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APPENDICES

Appendix A

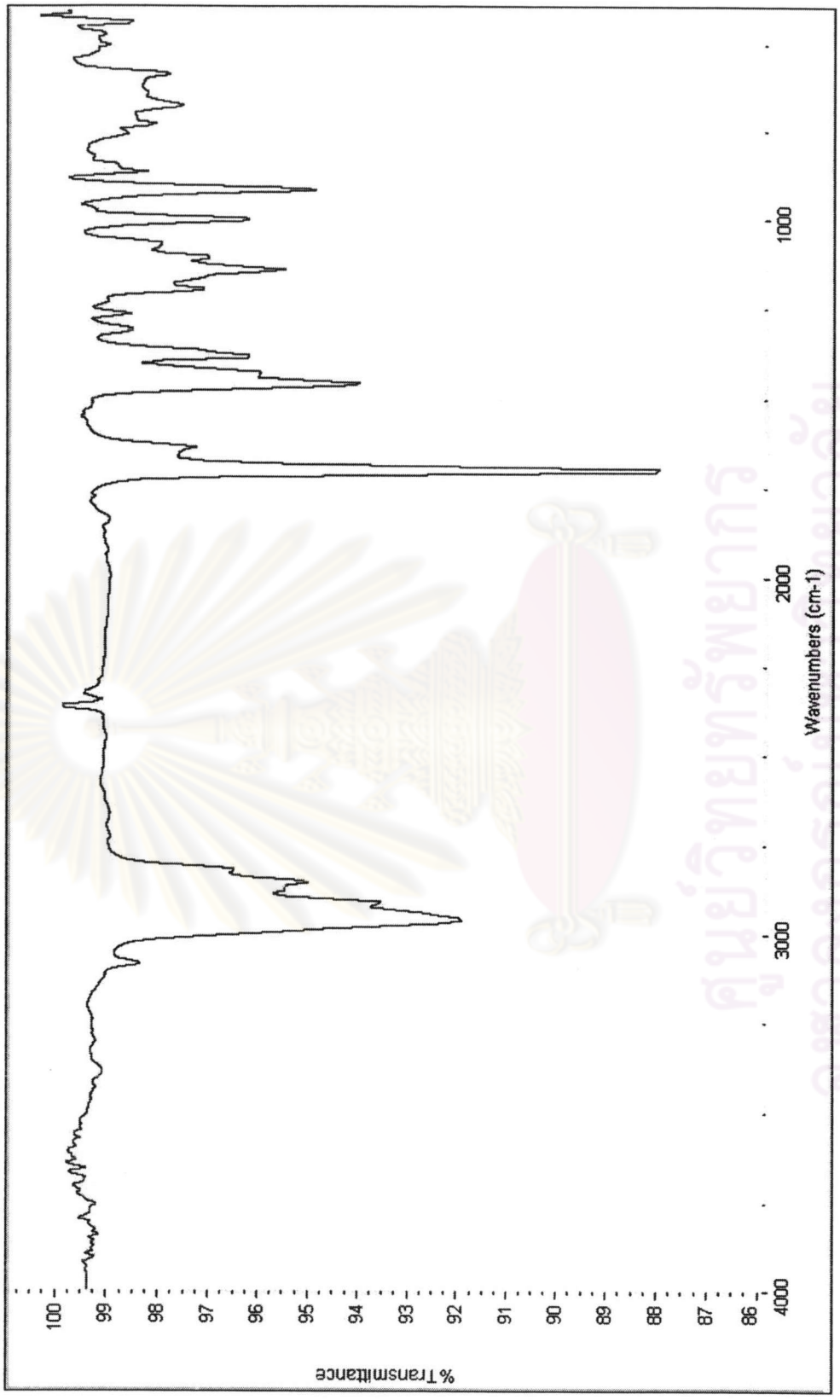

Figure 1 The FT-IR spectrum of compound **1**

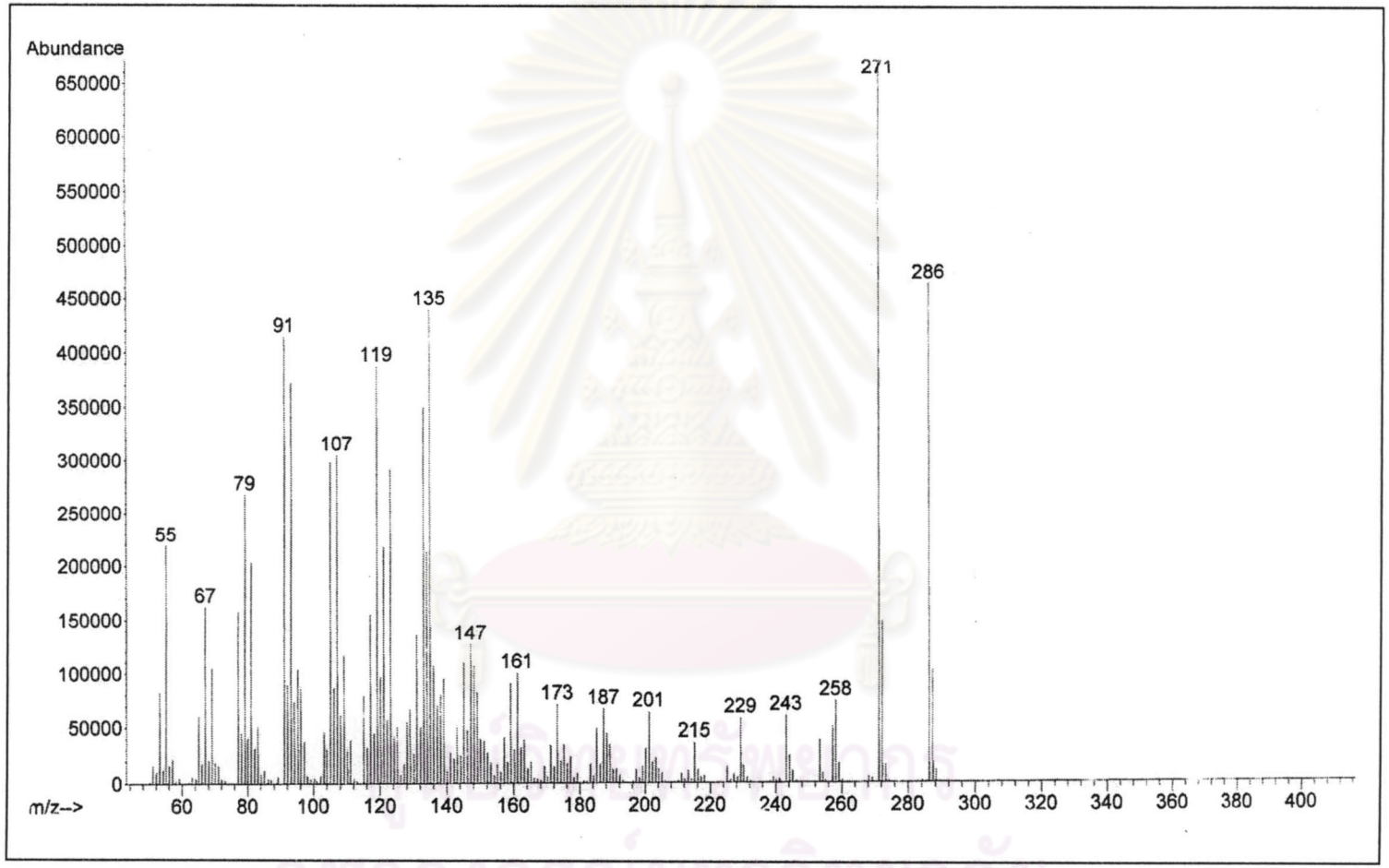

Figure 2 The mass spectrum of compound **1**

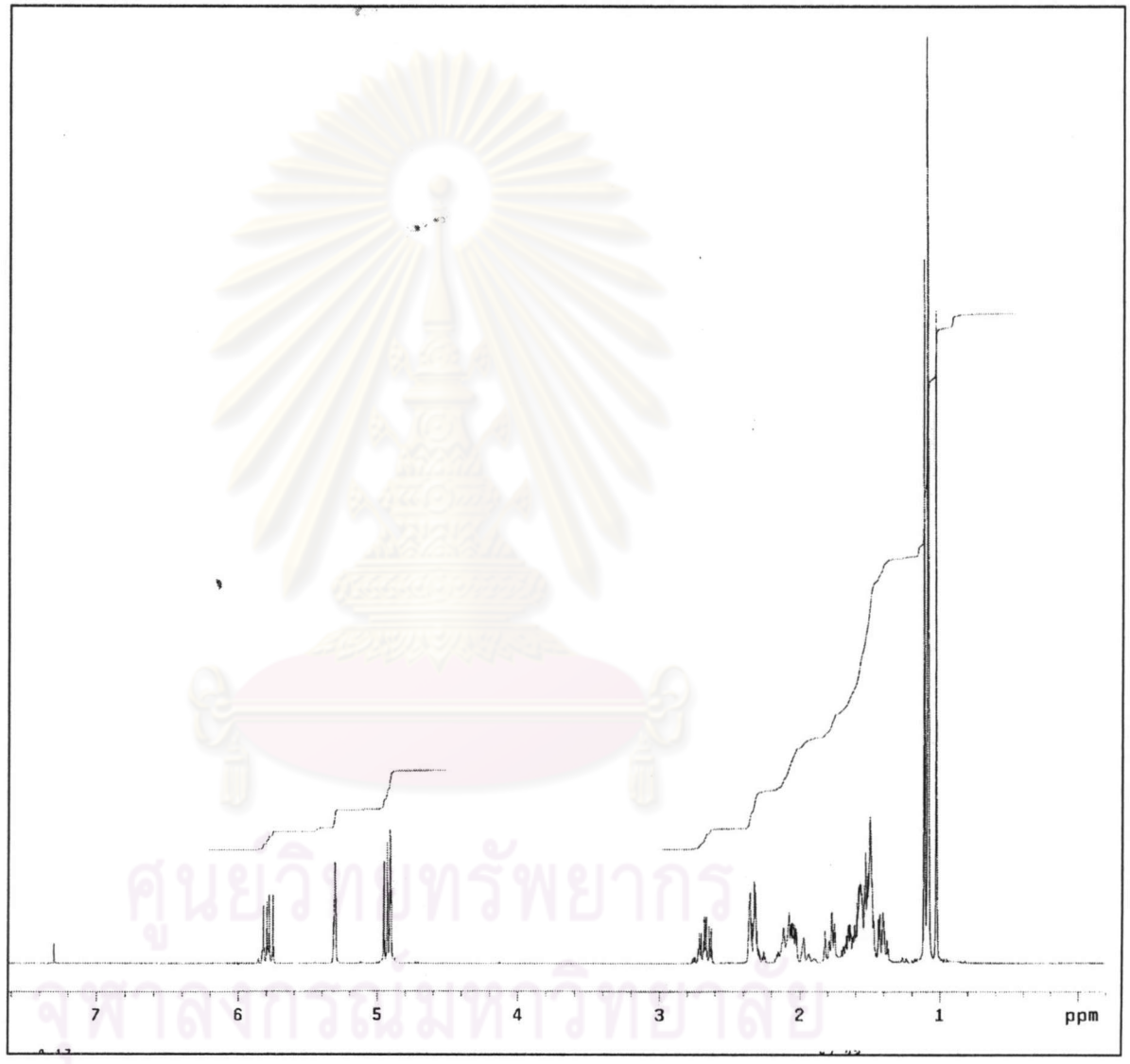

Figure 3 The ^{1}H-NMR spectrum of compound **1**

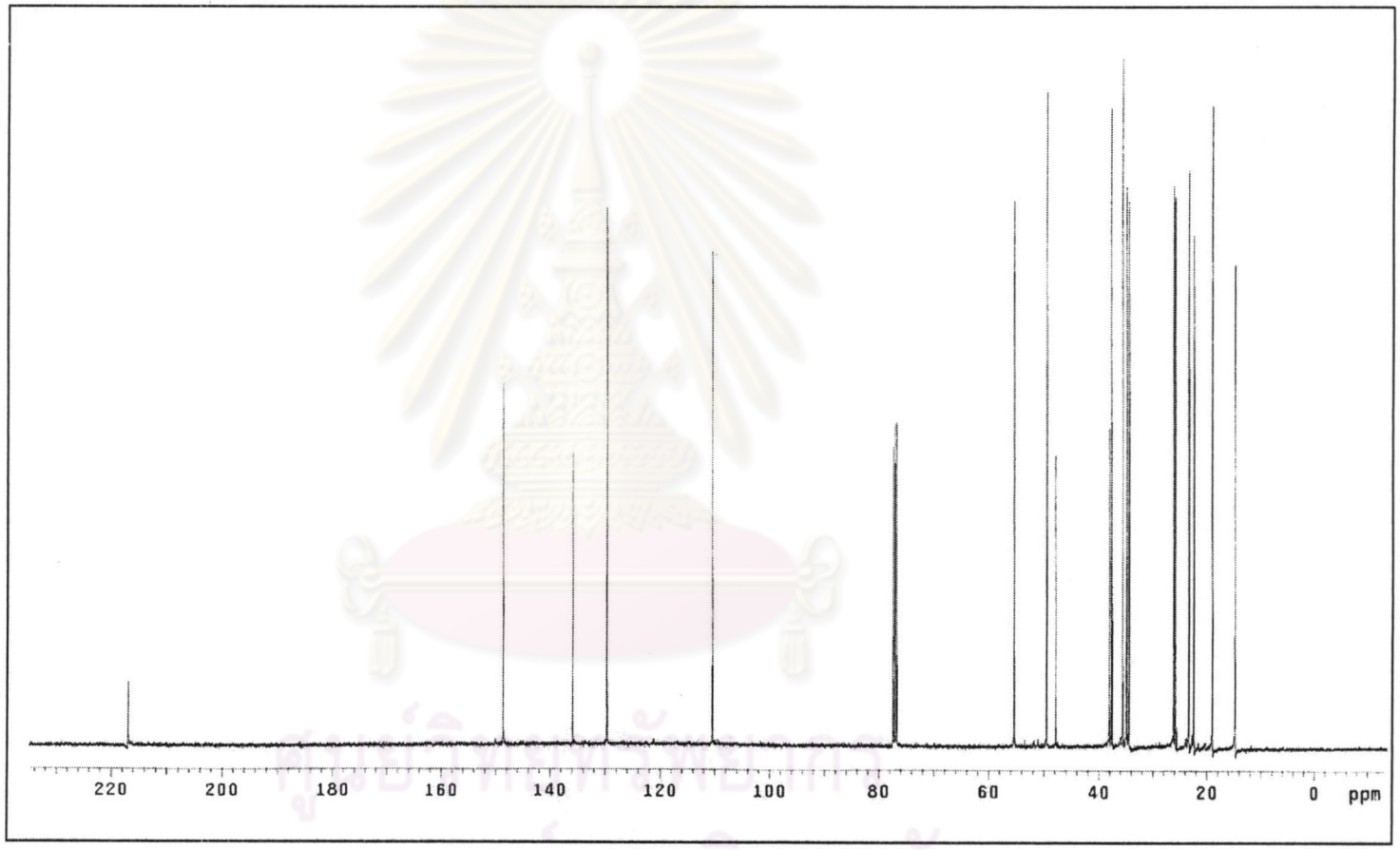

Figure 4 The ^{13}C-NMR spectrum of compound **1**

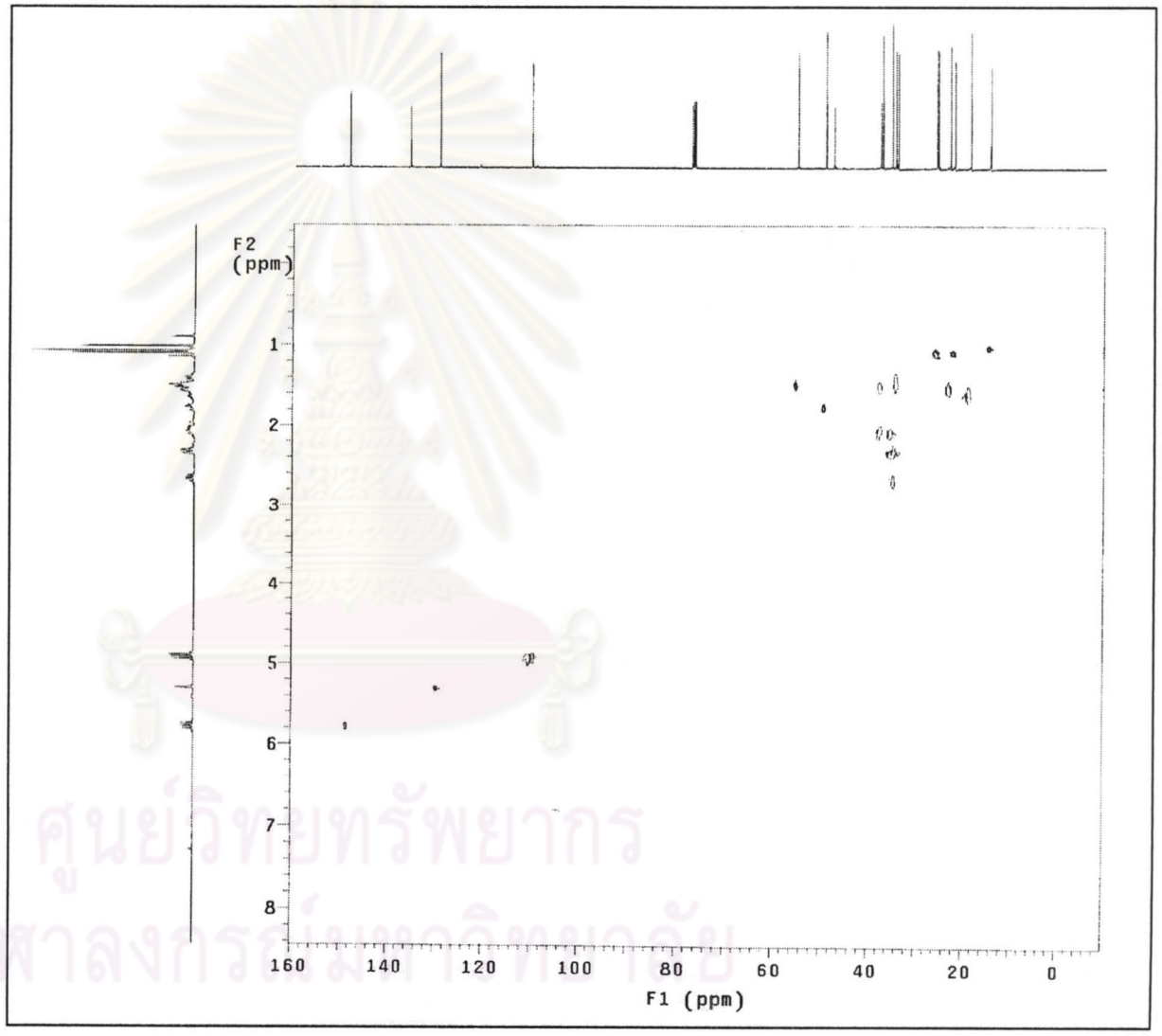

Figure 5 The HSQC spectrum of compound **1**

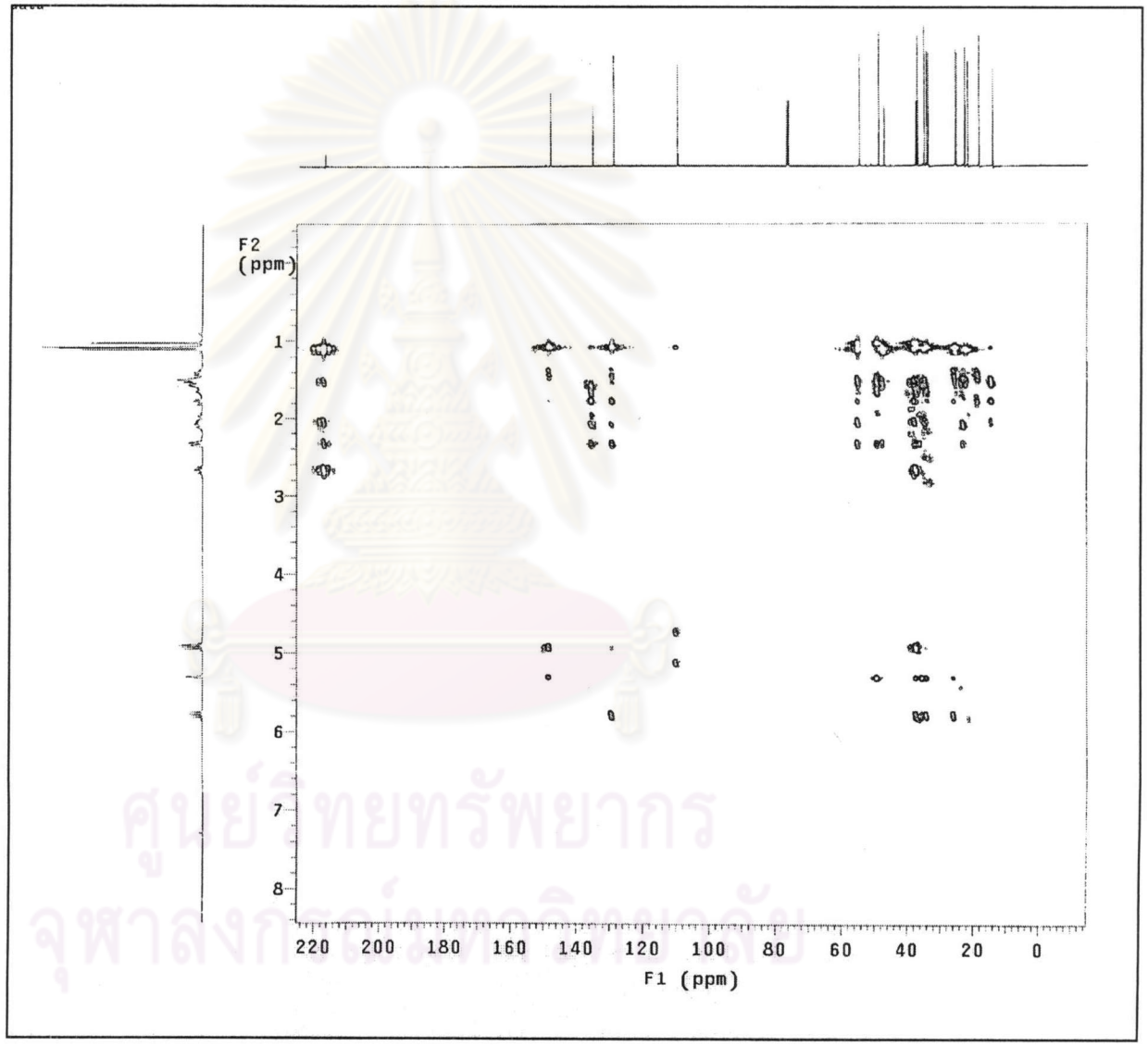

Figure 6 The HMBC spectrum of compound **1**

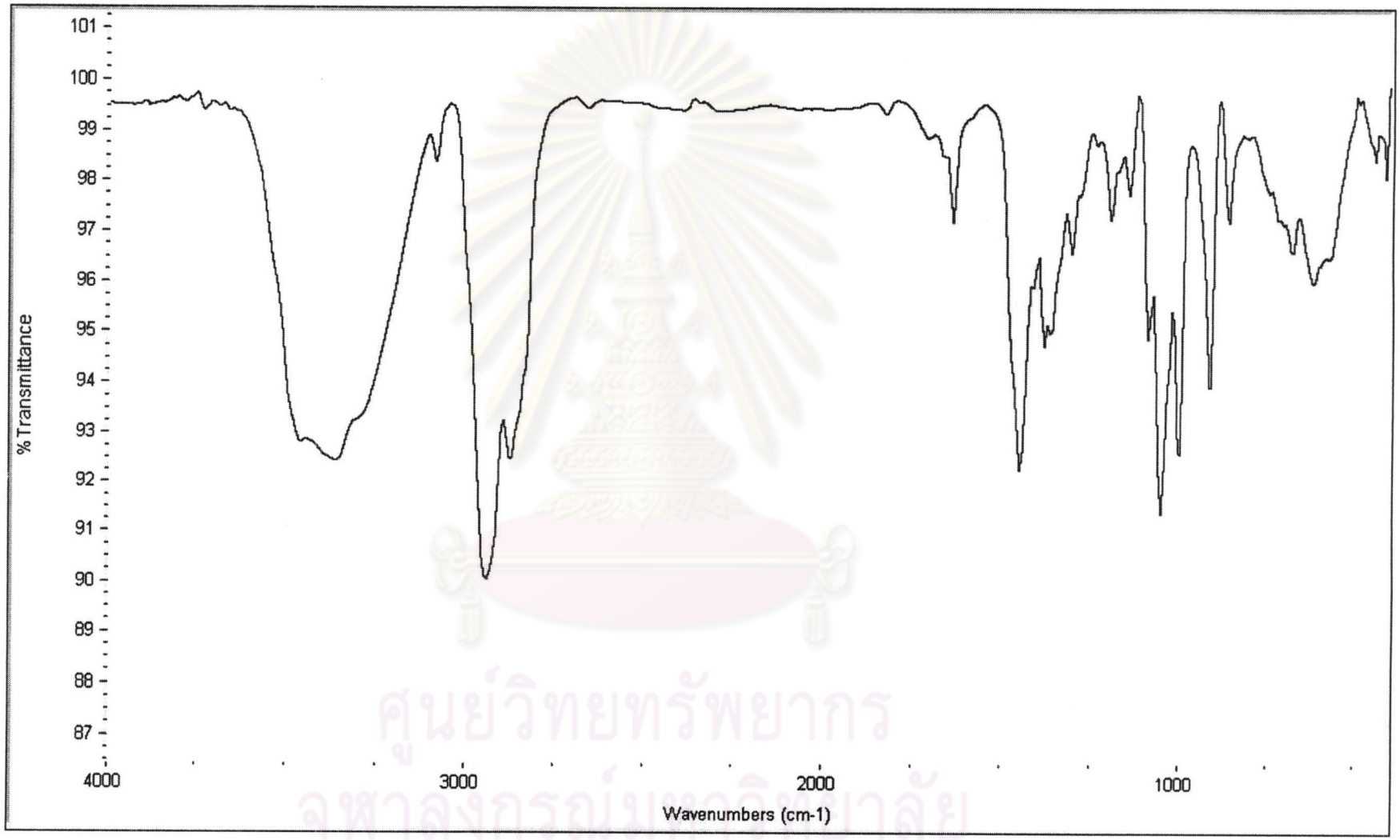

Figure 7 The FT-IR spectrum of compound **2**

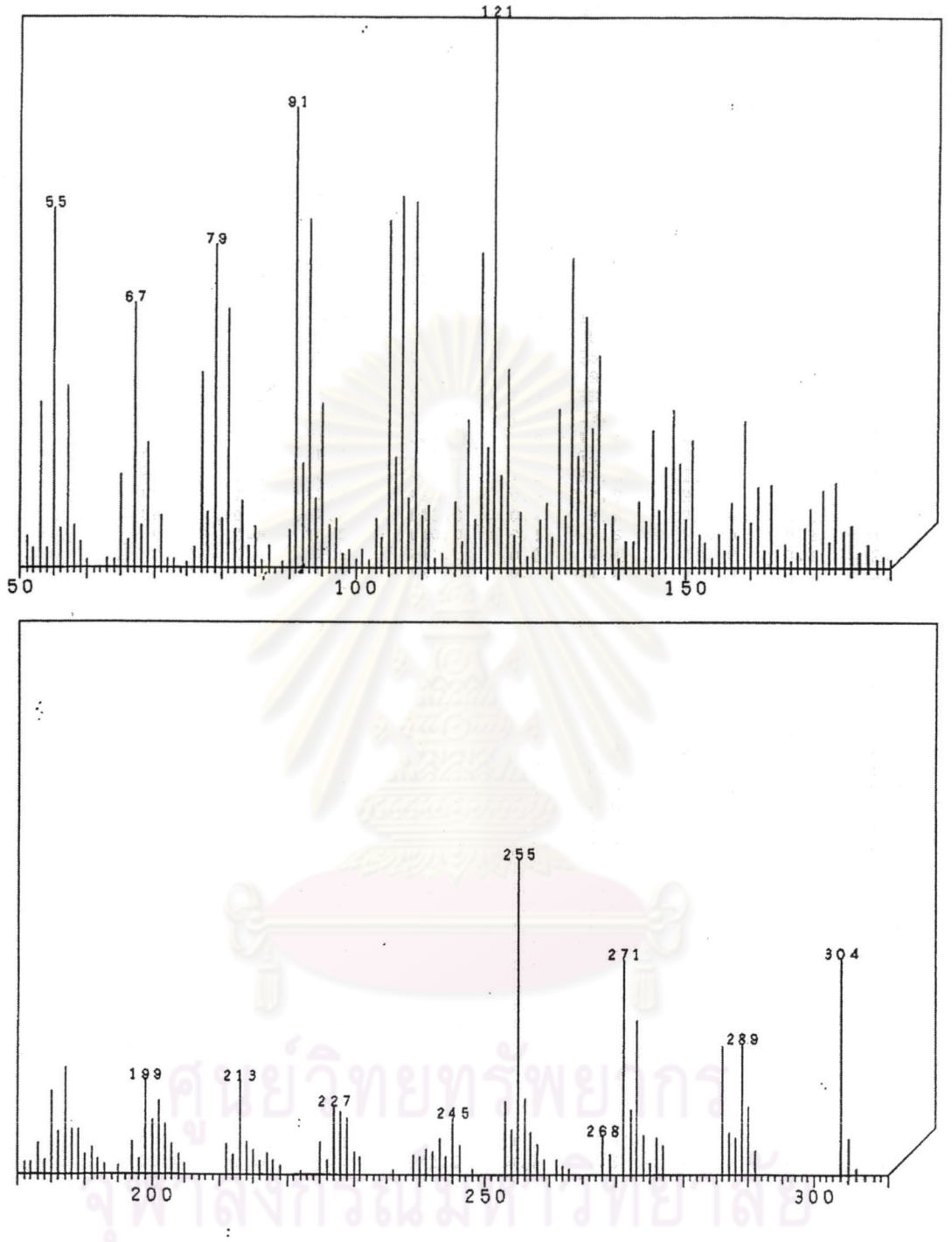

Figure 8 The mass spectrum of compound **2**

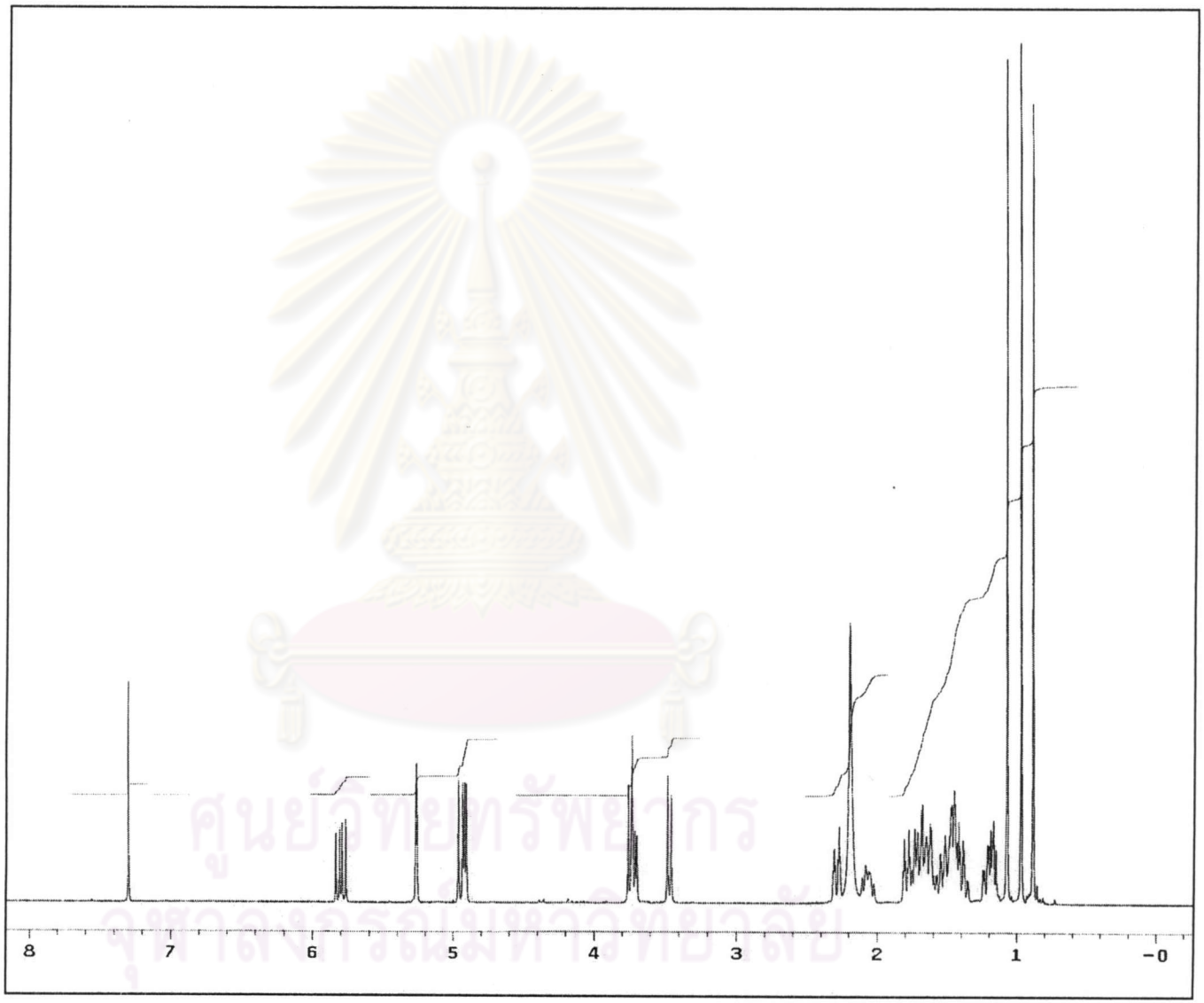

Figure 9 The ^{1}H-NMR spectrum of compound **2**

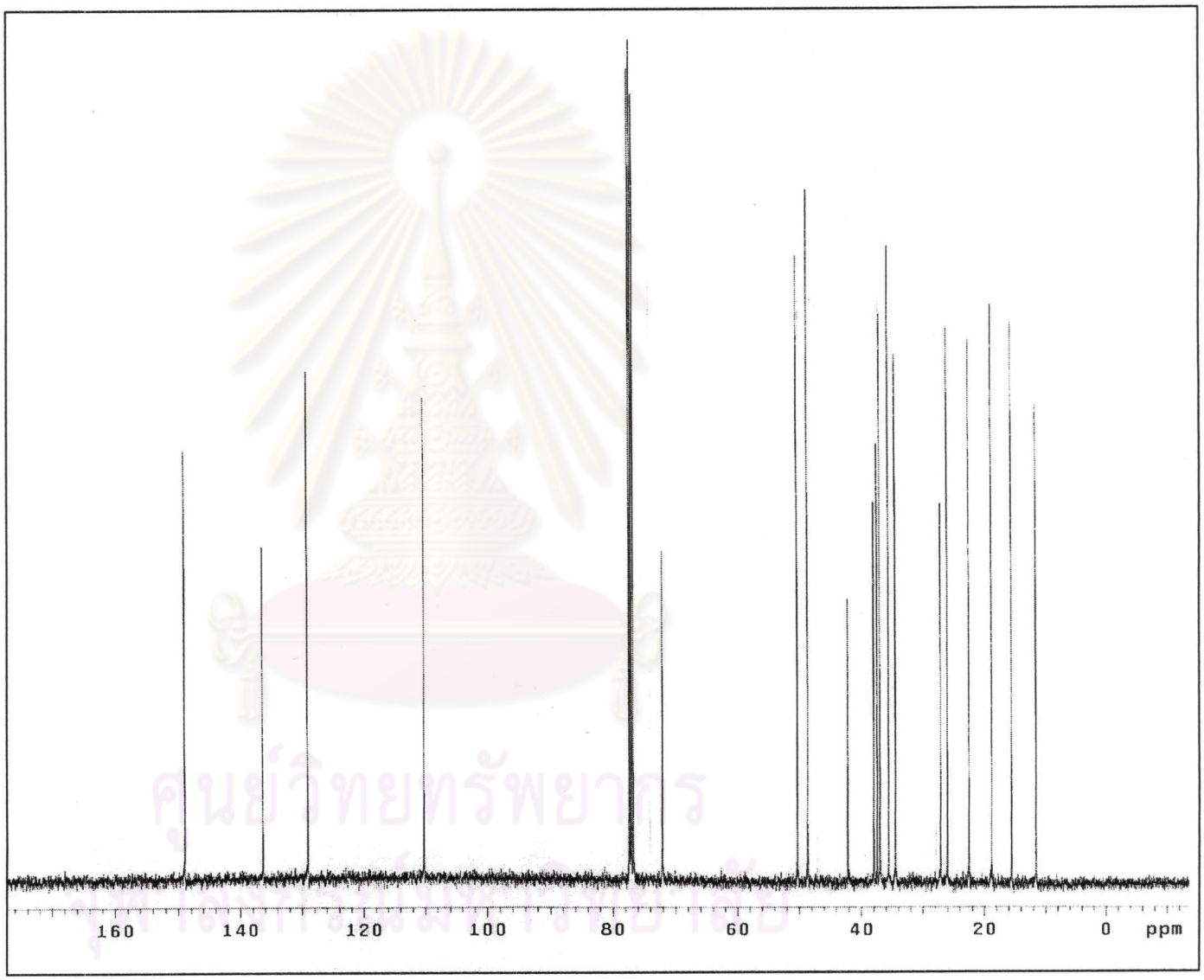

Figure 10 The ^{13}C-NMR spectrum of compound **2**

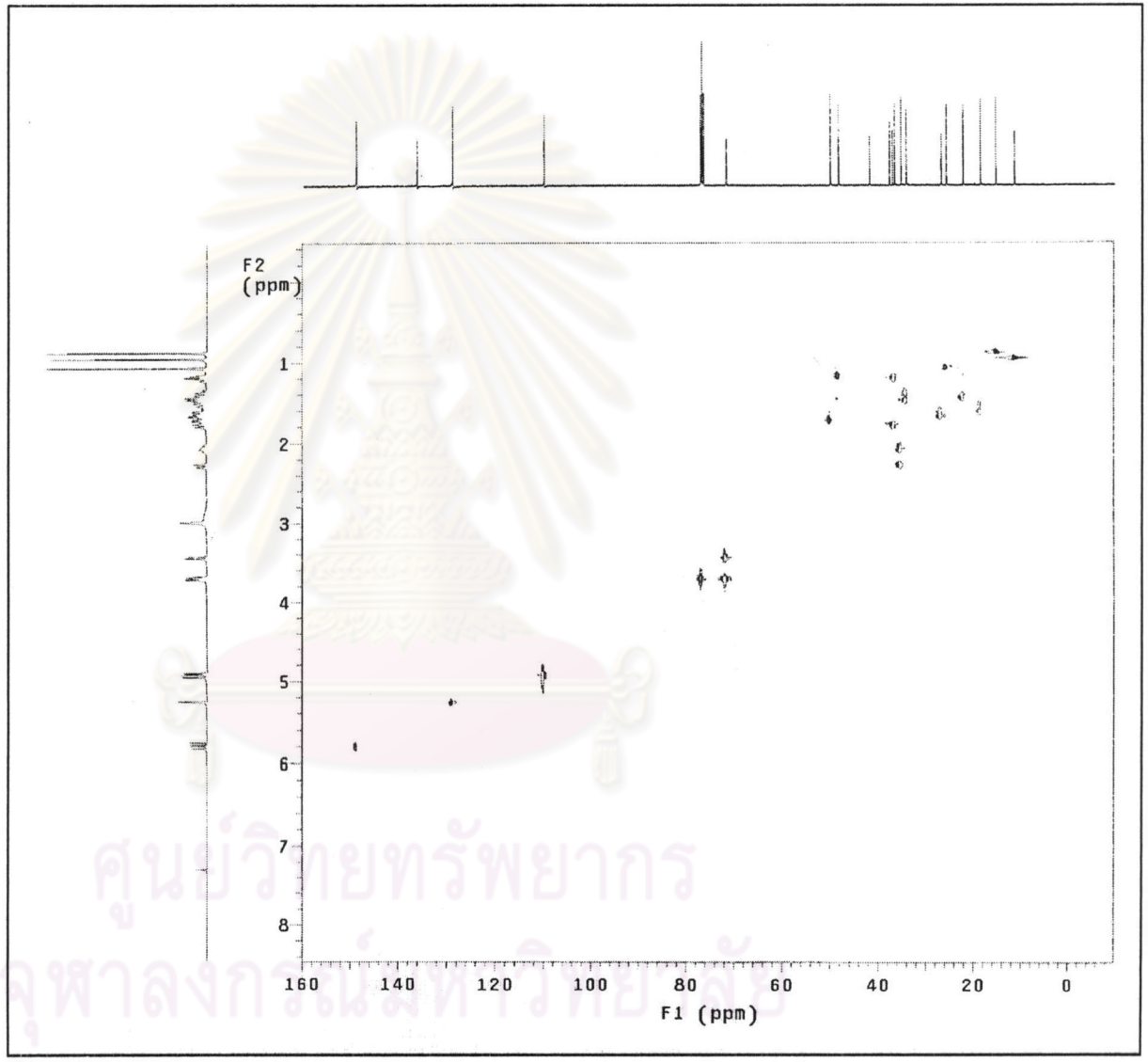

Figure 11 The HSQC spectrum of compound **2**

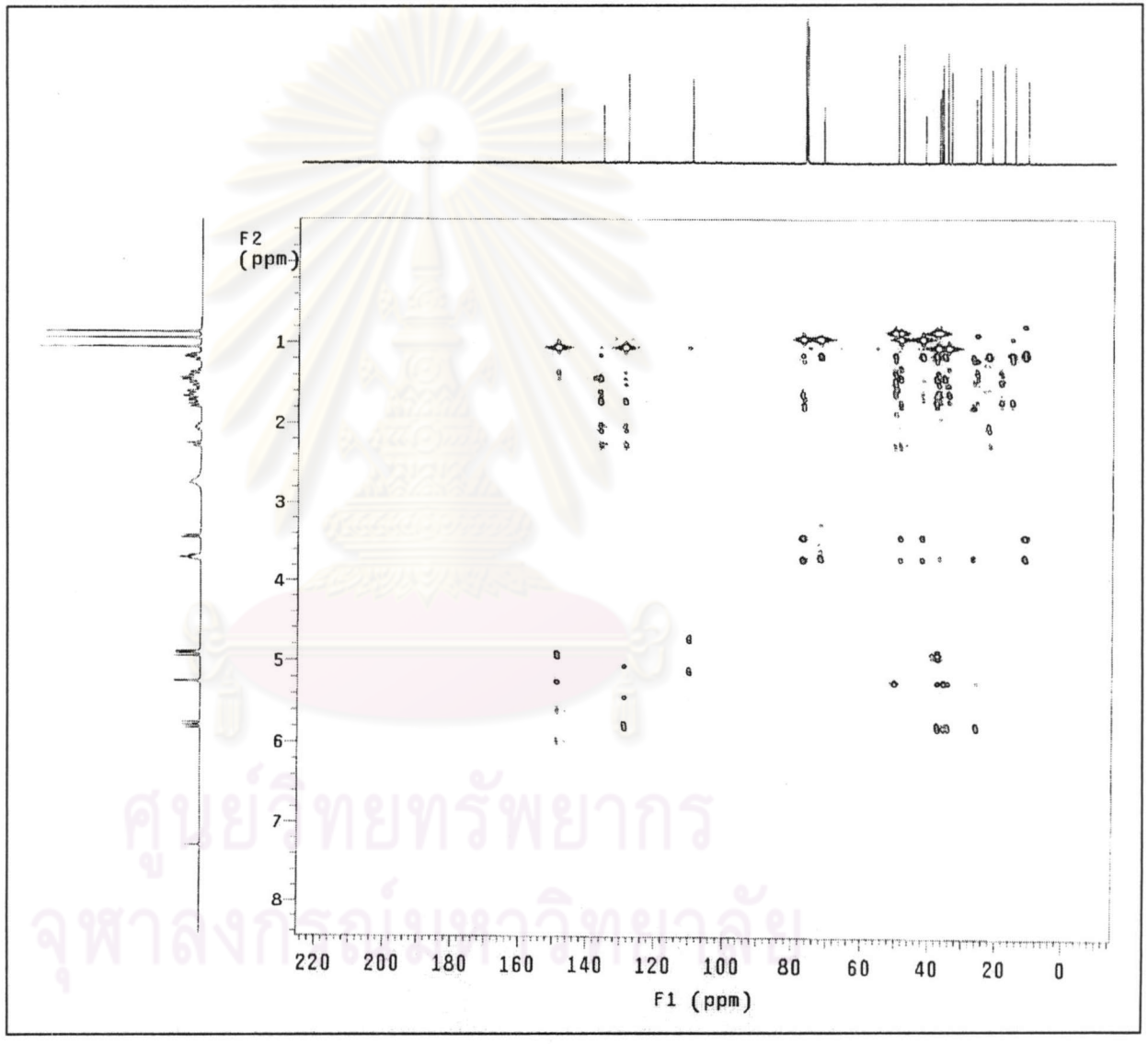

Figure 12 The HMBC spectrum of compound **2**

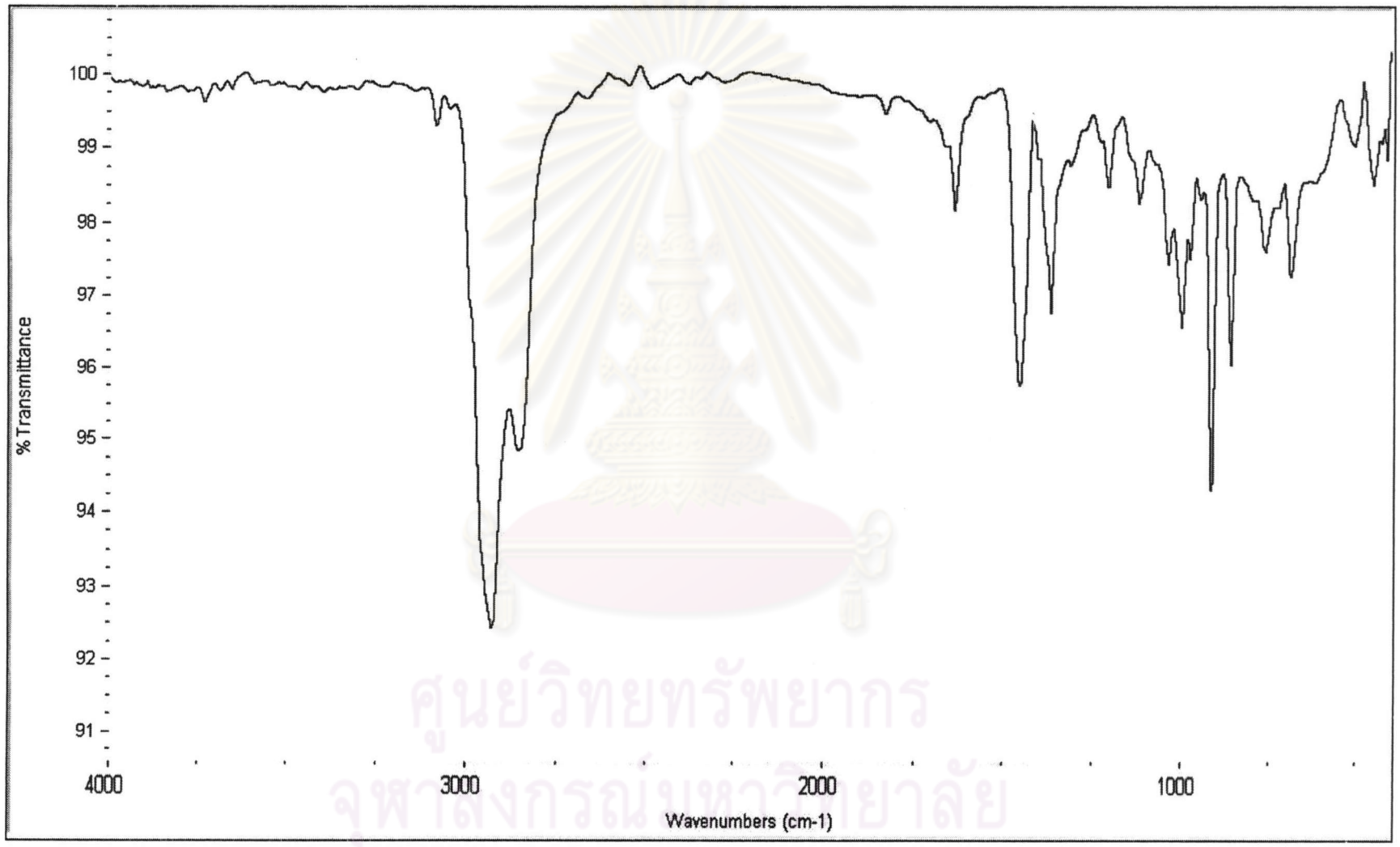

Figure 13 The FT-IR spectrum of compound **3**

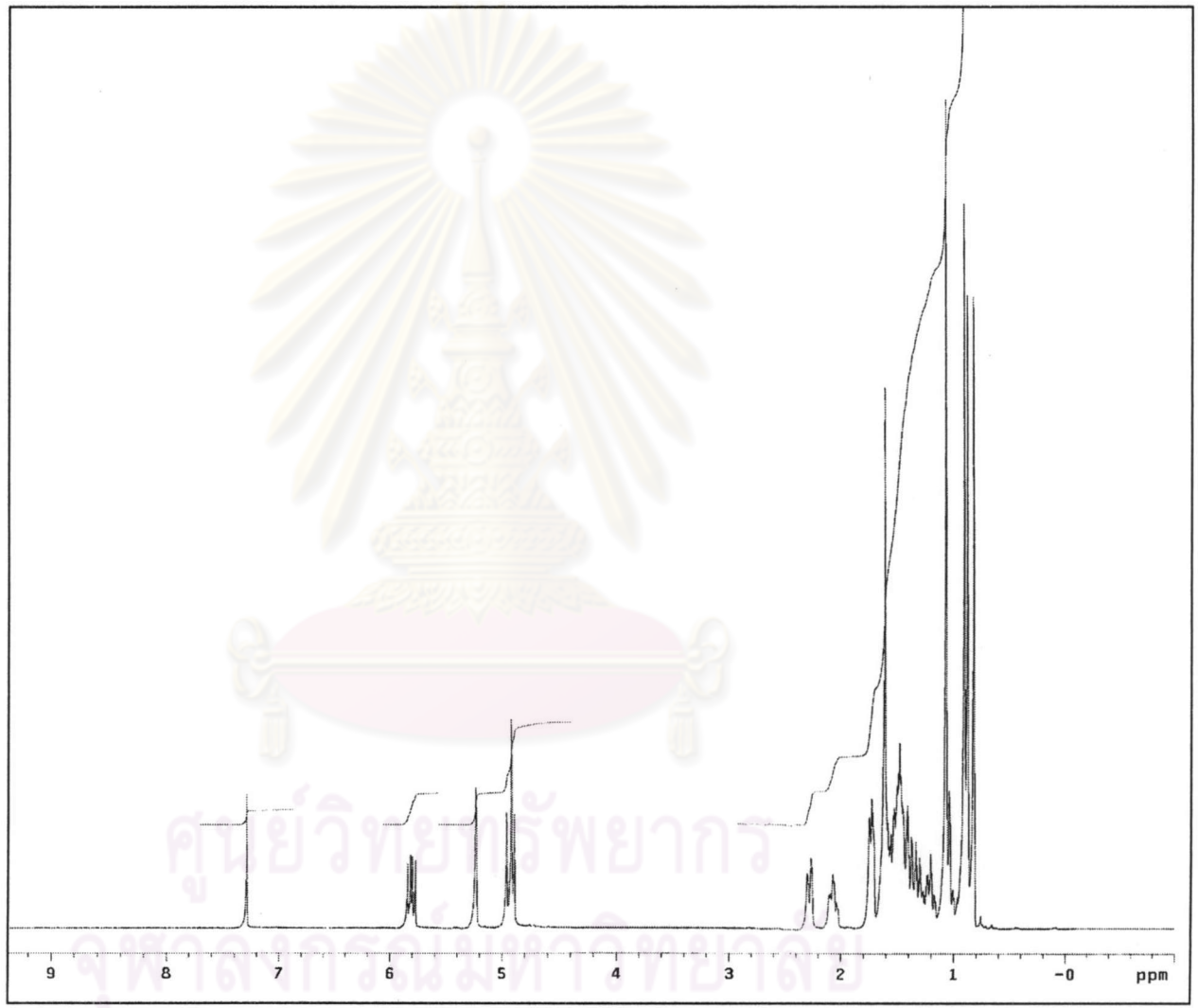

Figure 14 The ^{1}H-NMR spectrum of compound **3**

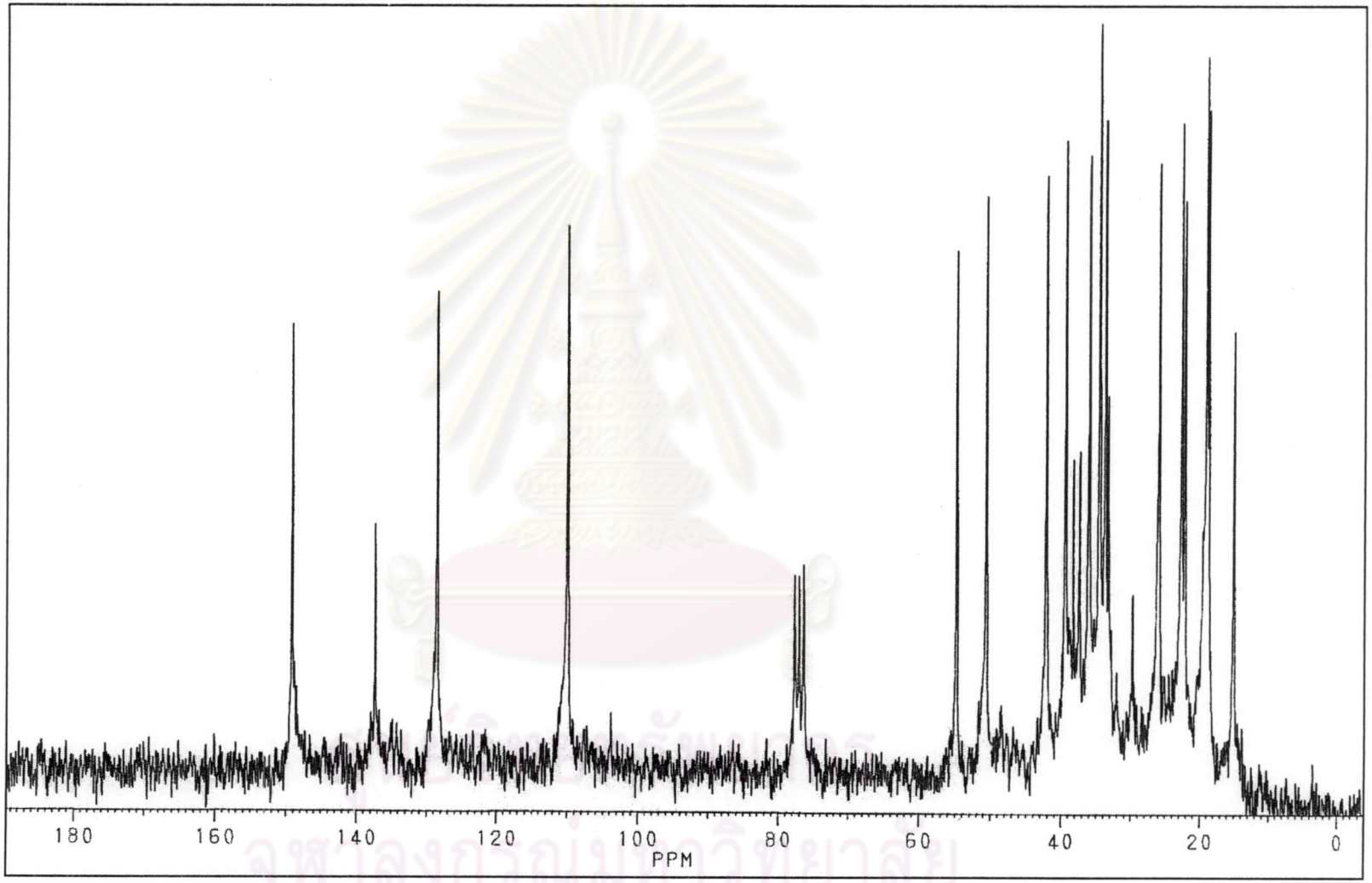

Figure 15 The ^{13}C-NMR spectrum of compound **3**

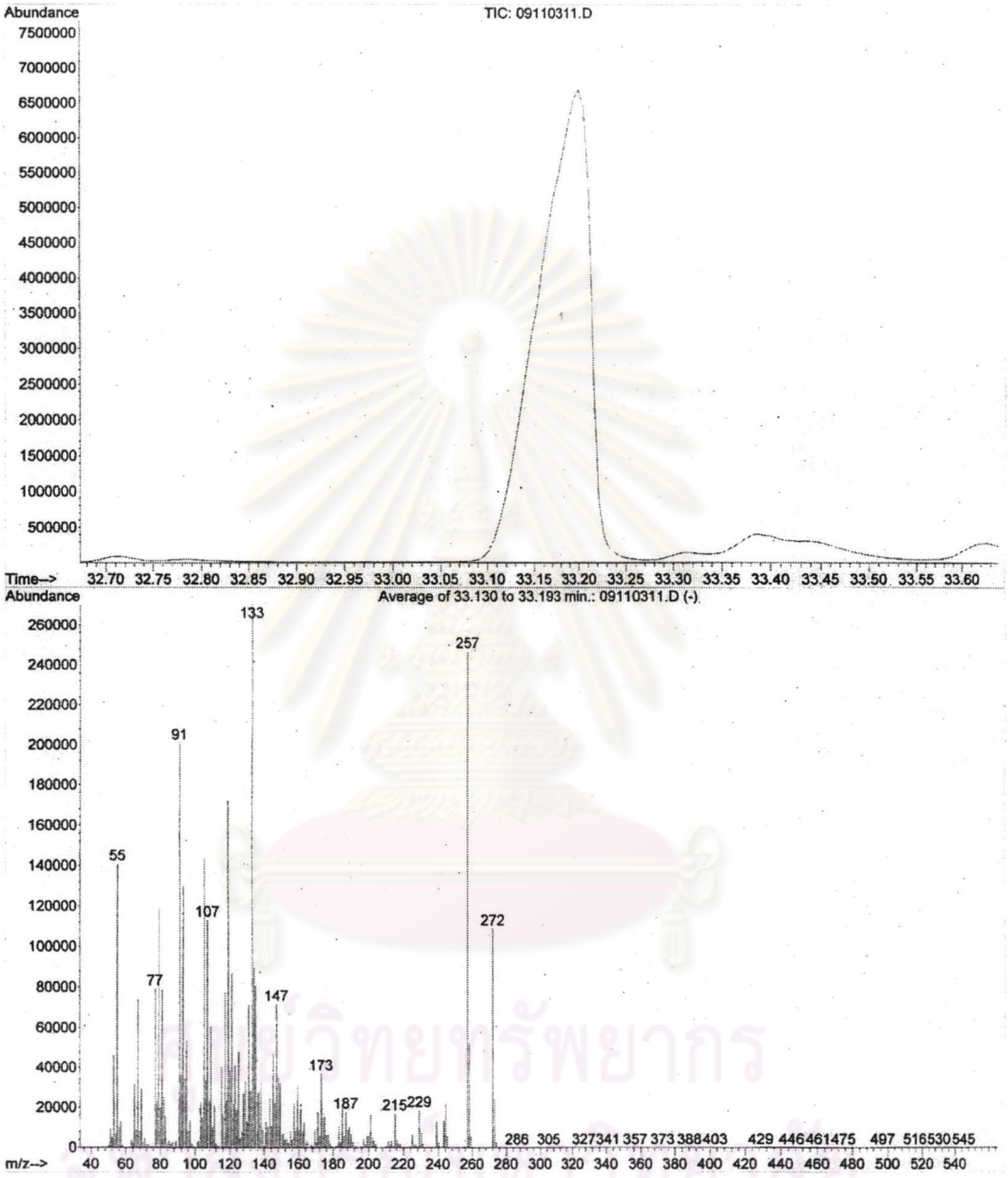

Figure 16 The mass spectrum of component **1** (retention time at 33.16 min)

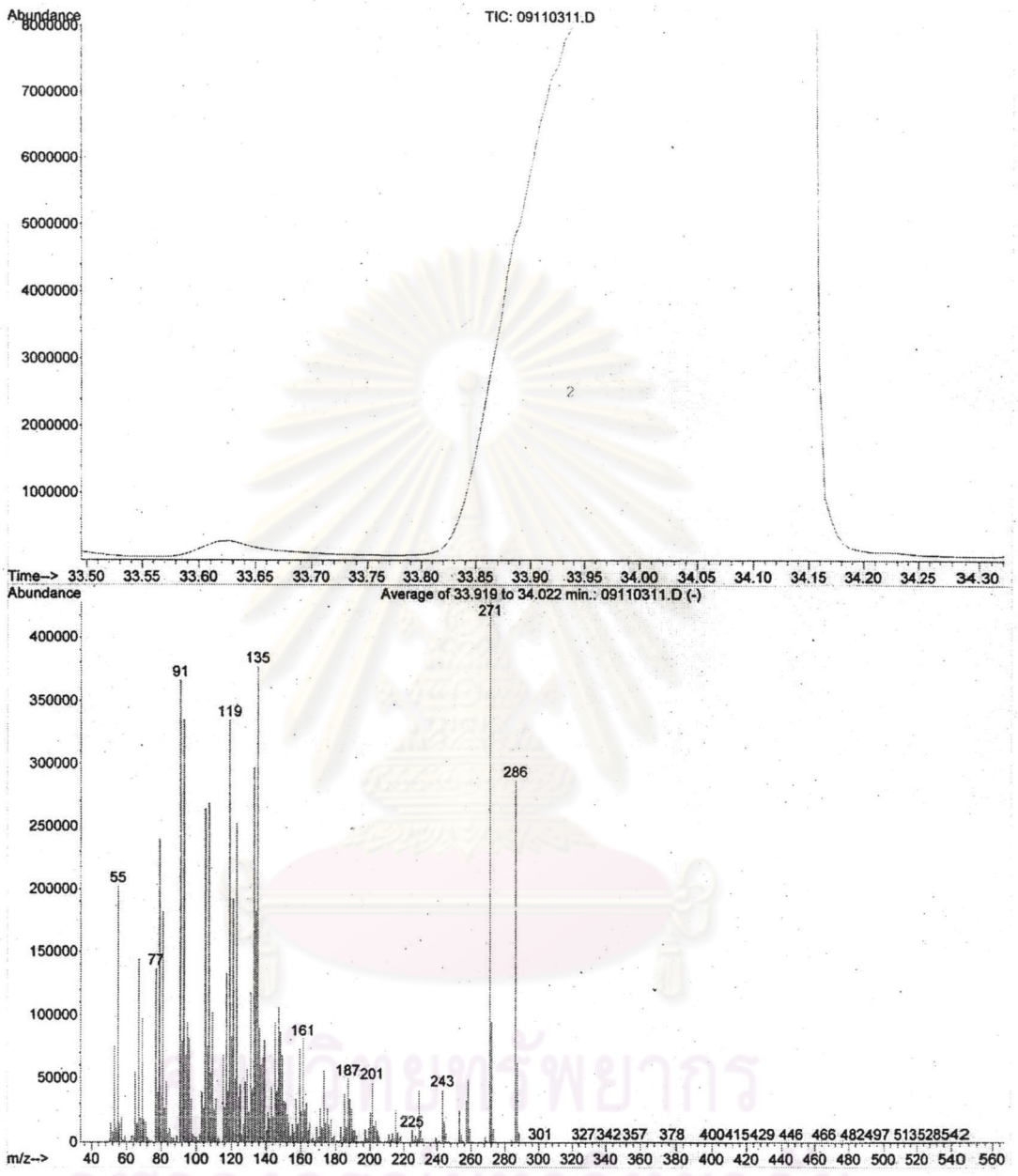

Figure 17 The mass spectrum of component **2** (retention time at 33.97 min)

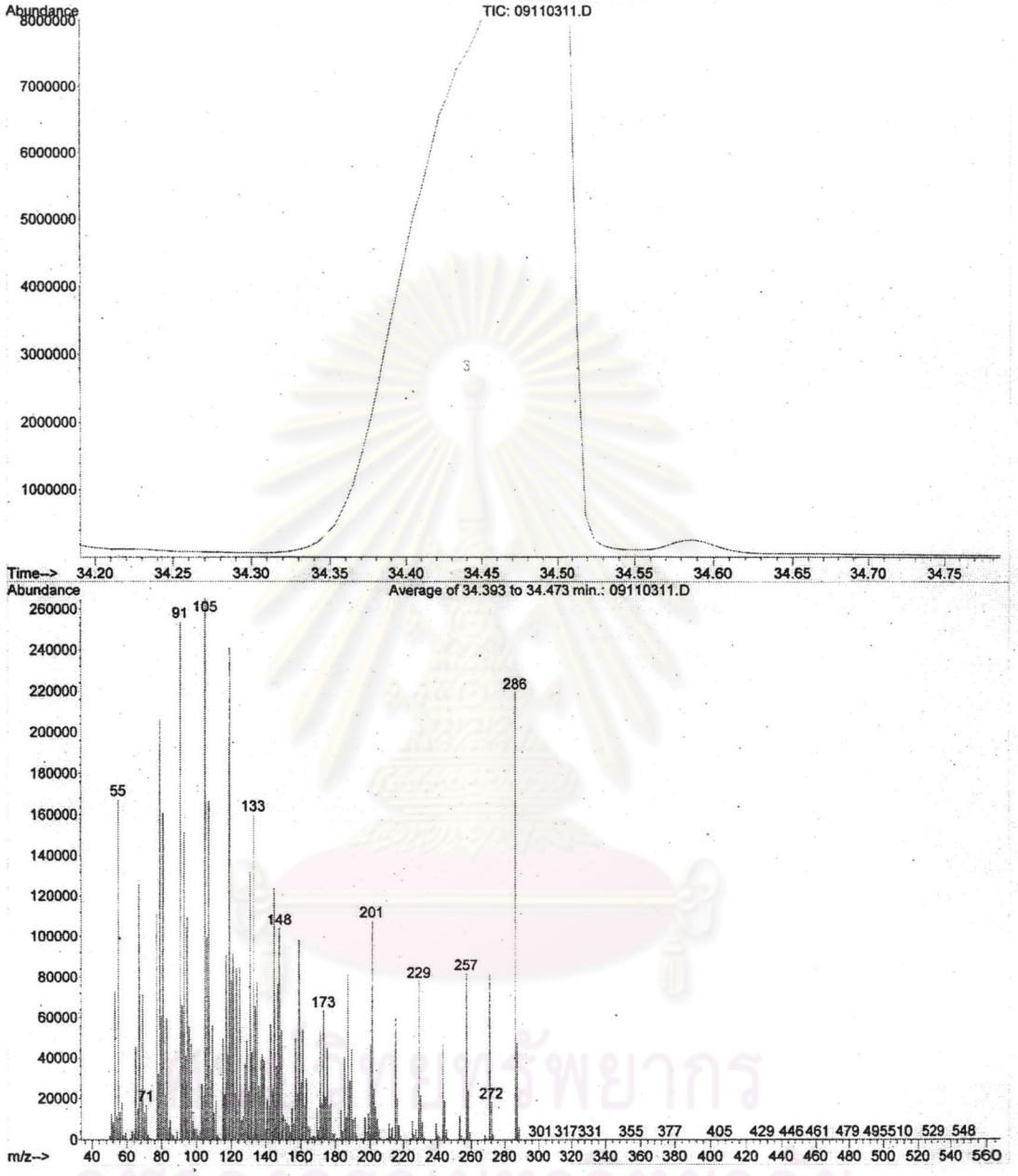

Figure 18 The mass spectrum of component **3** (retention time at 34.43 min)

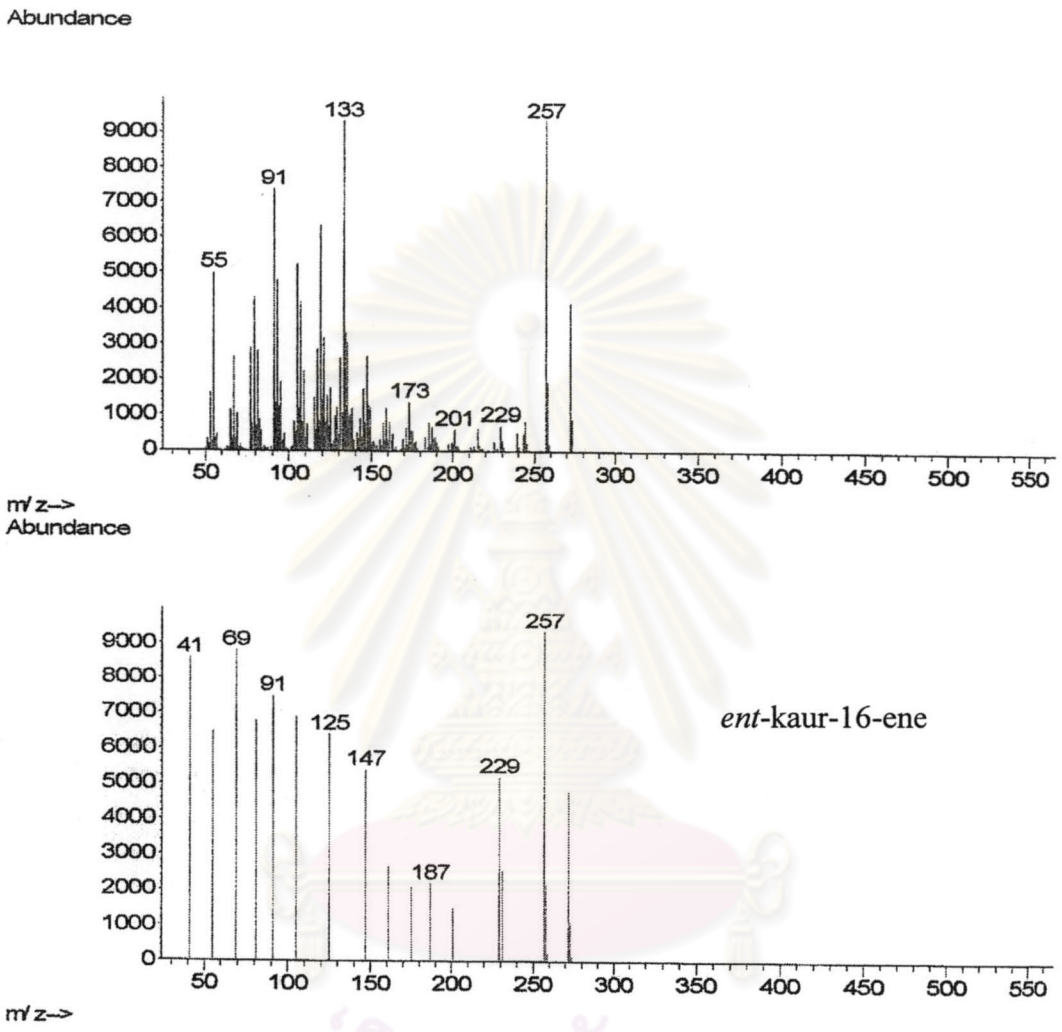

Figure 19 The mass spectrum of component **1** compared with *ent*-kaur-16-ene

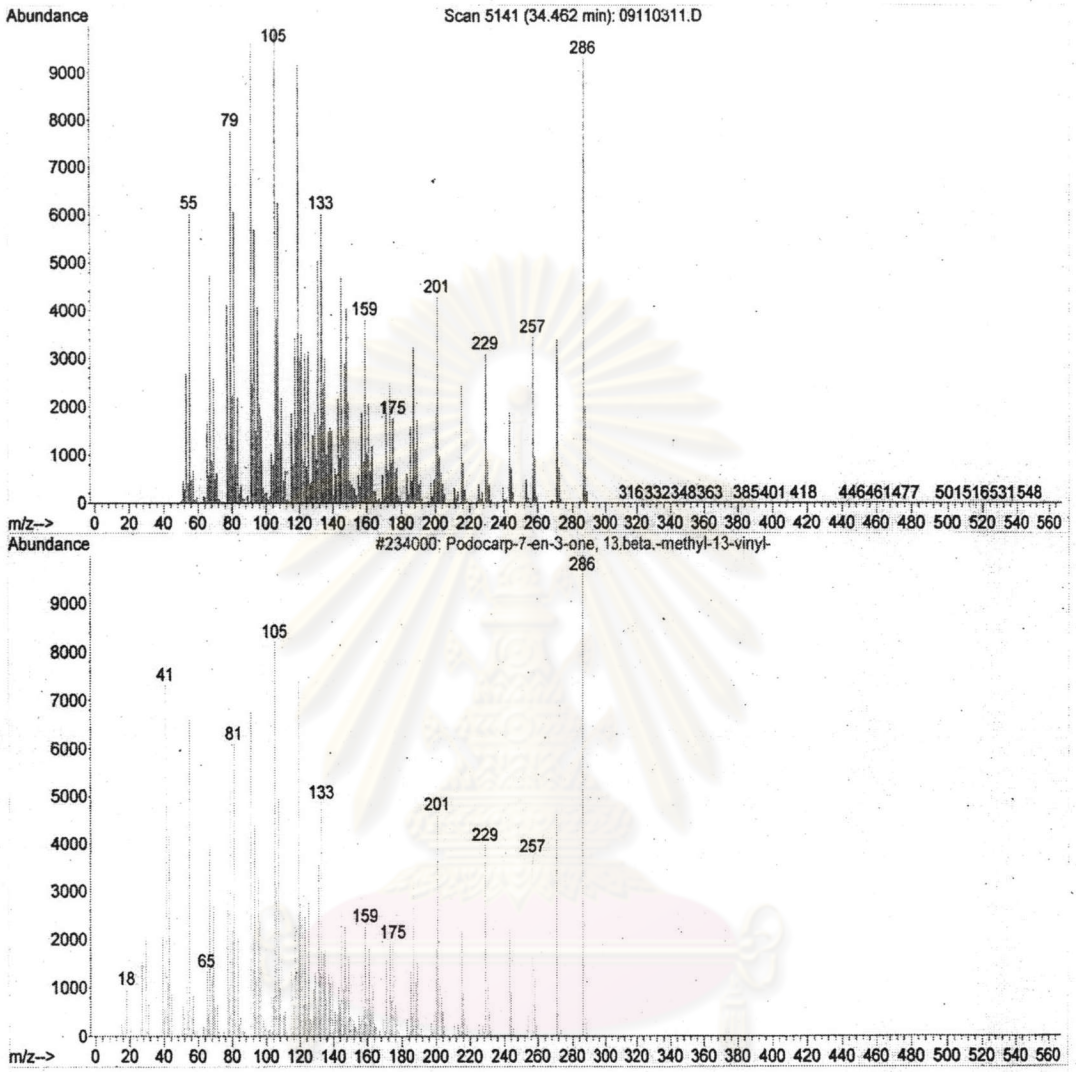

Figure 20 The mass spectrum of component **3** compared with 7,15-isopimaradiene-3-one

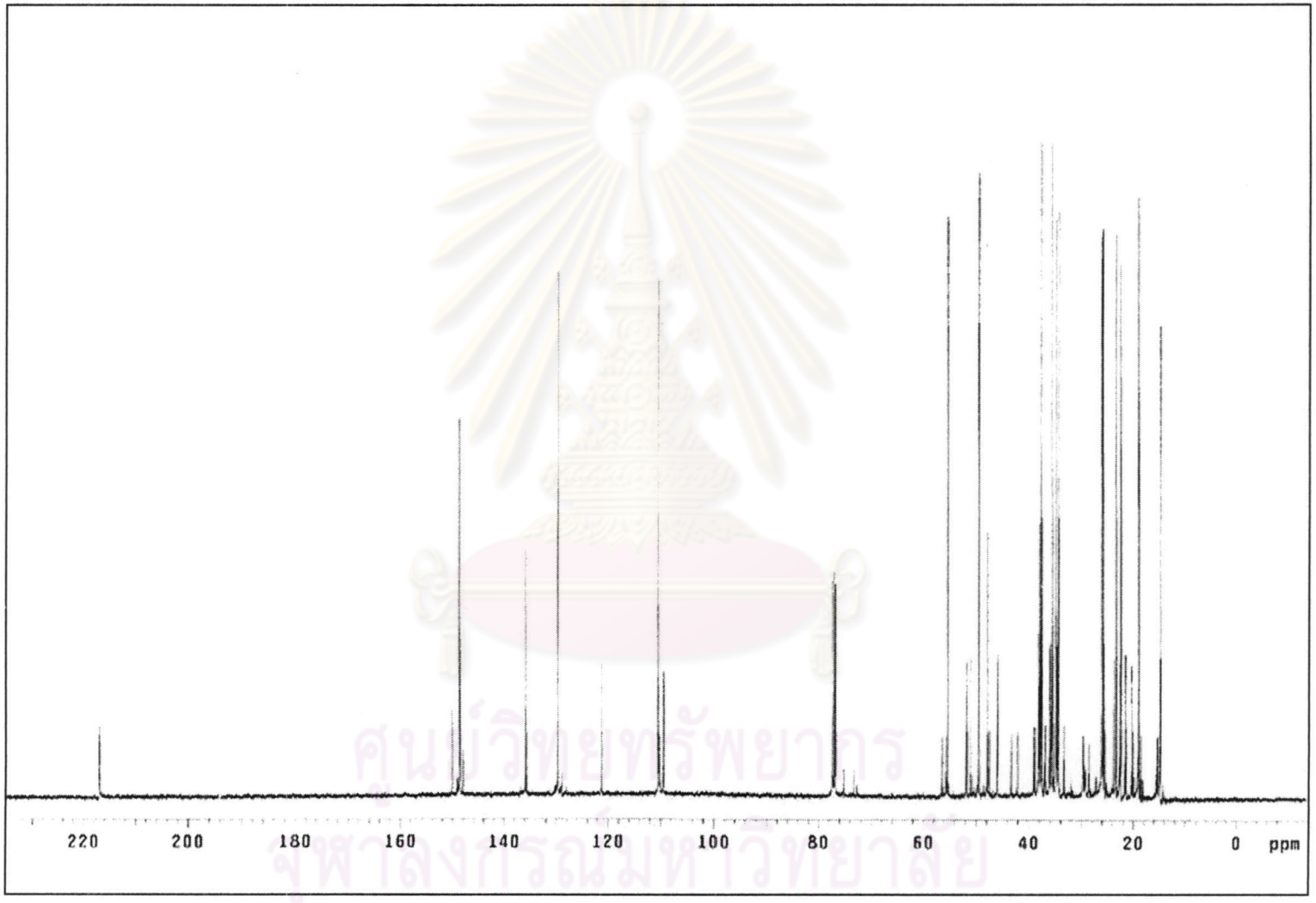

Figure 21 The ^{13}C-NMR spectrum of Fraction IIC

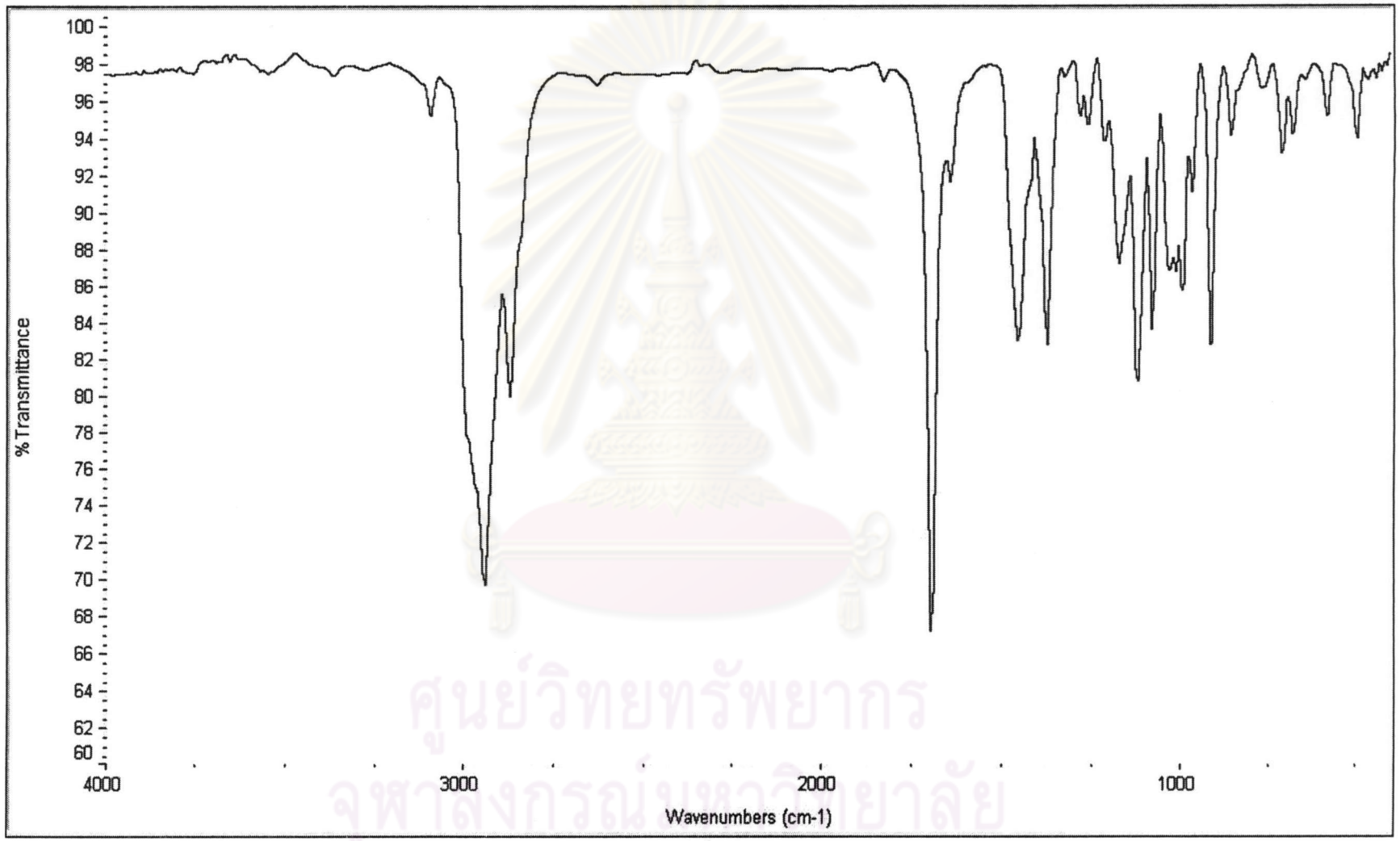

Figure 22 The FT-IR spectrum of compound **4**

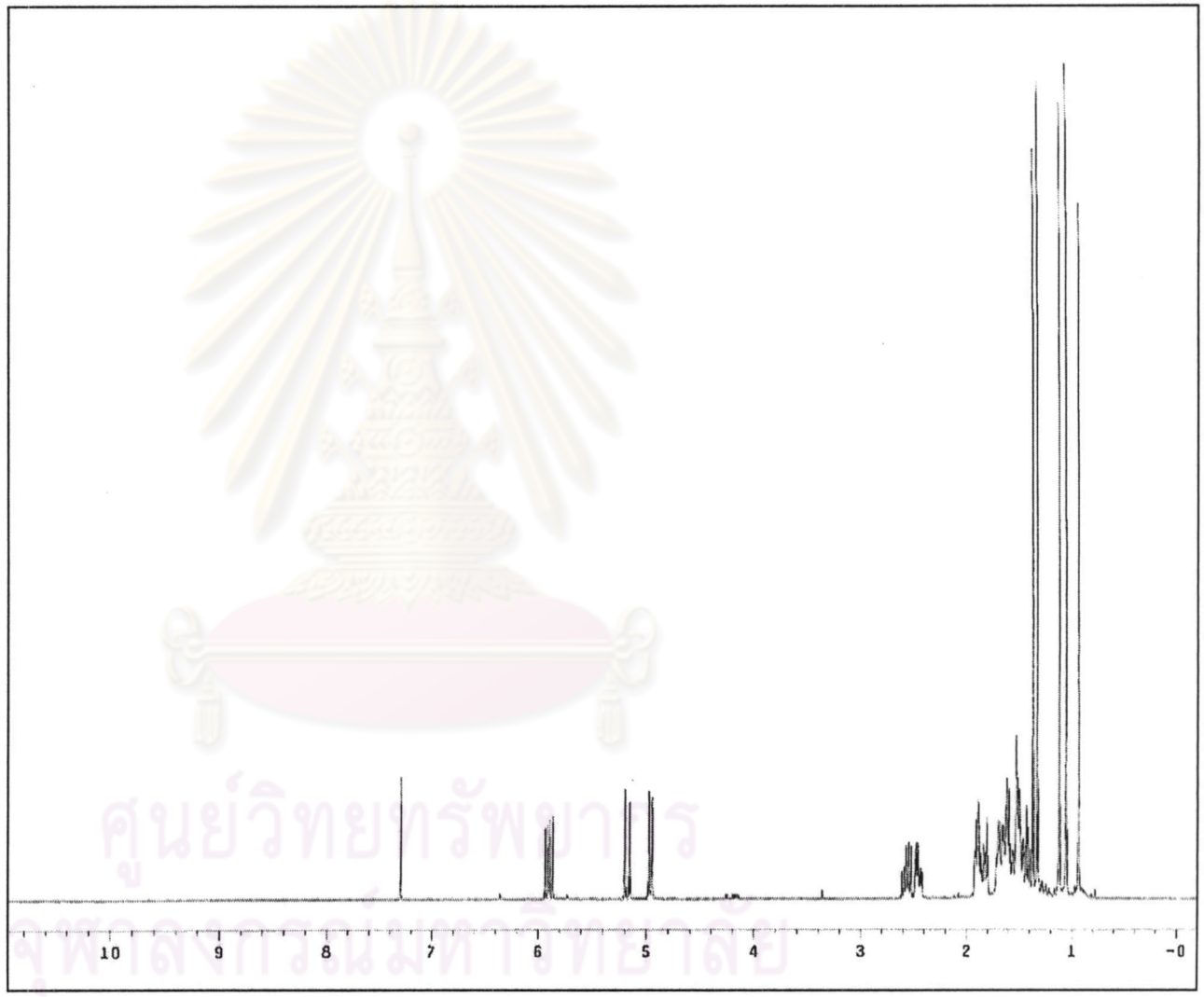

Figure 23 The ^{1}H-NMR spectrum of compound **4**

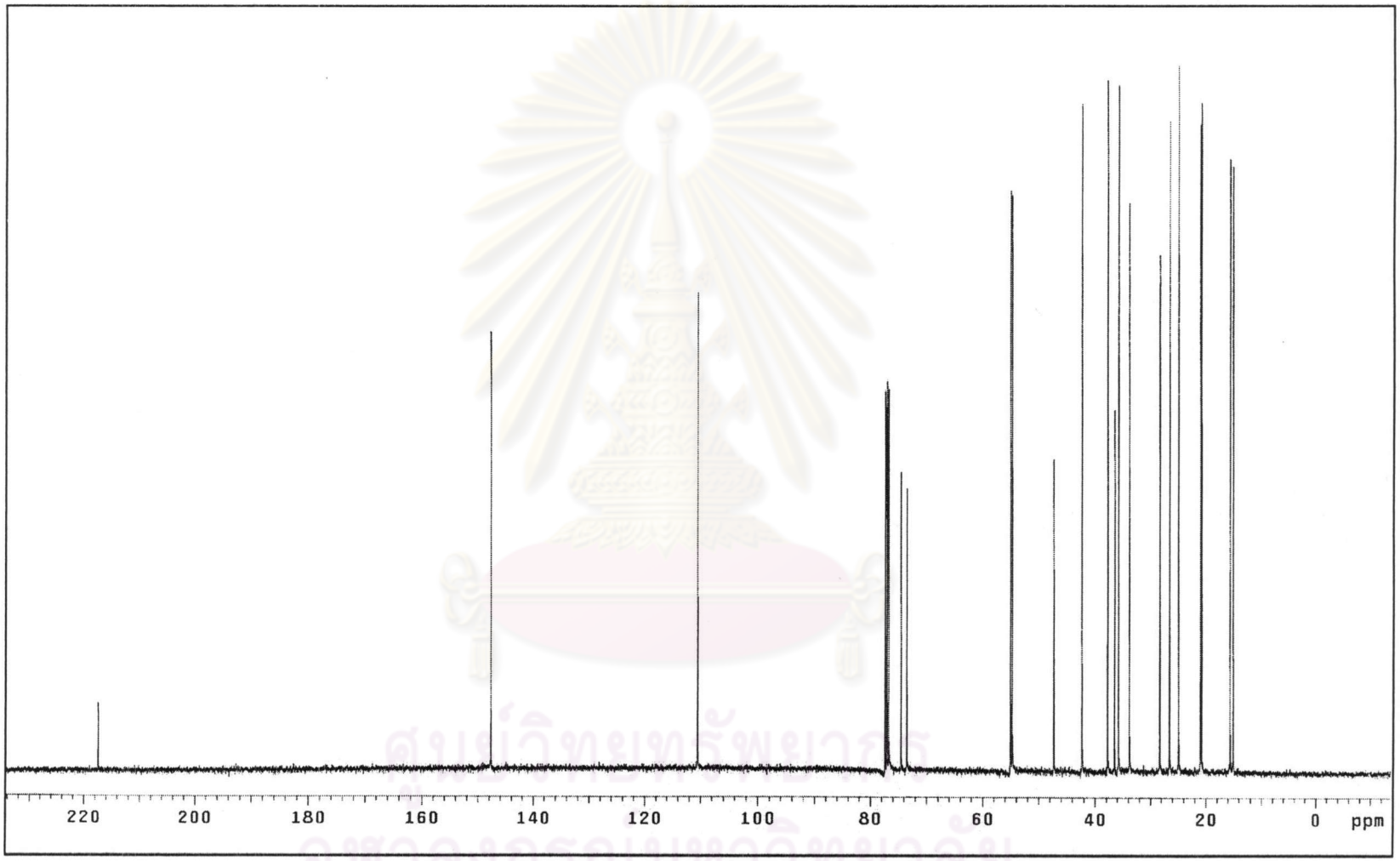

Figure 24 The ^{13}C-NMR spectrum of compound **4**

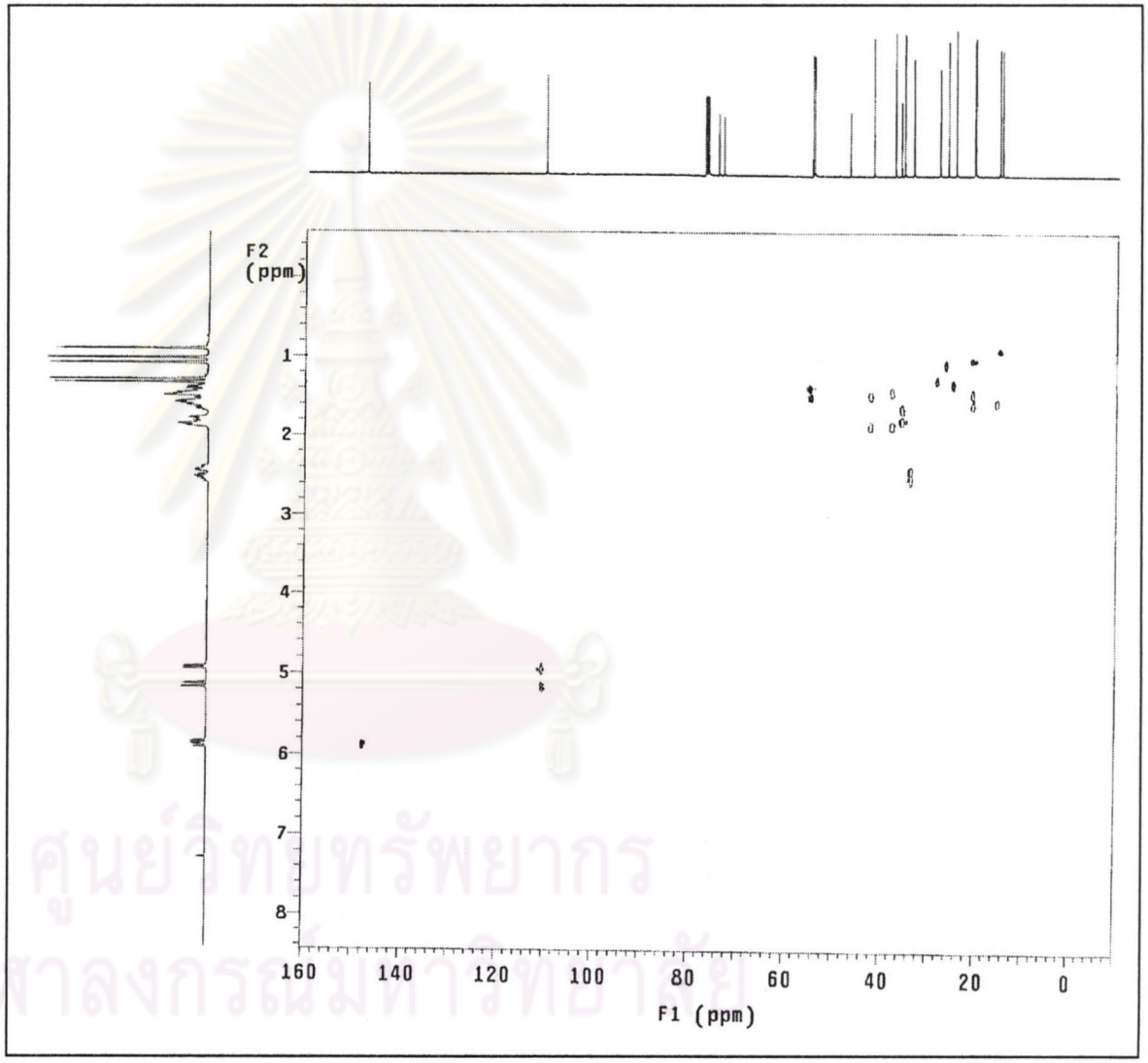

Figure 25 The HSQC spectrum of compound **4**

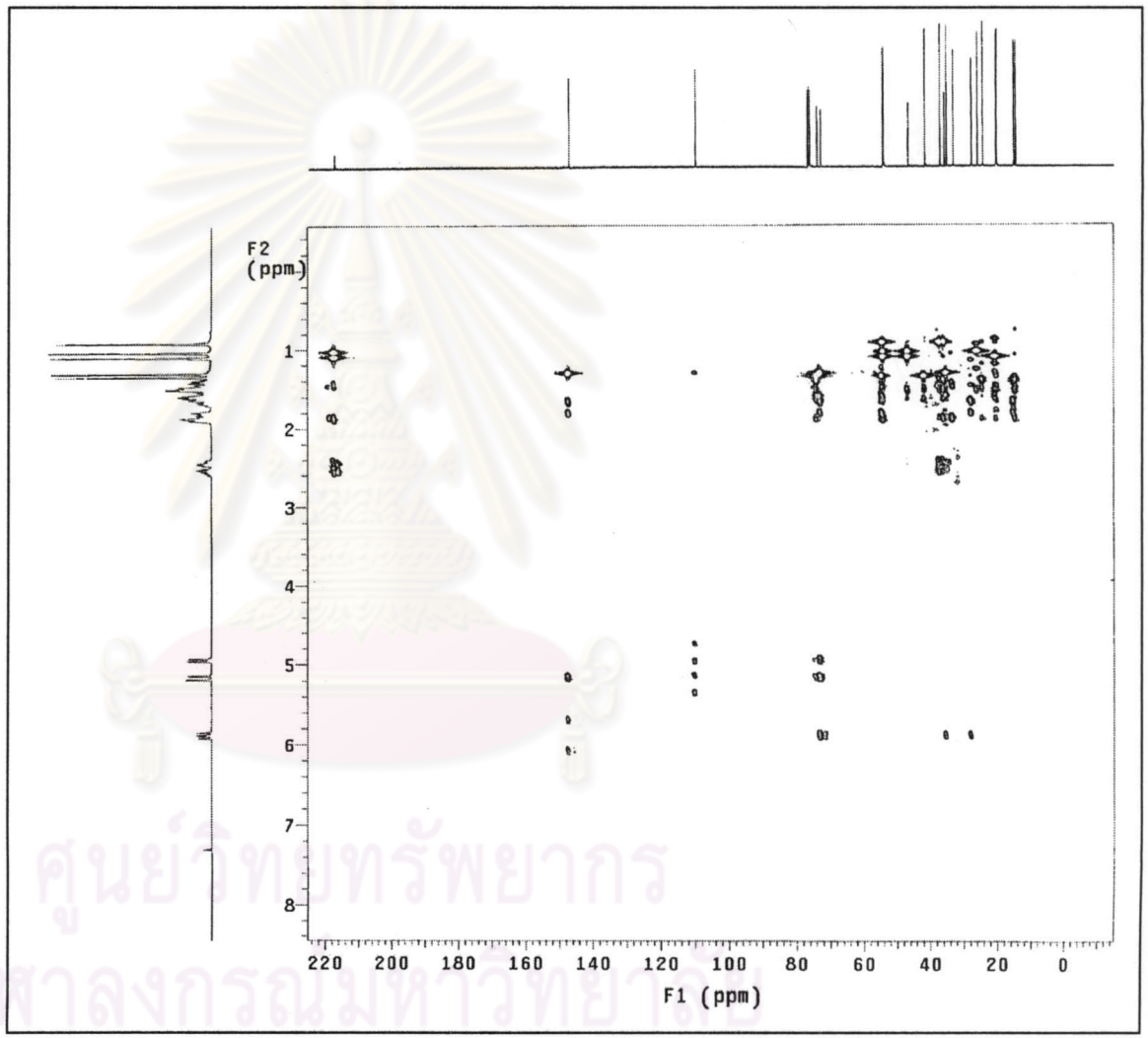

Figure 26 The HMBC spectrum of compound **4**

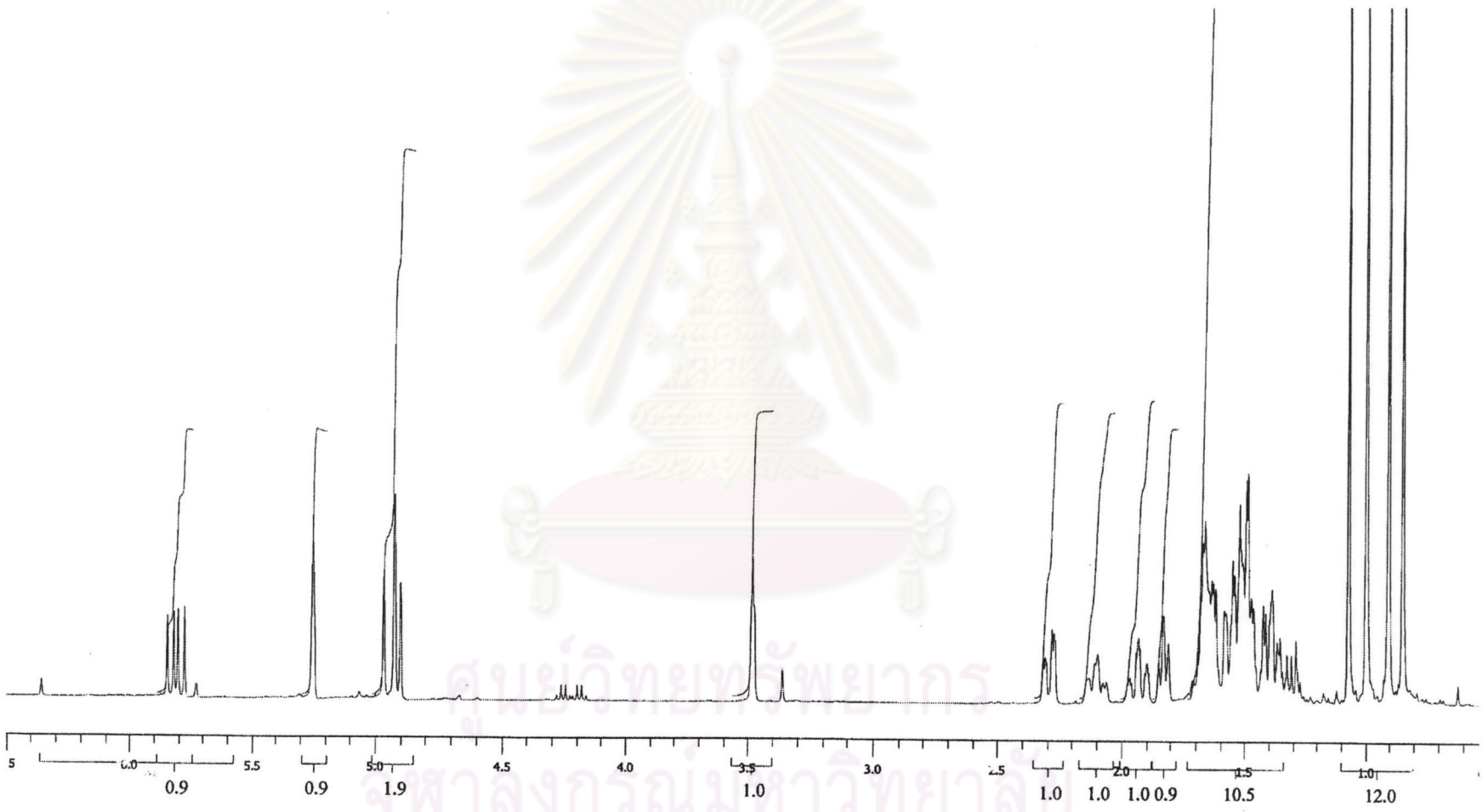

Figure 27 The ^{1}H-NMR spectrum of compound **5**

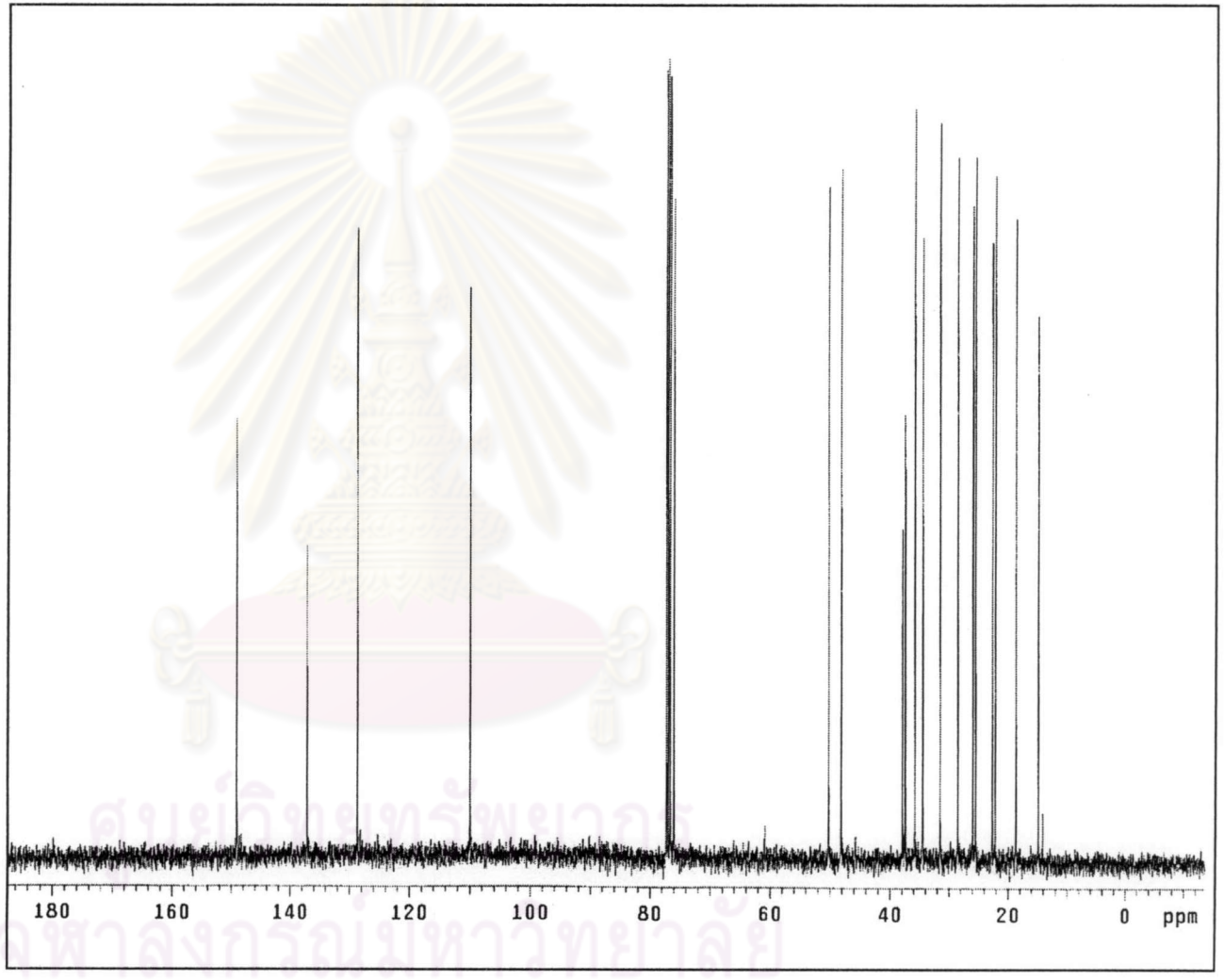

Figure 28 The ^{13}C-NMR spectrum of compound **5**

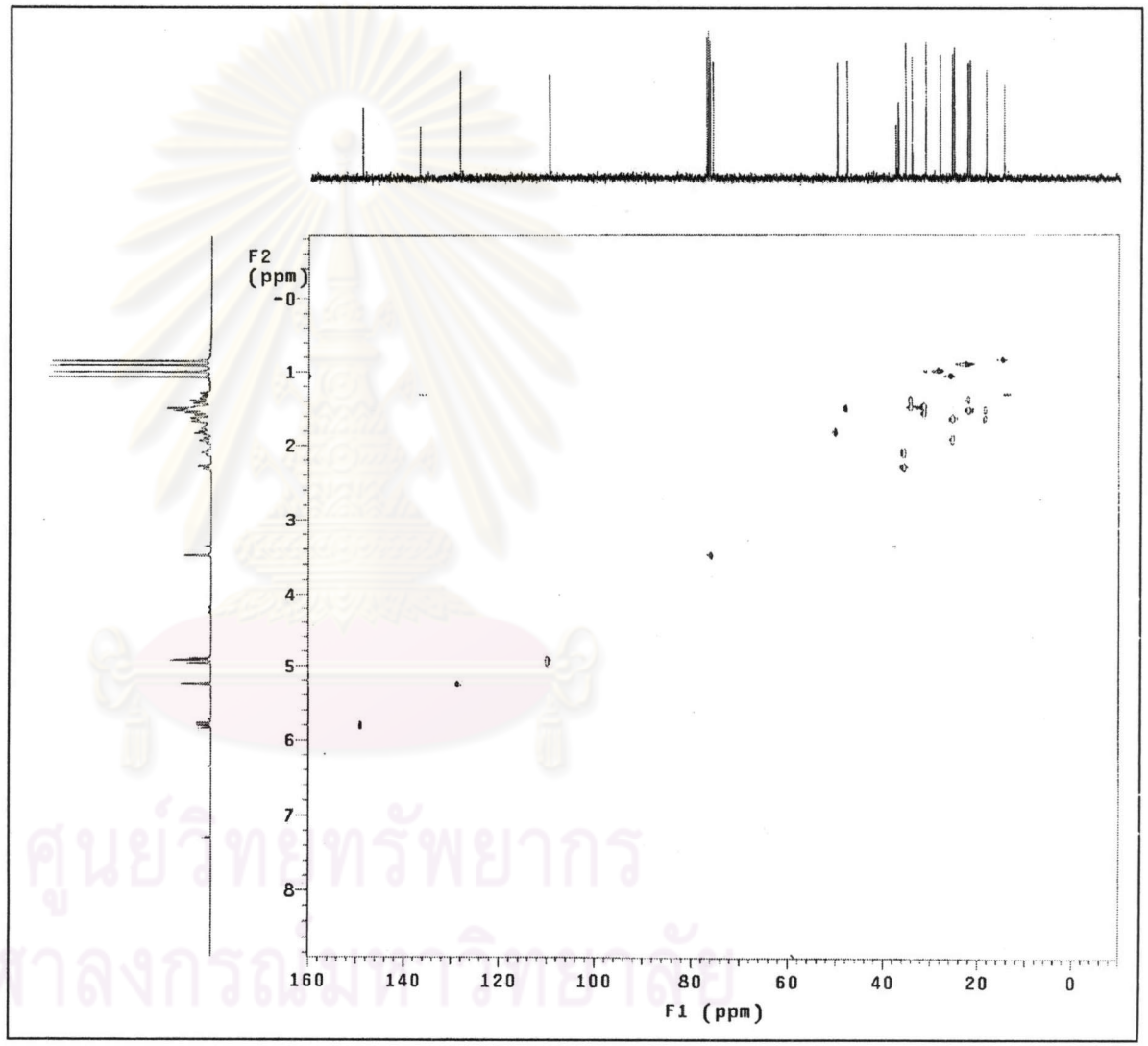

Figure 29 The HSQC spectrum of compound **5**

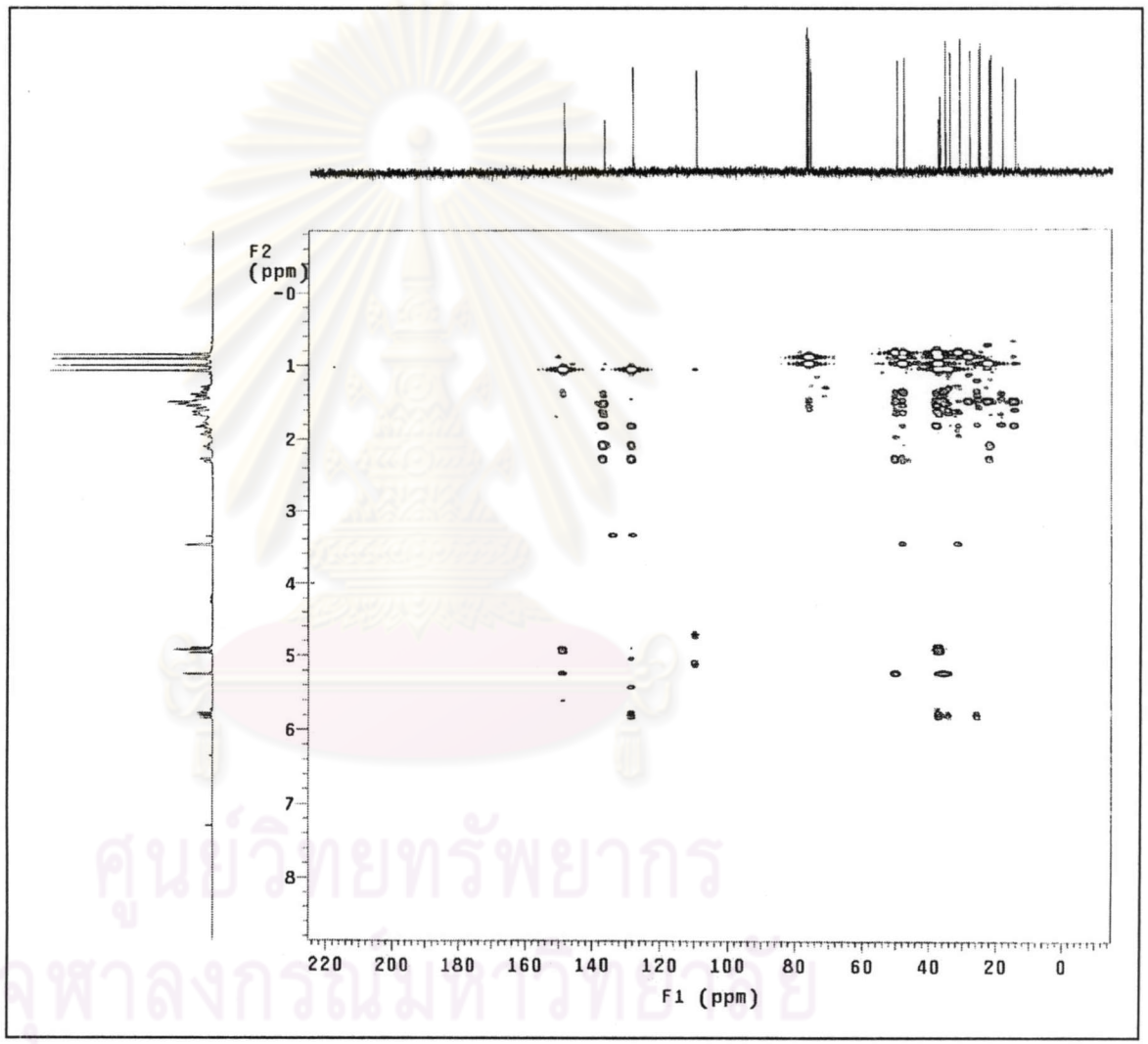

Figure 30 The HMBC spectrum of compound **5**

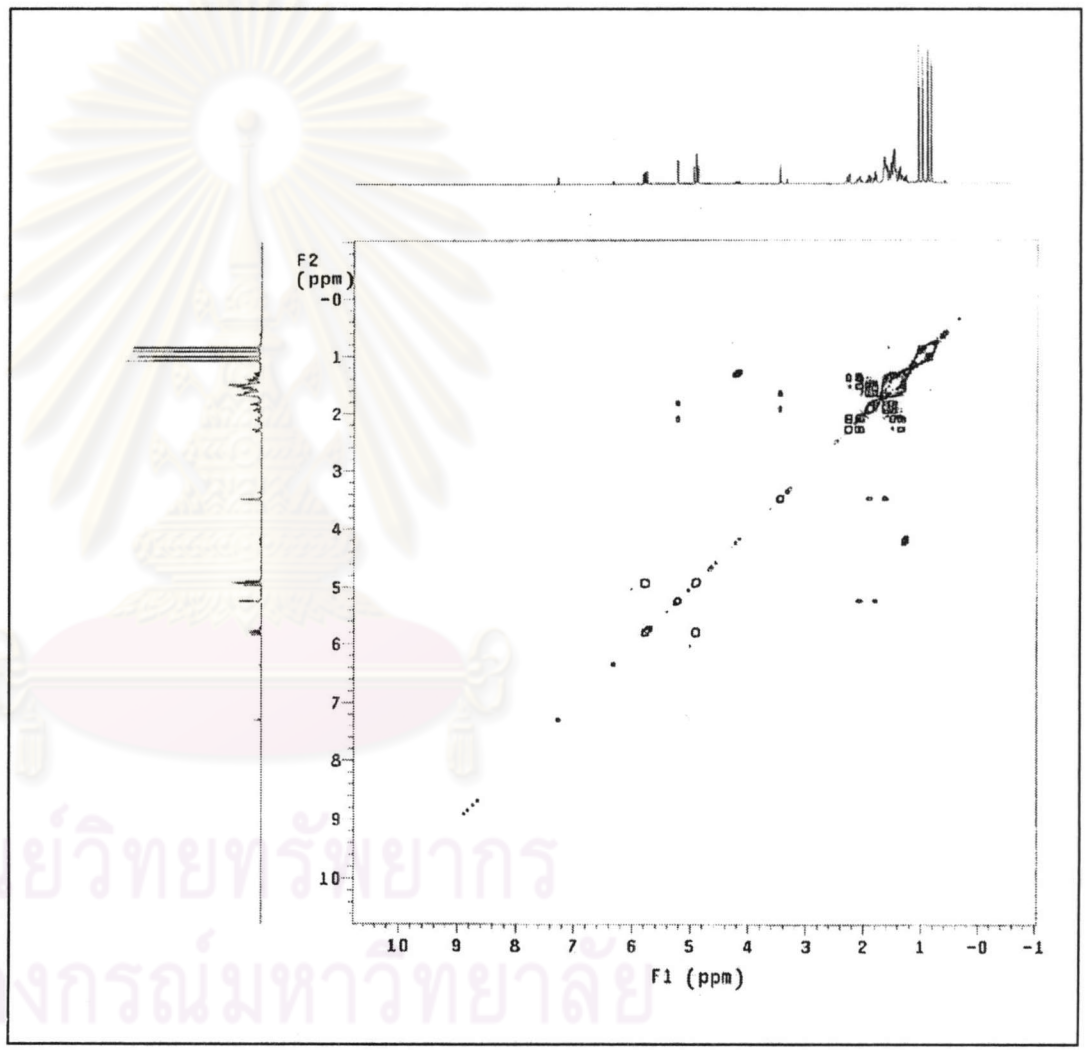

Figure 31 The ^{1}H-^{1}H COSY of compound **5**

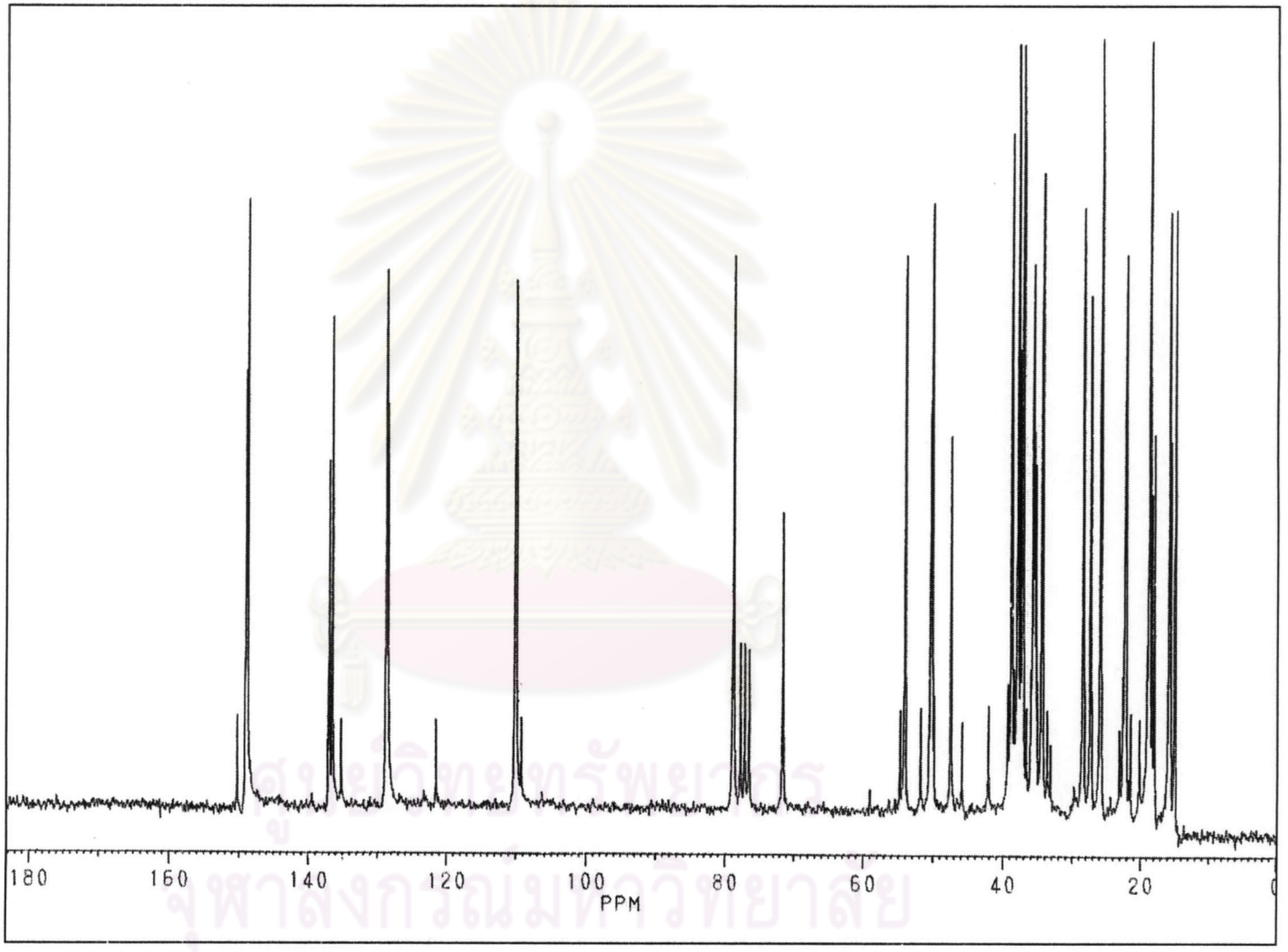

Figure 32 The ^{13}C-NMR spectrum of Fraction IIE

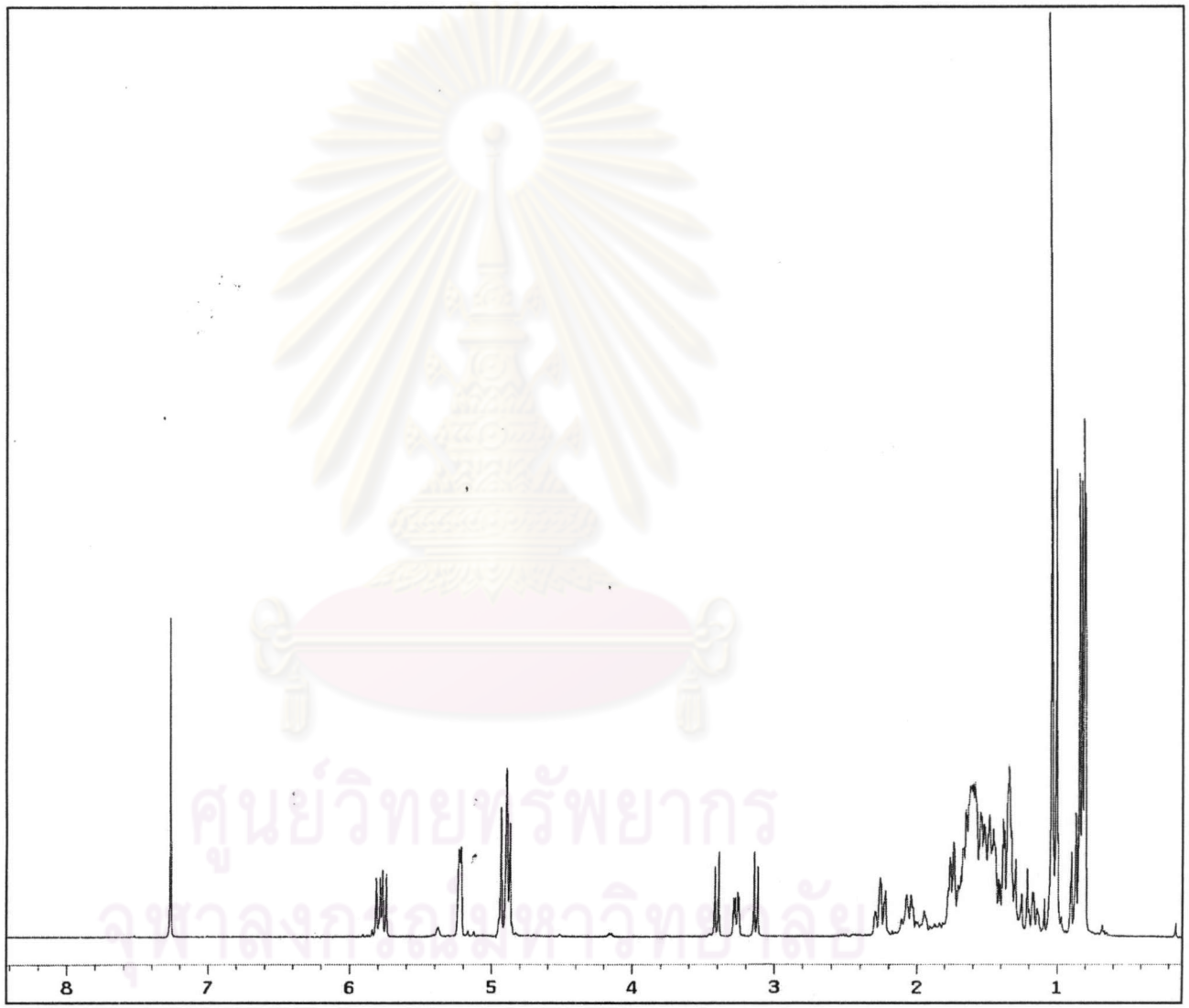

Figure 33 The ^{1}H-NMR spectrum of Fraction IIE

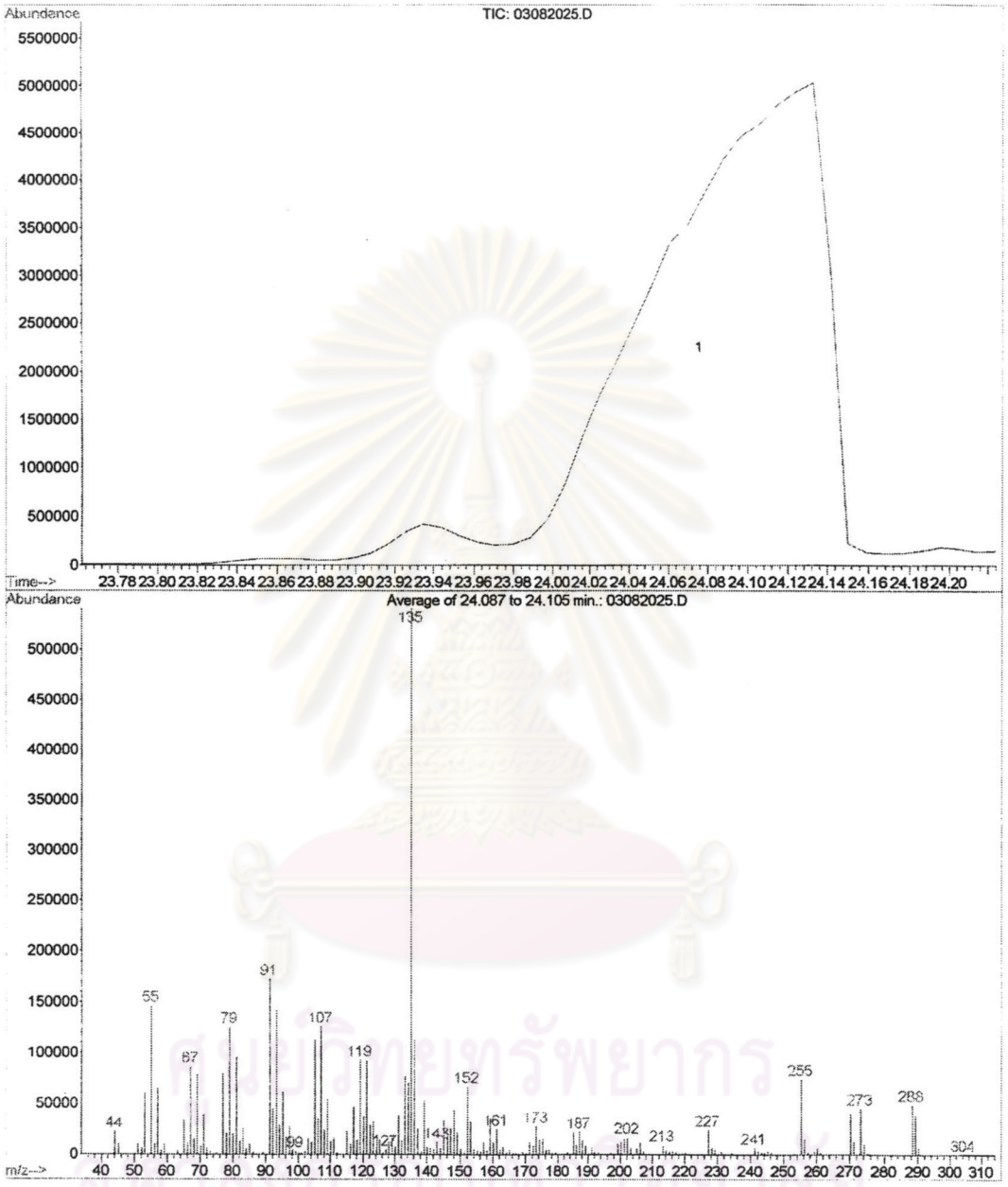

Figure 34 The mass spectrum of component **1** (retention time at 24.10 min)

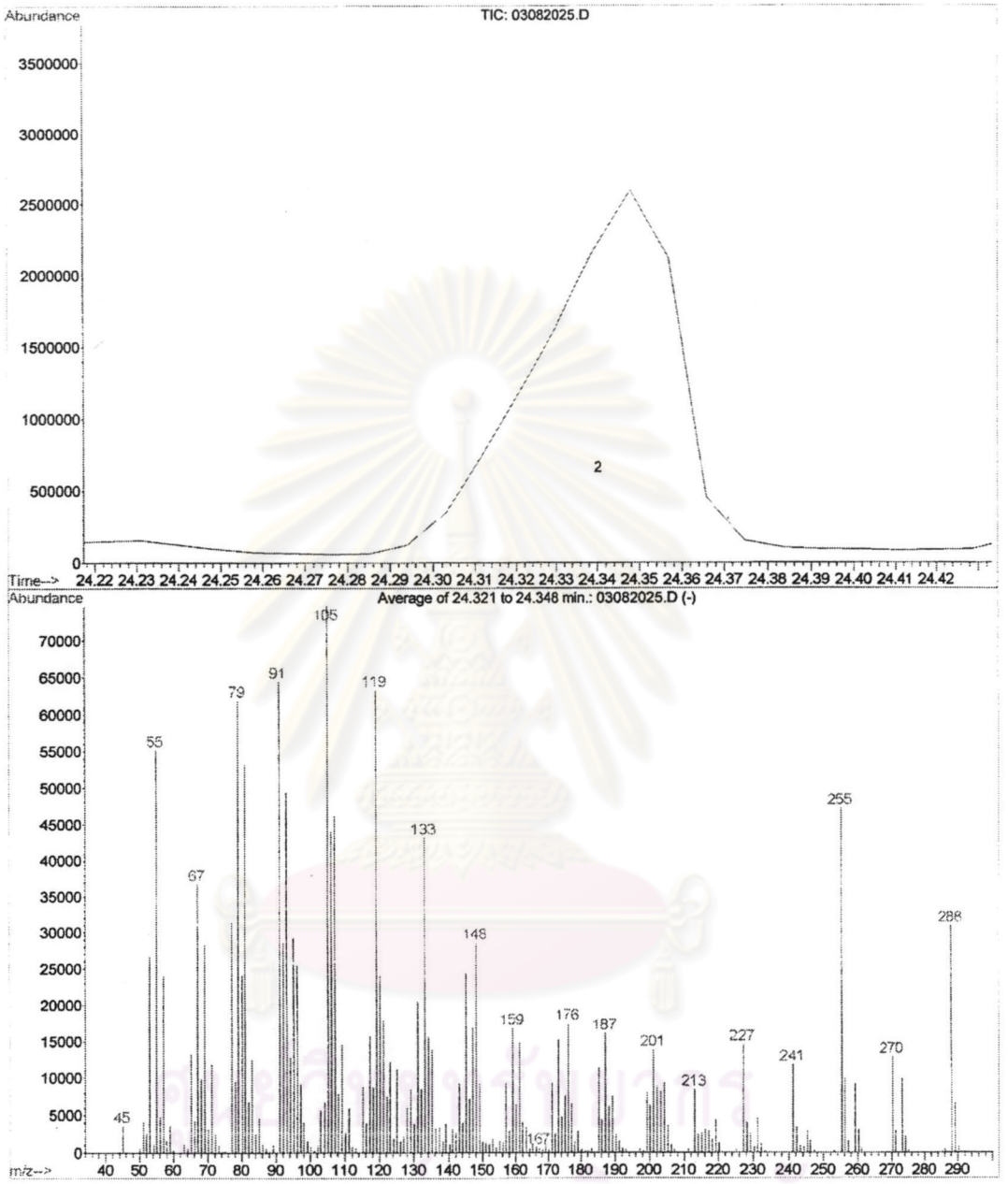

Figure 35 The mass spectrum of component **2** (retention time at 24.33 min)

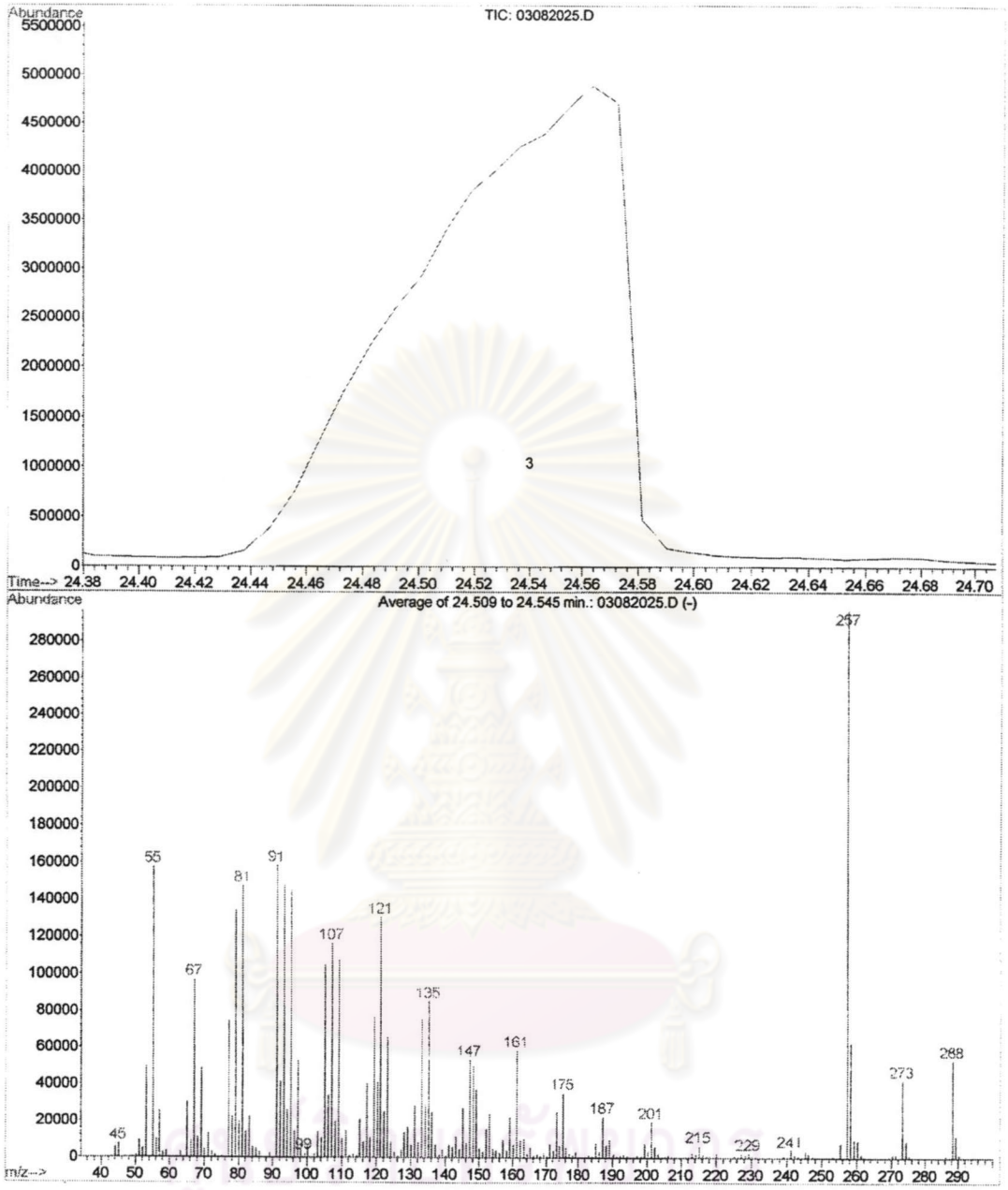

Figure 36 The mass spectrum of component **3** (retention time at 24.53 min)

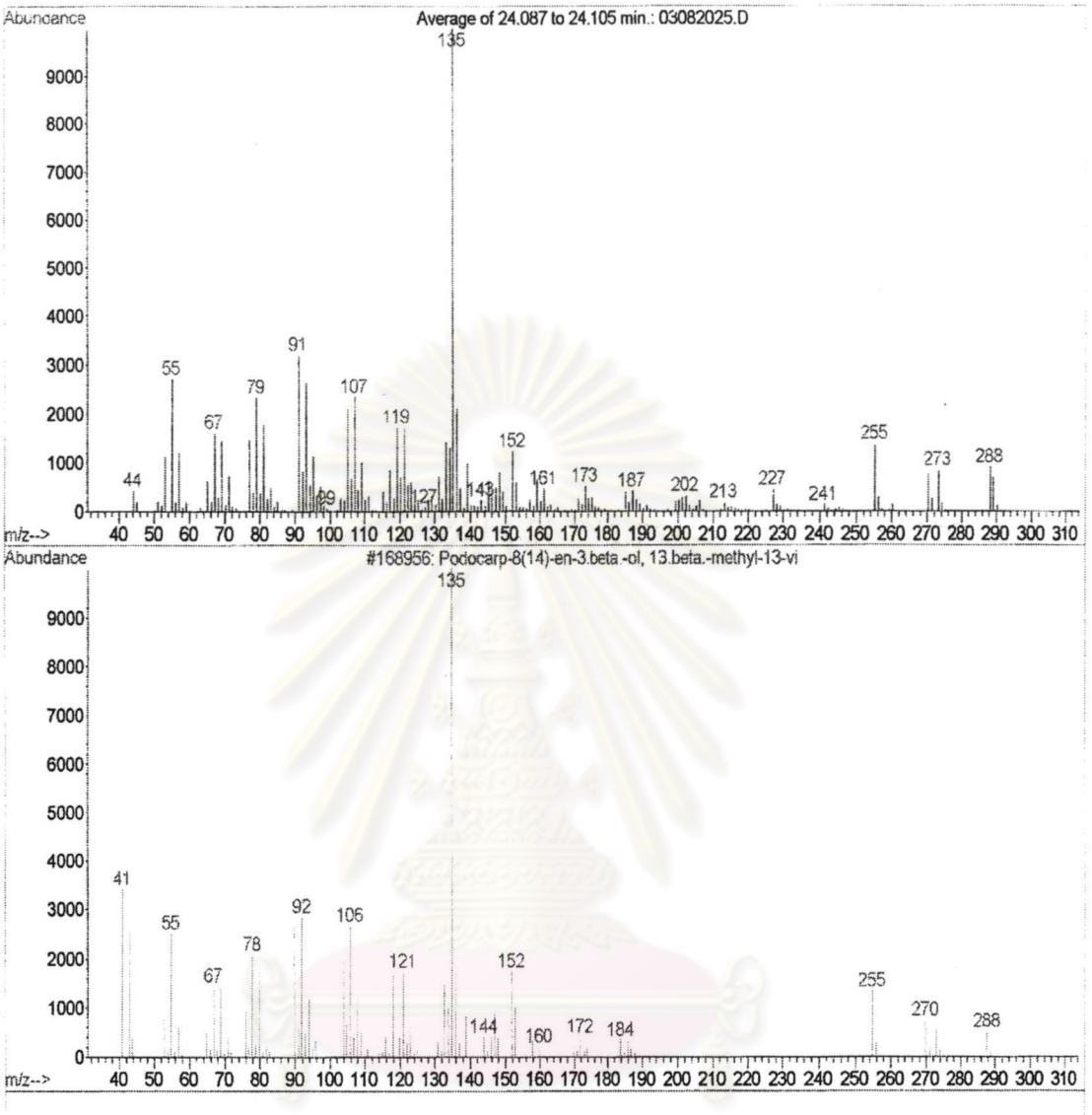

Figure 37 The mass spectrum of component **1** compared with 8(14),15-isopimaradiene-3β-ol

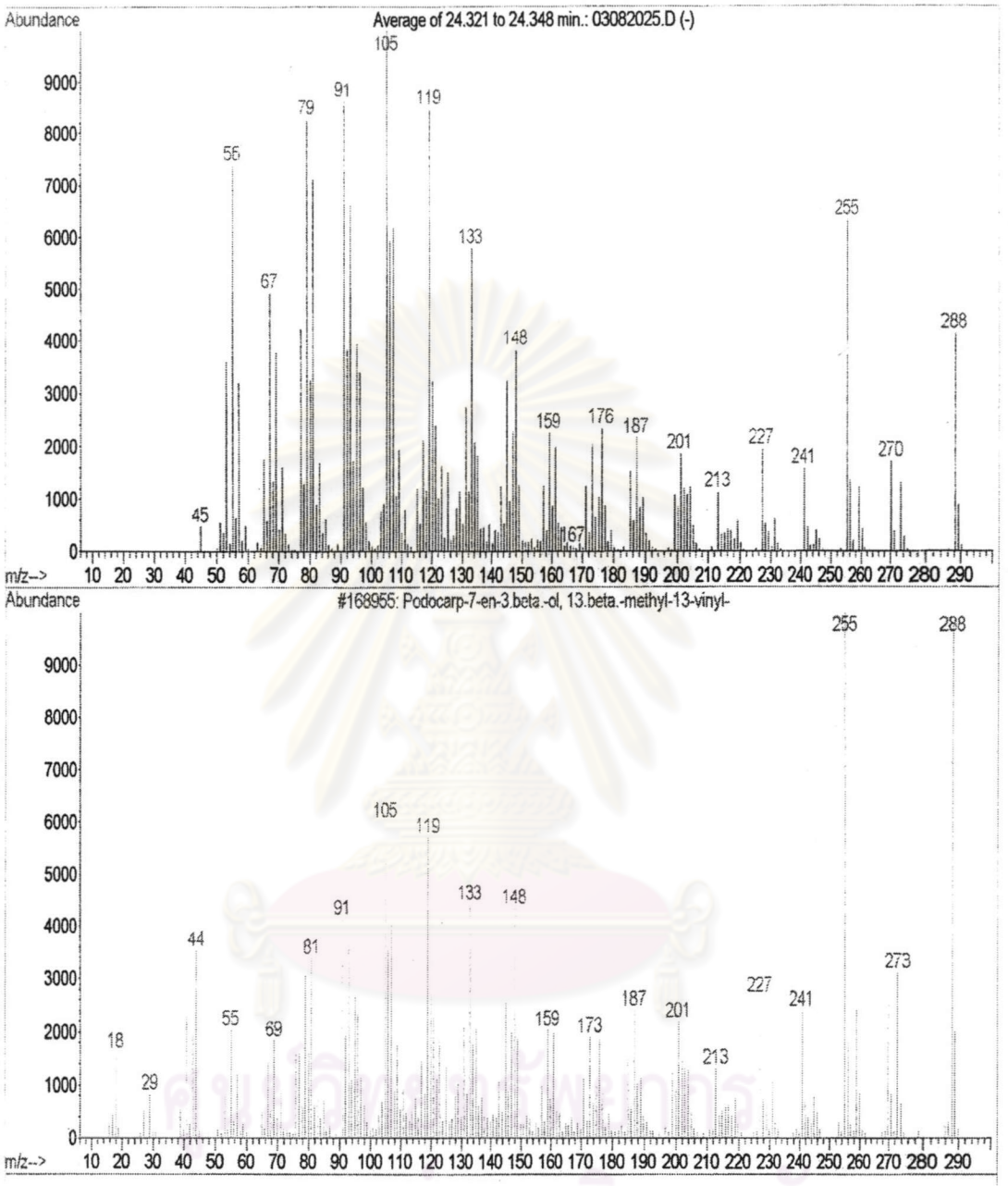

Figure 38 The mass spectrum of component **2** compared with 7,15-isopimaradiene-3β-ol

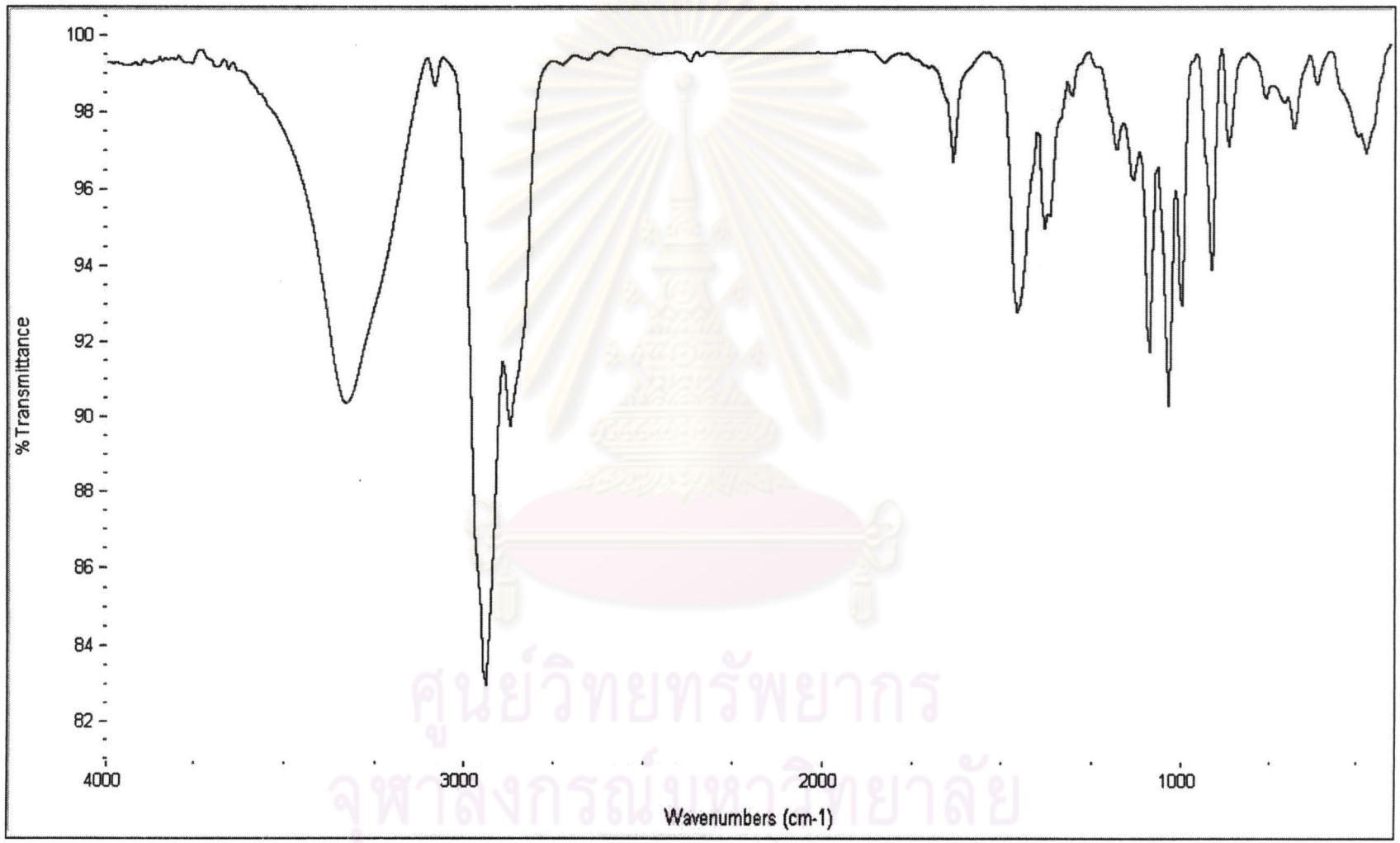

Figure 39 The FT-IR spectrum of compound **6**

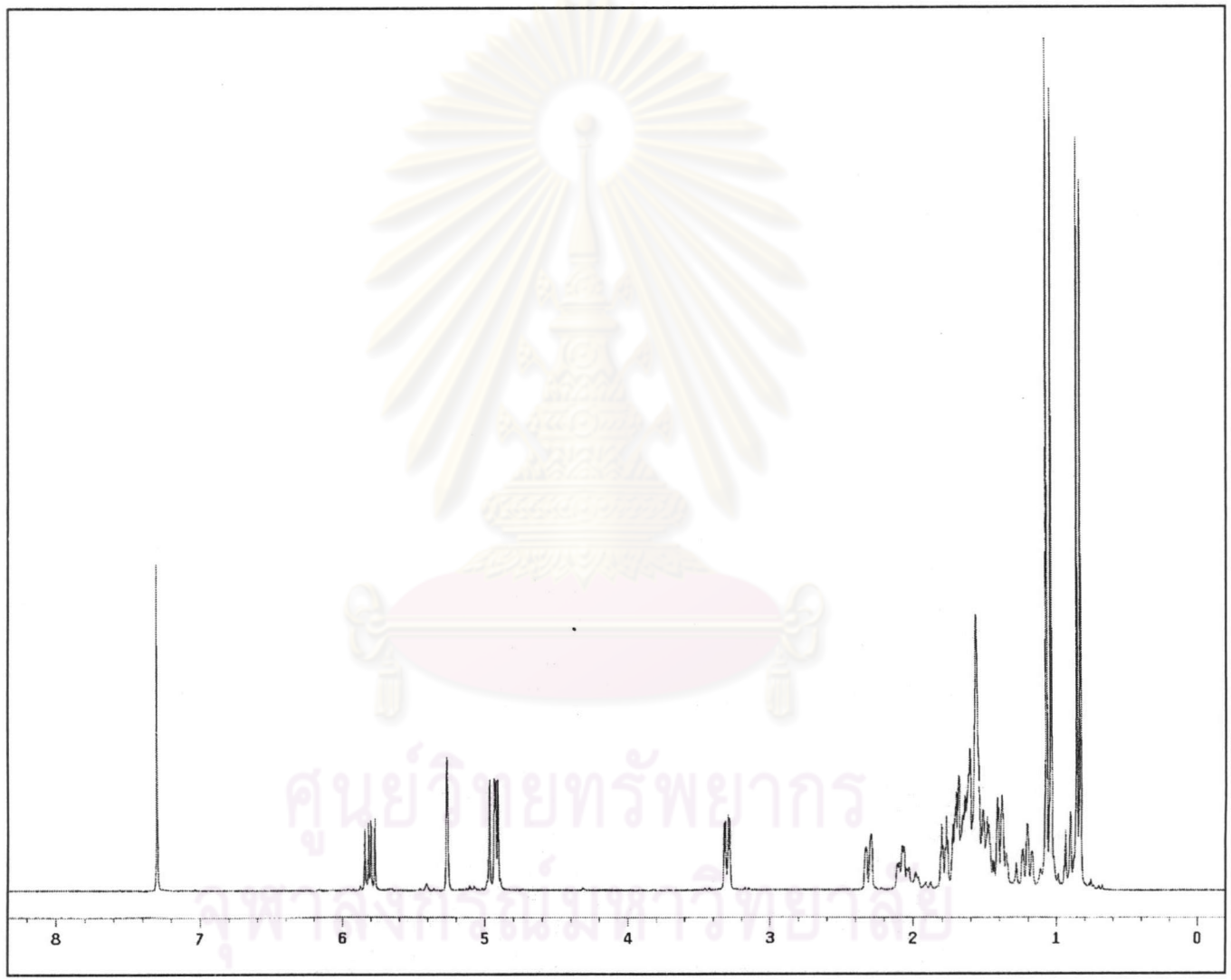

Figure 40 The ^{1}H-NMR spectrum of compound **6**

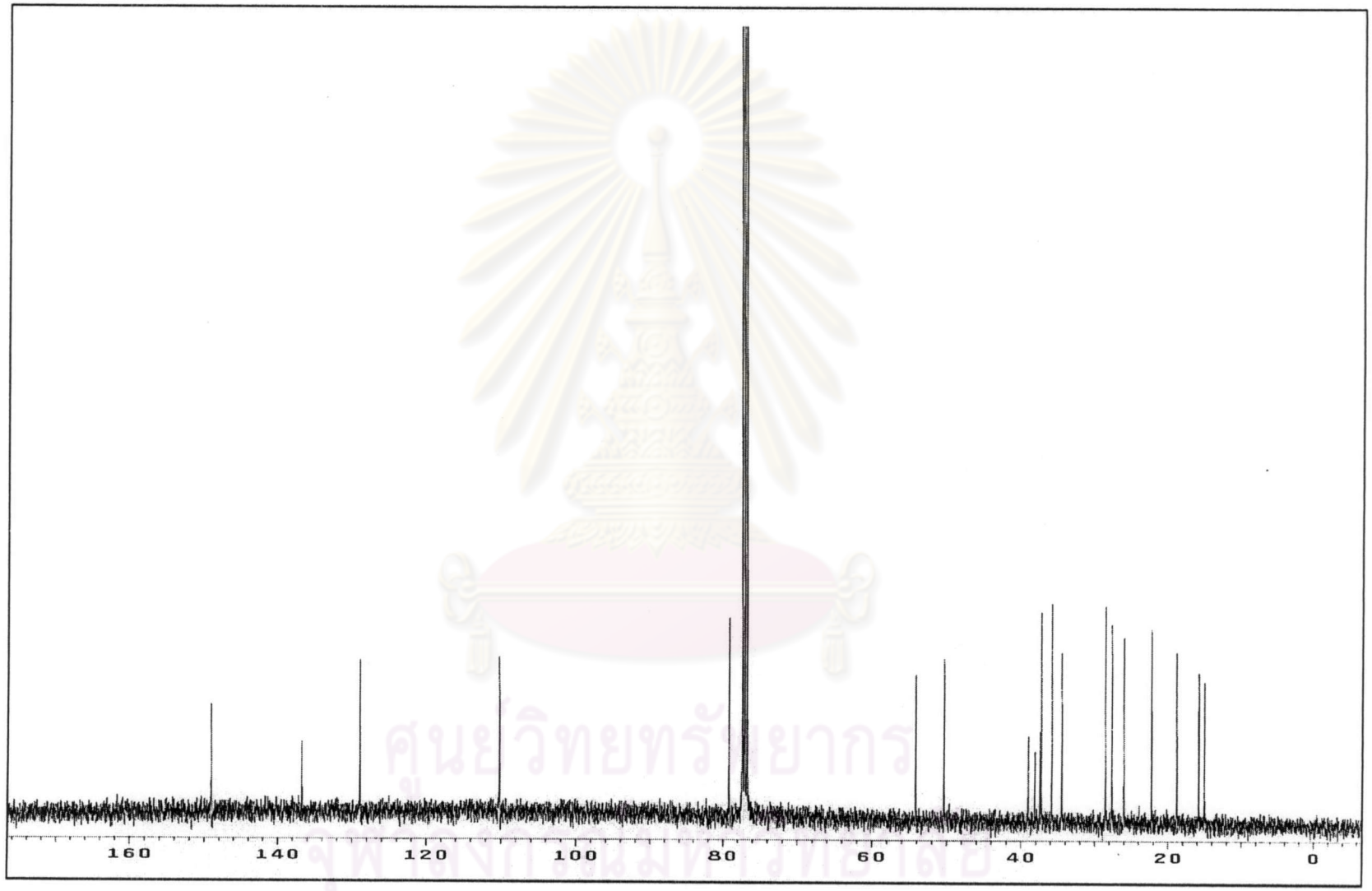

Figure 41 The ^{13}C-NMR spectrum of compound **6**

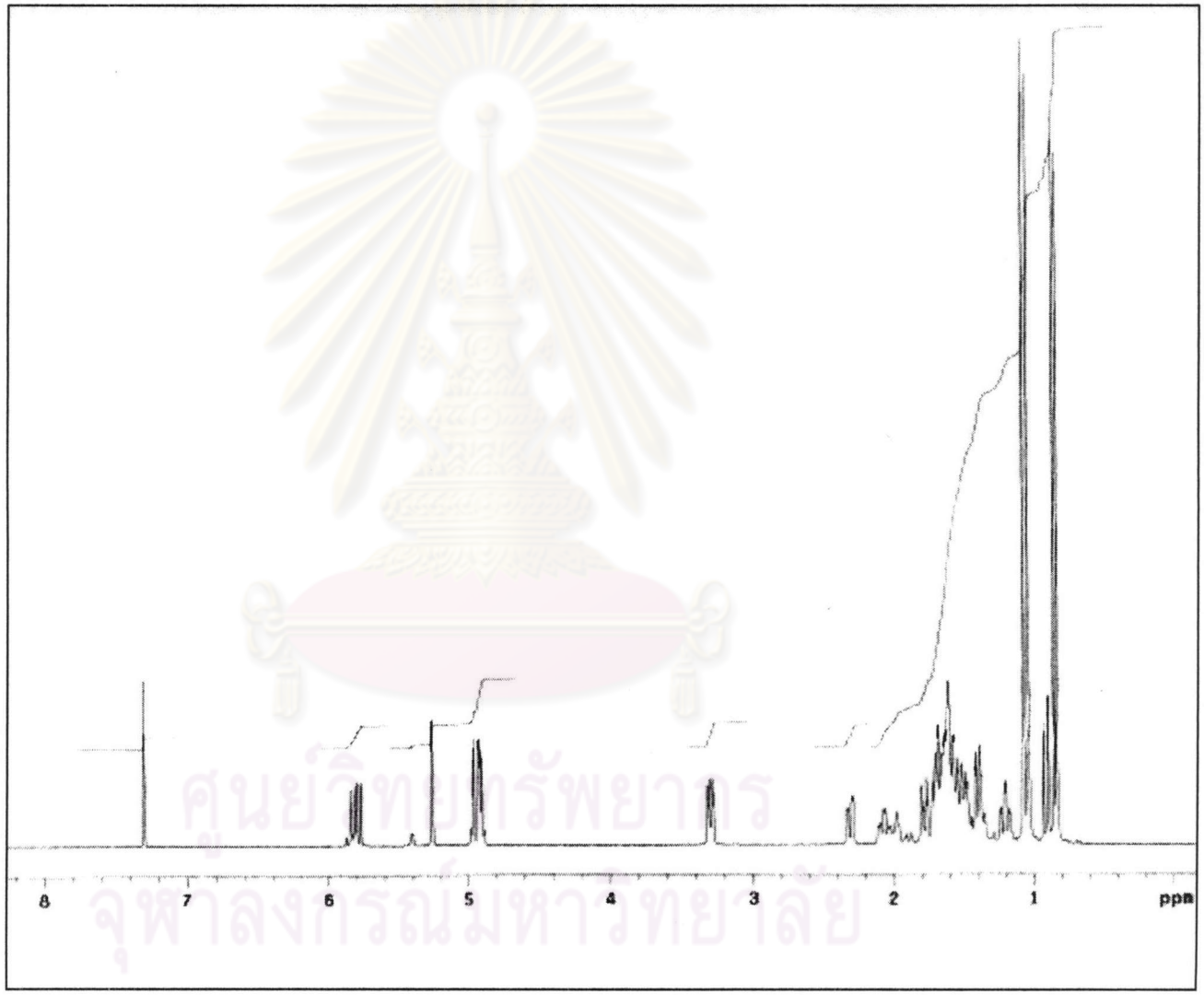

Figure 42 The ^{1}H-NMR spectrum of reduced compound **1**

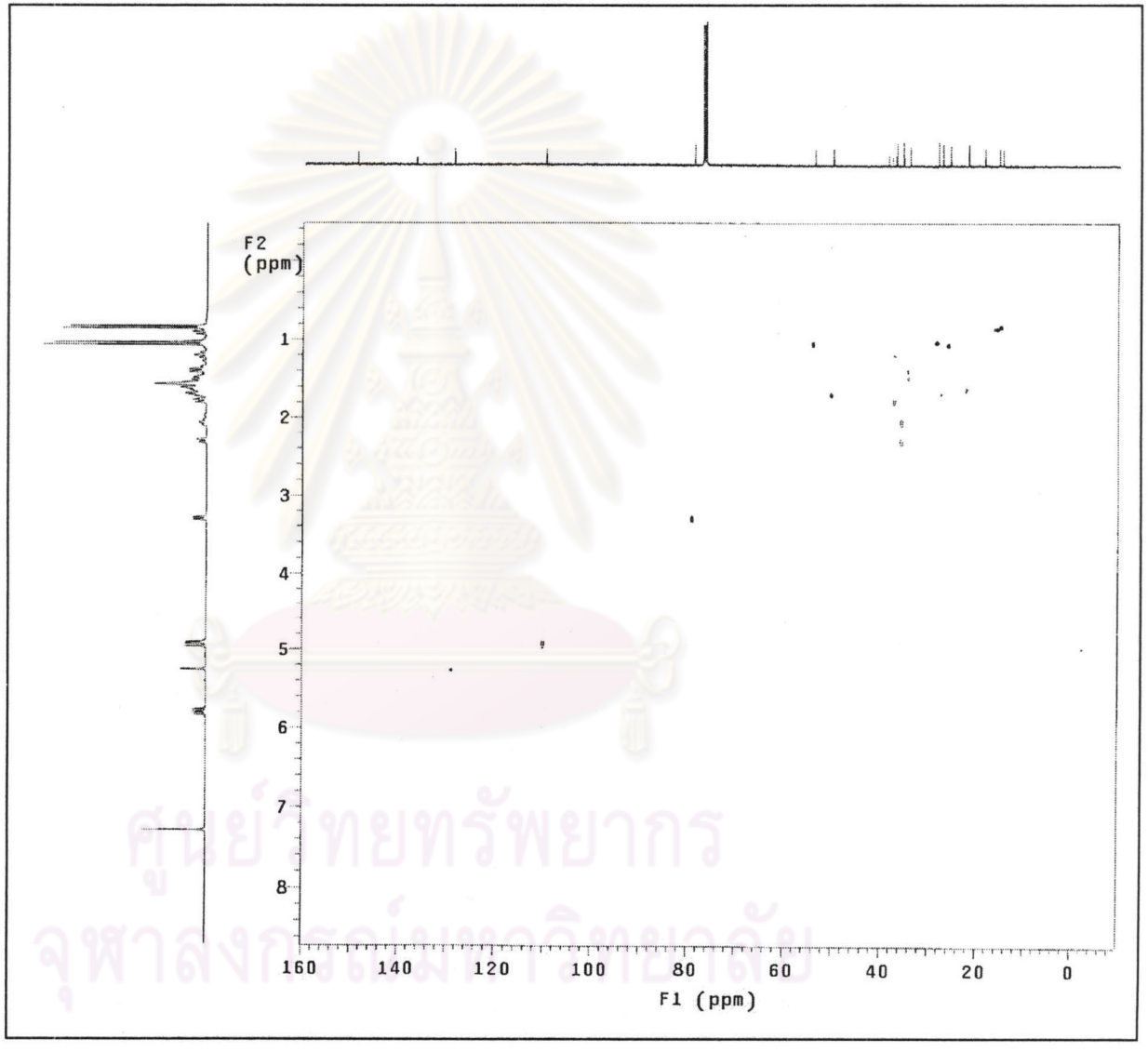

Figure 43 The HSQC spectrum of compound **6**

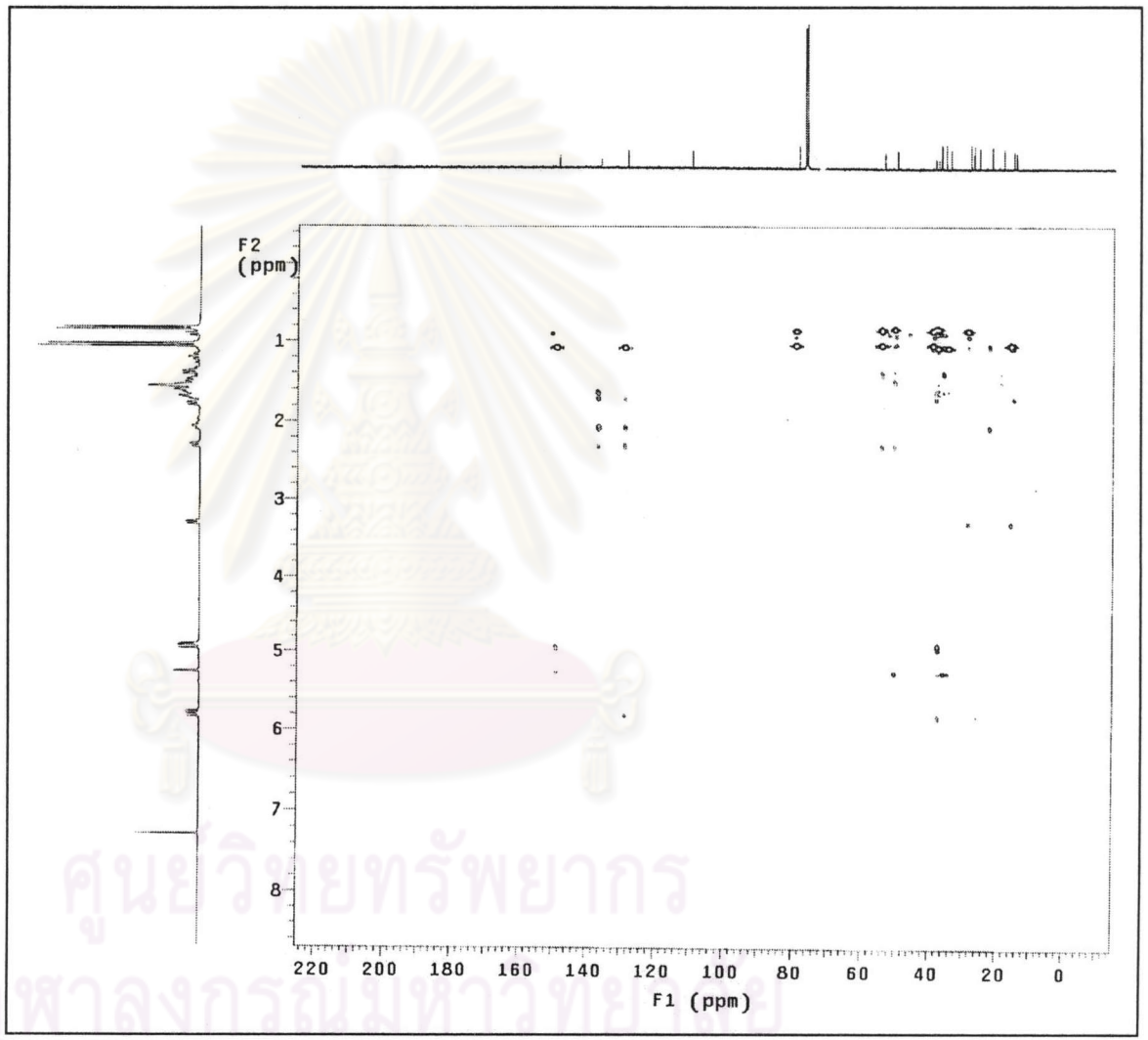

Figure 44 The HMBC spectrum of compound **6**

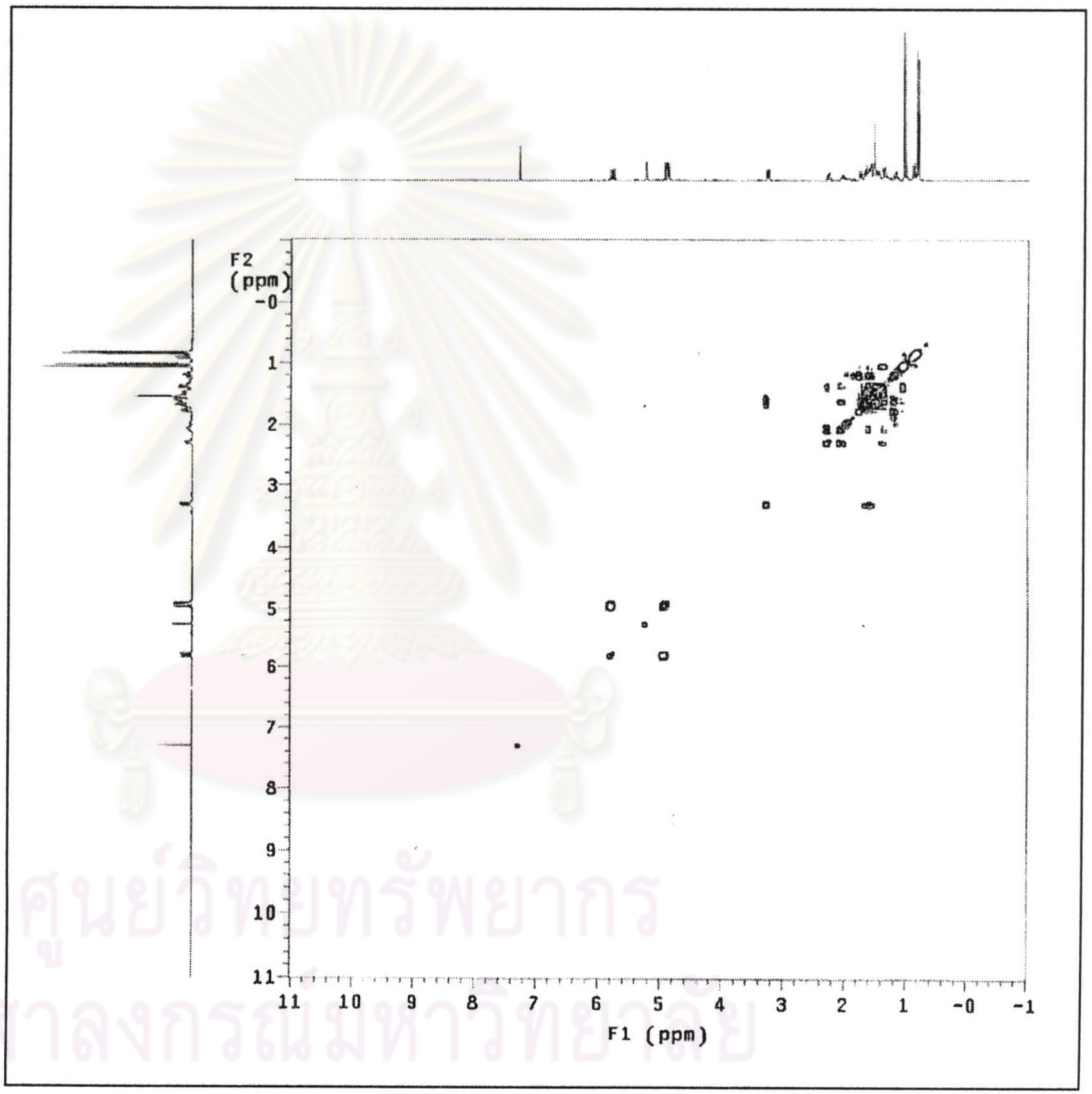

Figure 45 The ^{1}H-^{1}H COSY of compound **6**

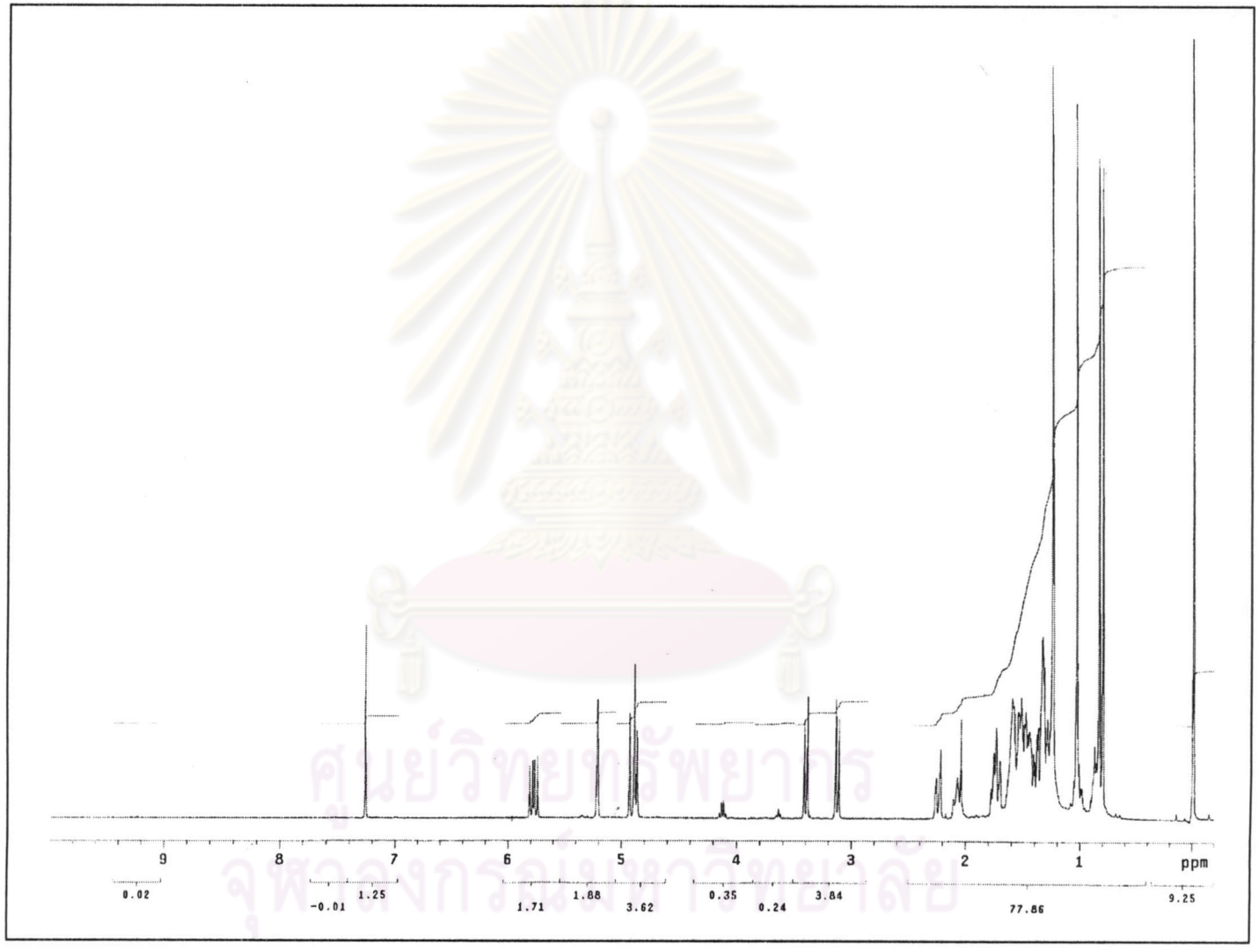

Figure 46 The ^{1}H-NMR spectrum of compound **7**

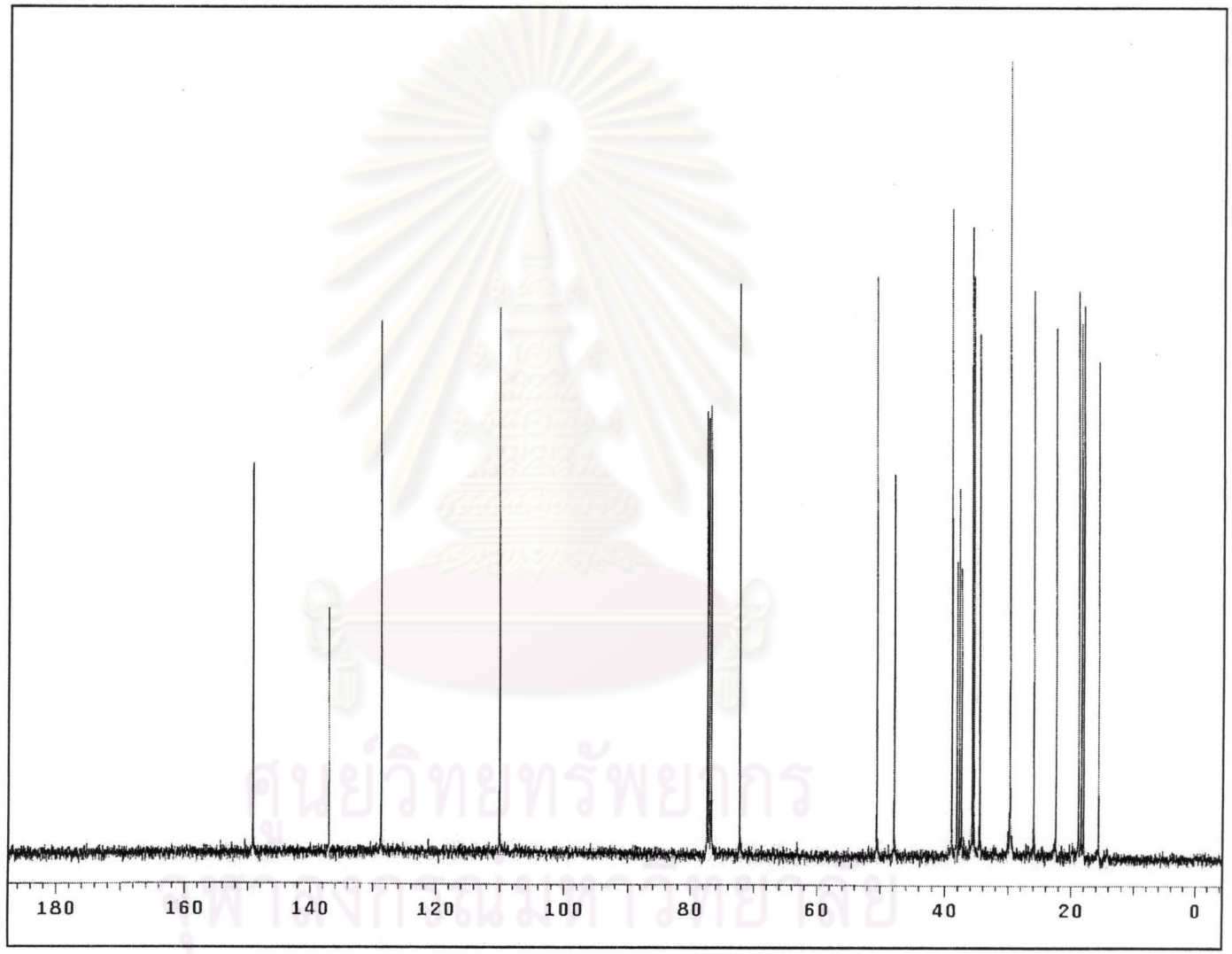

Figure 47 The ^{13}C-NMR spectrum of compound **7**

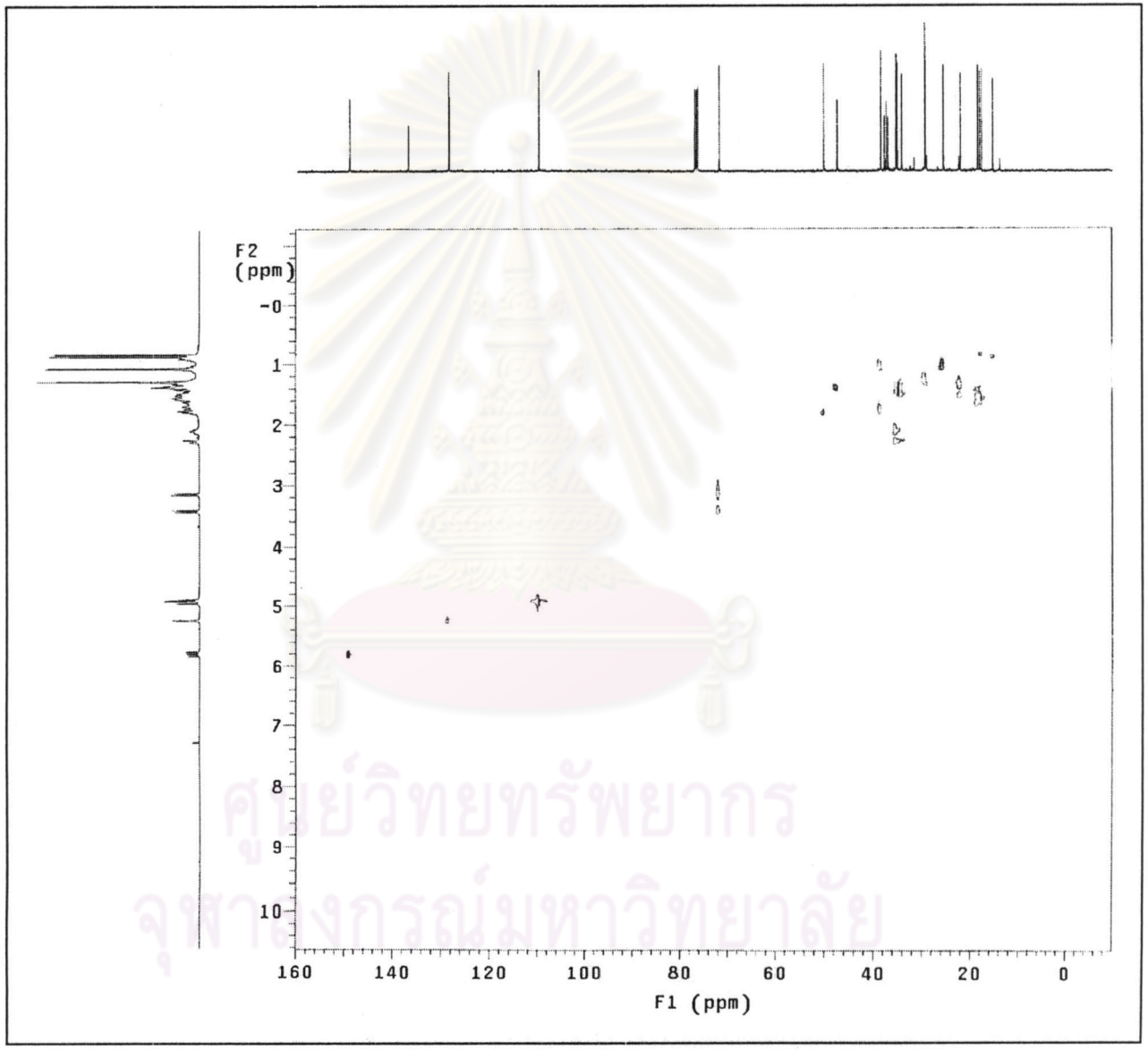

Figure 48 The HSQC spectrum of compound **7**

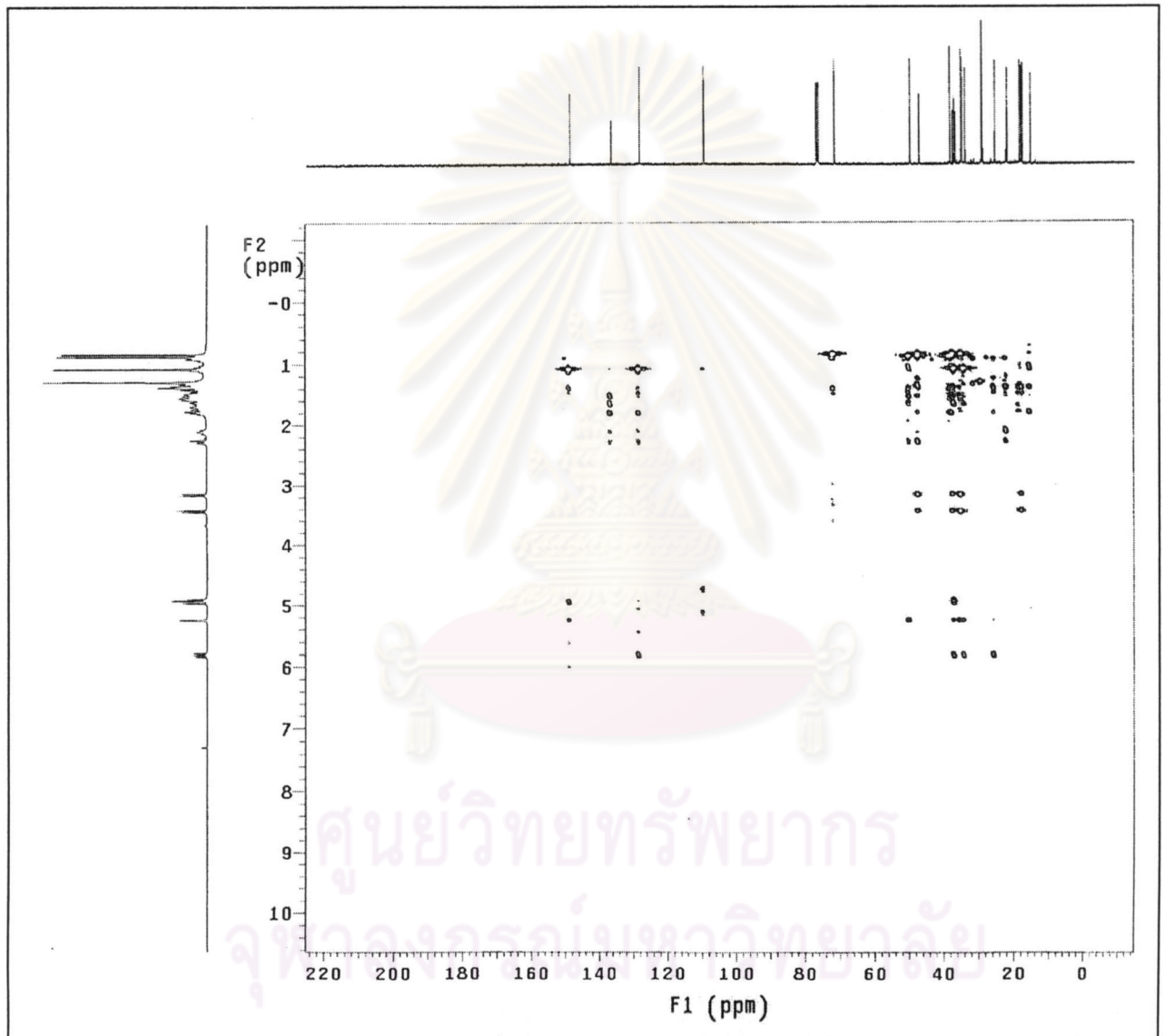

Figure 49 The HMBC spectrum of compound **7**

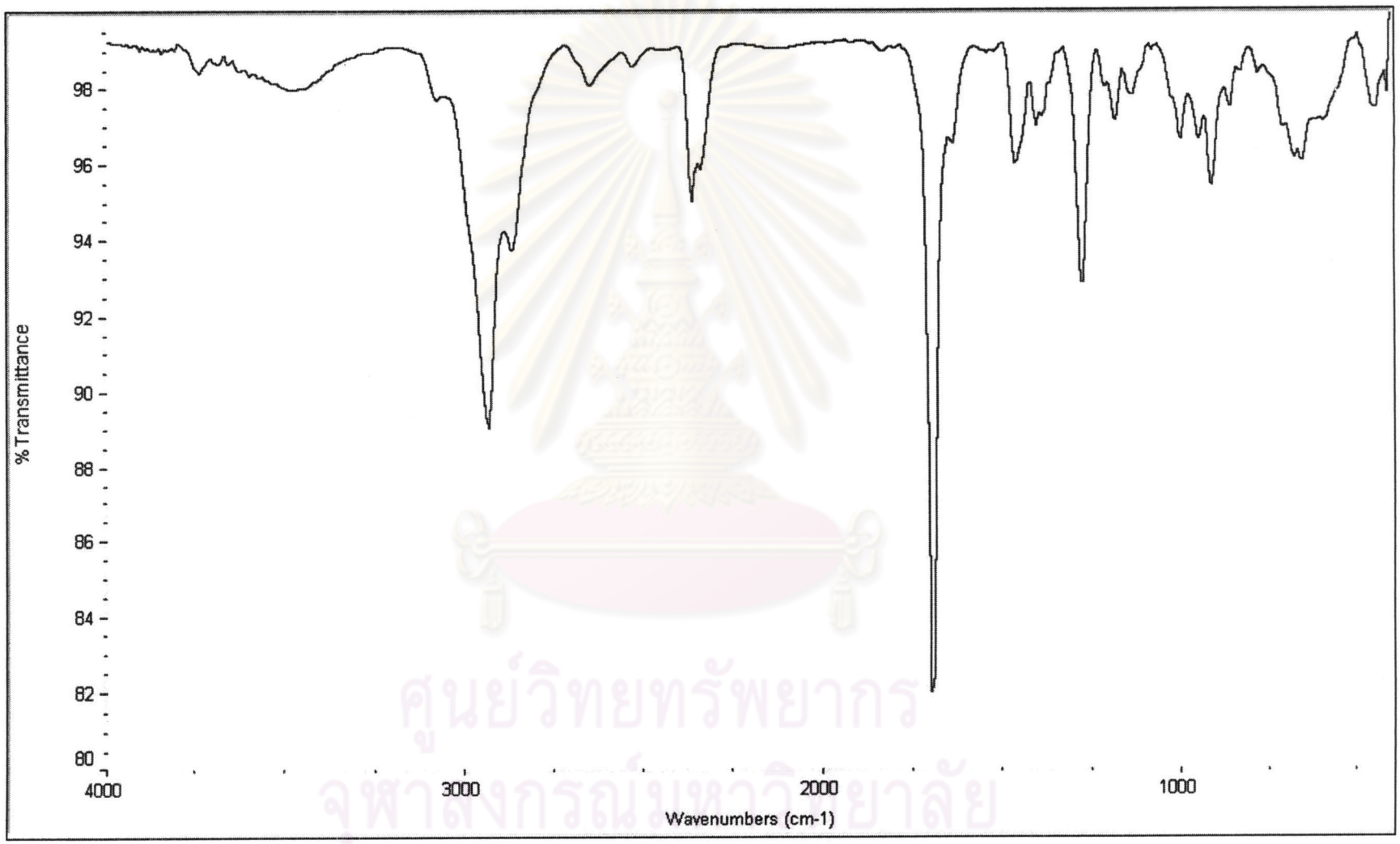

Figure 50 The FT-IR spectrum of compound **9**

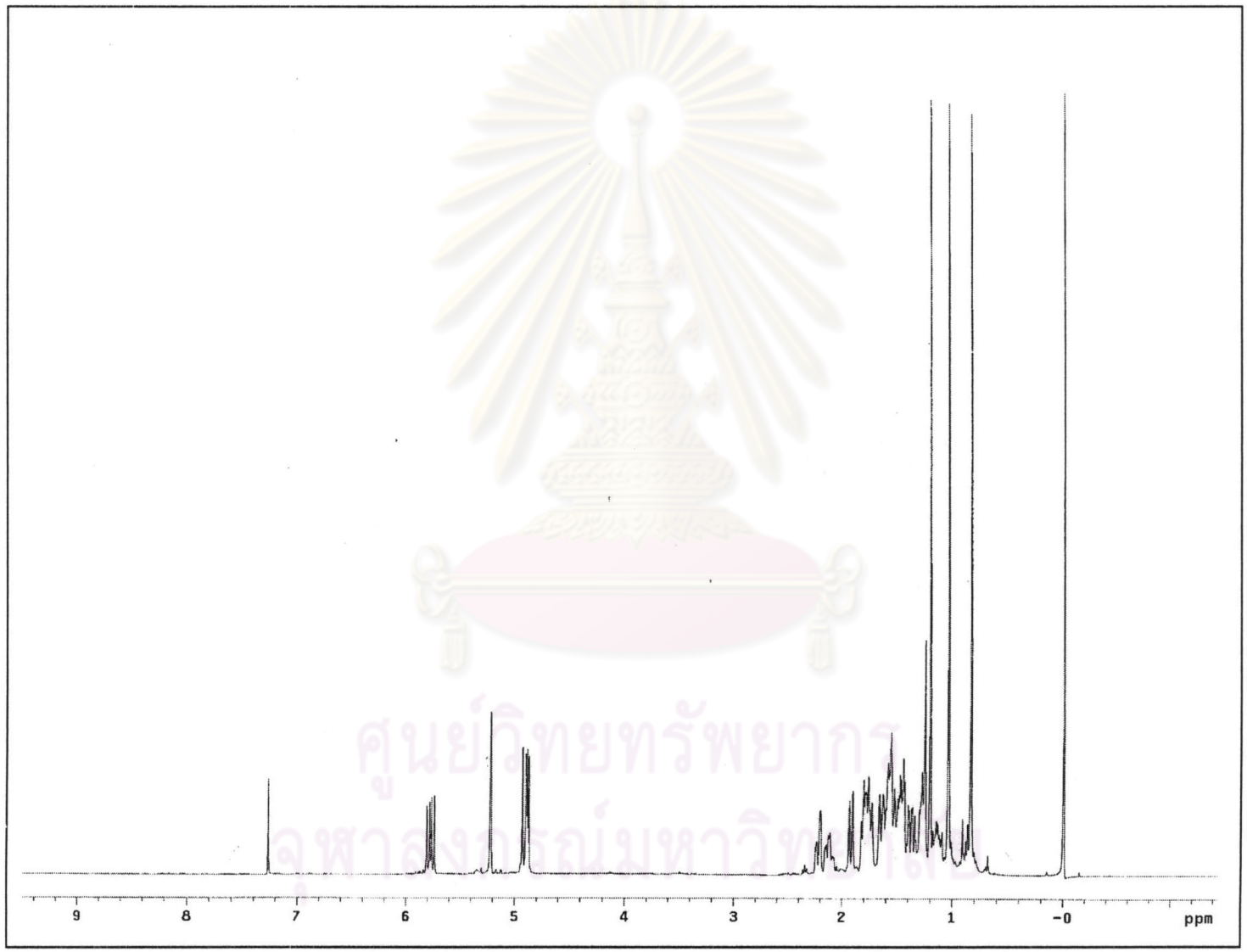

Figure 51 The ^{1}H-NMR spectrum of compound **9**

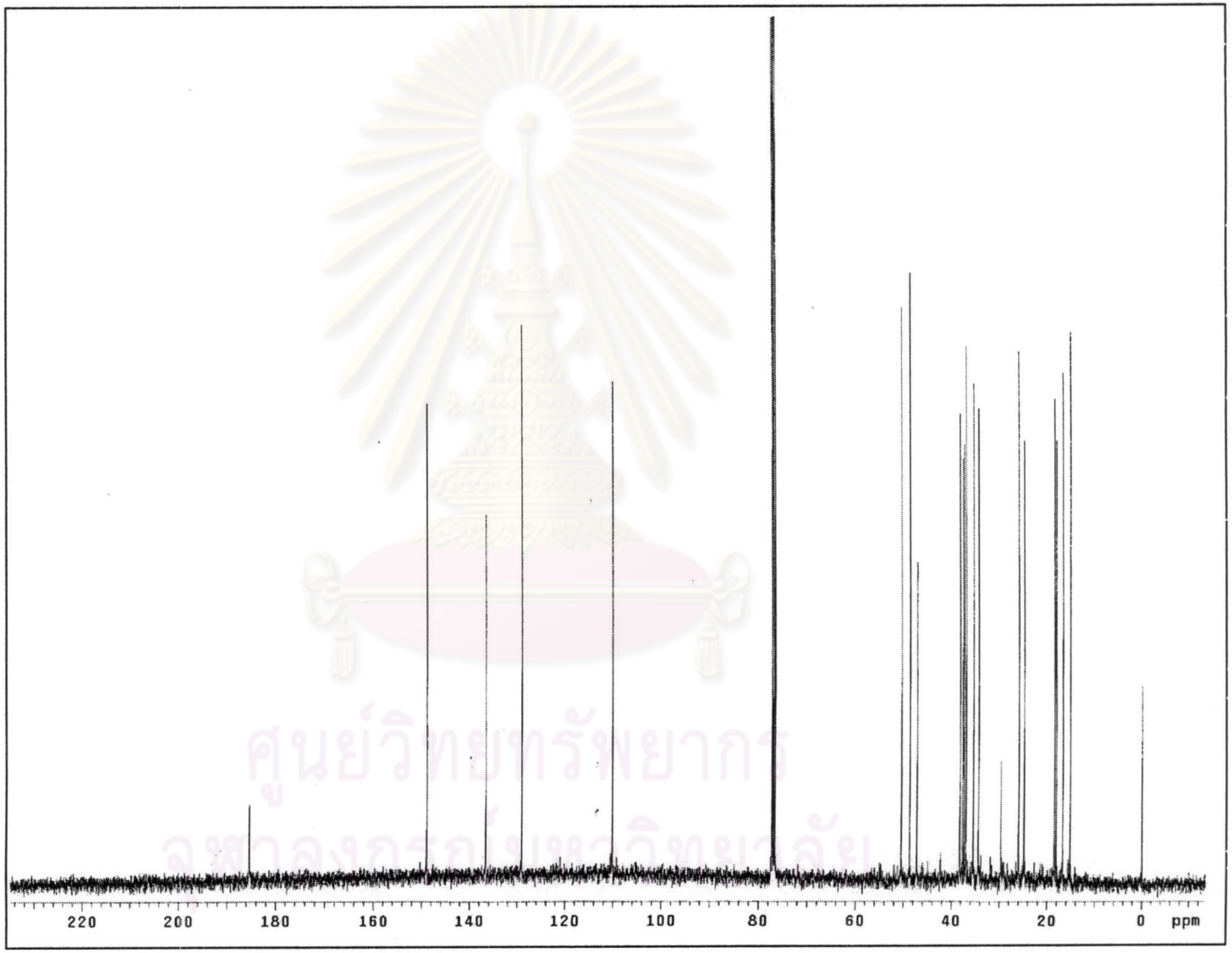

Figure 52 The ^{13}C-NMR spectrum of compound **9**

Appendix B

Probit analysis of compound **9**

********** PROBIT ANALYSIS **********

Parameter estimates converged after 9 iterations.
Optimal solution found.

Parameter Estimates (PROBIT model: (PROBIT(p)) = Intercept + BX):

	Regression Coeff.	Standard Error	Coeff./S.E.
VAR00001	1.49625	.21322	7.01735

Intercept	Standard Error	Intercept/S.E.
-.40582	.11203	-3.62246

Pearson Goodness-of-Fit Chi Square = 19.905 DF = 2 P = .000

Since Goodness-of-Fit Chi square is significant, a heterogeneity factor is used in the calculation of confidence limits.

********** PROBIT ANALYSIS **********

Observed and Expected Frequencies

VAR00001	Number of Subjects	Observed Responses	Expected Responses	Residual	Prob
1.00	100.0	81.6	86.224	-4.624	.86224
.50	100.0	71.8	63.394	8.406	.63394
.25	100.0	60.7	48.733	11.967	.48733
.13	100.0	26.3	41.341	-15.041	.41341

********** PROBIT ANALYSIS **********

Confidence Limits for Effective VAR00001

Prob	VAR00001	95% Confidence Limits Lower	Upper
.01	-1.28356	.	.
.02	-1.10137	.	.
.03	-.98578	.	.
.04	-.89883	.	.
.05	-.82809	.	.
.06	-.76789	.	.
.07	-.71510	.	.
.08	-.66784	.	.
.09	-.62485	.	.
.10	-.58529	.	.
.15	-.42146	.	.
.20	-.29126	.	.
.25	-.17956	.	.
.30	-.07925	.	.
.35	.01370	.	.
.40	.10190	.	.
.45	.18724	.	.
.50	.27123	.	.
.55	.35521	.	.
.60	.44055	.	.
.65	.52875	.	.
.70	.62170	.	.
.75	.72201	.	.
.80	.83371	.	.
.85	.96391	.	.
.90	1.12774	.	.
.91	1.16730	.	.
.92	1.21029	.	.
.93	1.25755	.	.
.94	1.31034	.	.
.95	1.37055	.	.
.96	1.44128	.	.
.97	1.52823	.	.
.98	1.64383	.	.
.99	1.82601	.	.

VITA

Wantanee Sittiwong was born on August 1, 1979 in Chonburi province, Thailand. She obtained a Bachelor Degree of Science, majoring in Chemistry from Chulalongkorn University, Bangkok, Thailand in 2000. Since 2001, she has been a graduate student studying Organic Chemistry at Department of Chemistry, Faculty of Science, Chulalongkorn University, Bangkok, Thailand. During the course of study, she obtained financial support from Graduate School Chulalongkorn University.