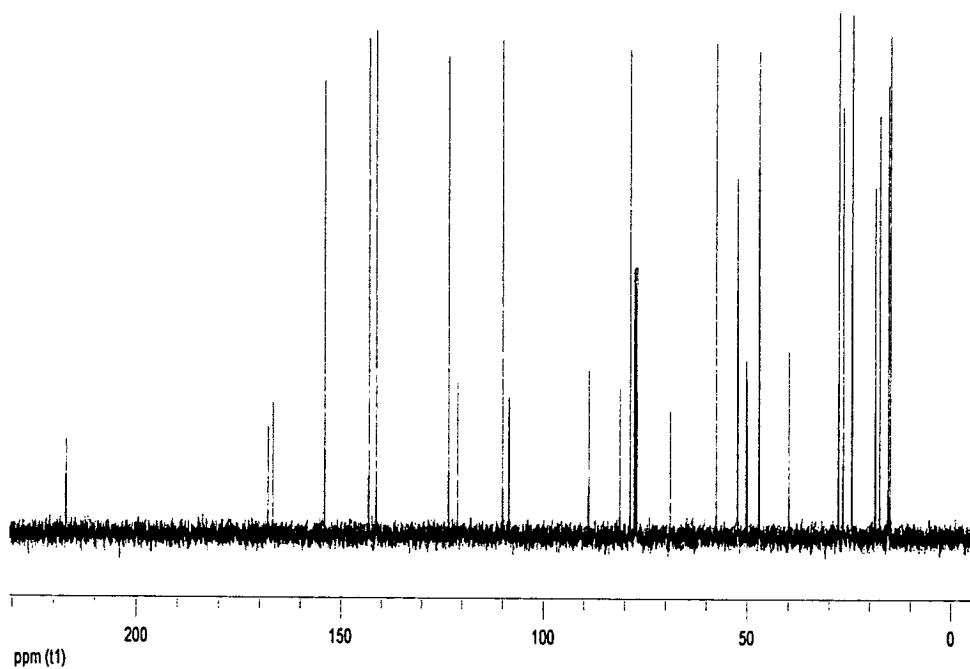
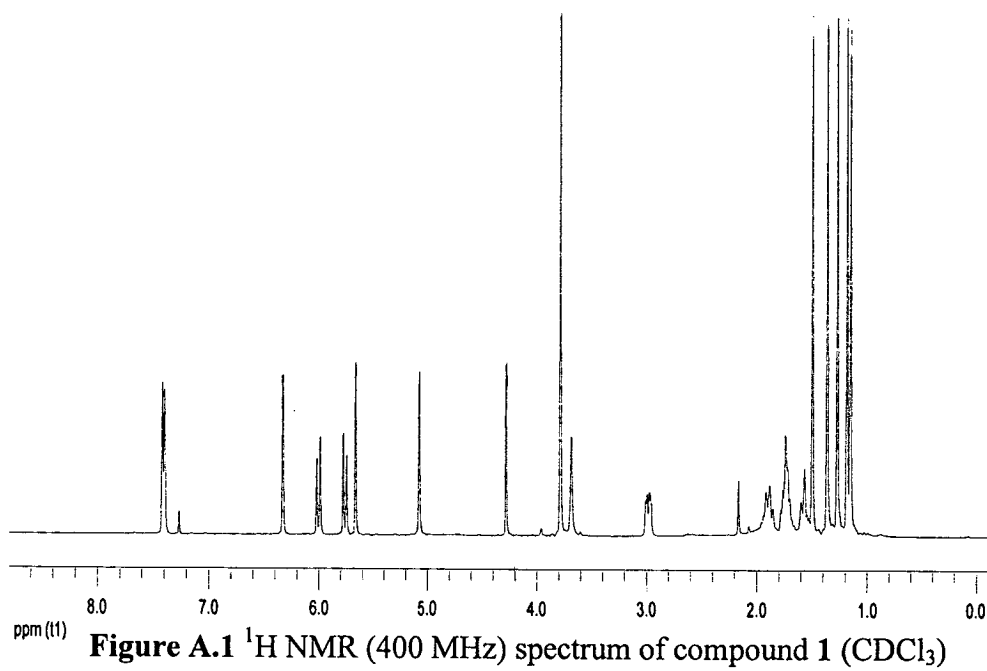
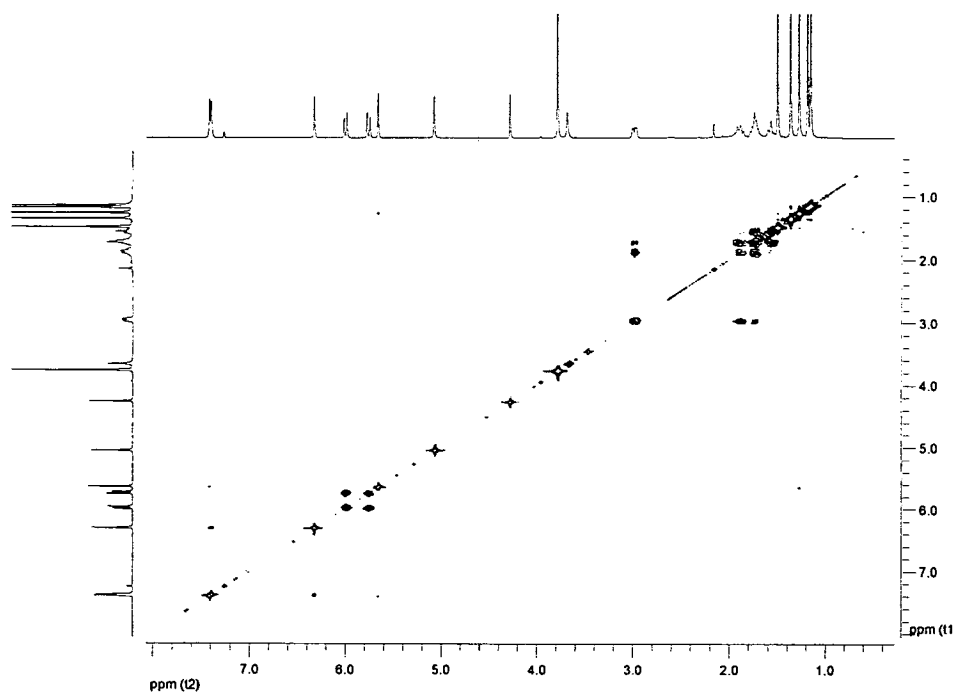


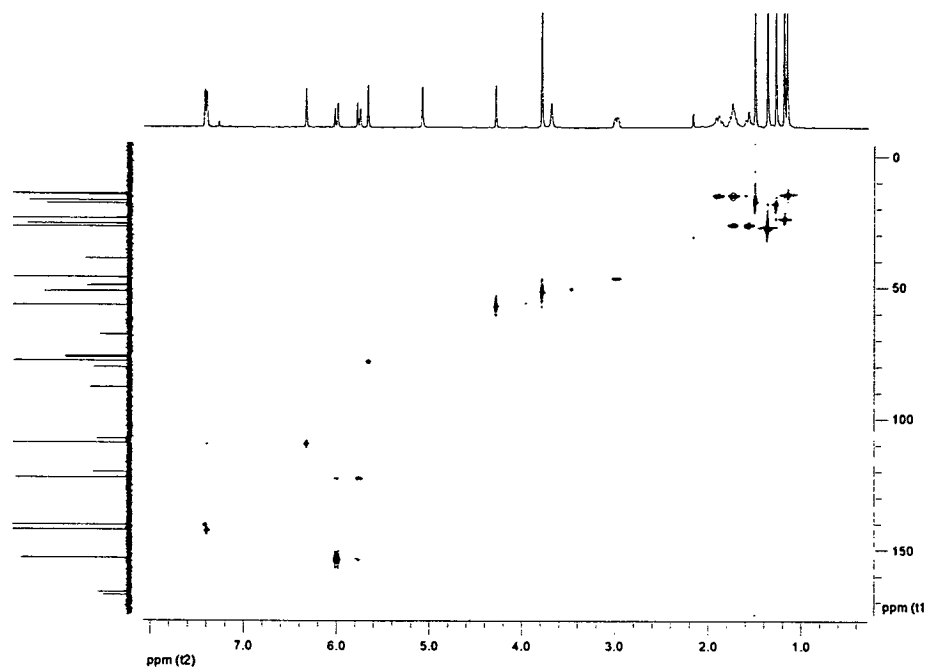
## **Appendix**



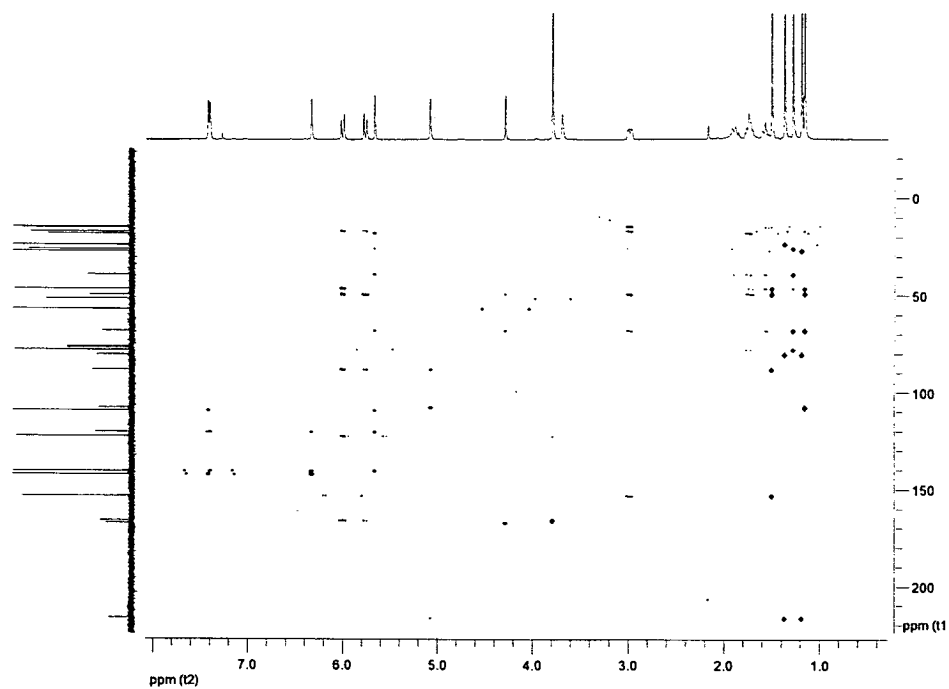
**Figure A.2**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound 1 ( $\text{CDCl}_3$ )



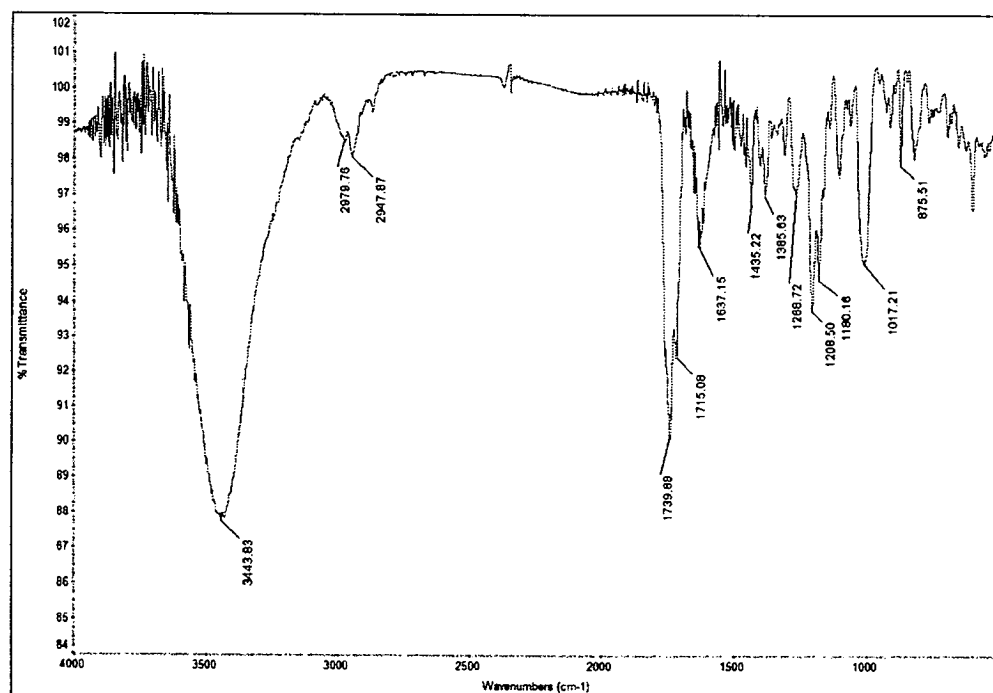
**Figure A.3** COSY (400 MHz) spectrum of compound **1** ( $\text{CDCl}_3$ )



**Figure A.4** HSQC (400 MHz) spectrum of compound **1** ( $\text{CDCl}_3$ )

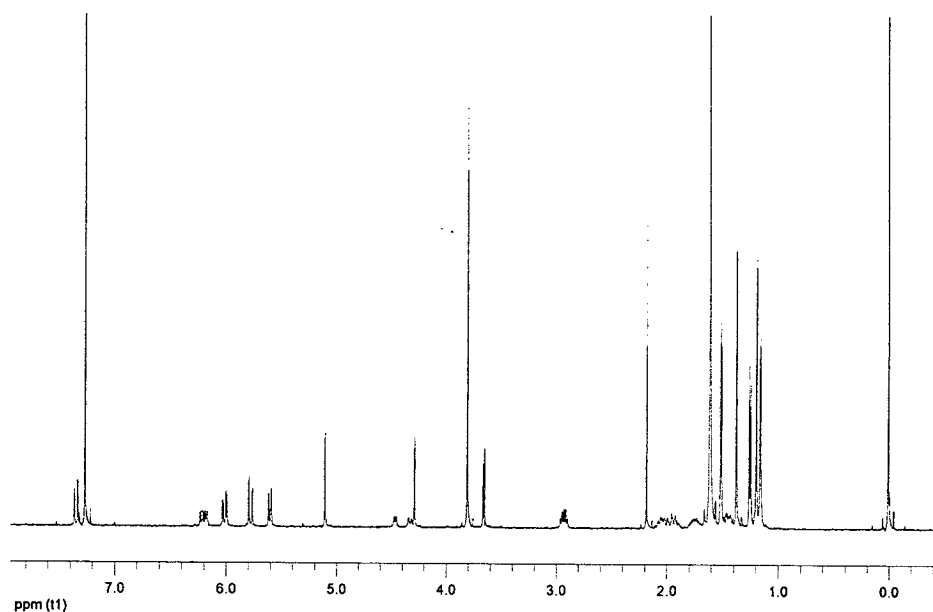


**Figure A.5** HMBC (400 MHz) spectrum of compound 1 (CDCl<sub>3</sub>)

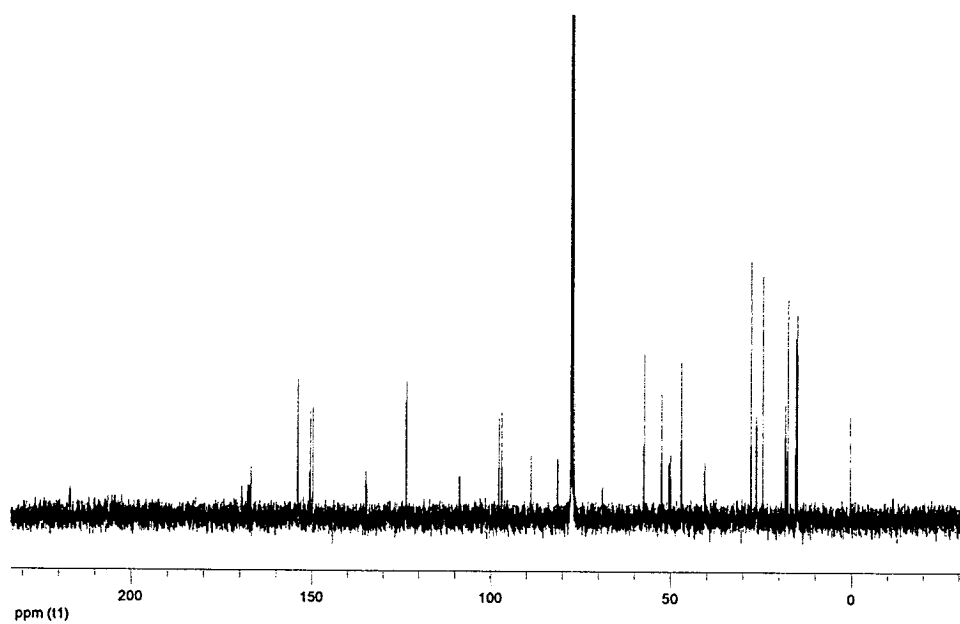


**Figure A.6** IR spectrum of compound 1 (KBr)

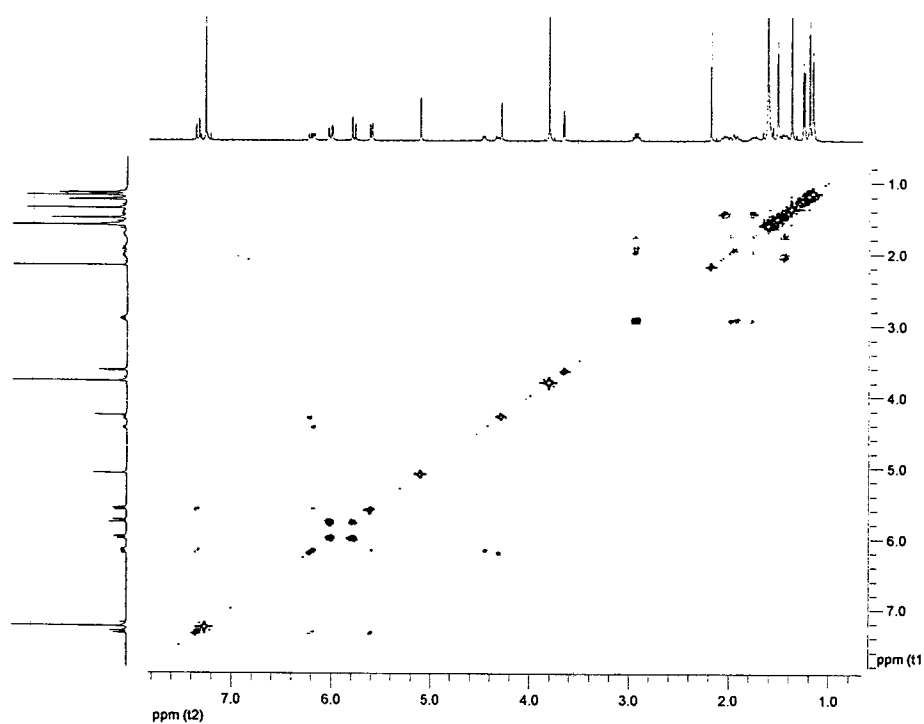




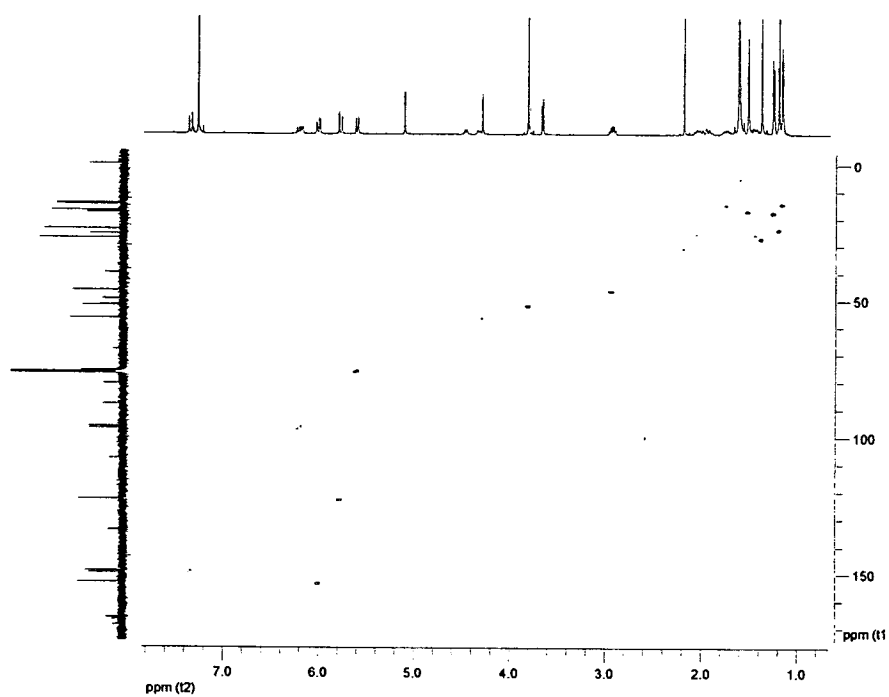
**Figure A.7**  $^1\text{H}$  NMR (400 MHz) spectrum of compound **2** ( $\text{CDCl}_3$ )



**Figure A.8**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound **2** ( $\text{CDCl}_3$ )



**Figure A.9** COSY (400 MHz) spectrum of compound **2** (CDCl<sub>3</sub>)



**Figure A.10** HSQC (400 MHz) spectrum of compound **2** (CDCl<sub>3</sub>)

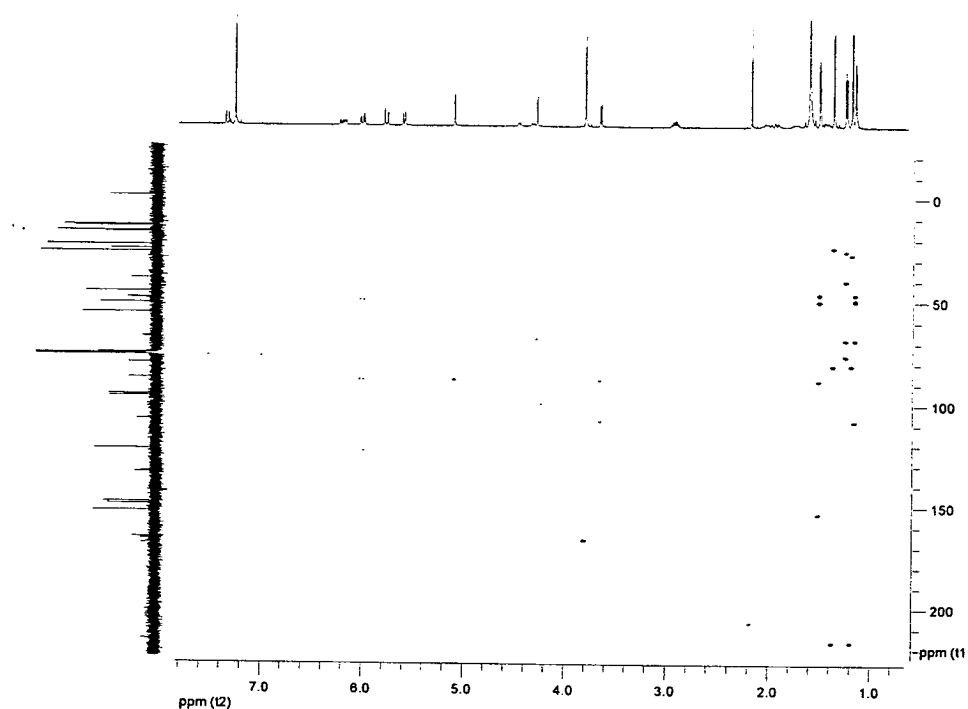


Figure A.11 HMBC (400 MHz) spectrum of compound 2 (CDCl<sub>3</sub>)

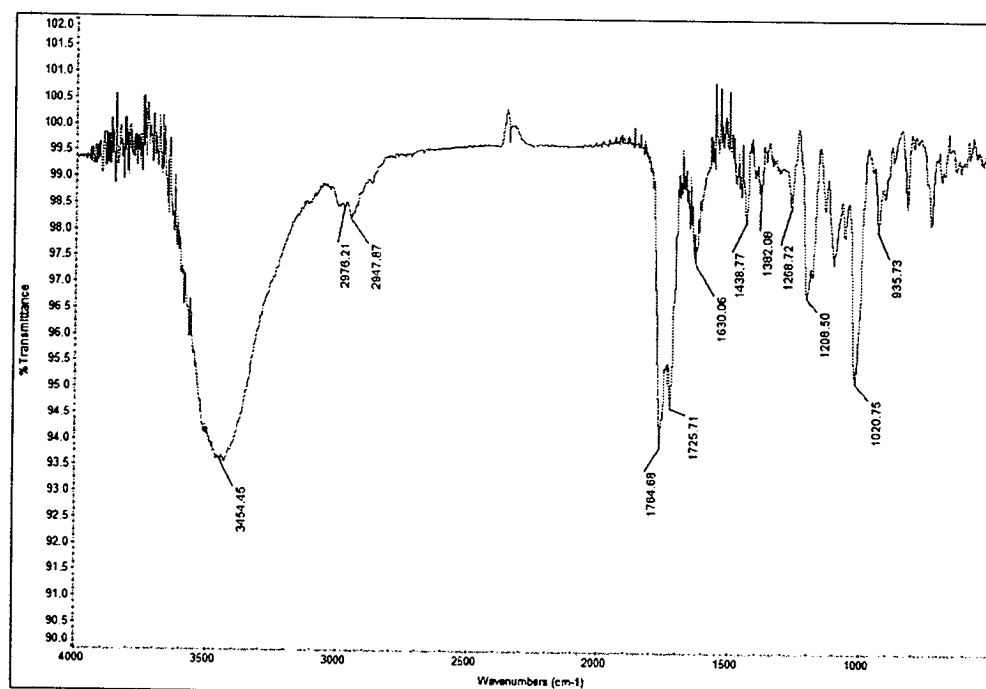


Figure A.12 IR spectrum of compound 2 (KBr)

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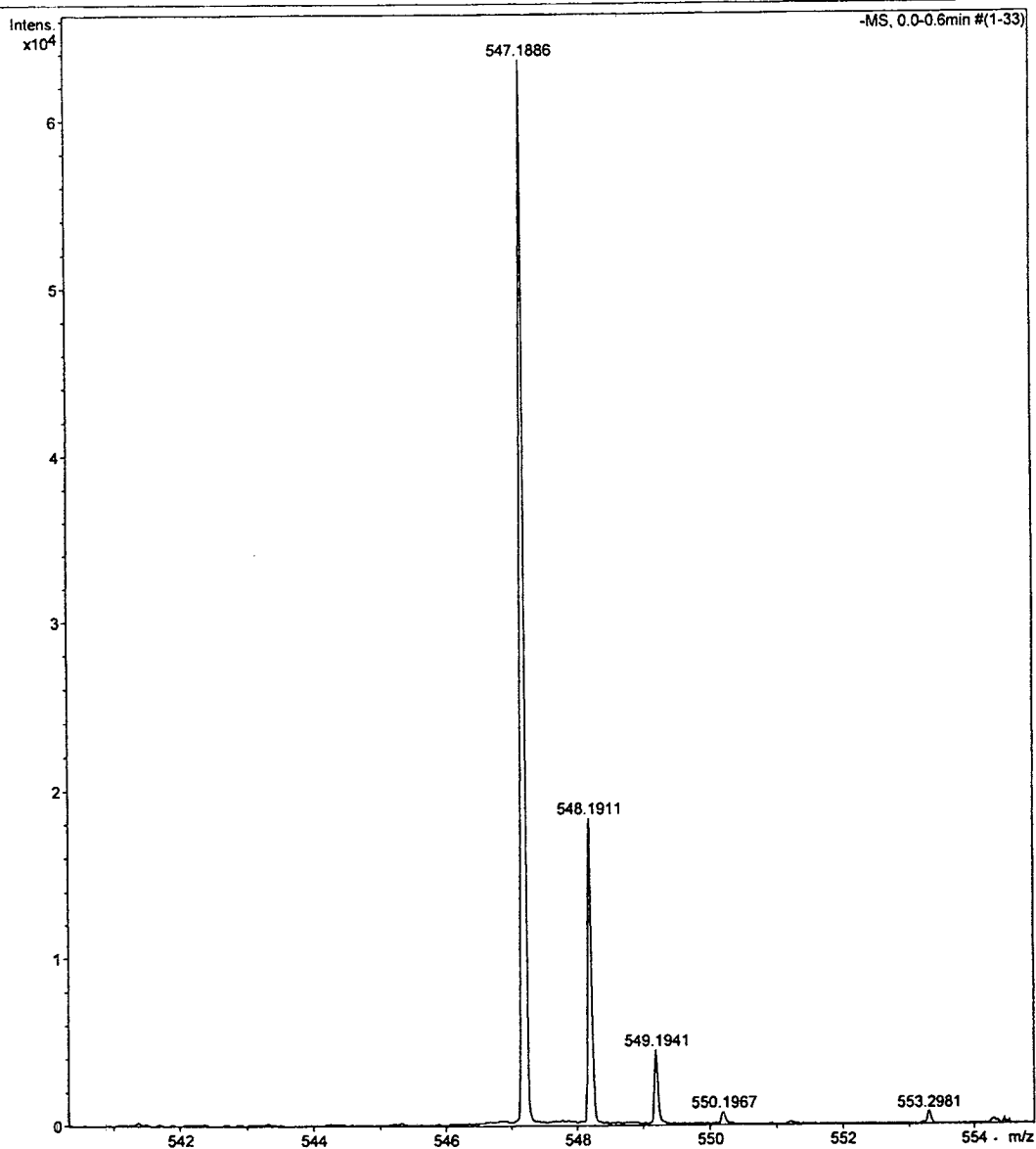
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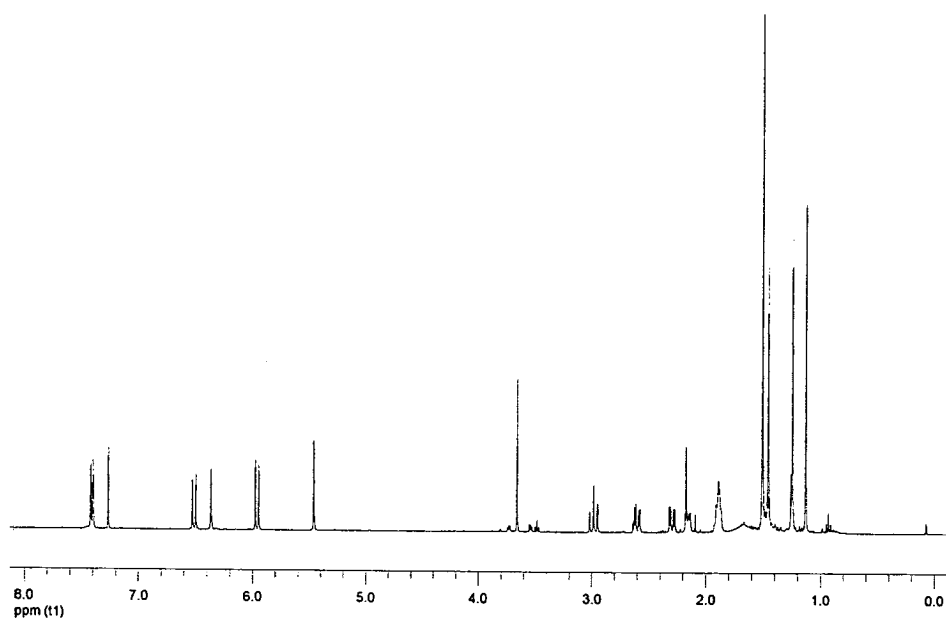
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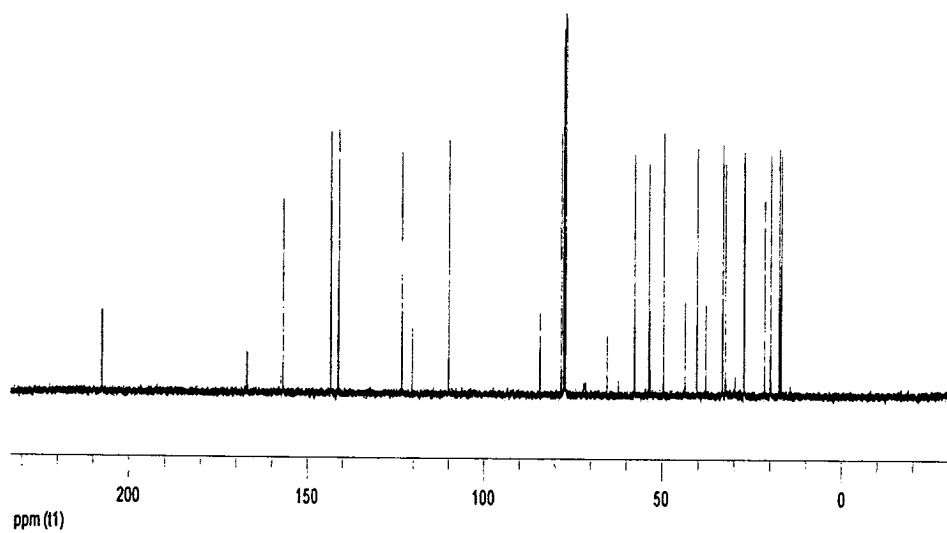
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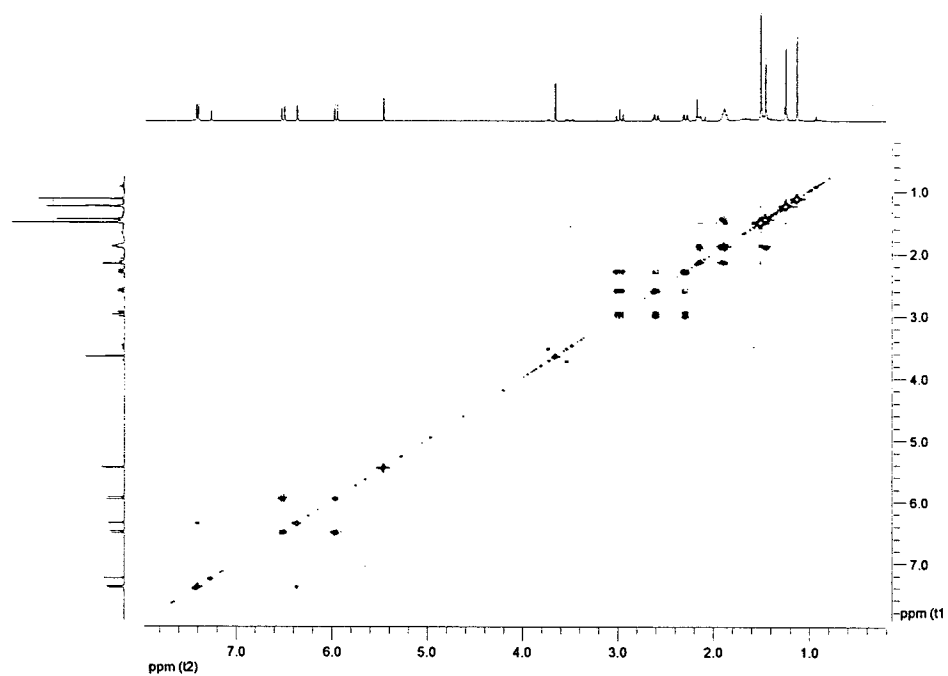
**Figure A.13** HRESIMS Mass spectrum of compound **2**



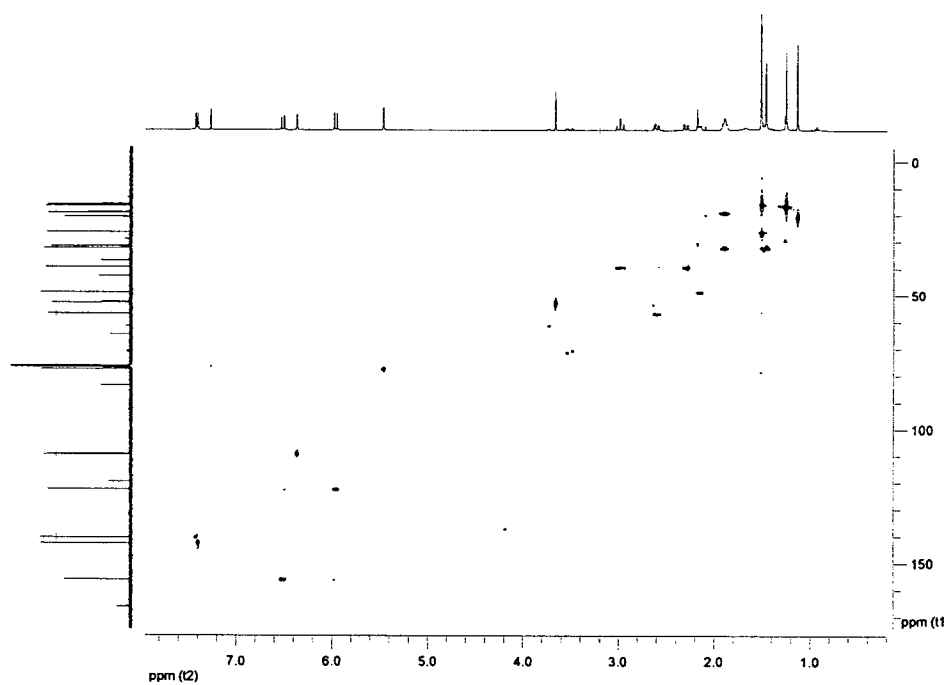
**Figure A.14**  $^1\text{H}$  NMR (400 MHz) spectrum of compound 3 ( $\text{CDCl}_3$ )



**Figure A.15**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound 3 ( $\text{CDCl}_3$ )



**Figure A.16** COSY (400 MHz) spectrum of compound **3** (CDCl<sub>3</sub>)



**Figure A.17** HSQC (400 MHz) spectrum of compound **3** (CDCl<sub>3</sub>)

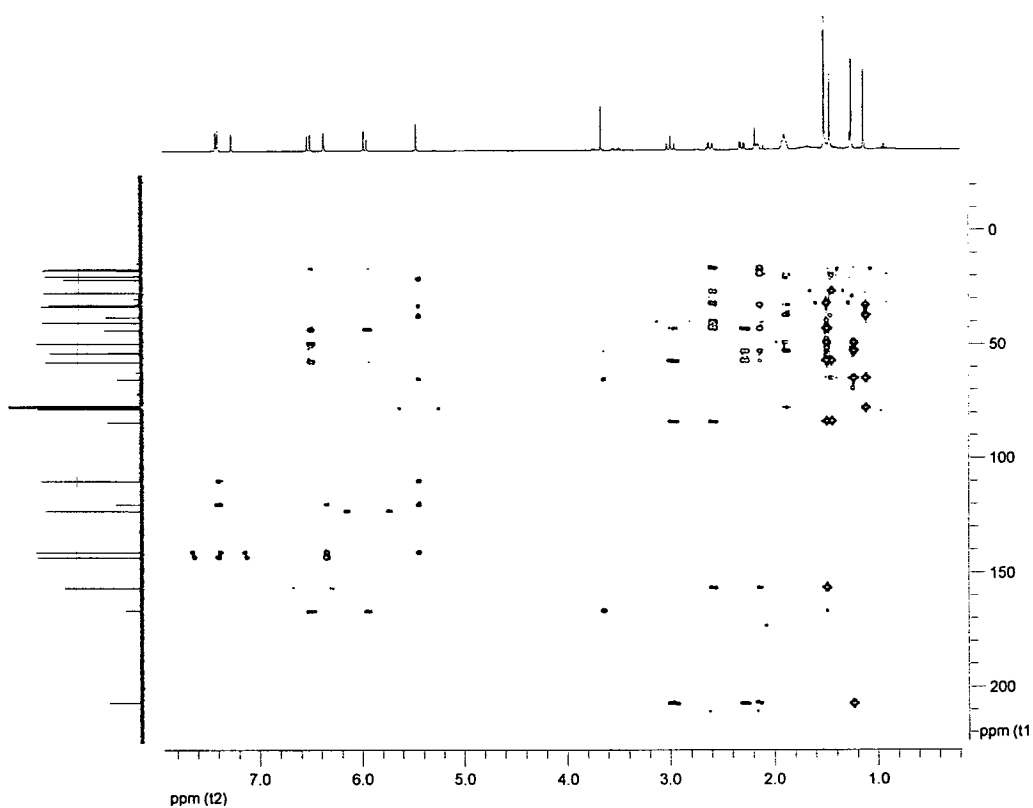


Figure A.18 HMBC (400 MHz) spectrum of compound 3 ( $\text{CDCl}_3$ )

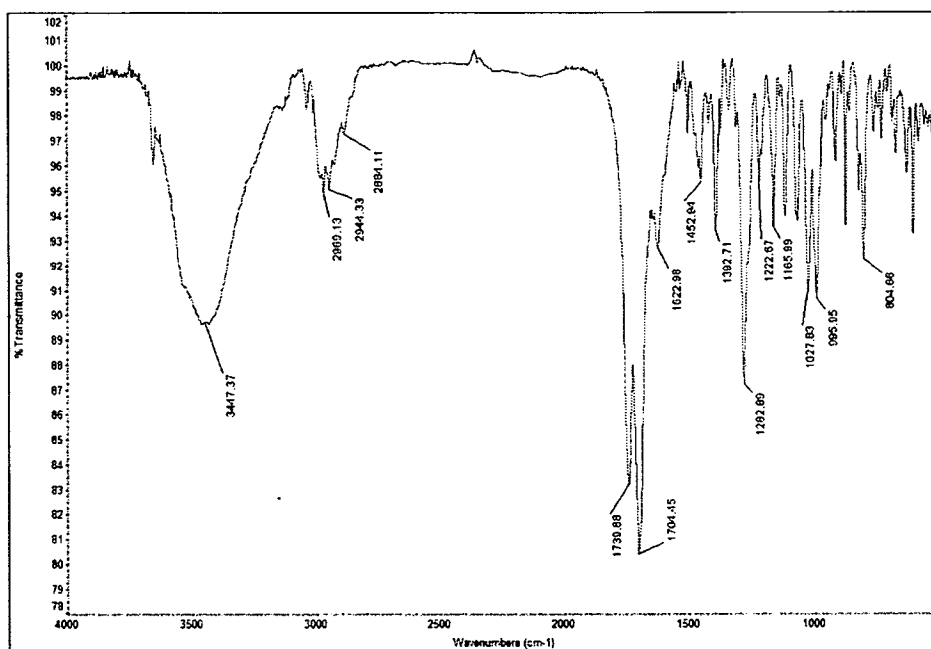
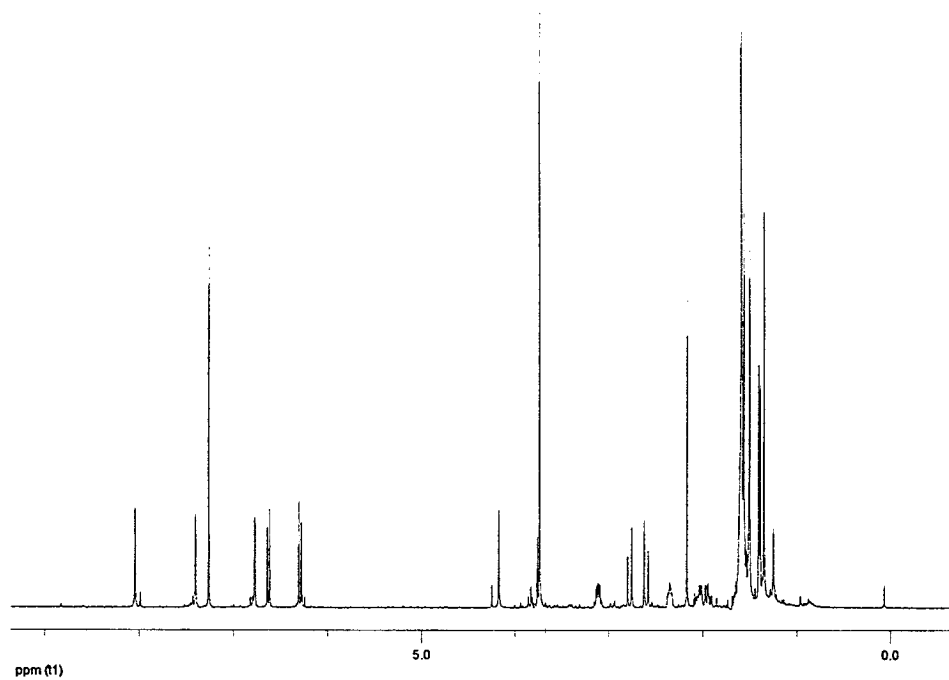
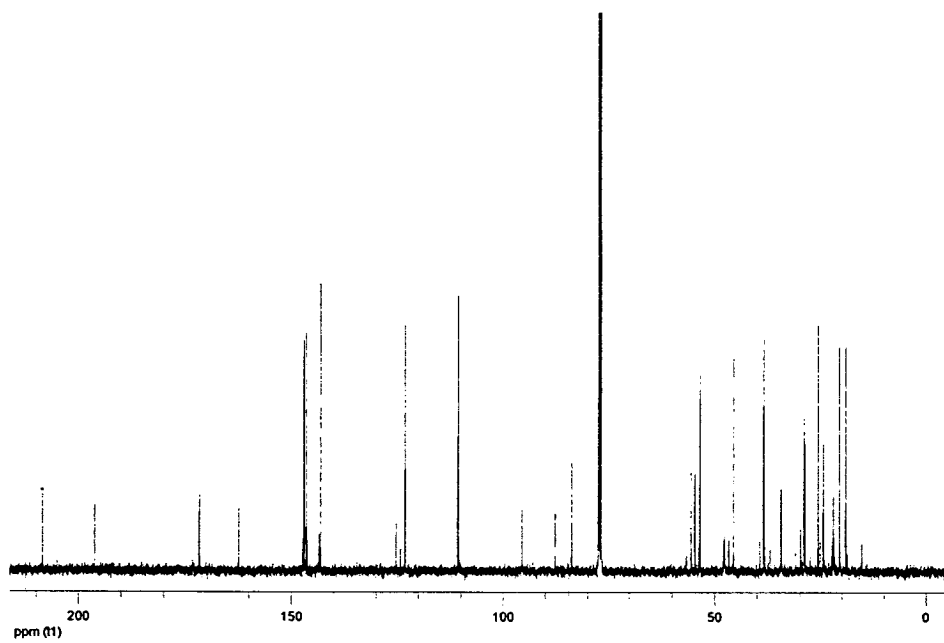


Figure A.19 IR spectrum of compound 3 (KBr)

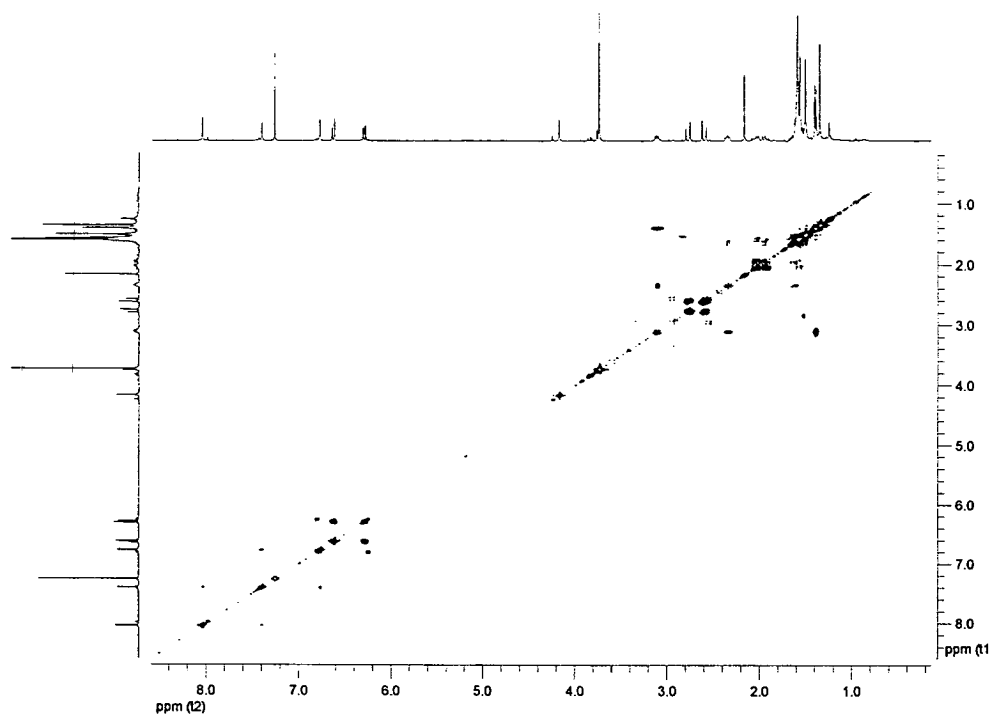


**Figure A.20**  $^1\text{H}$  NMR (400 MHz) spectrum of compound 4 ( $\text{CDCl}_3$ )

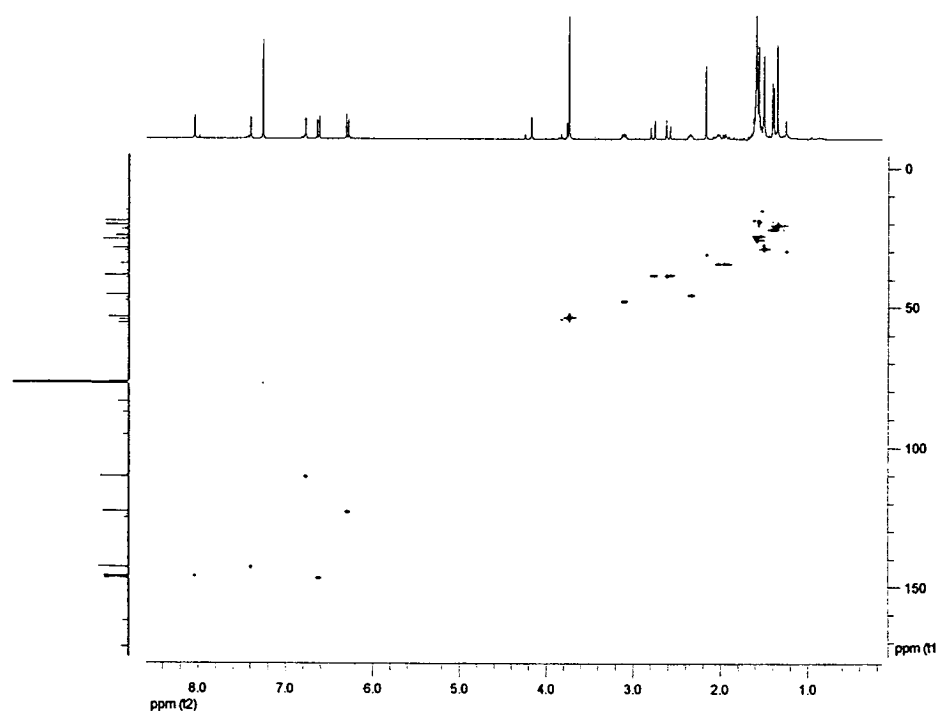


**Figure A.21**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound 4 ( $\text{CDCl}_3$ )

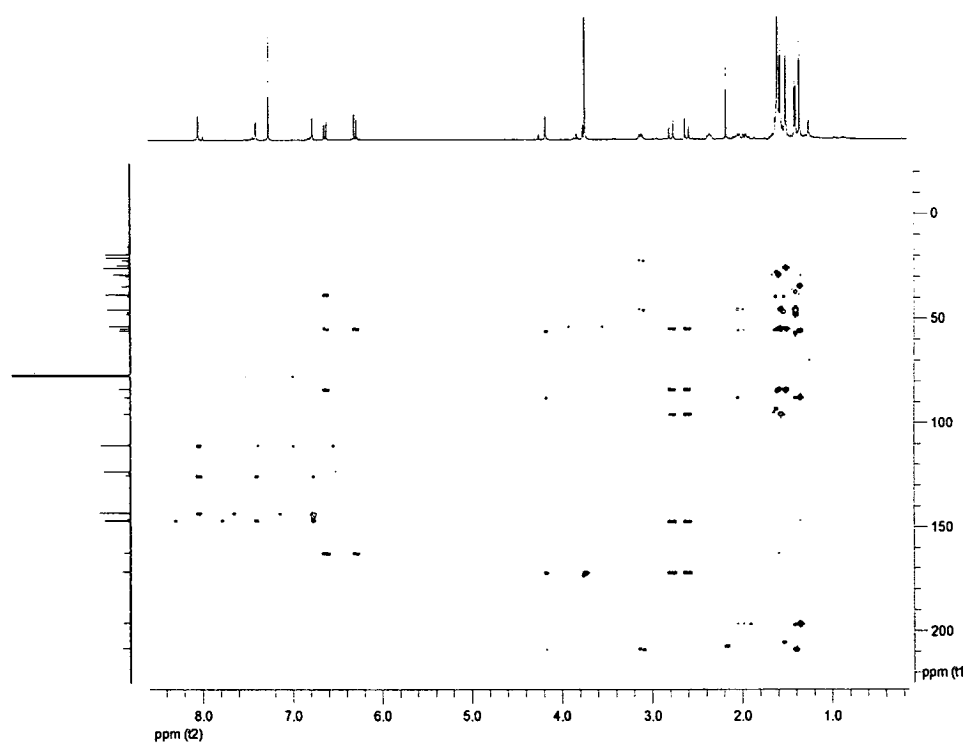




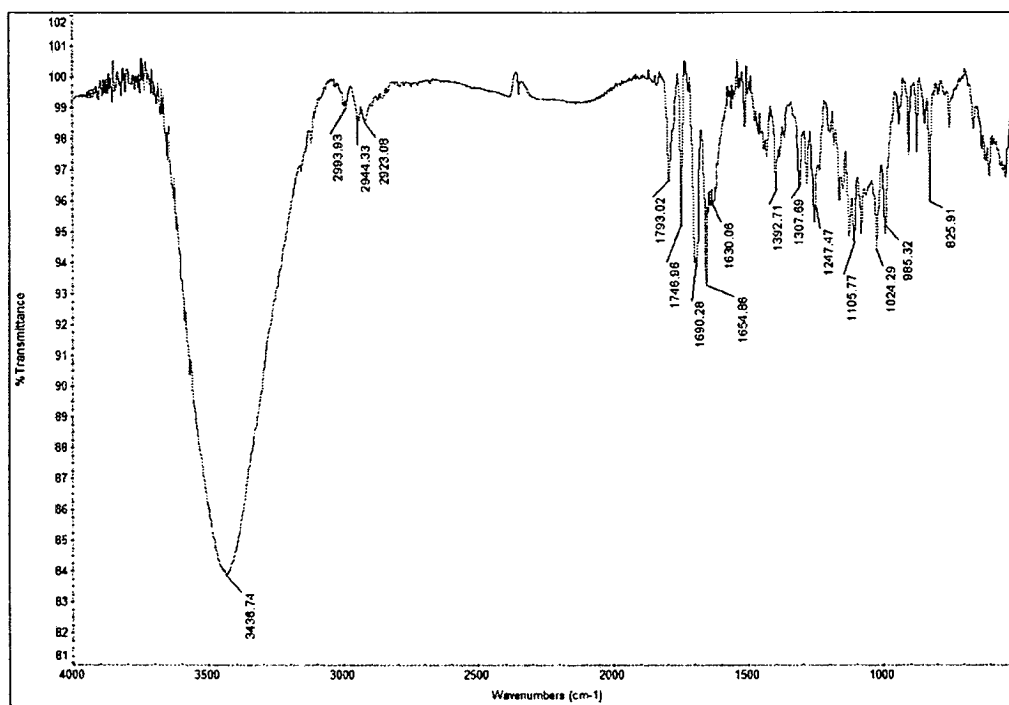
**Figure A.22** COSY (400 MHz) spectrum of compound **4** (CDCl<sub>3</sub>)



**Figure A.23** HSQC (400 MHz) spectrum of compound **4** (CDCl<sub>3</sub>)



**Figure A.24** HMBC (400 MHz) spectrum of compound **4** (CDCl<sub>3</sub>)



**Figure A.25** IR spectrum of compound **4** (KBr)

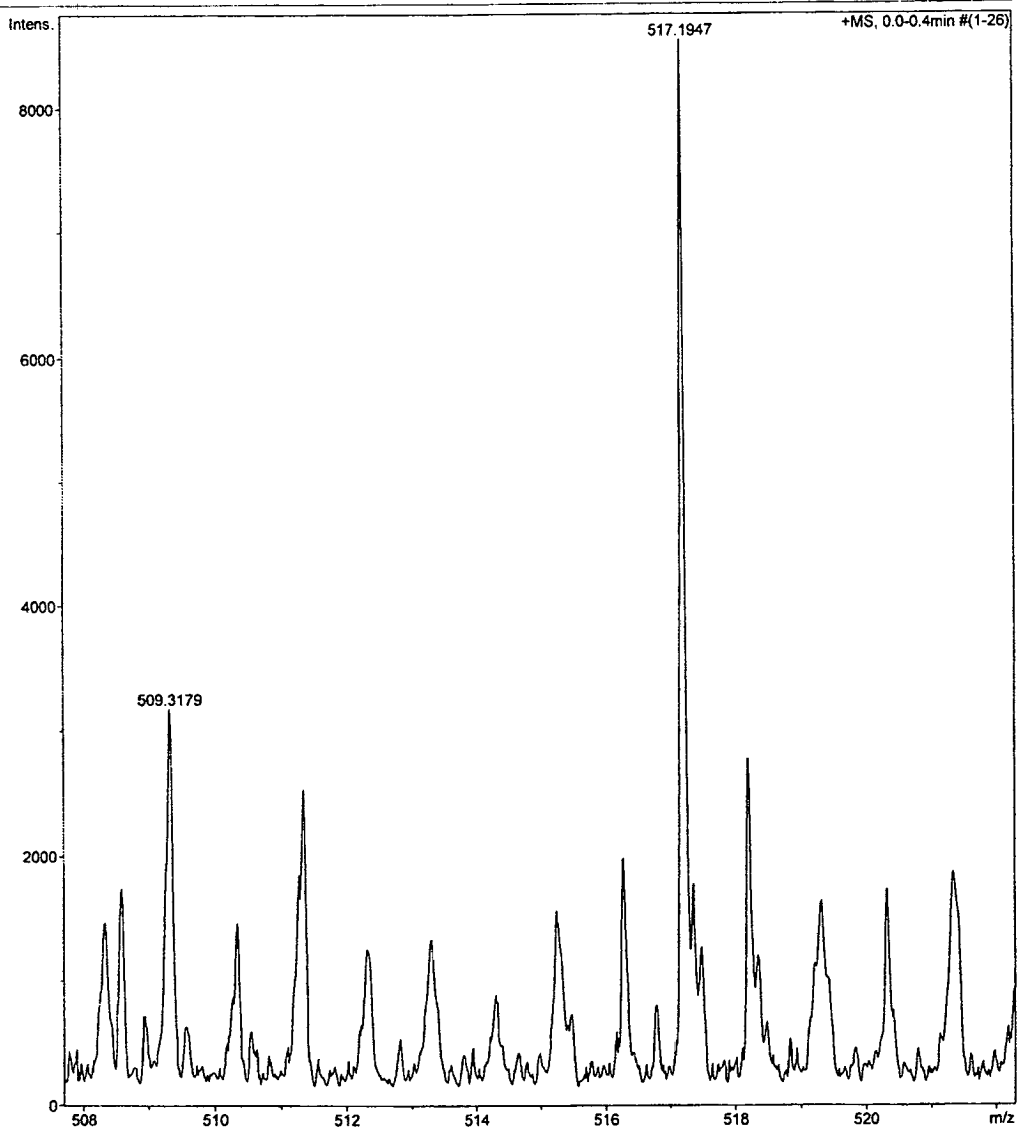
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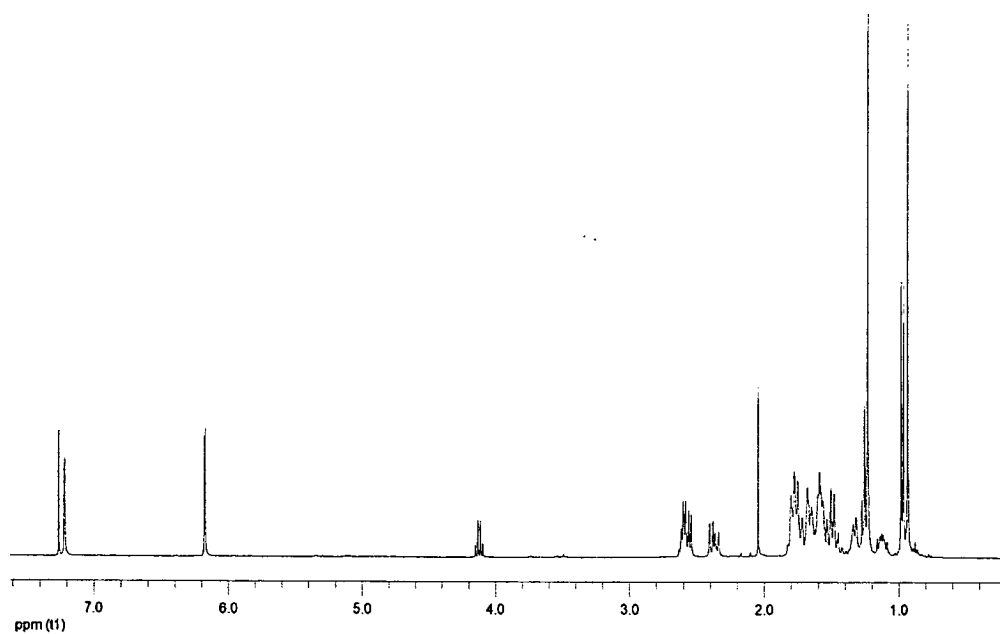
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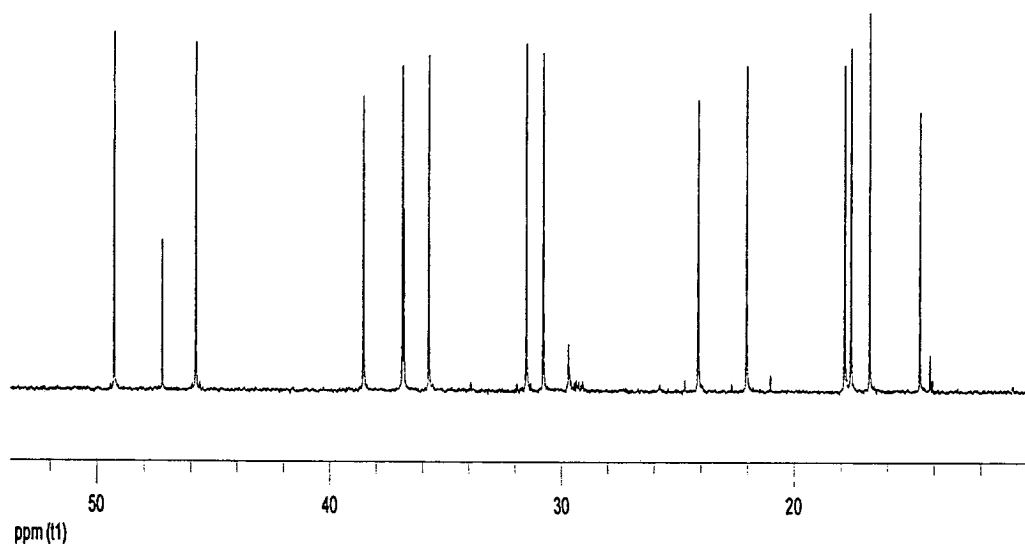
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Instrument micrOTOF-Q II



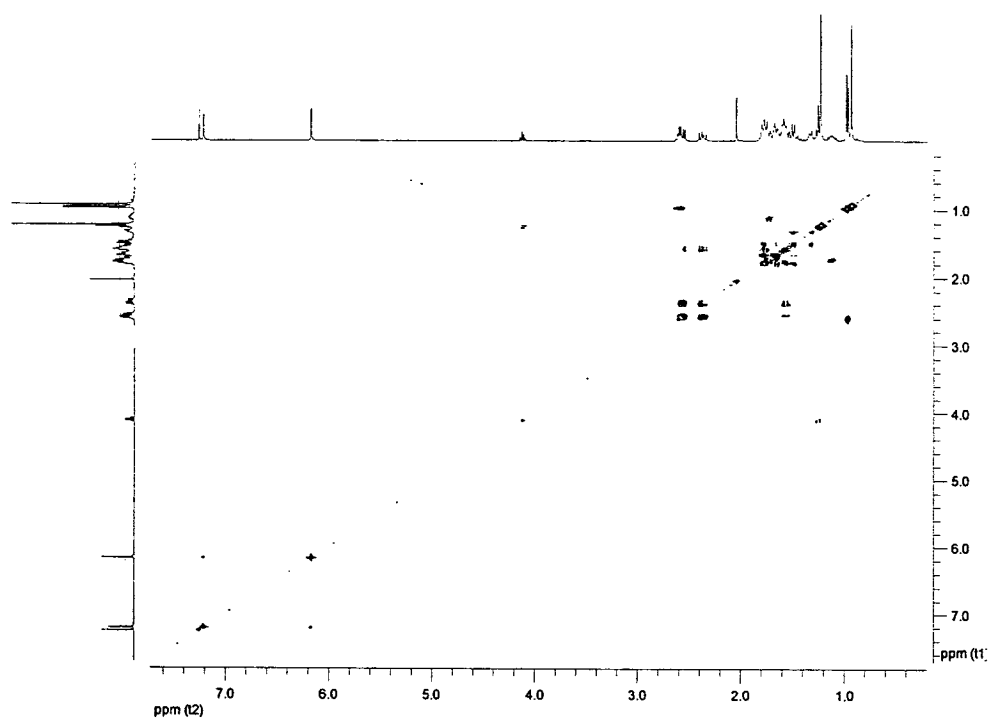
**Figure A.26** HRESIMS Mass spectrum of compound 4



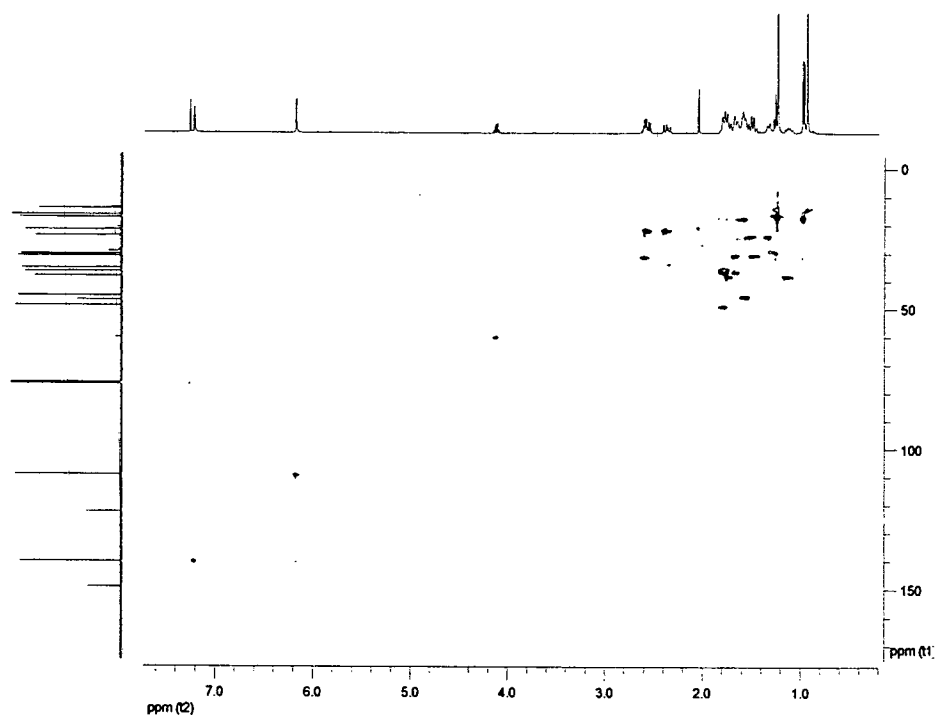
**Figure A.27**  $^1\text{H}$  NMR (400 MHz) spectrum of compound **5** ( $\text{CDCl}_3$ )



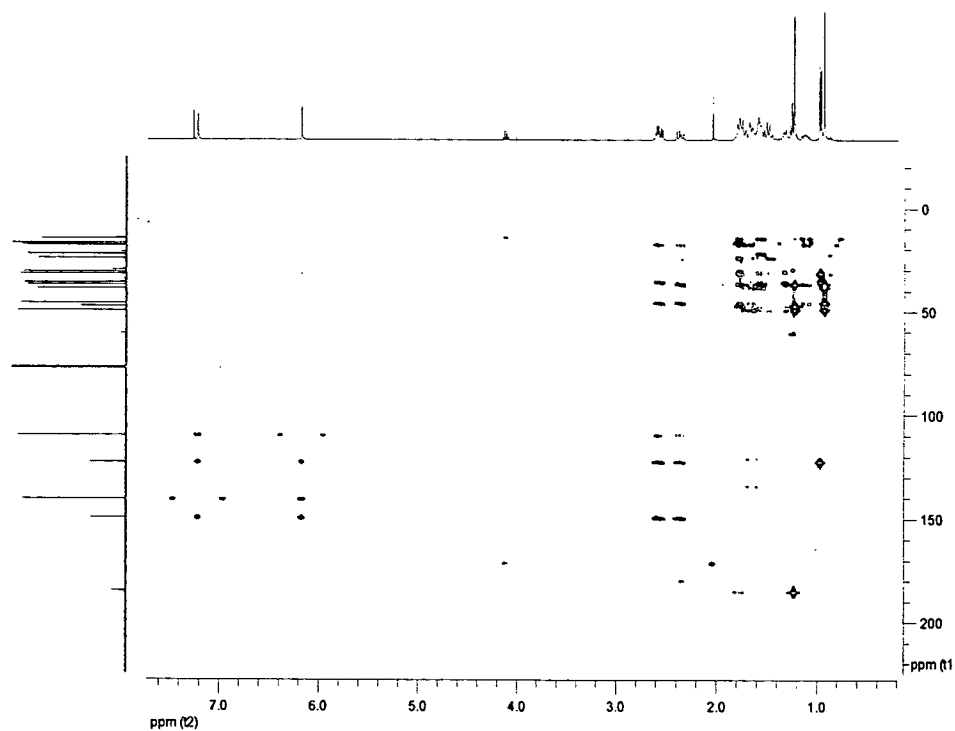
**Figure A.28**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound **5** ( $\text{CDCl}_3$ )



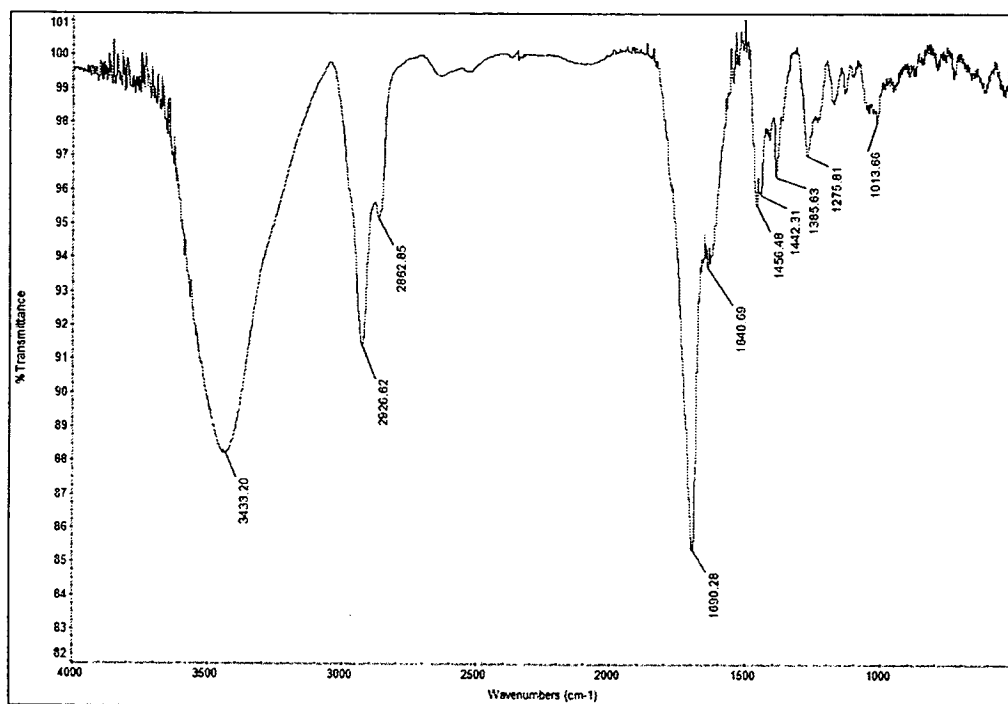
**Figure A.29** COSY (400 MHz) spectrum of compound **5** (CDCl<sub>3</sub>)



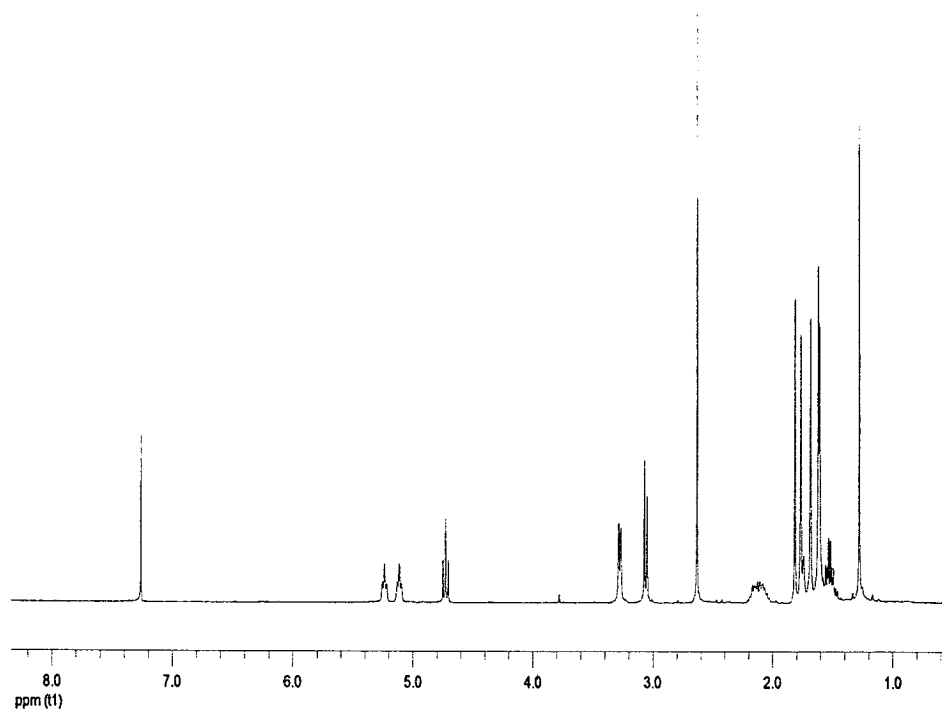
**Figure A.30** HSQC (400 MHz) spectrum of compound **5** (CDCl<sub>3</sub>)



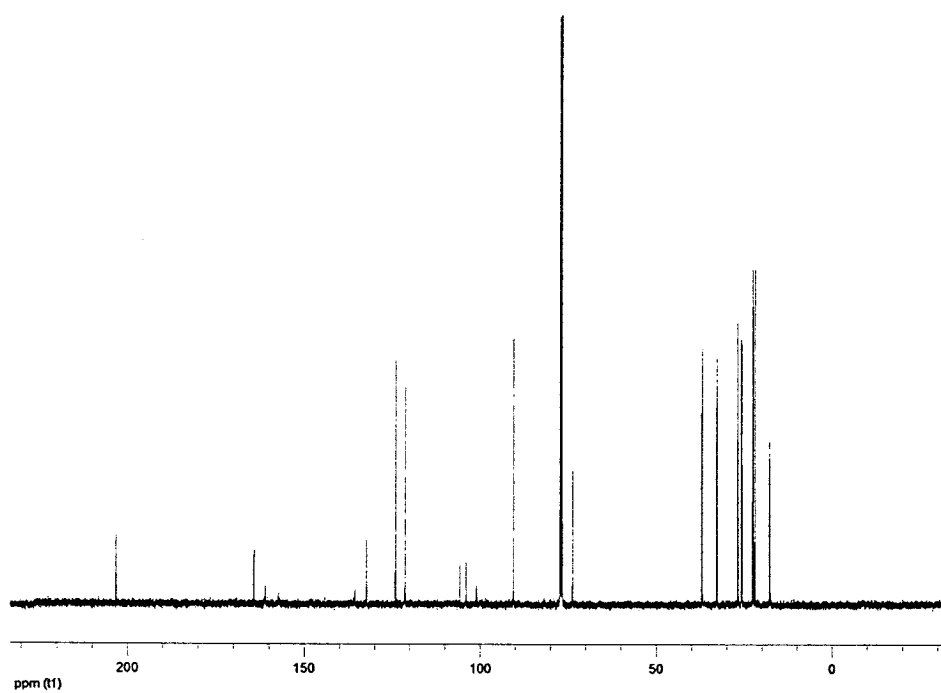
**Figure A.31** HMBC (400 MHz) spectrum of compound **5** (CDCl<sub>3</sub>)



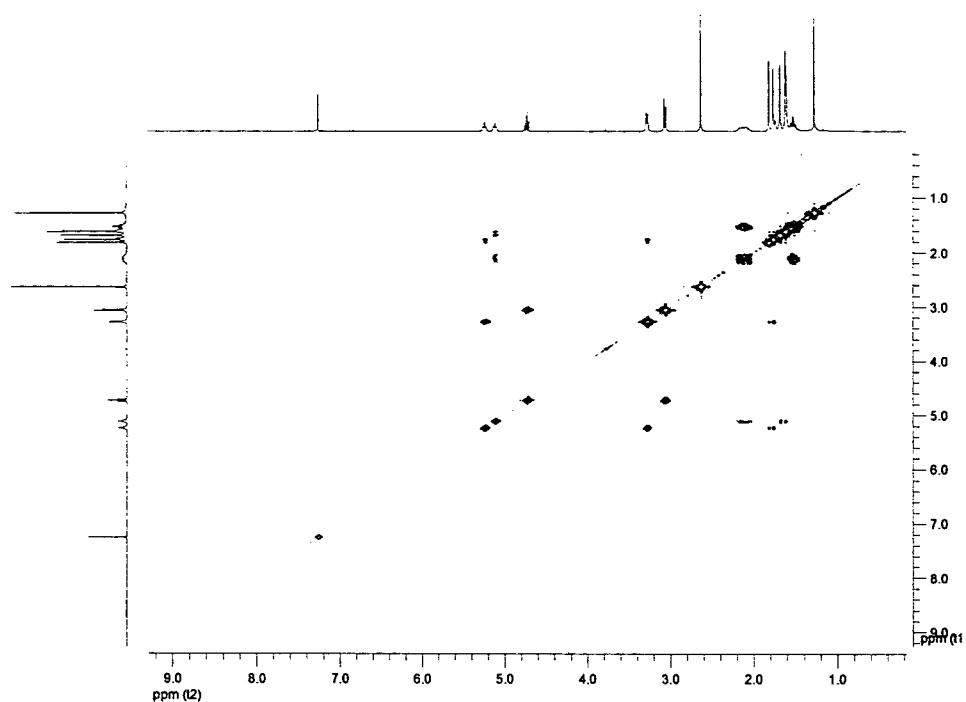
**Figure A.32** IR spectrum of compound **5** (KBr)



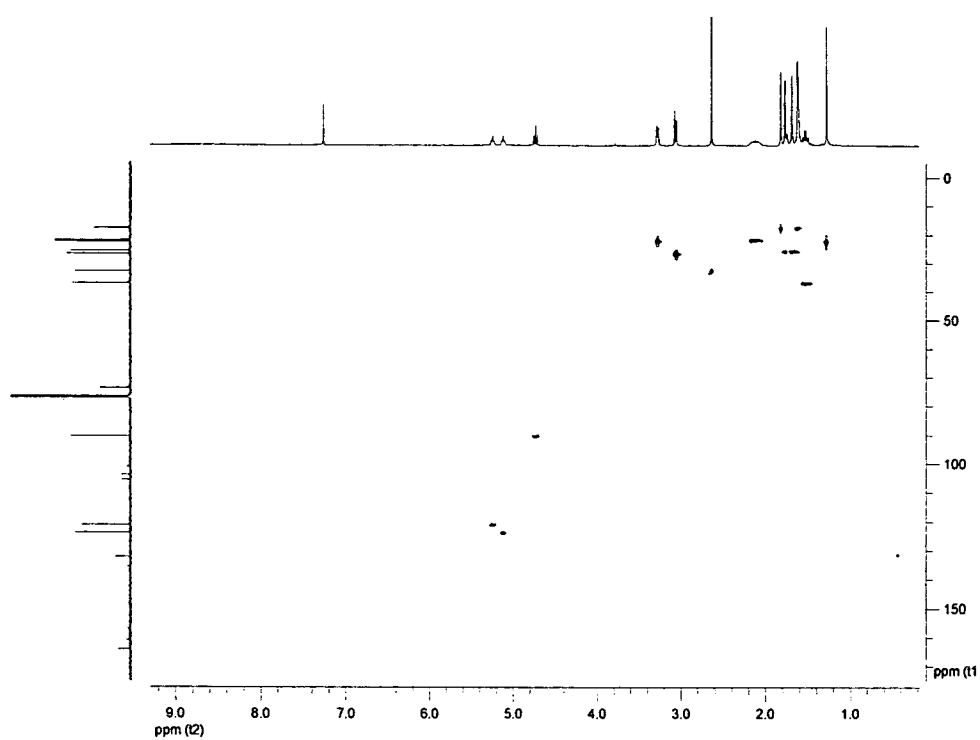
**Figure A.33**  $^1\text{H}$  NMR (400 MHz) spectrum of compound 6 ( $\text{CDCl}_3$ )



**Figure A.34**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound 6 ( $\text{CDCl}_3$ )



**Figure A.35** COSY (400 MHz) spectrum of compound **6** (CDCl<sub>3</sub>)



**Figure A.36** HSQC (400 MHz) spectrum of compound **6** (CDCl<sub>3</sub>)



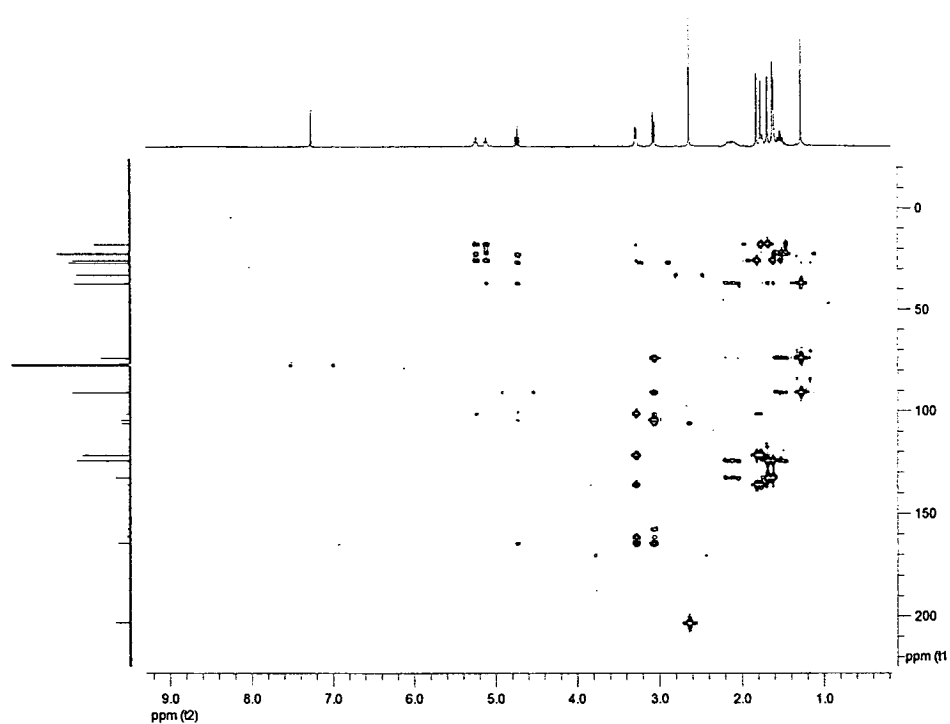


Figure A.37 HMBC (400 MHz) spectrum of compound **6** ( $\text{CDCl}_3$ )

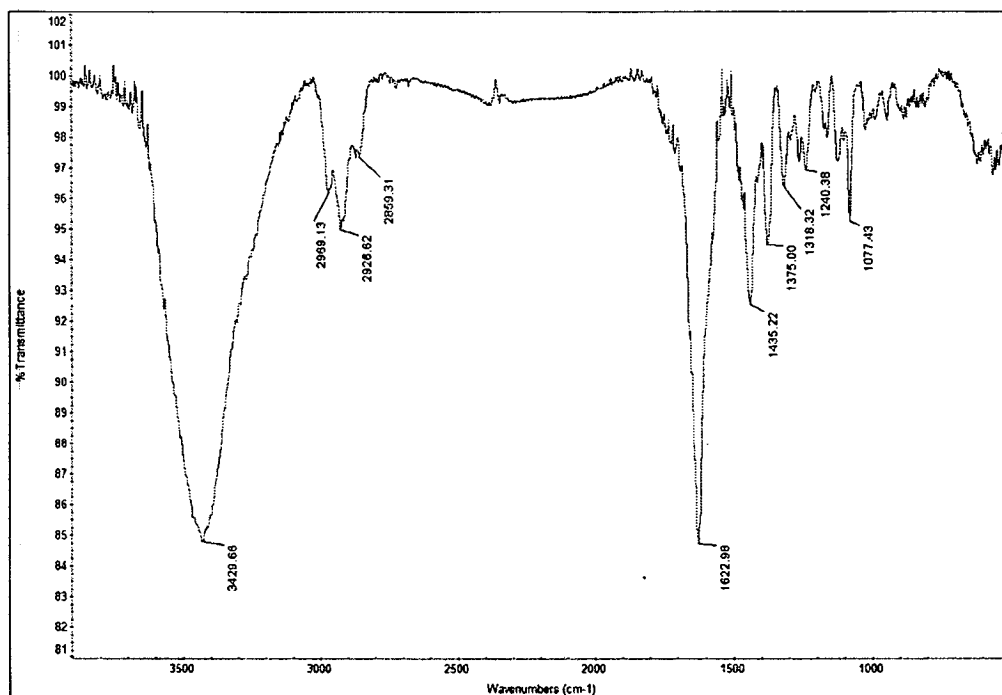
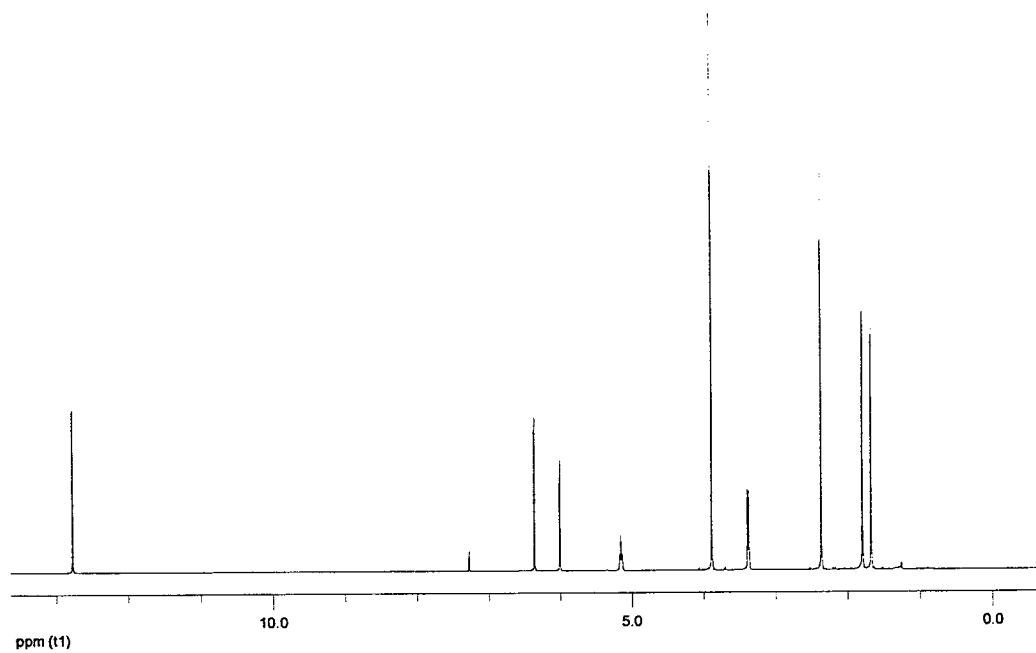
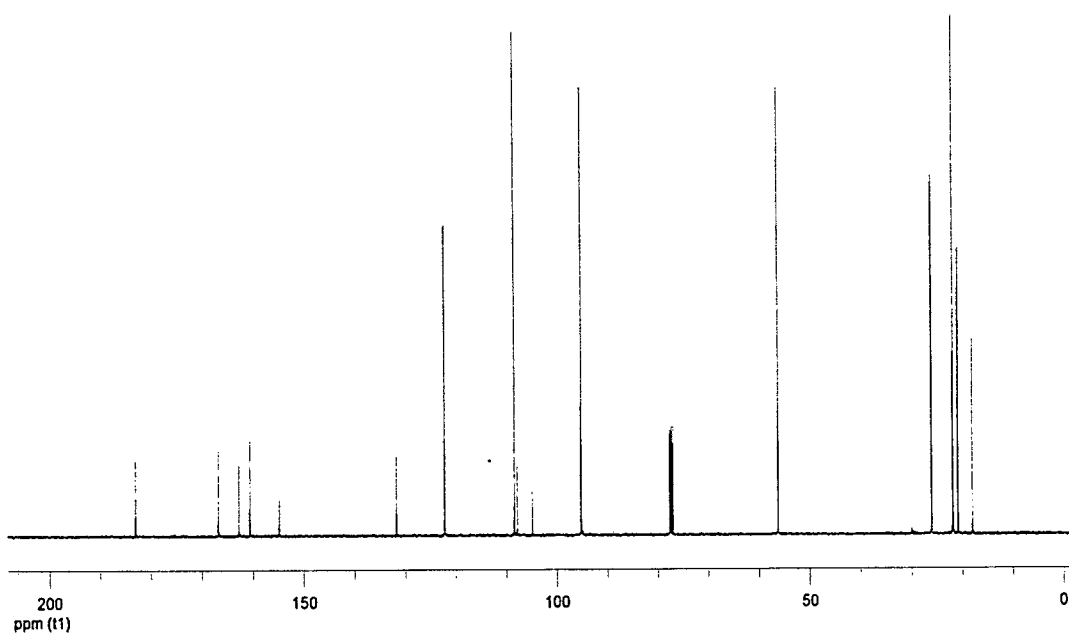


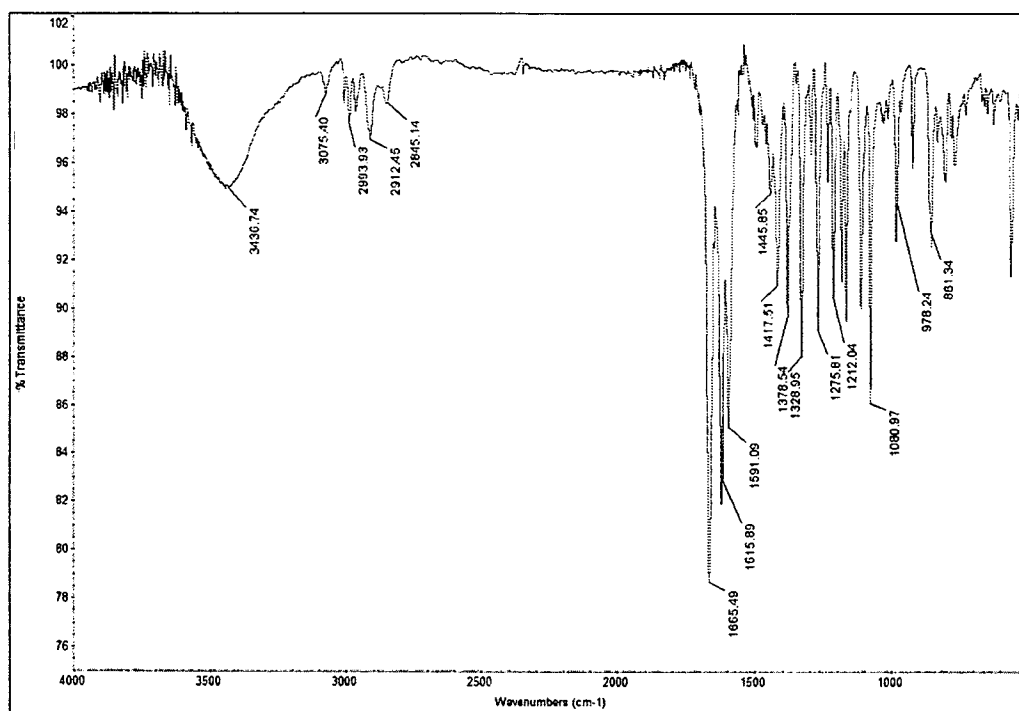
Figure A.38 IR spectrum of compound **6** (KBr)



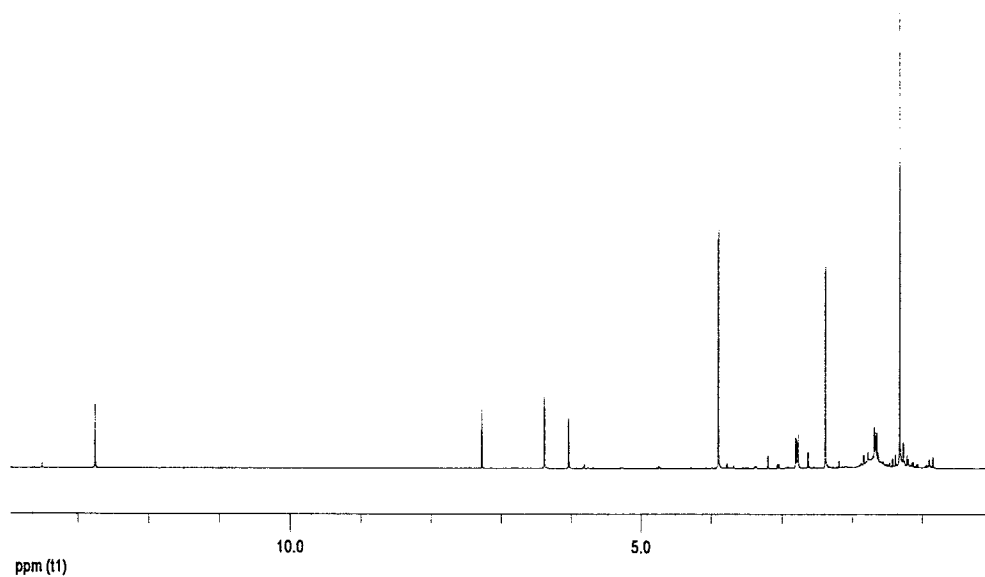
**Figure A.39**  $^1\text{H}$  NMR (400 MHz) spectrum of compound 7 ( $\text{CDCl}_3$ )



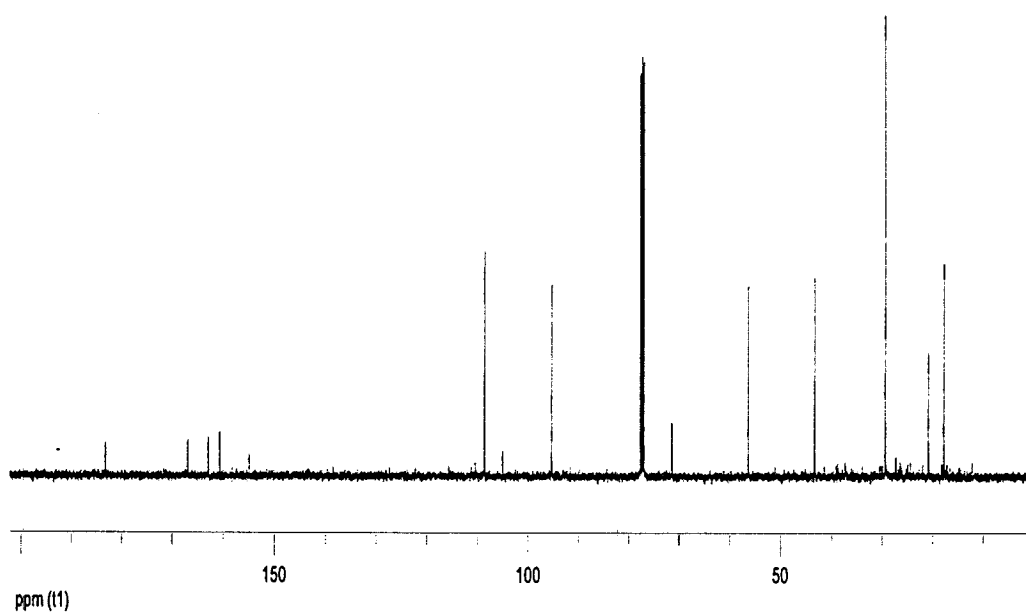
**Figure A.40**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound 7 ( $\text{CDCl}_3$ )



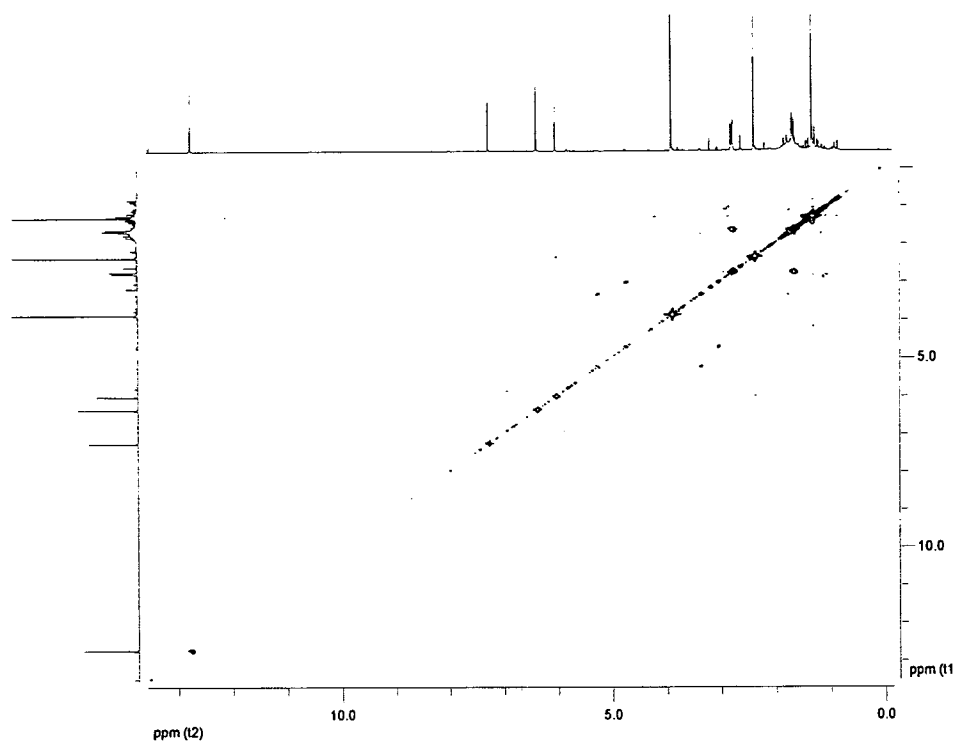
**Figure A.41** IR spectrum of compound 7 (KBr)



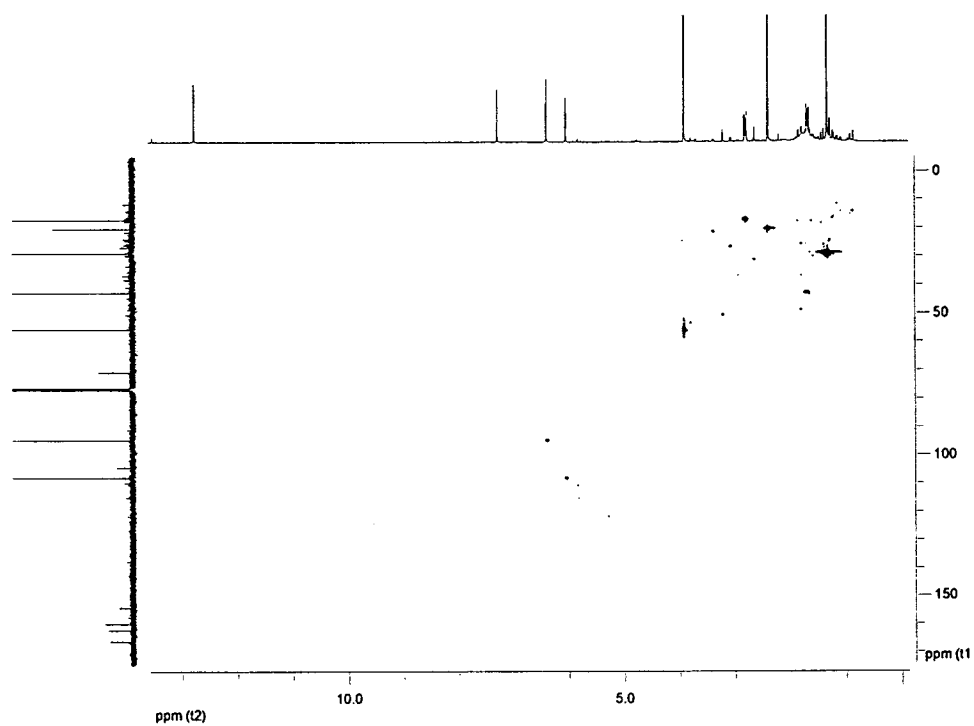
**Figure A.42**  $^1\text{H}$  NMR (400 MHz) spectrum of compound **8** ( $\text{CDCl}_3$ )



**Figure A.43**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound **8** ( $\text{CDCl}_3$ )



**Figure A.44** COSY (400 MHz) spectrum of compound **8** (CDCl<sub>3</sub>)



**Figure A.45** HSQC (400 MHz) spectrum of compound **8** (CDCl<sub>3</sub>)

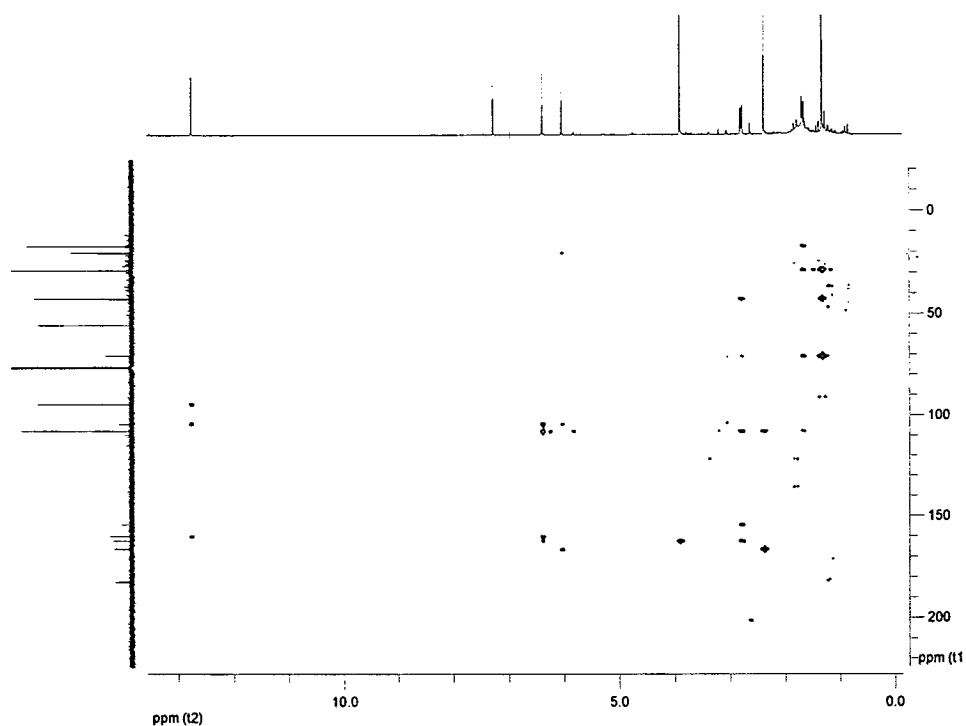


Figure A.46 HMBC (400 MHz) spectrum of compound **8** (CDCl<sub>3</sub>)

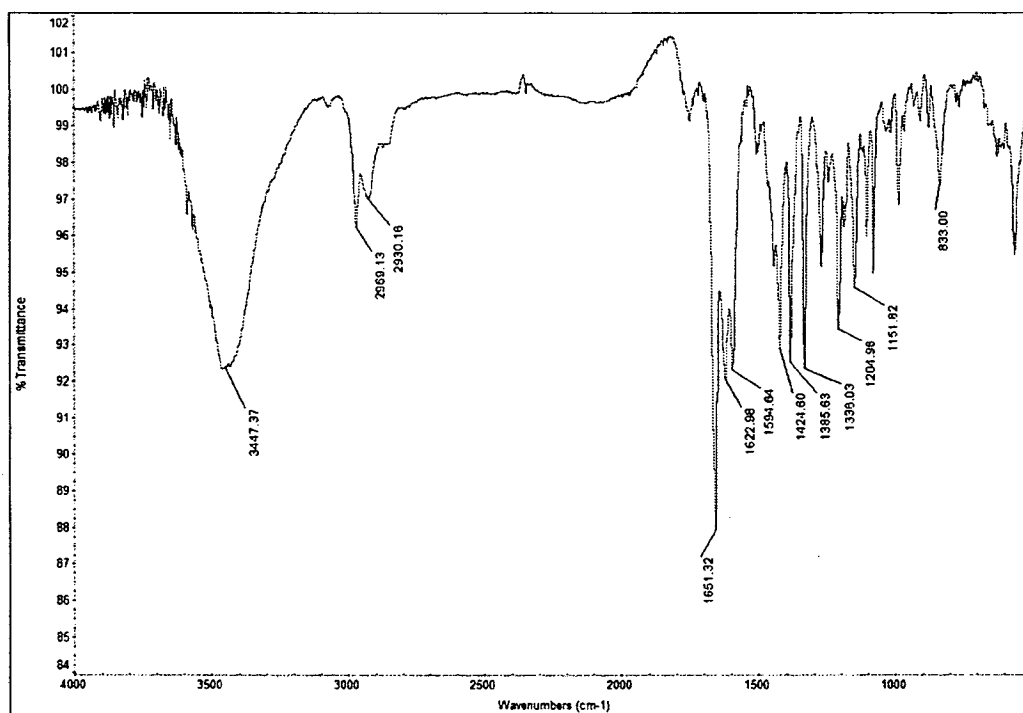


Figure A.47 IR spectrum of compound **8** (KBr)

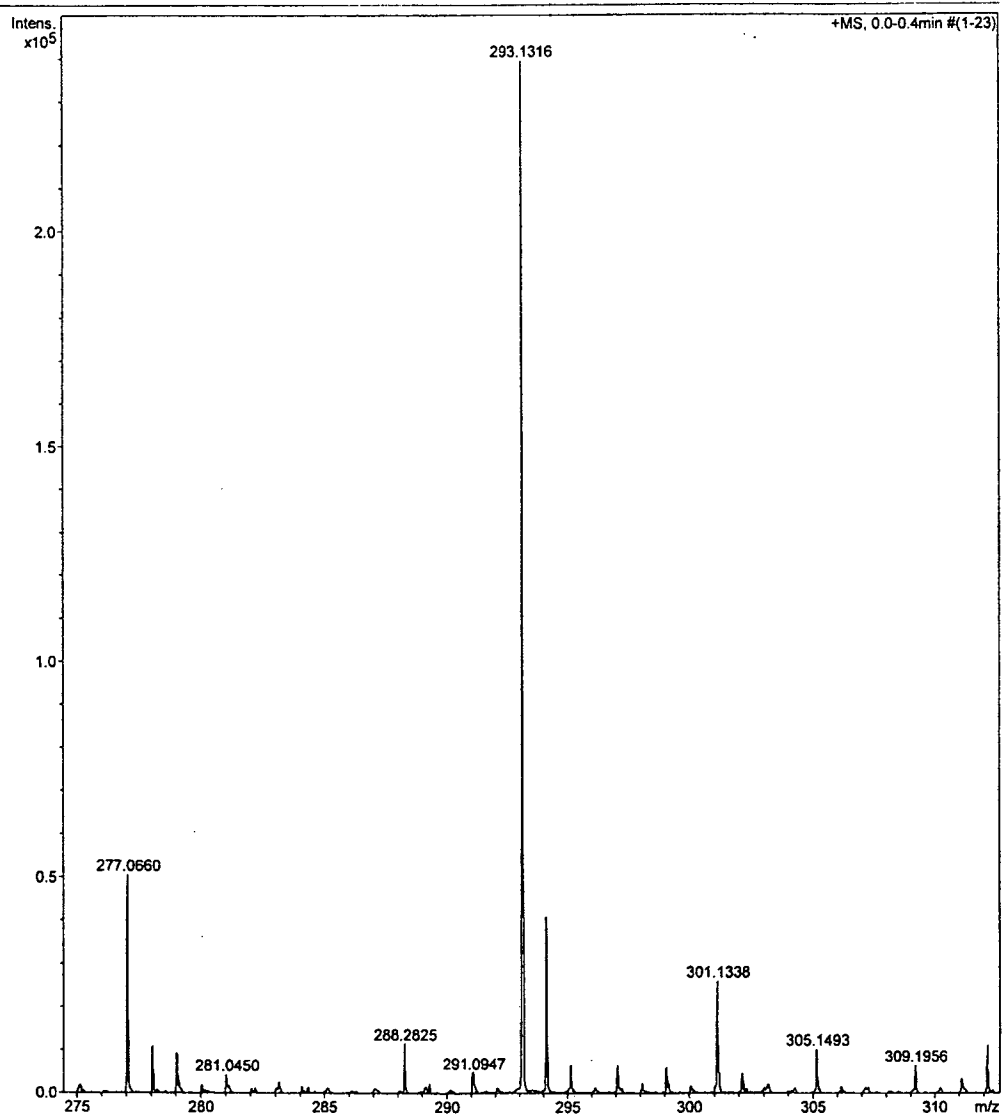
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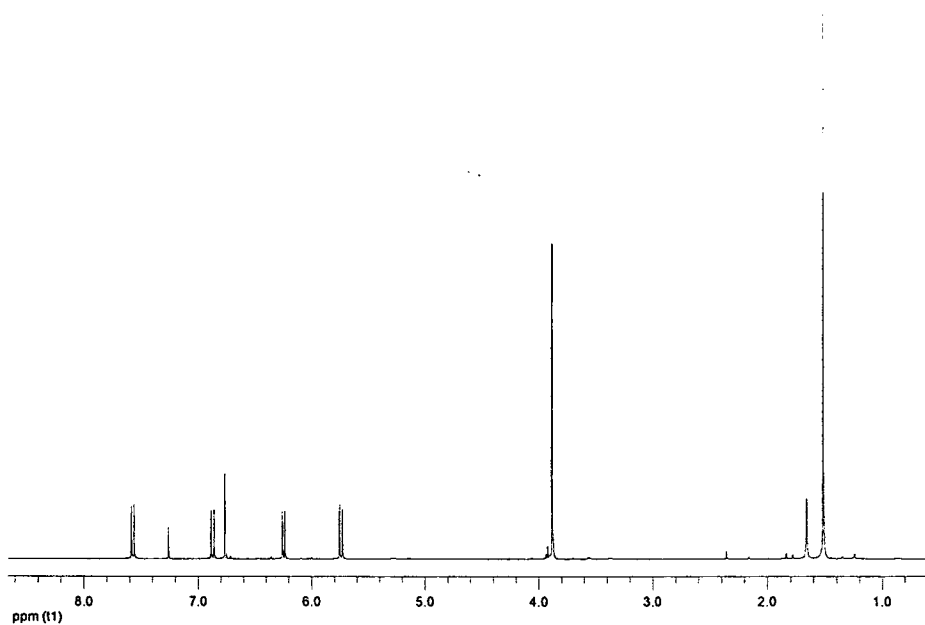


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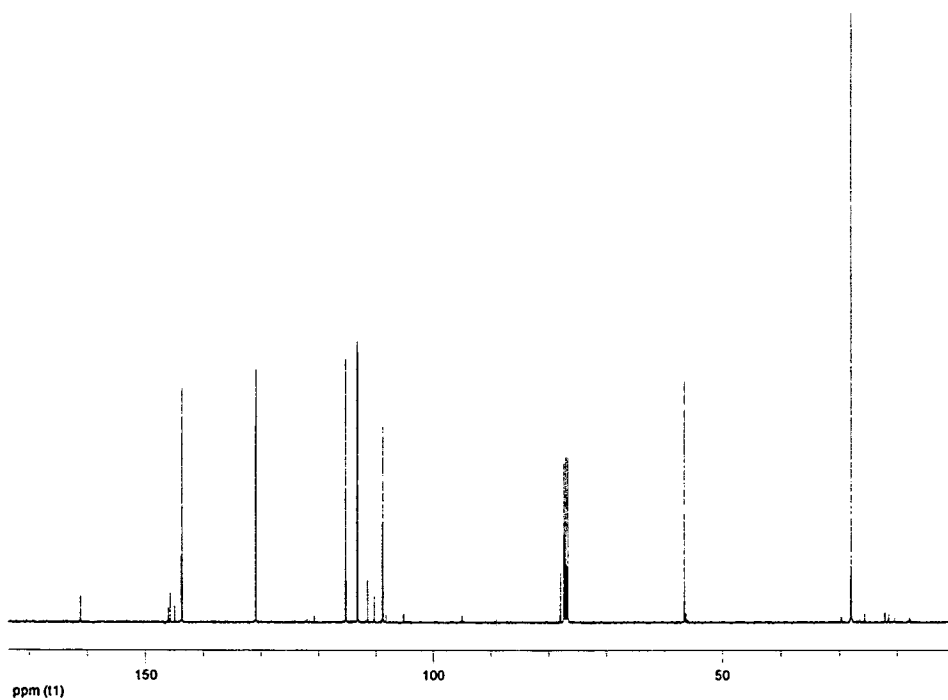
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**Figure A.48** HRESIMS Mass spectrum of compound **8**

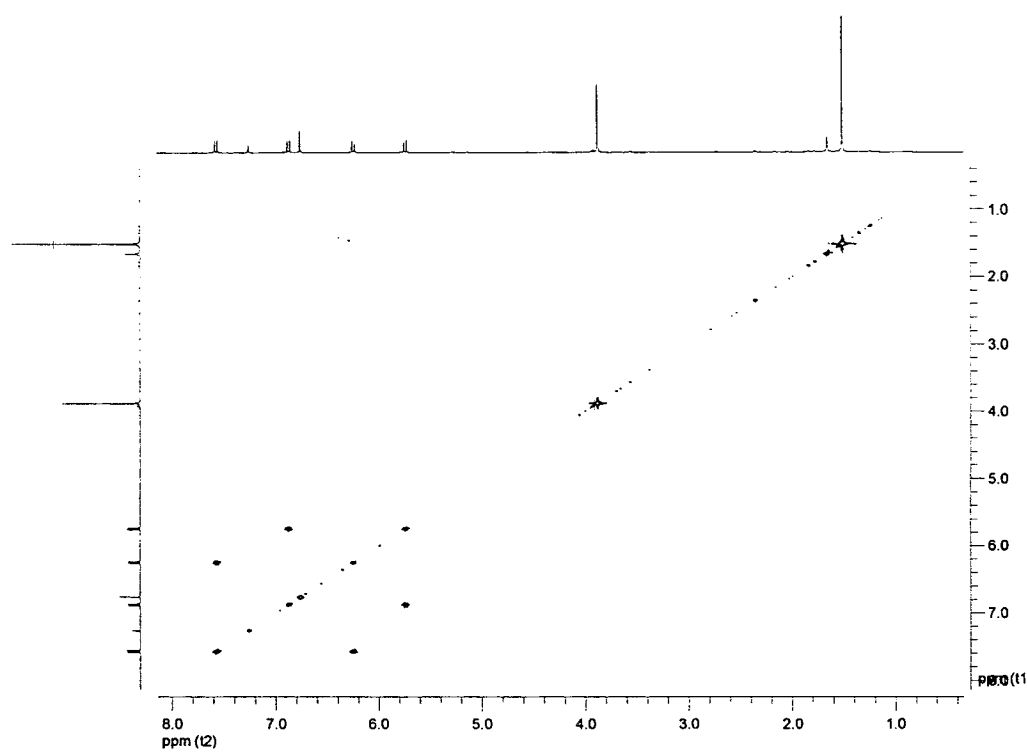


**Figure A.49**  $^1\text{H}$  NMR (400 MHz) spectrum of compound **9** ( $\text{CDCl}_3$ )

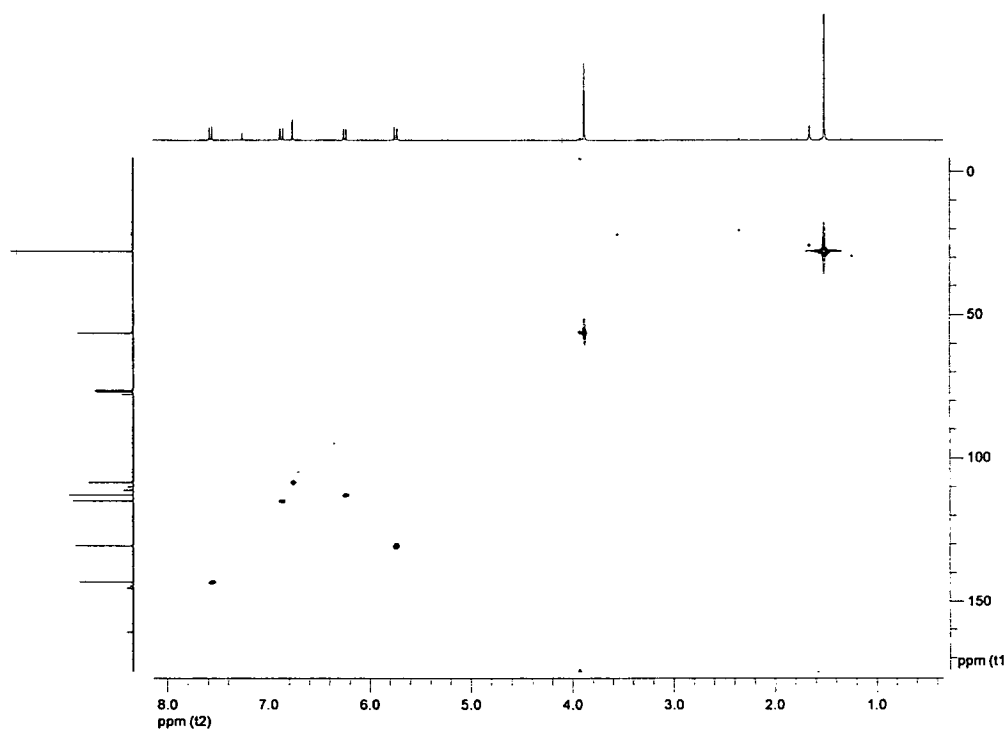


**Figure A.50**  $^{13}\text{C}$  NMR (400 MHz) spectrum of compound **9** ( $\text{CDCl}_3$ )

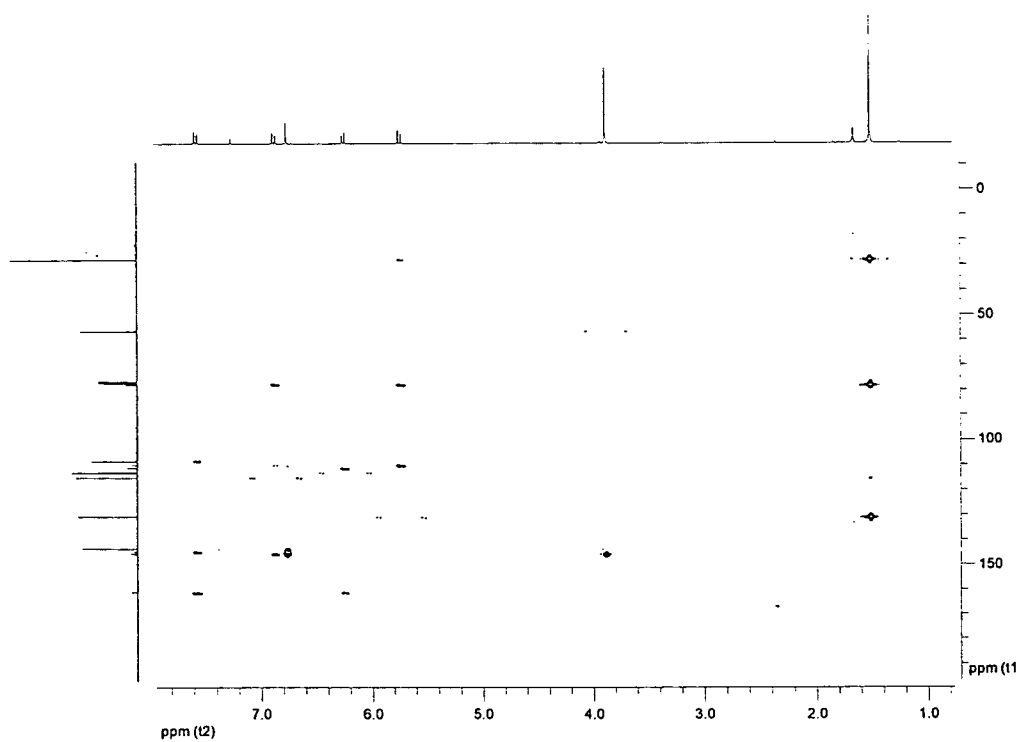




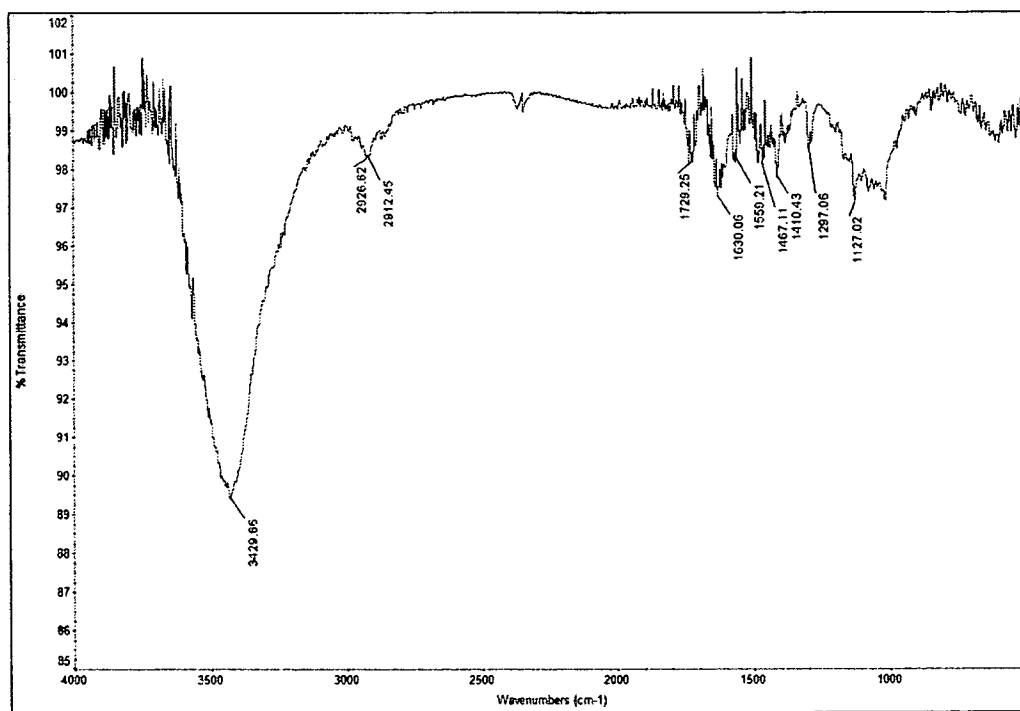
**Figure A.51** COSY (400 MHz) spectrum of compound **9** (CDCl<sub>3</sub>)



**Figure A.52** HSQC (400 MHz) spectrum of compound **9** (CDCl<sub>3</sub>)



**Figure A.53** HMBC (400 MHz) spectrum of compound **9** (CDCl<sub>3</sub>)



**Figure A.54** IR spectrum of compound **9** (KBr)

## Generic Display Report

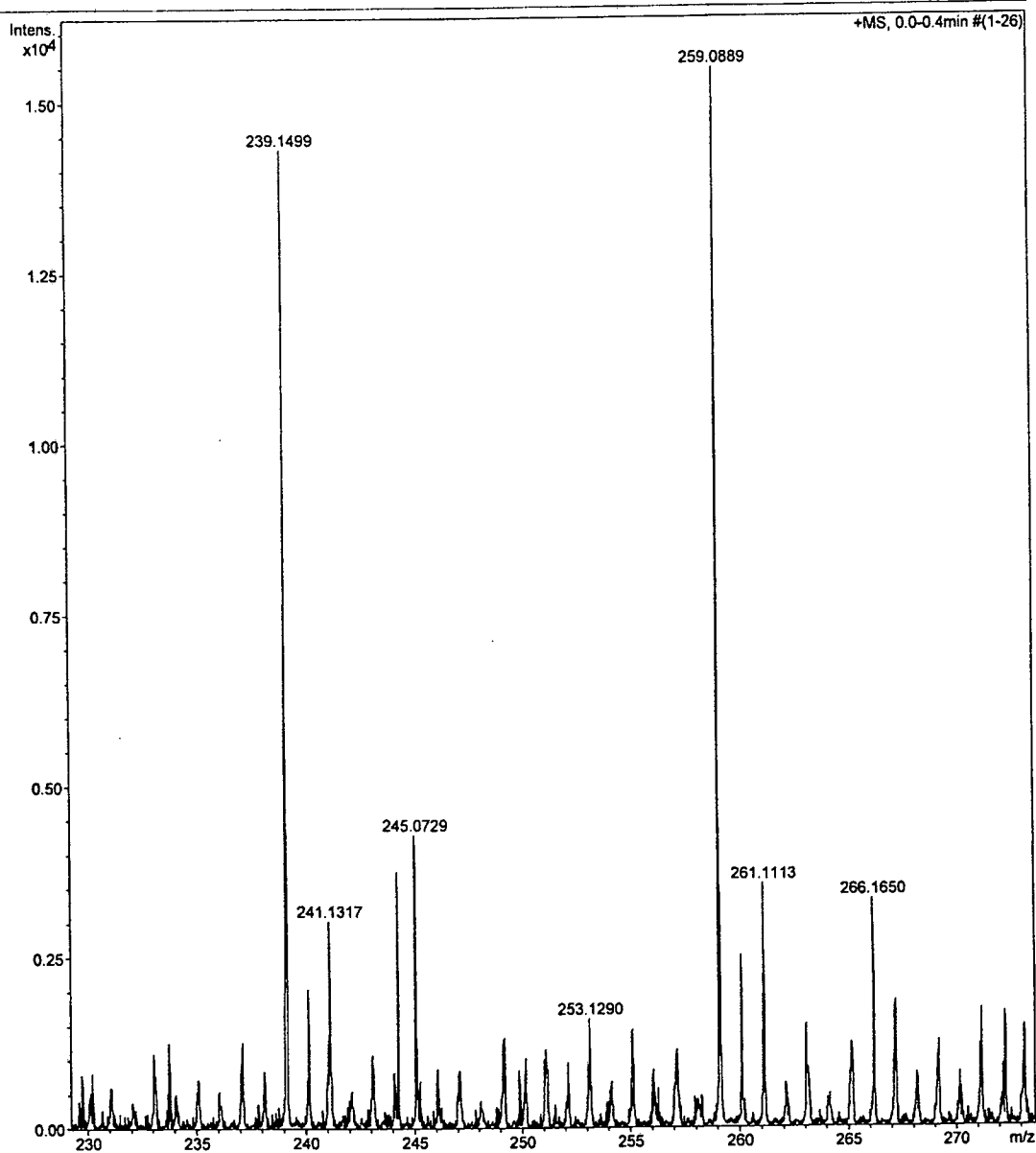
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Operator BDAL@DE

Instrument micrOTOF-Q II



**Figure A.55** HRESIMS Mass spectrum of compound 9