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APPENDIX A

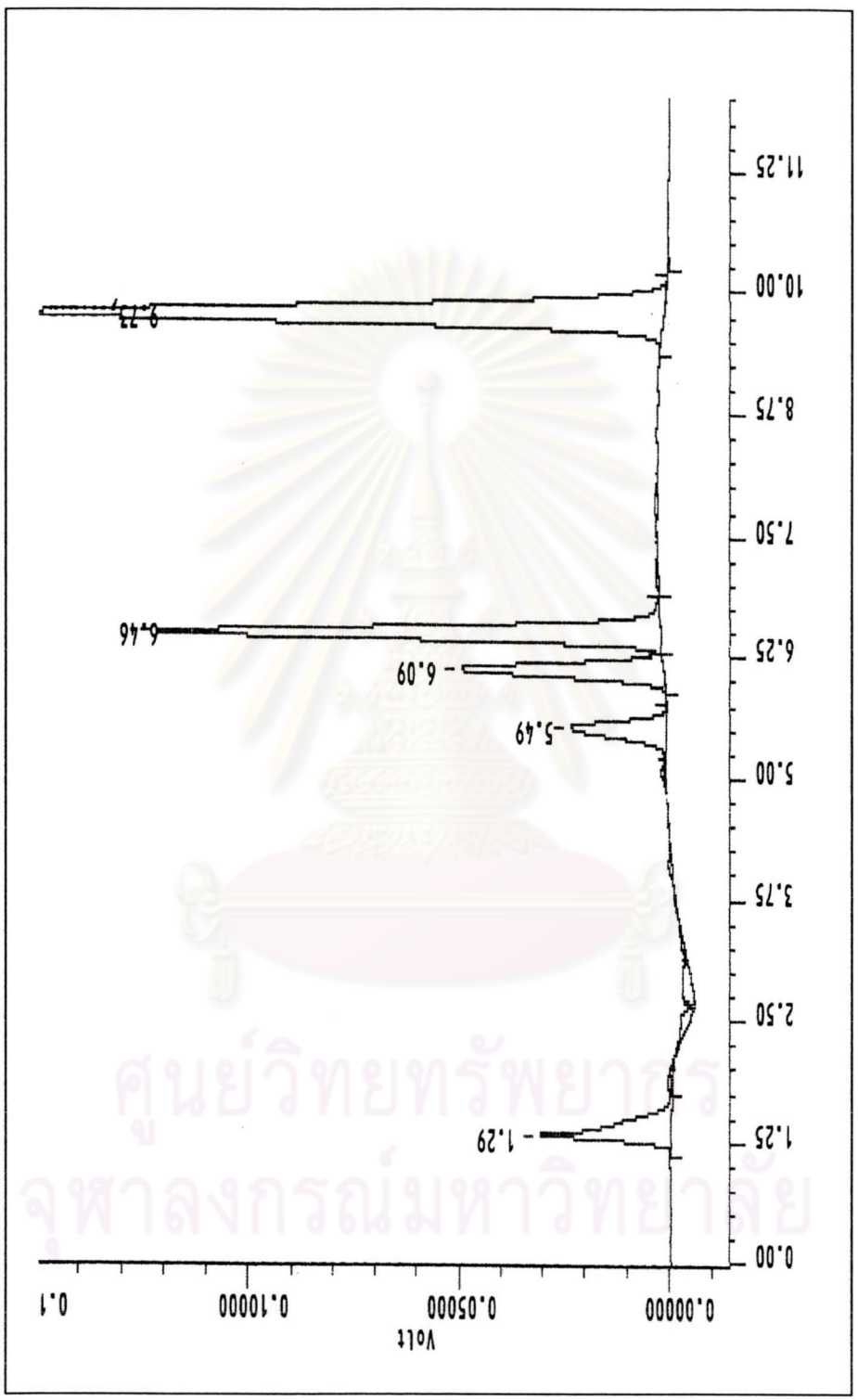

Figure 18 HPLC chromatogram of crude DHA

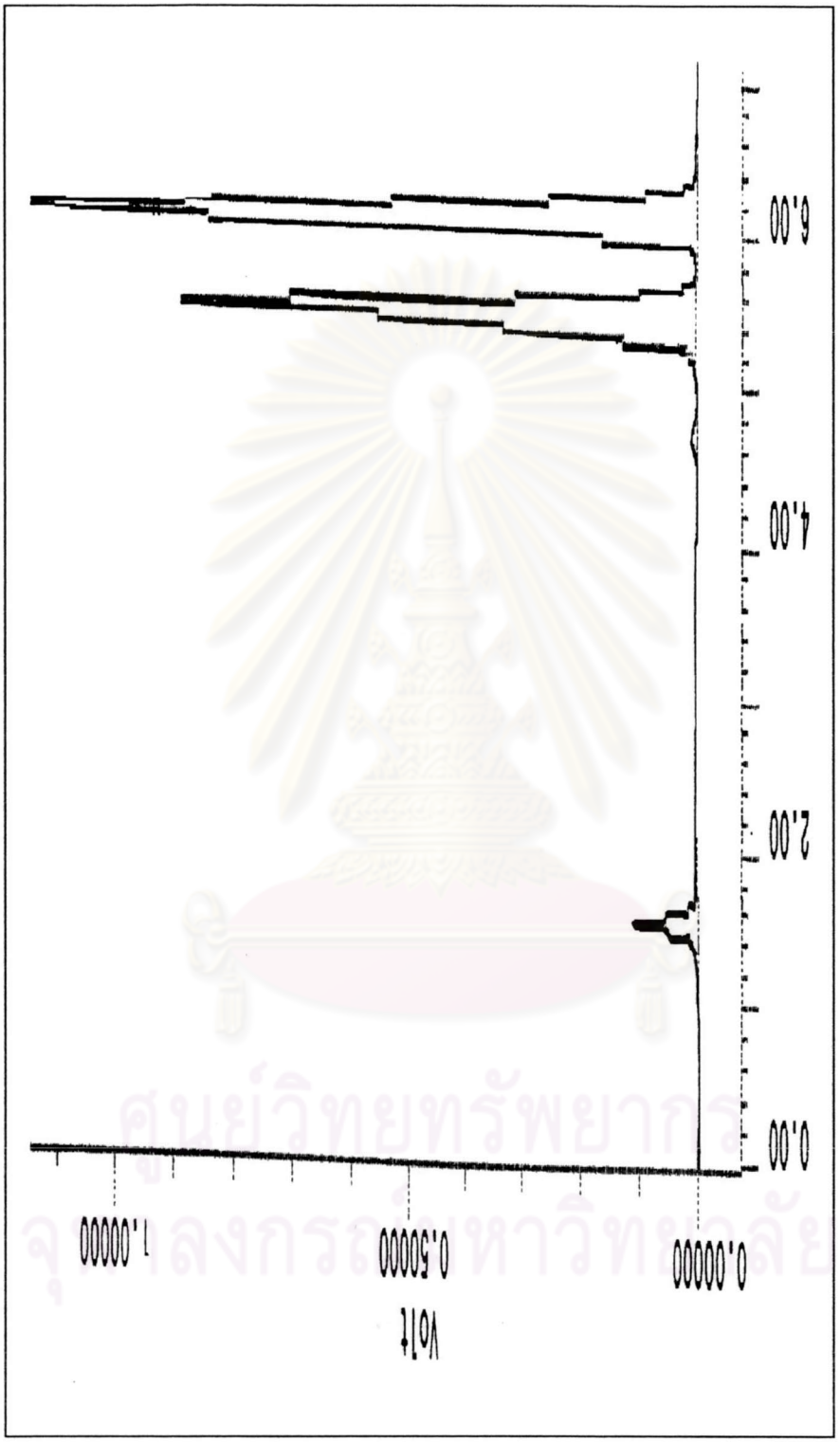

Figure 19 The HPLC chromatogram of sample for toxicity testing

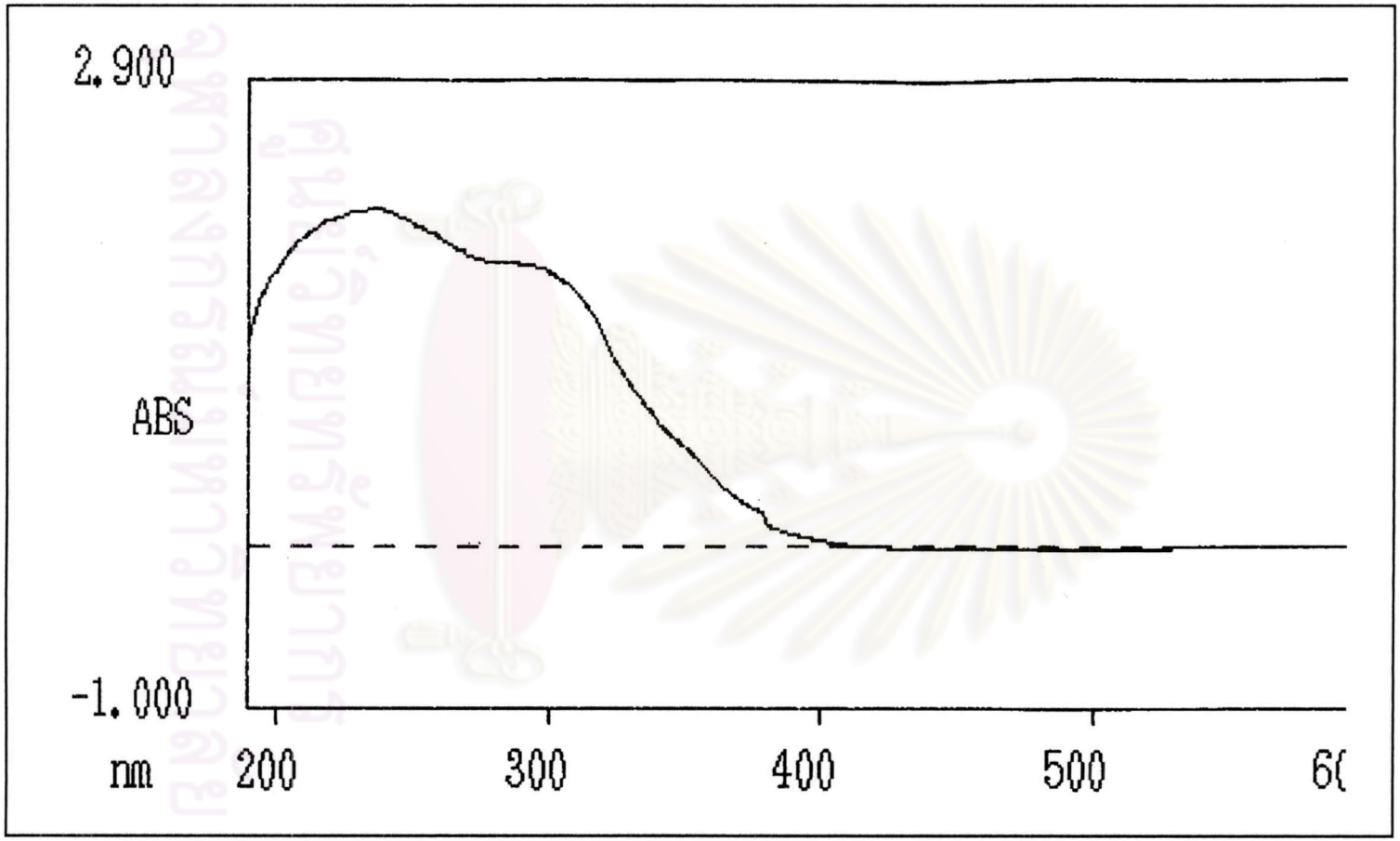

Figure 20 The UV spectrum of compound 1

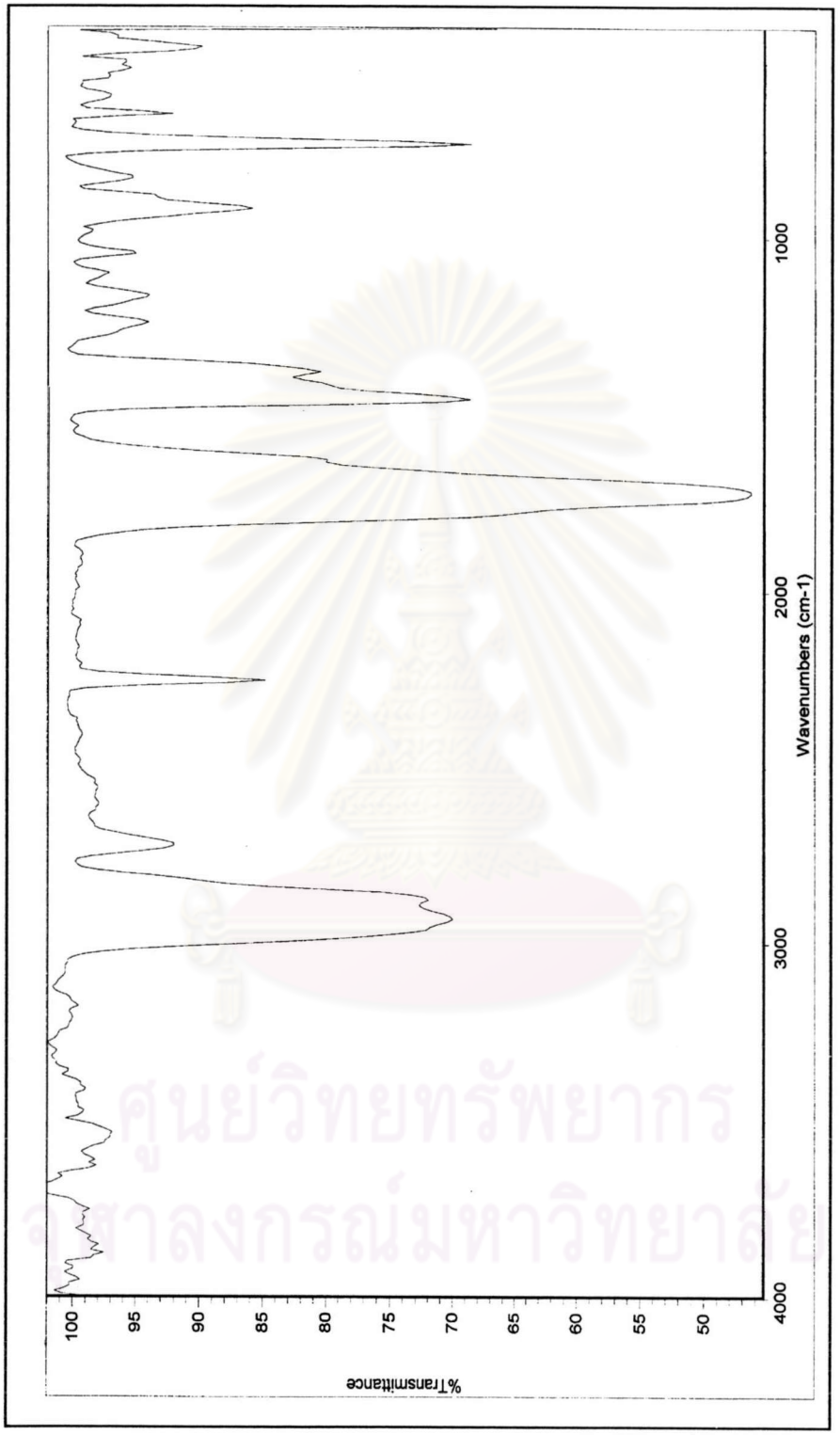

Figure 21 The IR spectrum of compound1

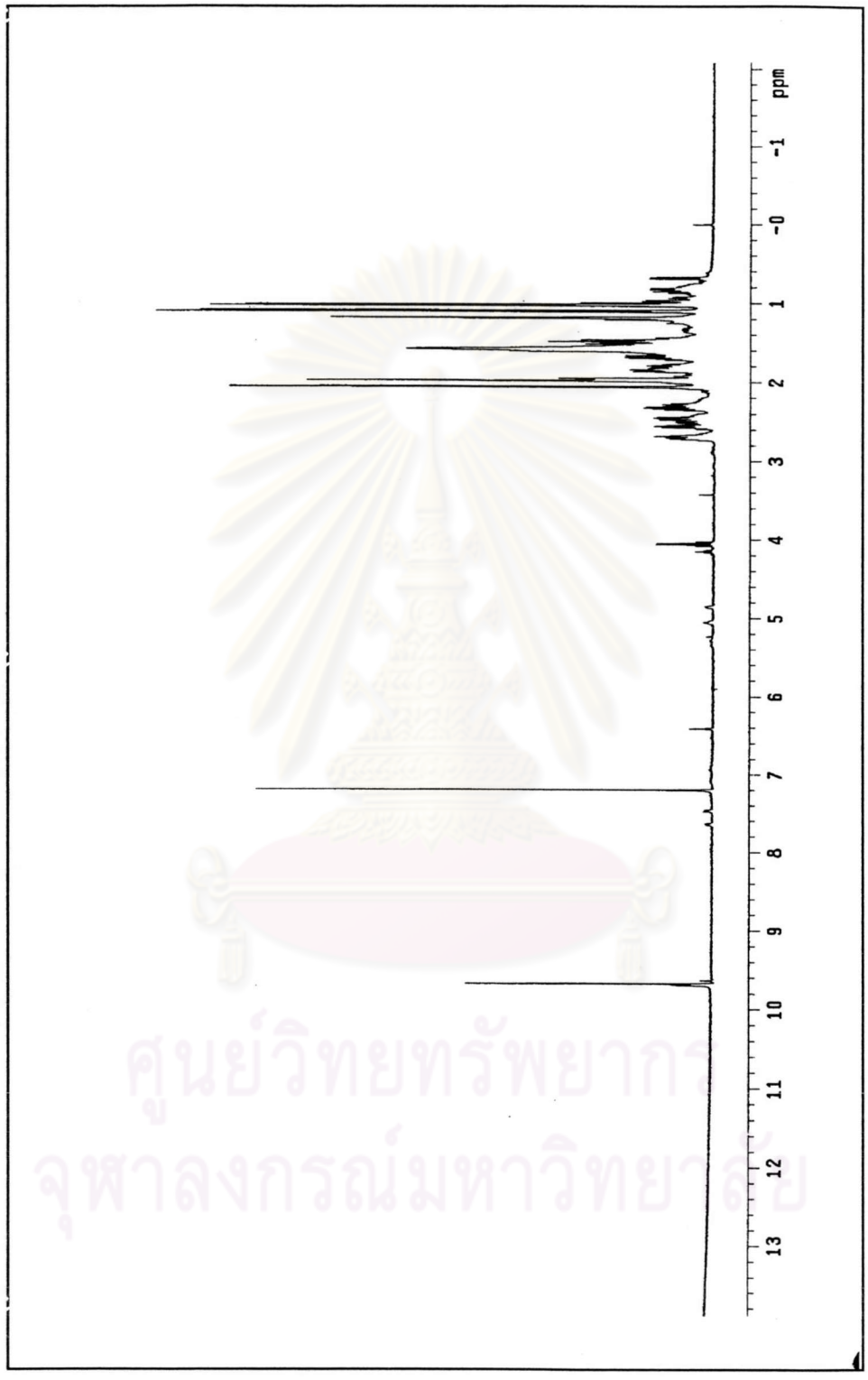

Figure 22 The ^{1}H-NMR spectrum of compound 1

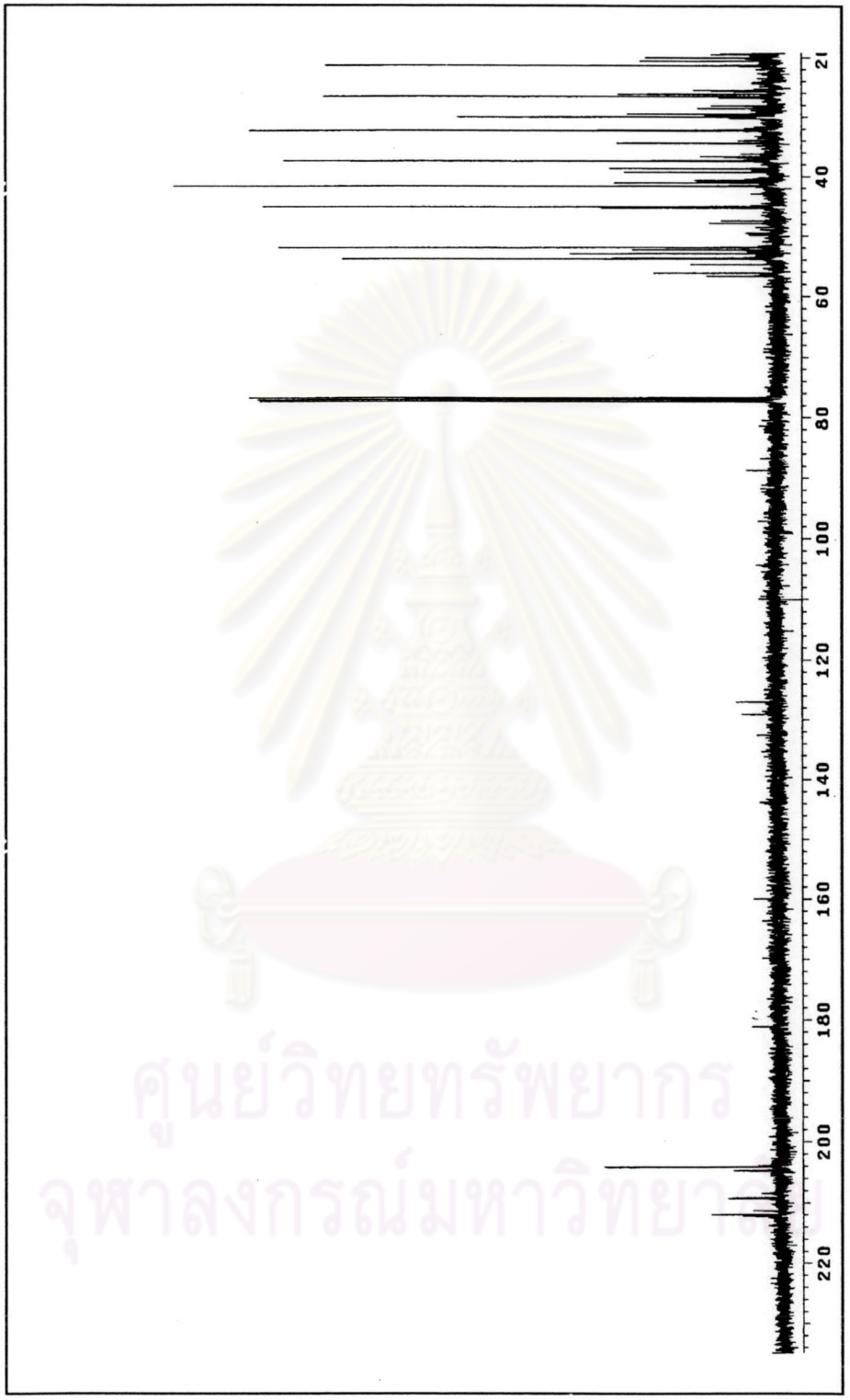

Figure 23 The ^{13}C-NMR spectrum of compound 1

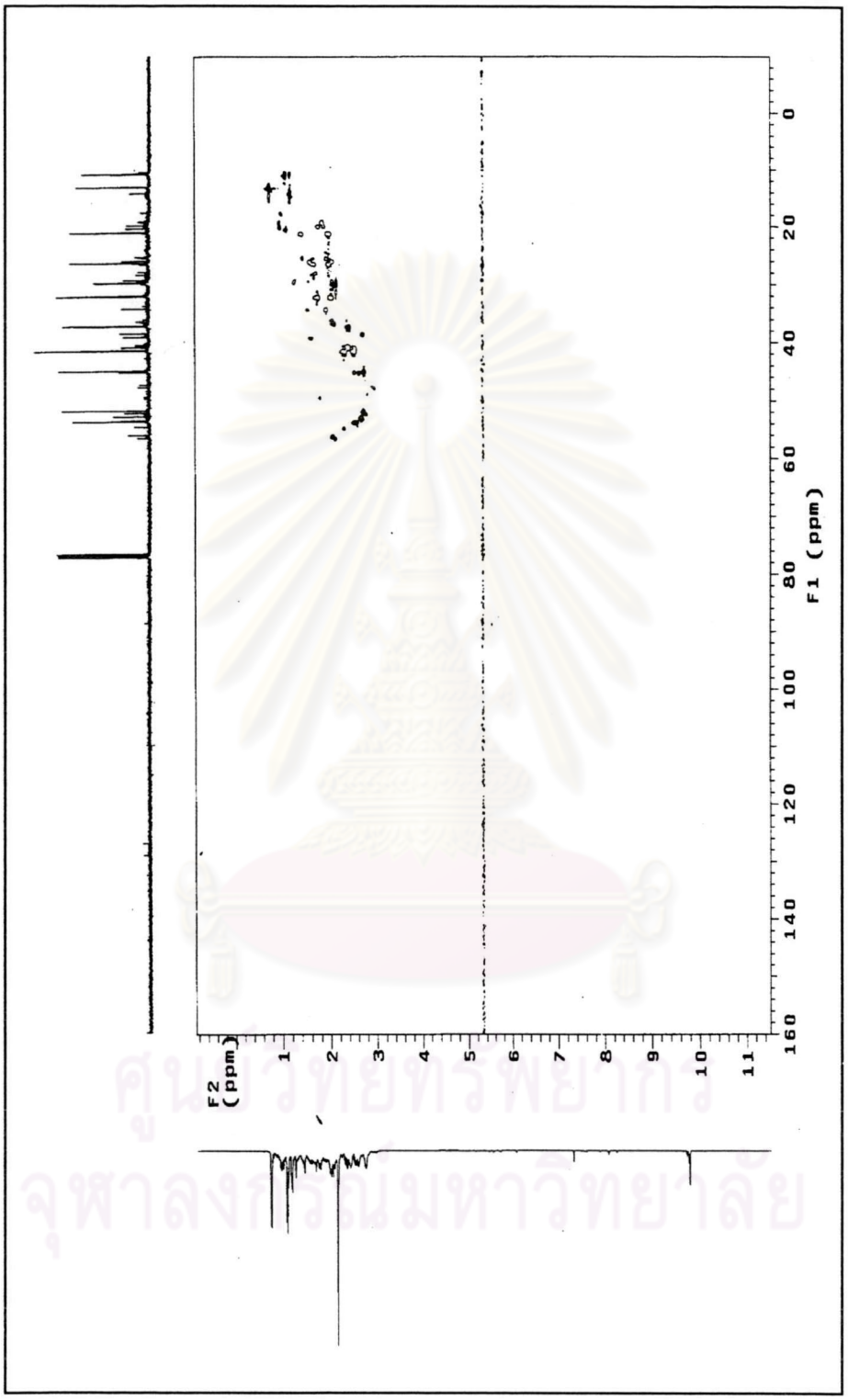

Figure 24 The HSQC-NMR spectrum of compound 1

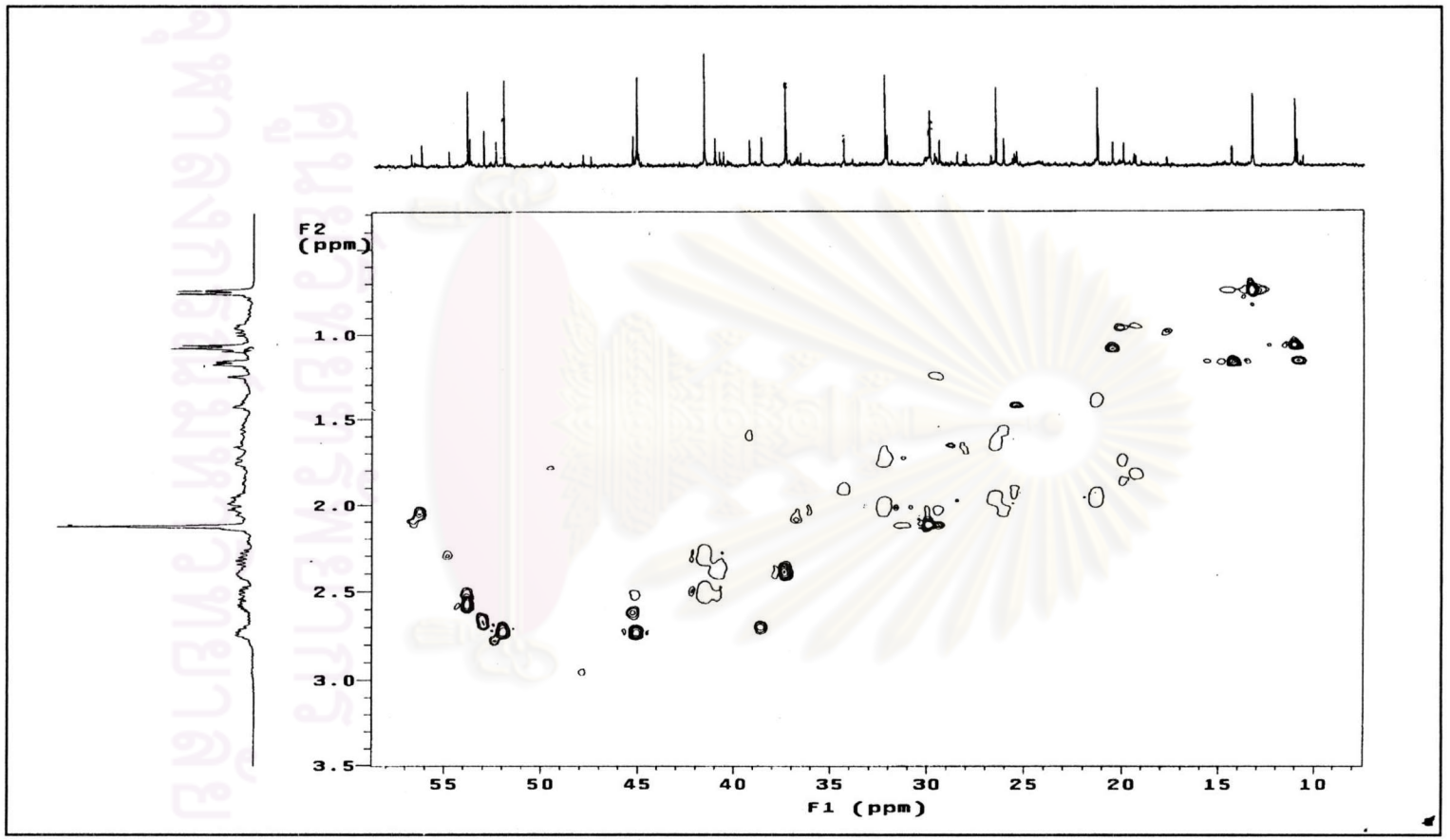

Figure 25 The HSQC-NMR spectrum of compound 1

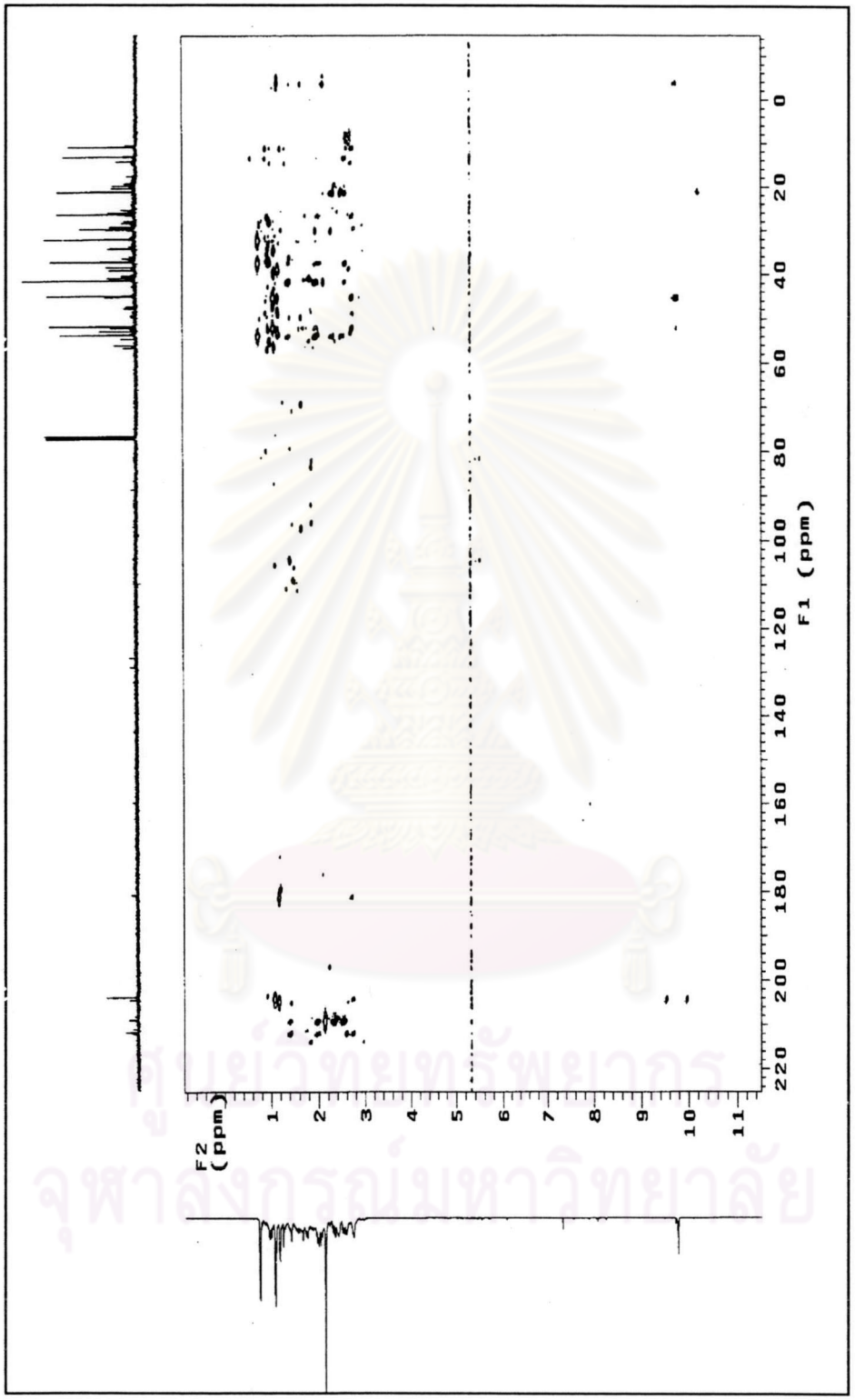

Figure 26 The HMBC-NMR spectrum of compound 1

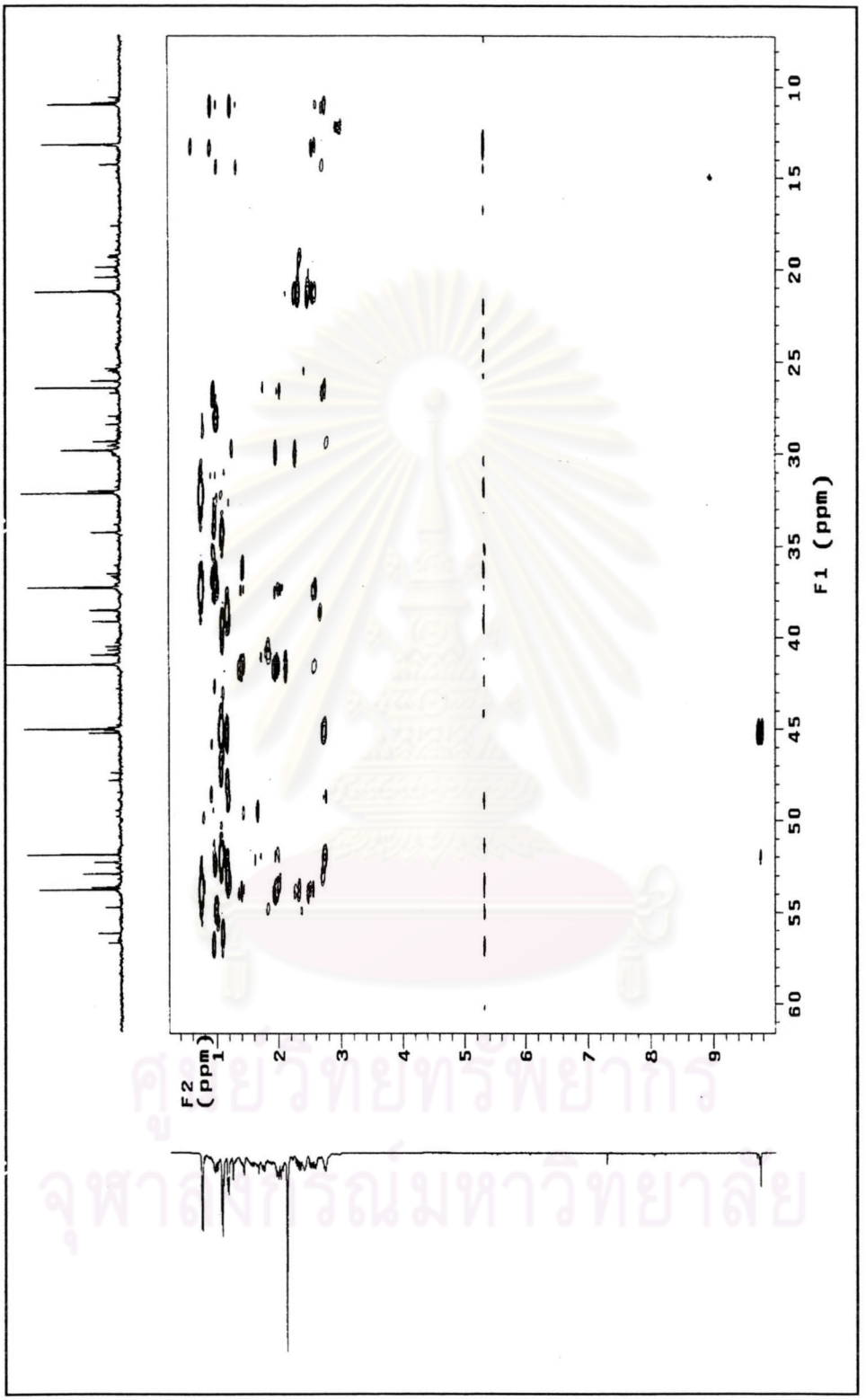

Figure 27 The HMBC-NMR spectrum of compound 1

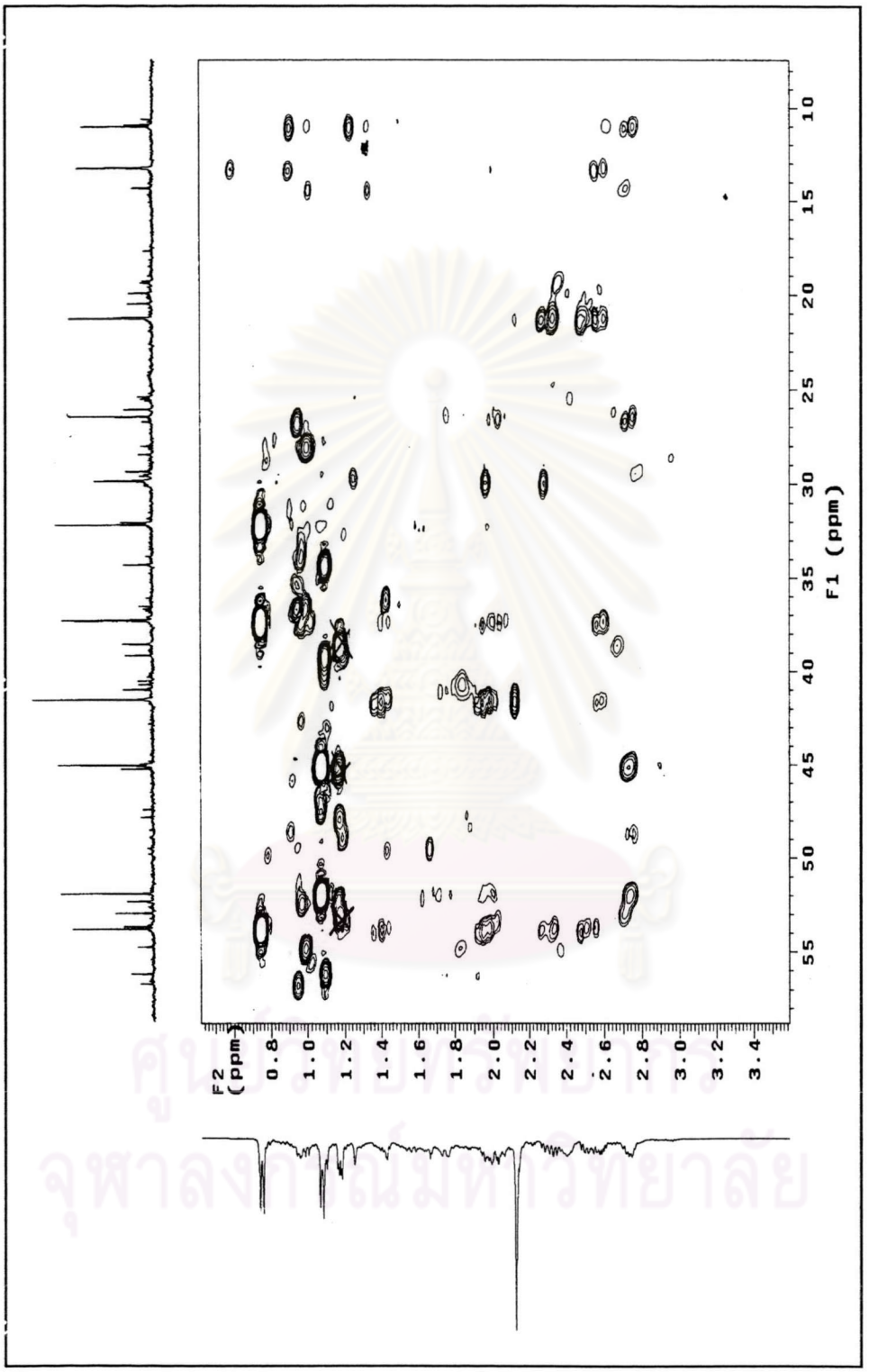

Figure 28 The HMBC-NMR spectrum of compound 1

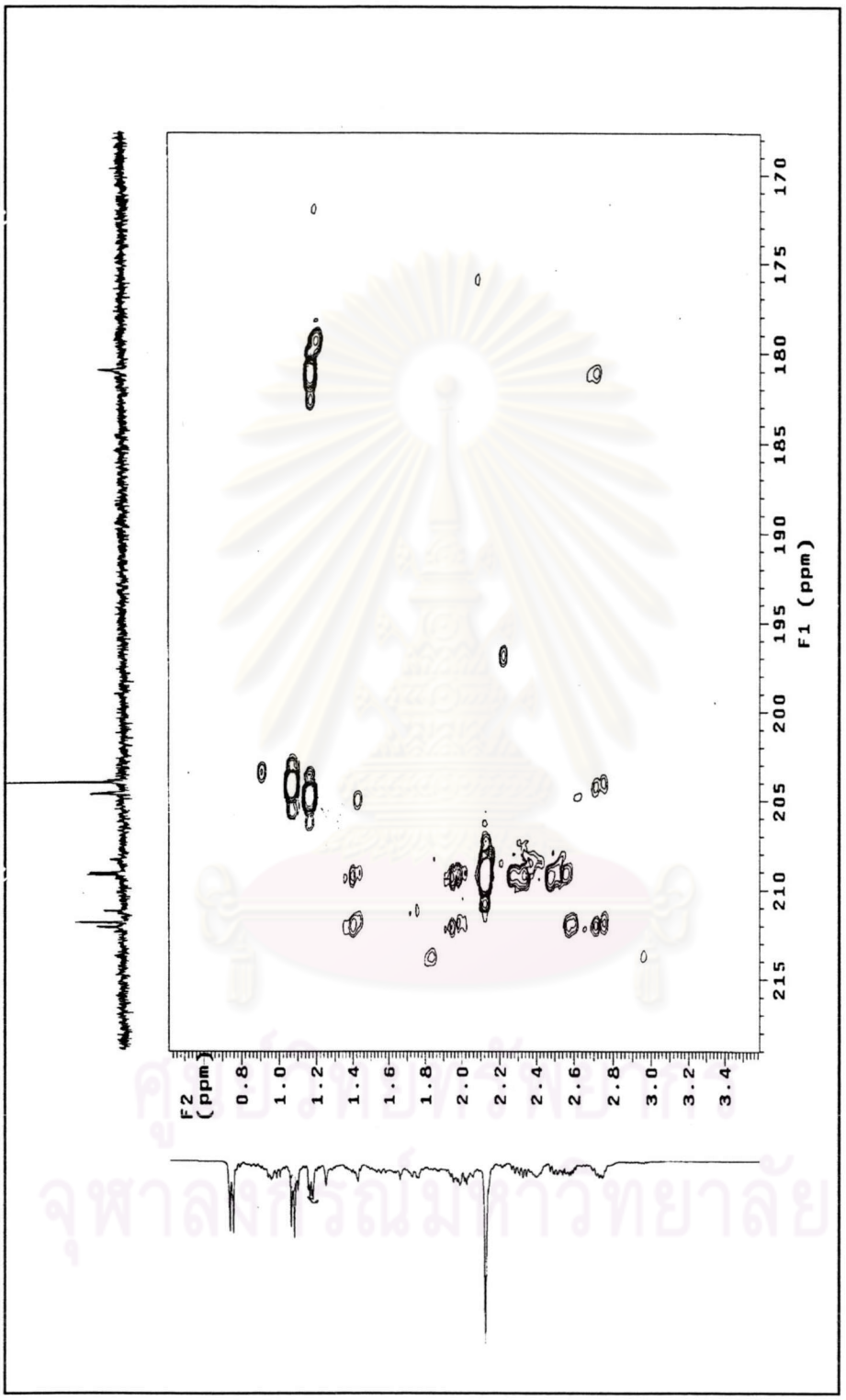

Figure 29 The HMBC-NMR spectrum of compound 1

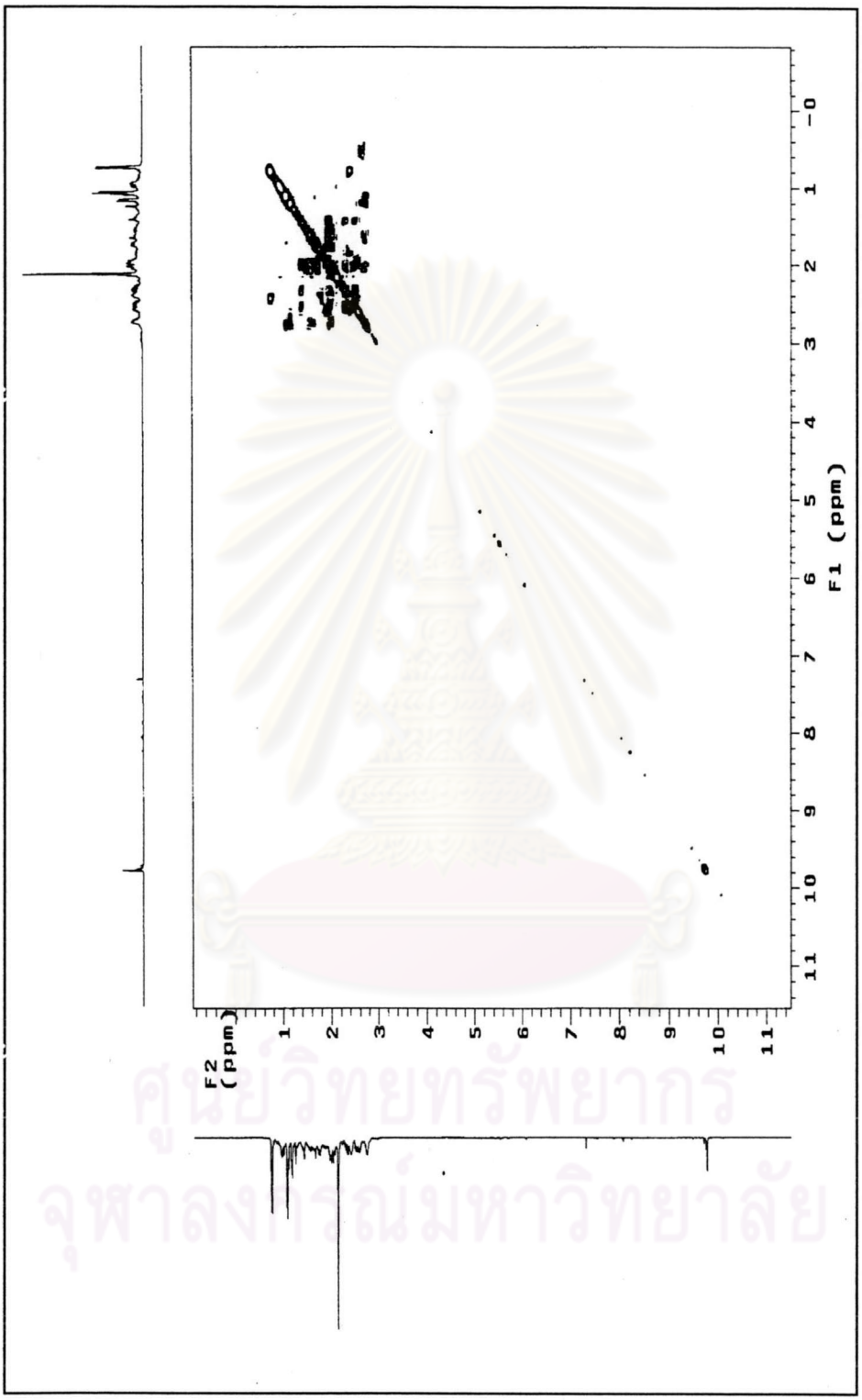

Figure 30 The COSY-NMR spectrum of compound 1

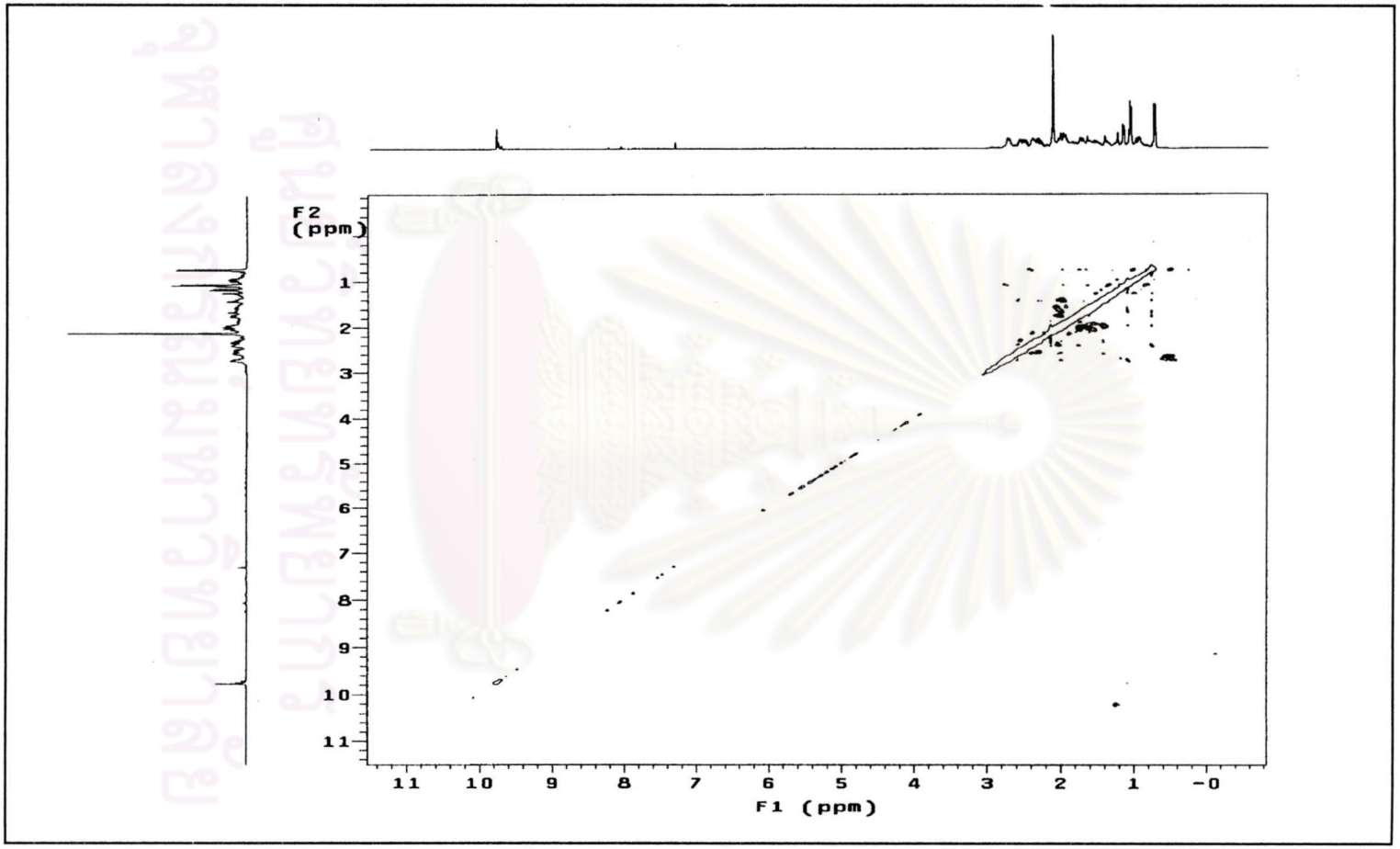

Figure 31 The NOESY-NMR spectrum of compound 1

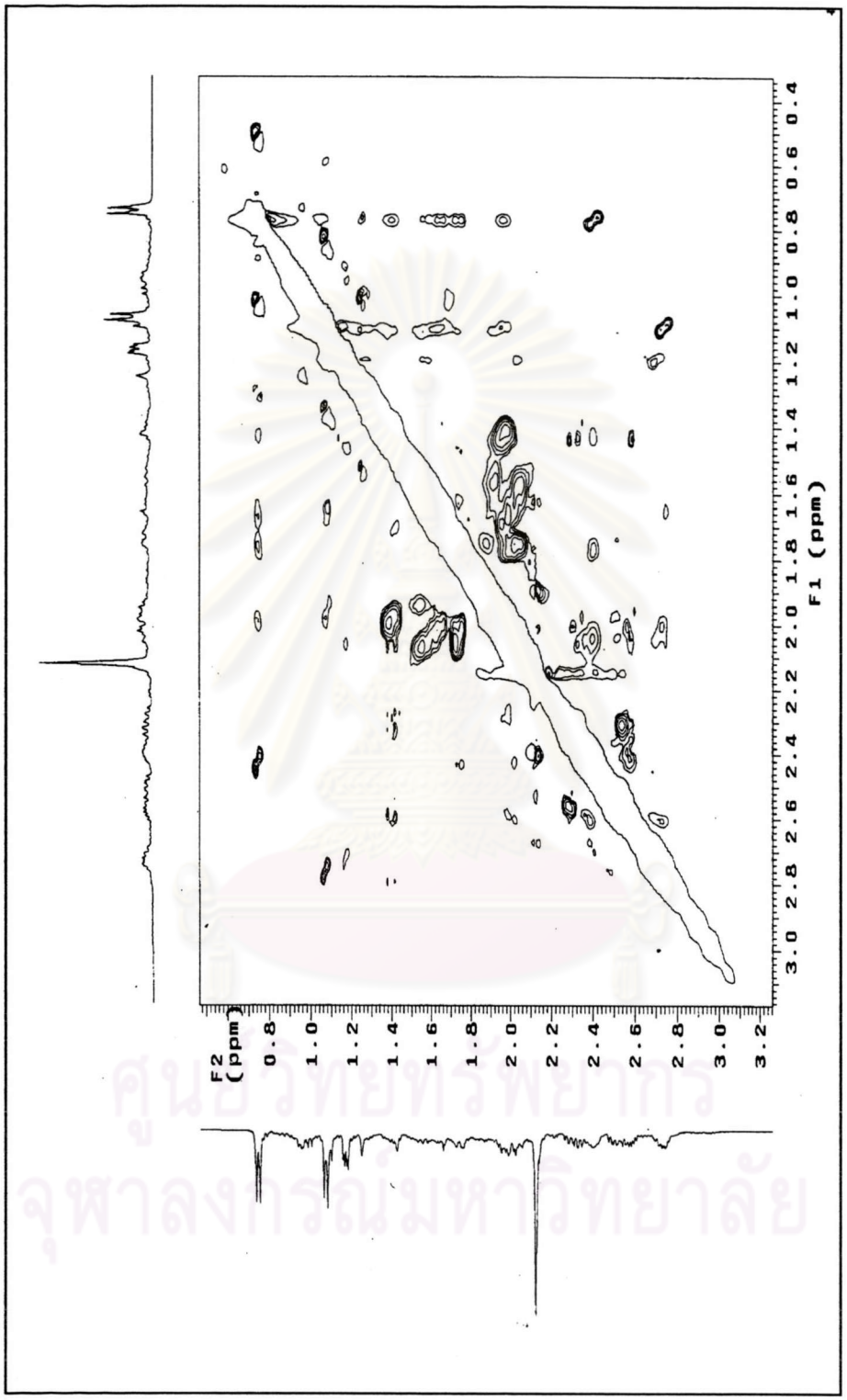

Figure 32 The NOESY-NMR spectrum of compound 1

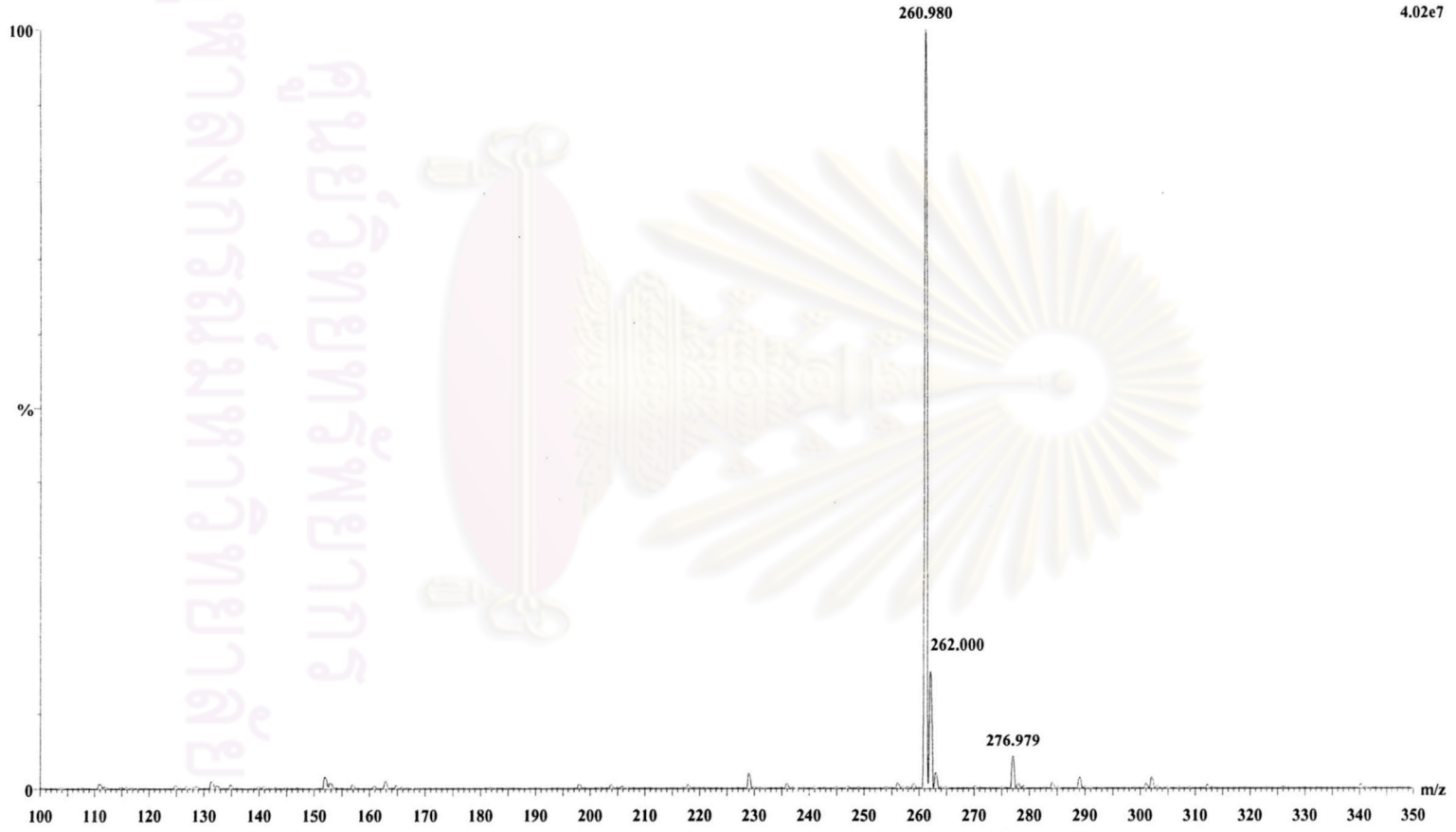

Figure 33 The ESI-Mass spectrum of compound 1

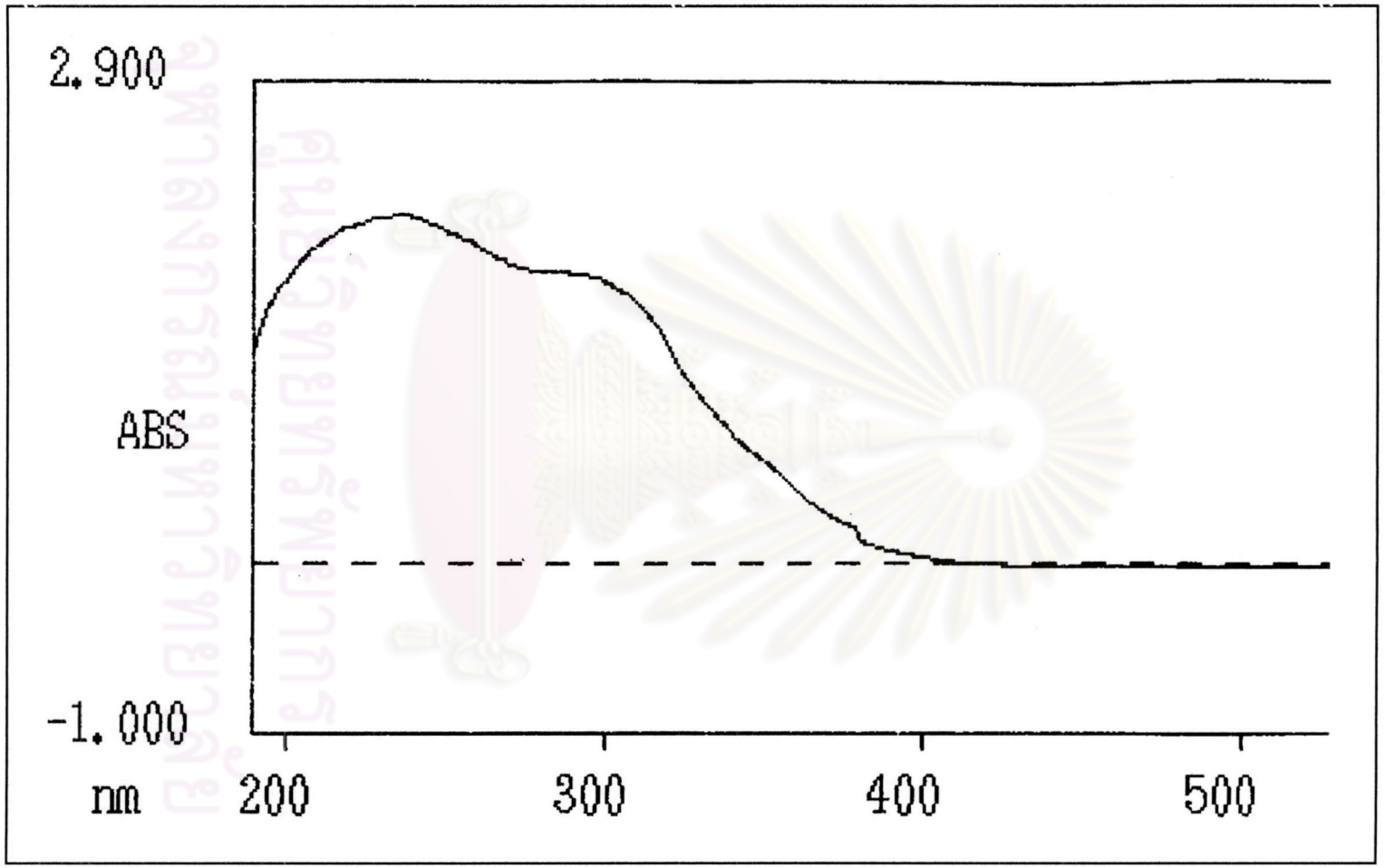

Figure 34 The UV spectrum of compound 2

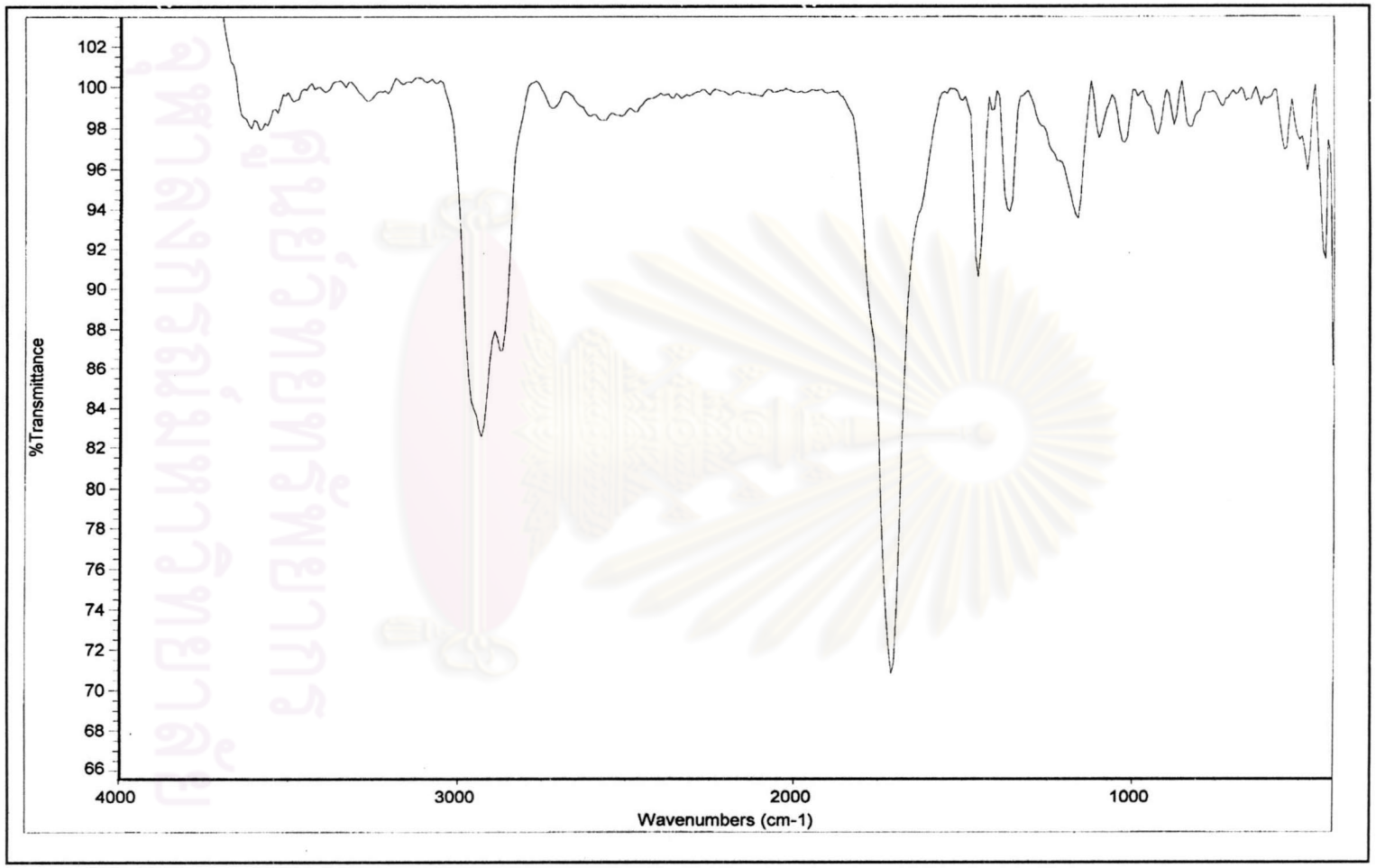

Figure 35 The IR spectrum of compound 2

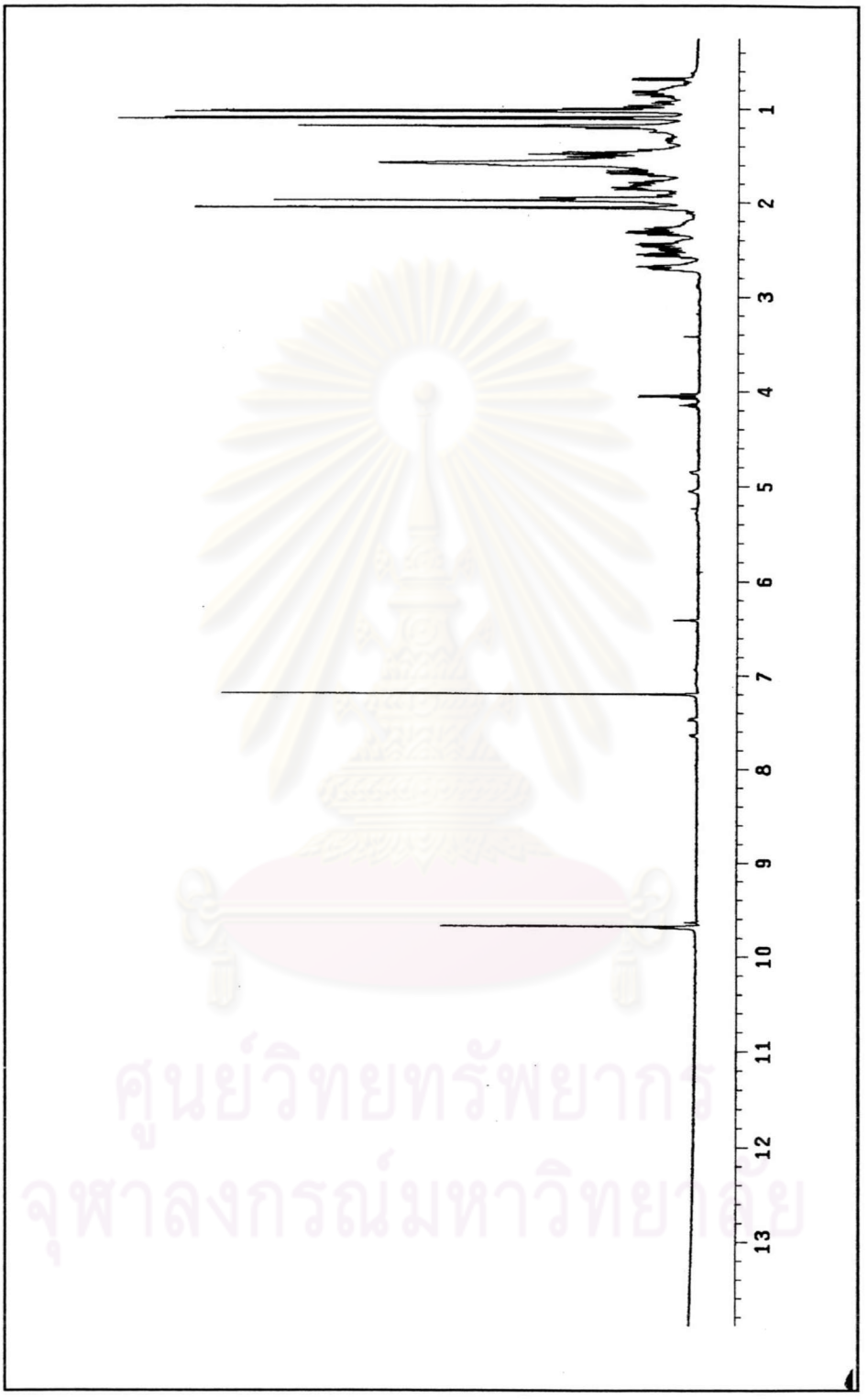

Figure 36 The ^{1}H-NMR spectrum of compound 2

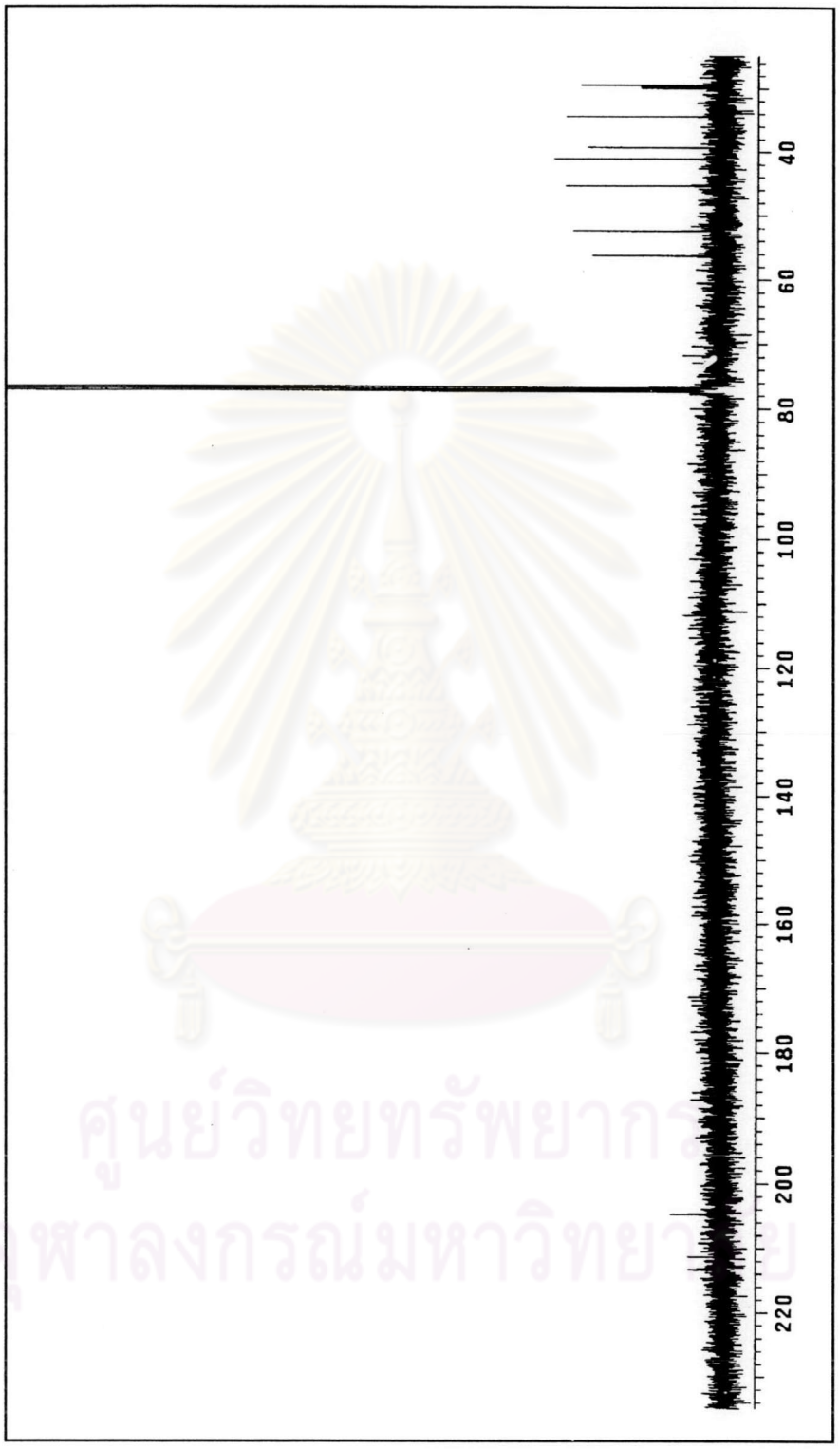

Figure 37 The ^{1}C-NMR spectrum of compound 2

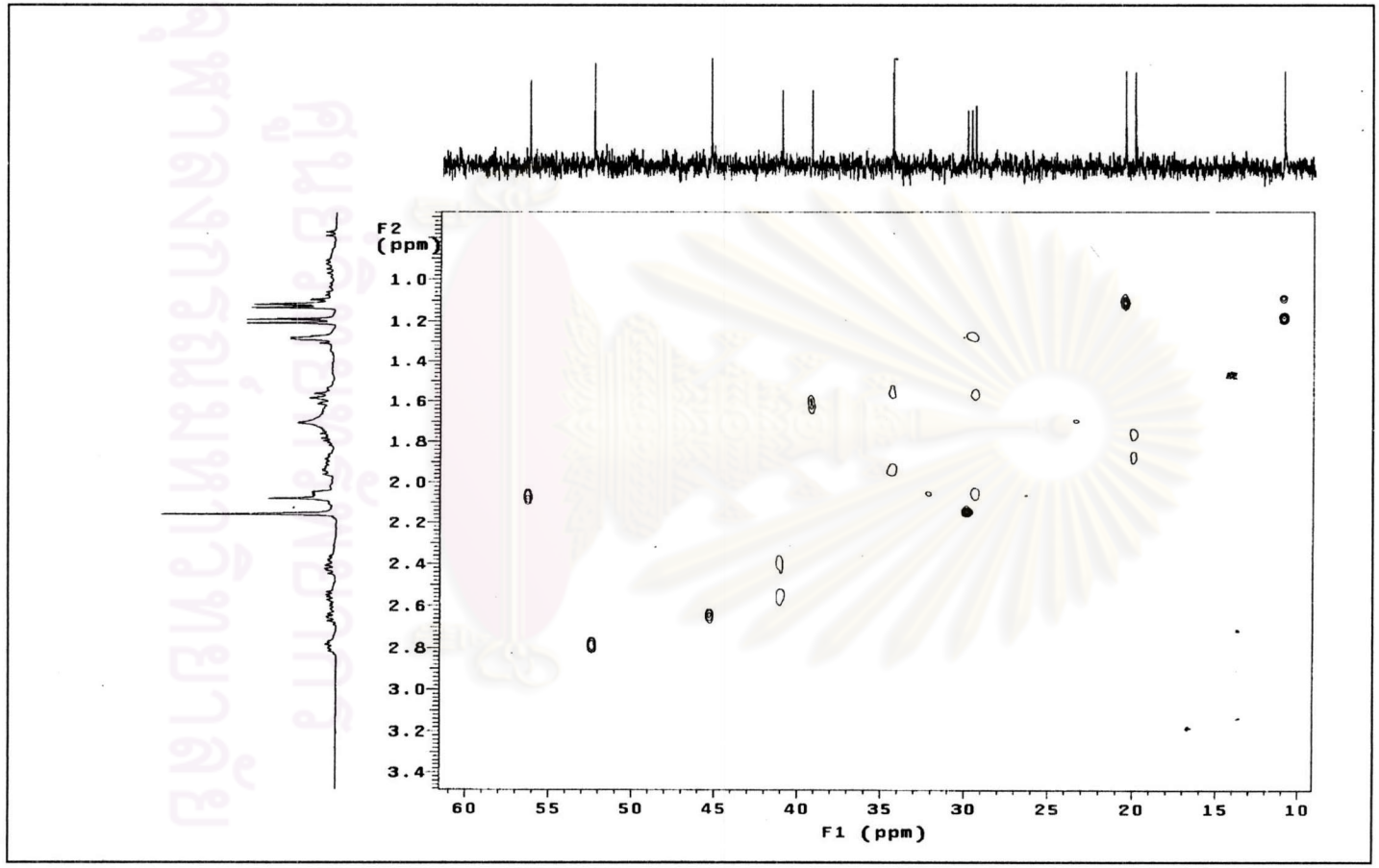

Figure 38 The HSQC-NMR spectrum of compound 2

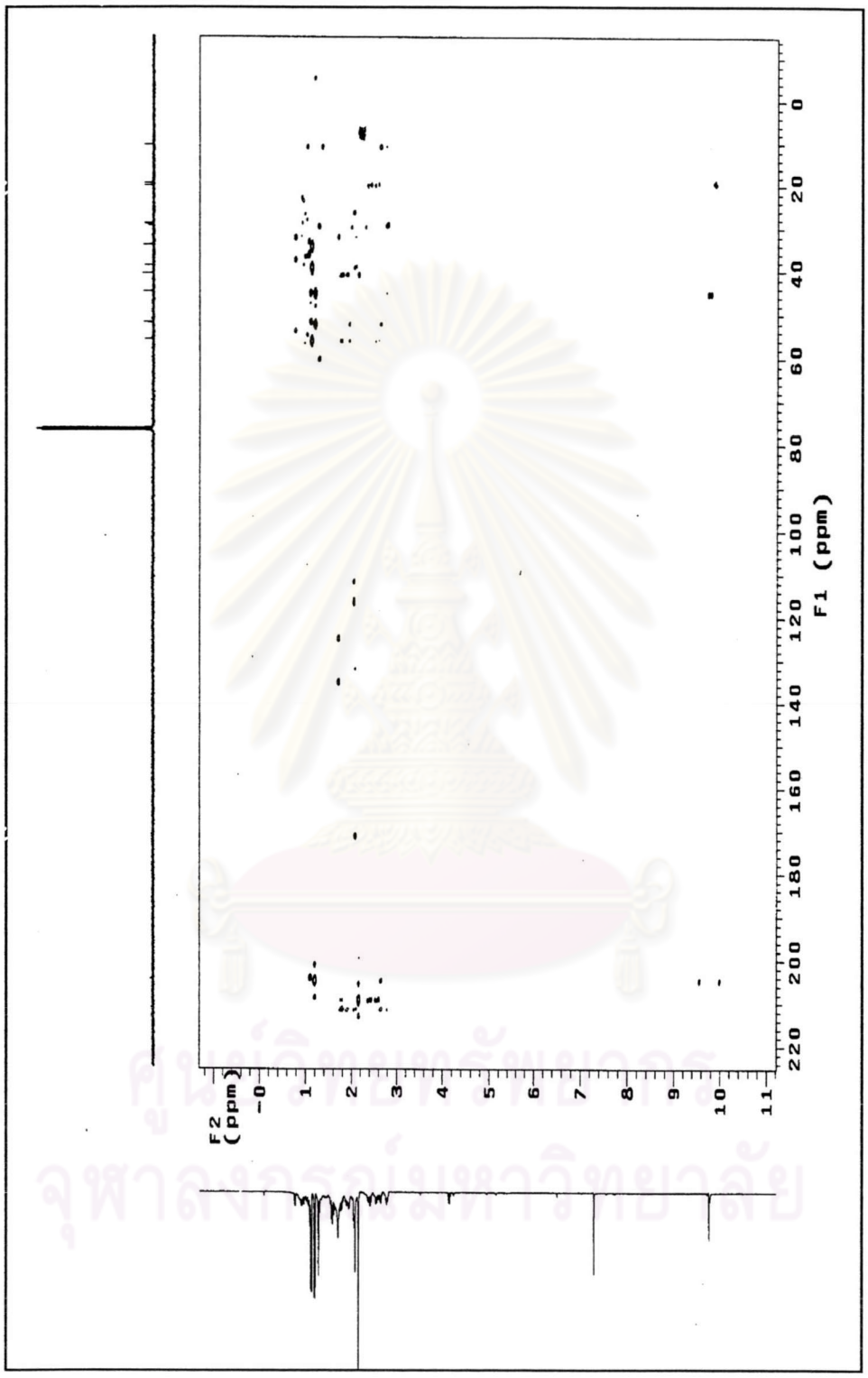

Figure 39 The HMBC-NMR spectrum of compound 2

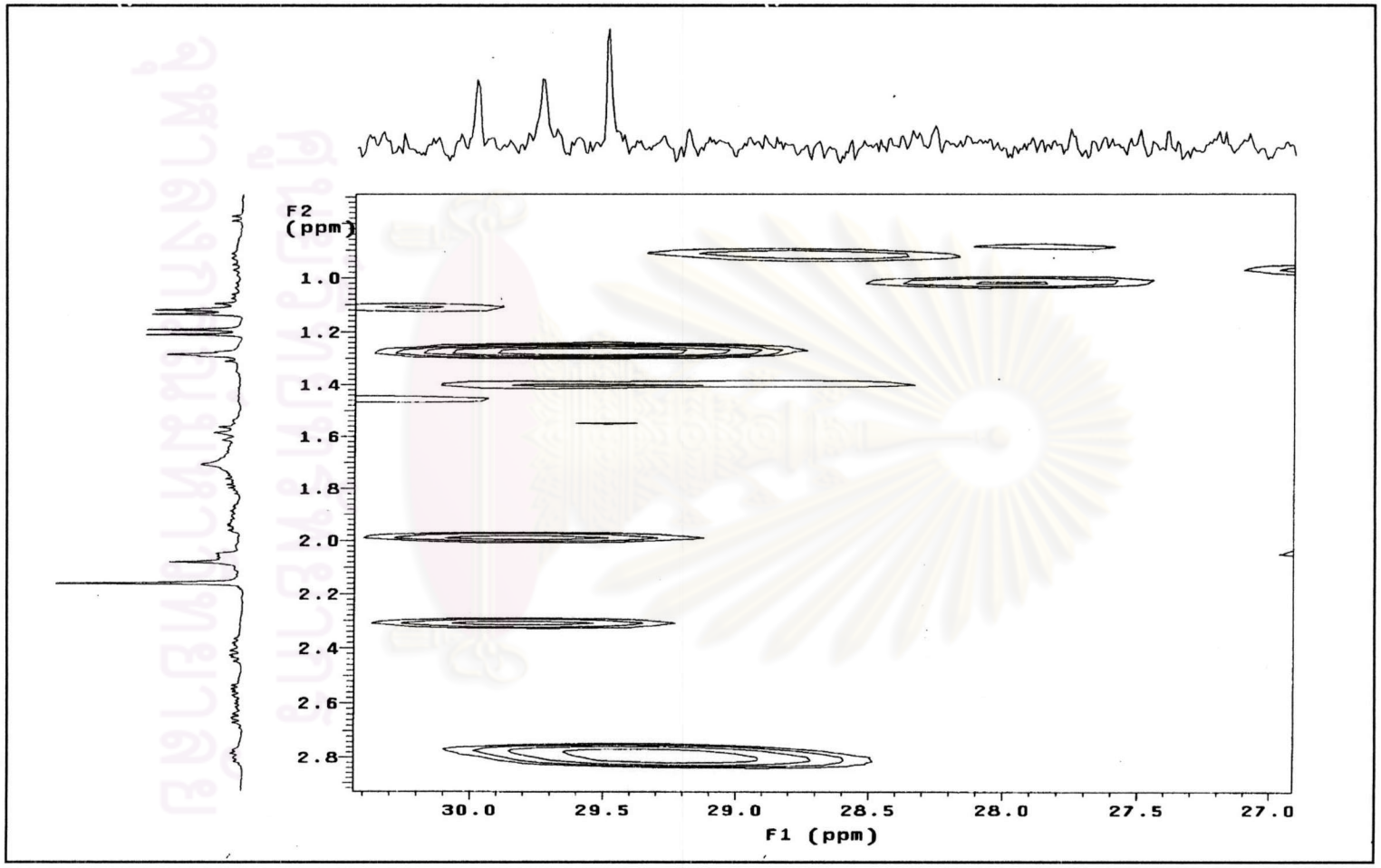

Figure 40 The HMBC-NMR spectrum of compound 2

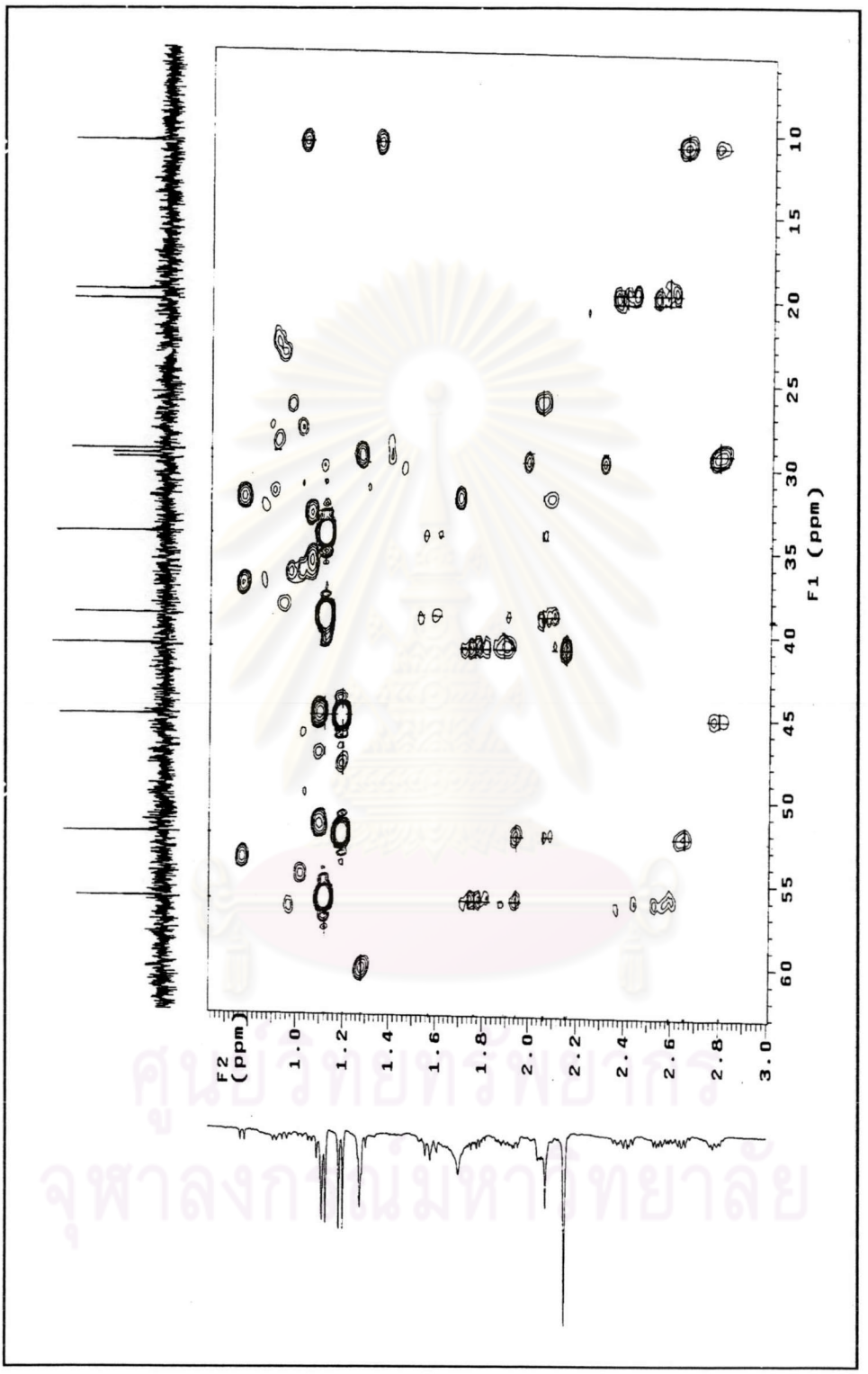

Figure 41 The HMBC-NMR spectrum of compound 2

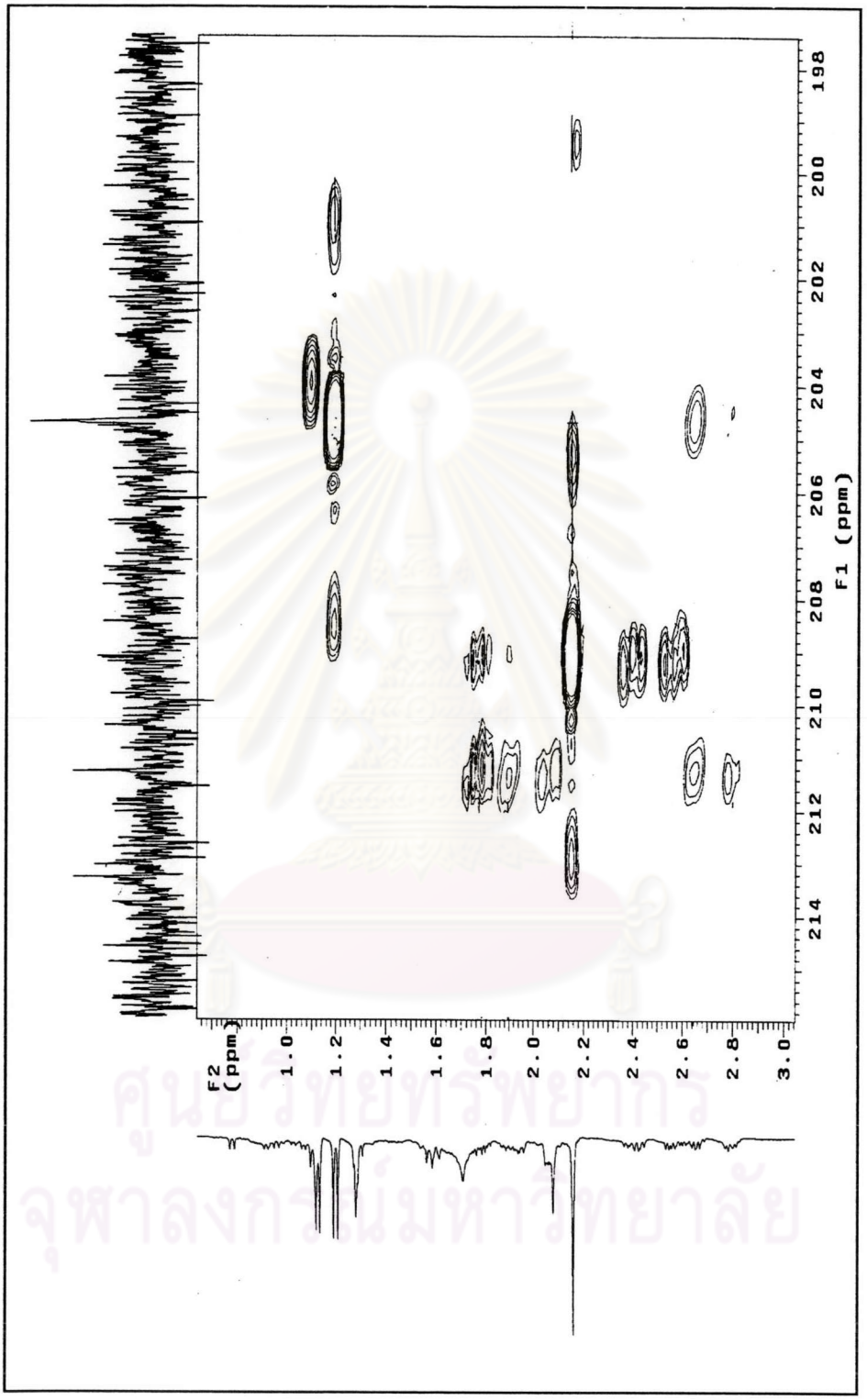

Figure 42 The HMBC-NMR spectrum of compound 2

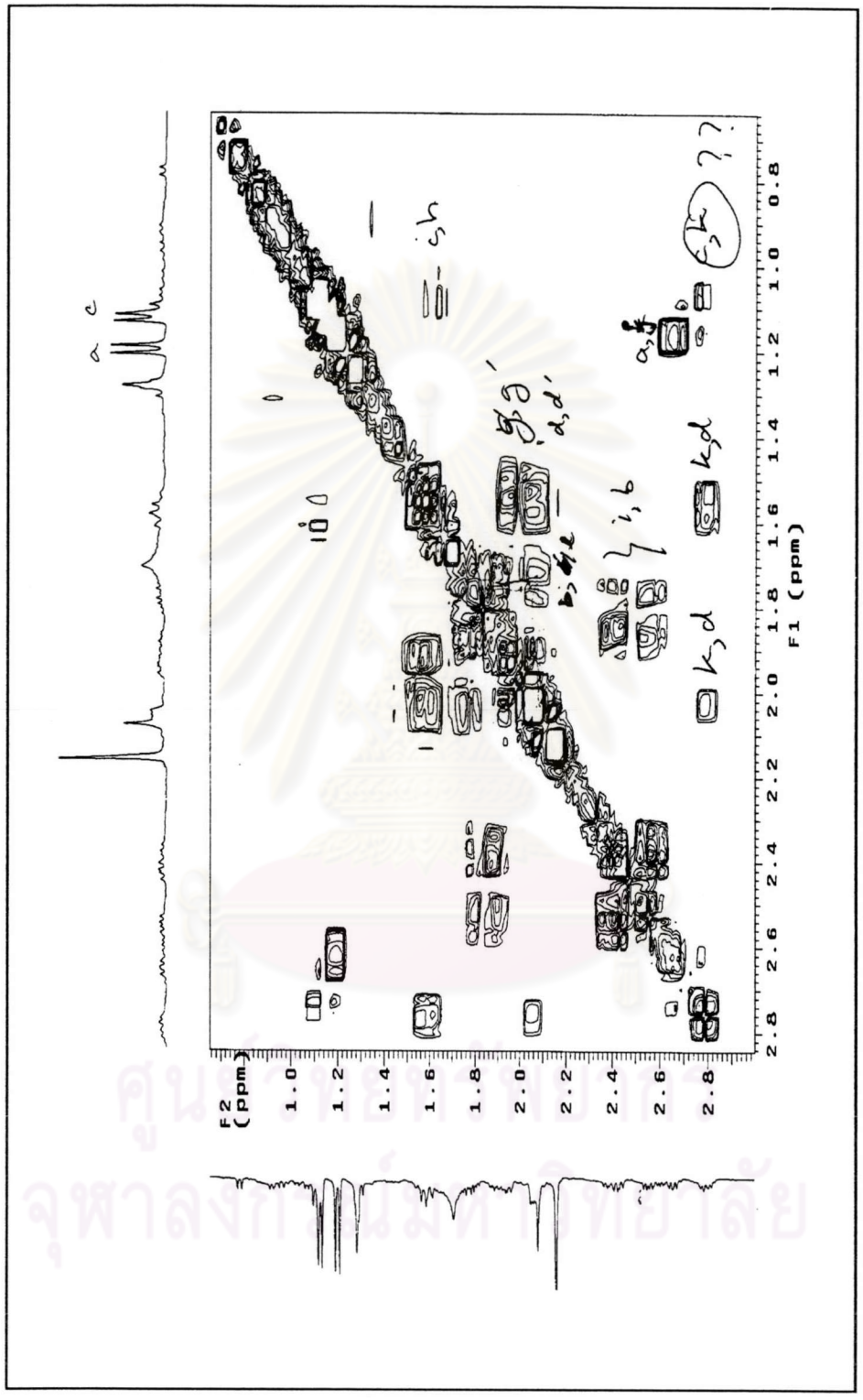

Figure 43 The COSY-NMR spectrum of compound 2

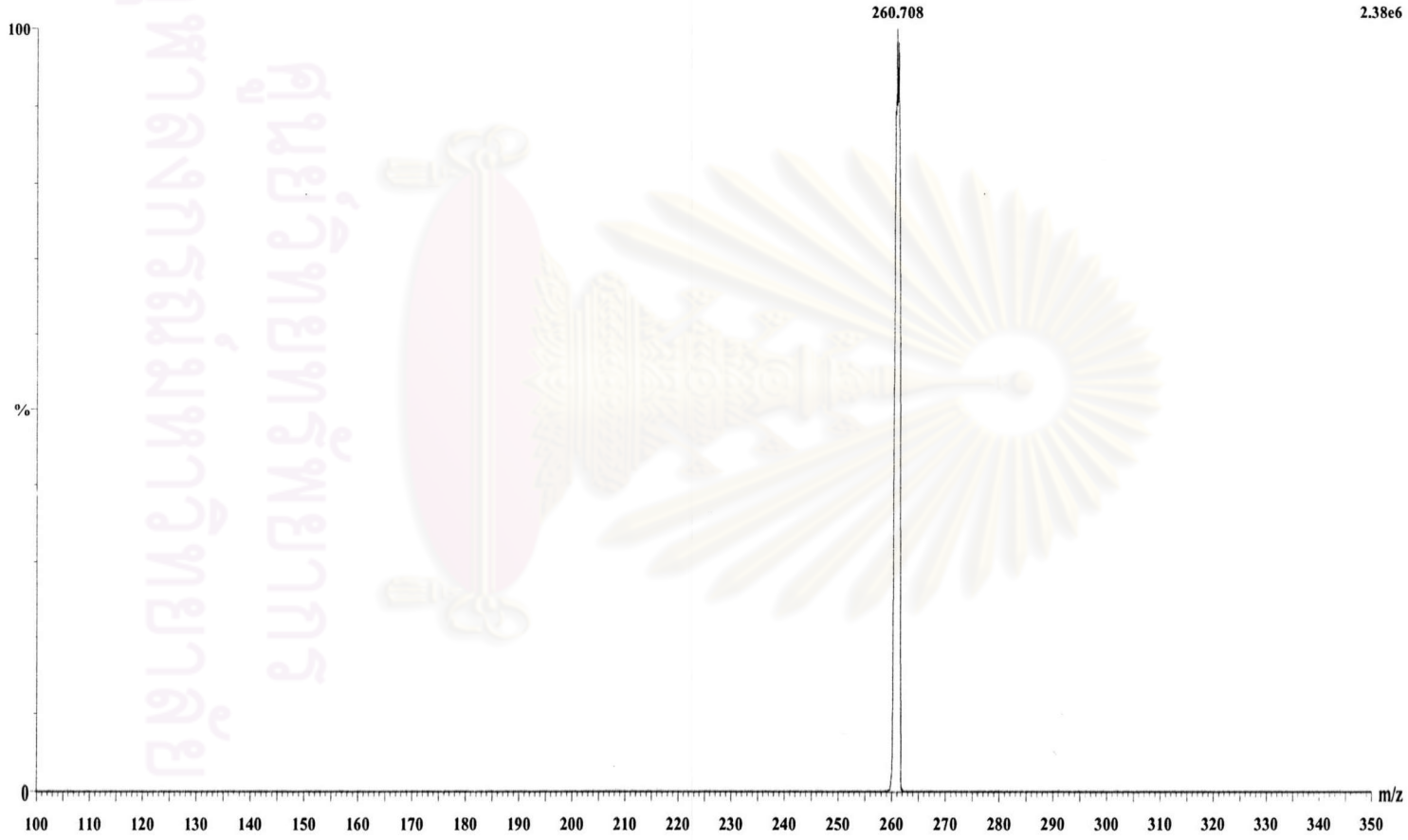

Figure 44 The ESI Mass spectrum of compound 2

APPENDIX B

Table 10 IC_{50}'s of DHA and impurities with 8 cell lines

Cell lines	130603		300403		121101	
	IC_{50} (μg/ml)	STDEVP	IC_{50} (μg/ml)	STDEVP	IC_{50} (μg/ml)	STDEVP
3T3	53	17	11	3	10	1
L929	45	11	32	6	12	3
BHK	49	14	57	2	60	4
IEC-6	66	11	5	0	5	0
Vero	68	9	6	0.4	6	0
HepG2	37	13.5	21	2	26.5	5
Caco2	93	6	51	3	46.5	7
MCF7	41	9	38	3	36	5.5

Table 11 IC_{50}'s of DHA; fresh drug (300403) with 8 cell lines

Cell lines	1st experiment		2nd experiment		Average	
	IC_{50} (µg/ml)	STDEVP	IC_{50} (µg/ml)	STDEVP	IC_{50} (µg/ml)	STDEVP
3T3	13.5	1	9	1	11	3
L929	37.5	1	26.5	1	32	6
BHK	59	2	56	0.5	57	2
IEC-6	5	0	5	0	5	0
Vero	6	0.4	6	0.4	6	0.4
HepG2	19	1	23	0.5	21	2
Caco2	50	3	52	2	51	3
MCF7	38	3	38	2.5	38	3

Table 12 IC_{50}'s of DHA; stored drug (121101) with 8 cell lines

Cell lines	1st experiment		2nd experiment		Average	
	IC_{50} (µg/ml)	STDEVP	IC_{50} (µg/ml)	STDEVP	IC_{50} (µg/ml)	STDEVP
3T3	10	1	11	1	10	1
L929	9	1	15	2	12	3
BHK	64	1	57	2	60	4
IEC-6	4.5	0	5	0	5	0
Vero	6	0	6	0	6	0
HepG2	23	2	30	4	26.5	5
Caco2	47	0.5	46	9.5	46.5	7
MCF7	32	2	40	5	36	5.5

Table 13 IC_{50}'s of impurities (130603) with 8 cell lines

Cell lines	1st experiment		2nd experiment		3rd experiment	
	IC_{50} (µg/ml)	STDEVP	IC_{50} (µg/ml)	STDEVP	IC_{50} (µg/ml)	STDEVP
3T3	37.5	7	60	0.25	76.5	0.5
L929	nd	nd	56	3	34	3
BHK	37	2	66	2	nd	nd
IEC-6	nd	nd	56	5	7.65	2.5
Vero	79.5	2.5	72.5	1.5	58	2
HepG2	25.5	0.5	54	2	27	1
Caco2	94	5	93	6	nd	nd
MCF7	51	2	nd	nd	34	3

nd: no data to be valid.

Cell lines	Average	
	IC_{50} (µg/ml)	STDEVP
3T3	53	17
L929	45	11
BHK	49	14
IEC-6	66	11
Vero	68	9
HepG2	37	13.5
Caco2	93	6
MCF7	41	9

Table 14 Acute toxicity test of impurities of DHA in mice

Does (g/kg)	Number of rats died up to the present time		
	Male	Female	Total
1.25	0/5	0/5	0/10
2.5	0/5	0/5	0/10
5.0	2/5	1/5	3/10
10.0	2/5	4/5	6/10
20.0	5/5	5/5	10/10
LD_{50}	8.06	7.07	7.54
95% CI	4.62-16.09	4.02-12.43	5.51-10.46

Table 15 *In vitro* activity of antimalarial drug against W2

W2	MW	IC_{50}, ng/ml		Avg	SD	% CV	n	Avg
		2/4/2004	2/11/2004	(ng/ml)				(nM)
DHA std	284.4	0.575	0.70	0.64			2	2.25
DHA T2 old	284.4	0.8297		0.83				
DHA T2 new	284.4	0.6722		0.67				
Impurities	238	48.0032	64.25	56.13			2	.235.8
CQ	515.9	20.3436	NA	20.34			1	39.4
MQ	414.8	17.4118	NA	17.41			1	42.0
Qn	648.8	284.385	NA	284.4				438.3

Table 16 *In vitro* activity of antimalarial drug against D6

D6	MW	IC_{50}, ng/ml		Avg (ng/ml)	SD	% CV	n	Avg (nM)
		2/4/2004	2/11/2004					
DHA std	284.4	0.273	0.374	0.324	0.071	22.1	2	1.138
DHA T2 old	284.4	0.417		0.417	##DIV	##DIV	1	1.465
DHA T2 new	284.4	0.319		0.319	##DIV	##DIV	1	1.123
Impurities	238	23.080	23.9	23.490	0.580	2.5	2	98.0
CQ	515.9	51.580	41.664	46.622	7.011	15.0	2	90.4
MQ	414.8	1.375	3.9	4.137	0.336	8.1	2	10.0
Qn	648.8	107.029	101.338	104.183	4.024	3.9	2	160.6

VITA

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