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APPENDIXES

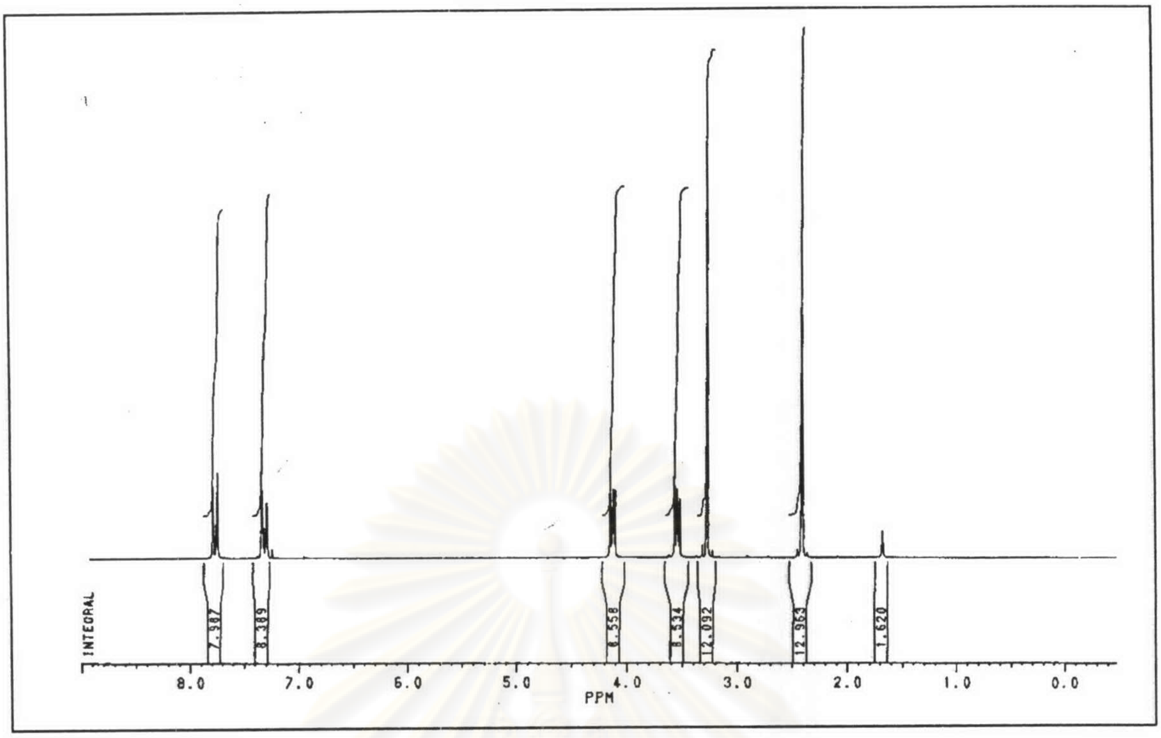

Figure A.1 The ^{1}H-NMR spectrum of ethylene glycol monomethyl tosylate, **1**.

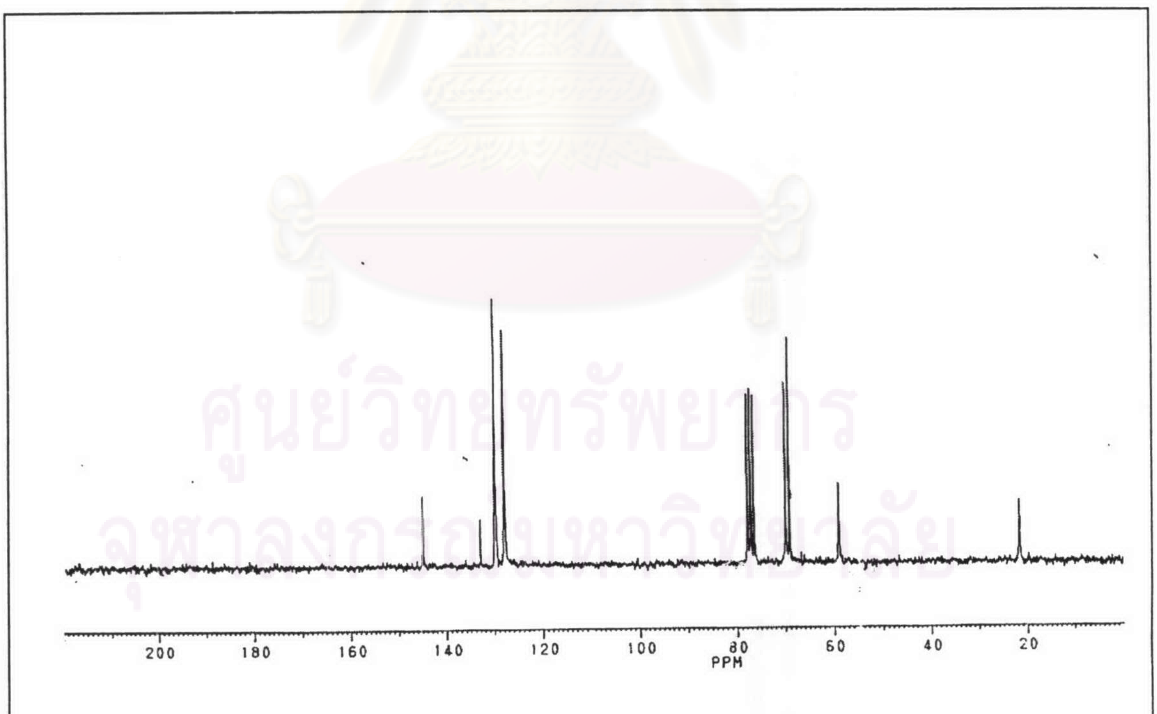

Figure A.2 The ^{13}C-NMR spectrum of ethylene glycol monomethyl tosylate, **1**.

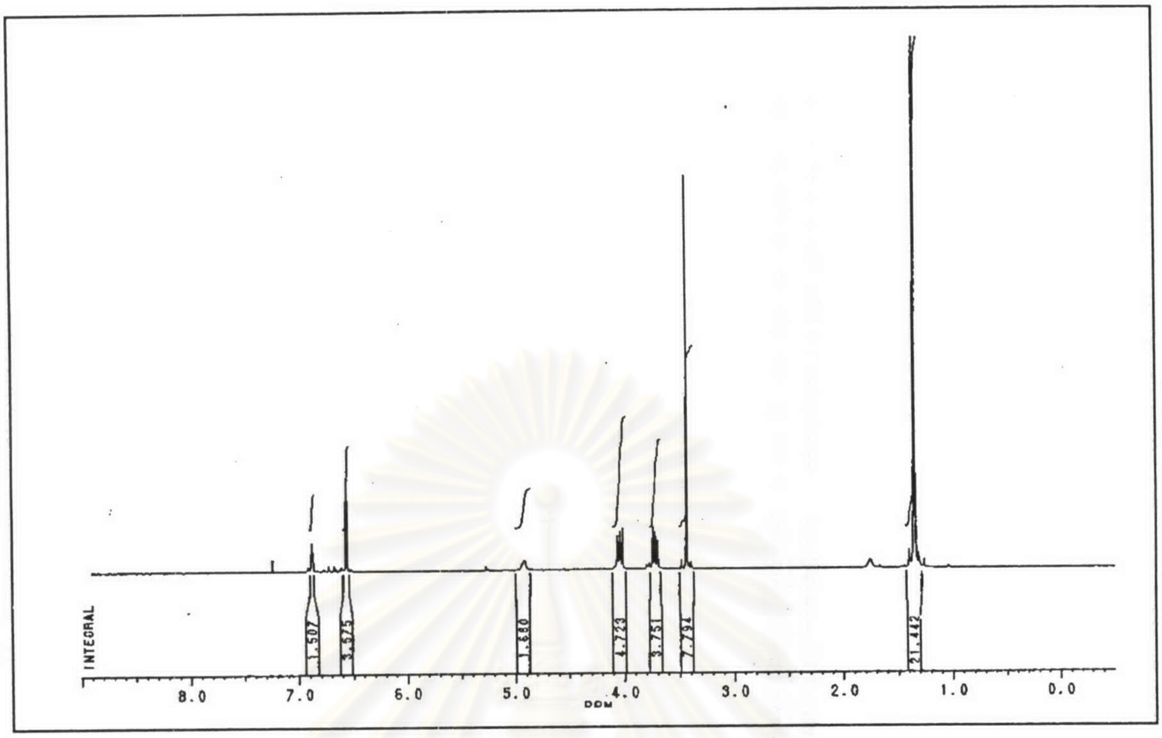

Figure A.3 The ¹H-NMR spectrum of 2-*t*-butyl-4-(2-methoxyethoxy)phenol, **2**.

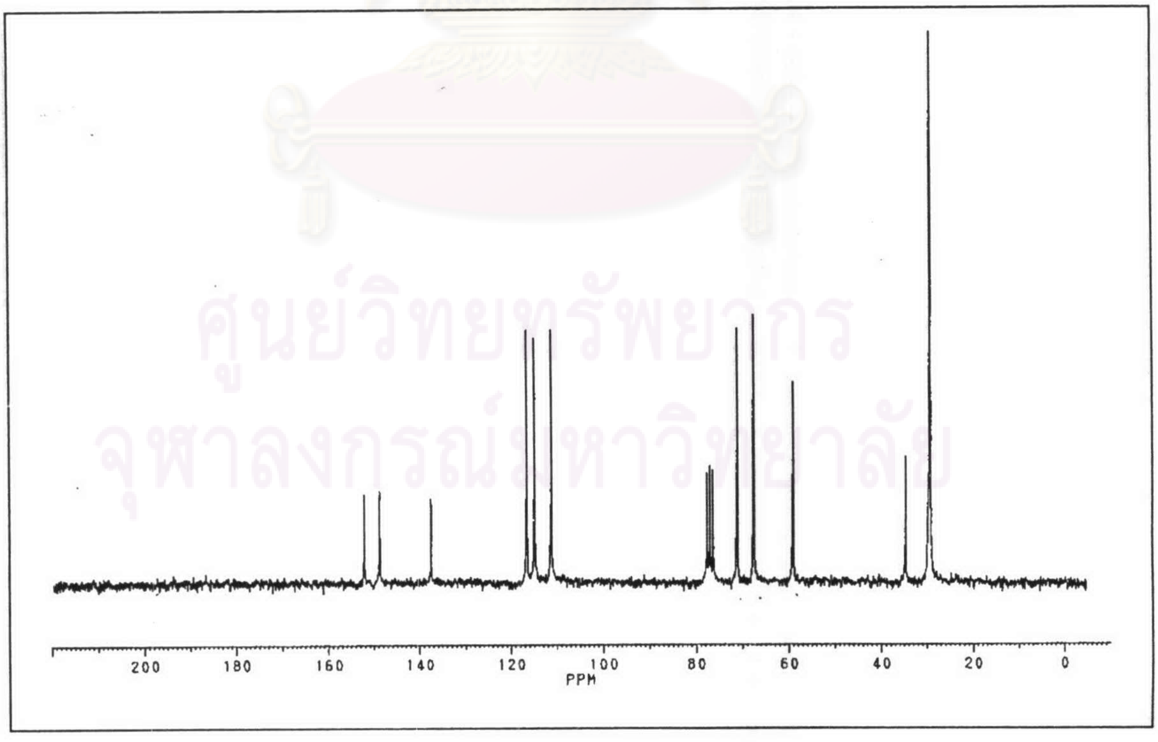

Figure A.4 The ¹³C-NMR spectrum of 2-*t*-butyl-4-(2-methoxyethoxy)phenol, **2**.

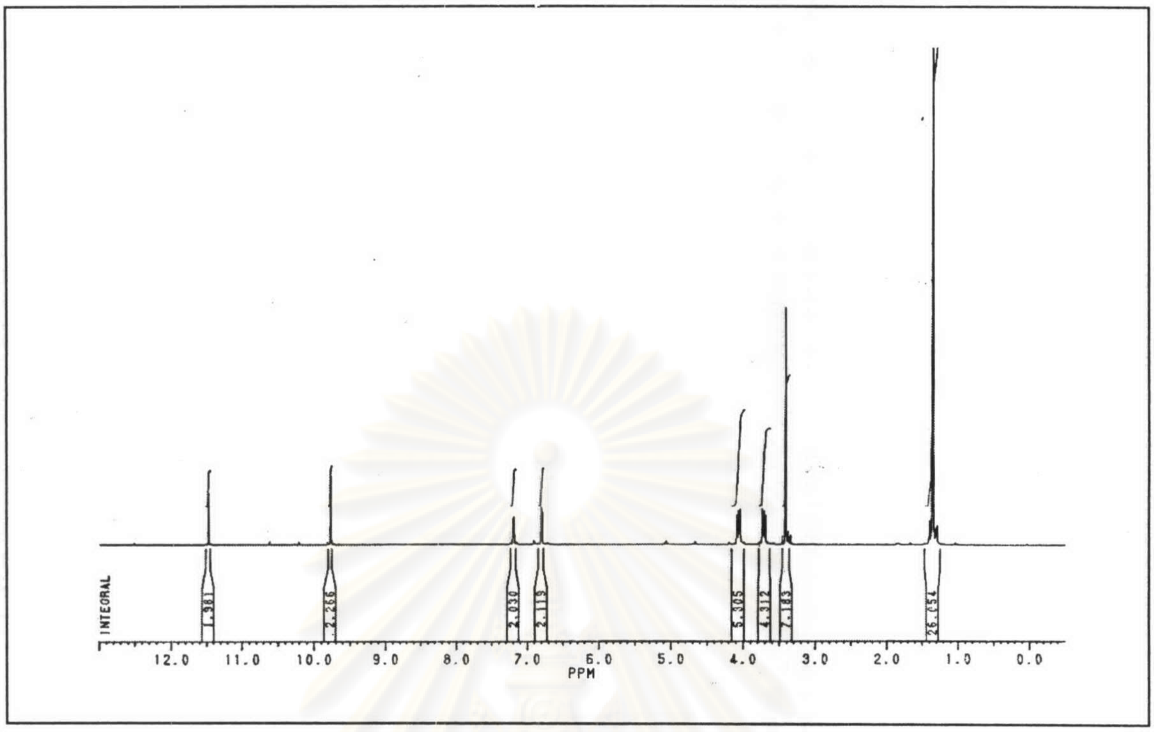

Figure A.5 The ^{1}H-NMR spectrum of 3-*t*-butyl-5-(2-methoxyethoxy salicylaldehyde, **3**.

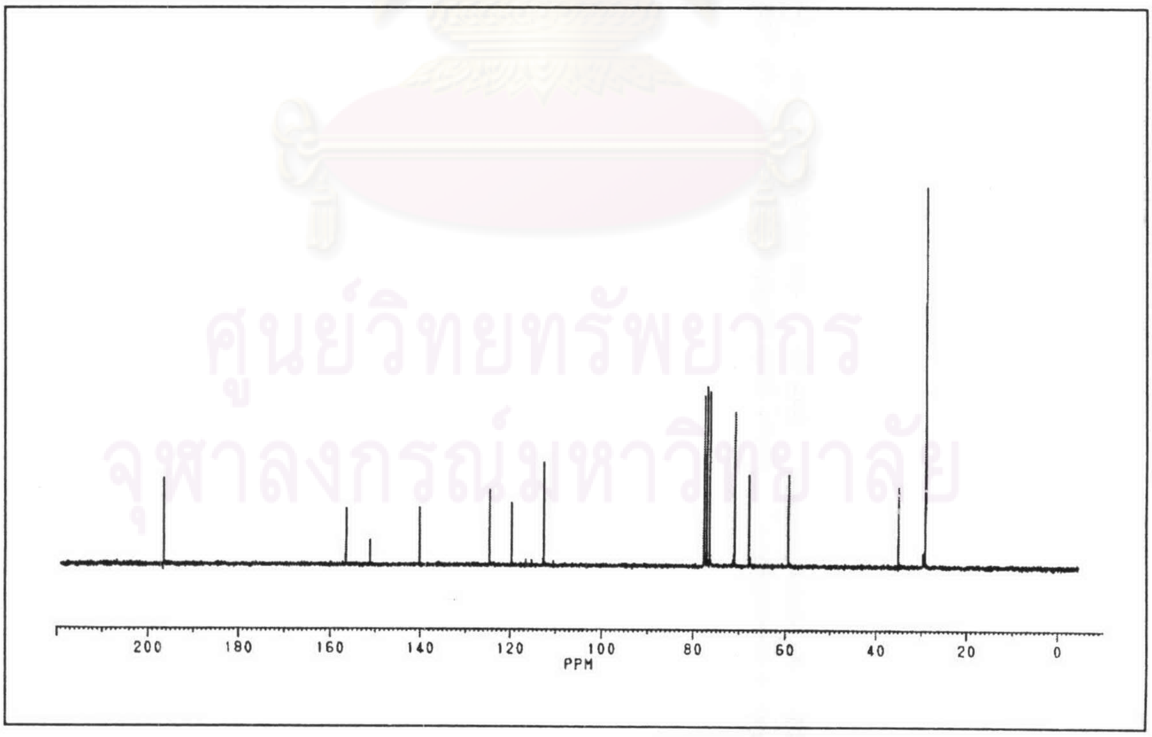

Figure A.6 The ^{13}C-NMR spectrum of 3-*t*-butyl-5-(2-methoxyethoxy) salicylaldehyde, **3**.

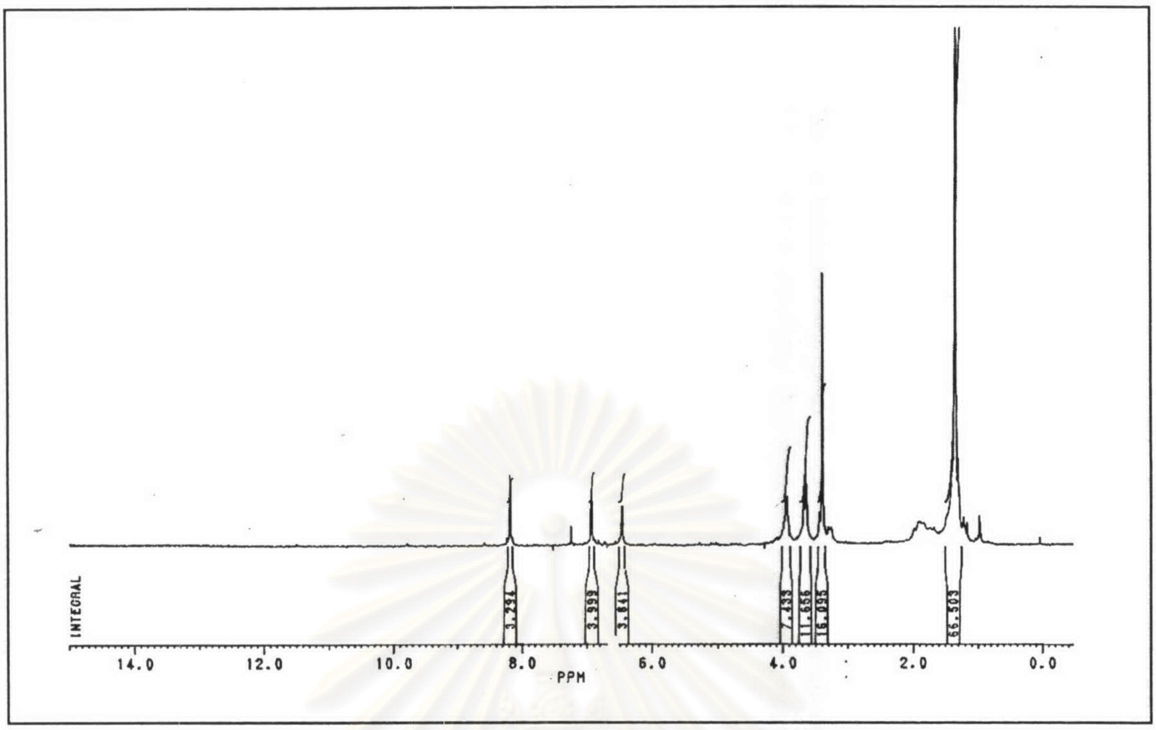

Figure A.7 The ^{1}H-NMR spectrum of (*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-(2-methoxy ethoxy)salicylidine)-1,2-cyclohexanediamine, **4**.

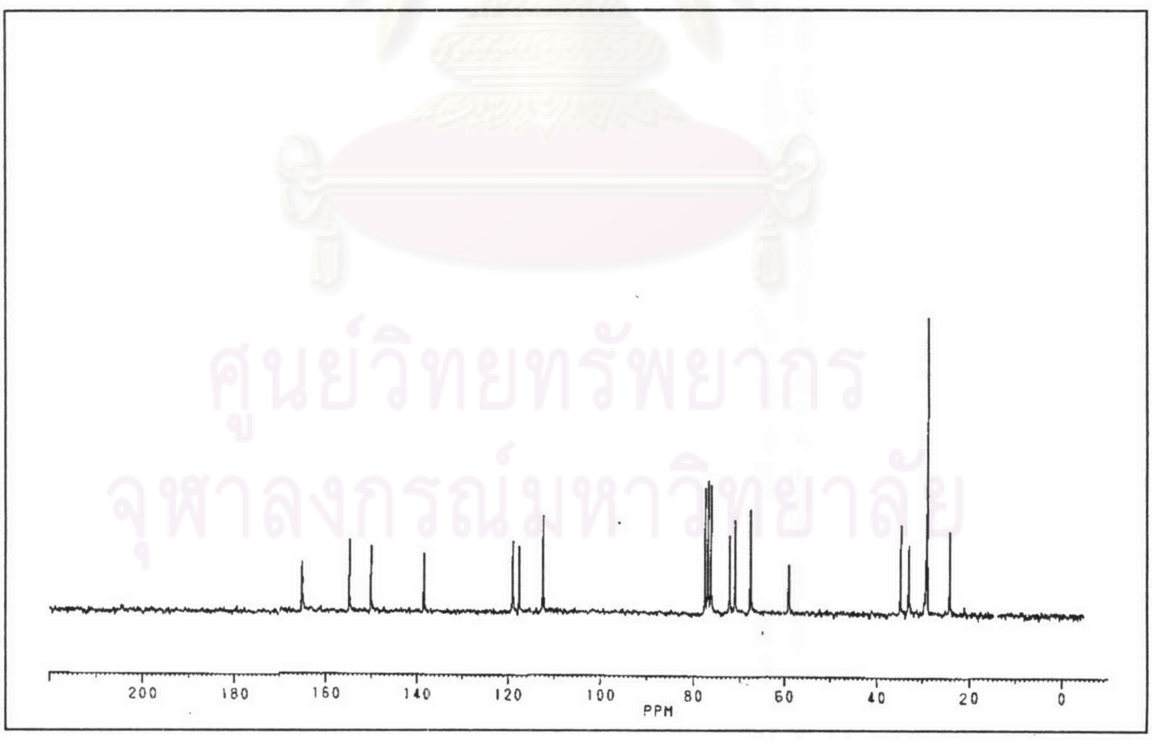

Figure A.8 The ^{13}C-NMR spectrum of (*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-(2-methoxy ethoxy)salicylidine)-1,2-cyclohexanediamine, **4**.

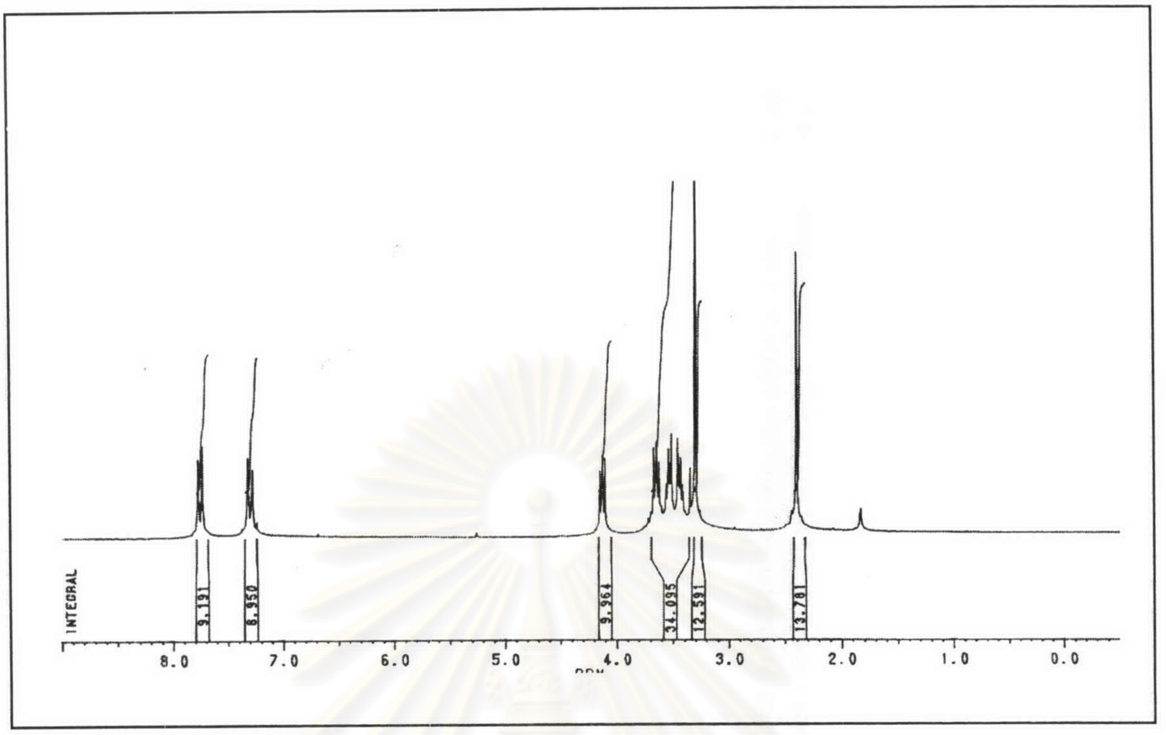

Figure A.9 The ^{1}H-NMR spectrum of diethylene glycol monomethyl tosylate, **5**.

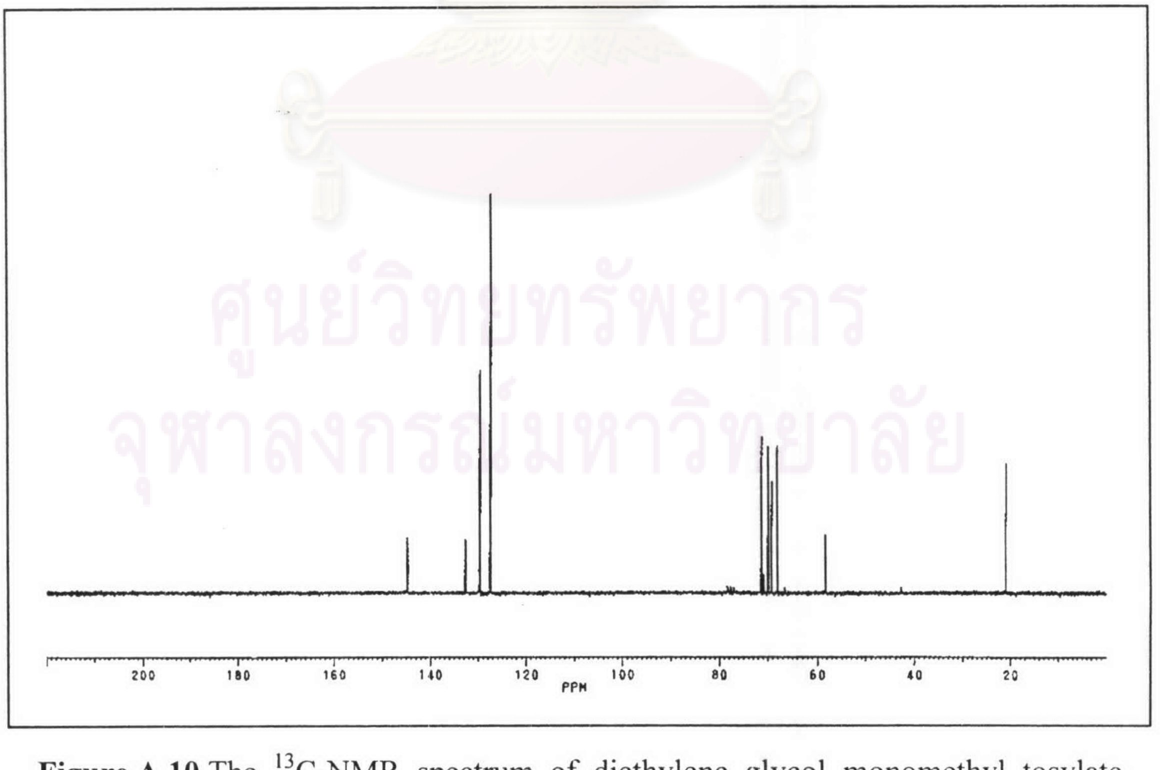

Figure A.10 The ^{13}C-NMR spectrum of diethylene glycol monomethyl tosylate, **5**.

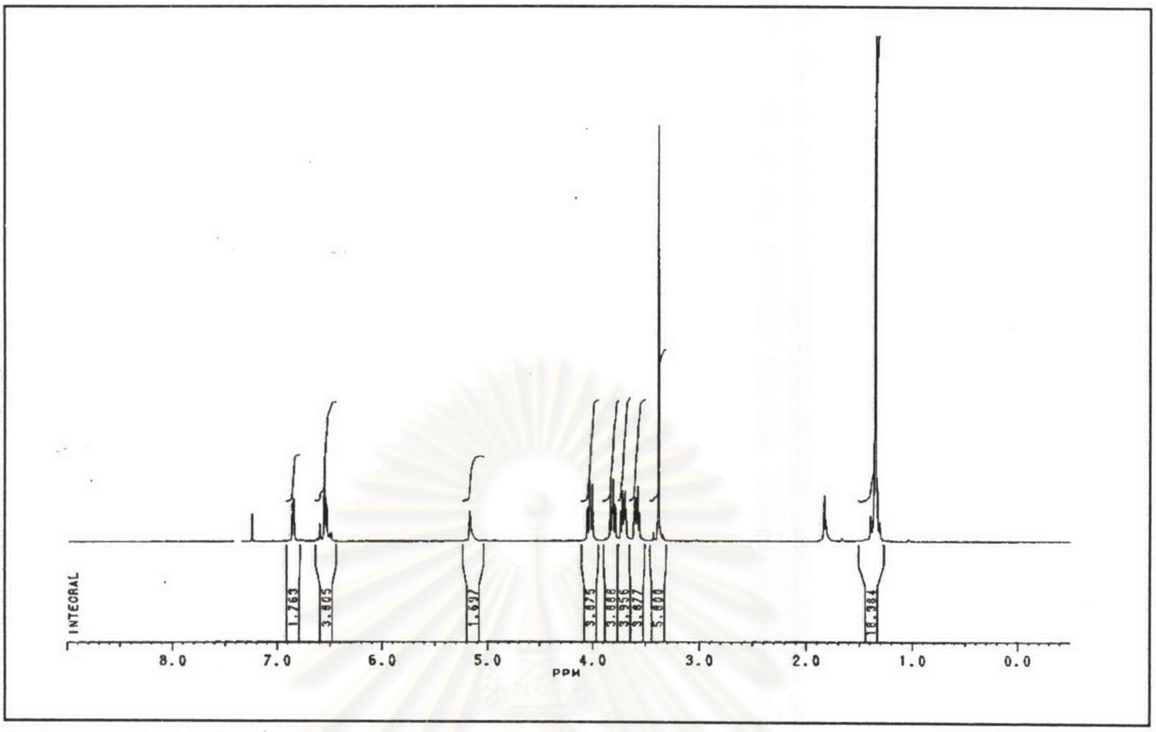

Figure A.11 The ^{1}H-NMR spectrum of 2-*t*-butyl-4-((2-(2-methoxy)ethoxy)ethoxy) phenol, **6**.

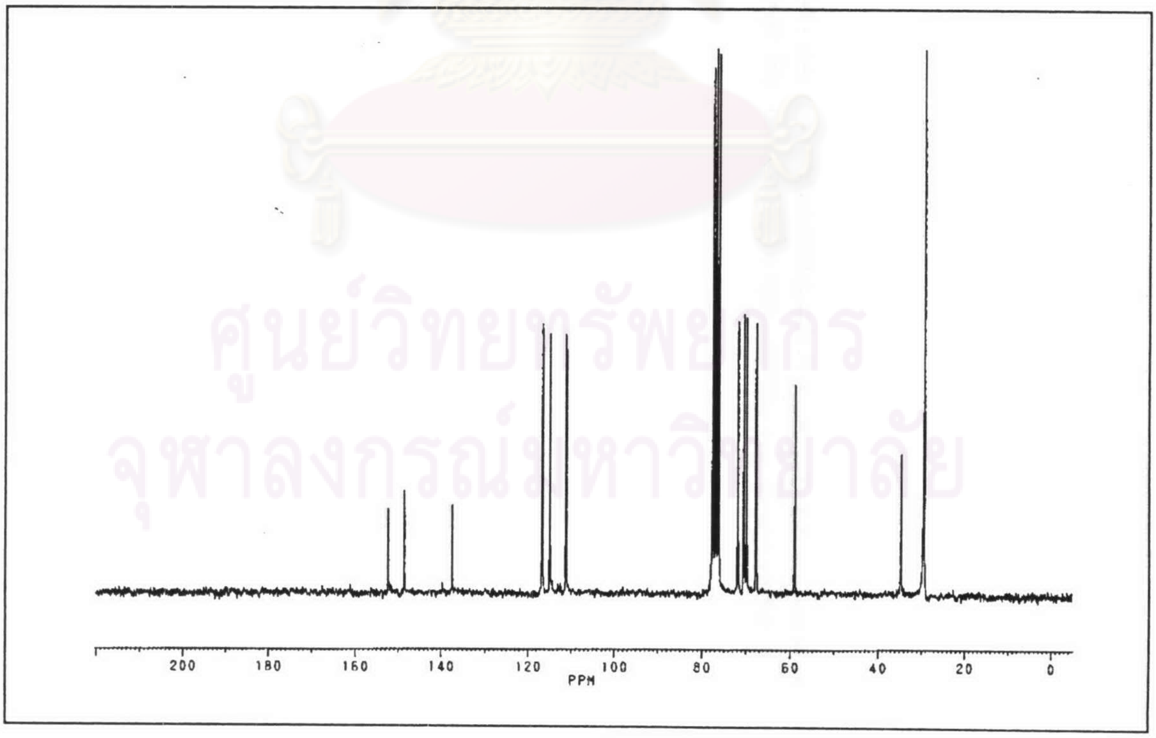

Figure A.12 The ^{13}C-NMR spectrum of 2-*t*-butyl-4-((2-(2-methoxy)ethoxy)ethoxy) phenol, **6**.

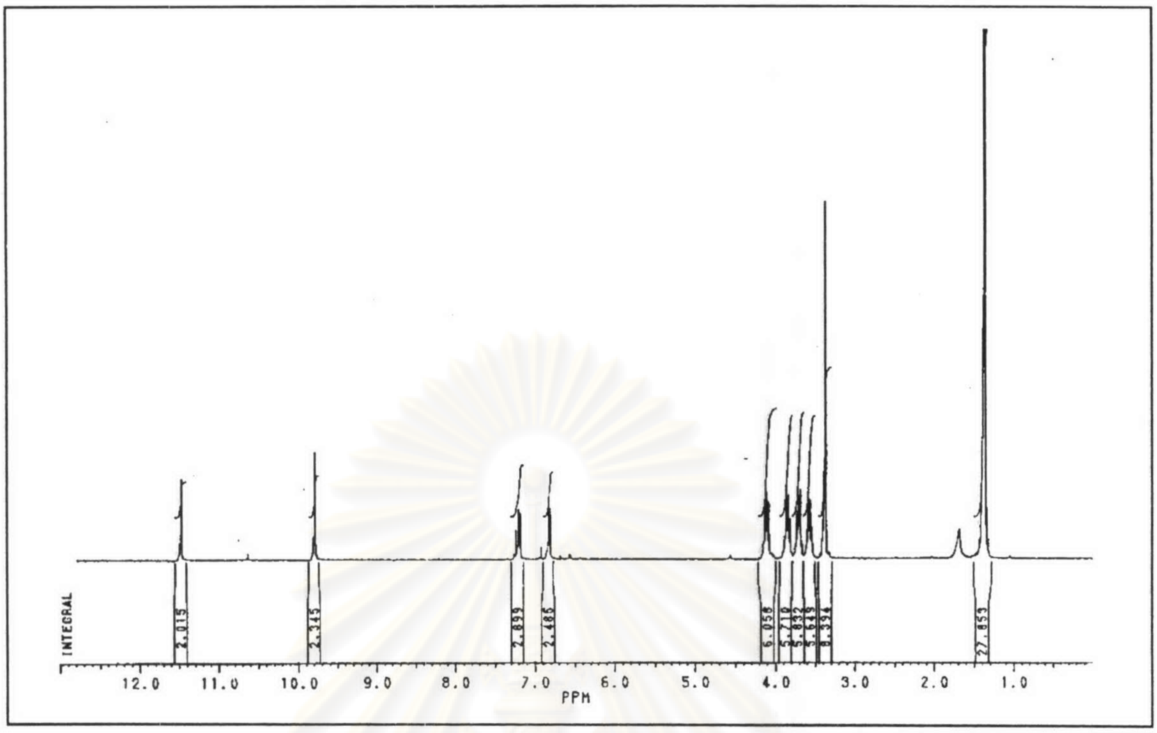

Figure A.13 The ^{1}H-NMR spectrum of 3-*t*-butyl-5-((2-(2-methoxy)ethoxy)ethoxy) salicylaldehyde, **7**.

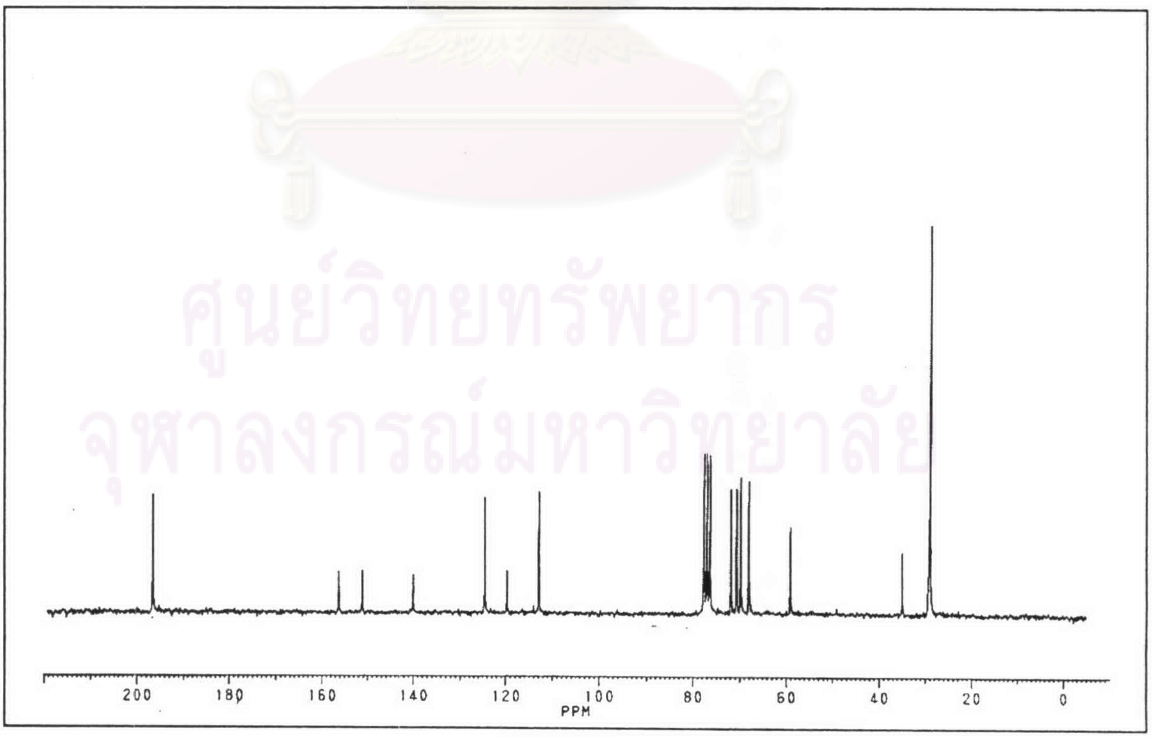

Figure A.14 The ^{13}C-NMR spectrum of 3-*t*-butyl-5-((2-(2-methoxy)ethoxy)ethoxy) salicylaldehyde, **7**.

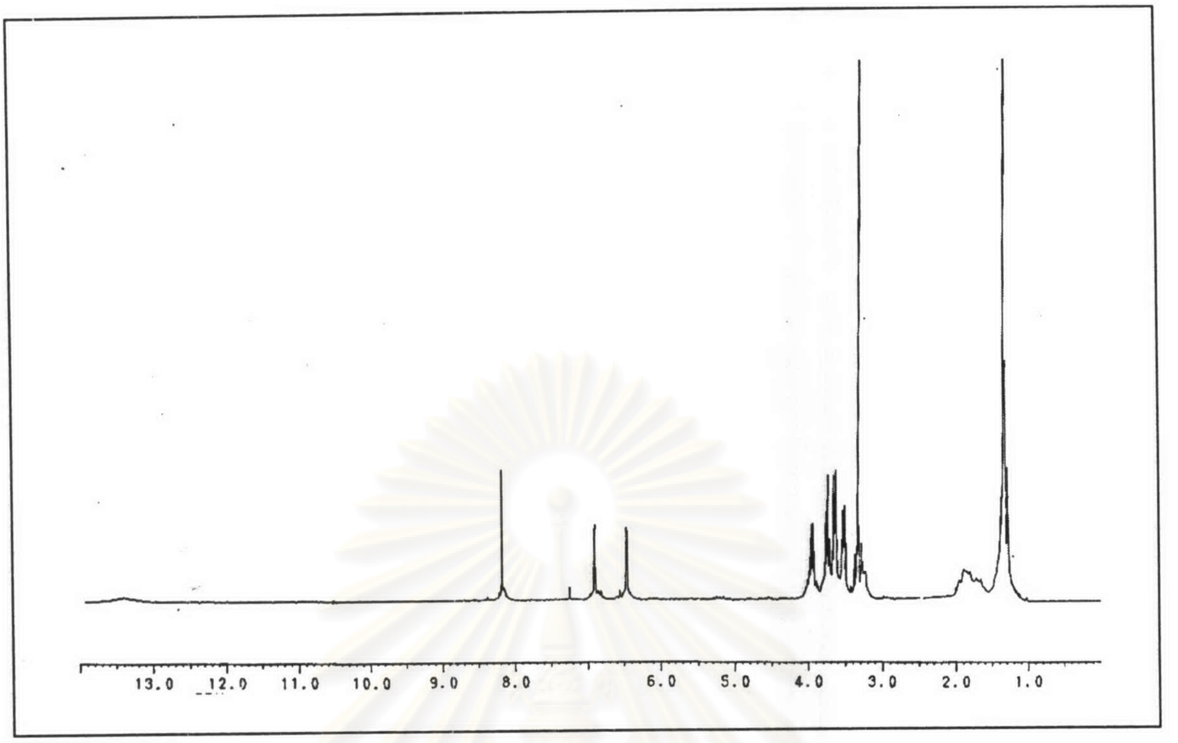

Figure A.15 The [1]H-NMR spectrum of (*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-((2-(2-methoxy) ethoxy)ethoxy)salicylidine)-1,2-cyclohexanediamine, **8**.

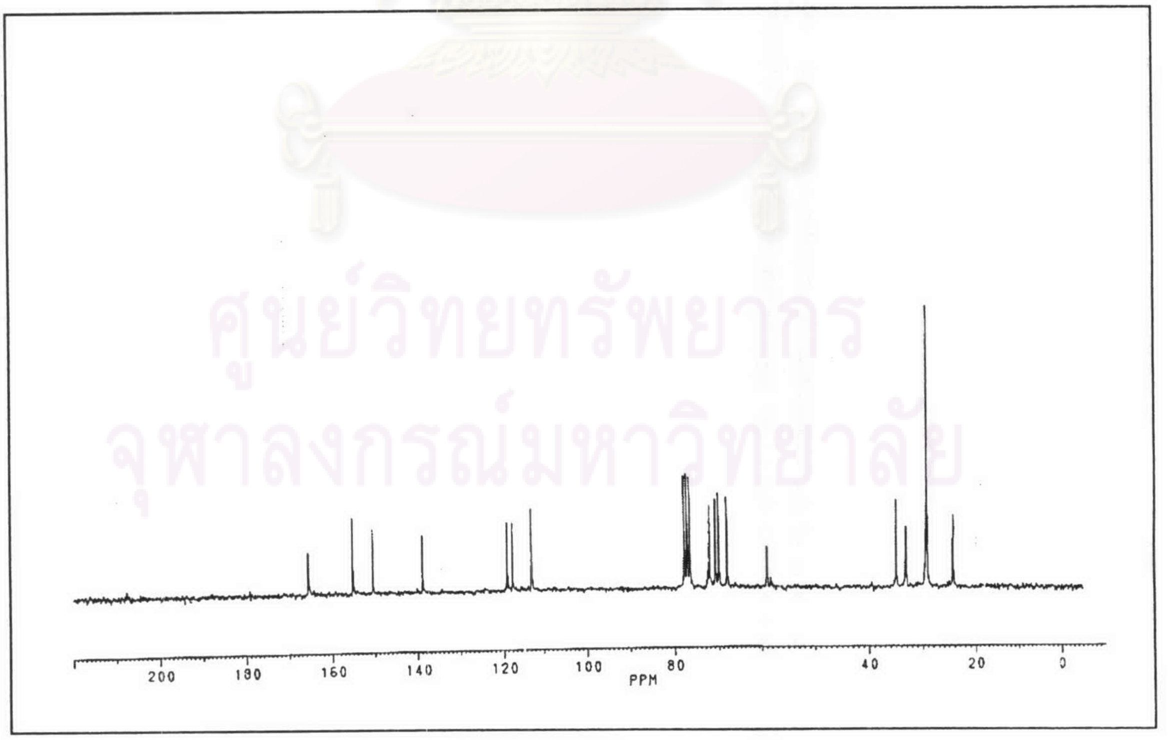

Figure A.16 The [13]C-NMR spectrum of (*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-((2-(2-methoxy) ethoxy)ethoxy)salicylidine)-1,2-cyclohexanediamine, **8**.

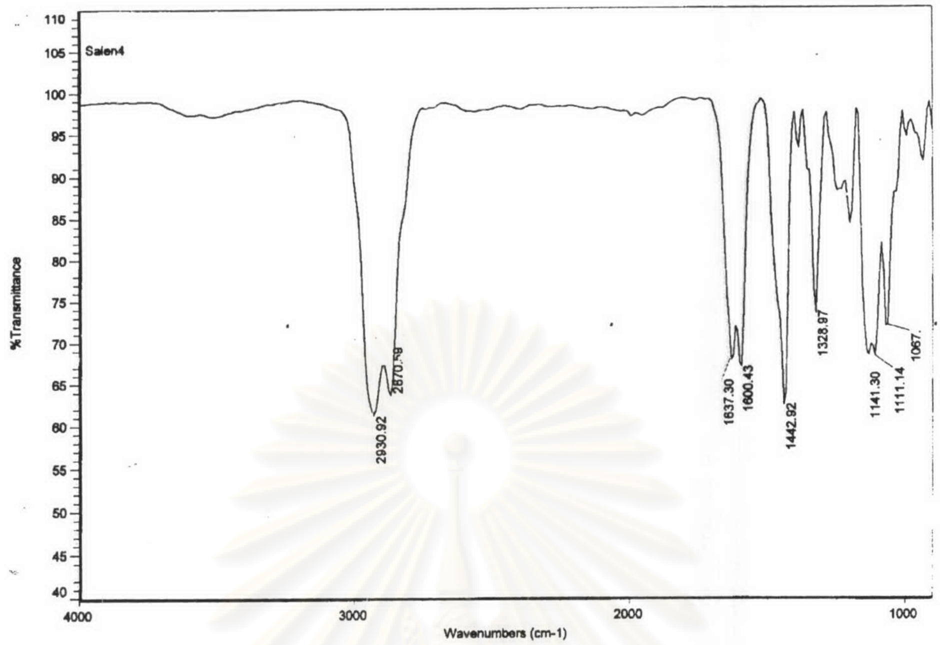

Figure A.17 The IR spectrum of (*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-(2-methoxyethoxy) salicylidine)-1,2-cyclohexanediamine, **4**.

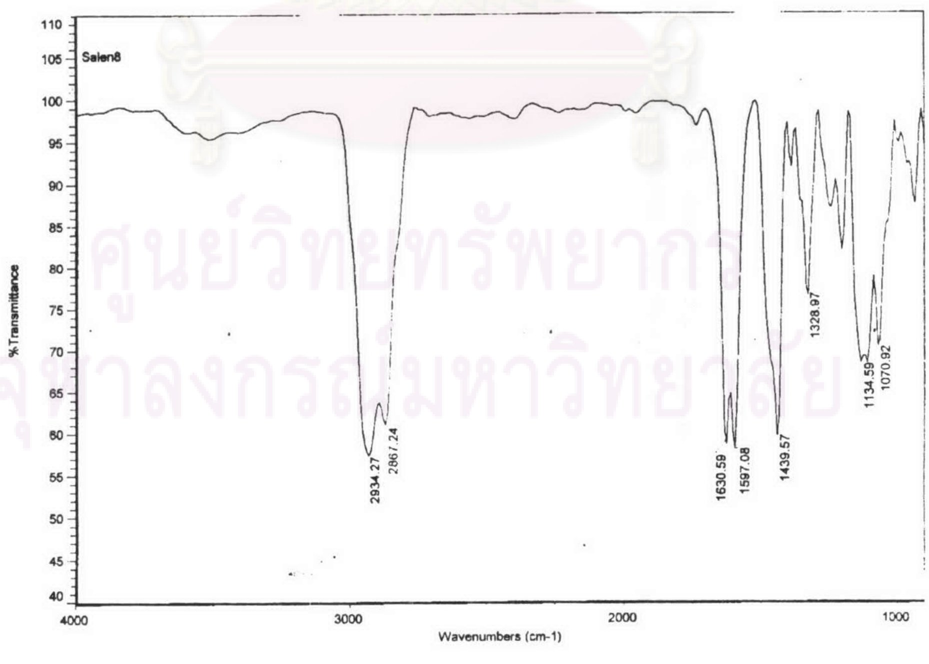

Figure A.18 The IR spectrum of (*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-((2-(2-methoxy) ethoxy)ethoxy)salicylidine)-1,2-cyclohexanediamine, **8**.

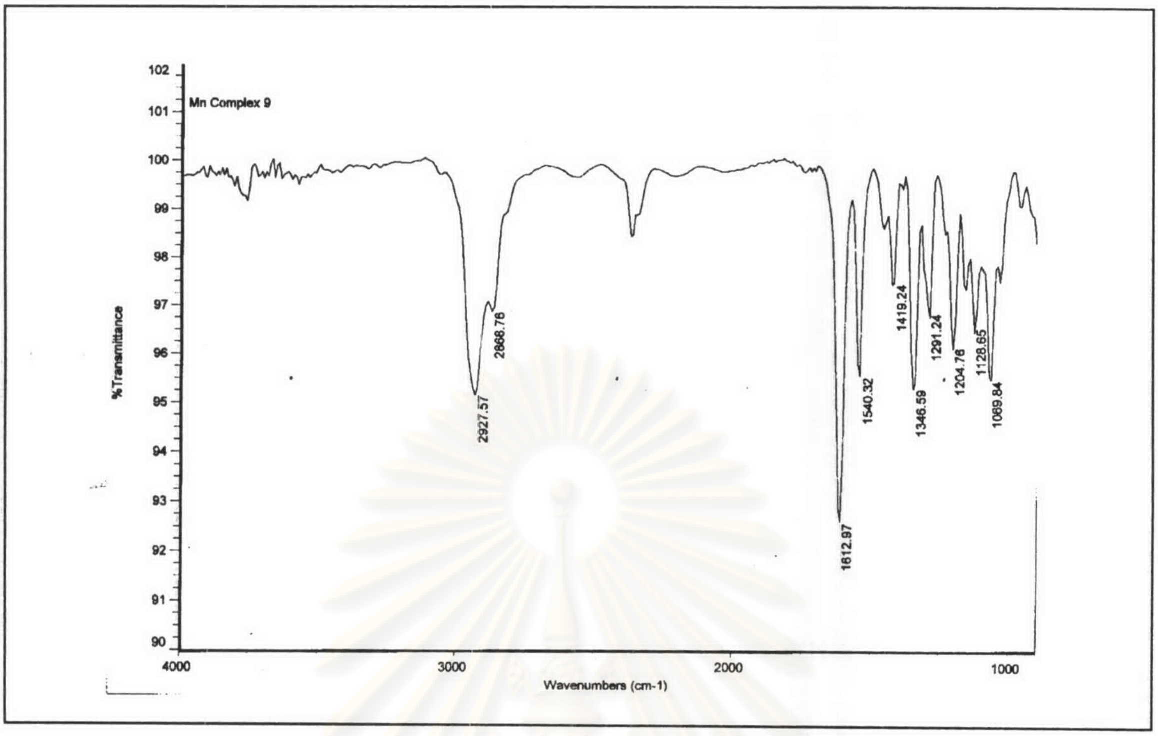

Figure A.19 The IR spectrum of [(*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-(2-methoxyethoxy) salicylidine)-1,2-cyclohexanediaminato(2-)] manganese(III) chloride, **9**.

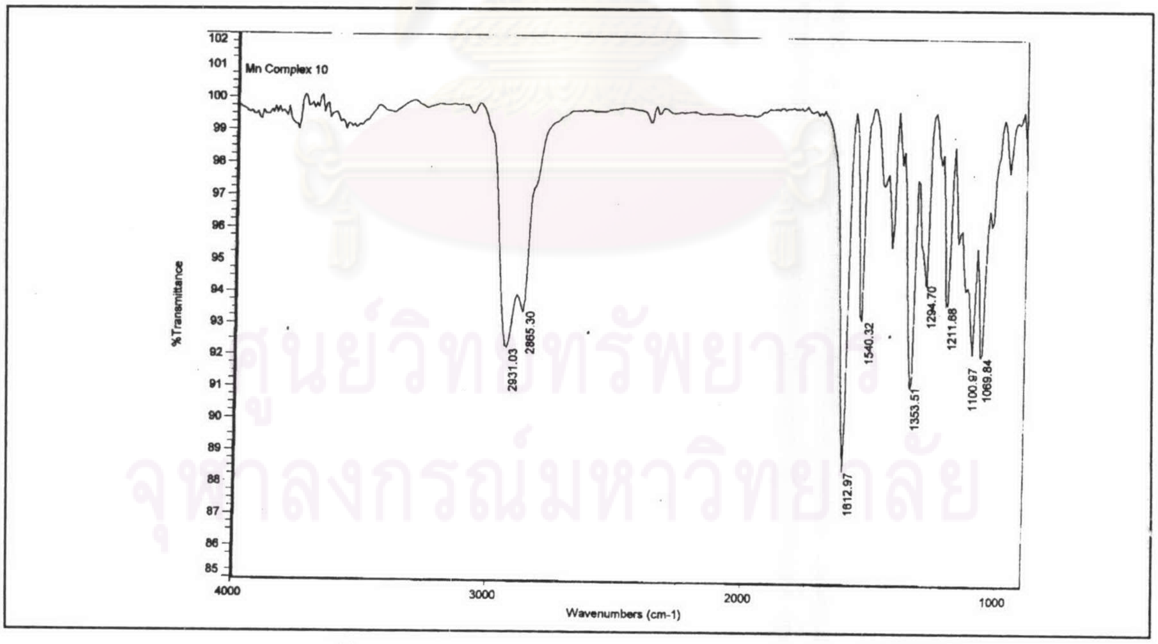

Figure A.20 The IR spectrum of [(*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-5-((2-(2-methoxy) ethoxy)ethoxy)salicylidine)-1,2-cyclohexanediaminato(2-)] manganese(III) chloride, **10**.

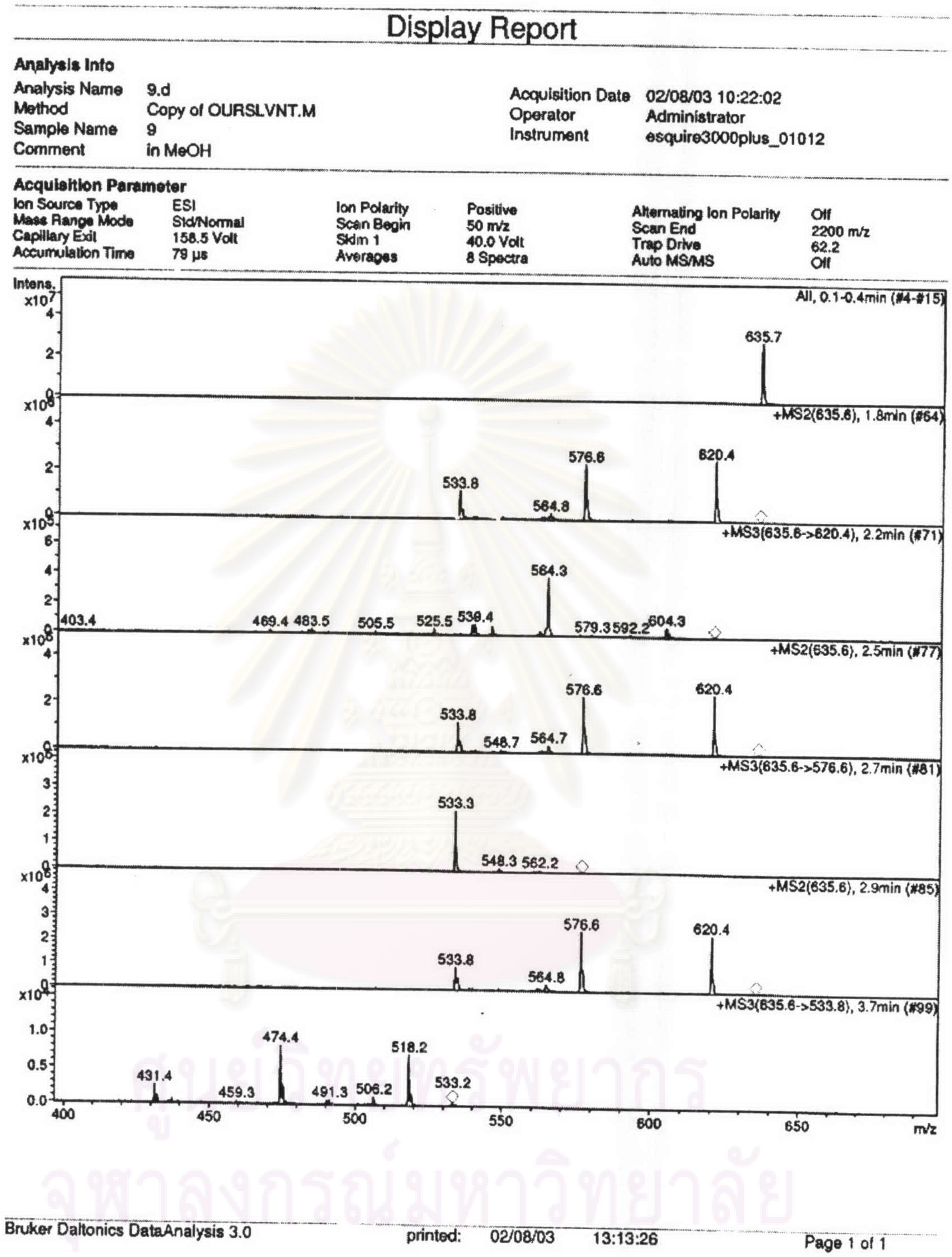

Figure A.21 The ESI mass spectrum of [(*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-(2-methoxyethoxy)salicylidine)-1,2-cyclohexanediaminato(2-)] manganese(III) chloride, **9**.

Display Report

Analysis Info

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Method	Copy of OURSLVNT.M	Operator	Administrator
Sample Name	10	Instrument	esquire3000plus_01012
Comment	in MeOH		

Acquisition Parameter

Ion Source Type	ESI	Ion Polarity	Positive	Alternating Ion Polarity	Off
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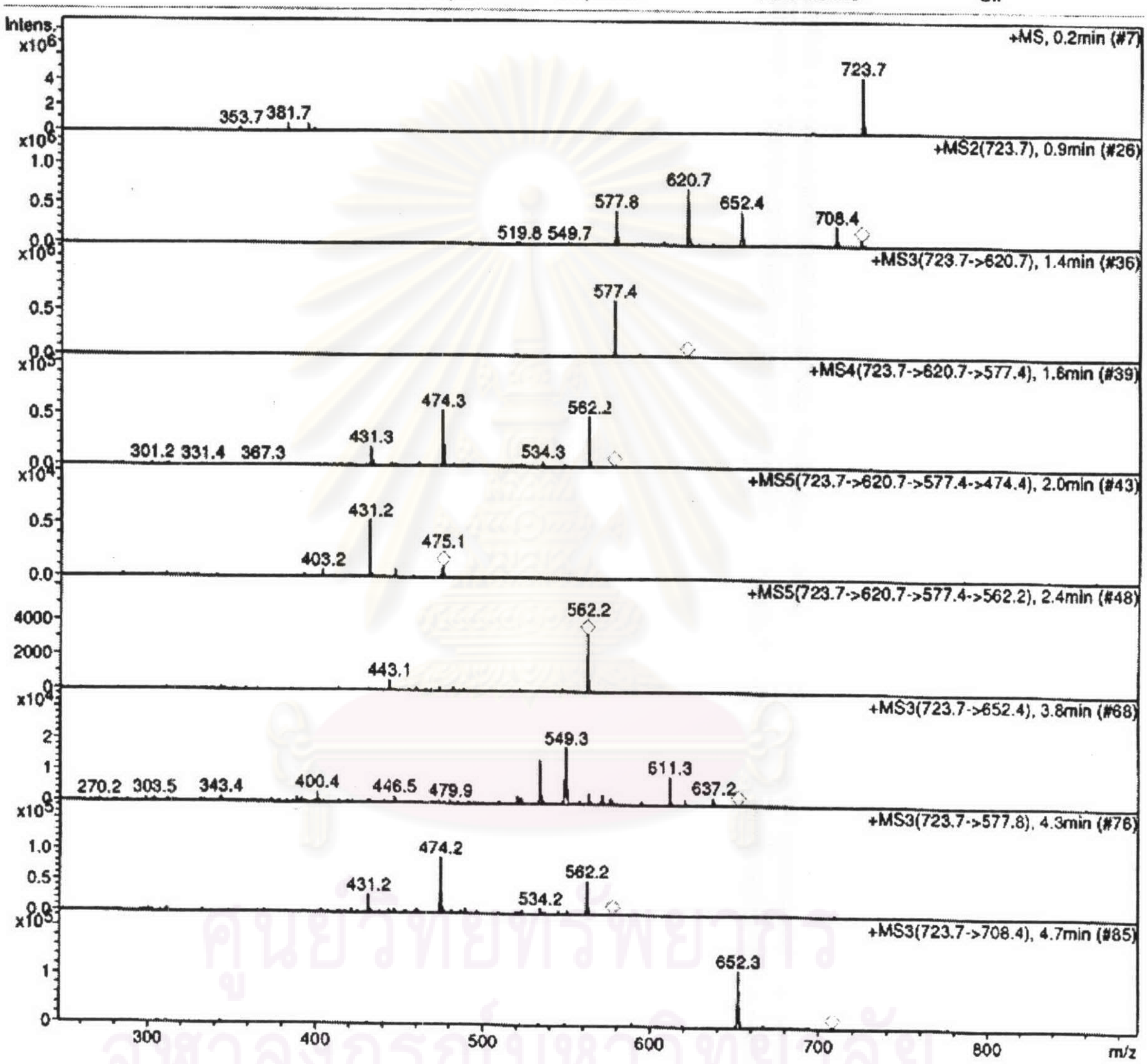
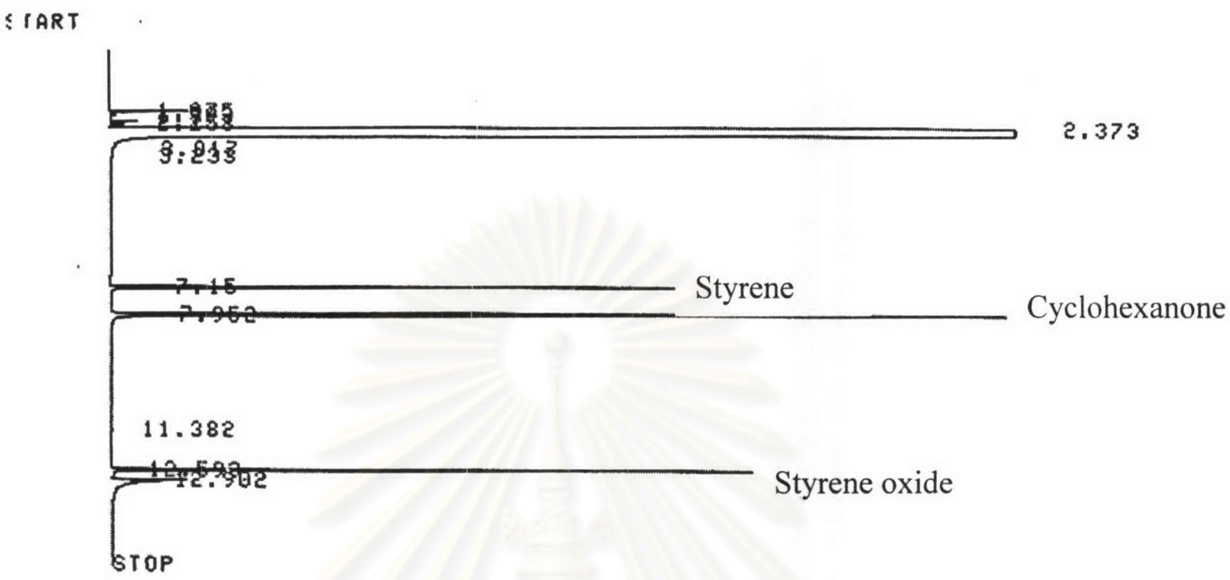


Bruker Daltonics DataAnalysis 3.0 printed: 02/08/03 13:18:02 Page 1 of 1

Figure A.22 The ESI mass spectrum of [(*R*,*R*)-*N*,*N'*-bis(3-*t*-butyl-5-5-((2-(2-methoxy)ethoxy)ethoxy)salicylidine)-1,2-cyclohexanediaminato(2-)] manganese(III) chloride, **10**.



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REPORT NO 1383

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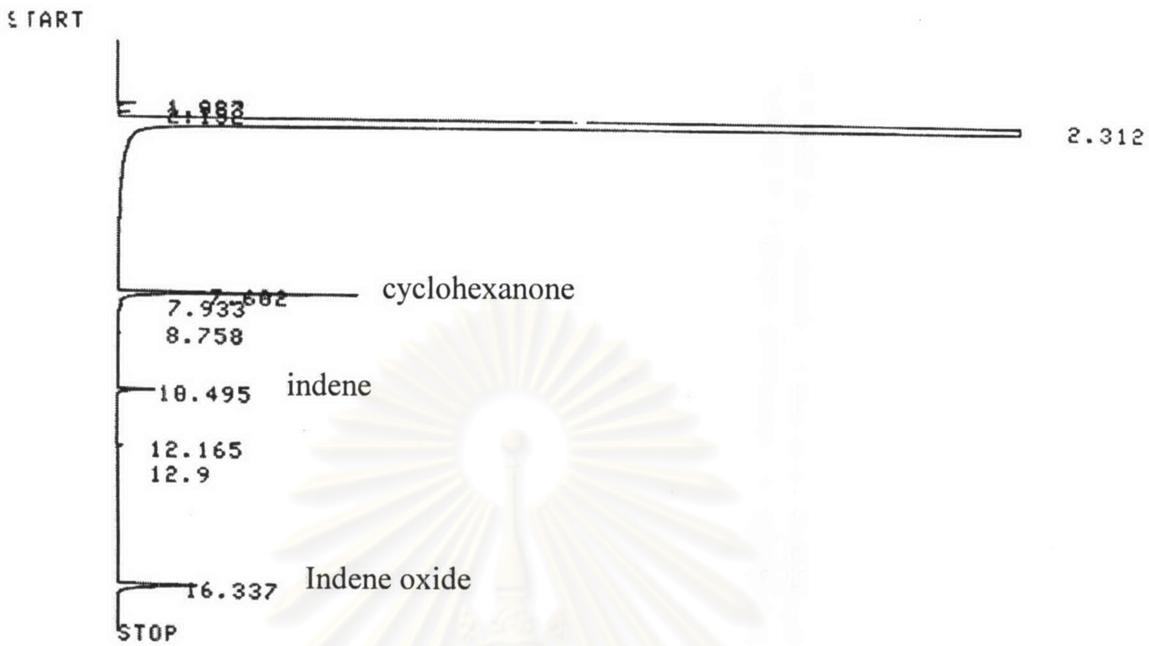
2	2.177	178	V		0.0145	
3	2.373	1202776	S		97.9384	
4	7.15	5551			0.452	
5	7.952	11983			0.9757	
6	12.593	5241			0.4267	
7	12.902	1993	V		0.1623	
	TOTAL	1228095			100	

Figure A.23 The GC chromatogram of styrene, styrene oxide and cyclohexanone (internal standard).



CHROMATOPAC C-R3A FILE 0
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REPORT NO 4005

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2	1.953	48	V		0.0071	
3	2.152	107			0.0159	
4	2.312	660848			98.9495	
5	7.602	3920	S		0.587	
6	7.933	66	T		0.0099	
7	8.758	65			0.0097	
8	10.495	575			0.0861	
9	12.165	96			0.0144	
10	16.337	2064			0.309	
	TOTAL	667864			100	

Figure A.24 The GC chromatogram of indene, indene oxide and cyclohexanone (internal standard).

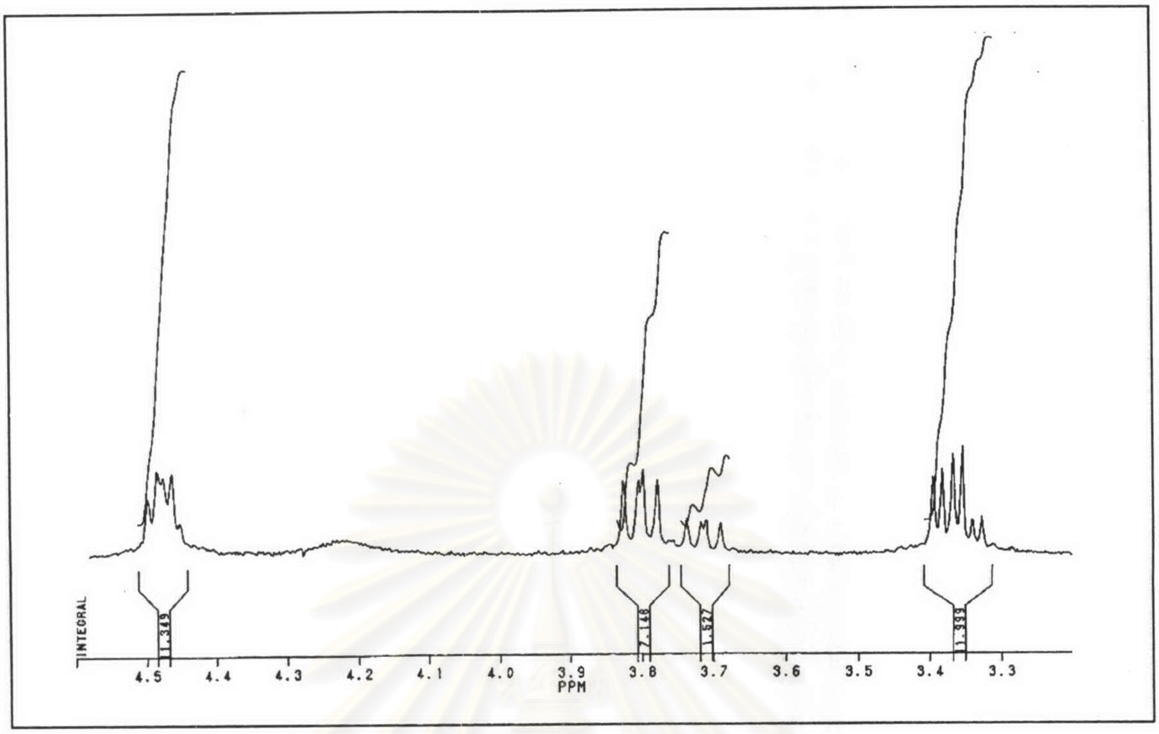

Figure A.25 The ^{1}H-NMR spectrum of styrene oxide sample after adding $Eu(hfc)_3$.

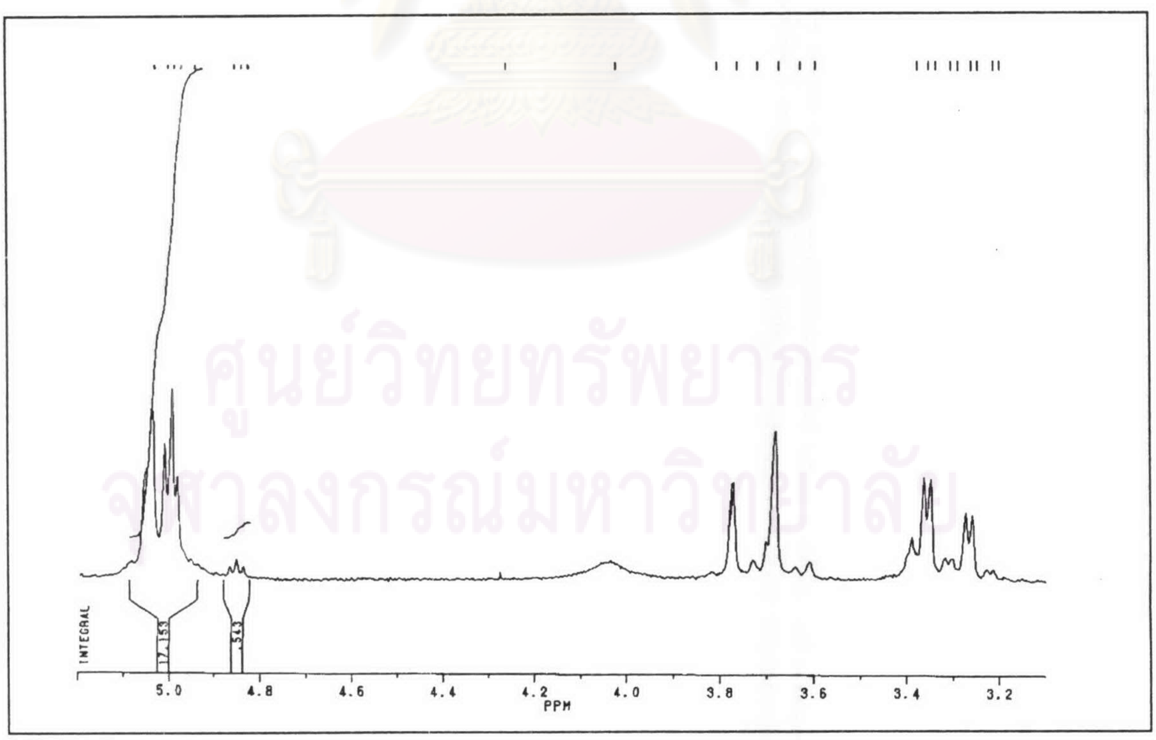

Figure A.26 The ^{1}H-NMR spectrum of indene oxide sample after adding $Eu(hfc)_3$.

VITAE

Mr. Panithan was born on February 16th, 1978 in Bangkok, Thailand. He received a Bachelor degree of Science, majoring in Chemistry from Chulalongkorn University in 1999. Since 1999, he has been a graduate student studying Organic Chemistry as his major course at Chulalongkorn University. During his study towards the Master's degree, he was awarded a teaching assistant scholarship by Faculty of Science during 1999-2001 and was supported by a research grant for his Master degree's research from the Graduate School, Chulalongkorn University.

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