

## **Supporting Information**

### **Olefin Ring Closing Metathesis and Hydrosilylation Reaction in Aqueous Medium by Grubbs Second Generation Ruthenium Catalyst**

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### **Experimental Details and Elemental analysis:**

All starting materials were used as obtained. TLC (silica gel; 5 % EtOAc: Hexane) and GC-MS were used to monitor the reactions. The crude products were identified by GC/MS qualitative analysis using a GC system with a Mass selective detector. The identities were further confirmed by  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectra that were recorded in chloroform-*d* ( $\text{CDCl}_3$ ) with TMS as internal reference.

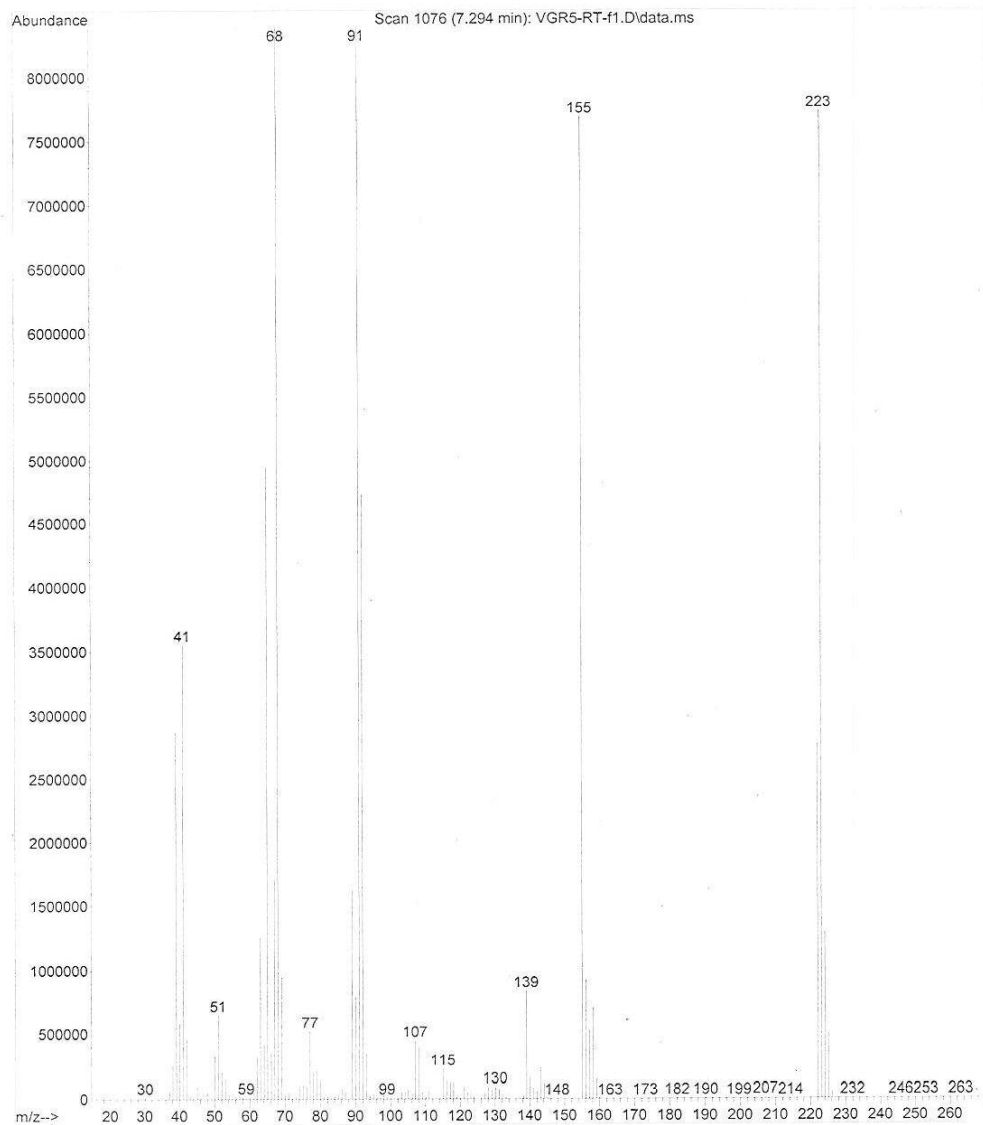
Typical experimental procedure for olefin ring closing metathesis reaction: The diene (1 mmol) and Grubbs second generation ruthenium catalyst (4 mol%) were added in a 10 mL glass tube filled with 2 mL of water and the reaction mixture was stirred for 2 hrs at 45  $^\circ\text{C}$ . After completion of the reaction, the reaction mixture was quenched with ether and product was purified by column chromatography.

Typical experimental procedure for hydrosilylation reaction of alkyne: The alkyne (1 mmol), silane (1 mmol), and Grubbs second generation ruthenium catalyst (4 mol%) were added in a 10 mL glass tube filled with 2 mL of water and the reaction mixture was stirred at 50  $^\circ\text{C}$ . The reaction was complete within 4 hrs in the case of triethylsilane and was complete in 6 h for triphenylsilane. After completion of the reaction, the reaction mixture was quenched with ether and product was purified by column chromatography.

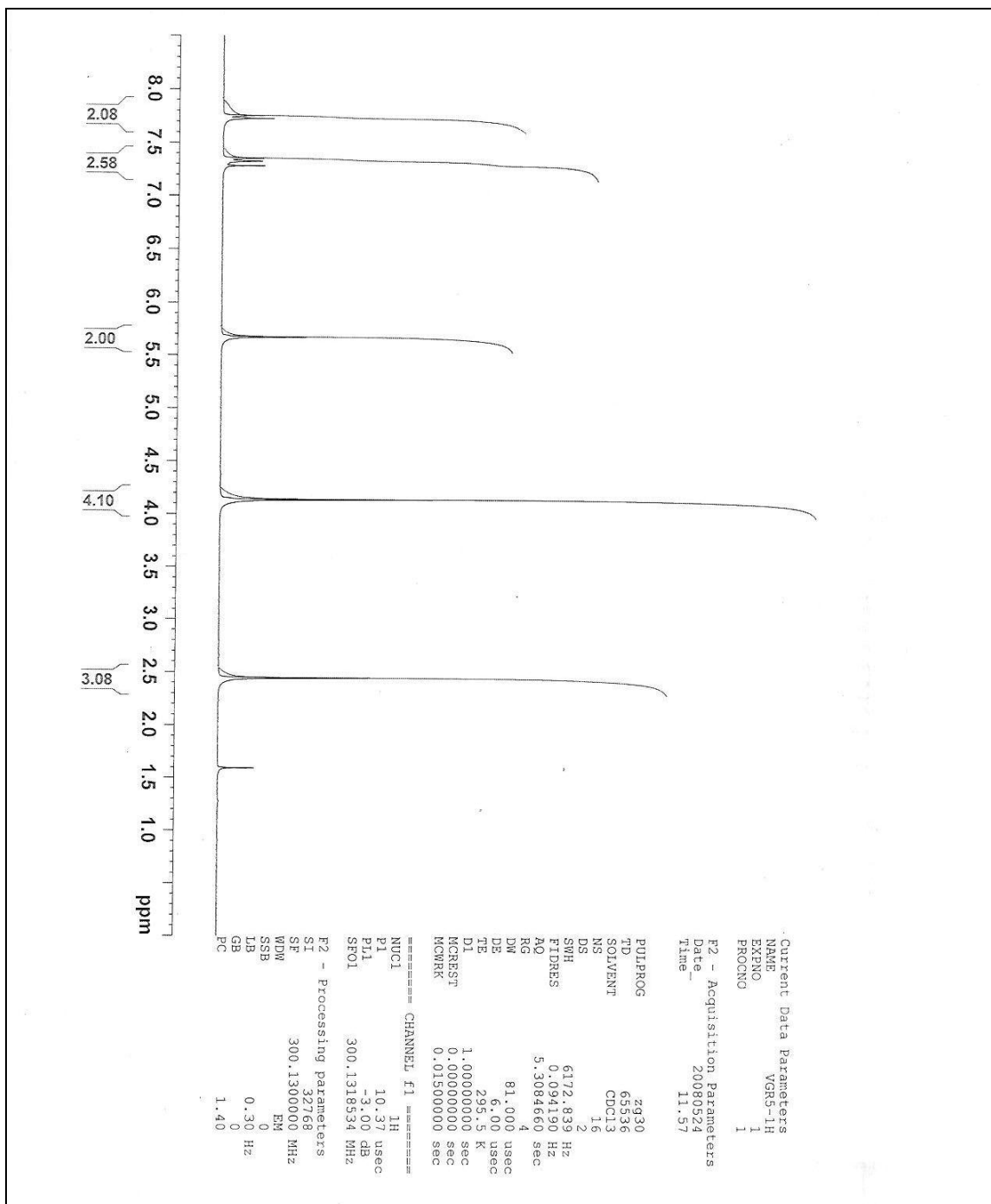
Product Name	Molecular Formula	Calculated	Found
2,5-Dihydro-1-tosyl-1H-pyrrole	$\text{C}_{11}\text{H}_{13}\text{NO}_2\text{S}$	C, 59.17; H, 5.87; N, 6.27 %	C, 59.12; H, 5.80; N, 6.19 %.
2,2,2-Trifluoro-1-(2H-pyrrol-1(5H)-yl)ethanone	$\text{C}_6\text{H}_6\text{F}_3\text{NO}$	C, 43.65; H, 3.66; N, 8.48 %	C, 43.52; H, 3.59; N, 8.54 %
<i>tert</i> -Butyl 2H-pyrrole-1(5H)-carboxylate	$\text{C}_{11}\text{H}_{19}\text{NO}_2$	C, 66.97; H, 9.71; N, 7.10 %	C, 66.82; H, 9.76; N, 7.13 %
2,5-Dihydro-1-(4-chloro benzene sulfo)-1H-pyrrole	$\text{C}_{10}\text{H}_{10}\text{ClNO}_2\text{S}$	C, 49.28; H, 4.14; N, 5.75 %	C, 49.19; H, 4.11; N, 5.80 %
4-Chloro-2-(2H-pyrrol-1(5H)-yl)pyrimidine	$\text{C}_8\text{H}_8\text{ClN}_3$	C, 52.90; H, 4.44; N, 23.14 %	C, 52.93; H, 4.39; N, 23.18 %
Triethyl(styryl)silane	$\text{C}_{14}\text{H}_{22}\text{Si}$	C, 76.99; H, 10.15 %	C, 76.89; H, 10.20%.
(4-Fluorostyryl)triethylsilane	$\text{C}_{14}\text{H}_{21}\text{FSi}$	C, 71.13; H, 8.95 %	C, 71.09; H, 8.89 %
(4-Methoxystyryl)triethylsilane	$\text{C}_{15}\text{H}_{24}\text{OSi}$	C, 72.52; H, 9.74 %	C, 72.49; H, 9.69 %
Triphenyl(styryl)silane	$\text{C}_{26}\text{H}_{22}\text{Si}$	C, 86.14; H, 6.12 %	C, 86.18; H, 6.17 %
(4-Fluorostyryl)triphenylsilane	$\text{C}_{26}\text{H}_{21}\text{FSi}$	C, 82.06; H, 5.56 %	C, 82.10; H, 5.49 %
(4-Methoxystyryl)triphenylsilane	$\text{C}_{27}\text{H}_{24}\text{OSi}$	C, 82.61; H, 6.16 %	C, 82.65; H, 6.19 %
6-(triethylsilyl)vinylquinoxaline	$\text{C}_{16}\text{H}_{22}\text{N}_2\text{Si}$	C, 71.06; H, 8.20; N, 10.36	C, 71.13; H, 8.16; N, 10.29 %

# MS spectrum of 2,5-dihydro-1-tosyl-1H-pyrrole:

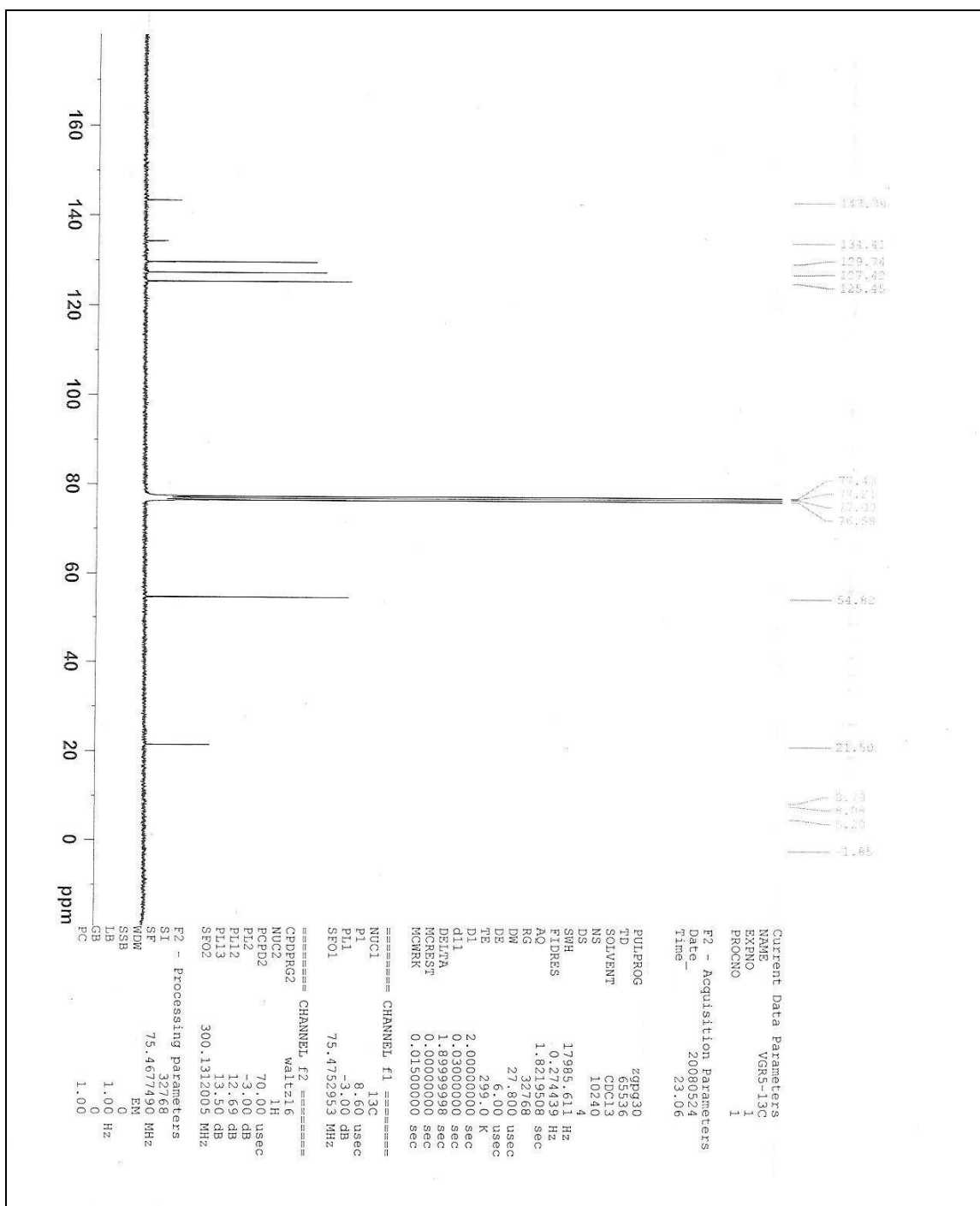
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Acquired : 24 May 2008 11:41 am using AcqMethod PSSA.M  
Instrument : GC\_MS  
Sample Name: VGR5-RT-f1  
Misc Info :  
Vial Number: 30



**<sup>1</sup>H-NMR spectrum of 2,5-dihydro-1-tosyl-1H-pyrrole:**

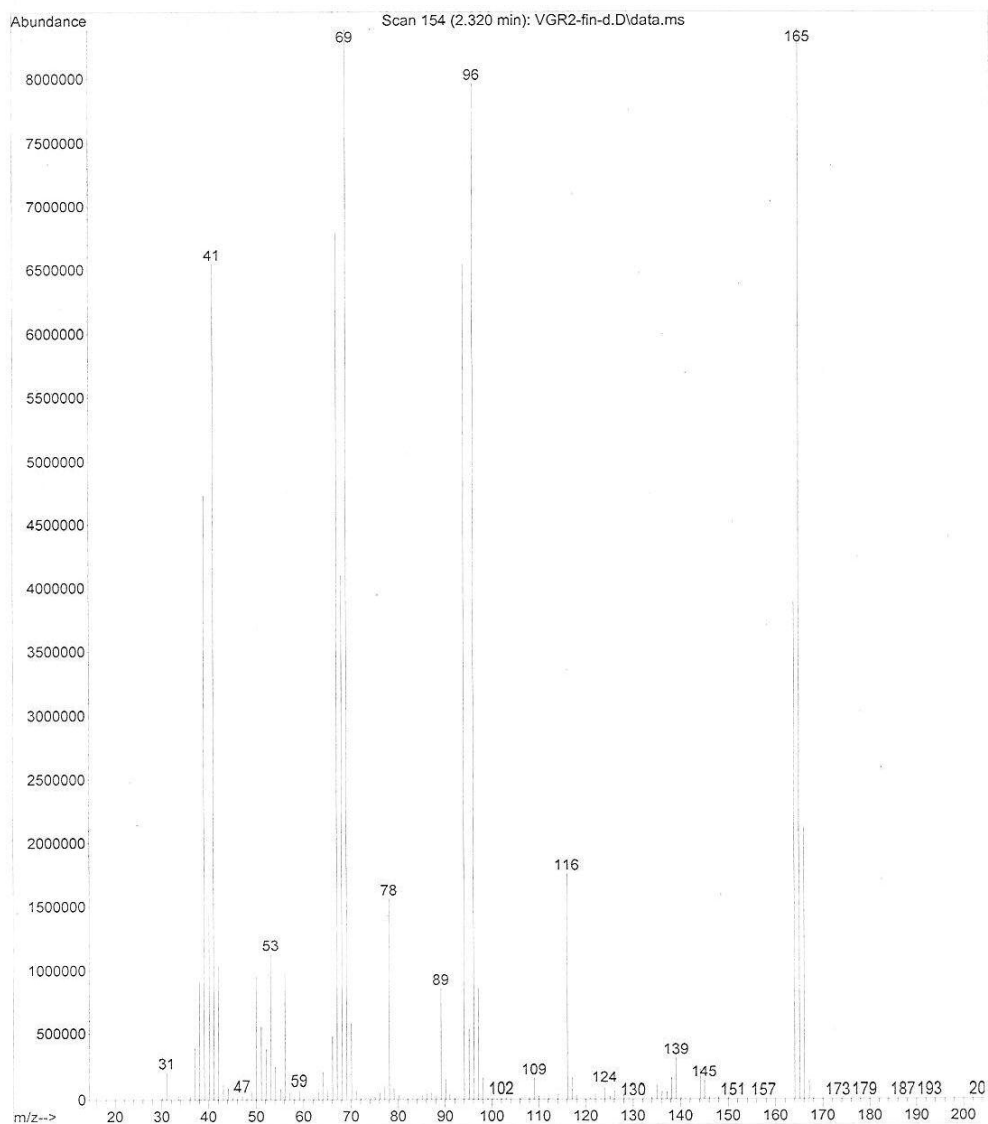


**$^{13}\text{C}$ -NMR spectrum of 2,5-dihydro-1-tosyl-1H-pyrrole:**

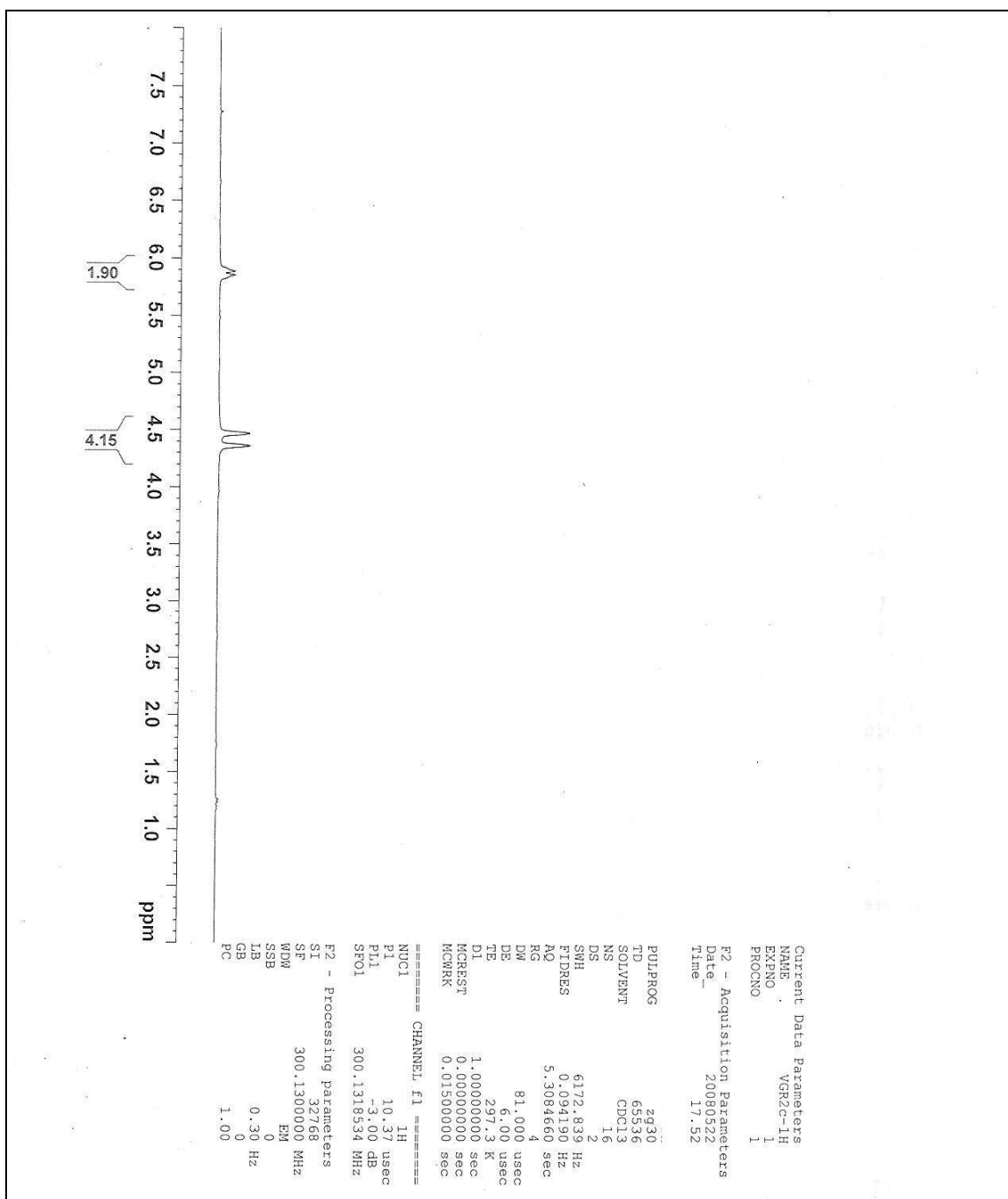


**MS spectrum of 2,2,2-trifluoro-1-(2H-pyrrol-1(5H)-yl)ethanone:**

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Vial Number: 29

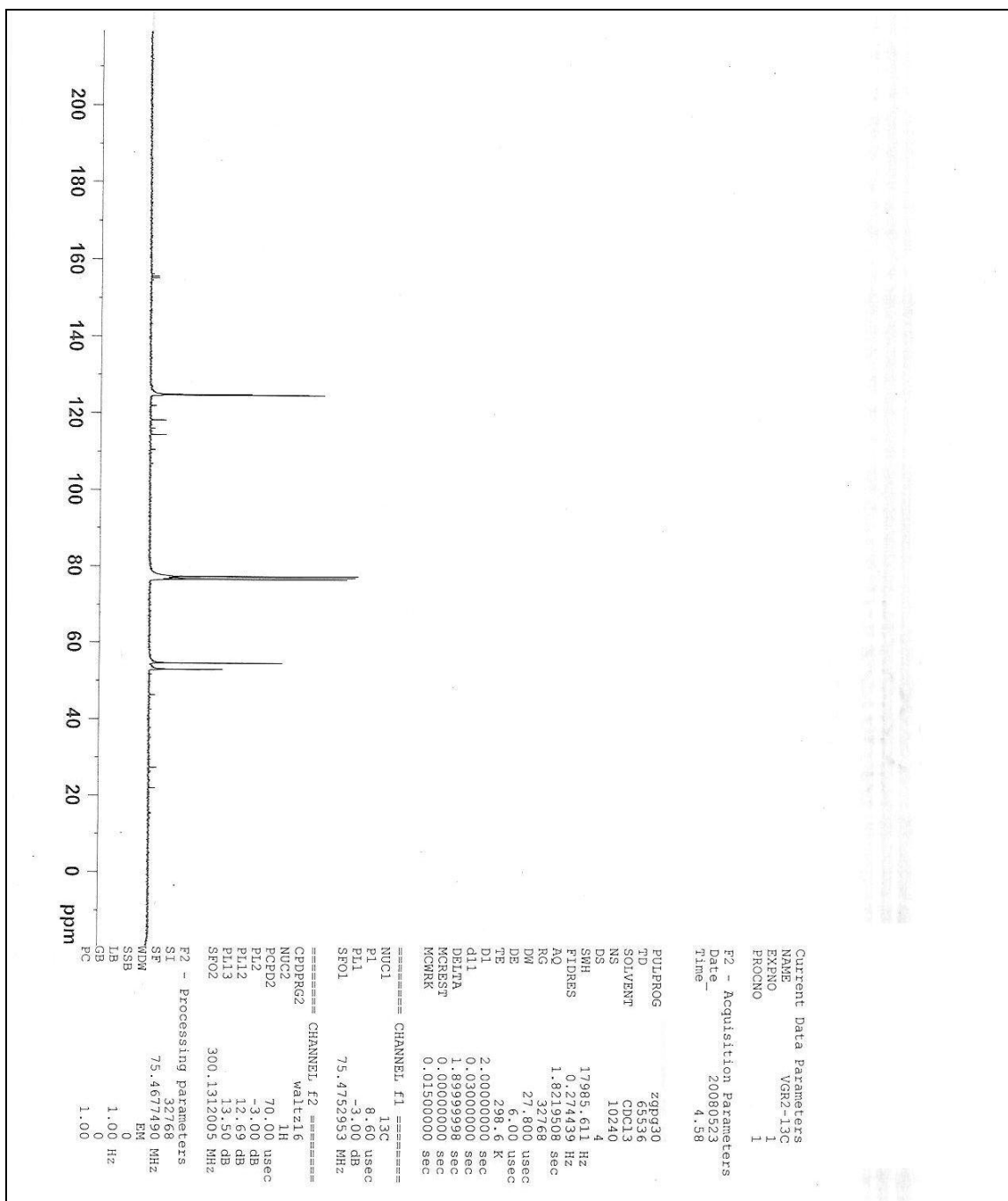


<sup>1</sup>H-NMR spectrum of 2,2,2-trifluoro-1-(2H-pyrrol-1(5H)-yl)ethanone



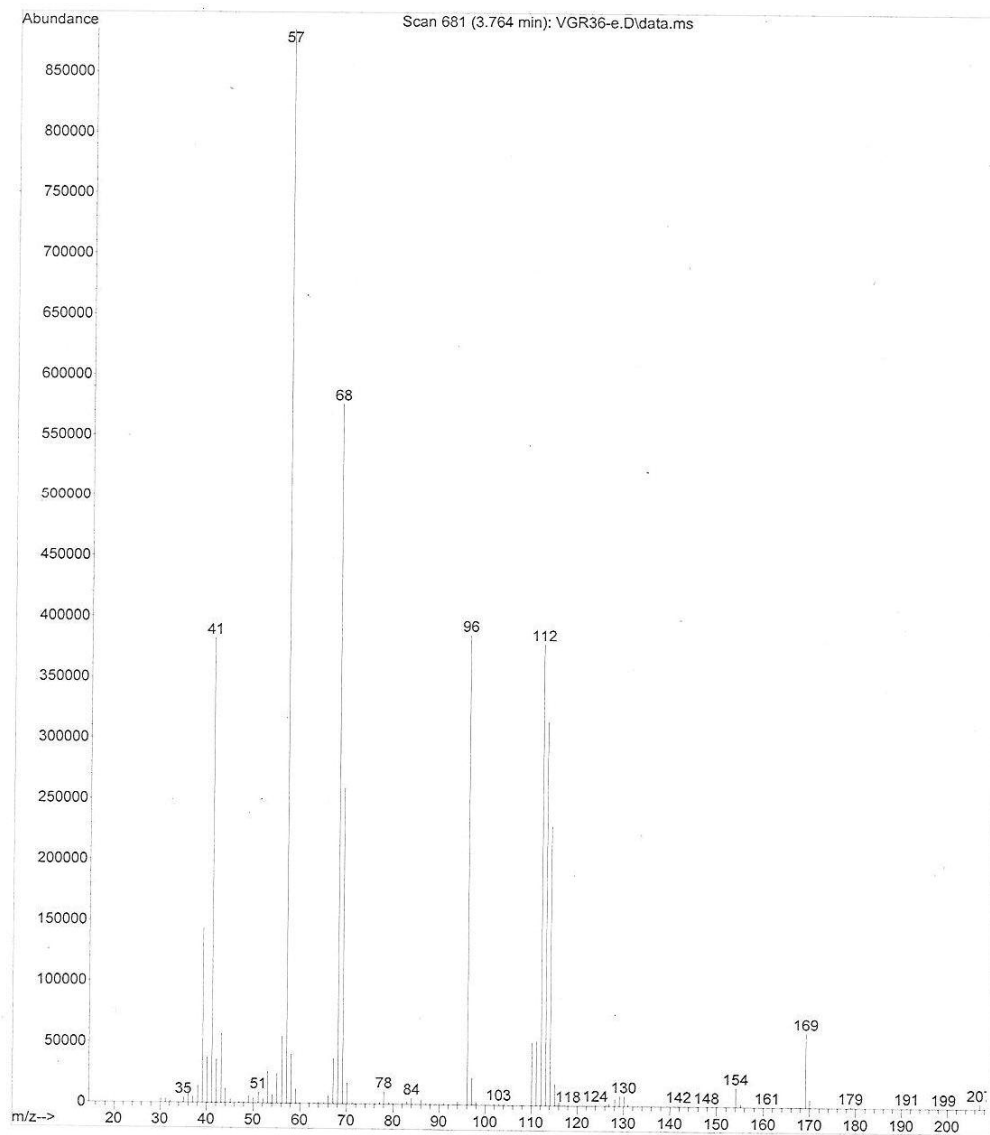


**$^{13}\text{C}$ -NMR spectrum of 2,2,2-trifluoro-1-(2H-pyrrol-1(5H)-yl)ethanone:**



# MS spectrum of tert-butyl 2H-pyrrole-1(5H)-carboxylate

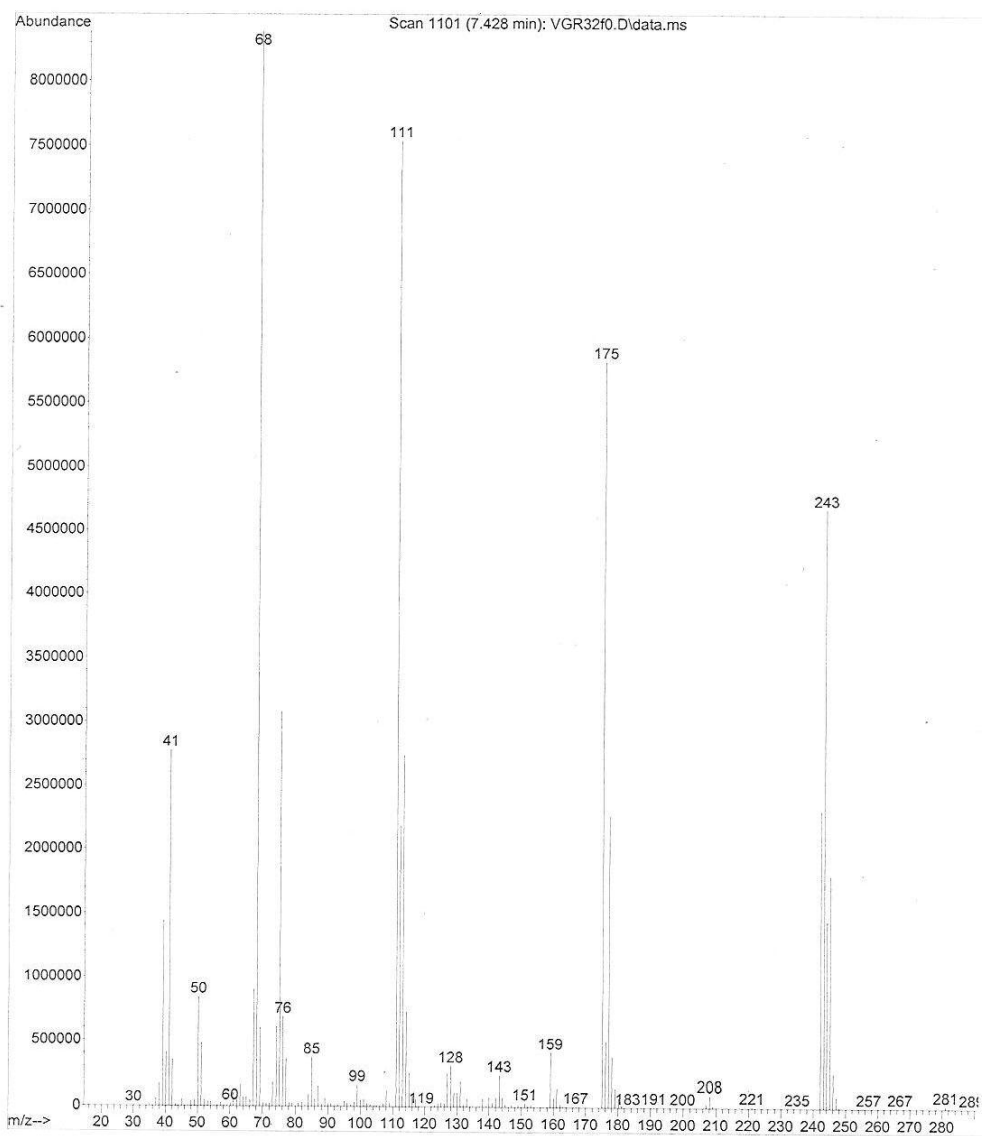
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Vial Number: 28



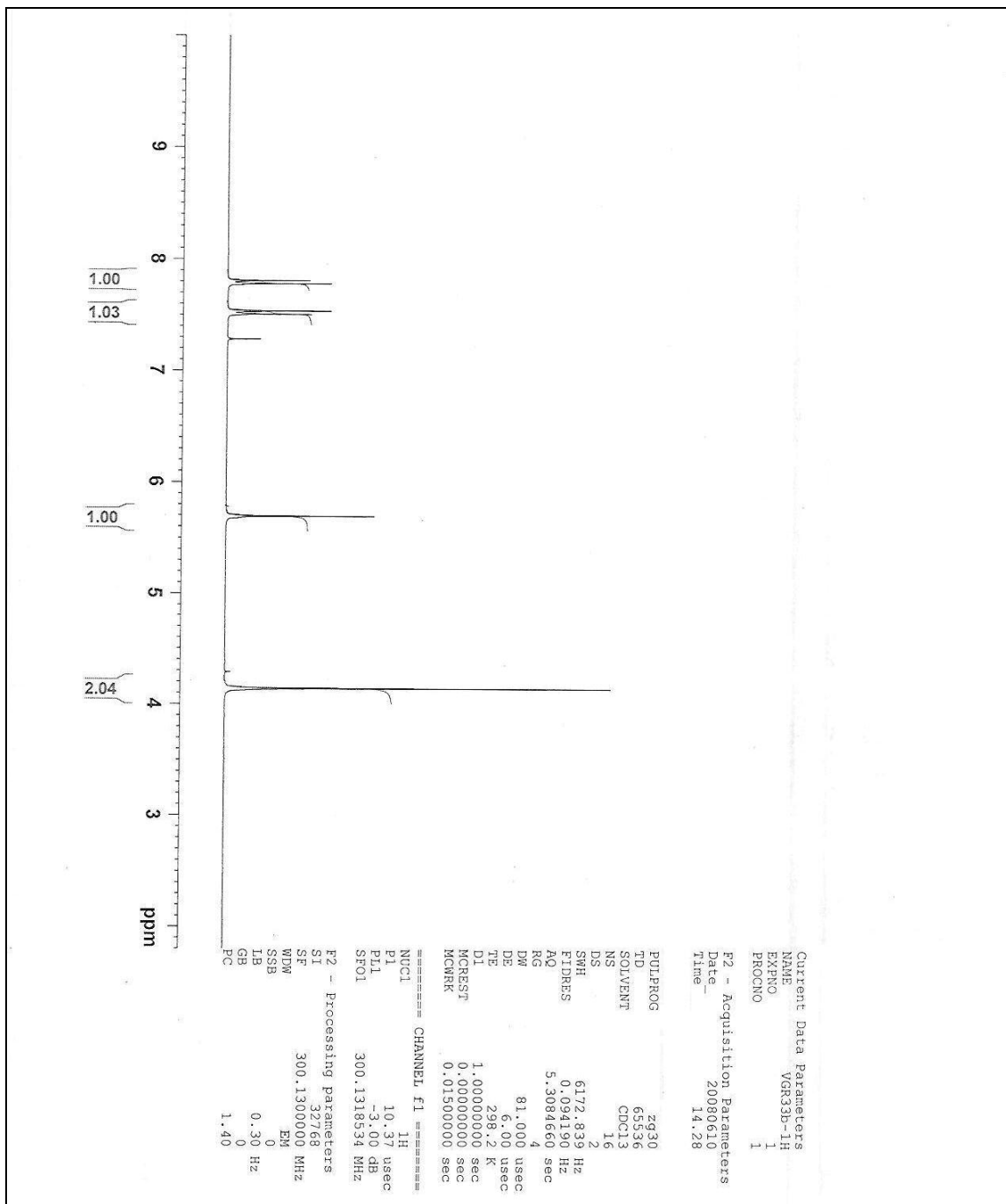
# MS spectrum of 2,5-dihydro-1-(4-chloro benzene sulfo)-1H-pyrrole

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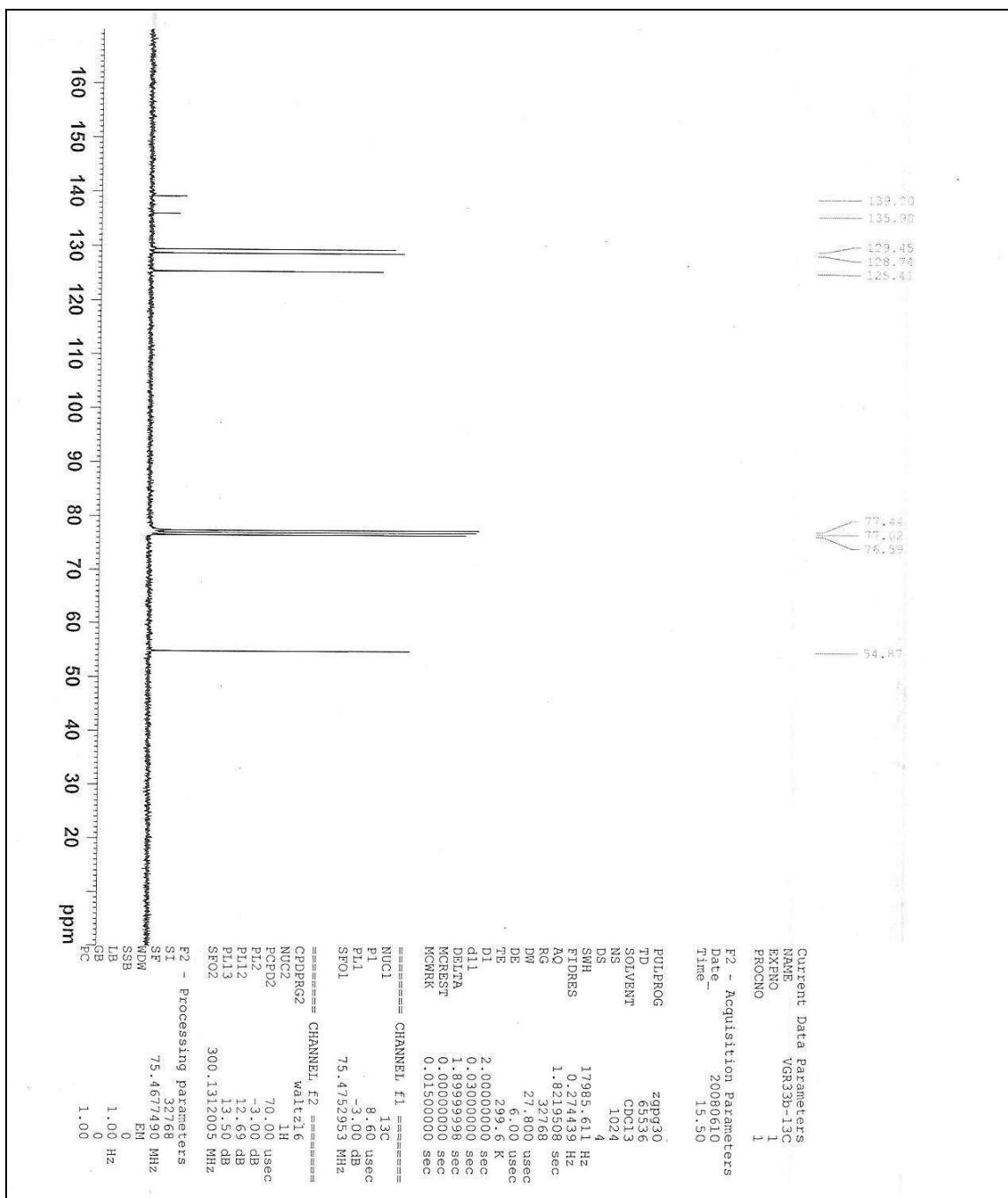
Sample Name: VGR32f0  
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Vial Number: 30



**$^1\text{H}$  -NMR spectrum of 2,5-dihydro-1-(4-chloro benzene sulfo)-1H-pyrrole**

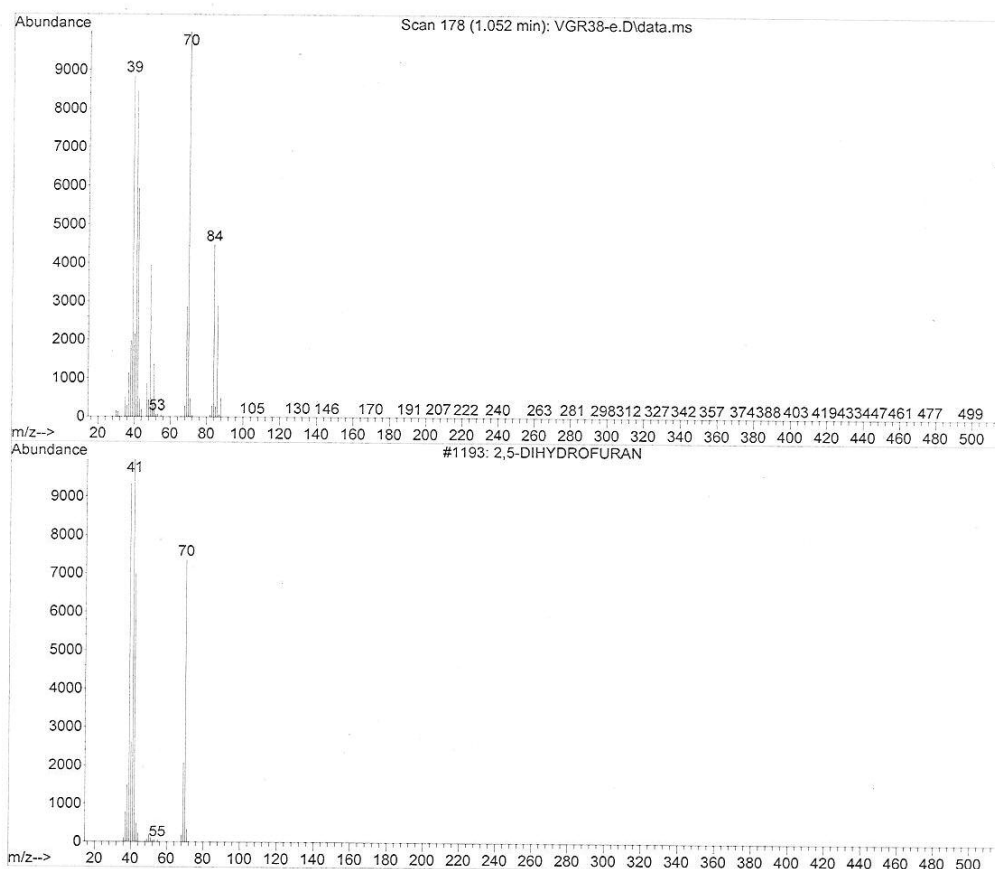


<sup>13</sup>C-NMR spectrum of 2,5-dihydro-1-(4-chloro benzene sulfo)-1H-pyrrole



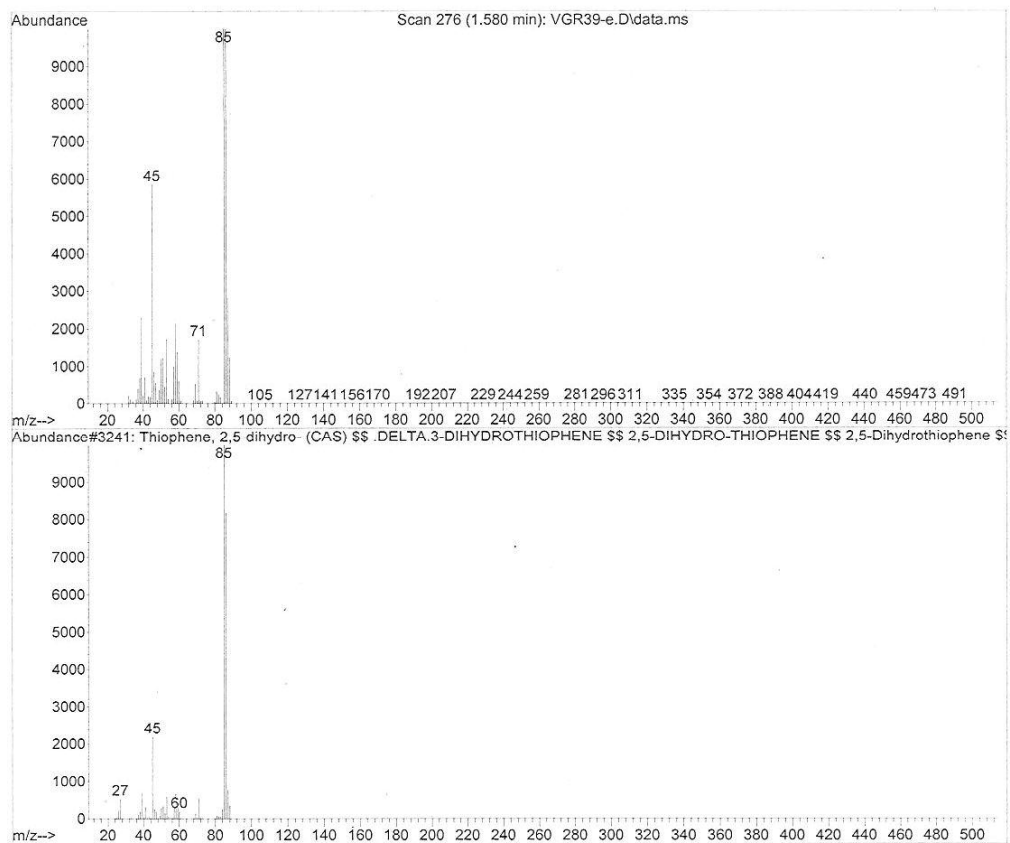
## MS spectrum of 2,5-dihydrofuran

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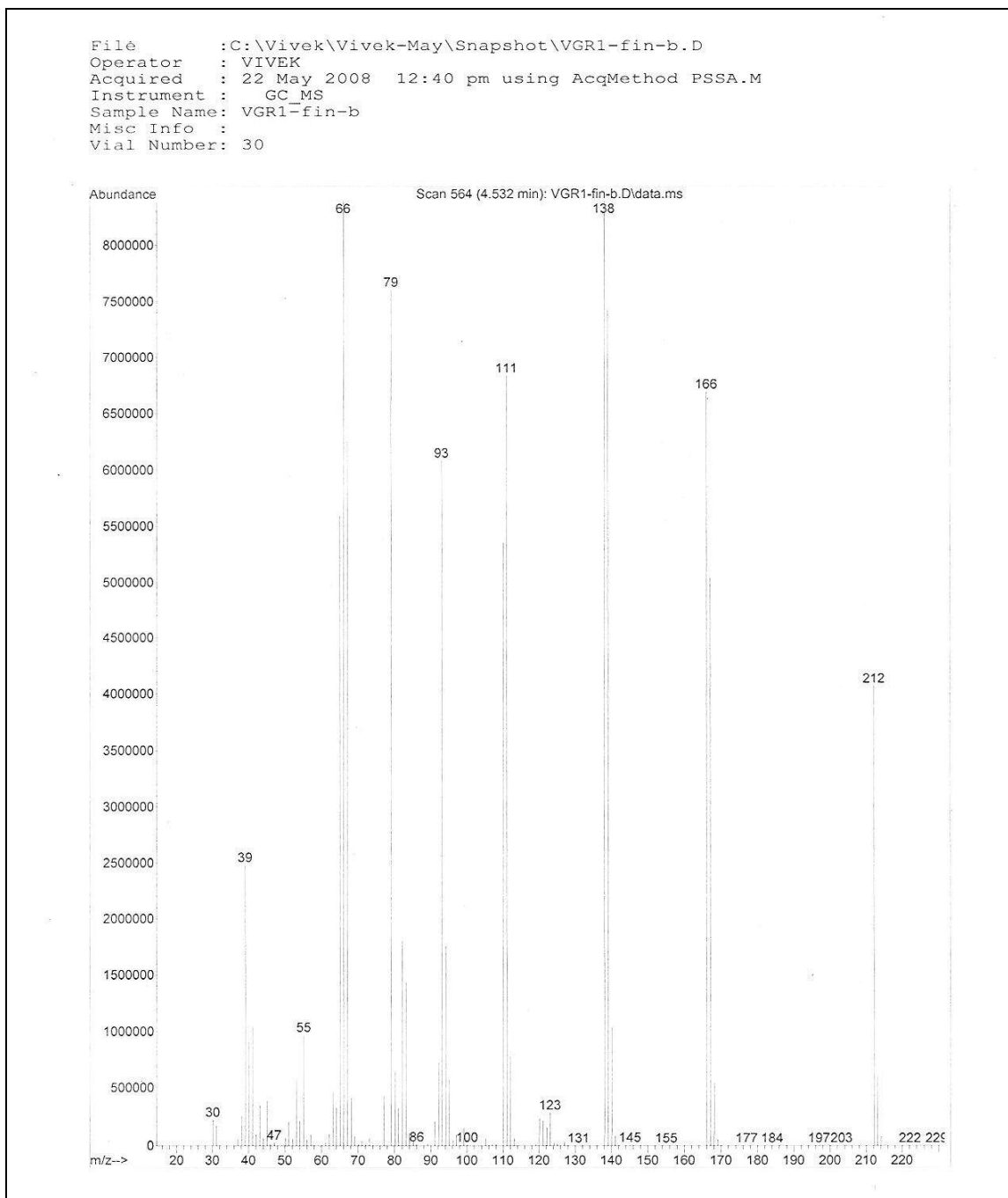


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HENE \$\$ 2,5-DIHYDRO-THIOPHENE \$\$ 2,5-Dihydrothiophene  
\$\$ DELTA3-DIHYDROTHIOPHENE

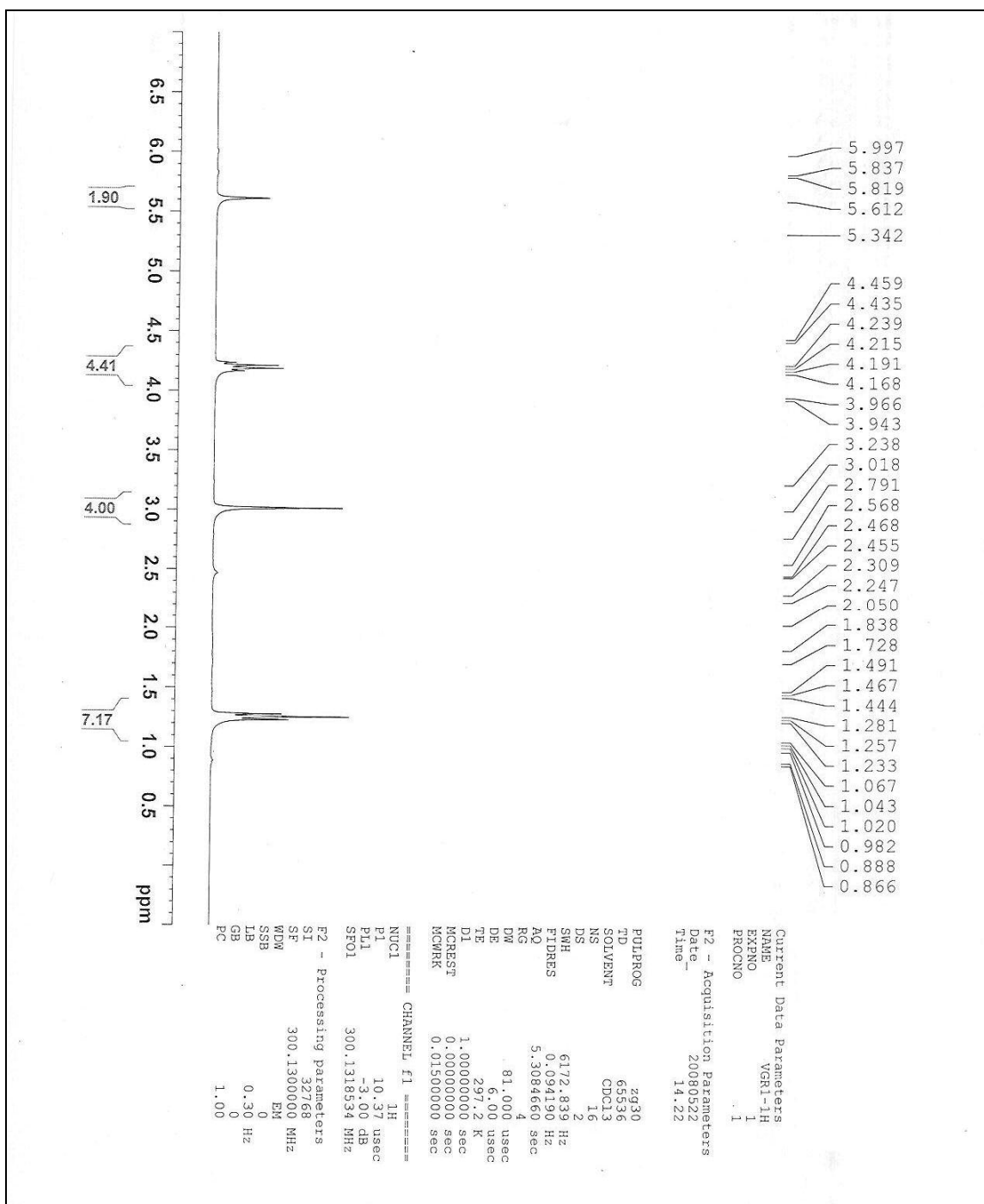


## MS spectrum of diethyl cyclopent-3-ene-1,1-dicarboxylate

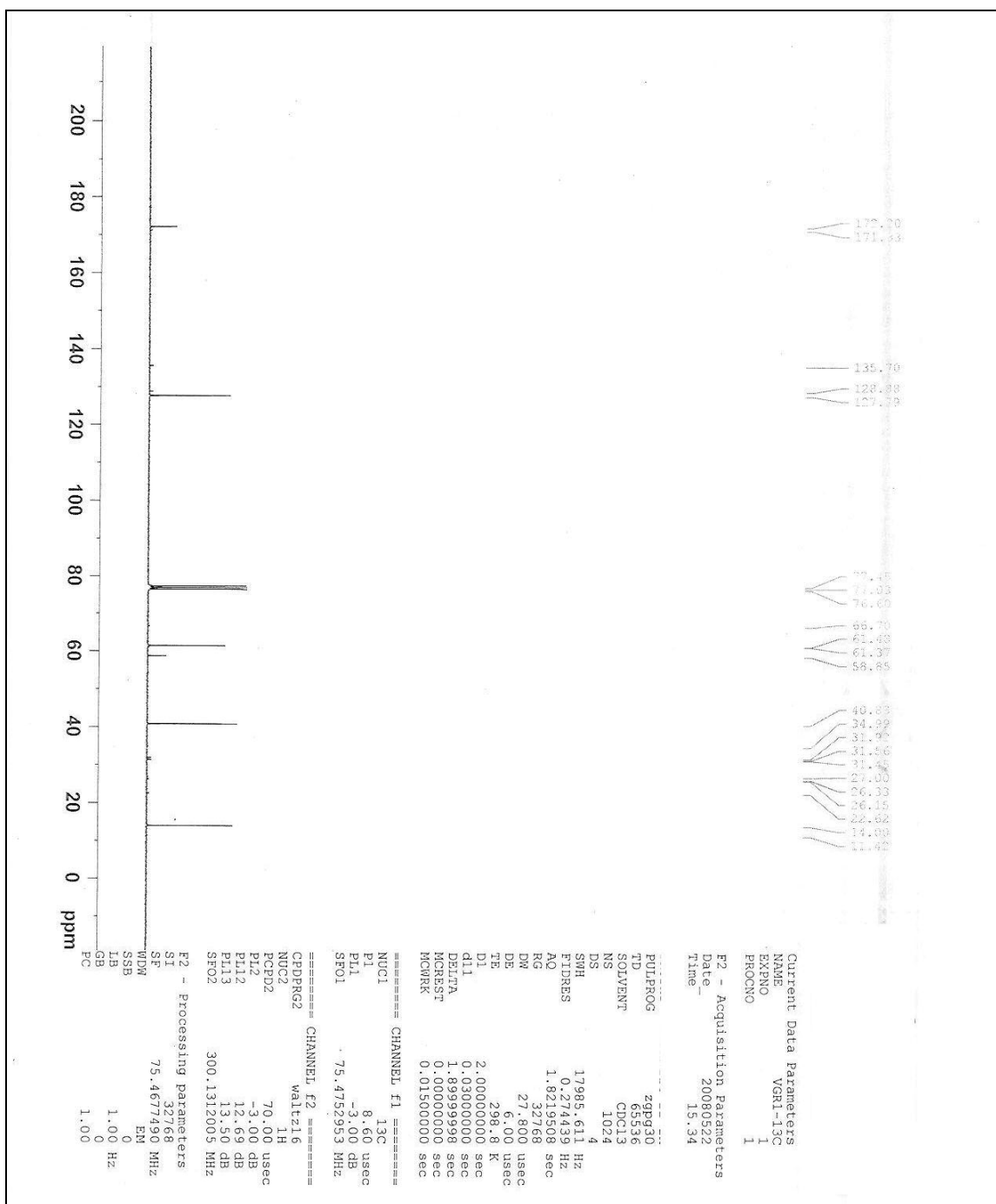




# <sup>1</sup>H -NMR spectrum of diethyl cyclopent-3-ene-1,1-dicarboxylate

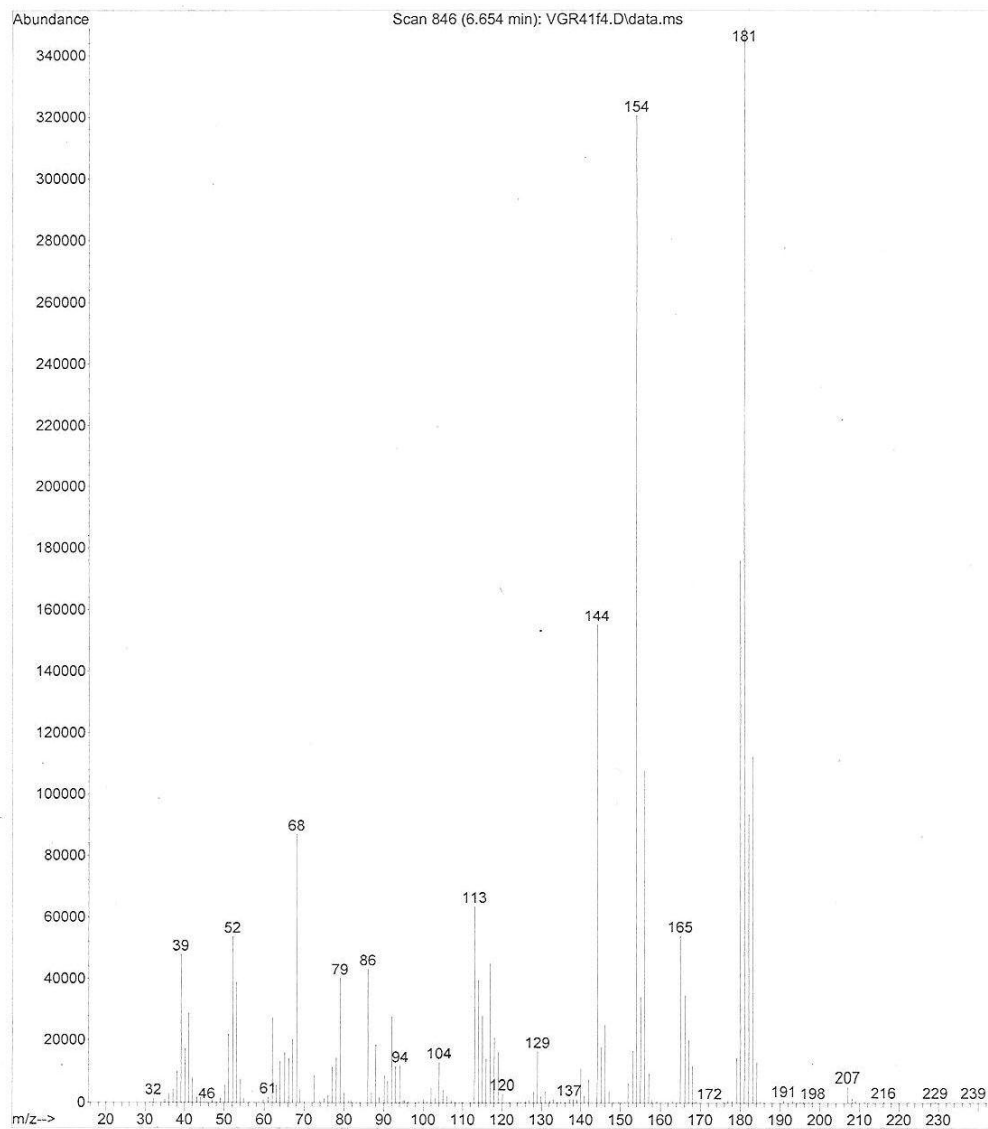


# <sup>13</sup>C-NMR spectrum of diethyl cyclopent-3-ene-1,1-dicarboxylate

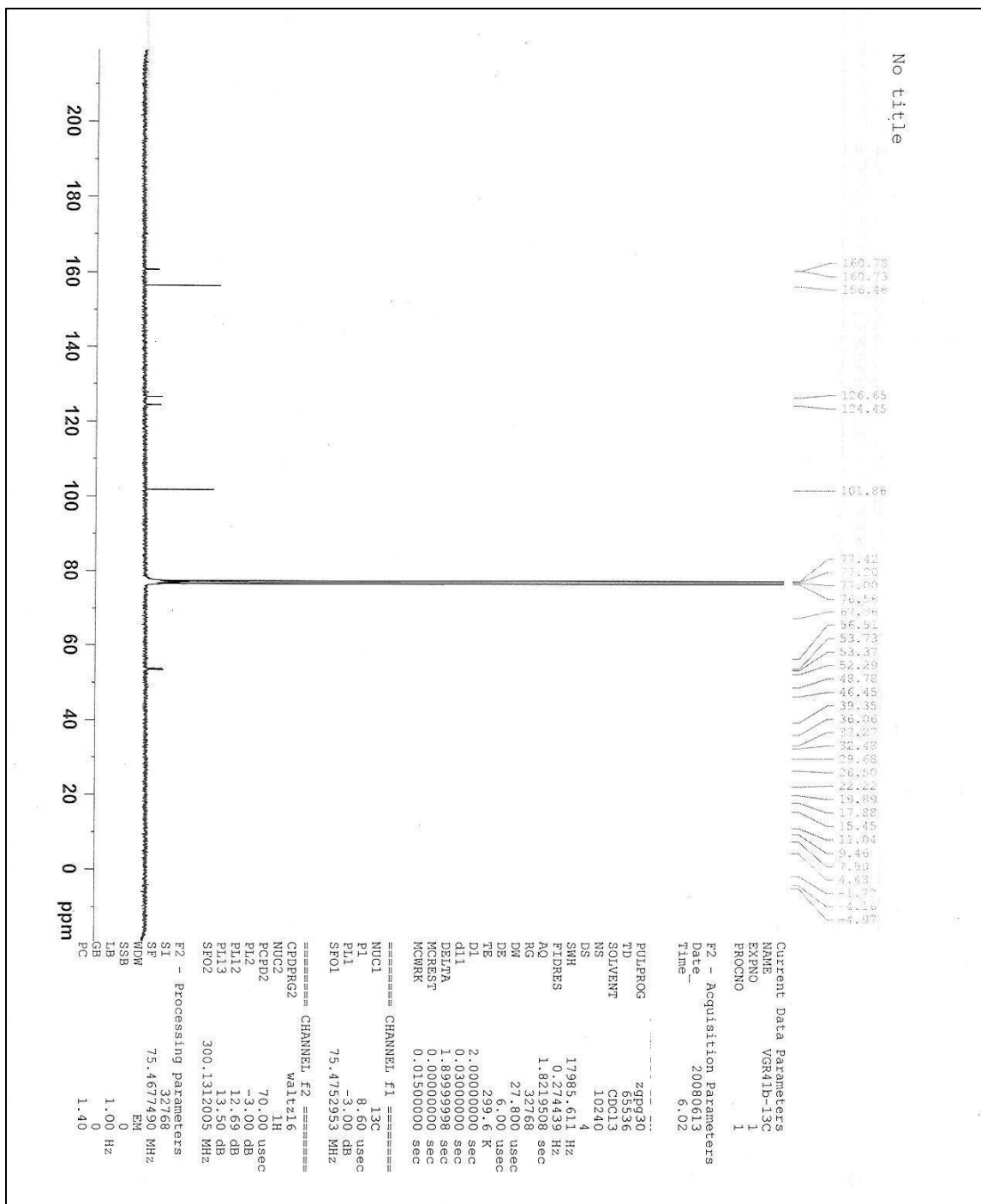


# MS spectrum of 4-chloro-2-(2H-pyrrol-1(5H)-yl)pyrimidine

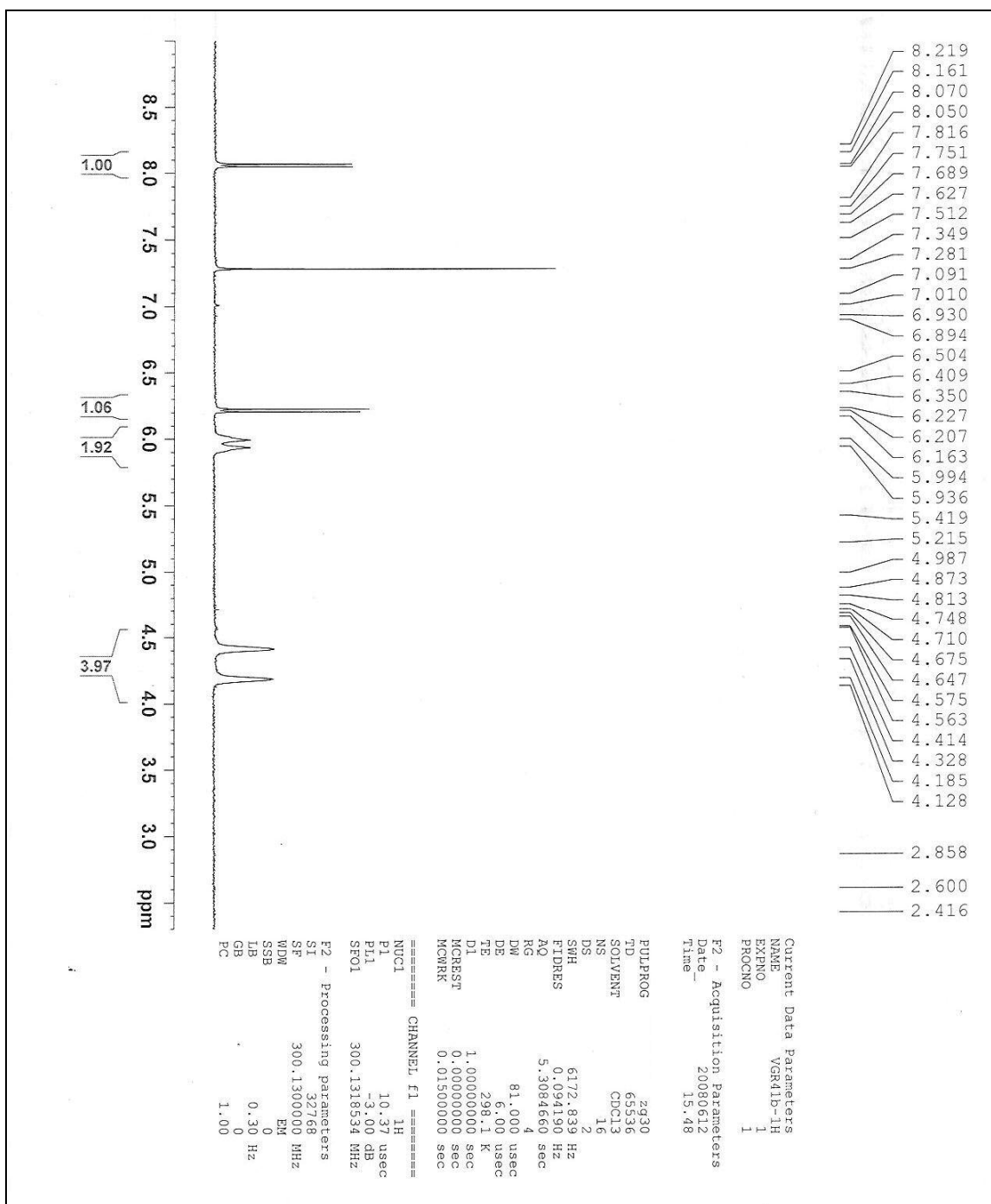
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Instrument : GC\_MS  
Sample Name: VGR41f4  
Misc Info :  
Vial Number: 29



<sup>1</sup>H -NMR spectrum of 4-chloro-2-(2H-pyrrol-1(5H)-yl)pyrimidine

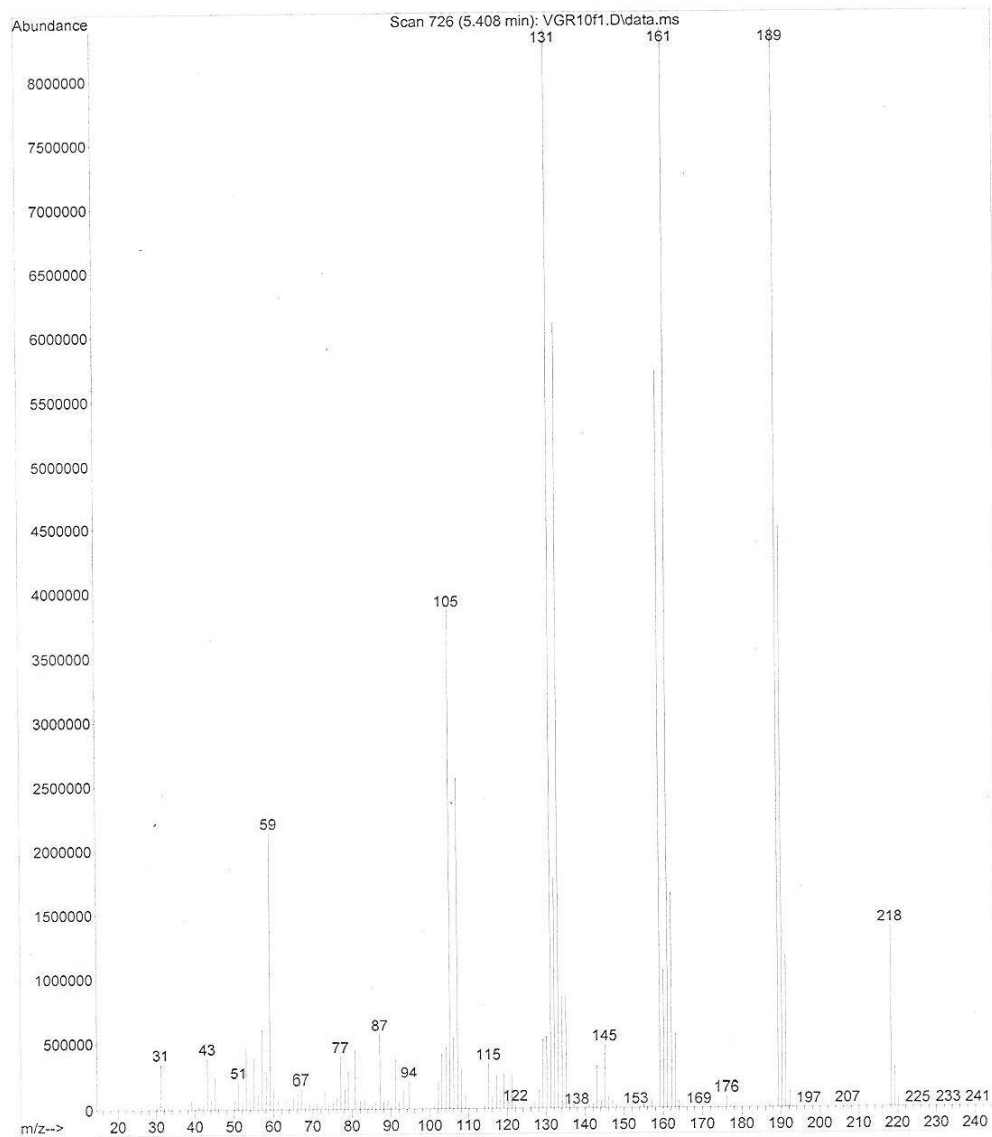


**$^{13}\text{C}$ -NMR spectrum of 4-chloro-2-(2H-pyrrol-1(5H)-yl)pyrimidine**

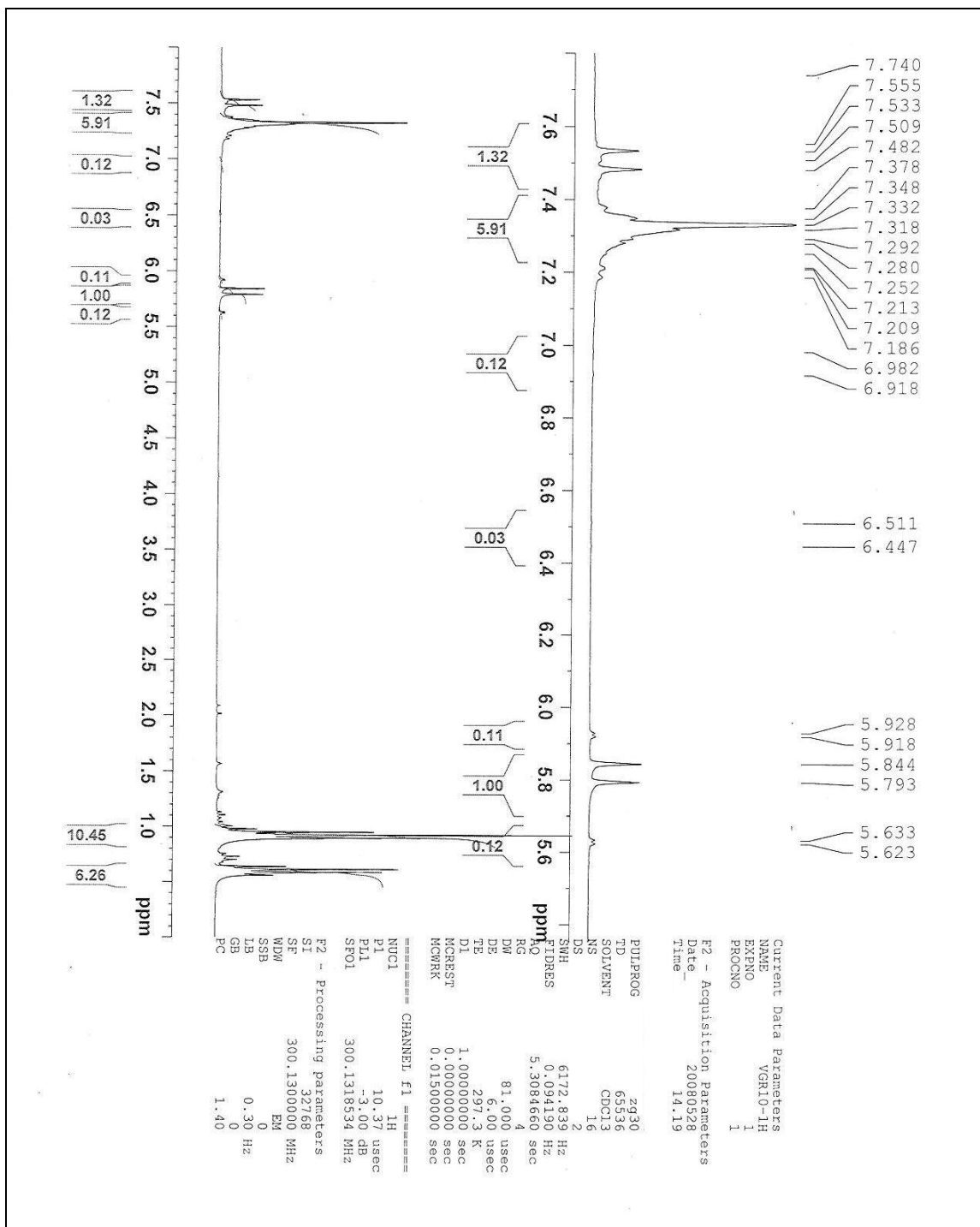


## MS spectrum of triethyl(styryl)silane

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Operator : VIVEK  
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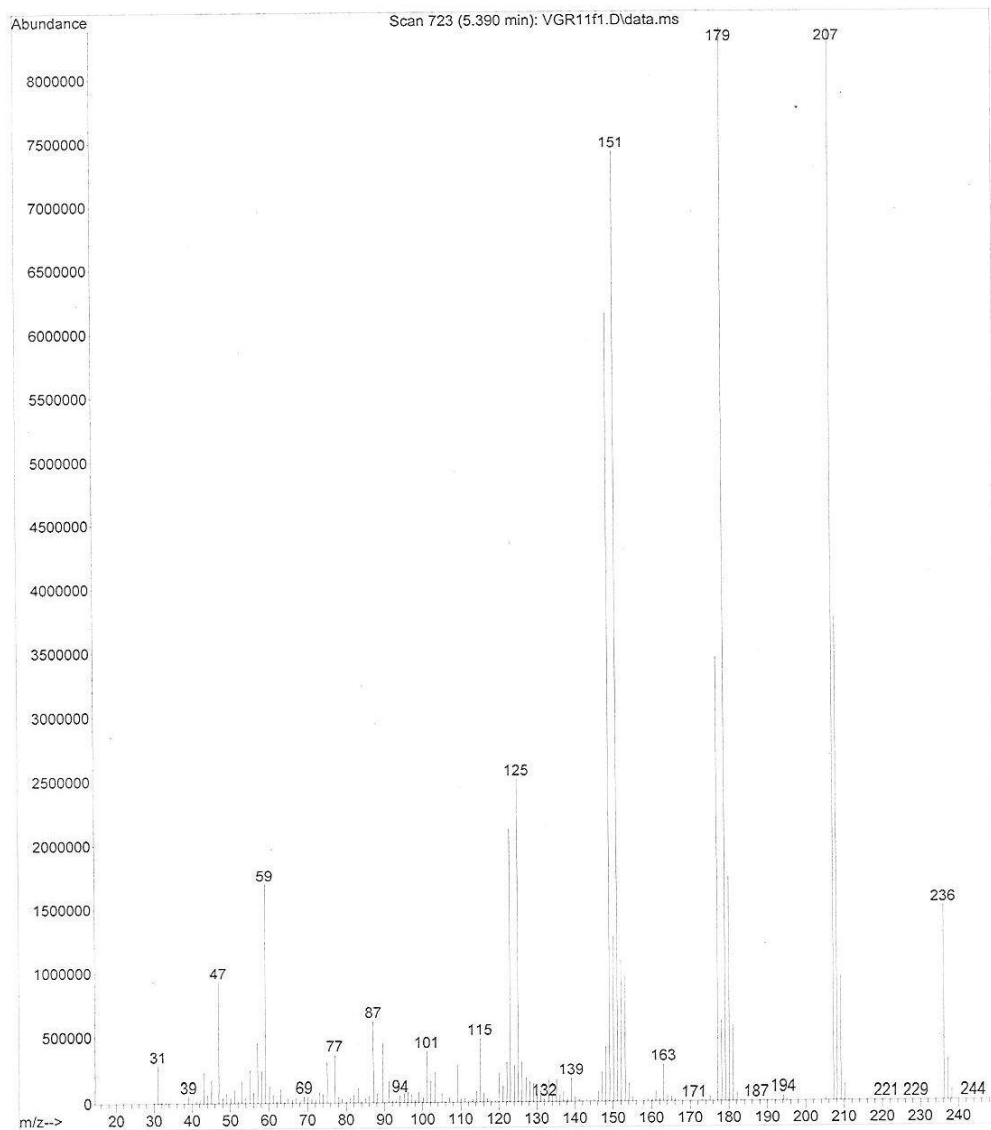


# <sup>1</sup>H -NMR spectrum of triethyl(styryl)silane



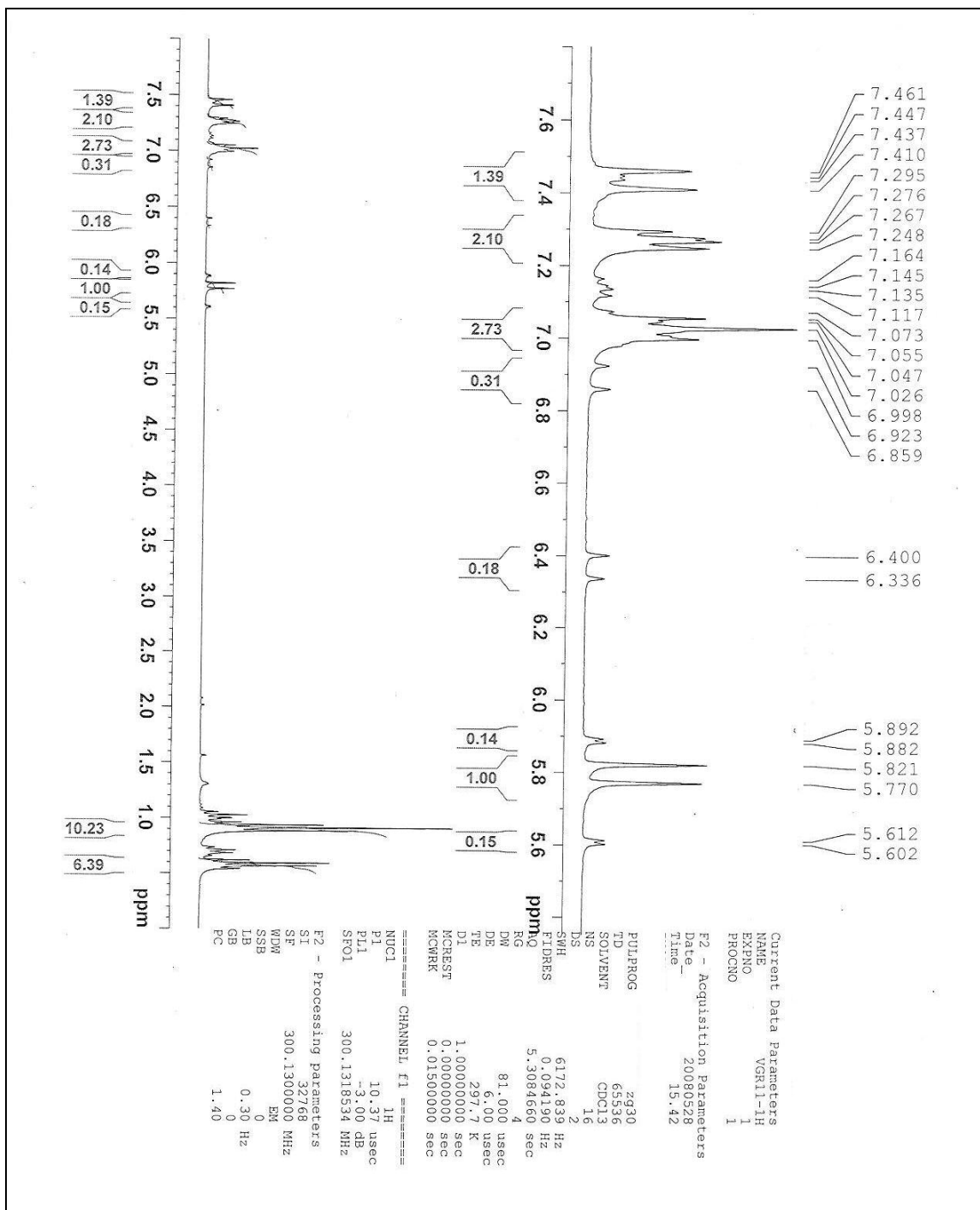
## MS spectrum of (4-fluorostyryl)triethylsilane

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Instrument : GC MS  
Sample Name: VGR11f1  
Misc Info :  
Vial Number: 30



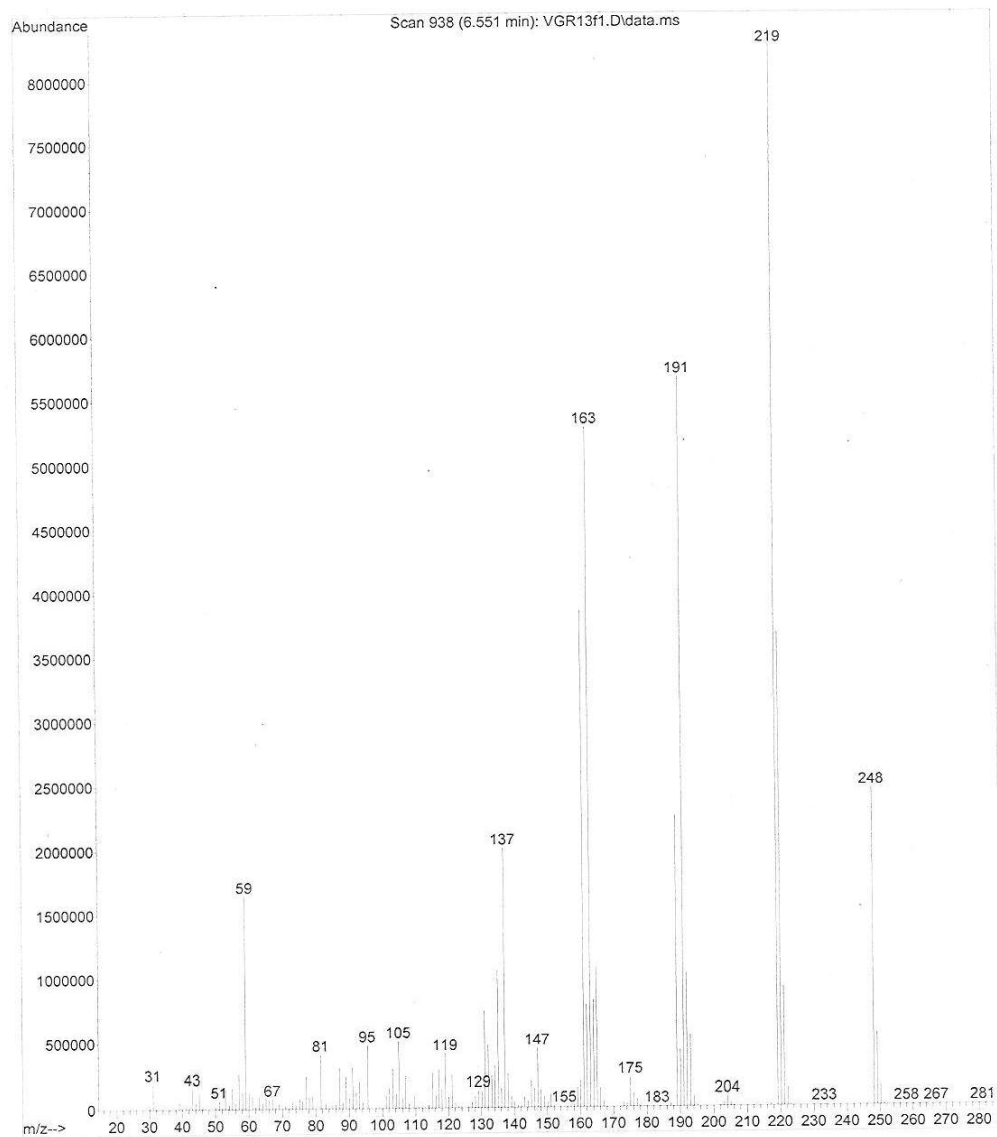


# <sup>1</sup>H -NMR spectrum of (4-fluorostyryl)triethylsilane

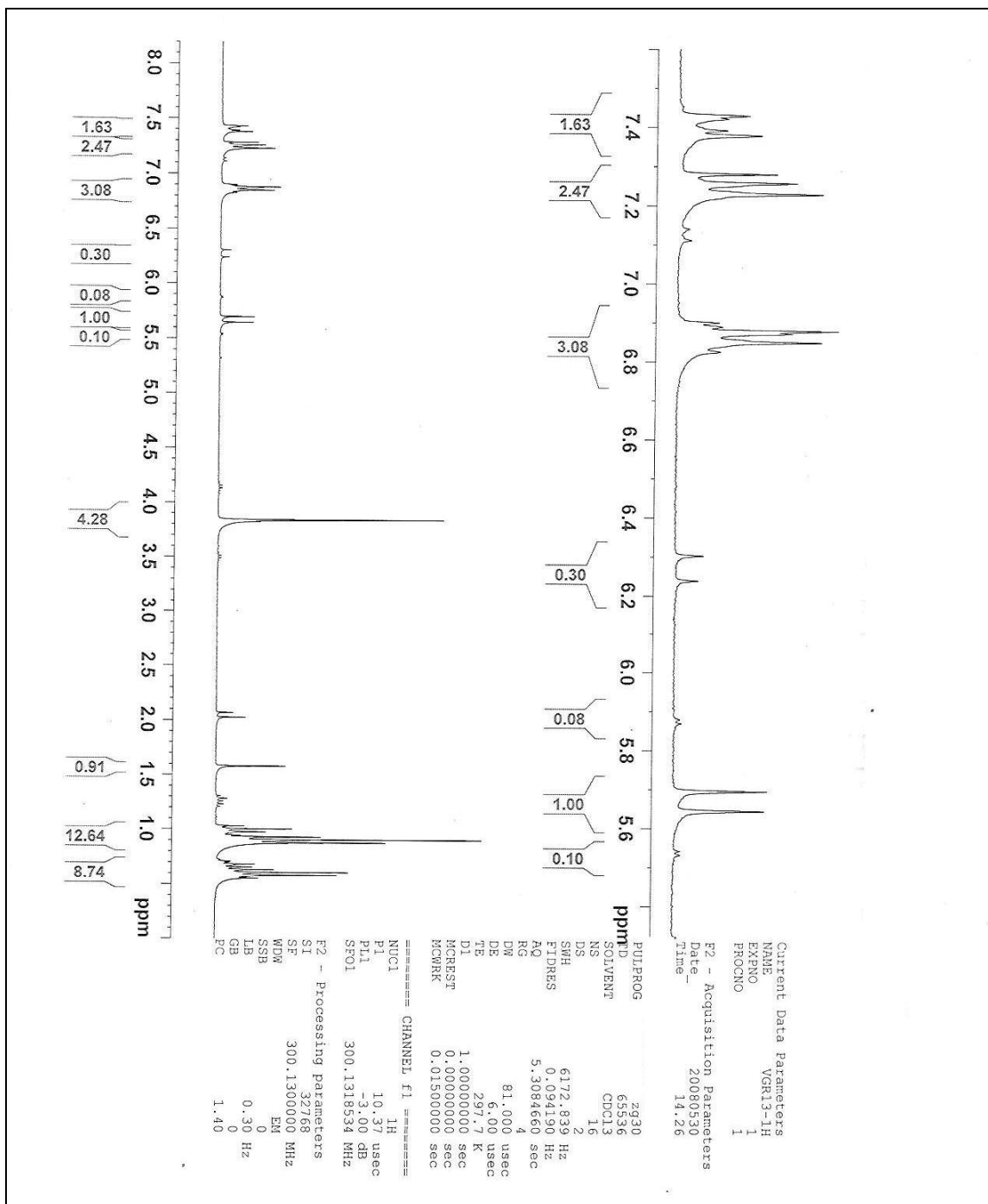


## MS spectrum of (4-methoxystyryl)triethylsilane

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Sample Name: VGR13f1  
Misc Info :  
Vial Number: 27

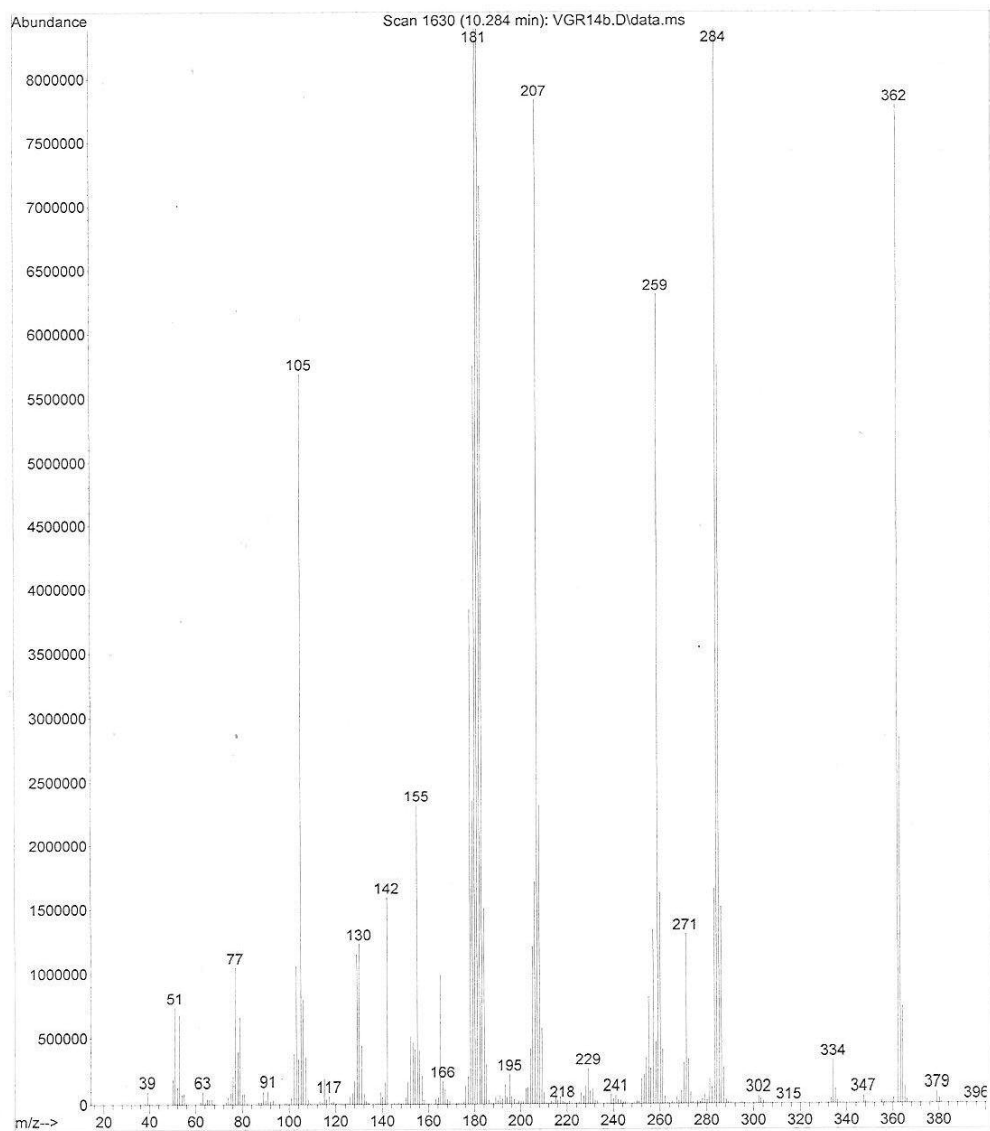


<sup>1</sup>H -NMR spectrum of (4-methoxystyryl)triethylsilane

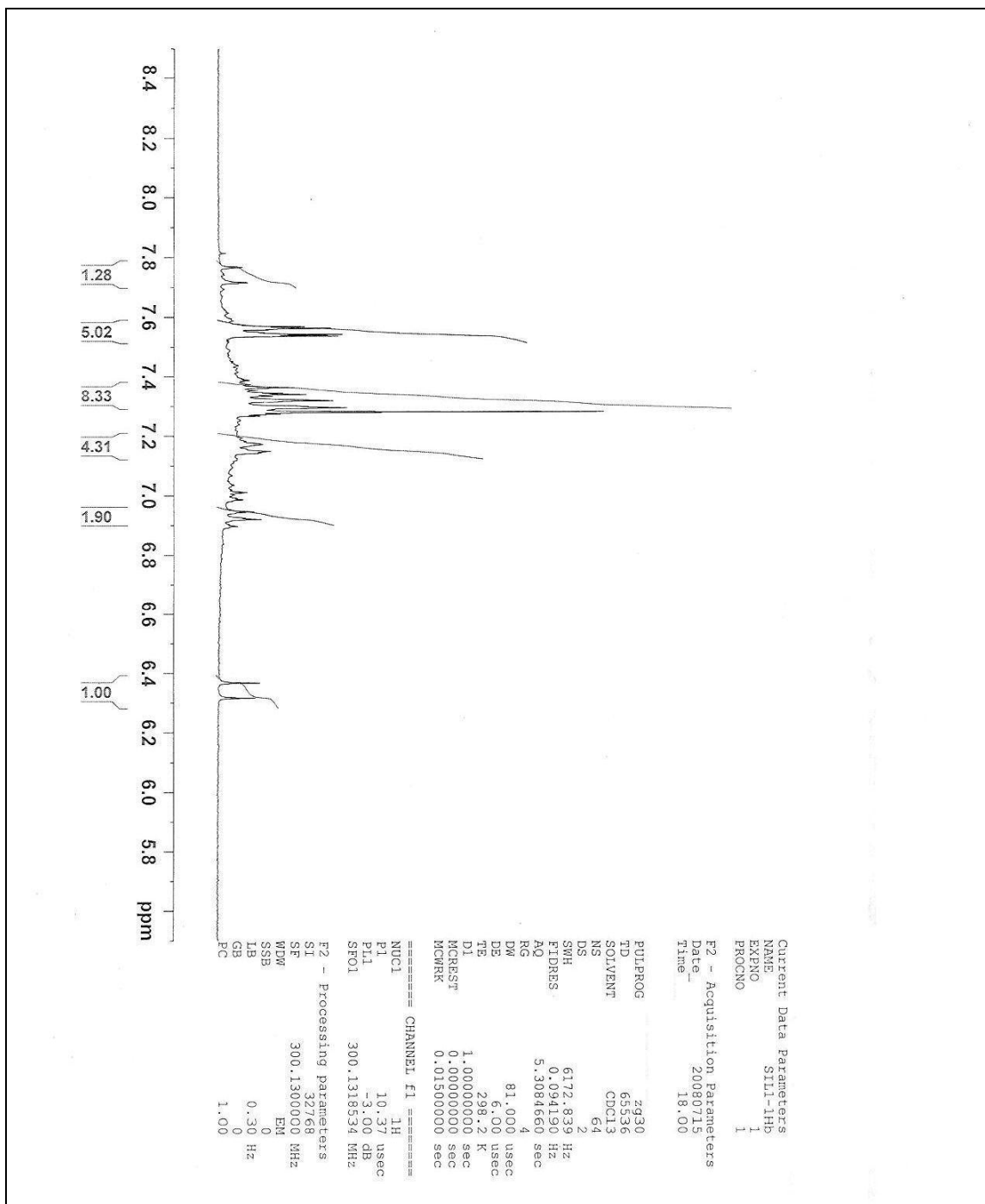


## MS spectrum of triphenyl(styryl)silane

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Vial Number: 30

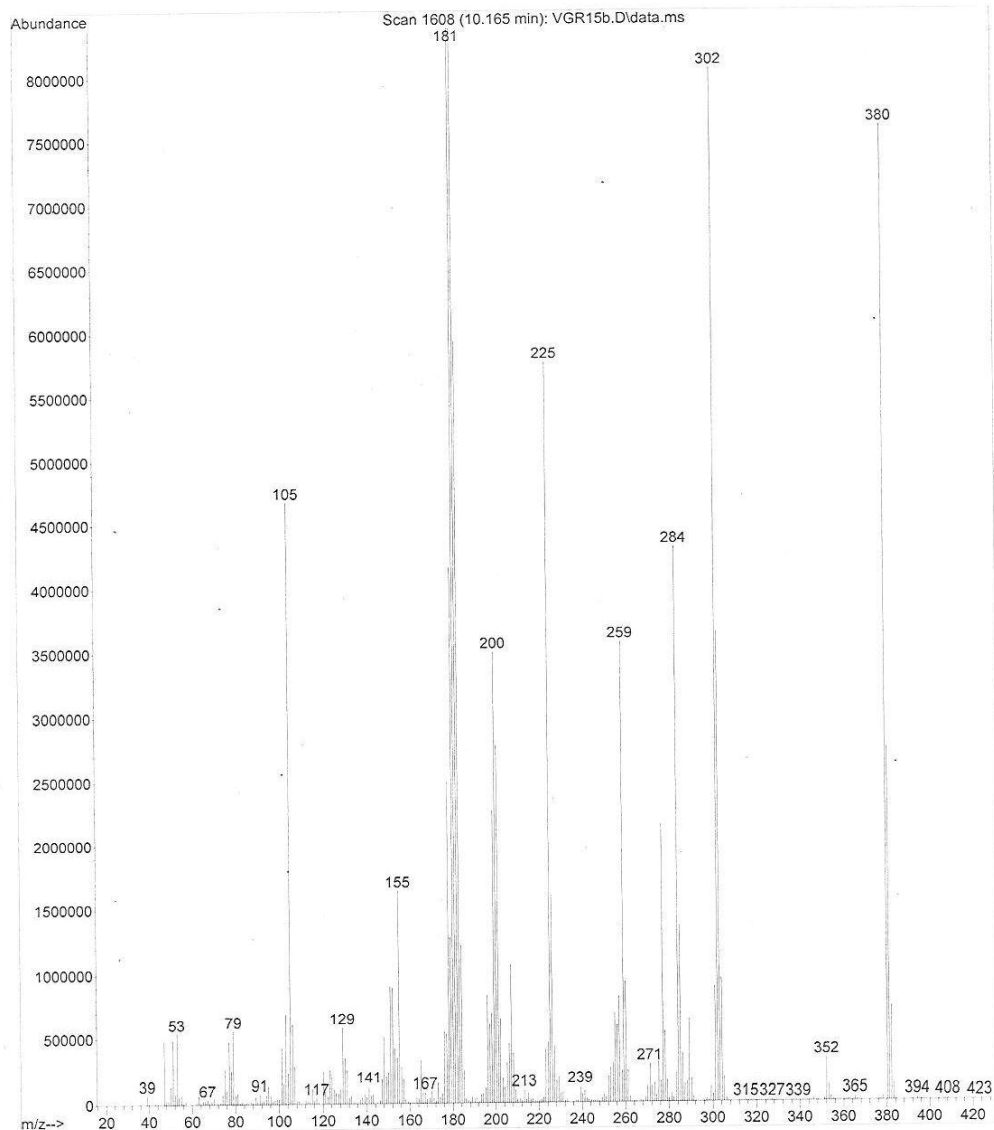


# <sup>1</sup>H -NMR spectrum of triphenyl(styryl)silane

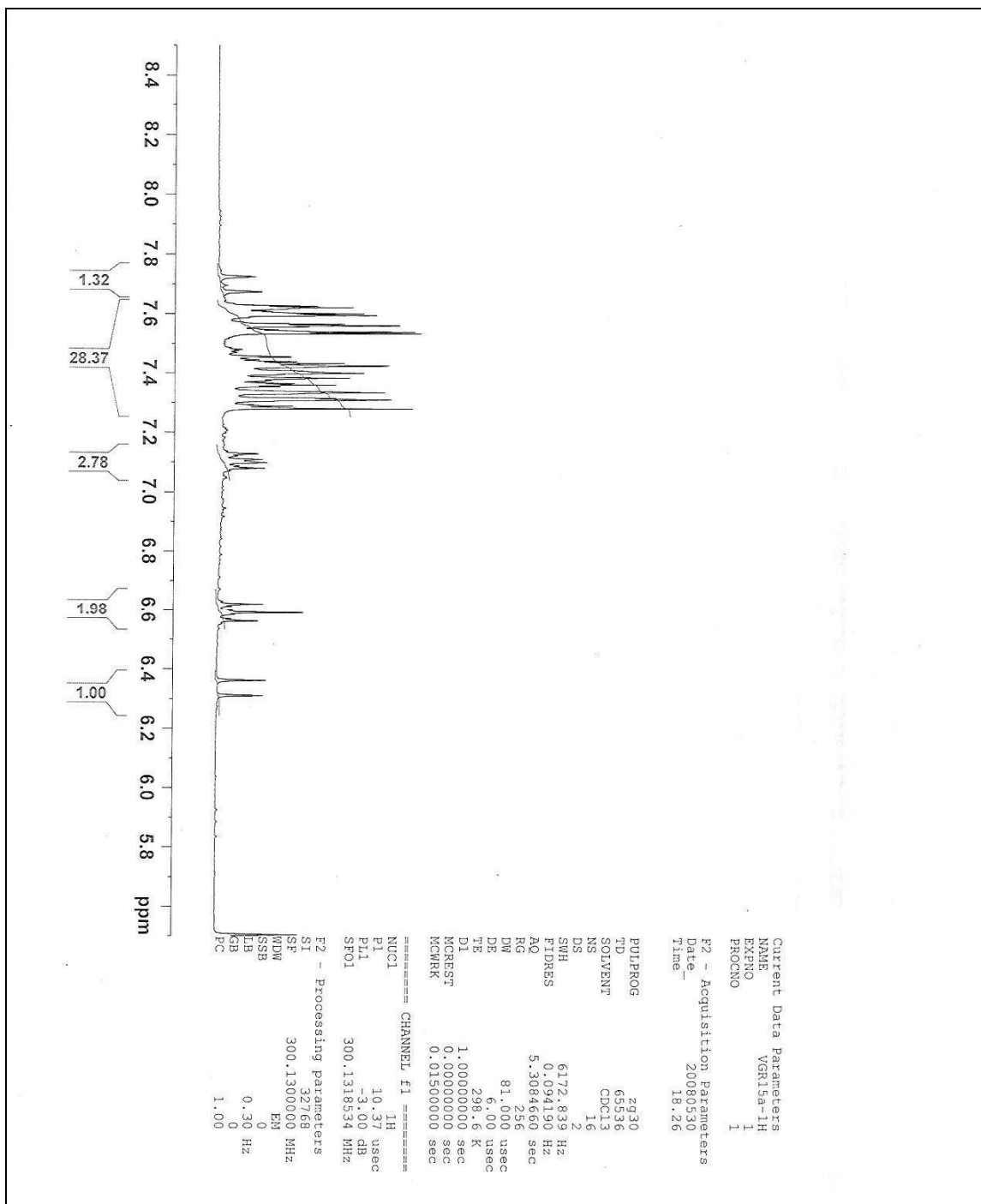


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Vial Number: 29

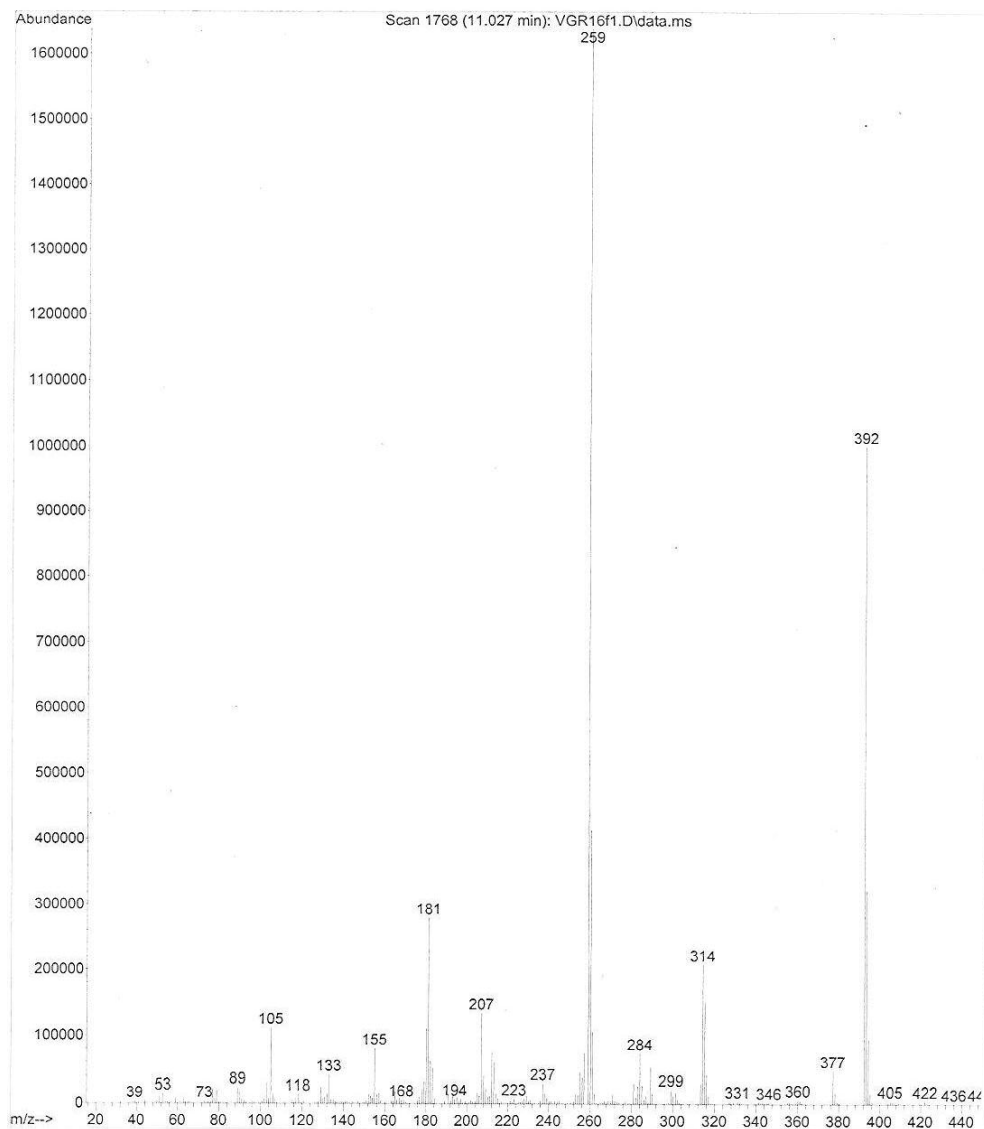


# <sup>1</sup>H -NMR spectrum of (4-fluorostyryl)triphenylsilane



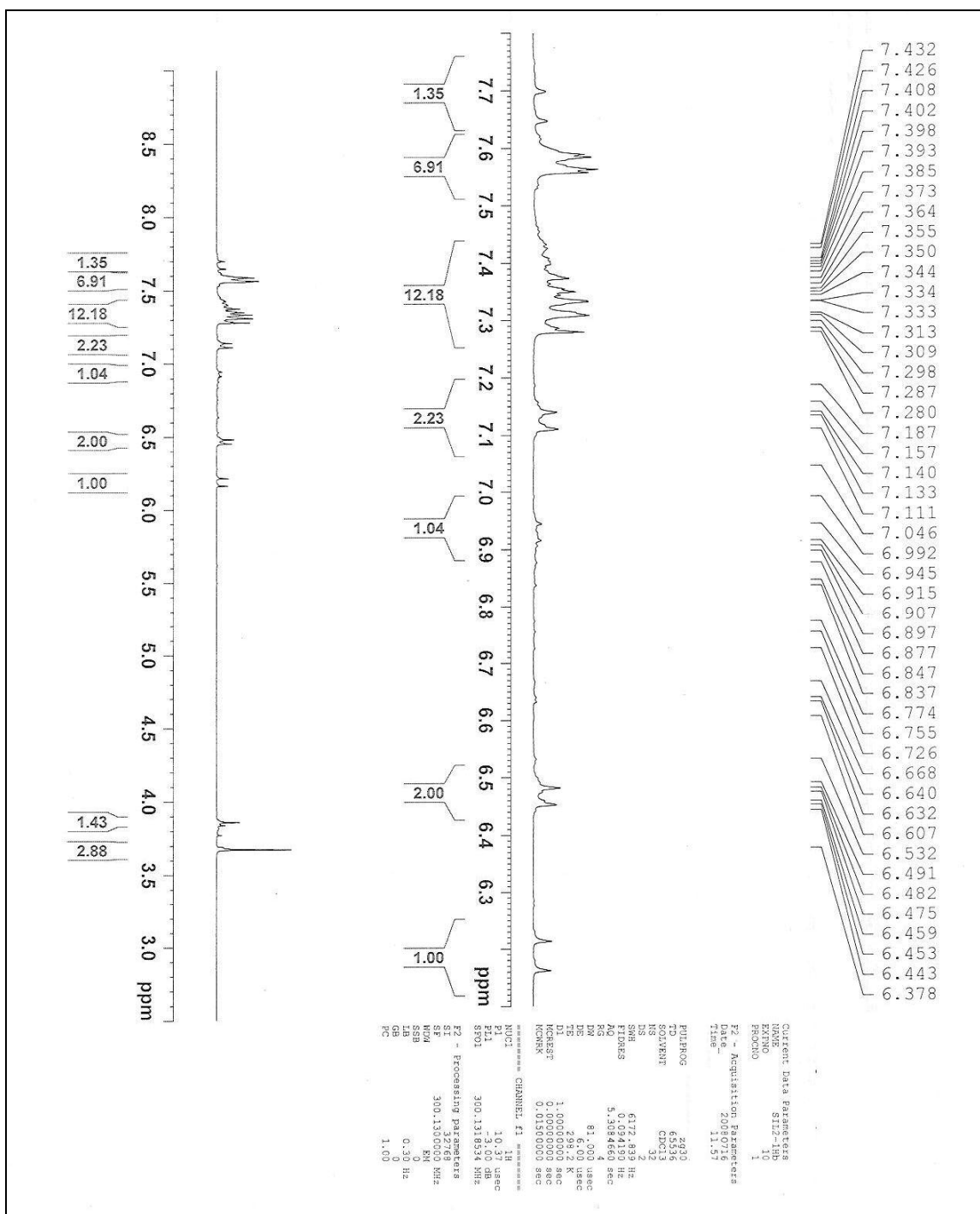
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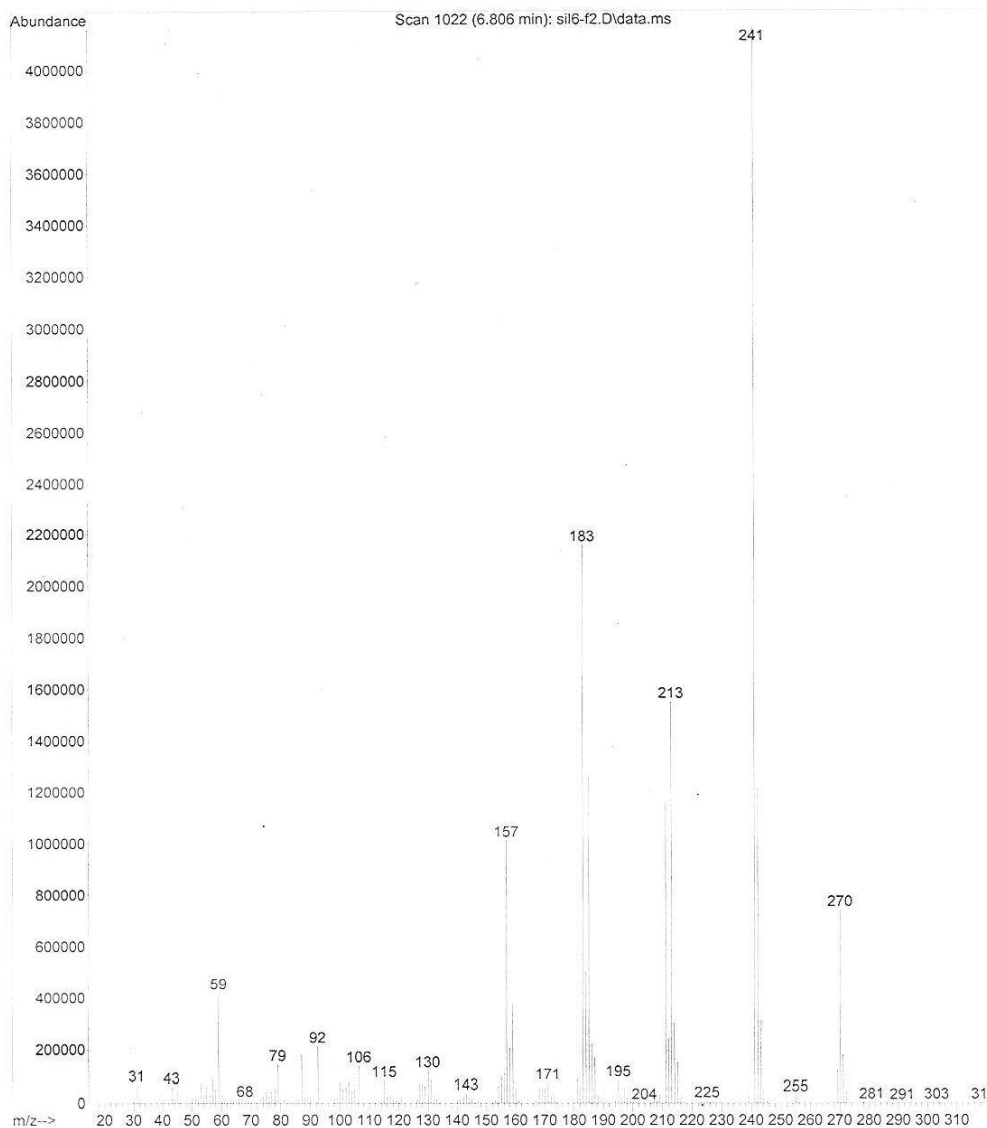


# <sup>1</sup>H -NMR spectrum of (4-methoxystyryl)triphenylsilane



## MS spectrum of 6-(triethylsilyl)vinylquinoxaline

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Sample Name: sil6-f2  
Misc Info :  
Vial Number: 30



# <sup>1</sup>H -NMR spectrum of 6-(triethylsilyl)vinylquinoxaline

