

APPENDIX 6

Spectra Relevant to Chapter 5

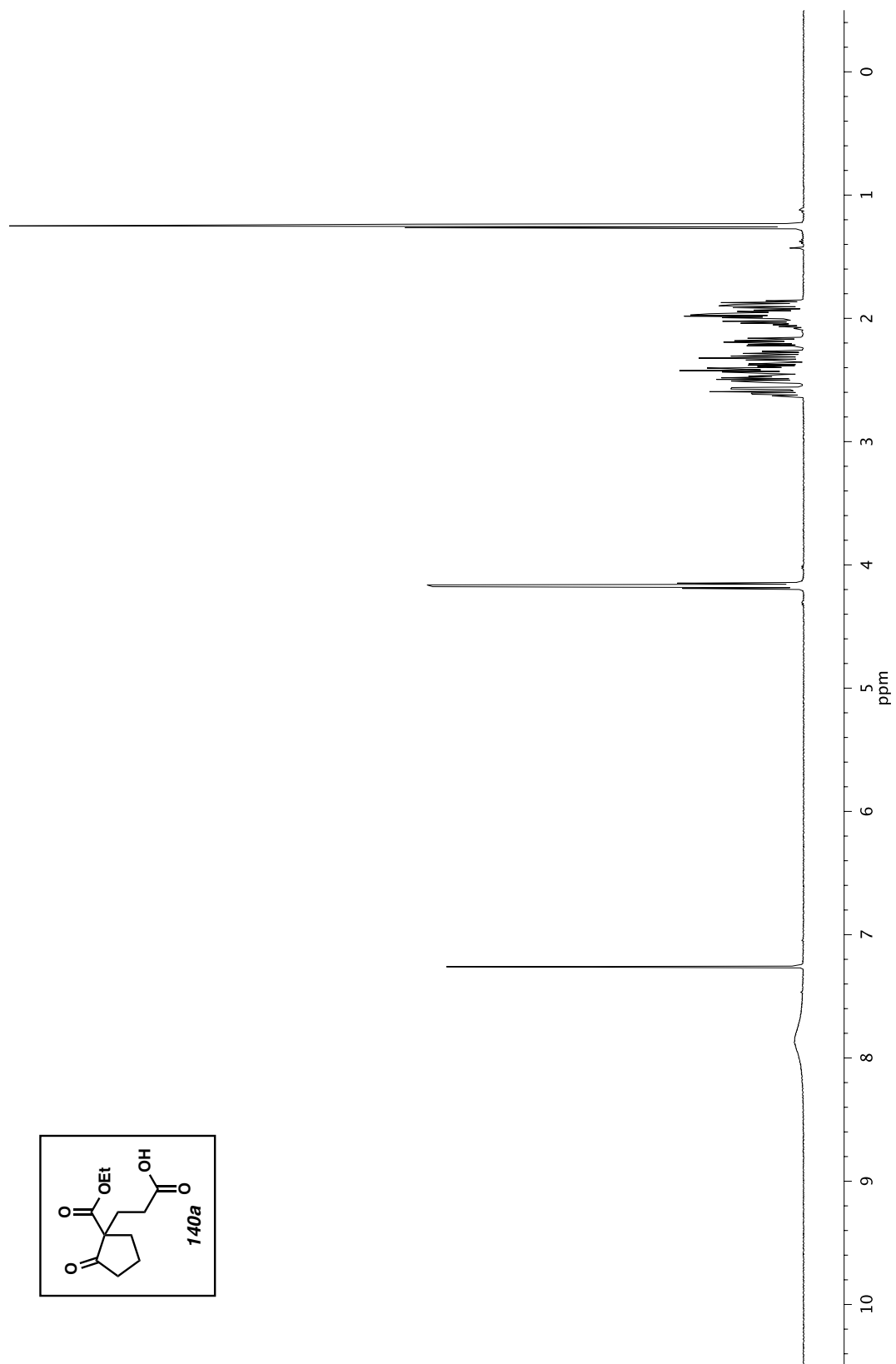


Figure A6.1 ^1H NMR (500 MHz, CDCl_3) of compound **140a**.

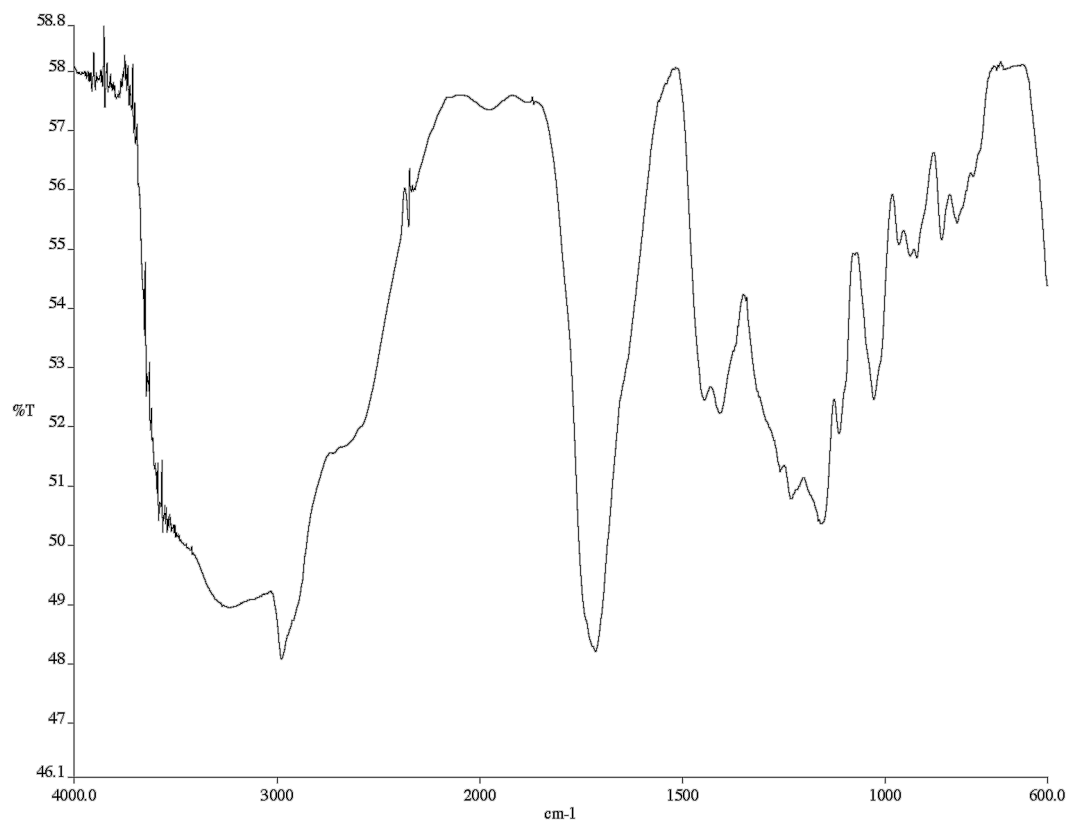


Figure A6.2 Infrared spectrum (Thin Film, NaCl) of compound **140a**.

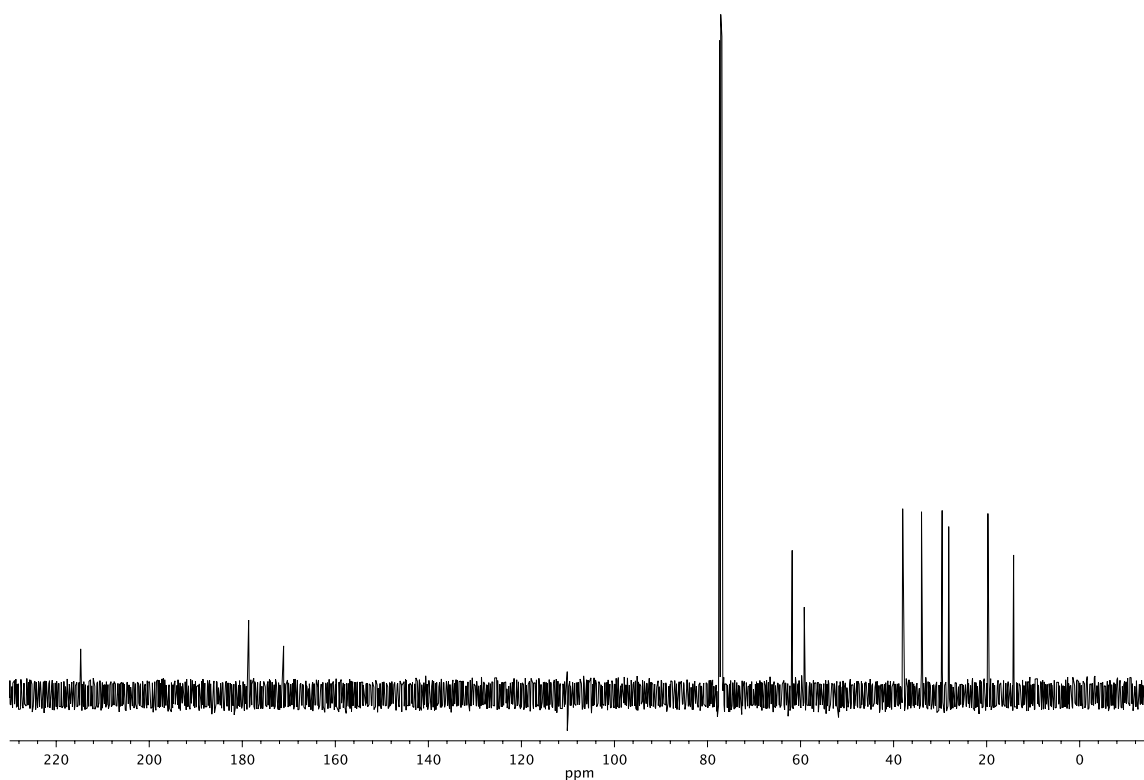


Figure A6.3 ¹³C NMR (126 MHz, CDCl₃) of compound **140a**.

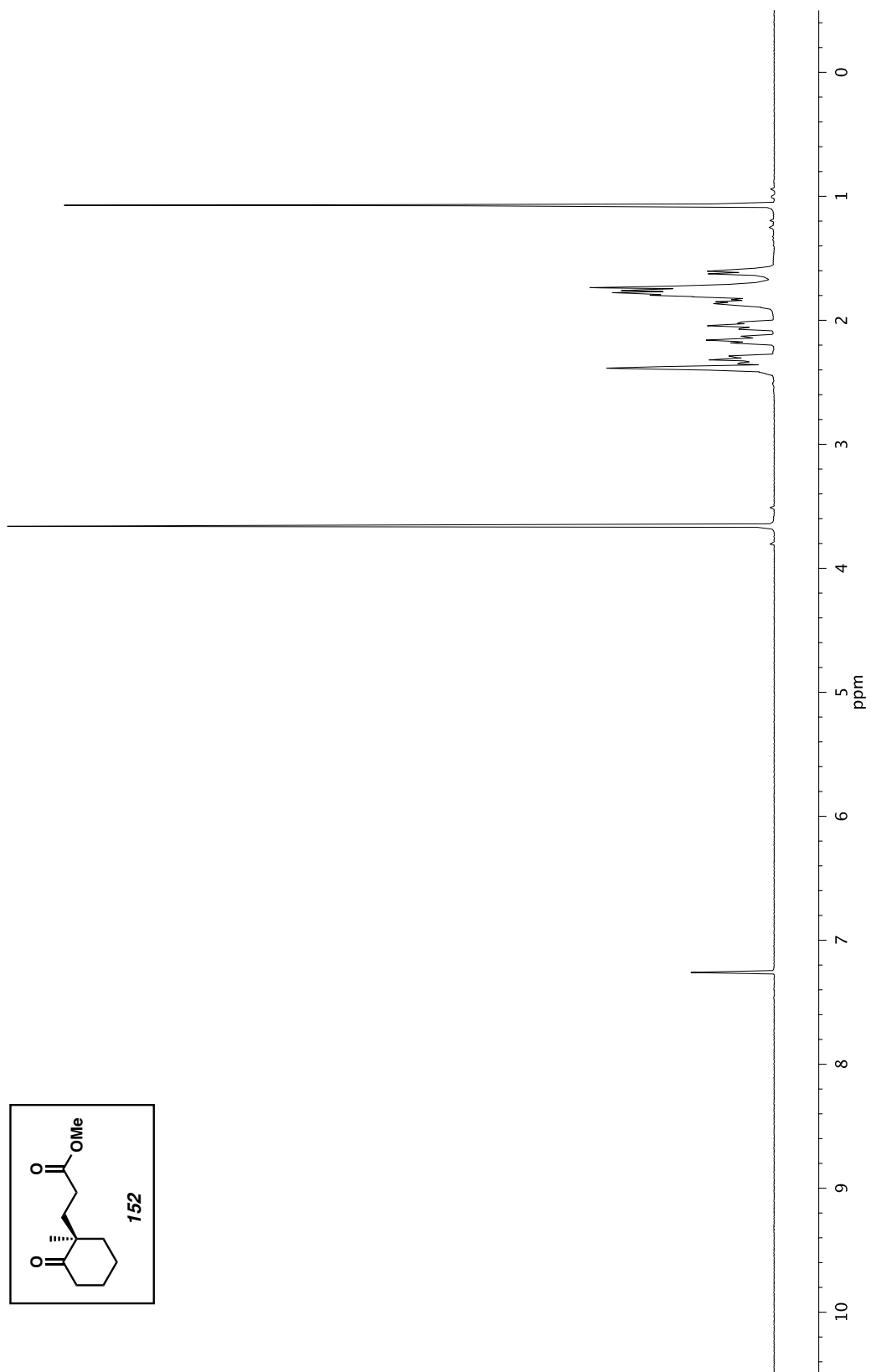


Figure A6.4 ^1H NMR (500 MHz, CDCl_3) of compound **152**.

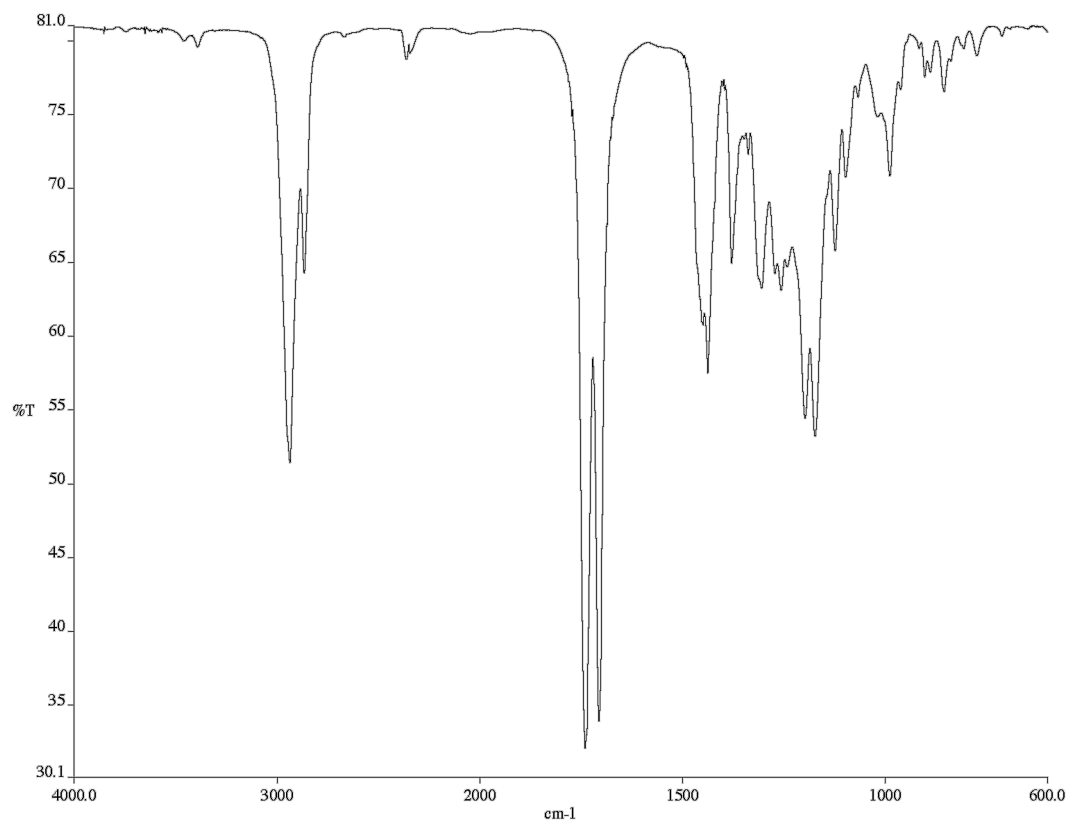


Figure A6.5 Infrared spectrum (Thin Film, NaCl) of compound **152**.

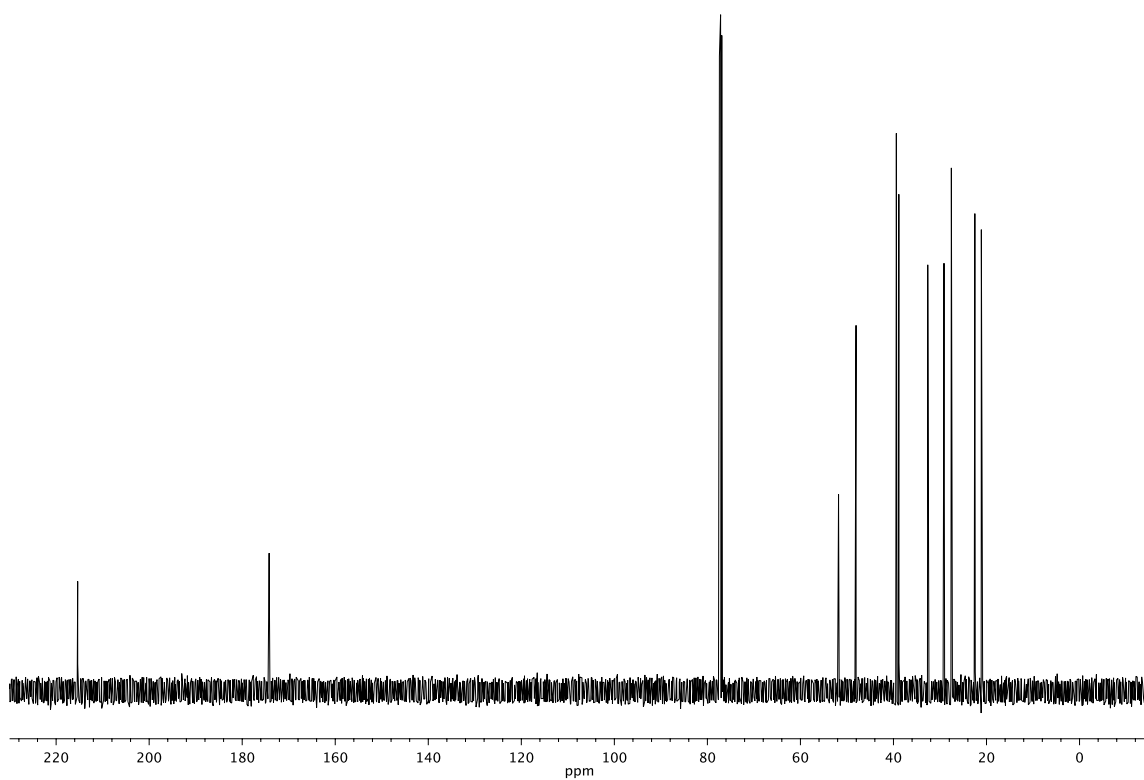


Figure A6.6 ¹³C NMR (126 MHz, CDCl₃) of compound **152**.

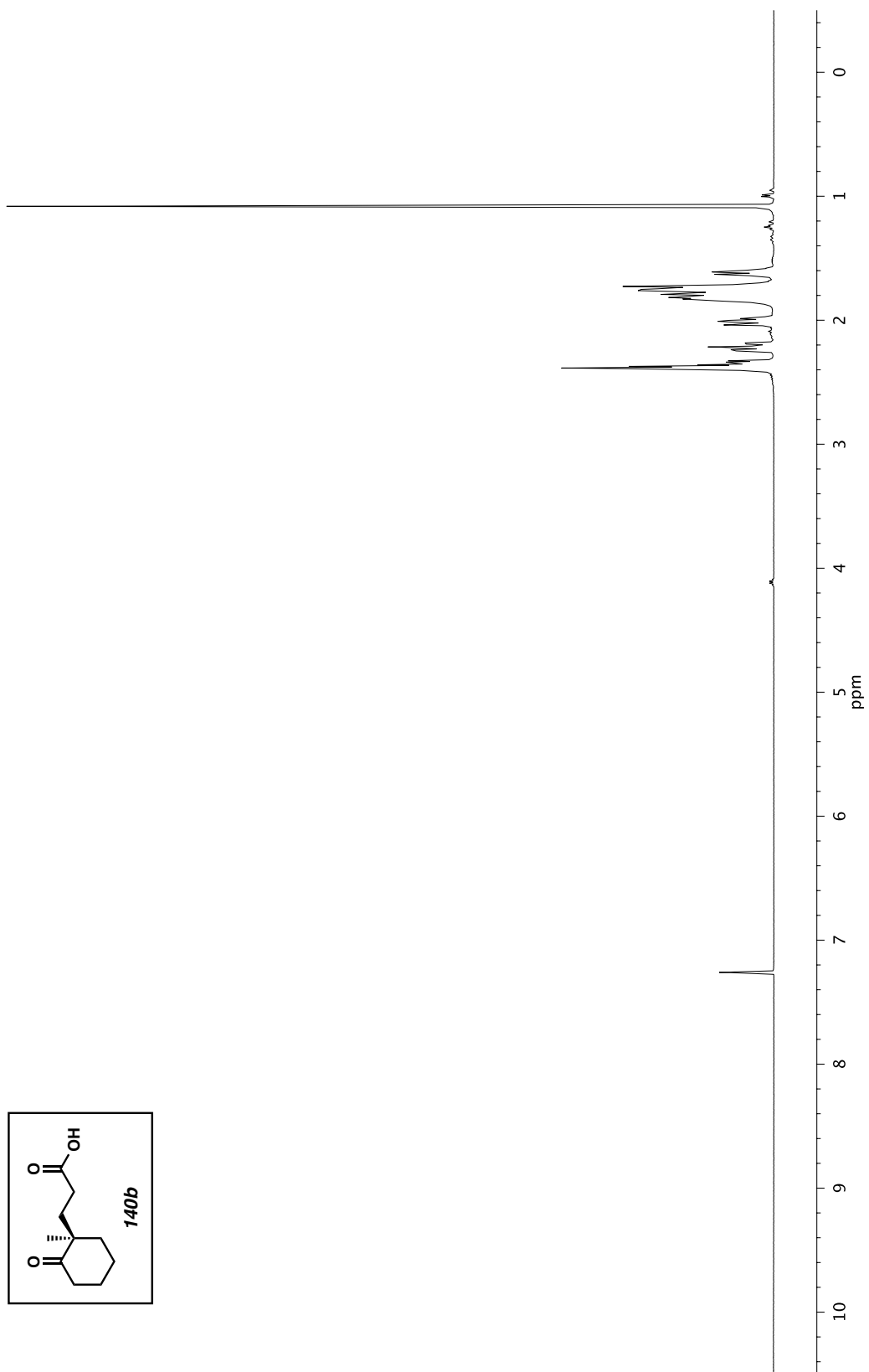


Figure A6.7 ¹H NMR (500 MHz, CDCl₃) of compound **140b**.

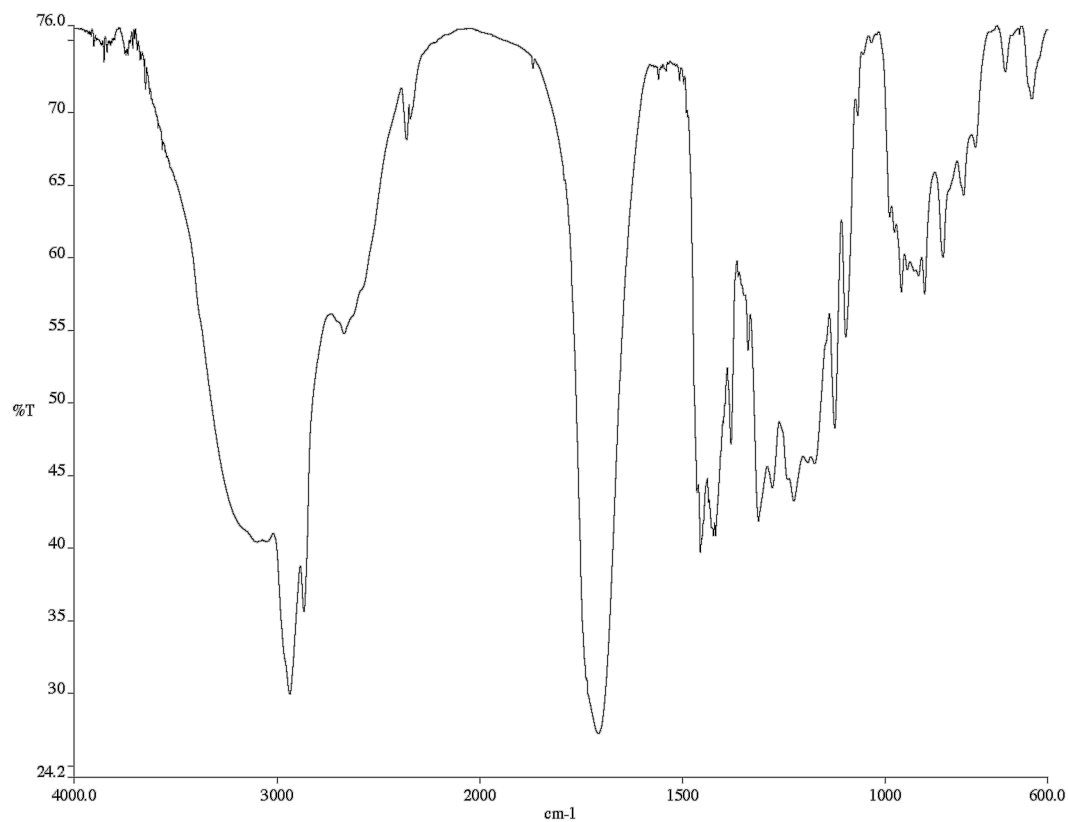


Figure A6.8 Infrared spectrum (Thin Film, NaCl) of compound **140b**.

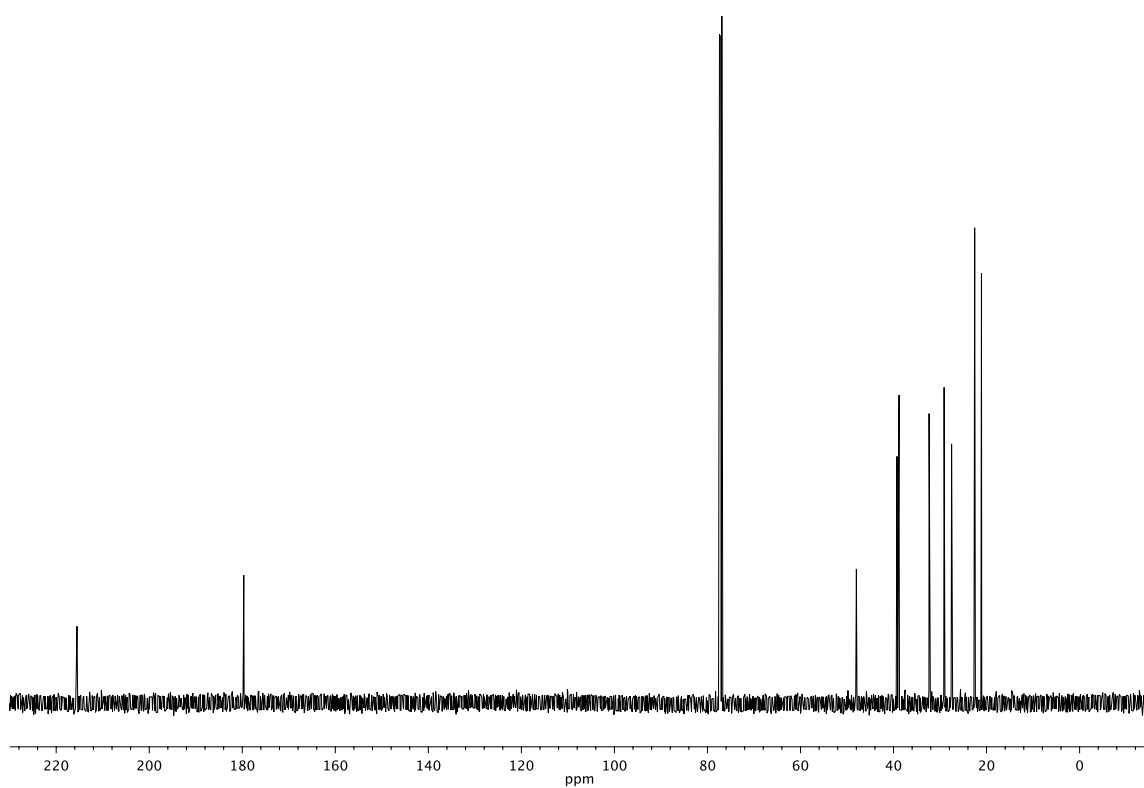


Figure A6.9 ¹³C NMR (126 MHz, CDCl₃) of compound **140b**.

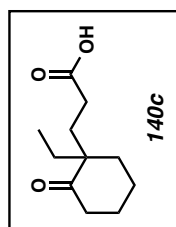
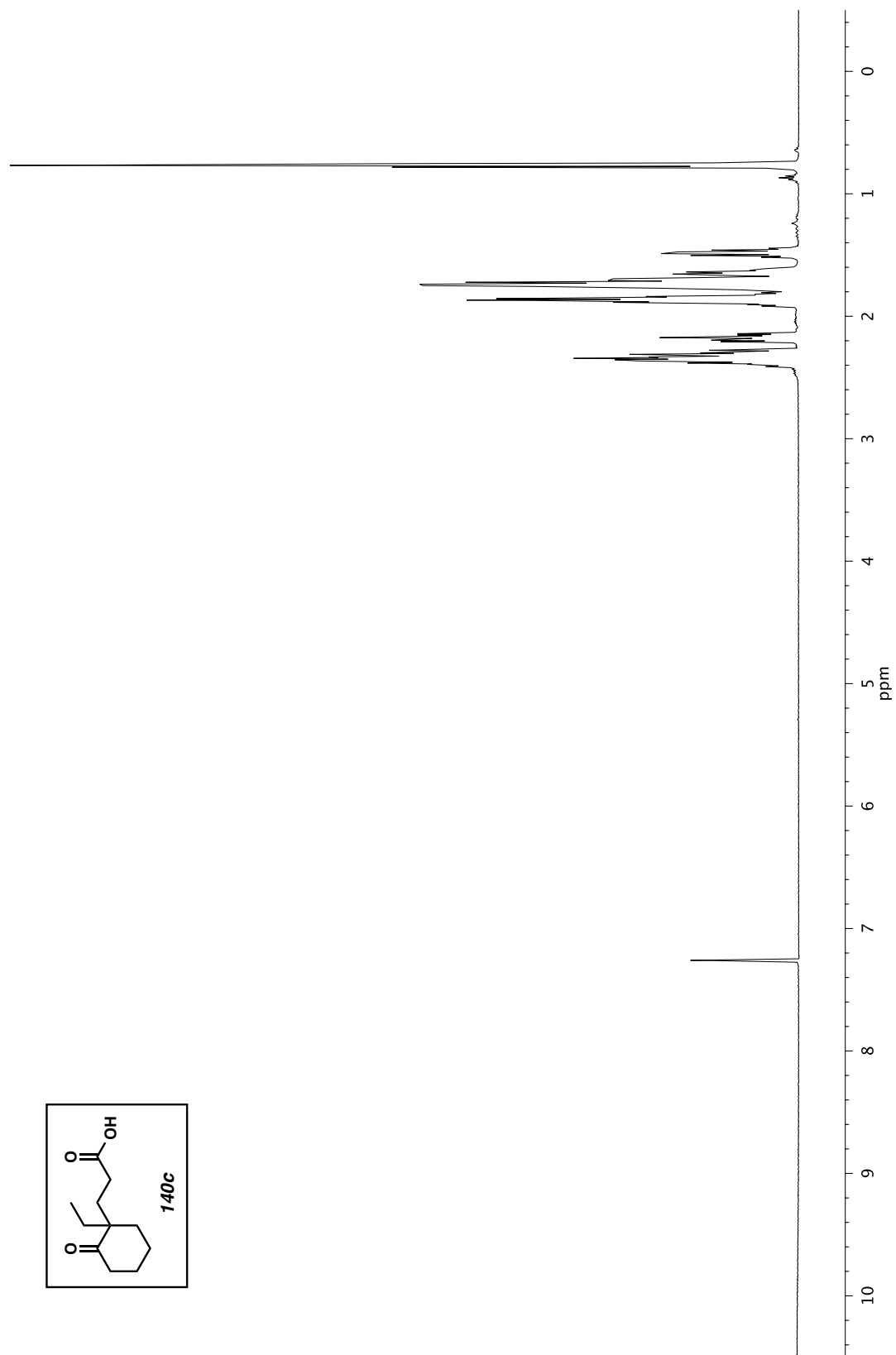


Figure A6.10 ^1H NMR (500 MHz, CDCl_3) of compound **140c**.

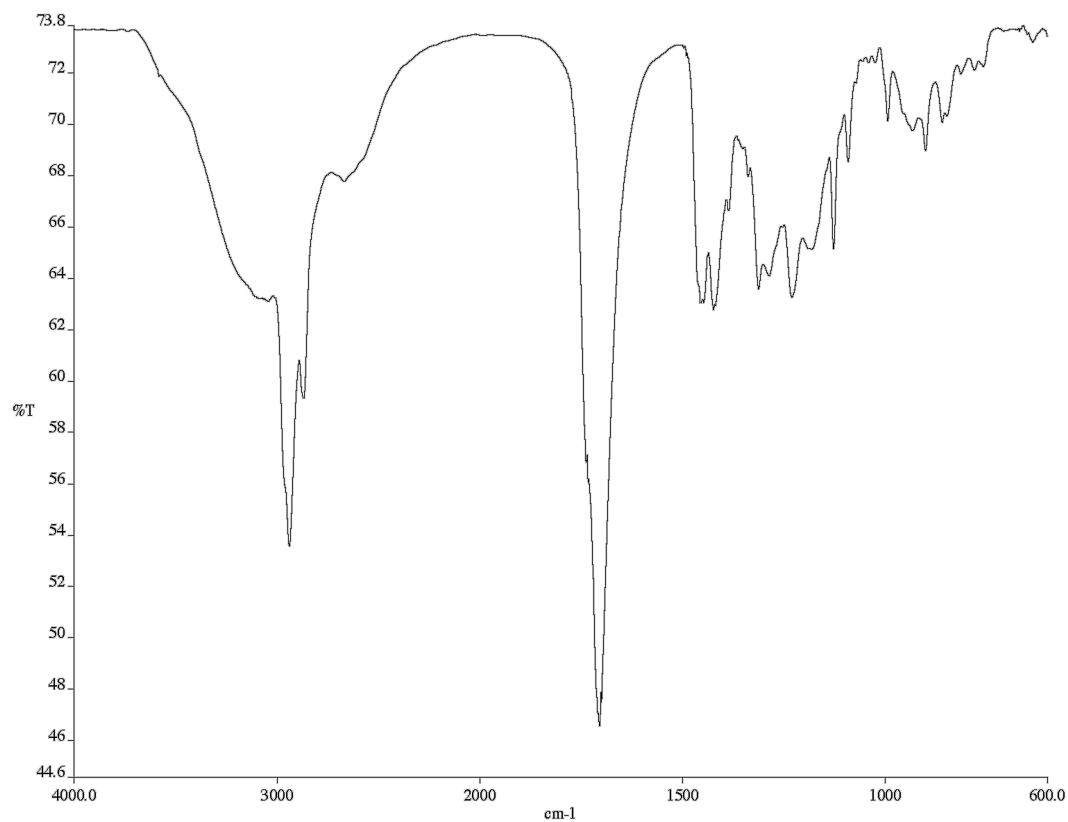


Figure A6.11 Infrared spectrum (Thin Film, NaCl) of compound **140c**.

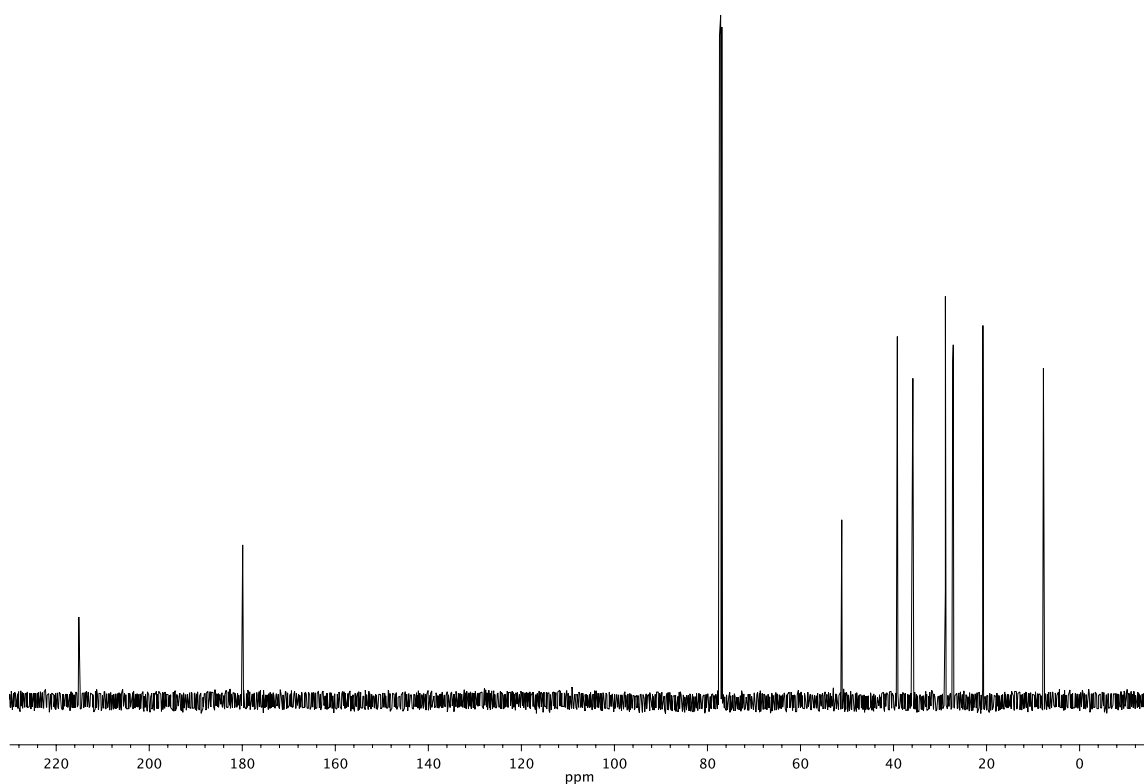


Figure A6.12 ¹³C NMR (126 MHz, CDCl₃) of compound **140c**.

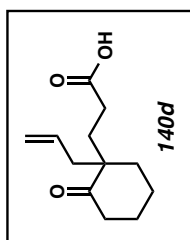
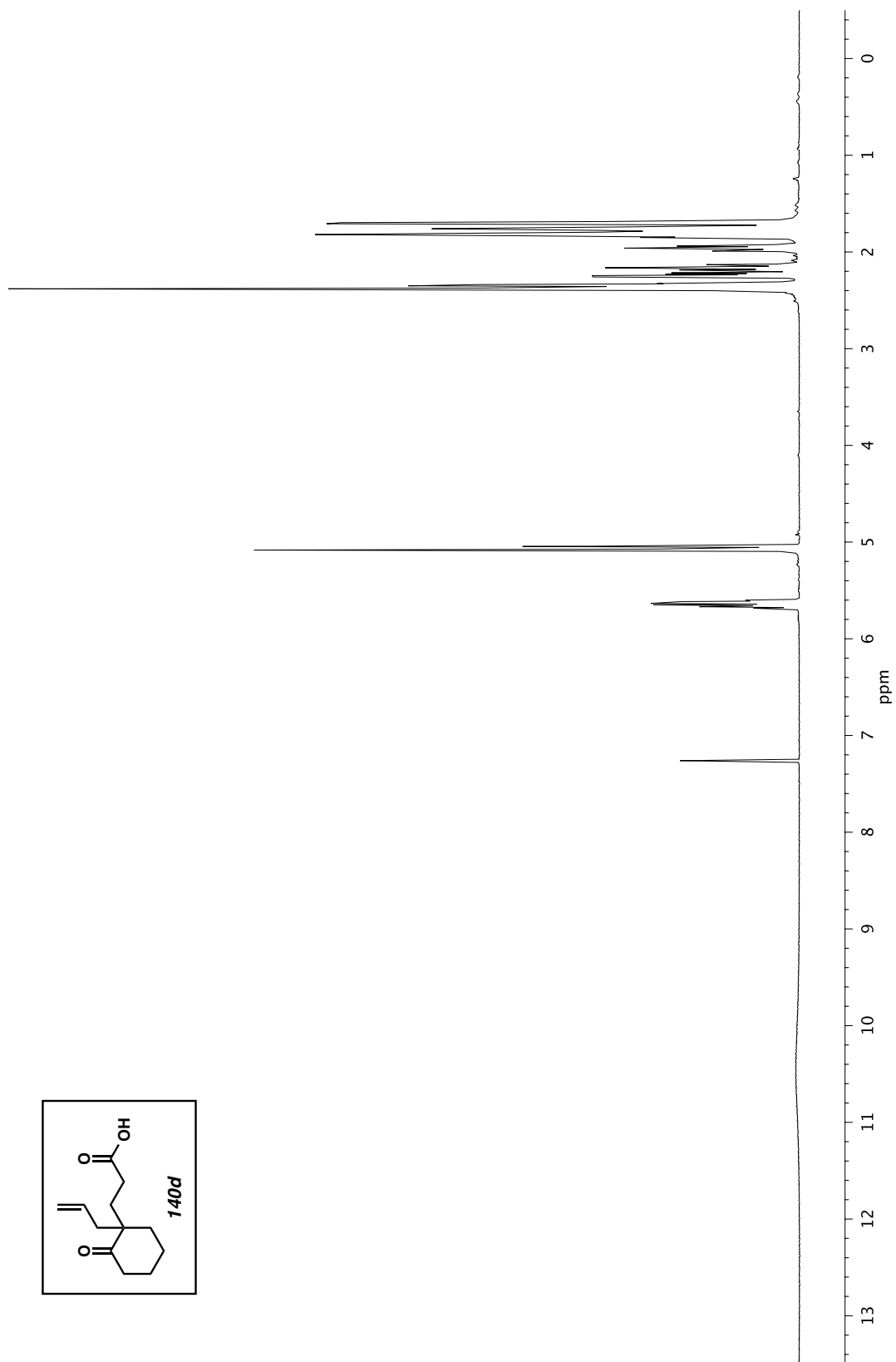


Figure A6.13 ^1H NMR (500 MHz, CDCl_3) of compound **140d**.

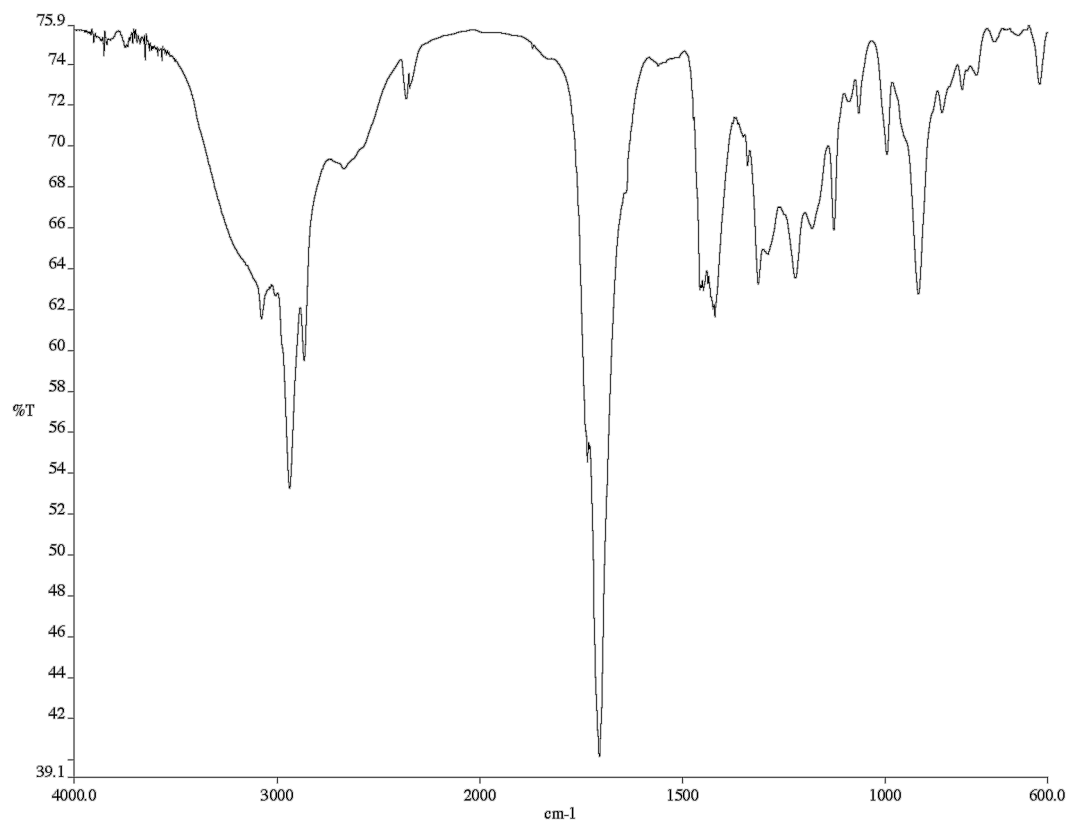


Figure A6.14 Infrared spectrum (Thin Film, NaCl) of compound **140d**.

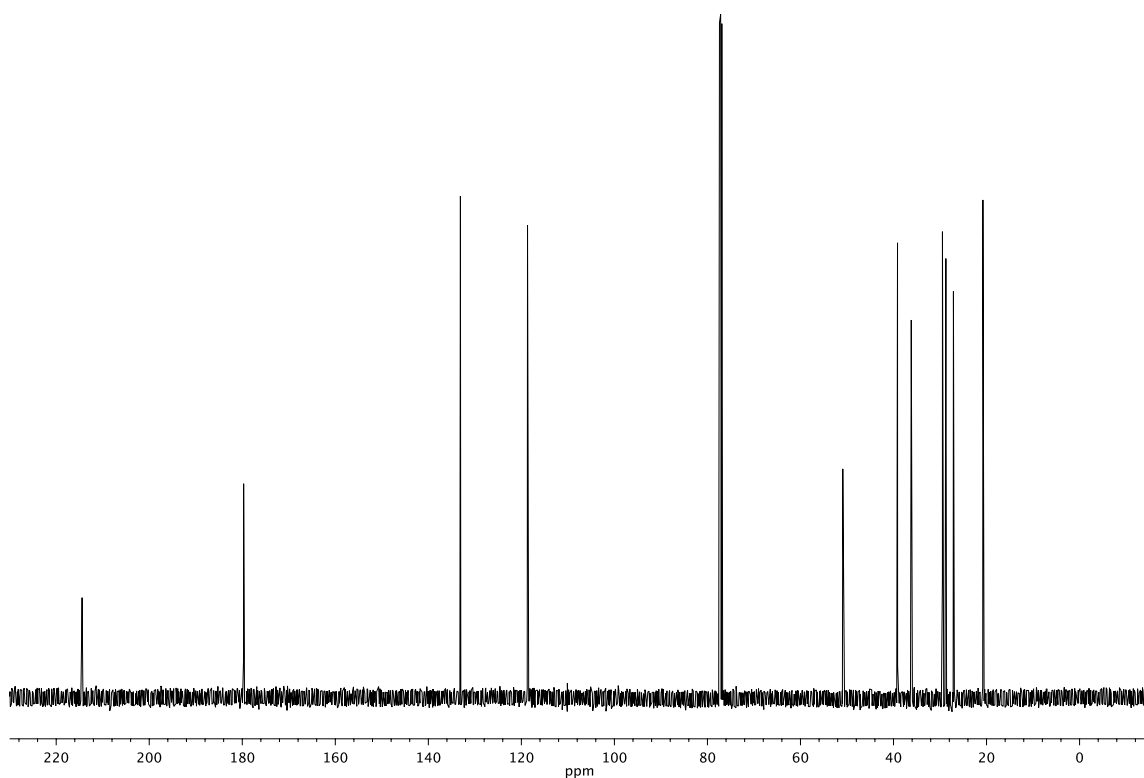


Figure A6.15 ¹³C NMR (126 MHz, CDCl₃) of compound **140d**.

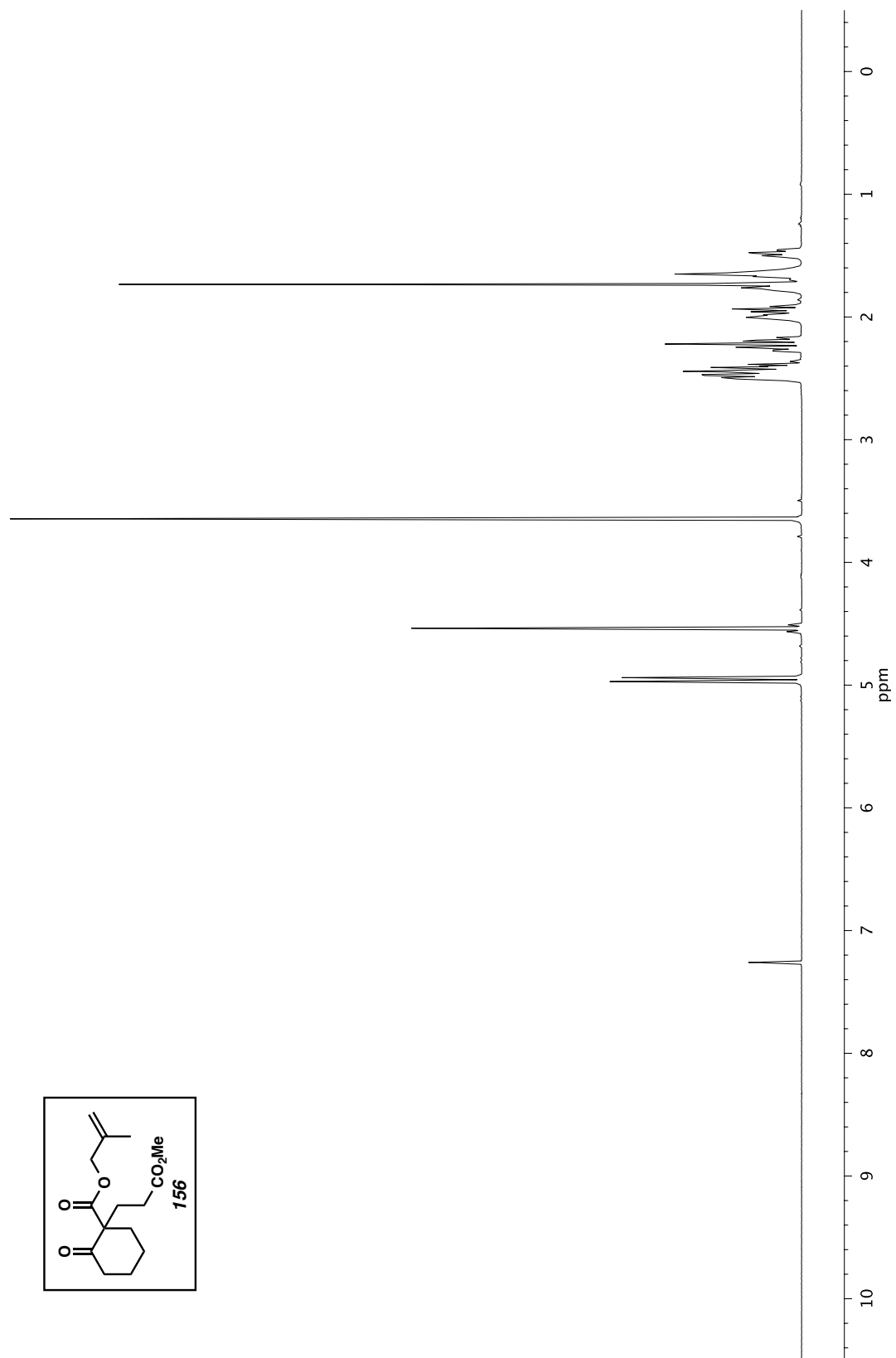


Figure A6.16 ^1H NMR (500 MHz, CDCl_3) of compound **156**.

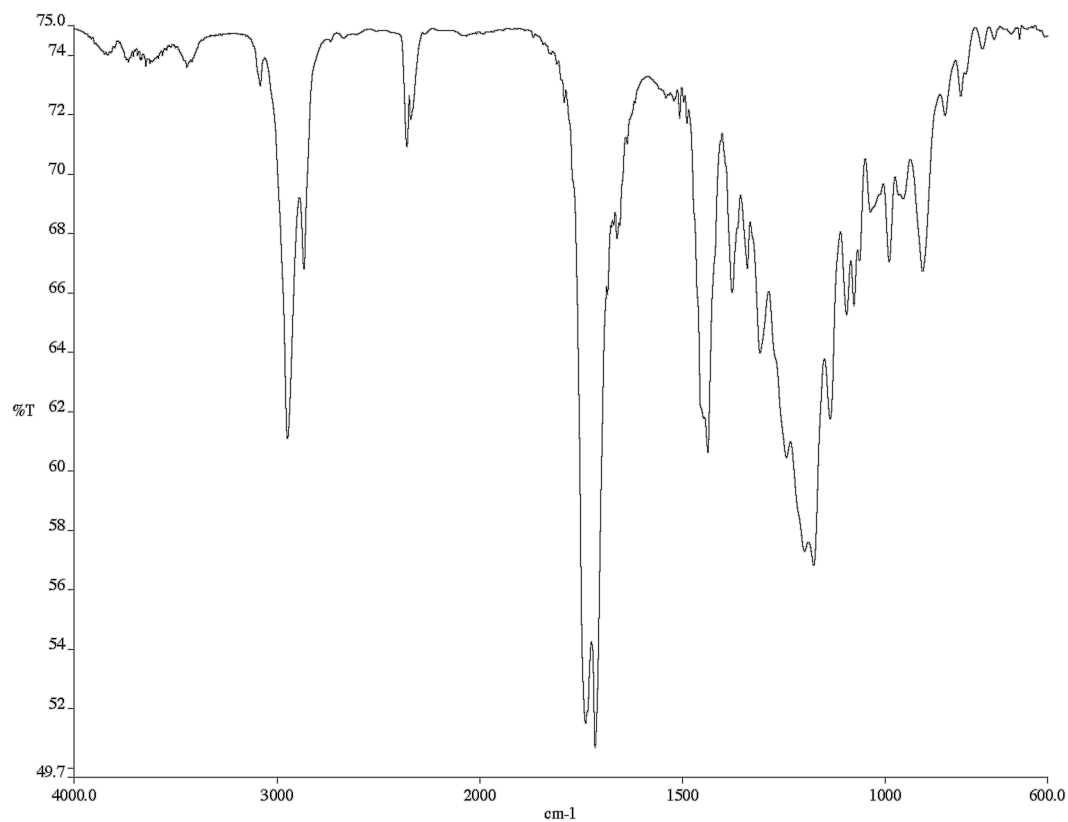


Figure A6.17 Infrared spectrum (Thin Film, NaCl) of compound **156**.

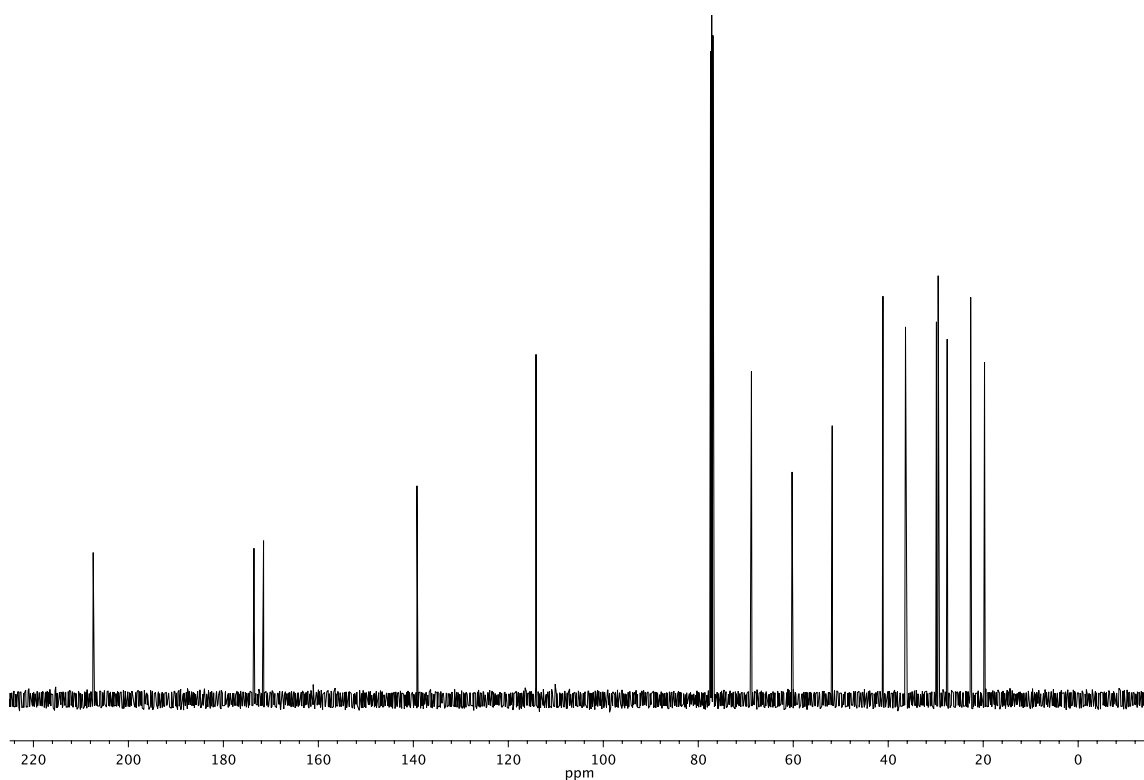


Figure A6.18 ¹³C NMR (126 MHz, CDCl₃) of compound **156**.

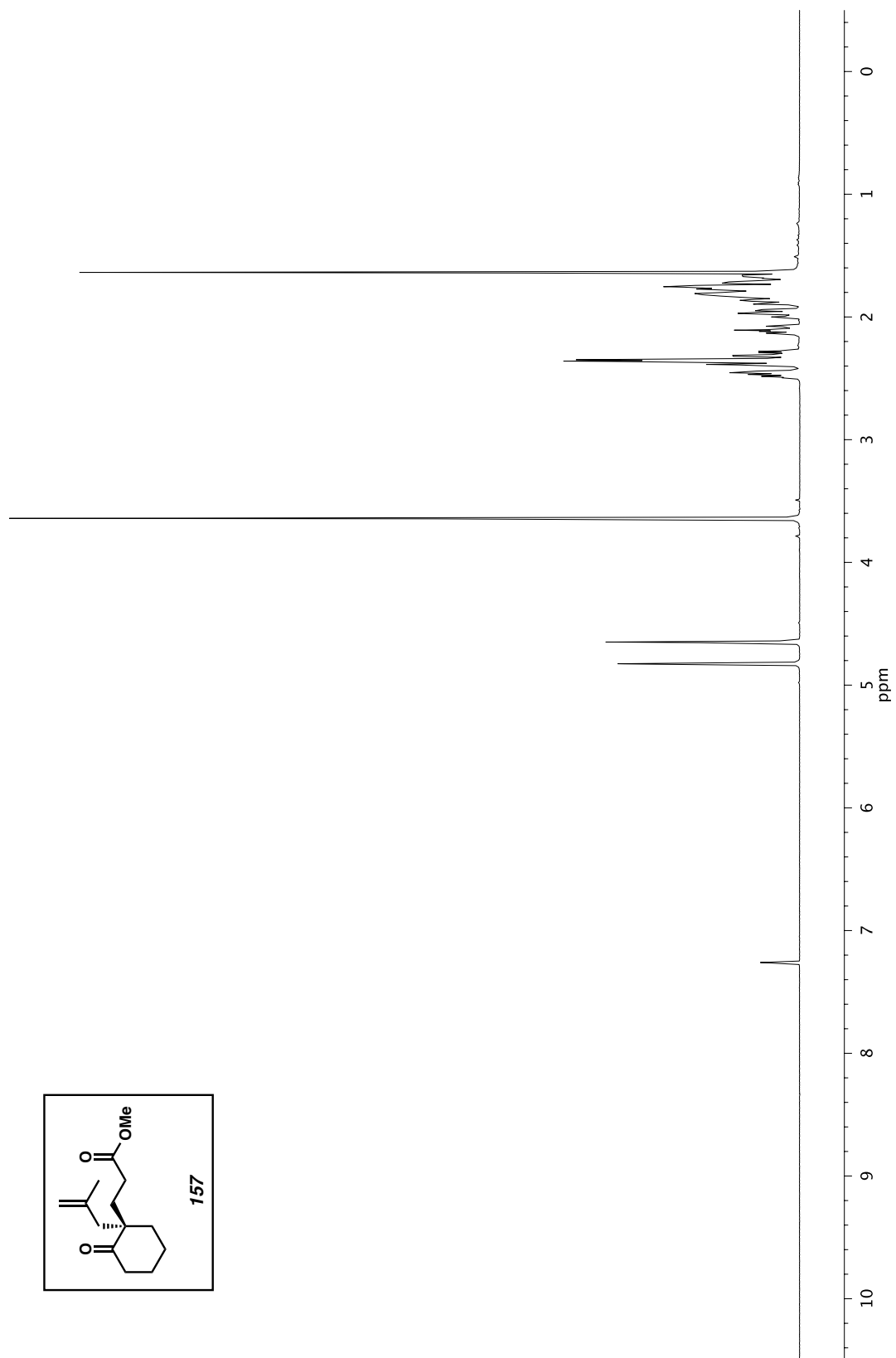


Figure A6.19 ^1H NMR (500 MHz, CDCl_3) of compound **157**.

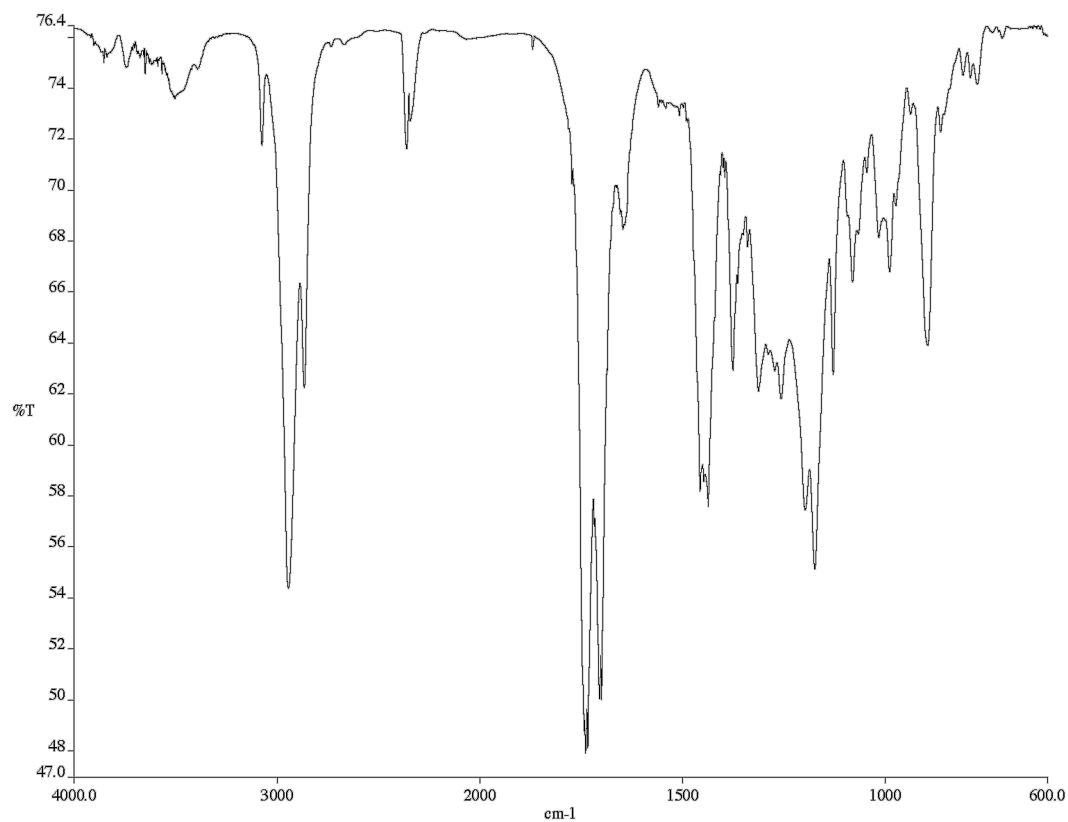


Figure A6.20 Infrared spectrum (Thin Film, NaCl) of compound **157**.

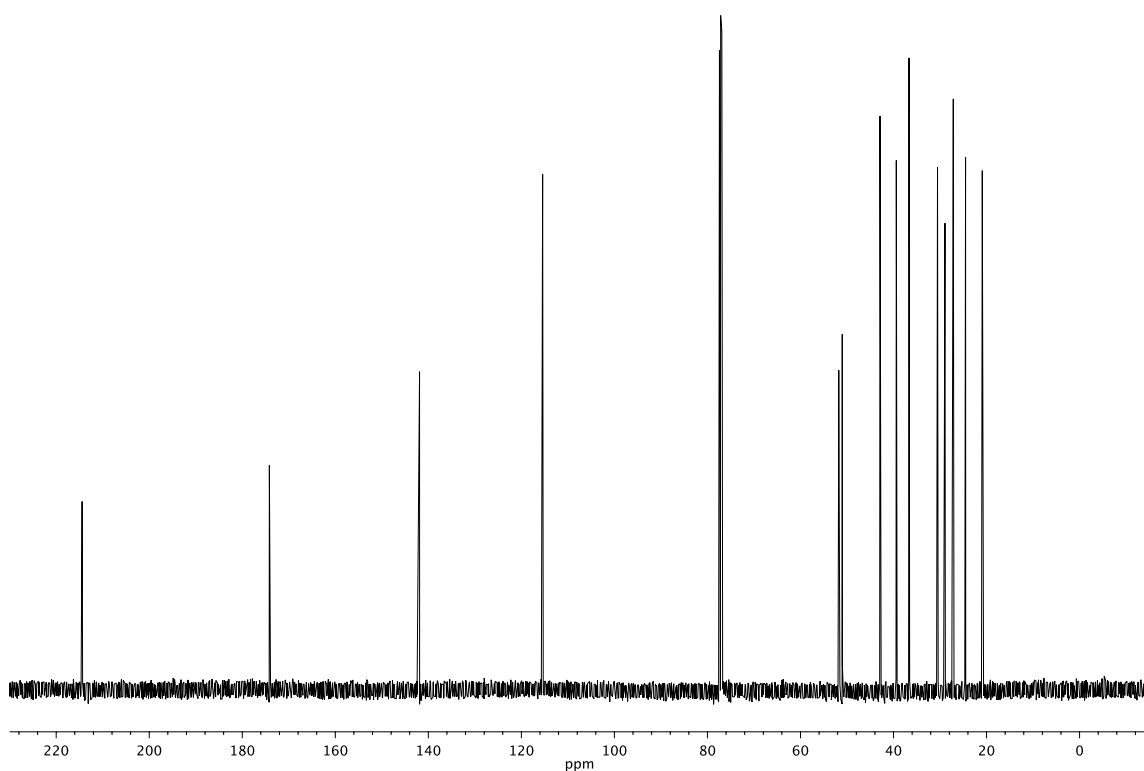


Figure A6.21 ¹³C NMR (126 MHz, CDCl₃) of compound **157**.

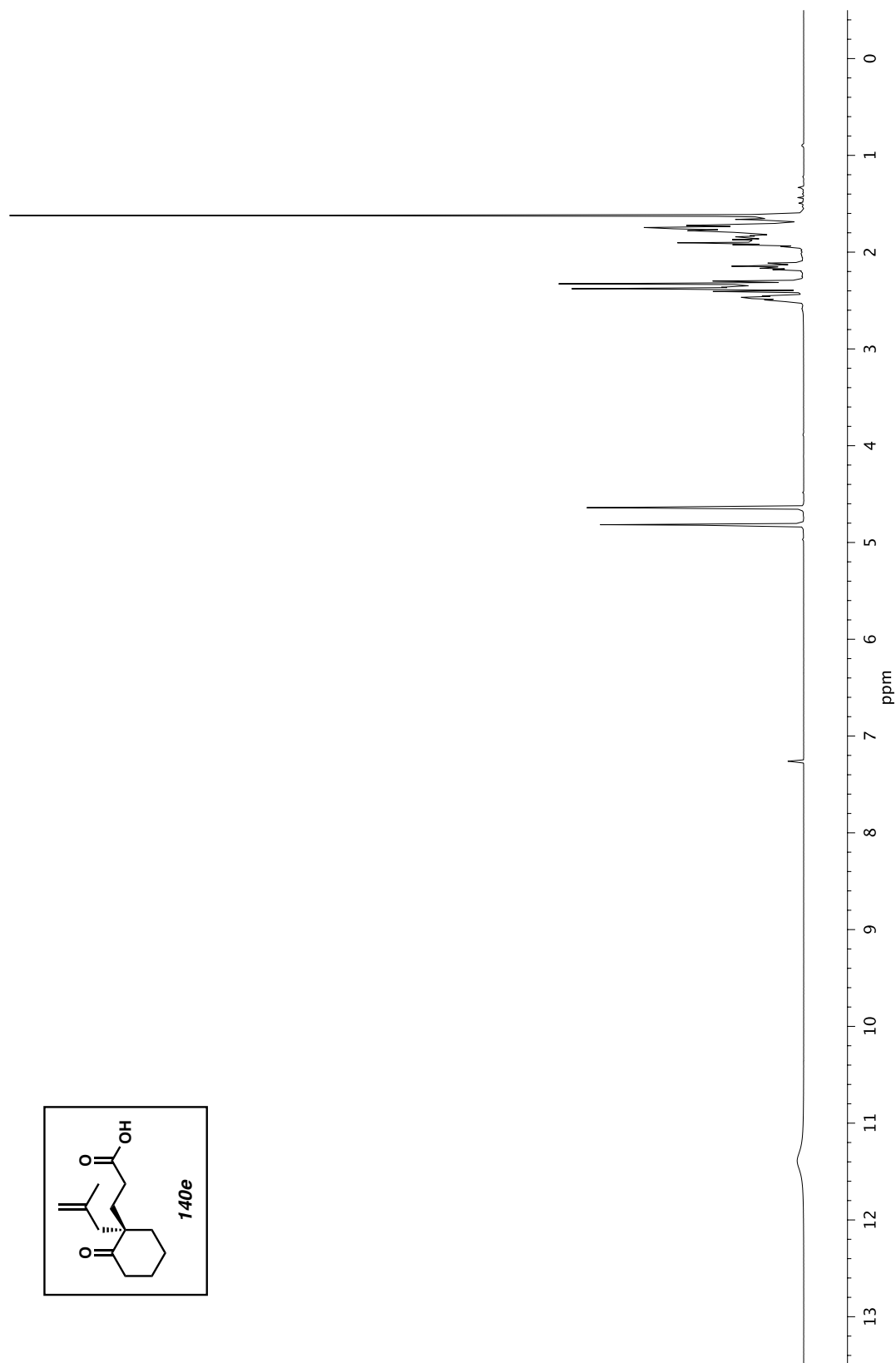


Figure A6.22 ^1H NMR (500 MHz, CDCl_3) of compound **140e**.

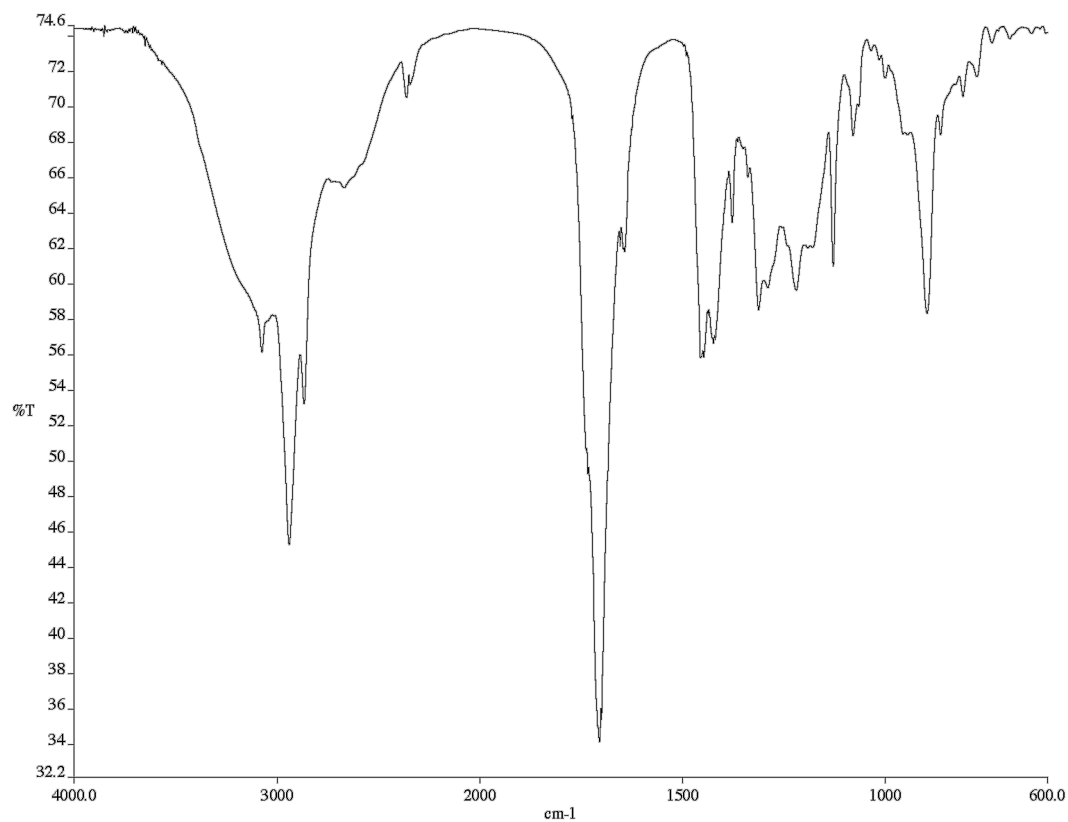


Figure A6.23 Infrared spectrum (Thin Film, NaCl) of compound **140e**.

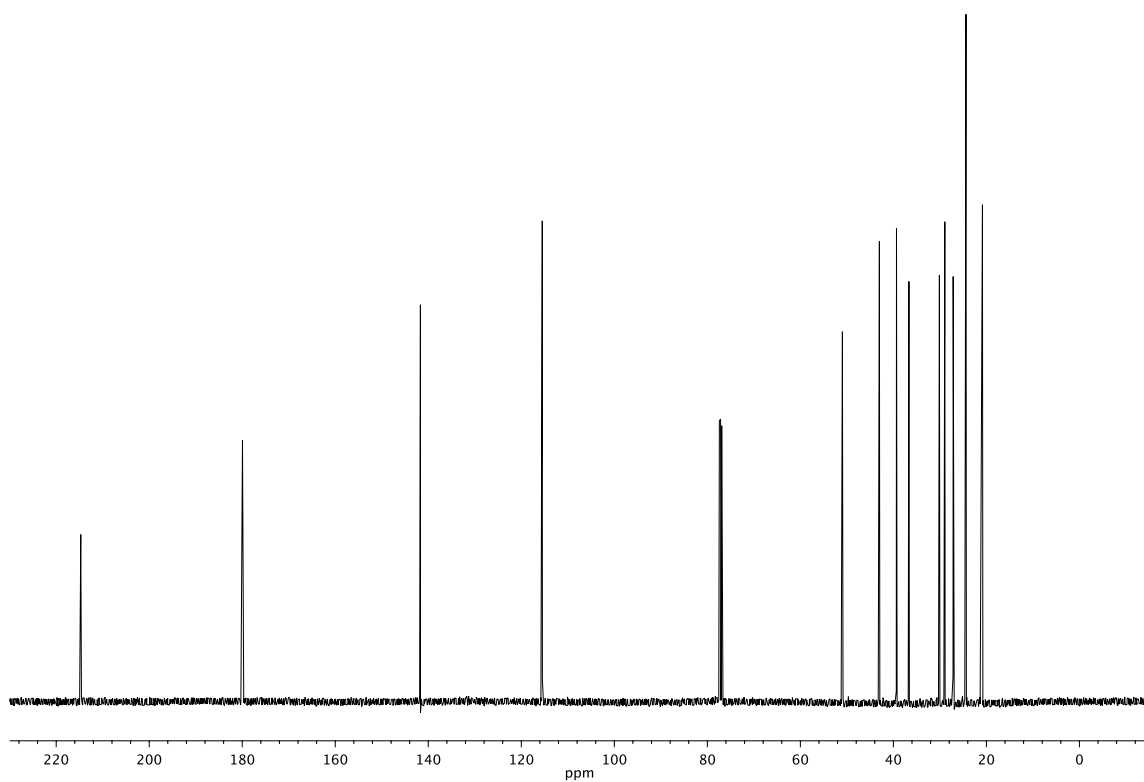


Figure A6.24 ¹³C NMR (126 MHz, CDCl₃) of compound **140e**.

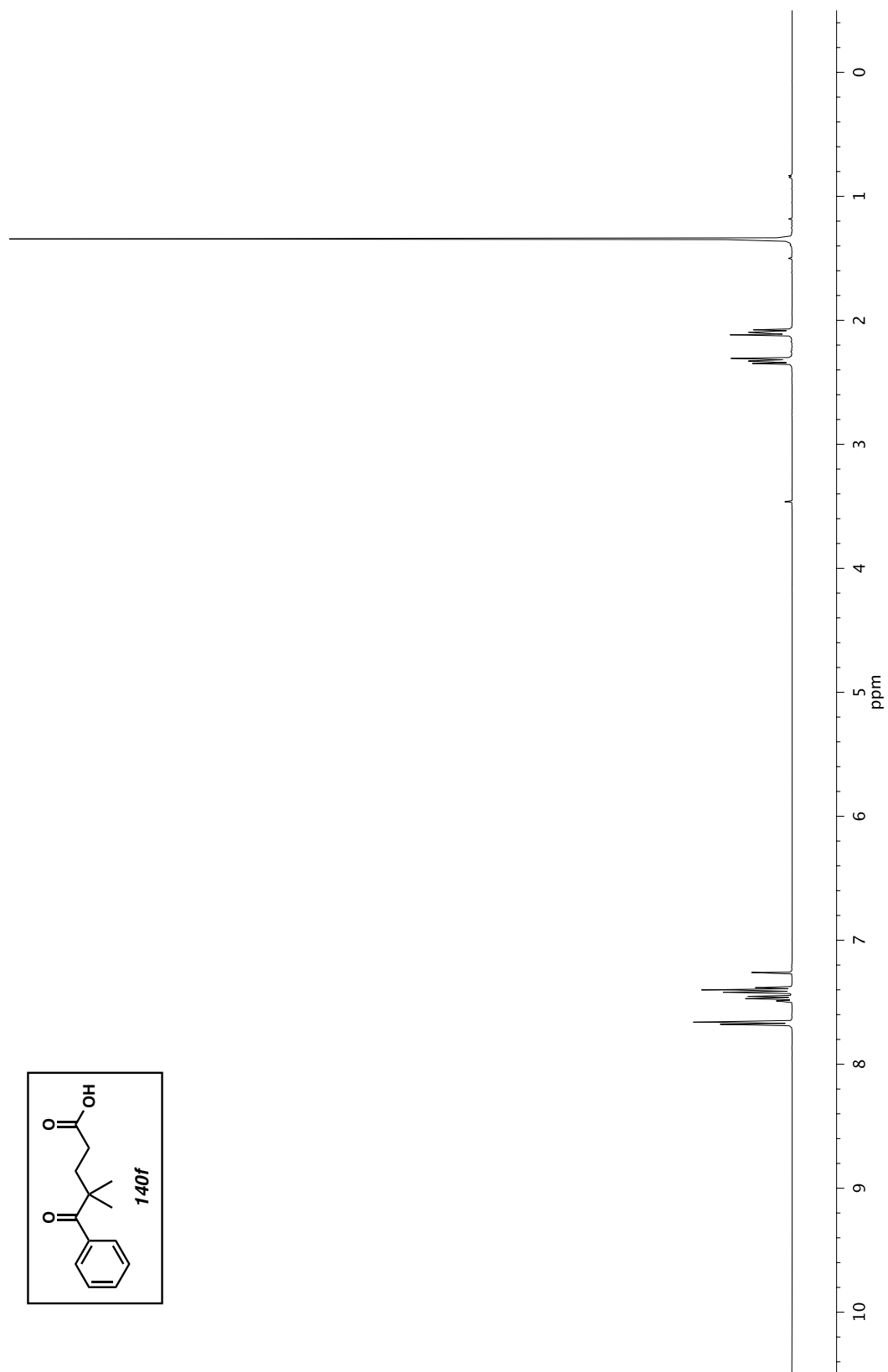


Figure A6.25 ^1H NMR (400 MHz, CDCl_3) of compound **140f**.

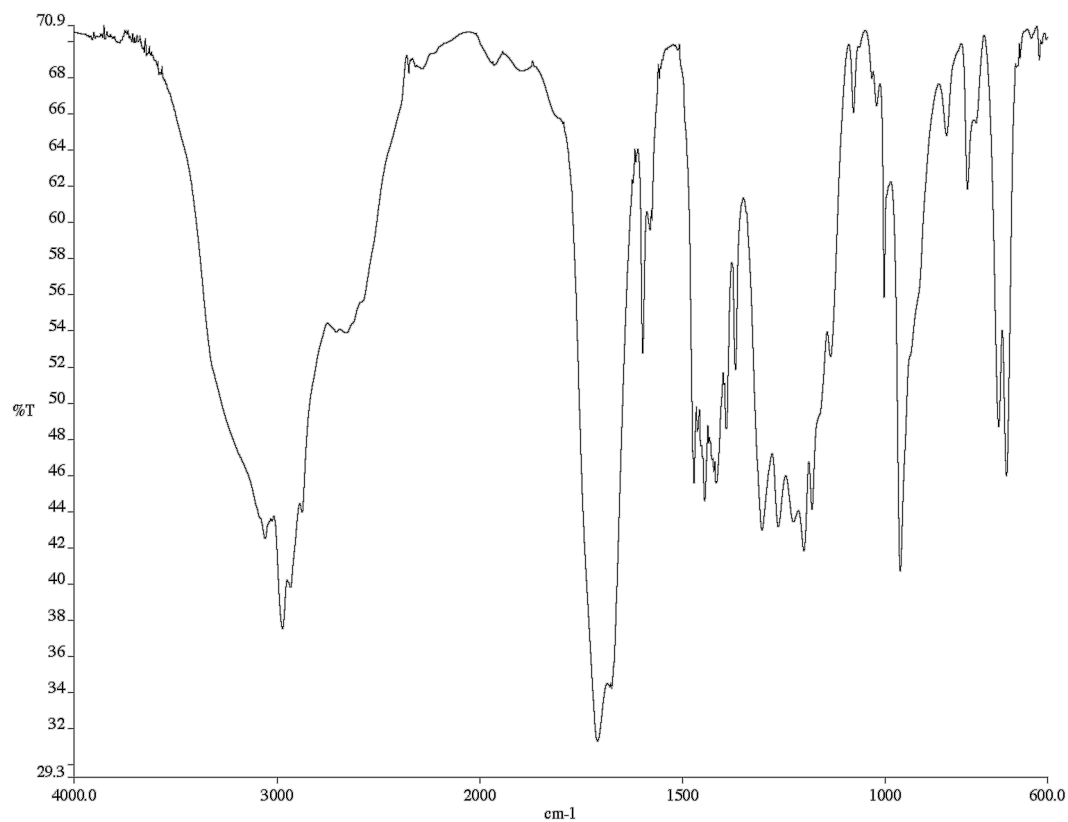


Figure A6.26 Infrared spectrum (Thin Film, NaCl) of compound **140f**.

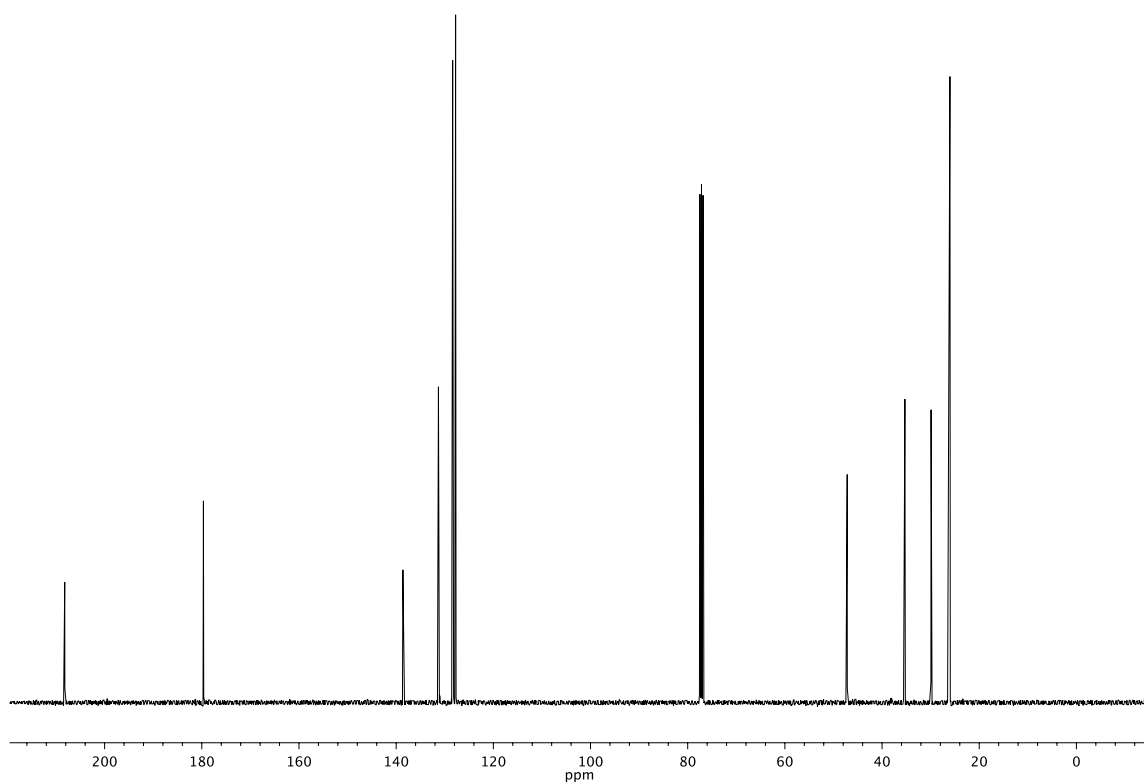


Figure A6.27 ¹³C NMR (101 MHz, CDCl₃) of compound **140f**.

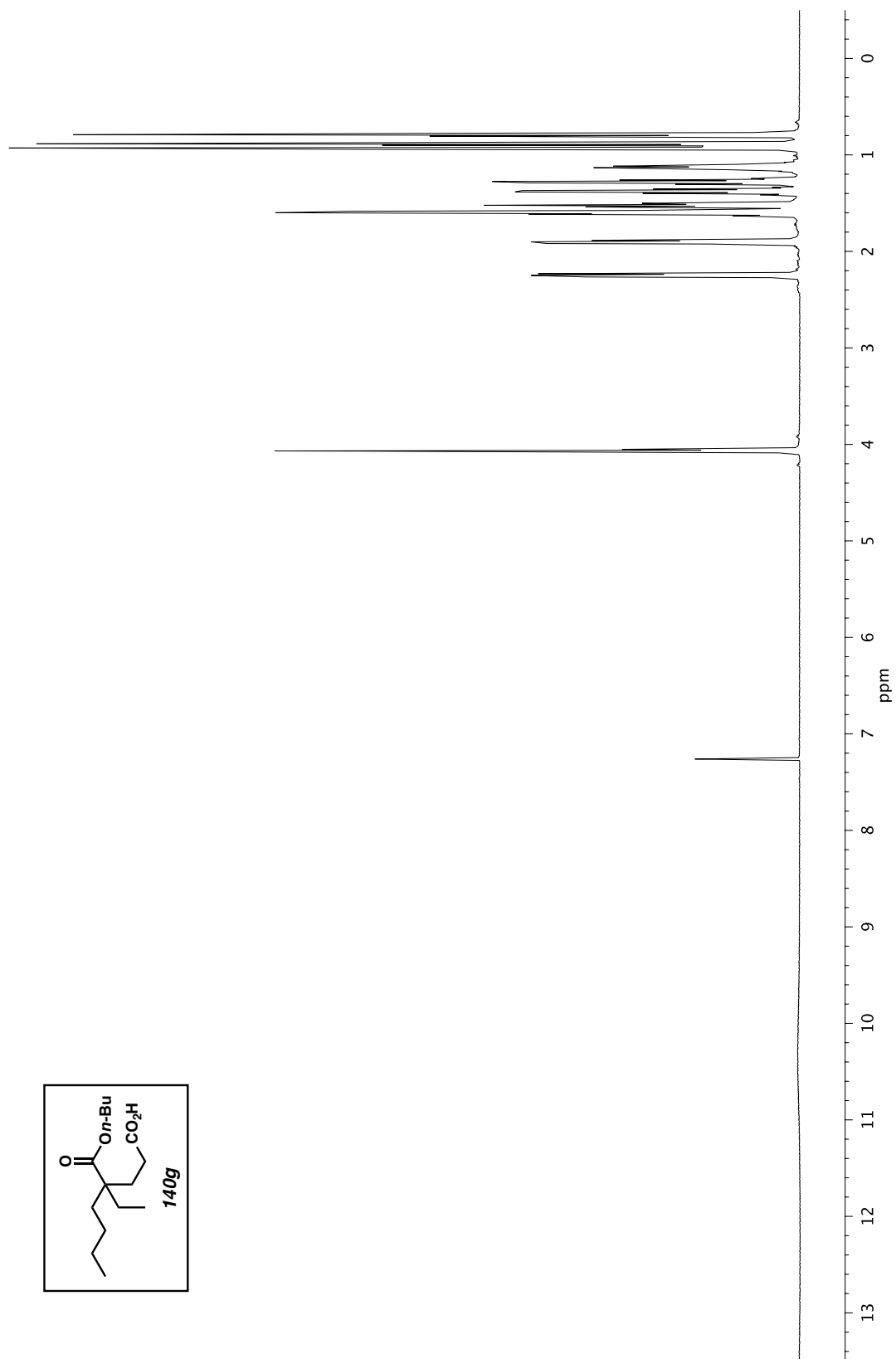


Figure A6.28 ^1H NMR (500 MHz, CDCl_3) of compound 140g.

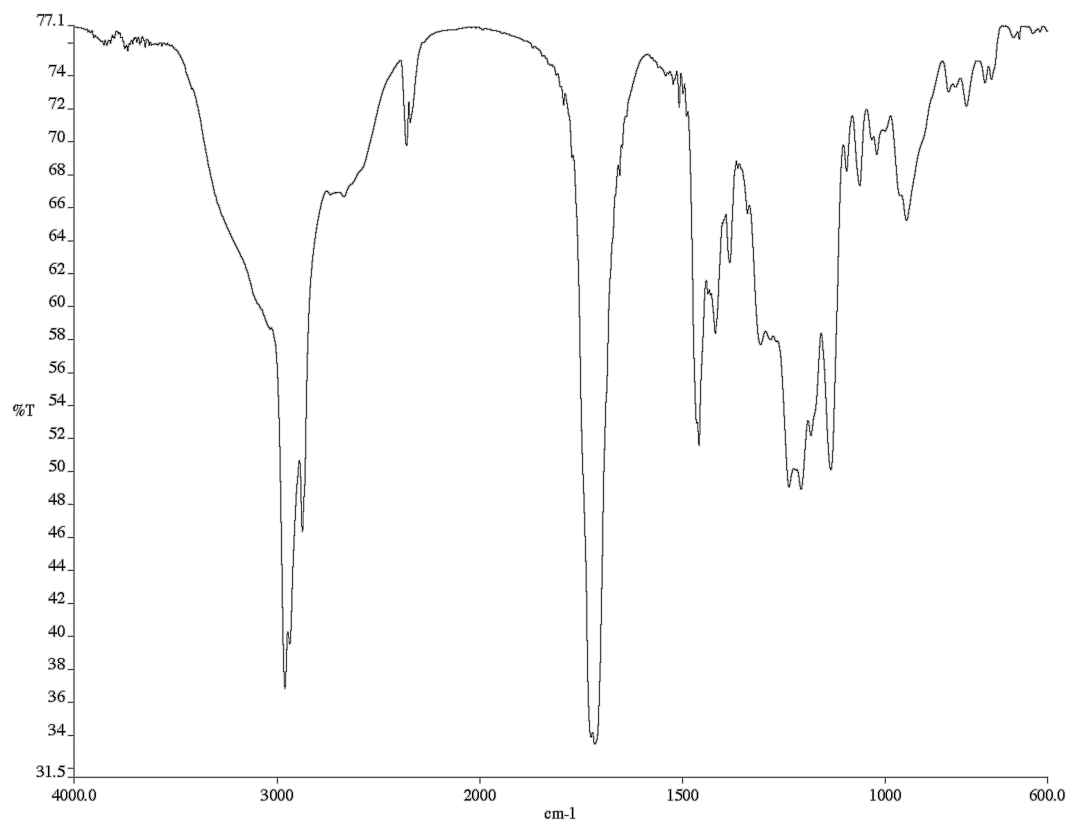


Figure A6.29 Infrared spectrum (Thin Film, NaCl) of compound **140g**.

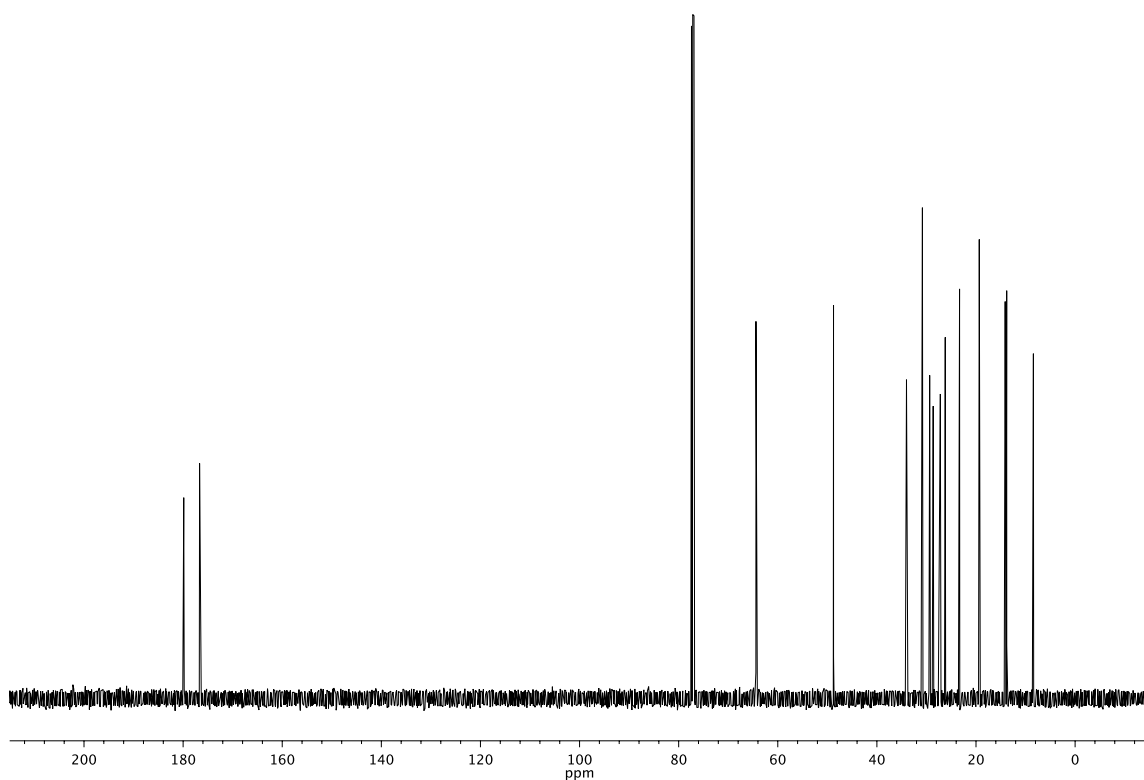


Figure A6.30 ¹³C NMR (126 MHz, CDCl₃) of compound **140g**.

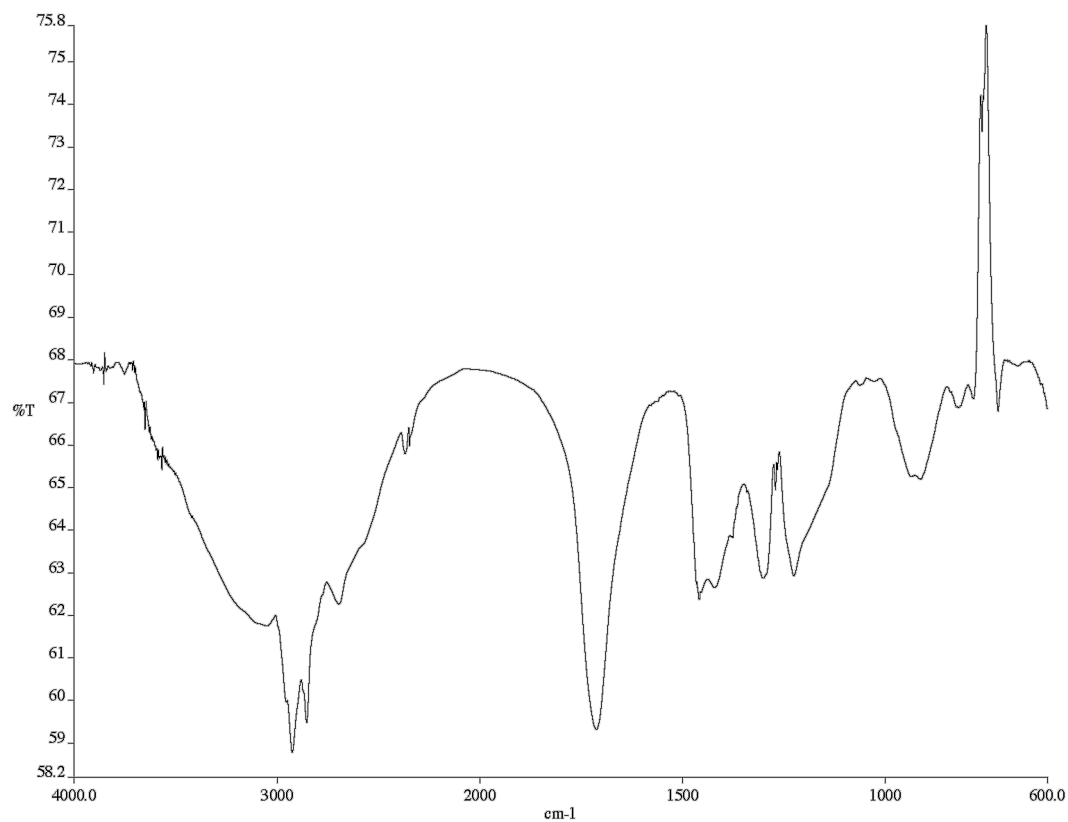


Figure A6.32 Infrared spectrum (Thin Film, NaCl) of compound **140h**.

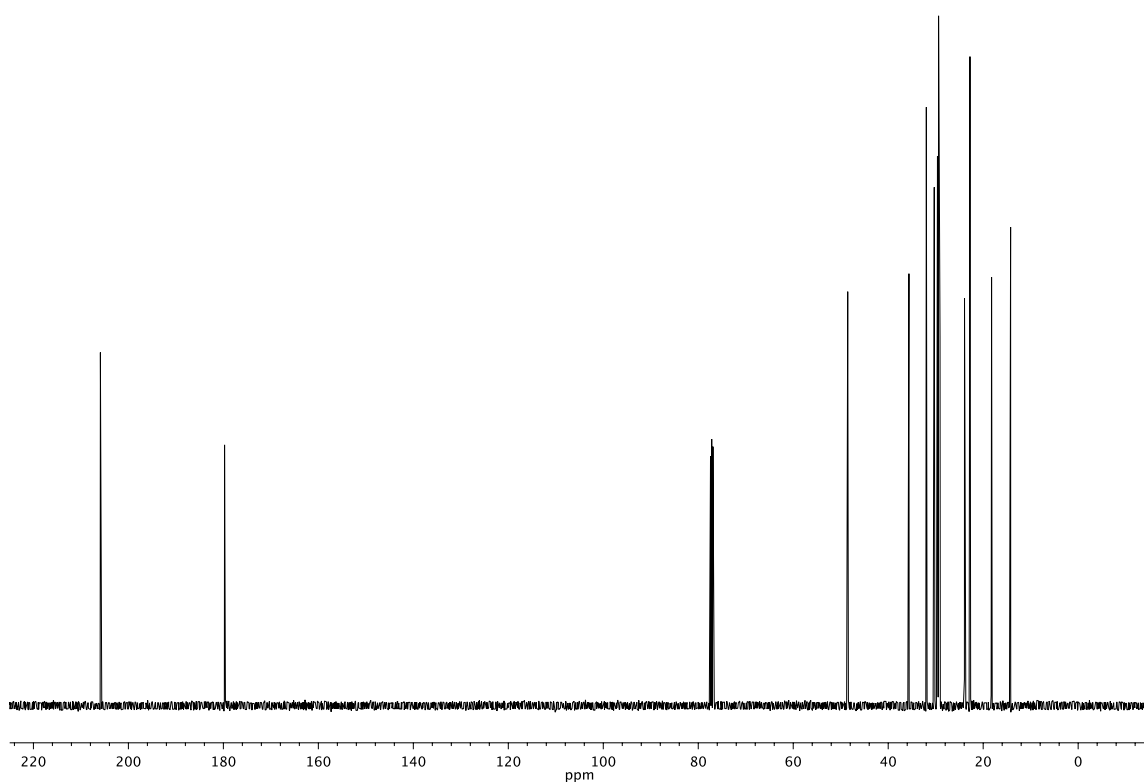


Figure A6.33 ¹³C NMR (126 MHz, CDCl₃) of compound **140h**.

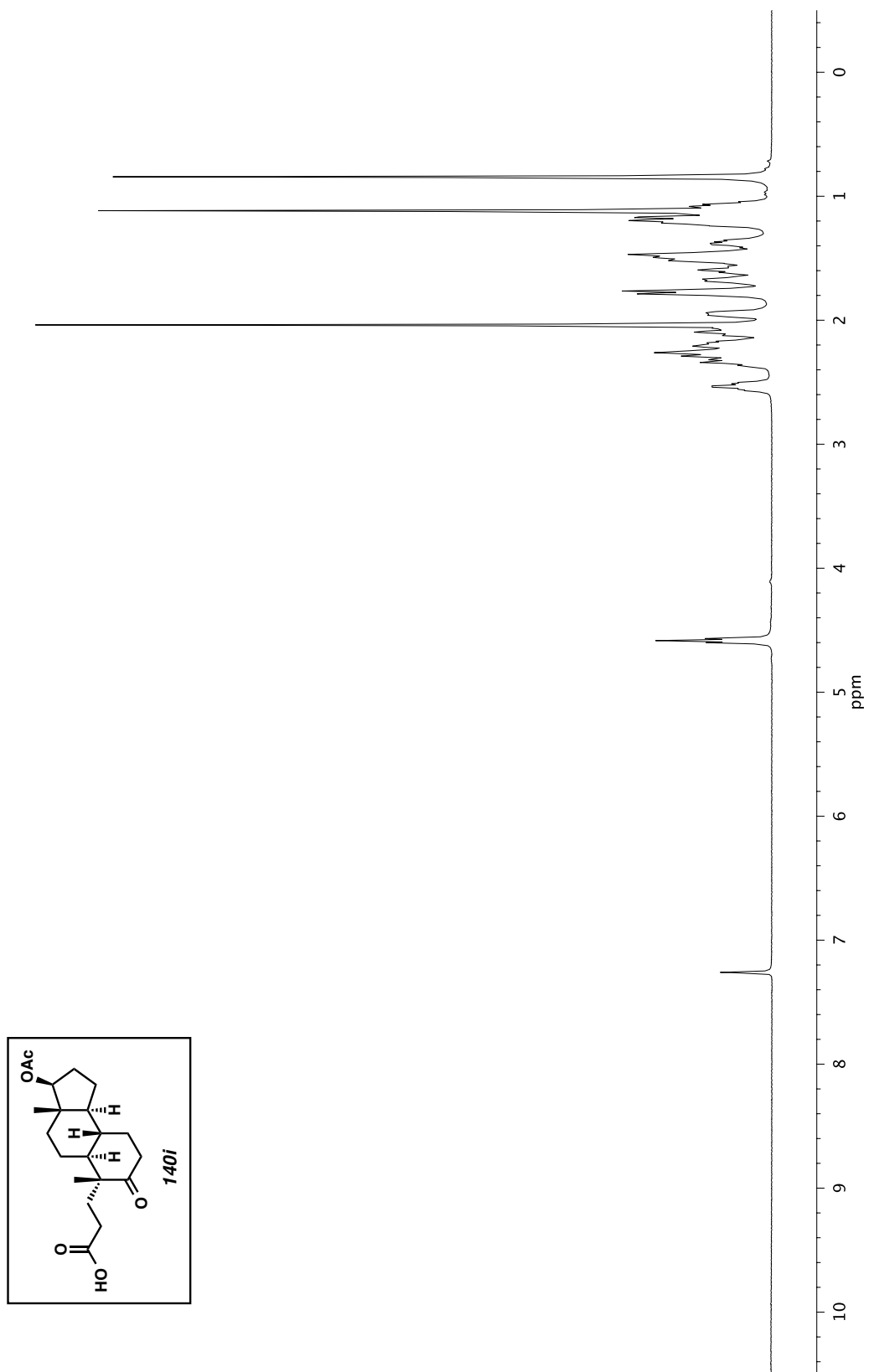


Figure A6.34 ¹H NMR (500 MHz, CDCl₃) of compound **140i**.

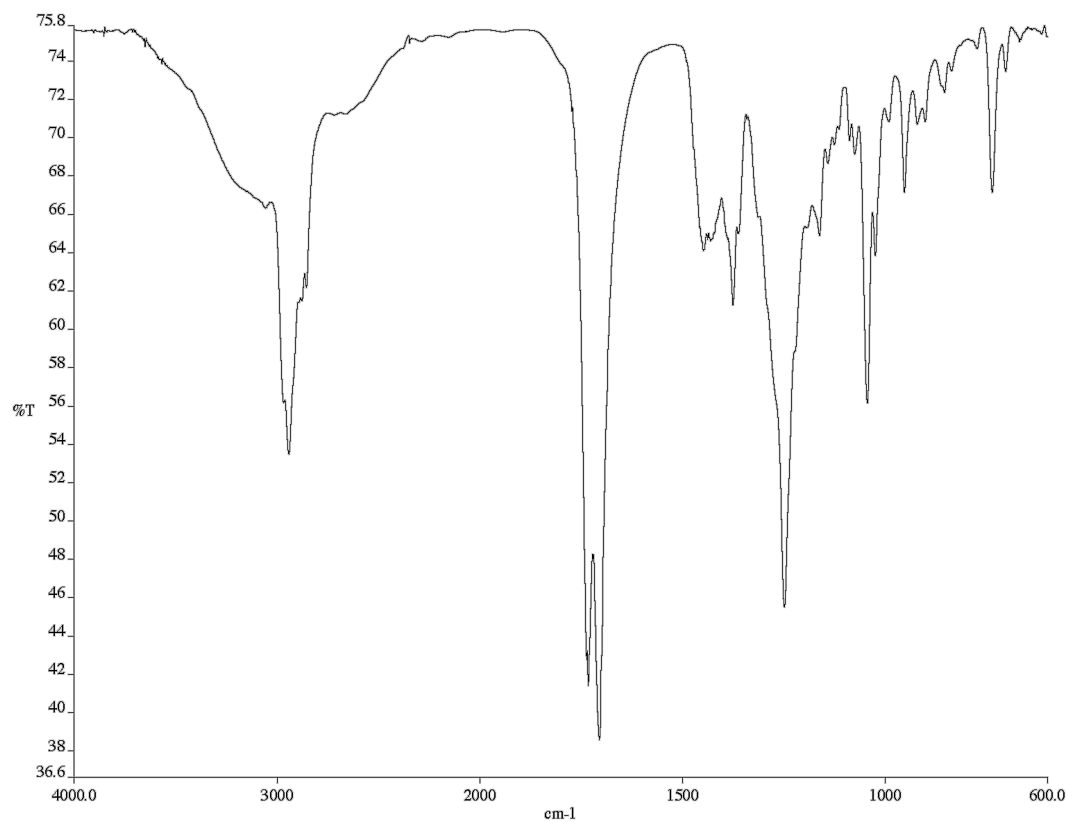


Figure A6.35 Infrared spectrum (Thin Film, NaCl) of compound **140i**.

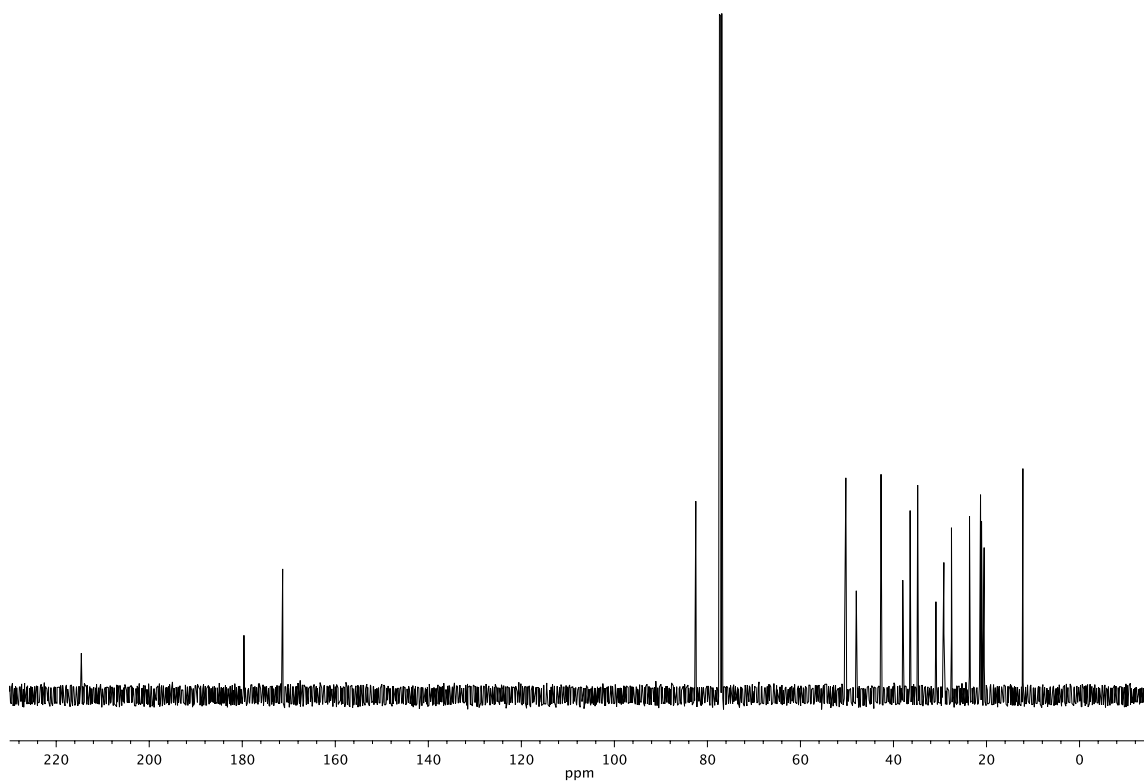


Figure A6.36 ¹³C NMR (126 MHz, CDCl₃) of compound **140i**.

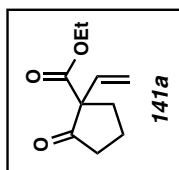
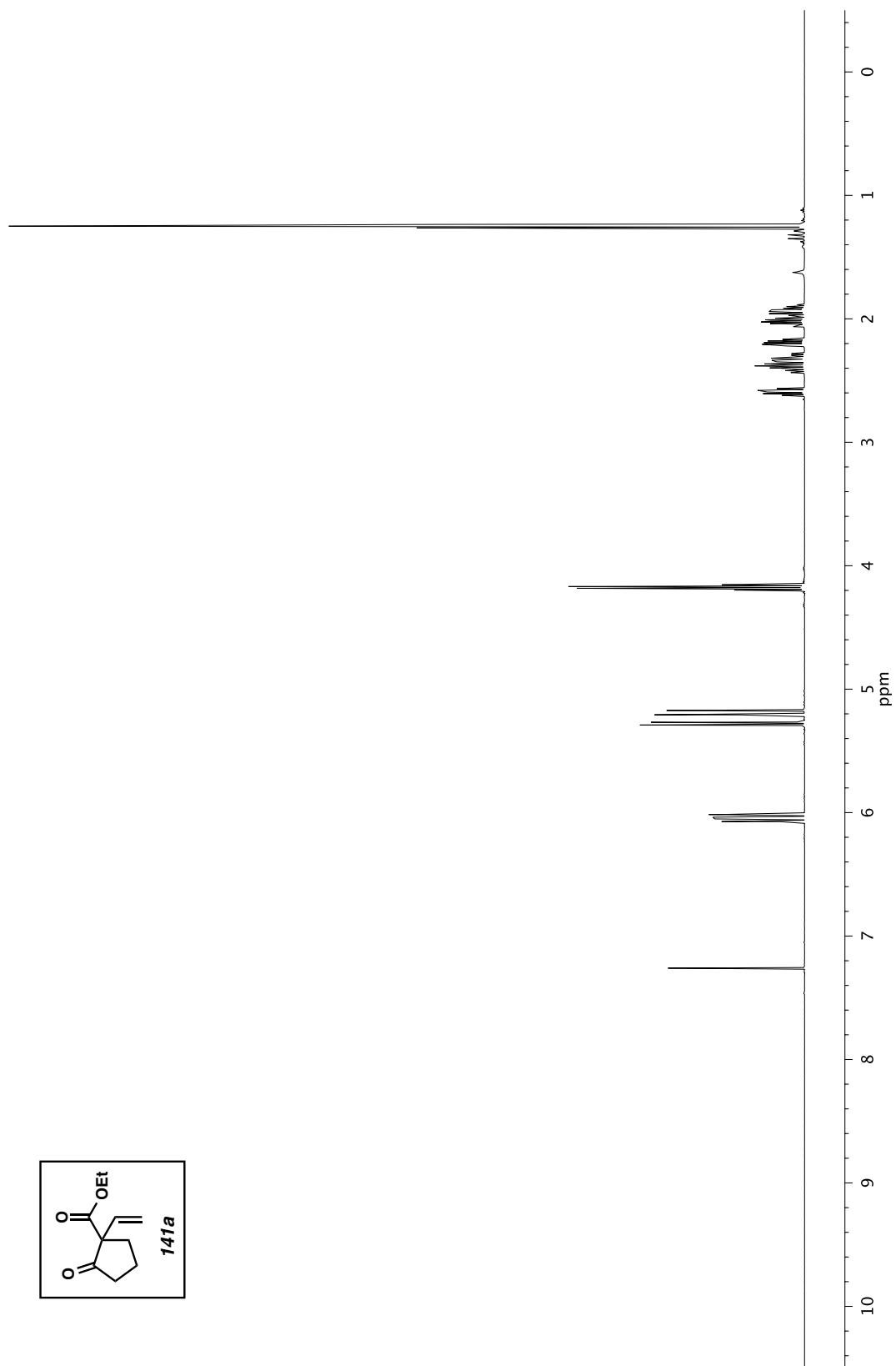


Figure A6.37 ^1H NMR (500 MHz, CDCl_3) of compound **141a**.

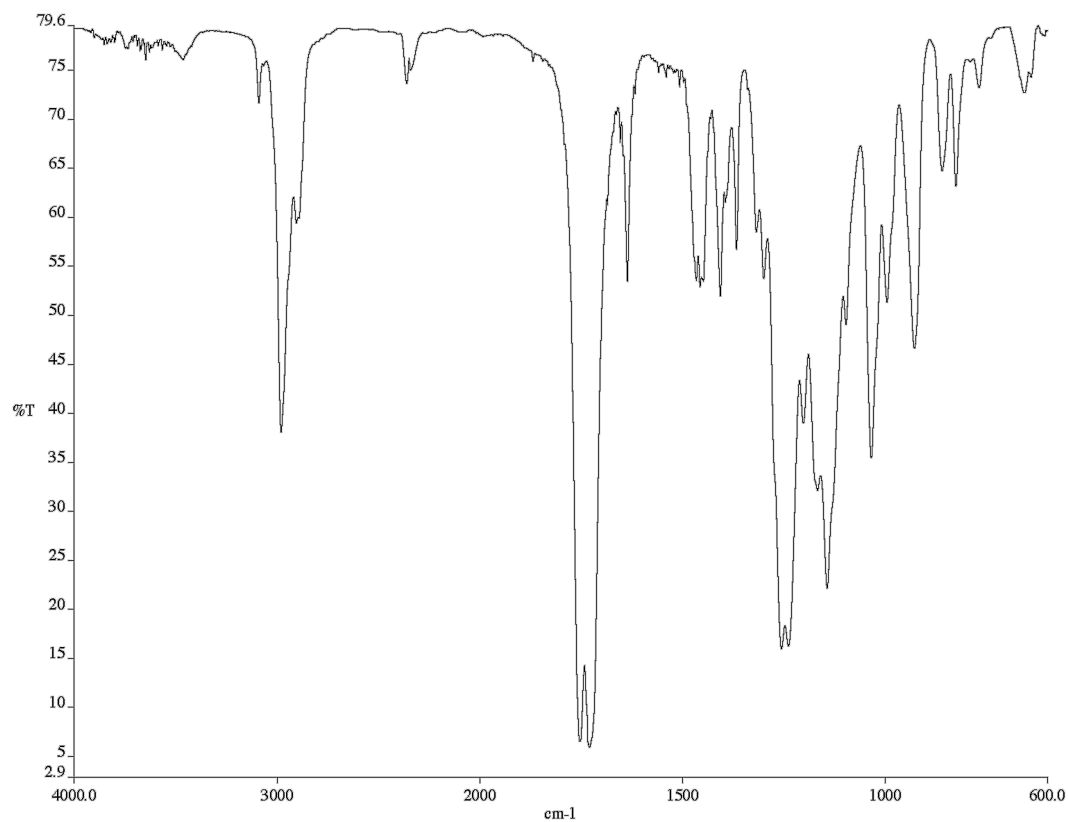


Figure A6.38 Infrared spectrum (Thin Film, NaCl) of compound **141a**.

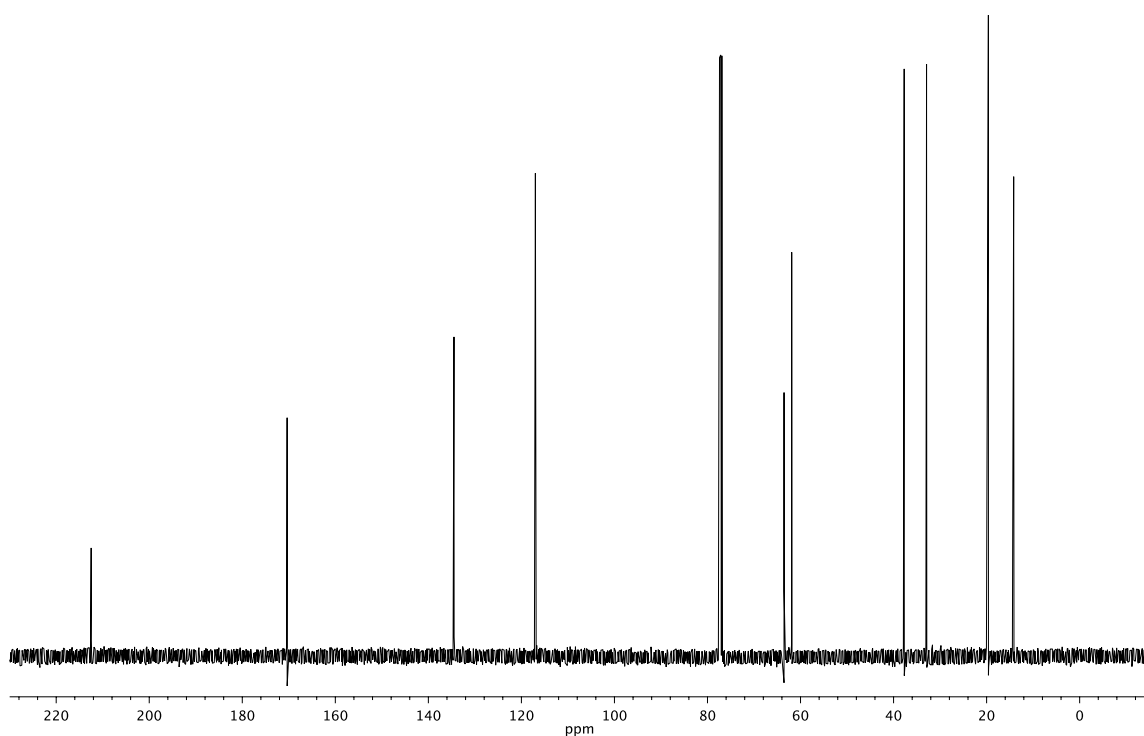


Figure A6.39 ¹³C NMR (126 MHz, CDCl₃) of compound **141a**.

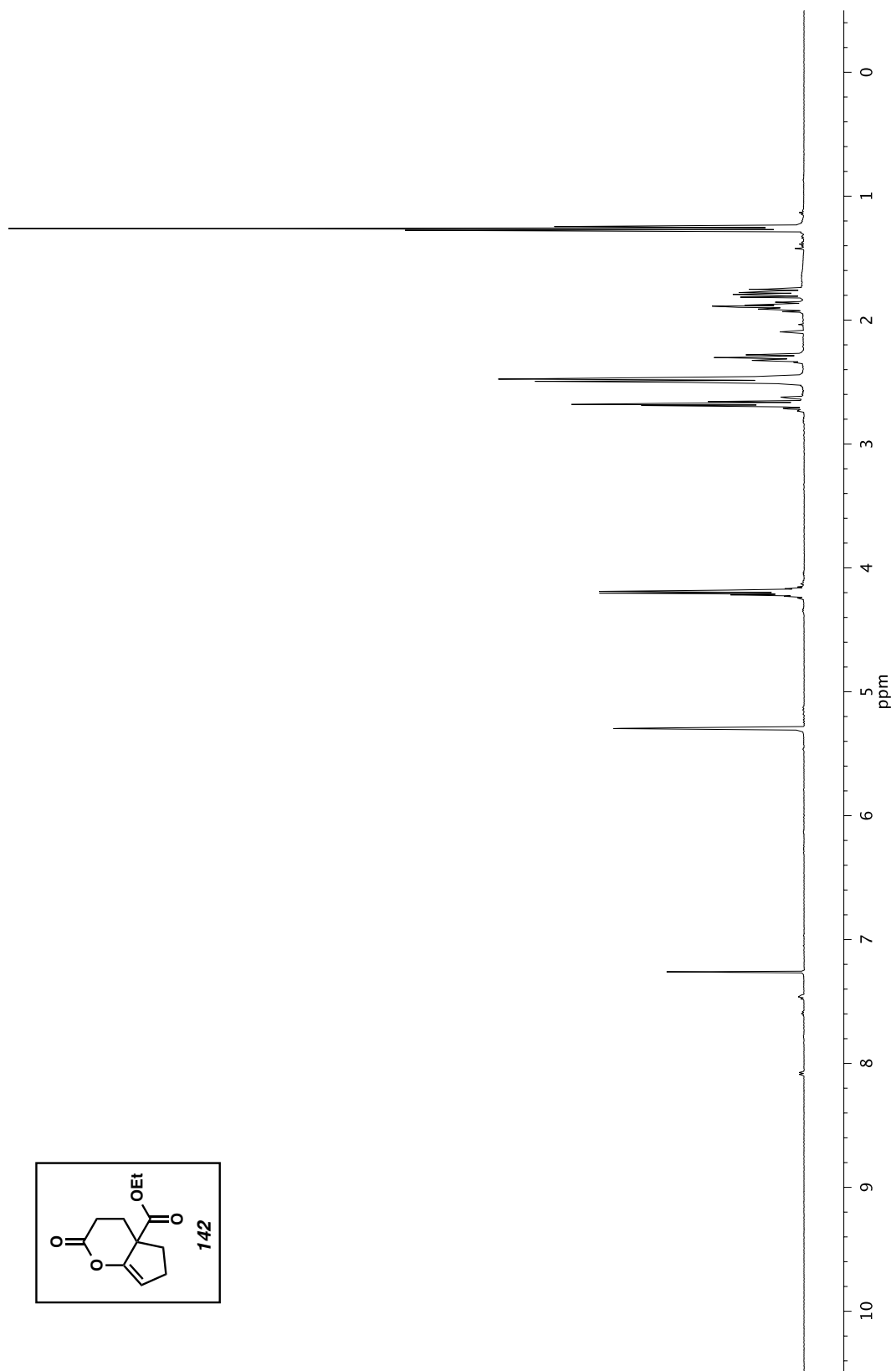


Figure A6.40 ^1H NMR (500 MHz, CDCl_3) of compound **142**.

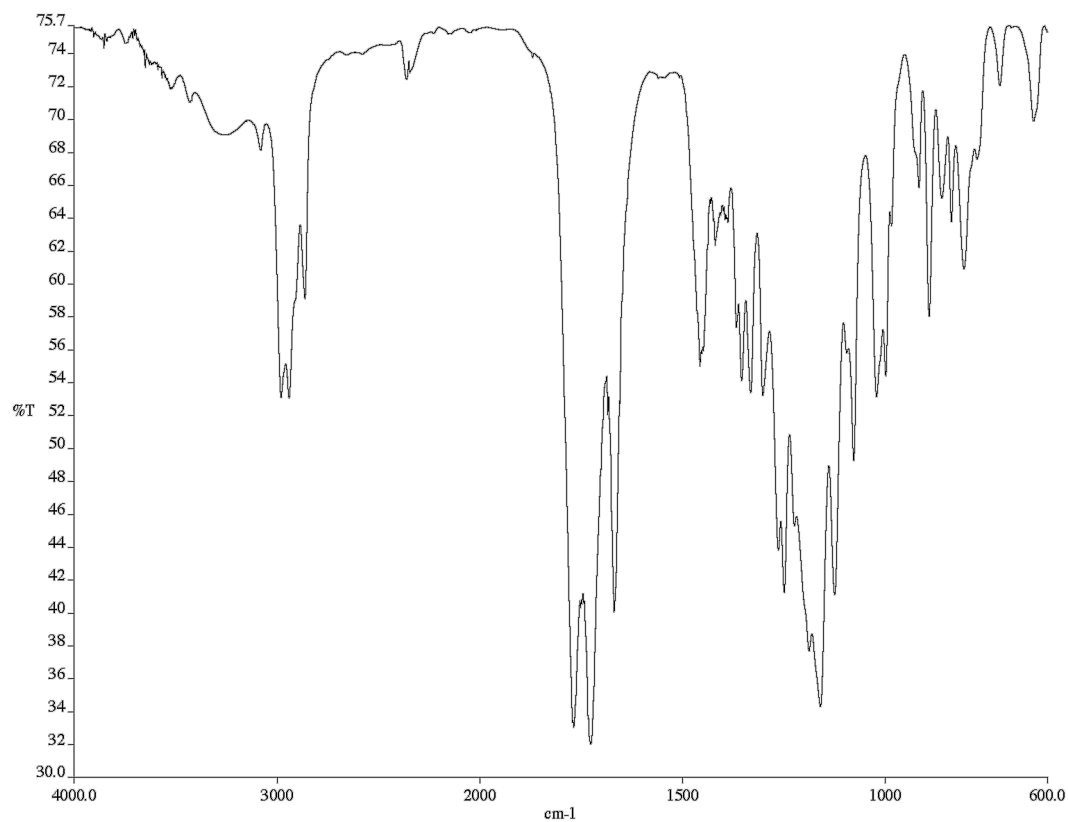


Figure A6.41 Infrared spectrum (Thin Film, NaCl) of compound **142**.

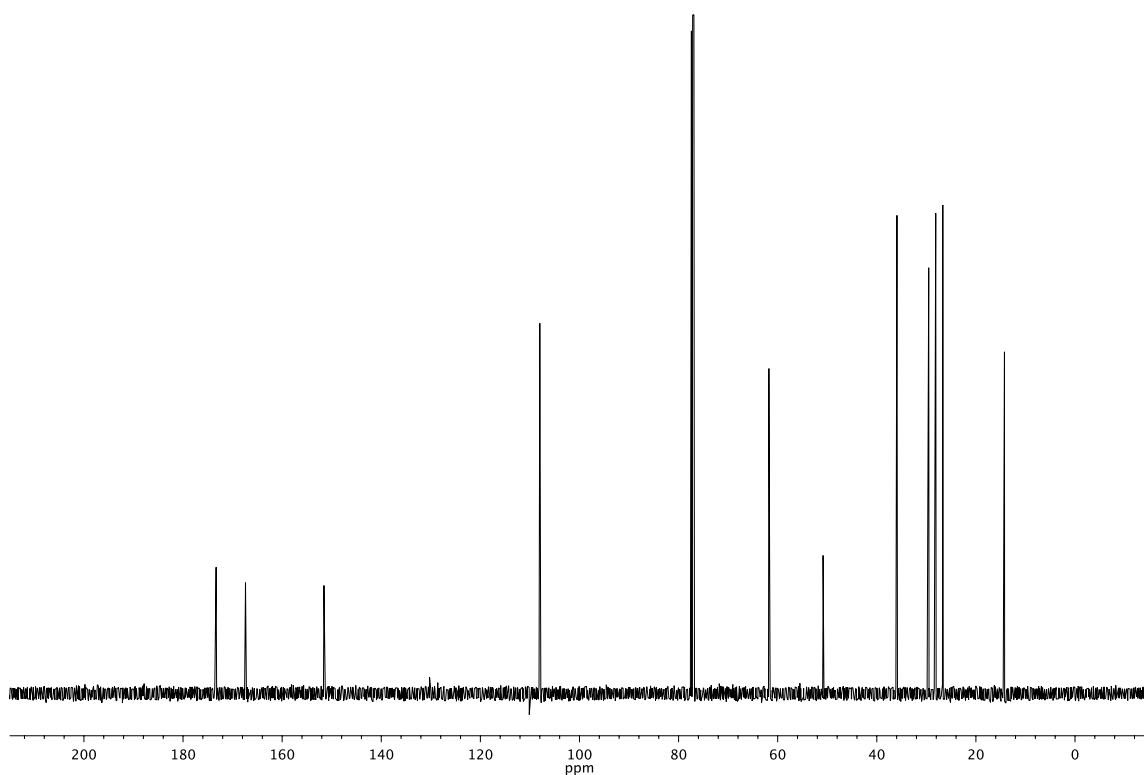


Figure A6.42 ¹³C NMR (126 MHz, CDCl₃) of compound **142**.

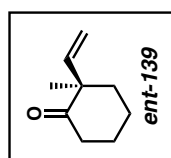
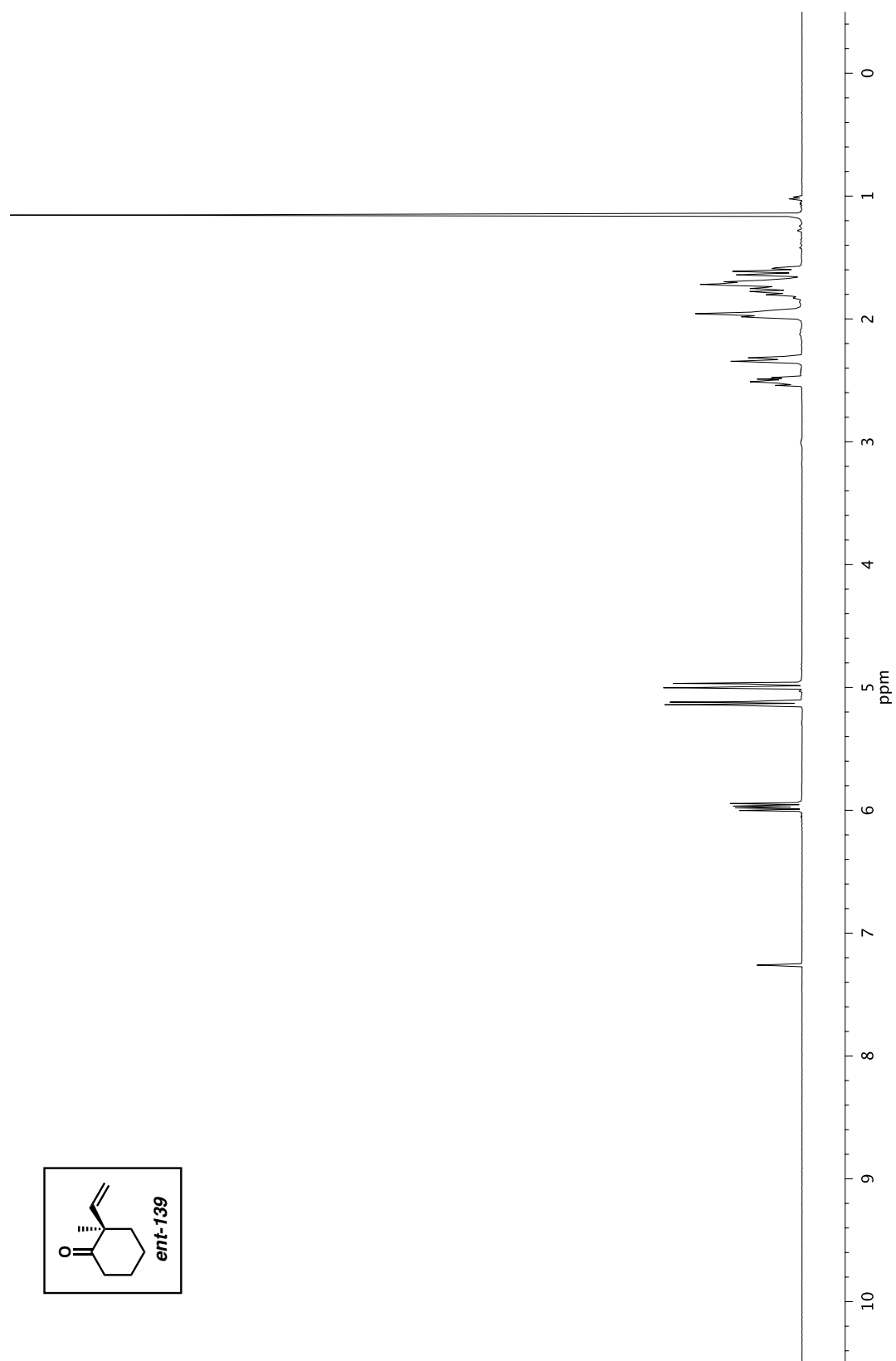


Figure A6.43 ^1H NMR (500 MHz, CDCl_3) of compound **139**.

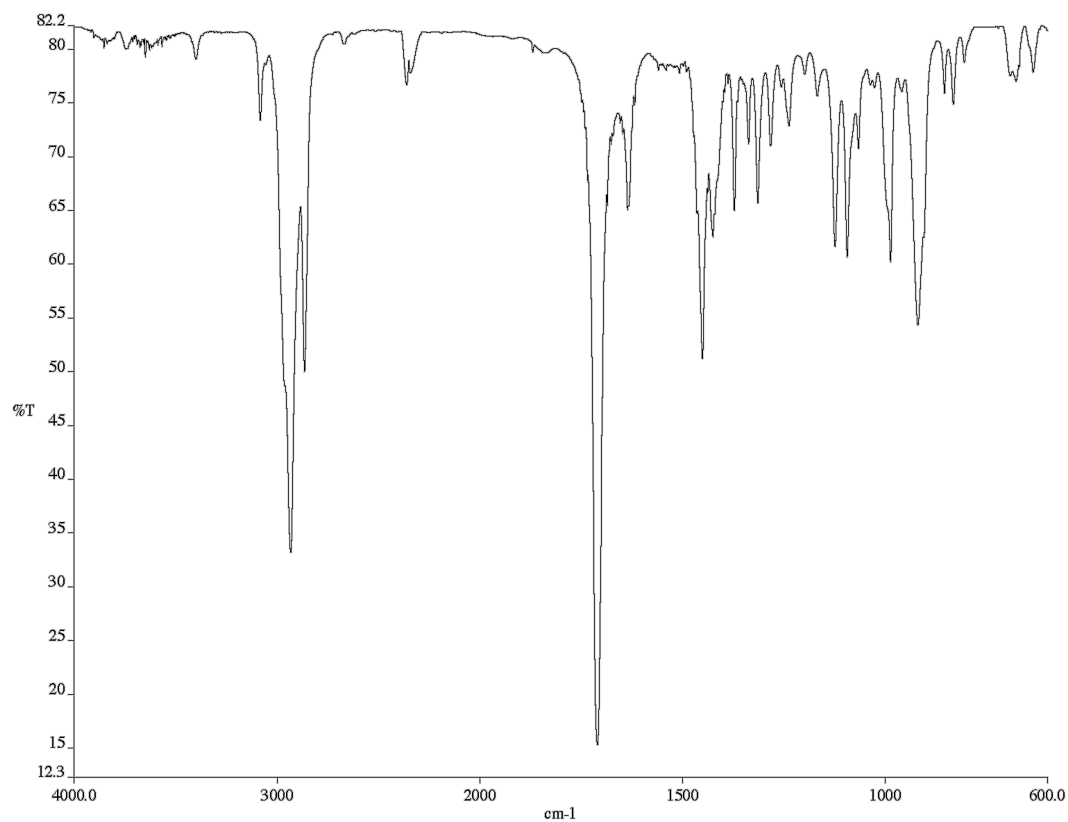


Figure A6.44 Infrared spectrum (Thin Film, NaCl) of compound **139**.

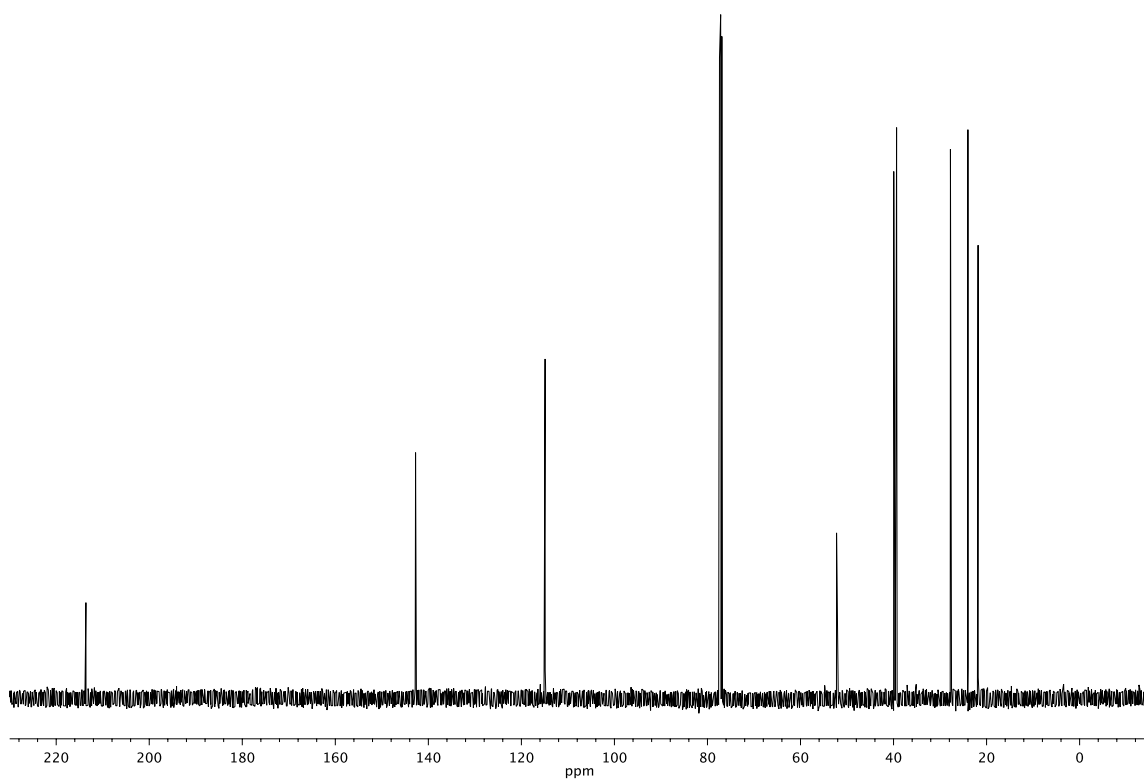


Figure A6.45 ¹³C NMR (126 MHz, CDCl₃) of compound **139**.

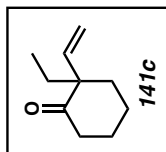
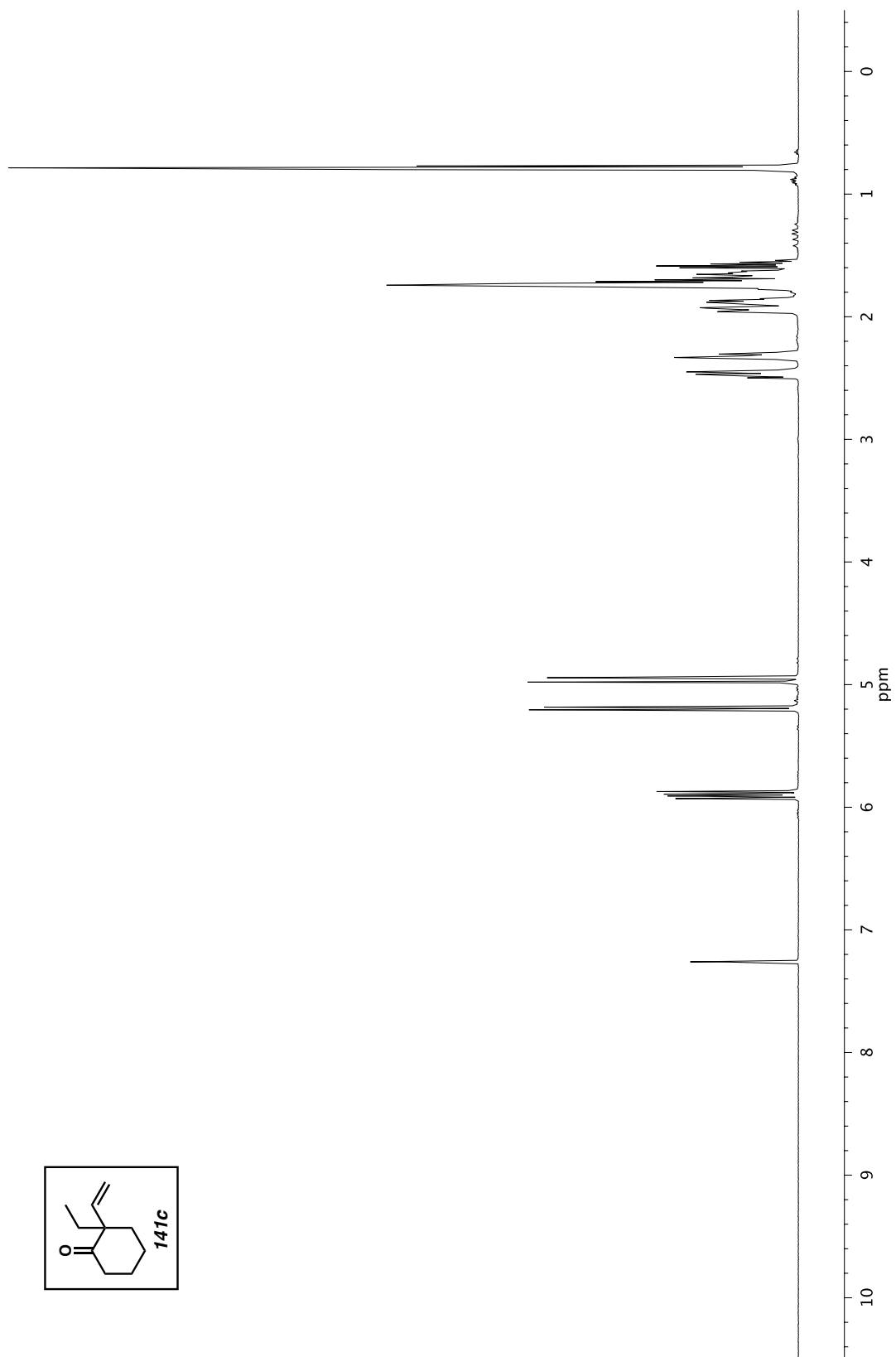


Figure A6.46 ^1H NMR (500 MHz, CDCl_3) of compound **141c**.

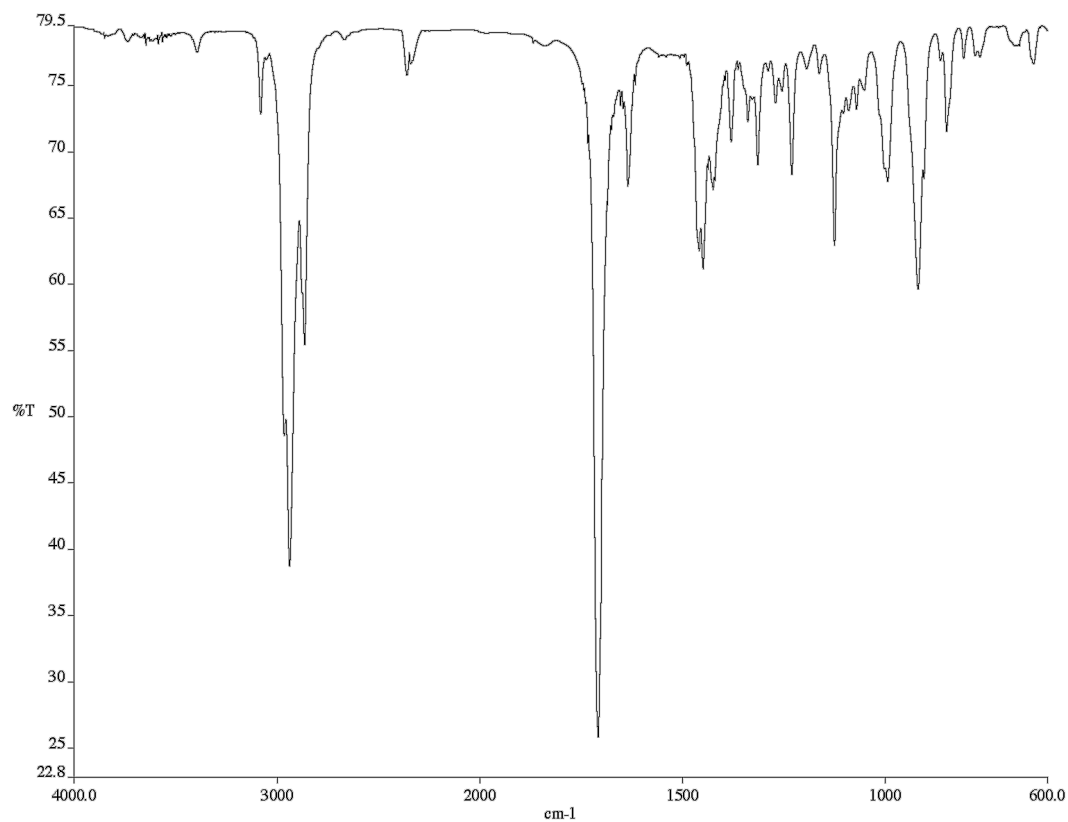


Figure A6.47 Infrared spectrum (Thin Film, NaCl) of compound **141c**.

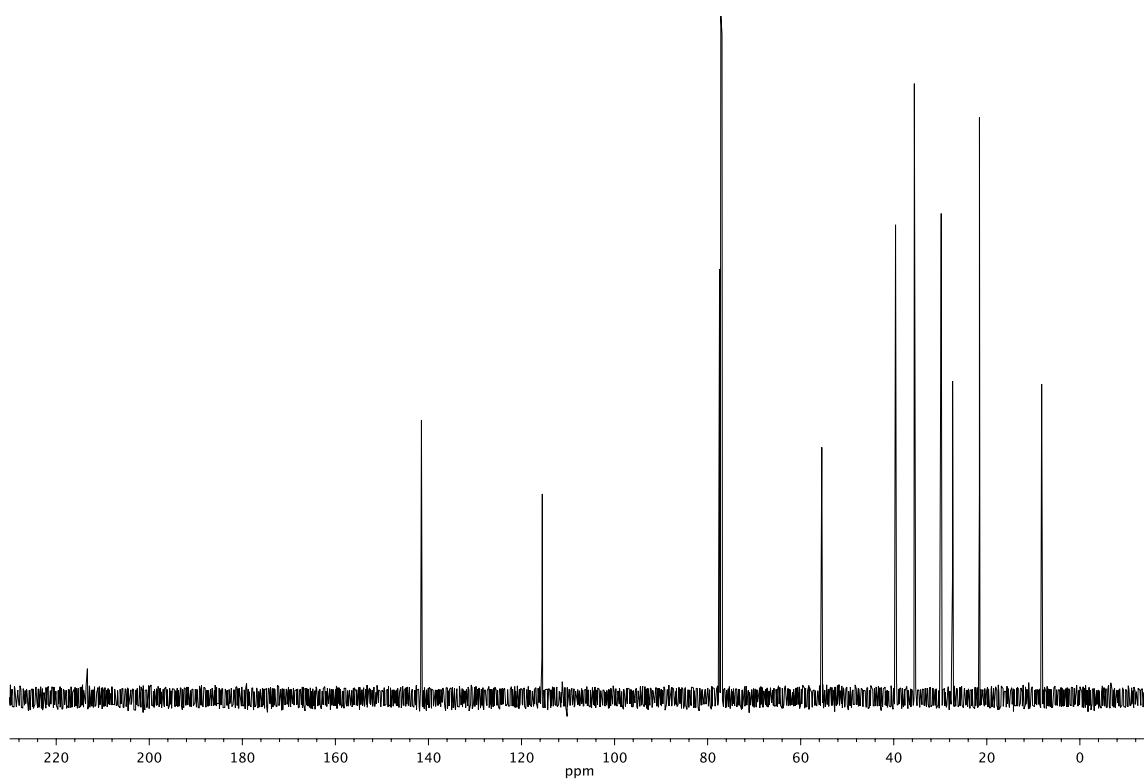


Figure A6.48 ¹³C NMR (126 MHz, CDCl₃) of compound **141c**.

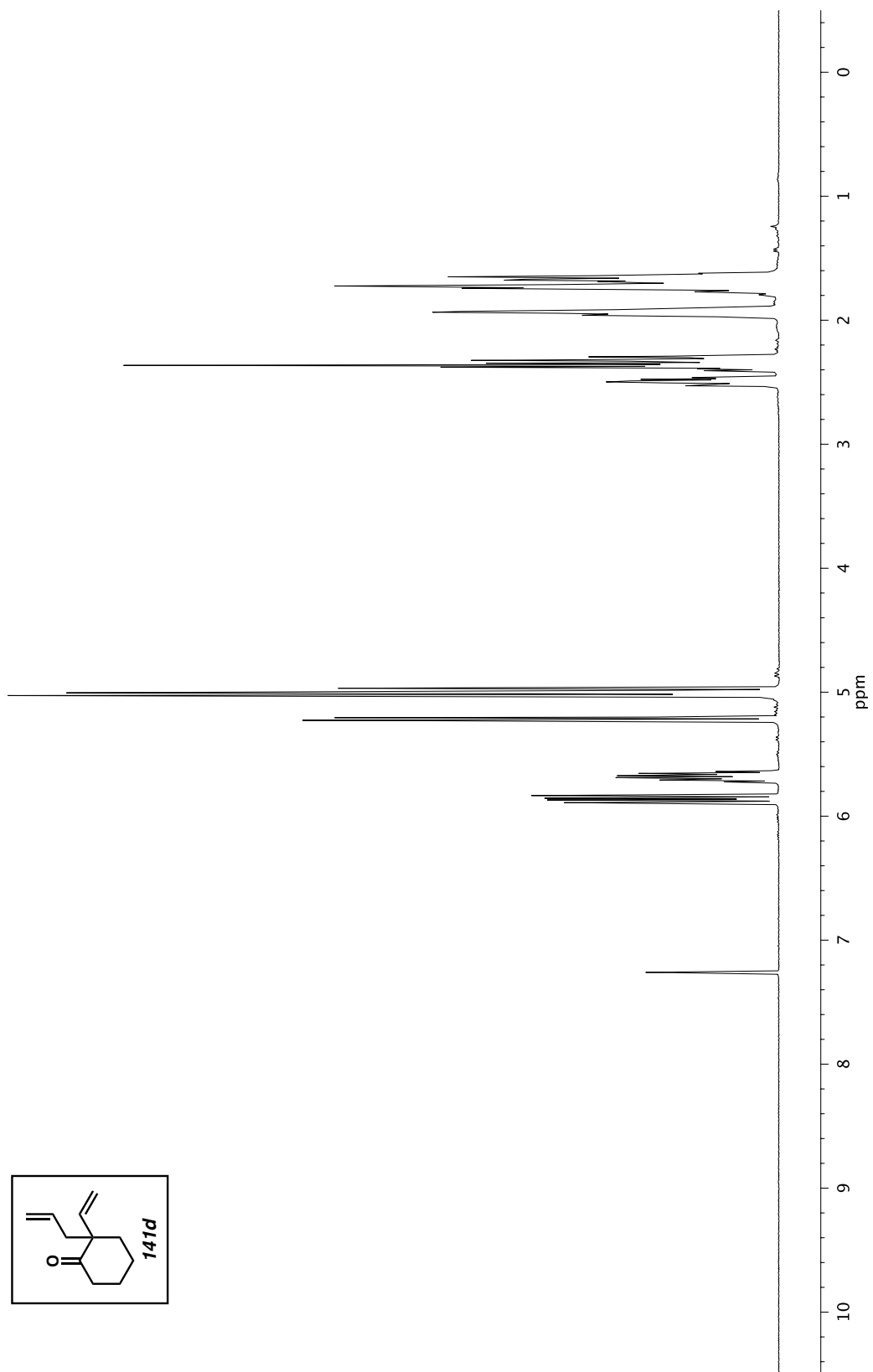


Figure A6.49 ^1H NMR (500 MHz, CDCl_3) of compound **141d**.

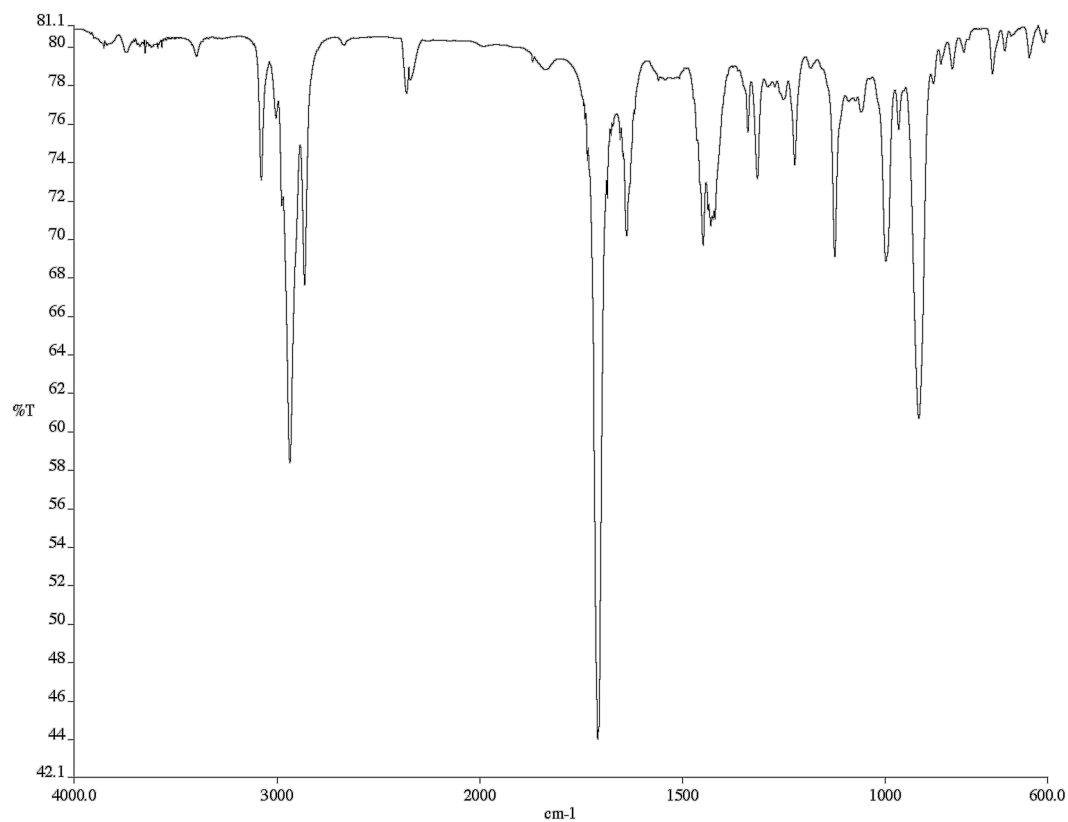


Figure A6.50 Infrared spectrum (Thin Film, NaCl) of compound **141d**.

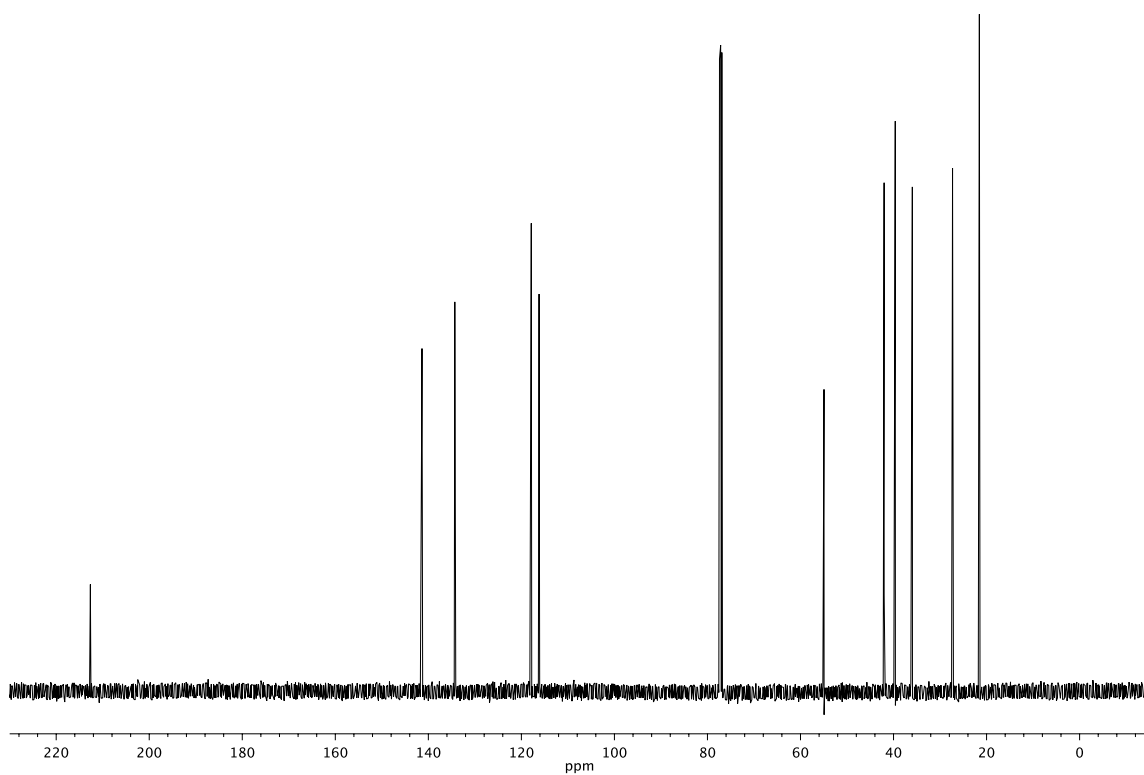


Figure A6.51 ¹³C NMR (126 MHz, CDCl₃) of compound **141d**.

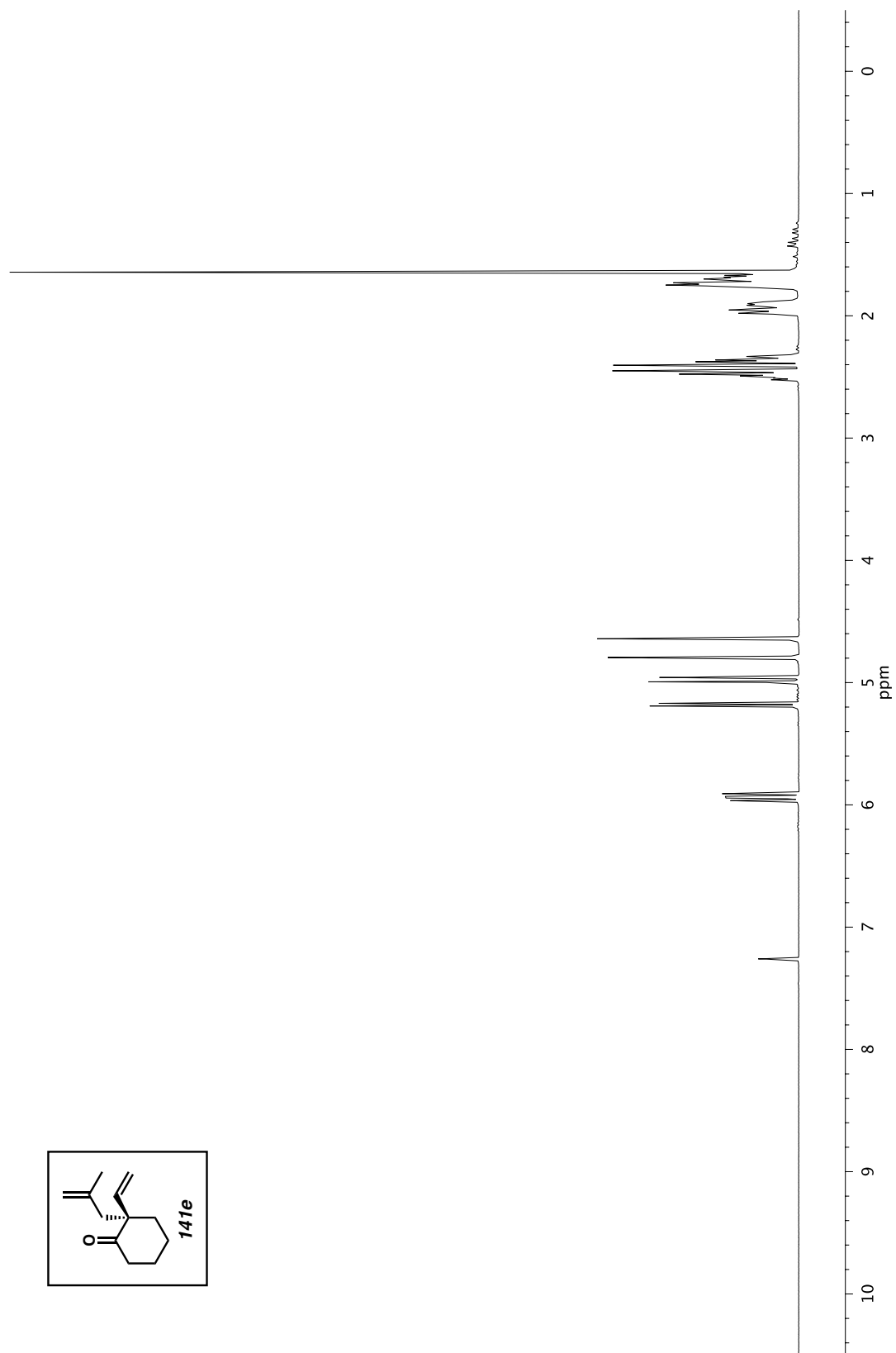


Figure A6.52 ¹H NMR (500 MHz, CDCl₃) of compound **141e**.

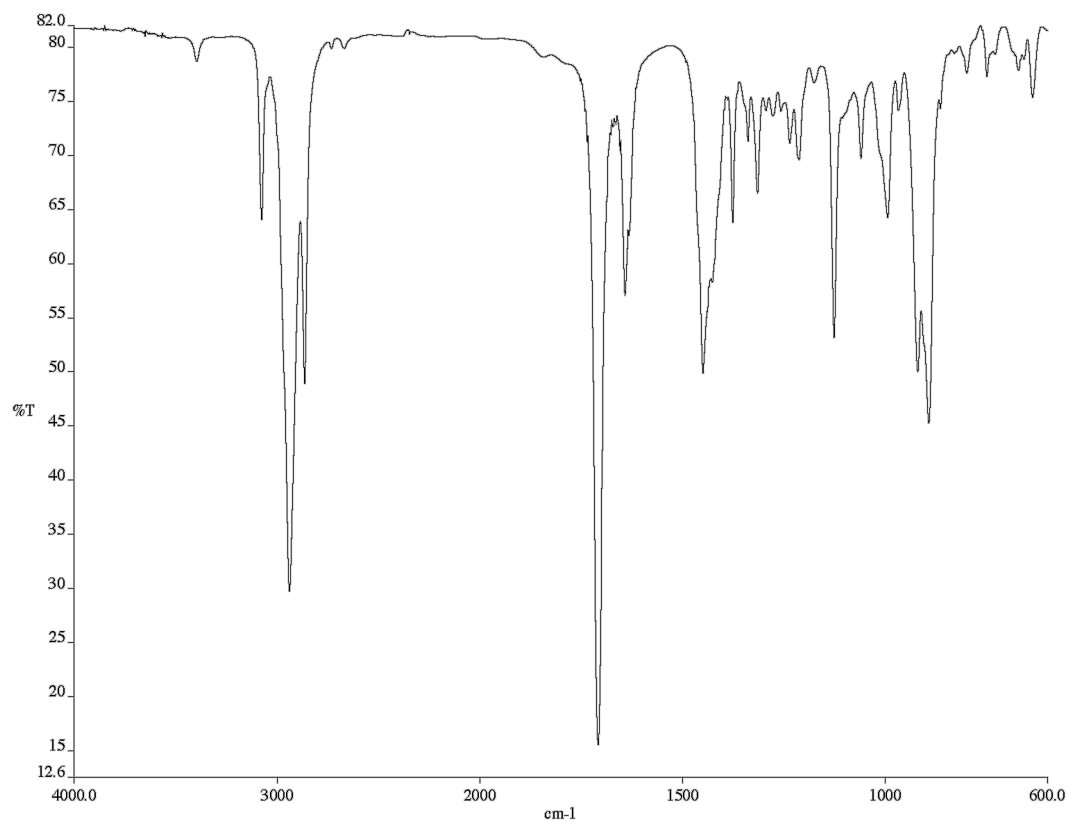


Figure A6.53 Infrared spectrum (Thin Film, NaCl) of compound **141e**.

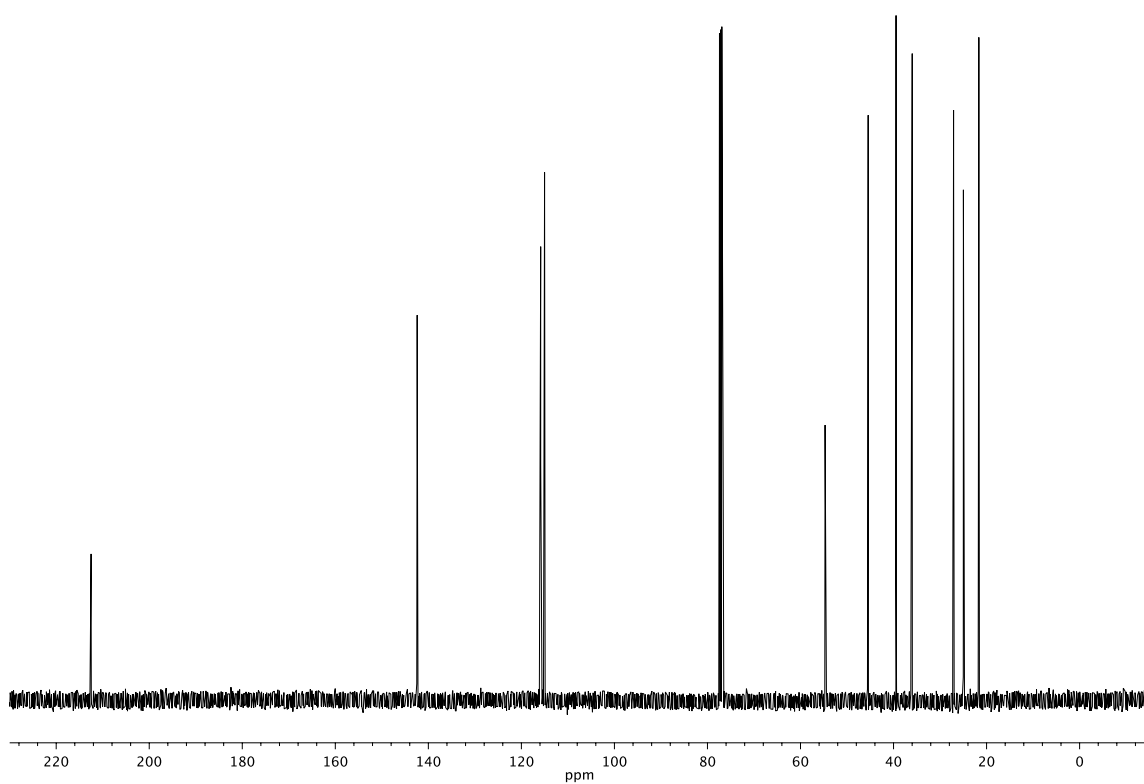


Figure A6.54 ¹³C NMR (126 MHz, CDCl₃) of compound **141e**.

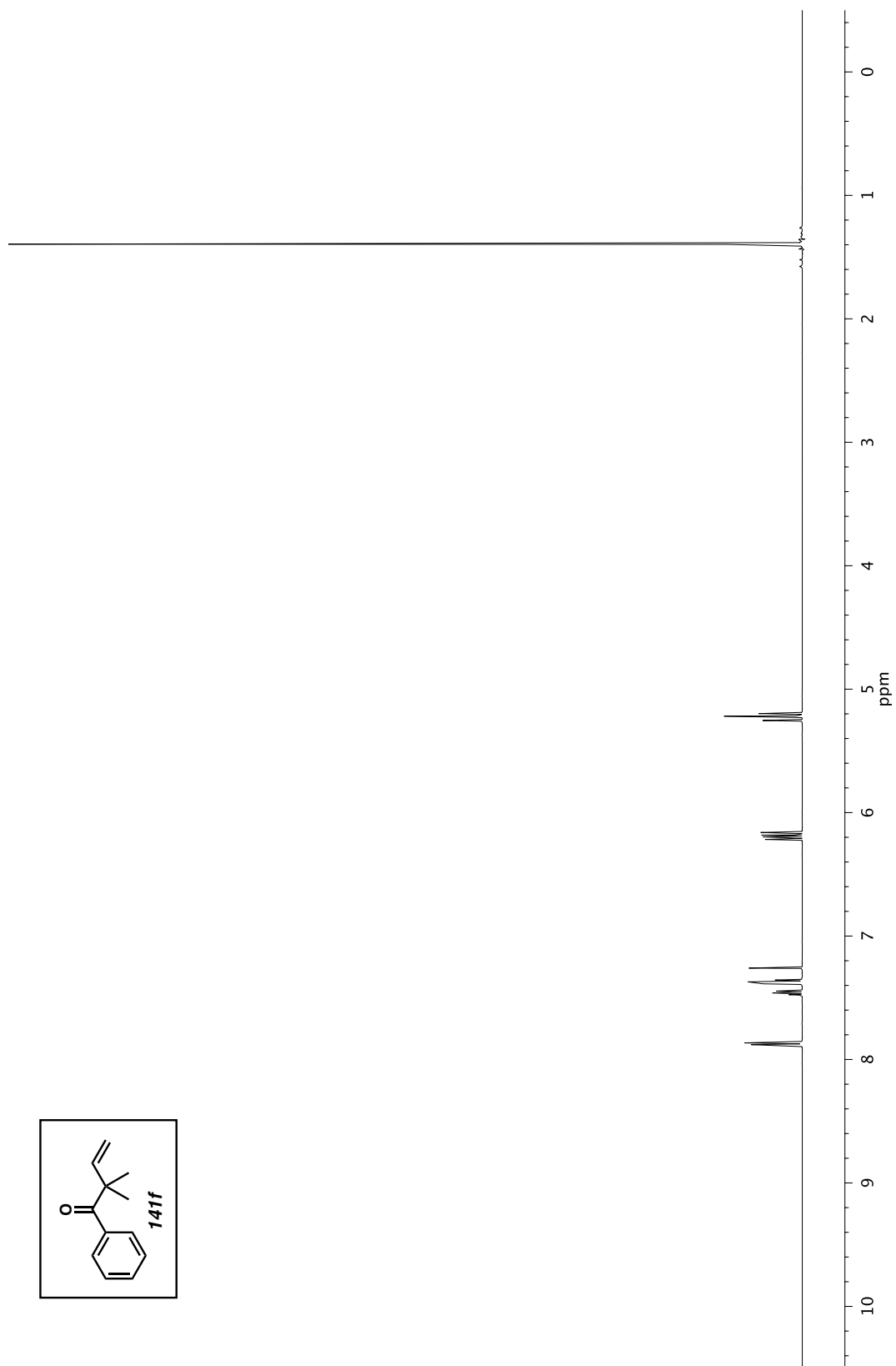


Figure A6.55 ^1H NMR (500 MHz, CDCl_3) of compound **141f**.

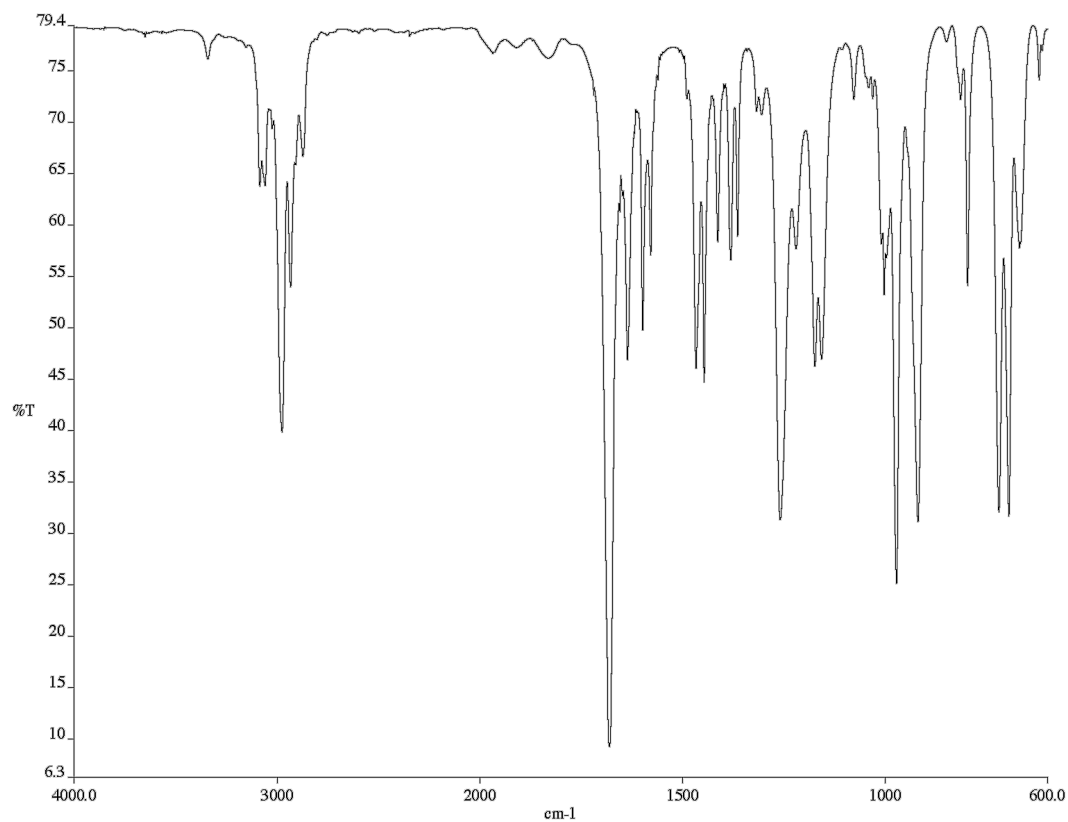


Figure A6.56 Infrared spectrum (Thin Film, NaCl) of compound **141f**.

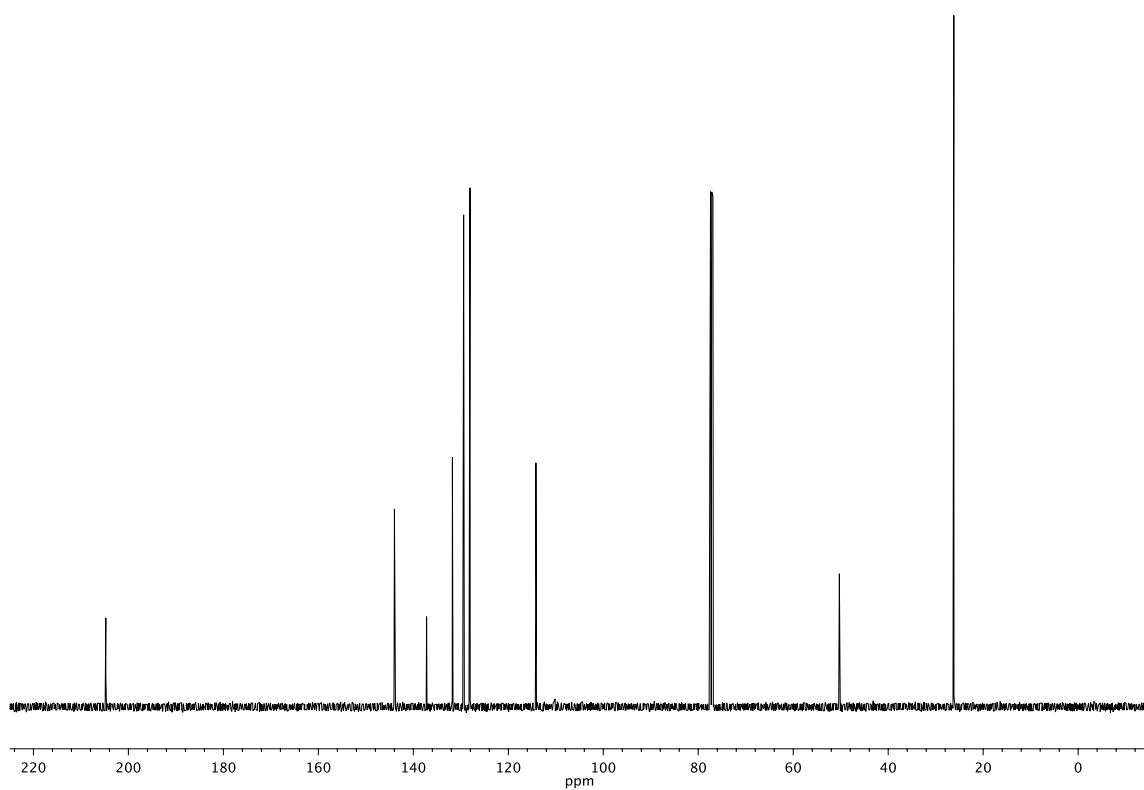


Figure A6.57 ¹³C NMR (126 MHz, CDCl₃) of compound **141f**.

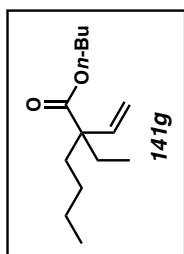
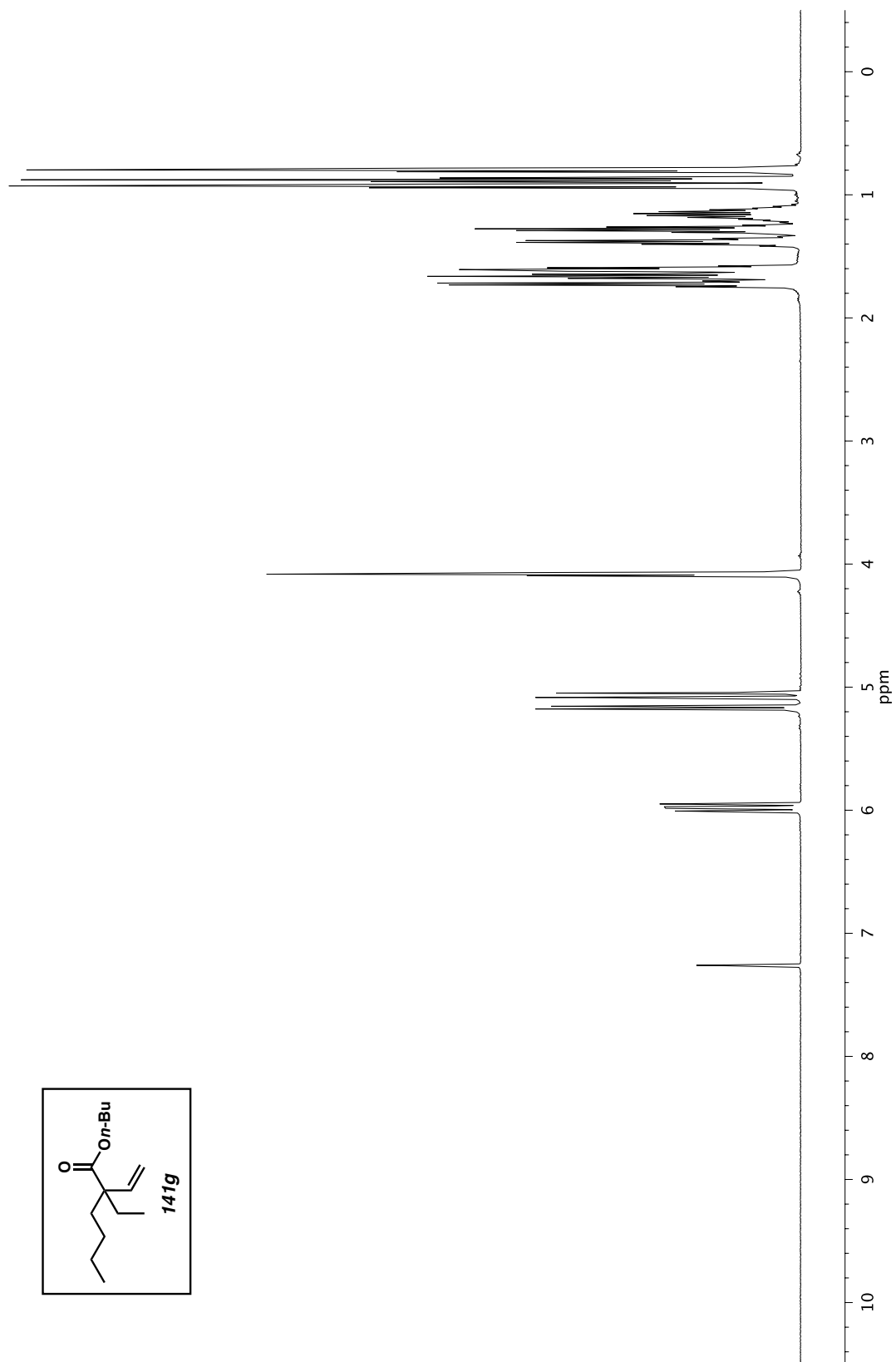


Figure A6.58 ^1H NMR (500 MHz, CDCl_3) of compound **141g**.

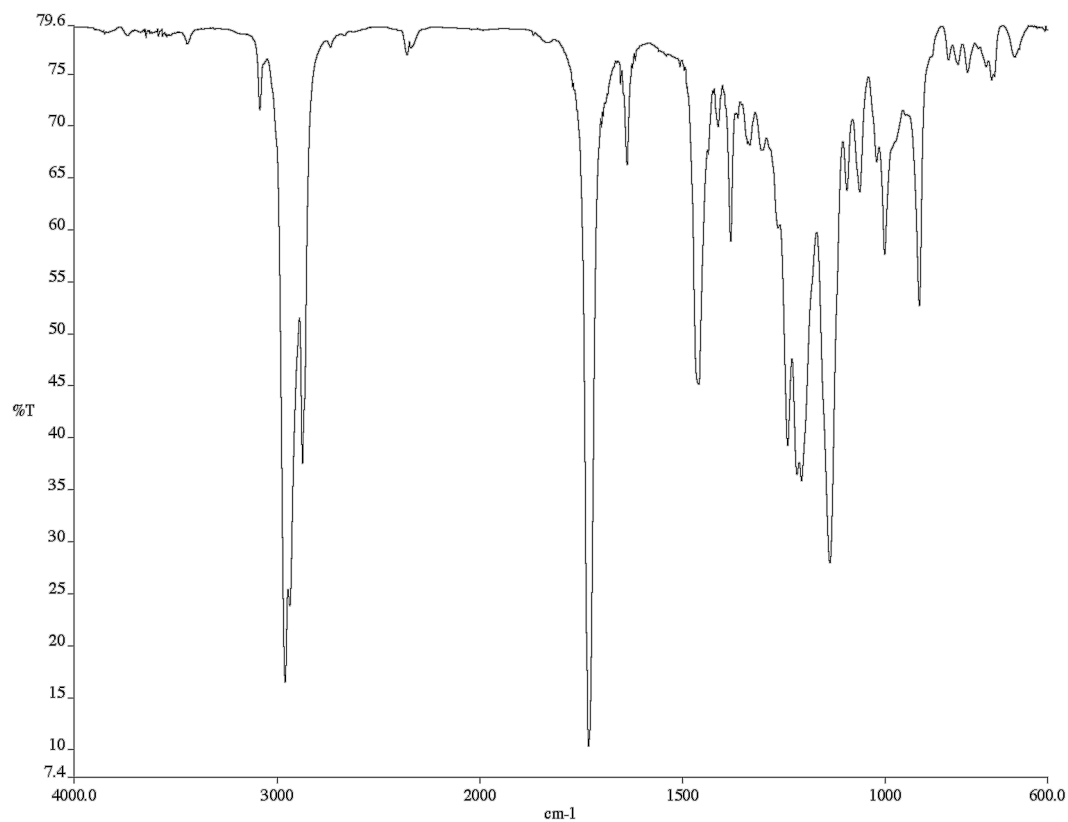


Figure A6.59 Infrared spectrum (Thin Film, NaCl) of compound **141g**.

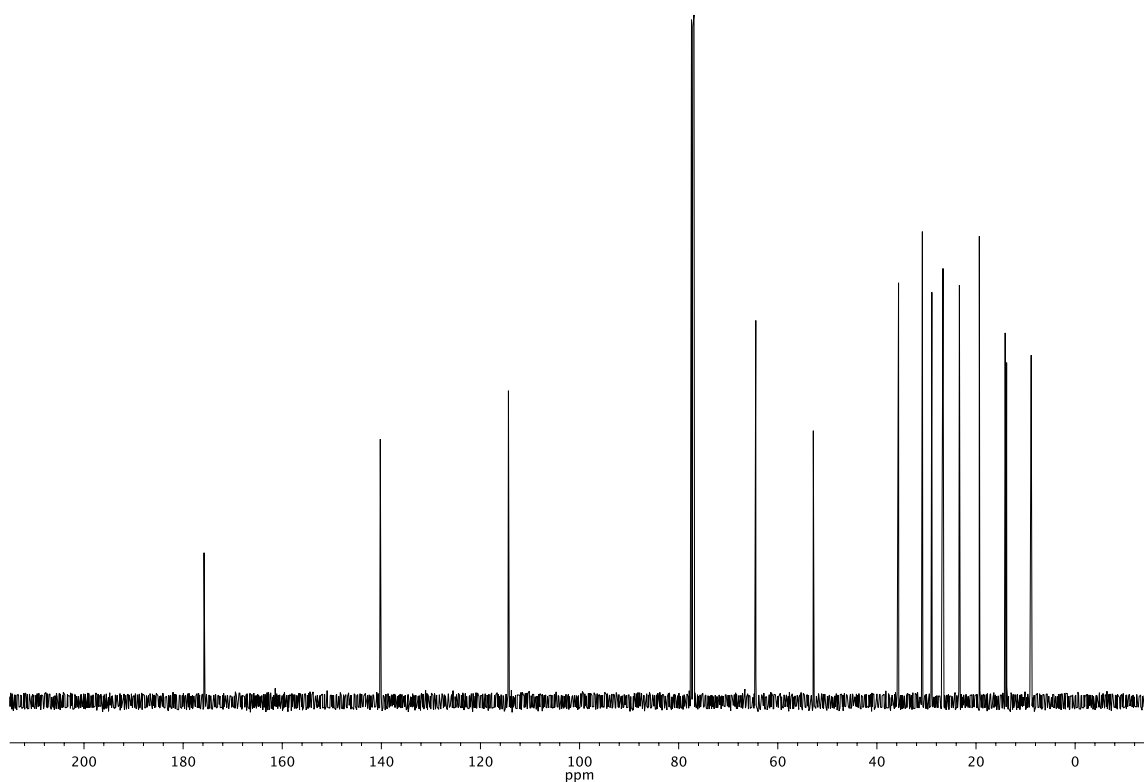


Figure A6.60 ¹³C NMR (126 MHz, CDCl₃) of compound **141g**.

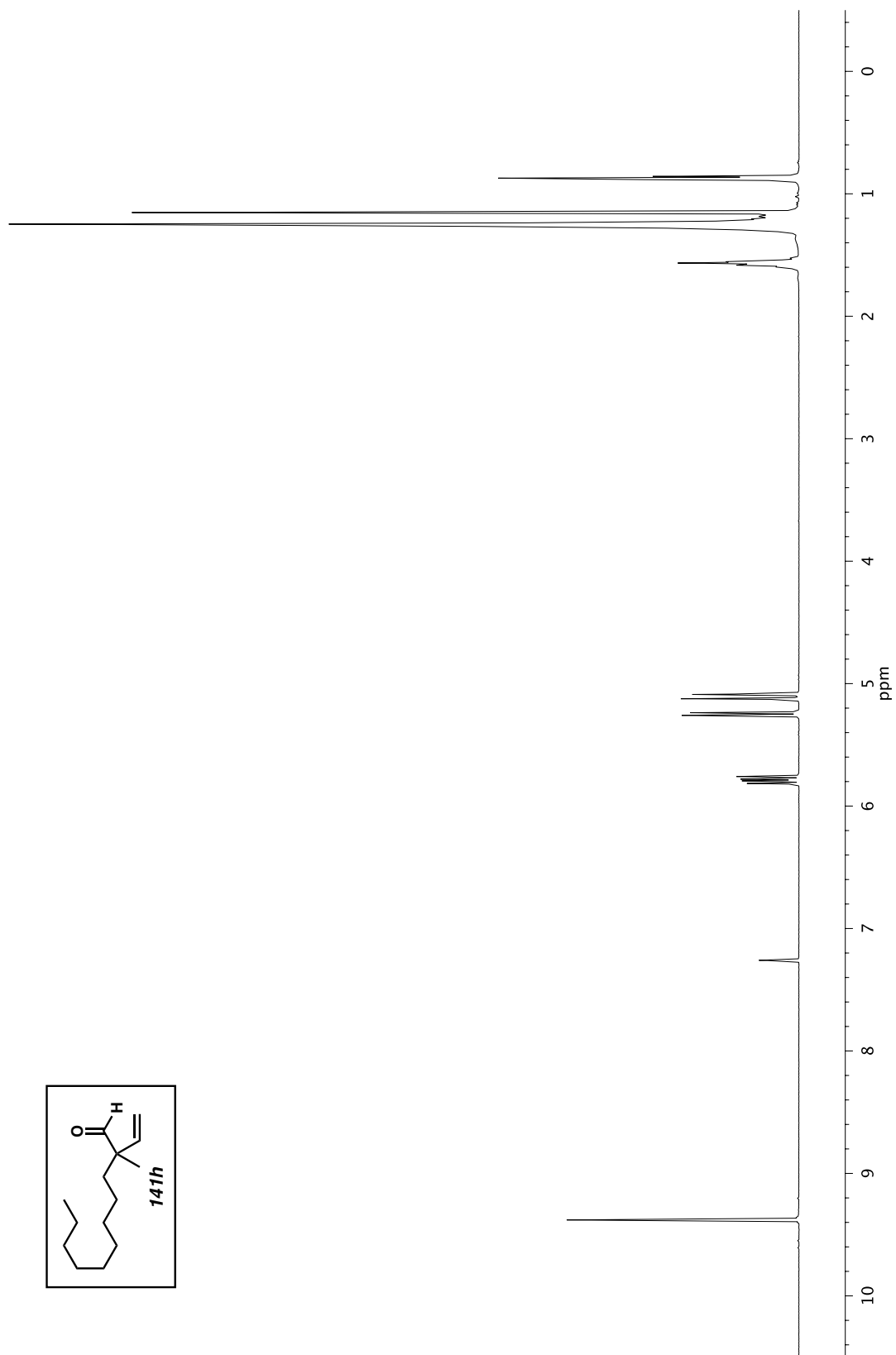


Figure A6.61 ^1H NMR (500 MHz, CDCl_3) of compound **141h**.

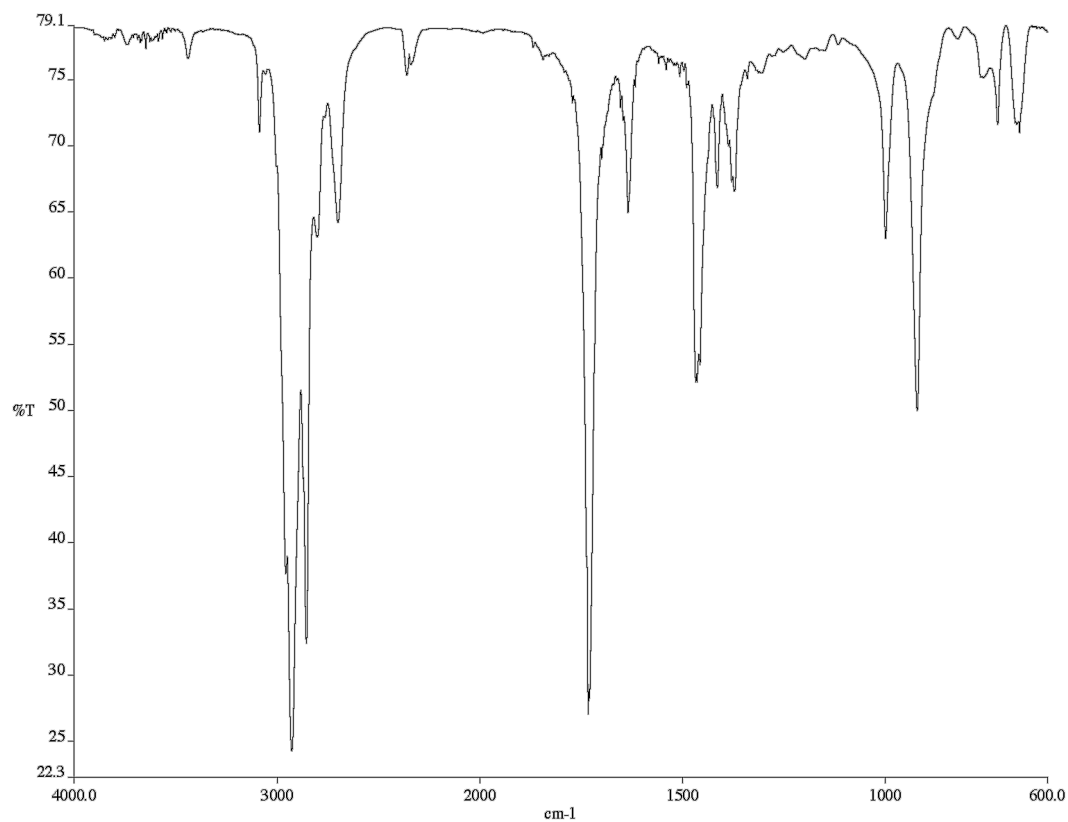


Figure A6.62 Infrared spectrum (Thin Film, NaCl) of compound **141h**.

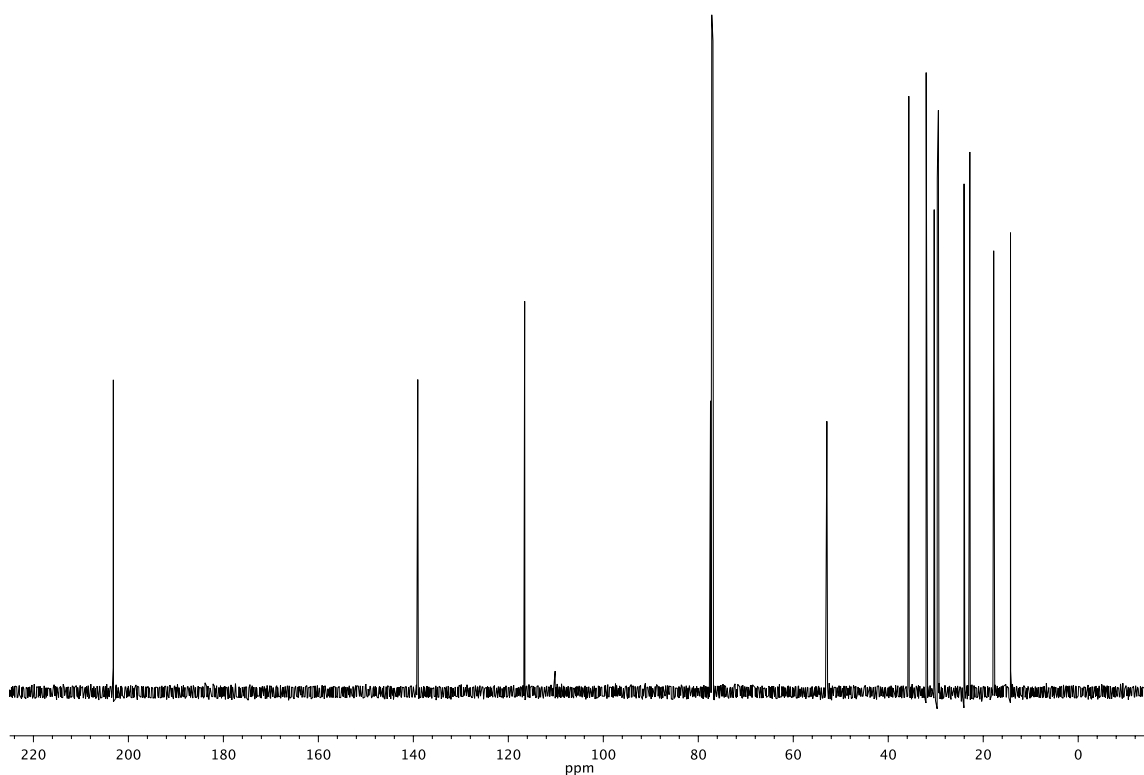


Figure A6.63 ¹³C NMR (126 MHz, CDCl₃) of compound **141h**.

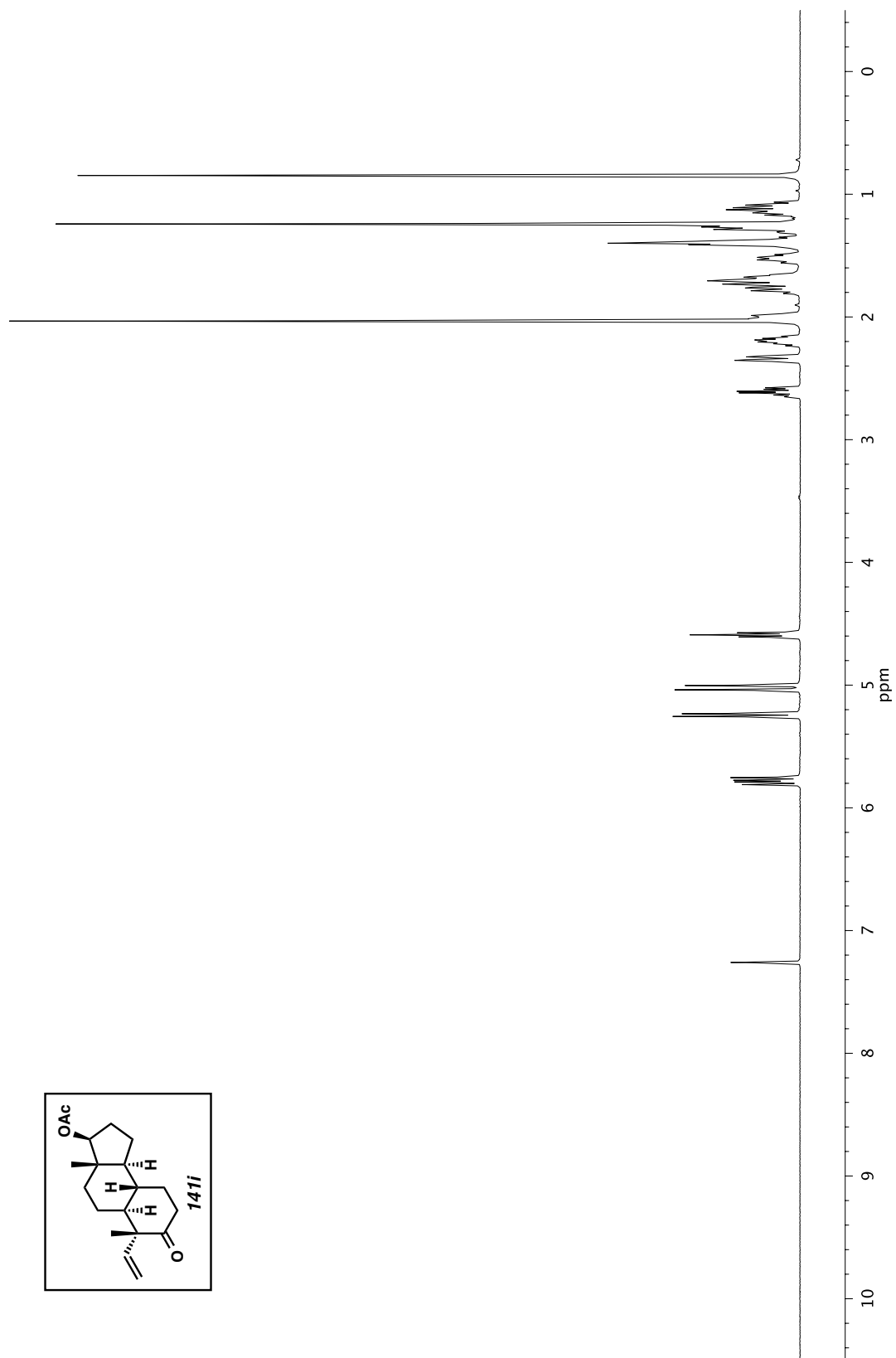


Figure A6.64 ^1H NMR (500 MHz, CDCl_3) of compound **141i**.

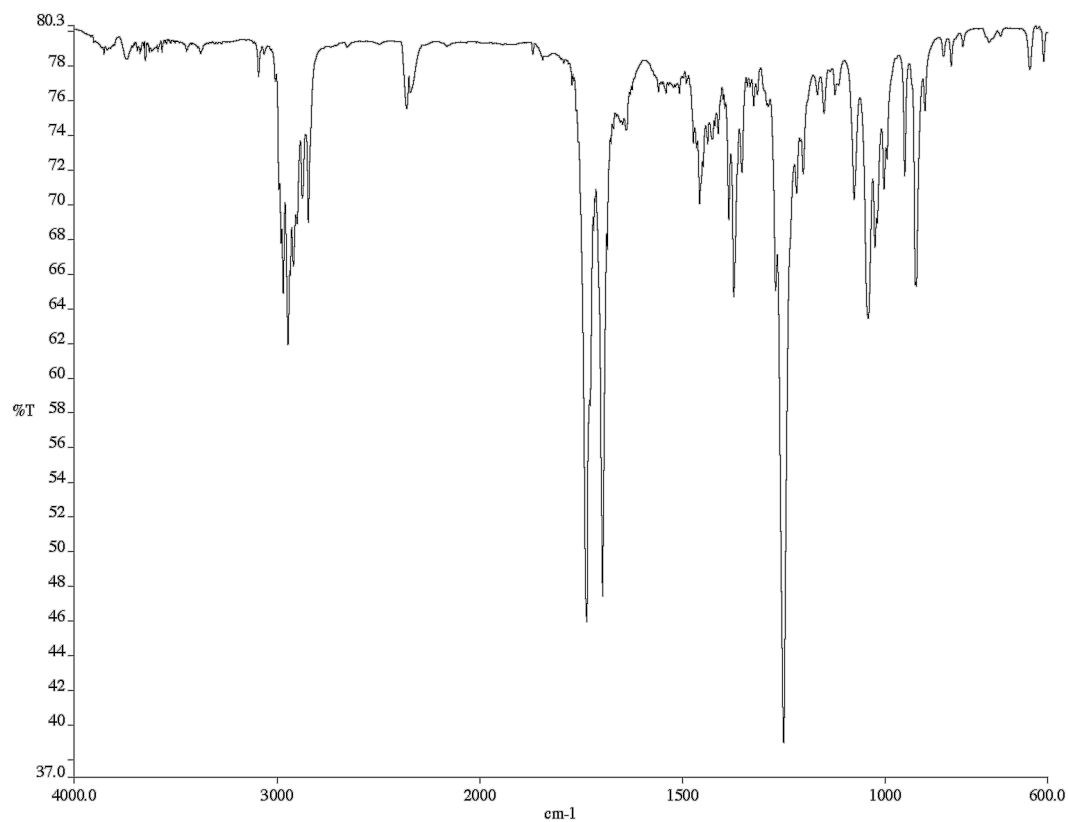


Figure A6.65 Infrared spectrum (Thin Film, NaCl) of compound **141i**.

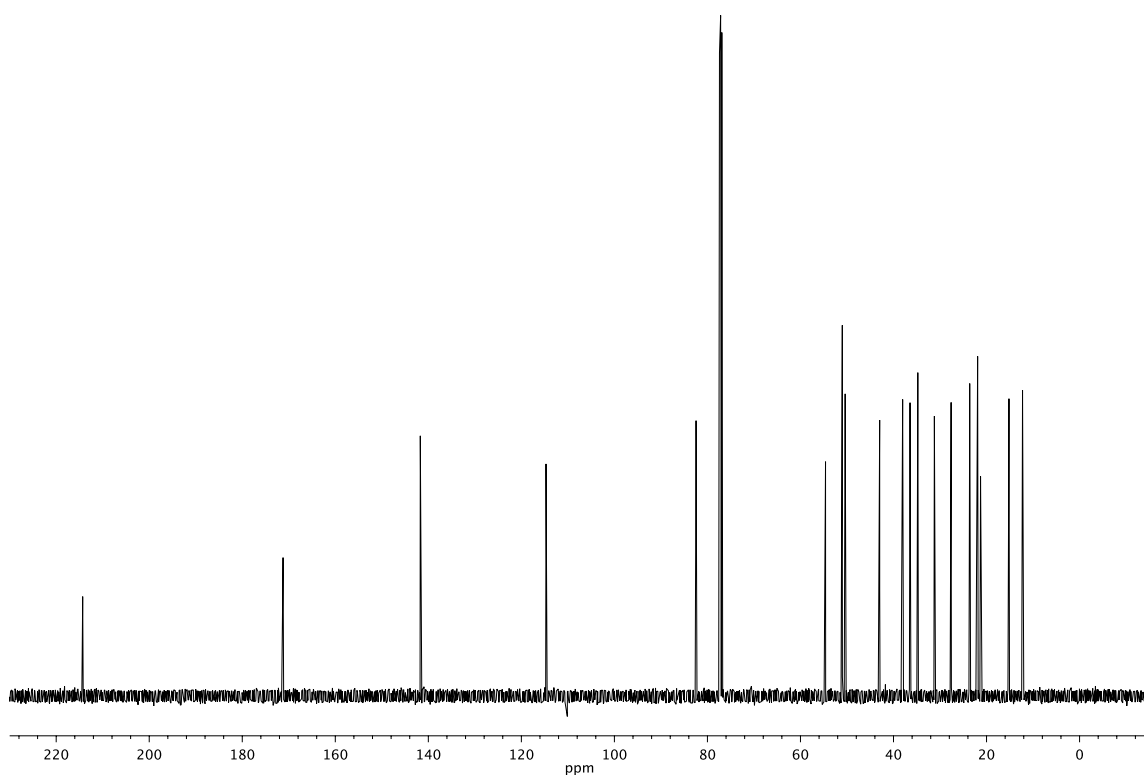


Figure A6.66 ¹³C NMR (126 MHz, CDCl₃) of compound **141i**.

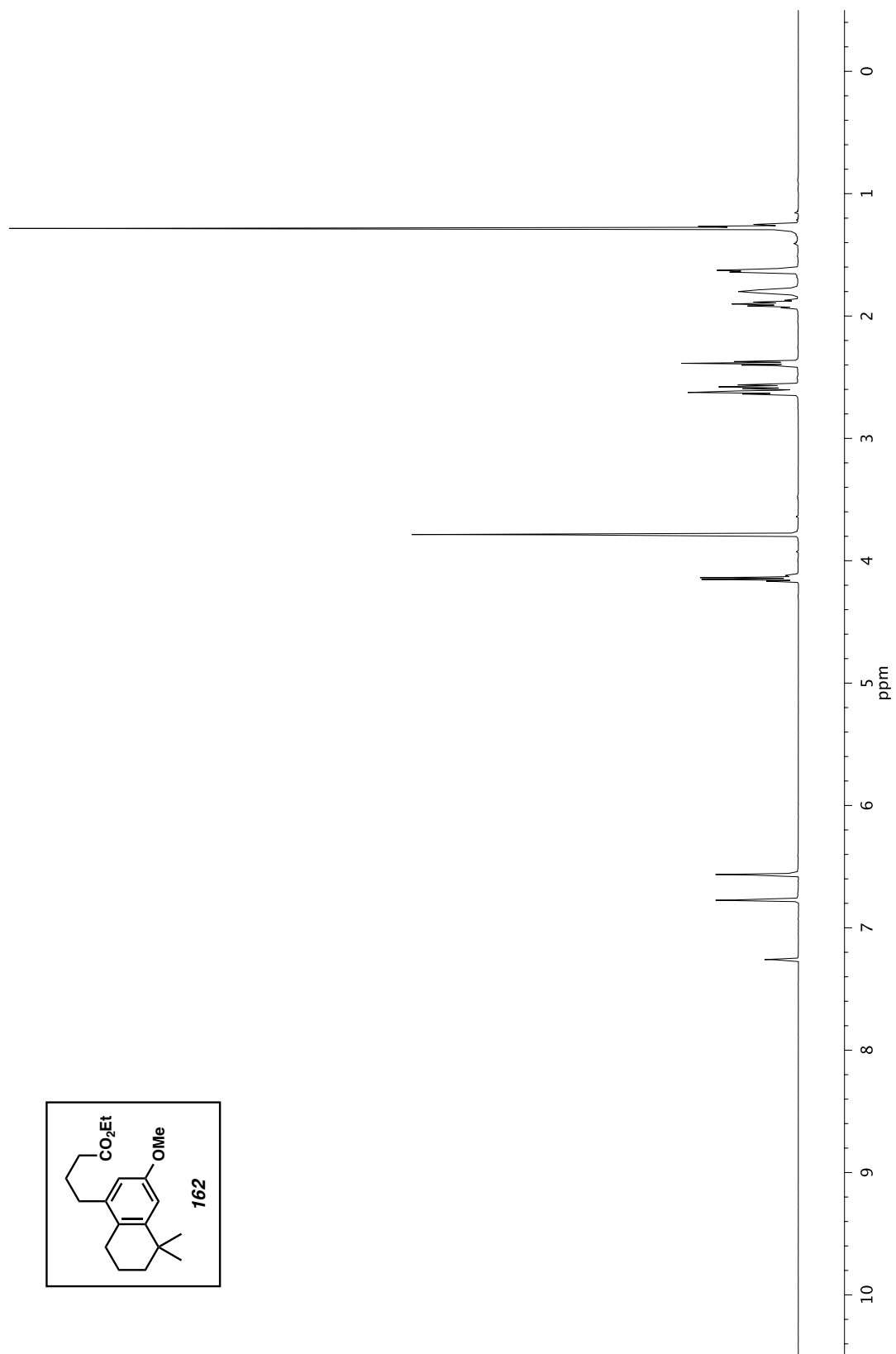


Figure A6.67 ¹H NMR (500 MHz, CDCl₃) of compound **162**.

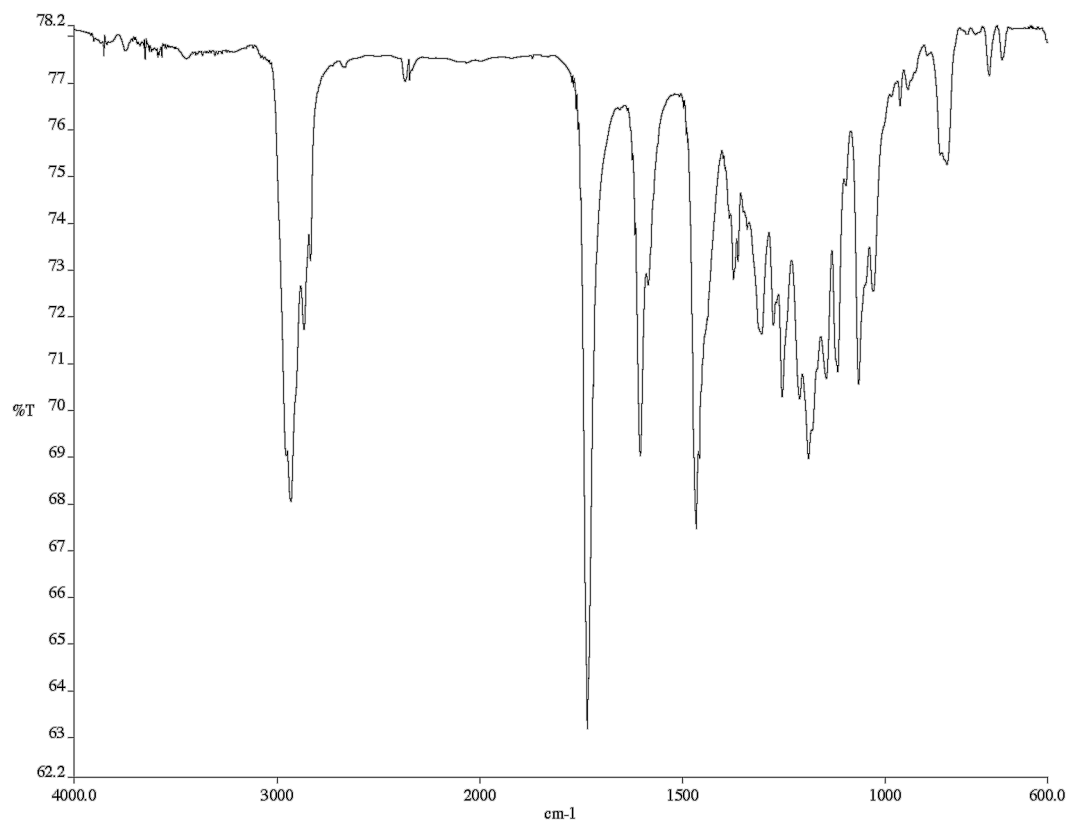


Figure A6.68 Infrared spectrum (Thin Film, NaCl) of compound **162**.

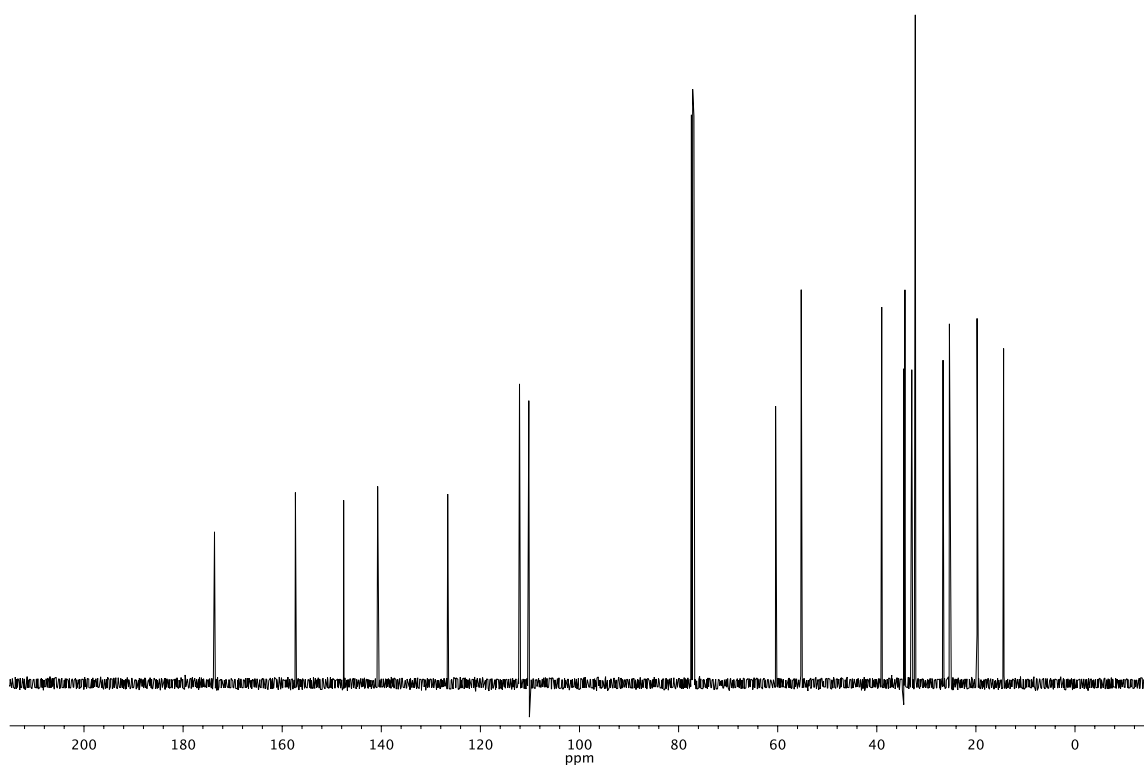
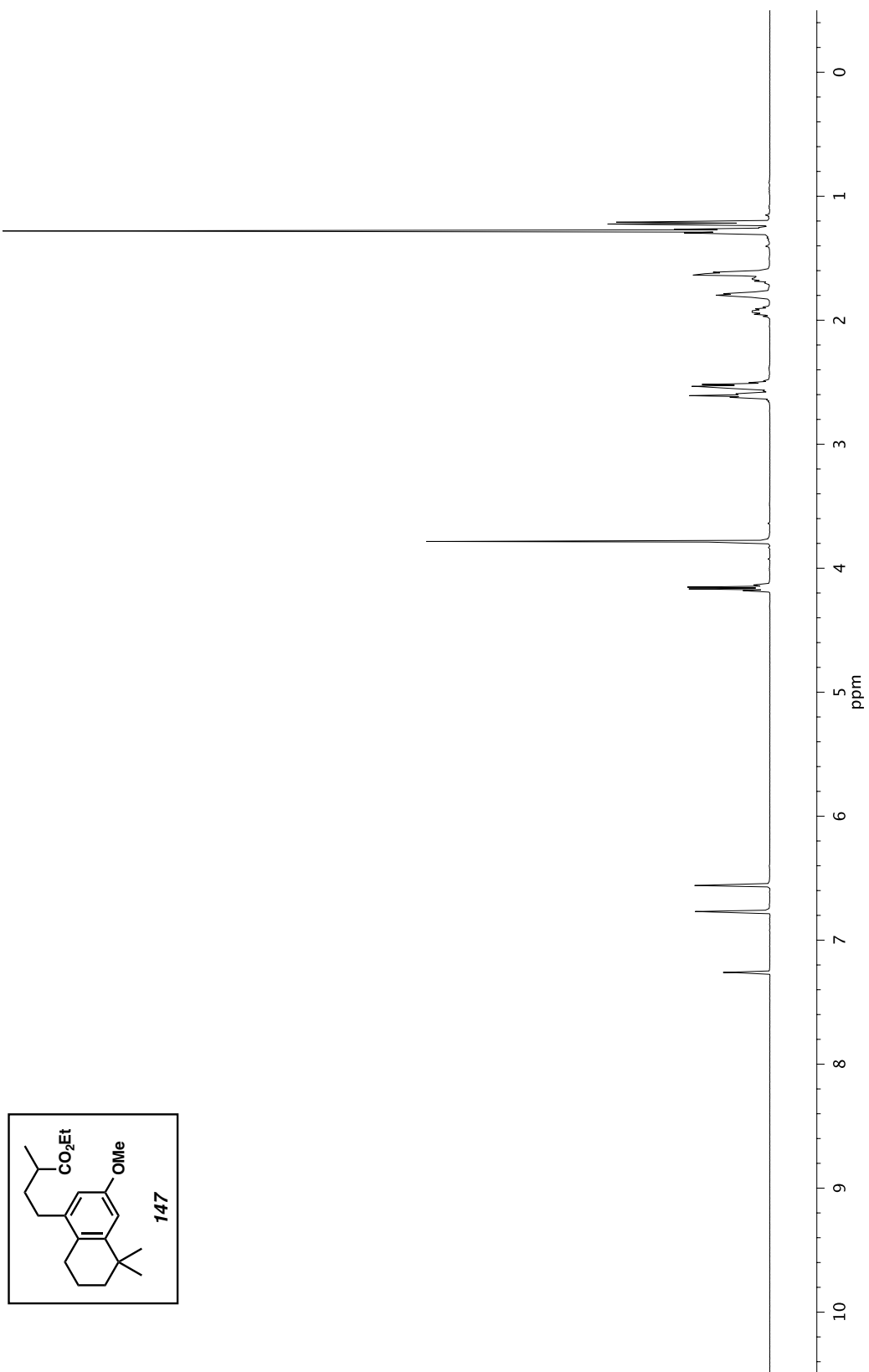


Figure A6.69 ¹³C NMR (126 MHz, CDCl₃) of compound **162**.



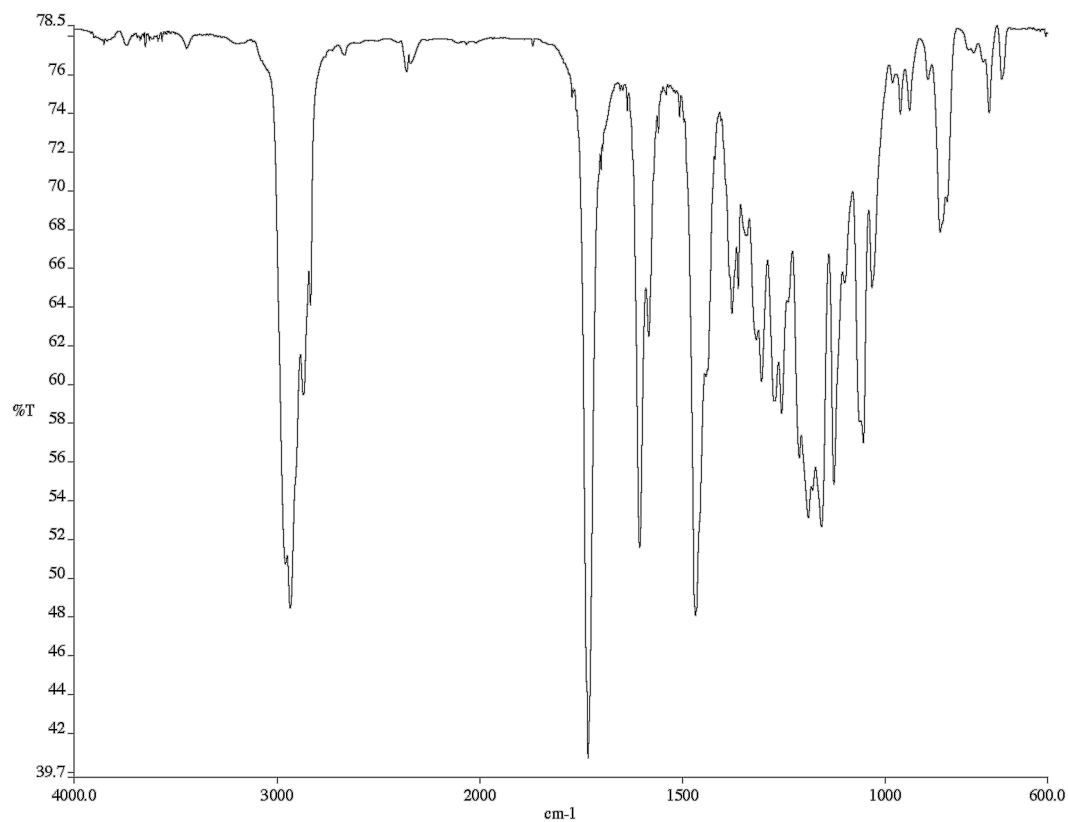


Figure A6.71 Infrared spectrum (Thin Film, NaCl) of compound **147**.

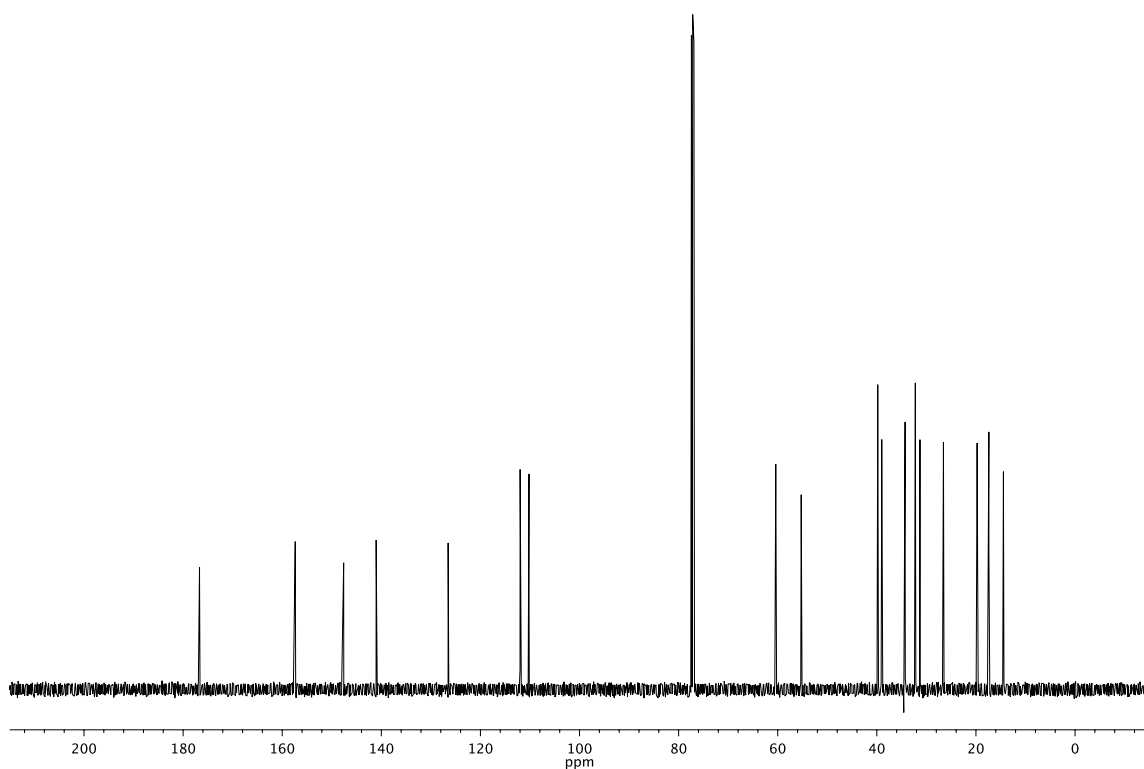


Figure A6.72 ¹³C NMR (126 MHz, CDCl₃) of compound **147**.

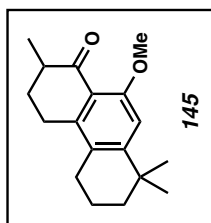
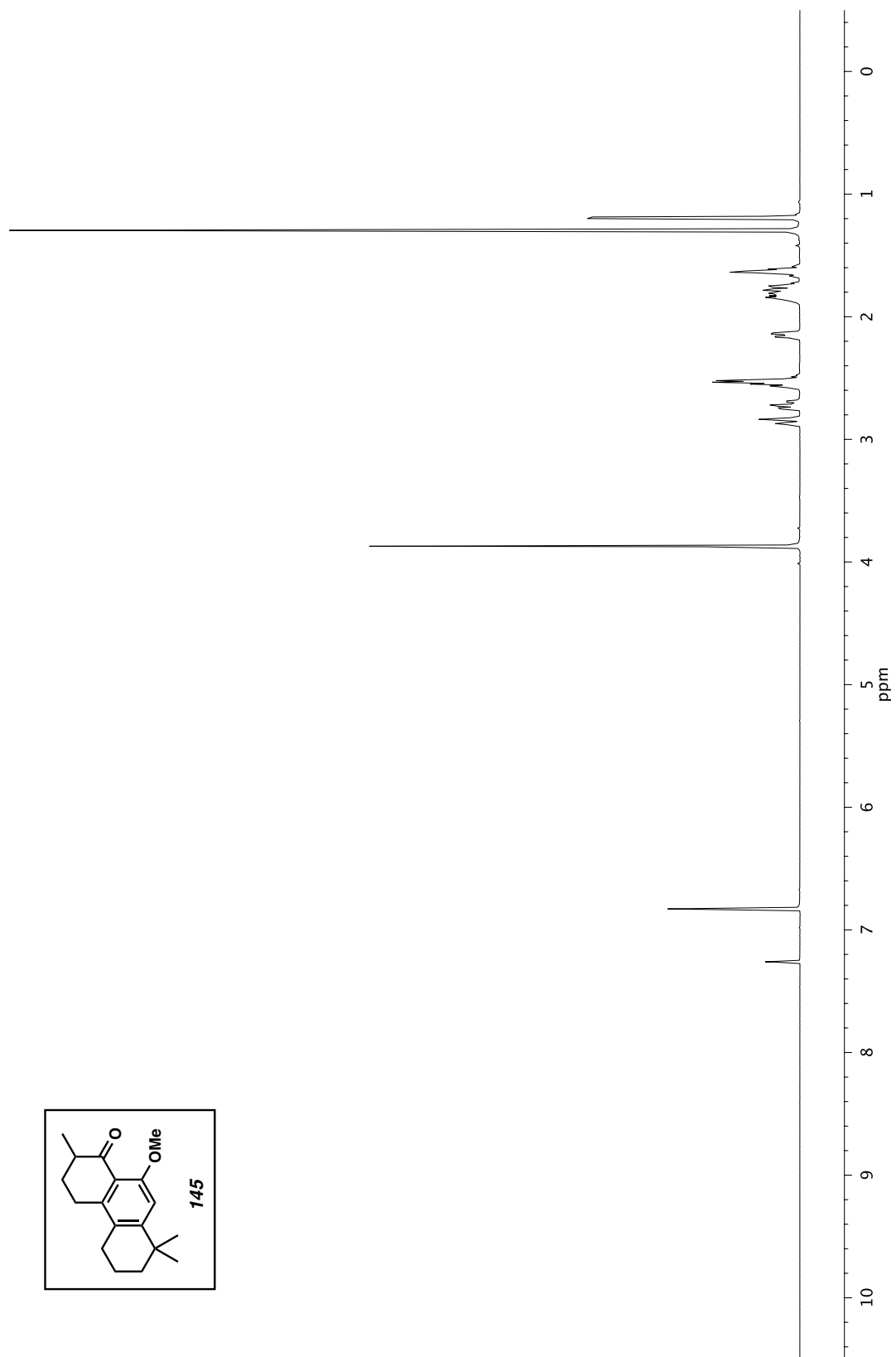


Figure A6.73 ^1H NMR (500 MHz, CDCl_3) of compound **145**.

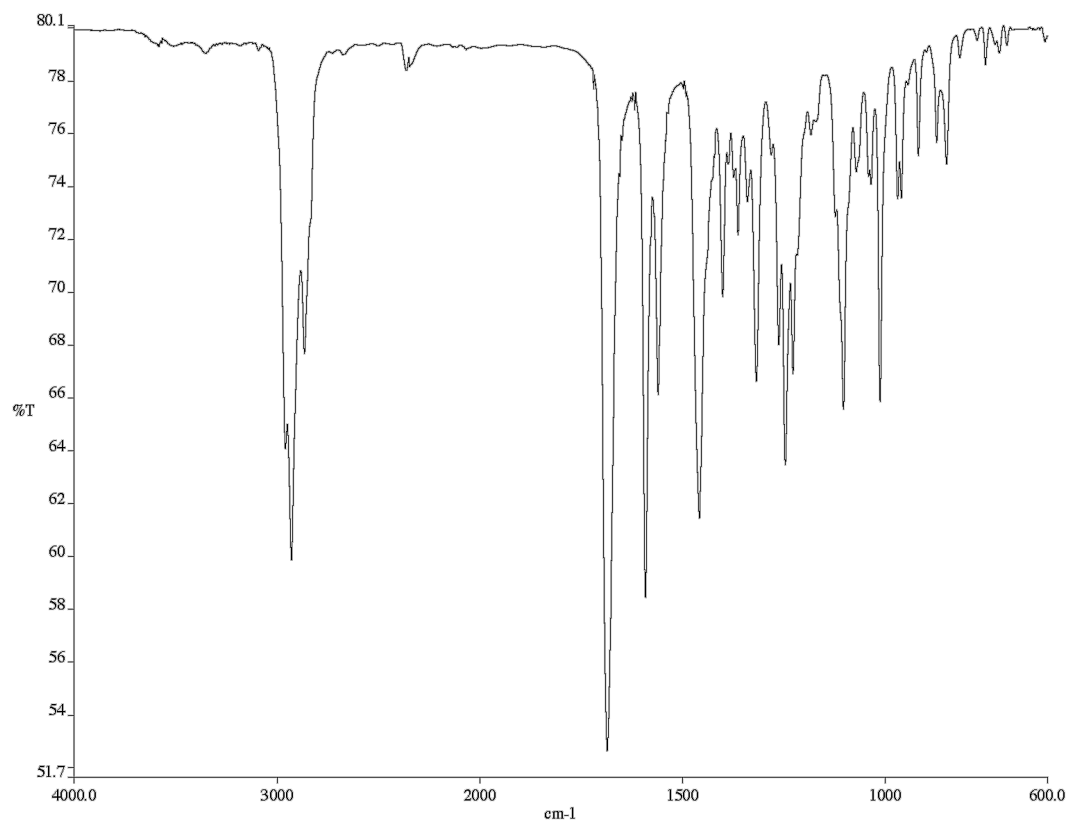


Figure A6.74 Infrared spectrum (Thin Film, NaCl) of compound **145**.

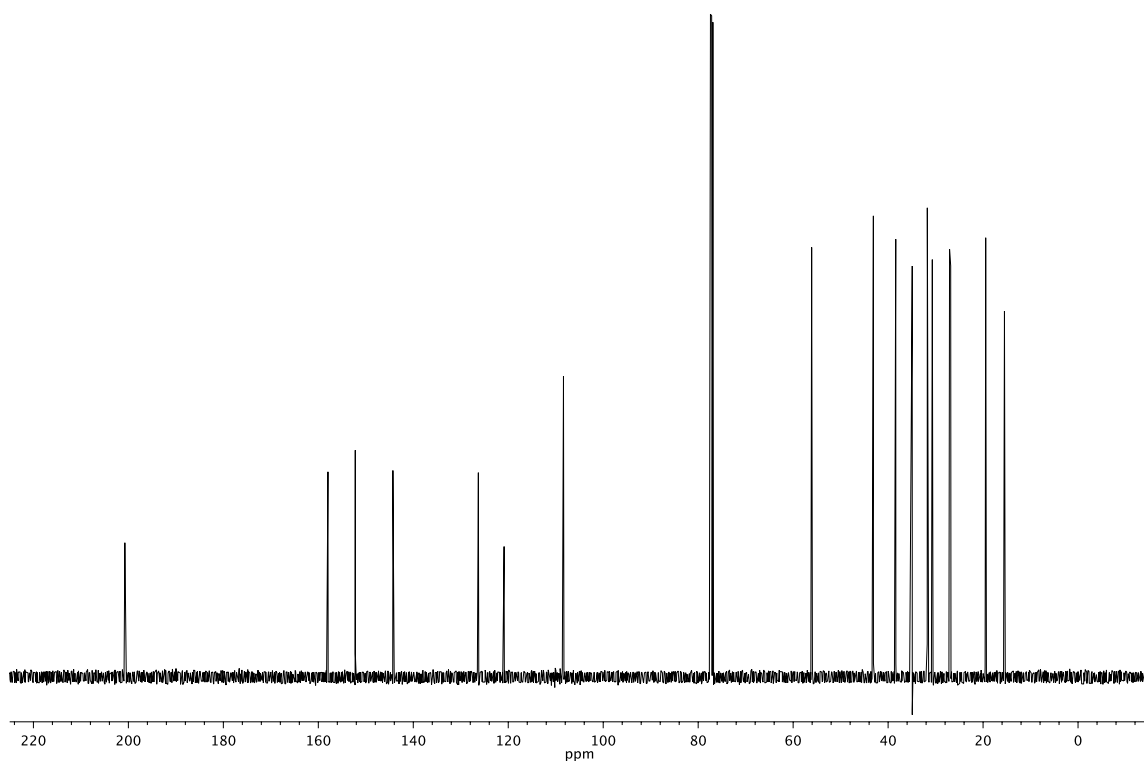


Figure A6.75 ¹³C NMR (126 MHz, CDCl₃) of compound **145**.

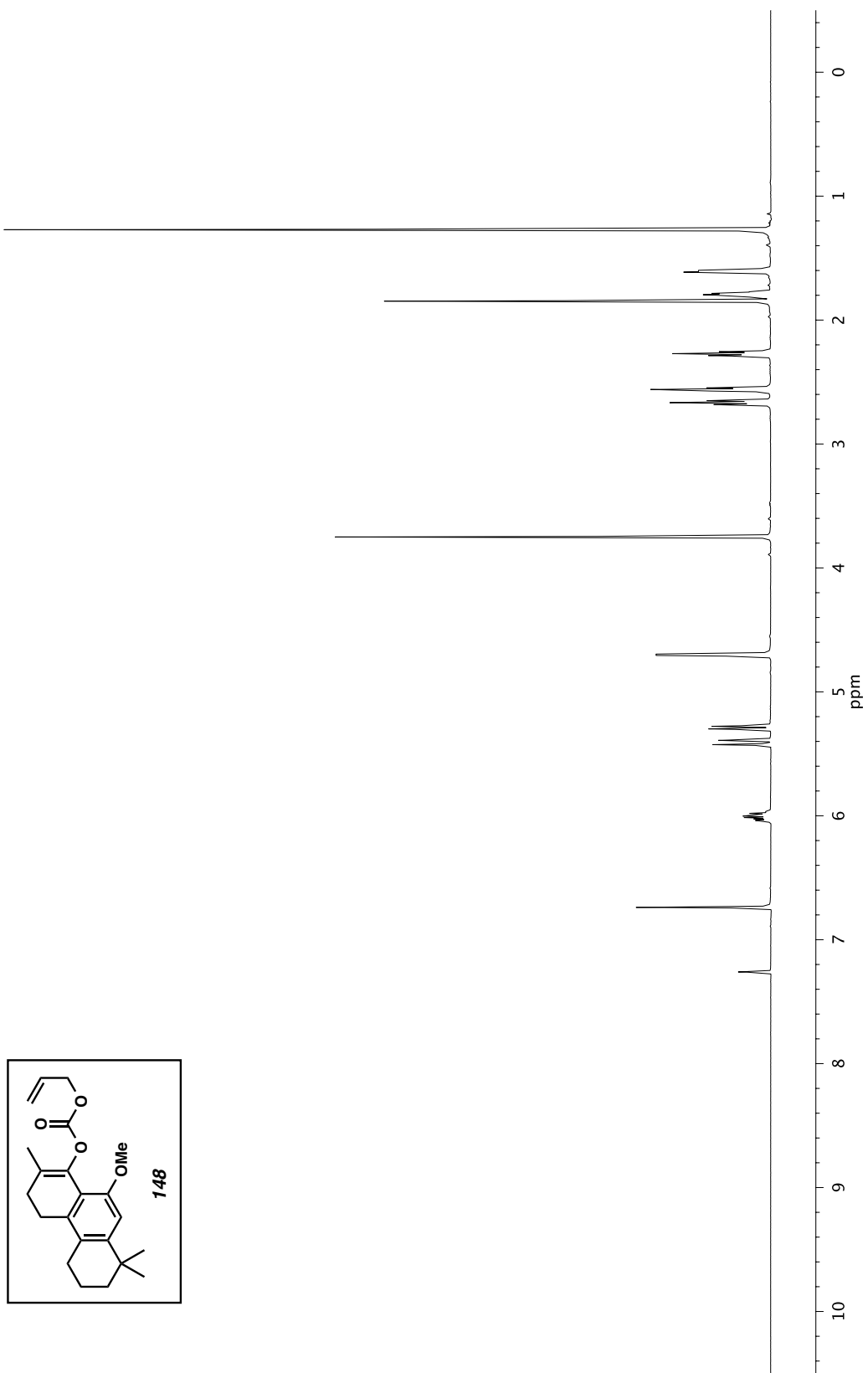


Figure A6.76 ¹H NMR (500 MHz, CDCl₃) of compound 148.

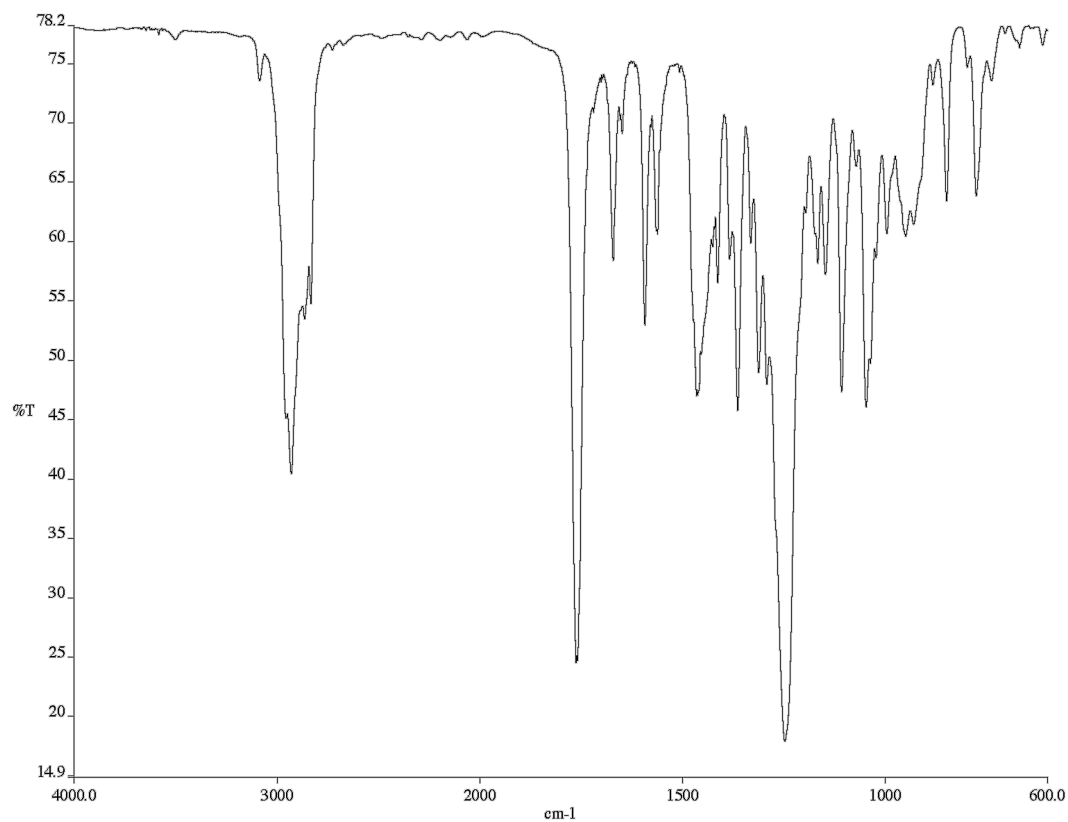


Figure A6.77 Infrared spectrum (Thin Film, NaCl) of compound **148**.

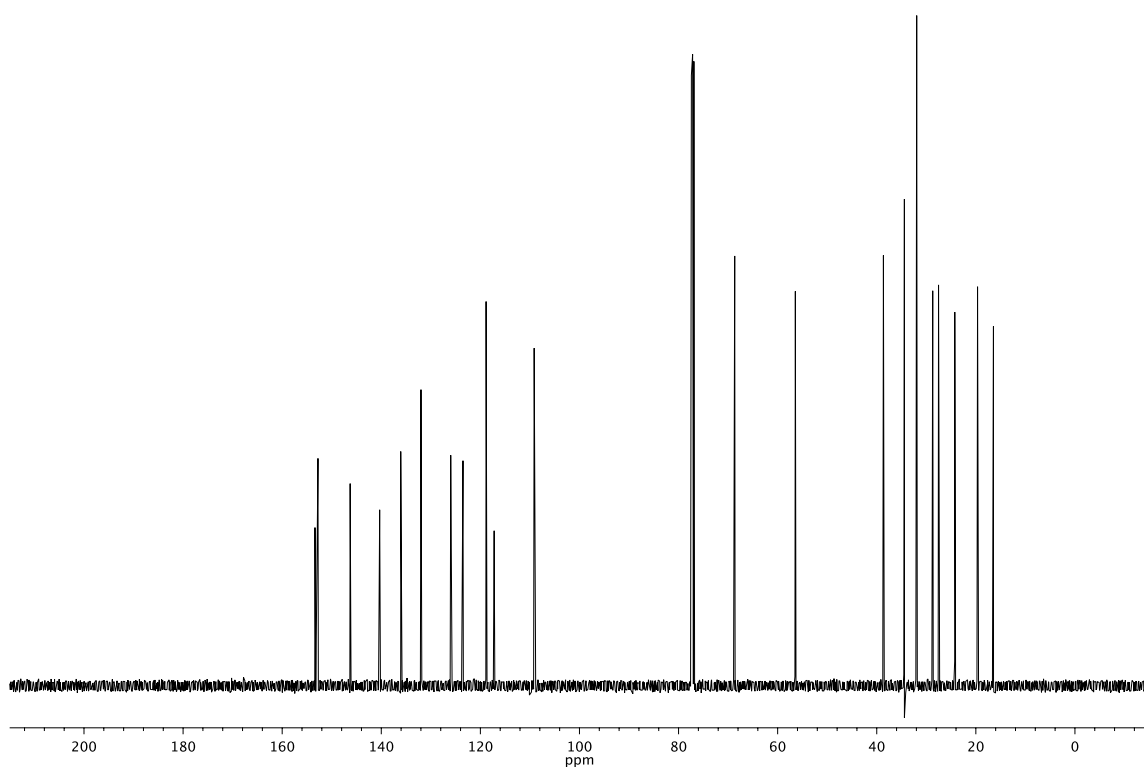


Figure A6.78 ¹³C NMR (126 MHz, CDCl₃) of compound **148**.

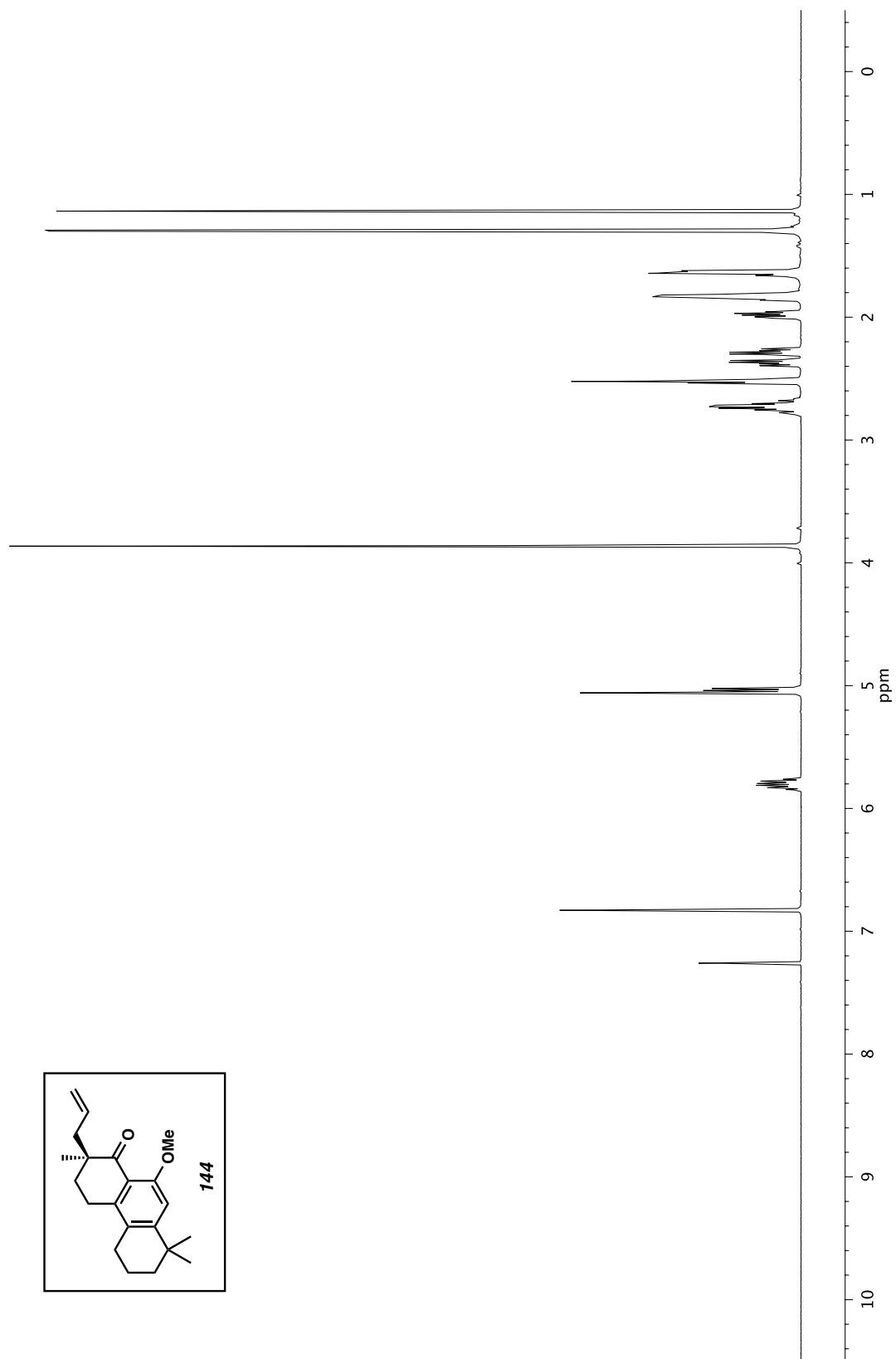


Figure A6.79 ^1H NMR (500 MHz, CDCl_3) of compound **144**.

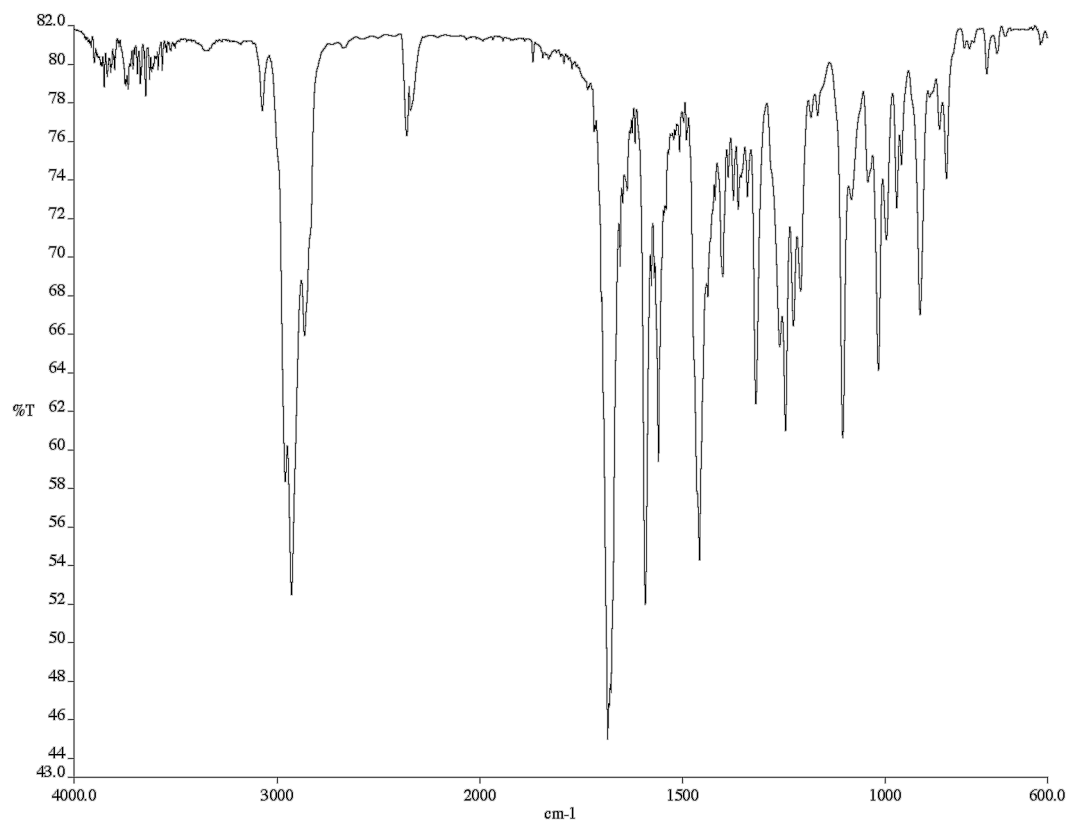


Figure A6.80 Infrared spectrum (Thin Film, NaCl) of compound **144**.

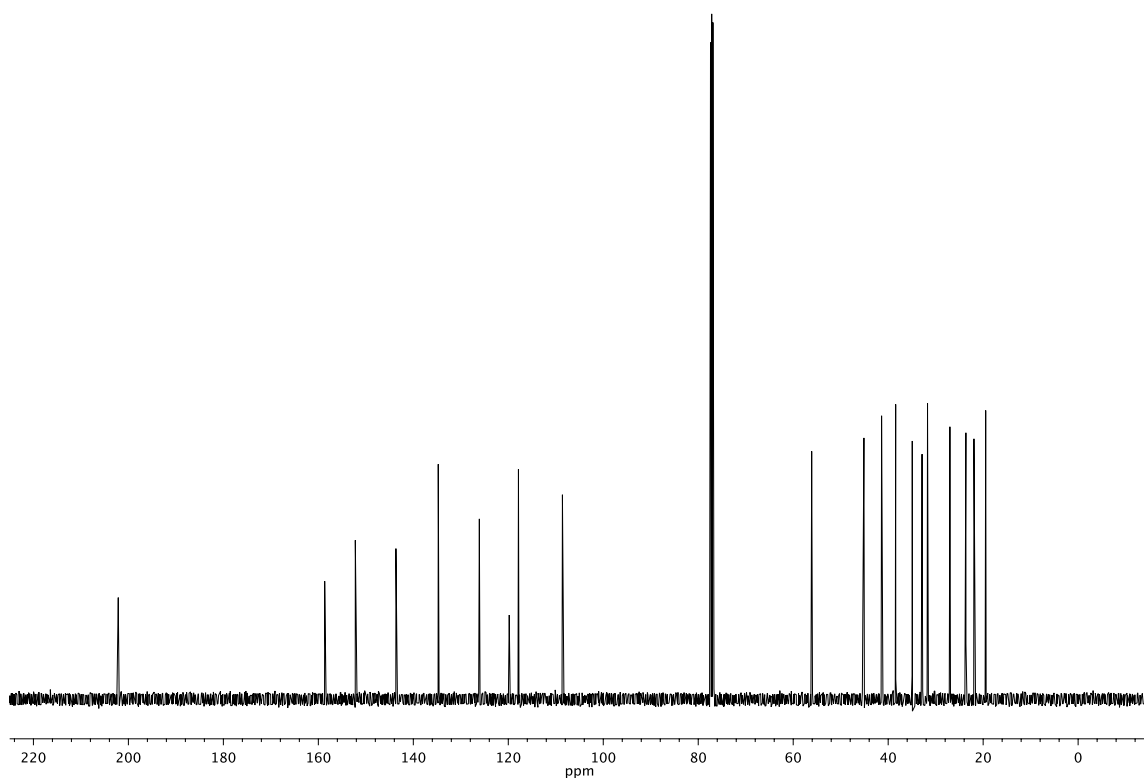


Figure A6.81 ¹³C NMR (126 MHz, CDCl₃) of compound **144**.

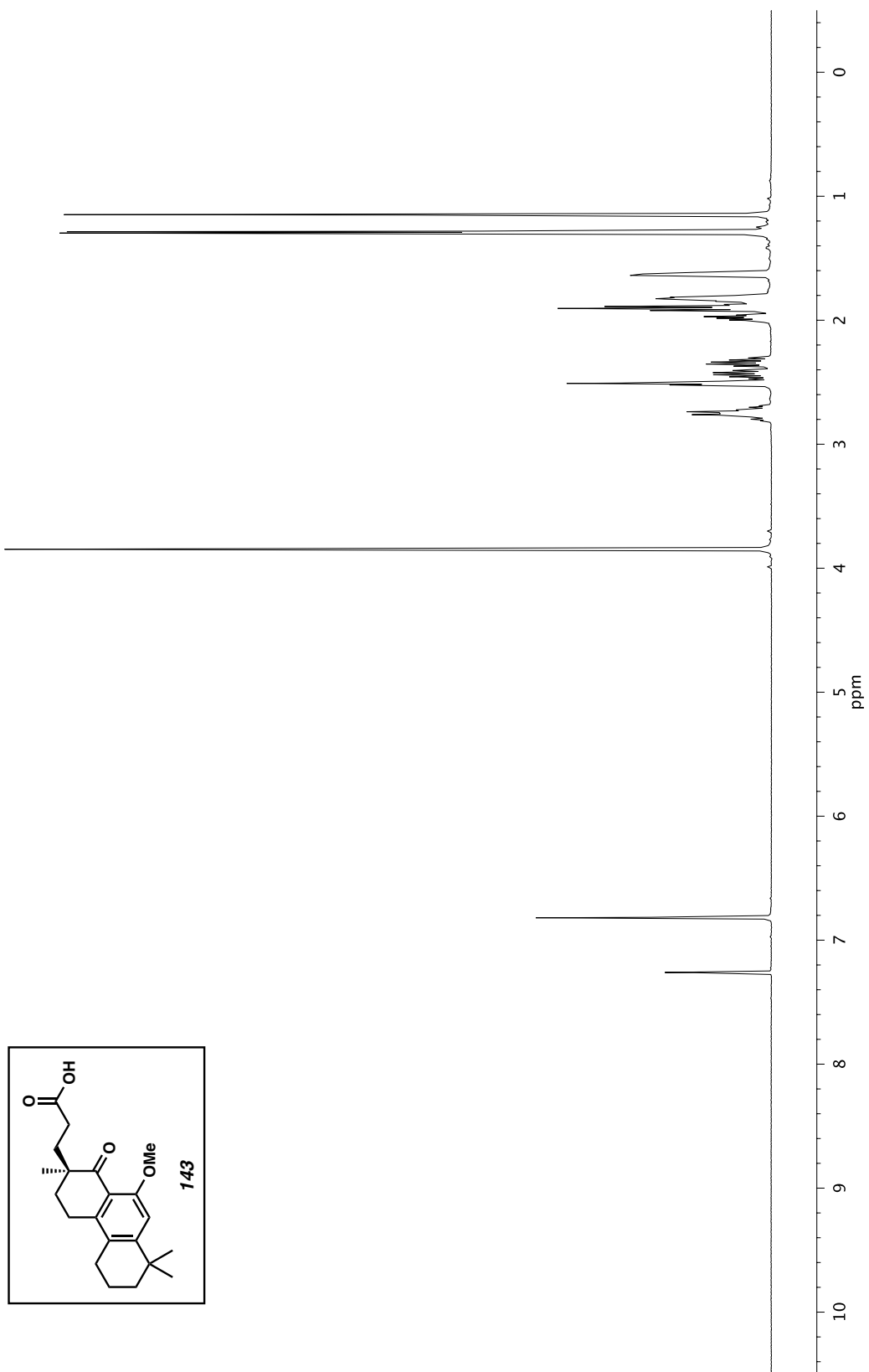


Figure A6.82 ^1H NMR (500 MHz, CDCl_3) of compound **143**.

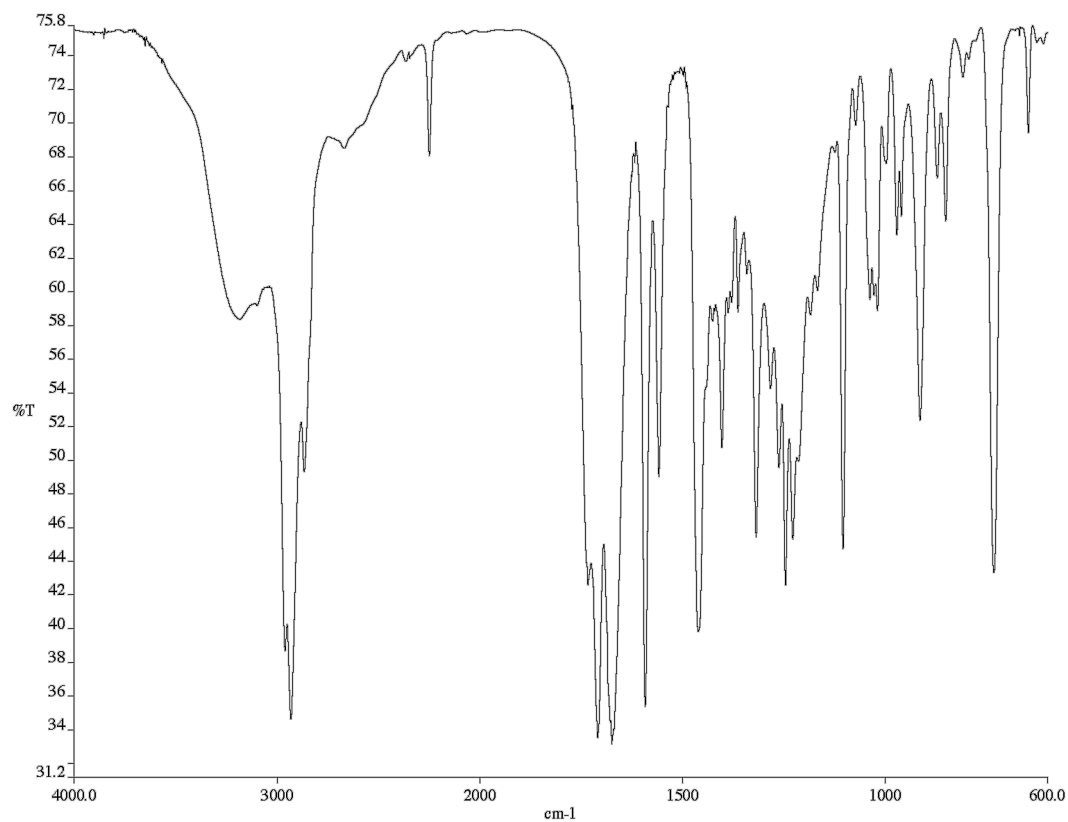


Figure A6.83 Infrared spectrum (Thin Film, NaCl) of compound **143**.

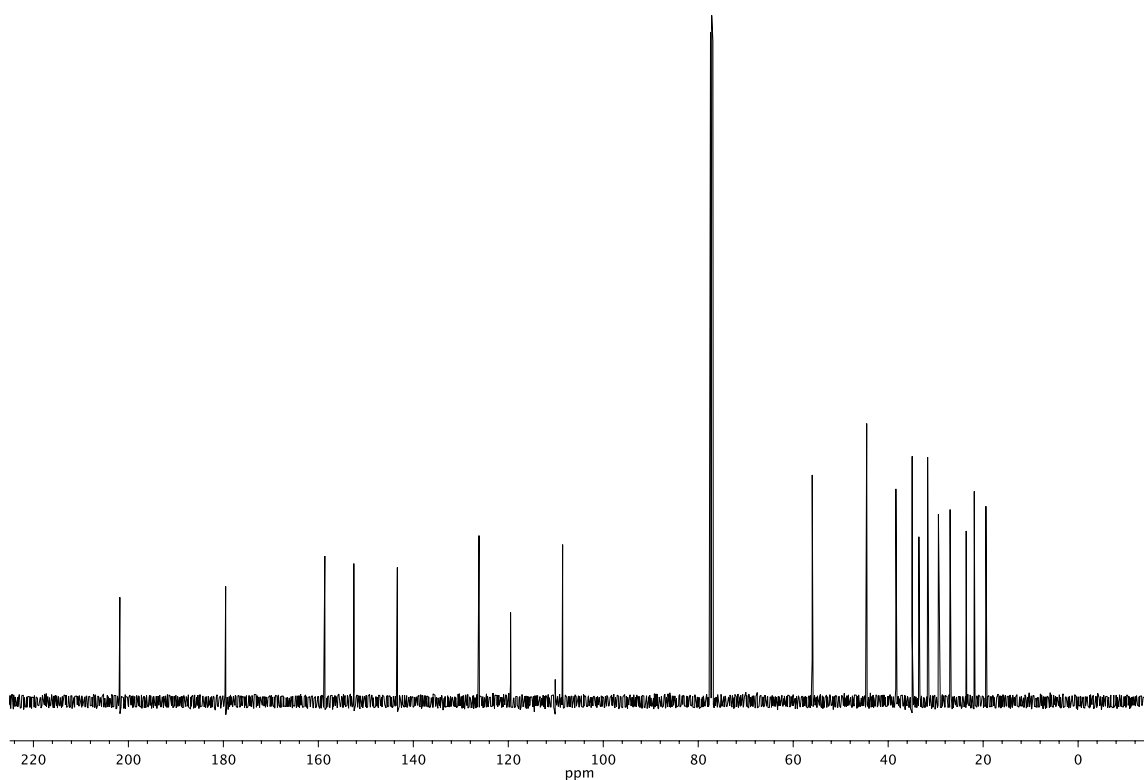


Figure A6.84 ^{13}C NMR (126 MHz, CDCl_3) of compound **143**.

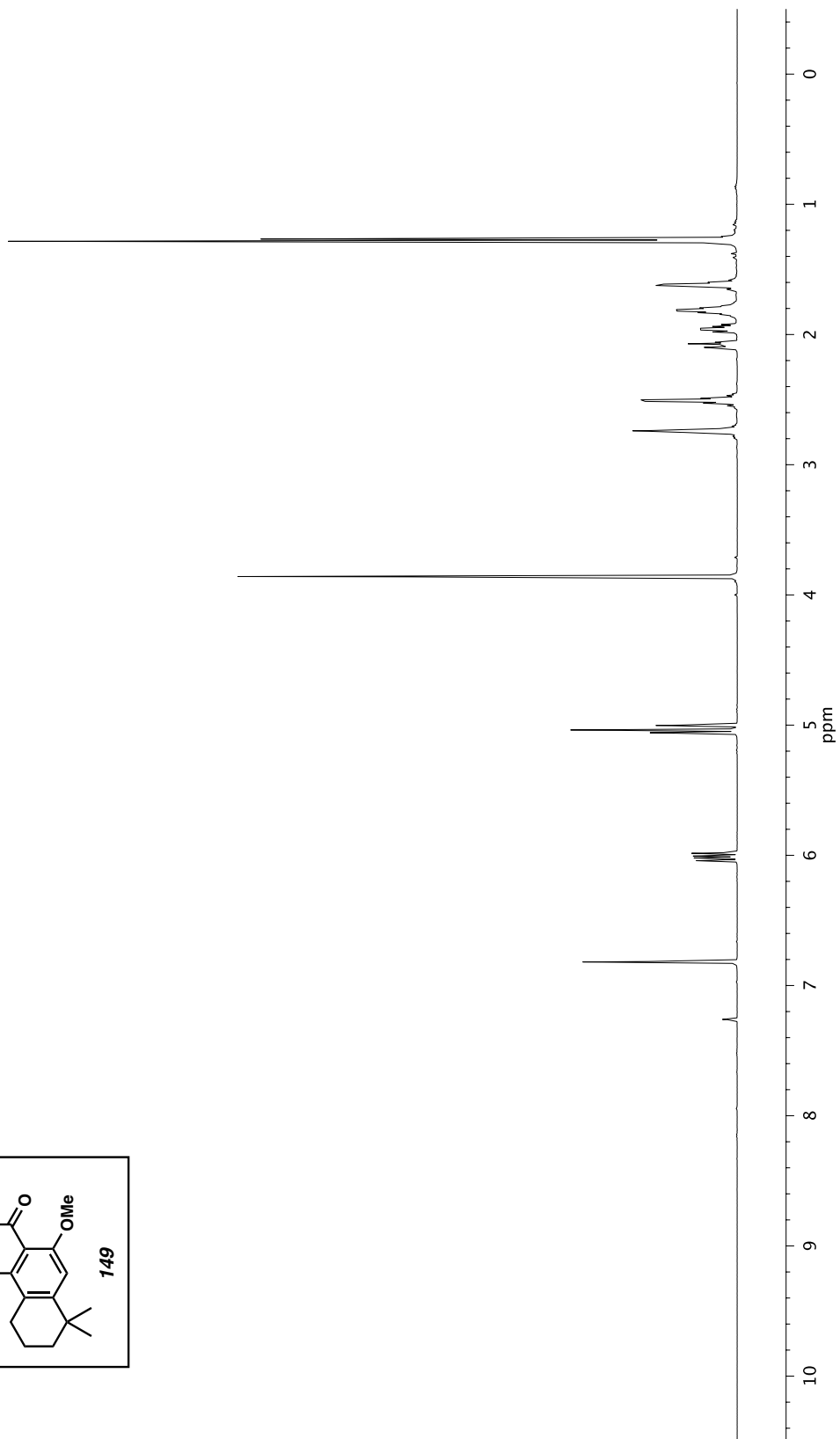
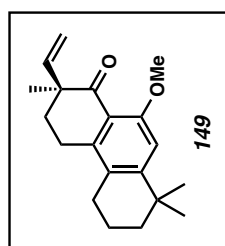


Figure A6.85 ^1H NMR (500 MHz, CDCl_3) of compound **149**.

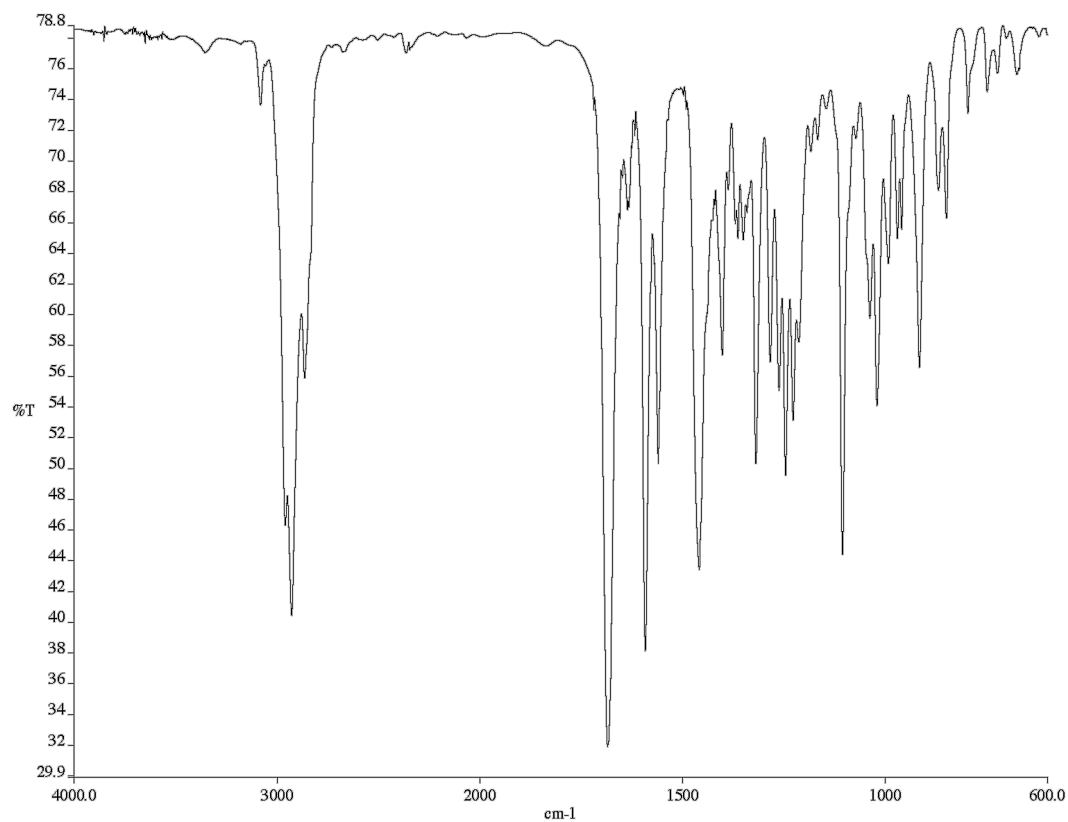


Figure A6.86 Infrared spectrum (Thin Film, NaCl) of compound **149**.

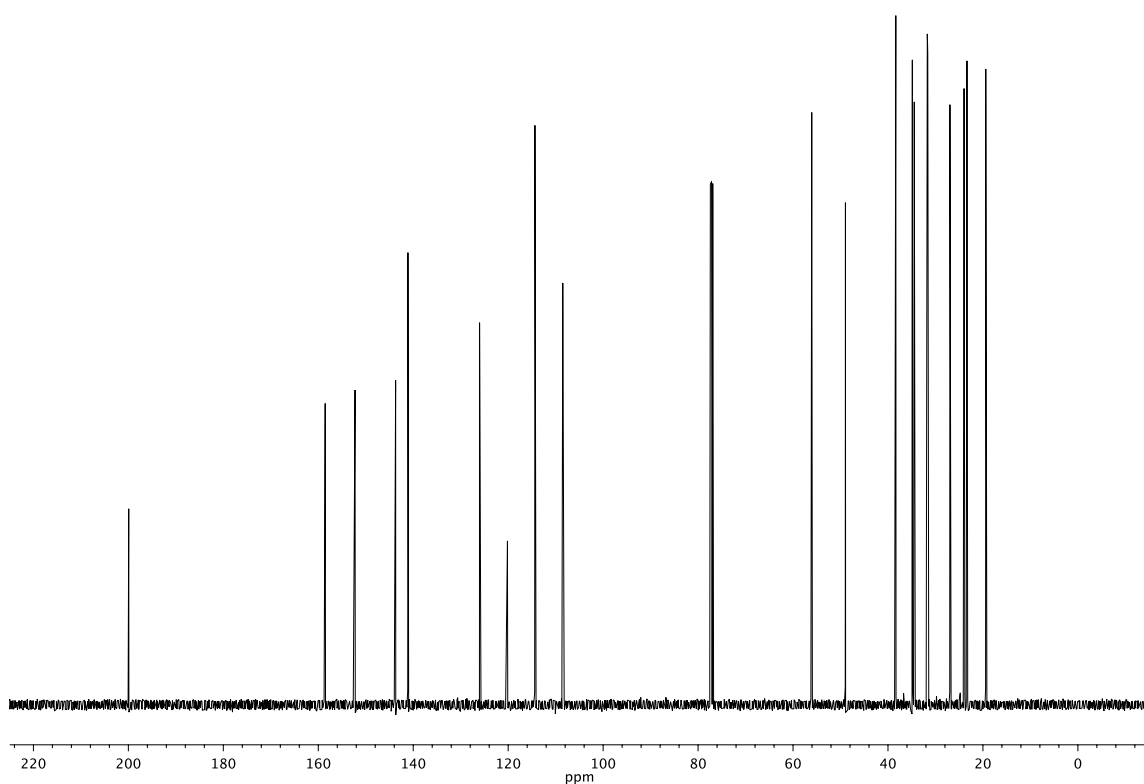


Figure A6.87 ¹³C NMR (126 MHz, CDCl₃) of compound **149**.

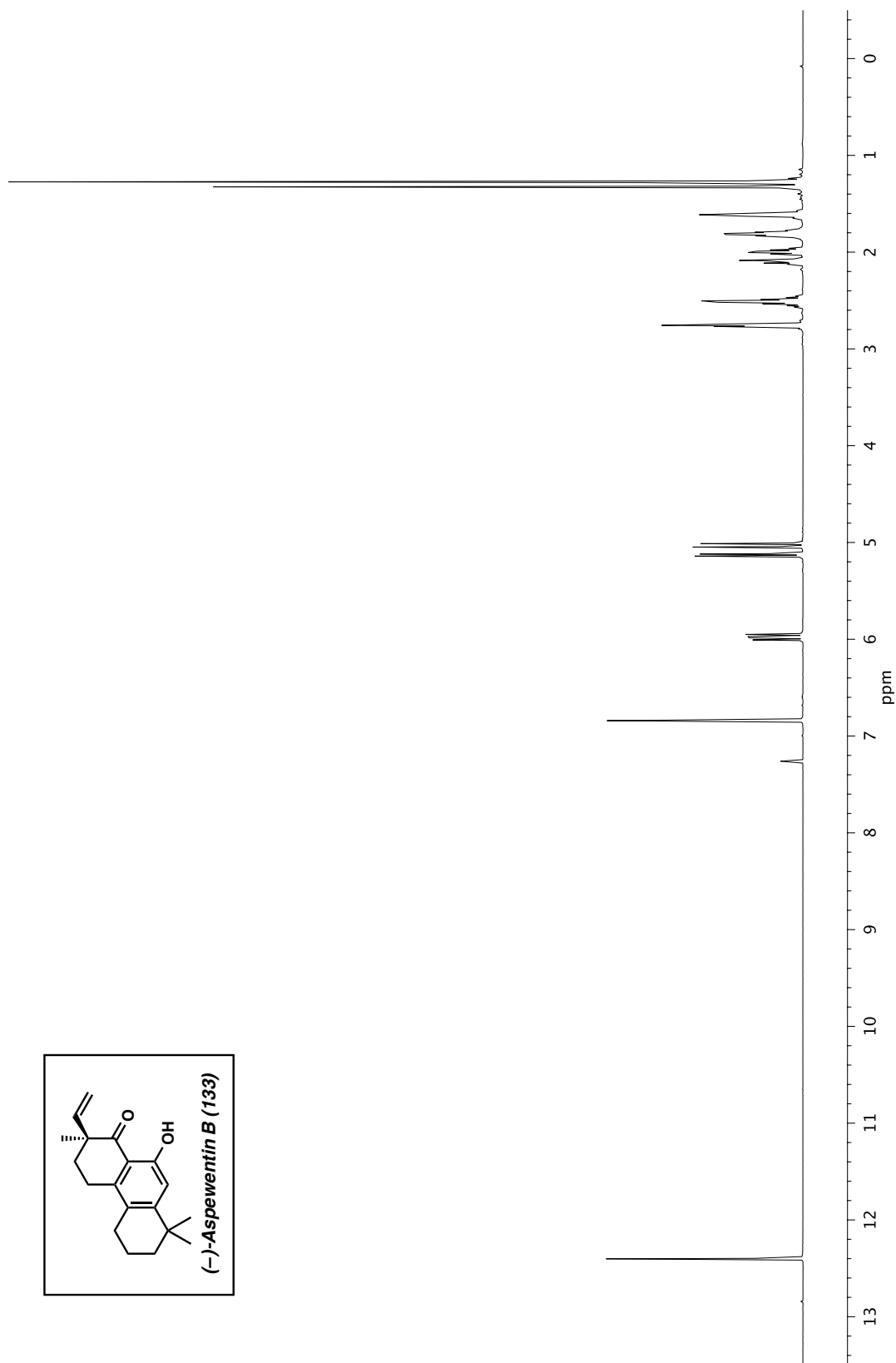
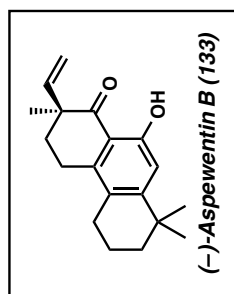


Figure A6.88 ¹H NMR (500 MHz, CDCl₃) of compound **133**.

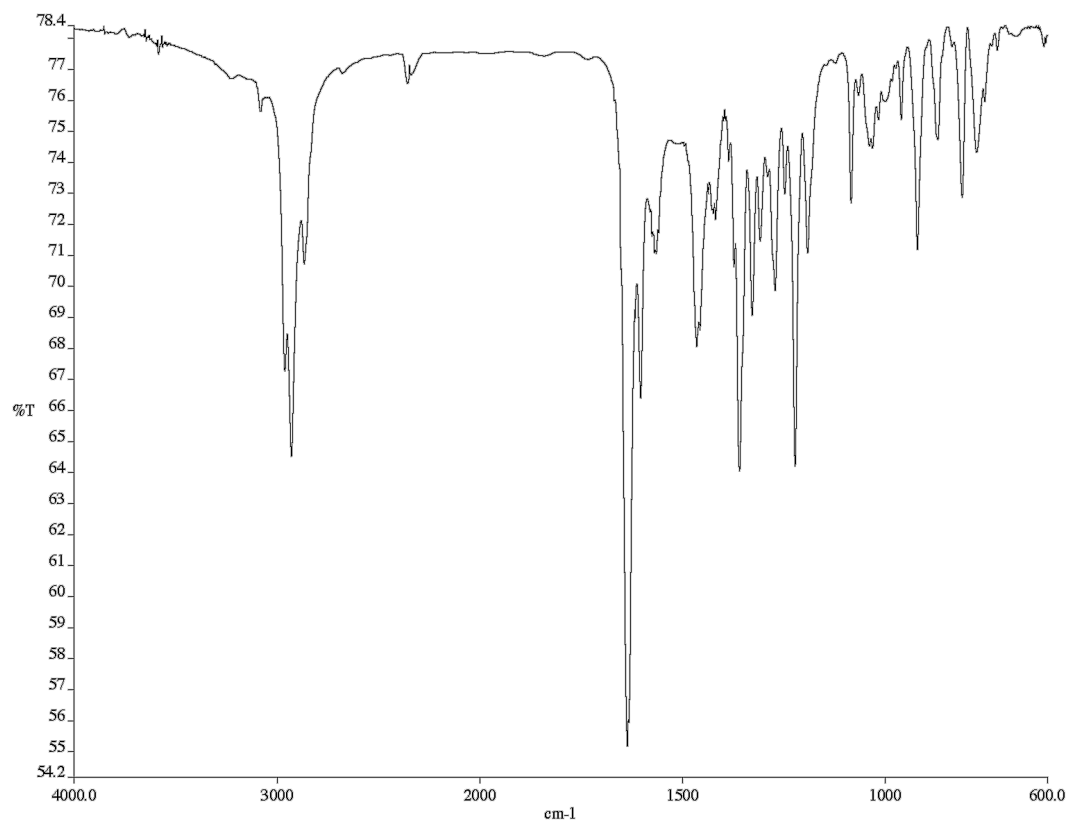


Figure A6.89 Infrared spectrum (Thin Film, NaCl) of compound **133**.

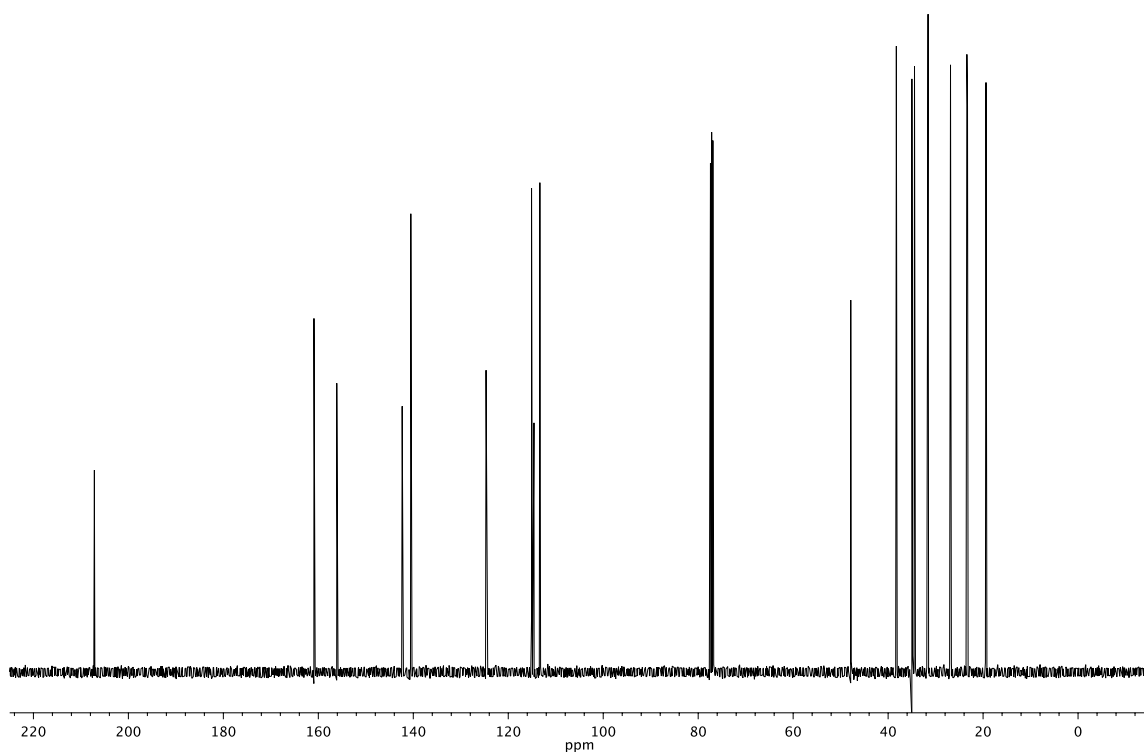


Figure A6.90 ¹³C NMR (126 MHz, CDCl₃) of compound **133**.

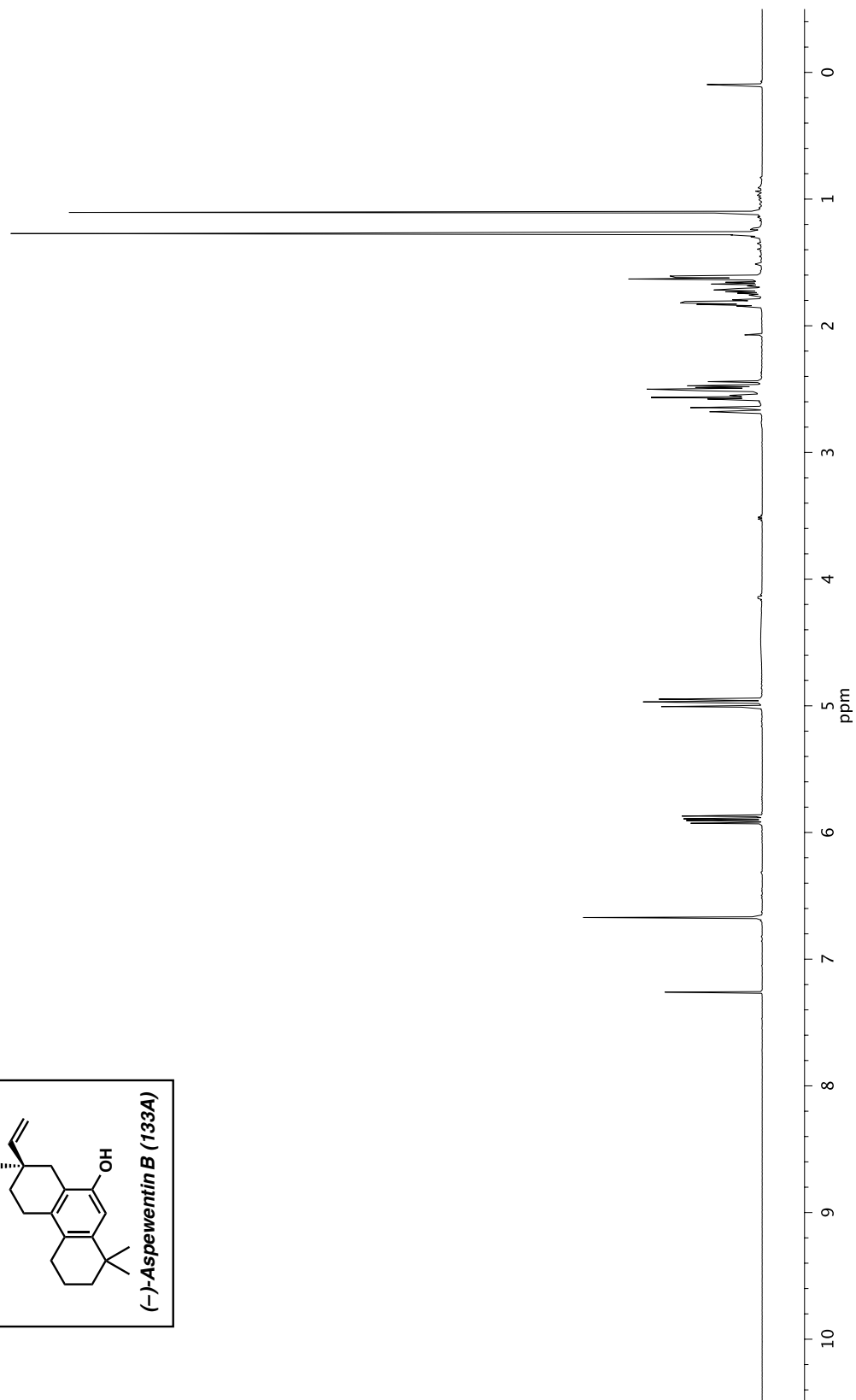
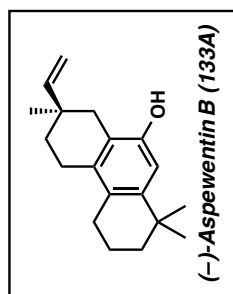


Figure A6.91 ¹H NMR (500 MHz, CDCl₃) of compound 133A.

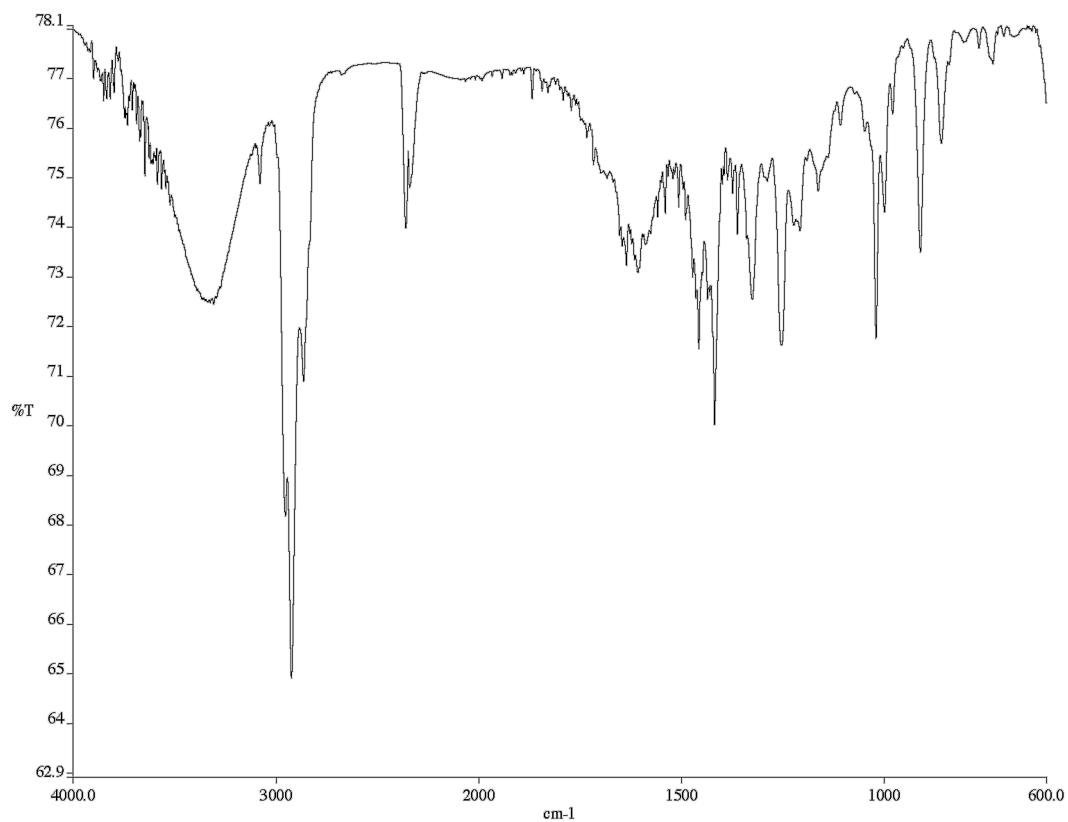


Figure A6.92 Infrared spectrum (Thin Film, NaCl) of compound **133A**.

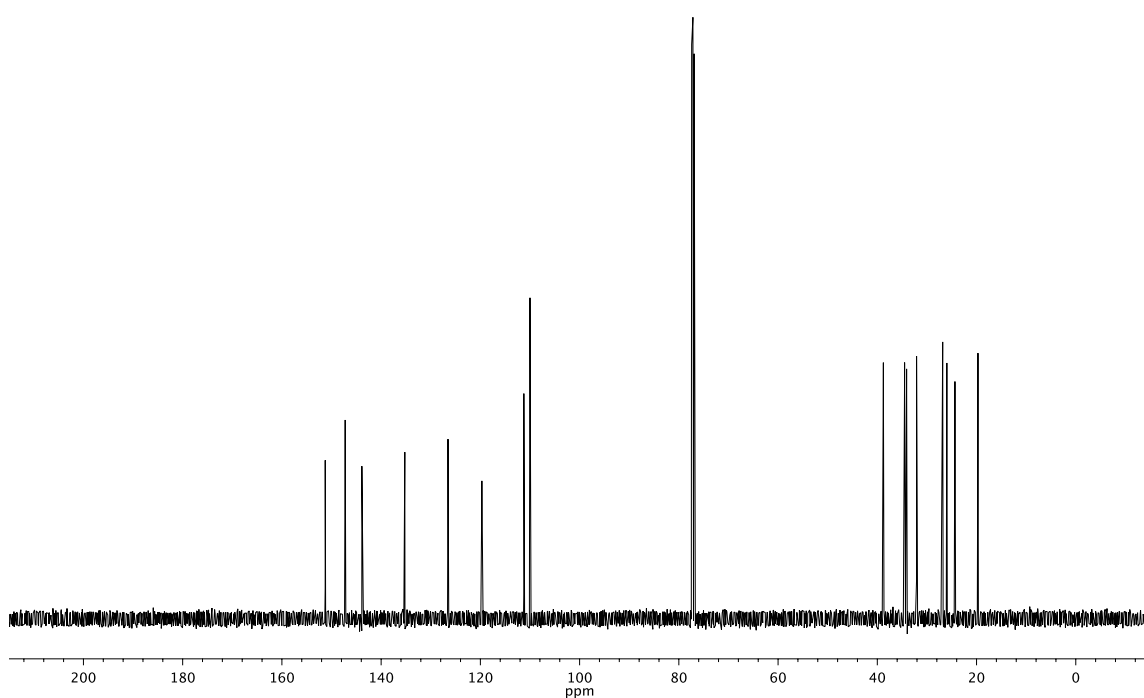


Figure A6.93 ¹³C NMR (126 MHz, CDCl₃) of compound **133A**.

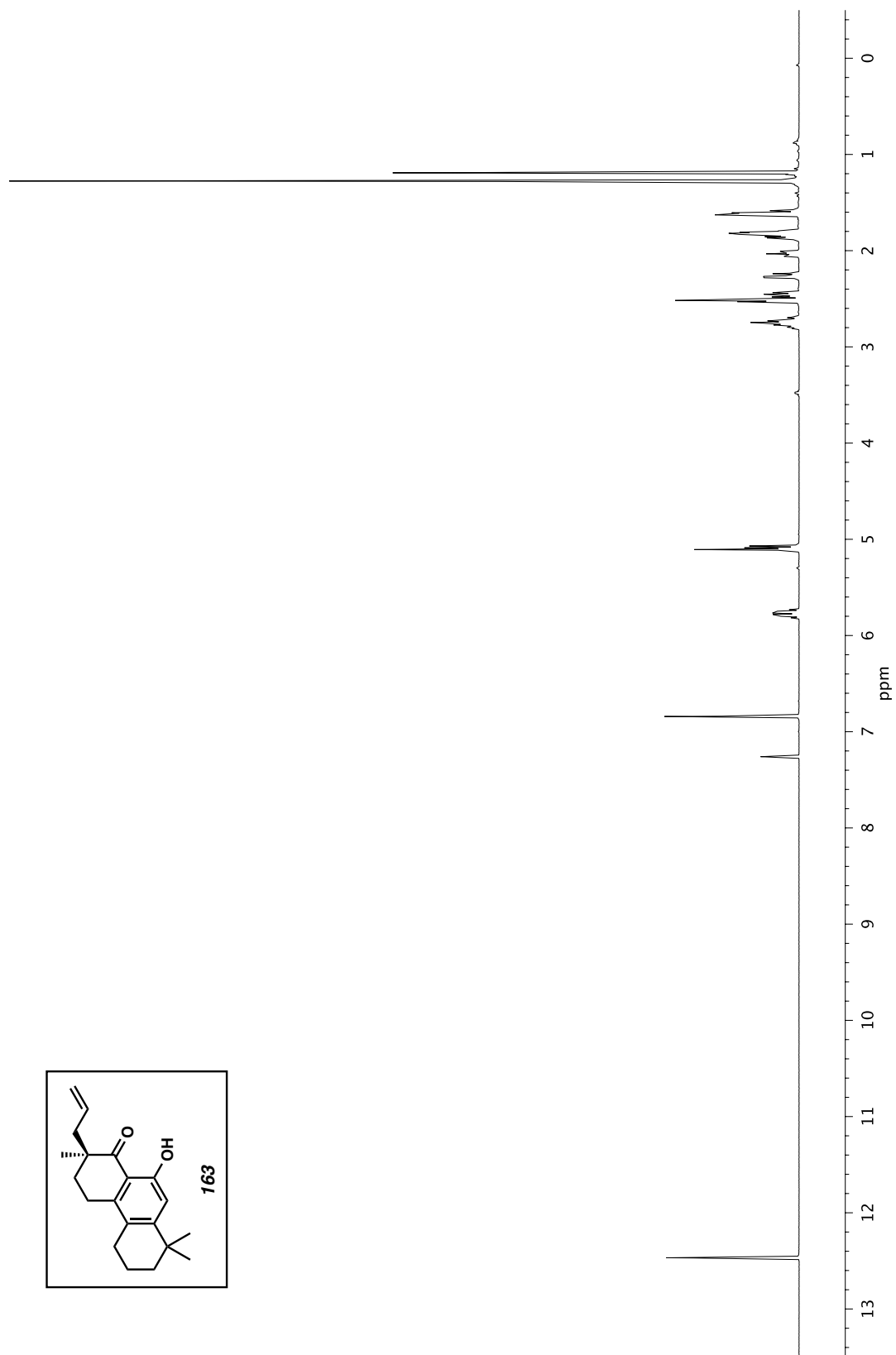


Figure A6.94 ^1H NMR (500 MHz, CDCl_3) of compound **163**.

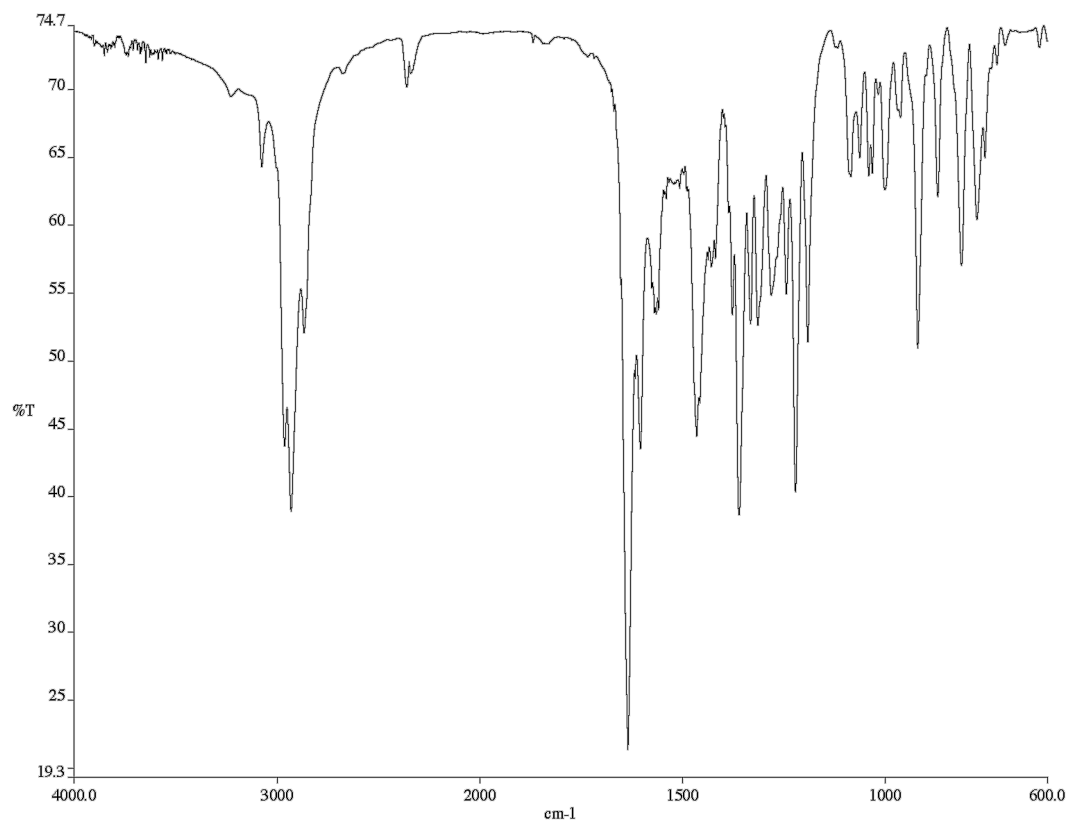


Figure A6.95 Infrared spectrum (Thin Film, NaCl) of compound **163**.

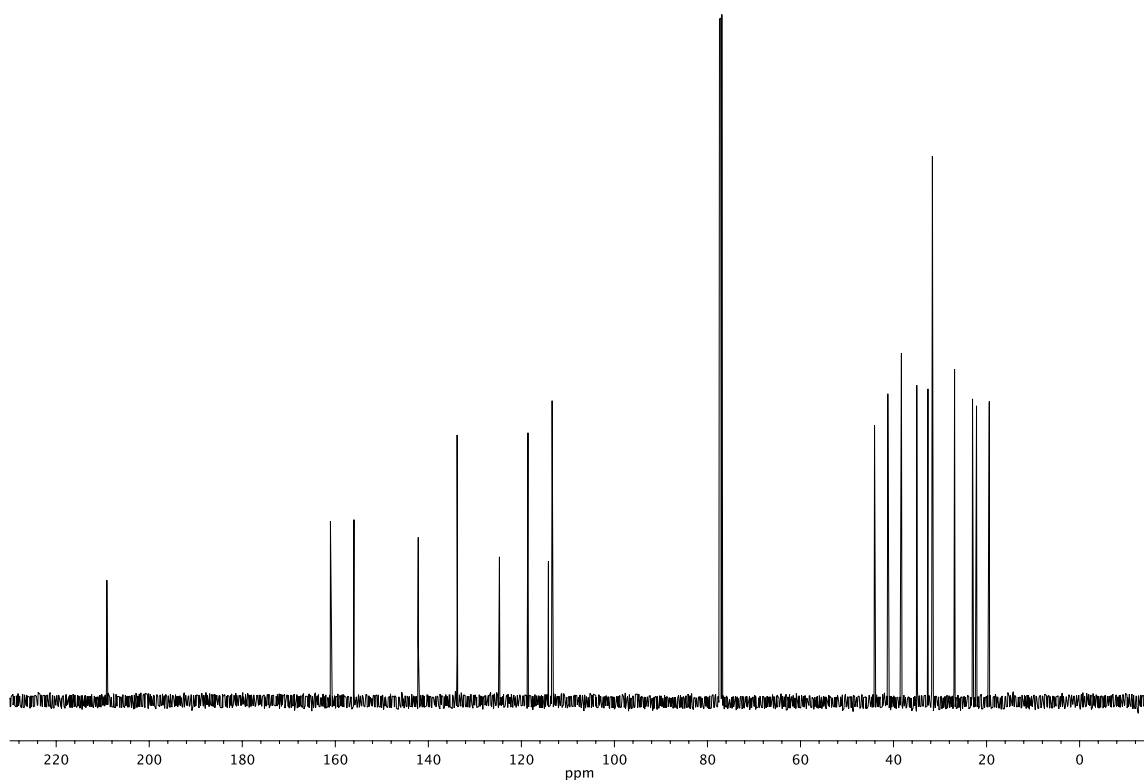


Figure A6.96 ¹³C NMR (126 MHz, CDCl₃) of compound **163**.

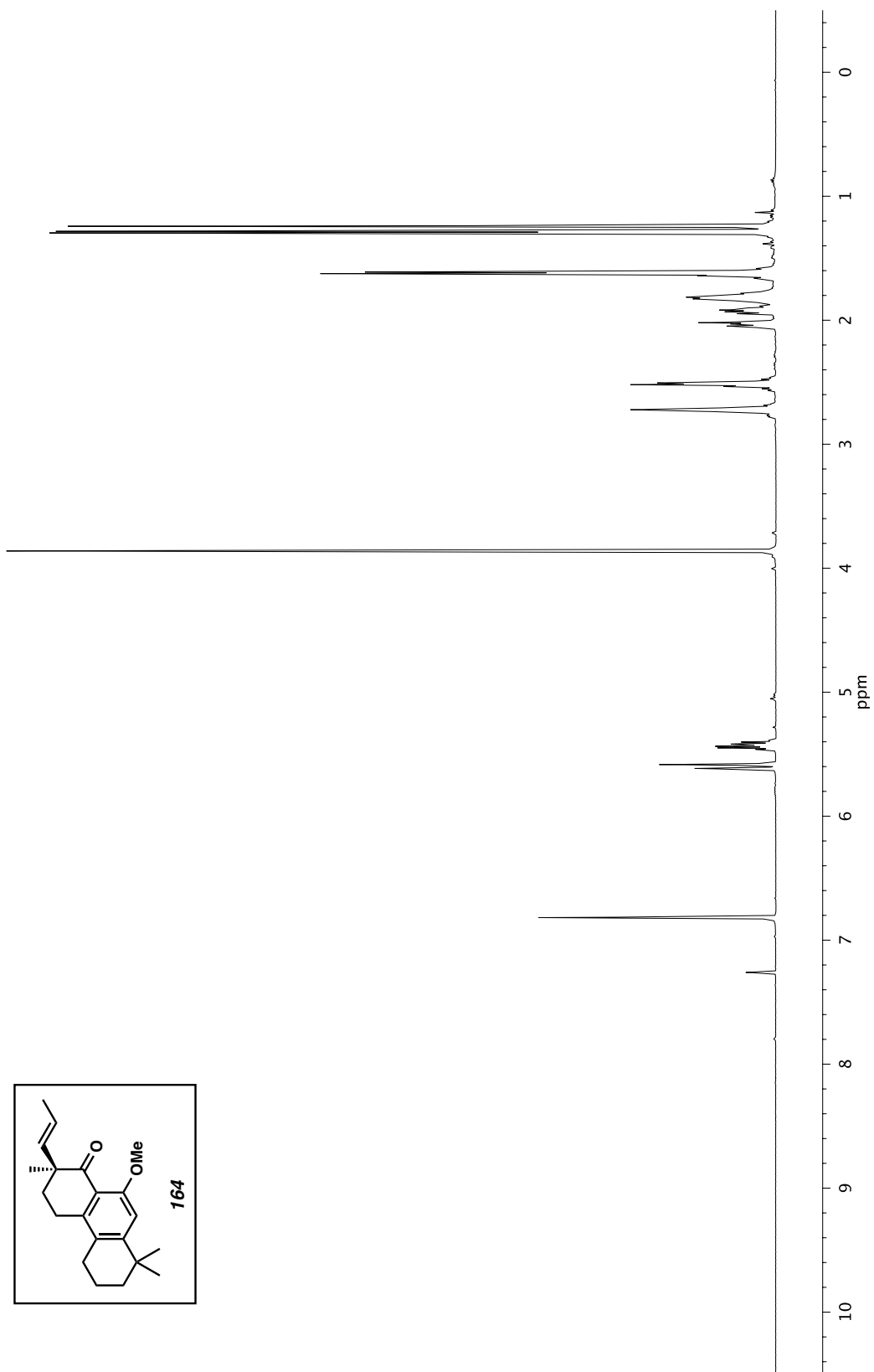


Figure A6.97 ^1H NMR (500 MHz, CDCl_3) of compound **164**.

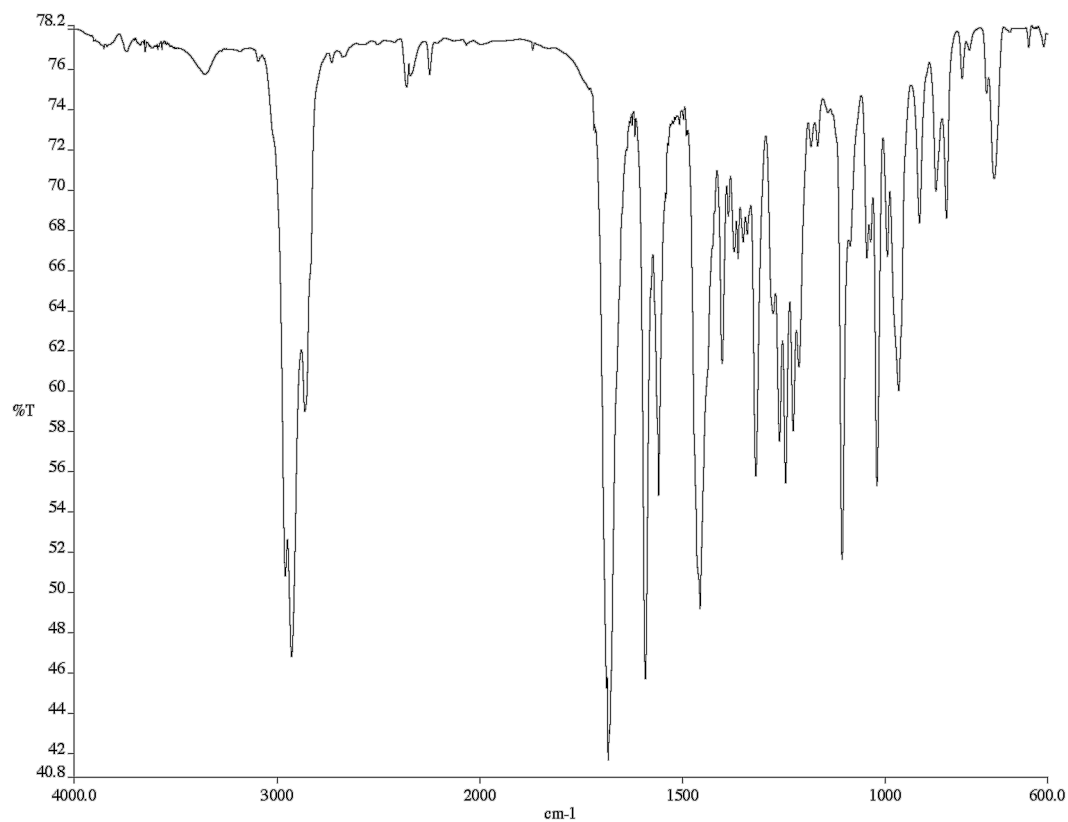


Figure A6.98 Infrared spectrum (Thin Film, NaCl) of compound **164**.

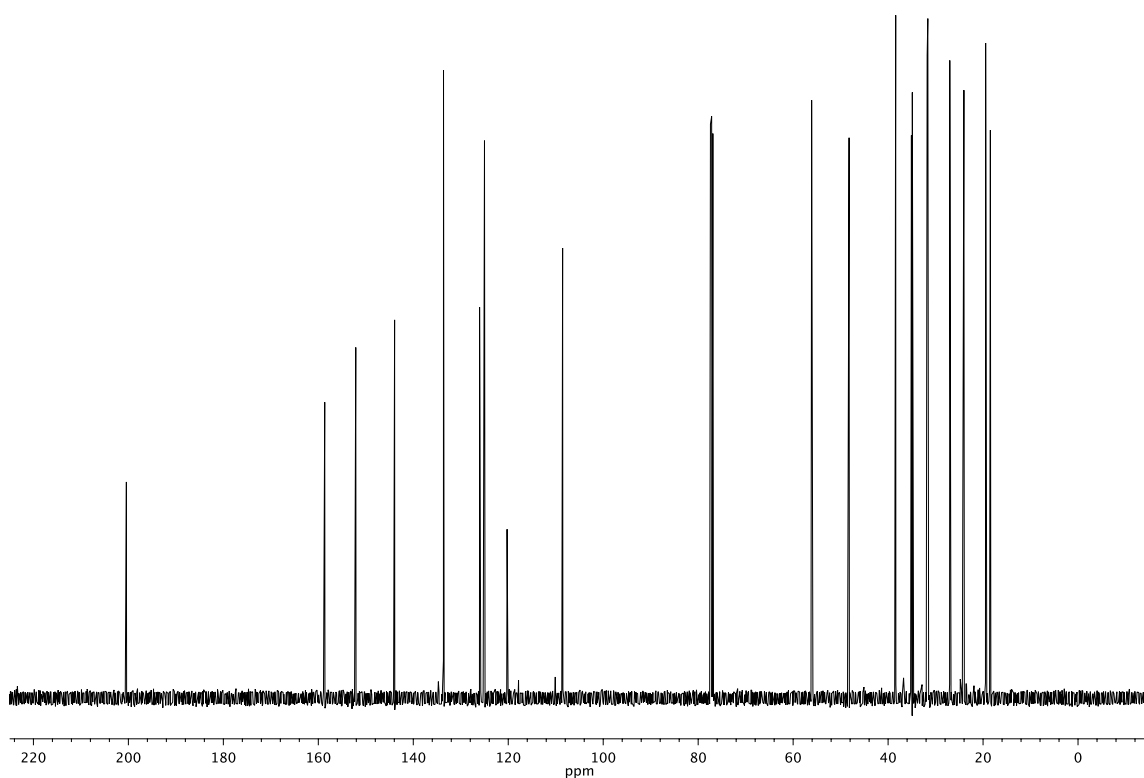


Figure A6.99 ¹³C NMR (126 MHz, CDCl₃) of compound **164**.

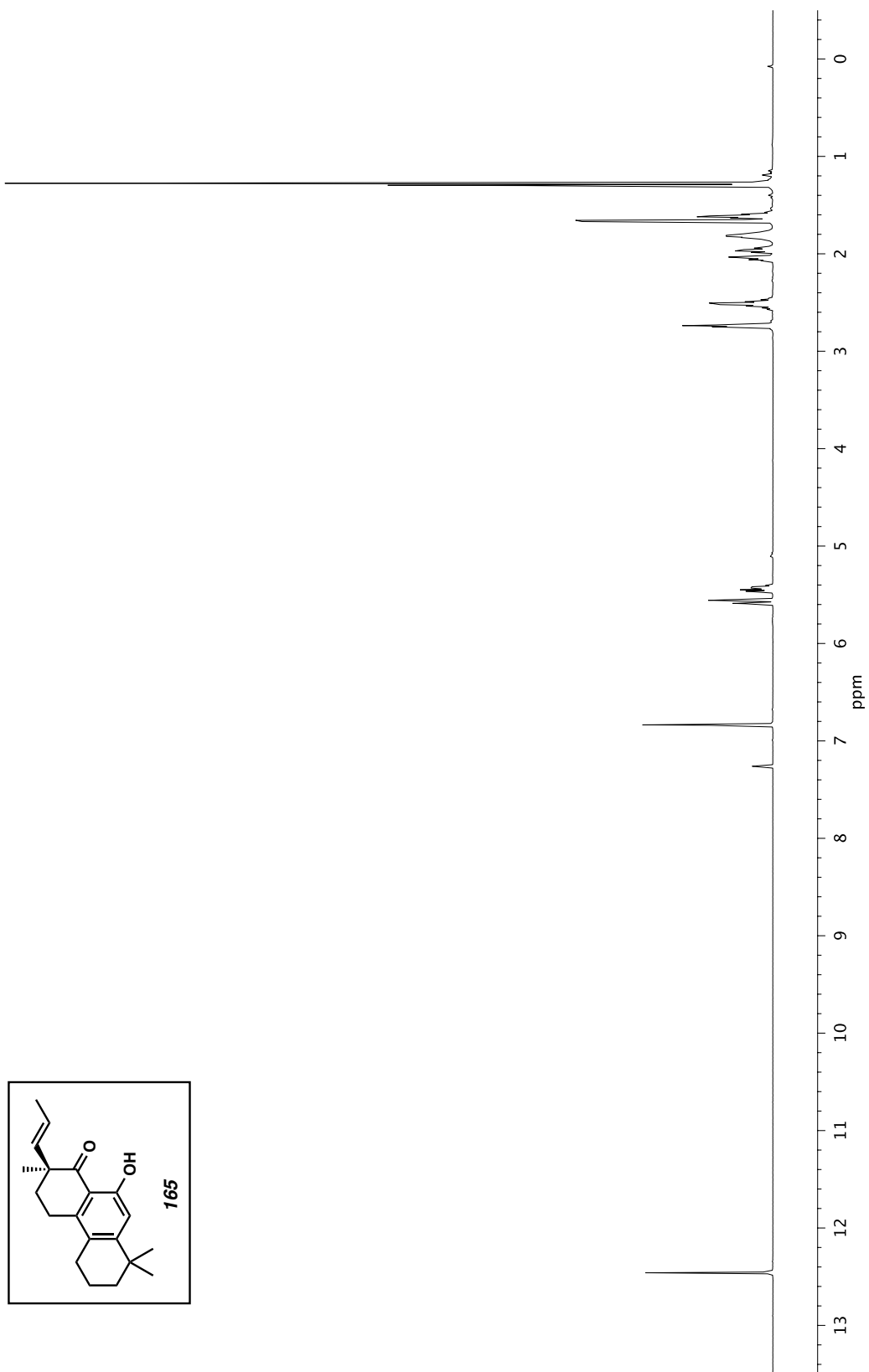


Figure A6.100 ^1H NMR (500 MHz, CDCl_3) of compound **165**.

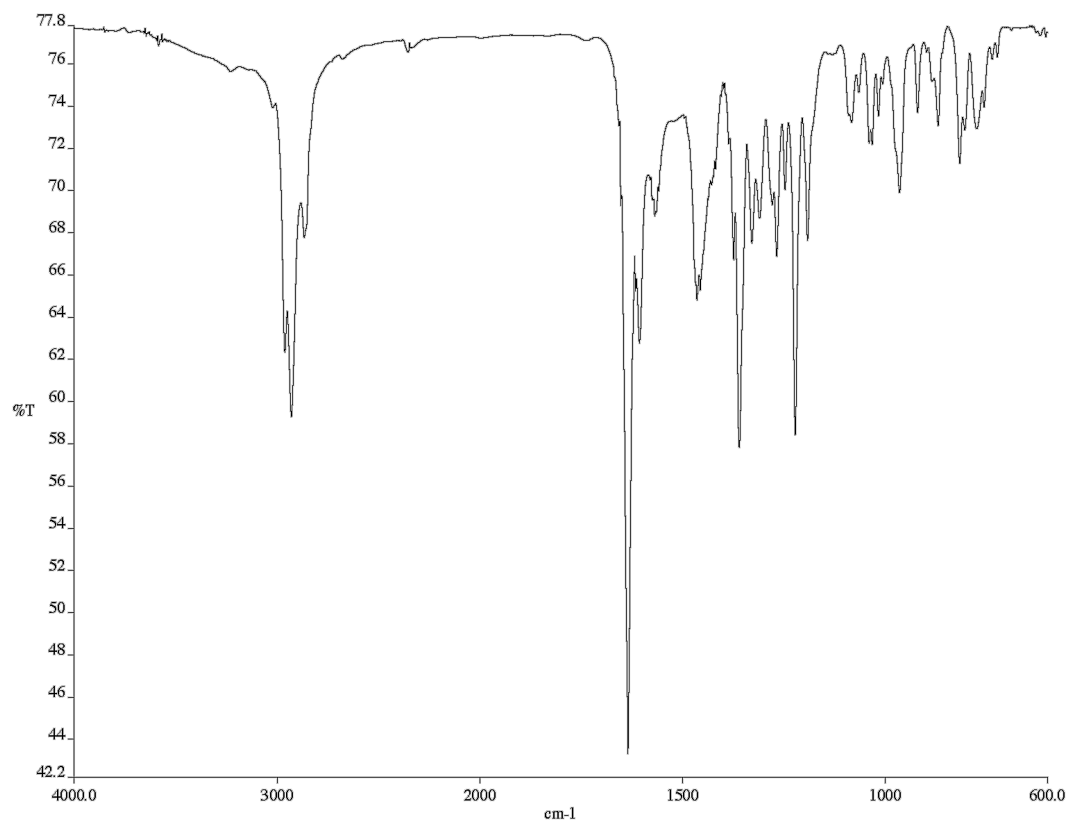


Figure A6.101 Infrared spectrum (Thin Film, NaCl) of compound **165**.

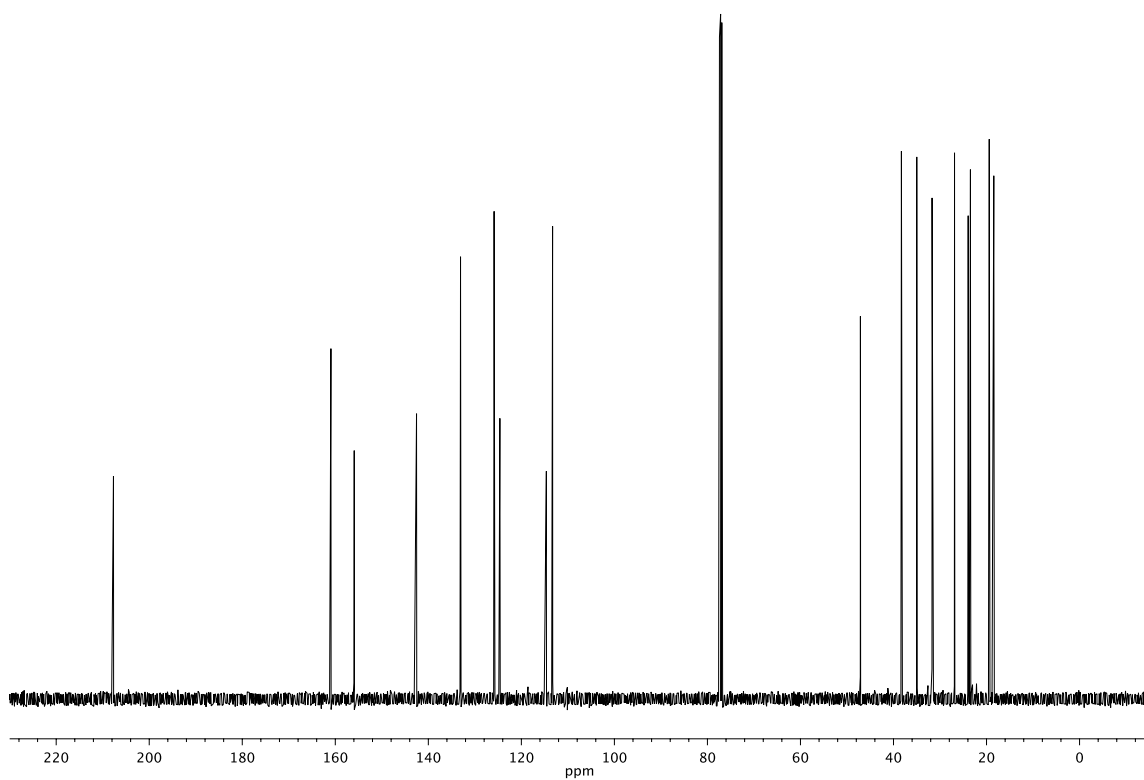


Figure A6.102 ¹³C NMR (126 MHz, CDCl₃) of compound **165**.