

## Supplementary Material

### Advantages of Green Methodologies-Microwave and Solvent-free

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80918, United States

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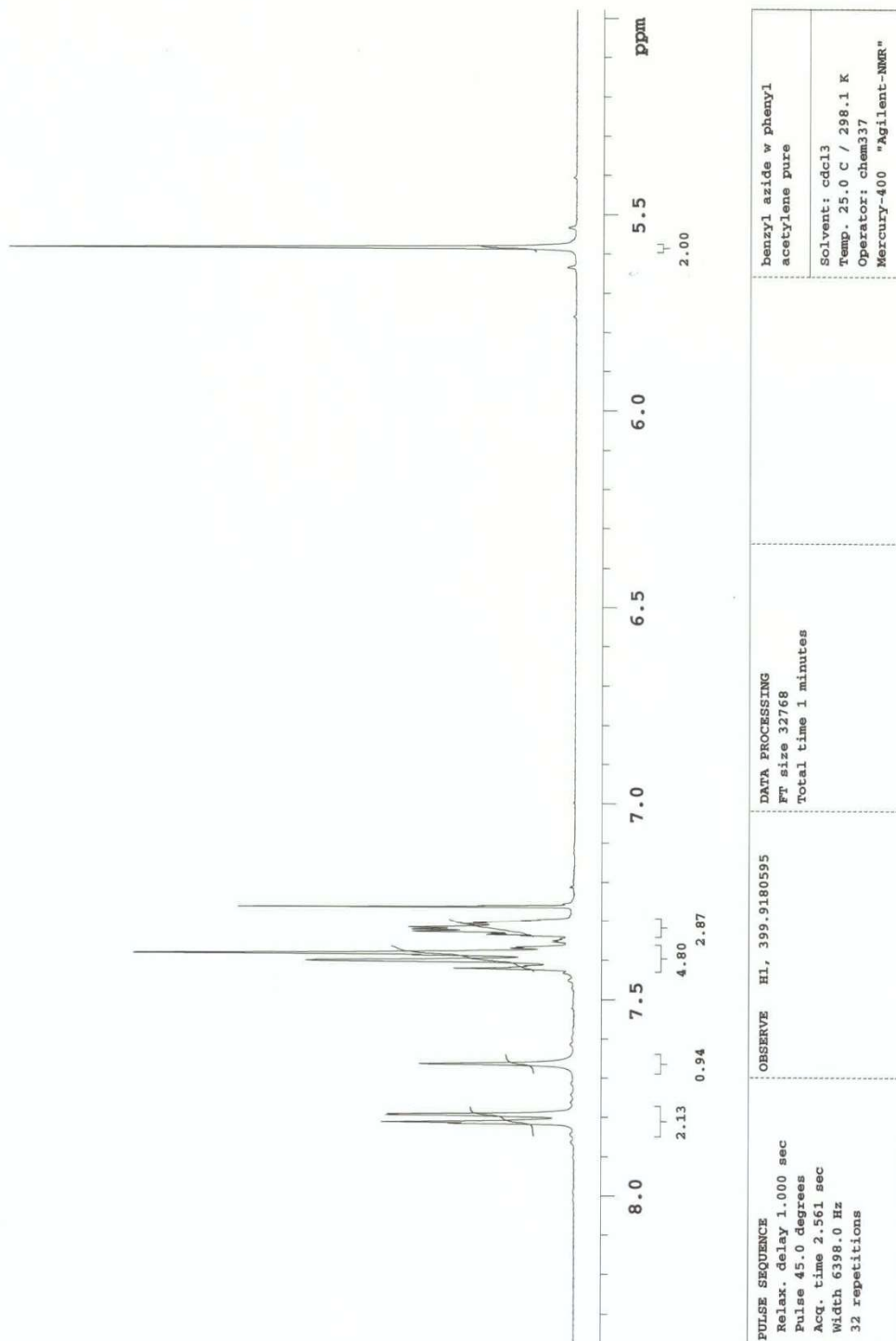
#### Spectra of Compounds 1-8

Compound <b>1</b> : 1-Benzyl-4-phenyl-1 <i>H</i> -1,2,3-triazole	S2-S4
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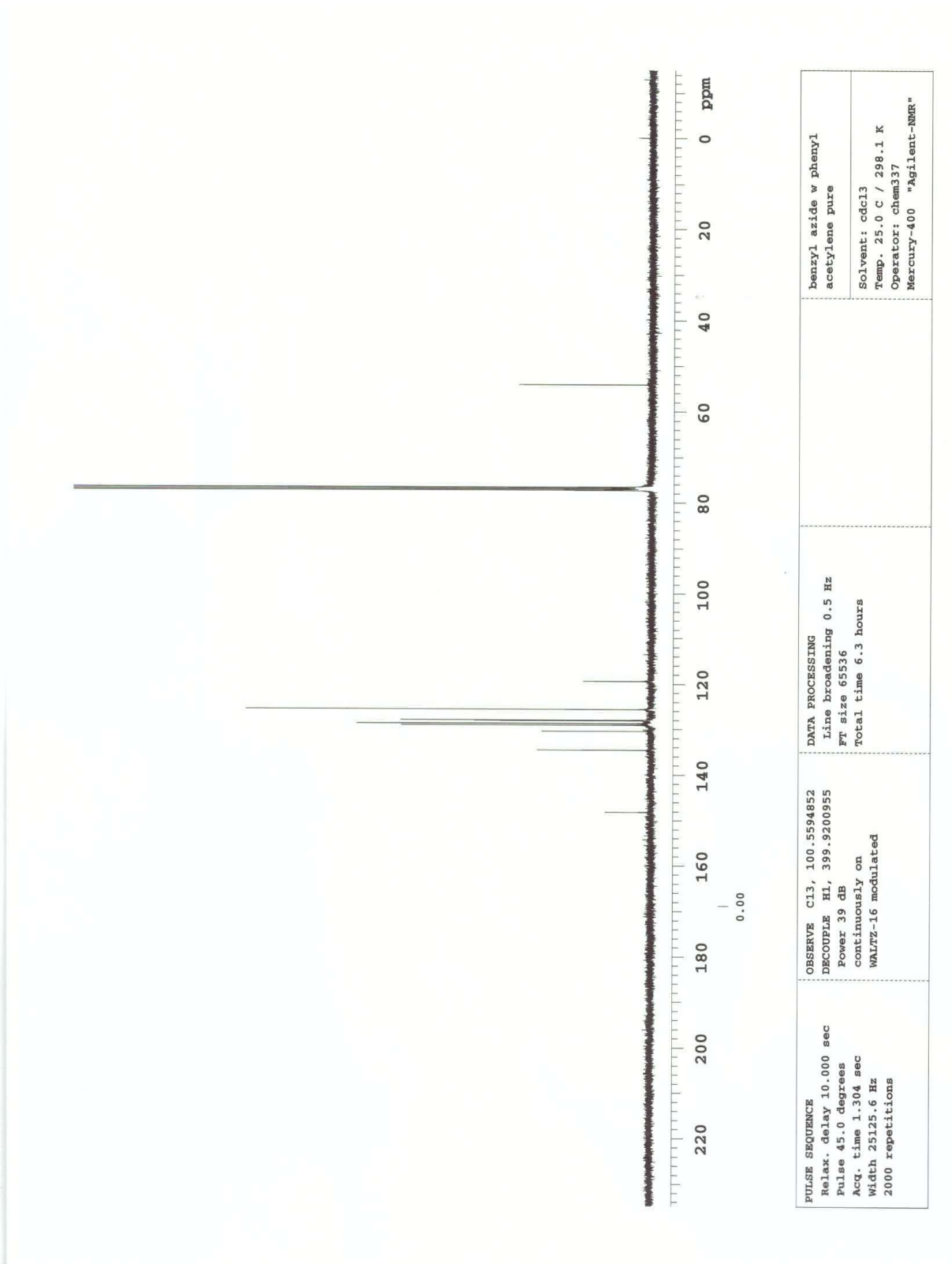
#### Spectra of Crude Compounds 1-3

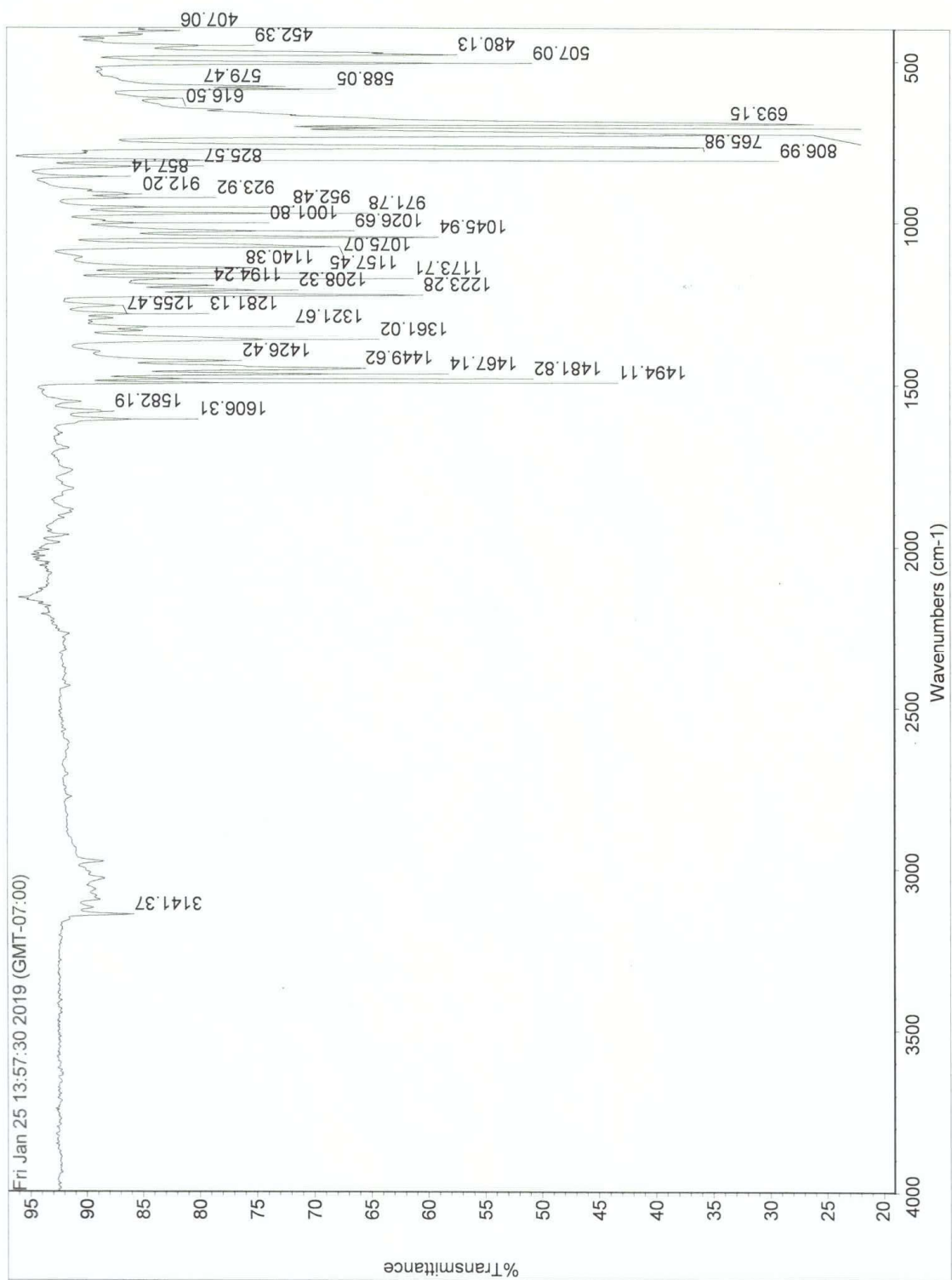
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$^1\text{H}$  NMR spectrum of **1**



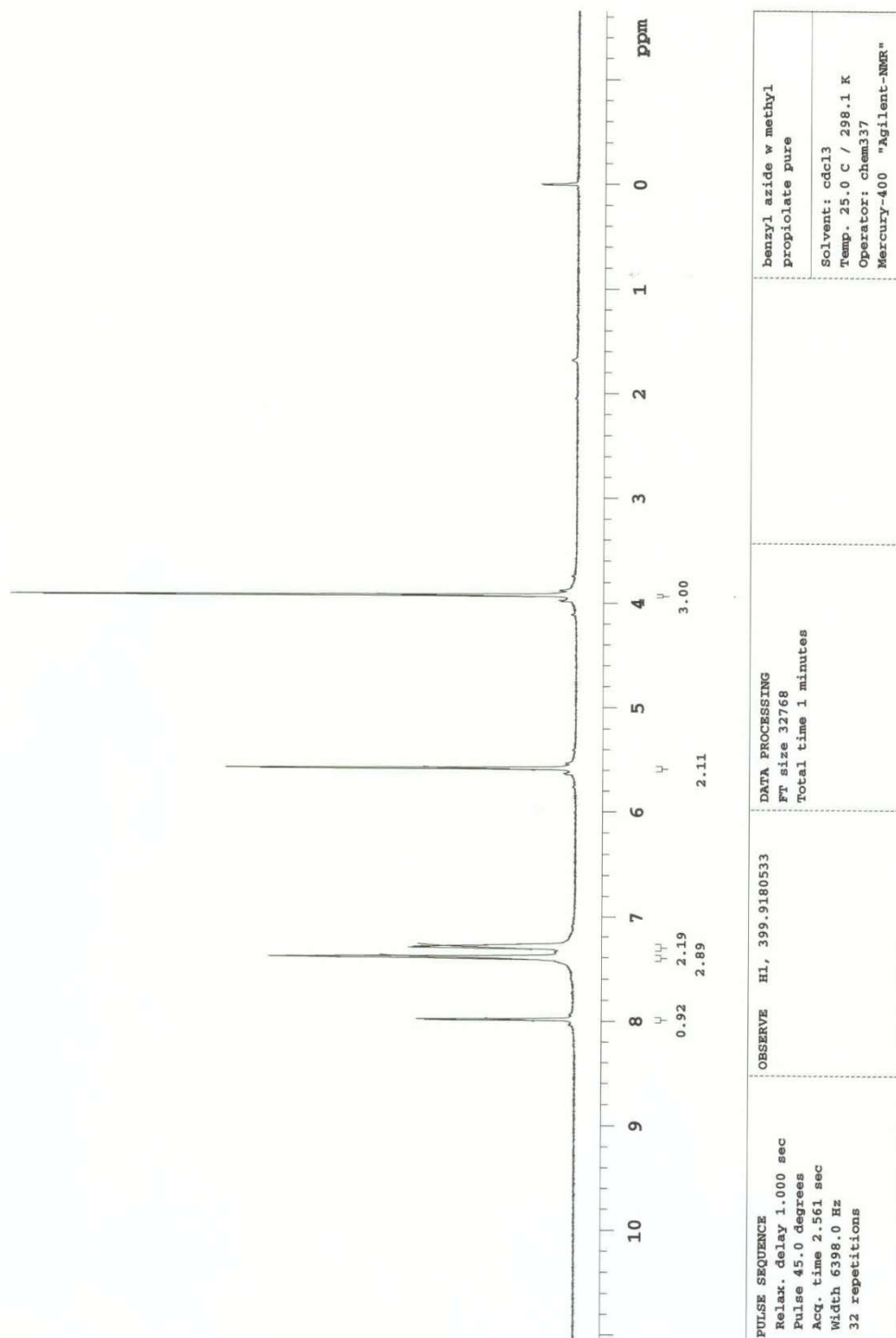
<sup>13</sup>C NMR spectrum of **1**

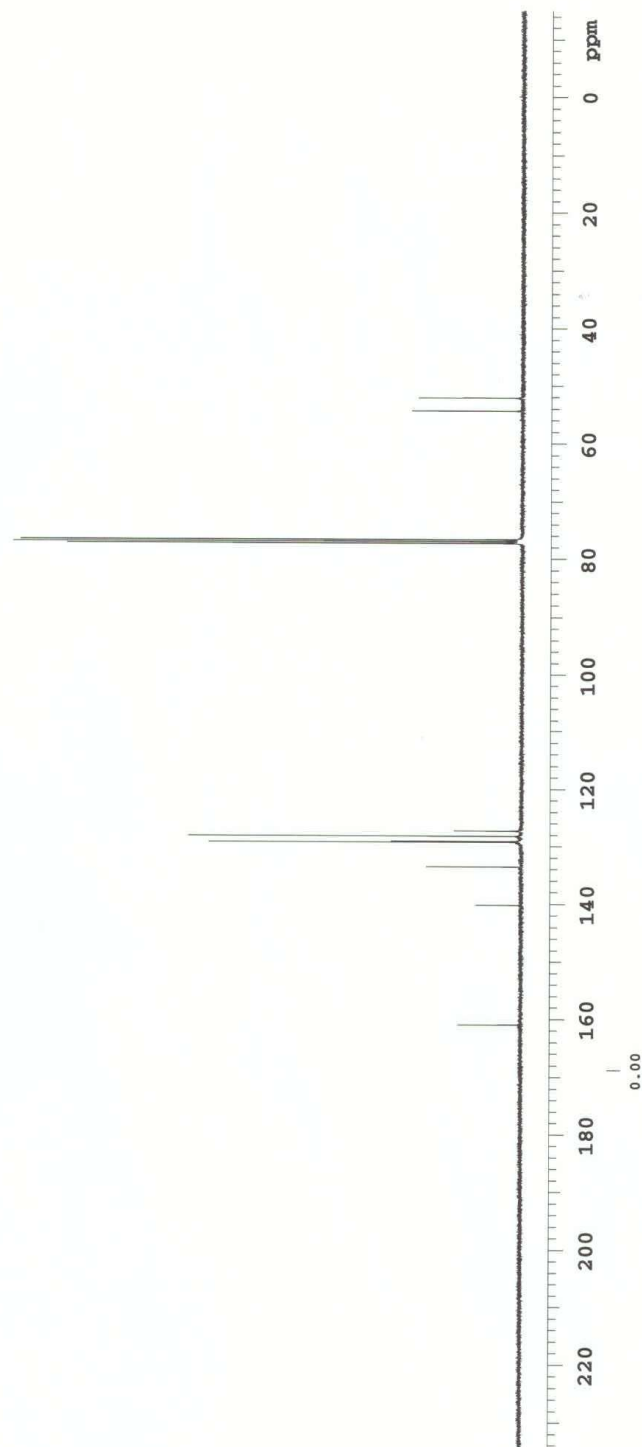




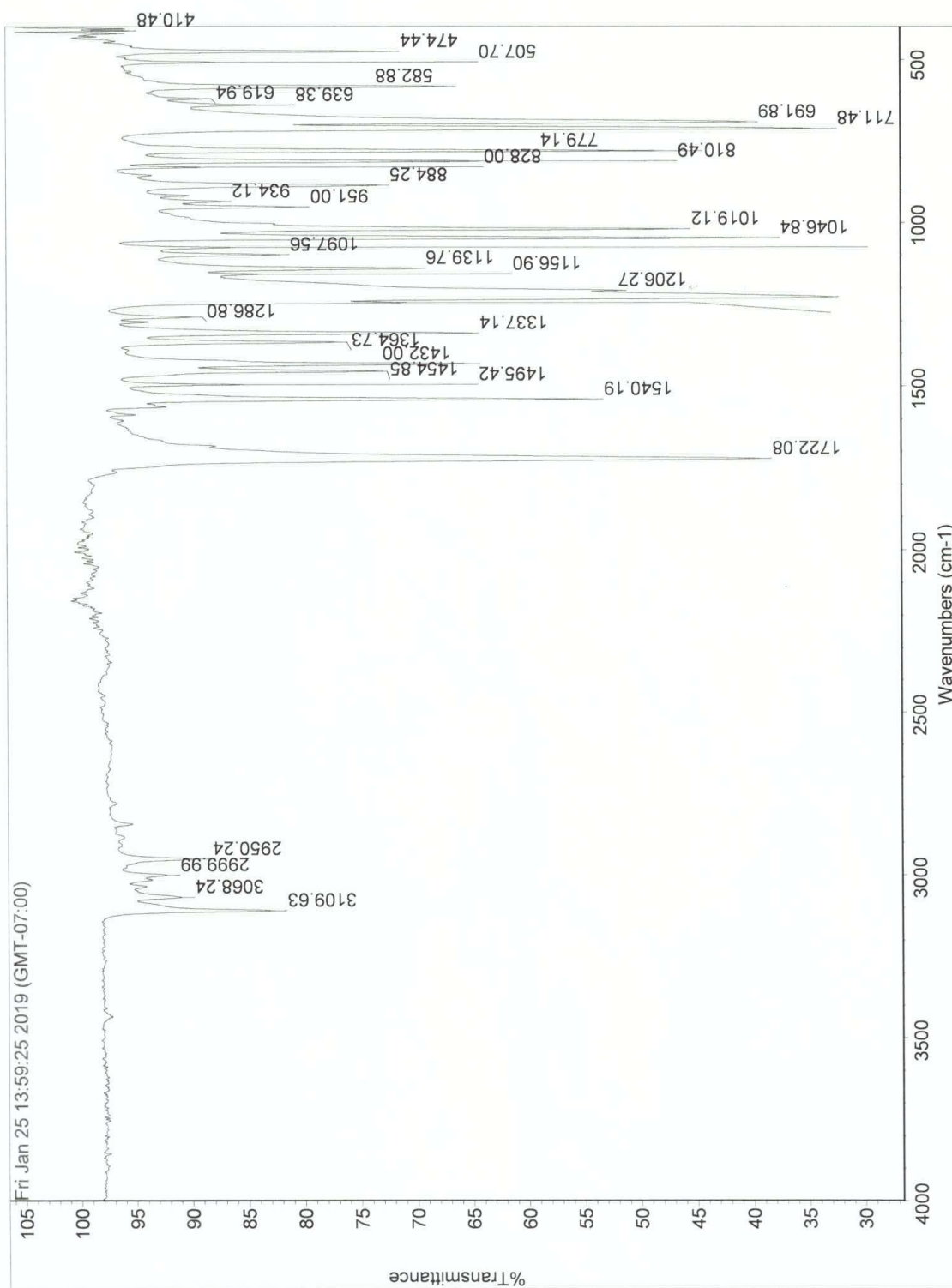
FTIR spectrum of **1**

<sup>1</sup>H NMR spectrum of **2**



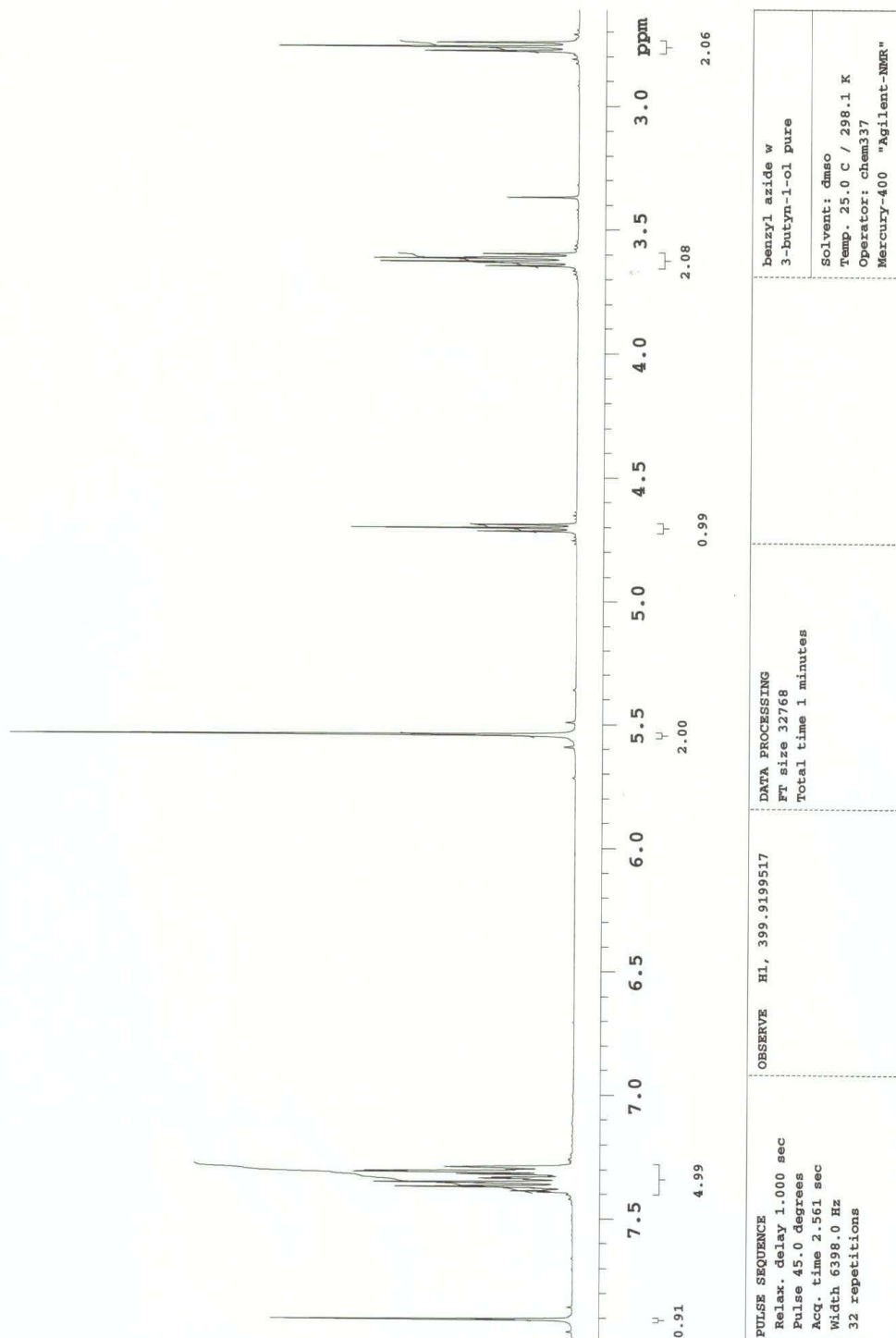


<b>PULSE SEQUENCE</b> Relax. delay 10.000 sec Pulse 45.0 degrees Acq. time 1.304 sec Width 25125.6 Hz 2000 repetitions	<b>OBSERVE</b> C13, 100.5594852 <b>DECOUPLE</b> H1, 399.9200955 Power 39 dB continuously on WALTZ-16 modulated	<b>DATA PROCESSING</b> Line broadening 0.5 Hz FT size 65536 Total time 6.3 hours	benzyl azide w methyl propiolate pure  Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"
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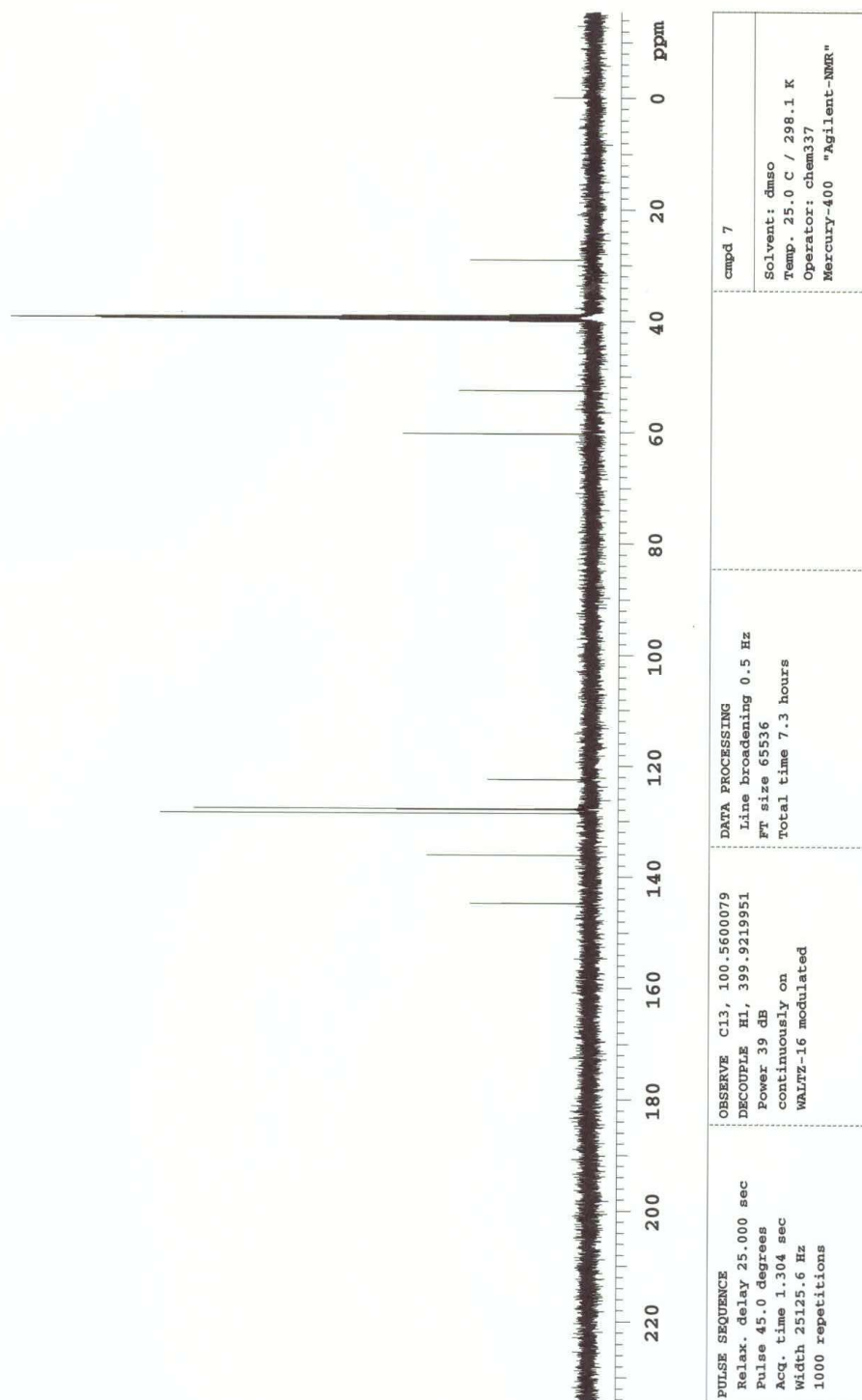
FTIR spectrum of **2**

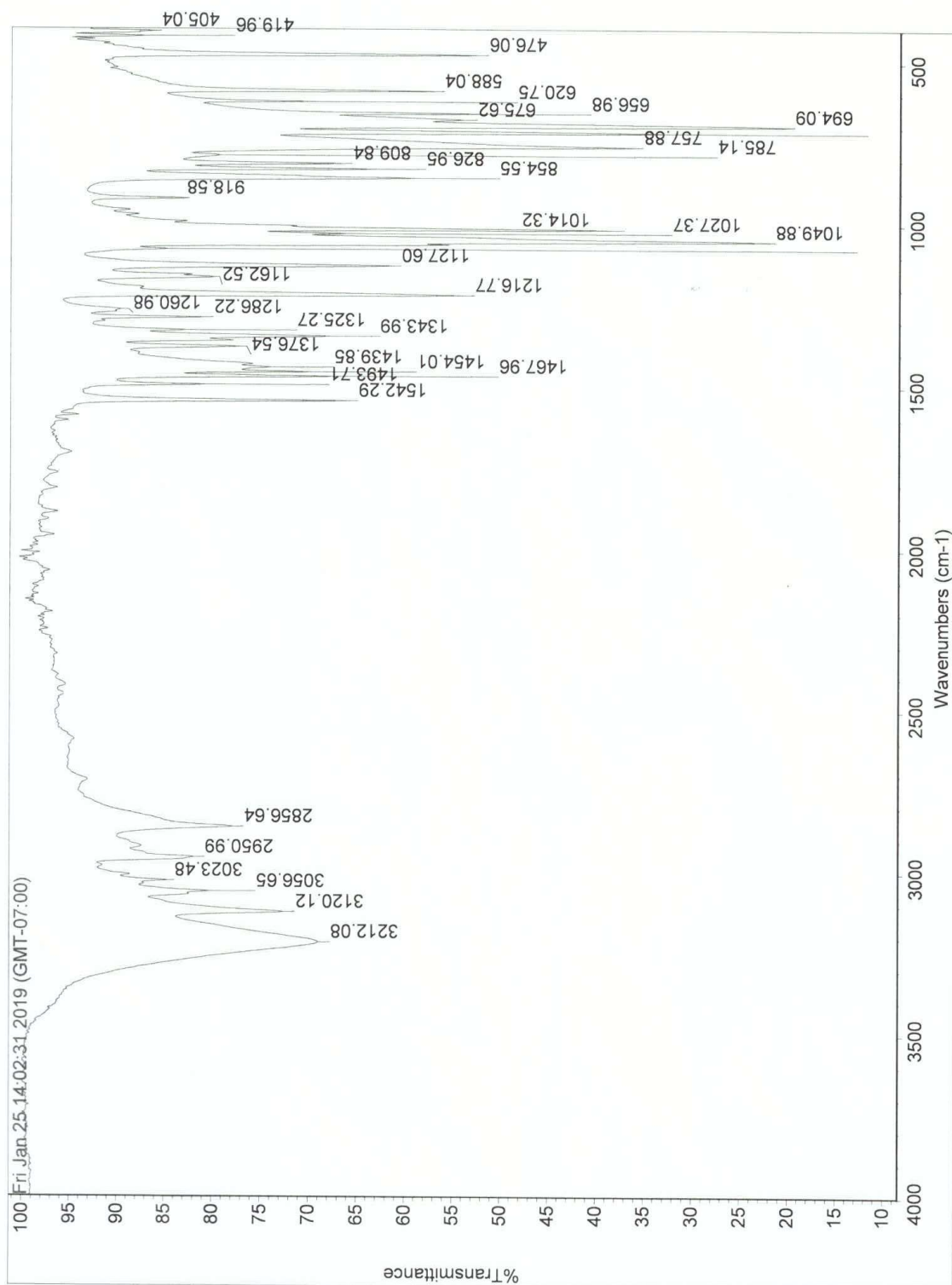
$^1\text{H}$  NMR spectrum of **3**

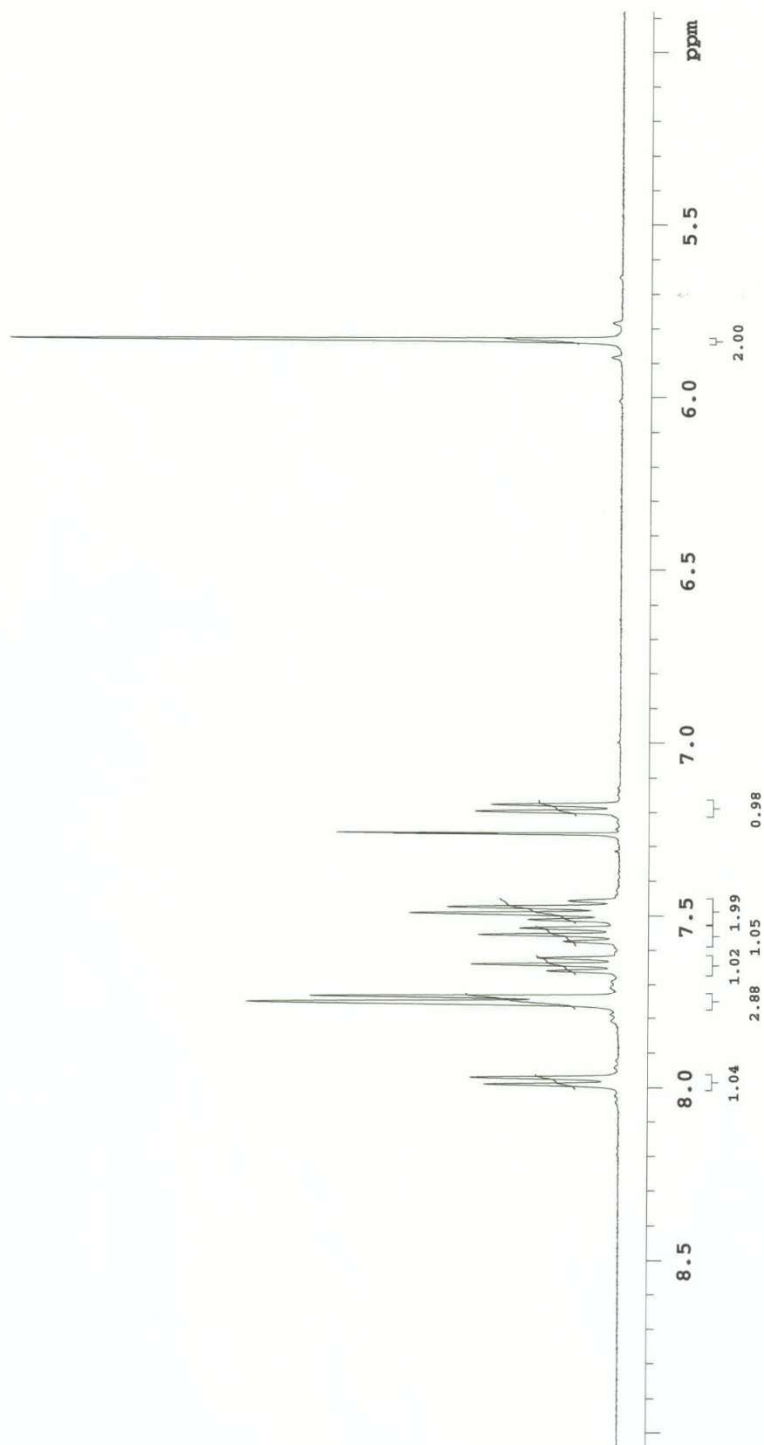




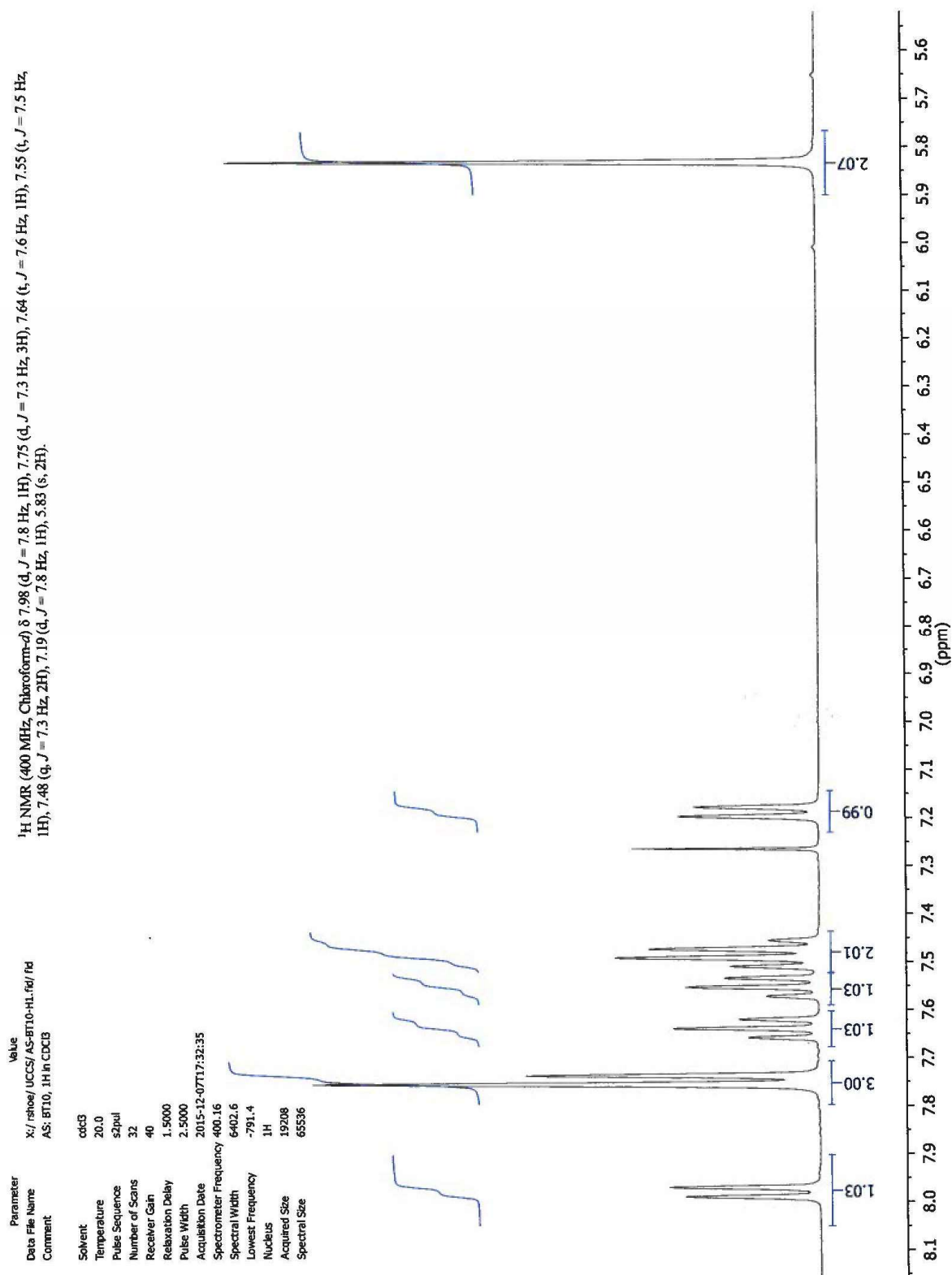
<sup>13</sup>C NMR spectrum of **3**



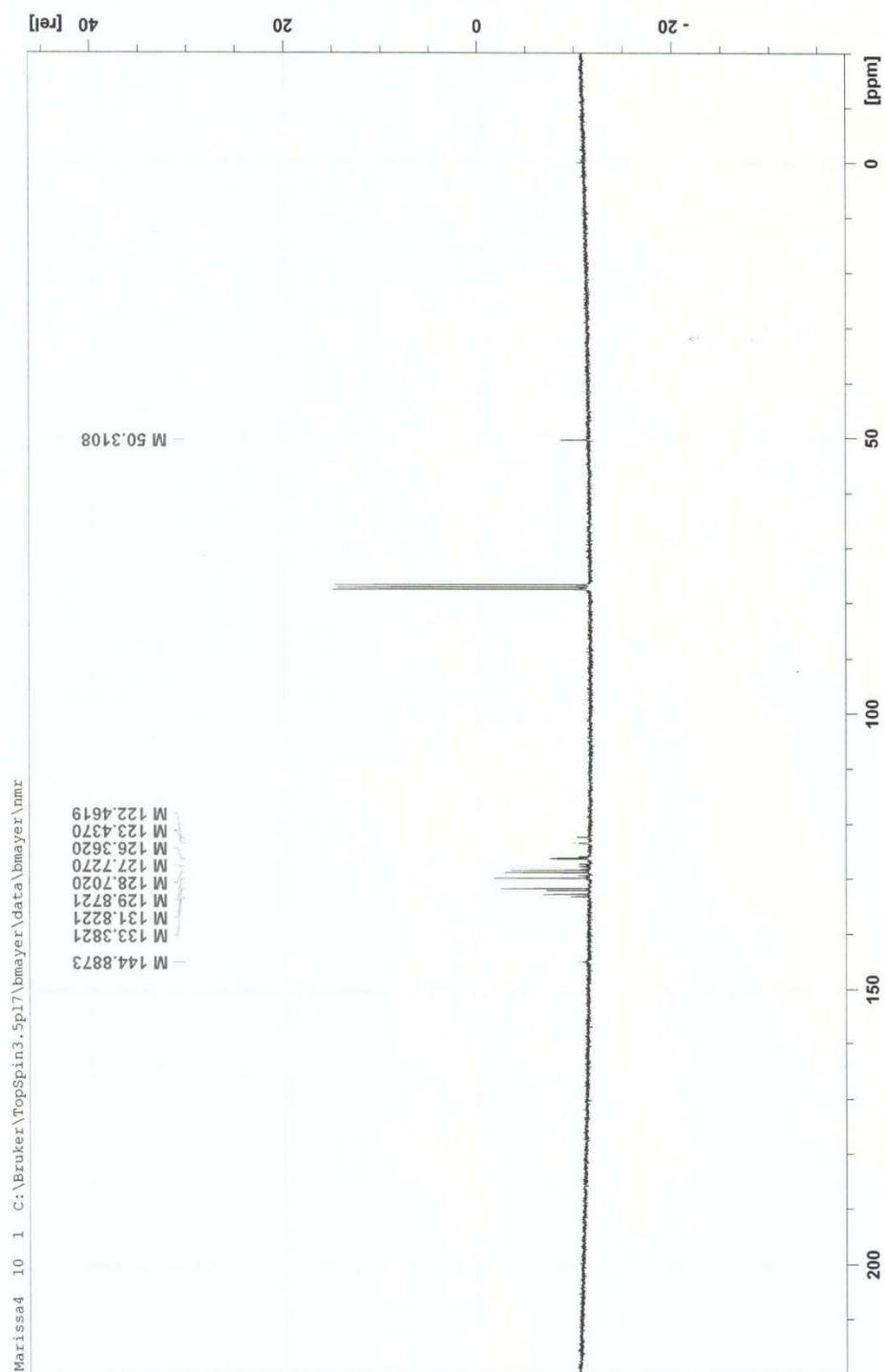


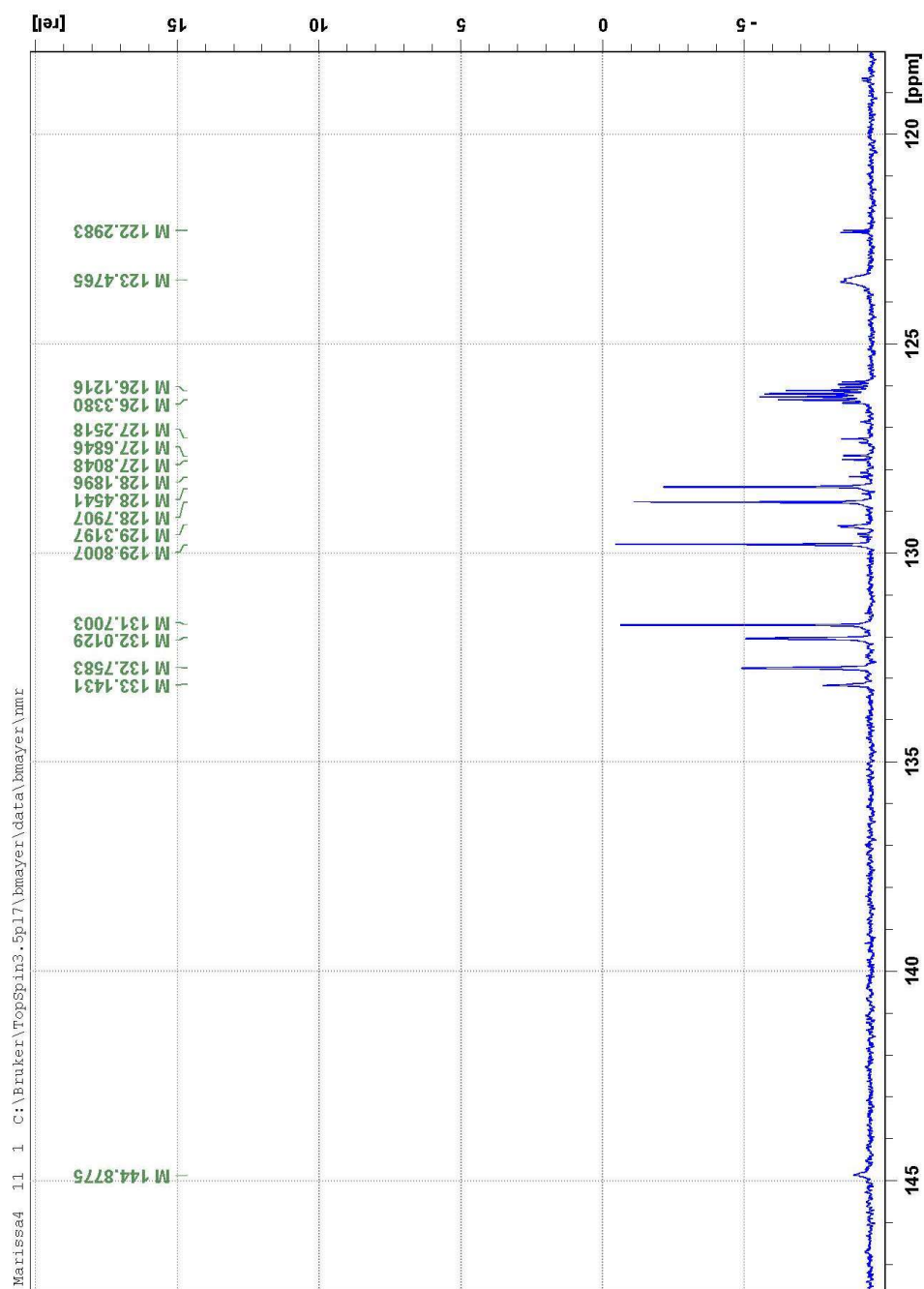


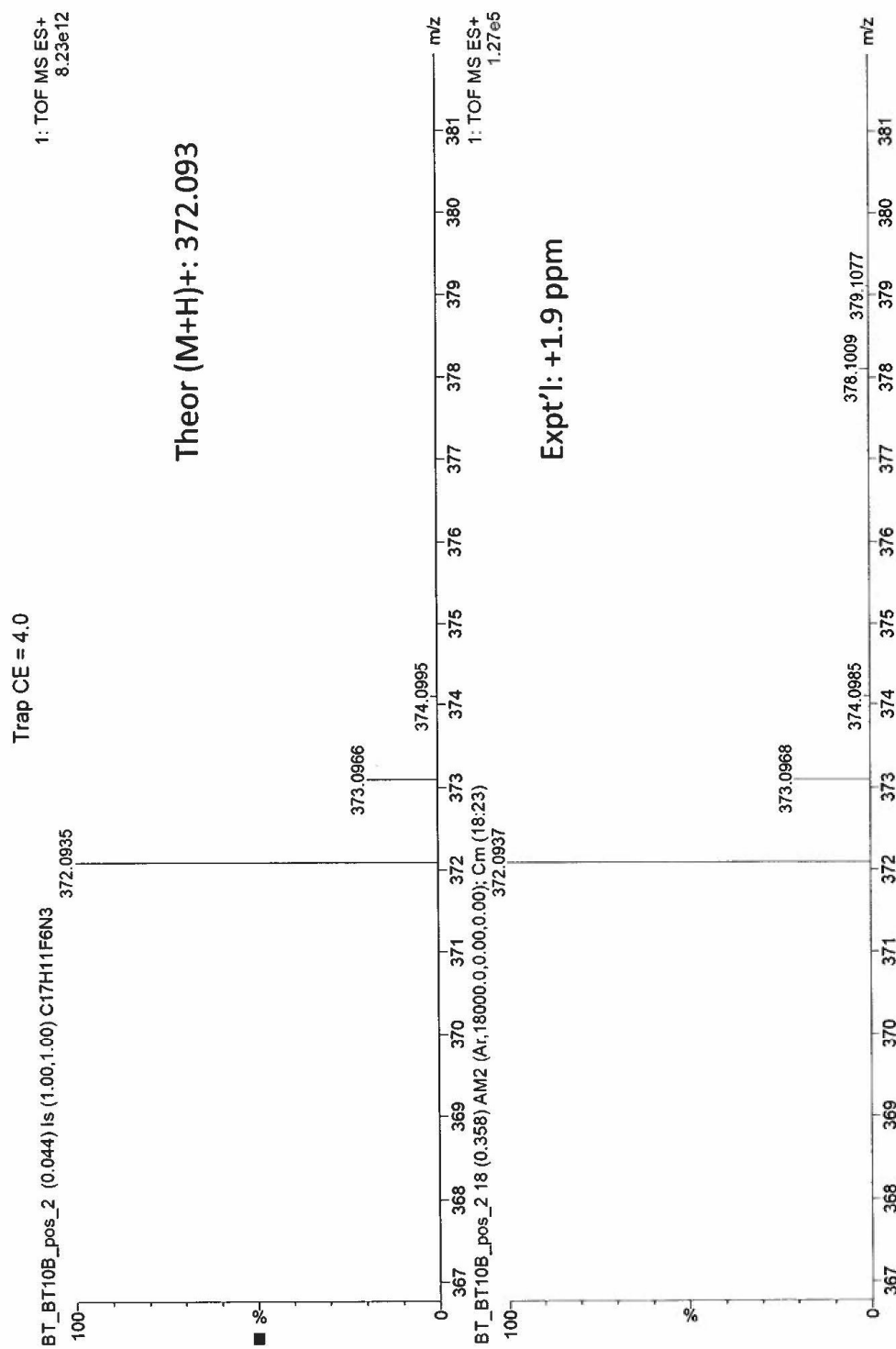
<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 32 repetitions	<b>OBSERVE</b> H1, 399.9180587	<b>DATA PROCESSING</b> F1 size 32768 Total time 1 minutes	<b>compd 4</b> Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"
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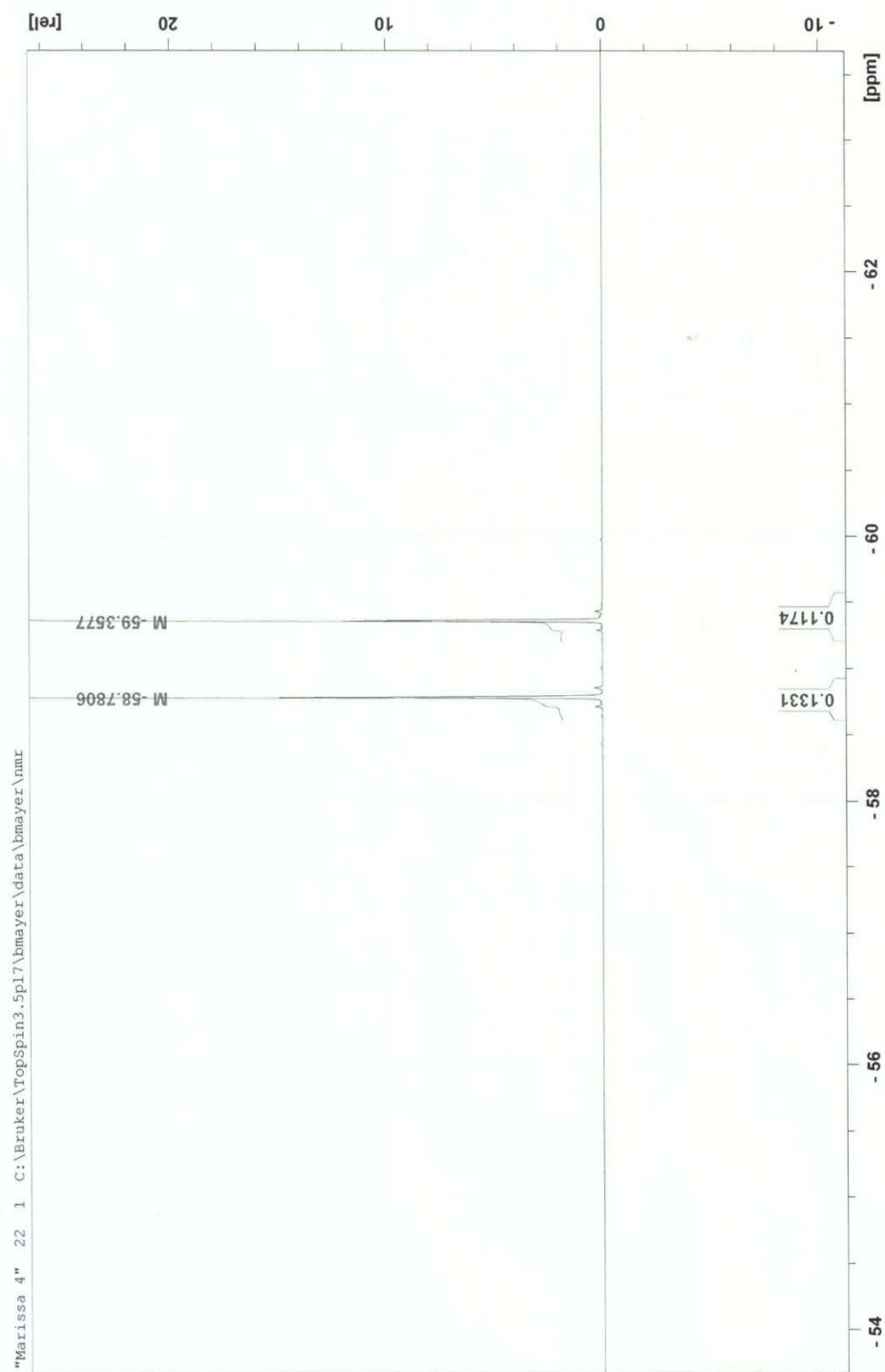


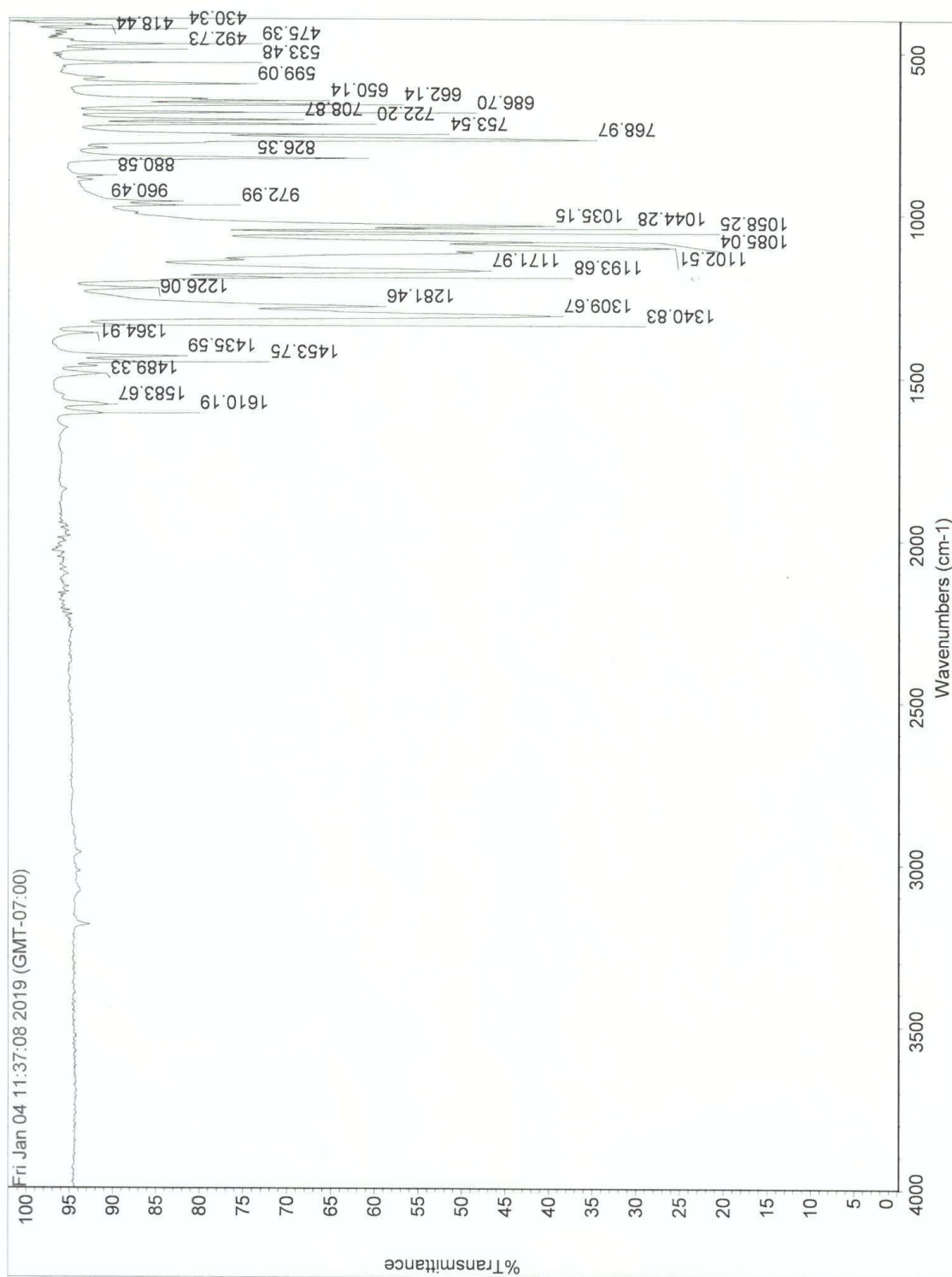






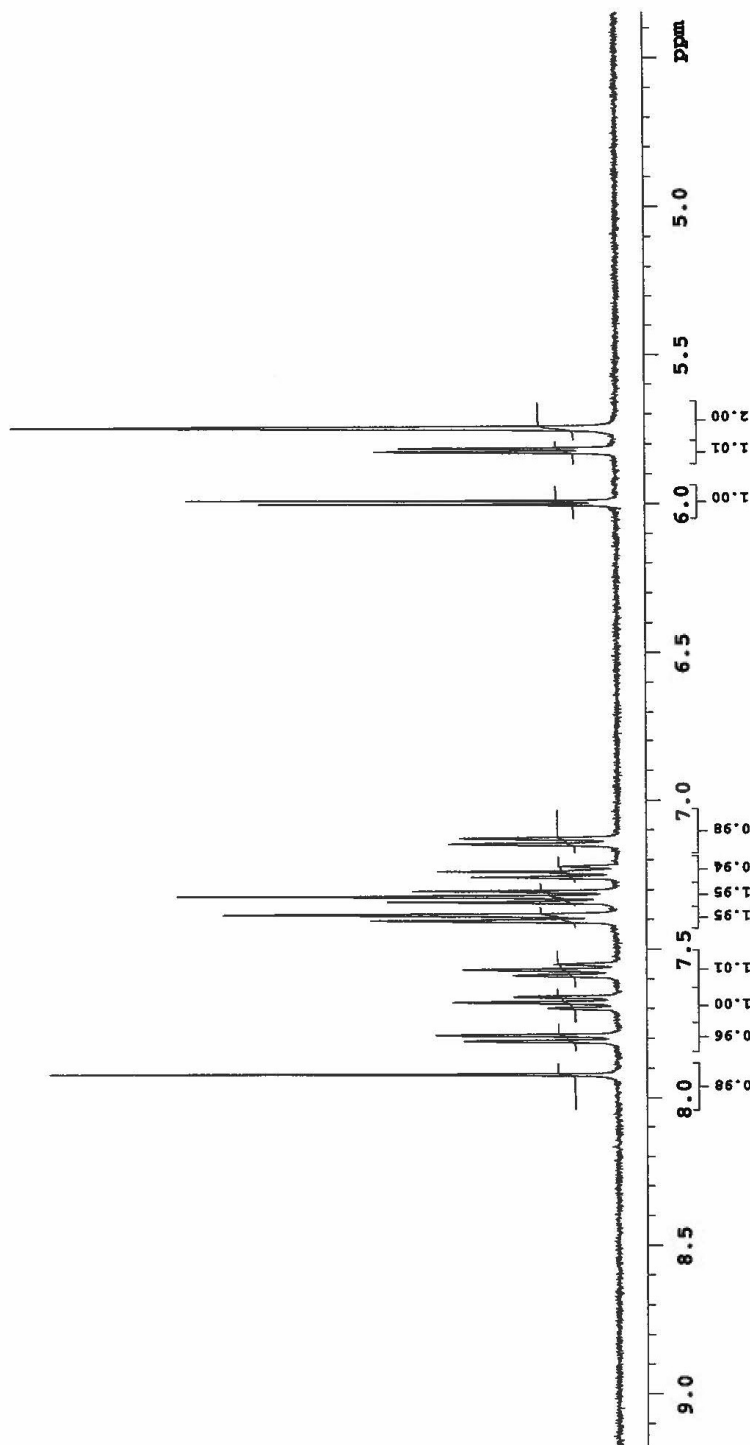




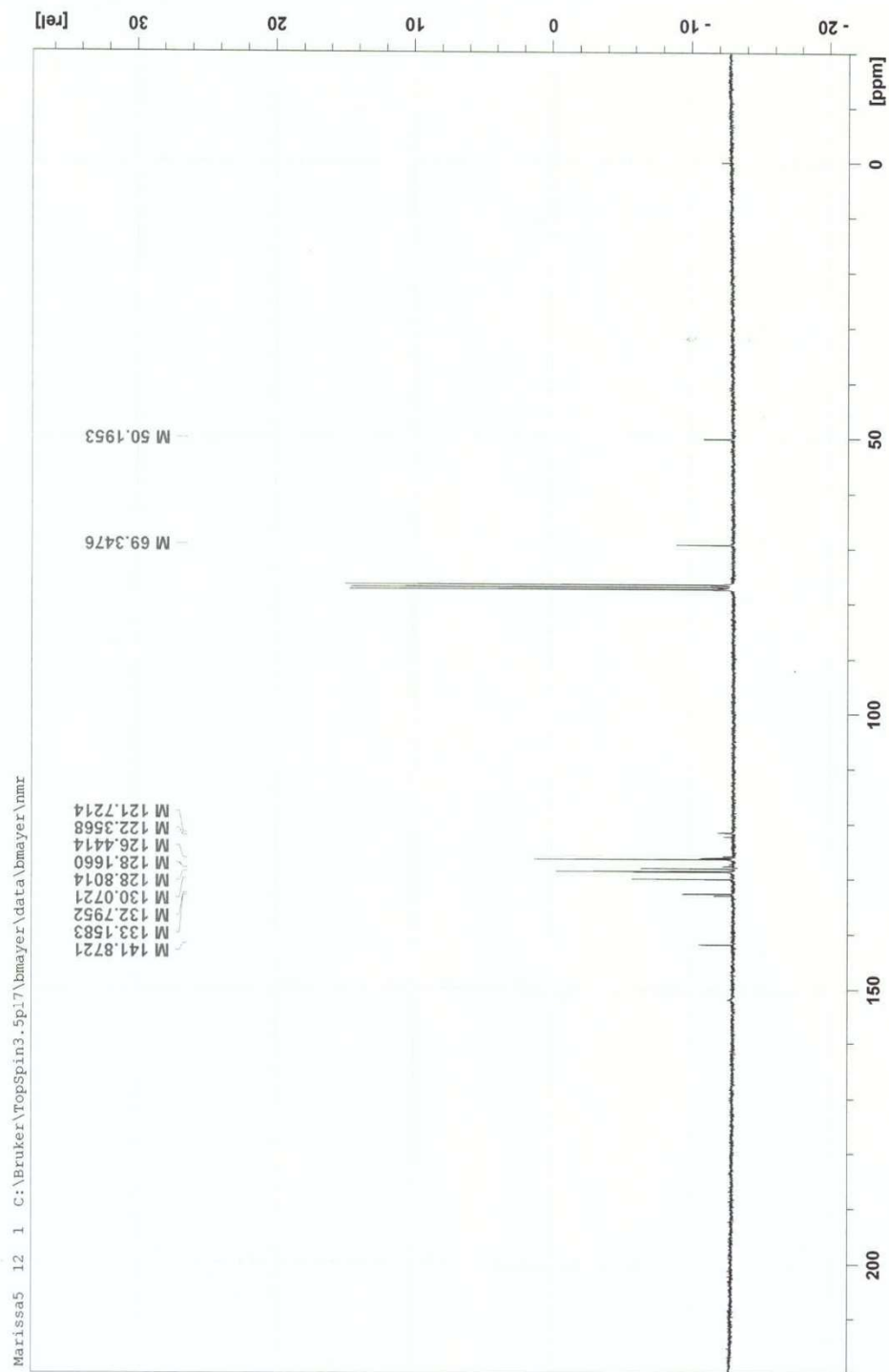


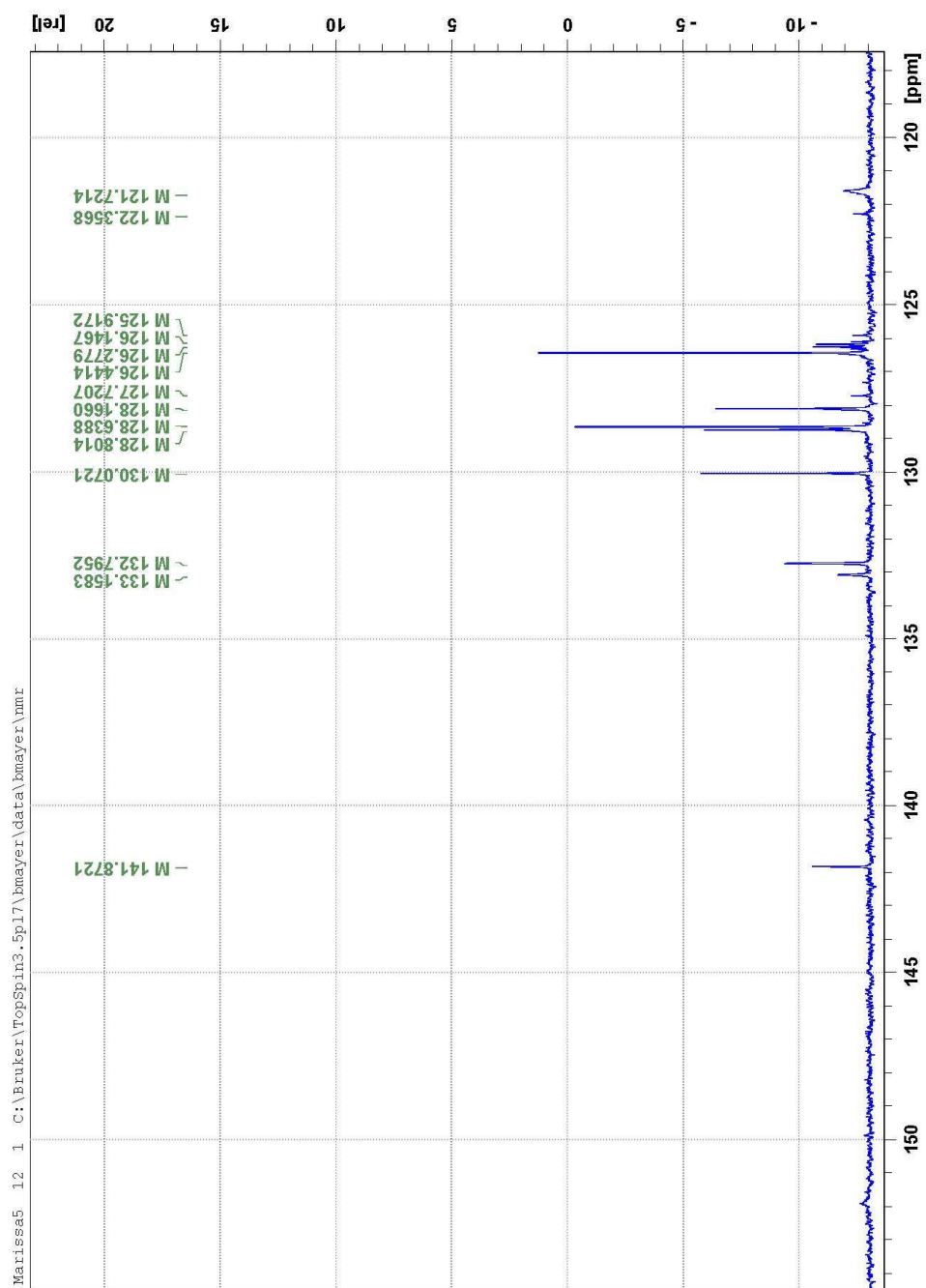
FTIR spectrum of 4

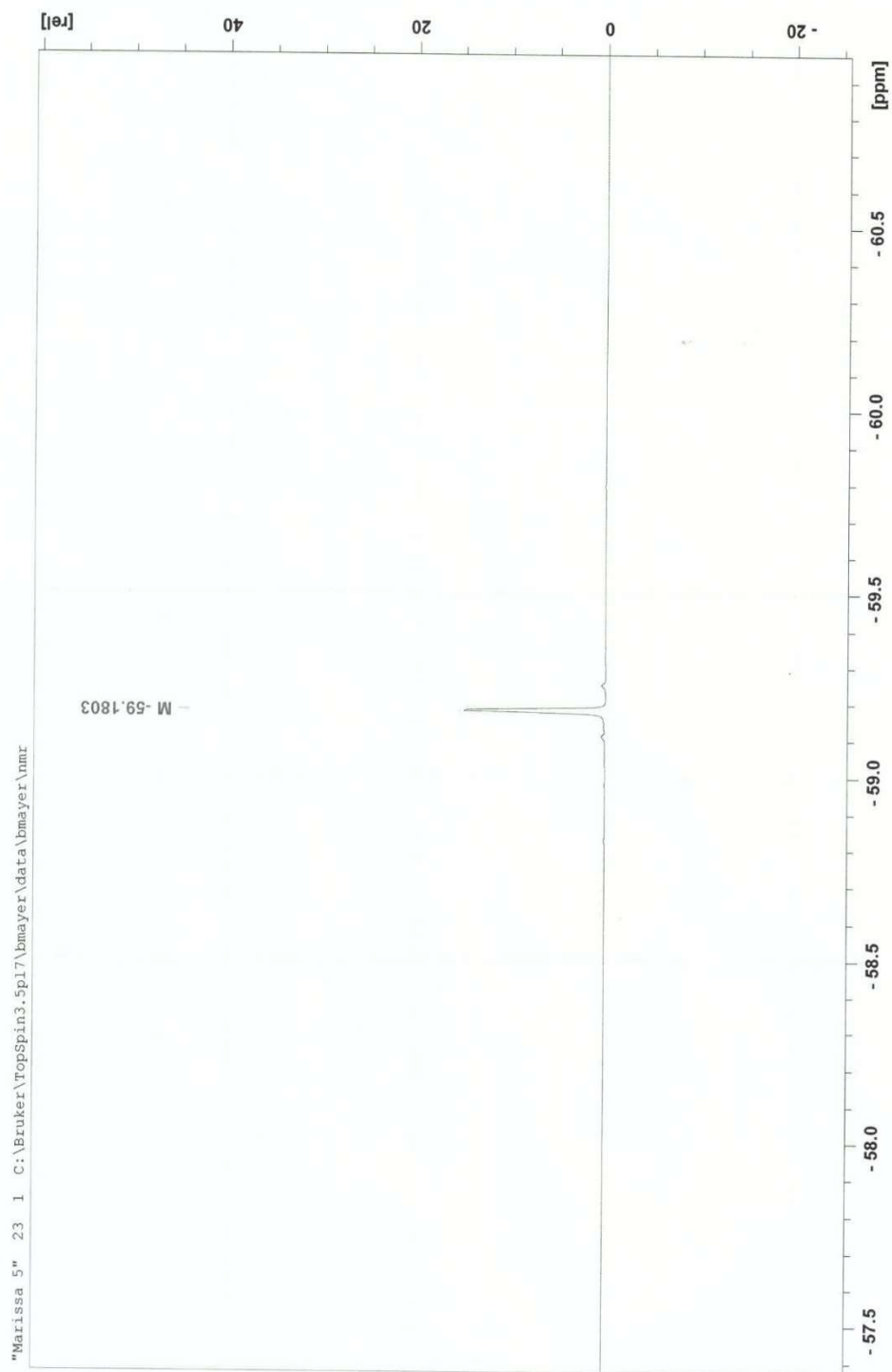


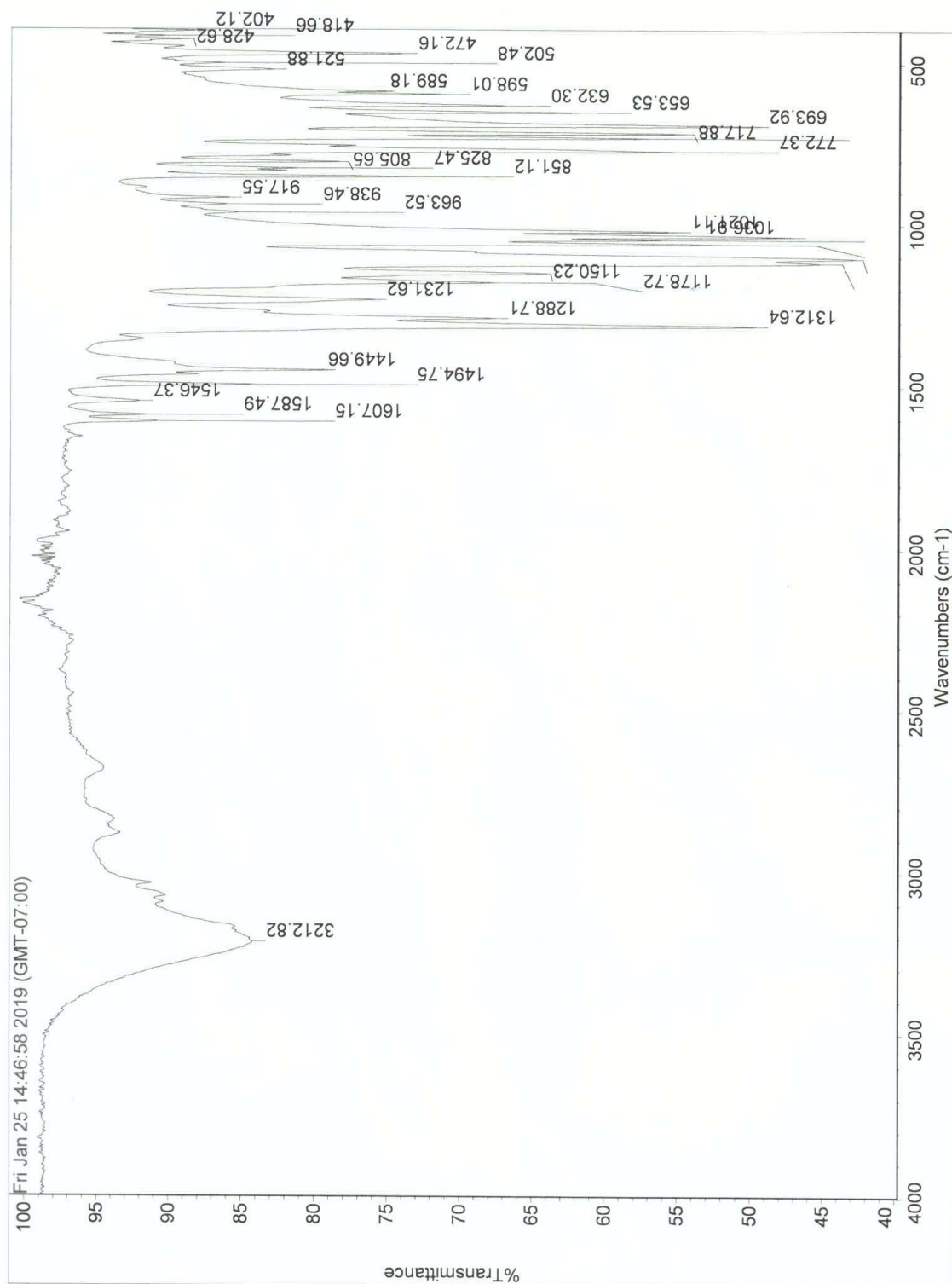


<p>PULSE SEQUENCE</p> <p>Relax. delay 1.000 sec</p> <p>Pulse 45.0 degrees</p> <p>Acq. time 2.561 sec</p> <p>Width 6398.0 Hz</p> <p>16 repetitions</p>	<p>OBSERVE H1, 399.9199537</p>	<p>DATA PROCESSING</p> <p>Fr size 32768</p> <p>Total time 1 minute</p>	<p>CS-20-7, 1H in CDCl3</p> <p>Solvent: dmsc</p> <p>Ambient temperature</p> <p>Operator: Henry</p> <p>Mercury-400 "Agilent-NMR"</p>
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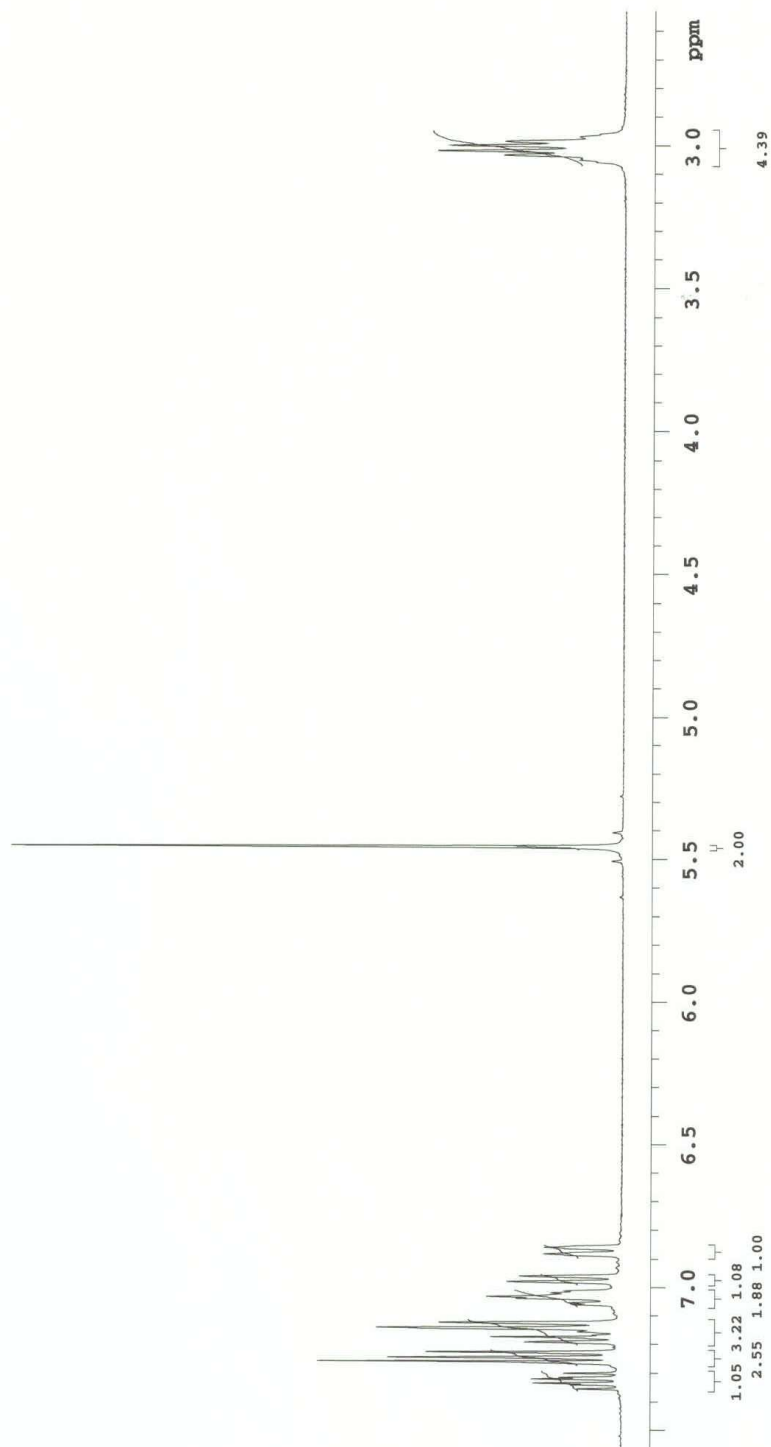




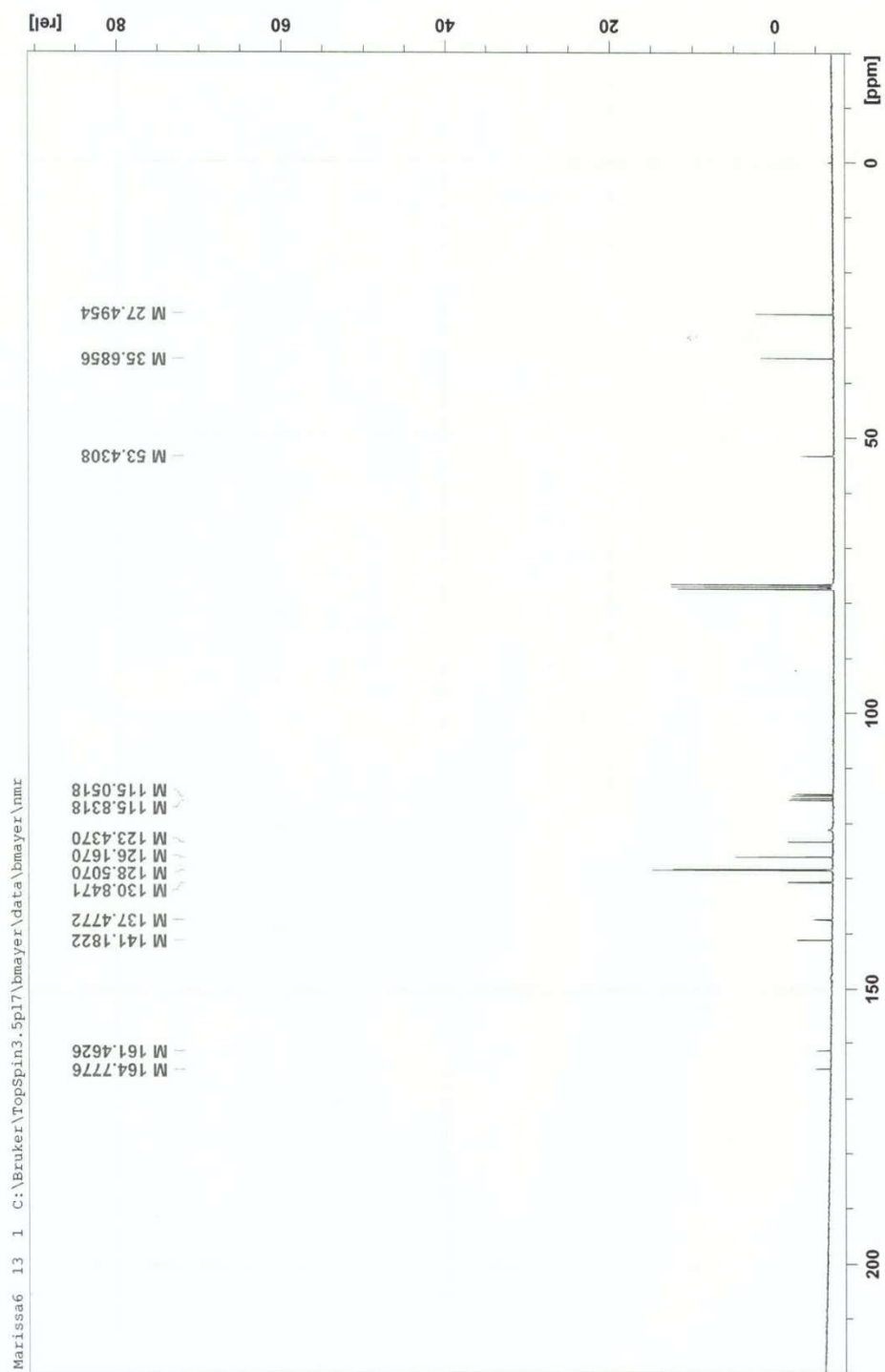


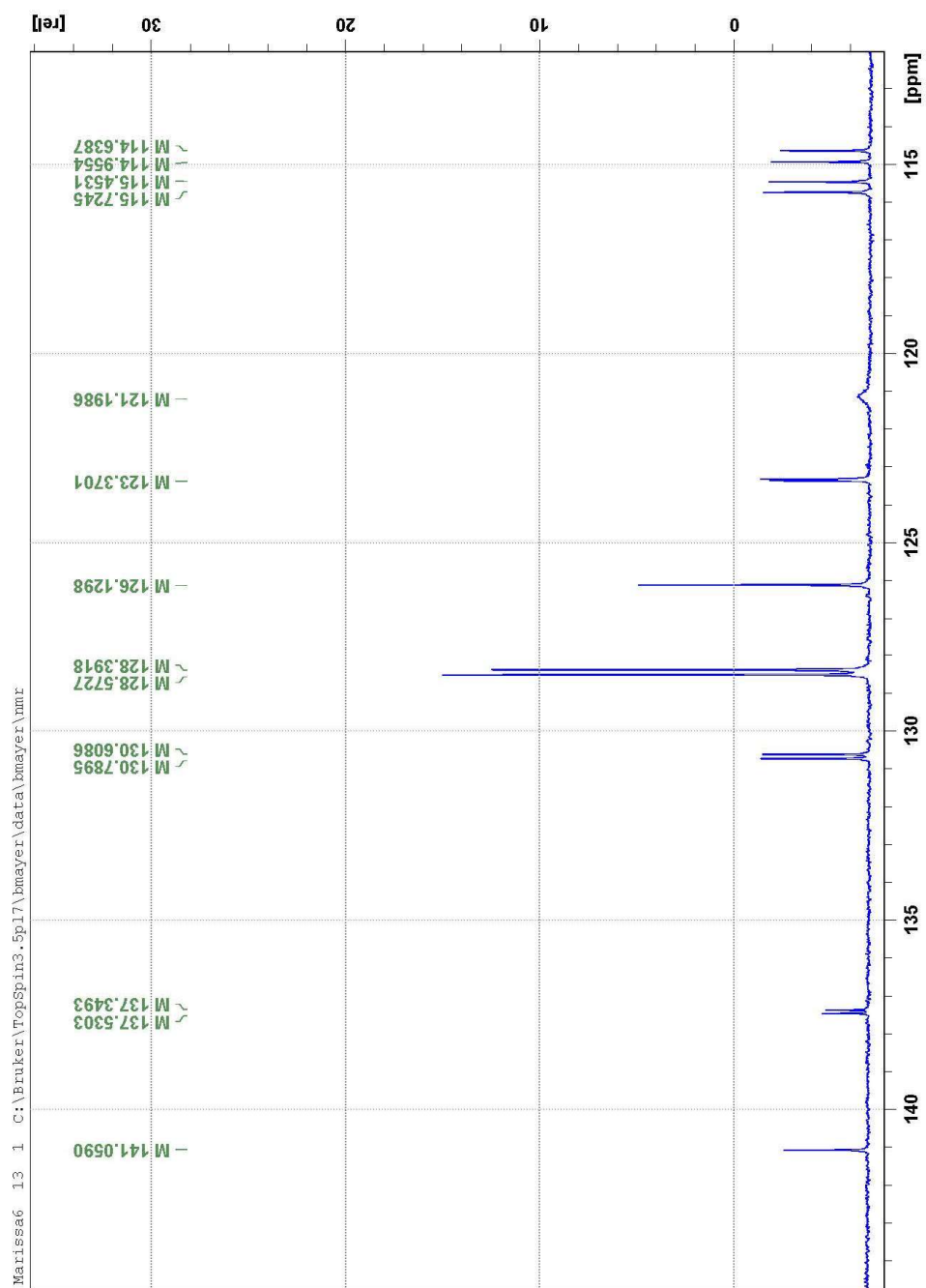


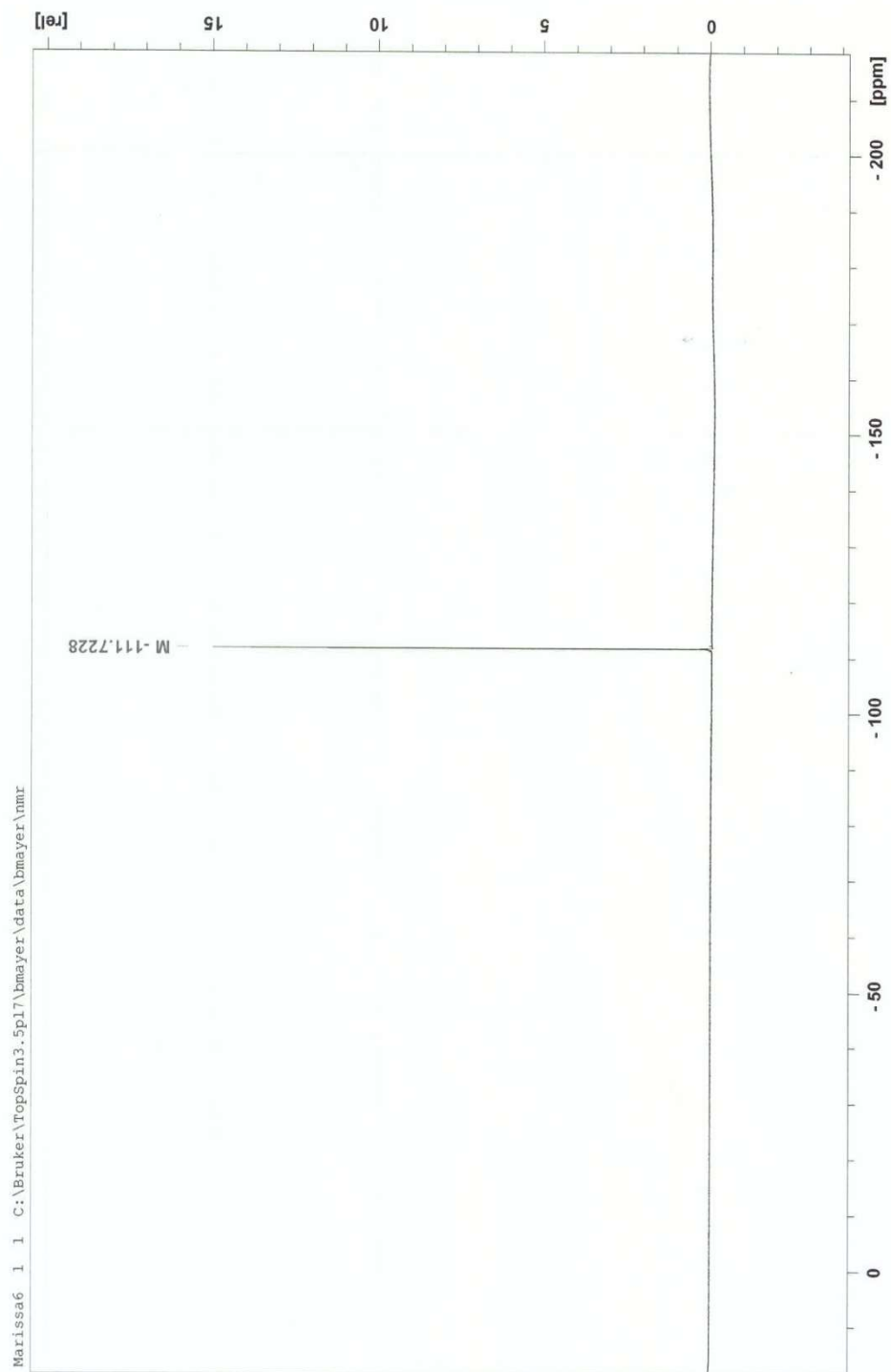


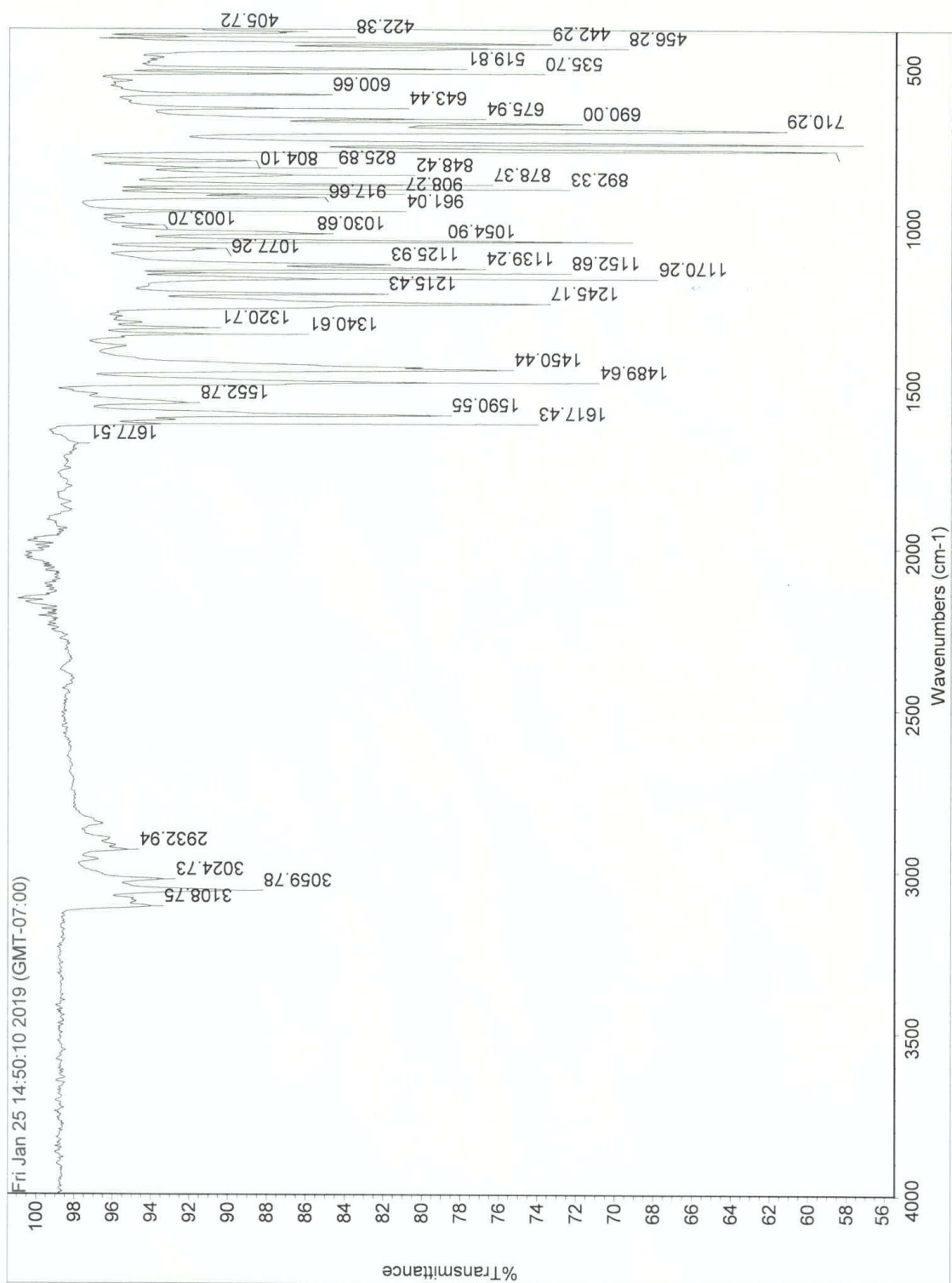


<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 32 repetitions	<b>OBSERVE</b> H1, 399.9180599	<b>DATA PROCESSING</b> Ft size 32768 Total time 1 minutes	<b>compd 6</b>  Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"
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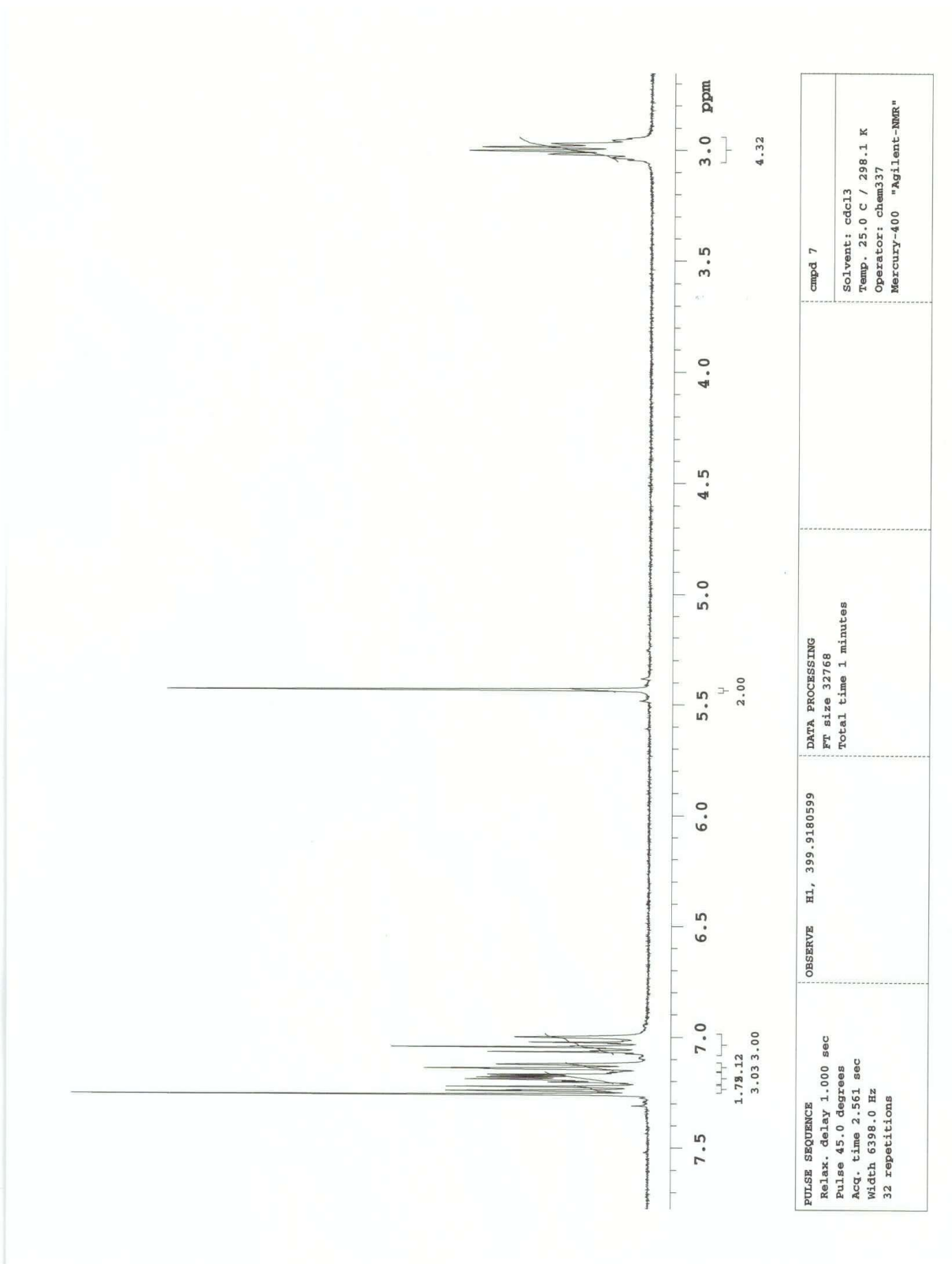


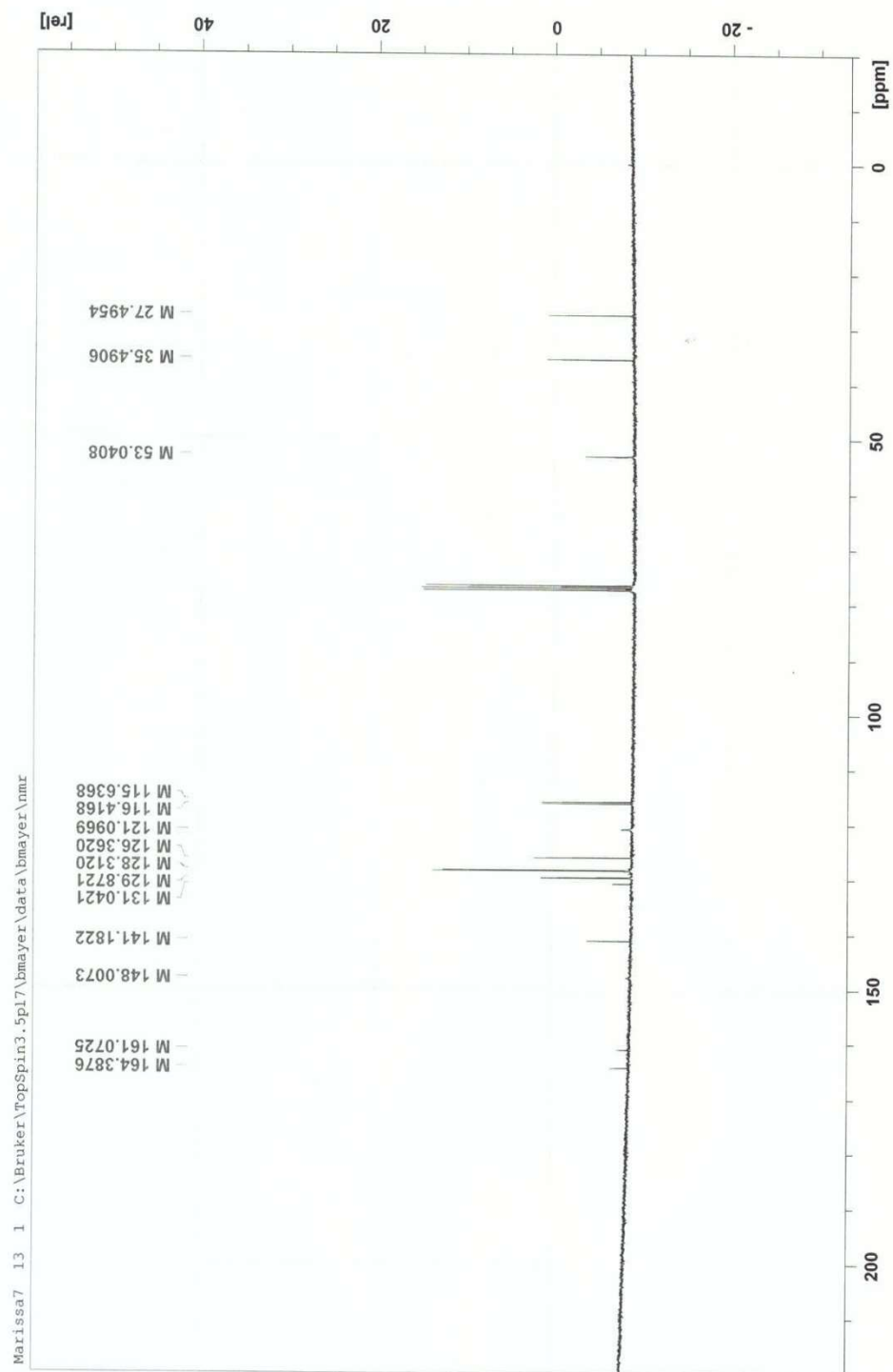


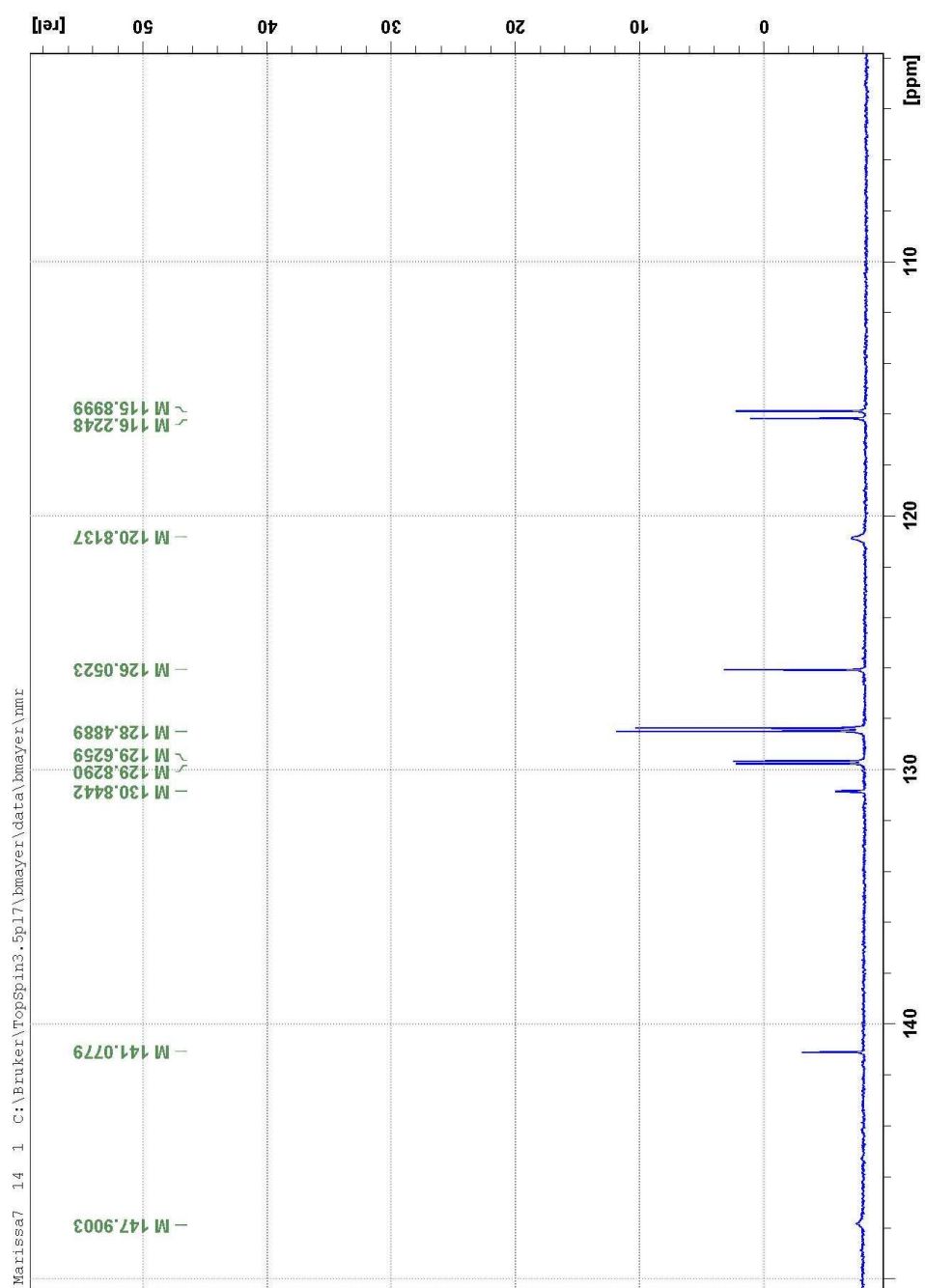


FTIR spectrum of 6

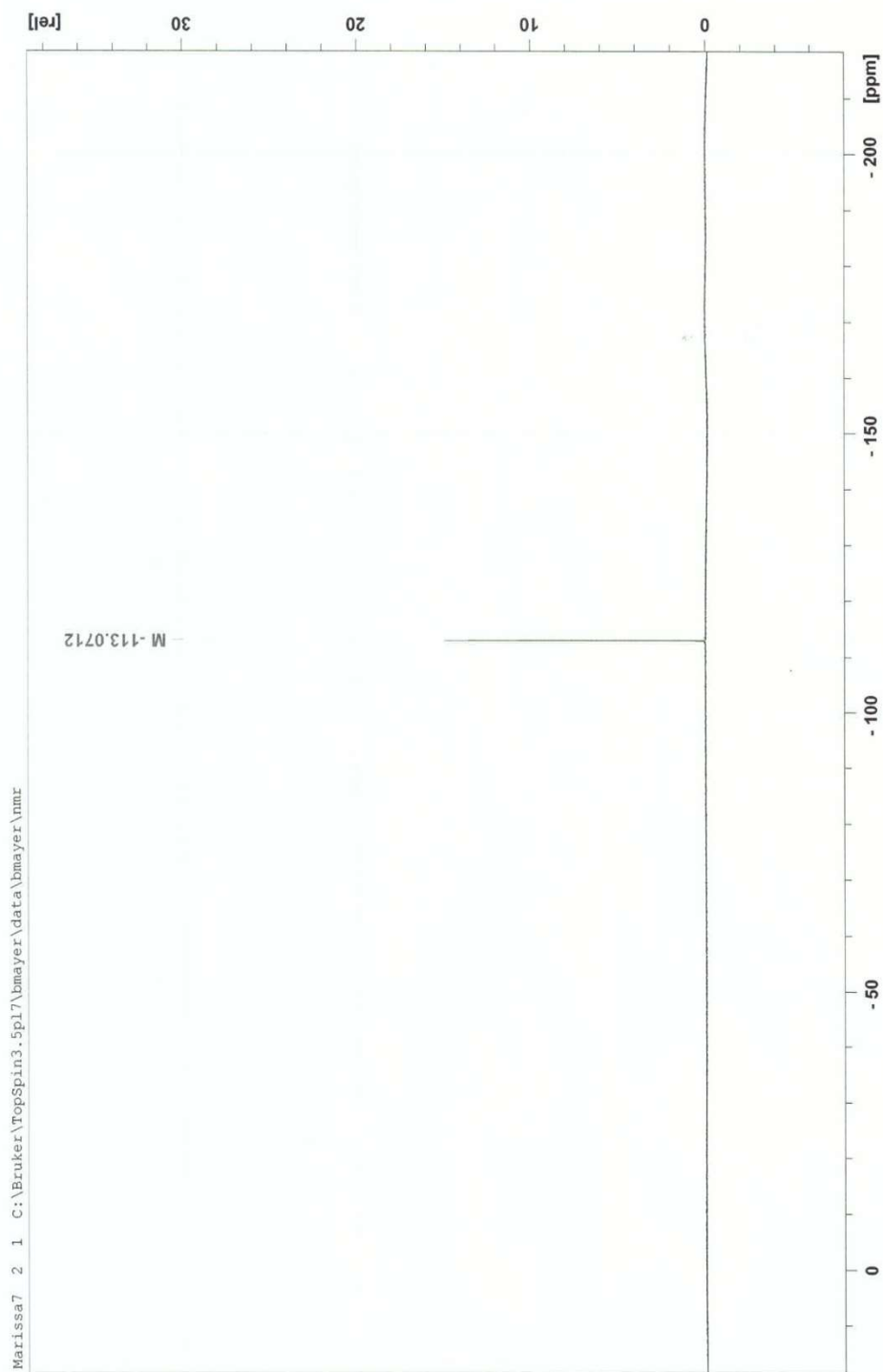
$^1\text{H}$  NMR spectrum of 7

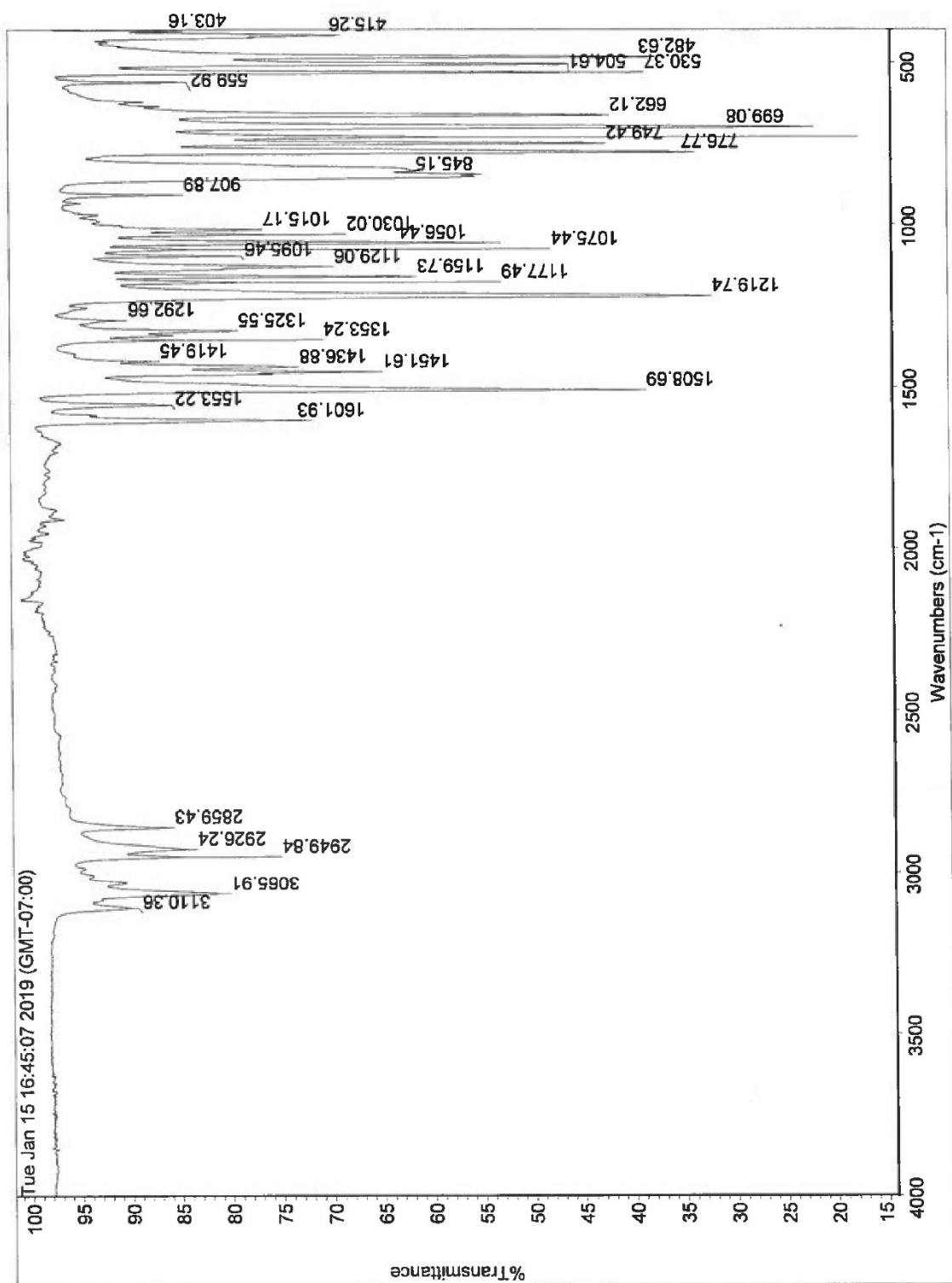




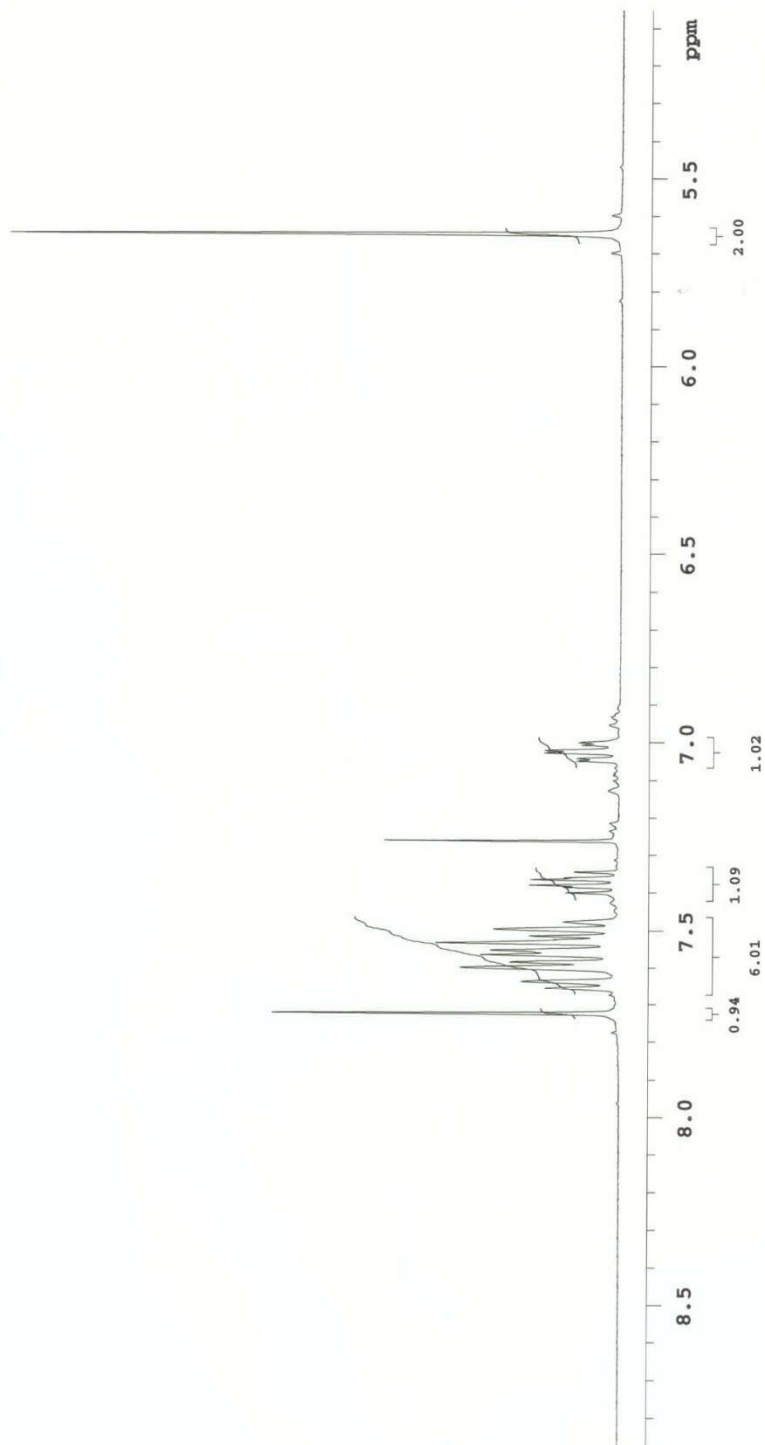




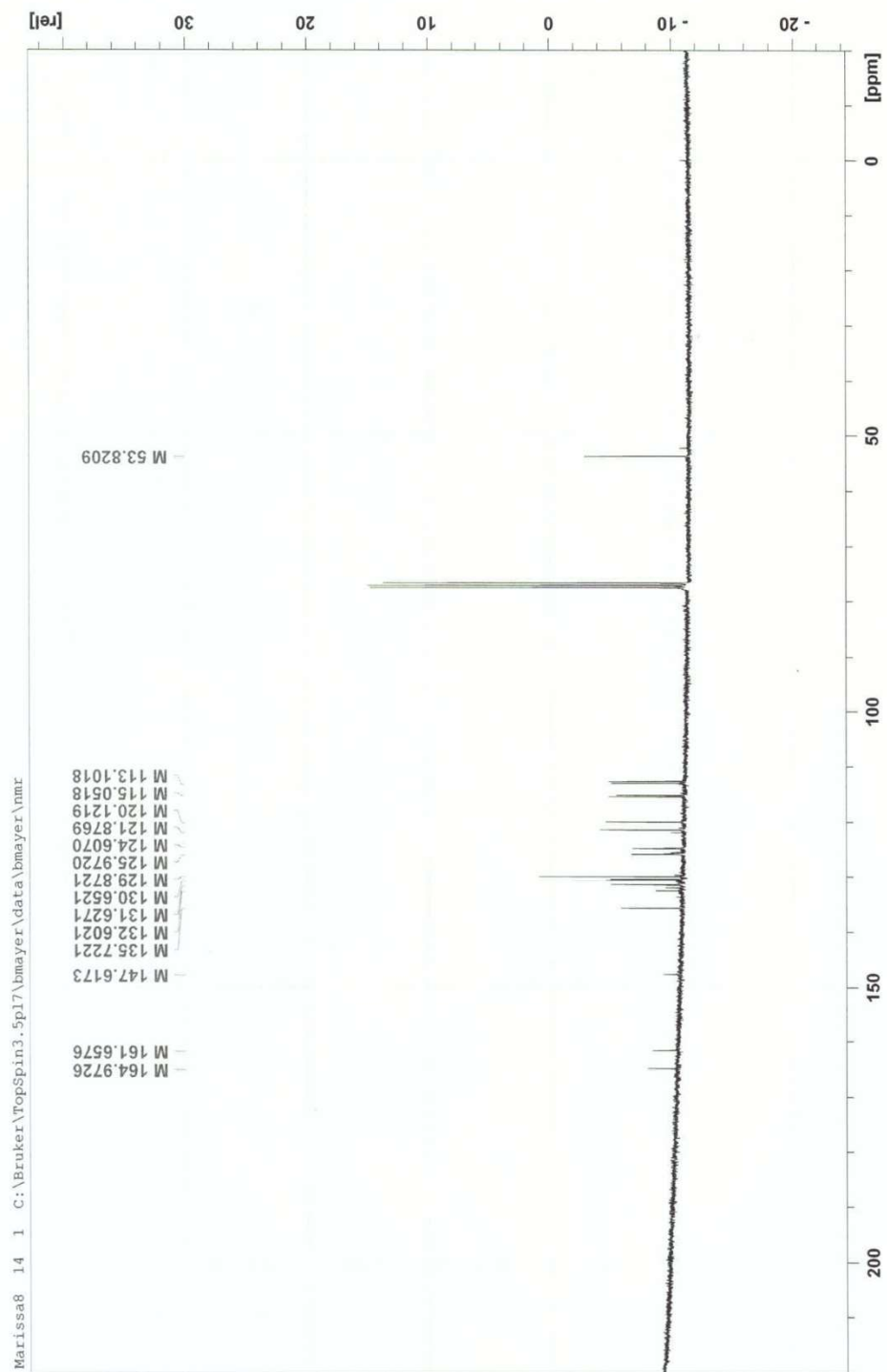


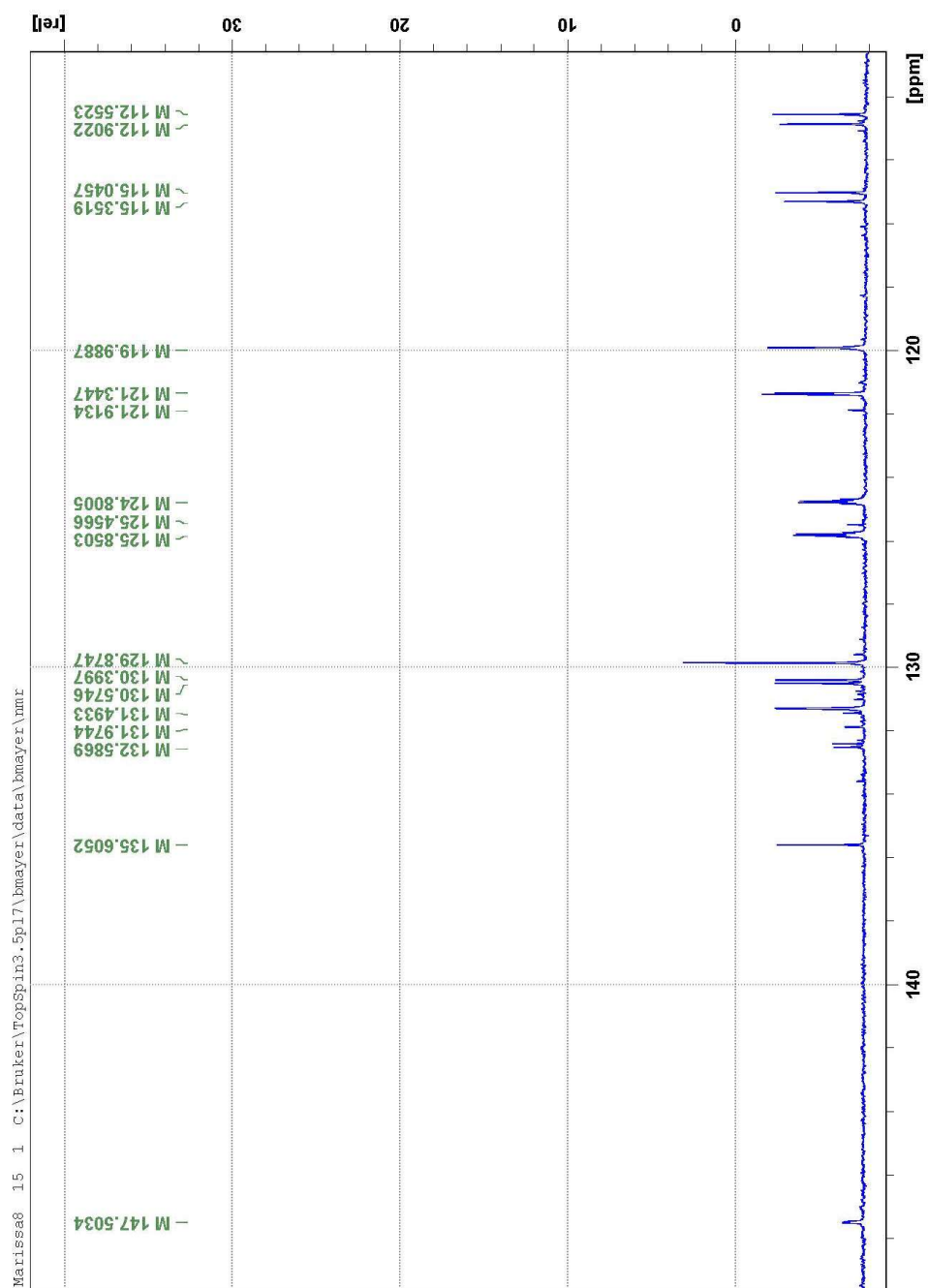


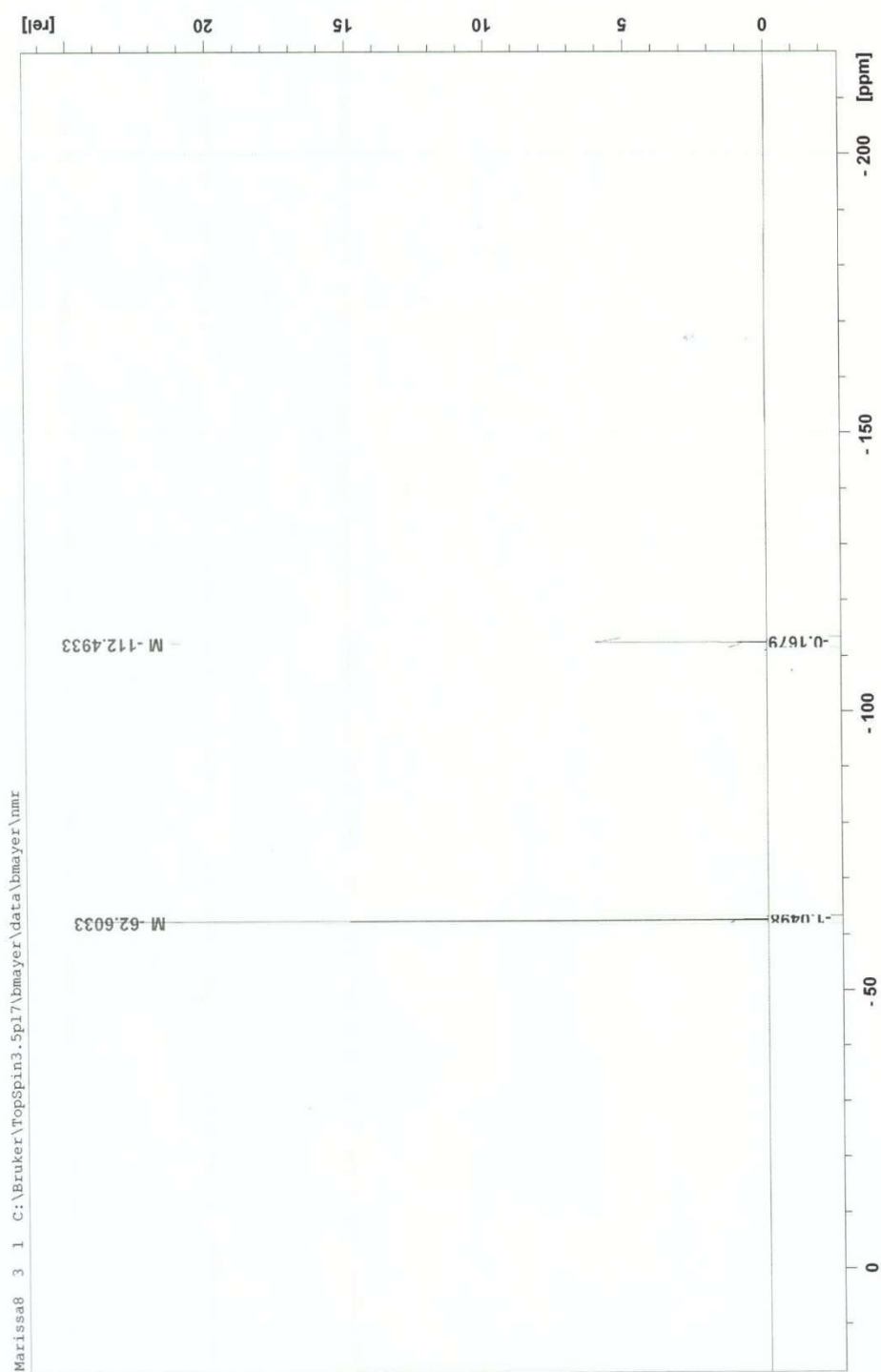
FTIR spectrum of 7

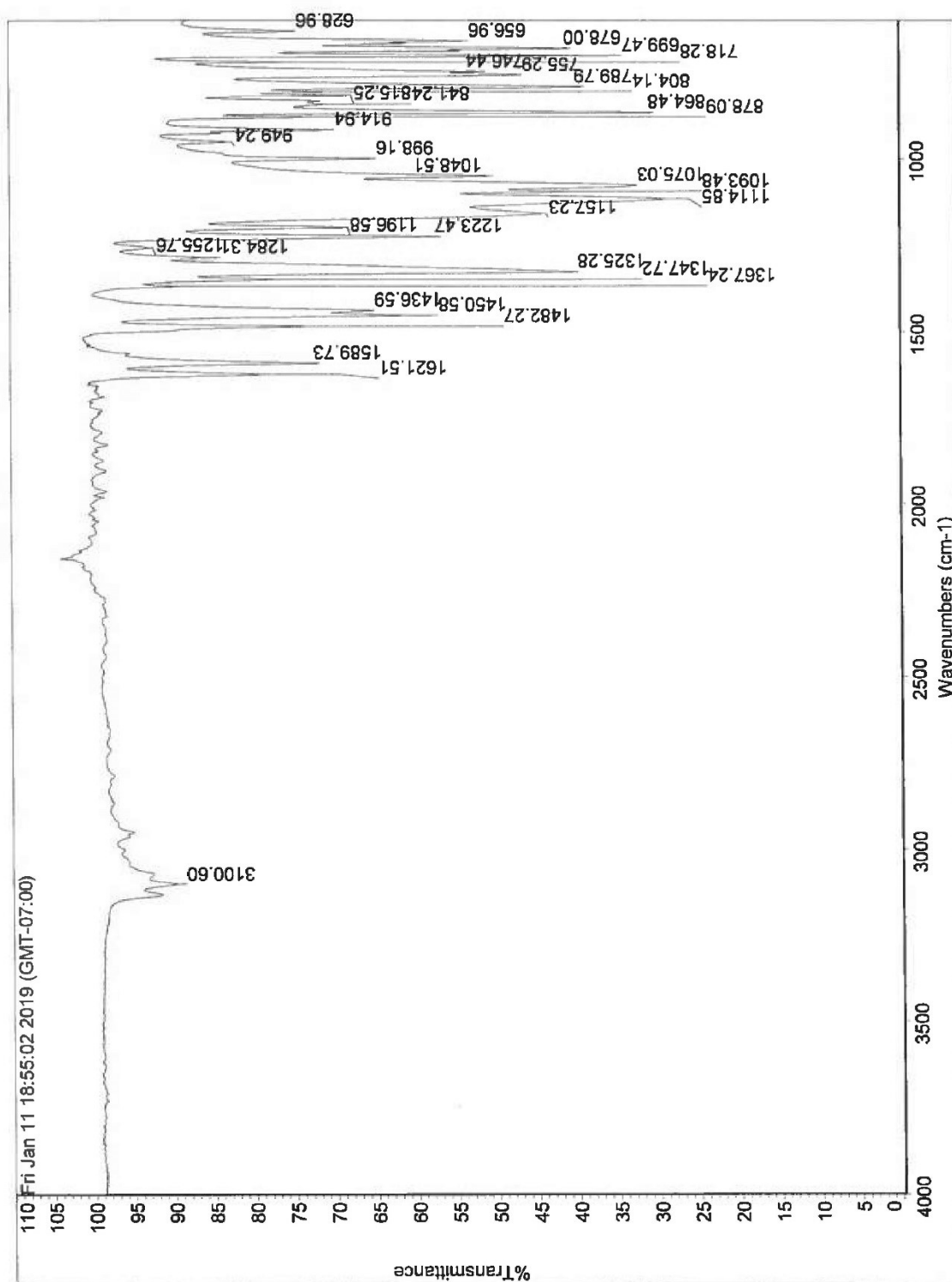


<p>PULSE SEQUENCE</p> <p>Relax. delay 1.000 sec</p> <p>Pulse 45.0 degrees</p> <p>Acq. time 2.561 sec</p> <p>Width 6398.0 Hz</p> <p>32 repetitions</p>	<p>OBSERVE H1, 399.9180591</p>	<p>DATA PROCESSING</p> <p>Ft size 32768</p> <p>Total time 1 minutes</p>	<p>compd 8</p> <p>Solvent: cdcl3</p> <p>Temp. 25.0 C / 298.1 K</p> <p>Operator: chem337</p> <p>Mercury-400 "Agilent-NMR"</p>
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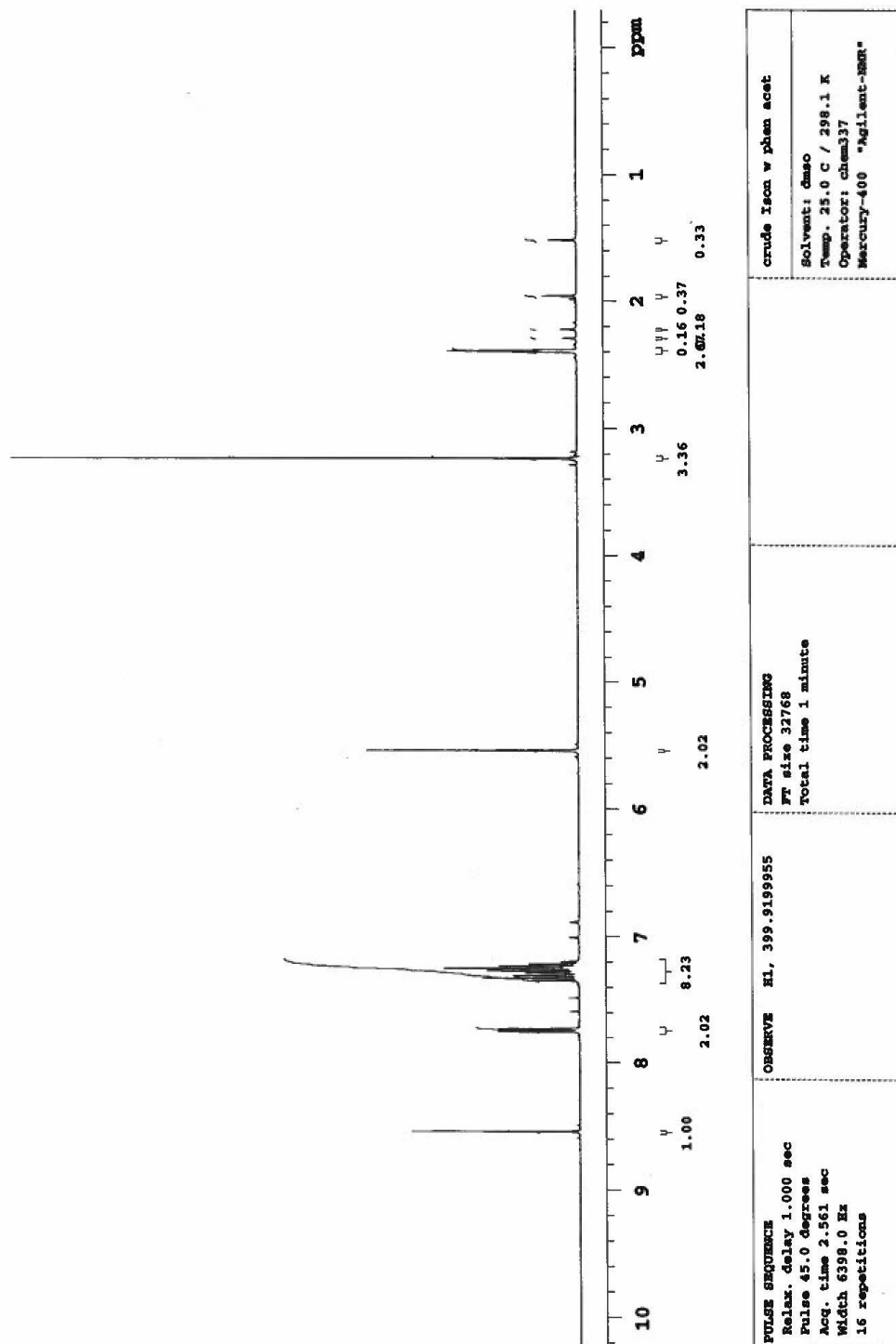


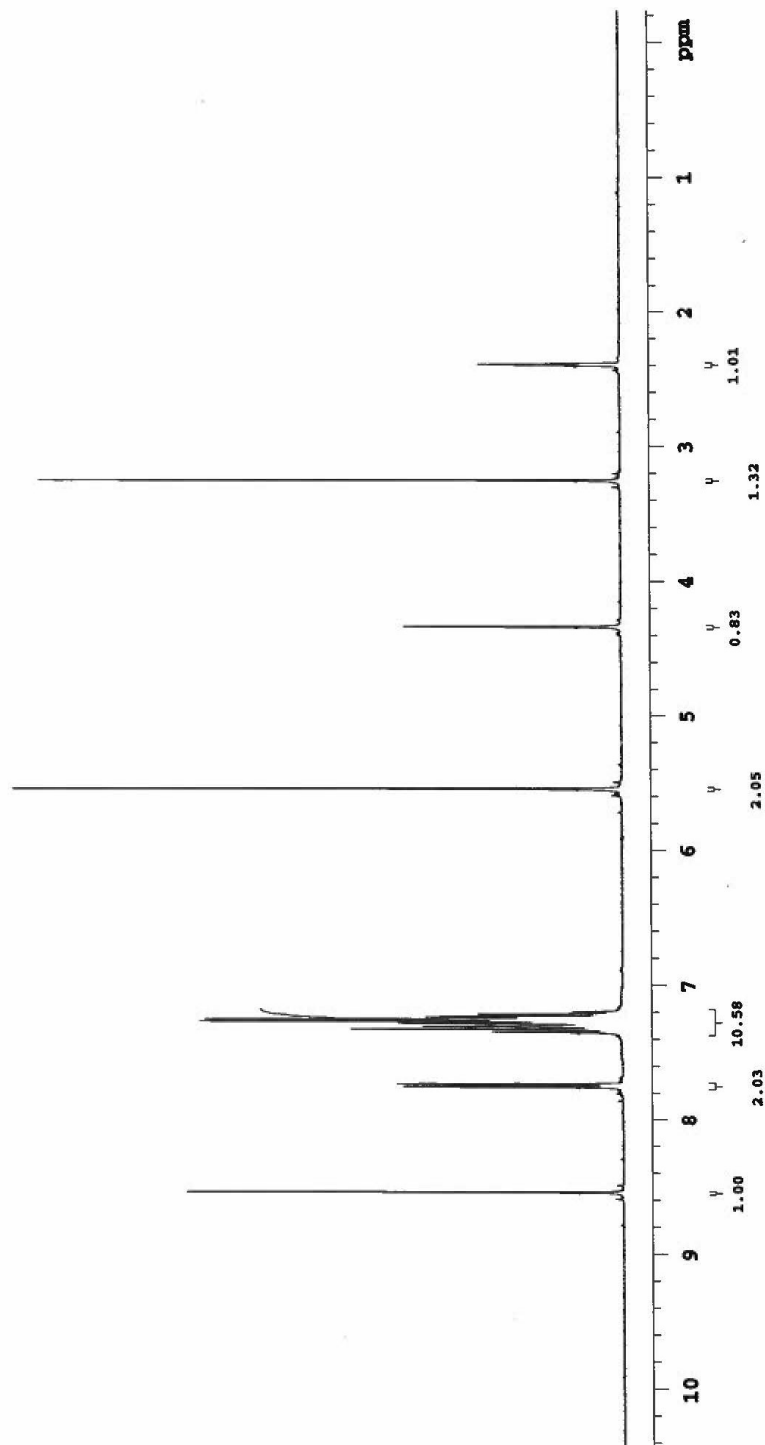
FTIR spectrum of 8



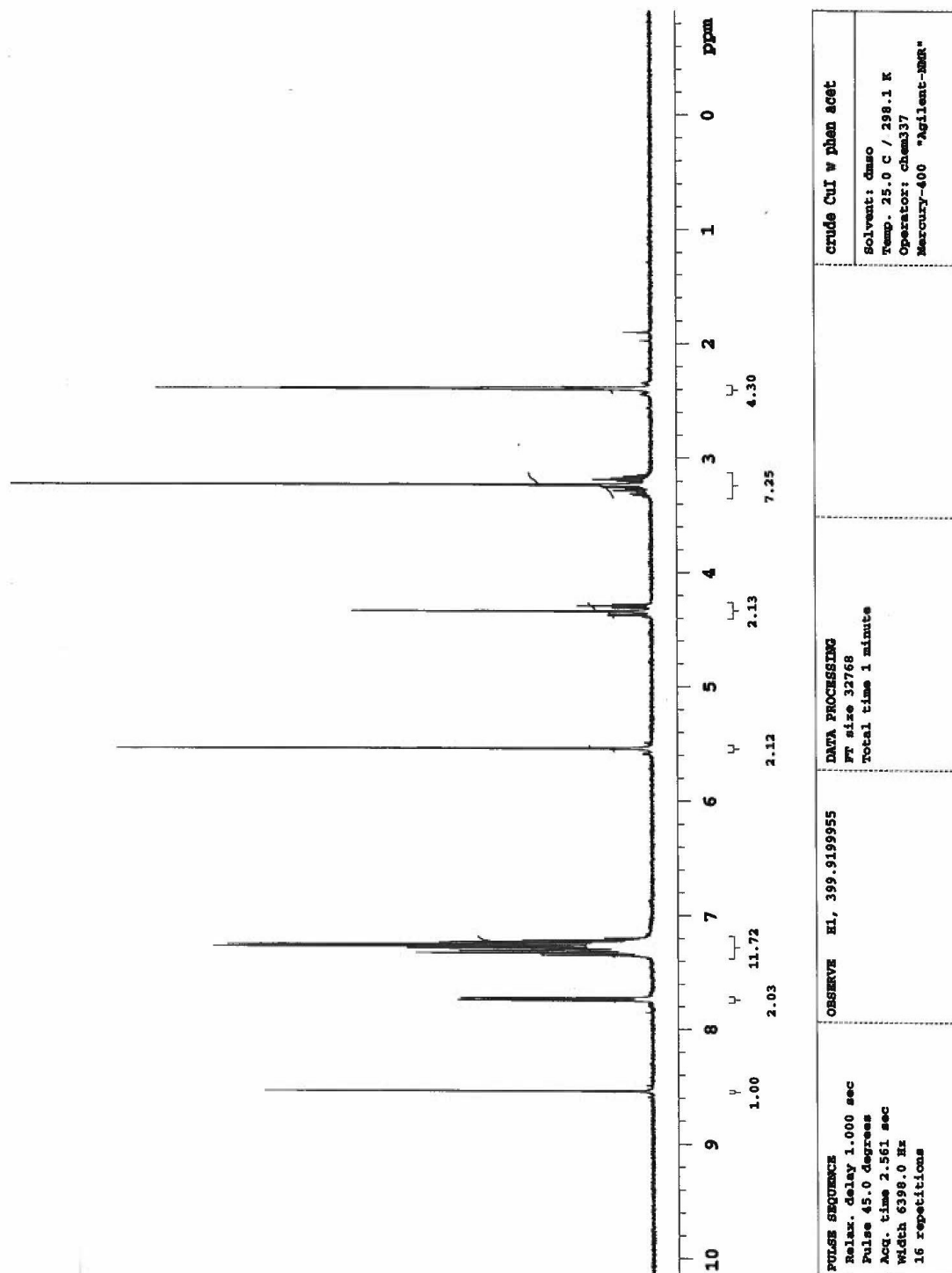


S-41

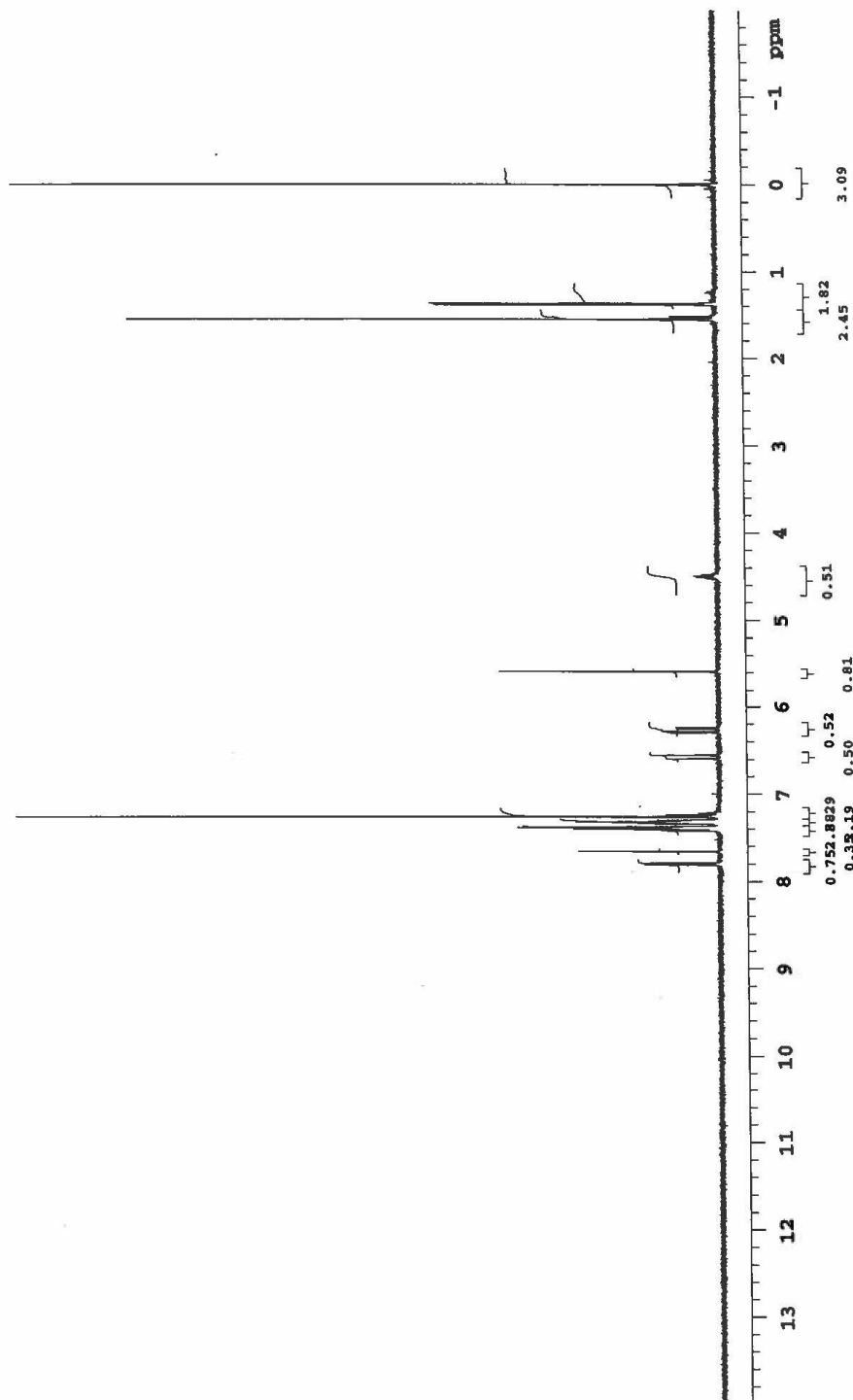




<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6396.0 Hz 16 repetitions	<b>OBSERVE</b> H1, 399.9199955	<b>DATA PROCESSING</b> FT size 32768 Total time 1 minute	crude conv. w phen acet Solvent: dmsd Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"
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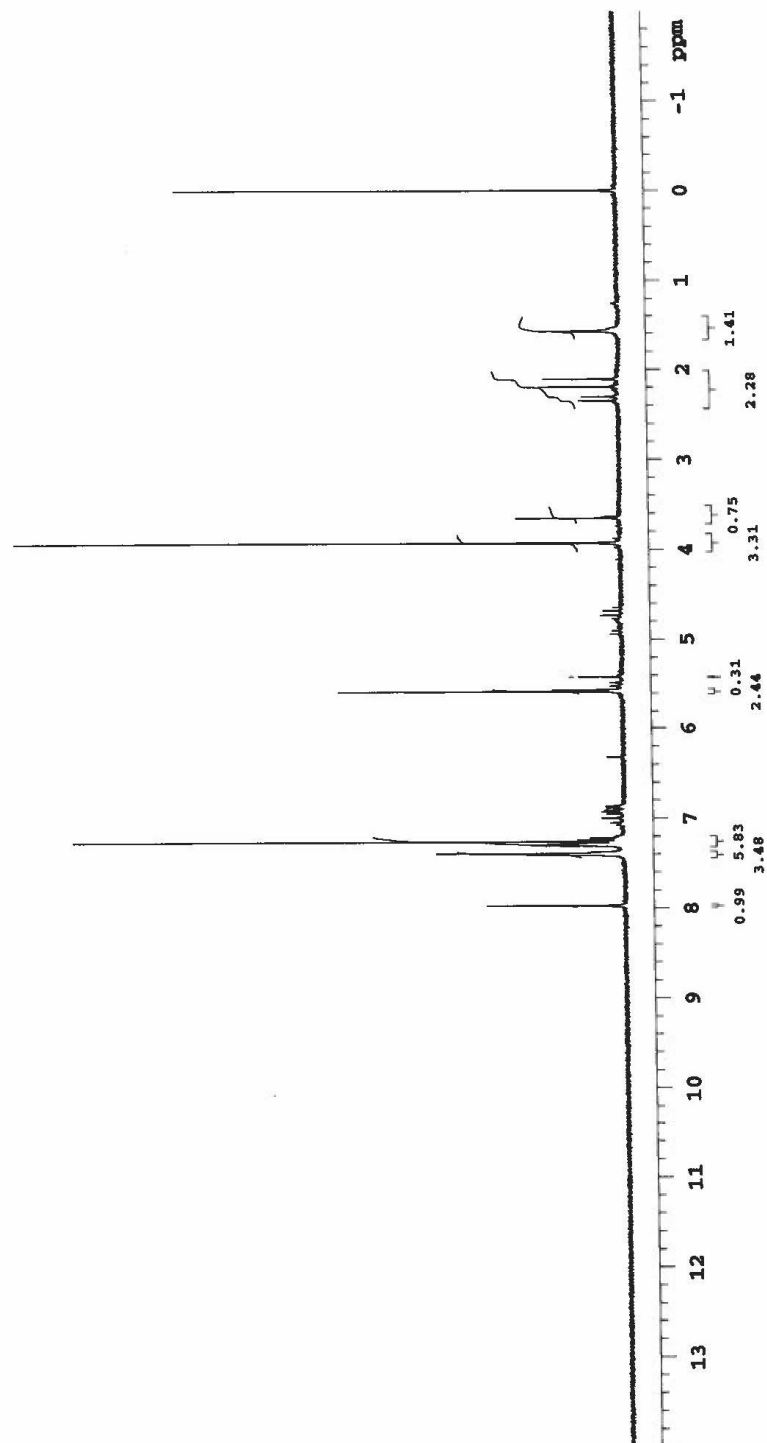


CuI in glycerol scale up of 1.



<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 16 repetitions	<b>OBSERVE</b> HL, 399.9180595	<b>DATA PROCESSING</b> FT size 32768 Total time 1 minute	red amination of 2-ethoxybenzaldehyde w piperidine  Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-MMR"
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Solvent-free product **1** from equimolar reactants.



<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 16 repetitions	<b>OBSERVE</b> H1, 399.9180591	<b>DATA PROCESSING</b> F1 size 32768 Total time 1 minute	<b>propargylation of bromoquinoline</b>  Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"
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Solvent-free product **2** from equimolar reactants.

3-butyn-1-ol, crude, conventional, azid limiting

Sample Name:

Data Collected on:

Agilent-NMR-mercury400

Archive directory:

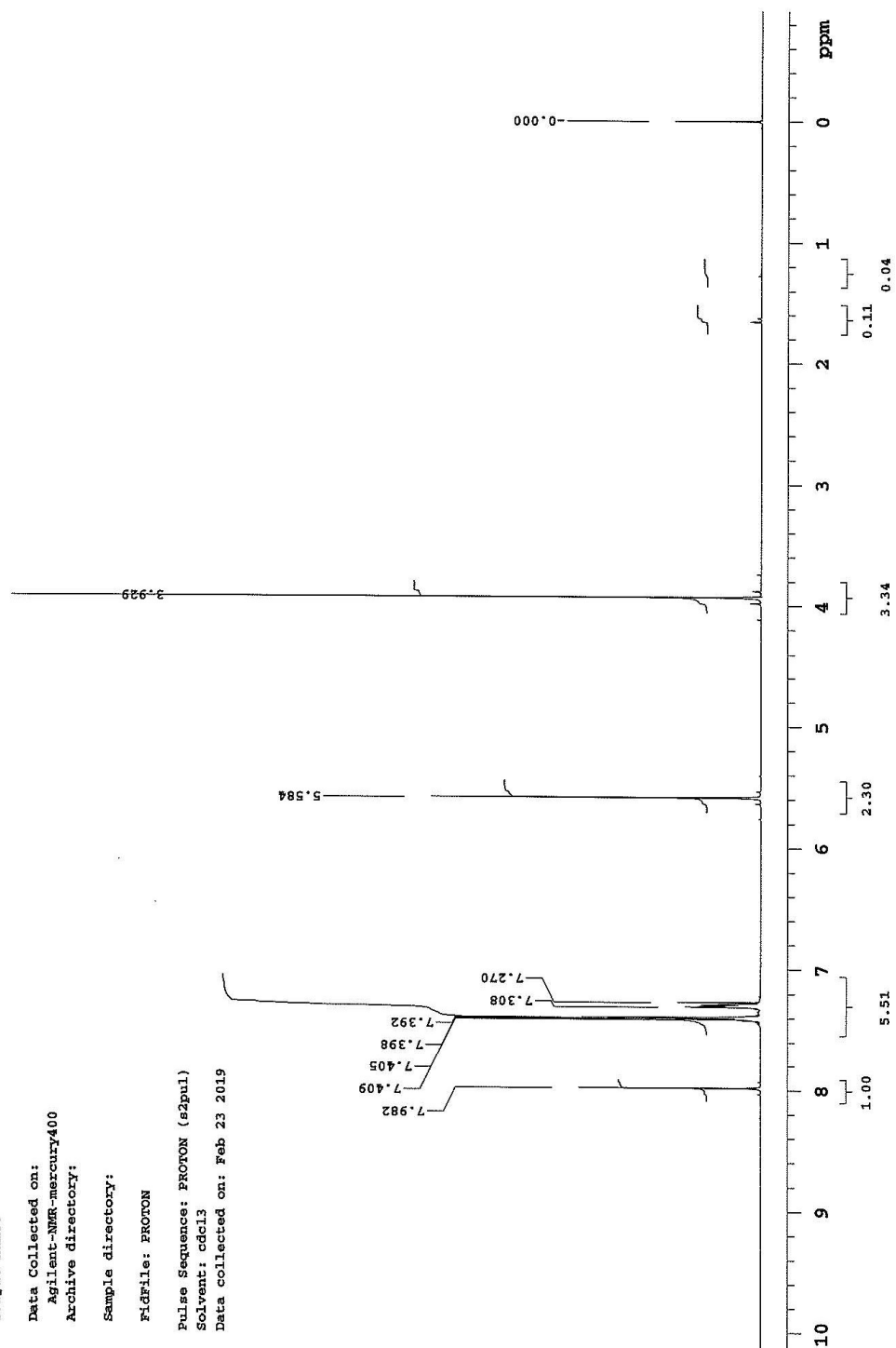
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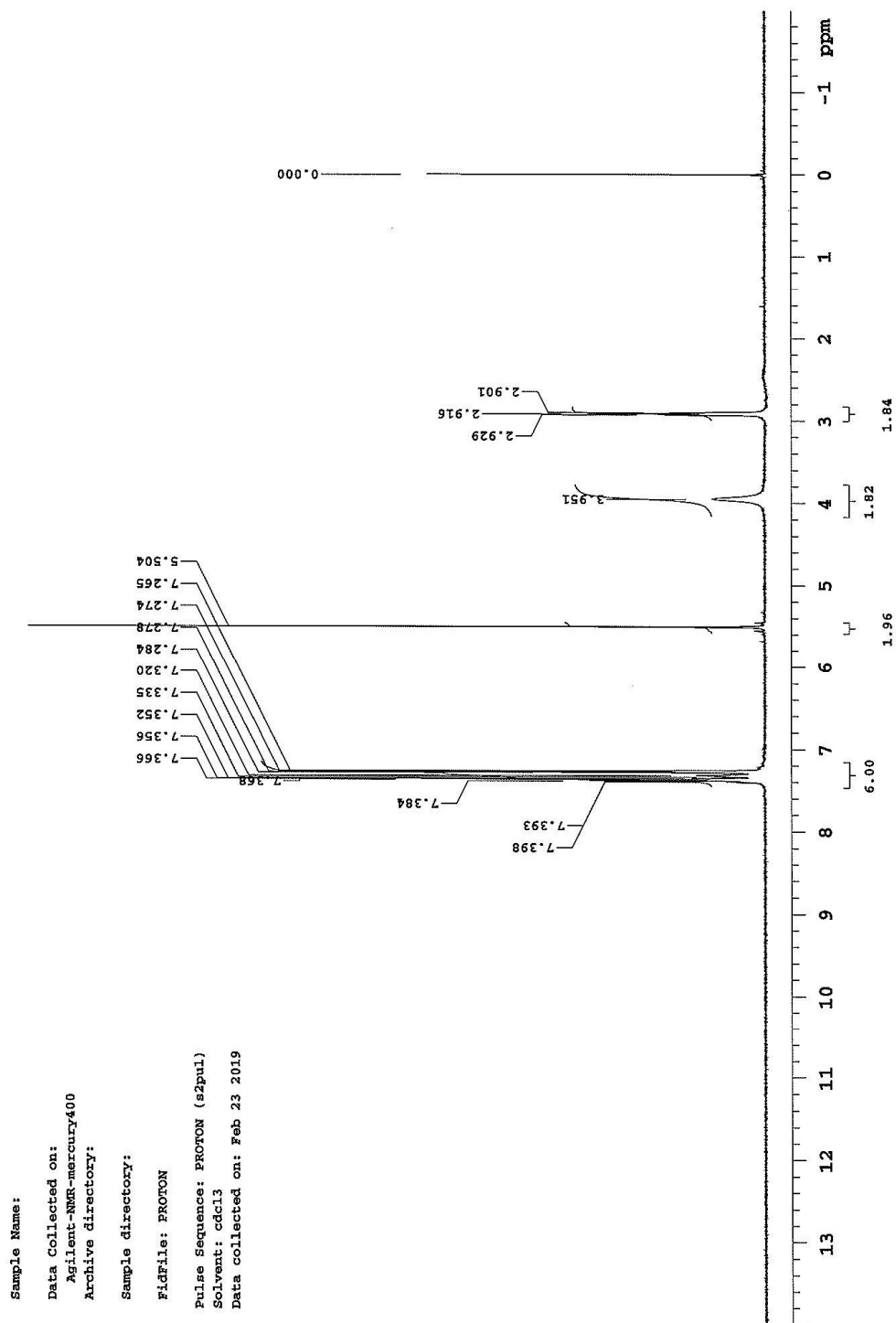
Solvent: cdcl3

Data collected on: Feb 23 2019



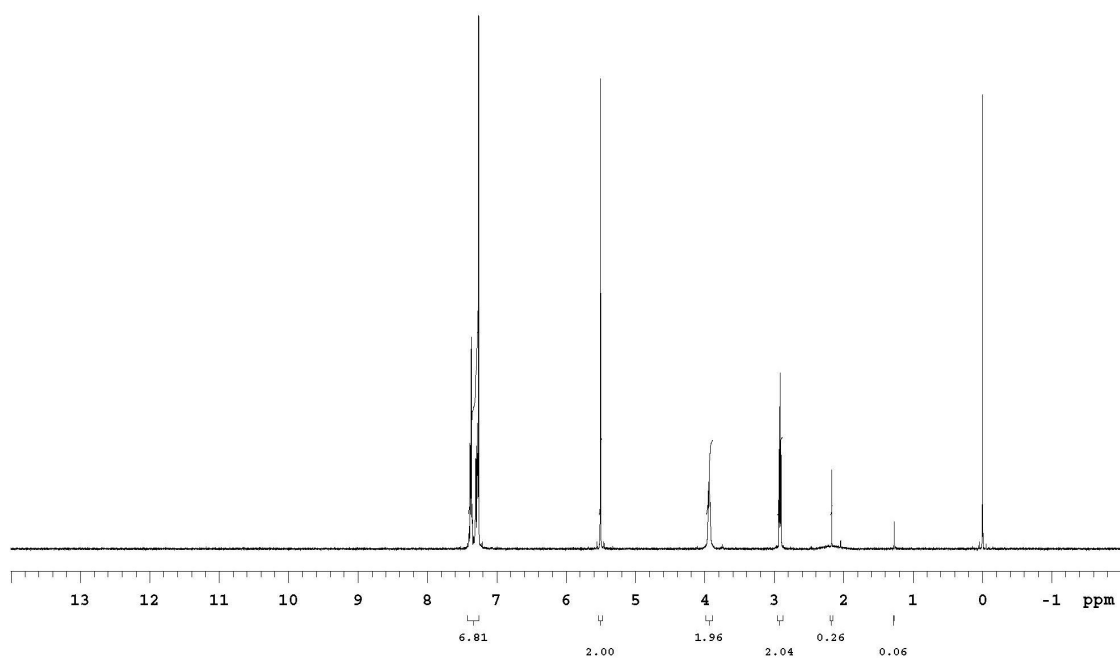
Conventional product **2** from 50% excess of methyl propiolate.

S-46



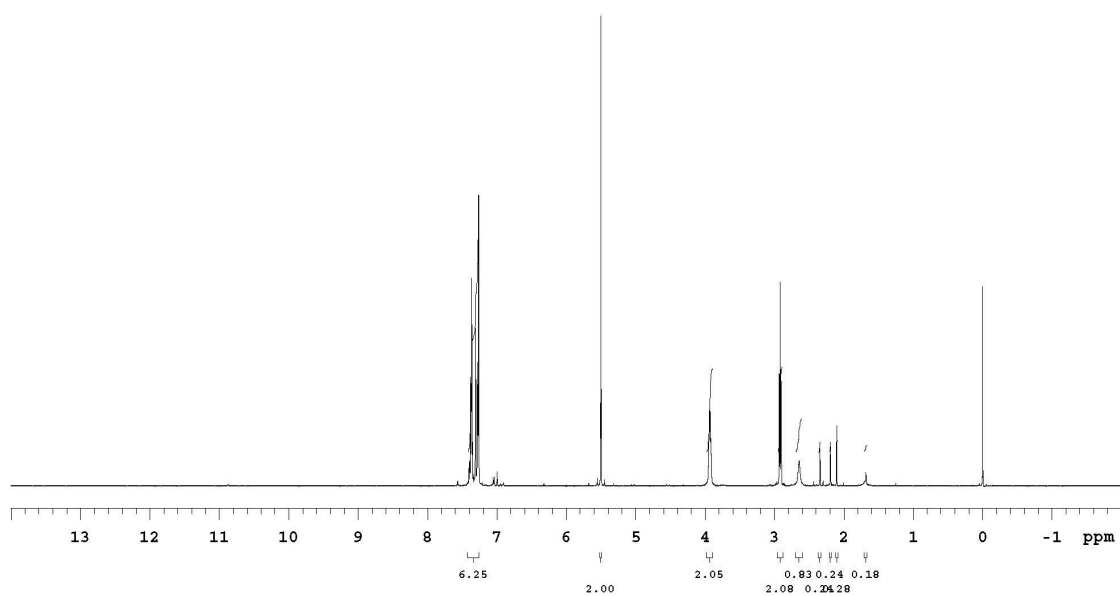
Conventional product 3 from 50% excess of 3-butyne-1-ol.

S-47



<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 16 repetitions	<b>OBSERVE</b> H1, 399.9180595	<b>DATA PROCESSING</b> FT size 32768 Total time 1 minute		Excess Alkyne, MW 3-Butyn-1-ol Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"
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<b>PULSE SEQUENCE</b> Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 2.561 sec Width 6398.0 Hz 16 repetitions	<b>OBSERVE</b> H1, 399.9180588	<b>DATA PROCESSING</b> FT size 32768 Total time 1 minute		Excess Alkyne, Ison 3-Butyn-1-ol
				Solvent: cdcl3 Temp. 25.0 C / 298.1 K Operator: chem337 Mercury-400 "Agilent-NMR"

Solvent-free product **3** from 50% excess of 3-butyn-1-ol.

S-49