

## Supporting Information

### A concise diastereoselective total synthesis of $\alpha$ -ambrinol

Josefa L. López-Martínez<sup>1</sup>, Irene Torres-García<sup>1</sup>, Irene Moreno-Gutiérrez<sup>1</sup>, Pascual Oña Burgos<sup>2</sup>, Antonio Rosales-Martínez<sup>3</sup>, Manuel Muñoz-Dorado<sup>1</sup>, Miriam Álvarez-Corral<sup>1\*</sup>, Ignacio Rodríguez-García<sup>1\*</sup>.

- 1 Organic Chemistry, University of Almería, CIAIMBITAL. E04120 Almería, Spain; pepaloma91@hotmail.com (J.L.L.-M.); irene.tg.94@gmail.com (I.T.-G.); irenemorenogtr@gmail.com (I.M.-G.); mdorado@ual.es (M.M.-D.); malvarez@ual.es (M.A.-C.); irodrigu@ual.es (I.R.-G.)
- 2 Instituto de Tecnología Química, Universitat Politècnica de València-Consejo Superior de Investigaciones Científicas (UPV-CSIC), 46022 Valencia, Spain; pasoabur@itq.upv.es
- 3 Department of Chemical Engineering, Escuela Politécnica Superior, University of Sevilla, 41011 Sevilla, Spain; arosales@us.es

\* Correspondence: [irodrigu@ual.es](mailto:irodrigu@ual.es).

### NMR AND IR SPECTRA

<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR and IR of <b>12</b> .....	1
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR, HSQC, HMBC, COSY and IR of <b>cis-21</b> .....	4
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR, HSQC, HMBC, COSY, NOESY 1D and IR of <b>23</b> .....	11
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR, HSQC and IR of <b>20</b> .....	18
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR, HSQC, HMBC, COSY, NOESY 1D and IR of <b>6</b> .....	22
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR, HSQC, HMBC, COSY, NOESY 1D and IR of <b>24</b> .....	30
<sup>1</sup> H NMR of <b>25</b> .....	38
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR and IR of <b>22</b> .....	39
<sup>1</sup> H NMR, DEPT 135, <sup>13</sup> C NMR, HSQC, HMBC, COSY and IR of <b>26</b> .....	42

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR and IR of 12**

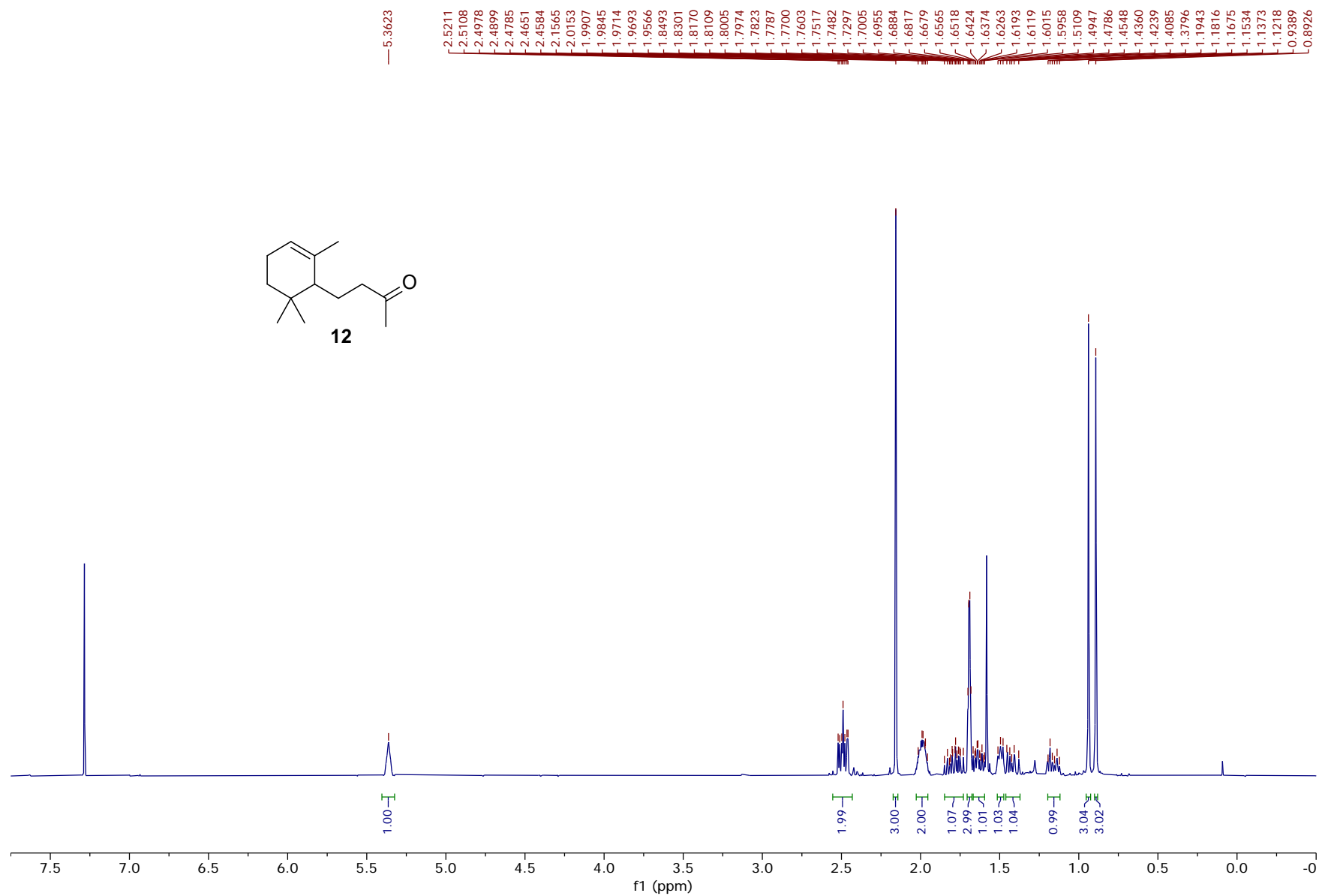


Figure S1

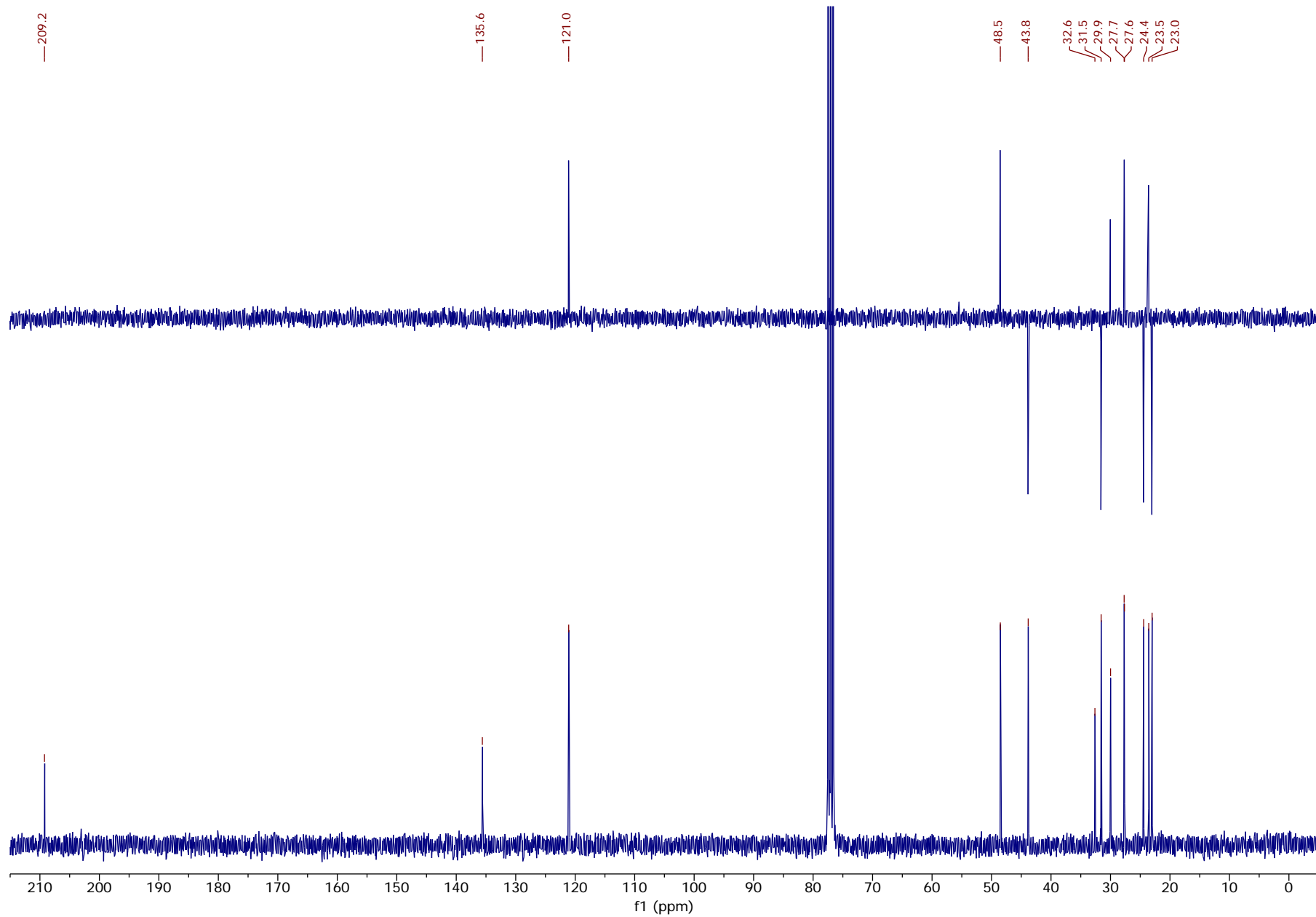


Figure S2

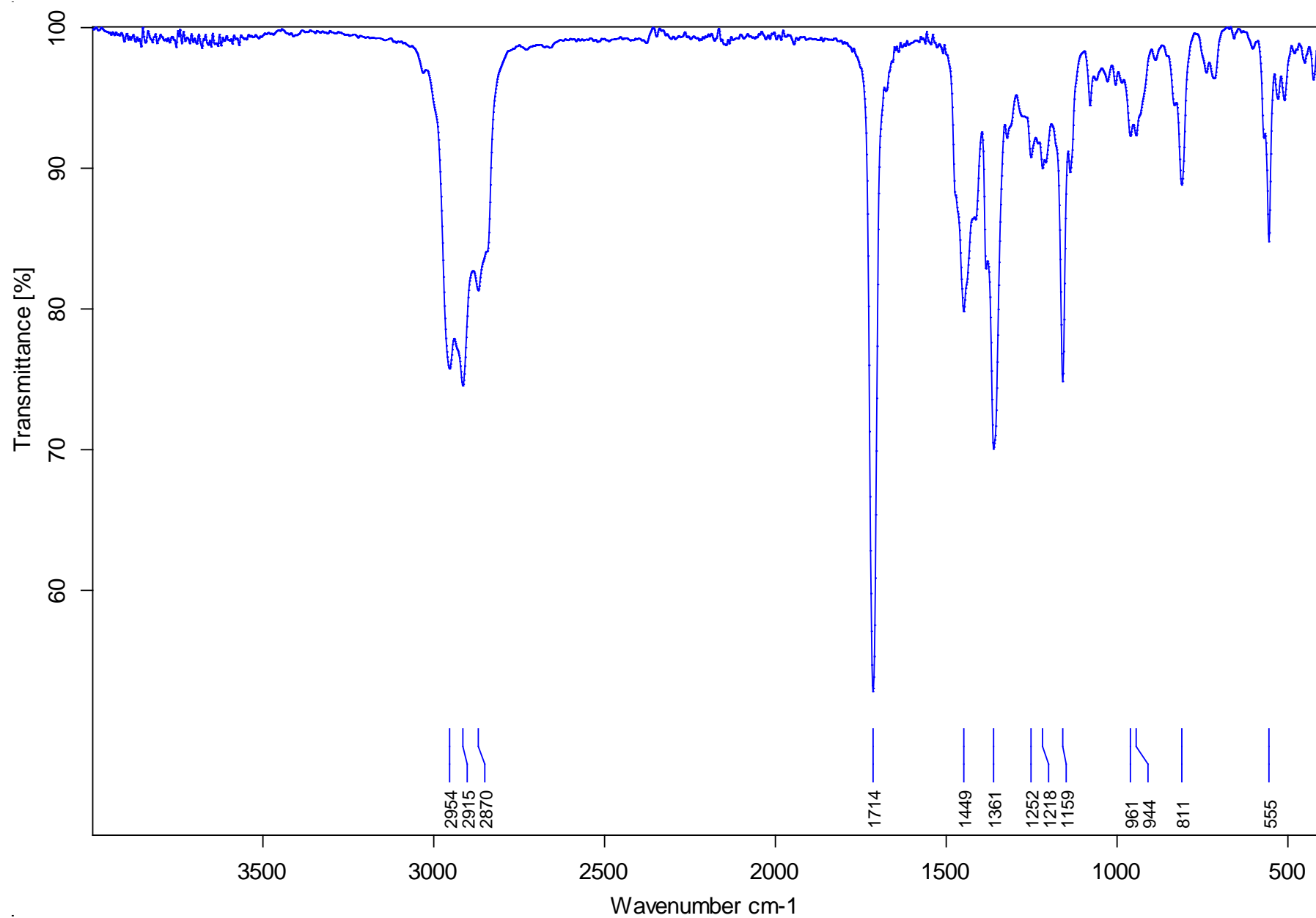


Figure S3

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR, HSQC, HMBC, COSY and IR of *cis*-21**

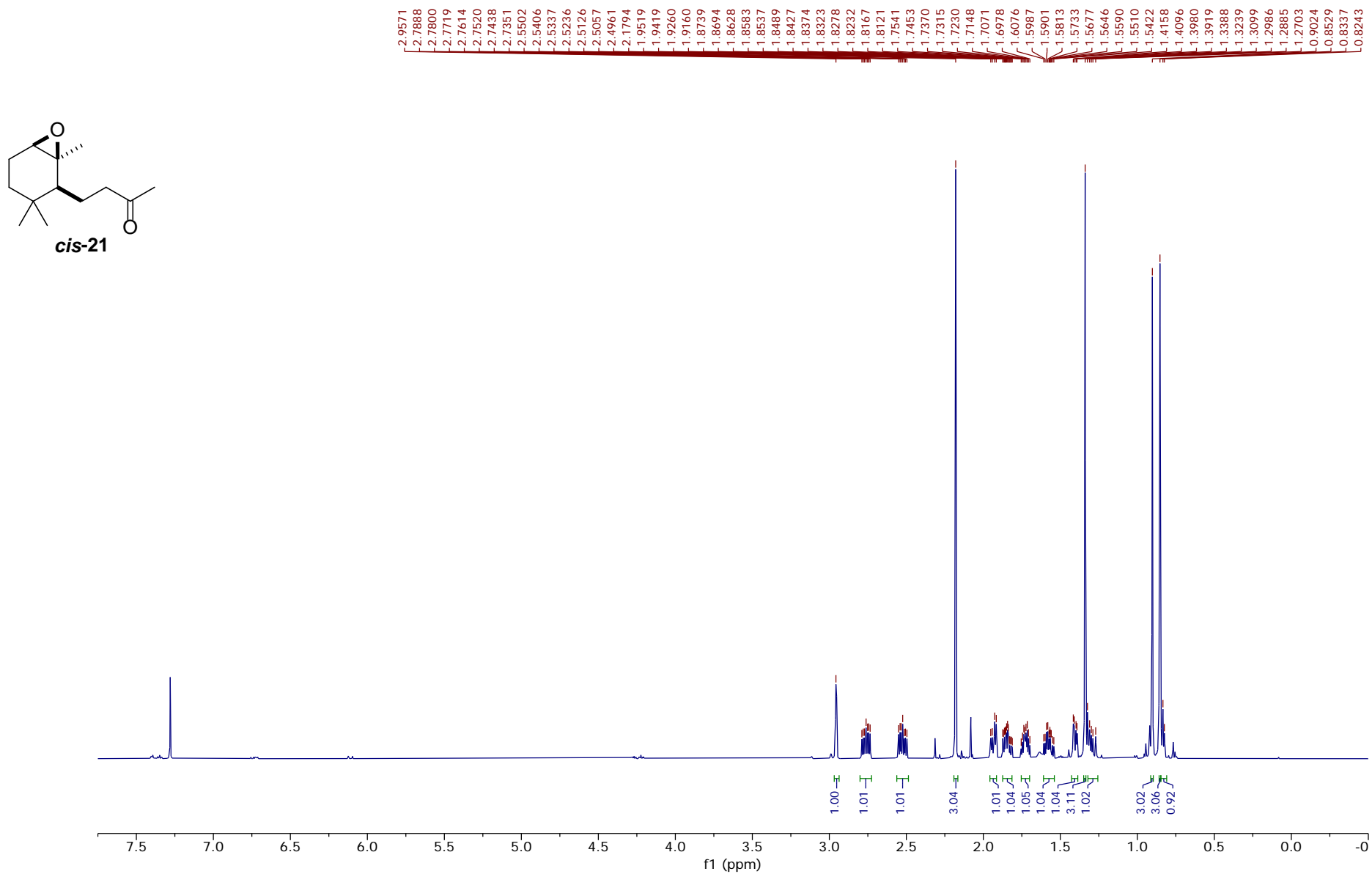


Figure S4

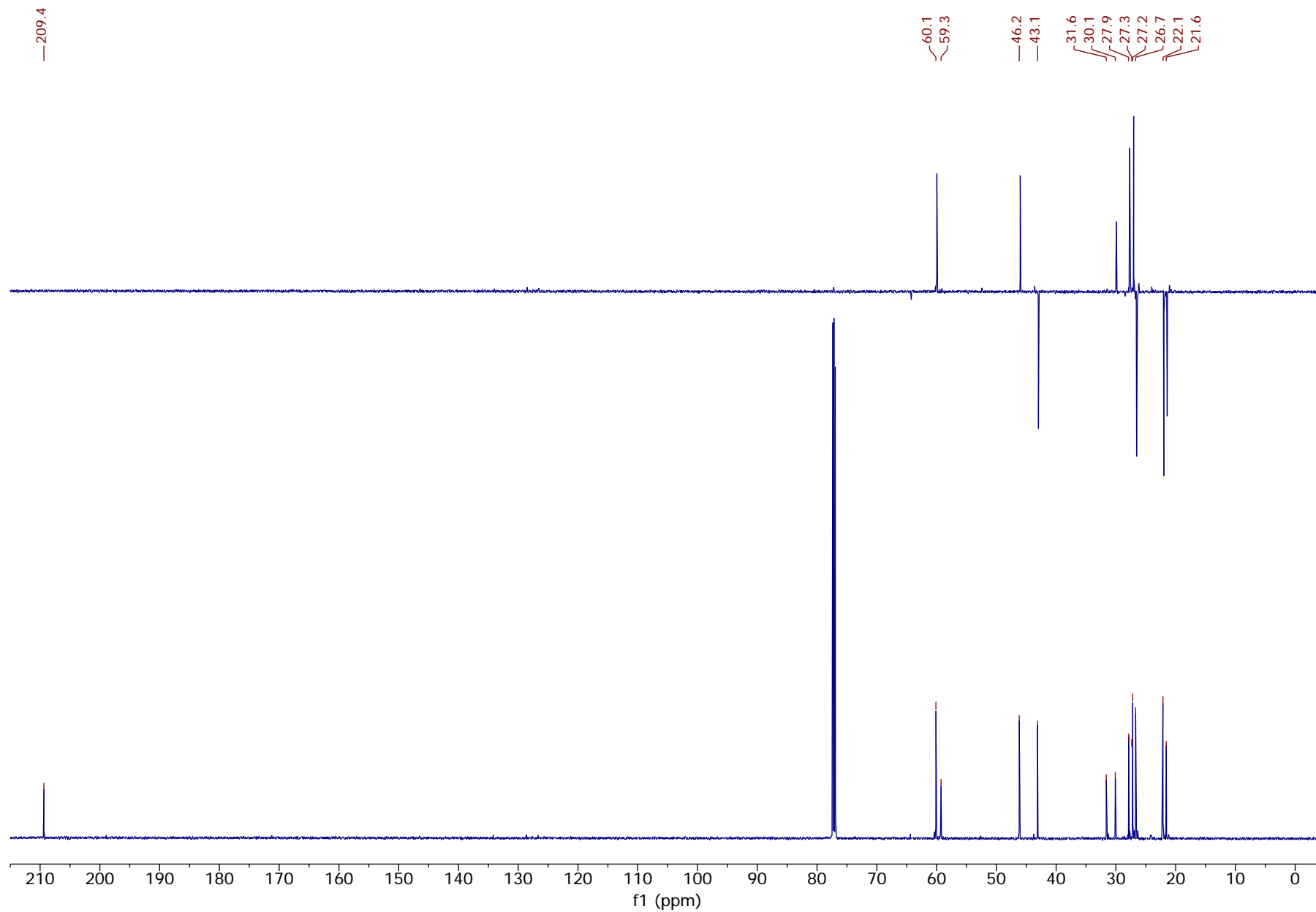


Figure S5

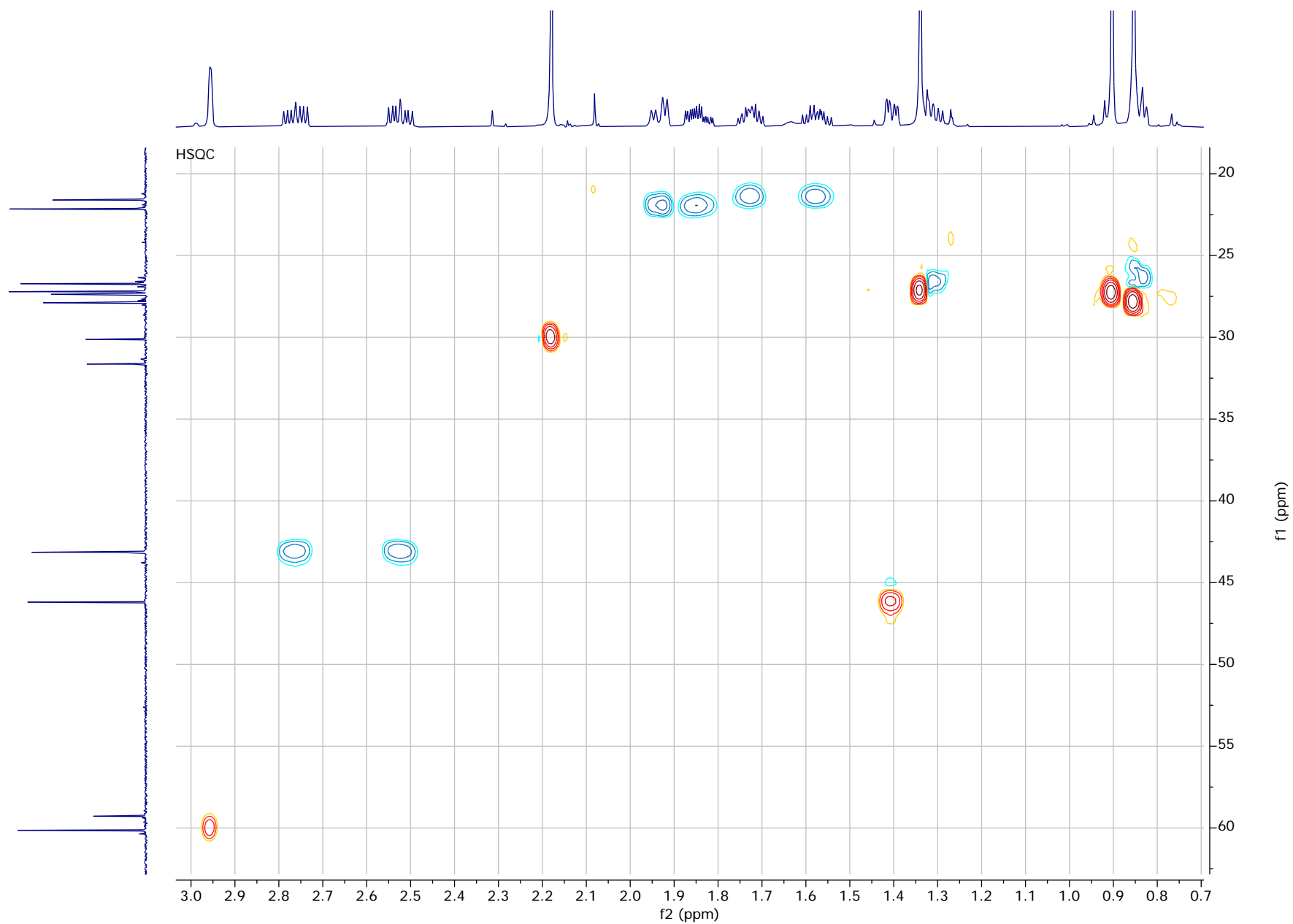


Figure S6

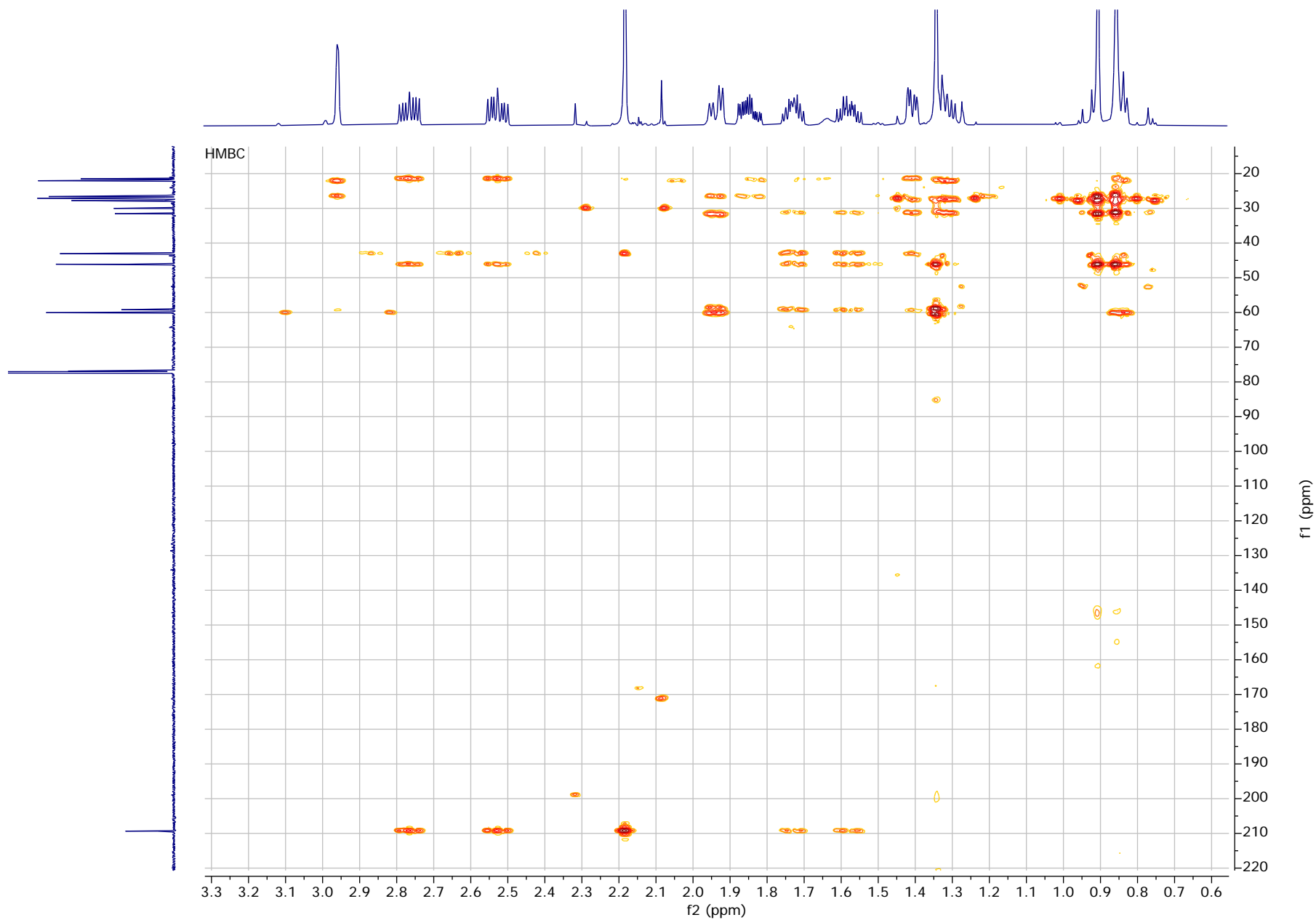


Figure S7



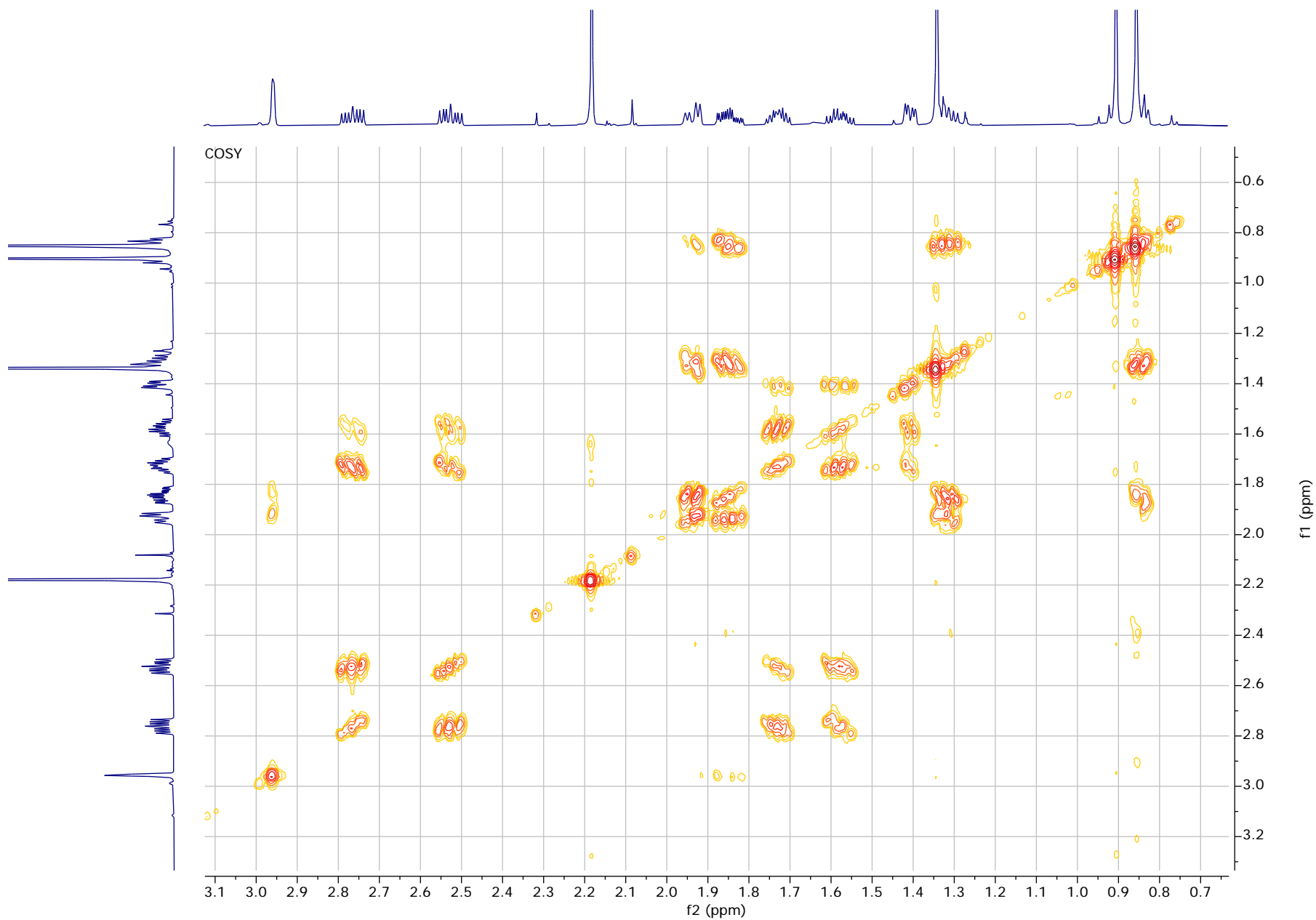


Figure S8

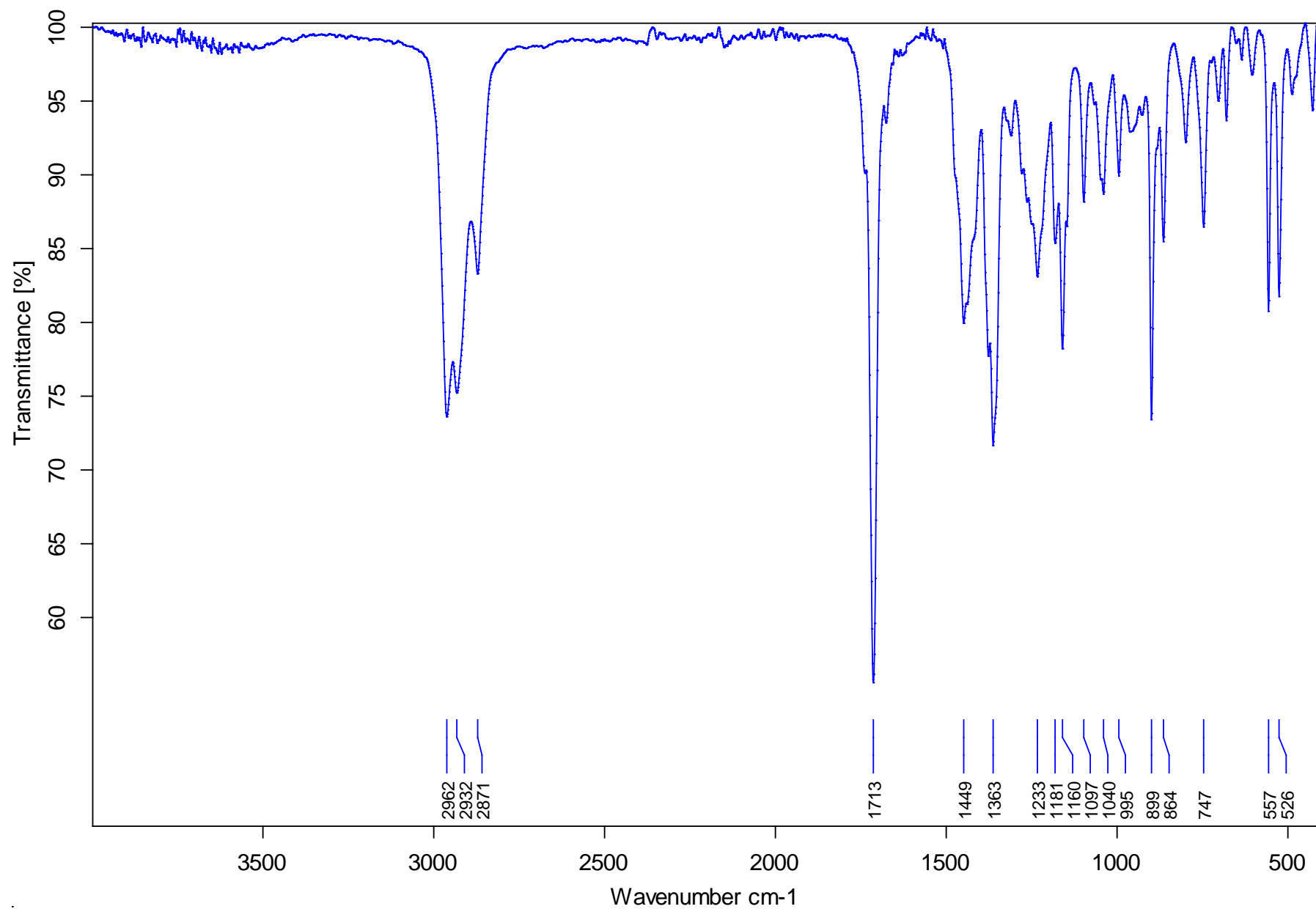


Figure S9

$^1\text{H}$  NMR of a 6.67:1 mixture of *cis*-**21** and *trans*-**21** (reaction crude ratio)

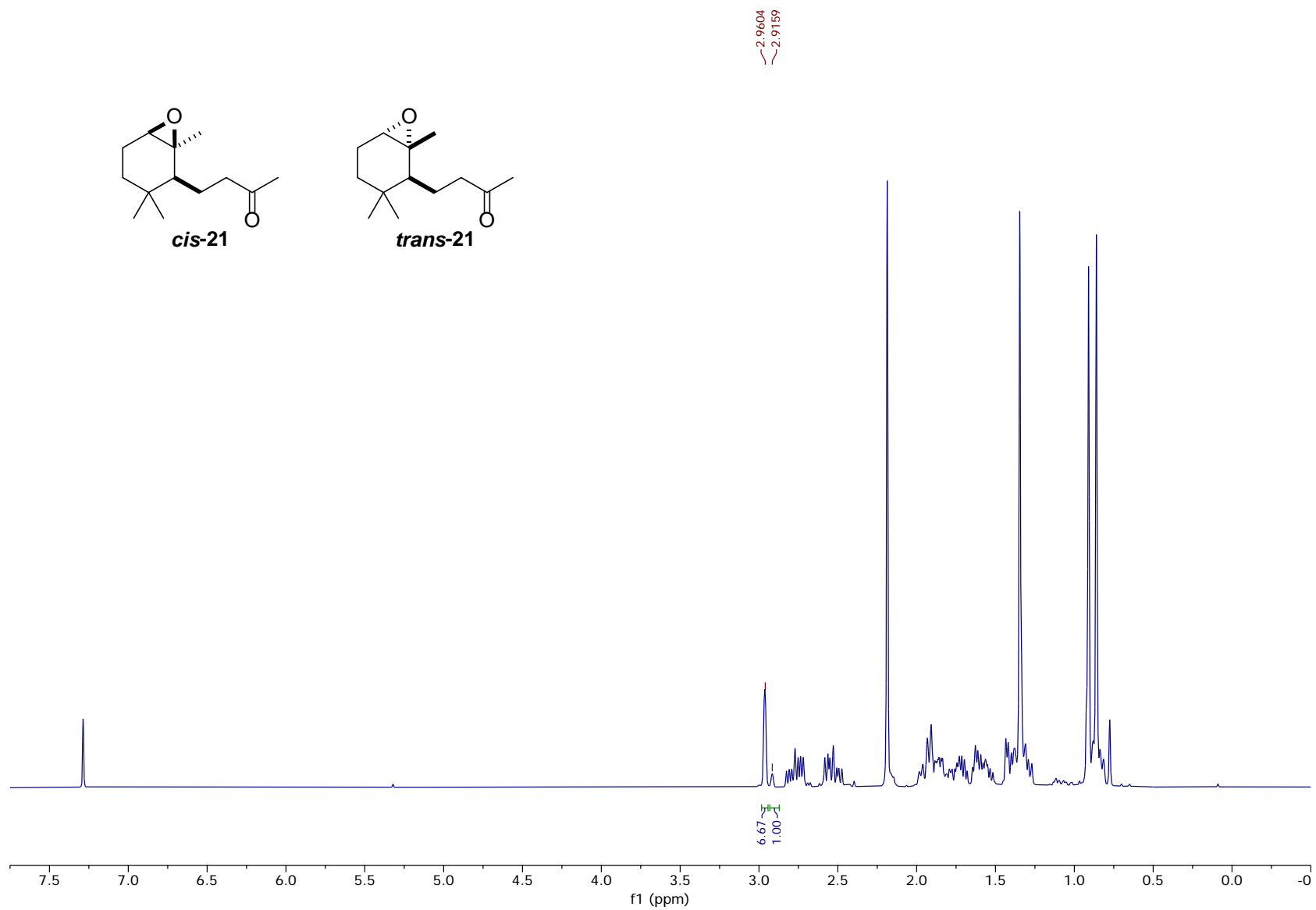


Figure S10

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR, HSQC, HMBC, COSY, NOESY 1D and IR of 23**

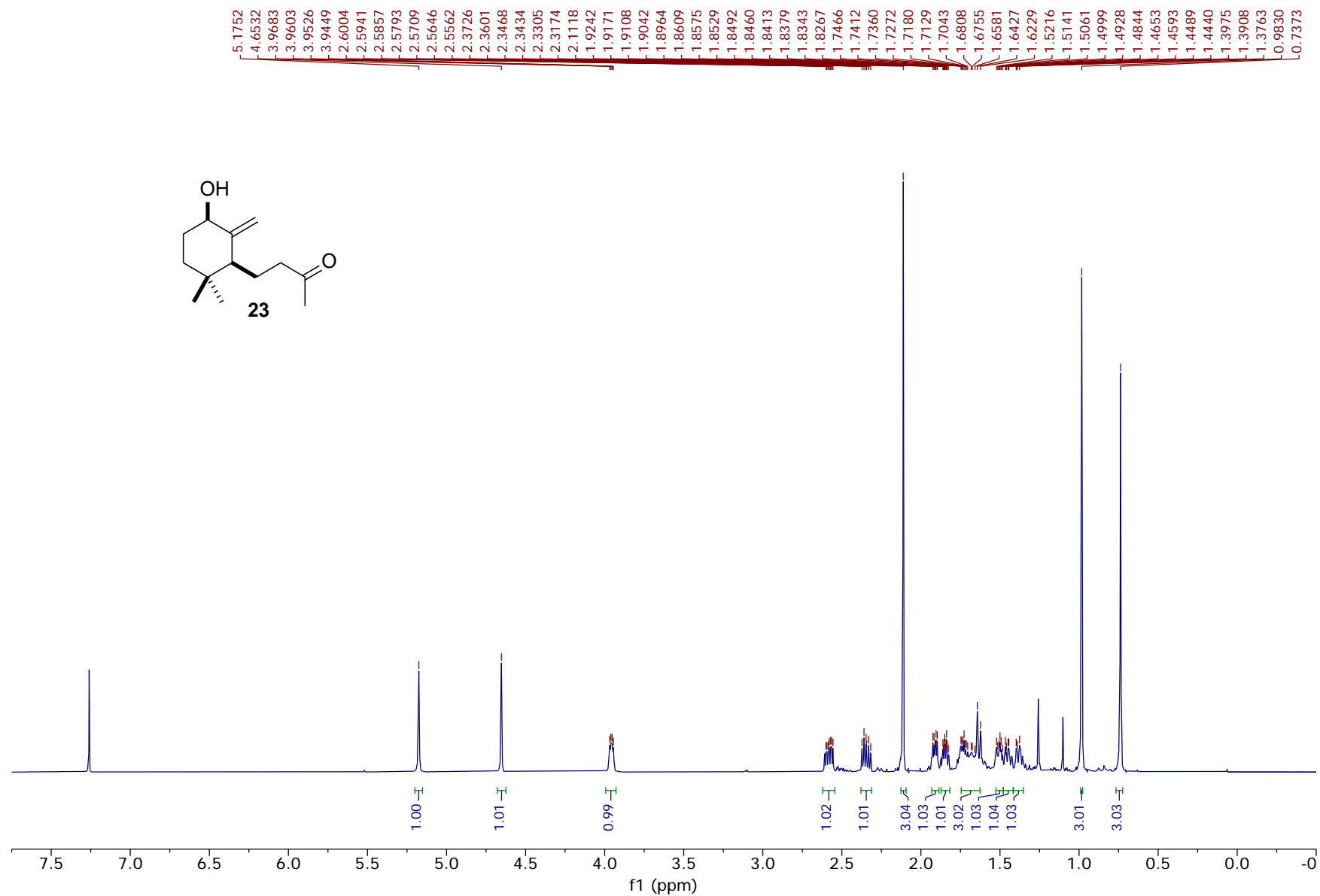


Figure S11

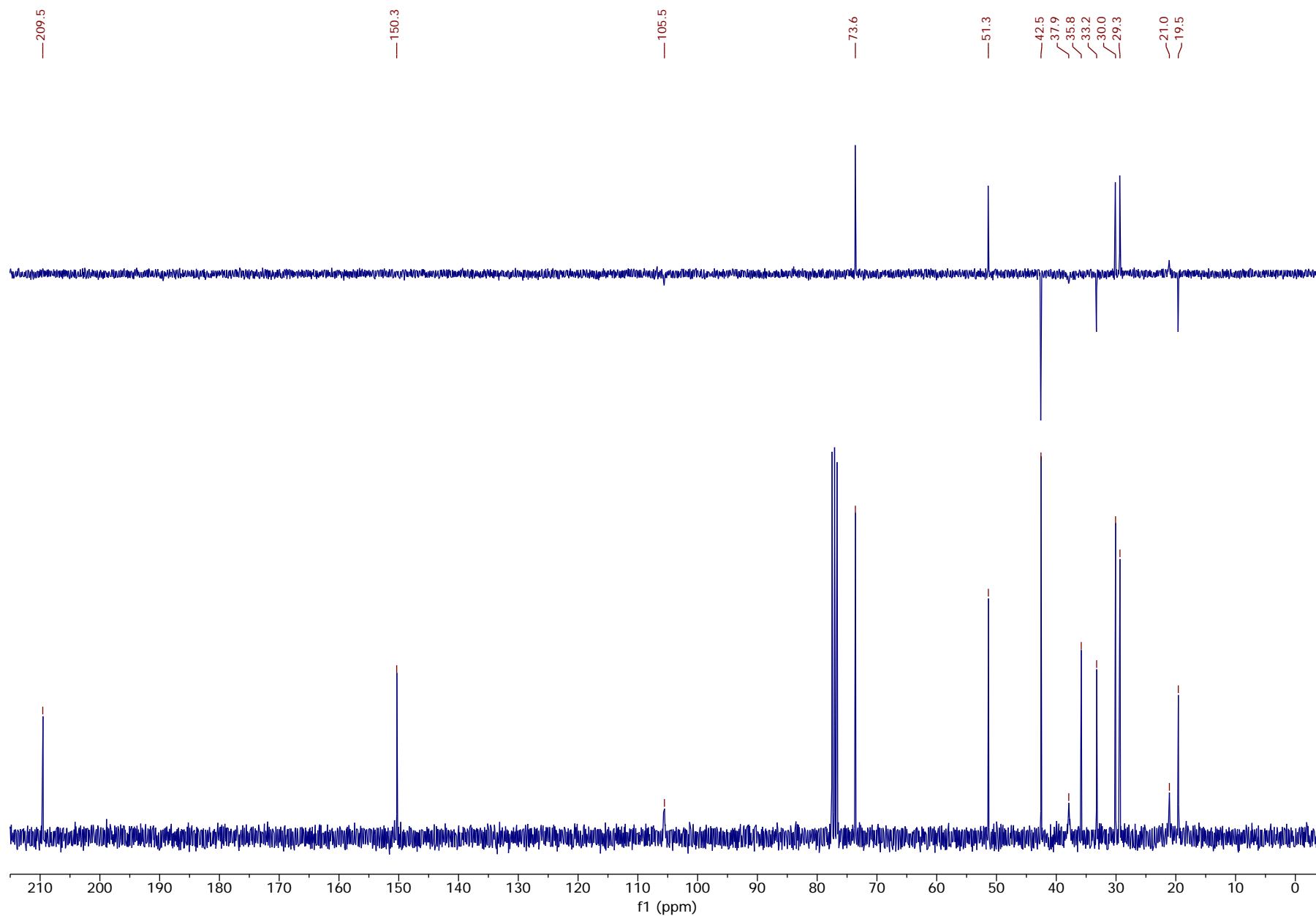


Figure S12

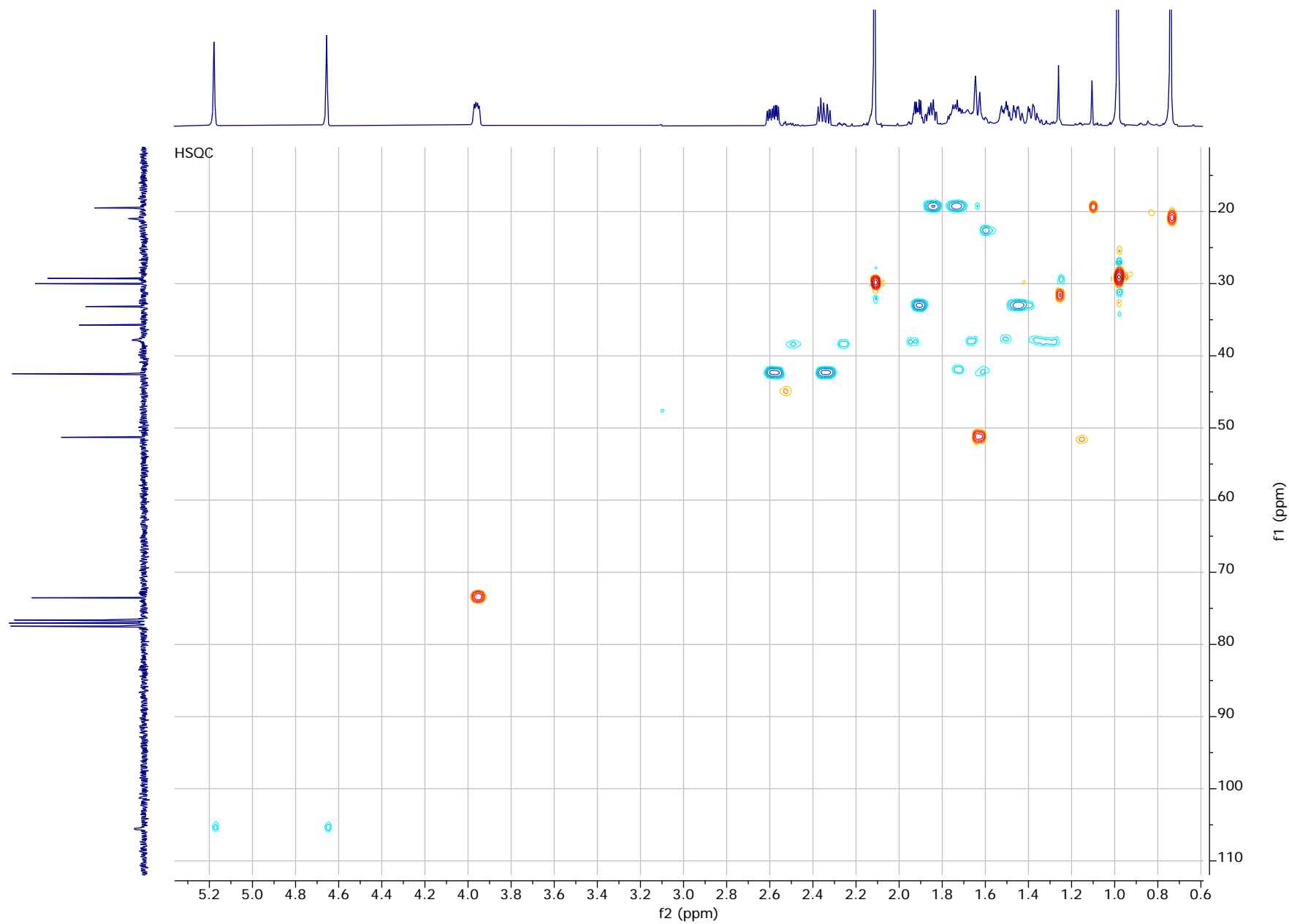


Figure S13

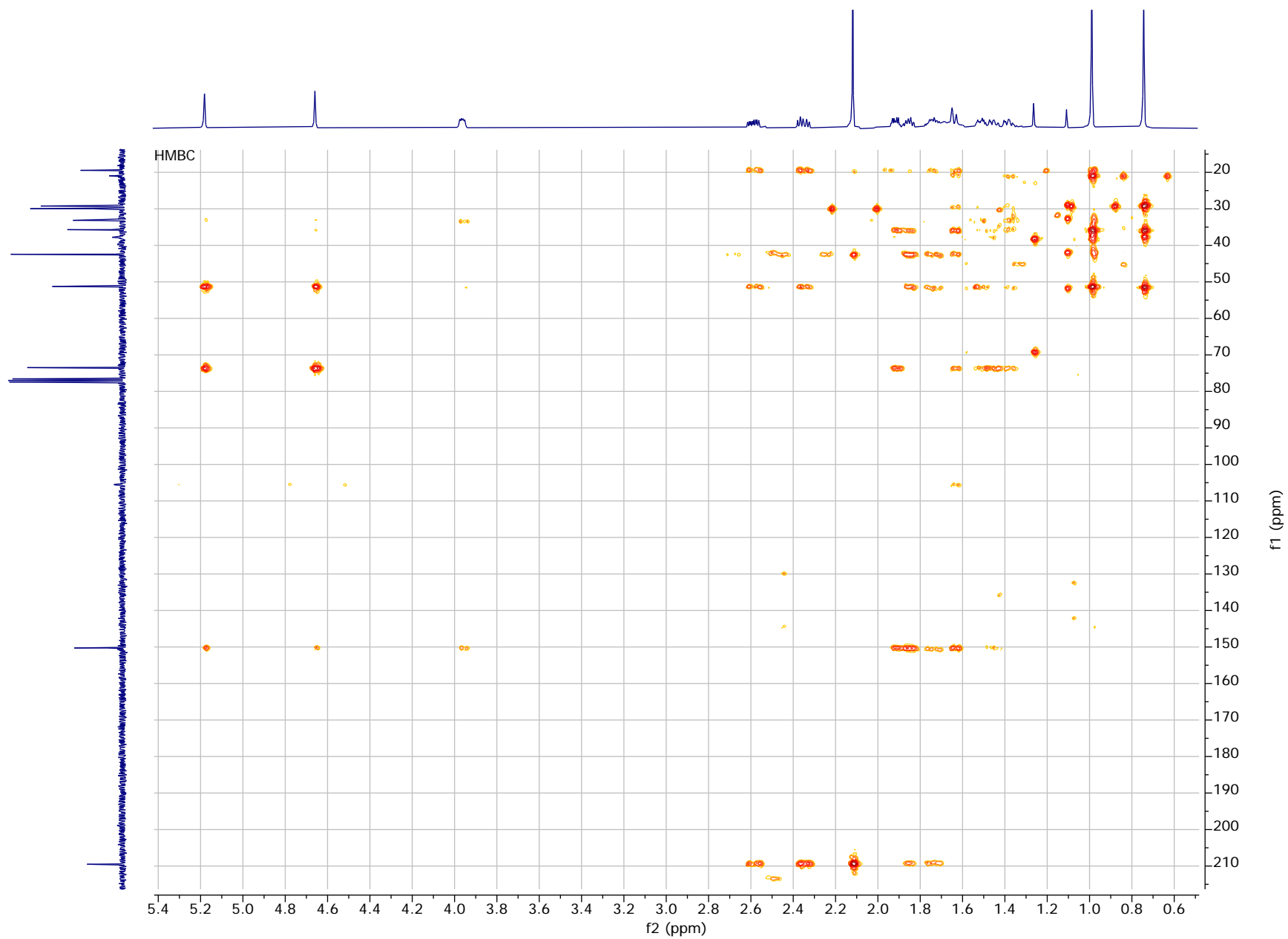


Figure S14

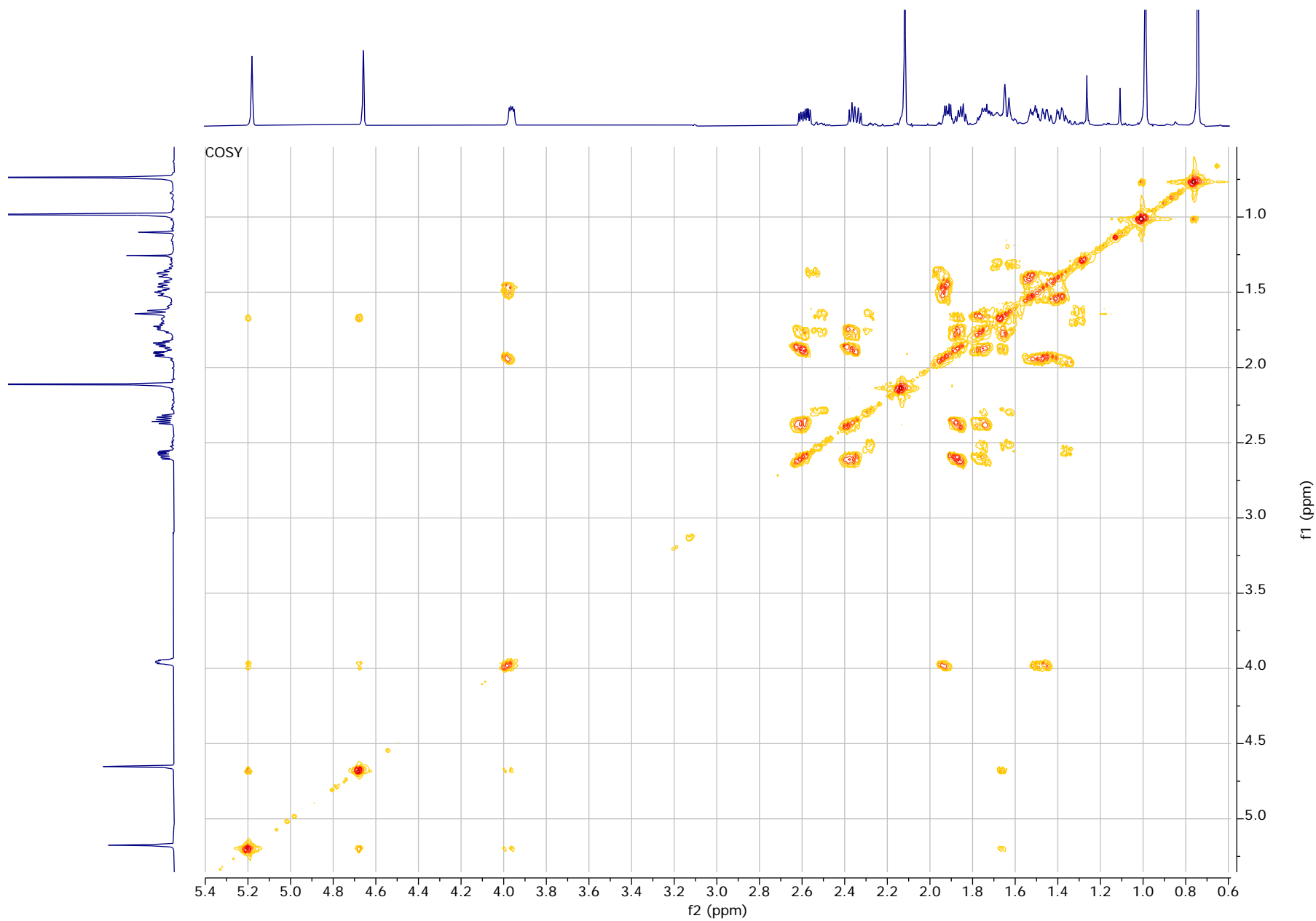


Figure S15



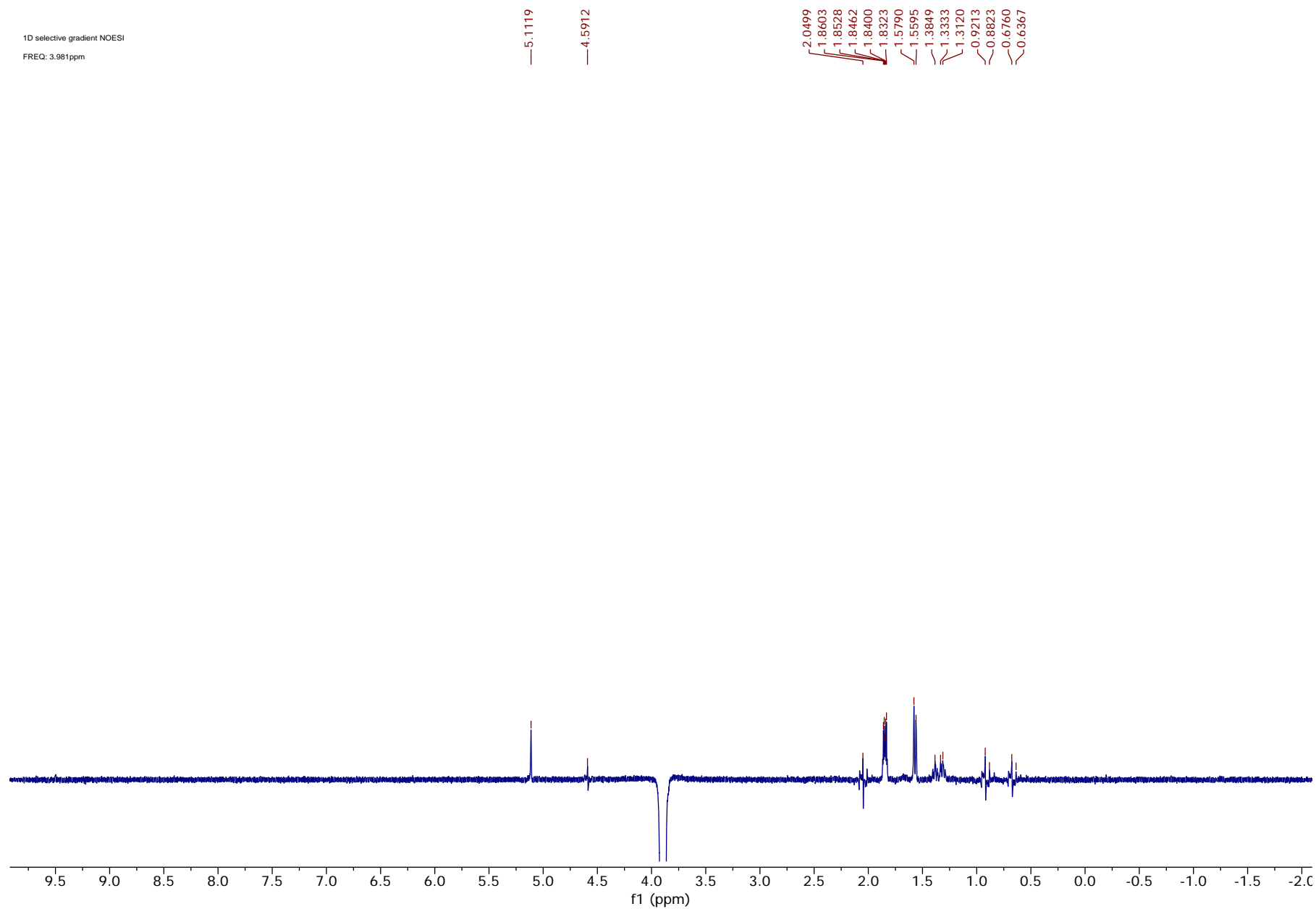


Figure S16

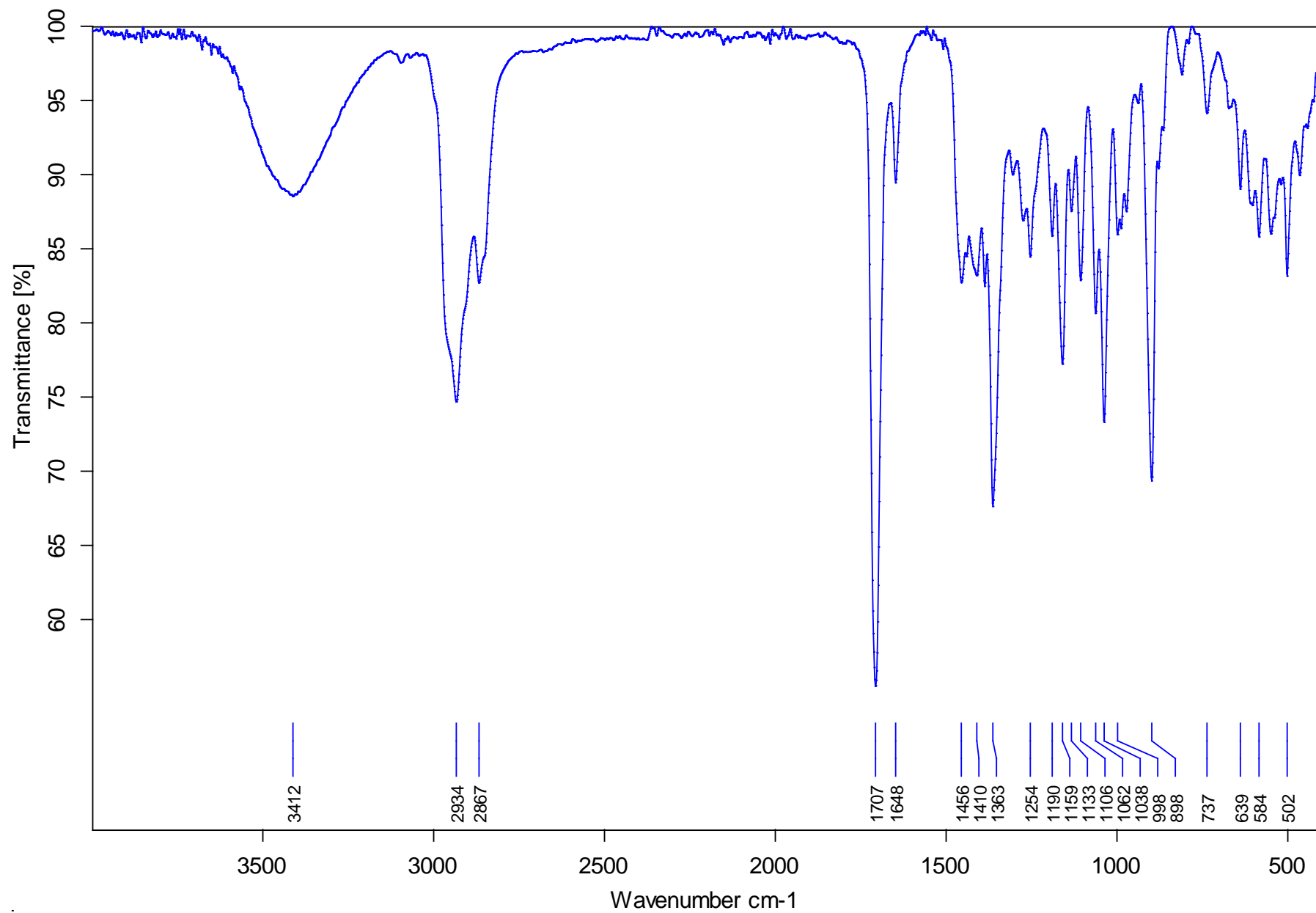


Figure S17

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR, HSQC and IR of 20**

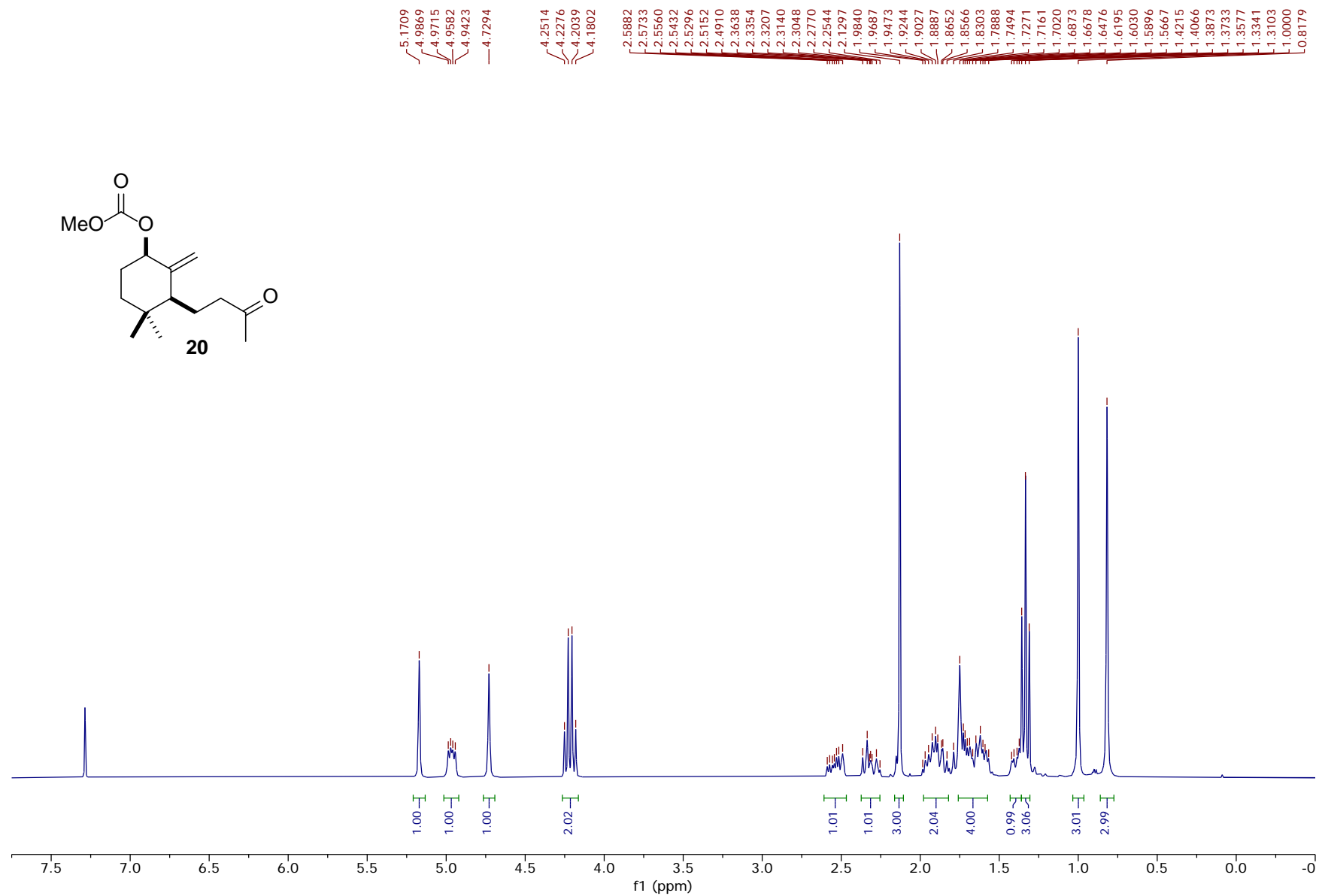


Figure S18

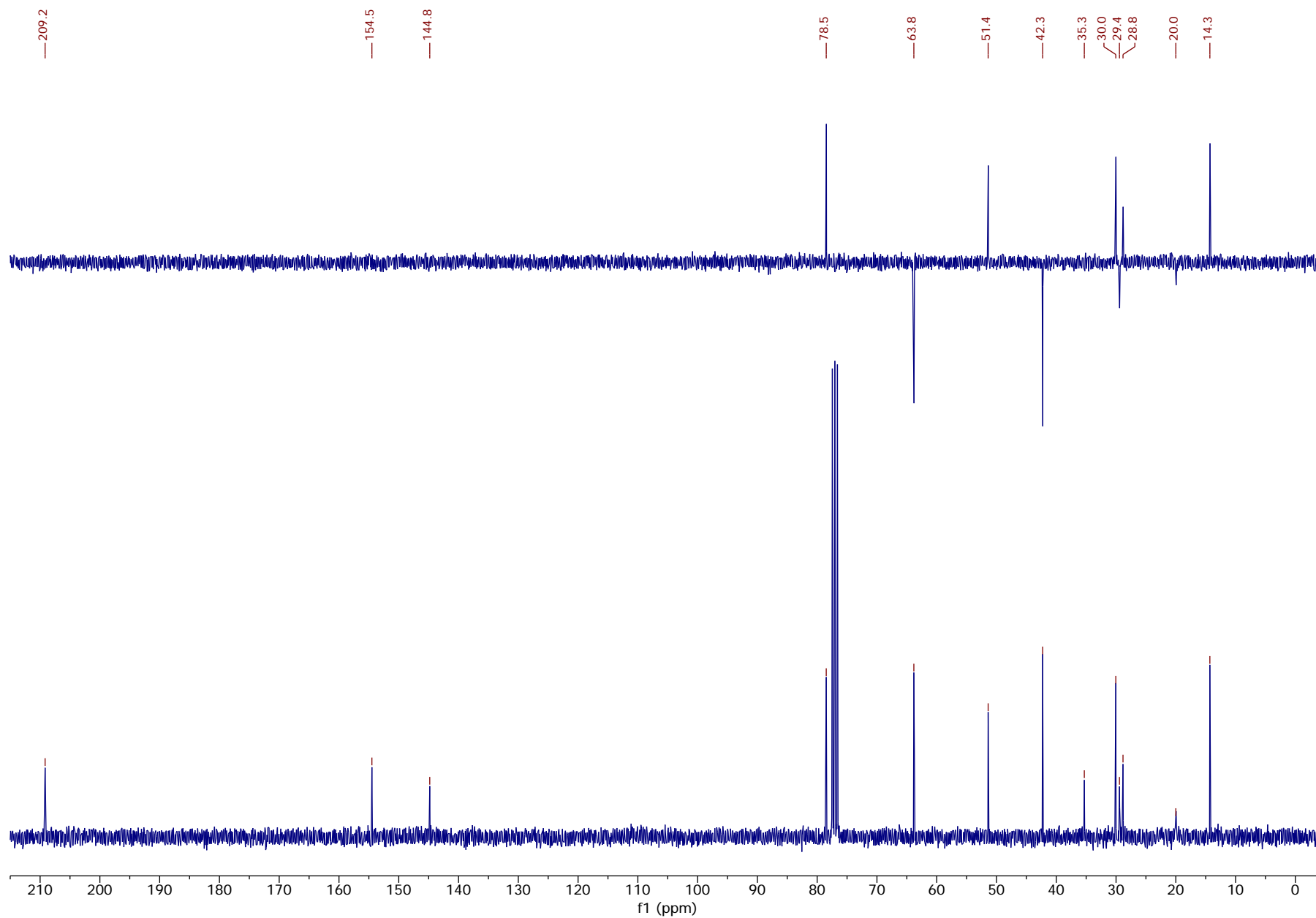


Figure S19

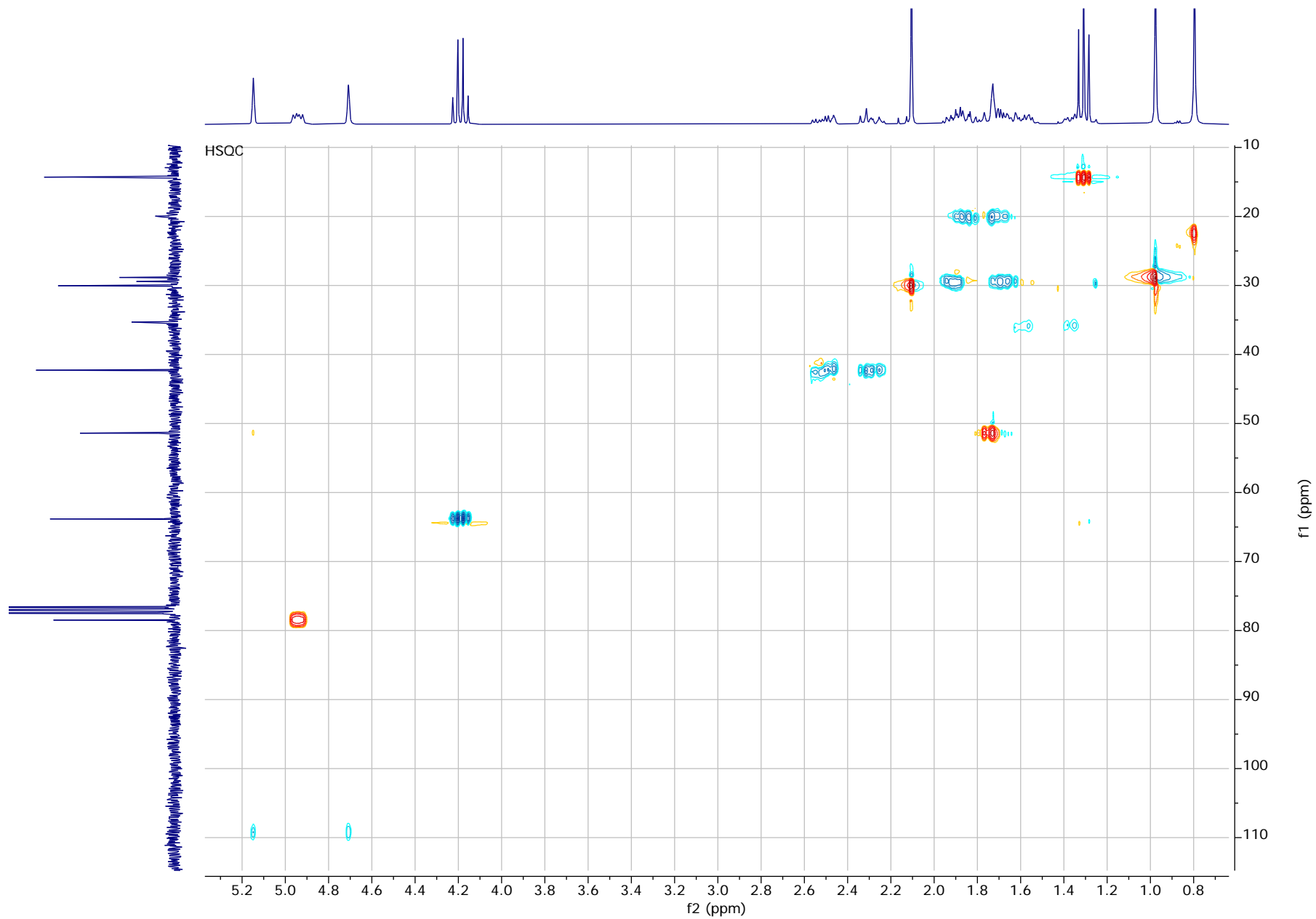


Figure S20

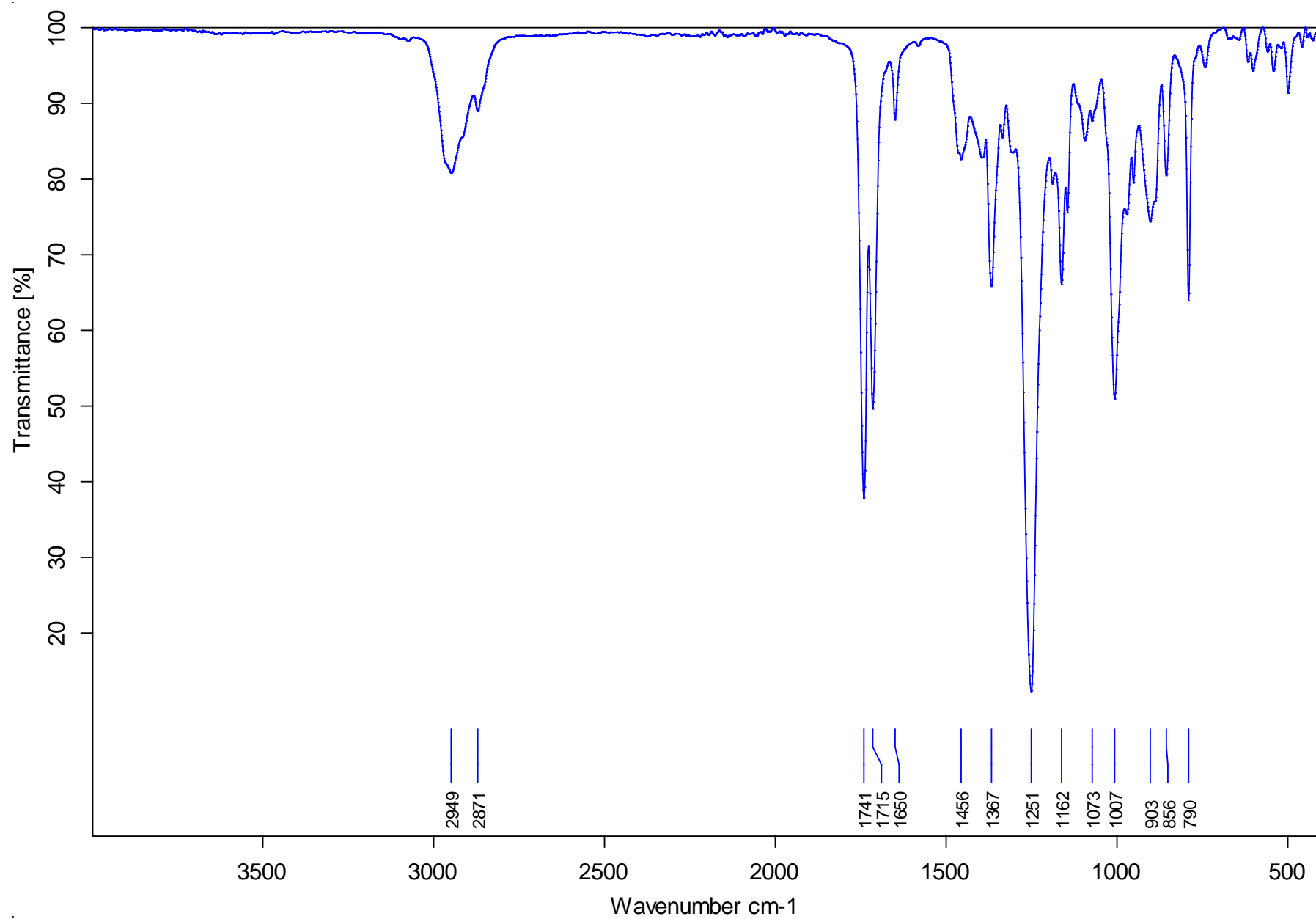


Figure S21

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR, HSQC, HMBC, COSY, NOESY 1D and IR of 6**

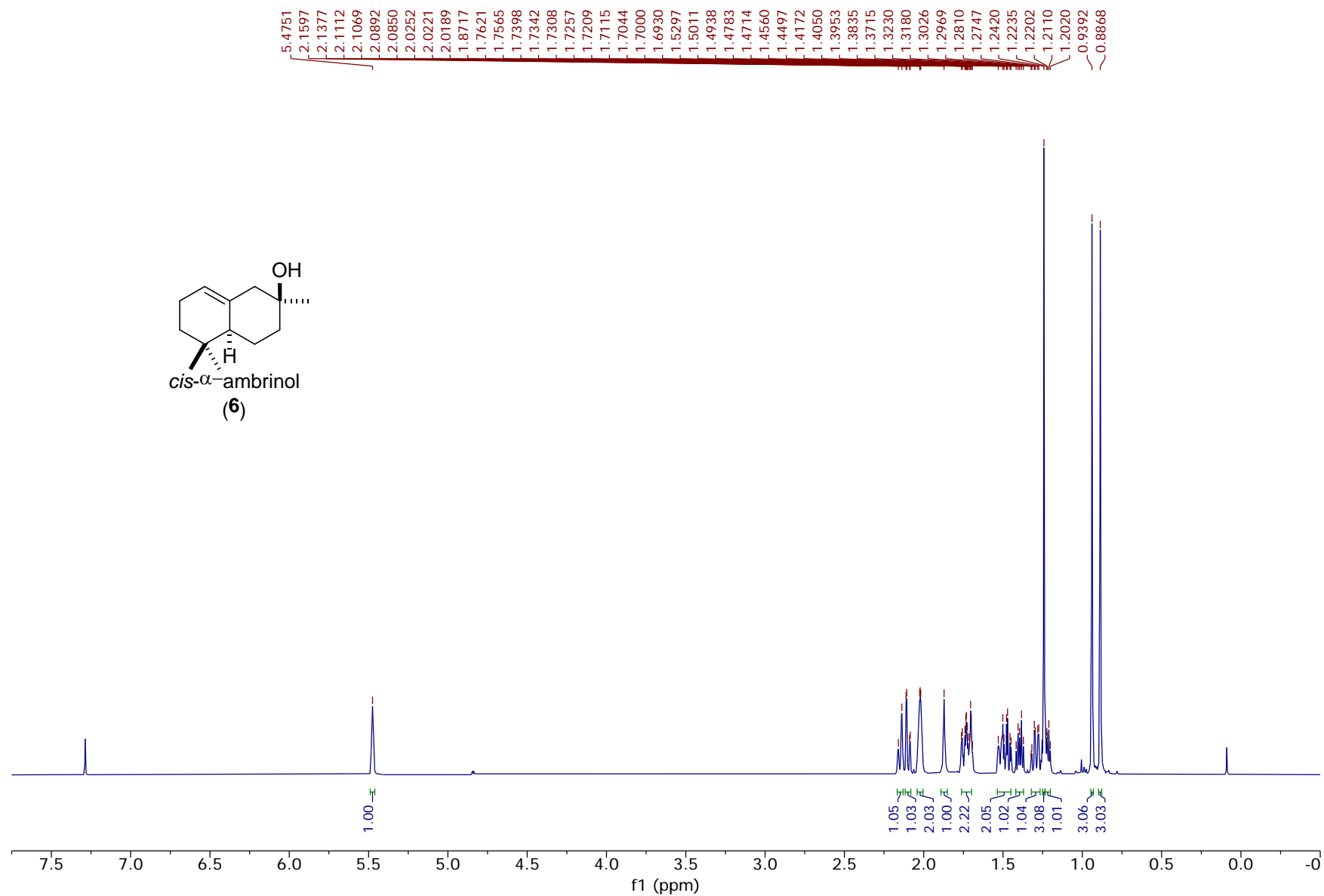


Figure S22

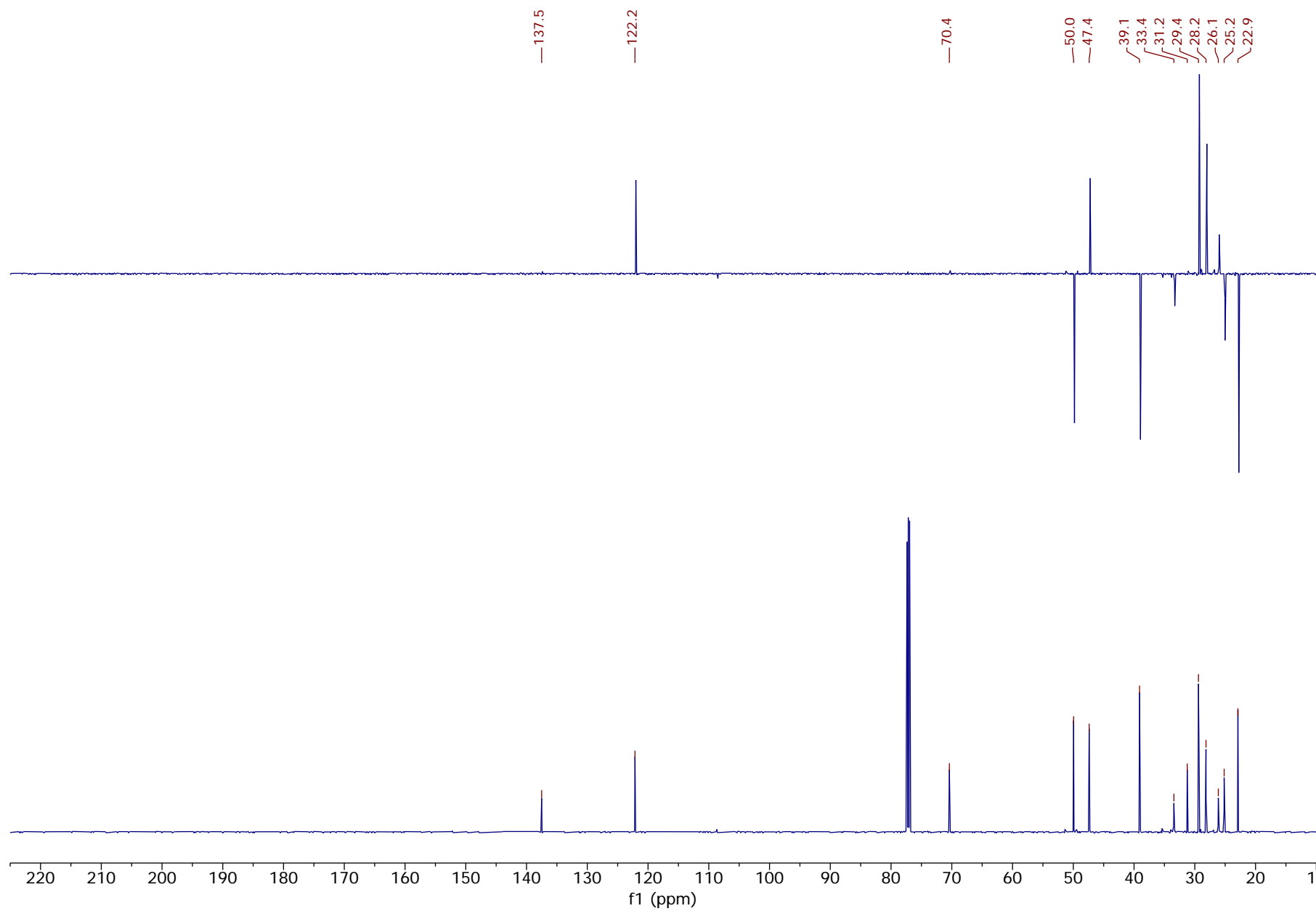


Figure S23



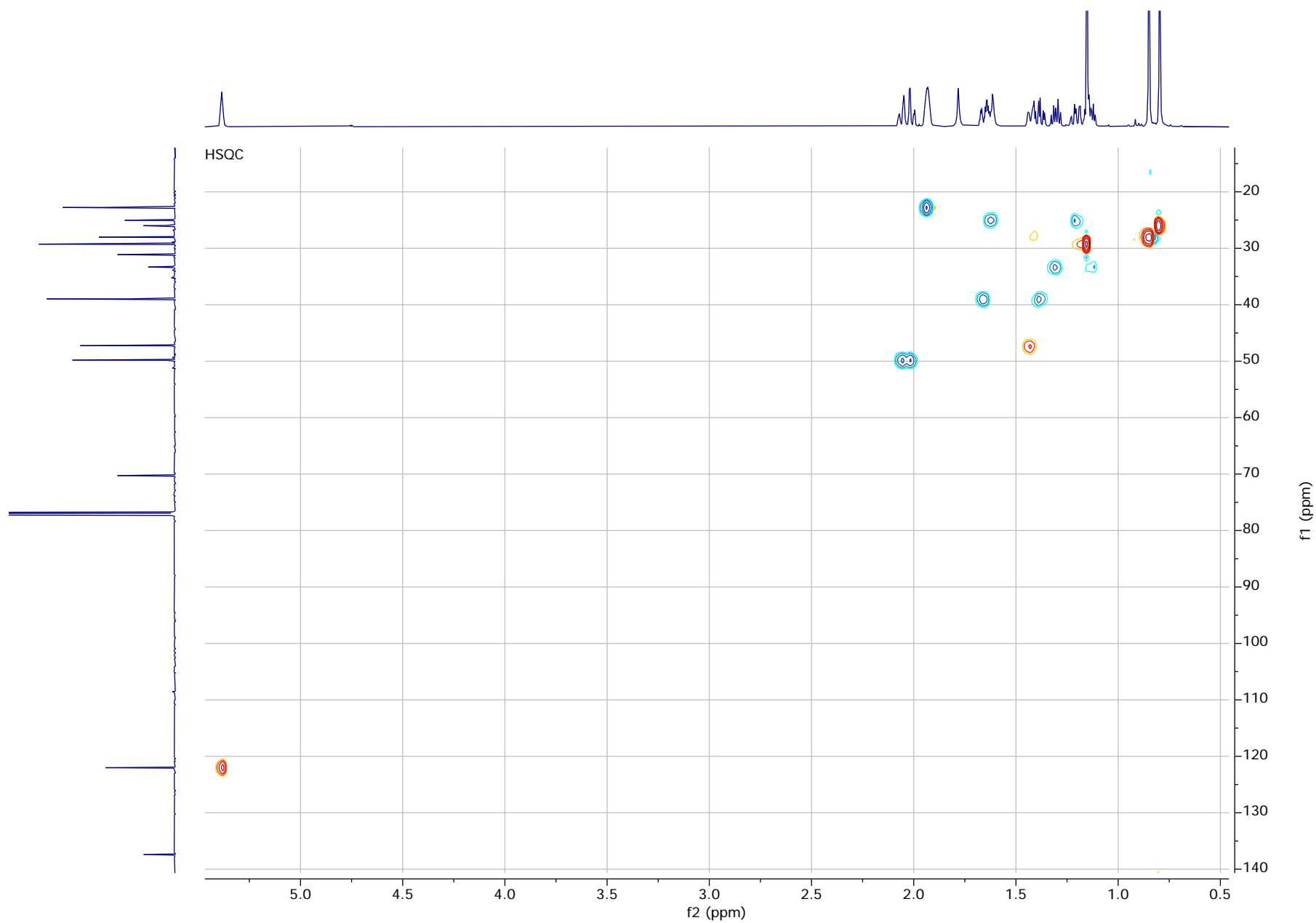


Figure S24

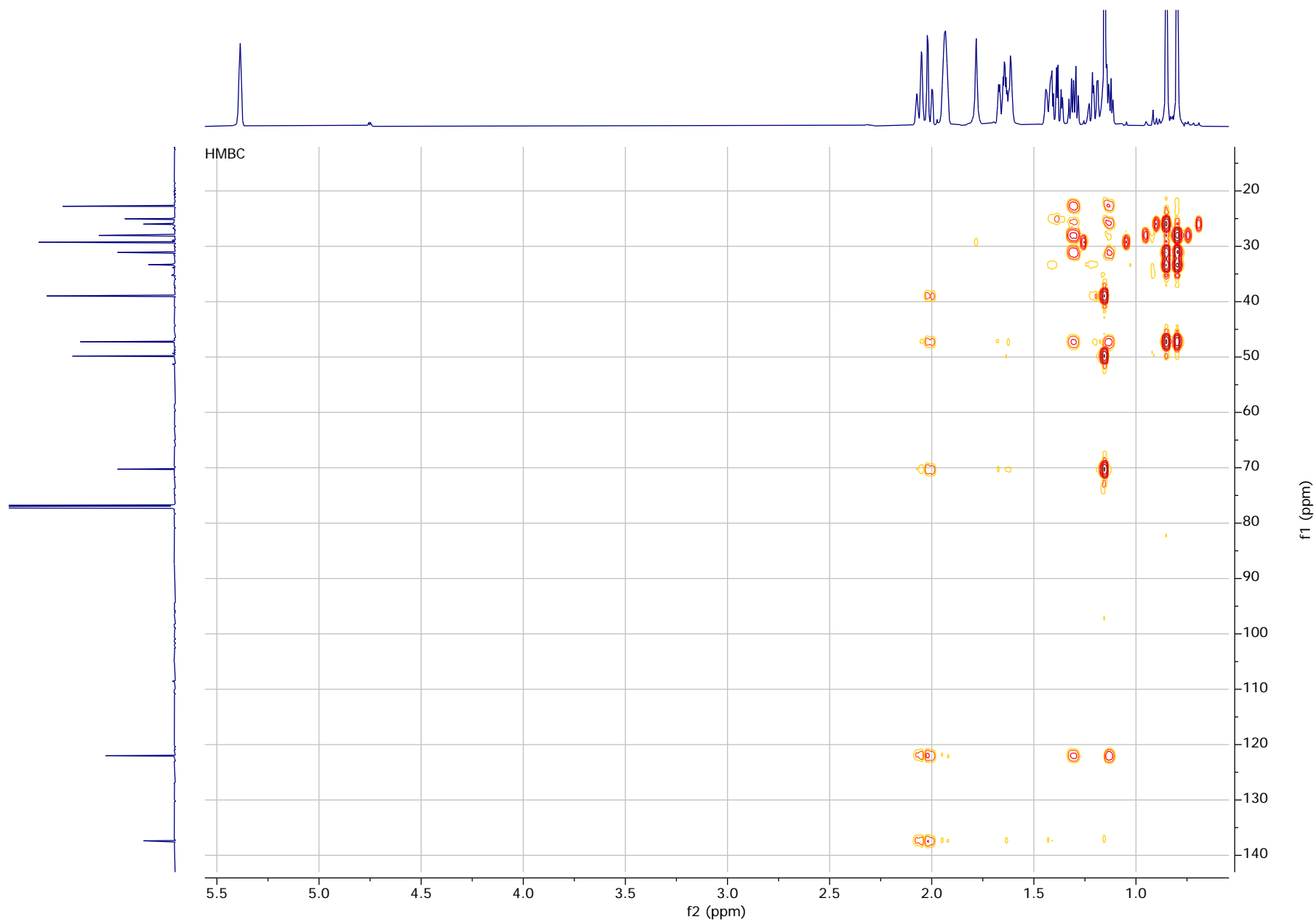


Figure S25



1D Selective Gradient NOESY  
freq: 0.938ppm

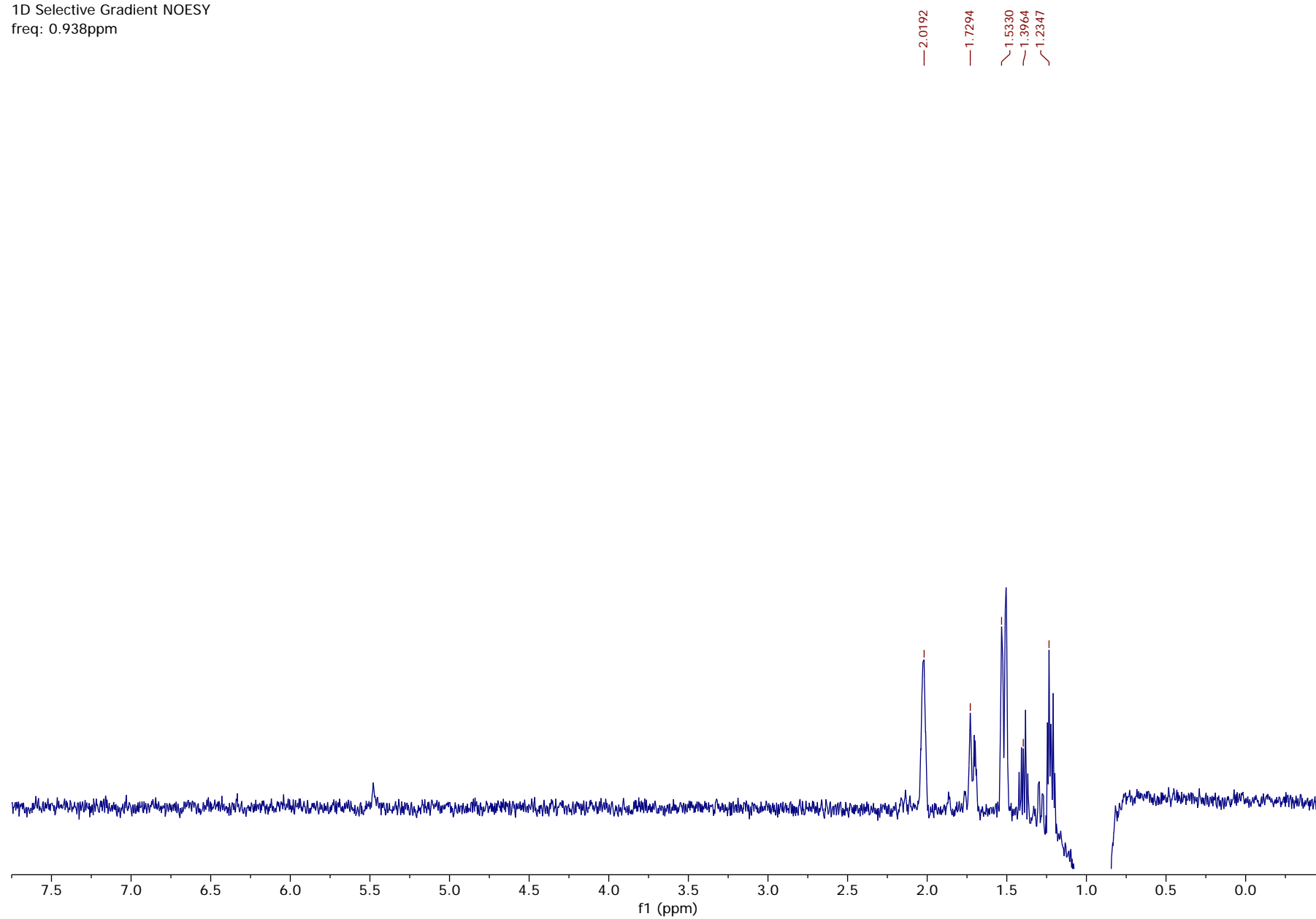


Figure S27

1D Selective Gradient NOESY  
freq: 1.244ppm

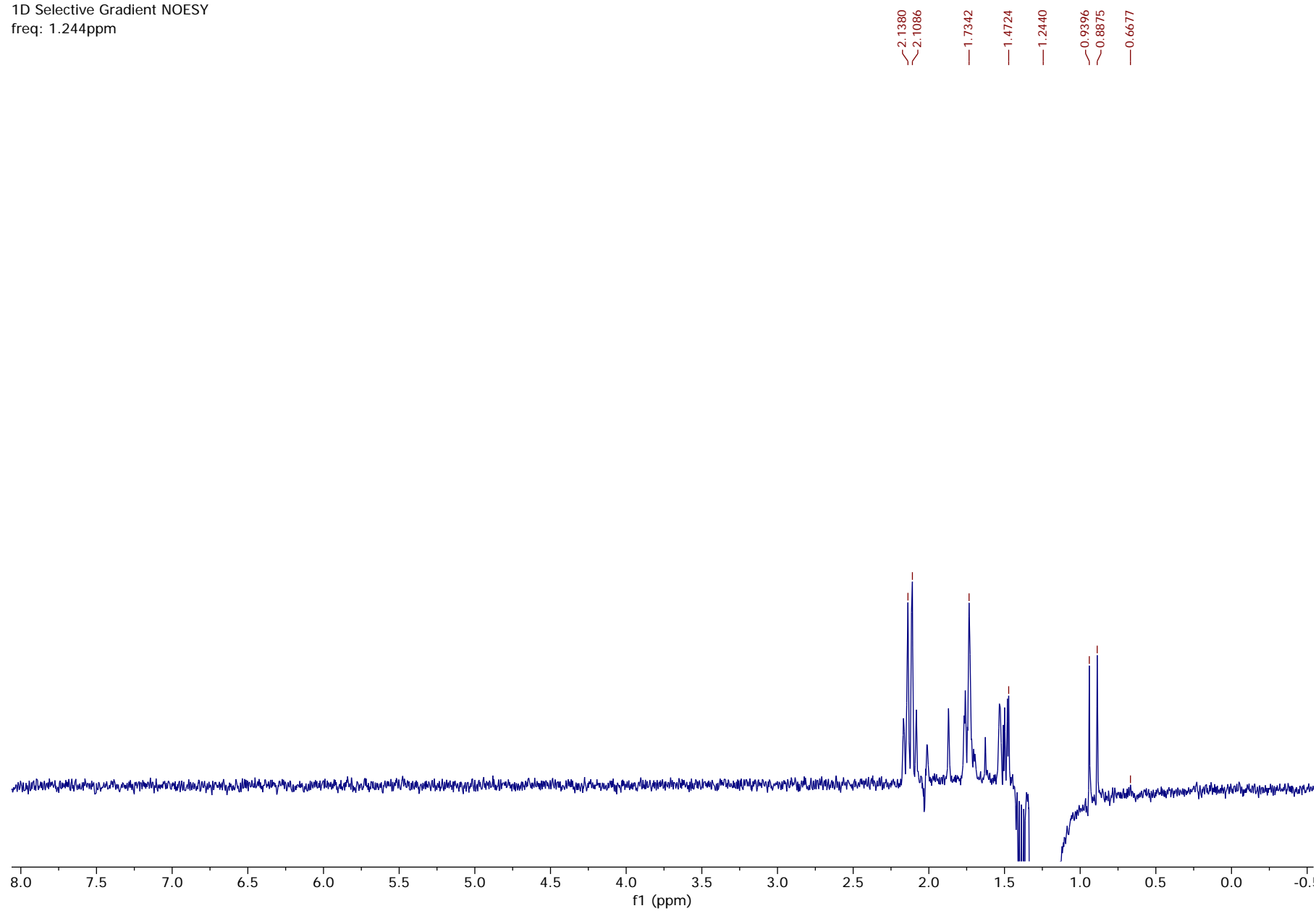


Figure S28

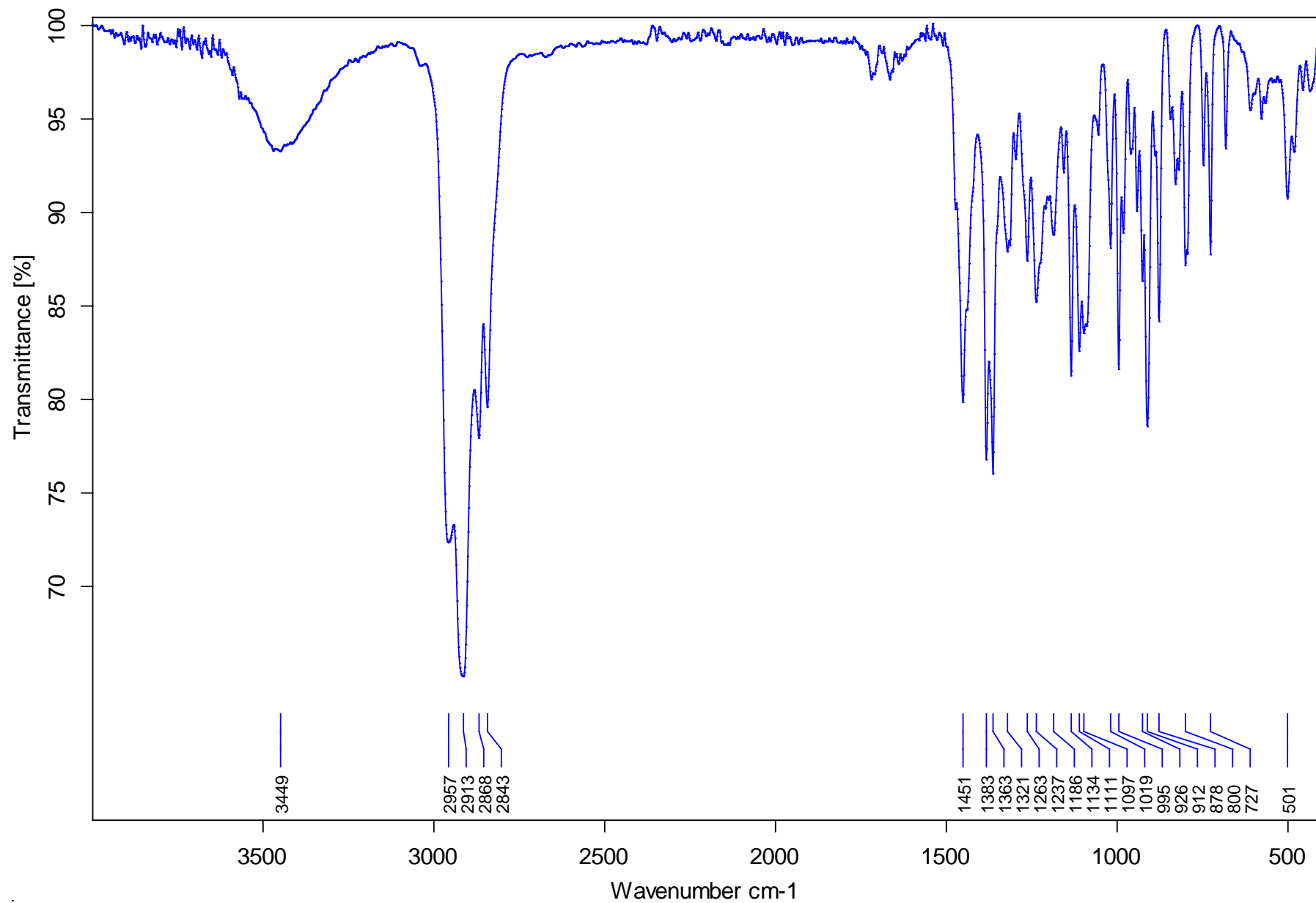
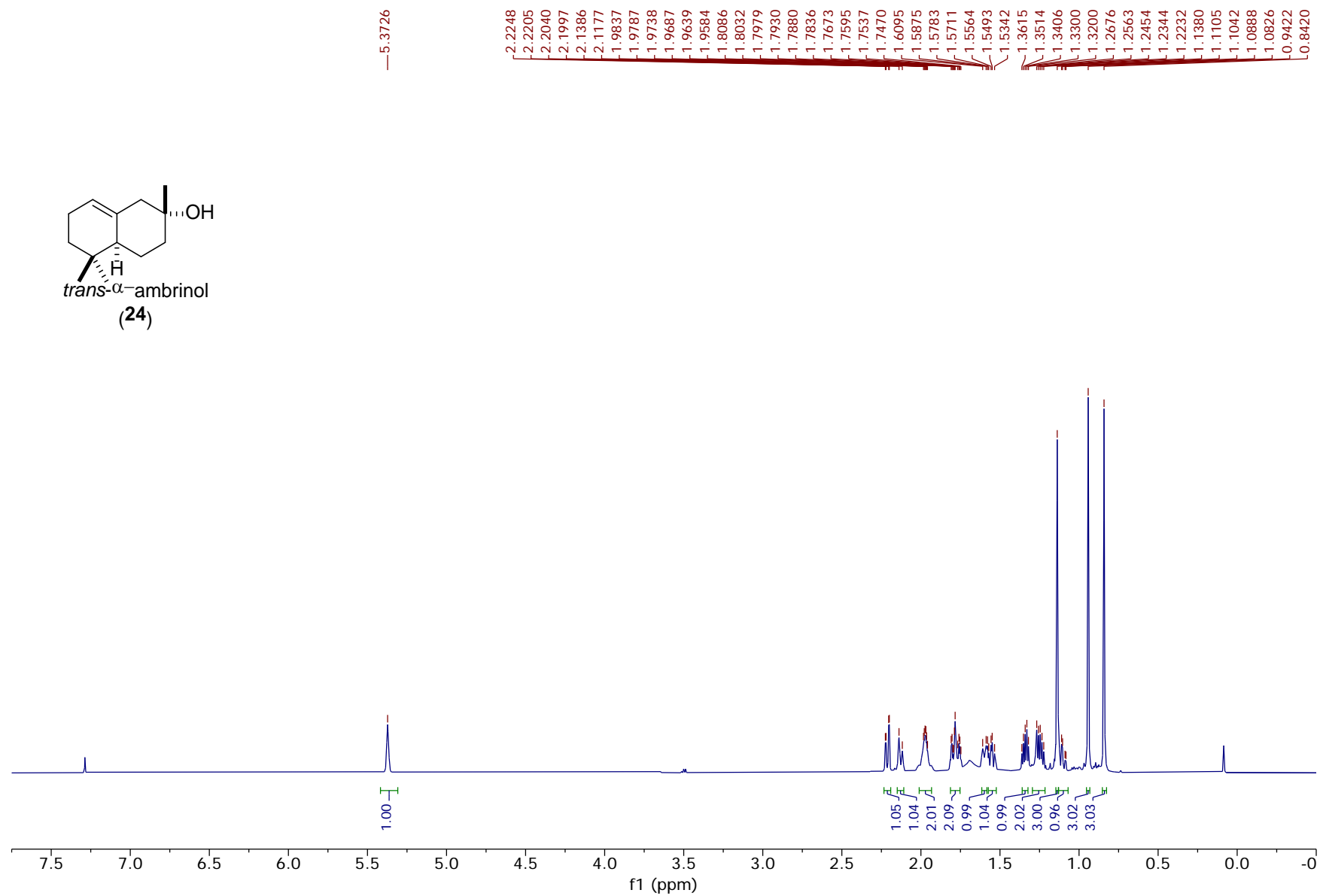


Figure S29

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR, HSQC, HMBC, COSY, NOESY 1D and IR of 24**



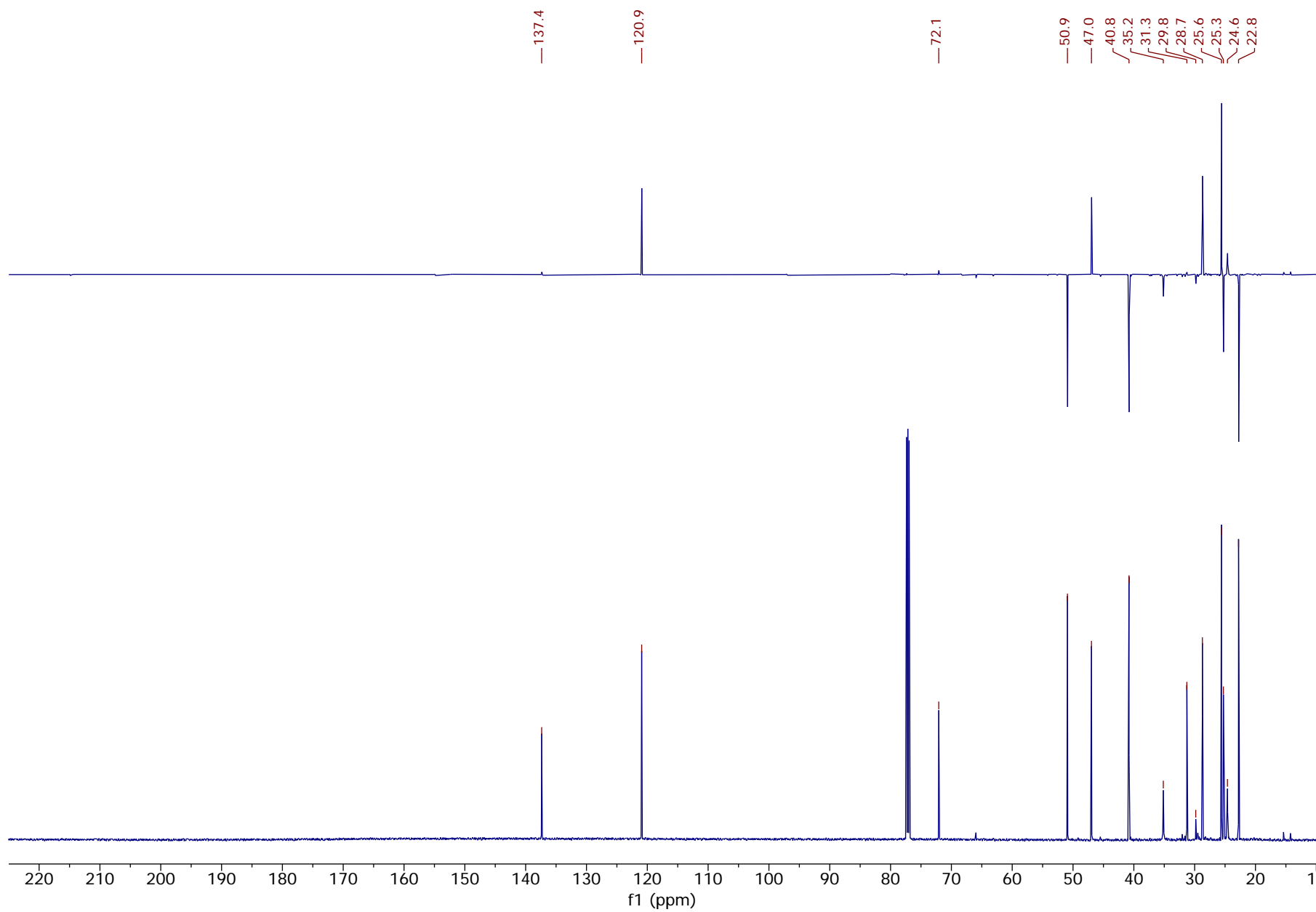


Figure S31



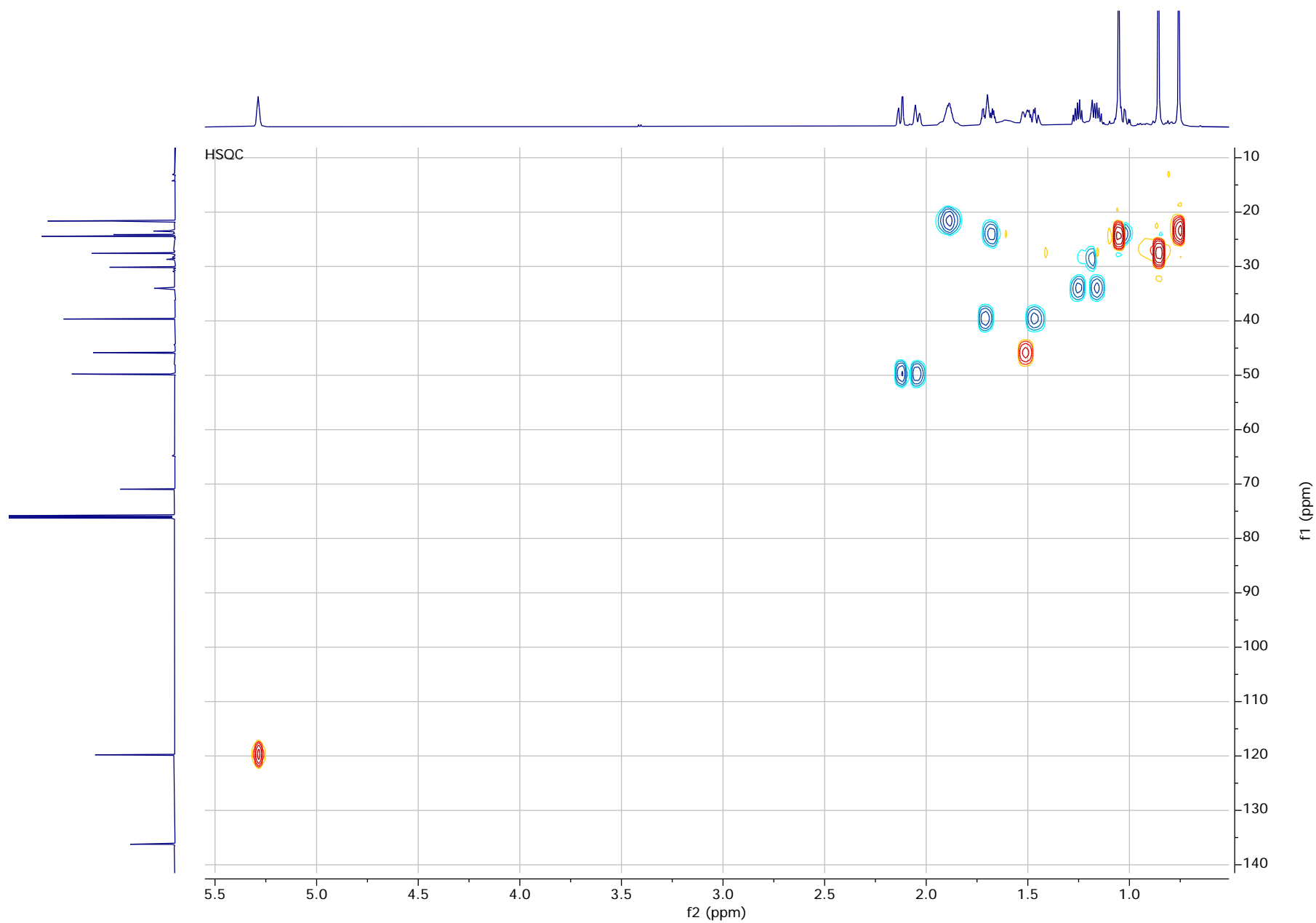


Figure S32

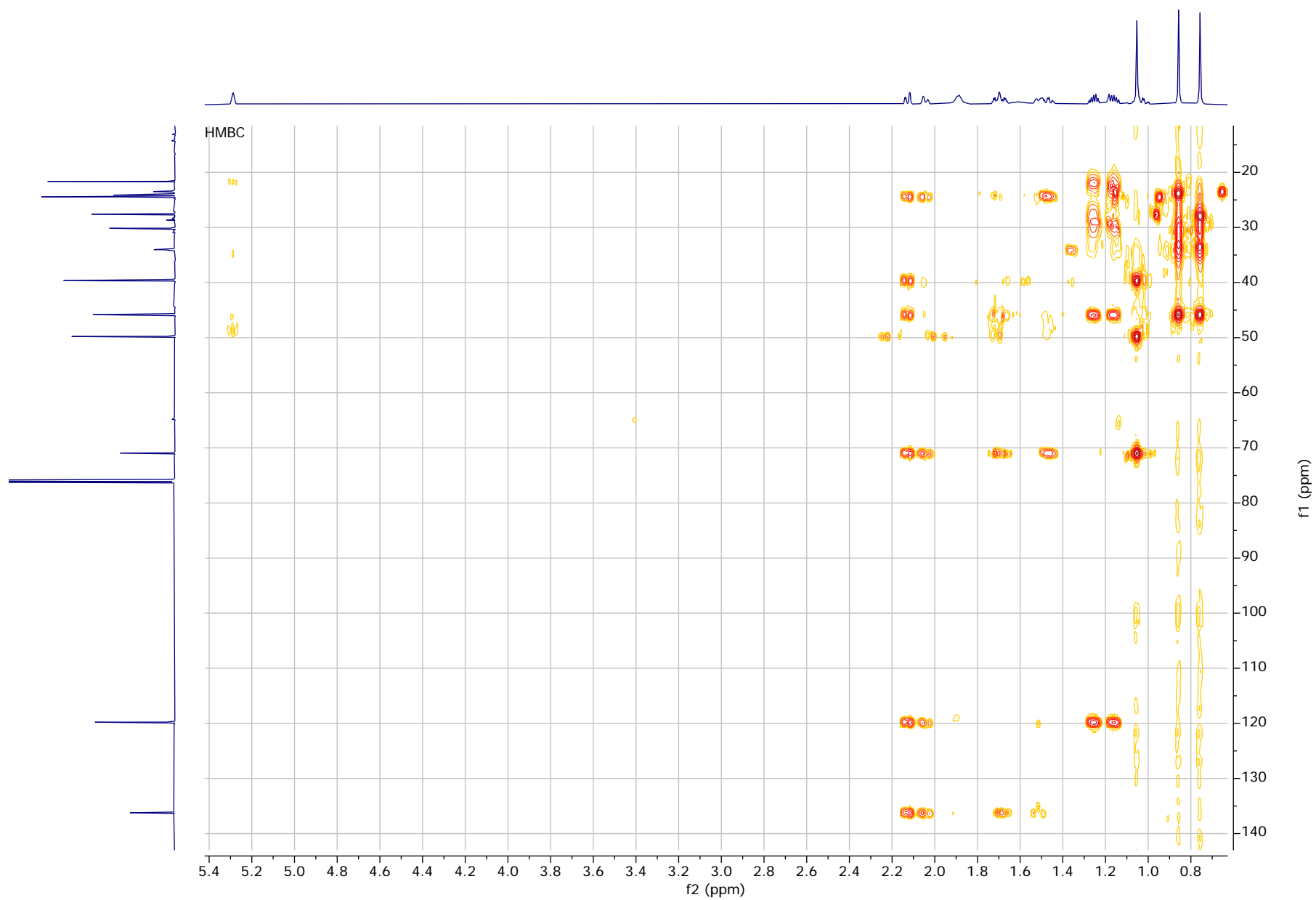


Figure S33

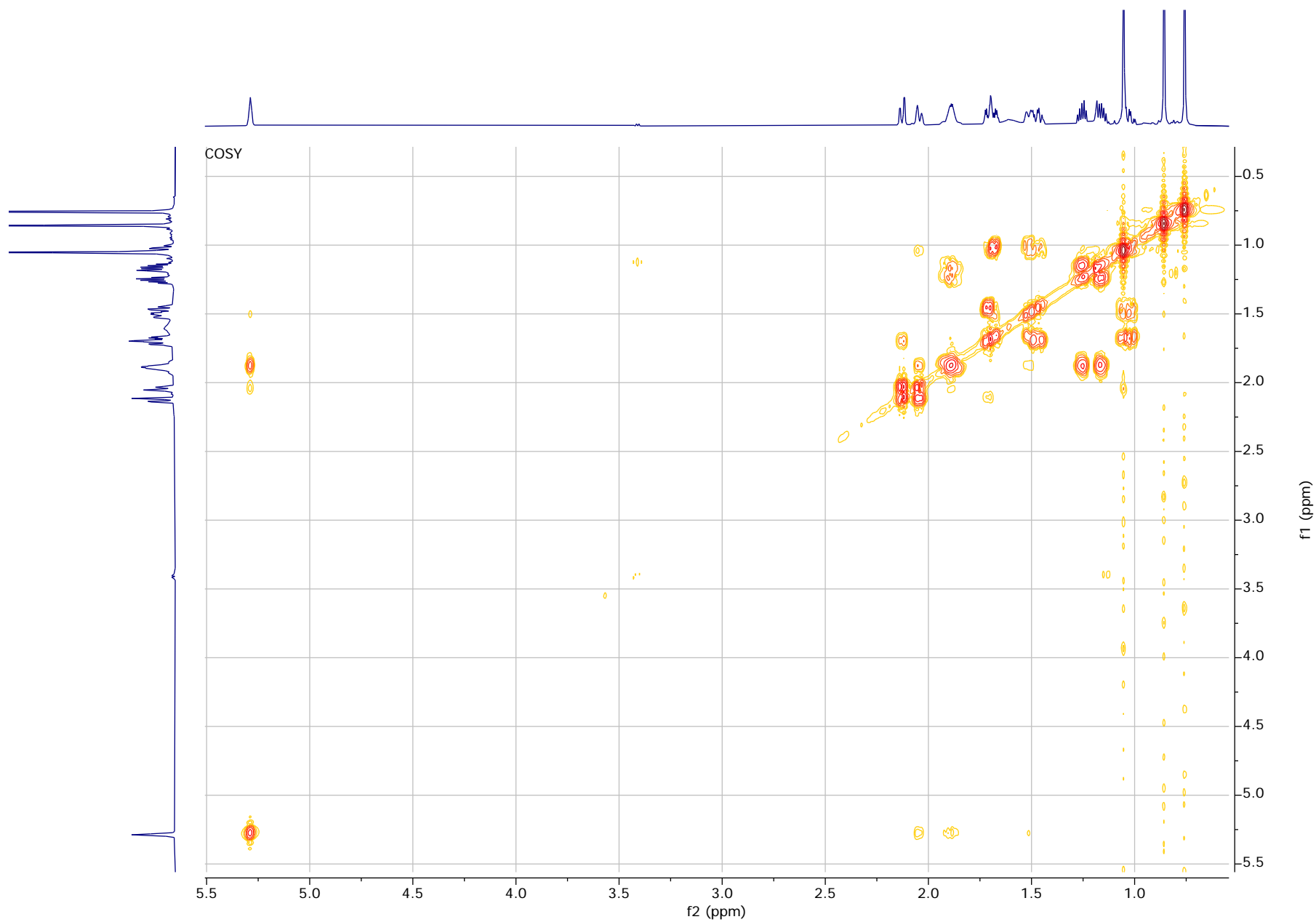


Figure S34

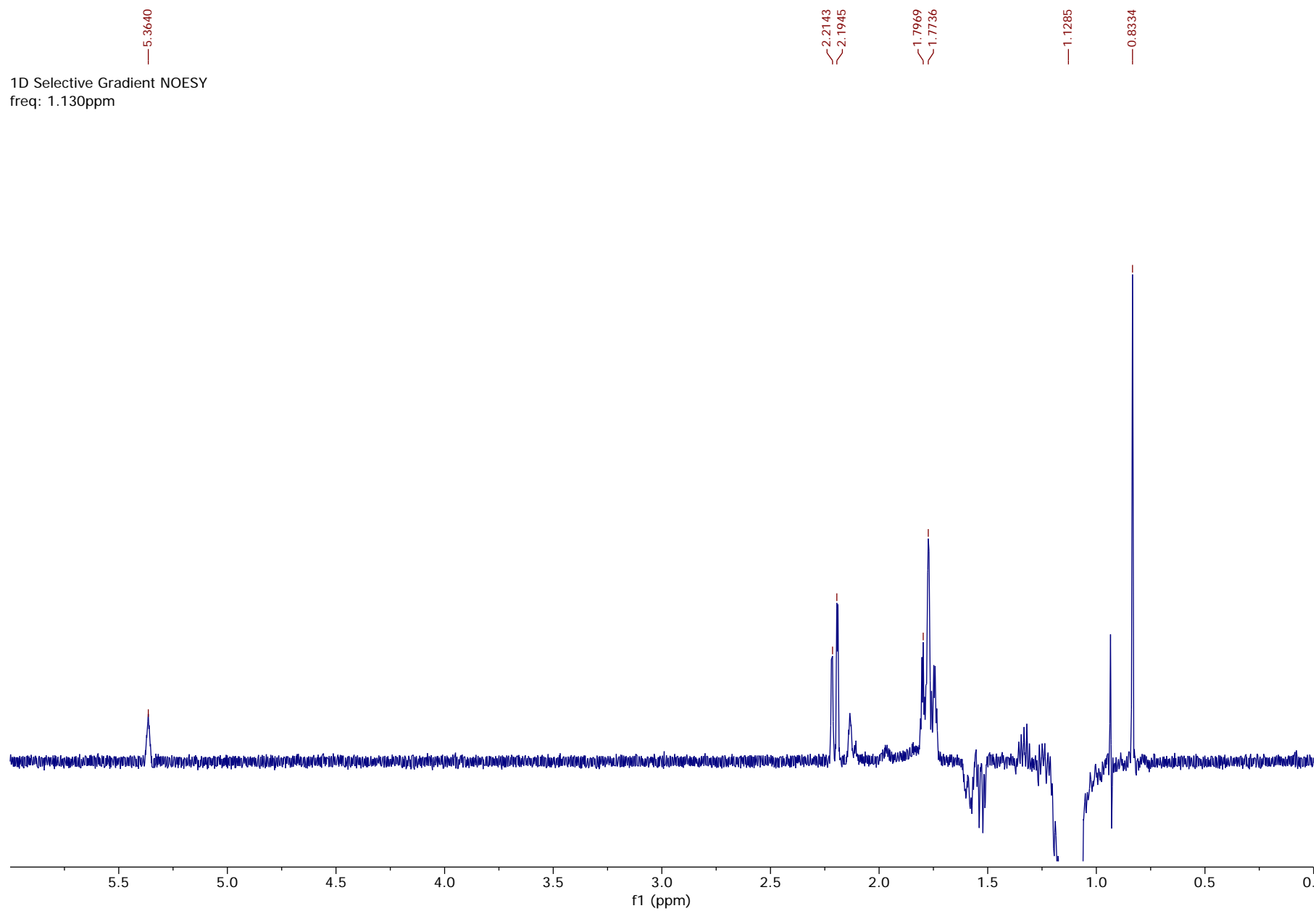


Figure S35

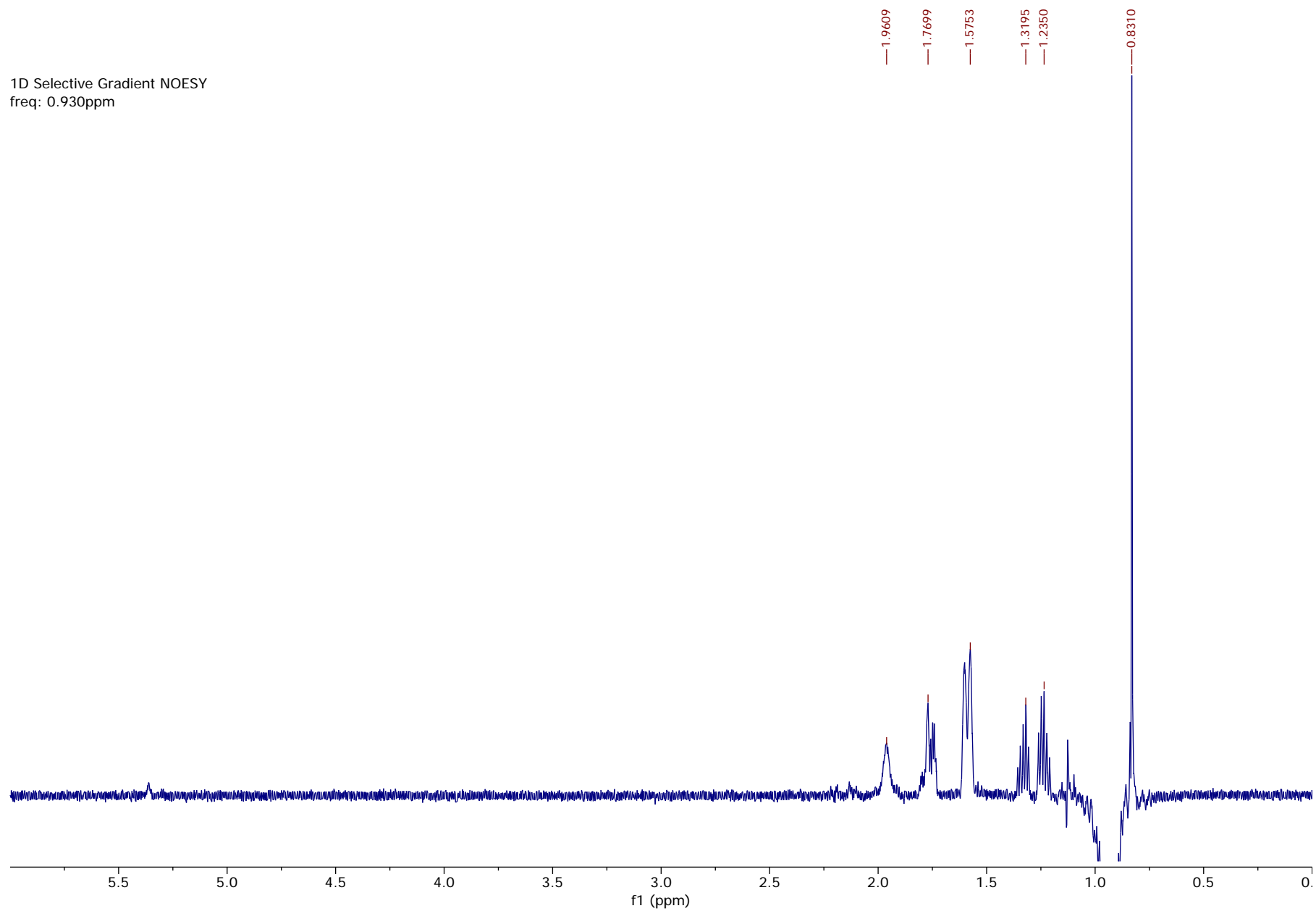


Figure S36

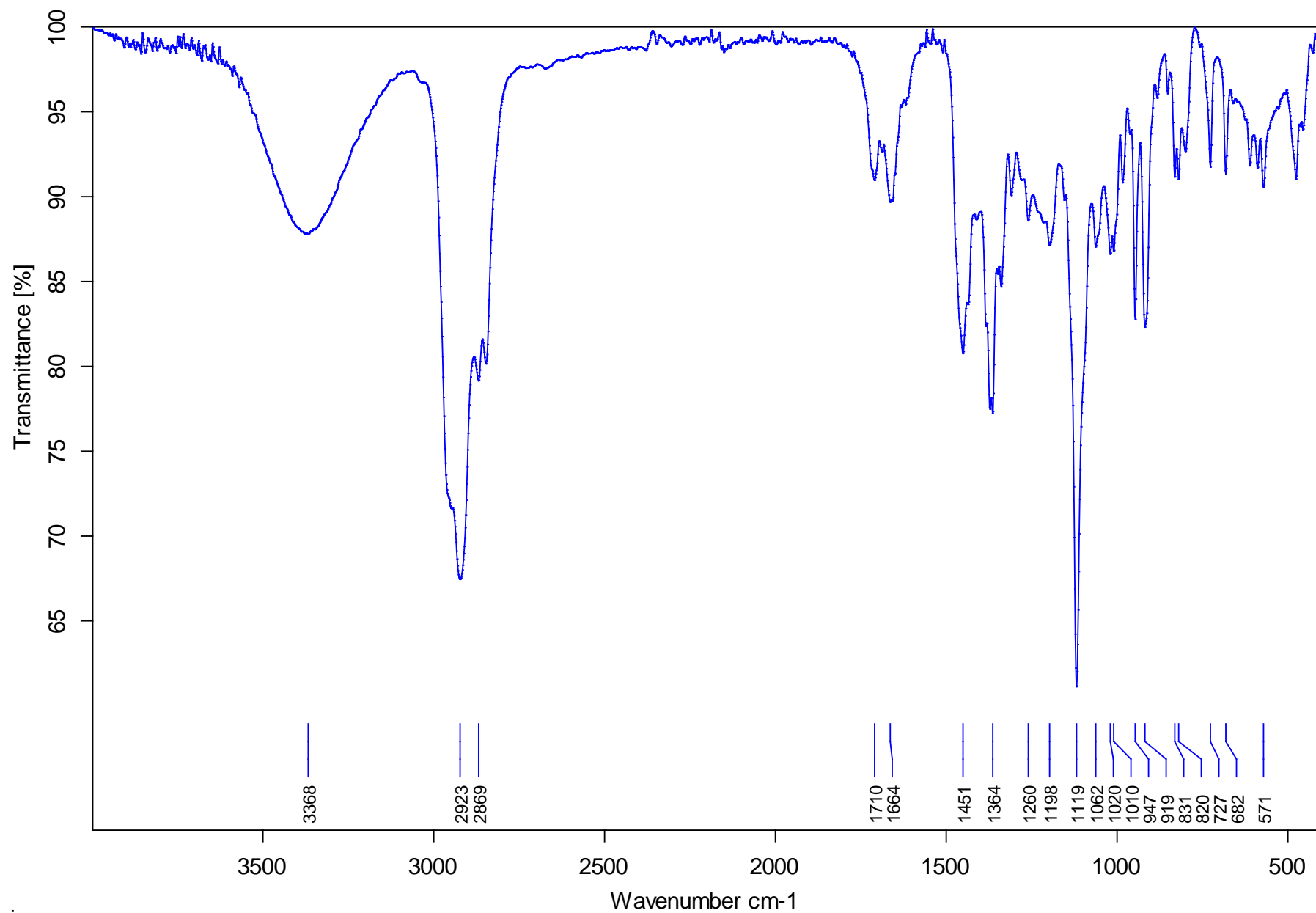


Figure S37

**<sup>1</sup>H NMR of 25**

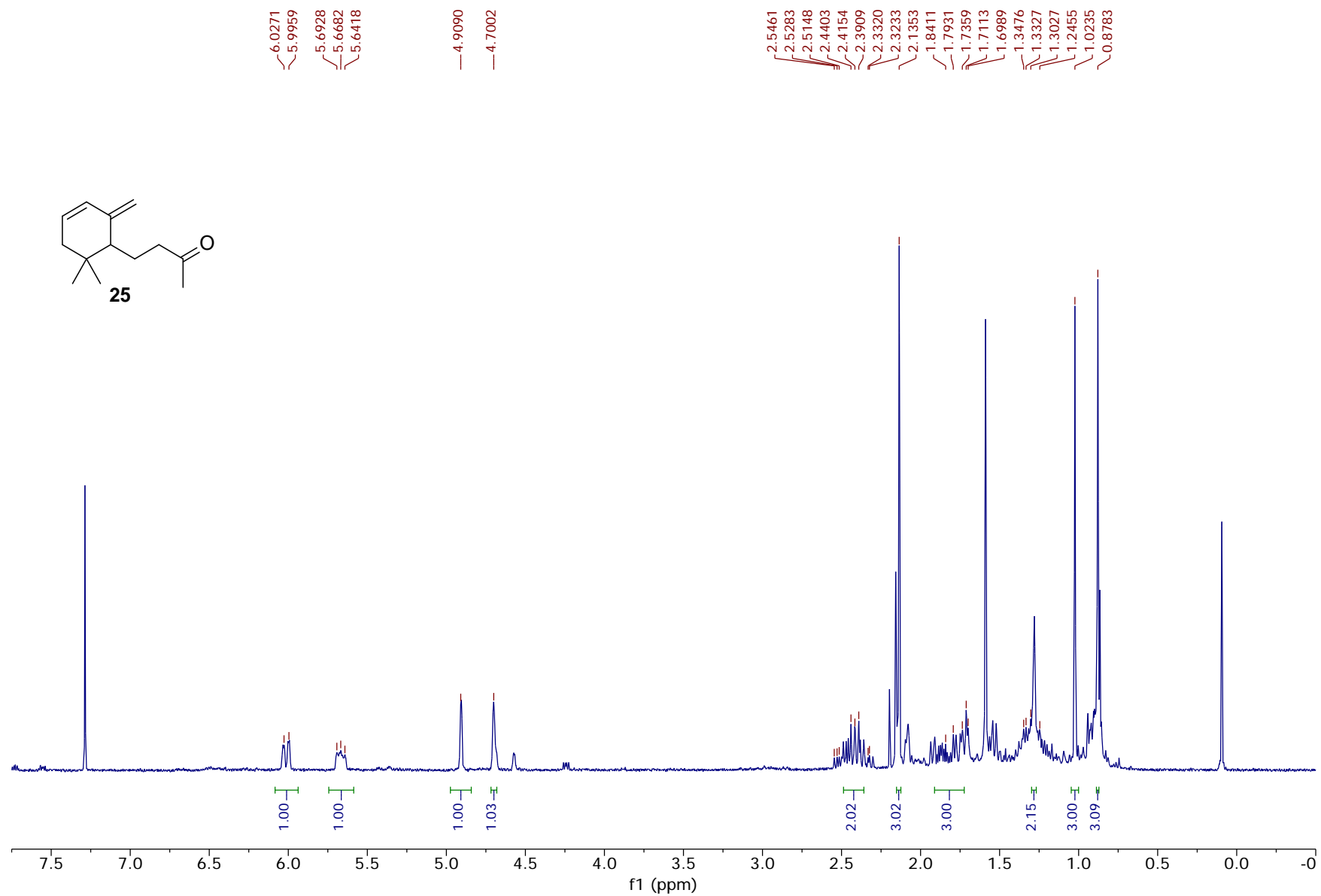


Figure S38

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR and IR of 22**

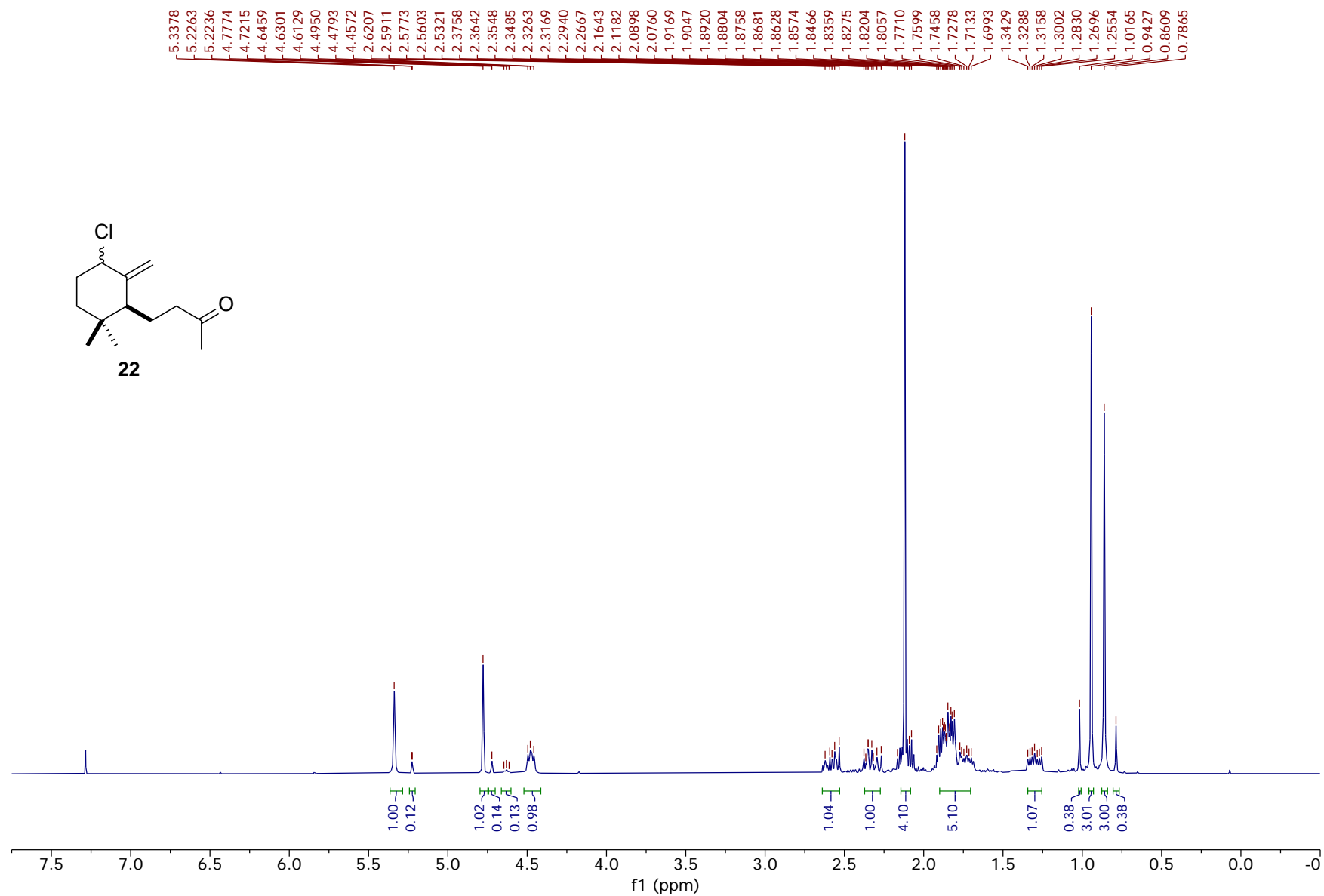


Figure S39



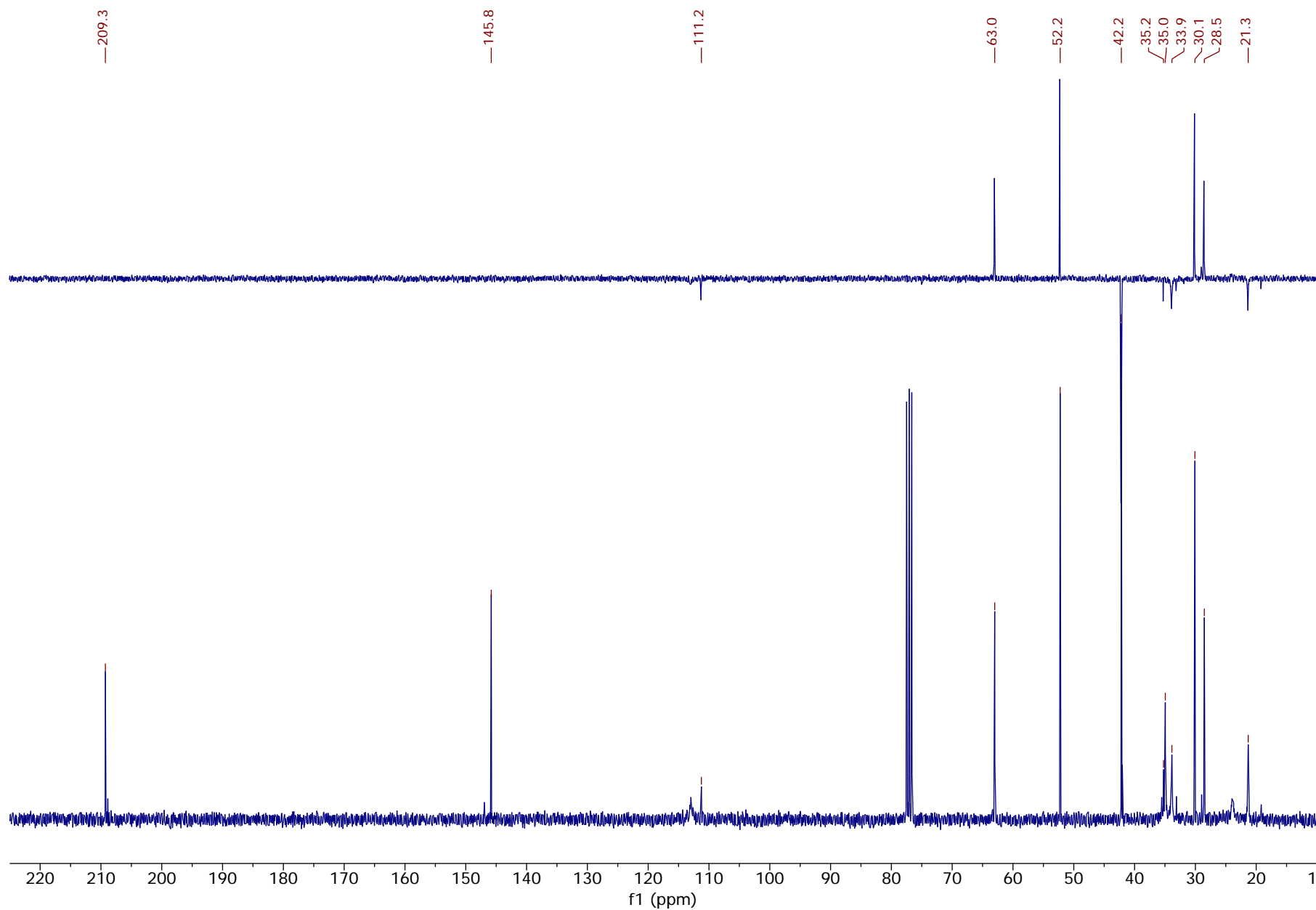


Figure S40

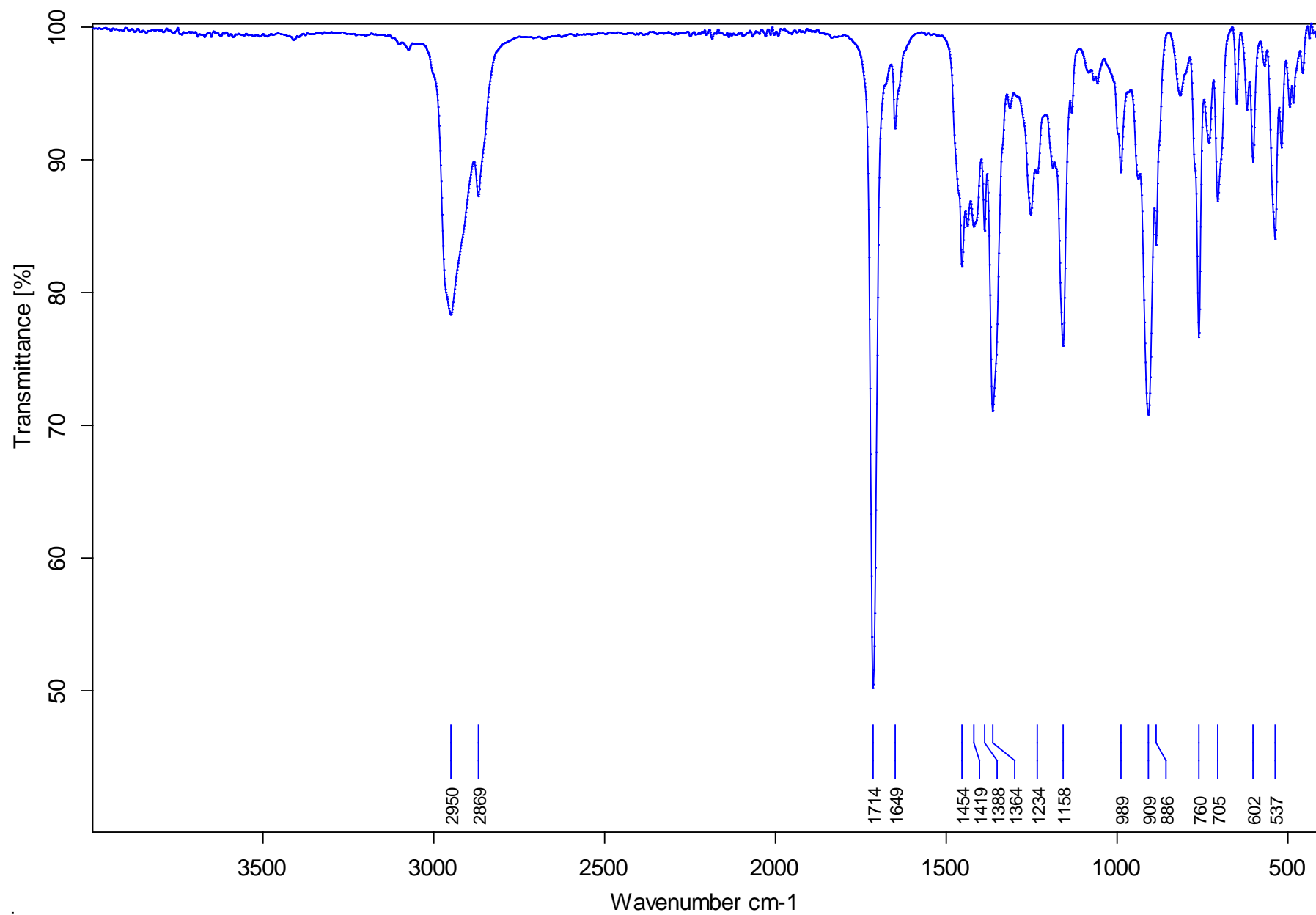


Figure S41

**$^1\text{H}$  NMR, DEPT 135,  $^{13}\text{C}$  NMR, HSQC, HMBC, COSY and IR of 26**

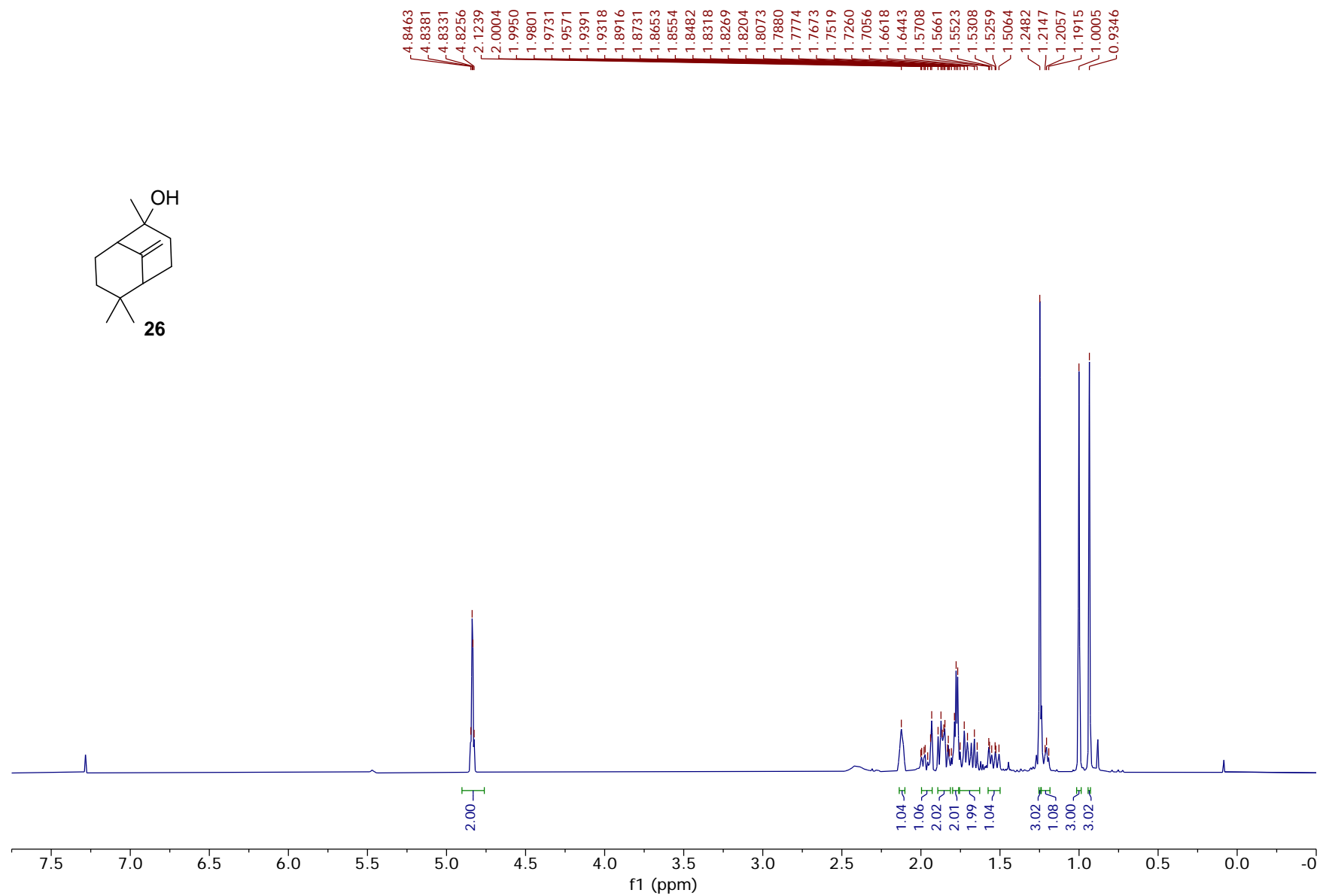


Figure S42

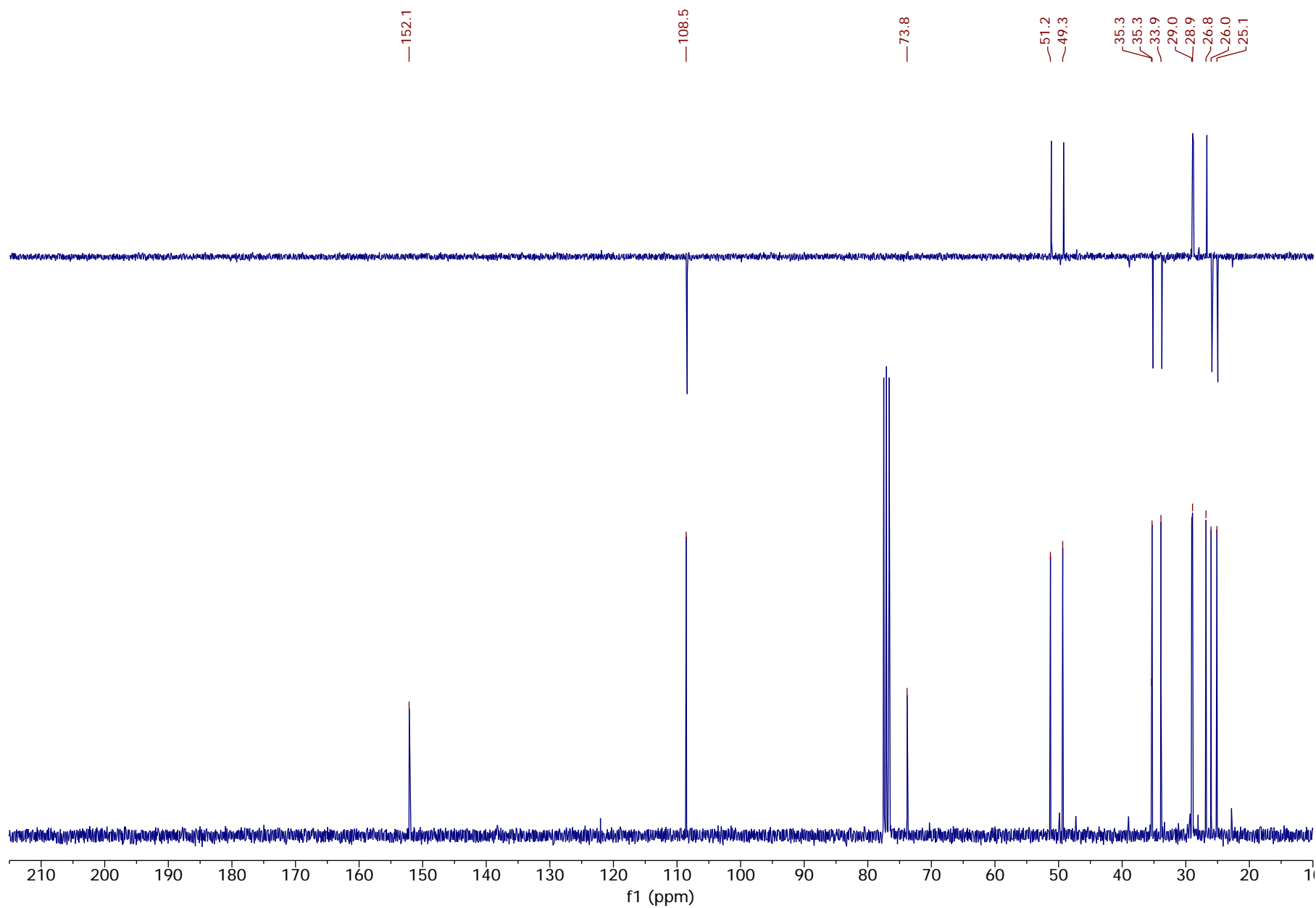


Figure S43

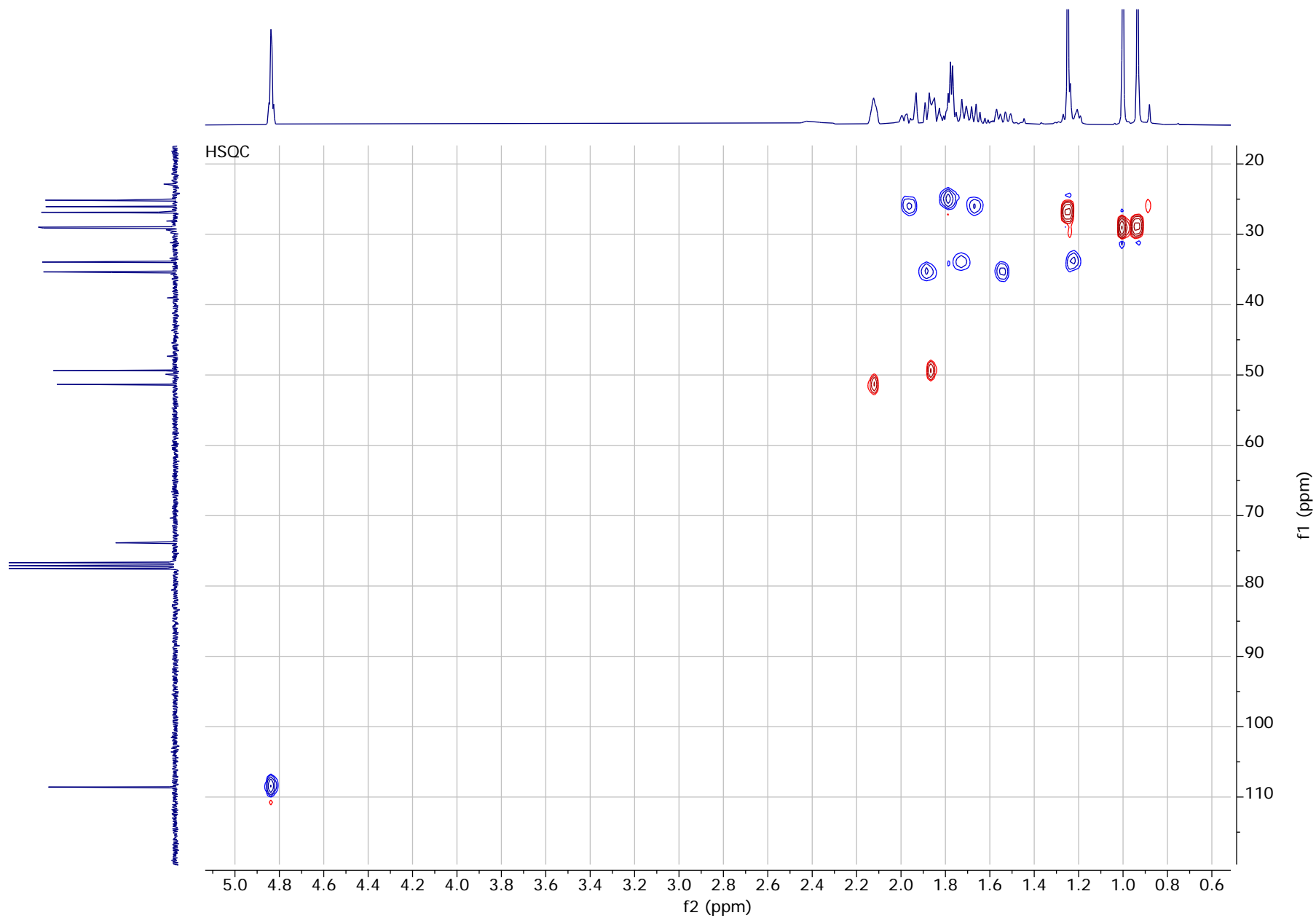


Figure S44

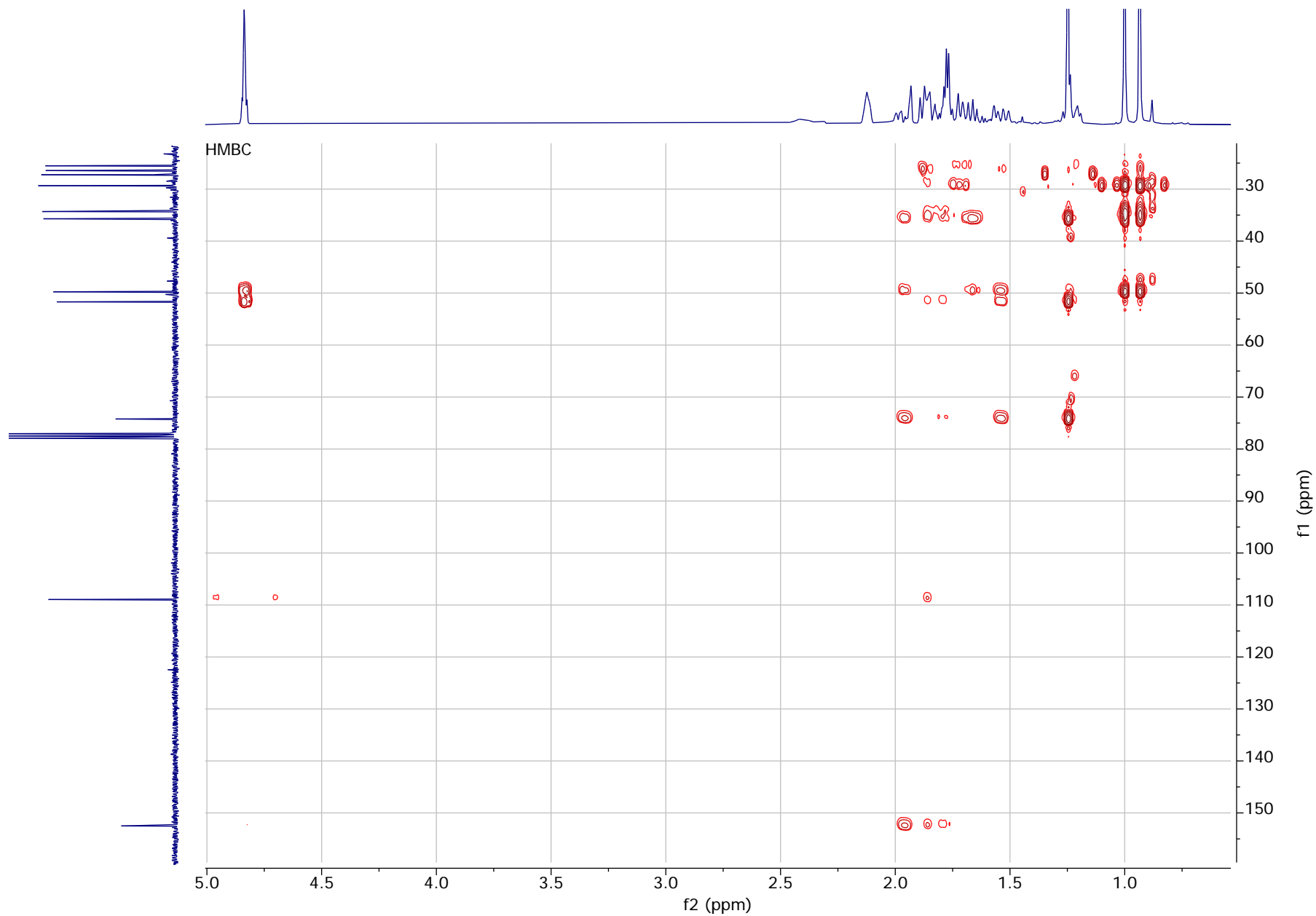


Figure S45

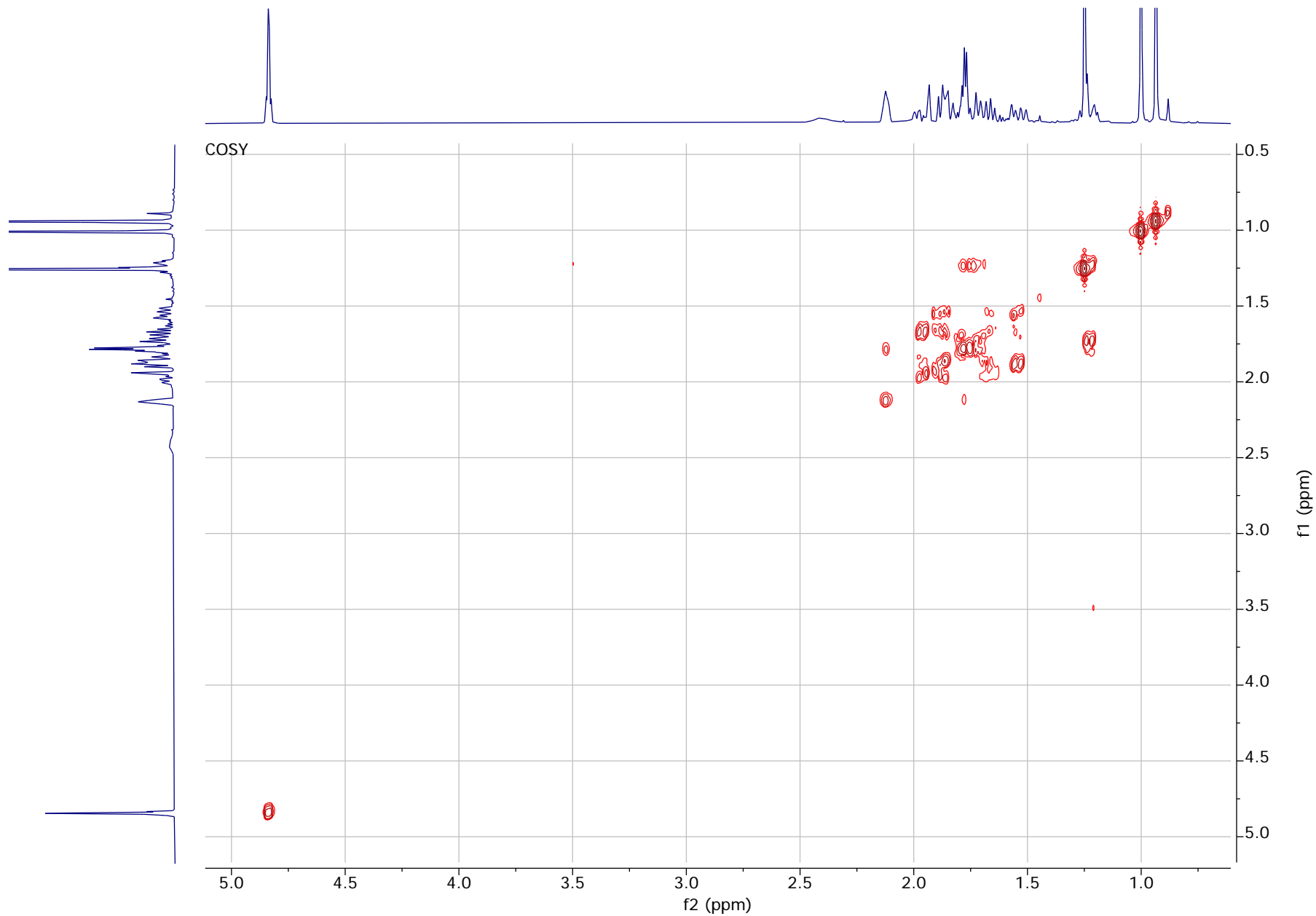


Figure S46

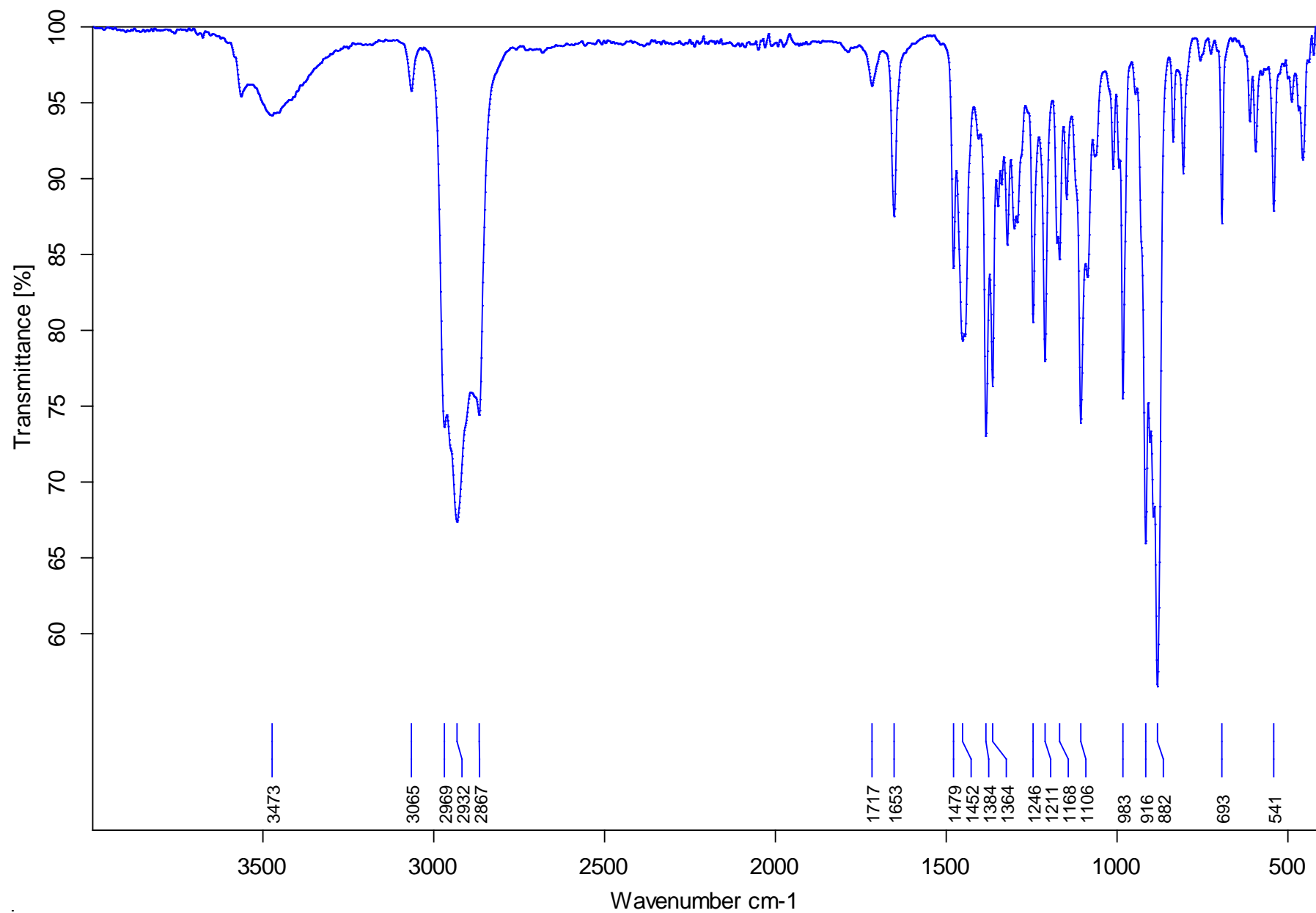


Figure S47