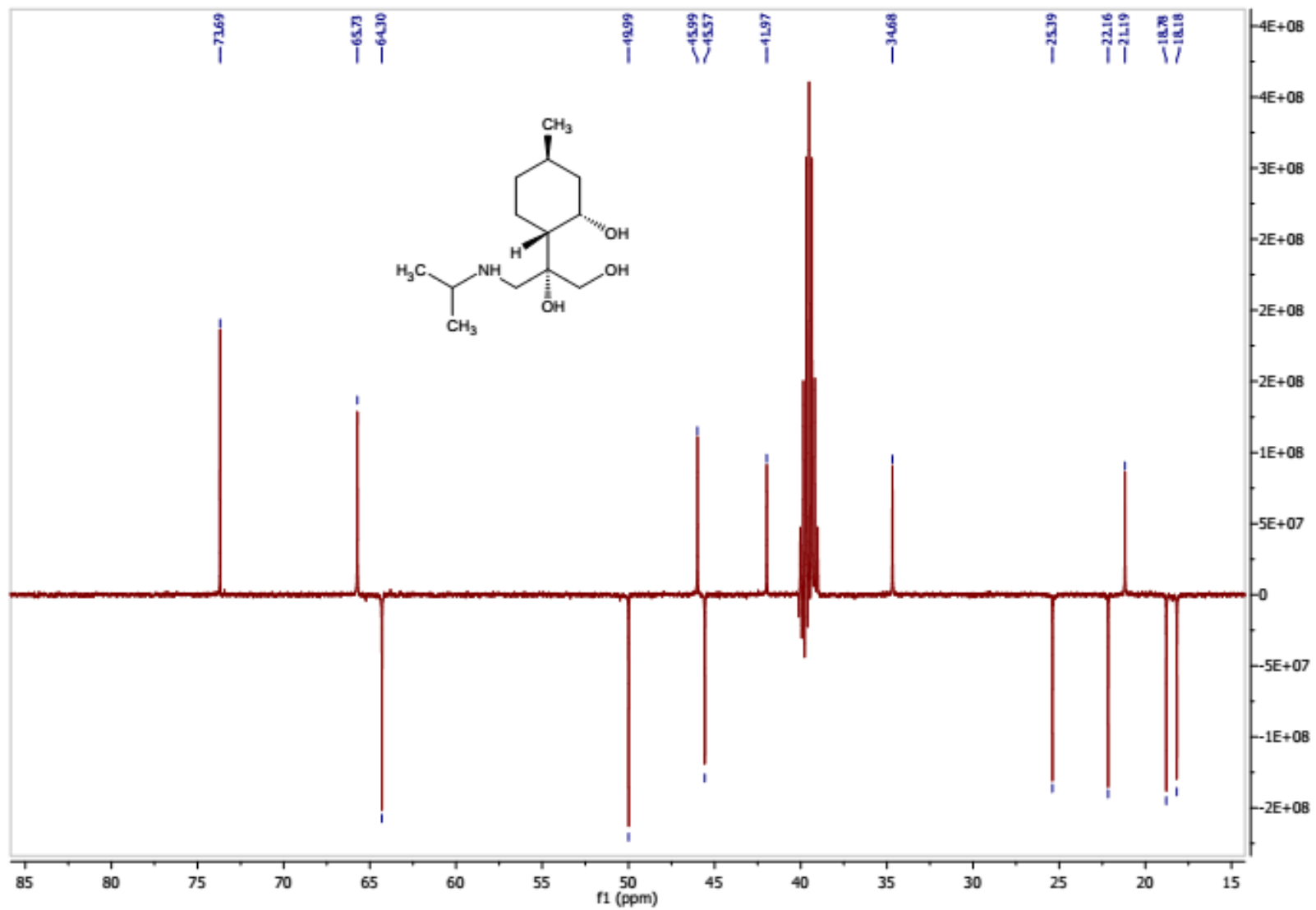


<sup>1</sup>H-NMR of compound 35

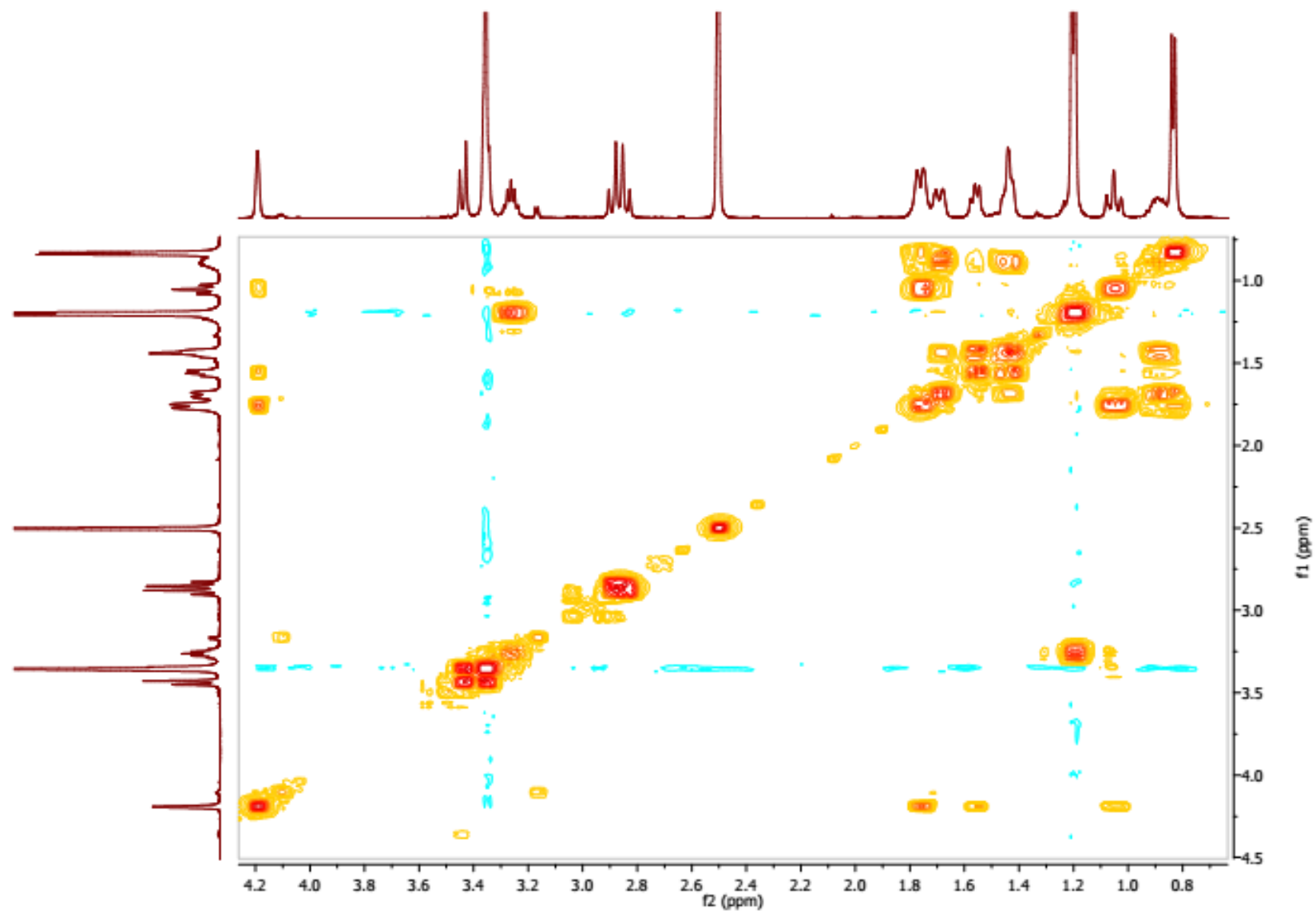




<sup>13</sup>C-NMR of compound 35

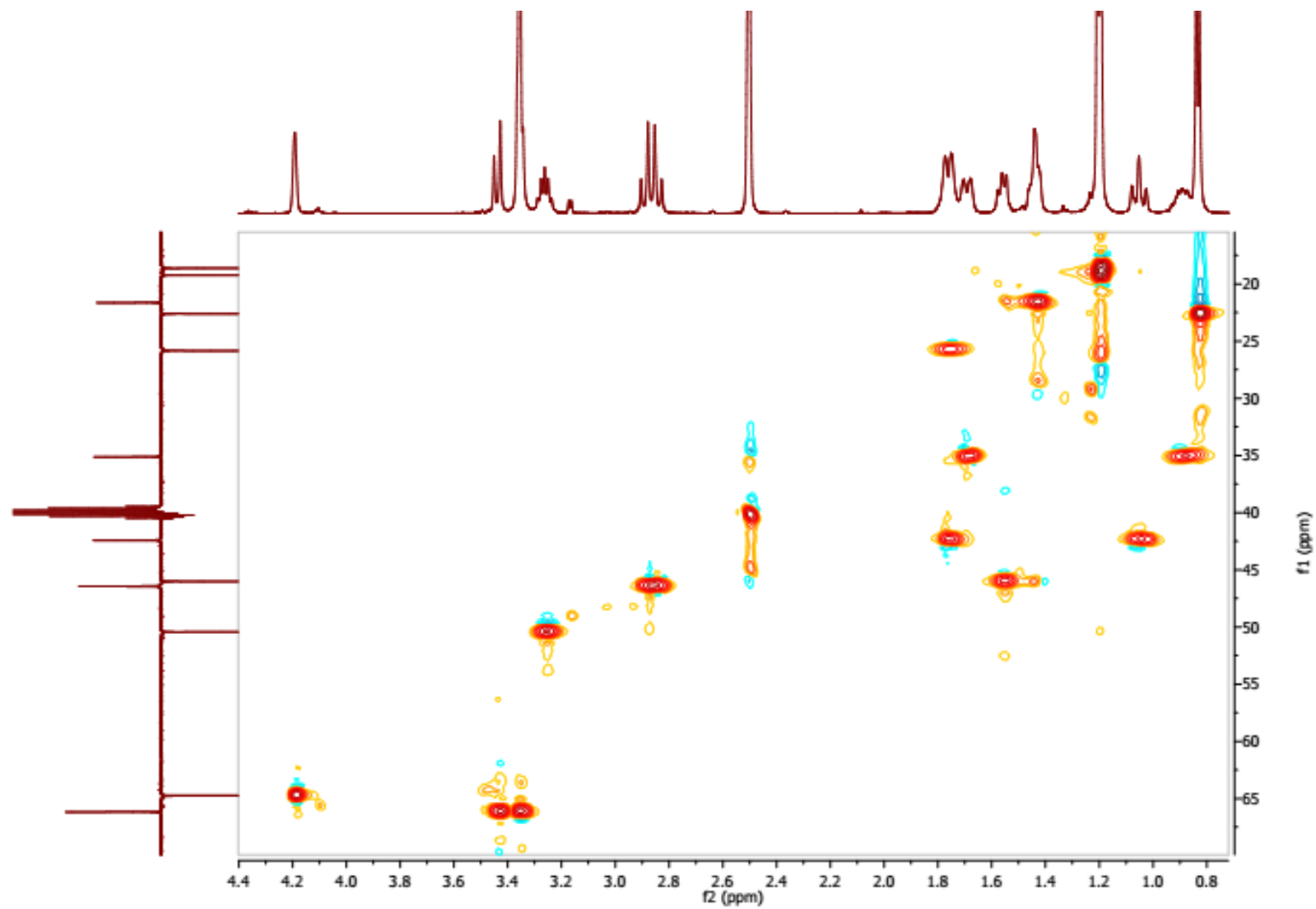


COSY of compound 35

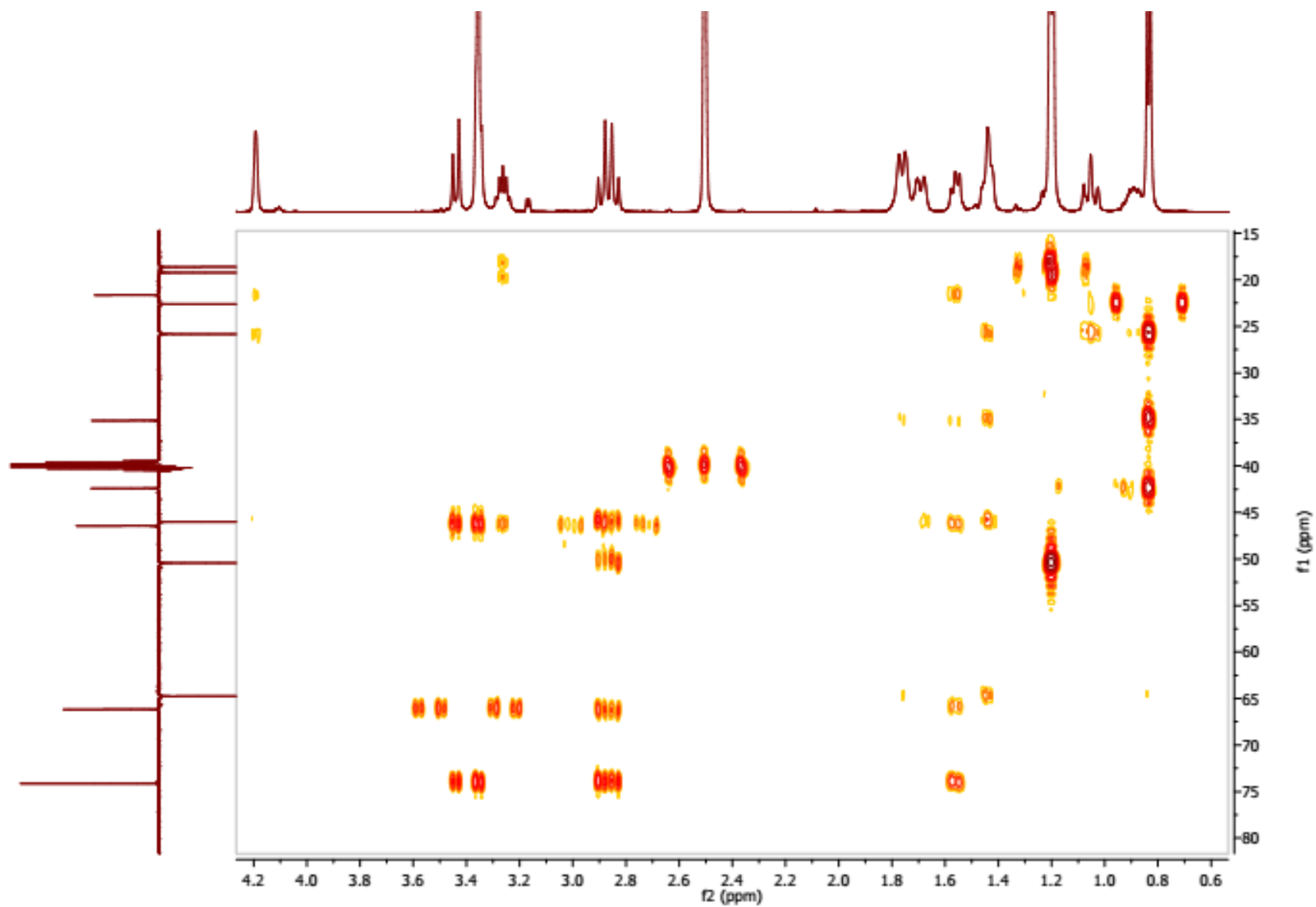




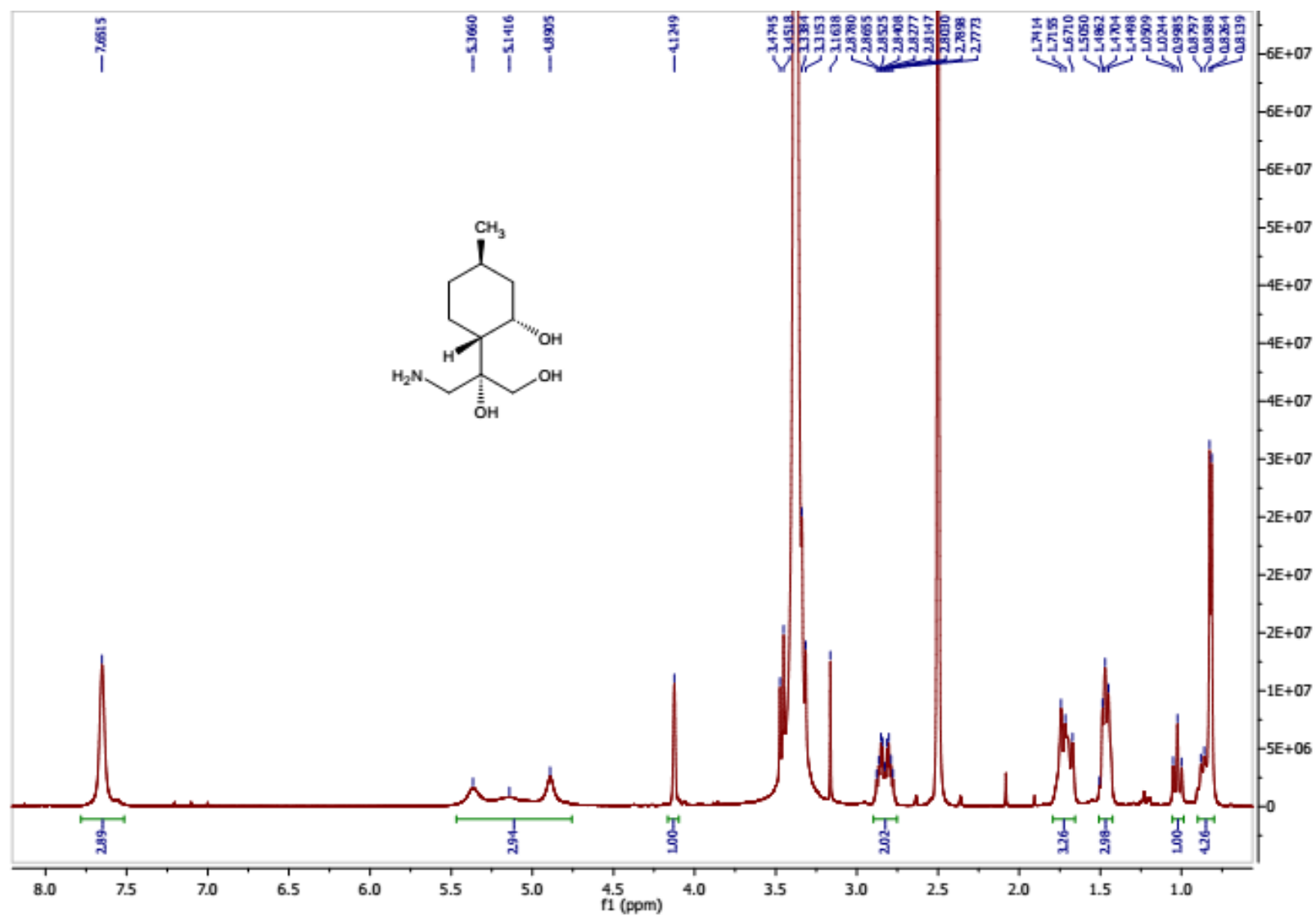
HSQC of compound **35**



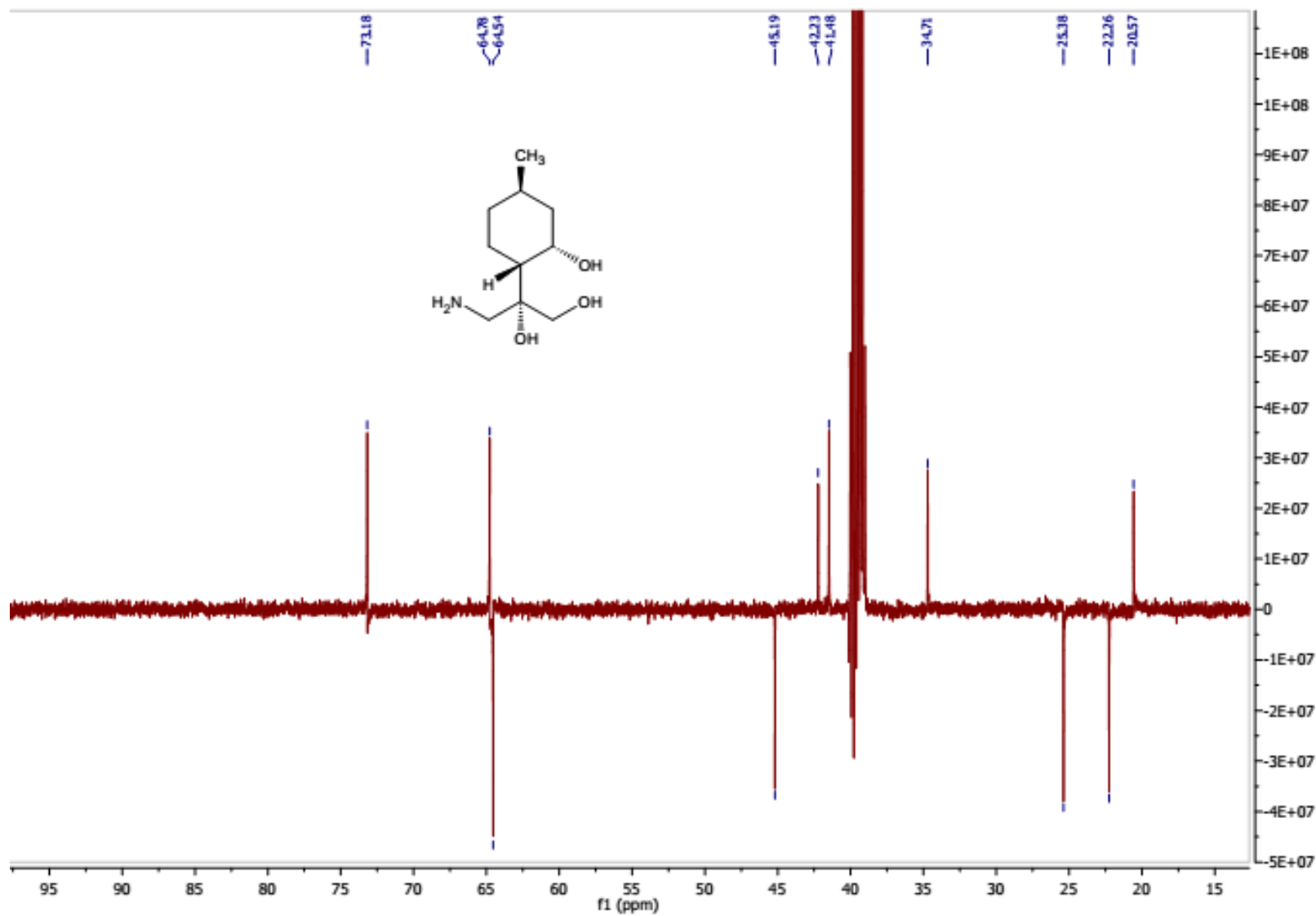
HMBC of compound 35



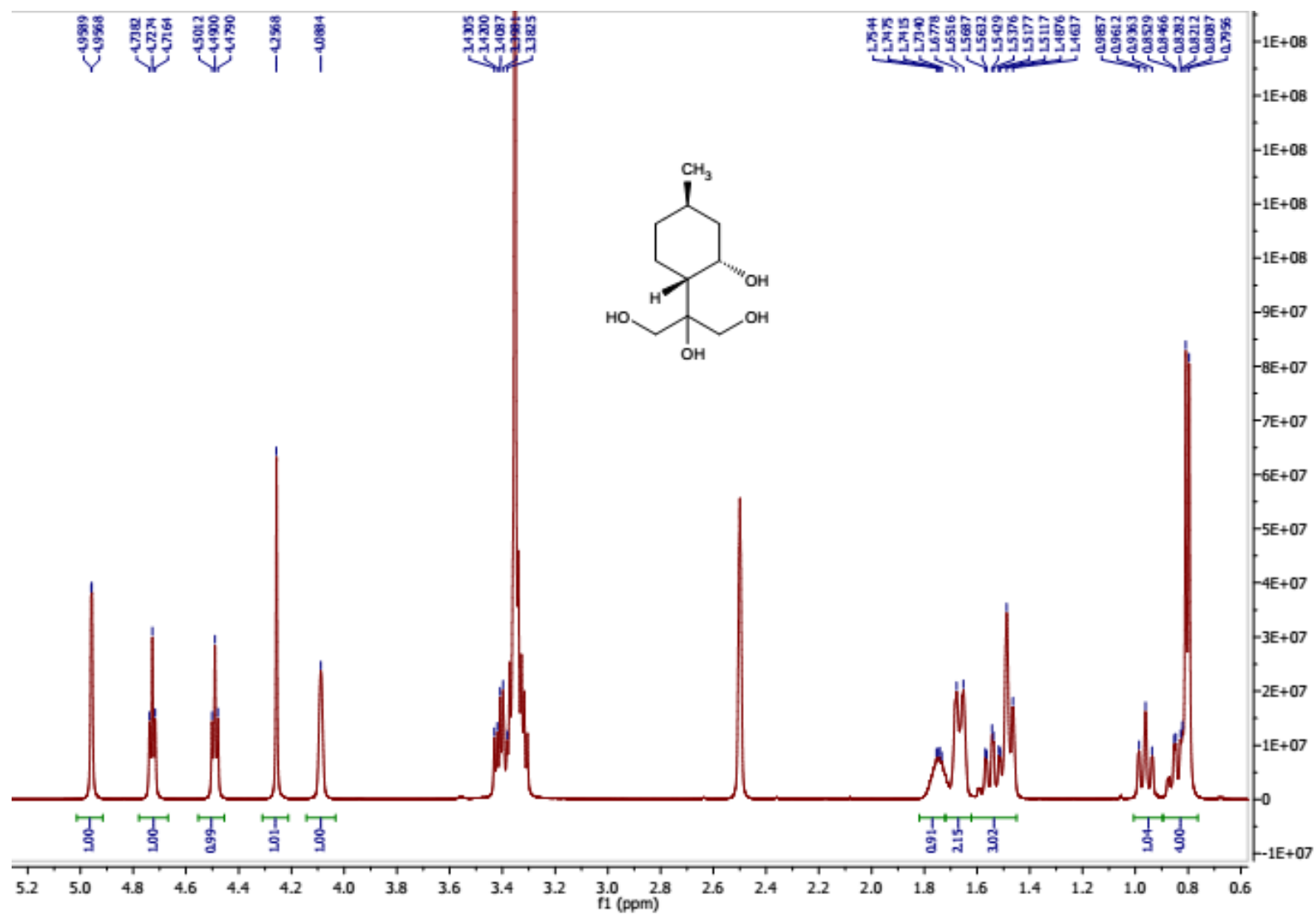
$^1\text{H-NMR}$  of compound **36**



<sup>13</sup>C-NMR of compound **36**

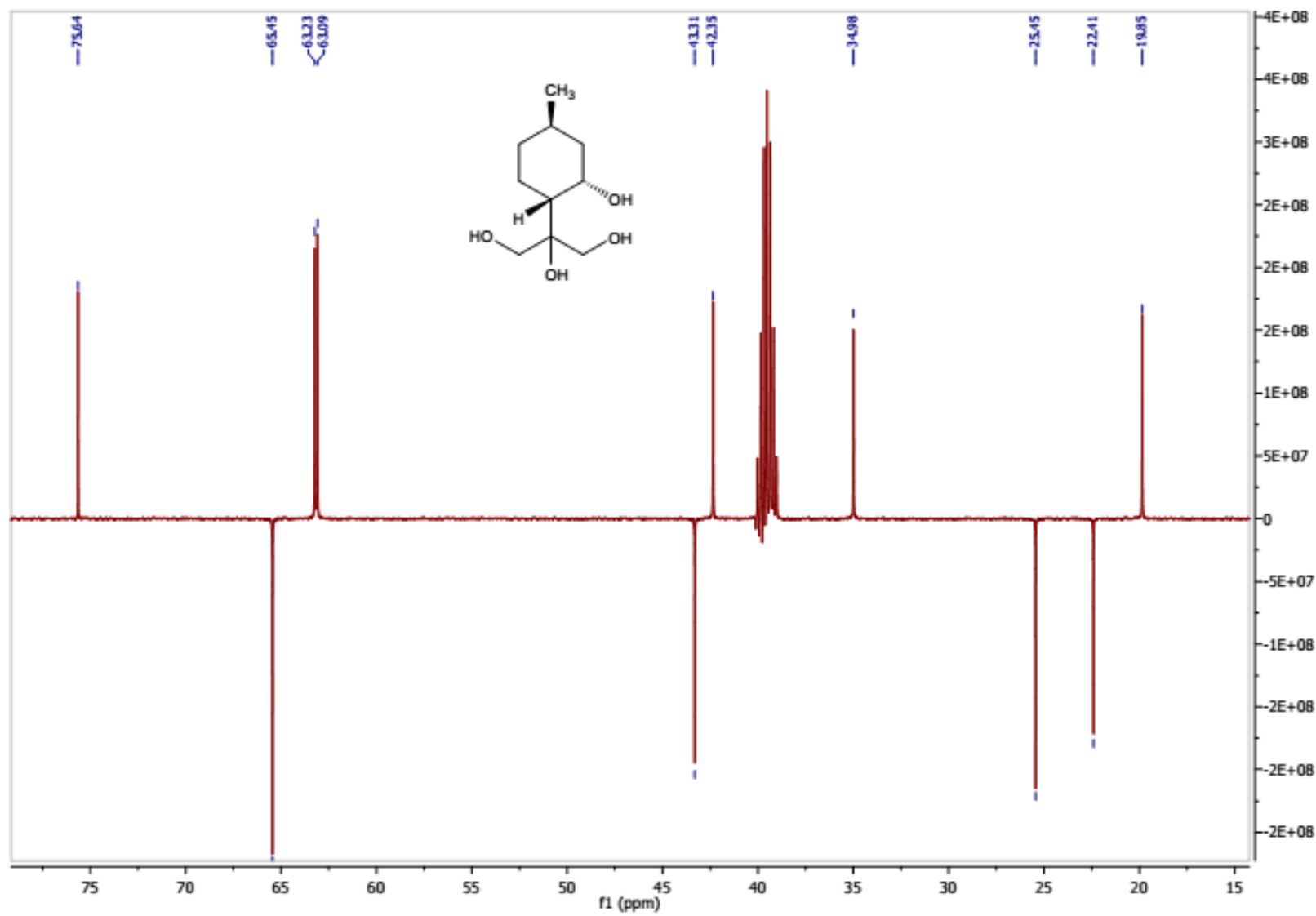


$^1\text{H-NMR}$  of compound **37**

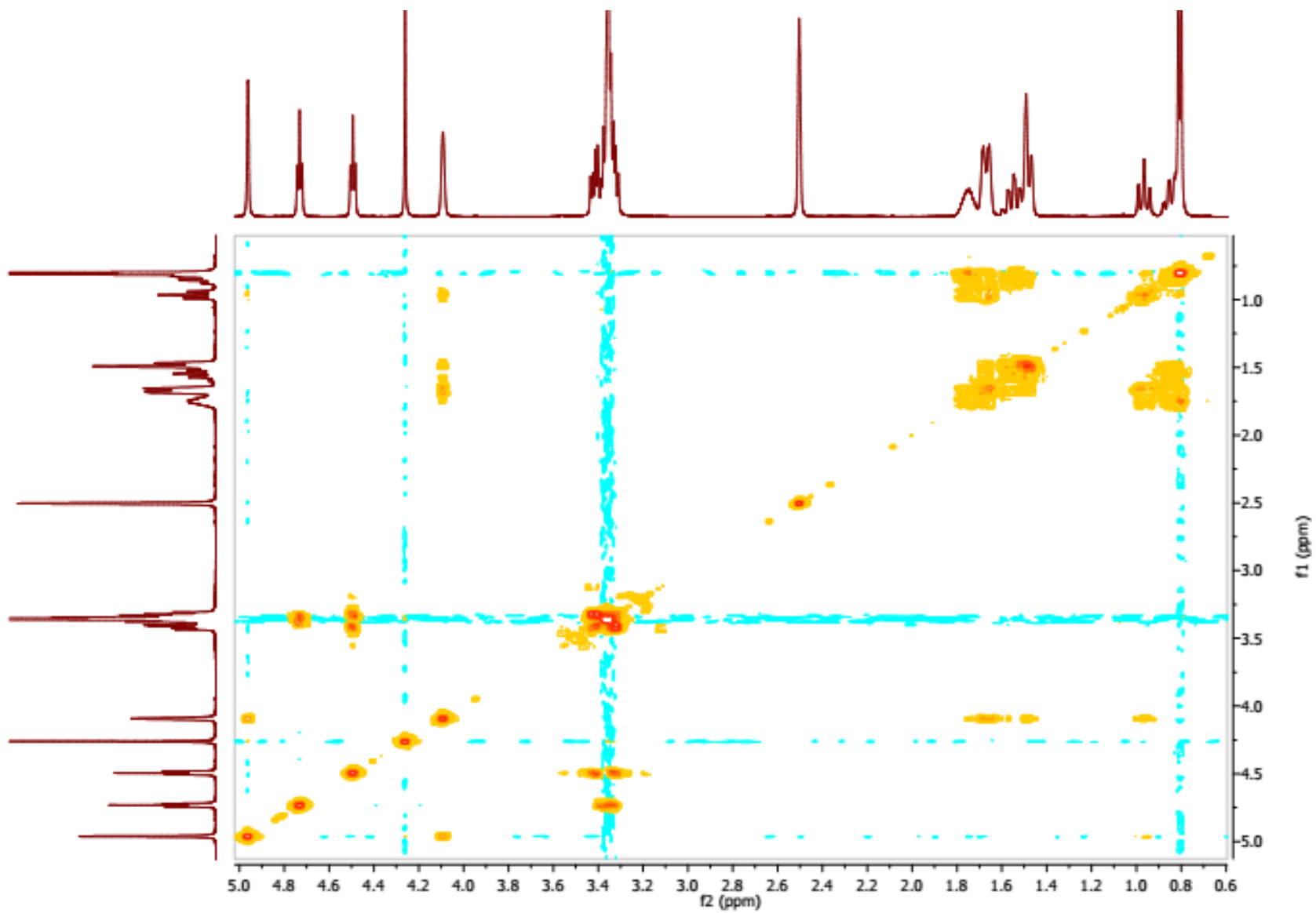




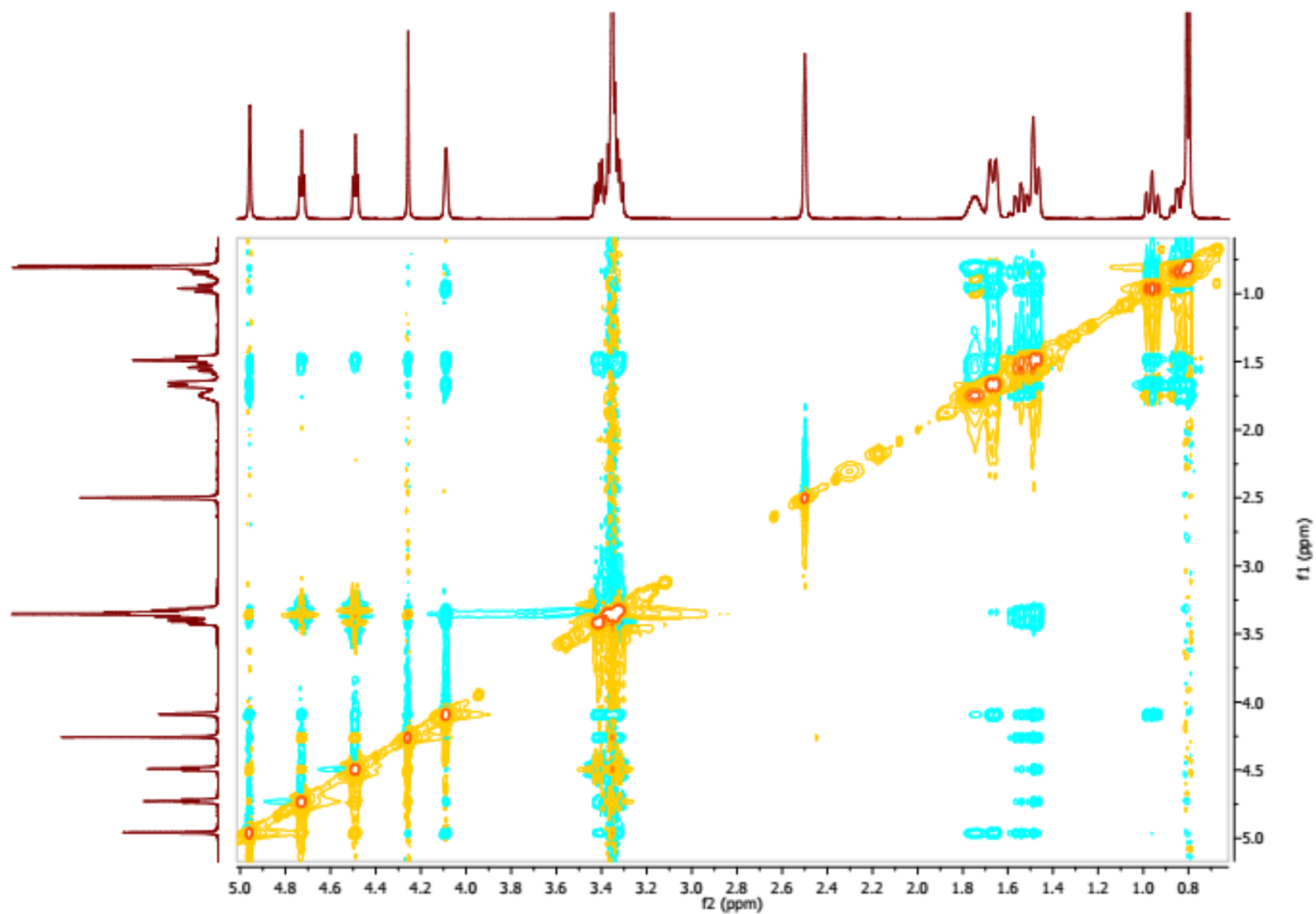
$^{13}\text{C}$ -NMR of compound **37**



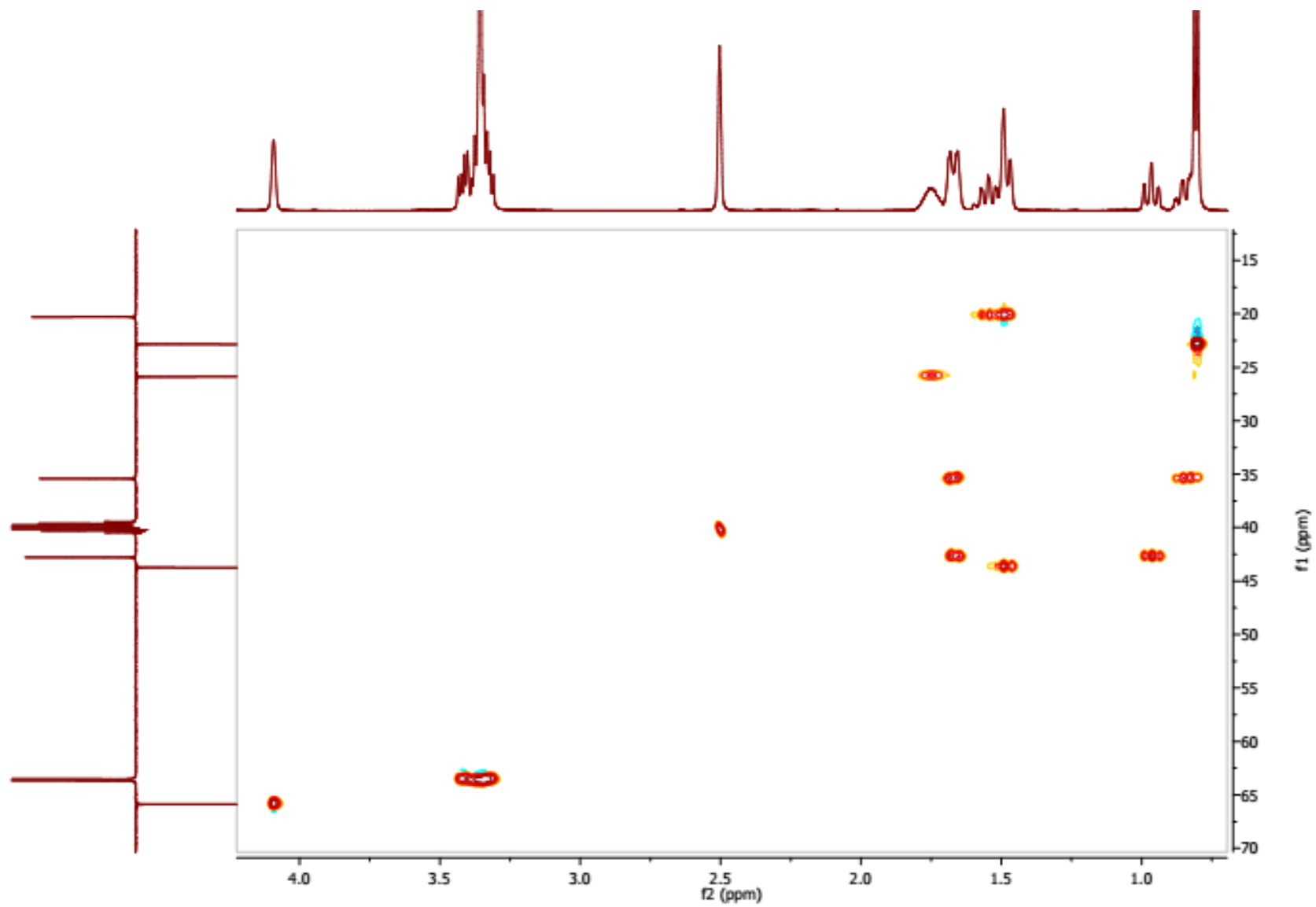
COSY of compound 37



NOESY of compound 37



HSQC of compound 37



HMBC of compound 37

