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## APPENDICES

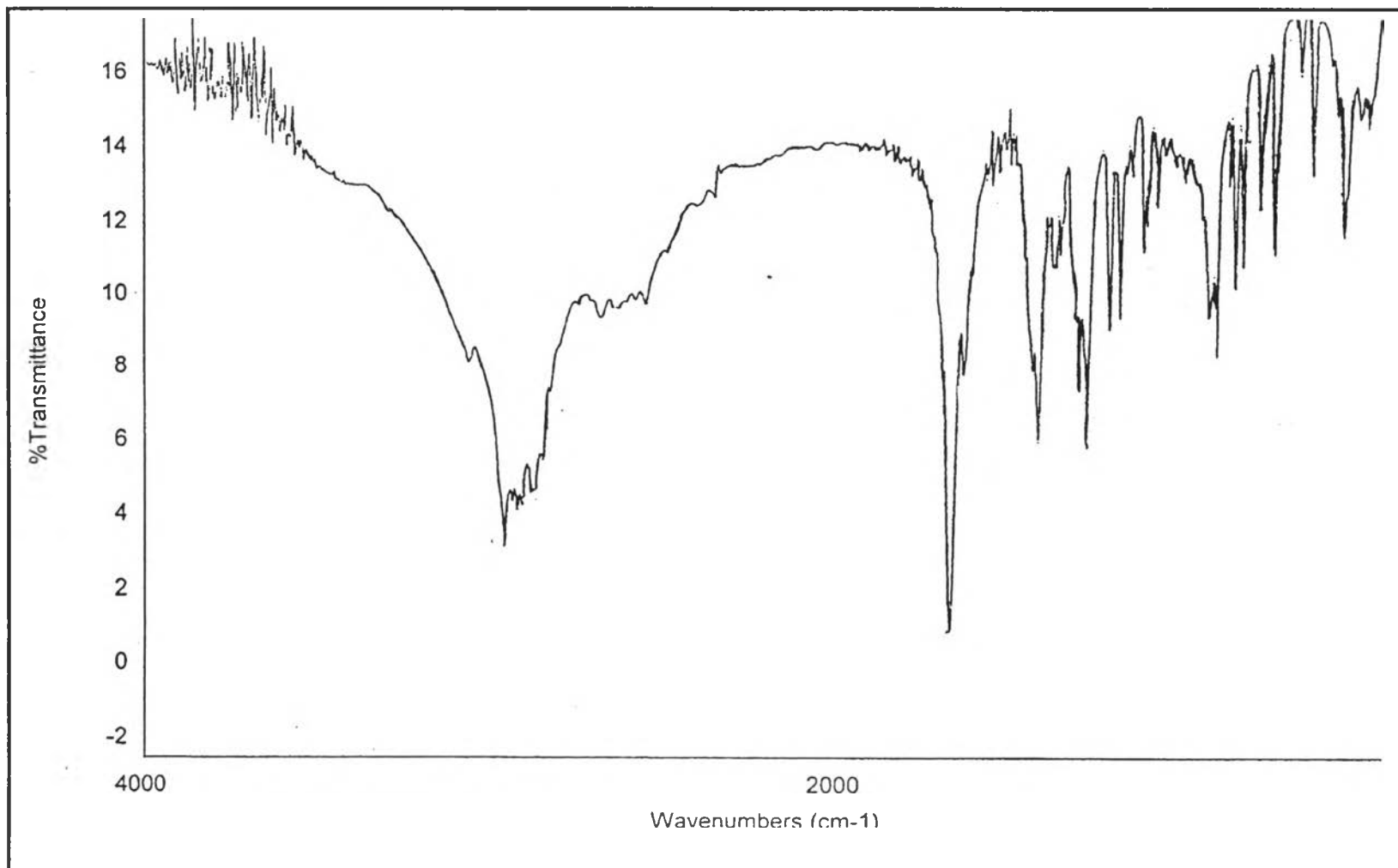


Figure 5. The IR spectrum of Compound 1

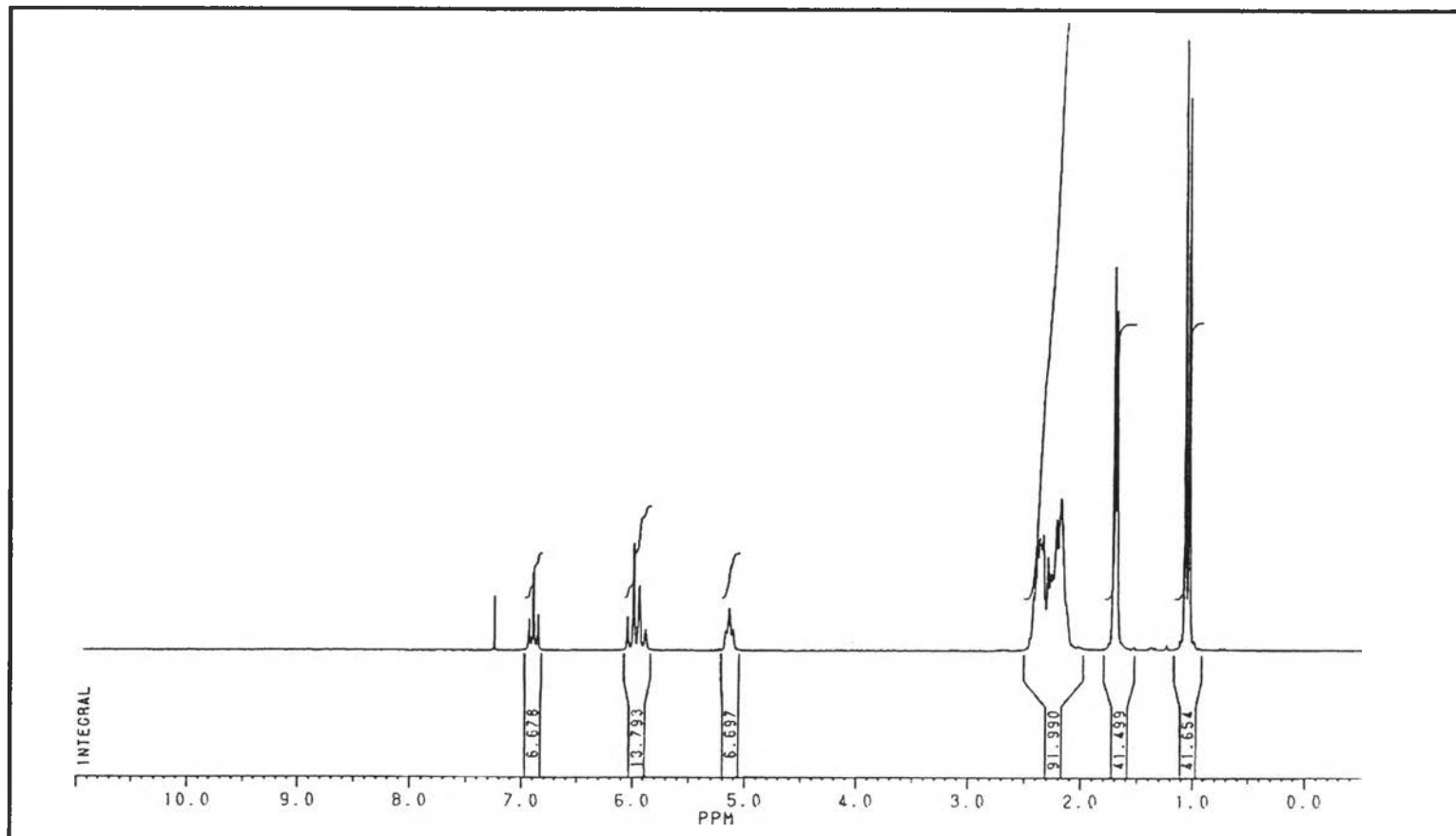


Figure 6. The <sup>1</sup>H-NMR spectrum of Compound **1**

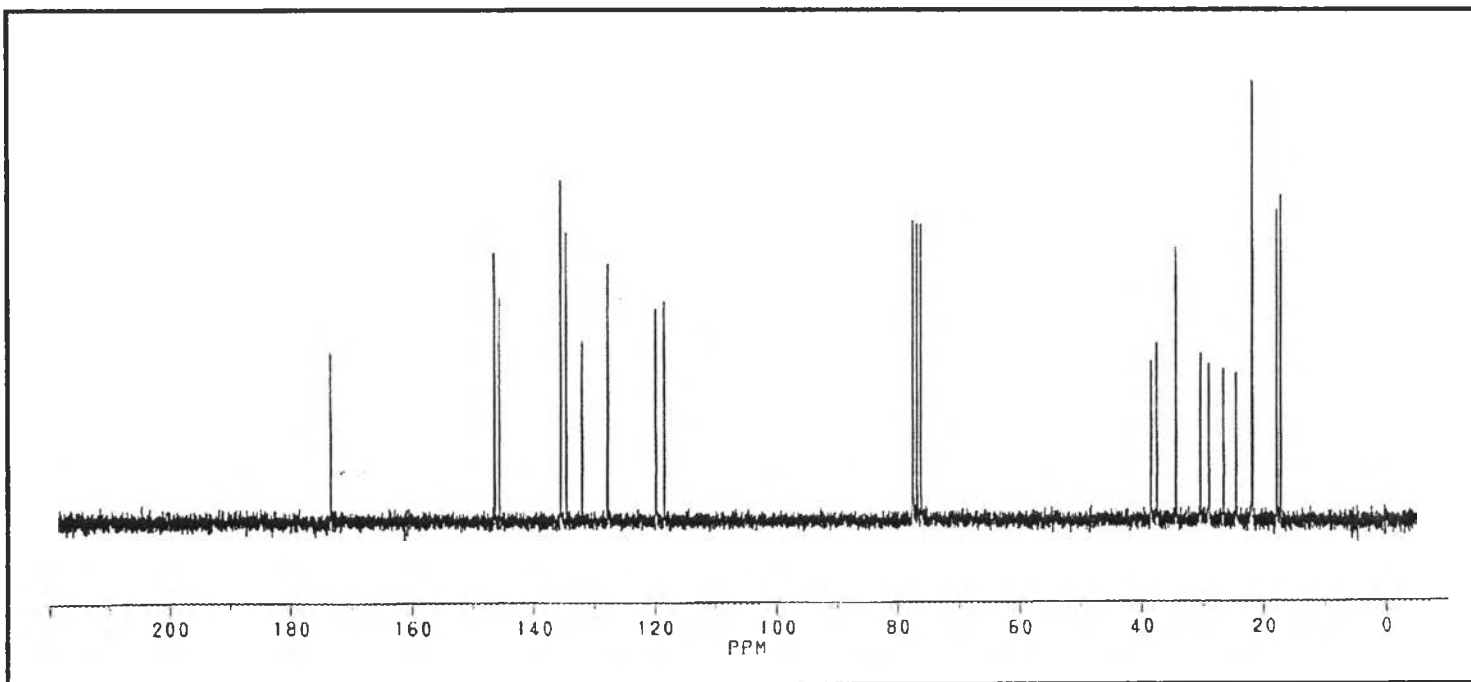


Figure 7. The  $^{13}\text{C}$ -NMR spectrum of Compound **1**



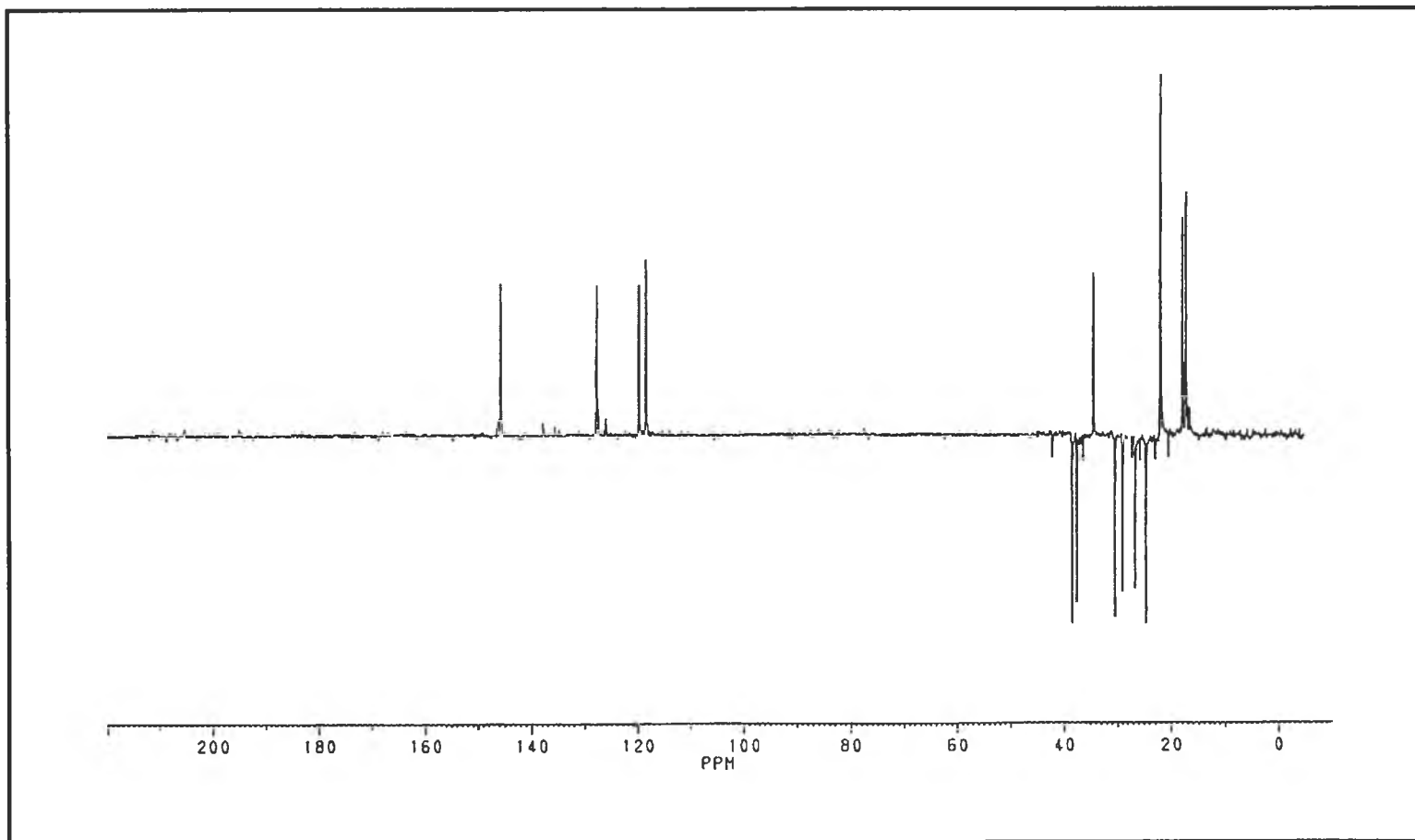


Figure 8. The DEPT-135  $^{13}\text{C}$ -NMR spectrum of Compound 1

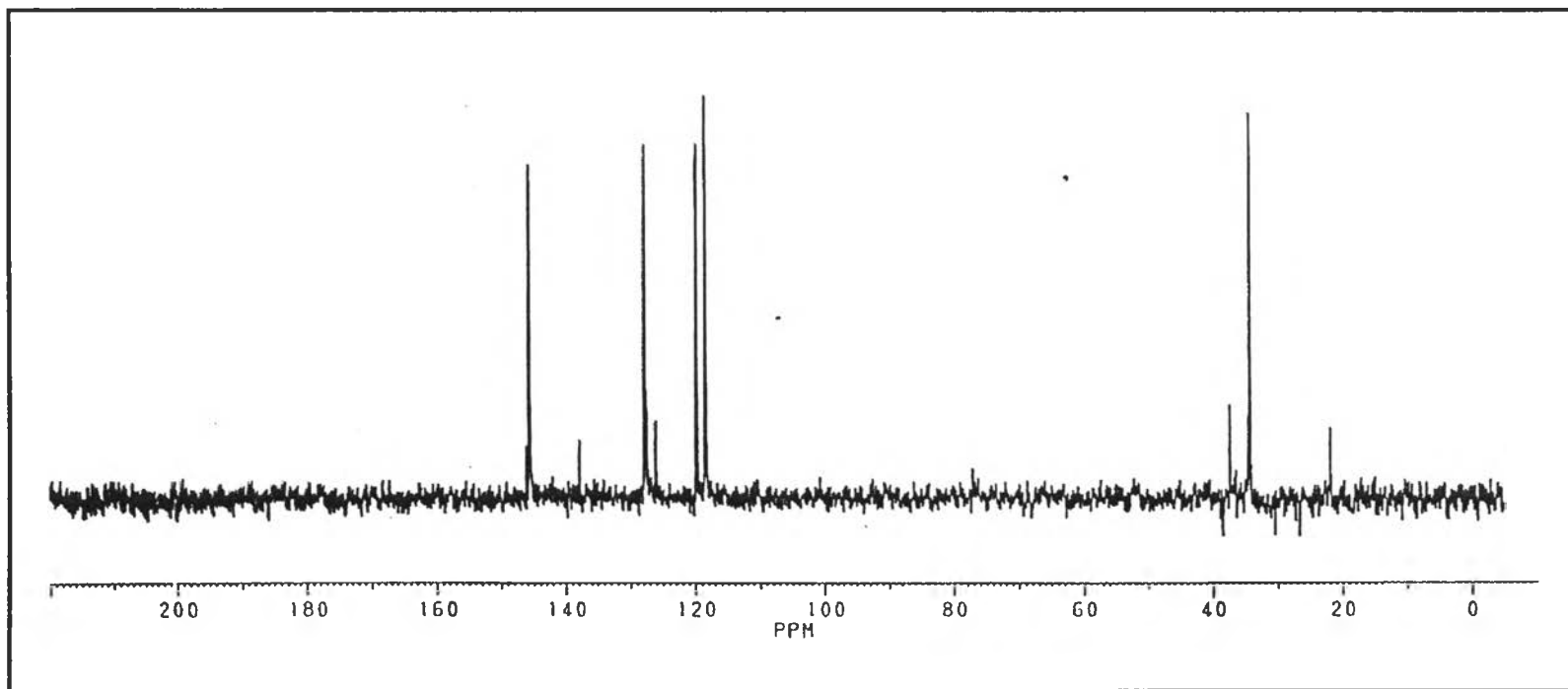


Figure 9. The DEPT-90  $^{13}\text{C}$ -NMR spectrum of Compound 1

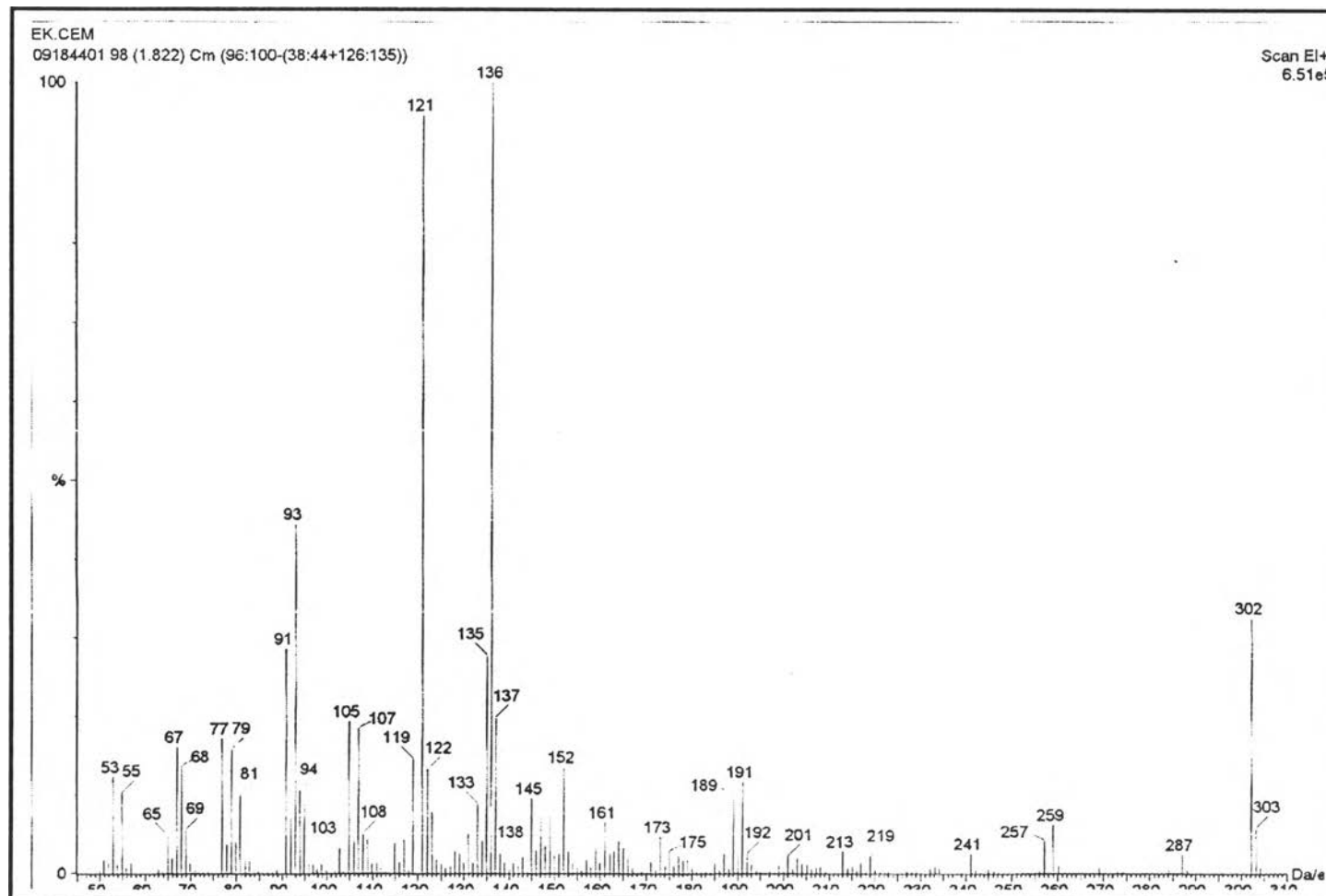


Figure 10. The Mass spectrum of Compound 1

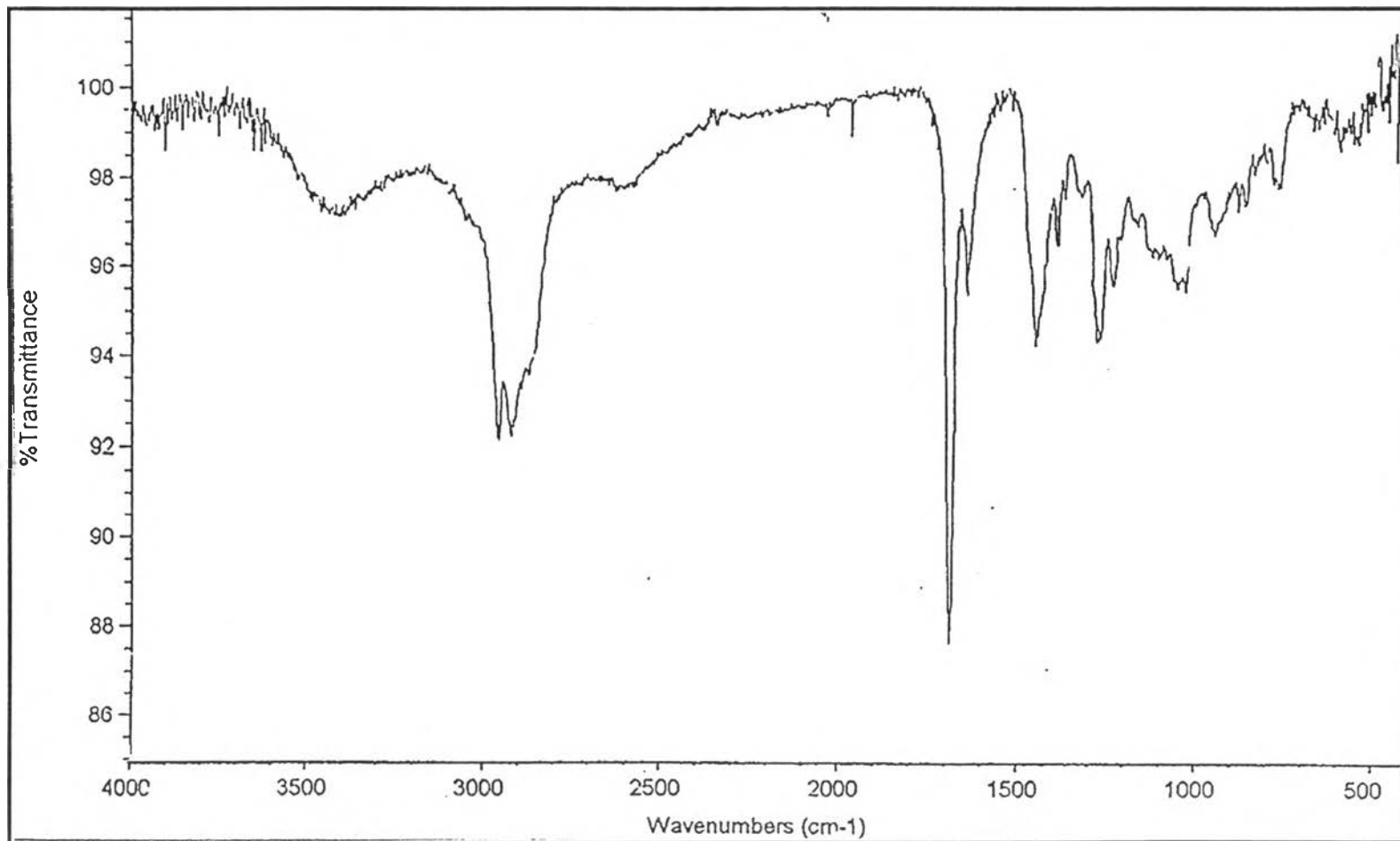


Figure 11. The IR spectrum of Compound 2

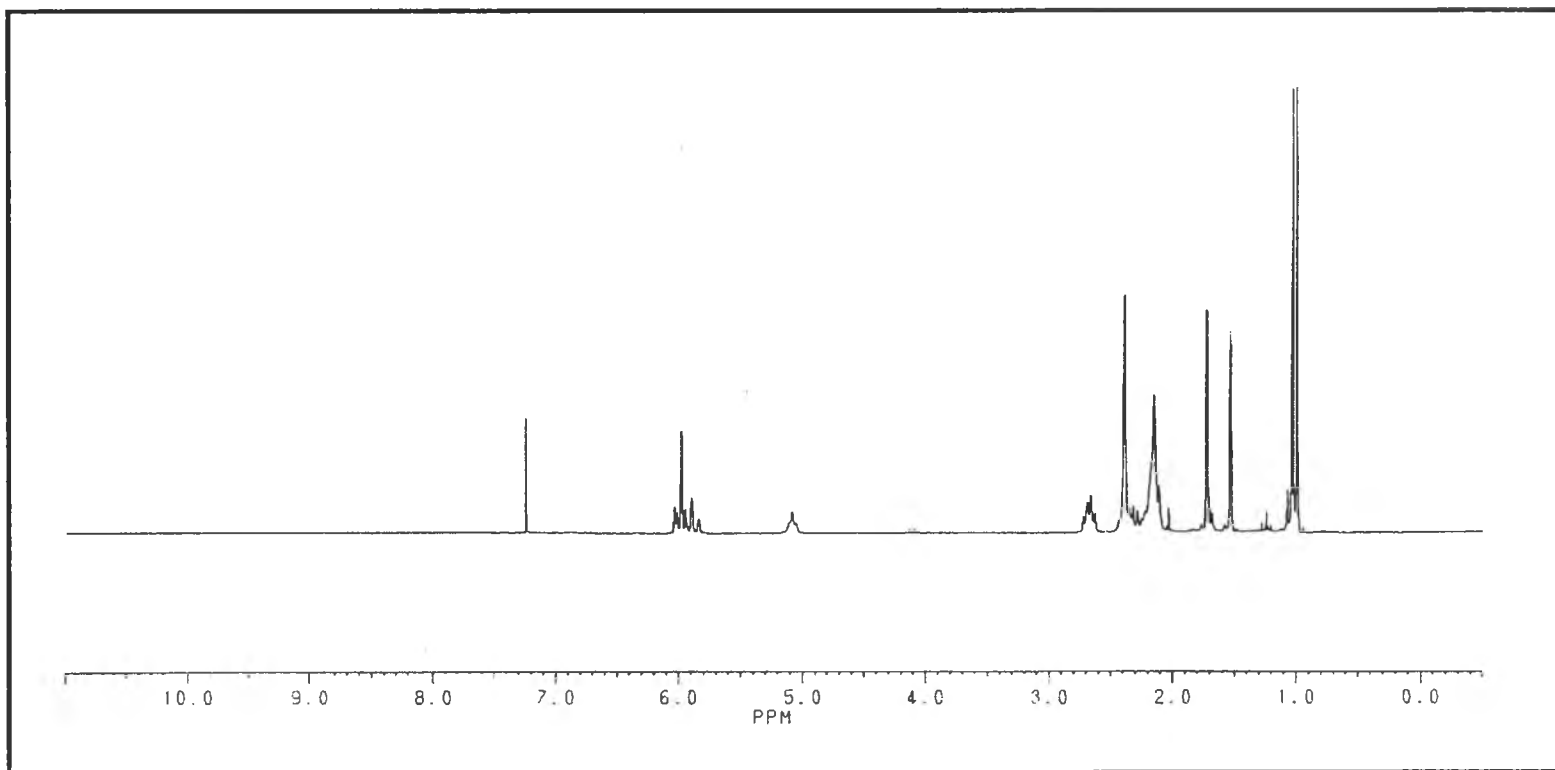


Figure 12. The  $^1\text{H}$ -NMR spectrum of Compound 2

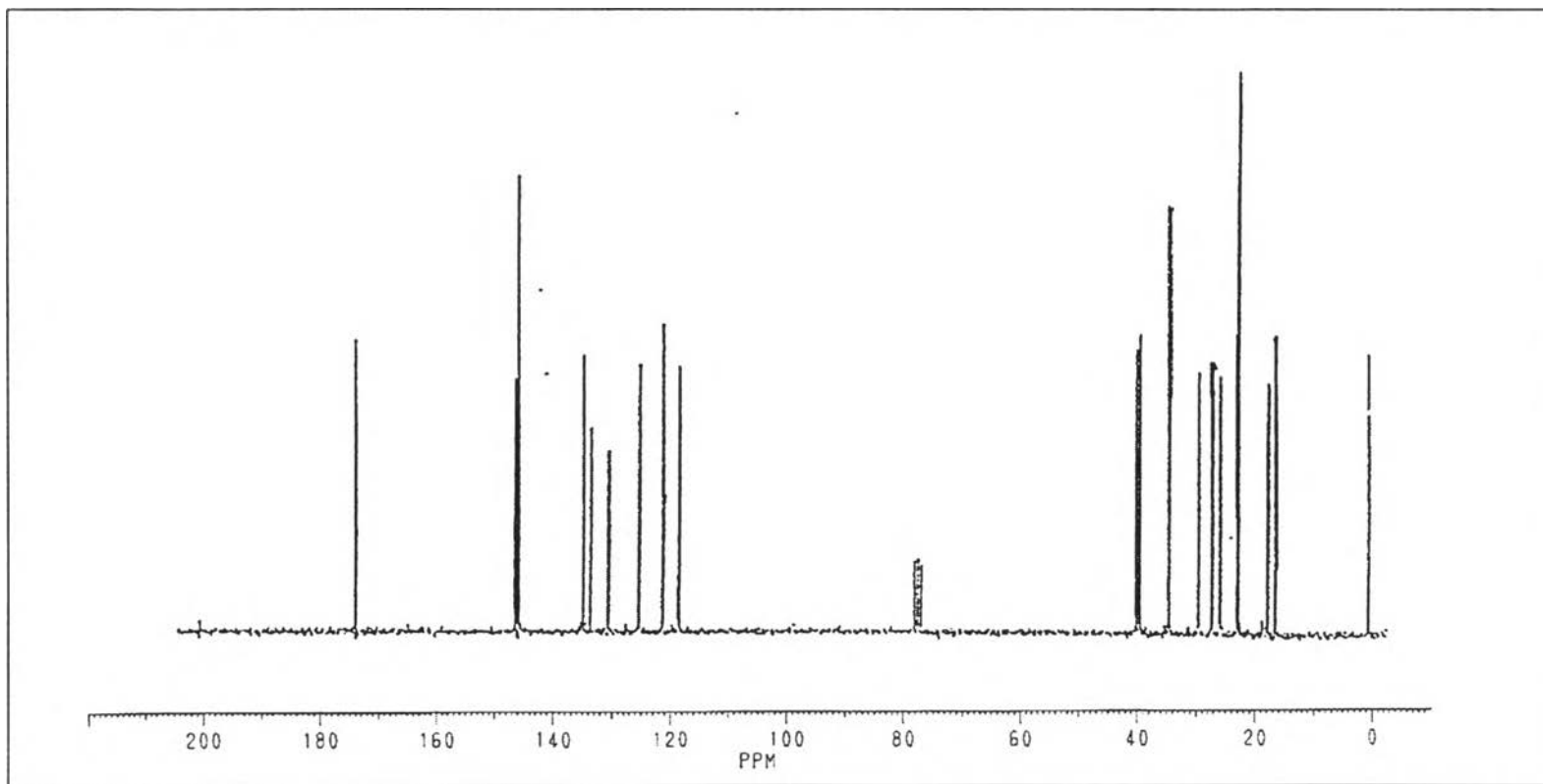


Figure 13. The  $^{13}\text{C}$ -NMR spectrum of Compound 2

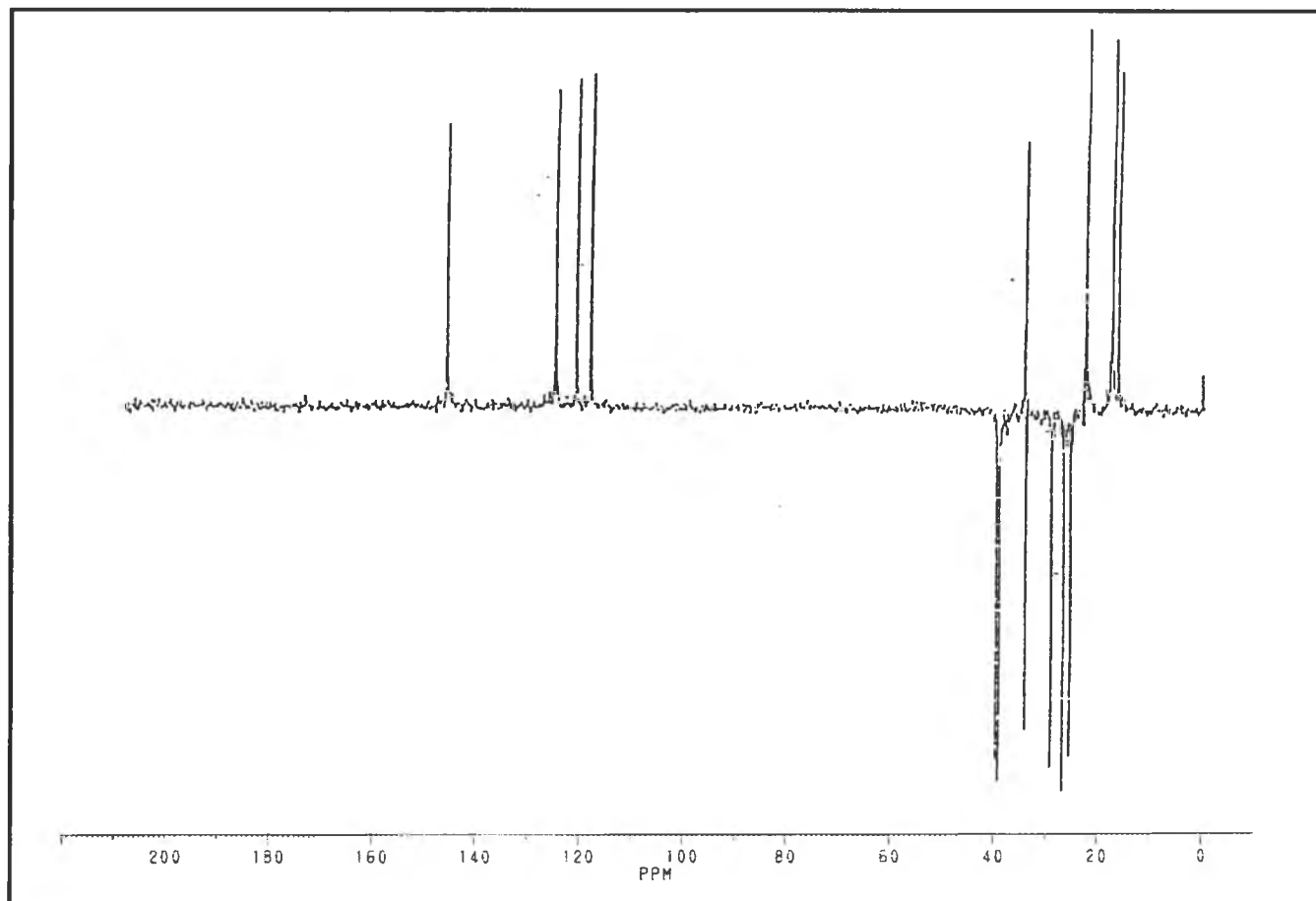


Figure 14. The DEPT-135  $^{13}\text{C}$ -NMR spectrum of Compound 2

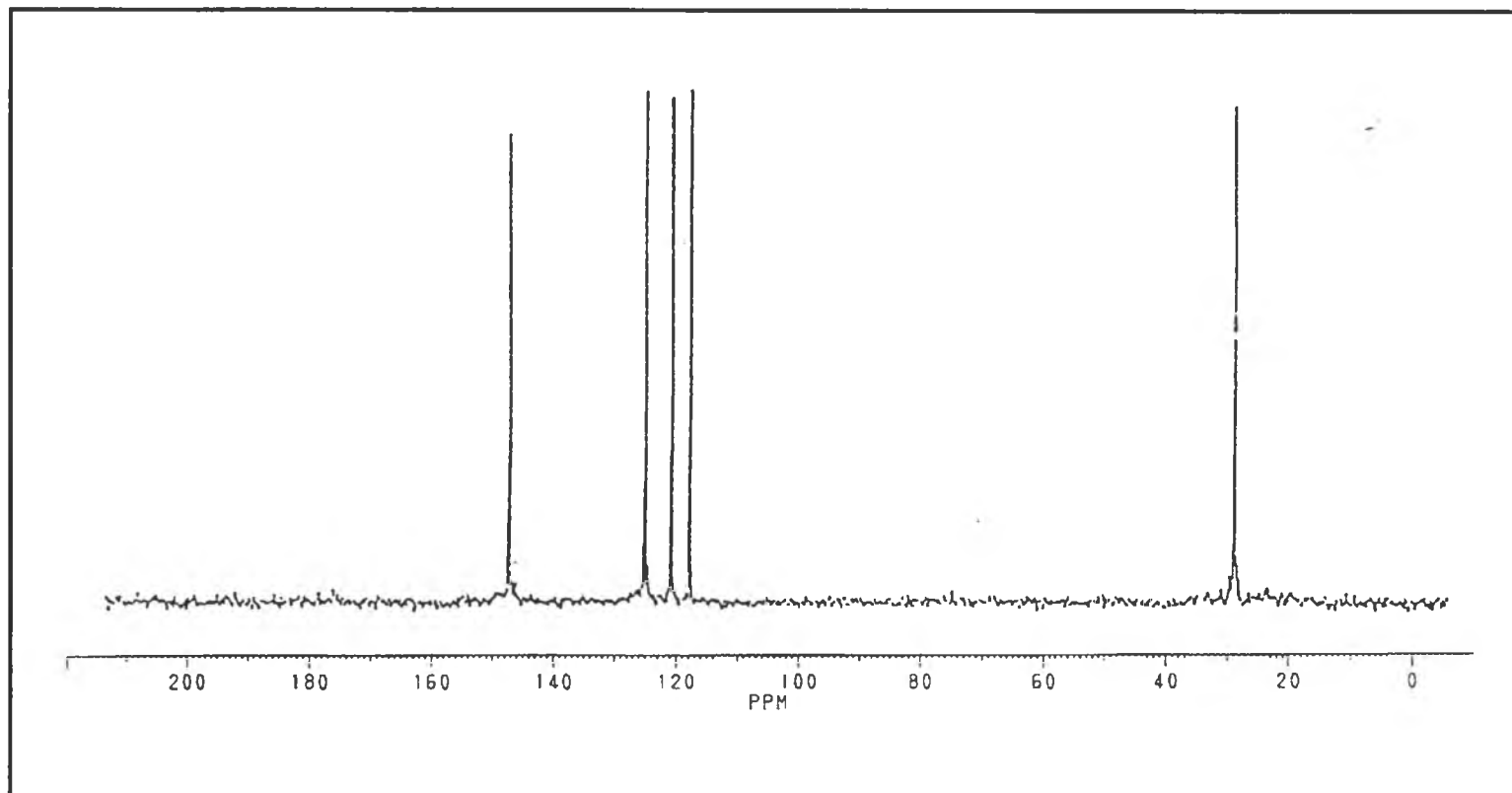


Figure 15. The DEPT-90  $^{13}\text{C}$ -NMR spectrum of Compound 2



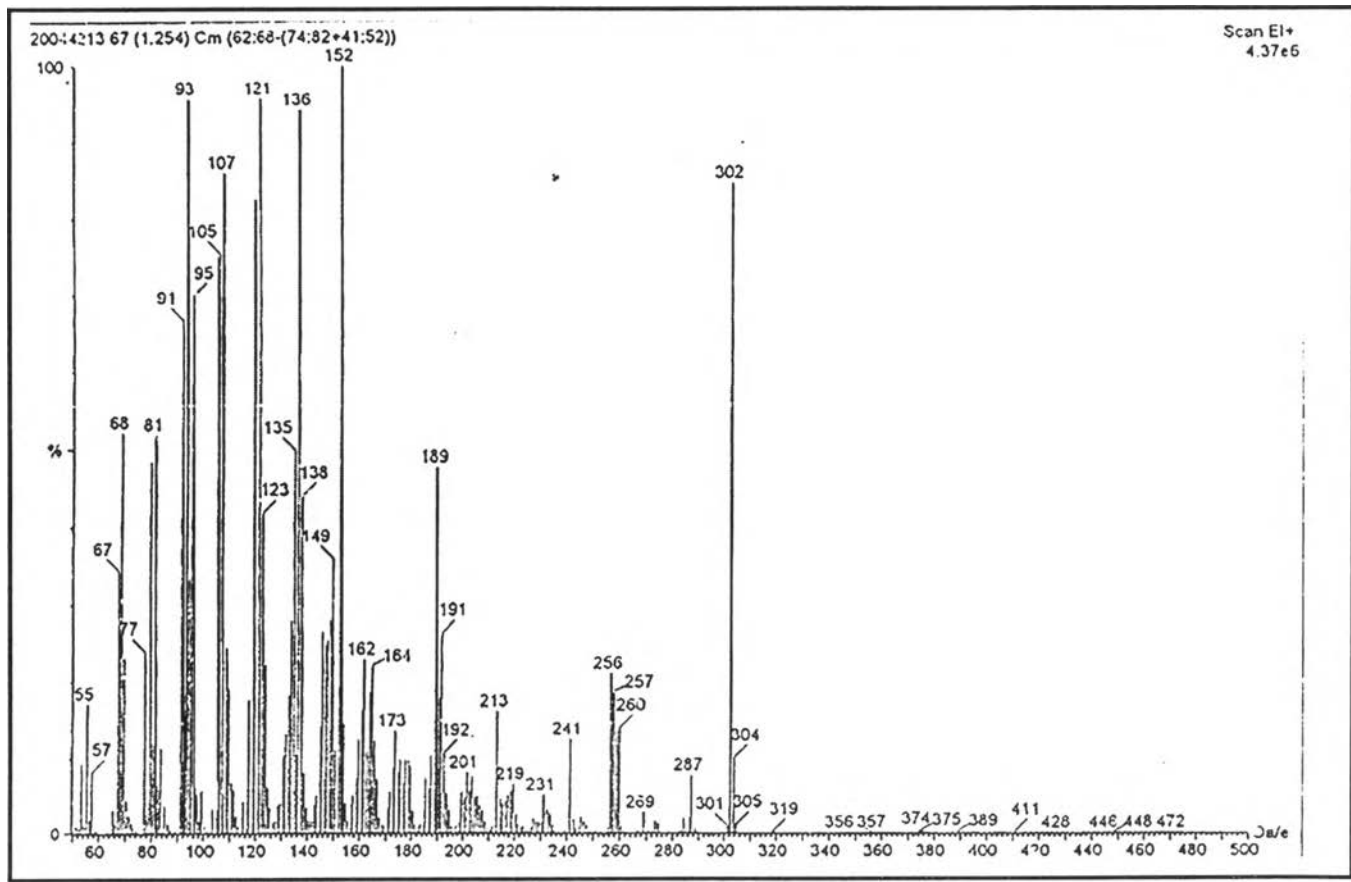


Figure 16. The Mass spectrum of Compound 2

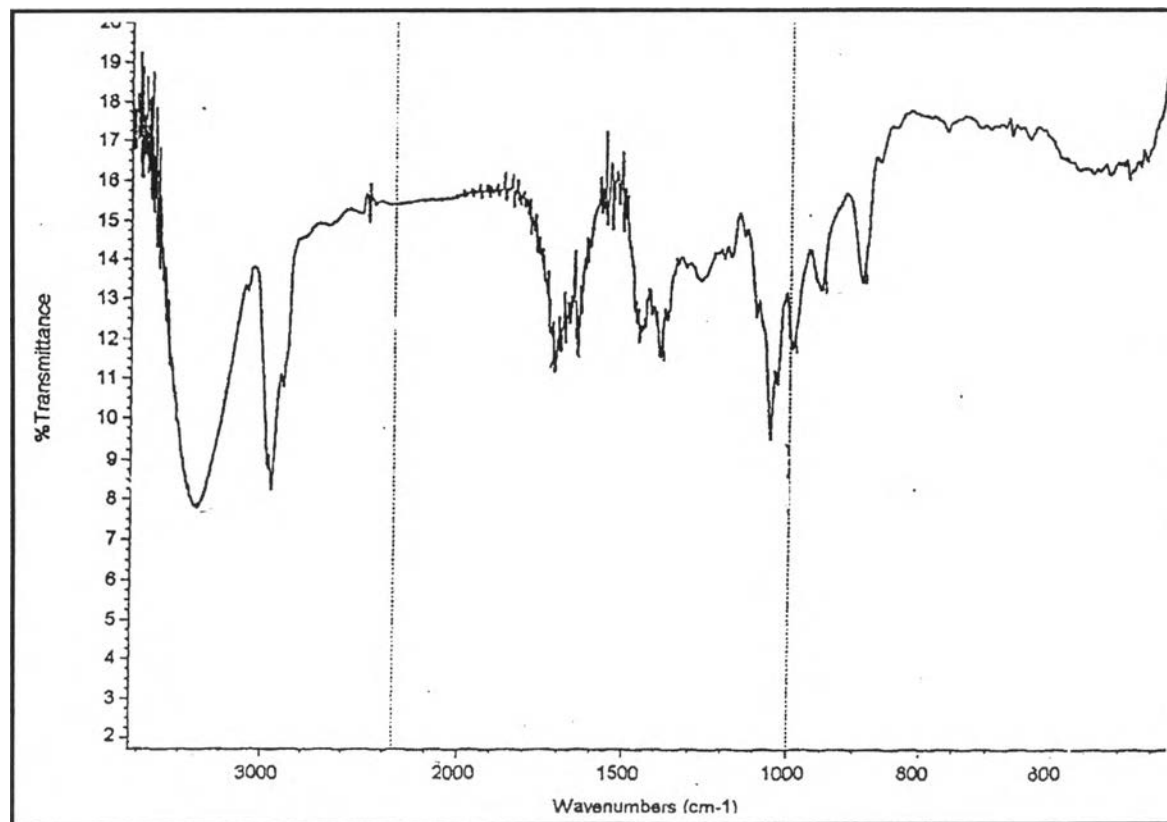


Figure 17. The IR spectrum of Compound 3

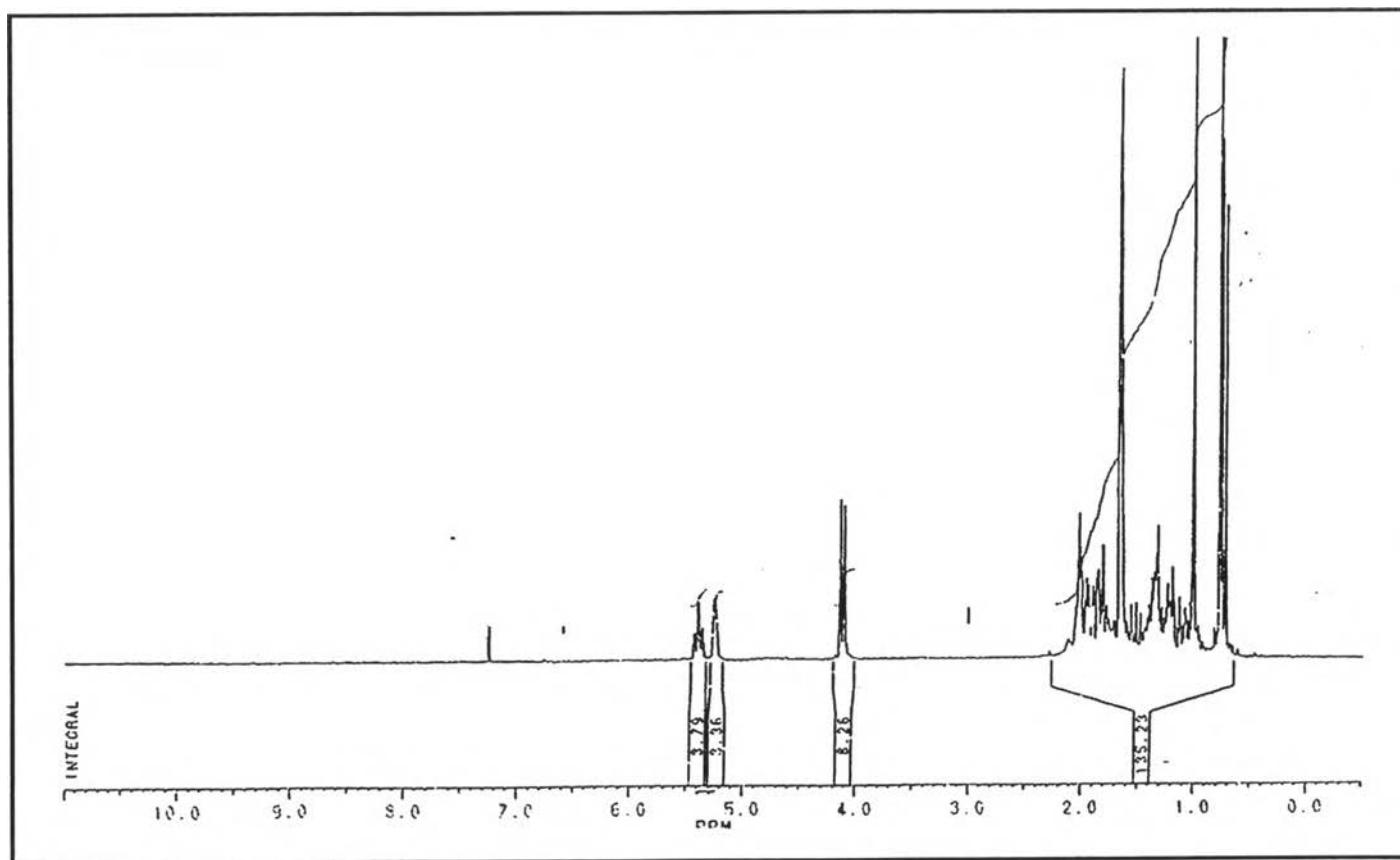


Figure 18. The  $^1\text{H-NMR}$  spectrum of Compound 3

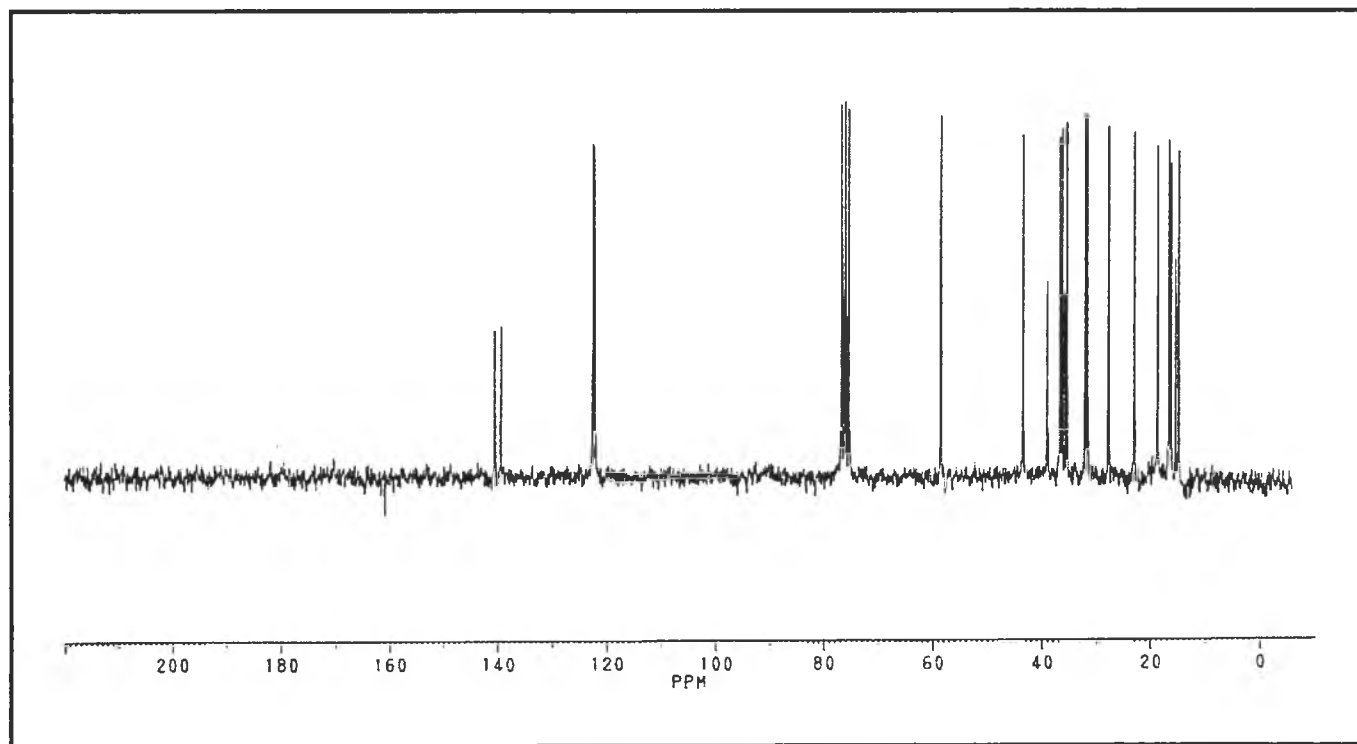


Figure 19. The  $^{13}\text{C}$ -NMR spectrum of Compound 3

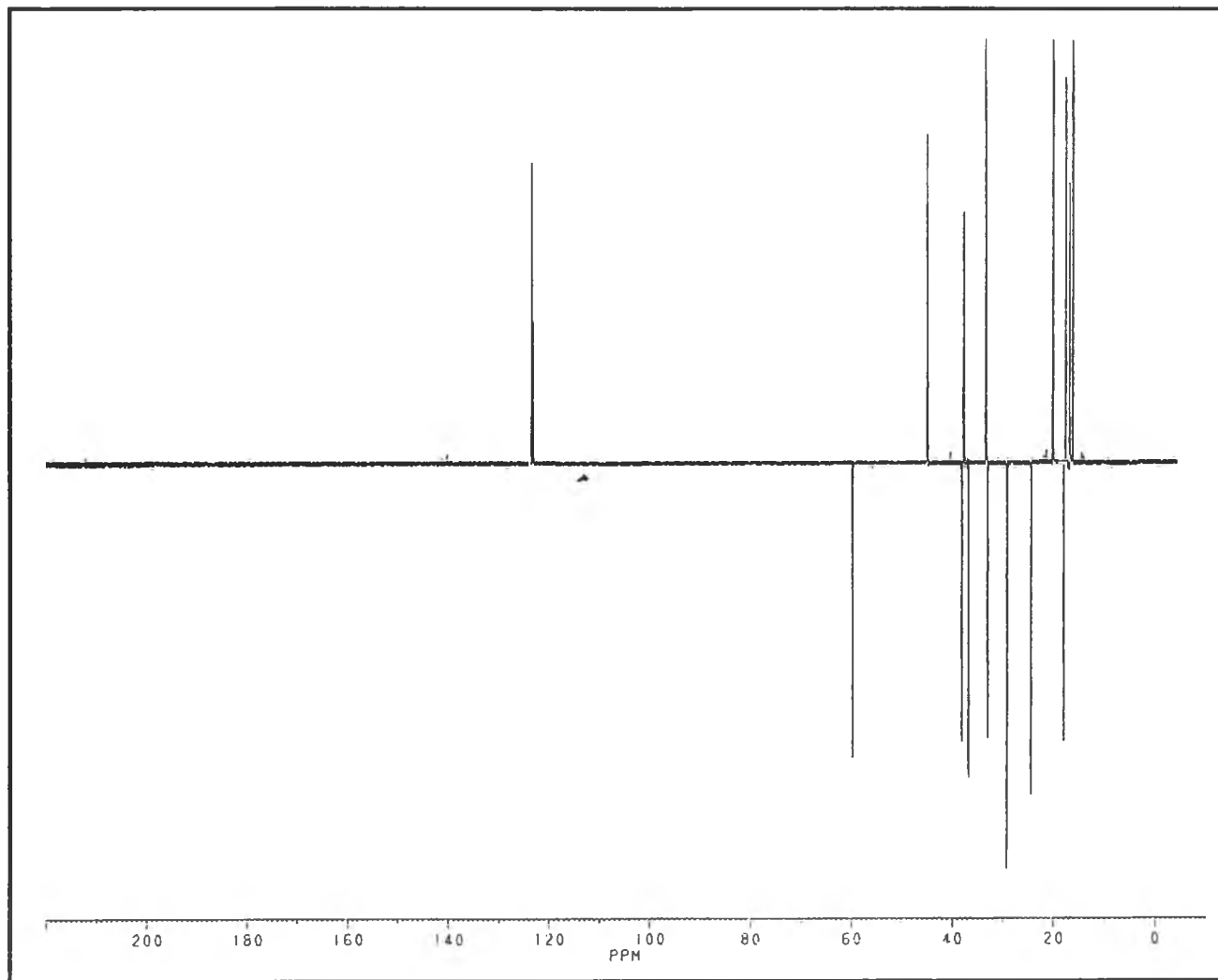


Figure 20. The DEPT-135  $^{13}\text{C}$ -NMR spectrum of Compound 3

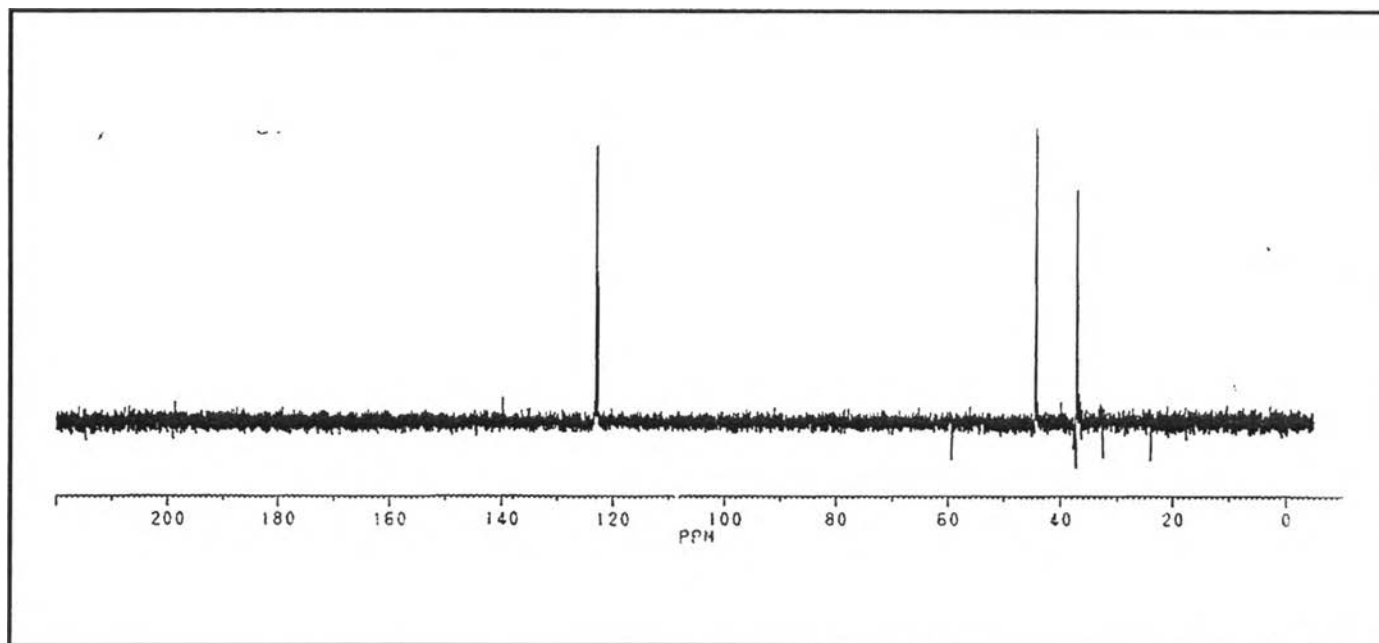


Figure 21. The DEPT-90  $^{13}\text{C}$ -NMR spectrum of Compound 3

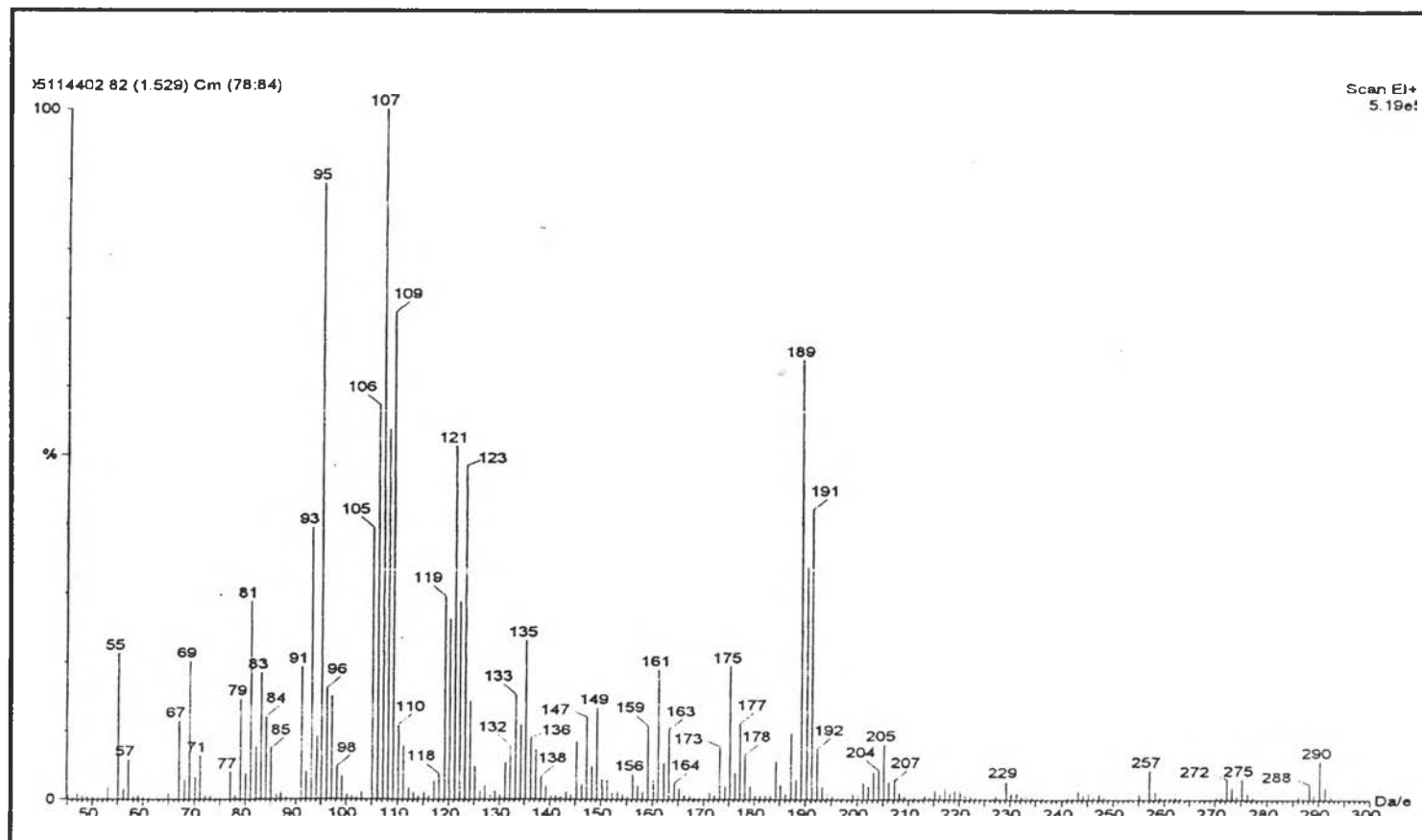


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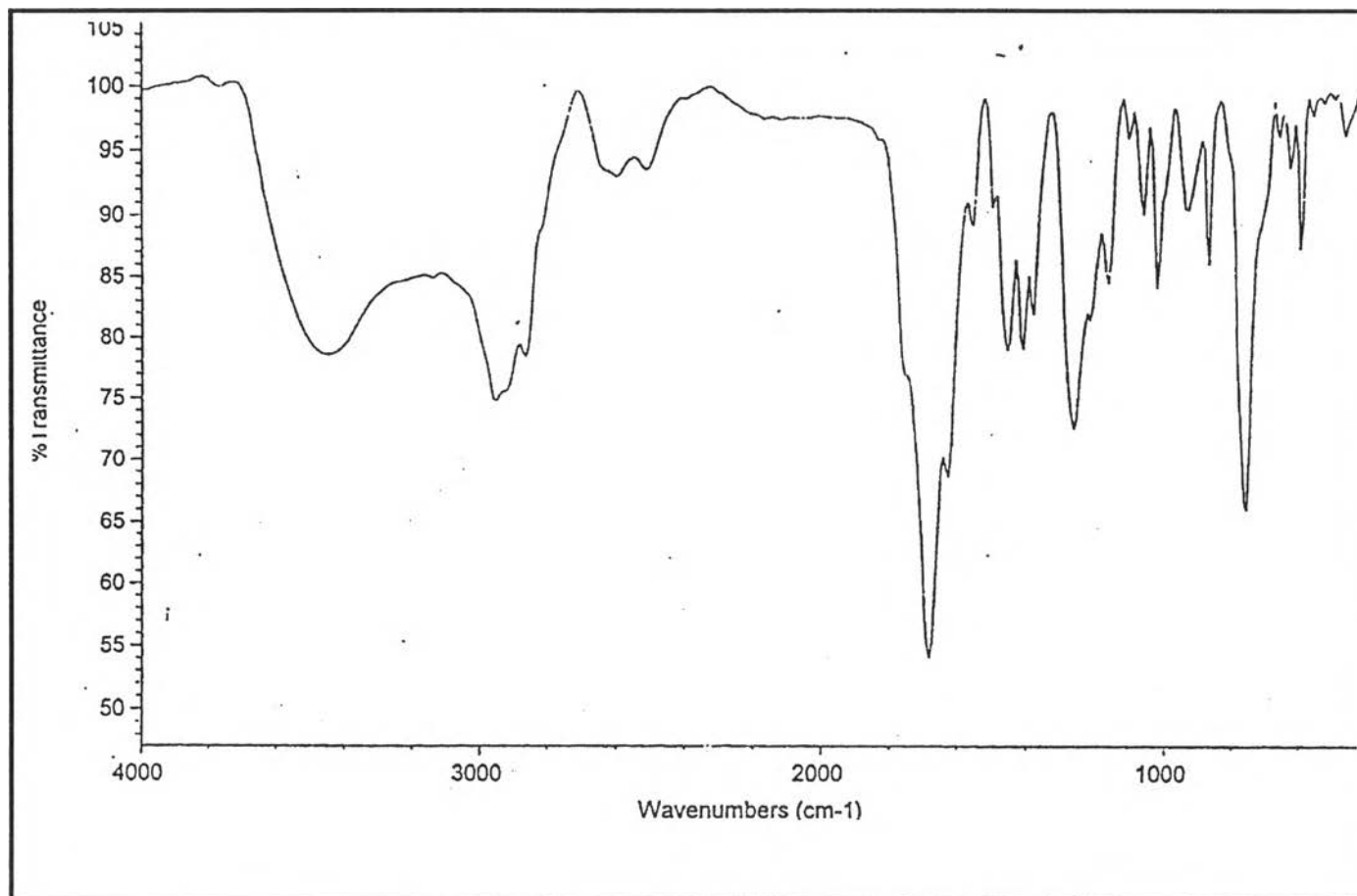


Figure 23. The IR spectrum of Compound 4



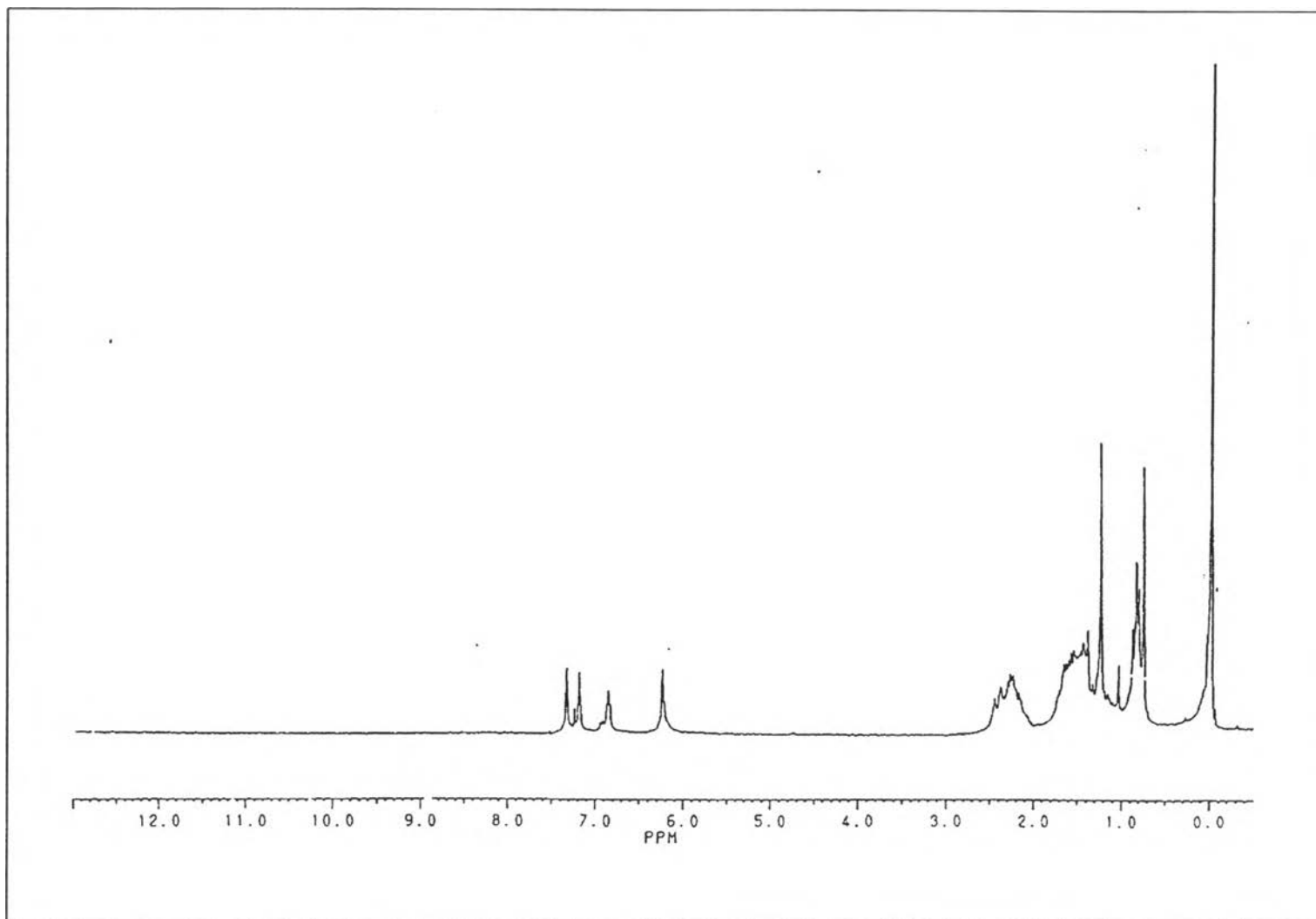


Figure 24. The  $^1\text{H-NMR}$  spectrum of Compound 4

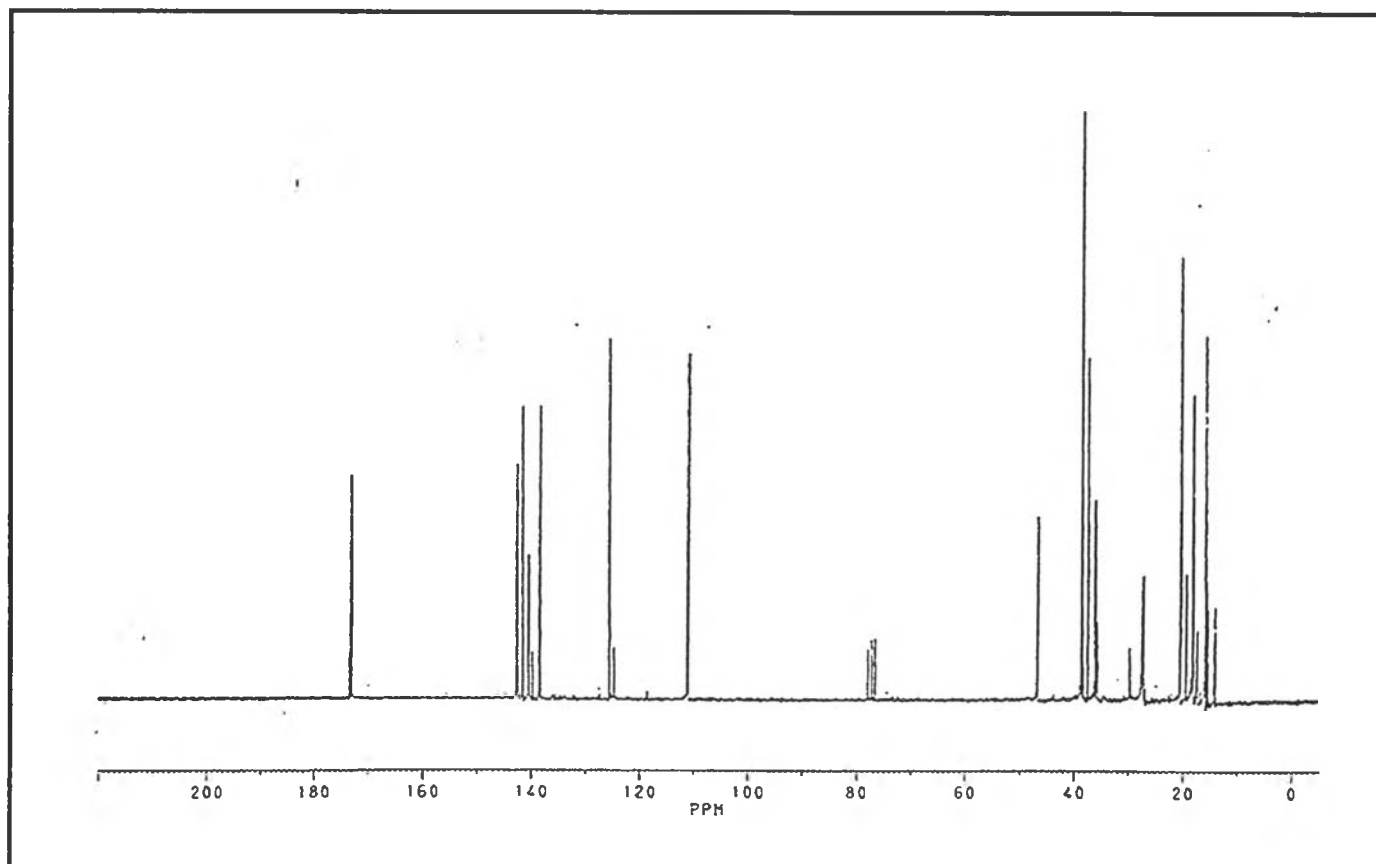


Figure 25. The  $^{13}\text{C}$ -NMR spectrum of Compound 4

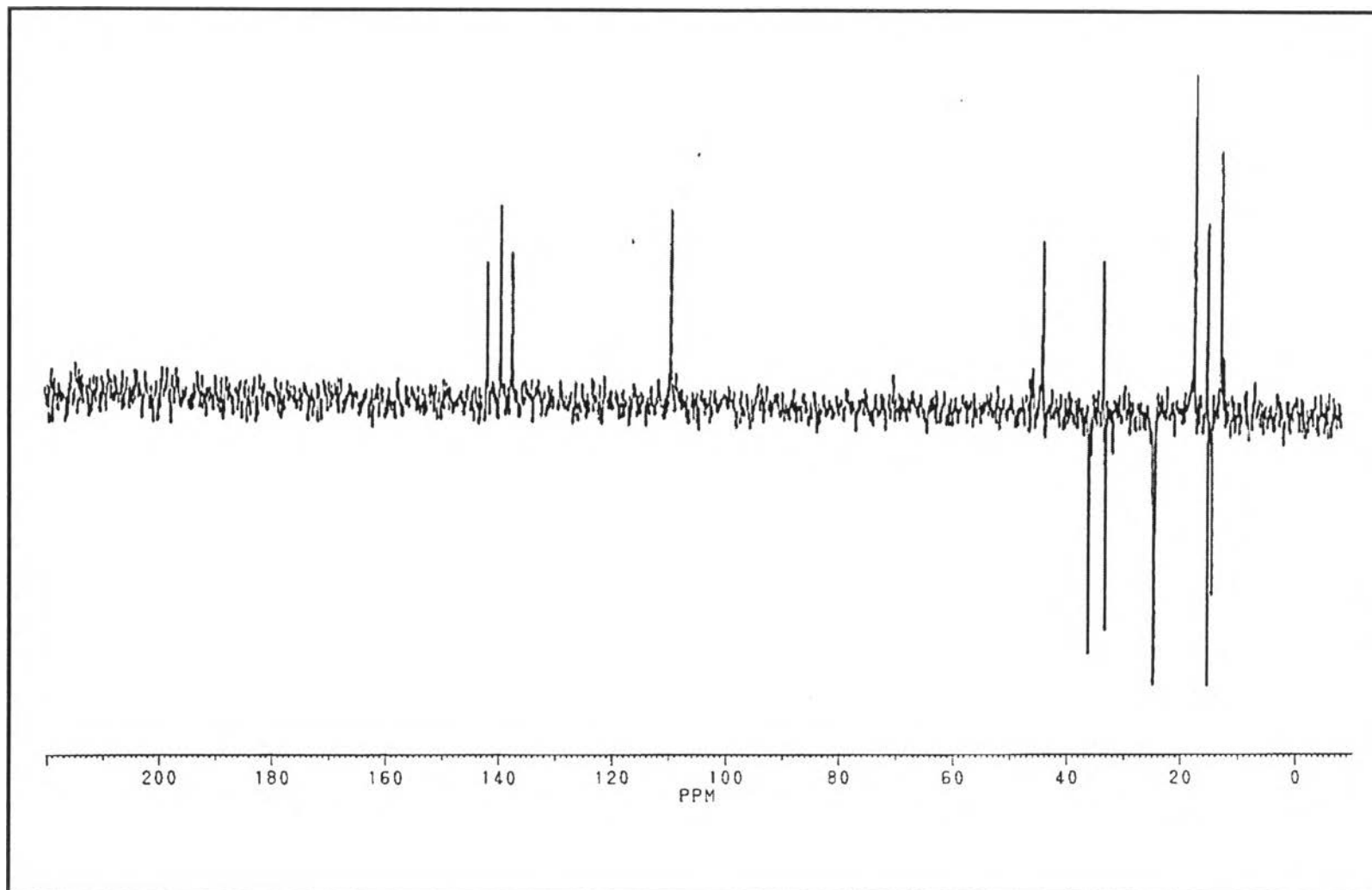


Figure 26. The DEPT-135  $^{13}\text{C}$ -NMR spectrum of Compound 4

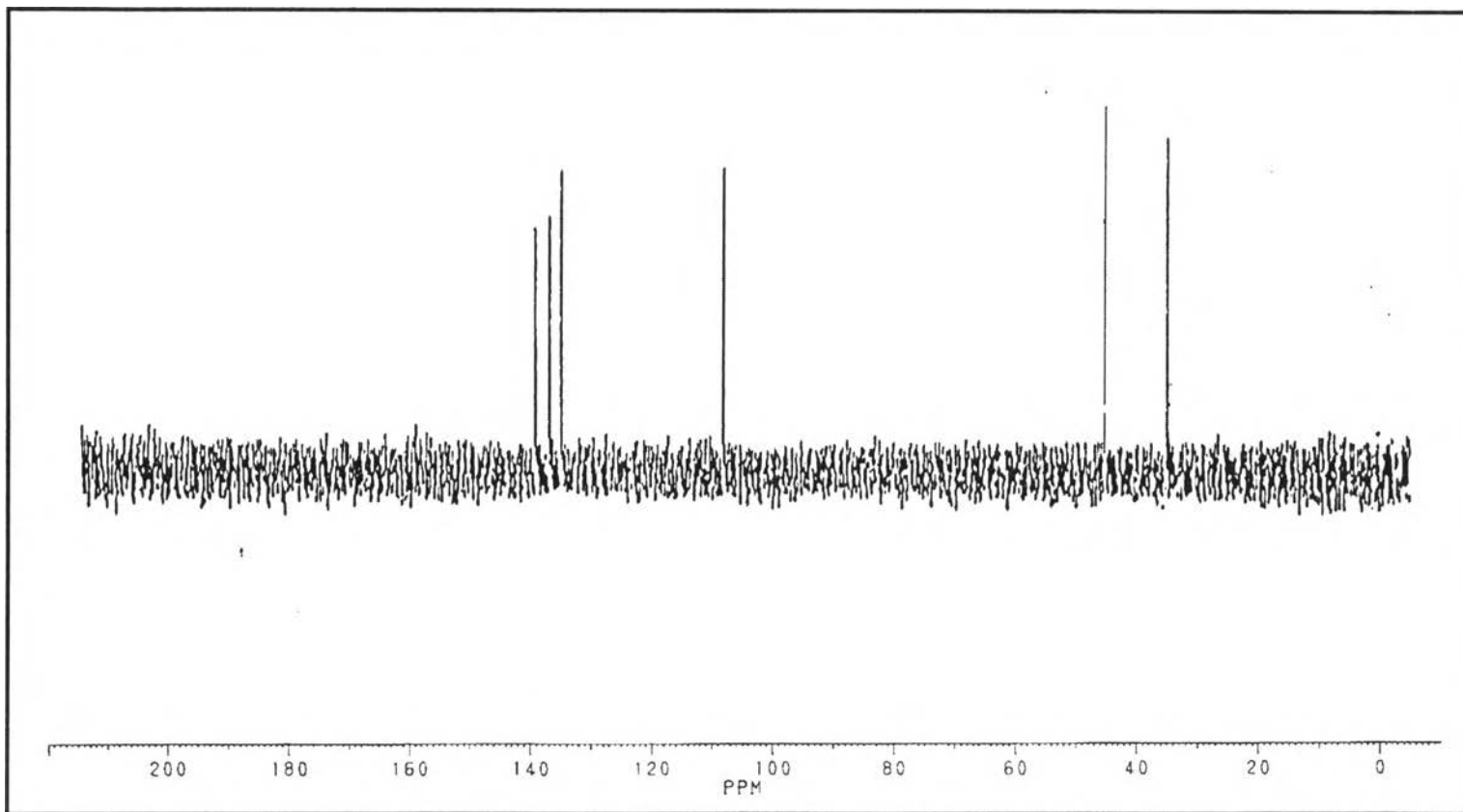


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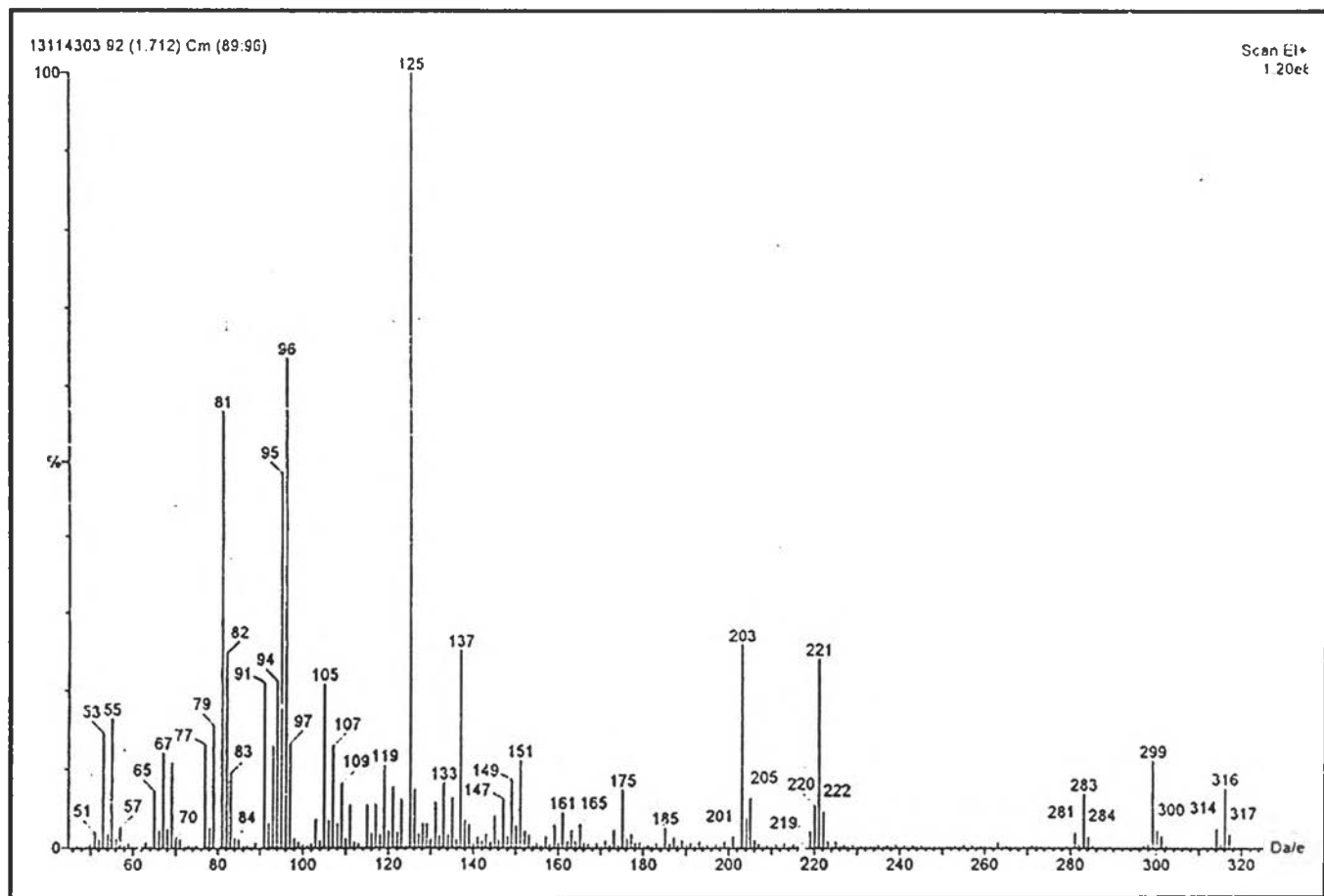


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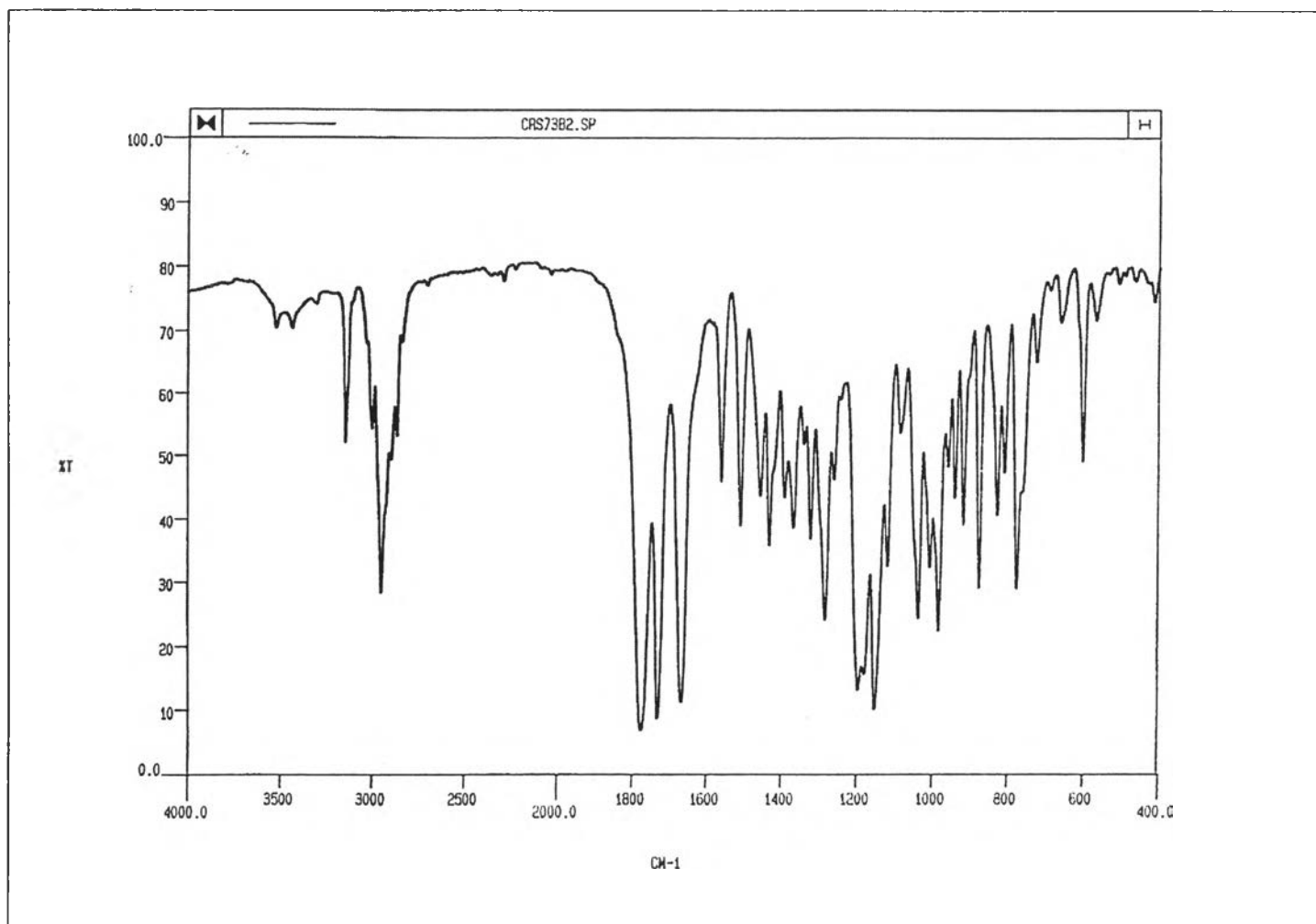


Figure 29. The IR spectrum of Compound 5

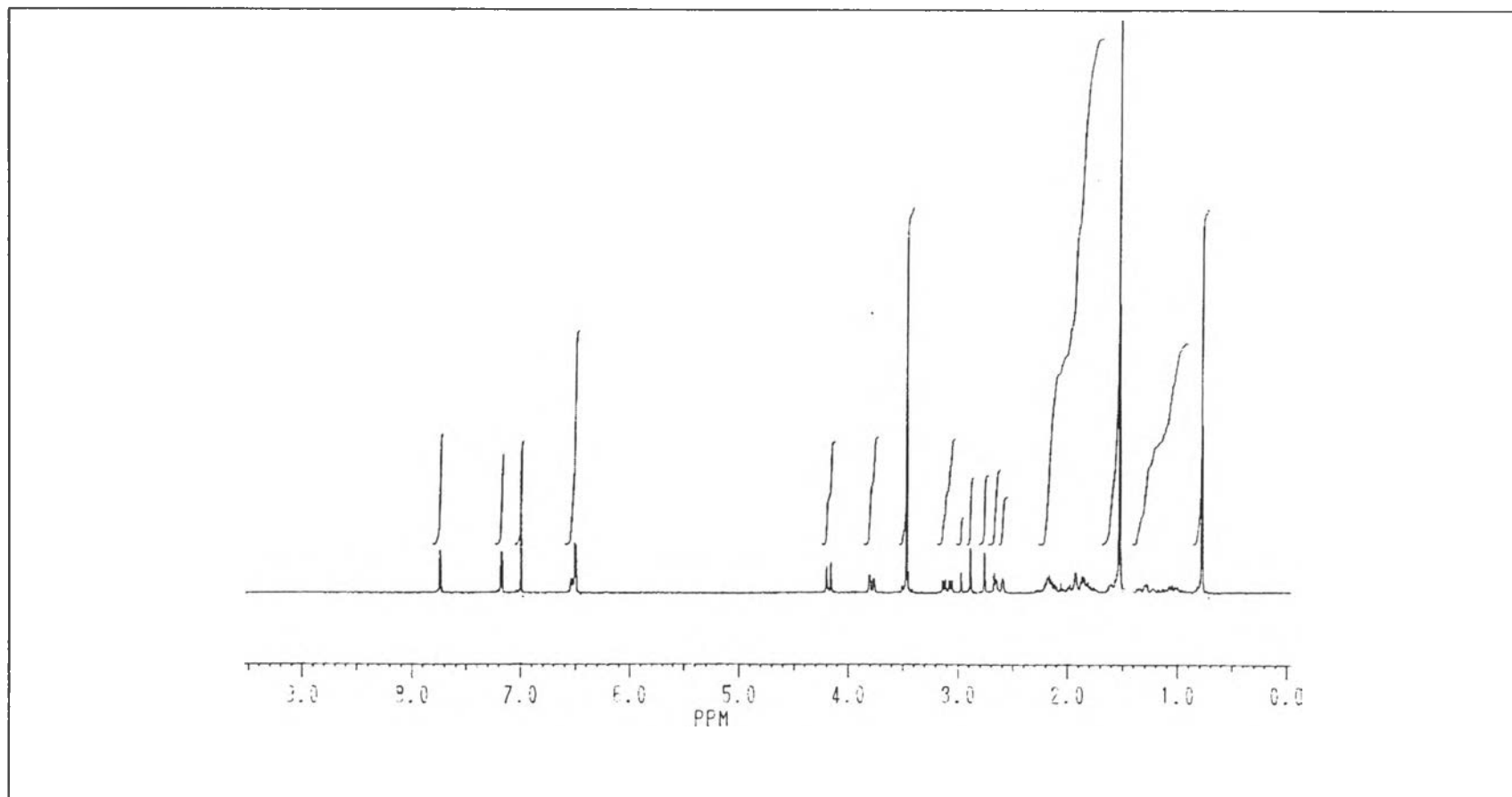


Figure 30. The  $^1\text{H-NMR}$  spectrum of Compound 5

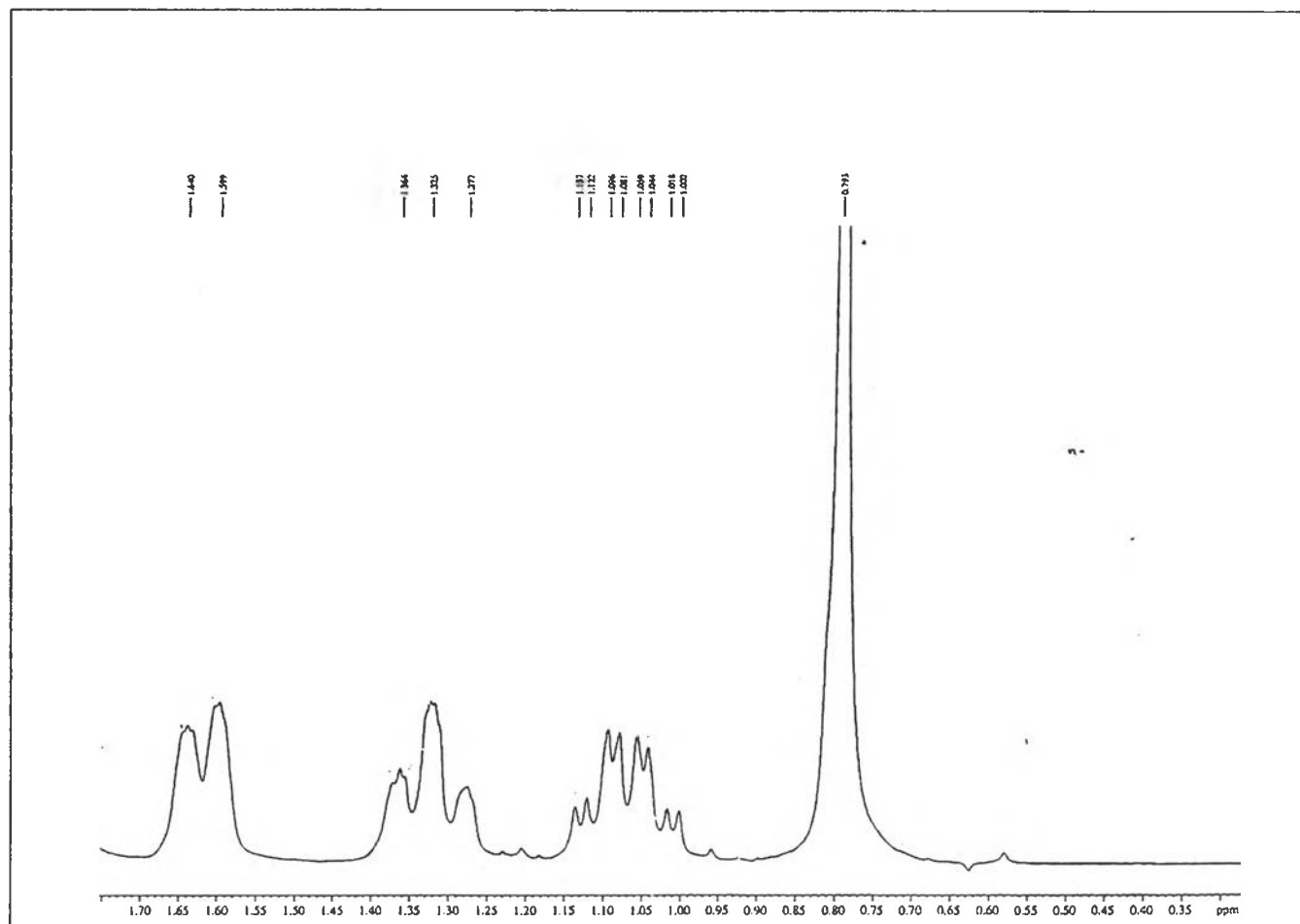


Figure 31. The  $^1\text{H-NMR}$  spectrum of Compound 5



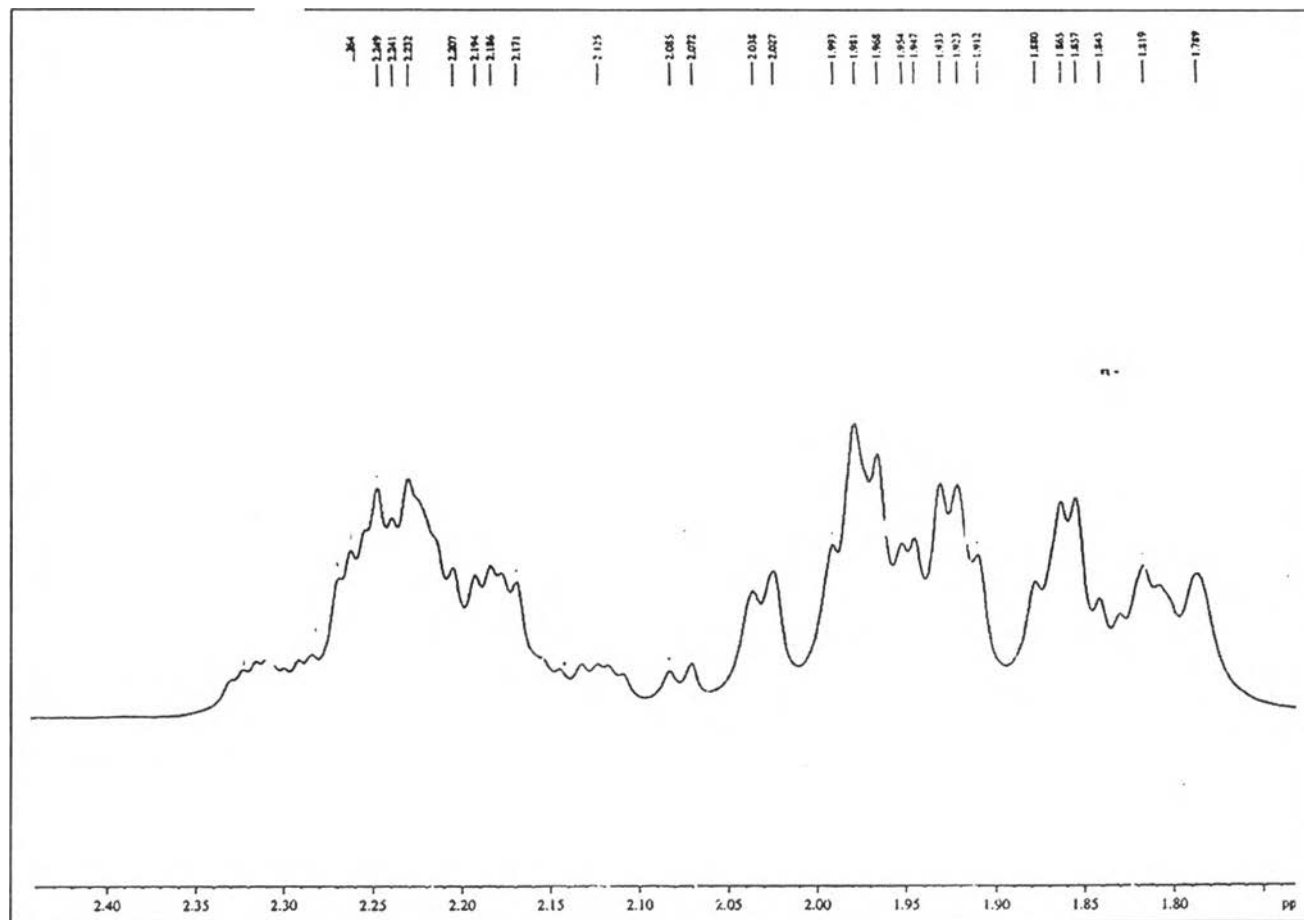


Figure 32. The  $^1\text{H-NMR}$  spectrum of Compound 5

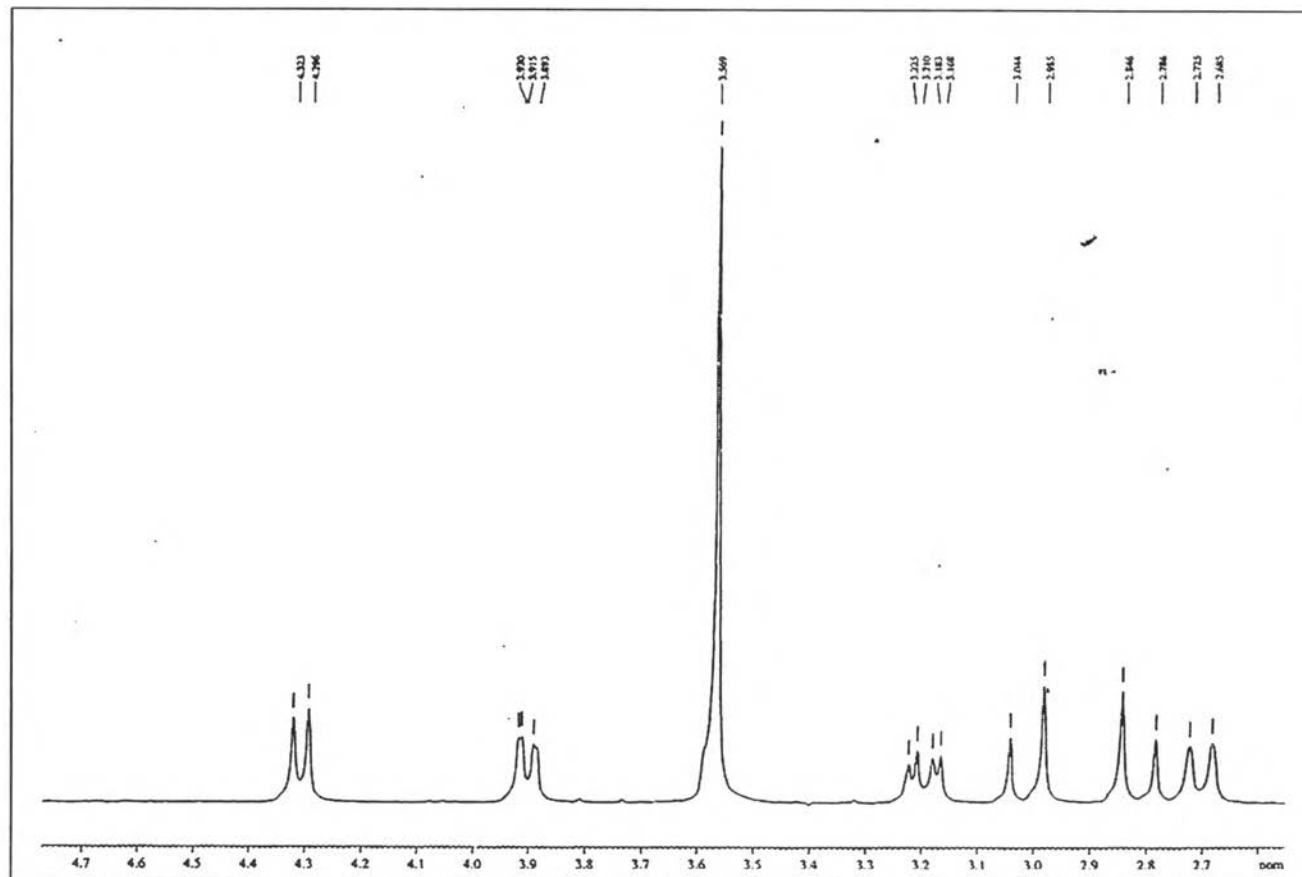


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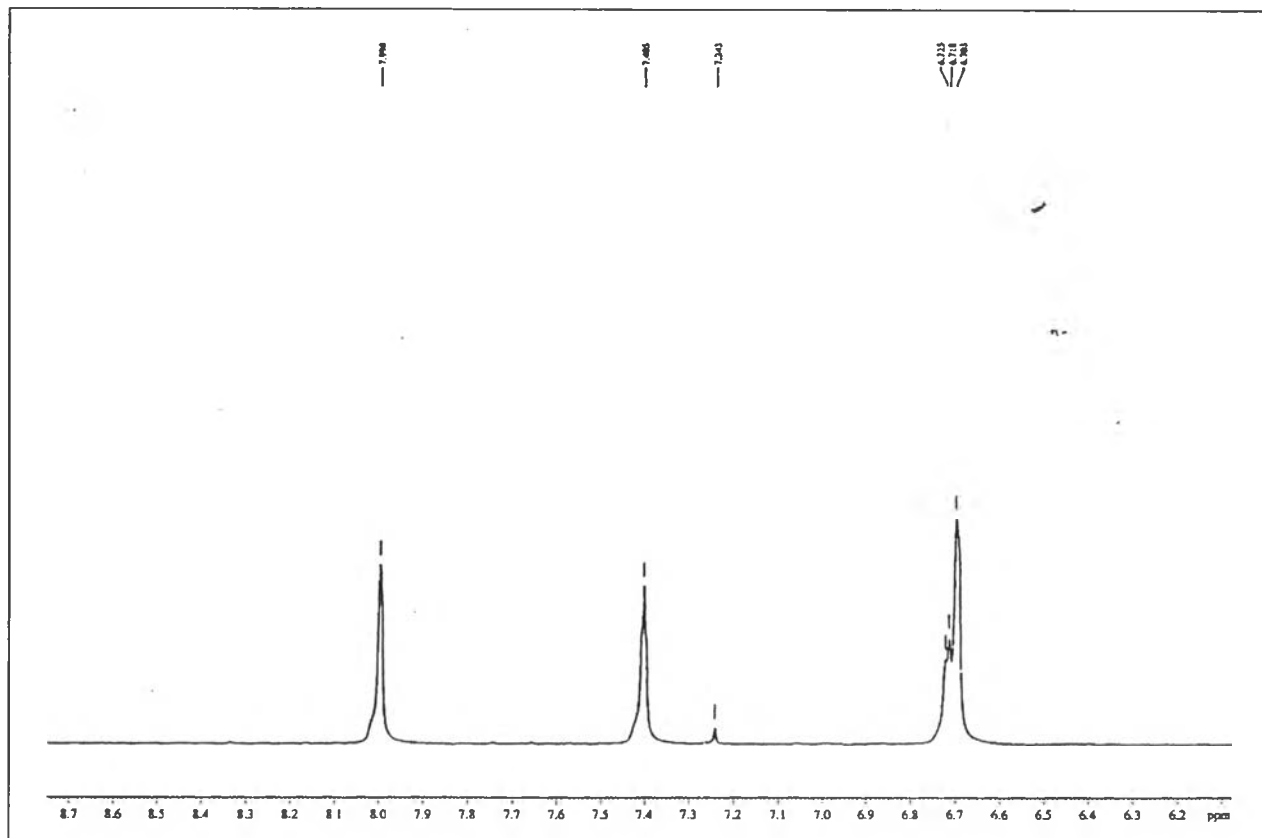


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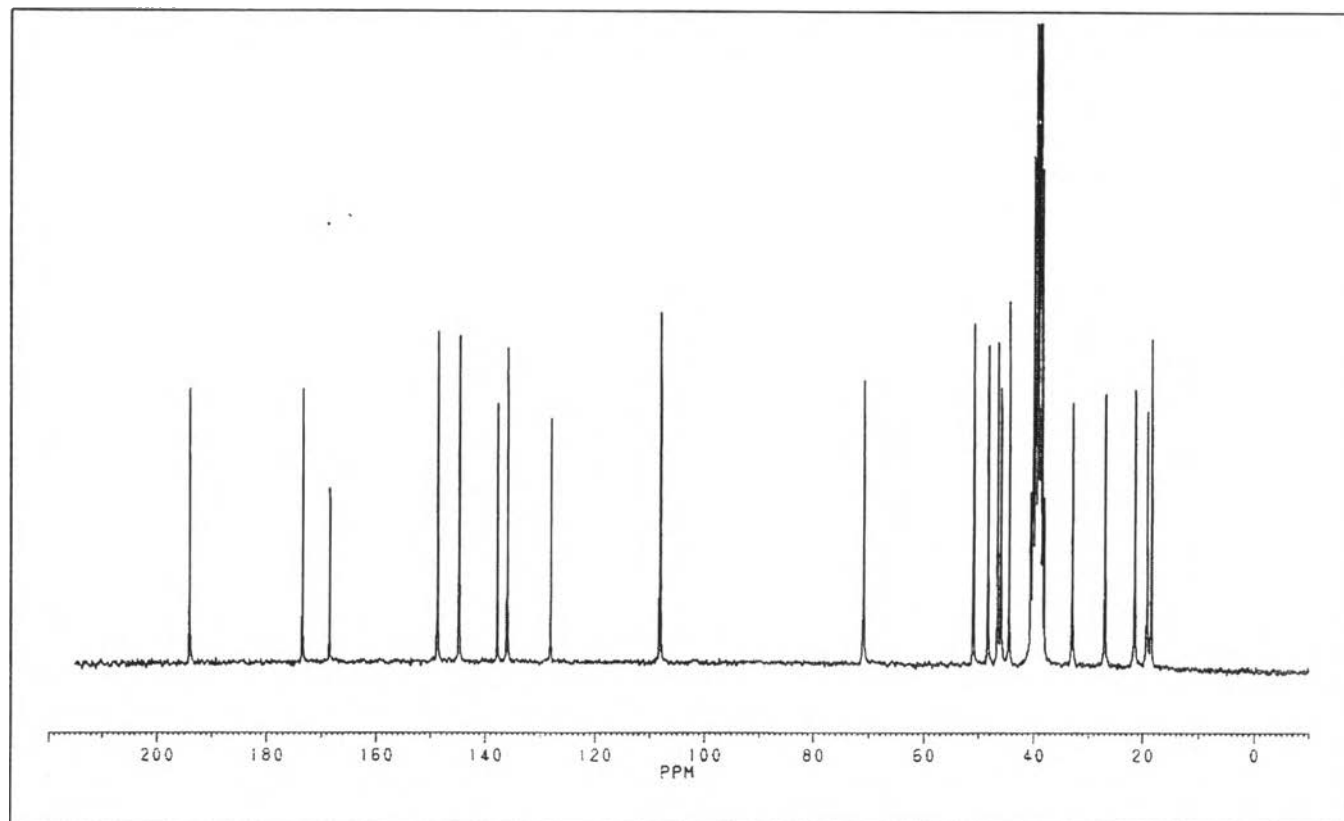


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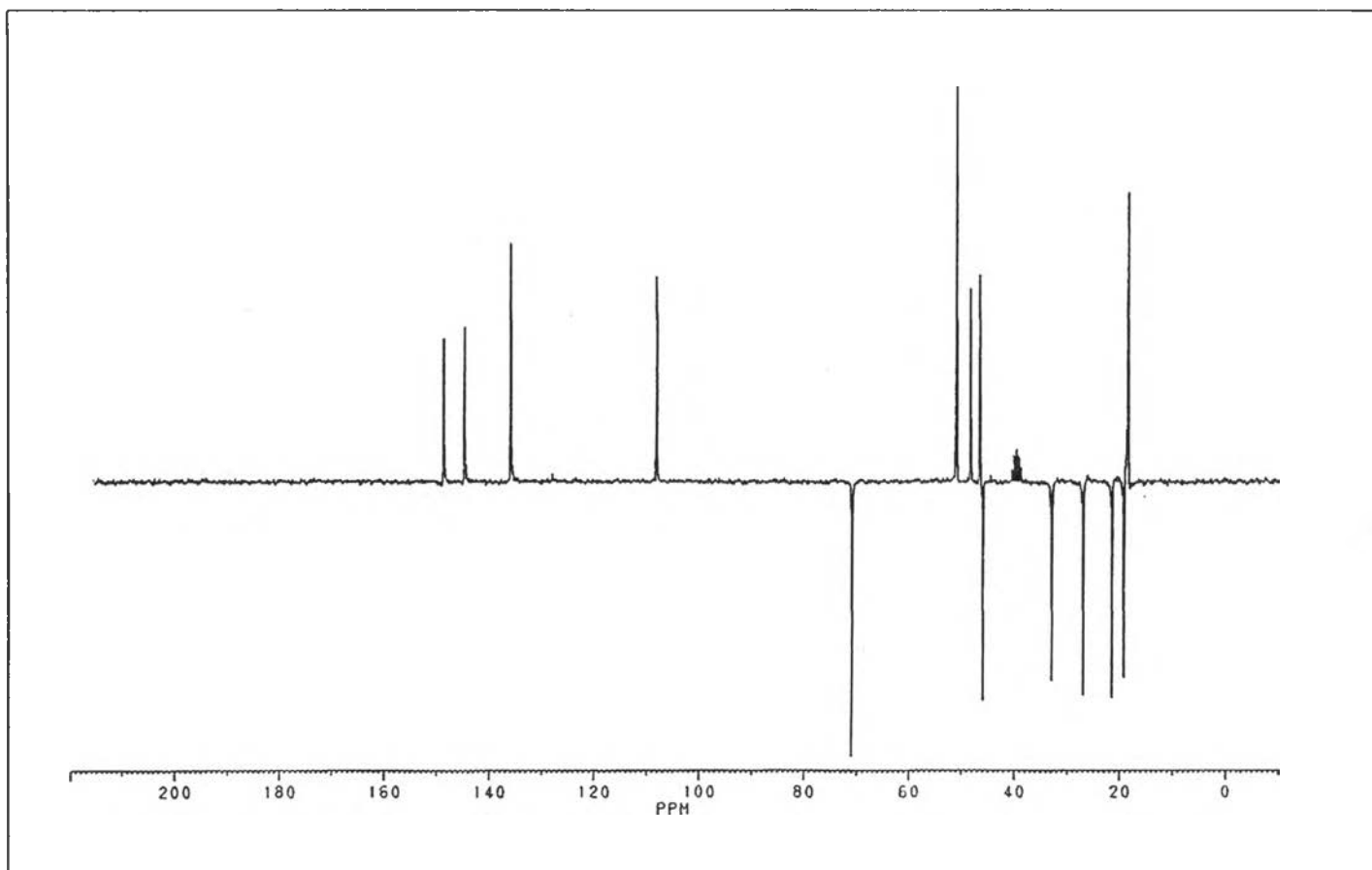


Figure 36. The DEPT-135  $^{13}\text{C}$ -NMR spectrum of Compound 5

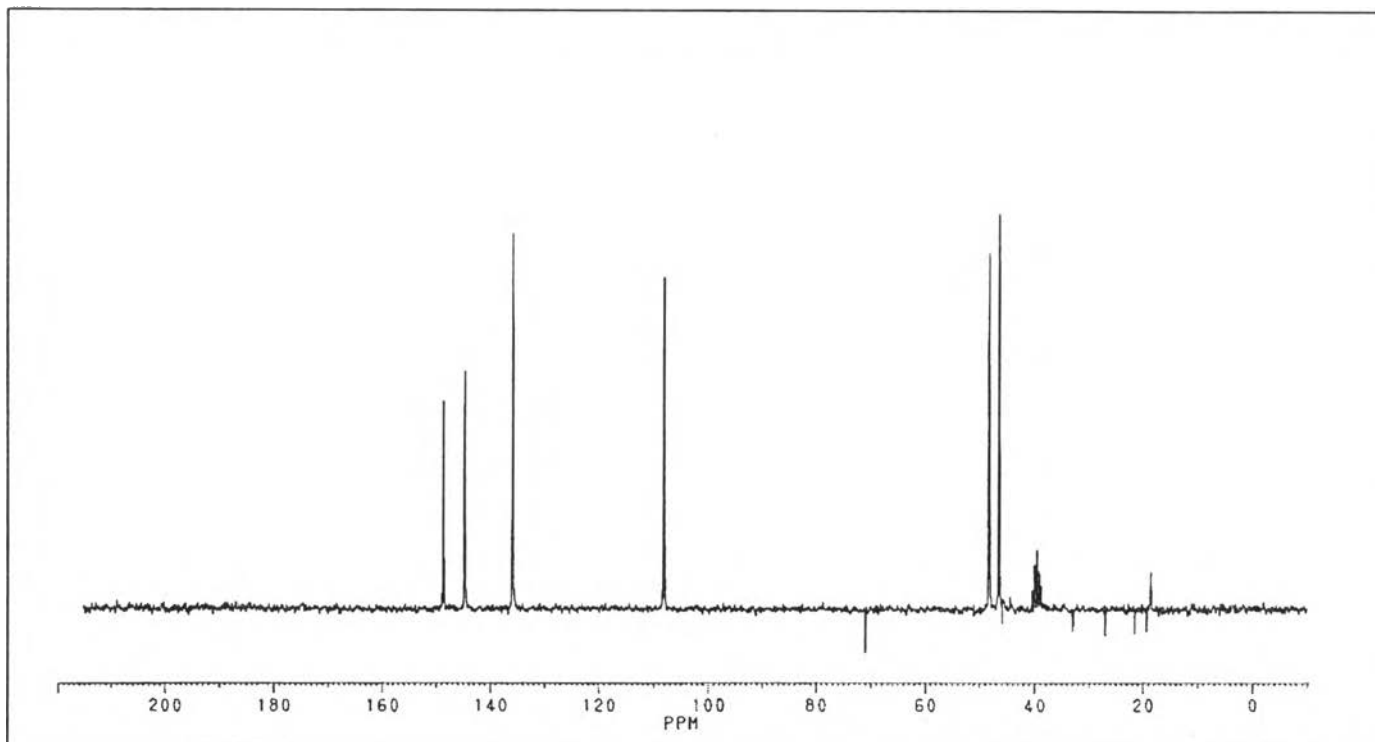


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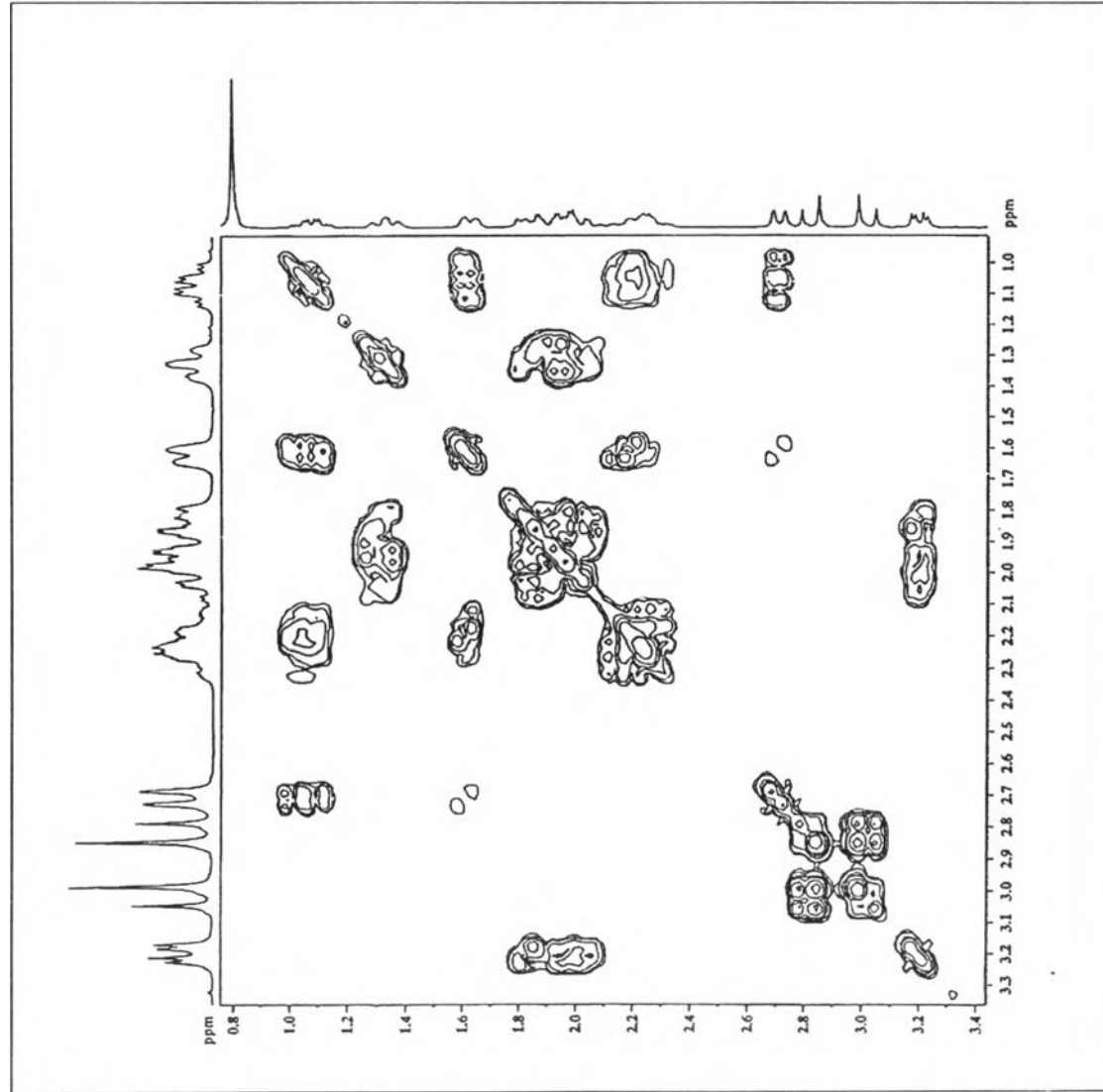


Figure 38. The COSY-NMR spectrum of Compound **5**

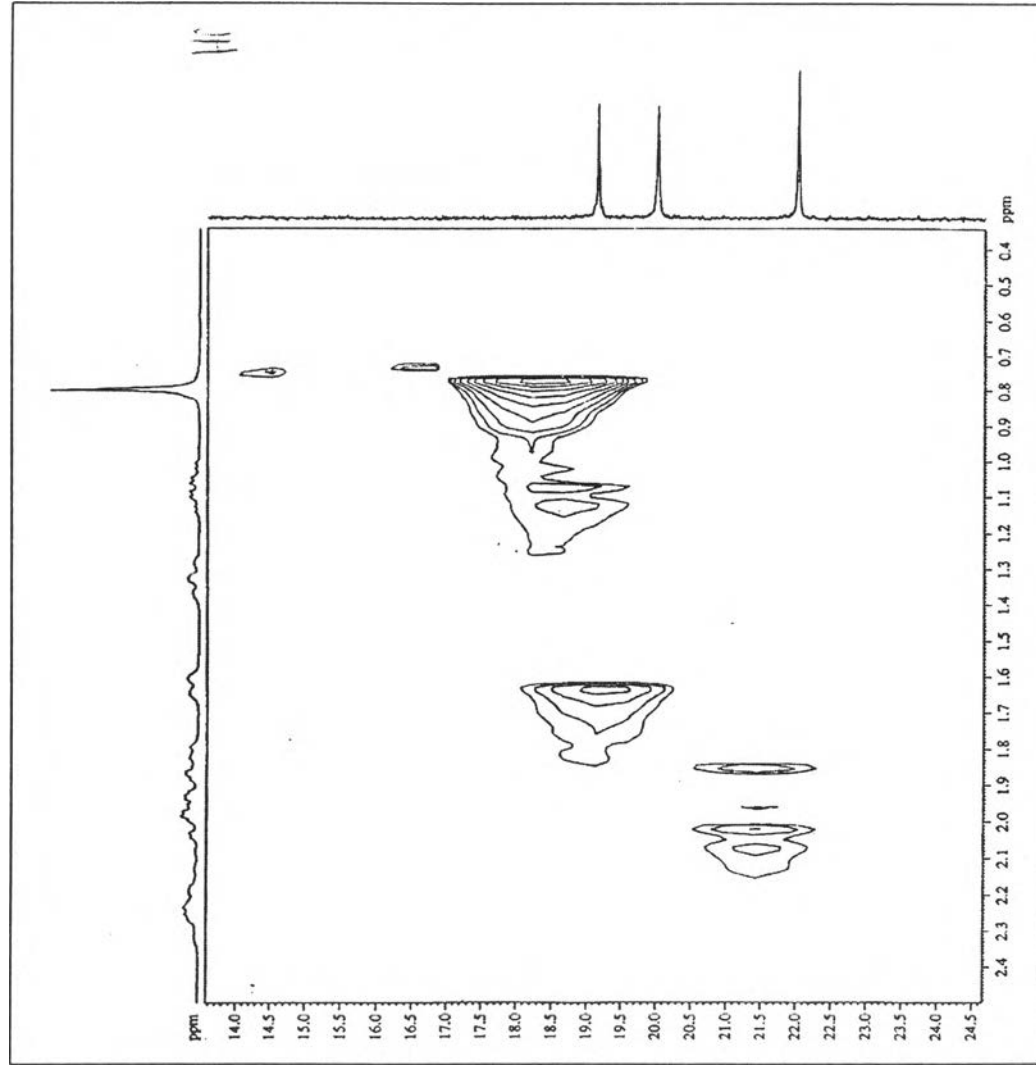


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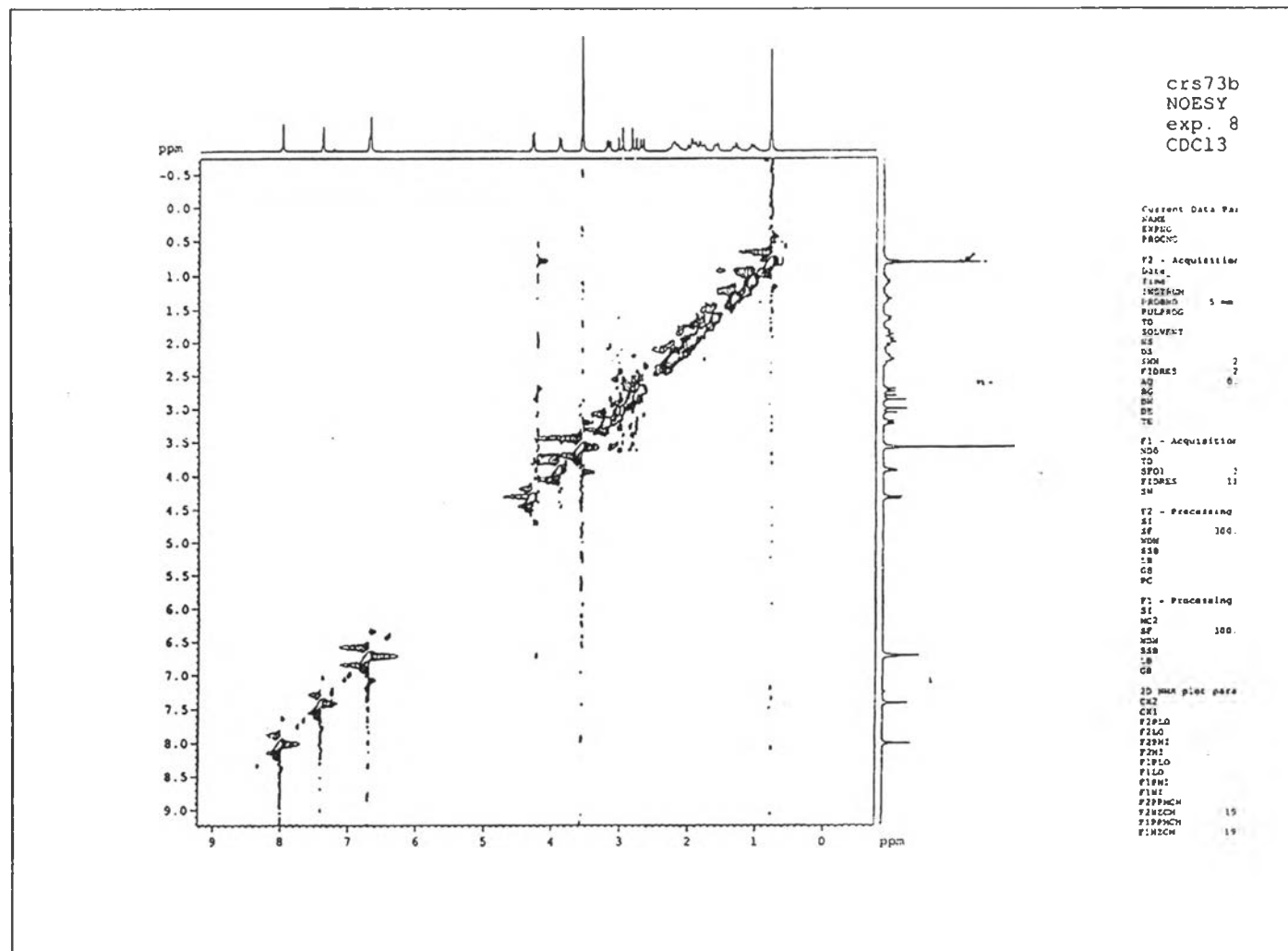


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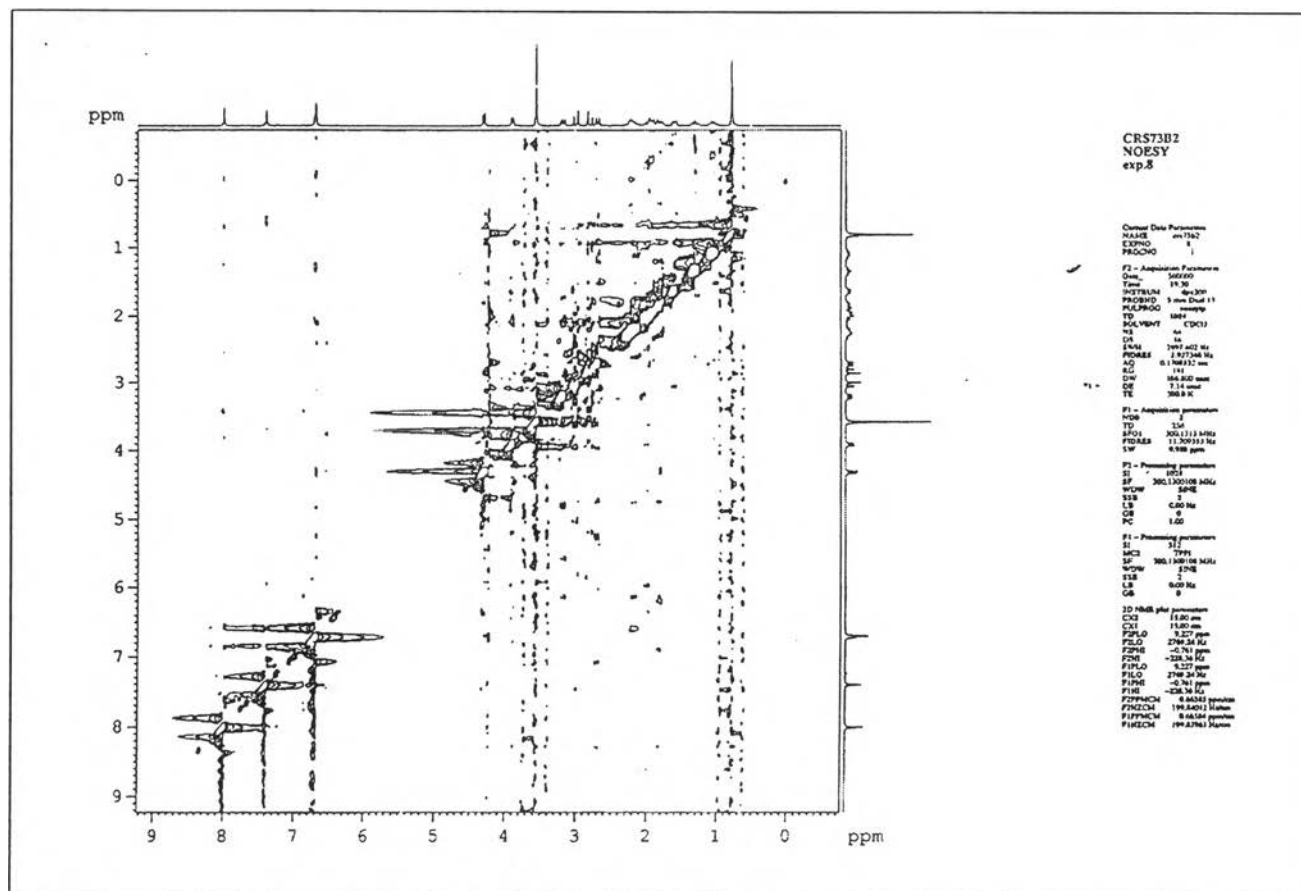


Figure 41. The NOESY-NMR spectrum of Compound 5

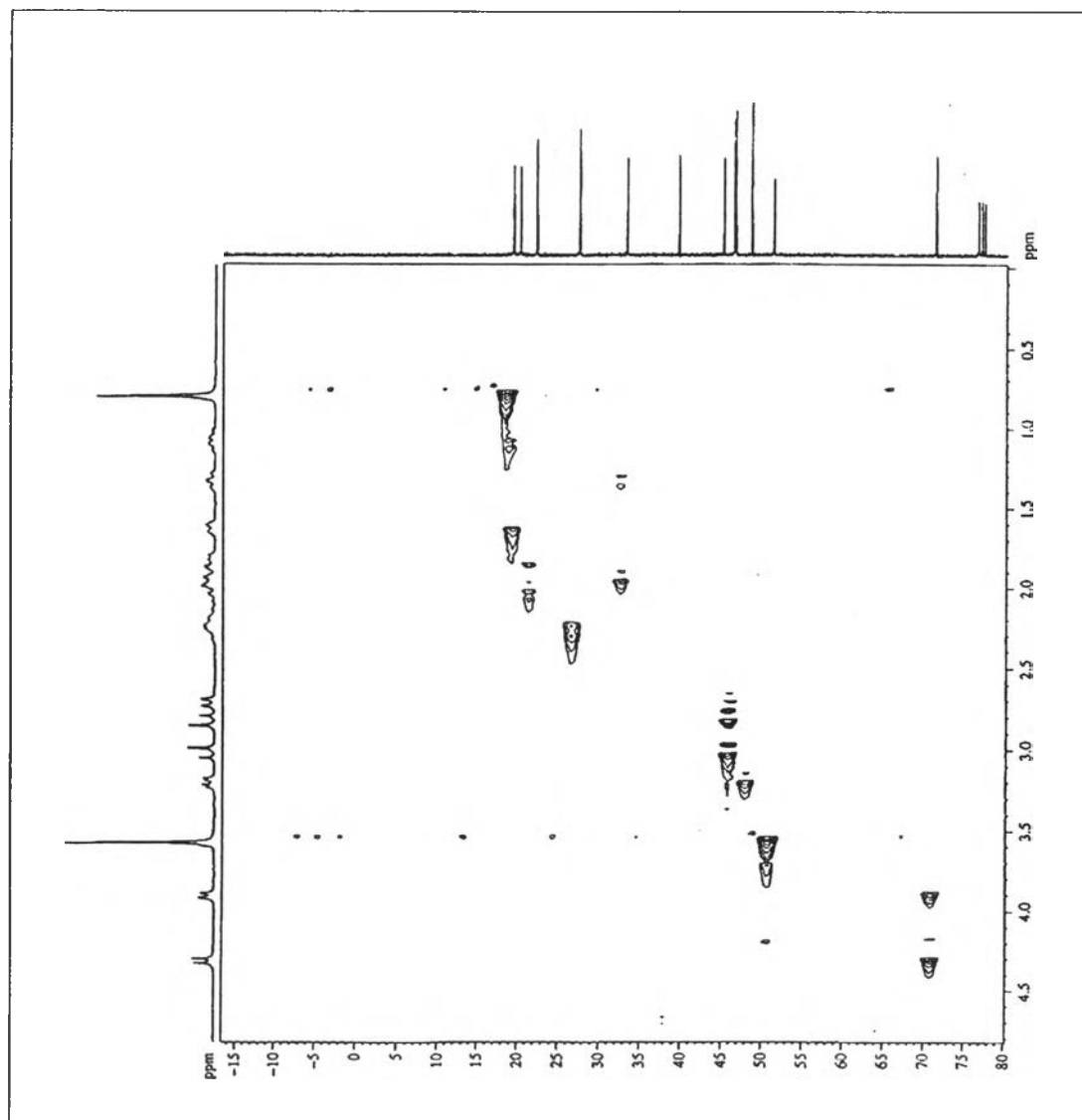


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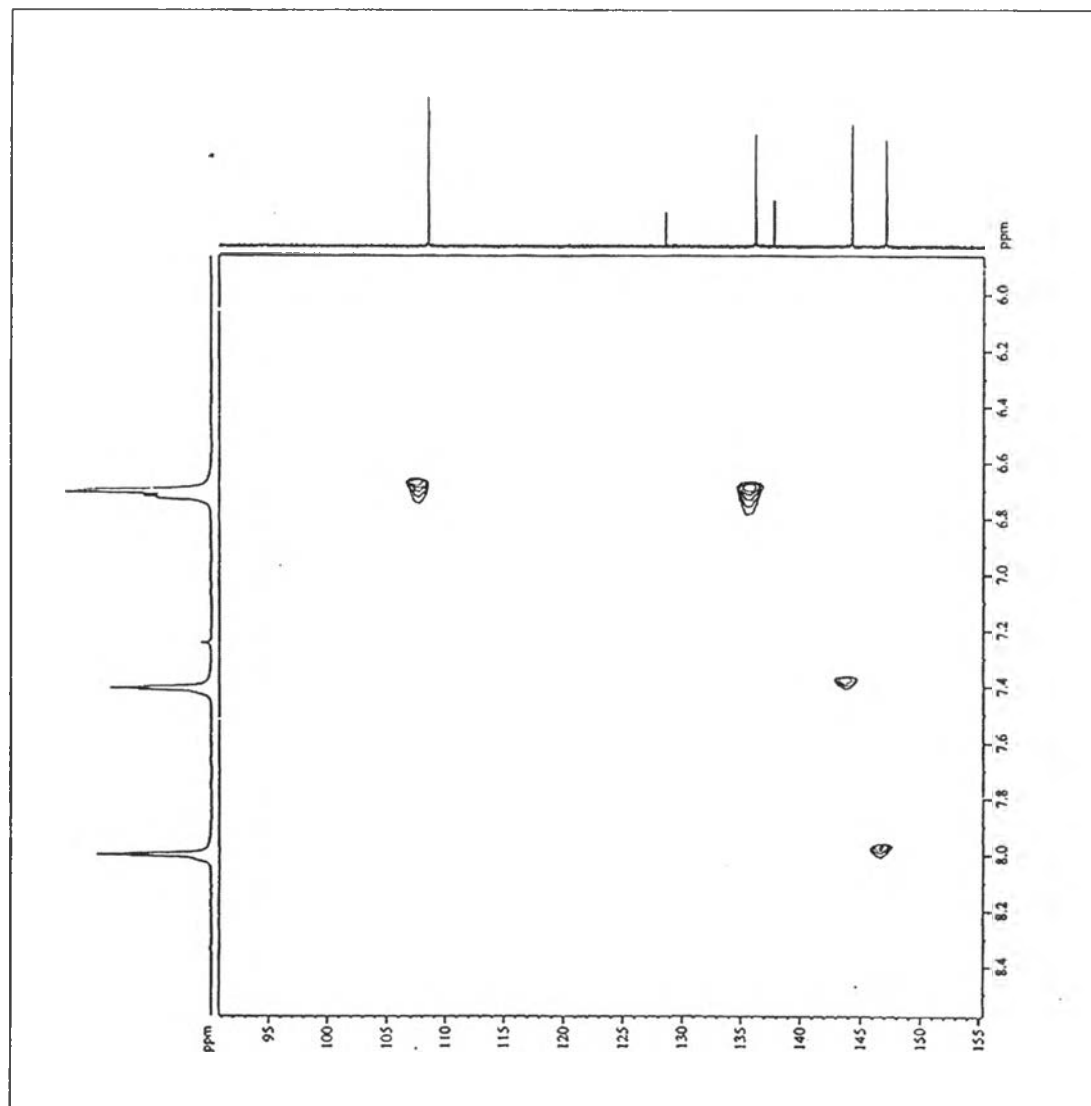


Figure 43. The HMQC-NMR spectrum of Compound **5**

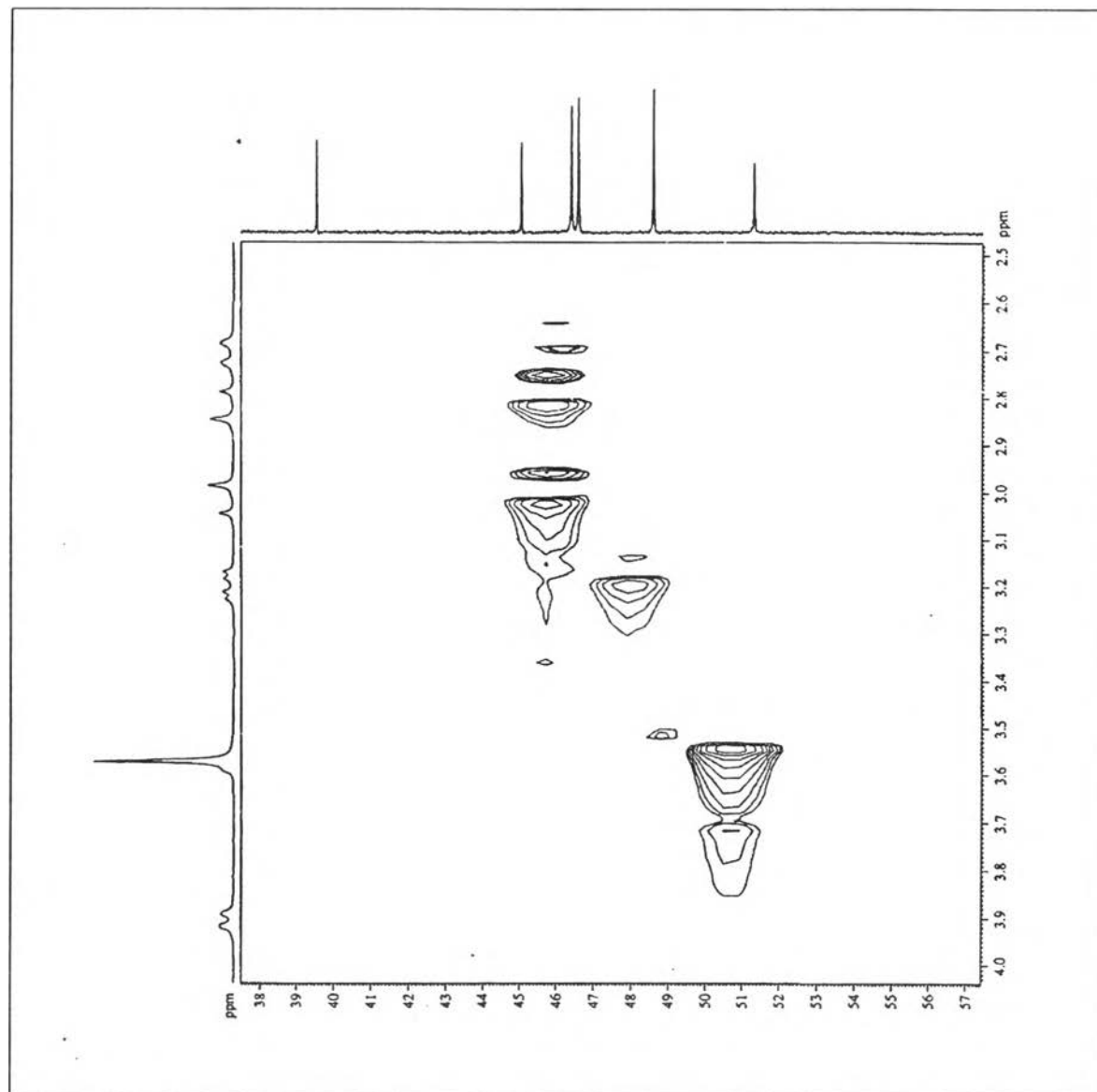


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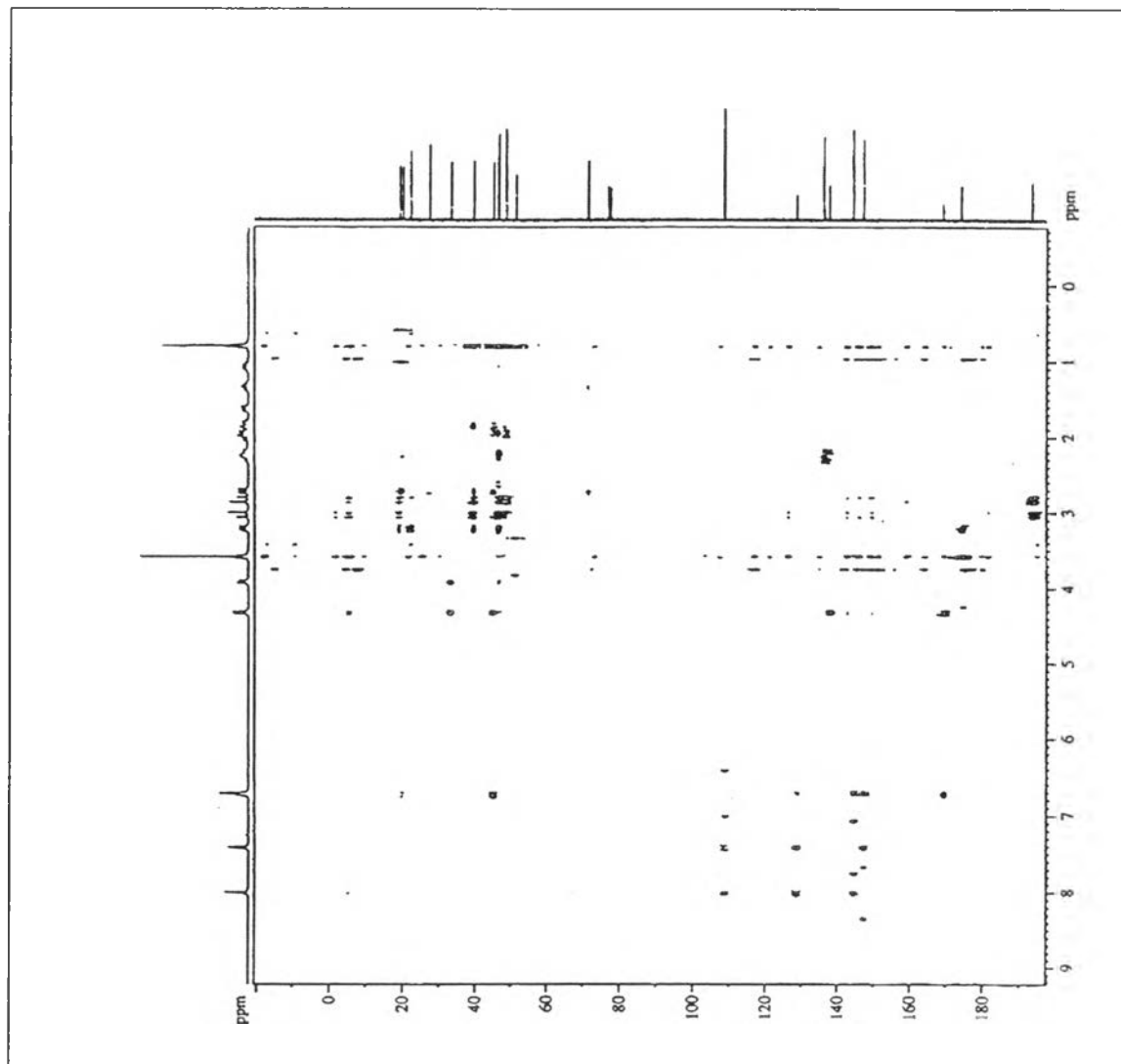


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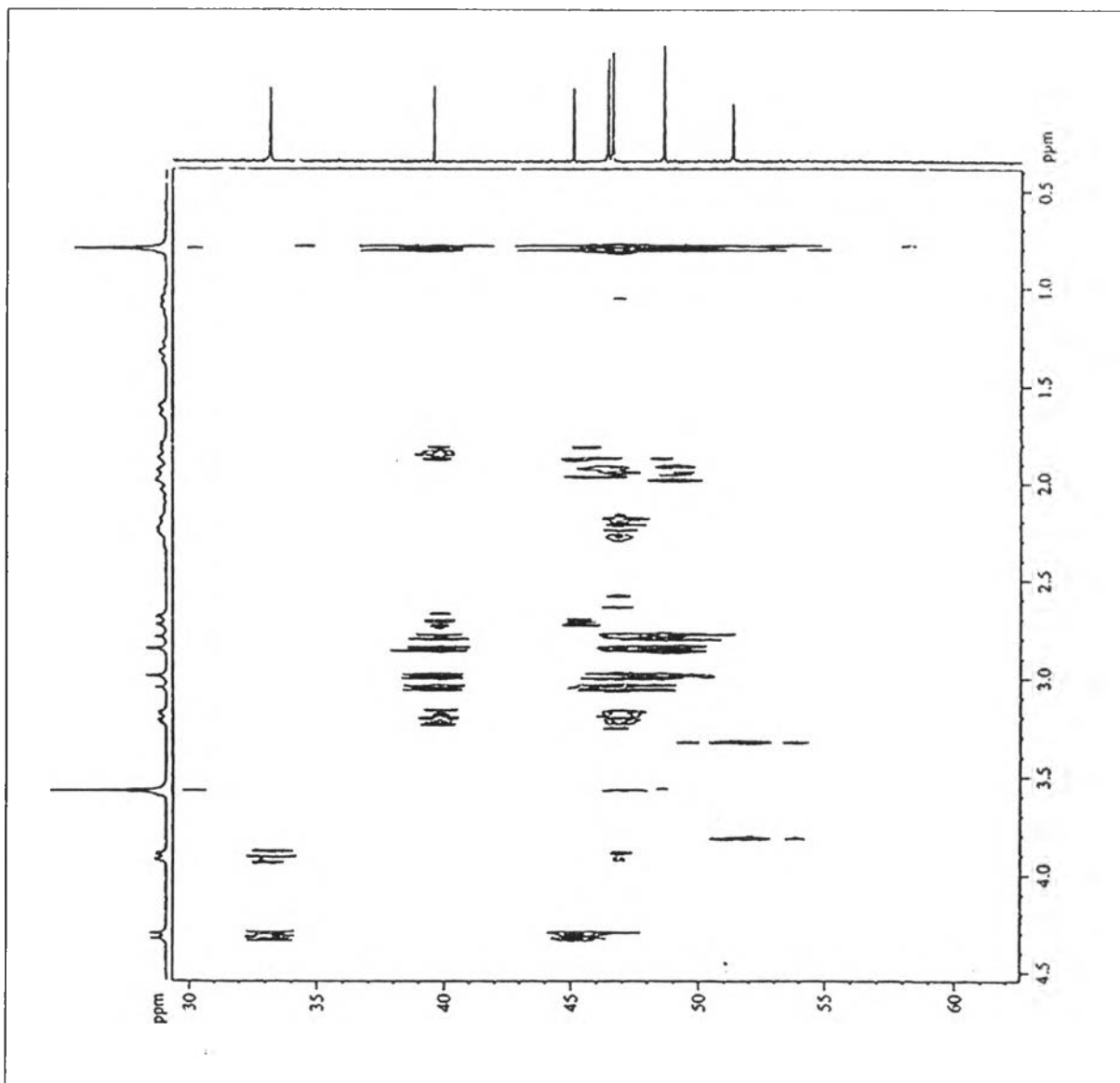


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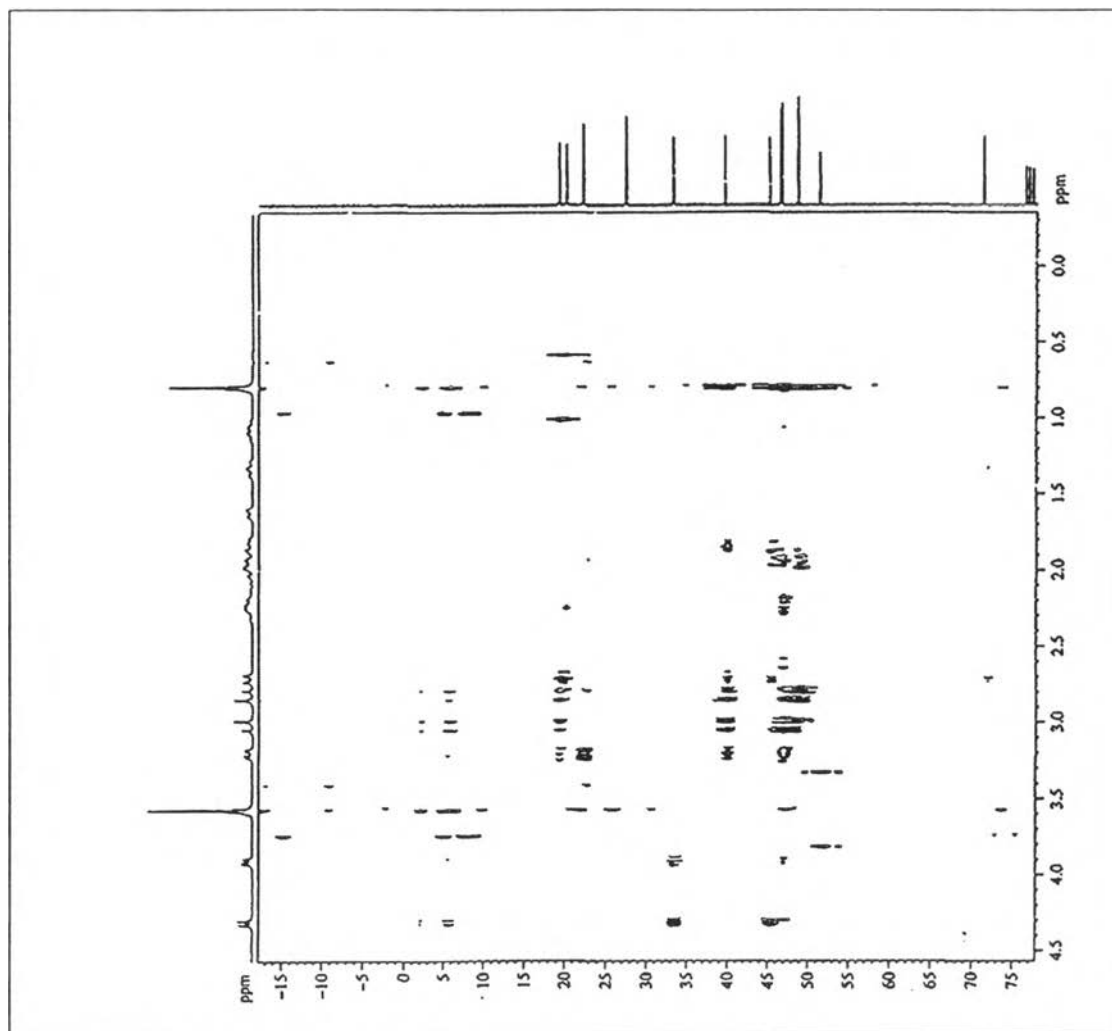


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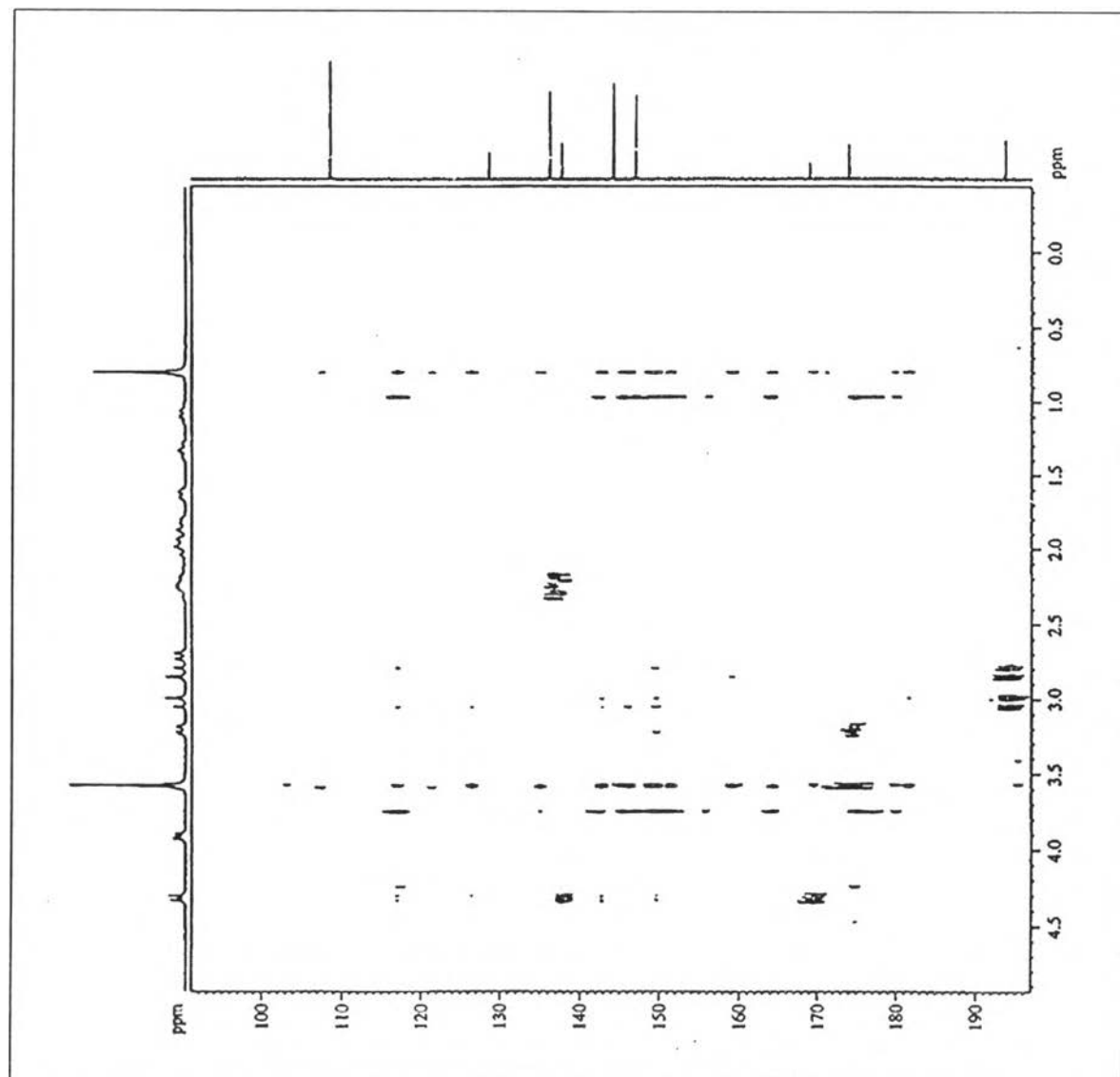


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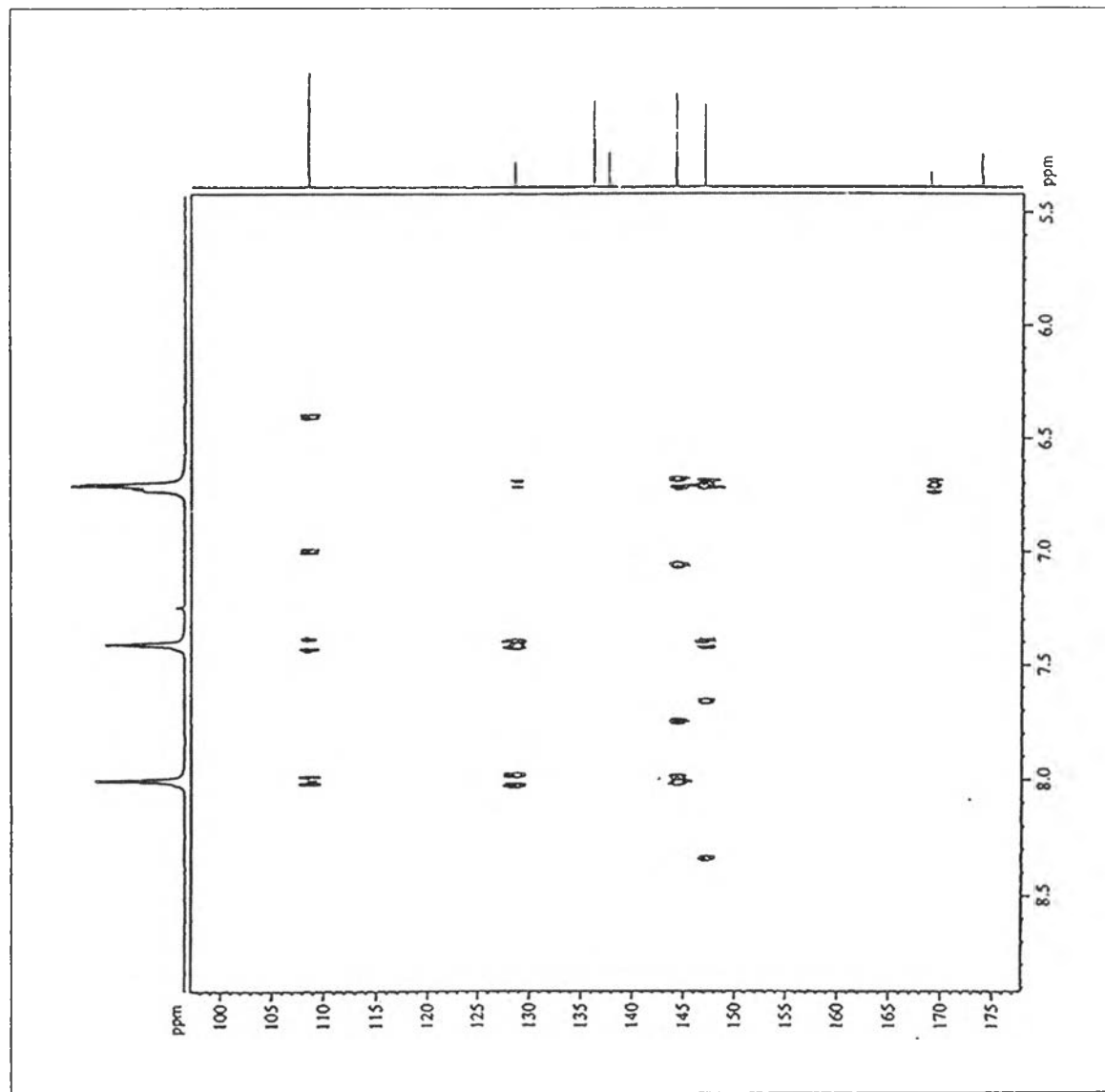


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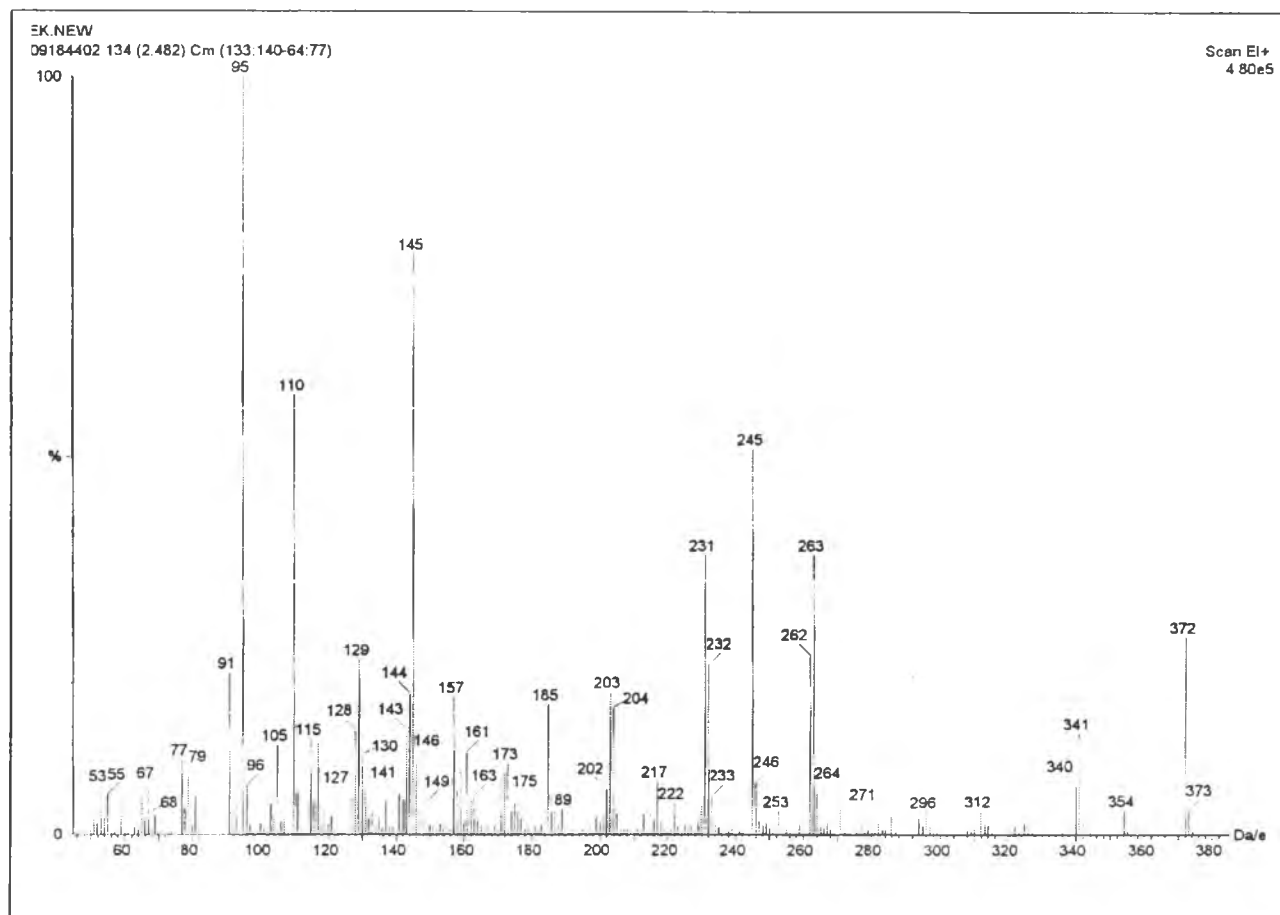


Figure 50. The Mass spectrum of Compound 5

## VITA

Mr. Narote Ruangraweewat was born on April 10, 1977 in Ayutthaya, Thailand. He graduated with a Bachelor's Degree of Science in Chemistry from Chulalongkorn University in 1999. He was admitted into a Master's Degree Program in Chemistry at Chulalongkorn University in 1999 and complete the program in 2002.

