

APPENDIX FIVE

**Spectra Relevant to Chapter Three:
Development of the Direct Acyl-Alkylation of Arynes**

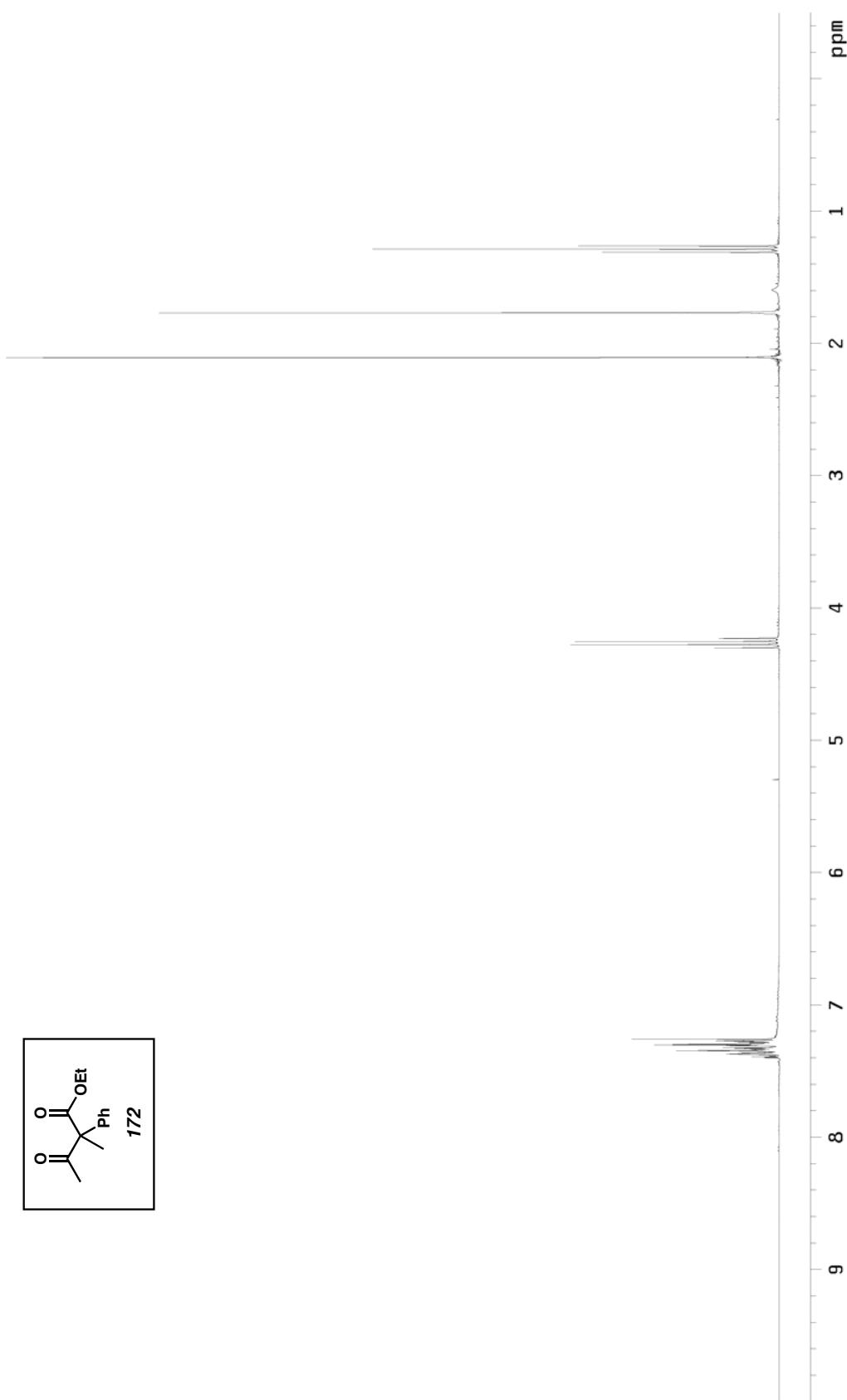


Figure A5.1 ^1H NMR (300 MHz, CDCl_3) of compound 172.

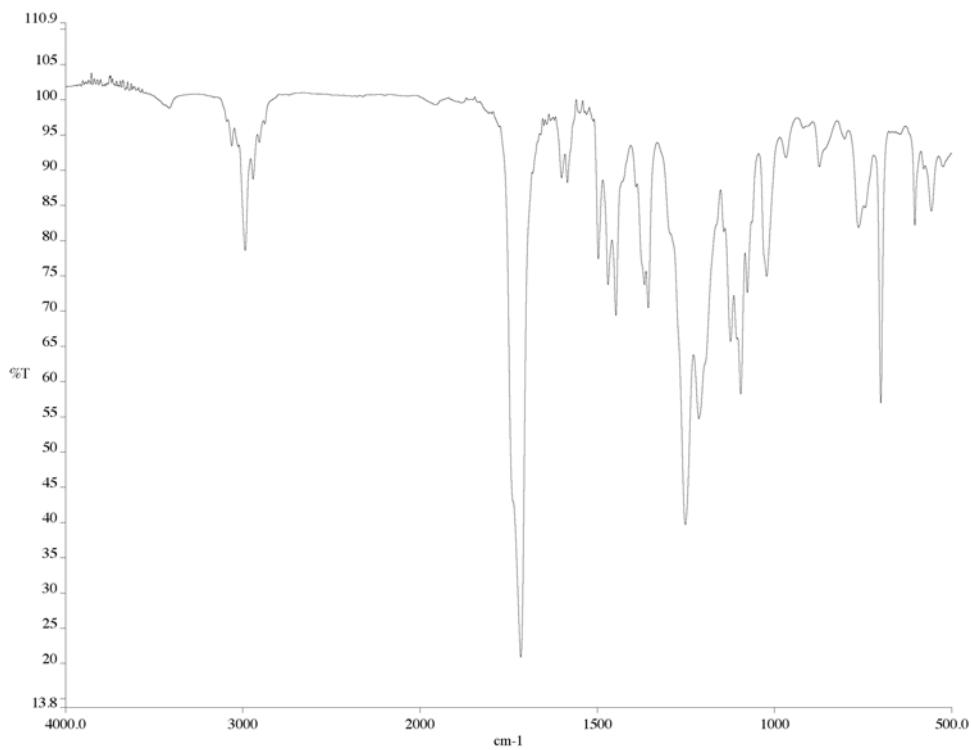


Figure A5.2 Infrared spectrum (thin film/NaCl) of compound **172**.

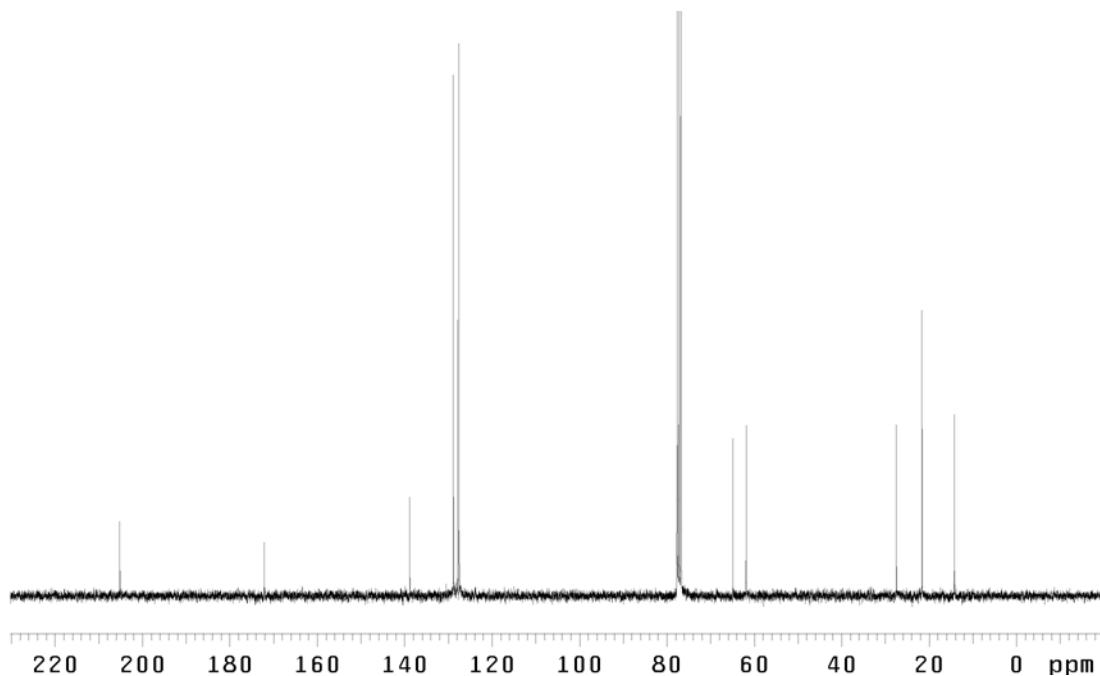


Figure A5.3 ^{13}C NMR (75 MHz, CDCl_3) of compound **172**.

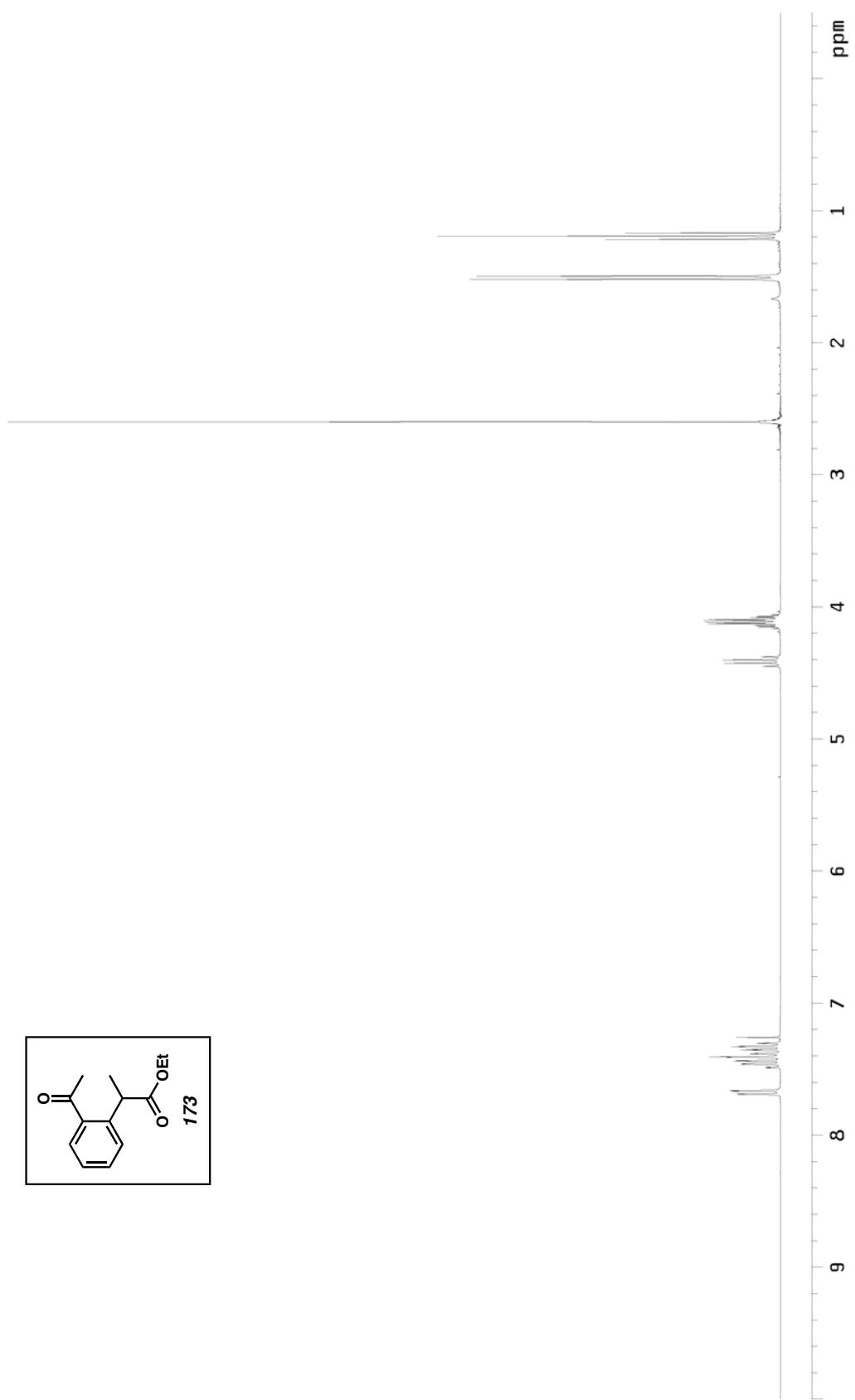


Figure A5.4 ^1H NMR (300 MHz, CDCl_3) of compound 173.

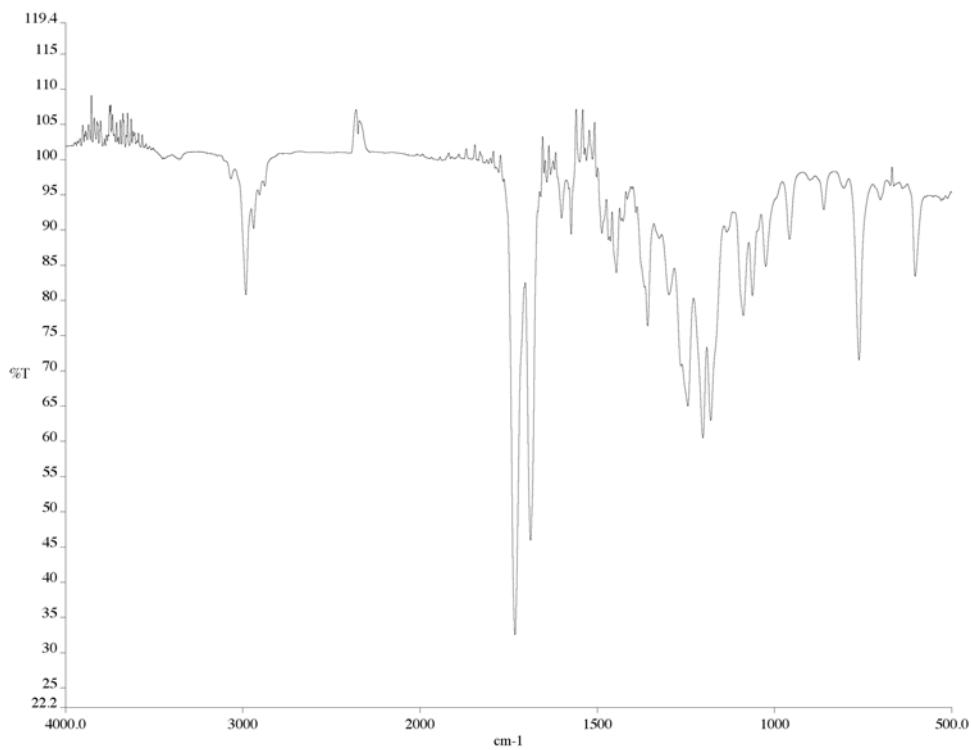


Figure A5.5 Infrared spectrum (thin film/NaCl) of compound **173**.

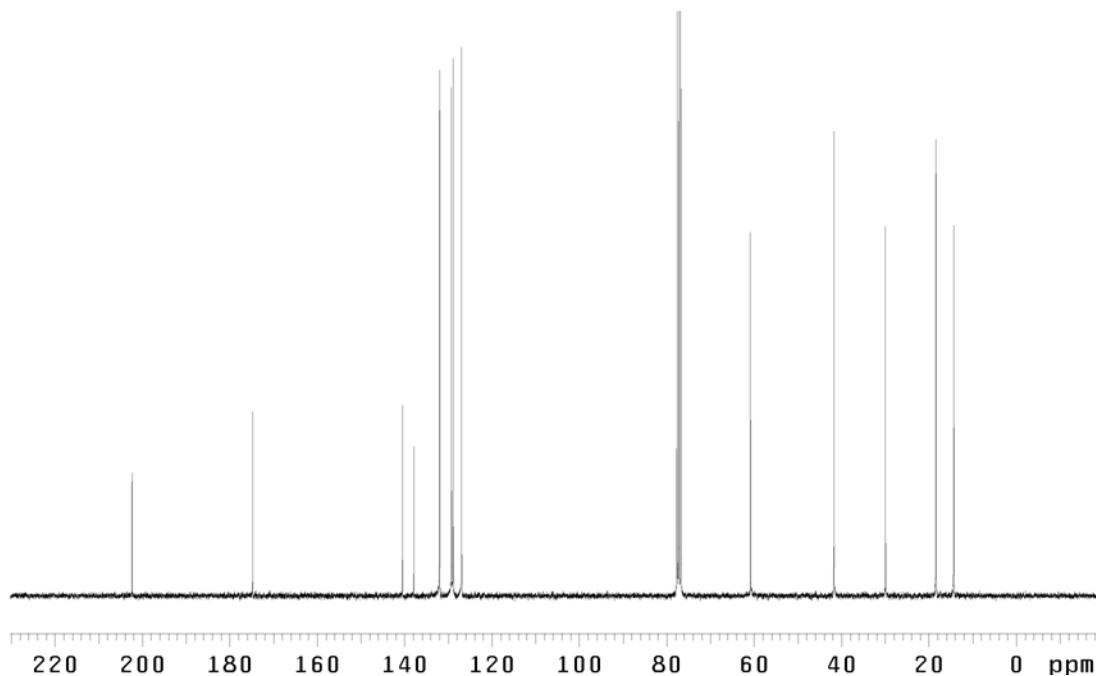


Figure A5.6 ^{13}C NMR (75 MHz, CDCl_3) of compound **173**.

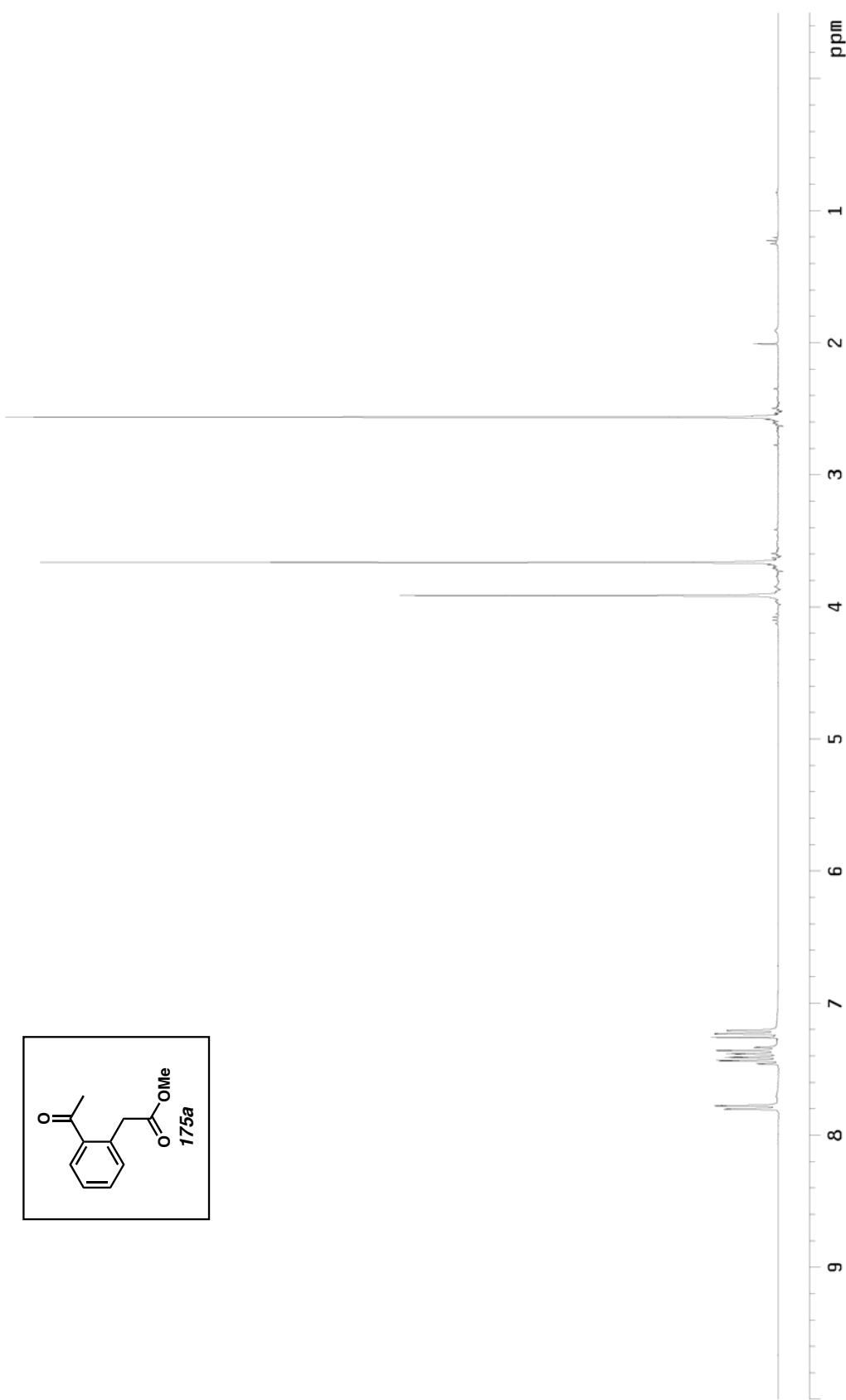


Figure A5.7 ^1H NMR (300 MHz, CDCl_3) of compound **175a**.

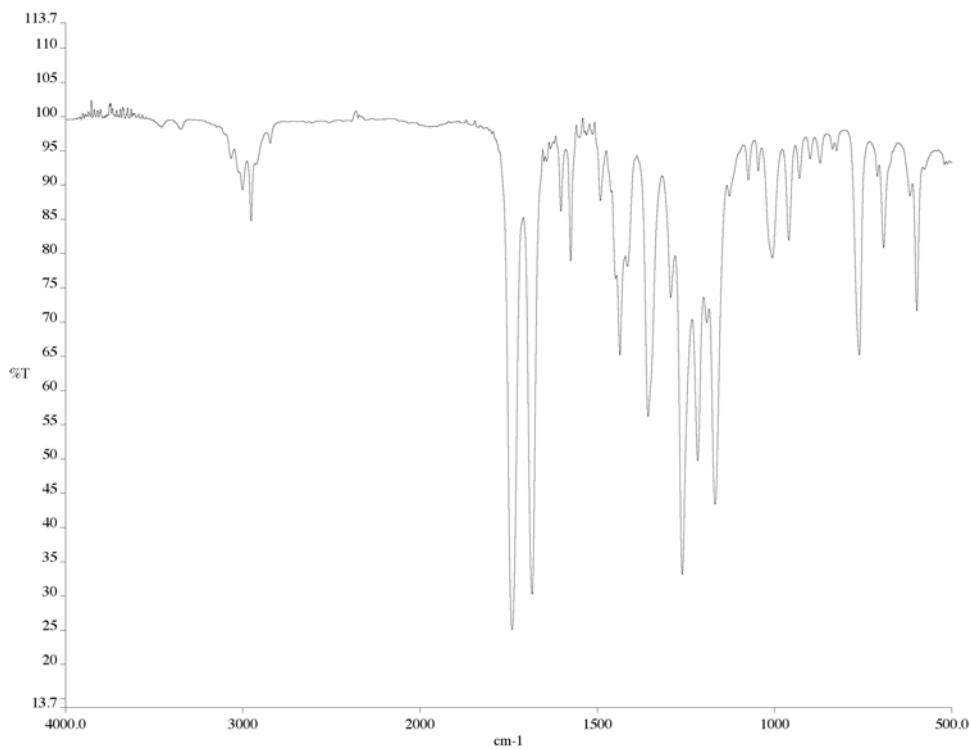


Figure A5.8 Infrared spectrum (thin film/NaCl) of compound **175a**.

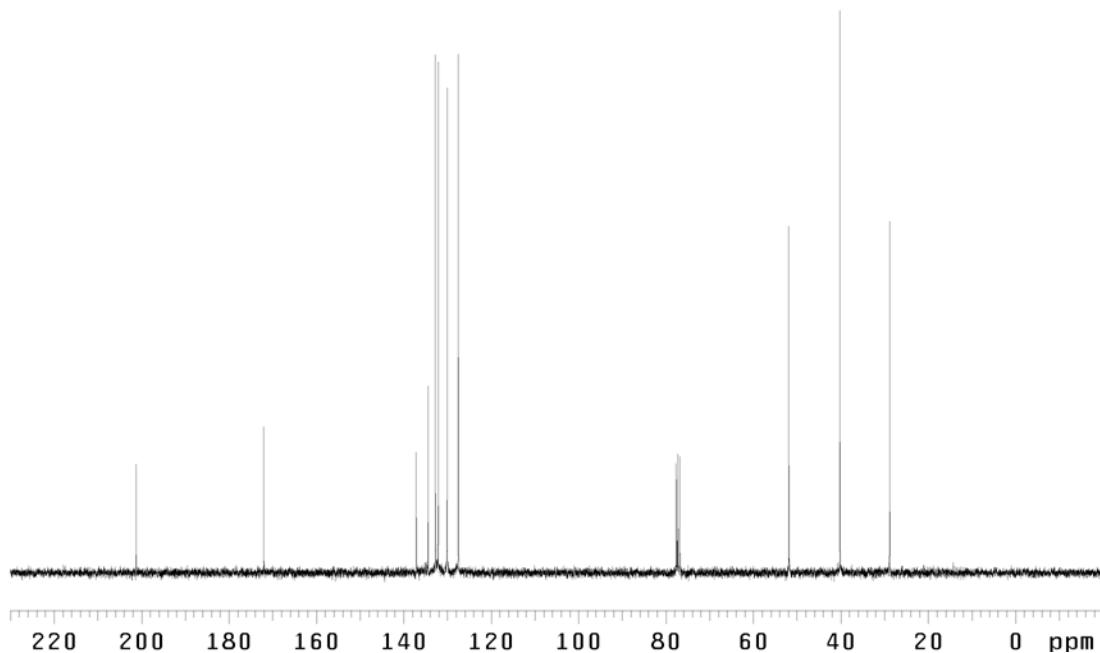


Figure A5.9 ^{13}C NMR (75 MHz, CDCl_3) of compound **175a**.



Figure A5.10 ^1H NMR (300 MHz, CDCl_3) of compound **175b**.

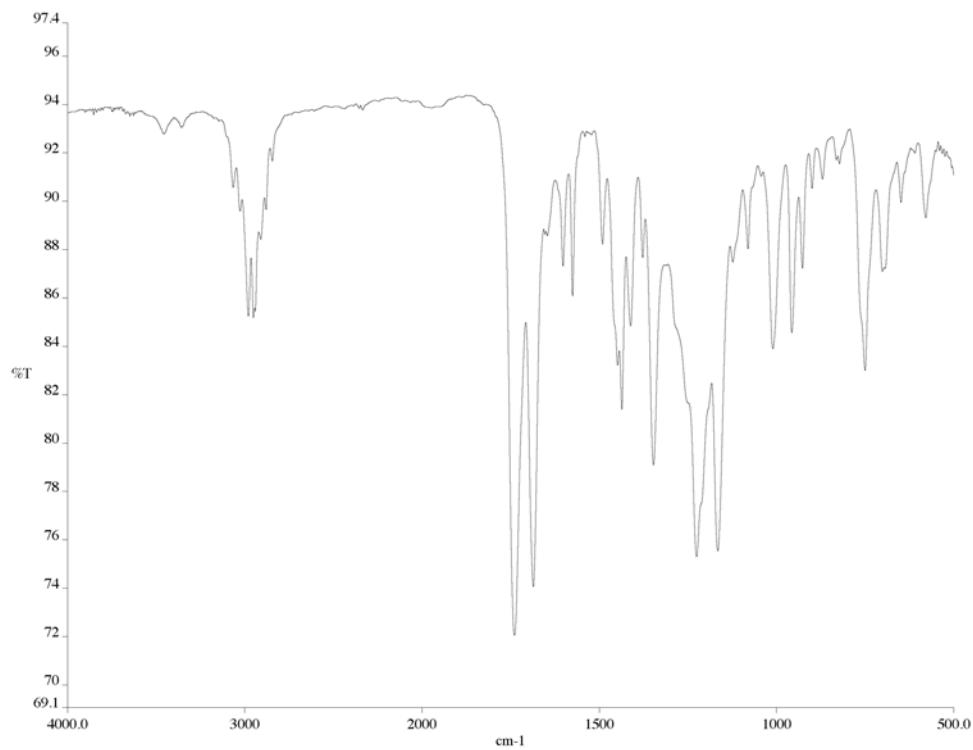


Figure A5.11 Infrared spectrum (thin film/NaCl) of compound **175b**.

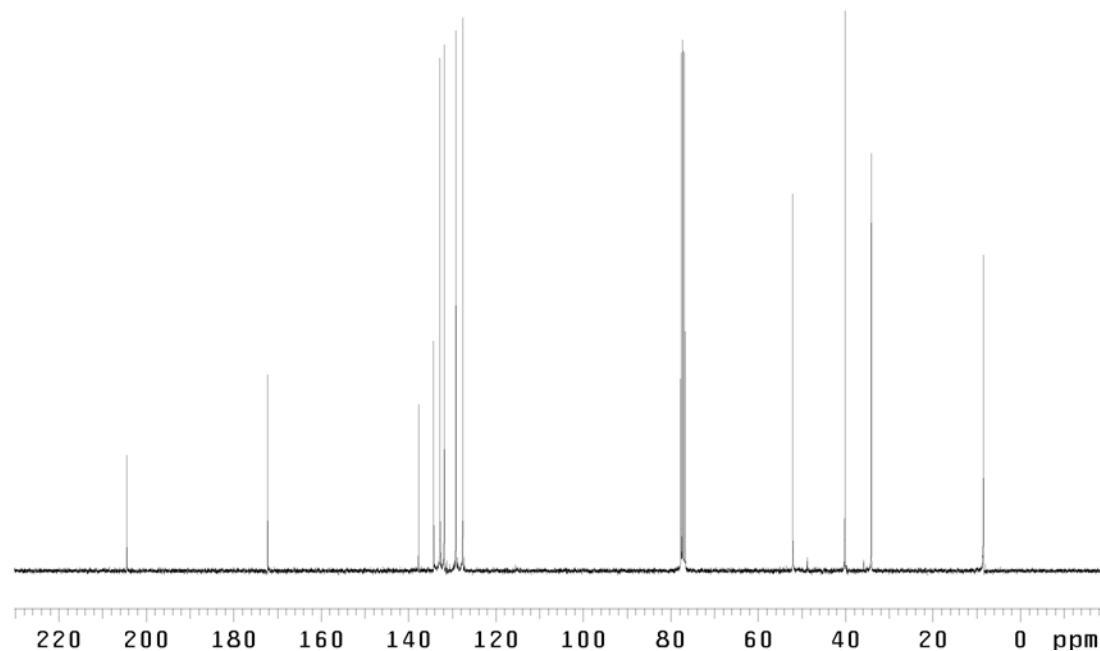


Figure A5.12 ^{13}C NMR (75 MHz, CDCl_3) of compound **175b**.



Figure A5.13 ^1H NMR (300 MHz, CDCl_3) of compound **175c**.

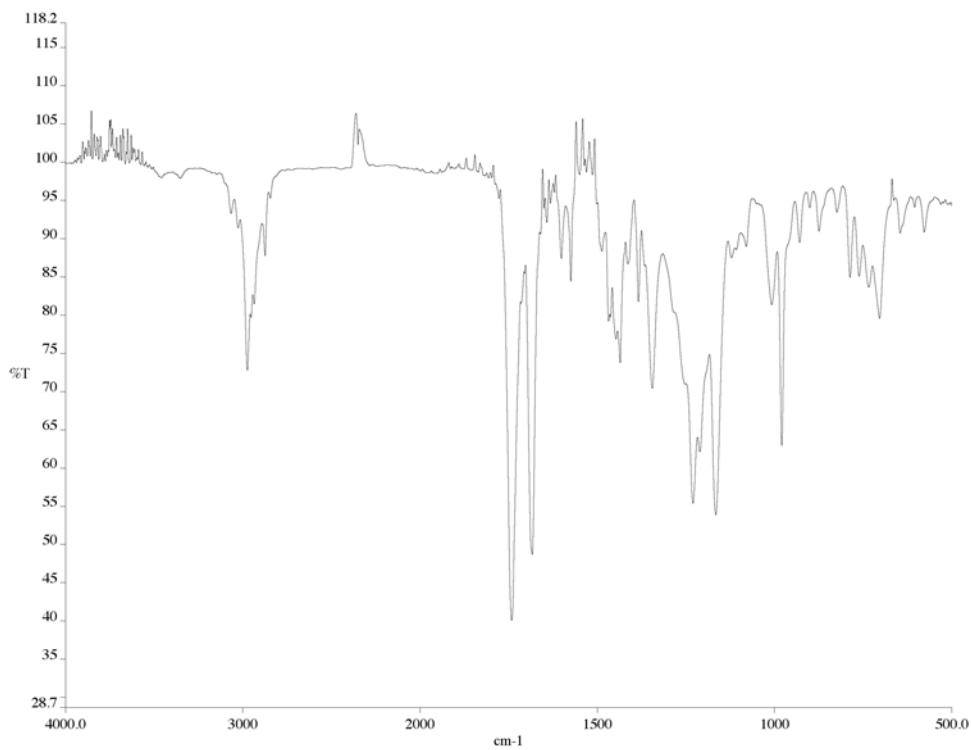


Figure A5.14 Infrared spectrum (thin film/NaCl) of compound **175c**.

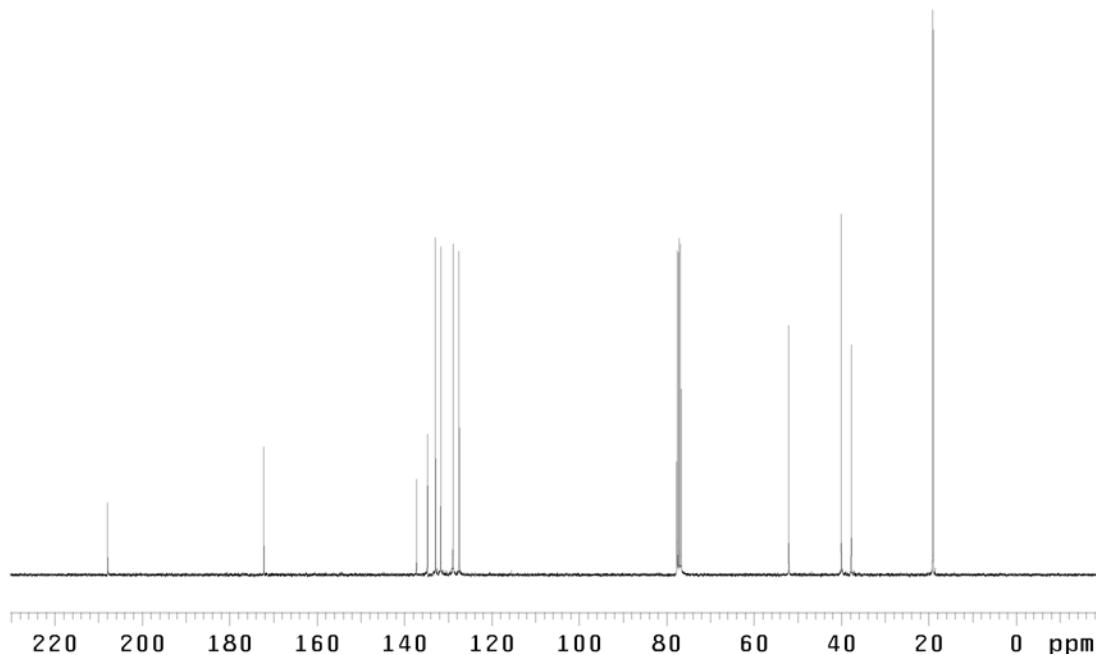


Figure A5.15 ^{13}C NMR (75 MHz, CDCl_3) of compound **175c**.

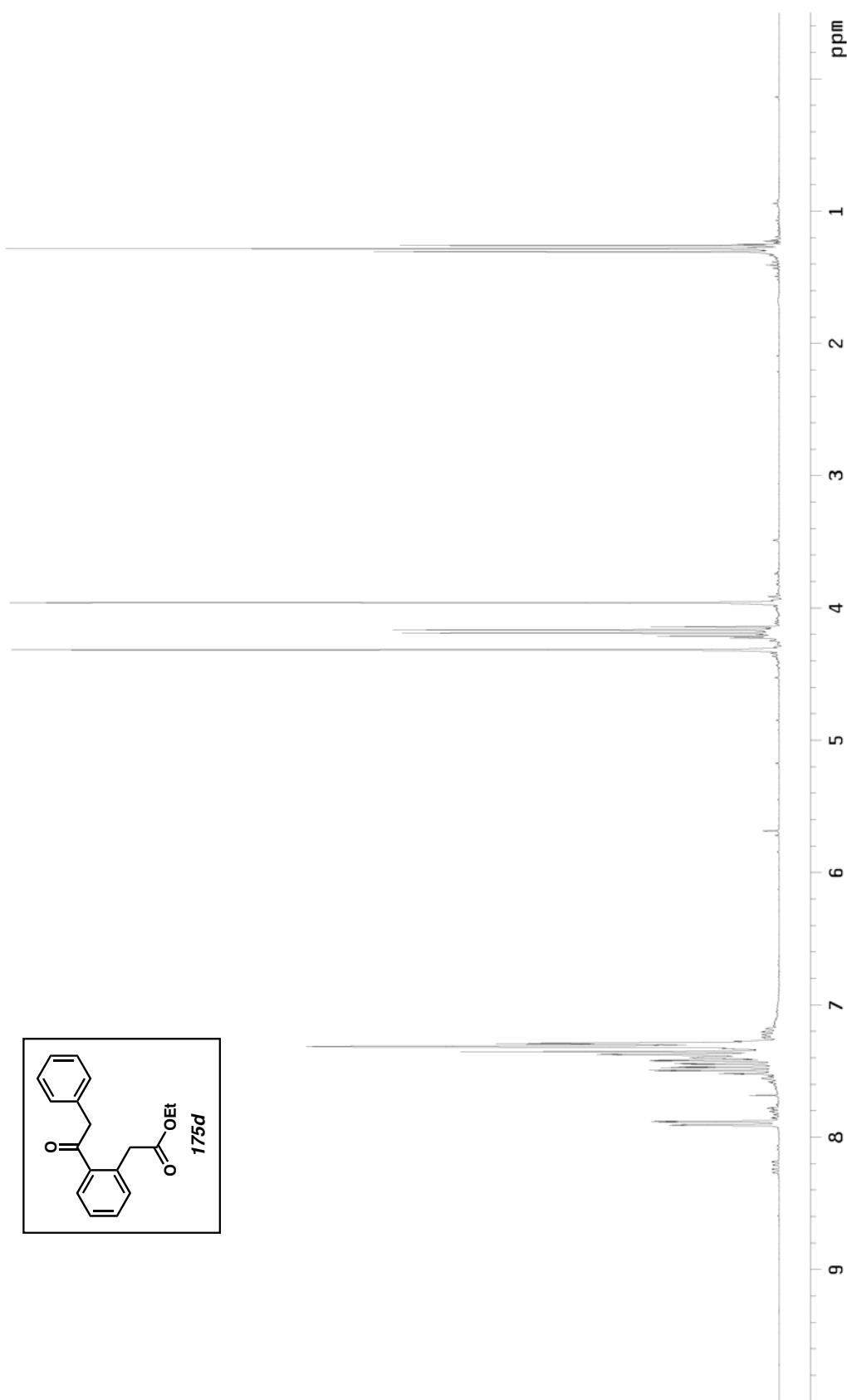


Figure A5.16 ^1H NMR (300 MHz, CDCl_3) of compound **175d**.

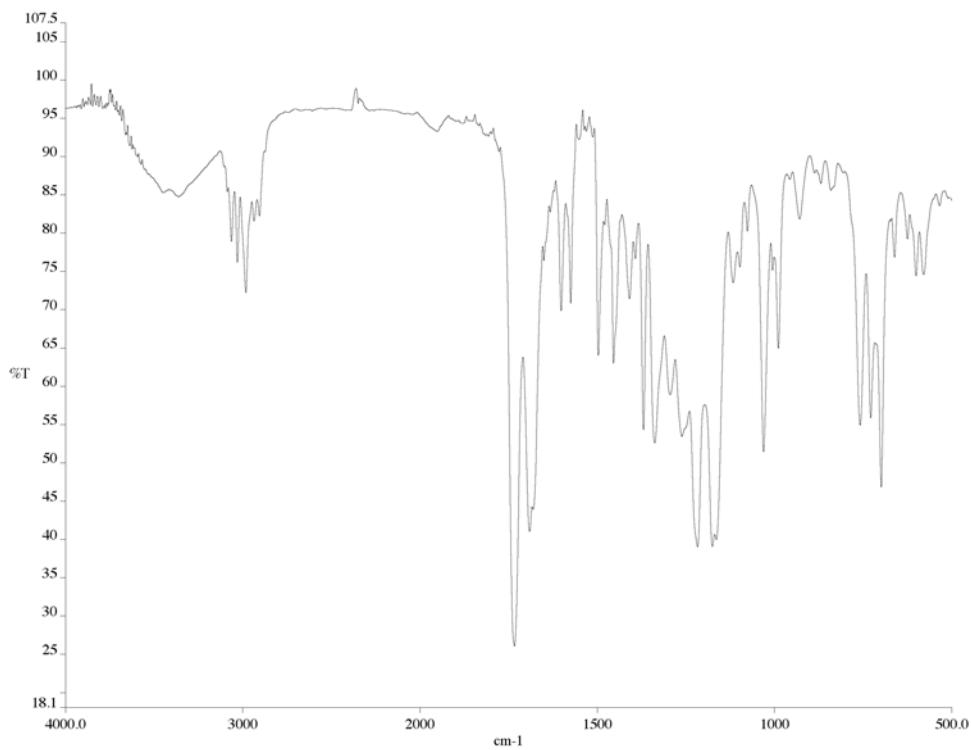


Figure A5.17 Infrared spectrum (thin film/NaCl) of compound **175d**.

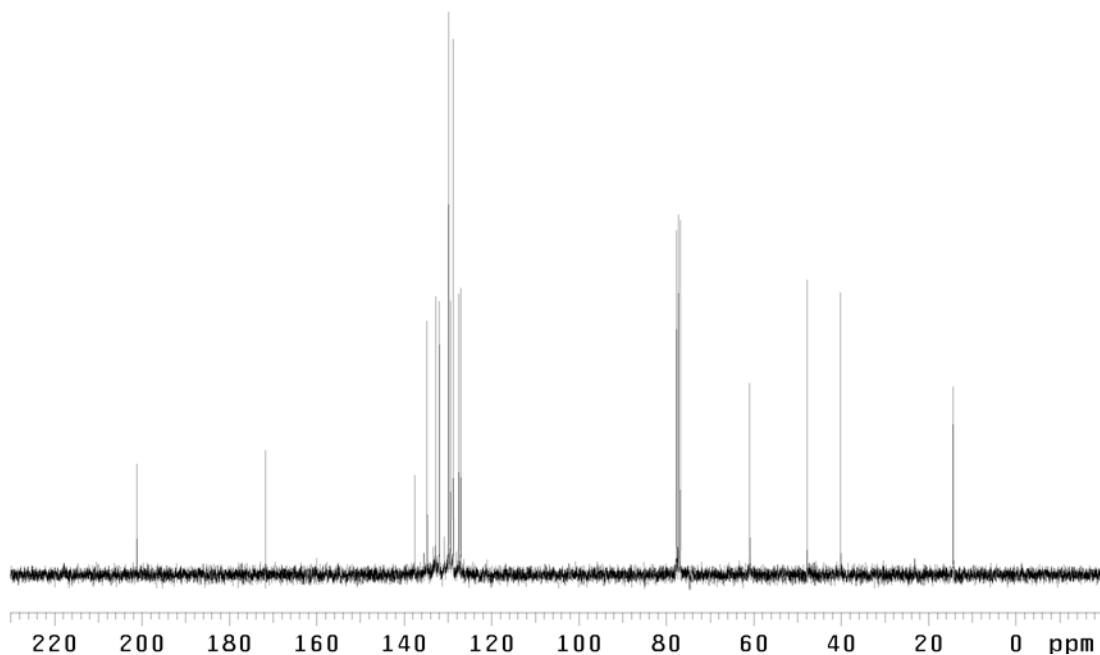


Figure A5.18 ^{13}C NMR (75 MHz, CDCl_3) of compound **175d**.

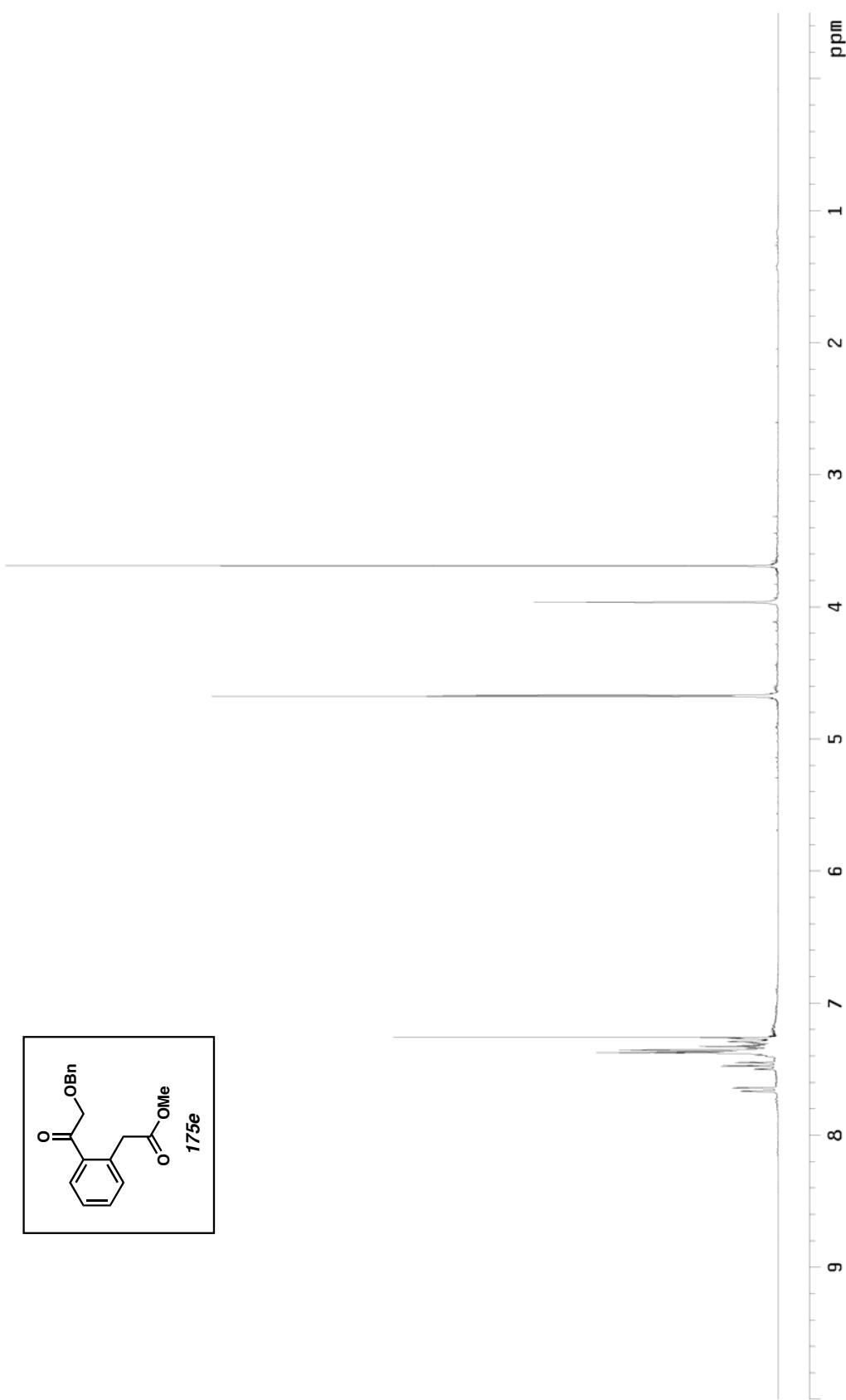


Figure A5.19 ^1H NMR (300 MHz, CDCl_3) of compound **175e**.

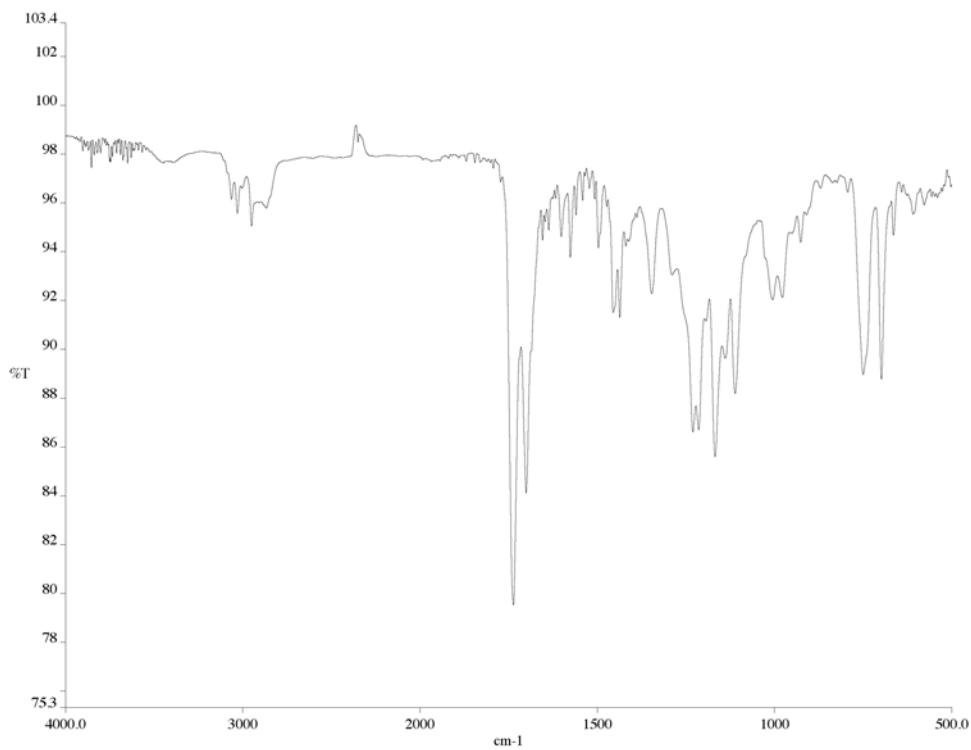


Figure A5.20 Infrared spectrum (thin film/NaCl) of compound **175e**.

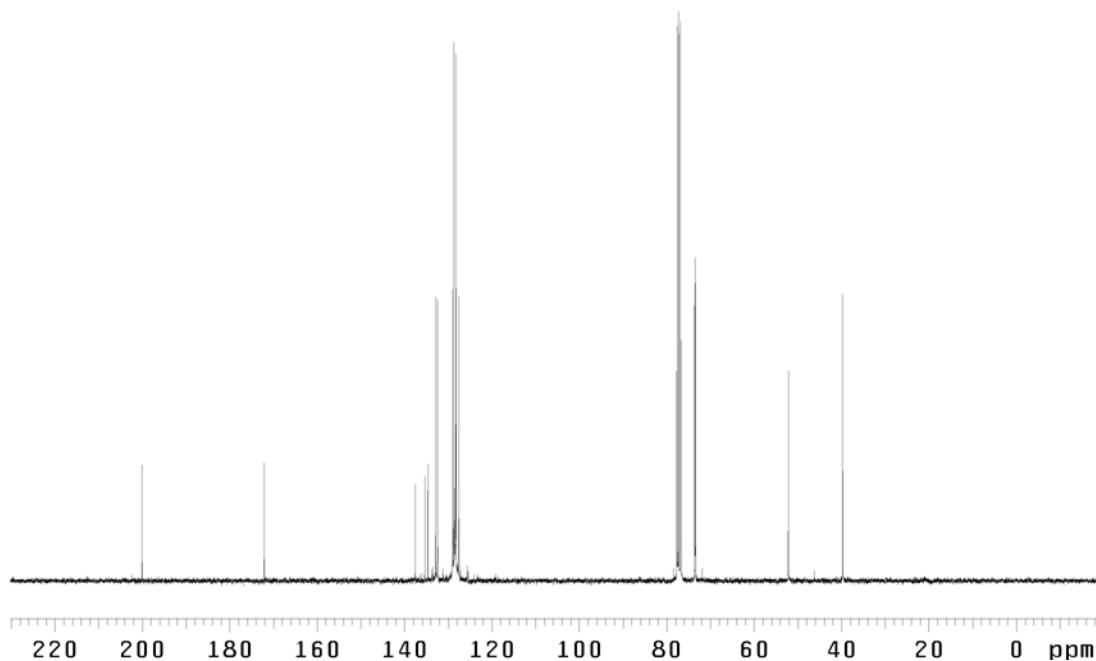


Figure A5.21 ¹³C NMR (75 MHz, CDCl₃) of compound **175e**.



Figure A5.22 ^1H NMR (300 MHz, CDCl_3) of compound **175f**.

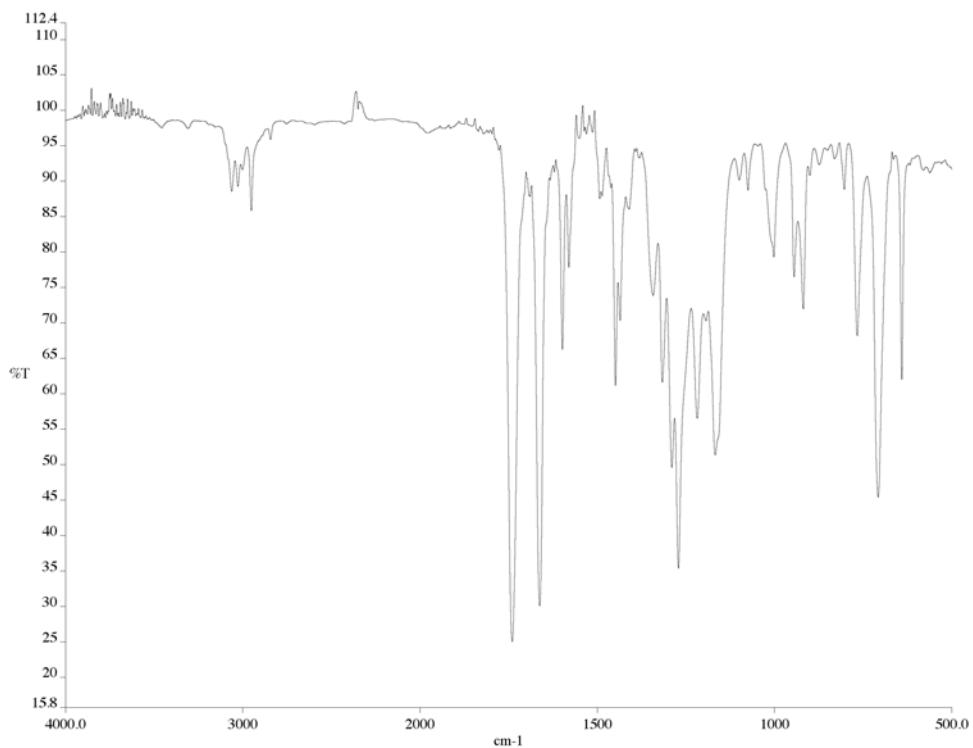


Figure A5.23 Infrared spectrum (thin film/NaCl) of compound **175f**.

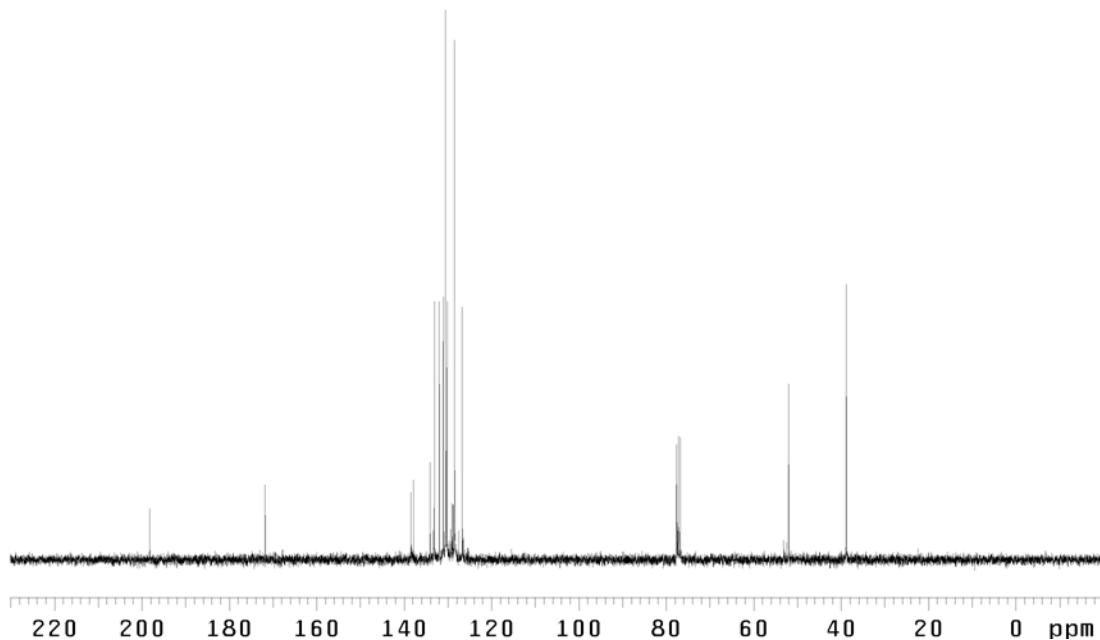


Figure A5.24 ^{13}C NMR (75 MHz, CDCl_3) of compound **175f**.



Figure A5.25 ^1H NMR (300 MHz, CDCl_3) of compound 175g.

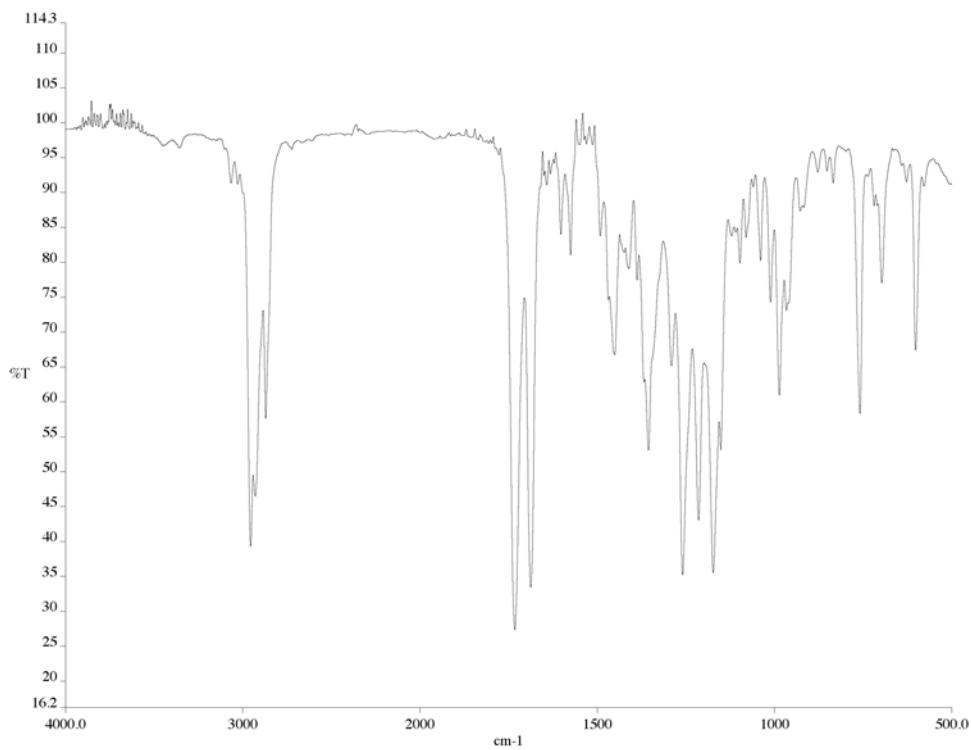


Figure A5.26 Infrared spectrum (thin film/NaCl) of compound **175g**.

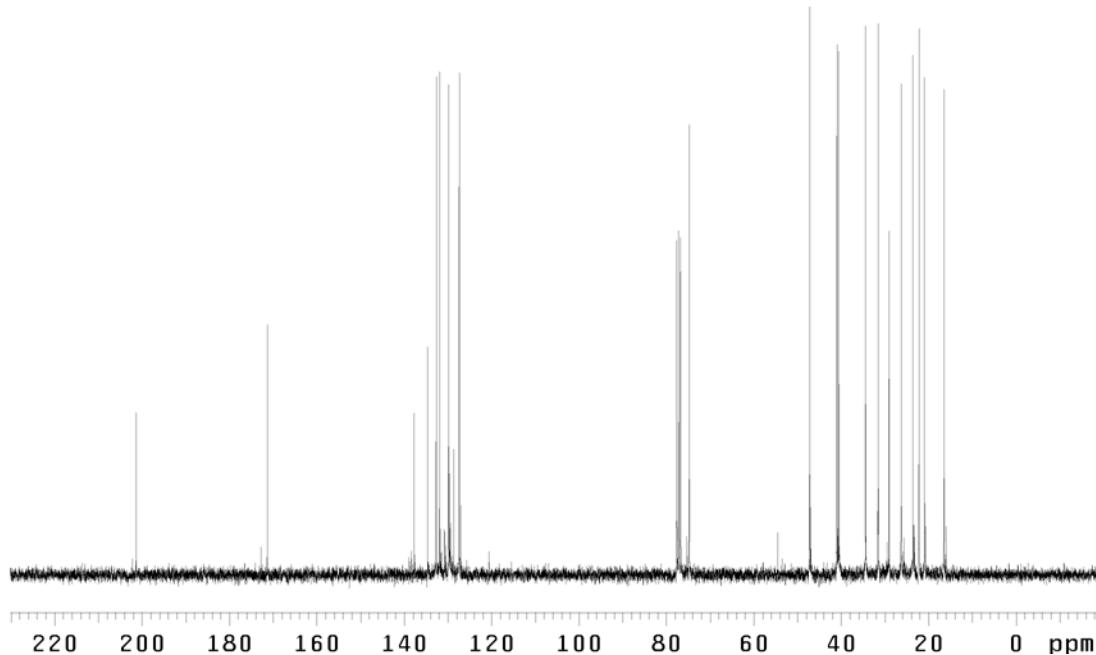


Figure A5.27 ^{13}C NMR (75 MHz, CDCl_3) of compound **175g**.

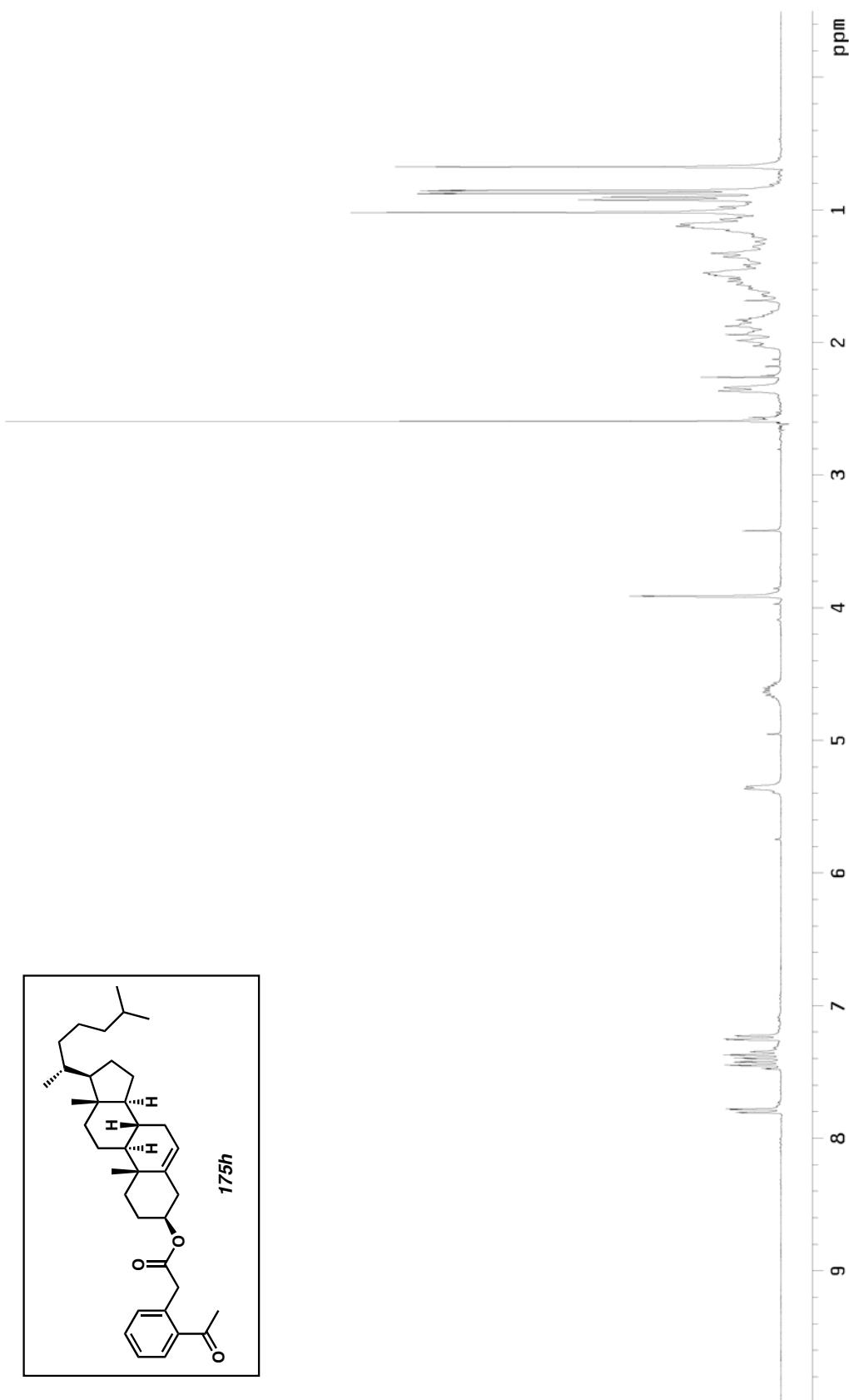
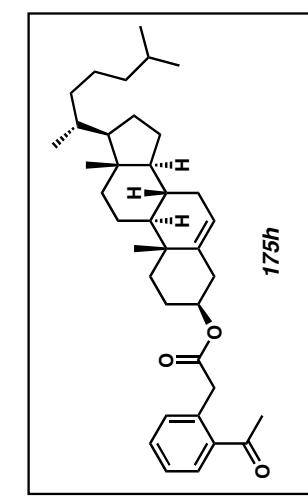


Figure A5.28 ¹H NMR (300 MHz, CDCl₃) of compound **175h**.

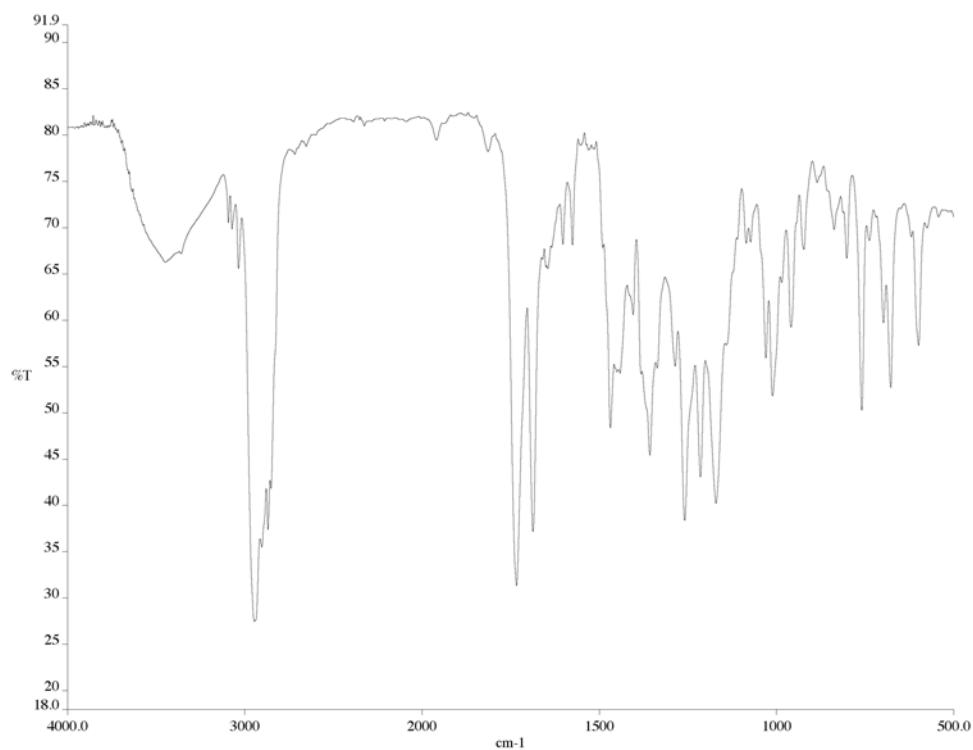


Figure A5.29 Infrared spectrum (thin film/NaCl) of compound **175h**.

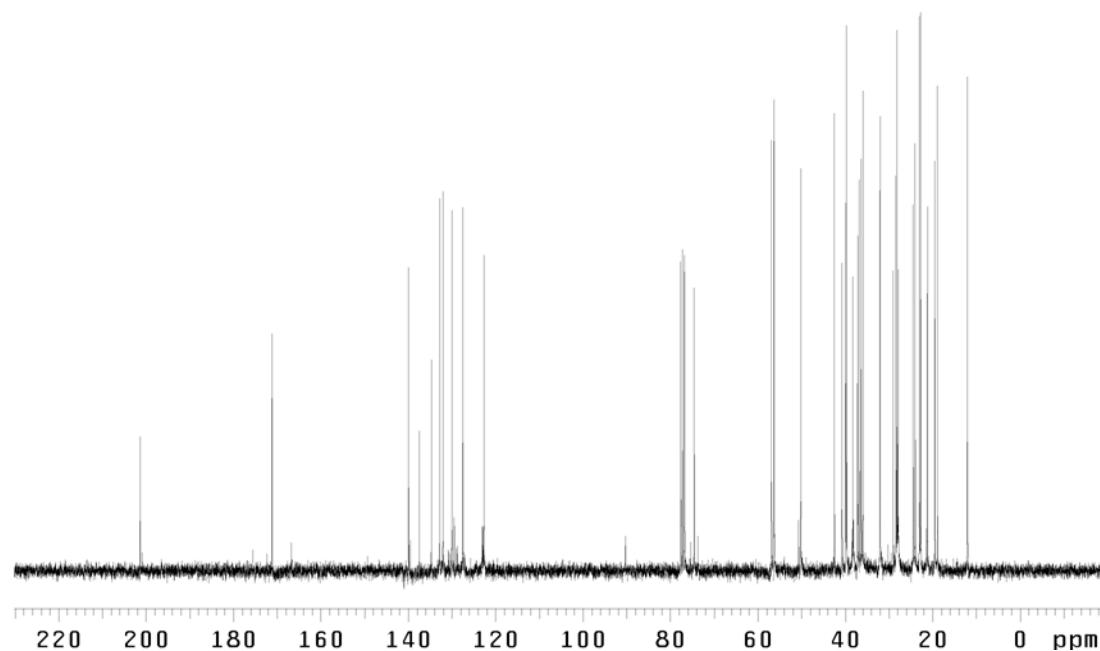


Figure A5.30 ^{13}C NMR (75 MHz, CDCl_3) of compound **175h**.

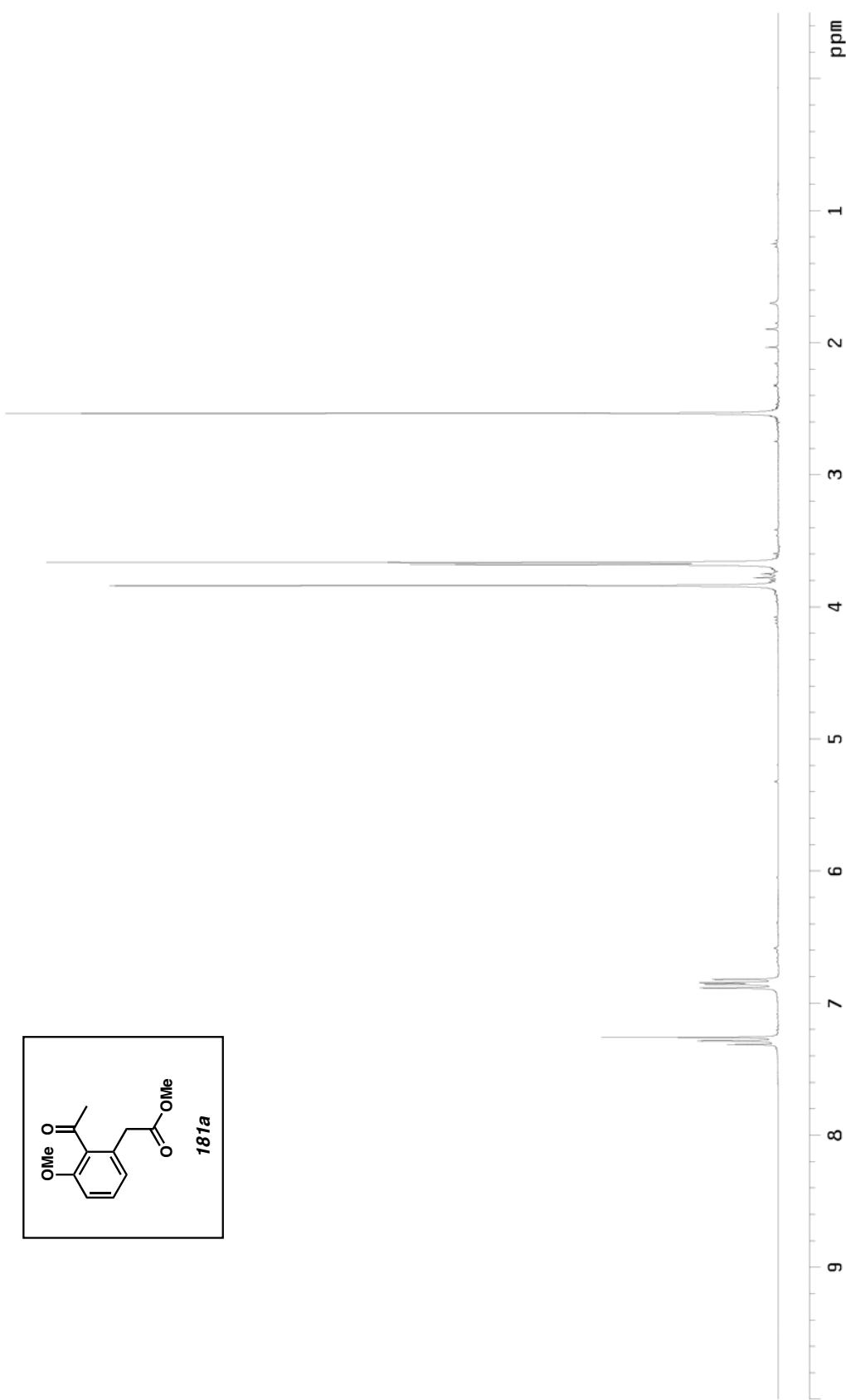


Figure A5.31 ^1H NMR (300 MHz, CDCl_3) of compound **181a**.

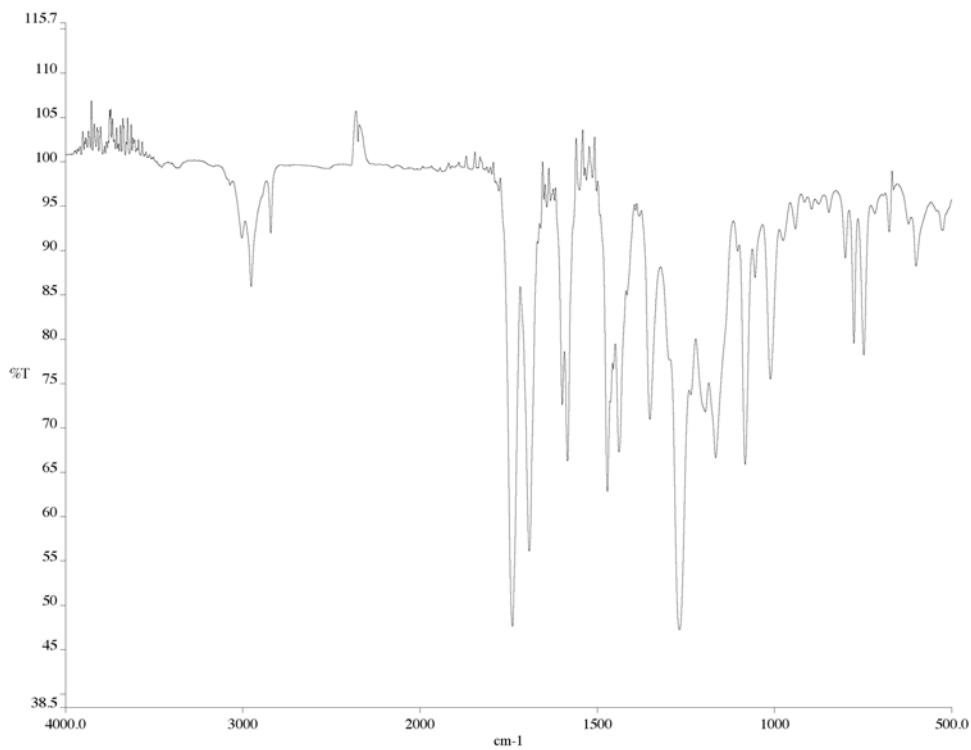


Figure A5.32 Infrared spectrum (thin film/NaCl) of compound **181a**.

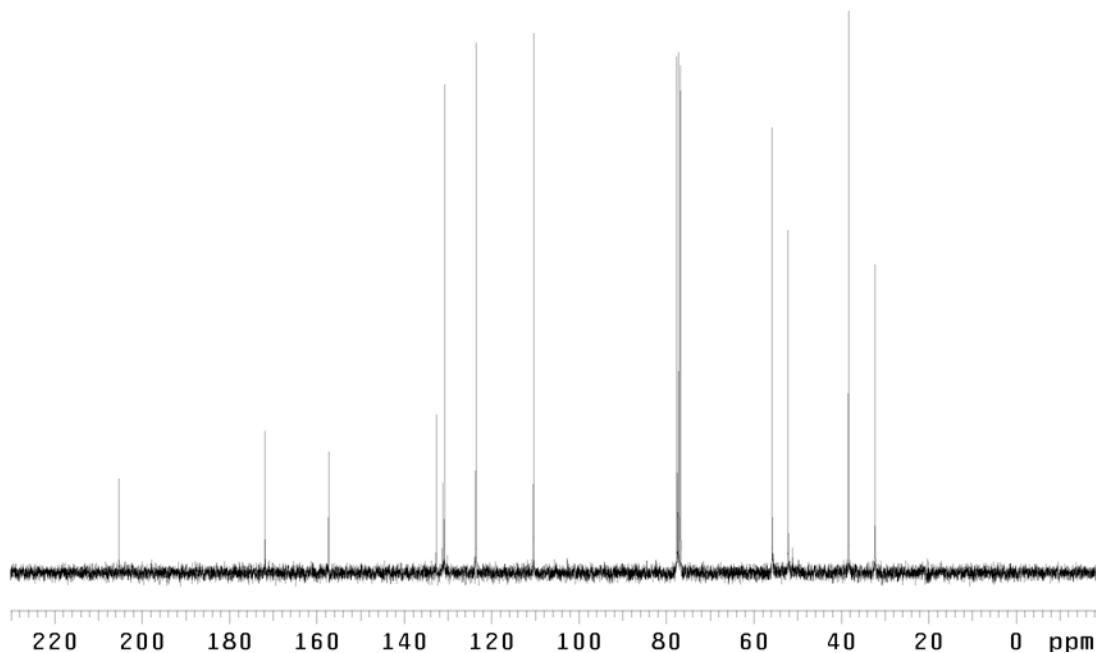


Figure A5.33 ¹³C NMR (75 MHz, CDCl₃) of compound **181a**.

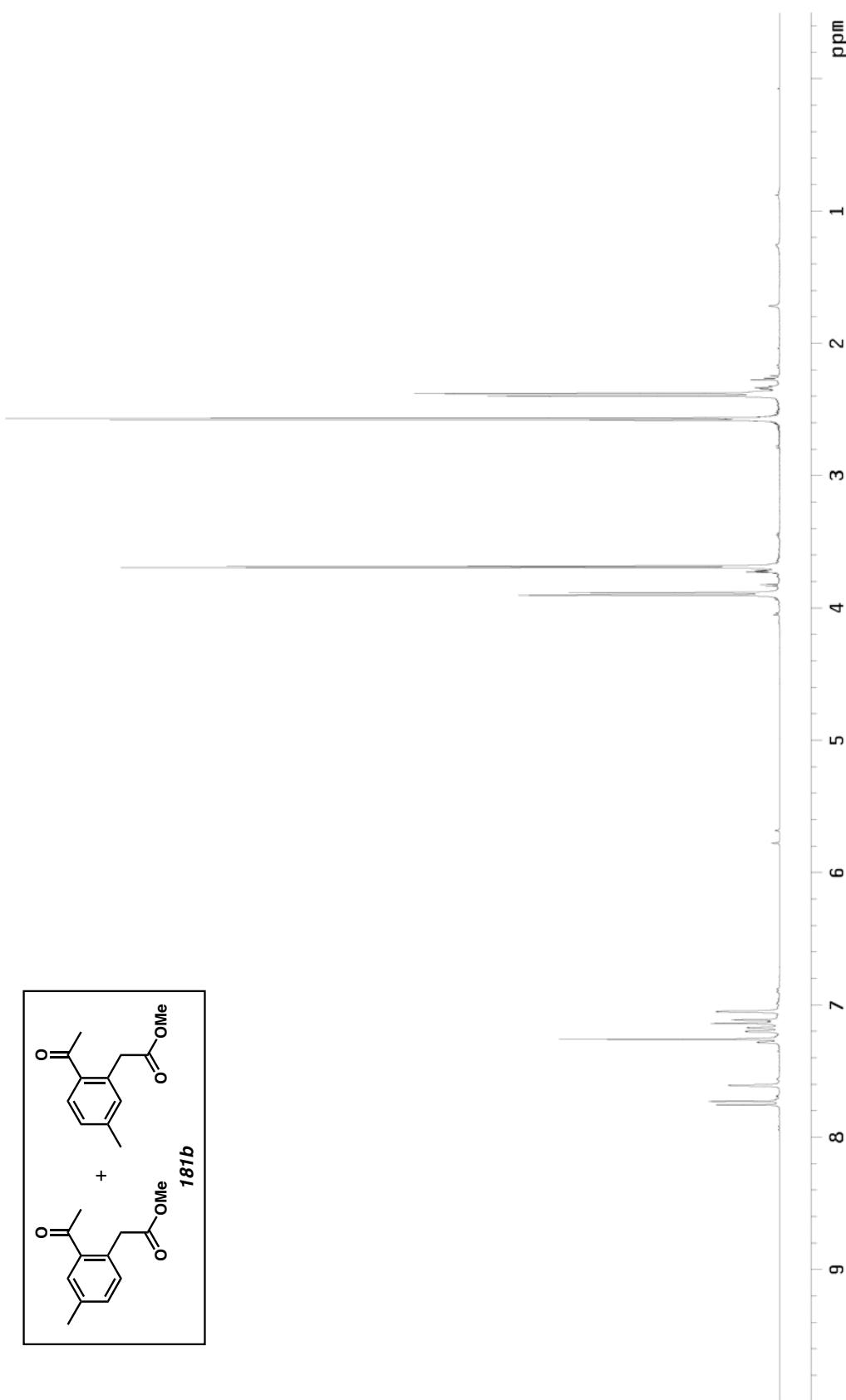


Figure A5.34 ^1H NMR (300 MHz, CDCl_3) of compound **181b**.

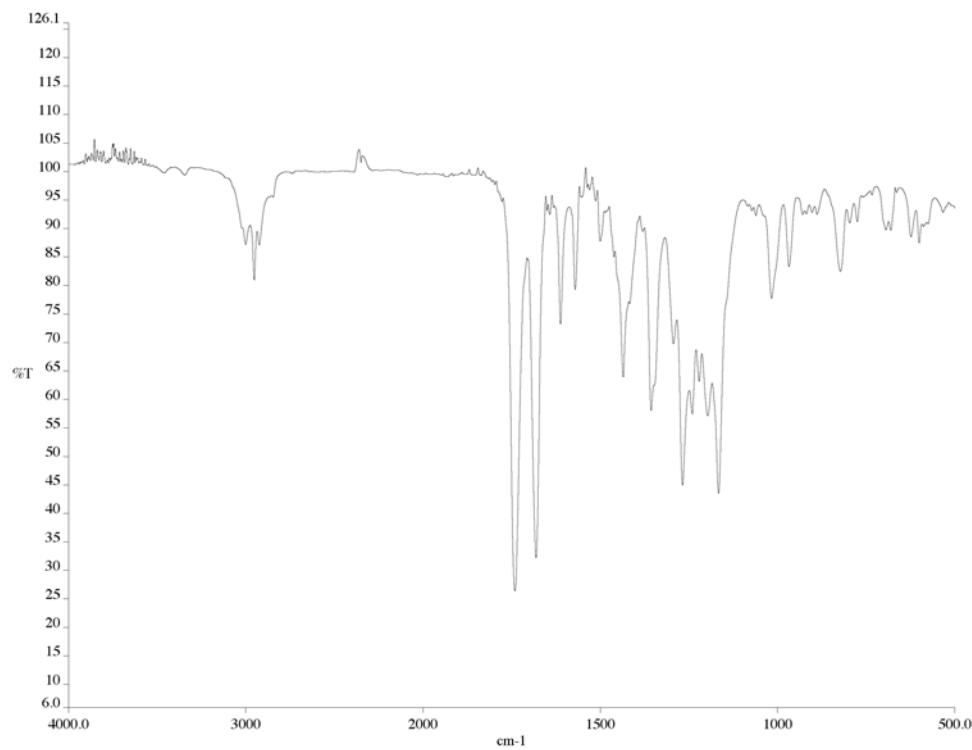


Figure A5.35 Infrared spectrum (thin film/NaCl) of compound **181b**.

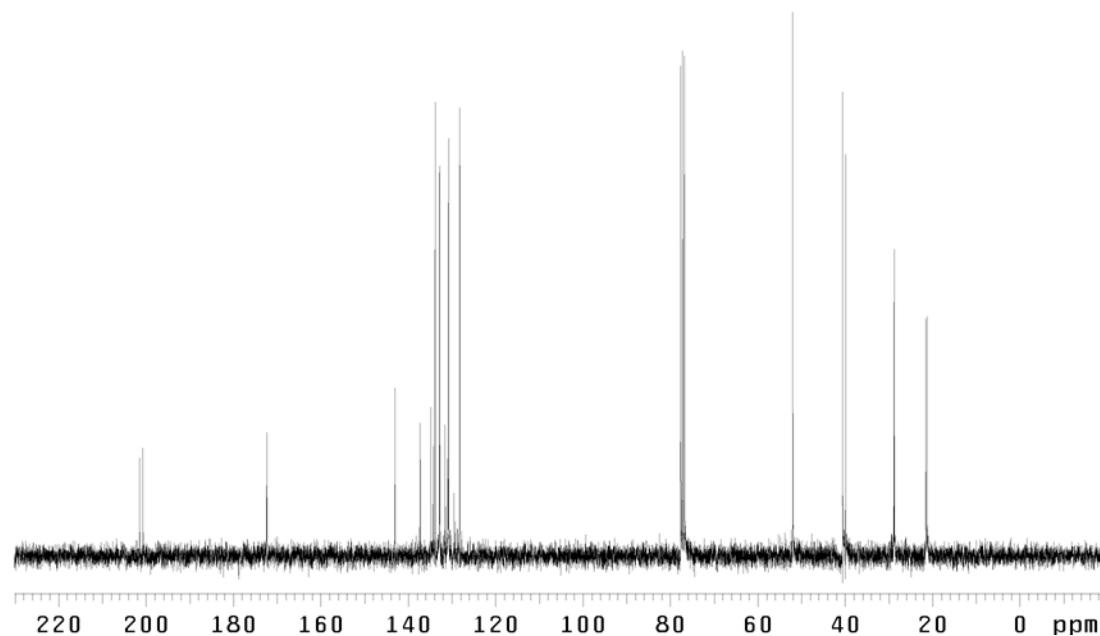


Figure A5.36 ^{13}C NMR (75 MHz, CDCl_3) of compound **181b**.

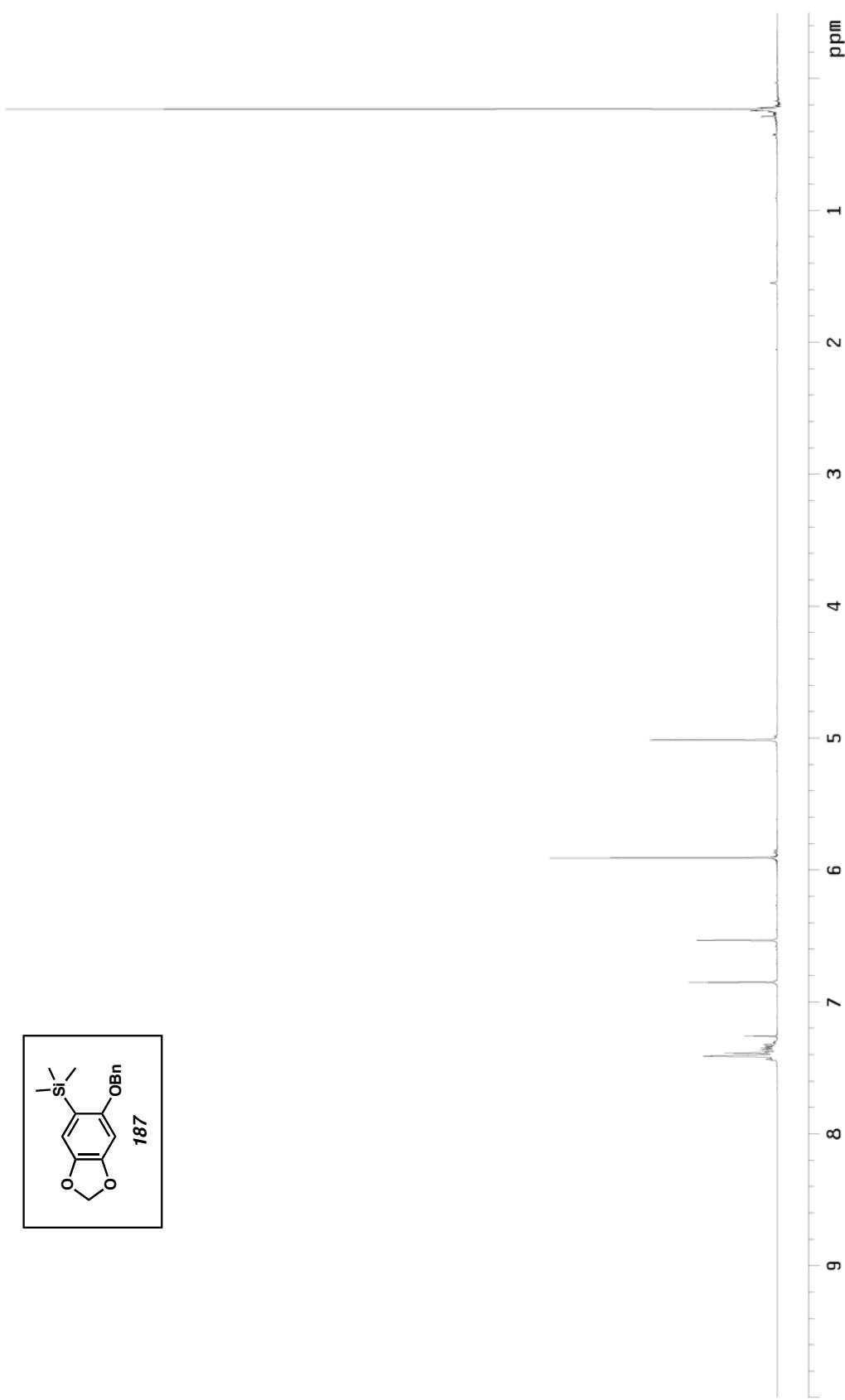


Figure A5.37 ^1H NMR (300 MHz, CDCl_3) of compound 187.

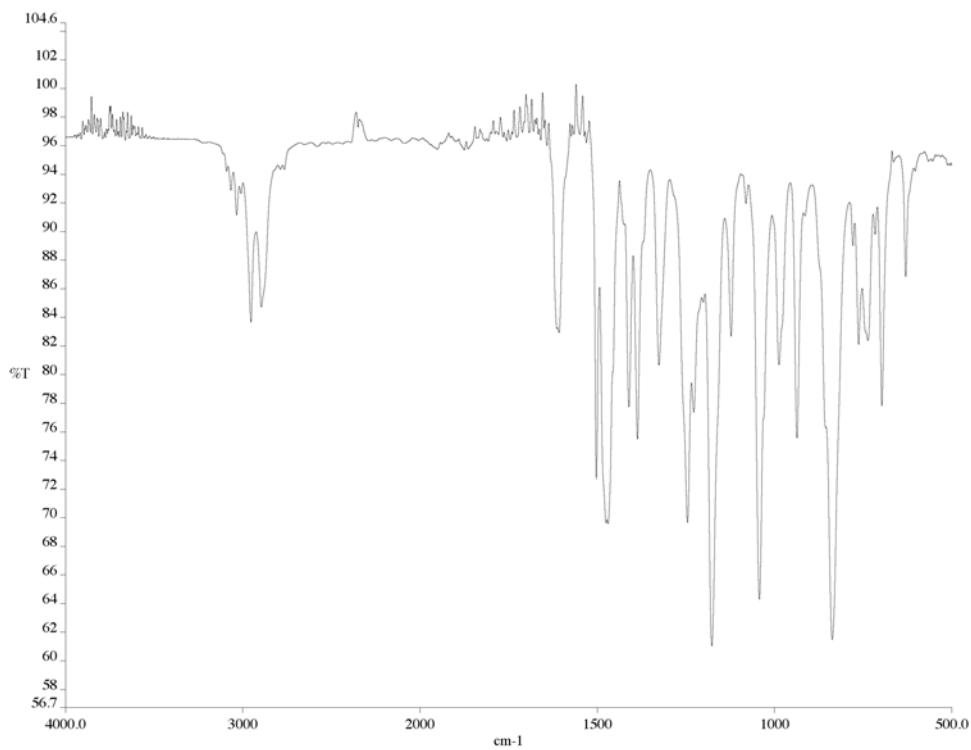


Figure A5.38 Infrared spectrum (thin film/NaCl) of compound **187**.

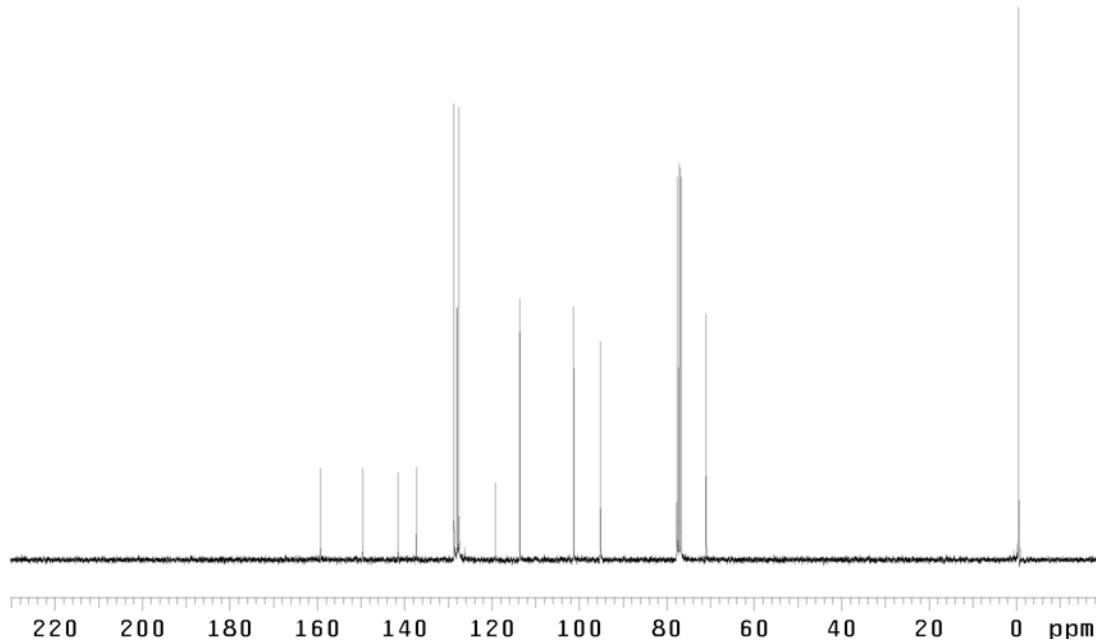


Figure A5.39 ^{13}C NMR (75 MHz, CDCl_3) of compound **187**.

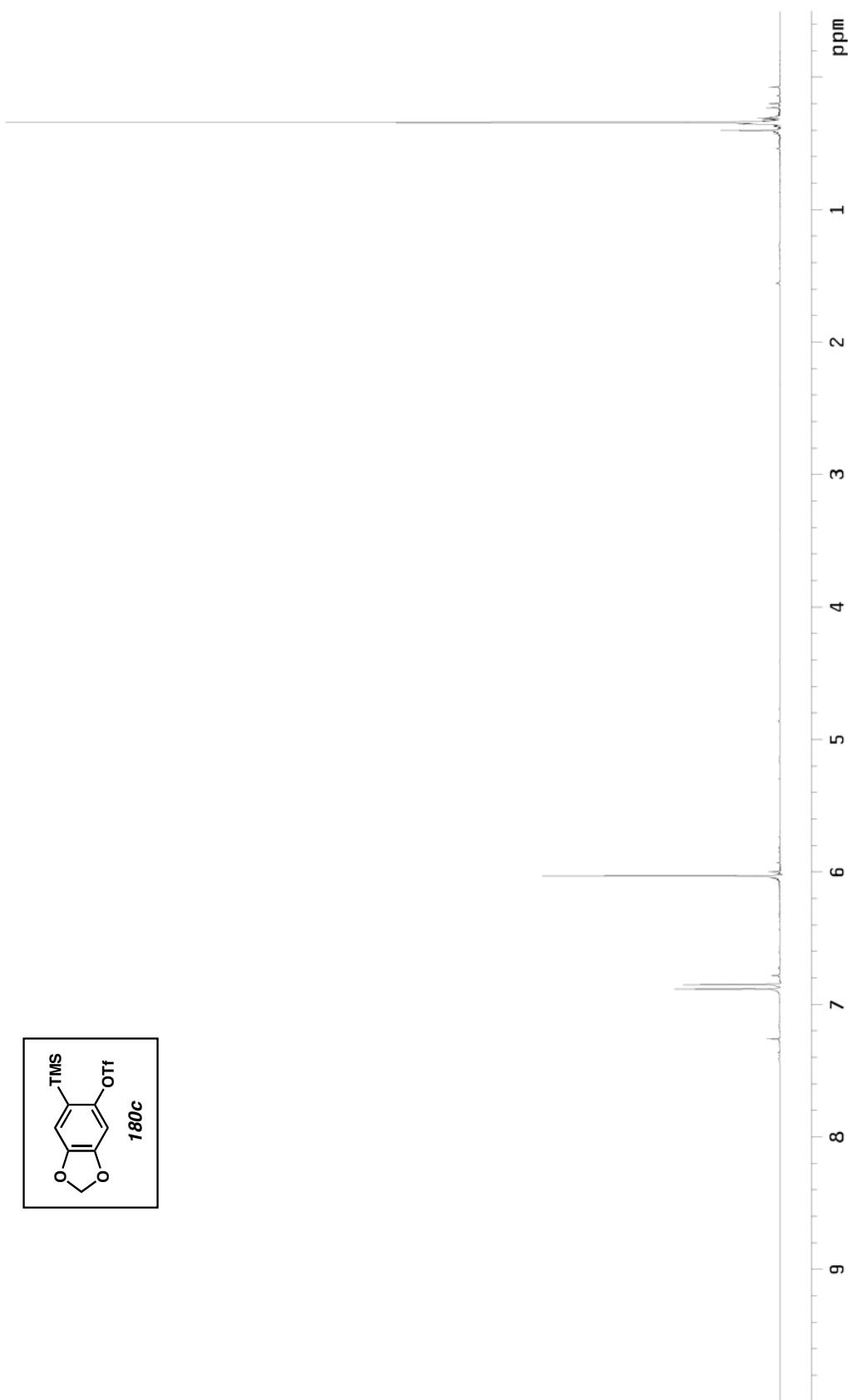
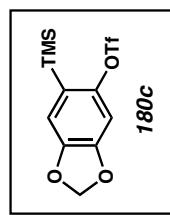


Figure A5.40 ¹H NMR (500 MHz, CDCl₃) of compound 180c.



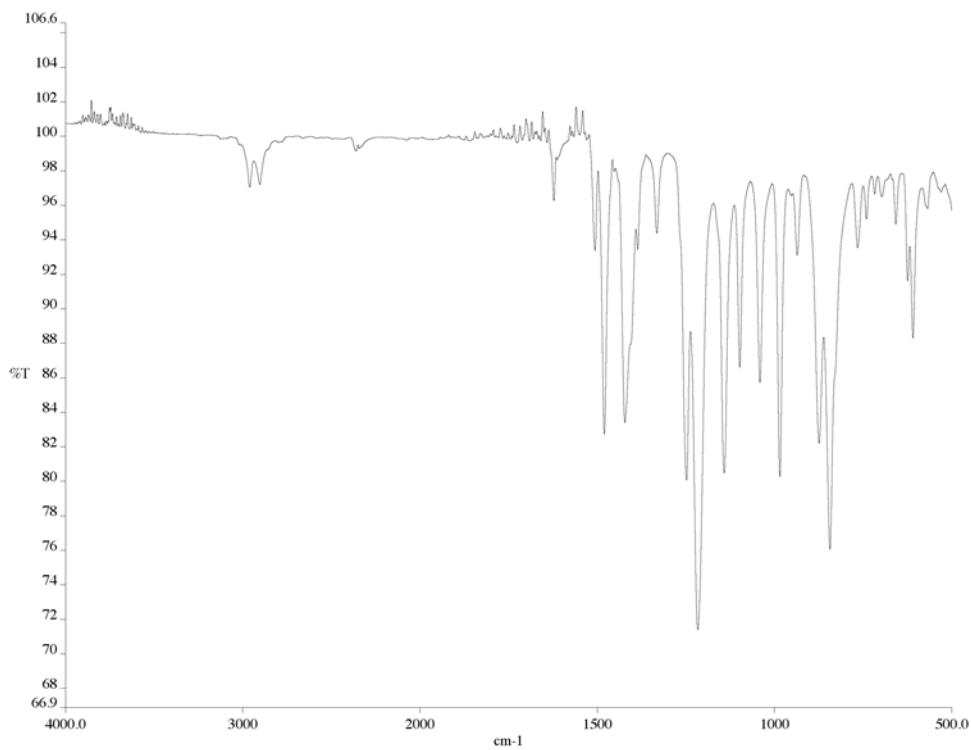


Figure A5.41 Infrared spectrum (thin film/NaCl) of compound **180c**.

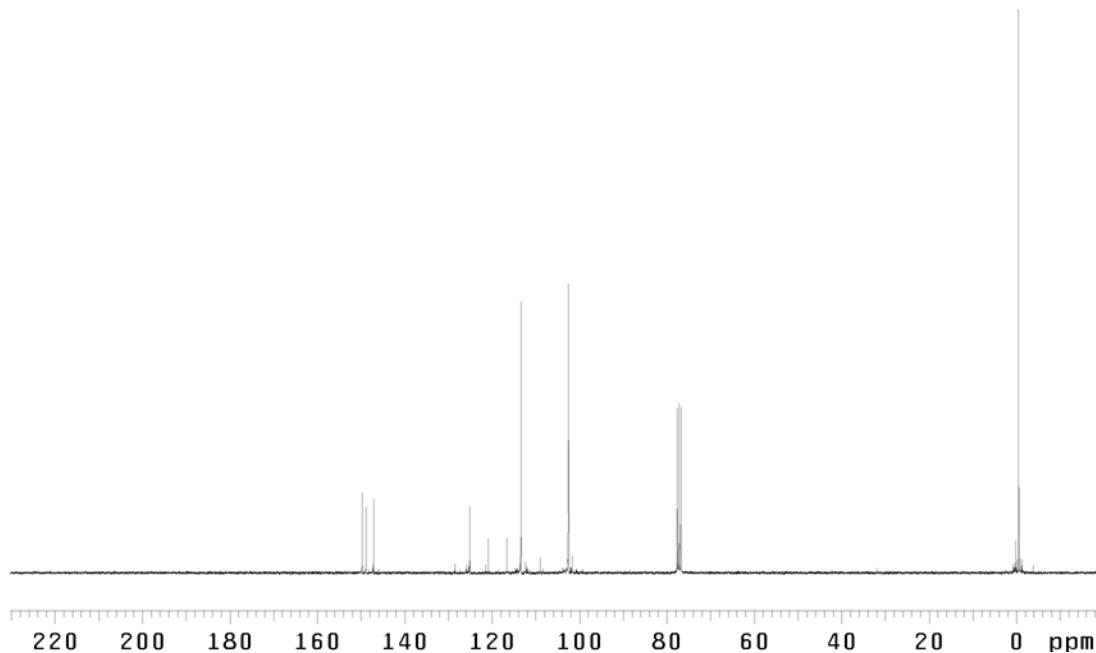


Figure A5.42 ^{13}C NMR (125 MHz, CDCl_3) of compound **180c**.

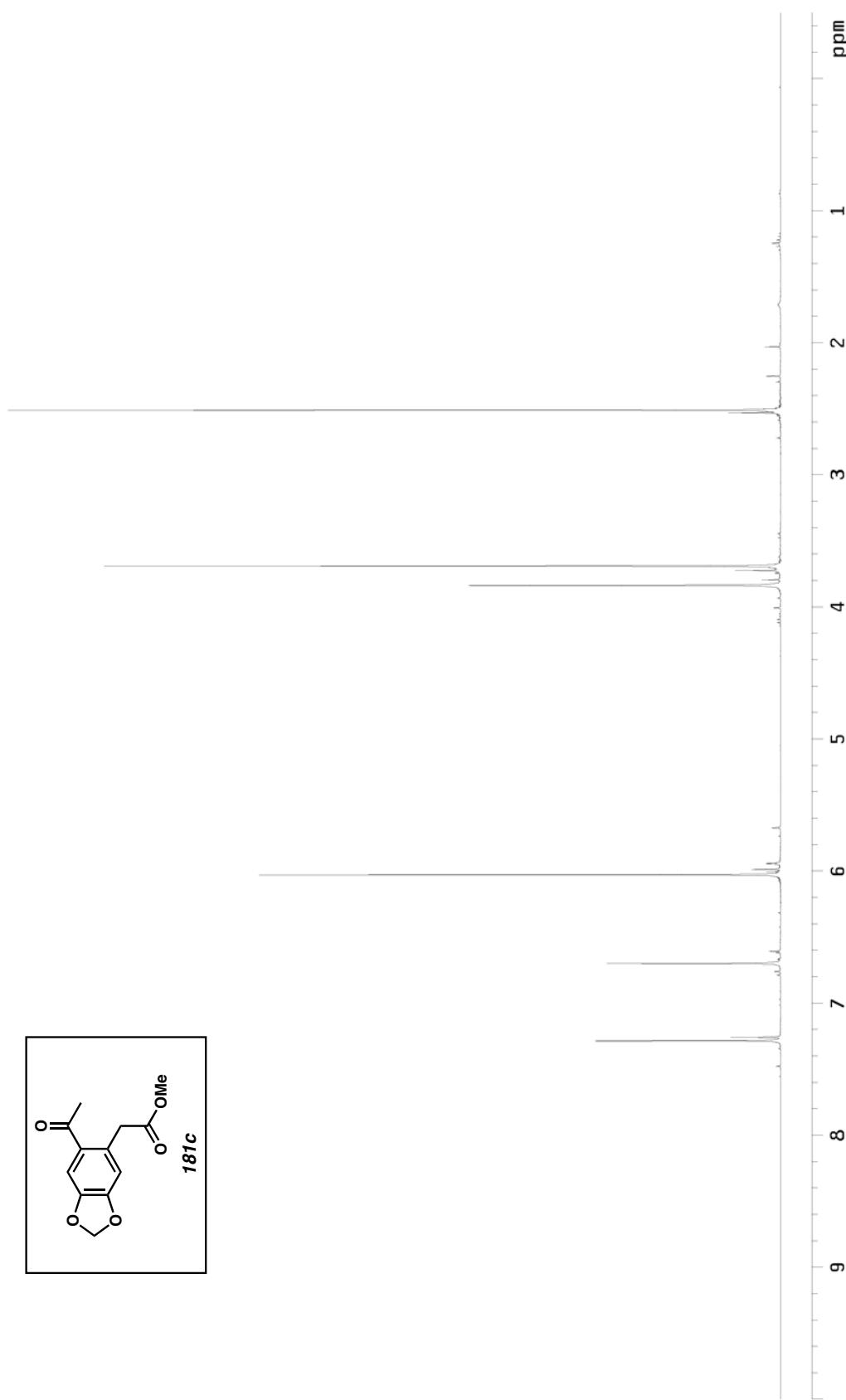


Figure A5.43 ^1H NMR (300 MHz, CDCl_3) of compound **181c**.

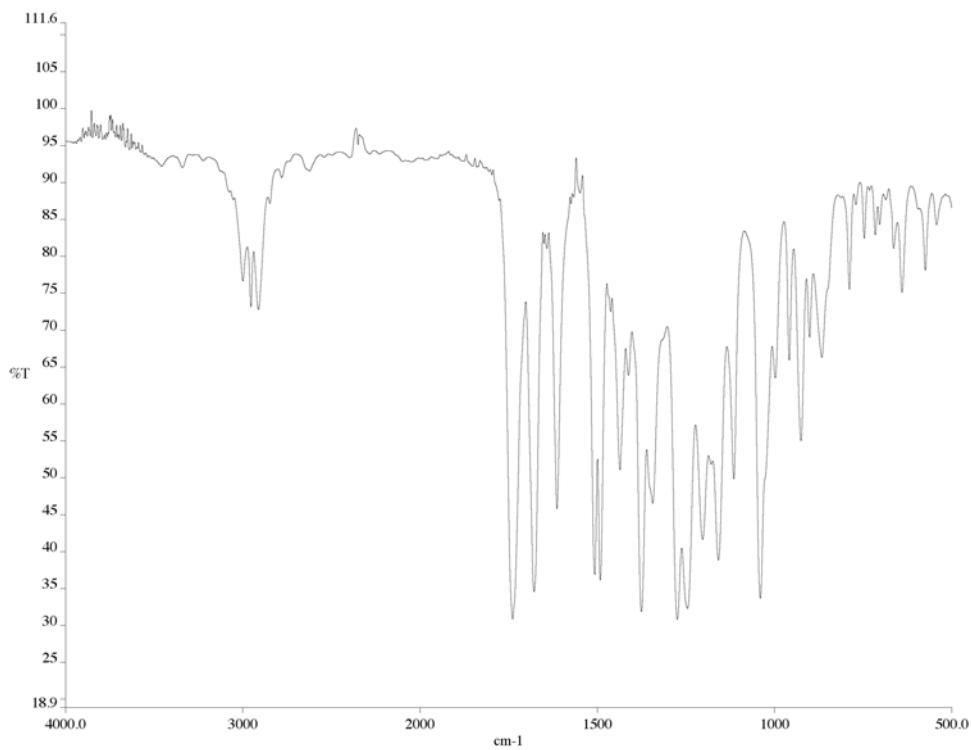


Figure A5.44 Infrared spectrum (thin film/NaCl) of compound **181c**.

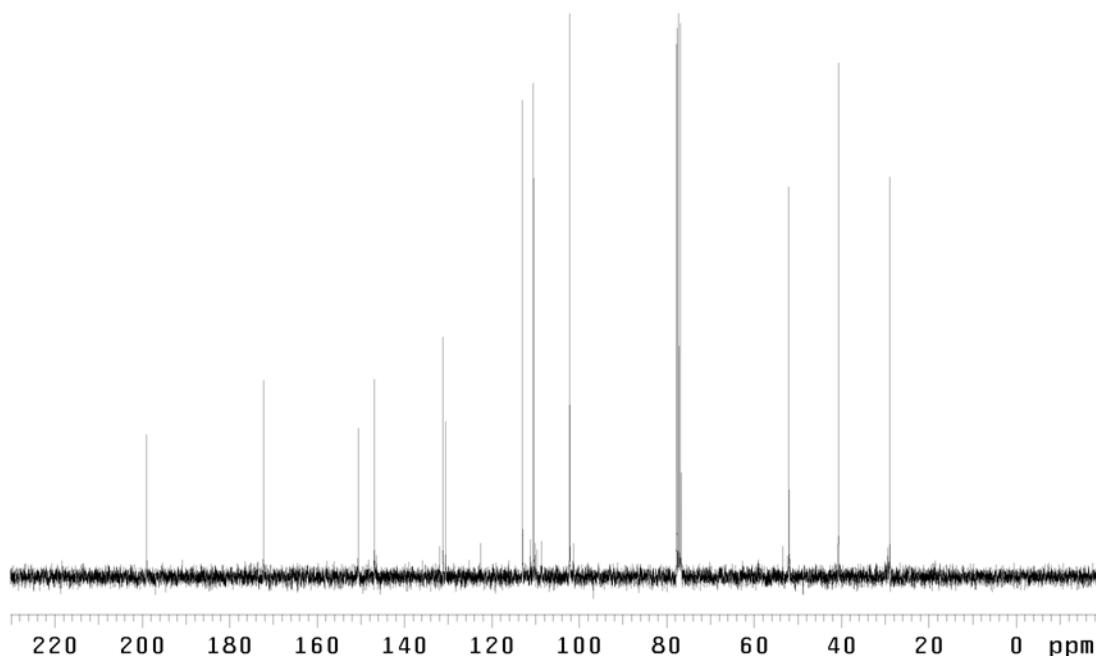


Figure A5.45 ^{13}C NMR (75 MHz, CDCl_3) of compound **181c**.

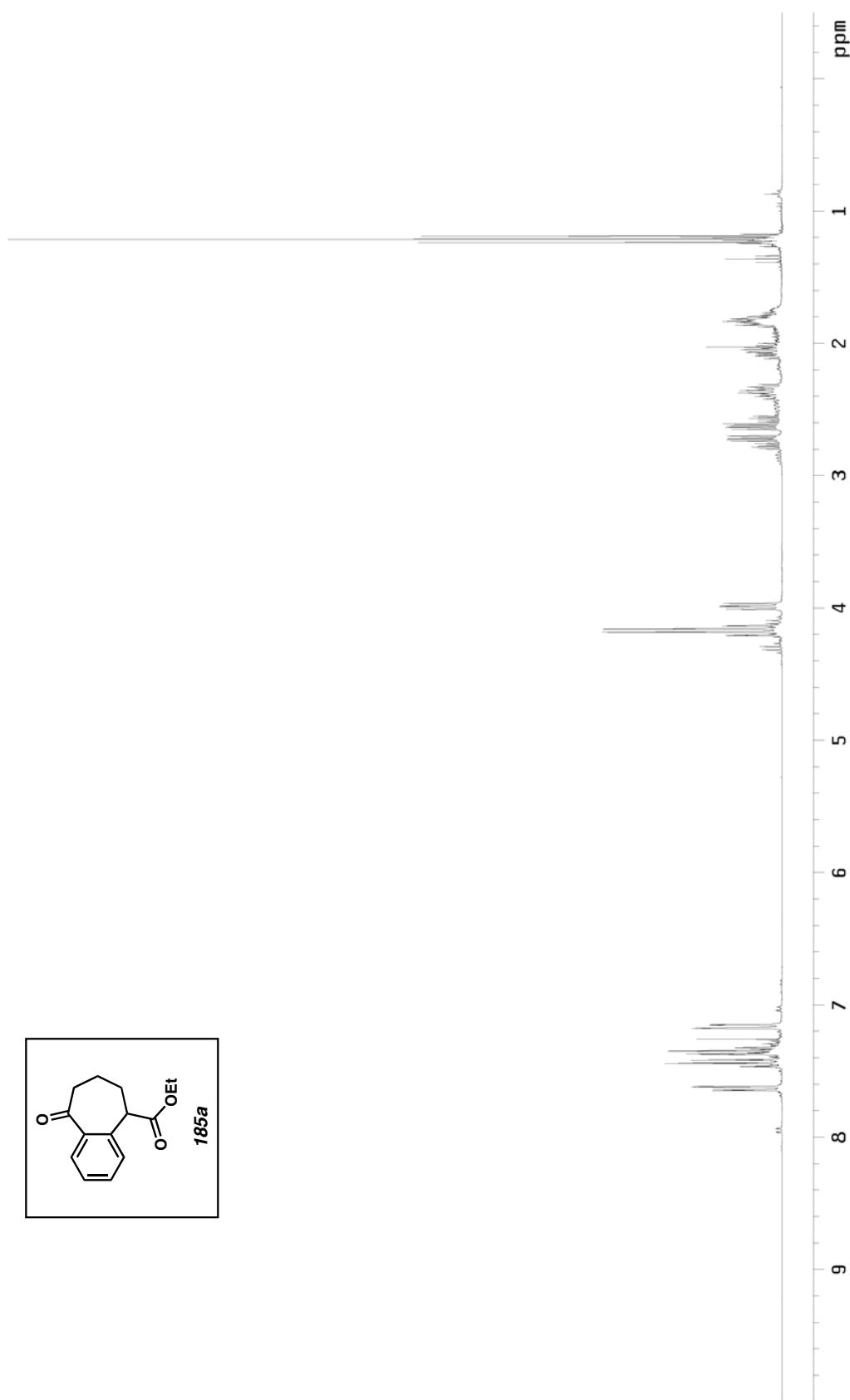


Figure A5.46 ^1H NMR (300 MHz, CDCl_3) of compound **185a**.

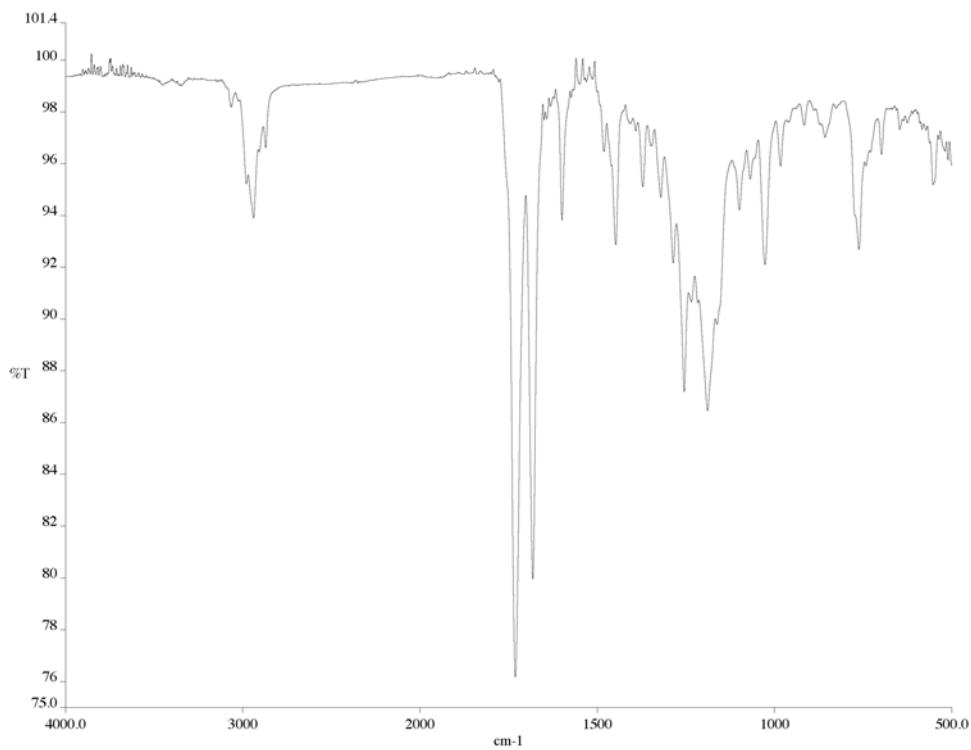


Figure A5.47 Infrared spectrum (thin film/NaCl) of compound **185a**.

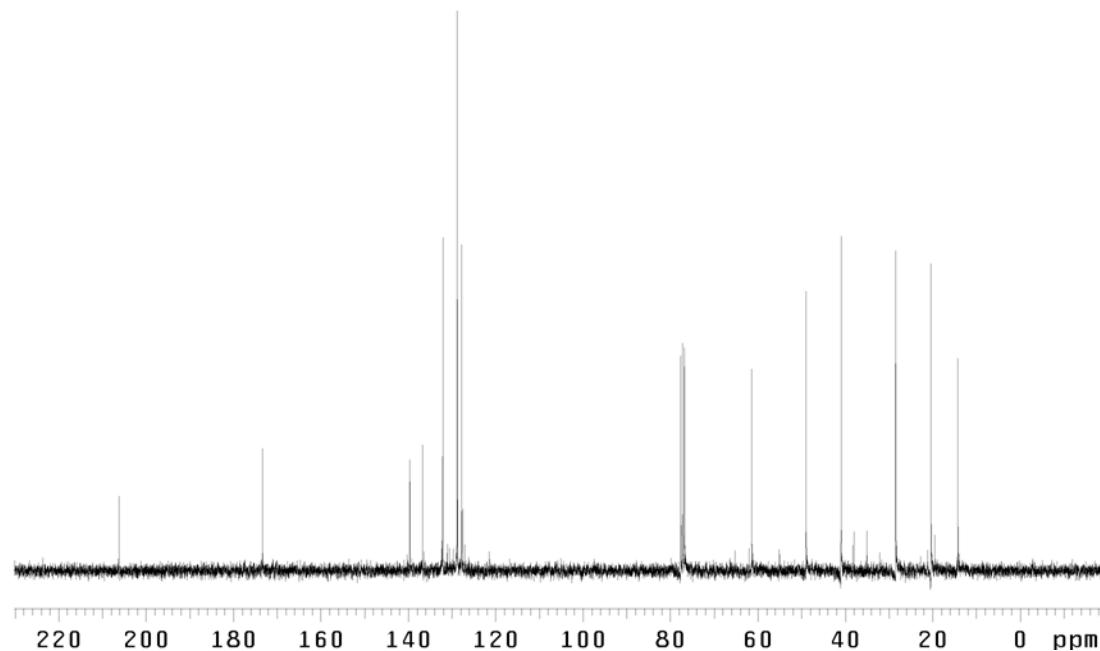


Figure A5.48 ^{13}C NMR (75 MHz, CDCl_3) of compound **185a**.

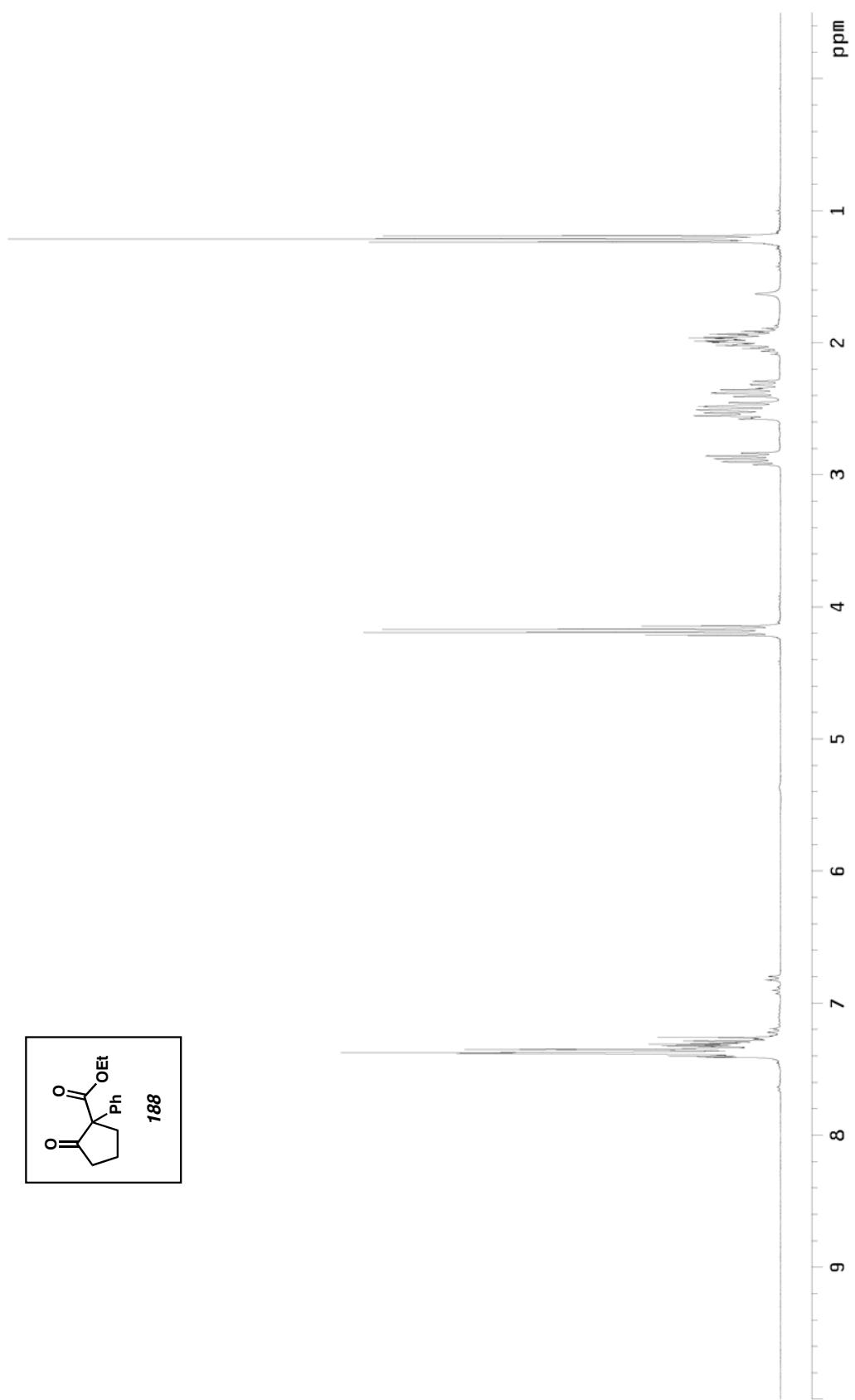


Figure A5.49 ^1H NMR (300 MHz, CDCl_3) of compound **188**.

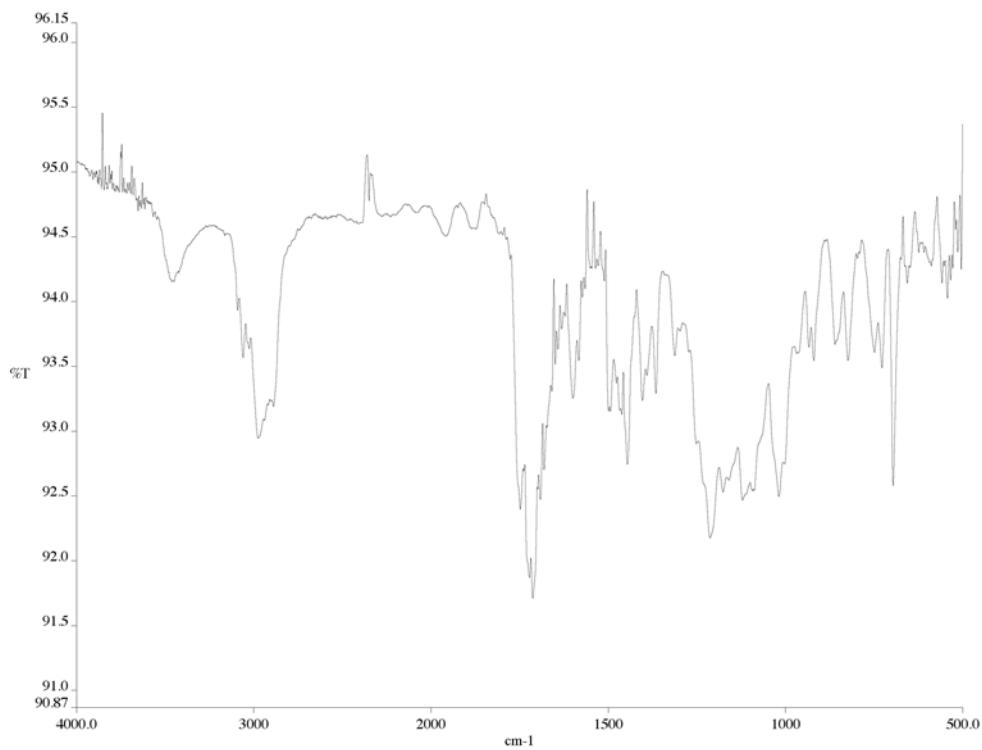


Figure A5.50 Infrared spectrum (thin film/NaCl) of compound **188**.

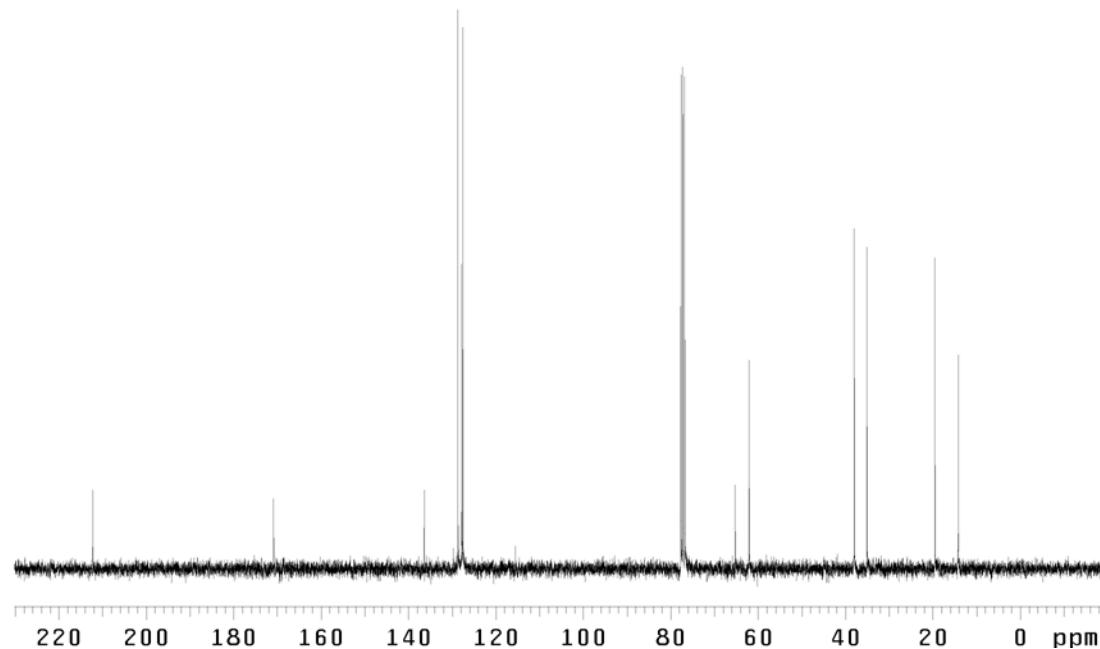


Figure A5.51 ^{13}C NMR (75 MHz, CDCl_3) of compound **188**.

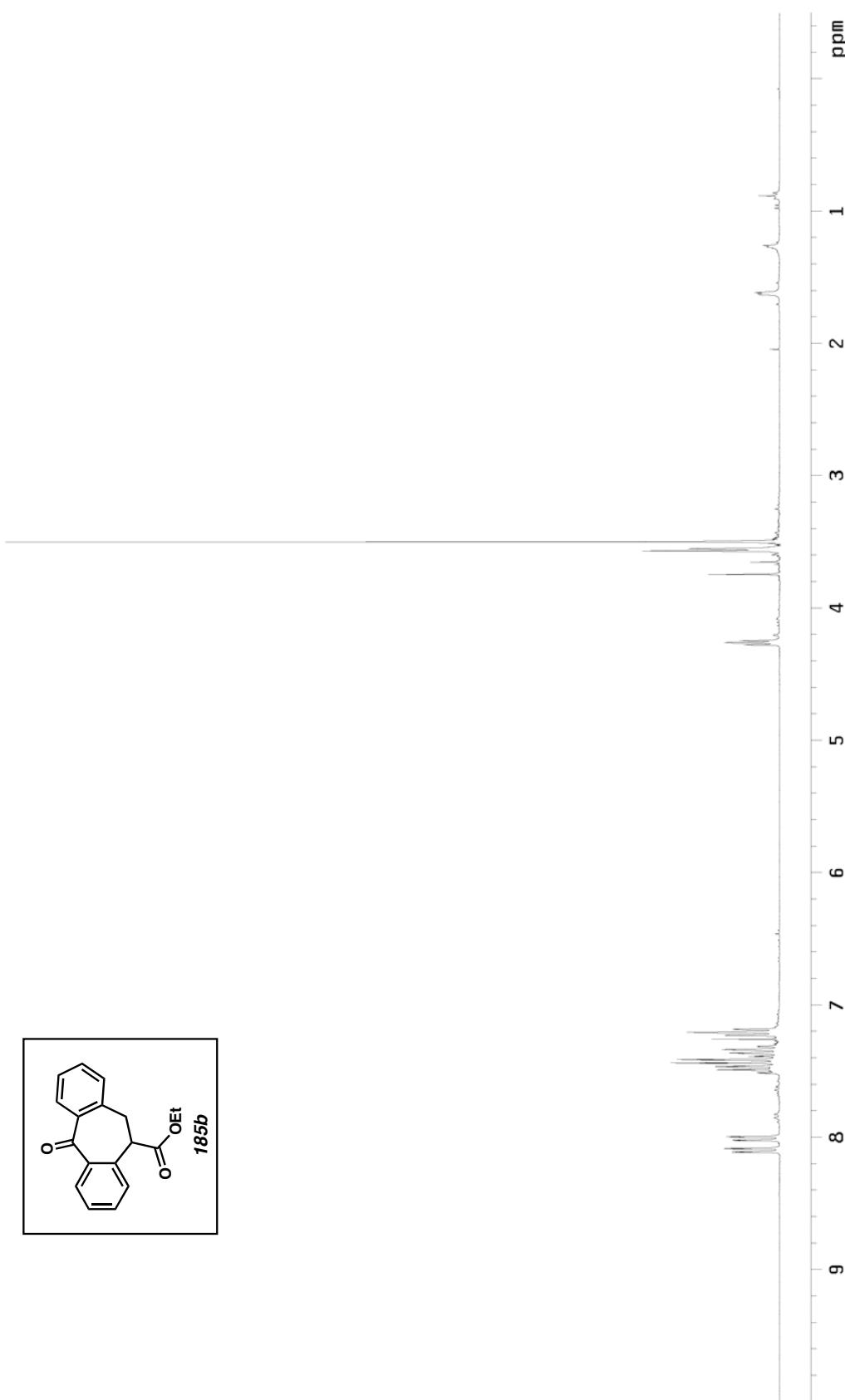


Figure A5.52 ^1H NMR (300 MHz, CDCl_3) of compound **185b**.

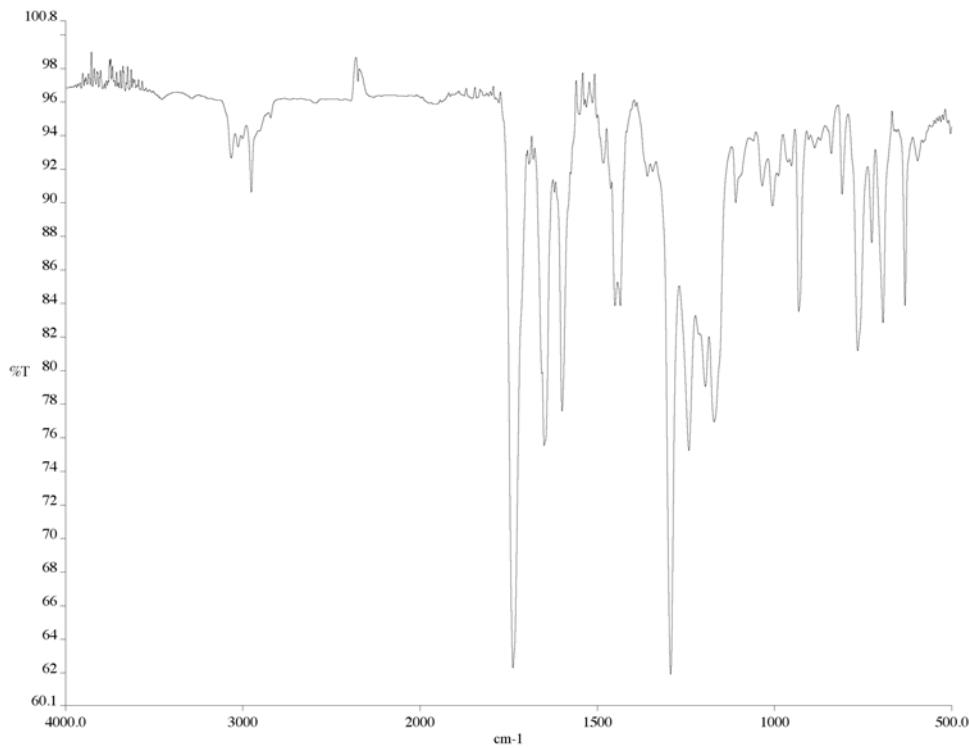


Figure A5.53 Infrared spectrum (thin film/NaCl) of compound **185b**.

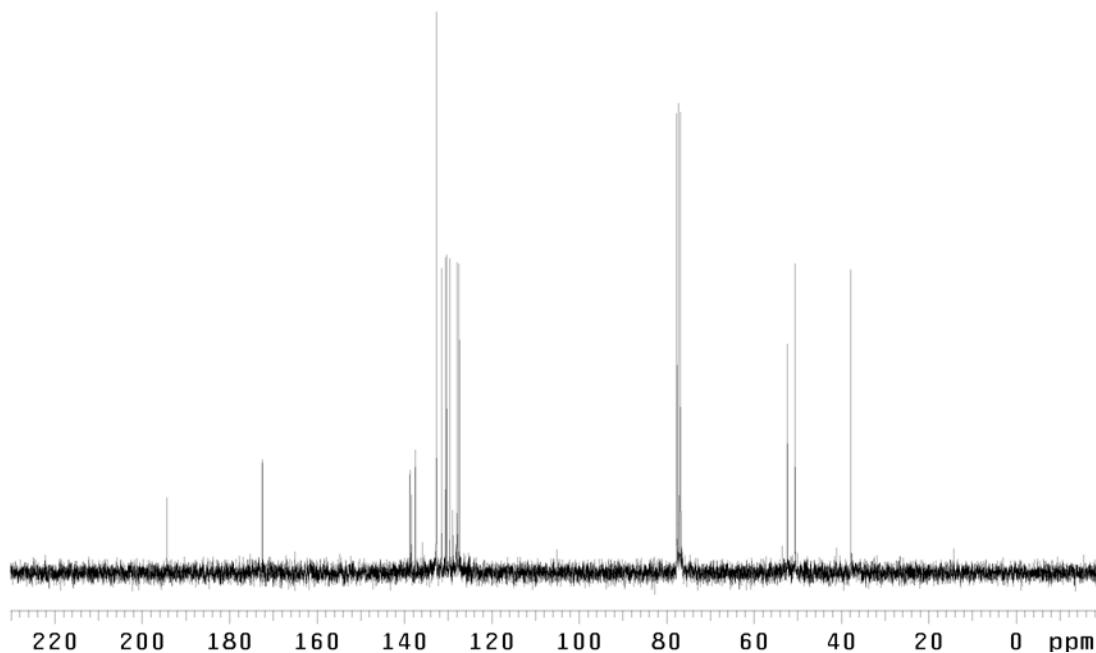


Figure A5.54 ^{13}C NMR (75 MHz, CDCl_3) of compound **185b**.

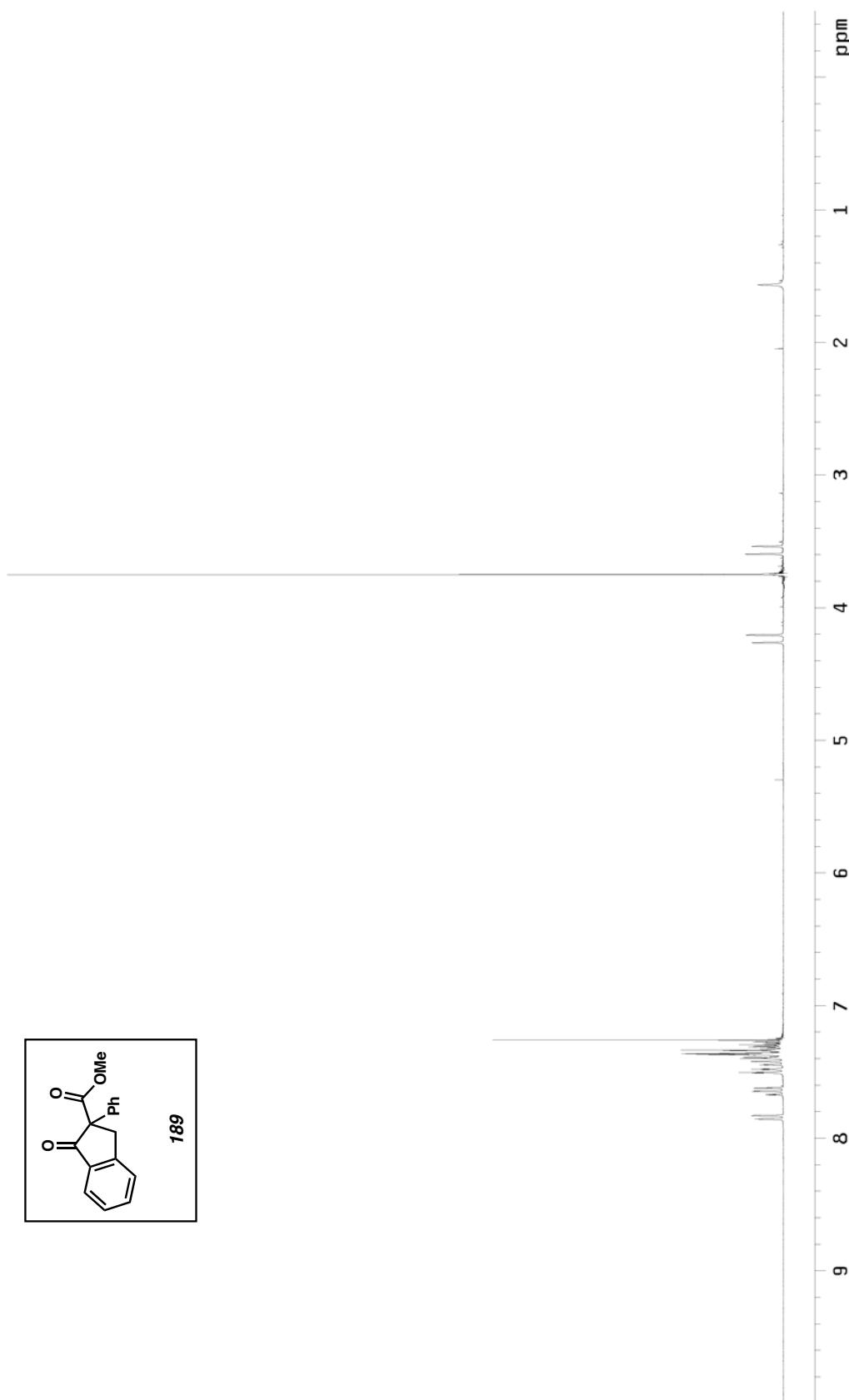
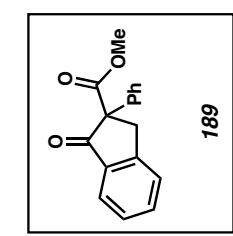


Figure A5.55 ^1H NMR (300 MHz, CDCl_3) of compound 189.

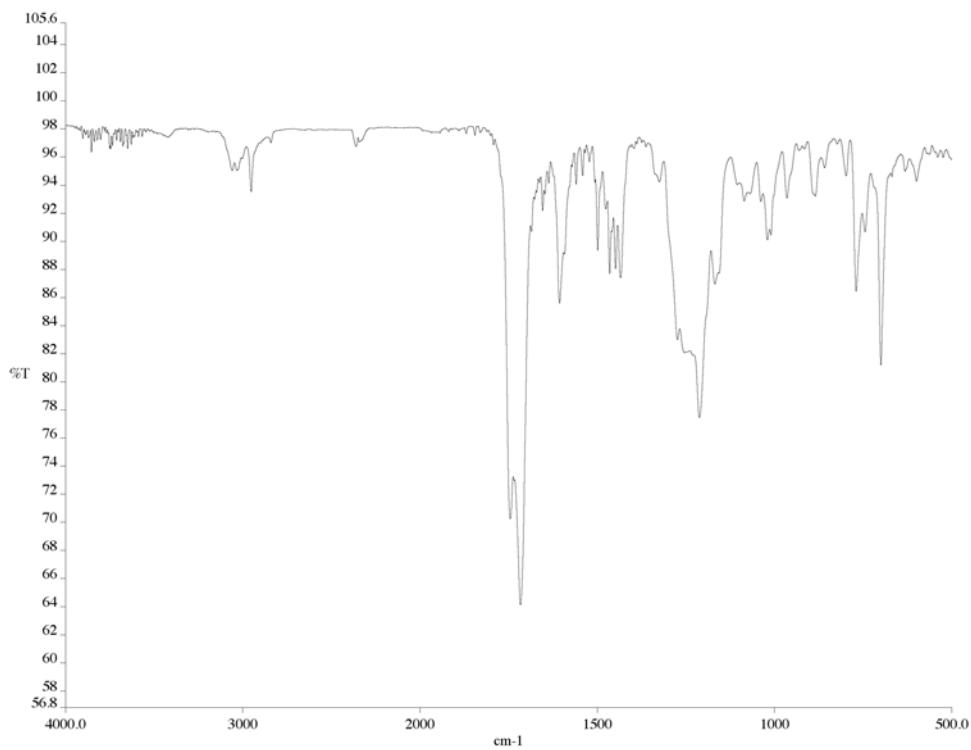


Figure A5.56 Infrared spectrum (thin film/NaCl) of compound **189**.

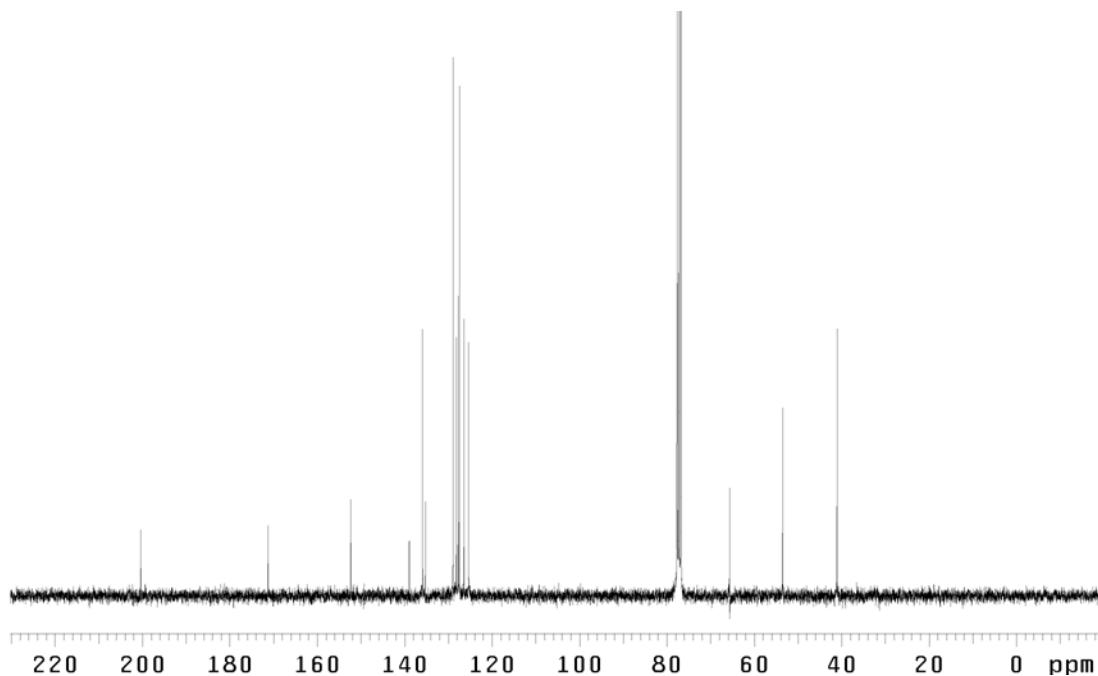


Figure A5.57 ^{13}C NMR (75 MHz, CDCl_3) of compound **189**.

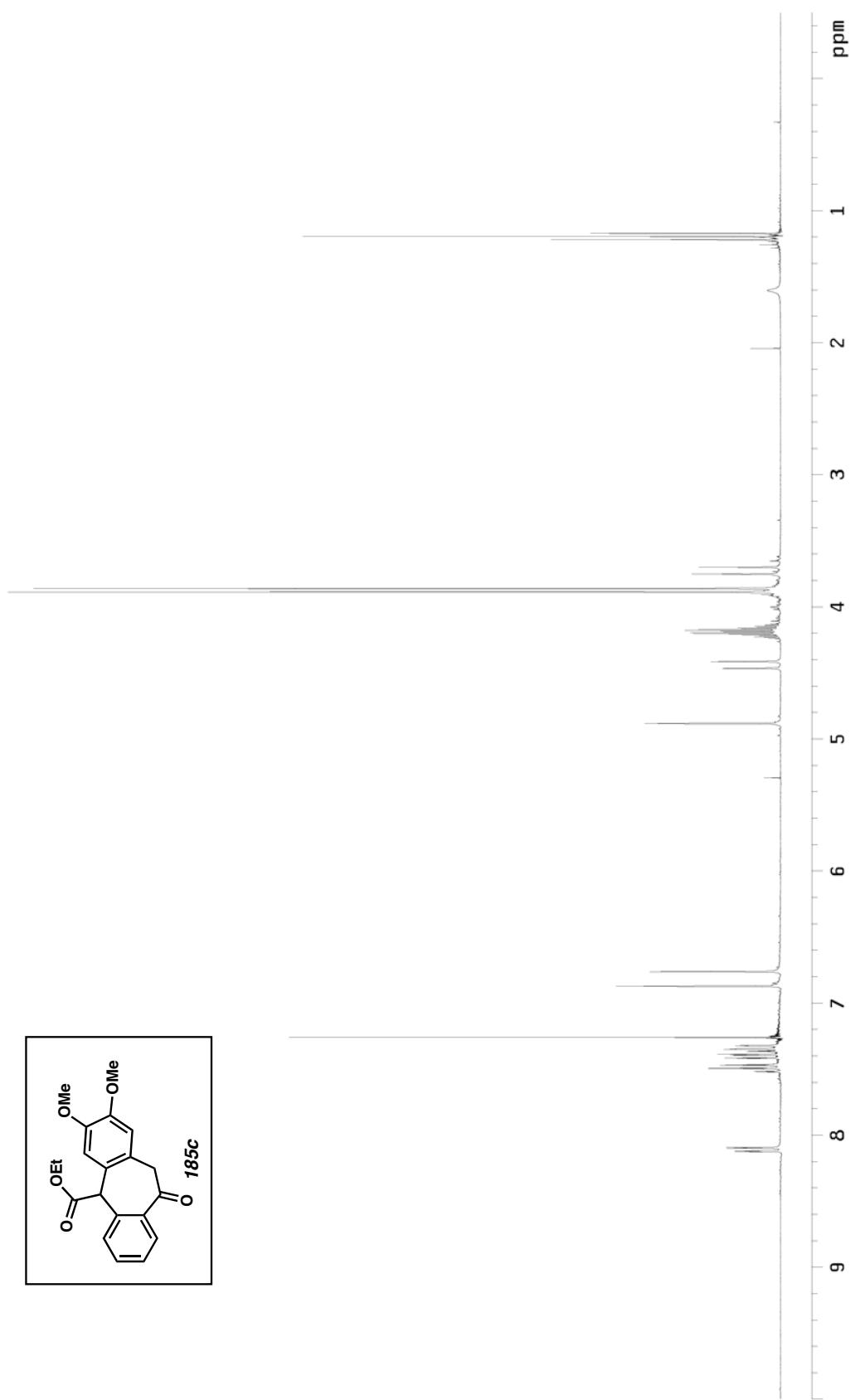


Figure A5.58 ^1H NMR (300 MHz, CDCl_3) of compound **185c**.

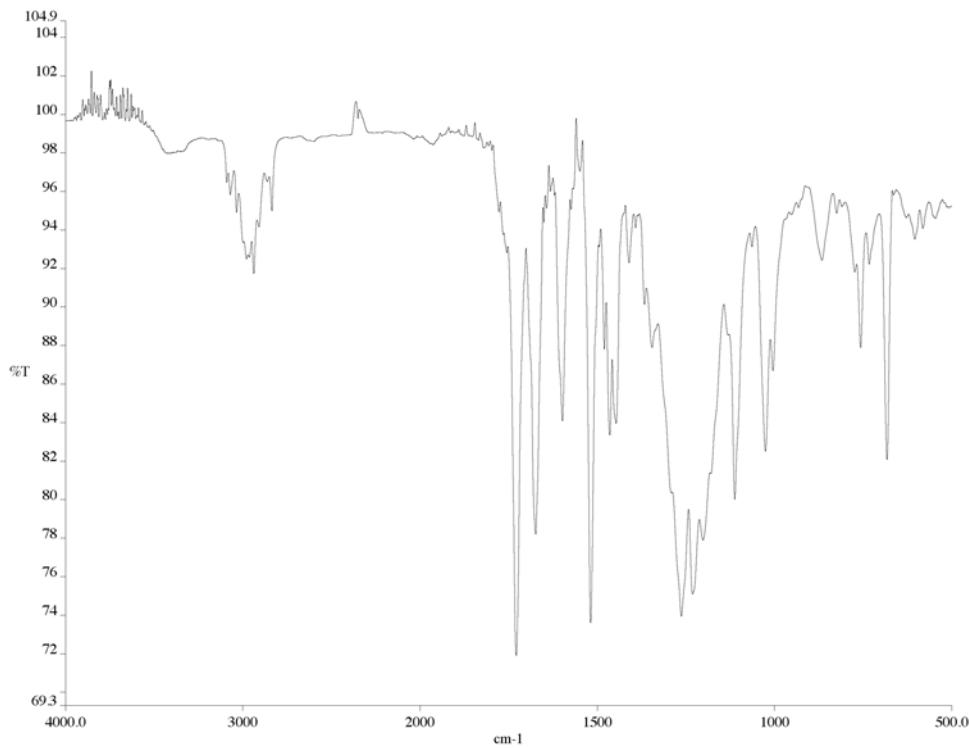


Figure A5.59 Infrared spectrum (thin film/NaCl) of compound **185c**.

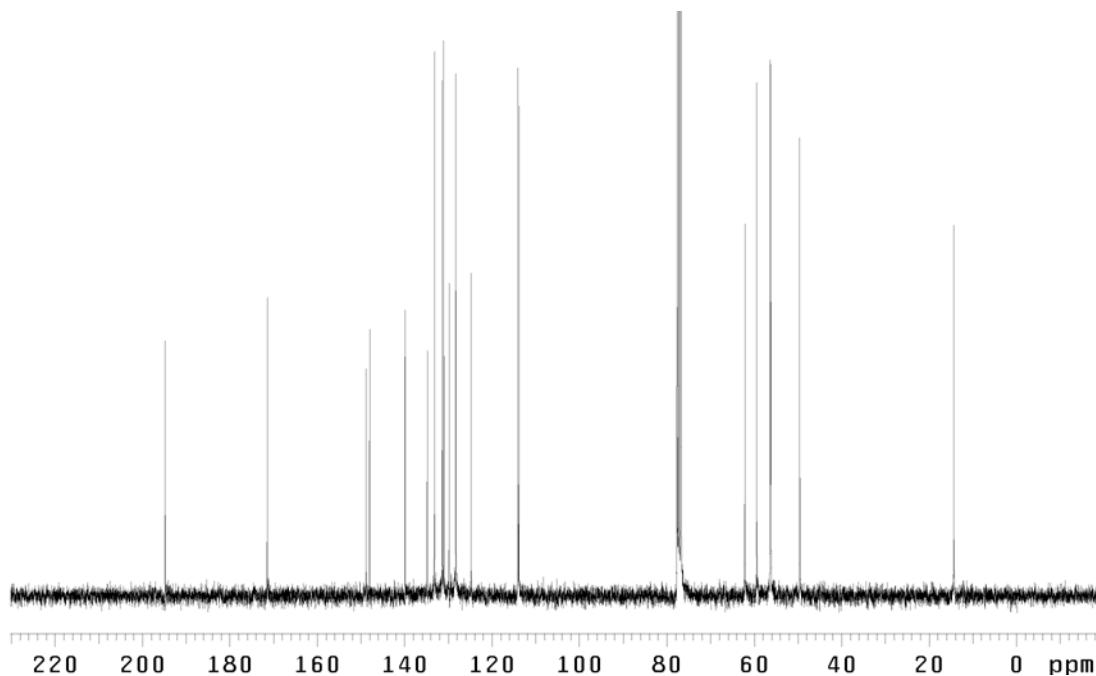


Figure A5.60 ^{13}C NMR (75 MHz, CDCl_3) of compound **185c**.



Figure A5.61 ^1H NMR (300 MHz, CDCl_3) of compound **185d**.

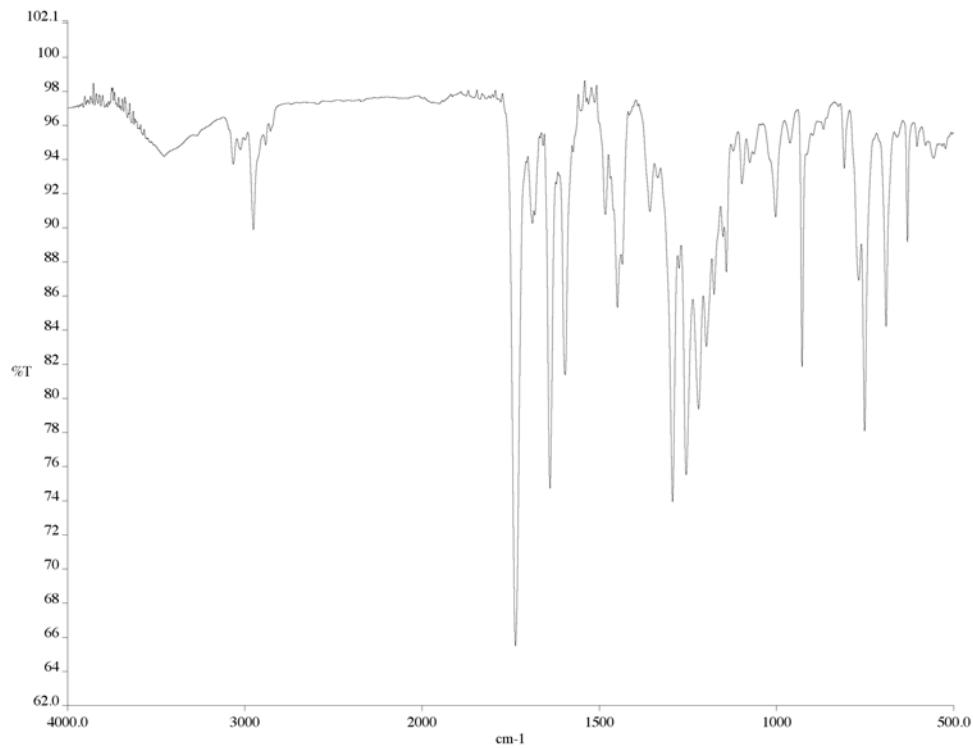


Figure A5.62 Infrared spectrum (thin film/NaCl) of compound **185d**.

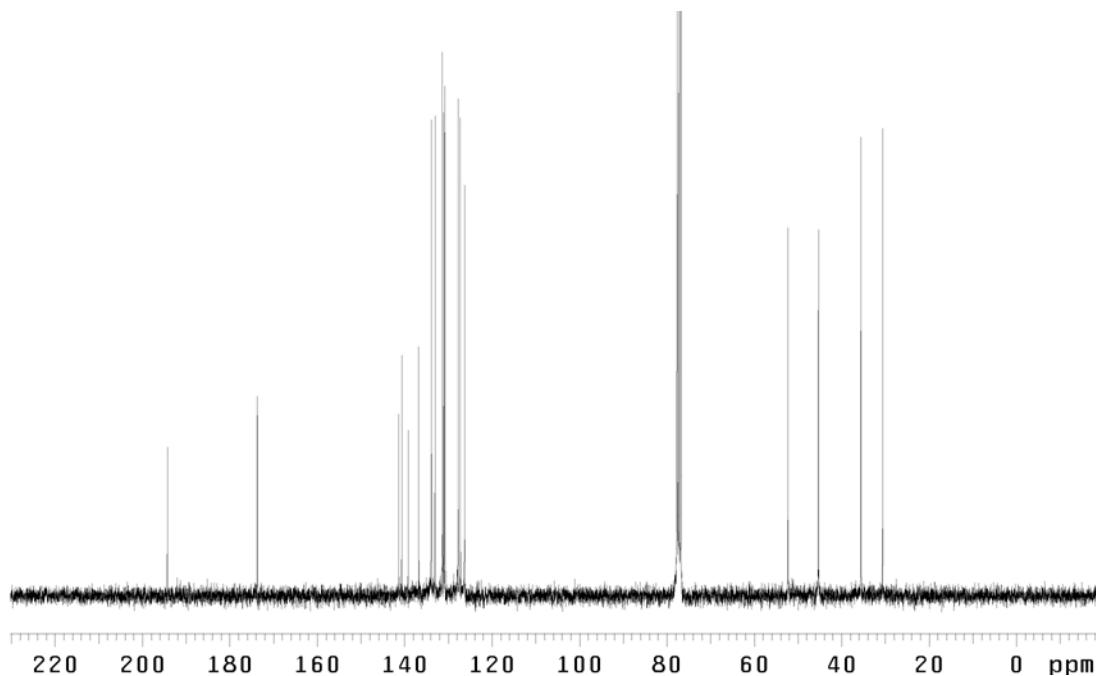


Figure A5.63 ^{13}C NMR (125 MHz, CDCl_3) of compound **185d**.



Figure A5.64 ^1H NMR (300 MHz, CDCl_3) of compound **185e**.

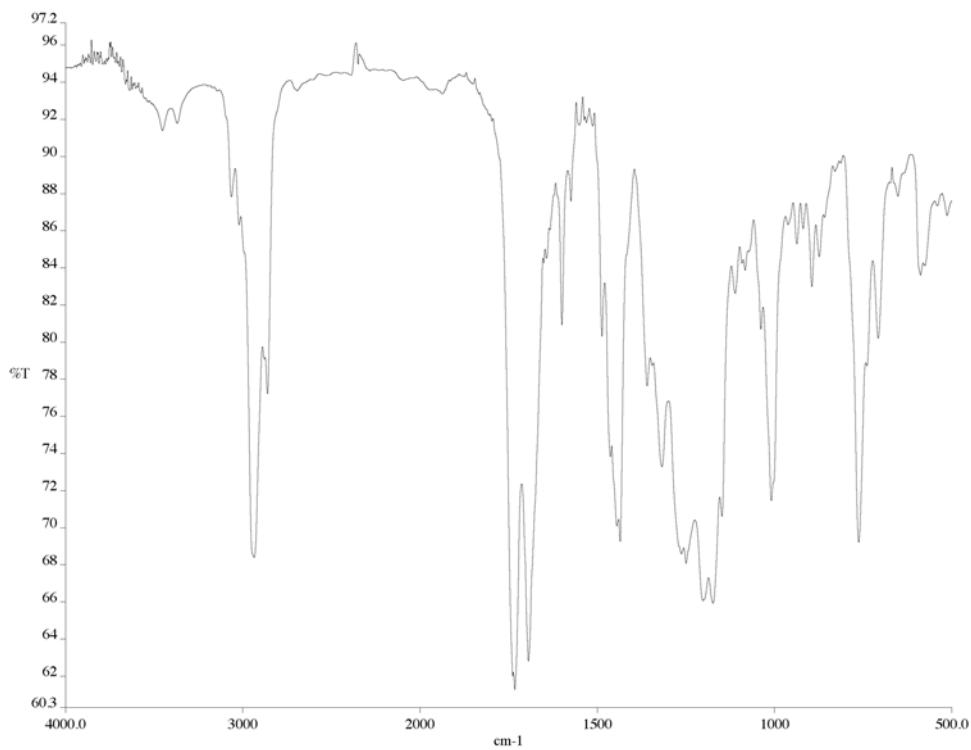


Figure A5.65 Infrared spectrum (thin film/NaCl) of compound **185e**.

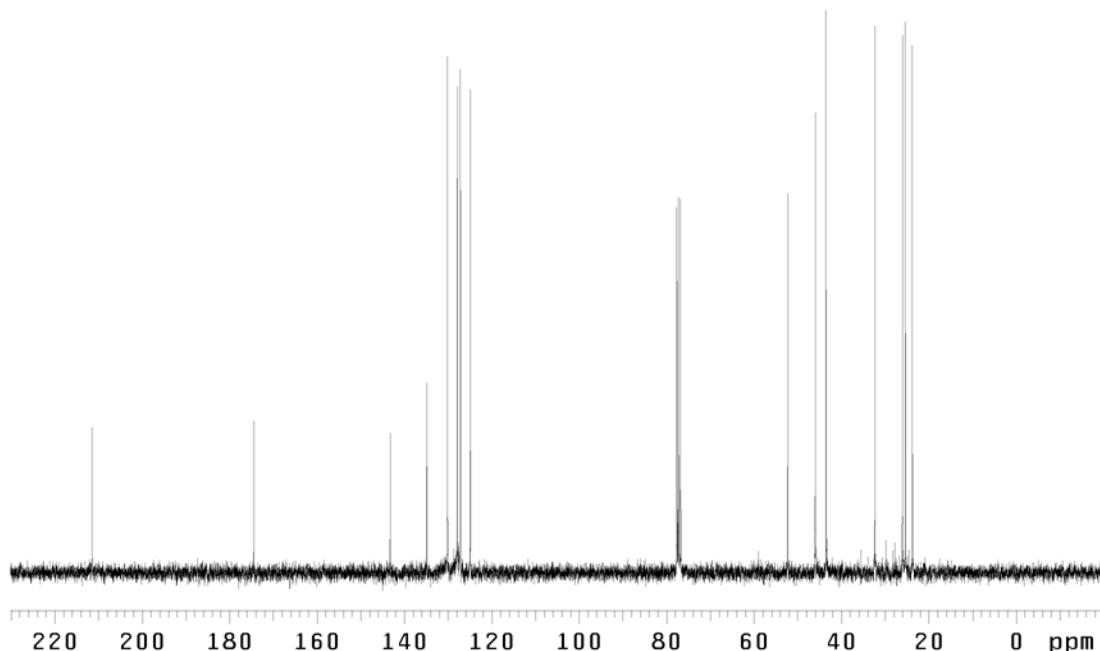


Figure A5.66 ^{13}C NMR (75 MHz, CDCl_3) of compound **185e**.