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APPENDIX

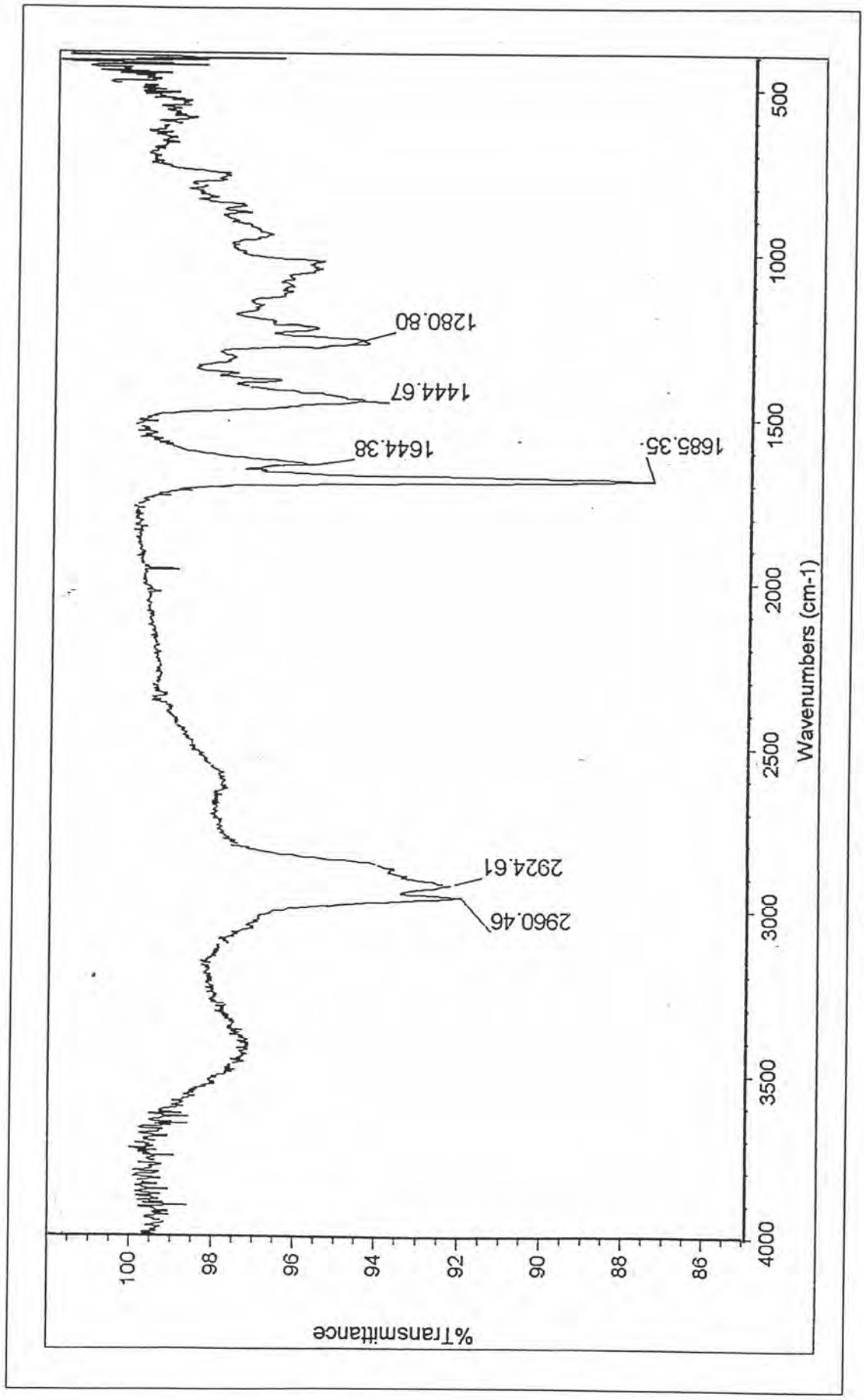

Figure 26 The IR spectrum of Compound 1

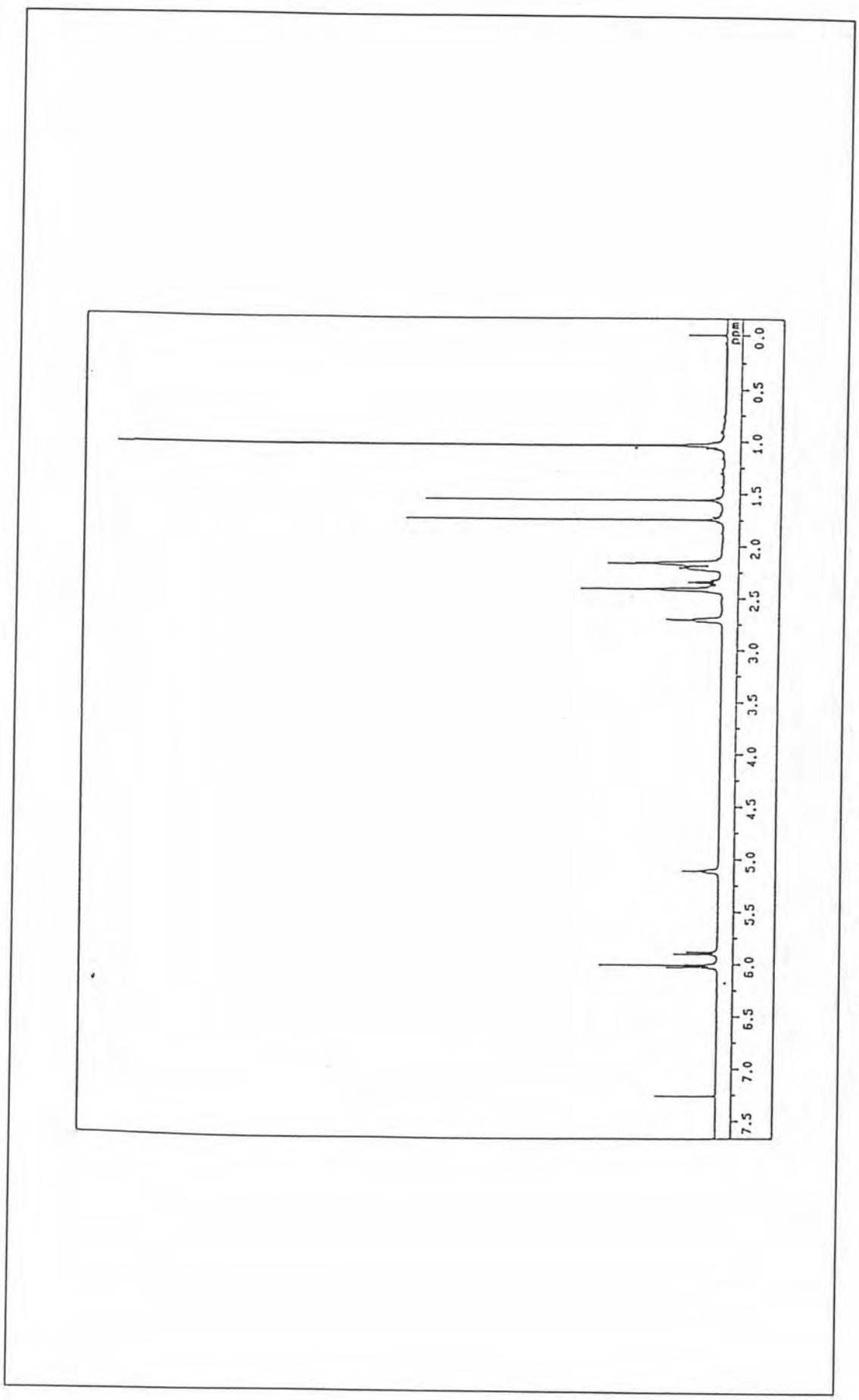

Figure 27 The ^{1}H-NMR spectrum of Compound 1

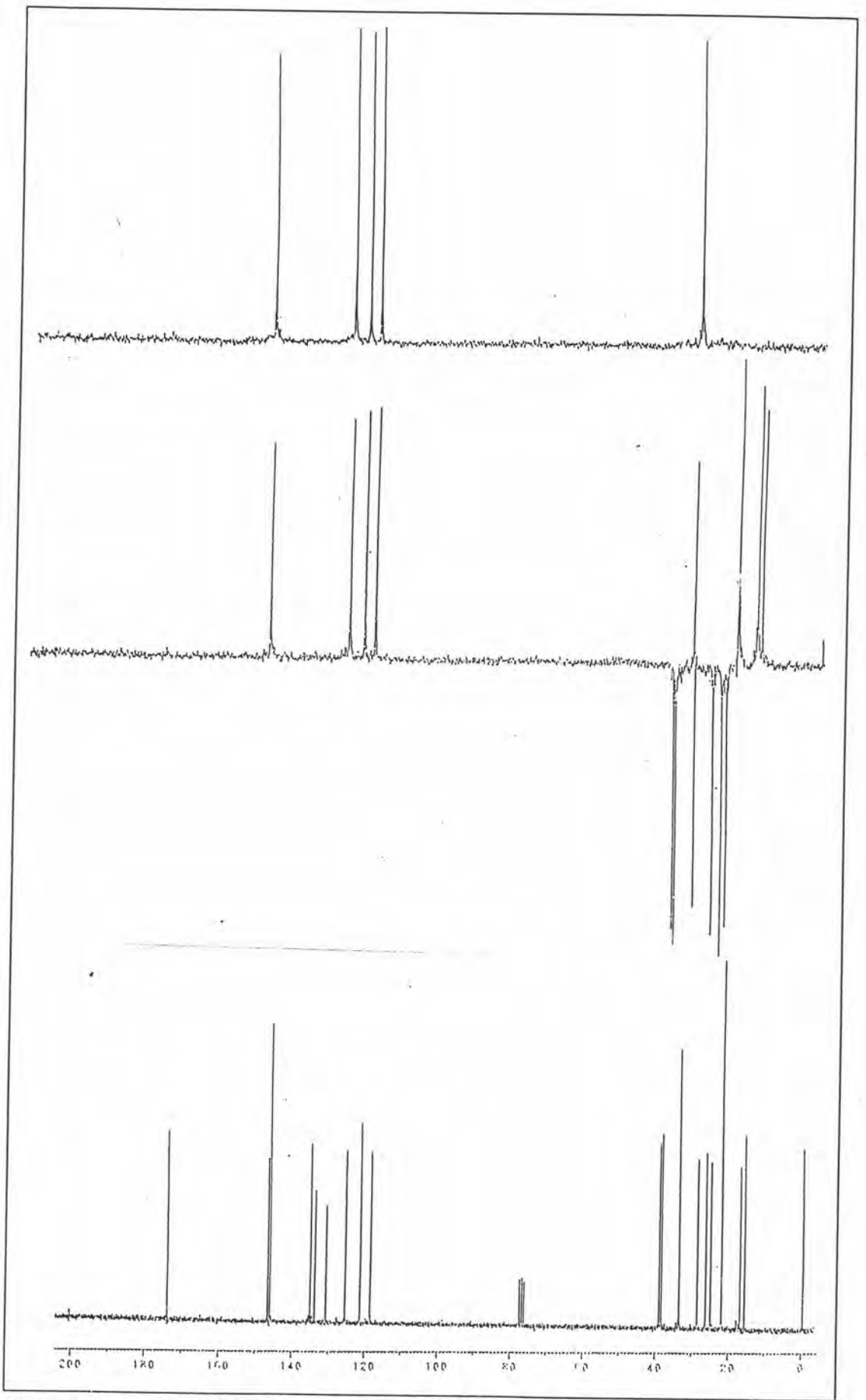

Figure 28 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 1

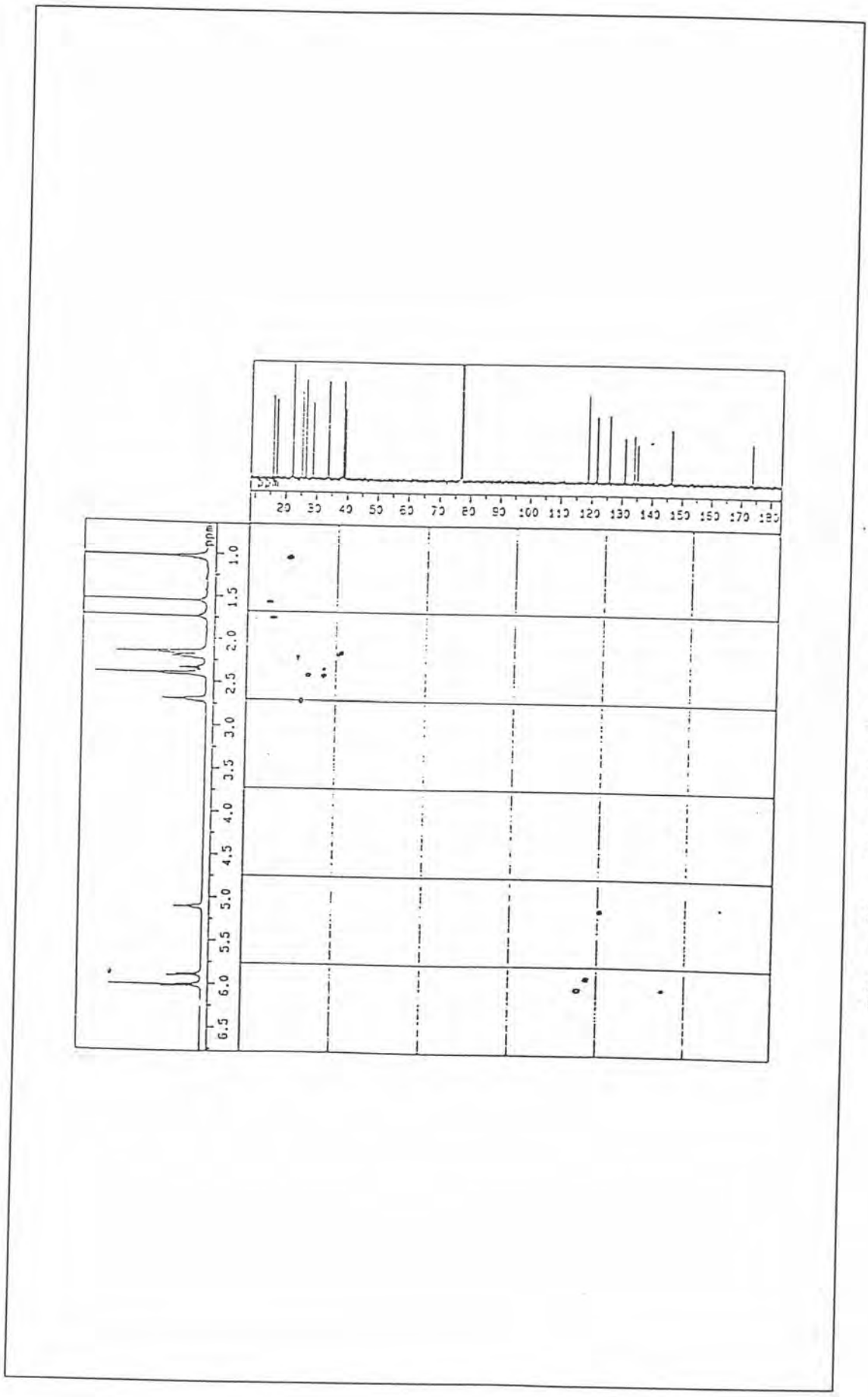

Figure 29 The HMQC spectrum of Compound 1

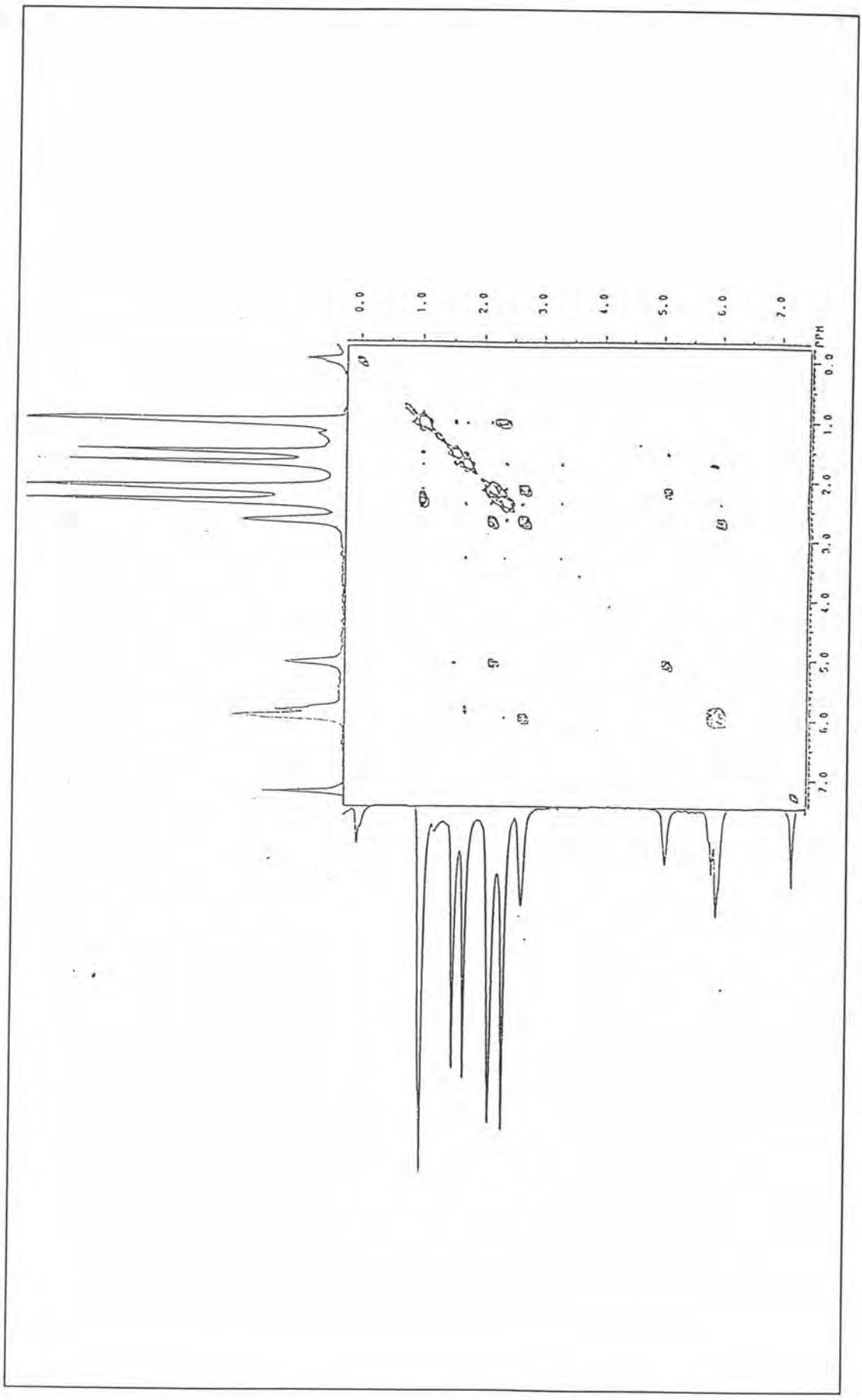

Figure 30 The COSY spectrum of Compound 1

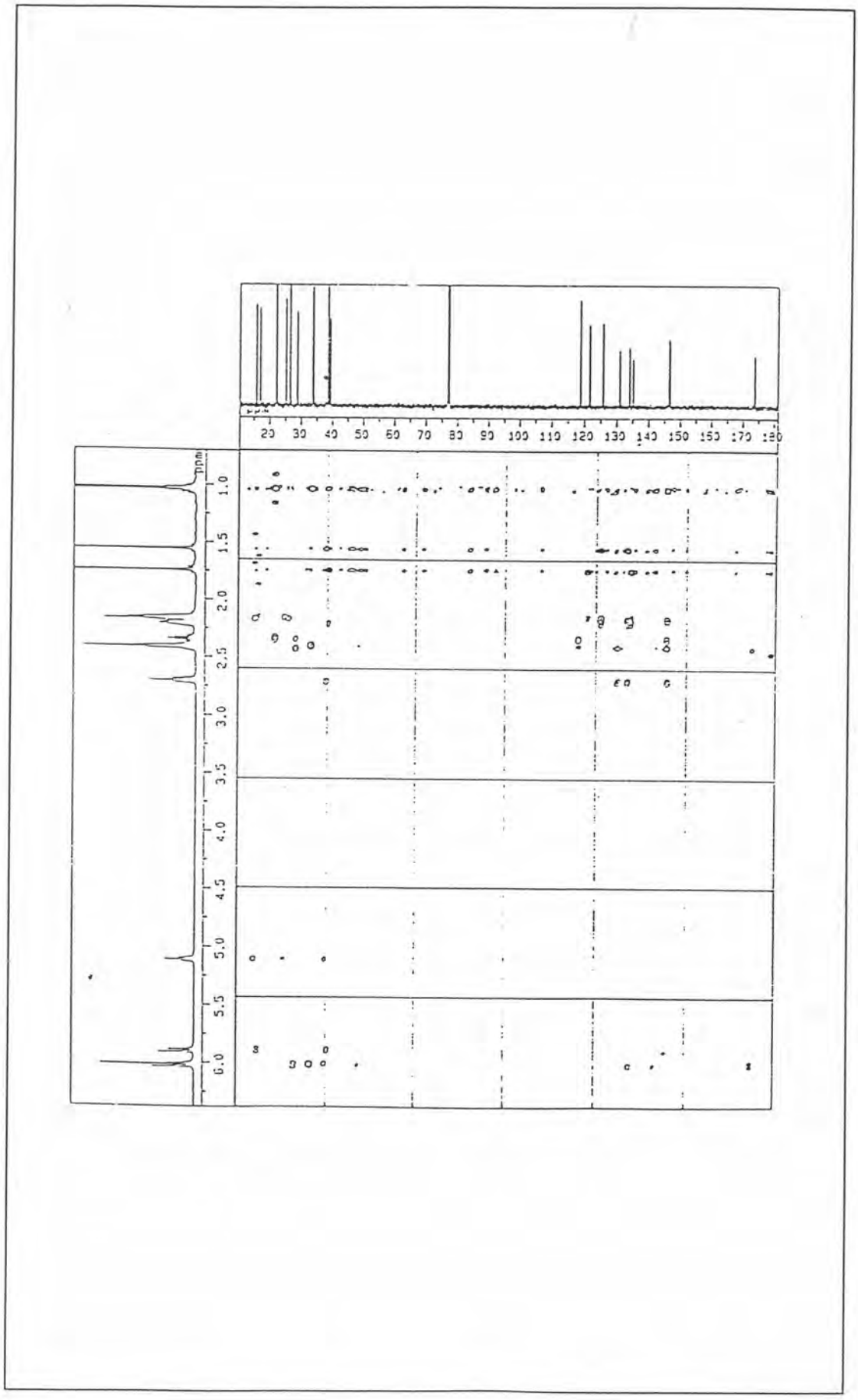

Figure 31 The HMBC spectrum of Compound 1

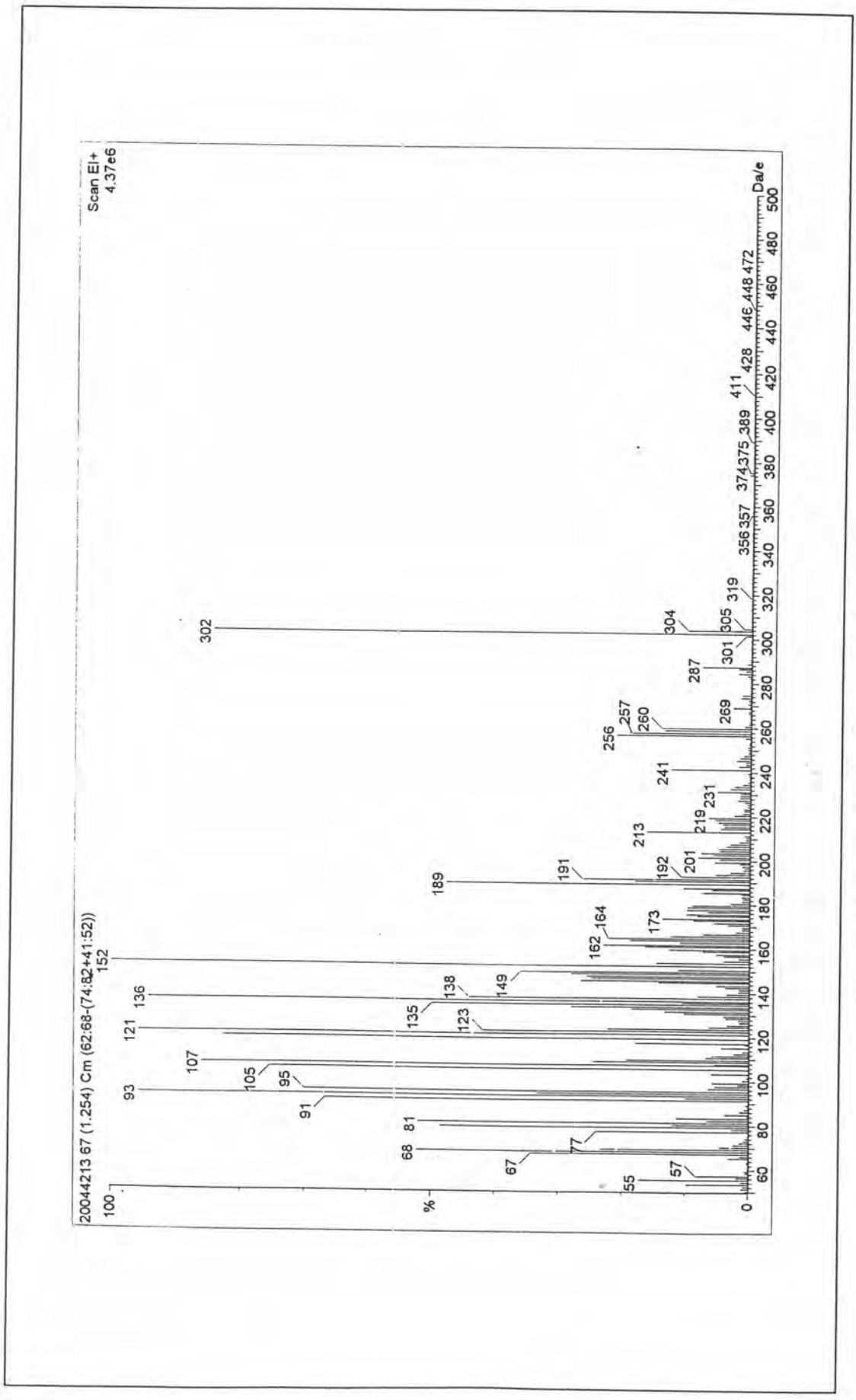

Figure 32 The EIMS spectrum of Compound 1

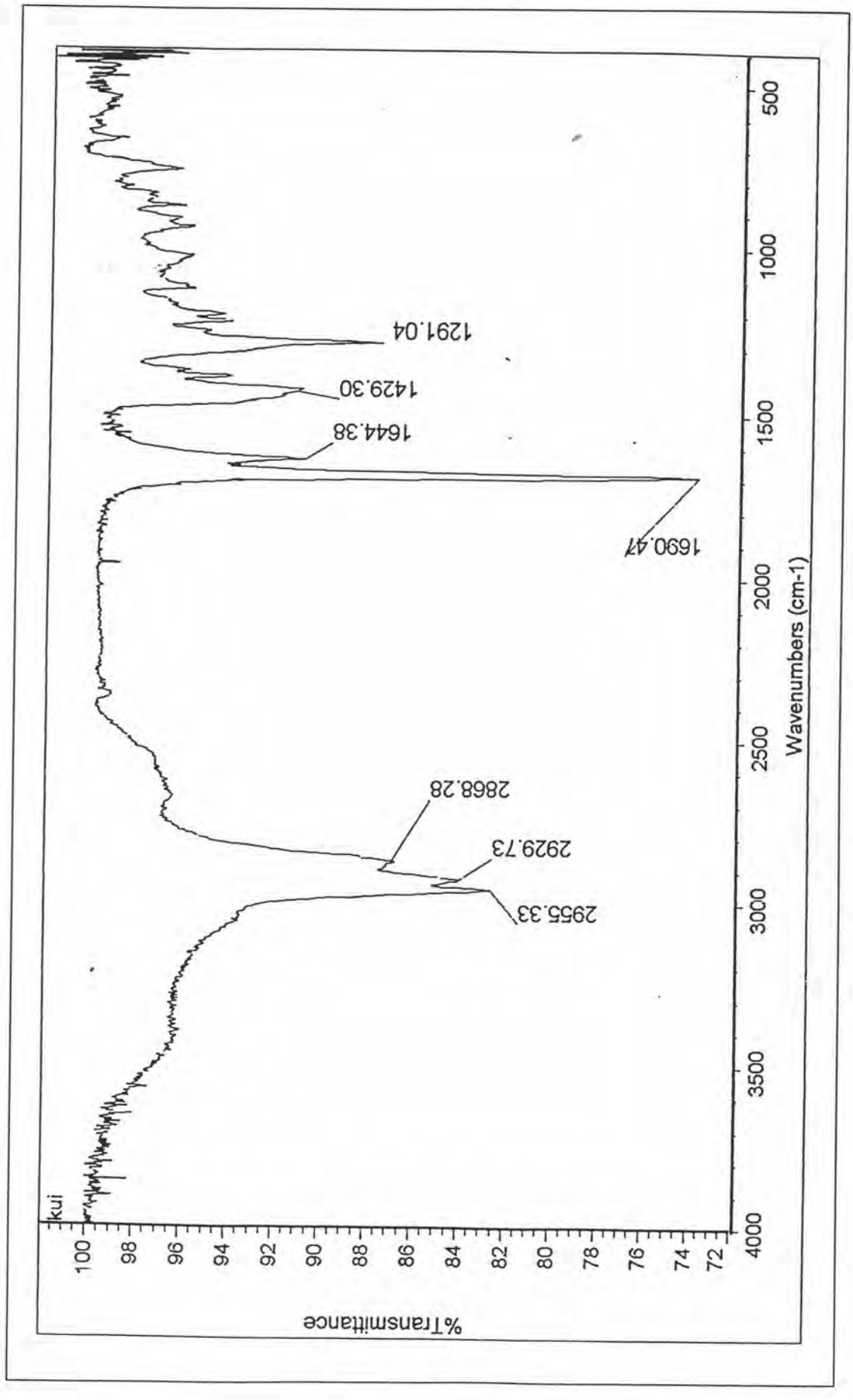

Figure 33 The IR spectrum of Compound 2

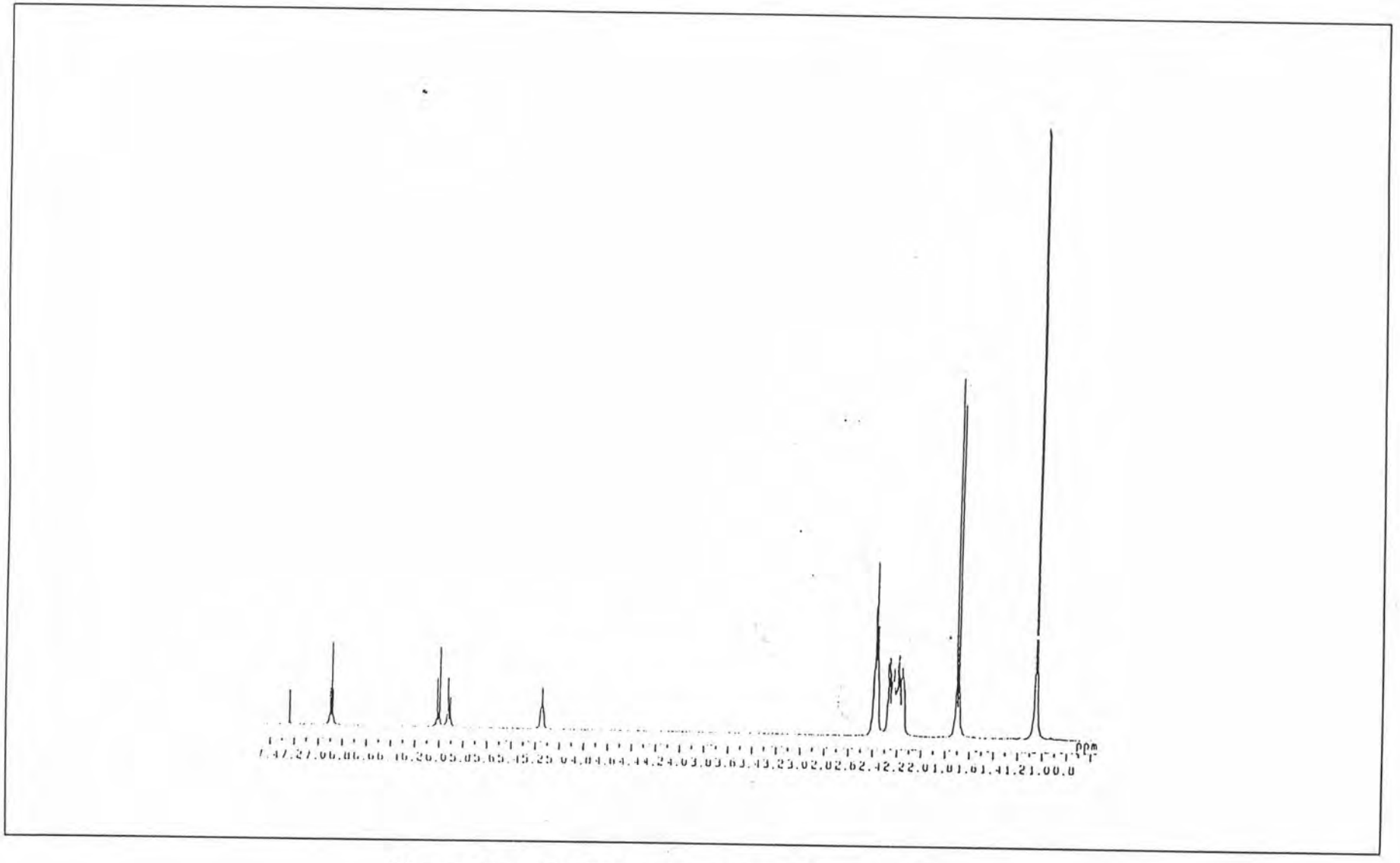

Figure 34 The ^{1}H-NMR spectrum of Compound 2

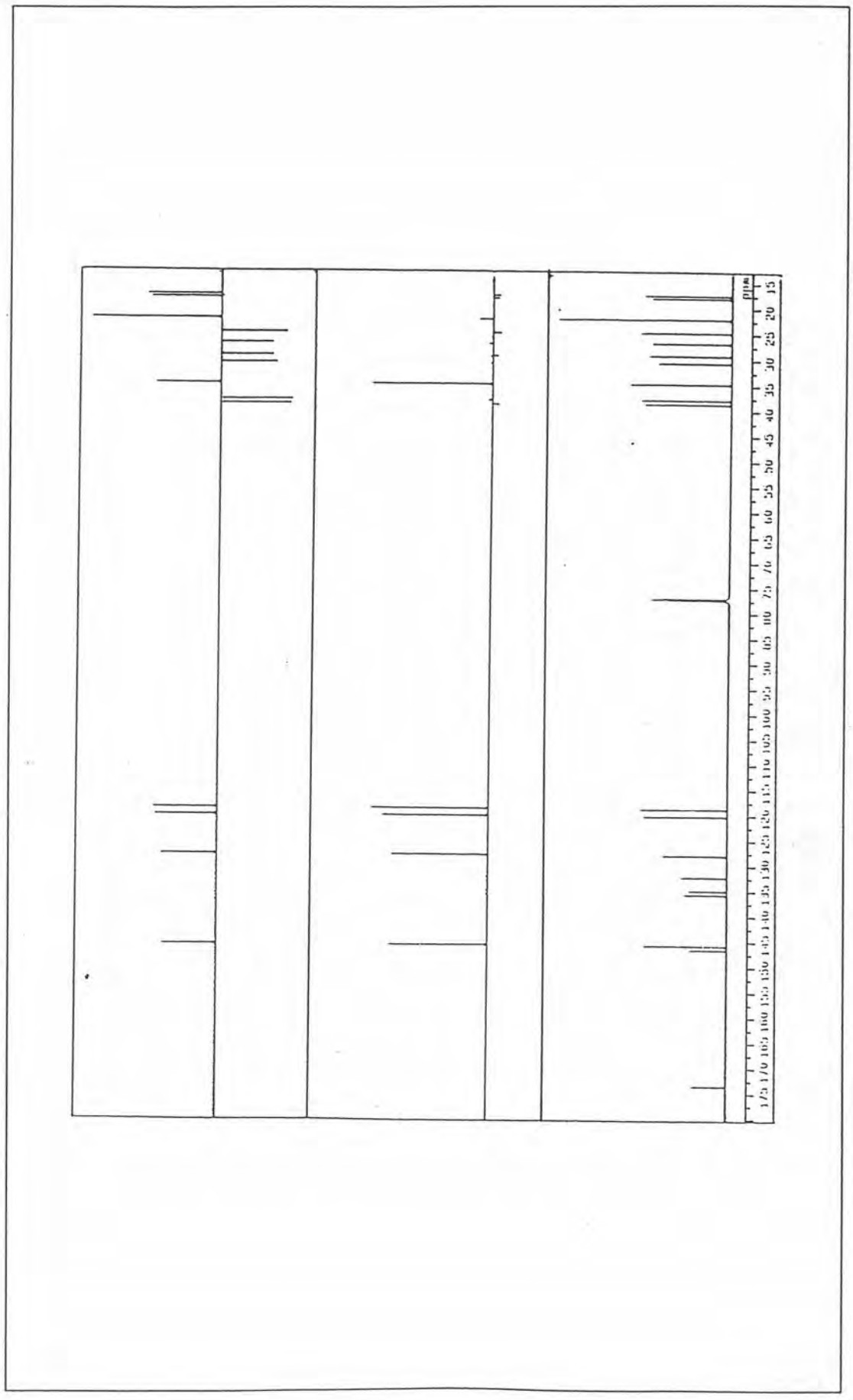

Figure 35 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 2

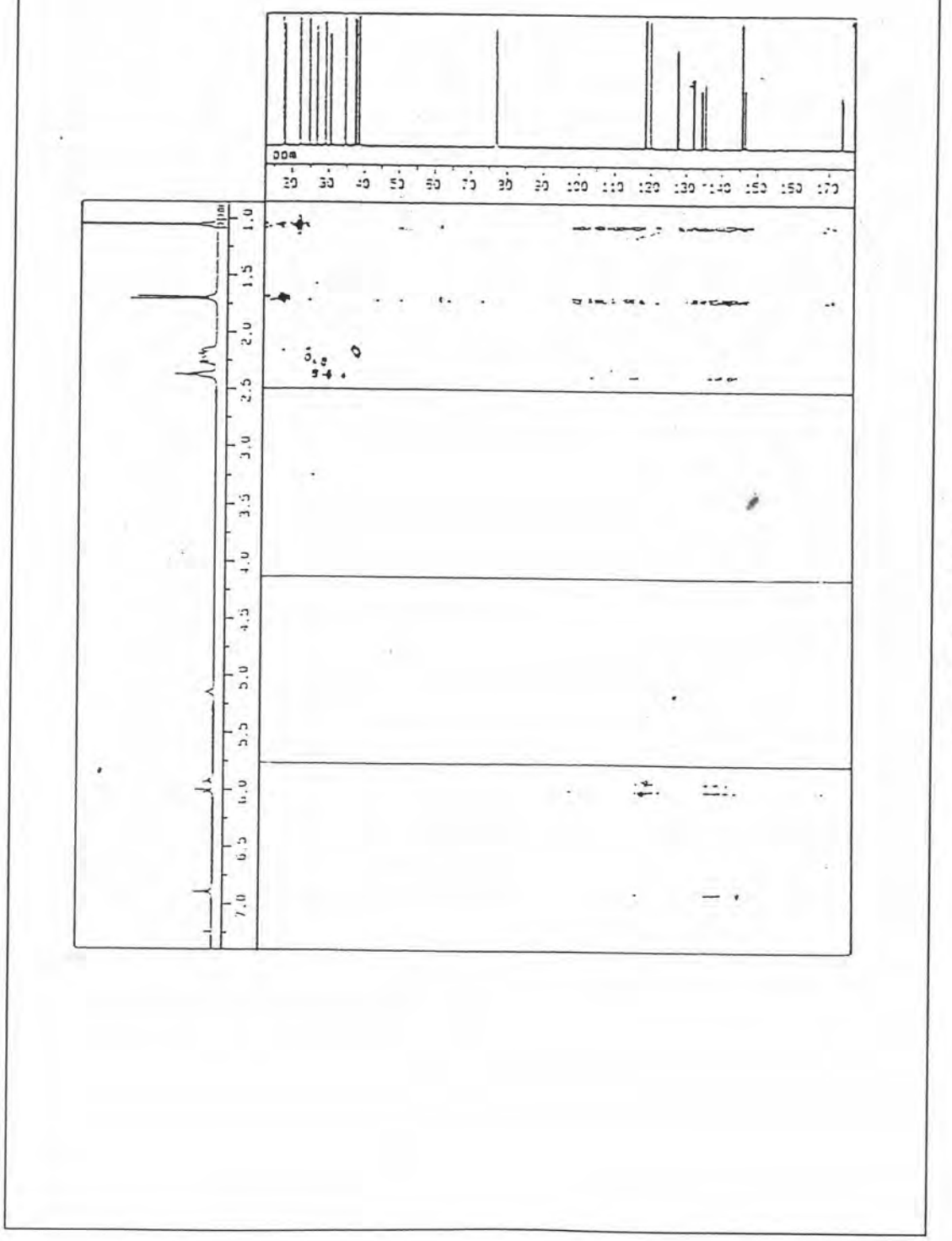

Figure 36 HMQC spectrum of Compound 2

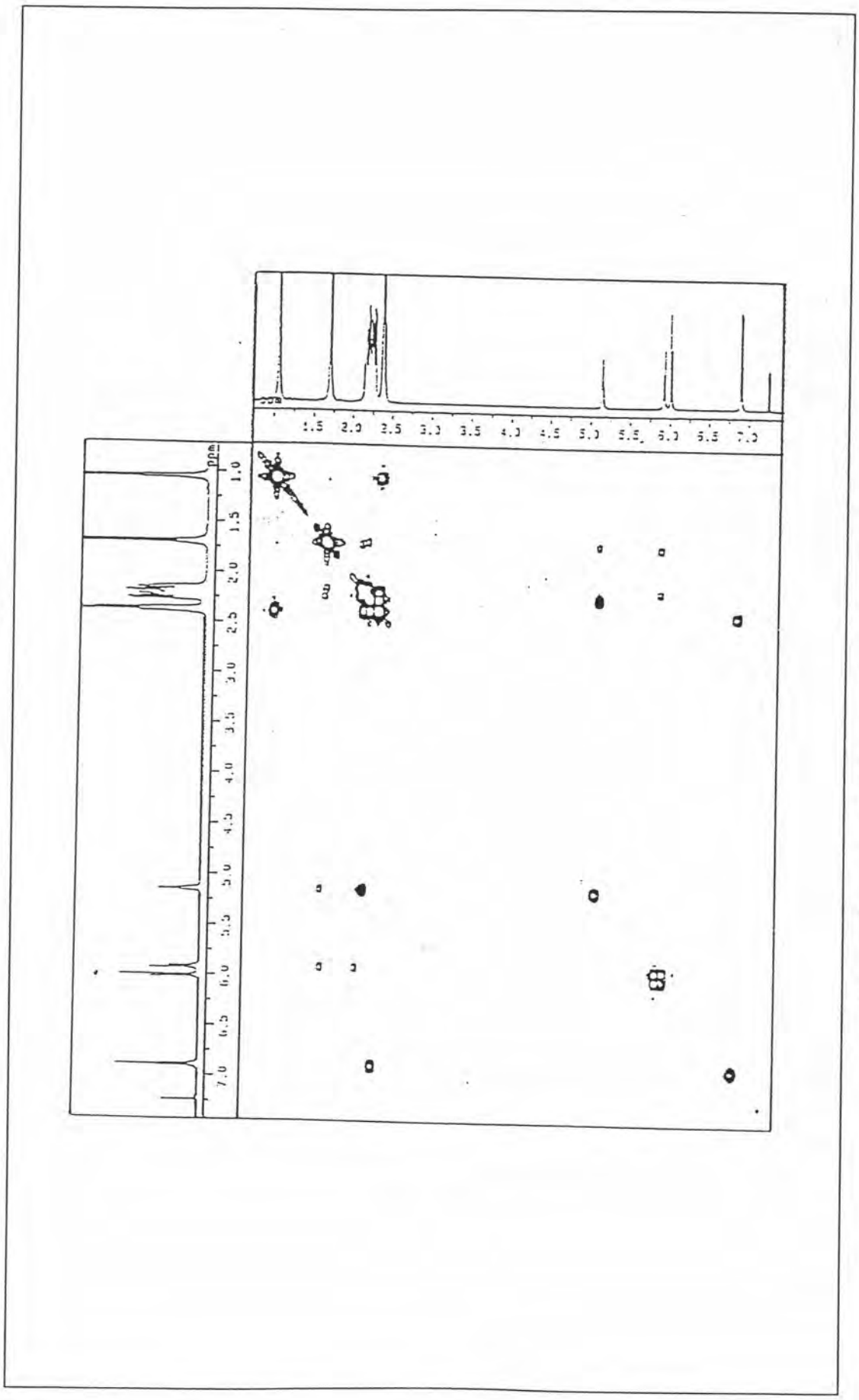

Figure 37 The COSY spectrum of Compound 2

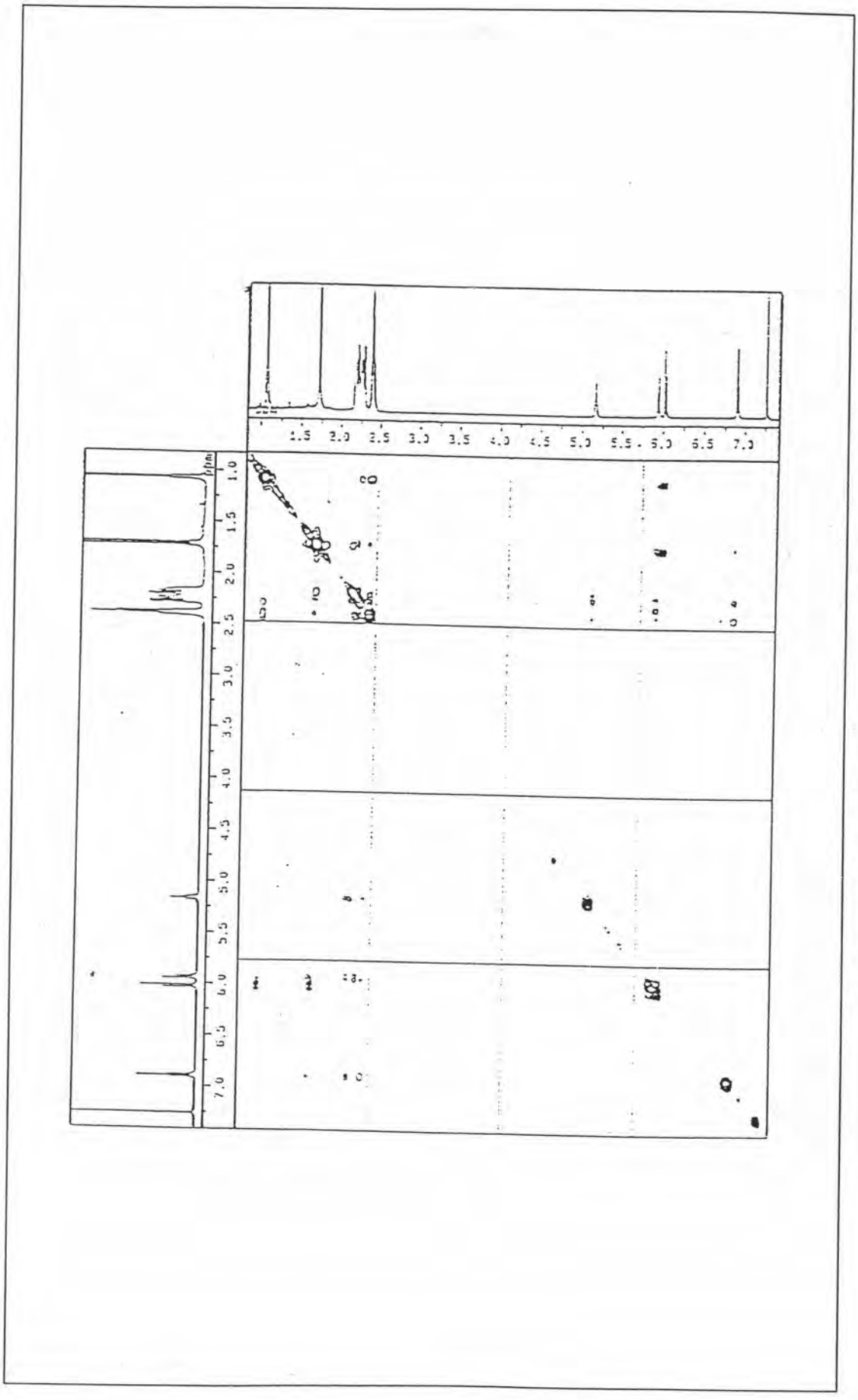

Figure 38 The NOESY spectrum of Compound 2

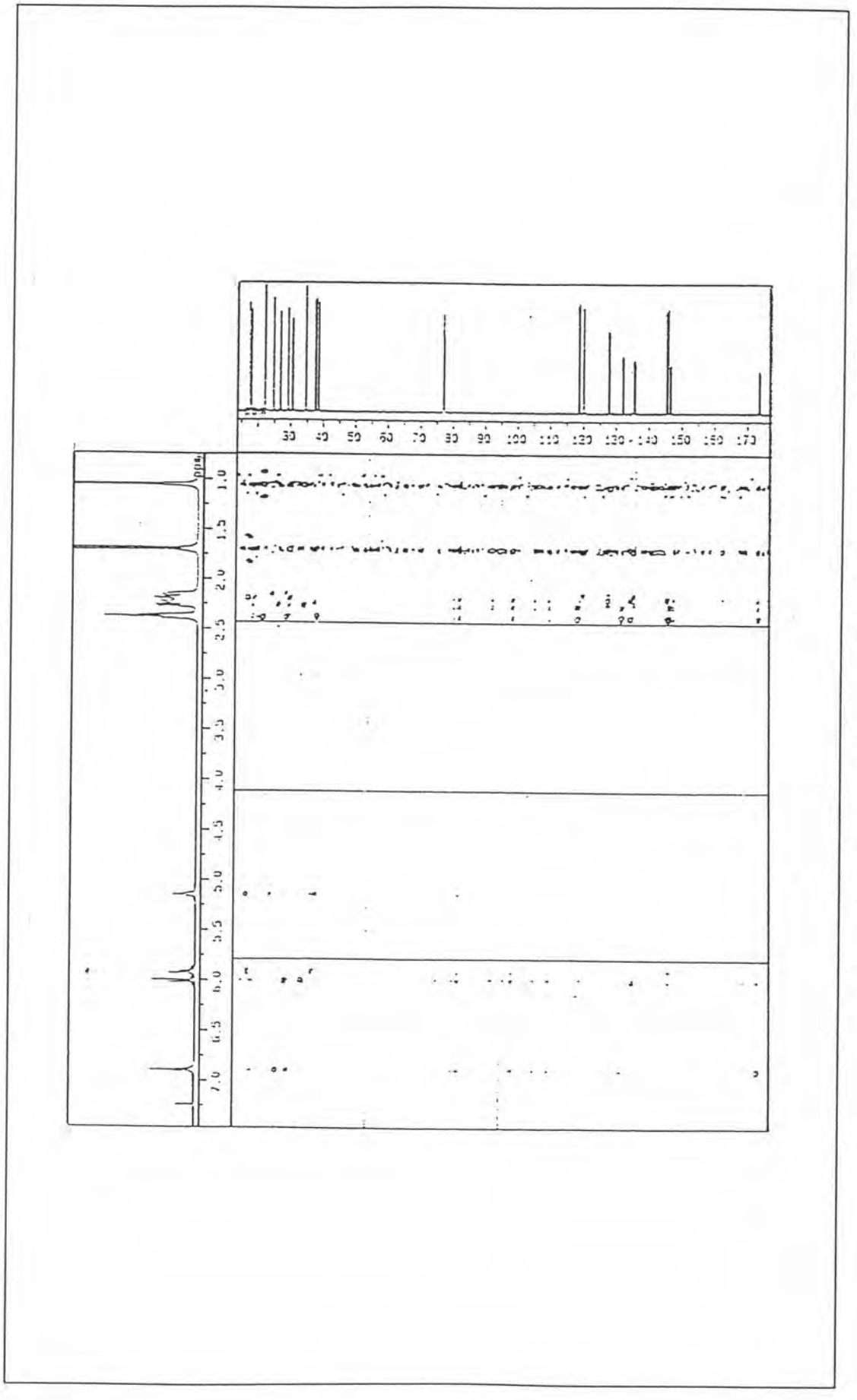

Figure 39 The HMBC spectrum of Compound 2

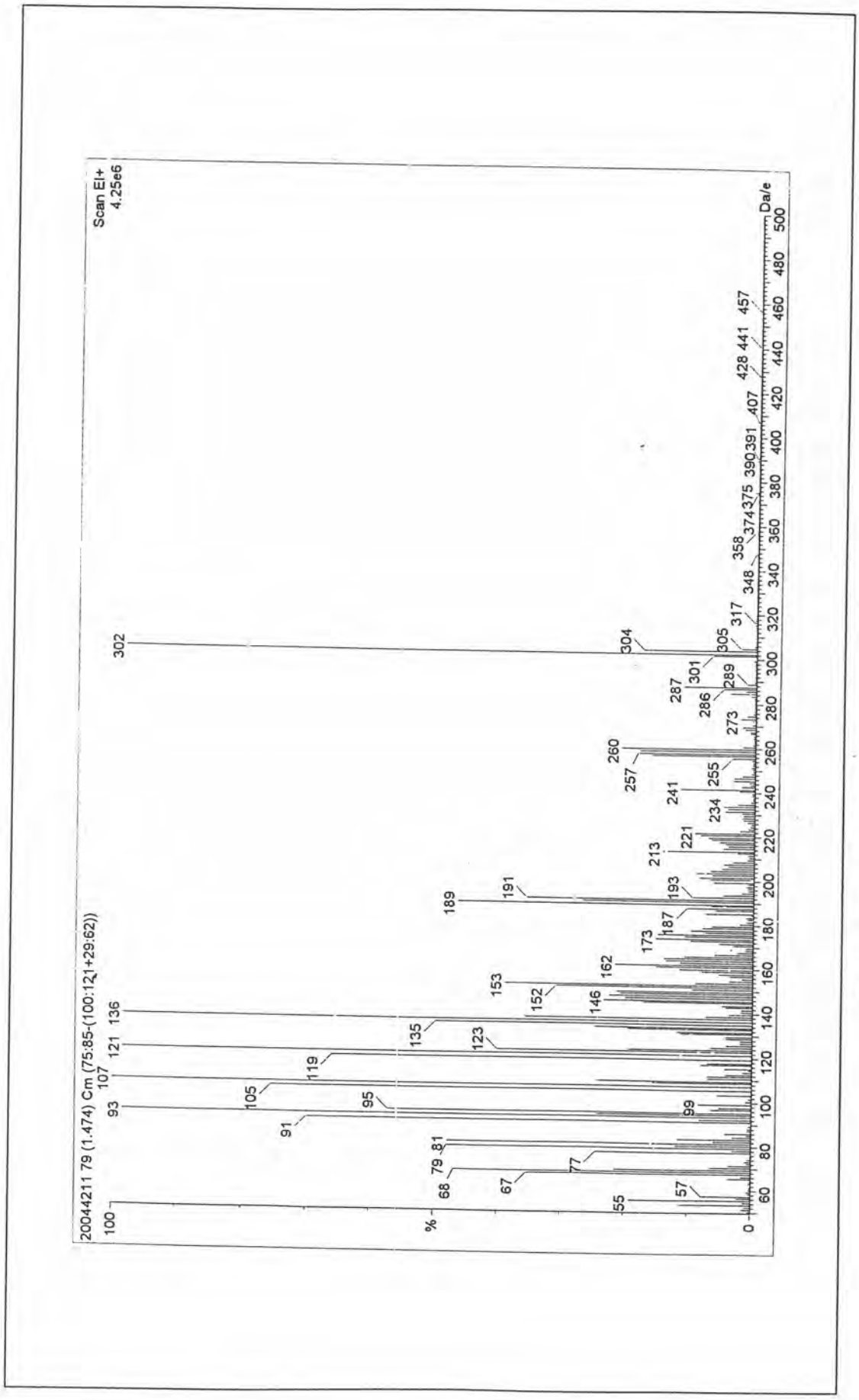

Figure 40 The EIMS spectrum of Compound 2

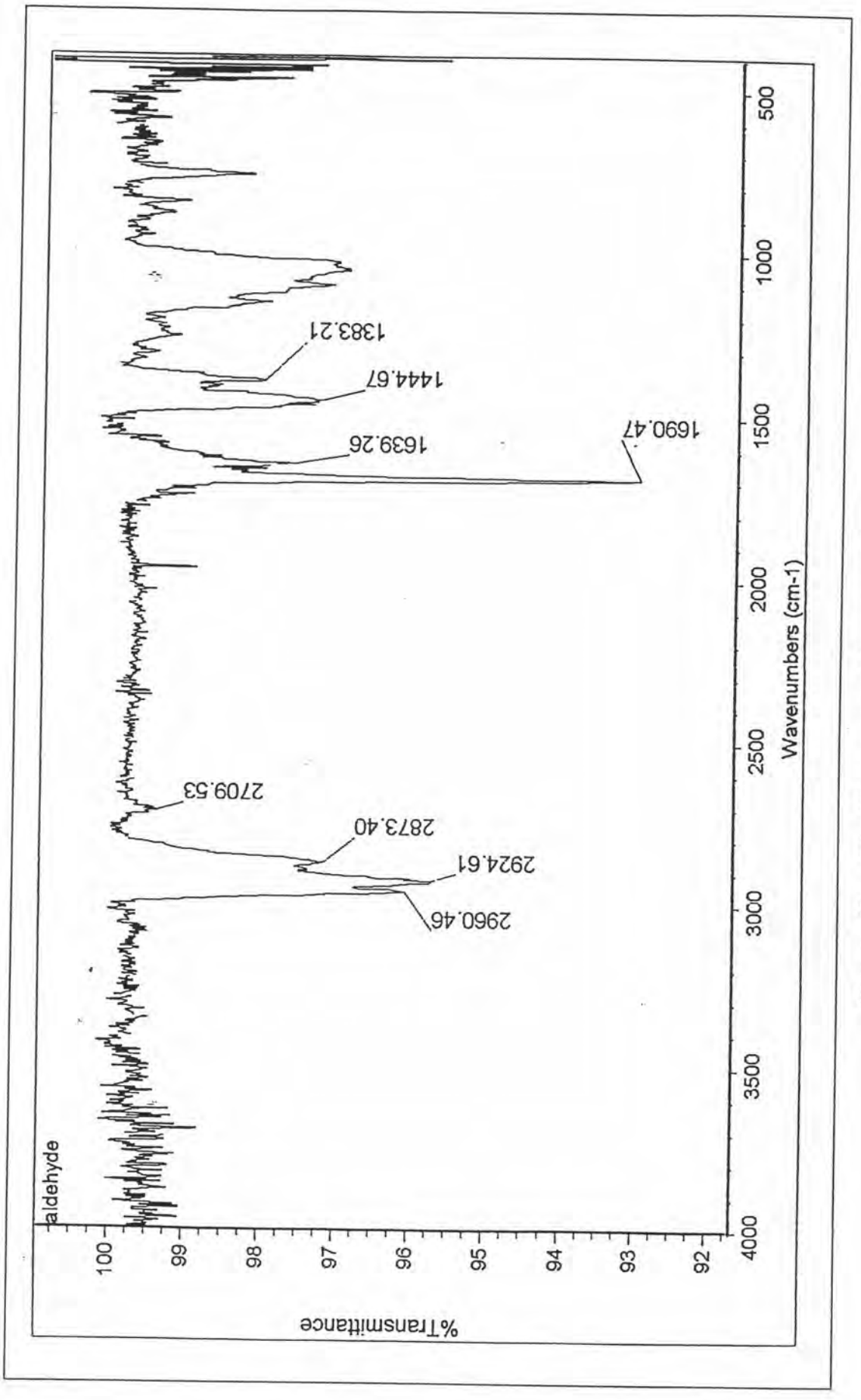

Figure 41 The IR spectrum of Compound 3

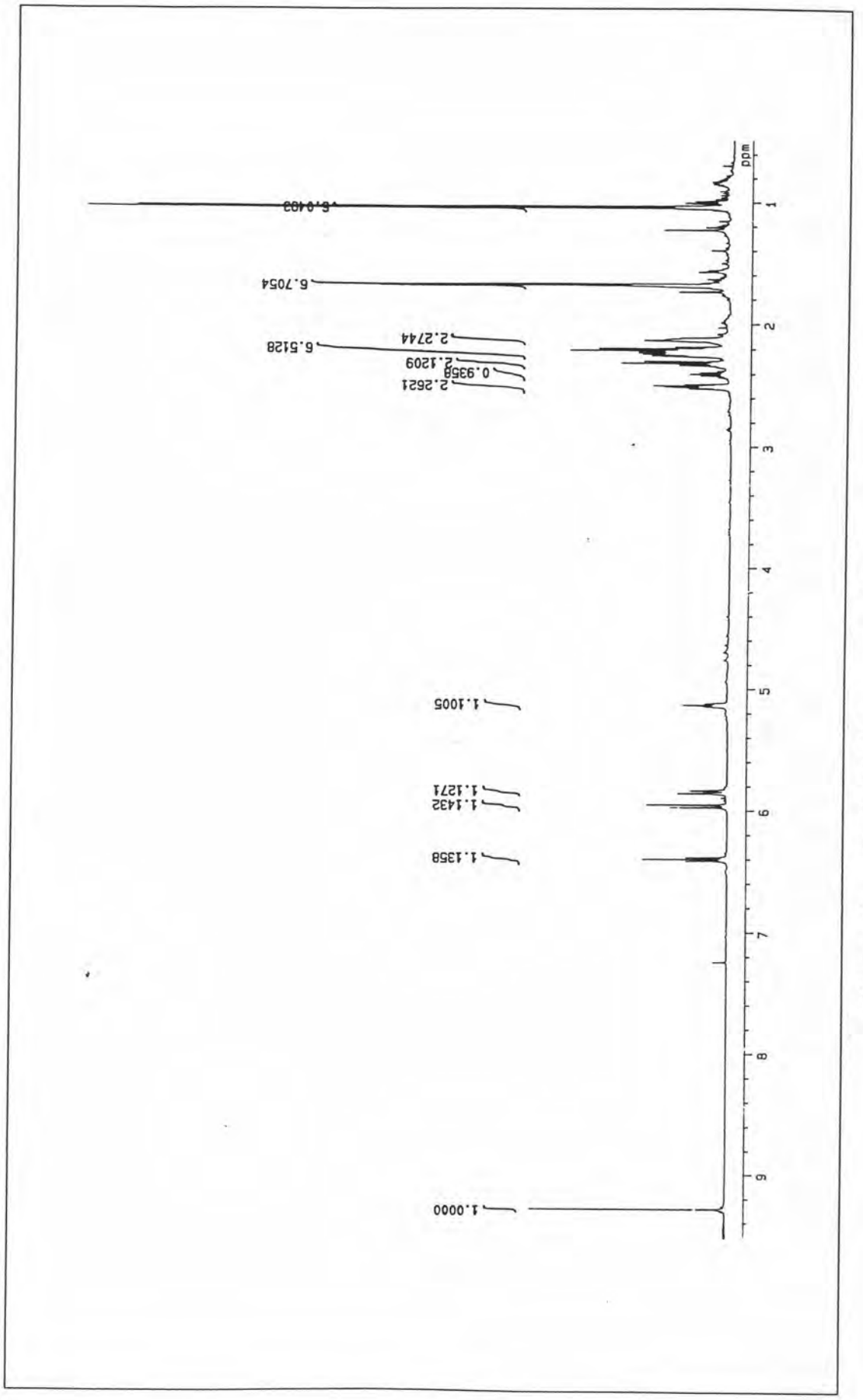

Figure 42 The ^{1}H-NMR spectrum of Compound 3

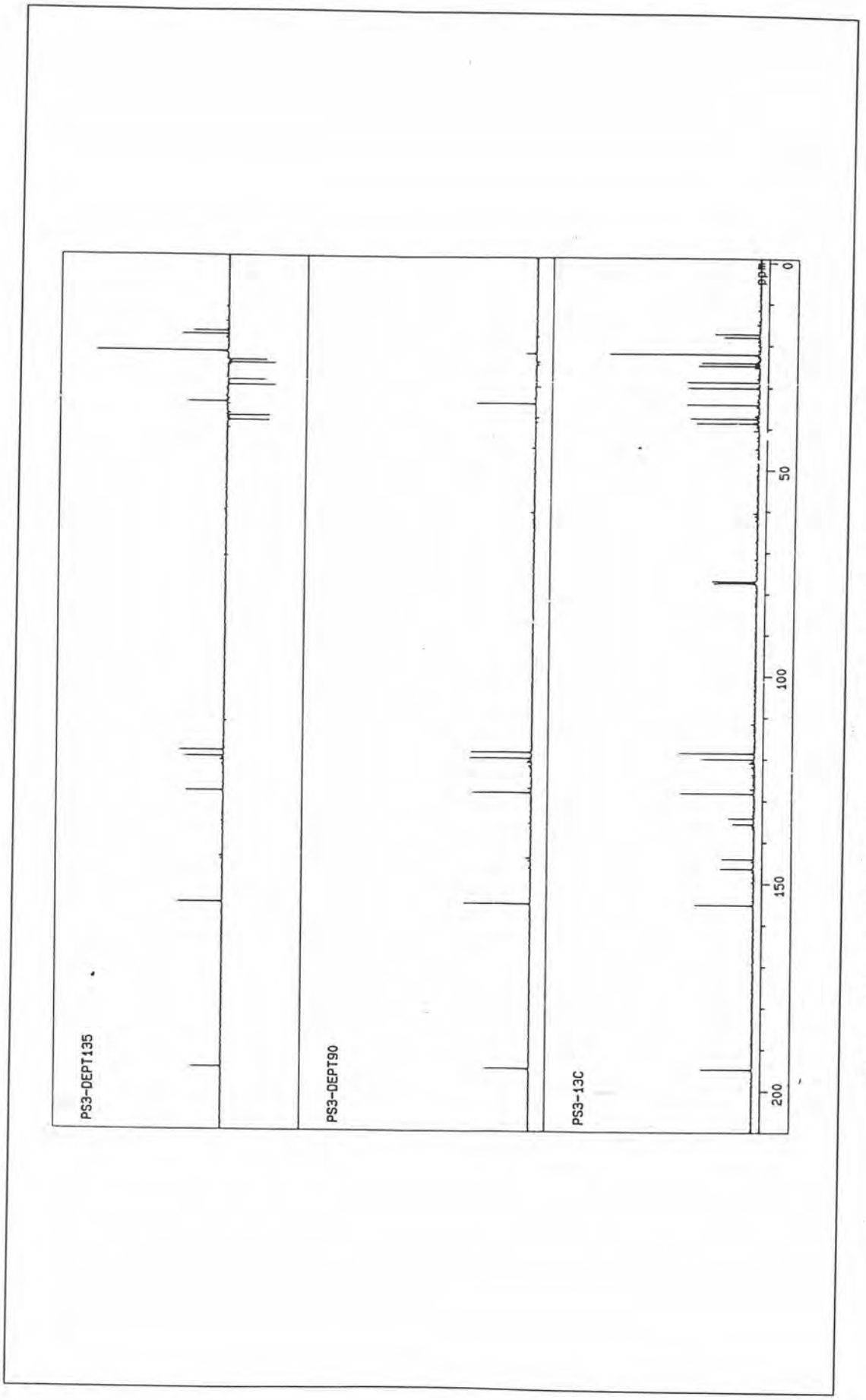

Figure 43 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 3

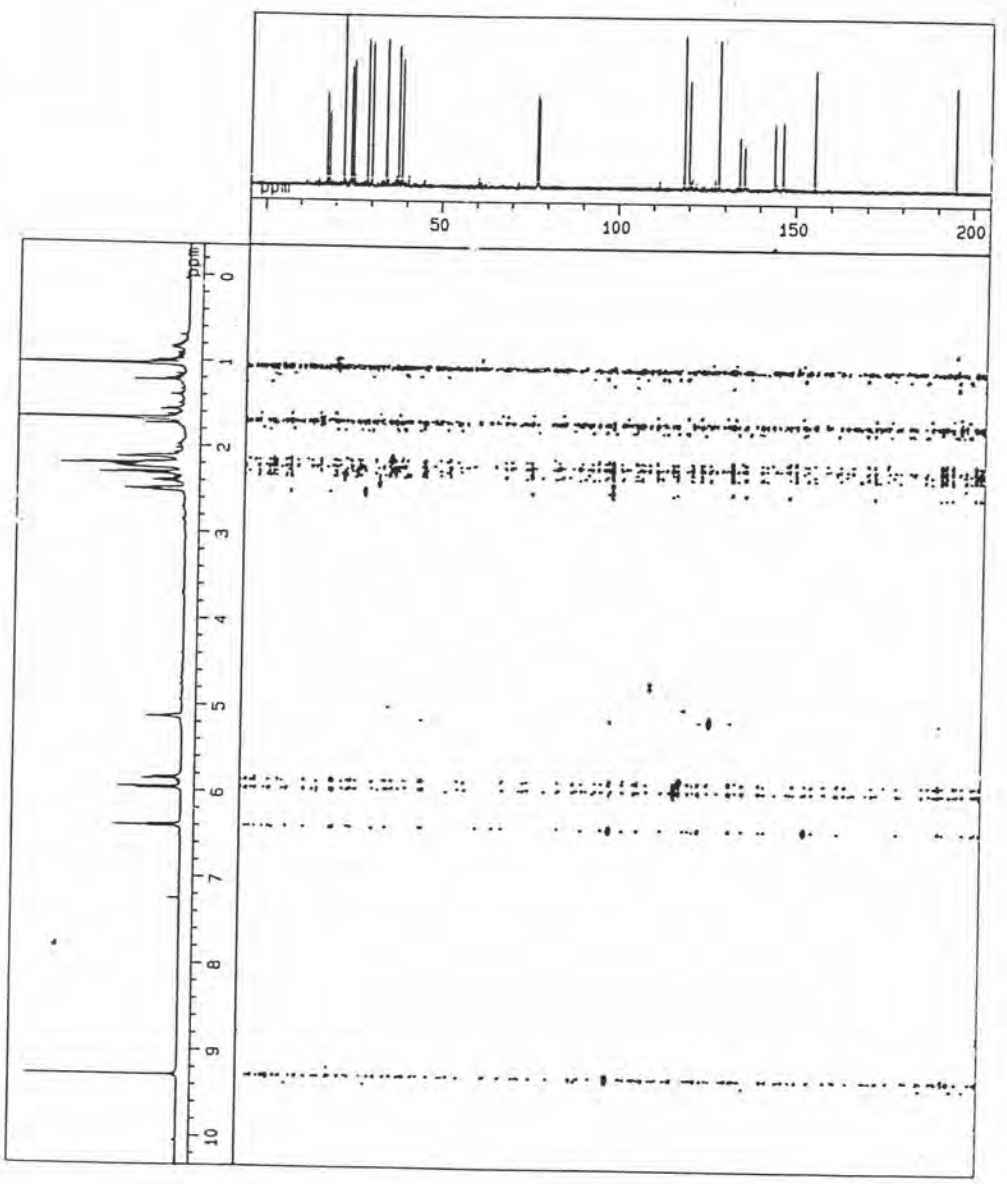

Figure 44 HMQC spectrum of Compound 3

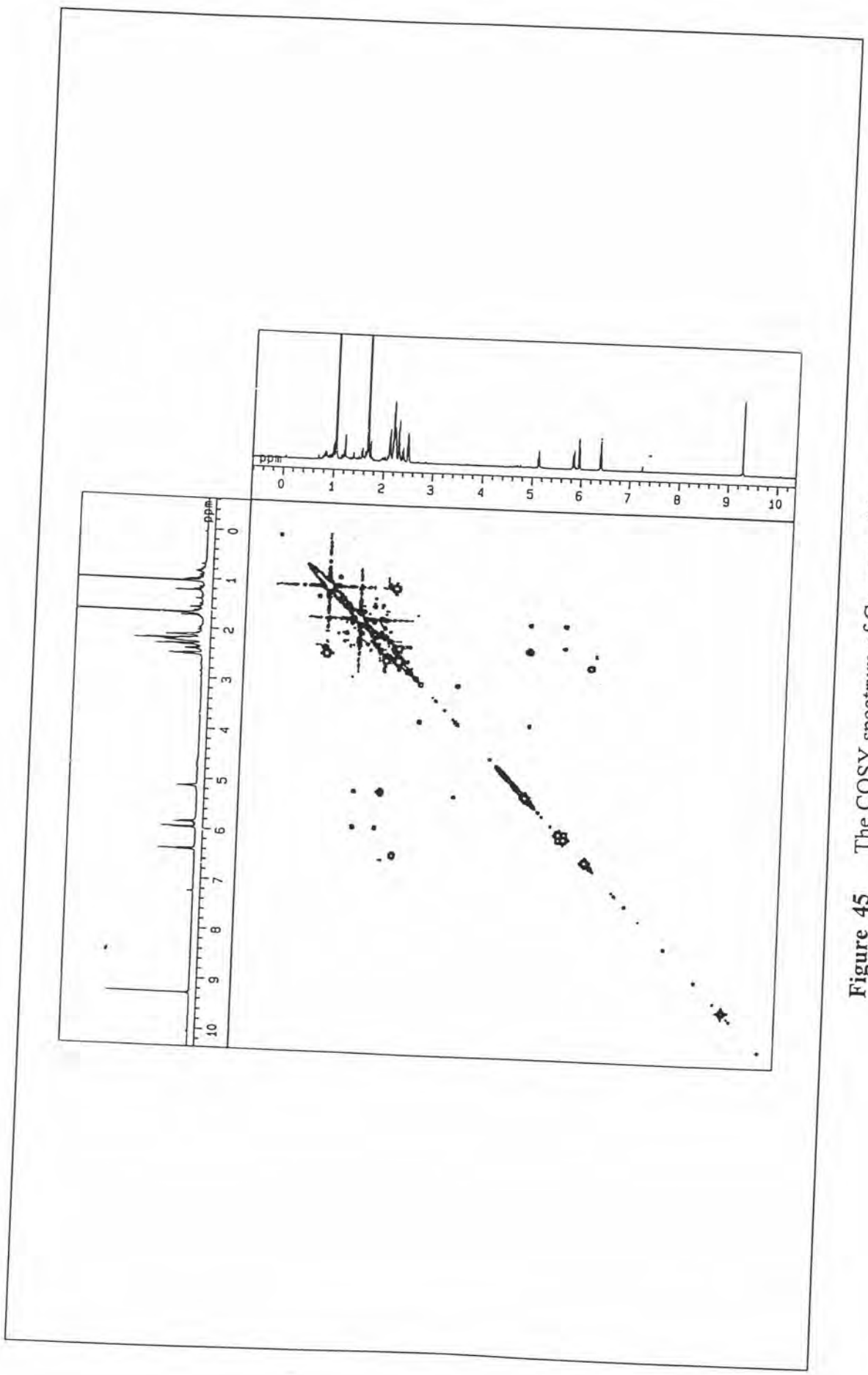

Figure 45 The COSY spectrum of Compound 3

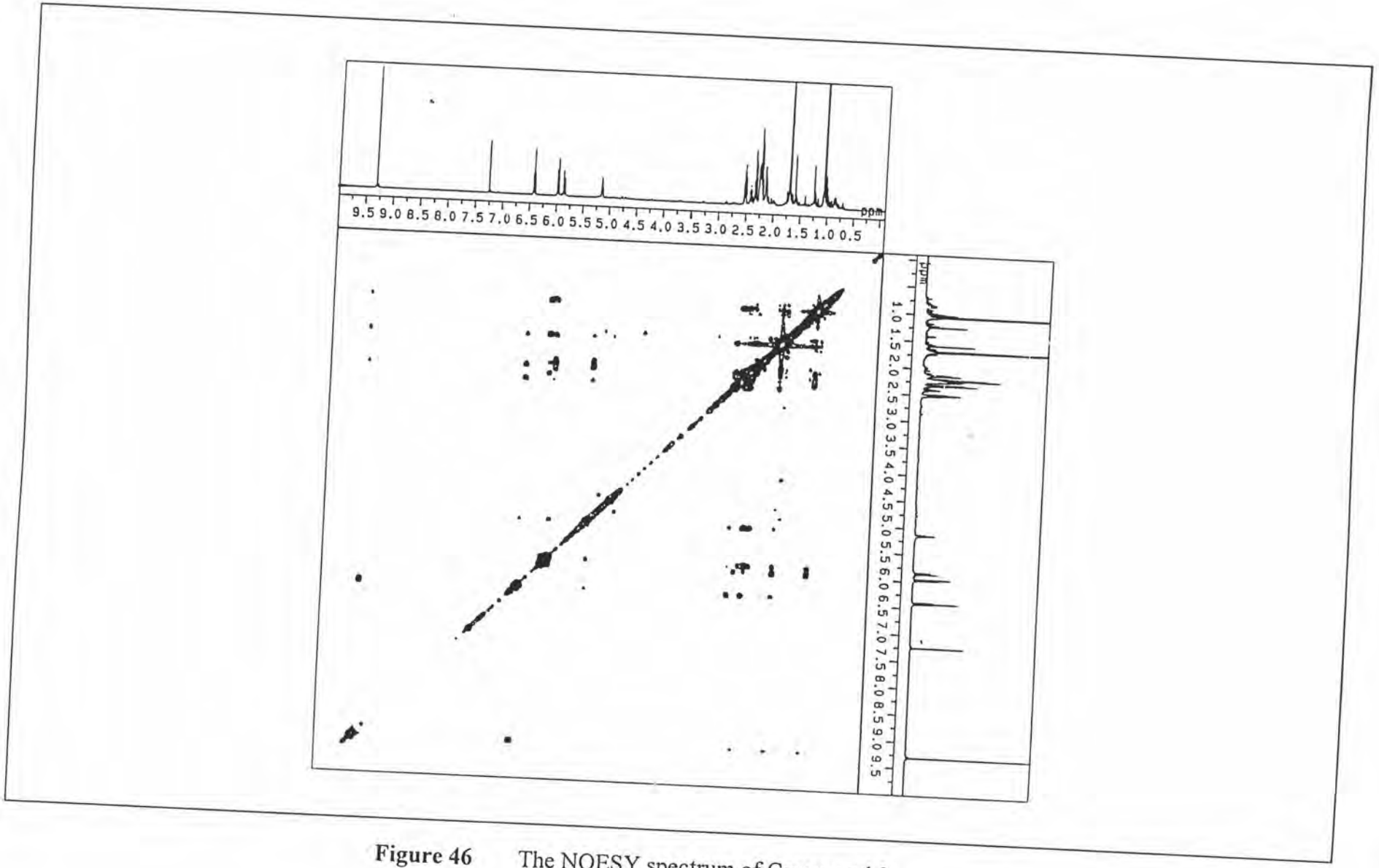

Figure 46 The NOESY spectrum of Compound 3

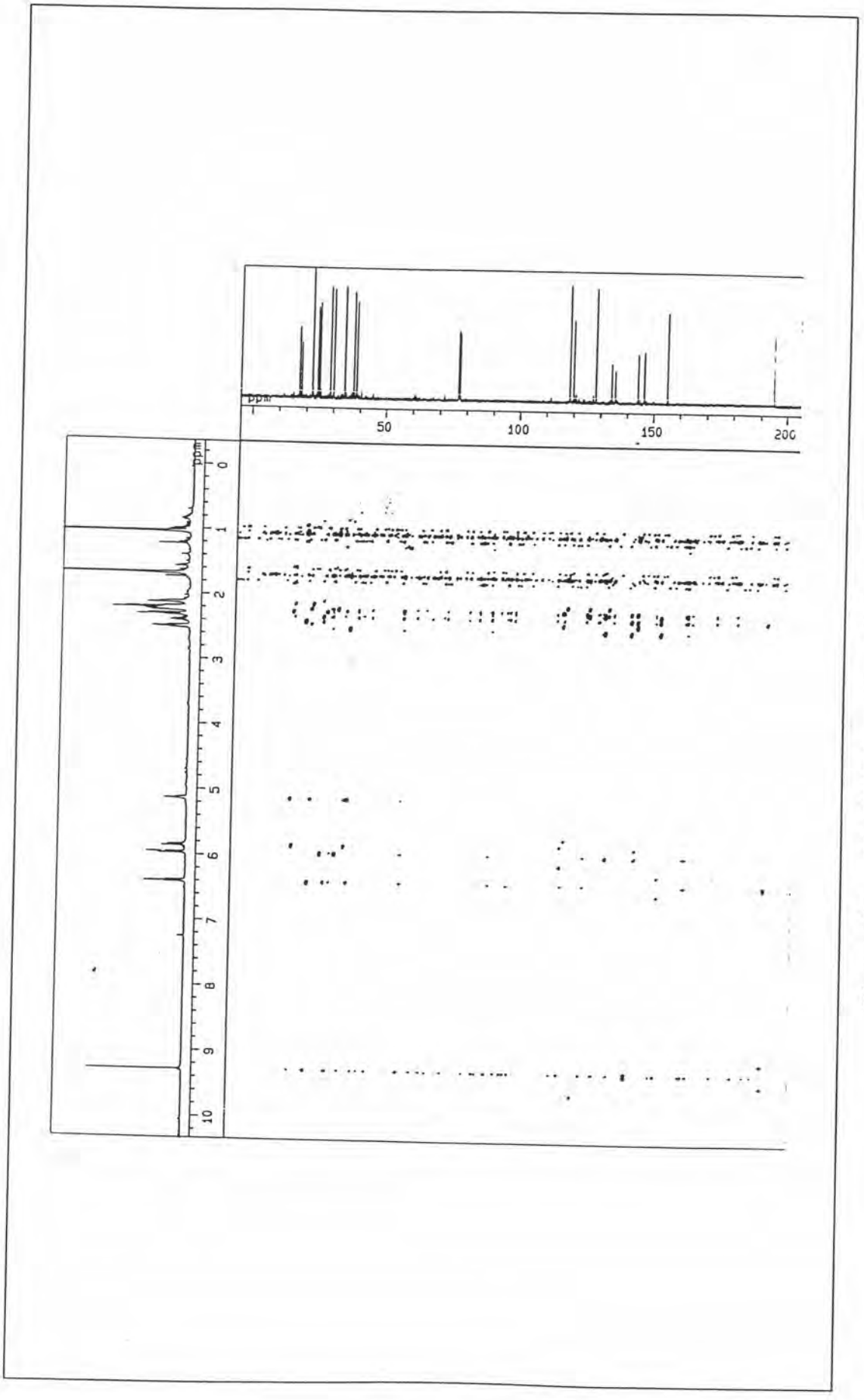

Figure 47 The HMBC spectrum of Compound 3

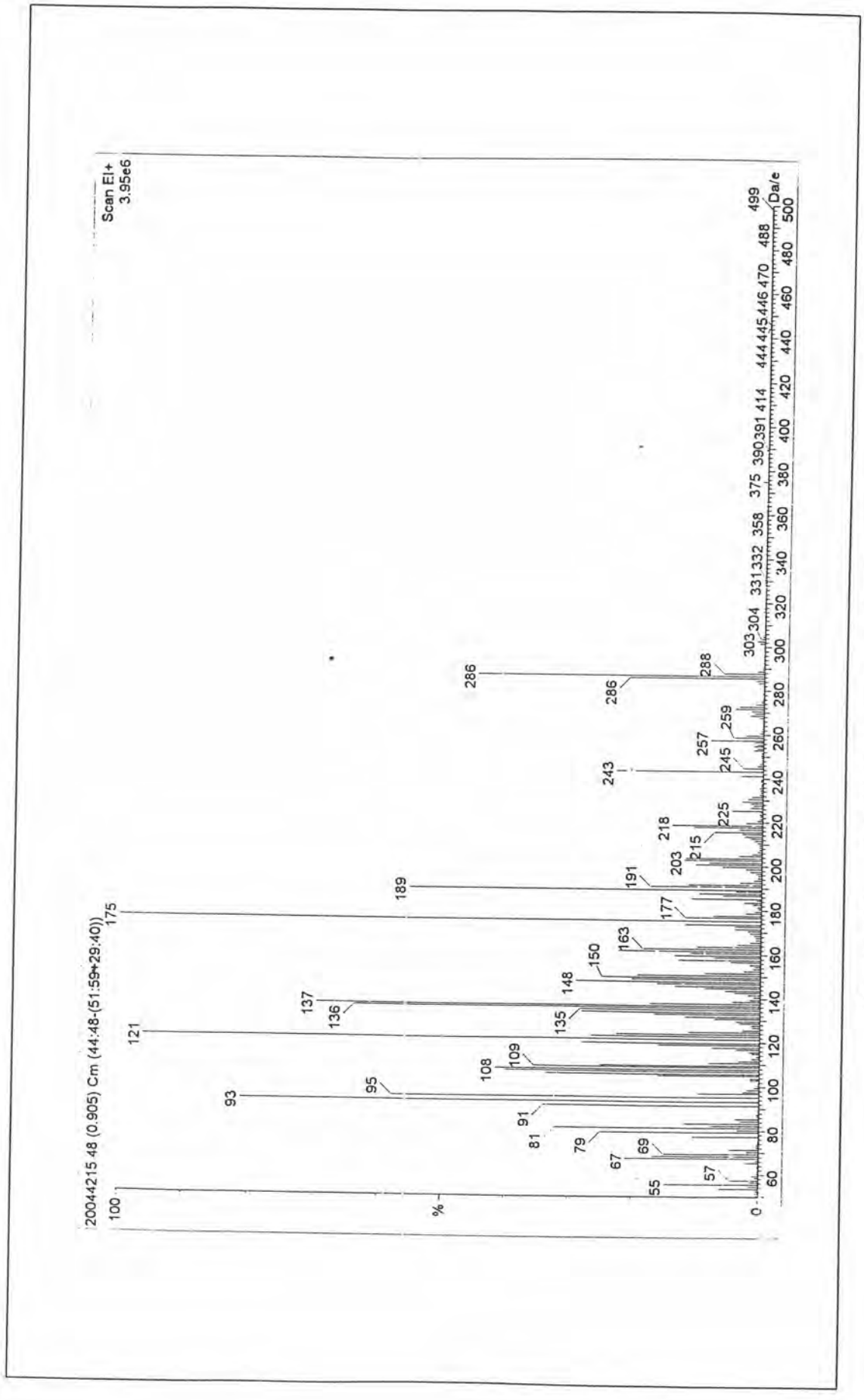

Figure 48 The EIMS spectrum of Compound 3

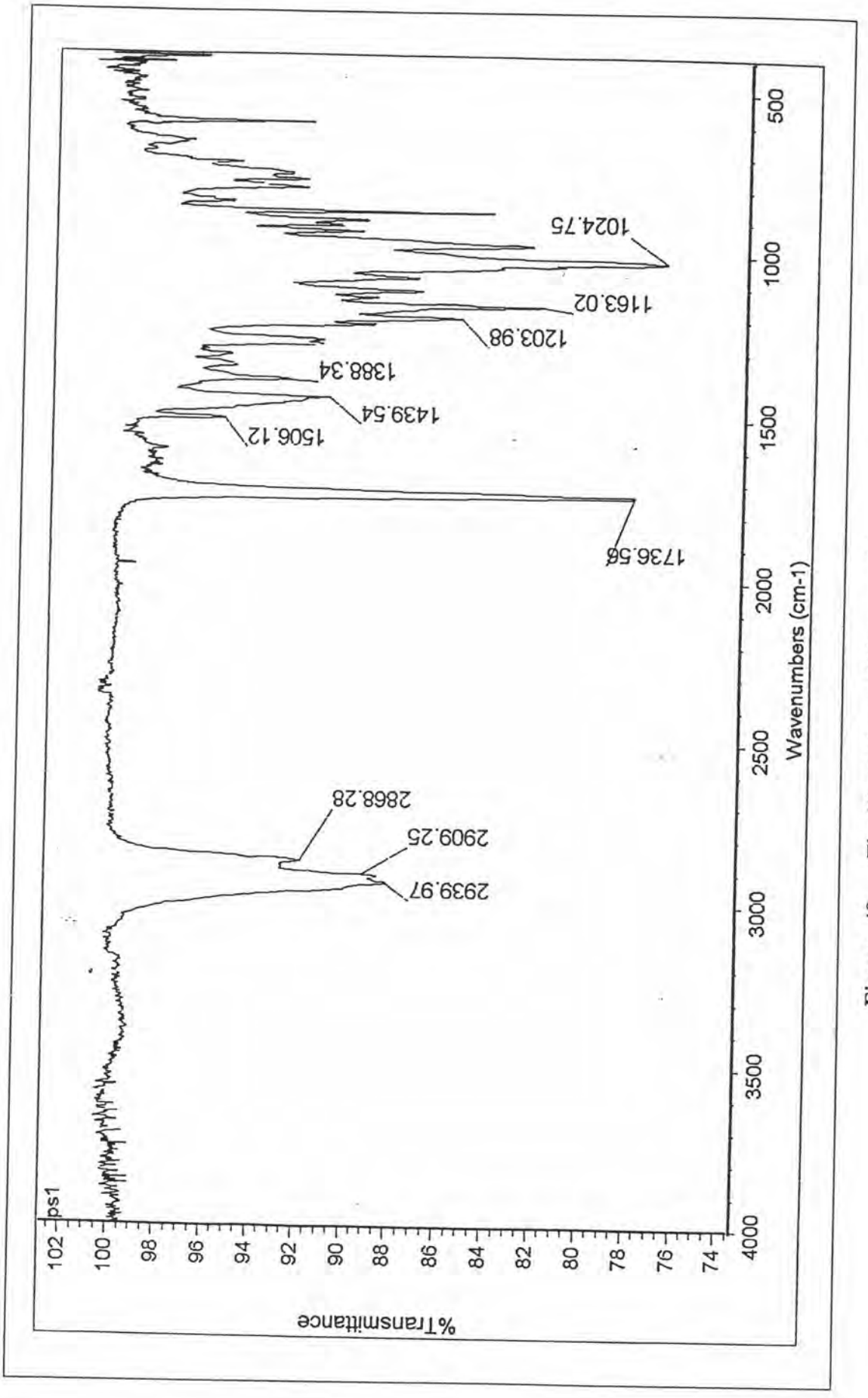

Figure 49 The IR spectrum of Compound 4

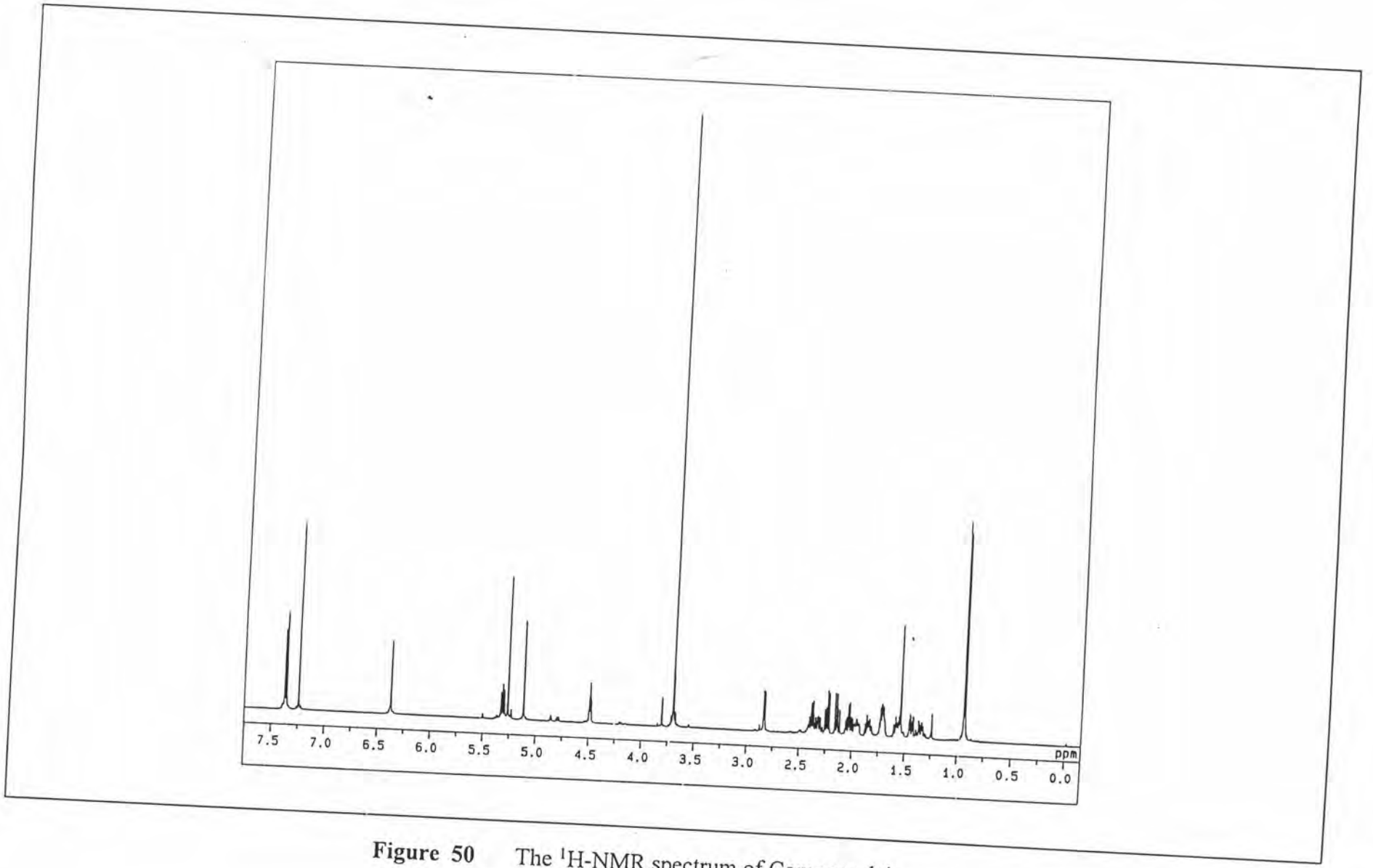

Figure 50 The ^{1}H-NMR spectrum of Compound 4

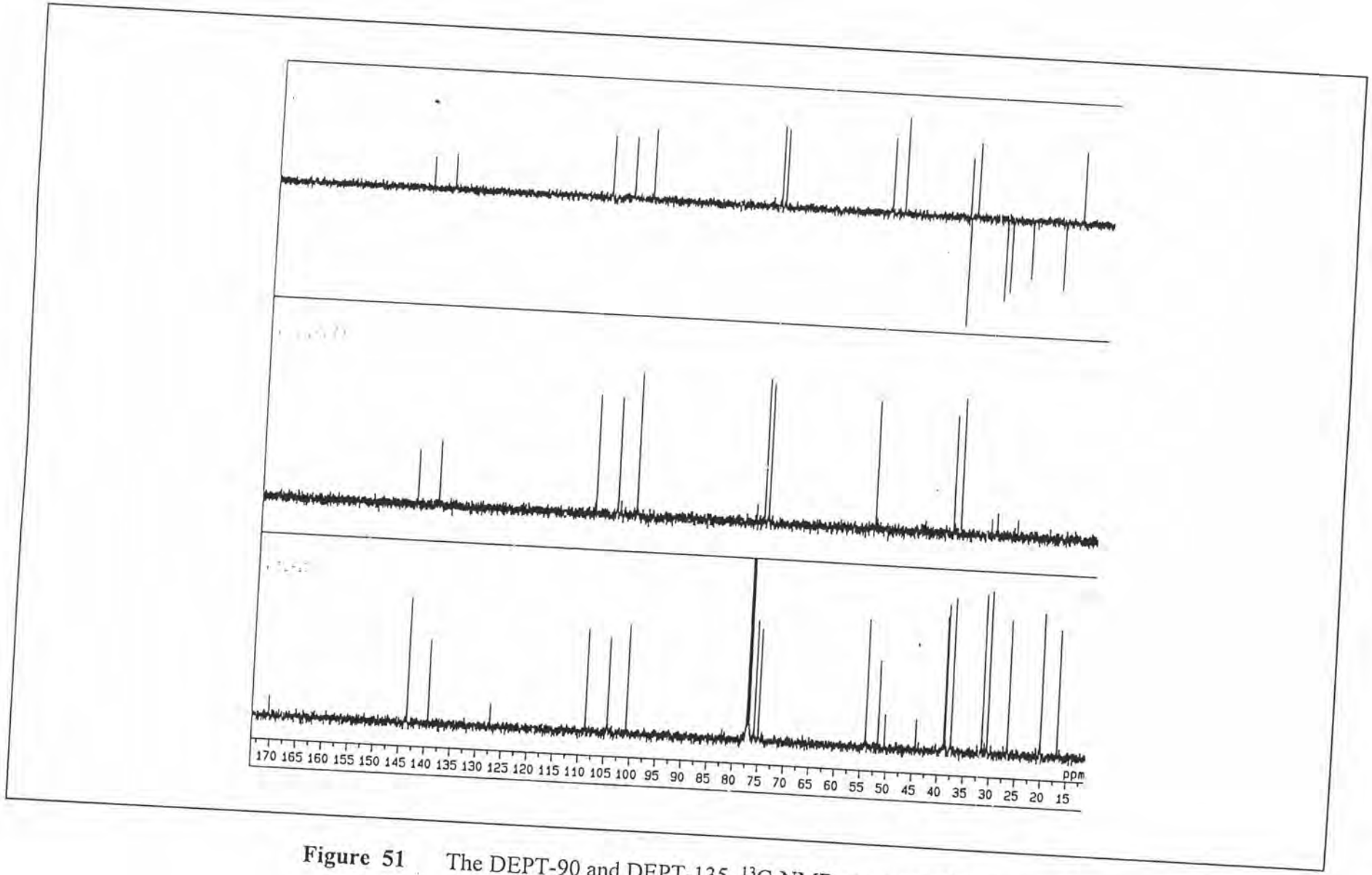

Figure 51 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 4

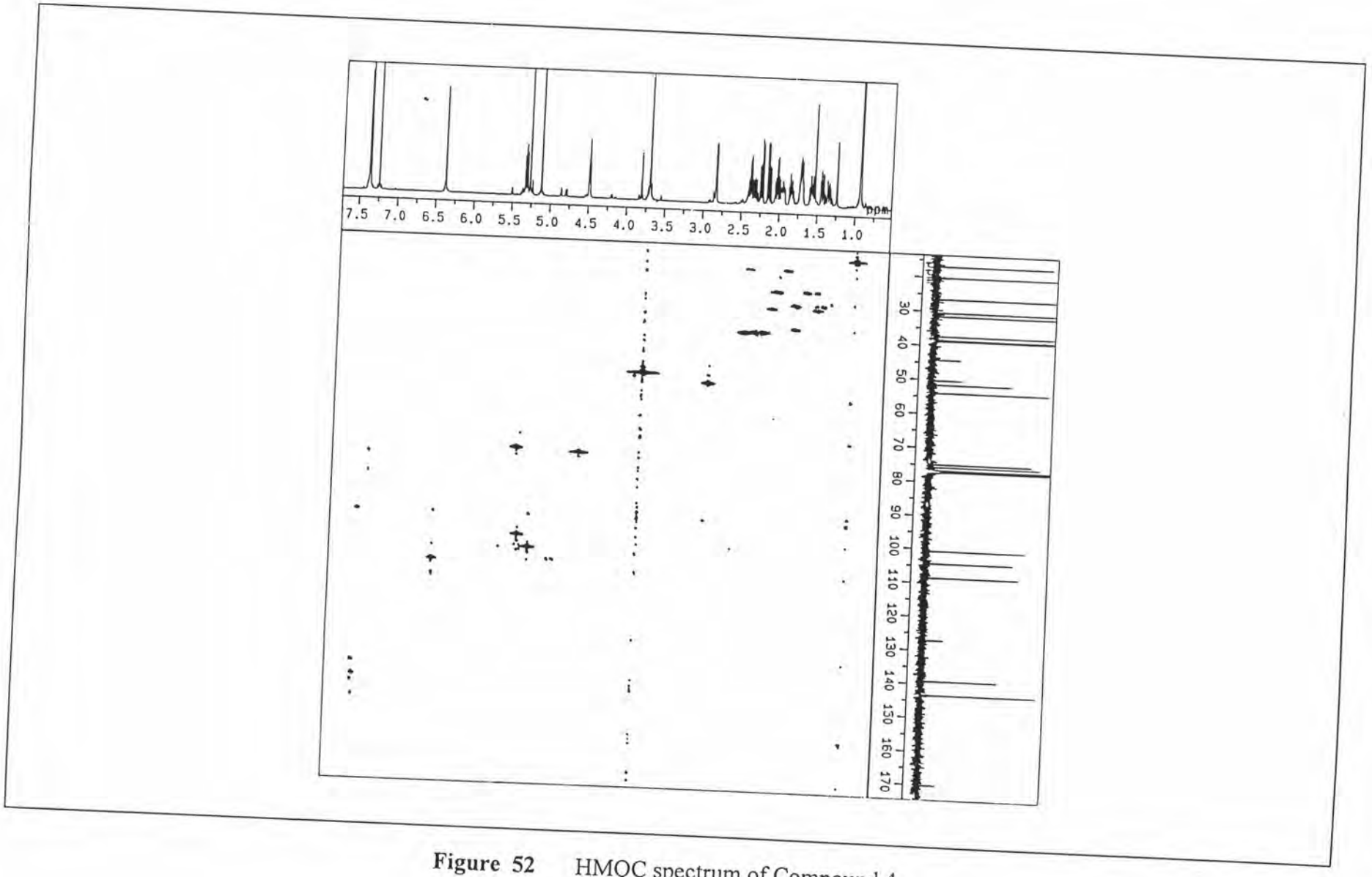

Figure 52 HMQC spectrum of Compound 4

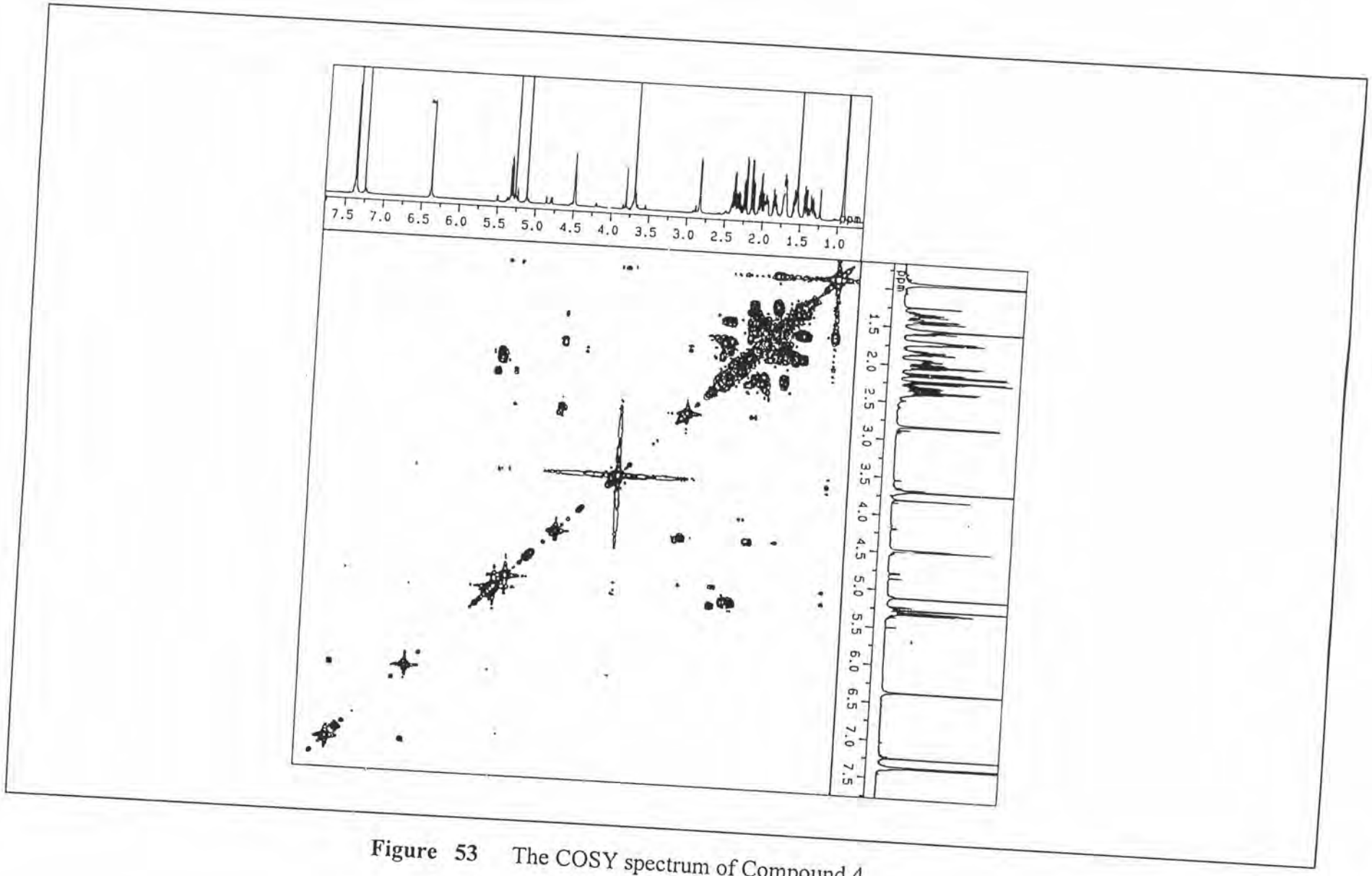

Figure 53 The COSY spectrum of Compound 4

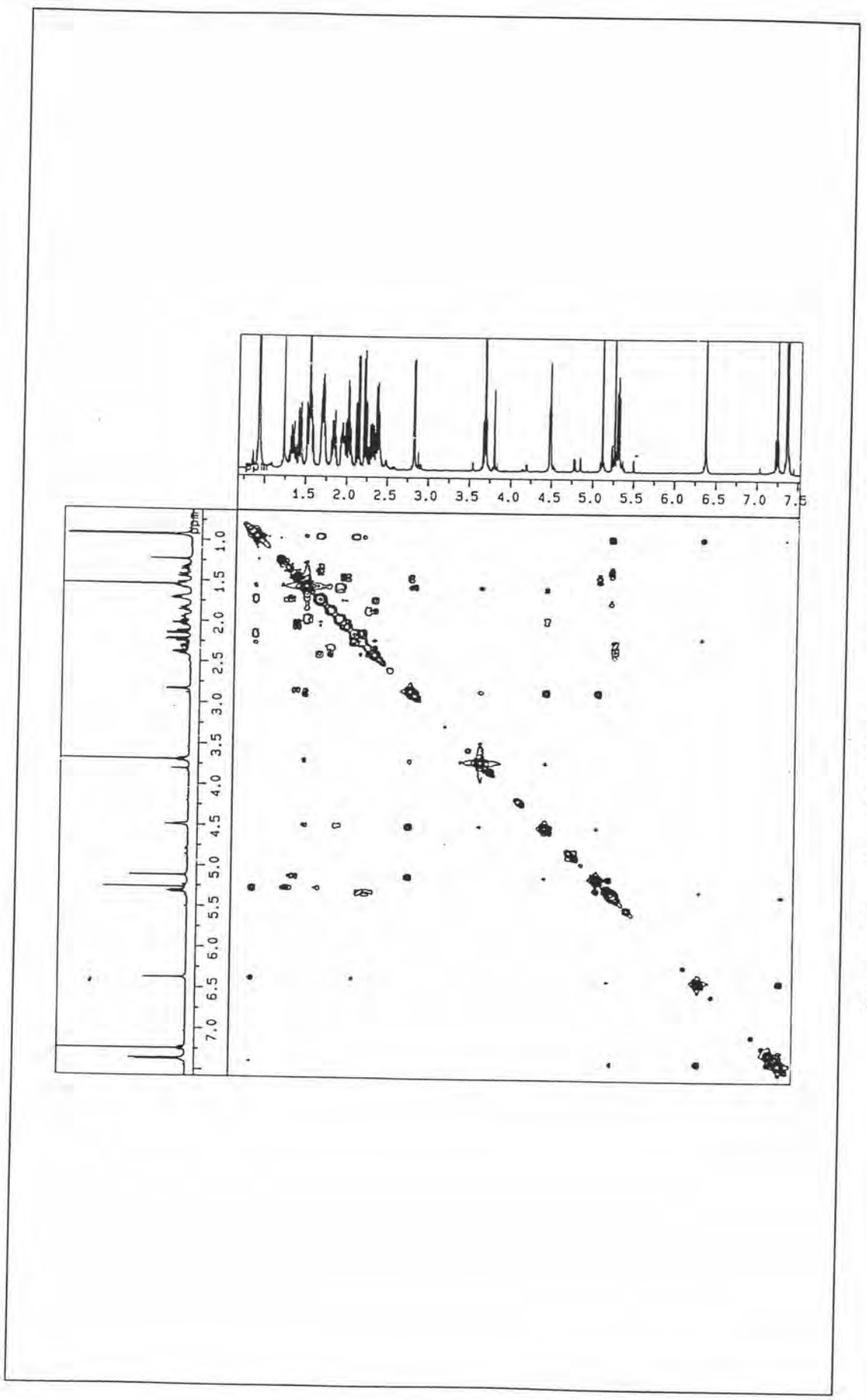

Figure 54 The NOESY spectrum of Compound 4

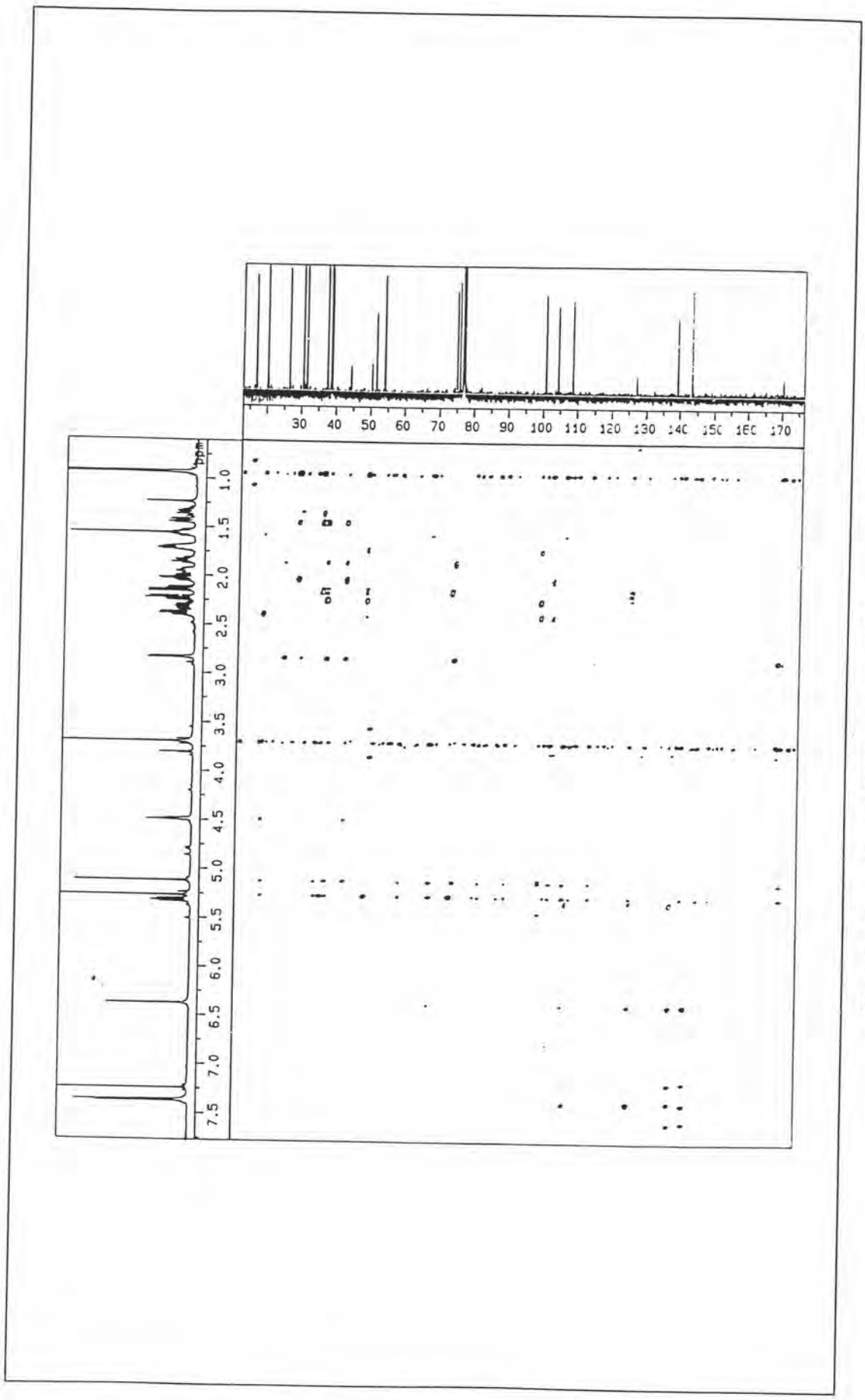

Figure 55 The HMBC spectrum of Compound 4

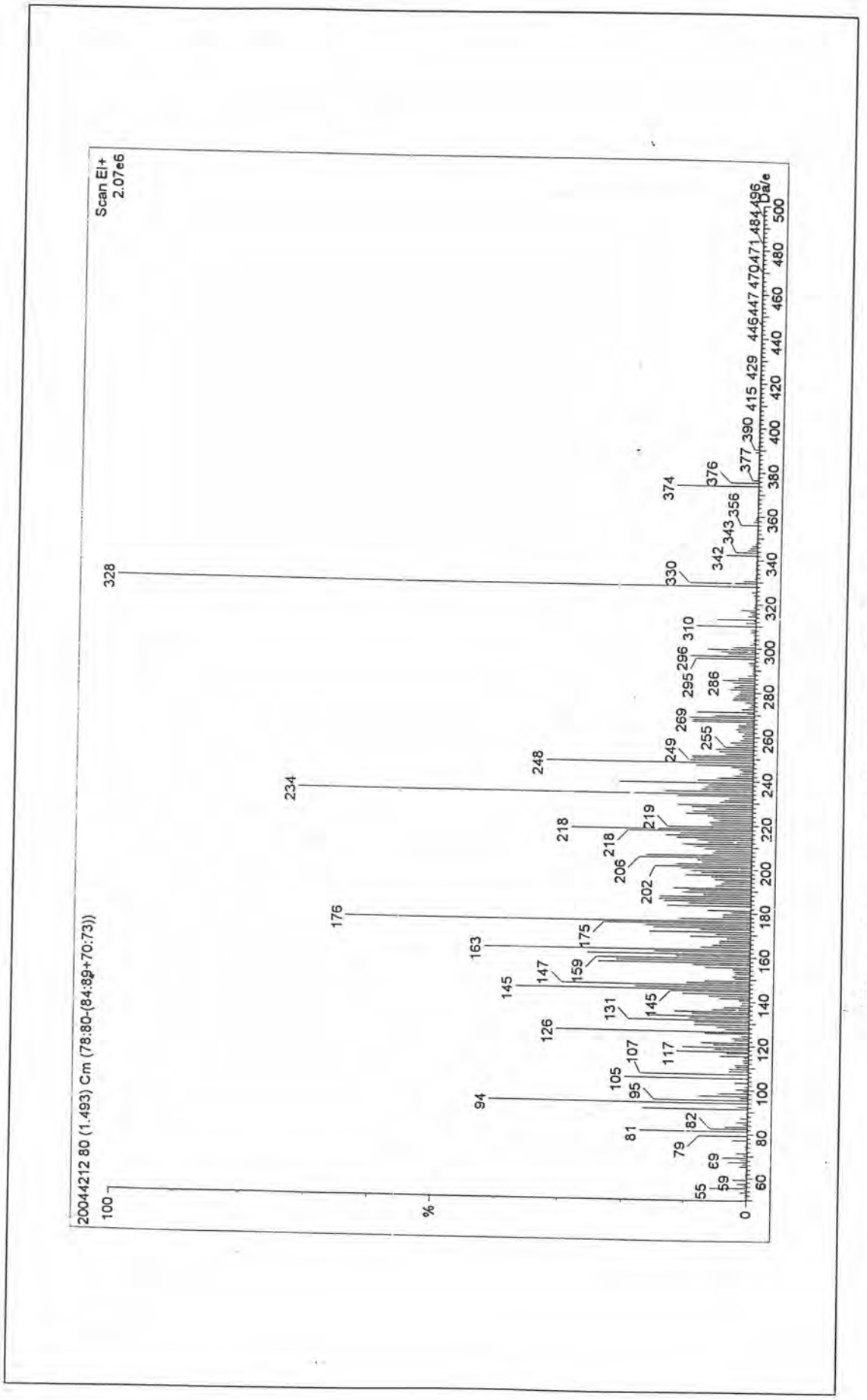

Figure 56 The EIMS spectrum of Compound 4

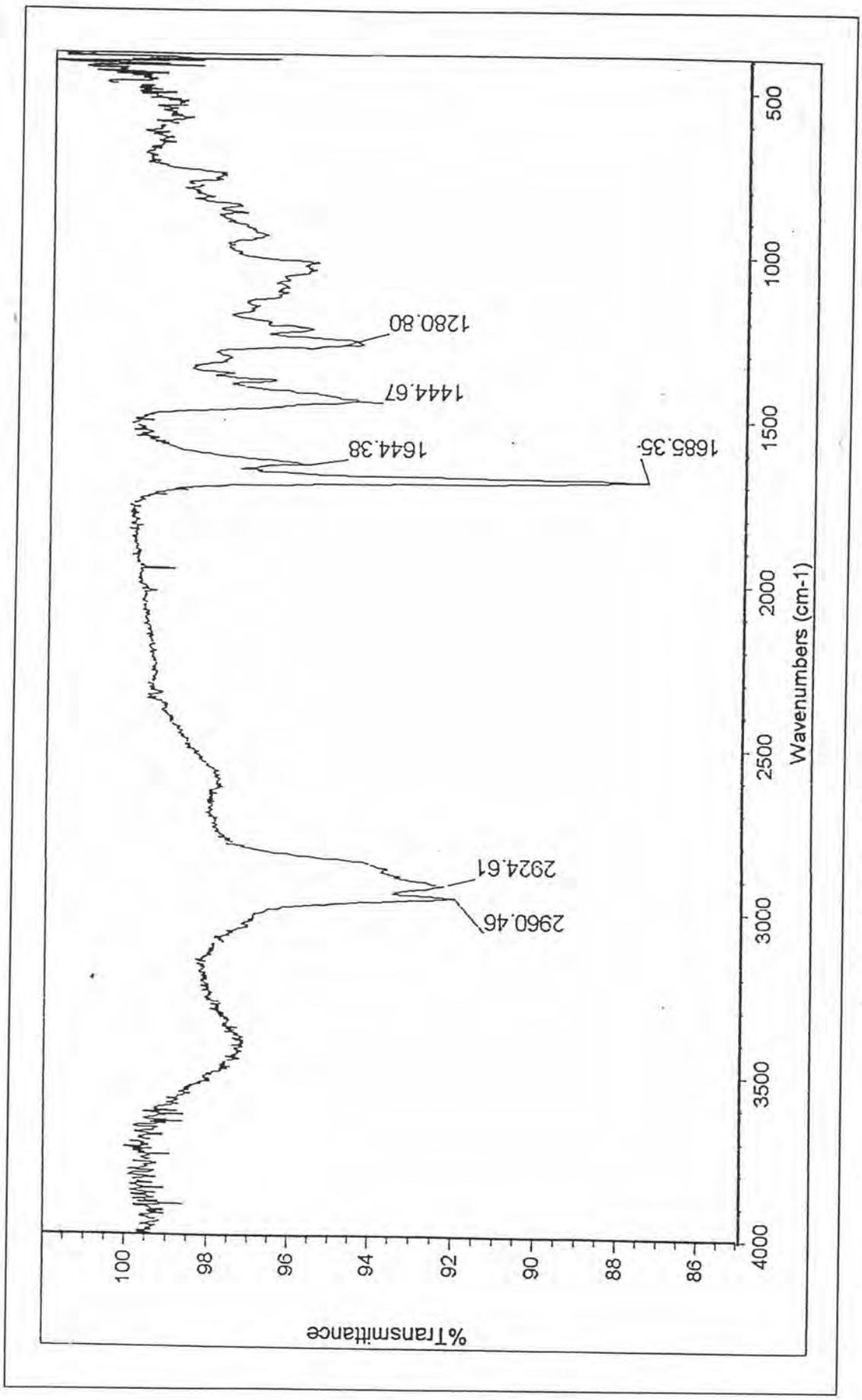

Figure 57 The IR spectrum of Compound 5

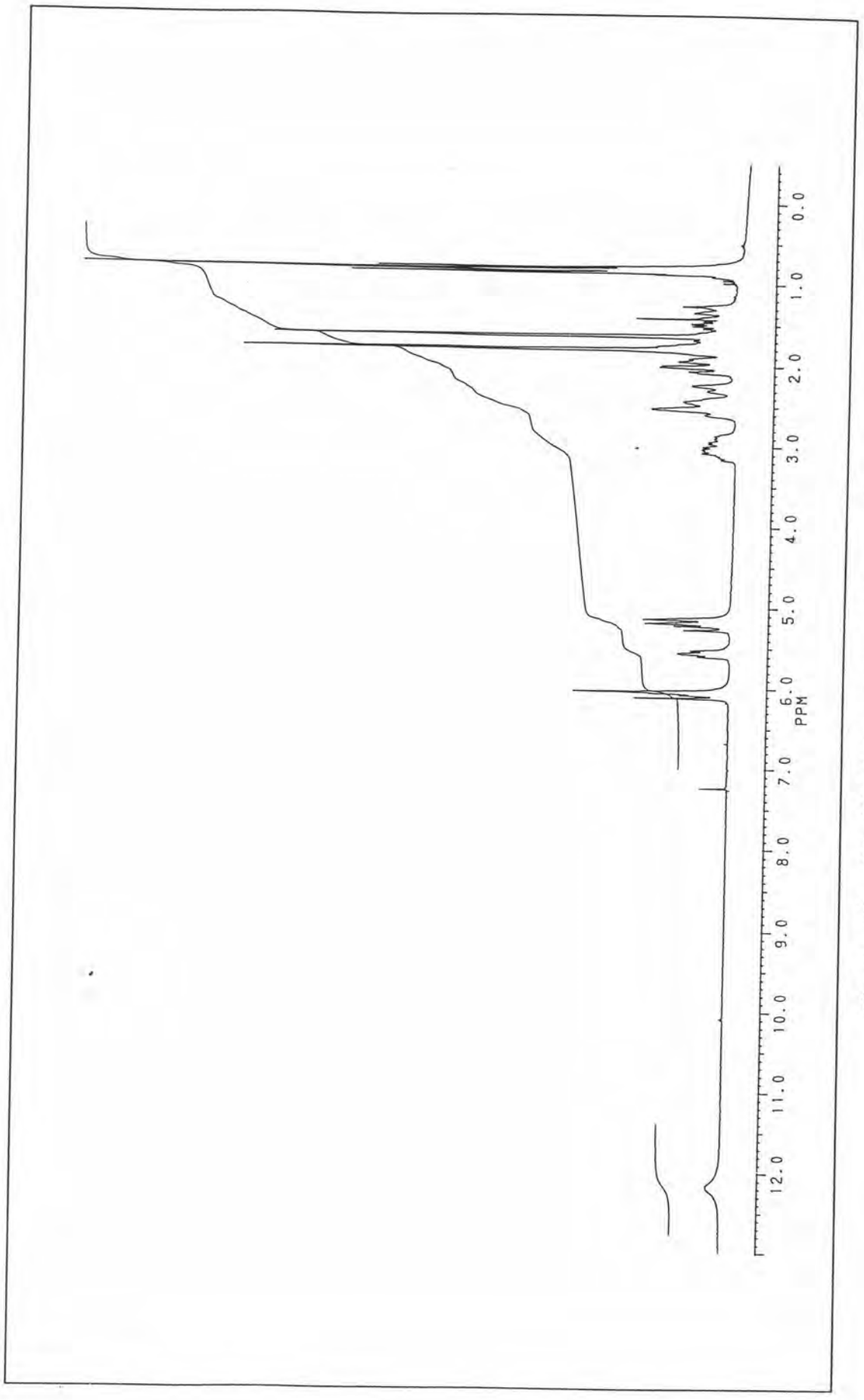

Figure 58 The ^{1}H-NMR spectrum of Compound 5

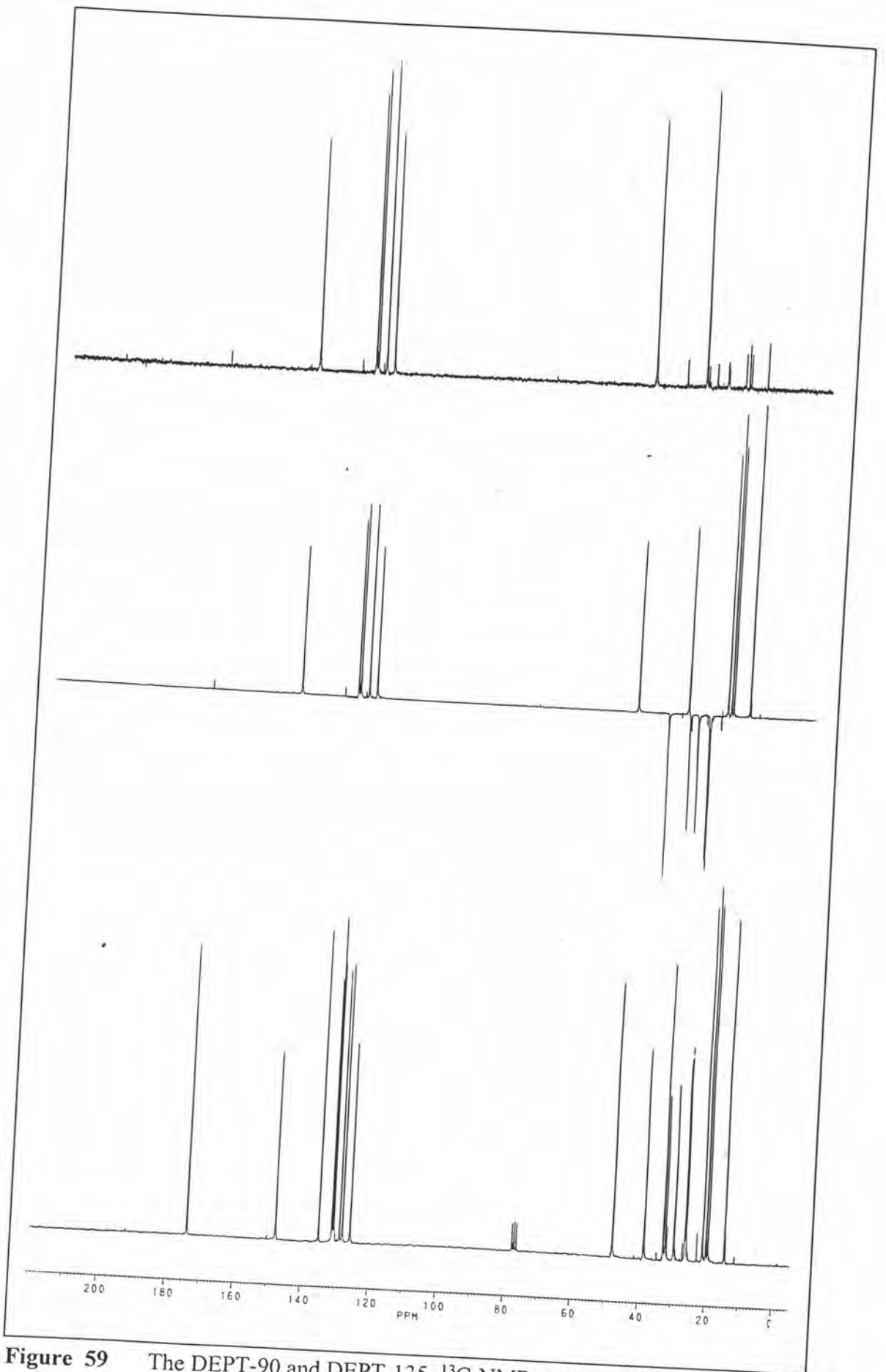

Figure 59 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 5

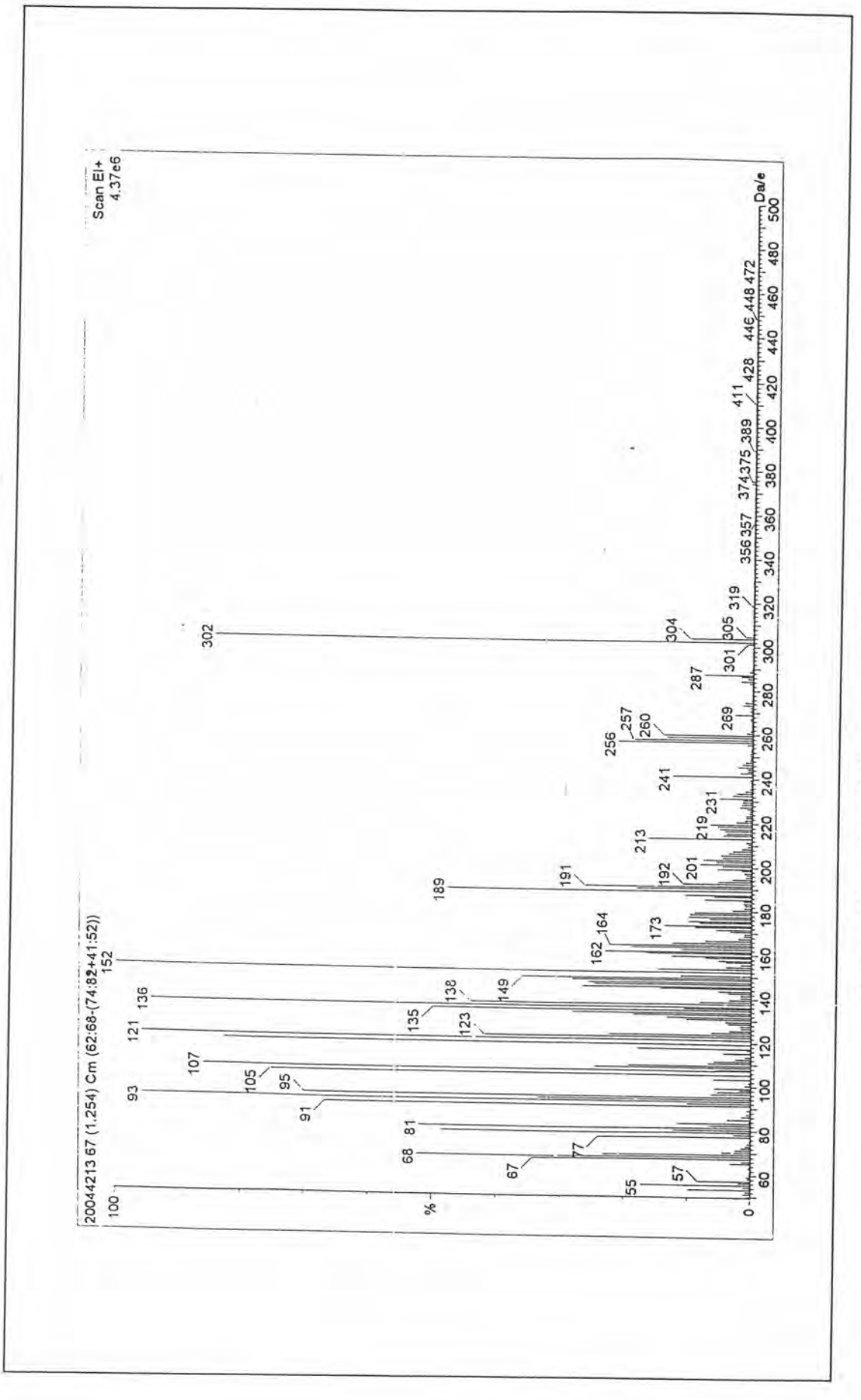

Figure 60 The EIMS spectrum of Compound 5

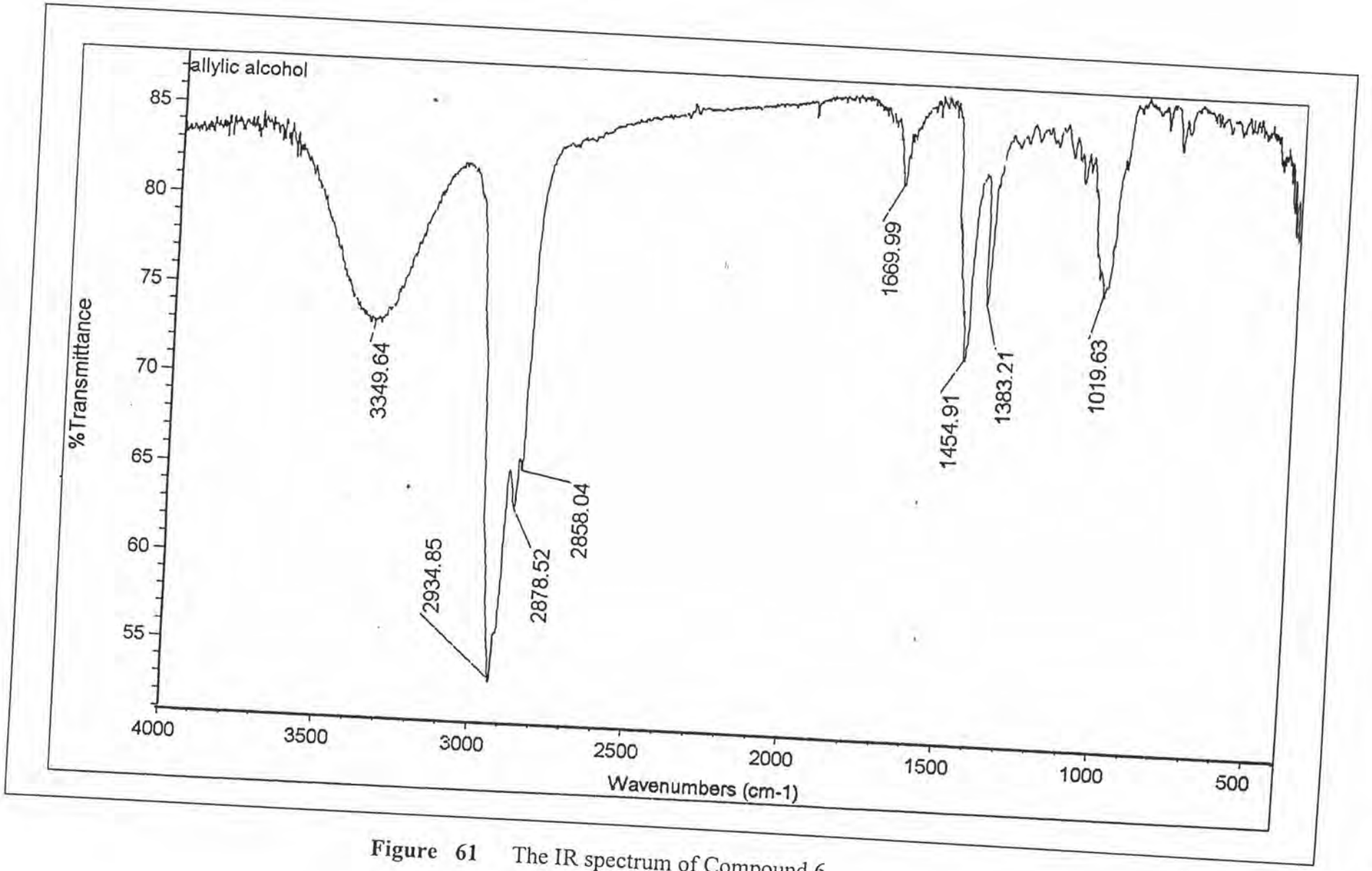

Figure 61 The IR spectrum of Compound 6

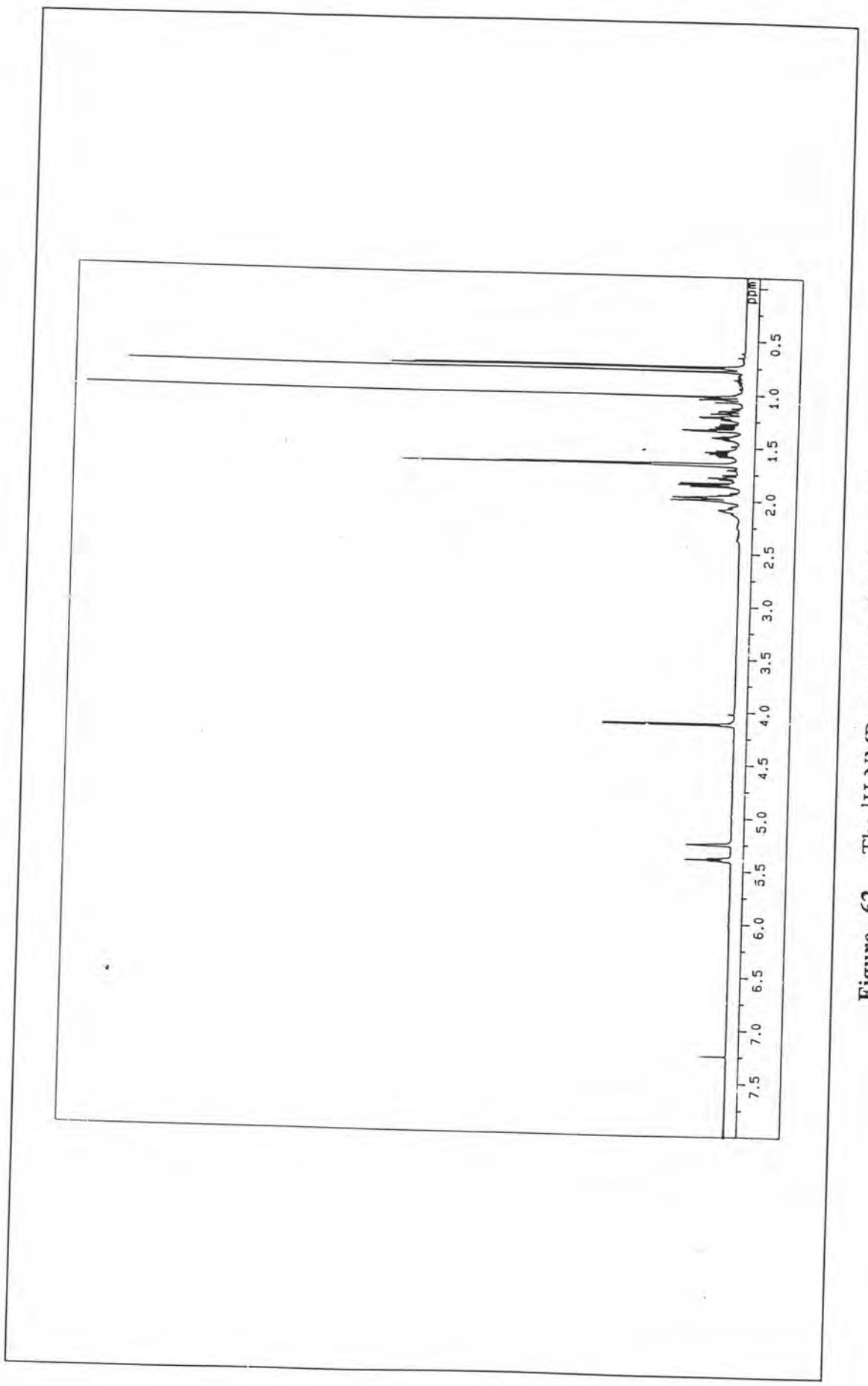

Figure 62 The ^{1}H-NMR spectrum of Compound 6

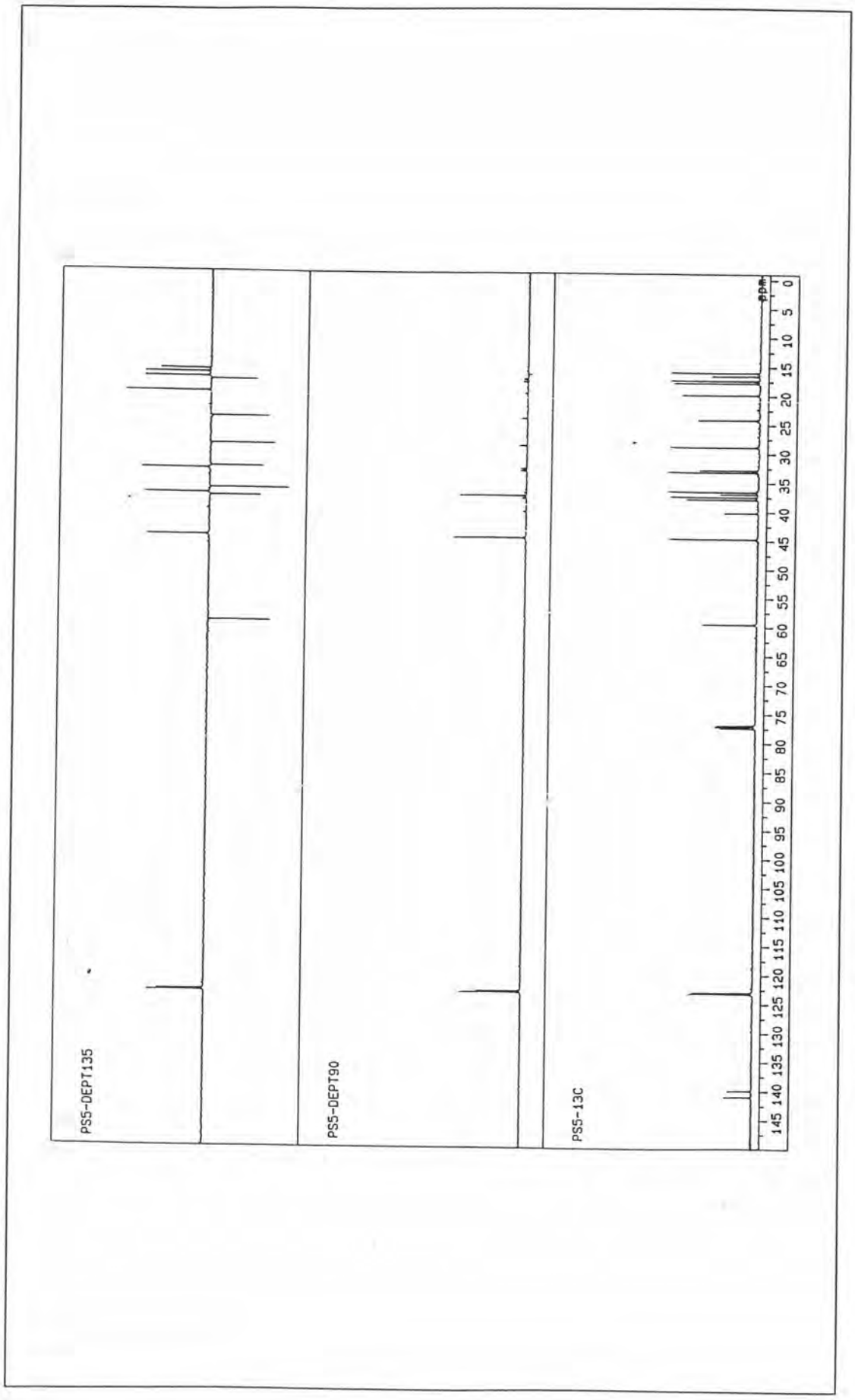

Figure 63 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 6

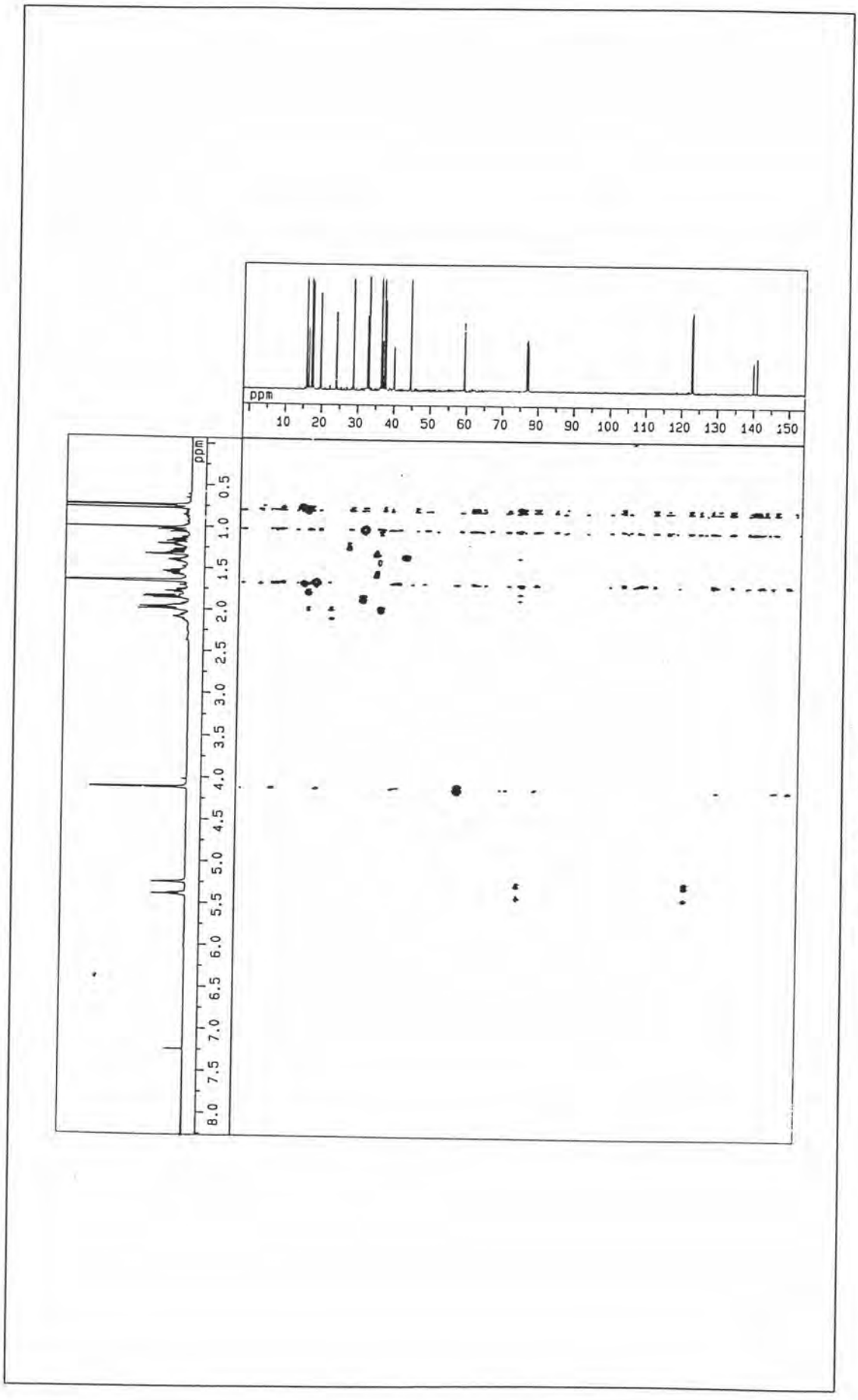

Figure 64 HMQC spectrum of Compound 6

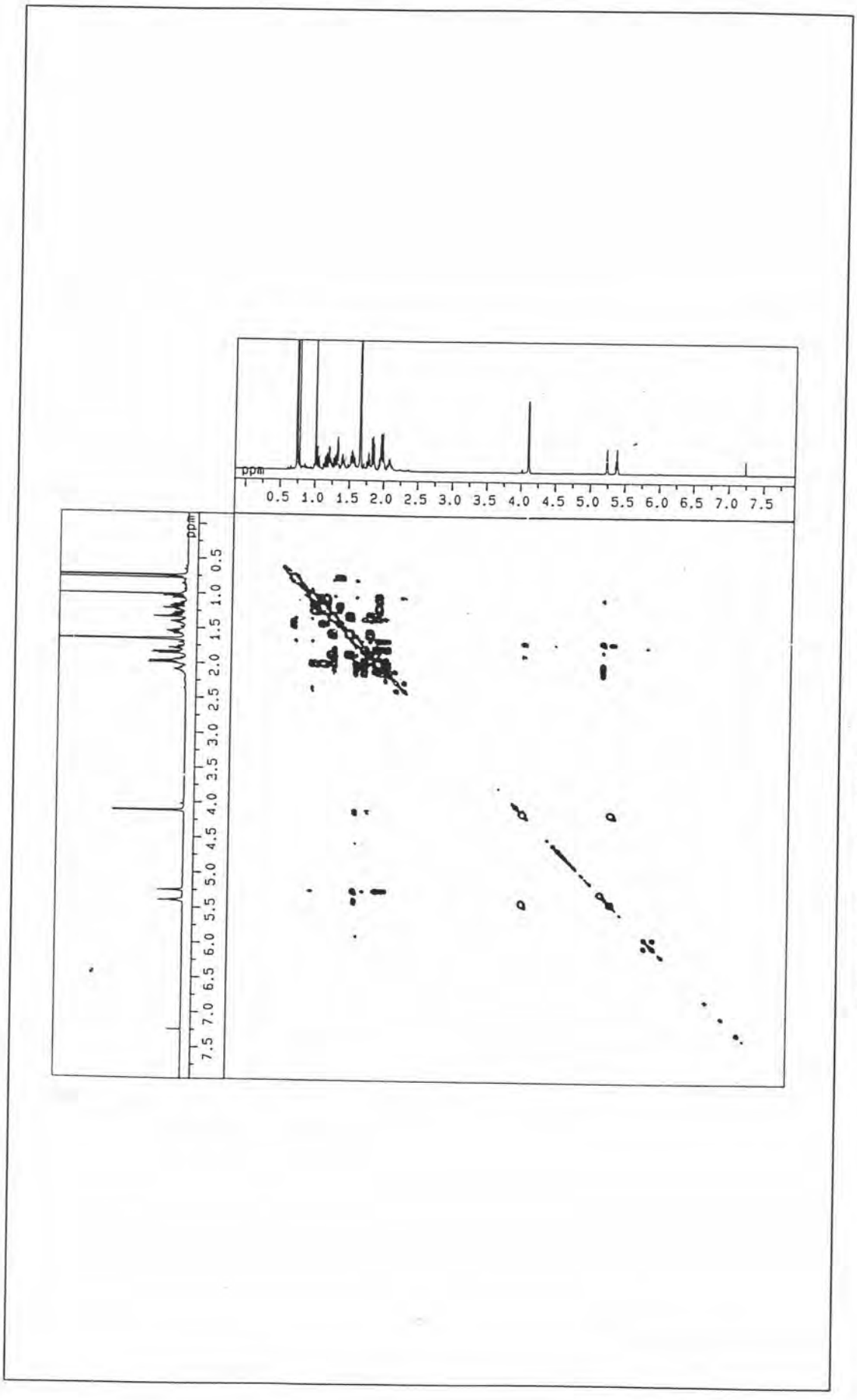

Figure 65 The COSY spectrum of Compound 6

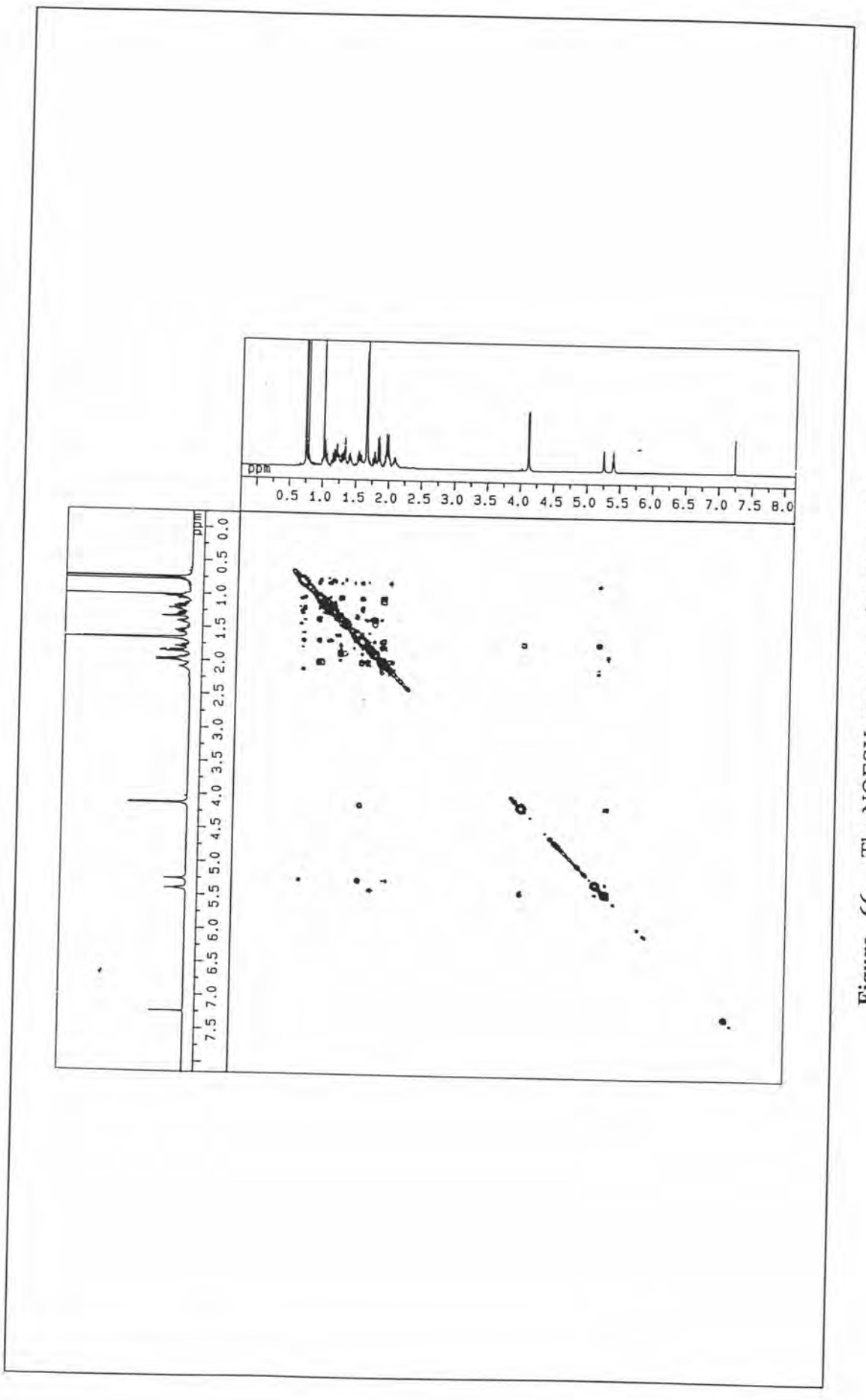

Figure 66 The NOESY spectrum of Compound 6

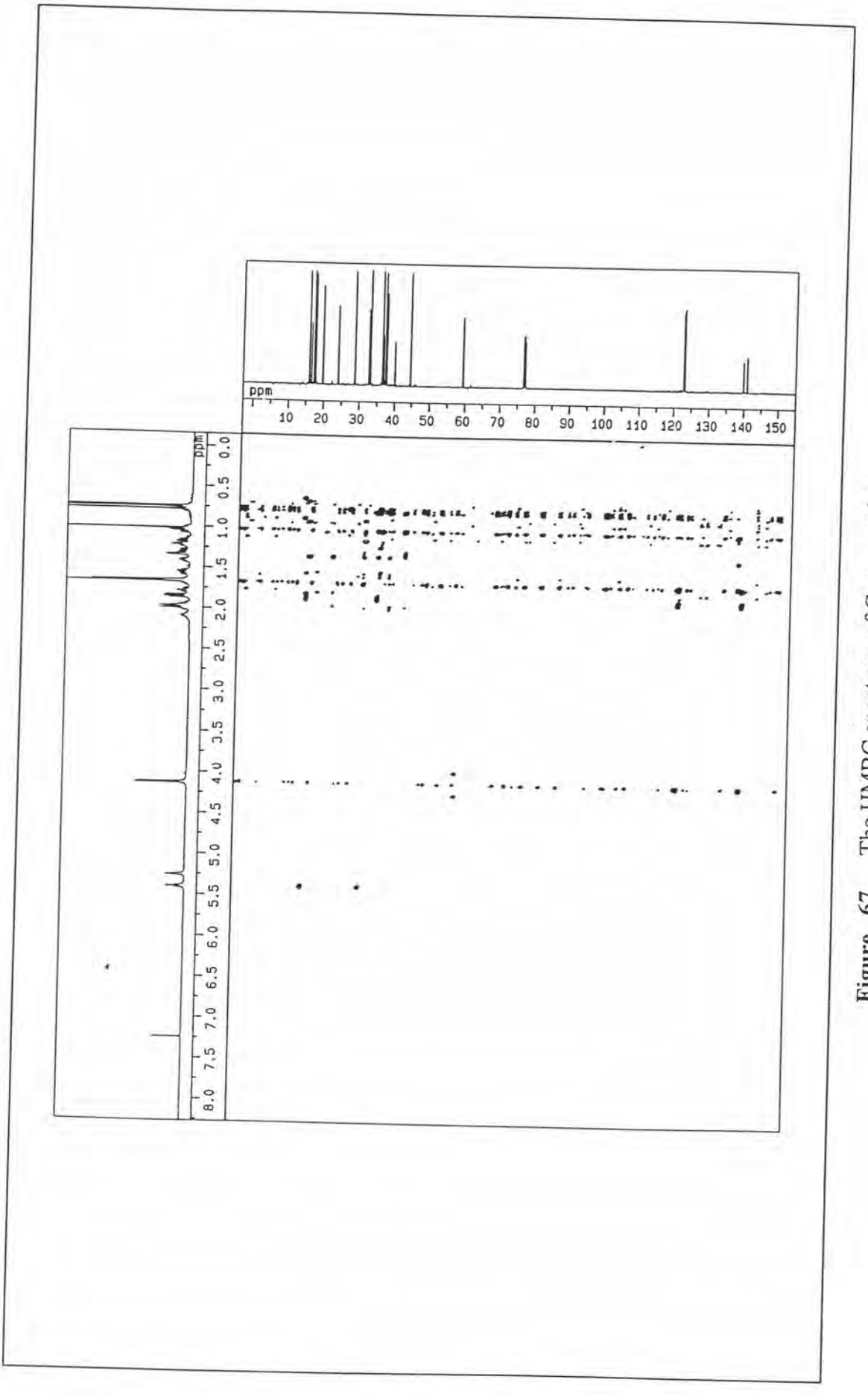

Figure 67 The HMBC spectrum of Compound 6

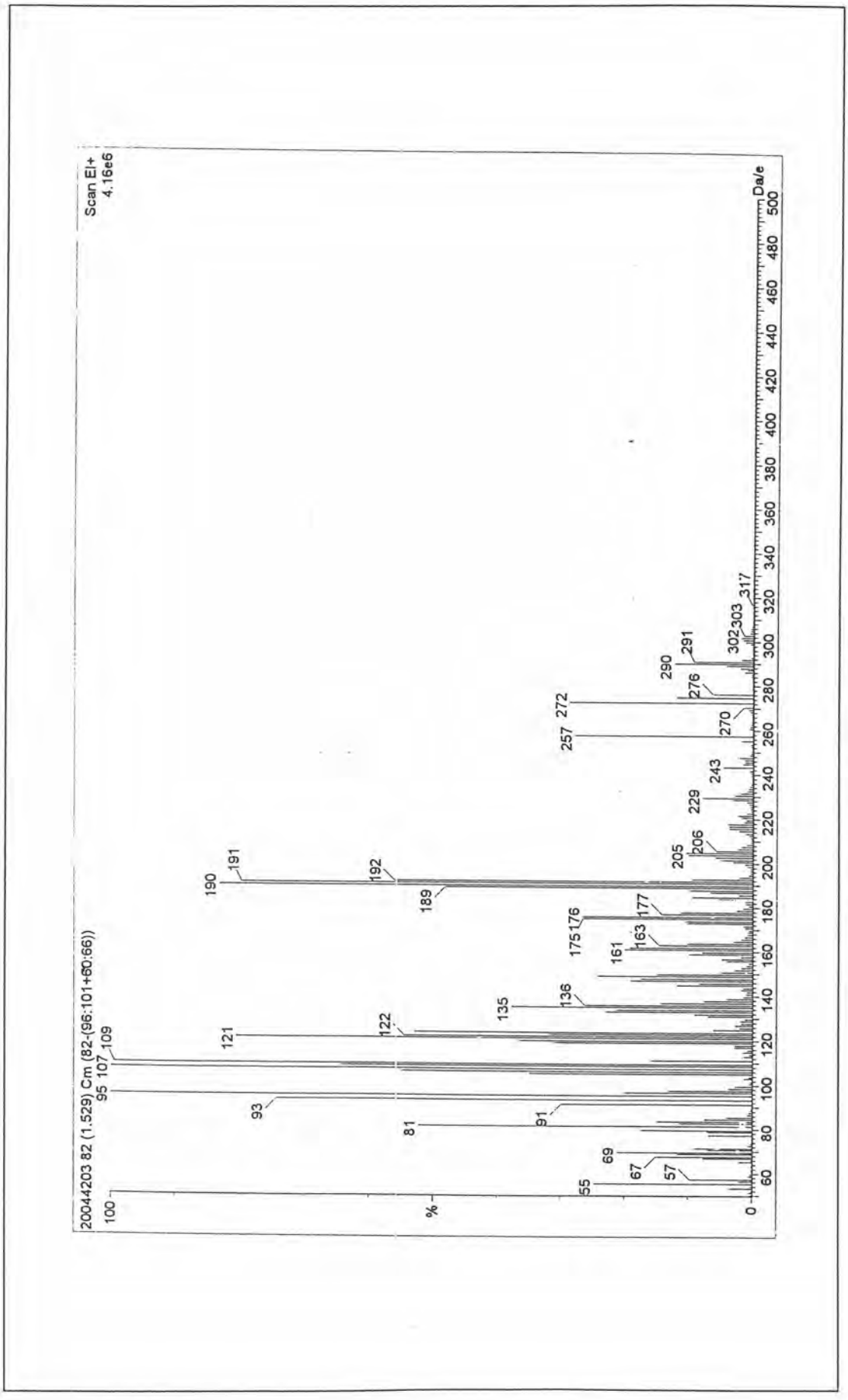

Figure 68 The EIMS spectrum of Compound 6

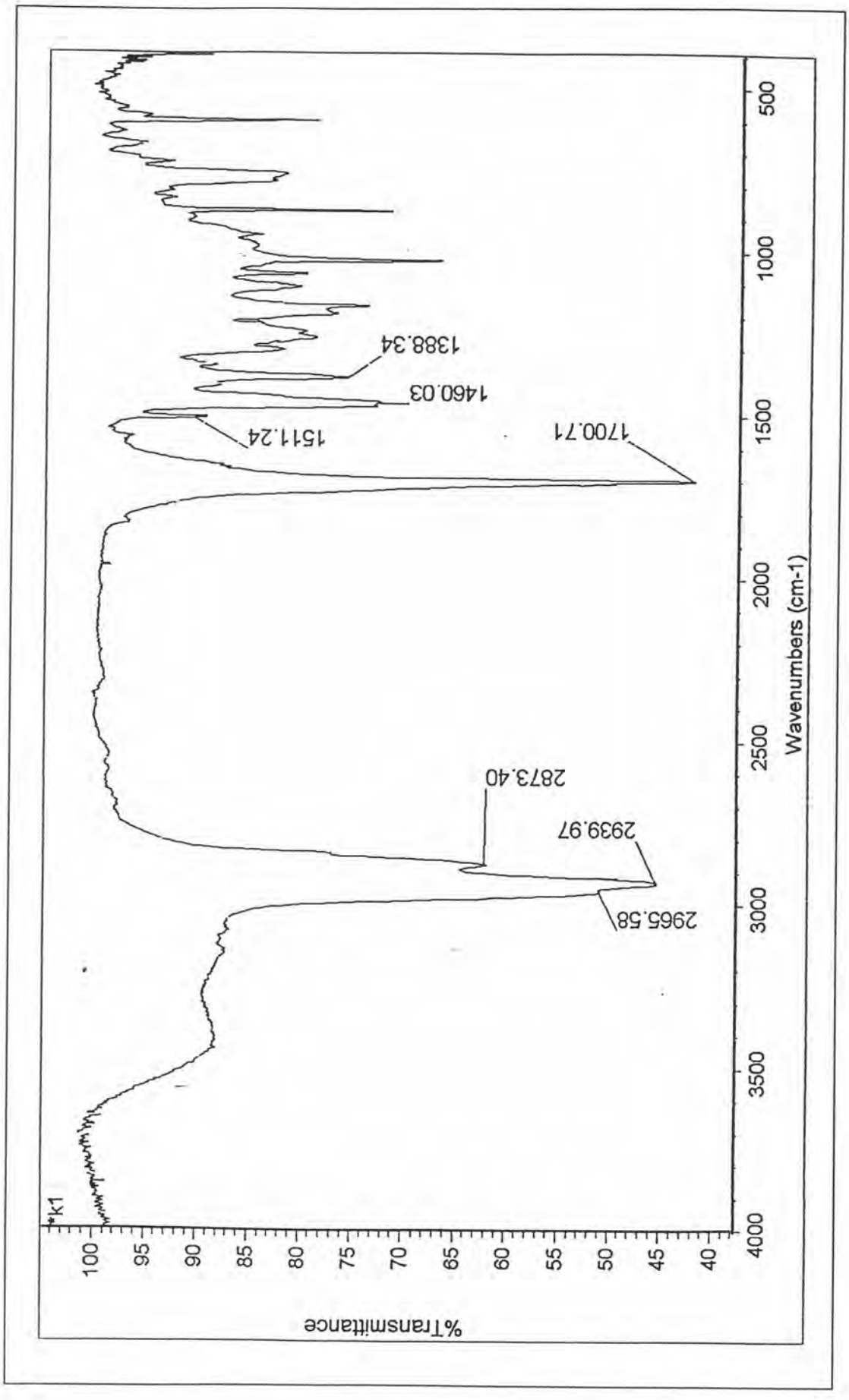

Figure 69 The IR spectrum of Compound 7

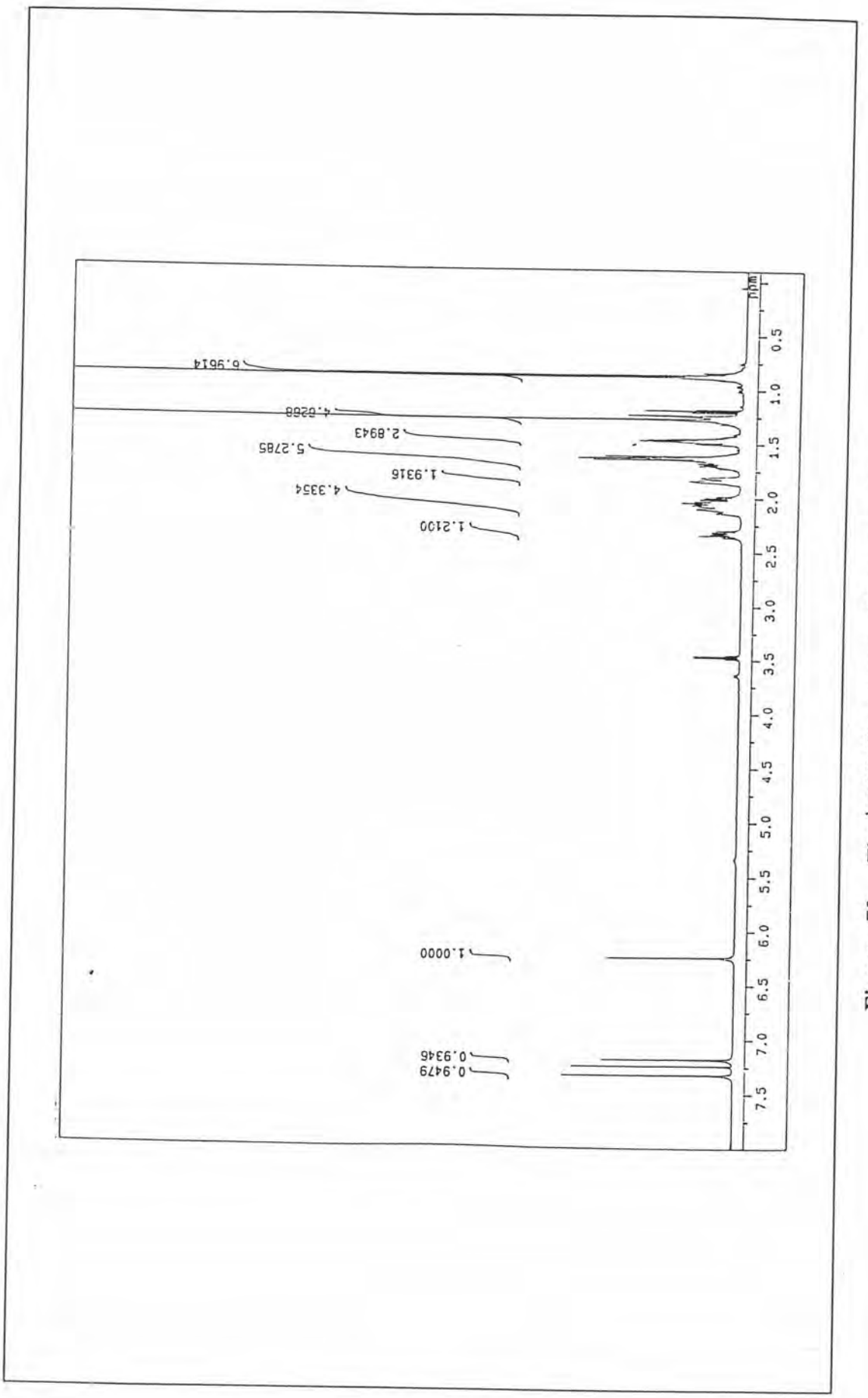

Figure 70 The ^{1}H-NMR spectrum of Compound 7

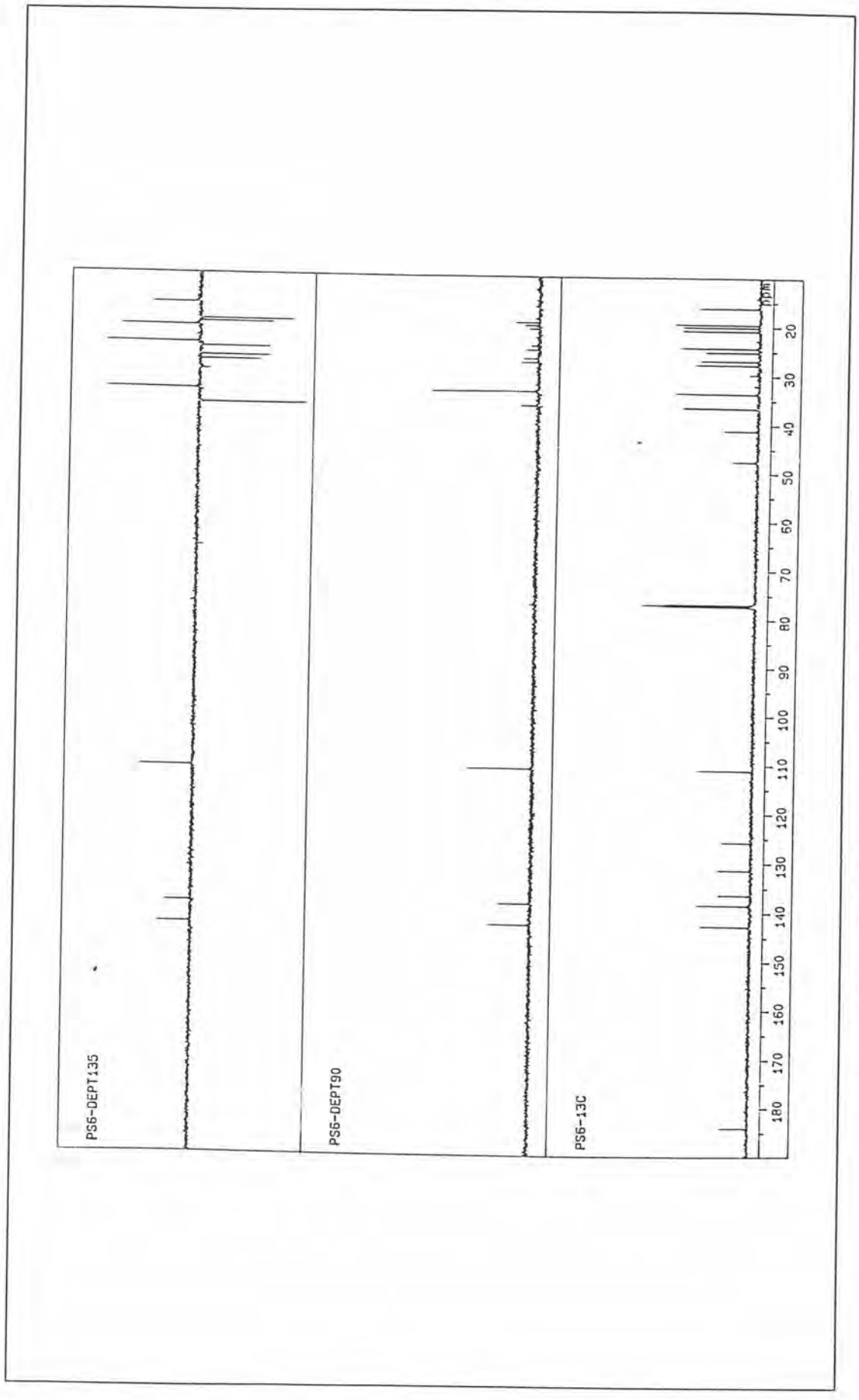

Figure 71 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 7

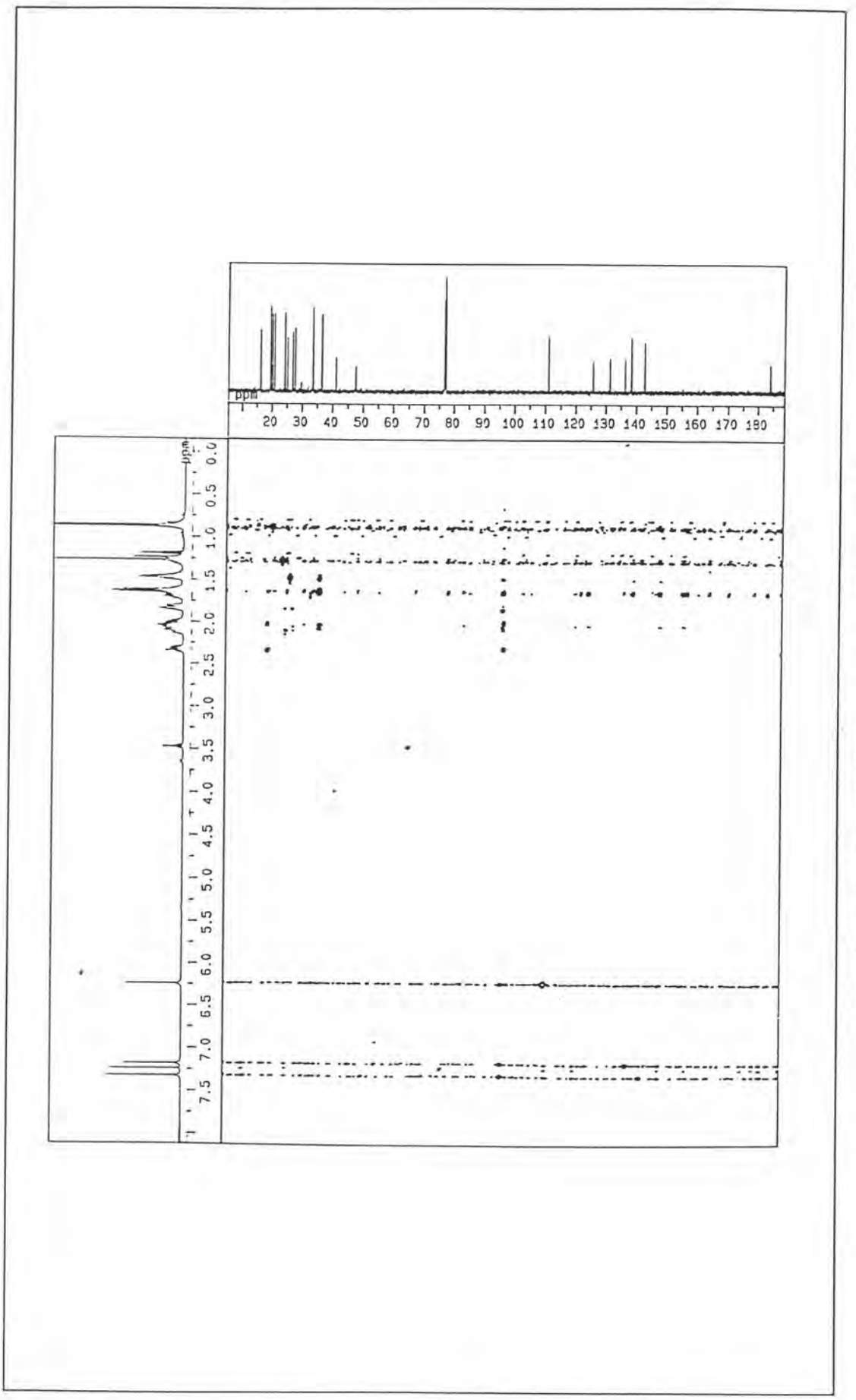

Figure 72 HMQC spectrum of Compound 7

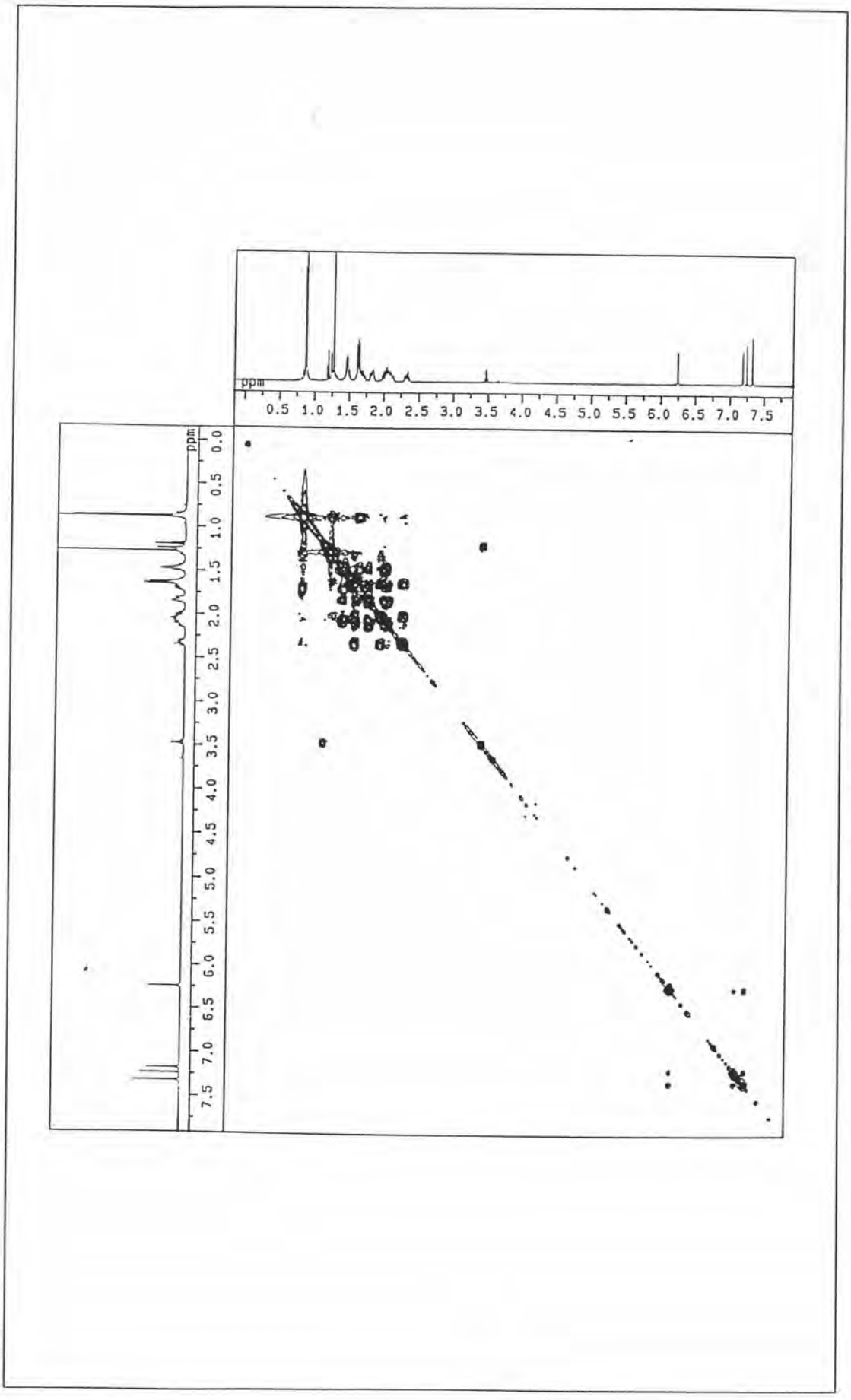

Figure 73 The COSY spectrum of Compound 7

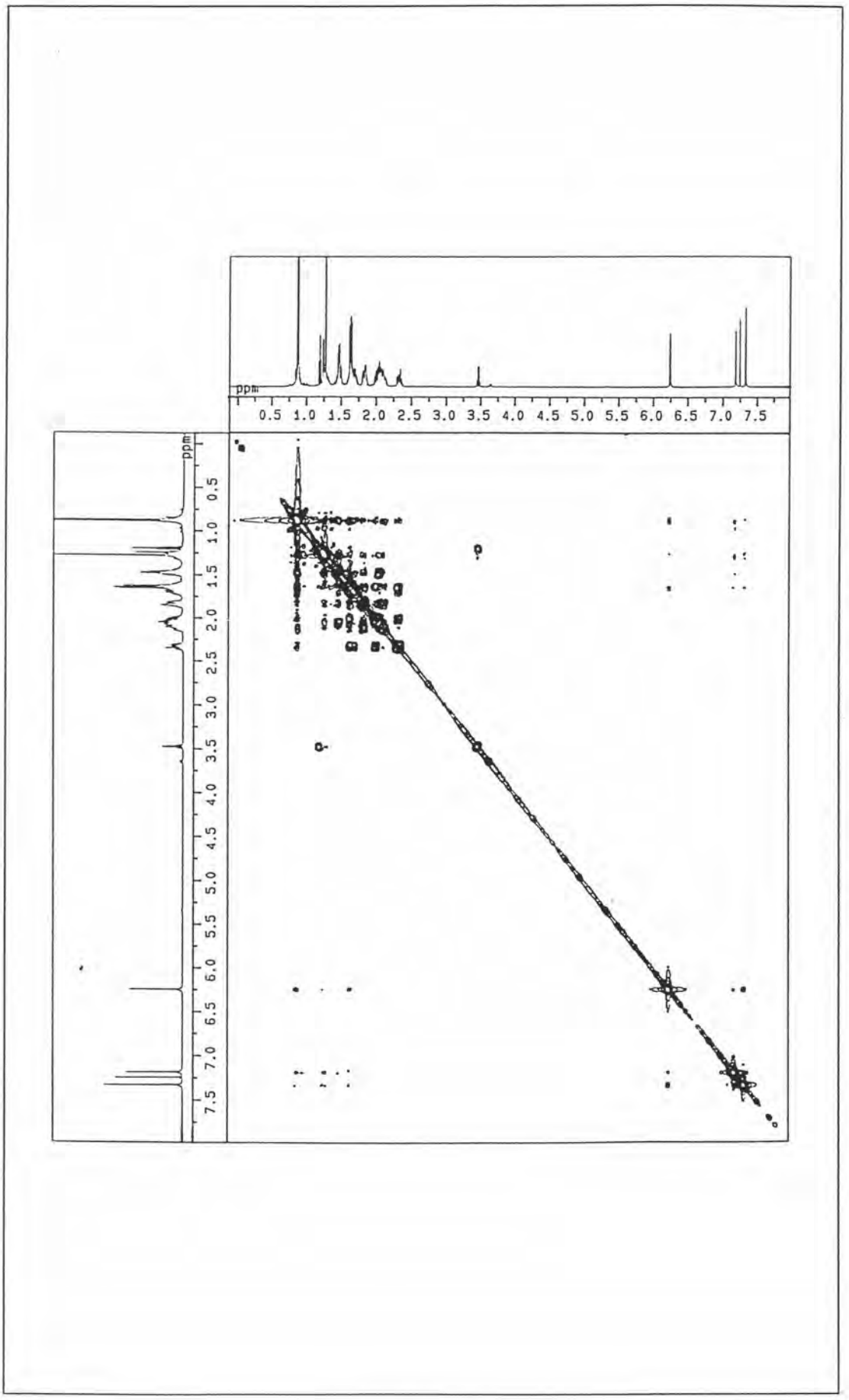

Figure 74 The NOESY spectrum of Compound 7

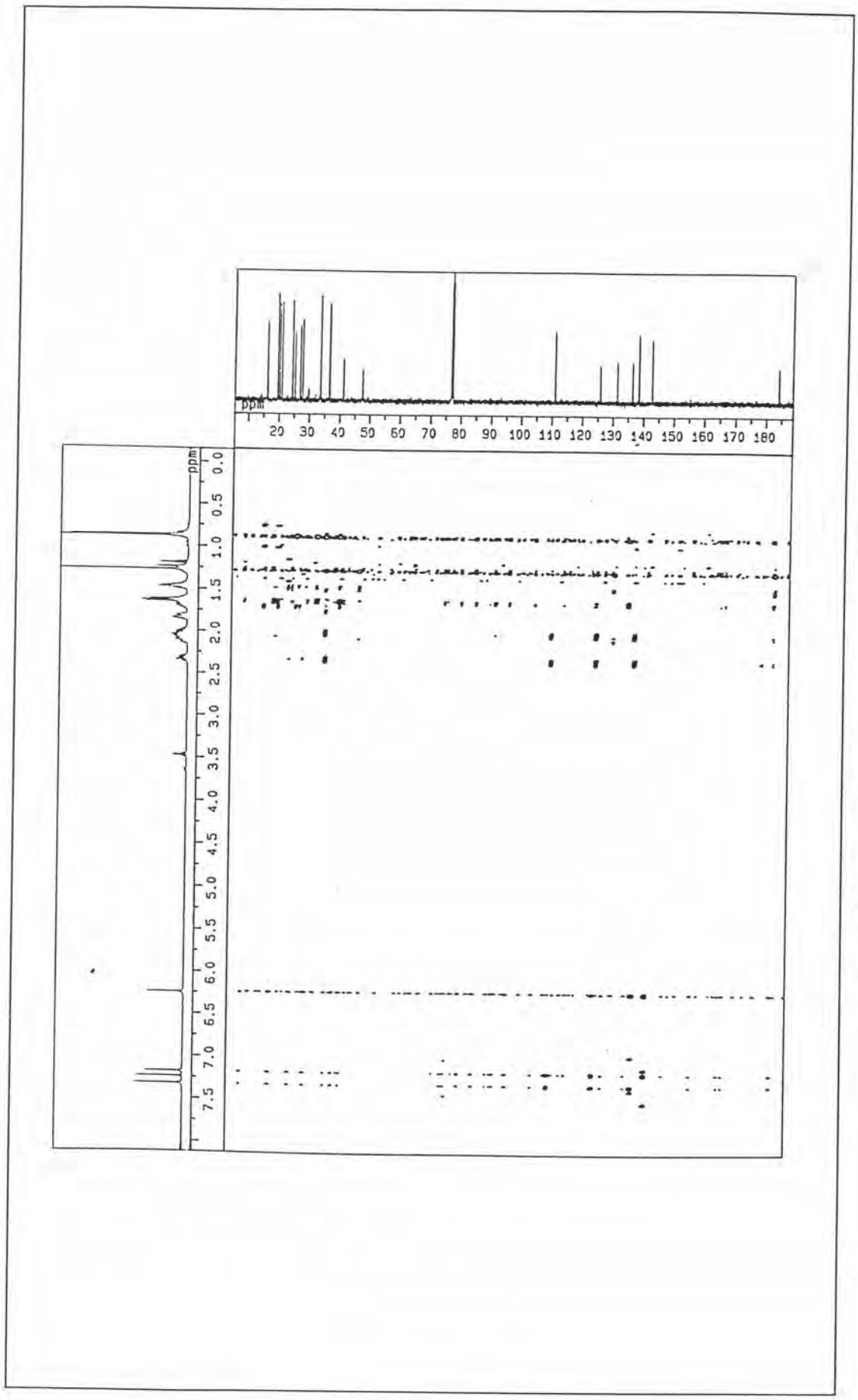

Figure 75 The HMBC spectrum of Compound 7

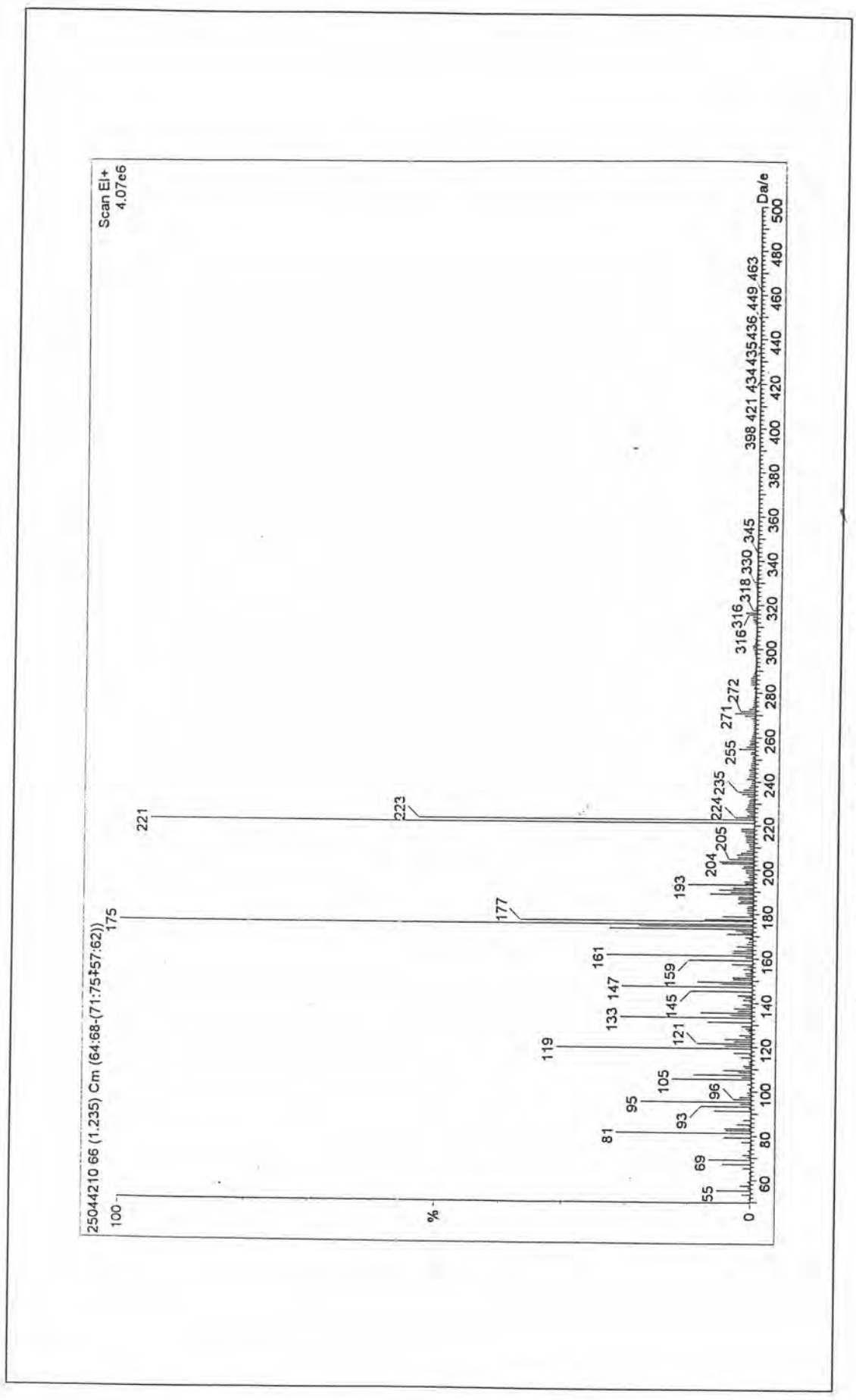

Figure 76 The EIMS spectrum of Compound 7

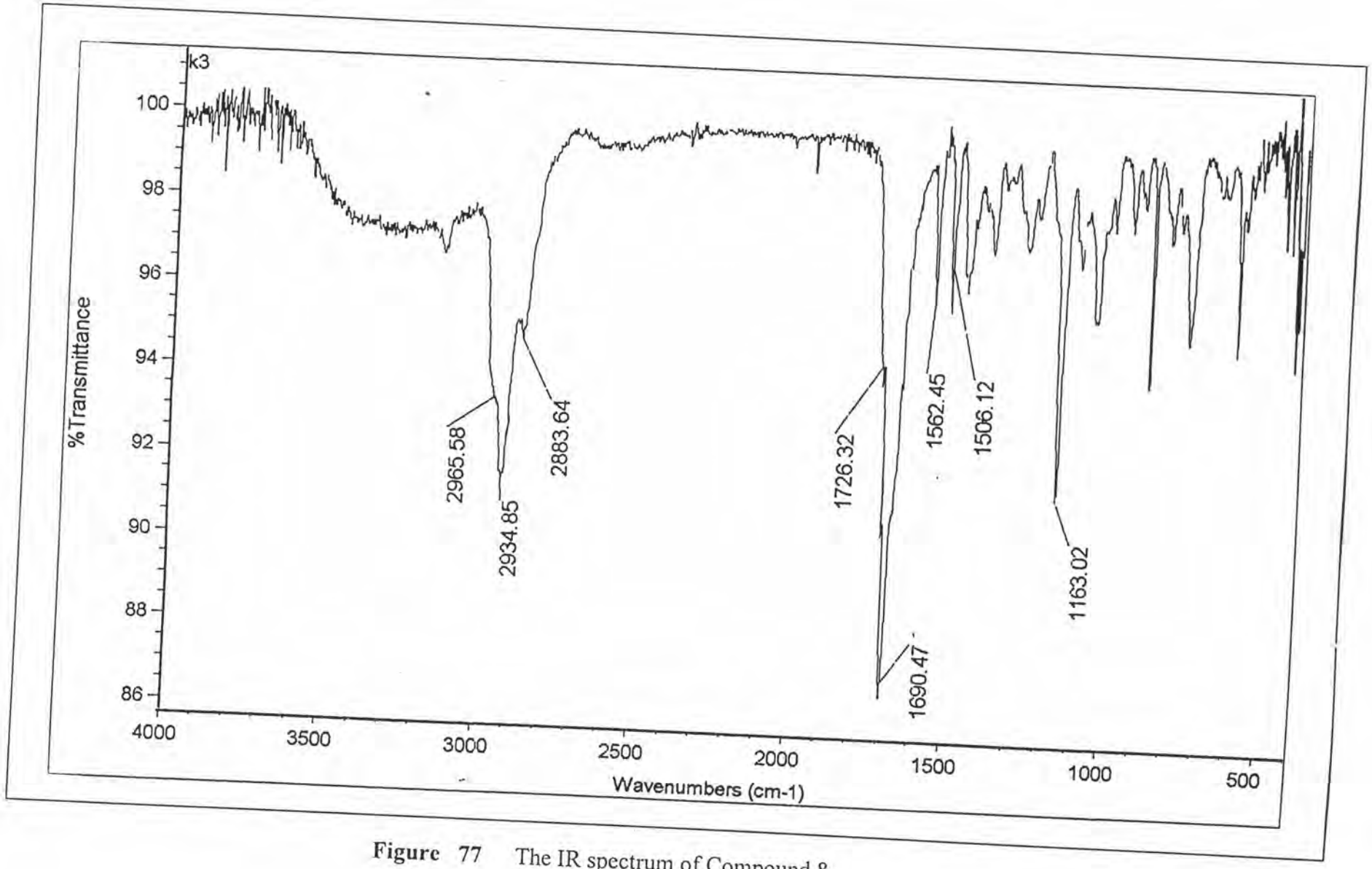

Figure 77 The IR spectrum of Compound 8

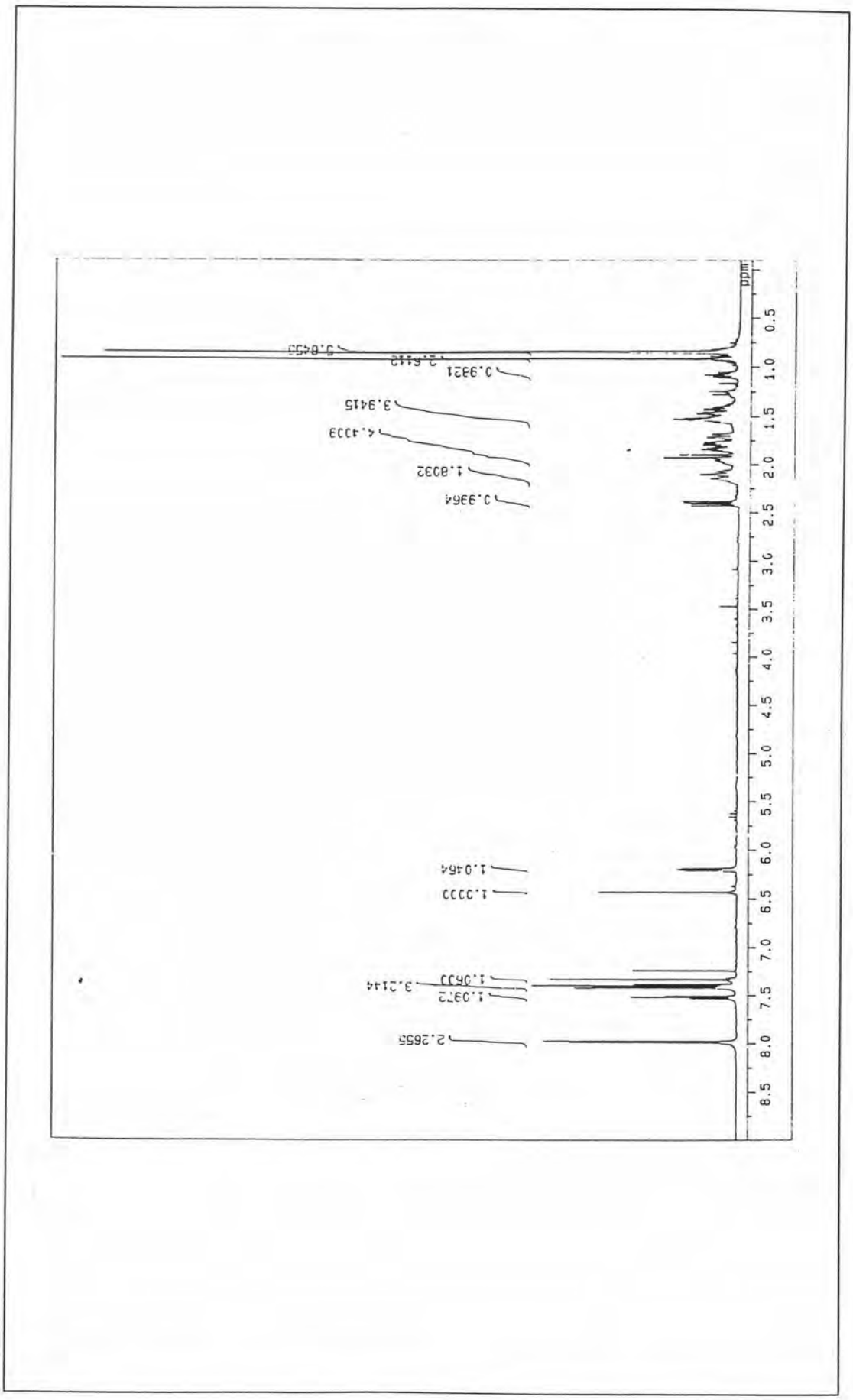

Figure 78 The ^{1}H-NMR spectrum of Compound 8

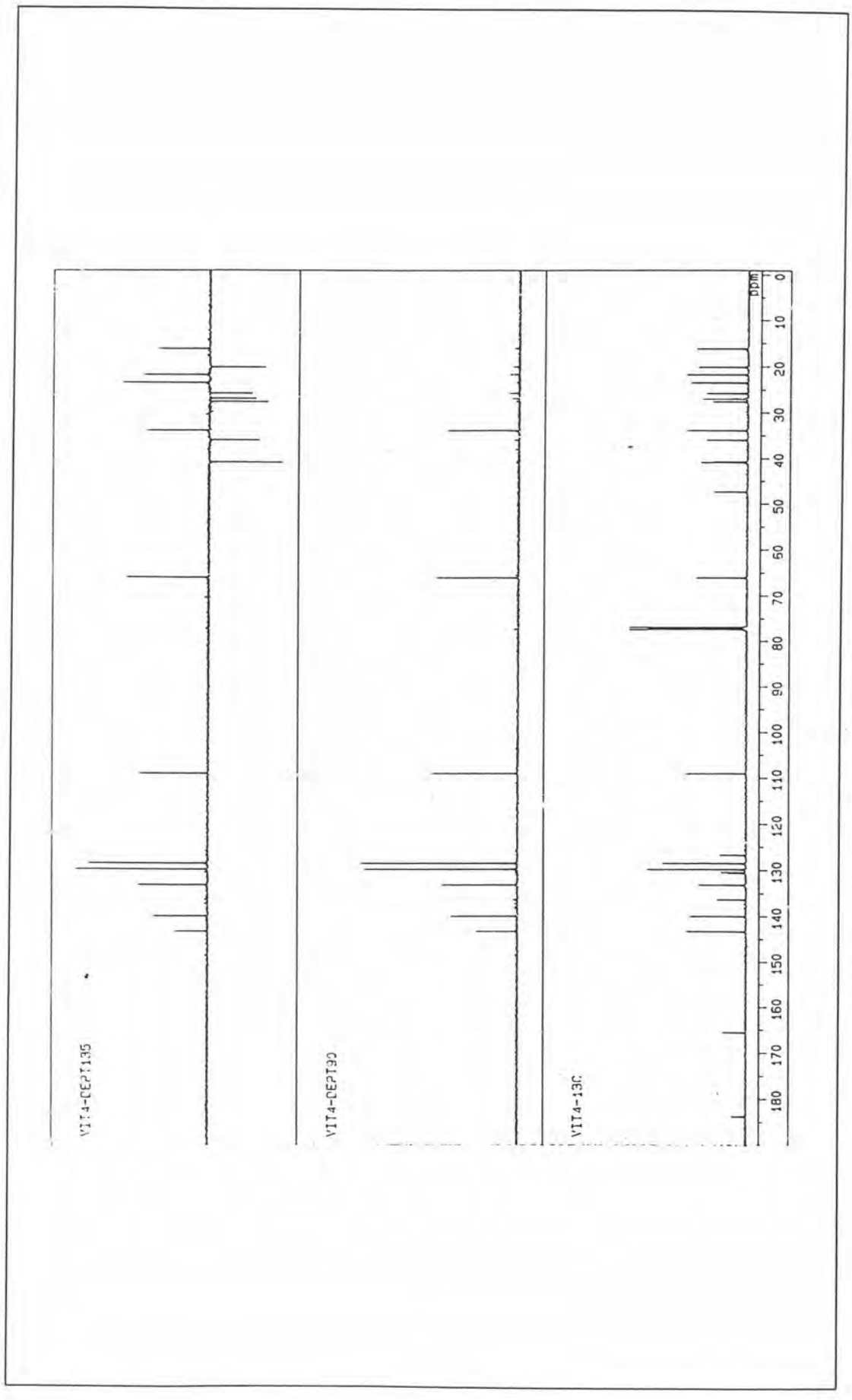

Figure 79 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 8

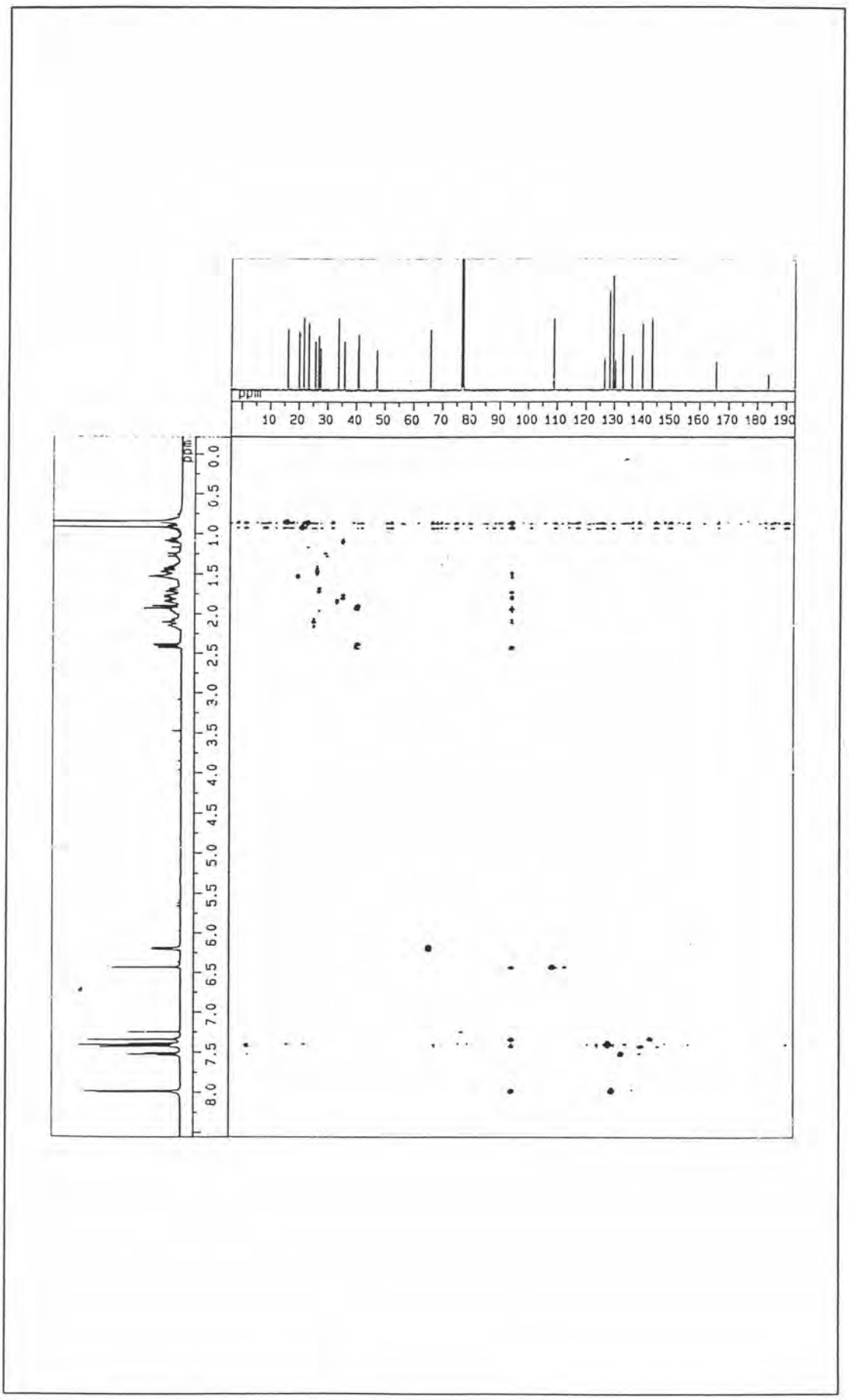

Figure 80 HMQC spectrum of Compound 8

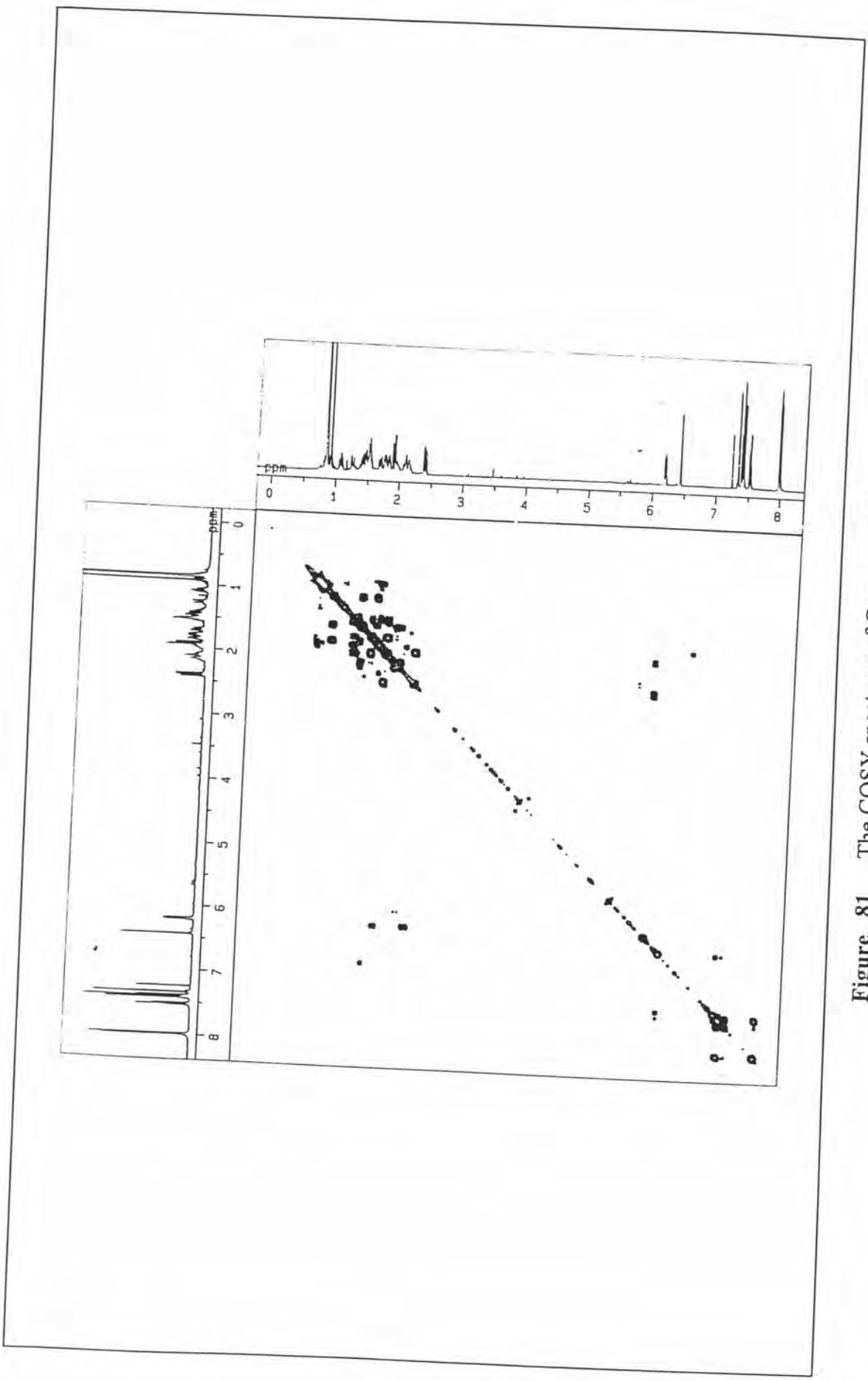

Figure 81 The COSY spectrum of Compound 8

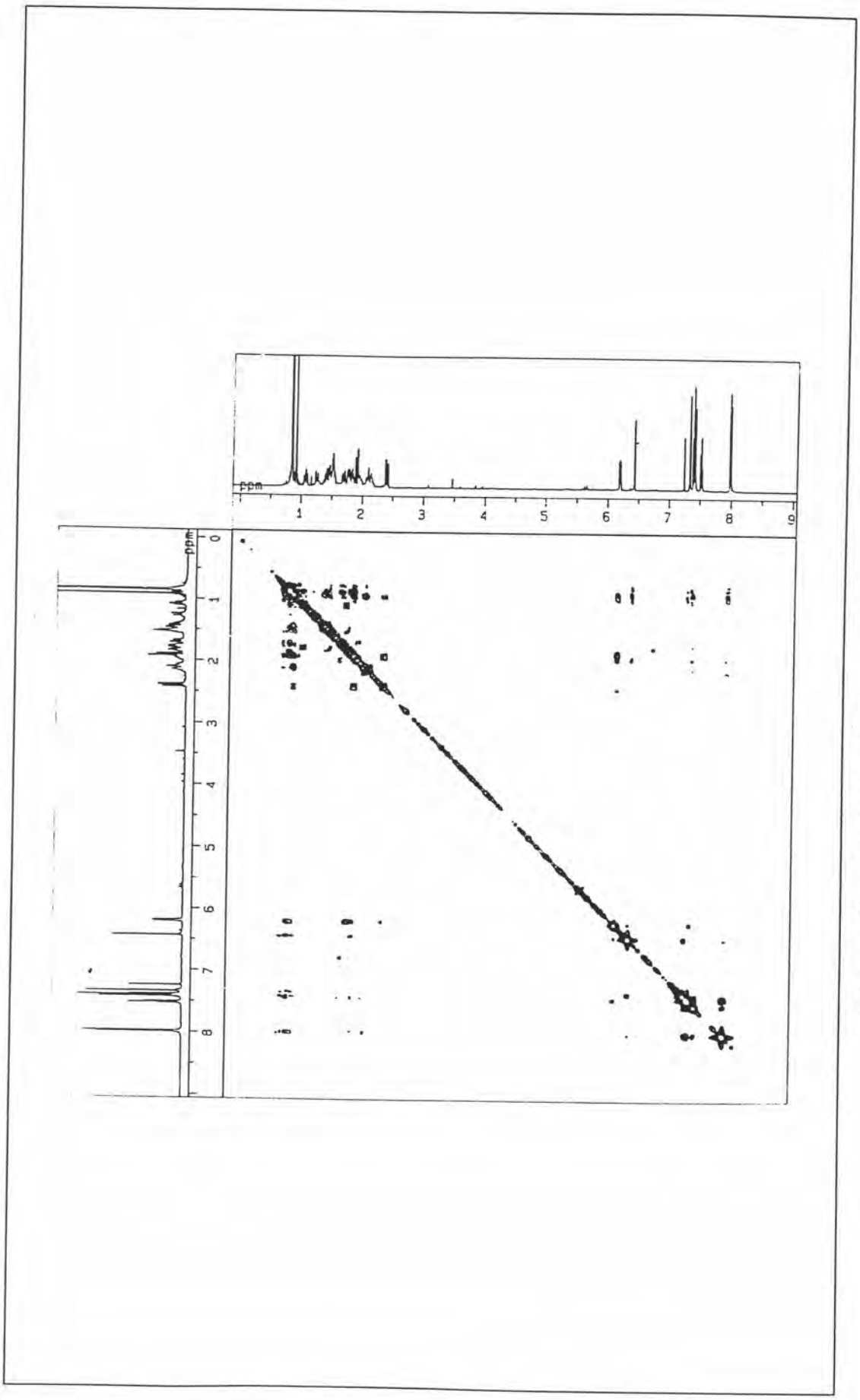

Figure 82 The NOESY spectrum of Compound 8

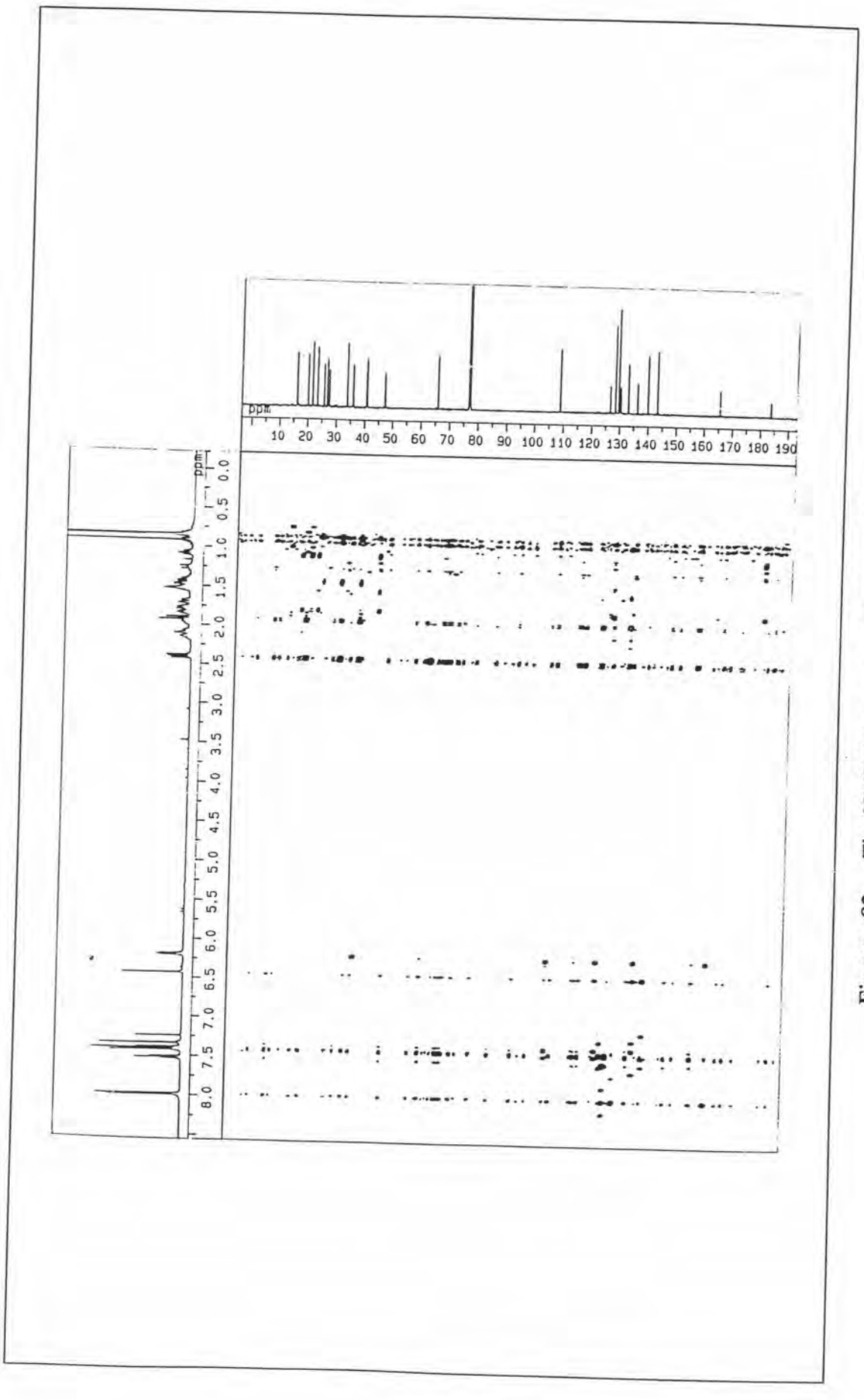

Figure 83 The HMBC spectrum of Compound 8

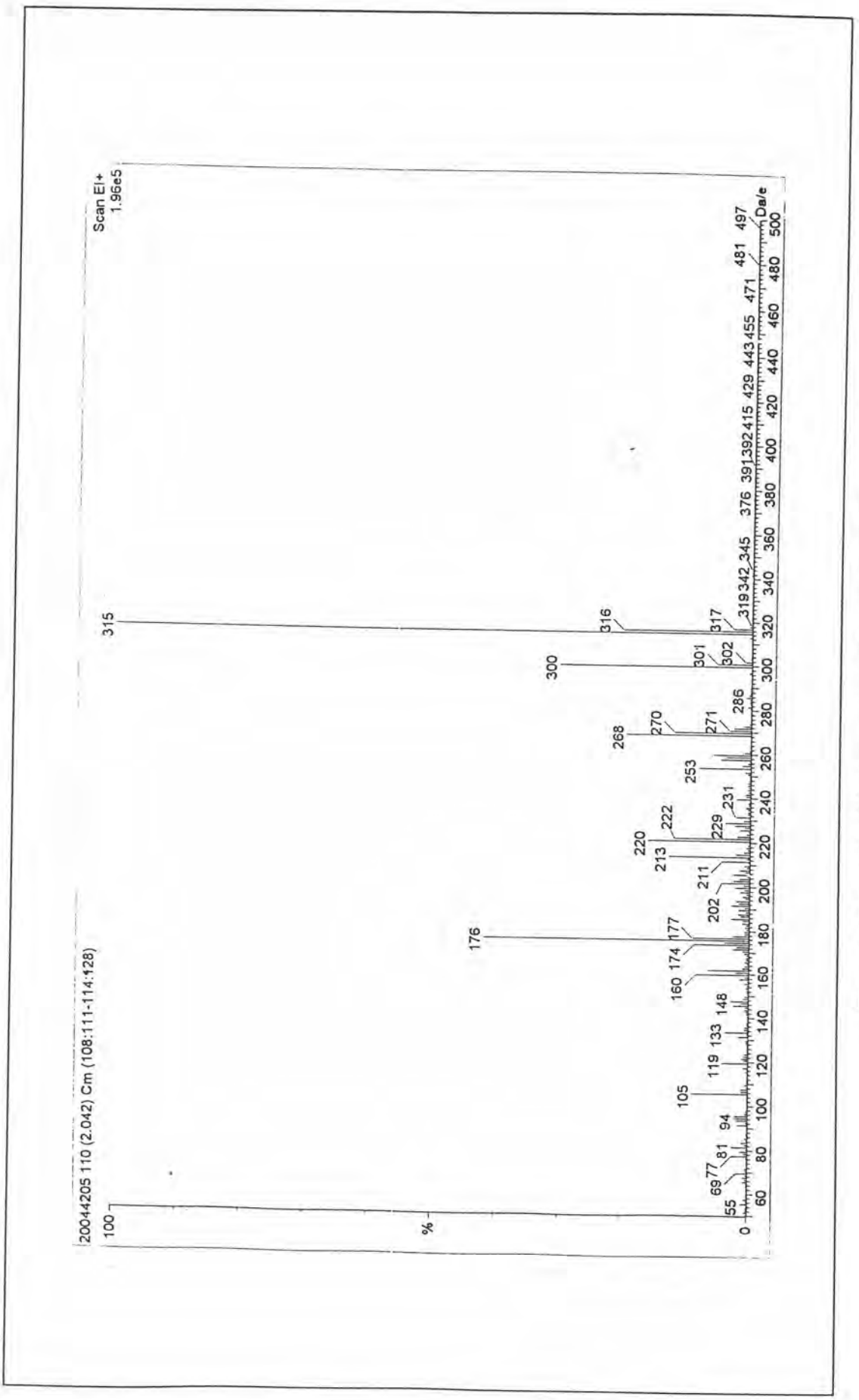

Figure 84 The EIMS spectrum of Compound 8

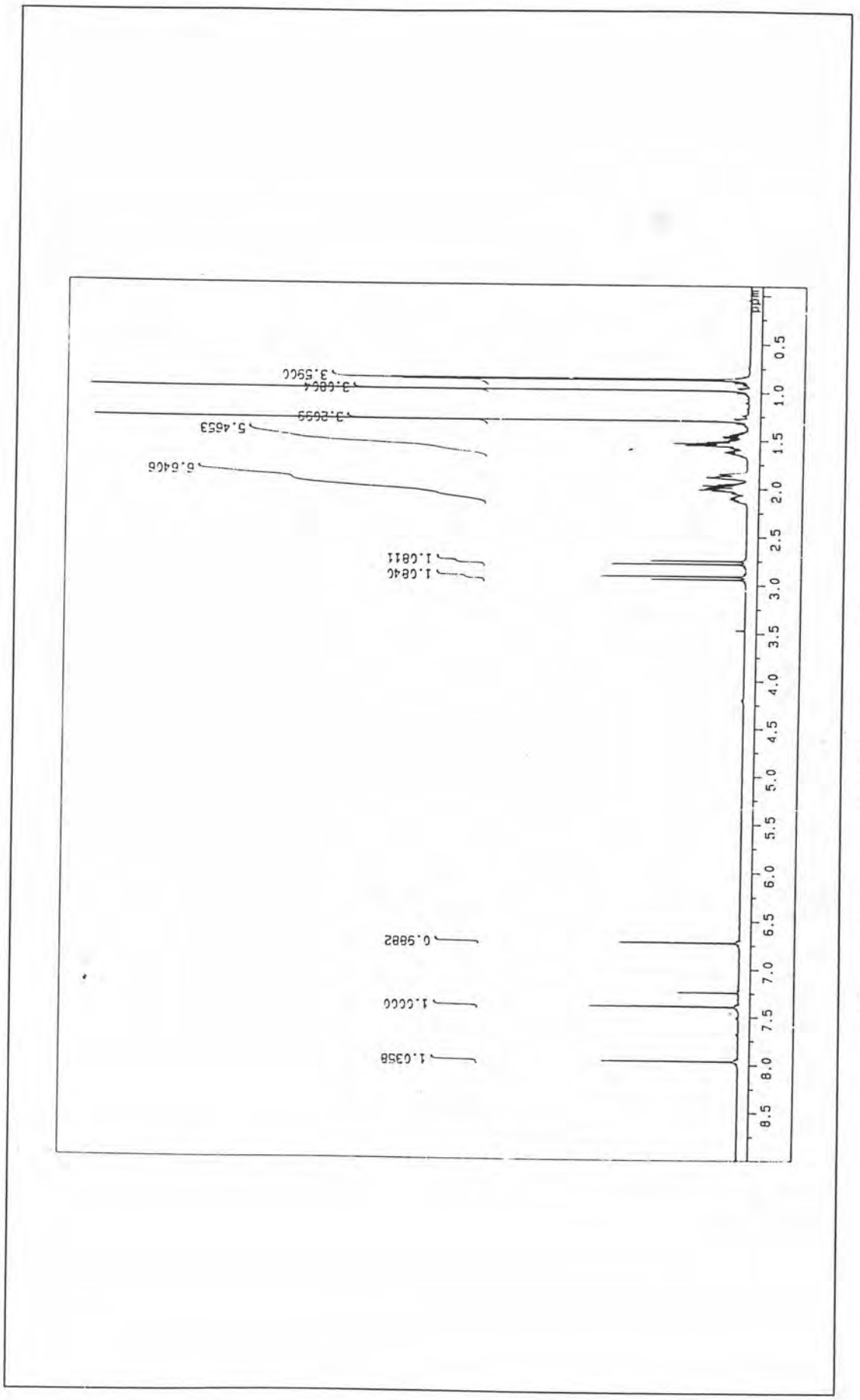

Figure 86 The ^{1}H-NMR spectrum of Compound 9

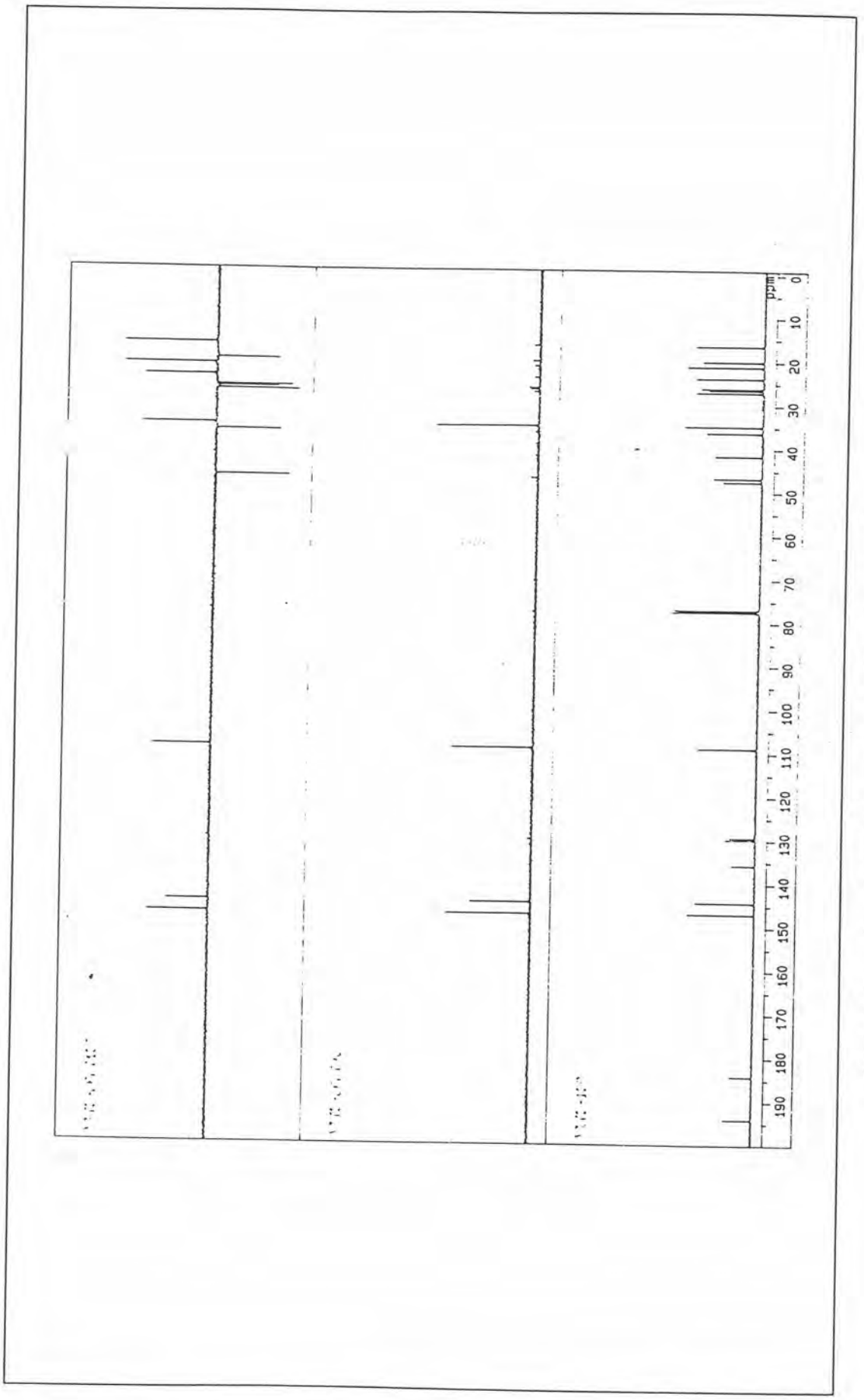

Figure 87 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 9

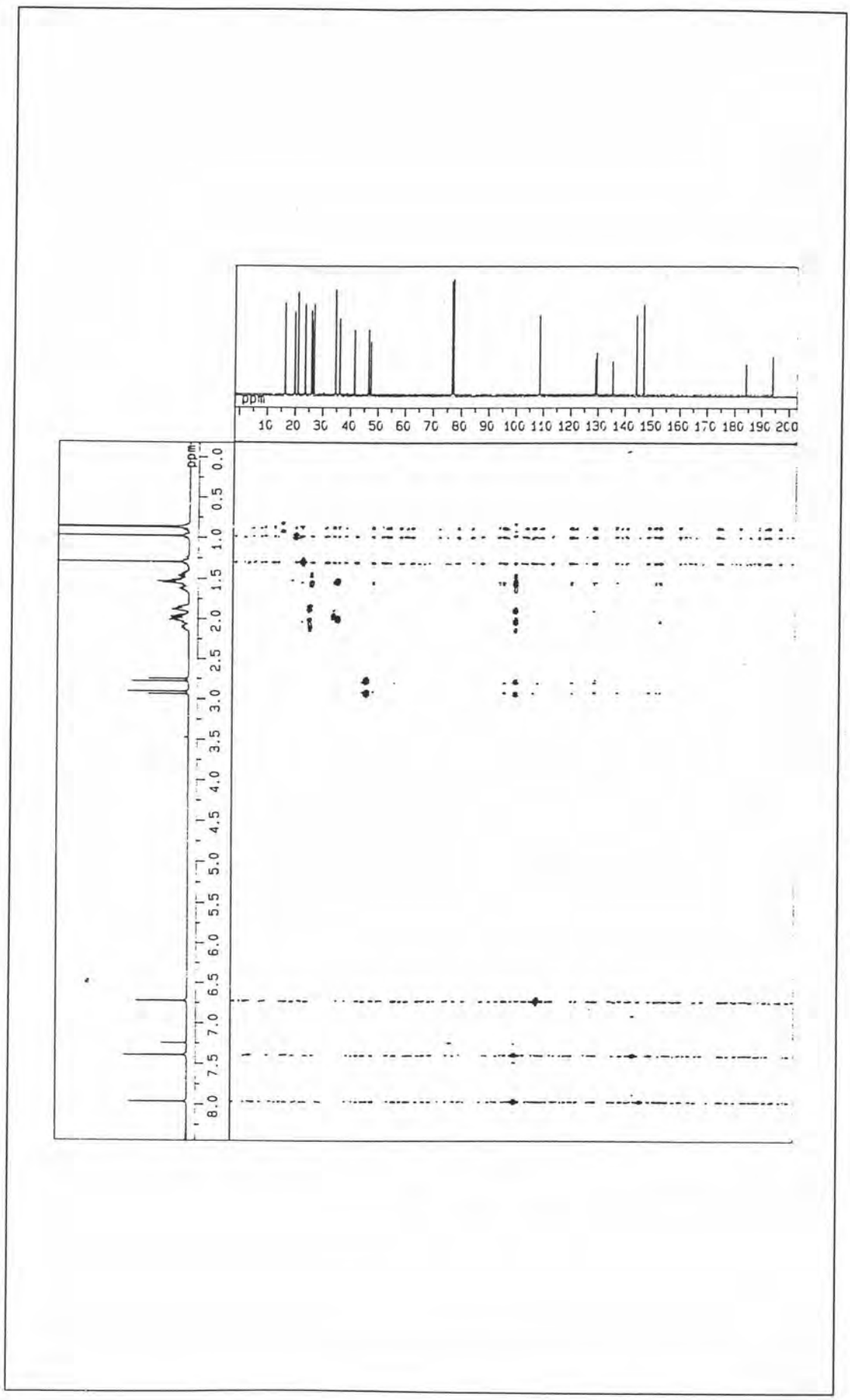

Figure 88 HMQC spectrum of Compound 9

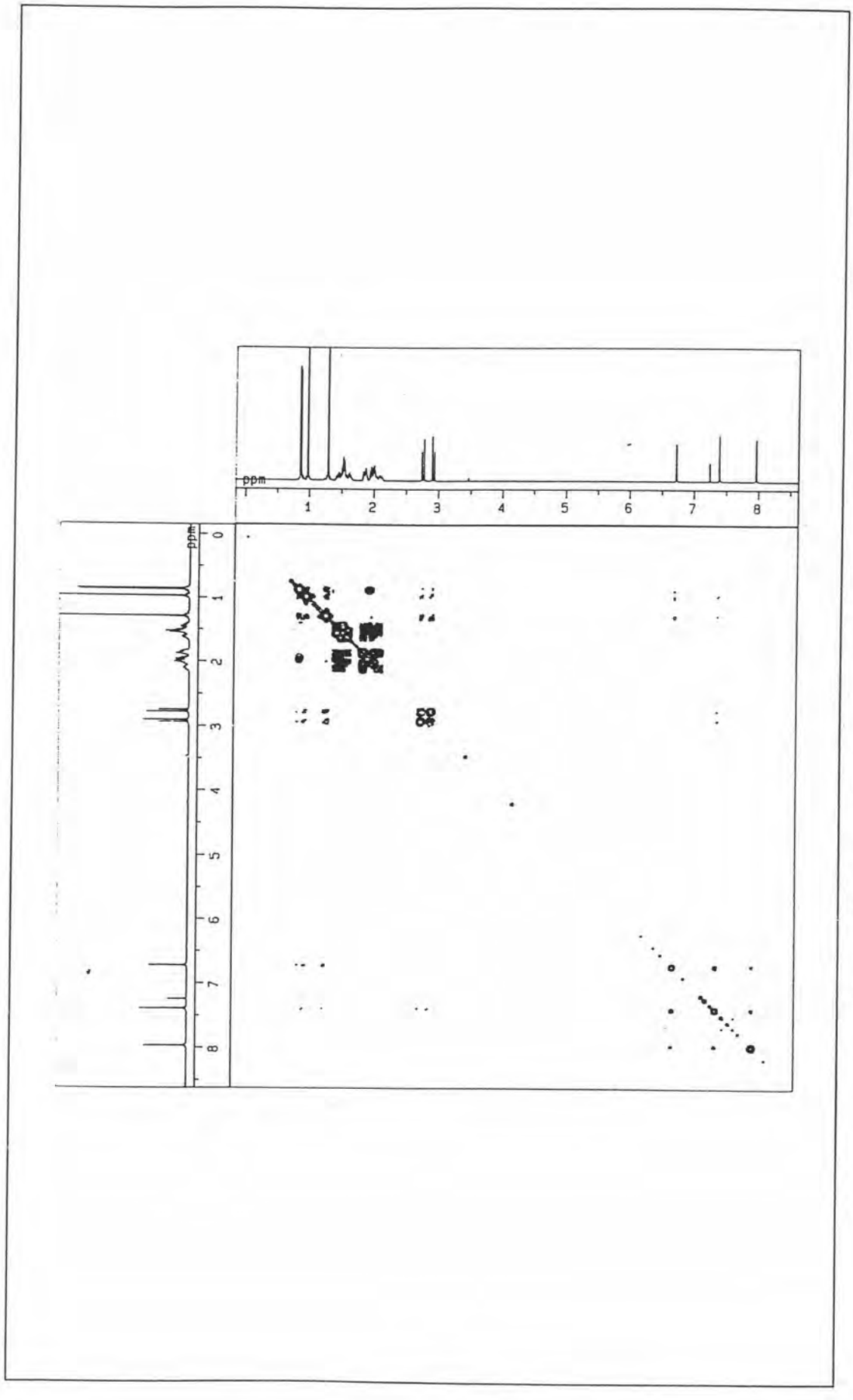

Figure 89 The COSY spectrum of Compound 9

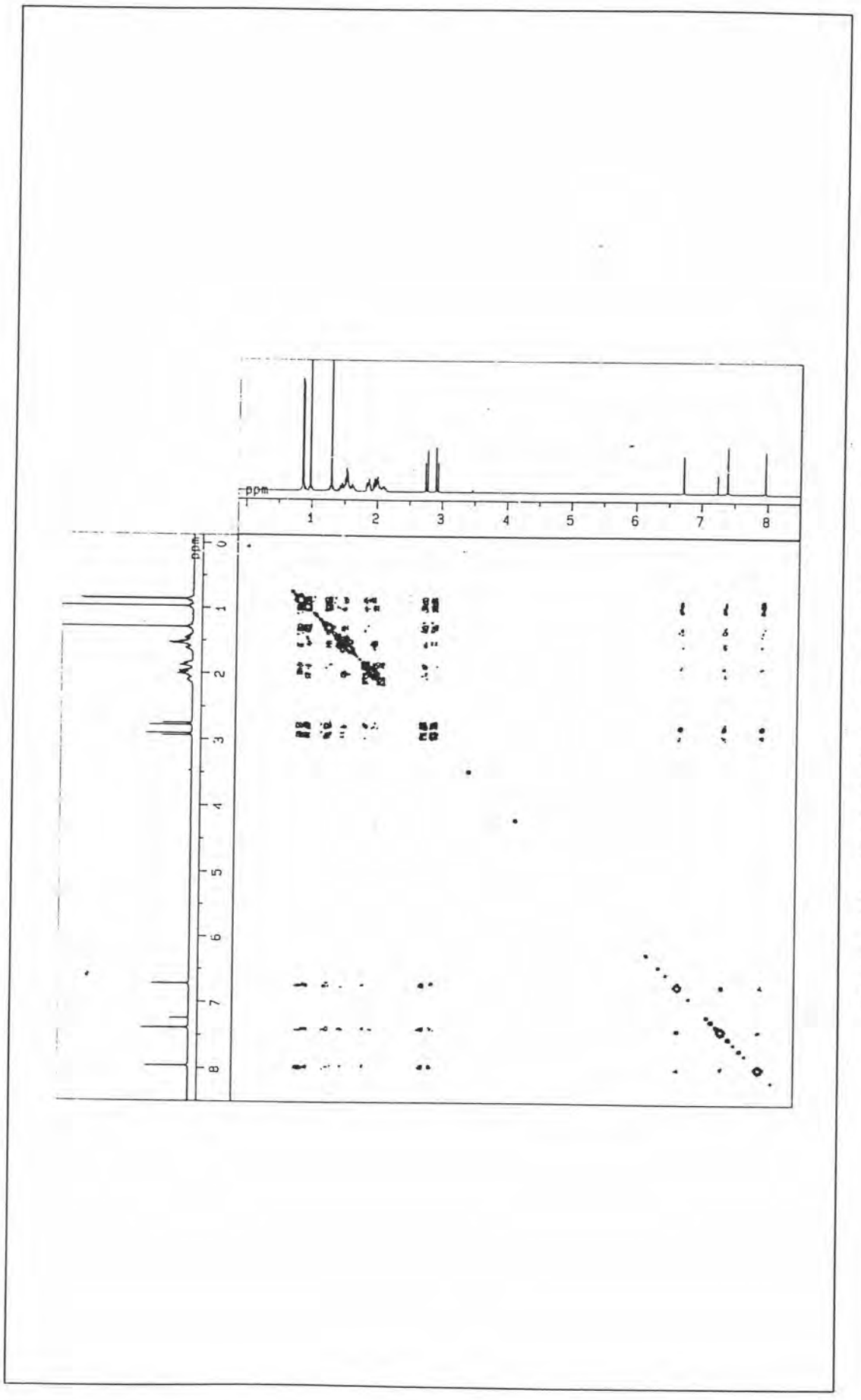

Figure 90 The NOESY spectrum of Compound 9

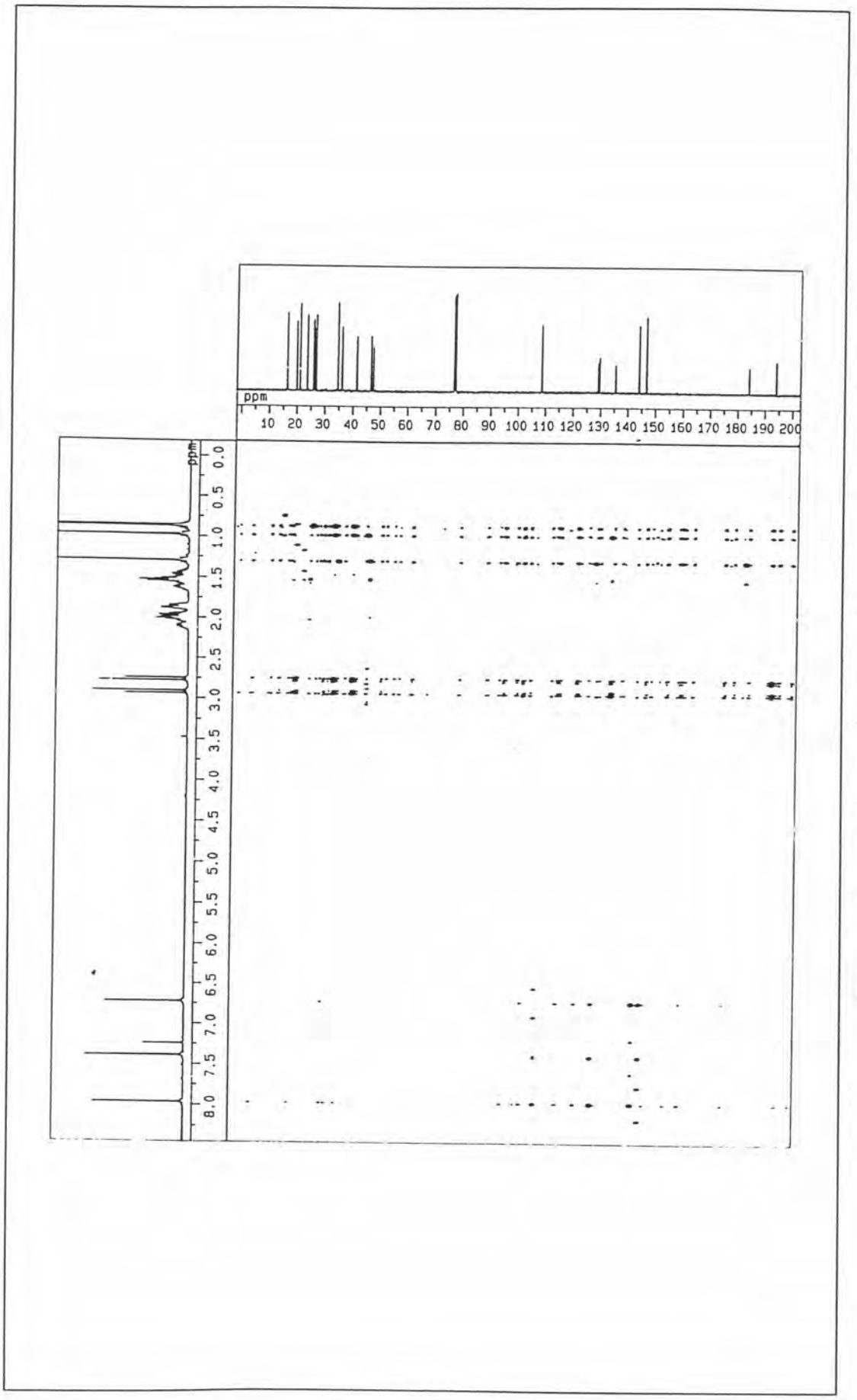

Figure 91 The HMBC spectrum of Compound 9

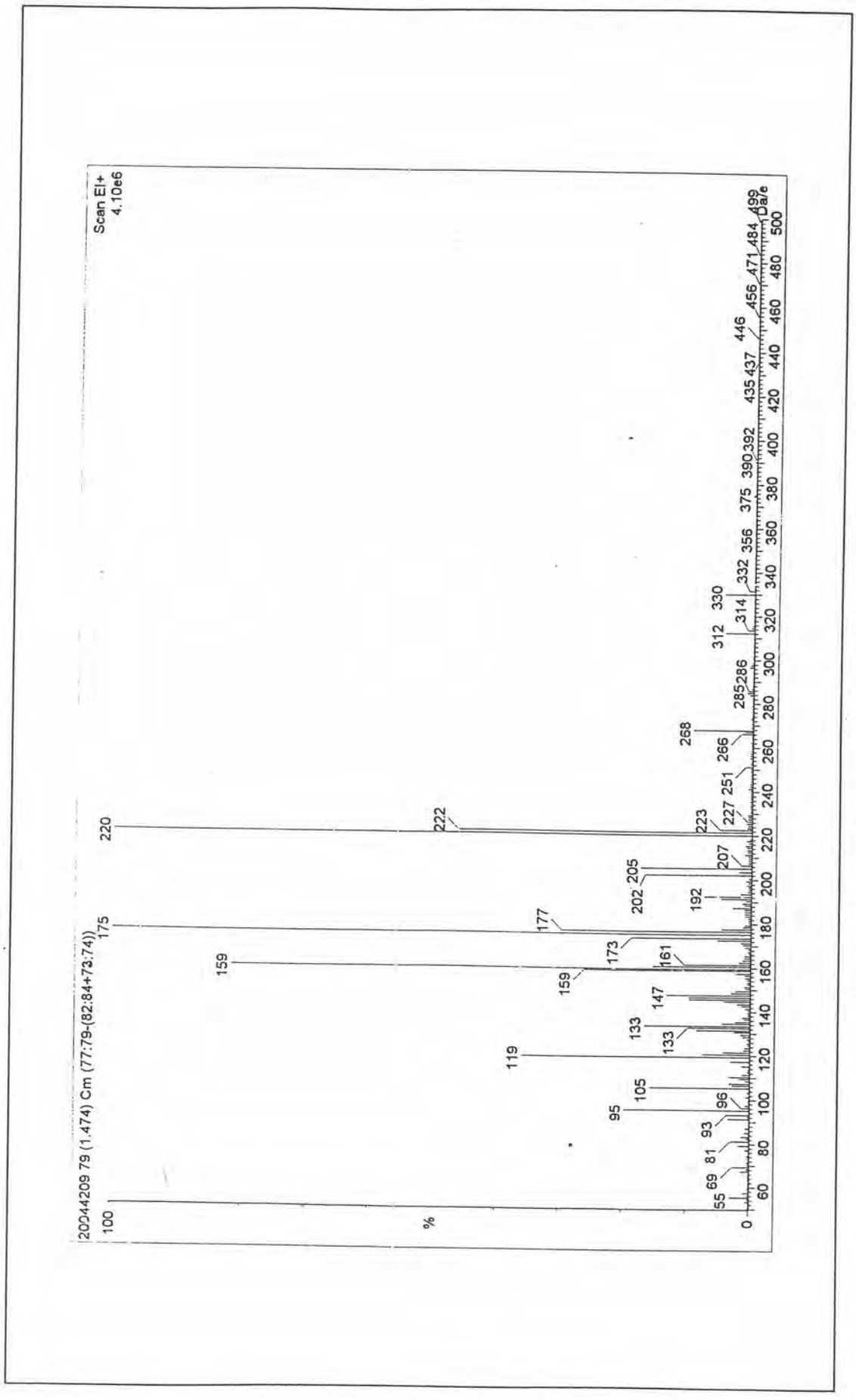

Figure 92 The EIMS spectrum of Compound 9

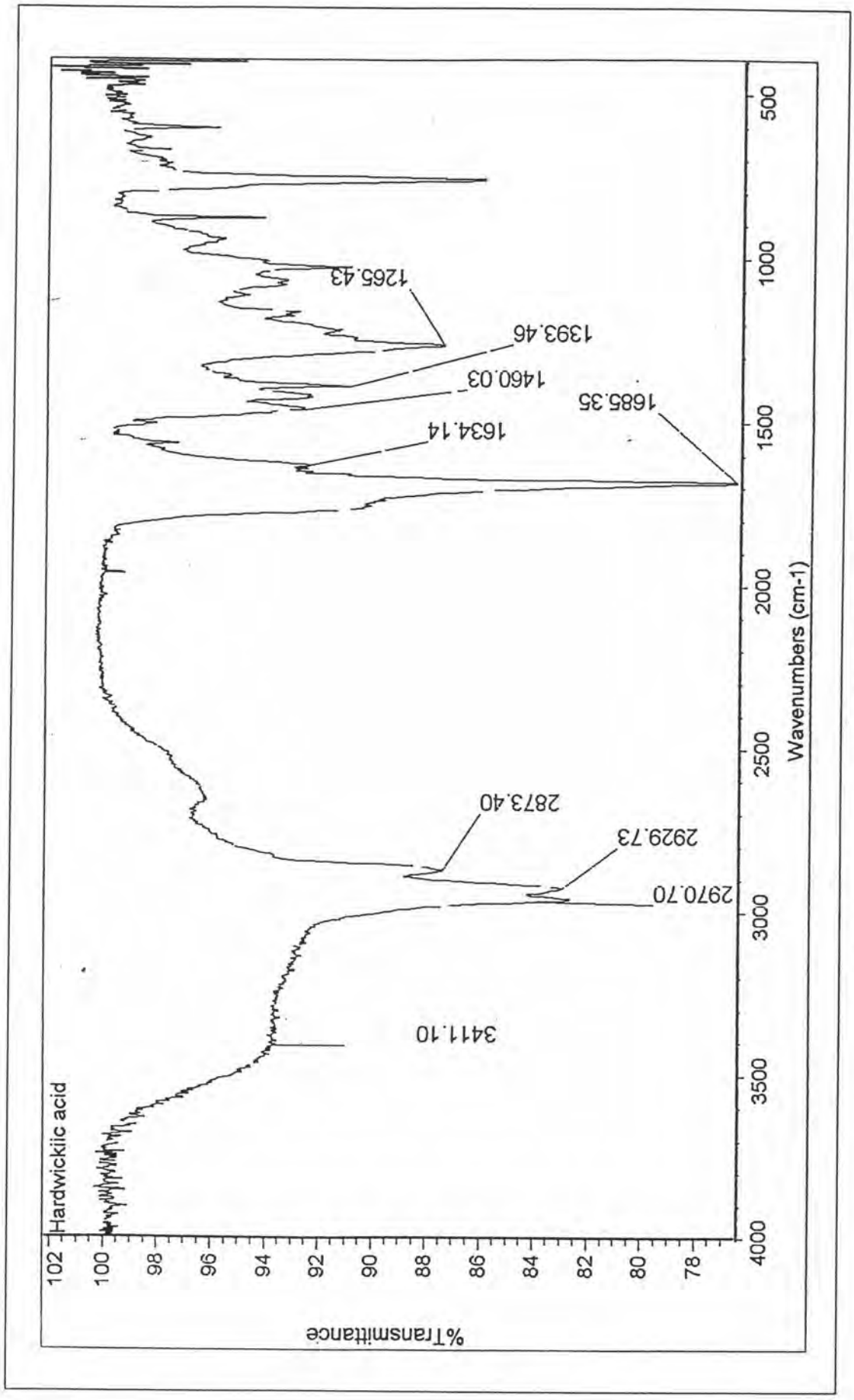

Figure 93 The IR spectrum of Compound 10

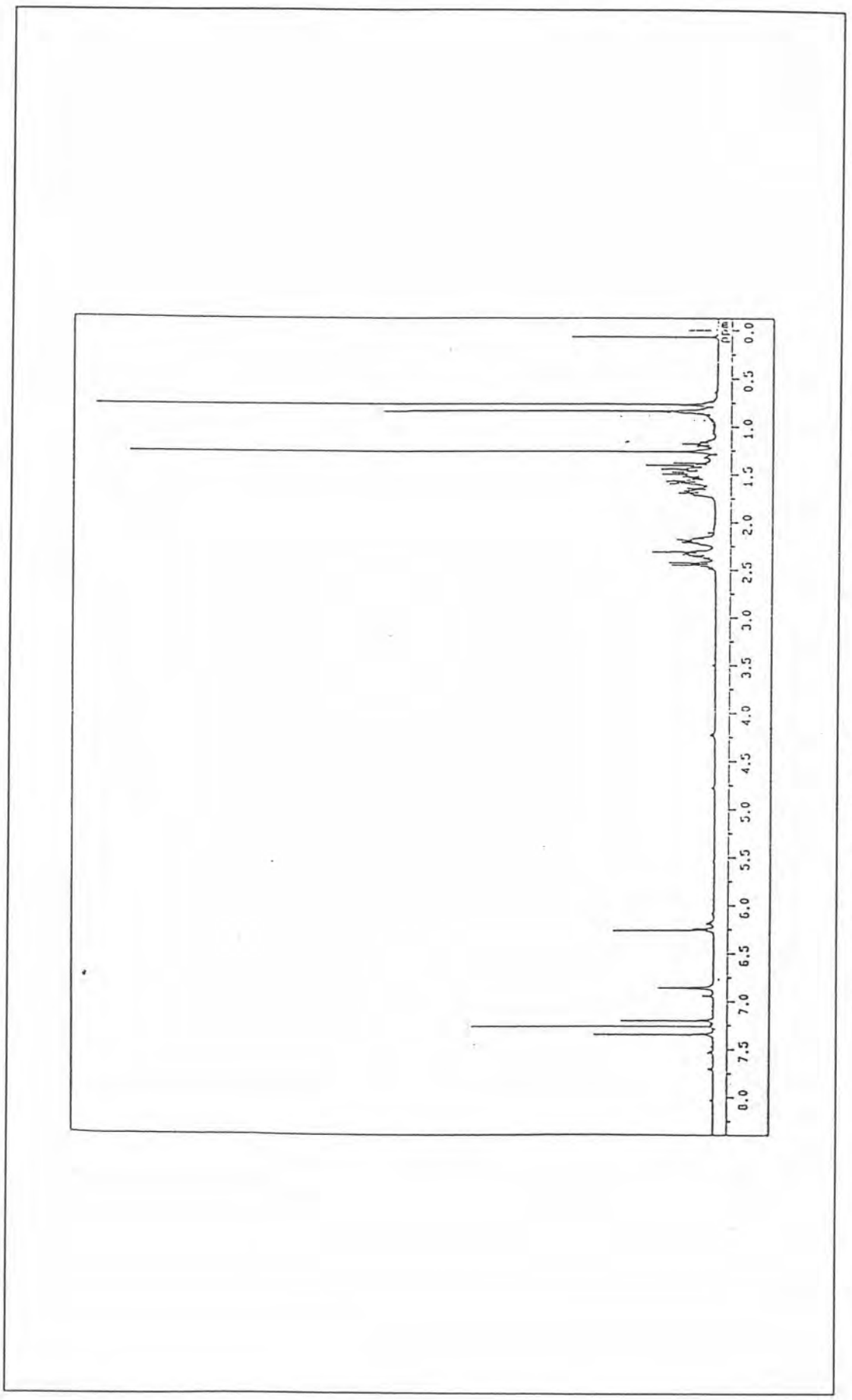

Figure 94 The ^{1}H-NMR spectrum of Compound 10

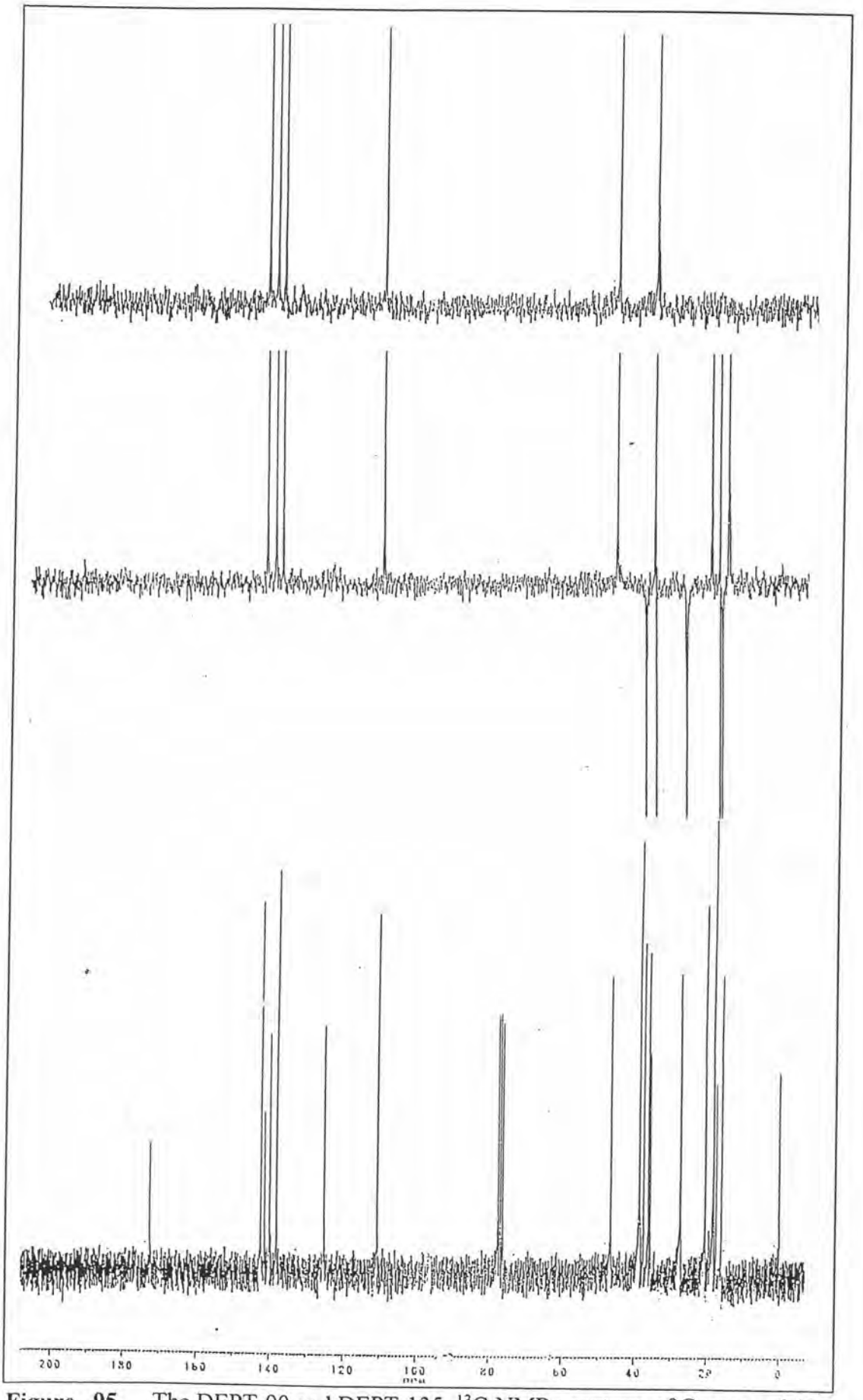

Figure 95 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 10

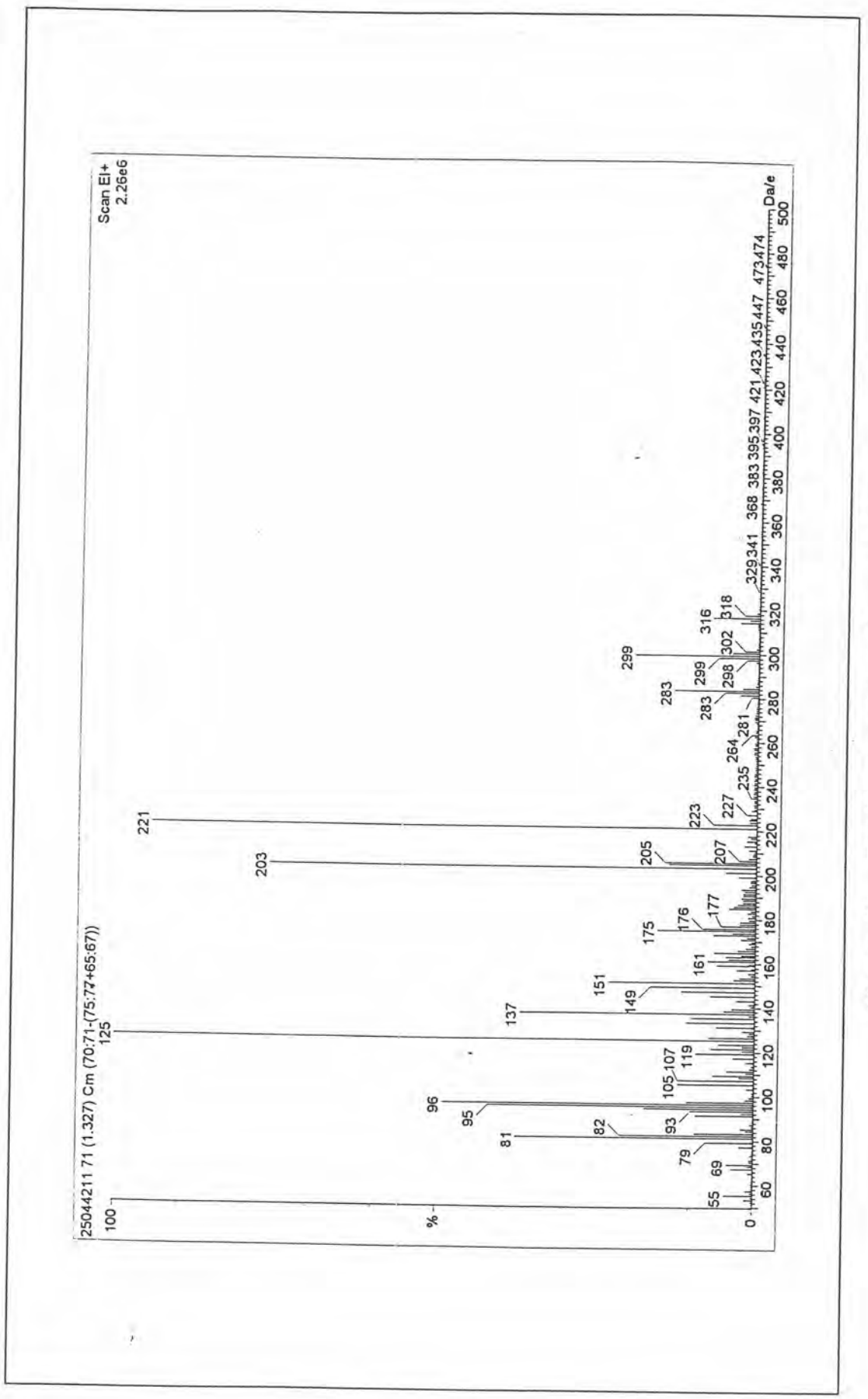

Figure 96 The EIMS spectrum of Compound 10

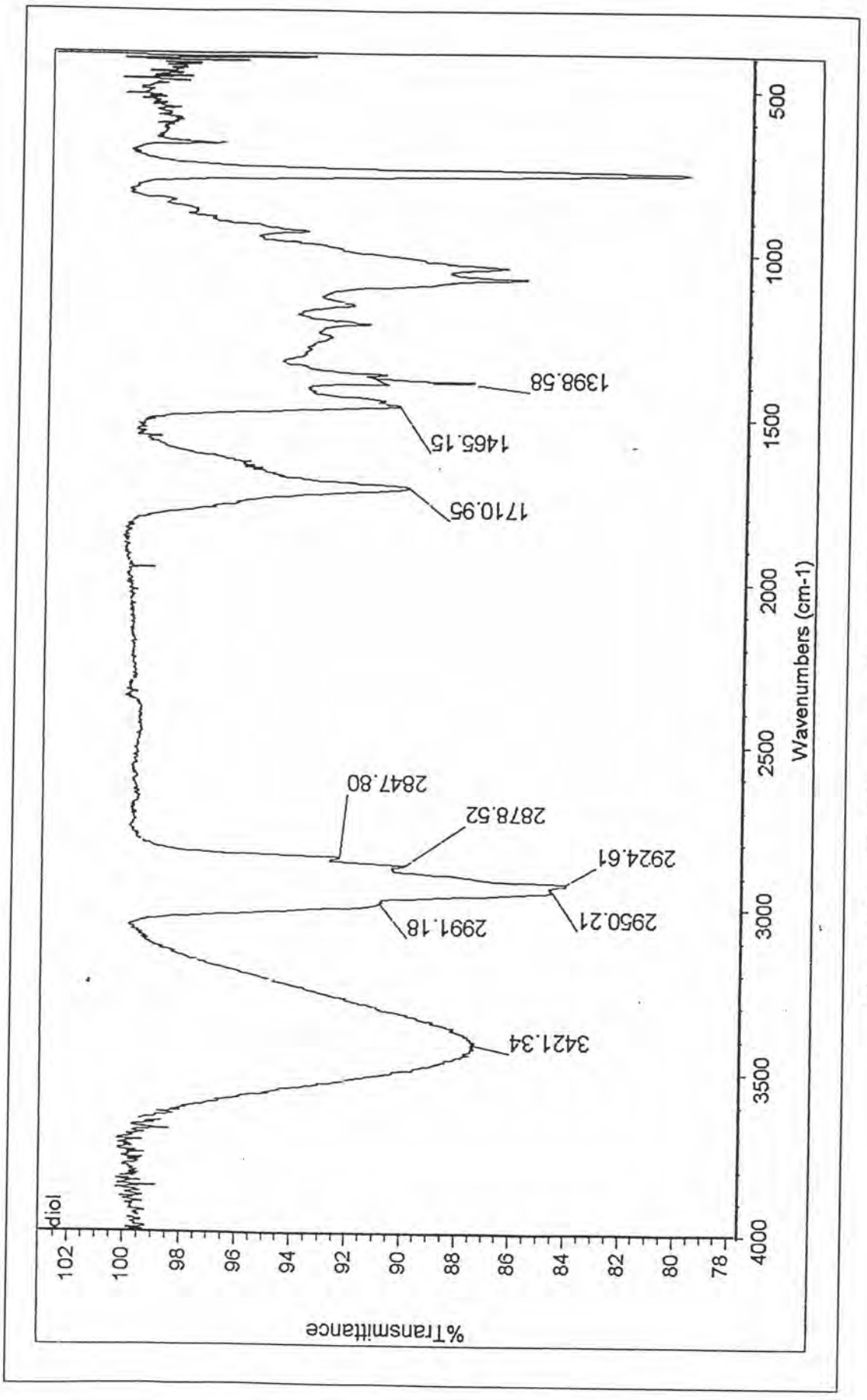

Figure 97 The IR spectrum of Compound 11

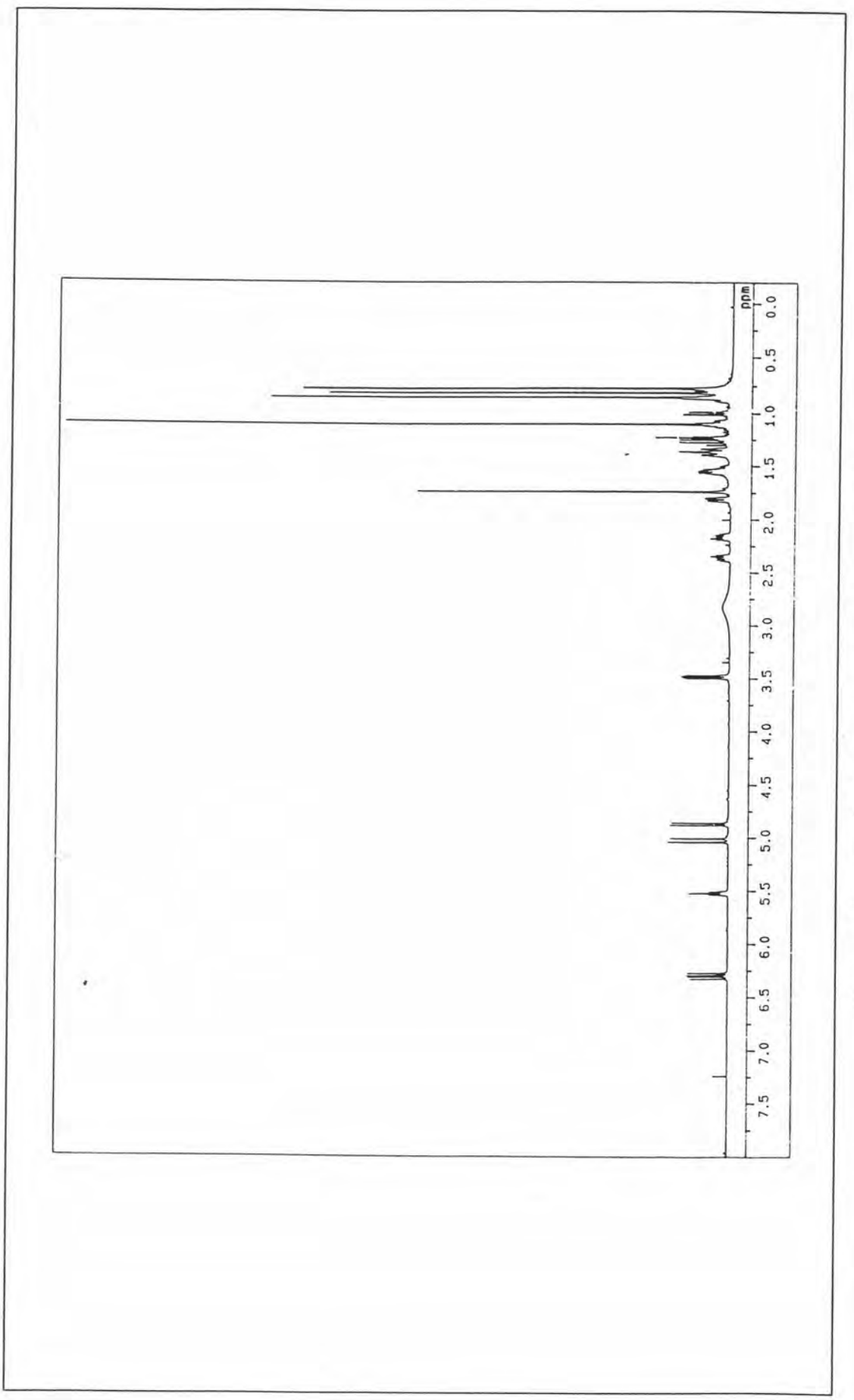

Figure 98 The ^{1}H-NMR spectrum of Compound 11

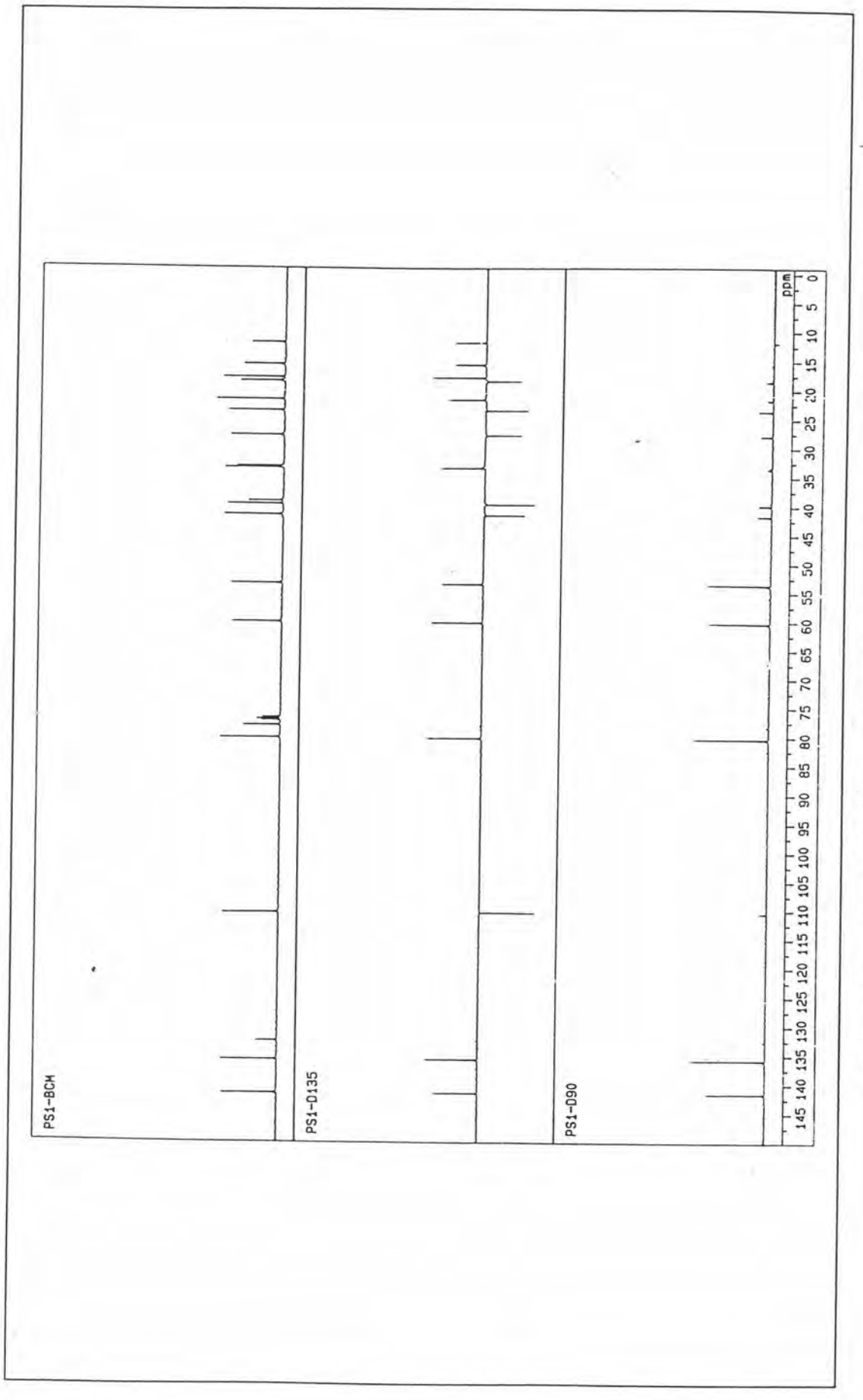

Figure 99 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 11

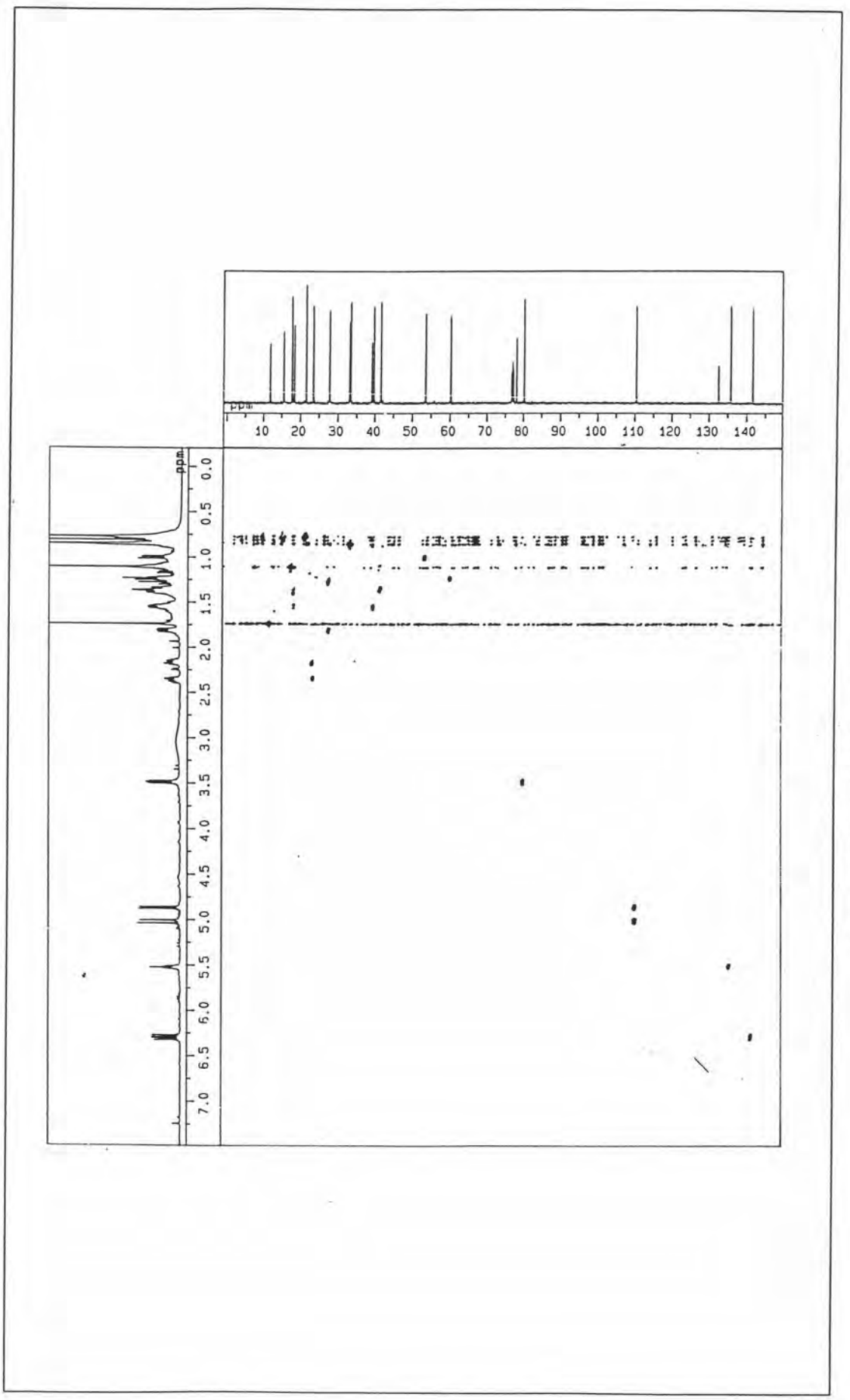

Figure 100 HMQC spectrum of Compound 11

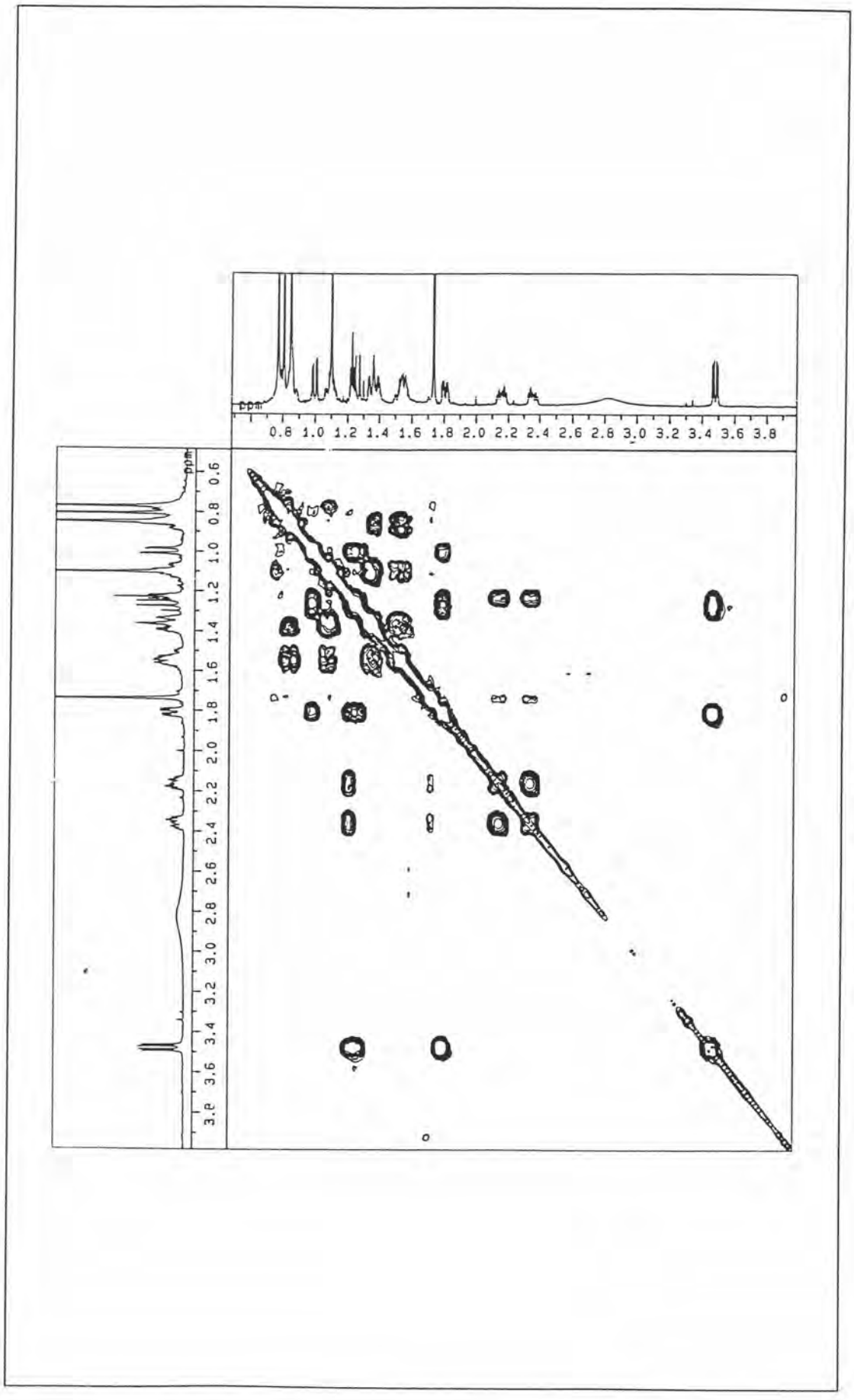

Figure 101 The COSY spectrum of Compound 11

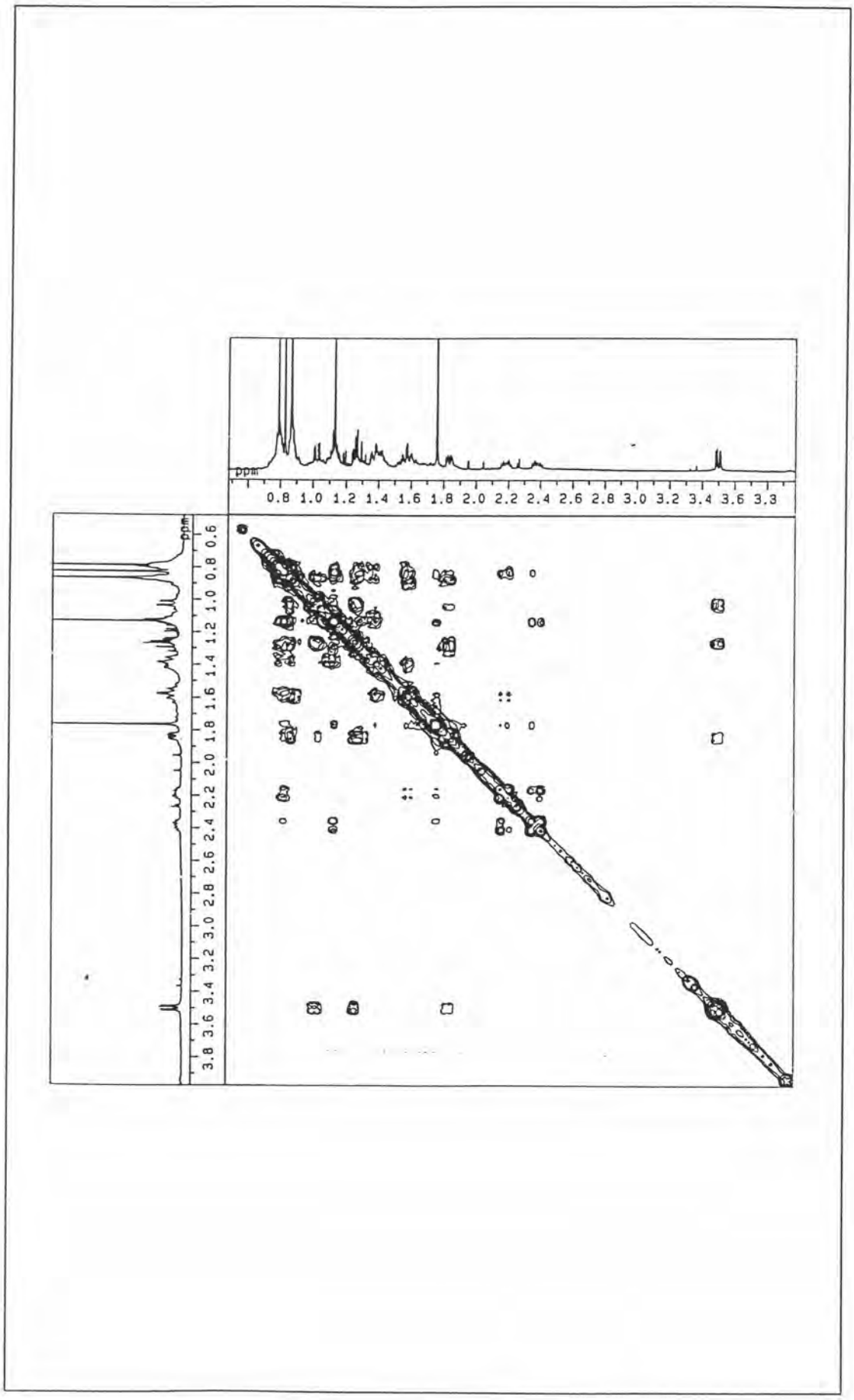

Figure 102 The NOESY spectrum of Compound 11

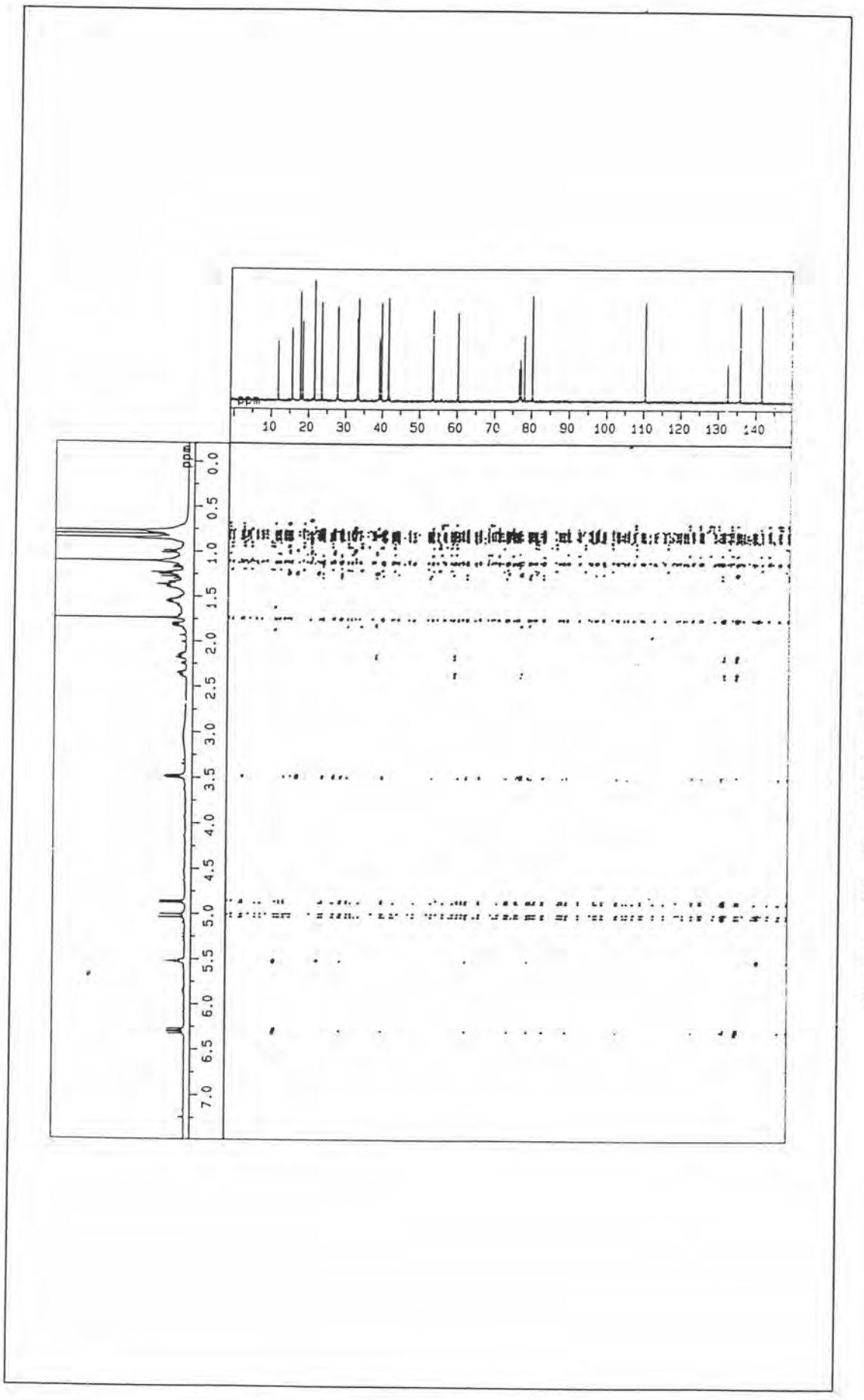

Figure 103 The HMBC spectrum of Compound 11

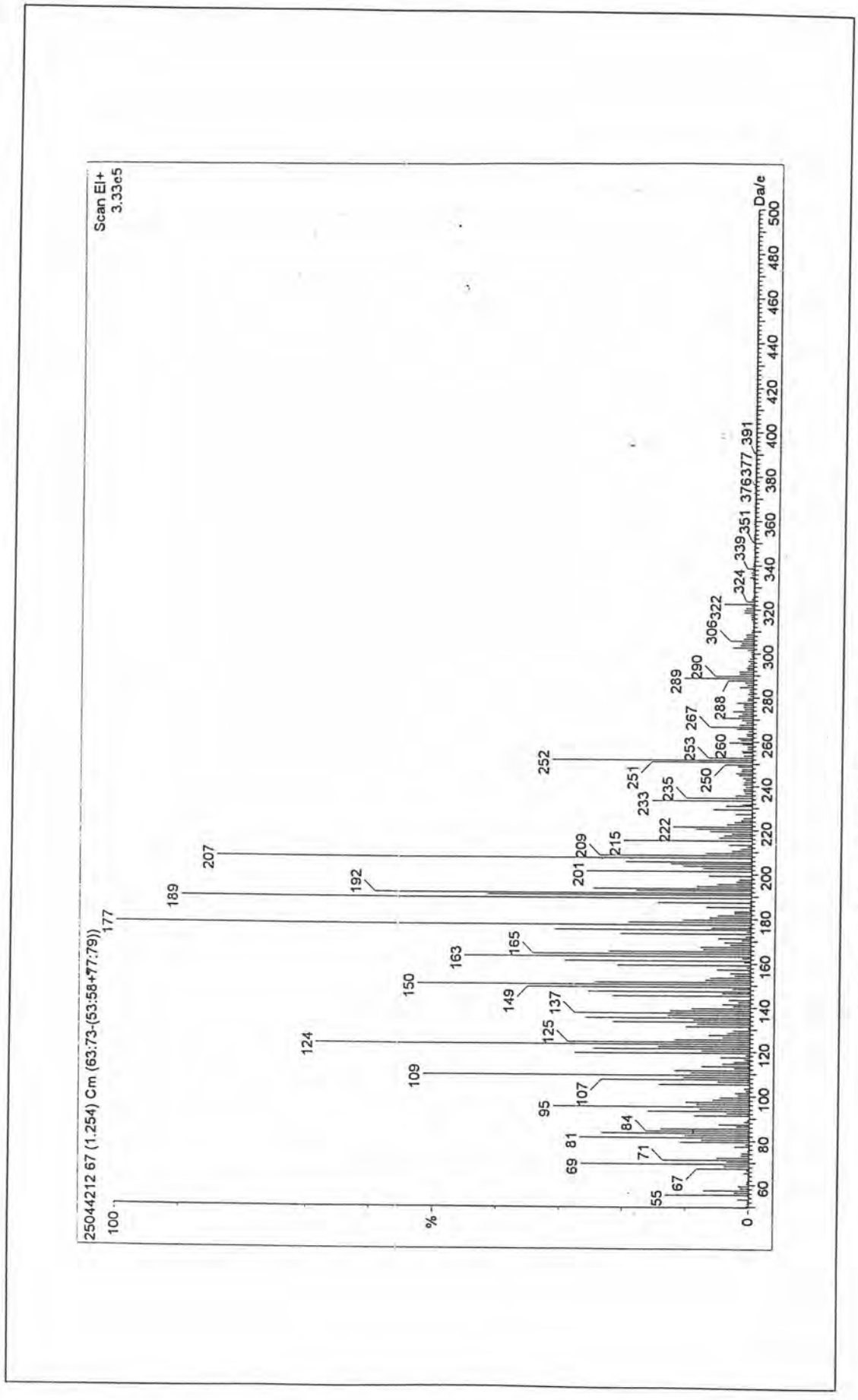

Figure 104 The EIMS spectrum of Compound 11

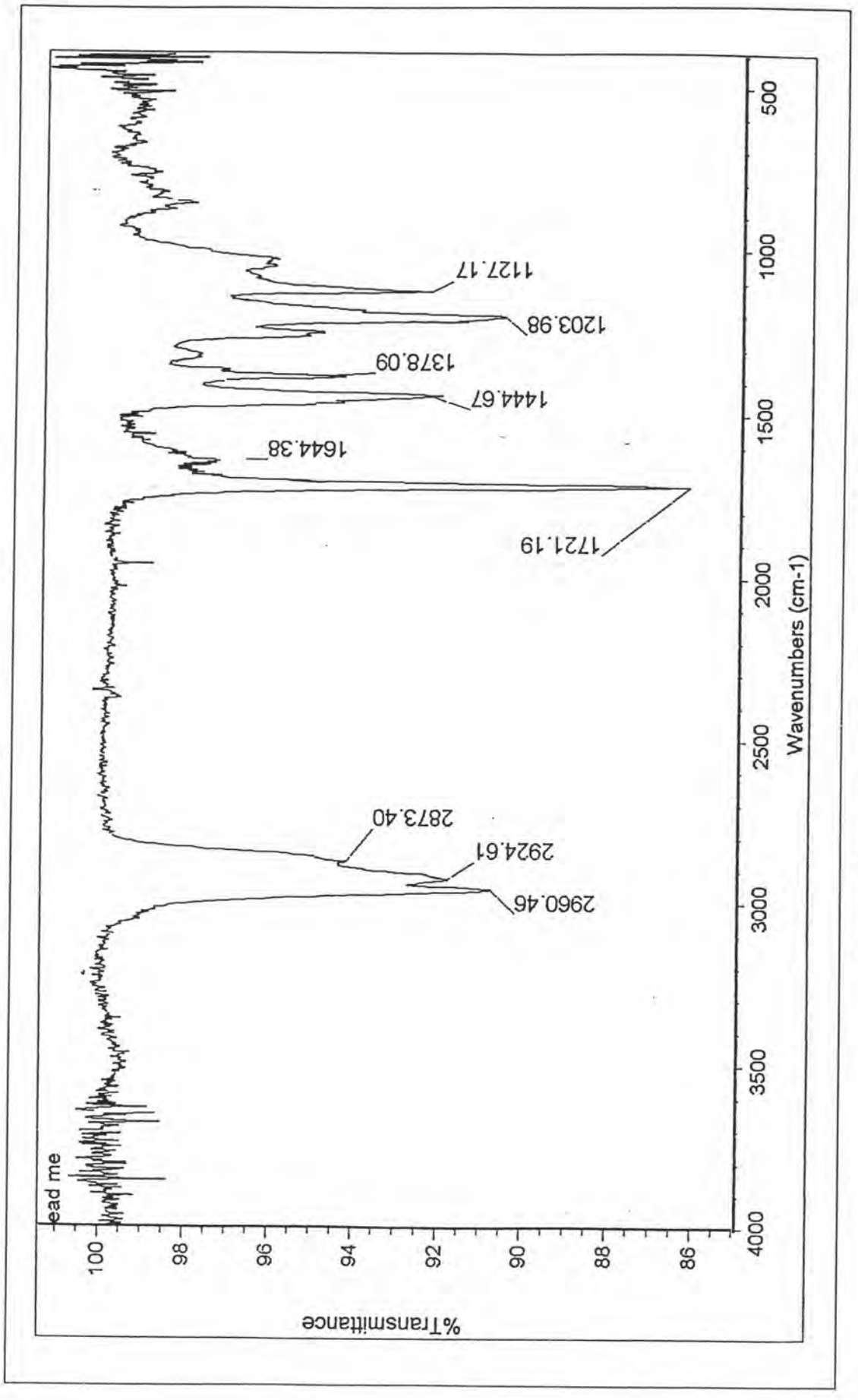

Figure 105 The IR spectrum of Compound 1a

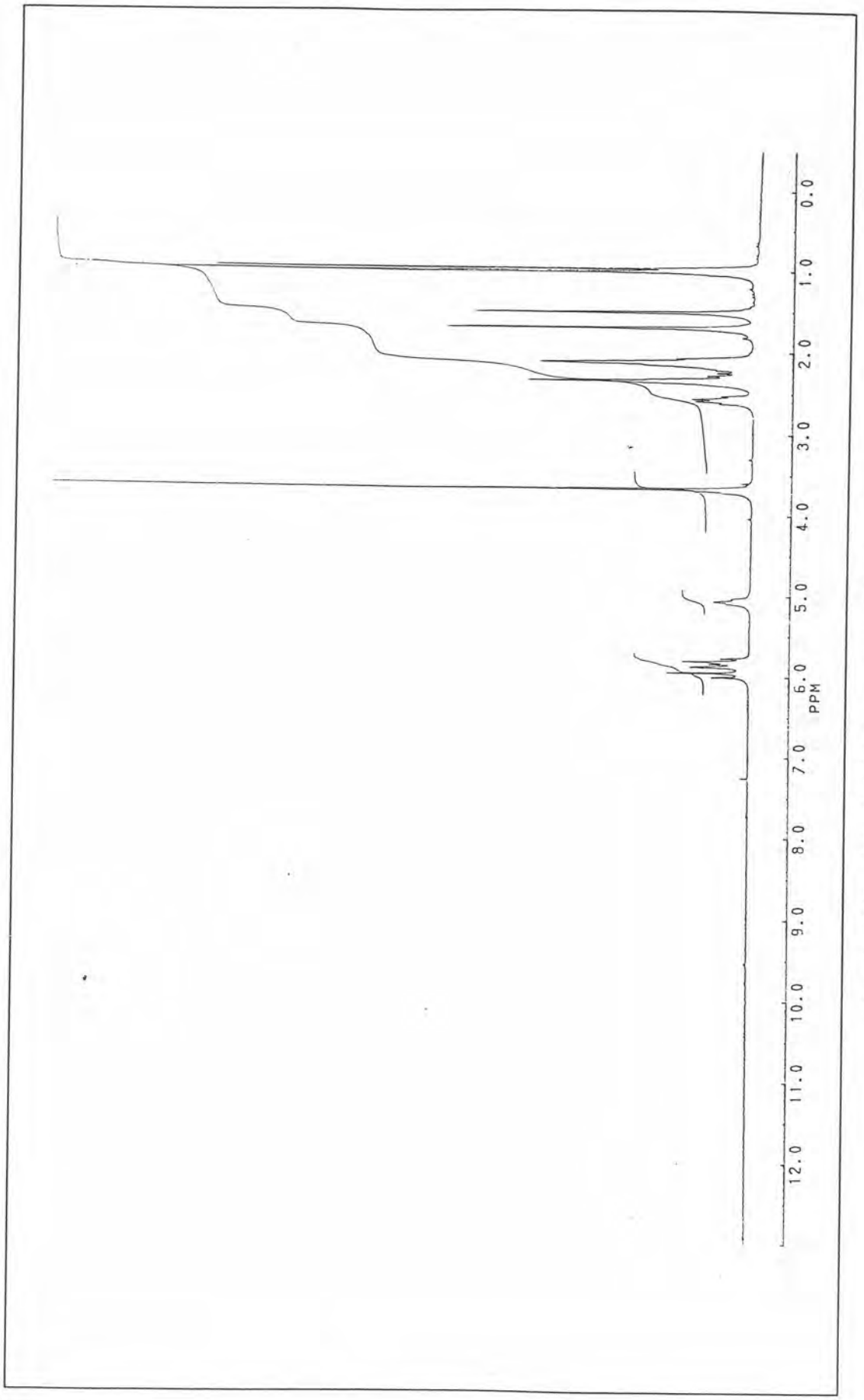

Figure 106 The ^{1}H-NMR spectrum of Compound 1a

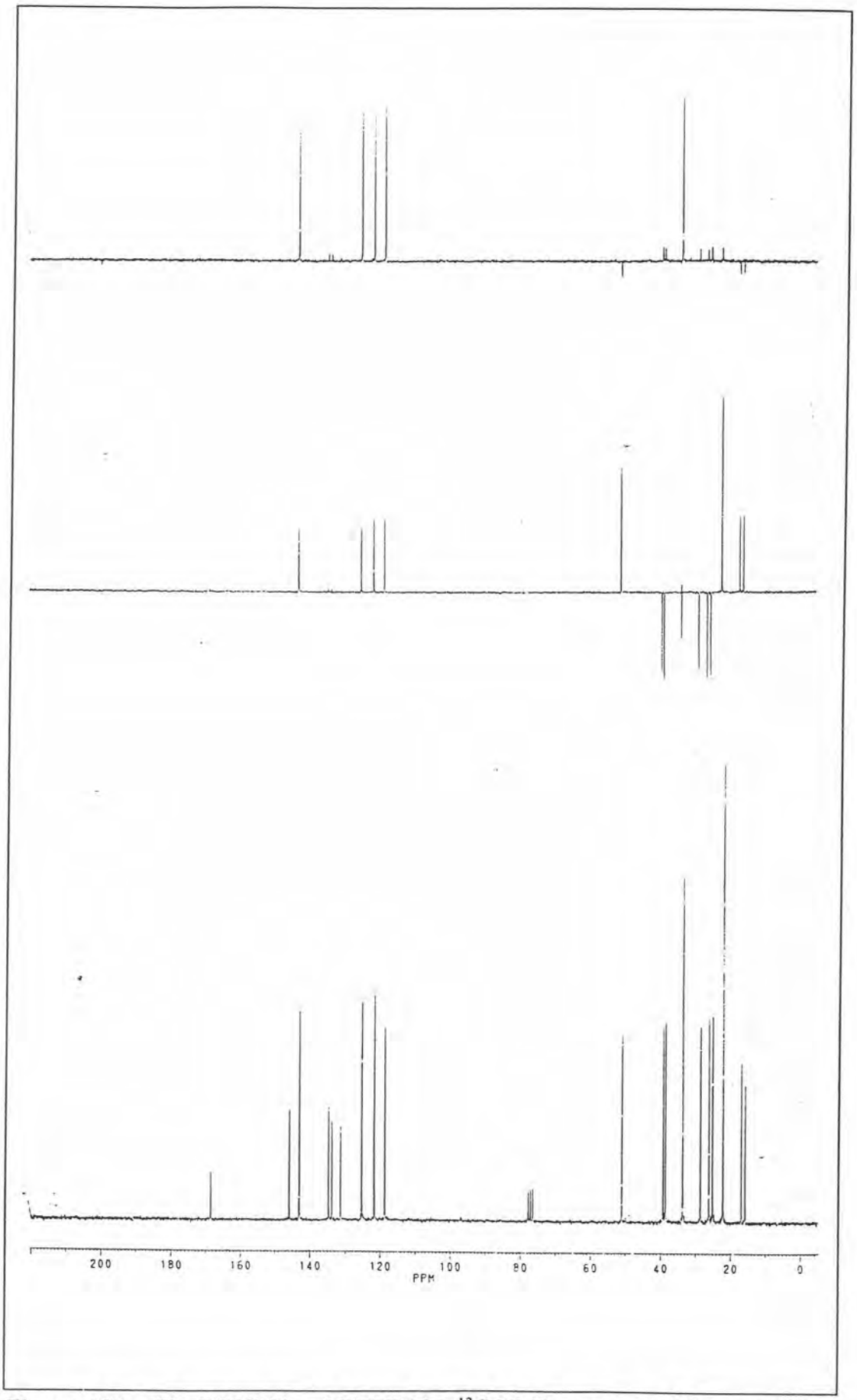

Figure 107 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 1a

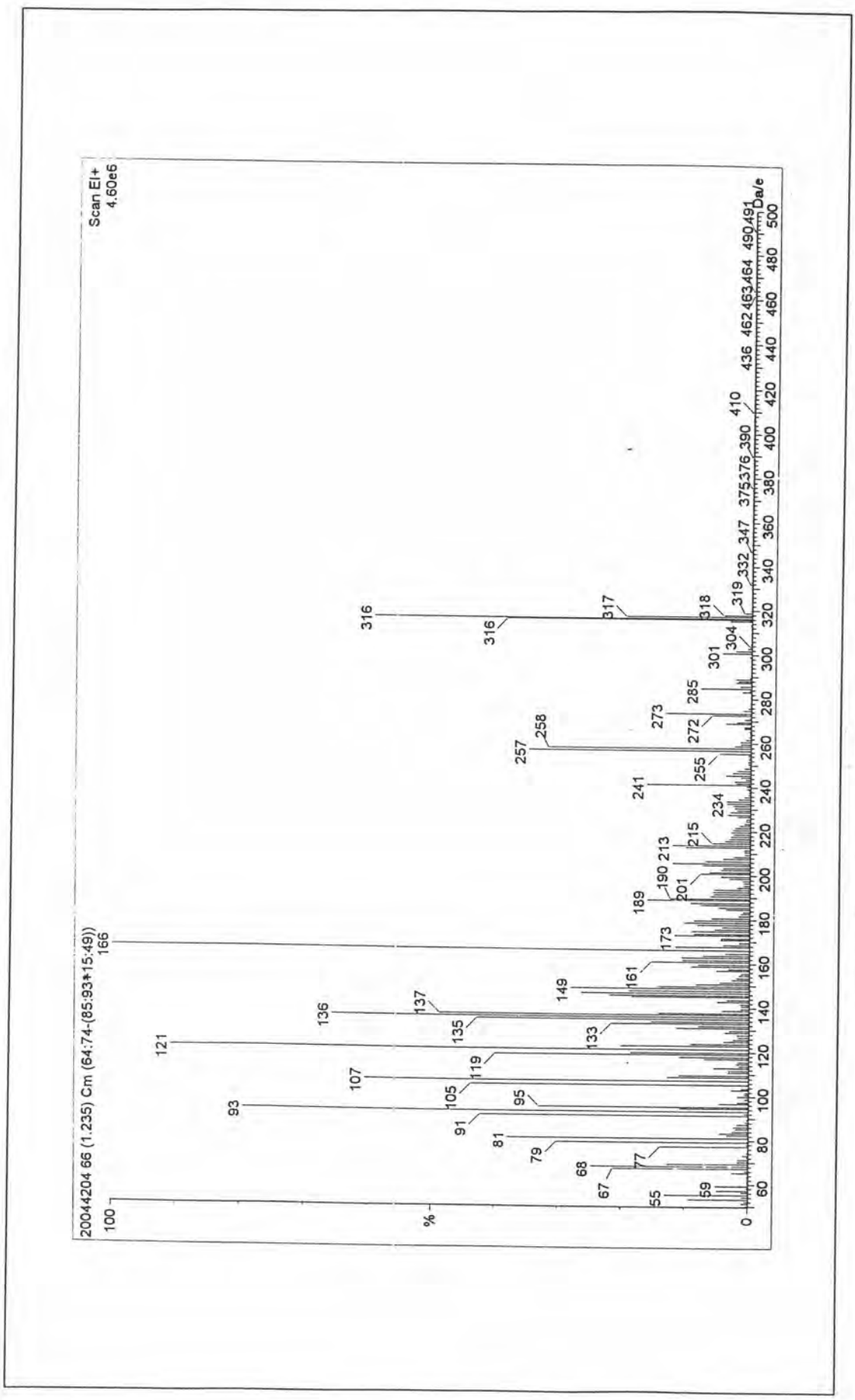

Figure 108 The EIMS spectrum of Compound 1a

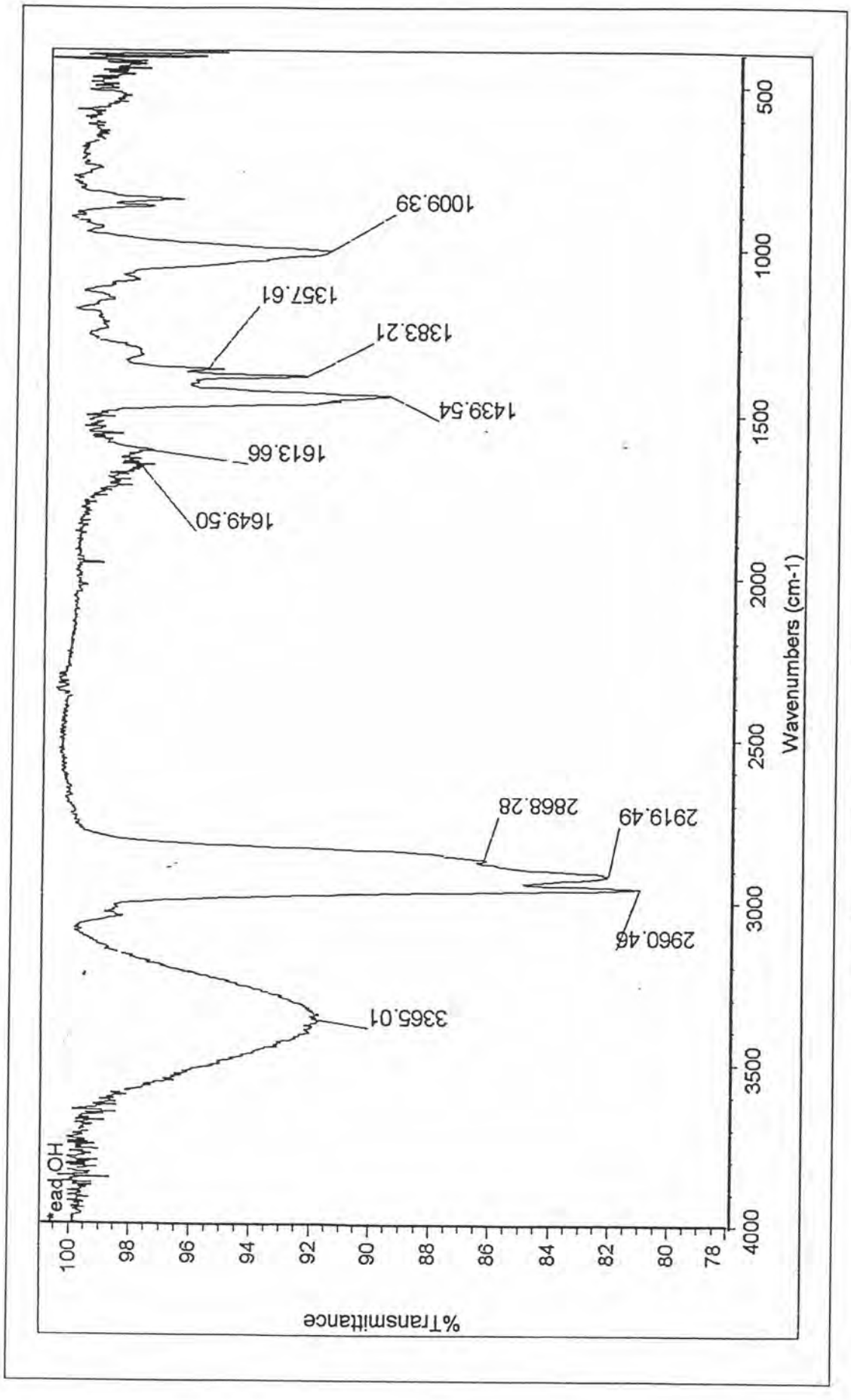

Figure 109 The IR spectrum of Compound 1b

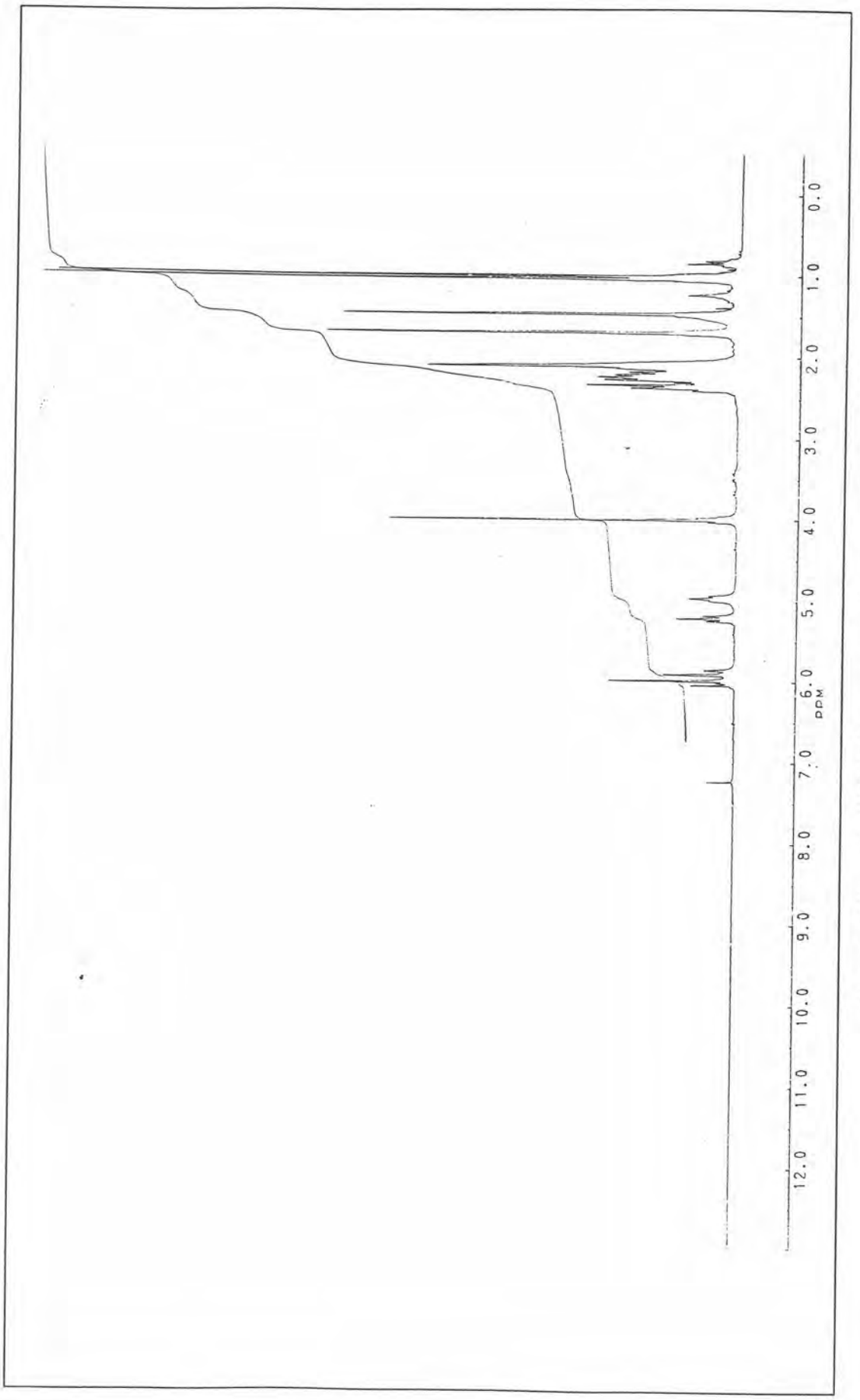

Figure 110 The ^{1}H-NMR spectrum of Compound 1b

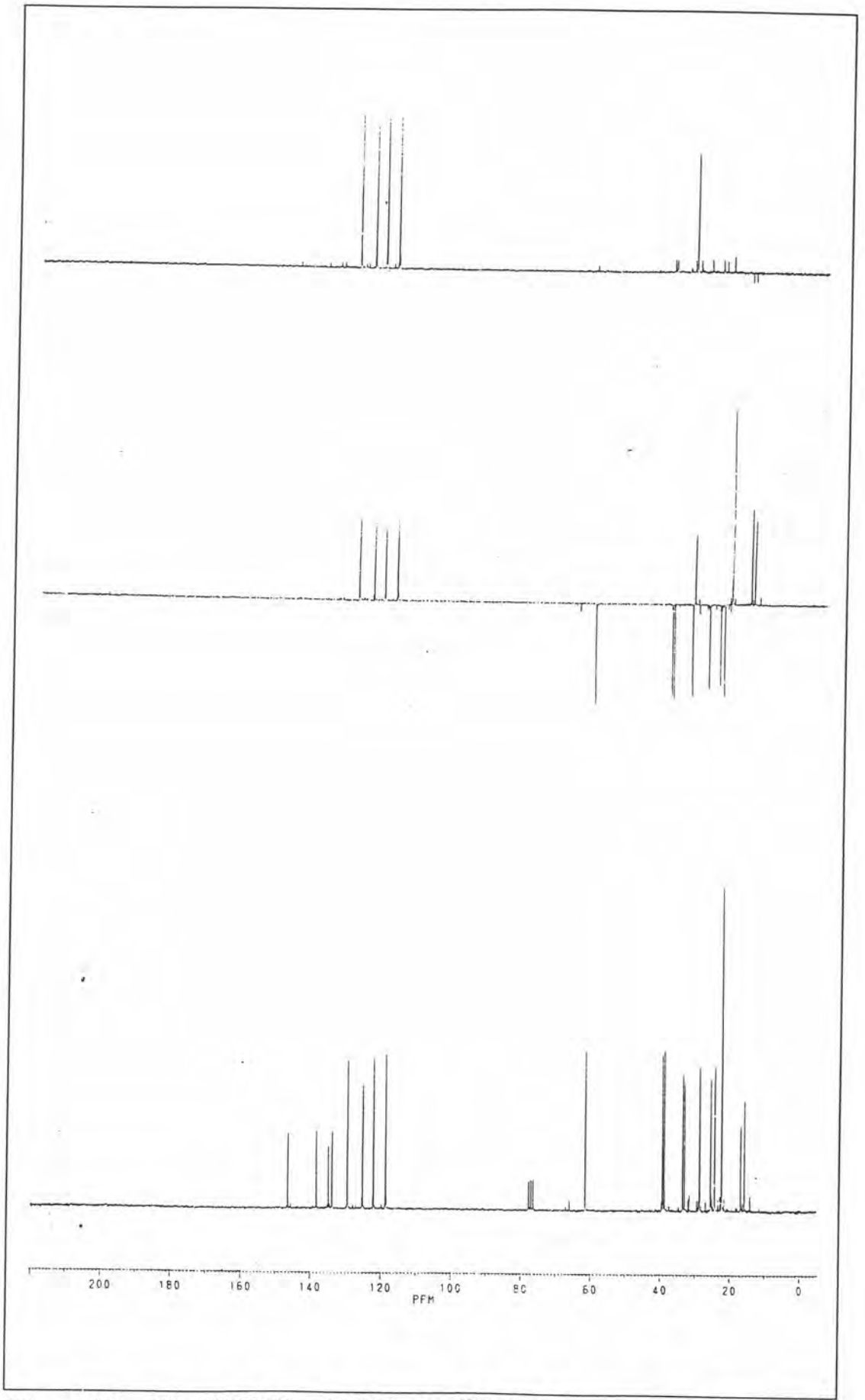

Figure 111 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 1b

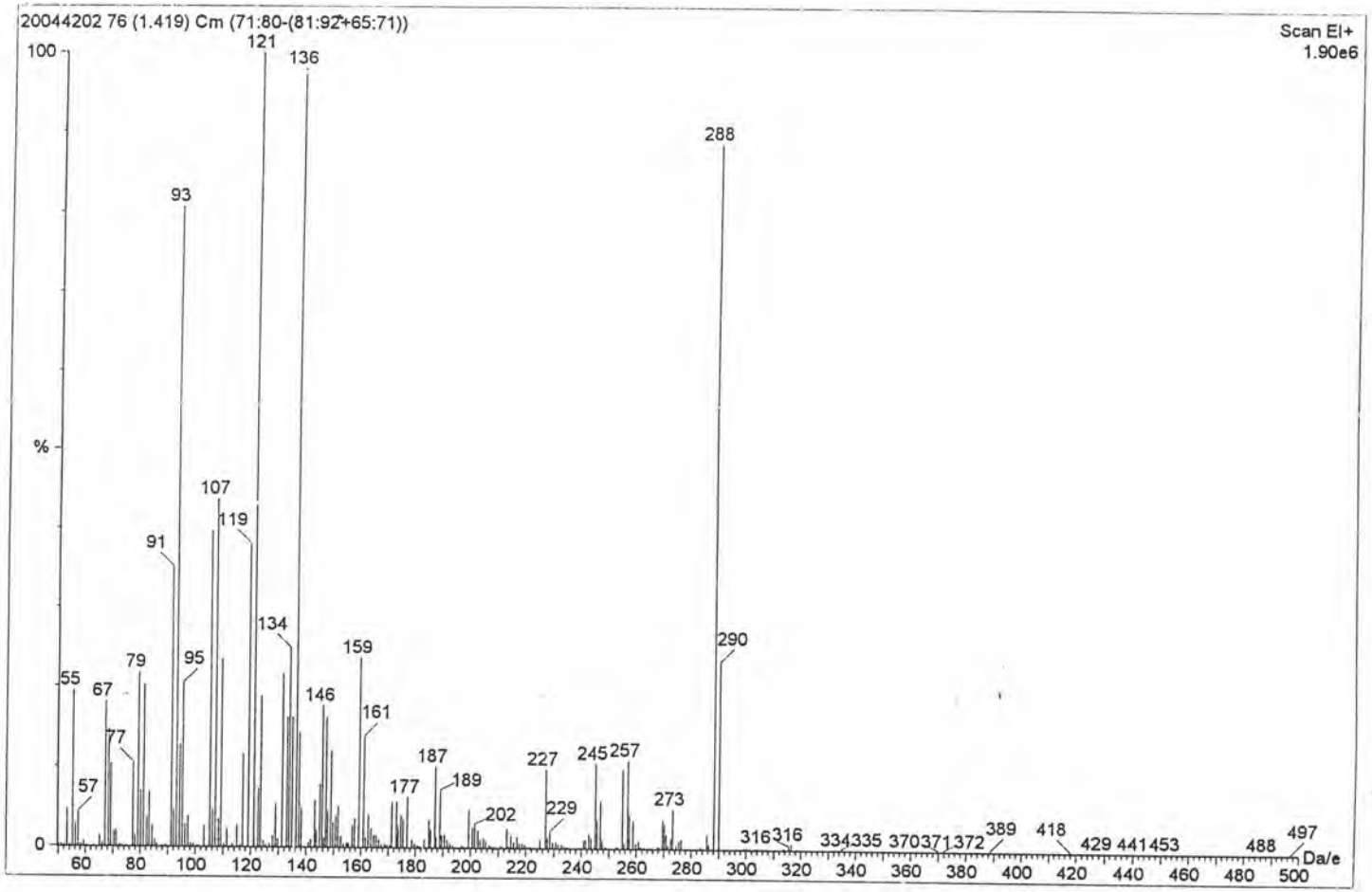

Figure 112 The EIMS spectrum of Compound 1b

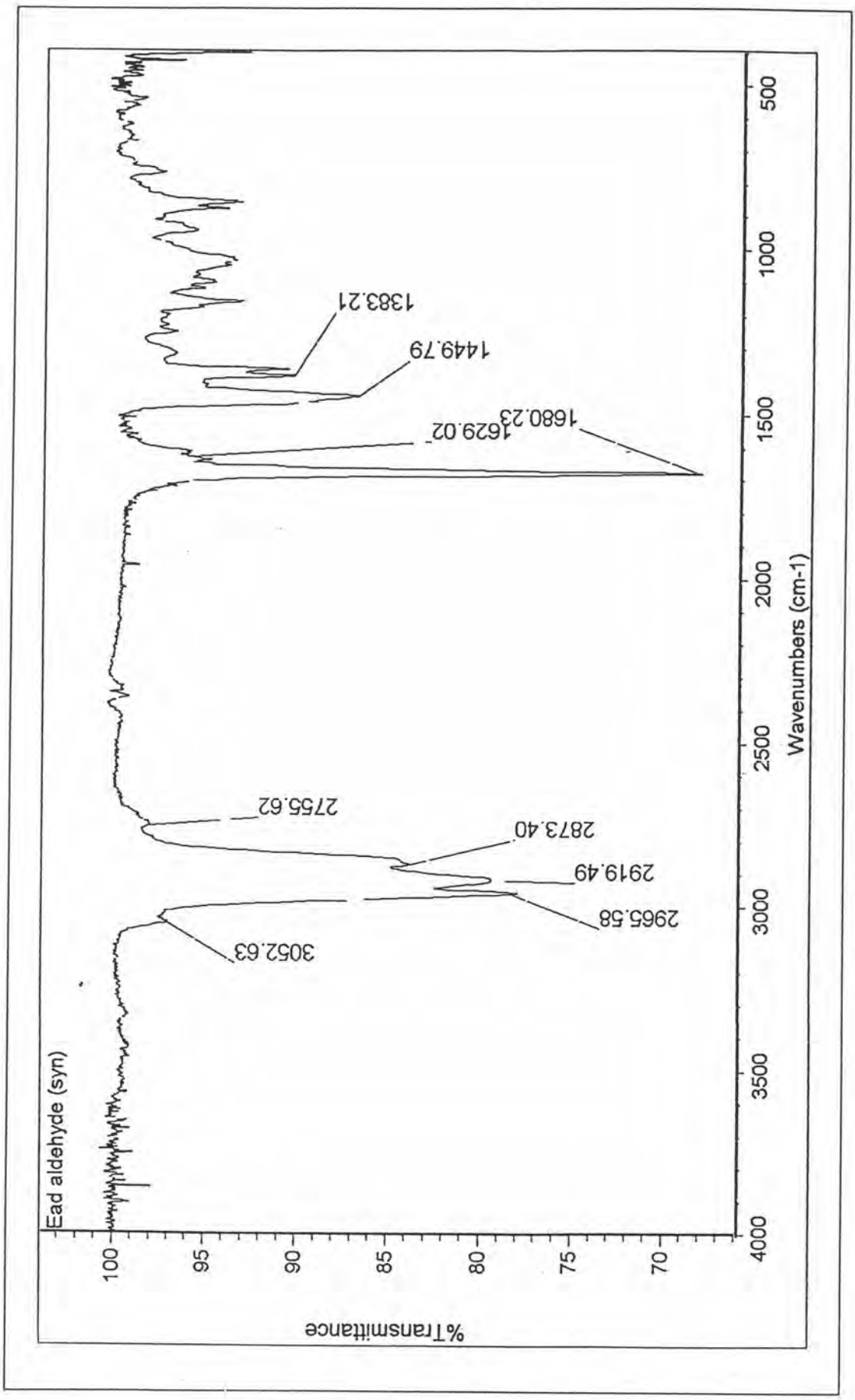

Figure 113 The IR spectrum of Compound 1c

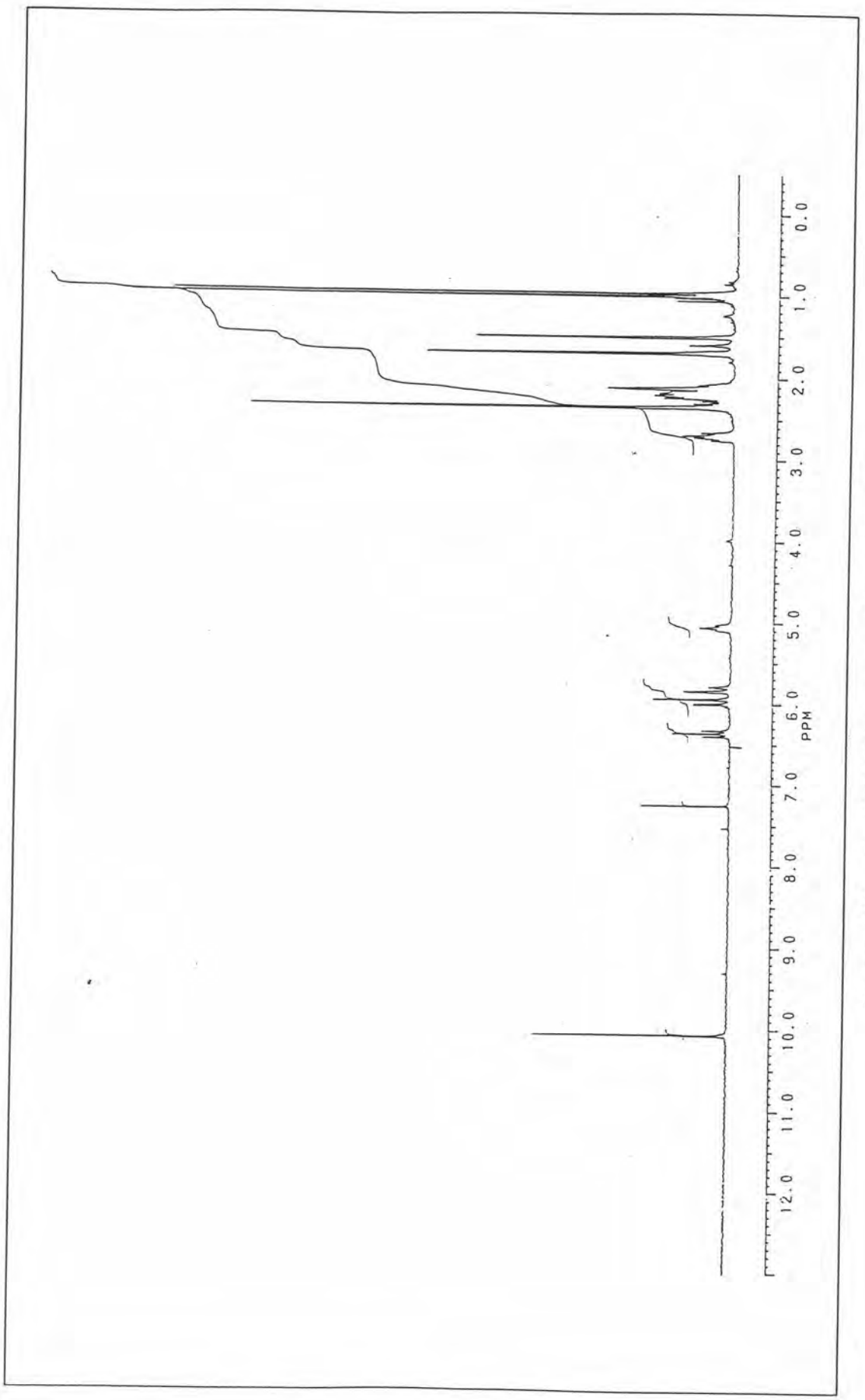

Figure 114 The ^{1}H-NMR spectrum of Compound 1c

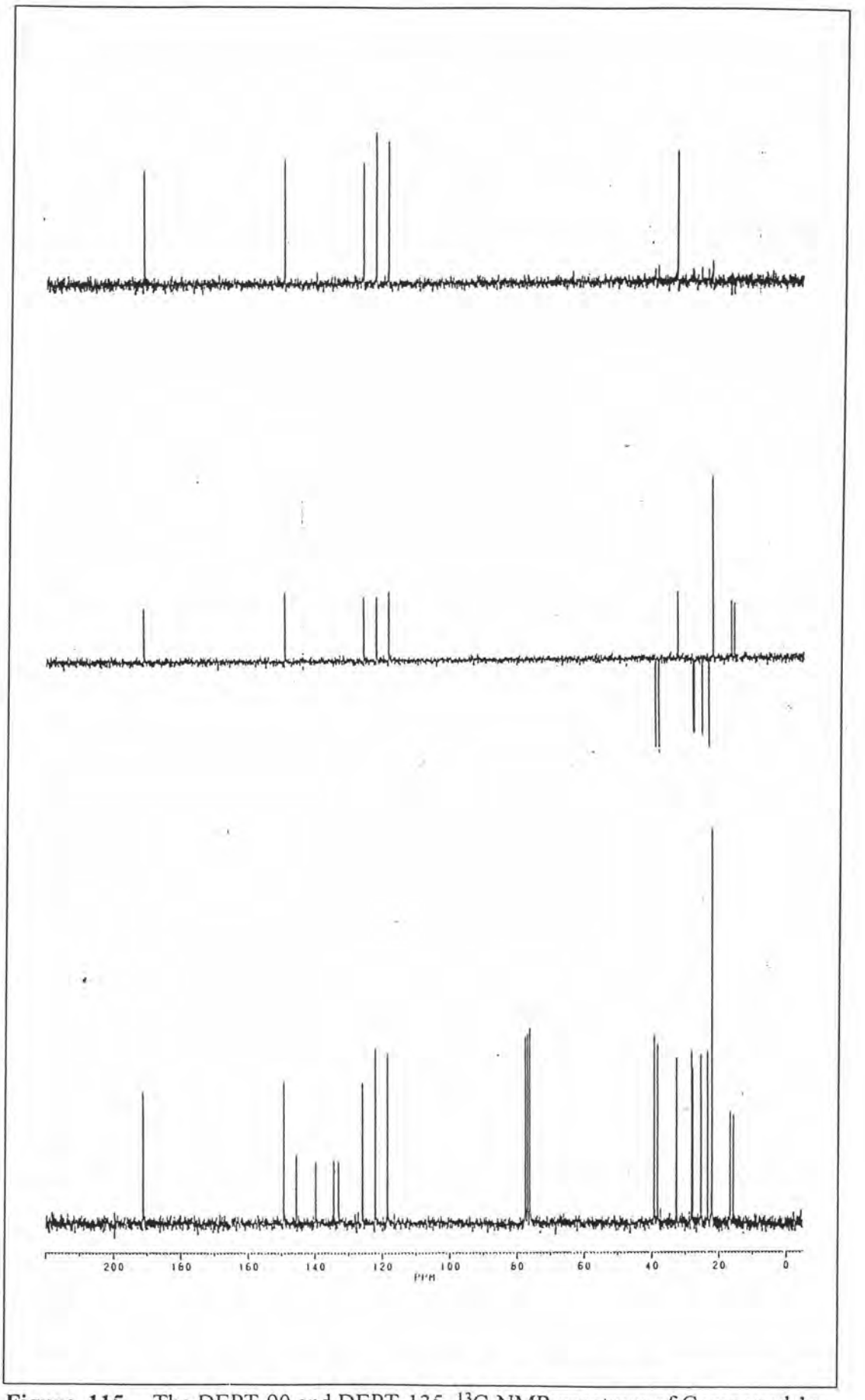

Figure 115 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 1c

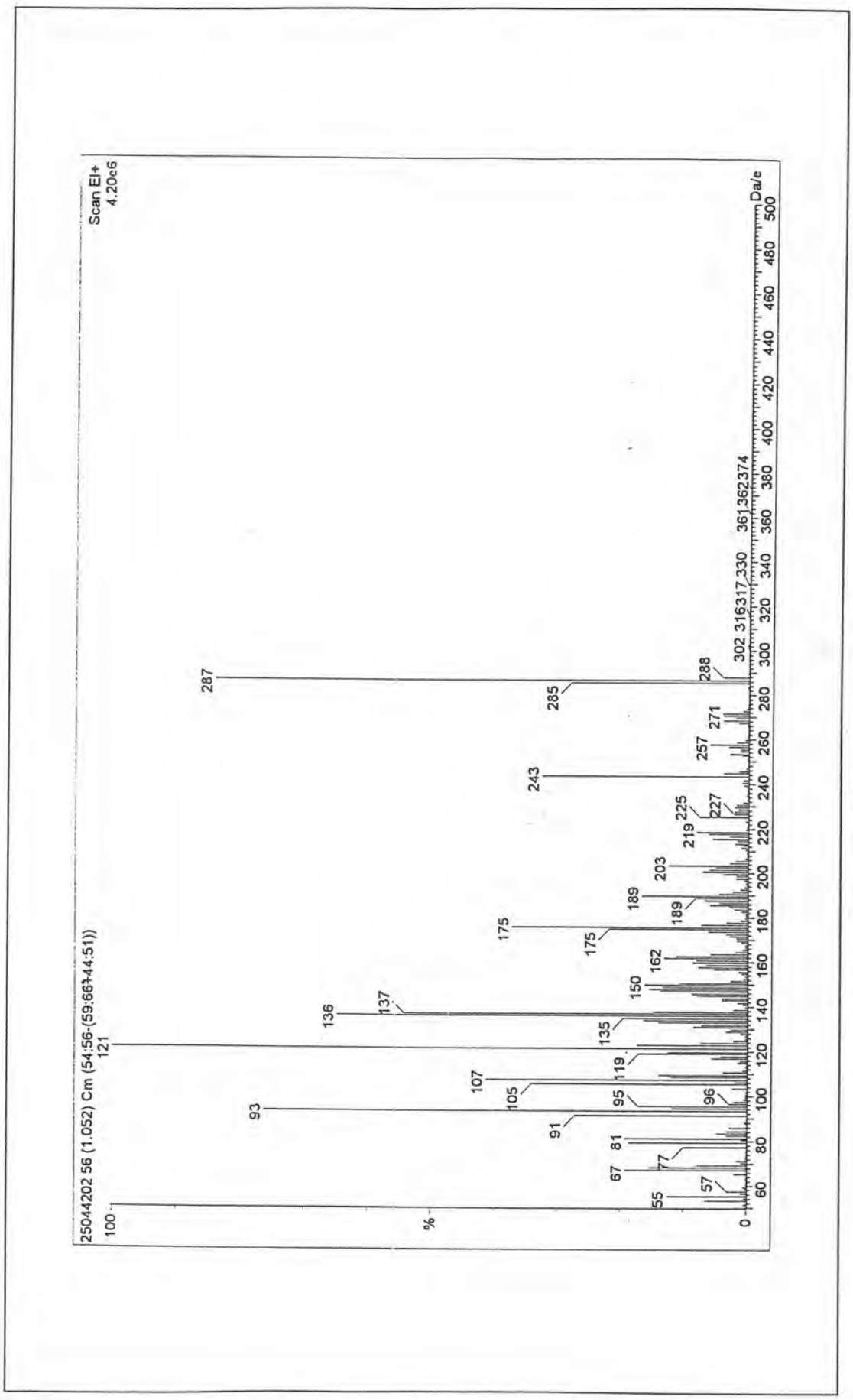

Figure 116 The EIMS spectrum of Compound 1c

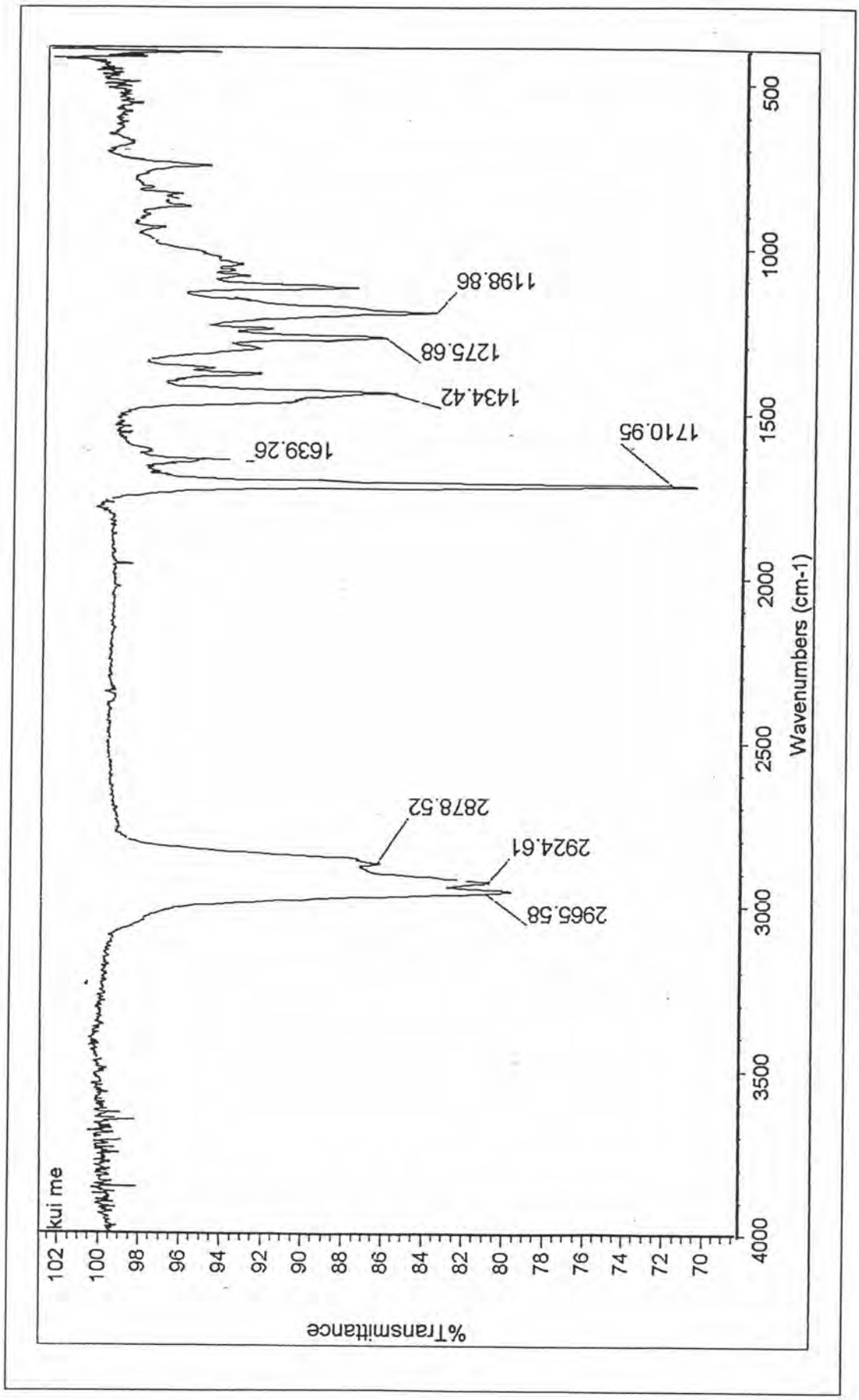

Figure 117 The IR spectrum of Compound 2a

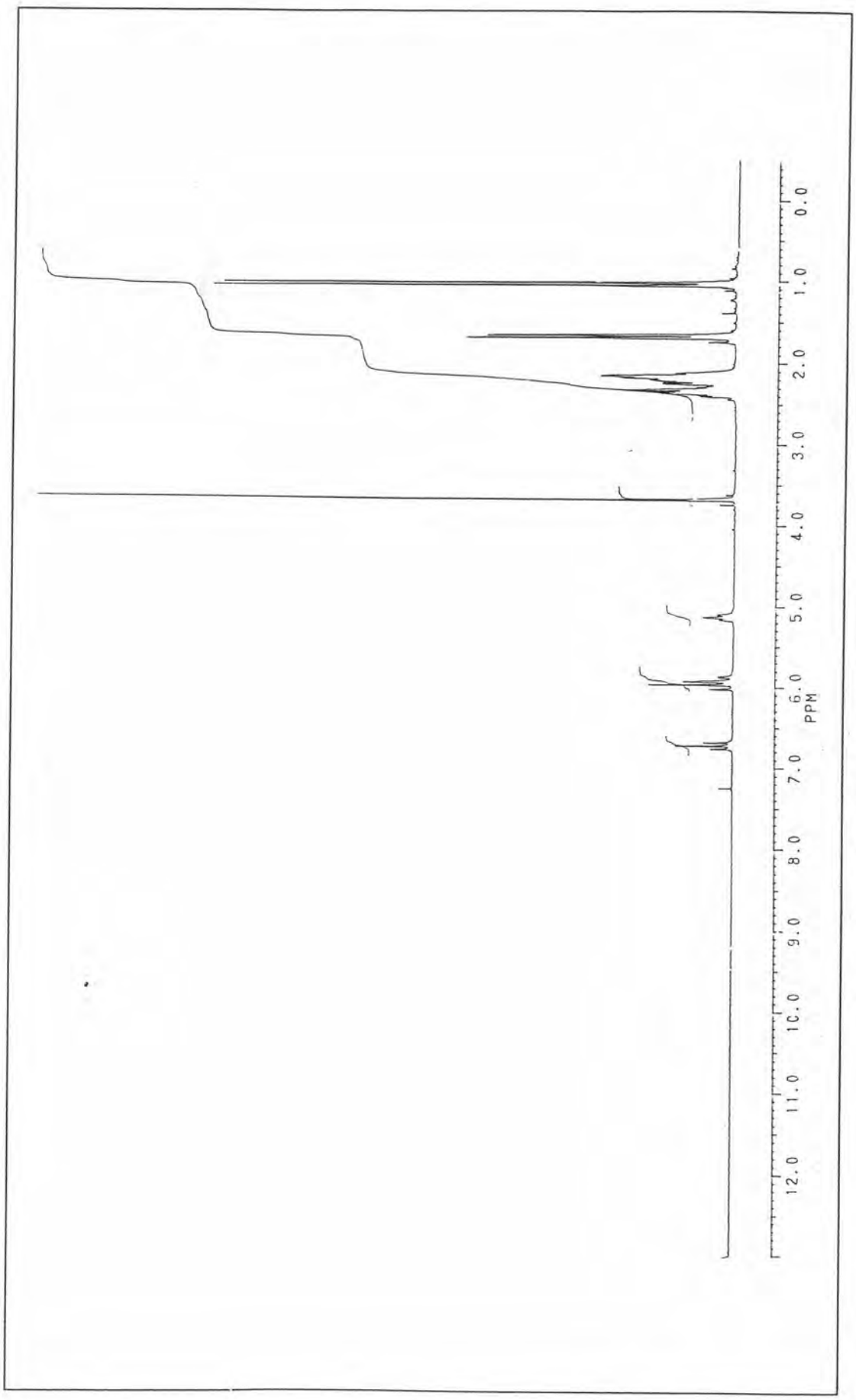

Figure 118 The ^{1}H-NMR spectrum of Compound 2a

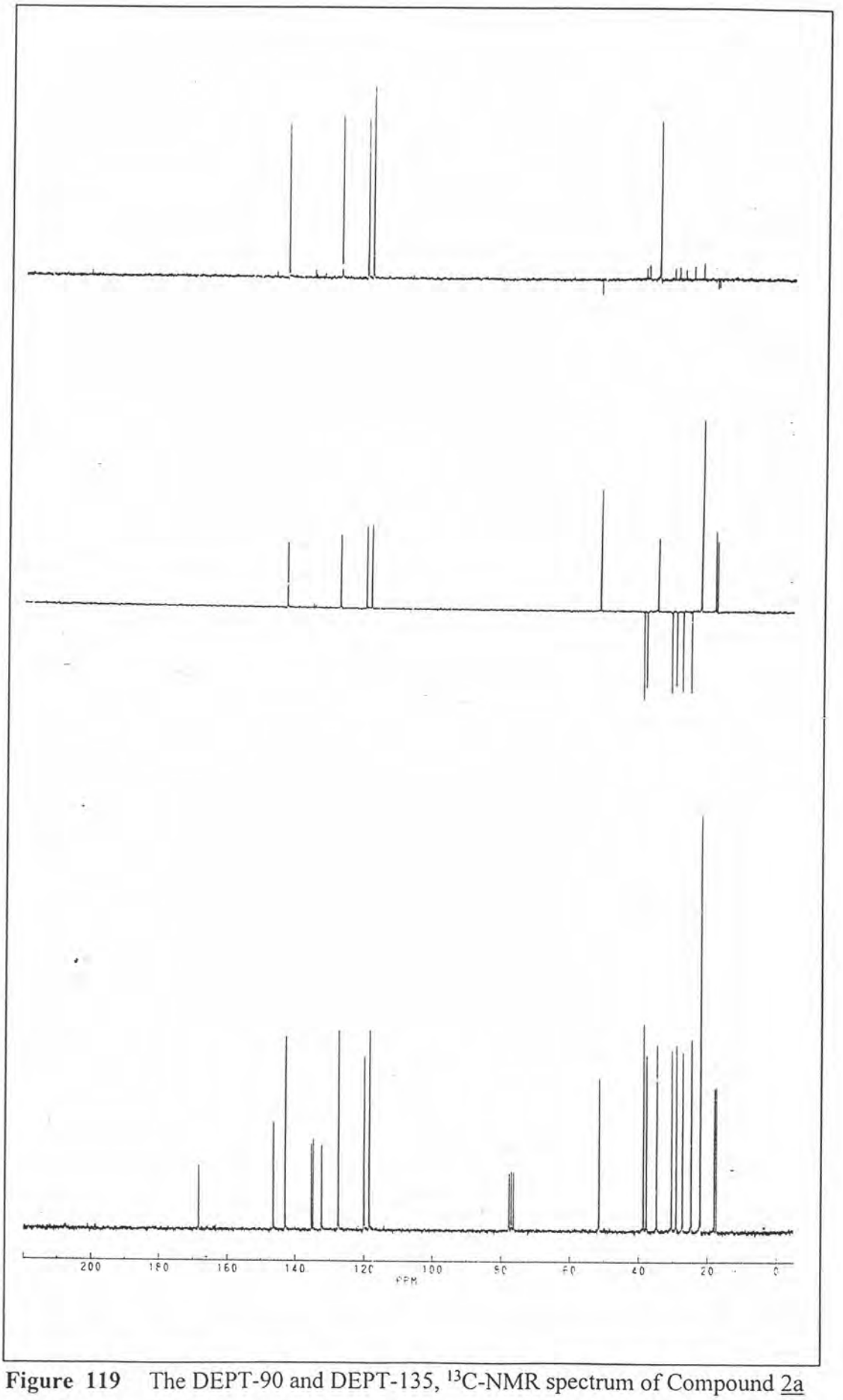

Figure 119 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 2a

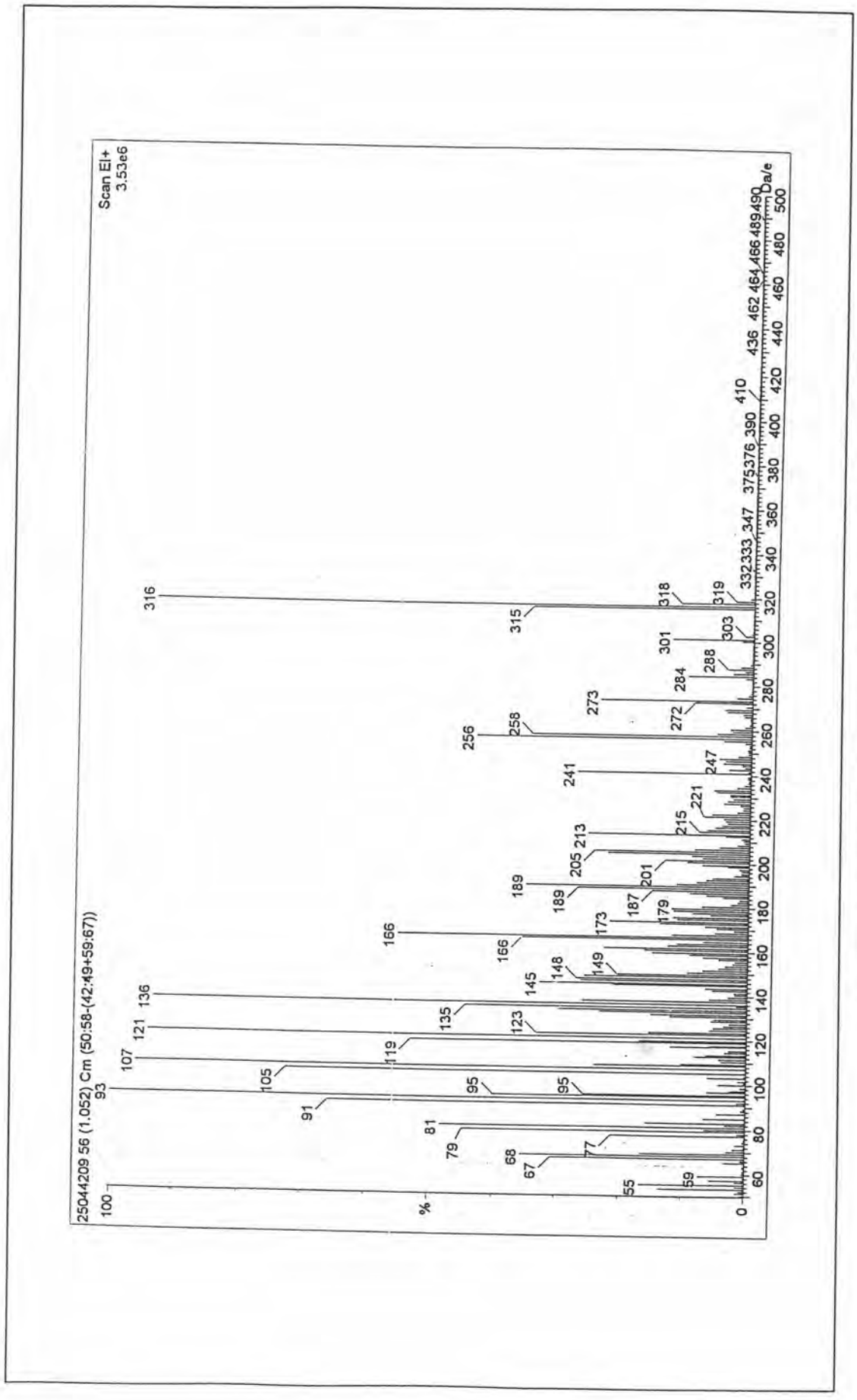

Figure 120 The EIMS spectrum of Compound 2a

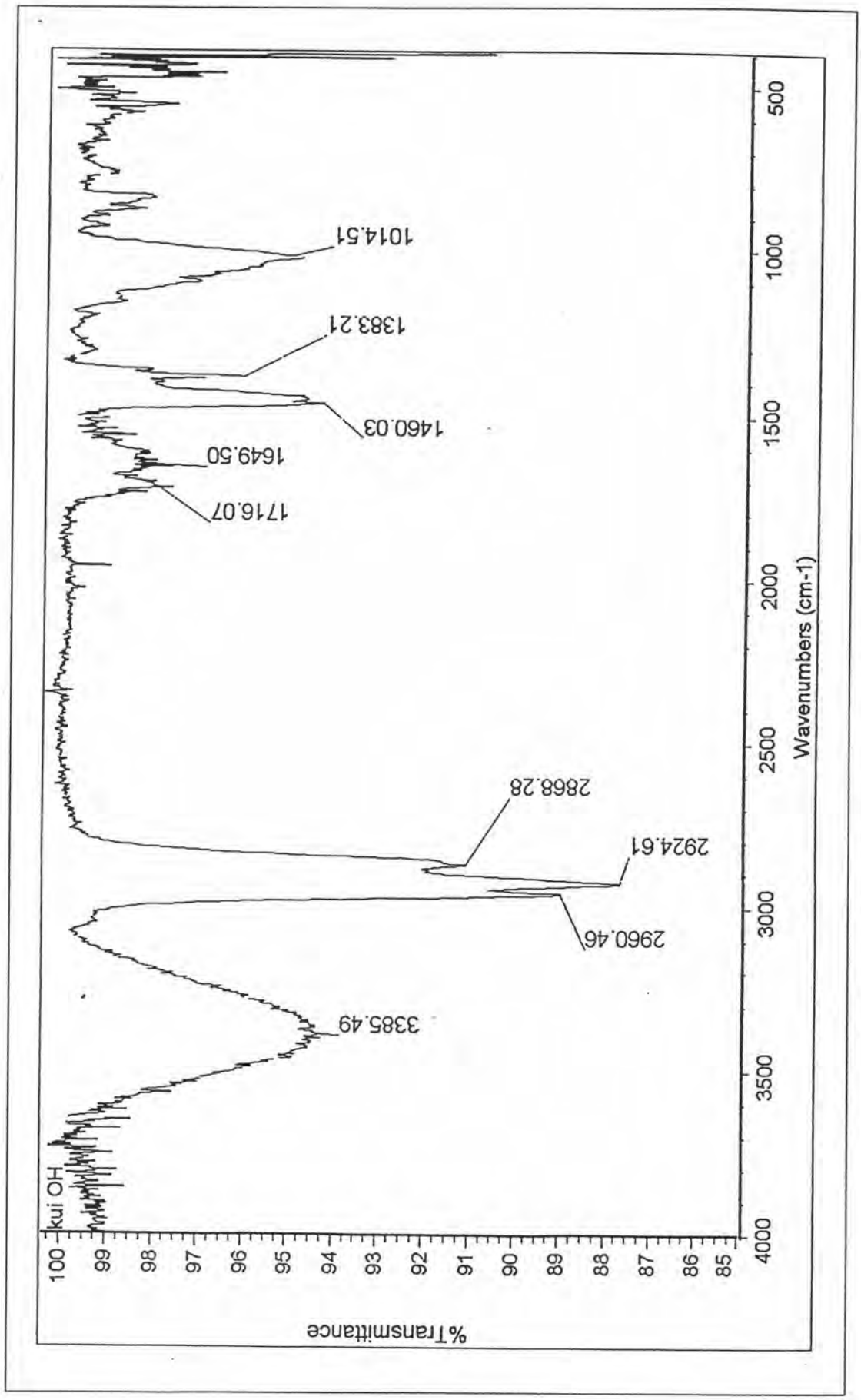

Figure 121 The IR spectrum of Compound 2b

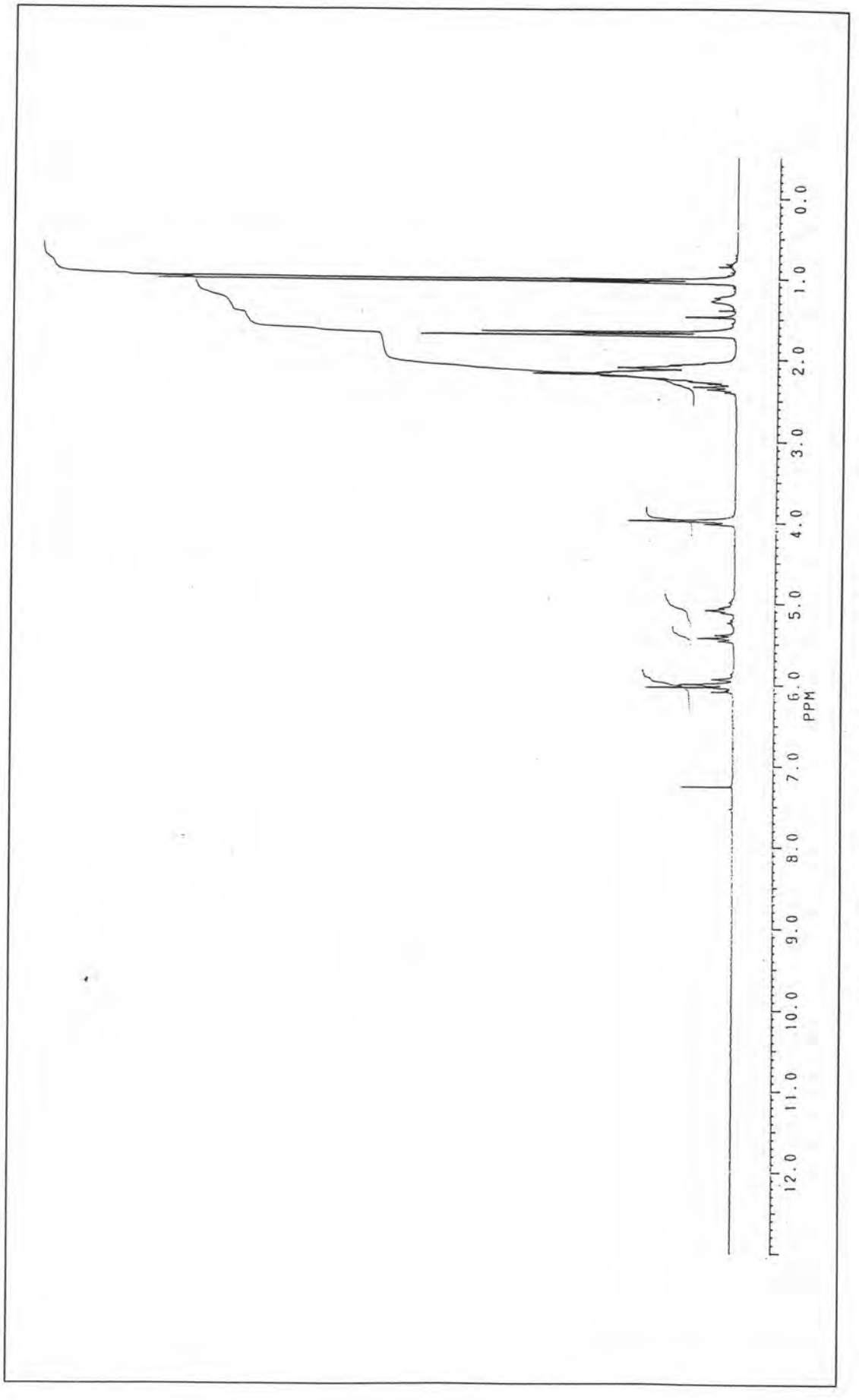

Figure 122 The ^{1}H-NMR spectrum of Compound 2b

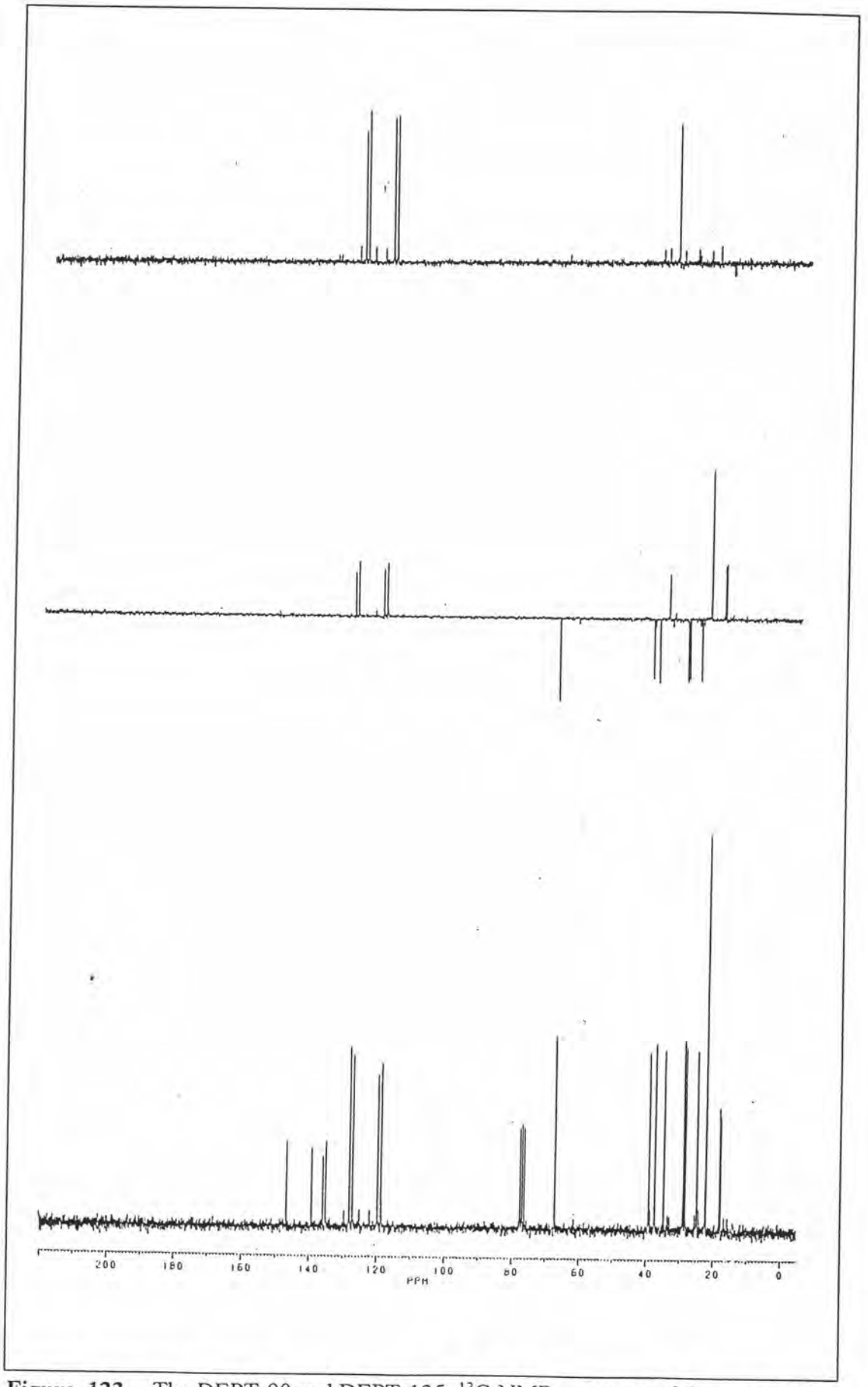

Figure 123 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 2b

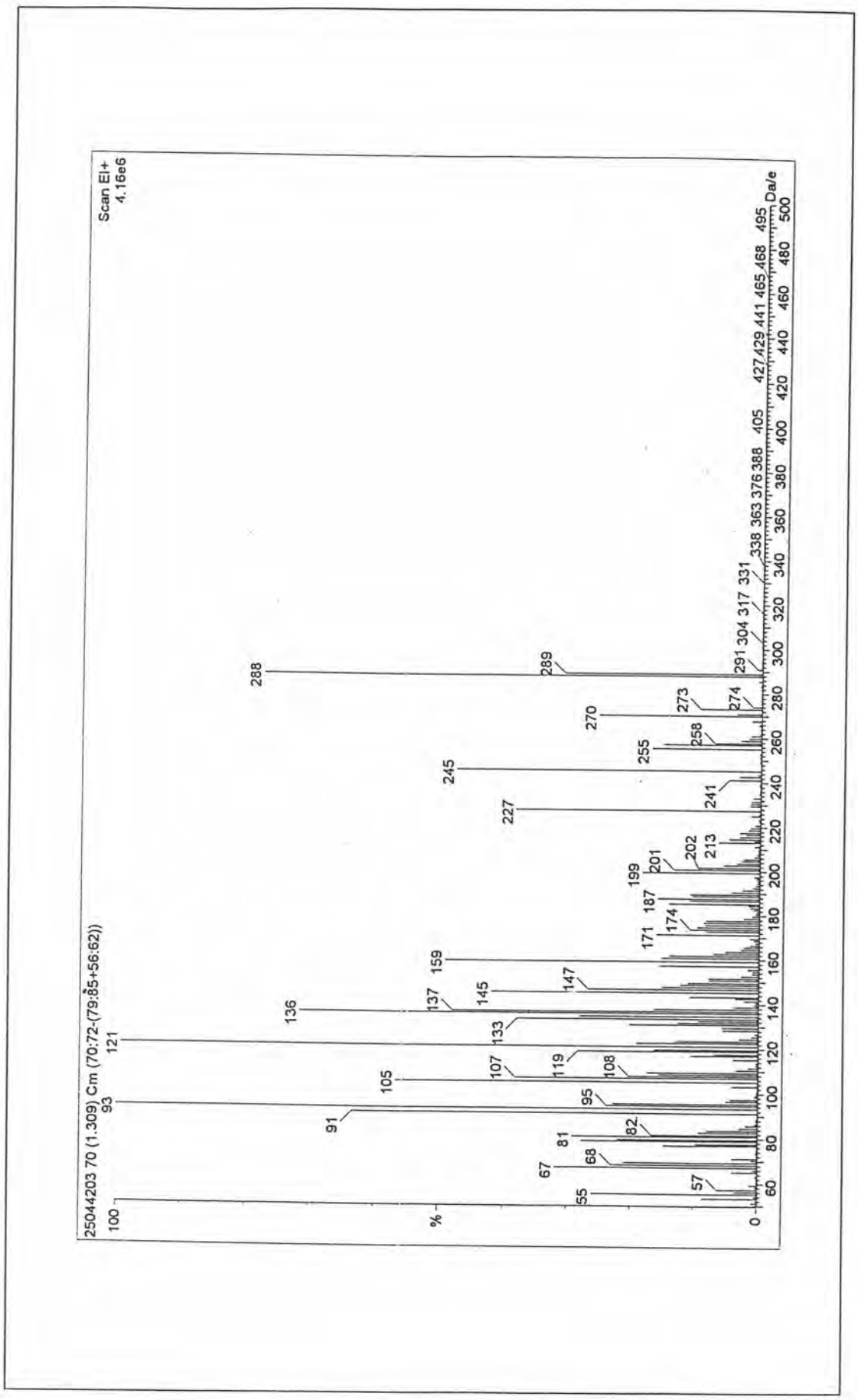

Figure 124 The EIMS spectrum of Compound 2b

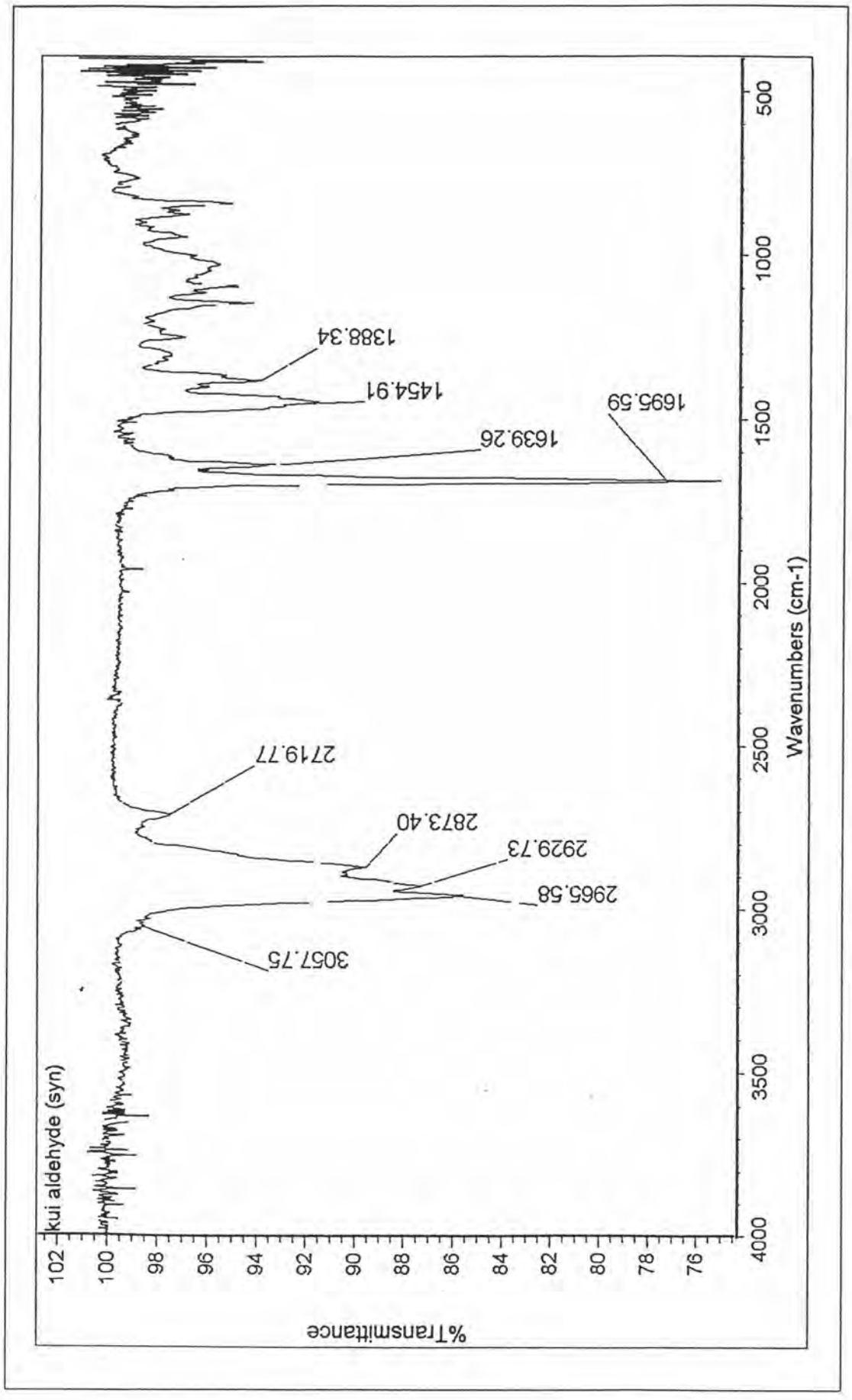

Figure 125 The IR spectrum of Compound 2c

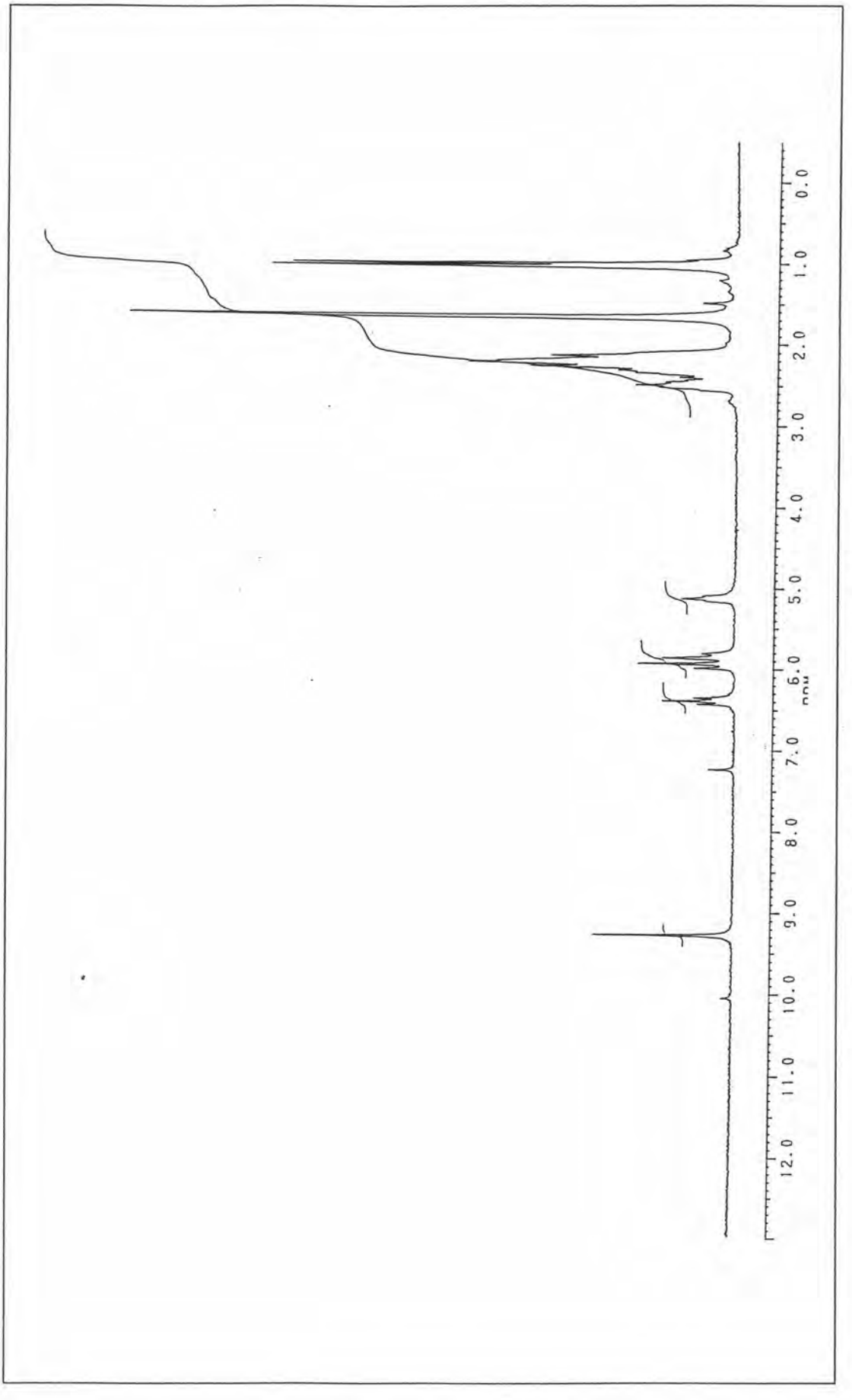

Figure 126 The ^{1}H-NMR spectrum of Compound 2c

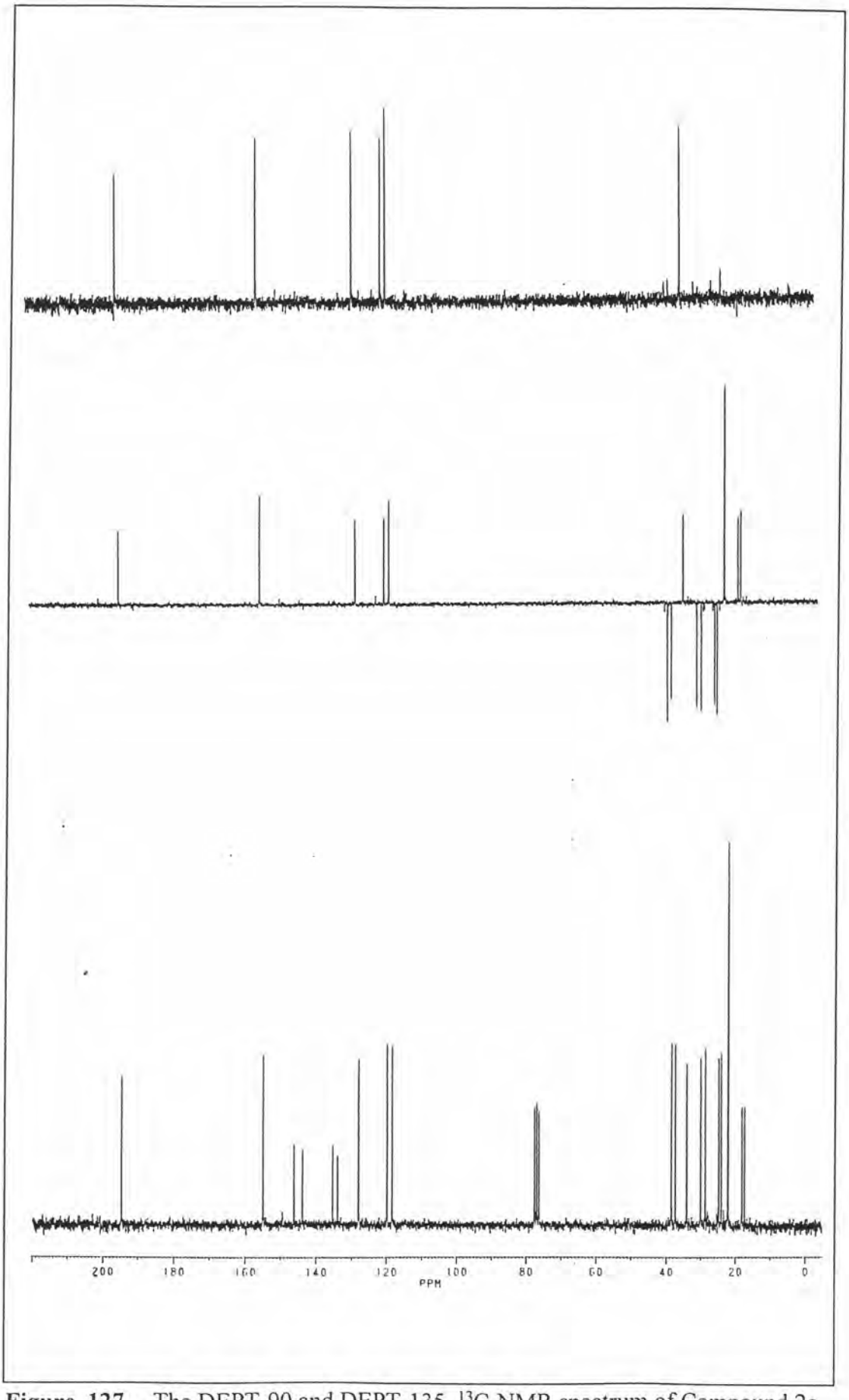

Figure 127 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 2c

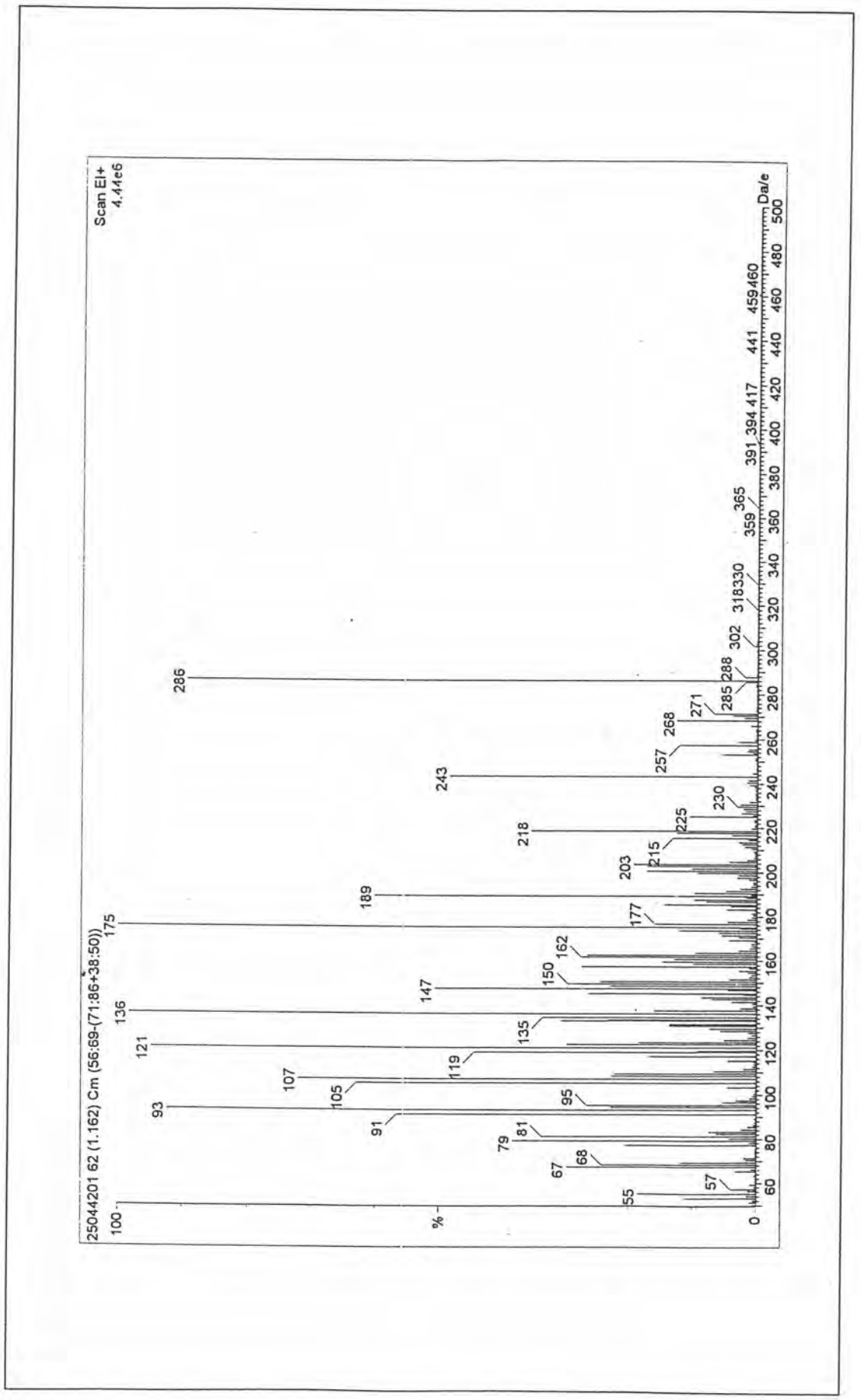

Figure 128 The EIMS spectrum of Compound 2c

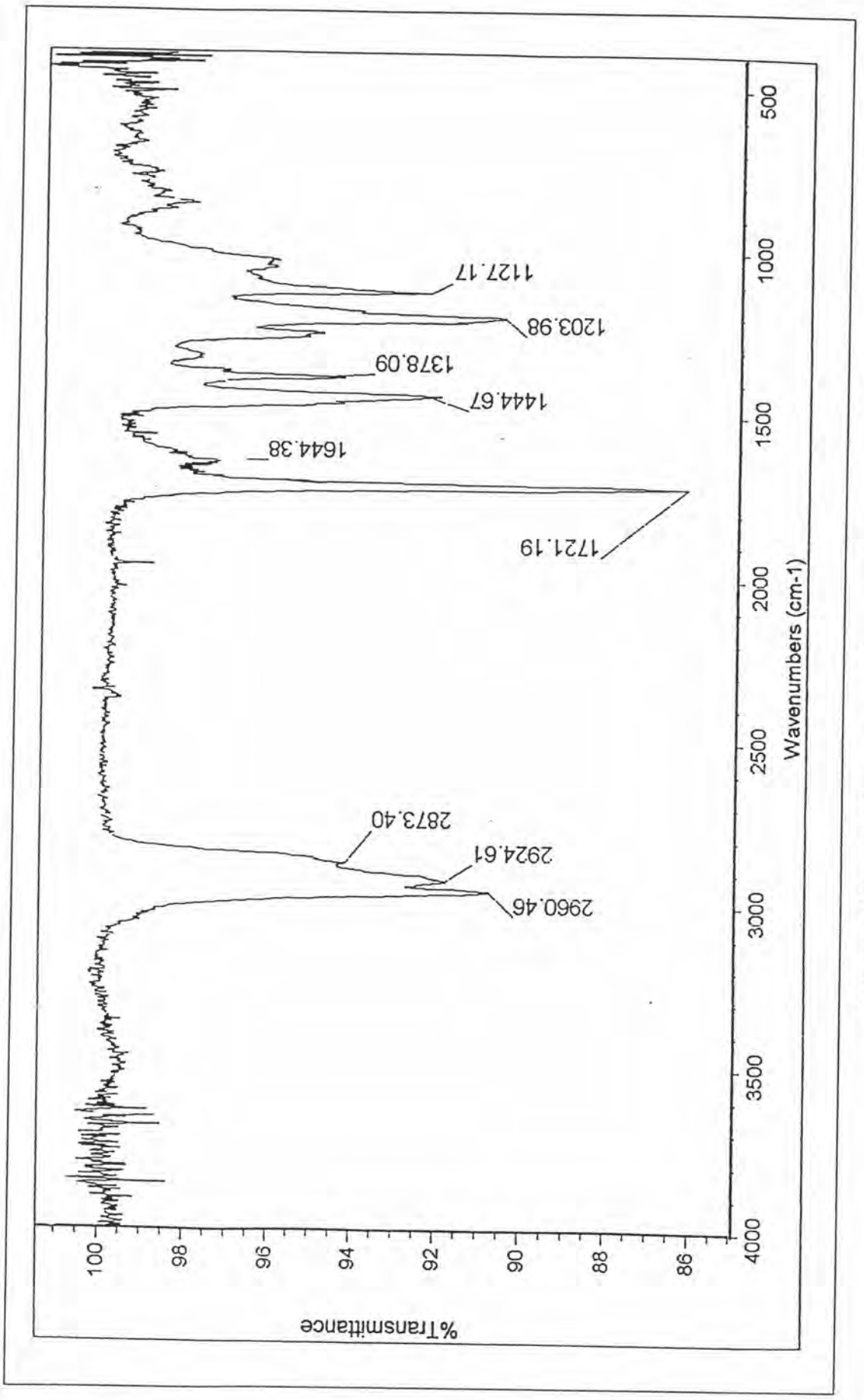

Figure 129 The IR spectrum of Compound 5a

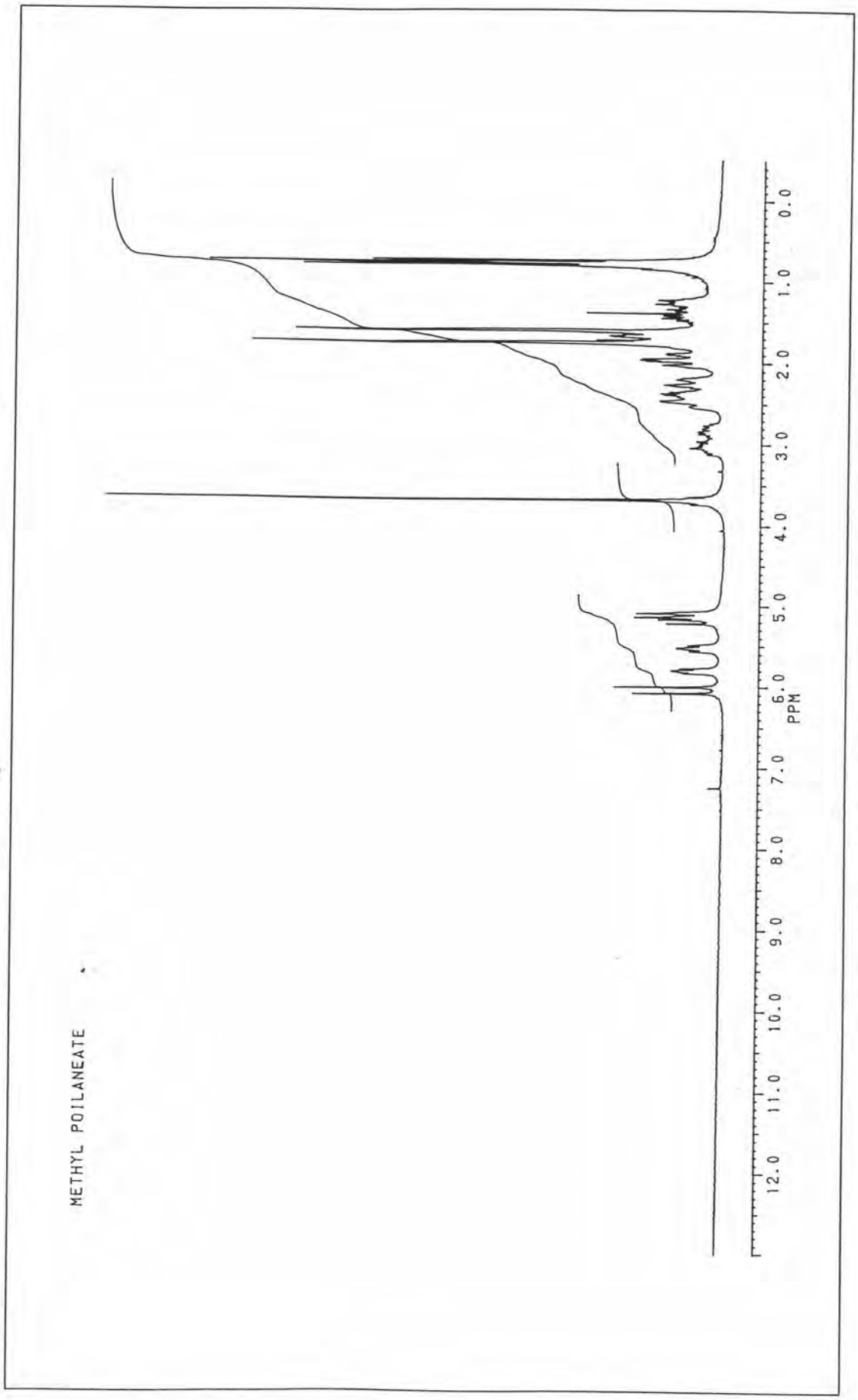

Figure 130 The ^{1}H-NMR spectrum of Compound 5a

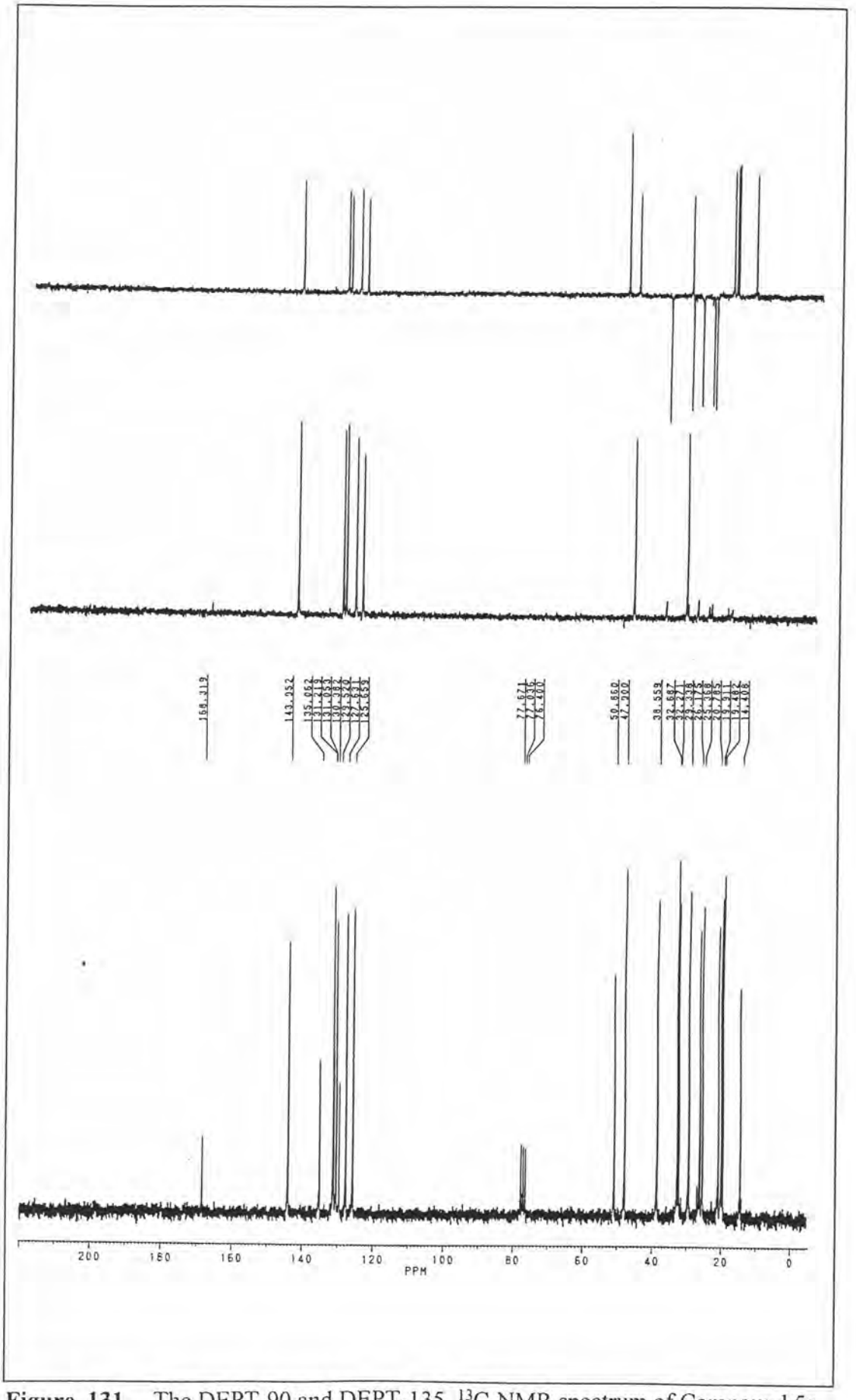

Figure 131 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 5a

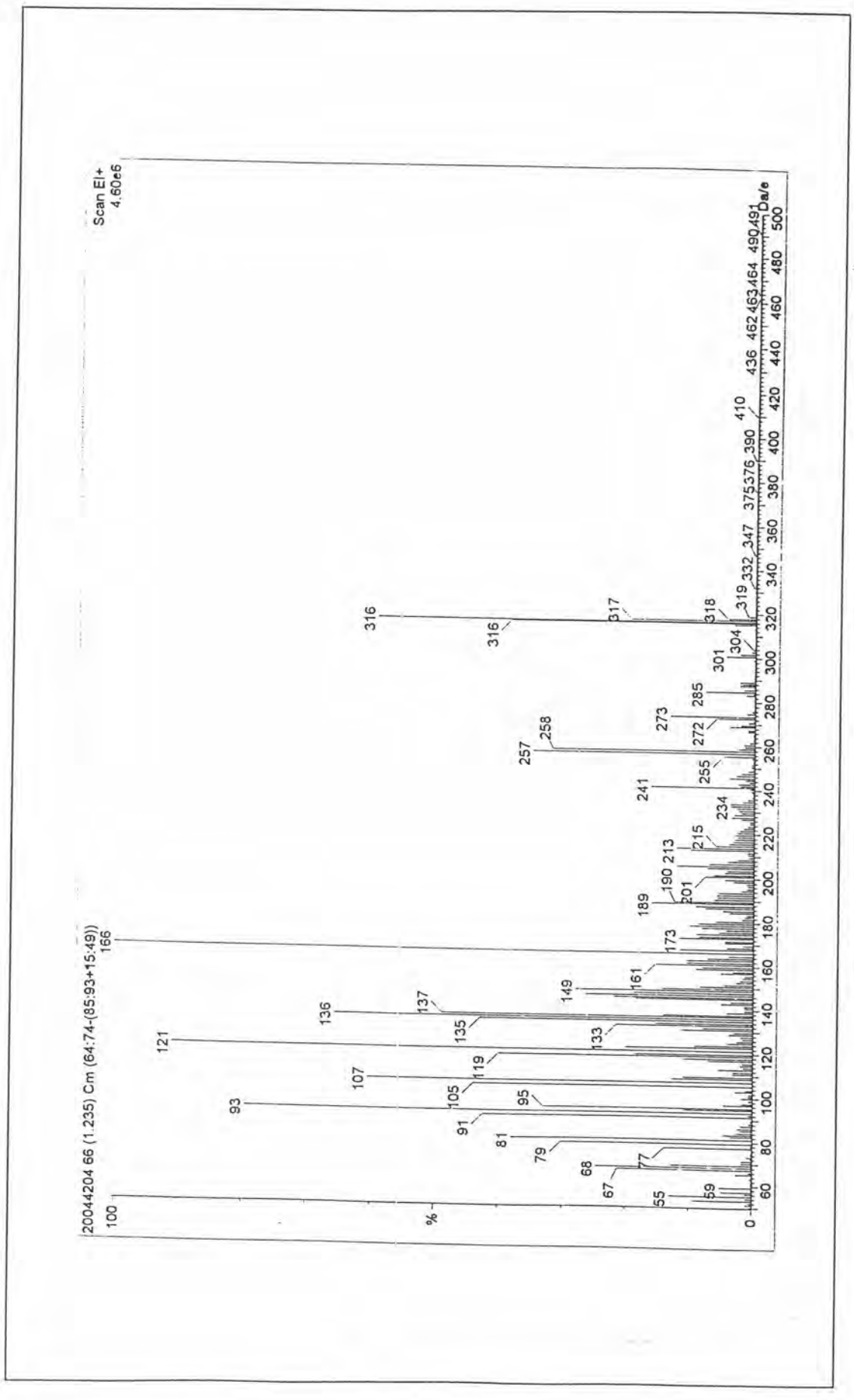

Figure 132 The EIMS spectrum of Compound 5a

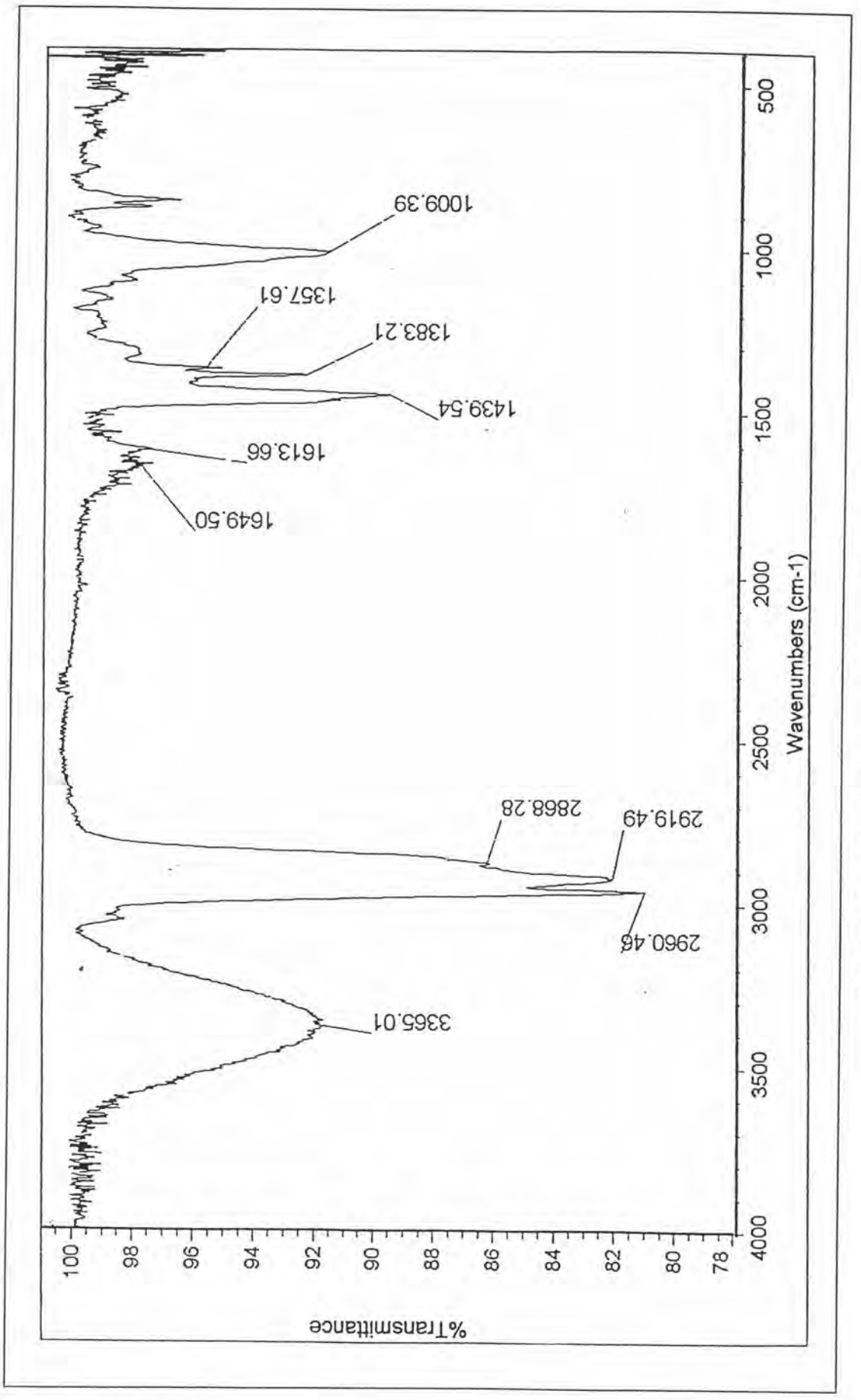

Figure 133 The IR spectrum of Compound 5b

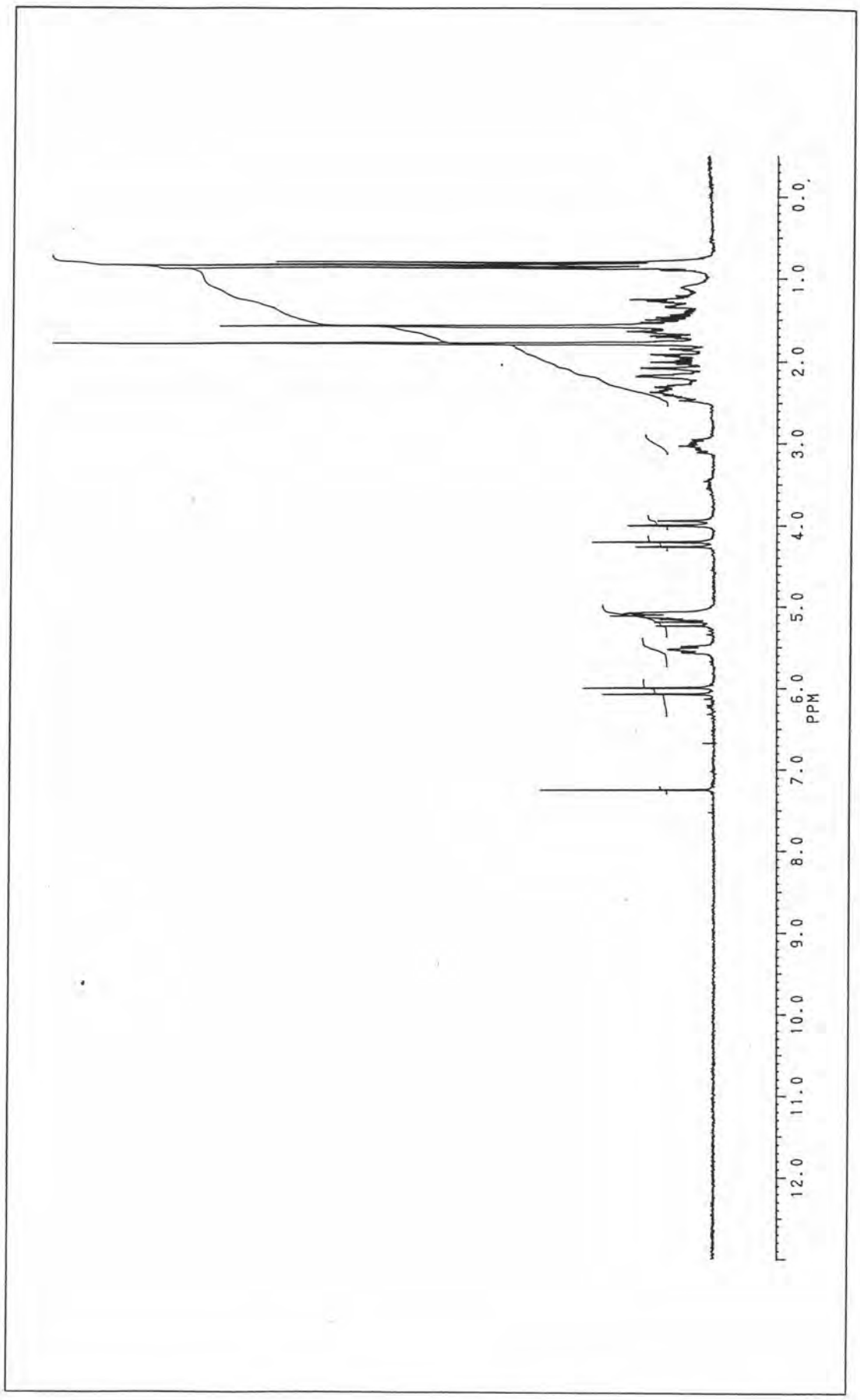

Figure 134 The ^{1}H-NMR spectrum of Compound 5b

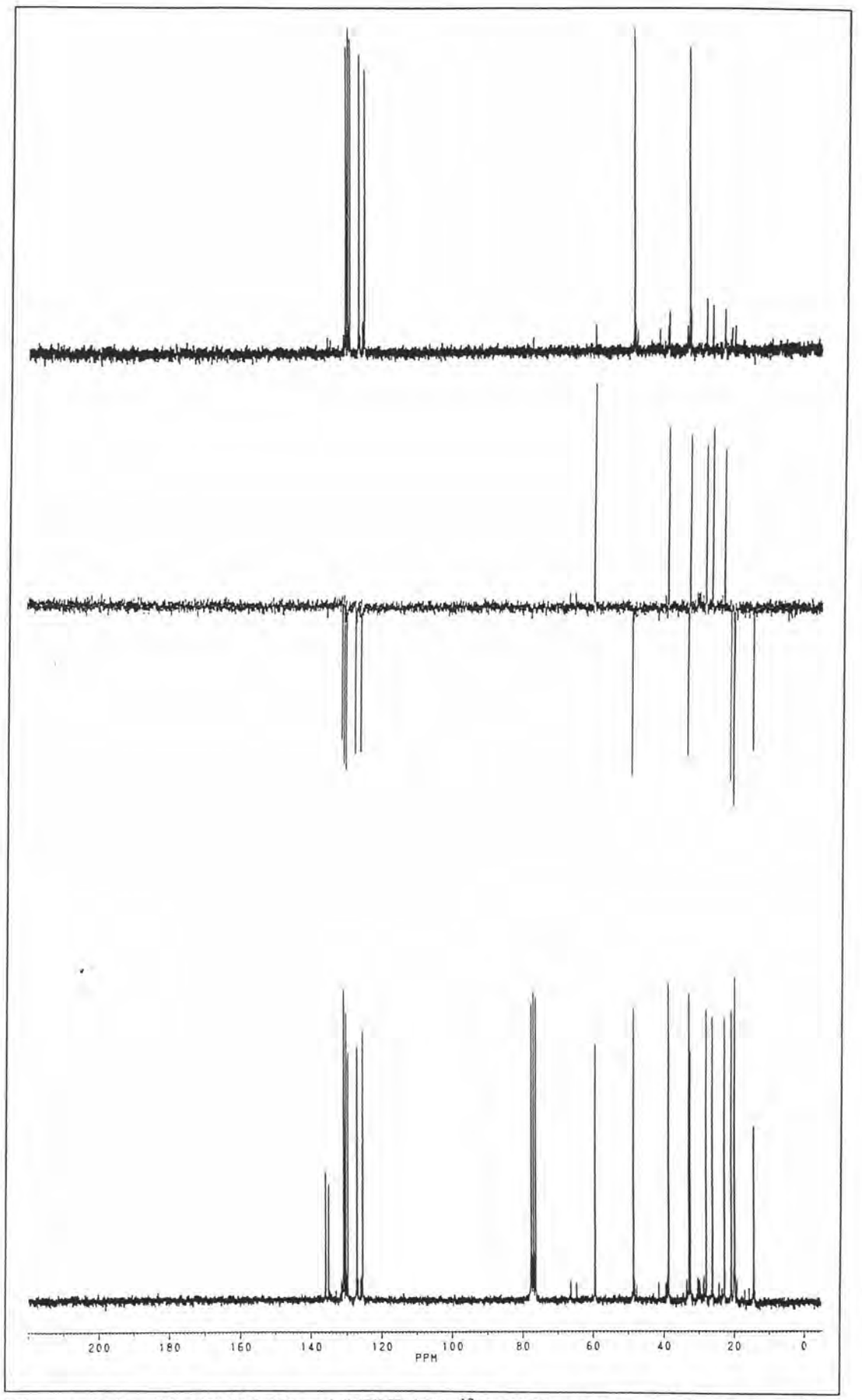

Figure 135 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 5b

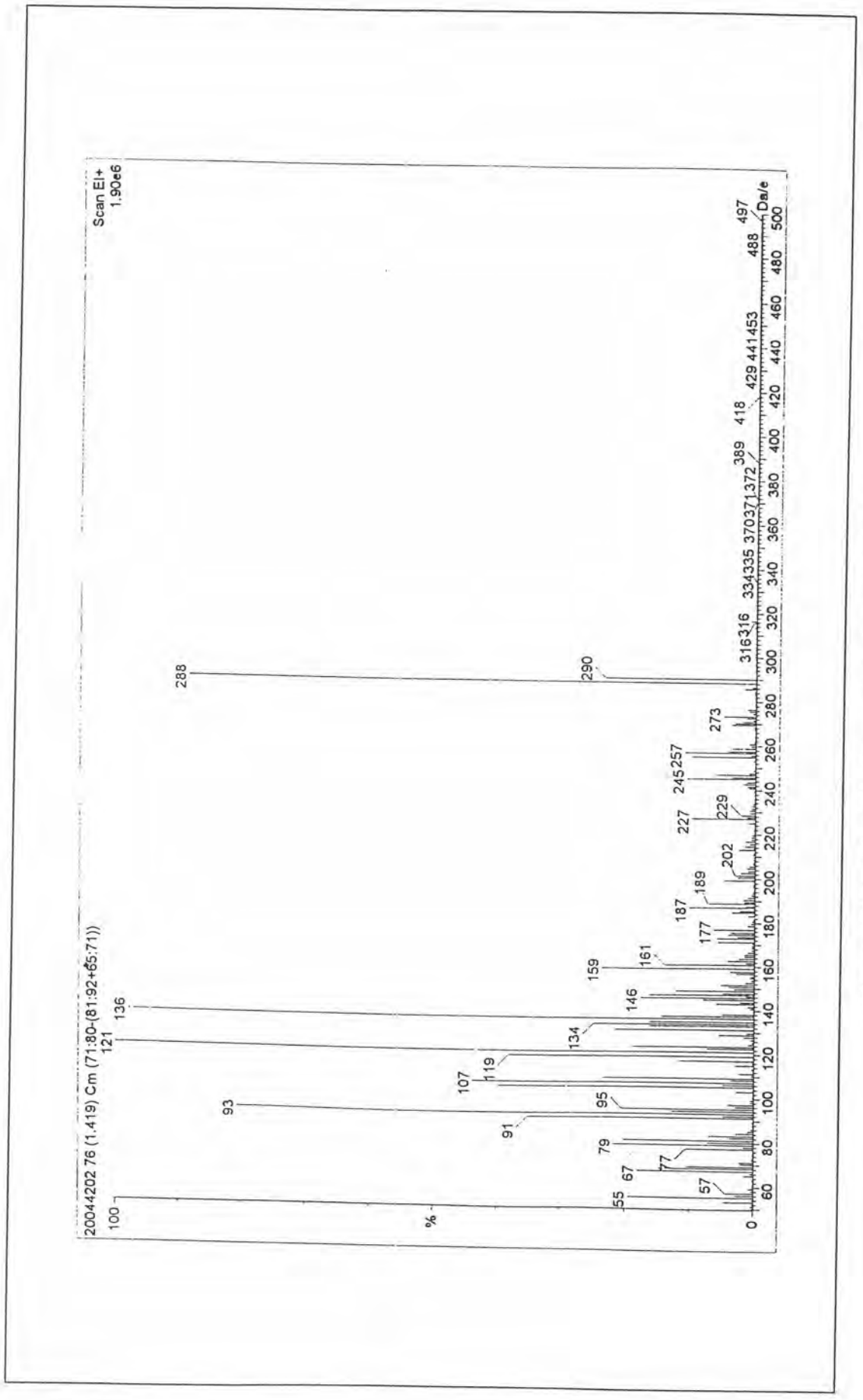

Figure 136 The EIMS spectrum of Compound 5b

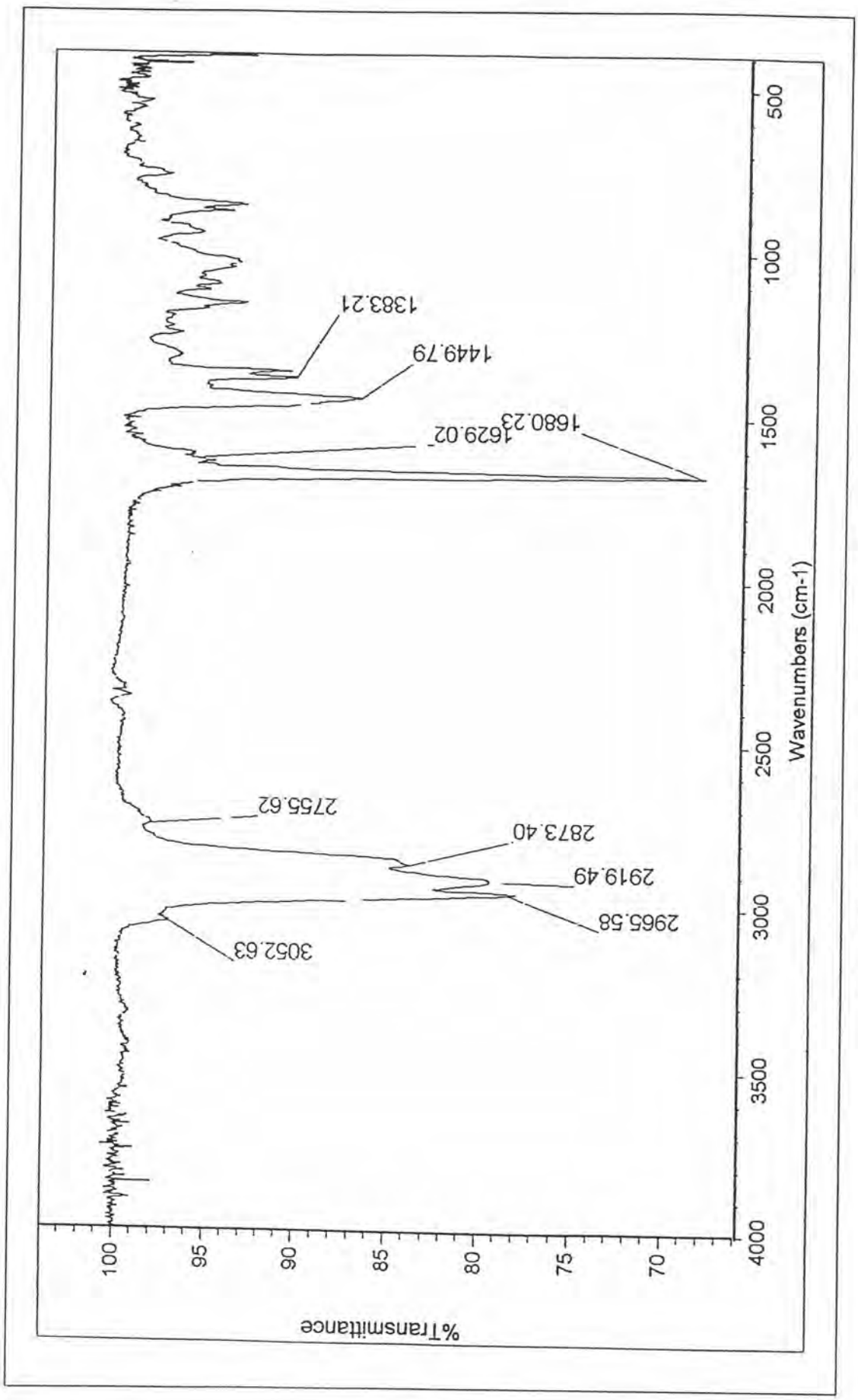

Figure 137 The IR spectrum of Compound 5c

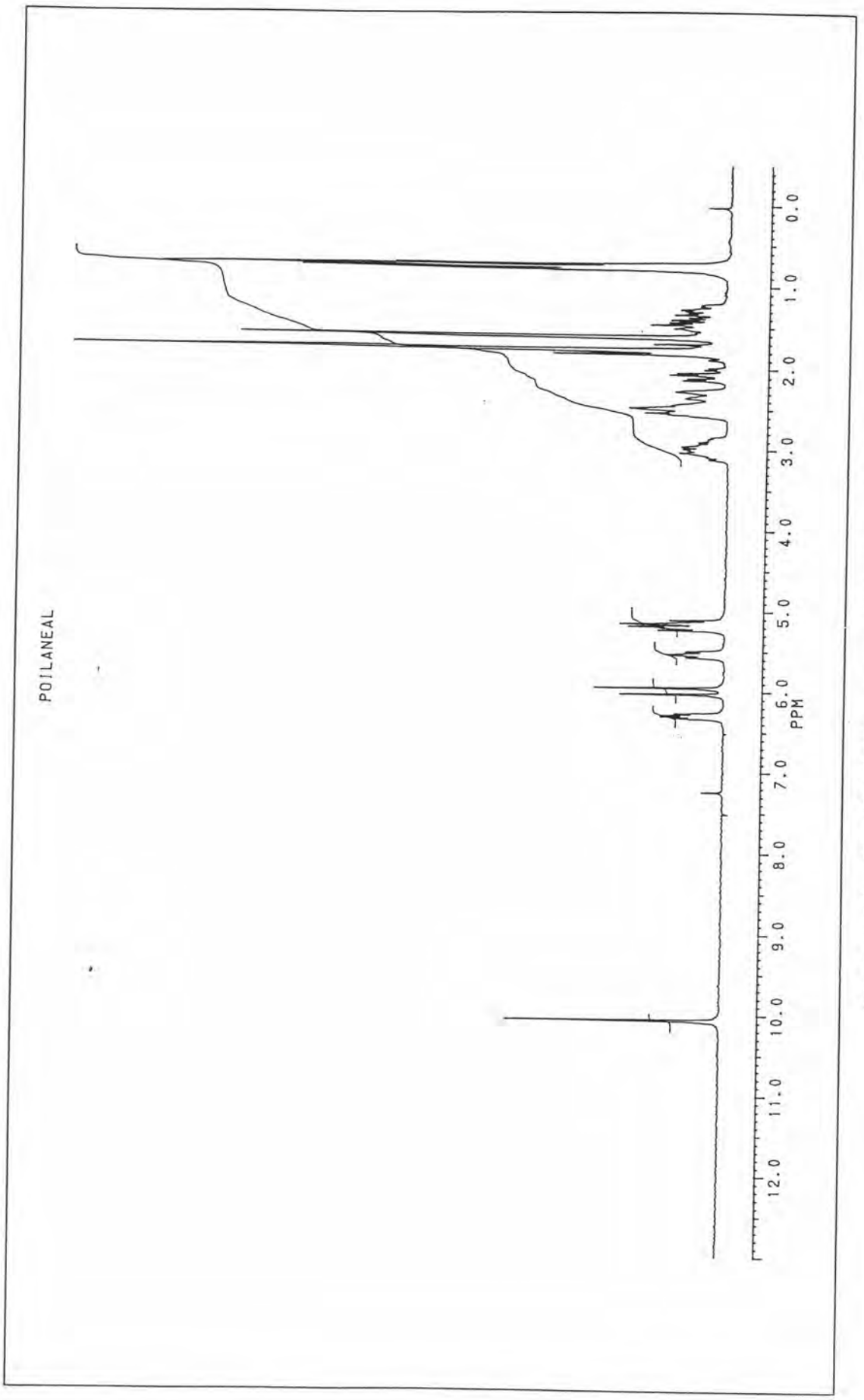

Figure 138 The ^{1}H-NMR spectrum of Compound 5c

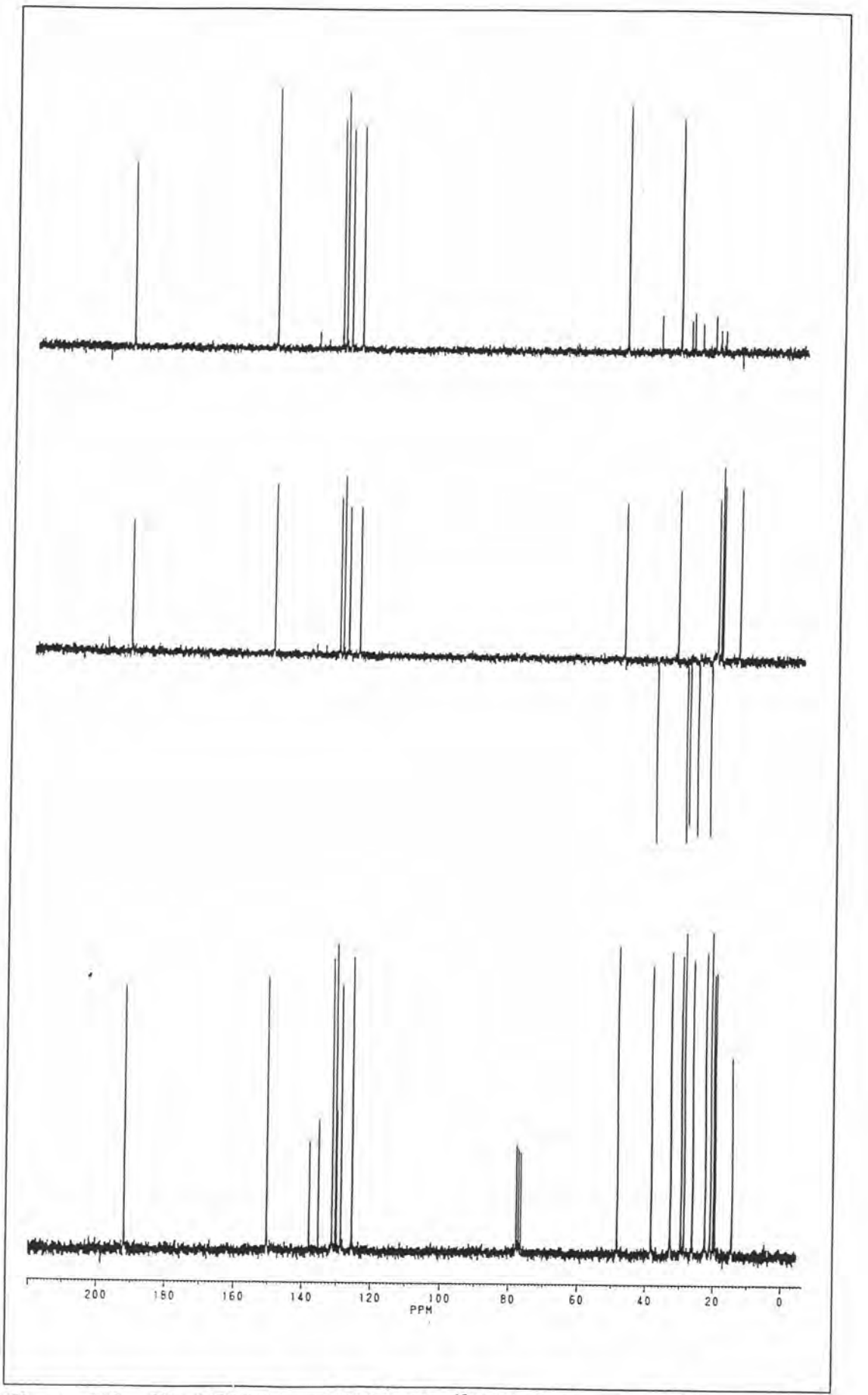

Figure 139 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 5c

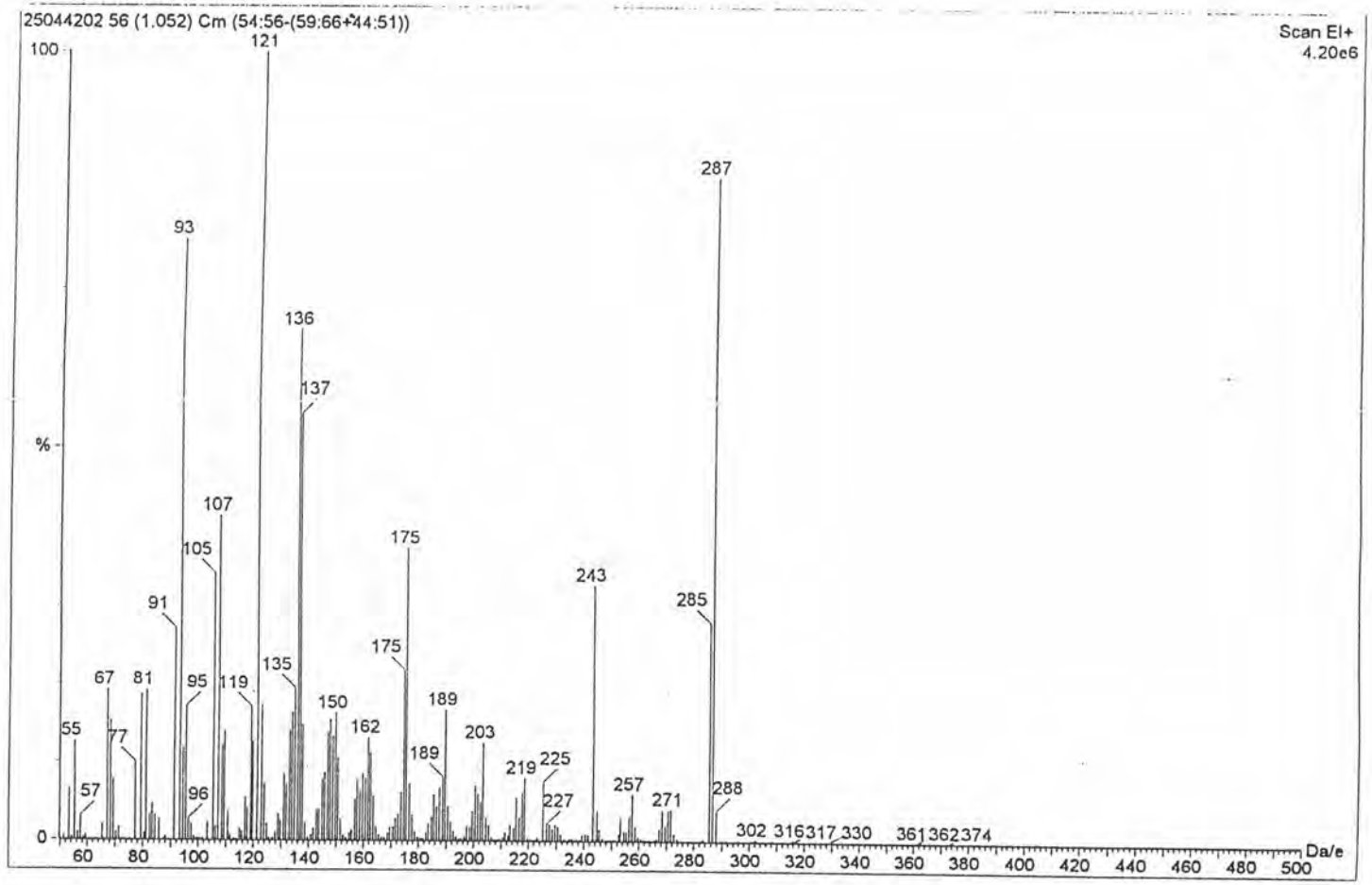

Figure 140 The EIMS spectrum of Compound 5c

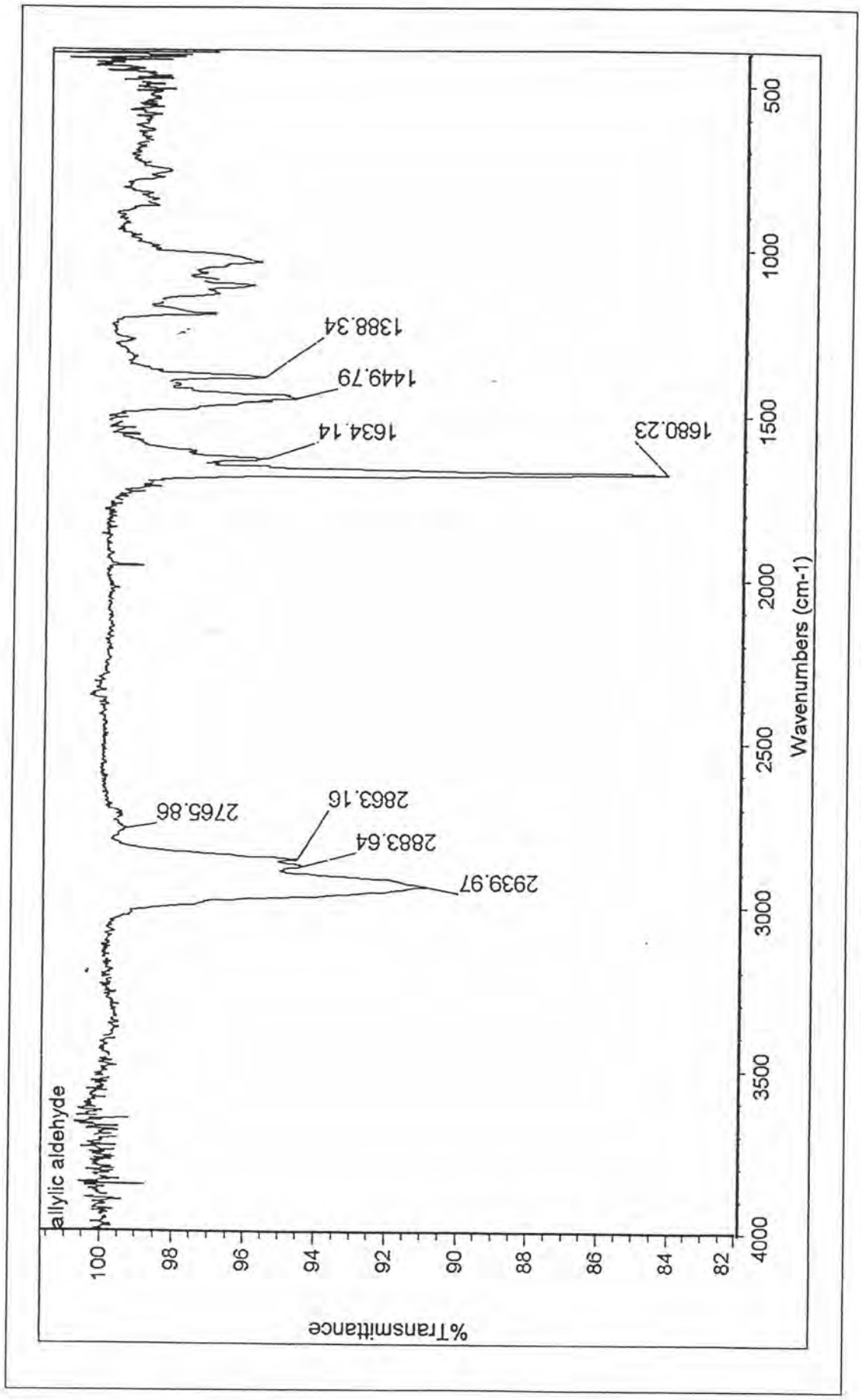

Figure 141 The IR spectrum of Compound 6a

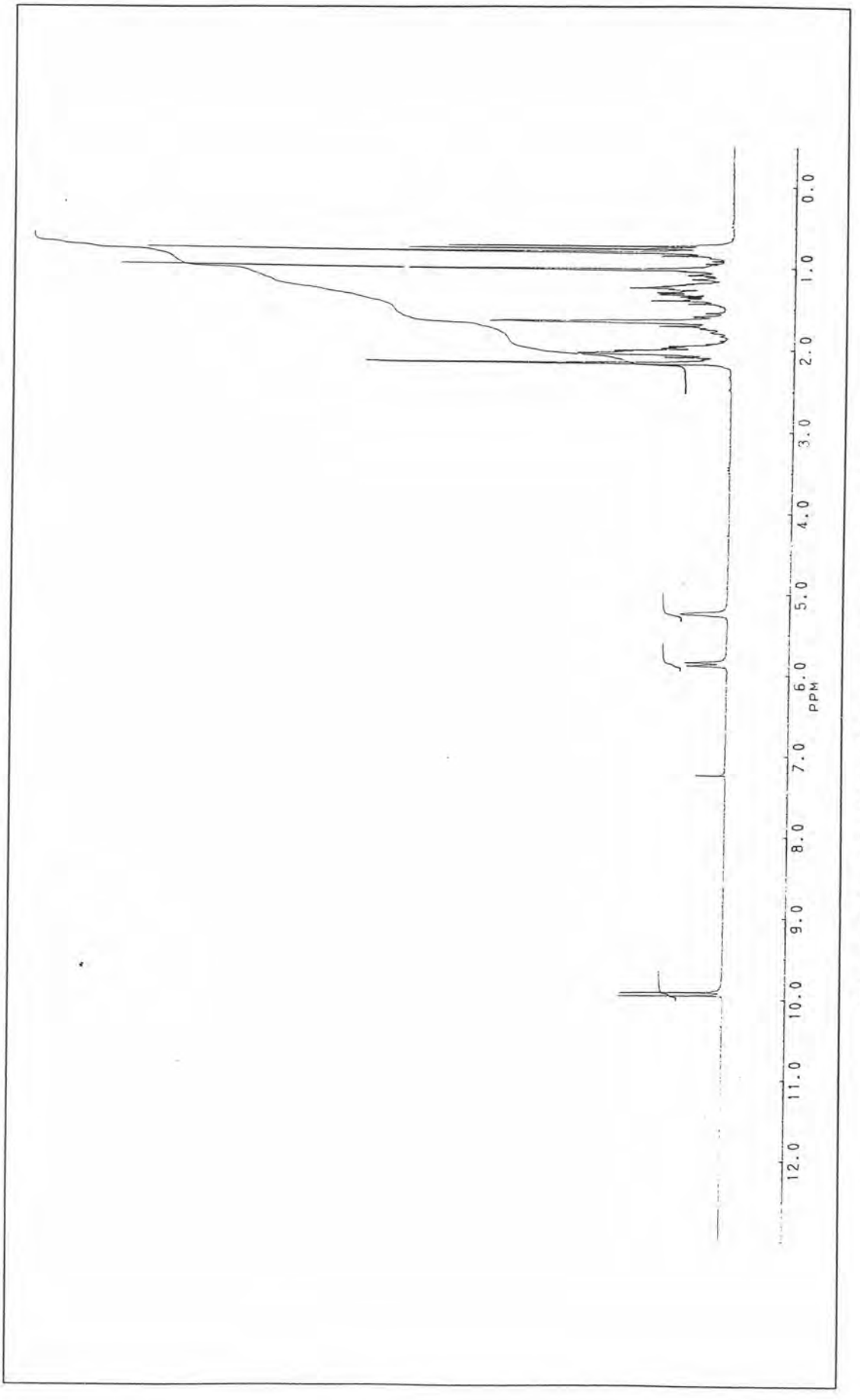

Figure 142 The ^{1}H-NMR spectrum of Compound 6a

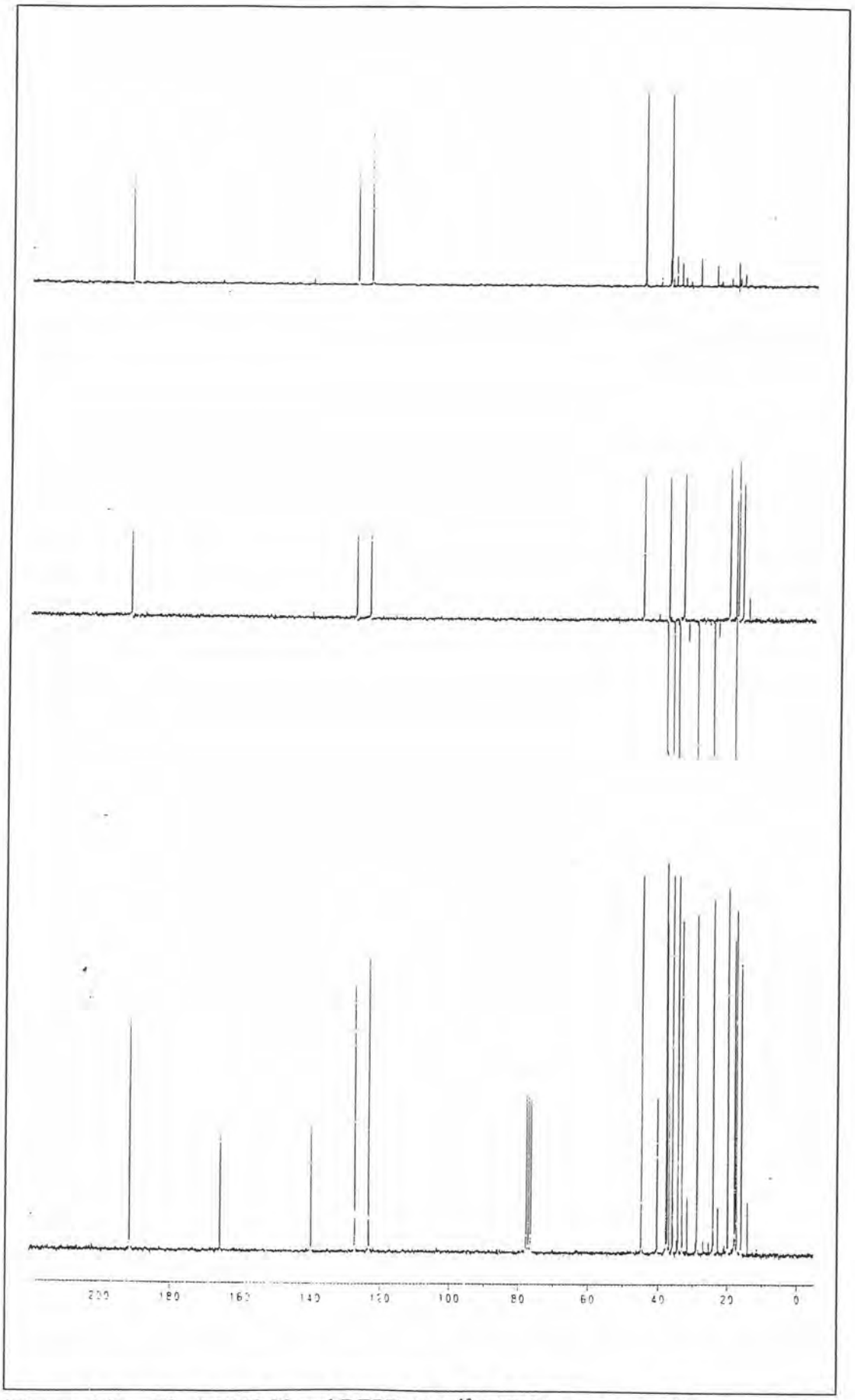

Figure 143 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 6a

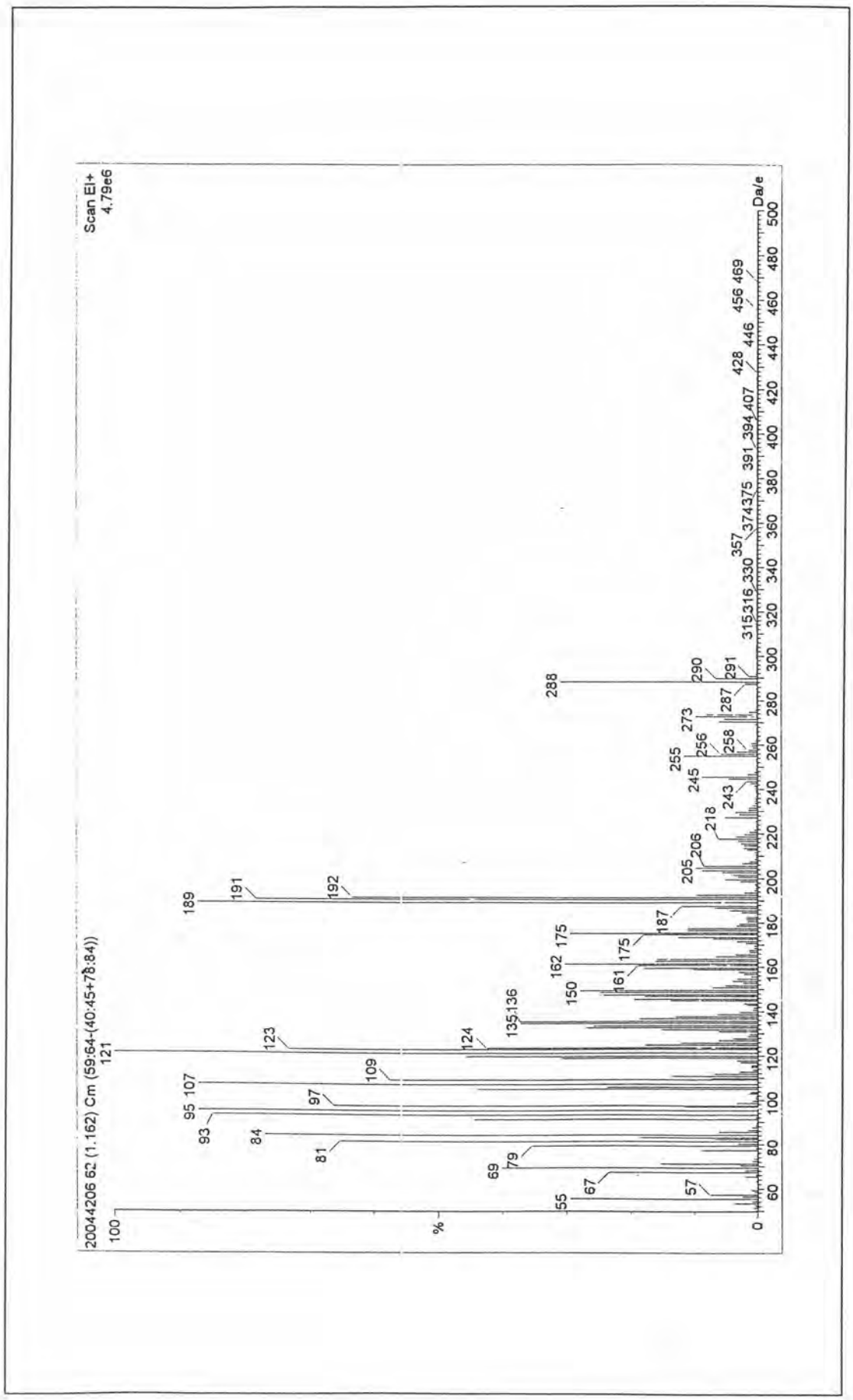

Figure 144 The EIMS spectrum of Compound 6a

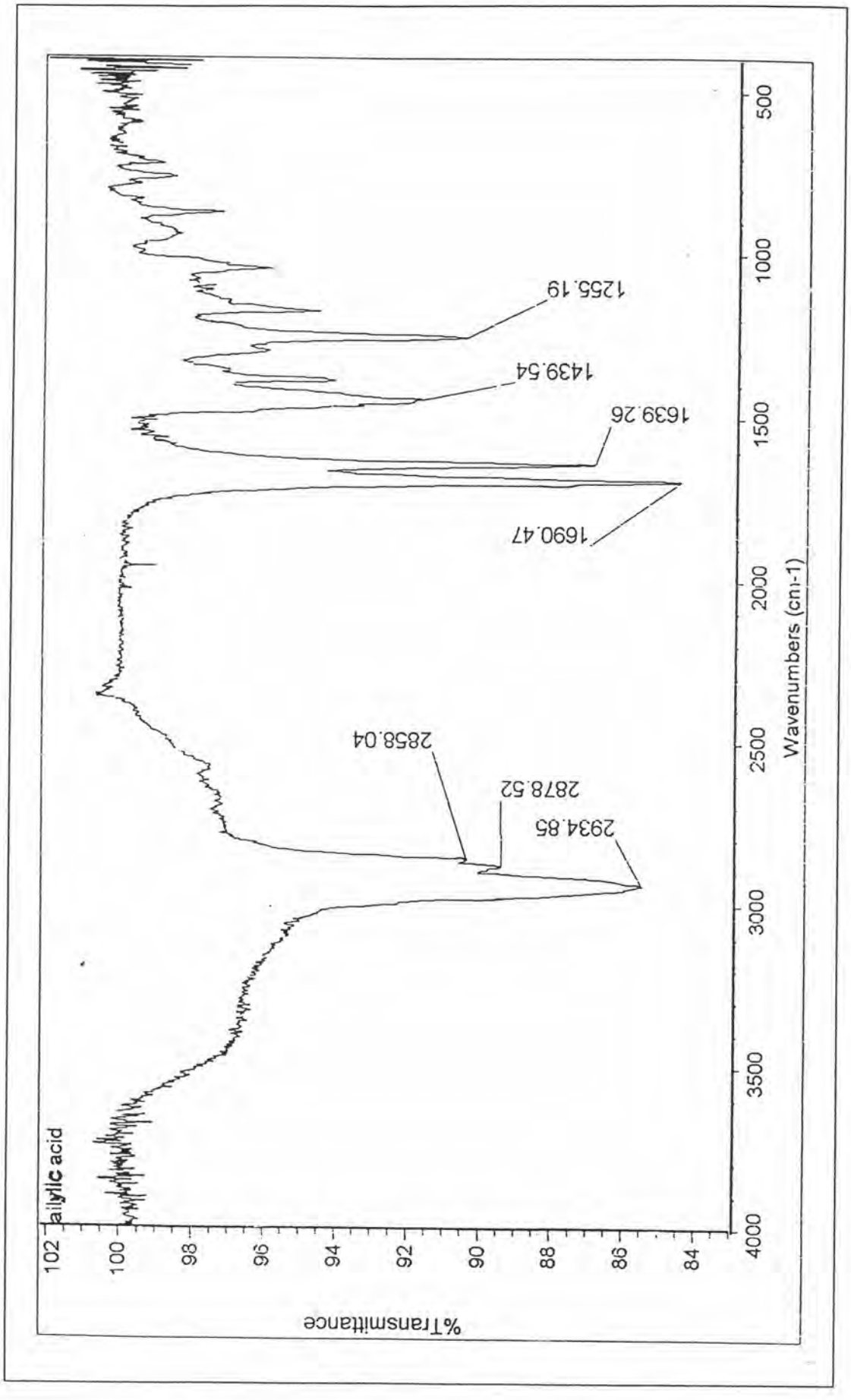

Figure 145 The IR spectrum of Compound 6b

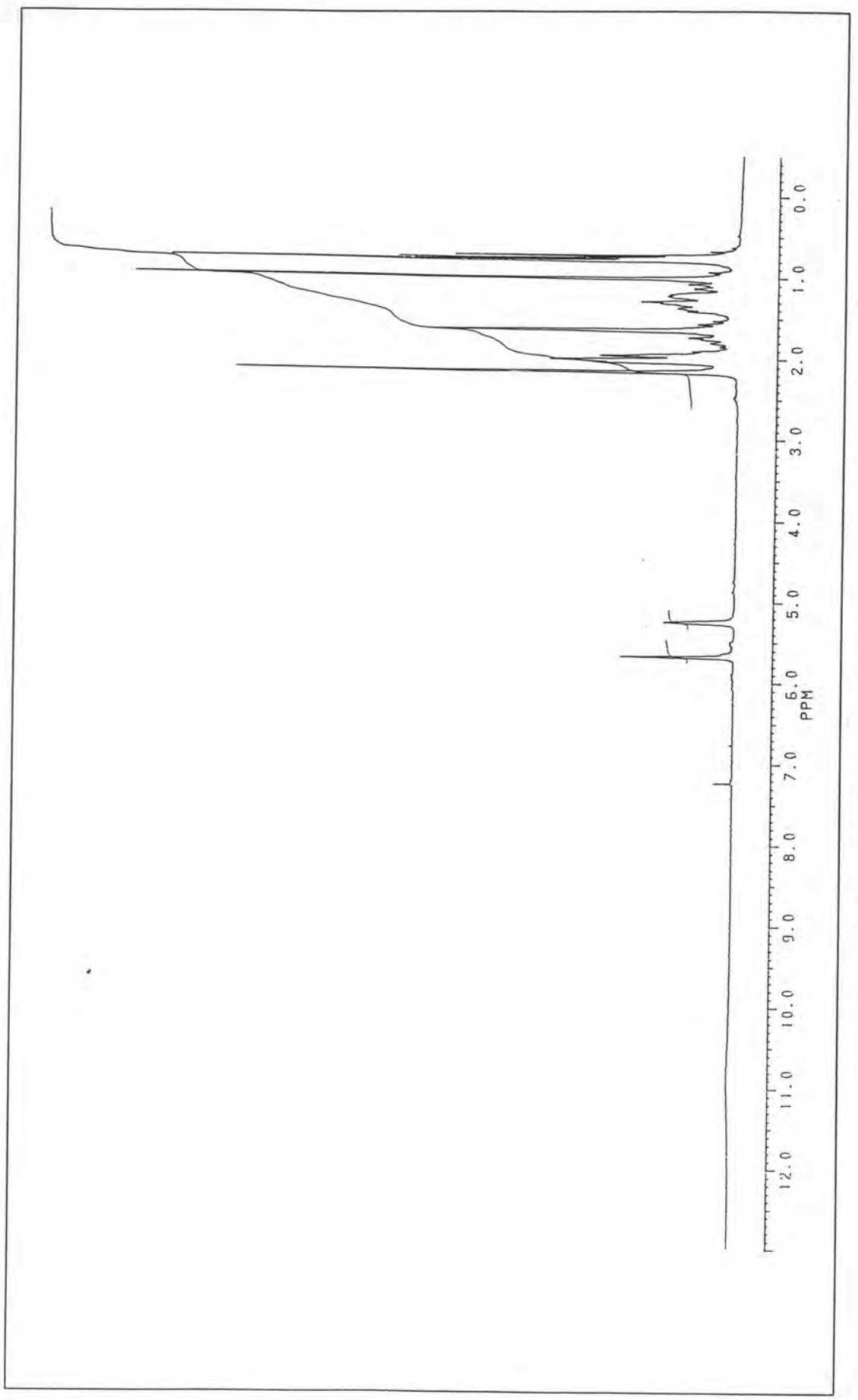

Figure 146 The ^{1}H-NMR spectrum of Compound 6b

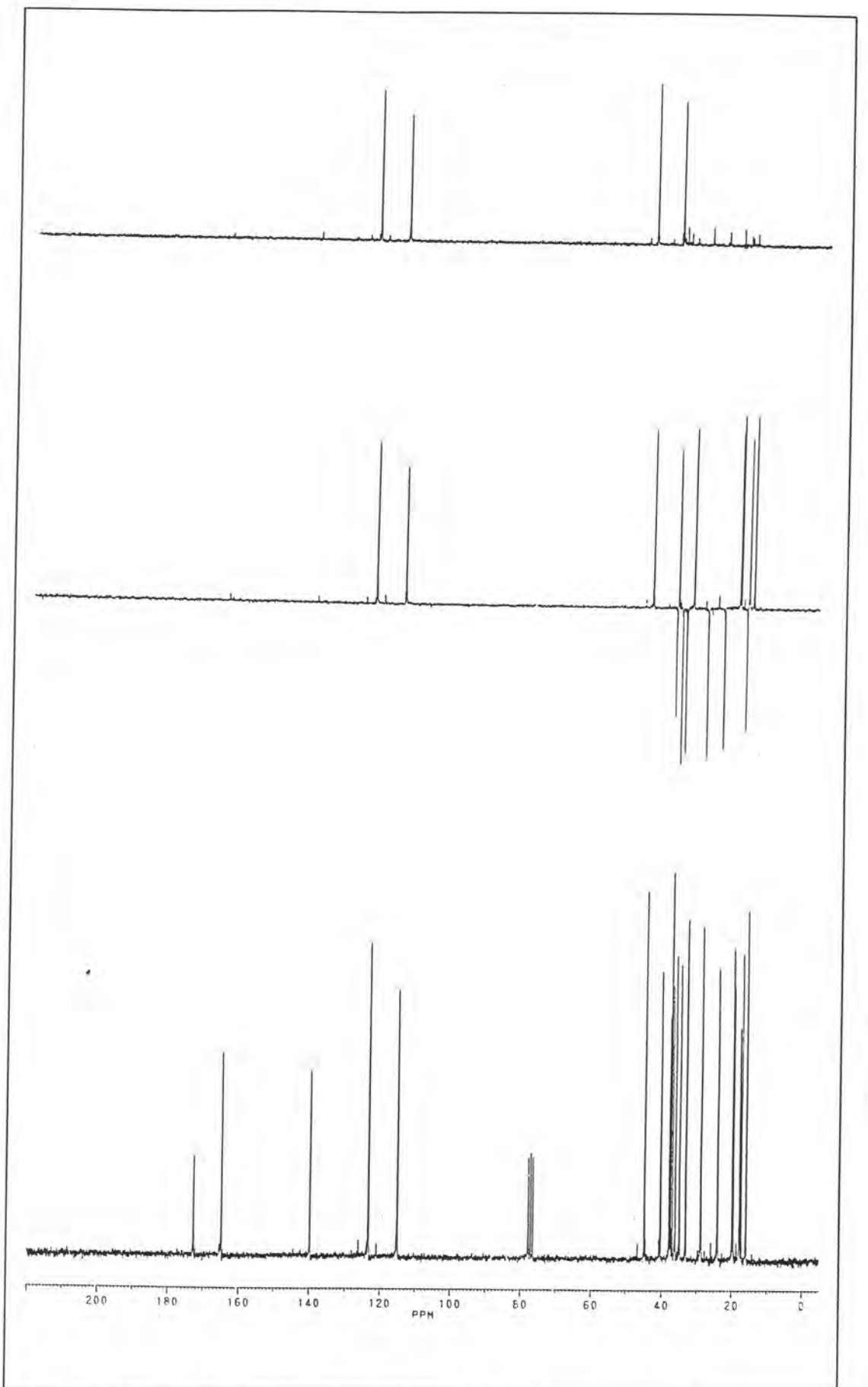

Figure 147 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 6b

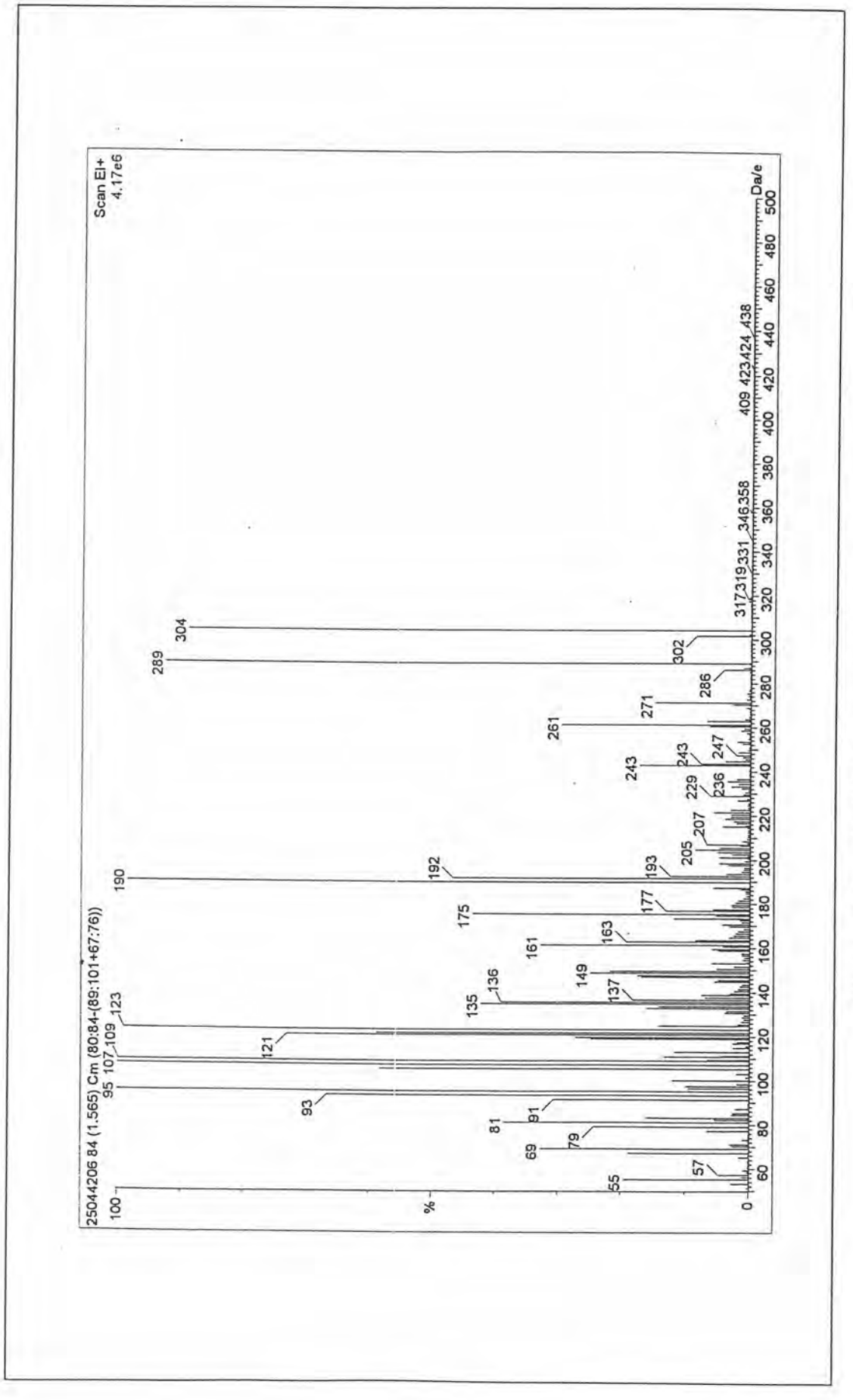

Figure 148 The EIMS spectrum of Compound 6b

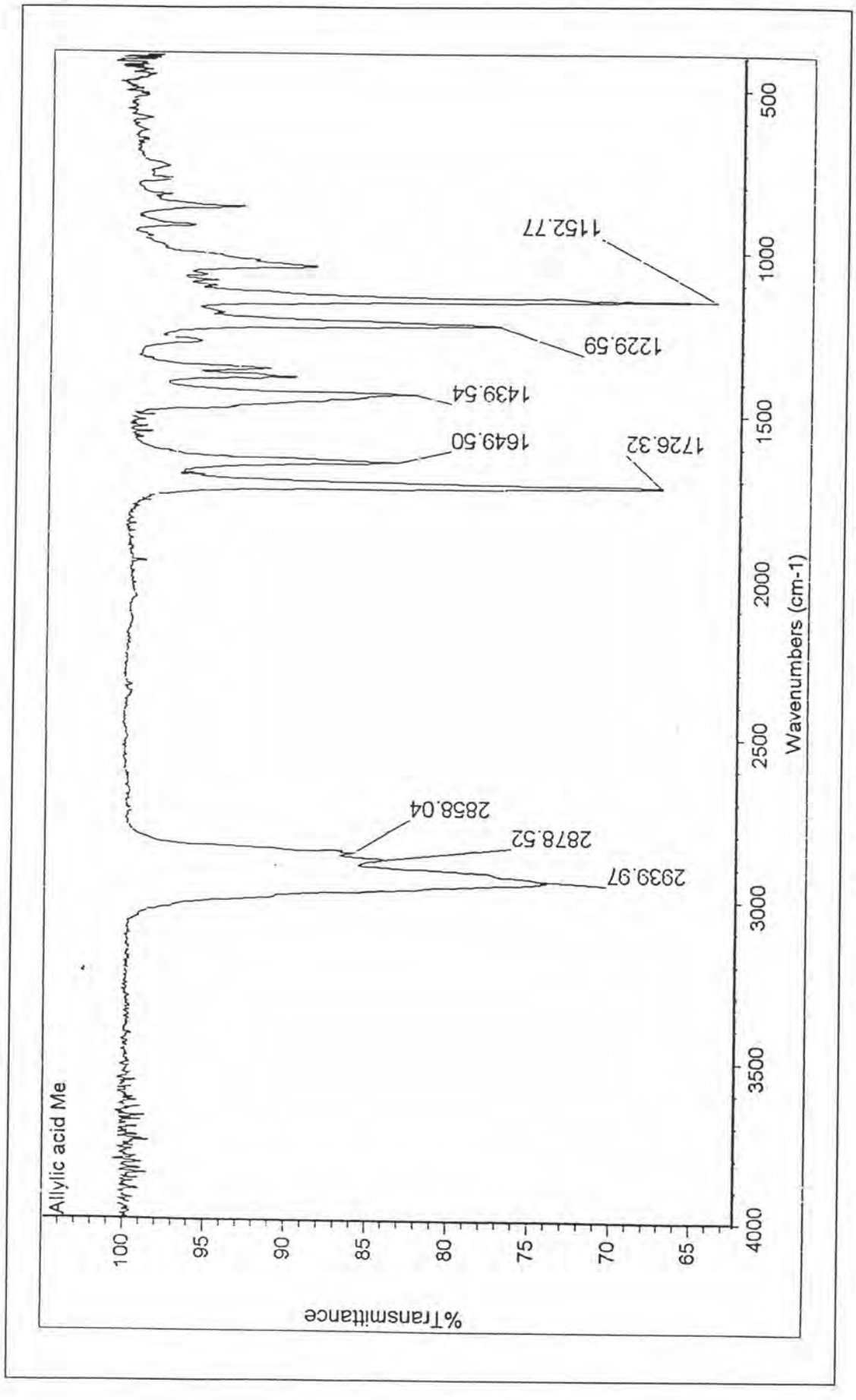

Figure 149 The IR spectrum of Compound 6c

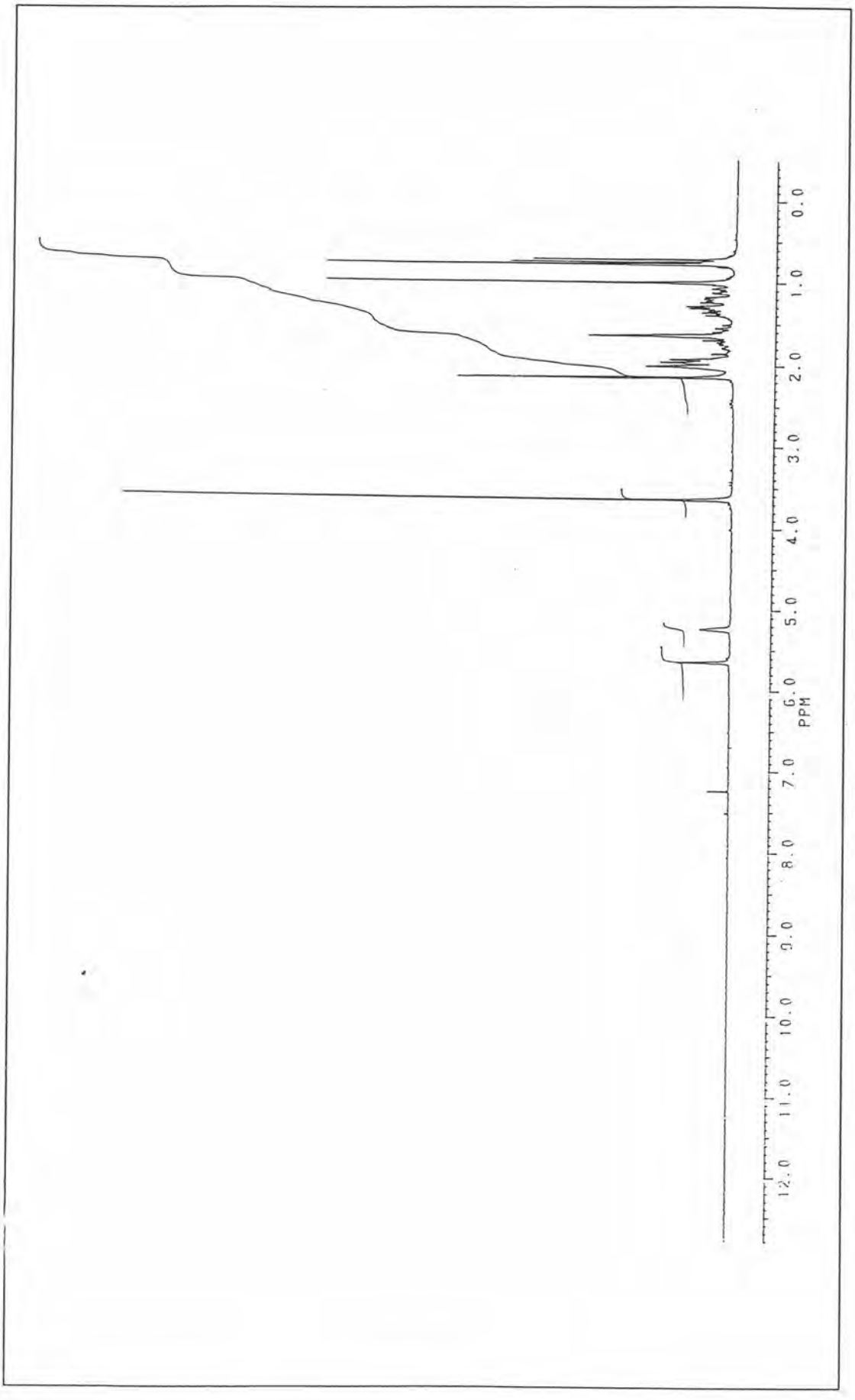

Figure 150 The ^{1}H-NMR spectrum of Compound 6c

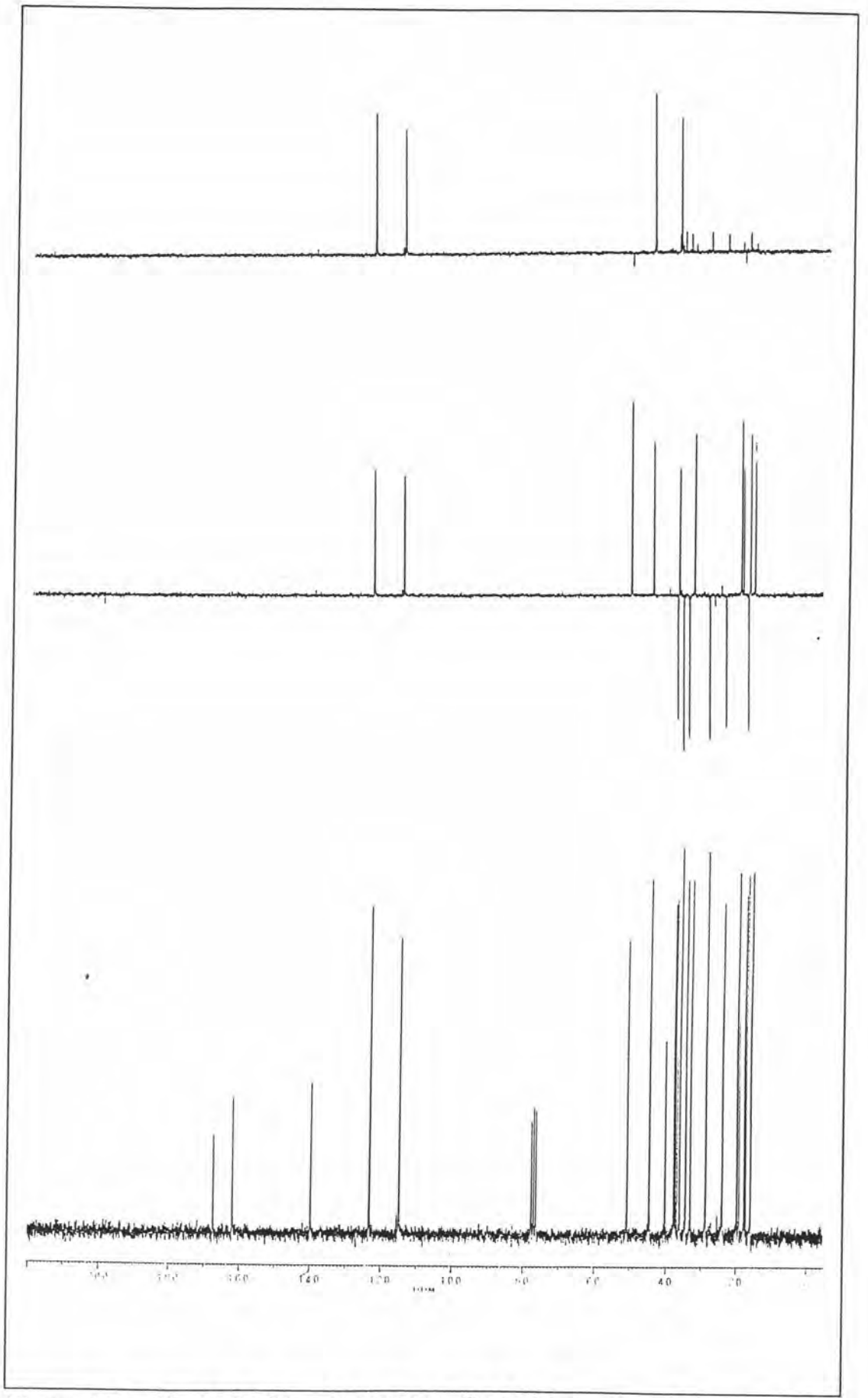

Figure 151 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 6c

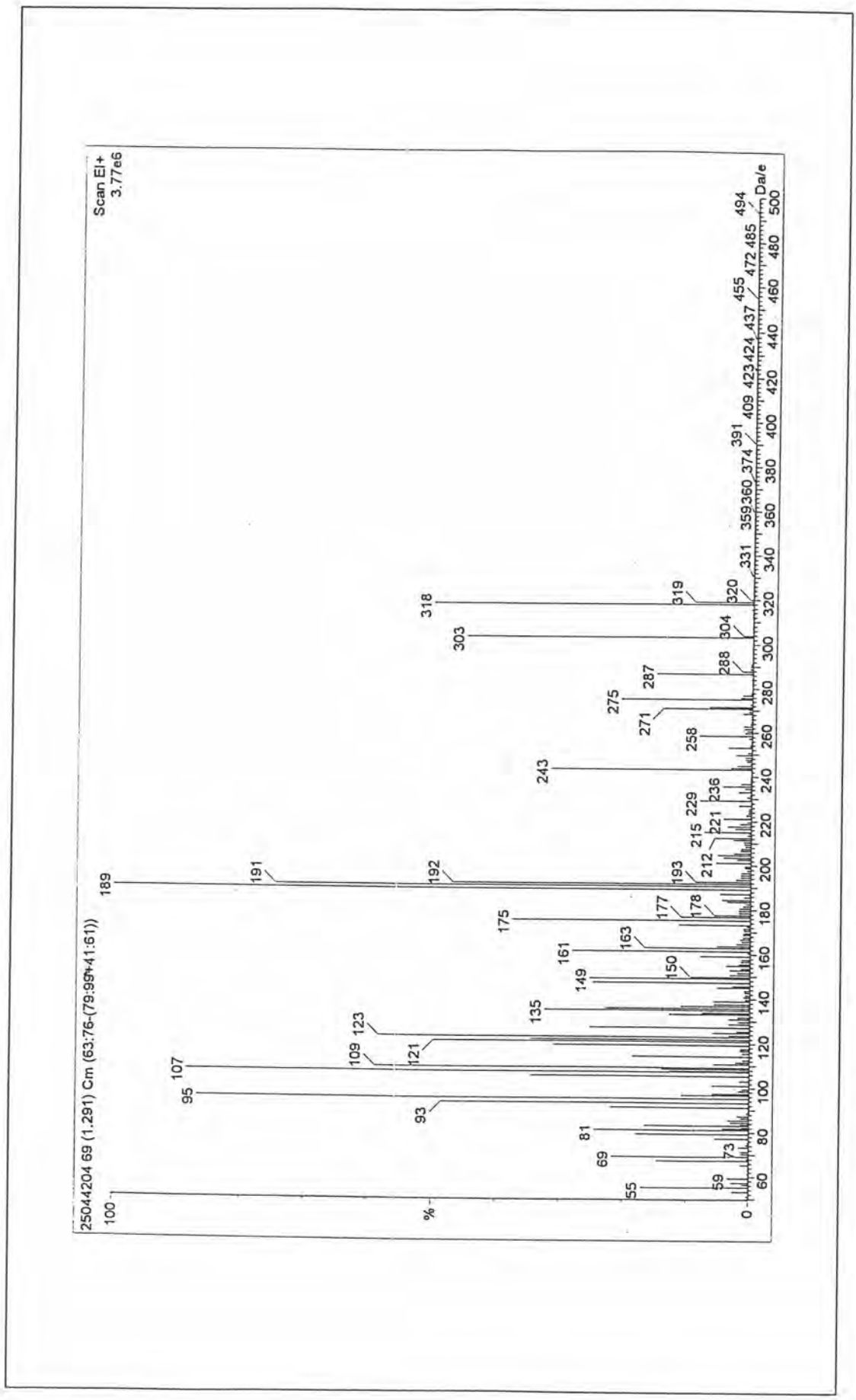

Figure 152 The EIMS spectrum of Compound 6c

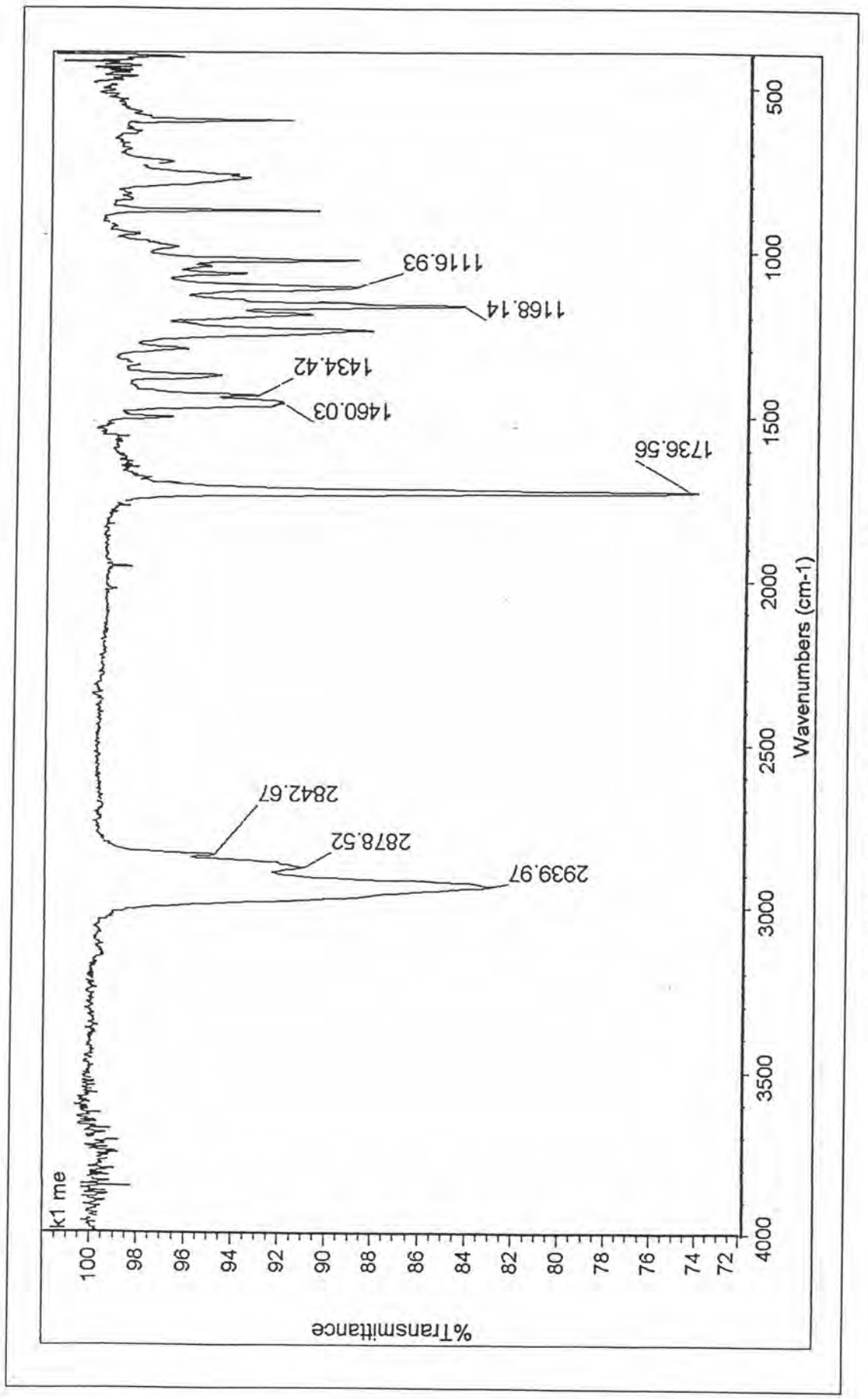

Figure 153 The IR spectrum of Compound 7a

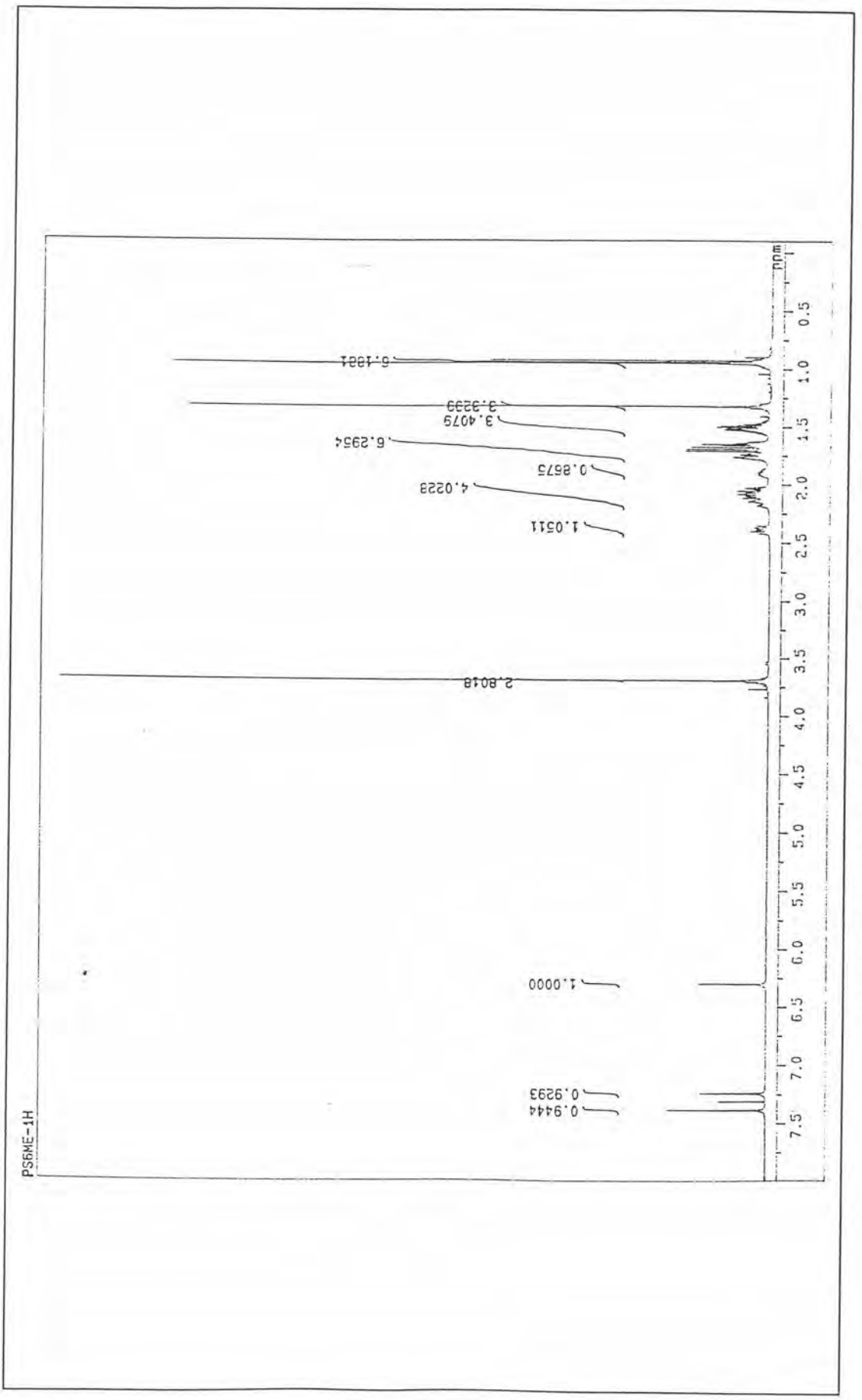

Figure 154 The ^{1}H-NMR spectrum of Compound 7a

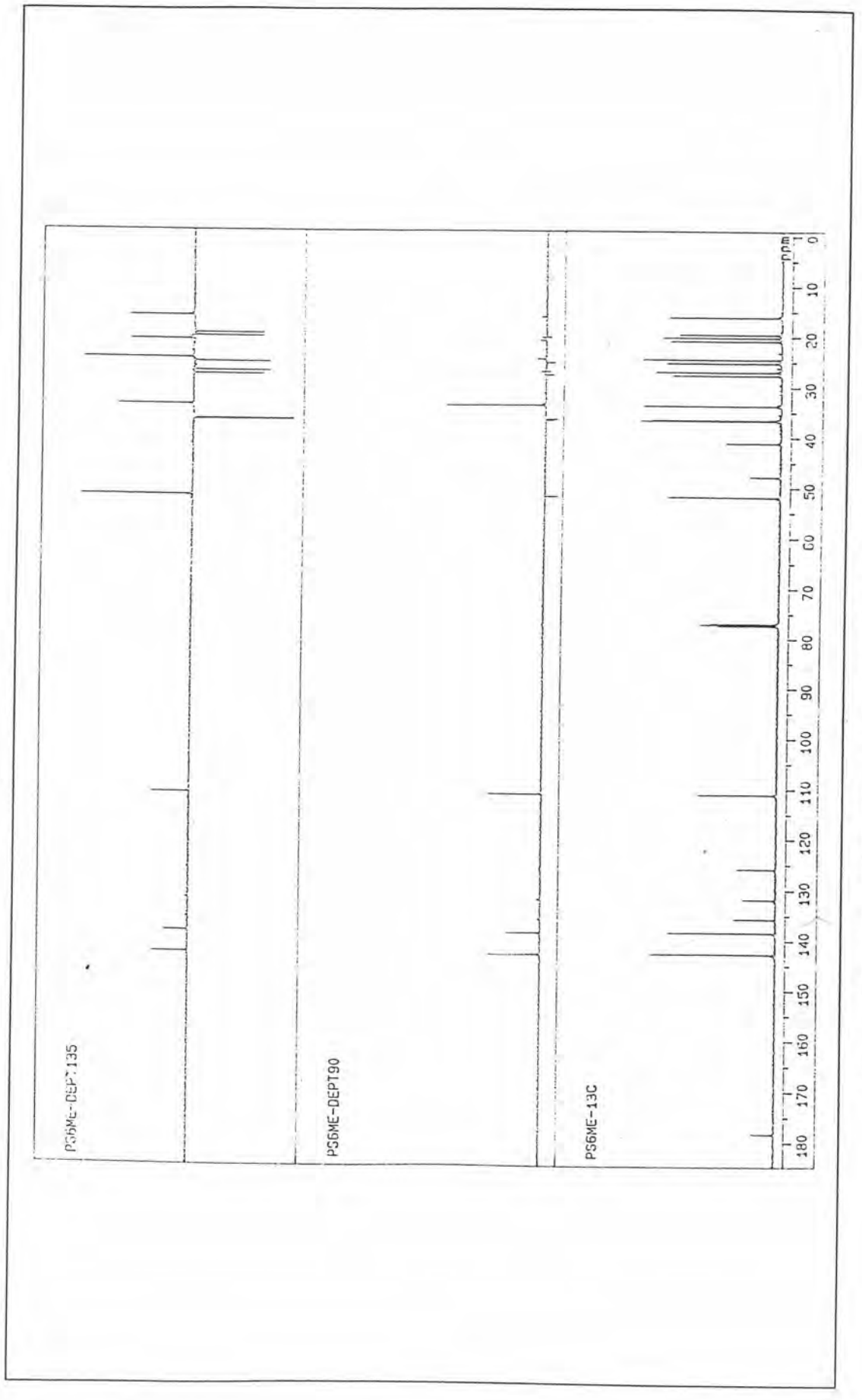

Figure 155 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 7a

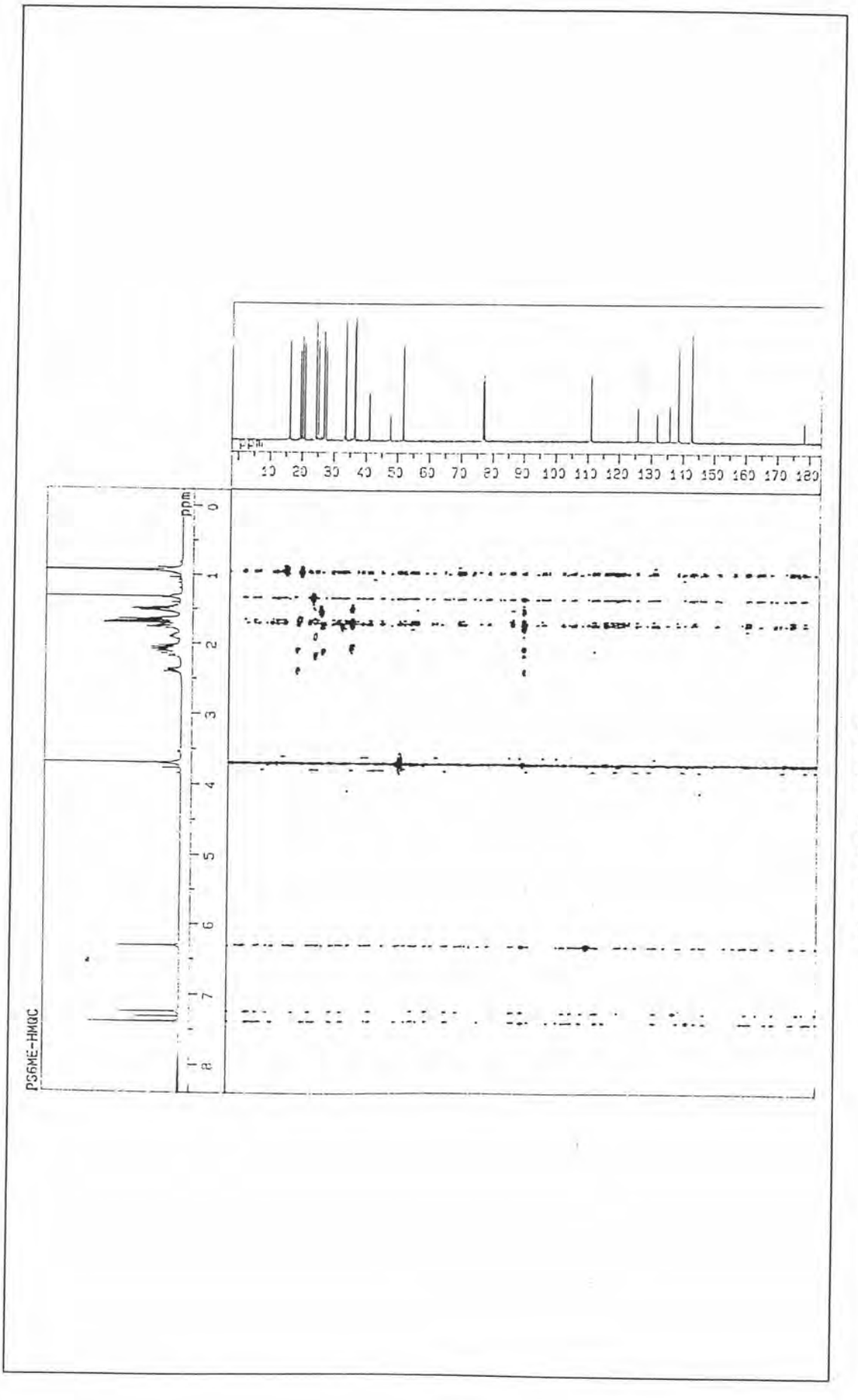

Figure 156 HMQC spectrum of Compound 7a

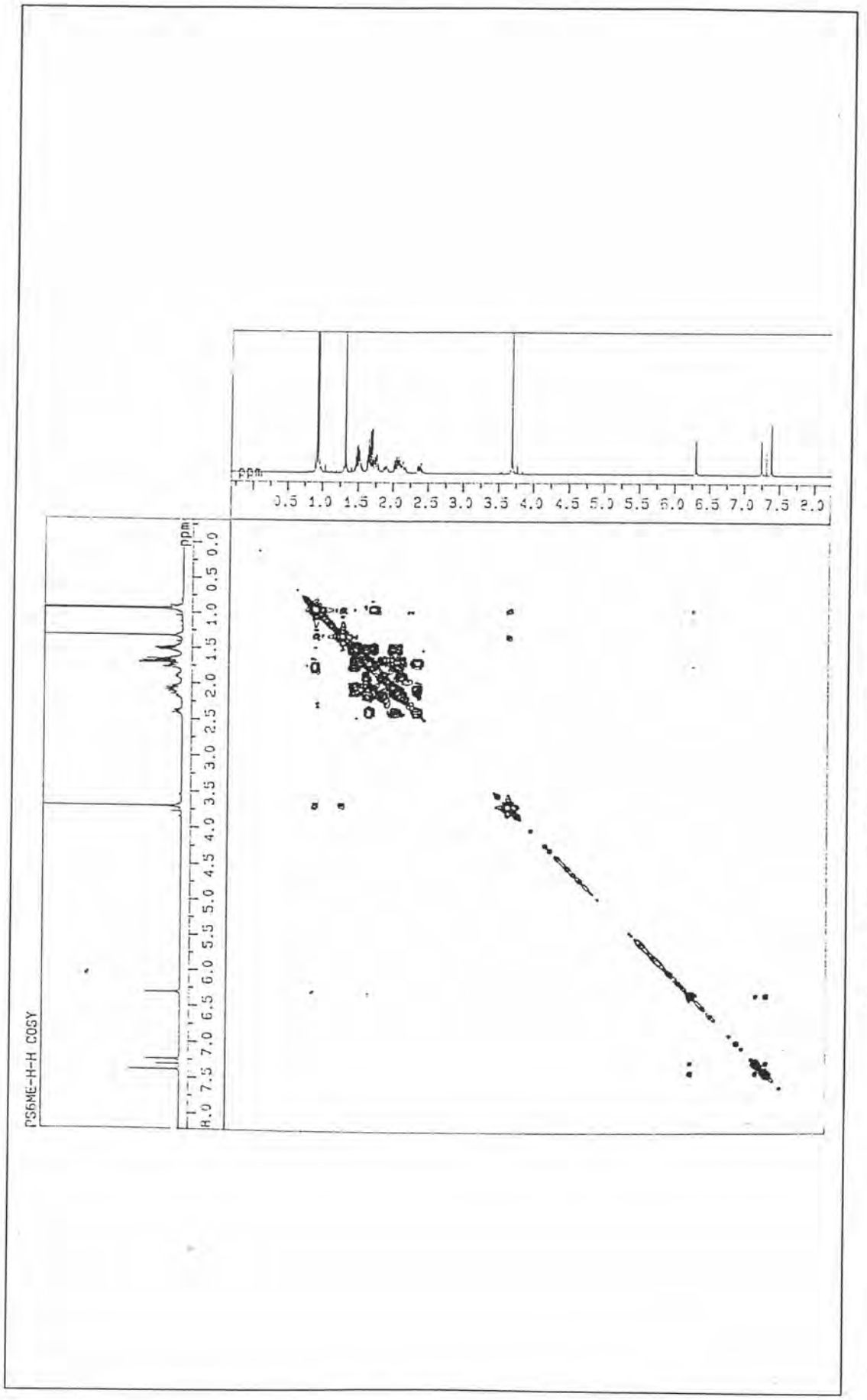

Figure 157 The COSY spectrum of Compound 7a

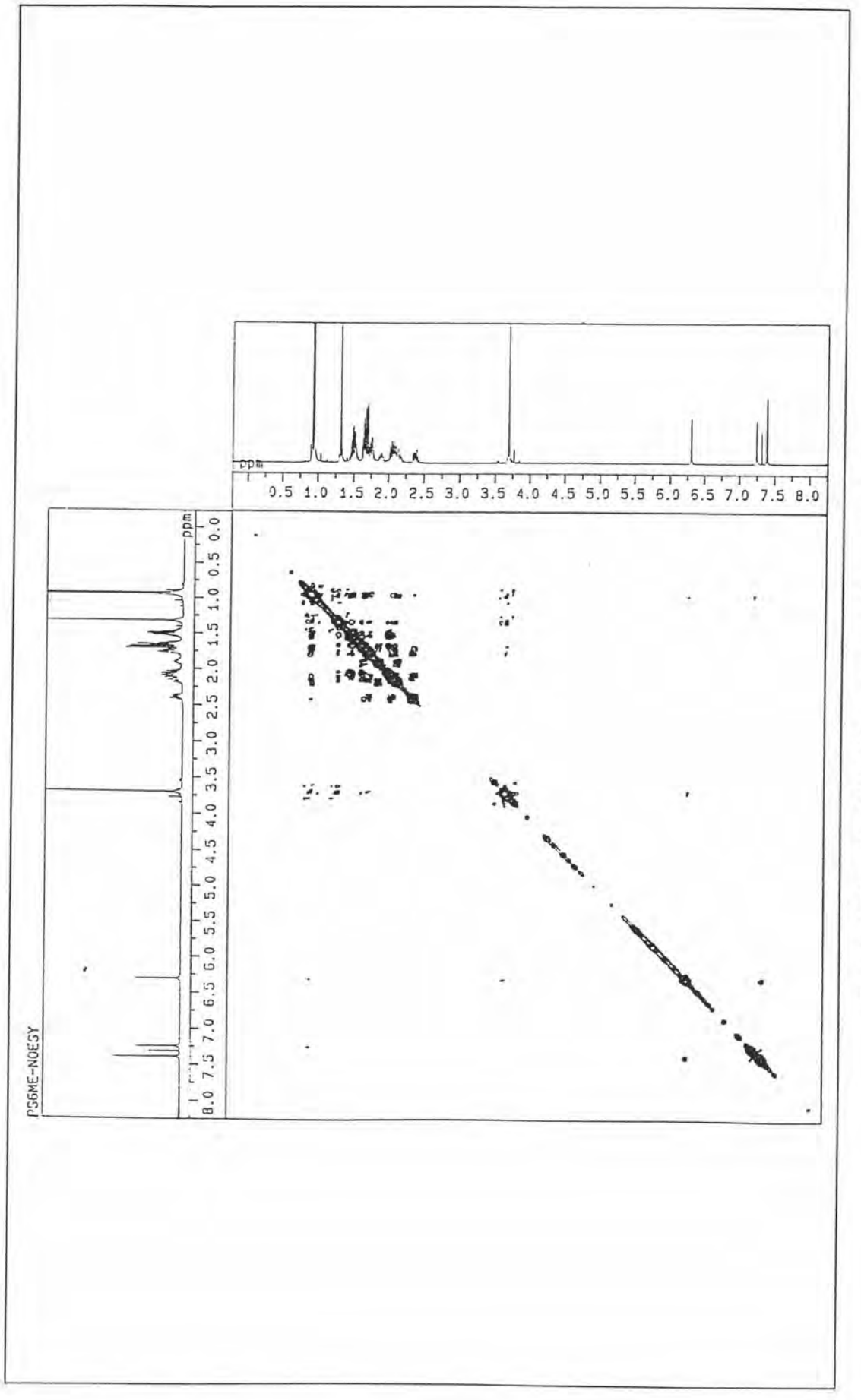

Figure 158 The NOESY spectrum of Compound 7a

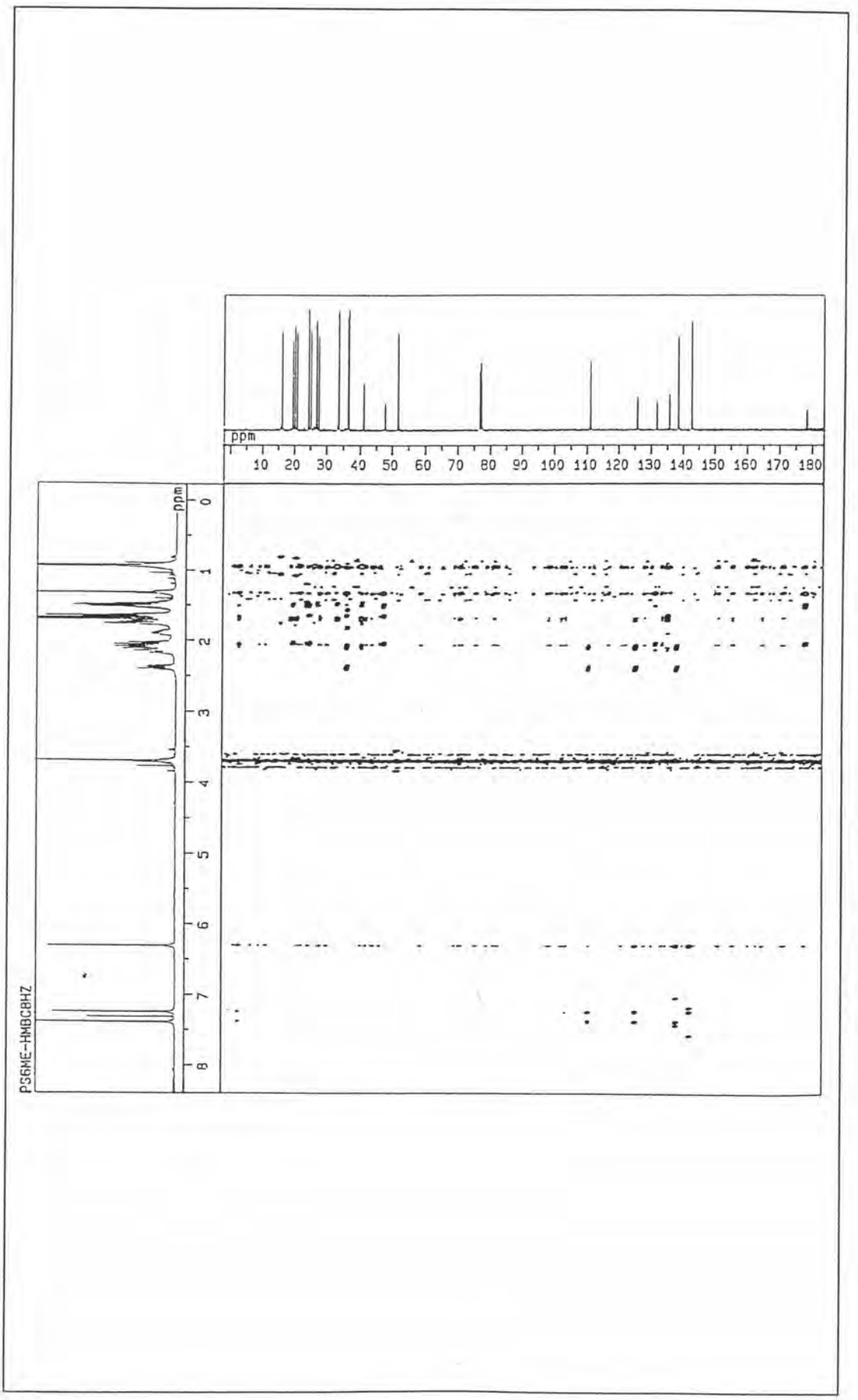

Figure 159 The HMBC spectrum of Compound 7a

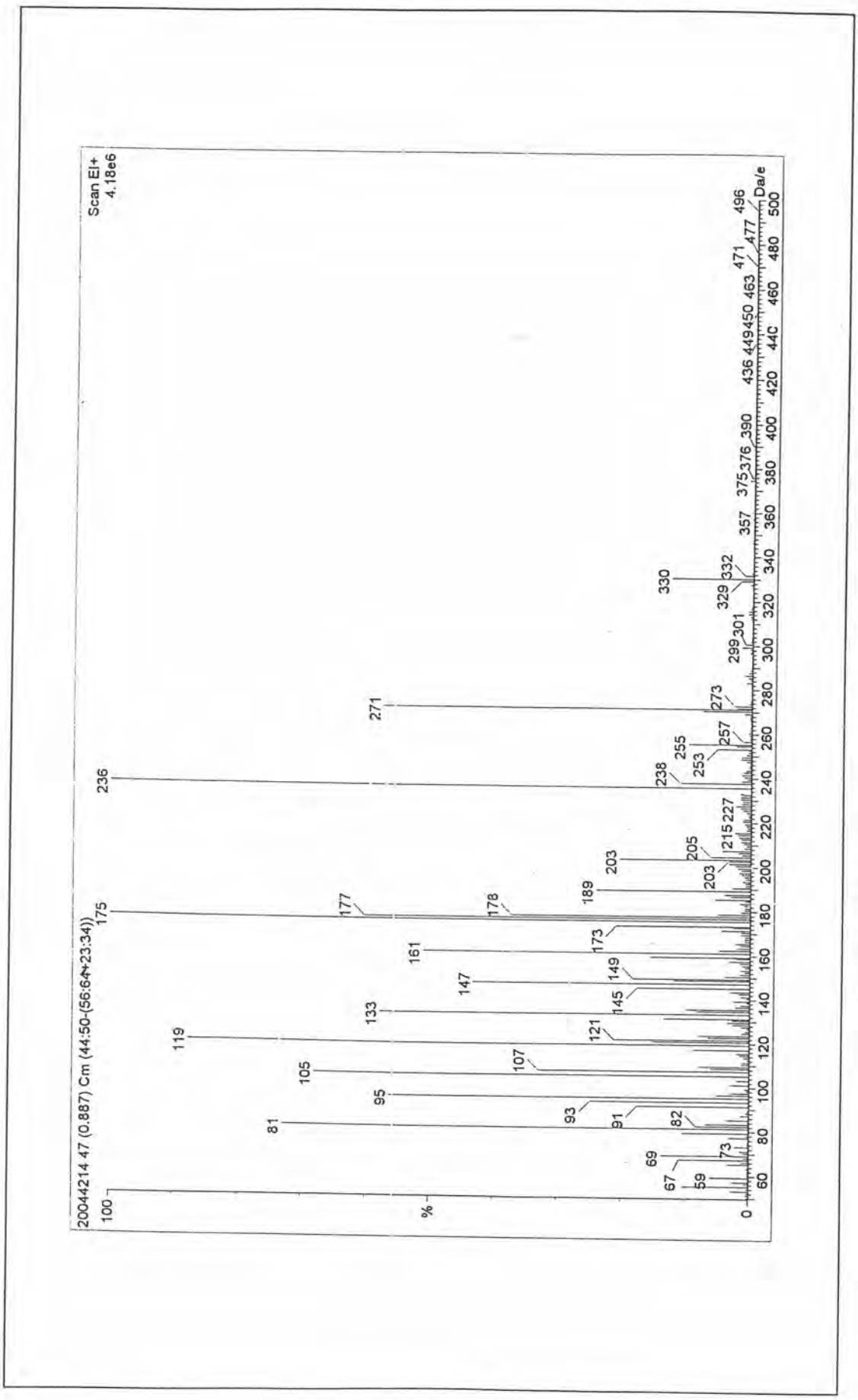

Figure 160 The EIMS spectrum of Compound 7a

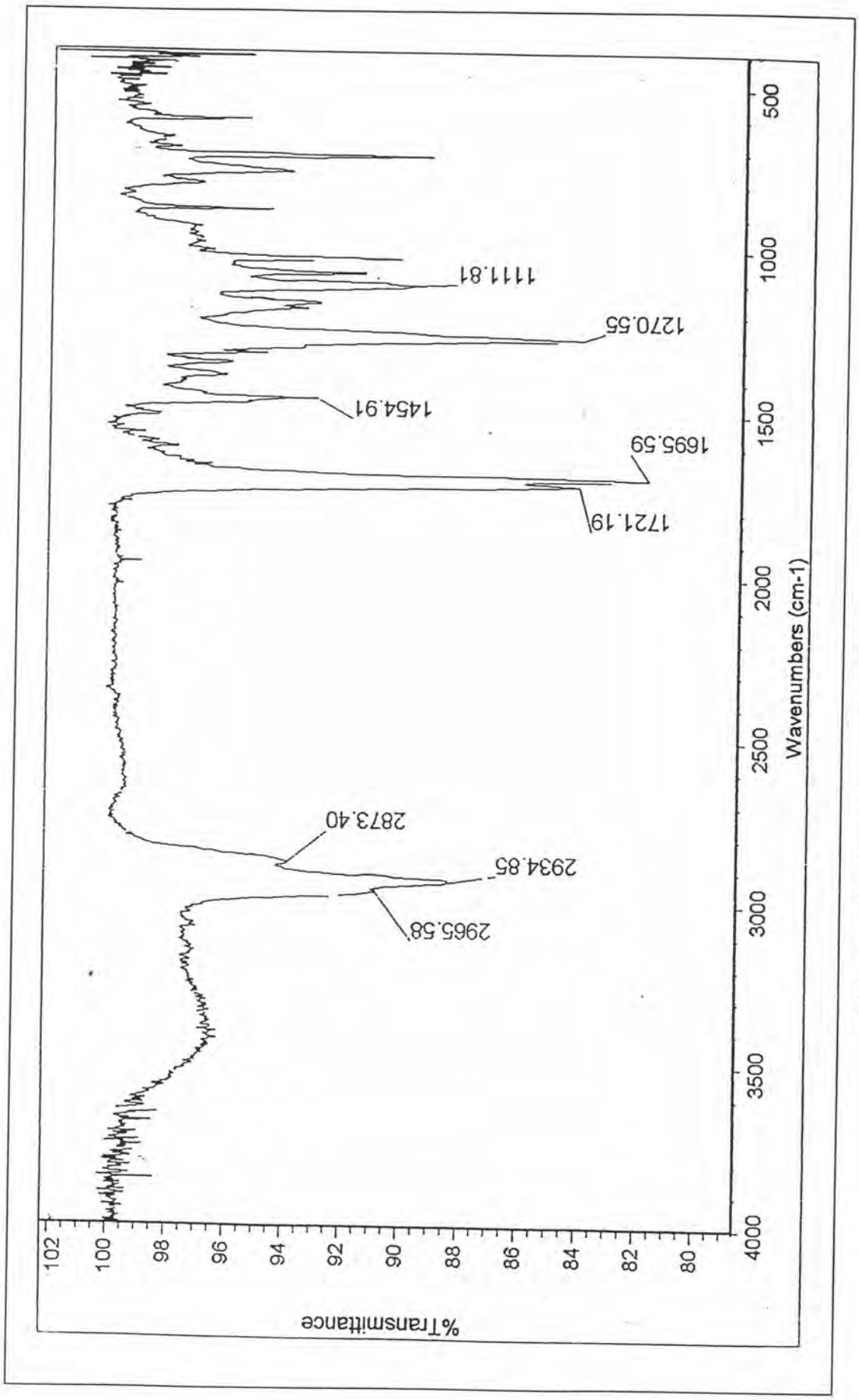

Figure 161 The IR spectrum of Compound 9a

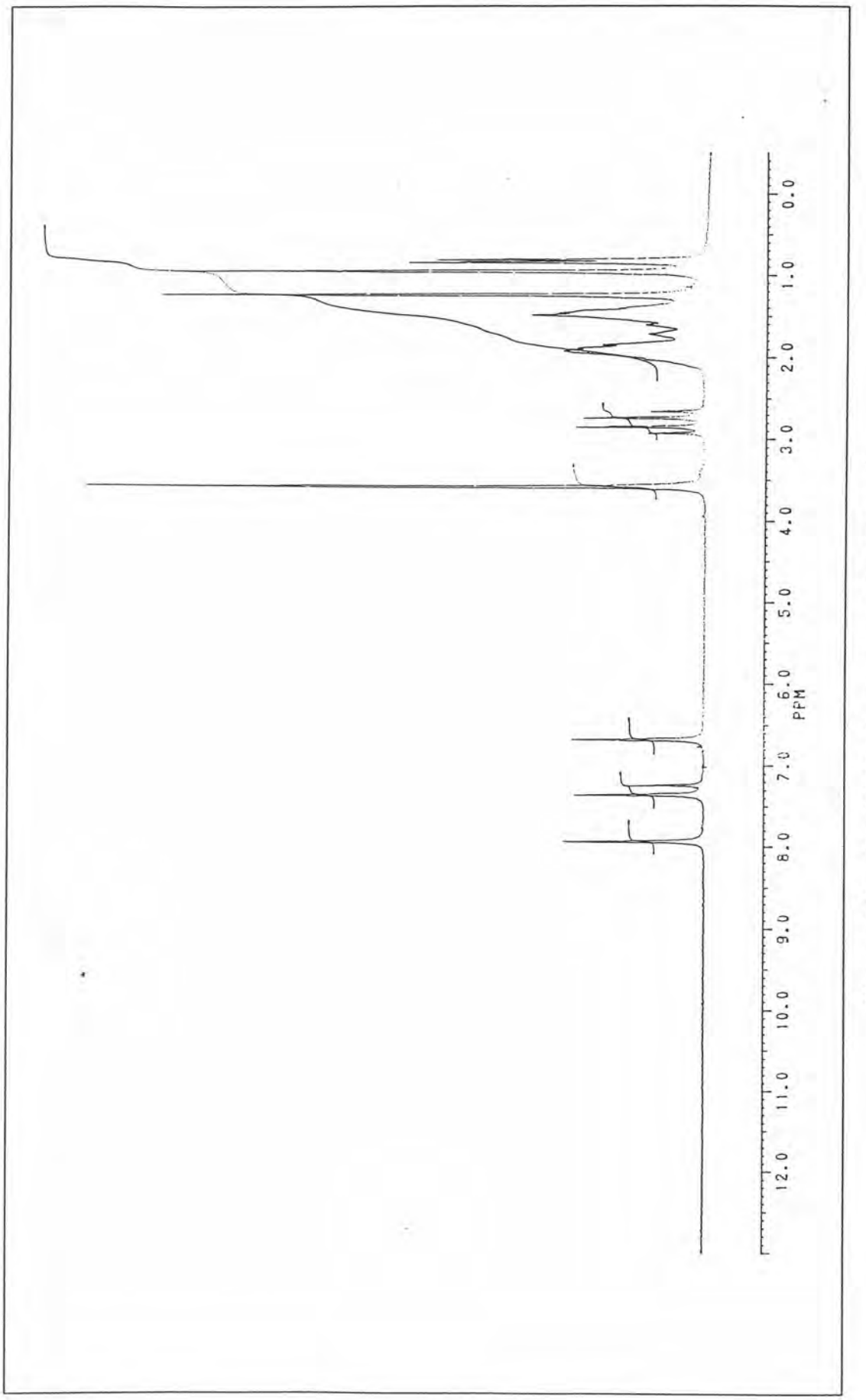

Figure 162 The ^{1}H-NMR spectrum of Compound 9a

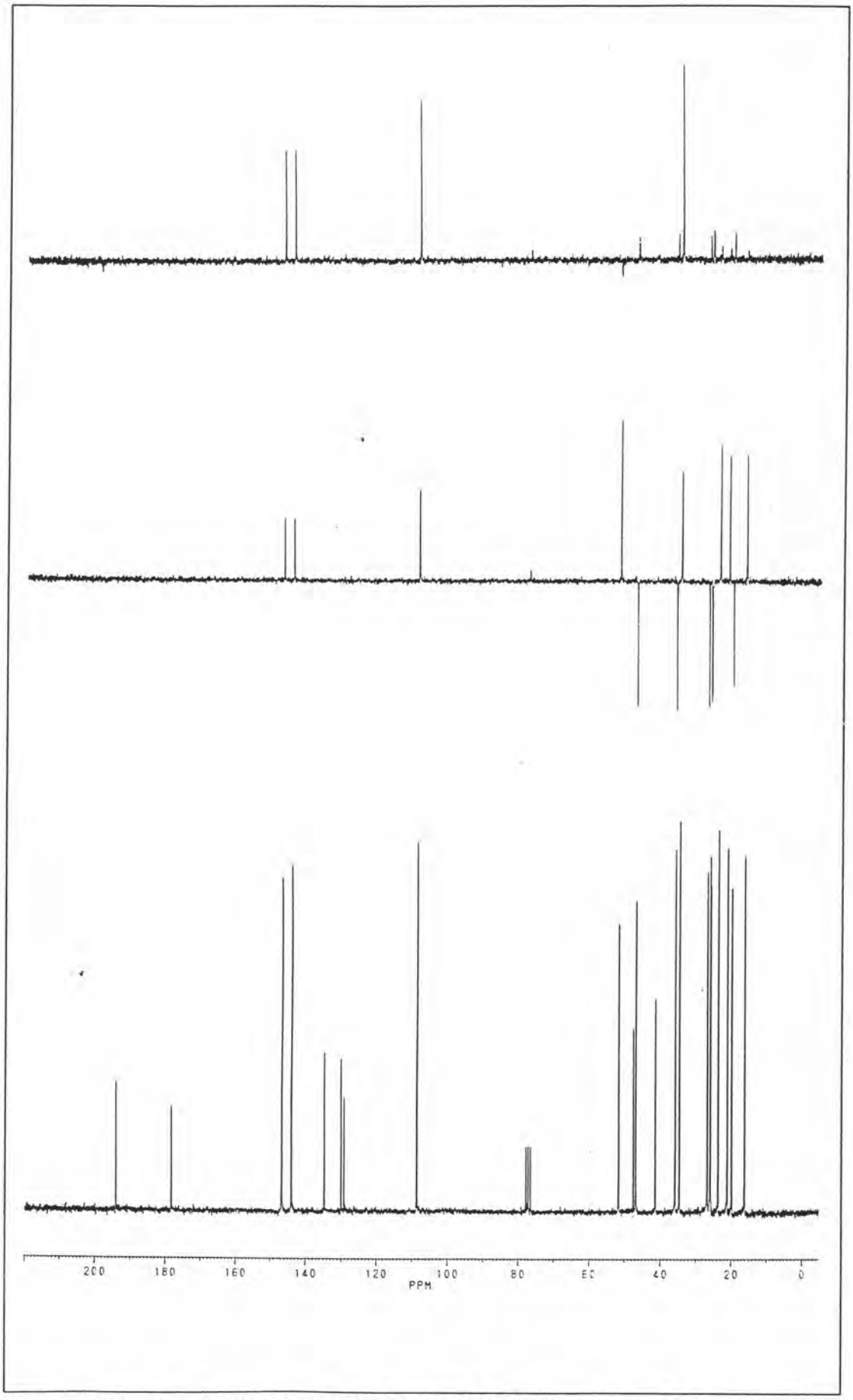

Figure 163 The DEPT-90 and DEPT-135, ^{13}C-NMR spectrum of Compound 9a

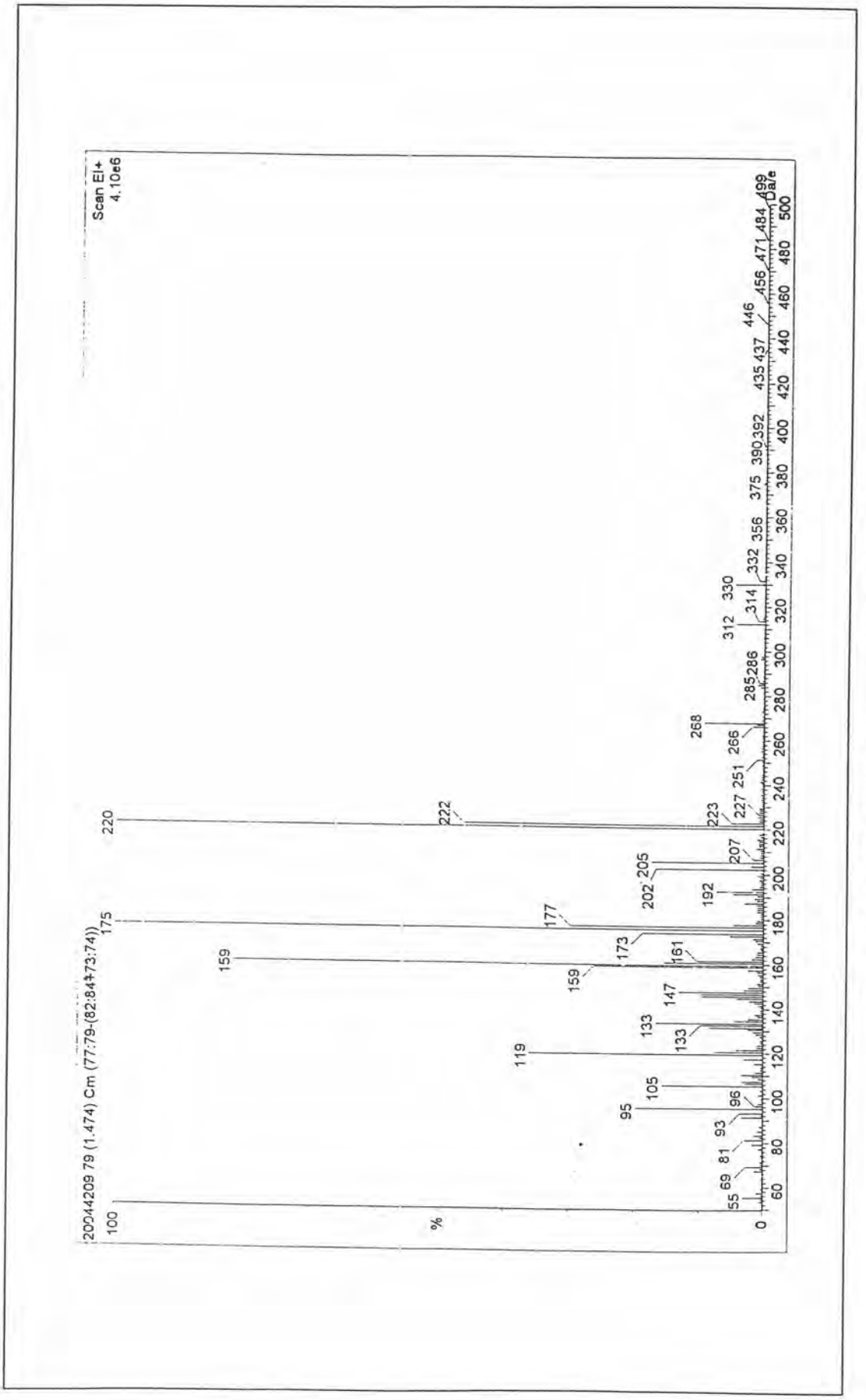

Figure 164 The EIMS spectrum of Compound 9a

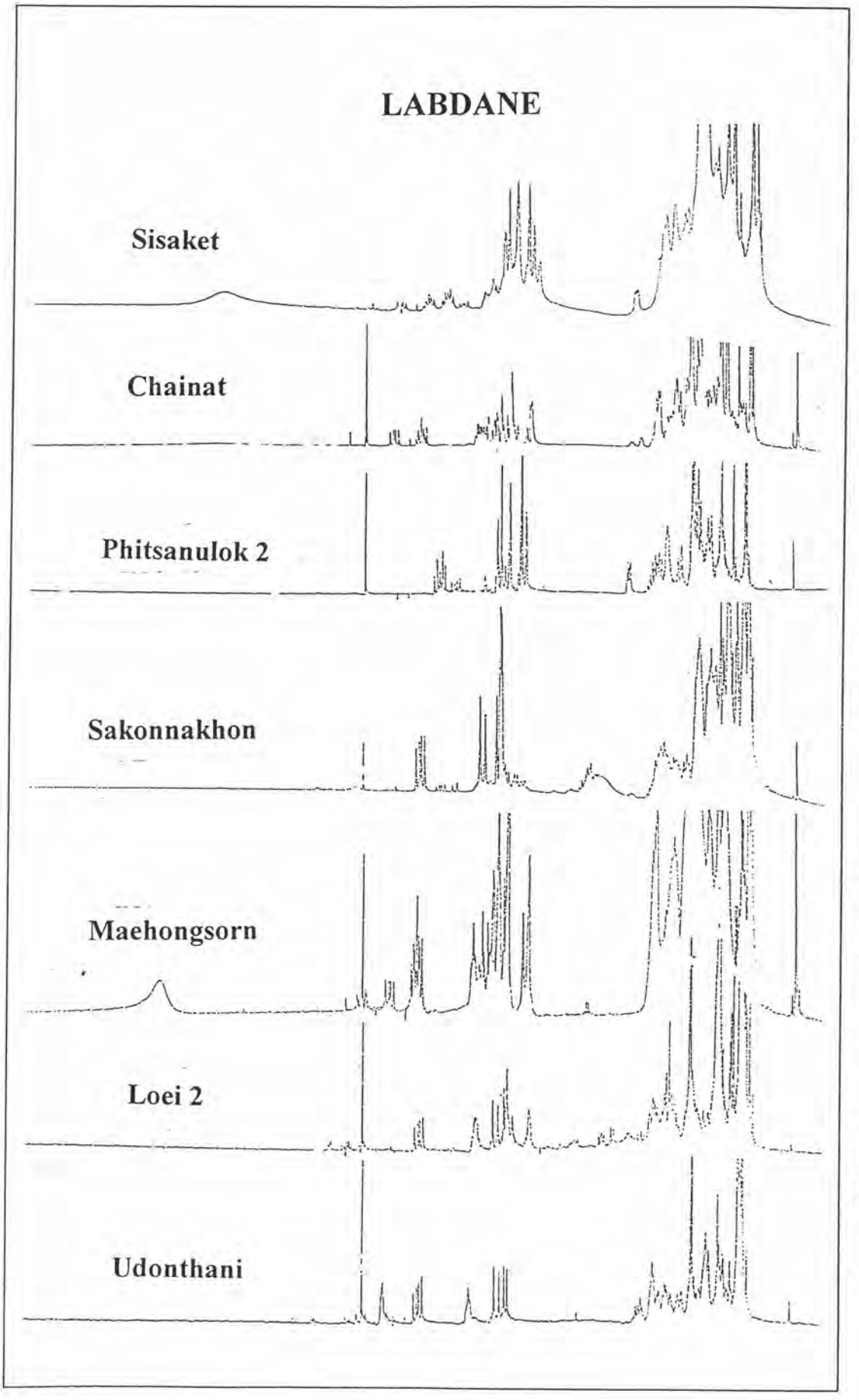

Figure 165 The proton profile of crude hexane from *Croton oblongifolius* Roxb. : Labdane diterpenoid compounds

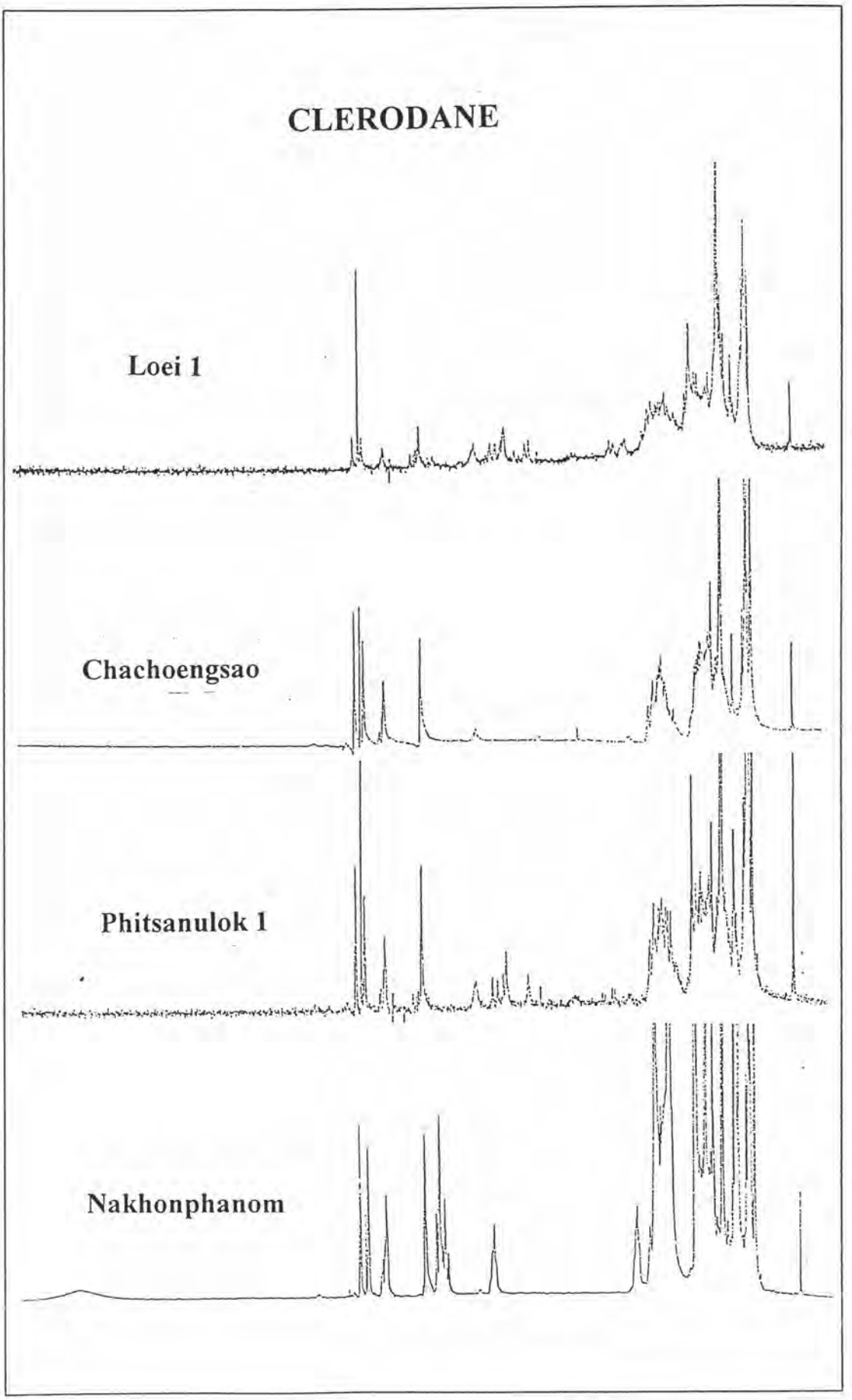

Figure 166 The proton profile of crude hexane from *Croton oblongifolius* Roxb. : Clerodane diterpenoid compounds

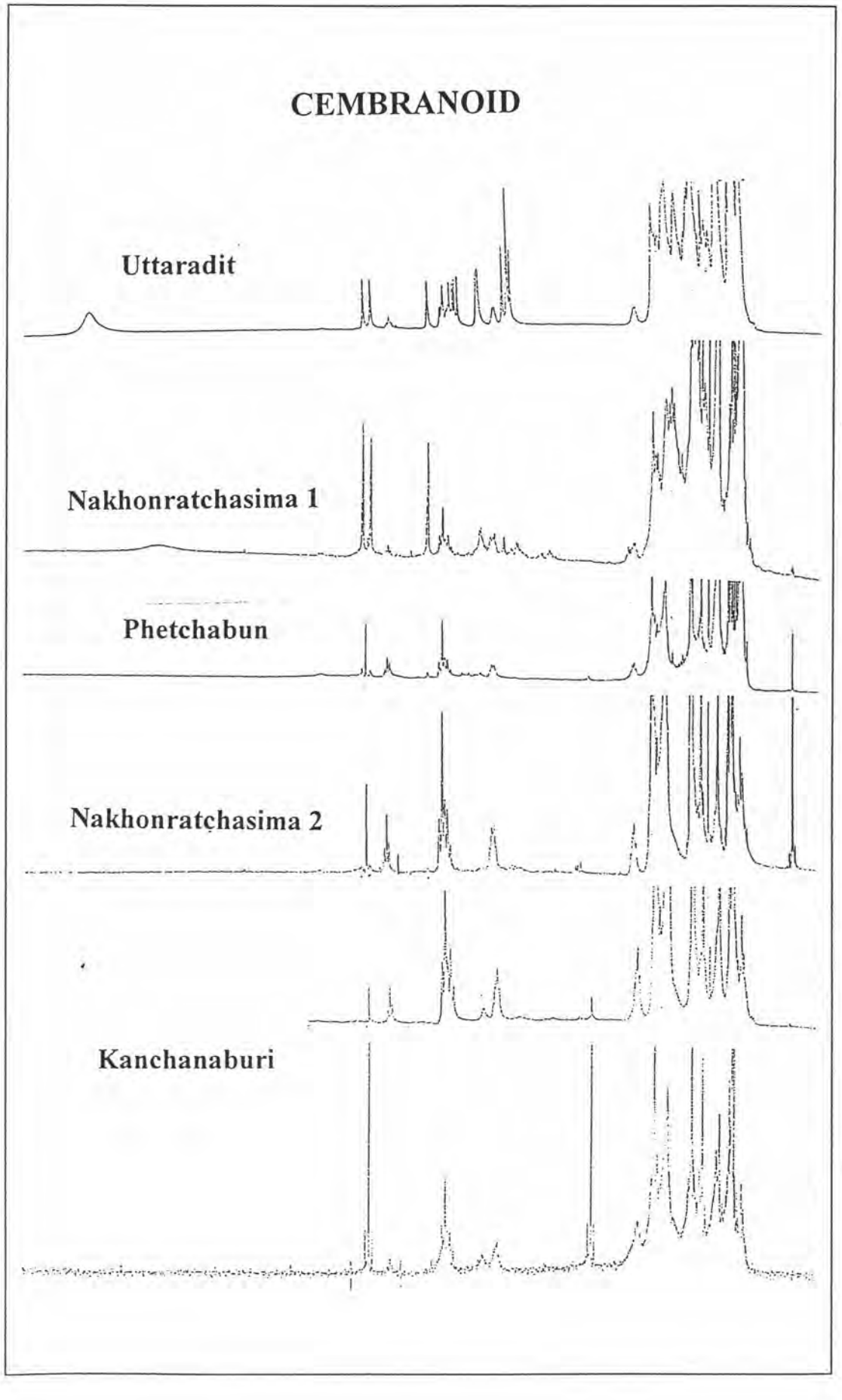

Figure 167 The proton profile of crude hexane from *Croton oblongifolius* Roxb. : Cembranoid diterpene compounds

Crystal data of crotohalimoneic acid (9)

Table 44 Crystal data and structure refinement for crotohalimoneic acid (9)

Empirical formula	$C_{20}H_{26}O_4$
Formula weight	330.41
Temperature	293 (2) K
Wavelength	0.71073 A
Crystal system, space group	Tetragonal, $P4_32_12_1$
Unit cell dimensions	a = 10.10120 (10) A alpha = 90 deg.
	b = 10.10120 (10) A beta = 90 deg.
	c = 36.18530 (10) A gamma = 90 deg.
Volume	3692.14 (5) A^3
Z, Calculated density	8, 1.189 Mg/m^3
Absorption coefficient	0.082 mm^{-1}
F (000)	1424
Theta range for data collection	2.09 to 30.51 deg.
Index ranges	-13 <= h <= 13, -13 <= k <= 13, -13 <= l<= 13
Reflections collected / unique	26699 / 5428 [R (int) = 0.1735]
Completeness to 2 theta = 30.51	97.6 %
Refinement method	Full-matrix least-squares on F^2
Data / restrains / parameters	5428 / 0 / 321
Goodness-of-fit on F^2	1.075
Final R indices [I > 2 sigma (I)]	R_1 = 0.1106, Rw_2 = 0.1213
R indices (all data)	R_1 = 0.2629, Rw_2 = 0.1589
Absolute structure parameter	- 1 (3)
Largest diff. peak and hole	0.247 and –0.200 $e.A^{-3}$

Table 45 Atomic coordinates and equivalent isotropid displacement parameters (A^2 x 10^3) for crotohalimoneic acid (9). U(eq) is defined as one third of the trace of the orthogonalized Uij tensor

atom	x	y	z	U (eq)
O (1)	0.3176 (3)	0.0252 (3)	0.1025 (1)	61 (1)
O (2)	0.0598 (3)	0.3495 (3)	0.0547 (1)	69 (1)
O (3)	0.1877 (5)	0.7870 (4)	-0.0637 (1)	112 (2)
O (4)	0.2206 (4)	0.8874 (3)	-0.0114 (1)	65 (1)
C (1)	0.0209 (5)	0.6562 (5)	0.0690 (1)	53 (1)
C (2)	-0.0743 (6)	0.6593 (8)	0.0371 (2)	93 (2)
C (3)	-0.0186 (5)	0.7333 (6)	0.0055 (2)	68 (2)
C (4)	0.1153 (4)	0.6774 (4)	-0.0081 (1)	42 (1)
C (5)	0.2054 (4)	0.6375 (3)	0.0240 (1)	33 (1)
C (6)	0.3467 (5)	0.6121 (6)	0.0132 (1)	58 (1)
C (7)	0.4355 (5)	0.6068 (5)	0.0460 (2)	58 (1)
C (8)	0.3816 (4)	0.5111 (5)	0.0749 (1)	50 (1)
C (9)	0.2452 (4)	0.5577 (4)	0.0891 (1)	43 (1)
C (10)	0.1602 (4)	0.6180 (3)	0.0582 (1)	33 (1)
C (11)	0.1732 (6)	0.4358 (4)	0.1065 (1)	48 (1)
C (12)	0.1404 (4)	0.3277 (4)	0.0794 (1)	44 (1)
C (13)	0.2018 (4)	0.1970 (4)	0.0824 (1)	39 (1)
C (14)	0.1817 (5)	0.0879 (4)	0.0579 (1)	49 (1)
C (15)	0.2532 (5)	-0.0101 (5)	0.0706 (1)	60 (1)
C (16)	0.2843 (5)	0.1543 (5)	0.1087 (1)	50 (1)
C (17)	0.4839 (8)	0.4808 (9)	0.1049 (2)	90 (2)
C (18)	0.0936 (9)	0.5567 (7)	-0.0335 (2)	83 (2)
C (19)	0.1772 (5)	0.7868 (5)	-0.0307 (1)	52 (1)
C (20)	0.2622 (8)	0.6602 (6)	0.1210 (1)	67 (2)

Table 46 Bond lengths (A) for crotohalimoneic acid (9)

Positions	bond length (A)
O (1) – C (16)	1.365 (5)
O (1) – C (15)	1.370 (5)
O (2) – C (12)	1.228 (4)
O (3) – C (19)	1.197 (4)
O (4) – C (19)	1.309 (5)
C (1) – C (2)	1.501 (7)
C (1) – C (10)	1.509 (6)
C (2) – C (3)	1.479 (8)
C (3) – C (4)	1.547 (6)
C (4) – C (19)	1.510 (5)
C (4) – C (5)	1.532 (5)
C (4) – C (18)	1.541 (7)
C (5) – C (10)	1.332 (5)
C (5) – C (6)	1.503 (6)
C (6) – C (7)	1.489 (7)
C (7) – C (8)	1.526 (7)
C (8) – C (17)	1.531 (7)
C (8) – C (9)	1.544 (6)
C (9) – C (10)	1.536 (5)
C (9) – C (20)	1.559 (6)
C (9) – C (11)	1.564 (6)
C (11) – C (12)	1.504 (6)
C (12) – C (13)	1.463 (6)
C (13) – C (16)	1.337 (6)
C (13) – C (14)	1.428 (5)
C (14) – C (15)	1.309 (6)

Table 47 Bond angles (deg) for crotohalimoneic acid (9)

Positions	bond angle (degree)
C (16) – O (1) – C (15)	105.8 (4)
C (2) – C (1) – C (10)	113.9 (4)
C (3) – C (2) – C (1)	111.2 (5)
C (2) – C (3) – C (4)	113.2 (4)
C (19) – C (4) – C (5)	111.0 (3)
C (19) – C (4) – C (18)	108.4 (4)
C (5) – C (4) – C (18)	109.2 (4)
C (19) – C (4) – C (3)	105.5 (4)
C (5) – C (4) – C (3)	111.9 (4)
C (18) – C (4) – C (3)	110.7 (5)
C (10) – C (5) – C (6)	122.9 (4)
C (10) – C (5) – C (4)	122.7 (3)
C (6) – C (5) – C (4)	114.2 (3)
C (7) – C (6) – C (5)	111.7 (4)
C (6) – C (7) – C (8)	110.8 (4)
C (7) – C (8) – C (17)	111.9 (5)
C (7) – C (8) – C (9)	110.7 (4)
C (17) – C (8) – C (9)	115.3 (5)
C (10) – C (9) – C (8)	112.2 (3)
C (10) – C (9) – C (20)	109.7 (4)
C (8) – C (9) – C (20)	110.5 (4)
C (10) – C (9) – C (11)	110.2 (3)
C (8) – C (9) – C (11)	108.0 (4)
C (20) – C (9) – C (11)	106.0 (4)
C (5) – C (10) – C (1)	121.4 (4)
C (5) – C (10) – C (9)	122.8 (4)
C (1) – C (10) – C (9)	115.8 (3)
C (12) – C (11) – C (9)	114.2 (3)
O (2) – C (12) – C (13)	119.7 (4)
O (2) – C (12) – C (11)	119.4 (4)
C (13) – C (12) – C (11)	120.9 (4)
C (16) – C (13) – C (14)	106.4 (4)
C (16) – C (13) – C (12)	127.4 (4)
C (14) – C (13) – C (12)	126.2 (4)
C (15) – C (14) – C (13)	106.7 (4)
C (14) – C (15) – O (1)	111.1 (4)
C (13) – C (16) – O (1)	110.0 (4)
O (3) – C (19) – O (4)	120.1 (4)
O (3) – C (19) – C (4)	125.2 (4)
O (4) – C (19) – C (4)	114.7 (3)

Table 48 Anisotropic displacement parameters (A^2 x 10^3) for crotohalimoneic acid (9). The anisotropic displacement factor exponent takes the form $-2\ pi^2\ [\ h^2\ a^{*2}\ U11 + ... + 2\ h\ k\ a^*\ b^*\ U12\ ]$

atom	U 11	U 22	U 33	U 23	U 13	U 12
O (1)	79 (2)	50 (2)	55 (2)	3 (2)	-7 (2)	13 (2)
O (2)	85 (2)	47 (2)	76 (2)	7 (2)	-41 (2)	-7 (2)
O (3)	178 (4)	131 (3)	28 (2)	-2 (2)	-4 (2)	-56 (3)
O (4)	103 (3)	49 (2)	44 (2)	6 (2)	5 (2)	-20 (2)
C (1)	53 (3)	53 (3)	54 (3)	3 (3)	9 (2)	19 (3)
C (2)	52 (4)	139 (6)	89 (4)	18 (5)	5 (3)	37 (4)
C (3)	45 (3)	99 (5)	60 (4)	30 (4)	-4 (3)	20 (3)
C (4)	47 (3)	36 (2)	31 (2)	0 (2)	-4 (2)	2 (2)
C (5)	39 (2)	25 (2)	35 (2)	0 (2)	-4 (2)	8 (2)
C (6)	54 (3)	70 (4)	49 (3)	9 (3)	2 (3)	17 (3)
C (7)	45 (3)	43 (3)	87 (4)	-1 (3)	-6 (3)	3 (3)
C (8)	51 (3)	42 (3)	59 (3)	4 (3)	-22 (3)	-3 (2)
C (9)	56 (3)	35 (2)	37 (2)	0 (2)	-11 (2)	2 (2)
C (10)	41 (2)	21 (2)	37 (2)	-1 (2)	-3 (2)	5 (2)
C (11)	68 (4)	39 (3)	38 (2)	3 (2)	-11 (3)	2 (3)
C (12)	55 (3)	41 (3)	36 (2)	3 (2)	-5 (2)	-4 (2)
C (13)	44 (2)	38 (2)	36 (2)	6 (2)	7 (2)	-6 (2)
C (14)	61 (3)	42 (3)	44 (3)	-1 (2)	-5 (3)	-9 (2)
C (15)	83 (4)	50 (3)	47 (3)	-5 (3)	1 (3)	1 (3)
C (16)	63 (3)	46 (3)	40 (3)	-1 (2)	-2 (2)	2 (2)
C (17)	70 (5)	94 (6)	108 (6)	19 (5)	-47 (5)	-2 (4)
C (18)	123 (7)	66 (4)	61 (4)	-8 (4)	-30 (5)	-7 (5)
C (19)	68 (3)	56 (3)	32 (2)	-1 (2)	-9 (2)	-5 (3)
C (20)	106 (5)	53 (3)	40 (3)	-11 (3)	-19 (3)	-2 (4)

Table 49 Hydrogen coordinates and isotropic and isotropic displacement parameters (A^2 x 10^3) for crotohalimoneic acid (9)

atom	x	y	z	U (eq)
H (20A)	0.2950 (5)	0.6140 (5)	0.1423 (13)	84 (16)
H (11B)	0.2290 (4)	0.4000 (4)	0.1242 (9)	43 (12)
H (6B)	0.3500 (4)	0.5250 (4)	0.0011 (11)	62 (14)
H (17B)	0.5130 (6)	0.5570 (6)	0.1144 (14)	100 (2)
H (7B)	0.5300 (5)	0.5810 (4)	0.0382 (12)	75 (15)
H (20B)	0.1680 (5)	0.6960 (4)	0.1266 (11)	72 (17)
H (7A)	0.4430 (3)	0.6850 (4)	0.0568 (9)	34 (11)
H (1)	0.0220 (5)	0.7500 (5)	0.0793 (12)	90 (17)
H (17A)	0.4420 (5)	0.4240 (6)	0.1252 (14)	100 (2)
H (11A)	0.0860 (5)	0.4690 (5)	0.1182 (12)	95 (18)
H (6A)	0.3790 (4)	0.6820 (4)	- 0.0065 (12)	80 (15)
H (16)	0.3220 (4)	0.1930 (4)	0.1294 (10)	51 (13)
H (17C)	0.5640 (5)	0.4400 (5)	0.0923 (13)	90 (2)
H (3)	- 0.0610 (5)	0.7430 (5)	- 0.0155 (13)	80 (17)
H (18A)	0.1800 (5)	0.5300 (5)	- 0.0447 (14)	100 (2)
H (8)	0.3660 (3)	0.4290 (3)	0.0622 (9)	31 (10)
H (20C)	0.3320 (6)	0.7320 (6)	0.1119 (15)	140 (2)
H (14)	0.1260 (4)	0.0870 (4)	0.0365 (11)	69 (15)
H (1B)	- 0.0140 (5)	0.5910 (5)	0.0850 (13)	93 (18)
H (18A)	0.0380 (5)	0.5820 (5)	- 0.0533 (14)	100 (2)
H (15)	0.2670 (4)	- 0.1020 (5)	0.0630 (11)	71 (15)
H (18C)	0.0630 (5)	0.4920 (6)	- 0.0203 (14)	100 (2)
H (2B)	- 0.1590 (5)	0.7060 (5)	0.0447 (14)	104 (19)
H (3B)	- 0.0010 (5)	0.8260 (5)	0.0264 (14)	112 (19)
H (4O)	0.2580 (5)	0.9460 (5)	- 0.0258 (13)	90 (2)
H (2A)	- 0.0900 (7)	0.5480 (7)	0.0230 (18)	190 (3)

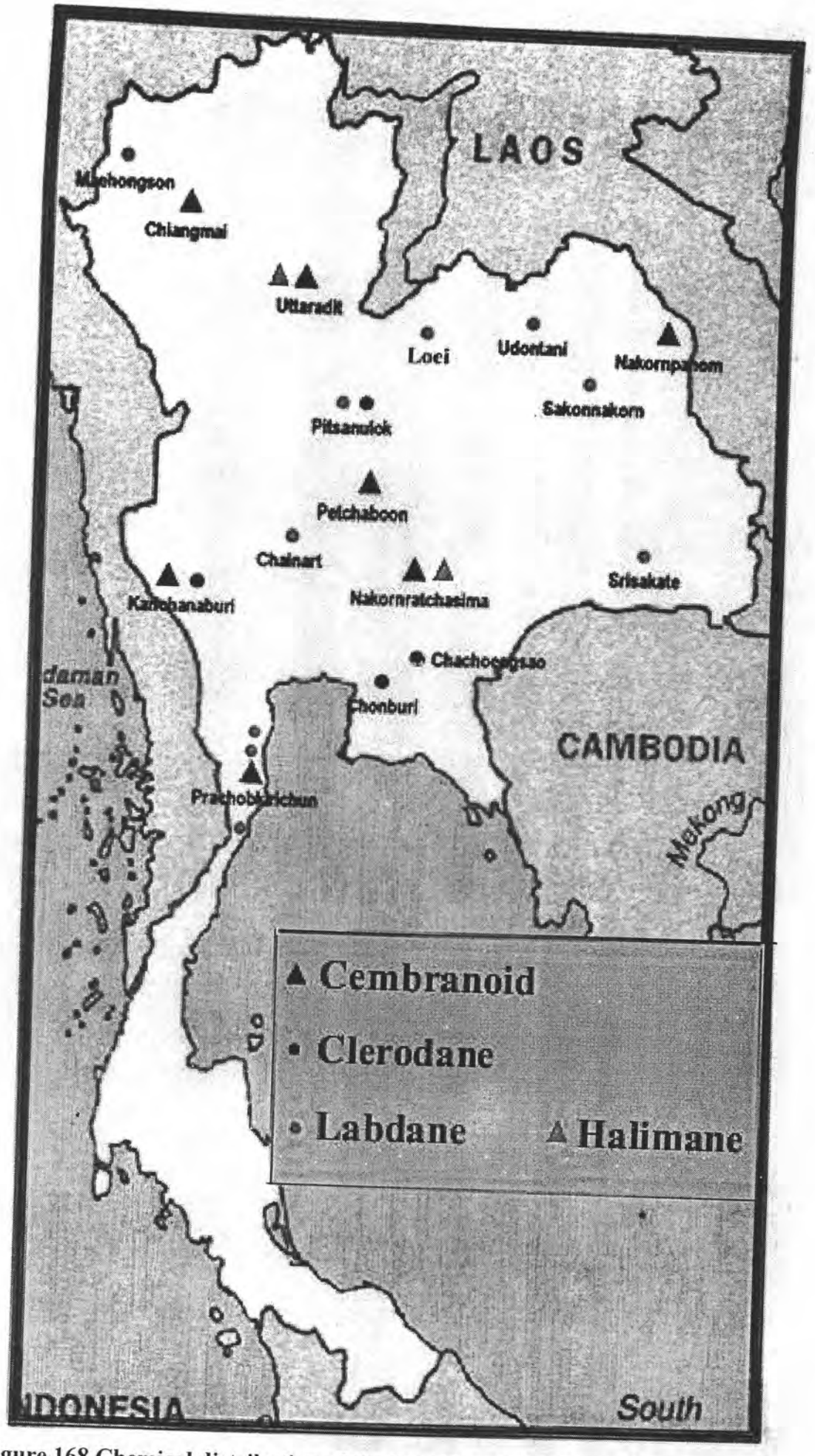

Figure 168 Chemical distribution of *Croton oblongifolius* Roxb. from various locations in Thailand

BIOGRAPHY

Mr. Pravit Singtothong was born on May 20, 1970. He graduated with a Bachelor Degree of Science in Chemistry from Chulalongkorn University in 1992, and a Master Degree of Science in Chemistry from Chulalongkorn University in 1994, after graduation, he has been studying for a Ph.D. degree in Chemistry Program.