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APPENDIX

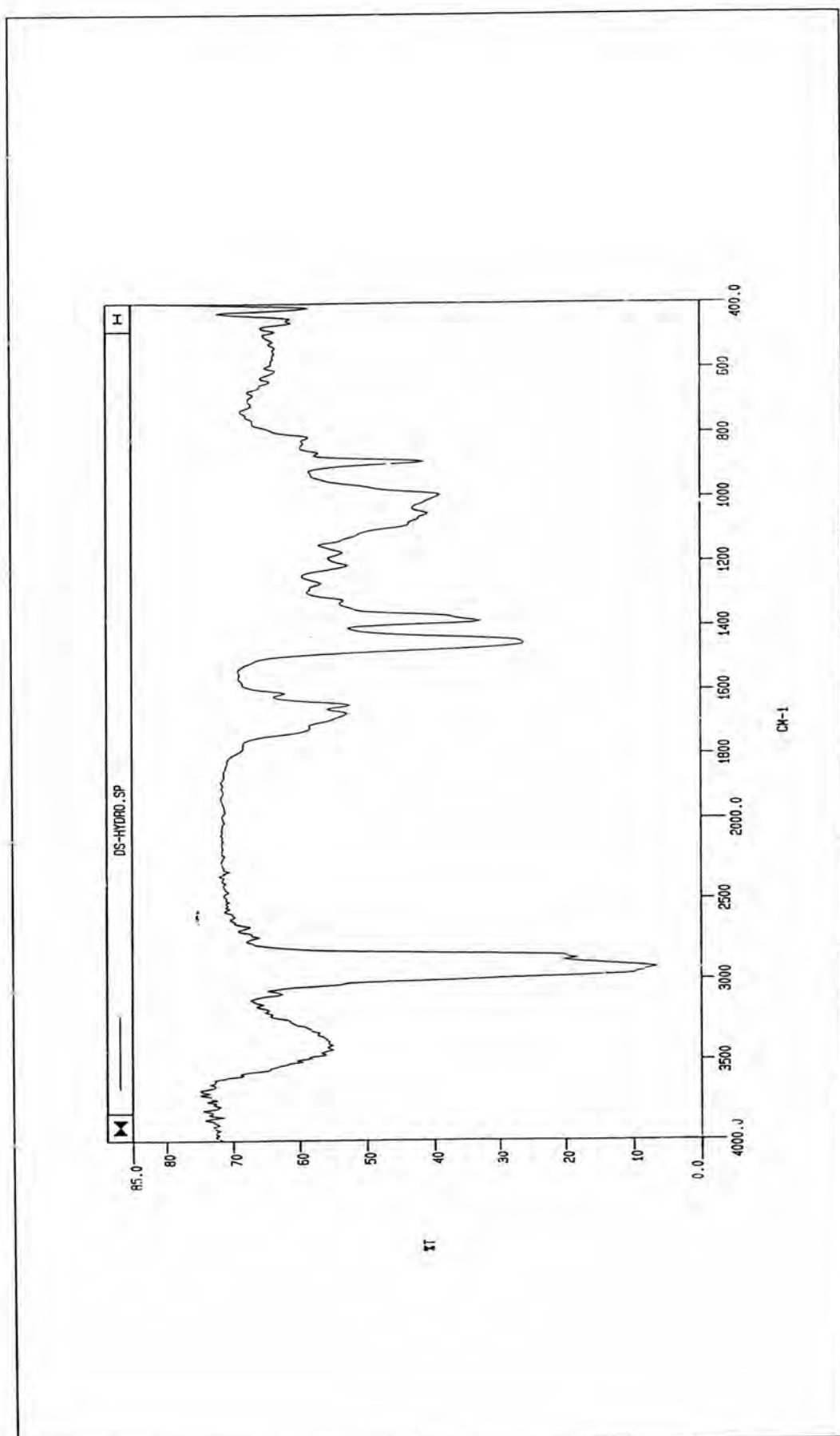


Figure 22 The IR spectrum of compound 1

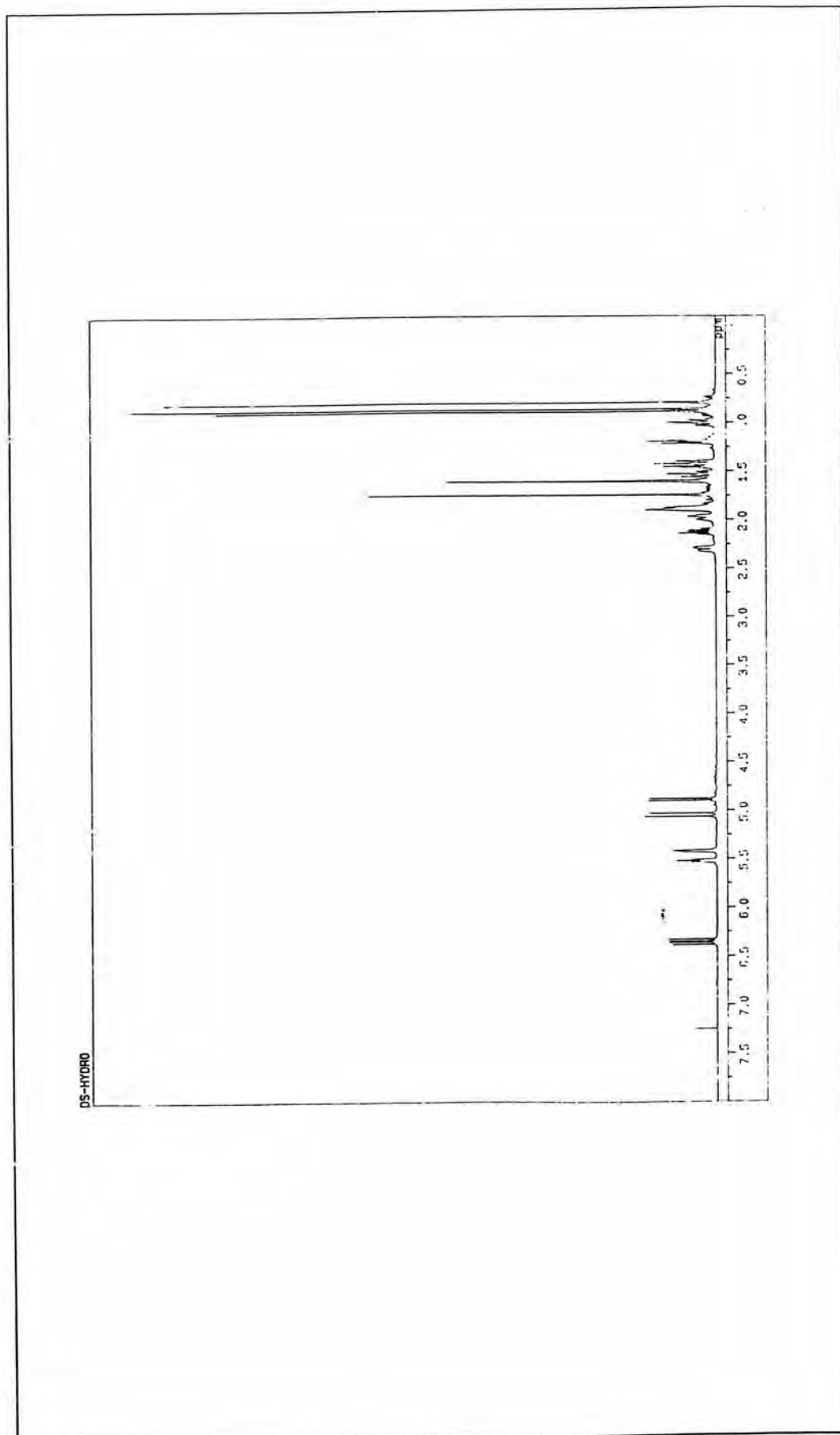


Figure 23 The $^1\text{H-NMR}$ spectrum of compound **1**

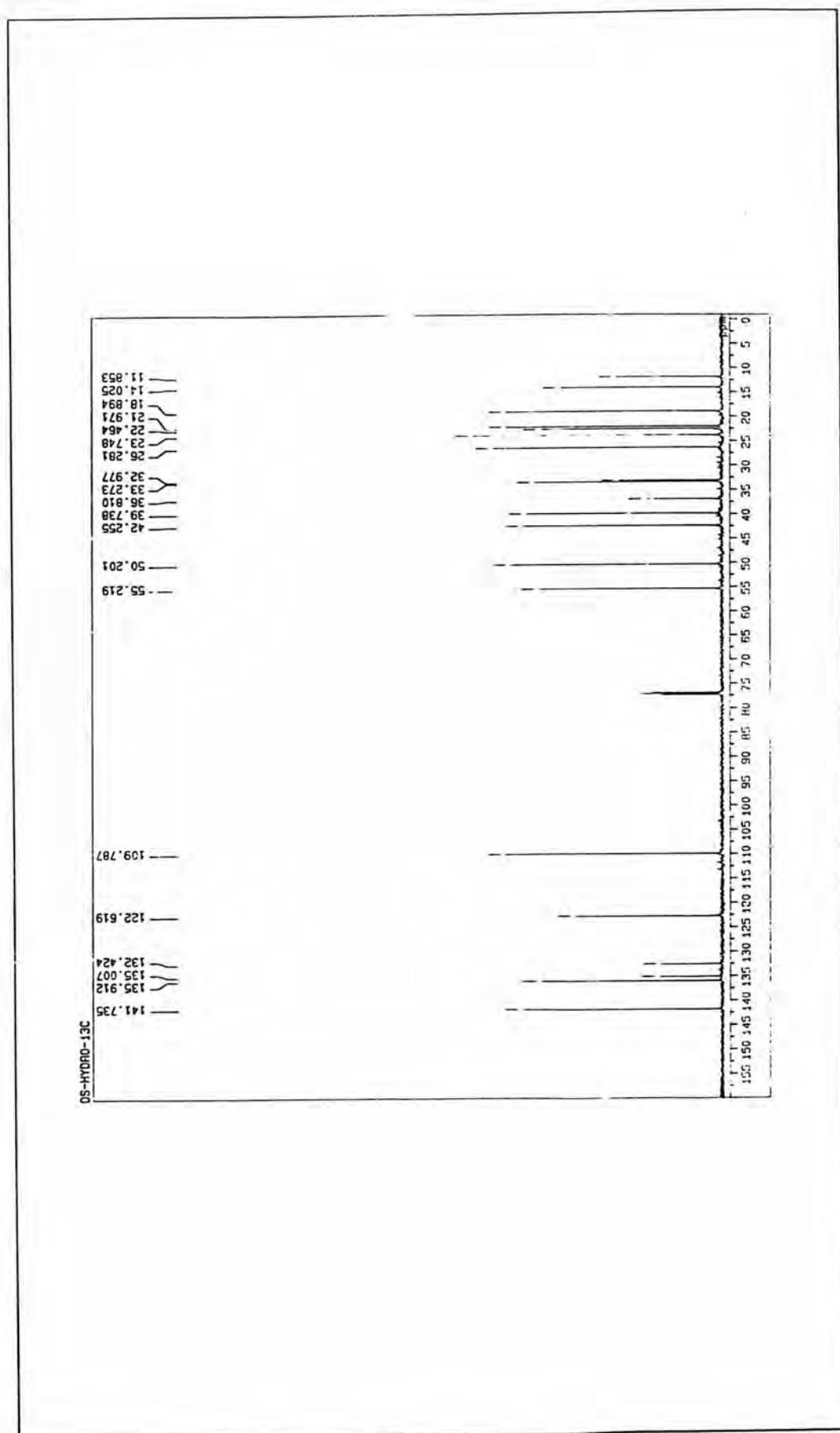


Figure 24 The ^{13}C -NMR spectrum of compound 1

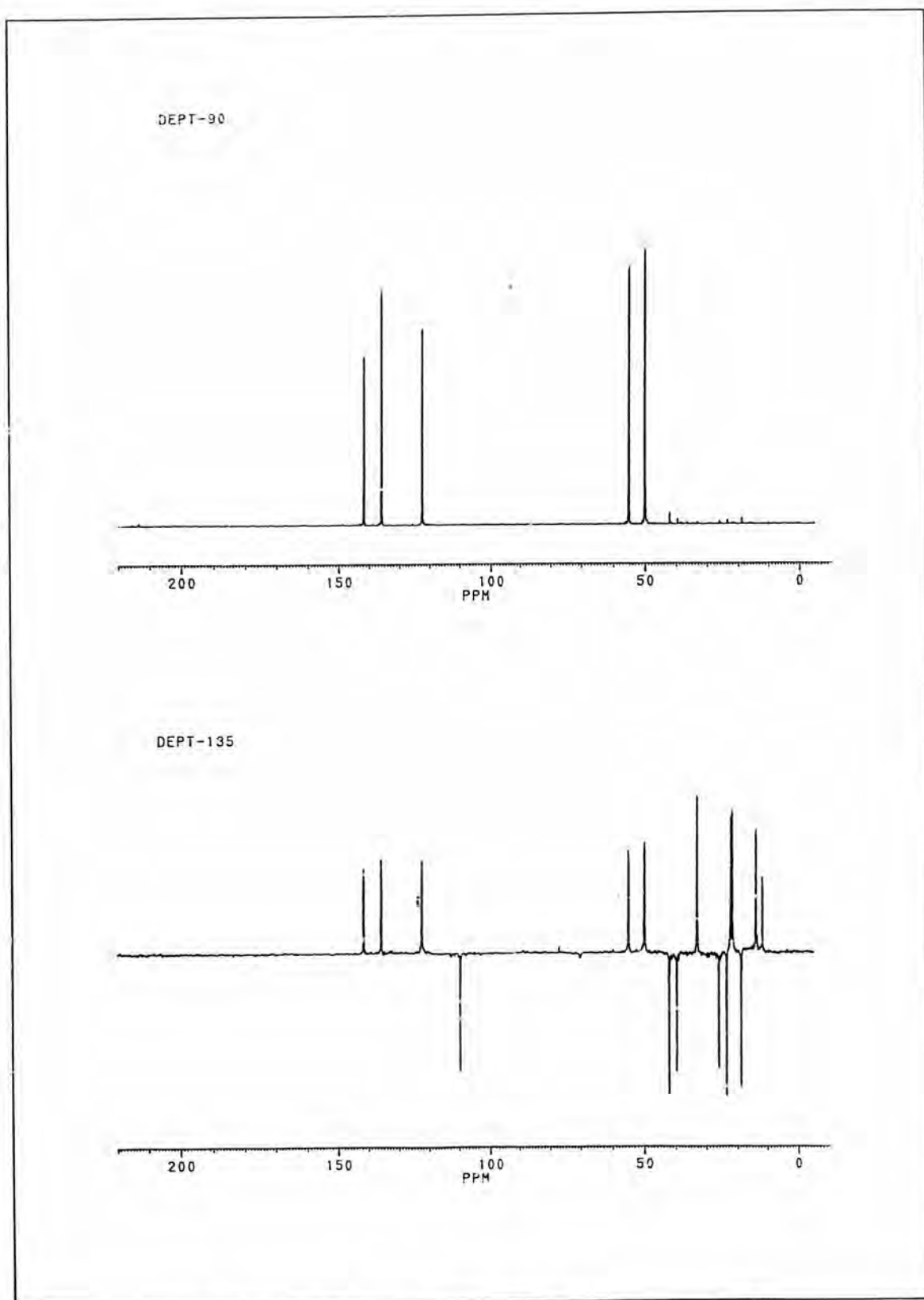


Figure 25 DEPT-135,90 ^{13}C -NMR of compound **1'**

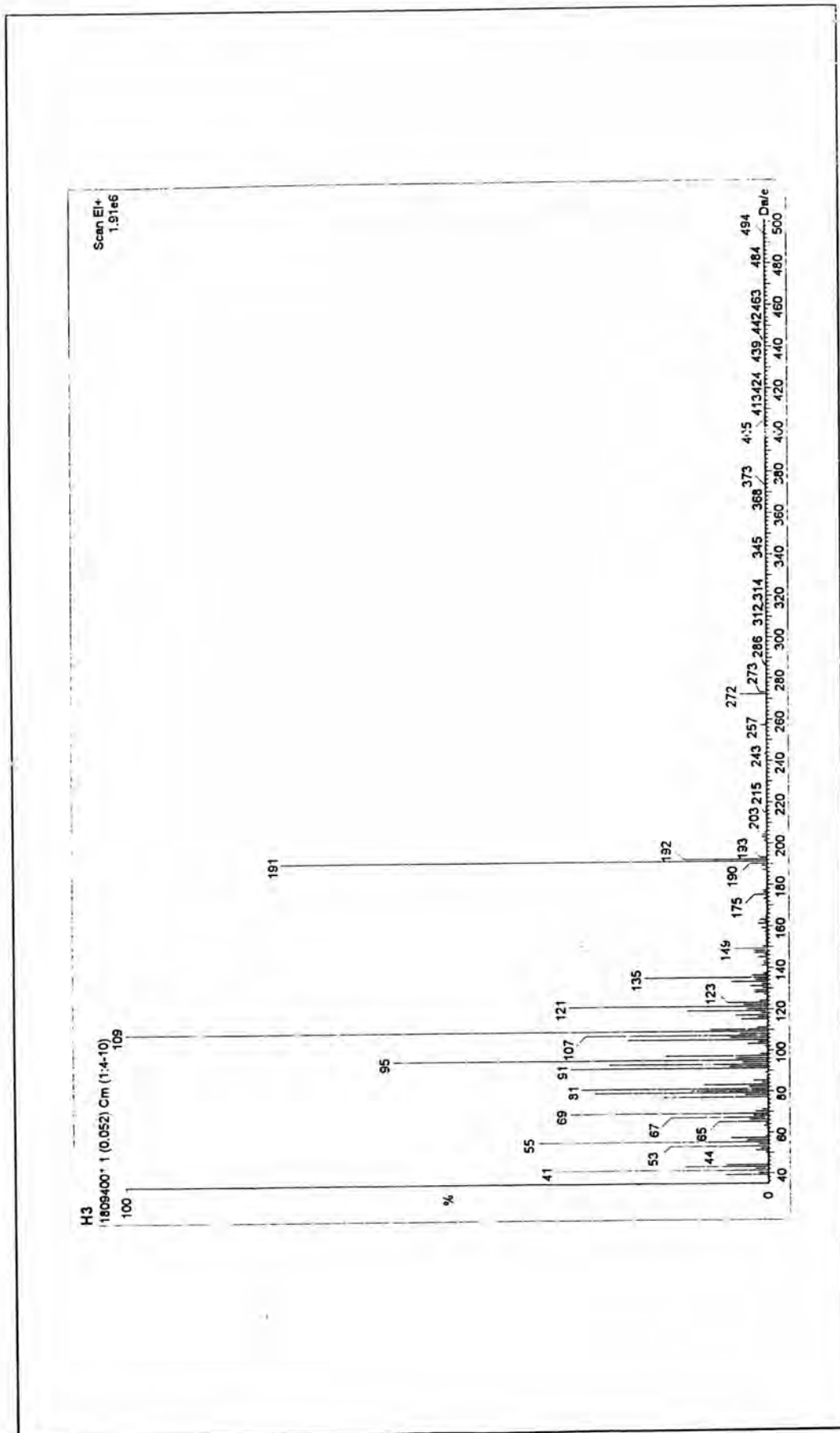


Figure 26 The EI MS spectrum of compound 1

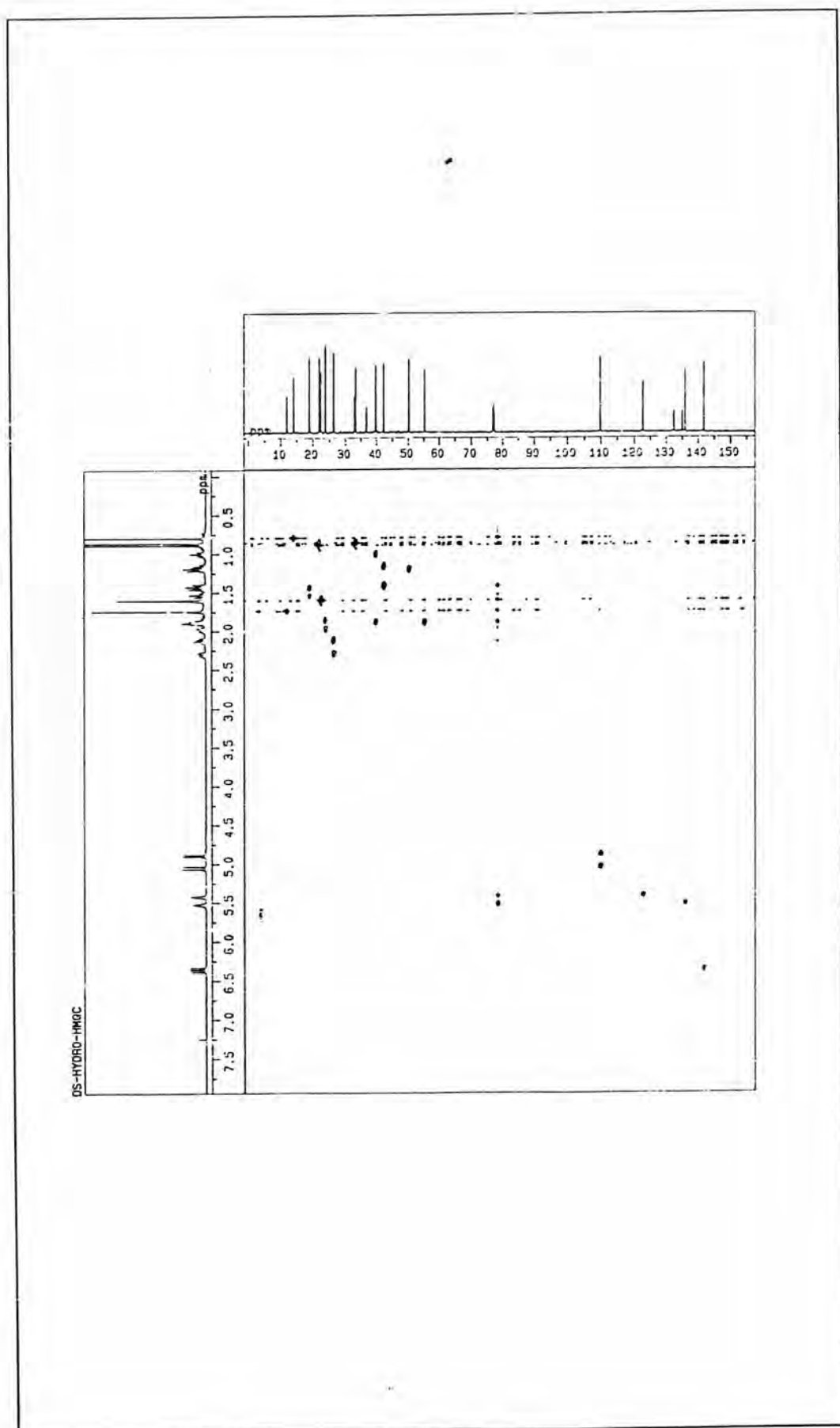


Figure 27 The HMQC-NMR spectrum of compound 1

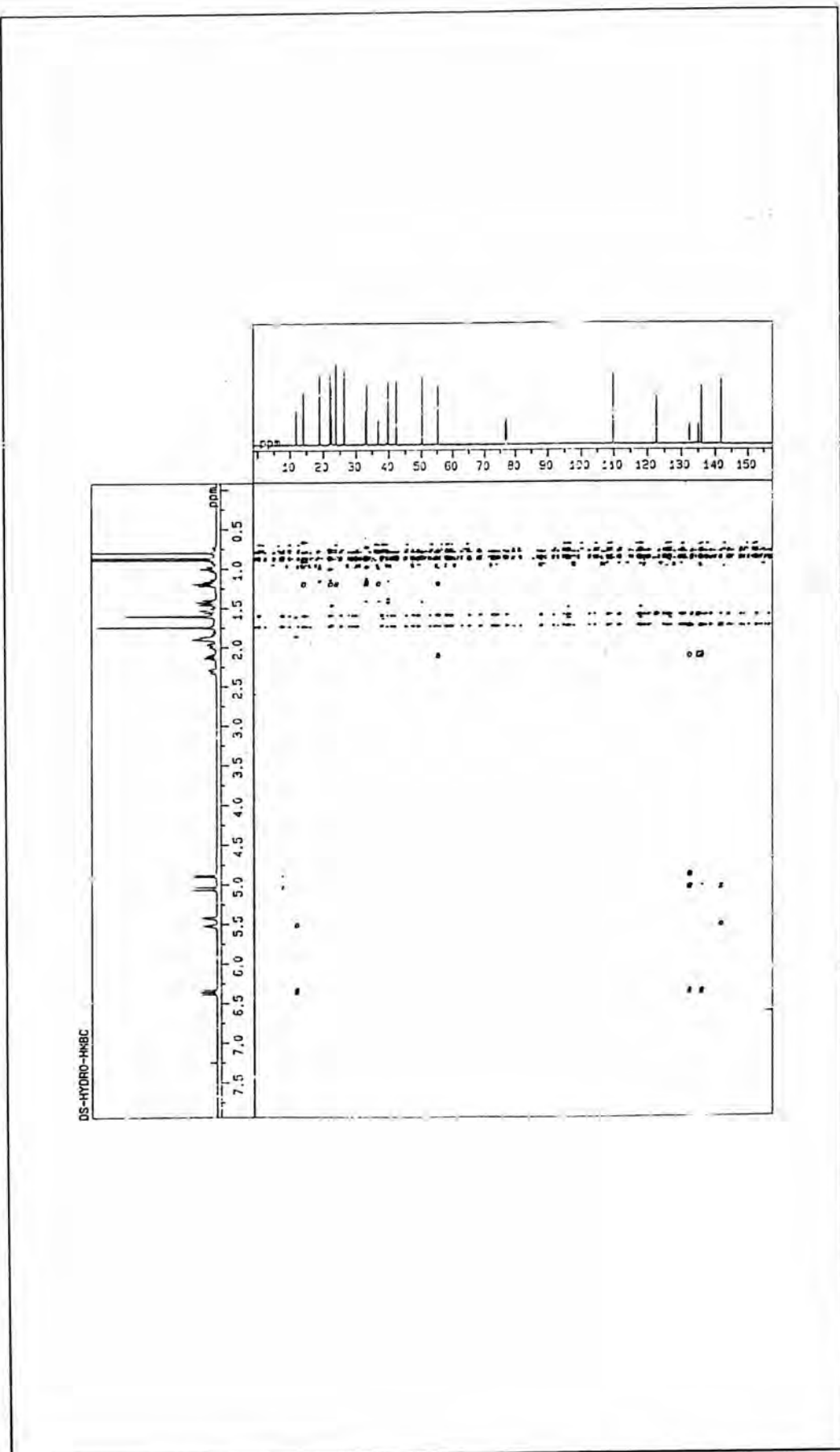


Figure 28 The HMBC-NMR spectrum of compound 1

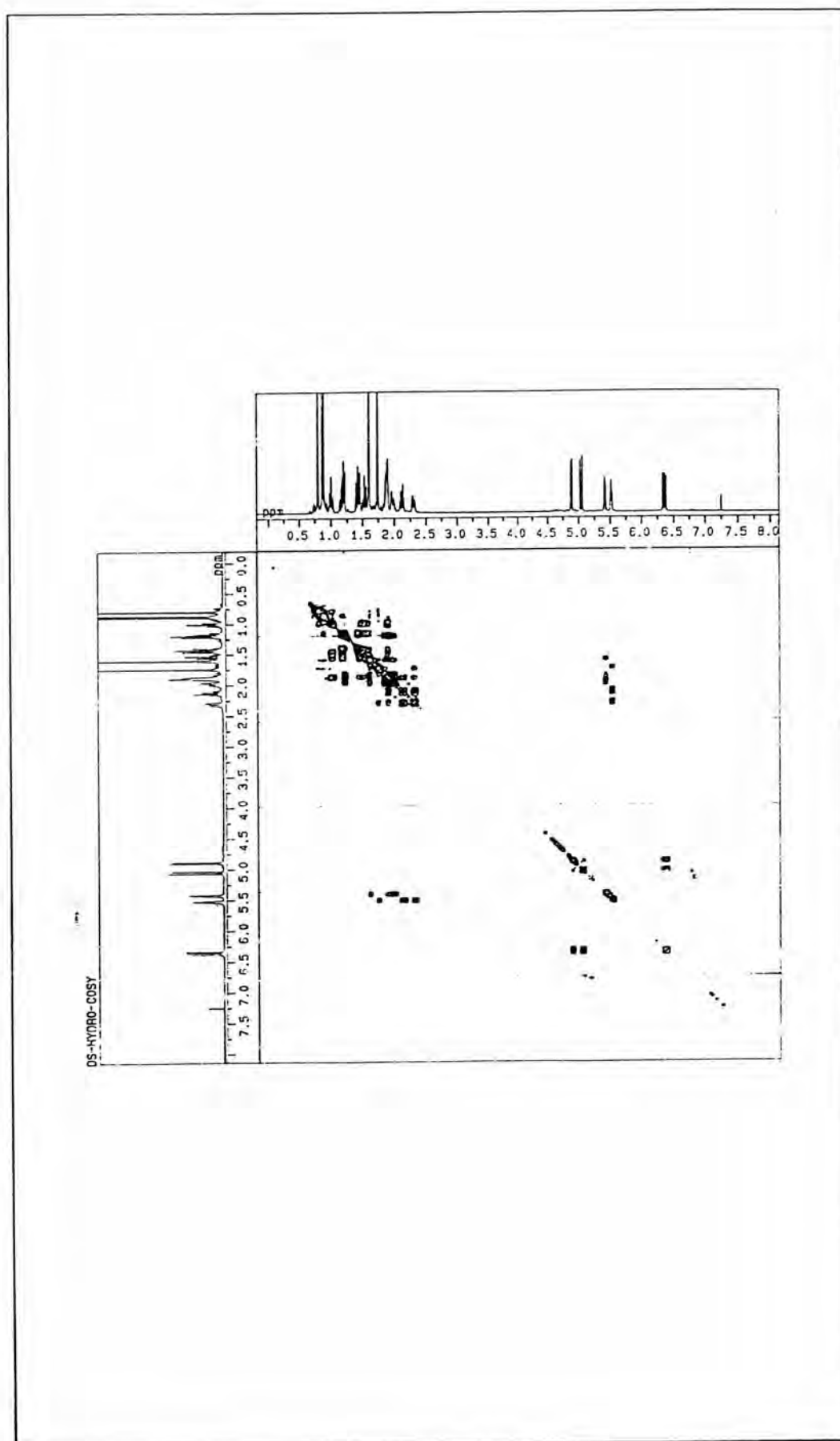


Figure 29 The COSY-NMR spectrum of compound 1

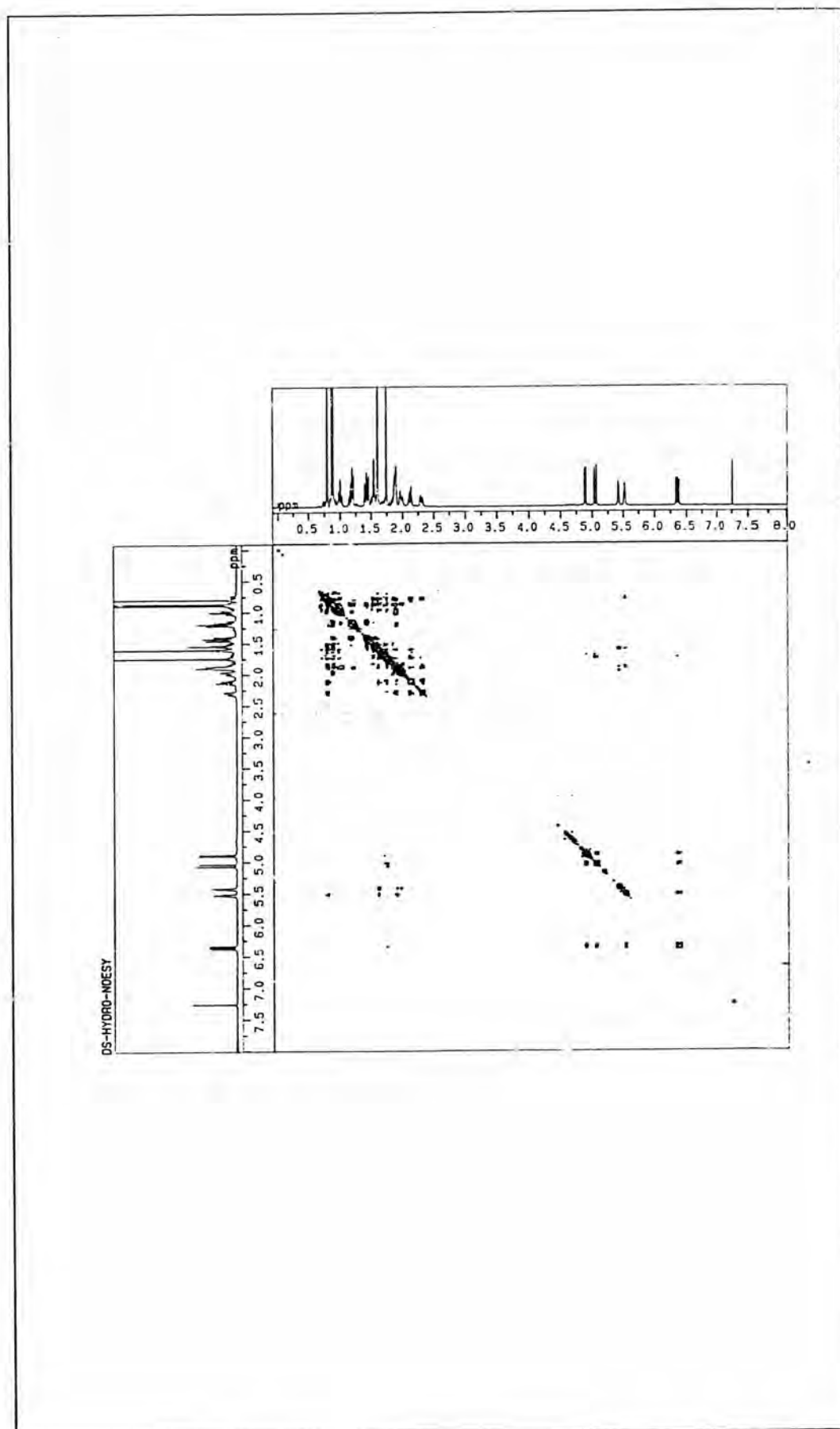


Figure 30. The NOESY-NMR spectrum of compound **1**.

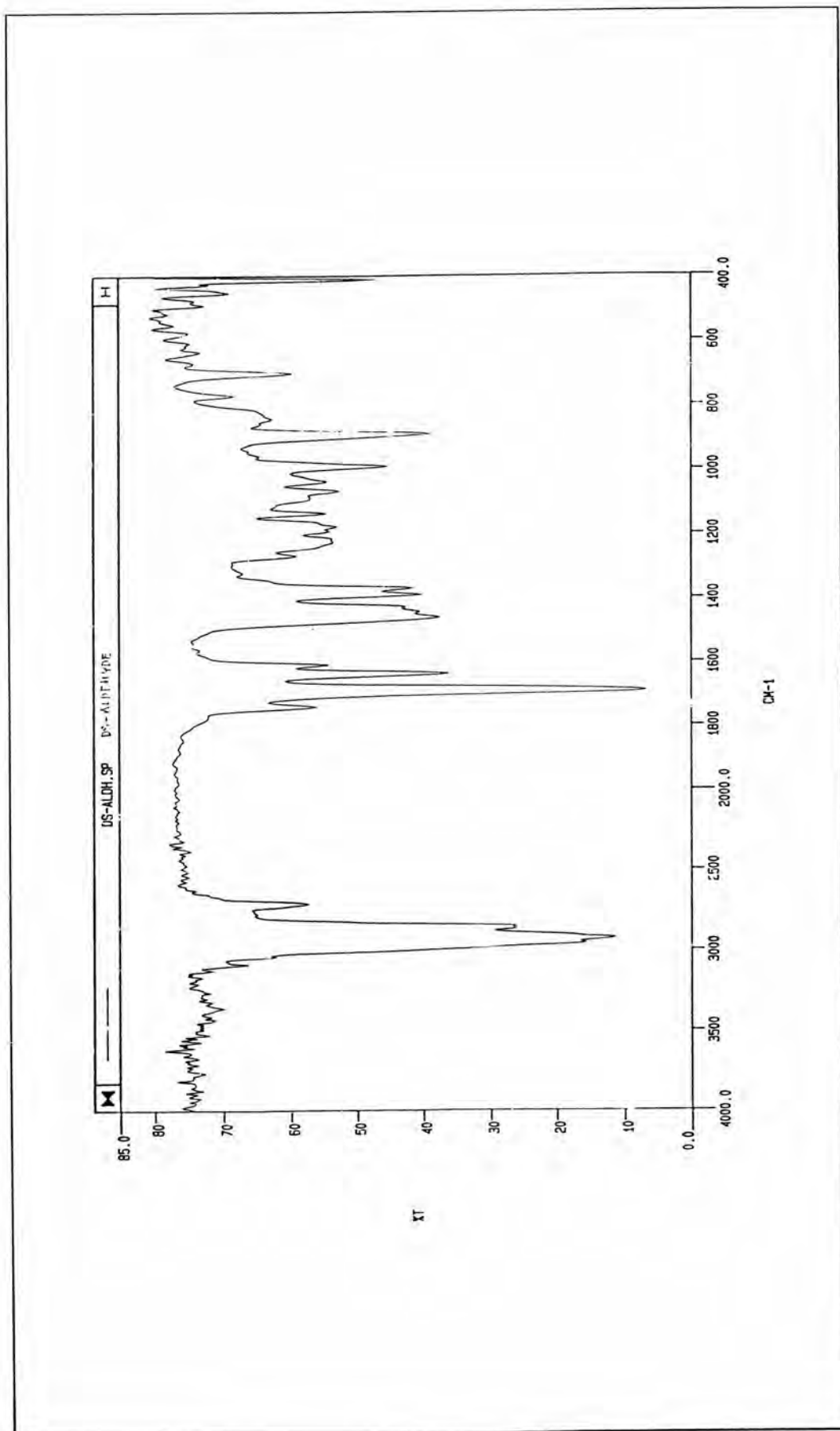


Figure 31 The IR spectrum of compound 2

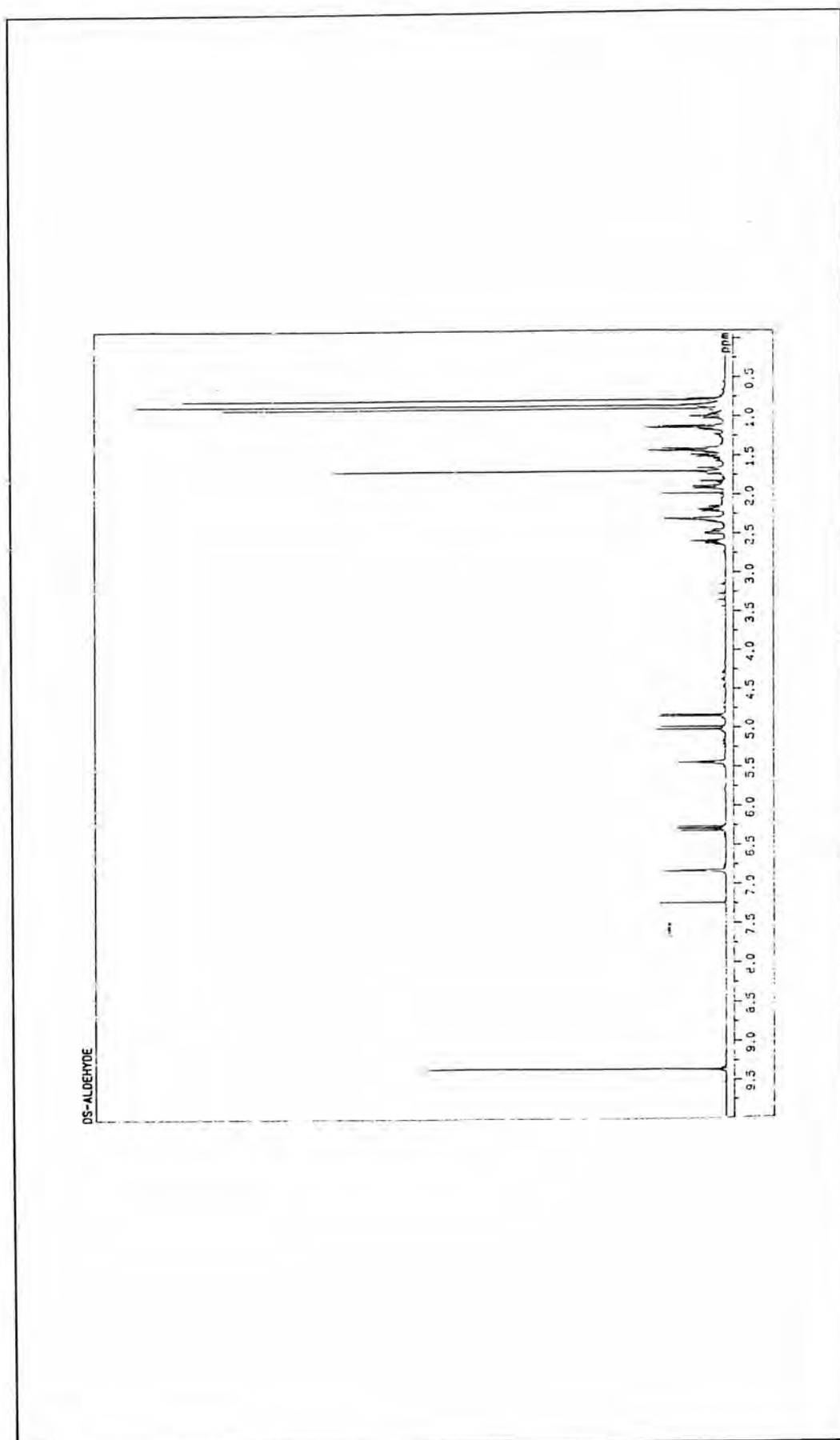


Figure 32 The $^1\text{H-NMR}$ spectrum of compound **2**

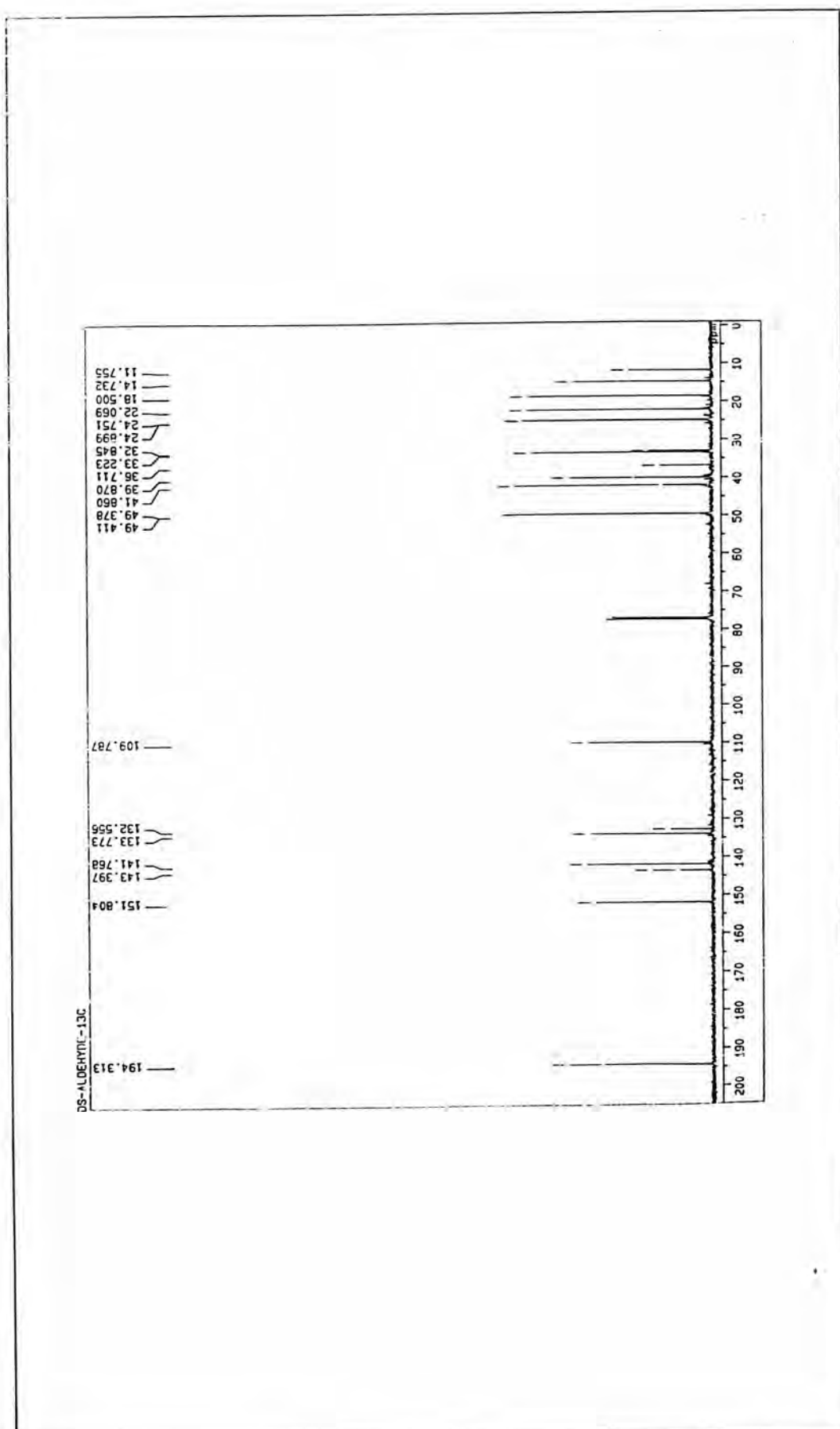


Figure 33 The ^{13}C -NMR spectrum of compound 2

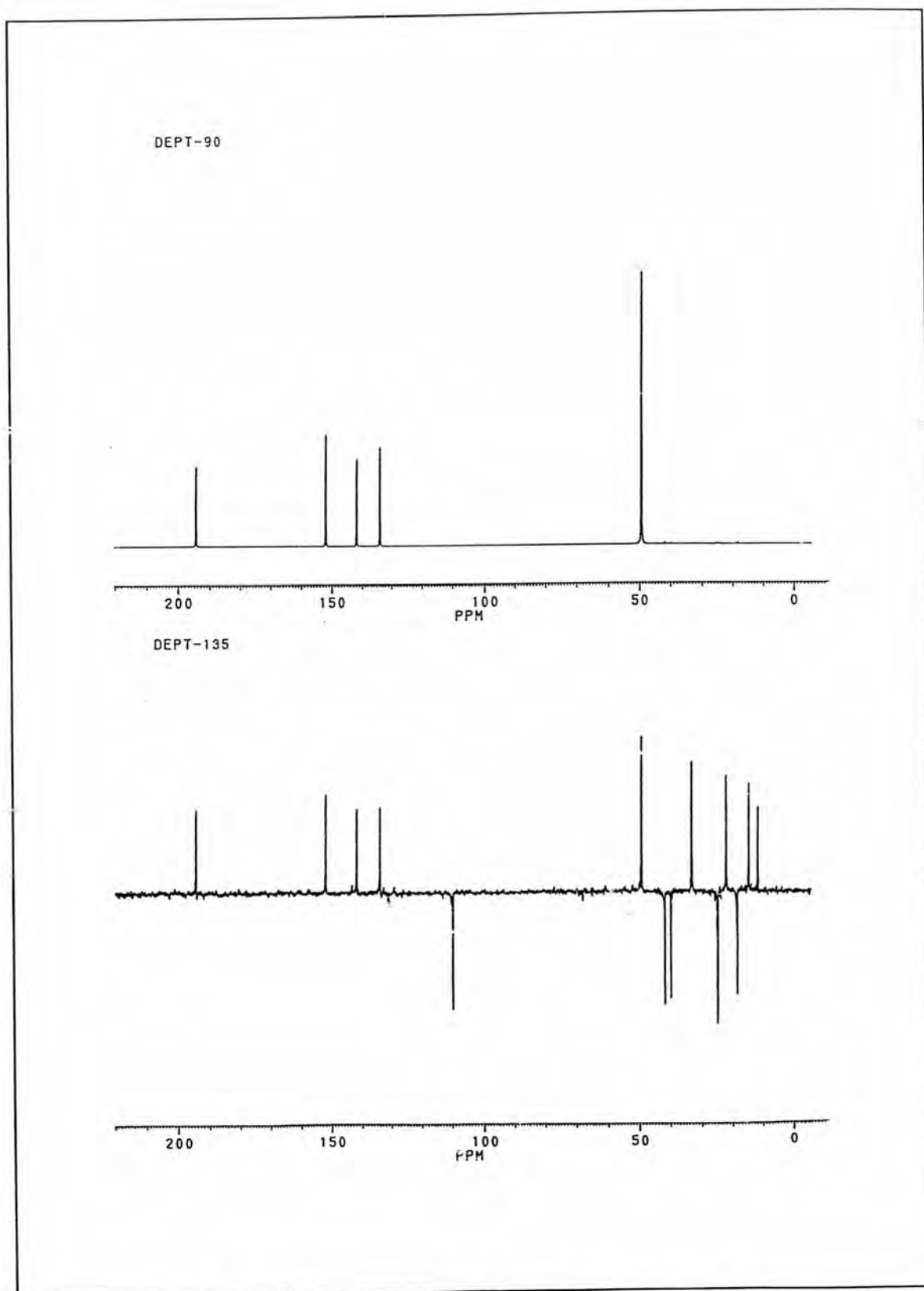


Figure 34 DEPT-135,90 ^{13}C -NMR of compound 2

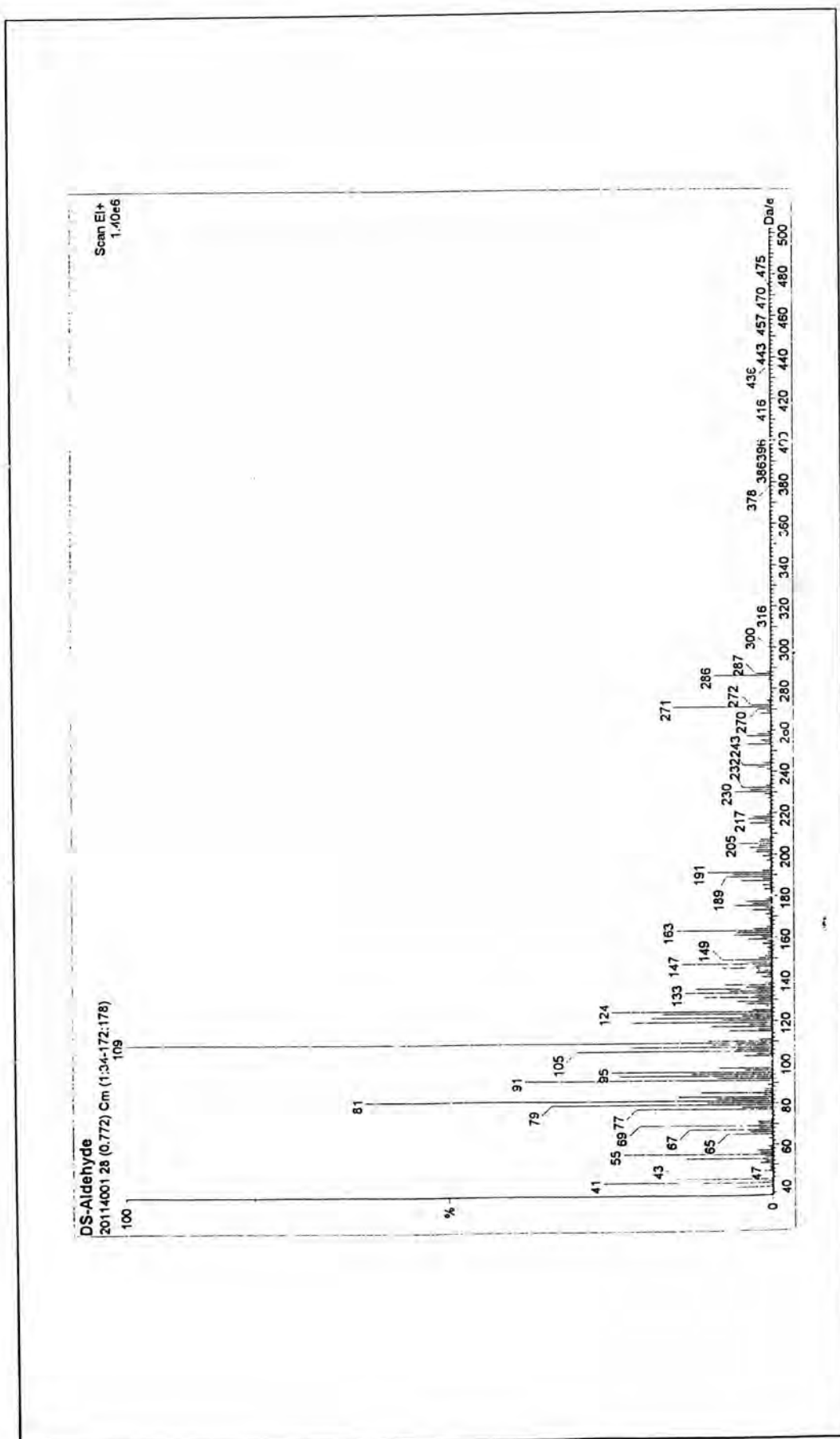


Figure 35 The EI MS spectrum of compound 2

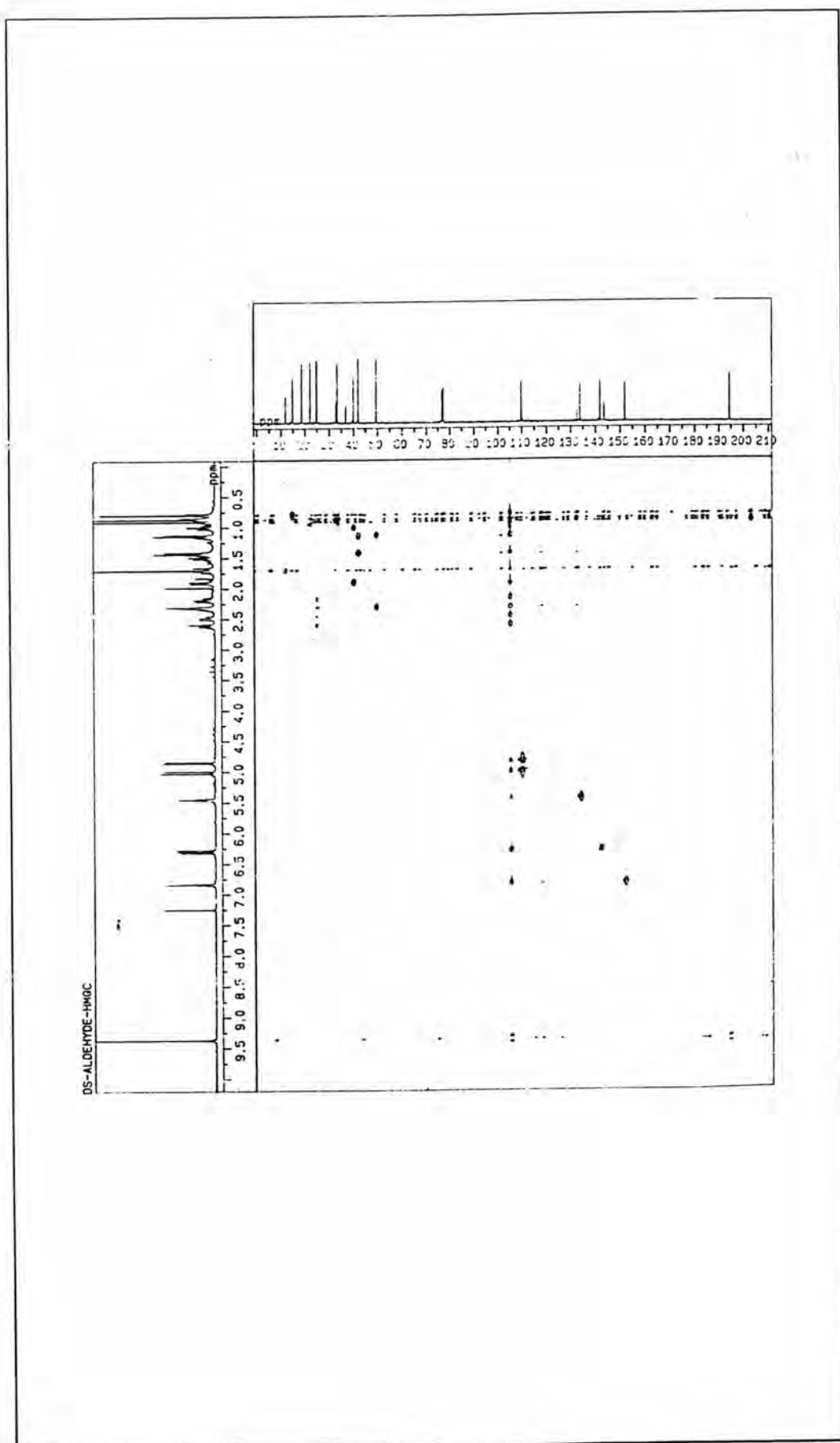


Figure 36 The HMOC-NMR spectrum of compound 2.

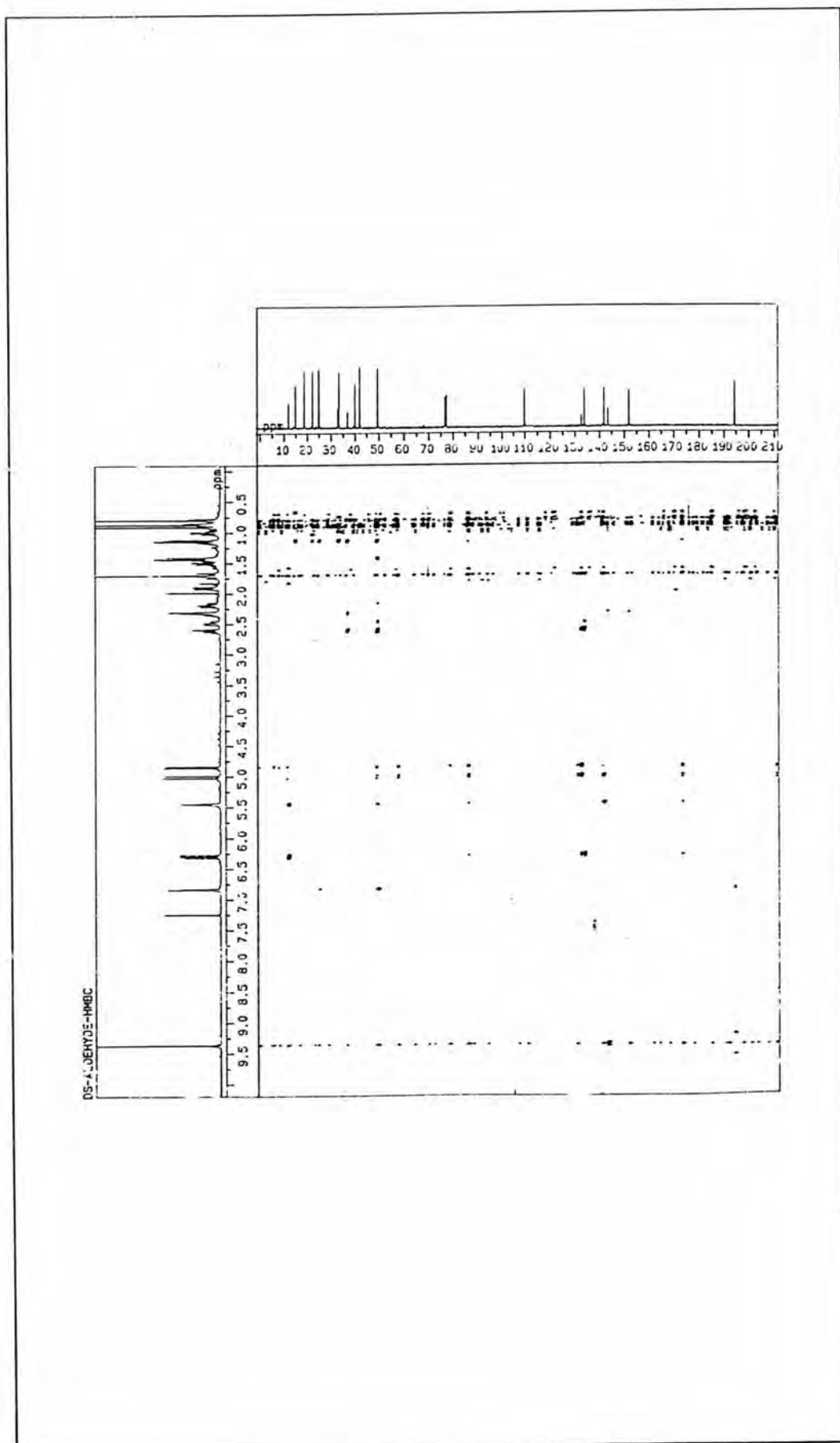


Figure 37 The HMBC-NMR spectrum of compound 2.

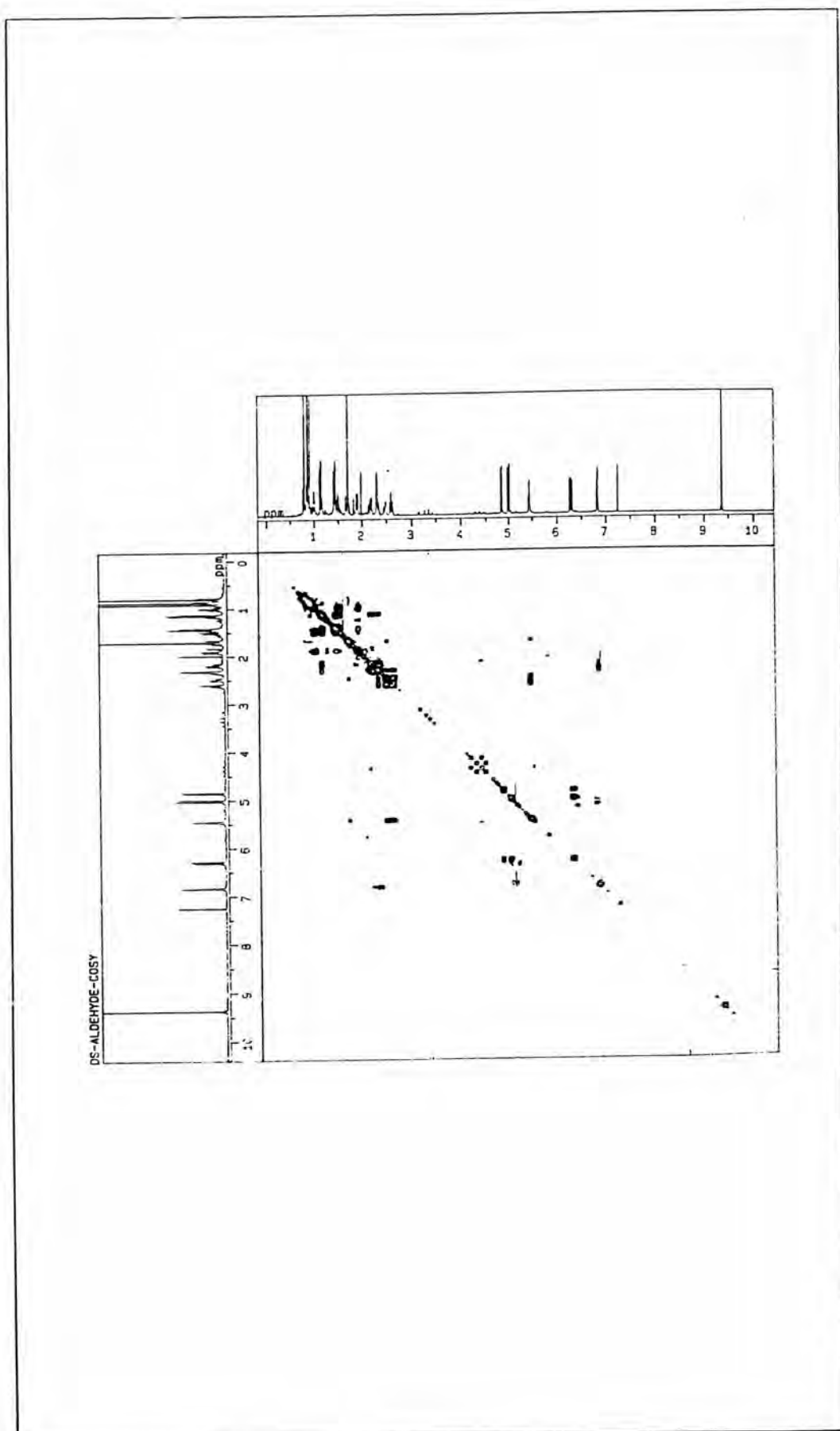


Figure 38 The COSY-NMR spectrum of compound 2

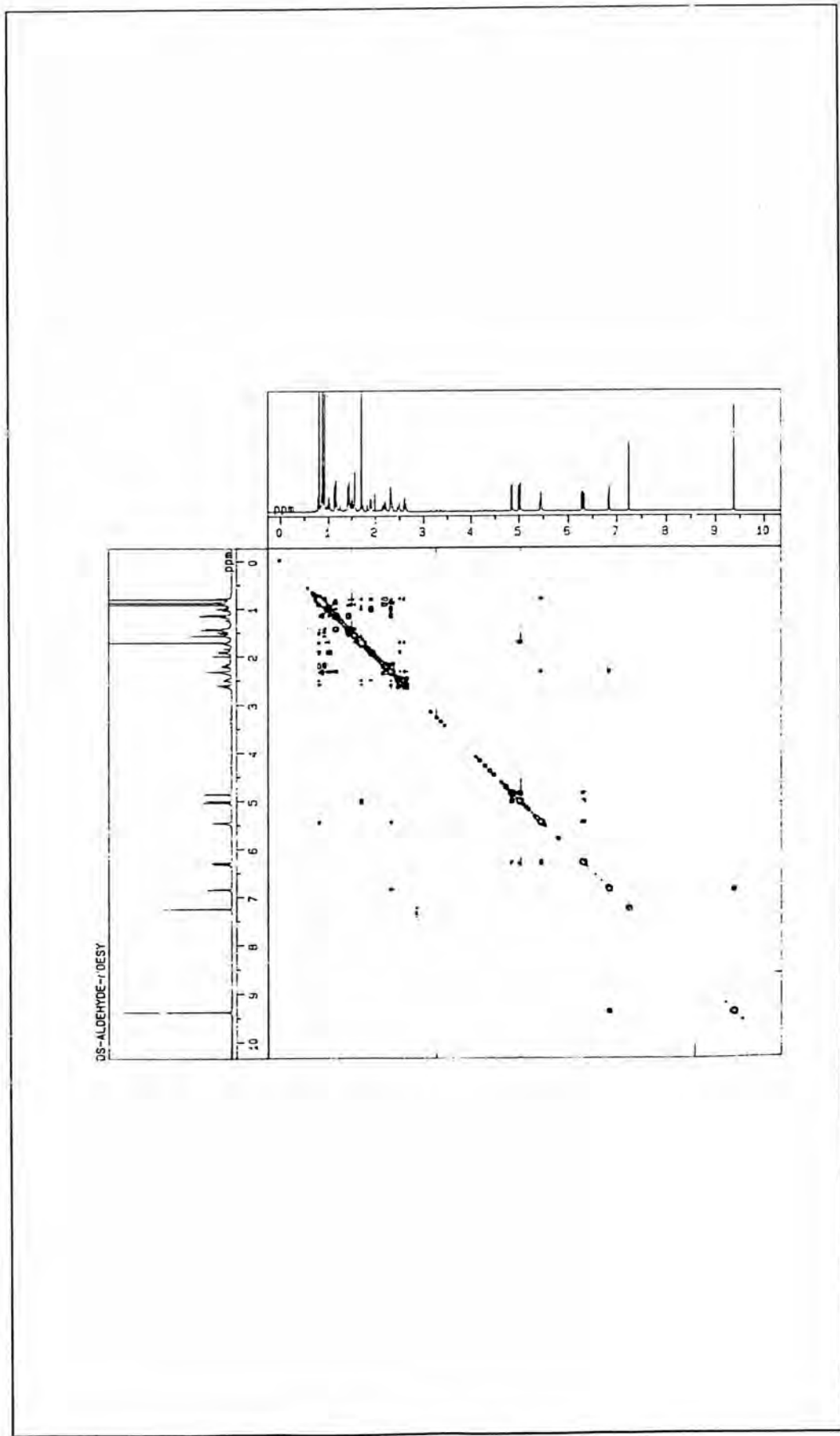


Figure 39 The NOESY-NMR spectrum of compound **2**

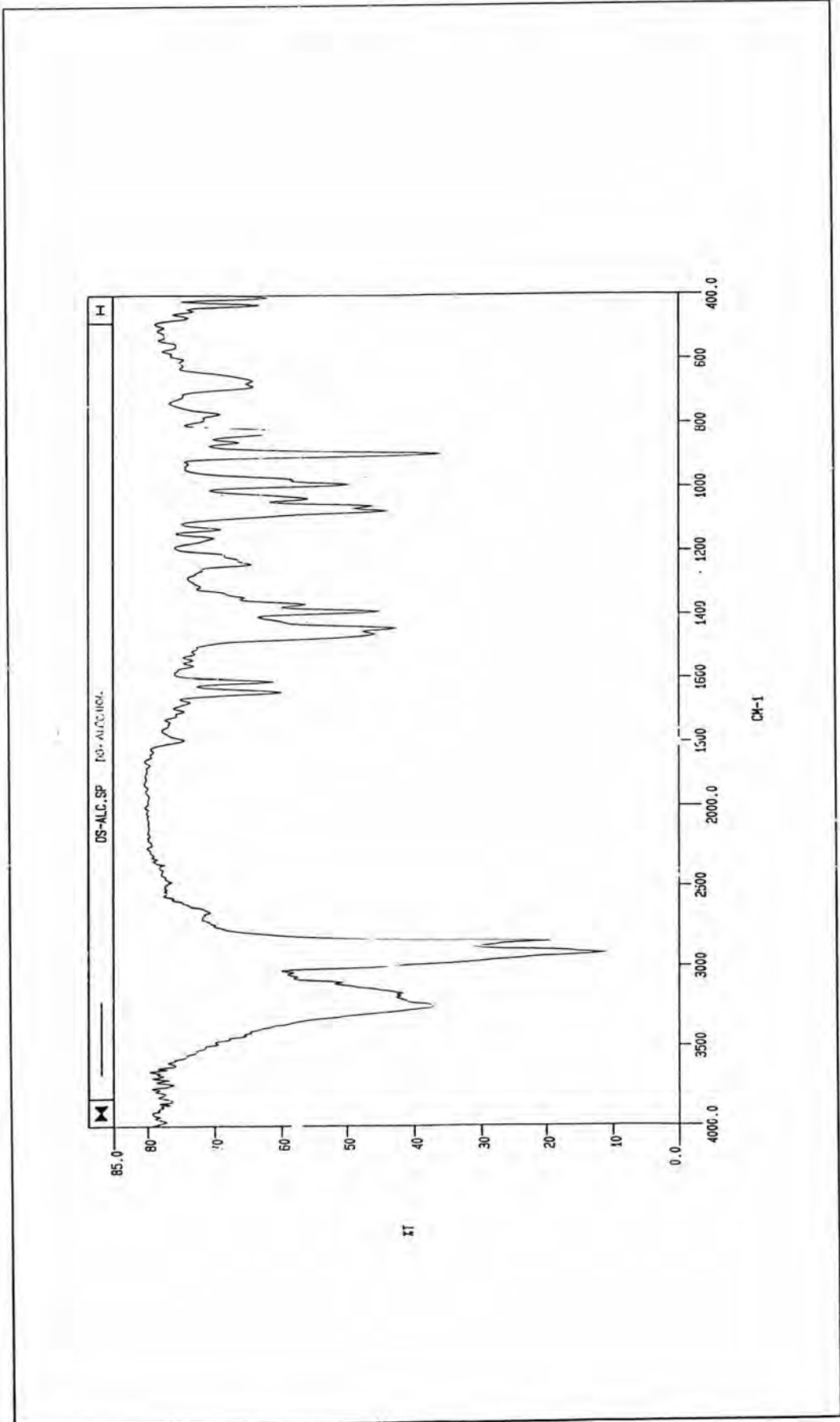


Figure 40 The IR spectrum of compound 3.

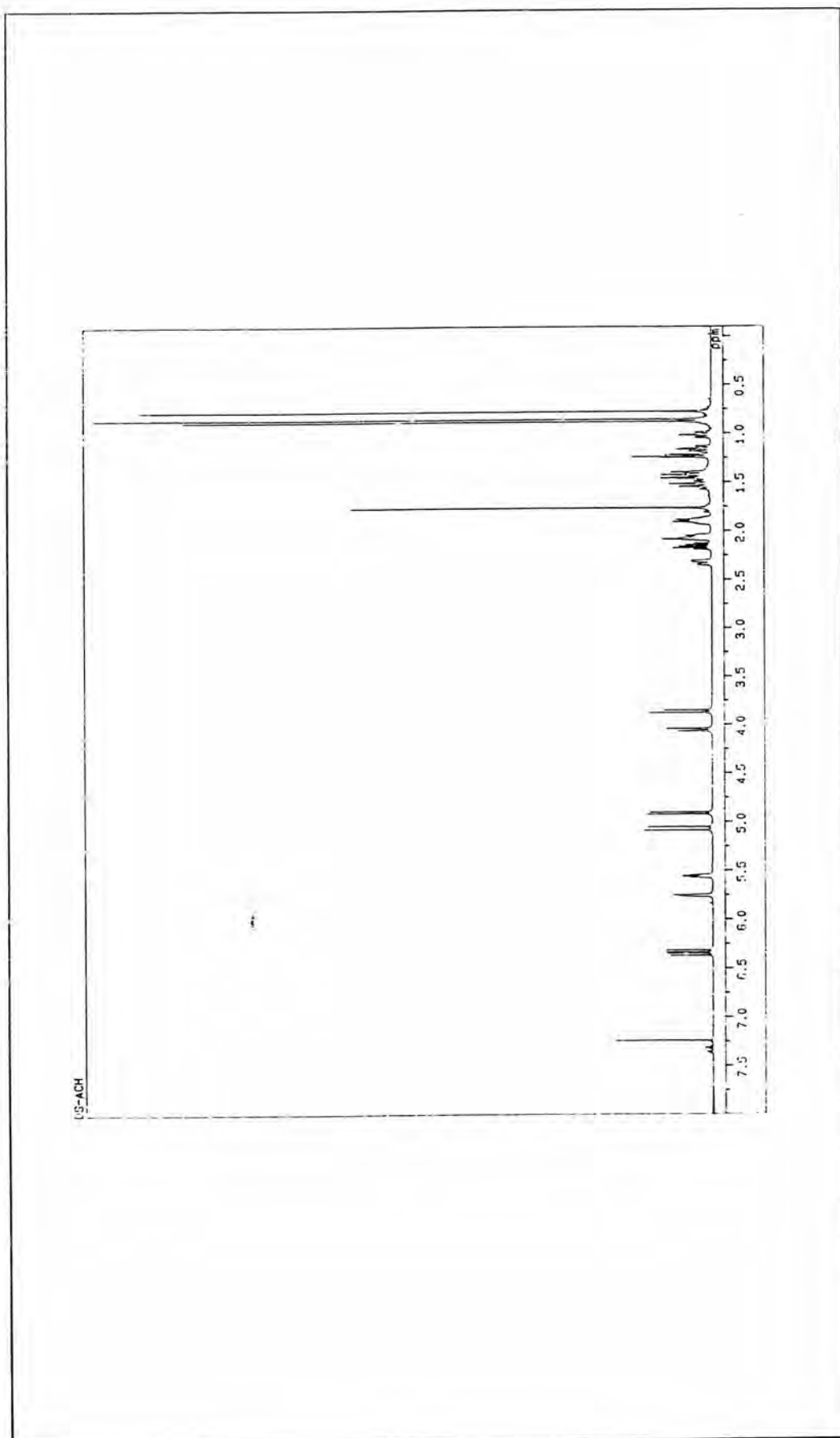


Figure 41 The $^1\text{H-NMR}$ spectrum of compound **3**

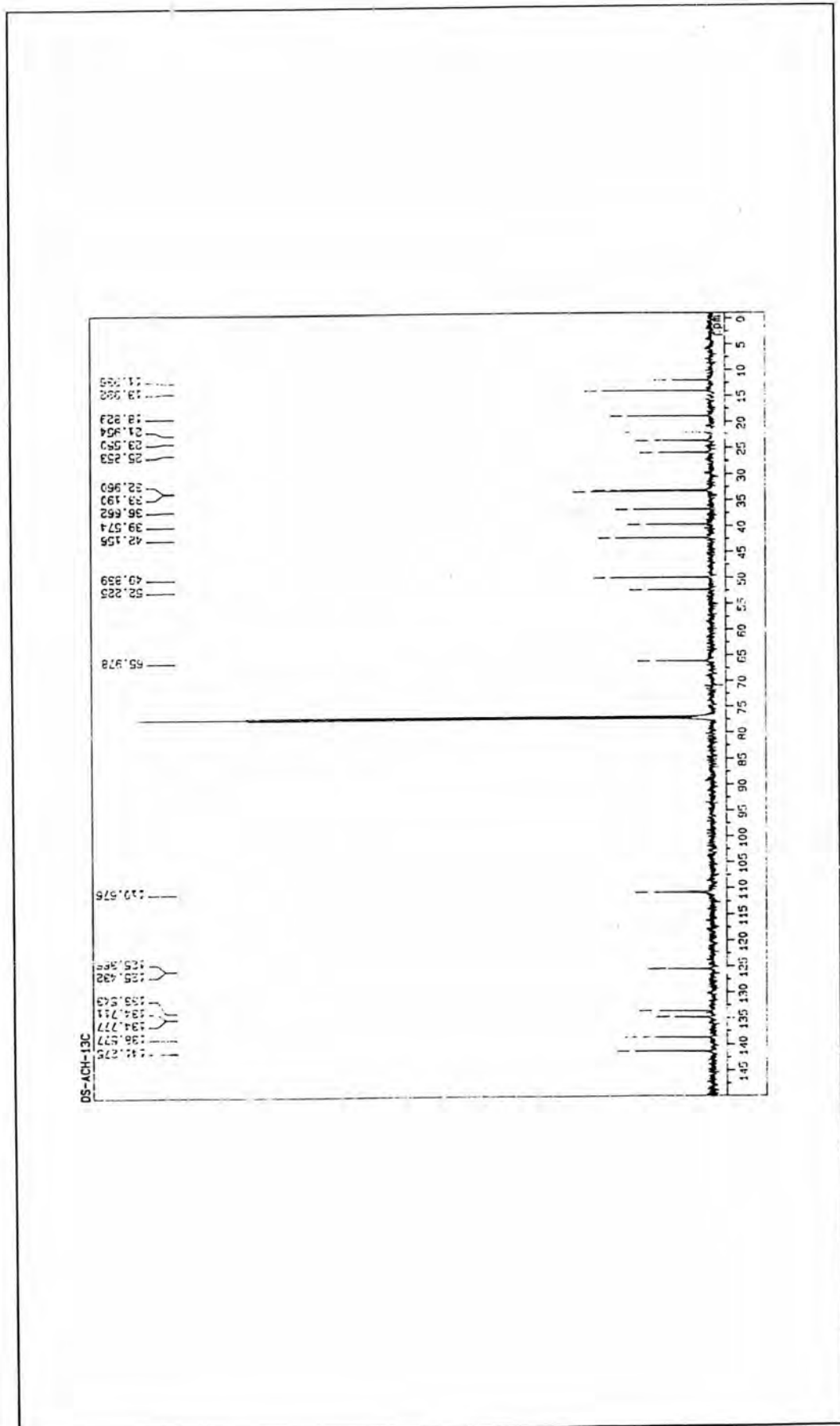


Figure 42 The ^{13}C -NMR spectrum of compound 3.

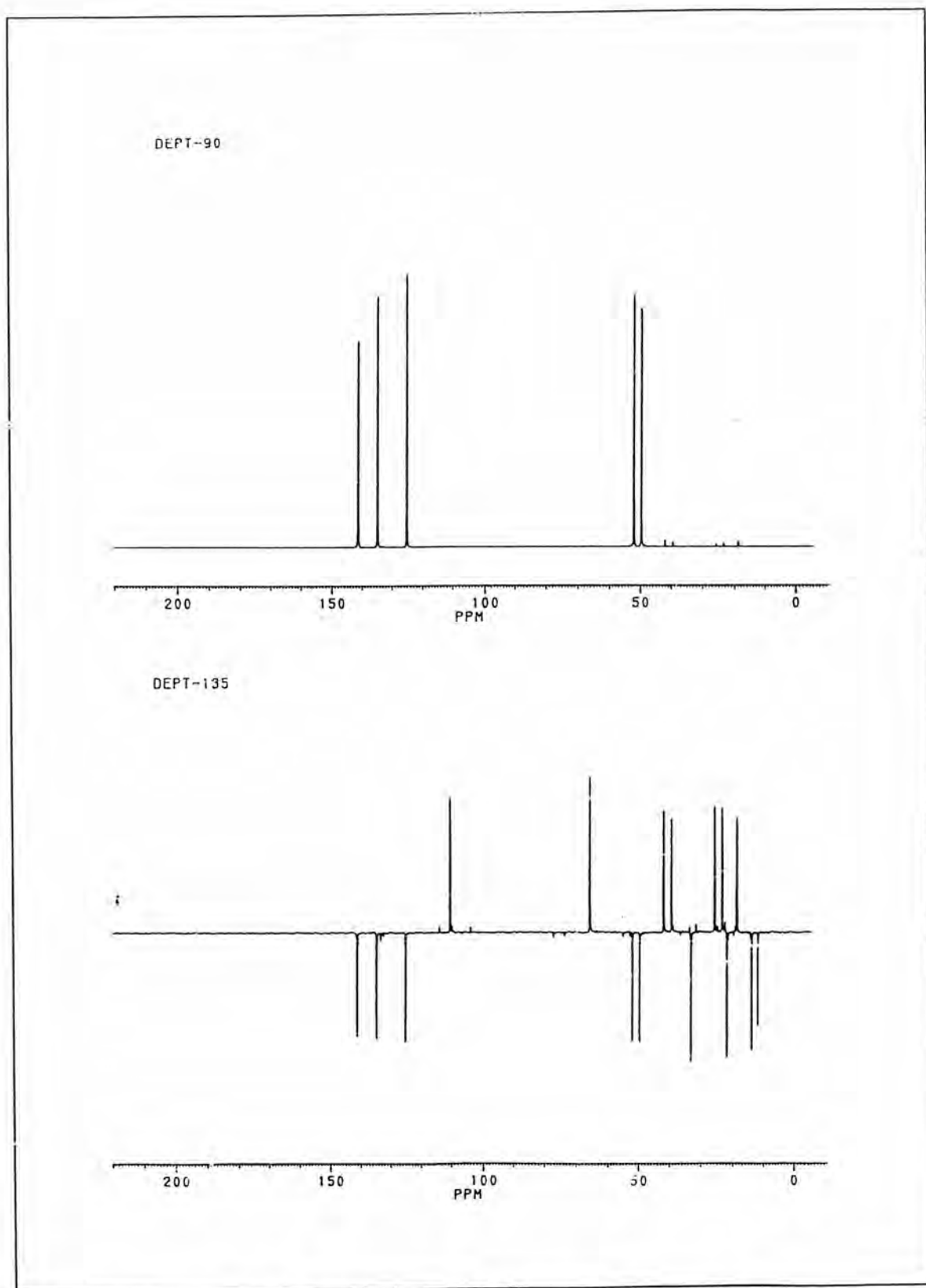


Figure 43 DEPT-135,90 ^{13}C -NMR of compound 3

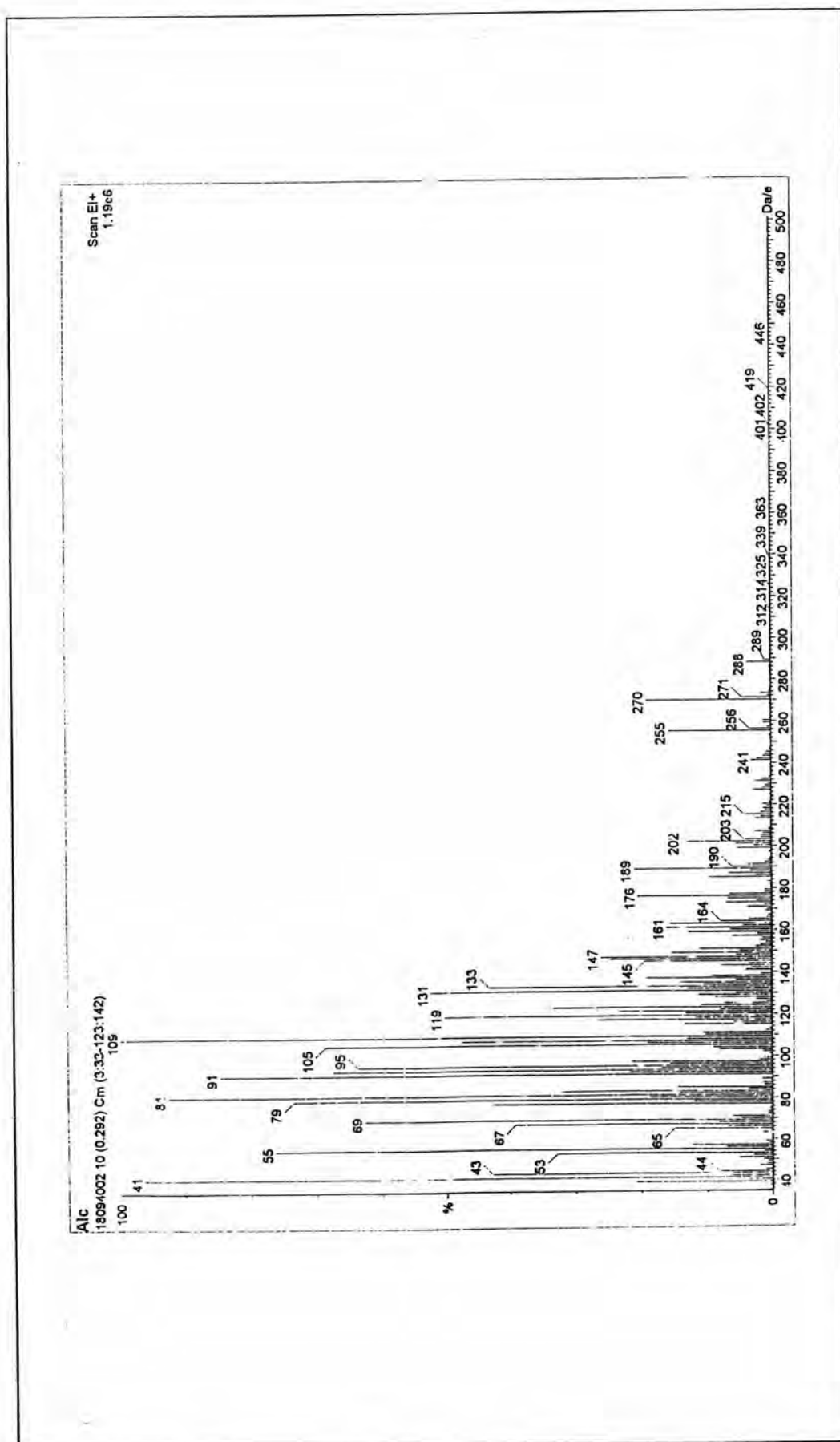


Figure 44 The EI MS spectrum of compound 3

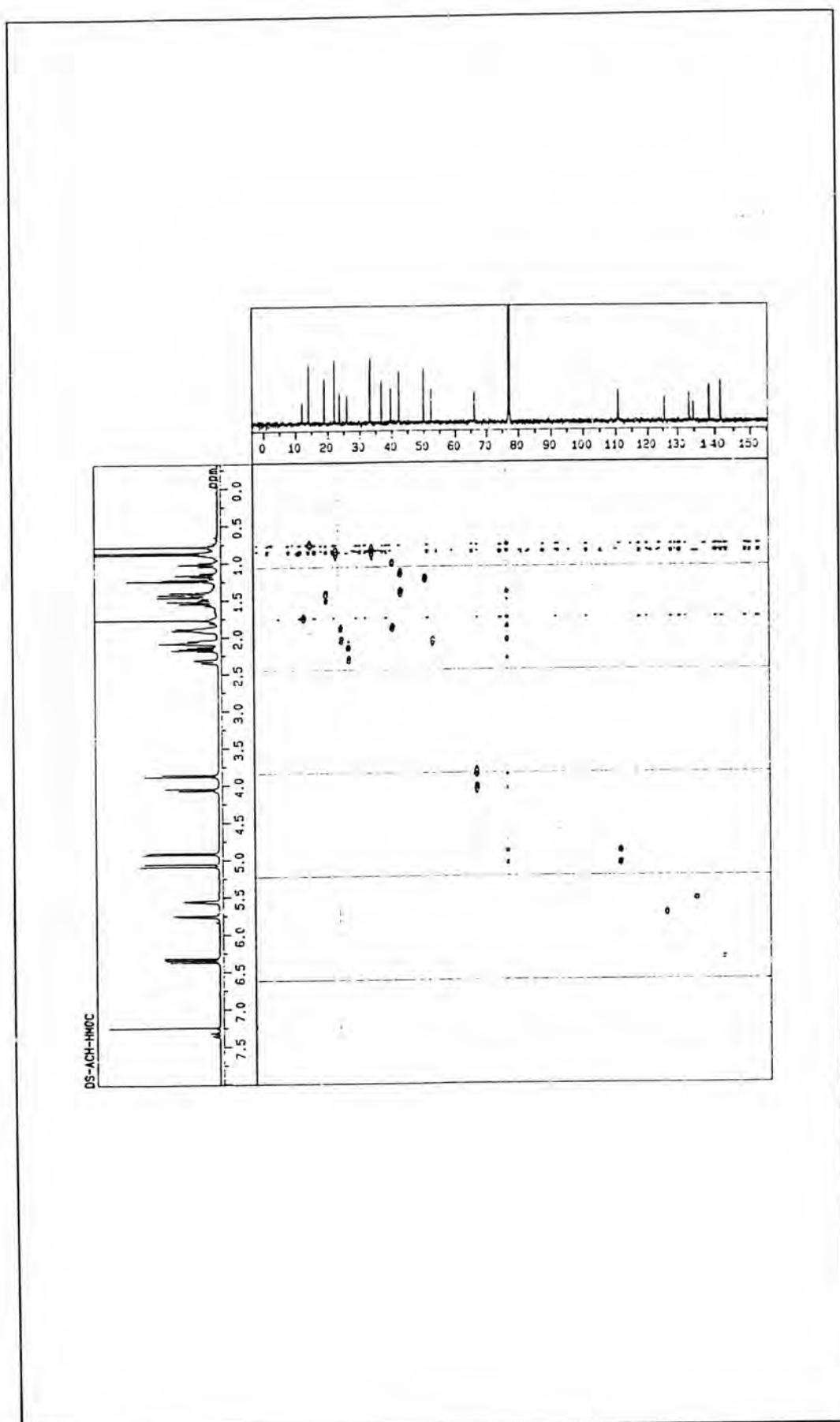


Figure 45 The HMQC-NMR spectrum of compound 3.

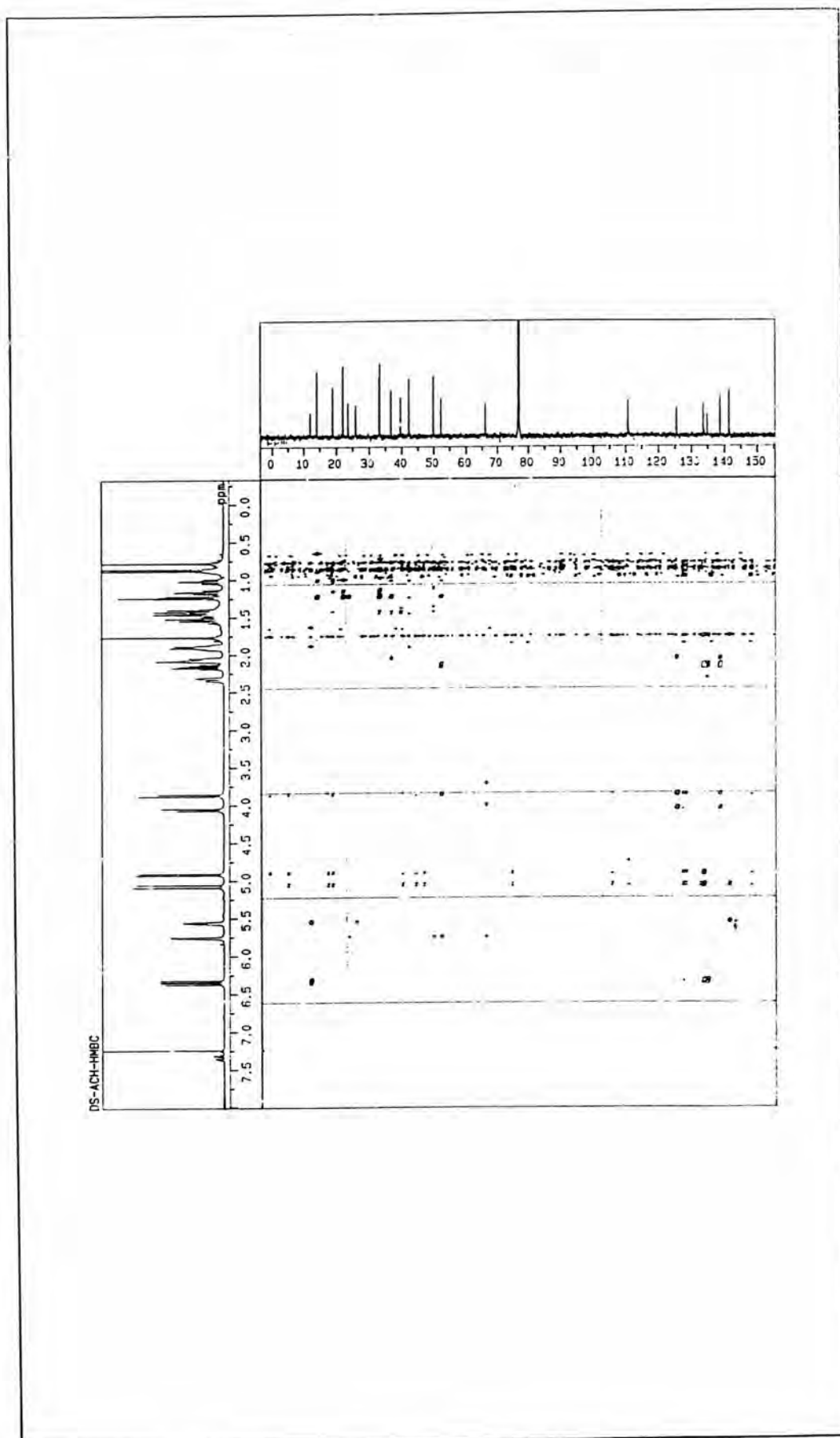


Figure 46 The HMBC-NMR spectrum of compound **3**.

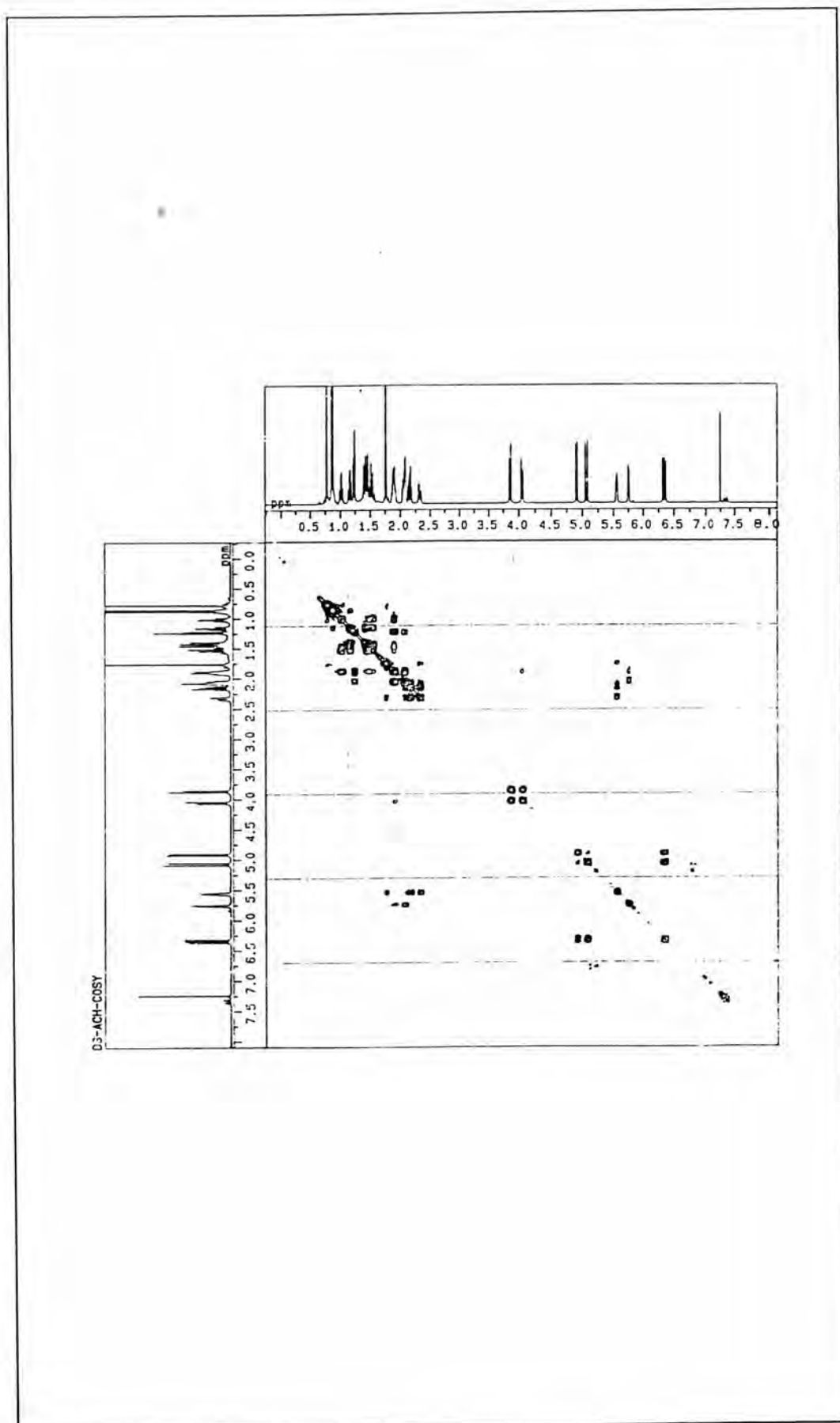


Figure 47 The COSY-NMR spectrum of compound 3.

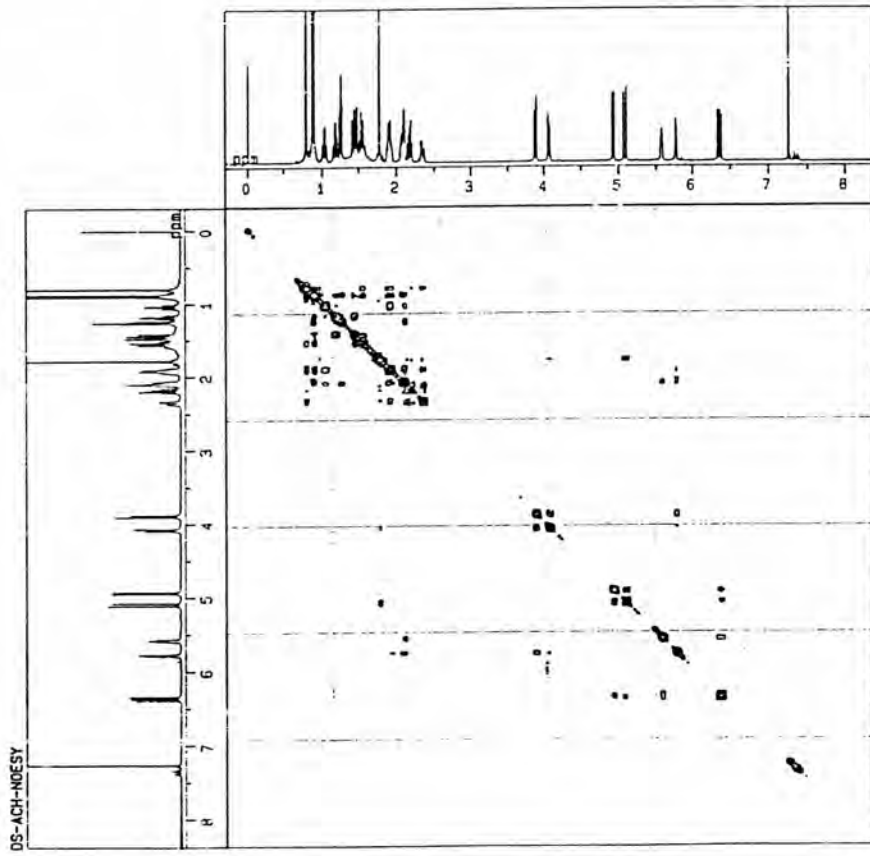


Figure 48 The NOESY-NMR spectrum of compound 3

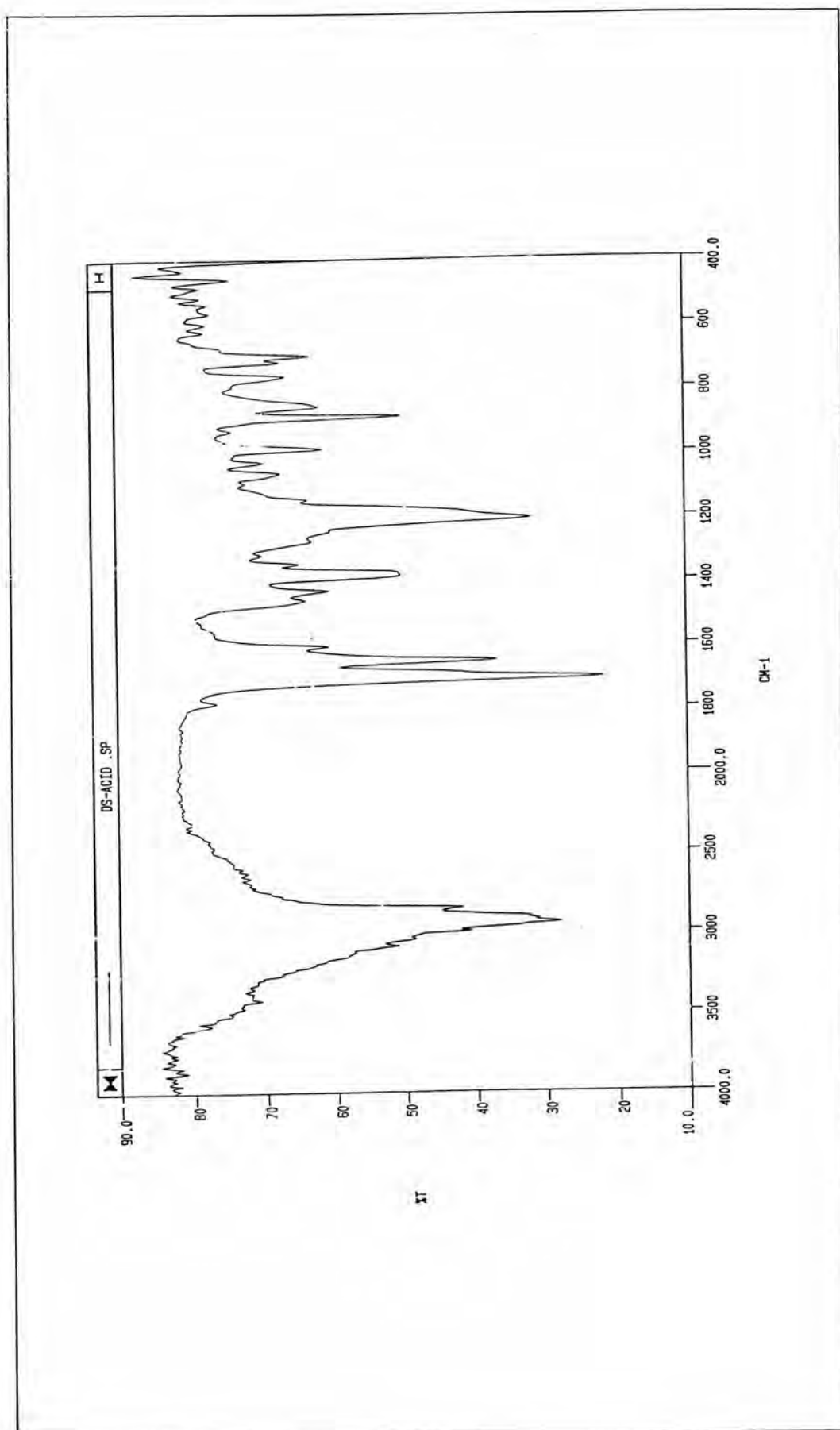


Figure 49 The IR spectrum of compound 4.

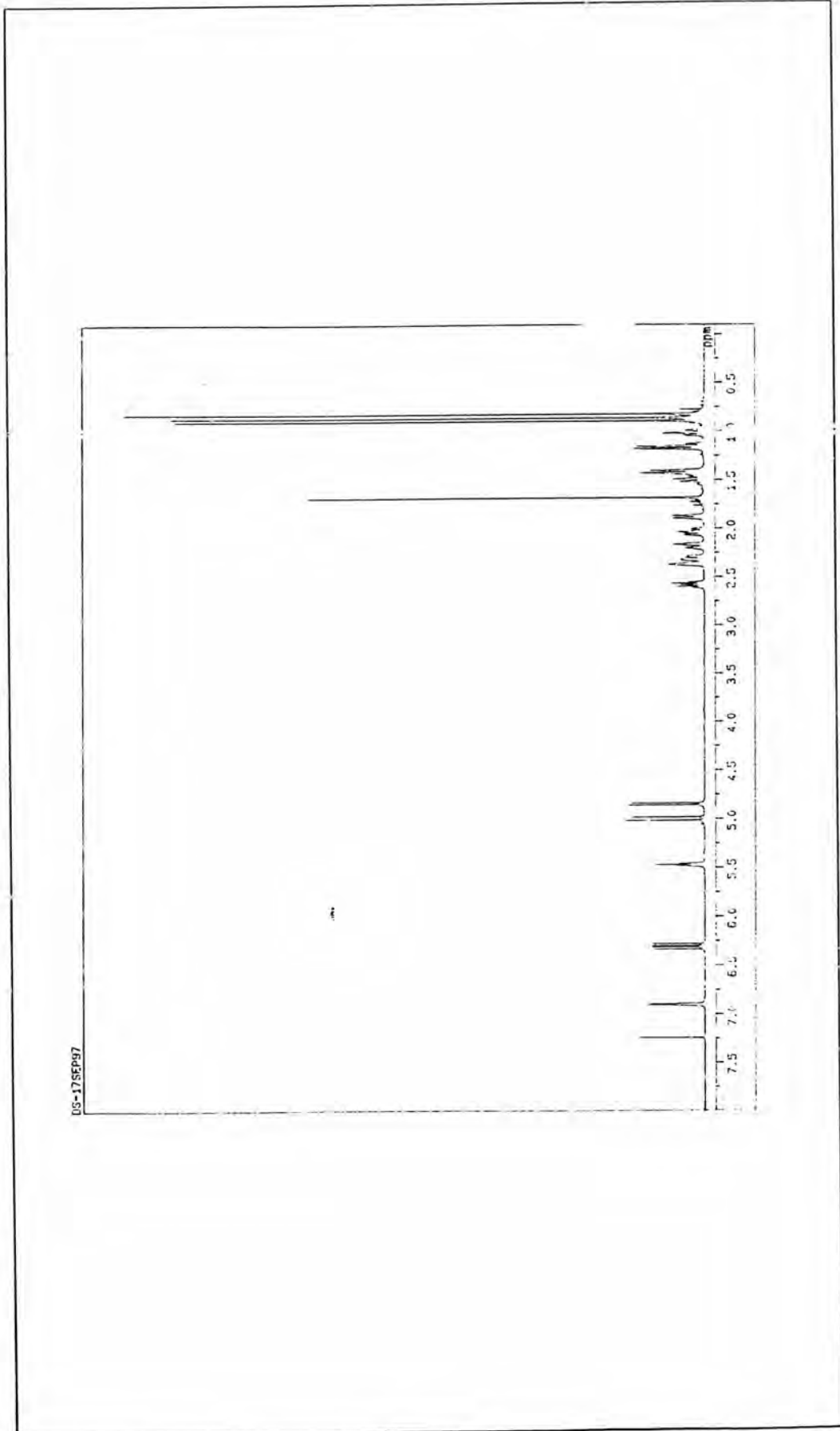


Figure 50 The $^1\text{H-NMR}$ spectrum of compound 4

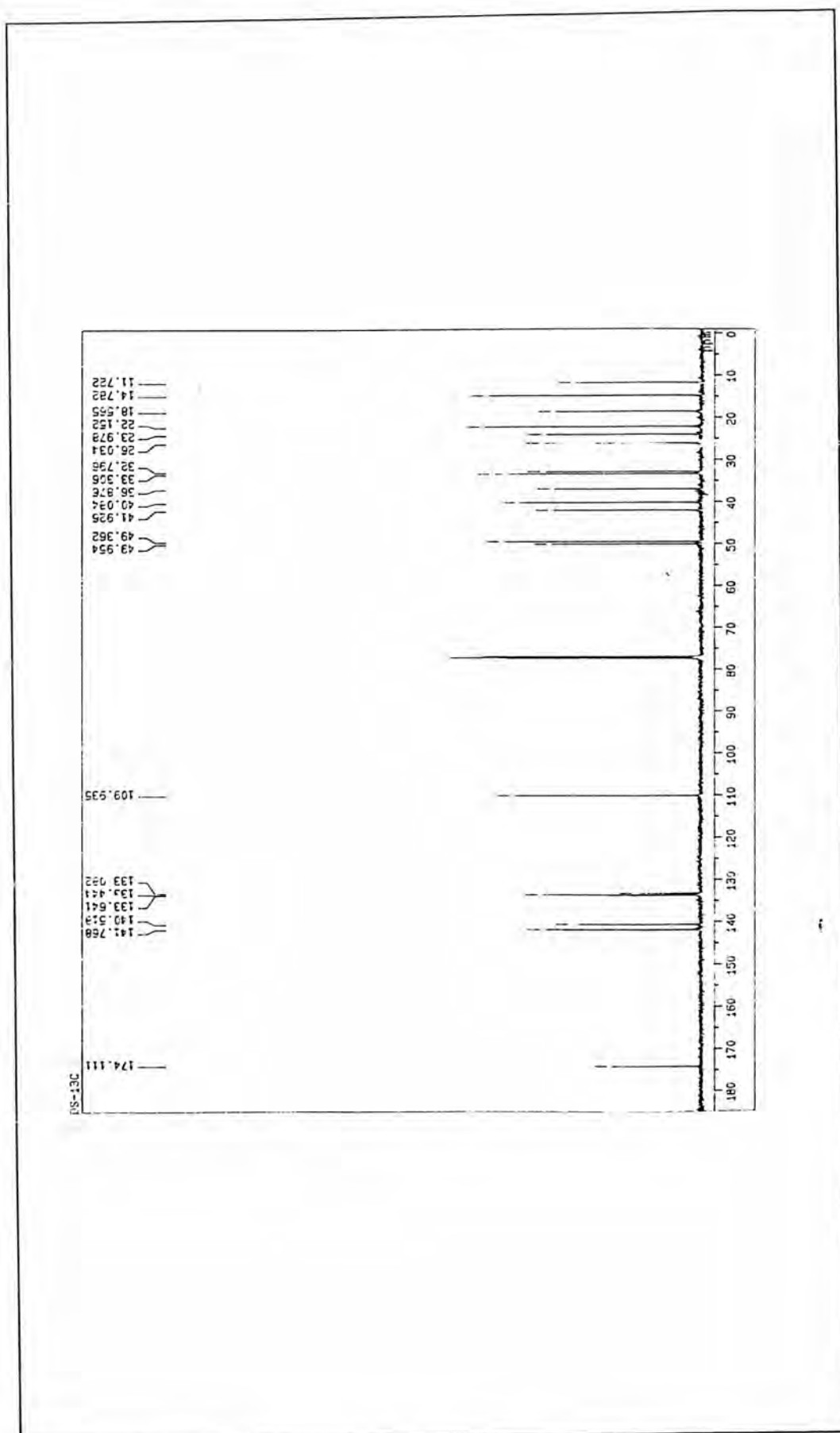


Figure 51 The ¹³C-NMR spectrum of compound 4

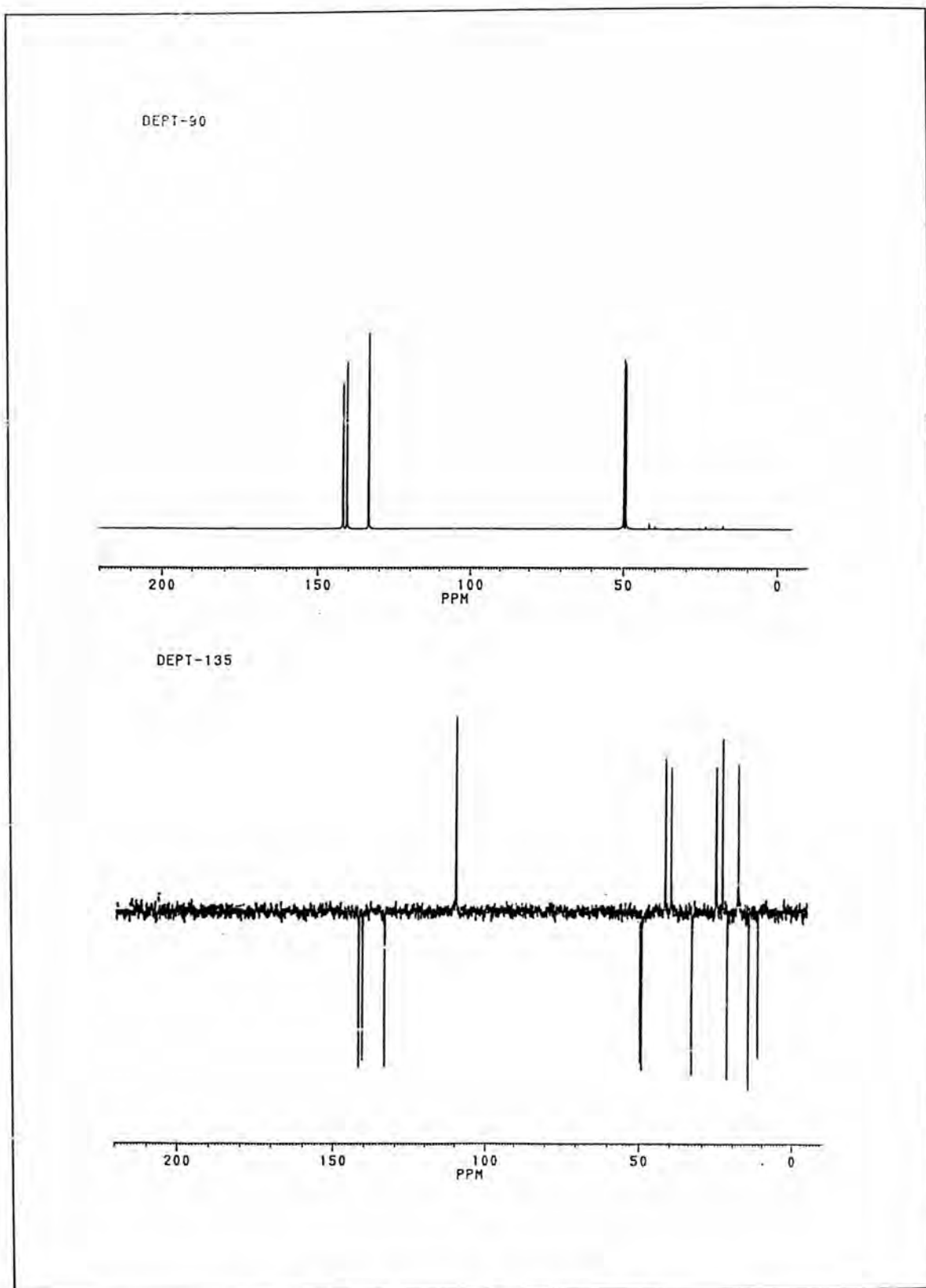


Figure 52 DEPT-135,90 ^{13}C -NMR of compound 4

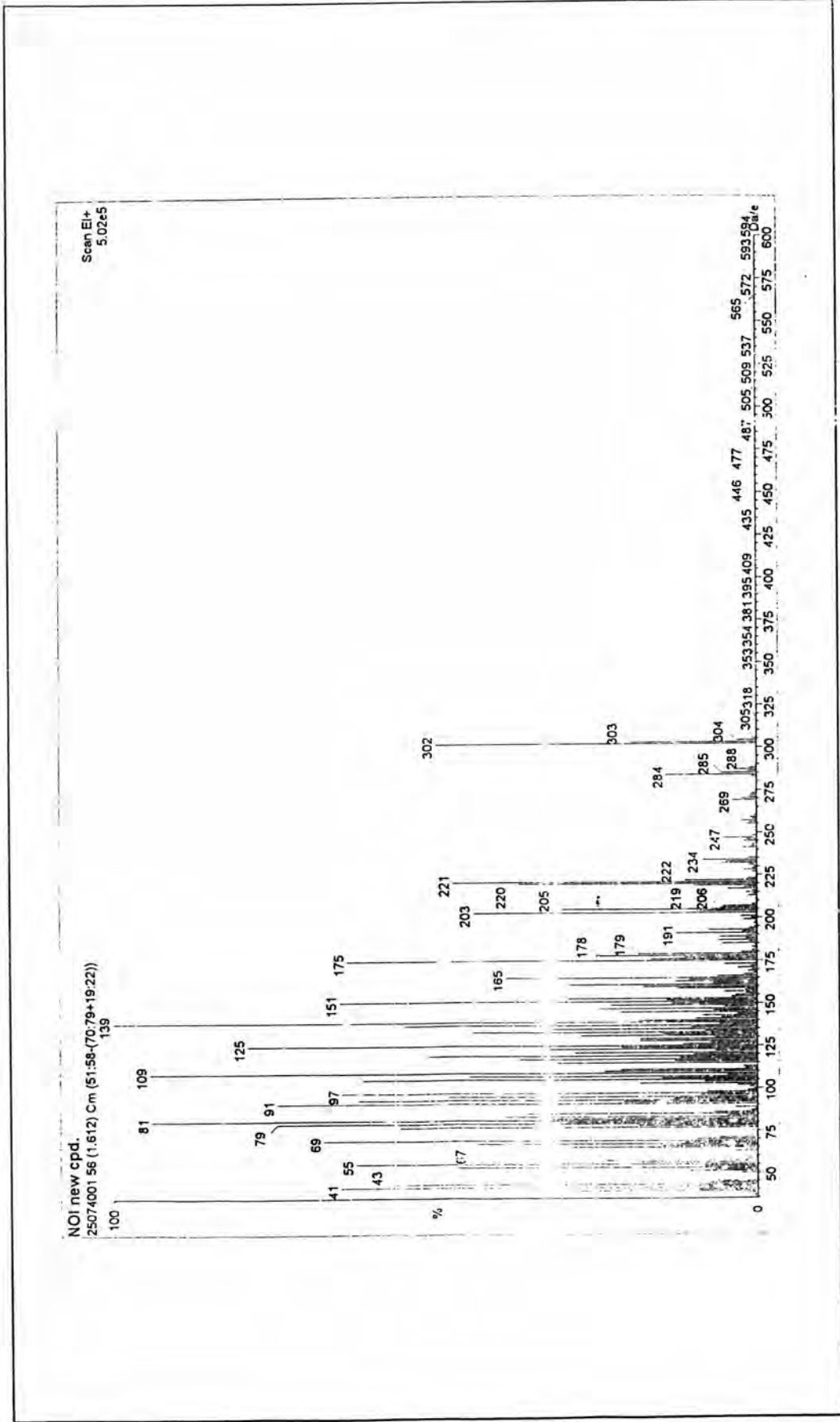


Figure 53 The EI MS spectrum of compound 4

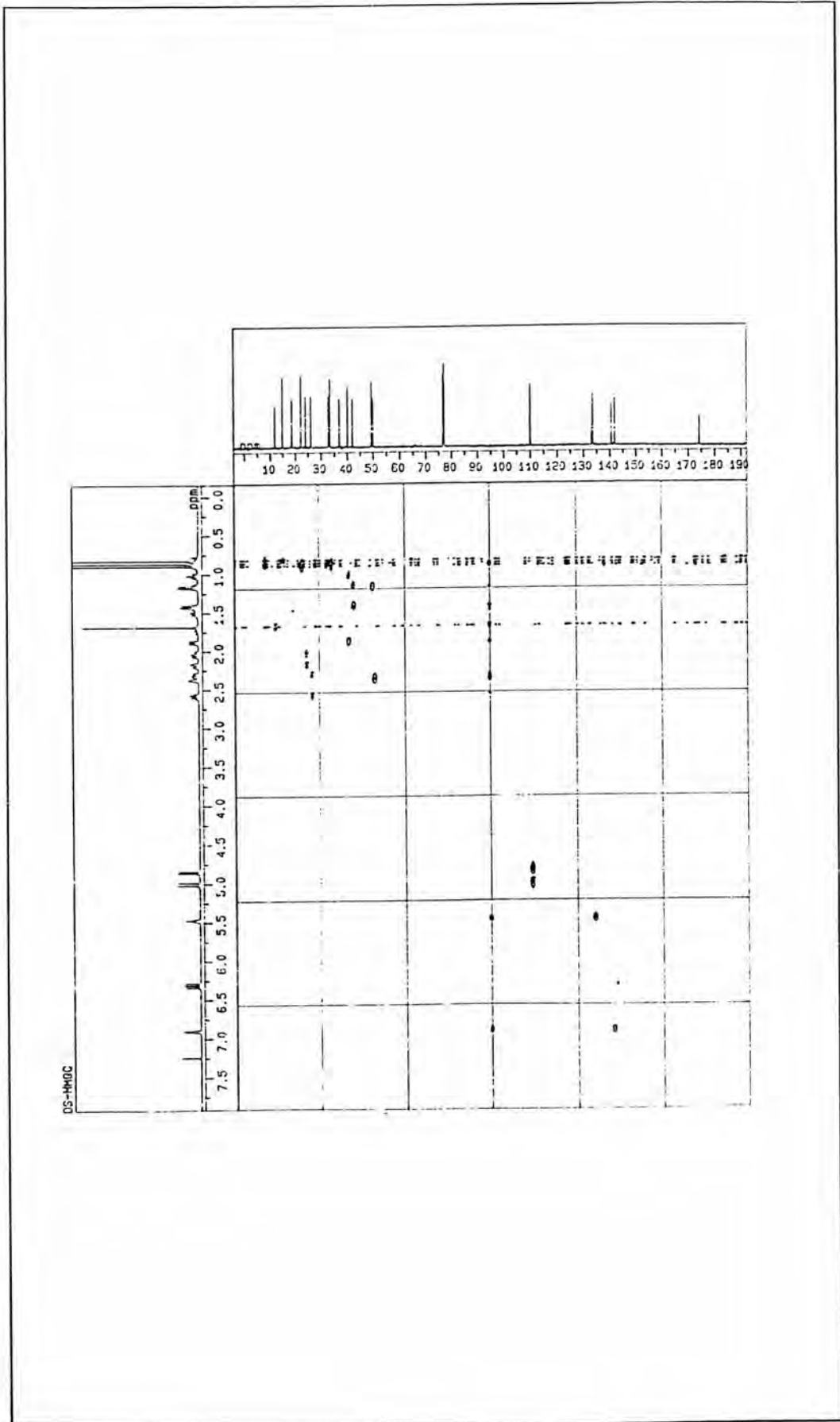


Figure 54 The HMQC-NMR spectrum of compound 4

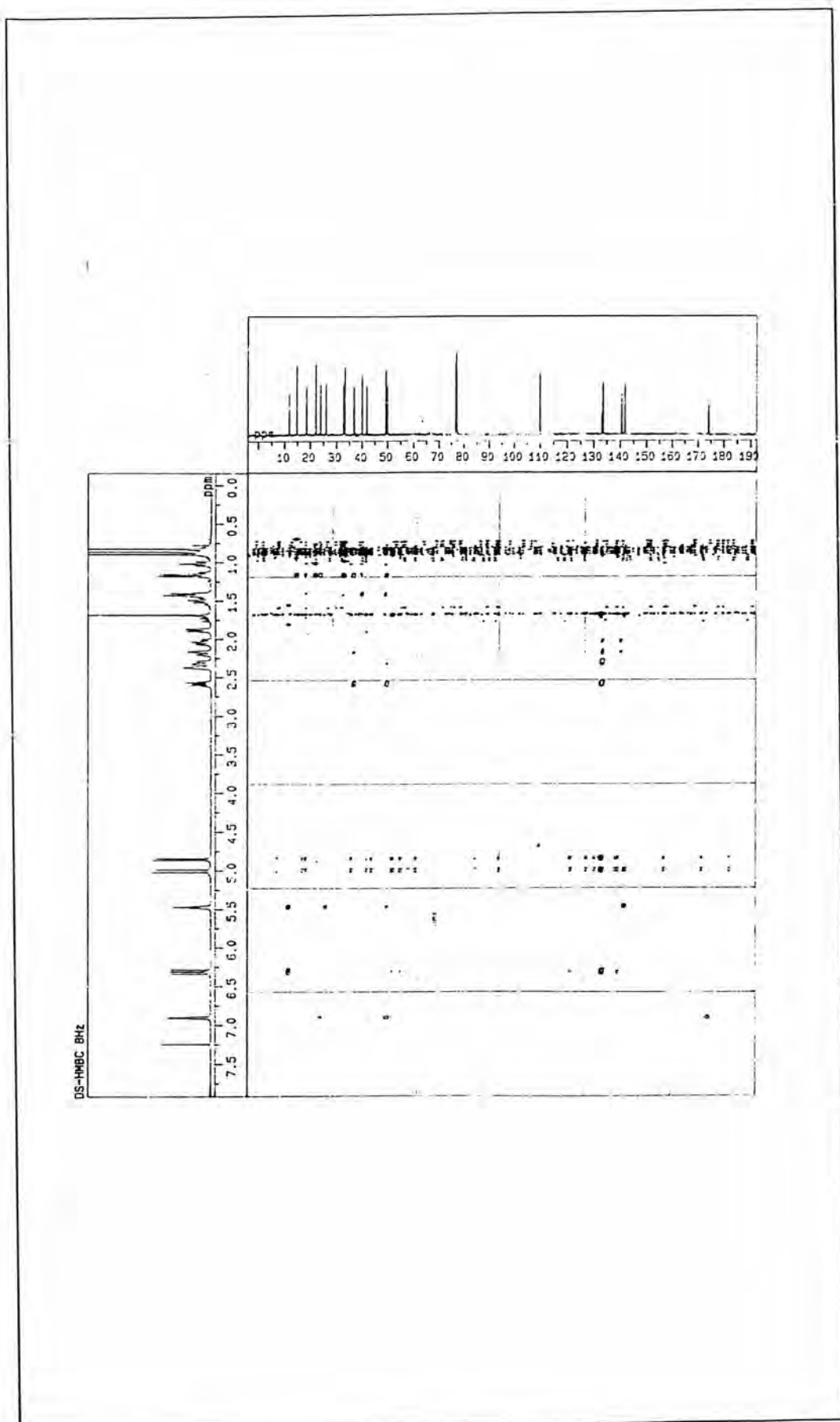


Figure 55 The HMBC-NMR spectrum of compound 4

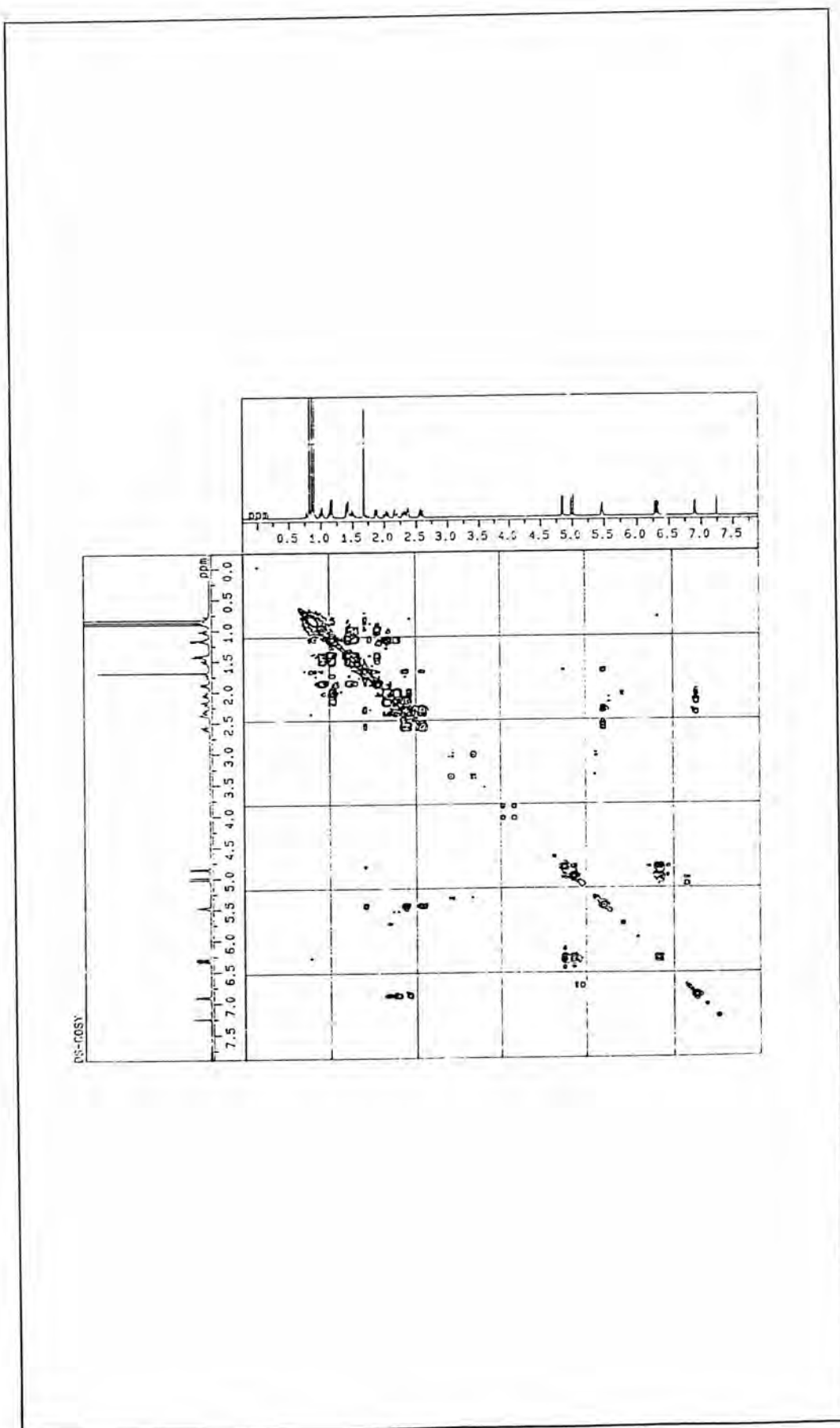


Figure 56 The COSY-NMR spectrum of compound 4

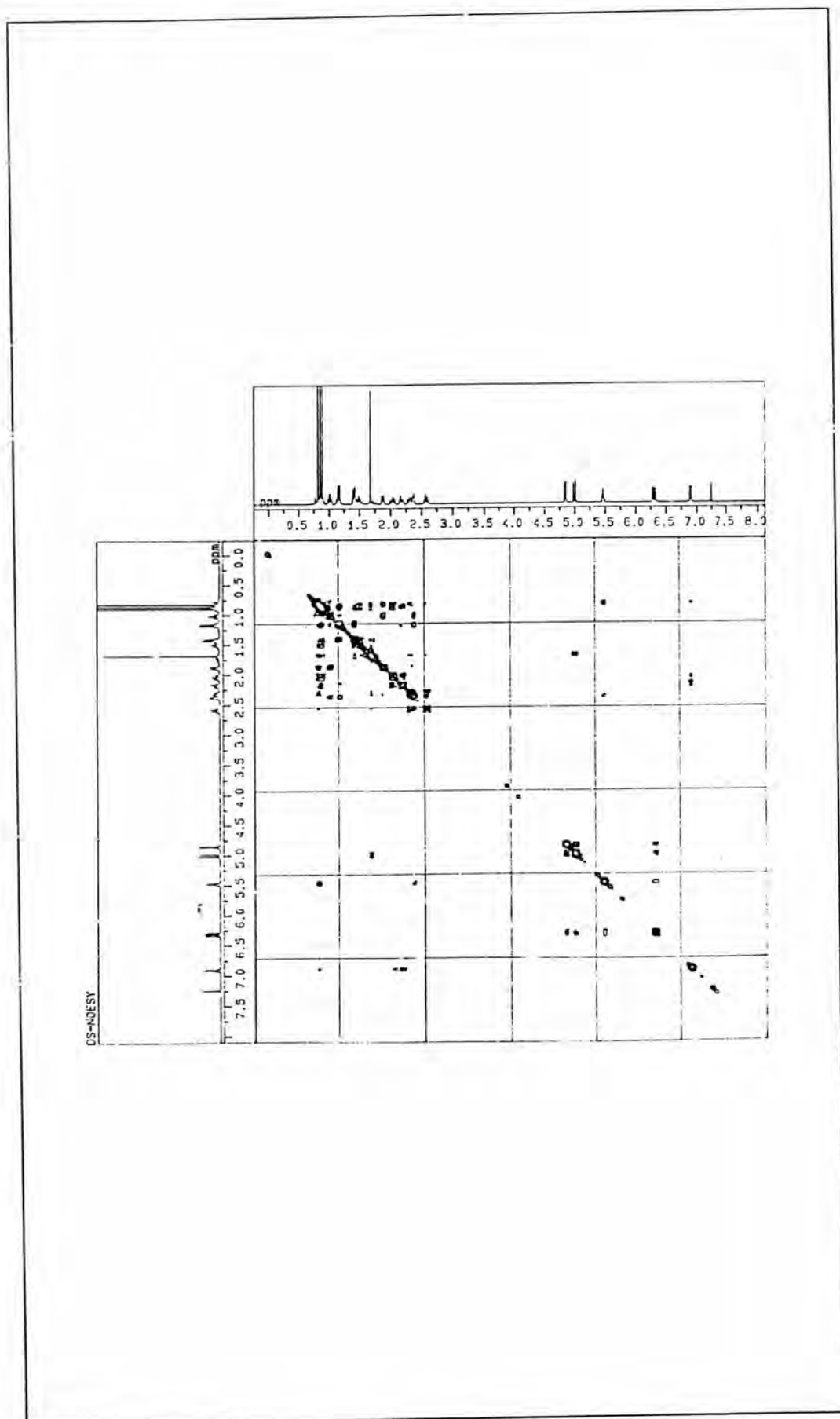


Figure 57 The NOESY-NMR spectrum of compound 4

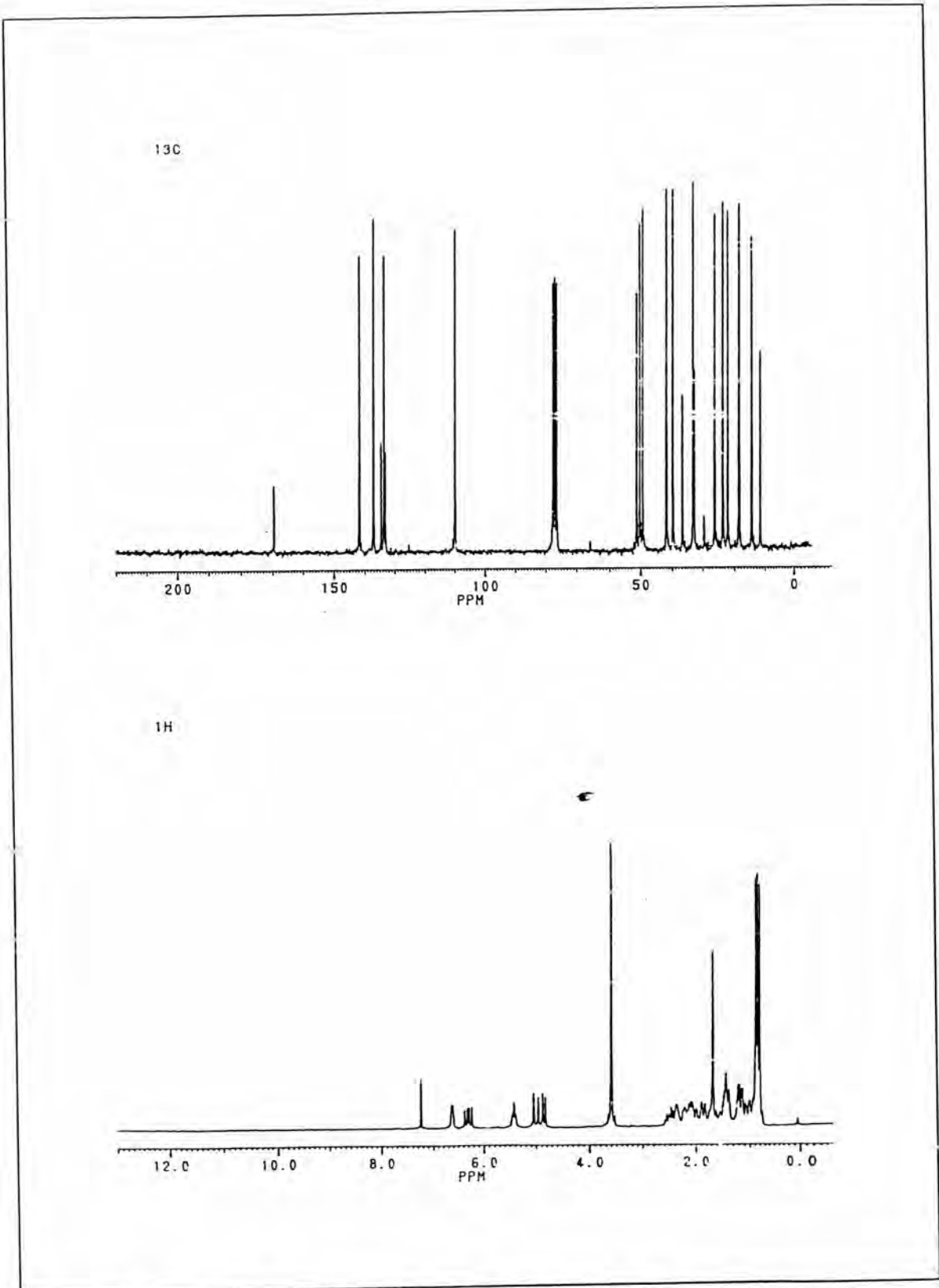


Figure 58 The ^1H and ^{13}C -NMR spectrum of methyl ester

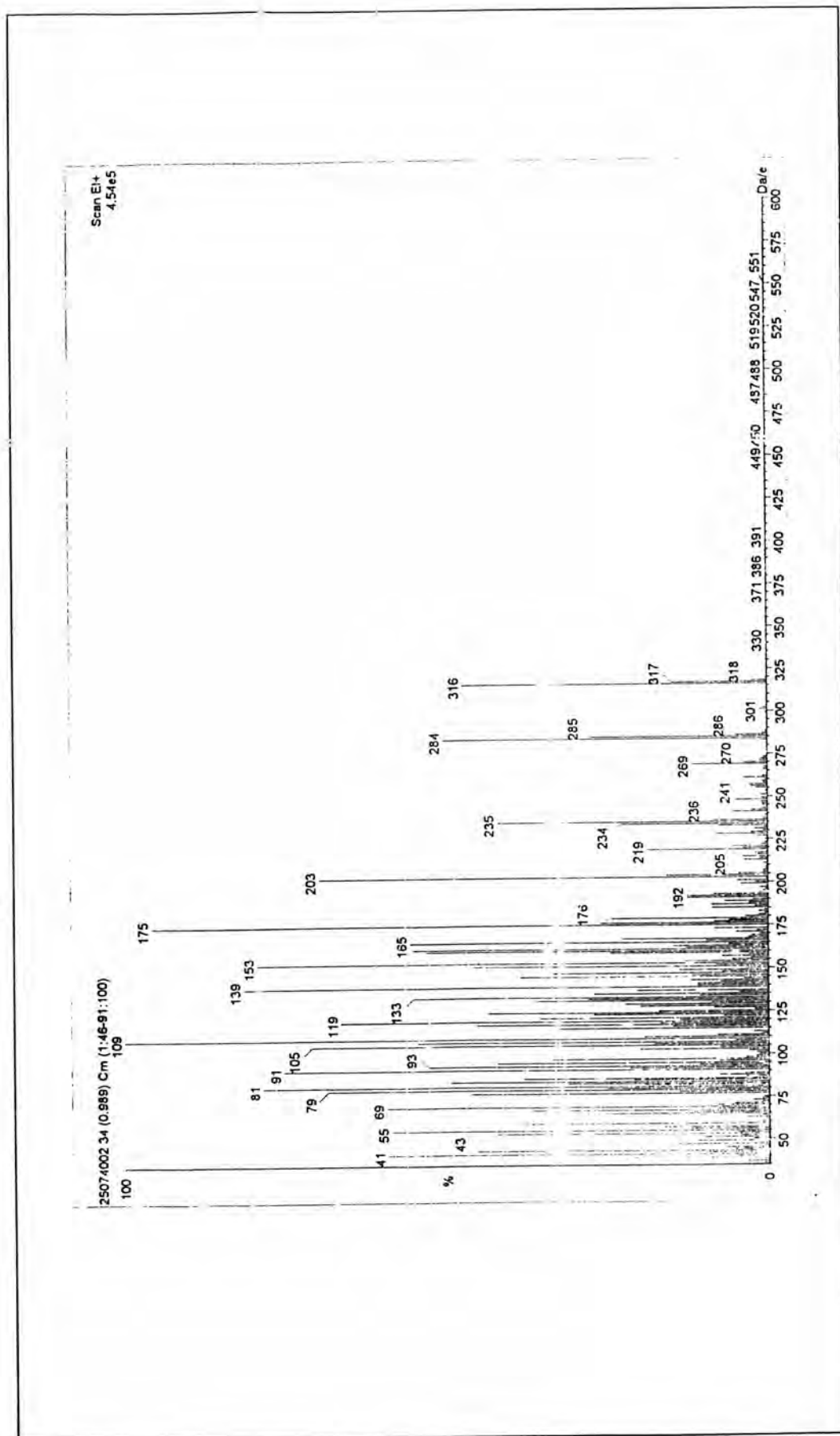


Figure 59 The EI MS spectrum of methyl ester

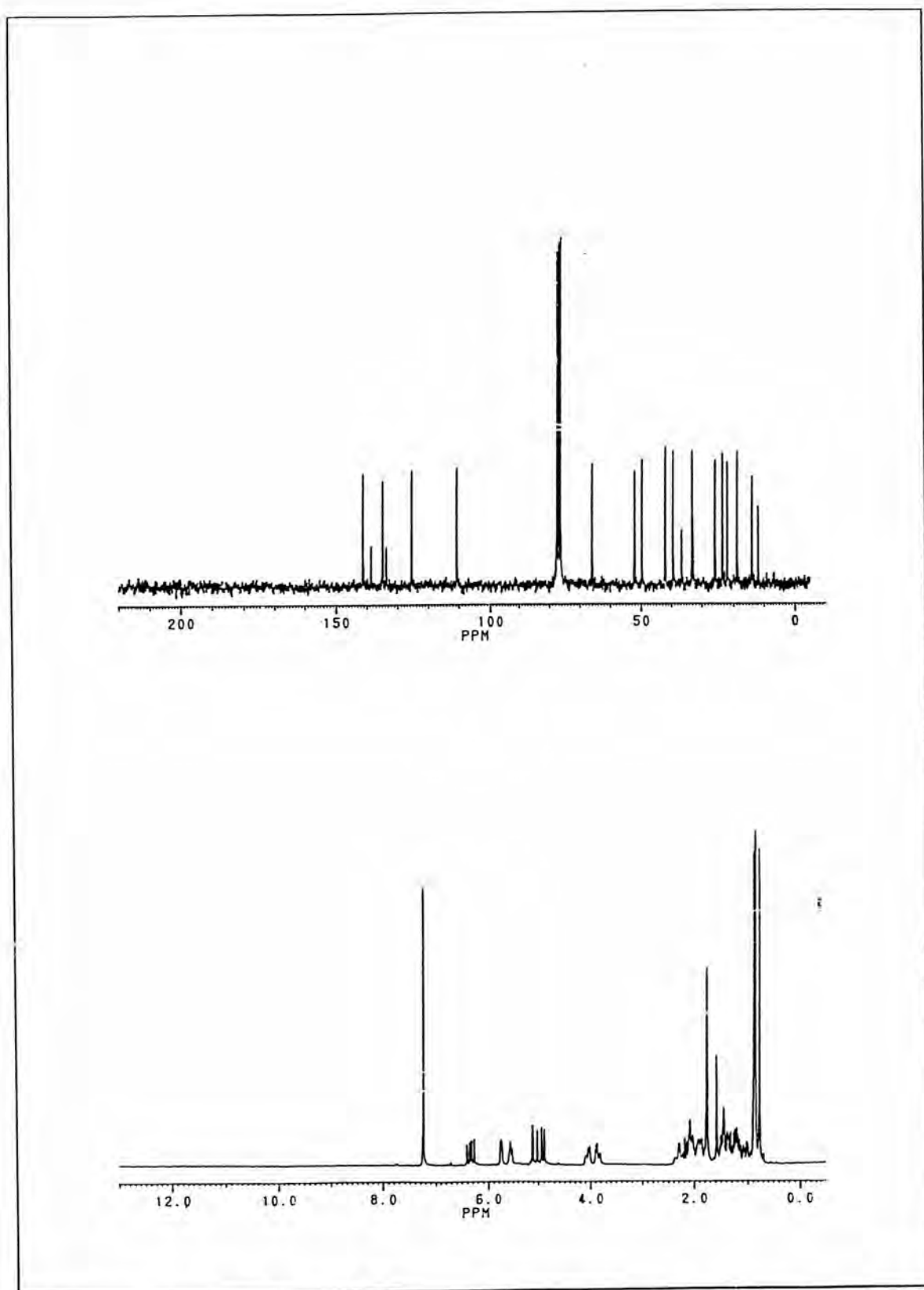


Figure 60 The ^1H and ^{13}C -NMR spectrum of reduction of compound 5

VITA

Mr. Damrong Sommit was born on November 17, 1973 in Prachupkhirikhan province, Thailand. He graduated with Bachelor Degree of Science of Chemistry at Chulalongkorn University in 1995. In the same year, he was admitted into a Master Degree program in organic chemistry at Chulalongkorn University. During his study toward the Master's degree, he received financial support from Department of Chemistry Faculty of Science, Chulalongkorn University in 1996-1997.