

APPENDIX SIX

Spectra of Compounds Relevant to Chapter Five

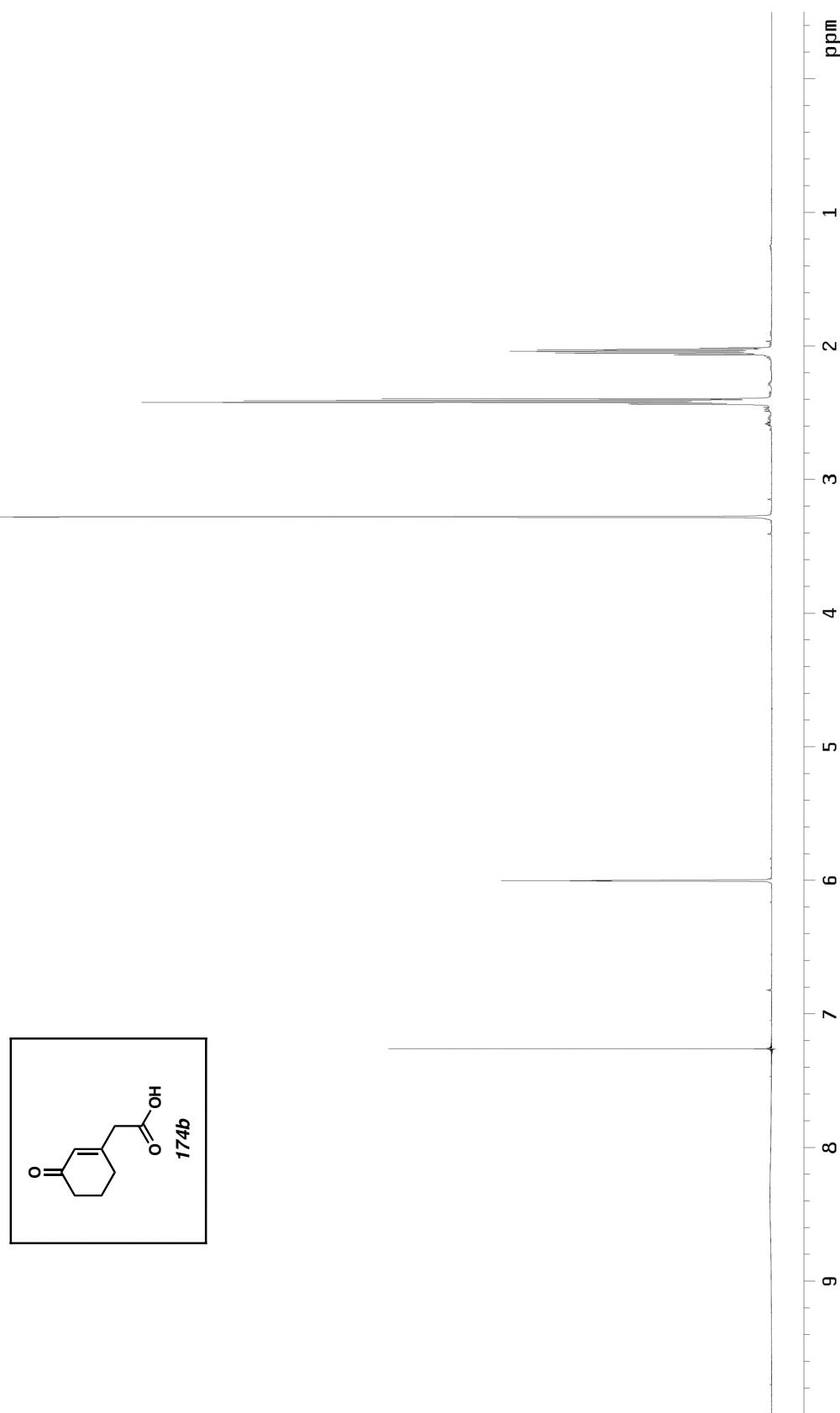


Figure A6.1 ^1H NMR (500 MHz, CDCl_3) of compound **174b**

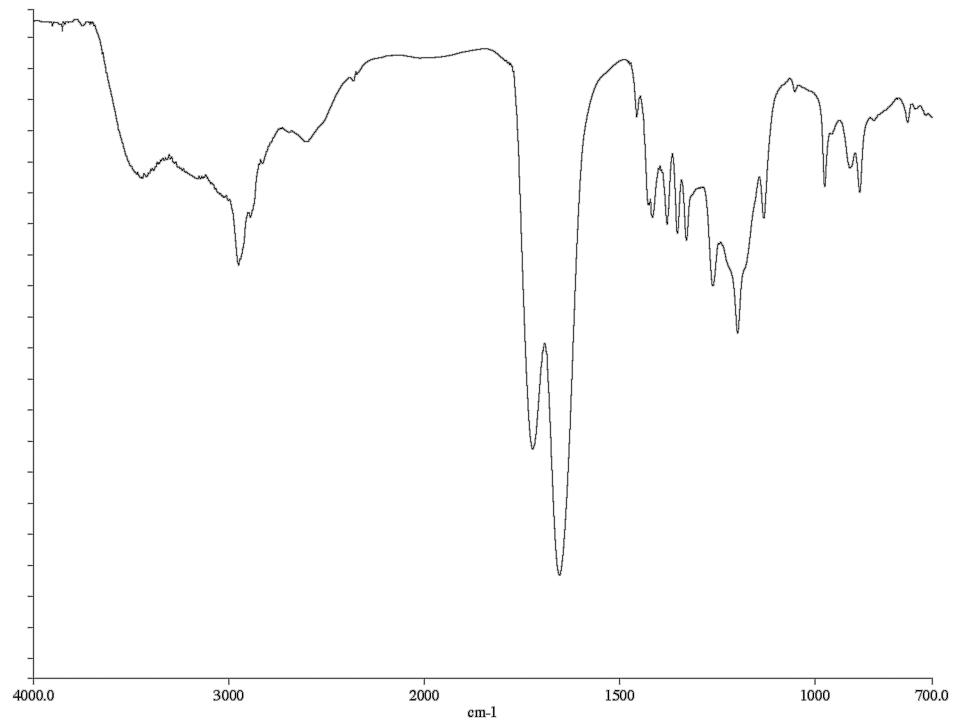


Figure A6.2 Infrared spectrum (thin film/NaCl) of compound **174b**

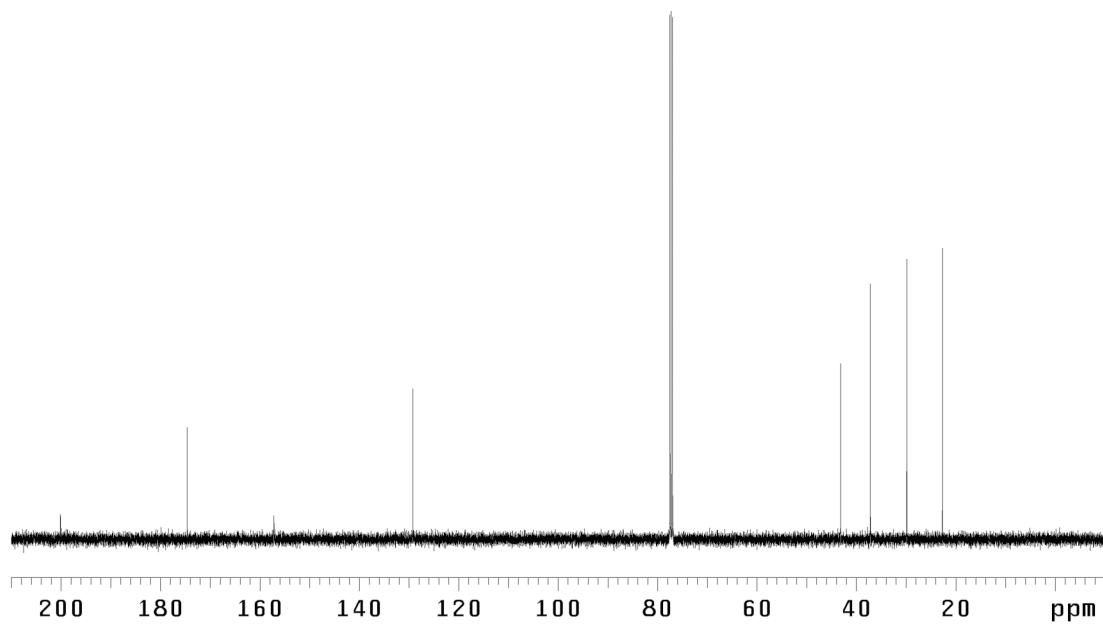


Figure A6.3 ¹³C NMR (125 MHz, CDCl₃) of compound **174b**

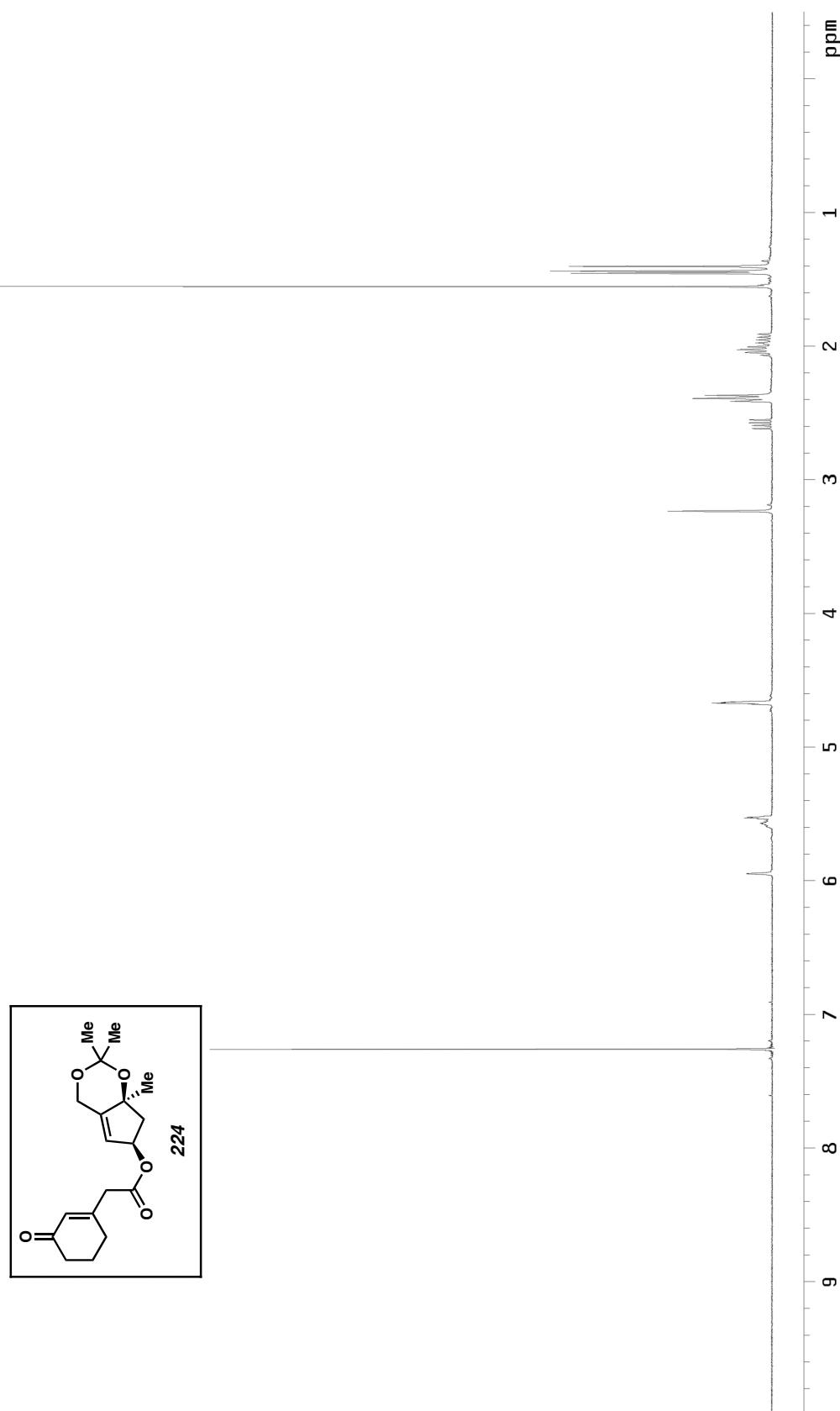


Figure A6.4 ^1H NMR (300 MHz, CDCl_3) of compound 224

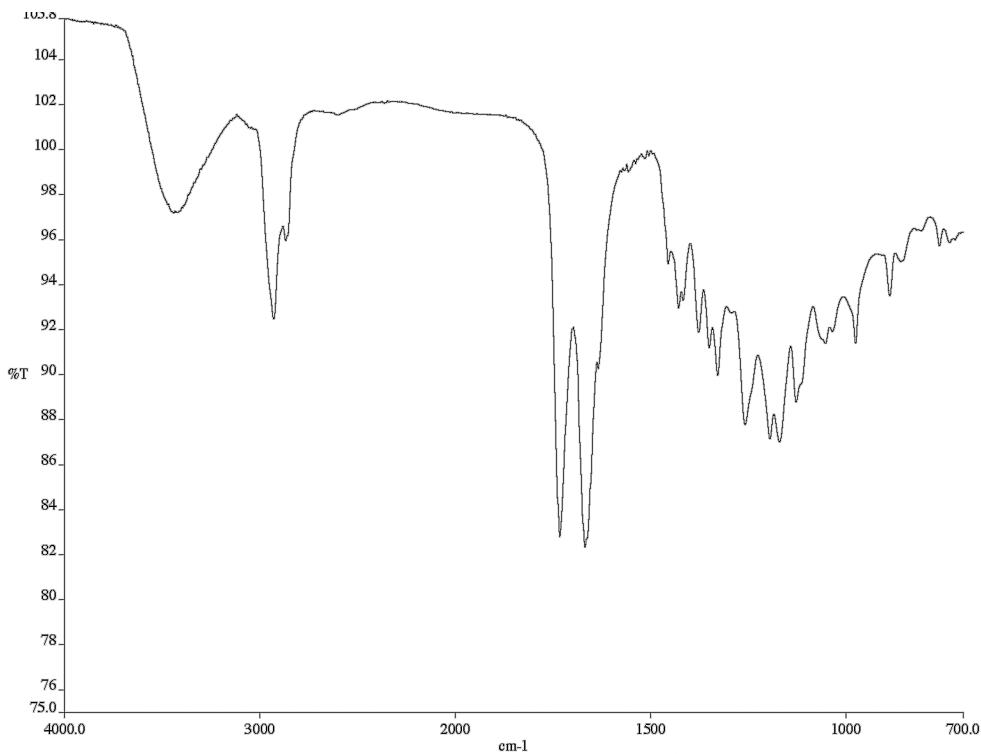


Figure A6.5 Infrared spectrum (thin film/NaCl) of compound **224**

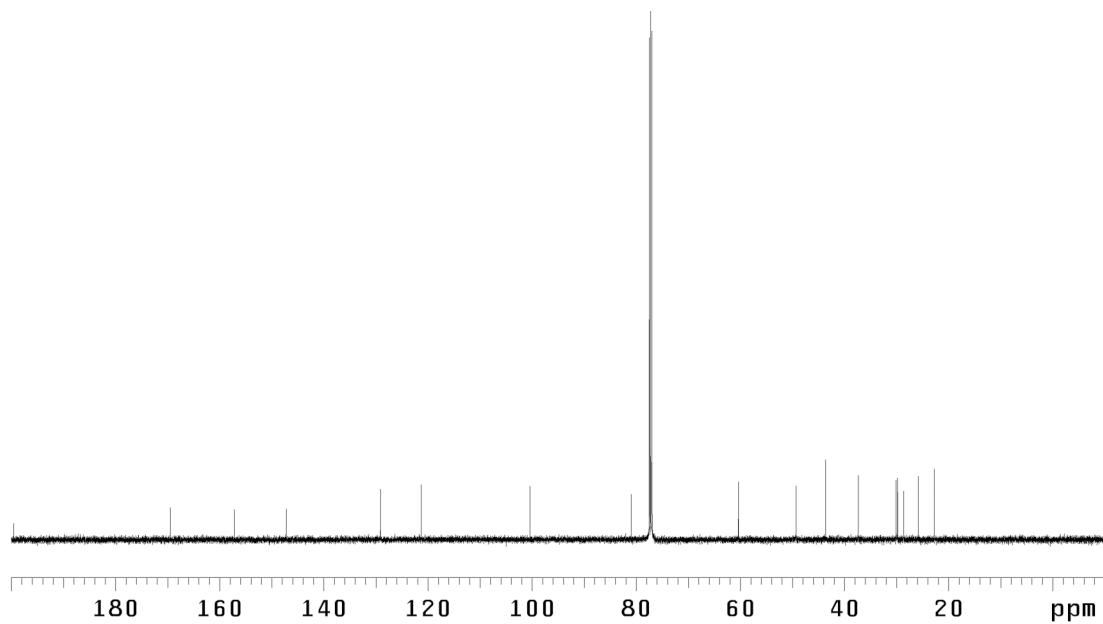


Figure A6.6 ^{13}C NMR (125 MHz, CDCl_3) of compound **224**

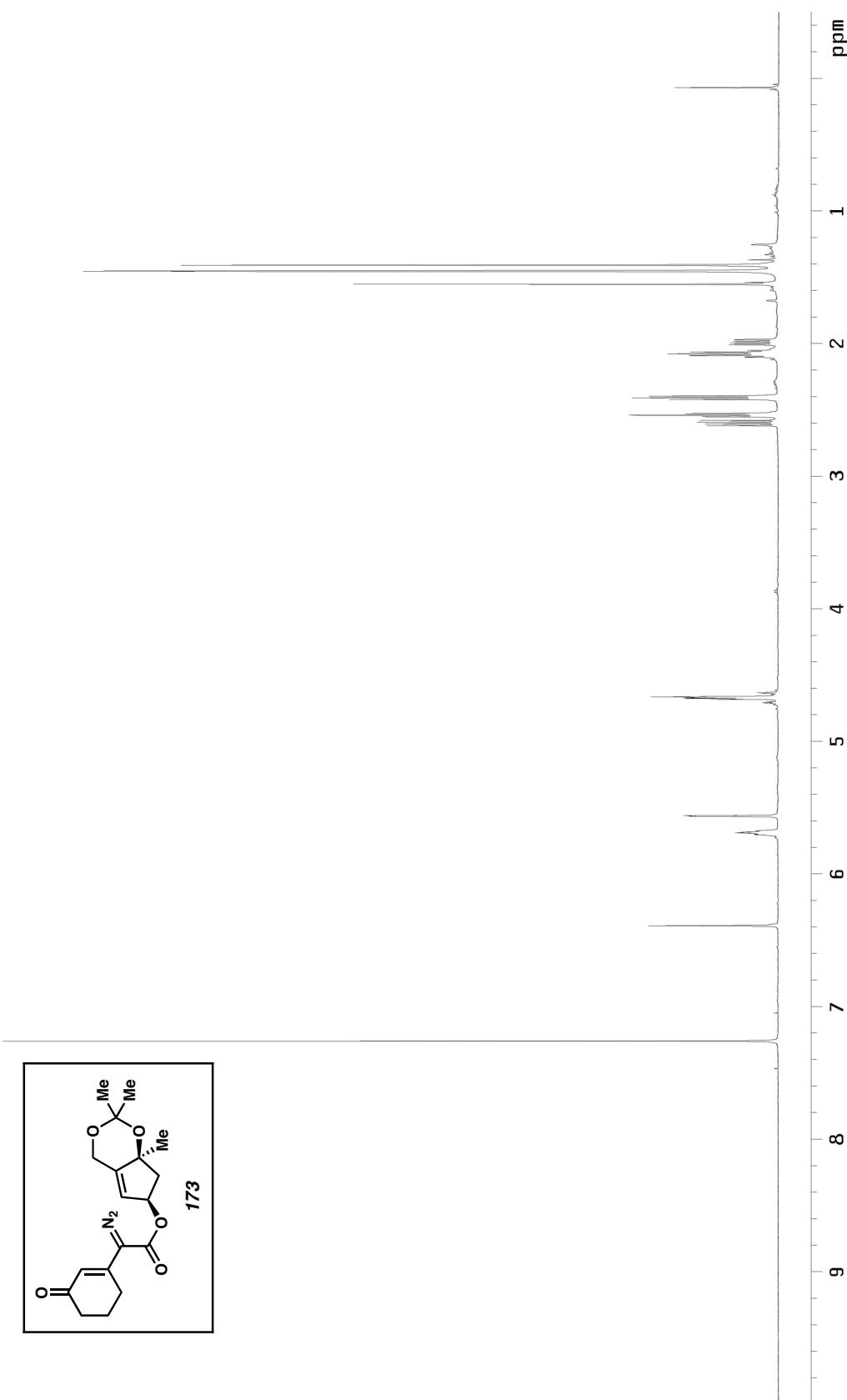


Figure A6.7 ^1H NMR (500 MHz, CDCl_3) of compound 173

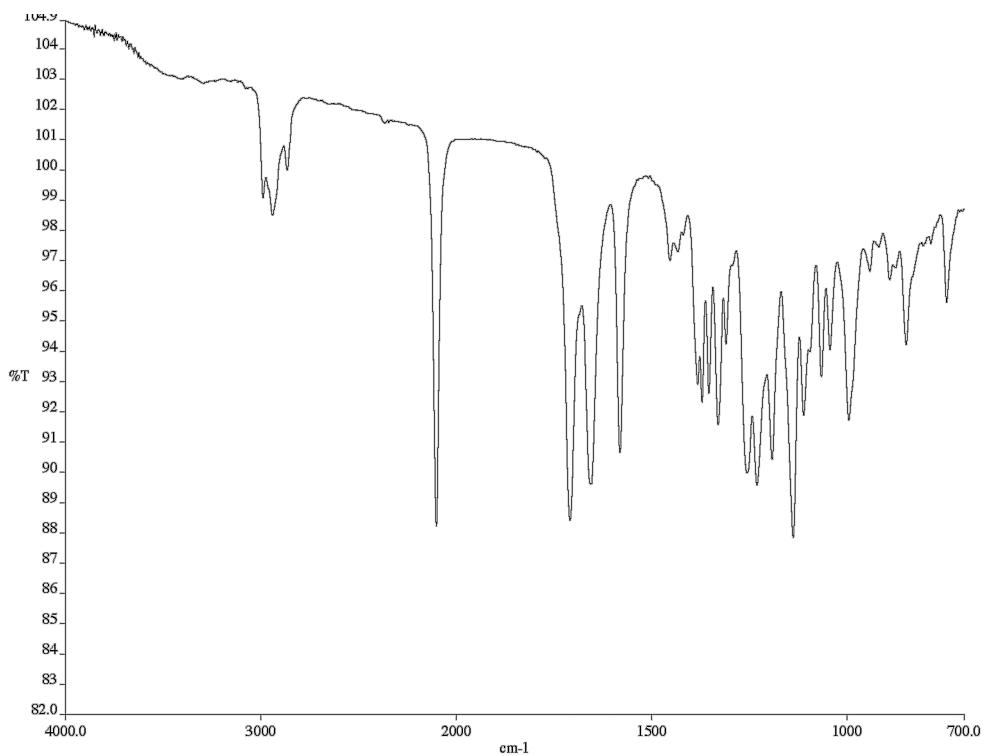


Figure A6.8 Infrared spectrum (thin film/NaCl) of compound **173**

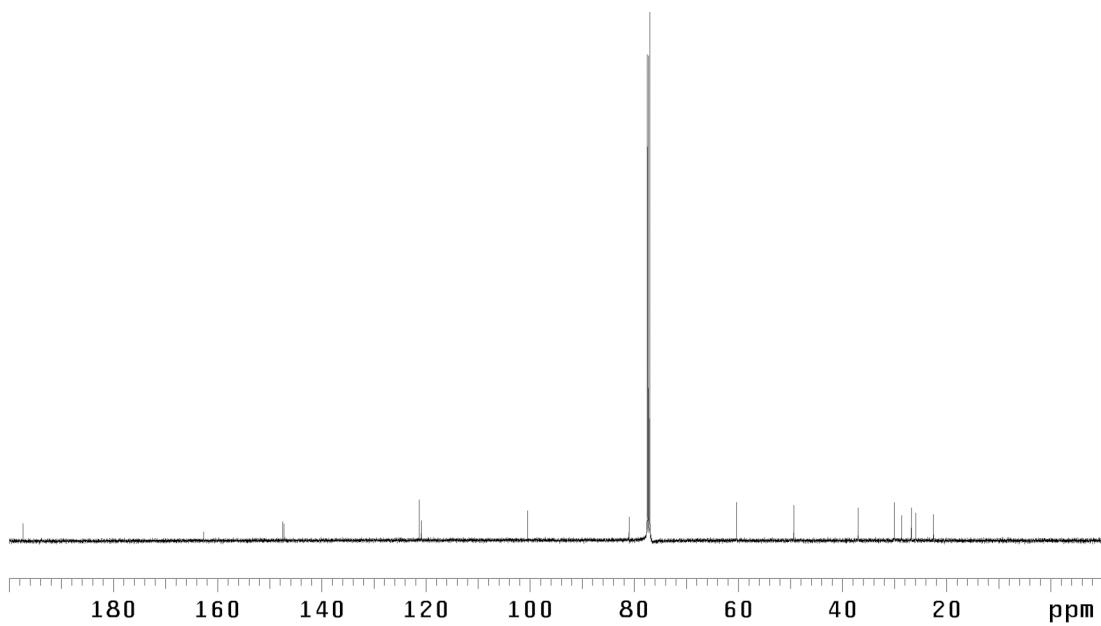


Figure A6.9 ^{13}C NMR (125 MHz, CDCl_3) of compound **173**

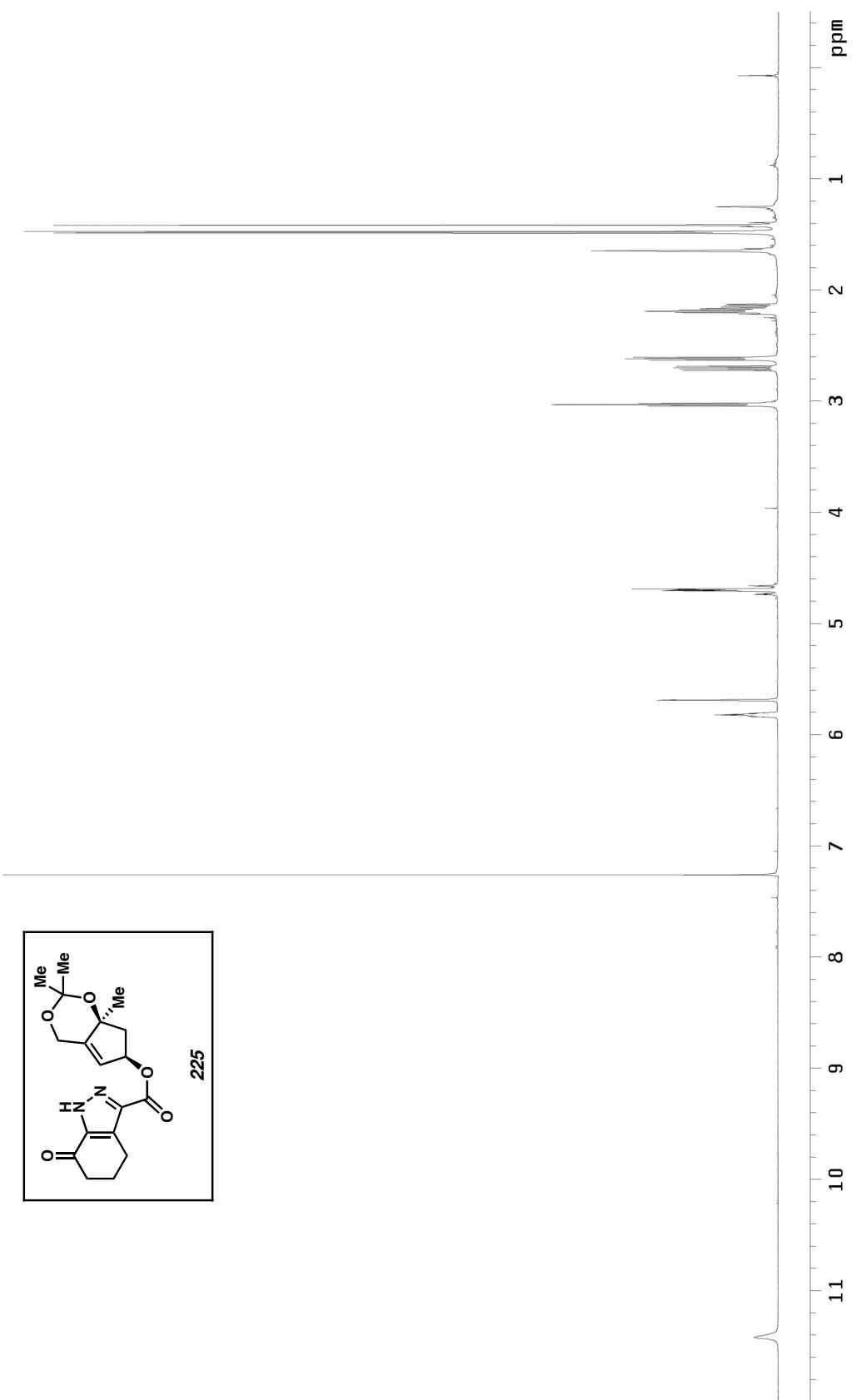


Figure A6.10 ^1H NMR (500 MHz, CDCl_3) of compound 225

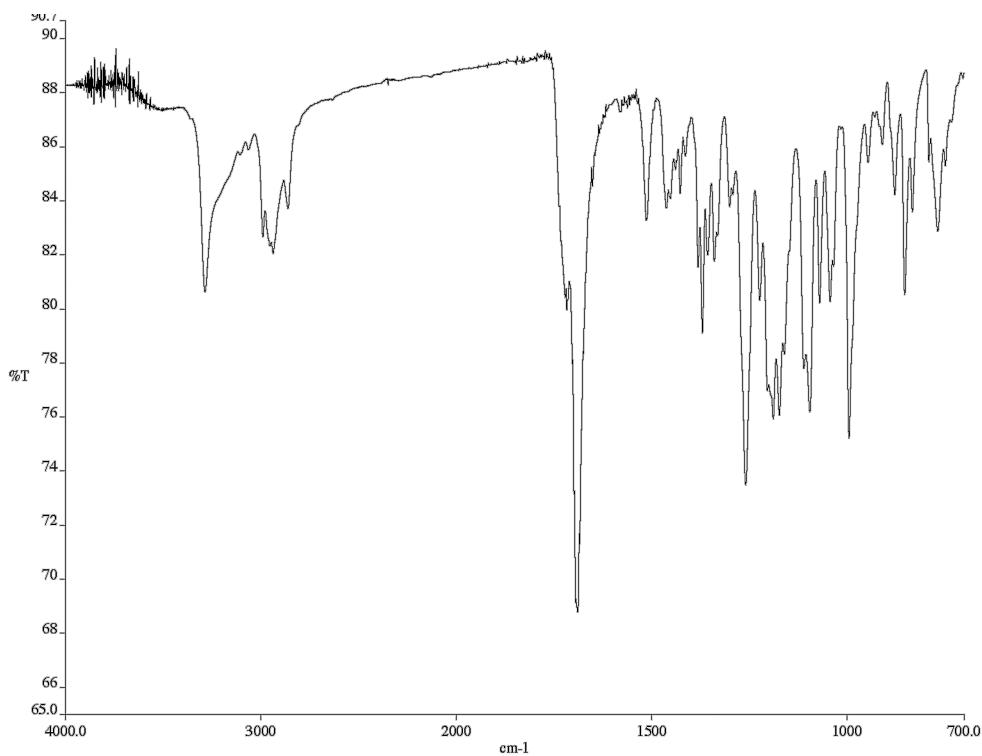


Figure A6.11 Infrared spectrum (thin film/NaCl) of compound **225**

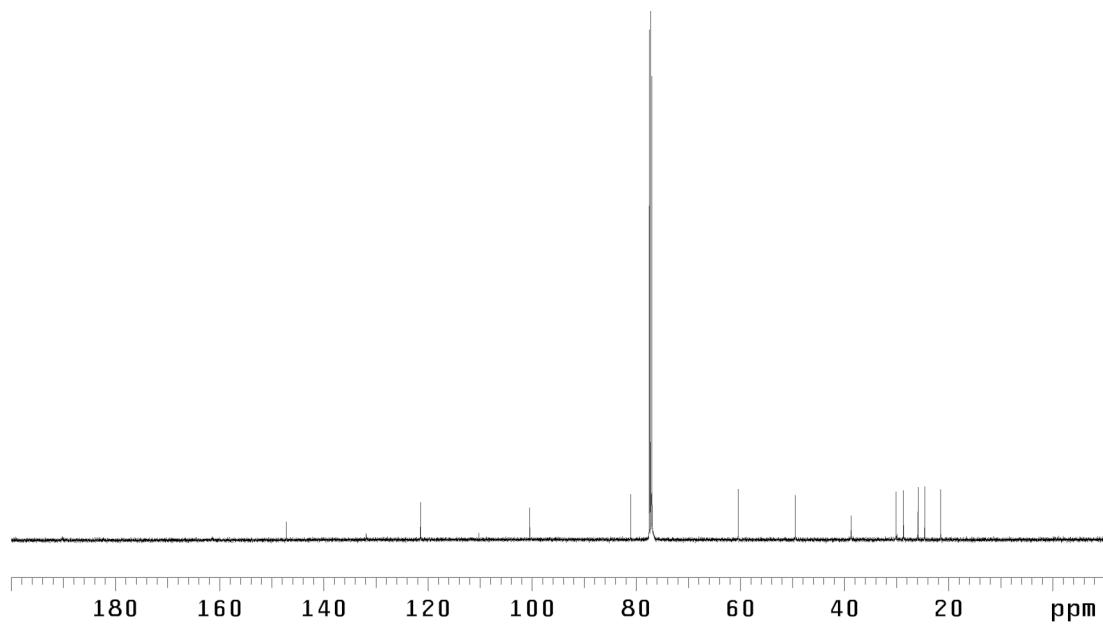


Figure A6.12 ^{13}C NMR (125 MHz, CDCl_3) of compound **225**

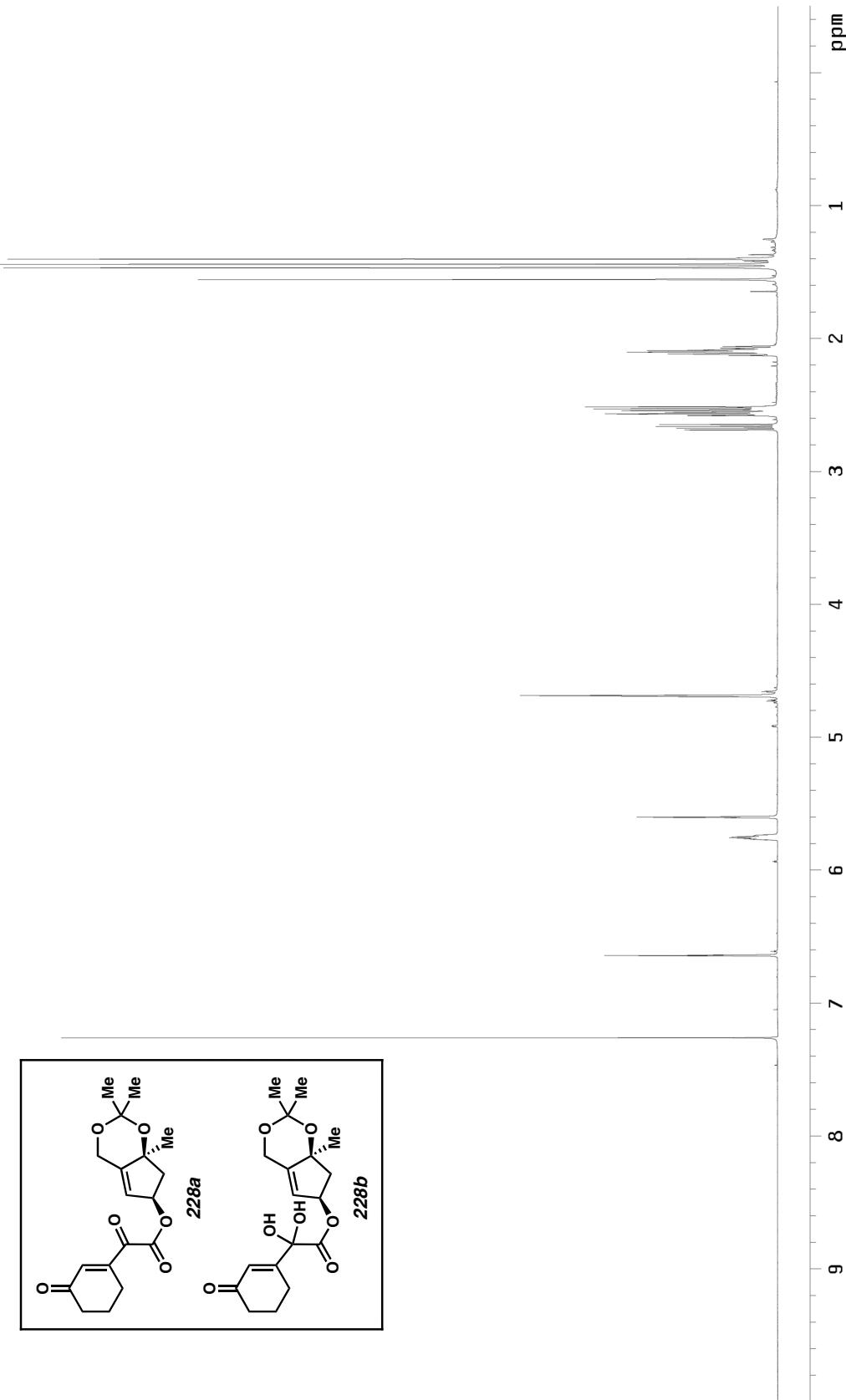


Figure A6.13 ¹H NMR (500 MHz, CDCl₃) of compound 228

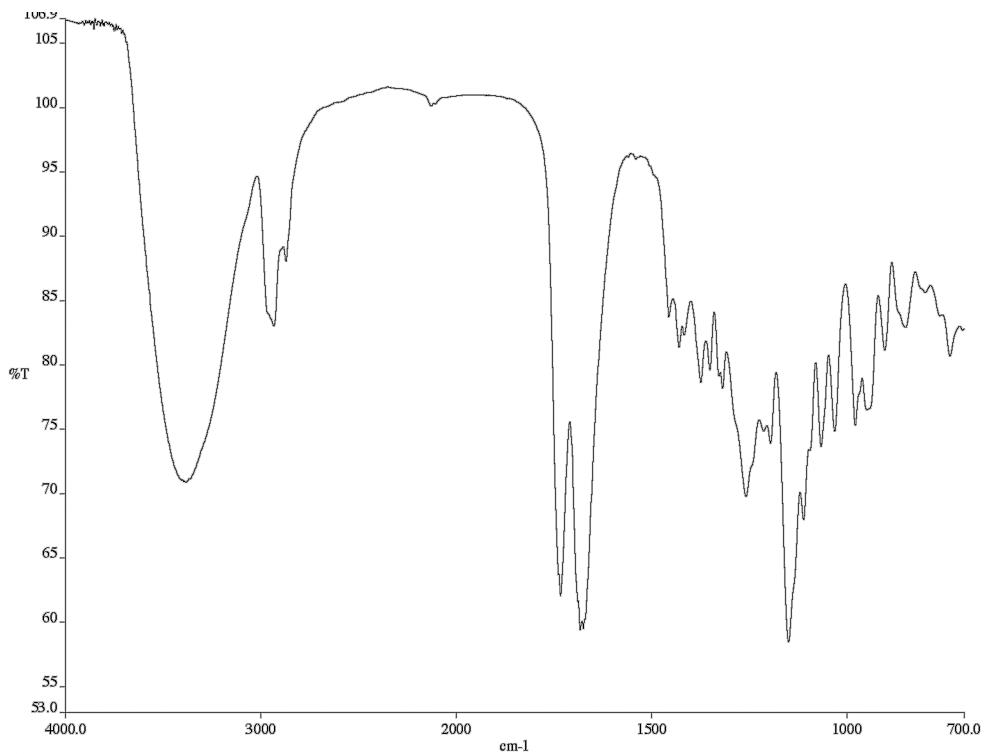


Figure A6.14 Infrared spectrum (thin film/NaCl) of compound 228

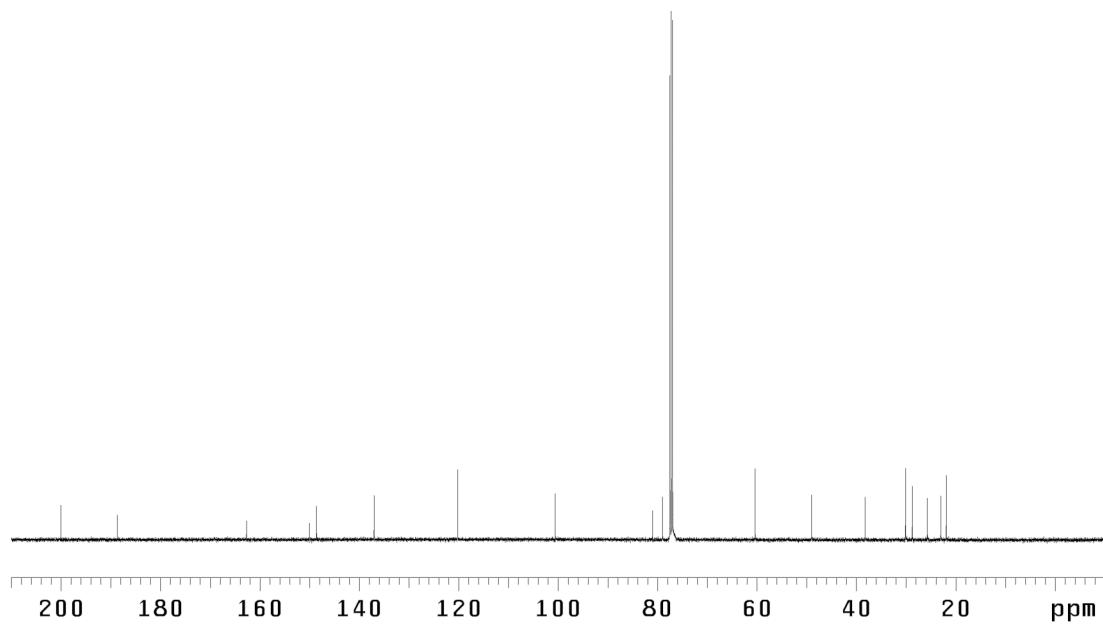


Figure A6.15 ^{13}C NMR (125 MHz, CDCl_3) of compound 228

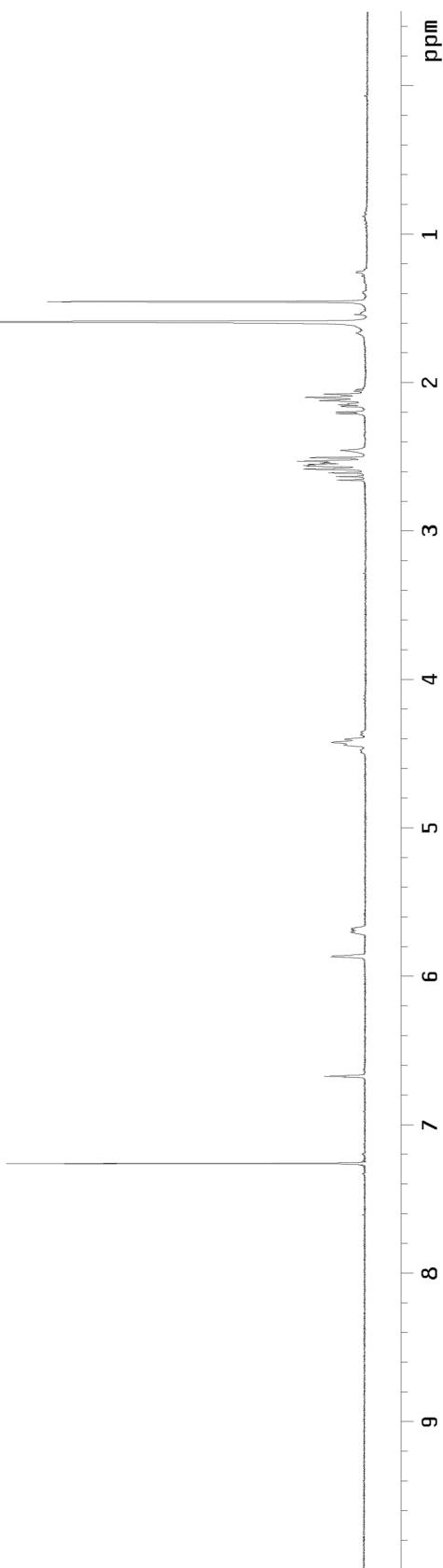
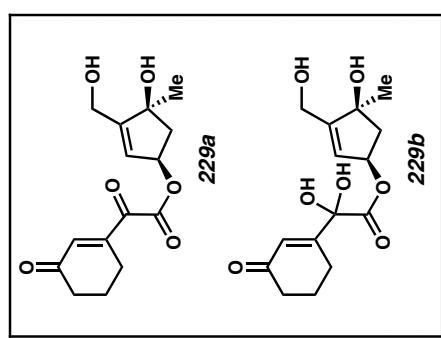


Figure A6.16 ¹H NMR (300 MHz, CDCl₃) of compound 229

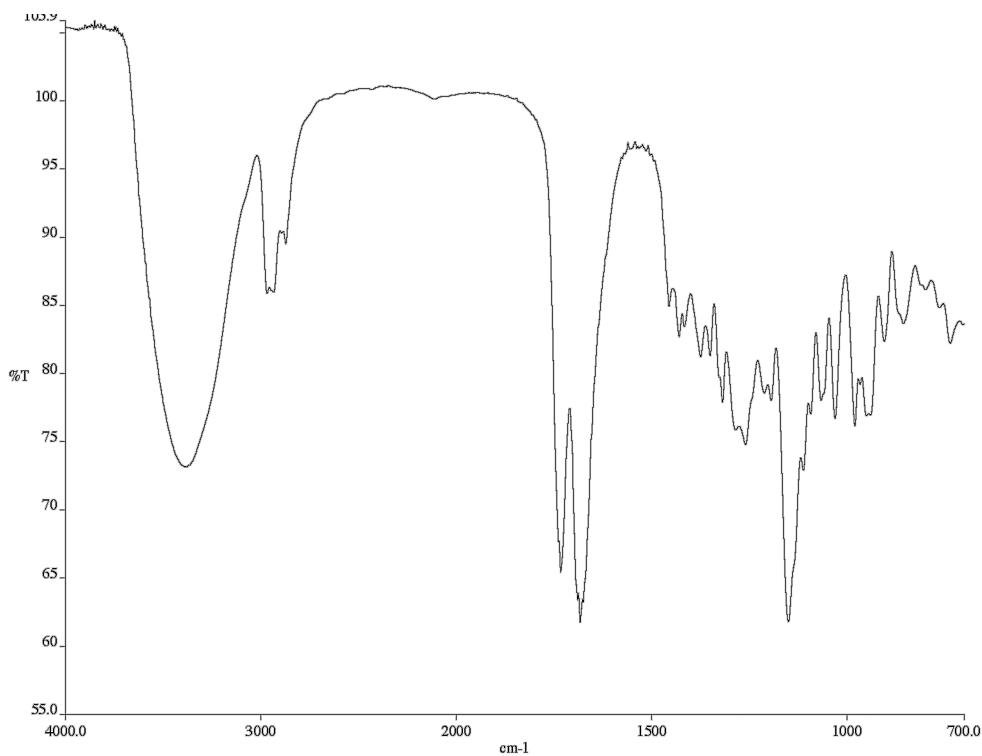


Figure A6.17 Infrared spectrum (thin film/NaCl) of compound 229

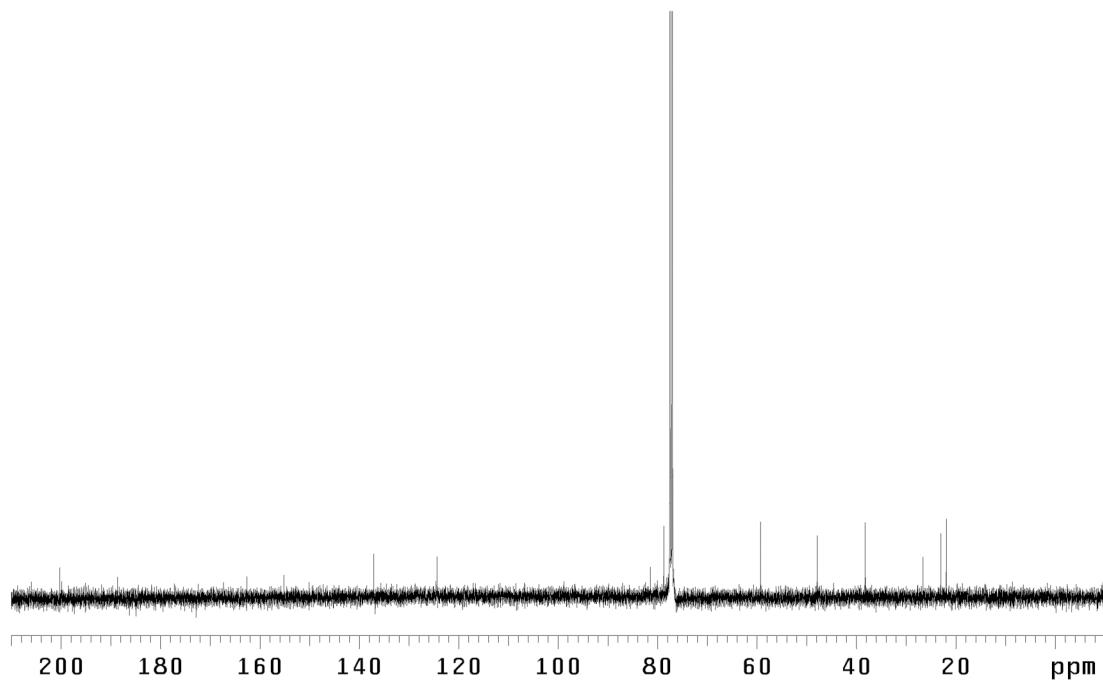


Figure A6.18 ^{13}C NMR (125 MHz, CDCl_3) of compound 229

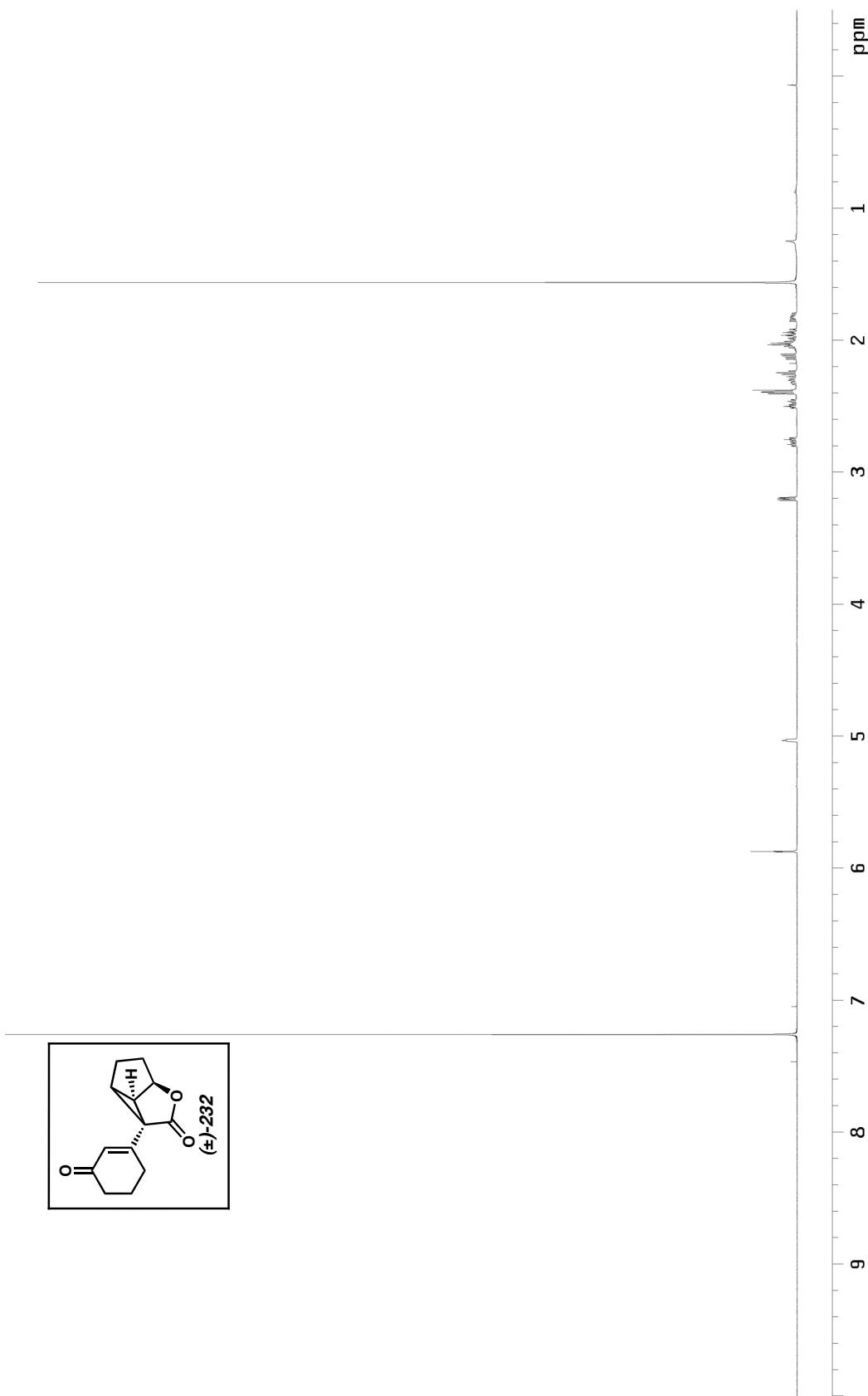


Figure A6.19 ^1H NMR (500 MHz, CDCl₃) of compound 232

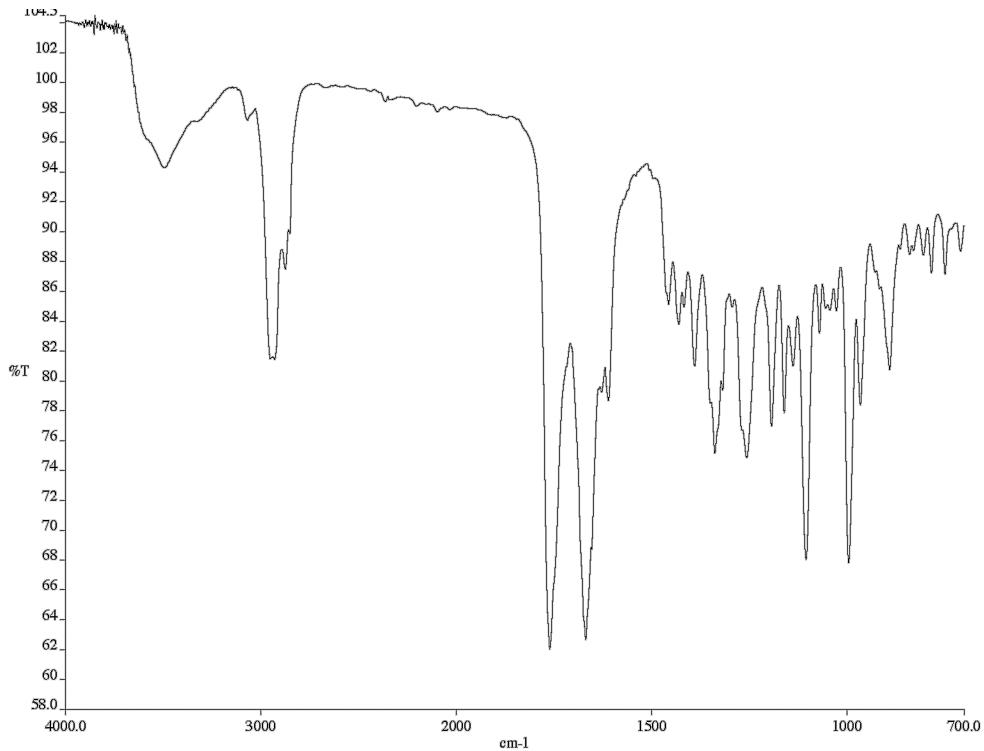


Figure A6.20 Infrared spectrum (thin film/NaCl) of compound **232**

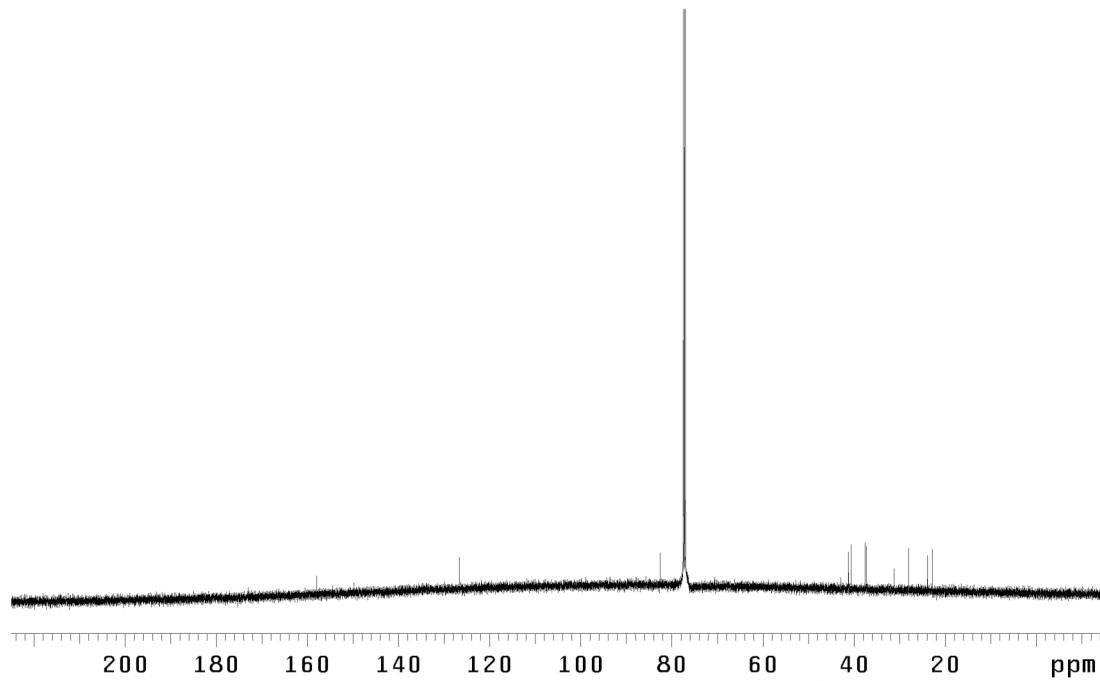


Figure A6.21 ^{13}C NMR (125 MHz, CDCl₃) of compound **232**

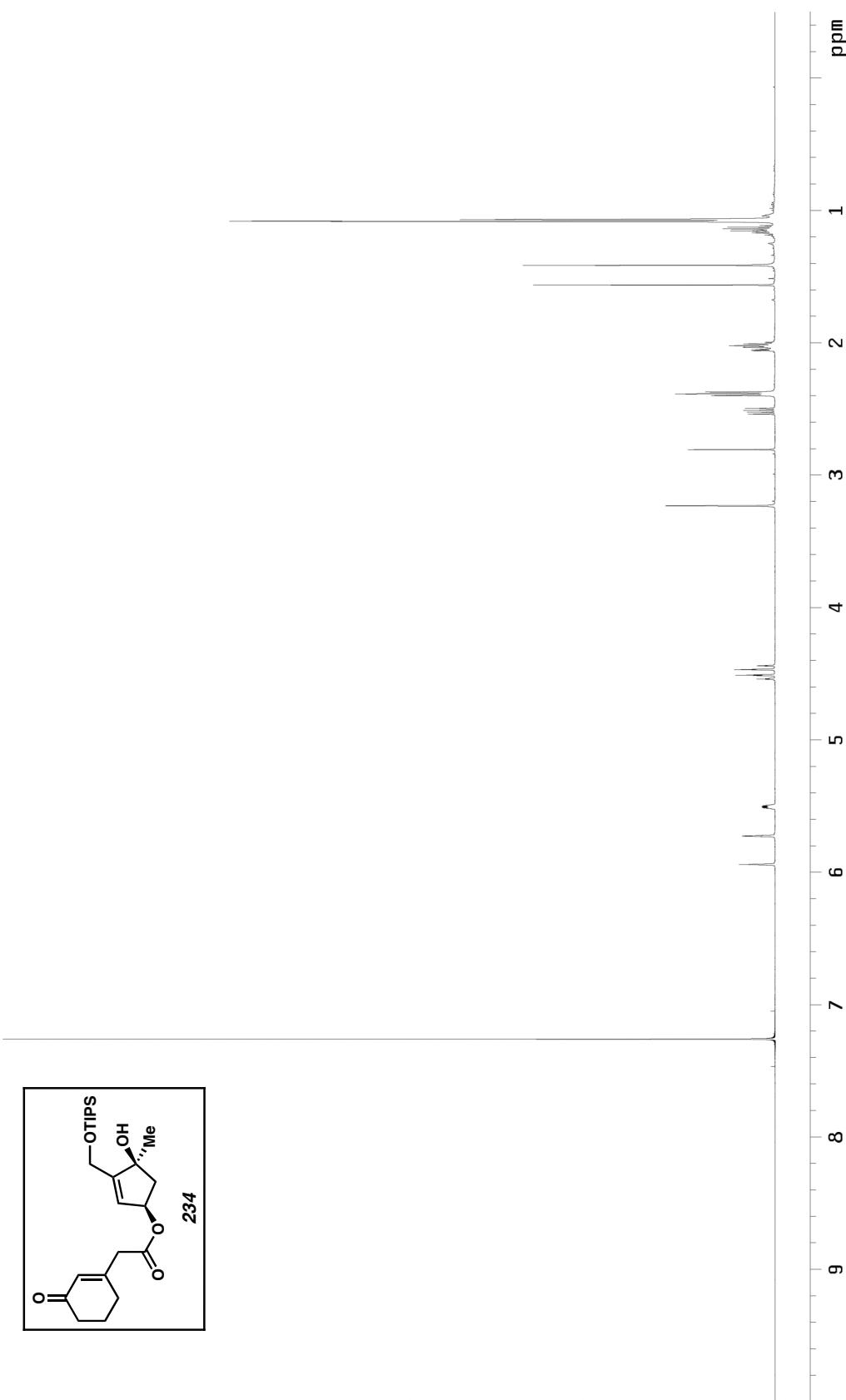


Figure A6.22 ^1H NMR (500 MHz, CDCl_3) of compound 234

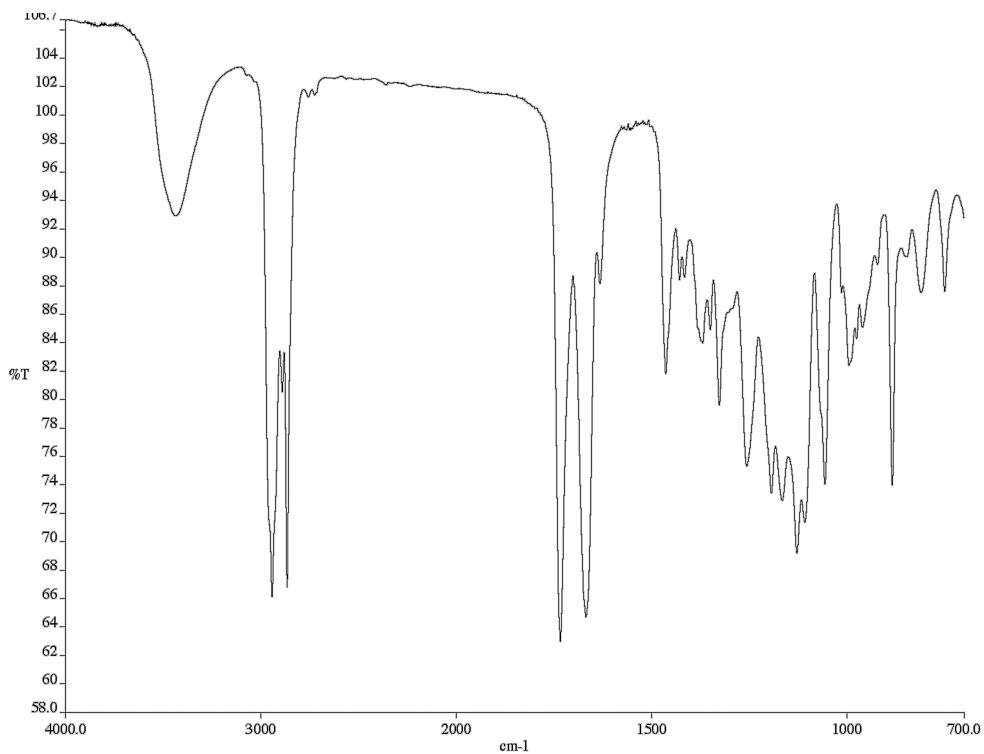


Figure A6.23 Infrared spectrum (thin film/NaCl) of compound **234**

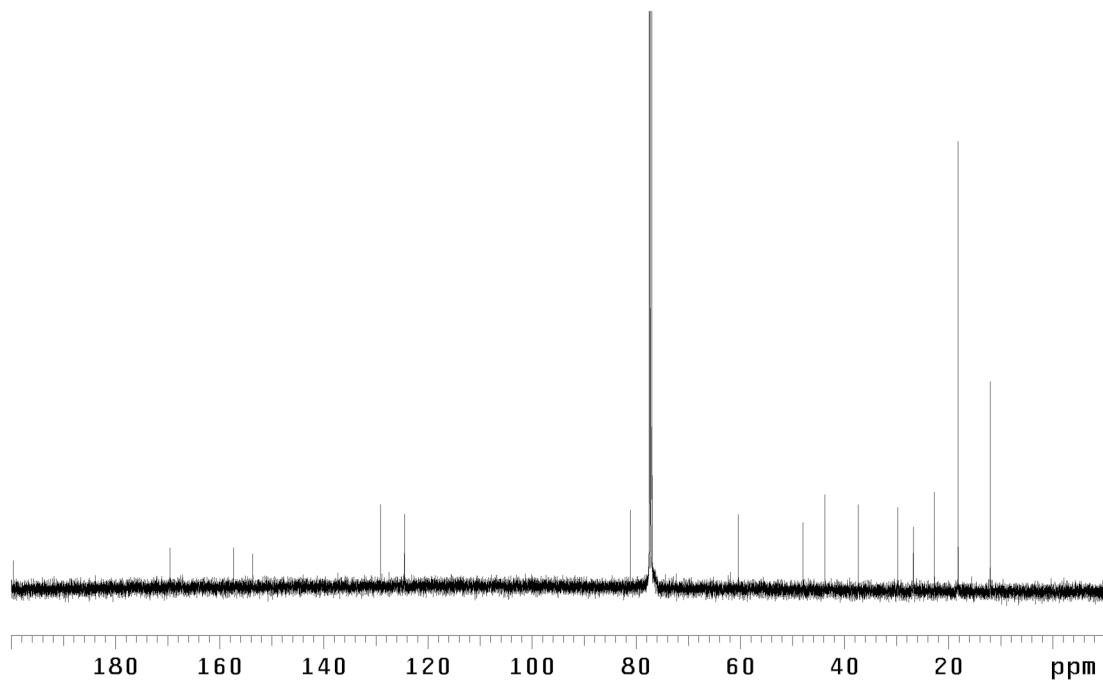


Figure A6.24 ^{13}C NMR (125 MHz, CDCl_3) of compound **234**

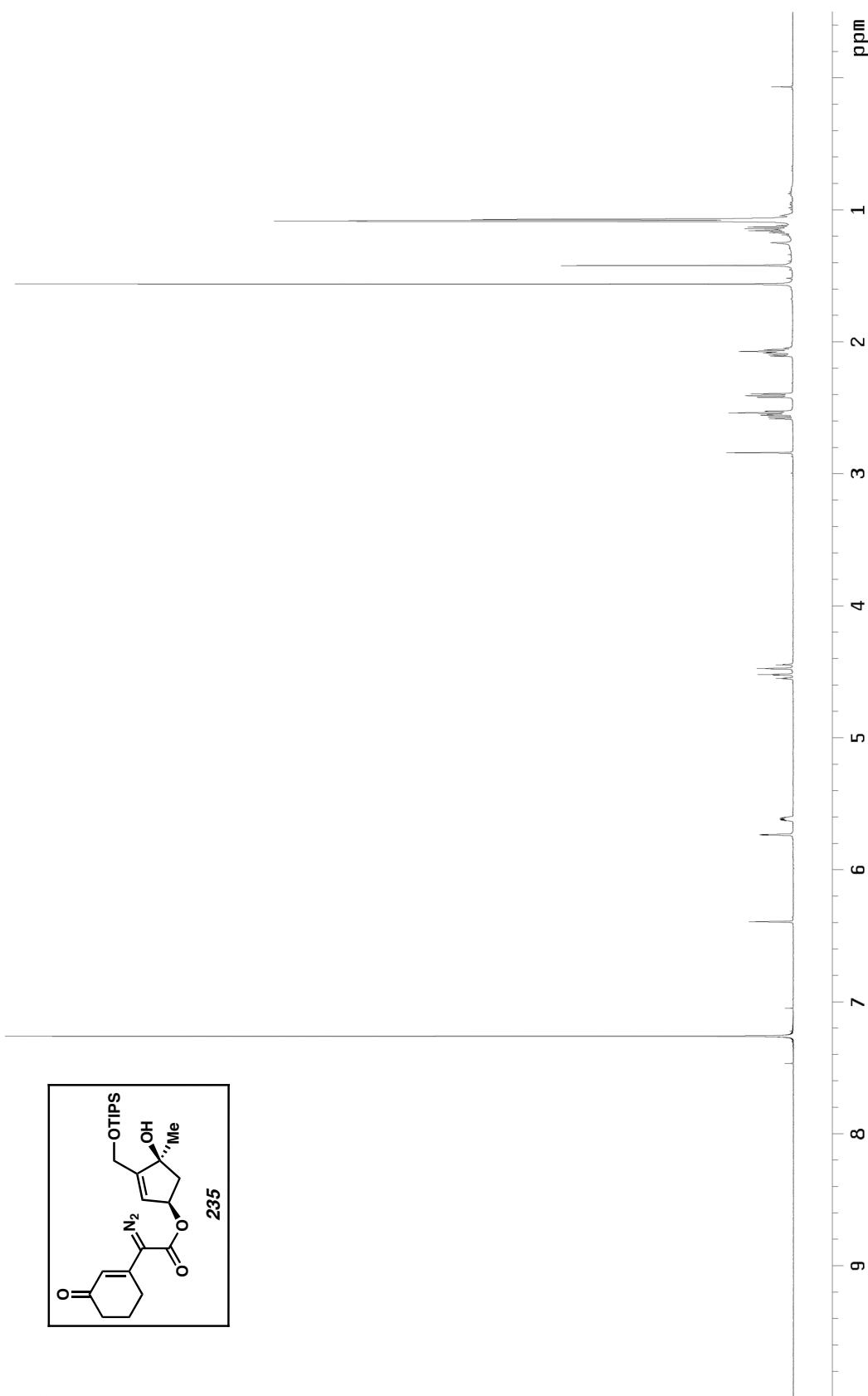


Figure A6.25 ^1H NMR (500 MHz, CDCl_3) of compound **235**

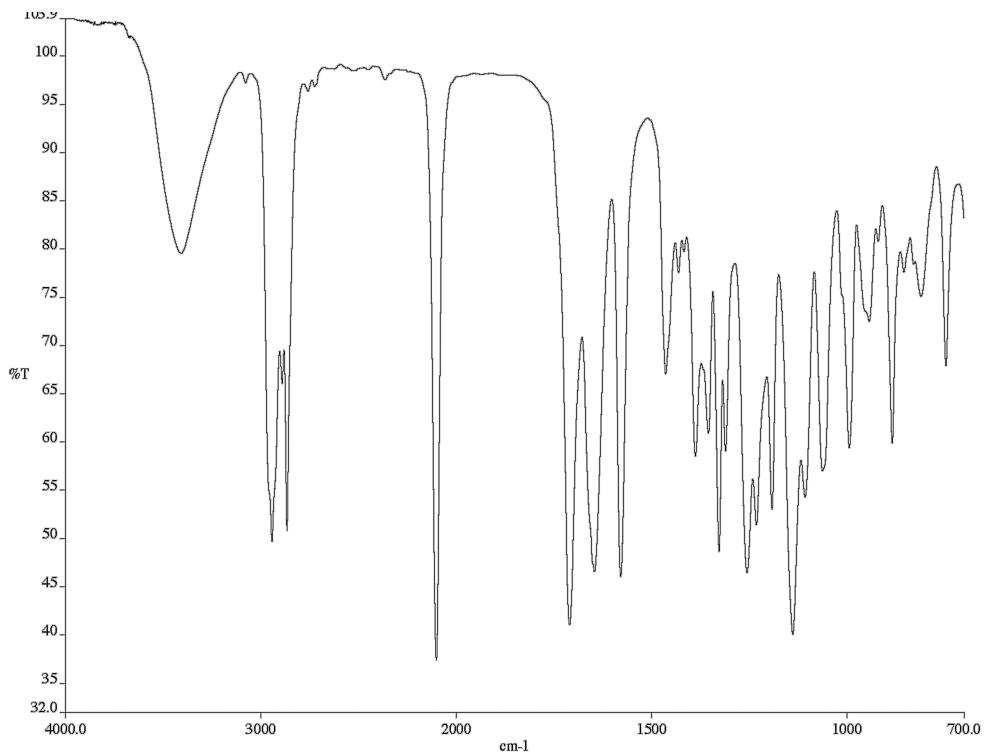


Figure A6.26 Infrared spectrum (thin film/NaCl) of compound **235**

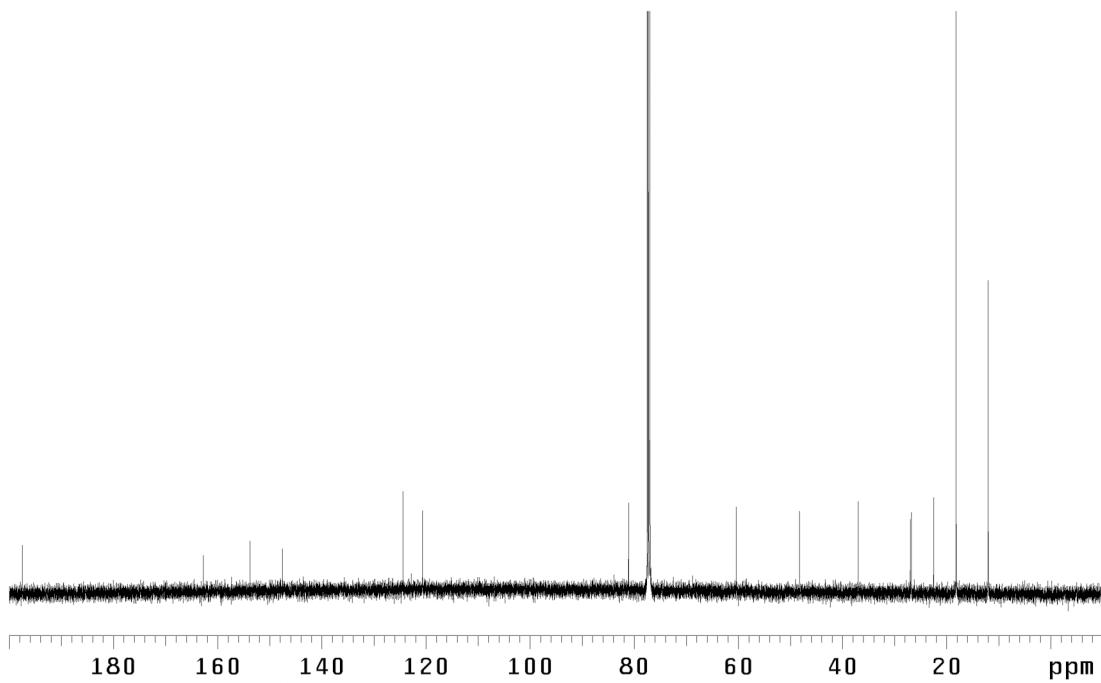


Figure A6.27 ^{13}C NMR (125 MHz, CDCl_3) of compound **235**

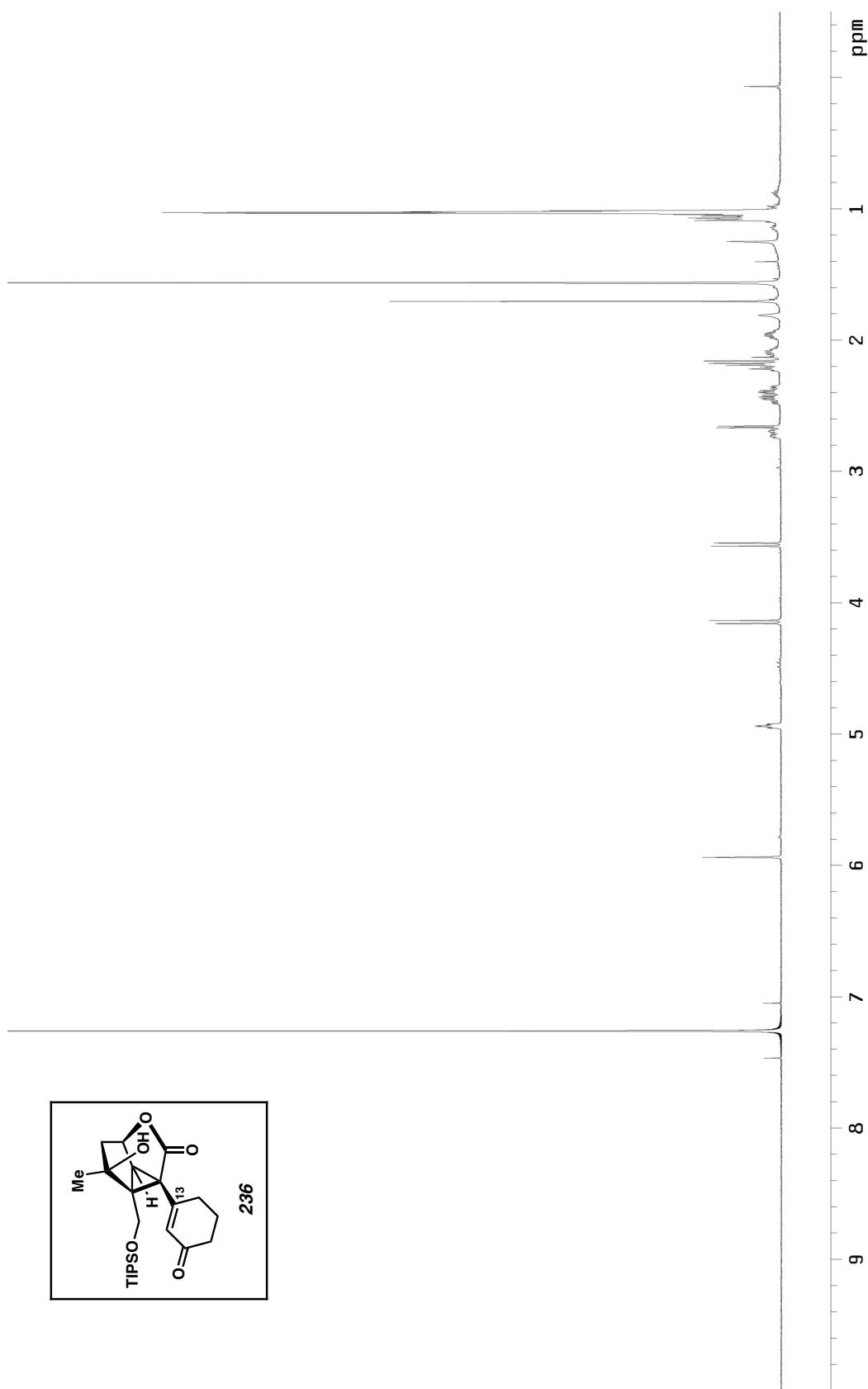


Figure A6.28 ^1H NMR (500 MHz, CDCl_3) of compound 236

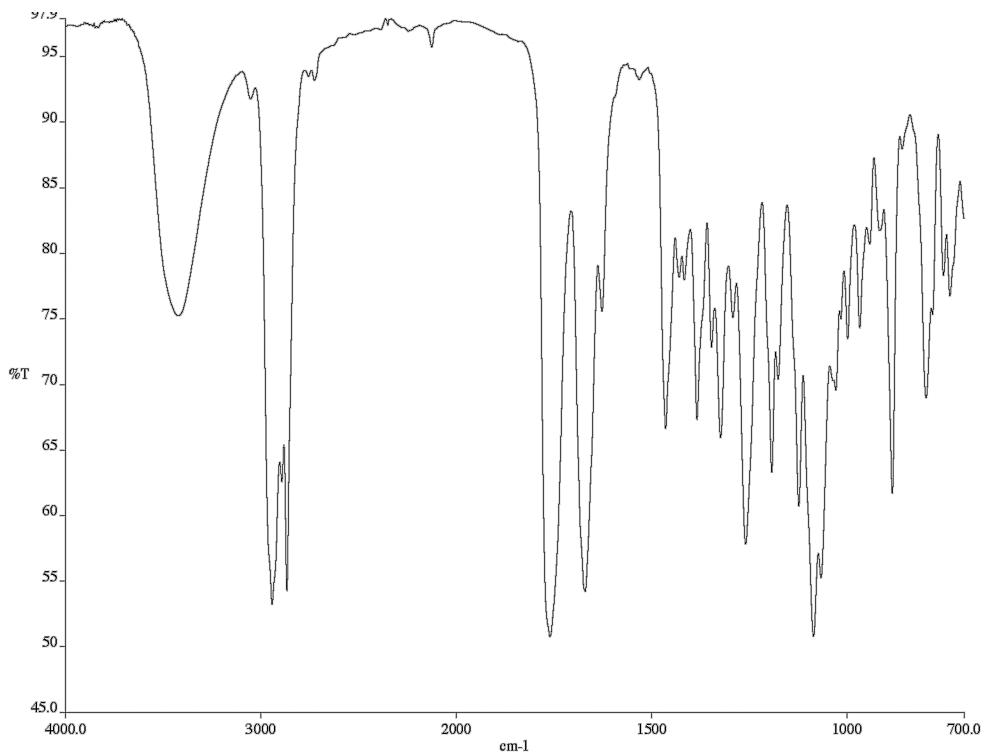


Figure A6.29 Infrared spectrum (thin film/NaCl) of compound **236**

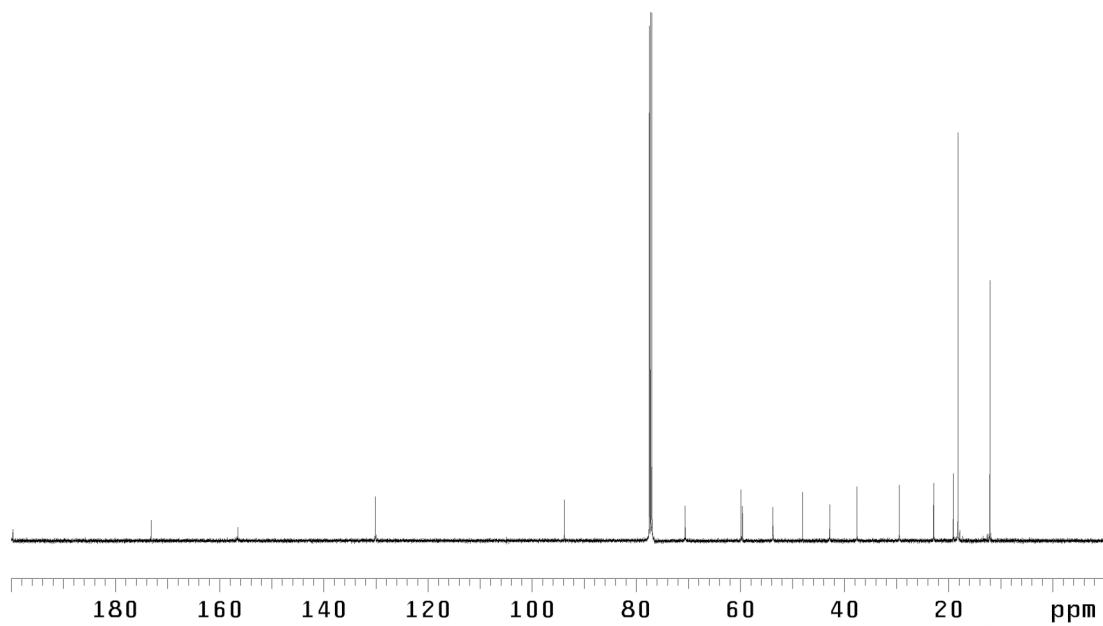


Figure A6.30 ^{13}C NMR (125 MHz, CDCl_3) of compound **236**

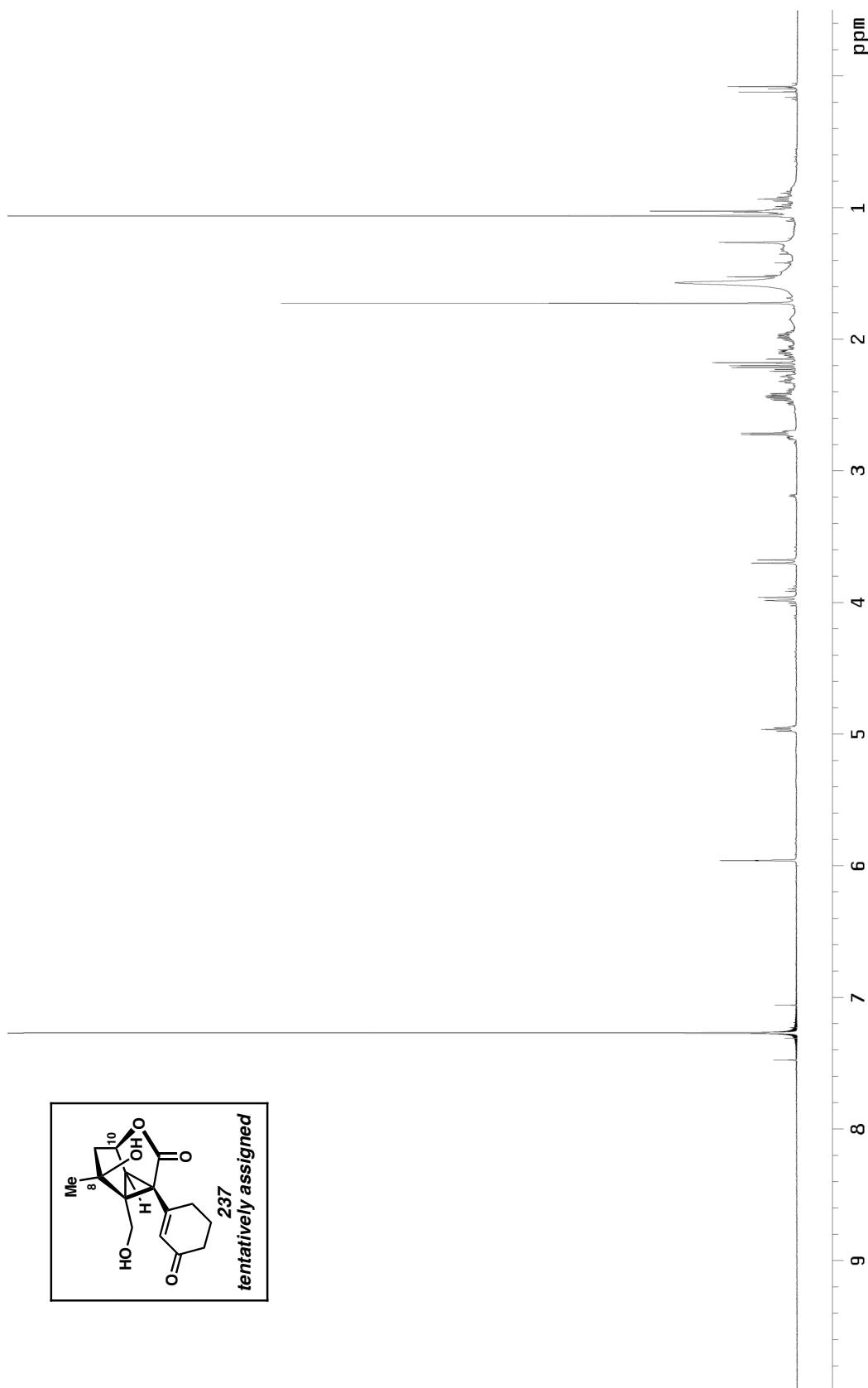


Figure A6.31 ^1H NMR (500 MHz, CDCl_3) of compound 237

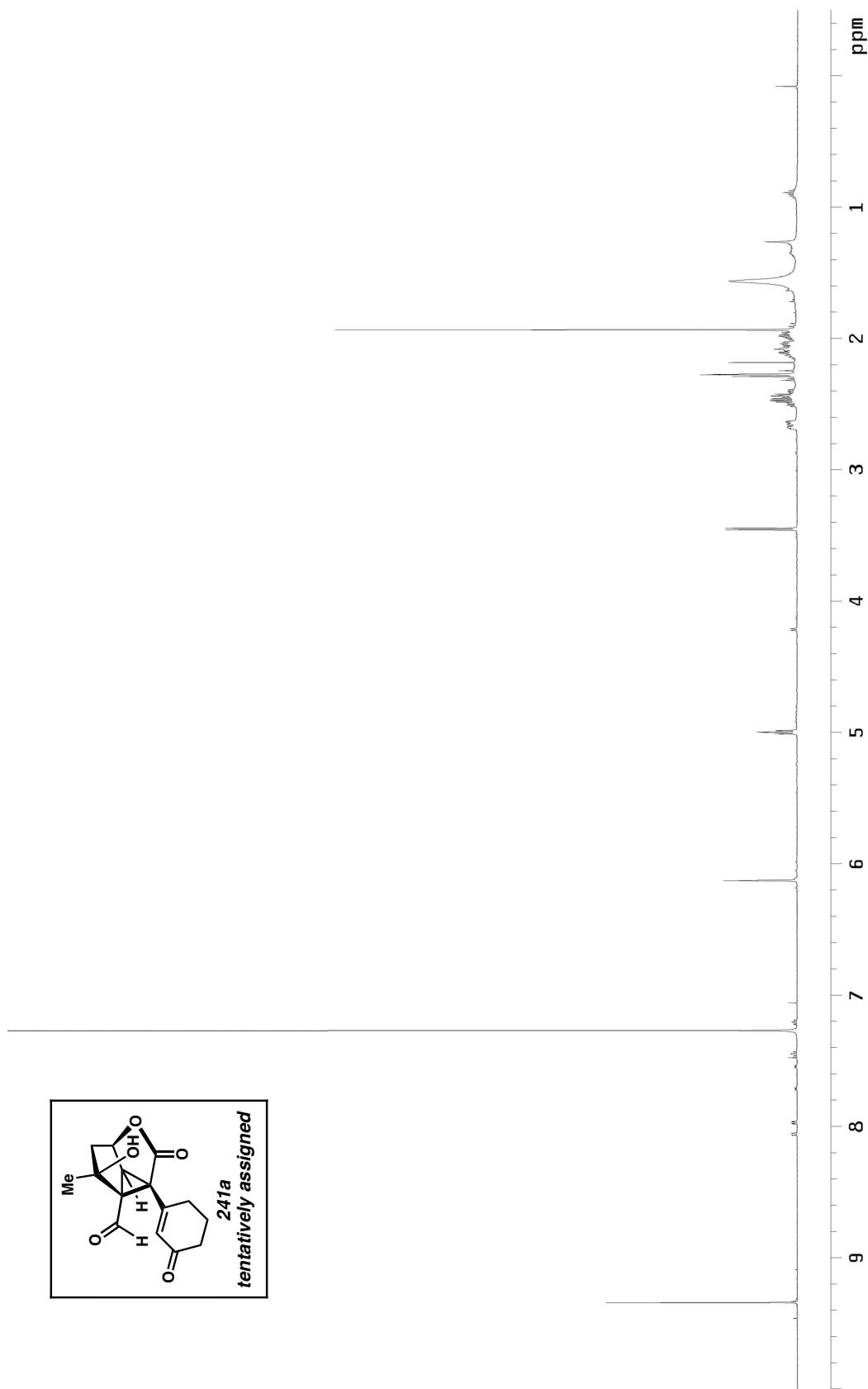


Figure A6.32 ^1H NMR (500 MHz, CDCl_3) of compound 241a

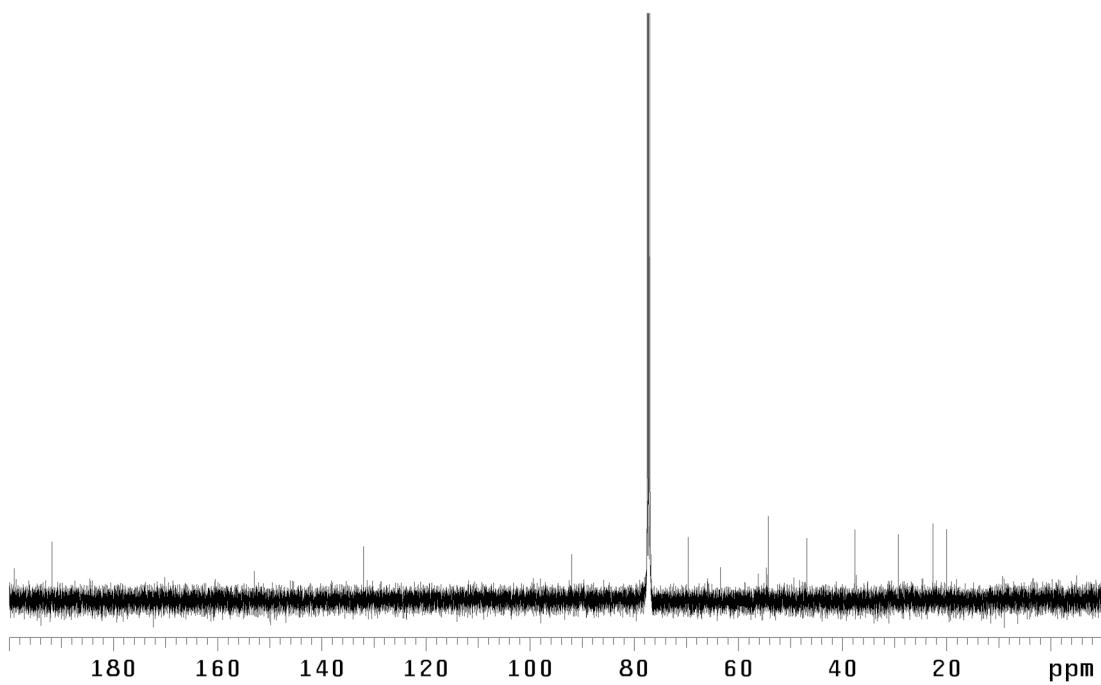


Figure A6.33 ^{13}C NMR (125 MHz, CDCl_3) of compound **241a**

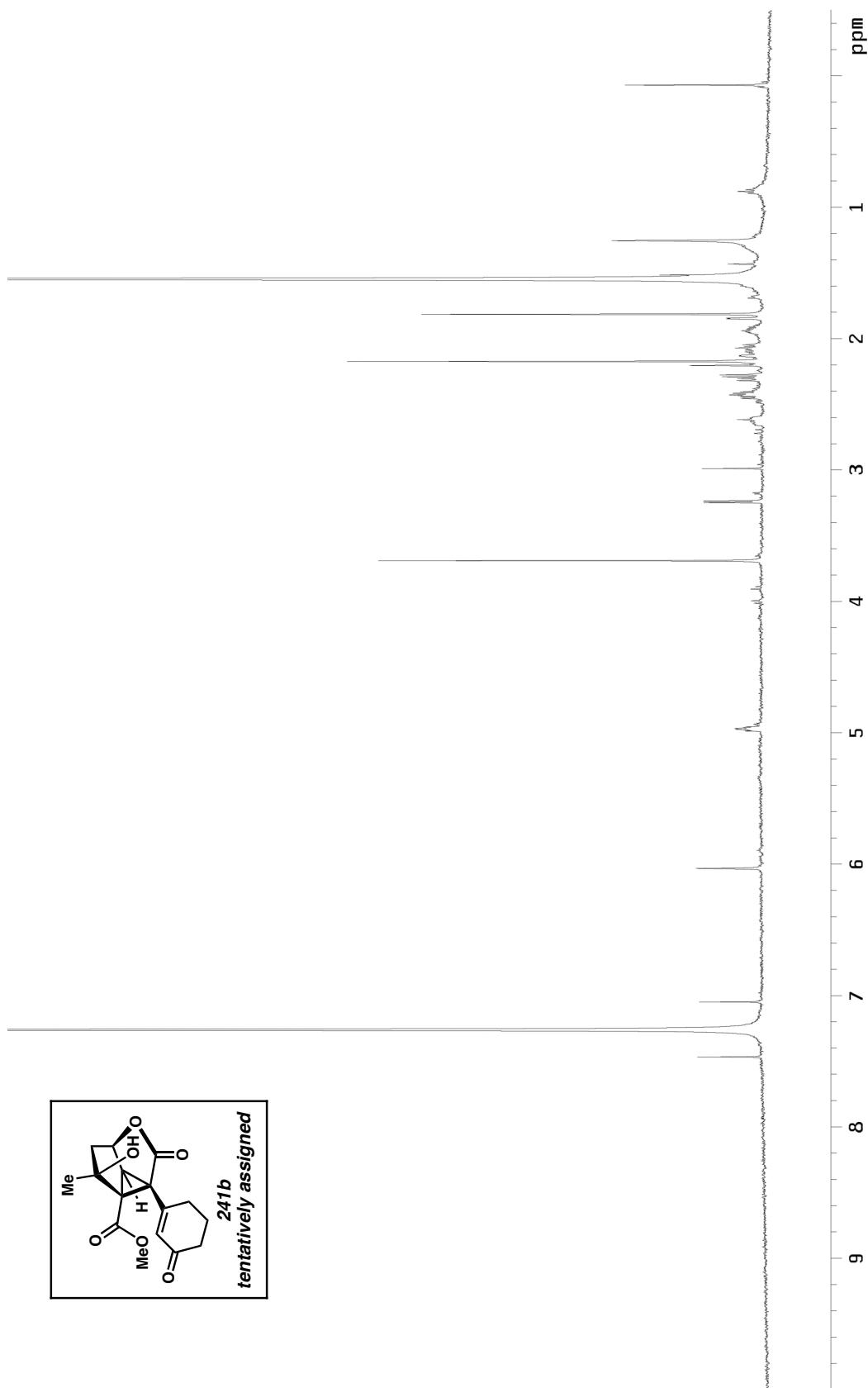


Figure A6.34 ^1H NMR (500 MHz, CDCl_3) of compound **241b**

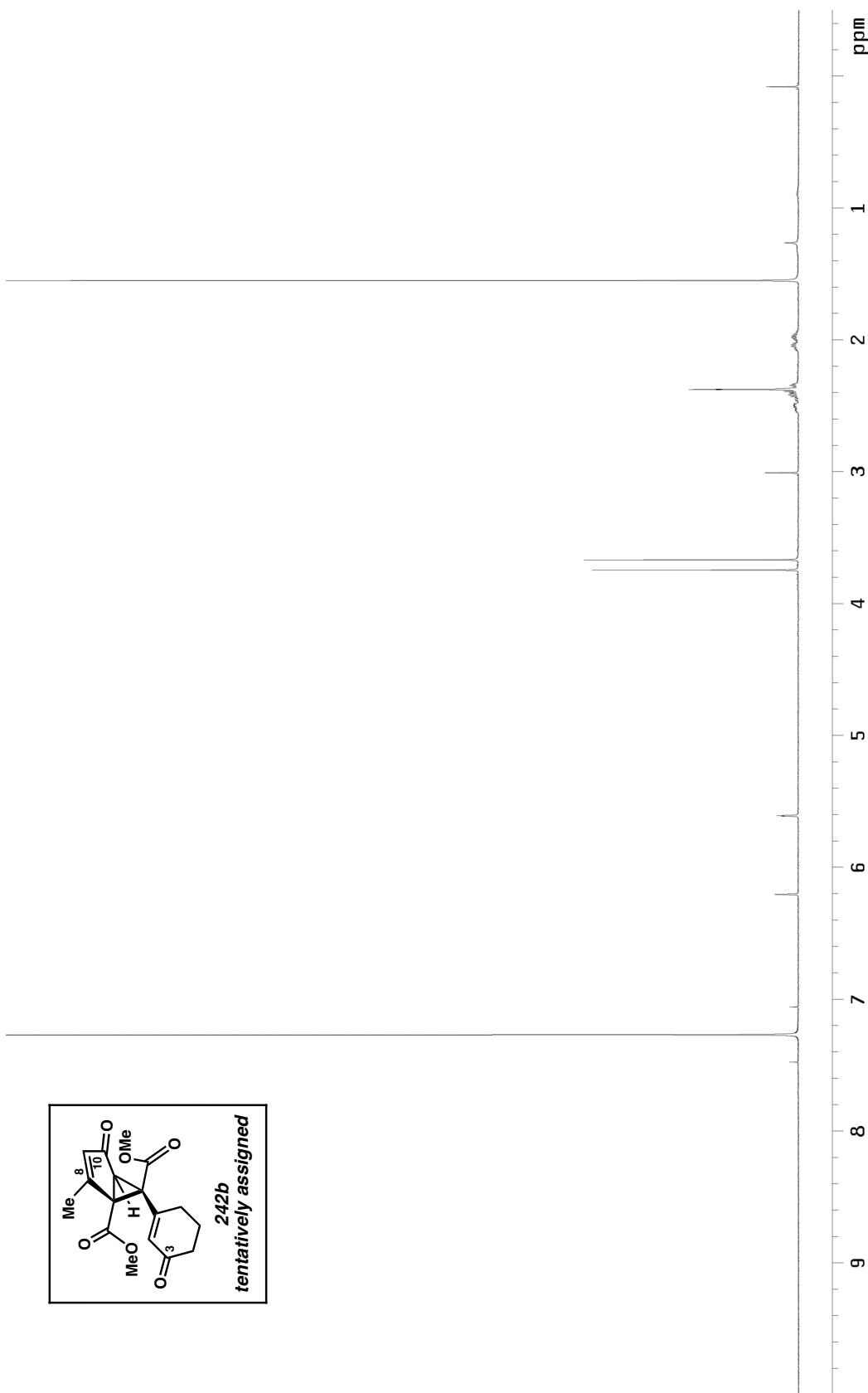


Figure A6.35 ^1H NMR (500 MHz, CDCl₃) of compound 242b

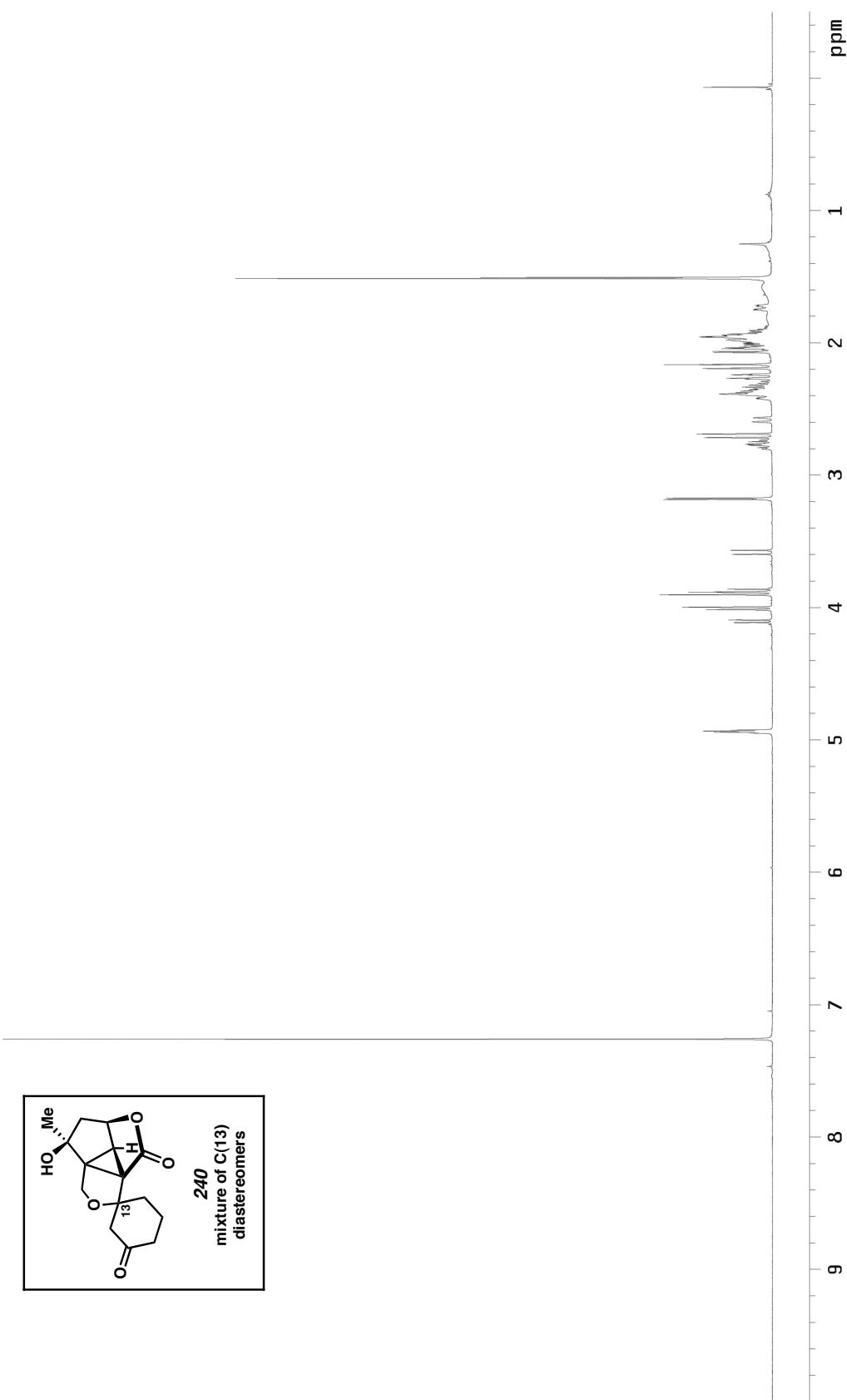


Figure A6.36 ^1H NMR (500 MHz, CDCl_3) of compound 240

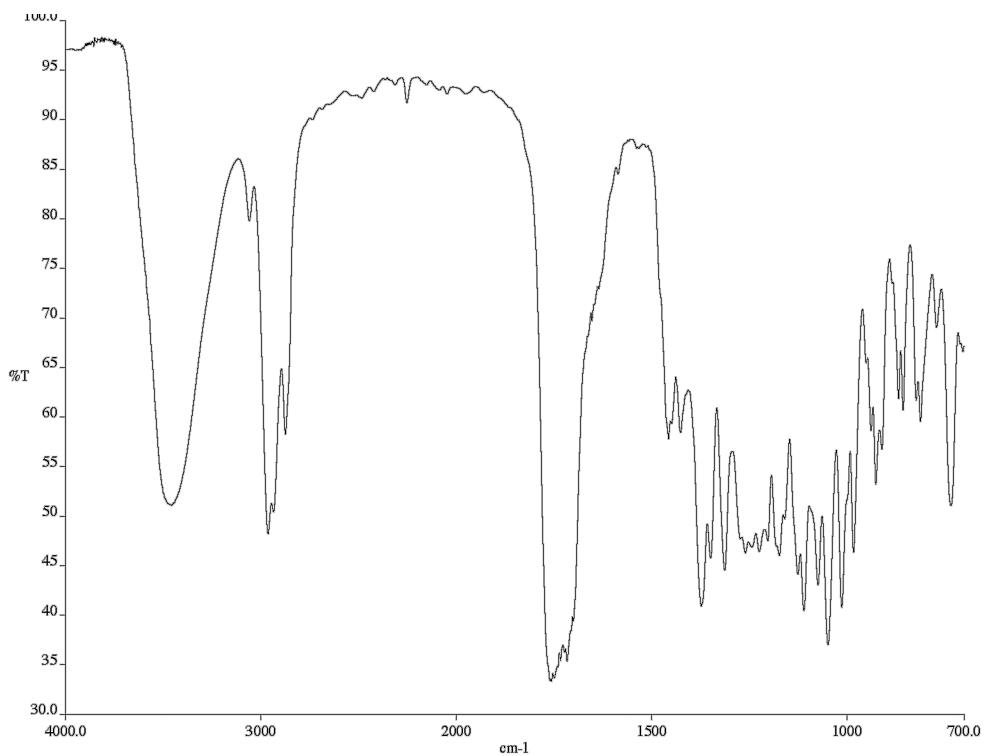


Figure A6.37 Infrared spectrum (thin film/NaCl) of compound **240**

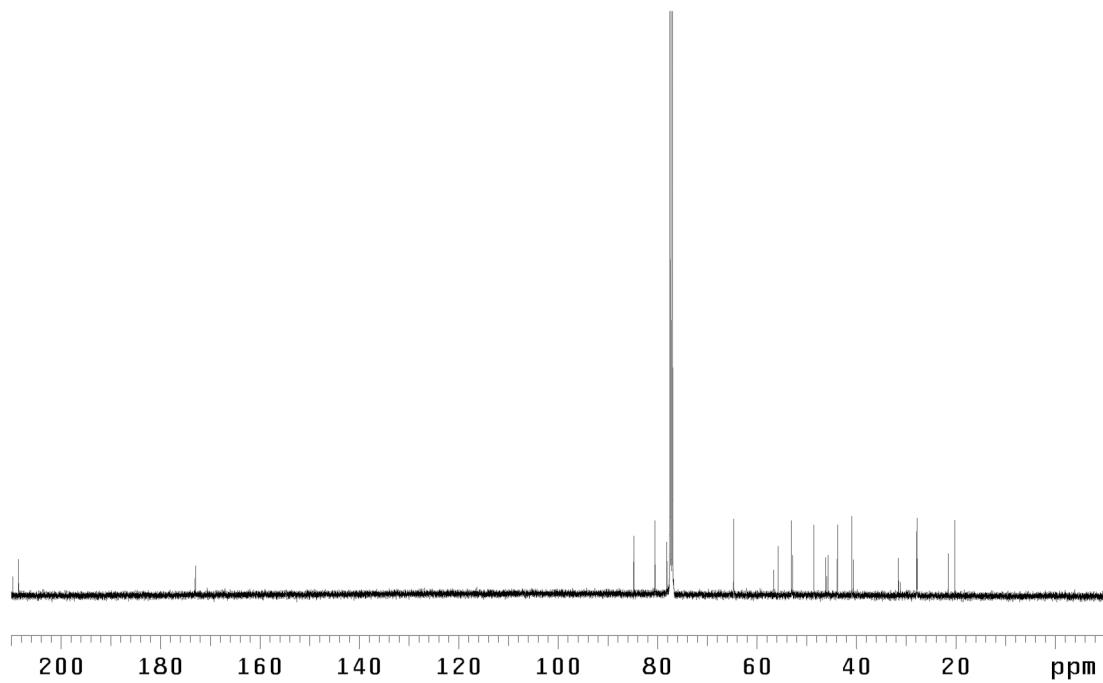


Figure A6.38 ^{13}C NMR (125 MHz, CDCl_3) of compound **240**

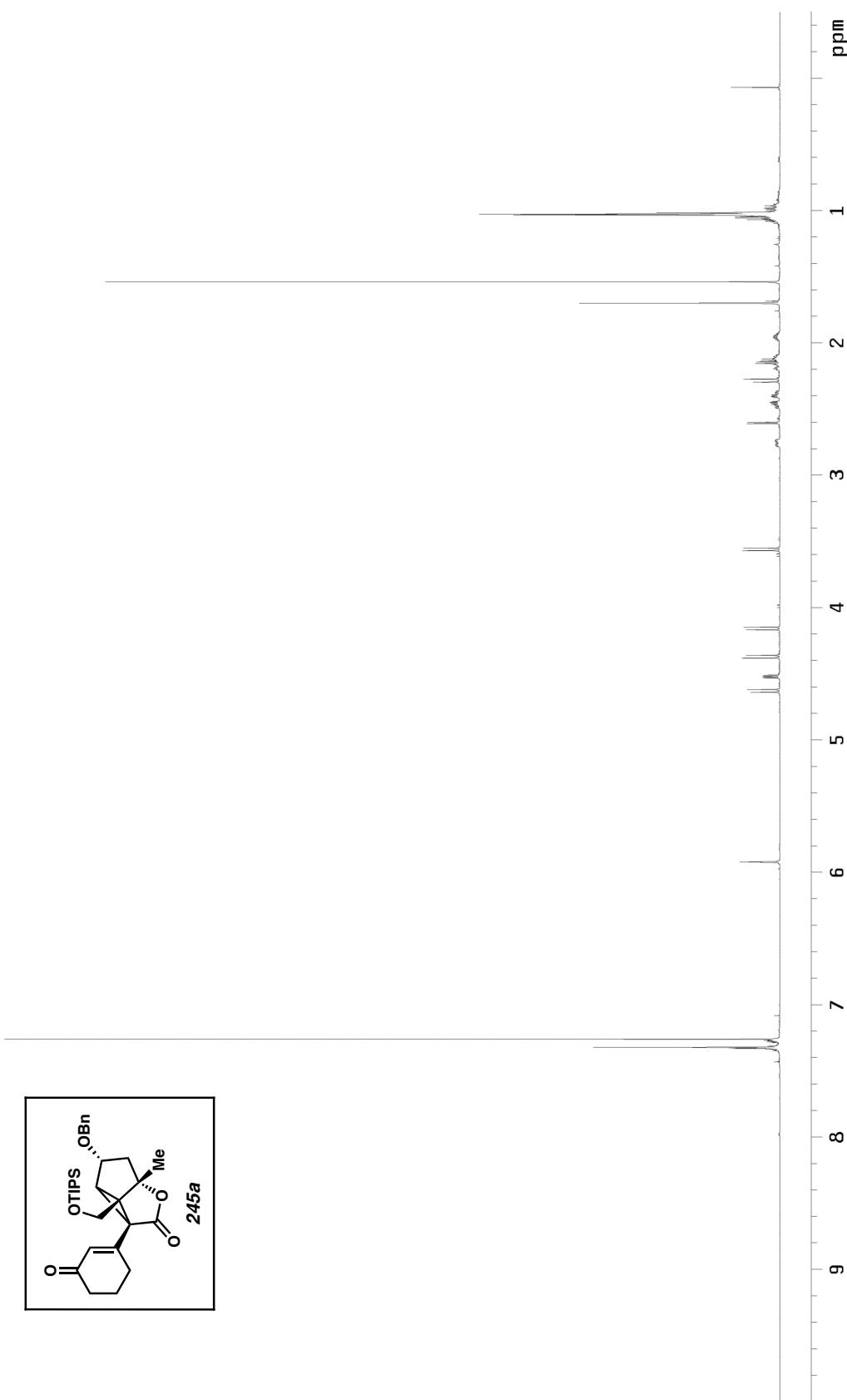


Figure A6.39 ^1H NMR (600 MHz, CDCl_3) of compound 245a

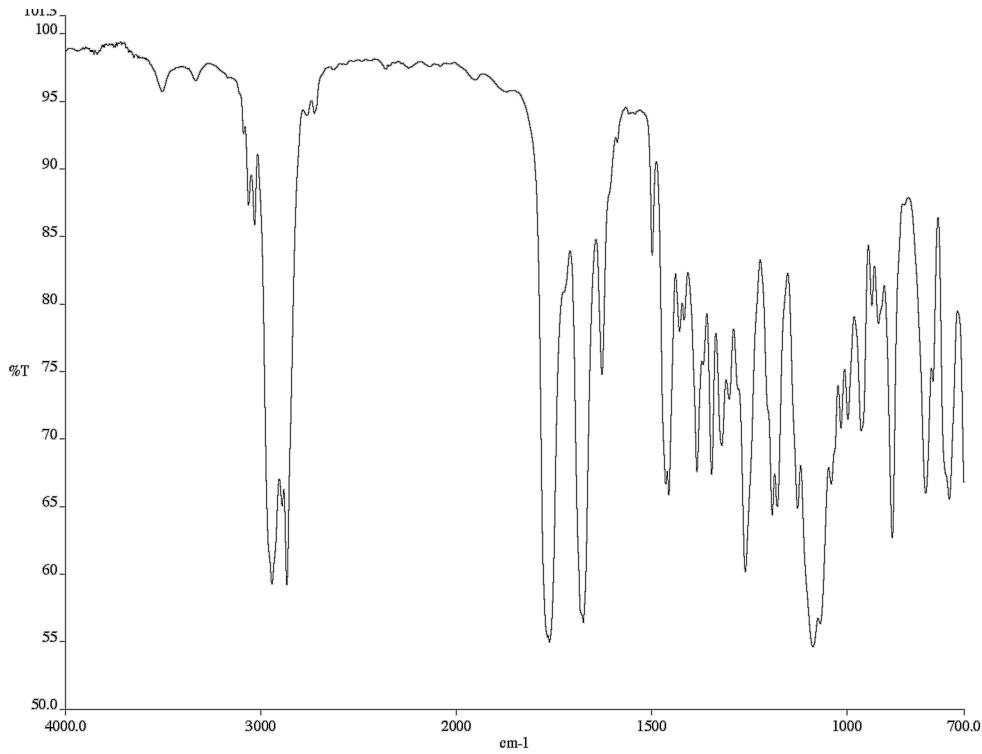


Figure A6.40 Infrared spectrum (thin film/NaCl) of compound **245a**

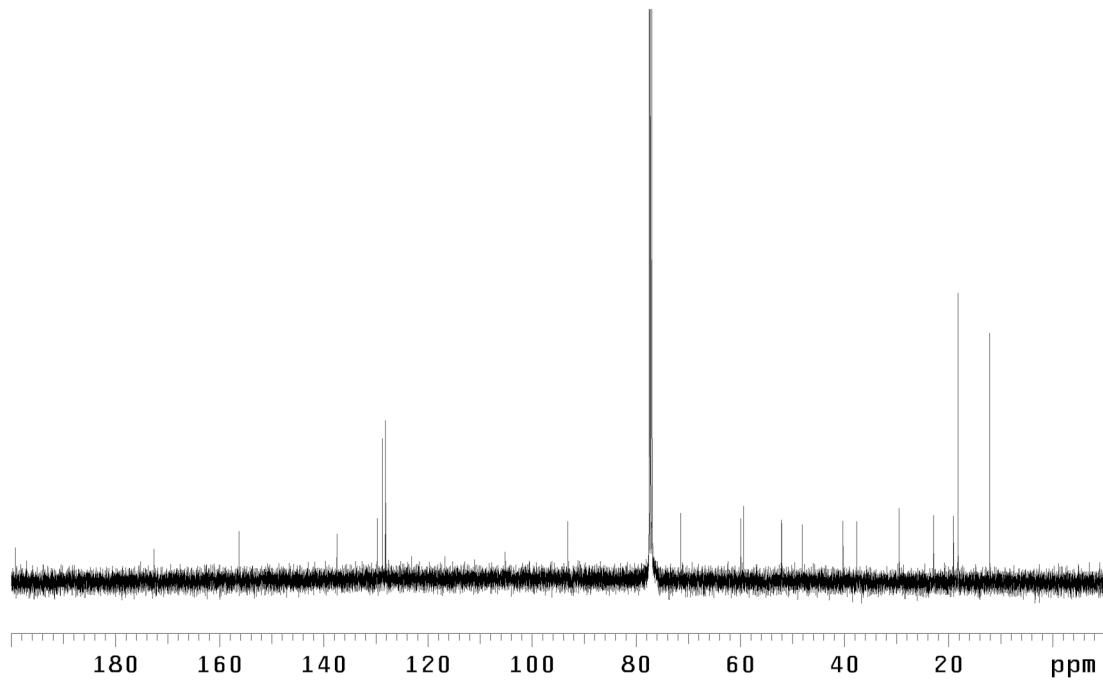


Figure A6.41 ^{13}C NMR (125 MHz, CDCl_3) of compound **245a**

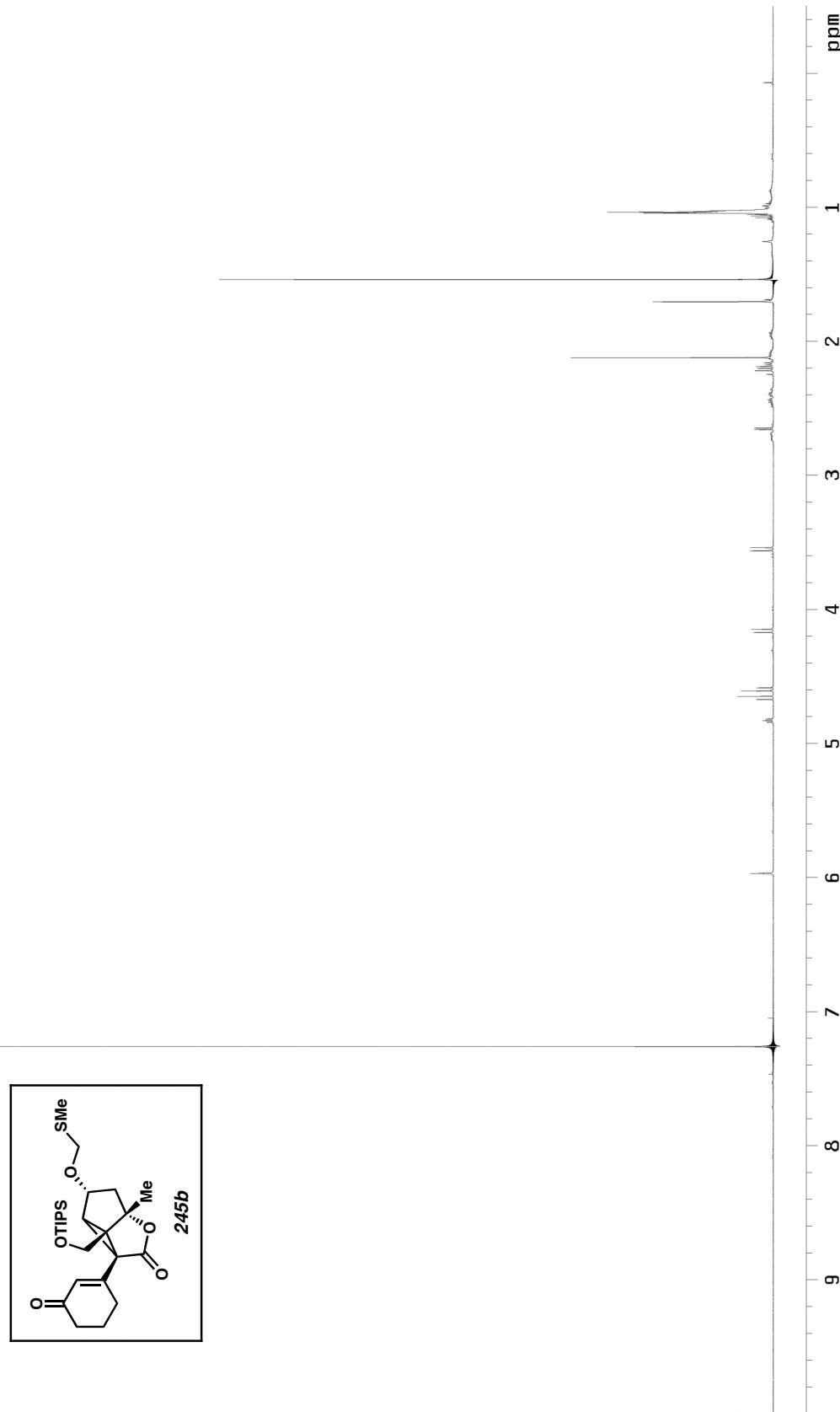


Figure A6.42 ^1H NMR (500 MHz, CDCl_3) of compound 245b

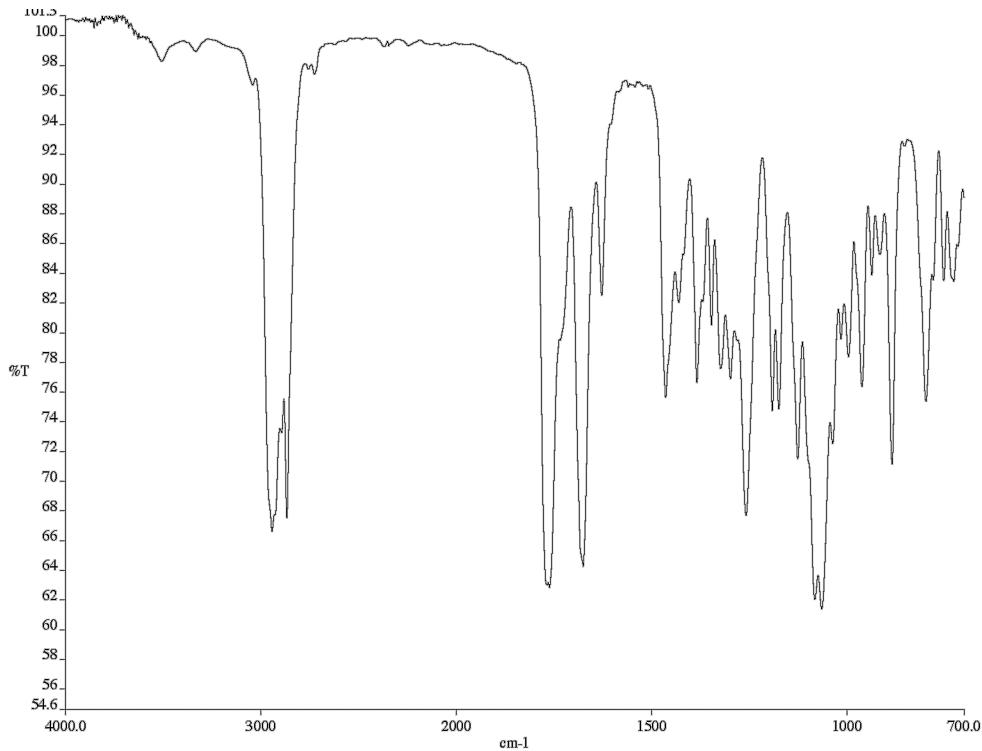


Figure A6.43 Infrared spectrum (thin film/NaCl) of compound **245b**

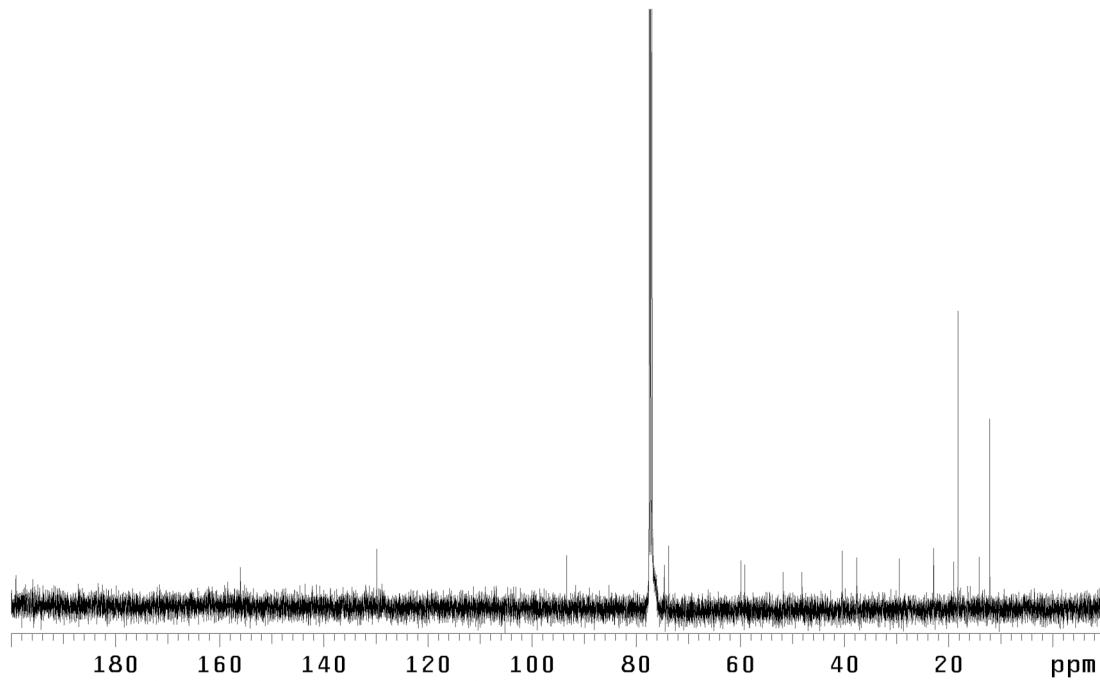


Figure A6.44 ^{13}C NMR (125 MHz, CDCl_3) of compound **245b**

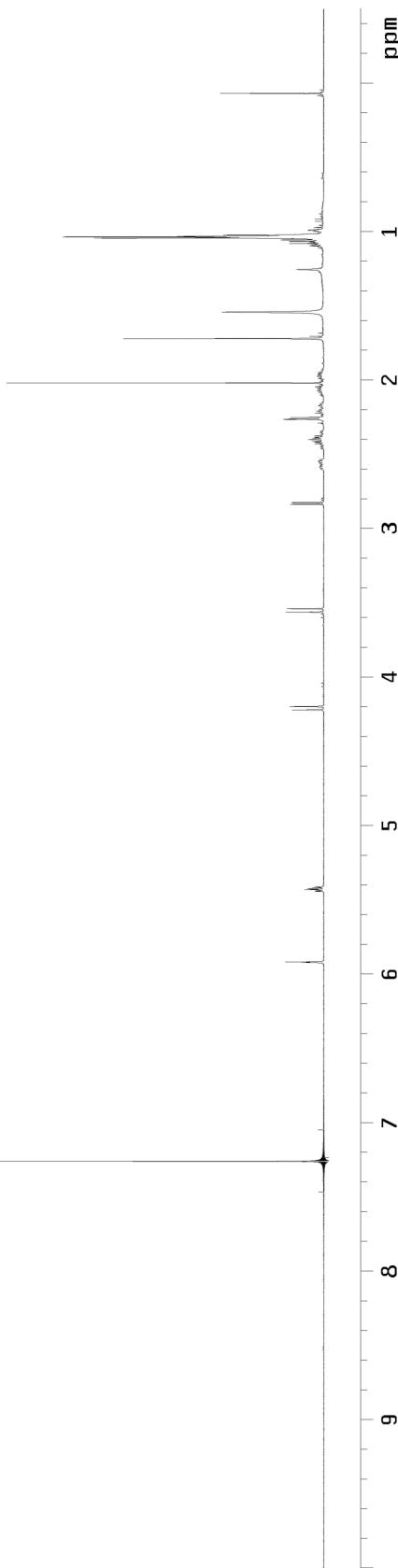
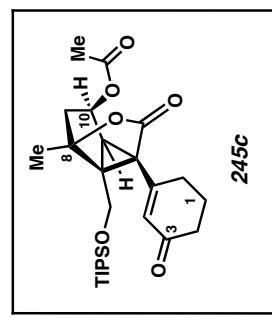


Figure A6.45 ^1H NMR (500 MHz, CDCl_3) of compound 245c



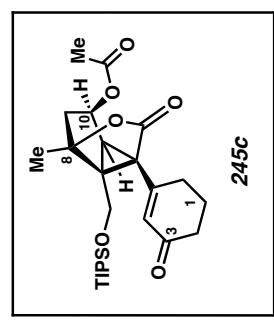
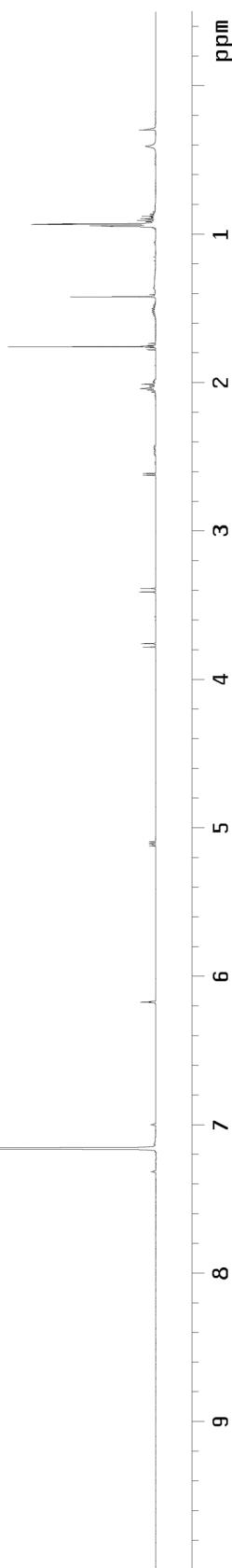


Figure A6.46 ¹H NMR (500 MHz, C₆D₆) of compound 245c

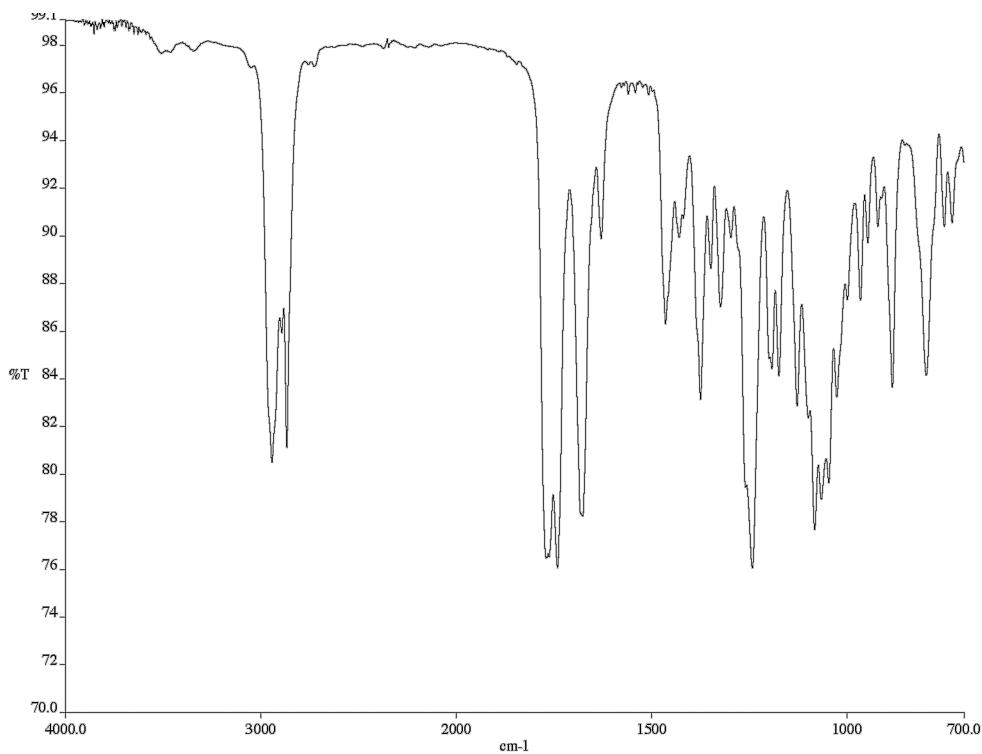


Figure A6.47 Infrared spectrum (thin film/NaCl) of compound 245c

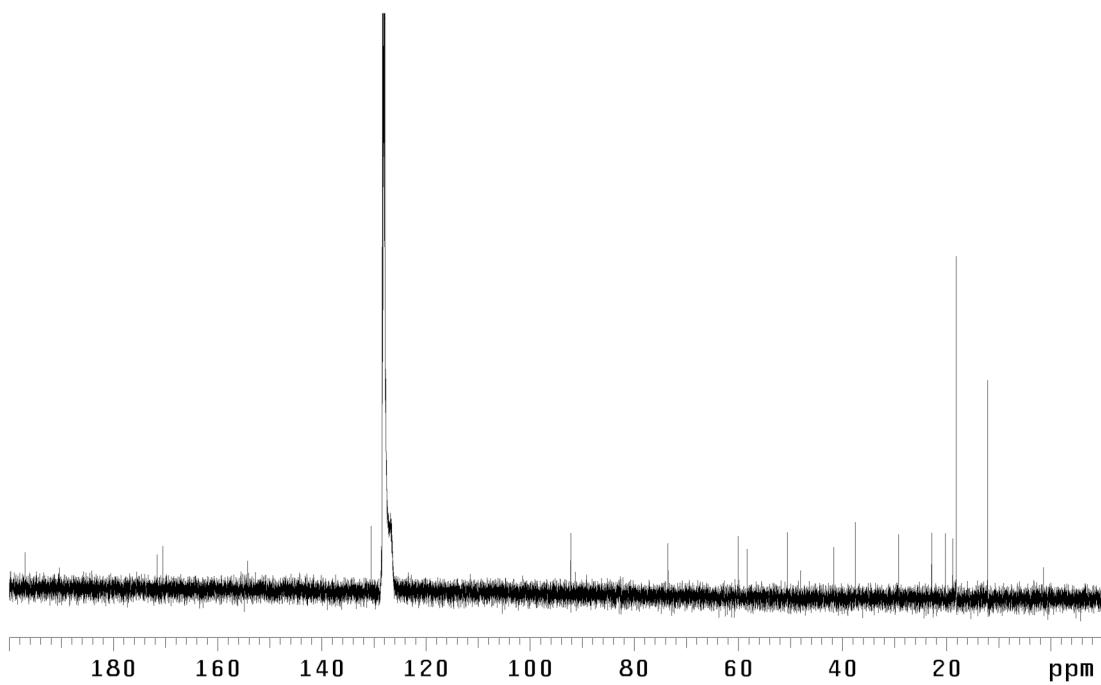


Figure A6.48 ^{13}C NMR (125 MHz, C_6D_6) of compound 245c

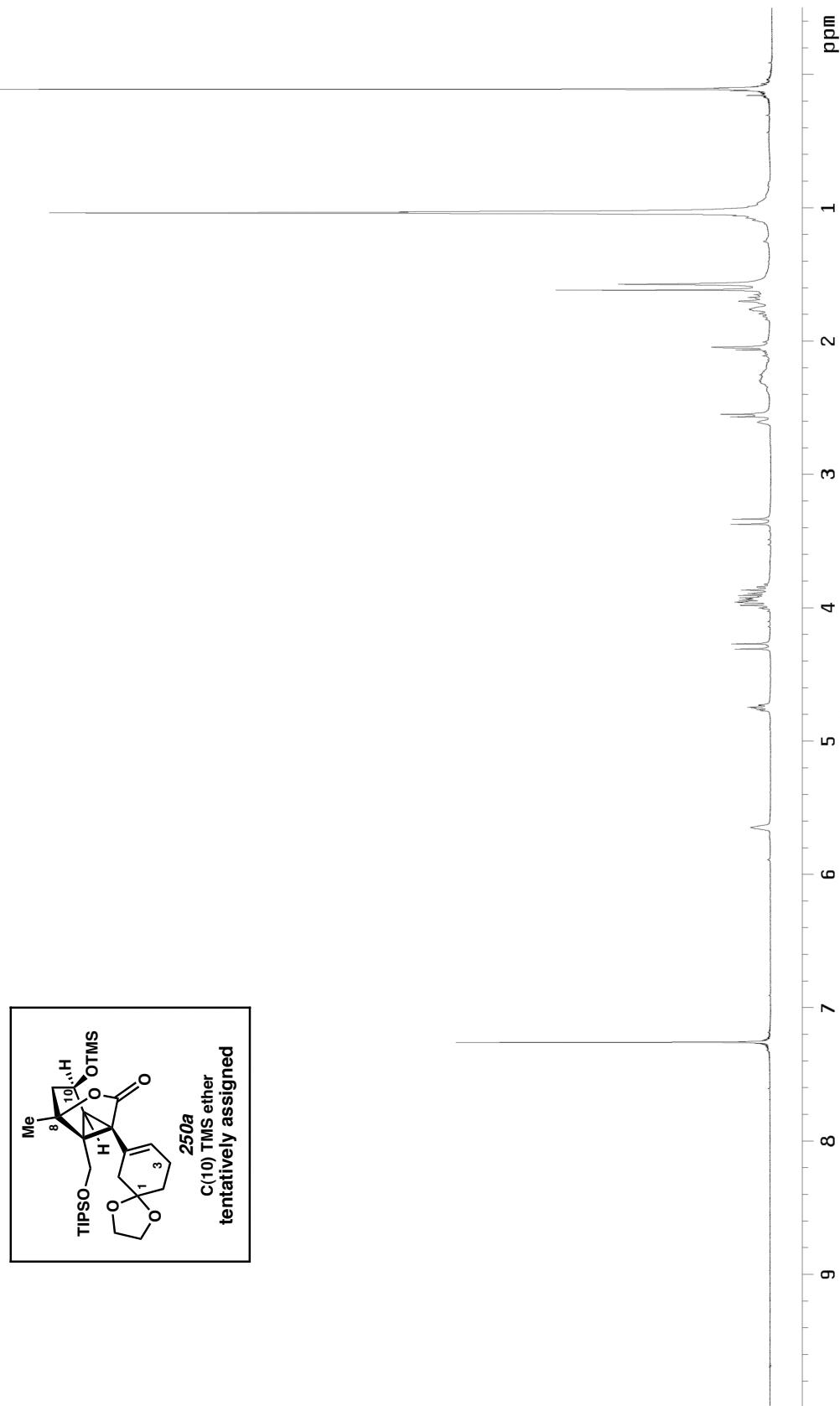


Figure A6.49 ^1H NMR (500 MHz, CDCl_3) of compound **250a**

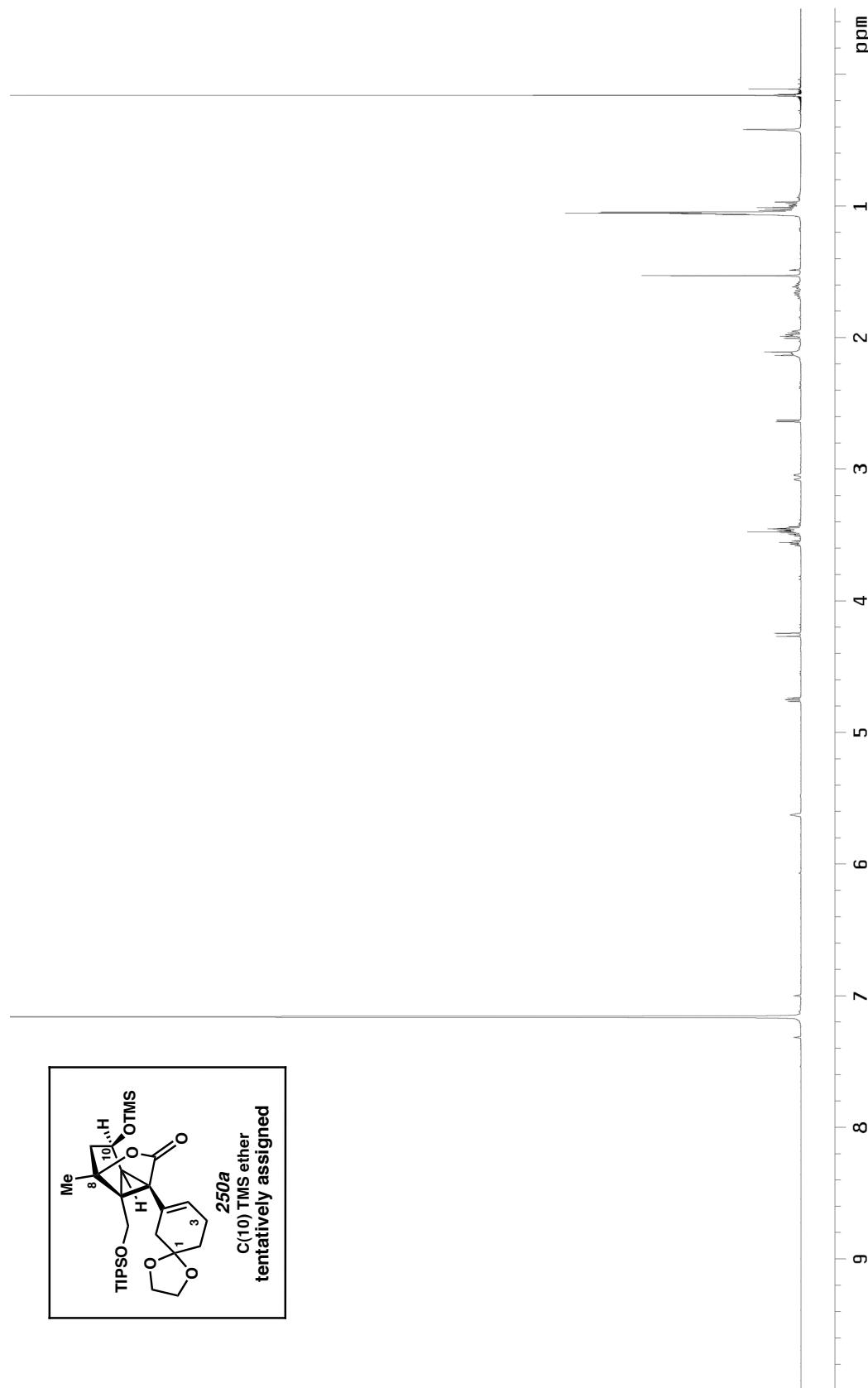


Figure A6.50 ^1H NMR (500 MHz, C_6D_6) of compound 250a

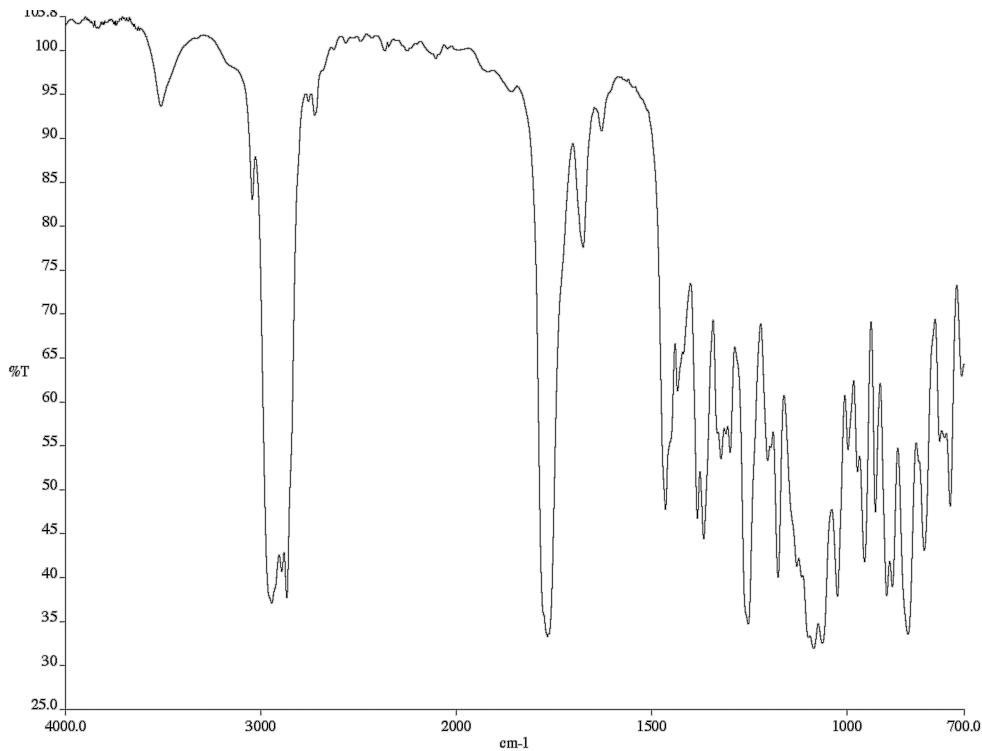


Figure A6.51 Infrared spectrum (thin film/NaCl) of compound **250a**

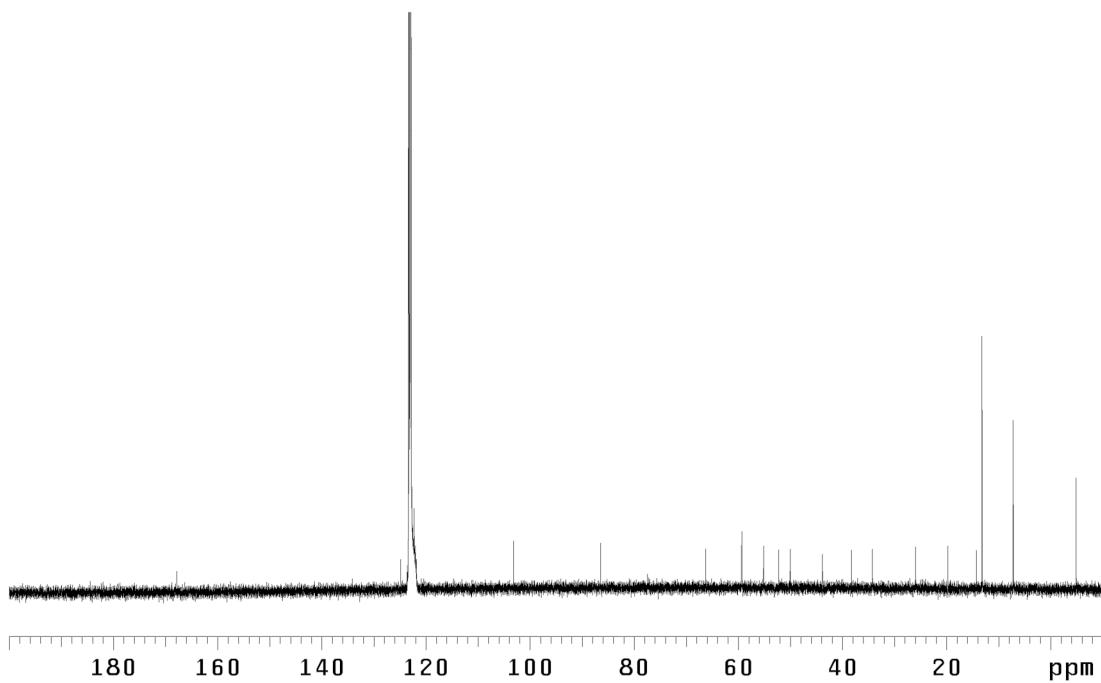


Figure A6.52 ^{13}C NMR (125 MHz, C_6D_6) of compound **250a**

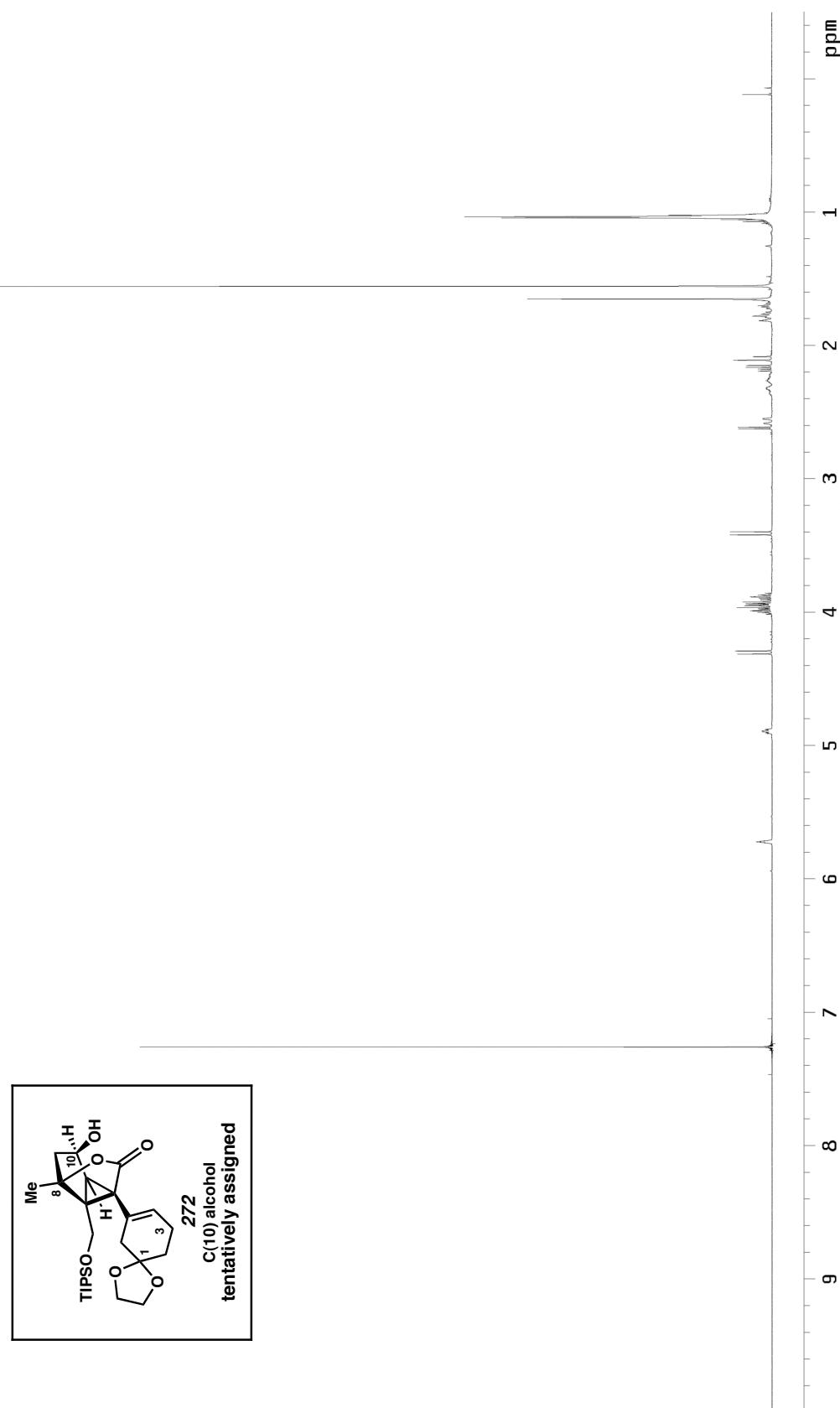


Figure A6.53 ^1H NMR (500 MHz, CDCl_3) of compound 272

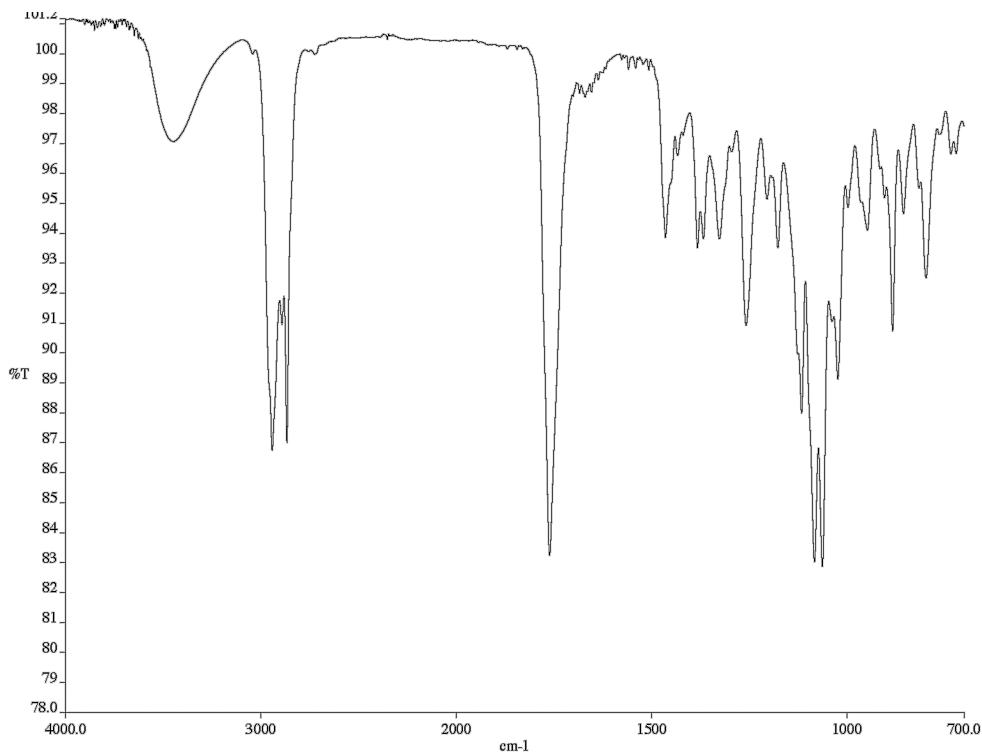


Figure A6.54 Infrared spectrum (thin film/NaCl) of compound 272

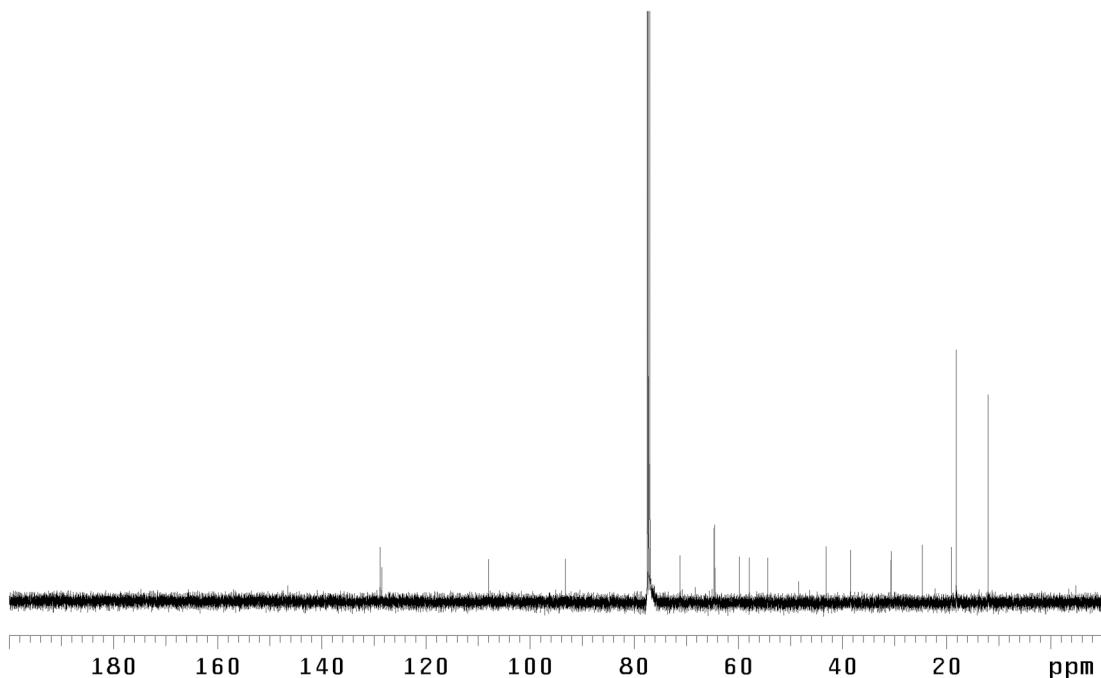


Figure A6.55 ^{13}C NMR (125 MHz, CDCl_3) of compound 272

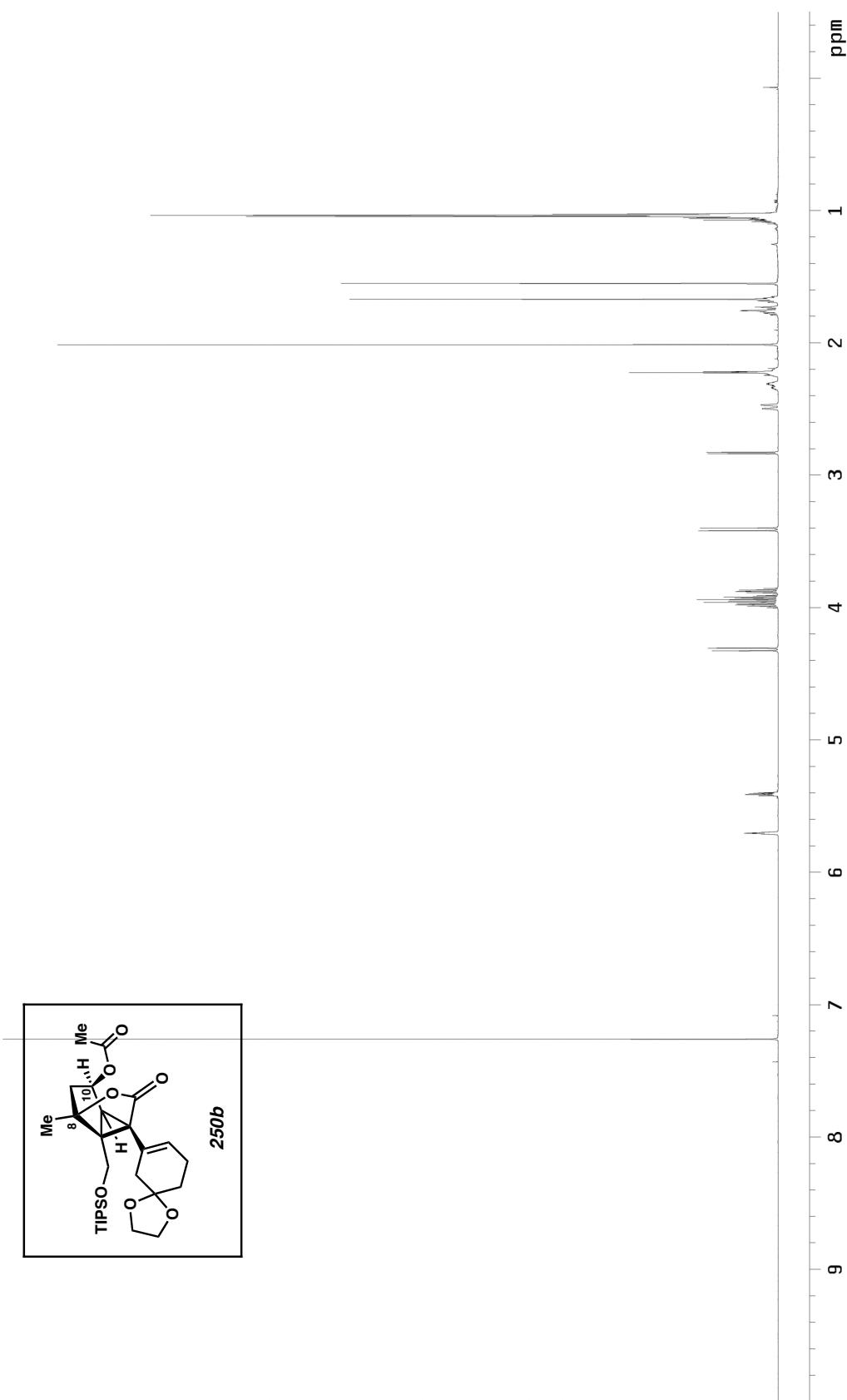


Figure A6.56 ^1H NMR (600 MHz, CDCl_3) of compound **250b**

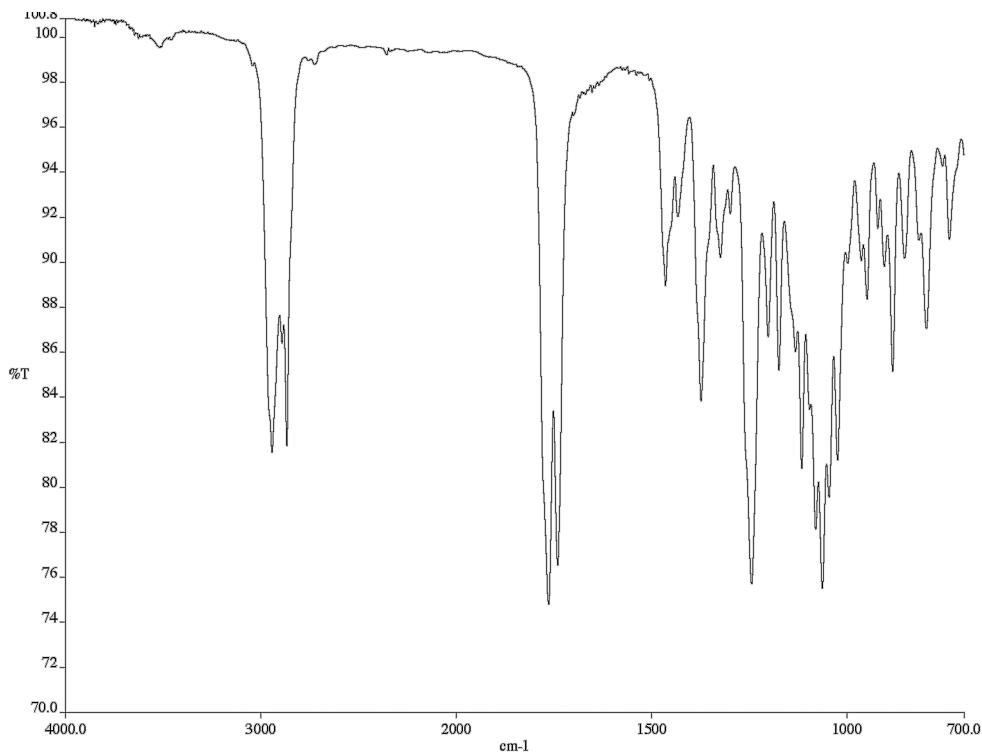


Figure A6.57 Infrared spectrum (thin film/NaCl) of compound **250b**

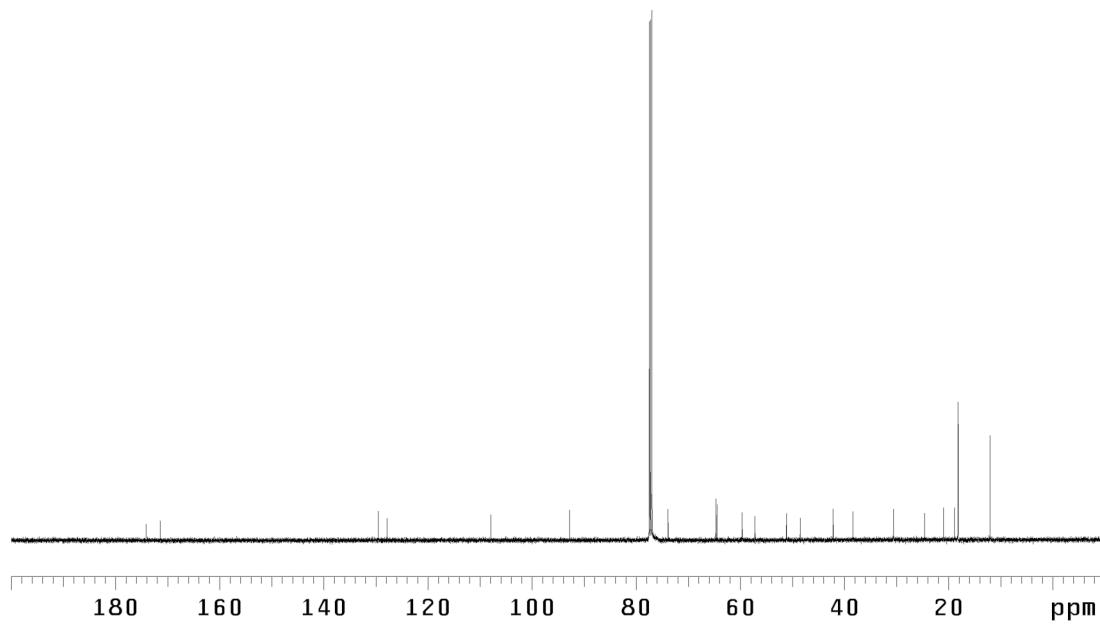


Figure A6.58 ^{13}C NMR (125 MHz, CDCl_3) of compound **250b**

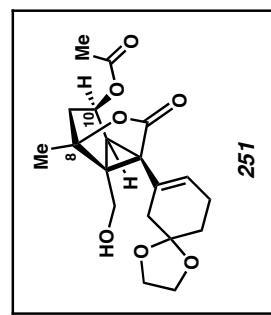
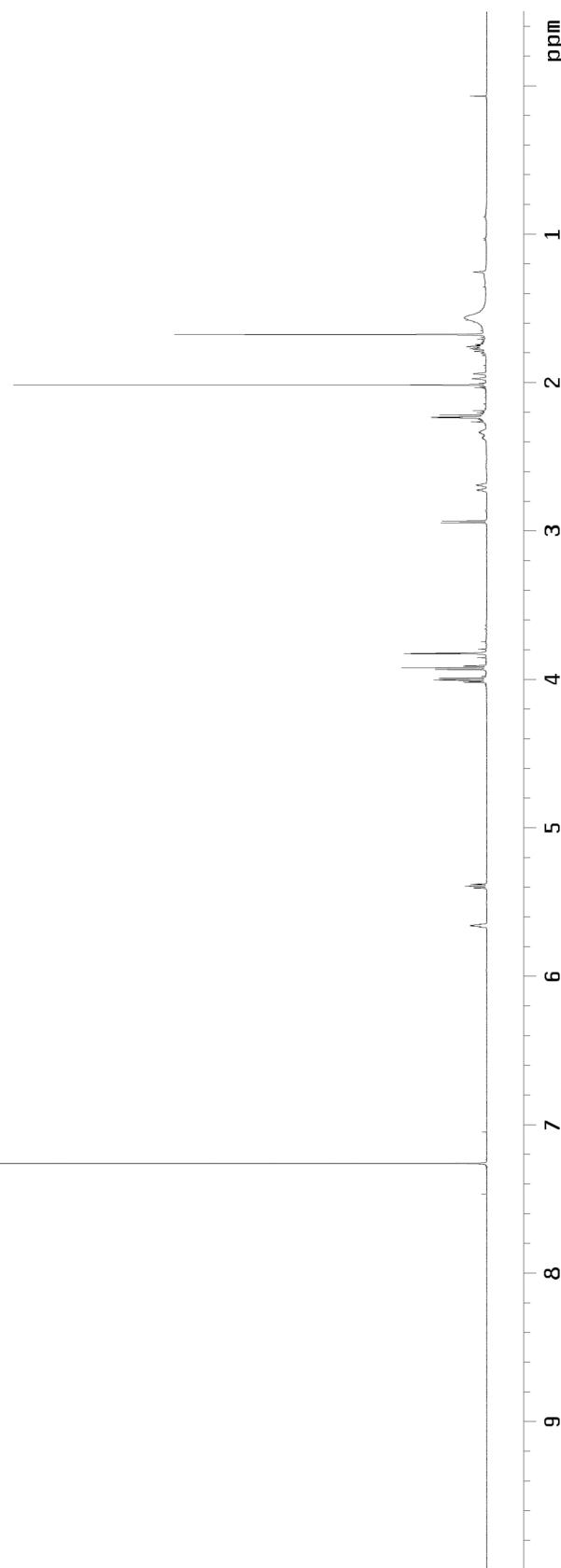


Figure A6.59 ¹H NMR (500 MHz, CDCl₃) of compound 251

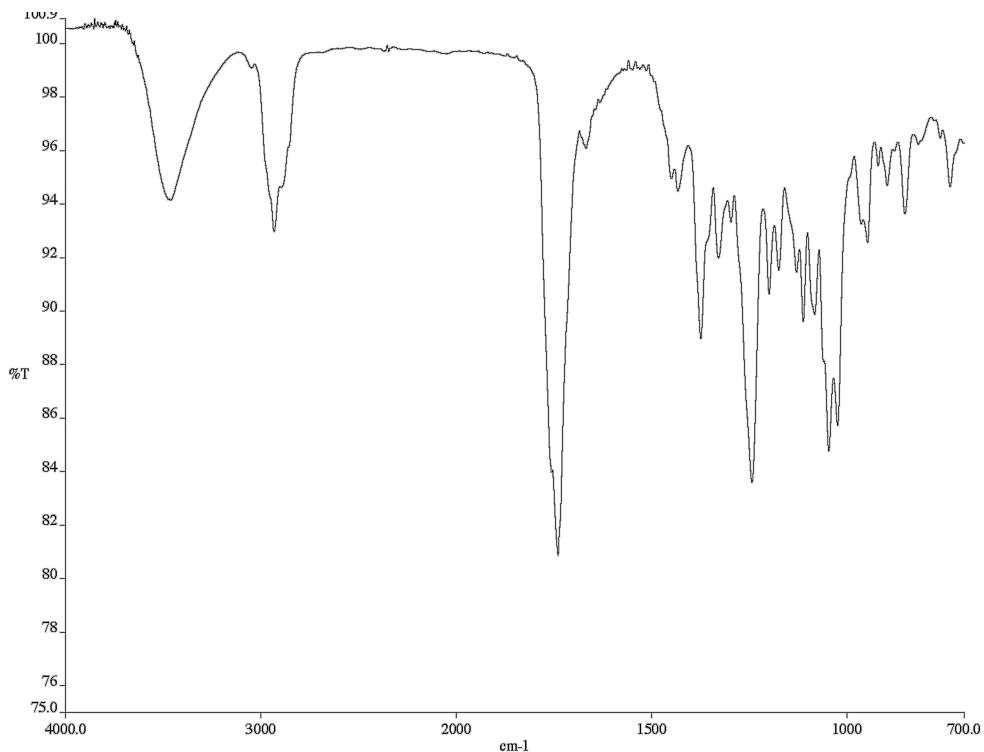


Figure A6.60 Infrared spectrum (thin film/NaCl) of compound **251**

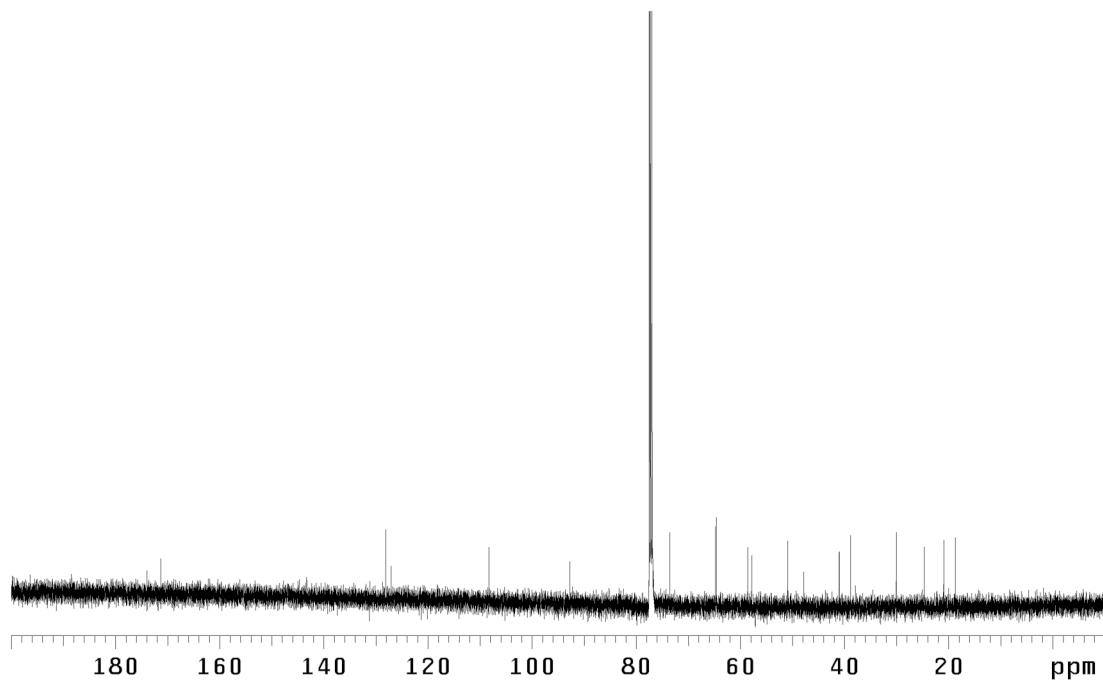


Figure A6.61 ^{13}C NMR (125 MHz, CDCl_3) of compound **251**

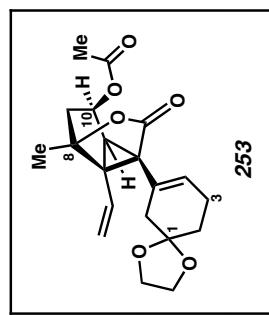
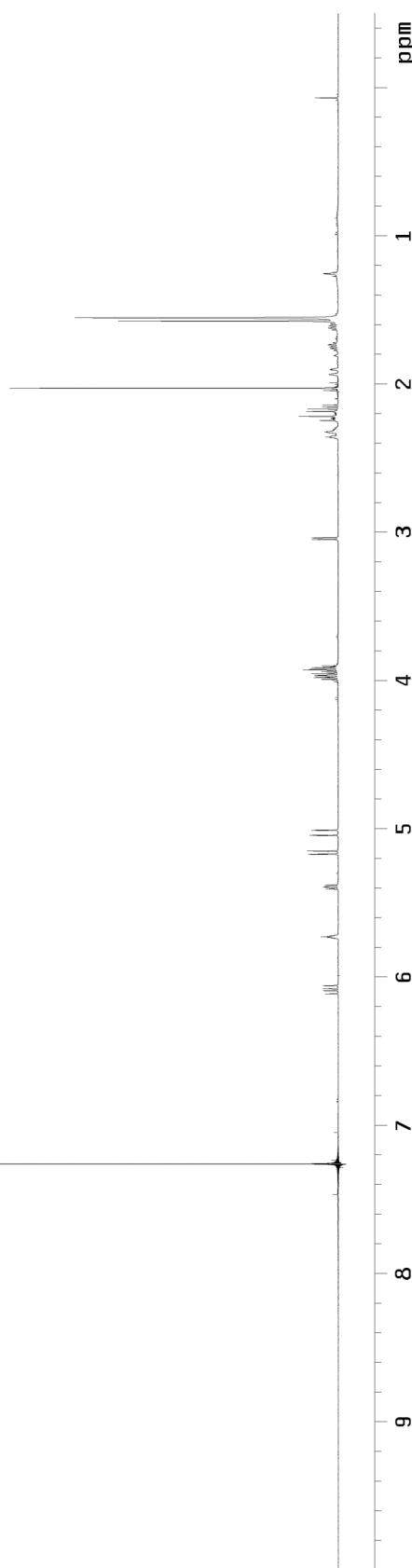


Figure A6.62 ¹H NMR (500 MHz, CDCl₃) of compound 253

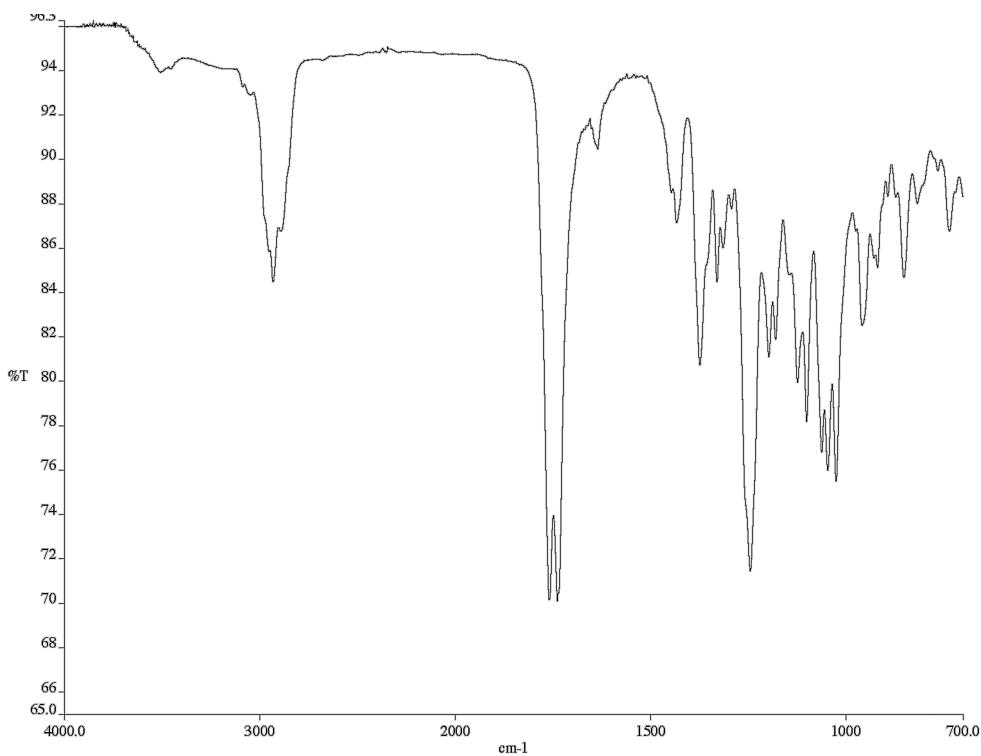


Figure A6.63 Infrared spectrum (thin film/NaCl) of compound **253**

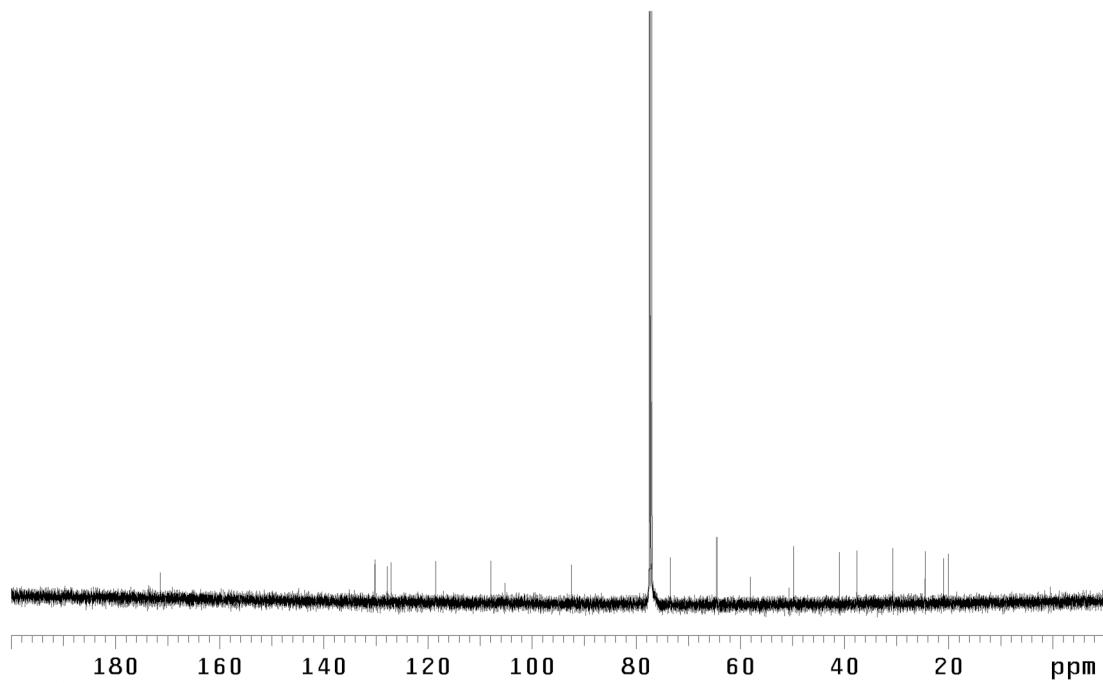


Figure A6.64 ^{13}C NMR (125 MHz, CDCl_3) of compound **253**

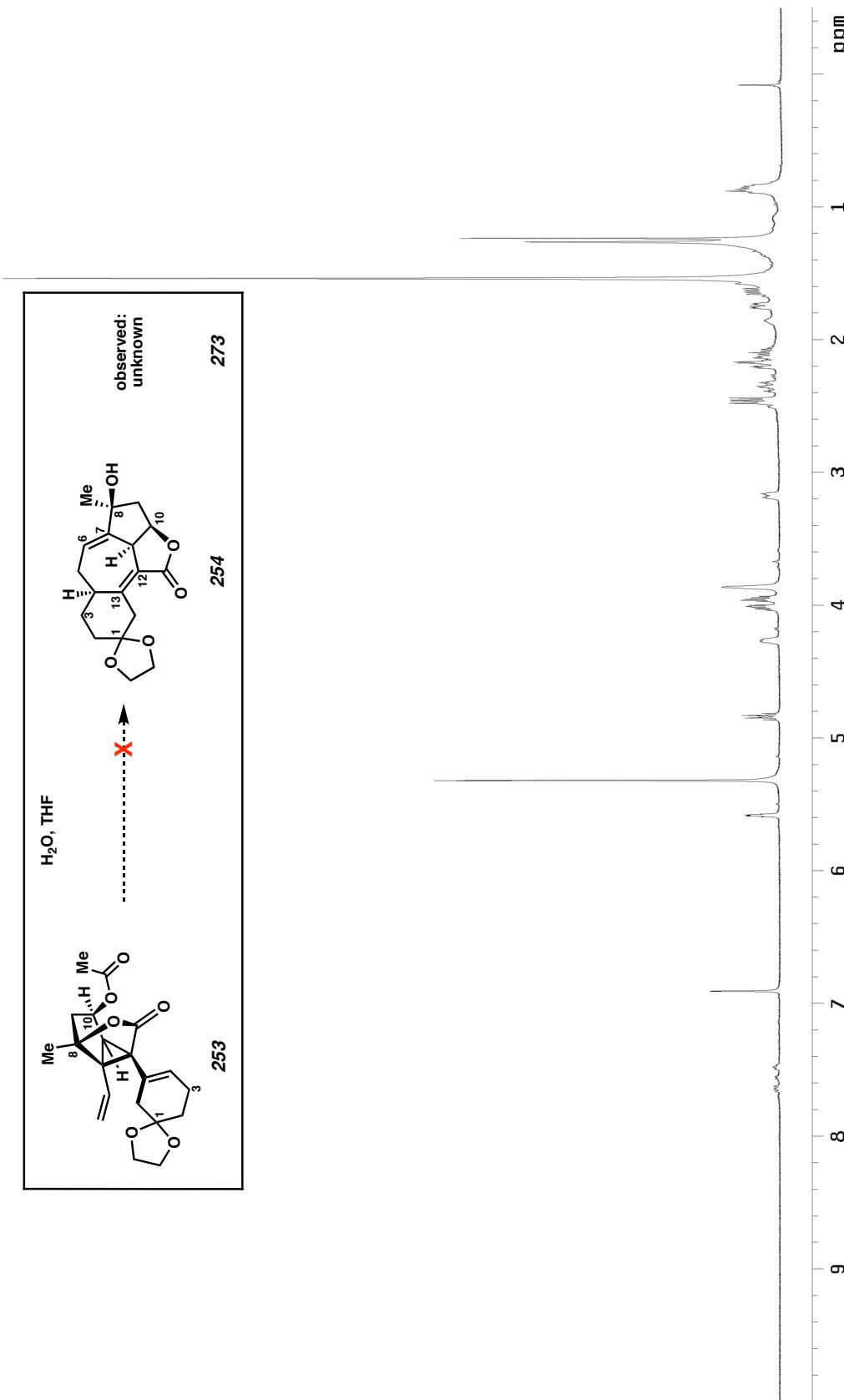


Figure A.6.5 ^1H NMR (500 MHz, CD_2Cl_2) of compound 273

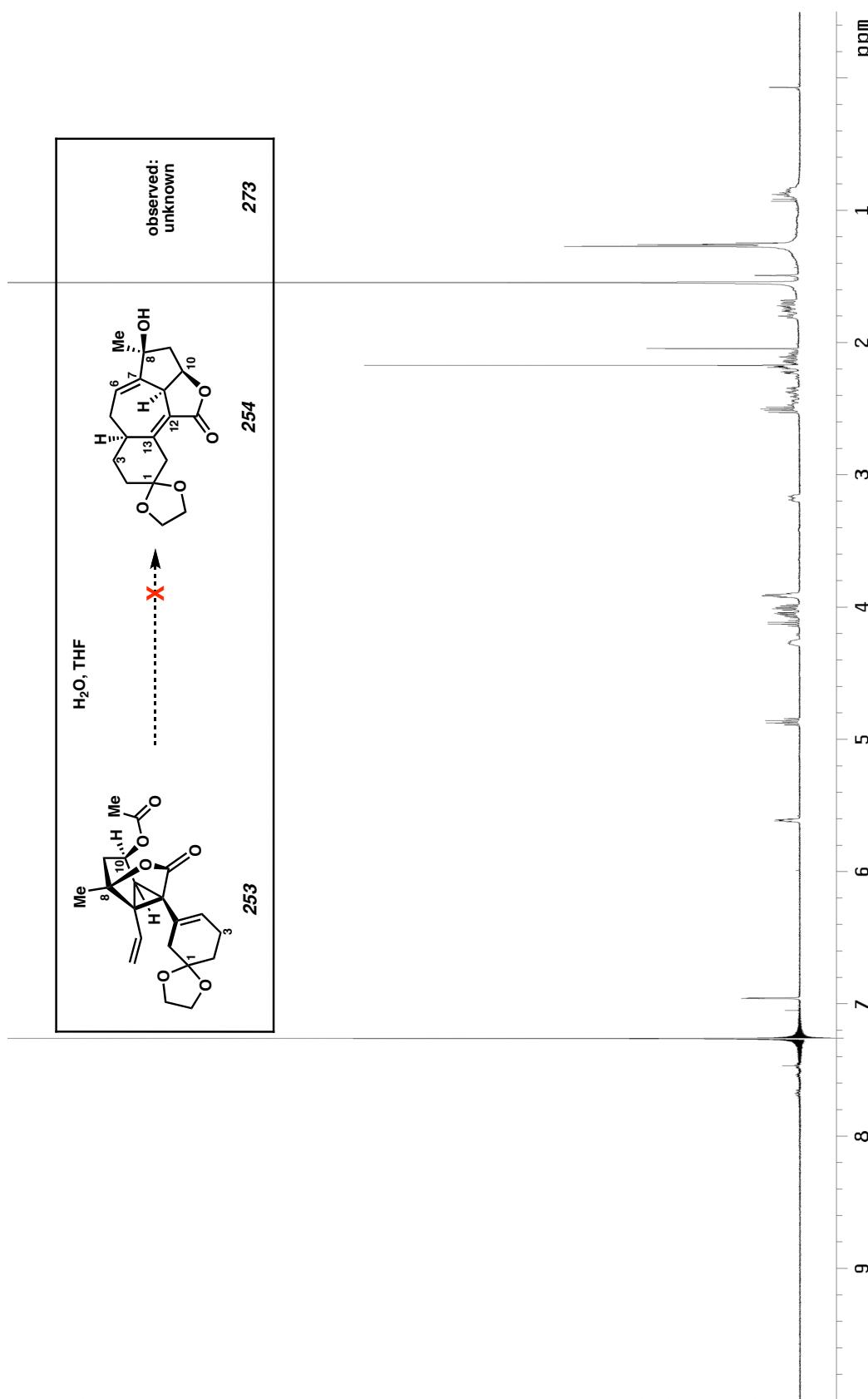


Figure A6.66 ^1H NMR (500 MHz, CDCl_3) of compound 273

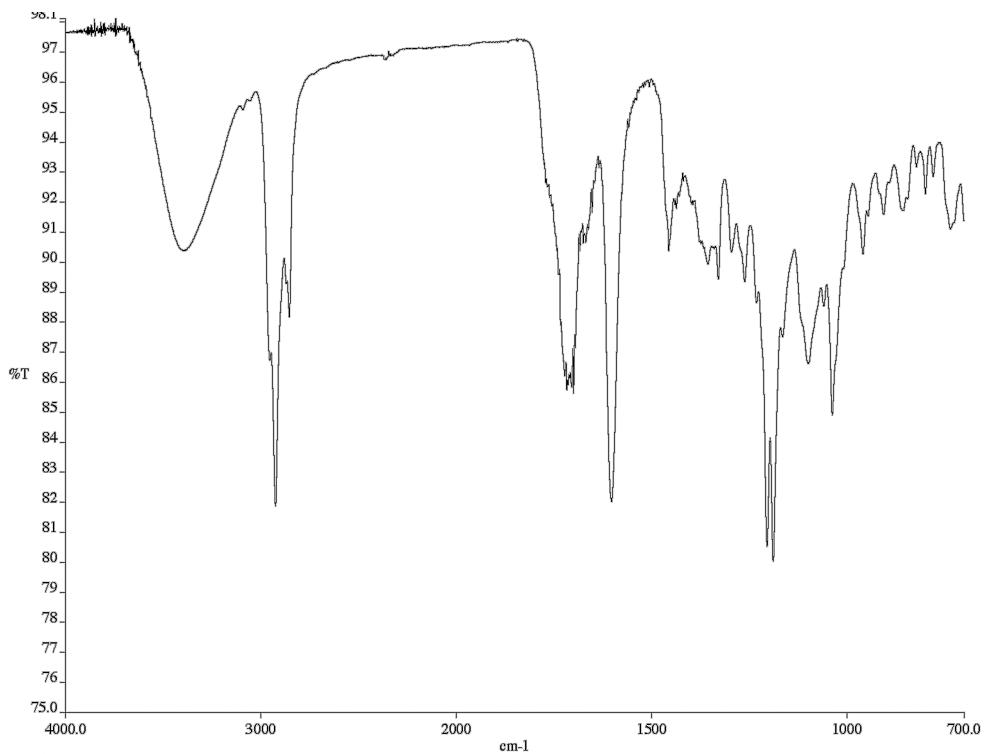


Figure A6.67 Infrared spectrum (thin film/NaCl) of compound 273

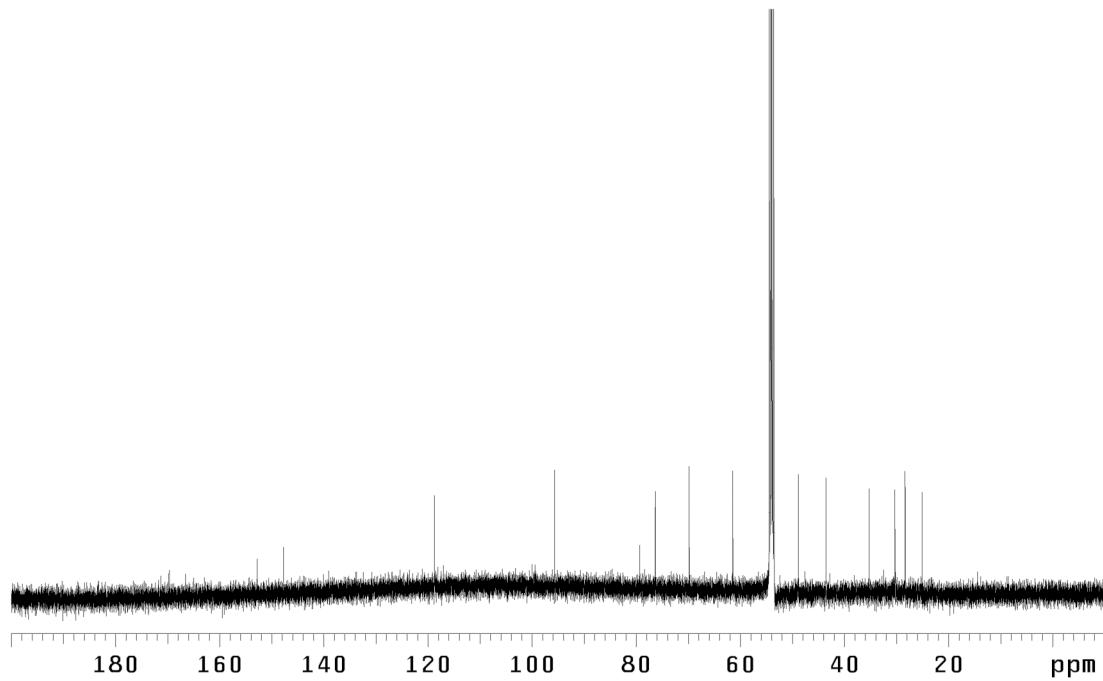


Figure A6.68 ^{13}C NMR (125 MHz, CD_2Cl_2) of compound 273

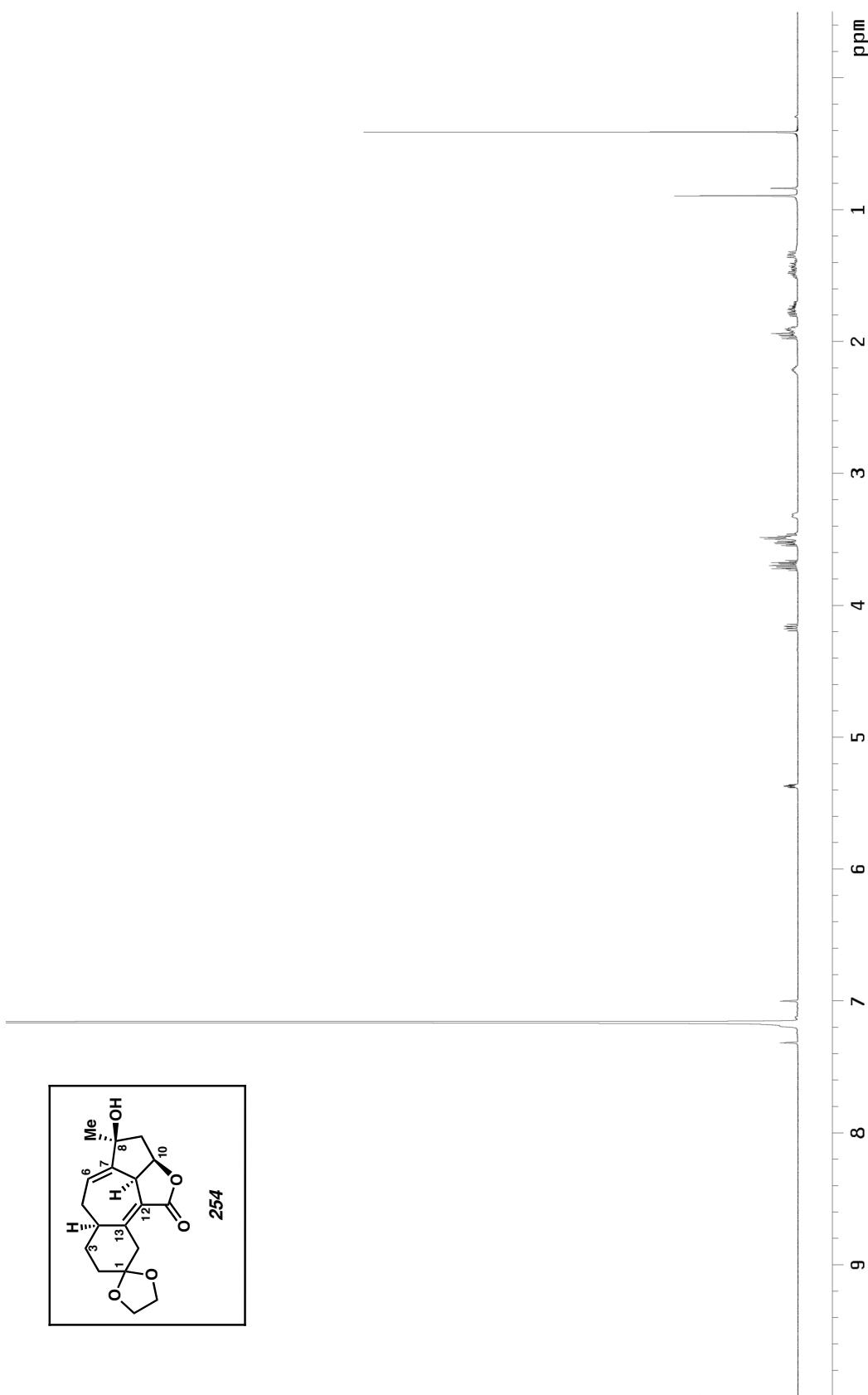


Figure A6.69 ^1H NMR (600 MHz, C_6D_6) of compound 254

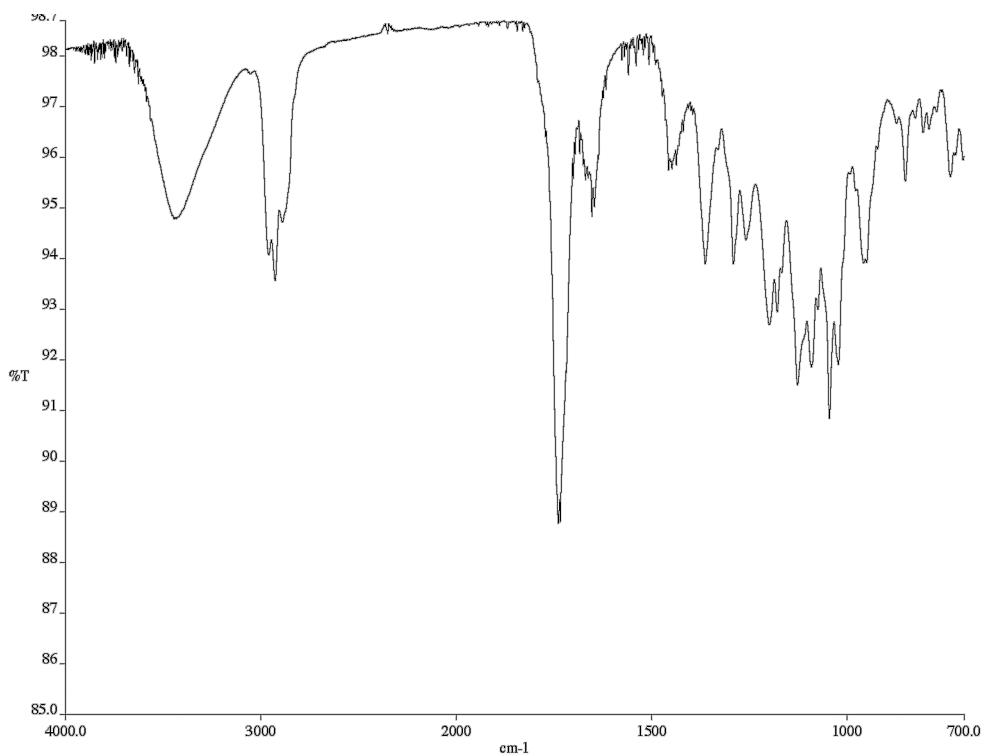


Figure A6.70 Infrared spectrum (thin film/NaCl) of compound **254**

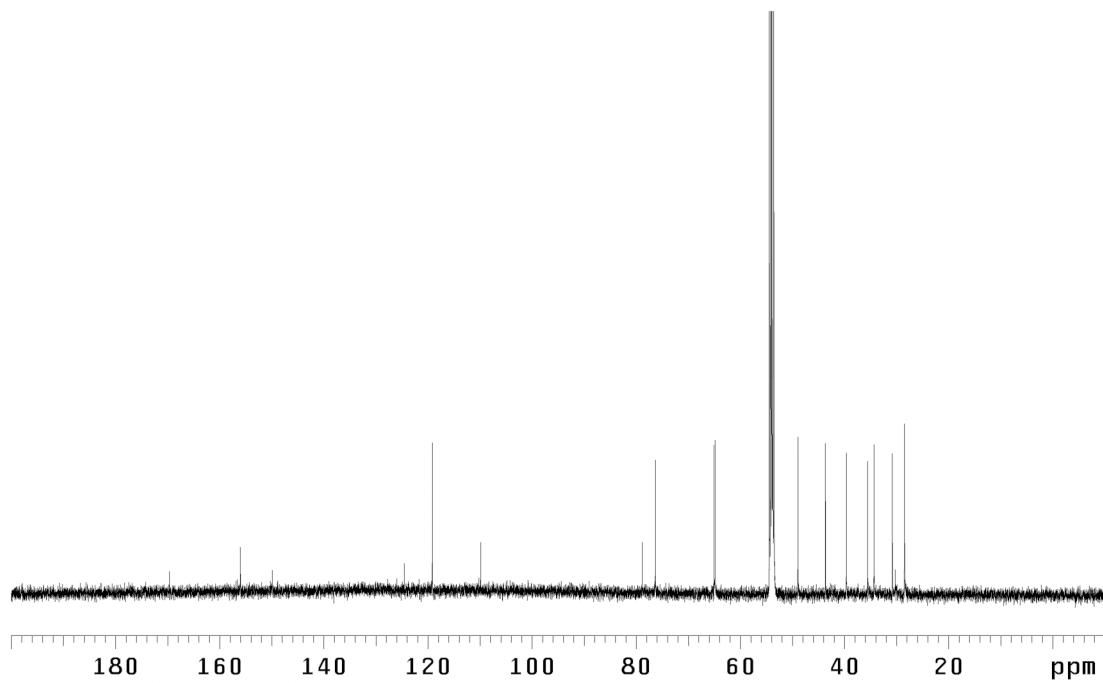


Figure A6.71 ^{13}C NMR (125 MHz, CD_2Cl_2) of compound **254**

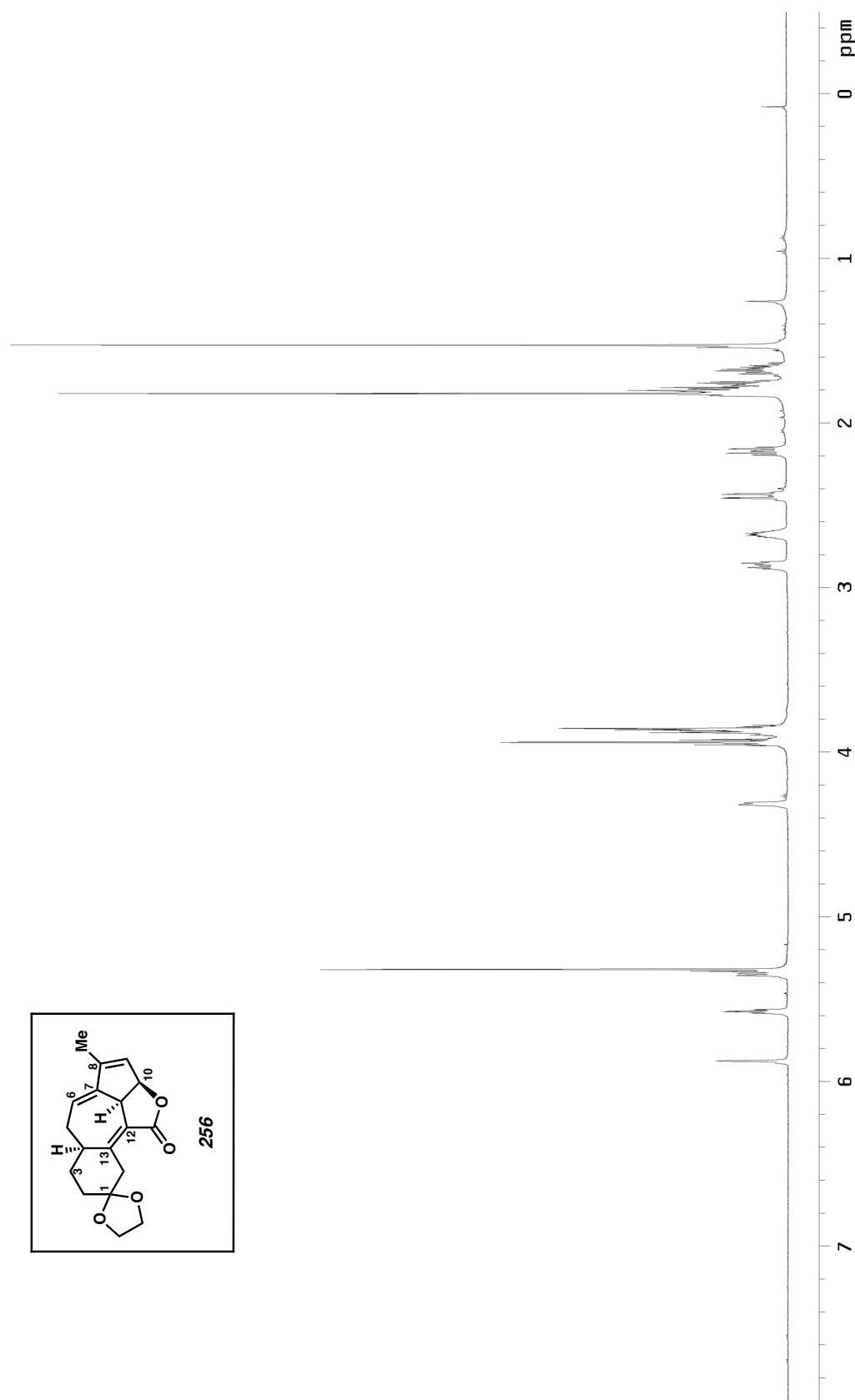
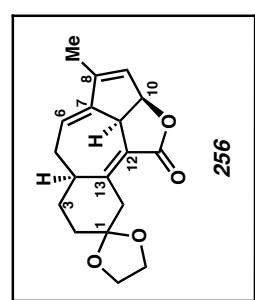


Figure A6.72 ¹H NMR (600 MHz, CD₂Cl₂) of compound 256

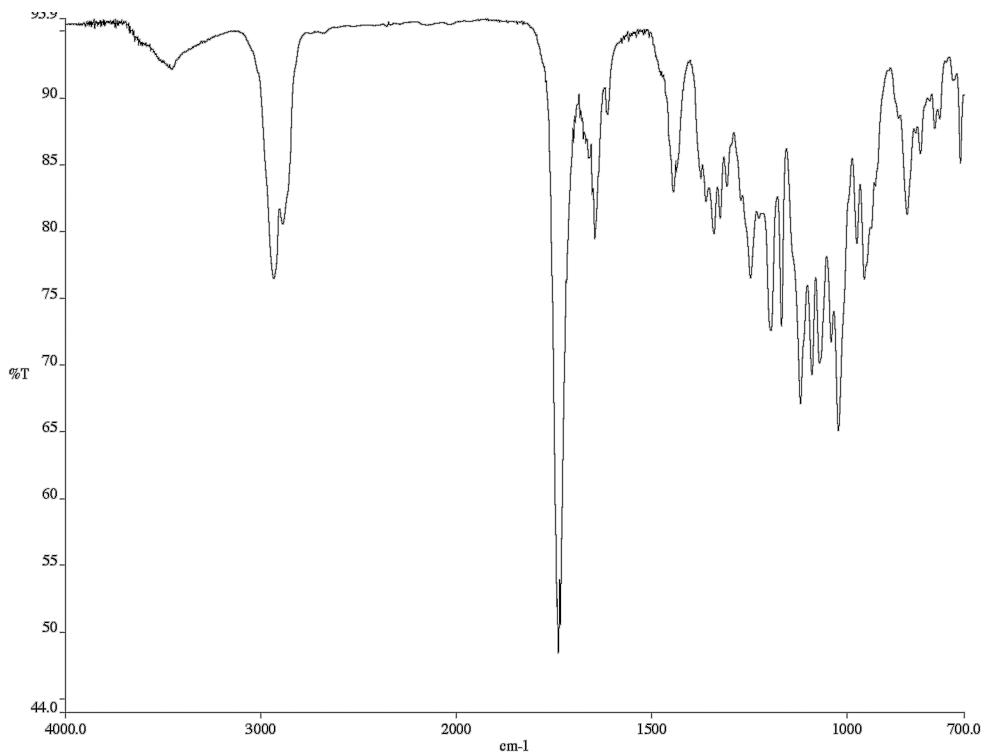


Figure A6.73 Infrared spectrum (thin film/NaCl) of compound **256**

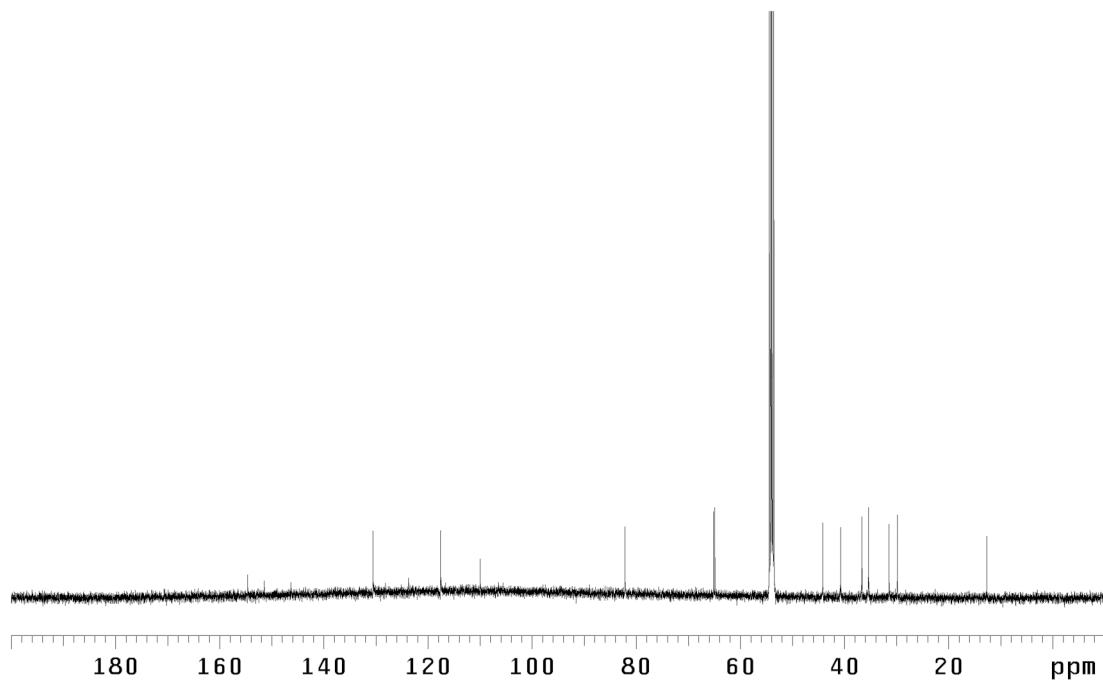


Figure A6.74 ^{13}C NMR (125 MHz, CD_2Cl_2) of compound **256**

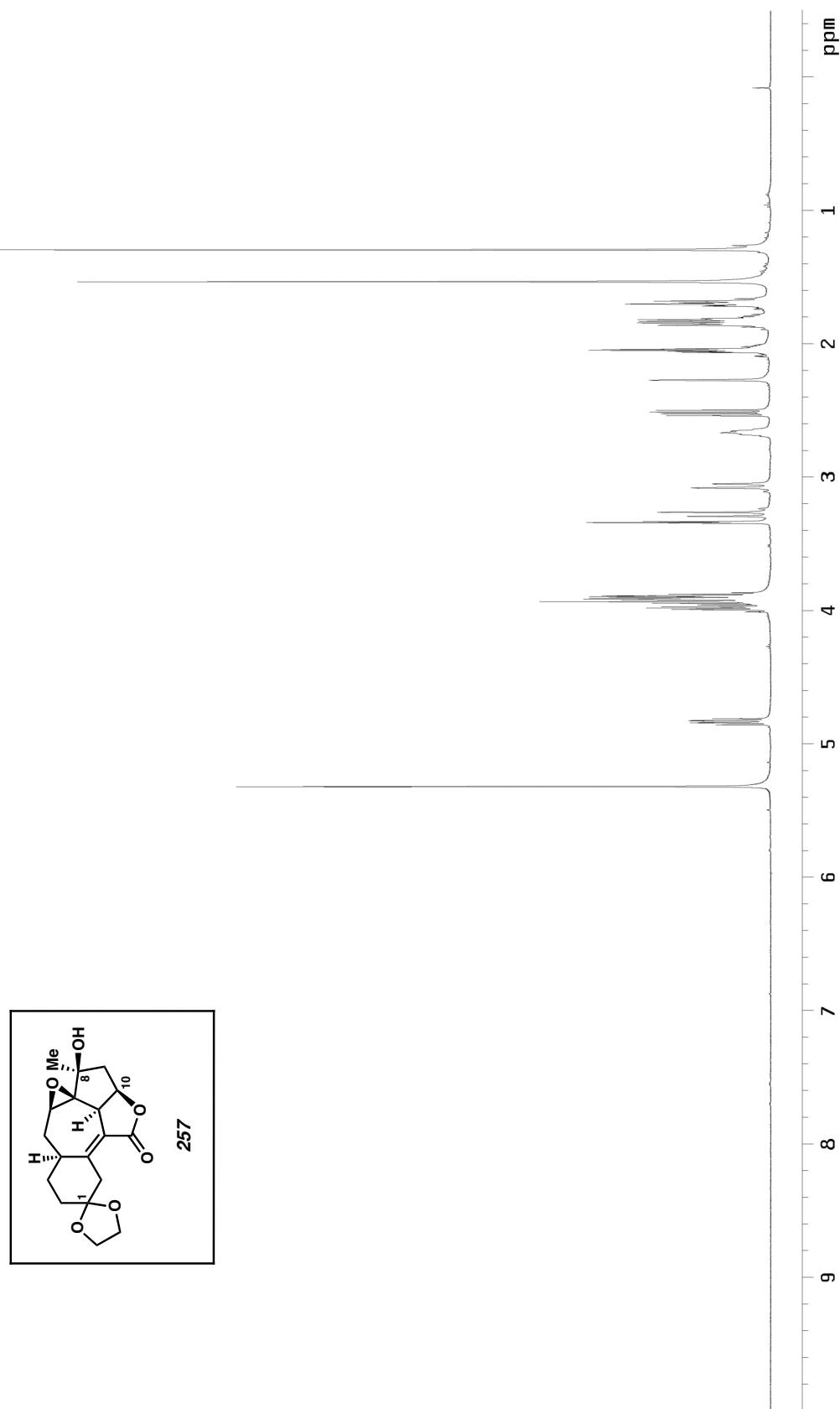


Figure A6.75 ^1H NMR (500 MHz, CD_2Cl_2) of compound 257

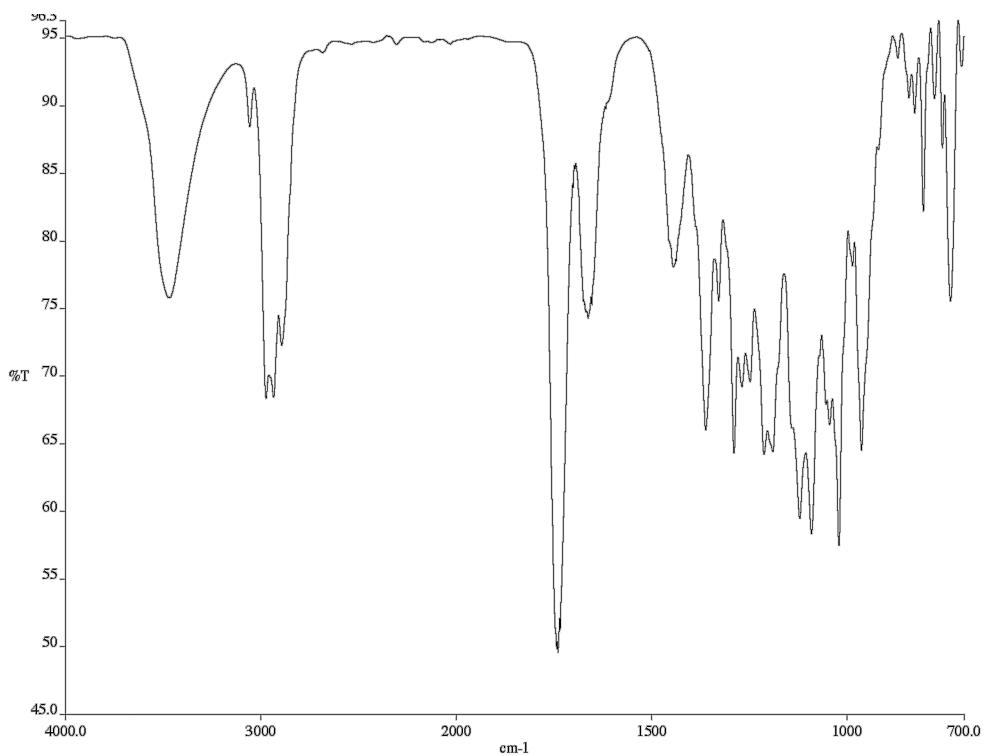


Figure A6.76 Infrared spectrum (thin film/NaCl) of compound 257

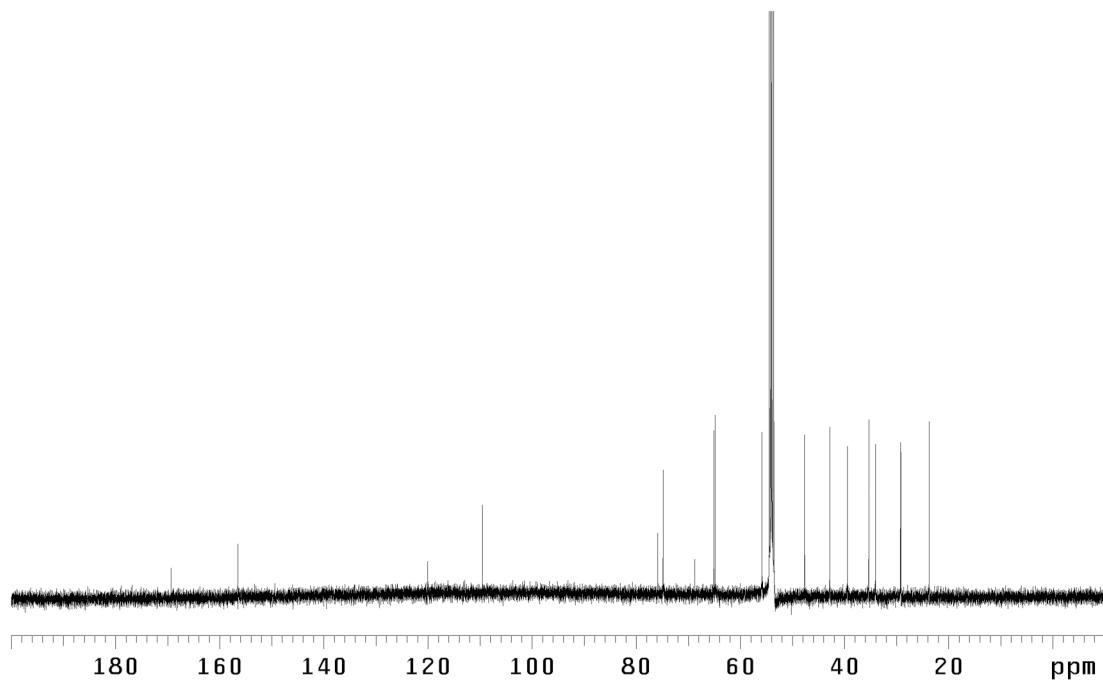


Figure A6.77 ^{13}C NMR (125 MHz, CD_2Cl_2) of compound 257

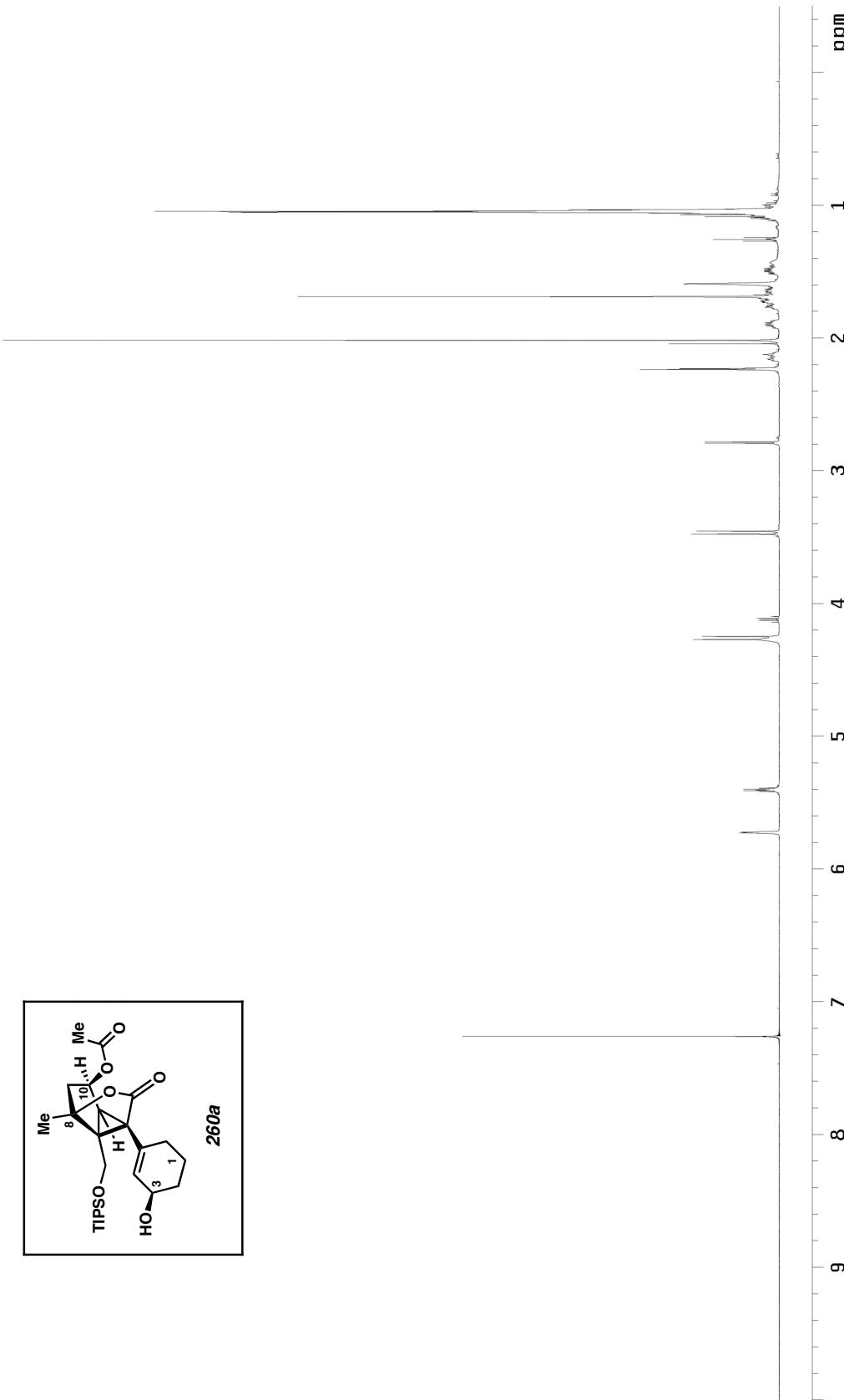


Figure A6.78 ^1H NMR (500 MHz, CDCl_3) of compound **260a**

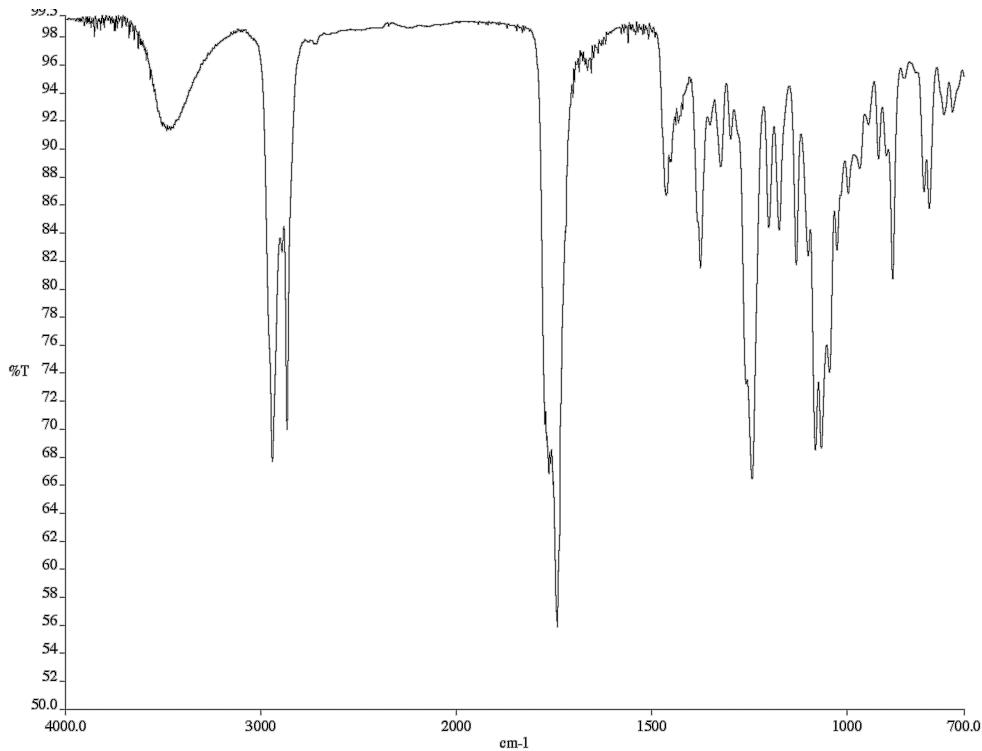


Figure A6.79 Infrared spectrum (thin film/NaCl) of compound **260a**

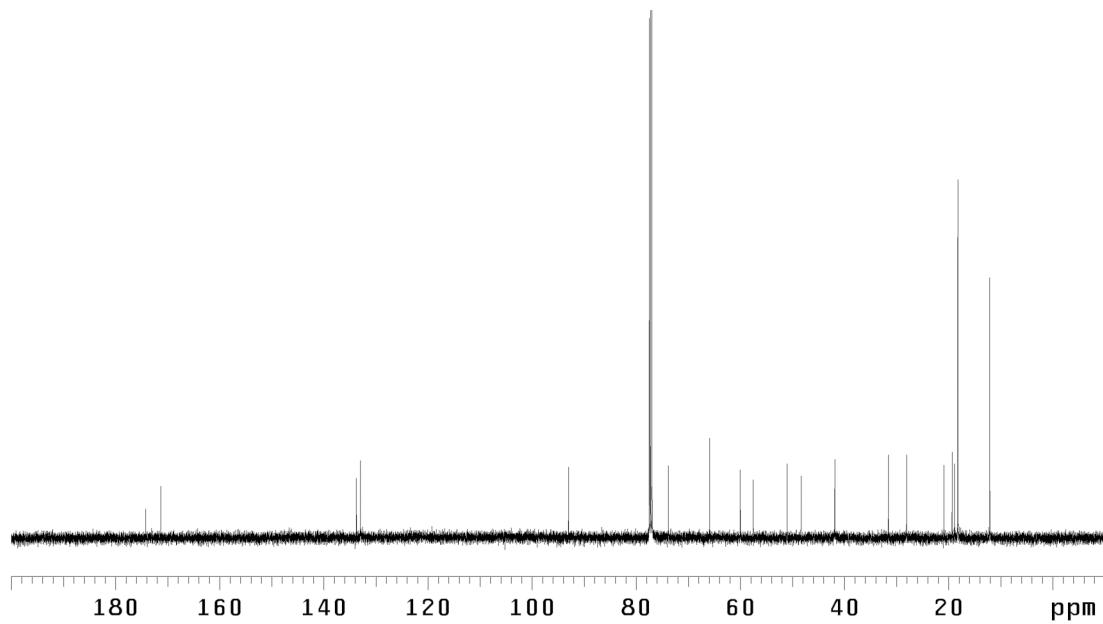


Figure A6.80 ^{13}C NMR (125 MHz, CDCl_3) of compound **260a**

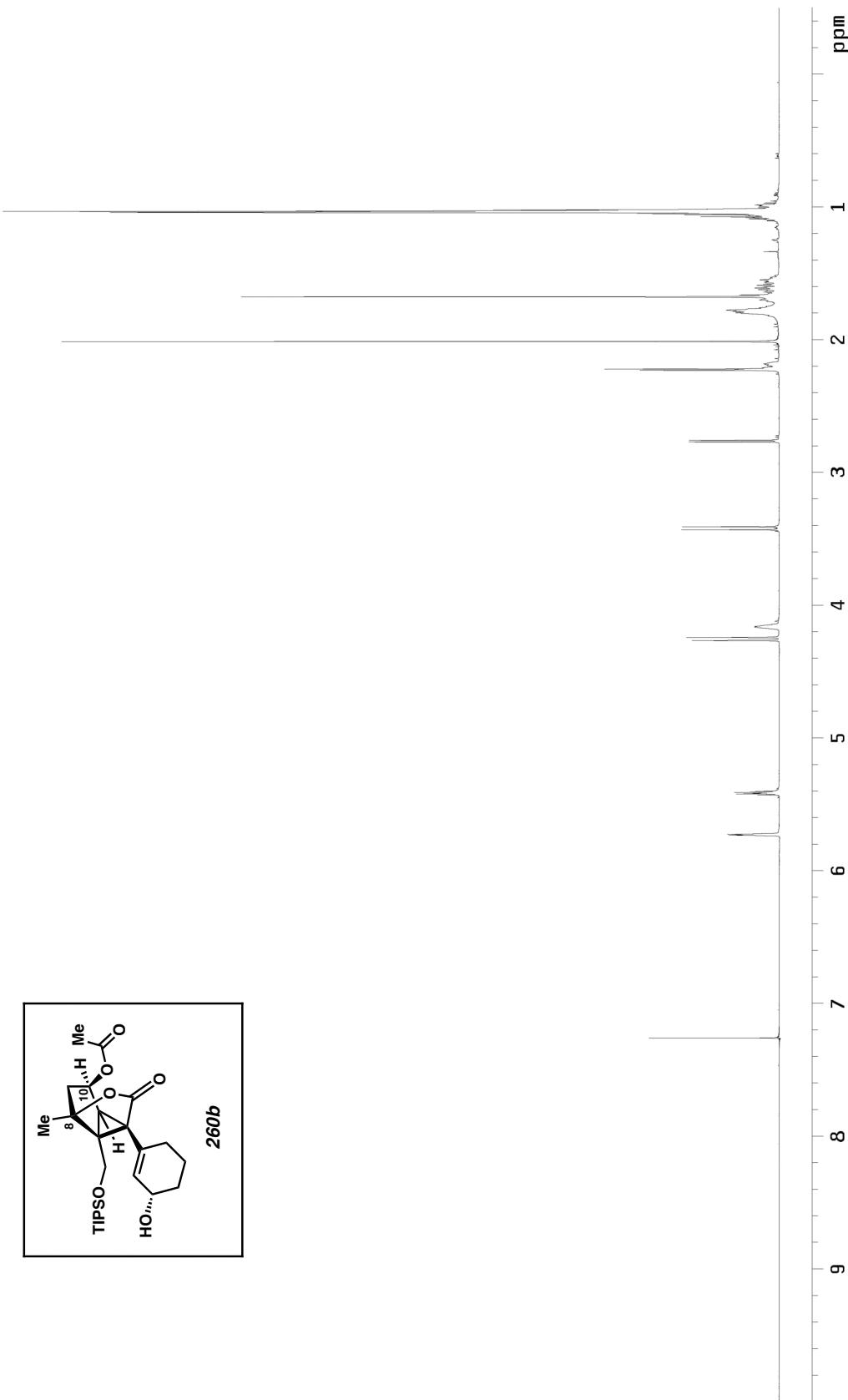


Figure A6.81 ^1H NMR (500 MHz, CDCl_3) of compound **260b**

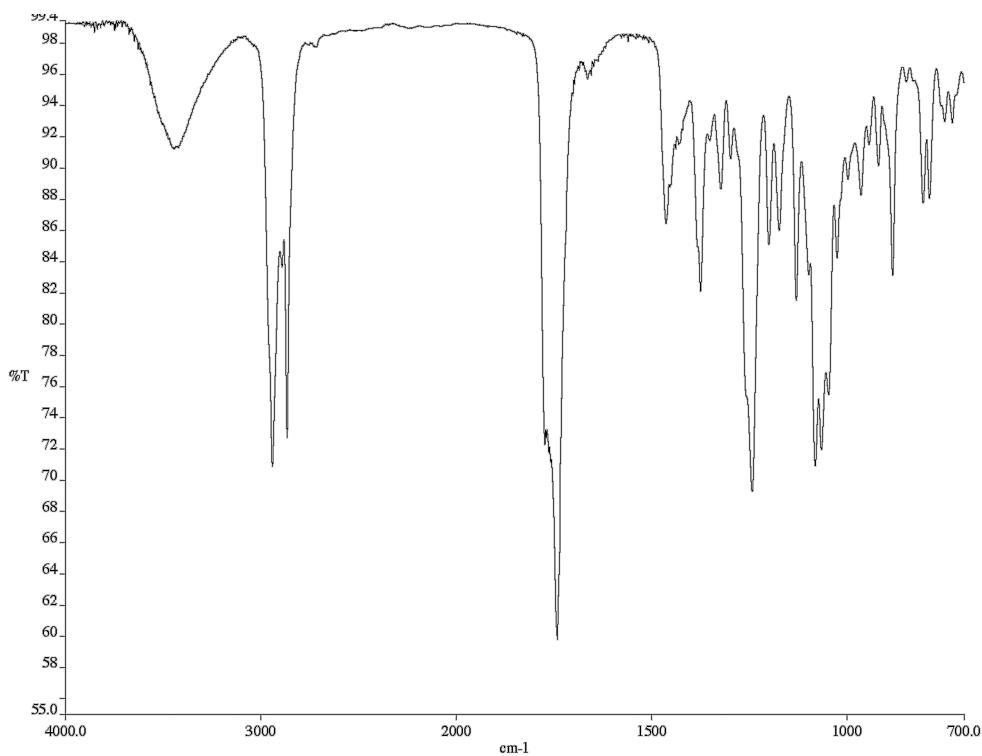


Figure A6.82 Infrared spectrum (thin film/NaCl) of compound **260b**

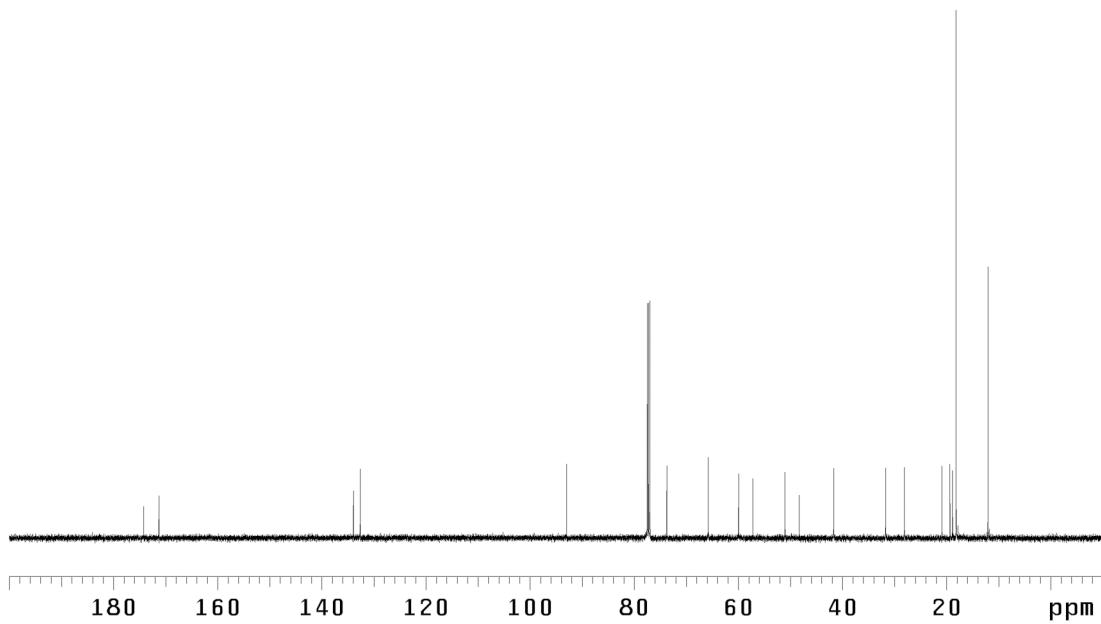


Figure A6.83 ^{13}C NMR (125 MHz, CDCl_3) of compound **260b**

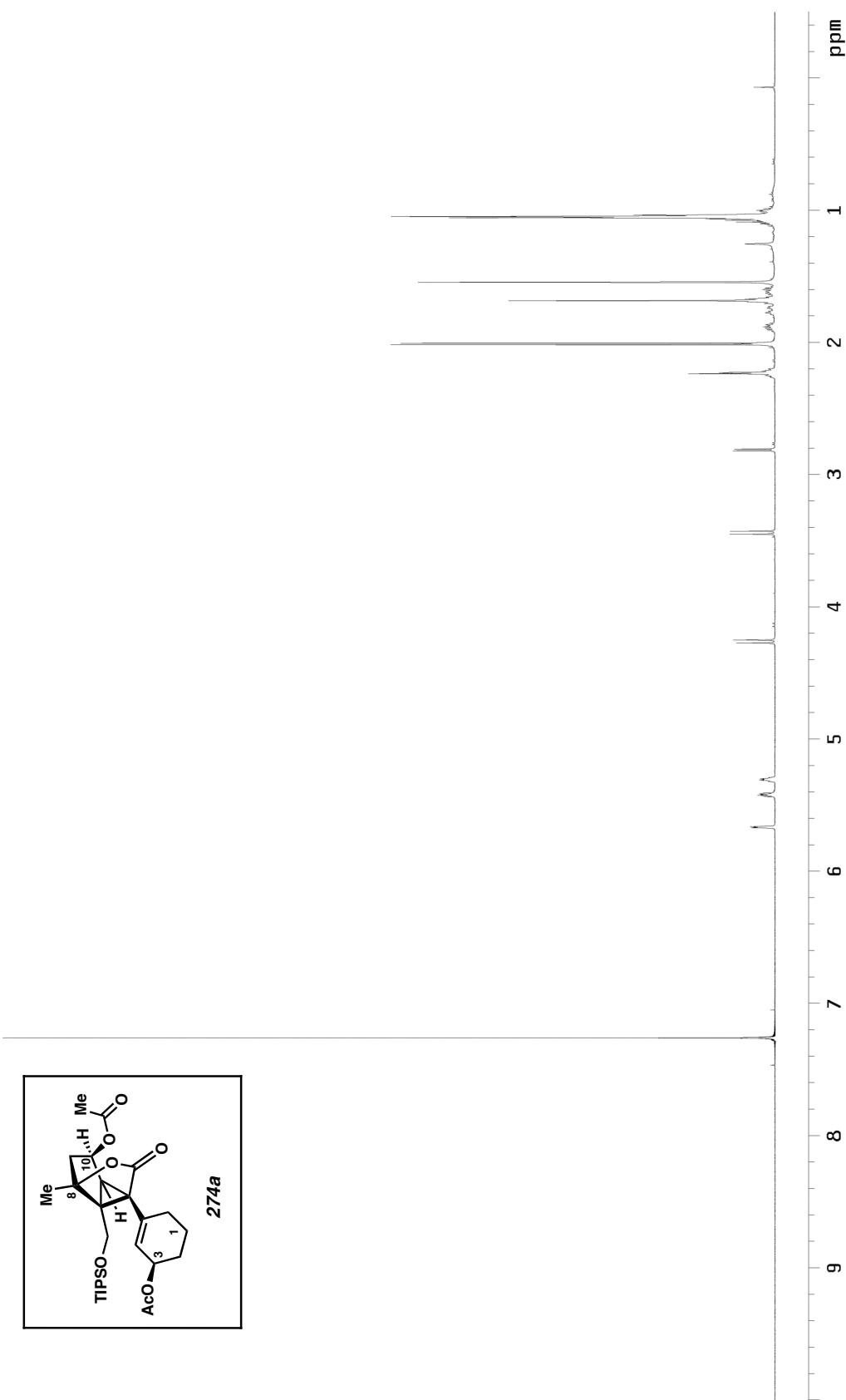


Figure A6.84 ^1H NMR (500 MHz, CDCl_3) of compound 274a

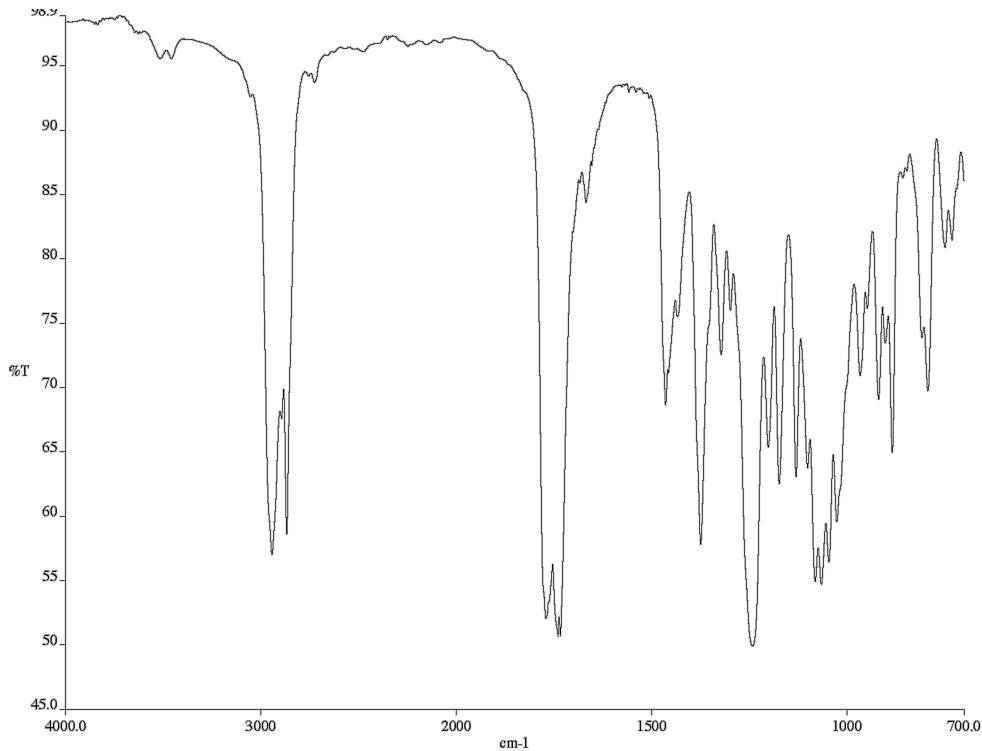


Figure A6.85 Infrared spectrum (thin film/NaCl) of compound 274a

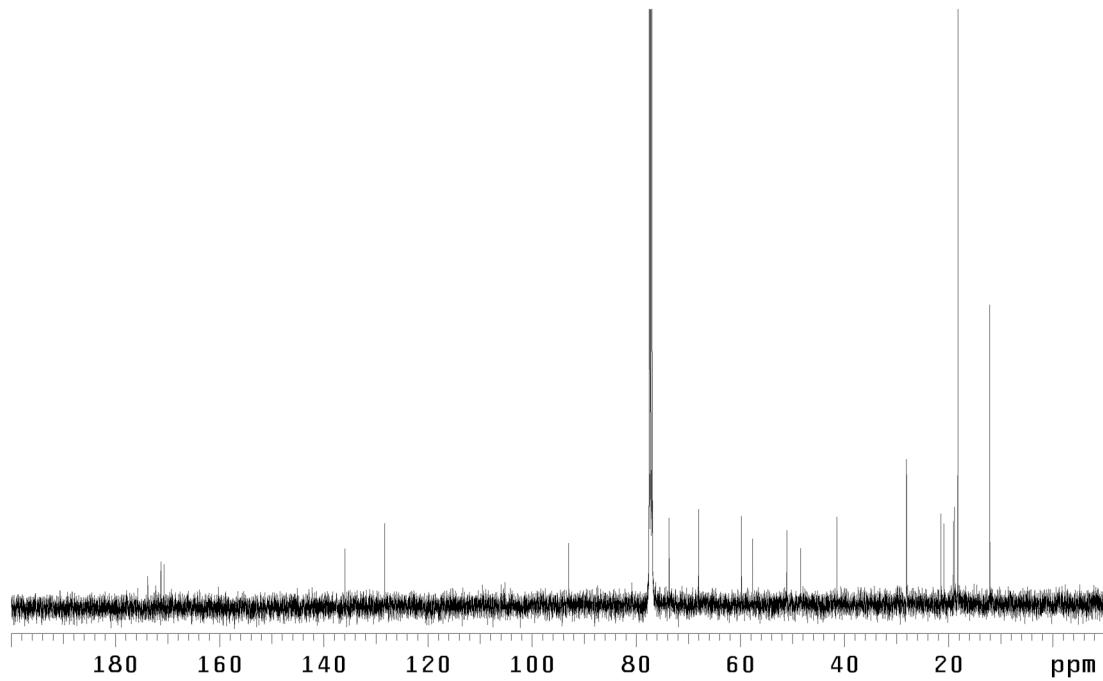


Figure A6.86 ^{13}C NMR (125 MHz, CDCl_3) of compound 274a

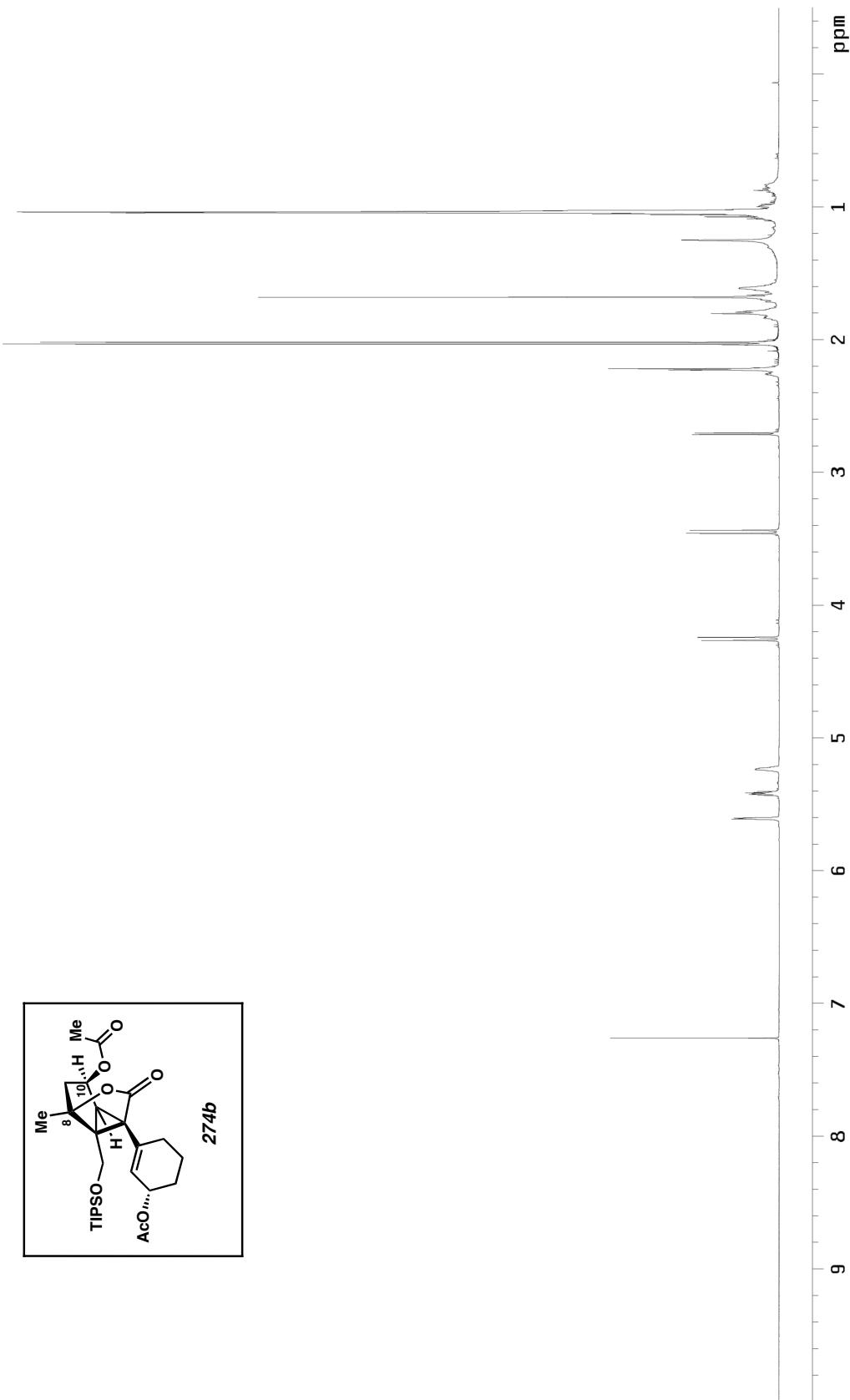


Figure A6.87 ^1H NMR (500 MHz, CDCl_3) of compound 274b

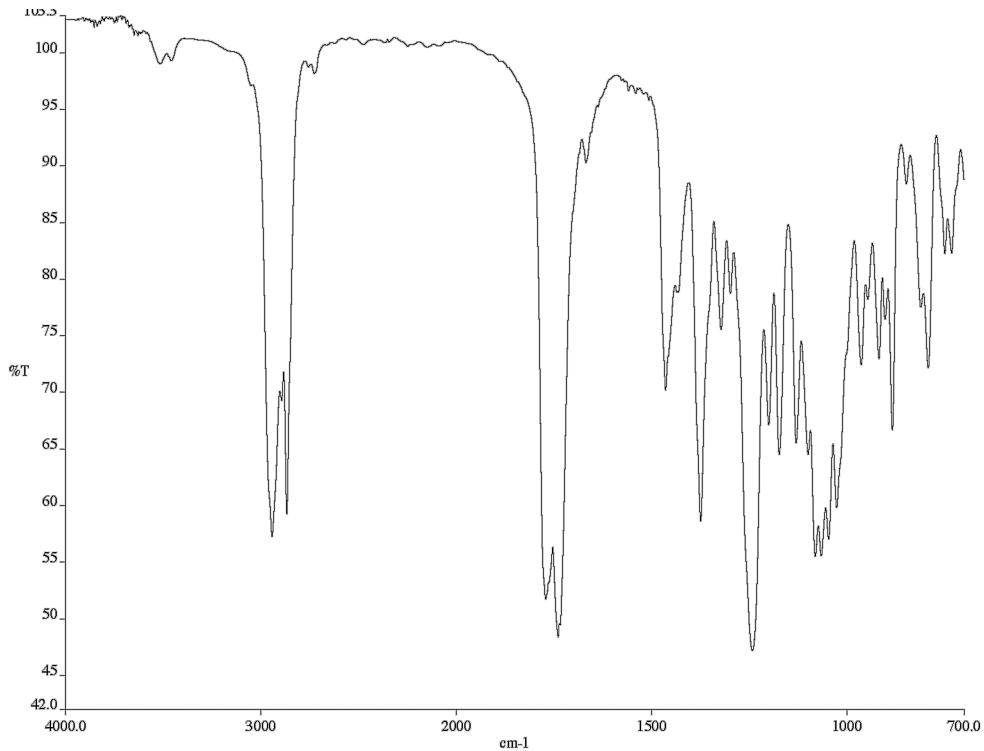


Figure A6.88 Infrared spectrum (thin film/NaCl) of compound **274b**

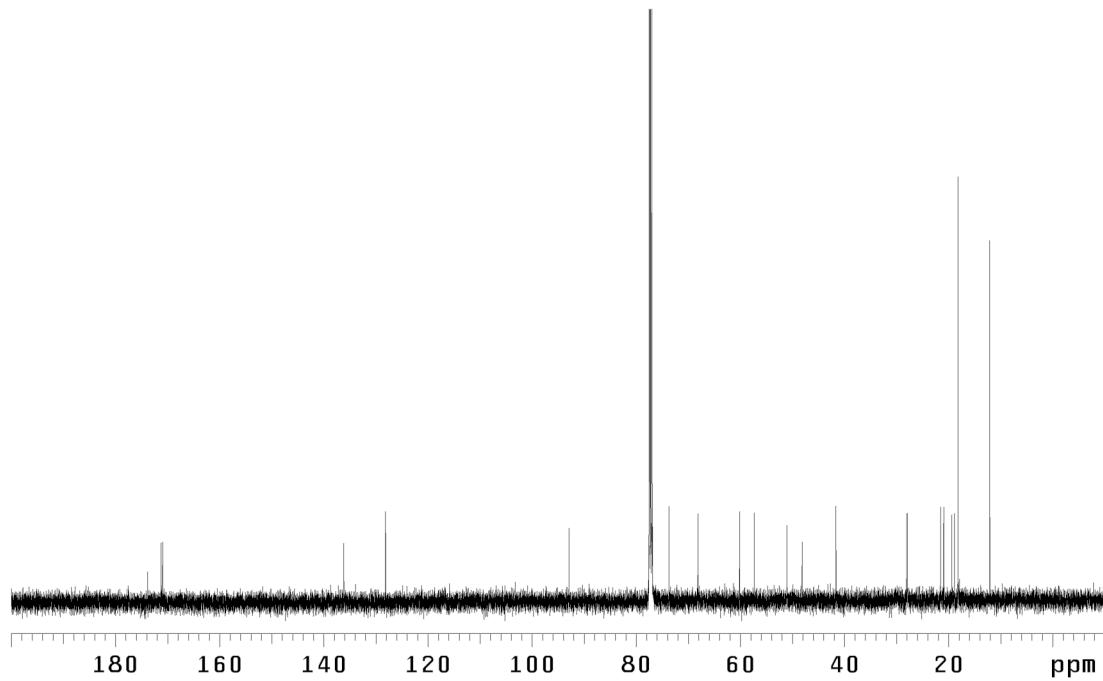
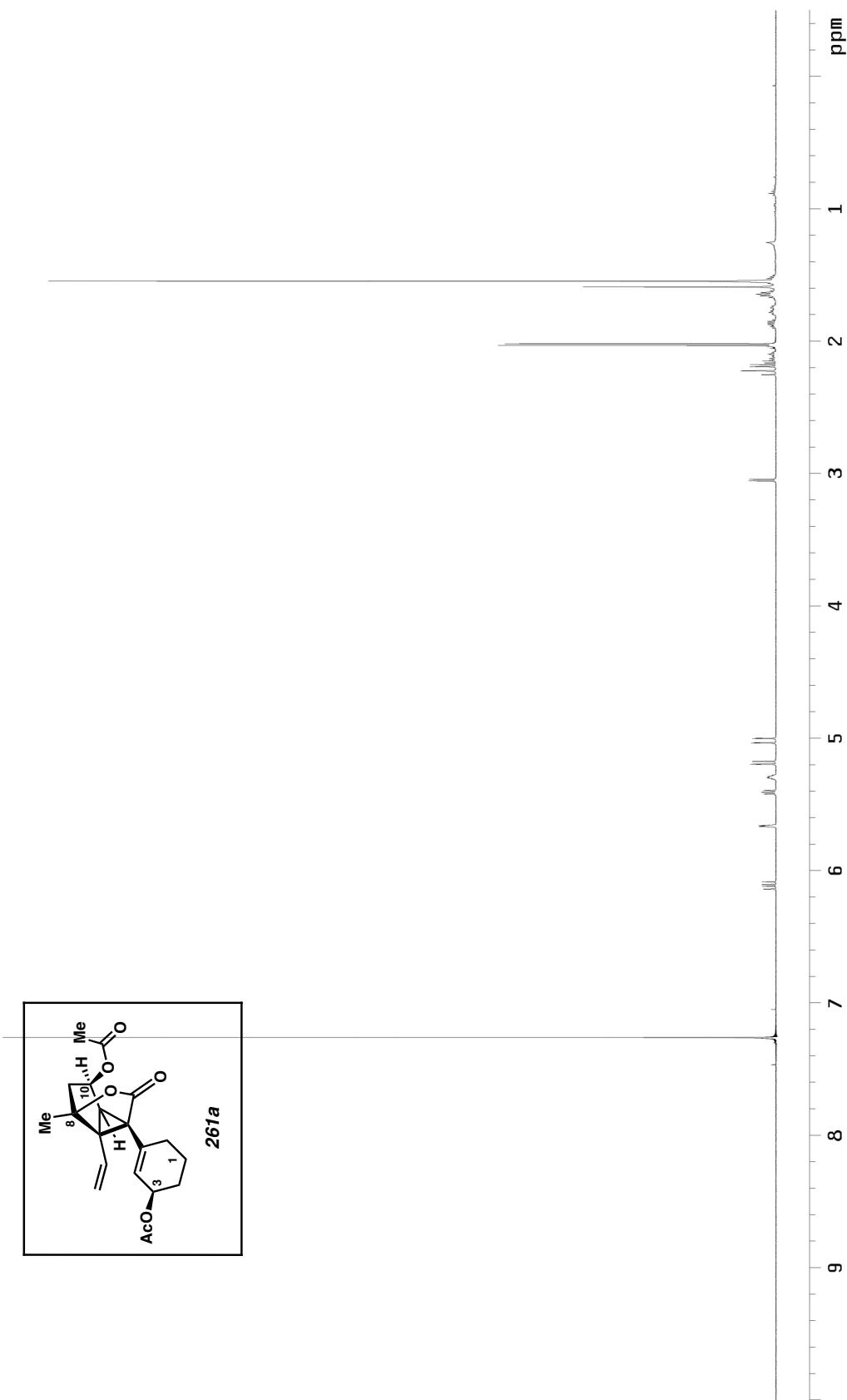


Figure A6.89 ¹³C NMR (125 MHz, CDCl₃) of compound **274b**

Figure A6.90 ^1H NMR (500 MHz, CDCl_3) of compound 261a



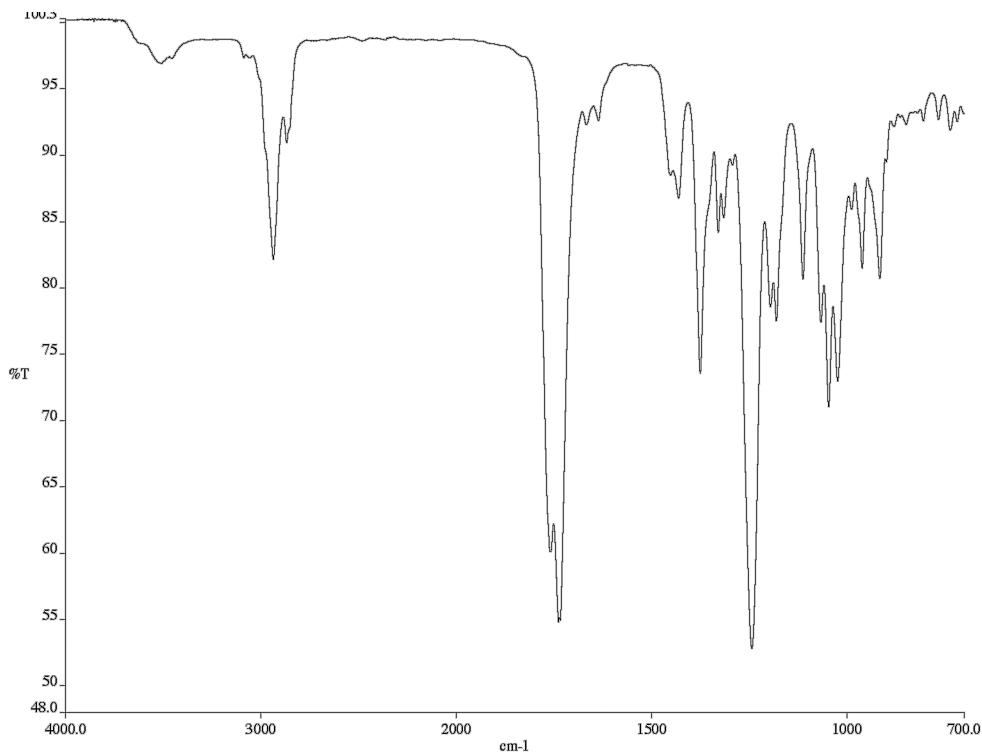


Figure A6.91 Infrared spectrum (thin film/NaCl) of compound **261a**

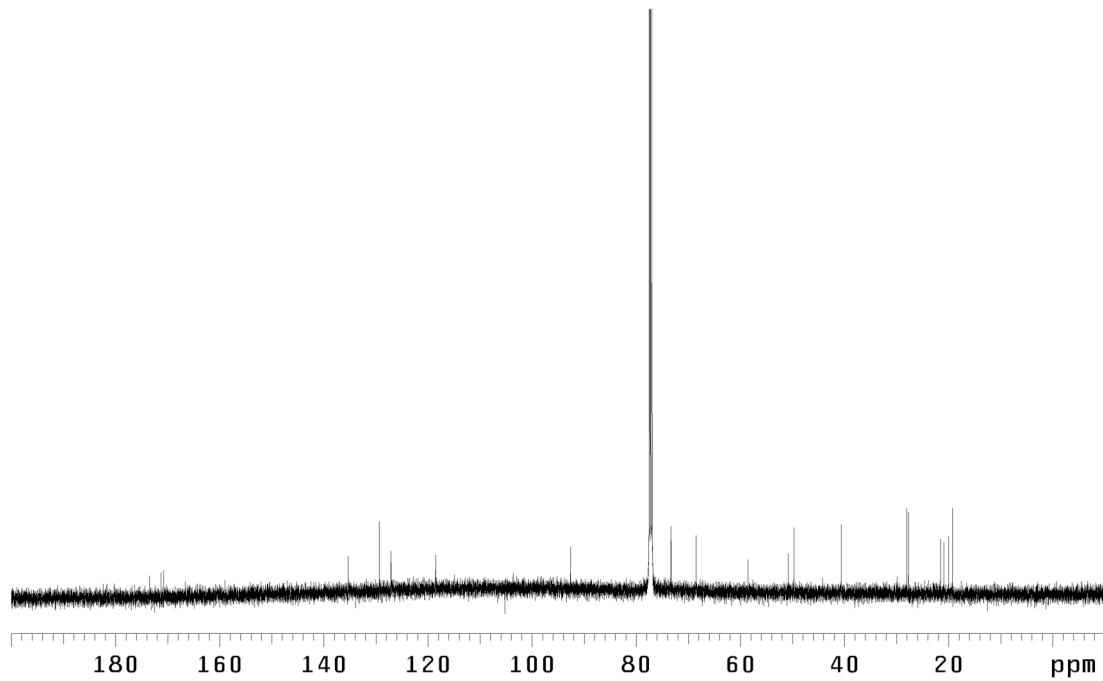


Figure A6.92 ^{13}C NMR (125 MHz, CDCl_3) of compound **261a**

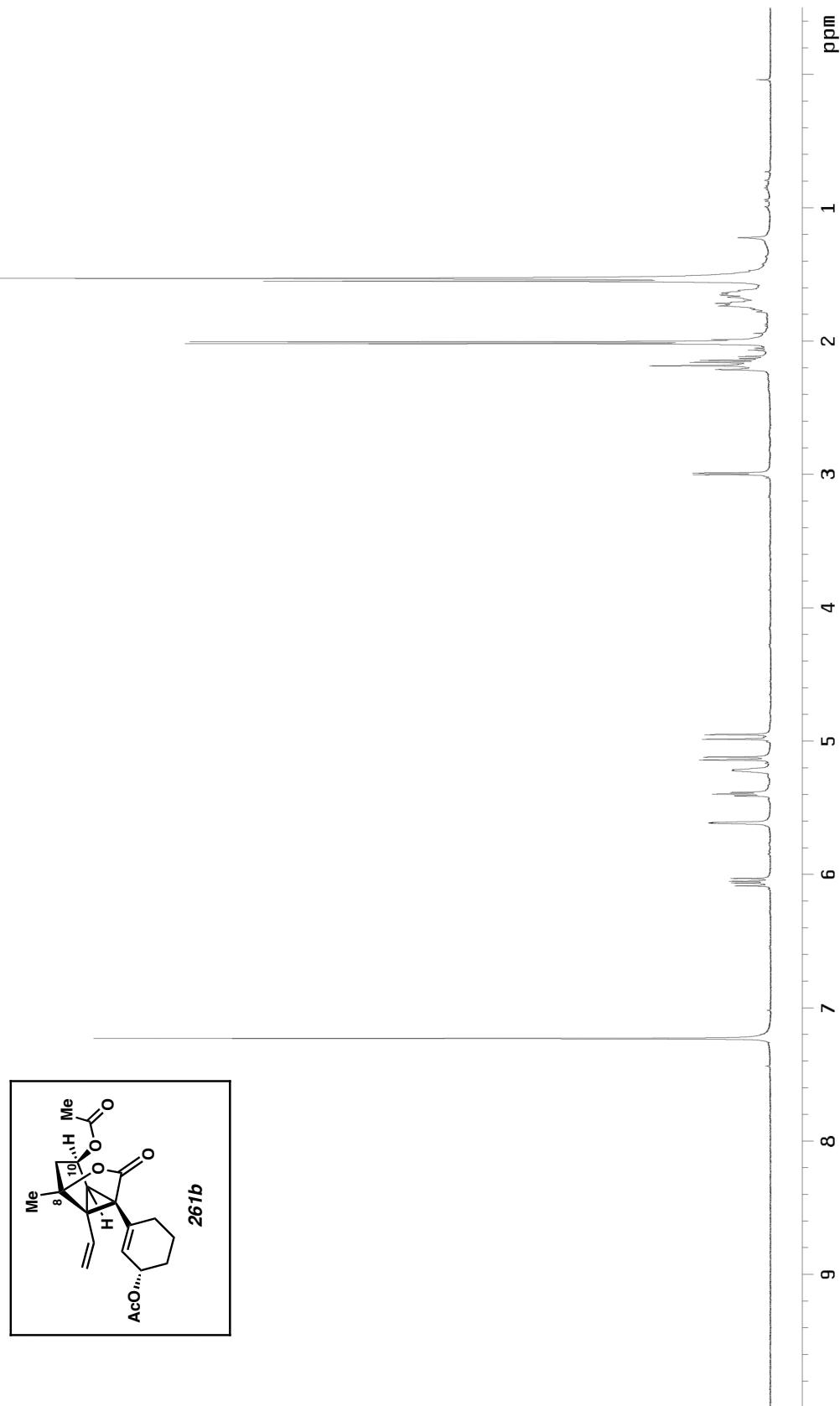


Figure A6.93 ^1H NMR (500 MHz, CDCl_3) of compound **261b**

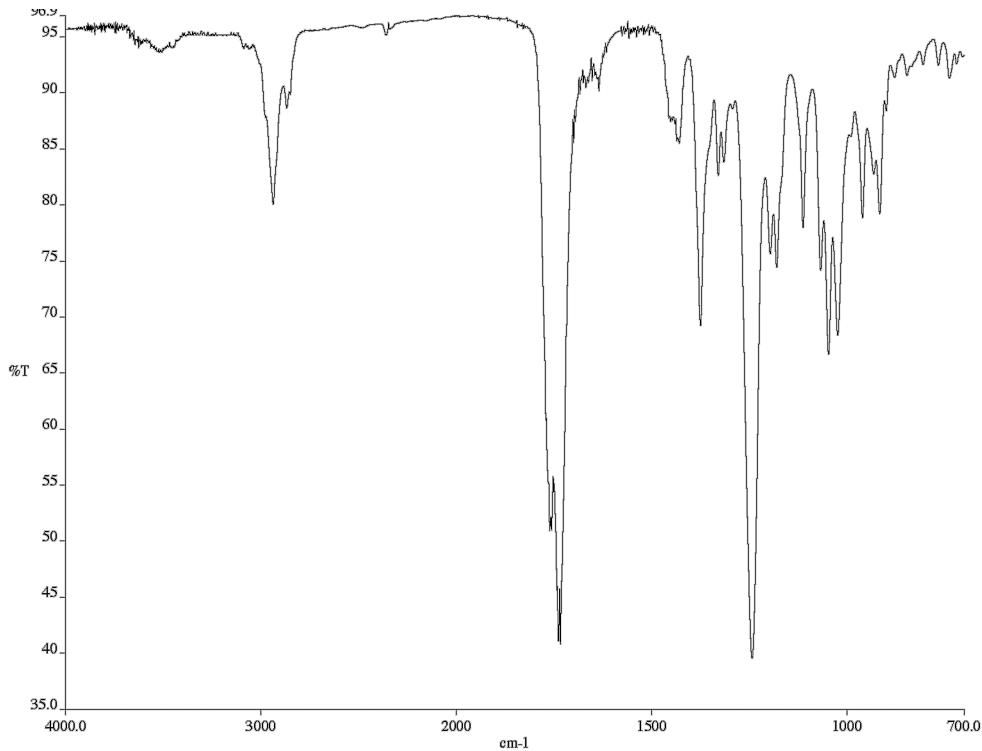


Figure A6.94 Infrared spectrum (thin film/NaCl) of compound **261b**

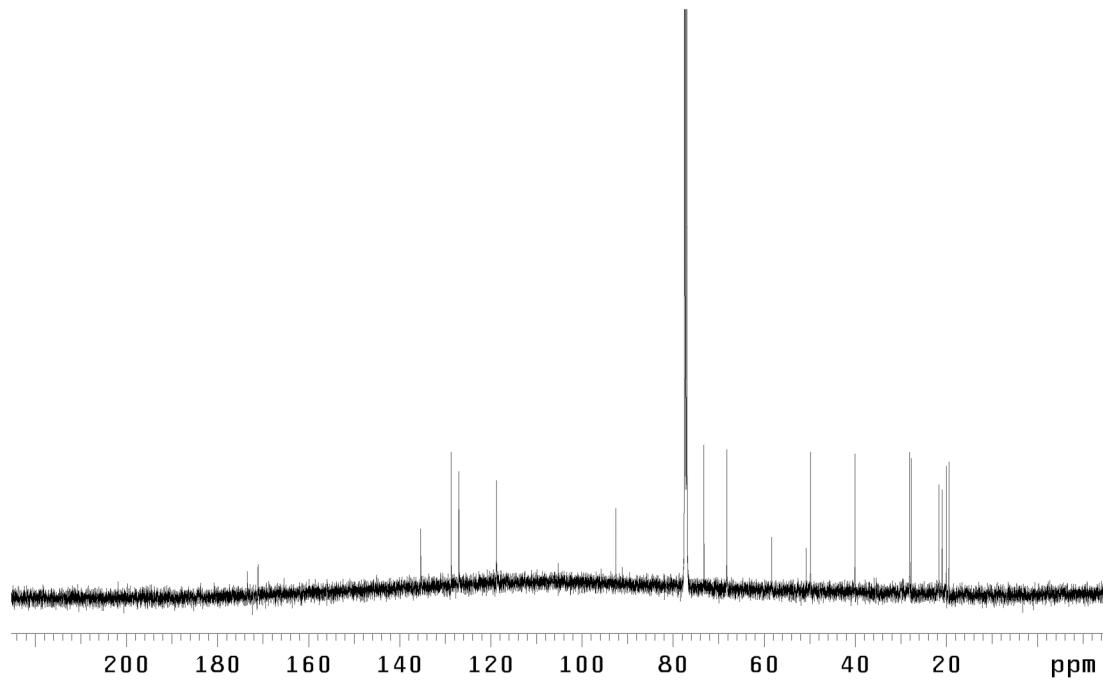


Figure A6.95 ^{13}C NMR (125 MHz, CDCl_3) of compound **261b**

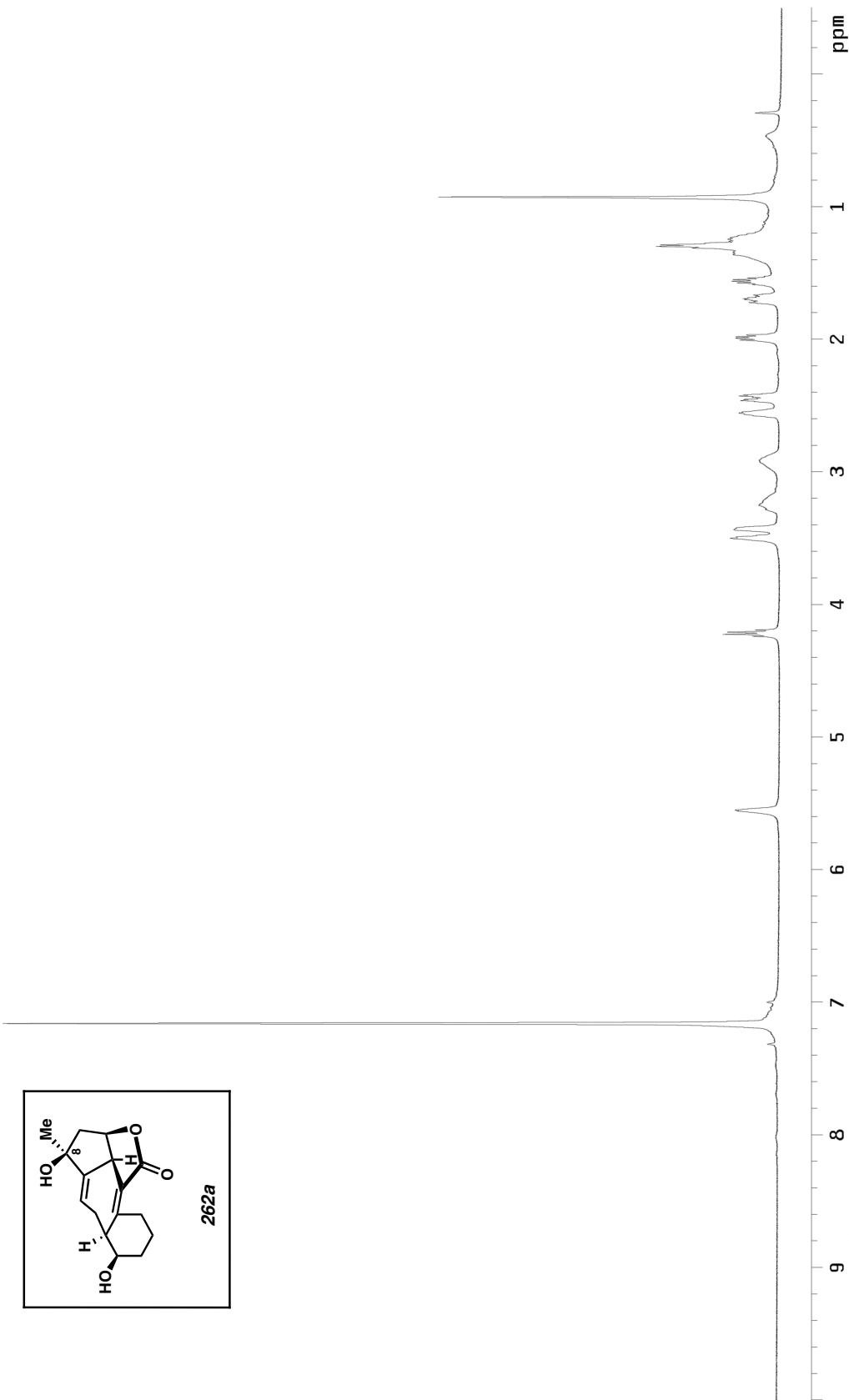


Figure A6.96 ^1H NMR (500 MHz, C_6D_6) of compound **262a**

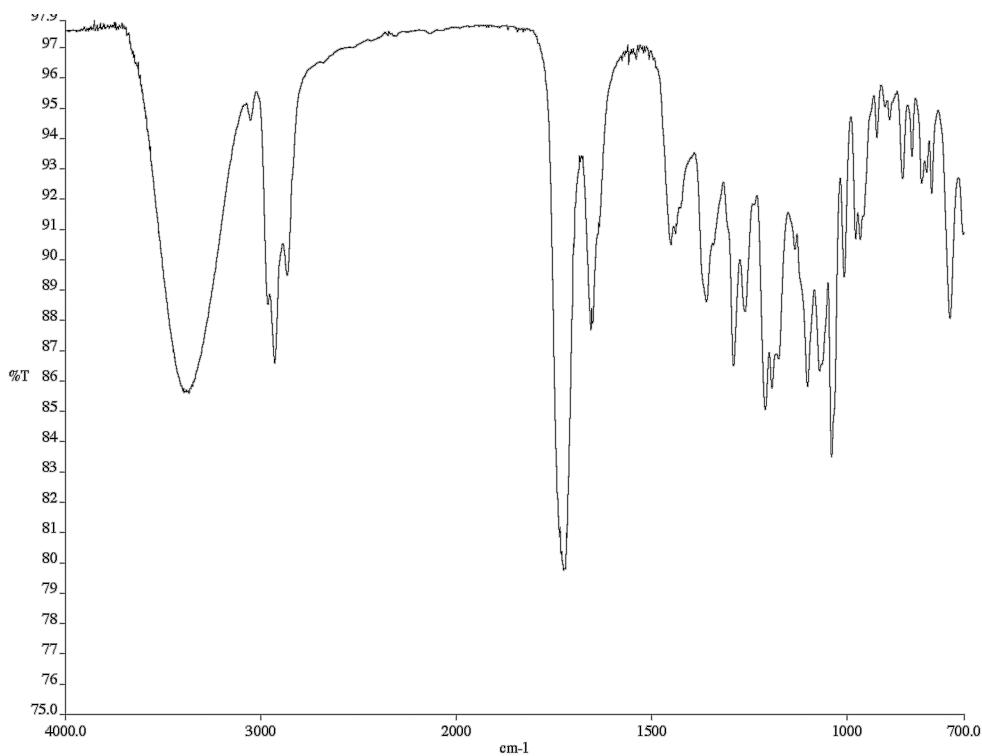


Figure A6.97 Infrared spectrum (thin film/NaCl) of compound **262a**

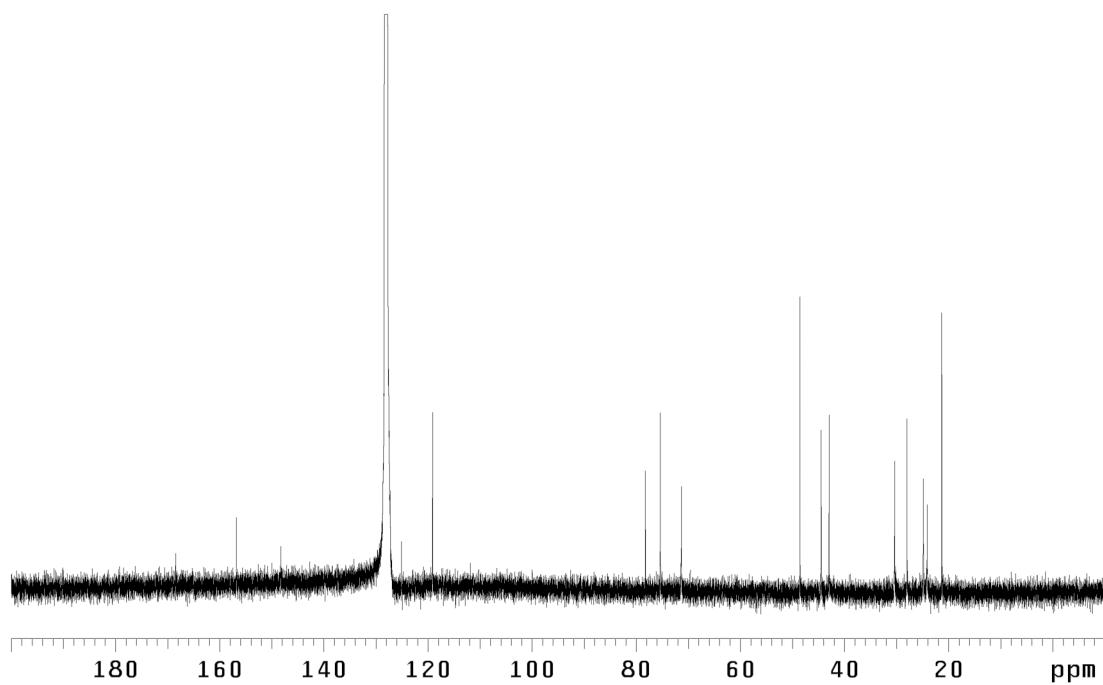


Figure A6.98 ^{13}C NMR (125 MHz, C_6D_6) of compound **262a**

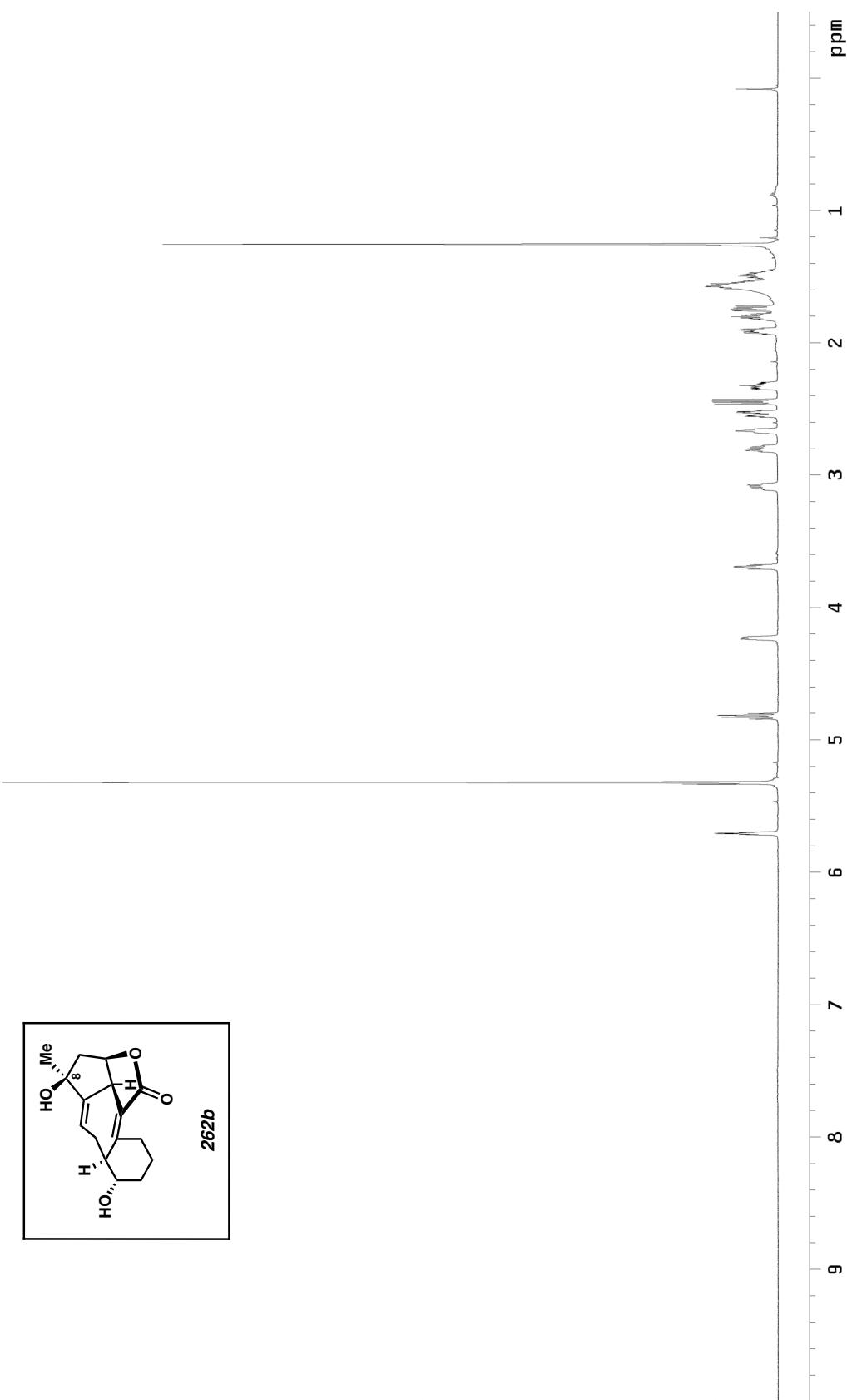


Figure A6.99 ^1H NMR (500 MHz, CD_2Cl_2) of compound **262b**

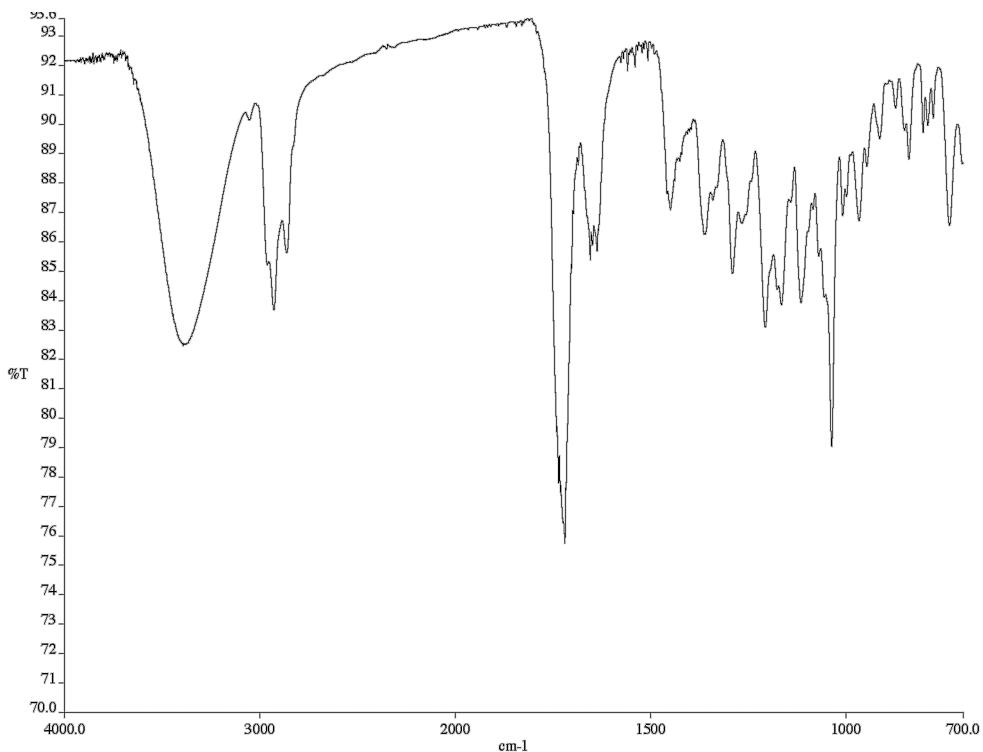


Figure A6.100 Infrared spectrum (thin film/NaCl) of compound **262b**

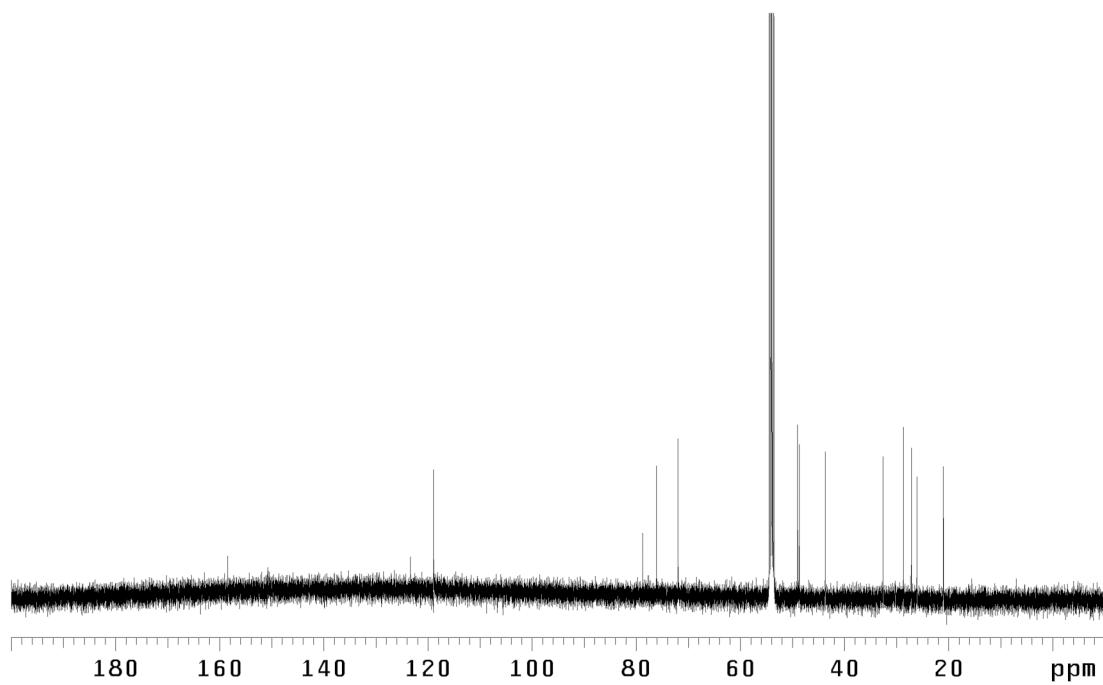


Figure A6.101 ^{13}C NMR (125 MHz, CD_2Cl_2) of compound **262b**

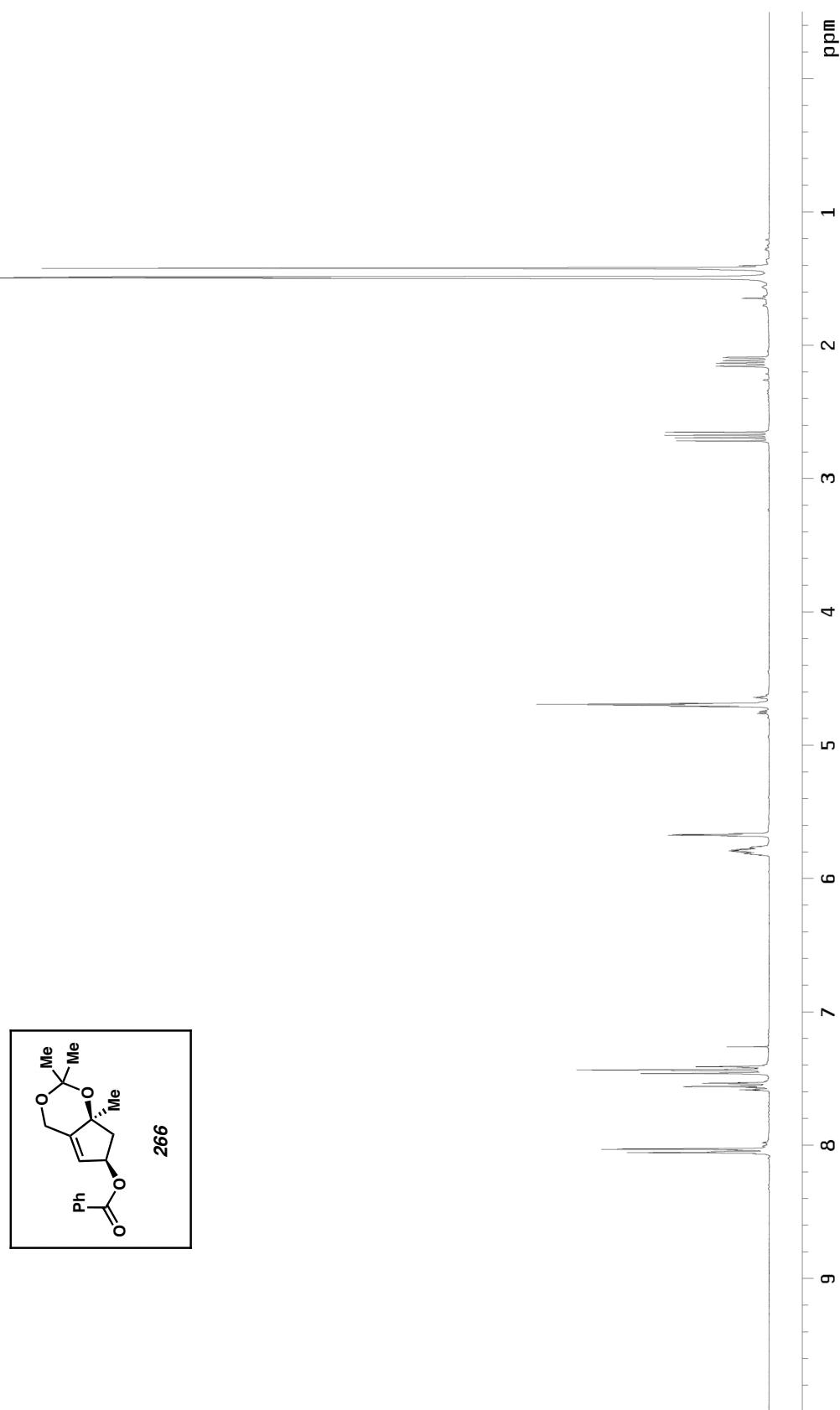


Figure A6.102 ^1H NMR (300 MHz, CDCl_3) of compound **266**

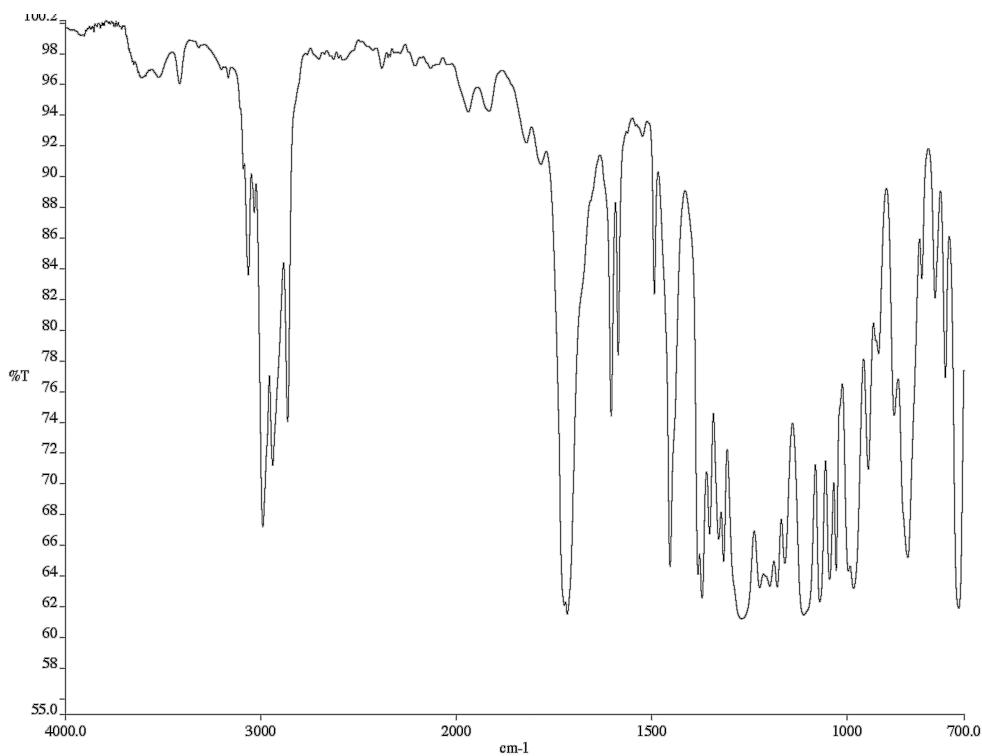


Figure A6.103 Infrared spectrum (thin film/NaCl) of compound **266**

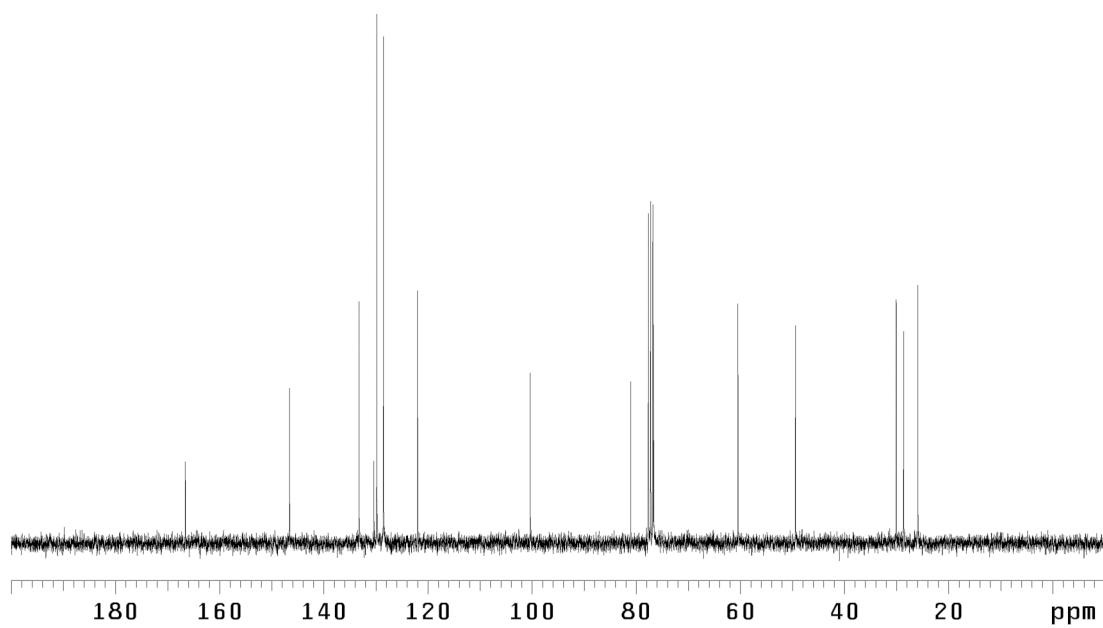


Figure A6.104 ^{13}C NMR (75 MHz, CDCl_3) of compound **266**

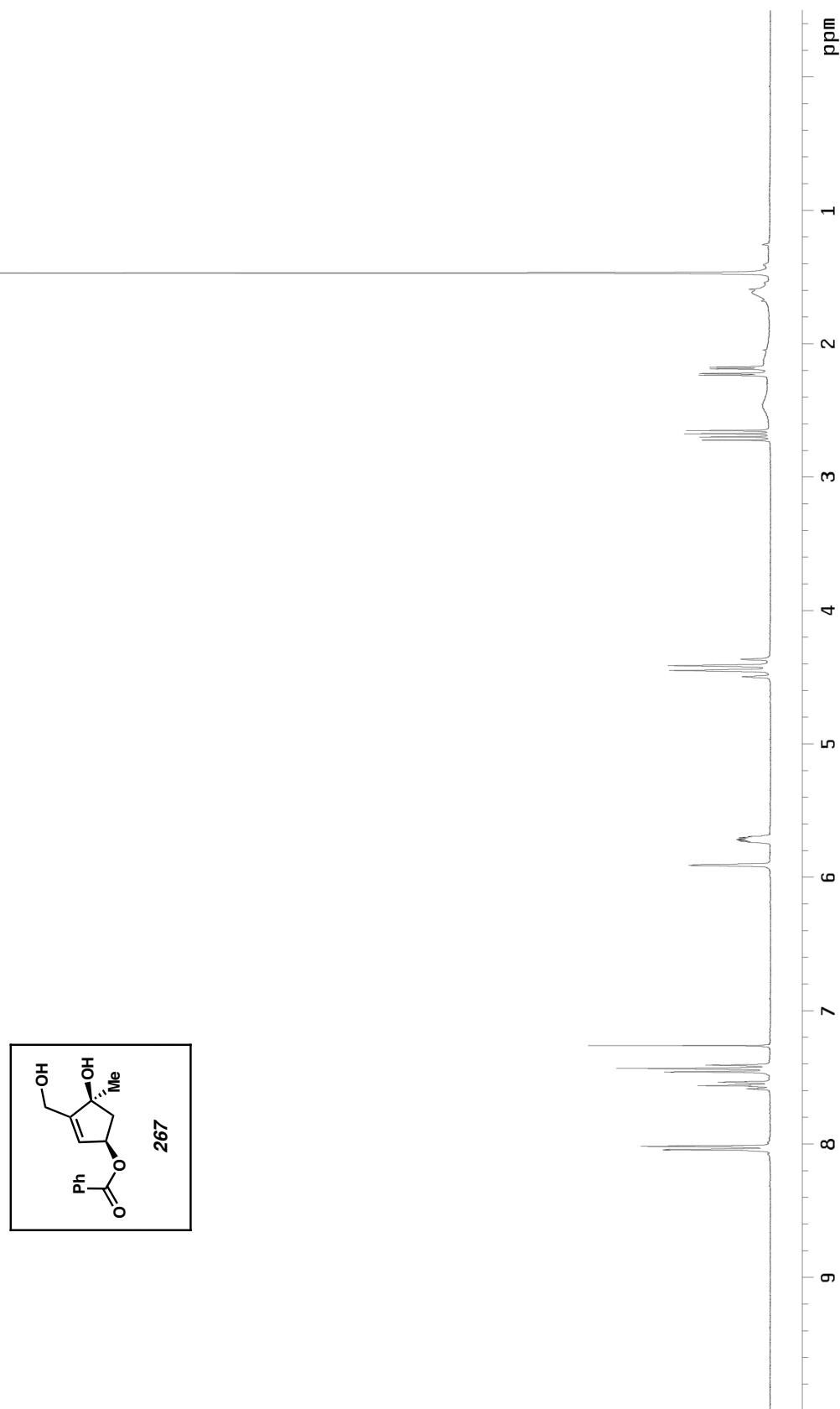


Figure A6.105 ^1H NMR (300 MHz, CDCl_3) of compound **267**

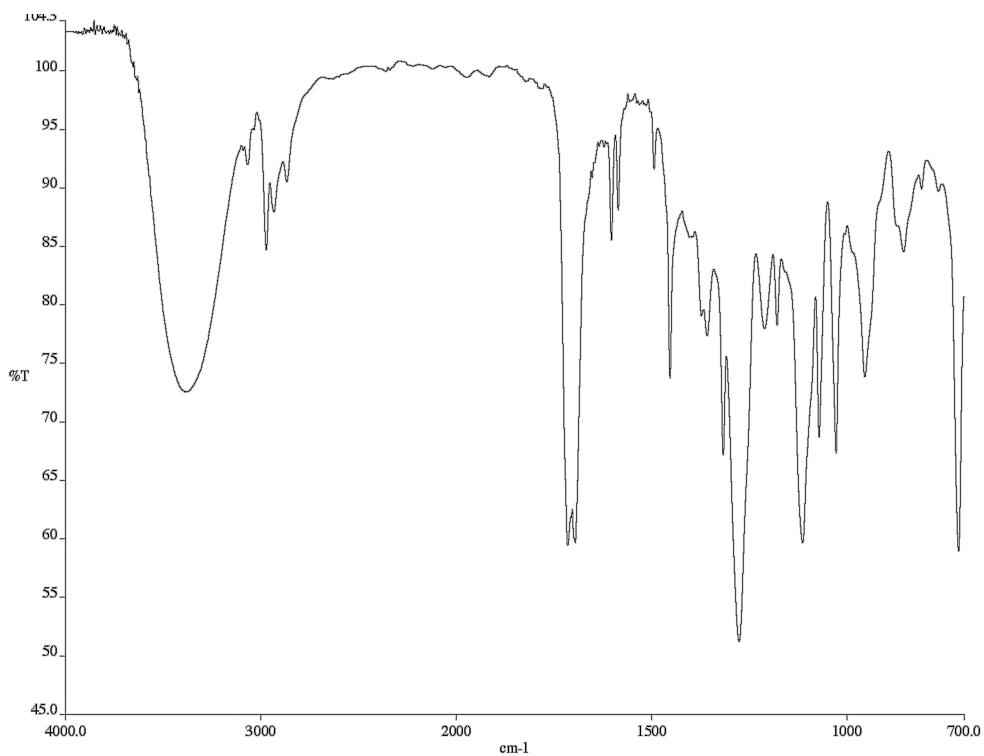


Figure A6.106 Infrared spectrum (thin film/NaCl) of compound **267**

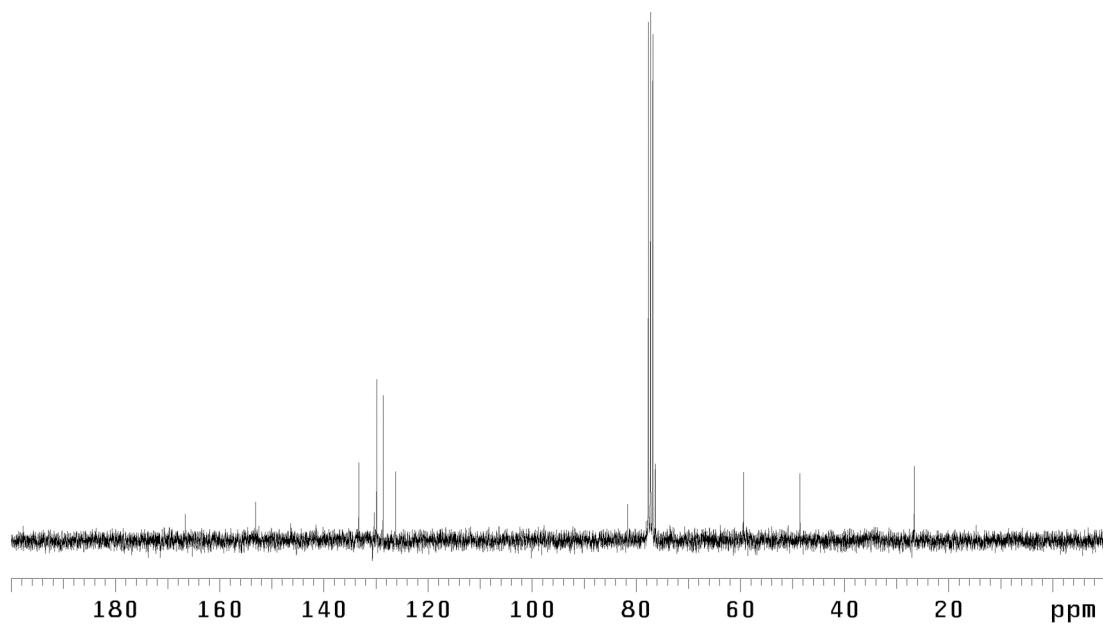


Figure A6.107 ^{13}C NMR (75 MHz, CDCl_3) of compound **267**

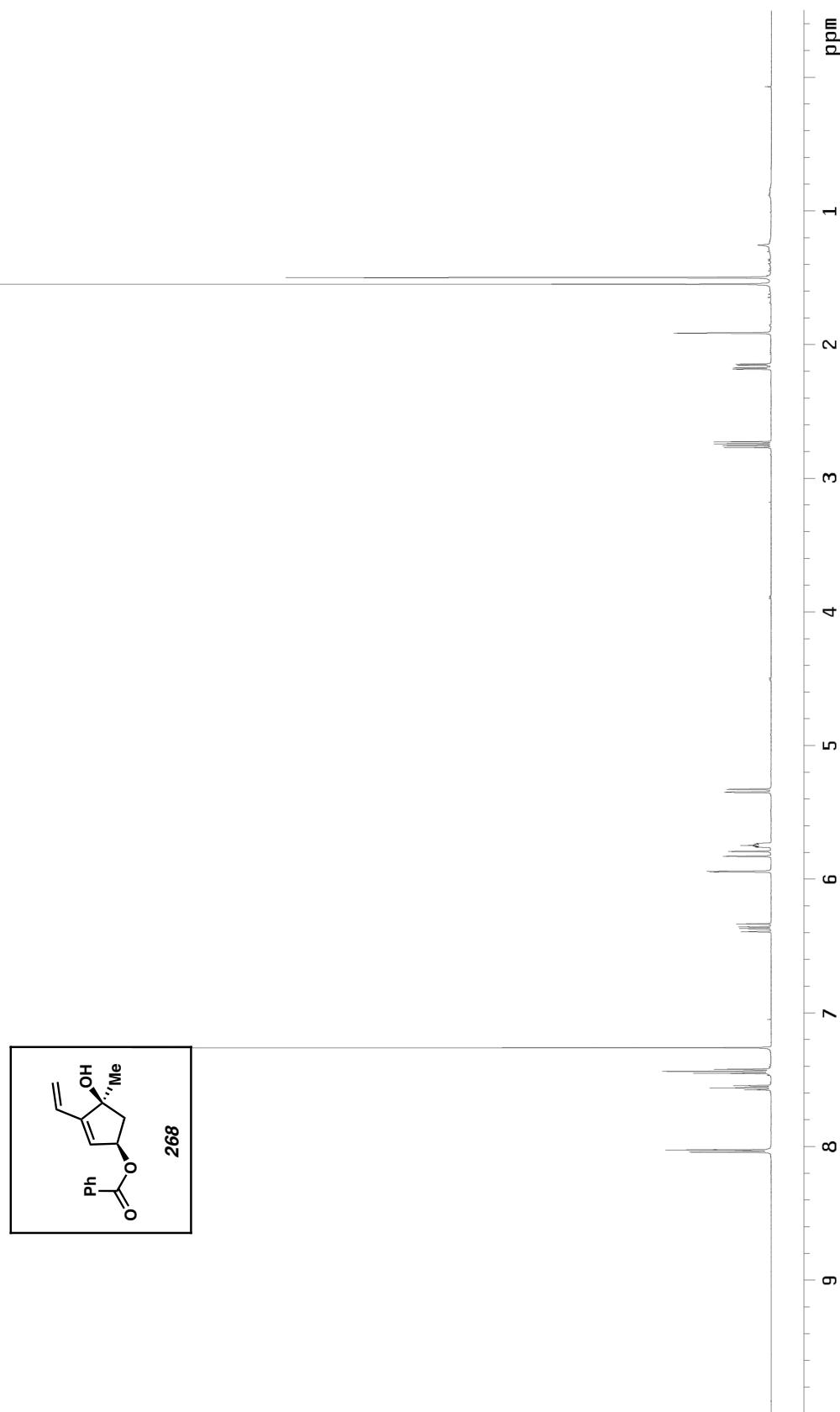


Figure A6.108 ^1H NMR (300 MHz, CDCl_3) of compound **268**

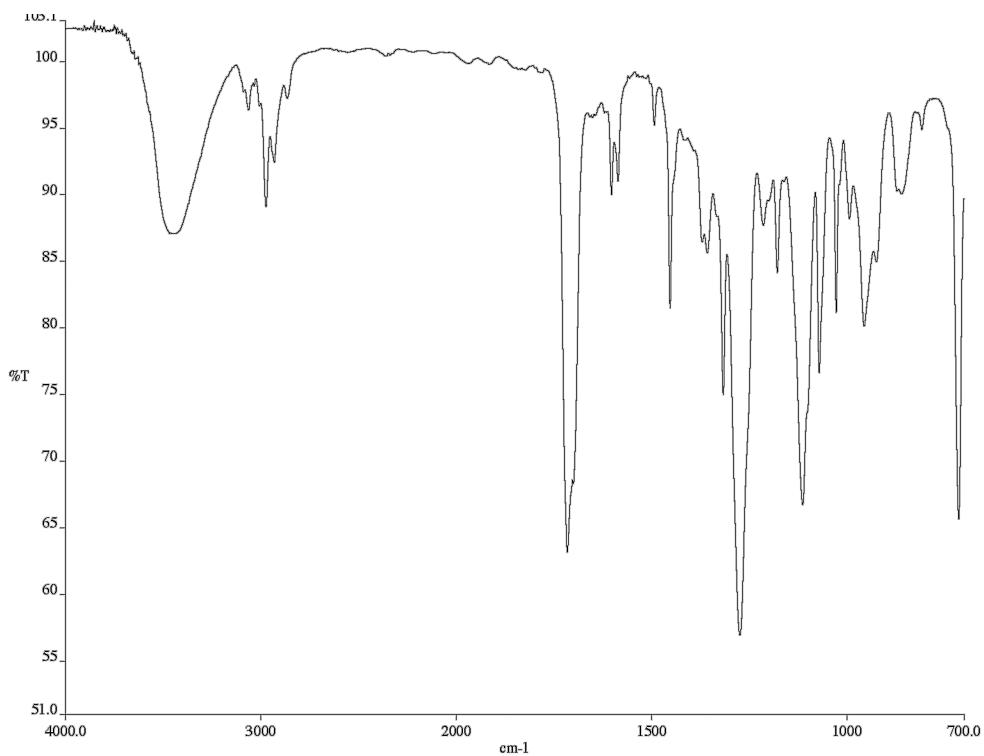


Figure A6.109 Infrared spectrum (thin film/NaCl) of compound **268**

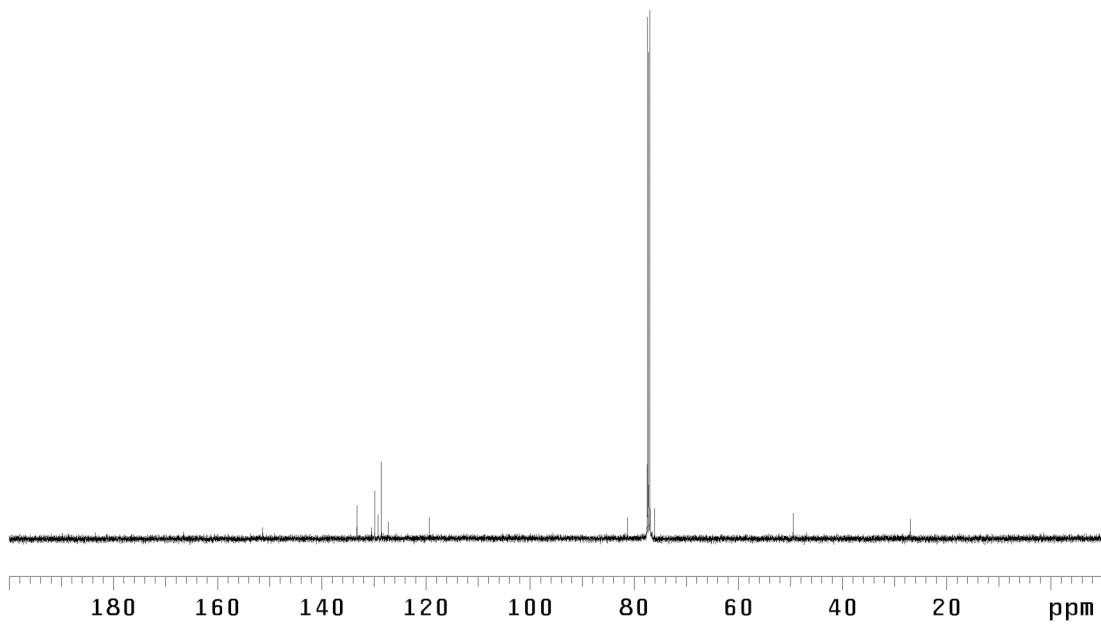


Figure A6.110 ¹³C NMR (75 MHz, CDCl₃) of compound **268**

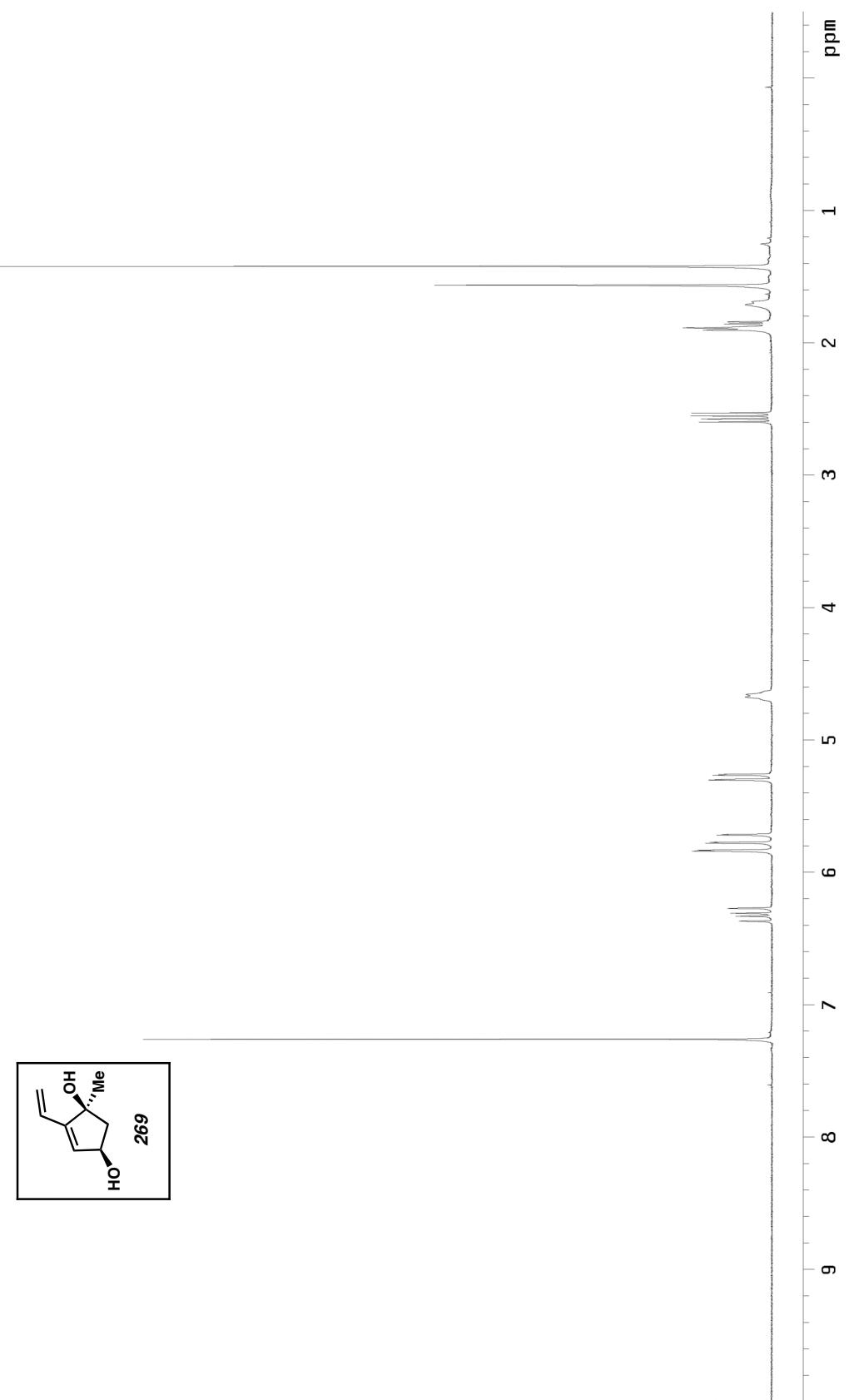


Figure A6.111 ^1H NMR (300 MHz, CDCl_3) of compound **269**

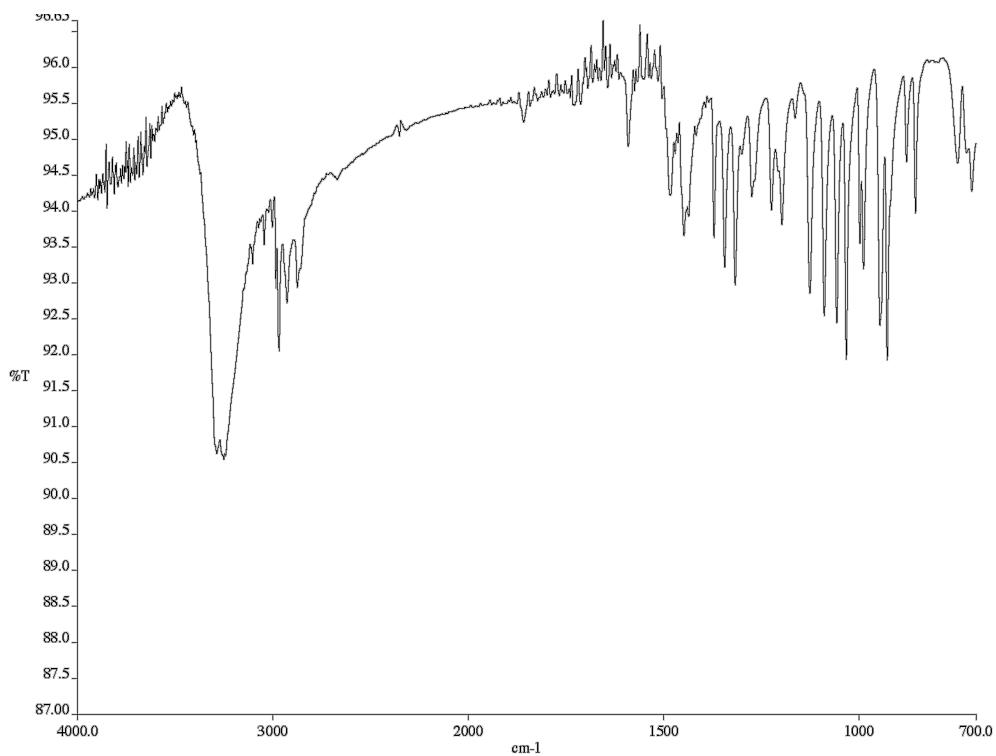


Figure A6.112 Infrared spectrum (thin film/NaCl) of ketone **269**

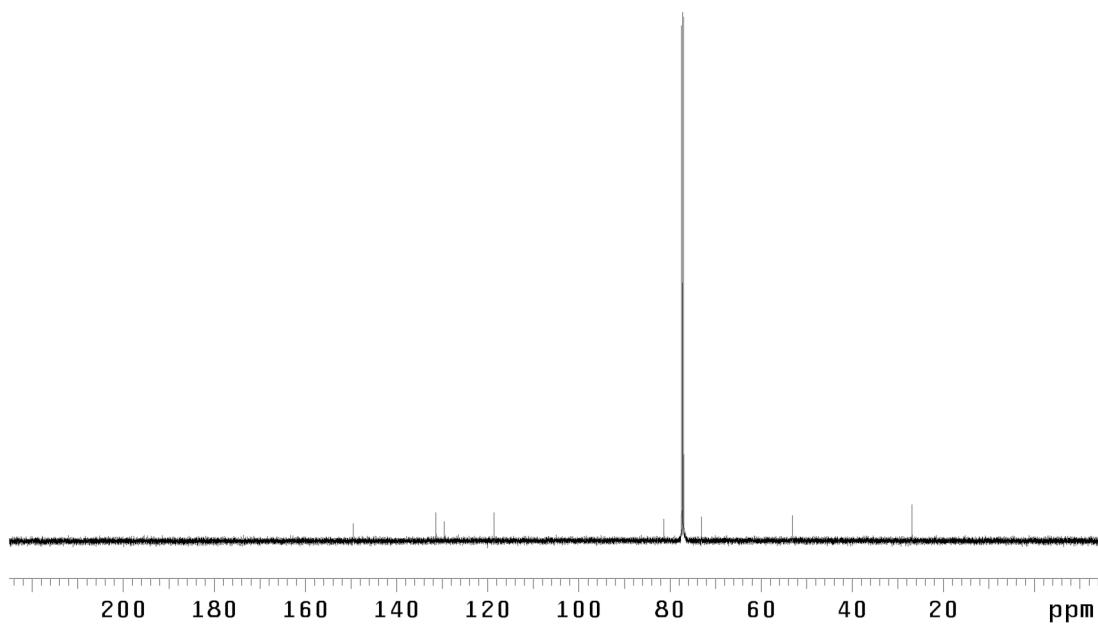


Figure A6.113 ^{13}C NMR (75 MHz, CDCl_3) of compound **269**

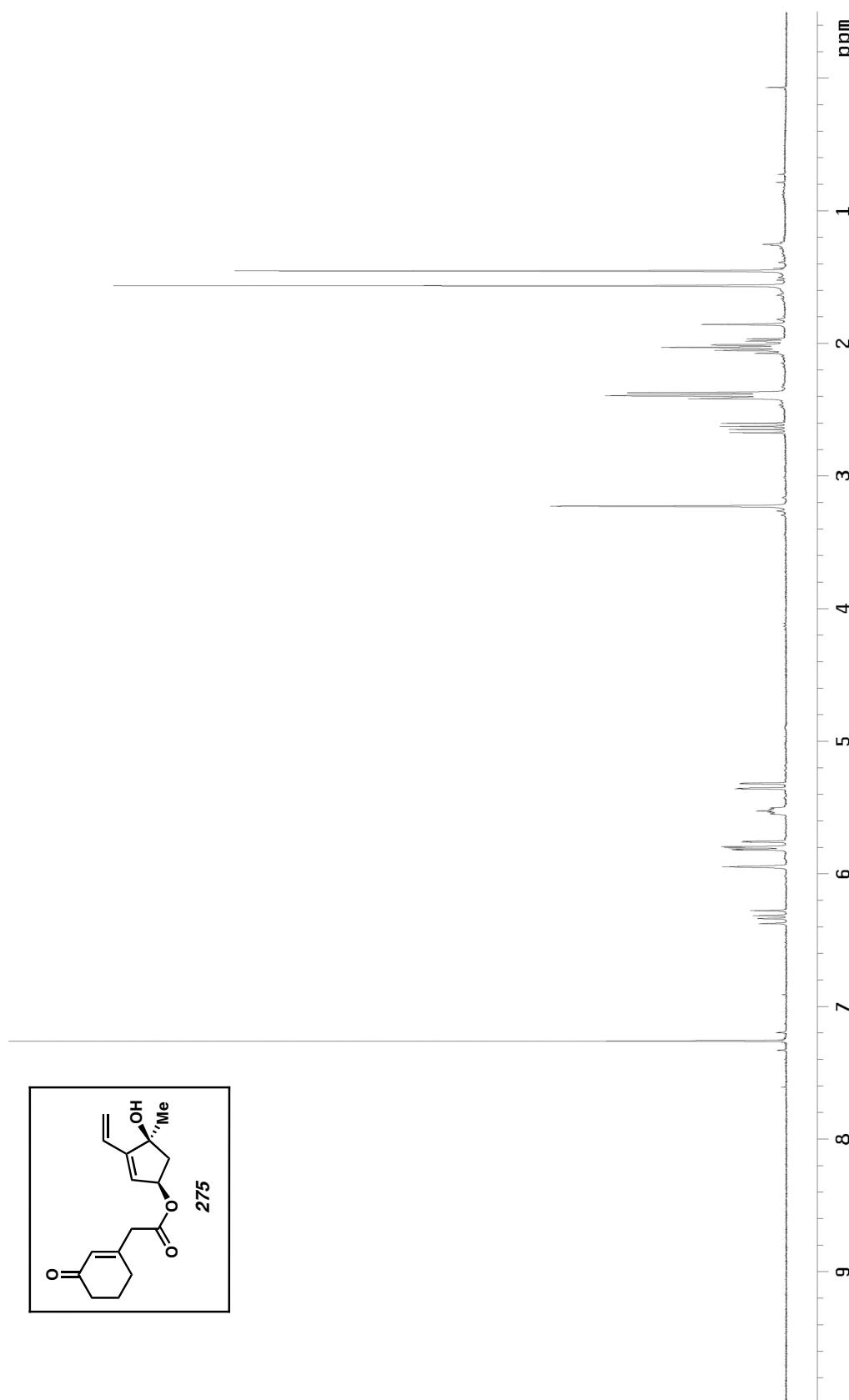


Figure A6.114 ^1H NMR (300 MHz, CDCl_3) of compound **275**

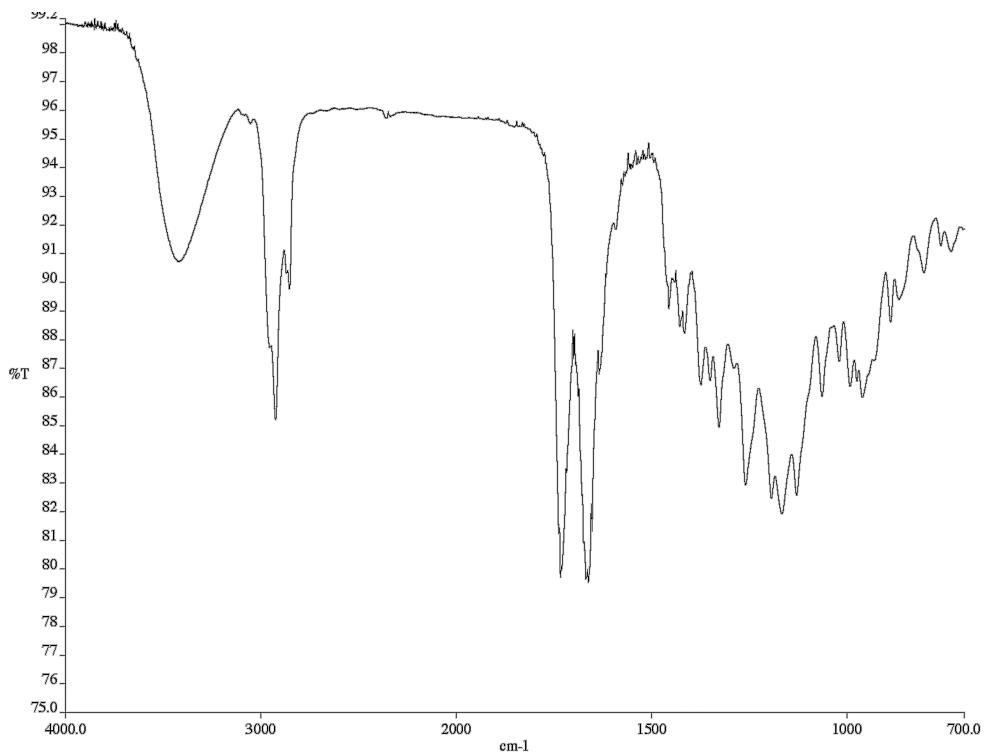


Figure A6.115 Infrared spectrum (thin film/NaCl) of compound **275**

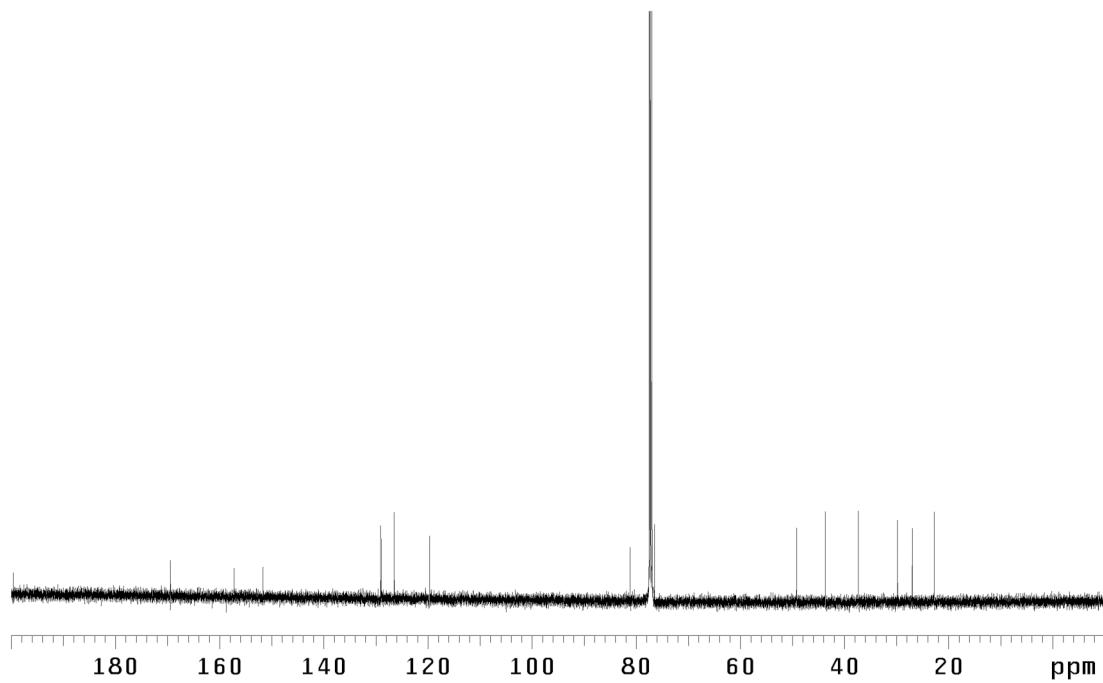


Figure A6.116 ^{13}C NMR (75 MHz, CDCl_3) of compound **275**

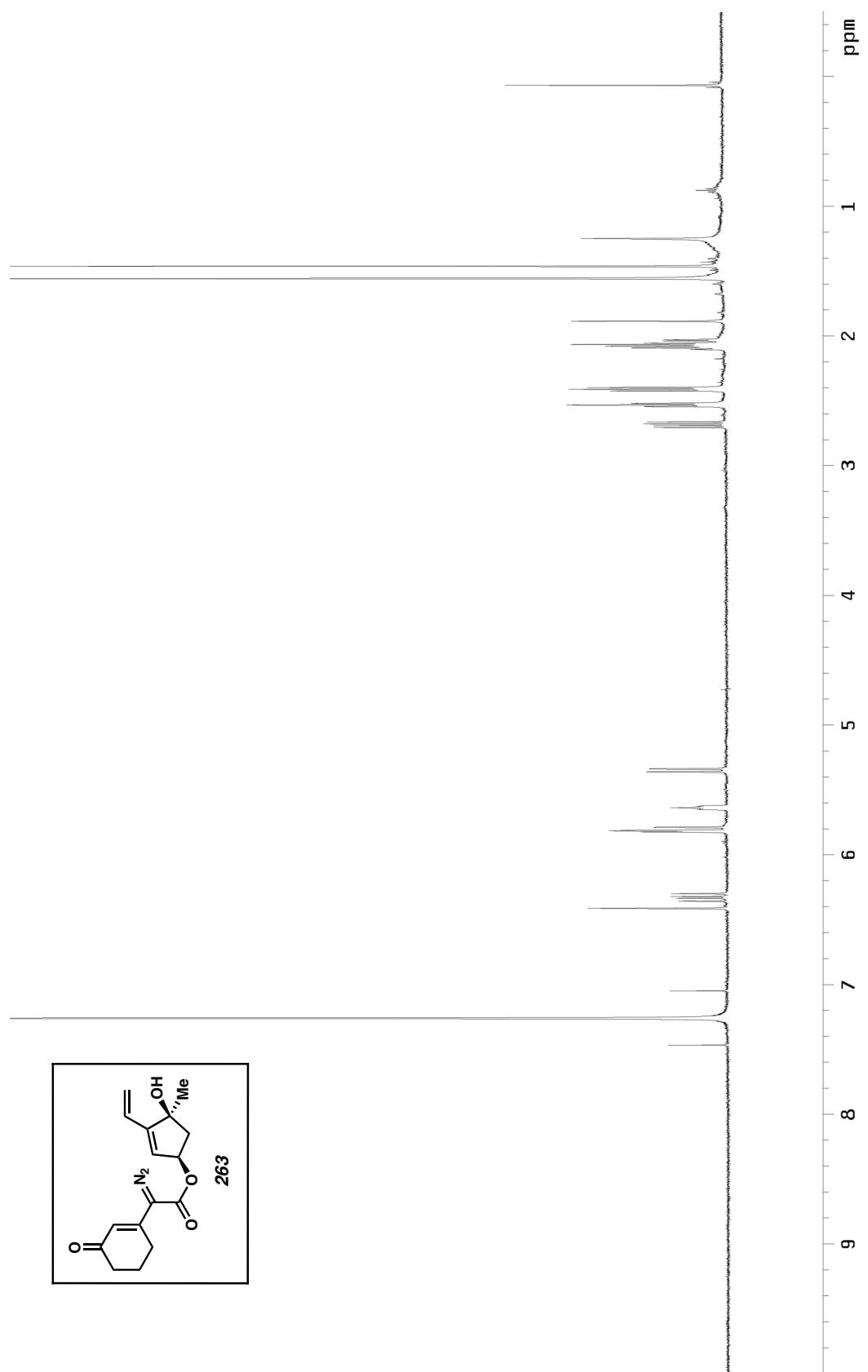


Figure A6.117 ^1H NMR (500 MHz, CDCl_3) of compound **263**

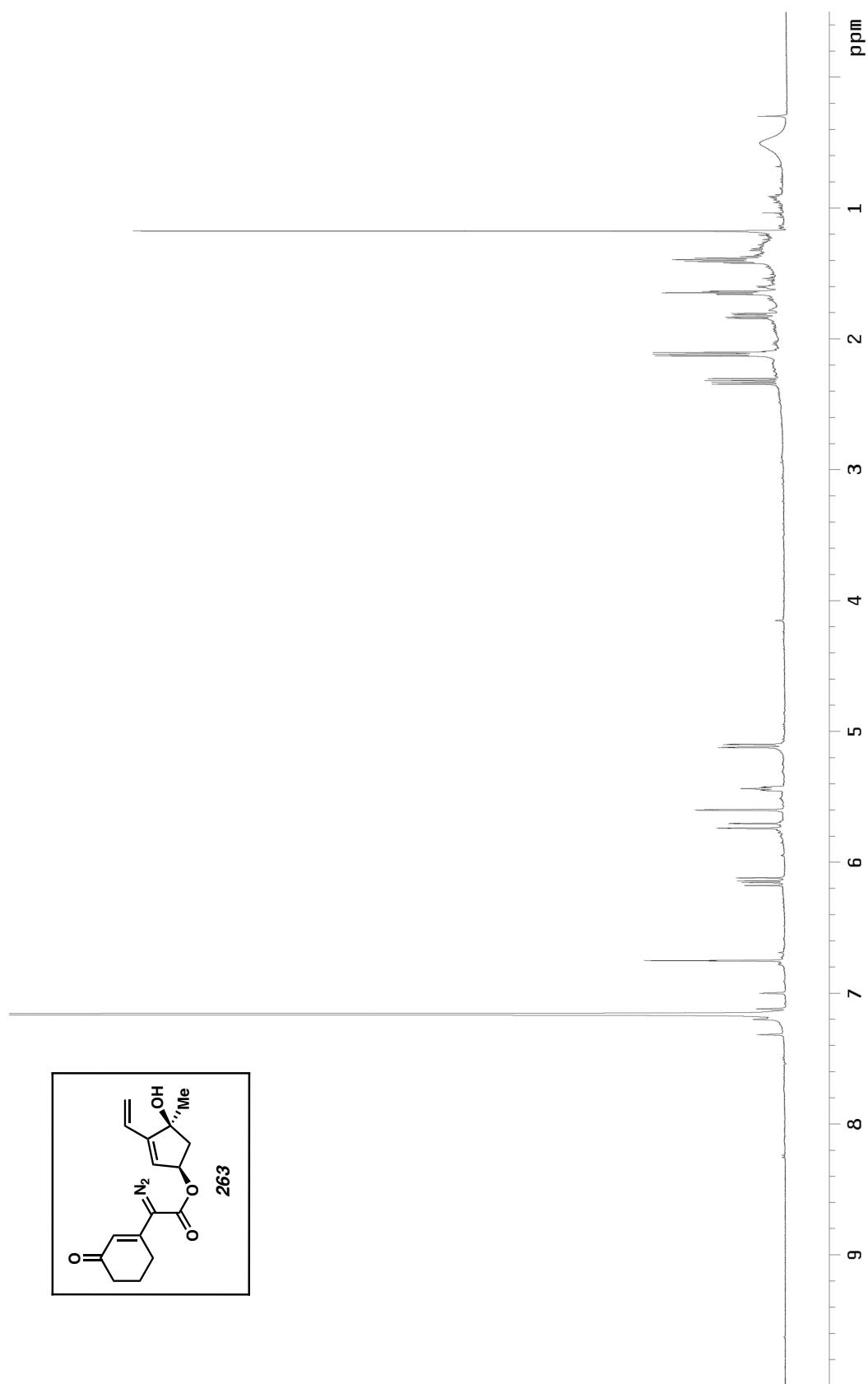


Figure A6.118 ^1H NMR (500 MHz, C_6D_6) of compound 263

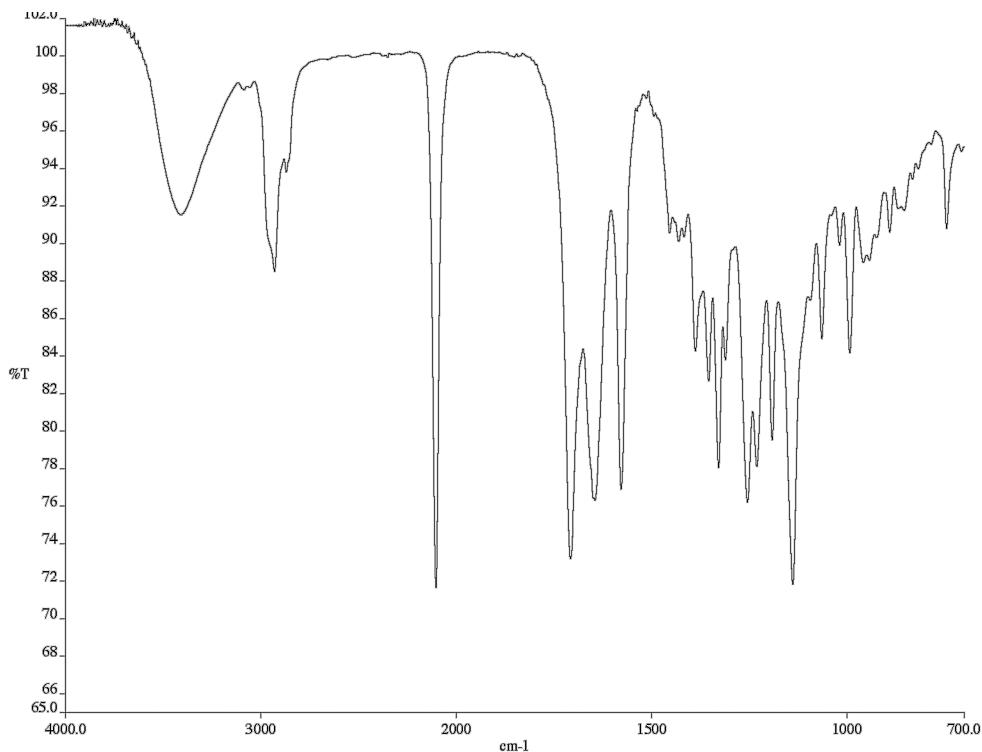


Figure A6.119 Infrared spectrum (thin film/NaCl) of compound **263**

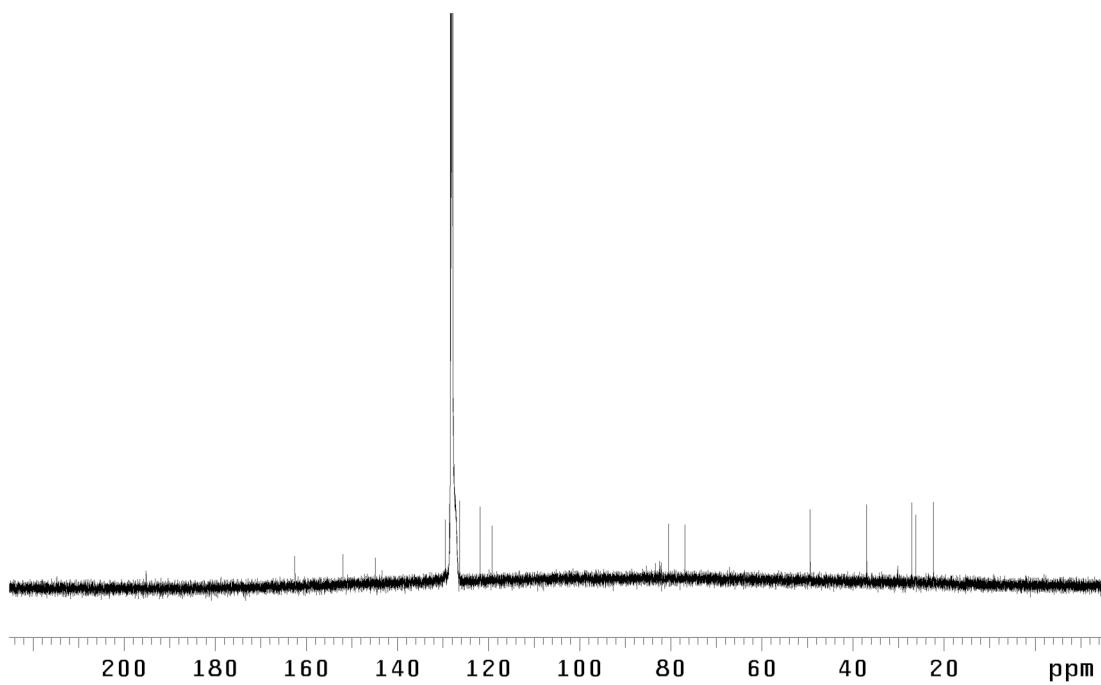


Figure A6.120 ^{13}C NMR (125 MHz, C_6D_6) of compound **263**

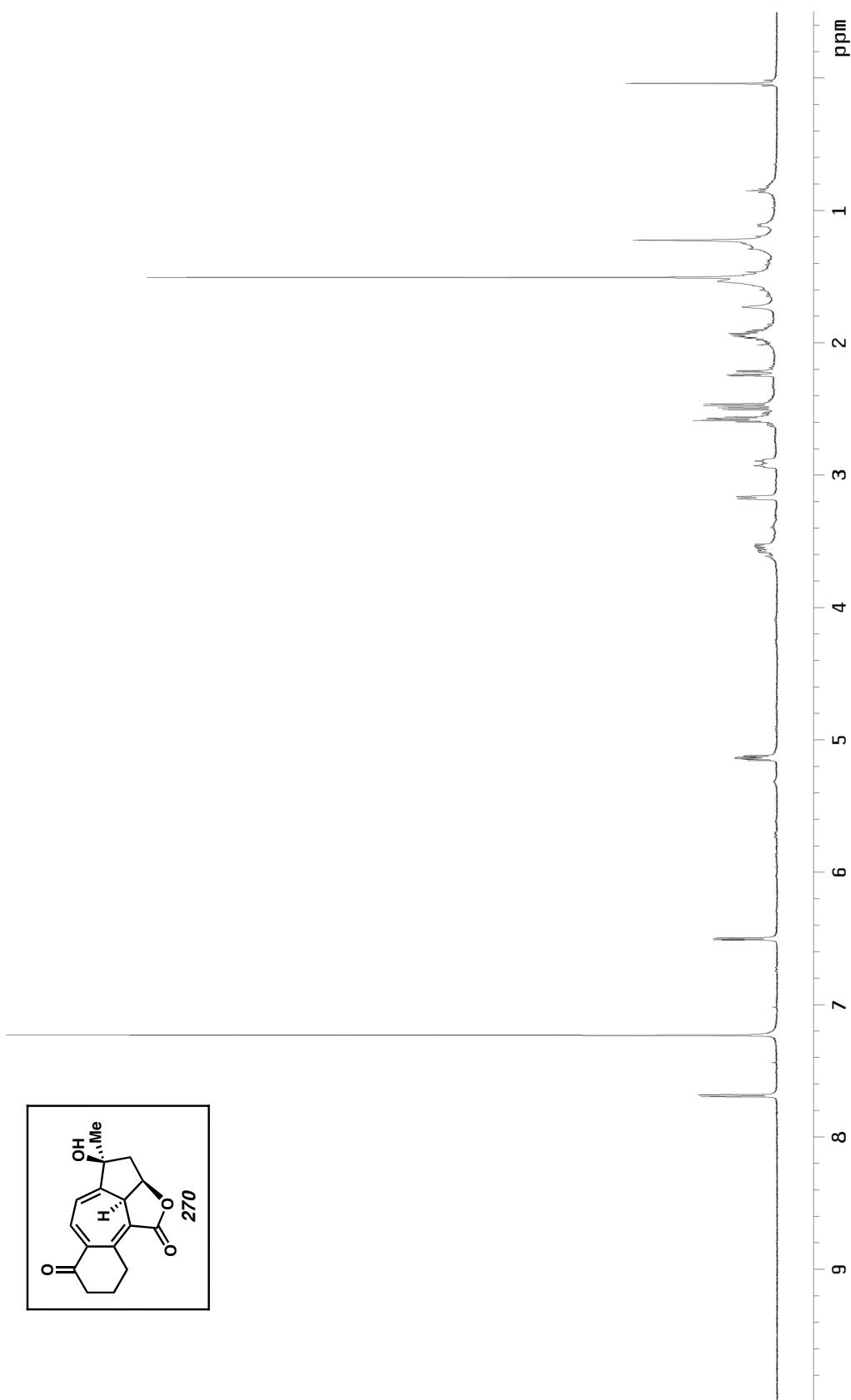


Figure A6.121 ^1H NMR (500 MHz, CDCl_3) of compound **270**

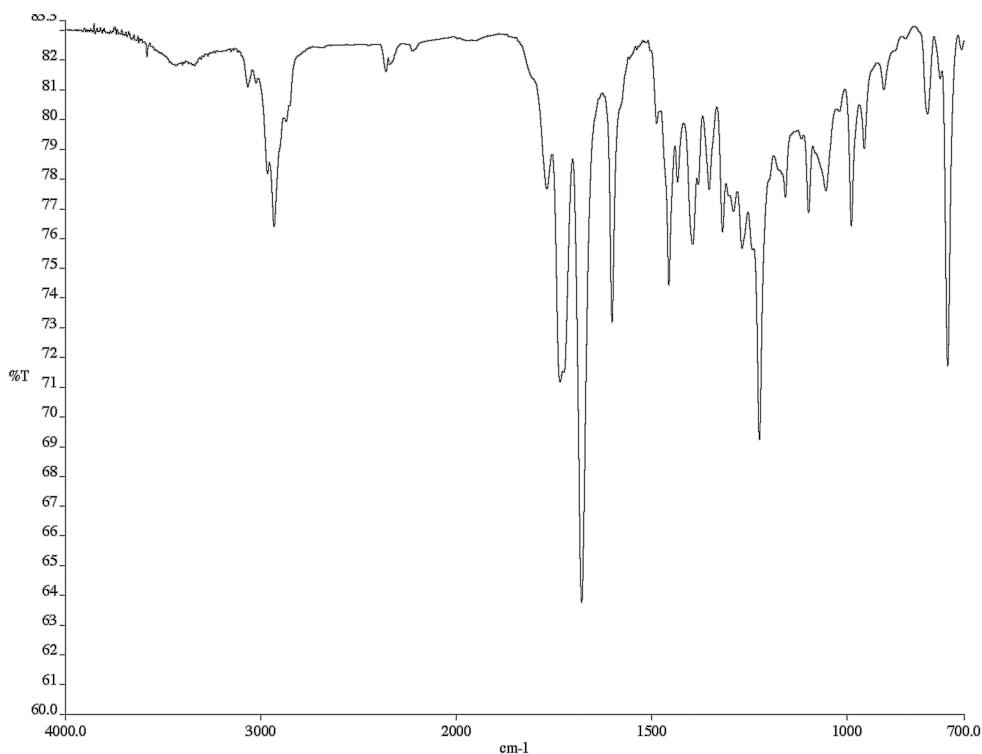


Figure A6.122 Infrared spectrum (thin film/NaCl) of compound **270**

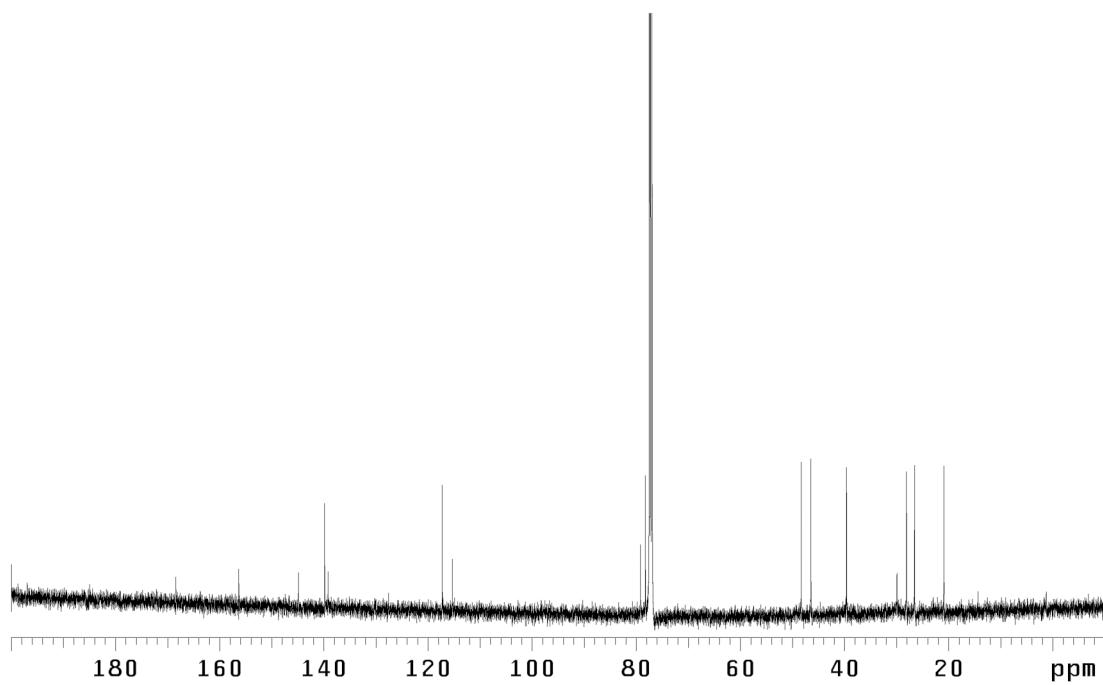


Figure A6.123 ^{13}C NMR (125 MHz, CDCl_3) of compound **270**

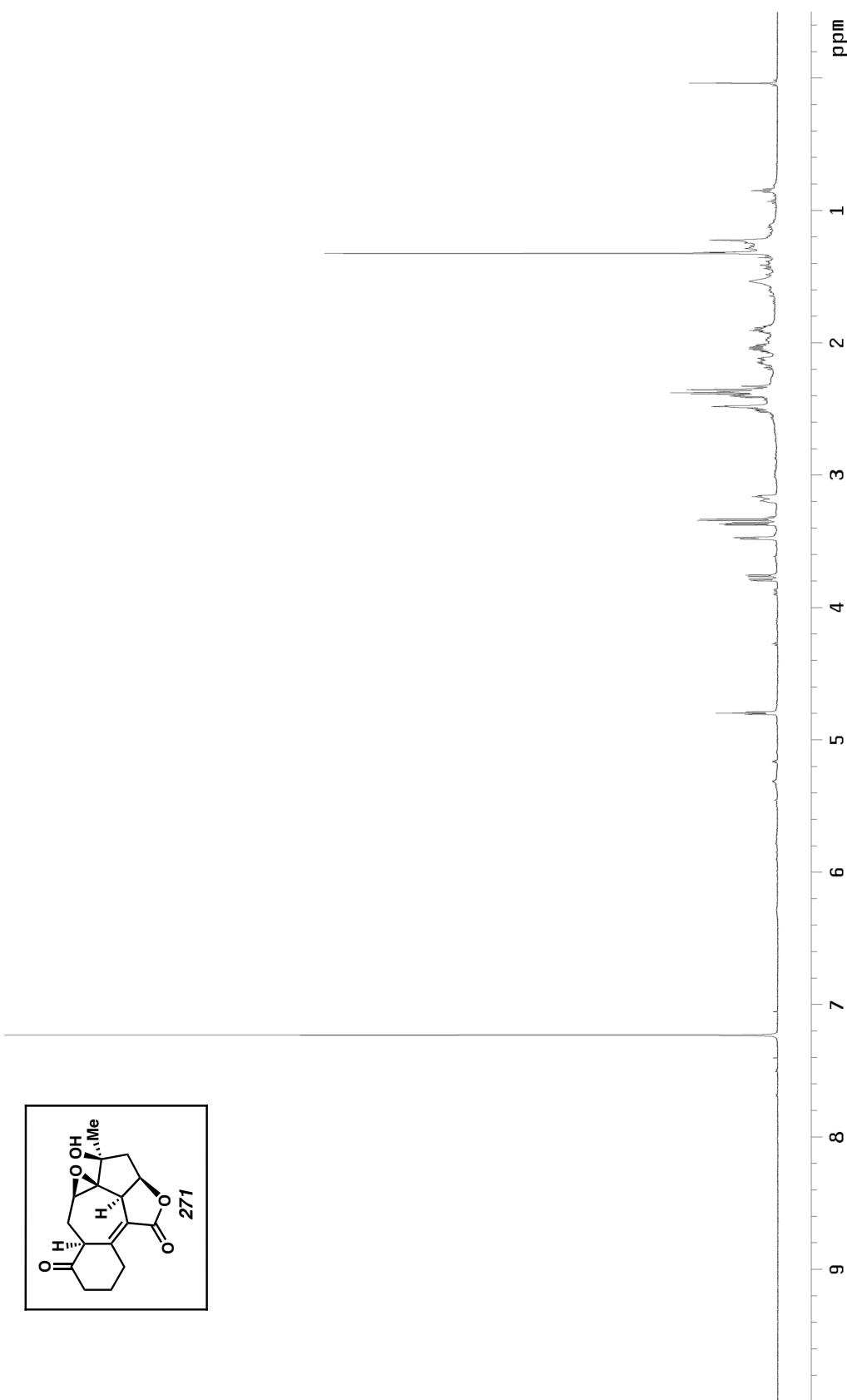


Figure A6.124 ^1H NMR (600 MHz, CDCl_3) of compound 271

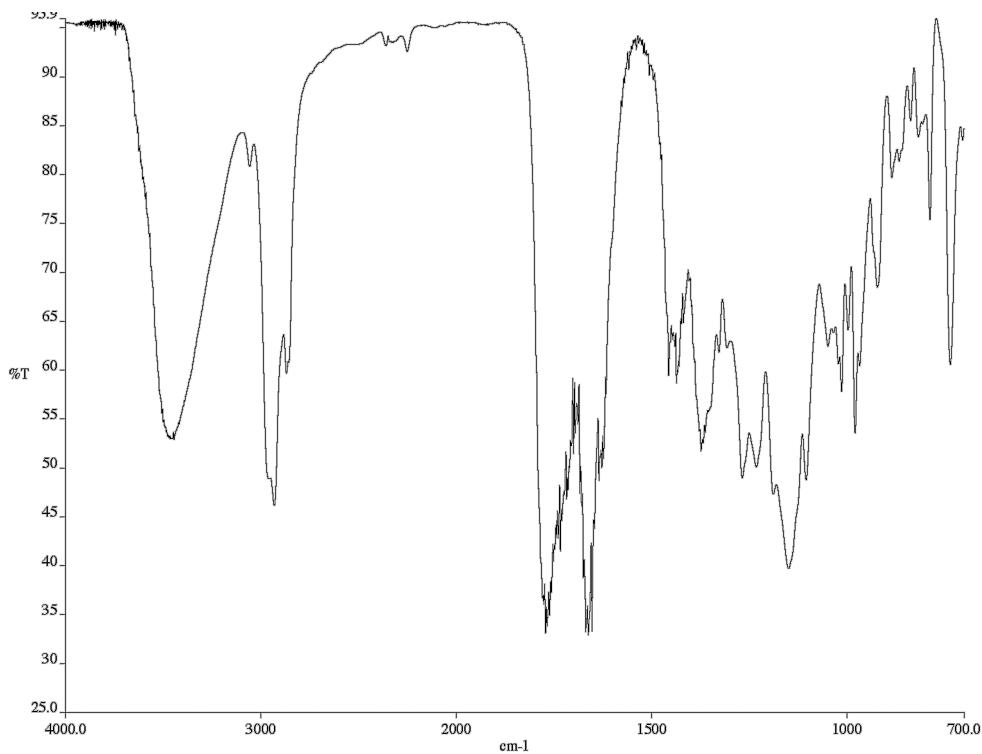


Figure A6.125 Infrared spectrum (thin film/NaCl) of compound **271**

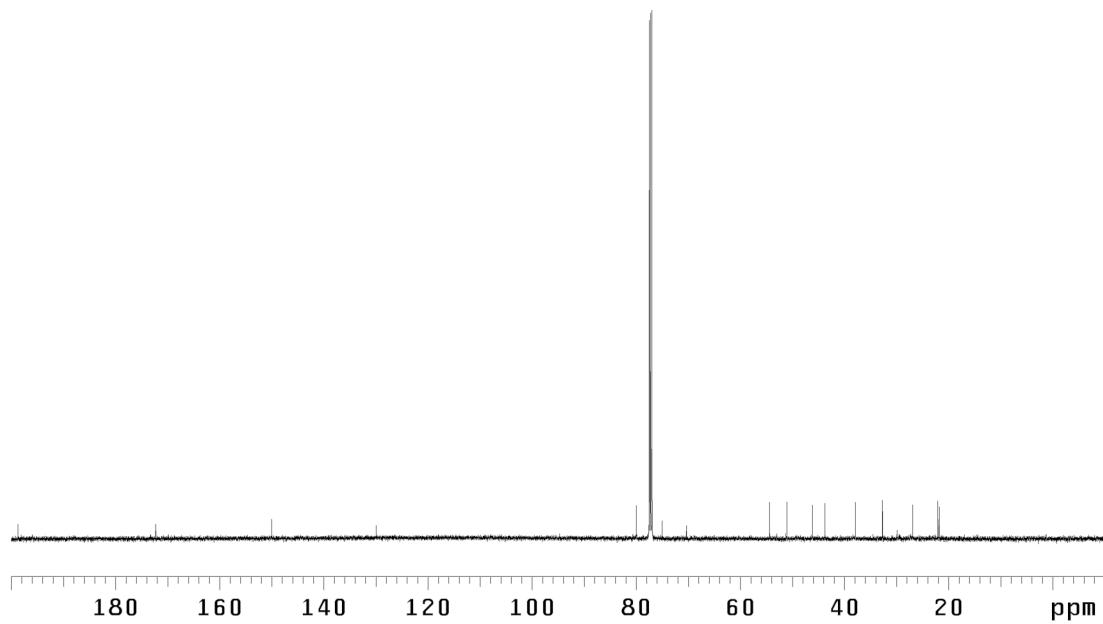


Figure A6.126 ^{13}C NMR (125 MHz, CDCl_3) of compound **271**

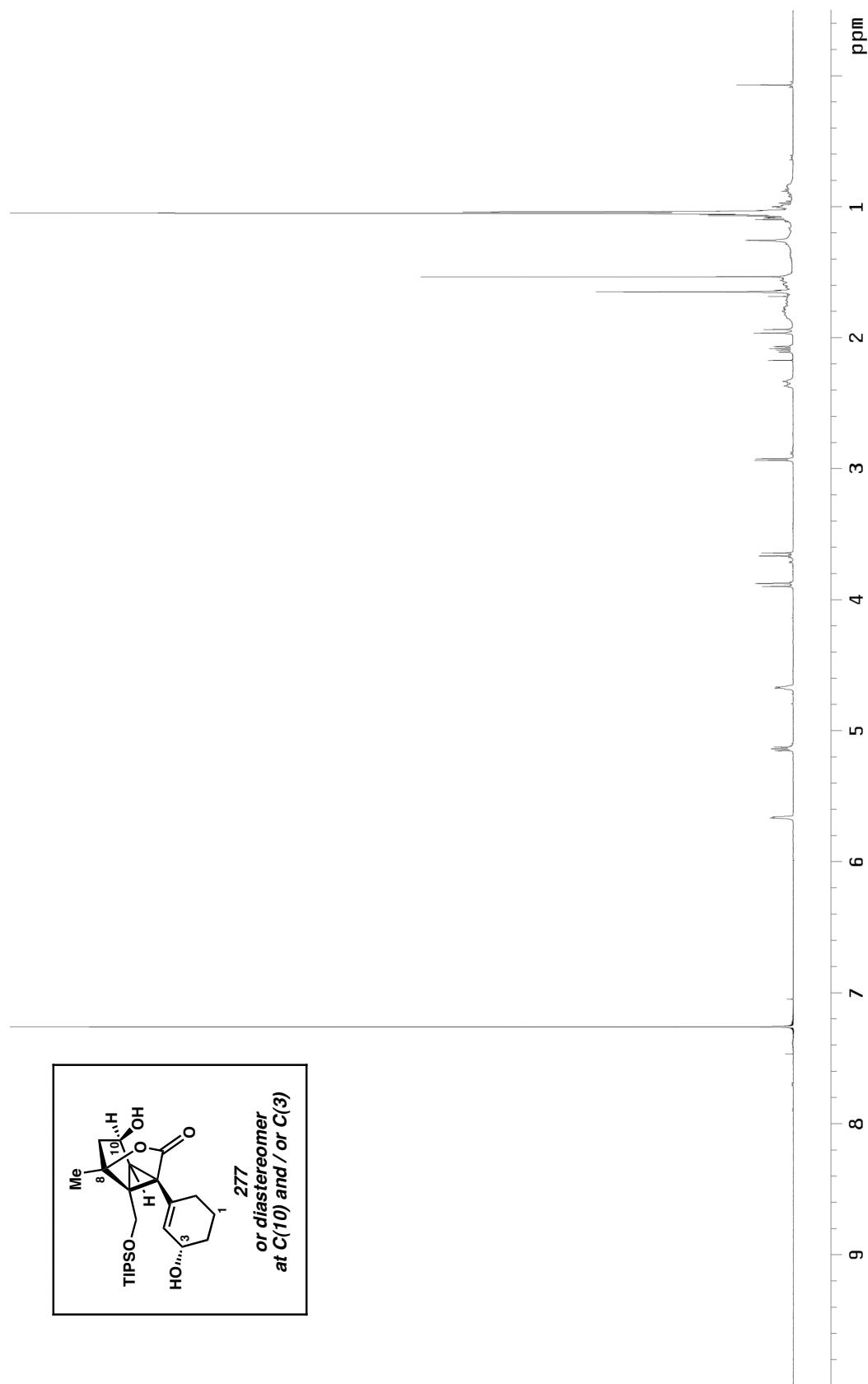


Figure A6.127 ^1H NMR (500 MHz, CDCl_3) of compound 277

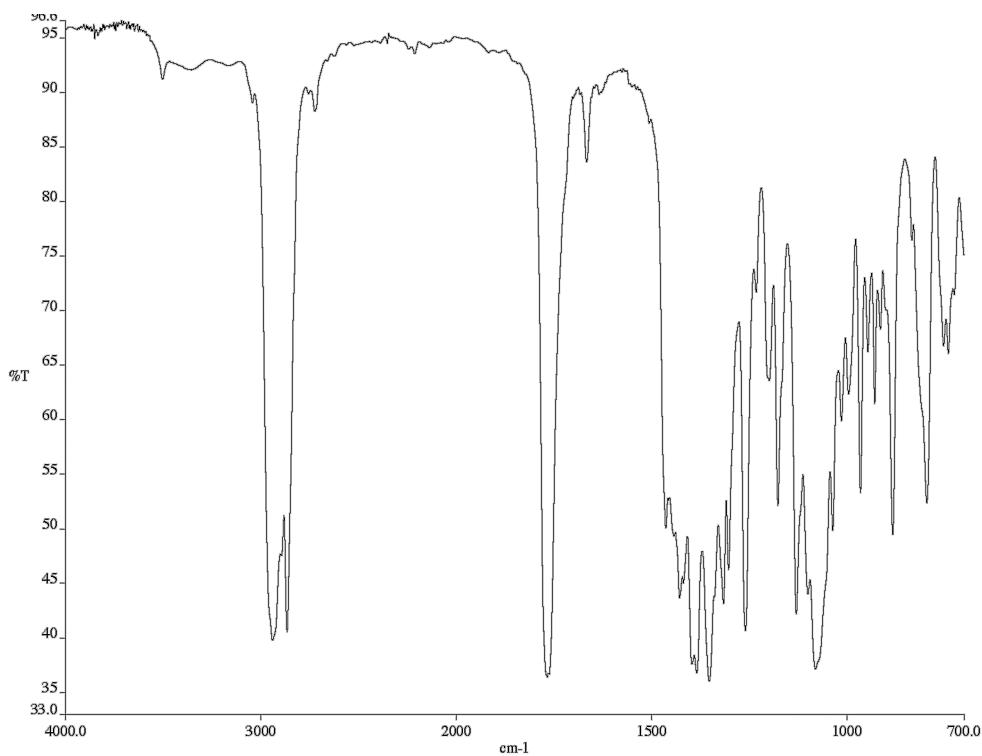


Figure A6.128 Infrared spectrum (thin film/NaCl) of compound **277**

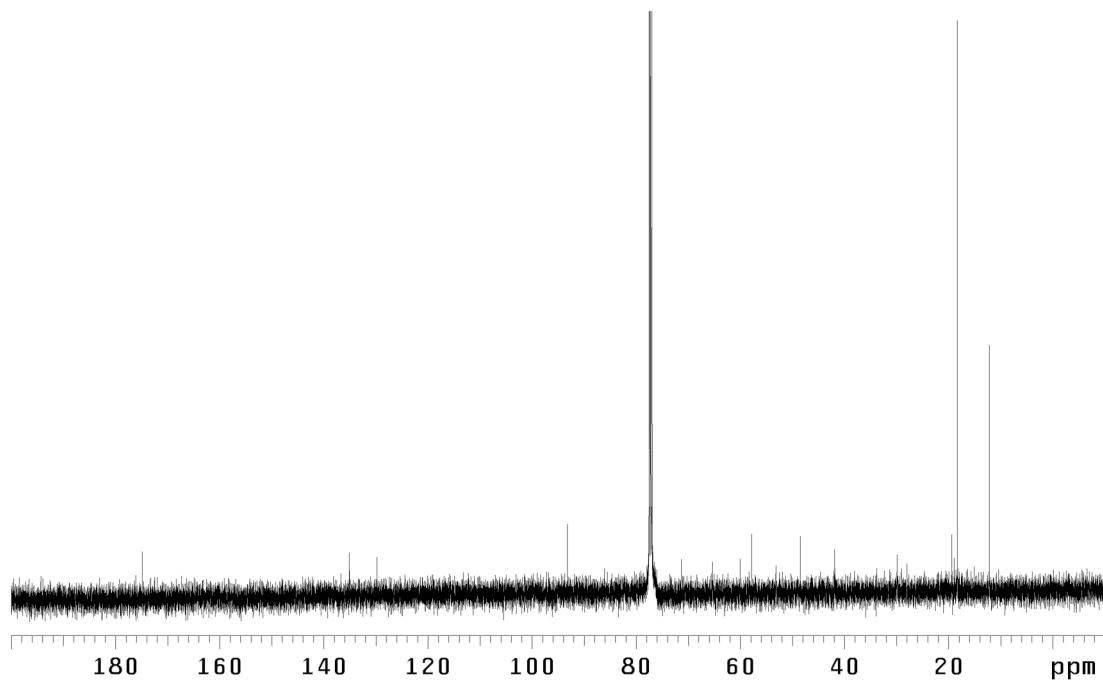


Figure A6.129 ^{13}C NMR (125 MHz, CDCl_3) of compound **277**

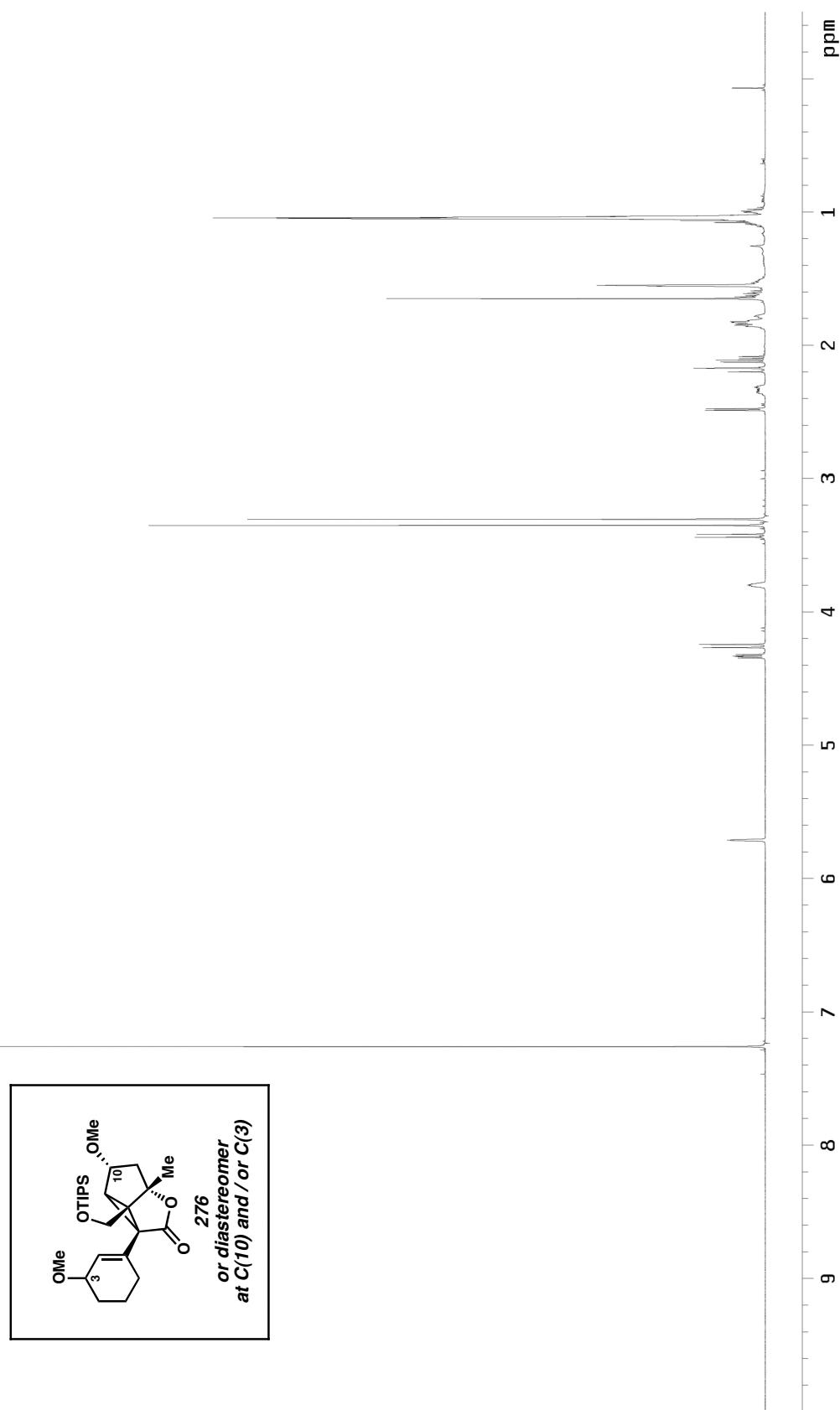


Figure A6.130 ^1H NMR (500 MHz, CDCl_3) of compound **276**

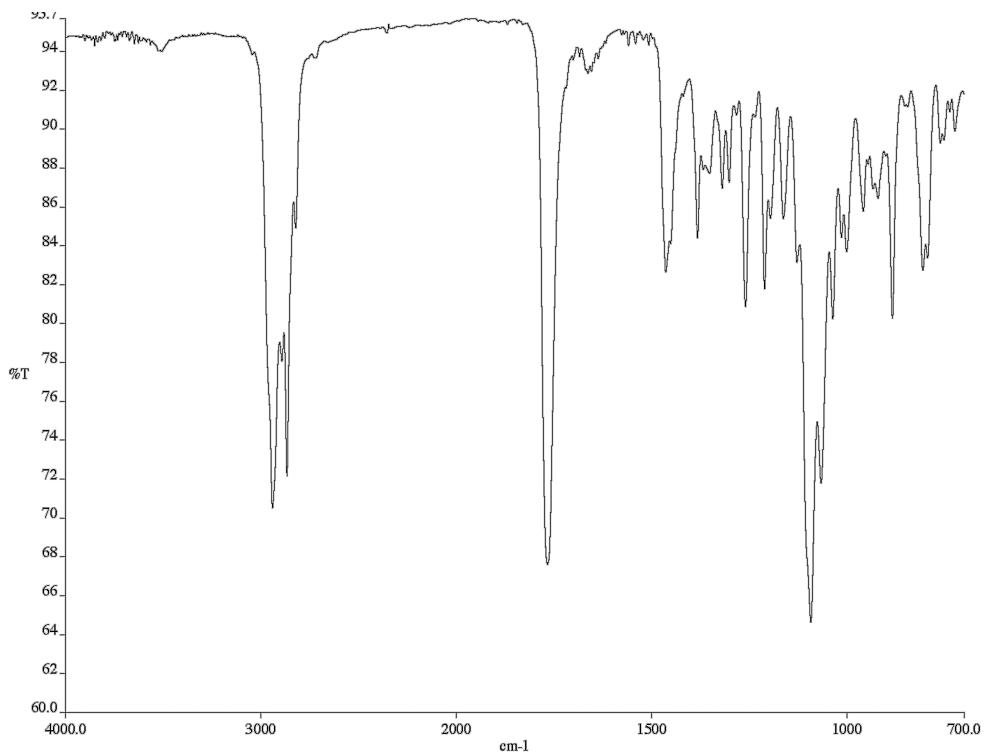


Figure A6.131 Infrared spectrum (thin film/NaCl) of compound **276**

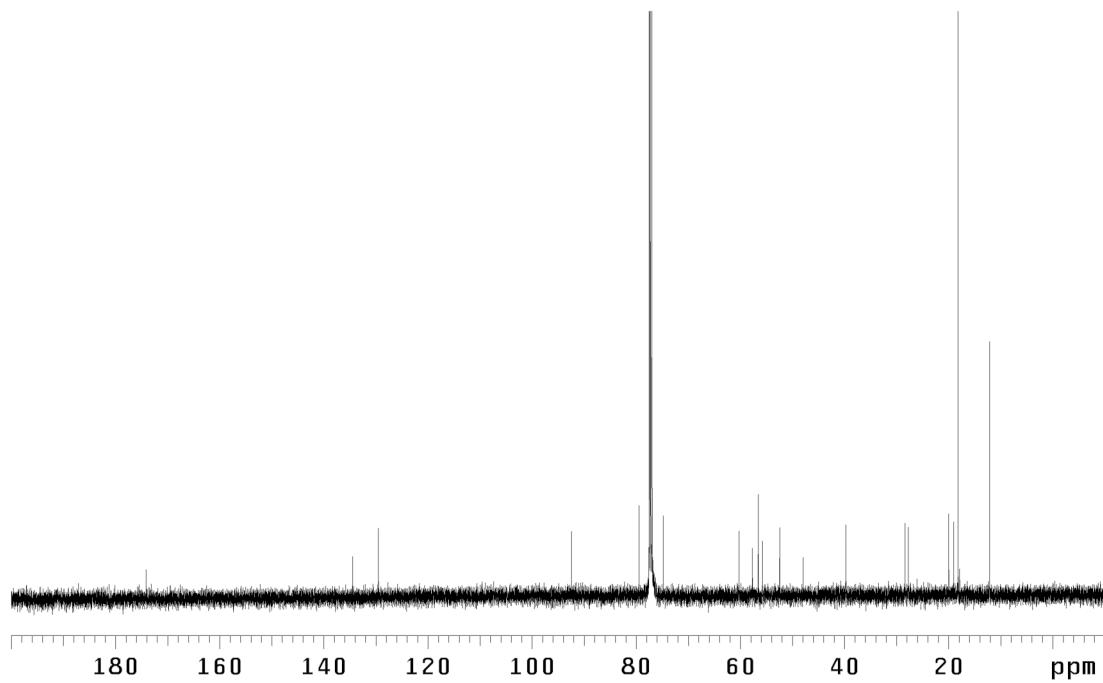


Figure A6.132 ^{13}C NMR (125 MHz, CDCl_3) of compound **276**

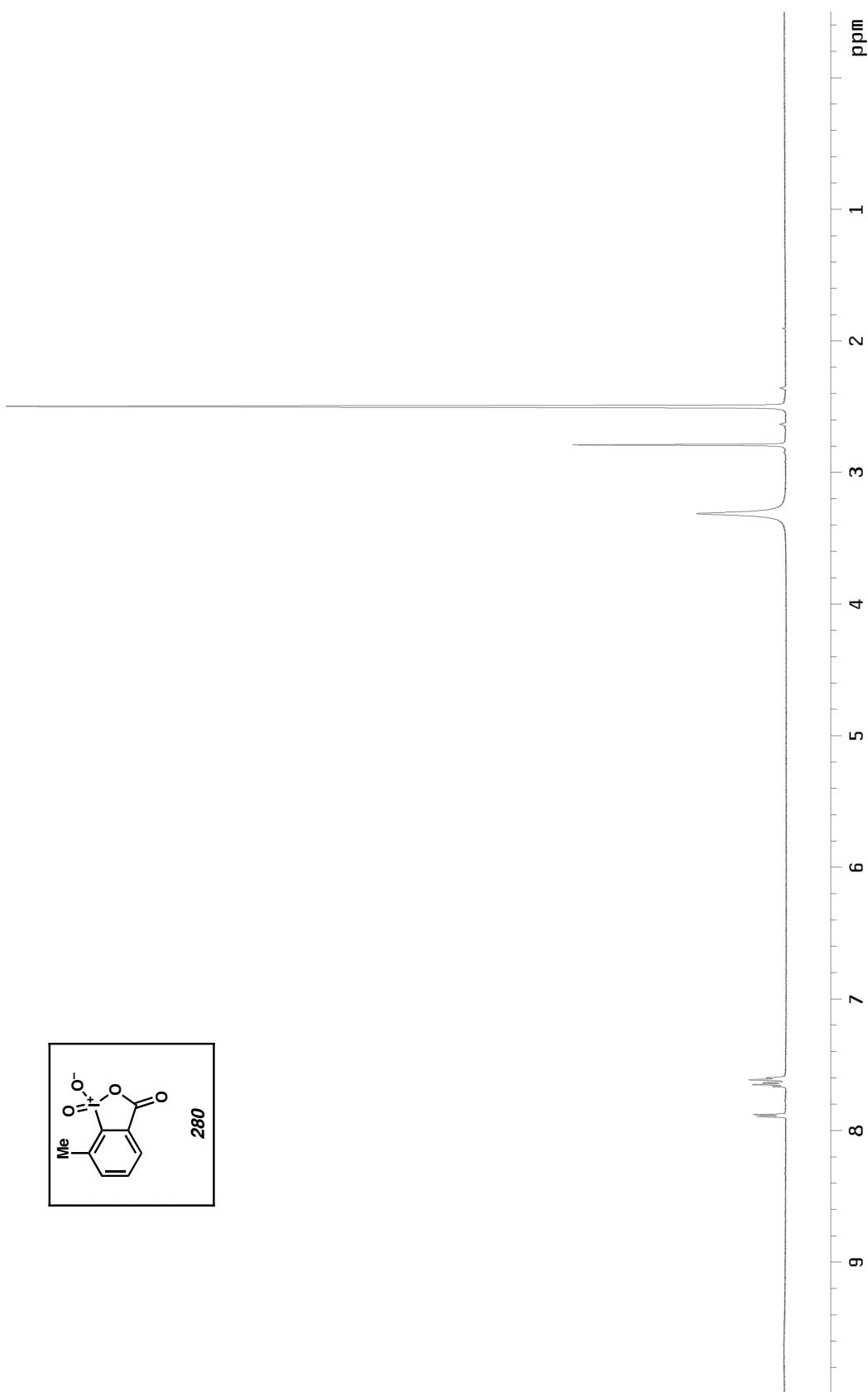


Figure A6.133 ^1H NMR (300 MHz, CDCl_3) of compound **280**

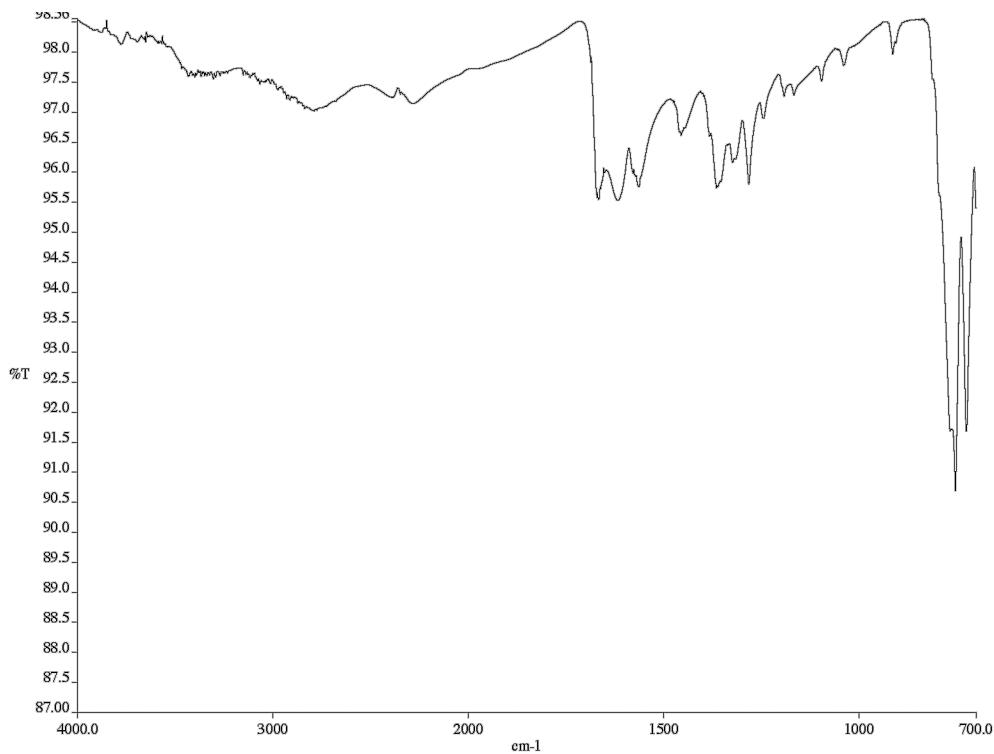


Figure A6.134 Infrared spectrum (thin film/NaCl) of compound **280**

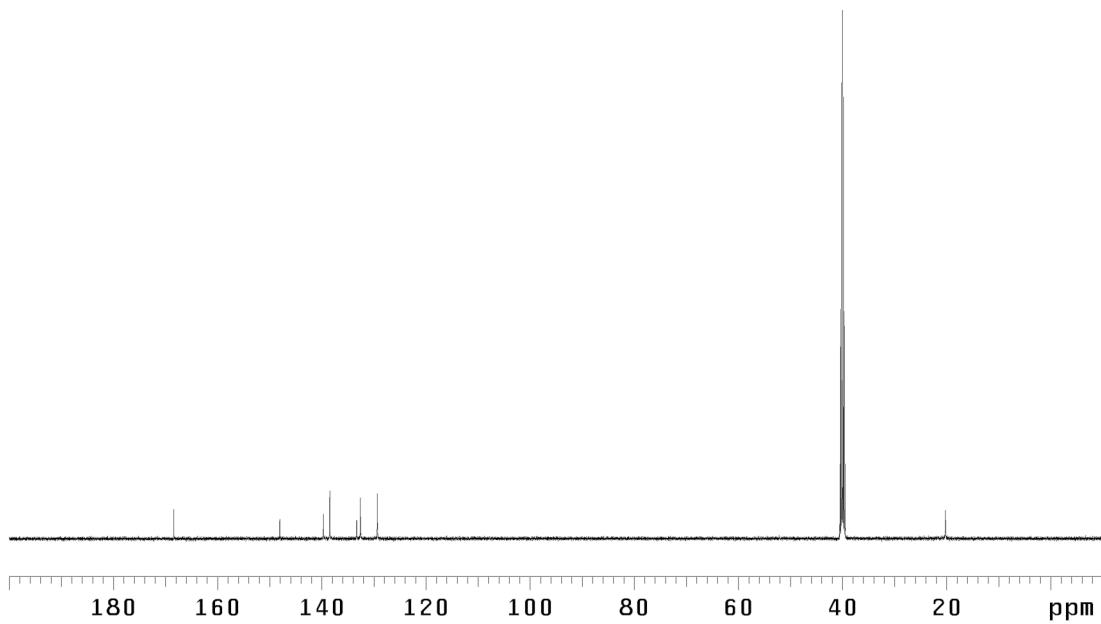


Figure A6.135 ^{13}C NMR (75 MHz, CDCl_3) of compound **280**