

APPENDIX 5**Spectra Relevant to Chapter 5**

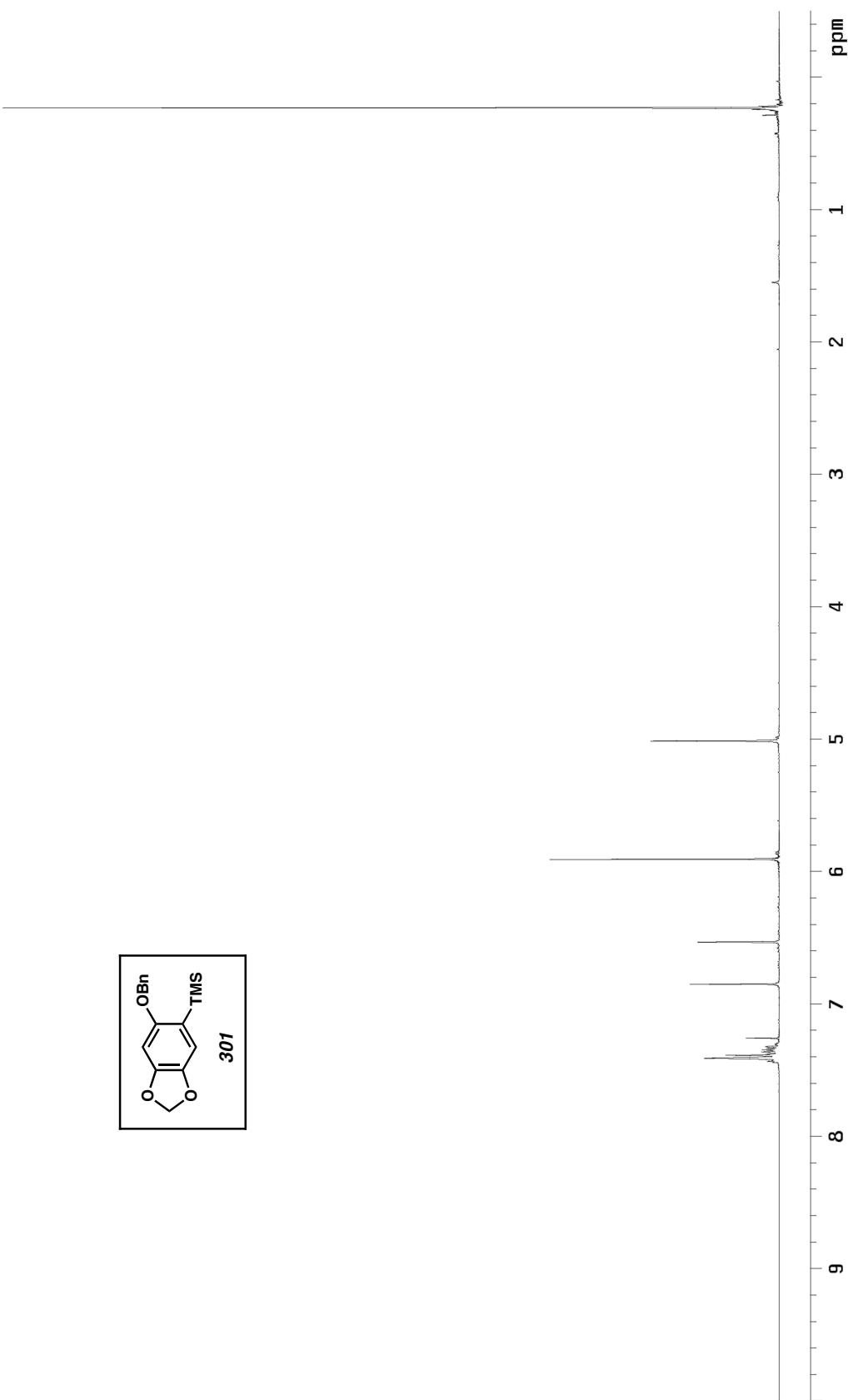
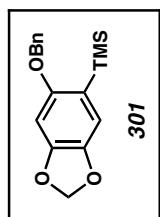


Figure A5.1 ${}^1\text{H}$ NMR (300 MHz, CDCl_3) of compound 301.



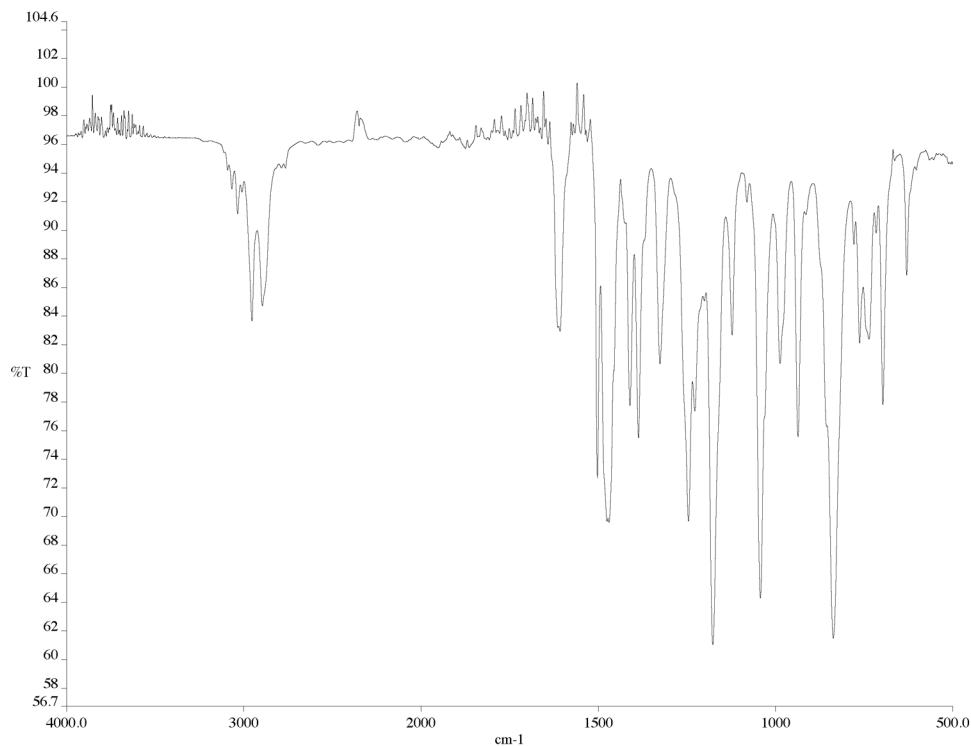


Figure A5.2 Infrared spectrum (thin film/NaCl) of compound **301**.

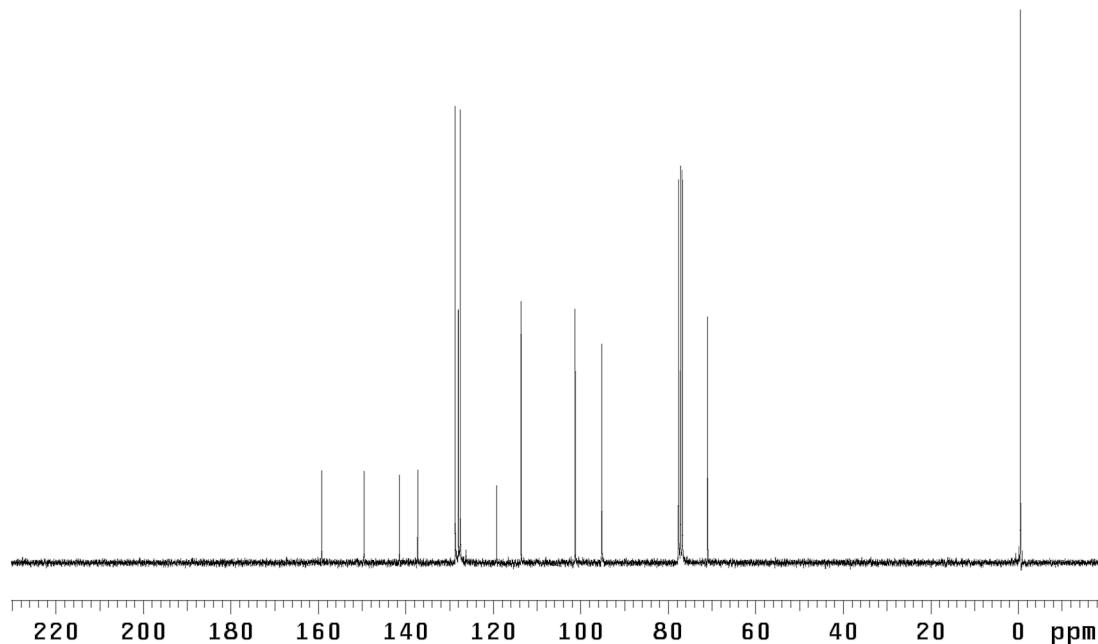


Figure A5.3 ^{13}C NMR (75 MHz, CDCl_3) of compound **301**.

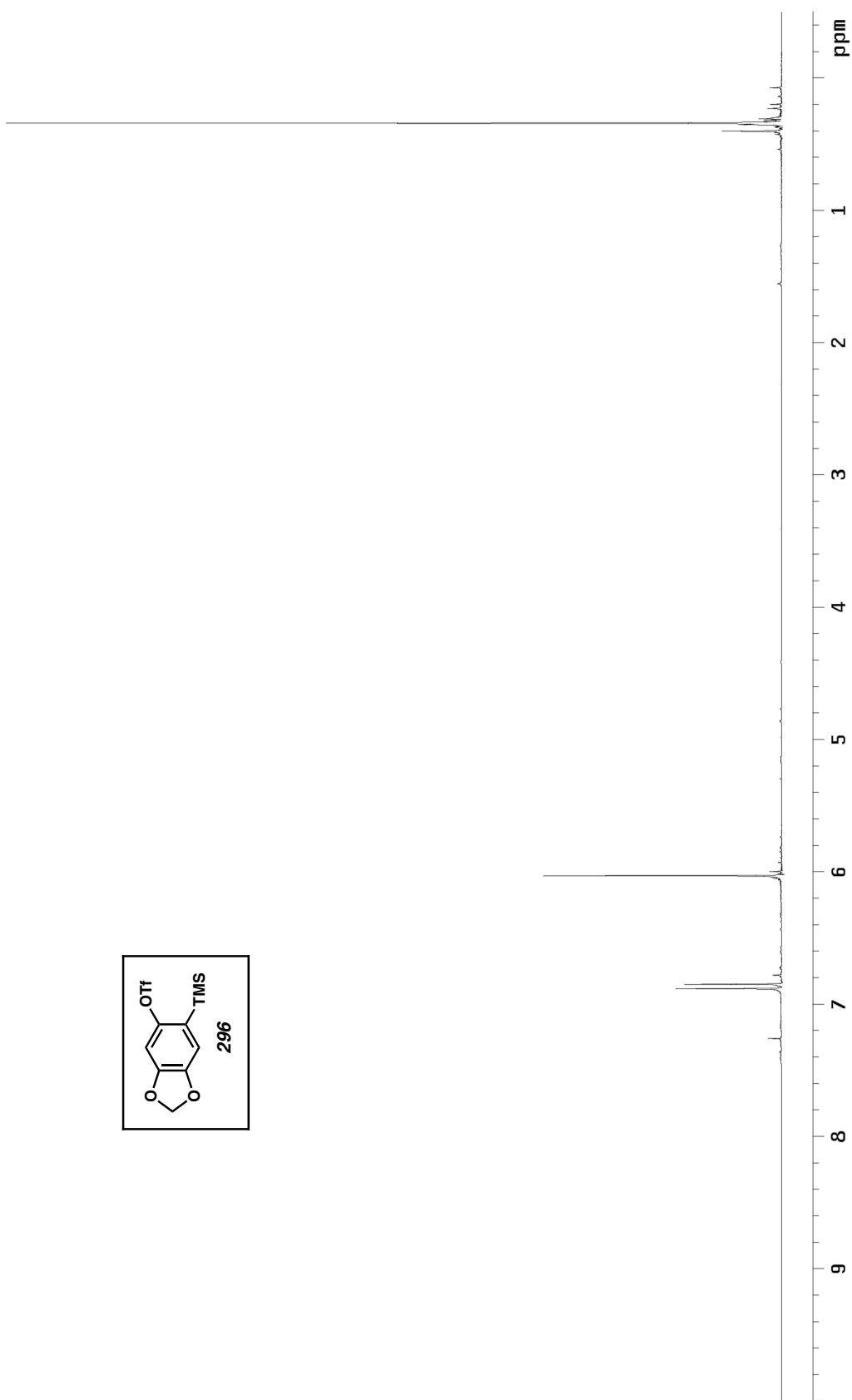


Figure A5.4 ^1H NMR (500 MHz, CDCl_3) of compound 296.

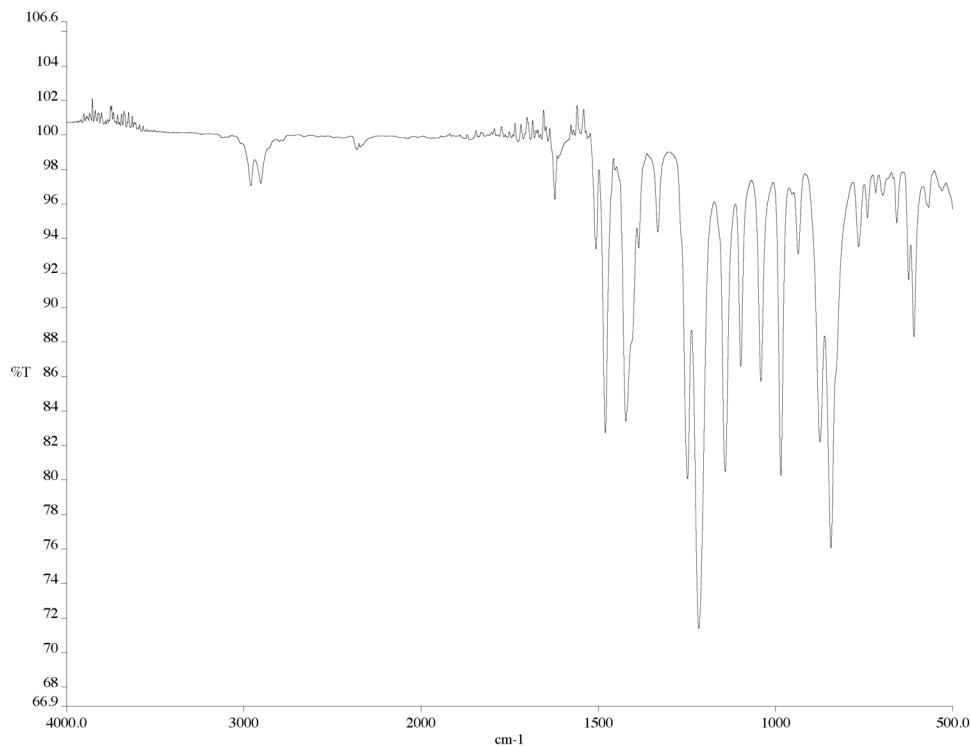


Figure A5.5 Infrared spectrum (thin film/NaCl) of compound **296**.

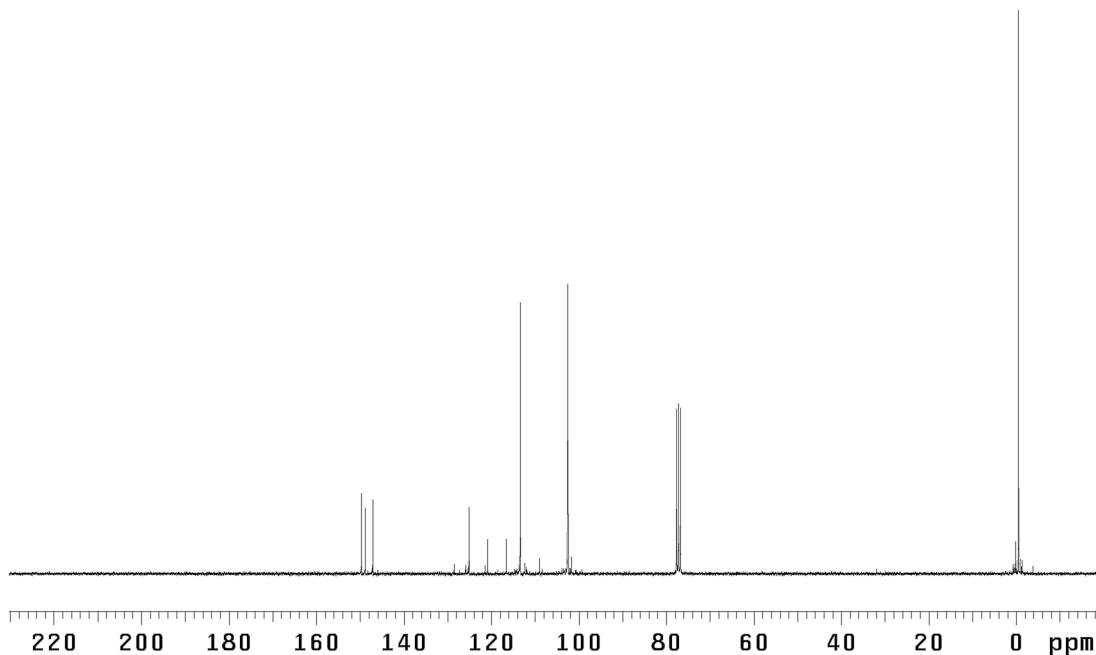


Figure A5.6 ^{13}C NMR (125 MHz, CDCl_3) of compound **296**.

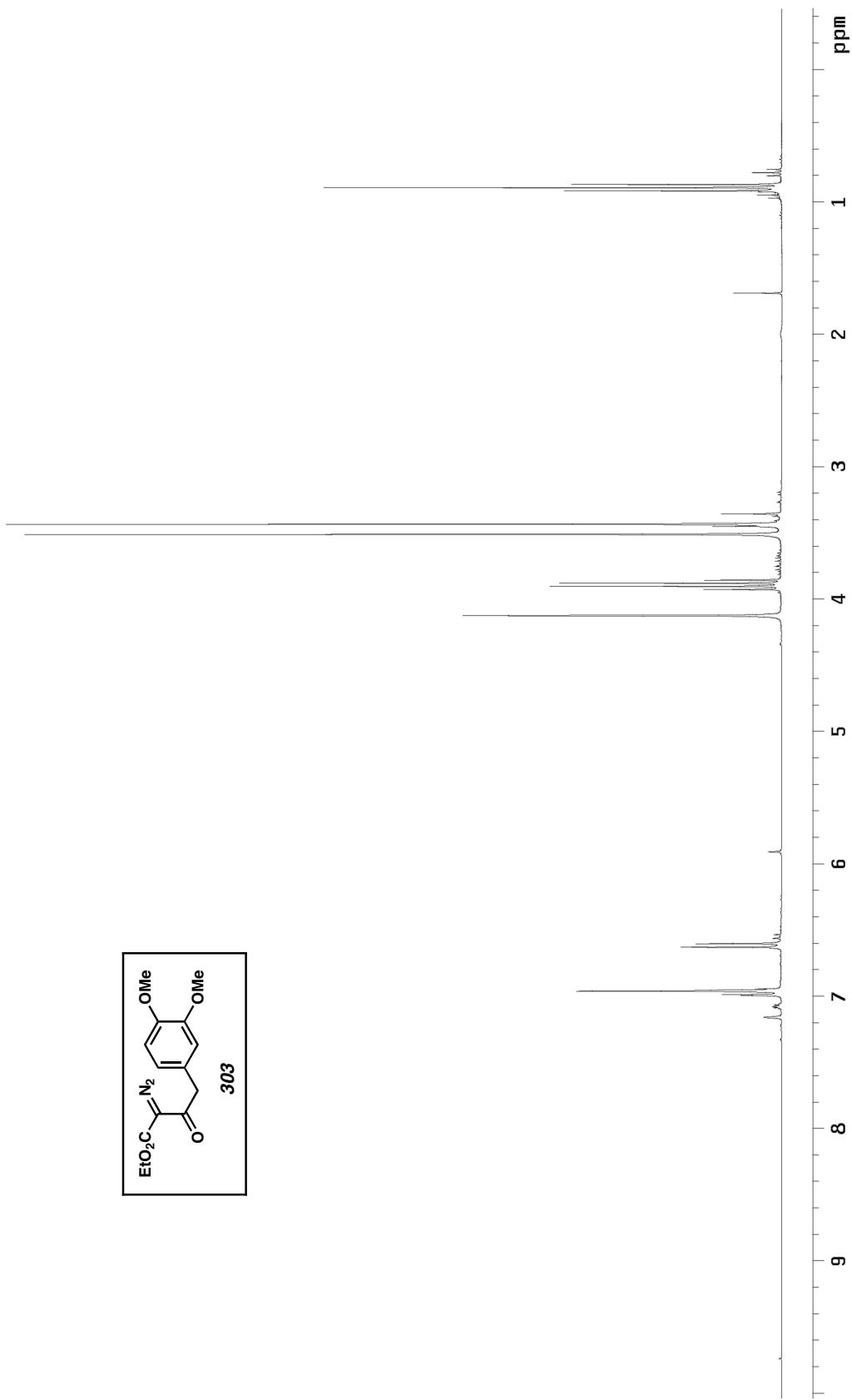


Figure A5.7 ^1H NMR (300 MHz, C_6D_6) of compound 303.

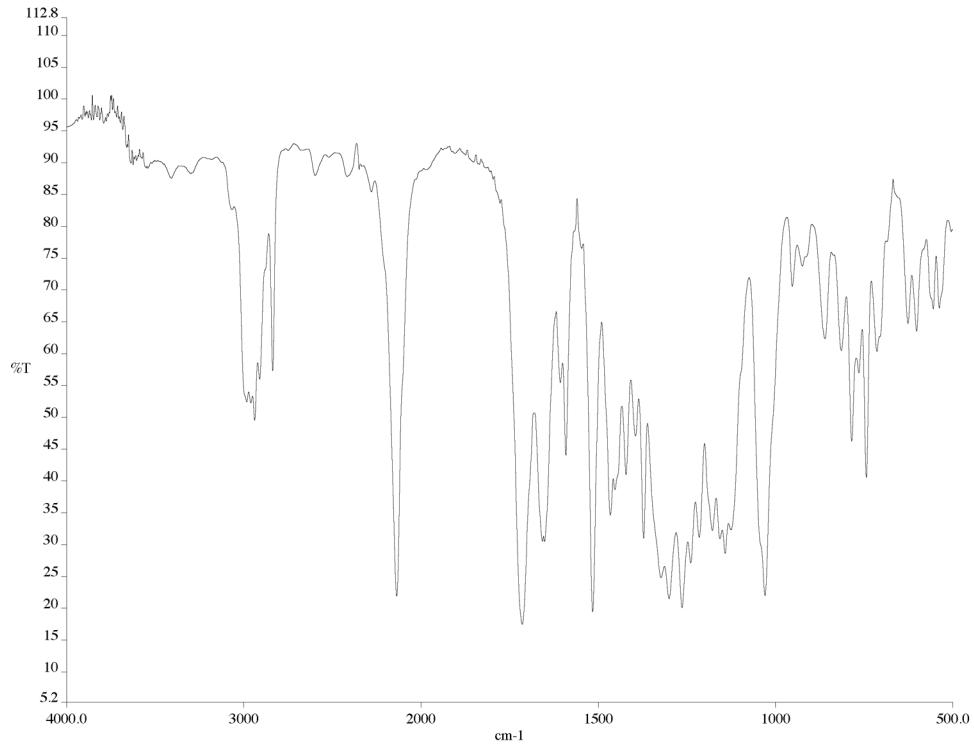


Figure A5.8 Infrared spectrum (thin film/NaCl) of compound **303**.

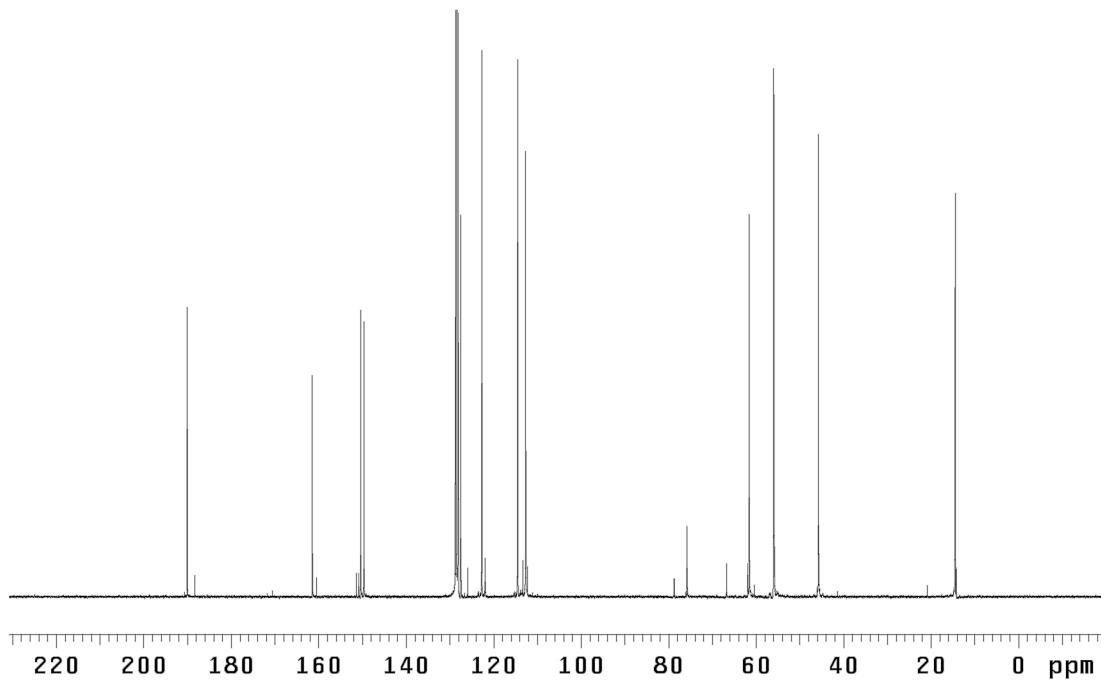


Figure A5.9 ^{13}C NMR (75 MHz, C_6D_6) of compound **303**.

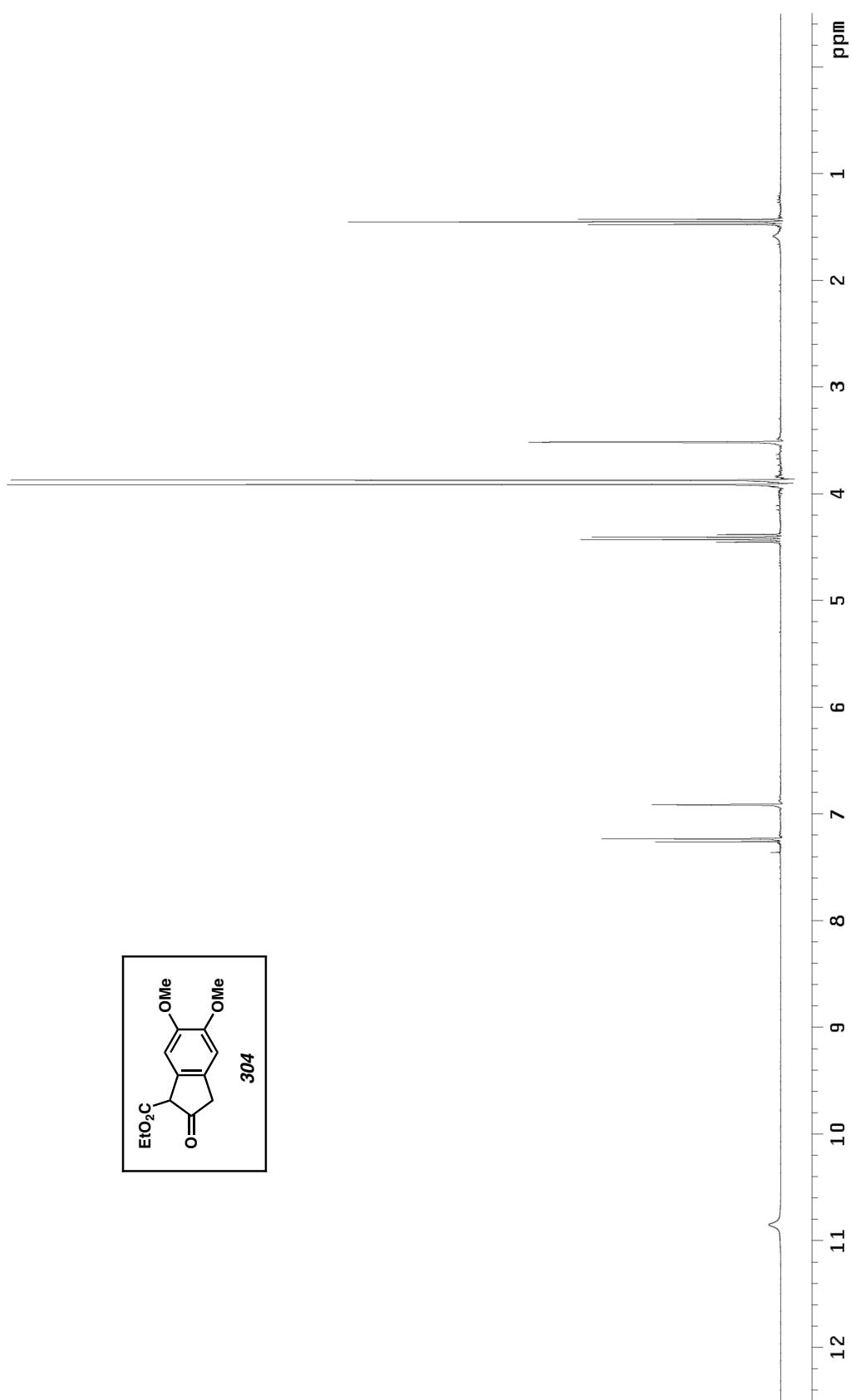


Figure A5.10 ^1H NMR (300 MHz, CDCl_3) of compound 304.

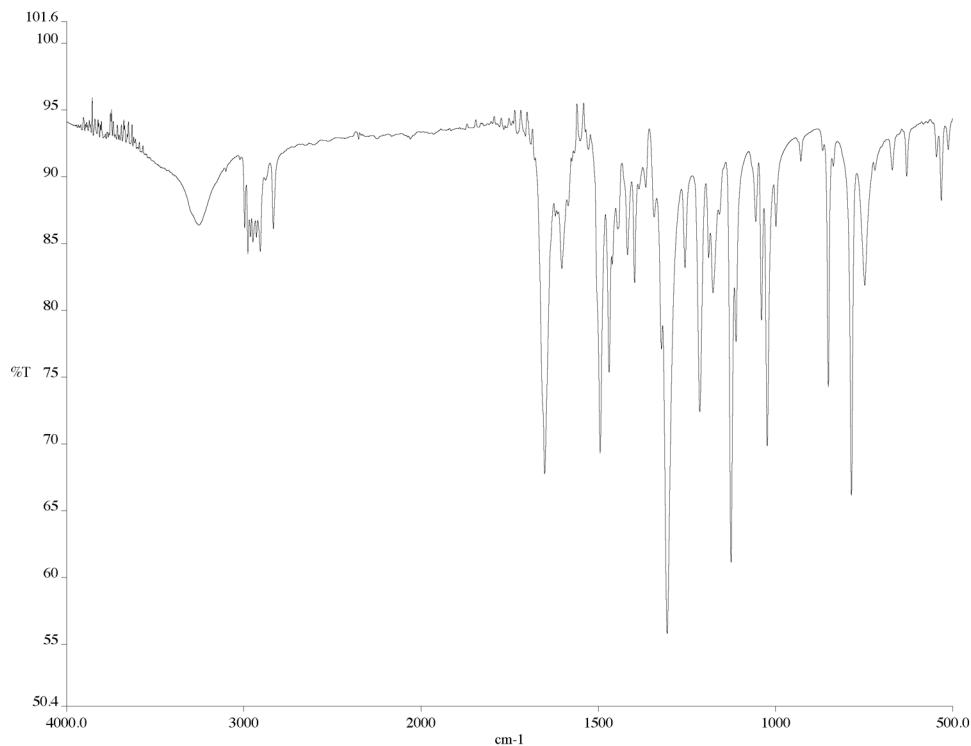


Figure A5.11 Infrared spectrum (thin film/NaCl) of compound 304.

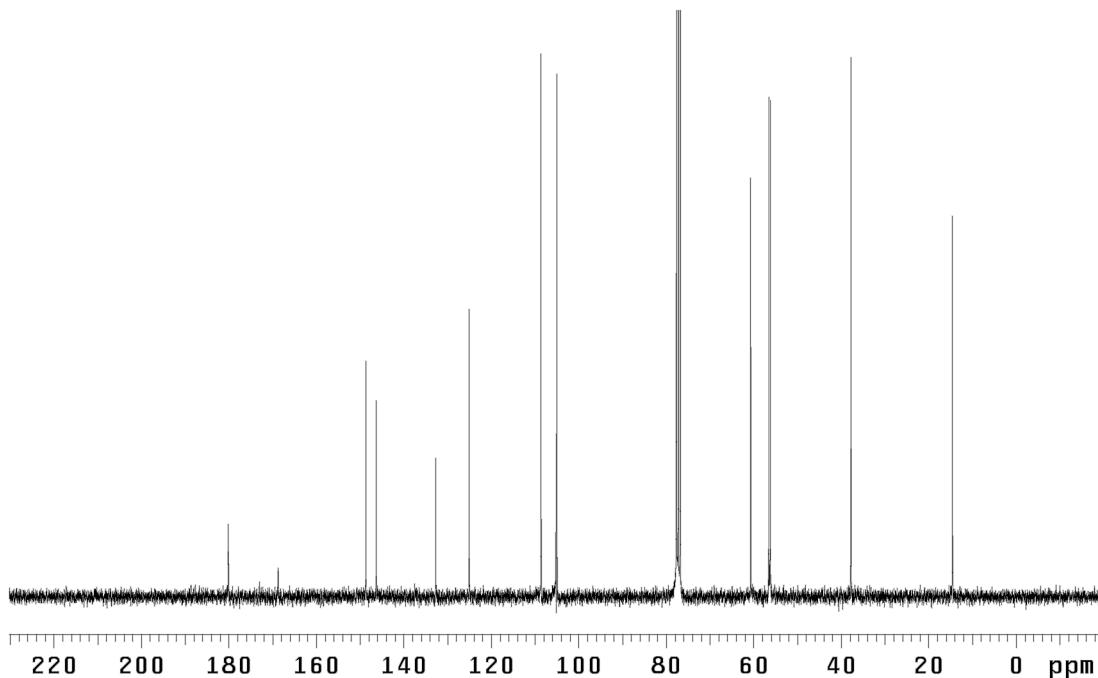


Figure A5.12 ^{13}C NMR (75 MHz, CDCl_3) of compound 304.

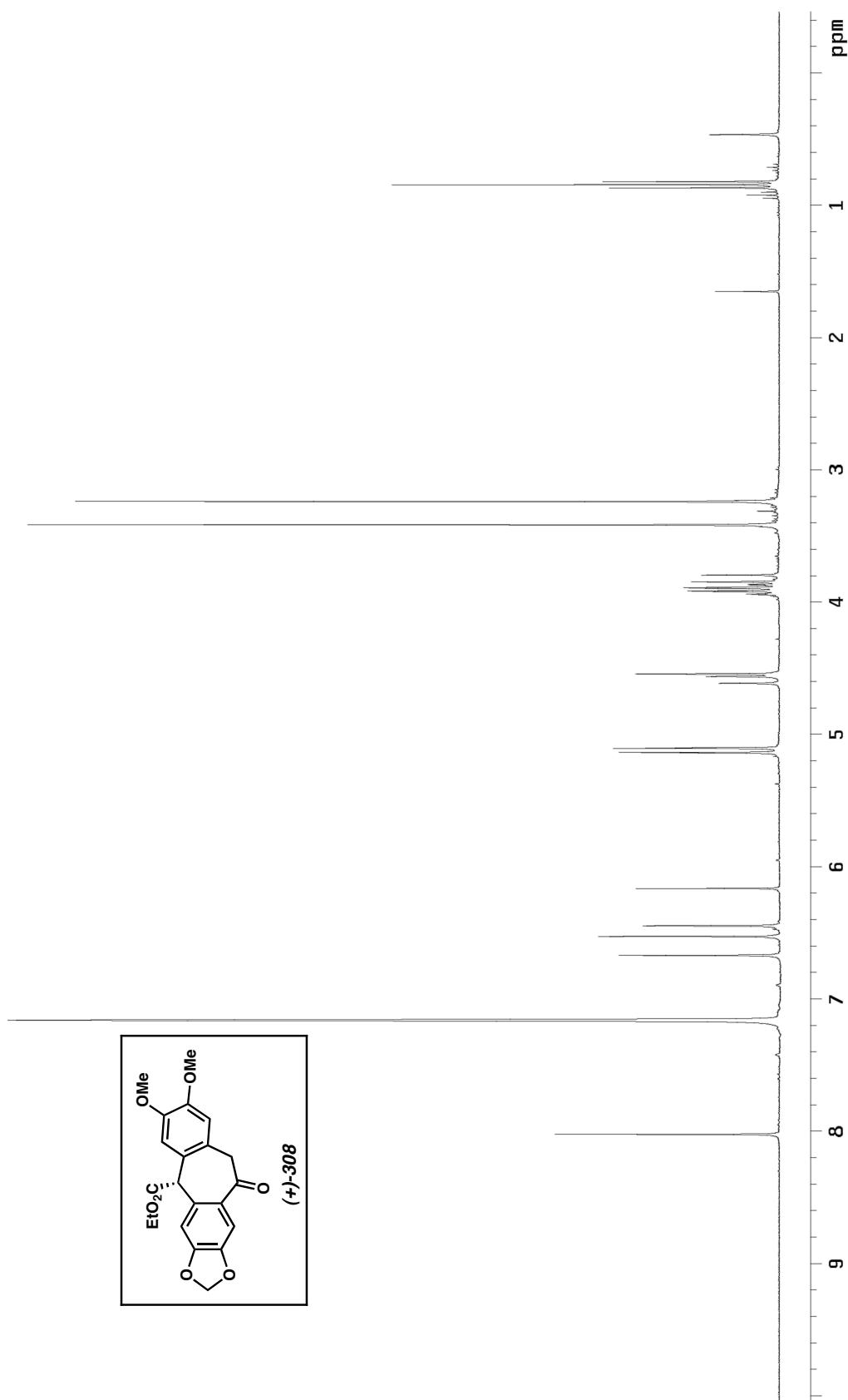


Figure A5.13 ${}^1\text{H}$ NMR (300 MHz, C_6D_6) of compound (+)-308.

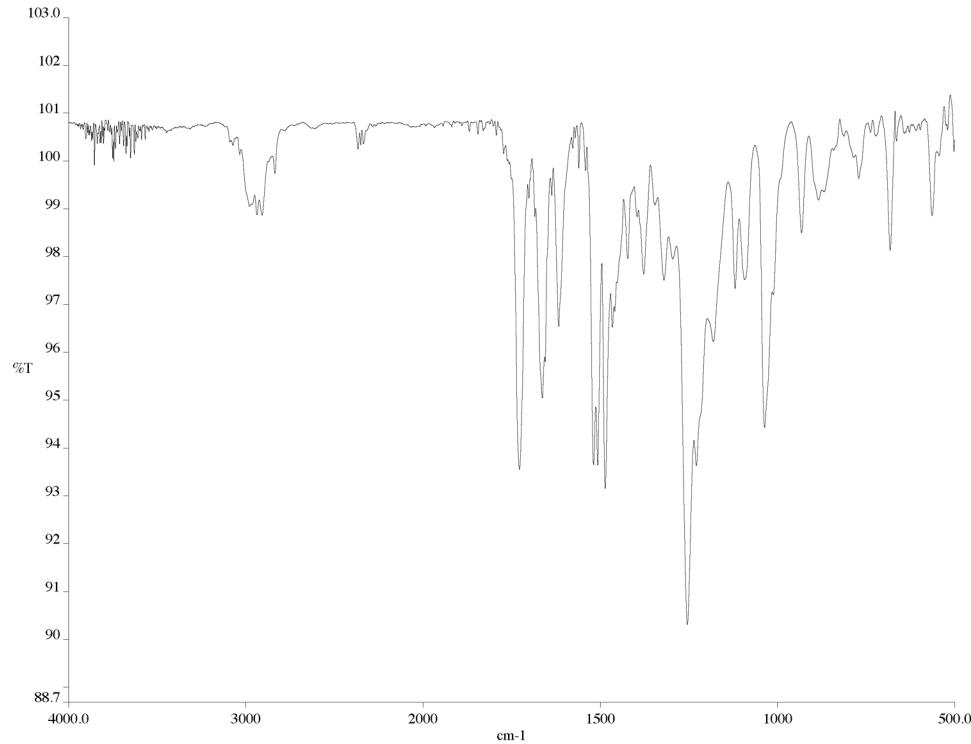


Figure A5.14 Infrared spectrum (thin film/NaCl) of compound (+)-**308**.

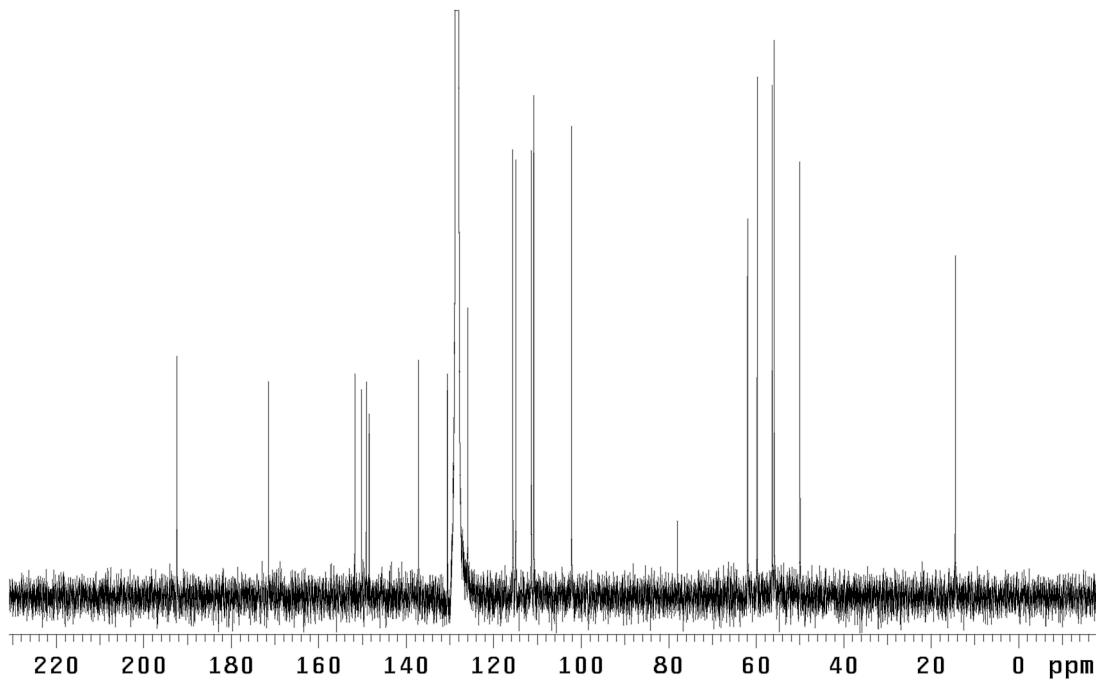
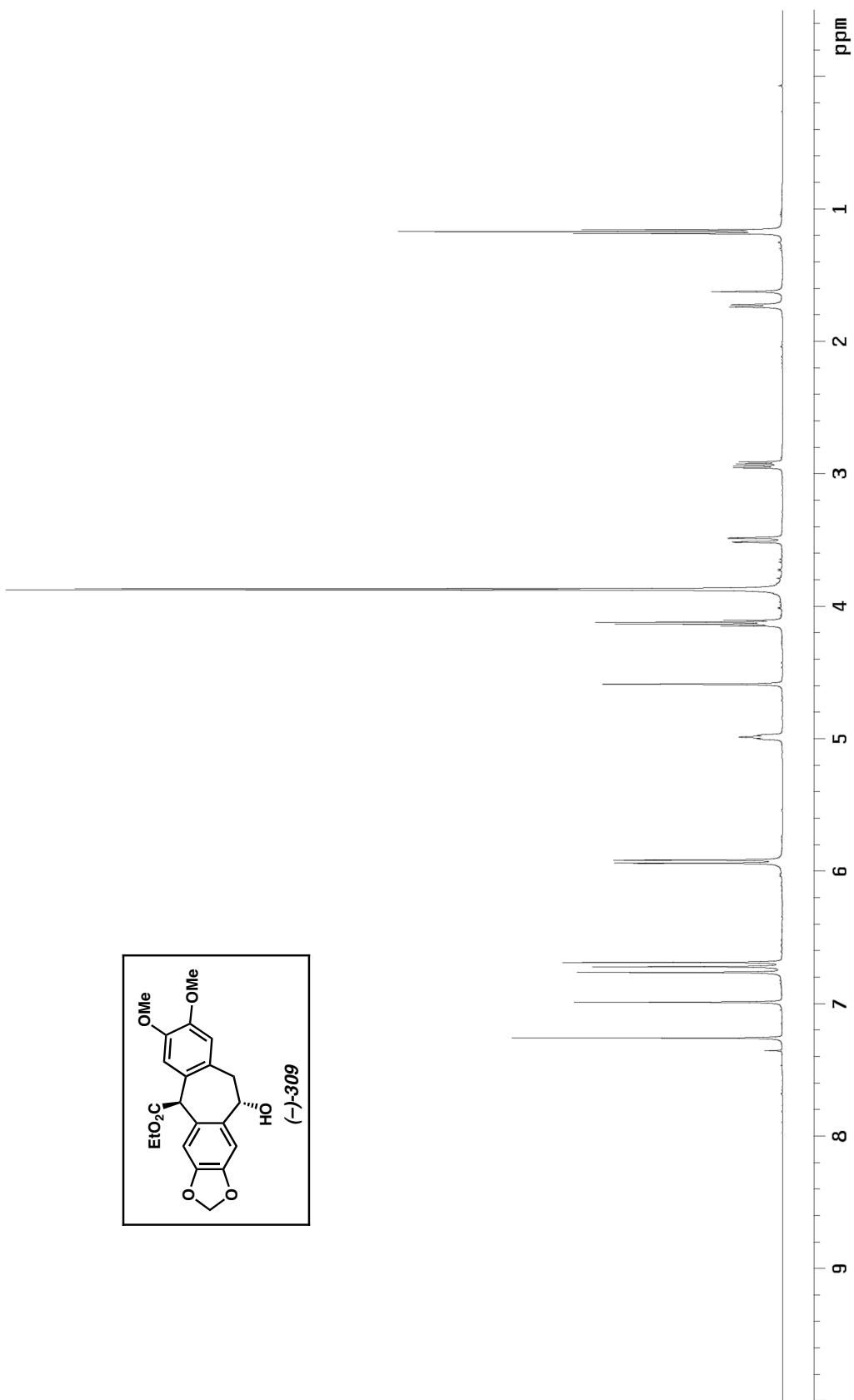


Figure A5.15 ^{13}C NMR (75 MHz, C_6D_6) of compound (+)-**308**.

Figure A5.16 ^1H NMR (500 MHz, CDCl_3) of compound ($-$)-309.



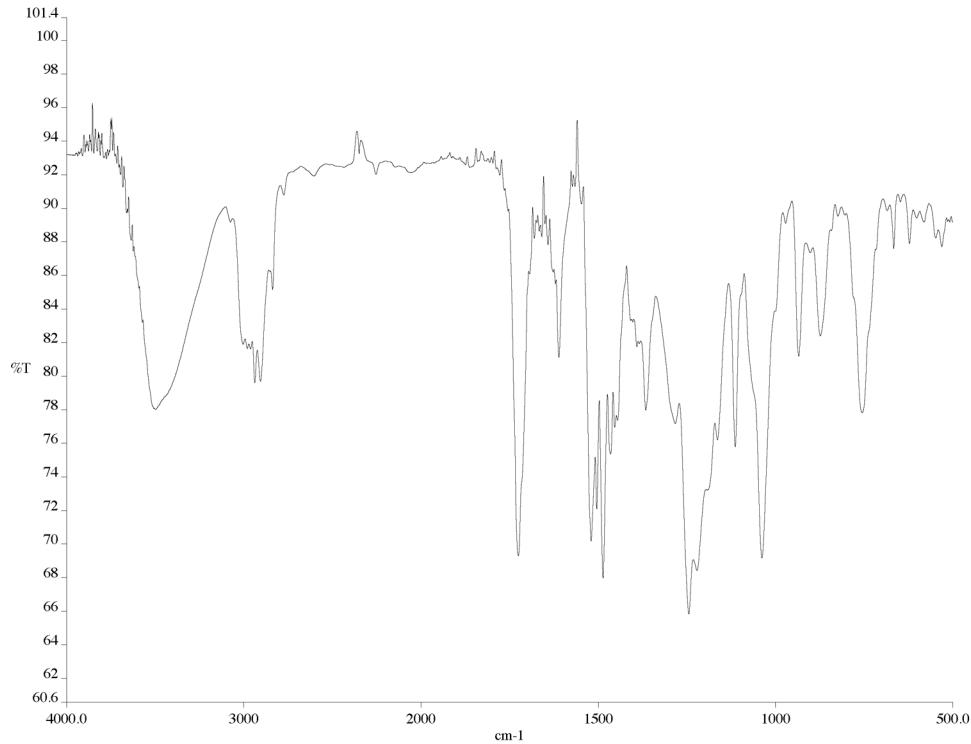


Figure A5.17 Infrared spectrum (thin film/NaCl) of compound (-)-**309**.

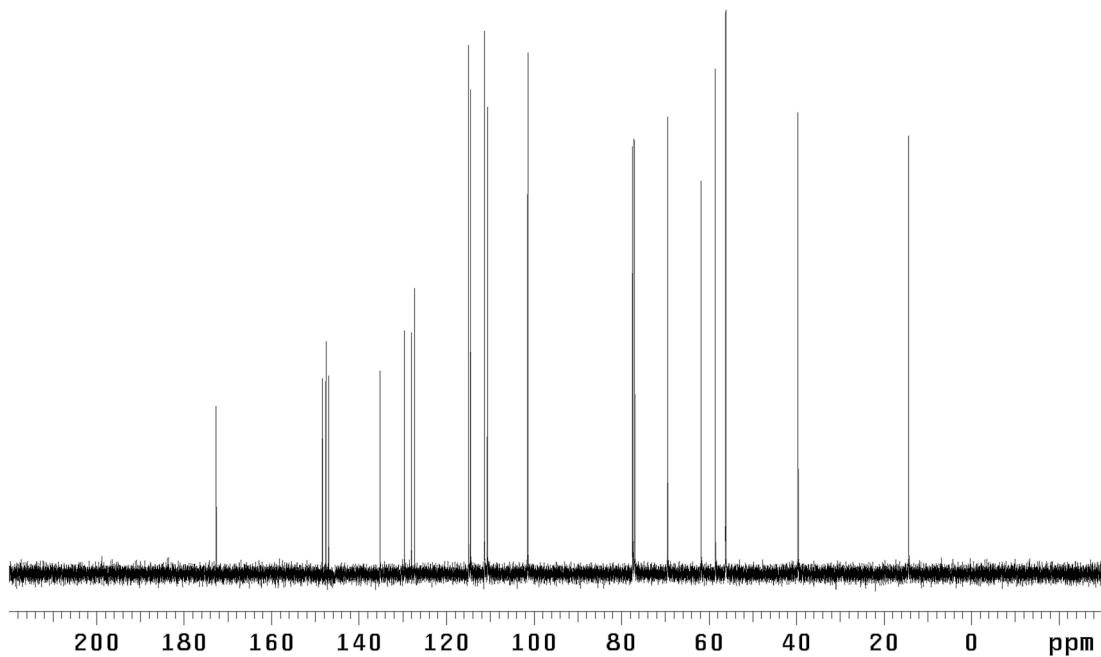


Figure A5.18 ^{13}C NMR (125 MHz, CDCl_3) of compound (-)-**309**.

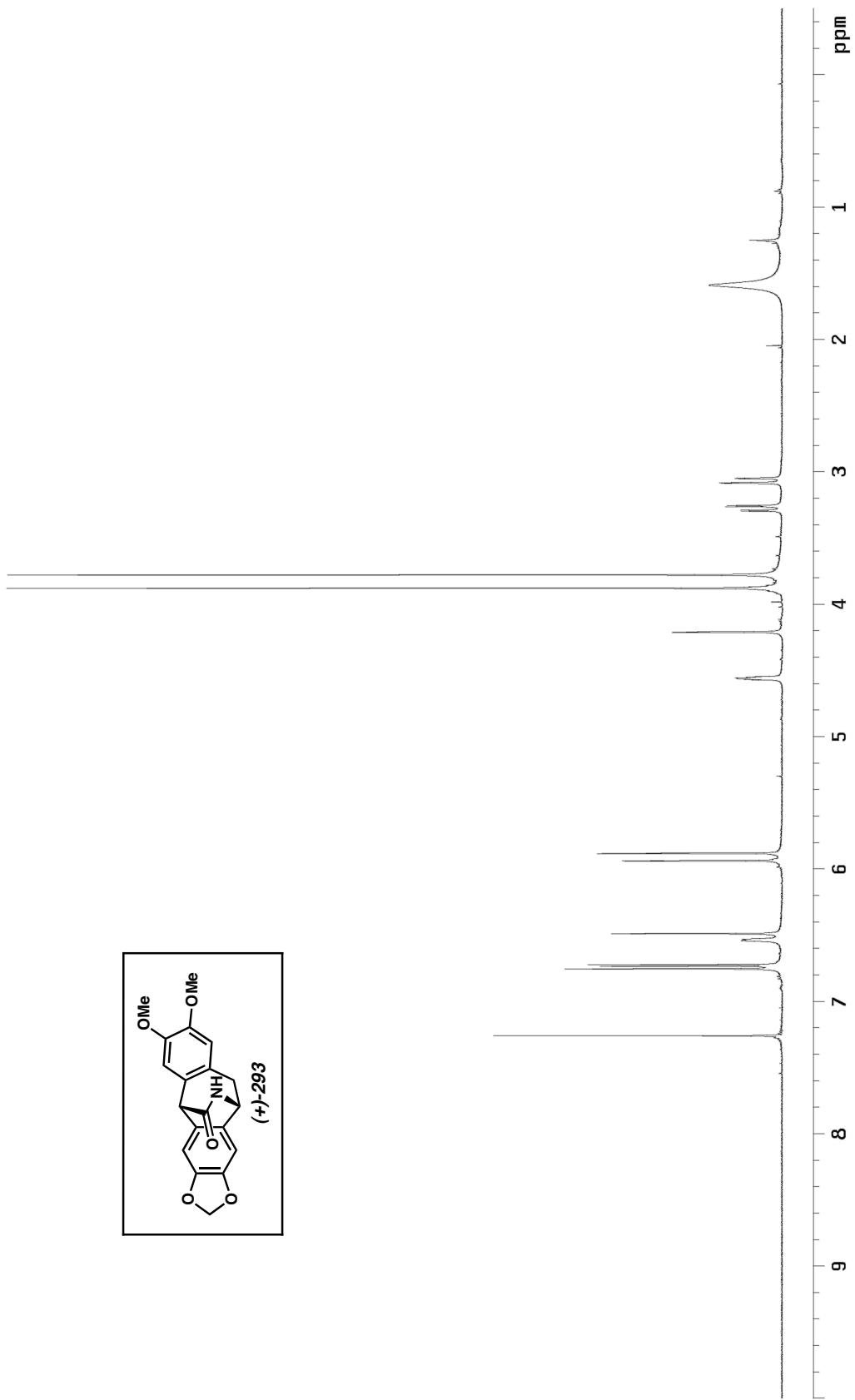


Figure A5.19 ^1H NMR (500 MHz, CDCl_3) of compound (+)-293.

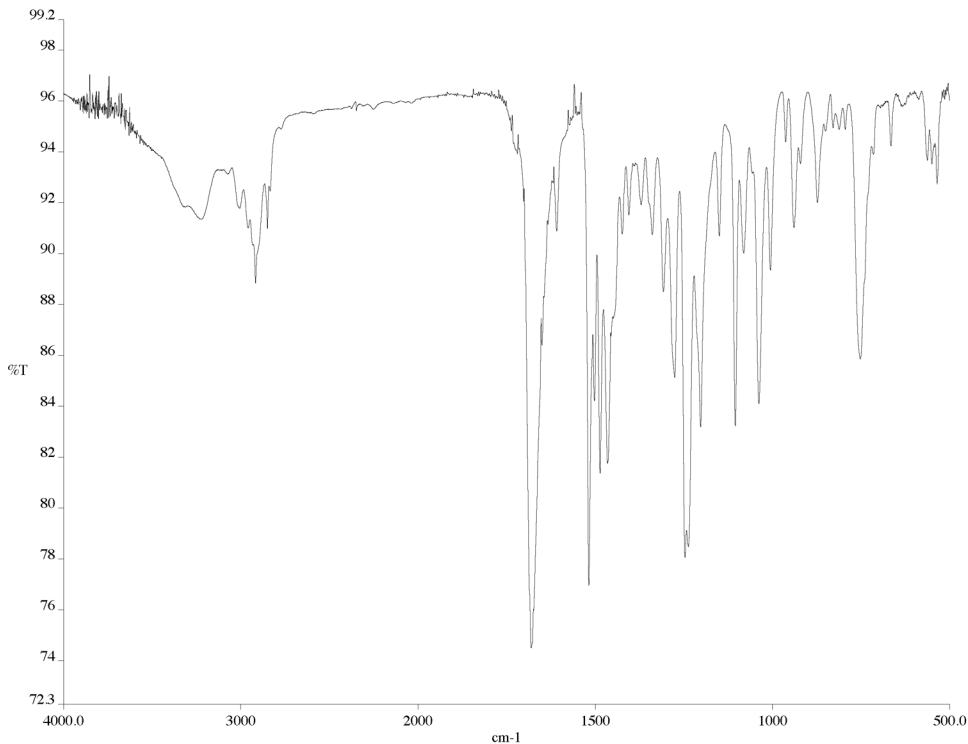


Figure A5.20 Infrared spectrum (thin film/NaCl) of compound (+)-**293**.

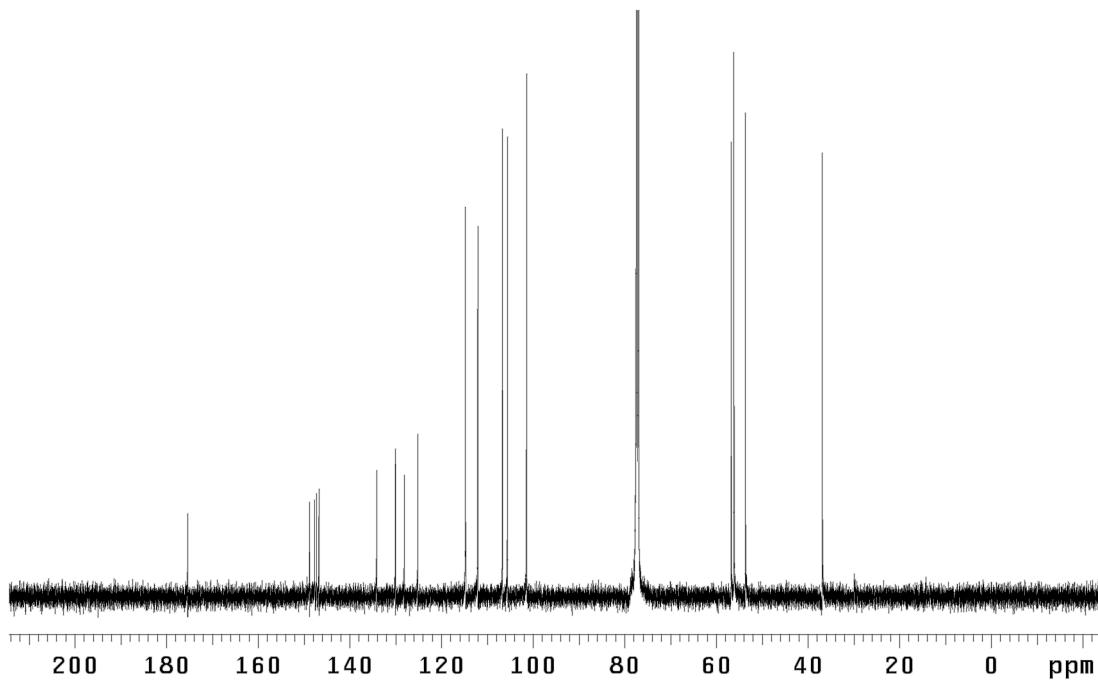


Figure A5.21 ^{13}C NMR (125 MHz, CDCl_3) of compound (+)-**293**.

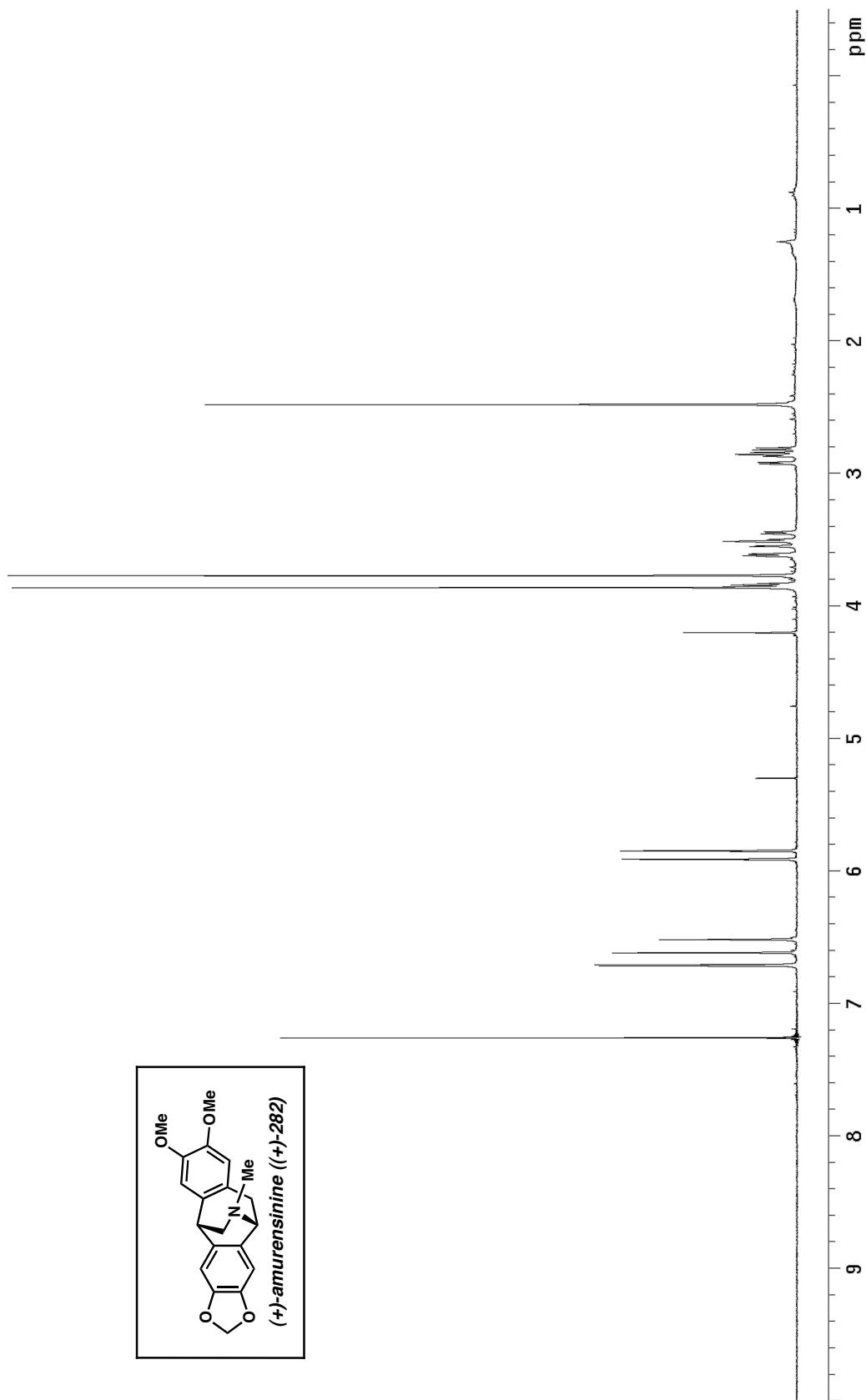
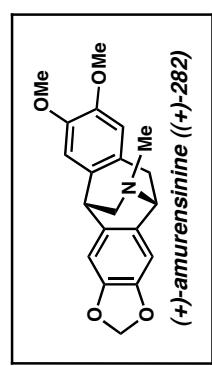


Figure A5.22 ¹H NMR (300 MHz, CDCl₃) of compound (+)-282.

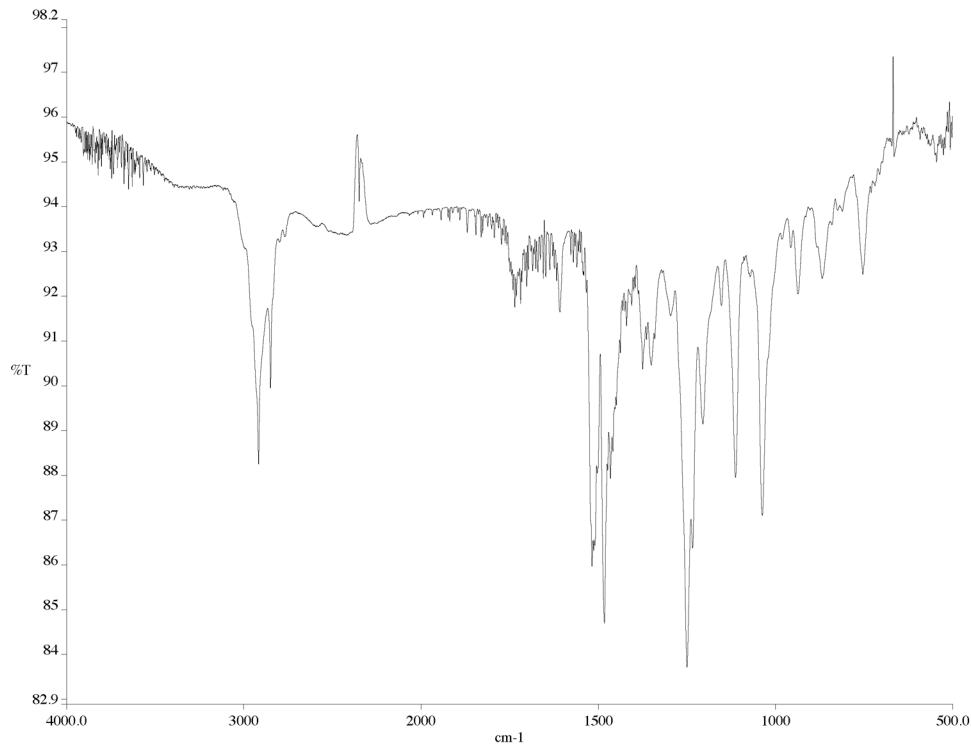


Figure A5.23 Infrared spectrum (thin film/NaCl) of compound (+)-**282**.

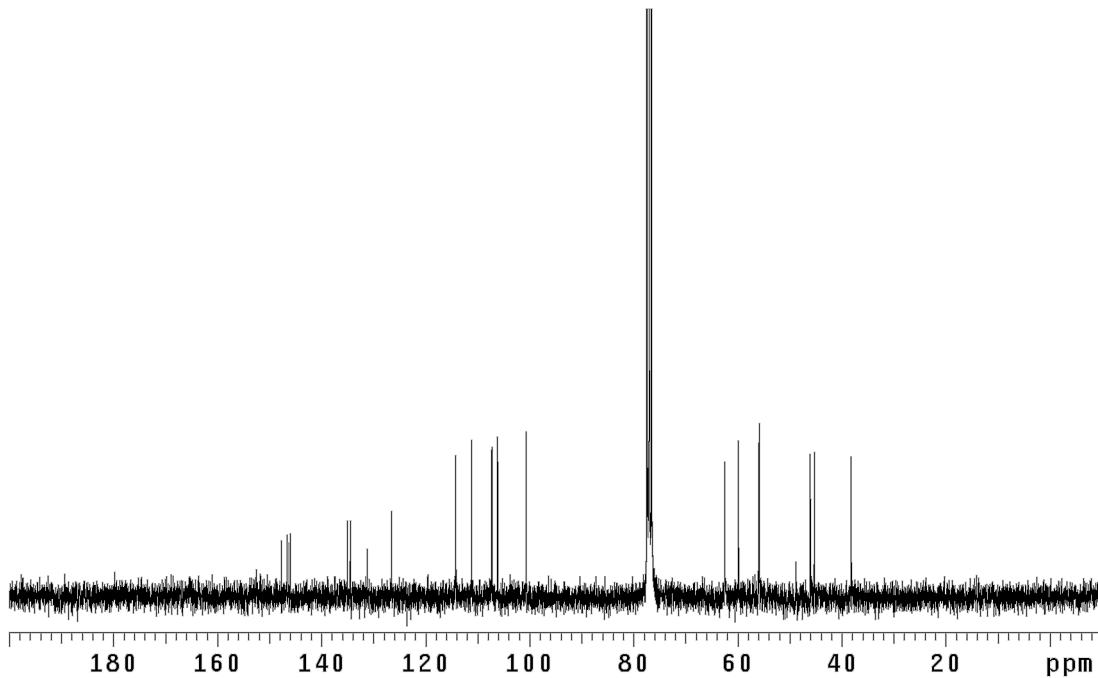
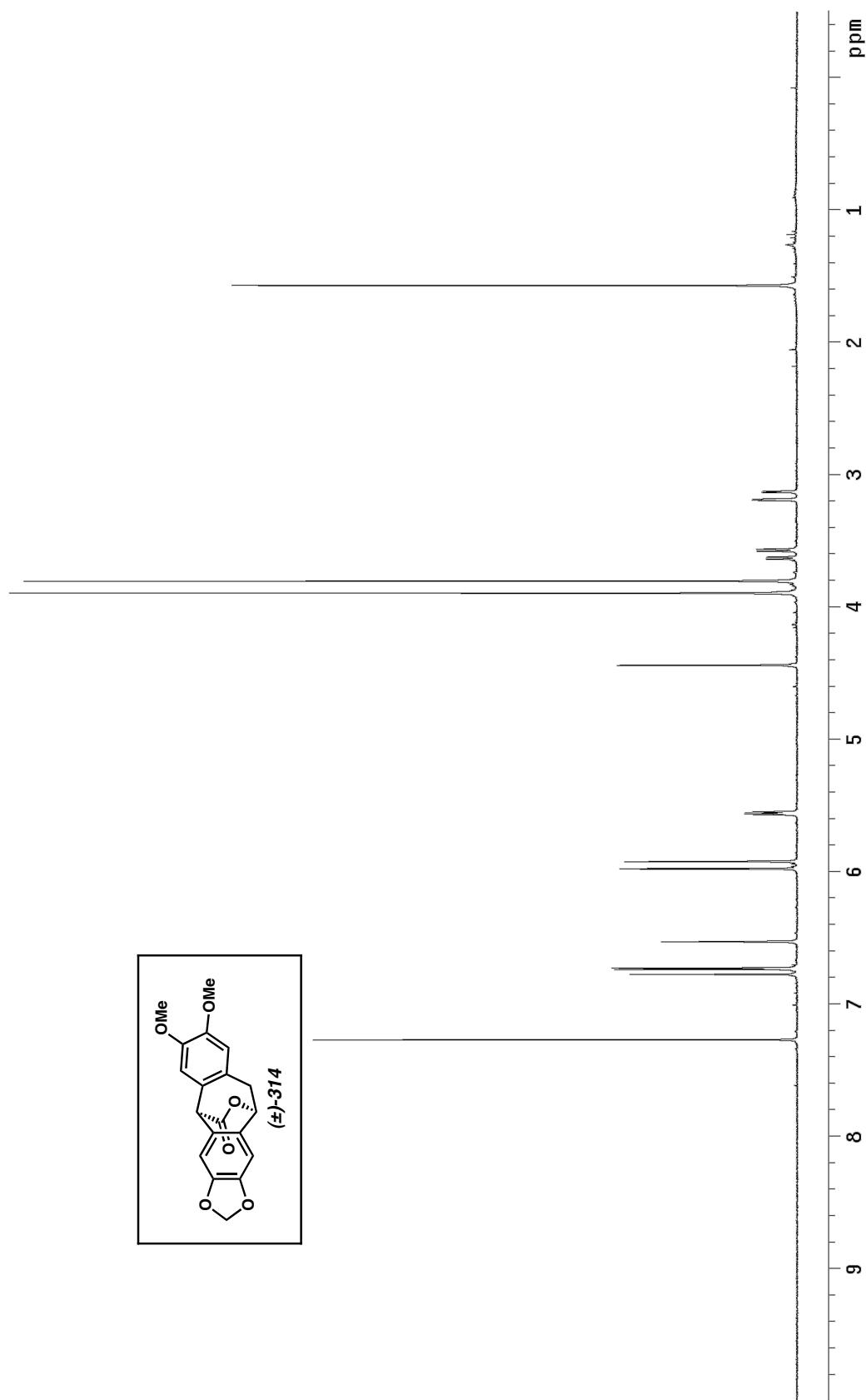


Figure A5.24 ^{13}C NMR (75 MHz, CDCl_3) of compound (+)-**282**.

Figure A5.25 ^1H NMR (300 MHz, CDCl_3) of compound $(\pm)\text{-314}$.



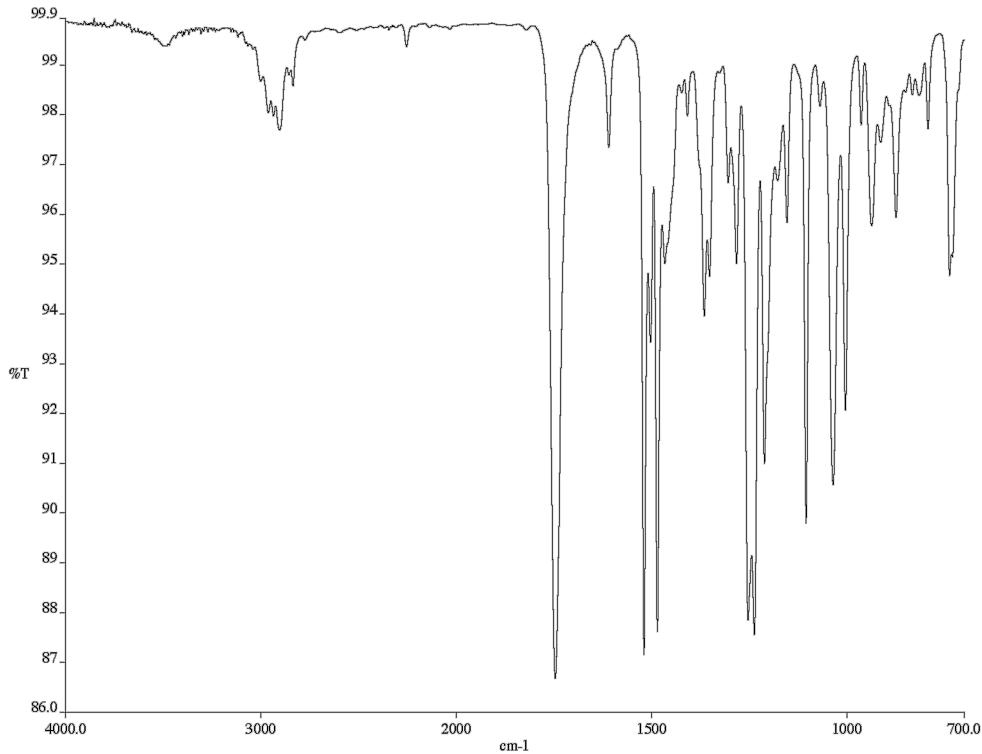


Figure A5.26 Infrared spectrum (thin film/NaCl) of compound (\pm)-**314**.

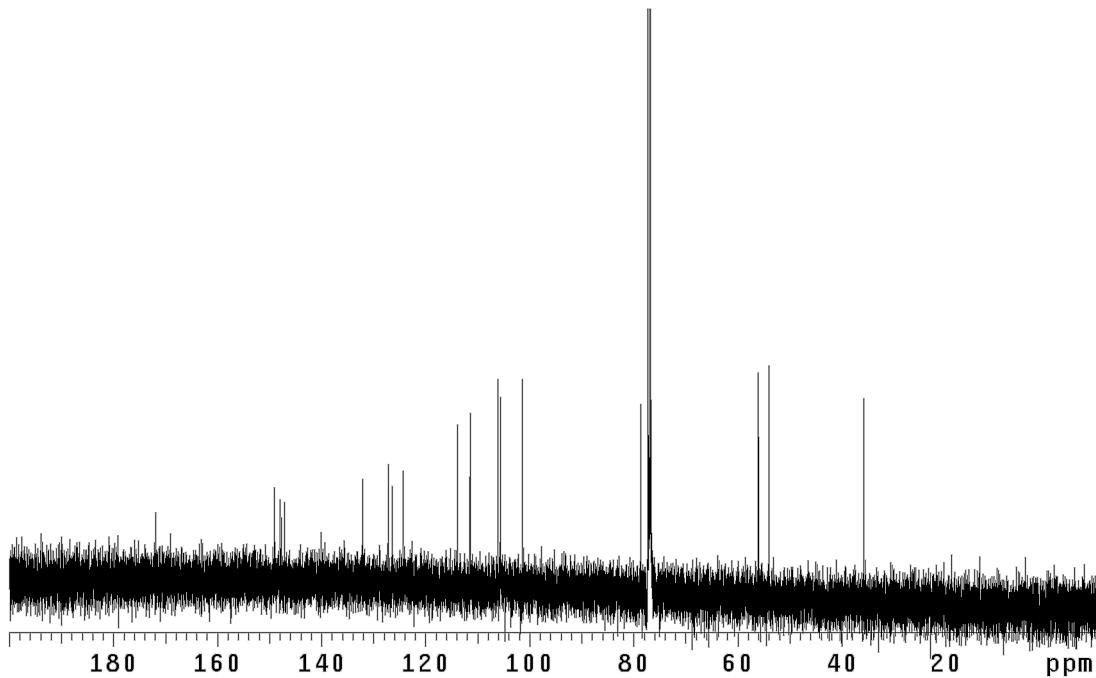


Figure A5.27 ^{13}C NMR (126 MHz, CDCl_3) of compound (\pm)-**314**.

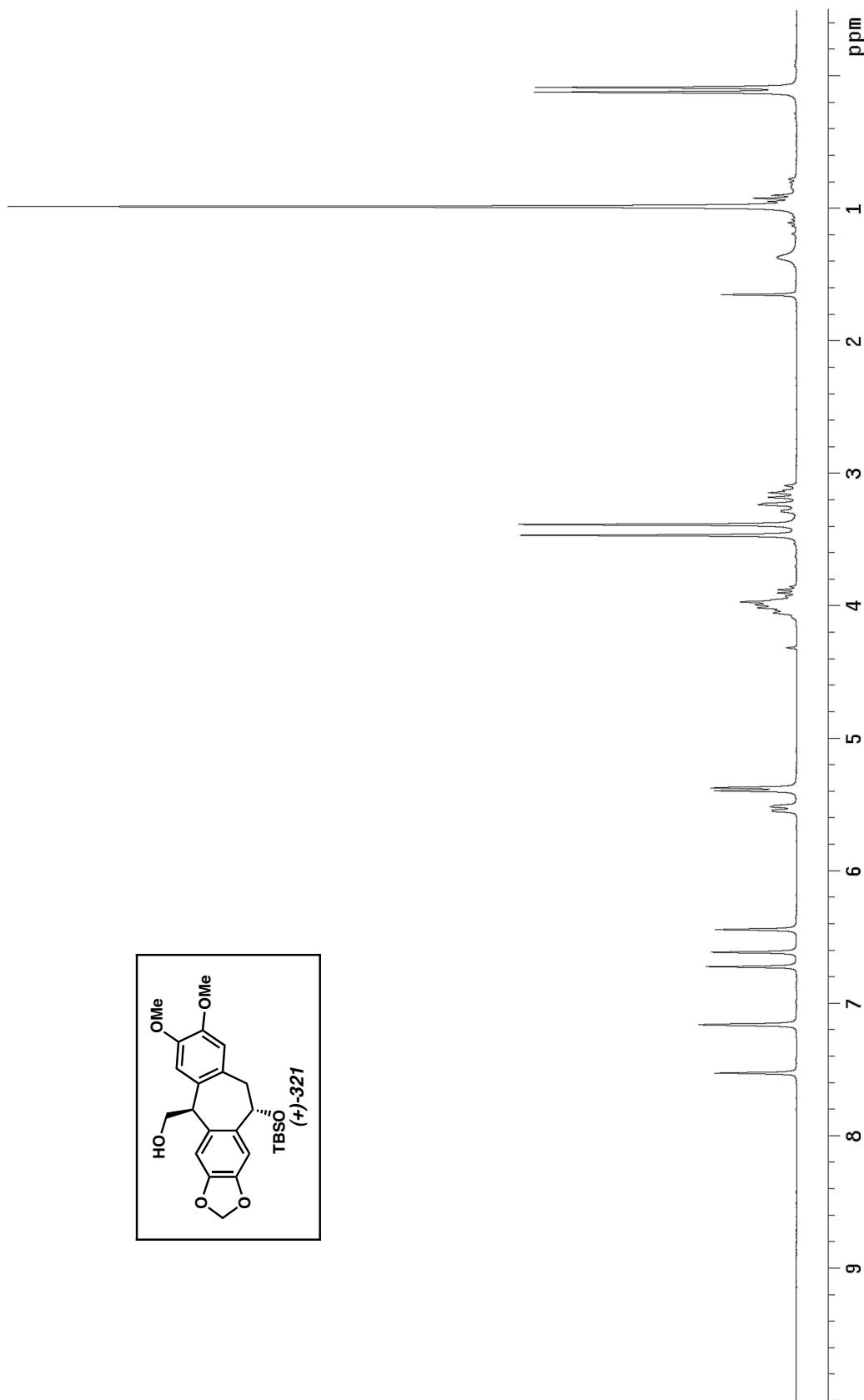


Figure A5.28 ^1H NMR (300 MHz, C_6D_6) of compound (+)-321.

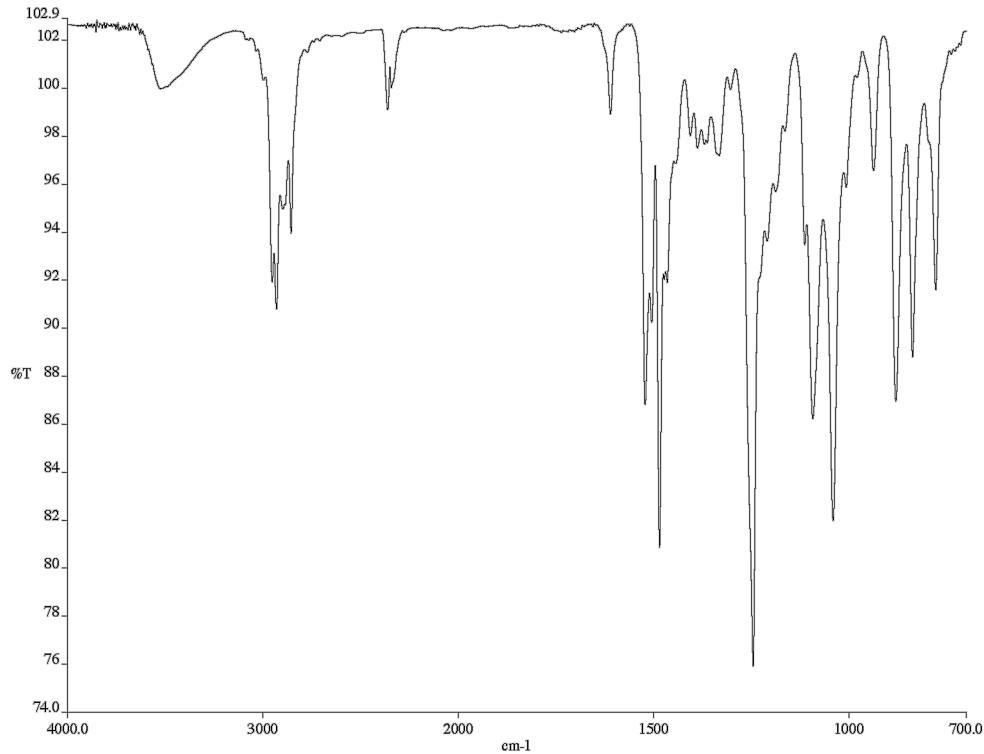


Figure A5.29 Infrared spectrum (thin film/NaCl) of compound (+)-**321**.

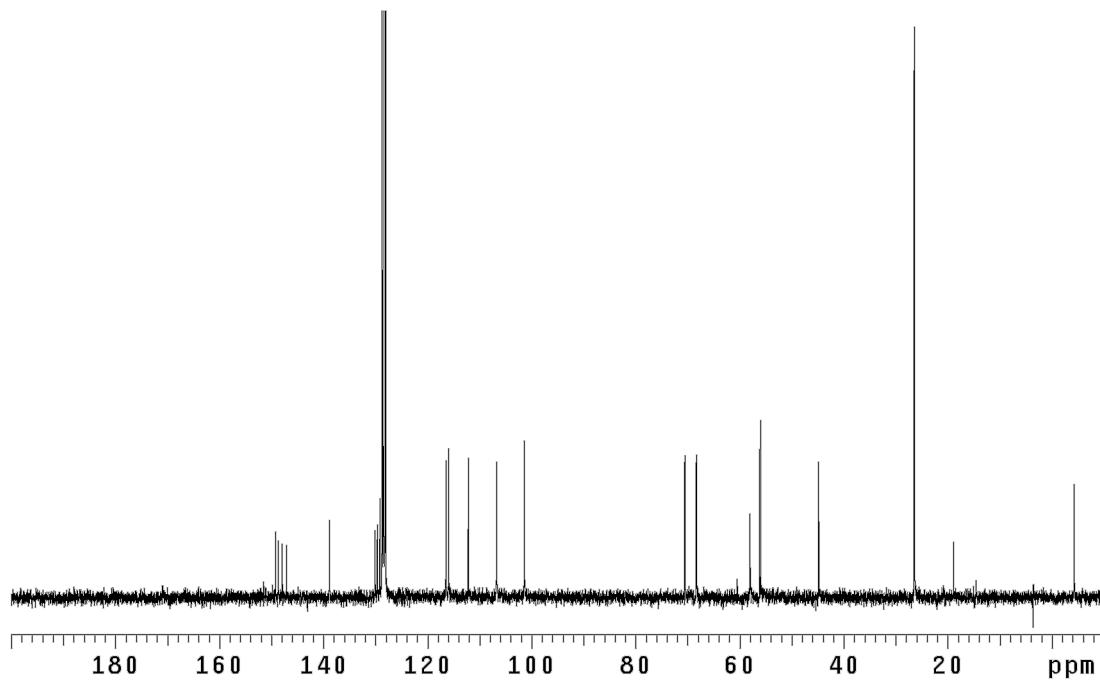


Figure A5.30 ^{13}C NMR (75 MHz, C_6D_6) of compound (+)-**321**.

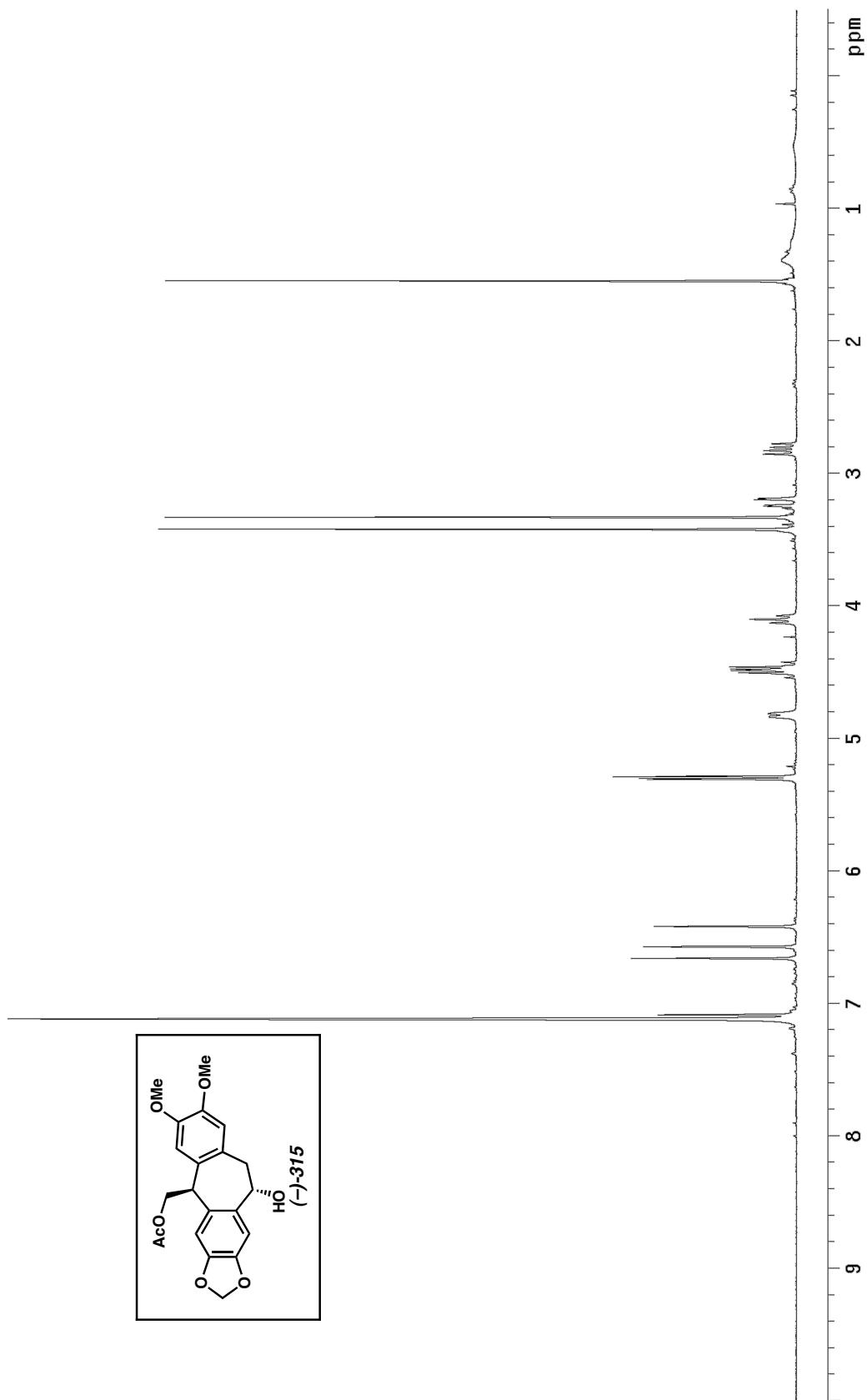


Figure A5.31 ^1H NMR (300 MHz, C_6D_6) of compound $(-)\text{-}315$.

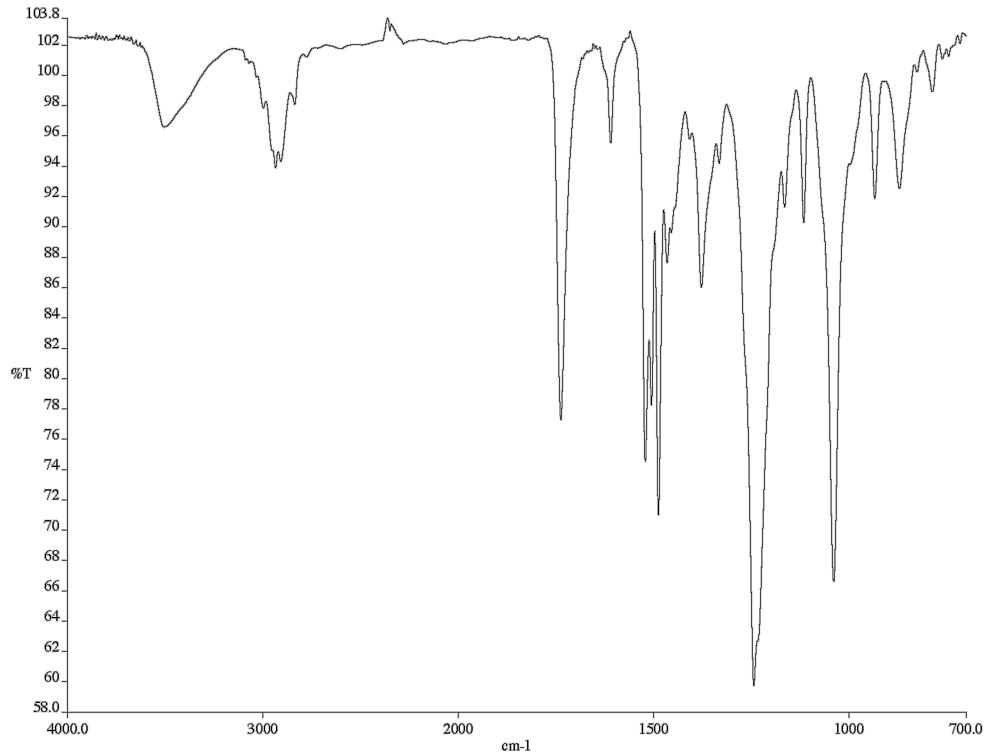


Figure A5.32 Infrared spectrum (thin film/NaCl) of compound (-)-**315**.

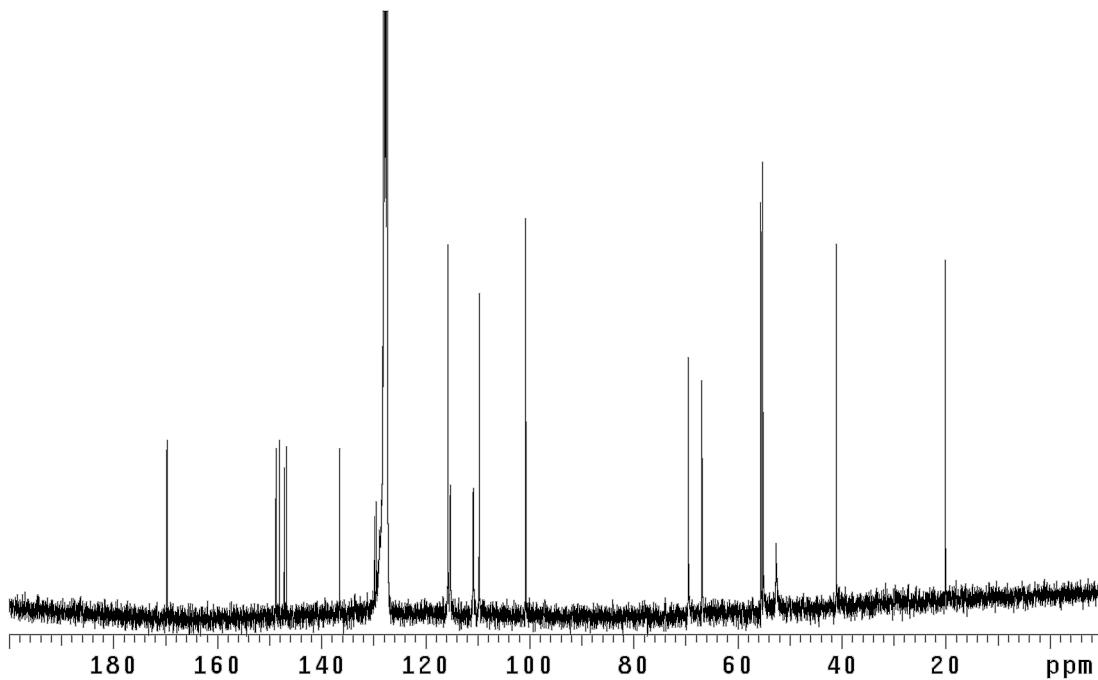


Figure A5.33 ^{13}C NMR (75 MHz, C_6D_6) of compound (-)-**315**.

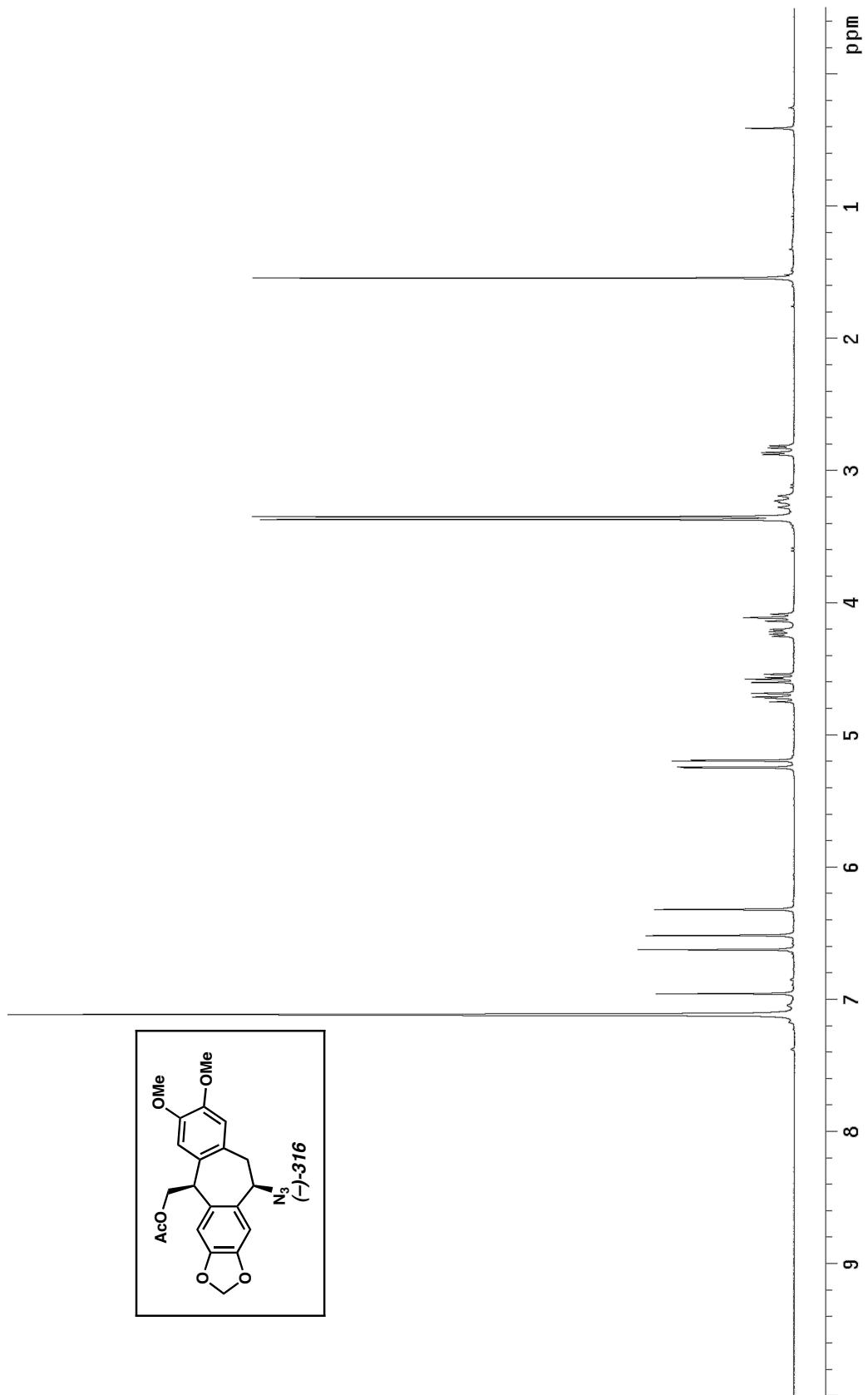


Figure A5.34 ^1H NMR (300 MHz, C_6D_6) of compound $(-)\text{-}316$.

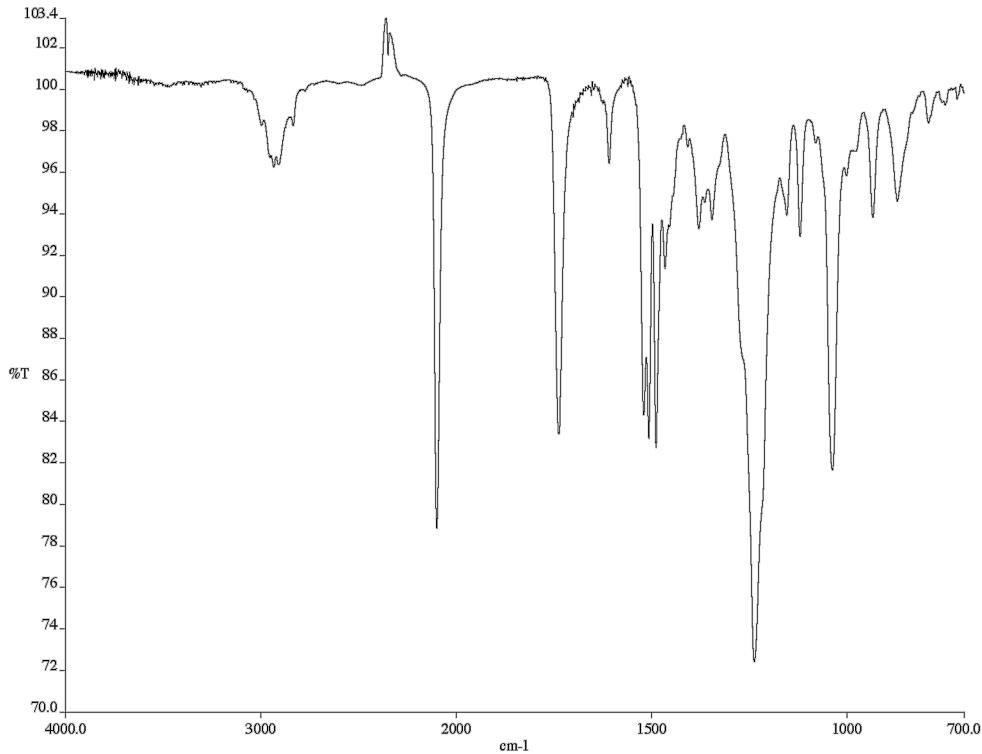


Figure A5.35 Infrared spectrum (thin film/NaCl) of compound (-)-**316**.

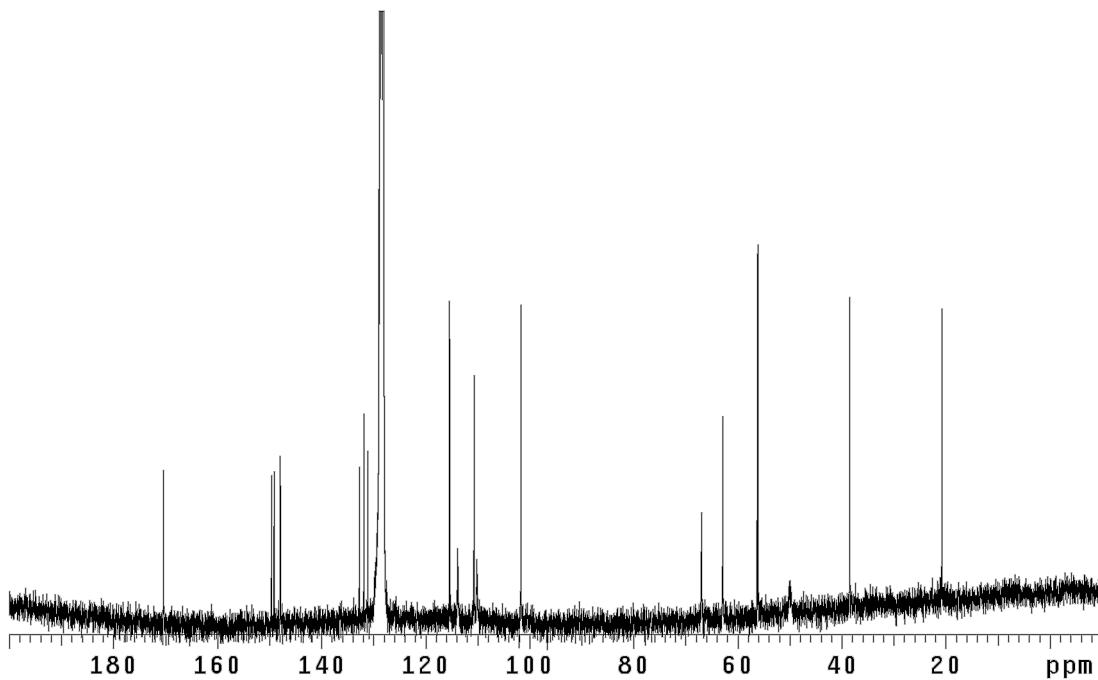


Figure A5.36 ^{13}C NMR (75 MHz, C_6D_6) of compound (-)-**316**.

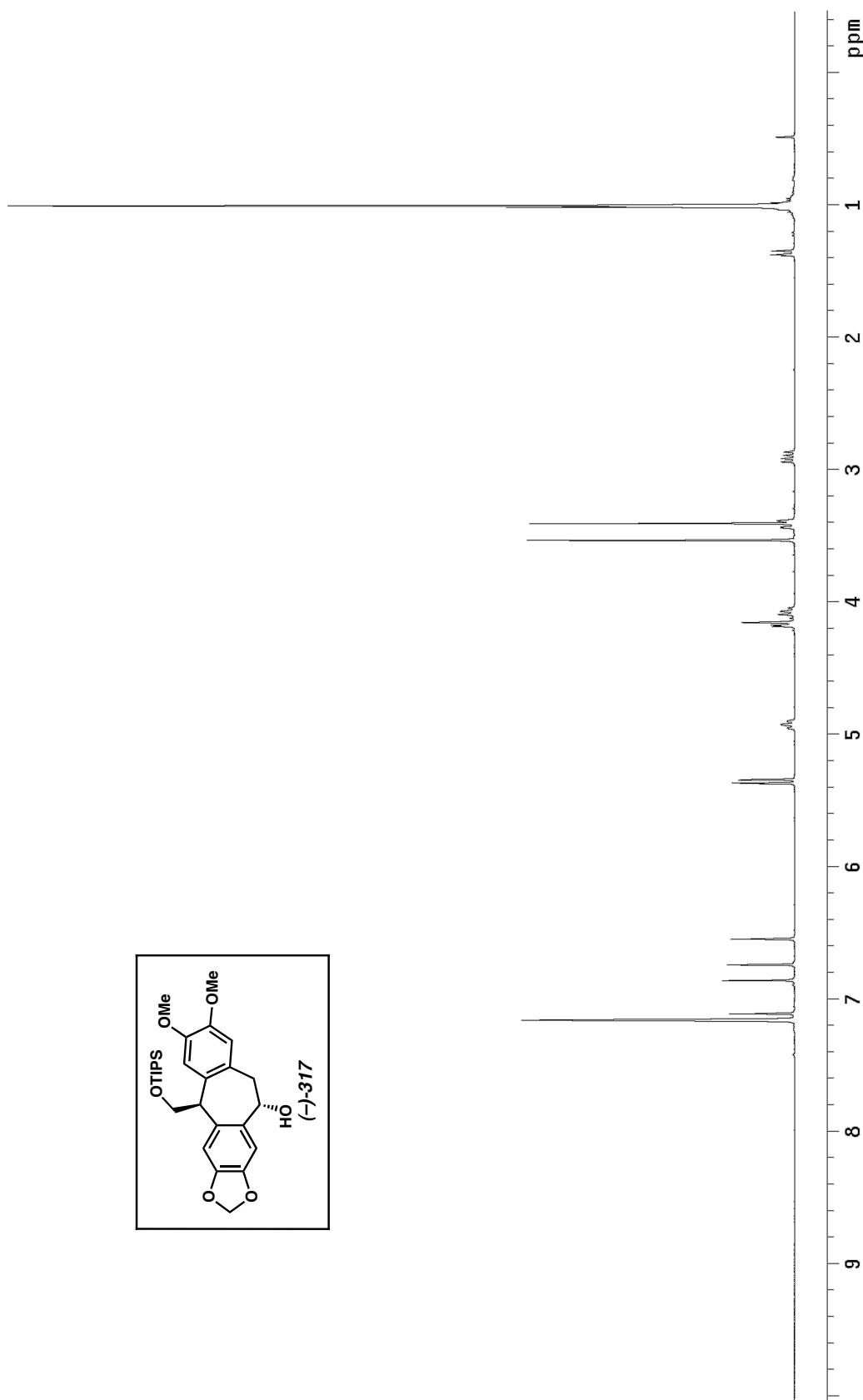


Figure A5.37 ^1H NMR (300 MHz, C_6D_6) of compound (-)-317.

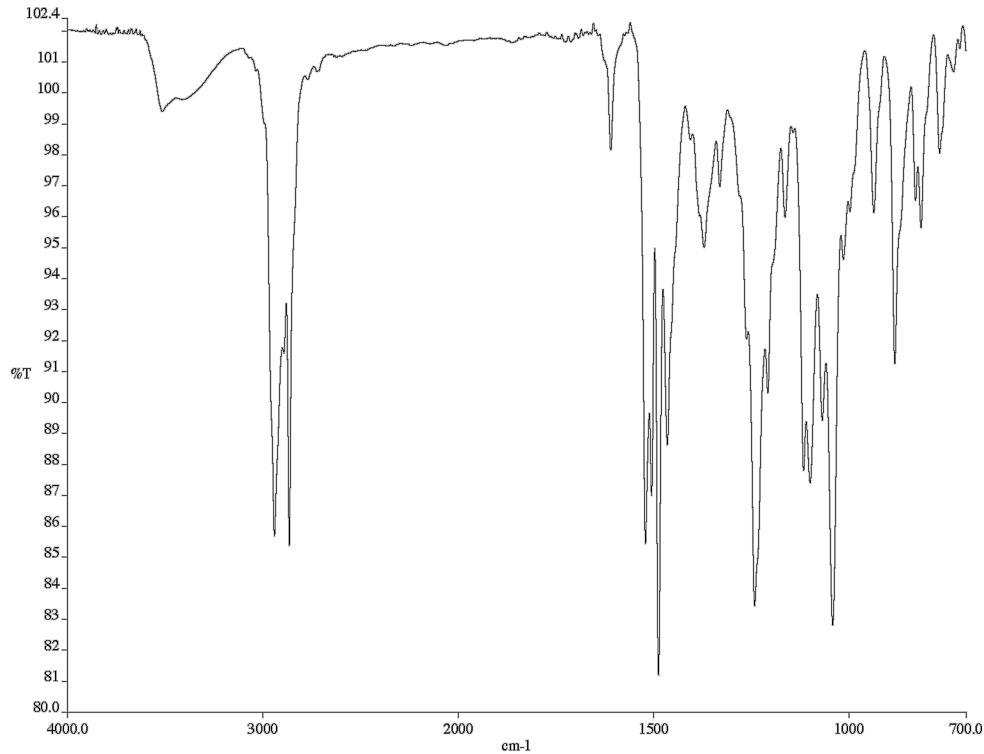


Figure A5.38 Infrared spectrum (thin film/NaCl) of compound (-)-**317**.

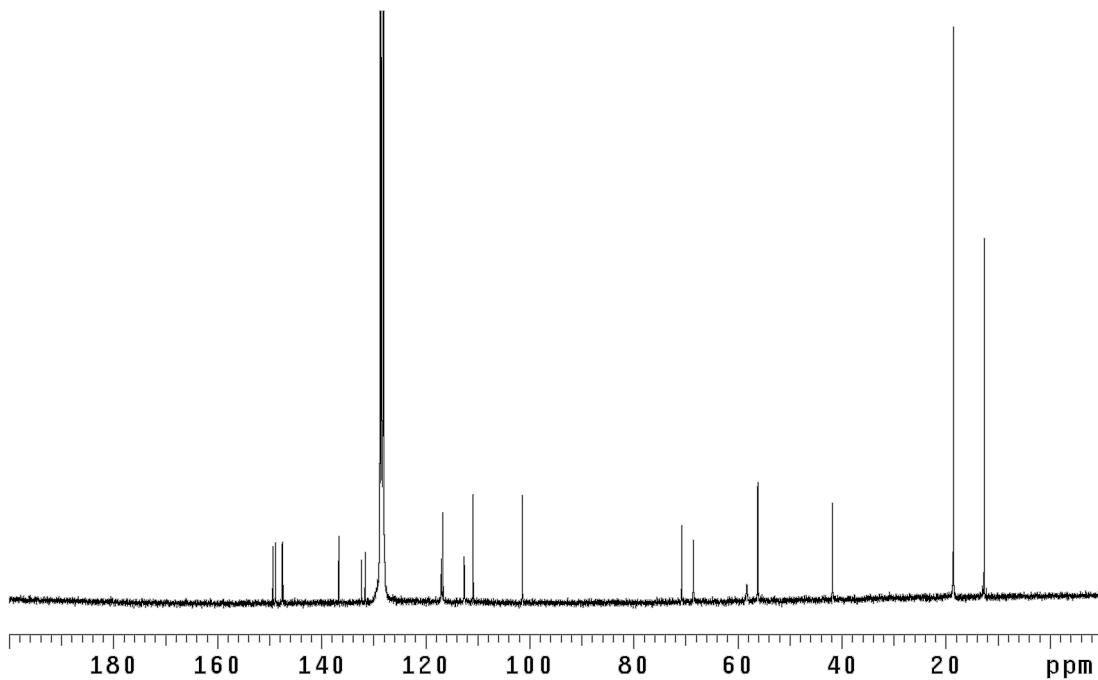


Figure A5.39 ^{13}C NMR (75 MHz, C_6D_6) of compound (-)-**317**.

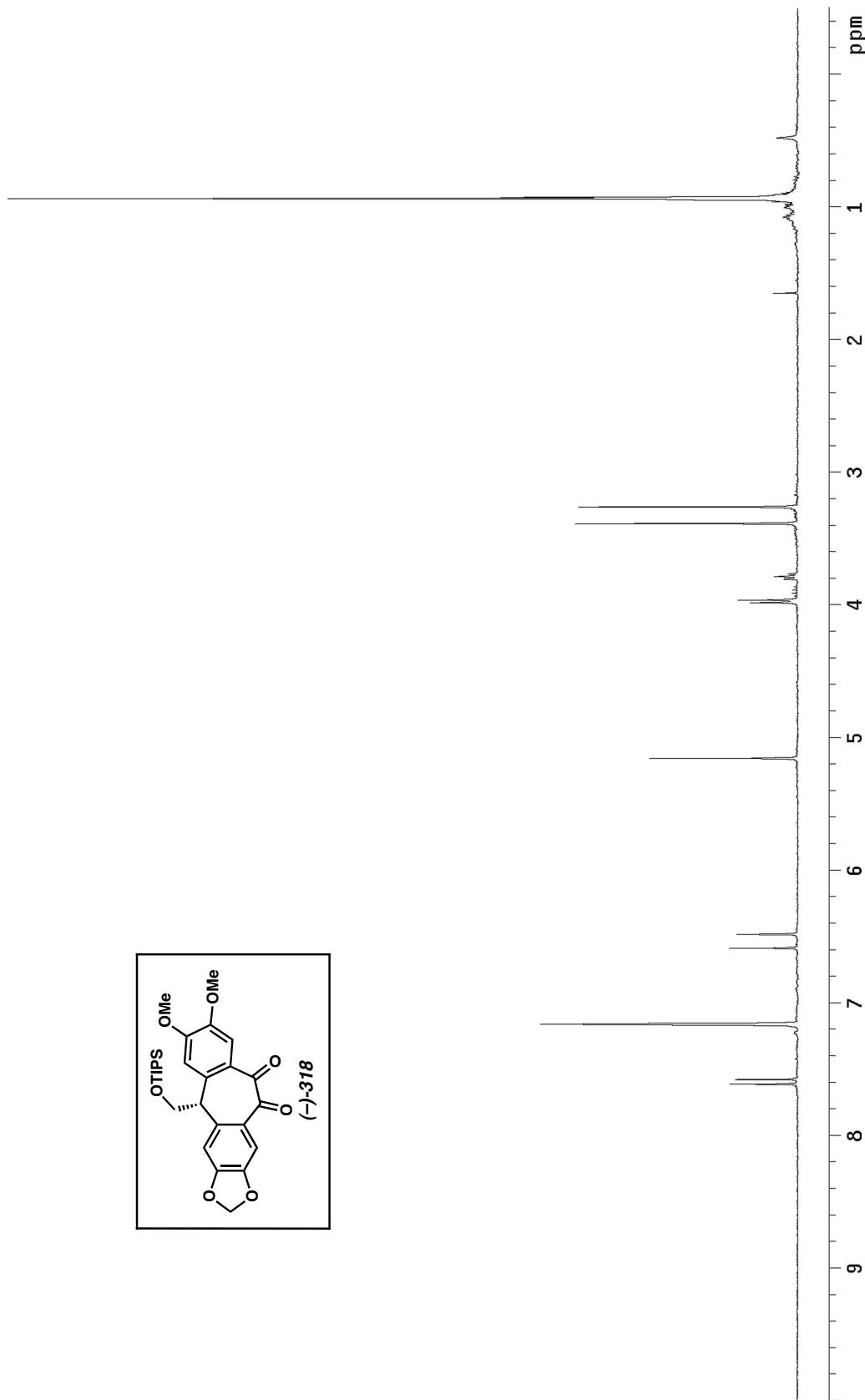


Figure A5.40 ^1H NMR (300 MHz, C_6D_6) of compound (*-*)-318.

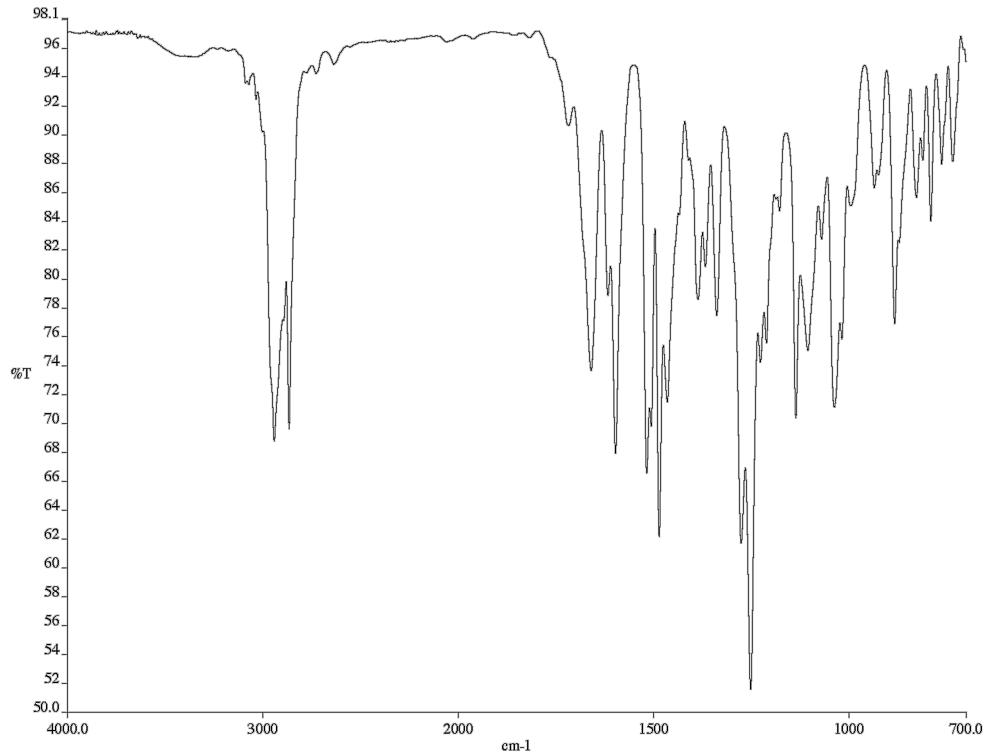


Figure A5.41 Infrared spectrum (thin film/NaCl) of compound (-)-**318**.

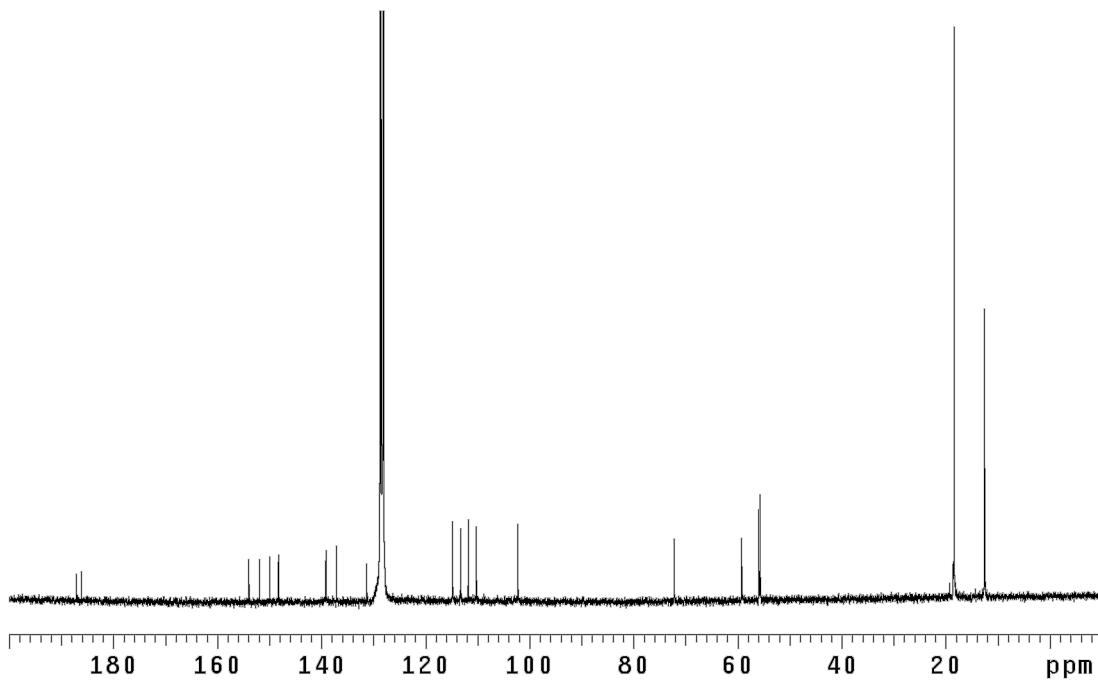
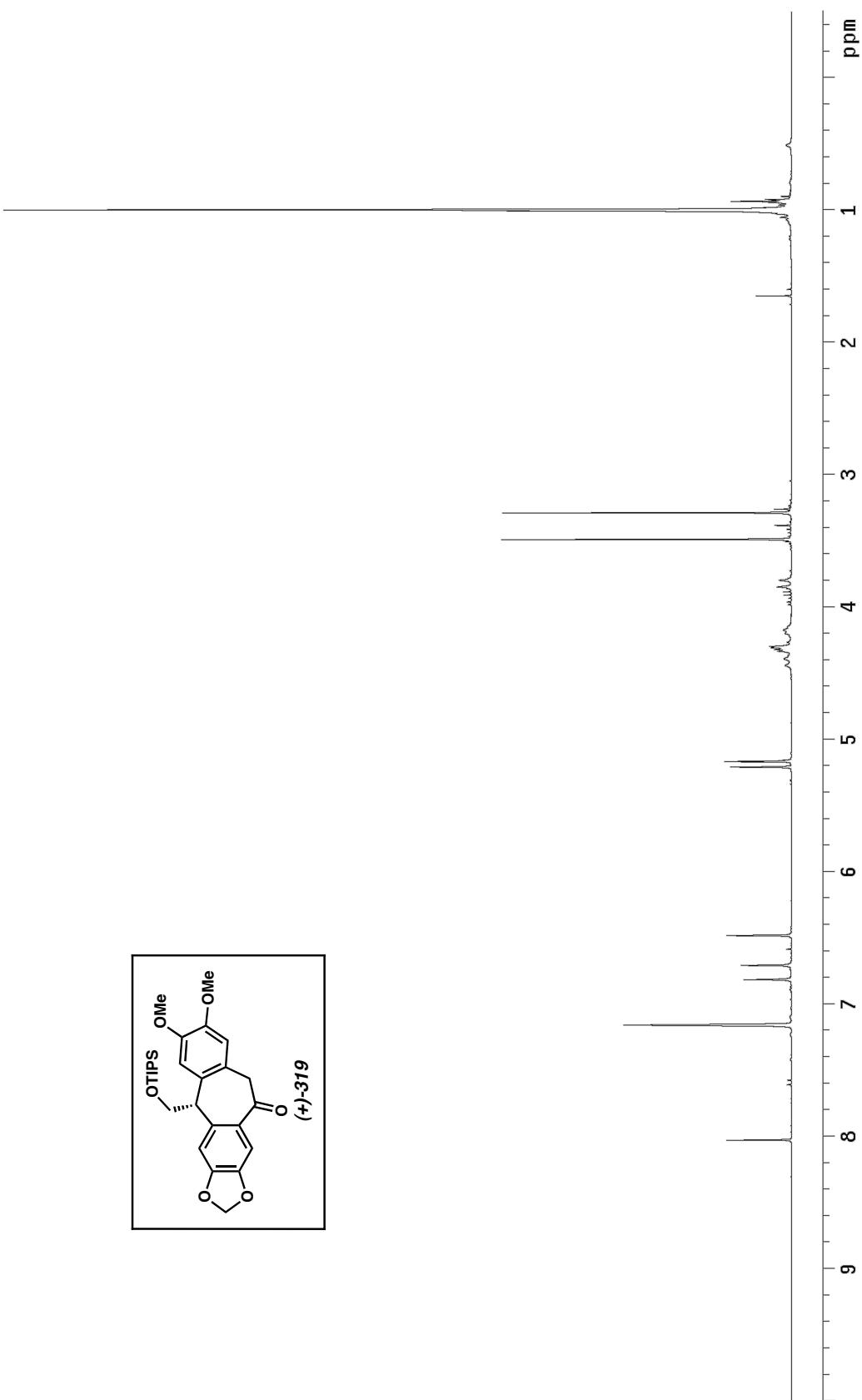


Figure A5.42 ^{13}C NMR (75 MHz, C_6D_6) of compound (-)-**318**.

Figure A5.43 ^1H NMR (300 MHz, C_6D_6) of compound (+)-319.



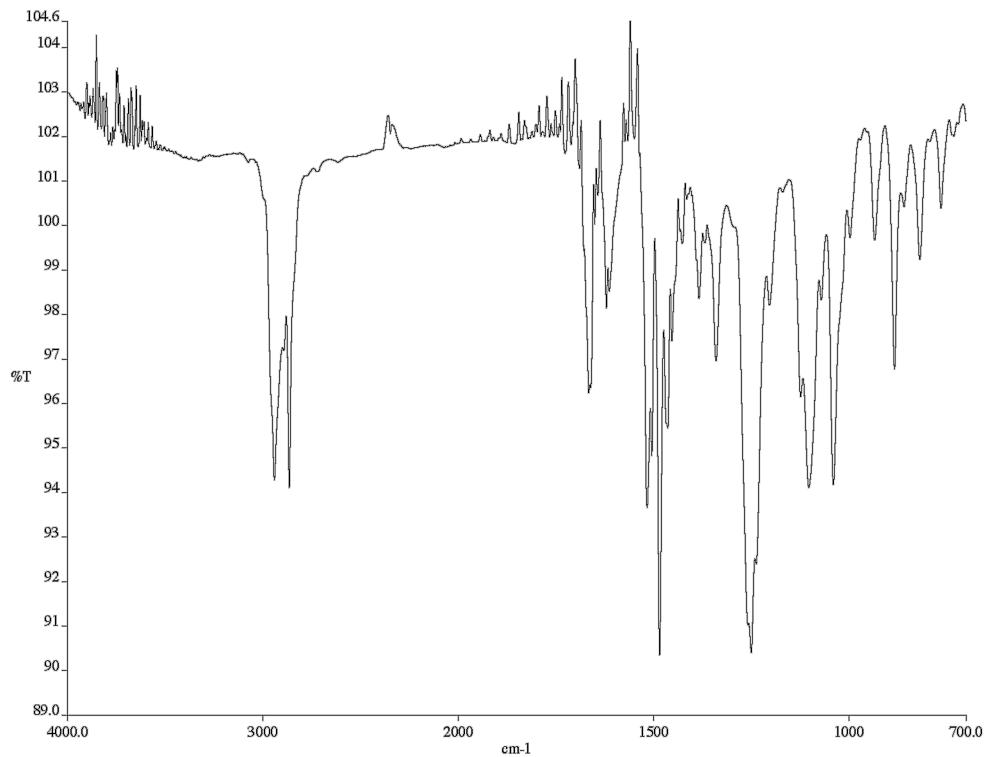


Figure A5.44 Infrared spectrum (thin film/NaCl) of compound (+)-**319**.

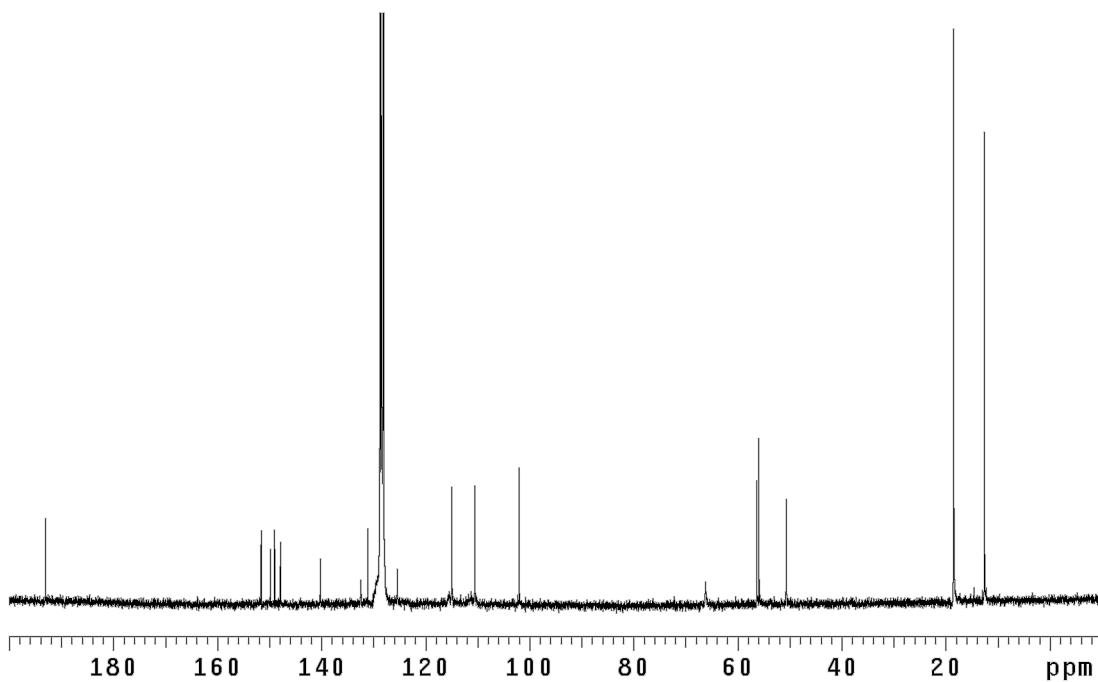


Figure A5.45 ^{13}C NMR (75 MHz, C_6D_6) of compound (+)-**319**.



Figure A5.46 ^1H NMR (300 MHz, C_6D_6) of compound ($-$)-320.

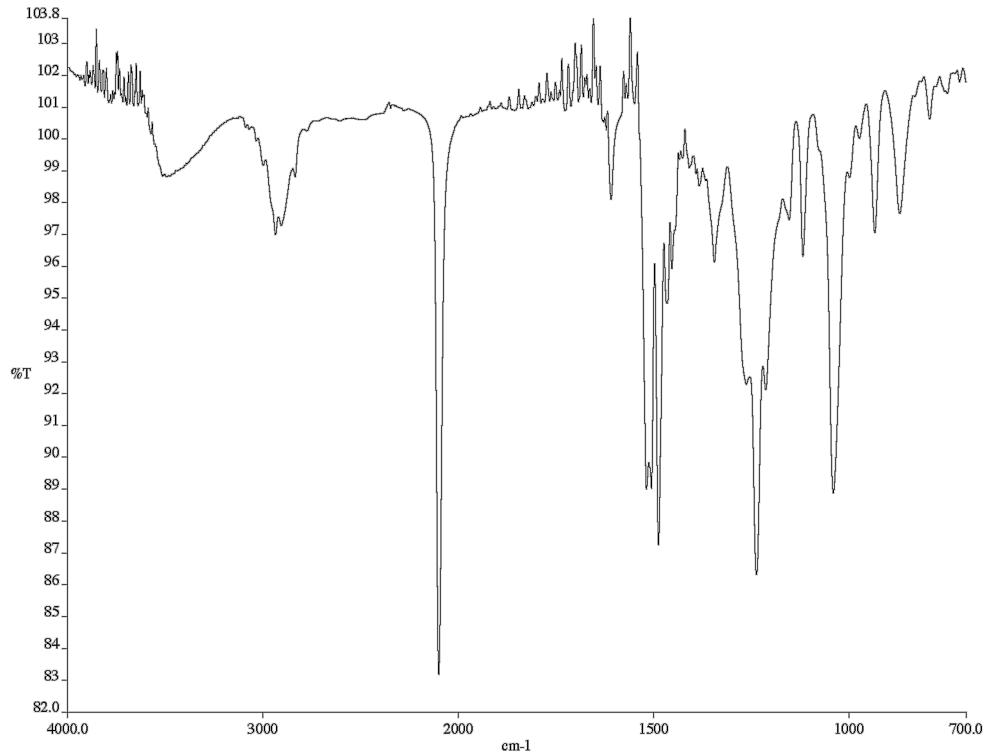


Figure A5.47 Infrared spectrum (thin film/NaCl) of compound (-)-**320**.

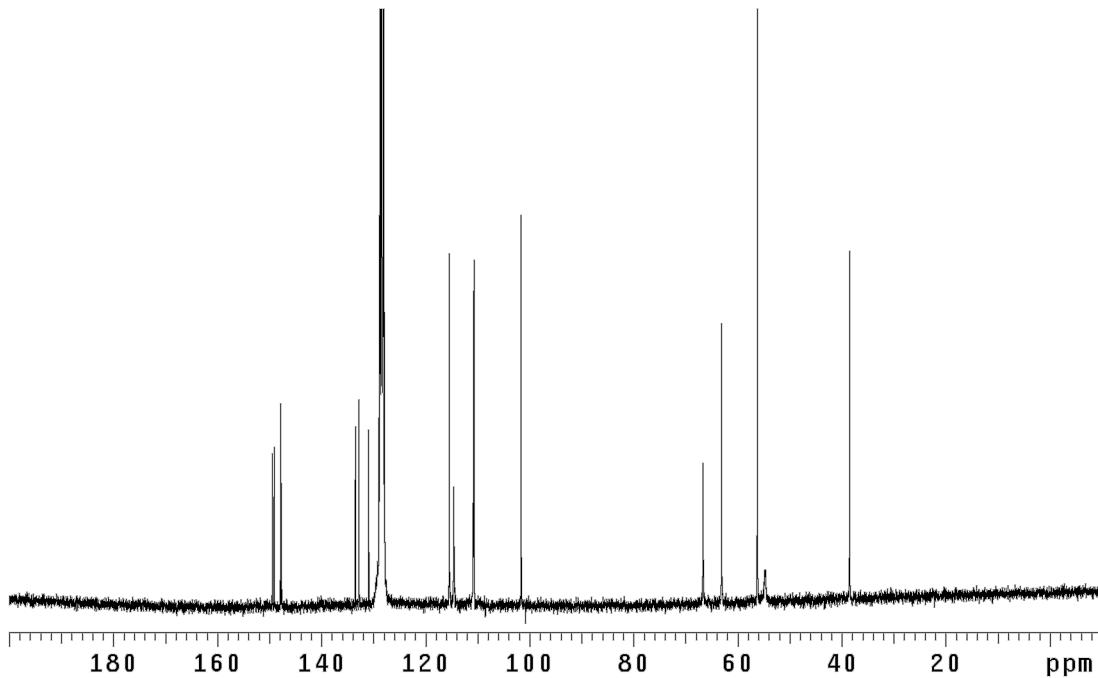


Figure A5.48 ¹³C NMR (75 MHz, C₆D₆) of compound (-)-**320**.