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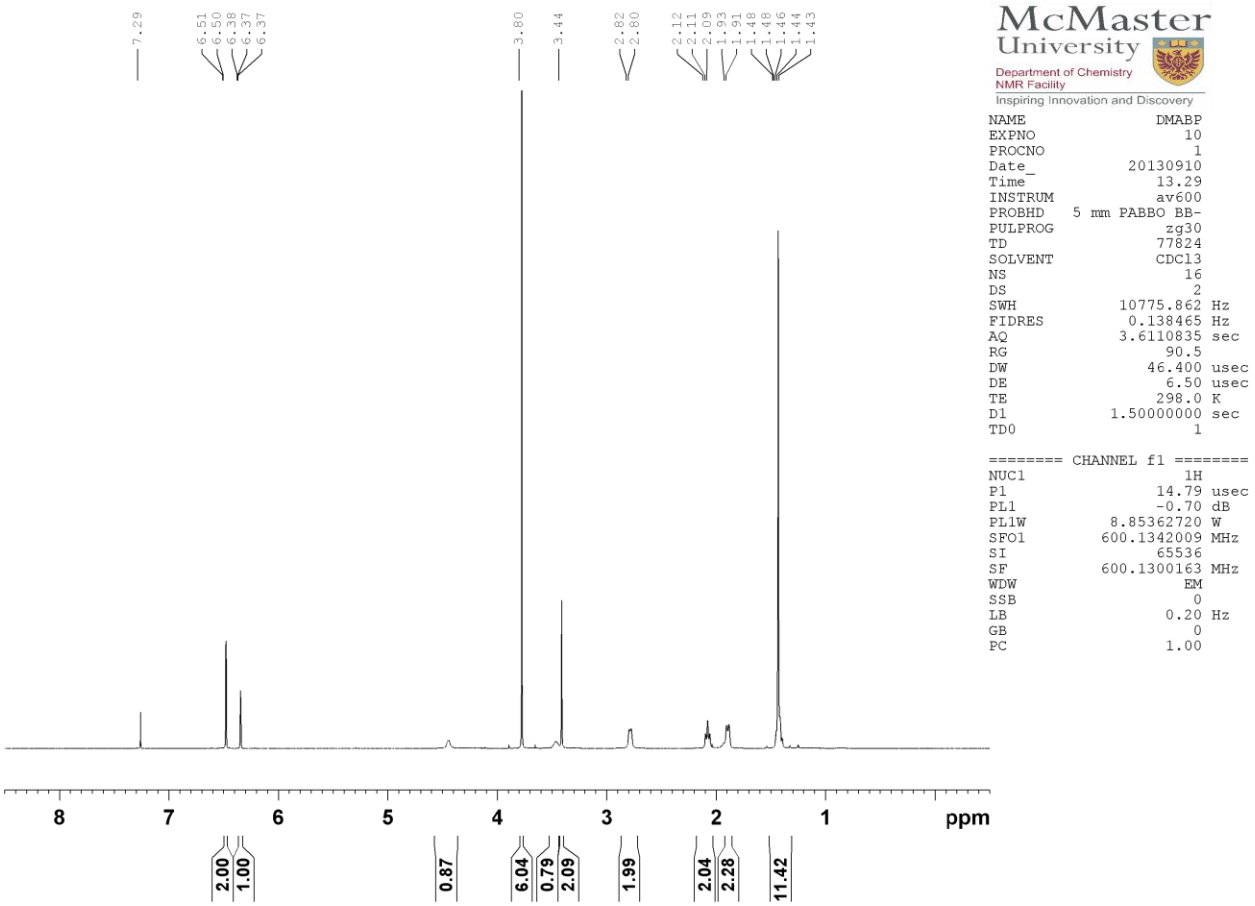



Figure 1: $^{1}$H NMR of compound **4b** (600 MHz, $CDCl_3$)

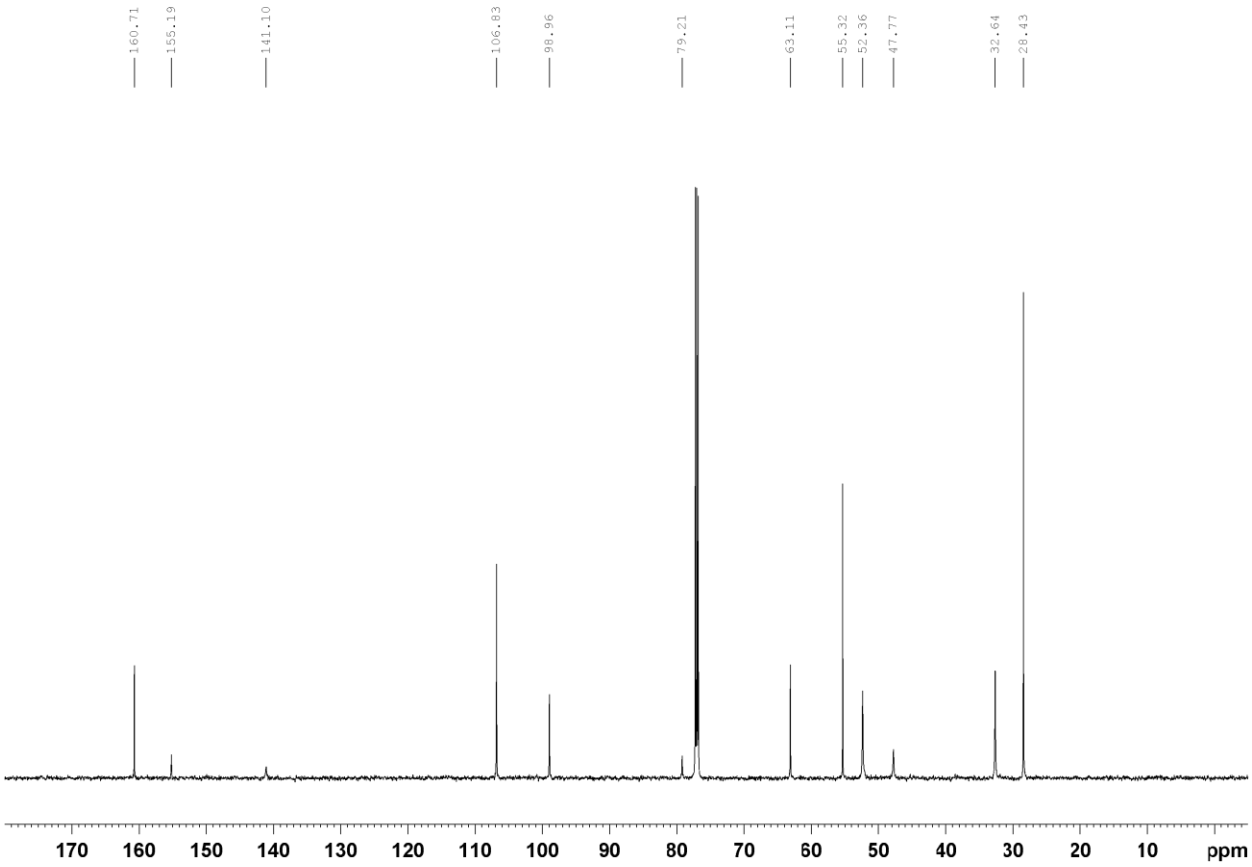



Figure 2: $^{13}C$ NMR of compound **4b** (150 MHz, $CDCl_3$)

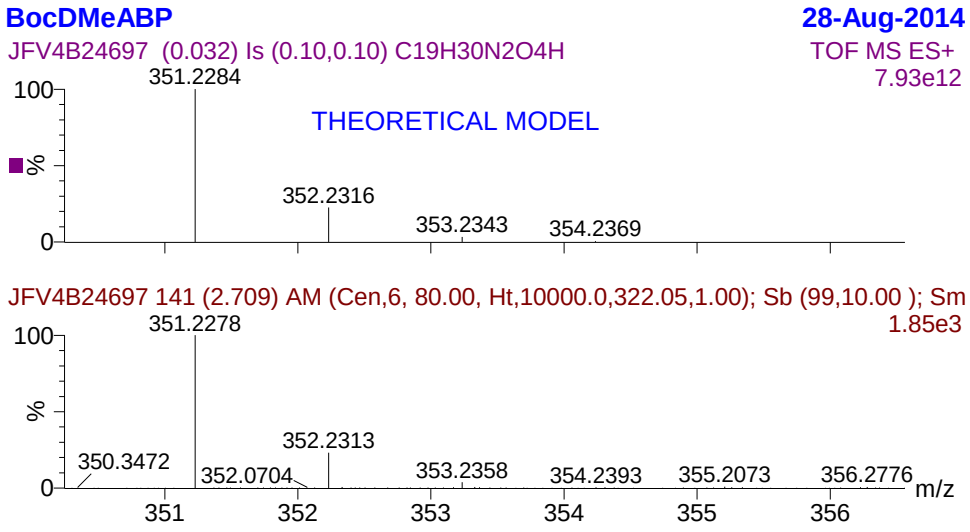



Figure 3: High Resolution Mass Spectrum ($ESI^+$) of compound **4b**

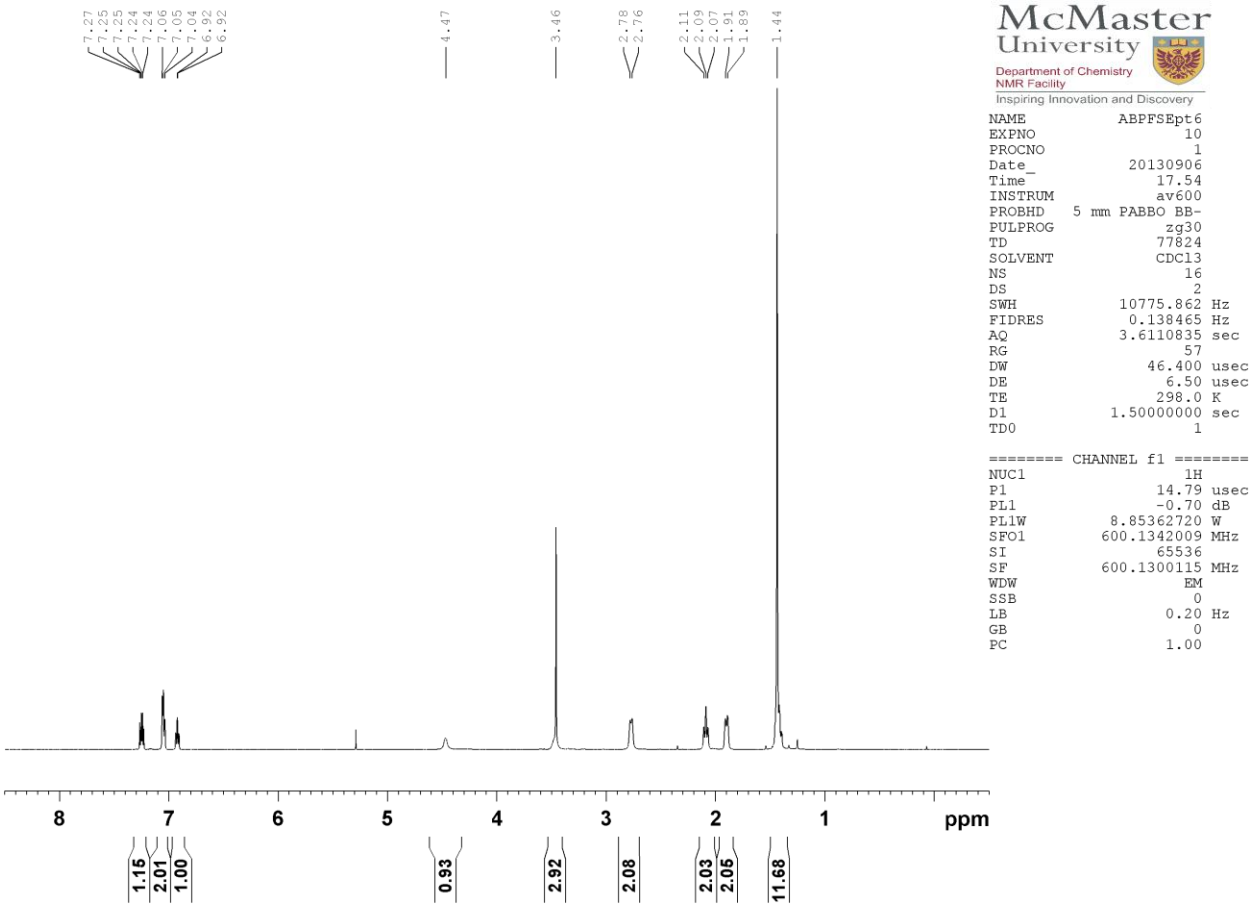



Figure 4: $^{1}$H NMR of compound **4c** (600 MHz, $CDCl_3$)

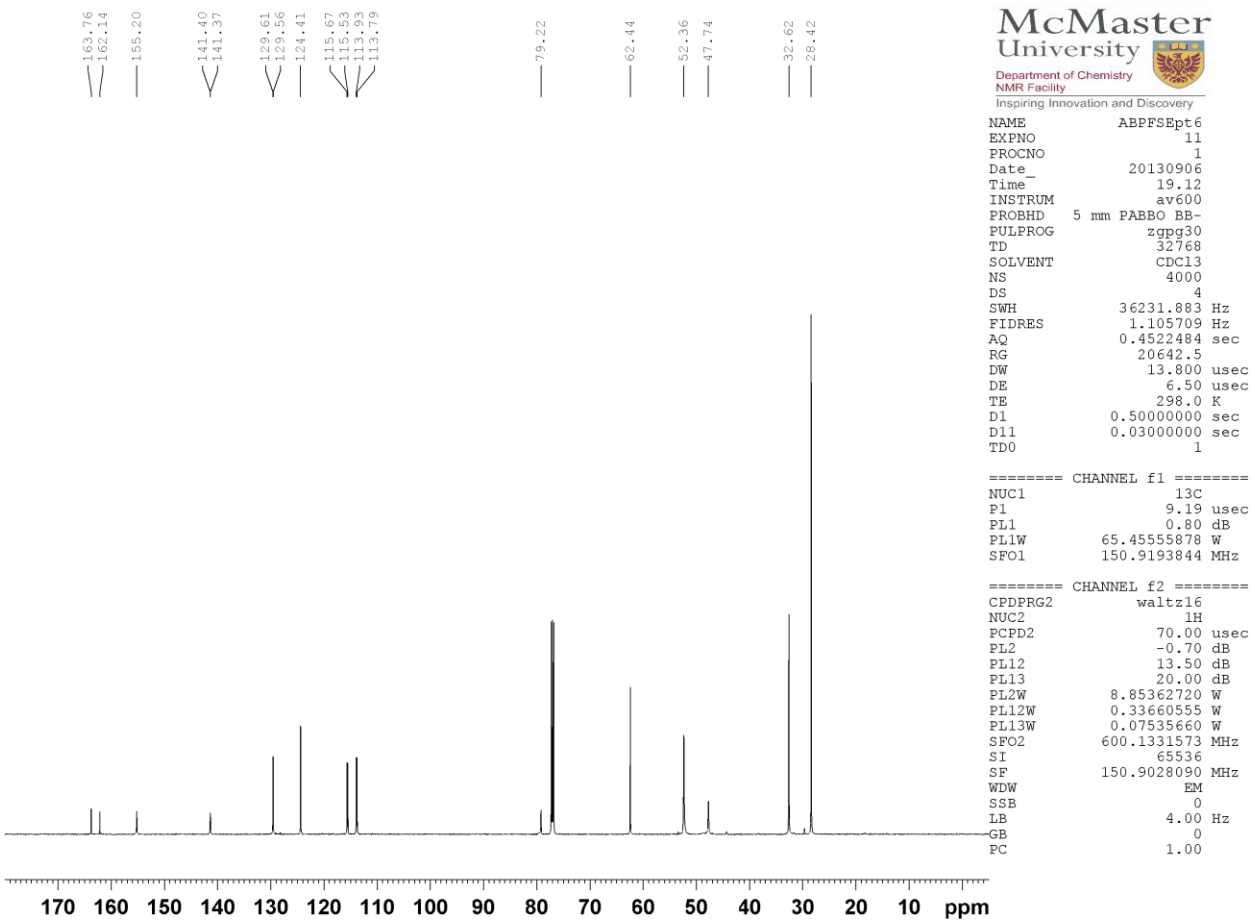



Figure 5: $^{13}C$ NMR of compound **4c** (150 MHz, $CDCl_3$)

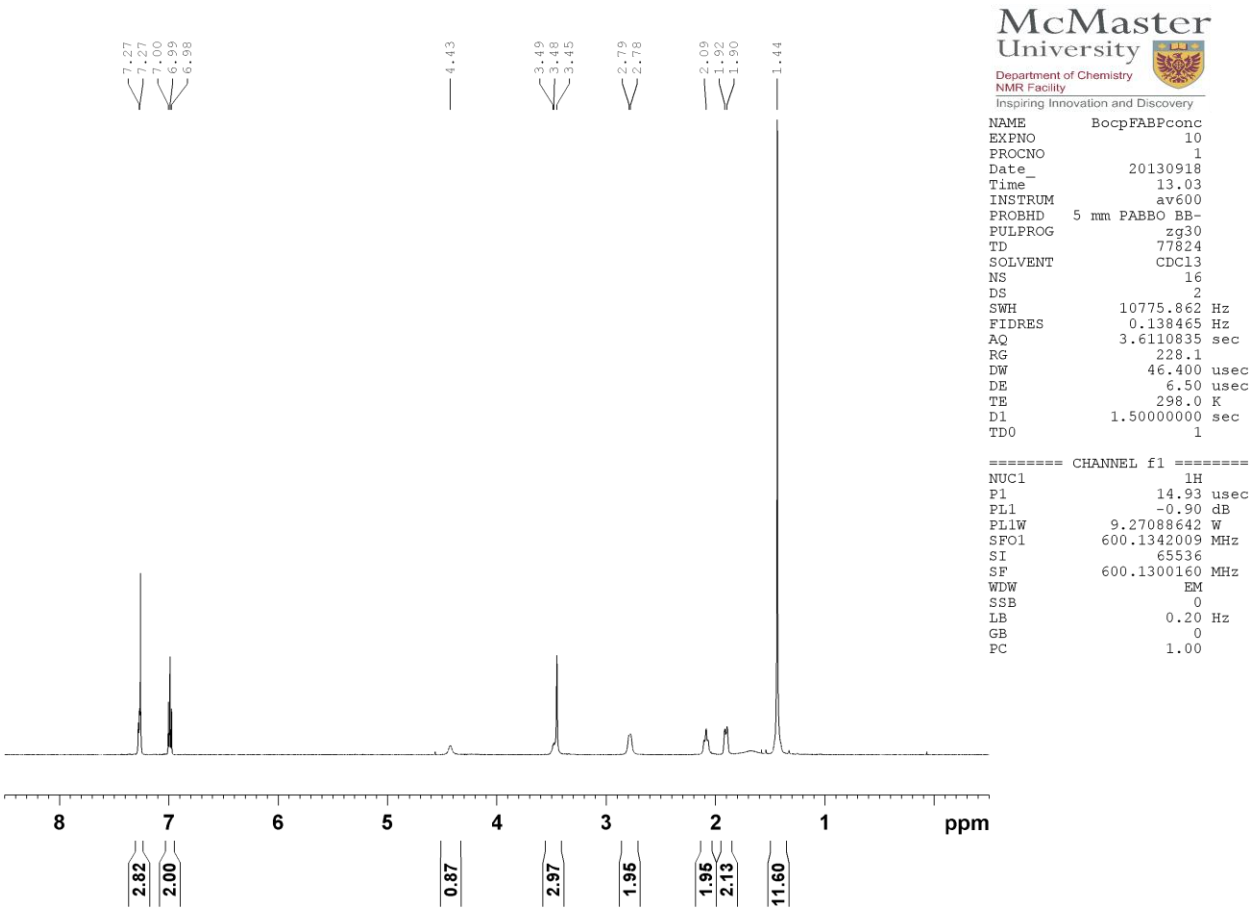



Figure 6: $^{1}$H NMR of compound **4d** (600 MHz, $CDCl_3$)

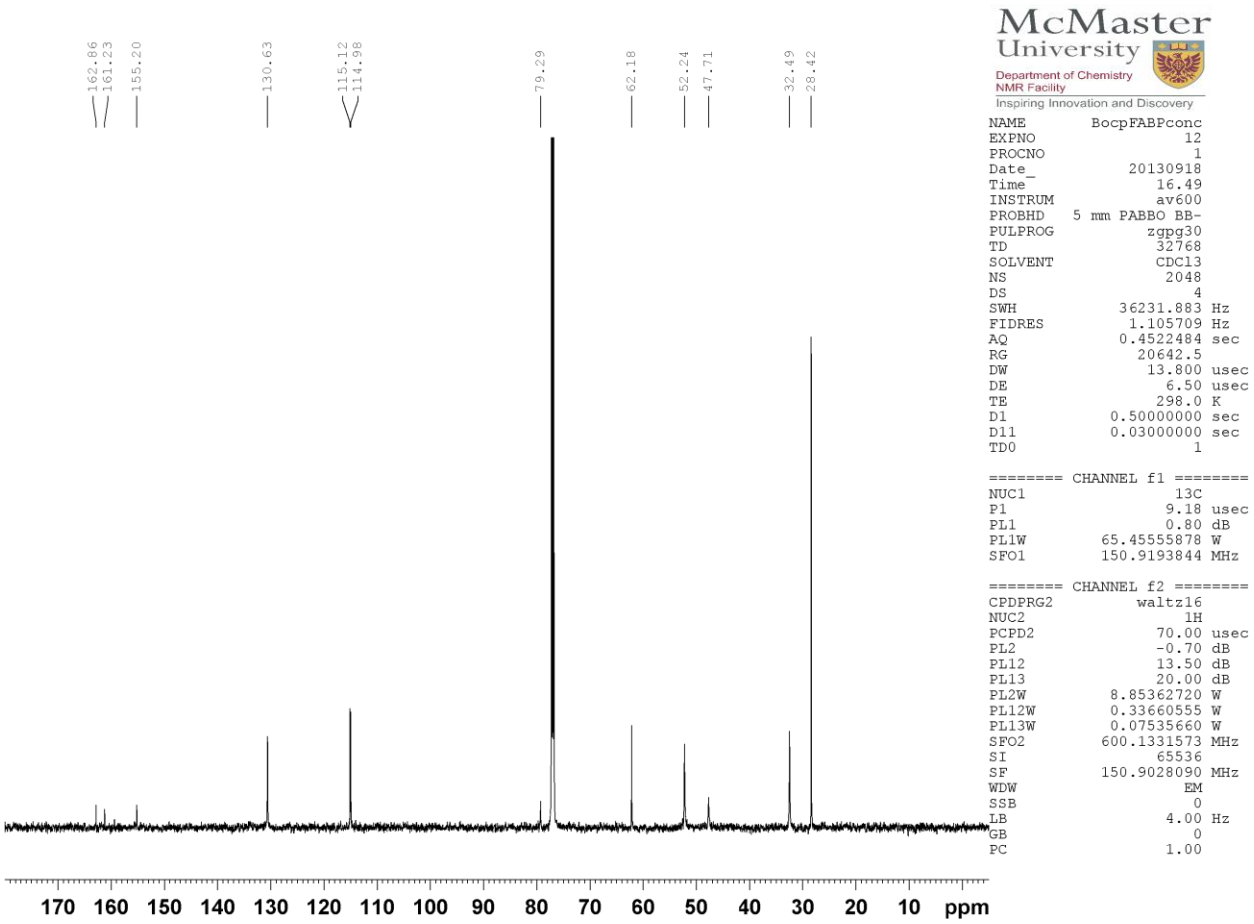



Figure 7: $^{13}C$ NMR of compound **4d** (150 MHz, $CDCl_3$)

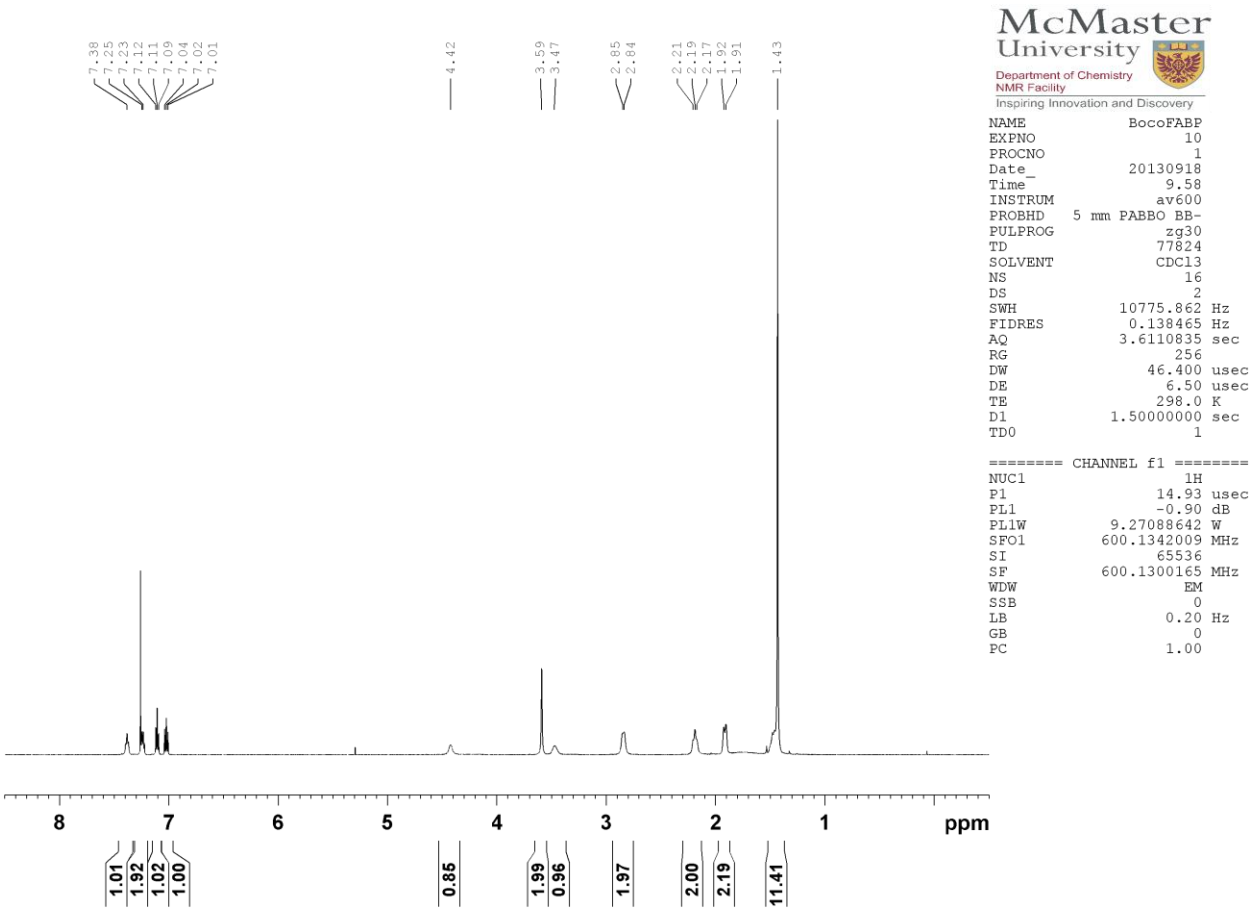



Figure 8: $^{1}$H NMR of compound **4e** (600 MHz, $CDCl_3$)

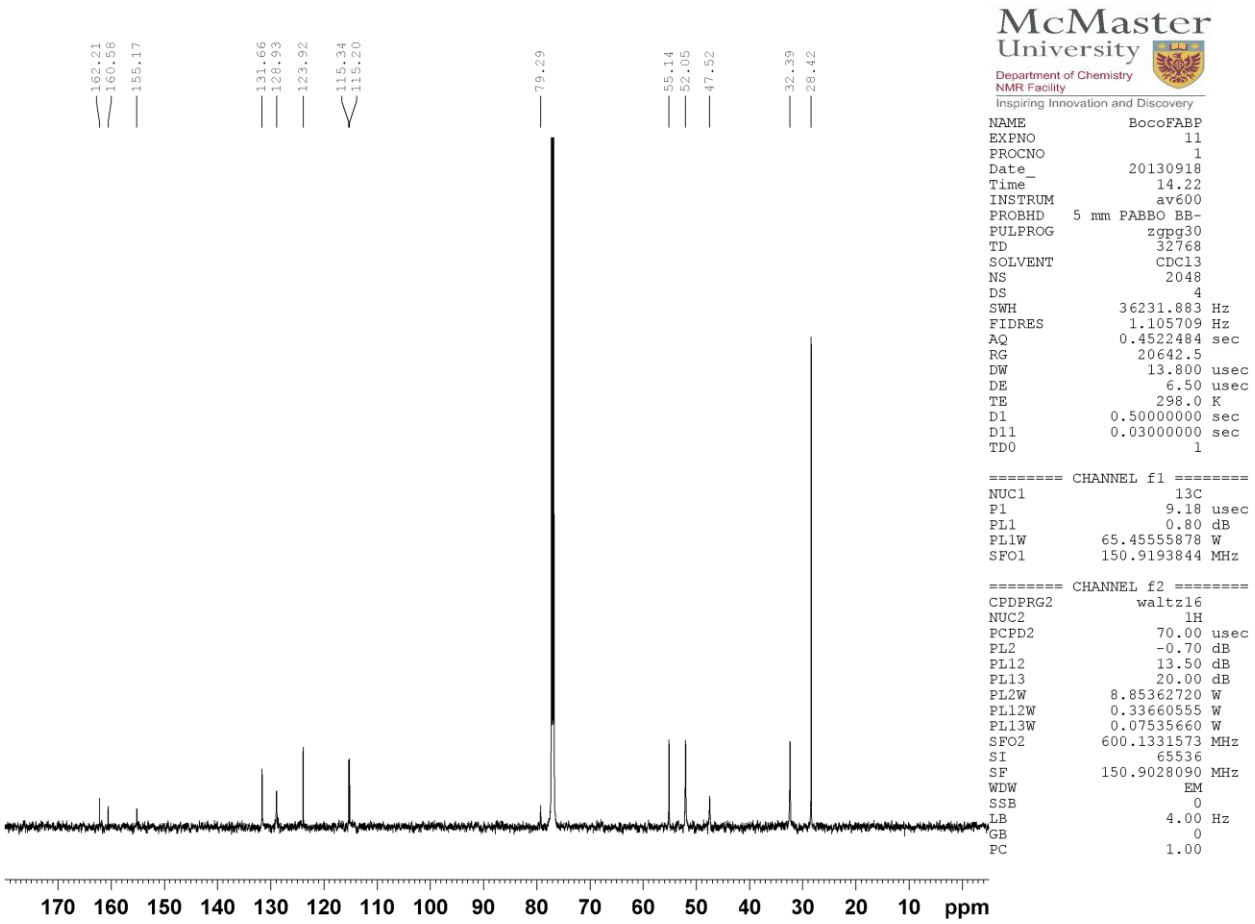



Figure 9: $^{13}C$ NMR of compound **4e** (150 MHz, $CDCl_3$)

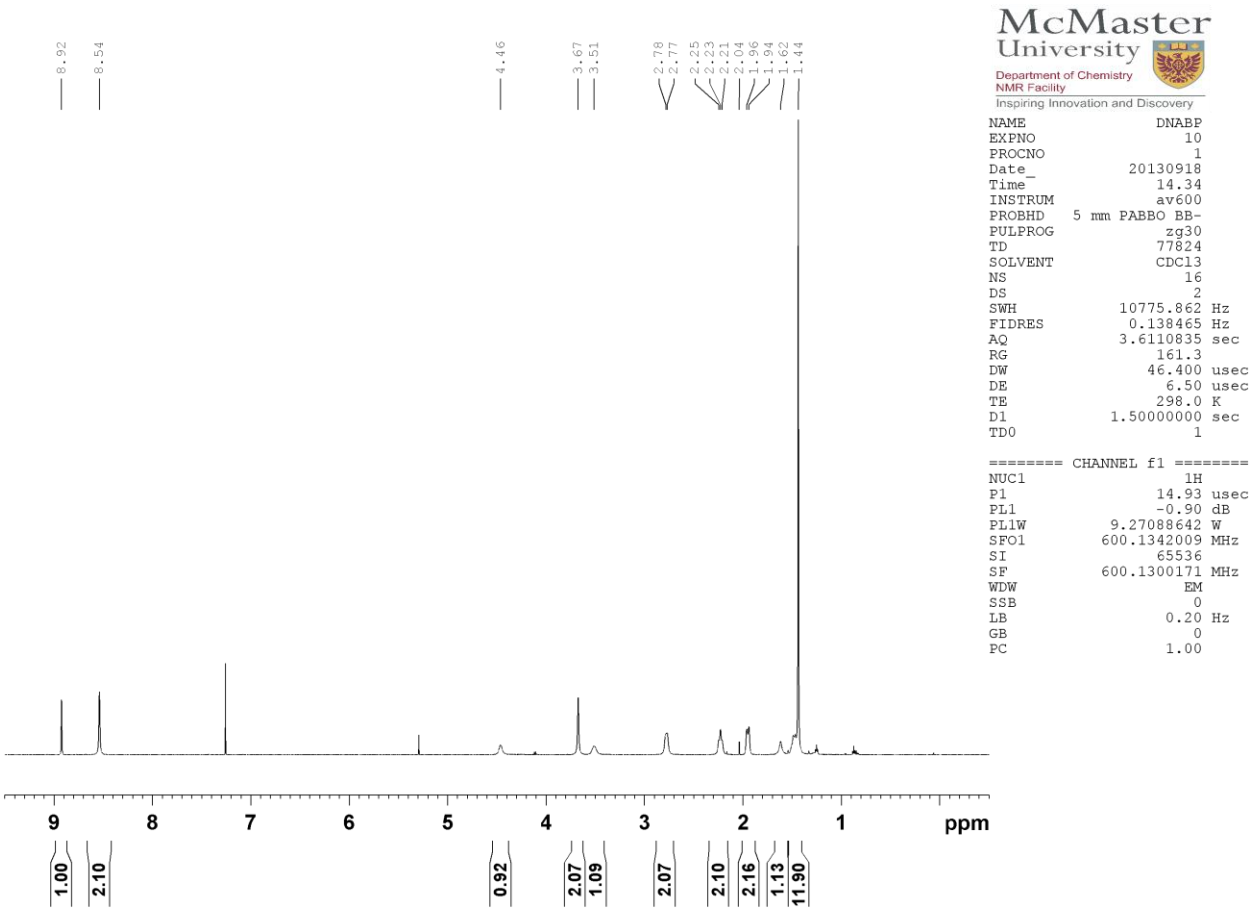



Figure 10: $^{1}$H NMR of compound **4f** (600 MHz, $CDCl_3$)

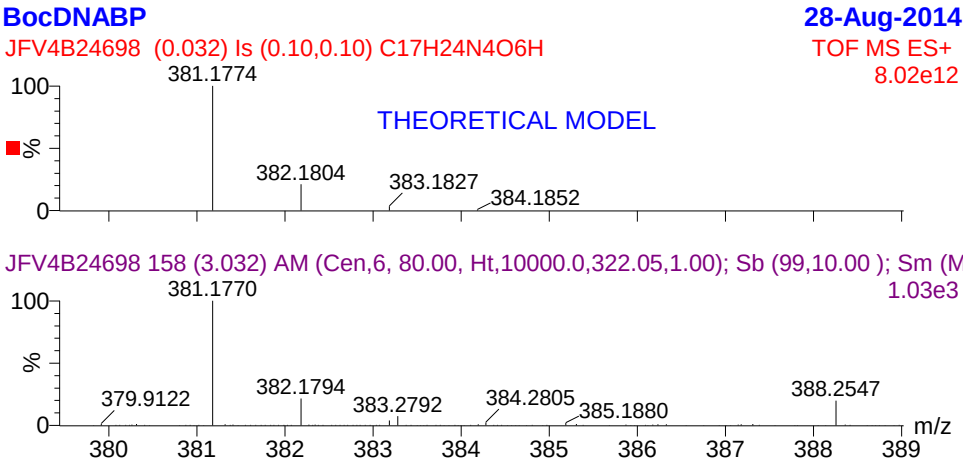



Figure 11: High Resolution Mass Spectrum (ESI$^{+}$) of compound **4f**

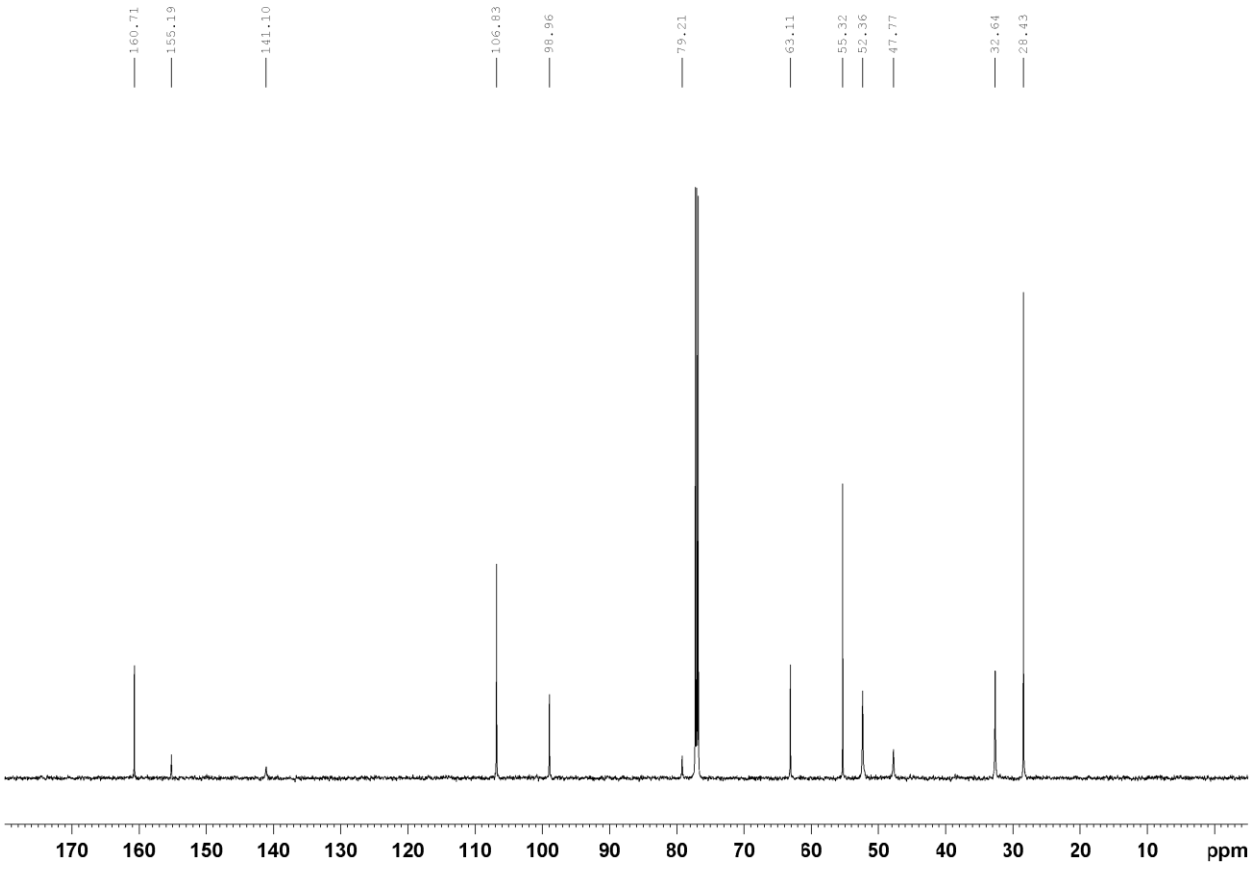



Figure 12: $^{13}C$ NMR of compound **4f** (150 MHz, $CDCl_3$)

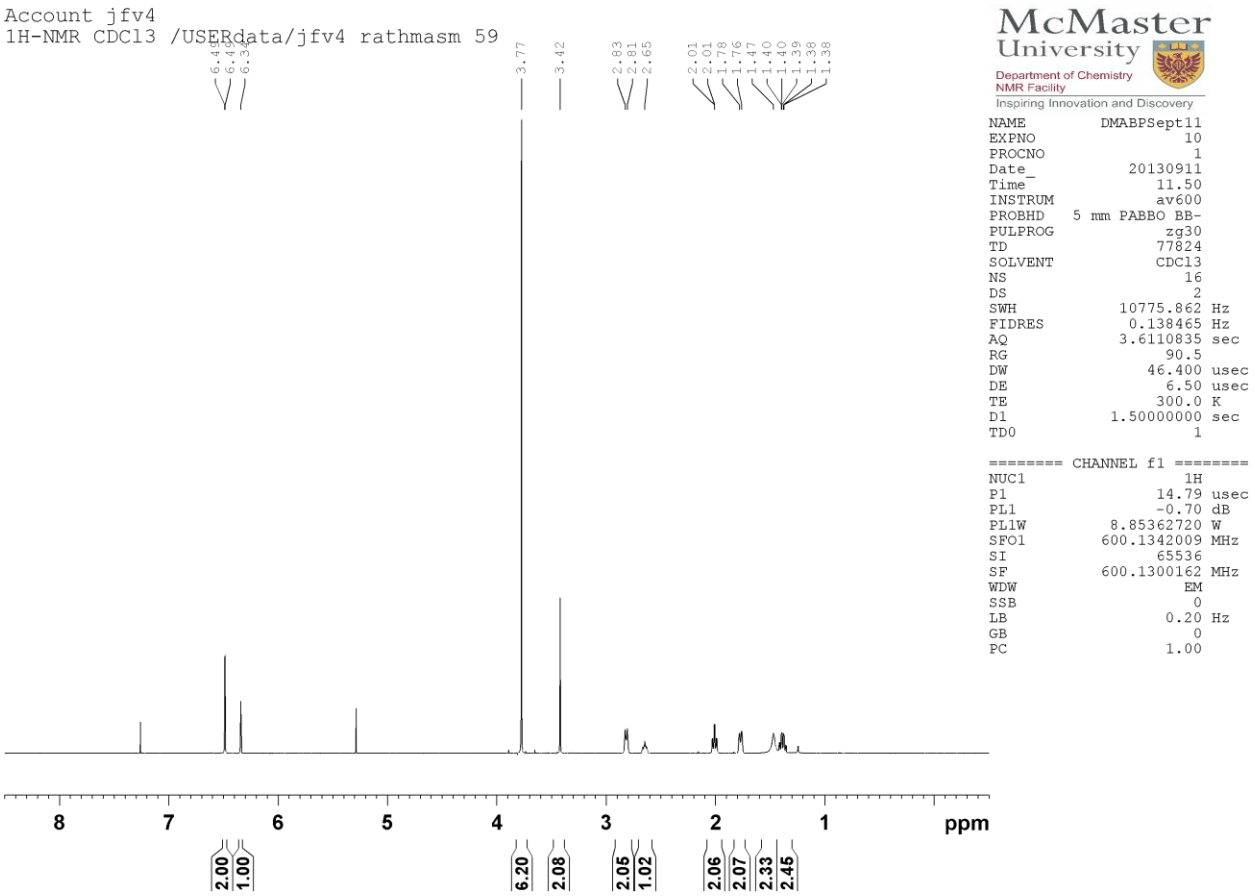



Figure 13: $^{1}$H NMR of compound **5b** (600 MHz, $CDCl_3$)

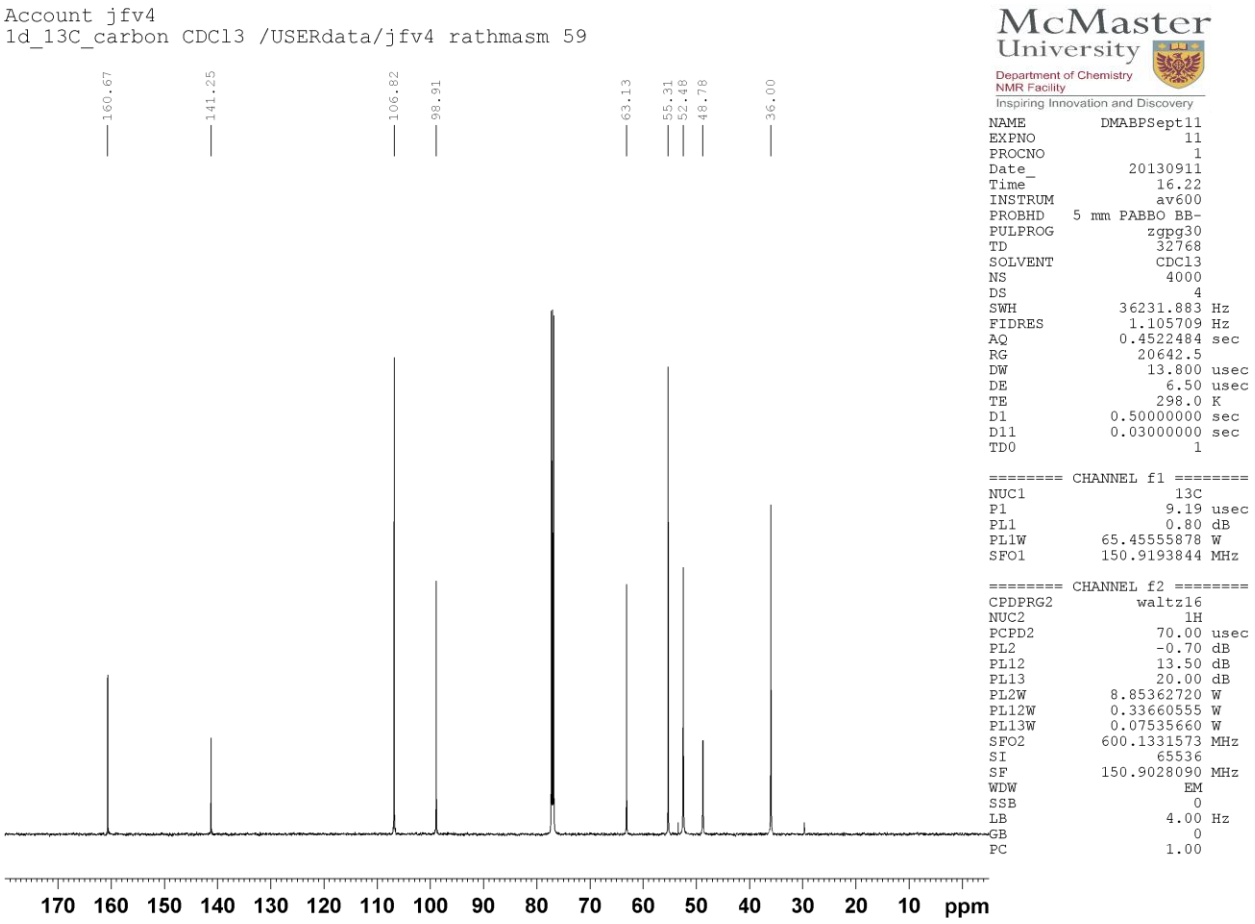
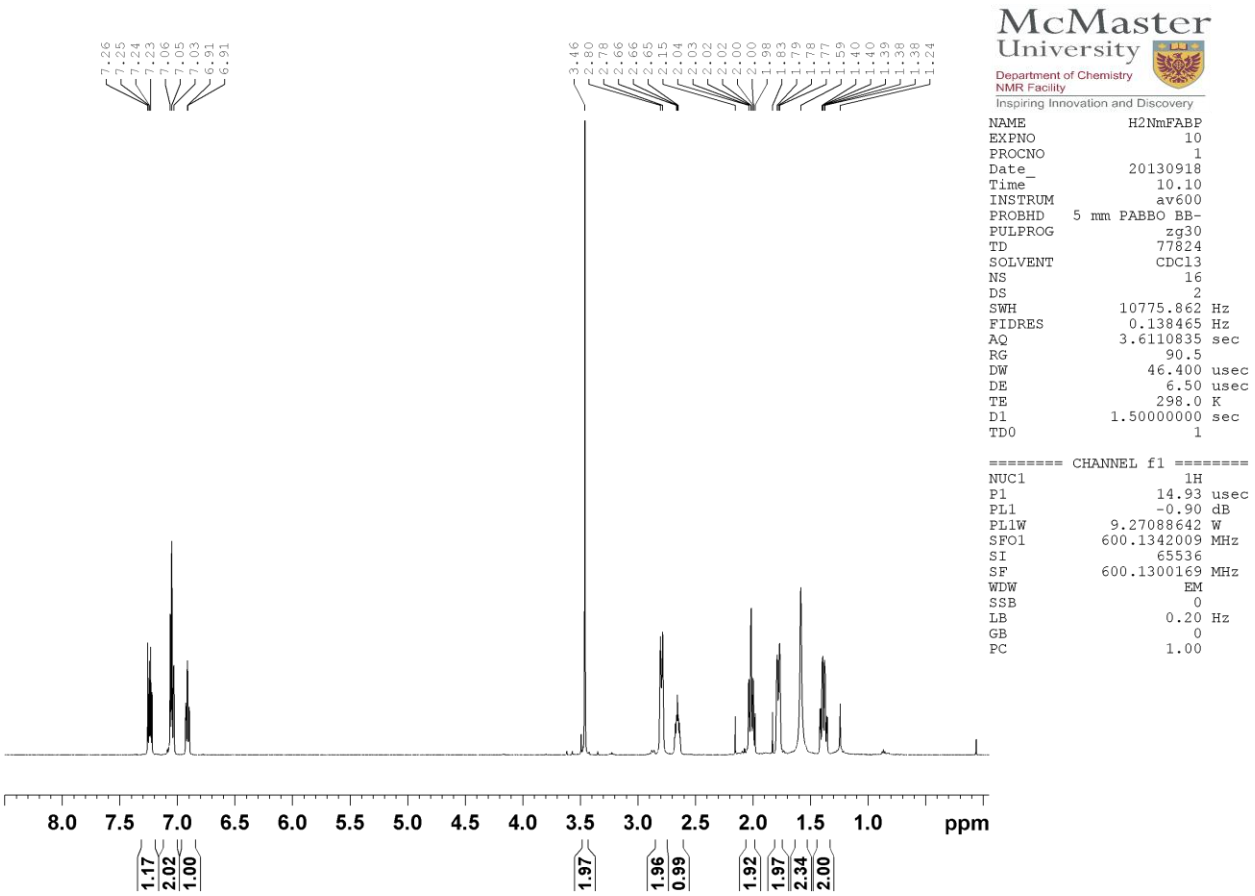



Figure 14: $^{13}C$ NMR of compound **5b** (150 MHz, $CDCl_3$)

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| | |
|---|---|
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| PROCNO | 1 |
| Date_ | 20130918 |
| Time | 10.10 |
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| FIDRES | 0.138465 Hz |
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| TD0 | 1 |
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| WDW | EM |
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Figure 15: $^{1}$H NMR of compound **5c** (600 MHz, $CDCl_3$)

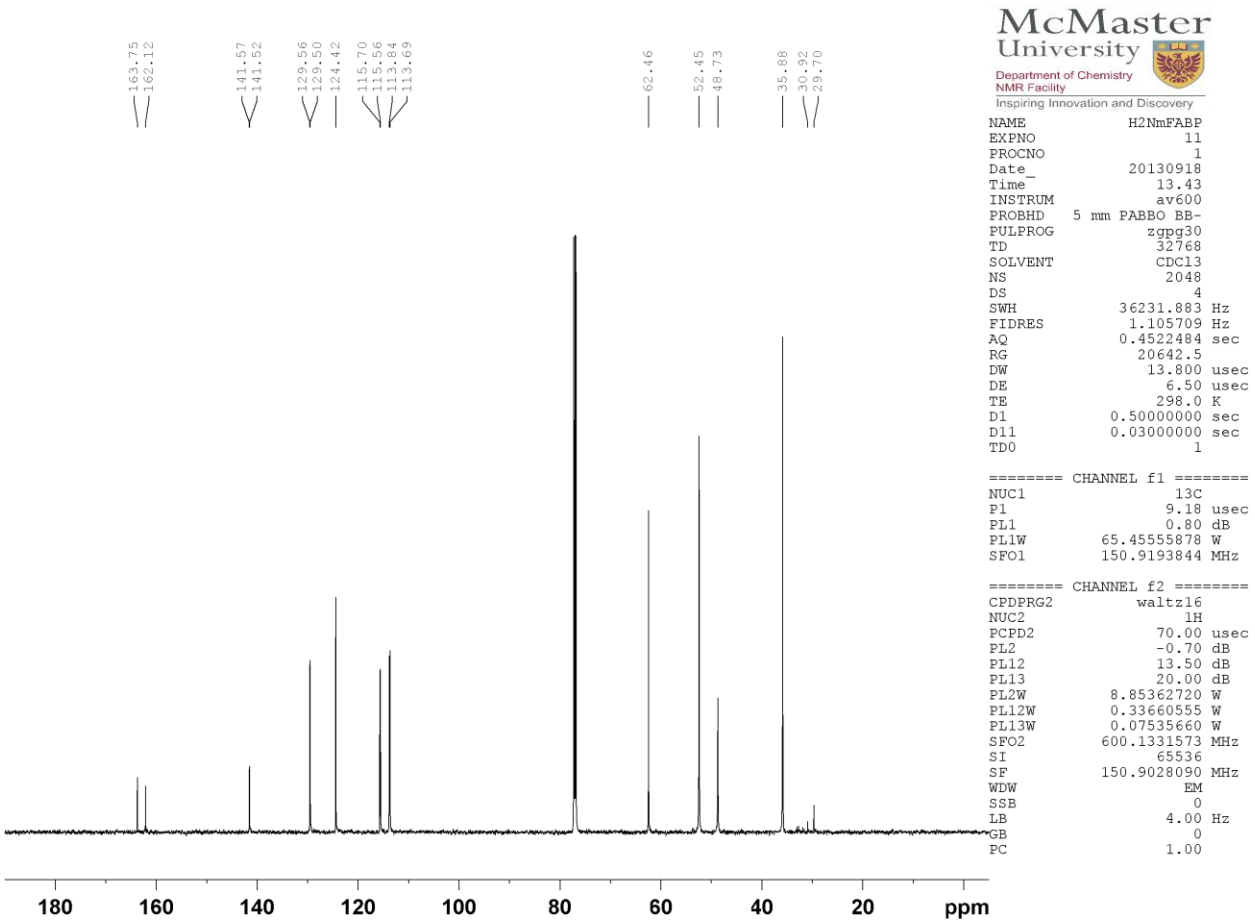



Figure 16: $^{13}C$ NMR of compound **5c** (150 MHz, $CDCl_3$)

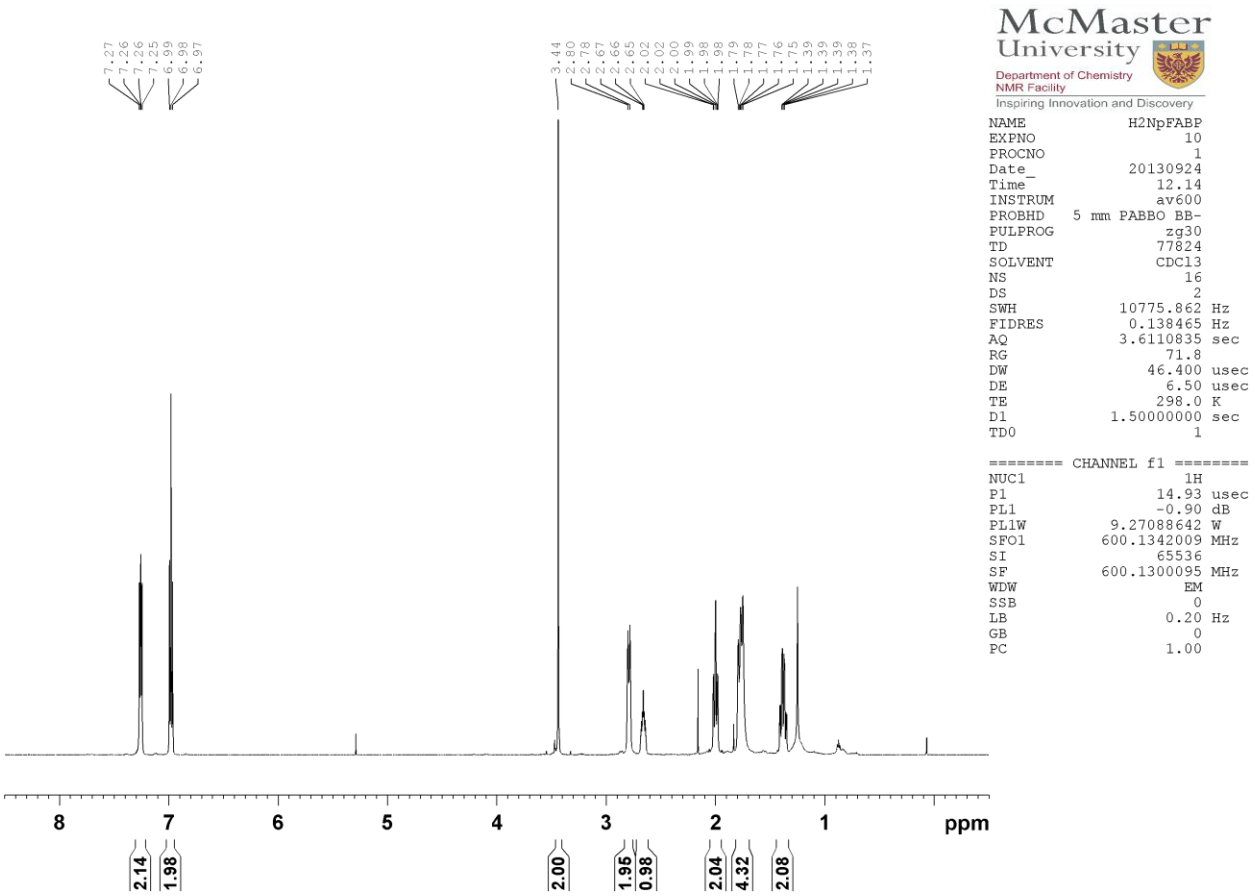



Figure 17: $^{1}$H NMR of compound **5d** (600 MHz, $CDCl_3$)

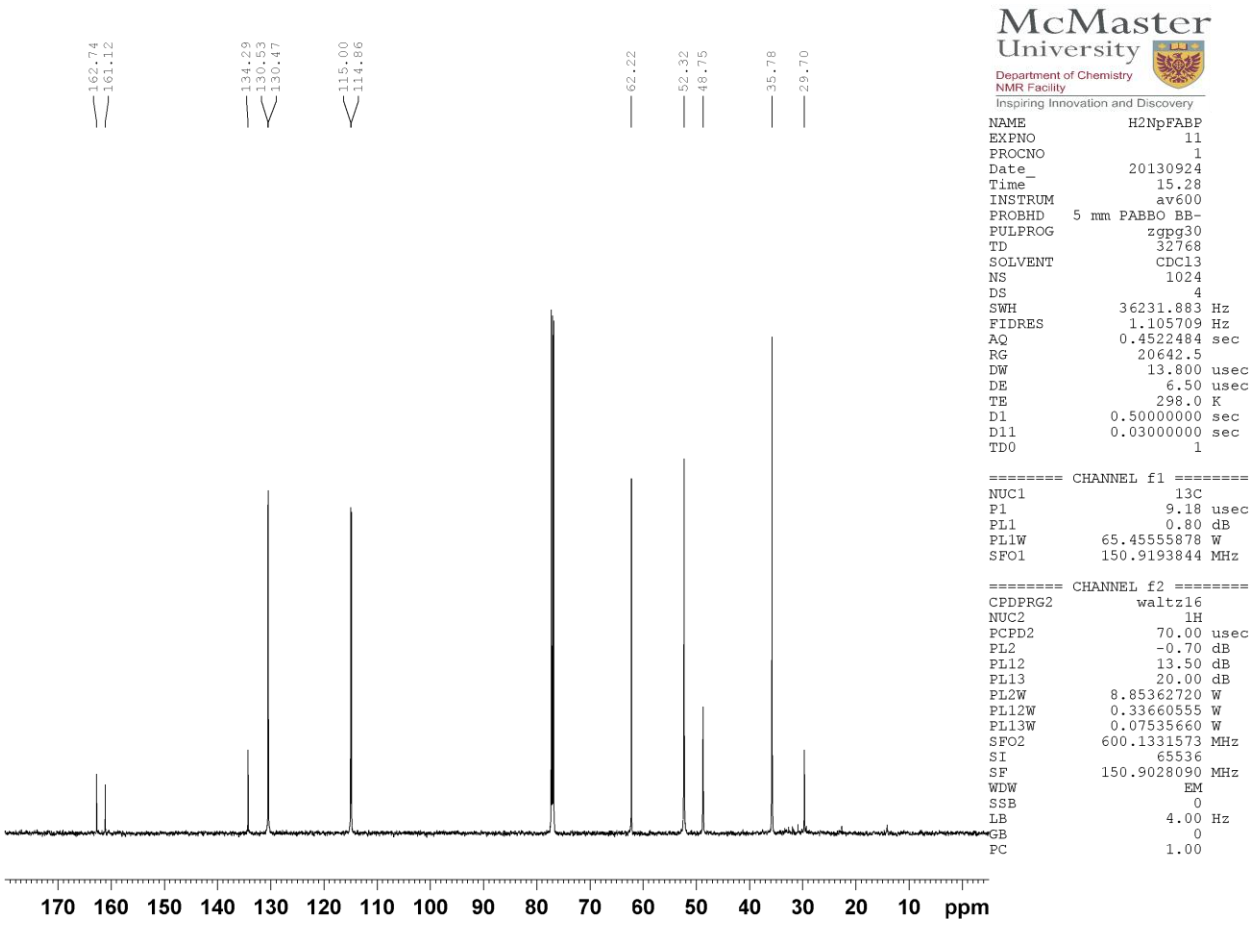



Figure 18: $^{13}C$ NMR of compound **5d** (150 MHz, $CDCl_3$)

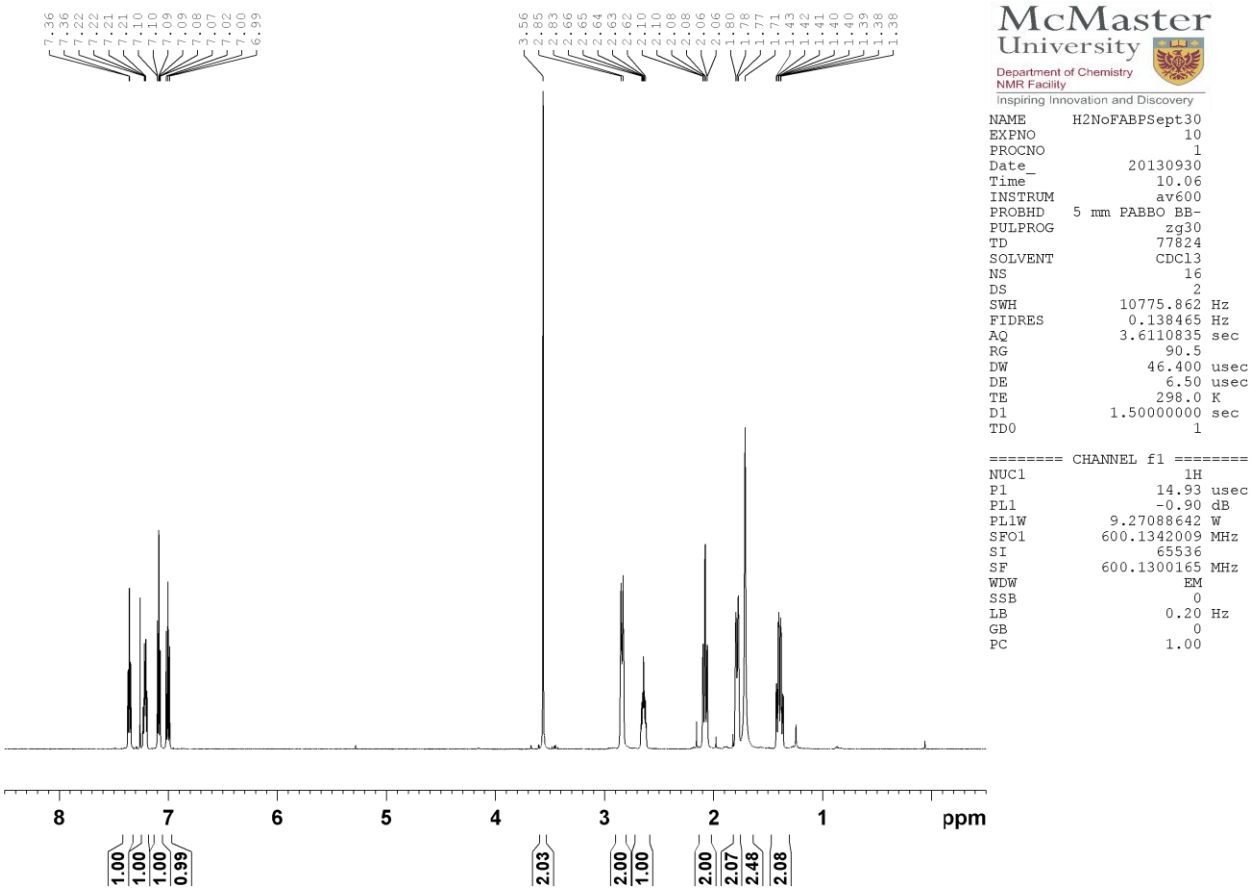



Figure 19: $^{1}$H NMR of compound **5e** (600 MHz, $CDCl_3$)

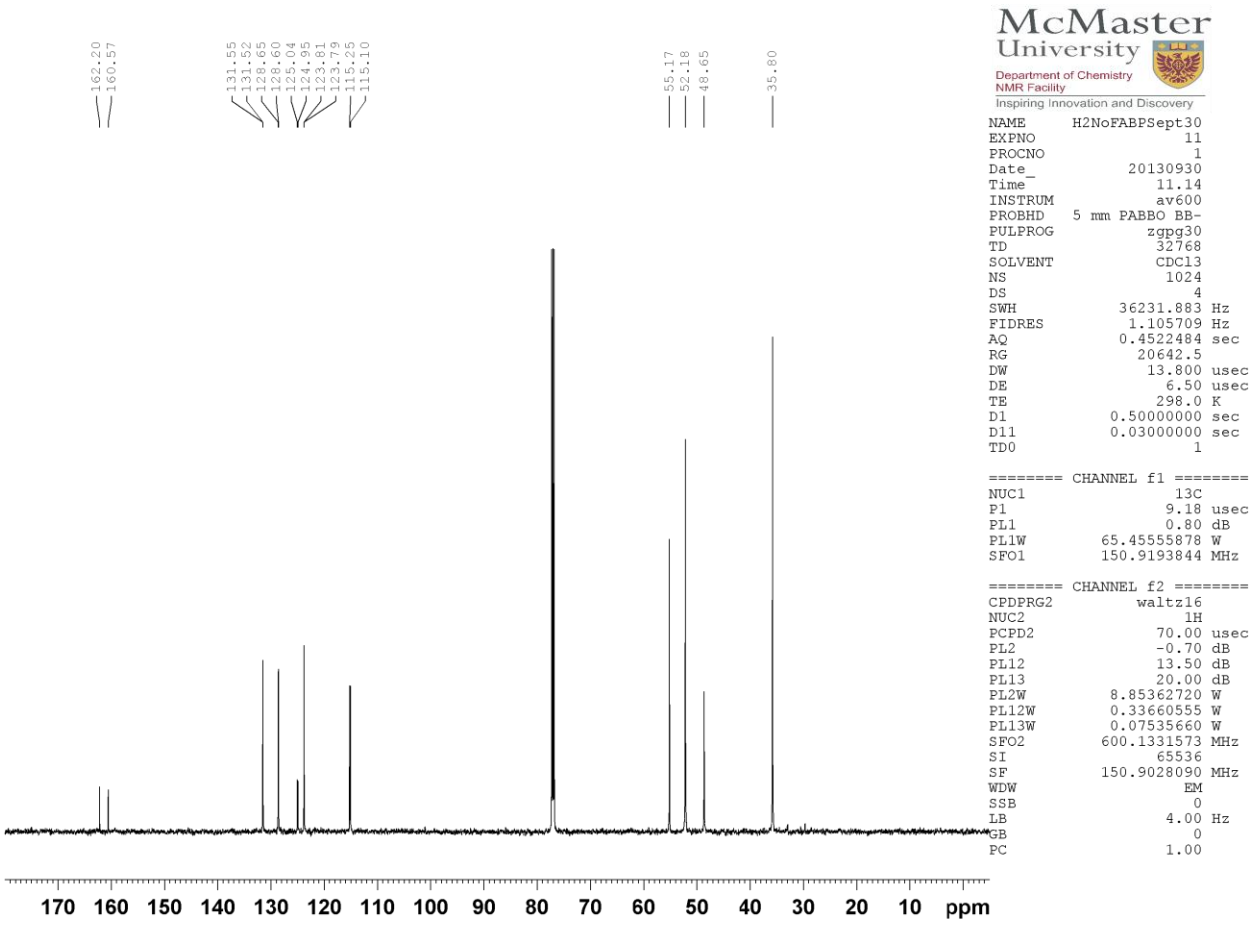



Figure 20: $^{13}C$ NMR of compound **5e** (150 MHz, $CDCl_3$)

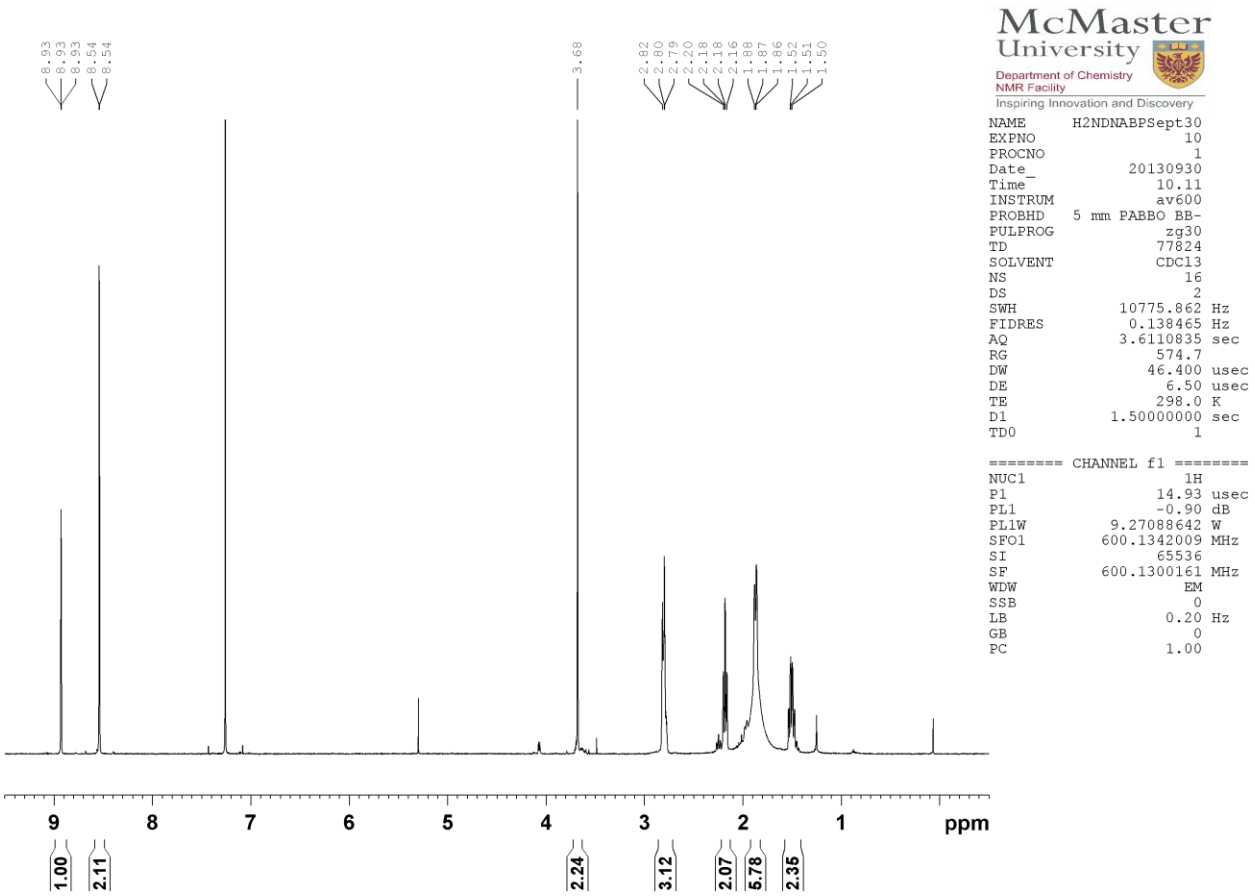



Figure 21: $^{1}$H NMR of compound **5f** (600 MHz, $CDCl_3$)

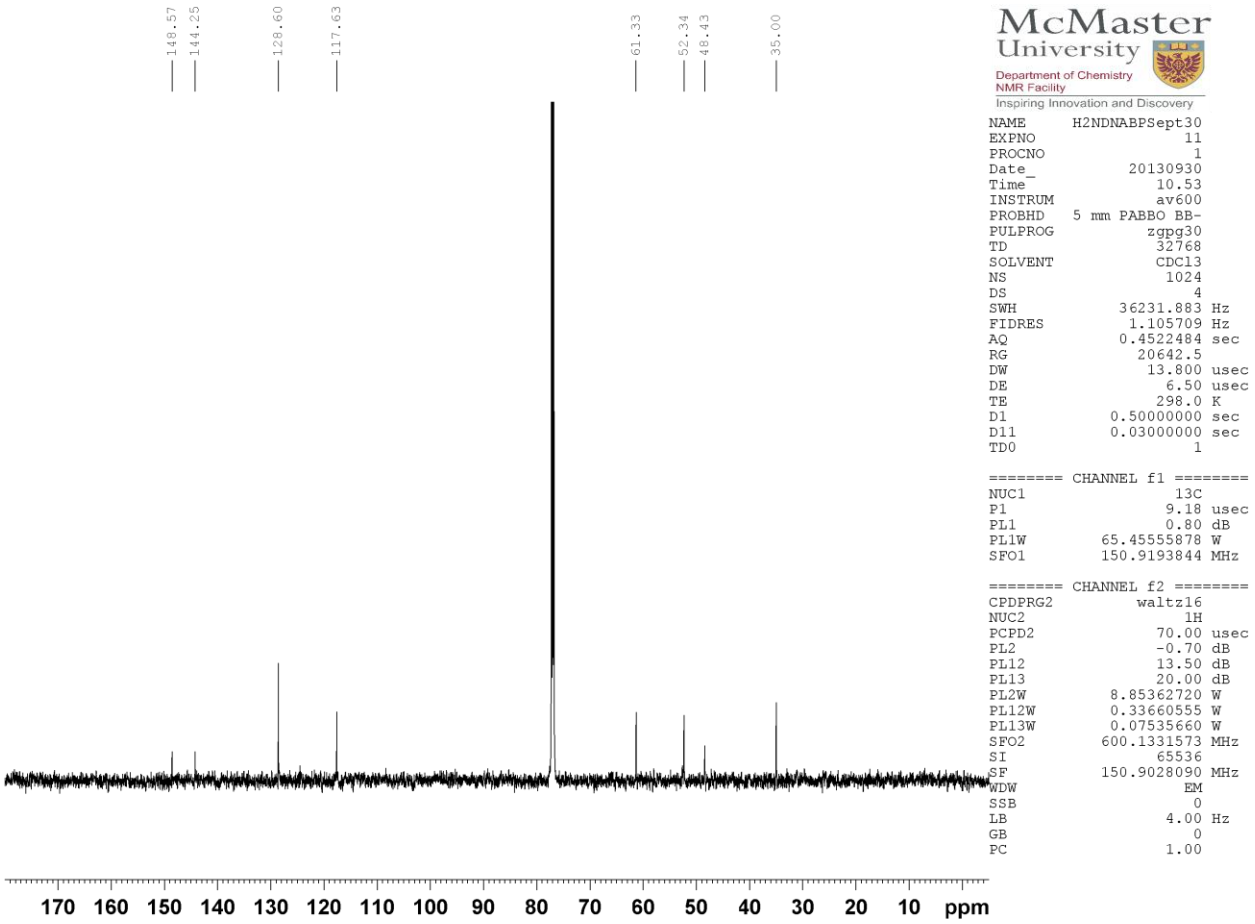



Figure 22: $^{13}C$ NMR of compound **5f** (150 MHz, $CDCl_3$)

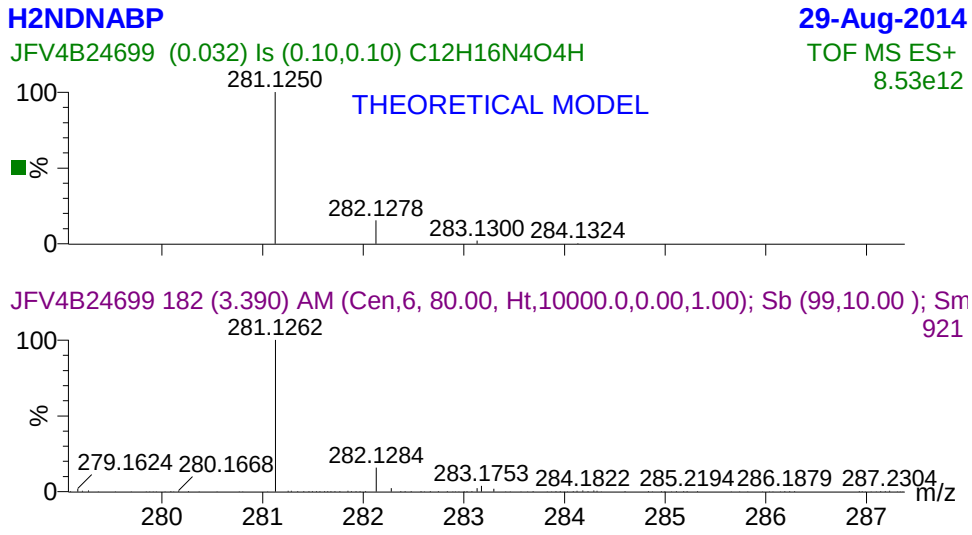



Figure 23: High Resolution Mass Spectrum ($ESI^+$) of compound **5f**

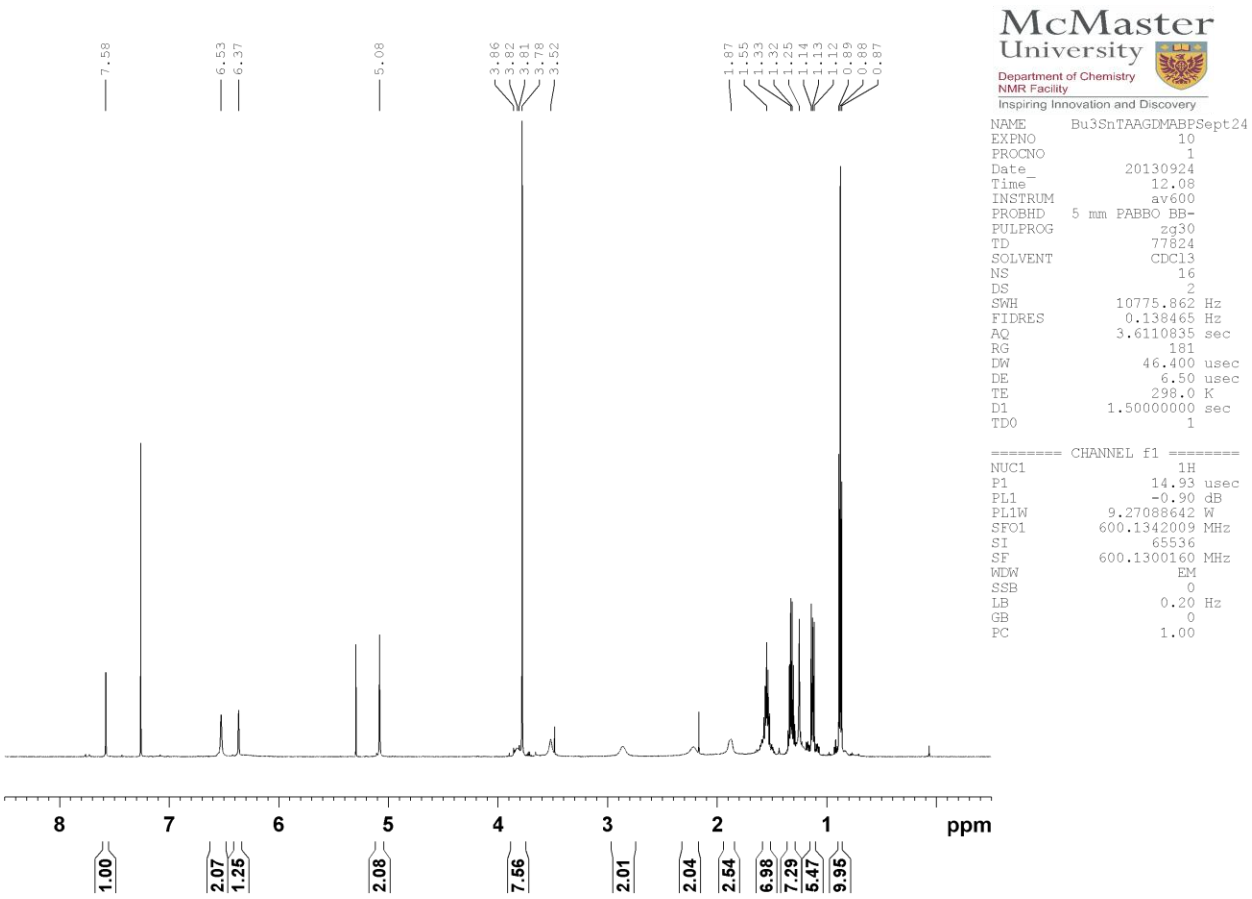



Figure 24: $^{1}$H NMR of compound **6b** (600 MHz, $CDCl_3$)

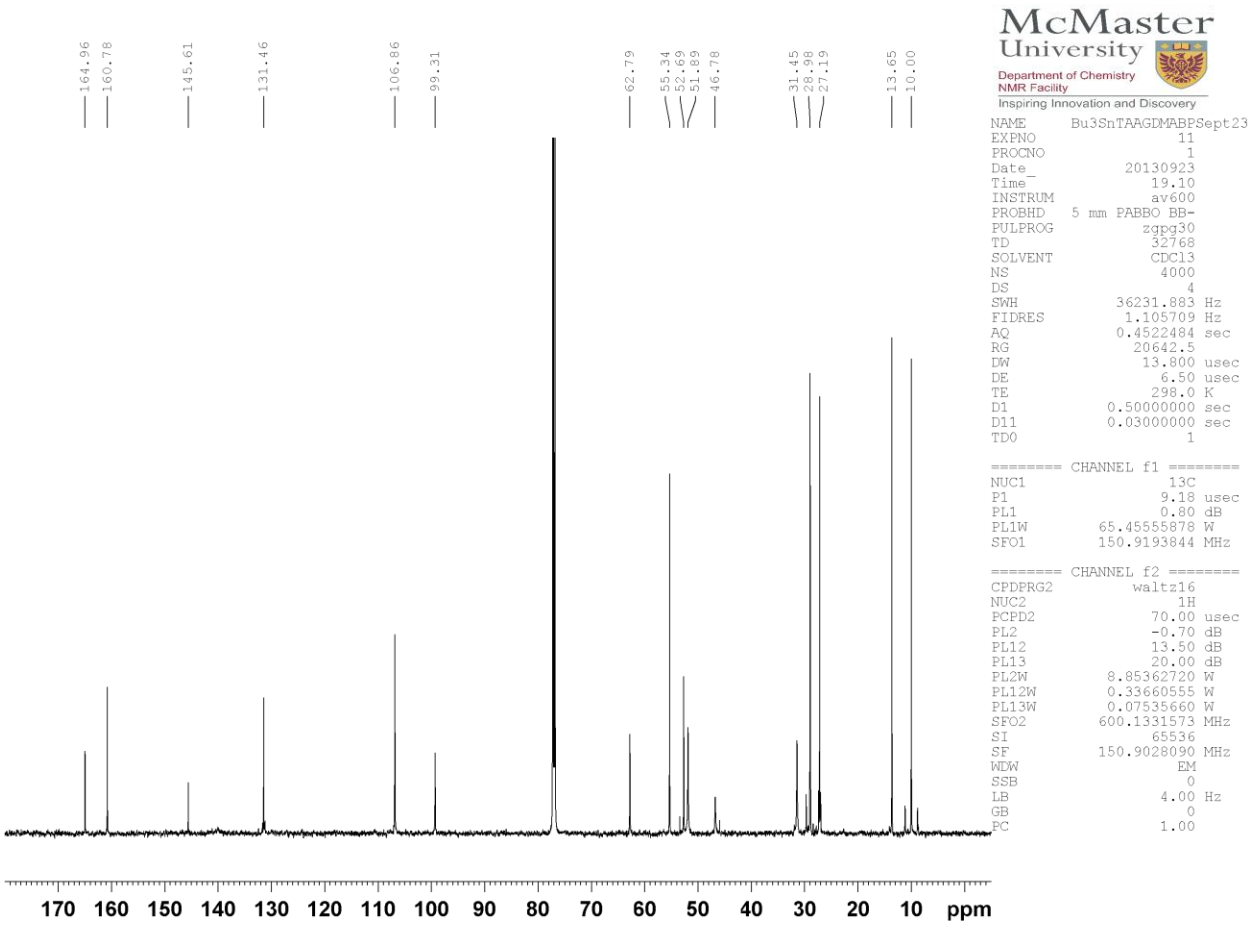



Figure 25: $^{13}C$ NMR of compound **6b** (150 MHz, $CDCl_3$)

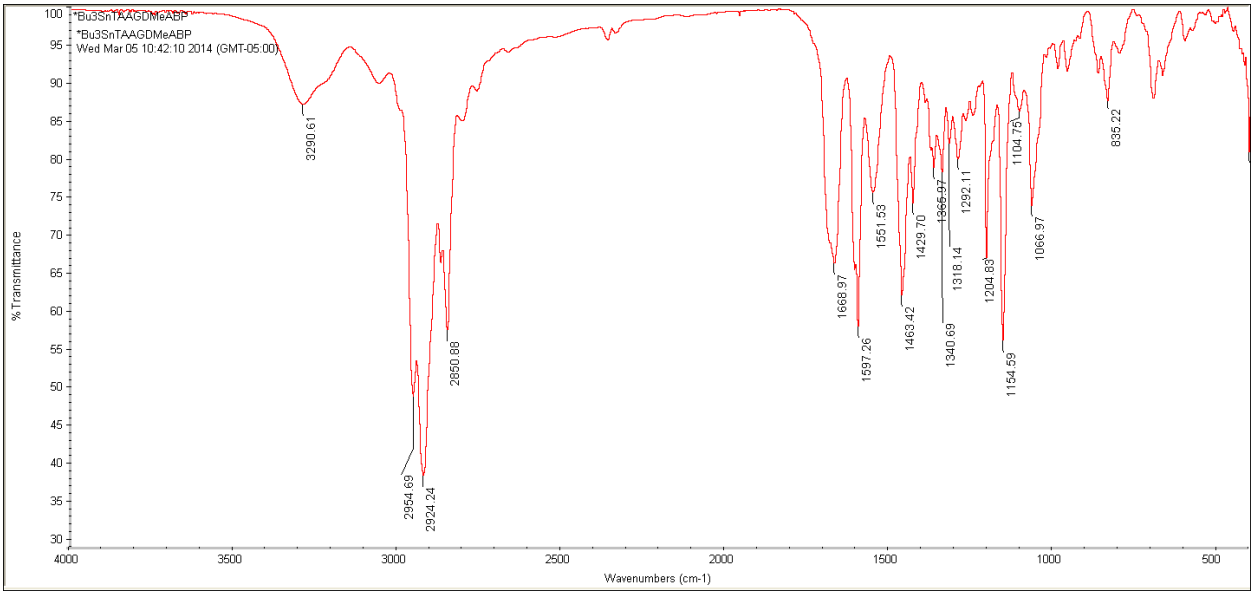



Figure 26: IR spectrum of compound **6b**

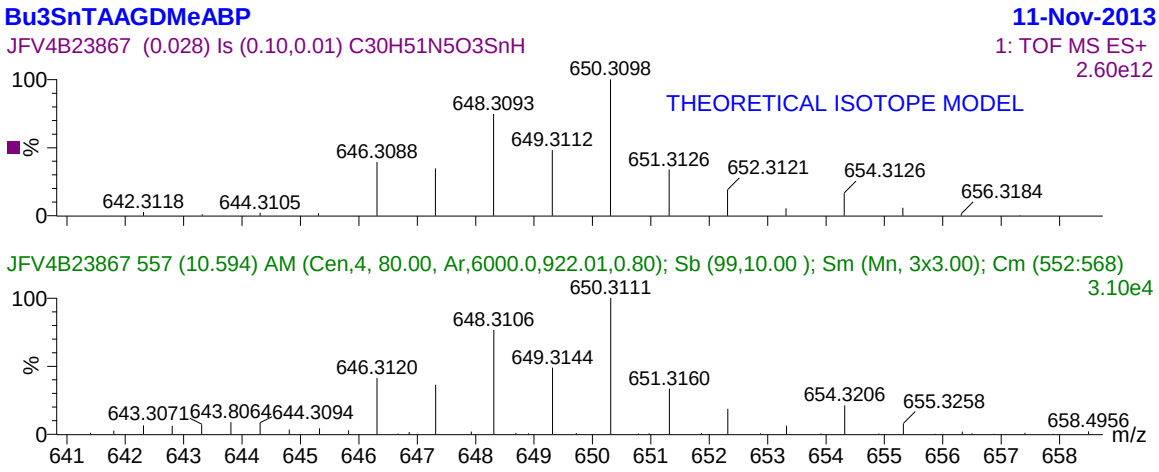



Figure 27: High Resolution Mass Spectrum ($ESI^+$) of compound **6b**

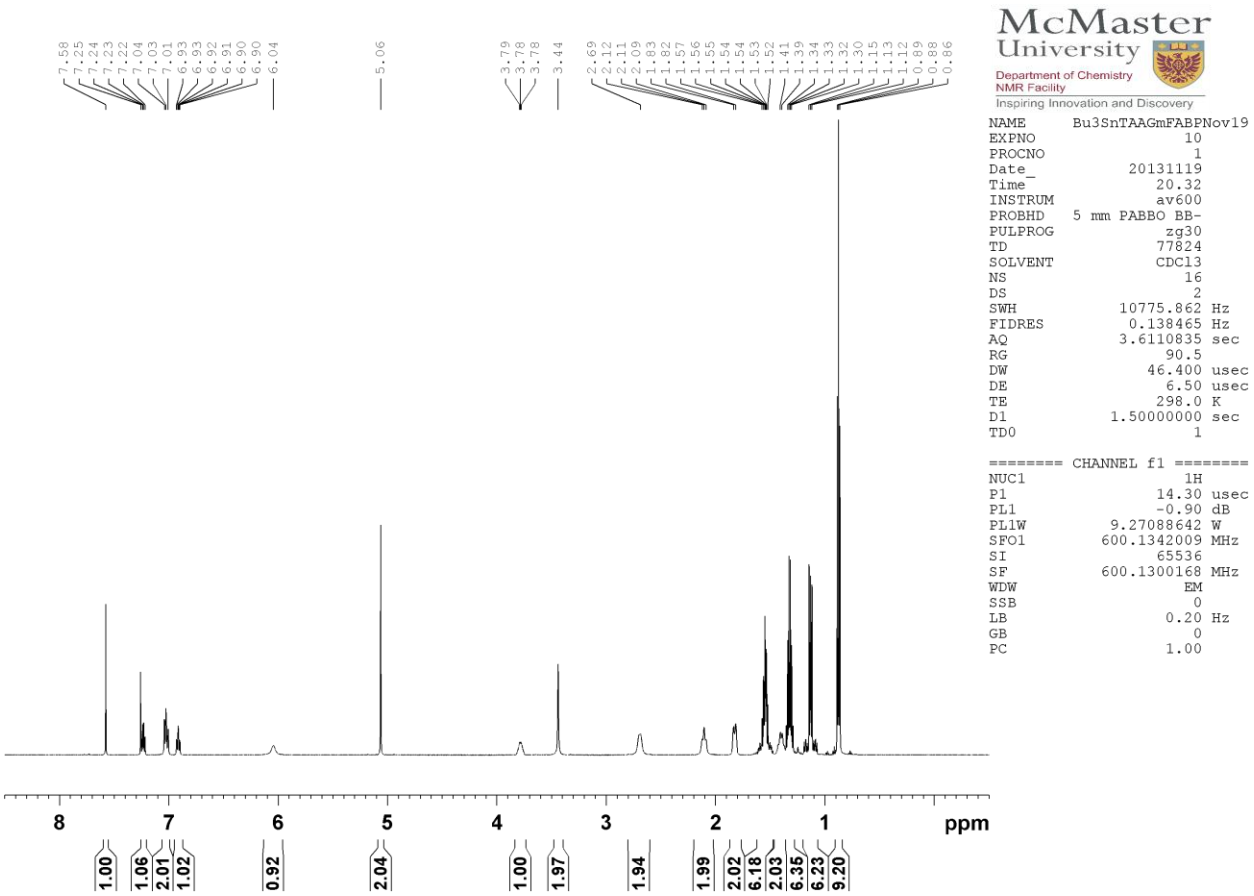



Figure 28: $^{1}$H NMR of compound **6c** (600 MHz, $CDCl_3$)

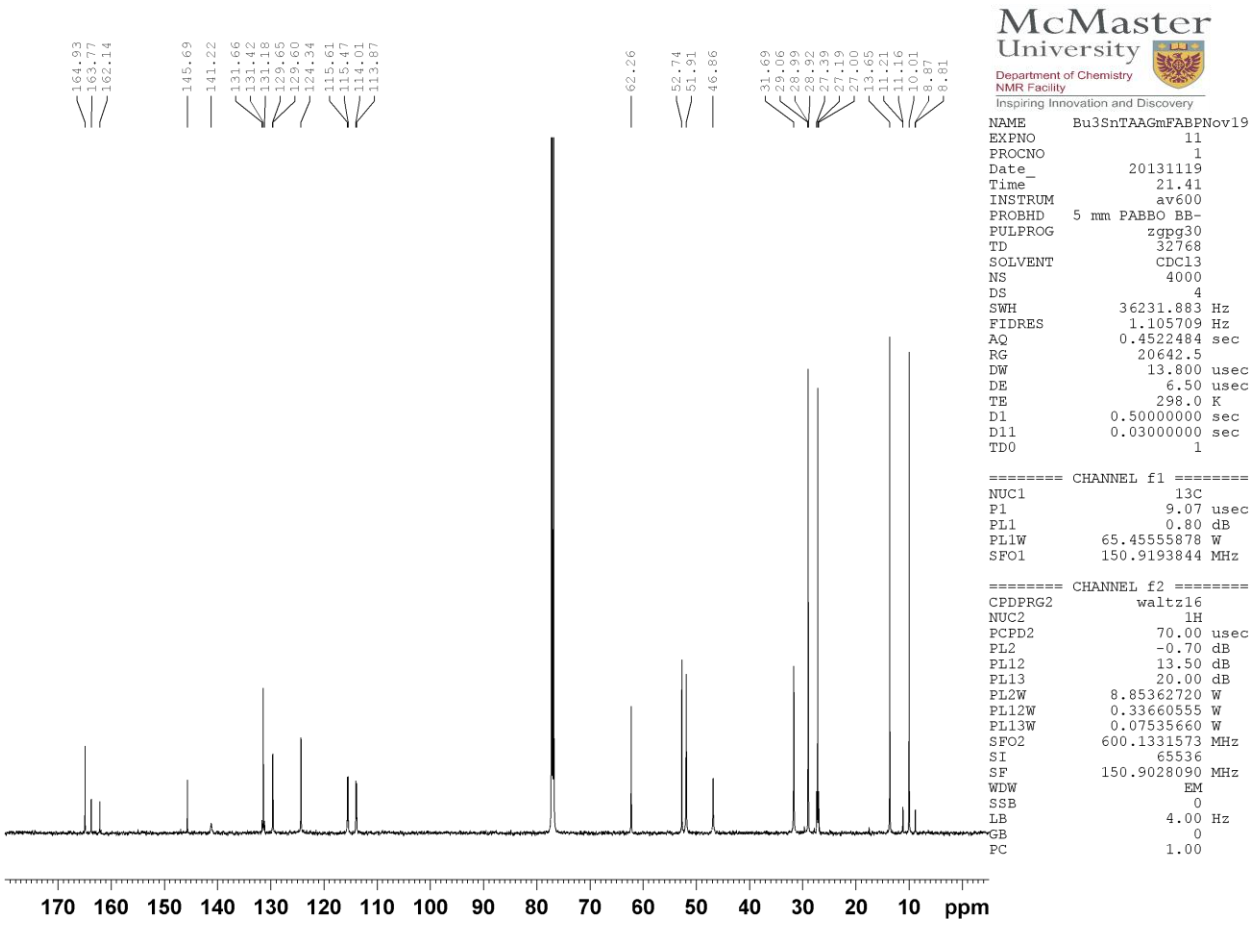



Figure 29: $^{13}C$ NMR of compound **6c** (150 MHz, $CDCl_3$)

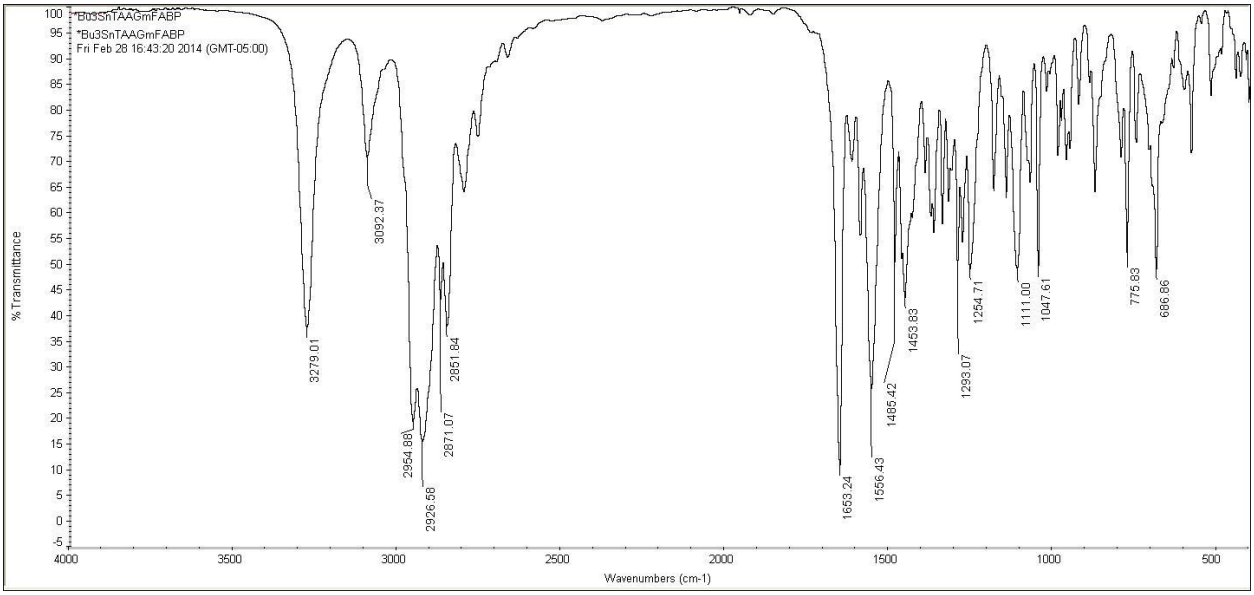



Figure 30: IR spectrum of compound **6c**

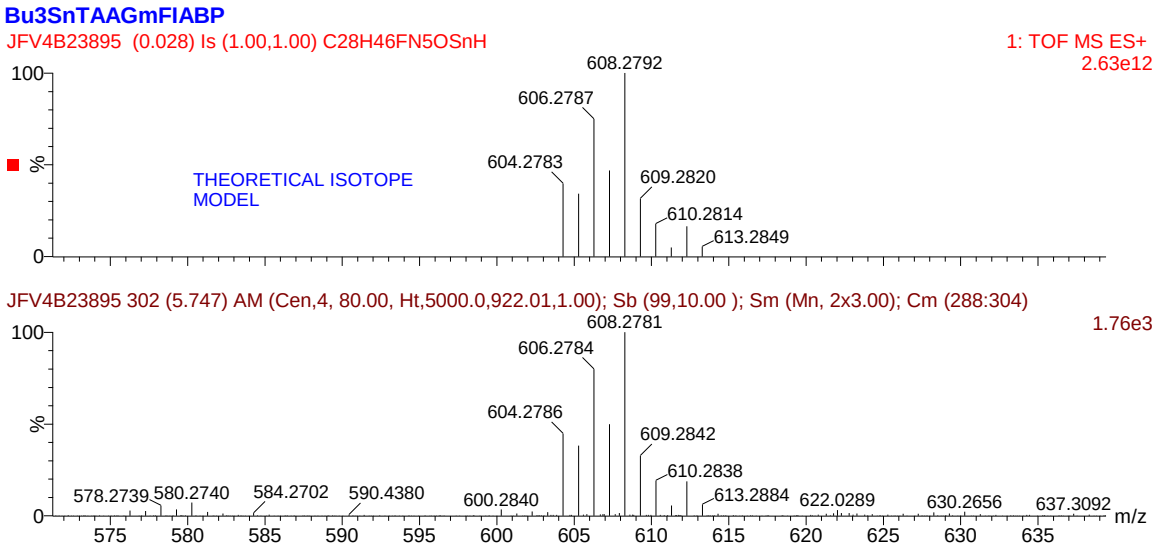



Figure 31: High Resolution Mass Spectrum (ESI$^+$) of compound **6c**

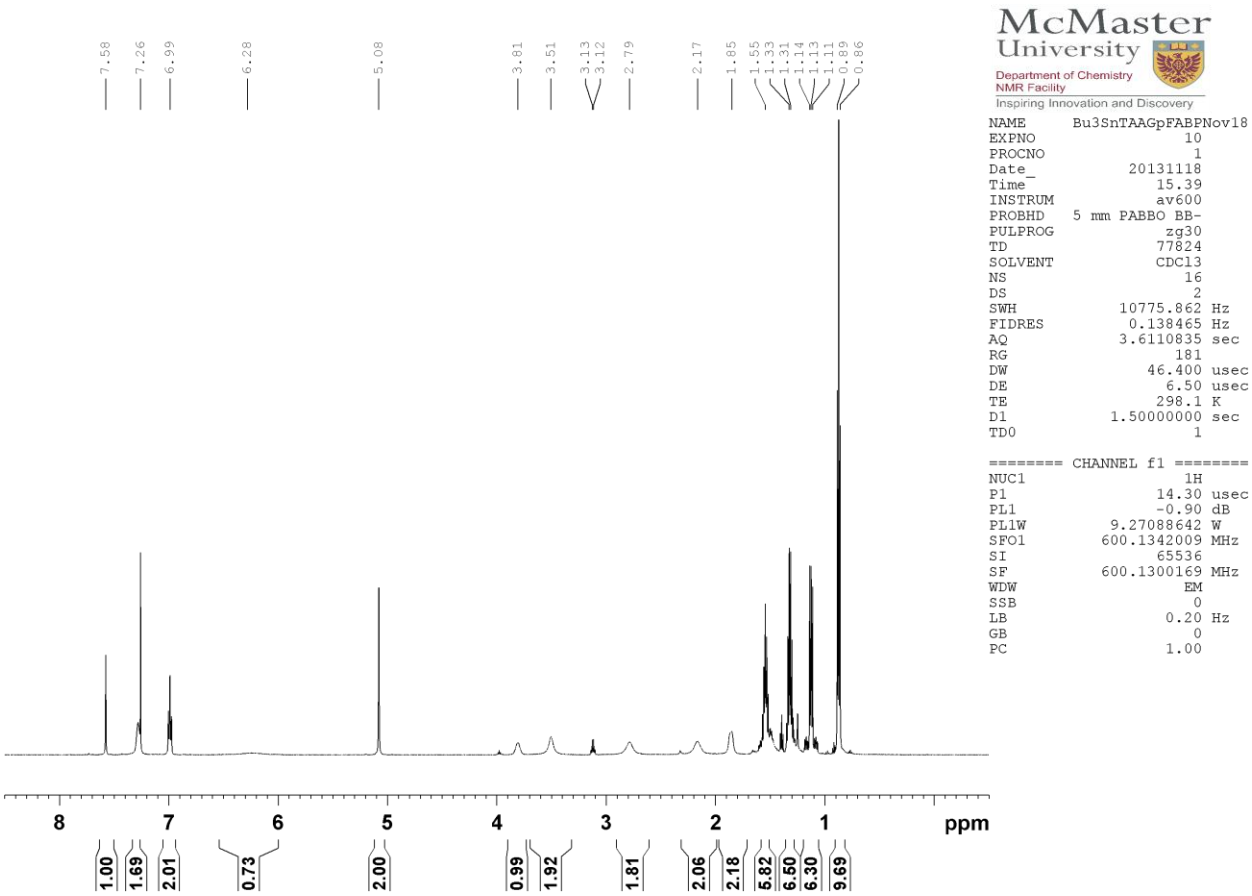



Figure 32: $^{1}$H NMR of compound **6d** (600 MHz, $CDCl_3$)

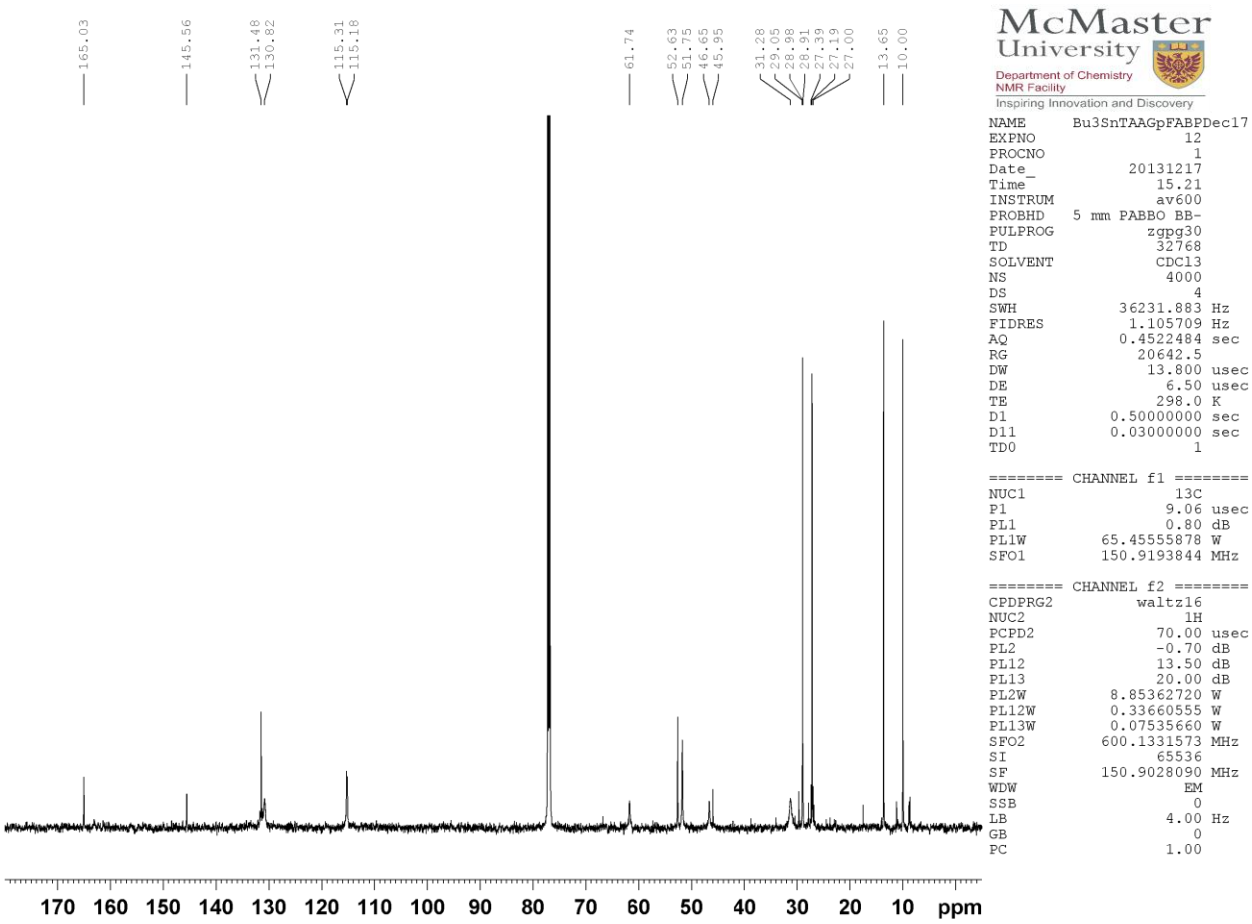



Figure 33: $^{13}C$ NMR of compound **6d** (150 MHz, $CDCl_3$)

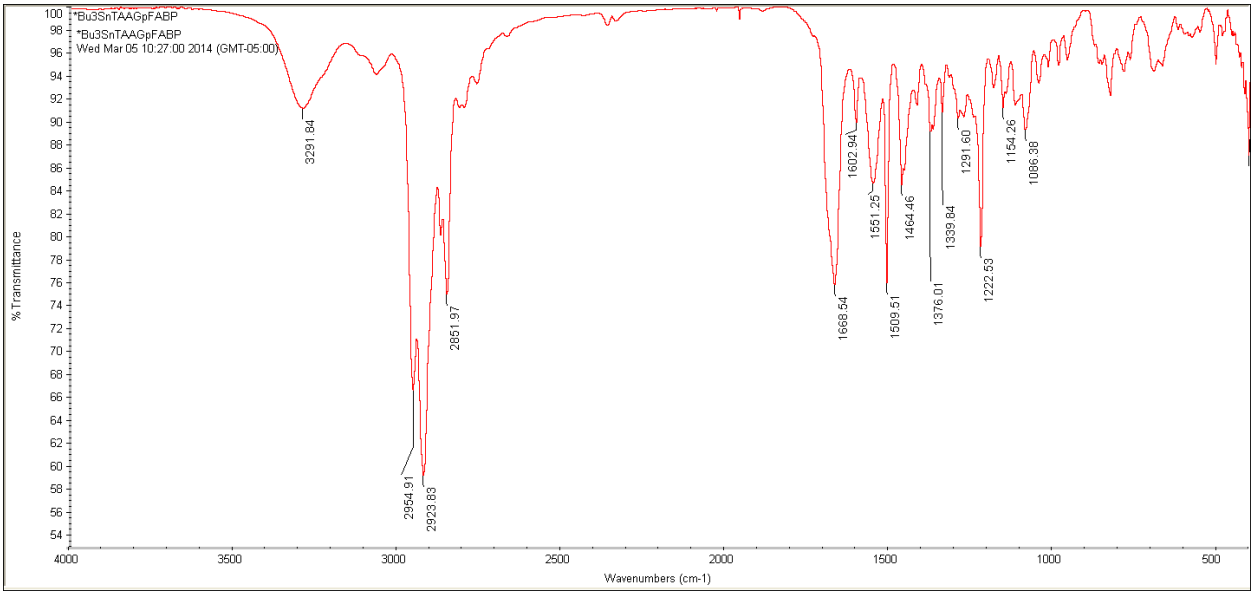



Figure 34: IR spectrum of compound **6d**

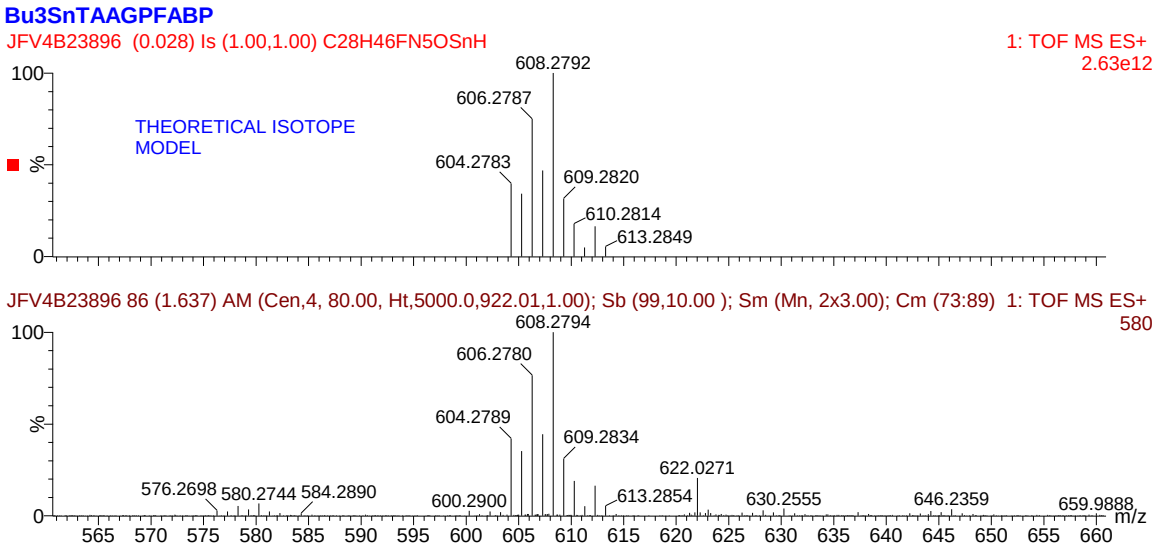



Figure 35: High Resolution Mass Spectrum (ESI$^+$) of compound **6d**

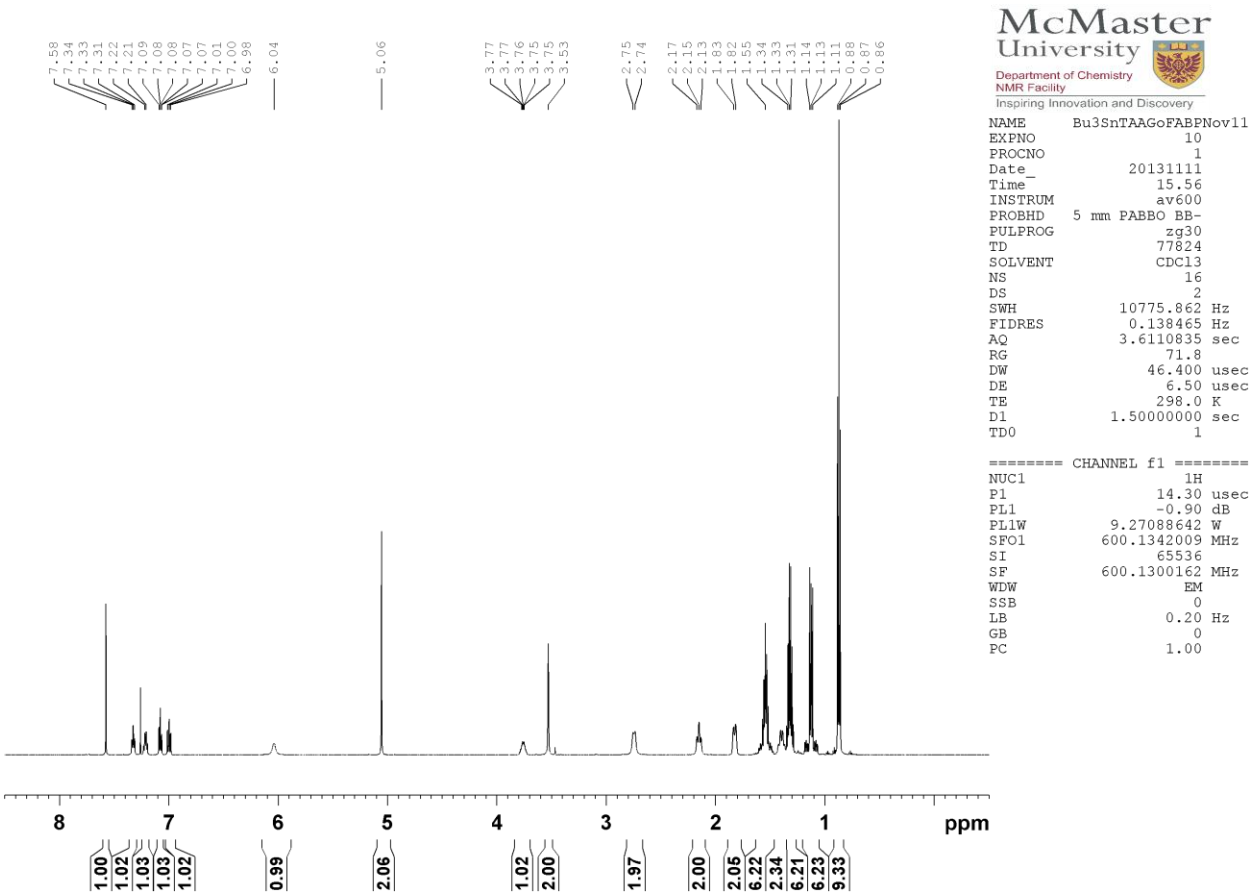



Figure 36: $^{1}$H NMR of compound **6e** (600 MHz, $CDCl_3$)

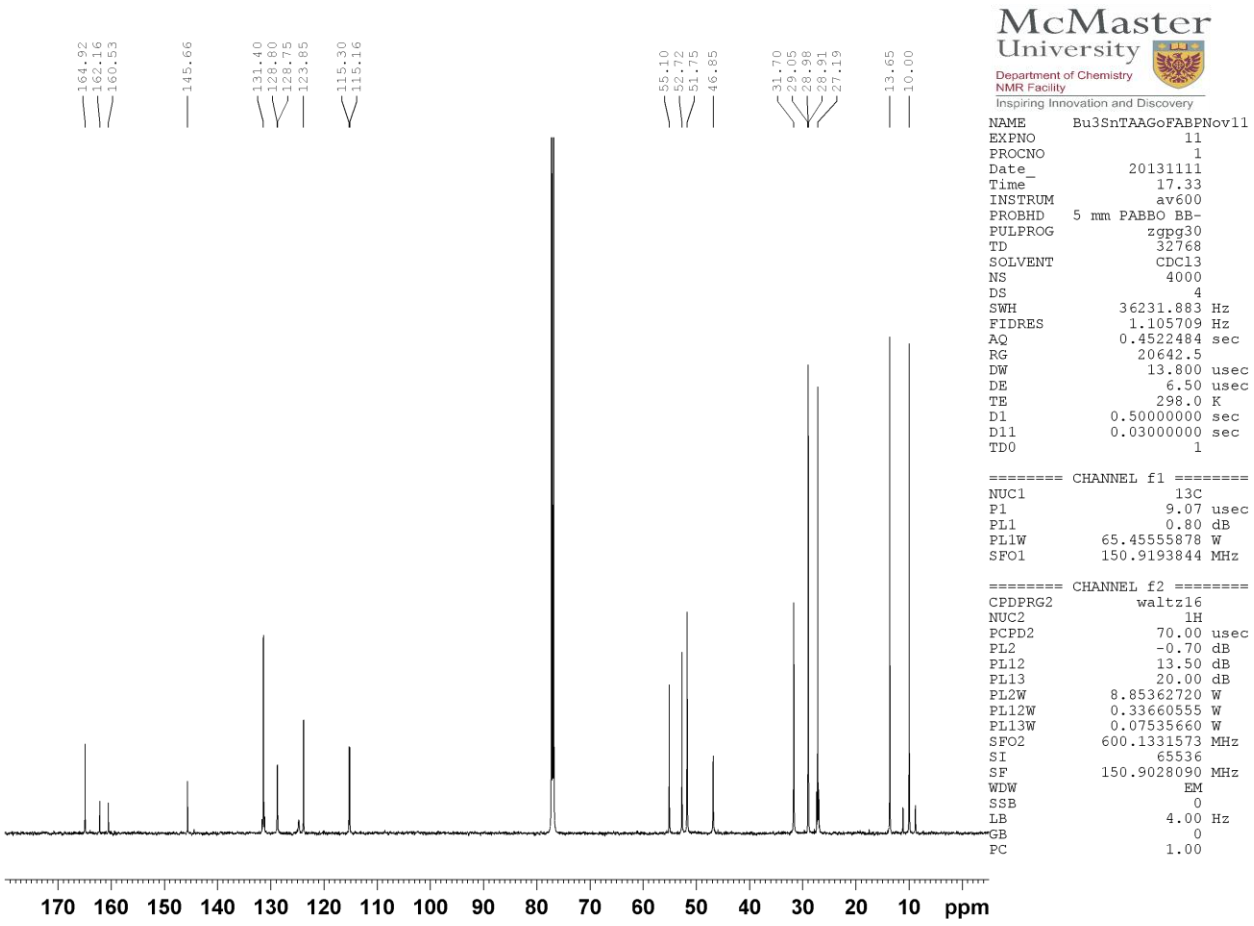



Figure 37: $^{13}C$ NMR of compound **6e** (150 MHz, $CDCl_3$)

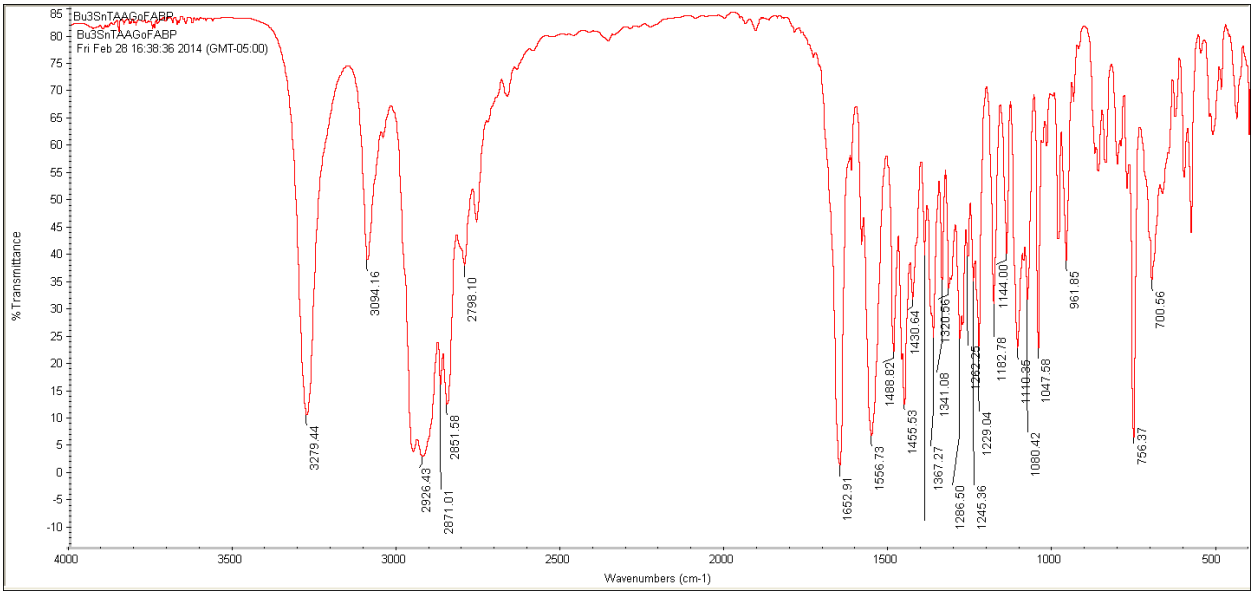



Figure 38: IR spectrum of compound **6e**

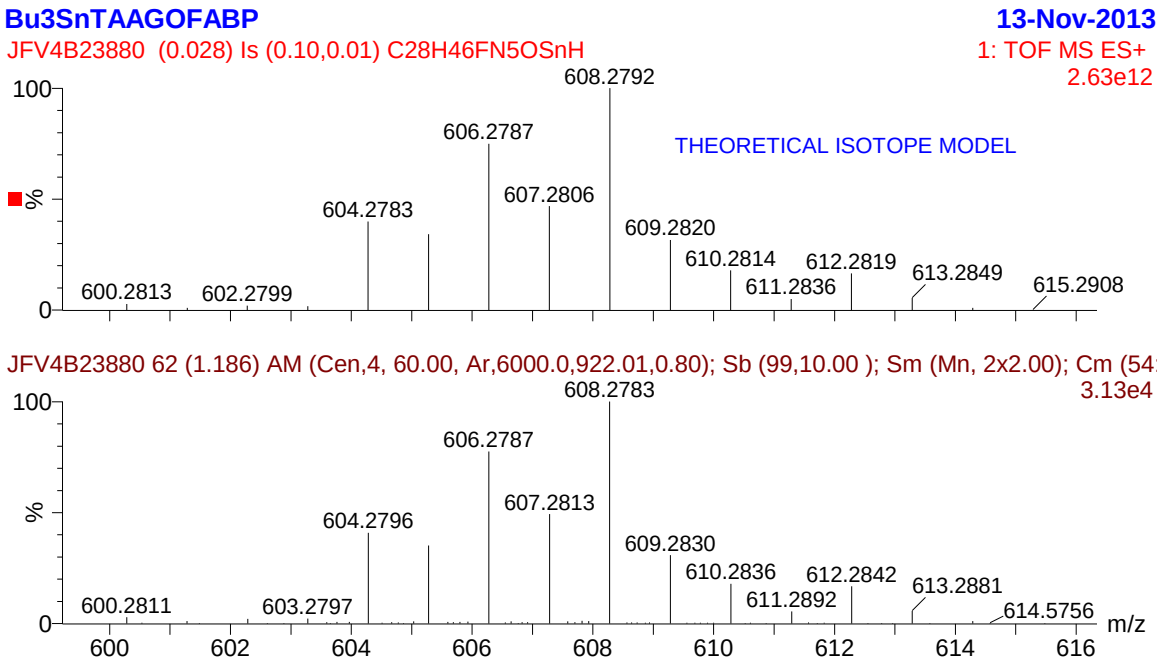



Figure 39: High Resolution Mass Spectrum ($ESI^+$) of compound **6e**

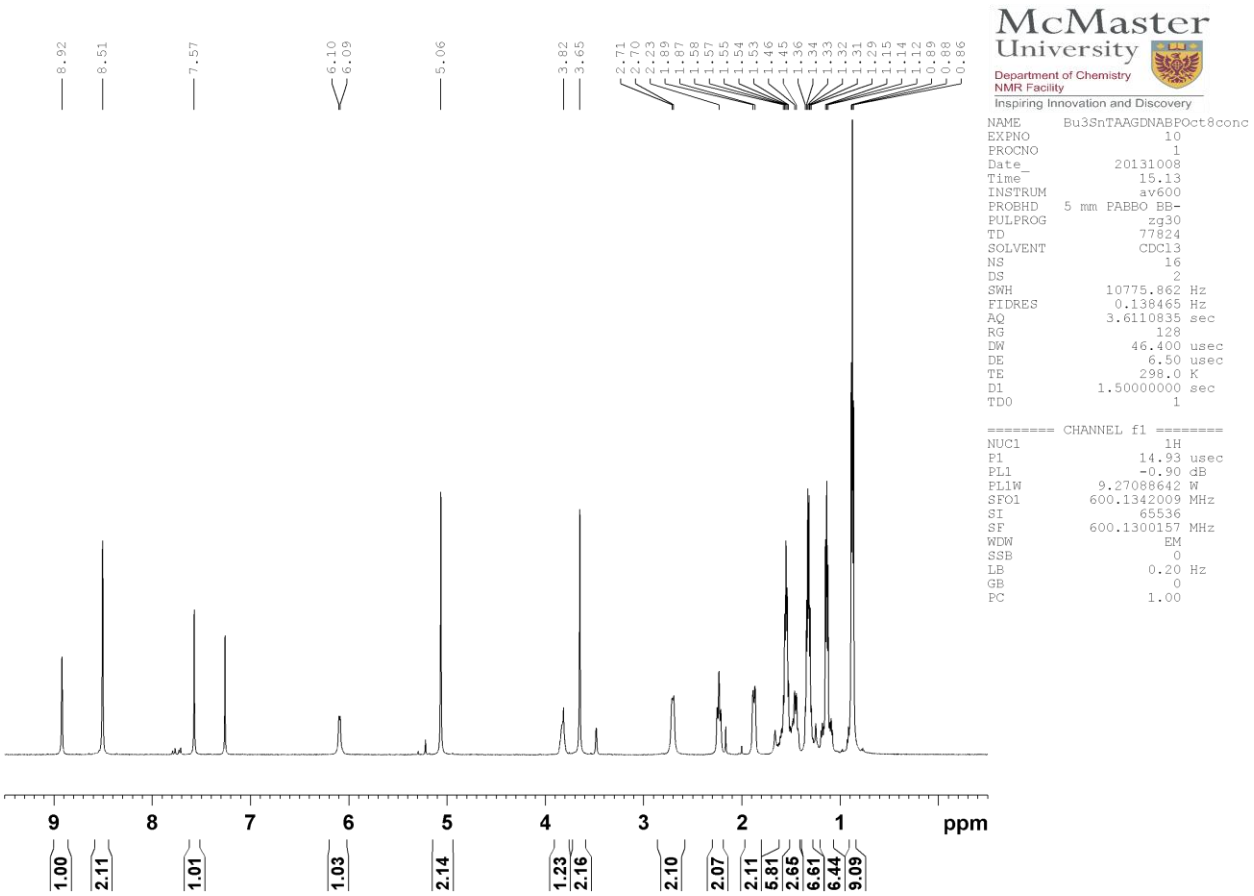



Figure 40: $^{1}$H NMR of compound **6f** (600 MHz, $CDCl_3$)

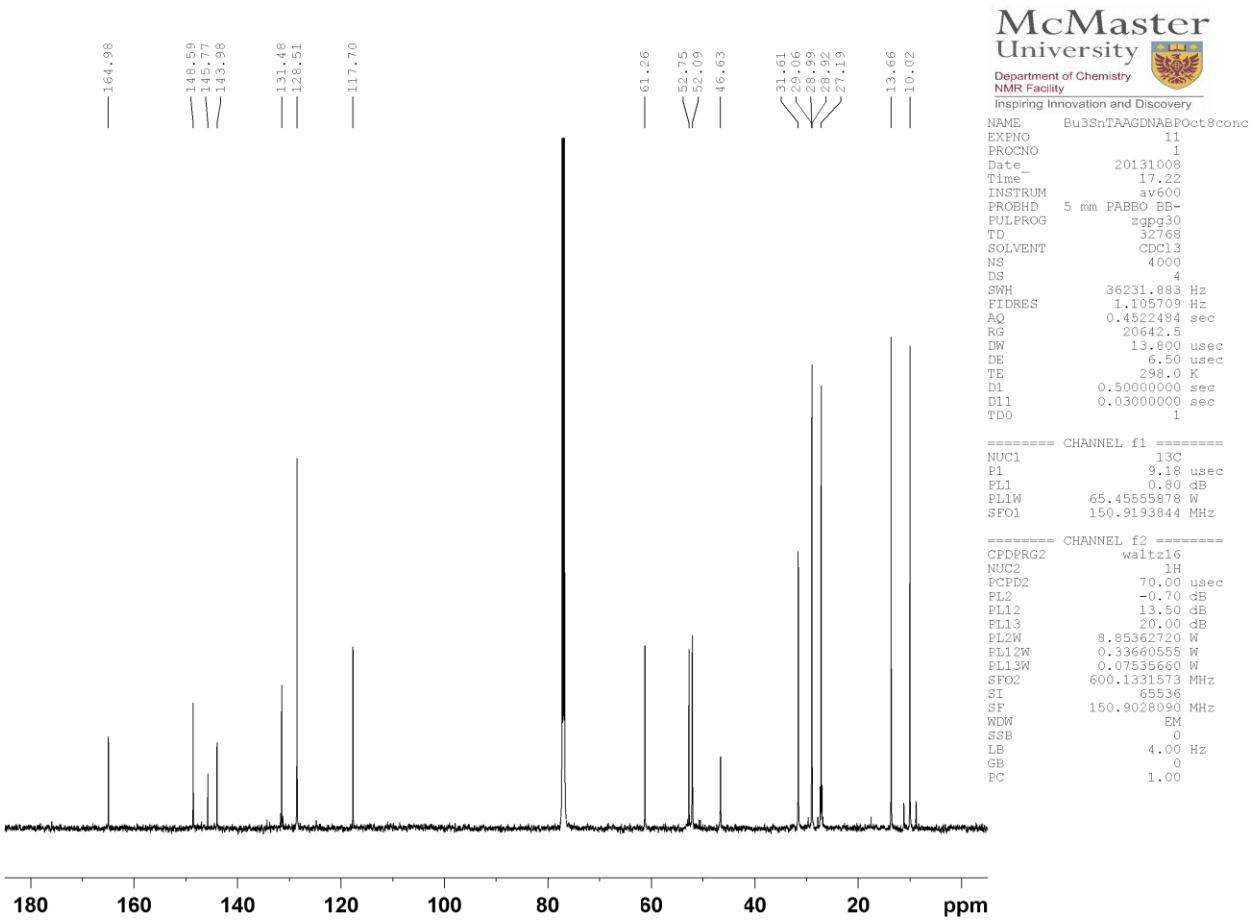



Figure 41: $^{13}C$ NMR of compound **6f** (150 MHz, $CDCl_3$)

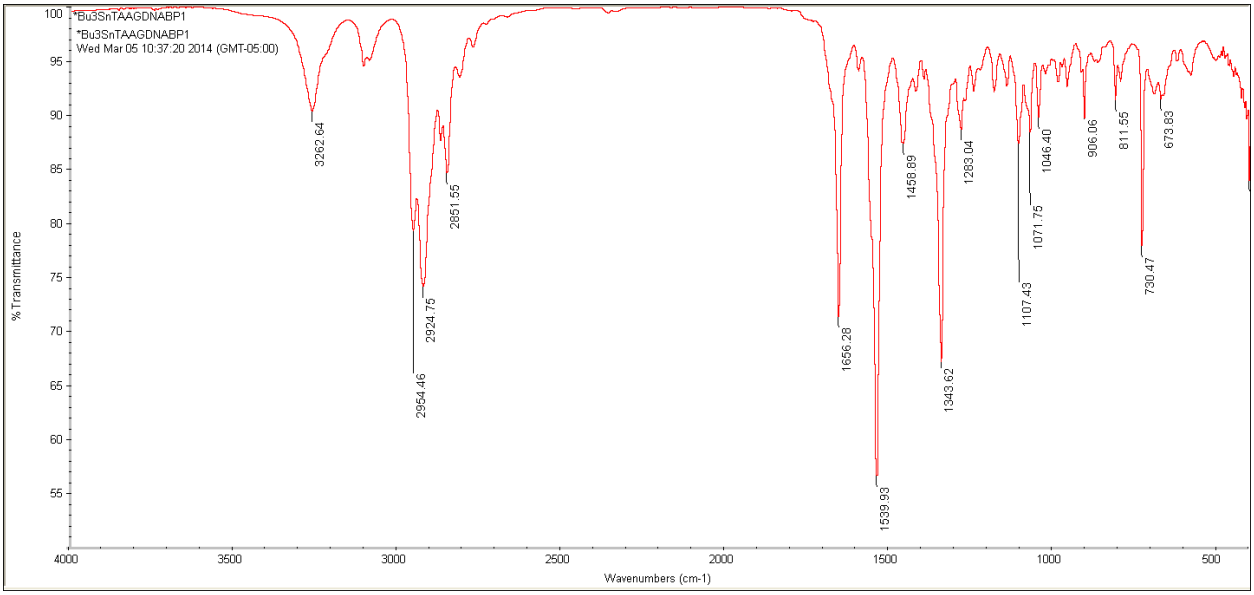



Figure 42: IR spectrum of compound **6f**

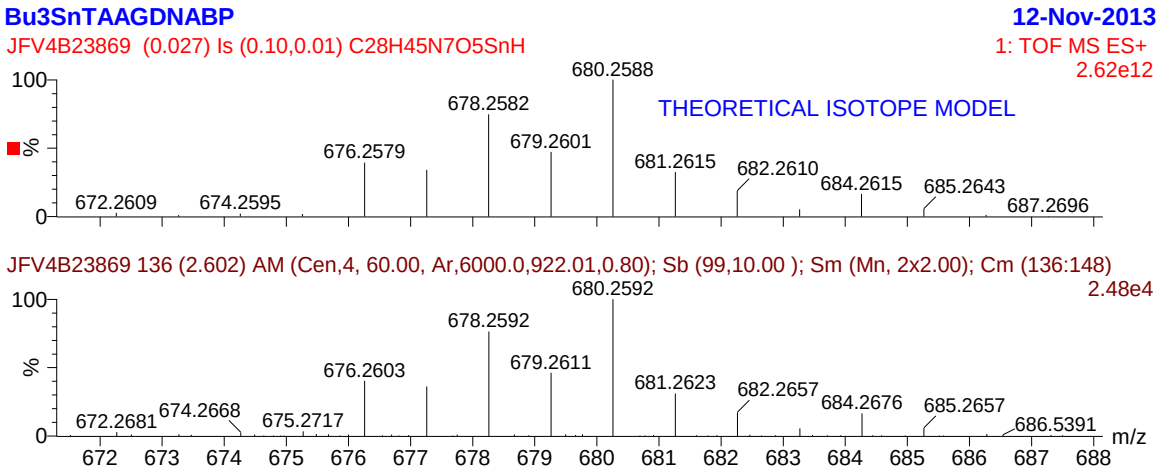



Figure 43: High Resolution Mass Spectrum ($ESI^+$) of compound **6f**

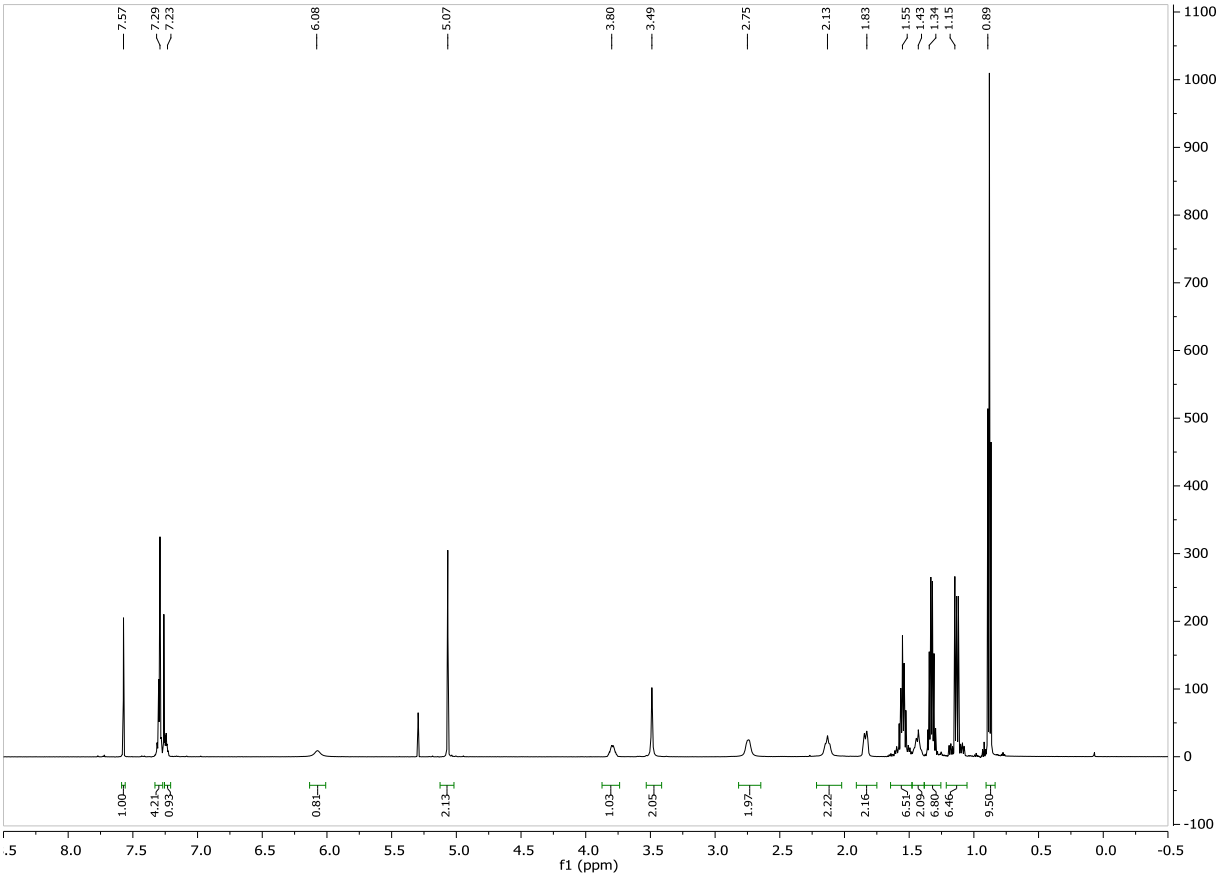



Figure 44: $^{1}$H NMR of compound **6g** (600 MHz, $CDCl_3$)

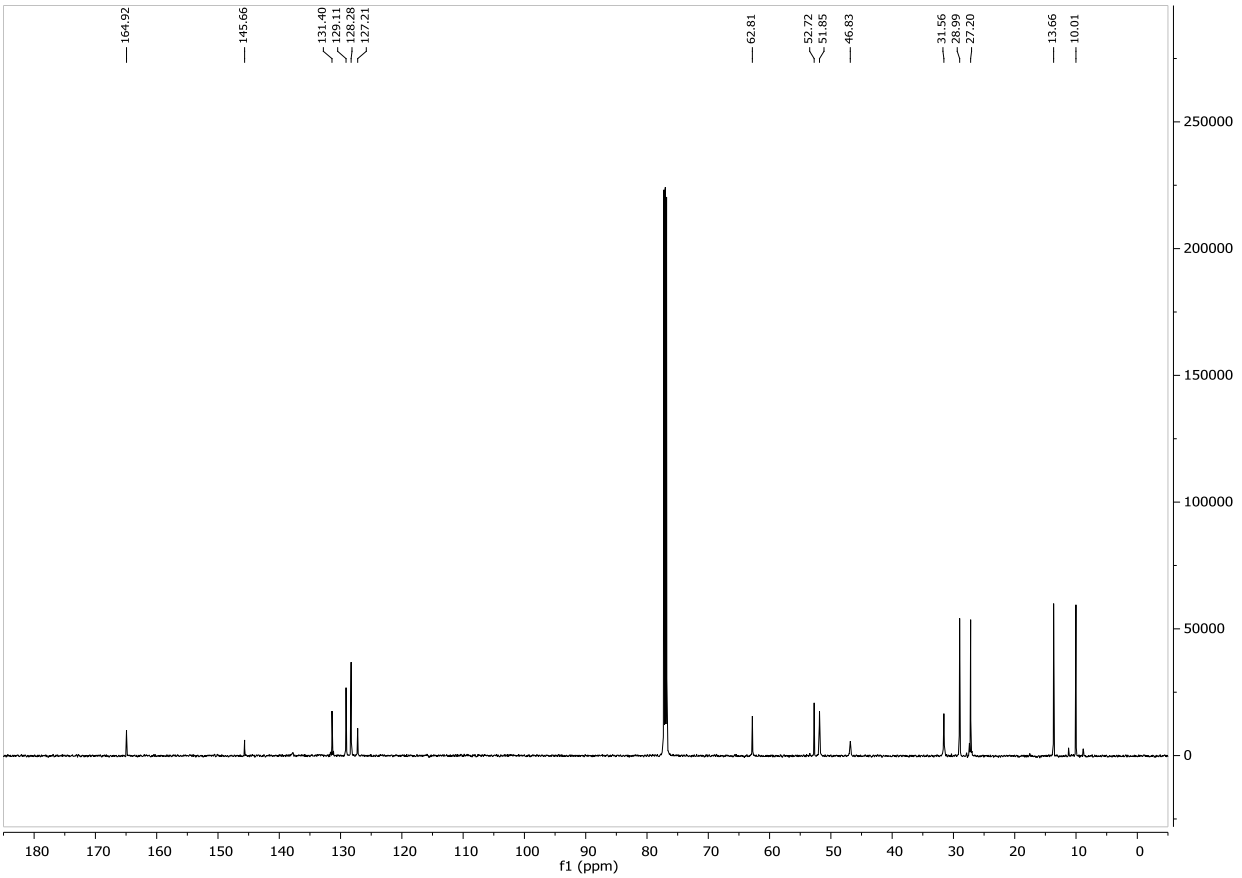



Figure 45: $^{13}C$ NMR of compound **6g** (150 MHz, $CDCl_3$)

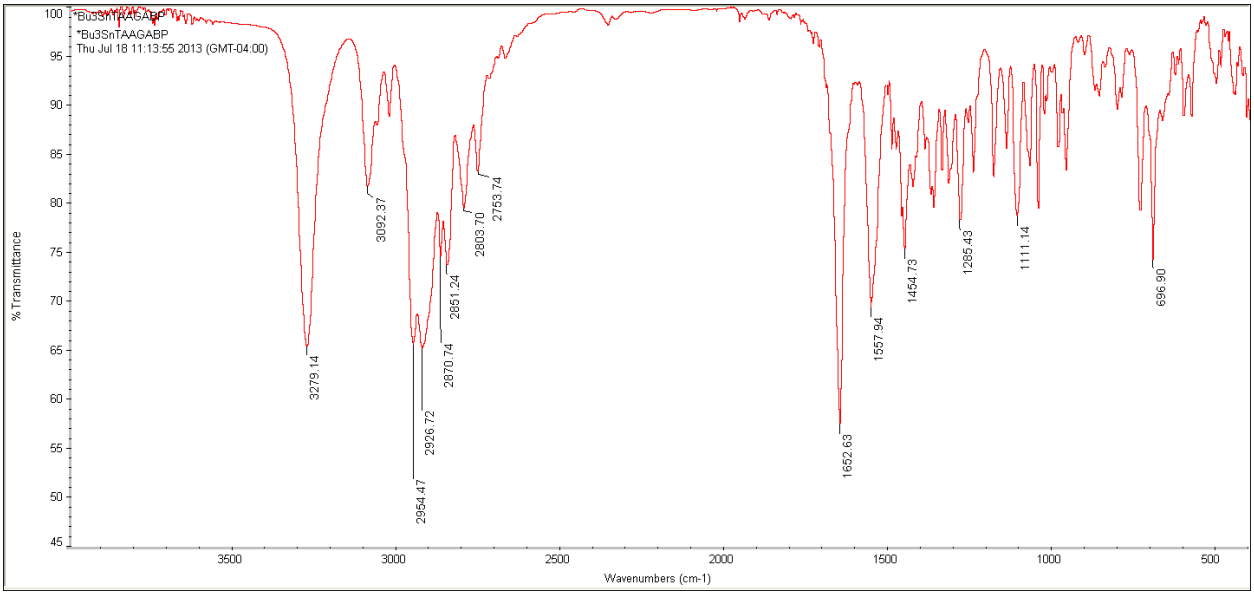



Figure 46: IR spectrum of compound **6g**

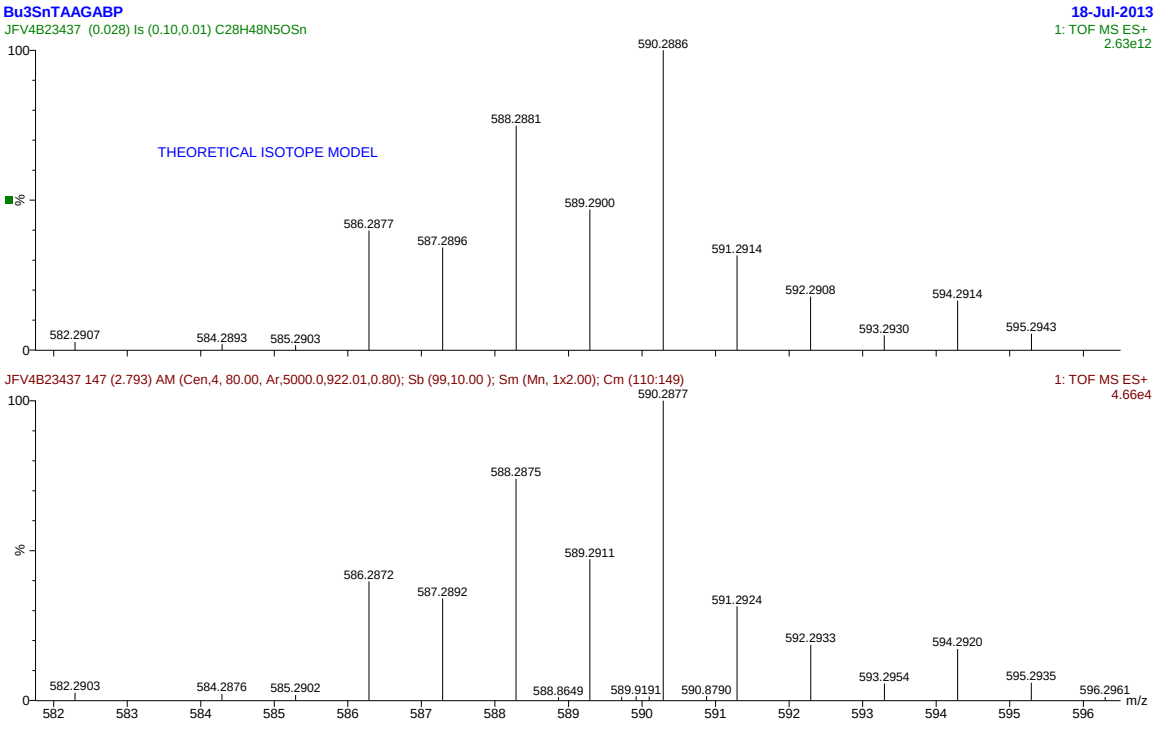



Figure 47: High Resolution Mass Spectrum ($ESI^+$) of compound **6g**

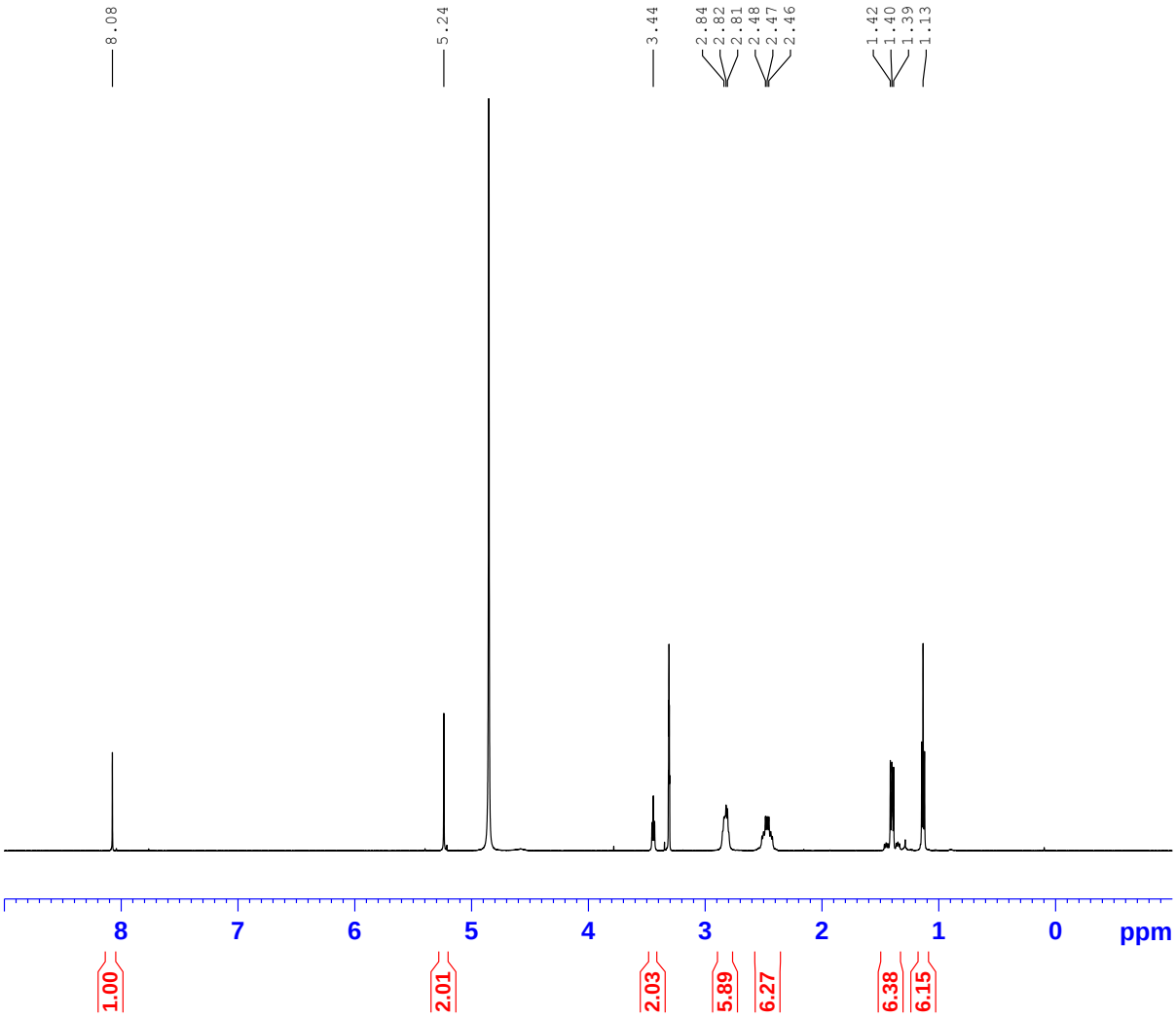



Figure 48: $^{1}$H NMR of compound **6h** (600 MHz, methanol-$d_4$)

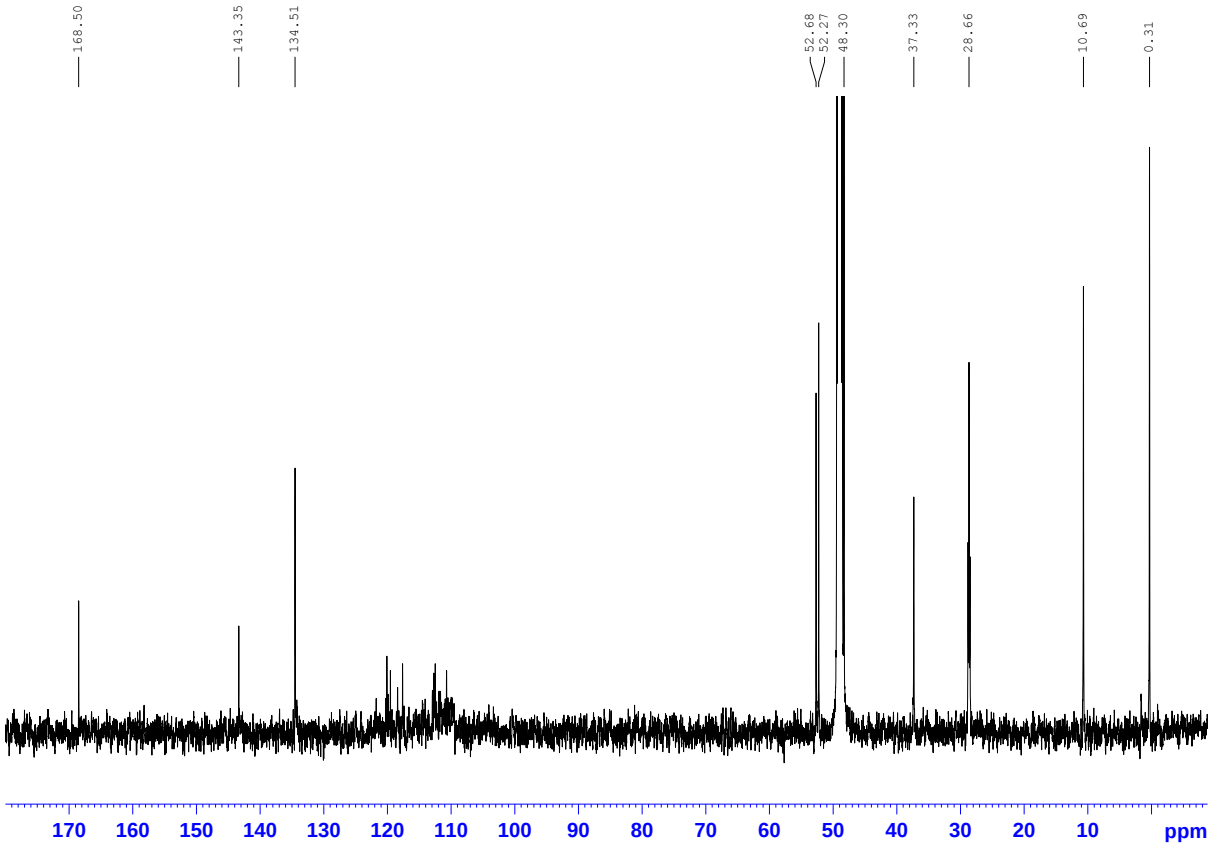



Figure 49: $^{13}C$ NMR of compound **6h** (150 MHz, methanol $d_4$)

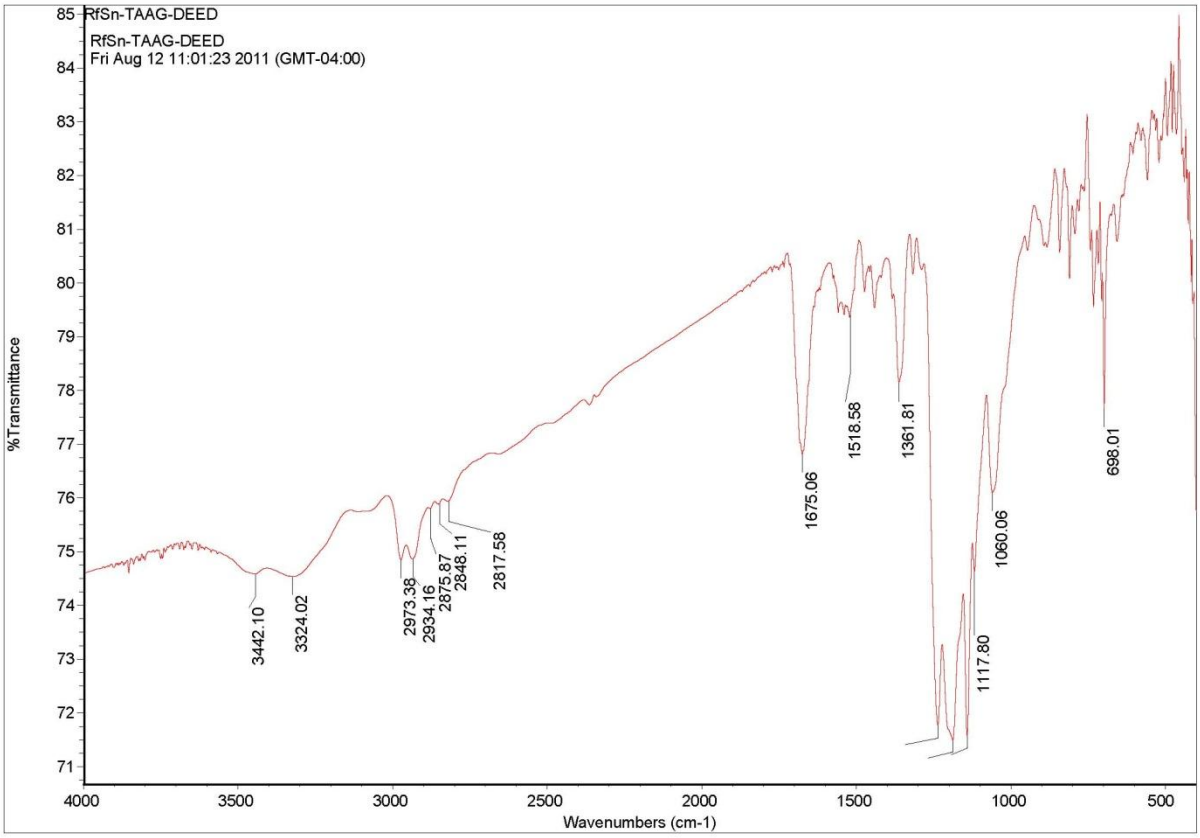



Figure 50: IR spectrum of compound **6h**

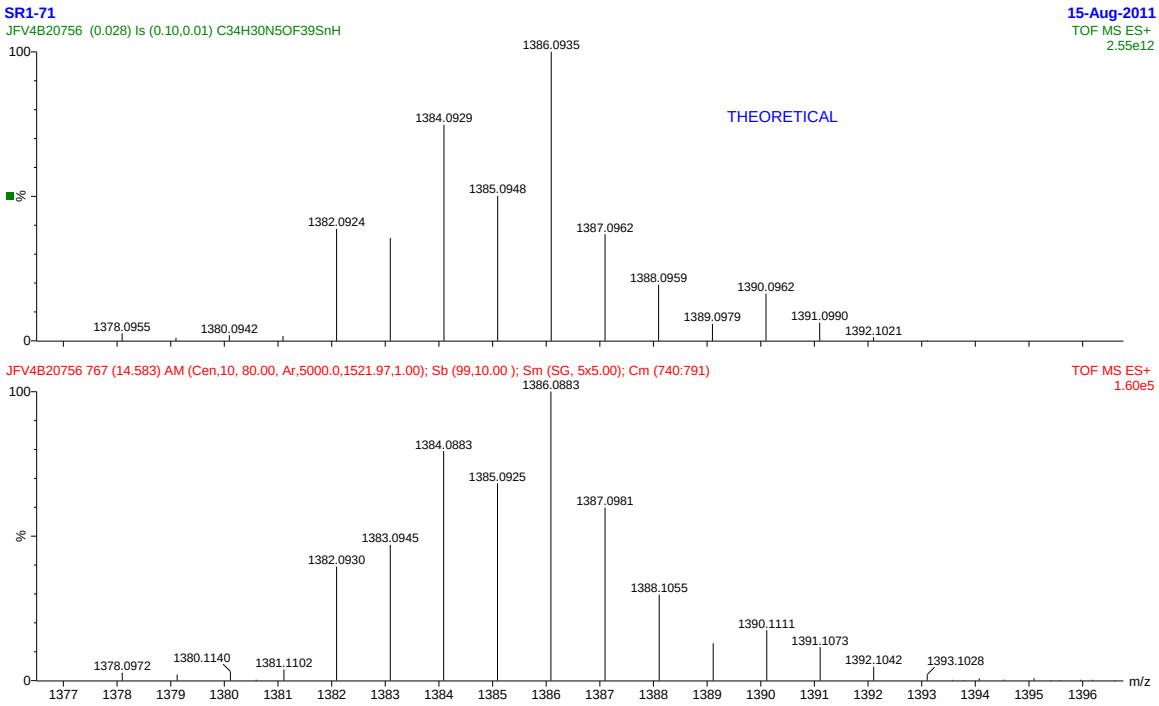



Figure 51: High Resolution Mass Spectrum ($ESI^+$) of compound **6h**

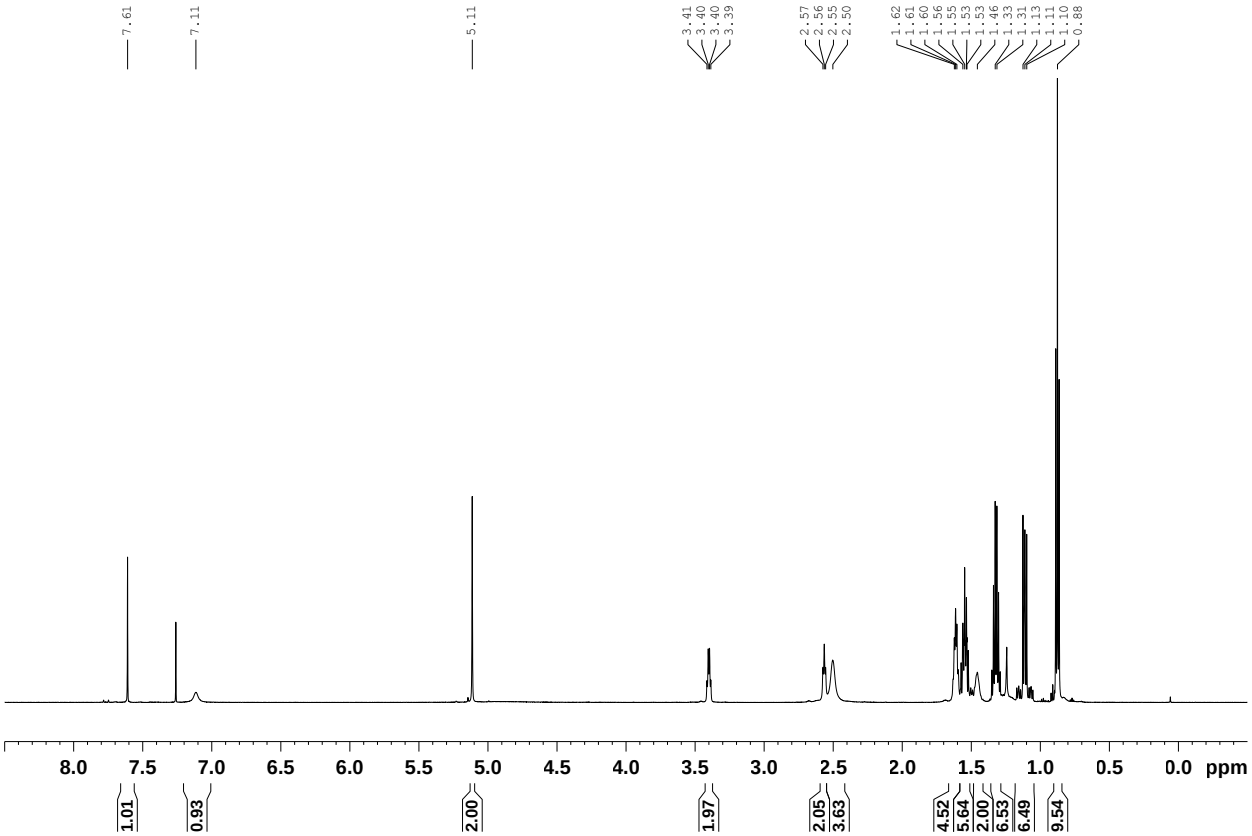



Figure 52: $^{1}H$ NMR of compound **6i** (600 MHz, $CDCl_3$)

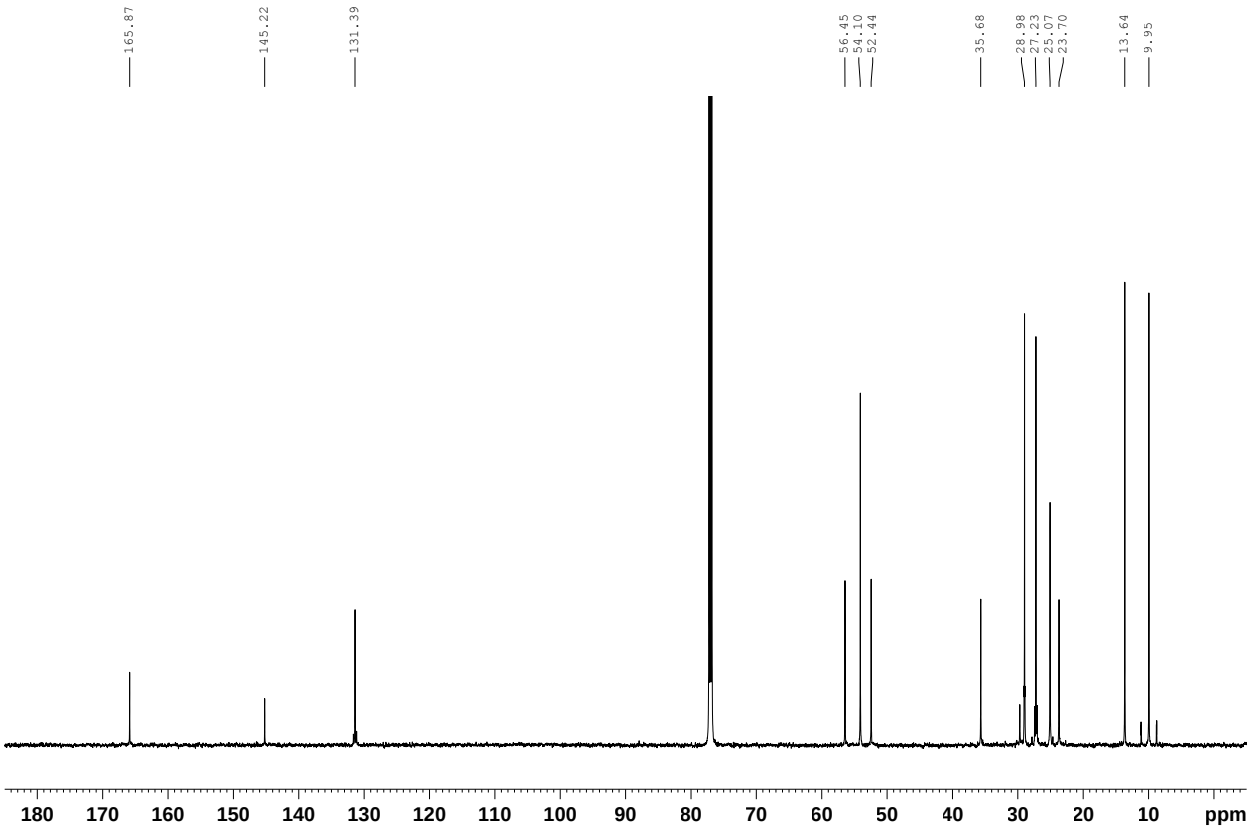



Figure 53: $^{13}C$ NMR of compound **6i** (150 MHz, $CDCl_3$)

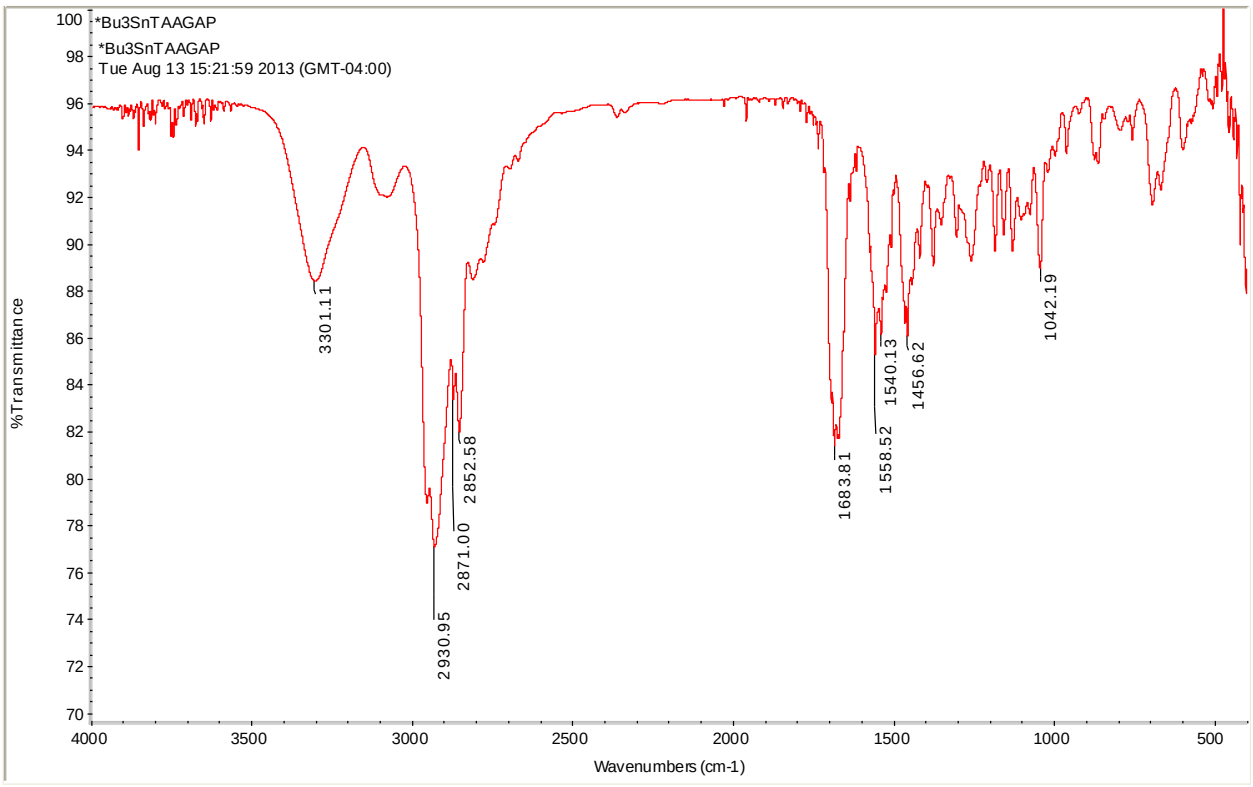



Figure 54: IR spectrum of compound **6i**

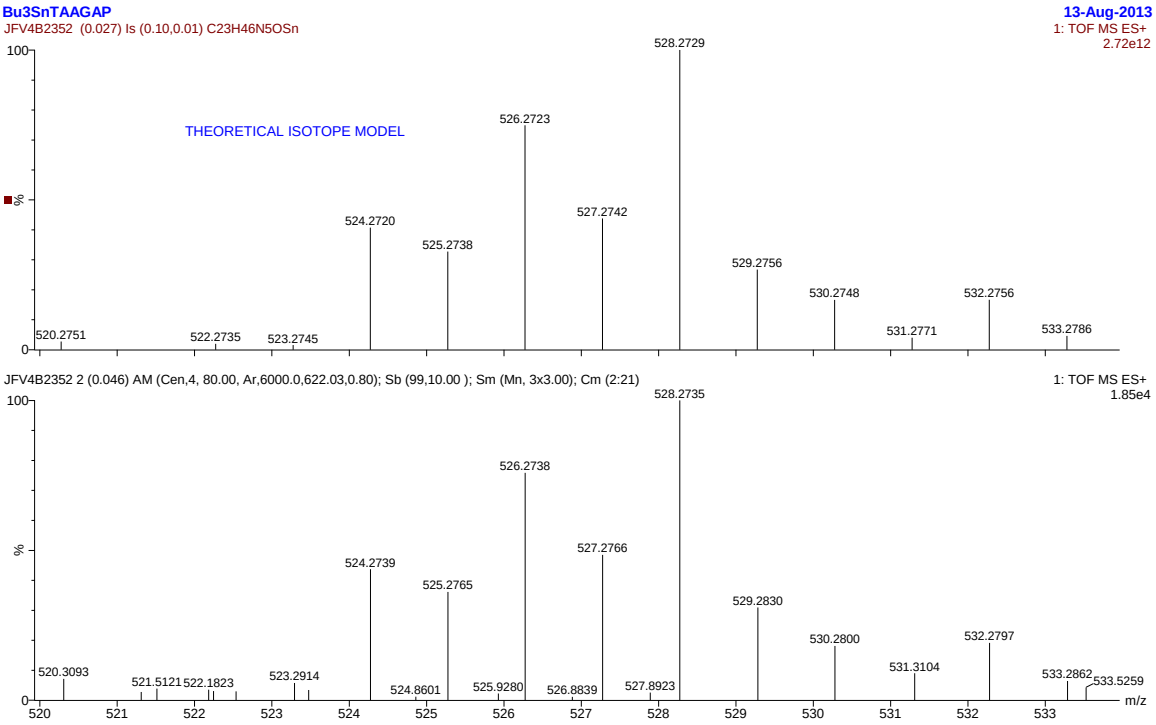



Figure 55: High Resolution Mass Spectrum (ESI$^+$) of compound **6i**

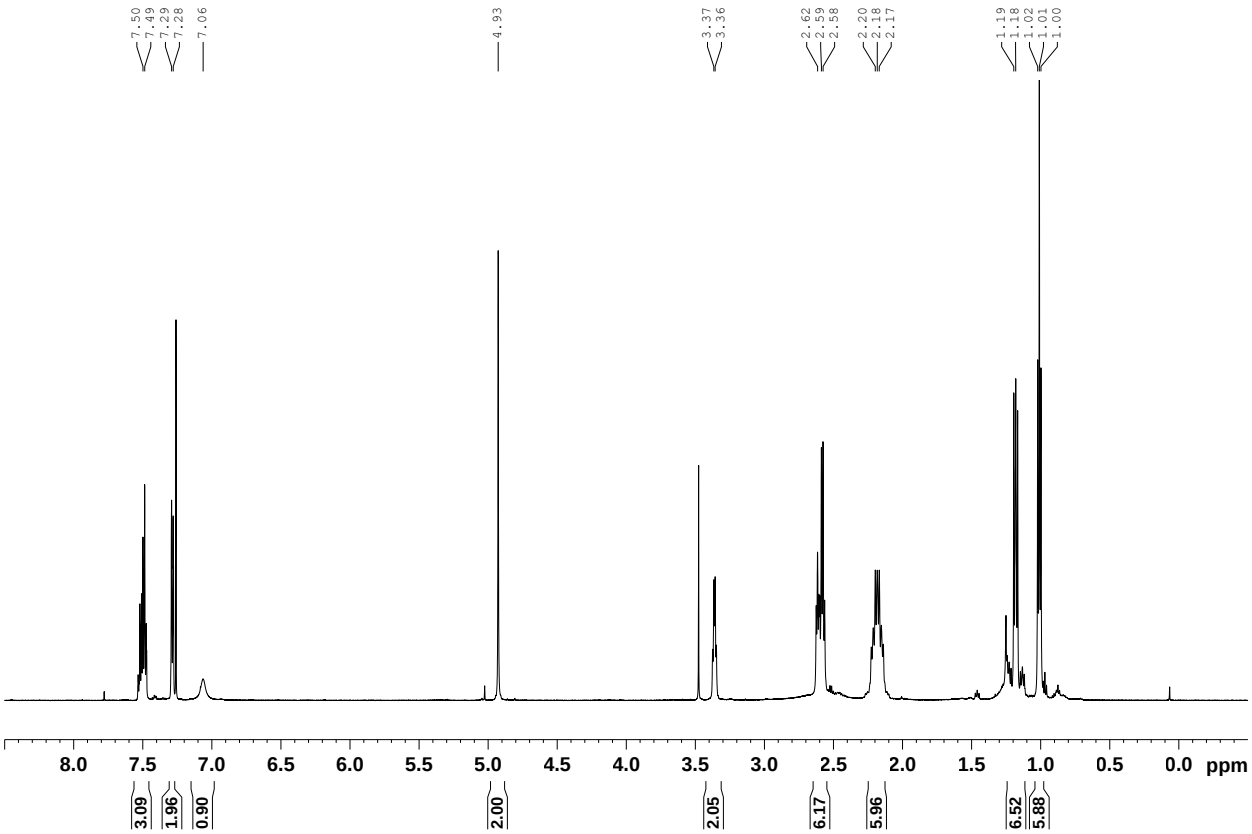



Figure 56: $^{1}$H NMR of compound **6j** (600 MHz, chloroform-d)

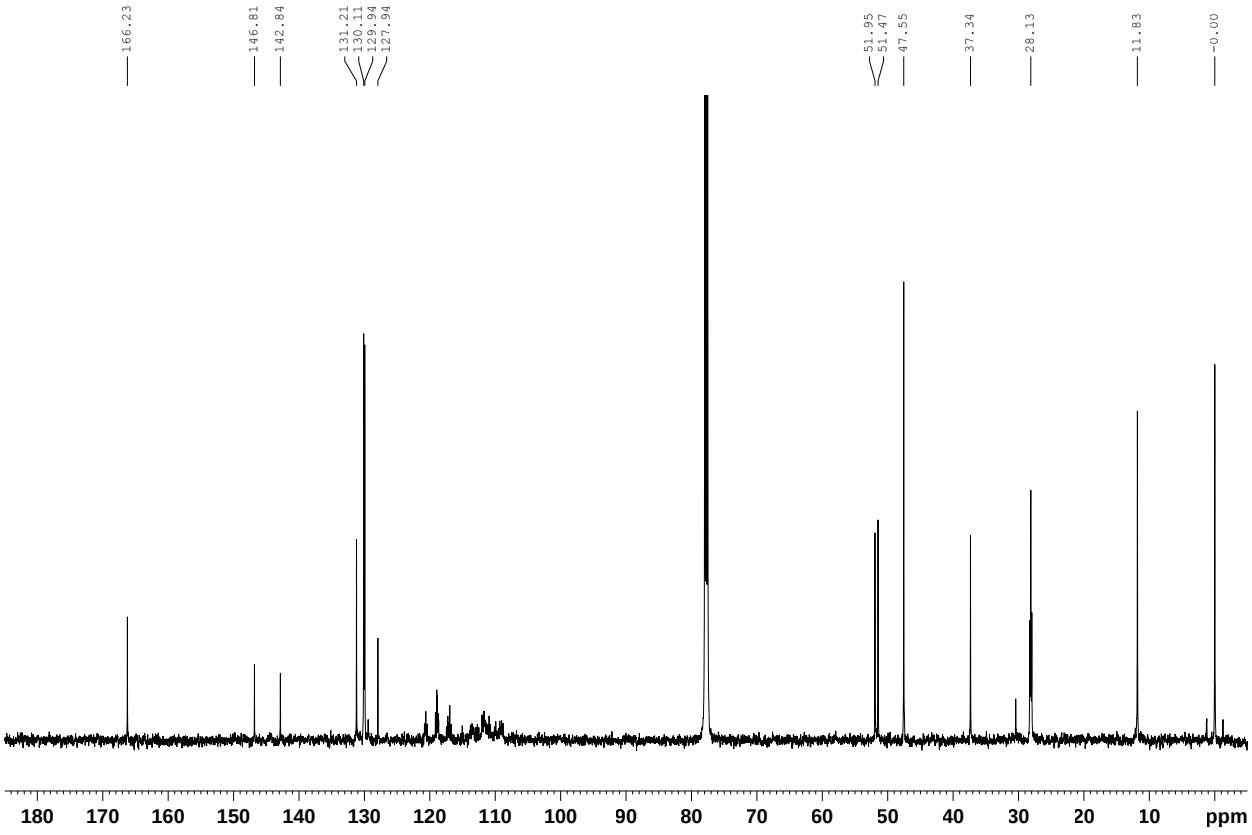



Figure 57: $^{13}$C NMR of compound **6j** (150 MHz, chloroform-d)

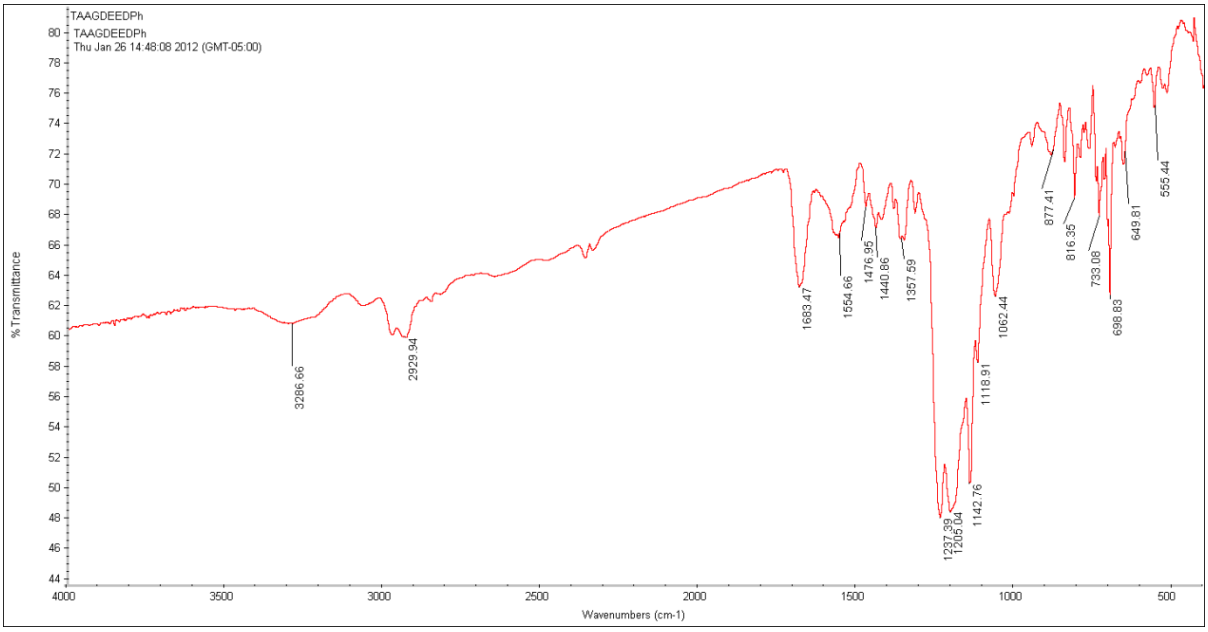



Figure 58: IR Spectrum of compound **6j**

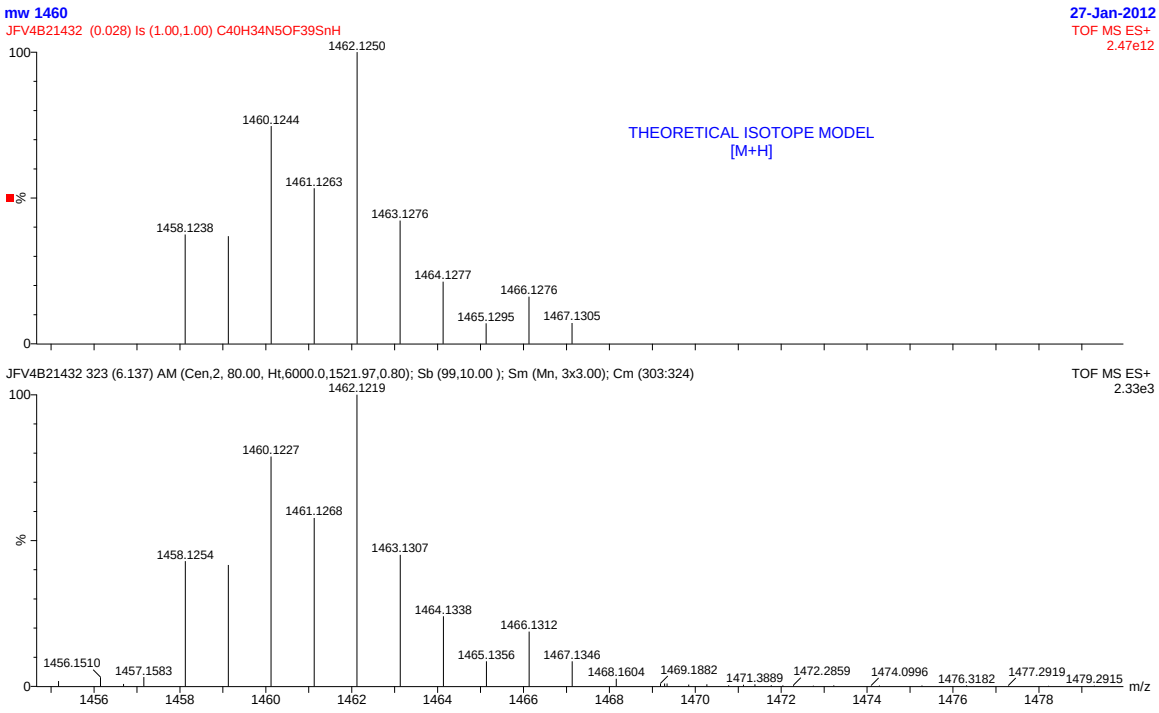



Figure 59: High Resolution Mass Spectrum ($ESI^+$) of compound **6j**

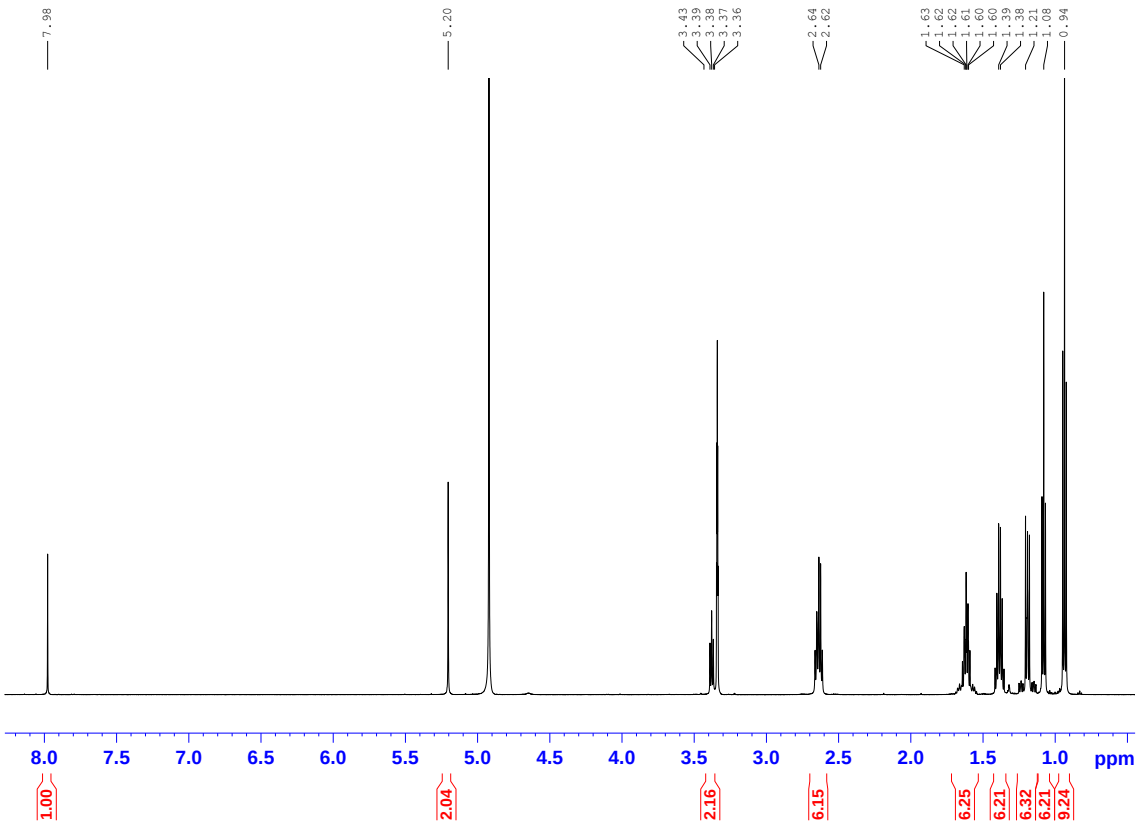



Figure 60: $^{1}$H NMR of compound **6k** (600 MHz, methanol-$d_4$)

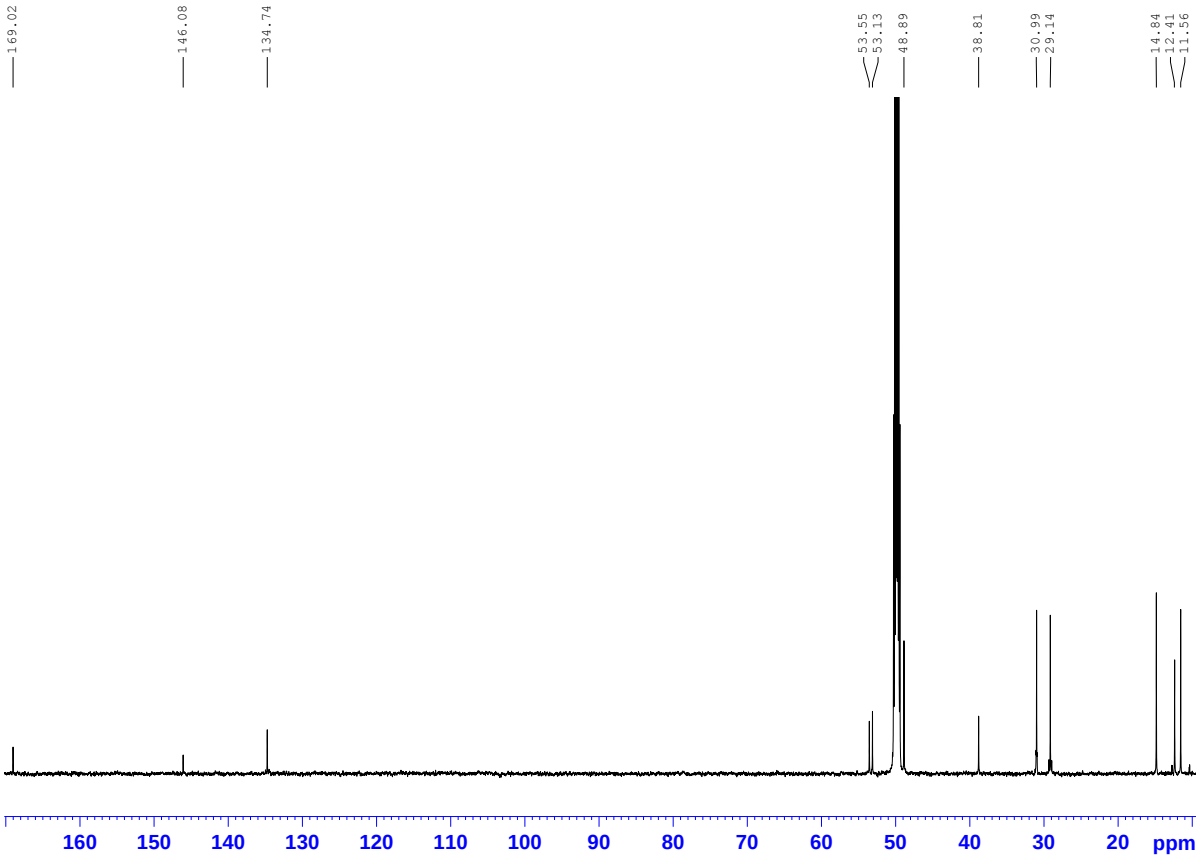



Figure 61: $^{13}$C NMR of compound **6k** (150 MHz, methanol $d_4$)

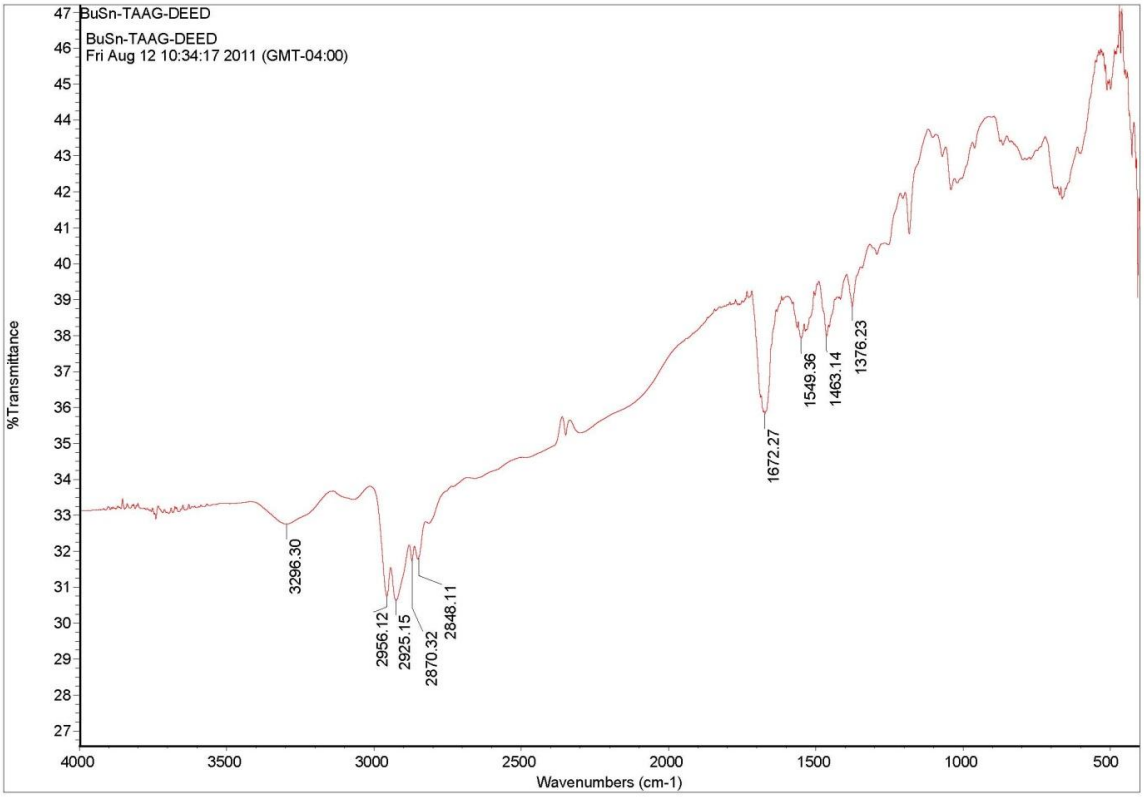



Figure 62: IR spectrum of compound **6k**

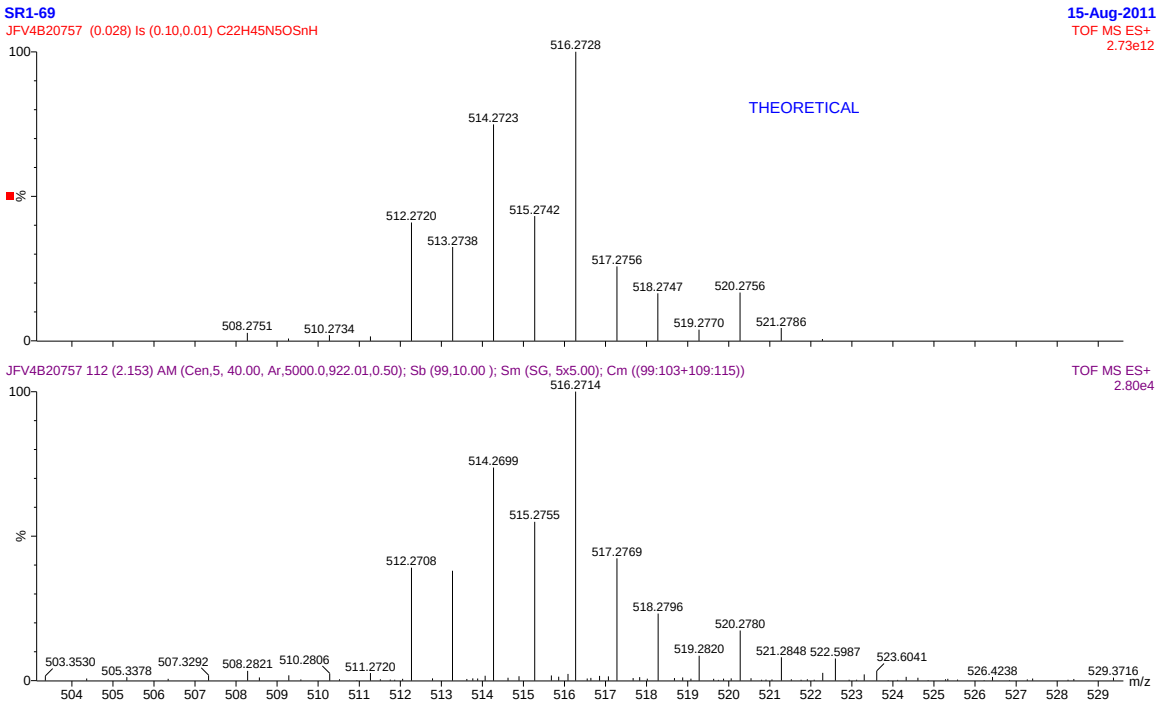



Figure 63: High Resolution Mass Spectrum ($ESI^+$) of compound **6k**

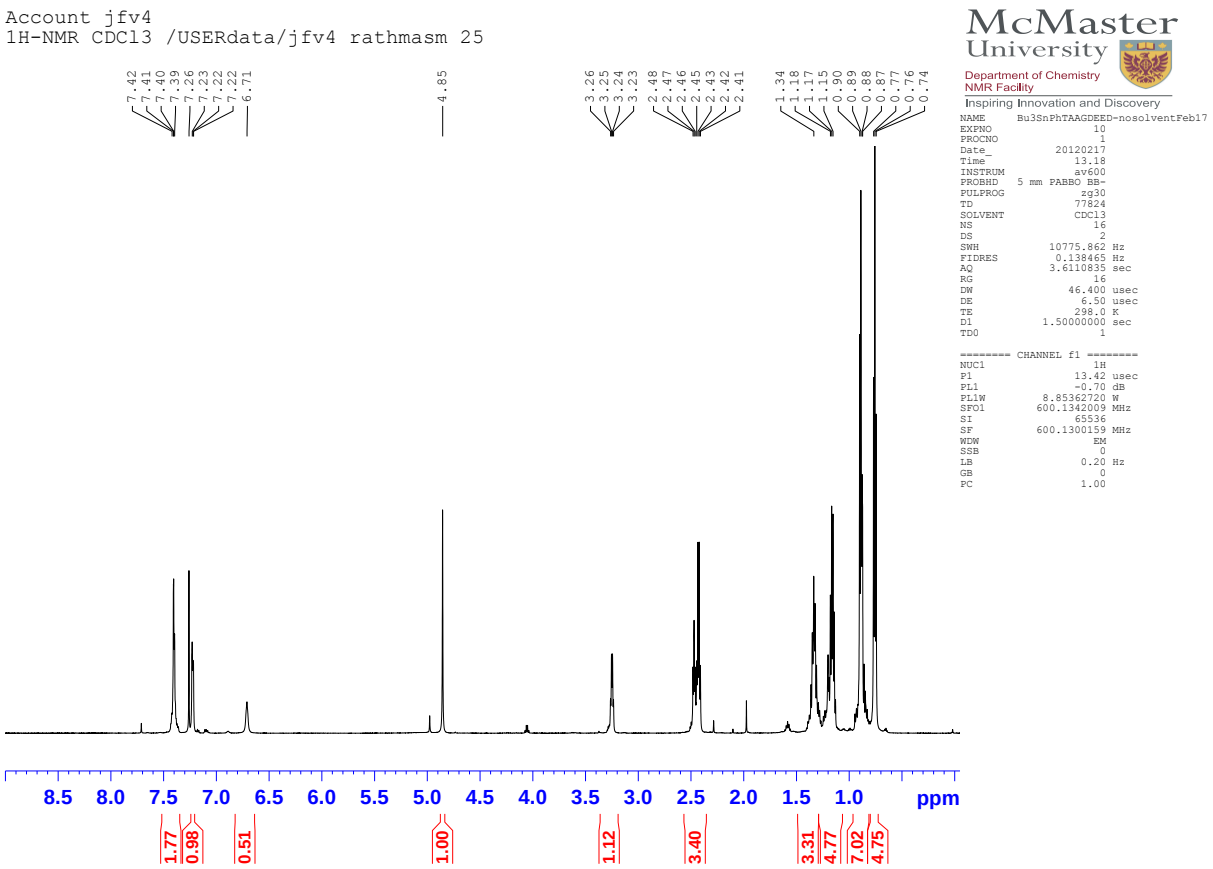



Figure 64: $^{1}$H NMR compound **6l** (600 MHz, chloroform-d)

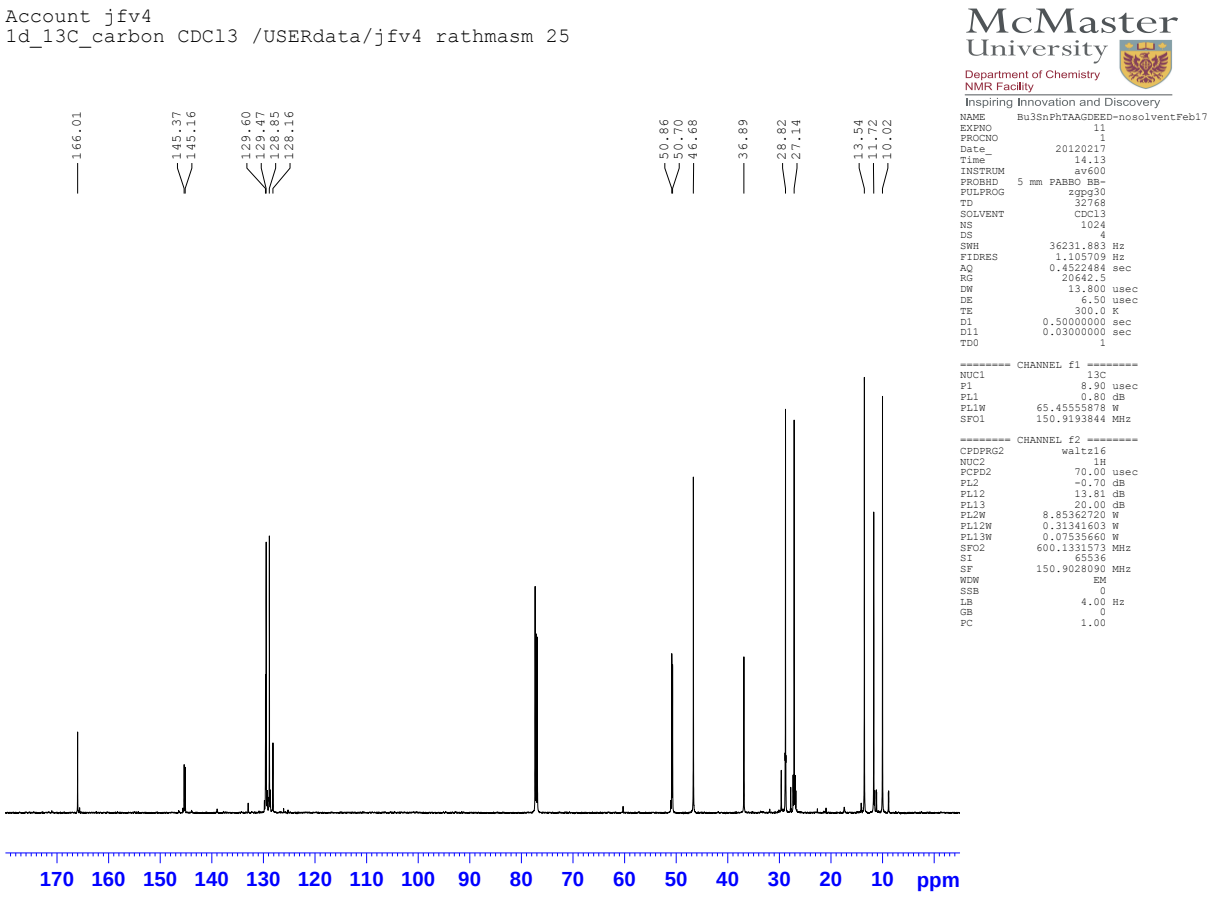



Figure 65: $^{13}$C NMR of compound **6l** (150 MHz, chloroform-d)

\

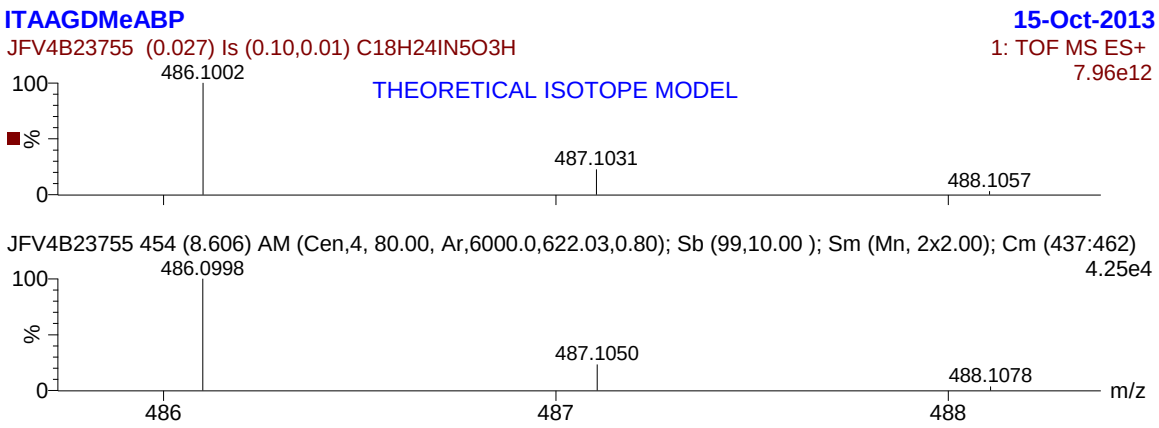



Figure 66: High Resolution Mass Spectrum (ESI$^+$) of compound **7b**

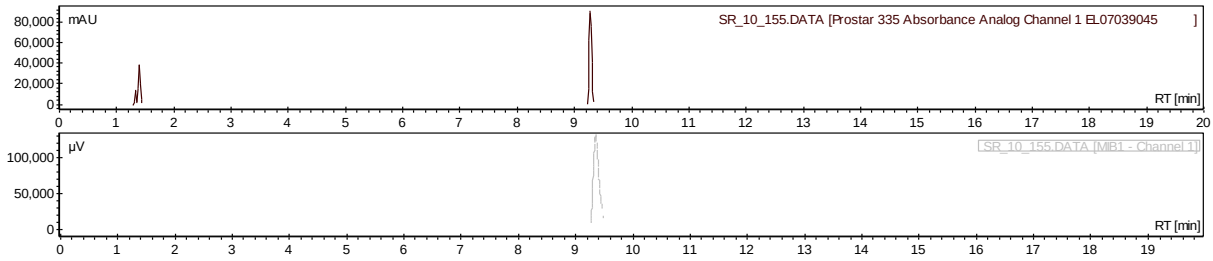



Figure 67: Coinjection HPLC of compound **7b**

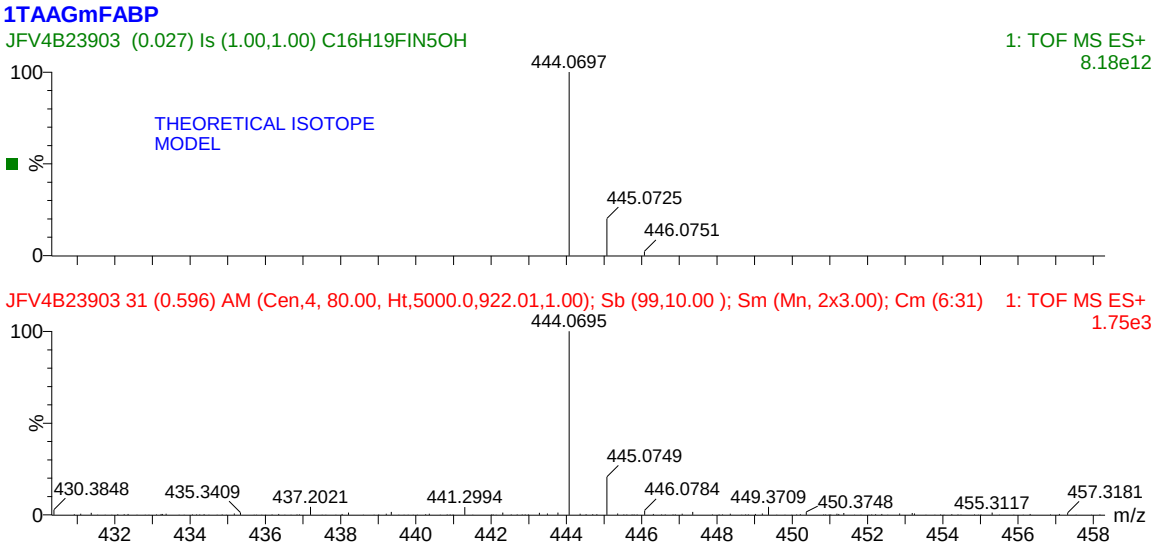



Figure 68: High Resolution Mass Spectrum (ESI$^+$) of compound **7c**

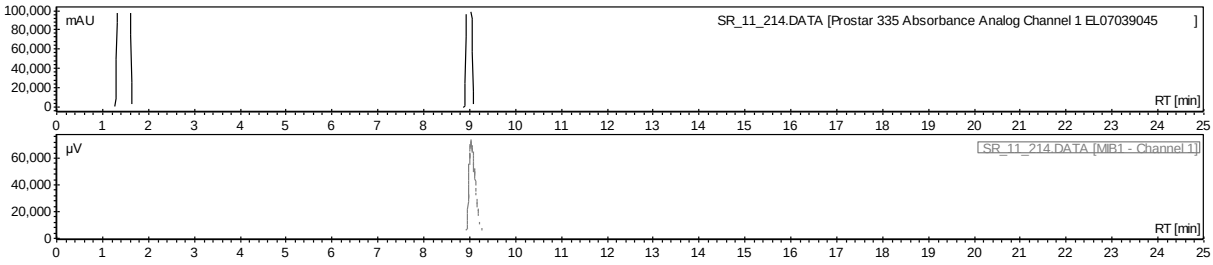



Figure 69: UV HPLC of compound **7c**

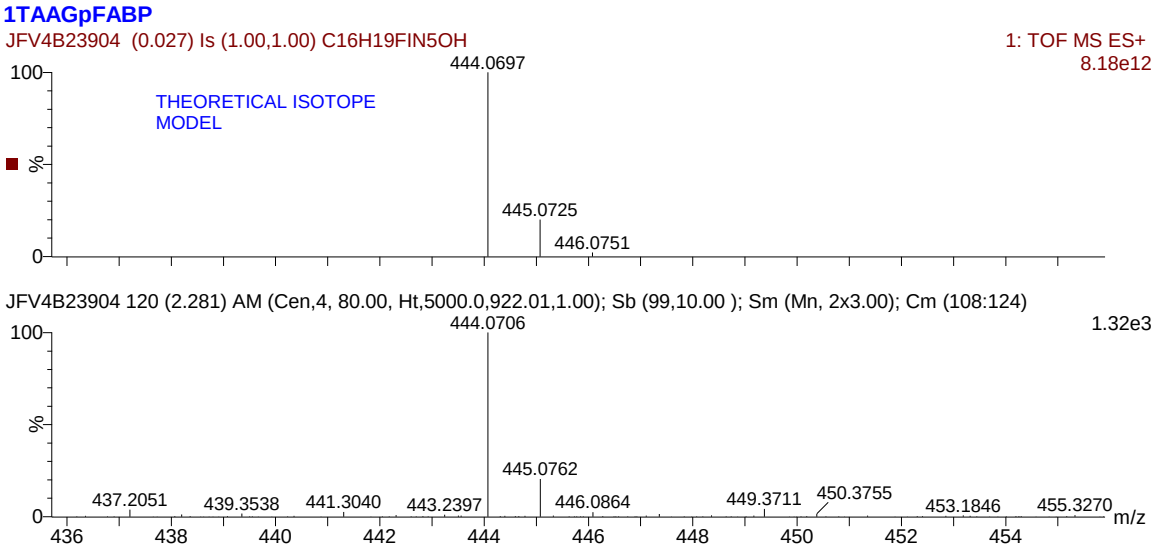



Figure 70: High Resolution Mass Spectrum (ESI$^+$) of compound **7d**

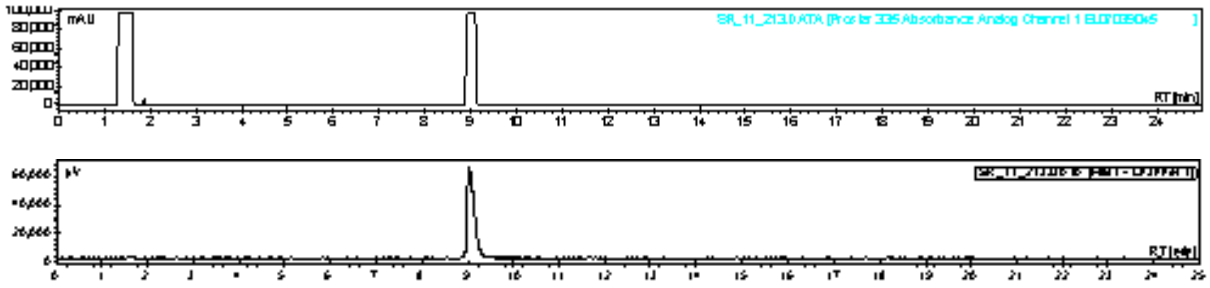


Figure 71: UV HPLC of compound **7d**

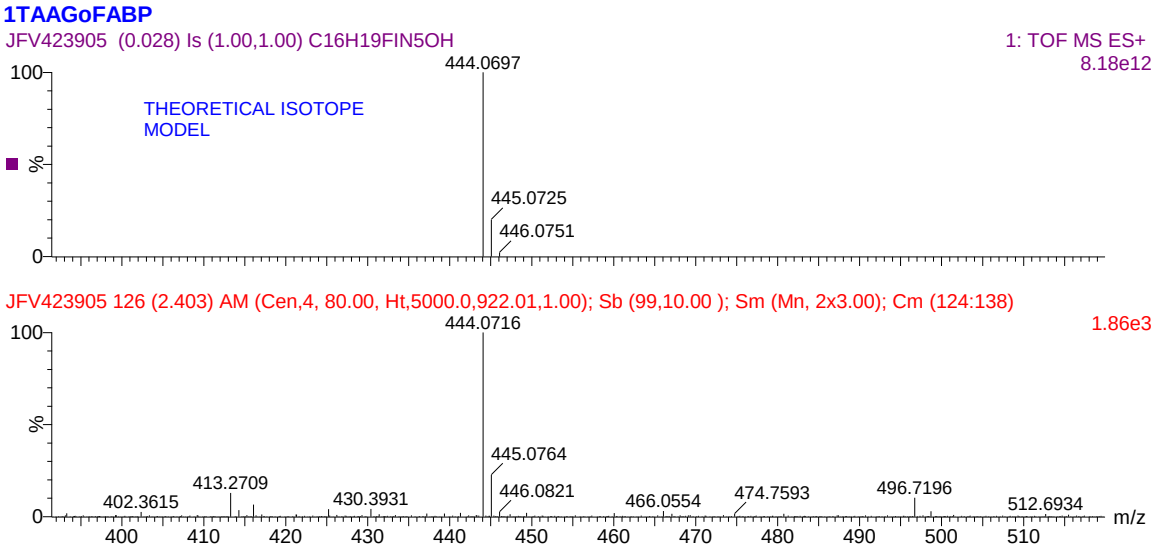



Figure 72: High Resolution Mass Spectrum (ESI$^+$) of compound **7e**

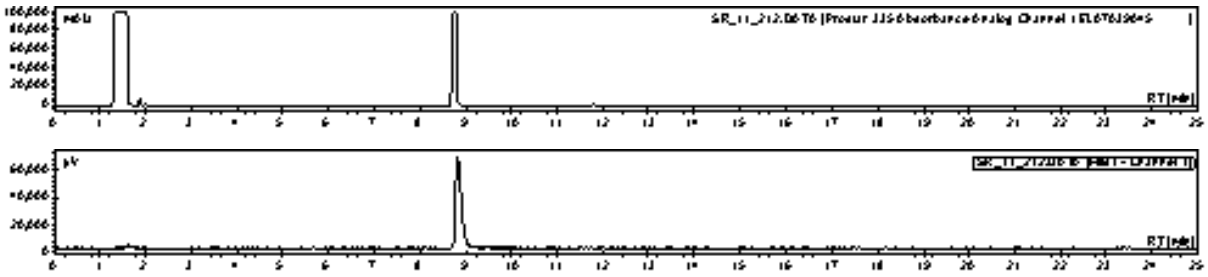


Figure 73: UV HPLC of compound **7e**

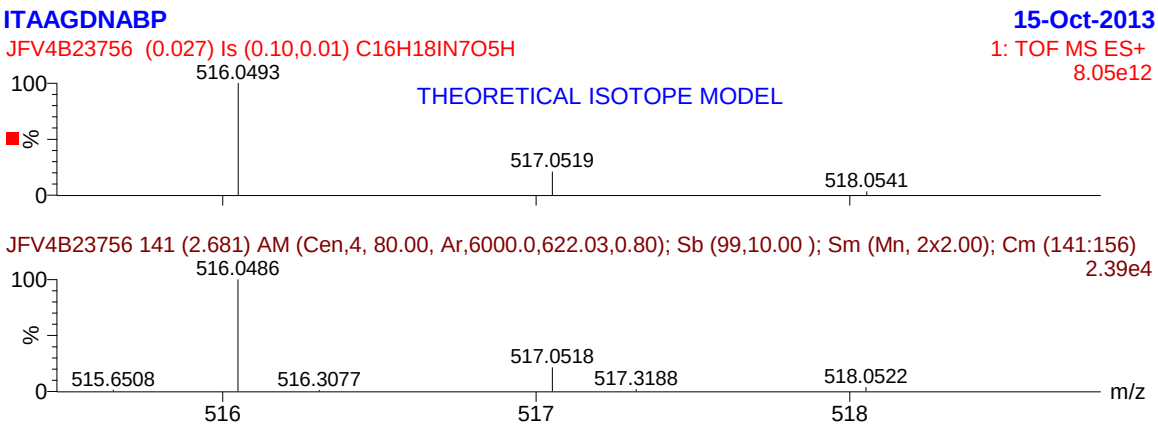



Figure 74: High Resolution Mass Spectrum (ESI$^+$) of compound **7f**

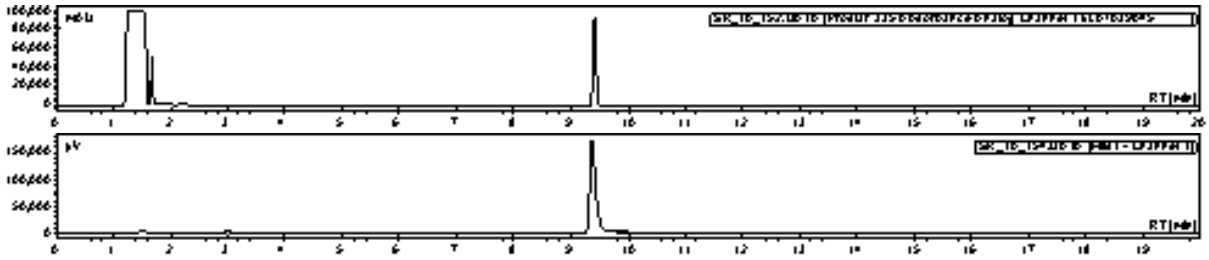


Figure 75: UV HPLC of compound **7f**

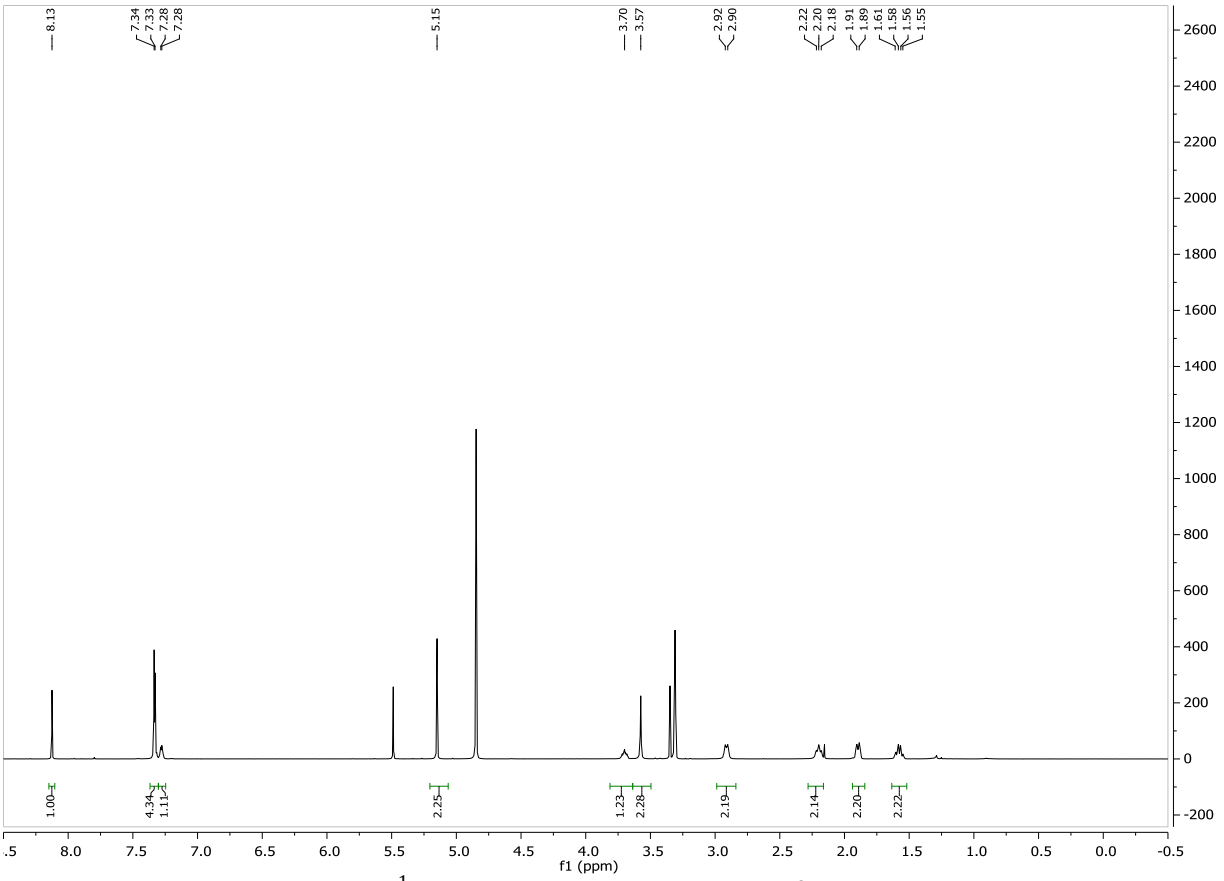



Figure 76: $^{1}$H NMR (600 MHz, MeOD) of Compound **7g**

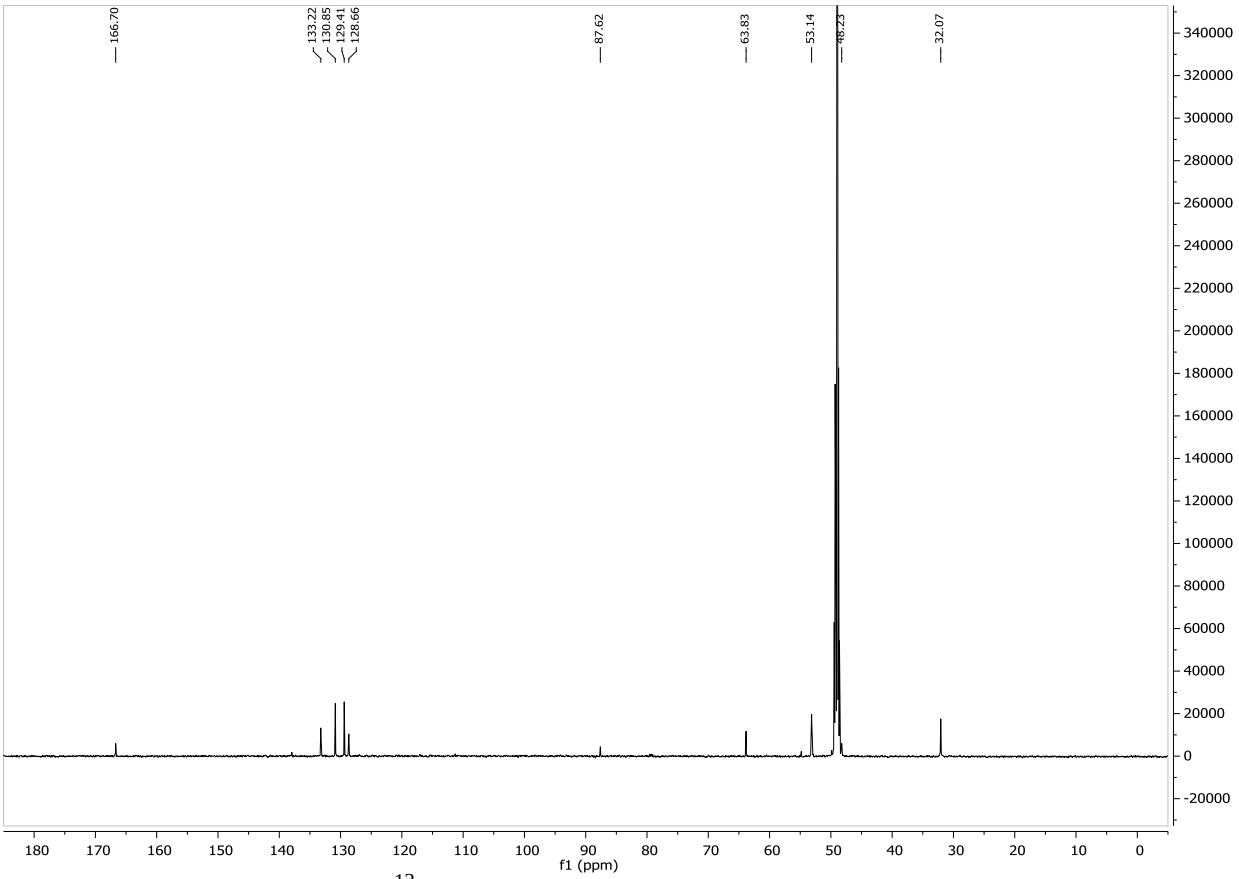



Figure 77: $^{13}$C NMR (150 MHz, MeOD) of Compound **7g**

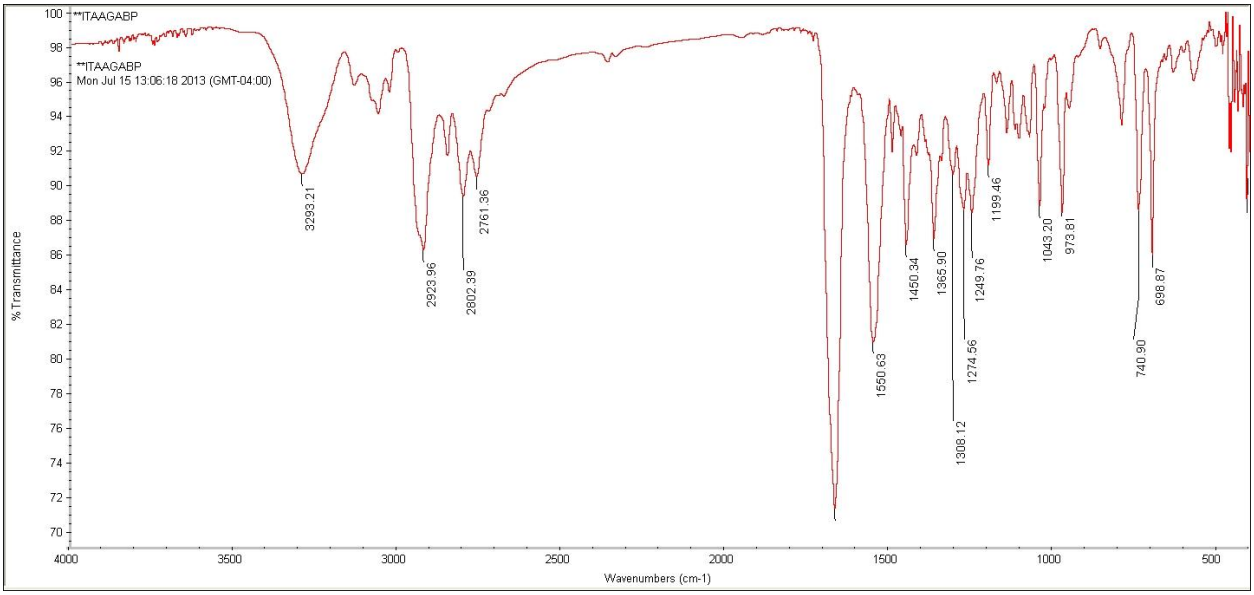



Figure 78: IR of compound **7g**

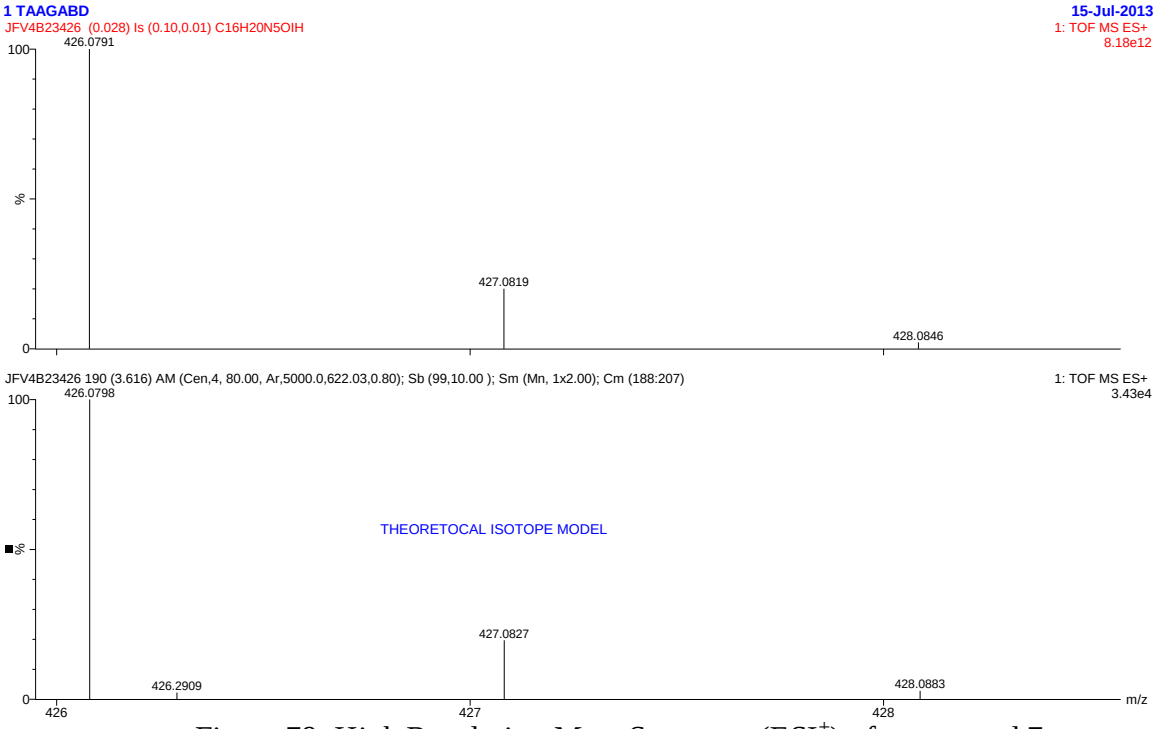



Figure 79: High Resolution Mass Spectrum ($ESI^+$) of compound **7g**

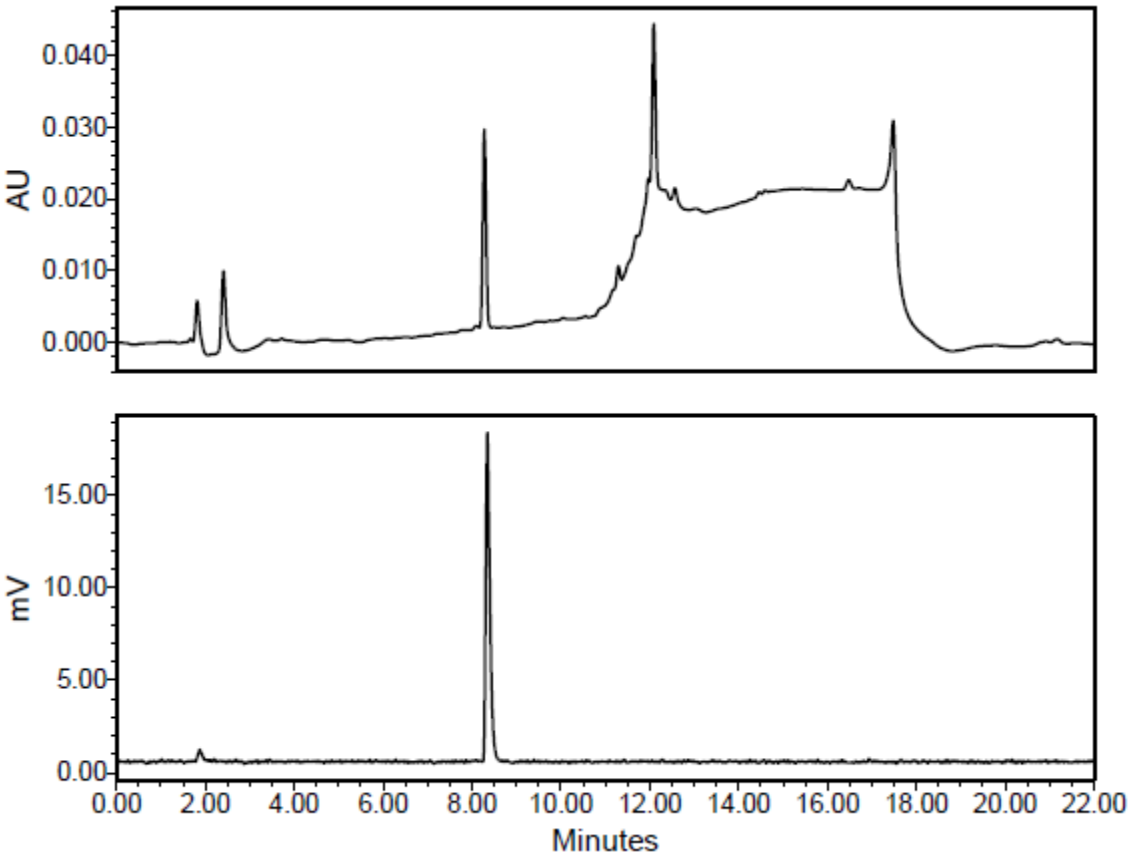



Figure 80: HPLC Coinjection of compound **7g**

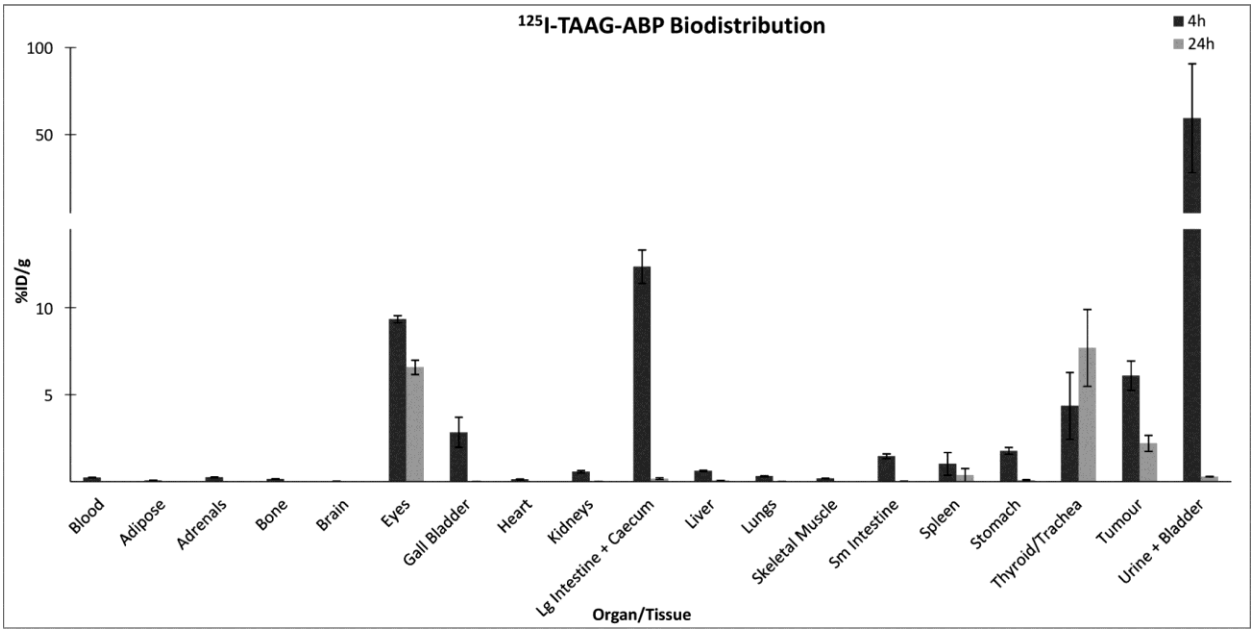



Figure 81: Biodistribution data for [$^{125}$I] **7g**

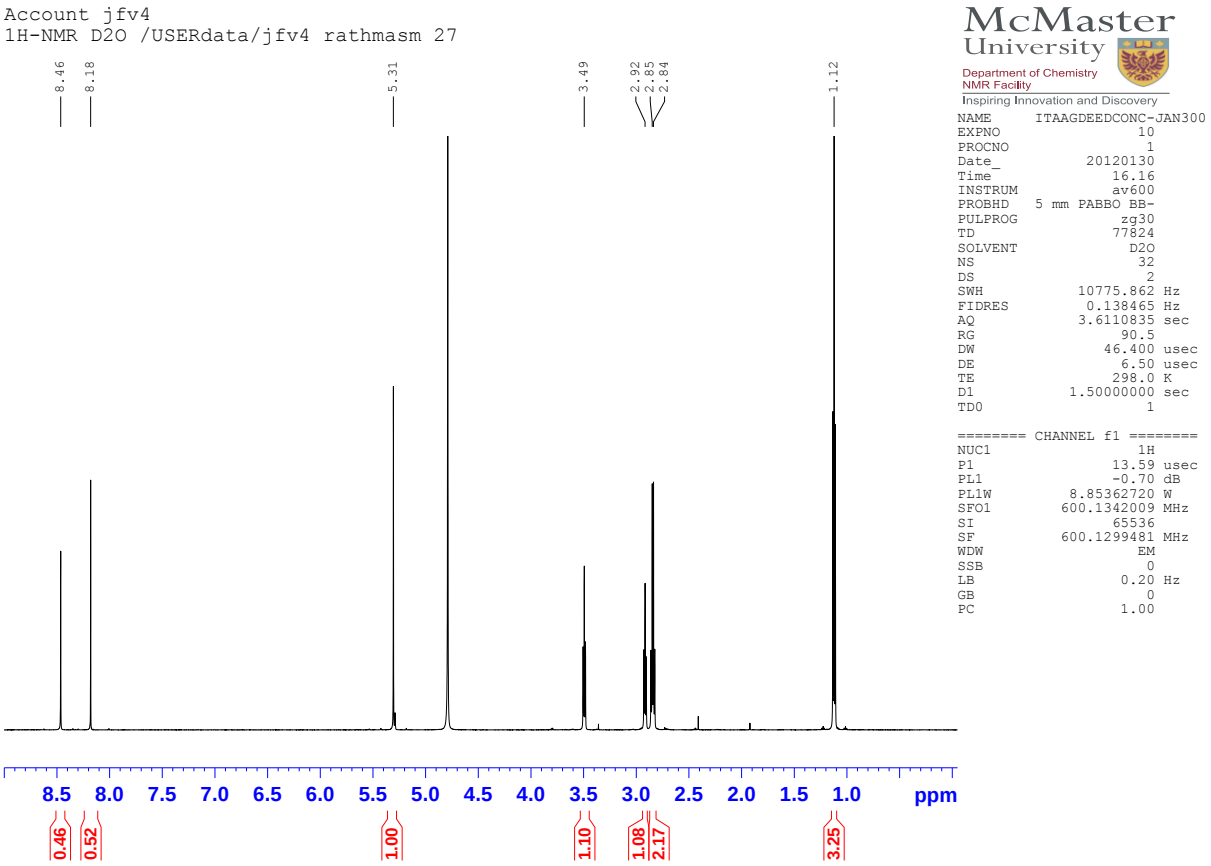



Figure 82: $^{1}$H NMR of compound **7h** (600 MHz, $D_2O$-$d_2$)

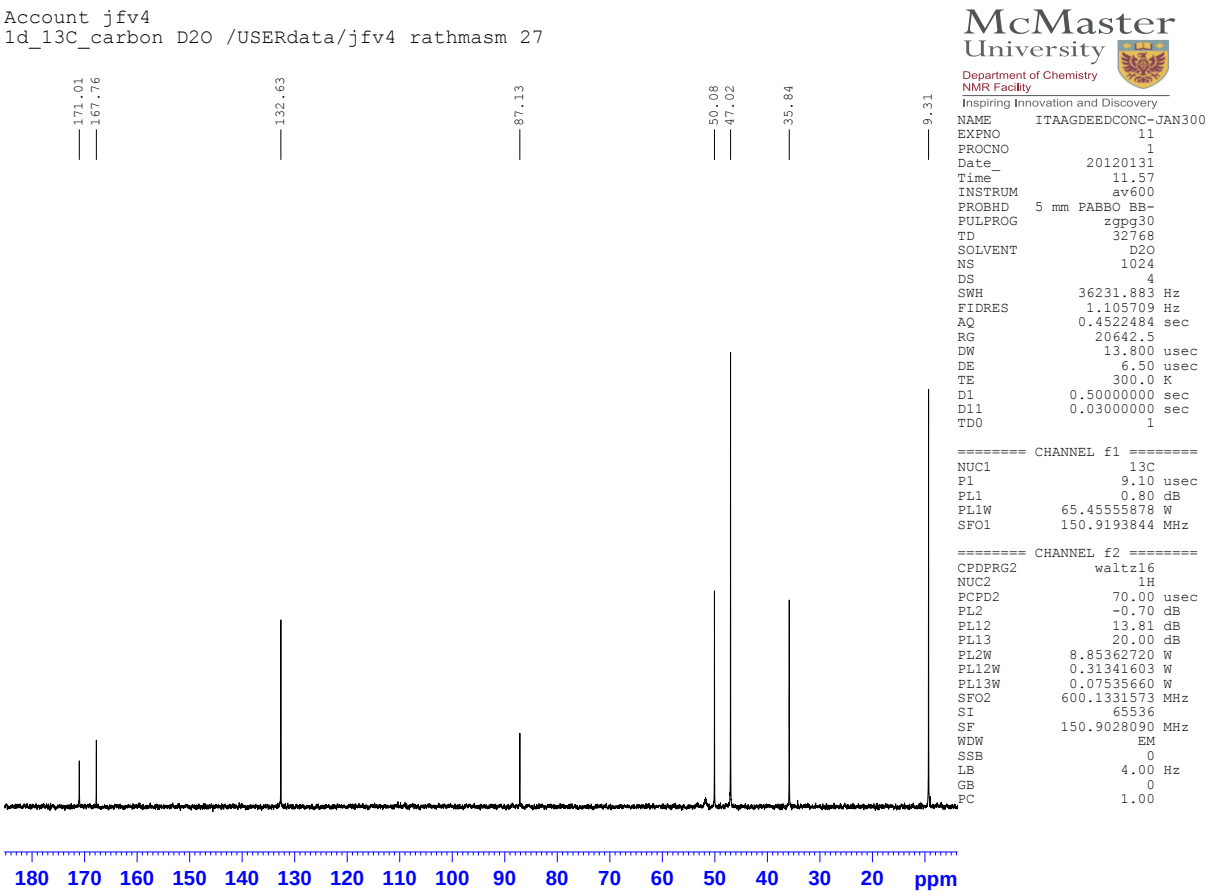



Figure 83: $^{13}C$ NMR of compound **7h** (150 MHz, $D_2O$-$d_2$)

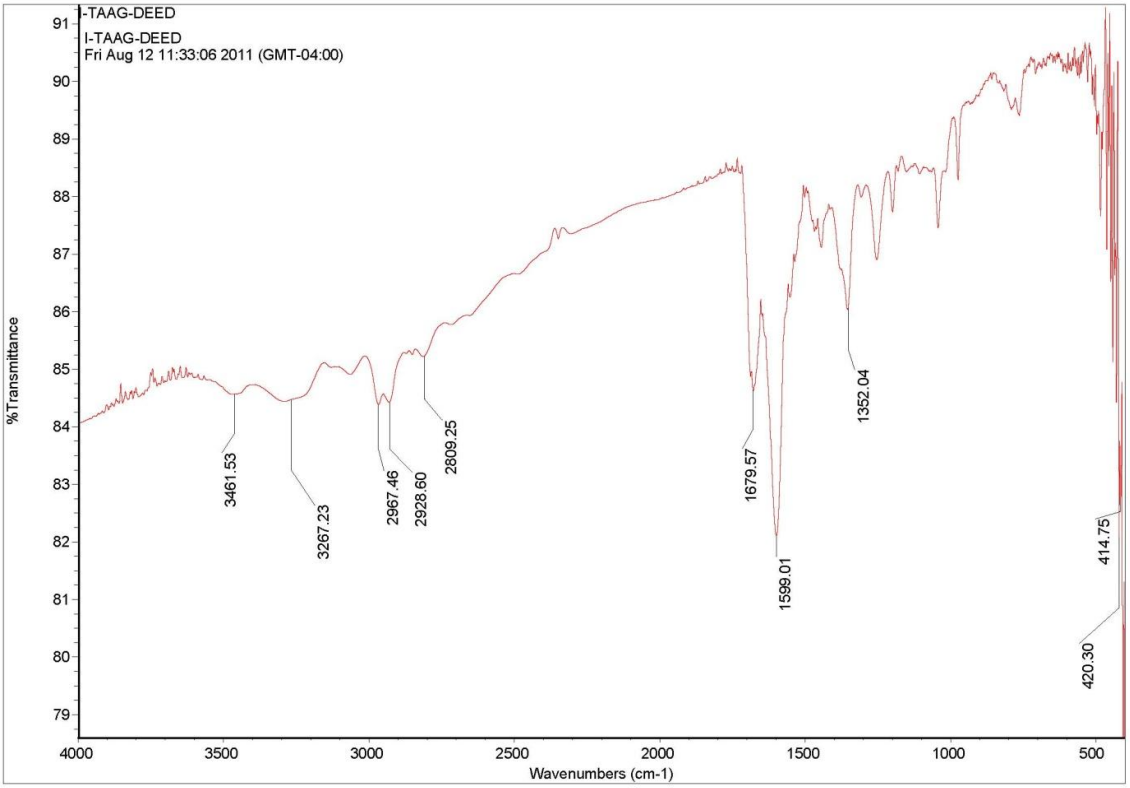



Figure 84: IR spectrum of compound **7h**

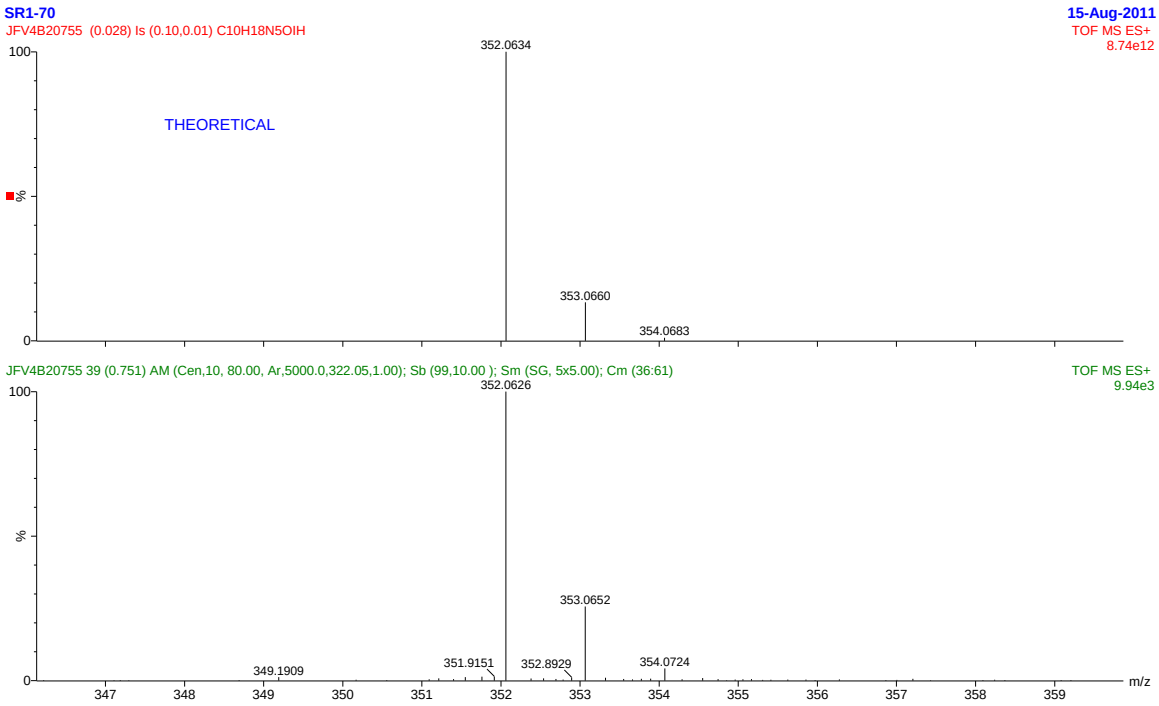



Figure 85 : High Resolution Mass Spectrum ($ESI^+$) of compound **7h**

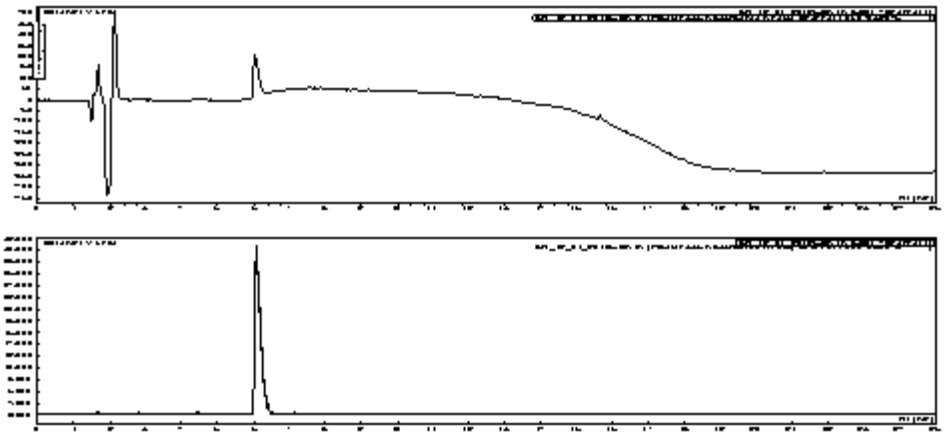


Figure 86: HPLC Coinjection of compound **7h**

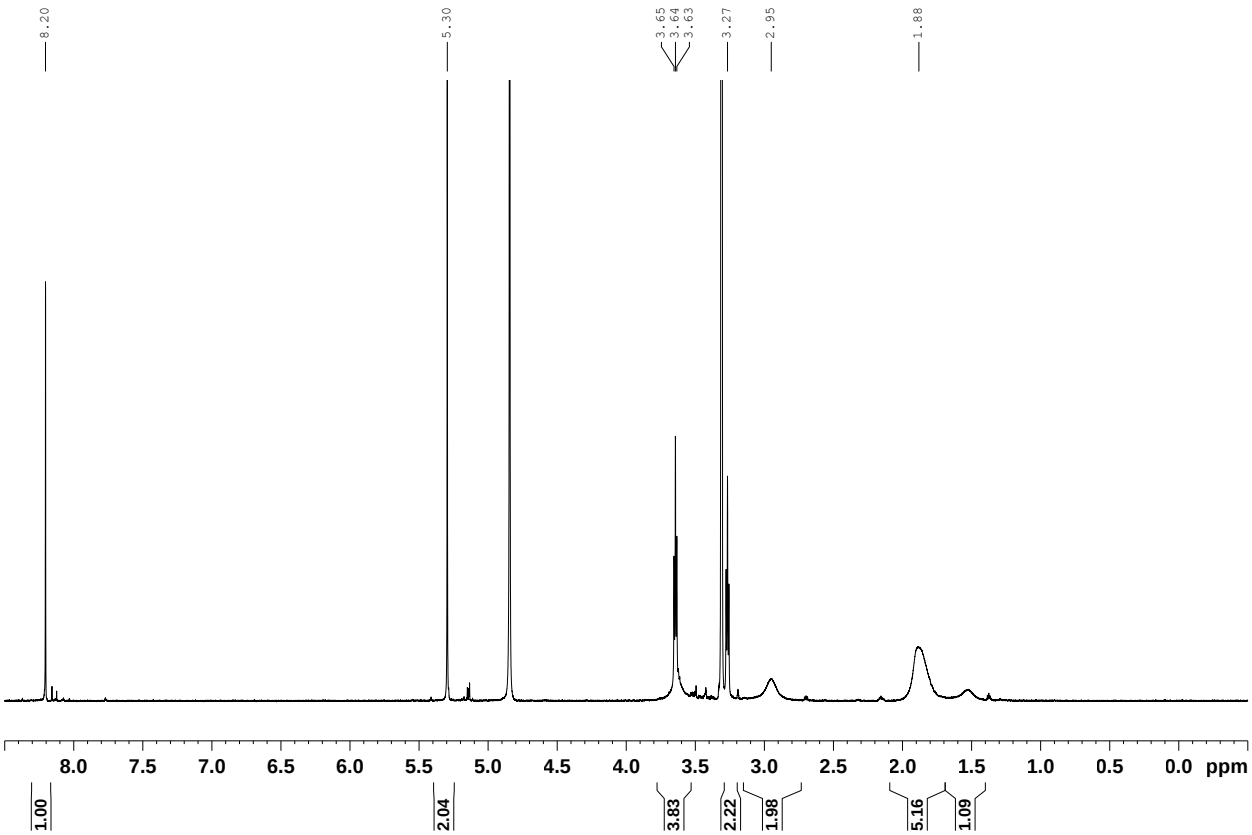



Figure 87: $^{1}$H NMR of compound **7i** (600 MHz, MeOD)

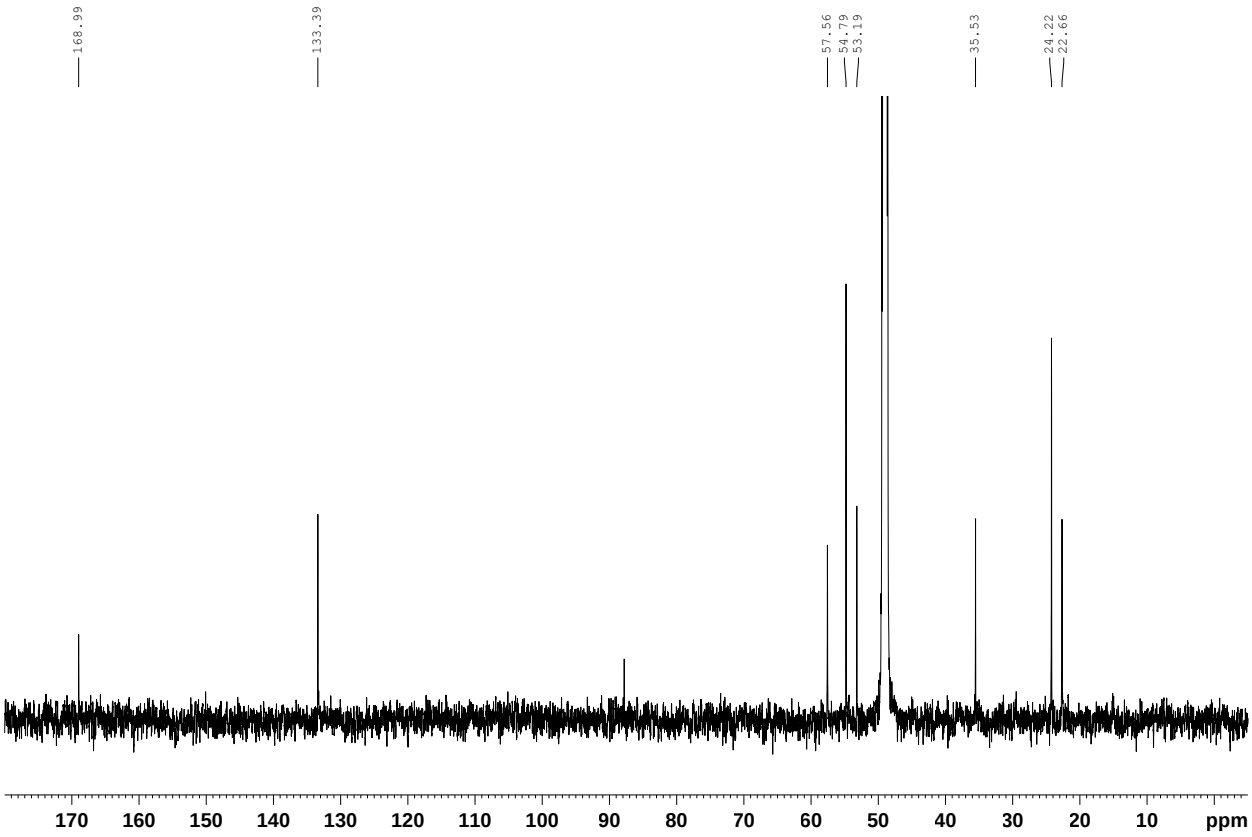



Figure 88: $^{13}$C NMR of compound **7i** (150 MHz,MeOD)

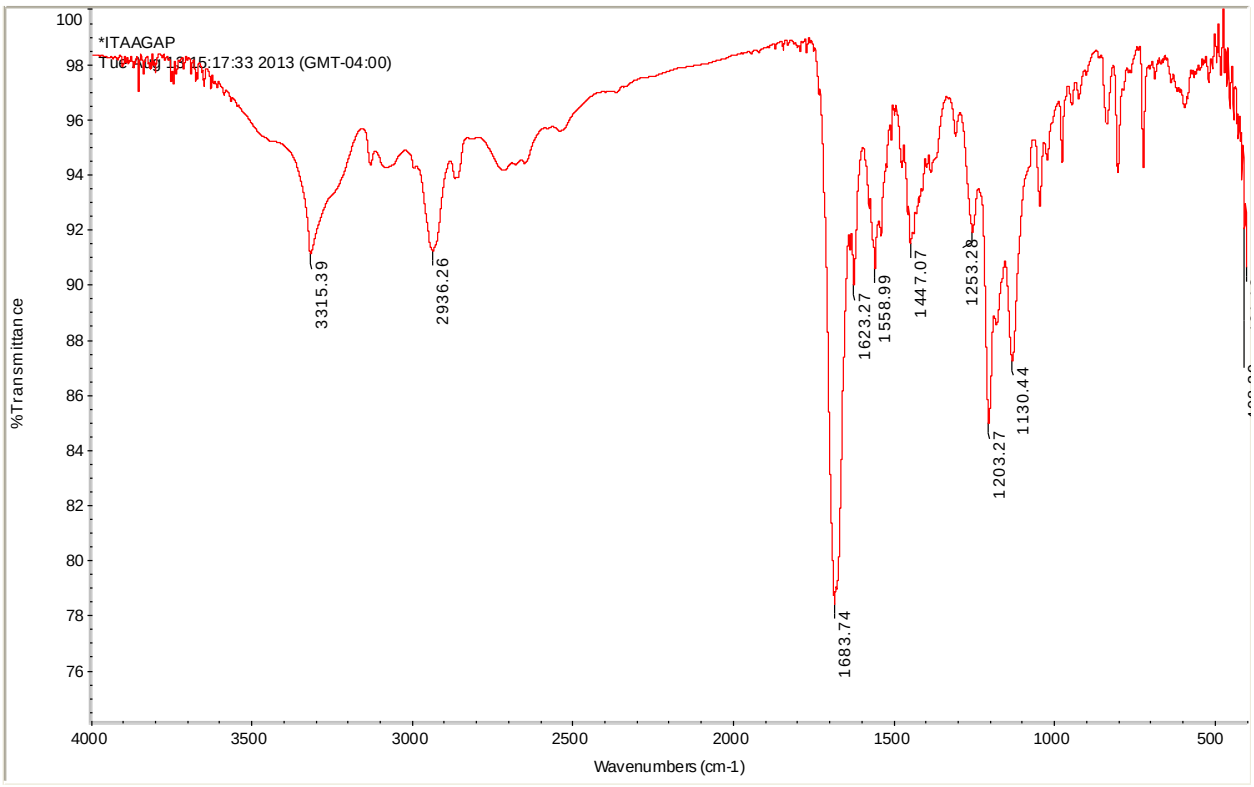



Figure 89: IR spectrum of compound **7i**

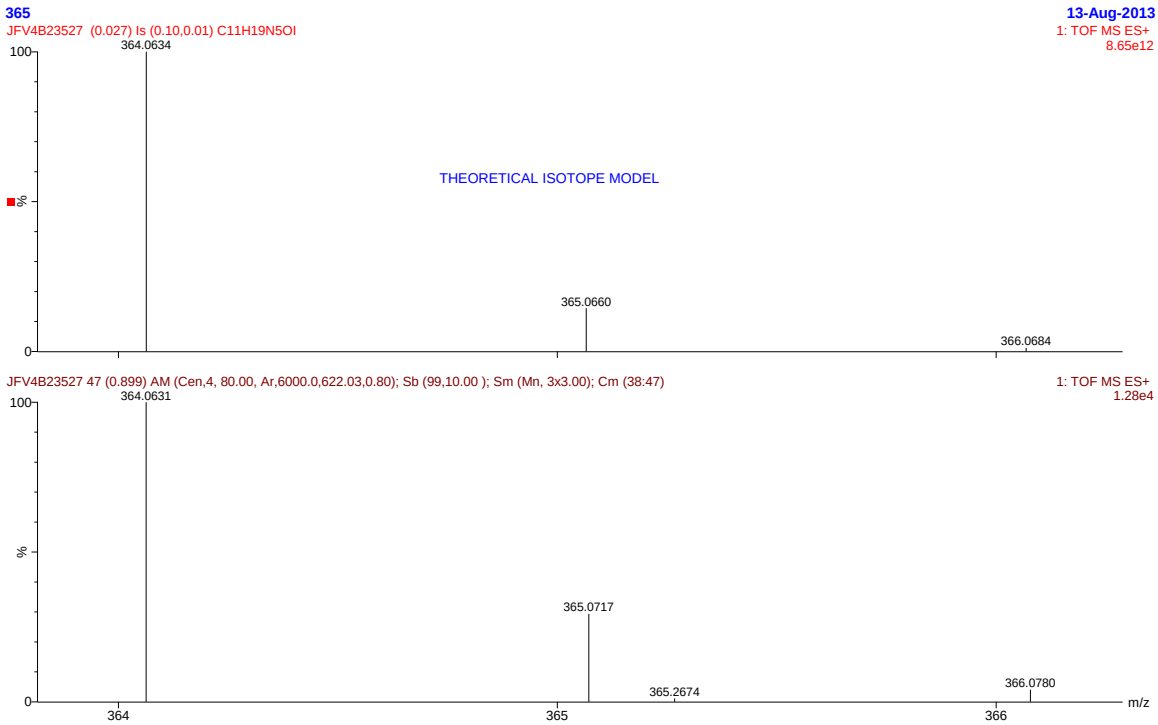



Figure 90 : High Resolution Mass Spectrum ($ESI^+$) of compound **7i**

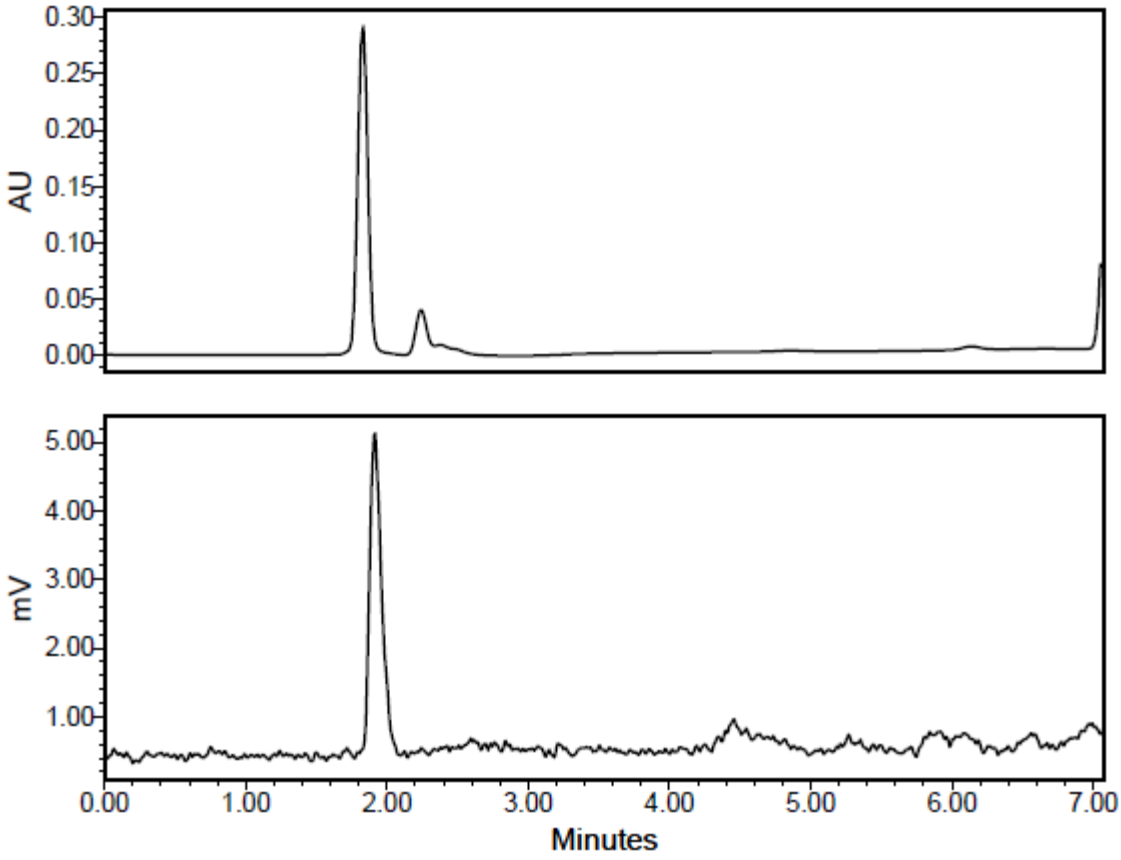



Figure 91: HPLC Coinjection of compound **7i**

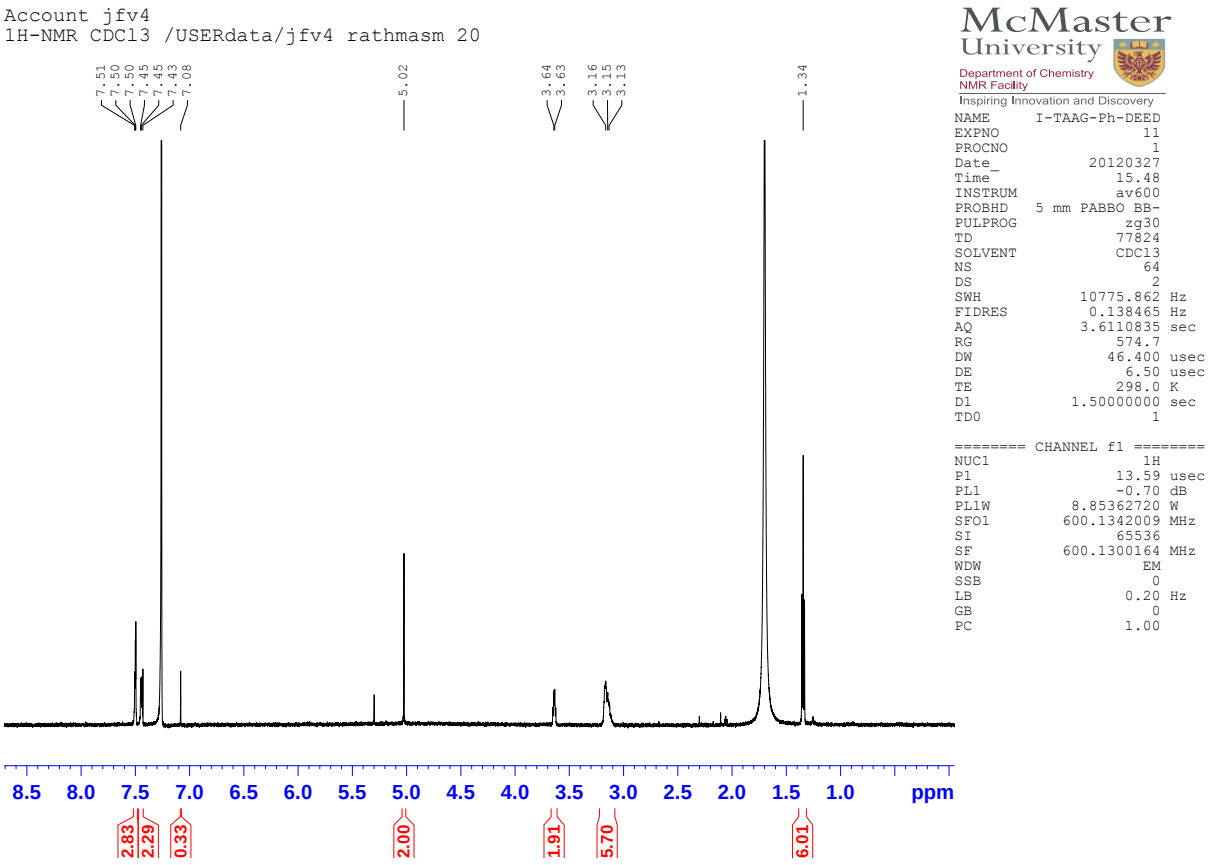



Figure 92: $^{1}$H NMR of compound **7j** (600 MHz, chloroform-d)

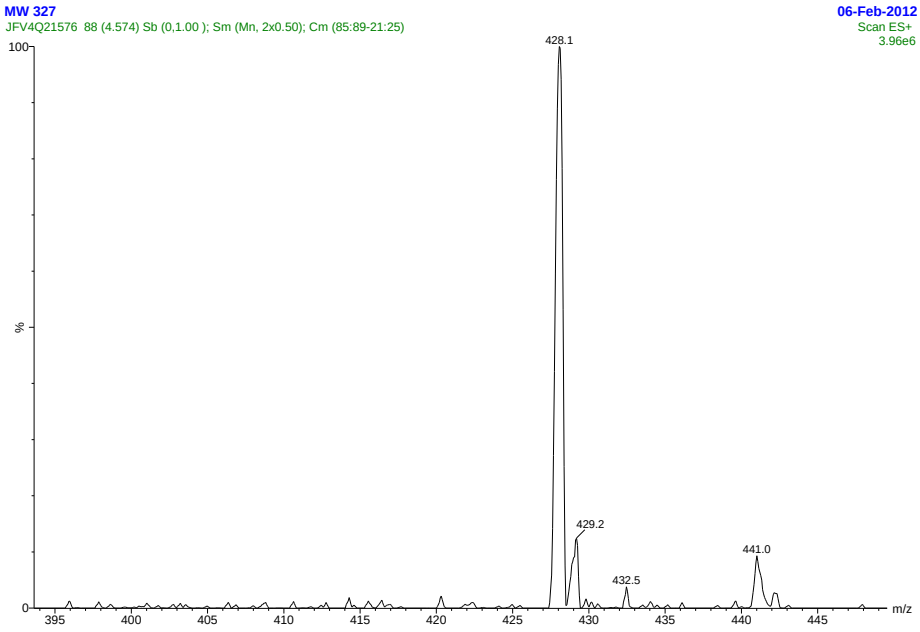



Figure 93: Low resolution mass spectrum ESI$^+$ of compound **7j**

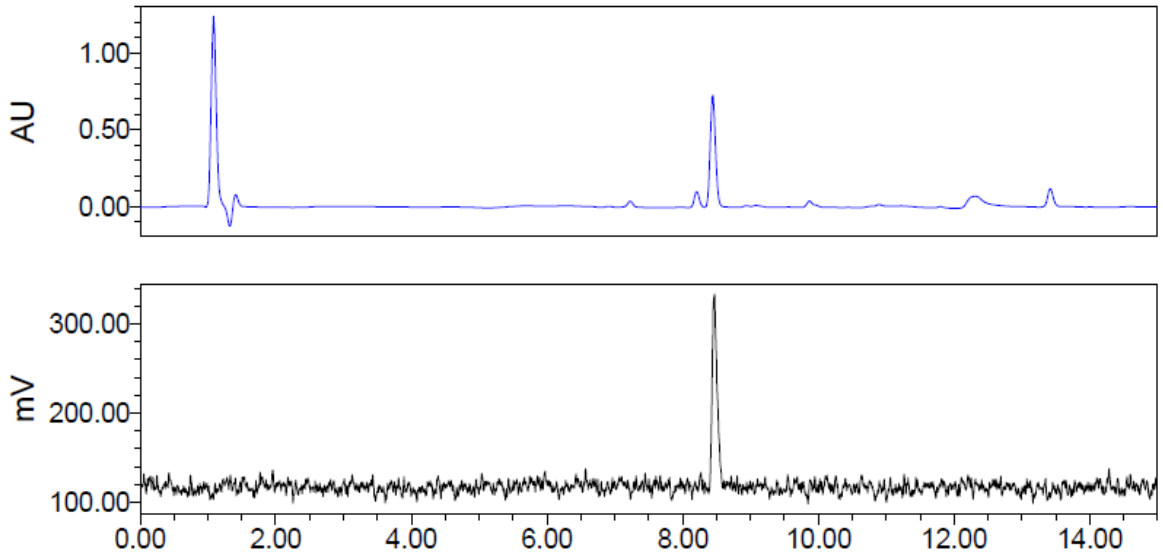



Figure 94: UV HPLC trace coinjection compound **7j**

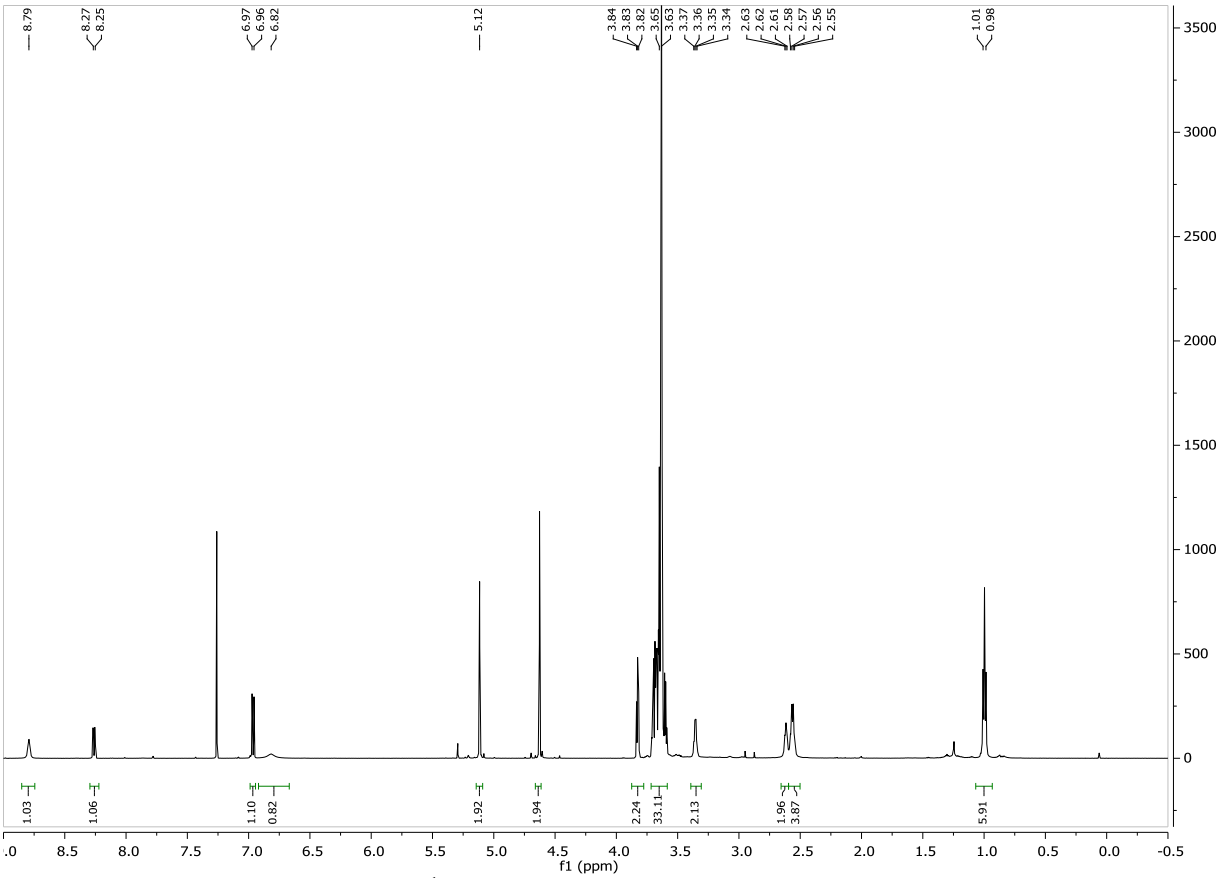



Figure 95**:** $^{1}$H NMR of compound **11** (600MHz, $CDCl_3$)

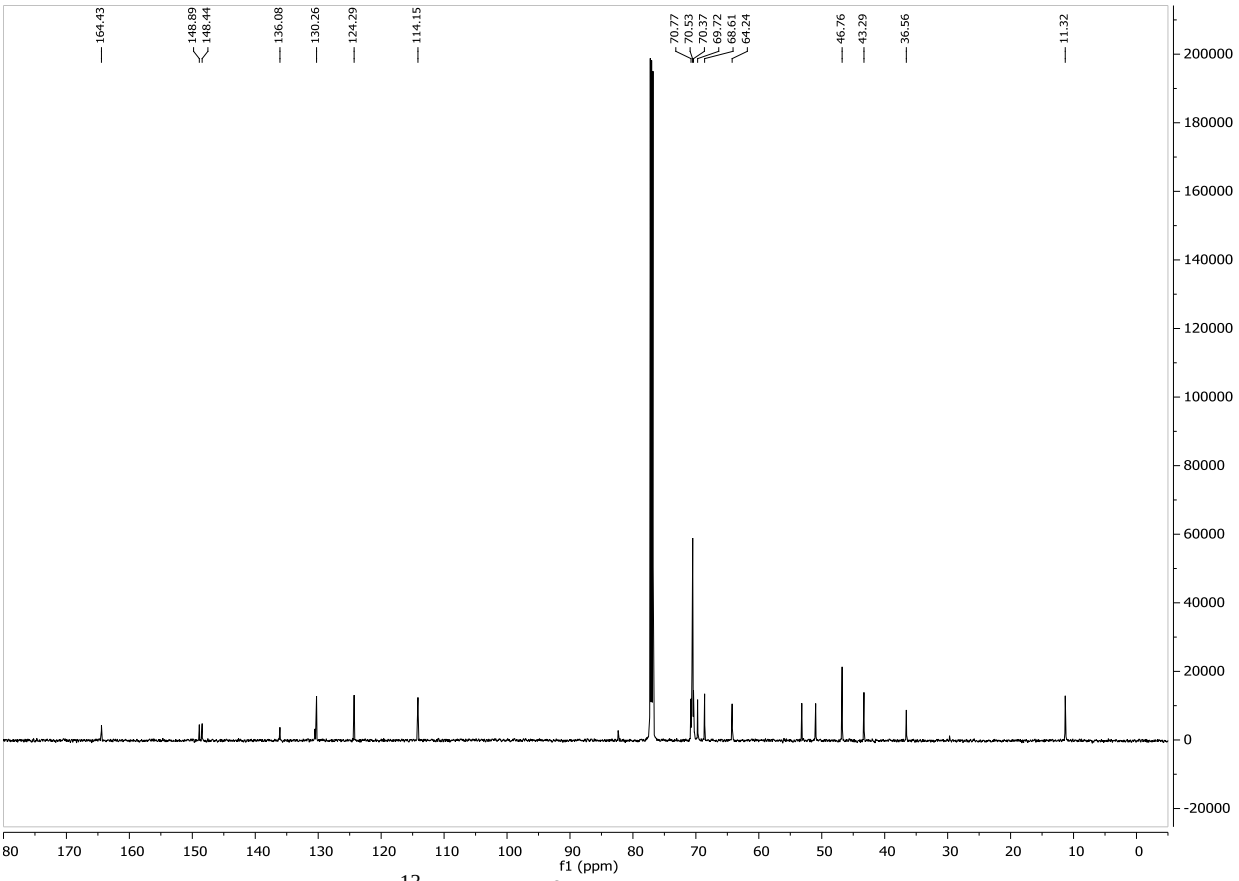



Figure 96**:** $^{13}C$ NMR of compound **11** (150 MHz, $CDCl_3$)

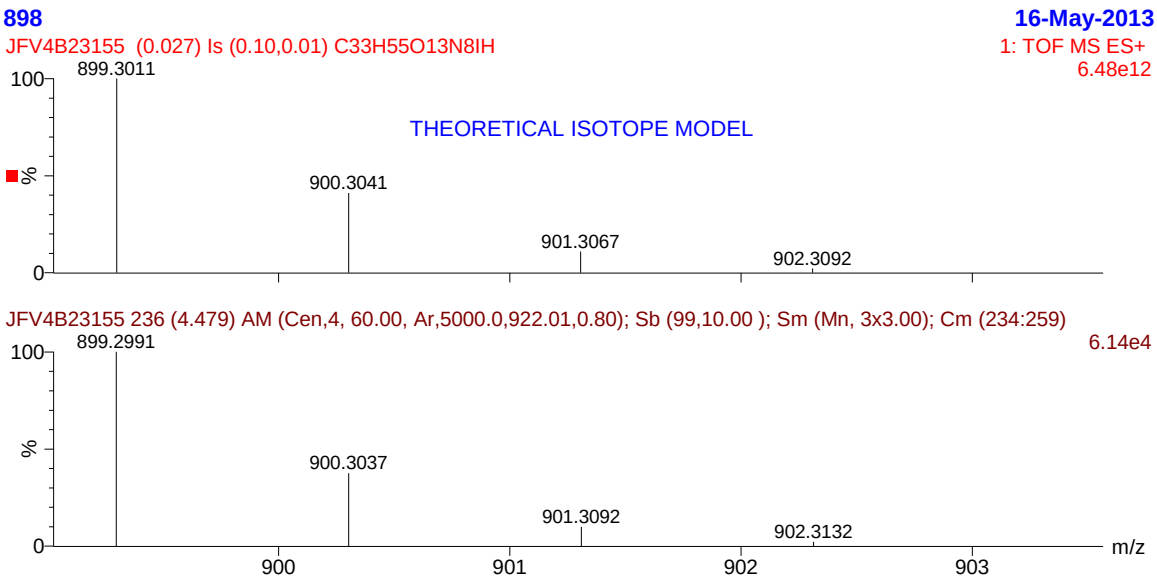
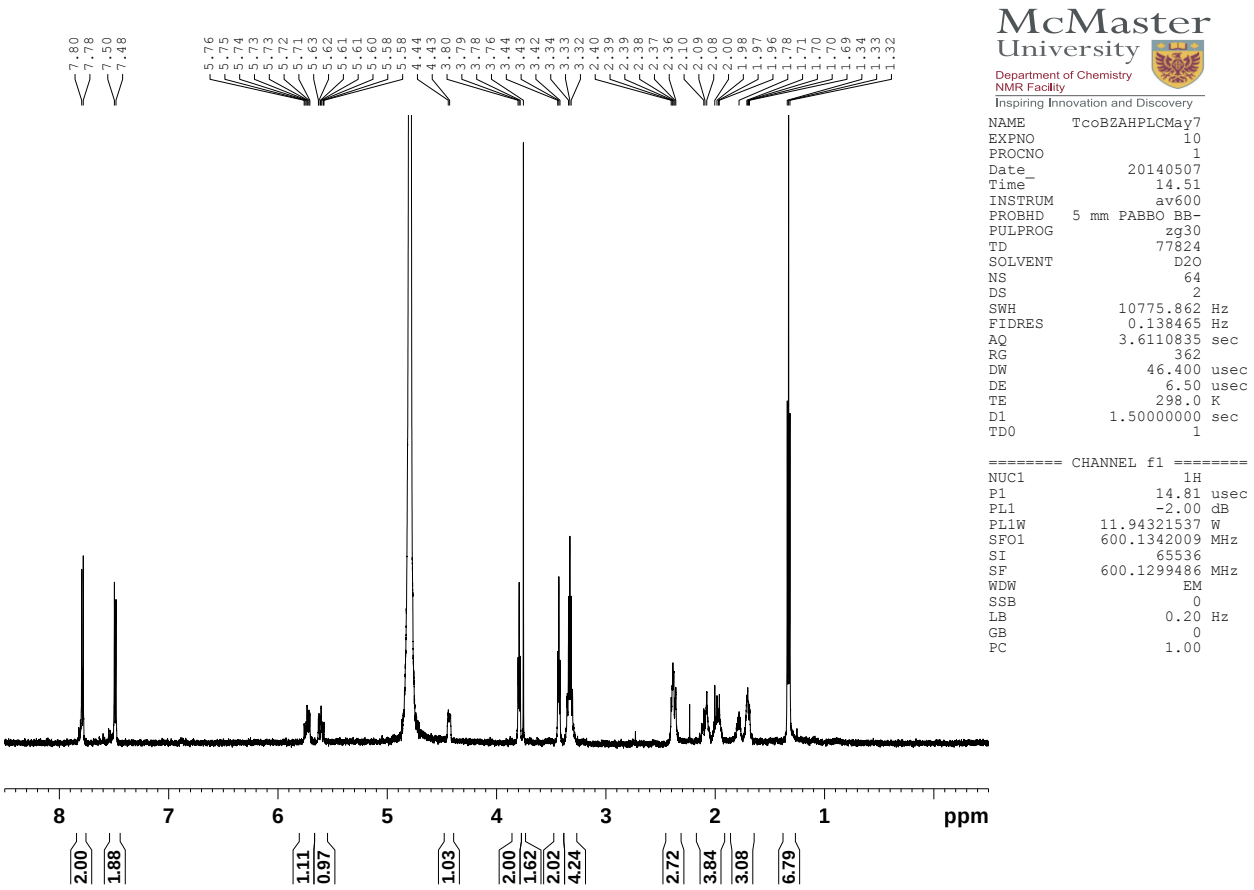



Figure 97 : High Resolution Mass Spectrum ($ESI^+$) of compound **11**

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| | | |
|---|---|---|
| NAME | TcoBZAHPLCMay7 | |
| EXPNO | 10 | |
| PROCNO | 1 | |
| Date_ | 20140507 | |
| Time | 14.51 | |
| INSTRUM | av600 | |
| PROBHD | 5 mm PABBO BB- | |
| PULPROG | zg30 | |
| TD | 77824 | |
| SOLVENT | D2O | |
| NS | 64 | |
| DS | 2 | |
| SWH | 10775.862 | Hz |
| FIDRES | 0.138465 | Hz |
| AQ | 3.6110835 | sec |
| RG | 362 | |
| DW | 46.400 | usec |
| DE | 6.50 | usec |
| TE | 298.0 | K |
| D1 | 1.50000000 | sec |
| TD0 | 1 | |
| ======== CHANNEL f1 ======== | | |
| NUC1 | 1H | |
| P1 | 14.81 | usec |
| PL1 | -2.00 | dB |
| PL1W | 11.94321537 | W |
| SFO1 | 600.1342009 | MHz |
| SI | 65536 | |
| SF | 600.1299486 | MHz |
| WDW | EM | |
| SSB | 0 | |
| LB | 0.20 | Hz |
| GB | 0 | |
| PC | 1.00 | |

Figure 98: $^{1}$H NMR of compound **13** (600 MHz, $D_2O$)

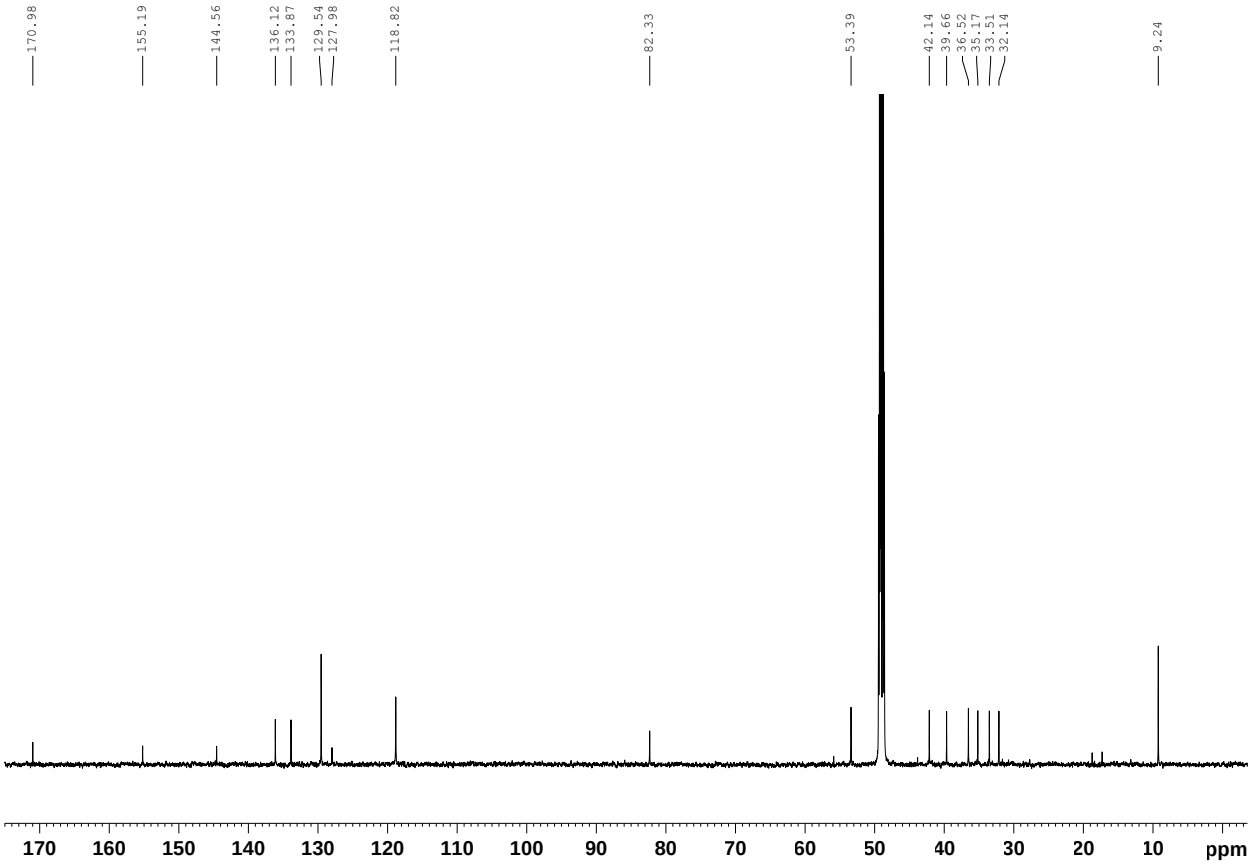



Figure 99 : $^{13}$C NMR of compound **13** (150 MHz, MeOD)

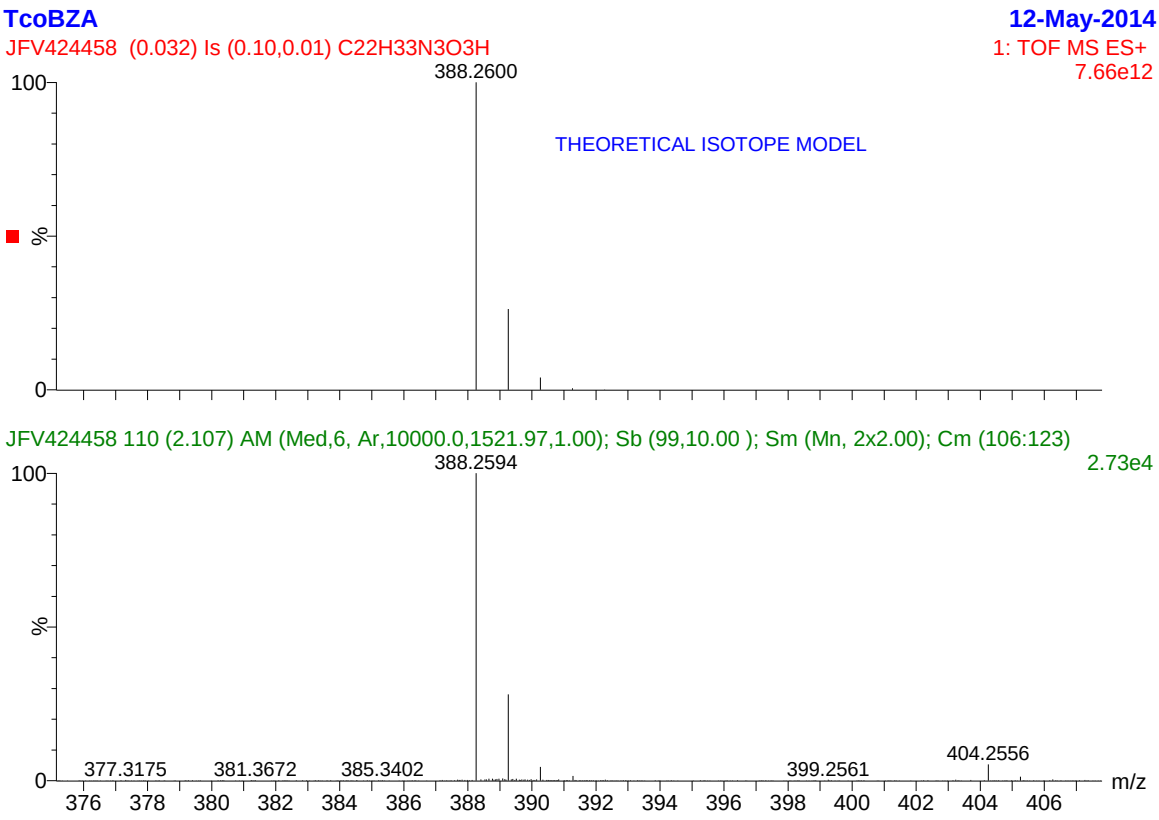



Figure 100: High Resolution Mass Spectrum ($ESI^+$) of compound **13**

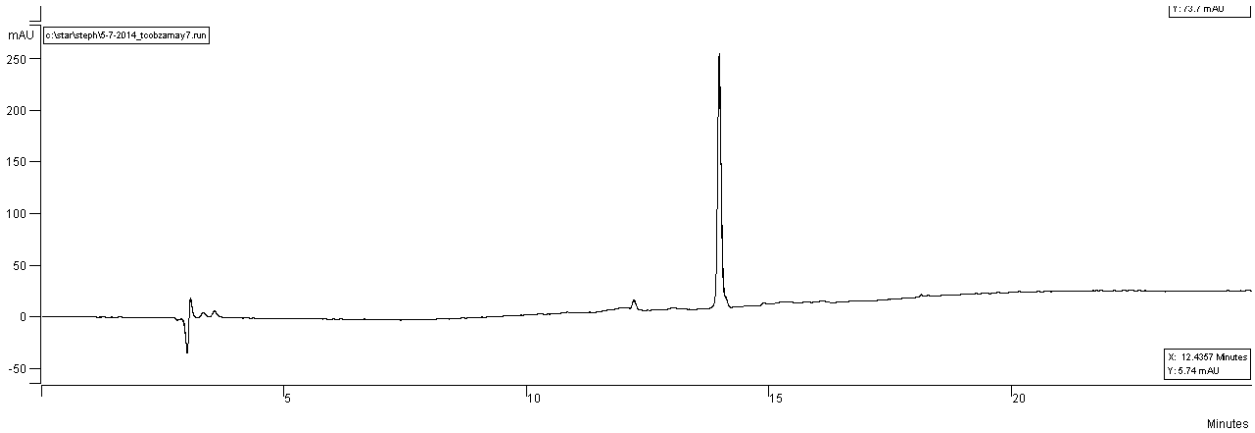
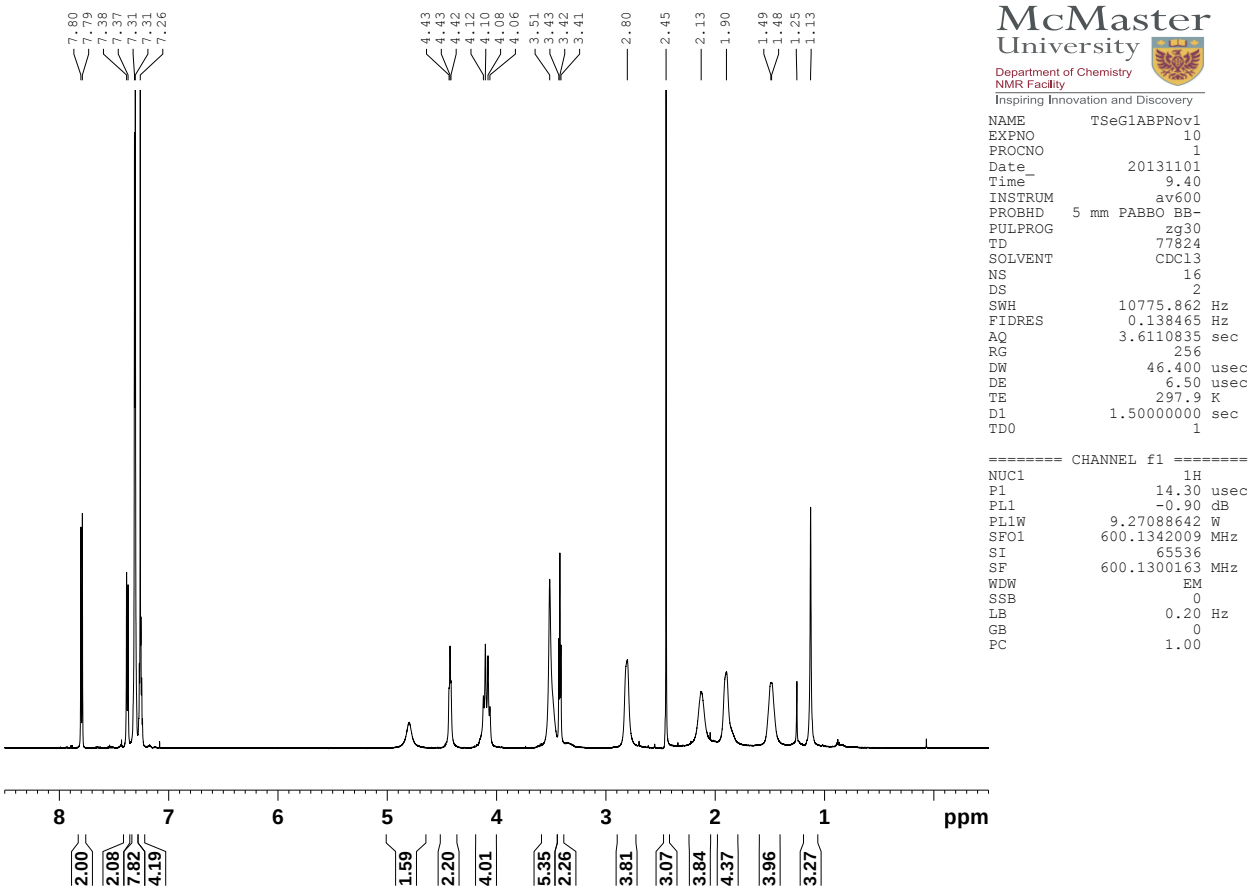



Figure 101 : UV HPLC trace of **13**

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| | |
|---|---|
| NAME | TSeG1ABPNov1 |
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| PROCNO | 1 |
| Date_ | 20131101 |
| Time | 9.40 |
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| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 77824 |
| SOLVENT | CDCl3 |
| NS | 16 |
| DS | 2 |
| SWH | 10775.862 Hz |
| FIDRES | 0.138465 Hz |
| AQ | 3.6110835 sec |
| RG | 256 |
| DW | 46.400 usec |
| DE | 6.50 usec |
| TE | 297.9 K |
| D1 | 1.50000000 sec |
| TD0 | 1 |
| ======== CHANNEL f1 ======== | |
| NUC1 | 1H |
| P1 | 14.30 usec |
| PL1 | -0.90 dB |
| PL1W | 9.27088642 W |
| SFO1 | 600.1342009 MHz |
| SI | 65536 |
| SF | 600.1300163 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.20 Hz |
| GB | 0 |
| PC | 1.00 |

Figure 102: $^{1}$H NMR of compound **16** (600 MHz, $CDCl_3$)

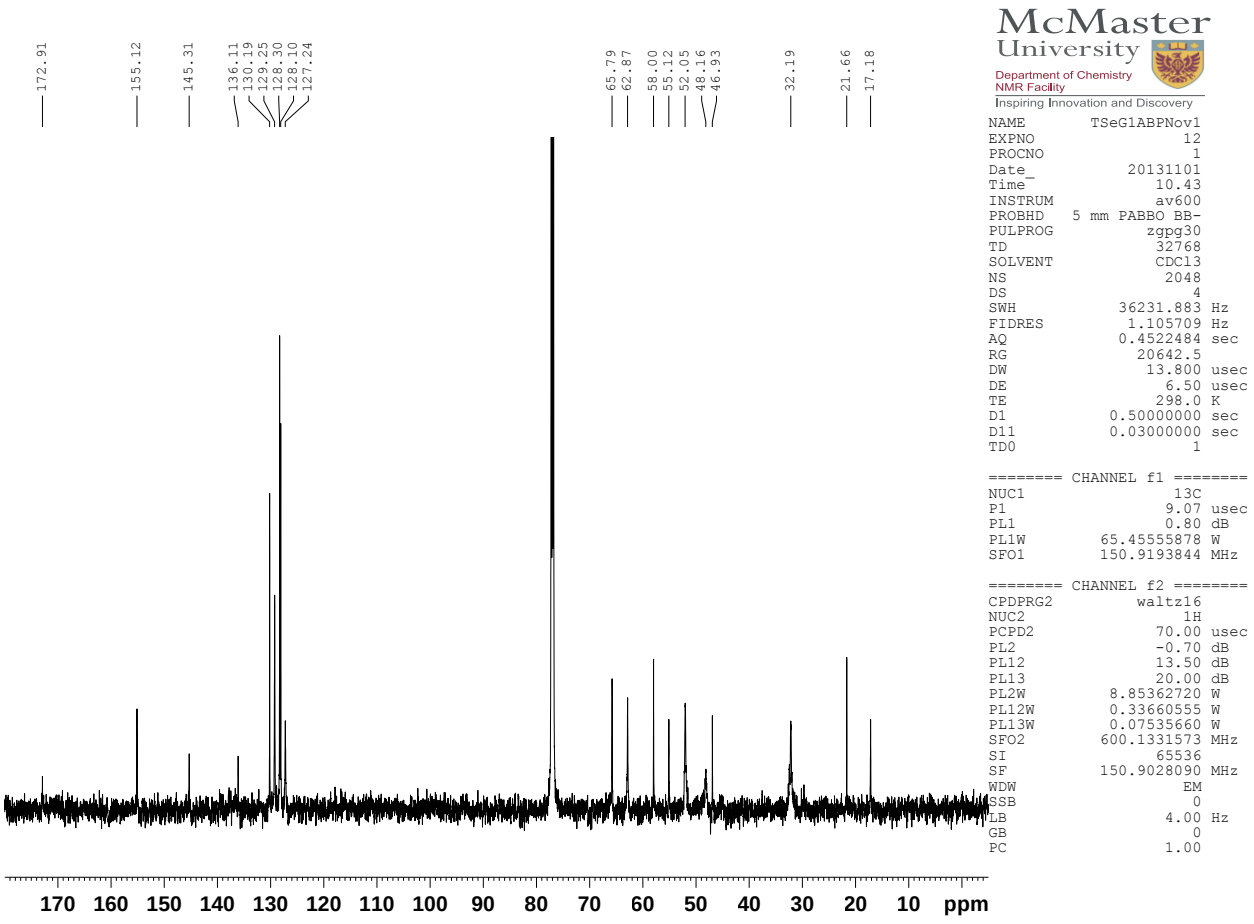



Figure 103: $^{13}$C NMR of compound **16** (150 MHz, $CDCl_3$)

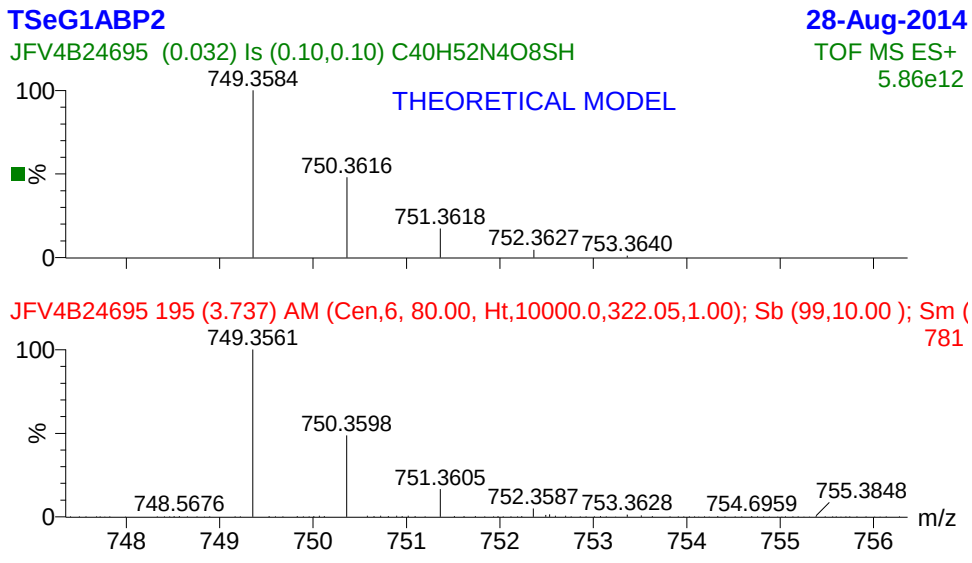



Figure 104: High Resolution Mass Spectrum ($ESI^+$) of compound **16**

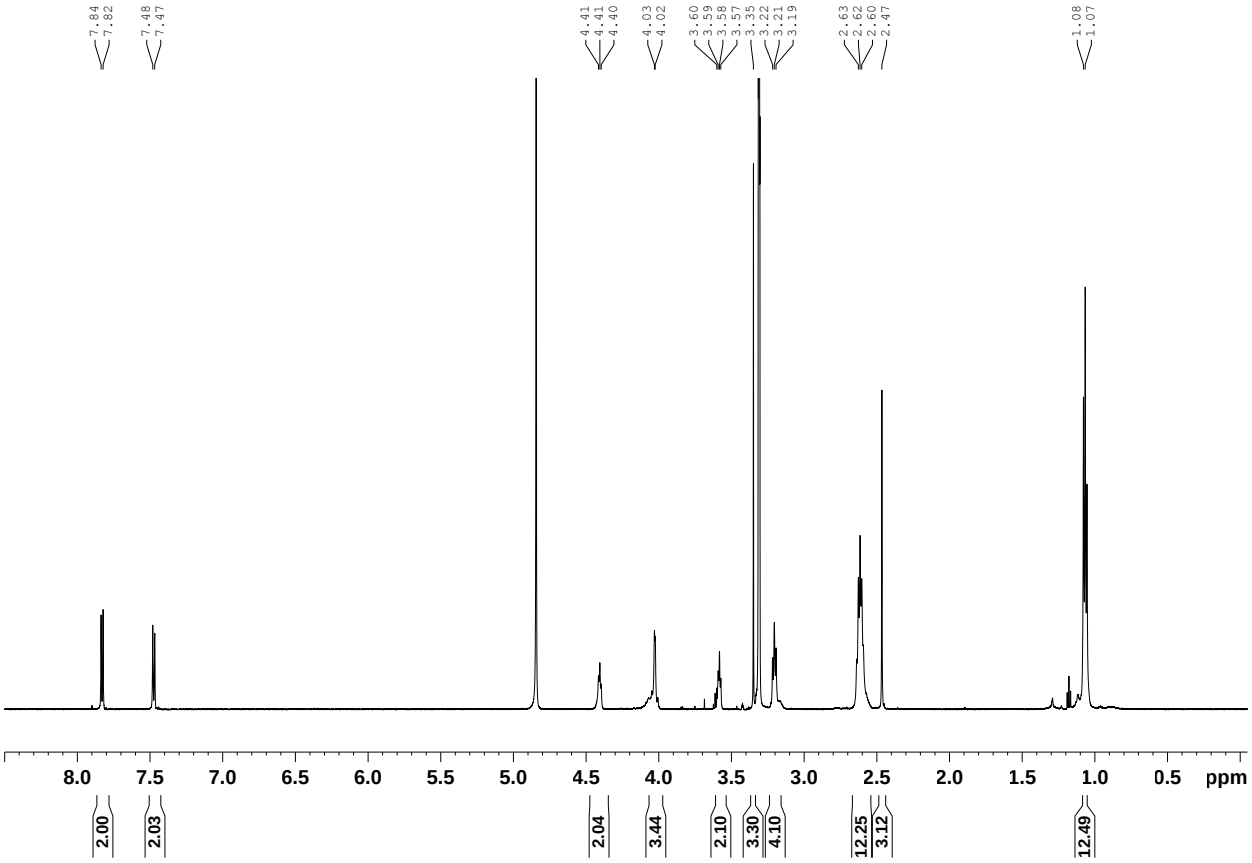



Figure 105: $^{1}$H NMR of compound **17** (600 MHz, MeOD)

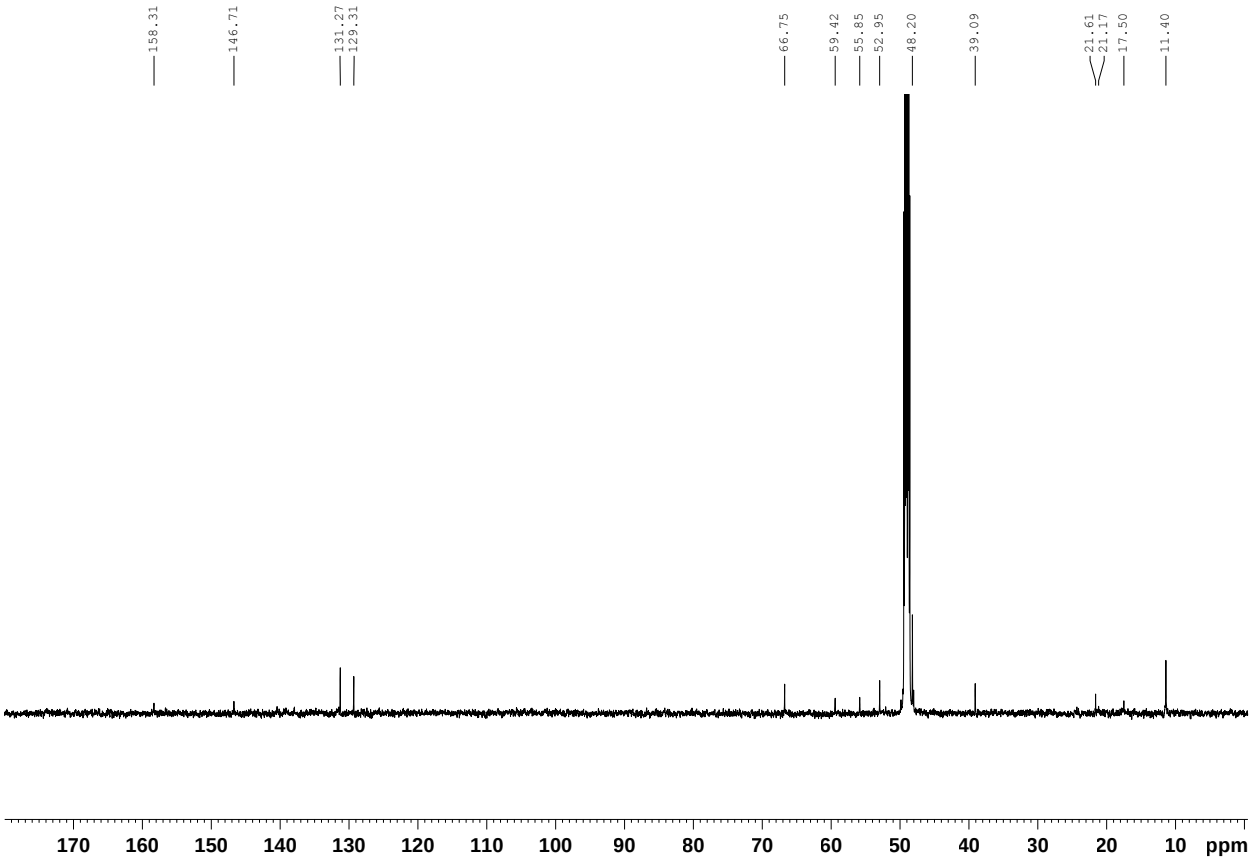



Figure 106: $^{13}$C NMR of compound **17** (150 MHz, MeOD)

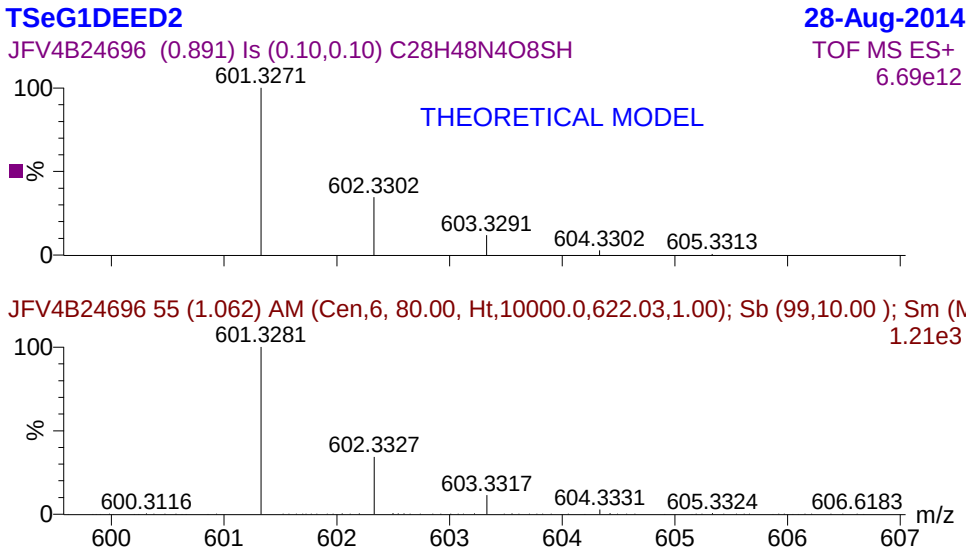



Figure 107: High Resolution Mass Spectrum (ESI$^+$) of compound **17**

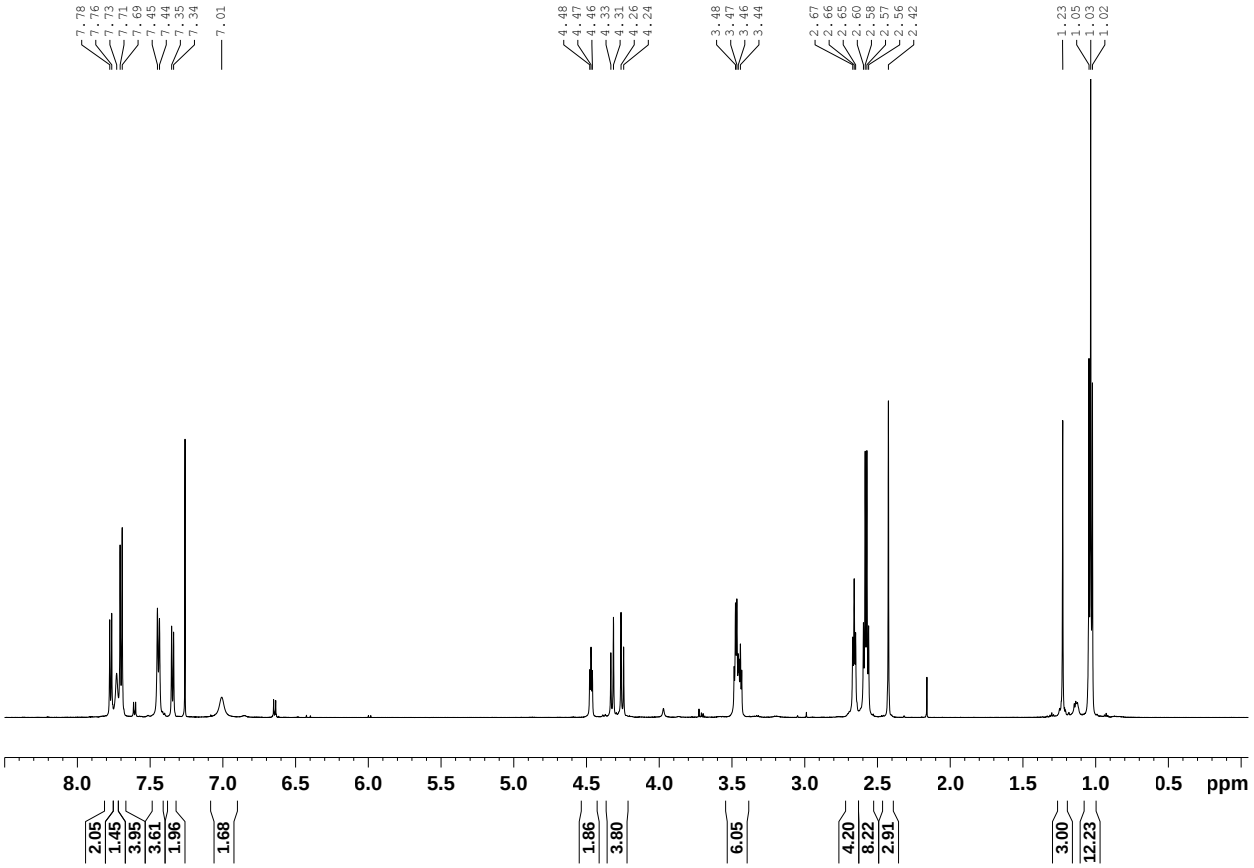



Figure 108: $^{1}H$ NMR of compound **18** (600 MHz, $CDCl_3$)

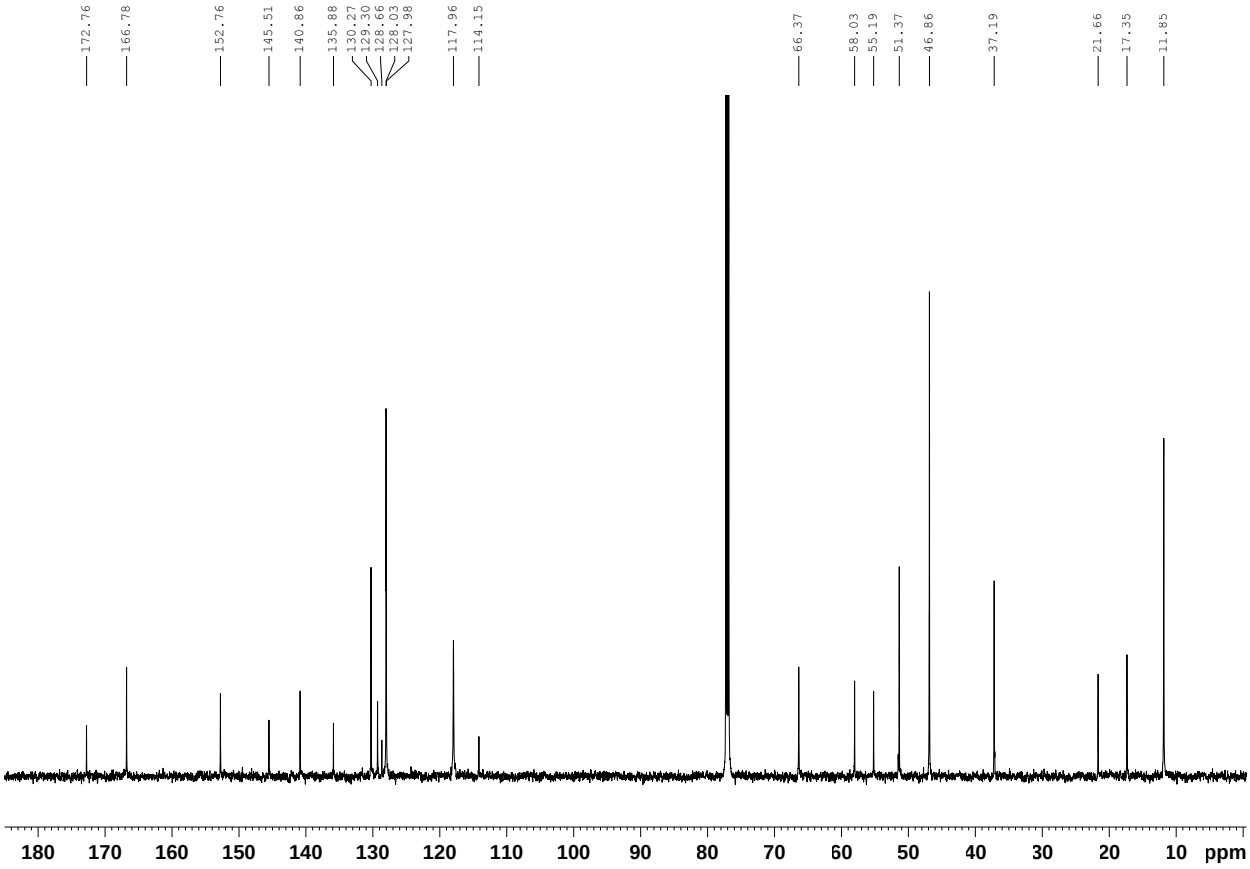



Figure 109: $^{13}C$ NMR of compound **18** (150 MHz, $CDCl_3$)

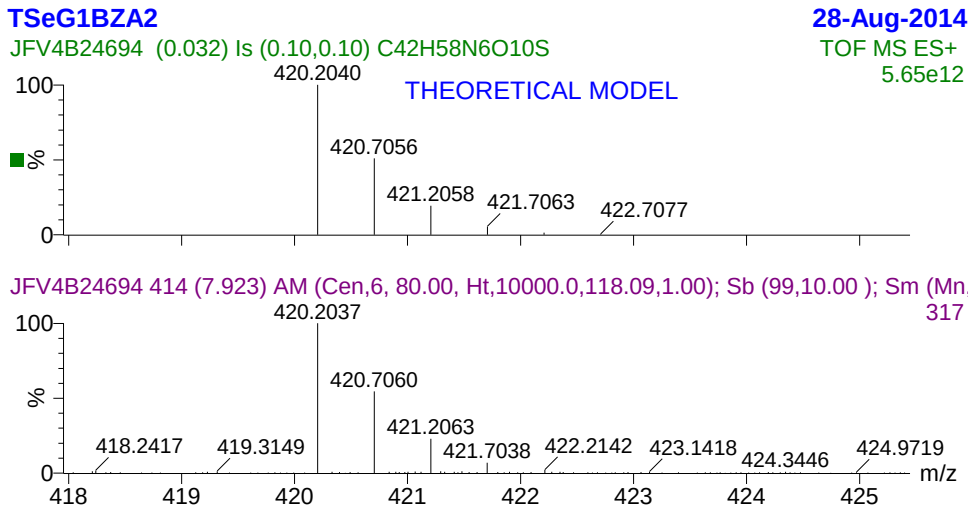
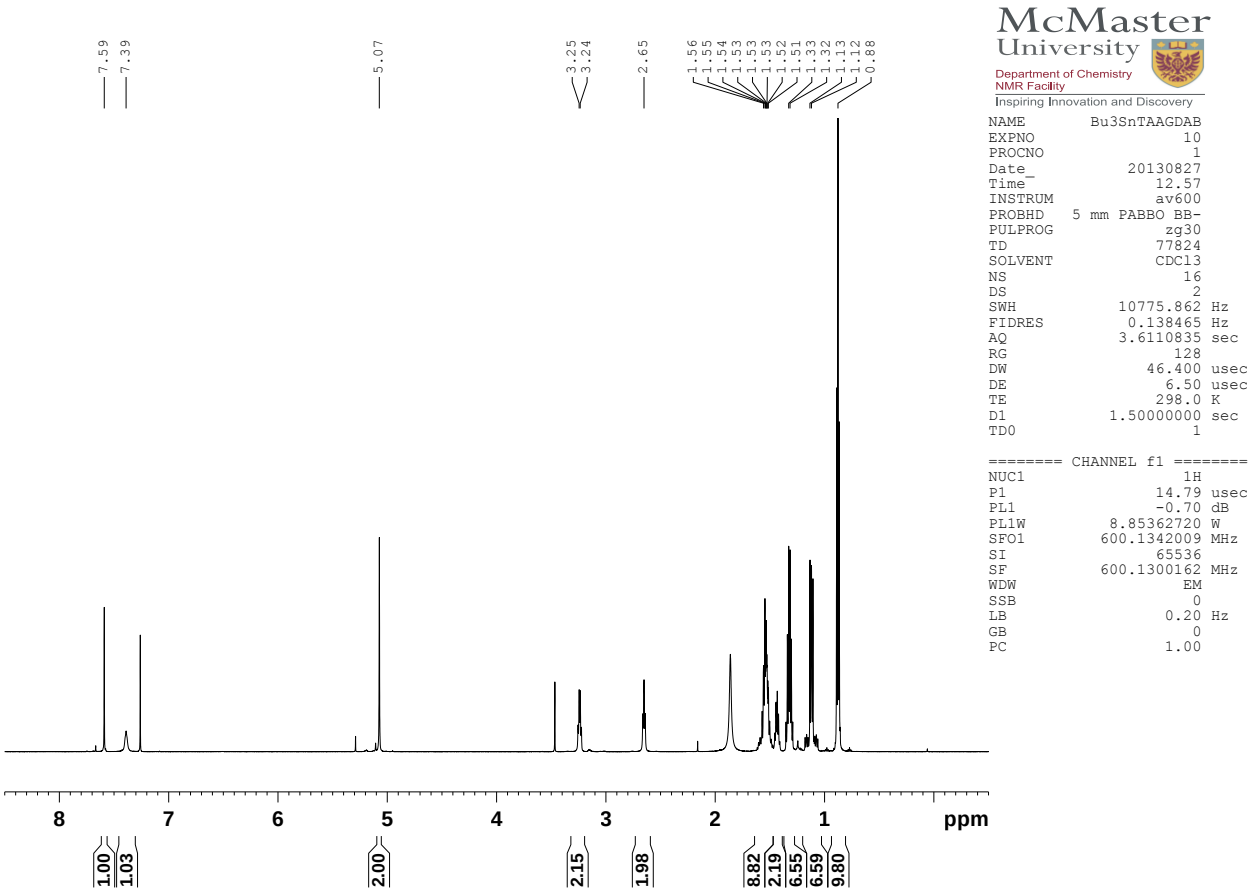



Figure 110: High Resolution Mass Spectrum ($ESI^+$) of compound **18**

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| | |
|---|---|
| NAME | Bu3SnTAAGDAB |
| EXPNO | 10 |
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| Date_ | 20130827 |
| Time | 12.57 |
| INSTRUM | av600 |
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| PULPROG | zg30 |
| TD | 77824 |
| SOLVENT | CDCl3 |
| NS | 16 |
| DS | 2 |
| SWH | 10775.862 Hz |
| FIDRES | 0.138465 Hz |
| AQ | 3.6110835 sec |
| RG | 128 |
| DW | 46.400 usec |
| DE | 6.50 usec |
| TE | 298.0 K |
| D1 | 1.50000000 sec |
| TD0 | 1 |
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| P1 | 14.79 usec |
| PL1 | -0.70 dB |
| PL1W | 8.85362720 W |
| SFO1 | 600.1342009 MHz |
| SI | 65536 |
| SF | 600.1300162 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.20 Hz |
| GB | 0 |
| PC | 1.00 |

Figure 111: $^{1}$H NMR of compound **20** (600 MHz, $CDCl_3$)

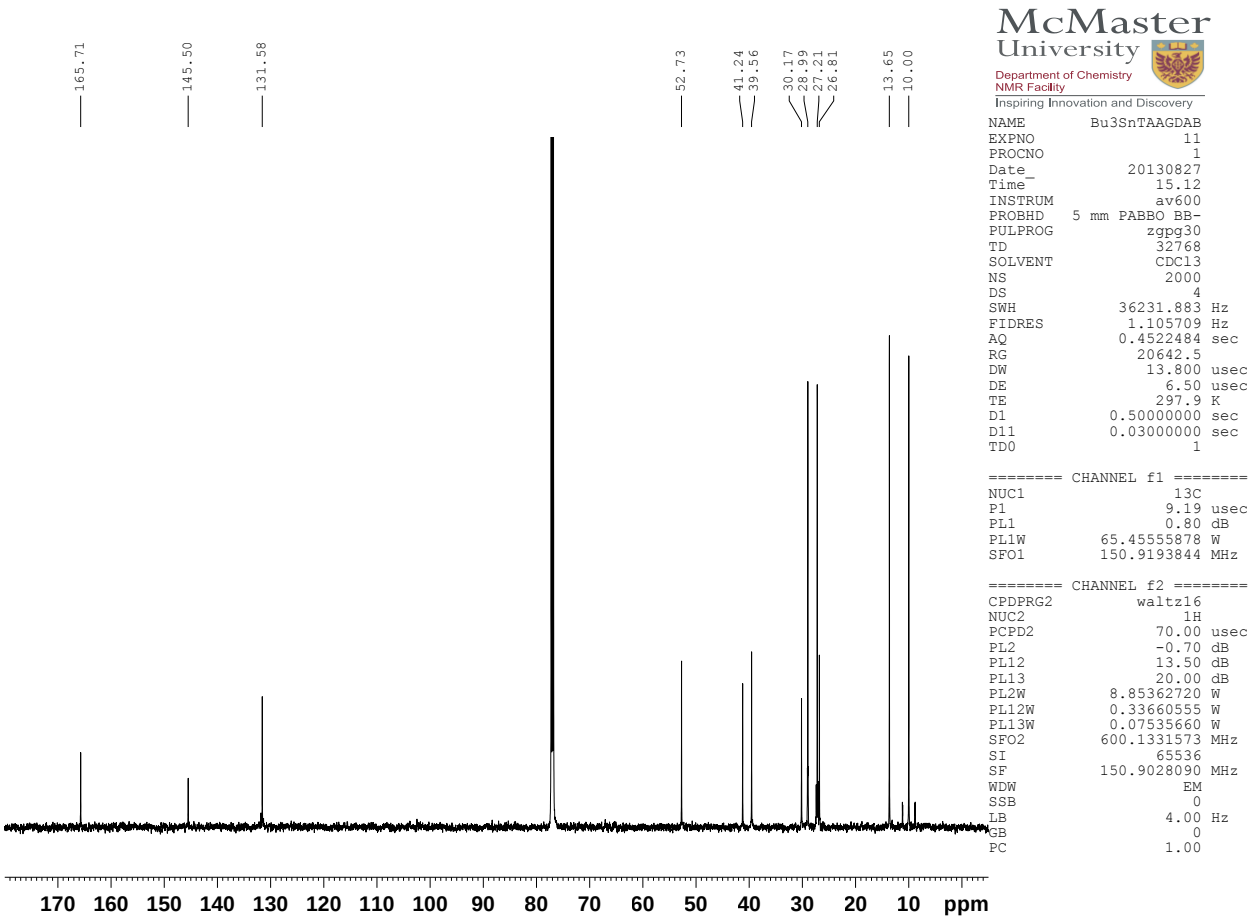
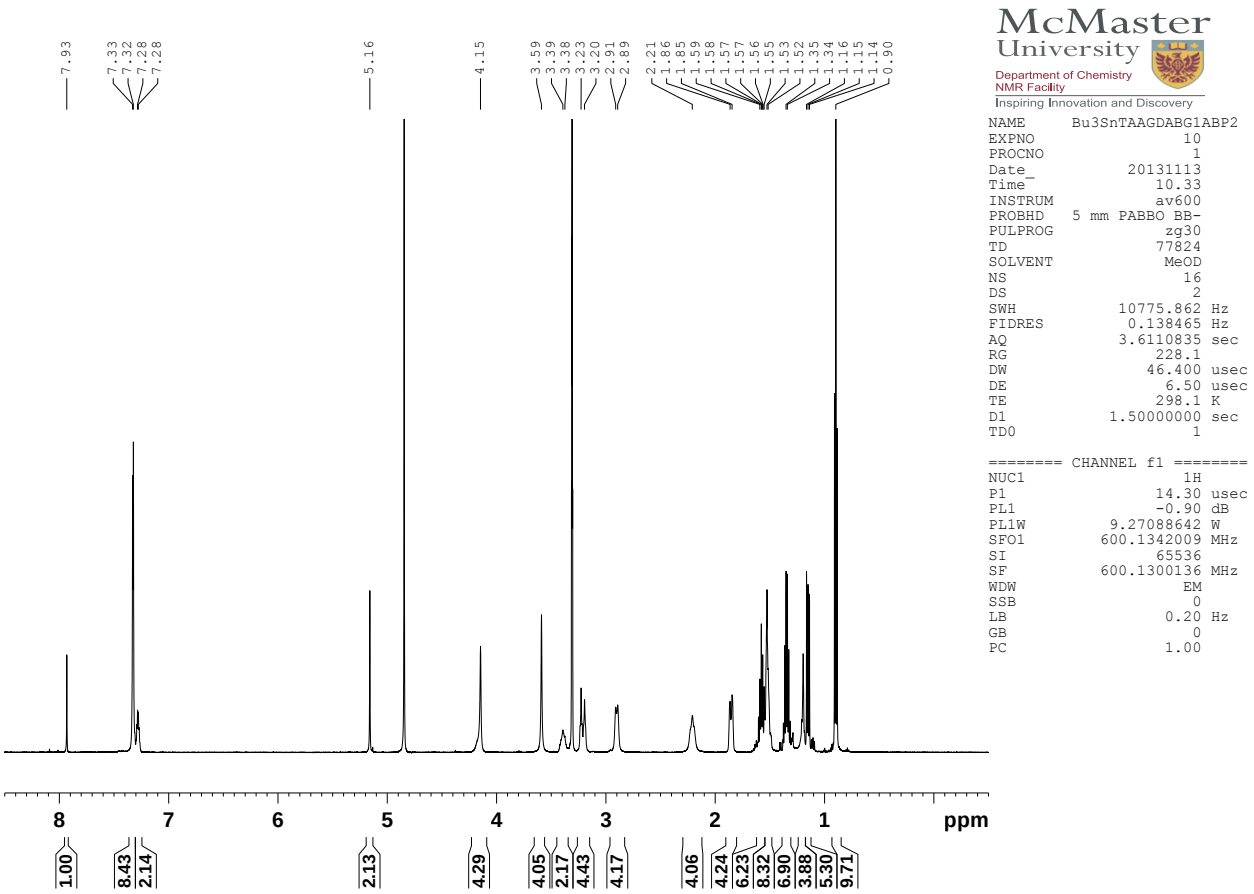



Figure 112: $^{13}C$ NMR of compound **20** (150 MHz, $CDCl_3$)

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| | |
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| Time | 10.33 |
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| PROBHD | 5 mm PABBO BB- |
| PULPROG | zg30 |
| TD | 77824 |
| SOLVENT | MeOD |
| NS | 16 |
| DS | 2 |
| SWH | 10775.862 Hz |
| FIDRES | 0.138465 Hz |
| AQ | 3.6110835 sec |
| RG | 228.1 |
| DW | 46.400 usec |
| DE | 6.50 usec |
| TE | 298.1 K |
| D1 | 1.50000000 sec |
| TD0 | 1 |
| ======== CHANNEL f1 ======== | |
| NUC1 | 1H |
| P1 | 14.30 usec |
| PL1 | -0.90 dB |
| PL1W | 9.27088642 W |
| SFO1 | 600.1342009 MHz |
| SI | 65536 |
| SF | 600.1300136 MHz |
| WDW | EM |
| SSB | 0 |
| LB | 0.20 Hz |
| GB | 0 |
| PC | 1.00 |

Figure 113: $^{1}$H NMR of compound **21** (600 MHz, MeOD)

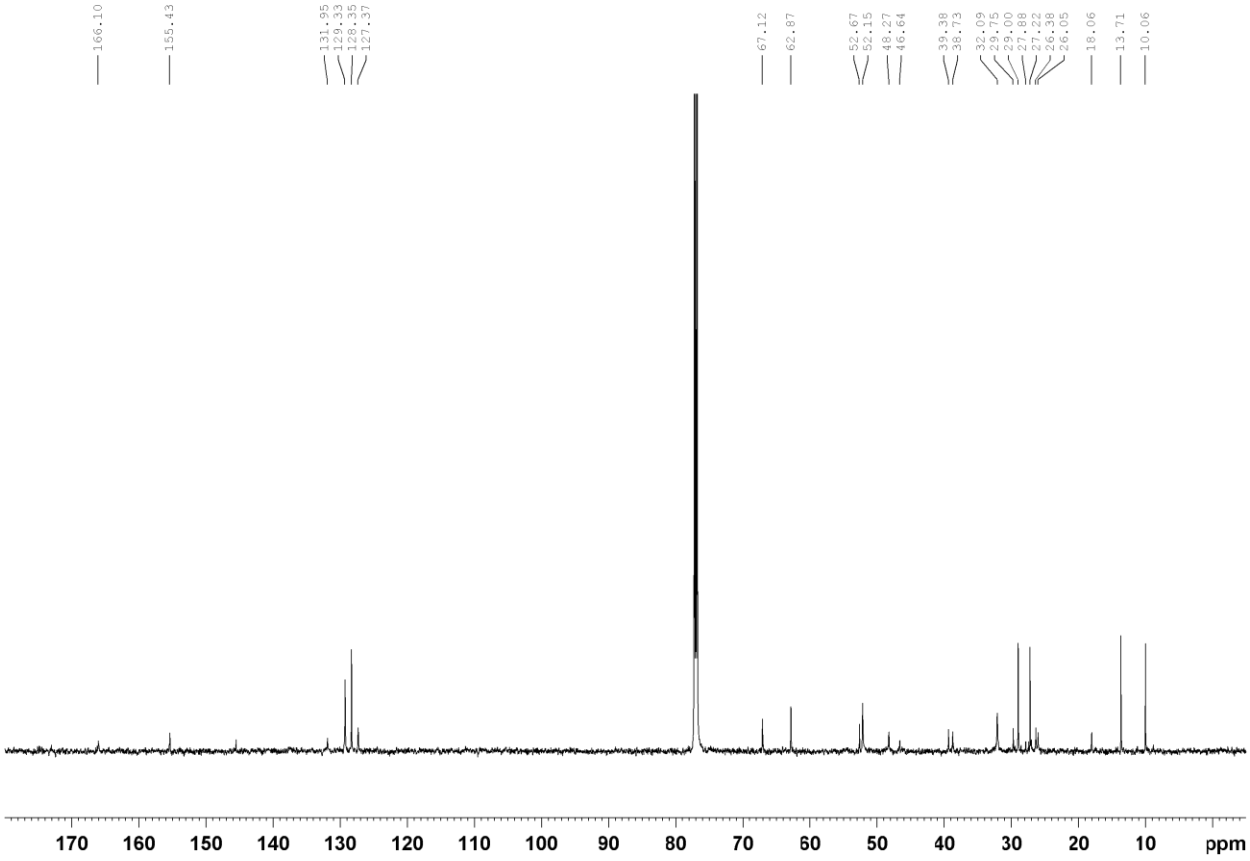


Figure 114: $^{13}$C NMR of compound **21** (150 MHz, MeOD)

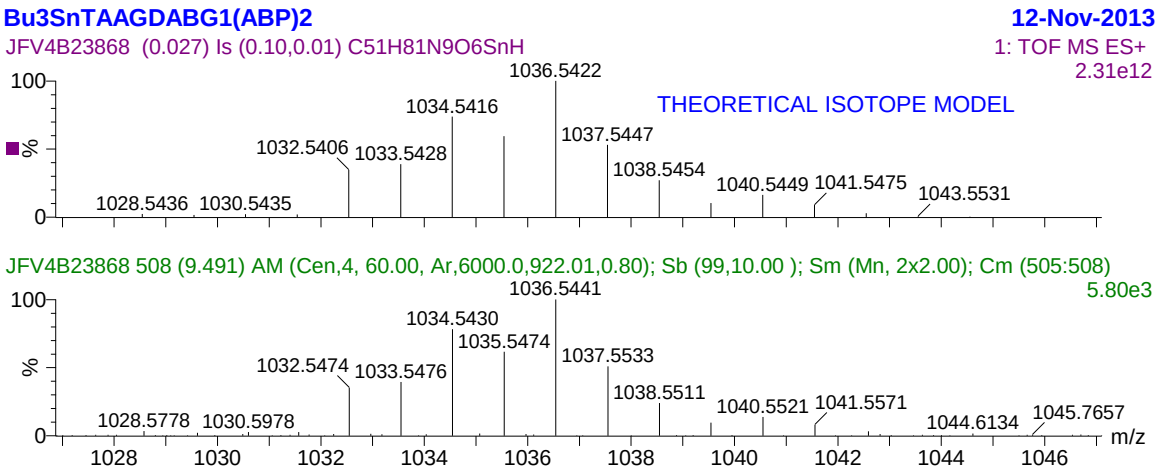


Figure 115: High Resolution Mass Spectrum (ESI$^+$) of compound **21**