

APPENDIX TWO**Spectra of Compounds in Chapter Two**

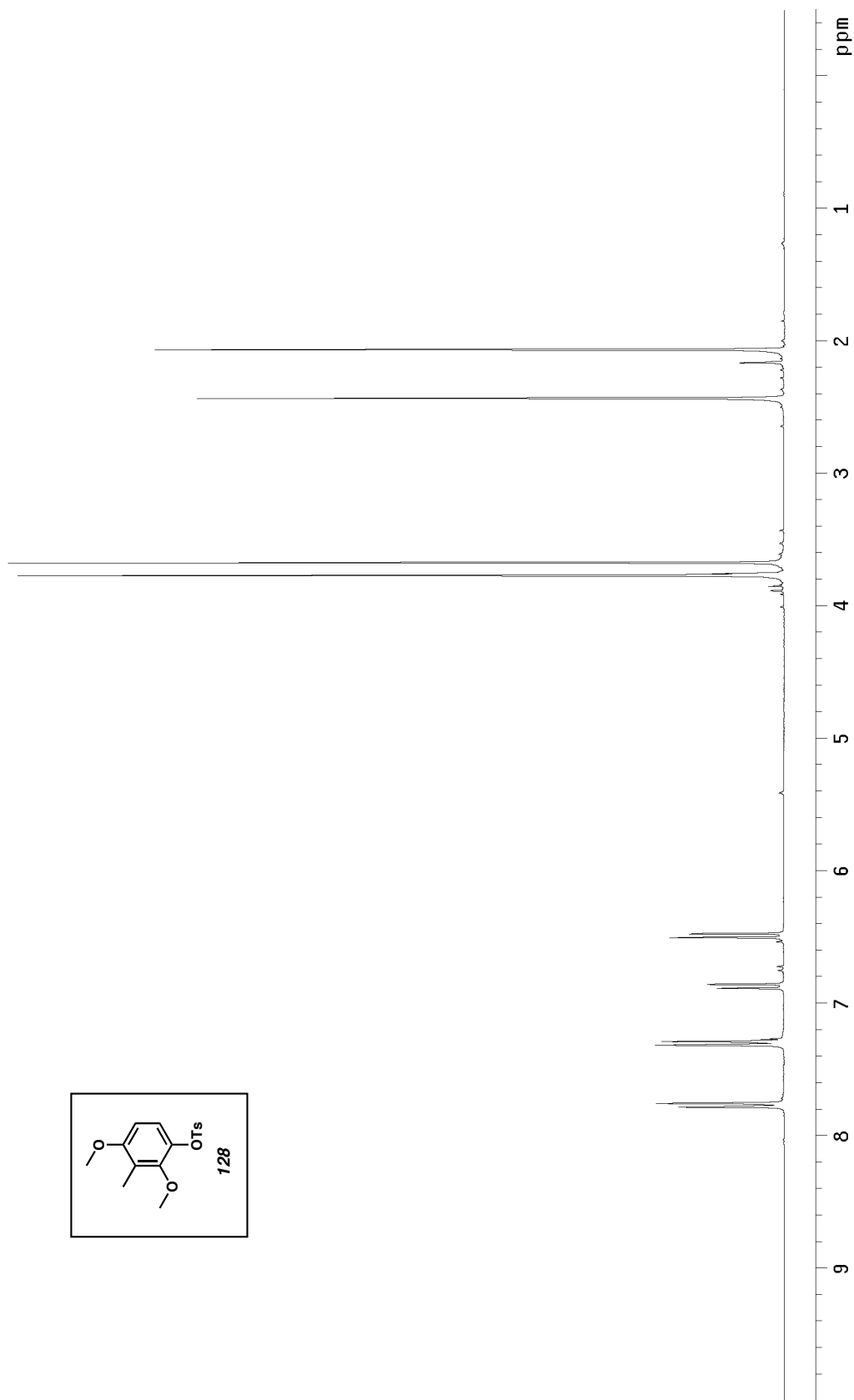
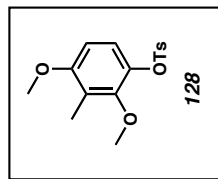


Figure A2.1 ¹H NMR of compound **128** (300 MHz, CDCl₃)

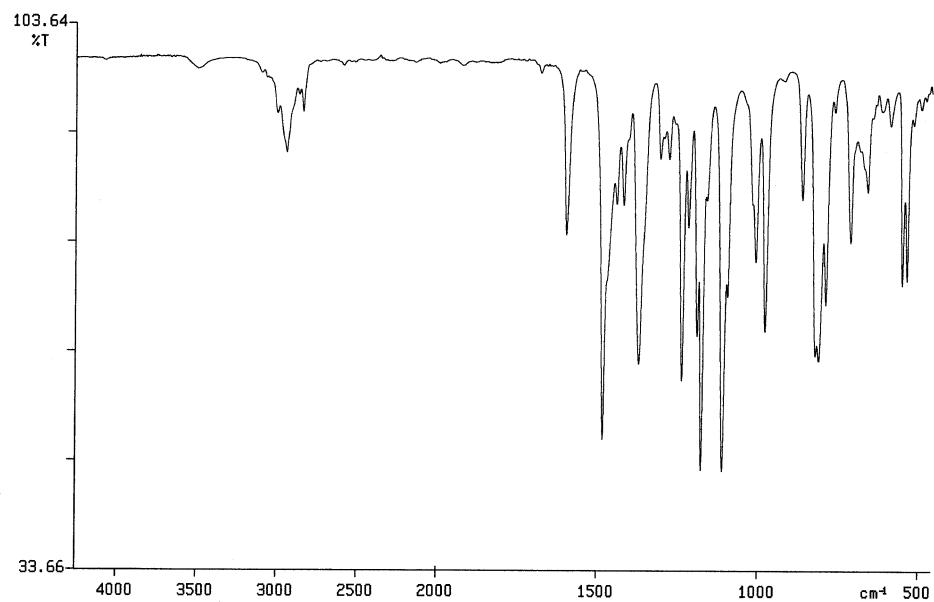


Figure A2.2 IR of compound **128** (NaCl/film)

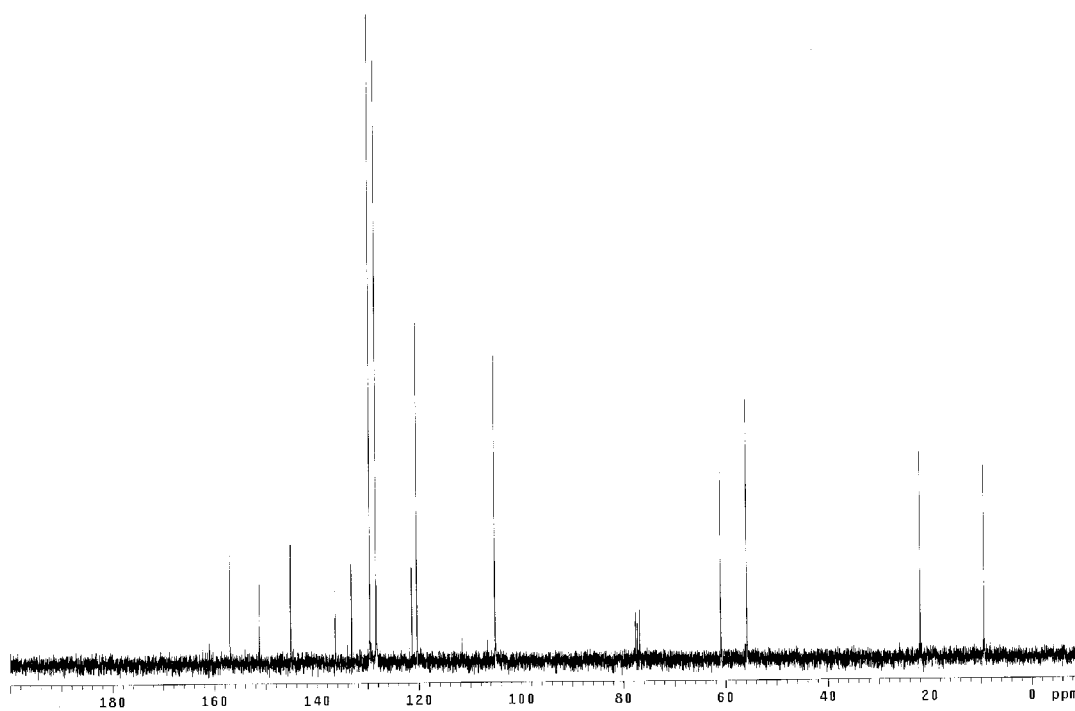


Figure A2.3 ^{13}C NMR of compound **128** (75 MHz, CDCl_3)

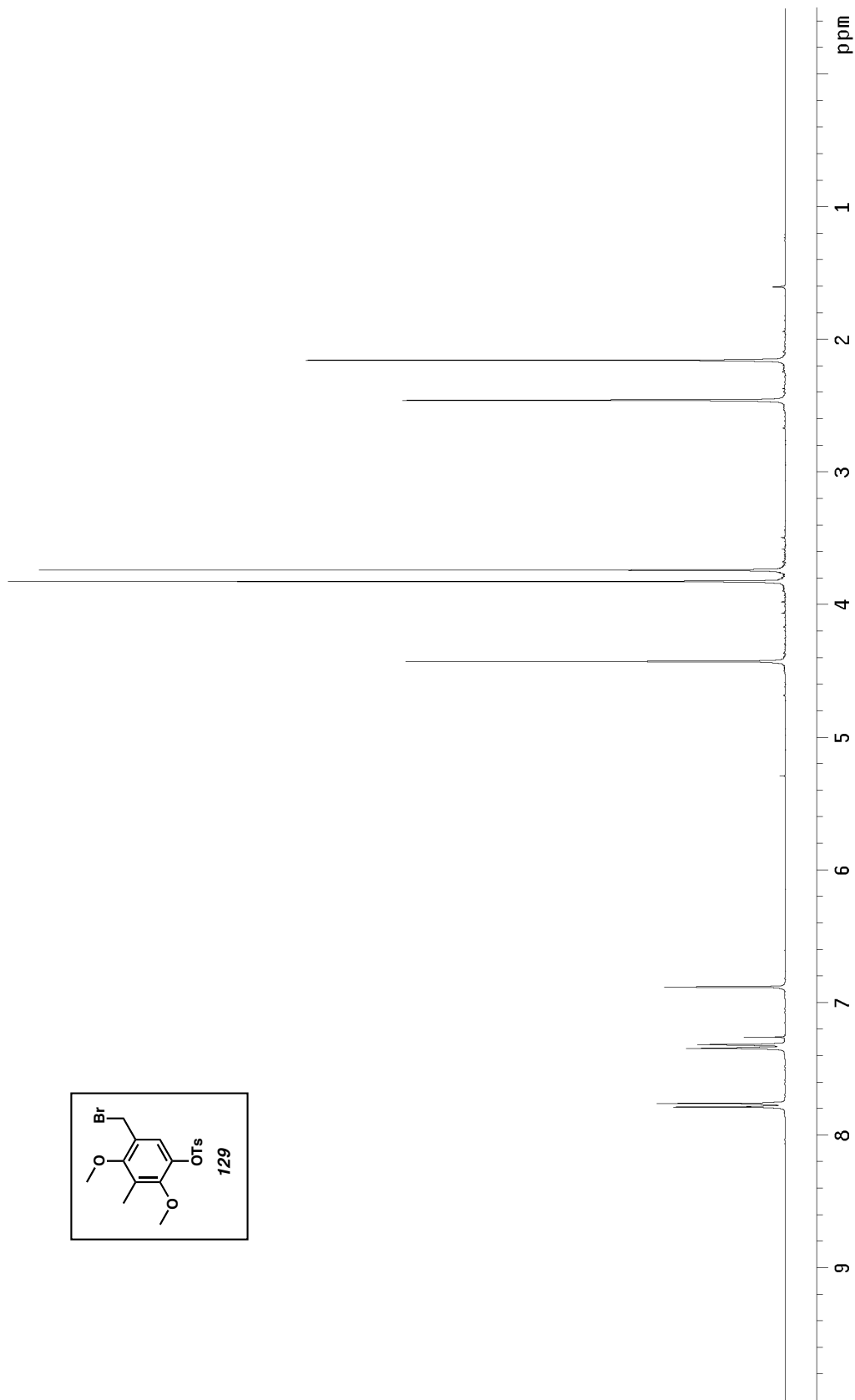
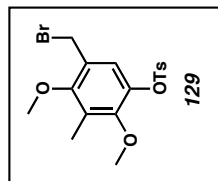


Figure A2.4 ¹H NMR of compound **129** (300 MHz, CDCl₃)

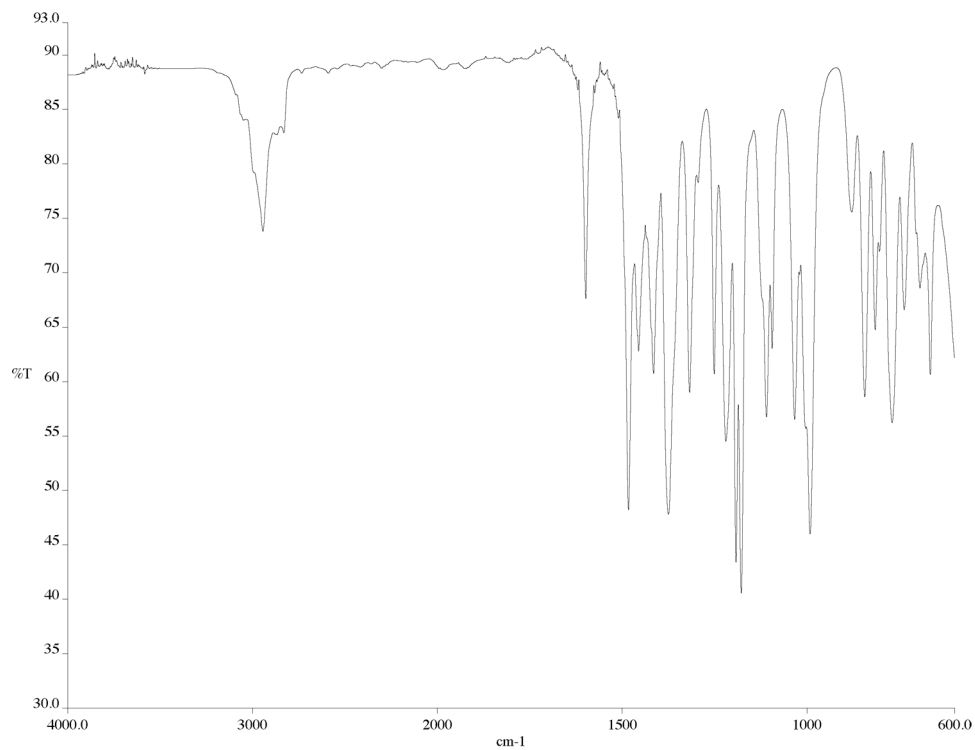


Figure A2.5 IR of compound **129** (NaCl/film)

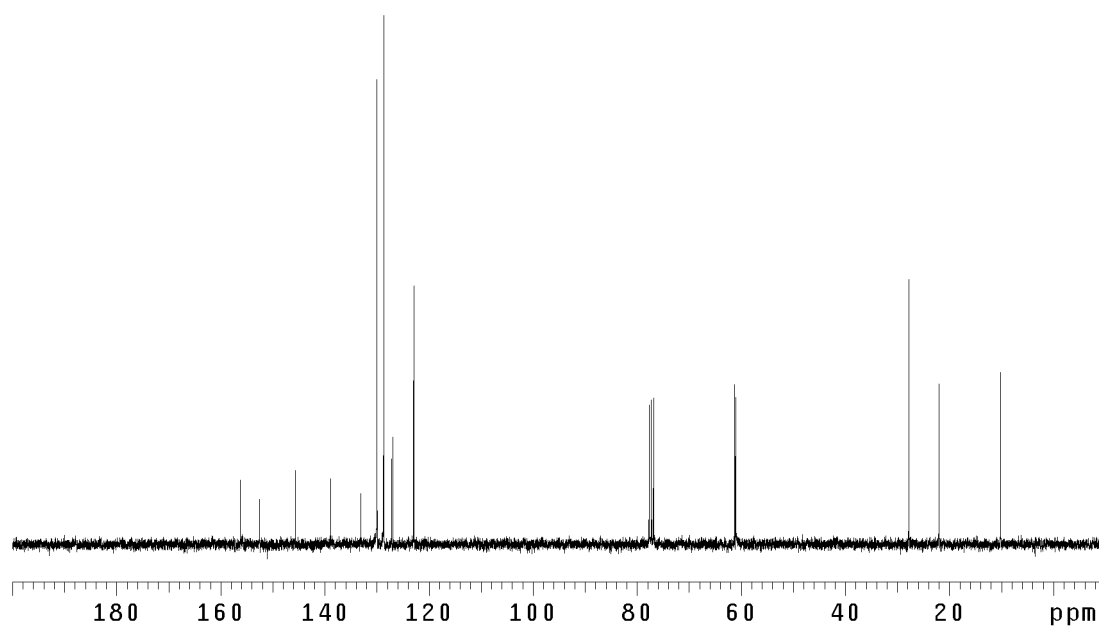


Figure A2.6 ¹³C NMR of compound **129** (75 MHz, CDCl₃)

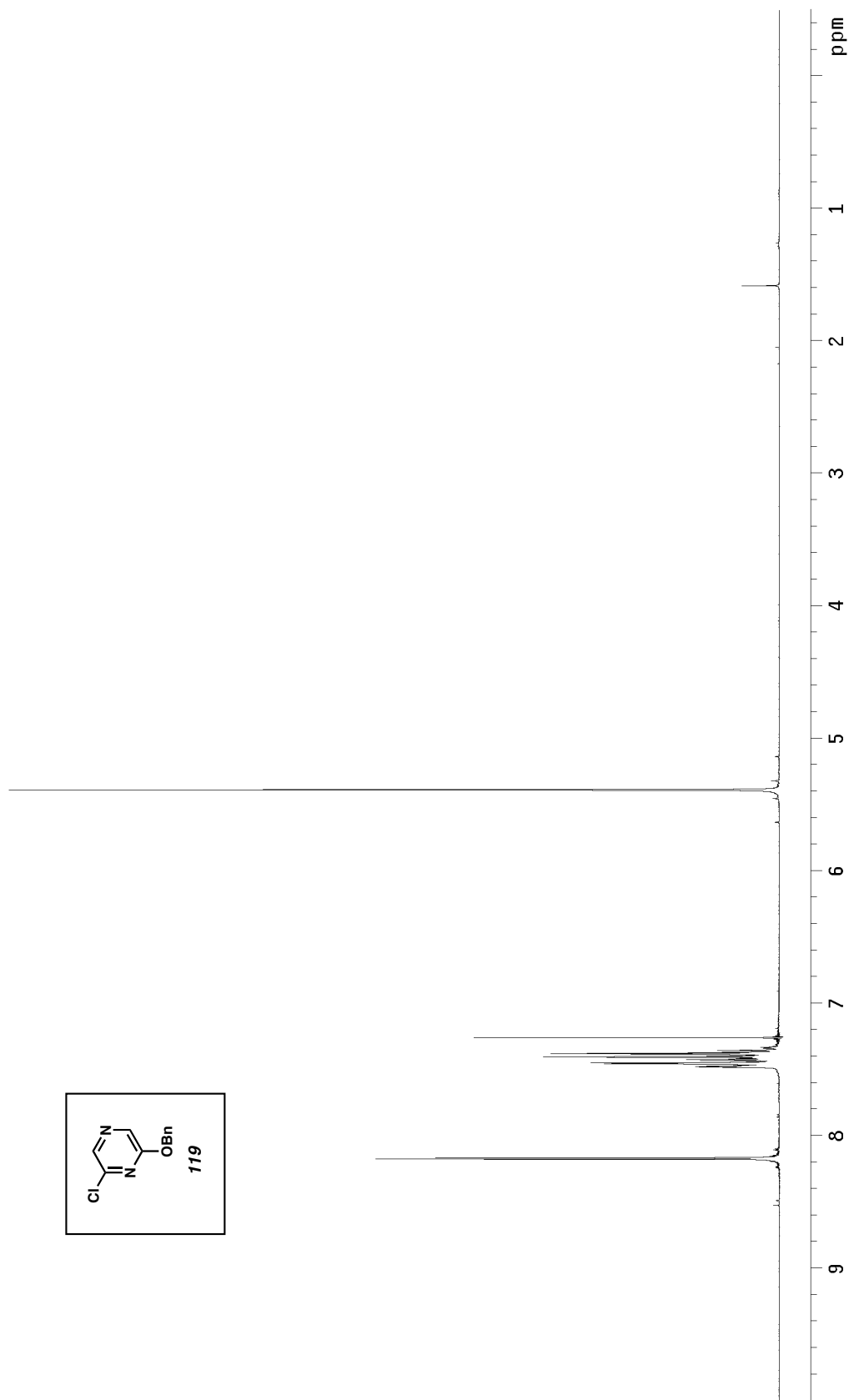
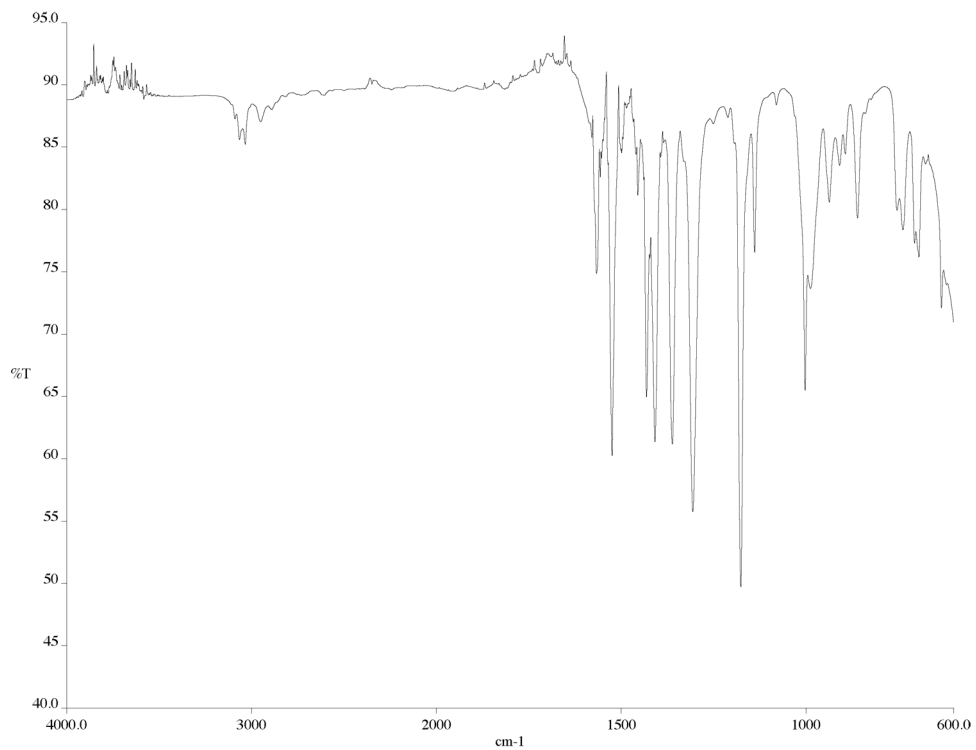
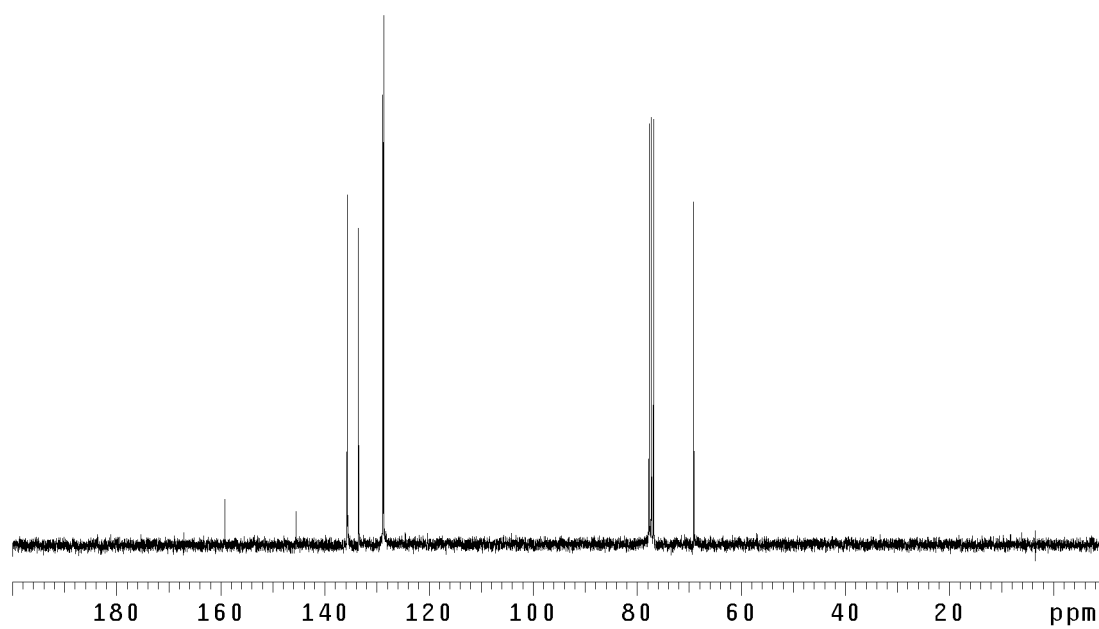


Figure A2.7 ¹H NMR of compound **119** (300 MHz, CDCl₃)

Figure A2.8 IR of compound **119** (NaCl/film)Figure A2.9 ¹³C NMR of compound **119** (75 MHz, CDCl₃)

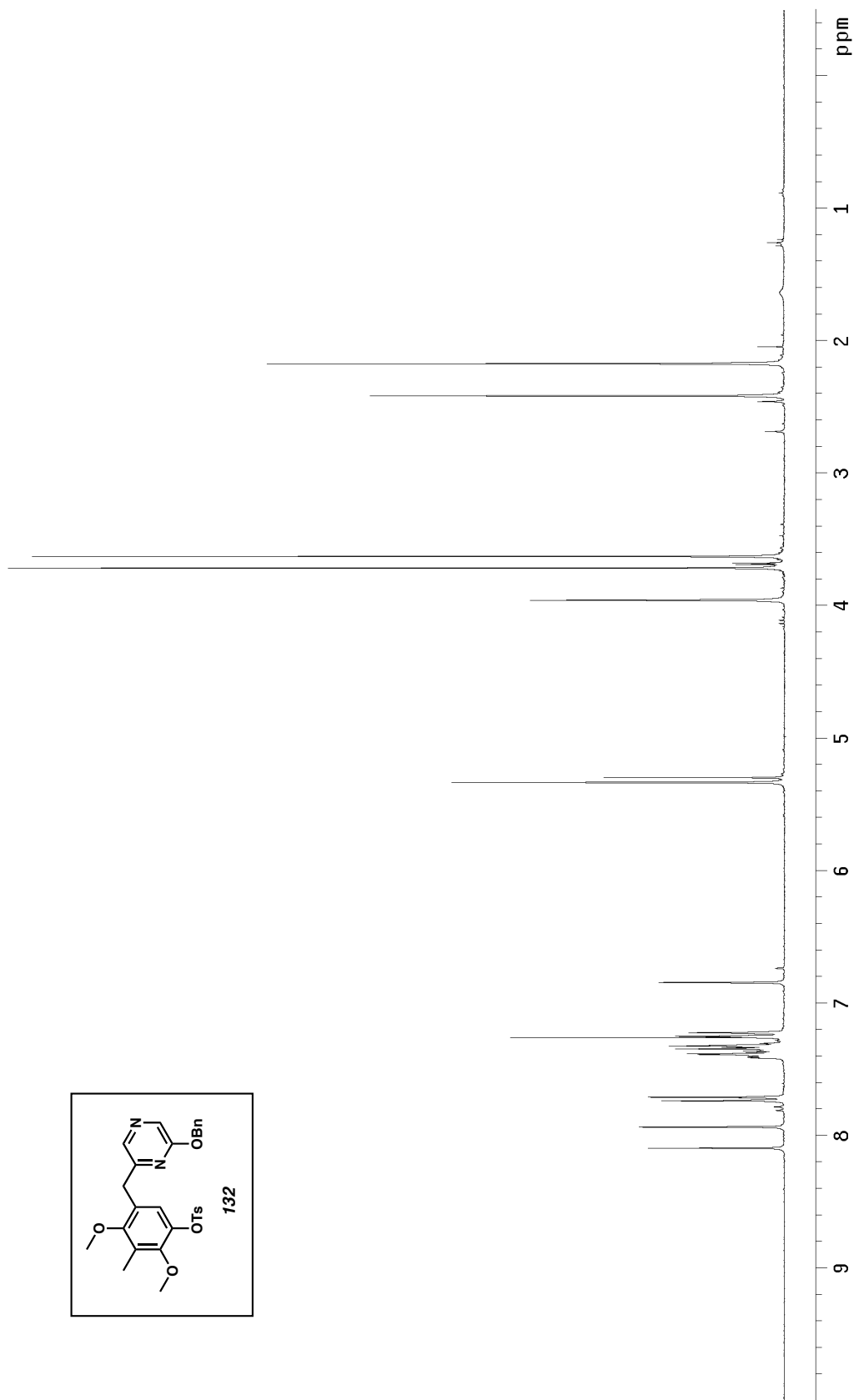
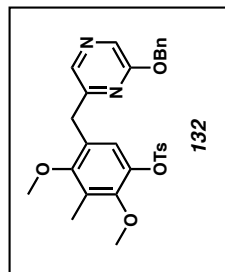
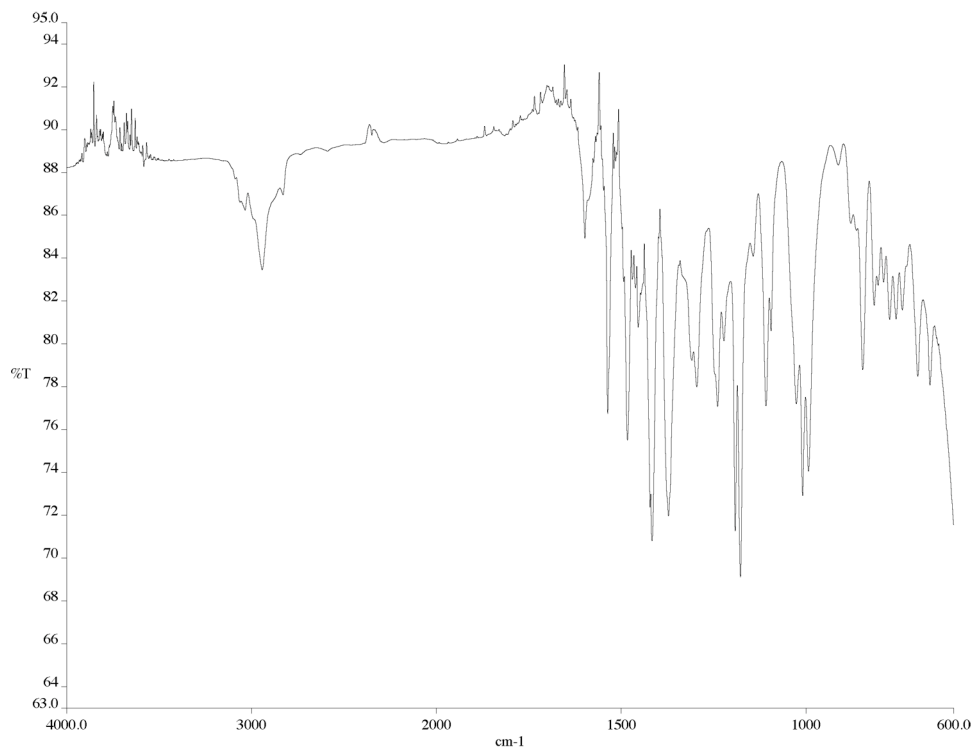
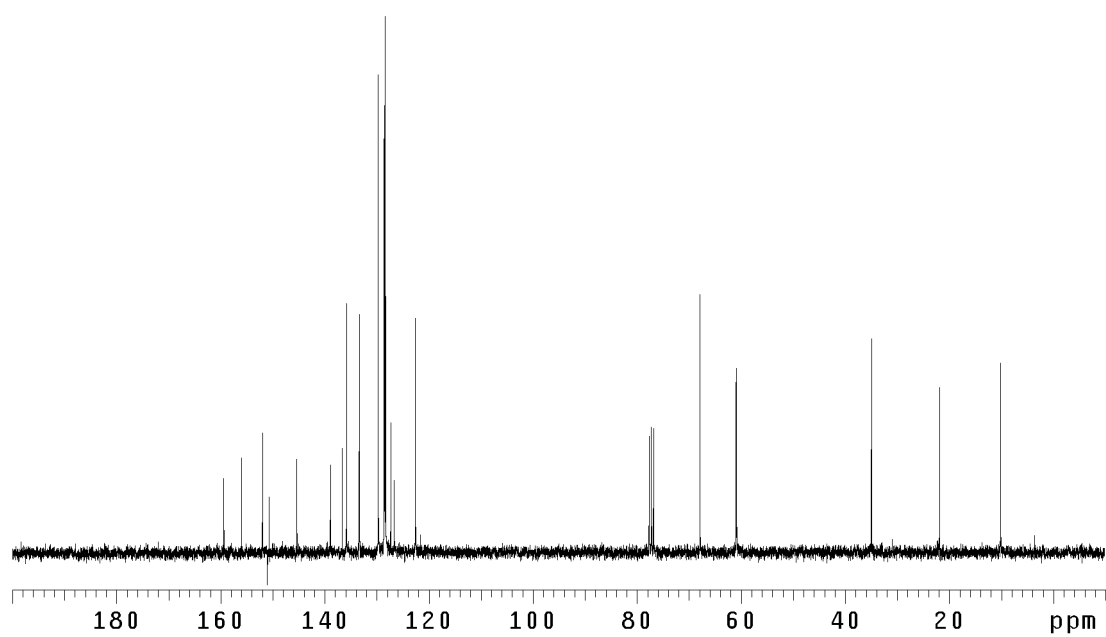


Figure A2.10 ^1H NMR of compound **132** (300 MHz, CDCl_3)

Figure A2.11 IR of compound **132** (NaCl/film)Figure A2.12 ¹³C NMR of compound **132** (75 MHz, CDCl₃)

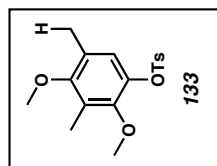
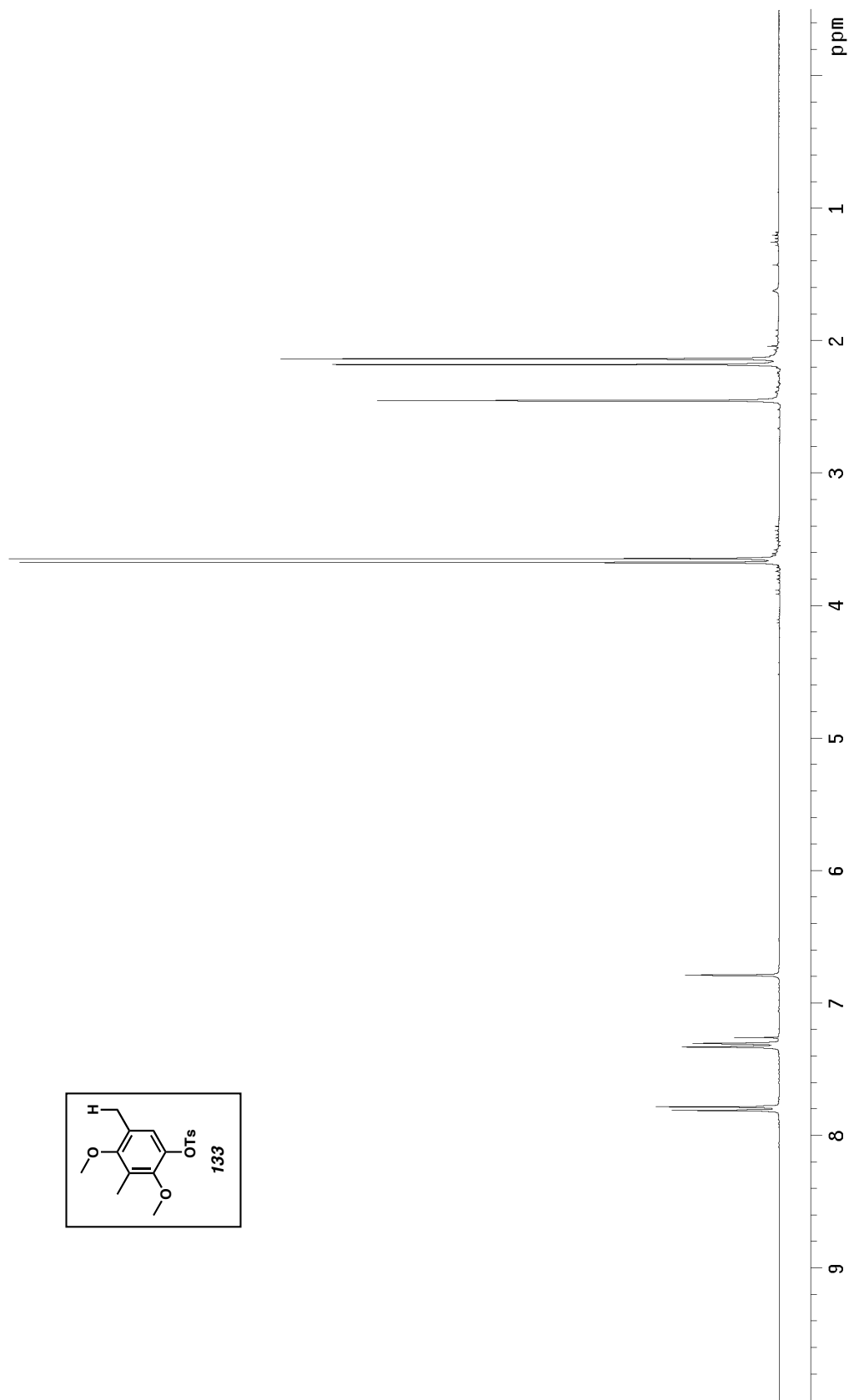
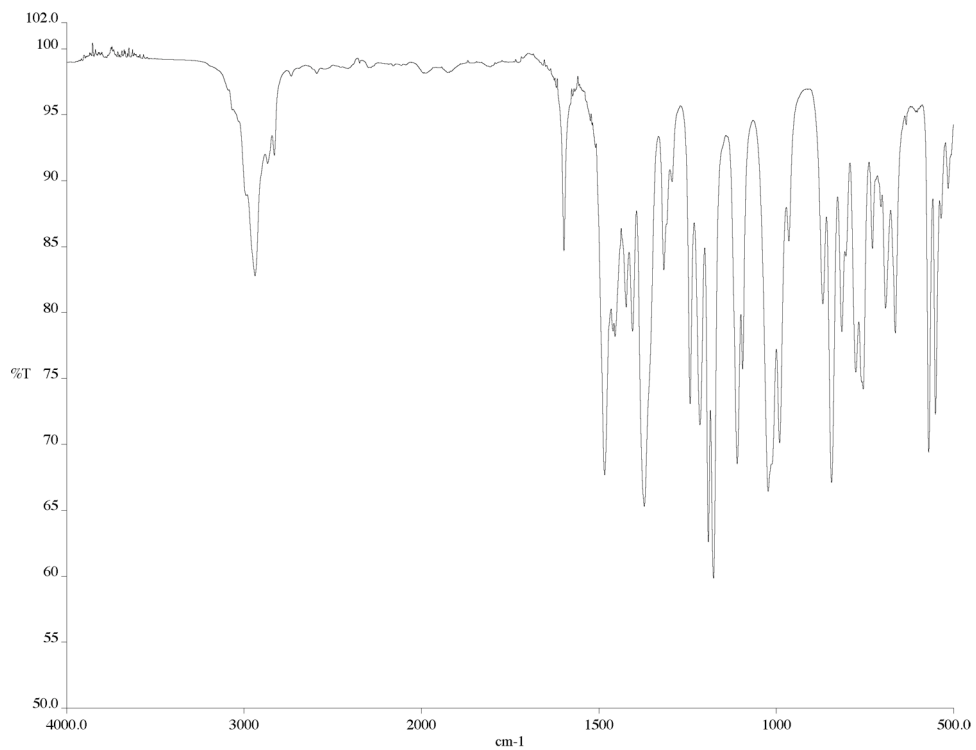
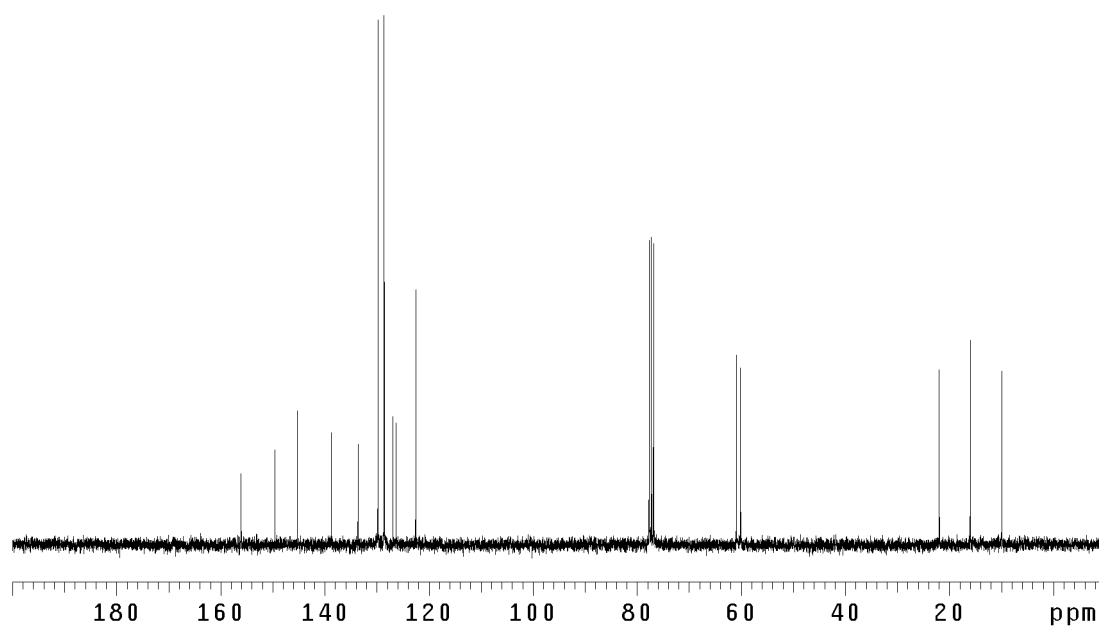


Figure A2.13 ¹H NMR of compound **133** (300 MHz, CDCl₃)

Figure A2.14 IR of compound **133** (NaCl/film)Figure A2.15 ¹³C NMR of compound **133** (75 MHz, CDCl₃)

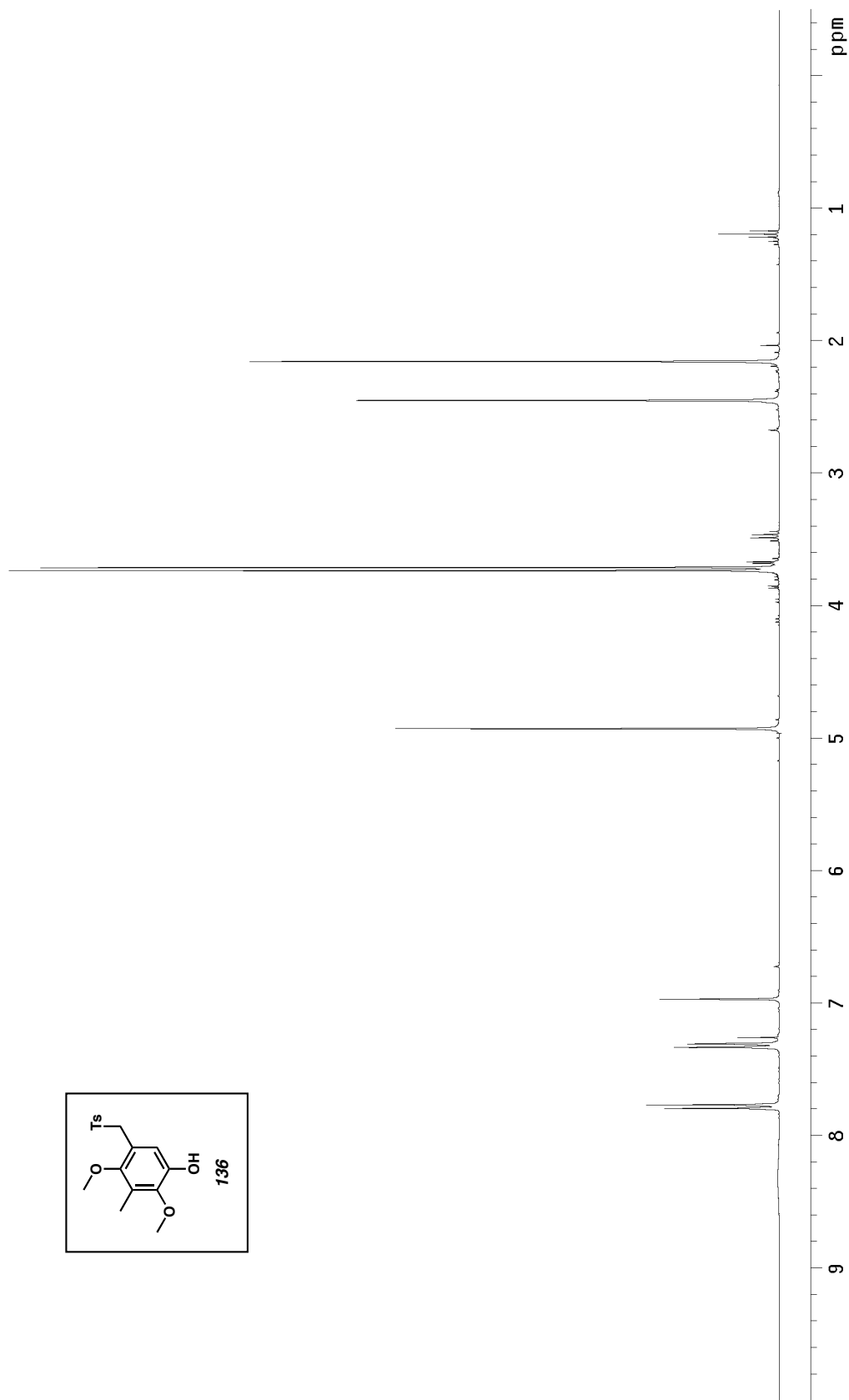
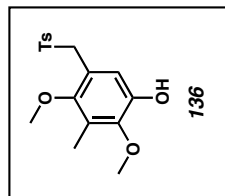
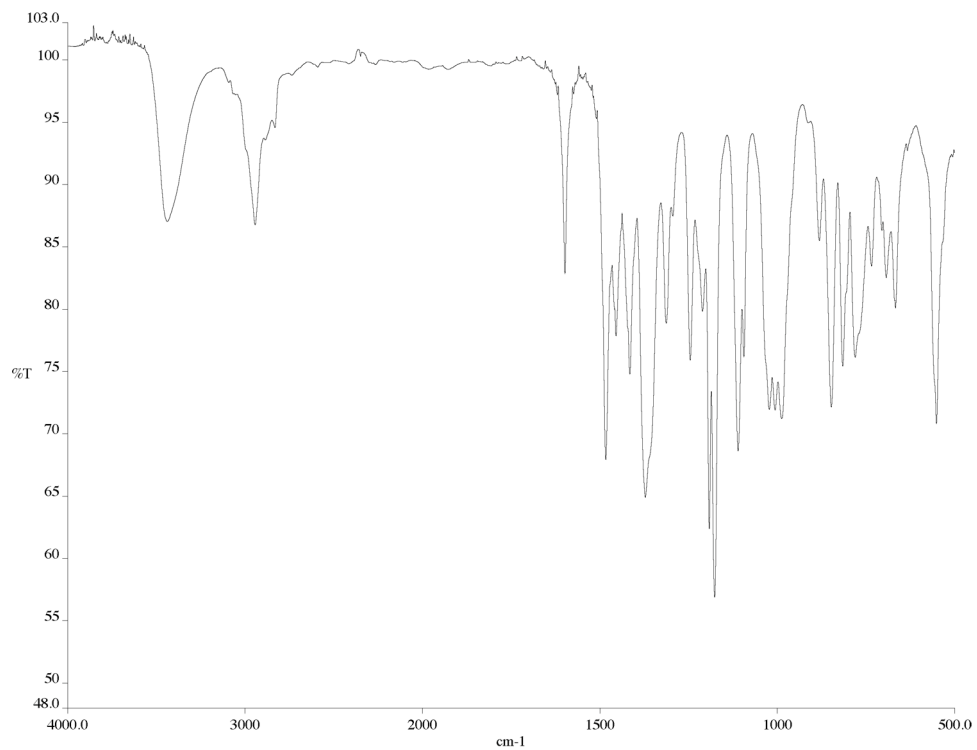
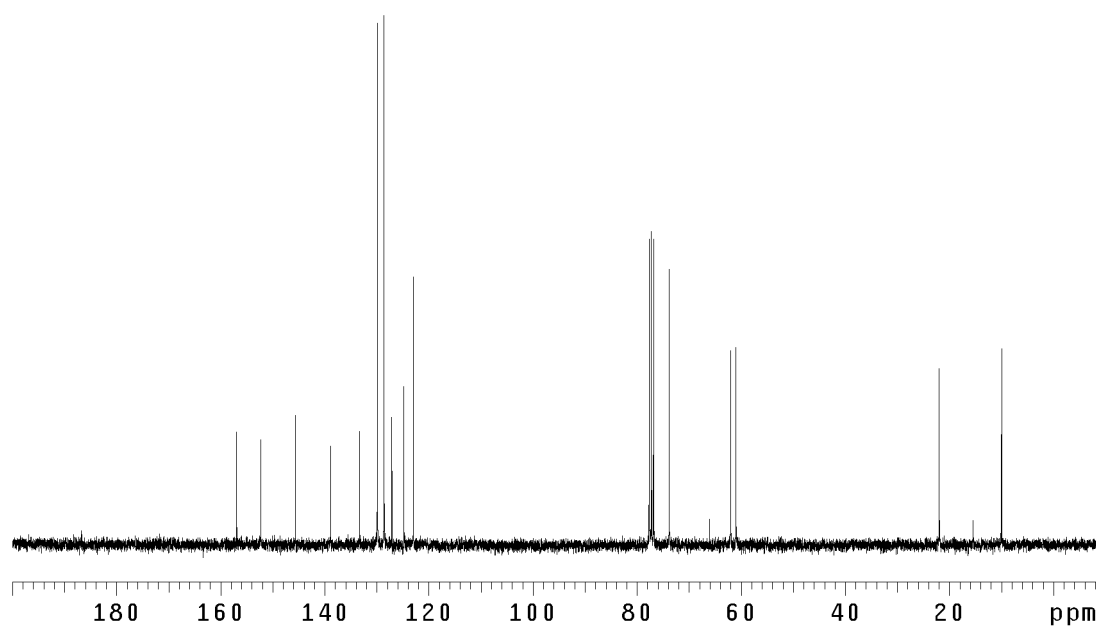


Figure A2.16 ¹H NMR of compound **136** (300 MHz, CDCl₃)

Figure A2.17 IR of compound **136** (NaCl/film)Figure A2.18 ¹³C NMR of compound **136** (75 MHz, CDCl₃)

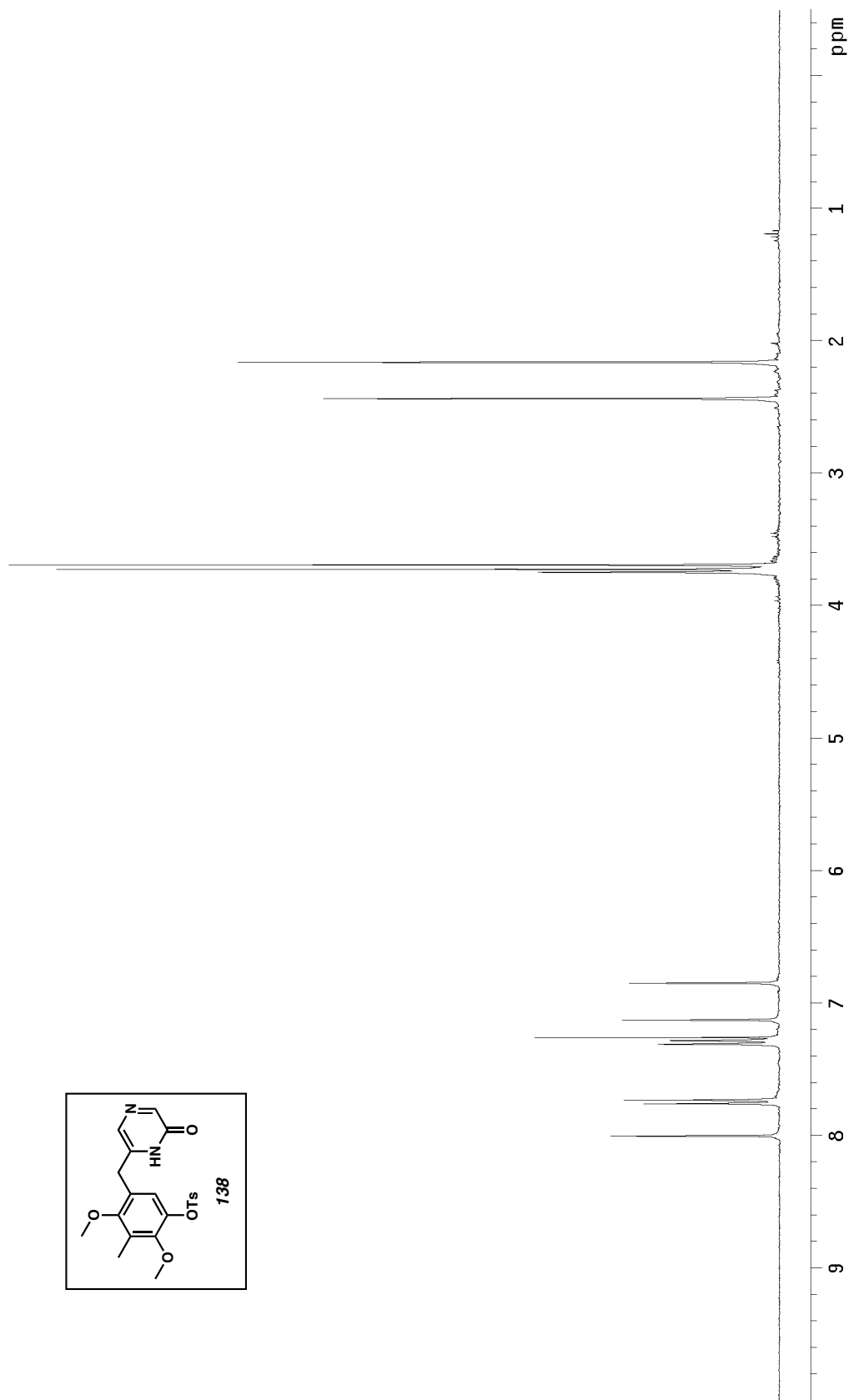
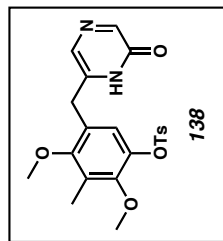
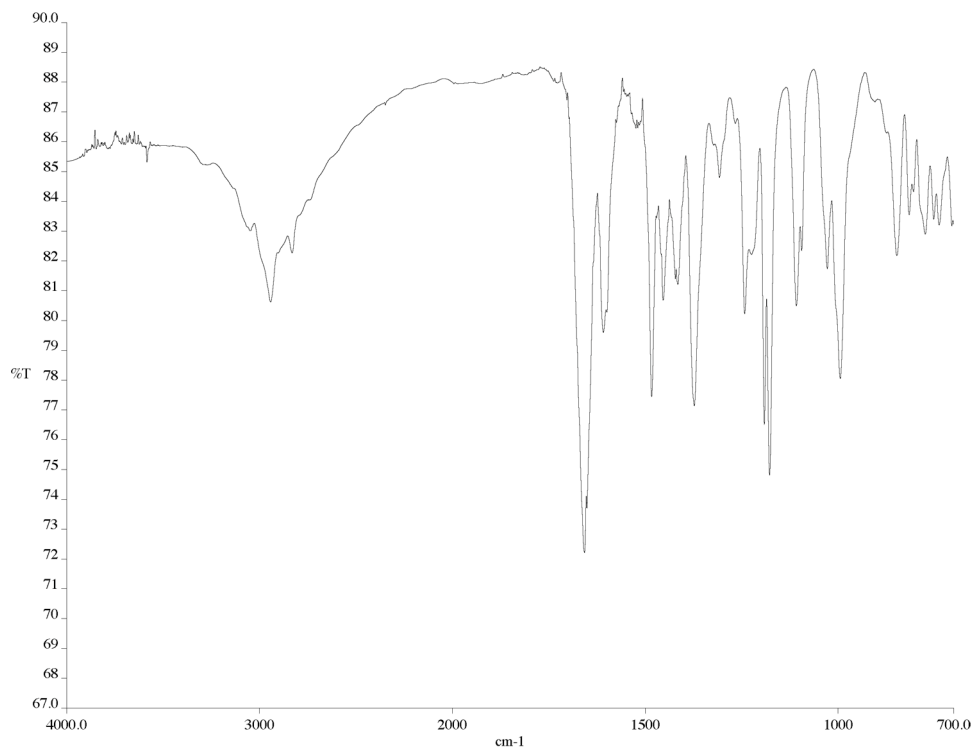
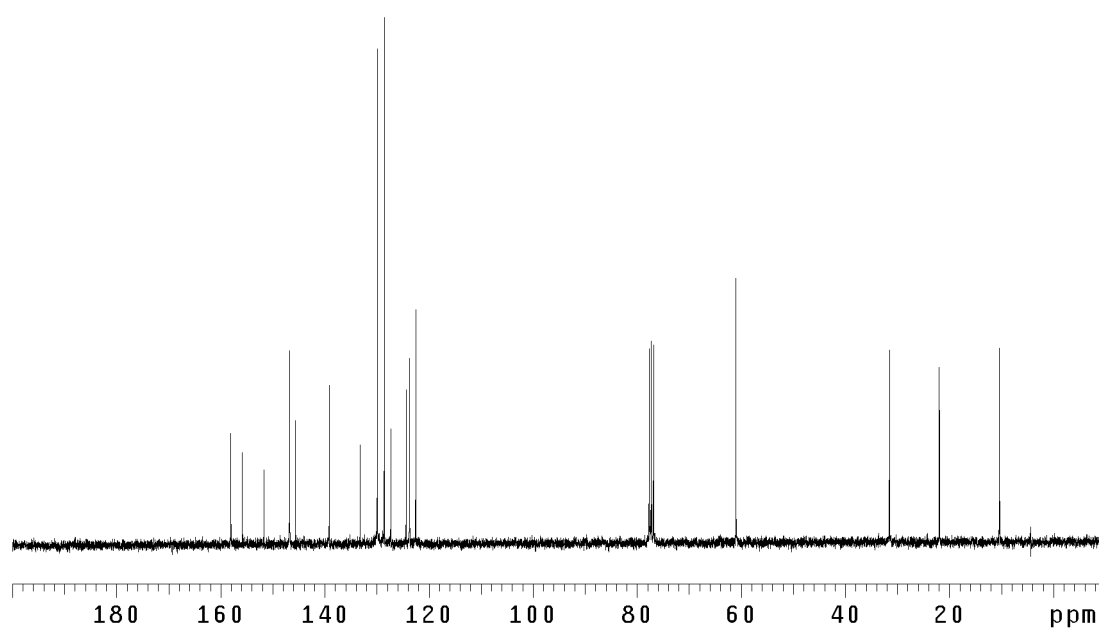
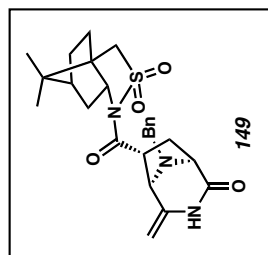
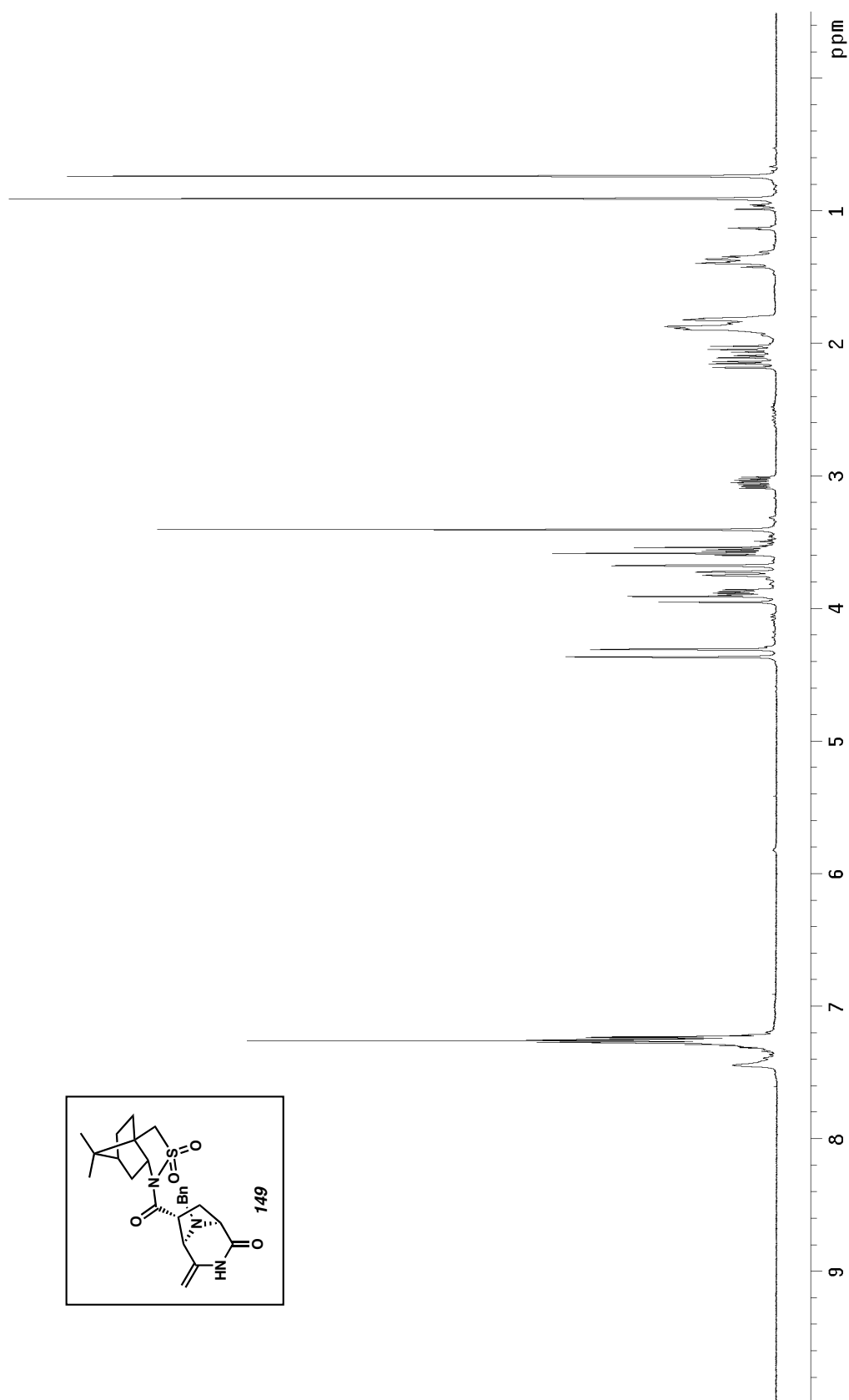


Figure A2.19 ^1H NMR of compound **138** (300 MHz, CDCl_3)

Figure A2.20 IR of compound **138** (NaCl/film)Figure A2.21 ¹³C NMR of compound **138** (75 MHz, CDCl₃)

Figure A2.22 ^1H NMR of compound **149** (300 MHz, CDCl_3)

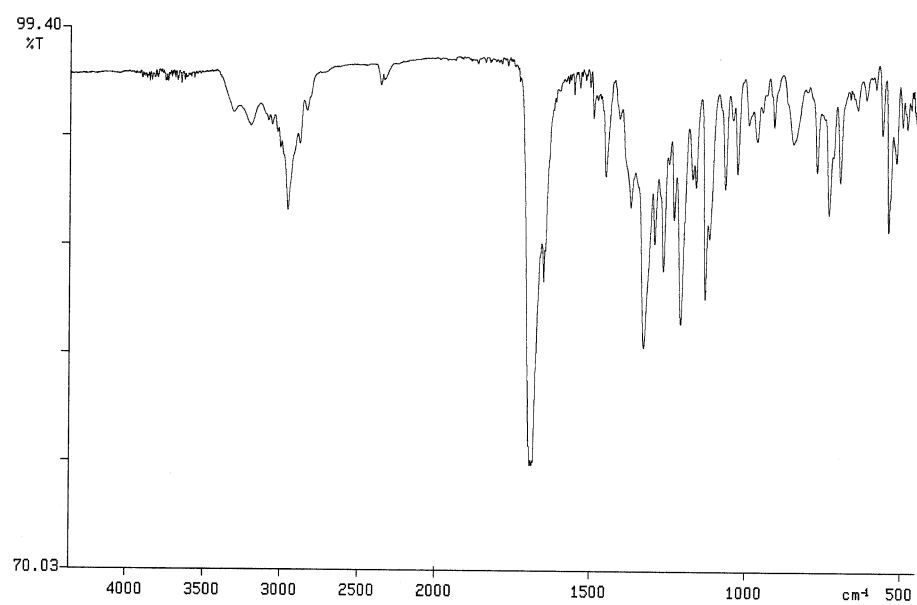


Figure A2.23 IR of compound **149** (NaCl/film)

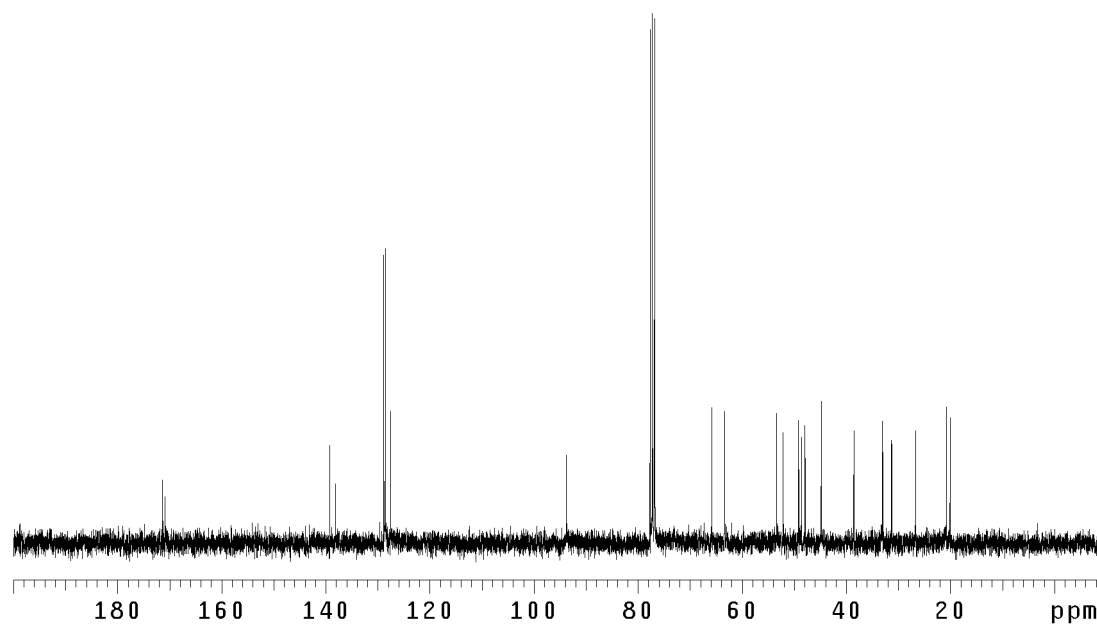


Figure A2.24 ¹³C NMR of compound **149** (75 MHz, CDCl₃)

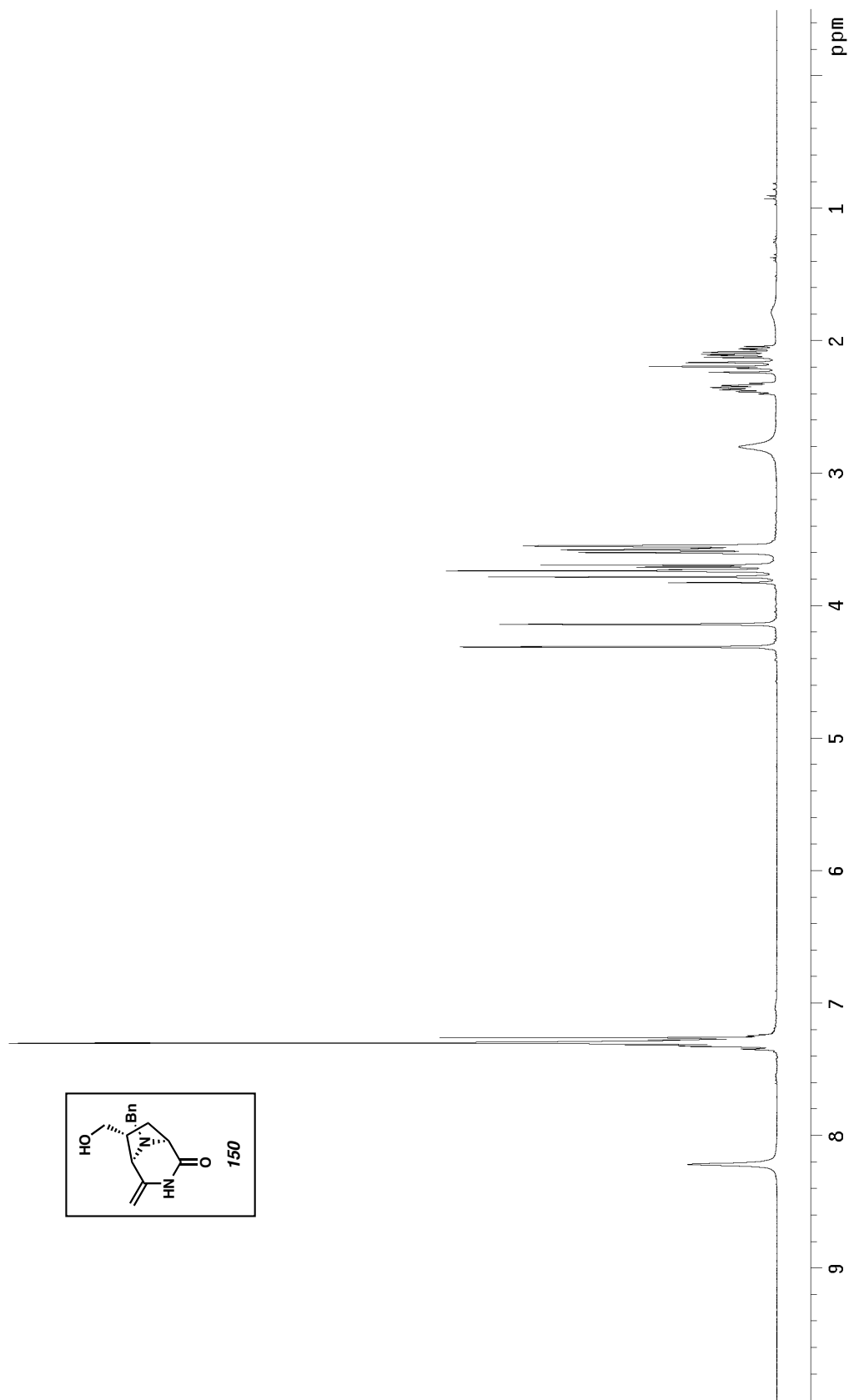


Figure A2.25 ^1H NMR of compound **150** (300 MHz, CDCl_3)

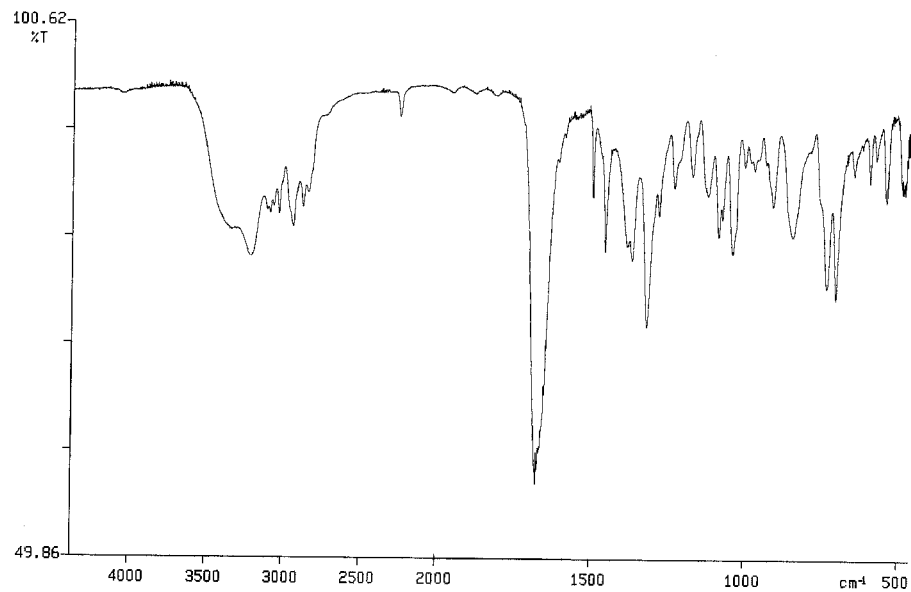


Figure A2.26 IR of compound **150** (NaCl/film)

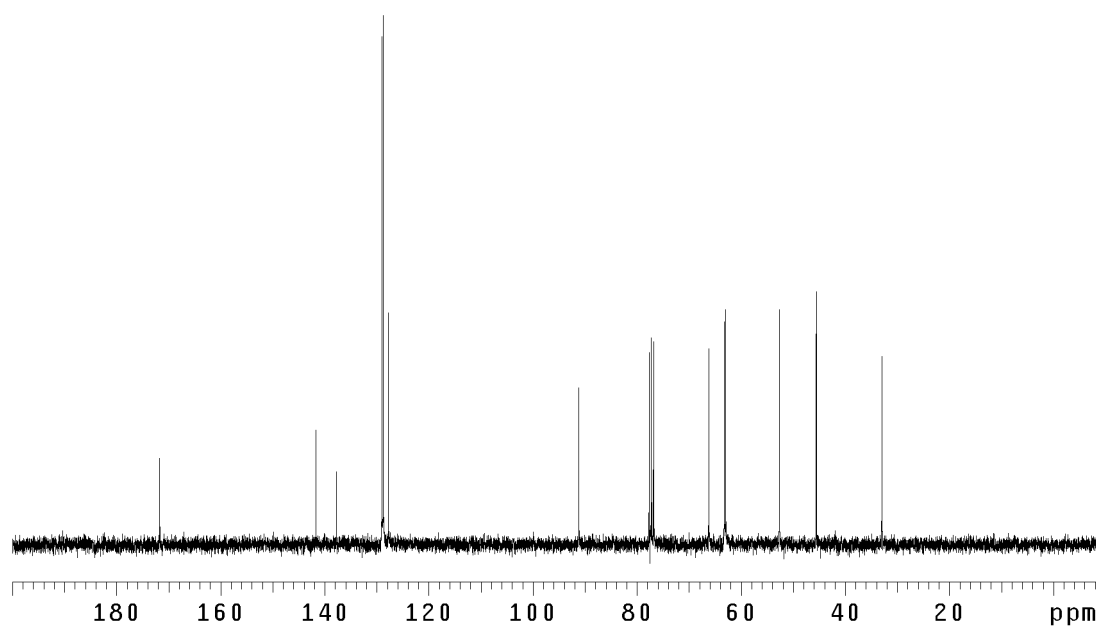


Figure A2.27 ¹³C NMR of compound **150** (75 MHz, CDCl₃)

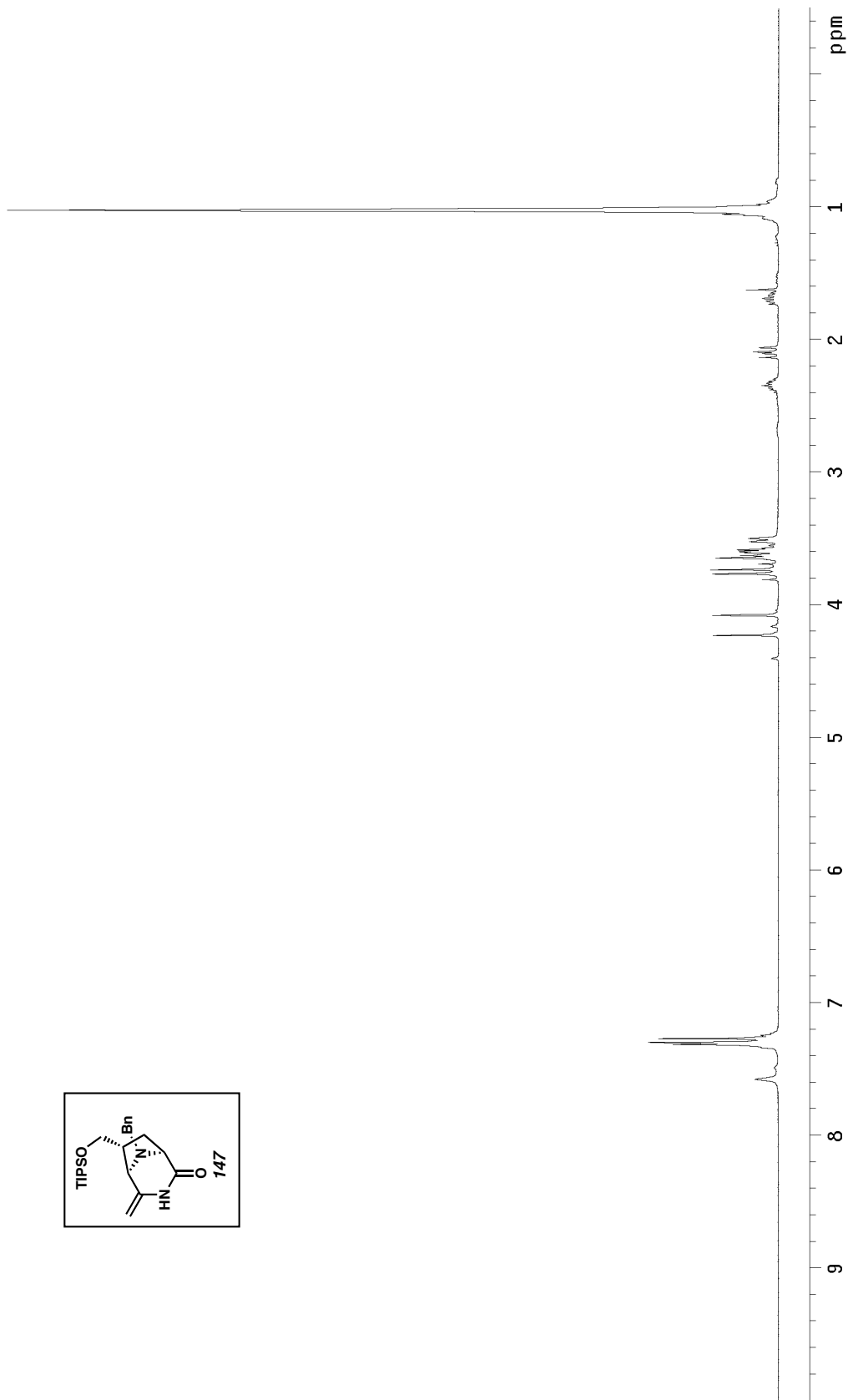
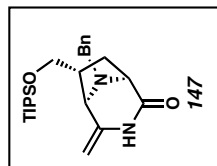
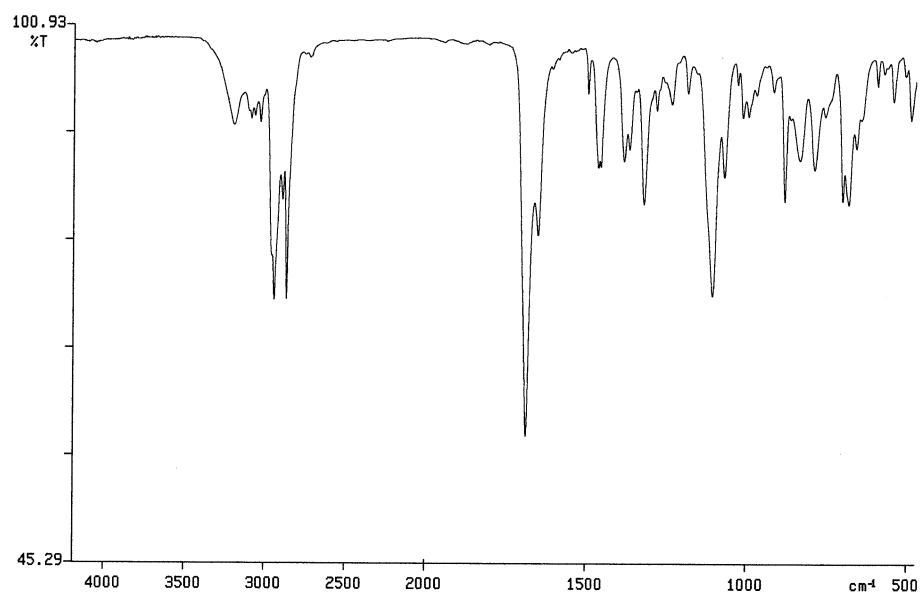
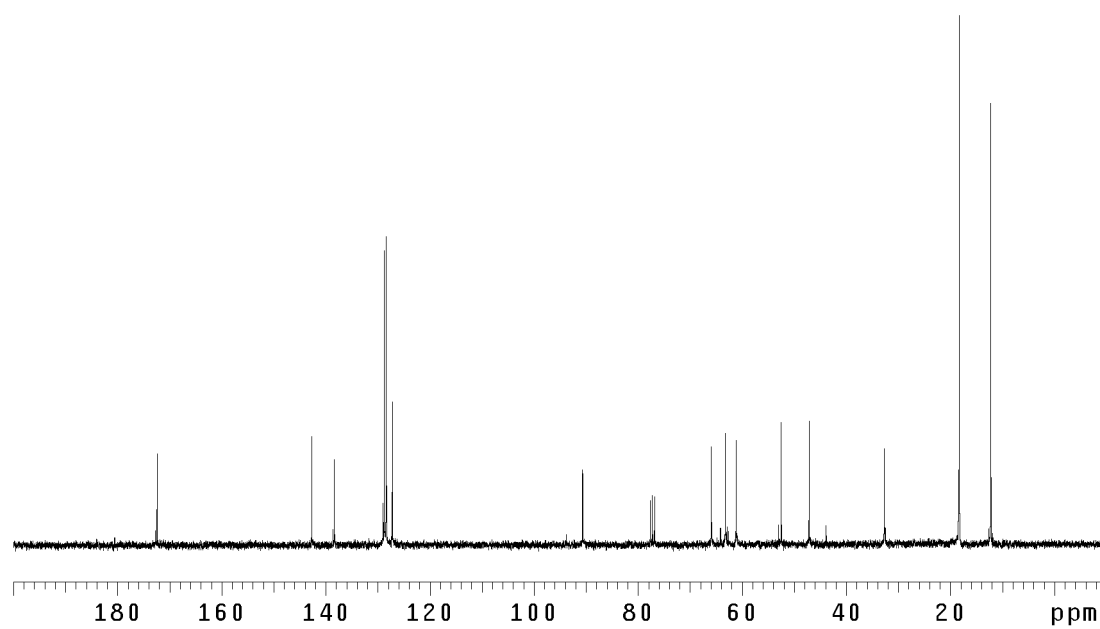


Figure A2.28 ¹H NMR of compound **147** (300 MHz, CDCl₃)

Figure A2.29 IR of compound **147** (NaCl/film)Figure A2.30 ¹³C NMR of compound **147** (75 MHz, CDCl₃)

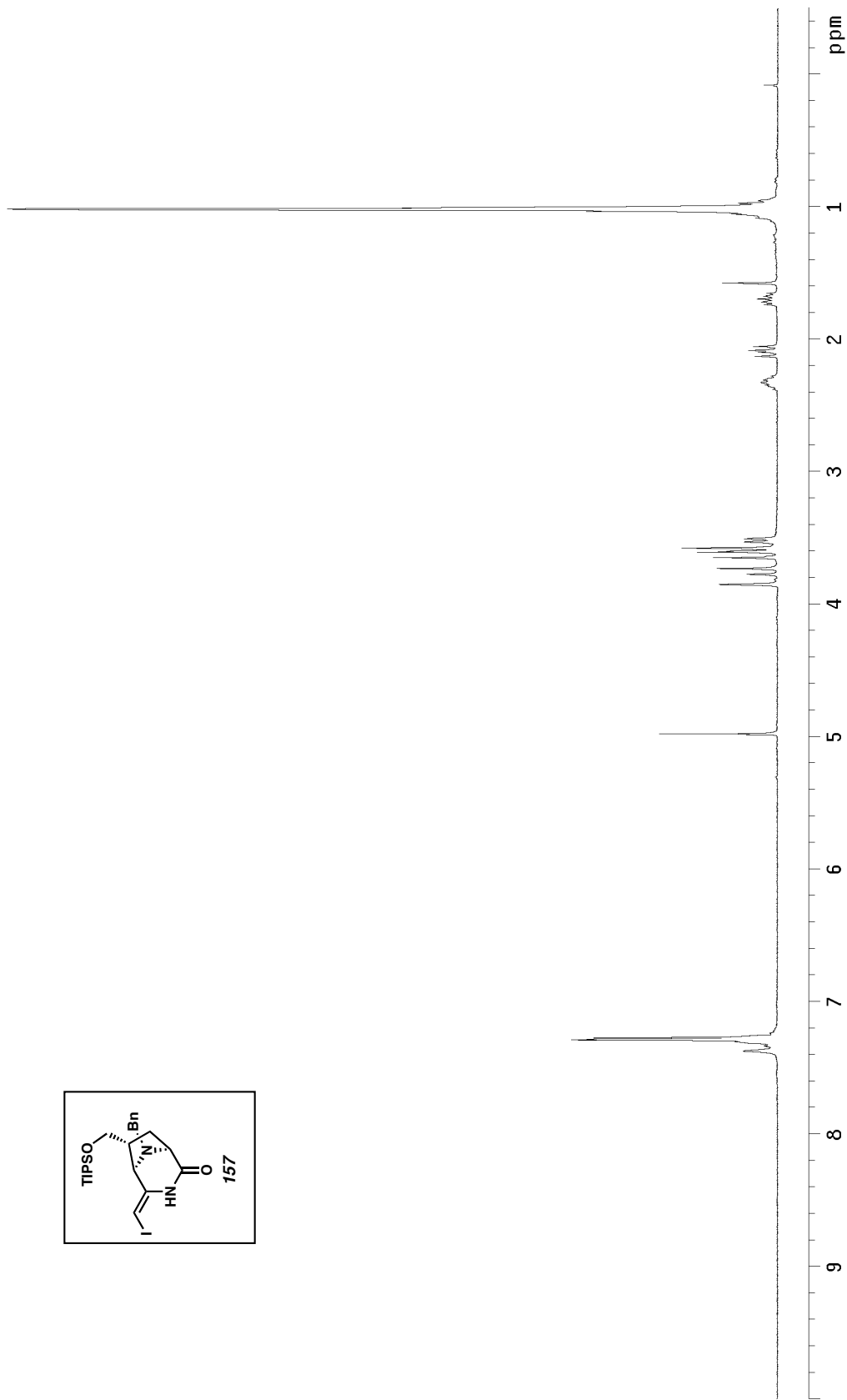
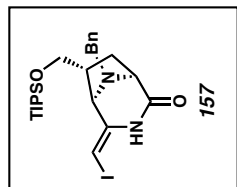
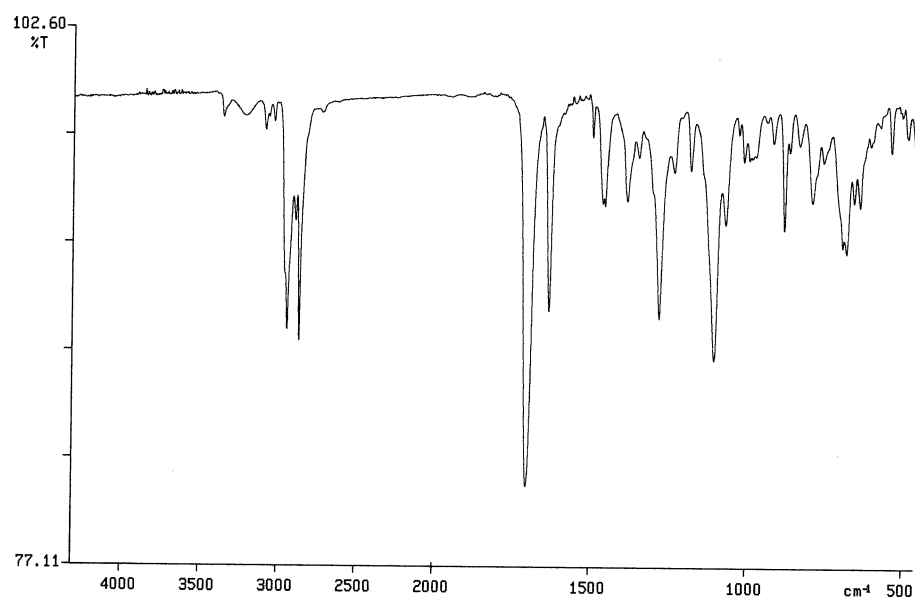
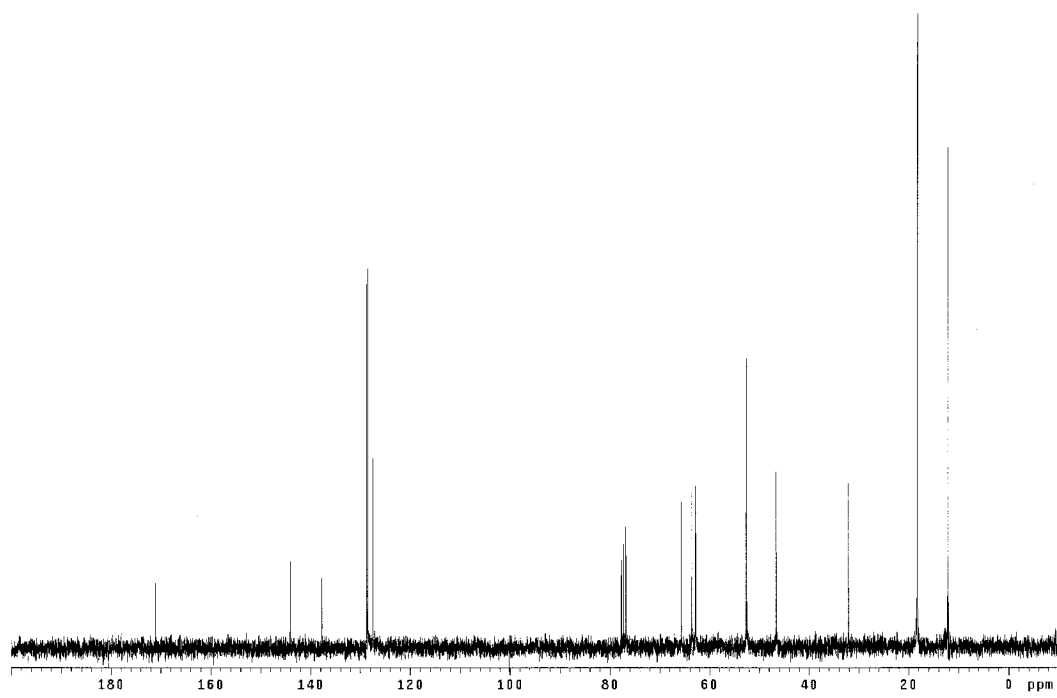


Figure A2.31 ¹H NMR of compound **157** (300 MHz, CDCl₃)

Figure A2.32 IR of compound **157** (NaCl/film)Figure A2.33 ¹³C NMR of compound **157** (75 MHz, CDCl₃)

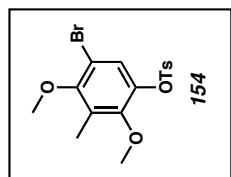
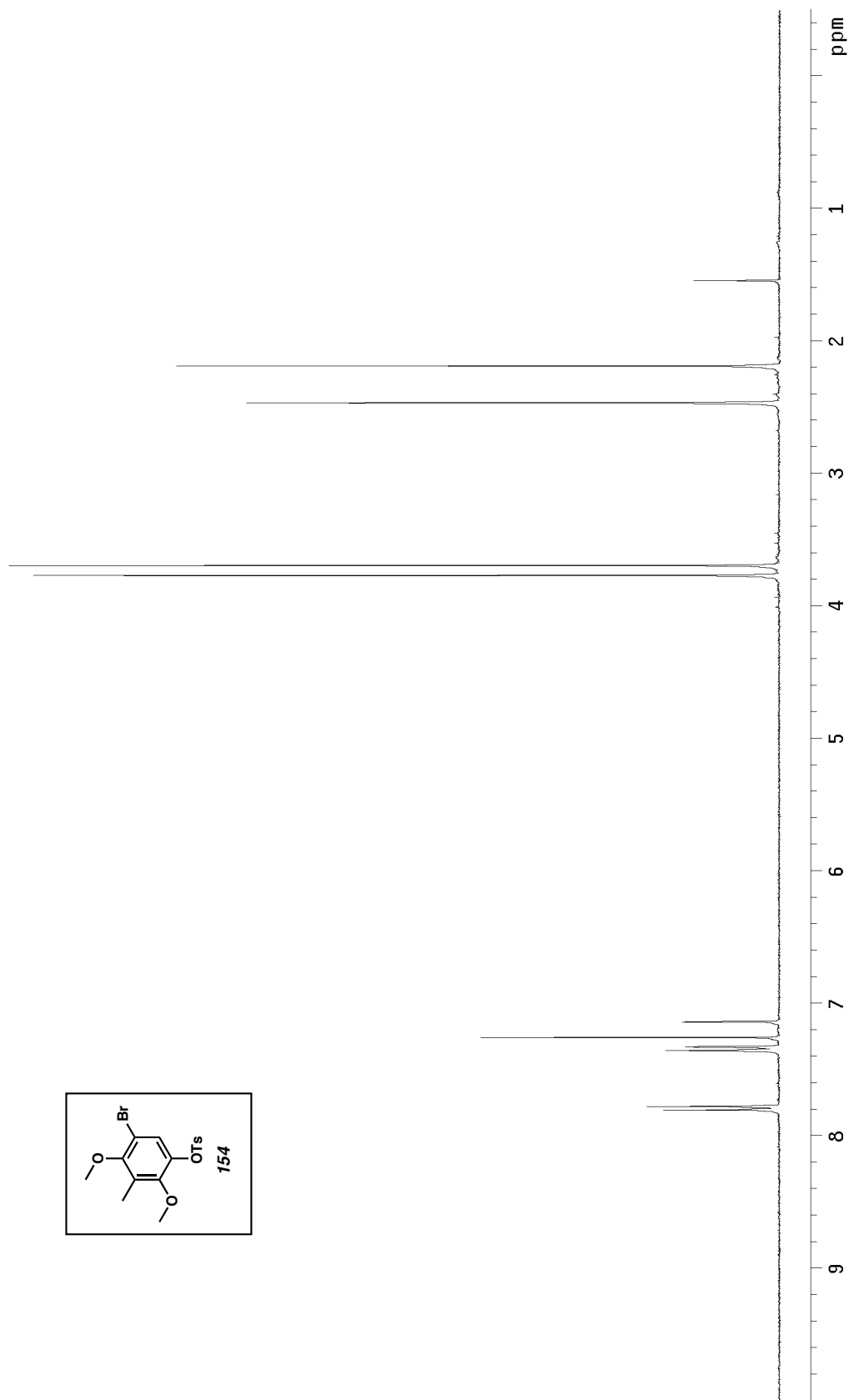
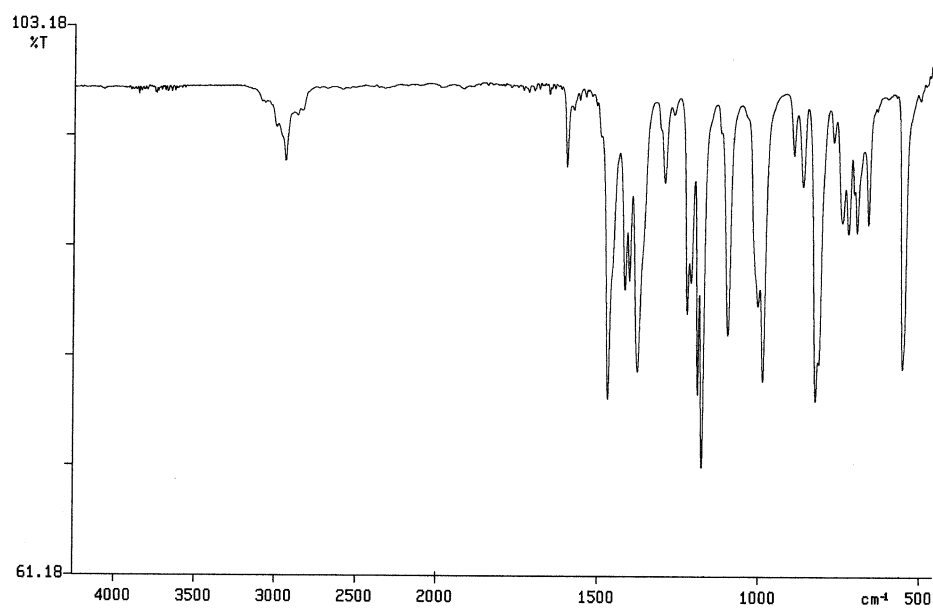
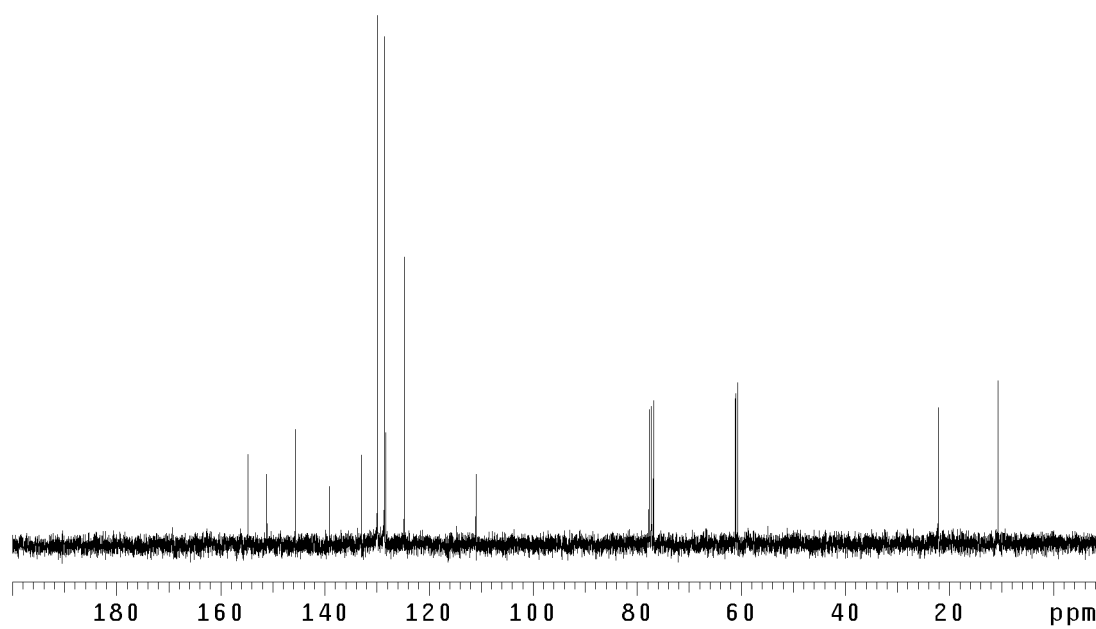


Figure A2.34 ^1H NMR of compound **154** (300 MHz, CDCl_3)

Figure A2.35 IR of compound **154** (NaCl/film)Figure A2.36 ^{13}C NMR of compound **154** (75 MHz, CDCl_3)

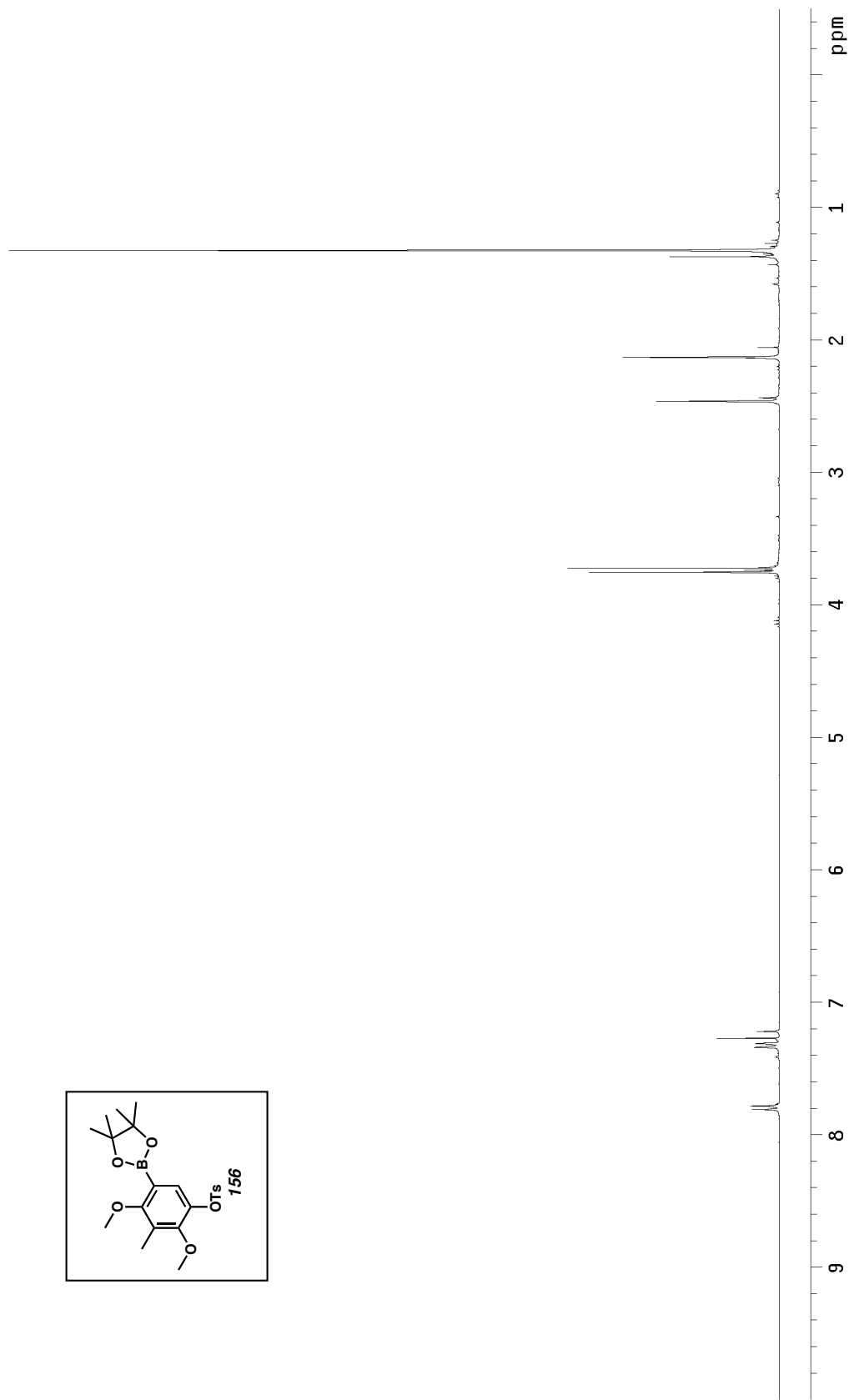
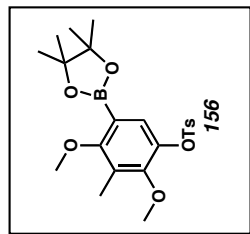


Figure A2.37 ¹H NMR of compound **156** (300 MHz, CDCl₃)

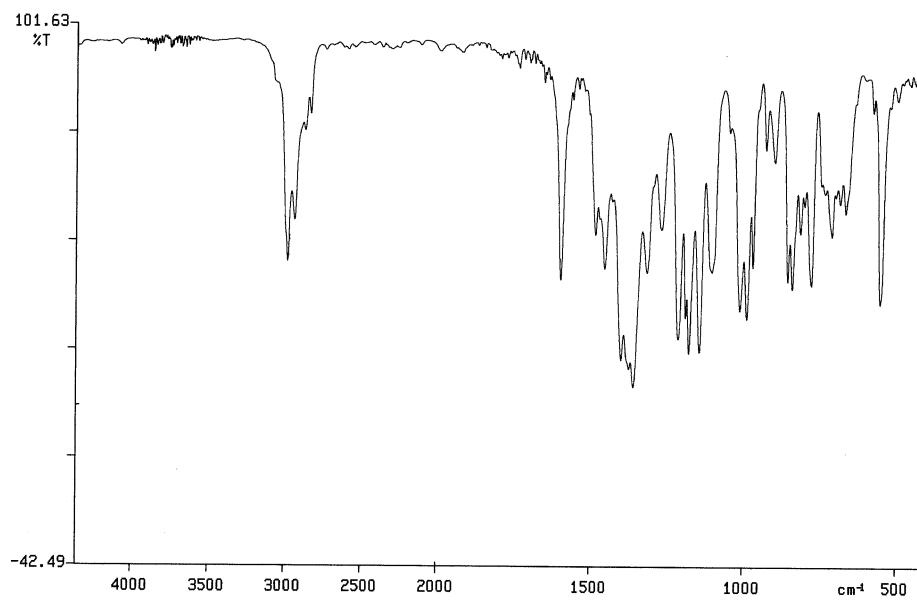


Figure A2.38 IR of compound **156** (NaCl/film)

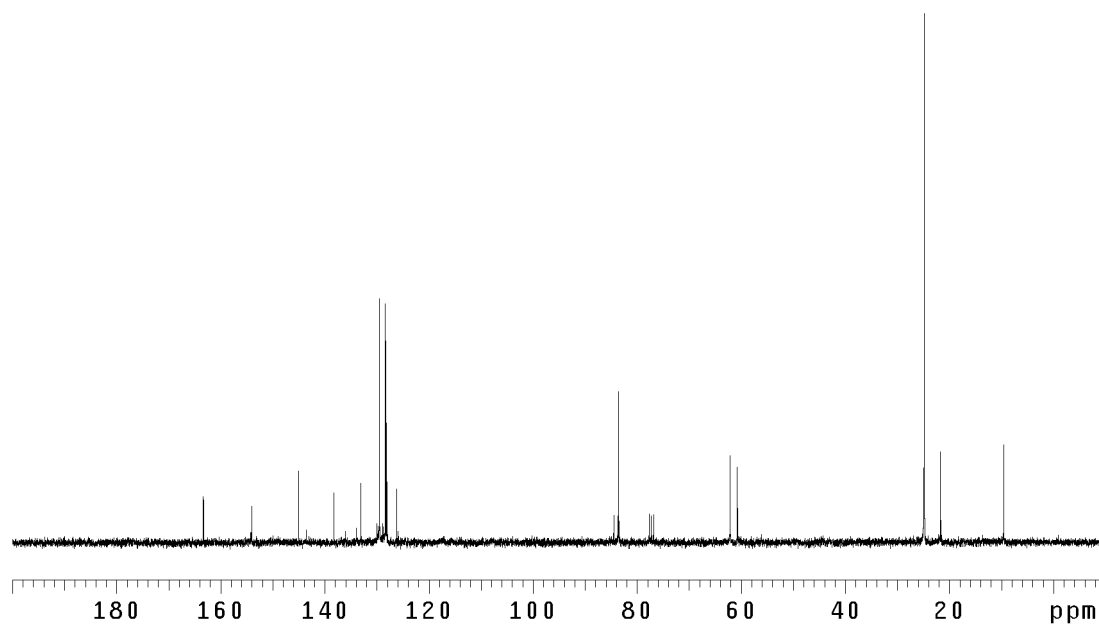


Figure A2.39 ¹³C NMR of compound **156** (75 MHz, CDCl₃)

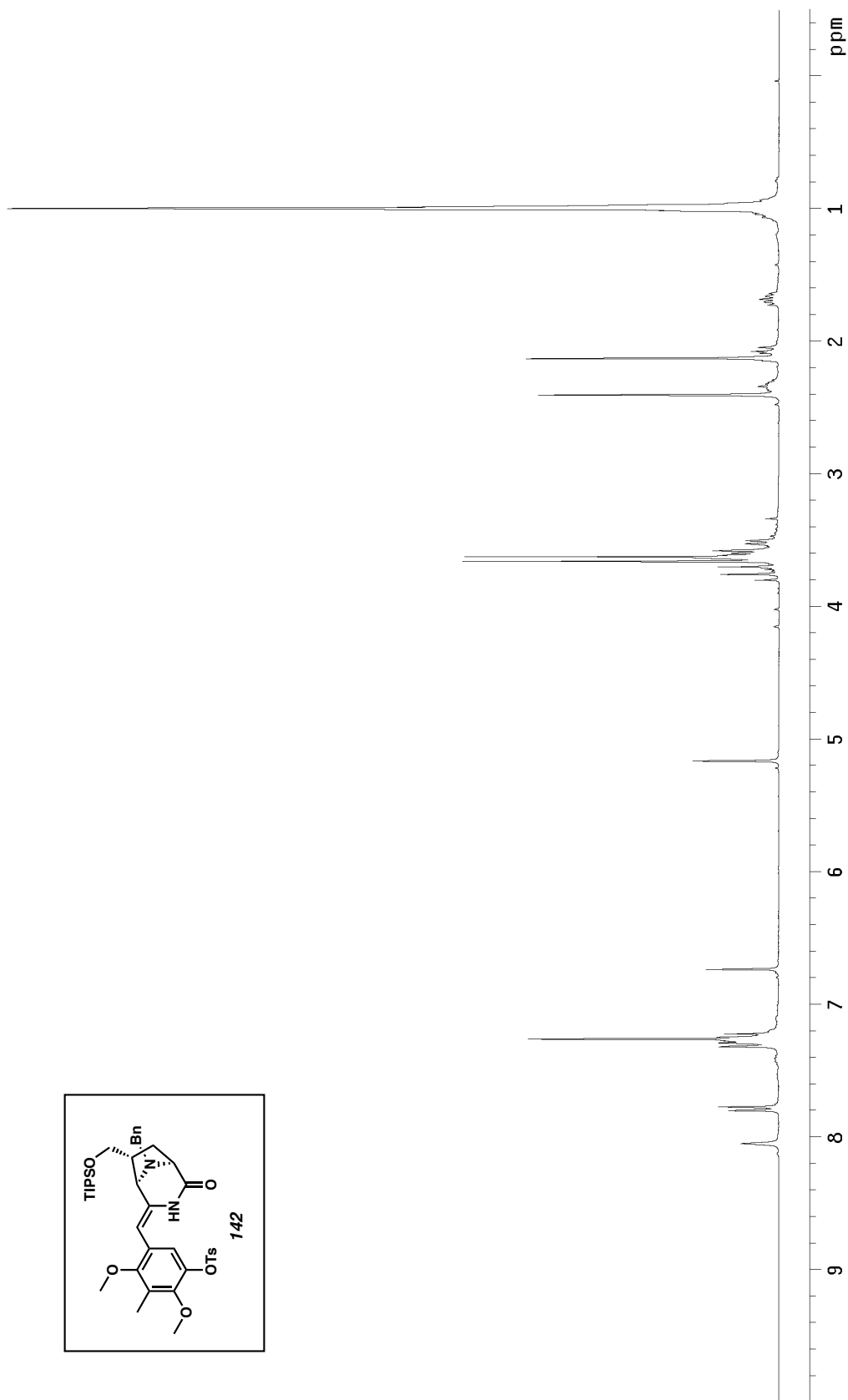
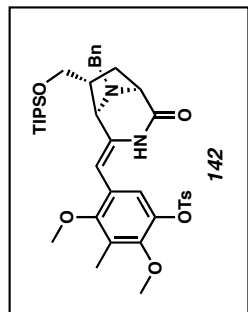
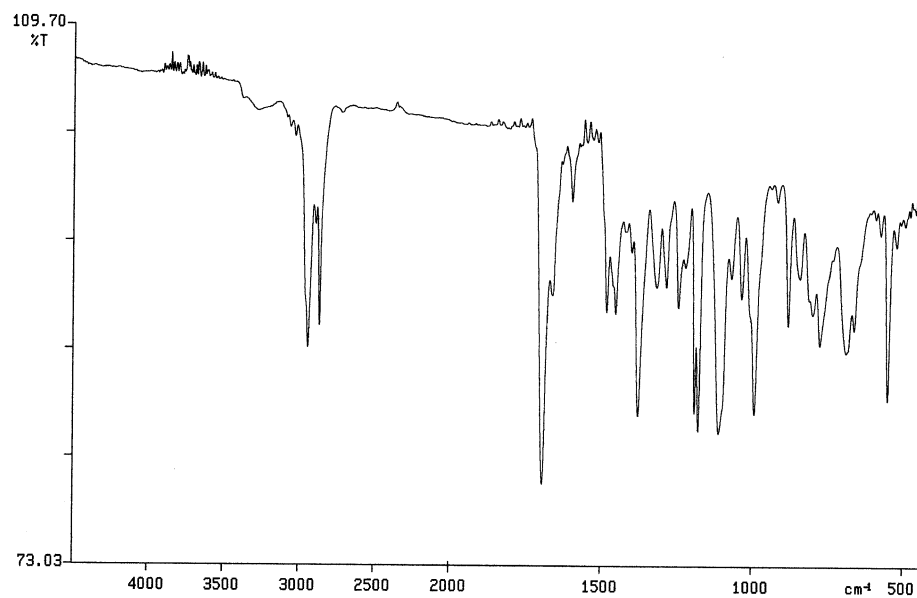
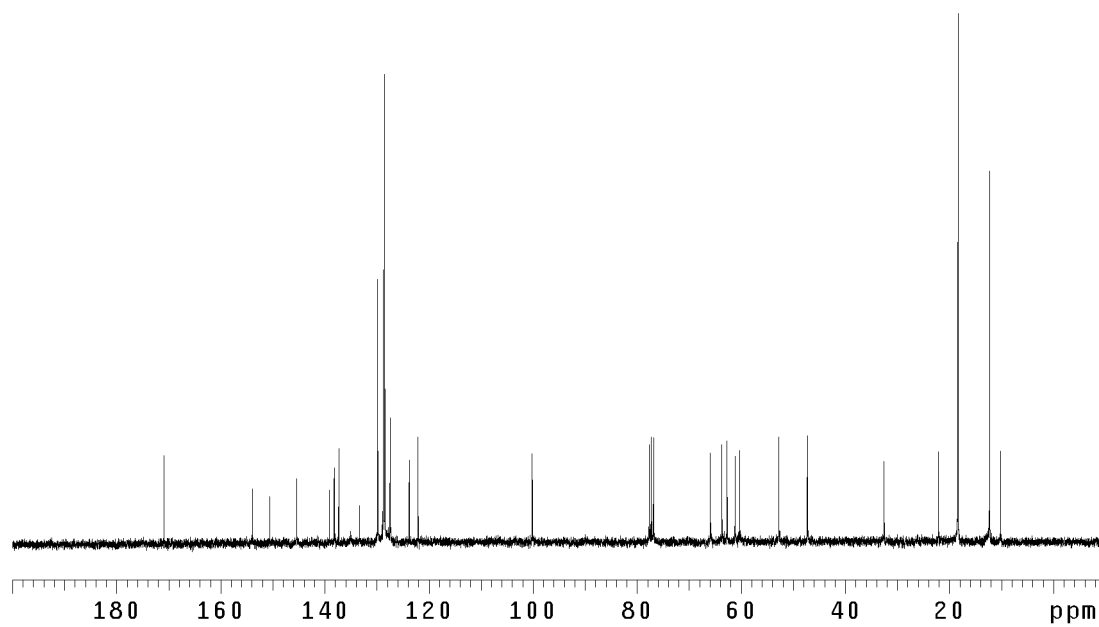


Figure A2.40 ^1H NMR of compound **142** (300 MHz, CDCl_3)

Figure A2.41 IR of compound **142** (NaCl/film)Figure A2.42 ¹³C NMR of compound **142** (75 MHz, CDCl₃)

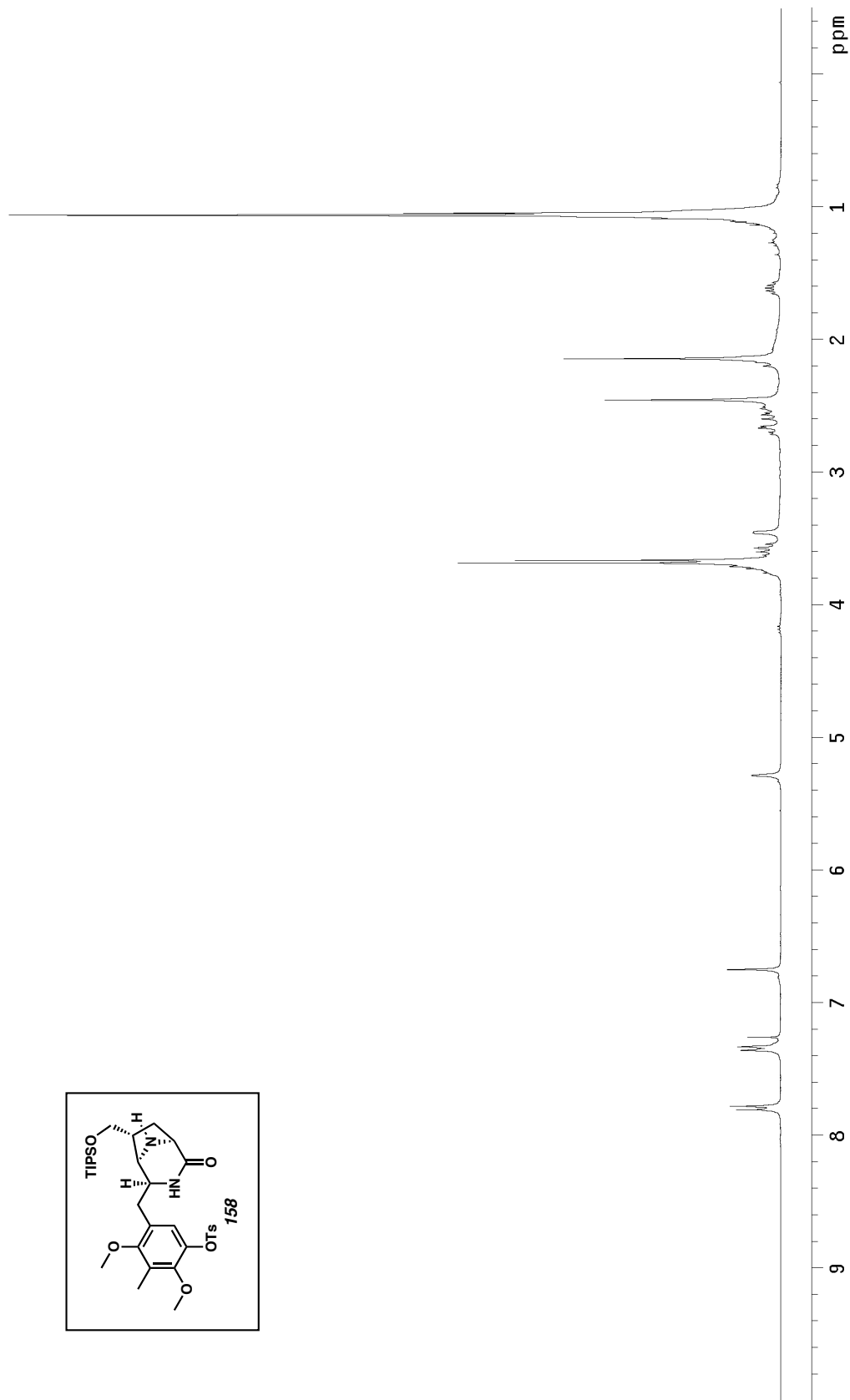
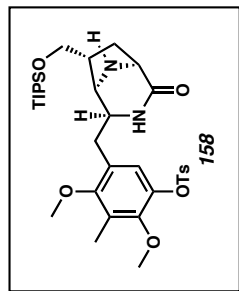
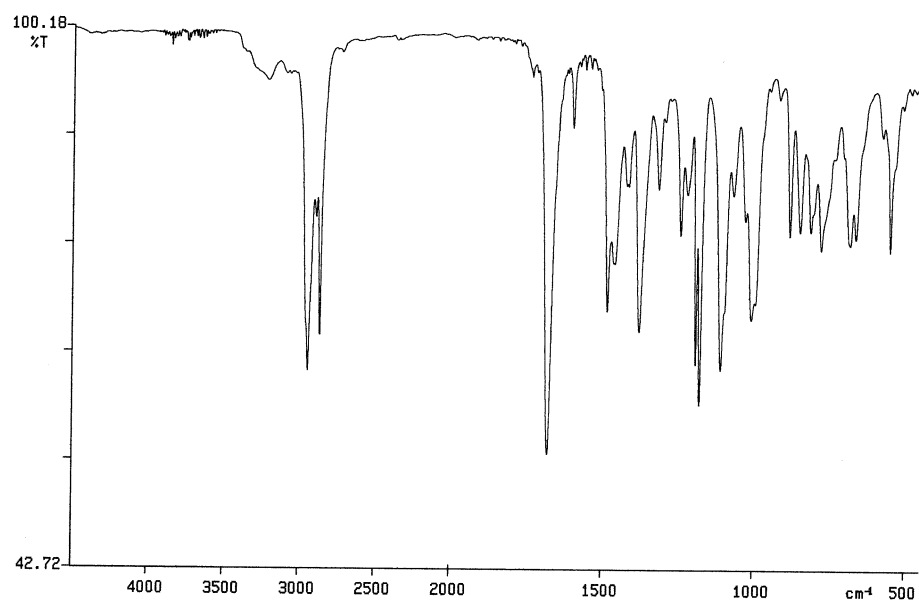
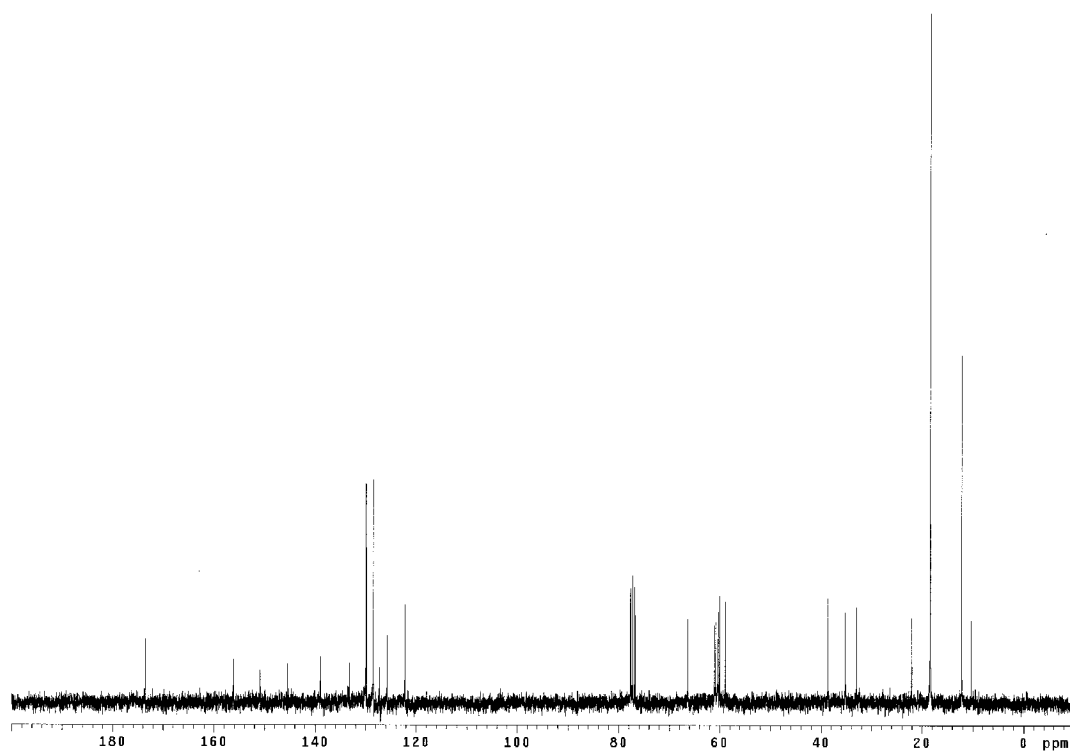


Figure A2.43 ¹H NMR of compound **158** (300 MHz, CDCl₃)

Figure A2.44 IR of compound **158** (NaCl/film)Figure A2.45 ¹³C NMR of compound **158** (75 MHz, CDCl₃)

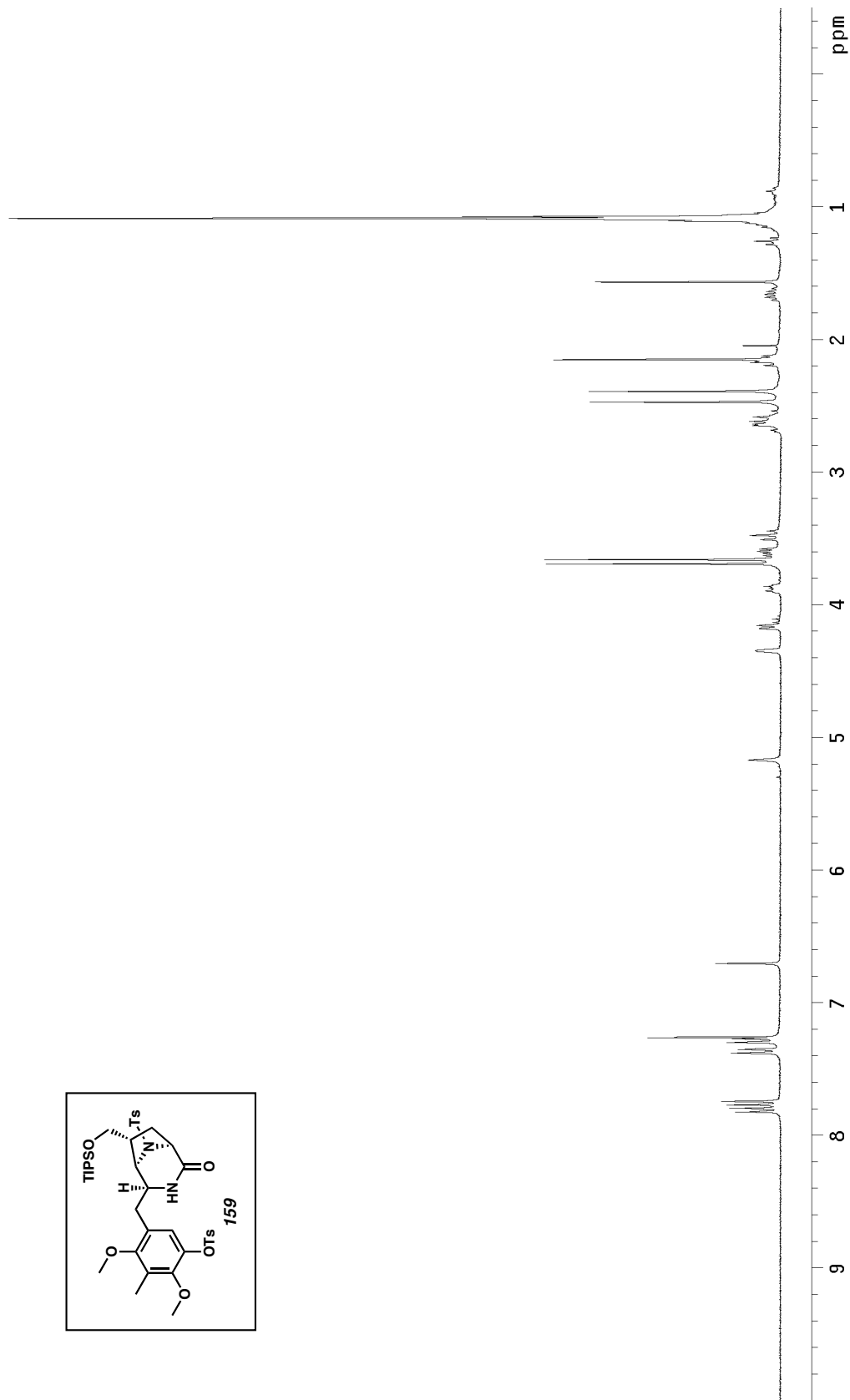
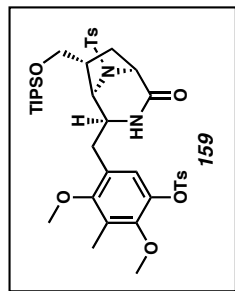
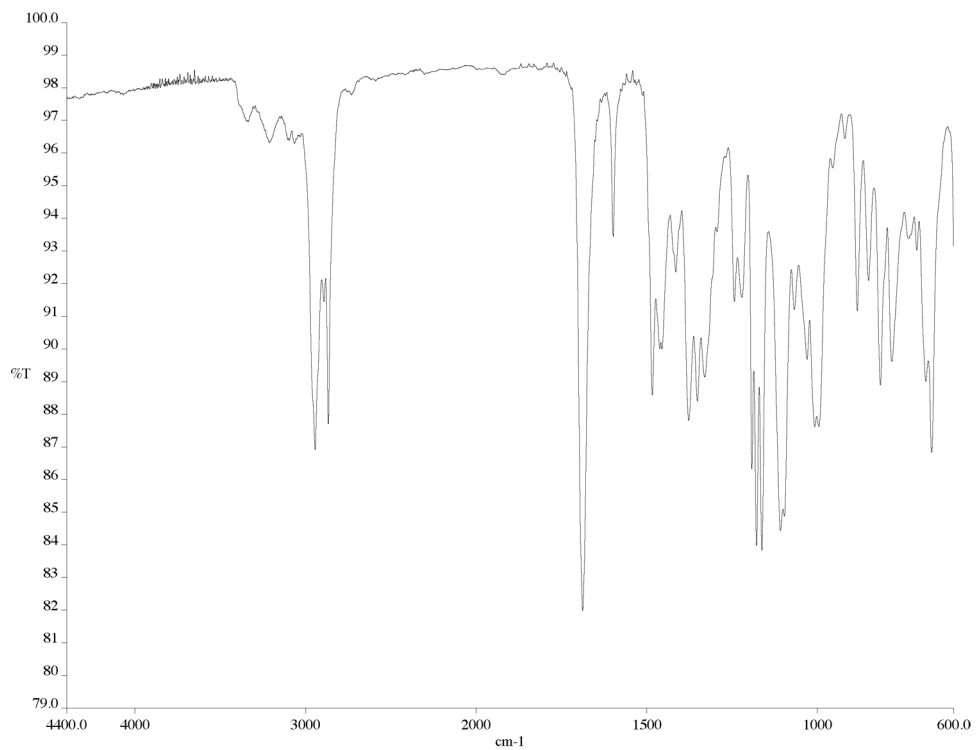
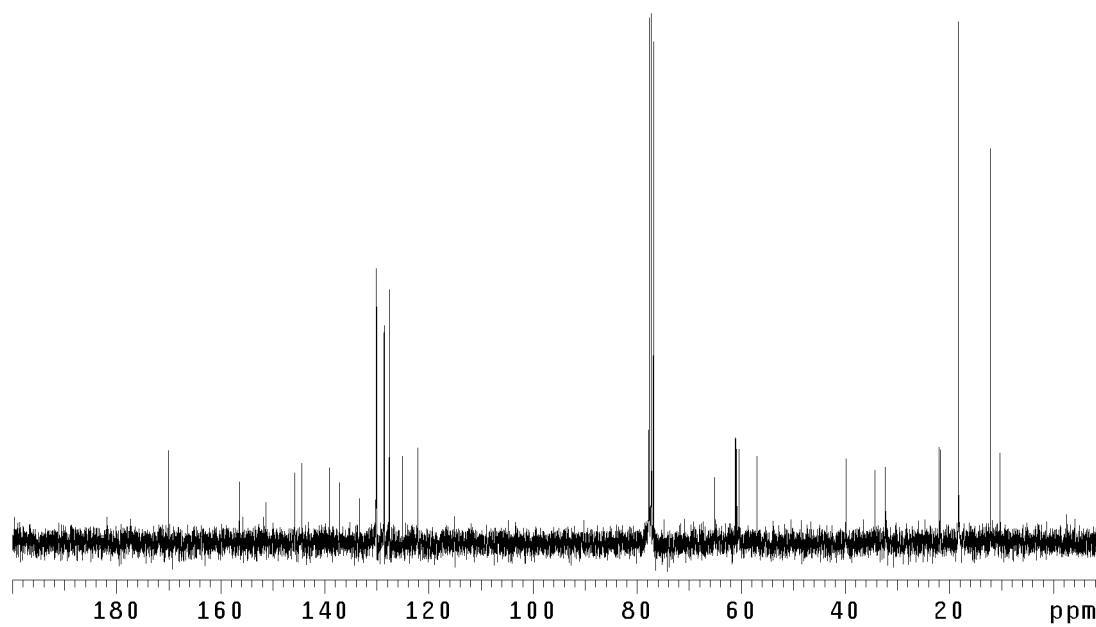
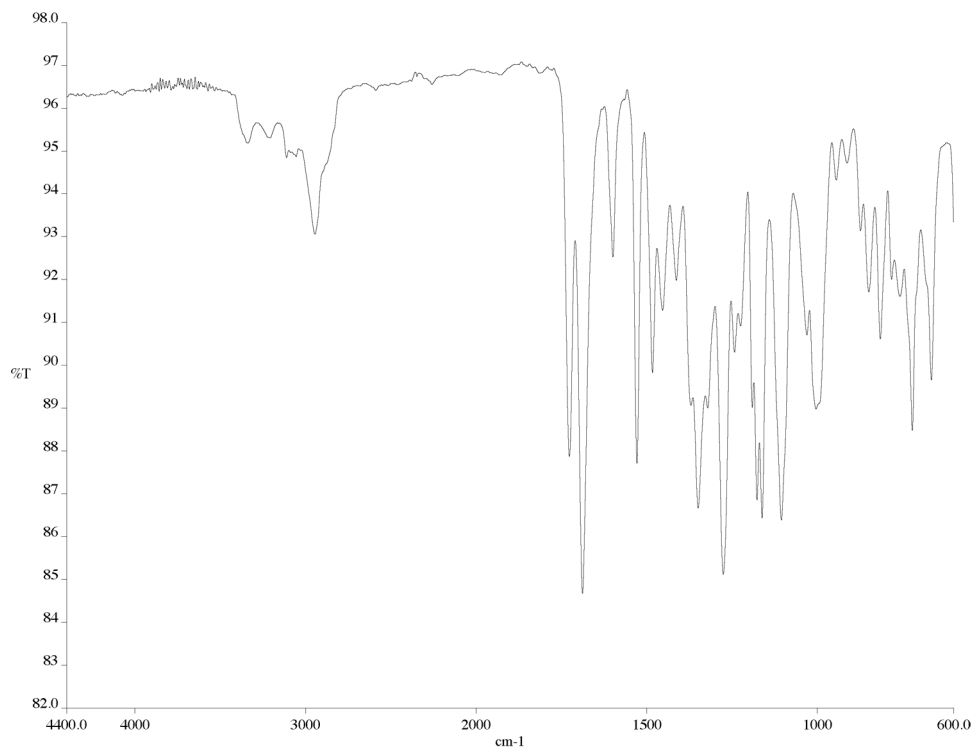
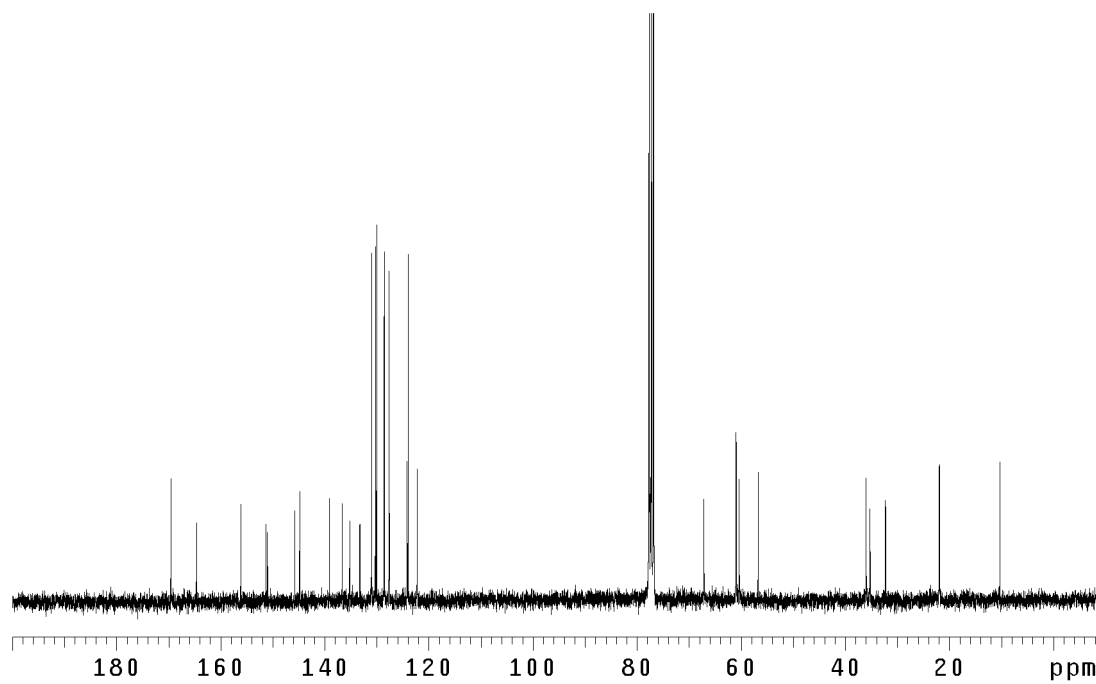


Figure A2.46 ^1H NMR of compound **159** (300 MHz, CDCl_3)

Figure A2.47 IR of compound **159** (NaCl/film)Figure A2.48 ¹³C NMR of compound **159** (75 MHz, CDCl₃)

Figure A2.50 IR of compound **161** (NaCl/film)Figure A2.51 ¹³C NMR of compound **161** (75 MHz, CDCl₃)

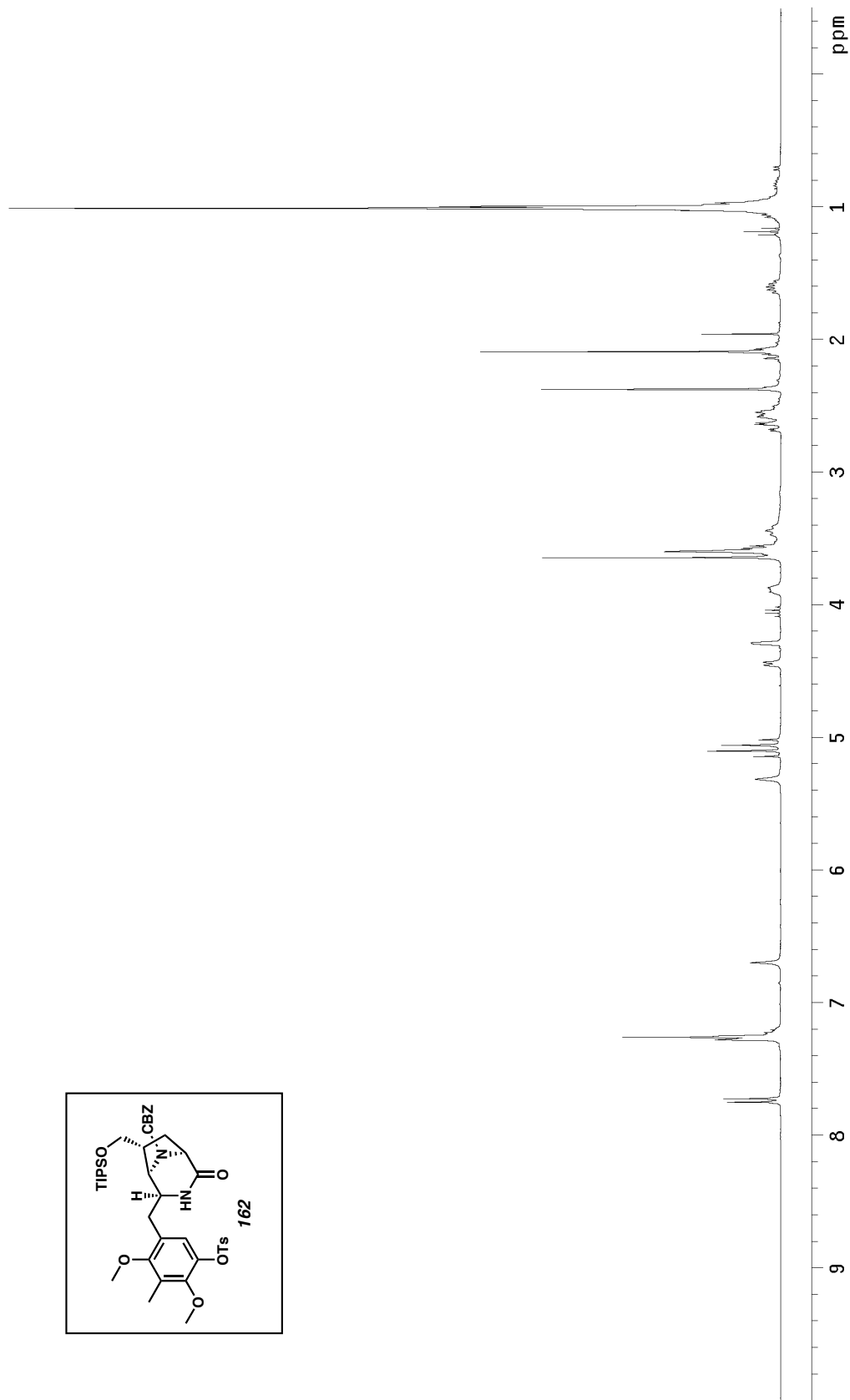
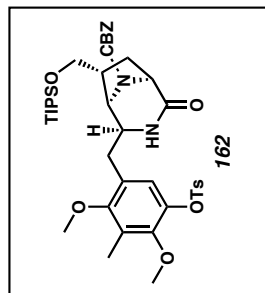
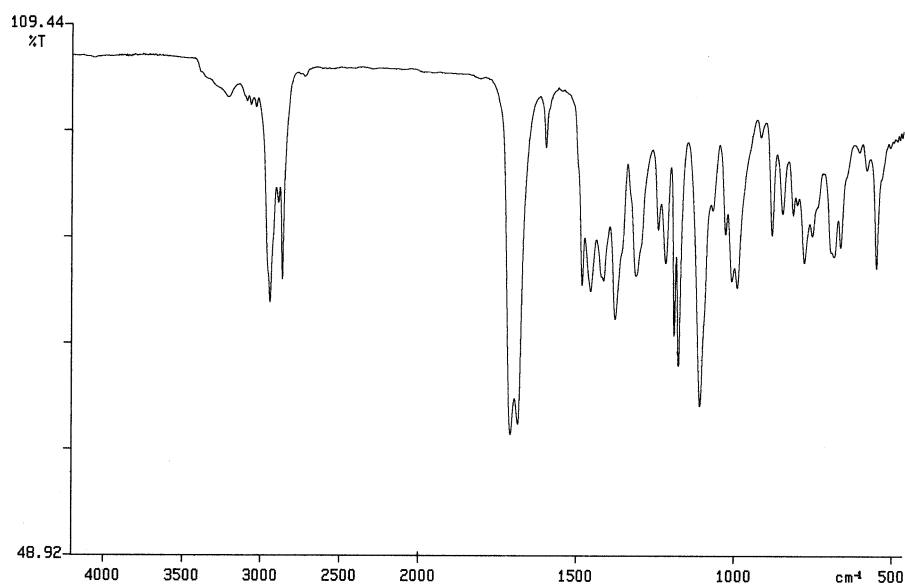
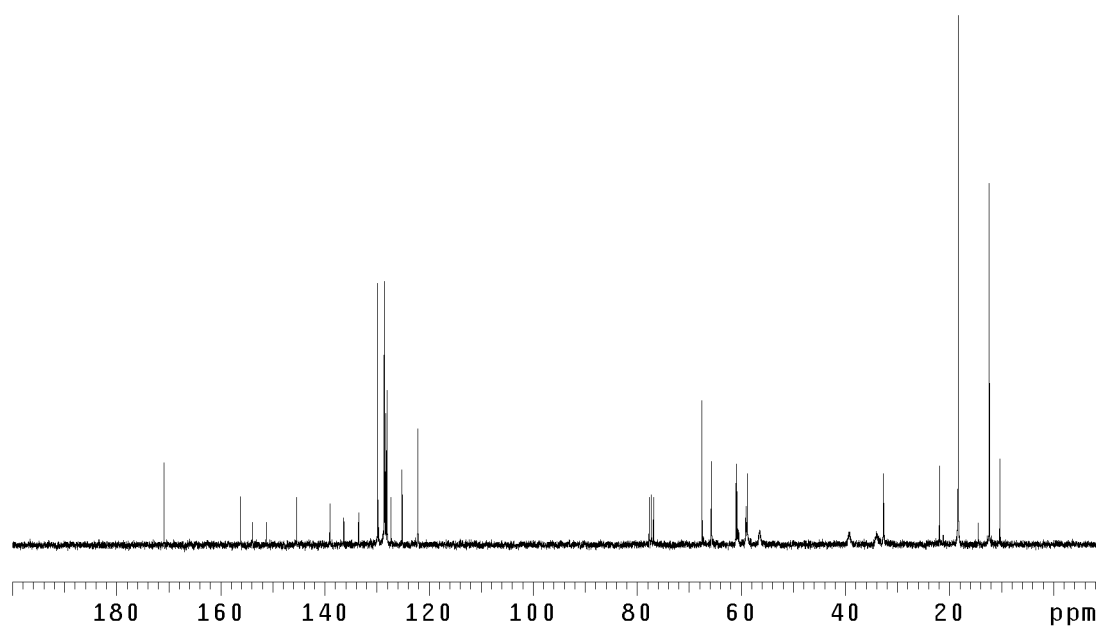


Figure A2.52 ^1H NMR of compound **162** (300 MHz, CDCl_3 , 50 °C)

Figure A2.53 IR of compound **162** (NaCl/film)Figure A2.54 ^{13}C NMR of compound **162** (75 MHz, CDCl_3 , 50 °C)

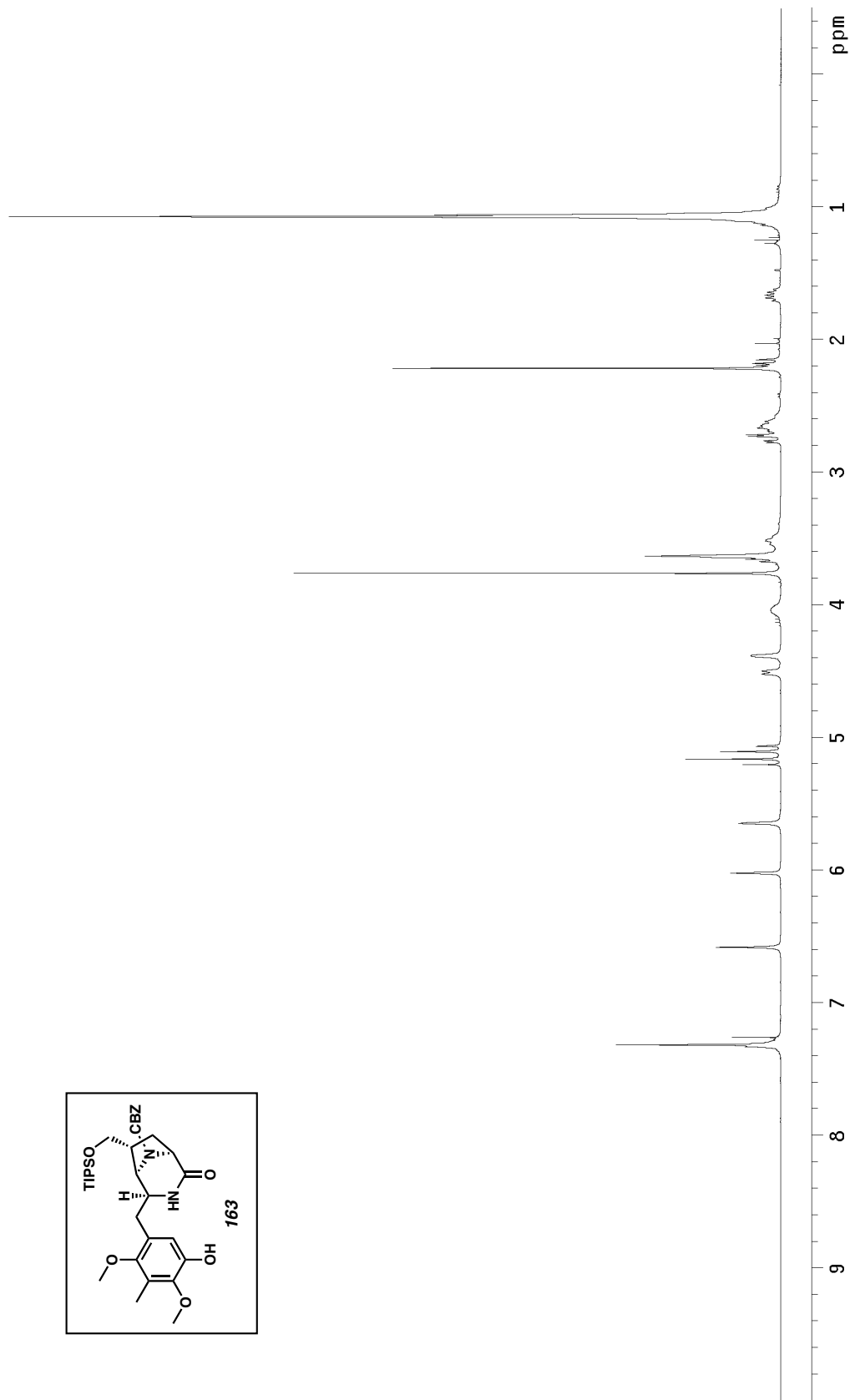
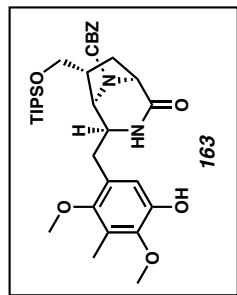


Figure A2.55 ¹H NMR of compound **163** (300 MHz, CDCl₃, 50 °C)

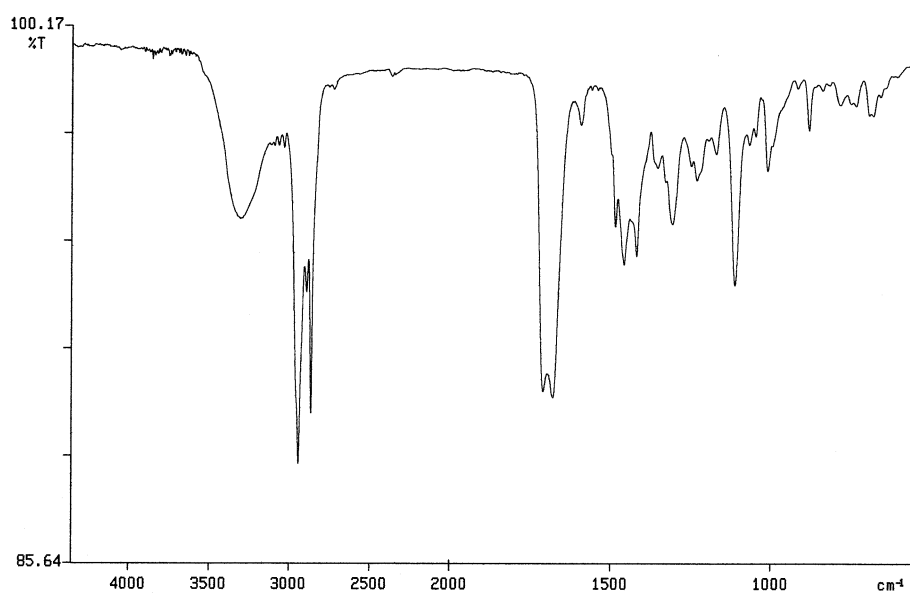


Figure A2.56 IR of compound **163** (NaCl/film)

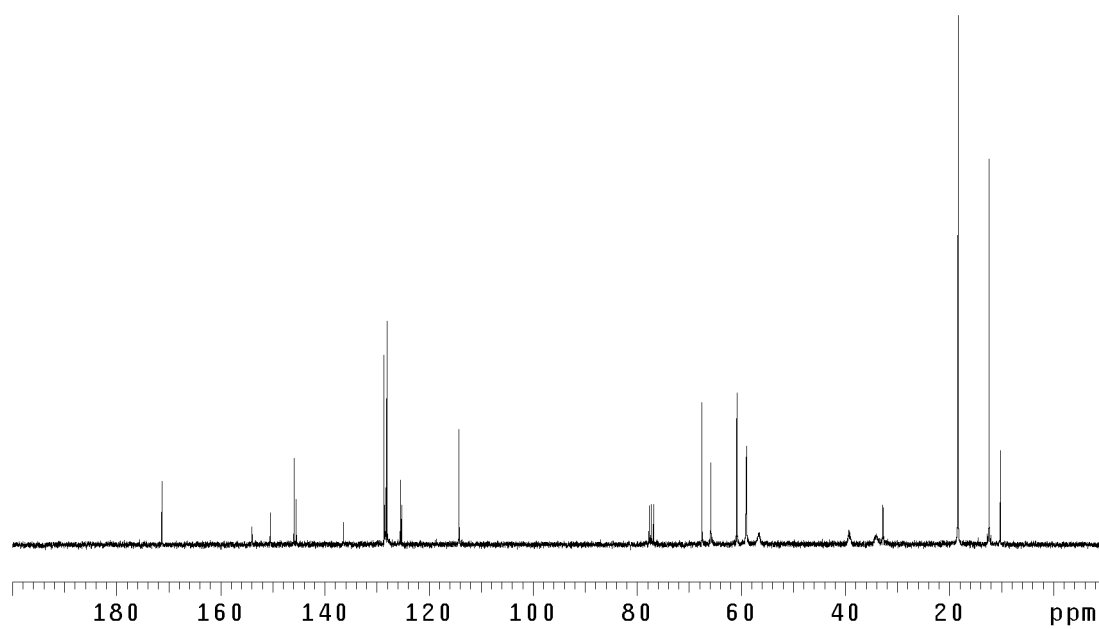


Figure A2.57 ¹³C NMR of compound **163** (75 MHz, CDCl₃, 50 °C)

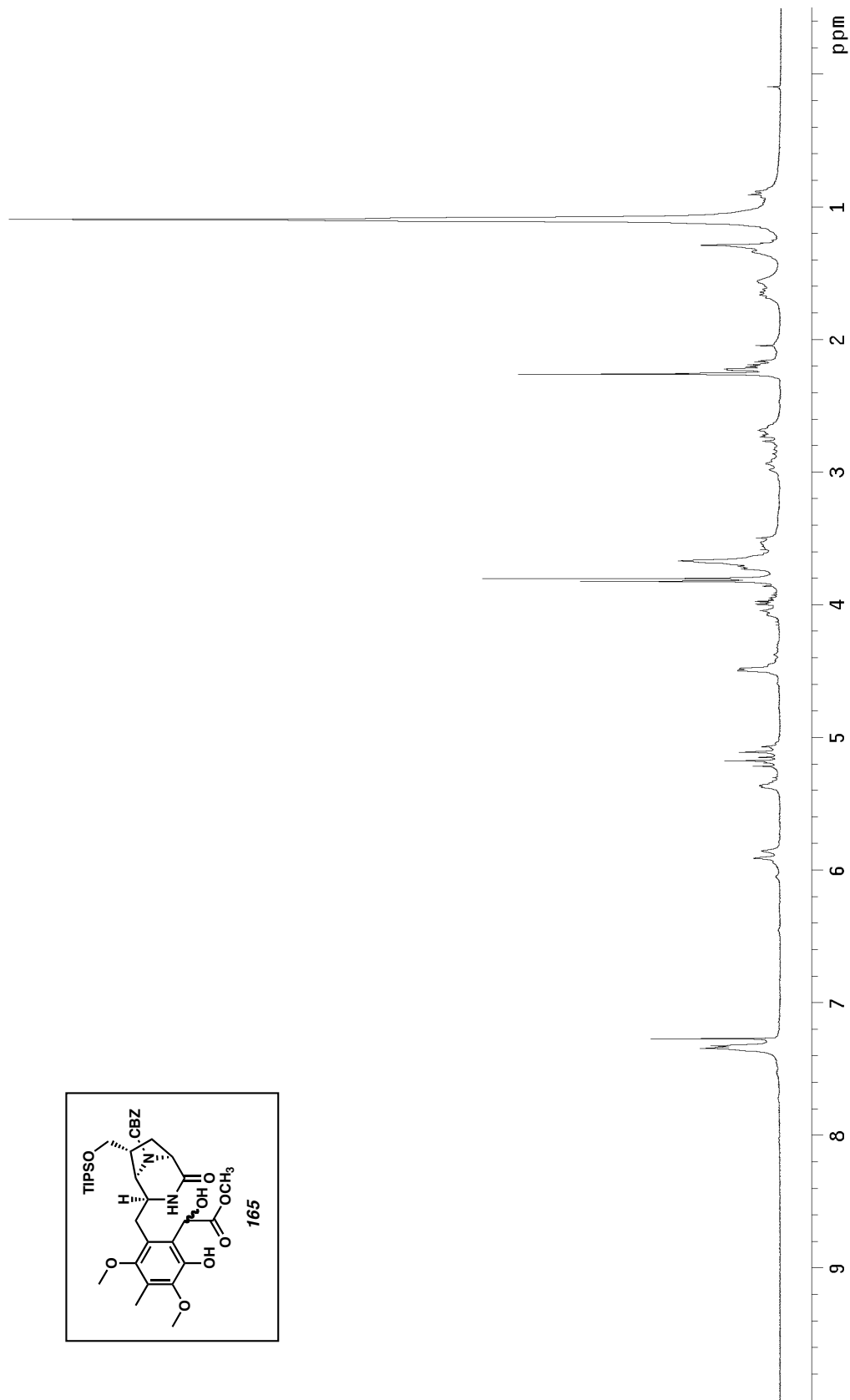
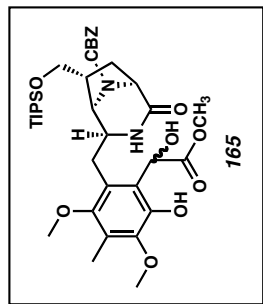


Figure A2.58 ¹H NMR of compound **165** (300 MHz, CDCl₃, 57 °C)

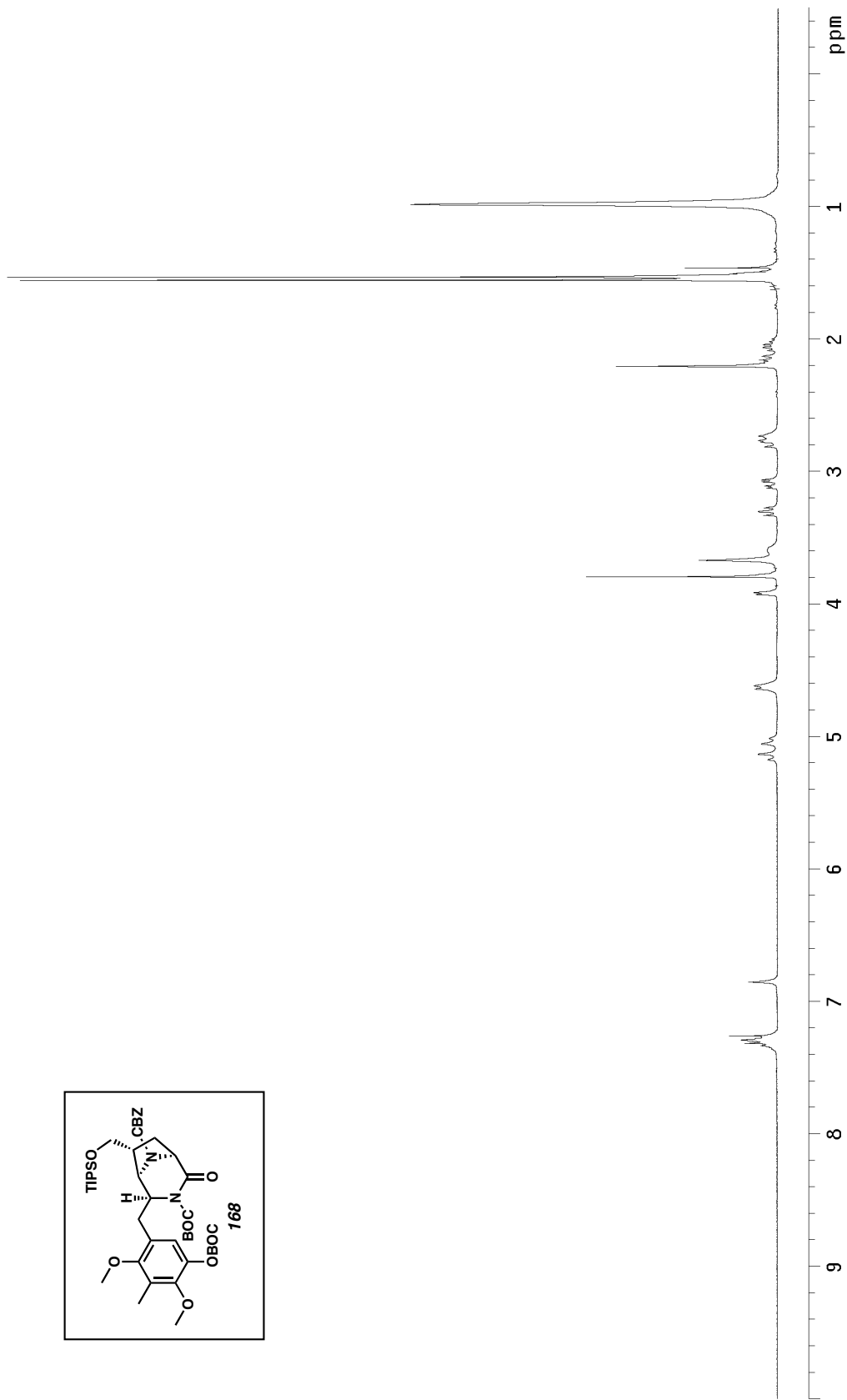
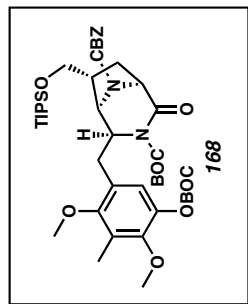
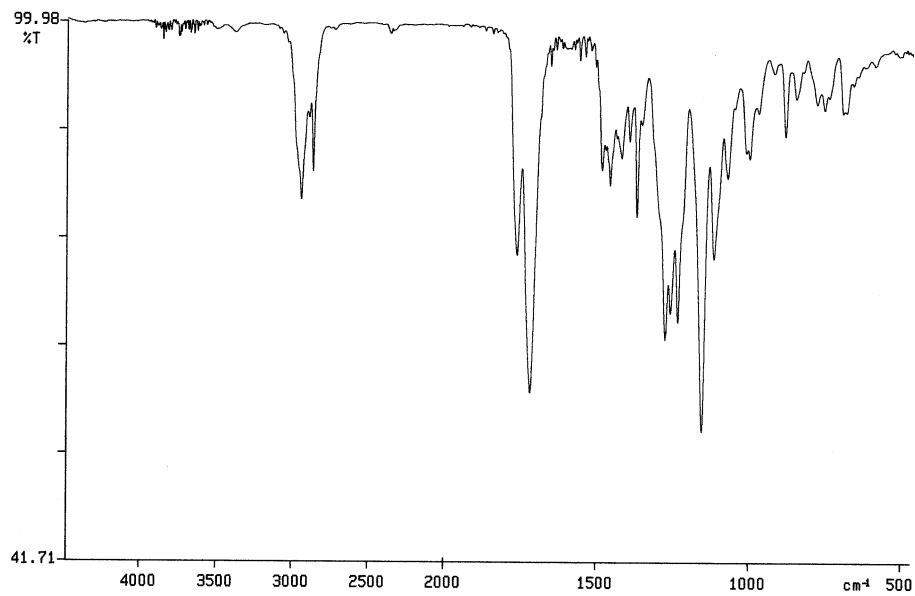
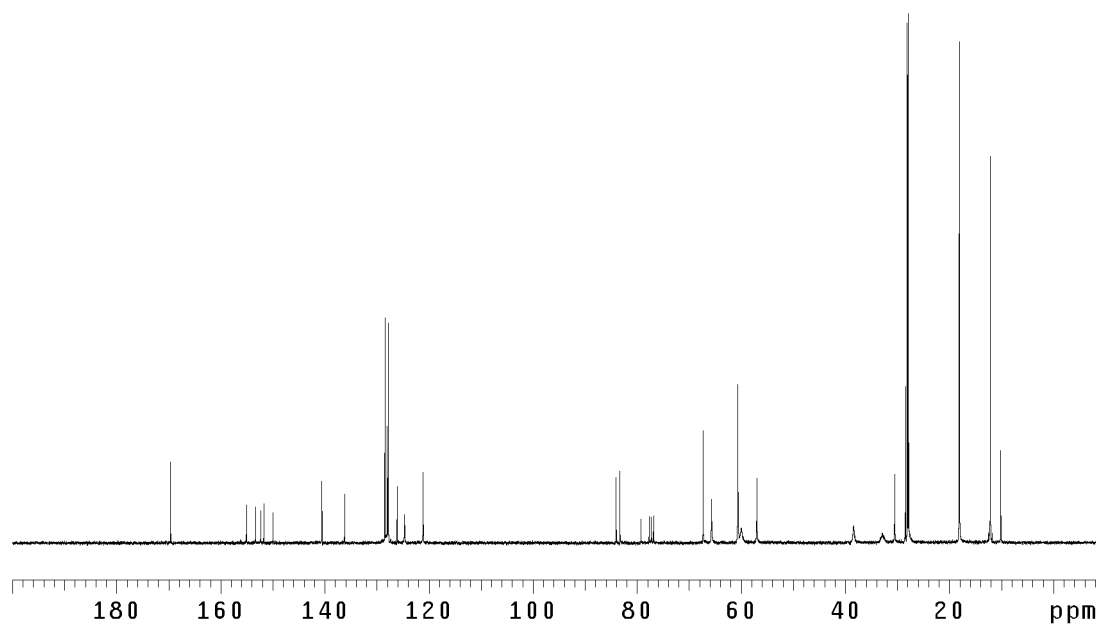


Figure A2.59 ¹H NMR of compound **168** (300 MHz, CDCl₃, 50 °C)

Figure A2.60 IR of compound **168** (NaCl/film)Figure A2.61 ¹³C NMR of compound **168** (75 MHz, CDCl₃, 50 °C)

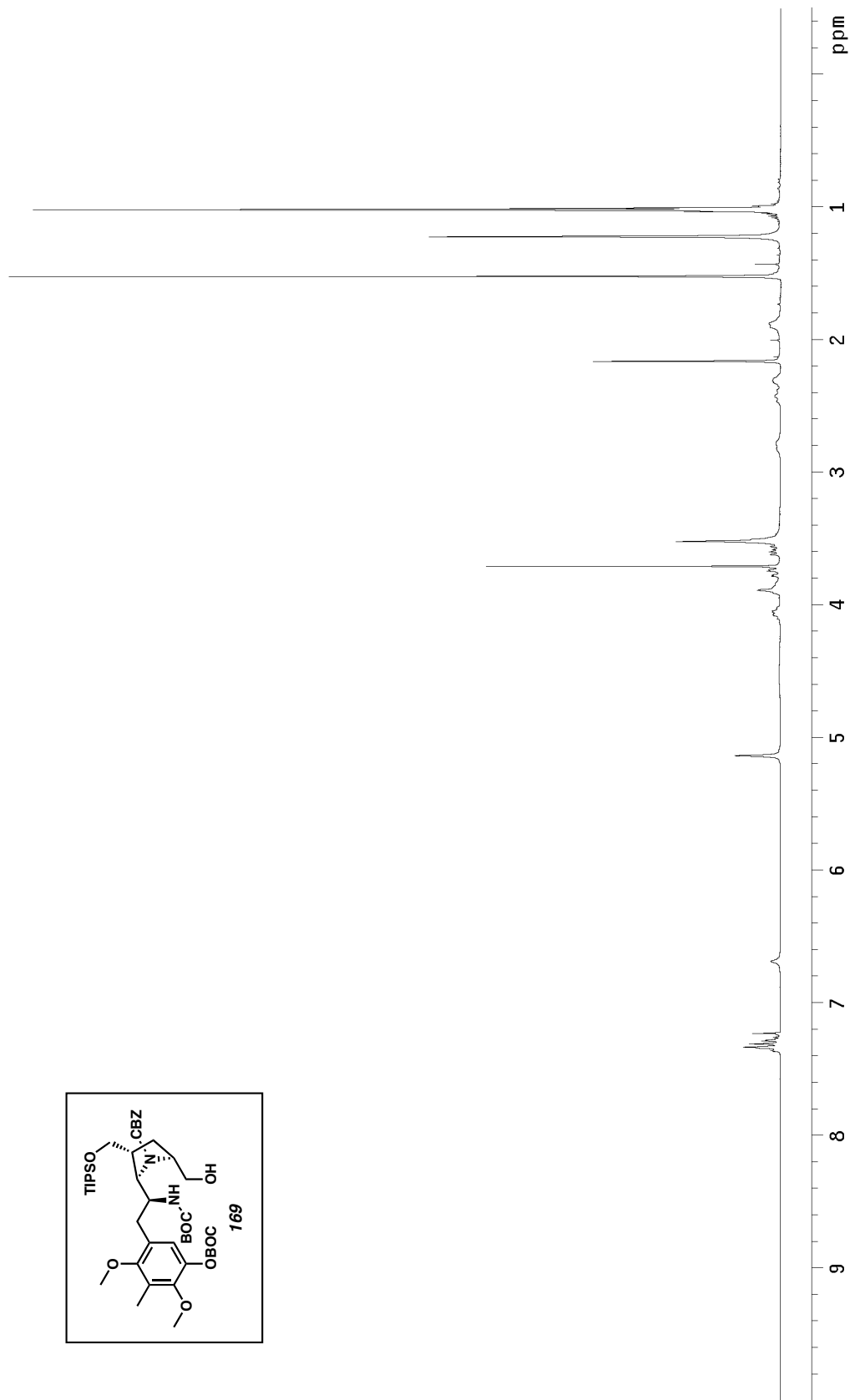
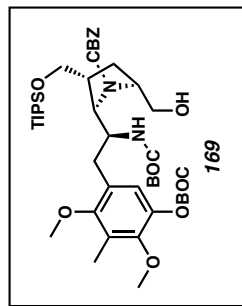


Figure A2.62 $^1\text{H NMR}$ of compound **169** (300 MHz, CDCl_3 , 50 °C)

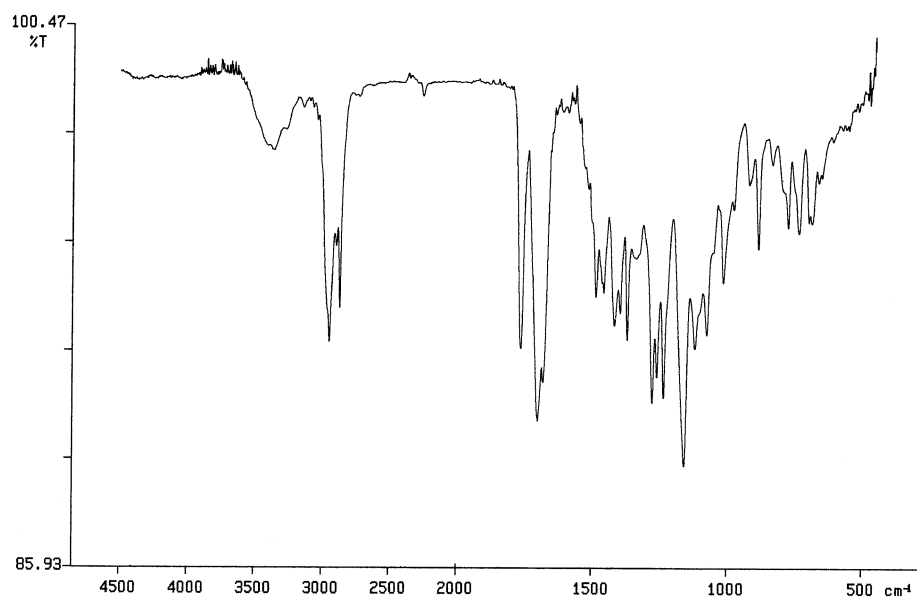


Figure A2.63 IR of compound **169** (NaCl/film)

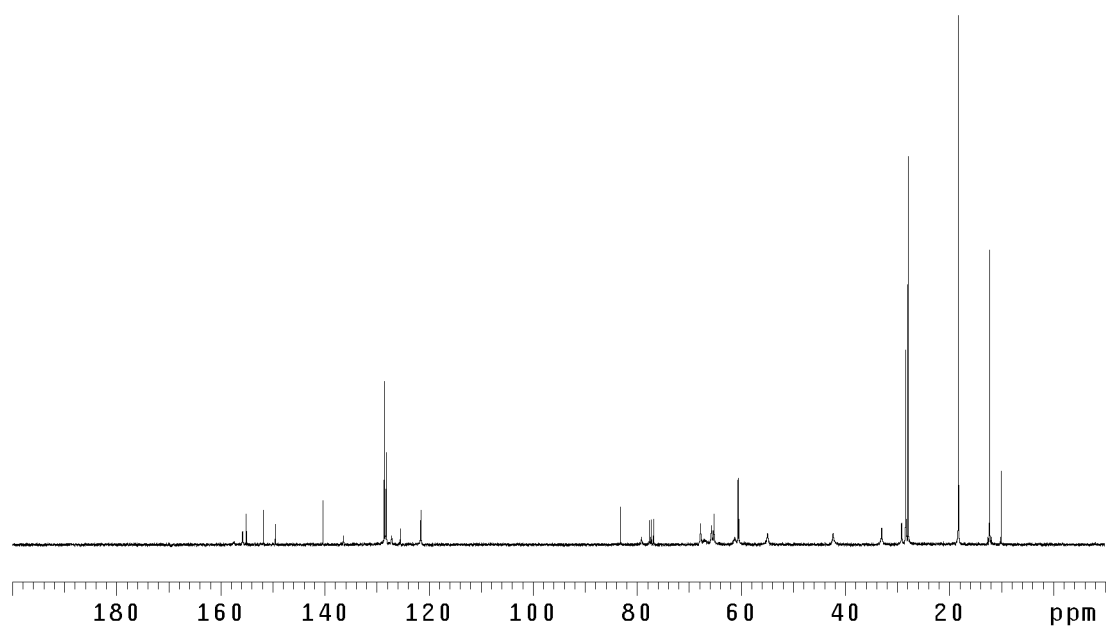


Figure A2.64 ¹³C NMR of compound **169** (75 MHz, CDCl₃, 50 °C)

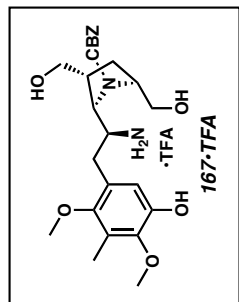
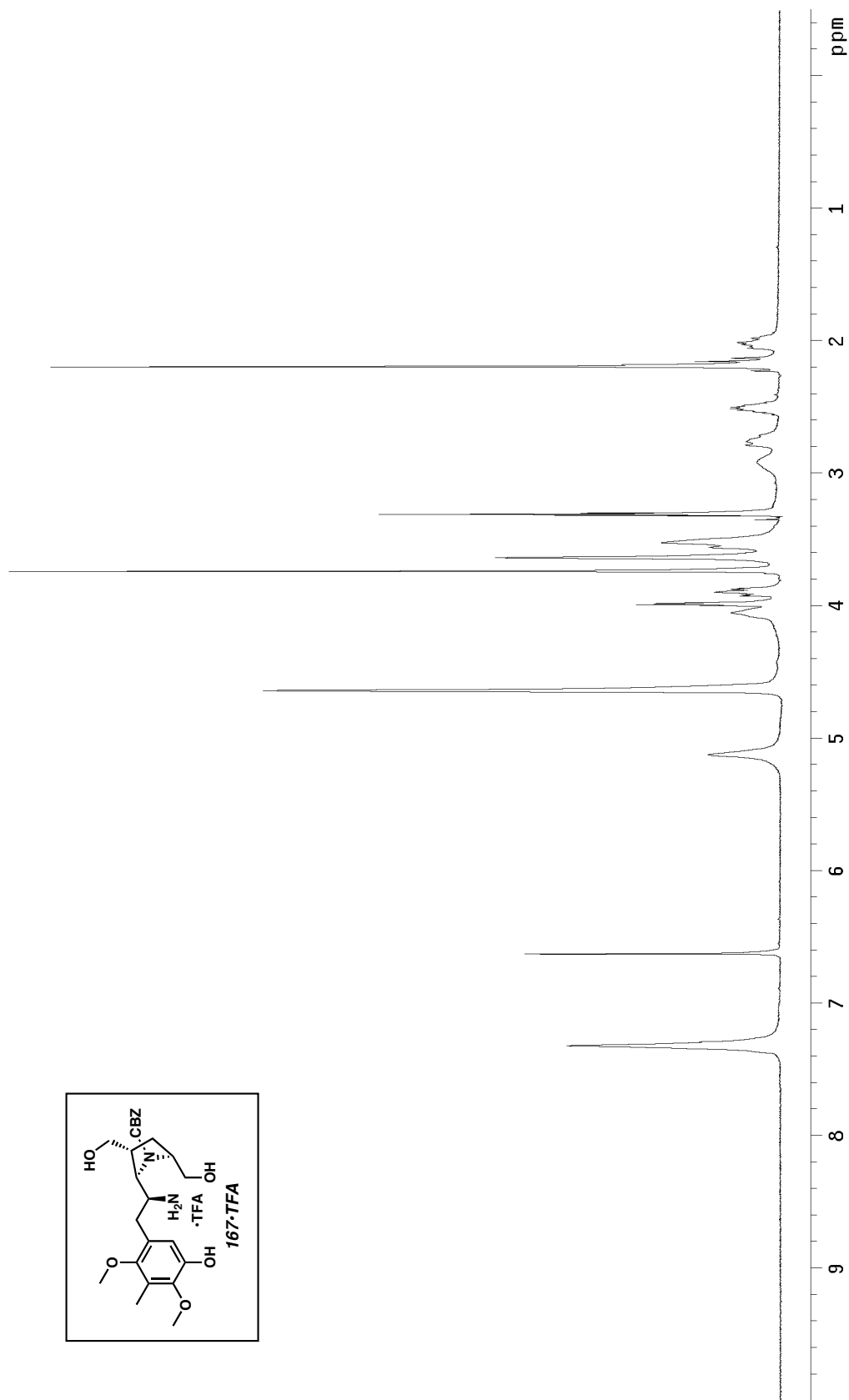


Figure A2.65 ¹H NMR of compound **167** (300 MHz, CD₃OD, 50 °C)

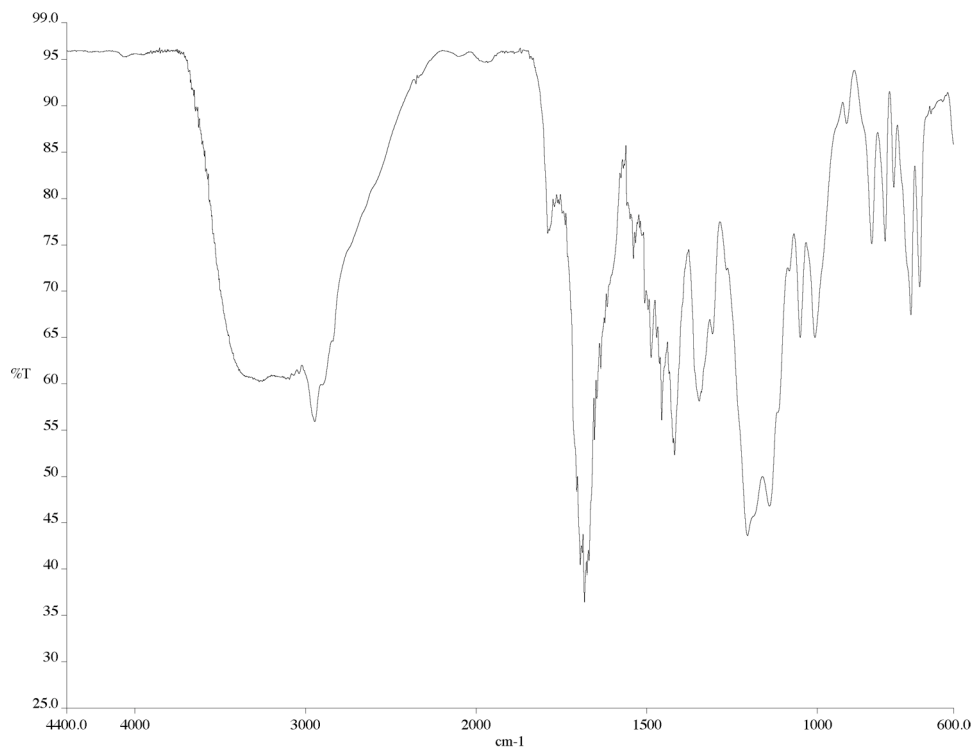


Figure A2.66 IR of compound **167** (NaCl/film)

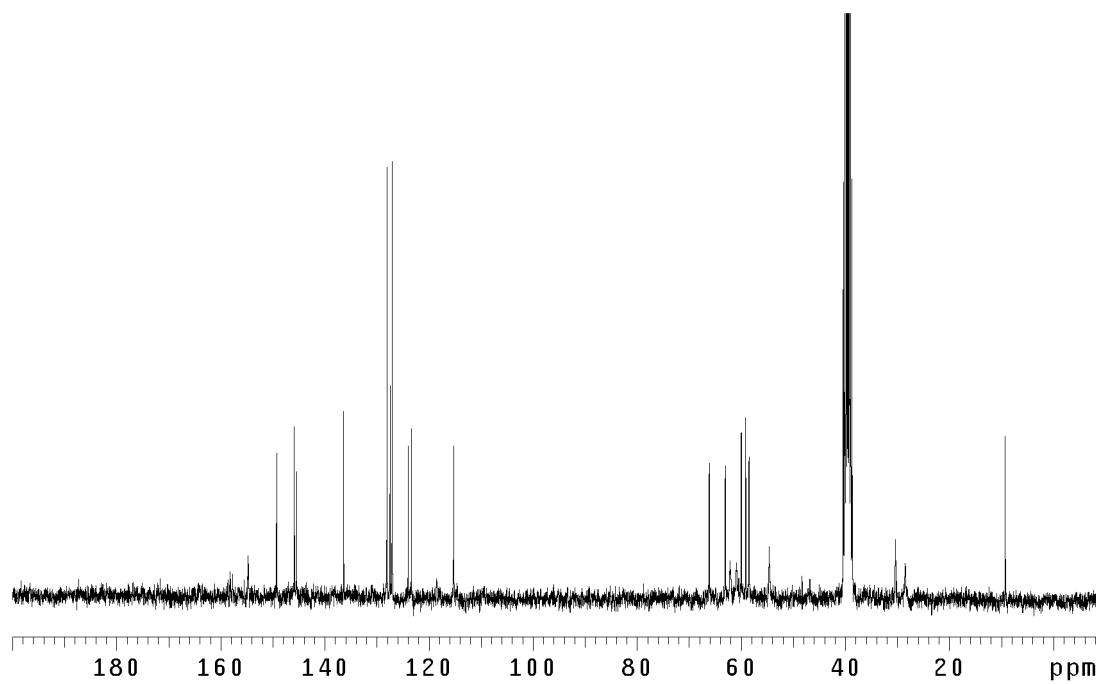


Figure A2.67 ¹³C NMR of compound **167** (75 MHz, DMSO-*d*₆, 75 °C)

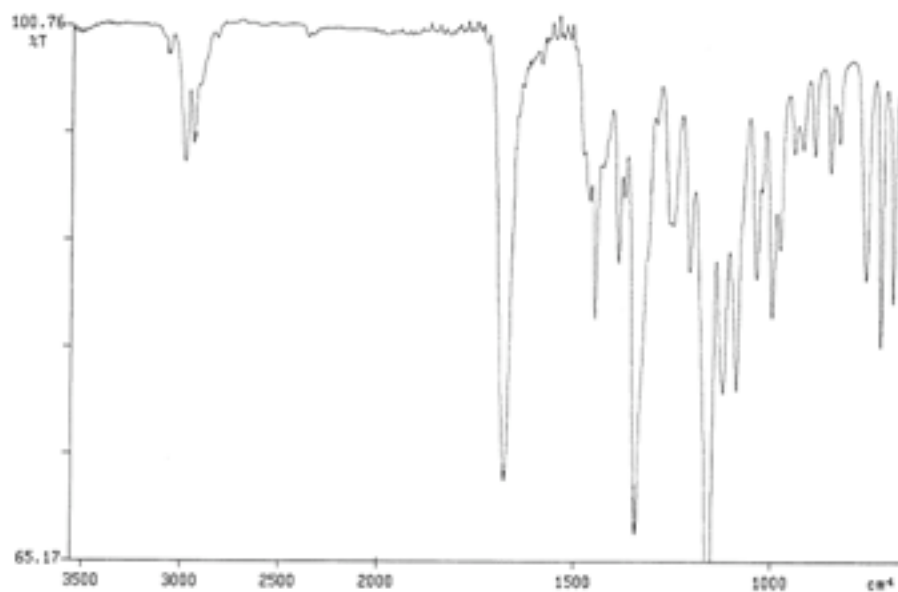


Figure A2.69 IR of compound **172** (NaCl/film)

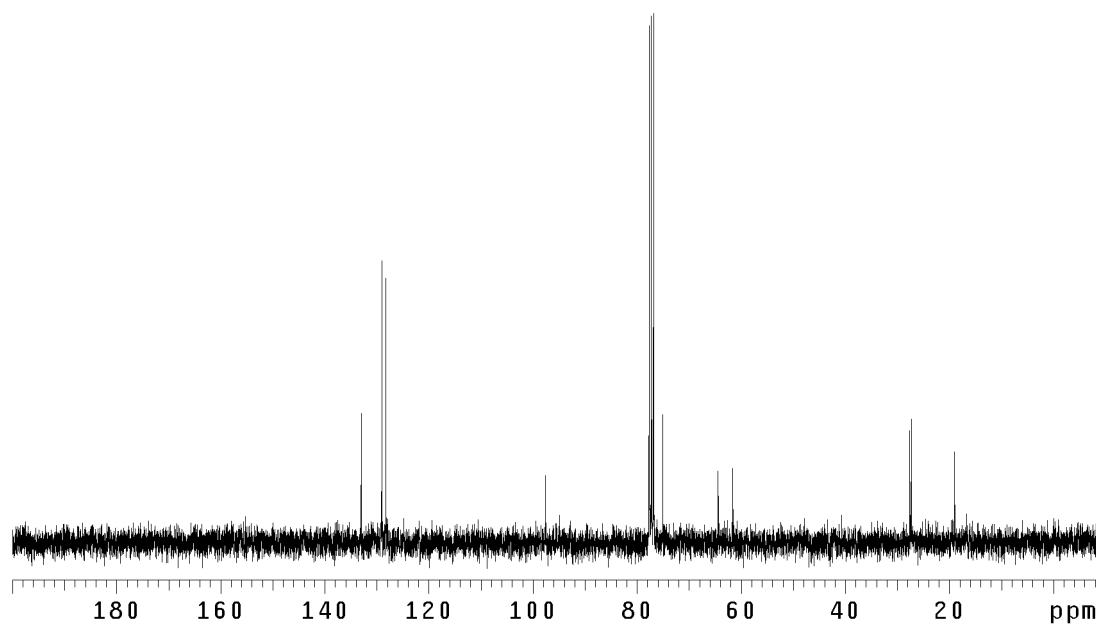


Figure A2.70 ¹³C NMR of compound **172** (75 MHz, CDCl₃)

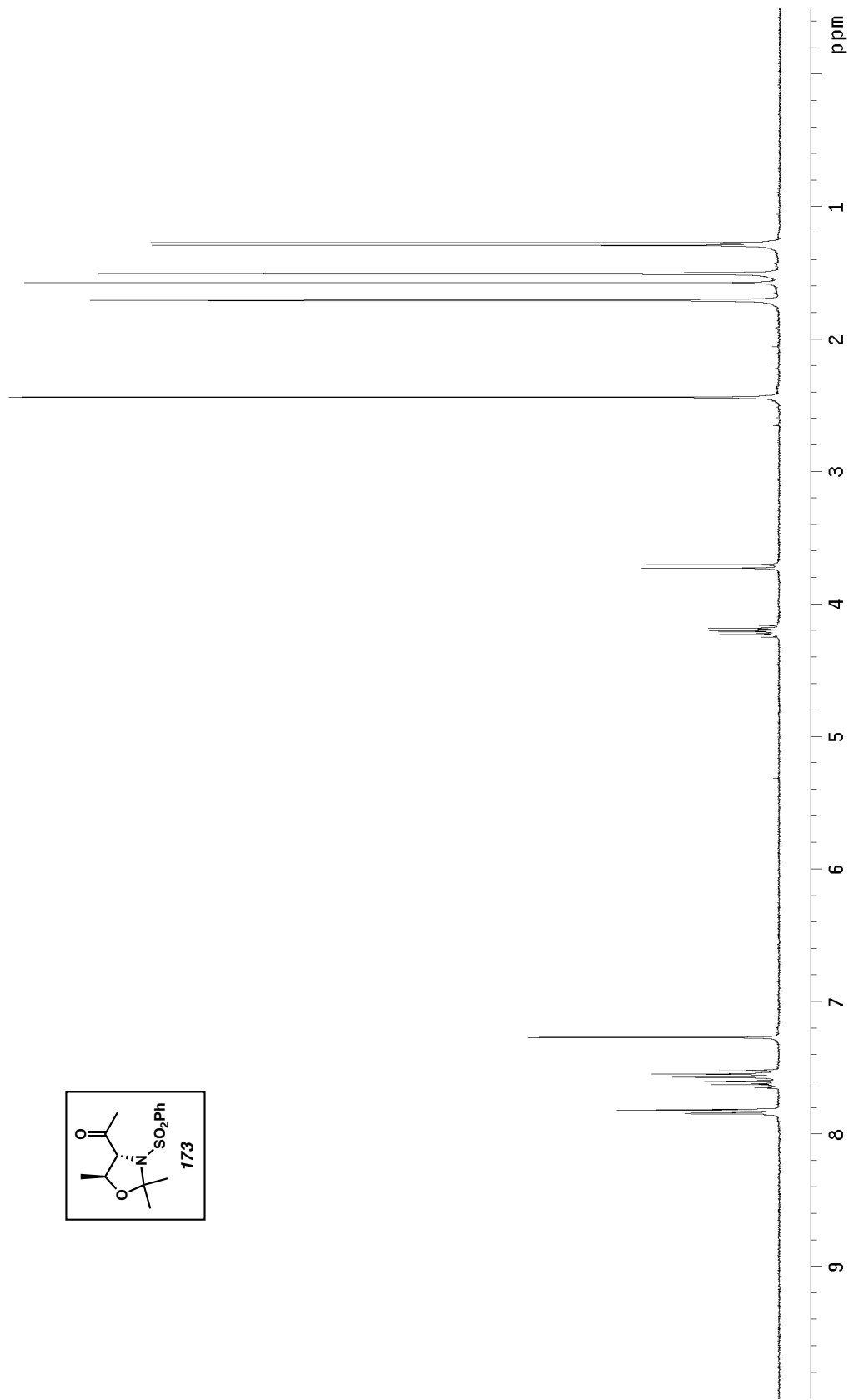
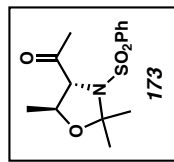
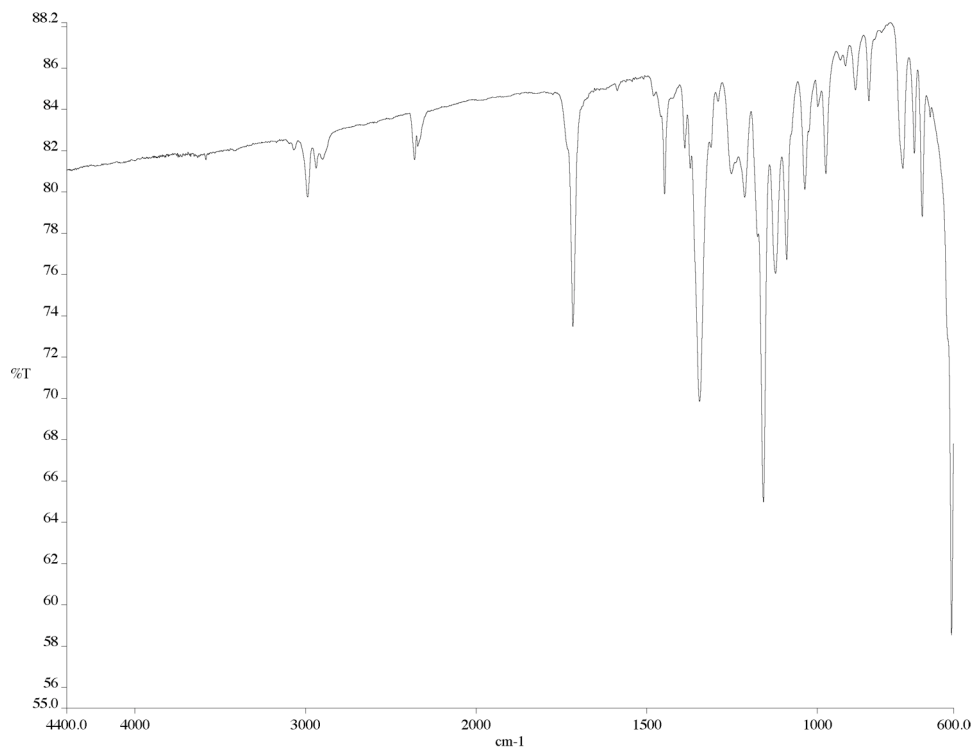
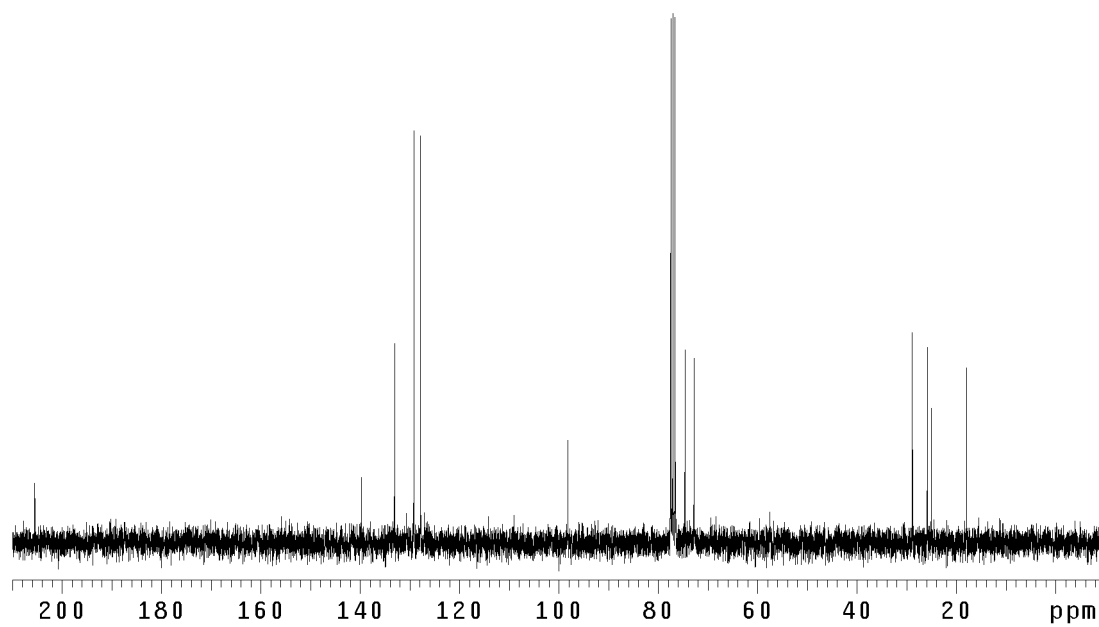


Figure A2.71 ¹H NMR of compound **173** (300 MHz, CDCl₃)

Figure A2.72 IR of compound **173** (NaCl/film)Figure A2.73 ¹³C NMR of compound **173** (75 MHz, CDCl₃)

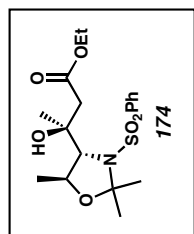
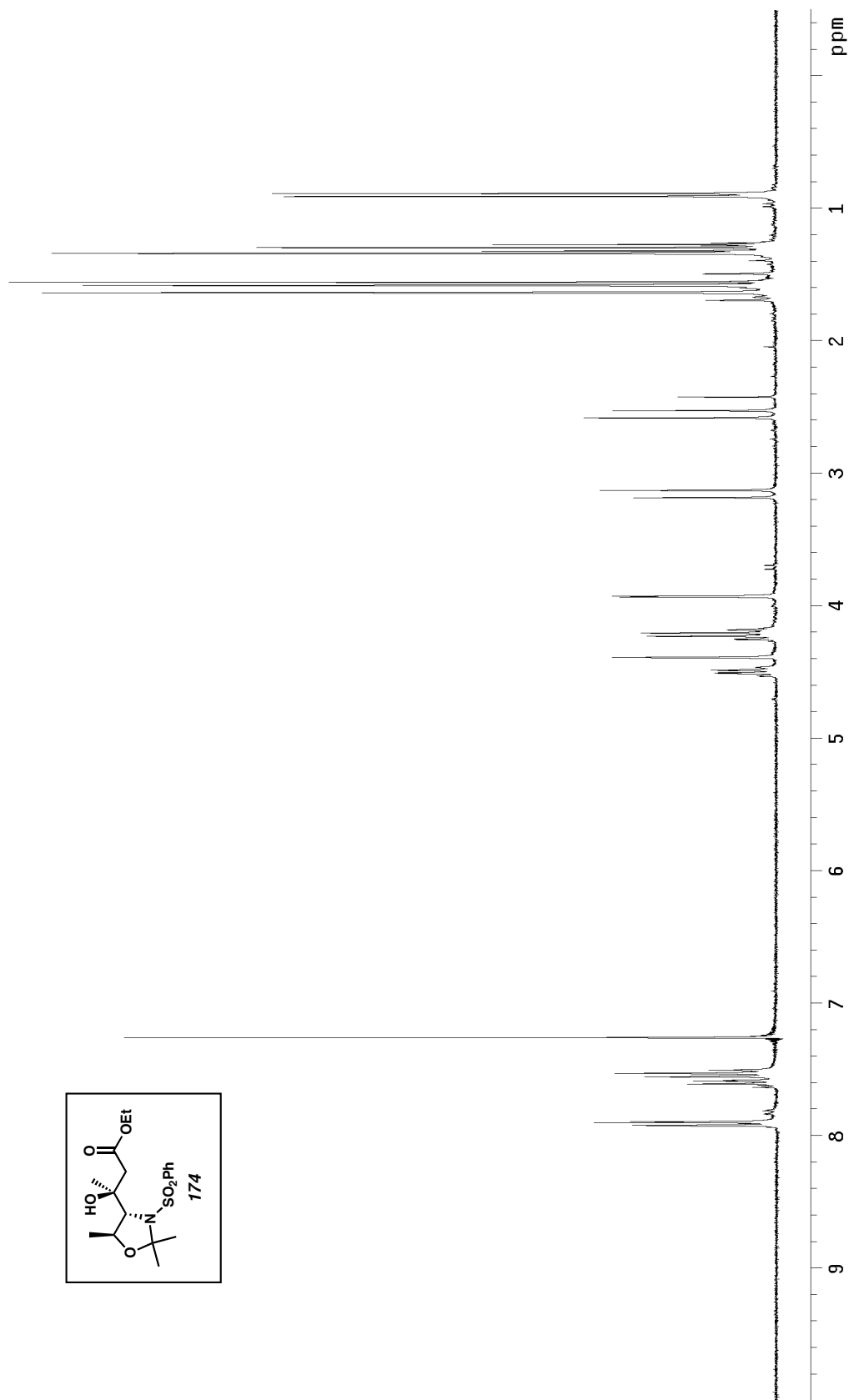
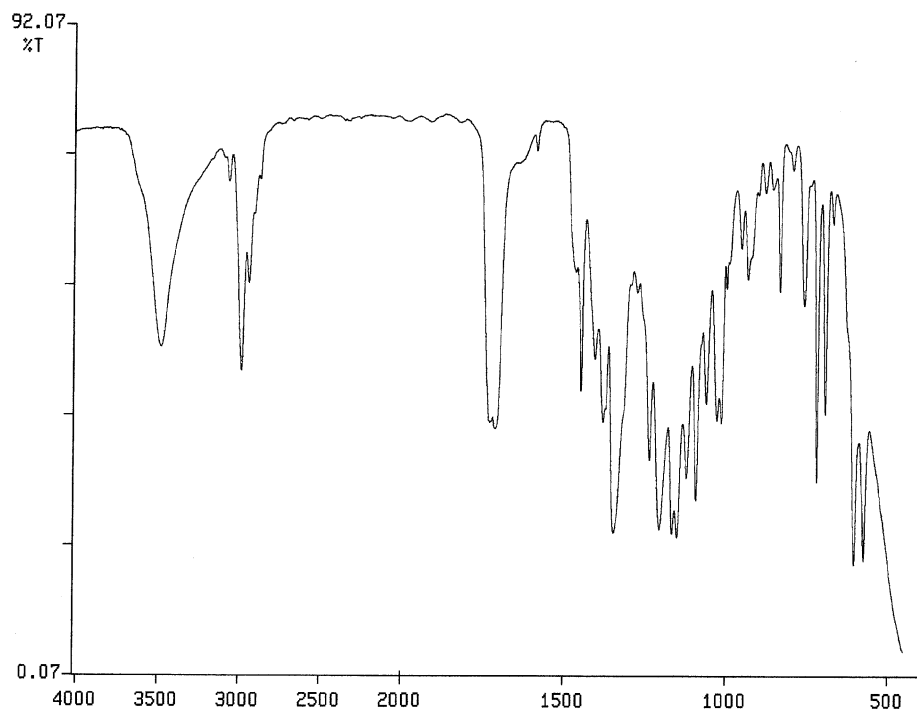
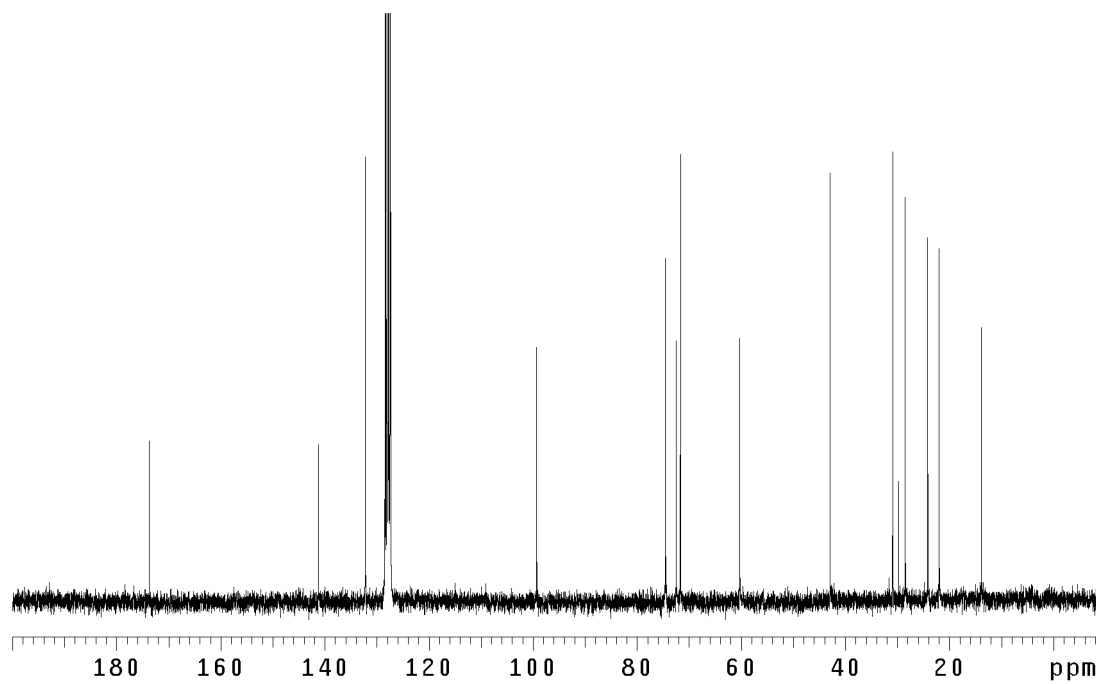


Figure A2.74 ^1H NMR of compound **174** (300 MHz, CDCl_3)

Figure A2.75 IR of compound **174** (NaCl/film)Figure A2.76 ^{13}C NMR of compound **174** (75 MHz, C_6D_6)

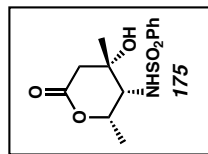
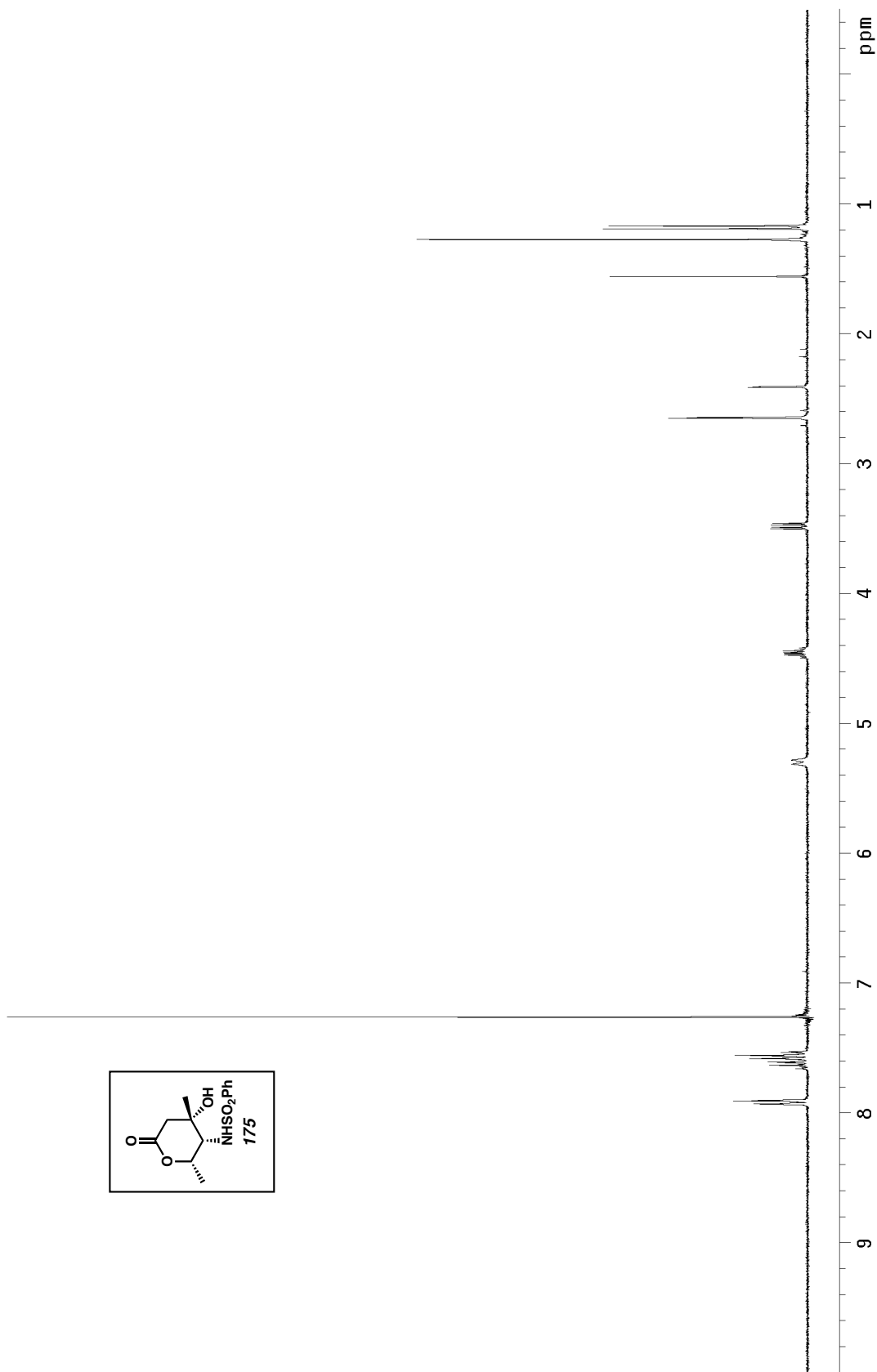


Figure A2.77 ¹H NMR of compound 175 (300 MHz, CDCl₃)

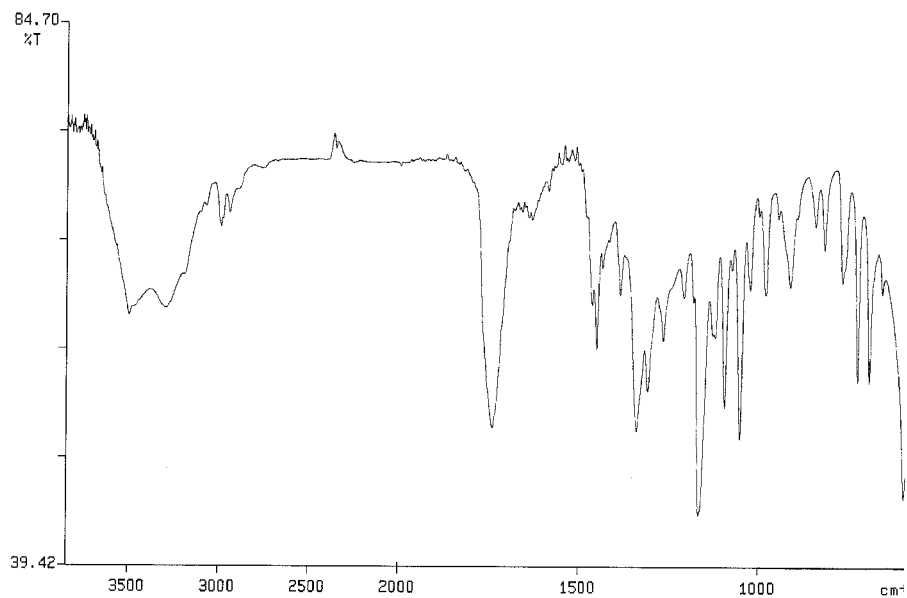


Figure A2.78 IR of compound **175** (NaCl/film)

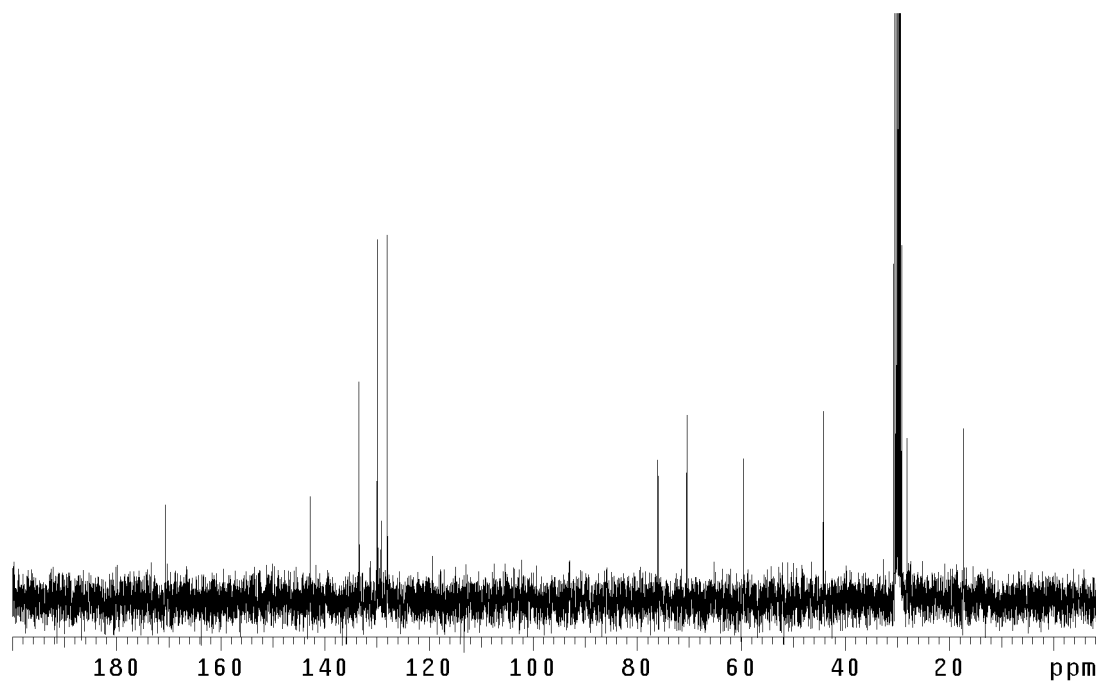


Figure A2.79 ¹³C NMR of compound **175** (75 MHz, Acetone-*d*₆)

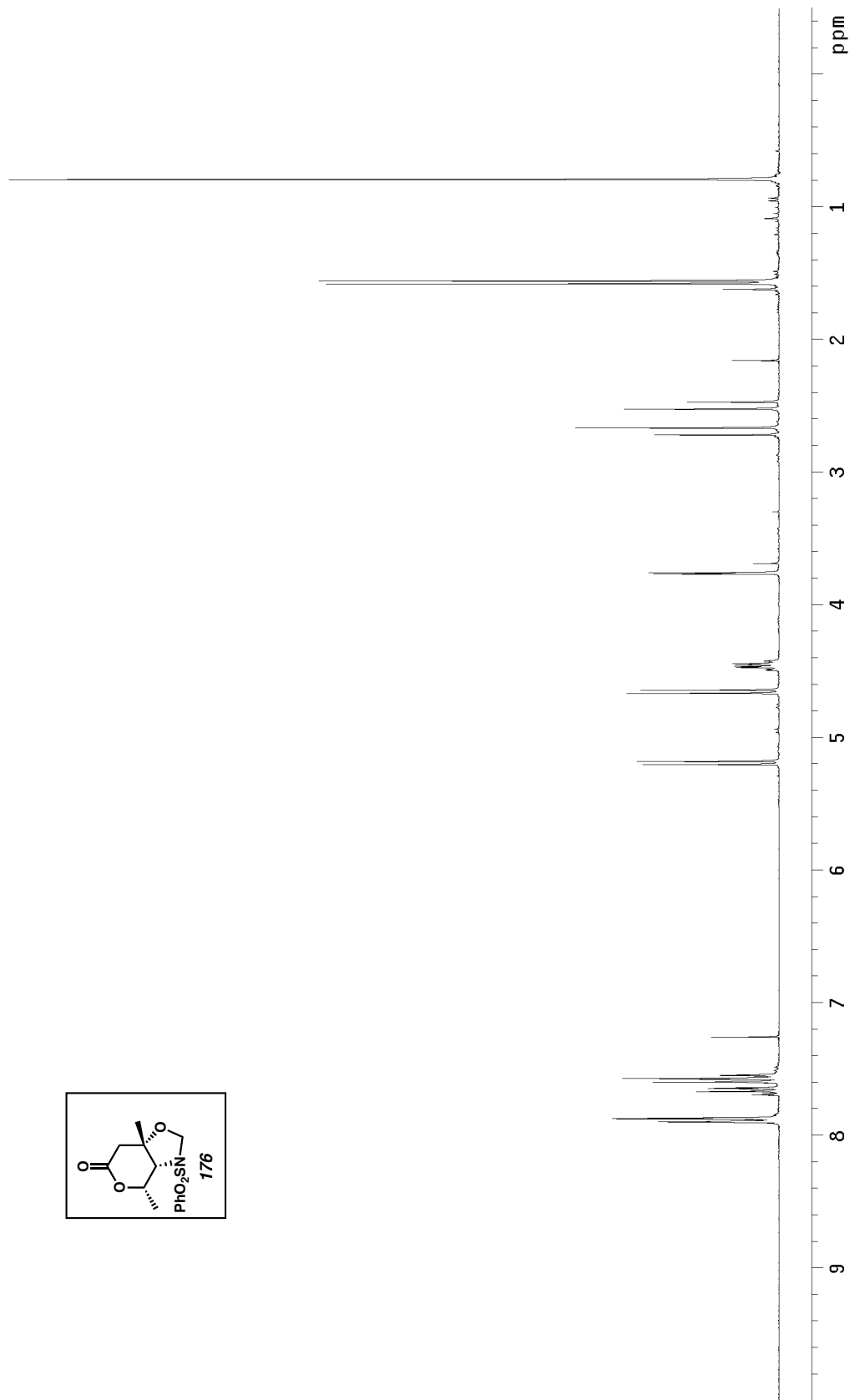
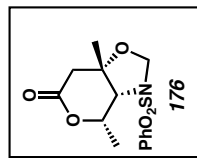
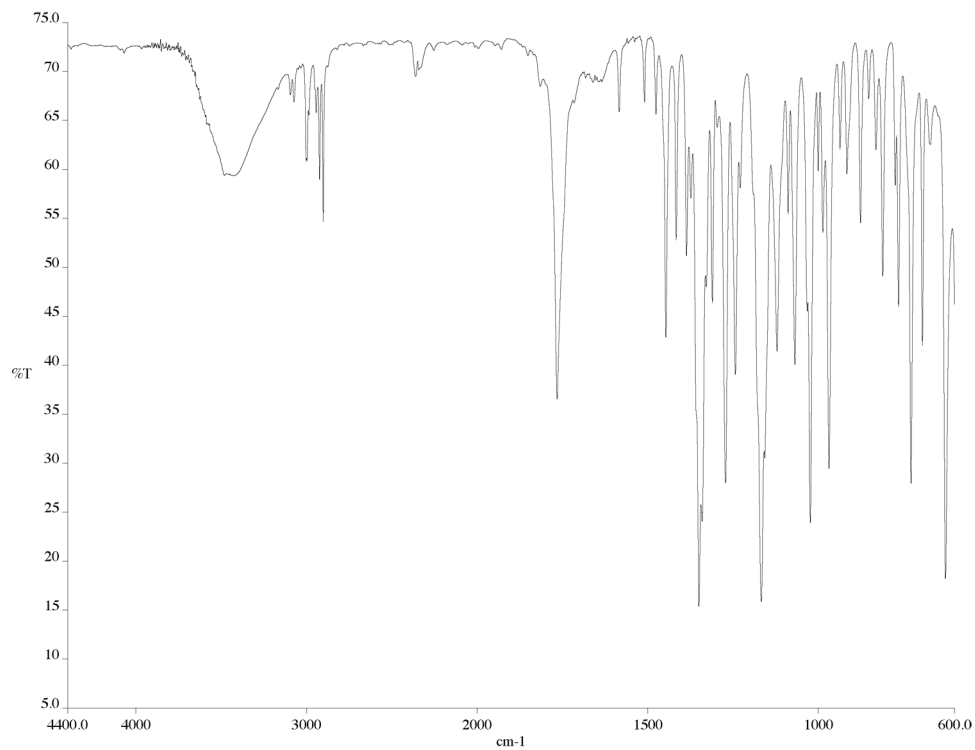
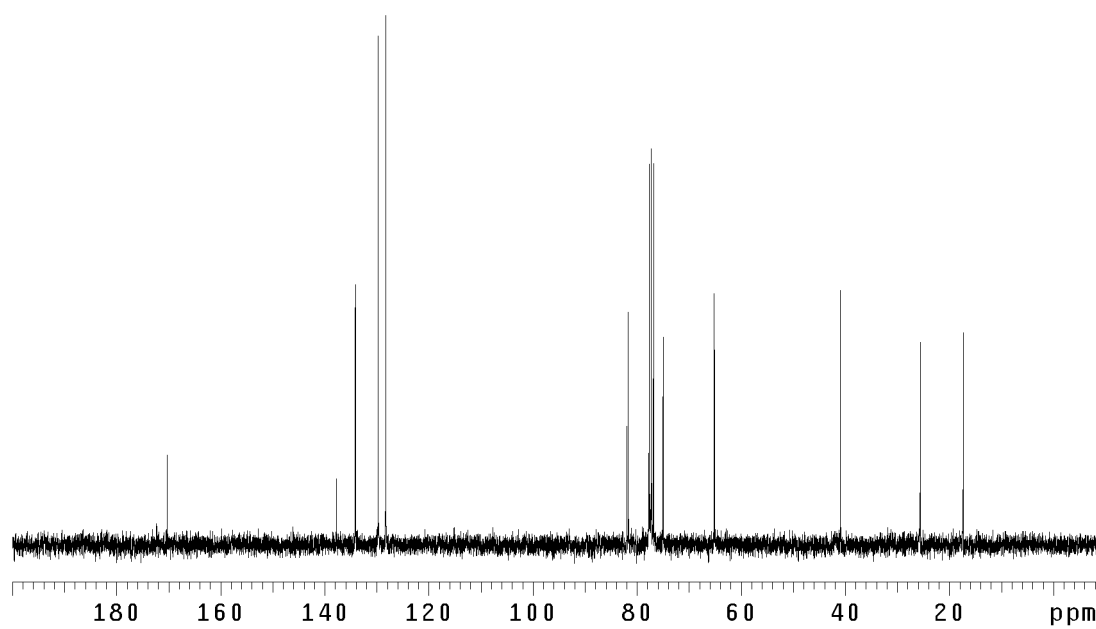


Figure A2.80 ¹H NMR of compound **176** (300 MHz, CDCl₃)

Figure A2.81 IR of compound **176** (NaCl/film)Figure A2.82 ¹³C NMR of compound **176** (75 MHz, CDCl₃)

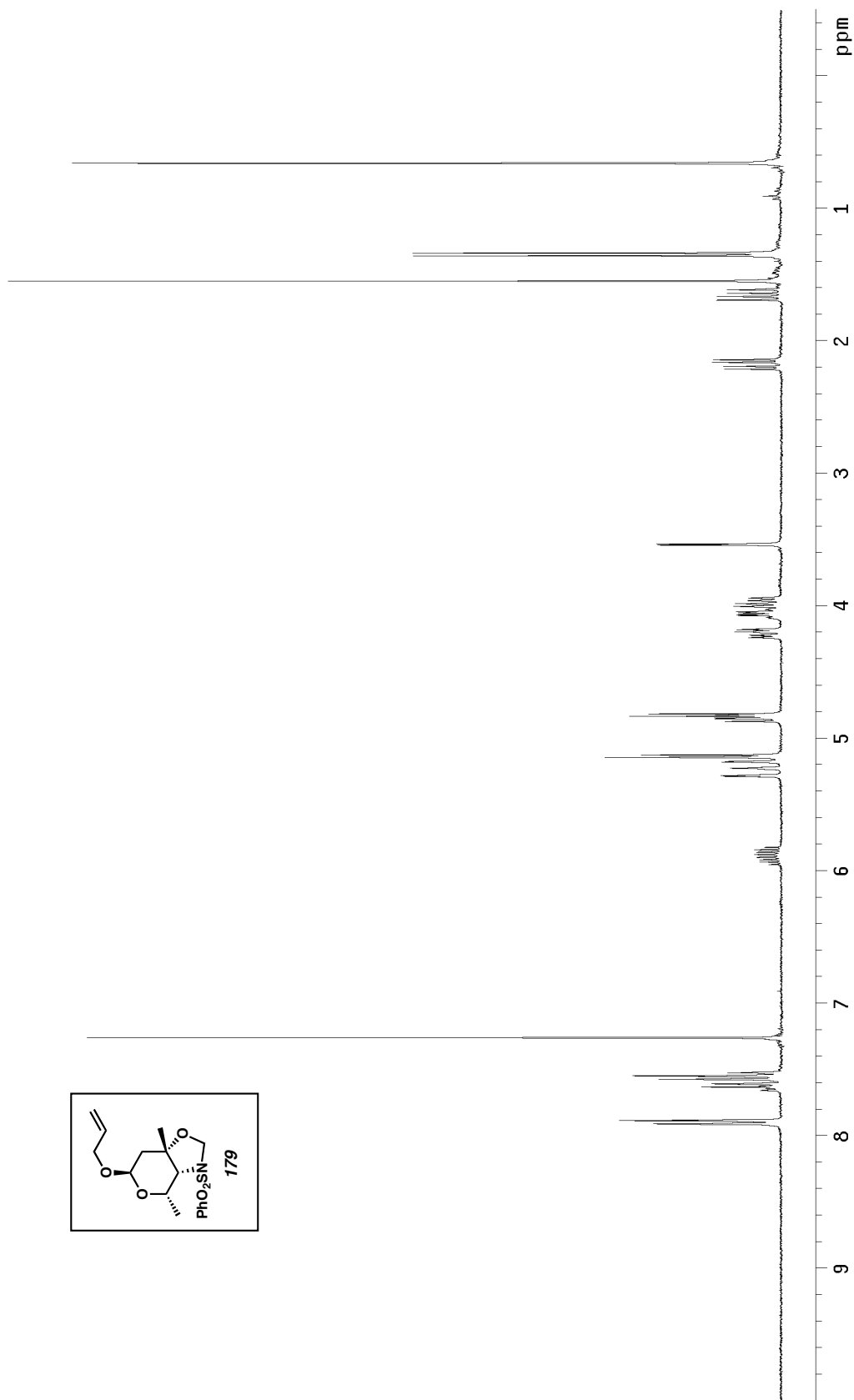
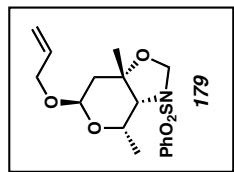


Figure A2.83 ¹H NMR of compound **179** (300 MHz, CDCl₃)

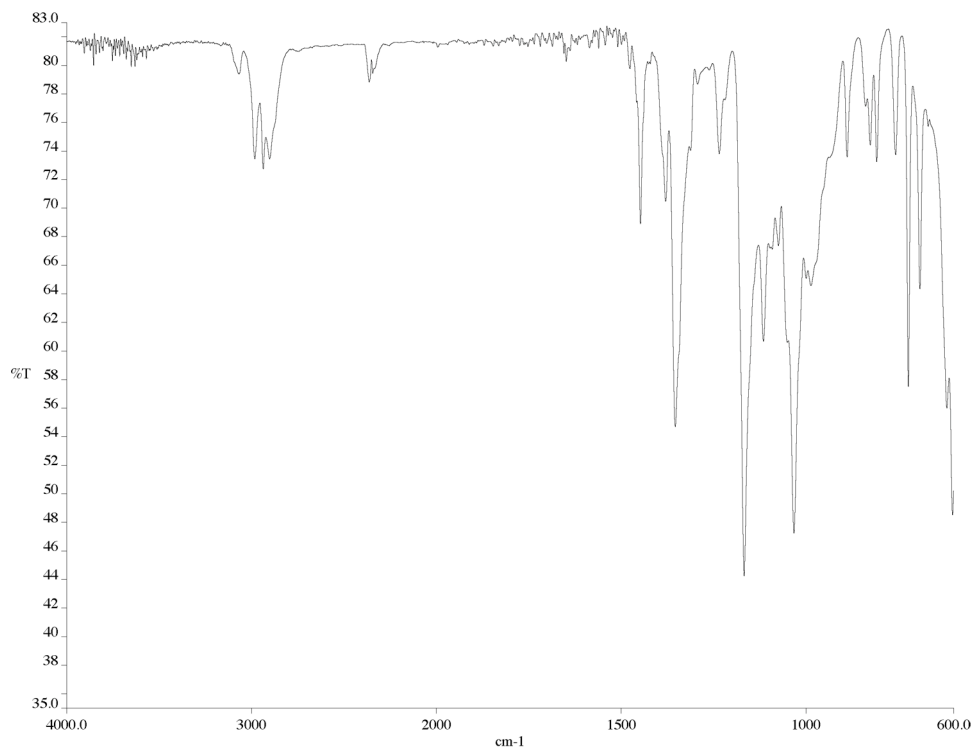


Figure A2.84 IR of compound **179** (NaCl/film)

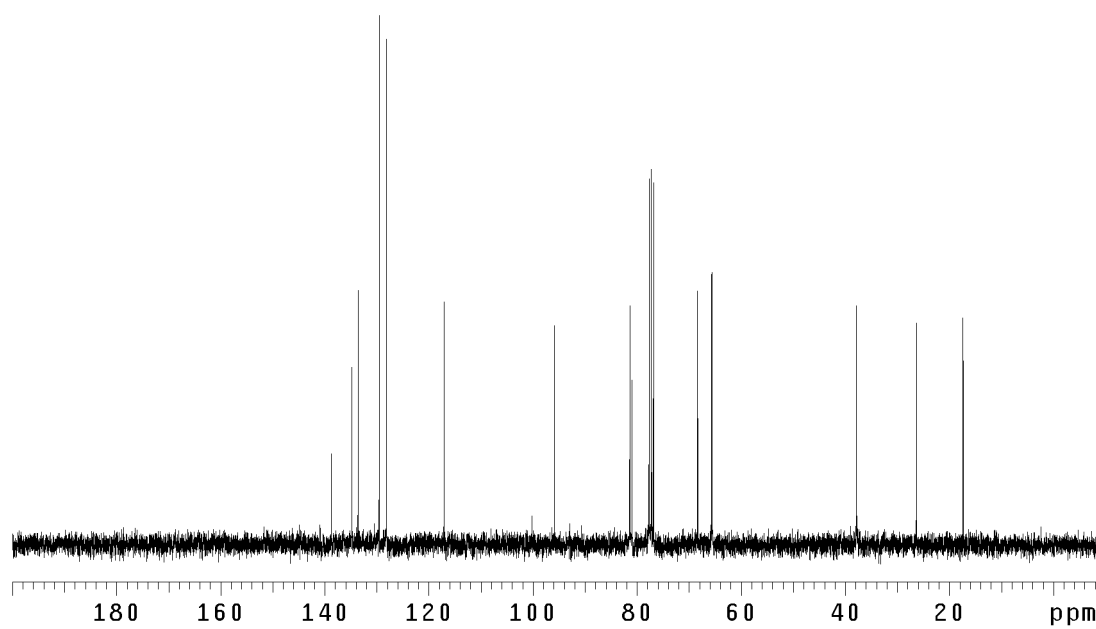


Figure A2.85 ¹³C NMR of compound **179** (75 MHz, CDCl₃)

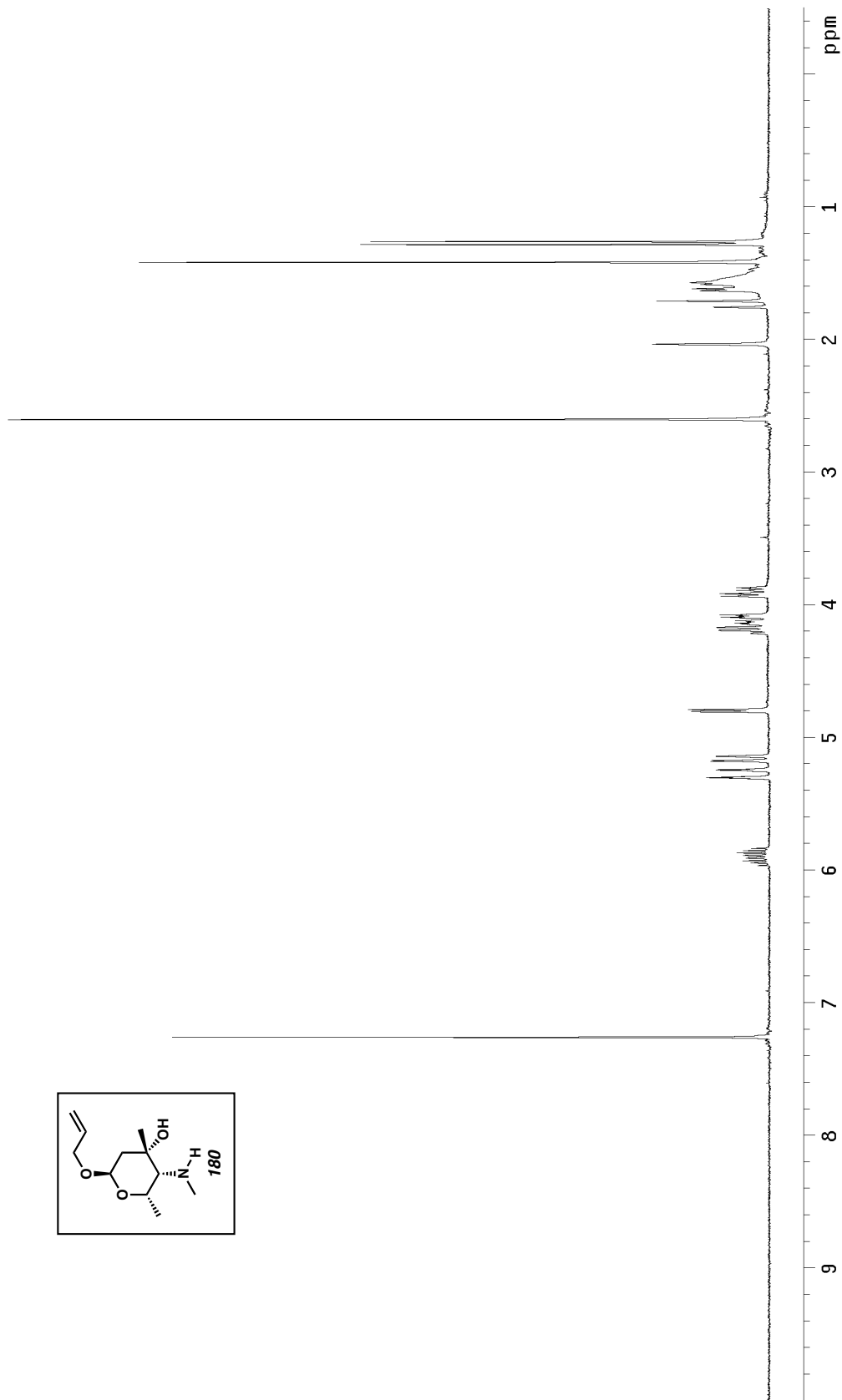
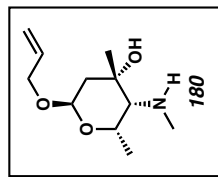
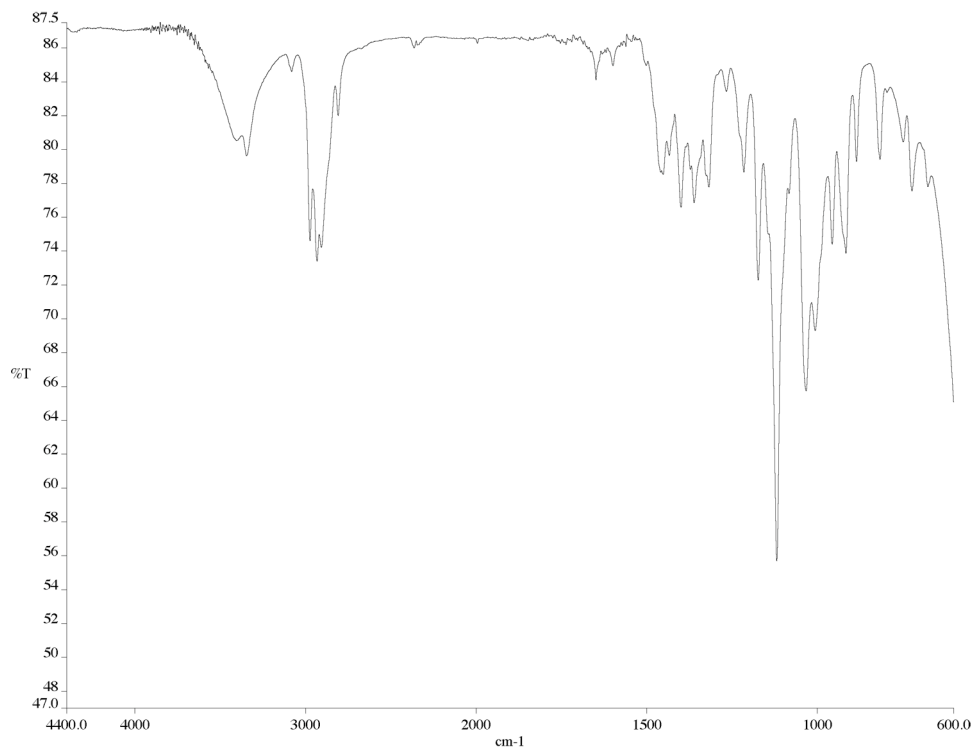
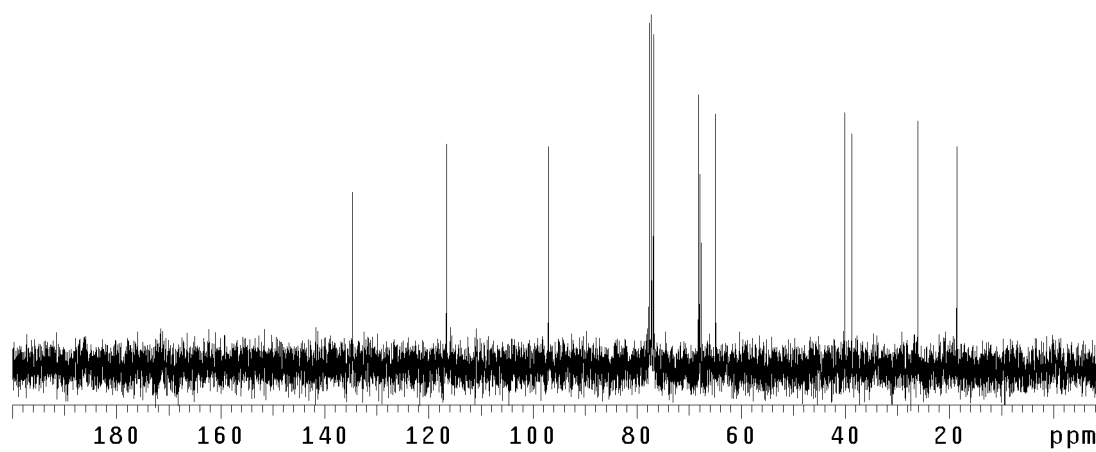


Figure A2.86 ^1H NMR of compound **180** (300 MHz, CDCl_3)

Figure A2.87 IR of compound **180** (NaCl/film)Figure A2.88 ¹³C NMR of compound **180** (75 MHz, CDCl₃)

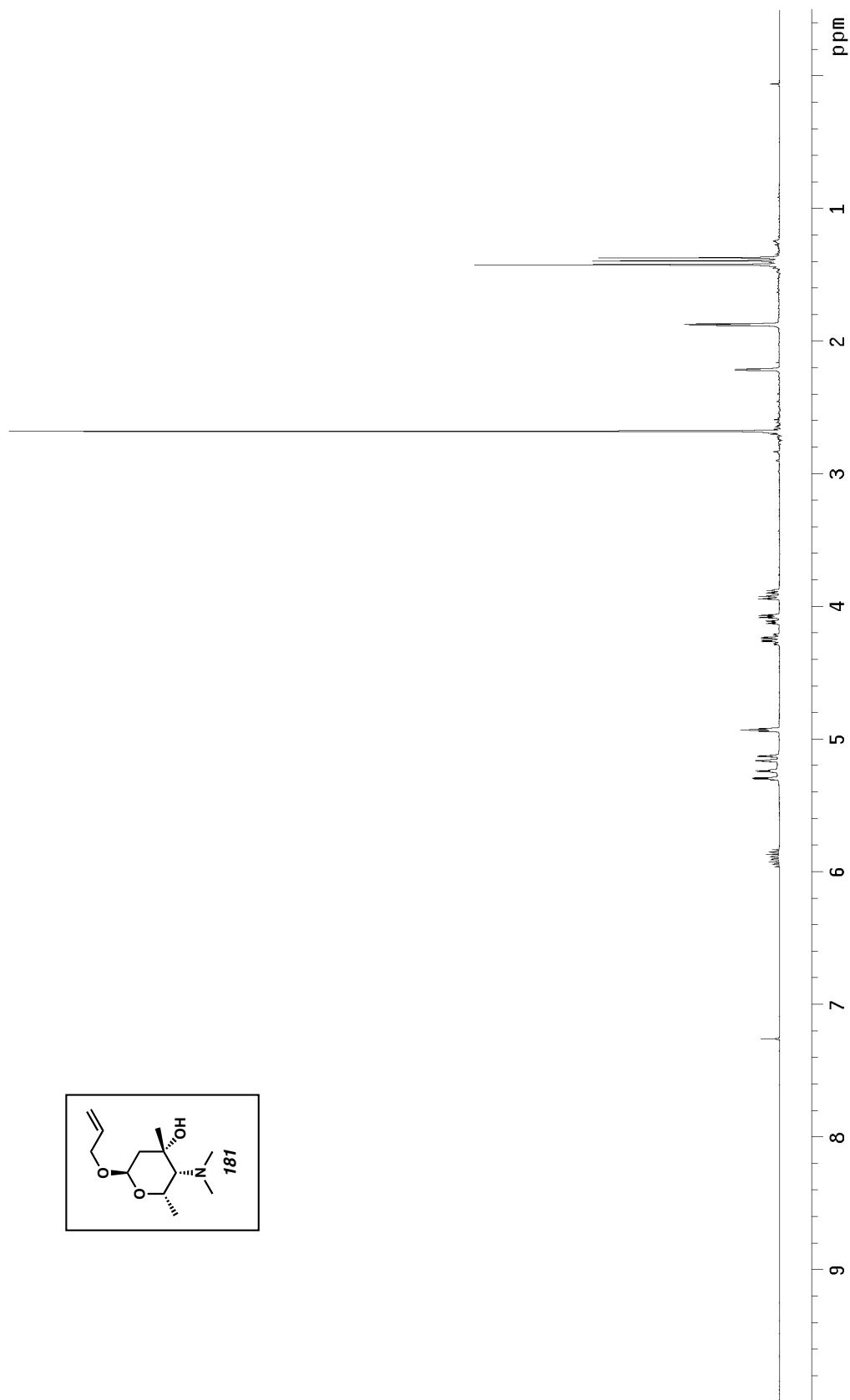
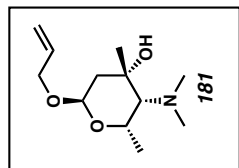
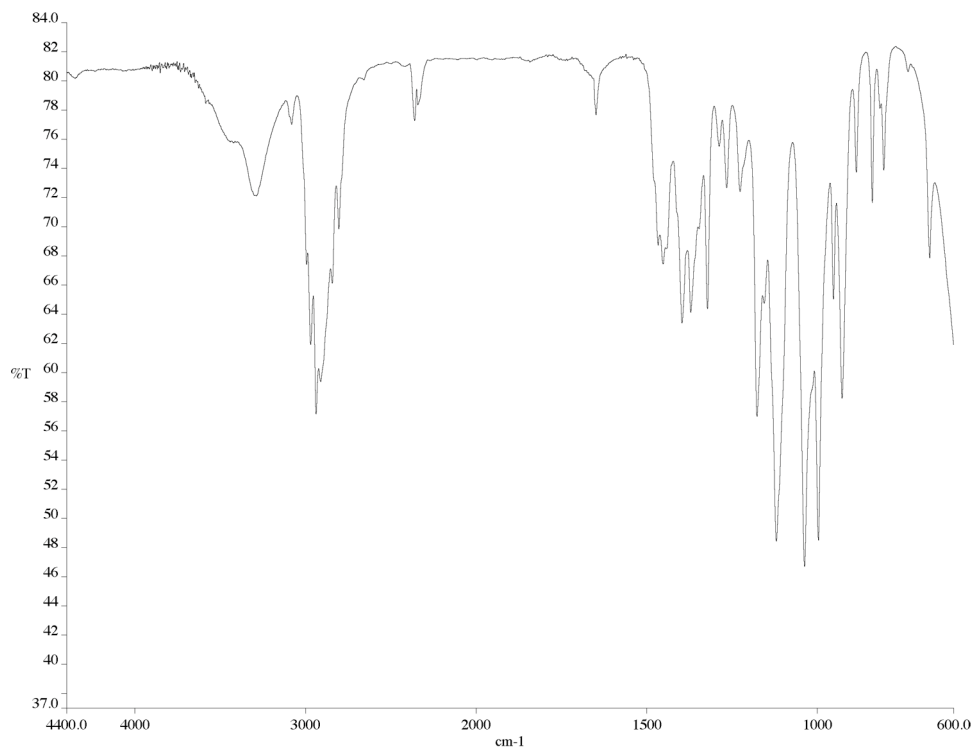
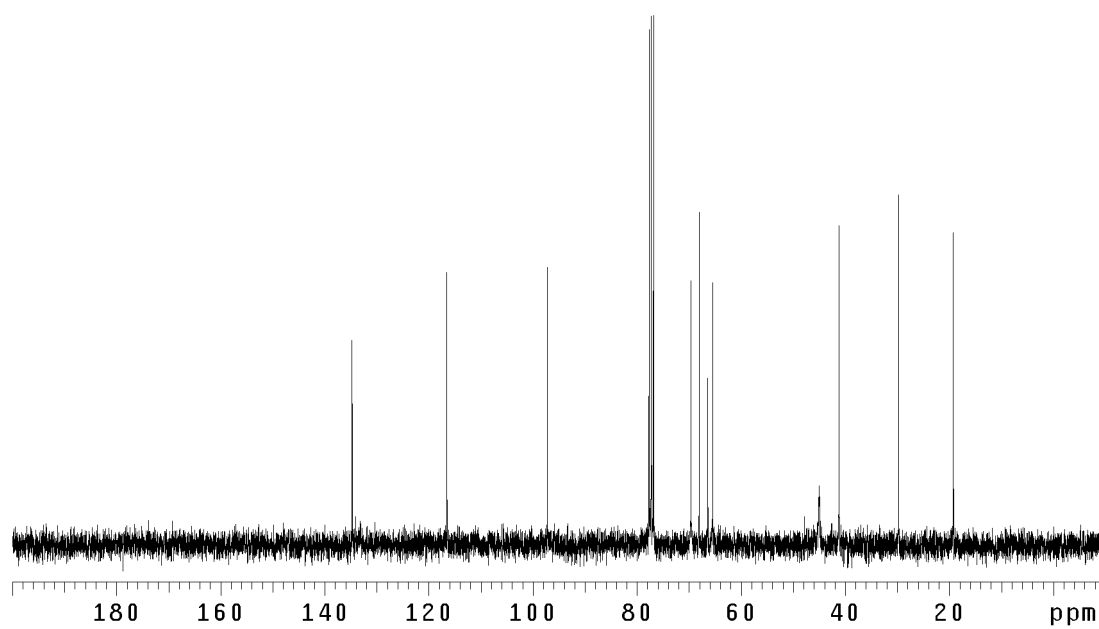


Figure A2.89 ^1H NMR of compound **181** (300 MHz, CDCl_3)

Figure A2.90 IR of compound **181** (NaCl/film)Figure A2.91 ¹³C NMR of compound **181** (75 MHz, CDCl₃)

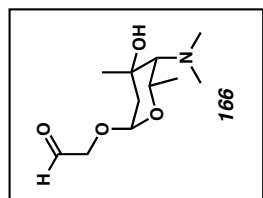
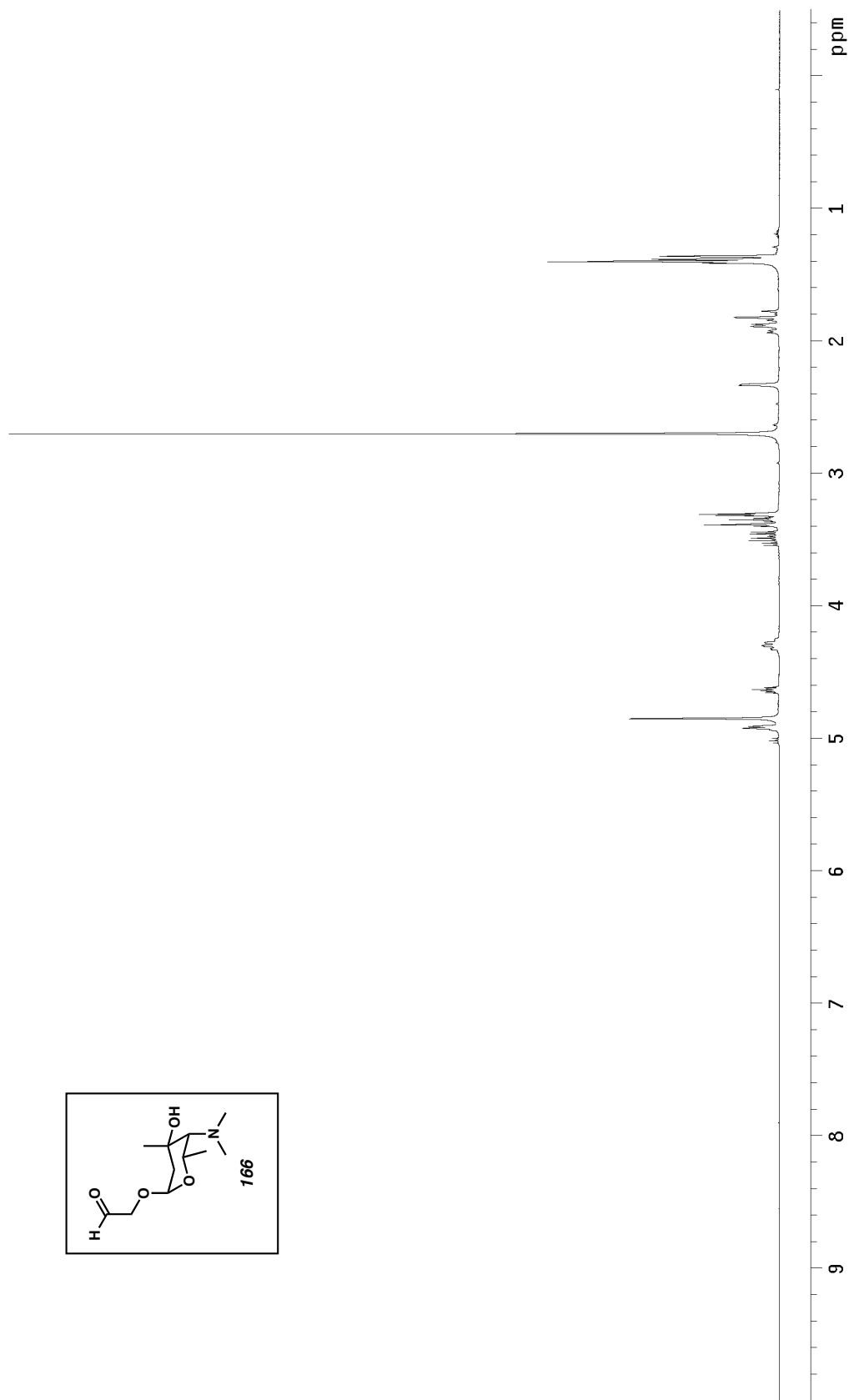
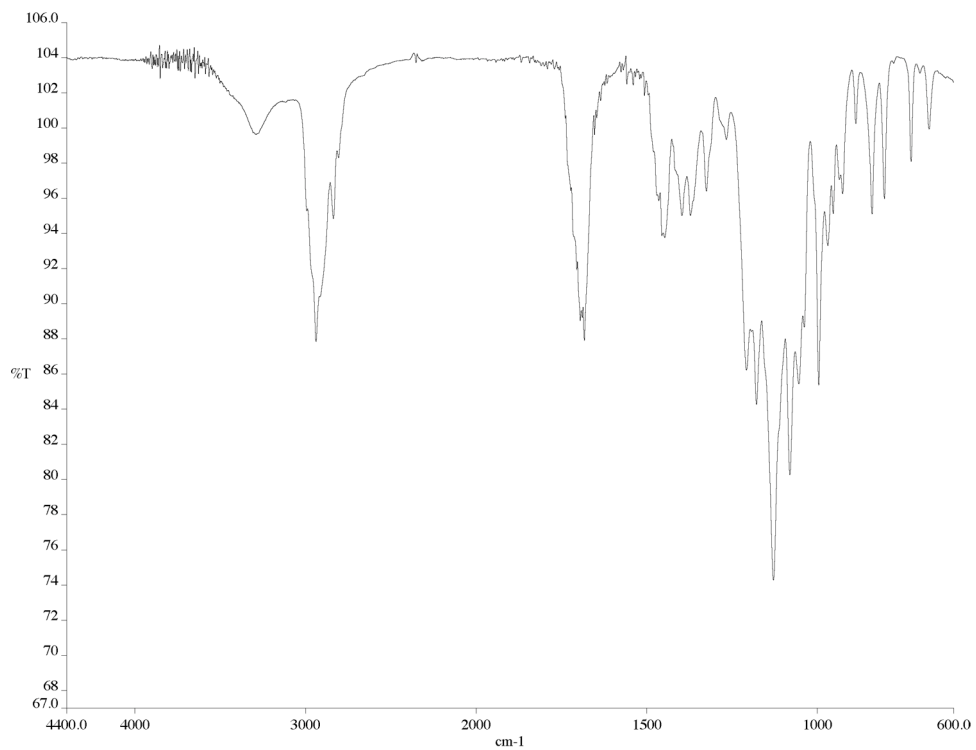
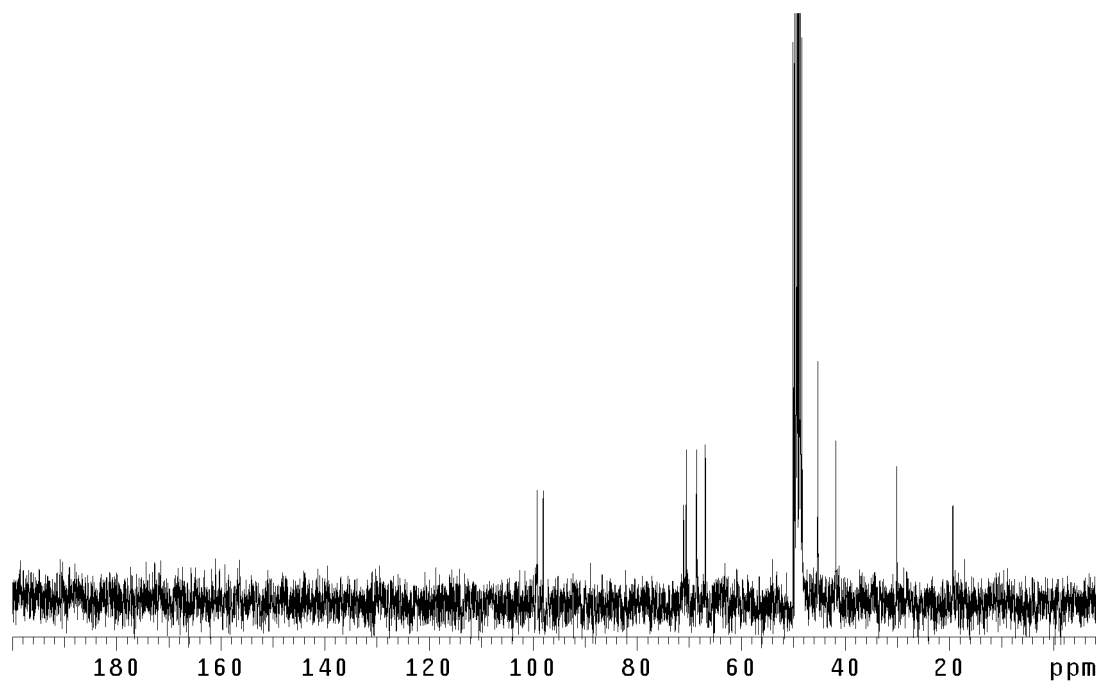


Figure A2.92 ^1H NMR of compound **166** (300 MHz, CD_3OD)

Figure A2.93 IR of compound **166** (NaCl/film)Figure A2.94 ¹³C NMR of compound **166** (75 MHz, CD₃OD)

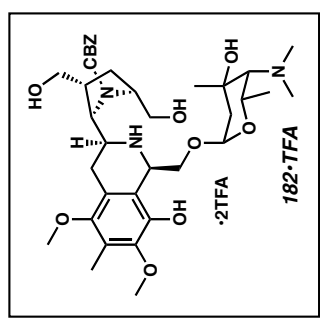
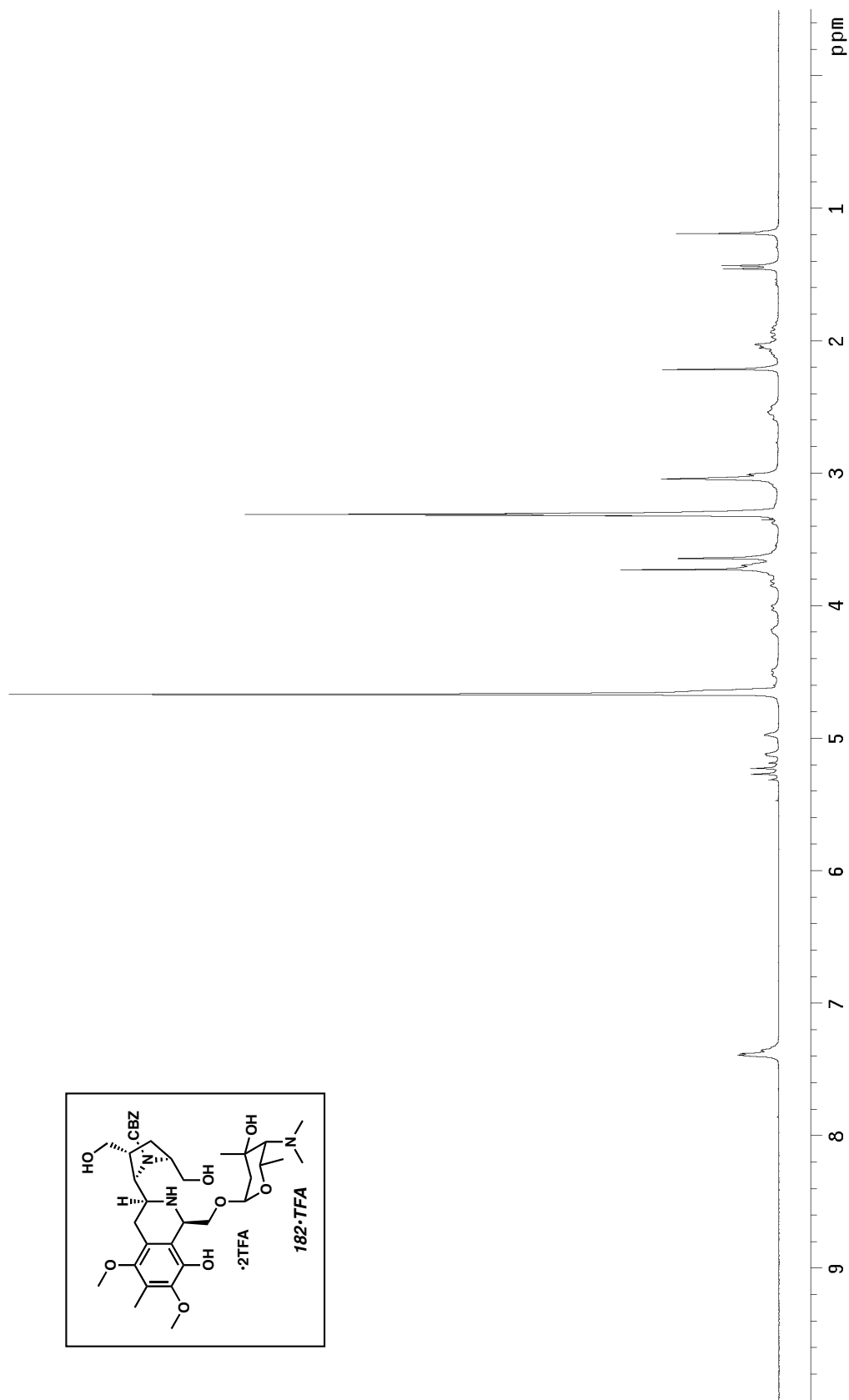


Figure A2.95 ¹H NMR of compound **182** (300 MHz, CD₃OD, 45 °C)

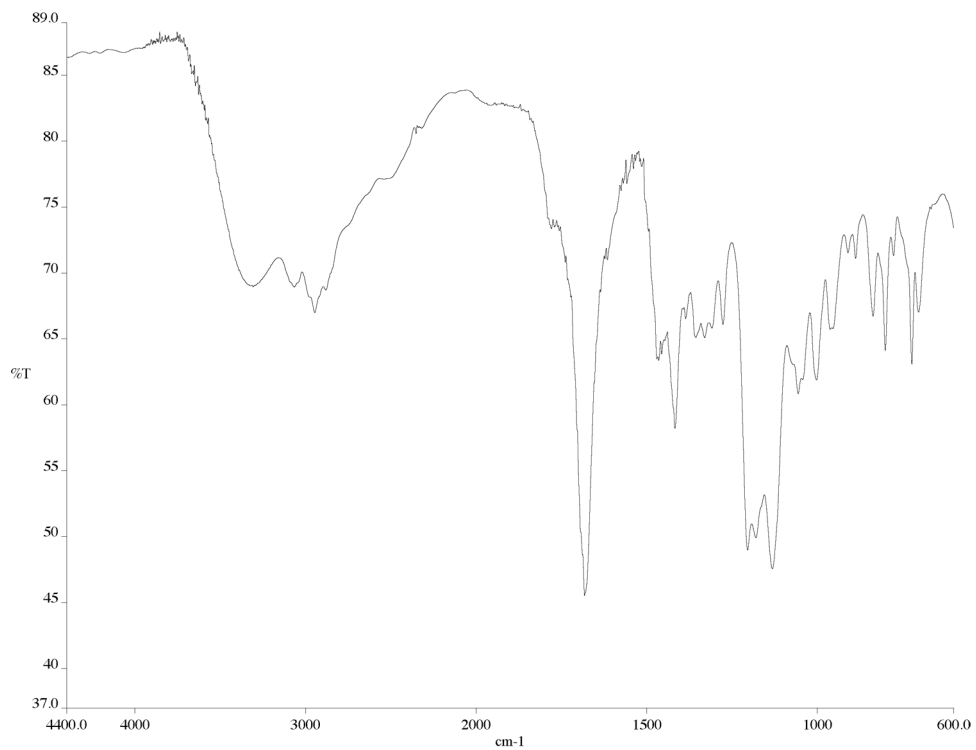


Figure A2.96 IR of compound **182** (NaCl/film)

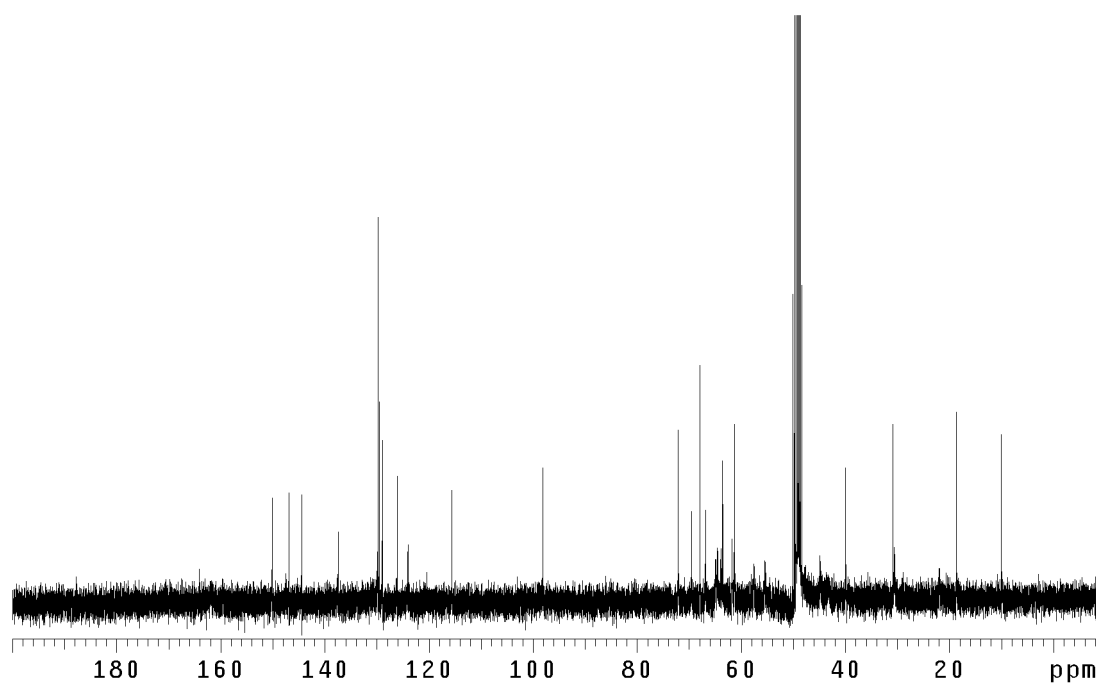


Figure A2.97 ¹³C NMR of compound **182** (75 MHz, CD₃OD, 50 °C)

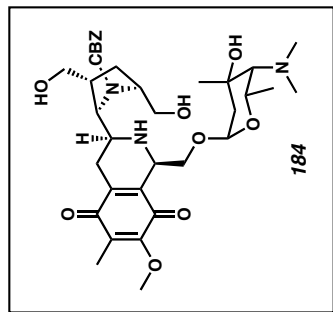
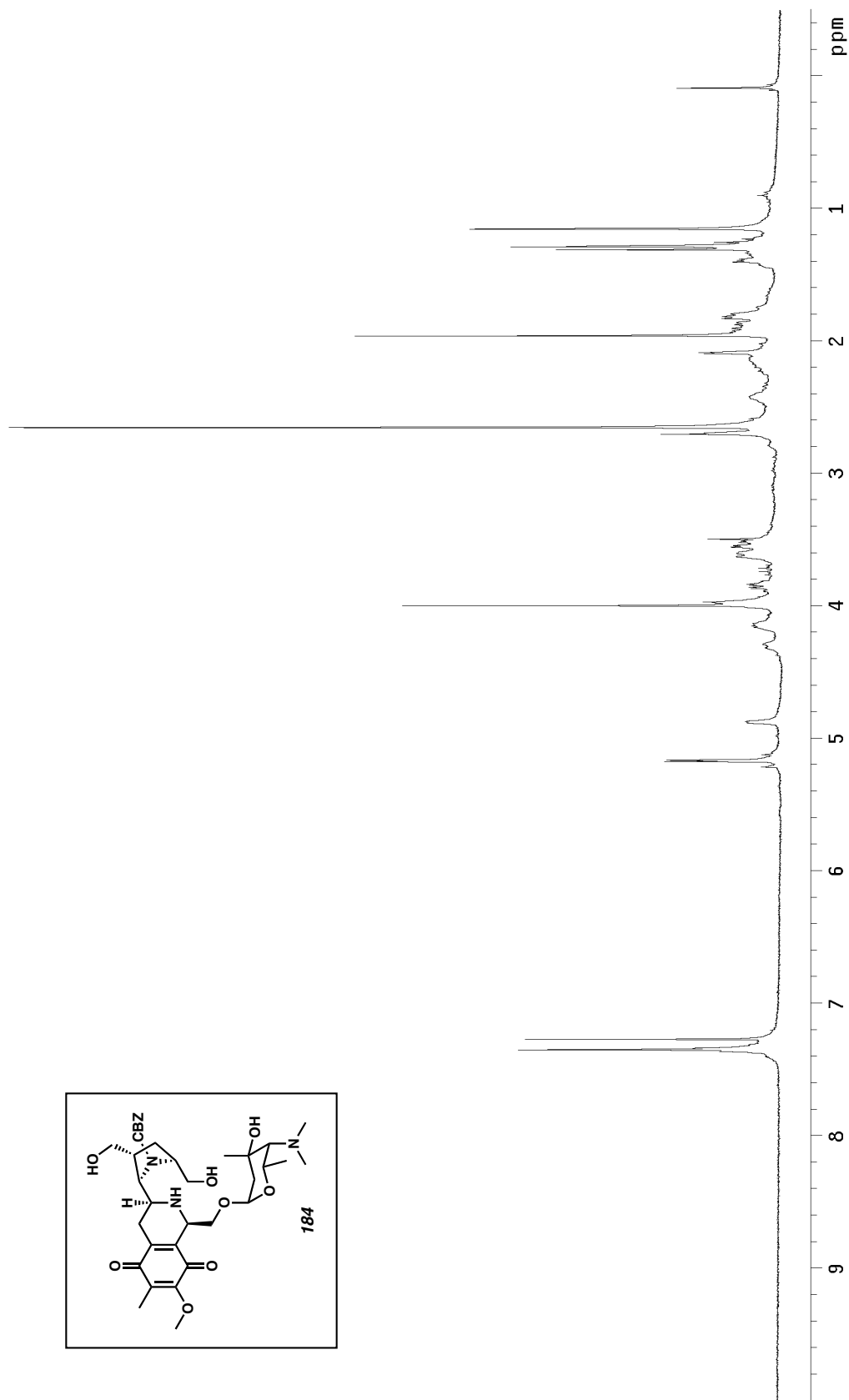


Figure A2.98 ¹H NMR of compound **184** (300 MHz, CDCl₃, 50 °C)

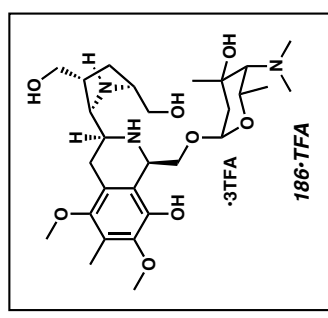
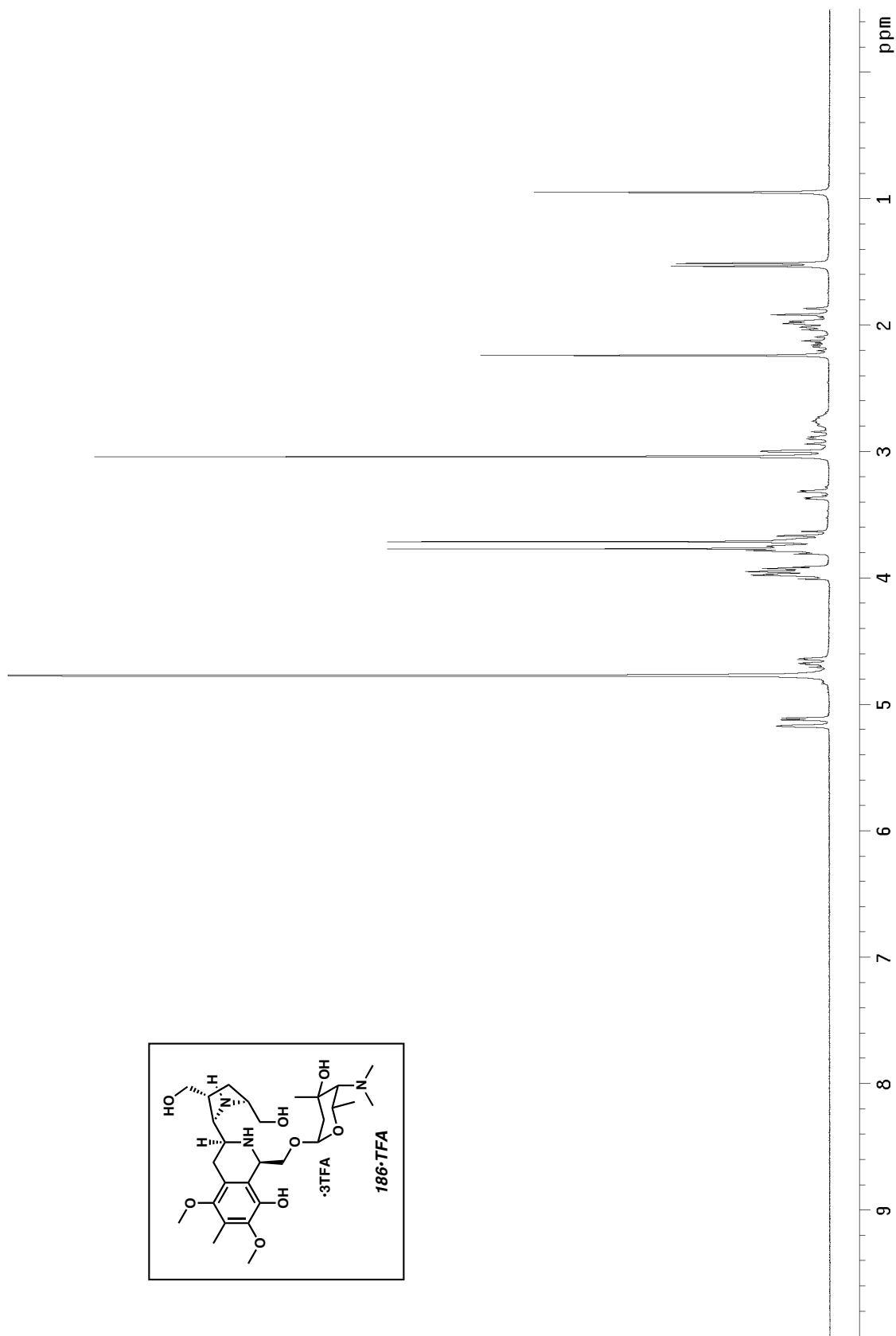


Figure A2.99 ¹H NMR of compound 188 (300 MHz, D₂O)

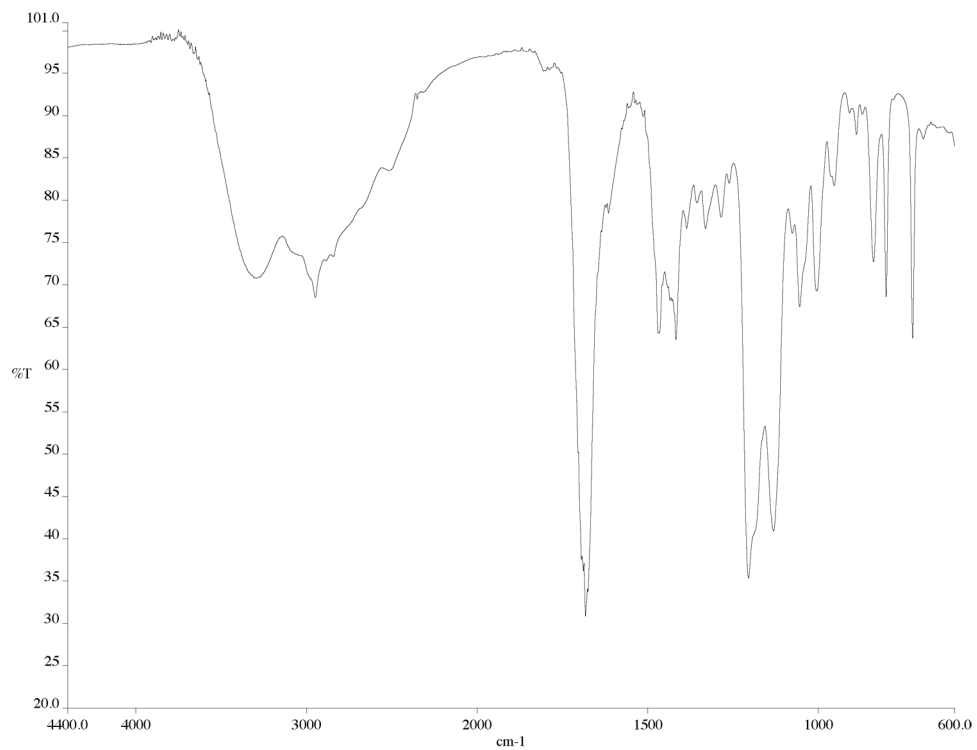


Figure A2.100 IR of compound **186** (NaCl/film)

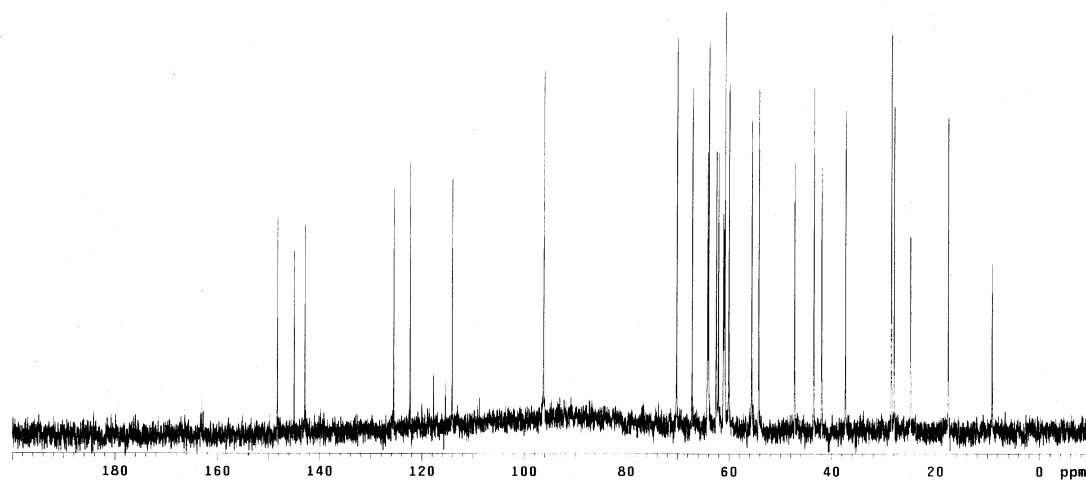
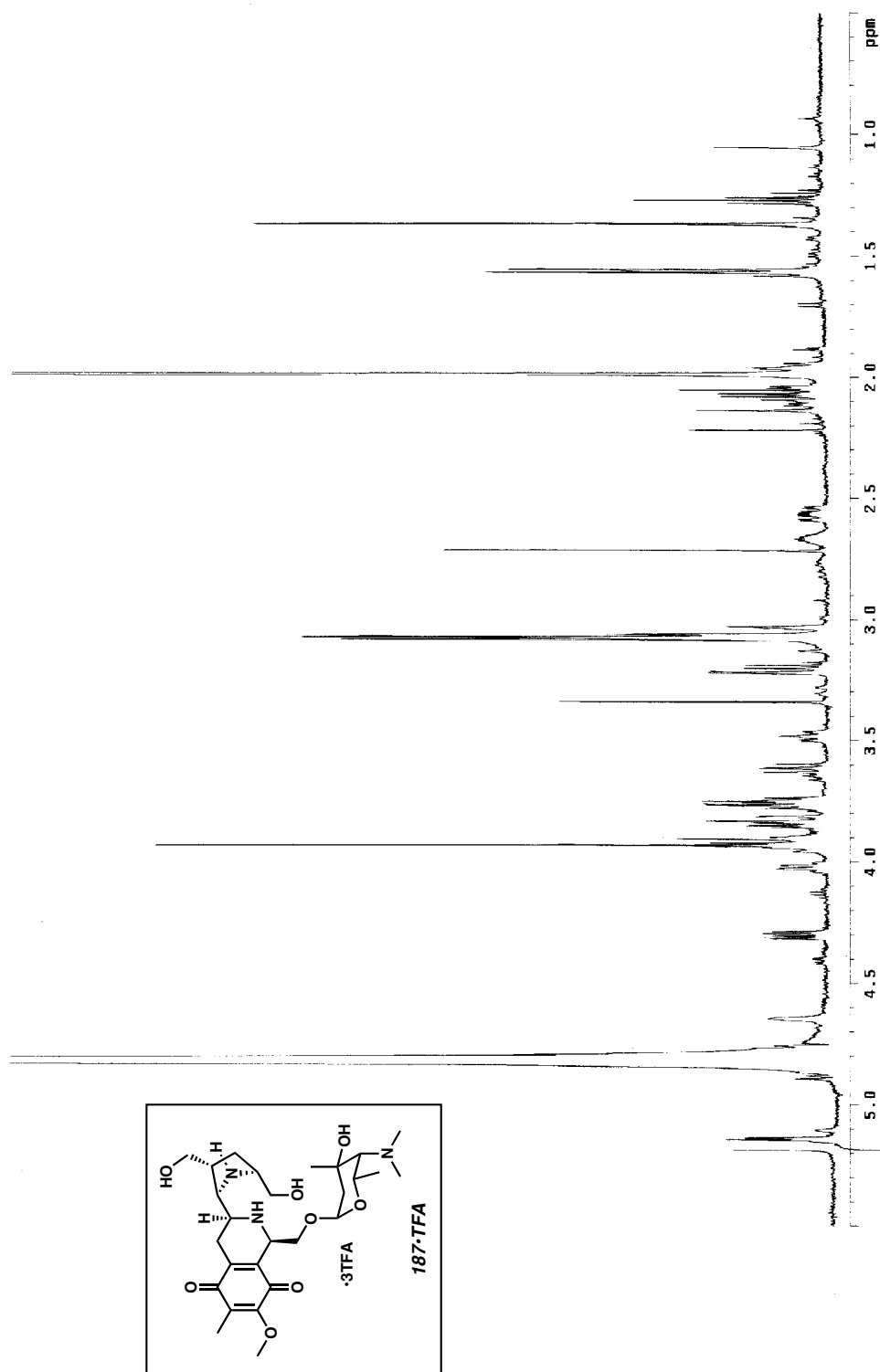


Figure A2.101 ¹³C NMR of compound **186** (125 MHz, D₂O)

Figure A2.102 ^1H NMR of compound **187** (600 MHz, D_2O)

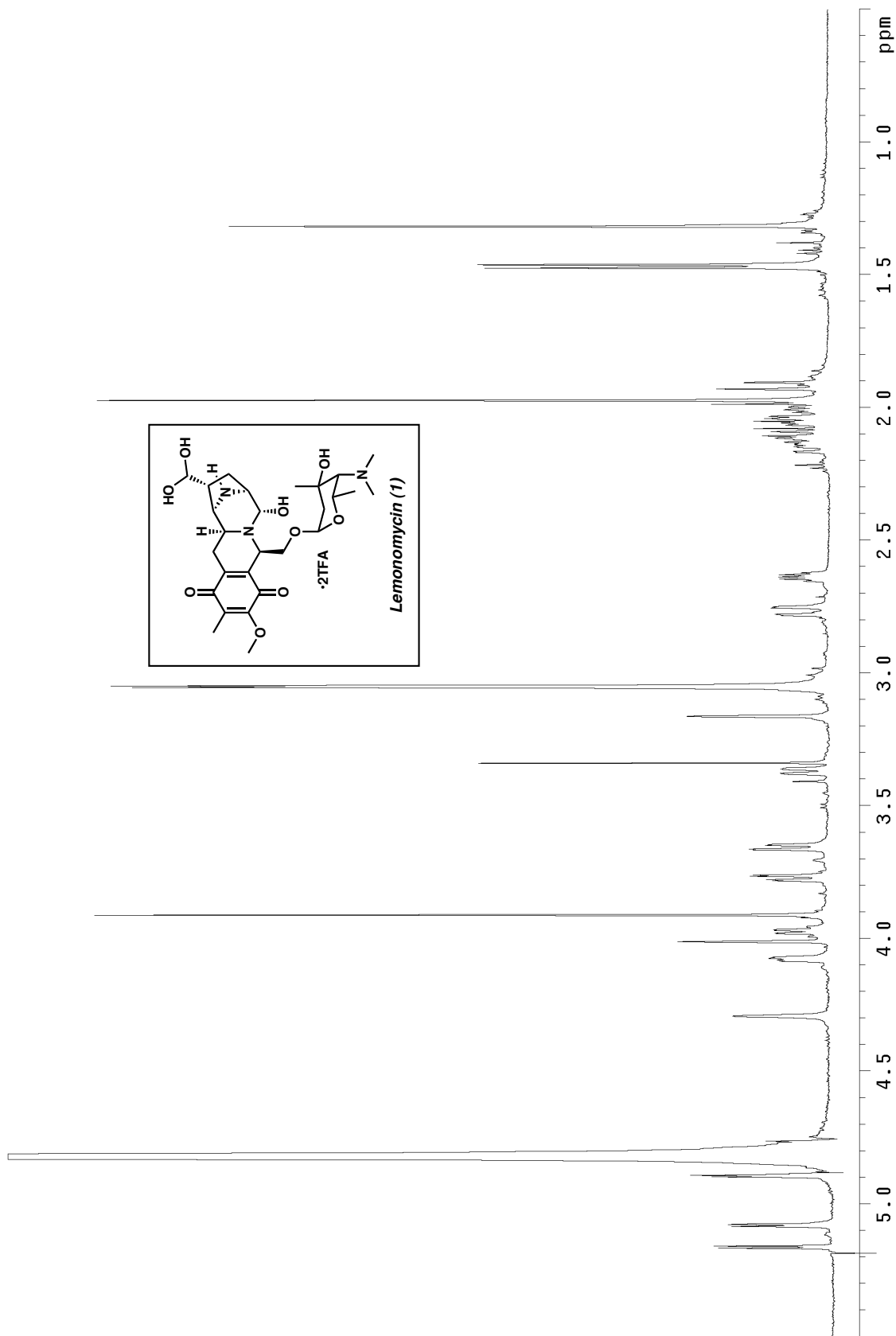


Figure A2.103 ¹H NMR of (-)-Lemonomycin (1) (600 MHz, D₂O)

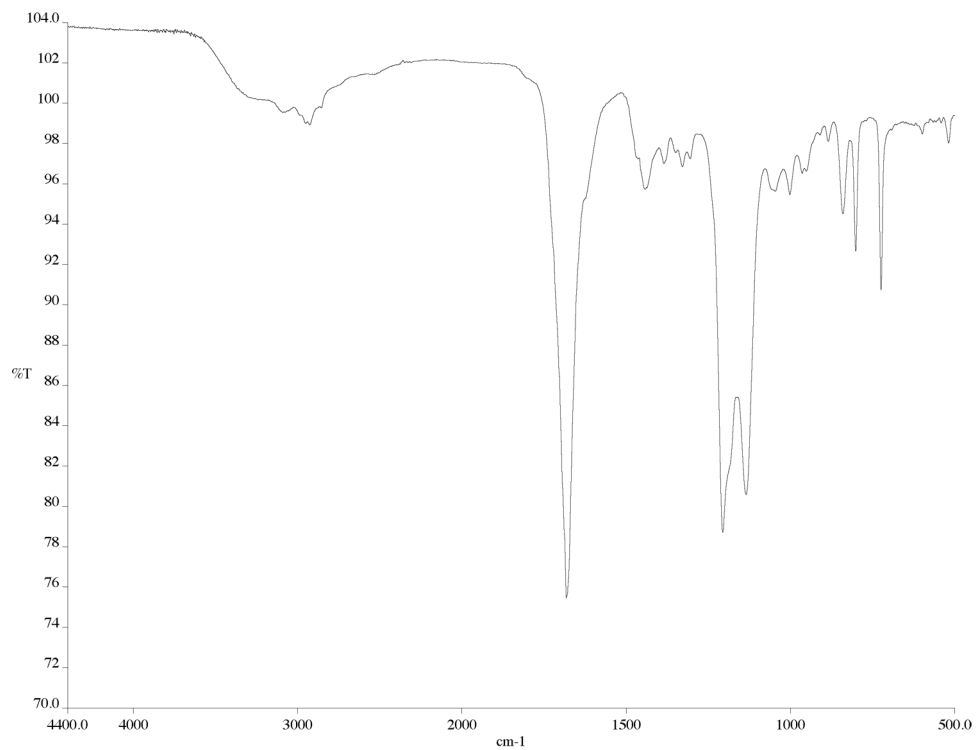


Figure A2.104 IR of (-)-Lemonomycin (**1**) (NaCl/film)

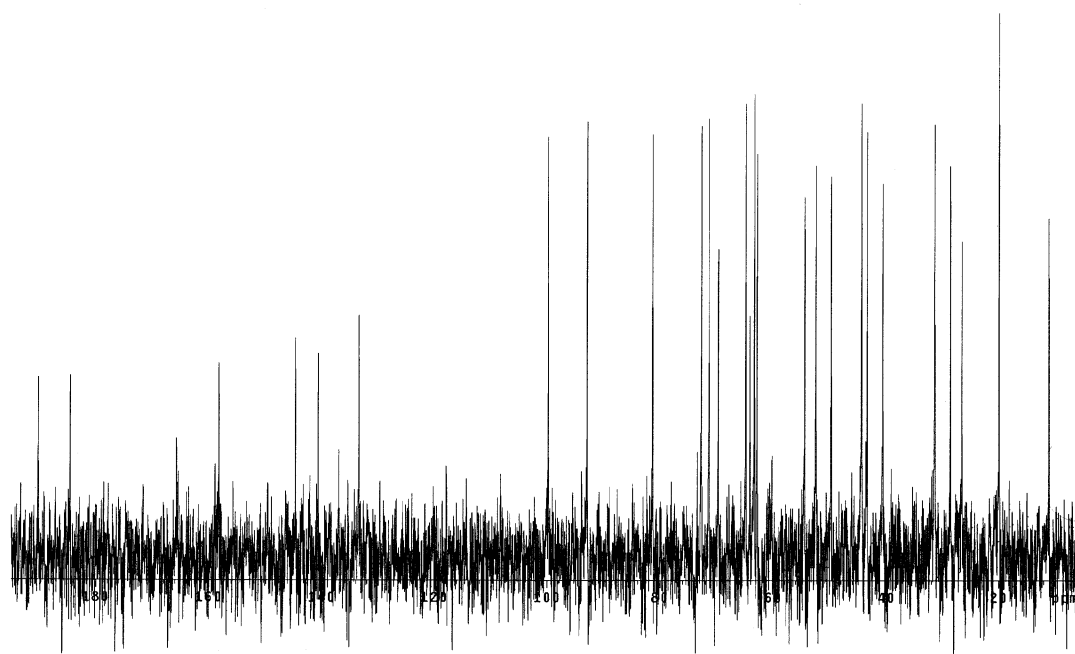


Figure A2.105 ¹³C NMR of (-)-Lemonomycin (**1**) (125 MHz, D₂O)