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APPENDICES

Appendix A Characterization of dibenzo-monoaza-12-crown-3

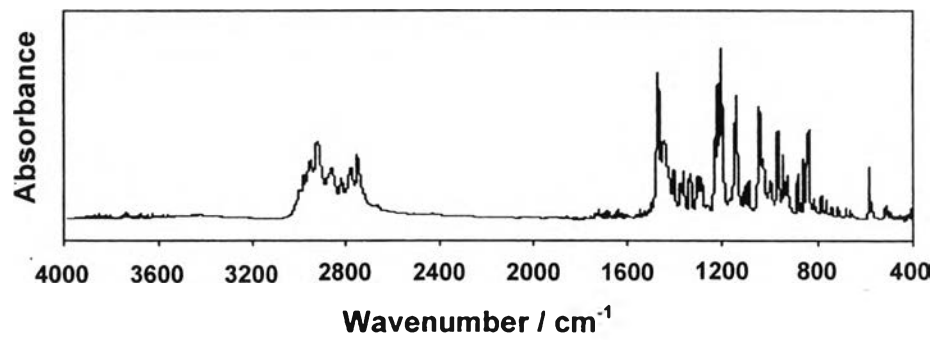


Figure A1 FTIR Spectrum of dibenzo-monoaza-12-crown-3.

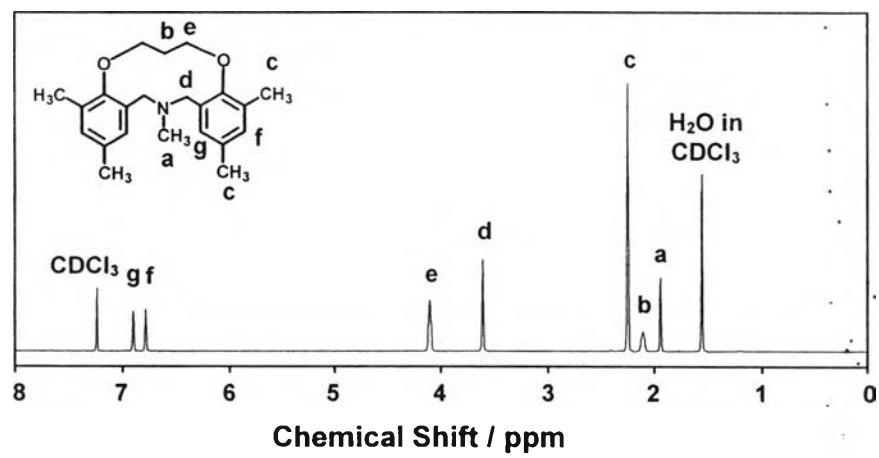


Figure A2 ^{1}H-NMR Spectrum of dibenzo-monoaza-12-crown-3.

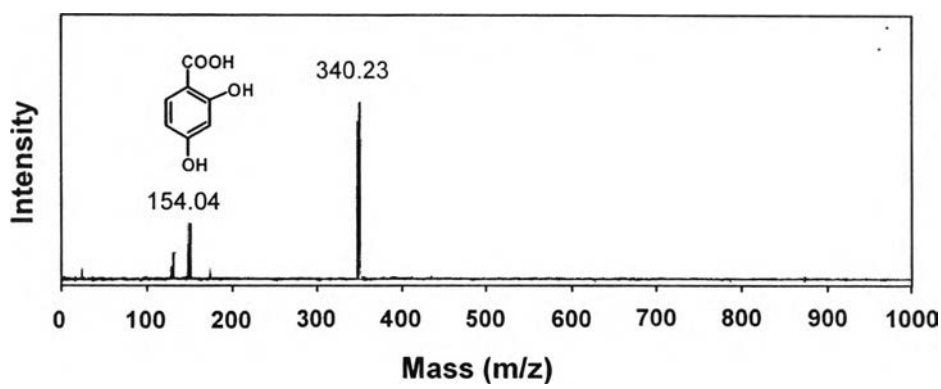


Figure A3 MALDI-TOF Mass spectrum of dibenzo-monoaza-12-crown-3.

Appendix B Characterization of dibenzo-monoaza-13-crown-3

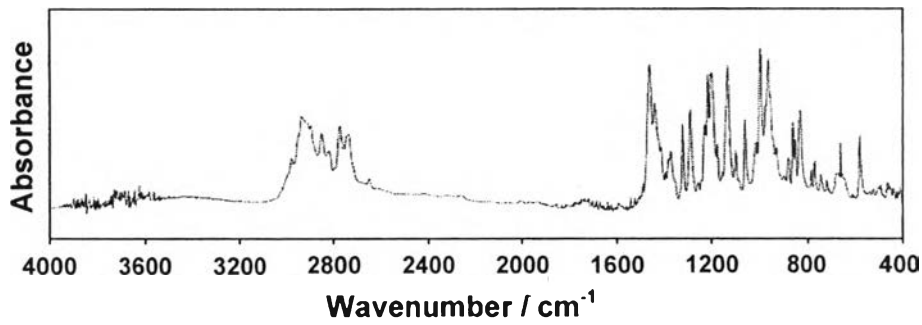


Figure B1 FTIR Spectrum of dibenzo-monoaza-13-crown-3.

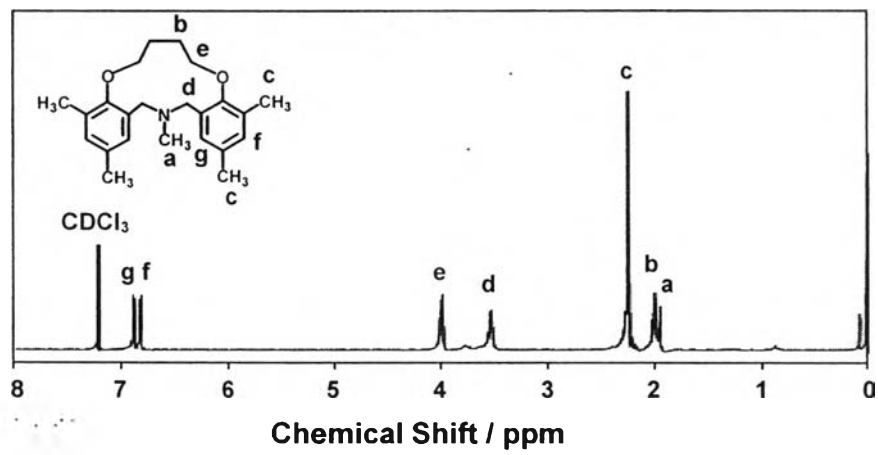


Figure B2 ^{1}H-NMR Spectrum of dibenzo-monoaza-13-crown-3.

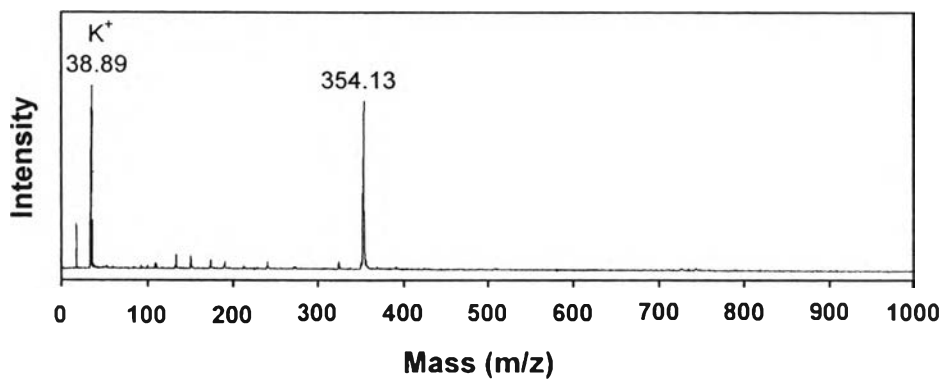


Figure B3 MALDI-TOF Mass spectrum of dibenzo-monoaza-13-crown-3.

Appendix C Characterization of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine

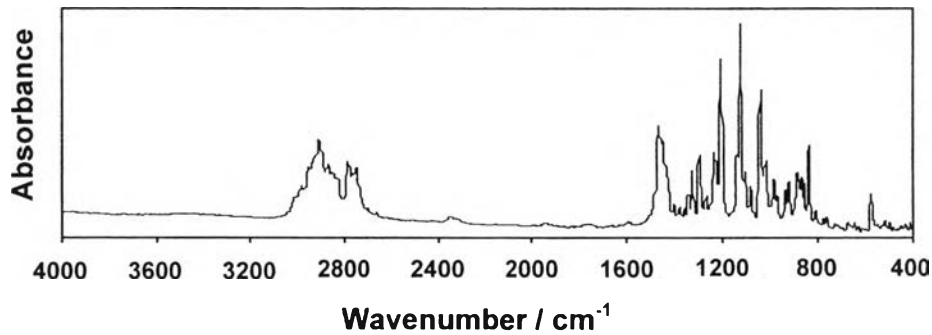


Figure C1 FTIR Spectrum of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine.

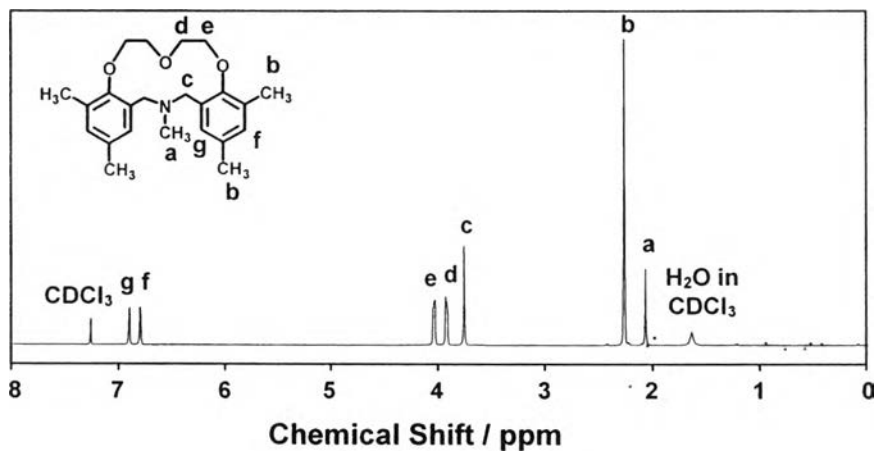


Figure C2 ^{1}H-NMR Spectrum of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine.

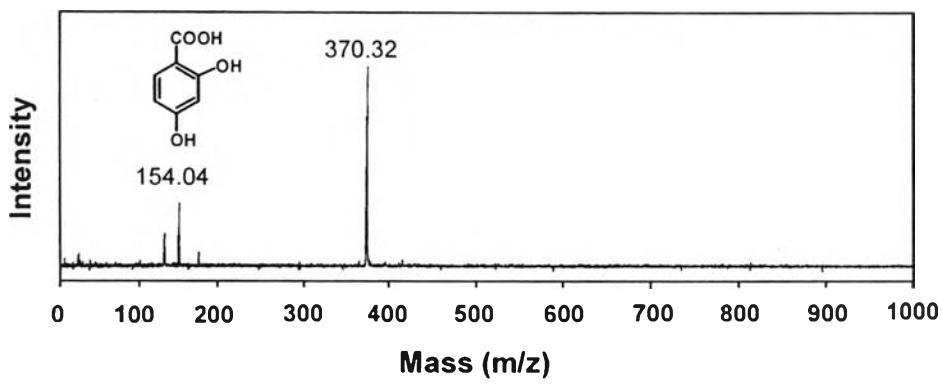


Figure C3 MALDI-TOF Mass spectrum of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine.

Appendix D Characterization of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)propylamine

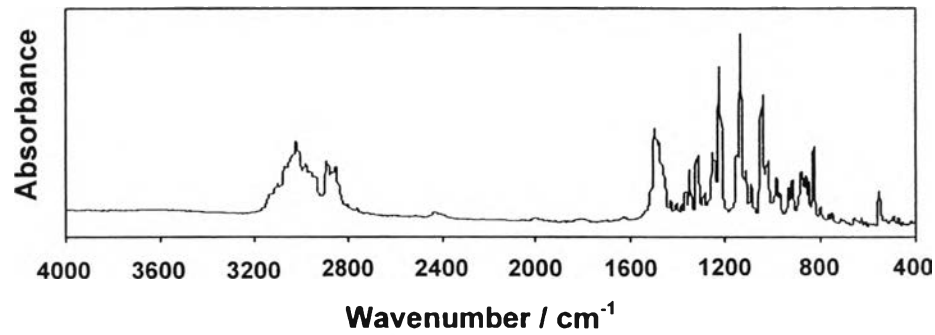
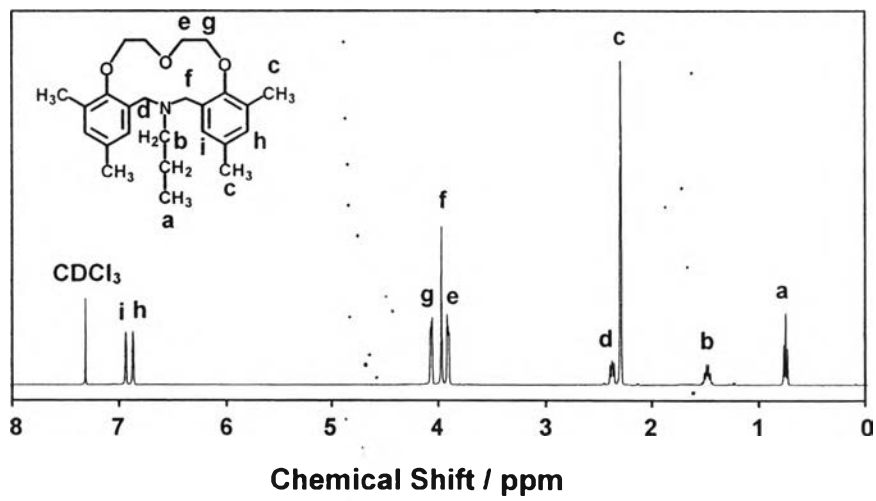


Figure D1 FTIR Spectrum of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)propylamine.



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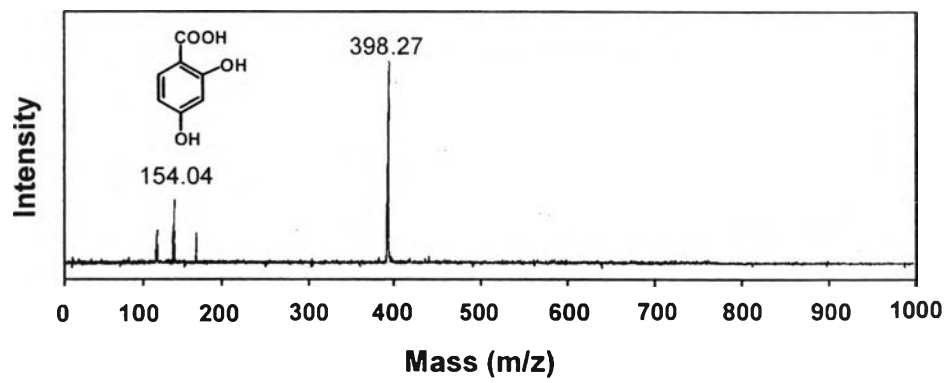

Figure D3 MALDI-TOF Mass spectrum of dibenzo-monoaza-14-crown-4 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)propylamine.

Appendix E Characterization of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine

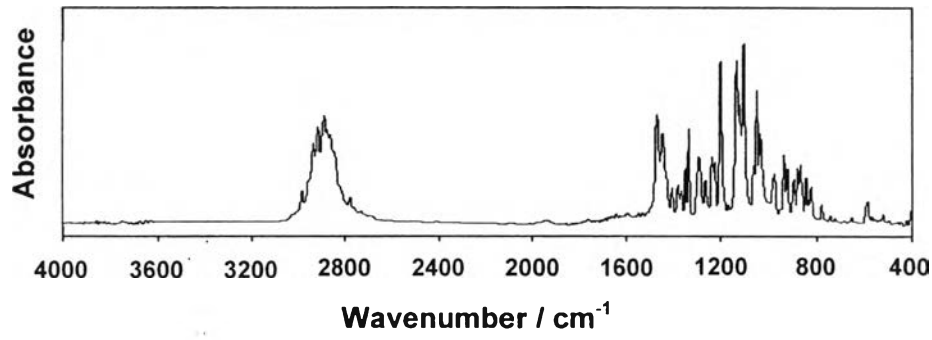

Figure E1 FTIR Spectrum of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine.

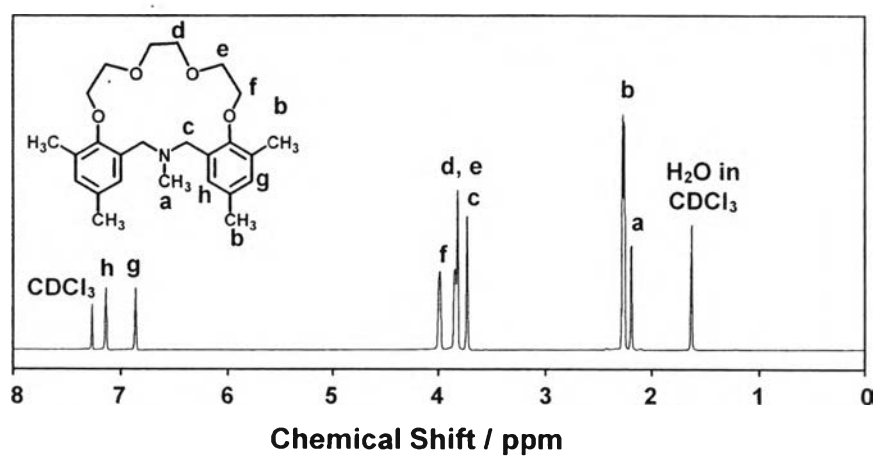

Figure E2 ^{1}H-NMR Spectrum of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine.

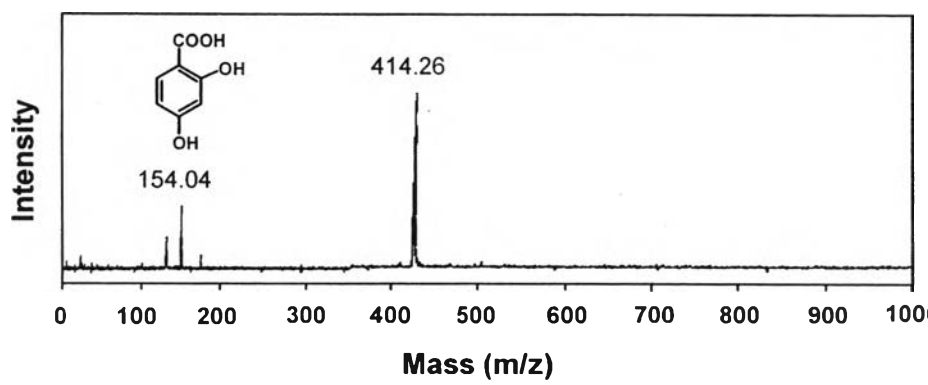

Figure E3 MALDI-TOF Mass spectrum of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)methylamine.

Appendix F Characterization of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)cyclohexylamine

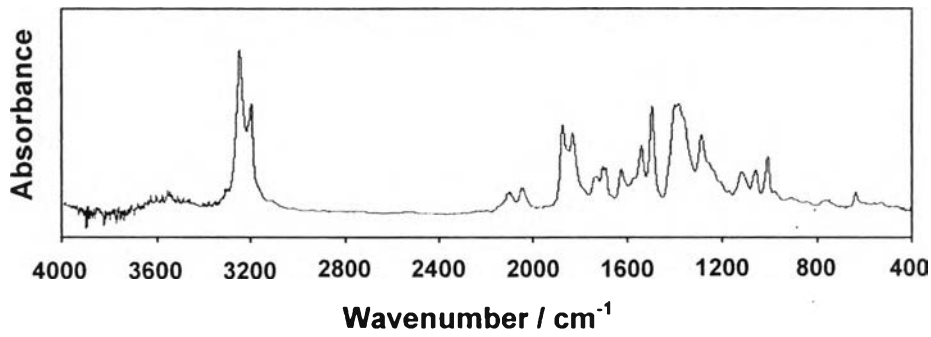

Figure F1 FTIR Spectrum of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)cyclohexylamine.

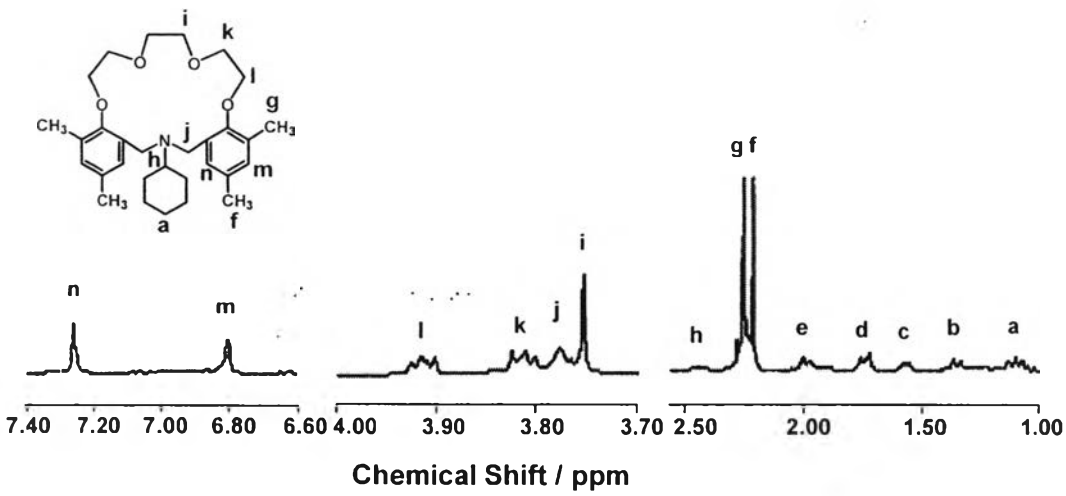

Figure F2 ^{1}H-NMR Spectrum of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)cyclohexylamine.

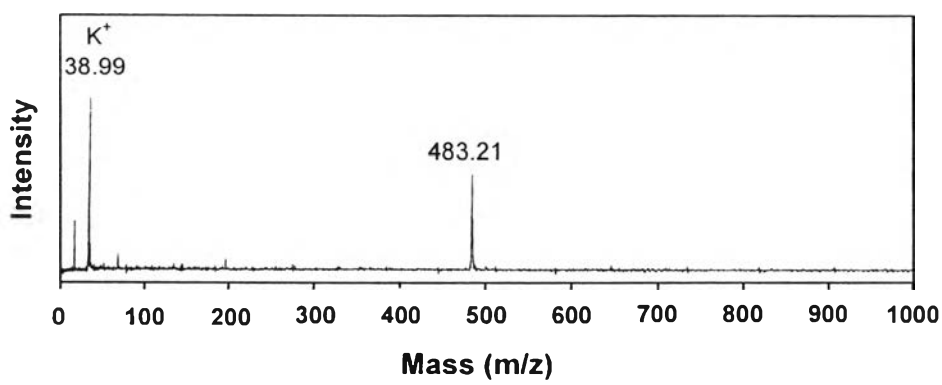

Figure F3 MALDI-TOF Mass spectrum of dibenzo-monoaza-17-crown-5 derived from *N,N*-bis(2-hydroxy-3,5-dimethylbenzyl)cyclohexylamine.

Appendix G Characterization of [2+2] difunctional 24-membered macrocyclic ethers

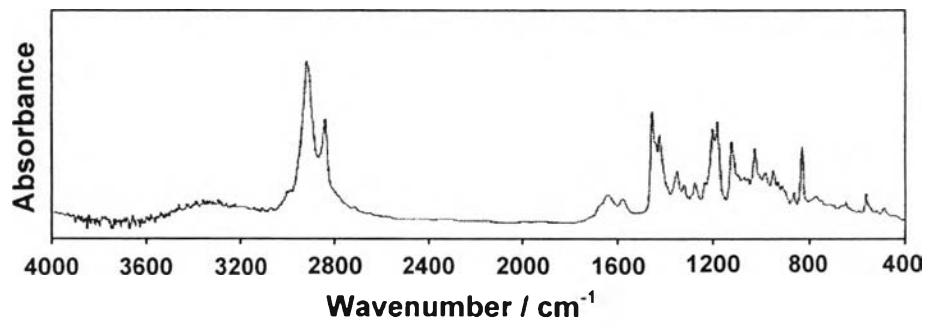

Figure G1 FTIR Spectrum of [2+2] difunctional 24-membered macrocyclic ethers.

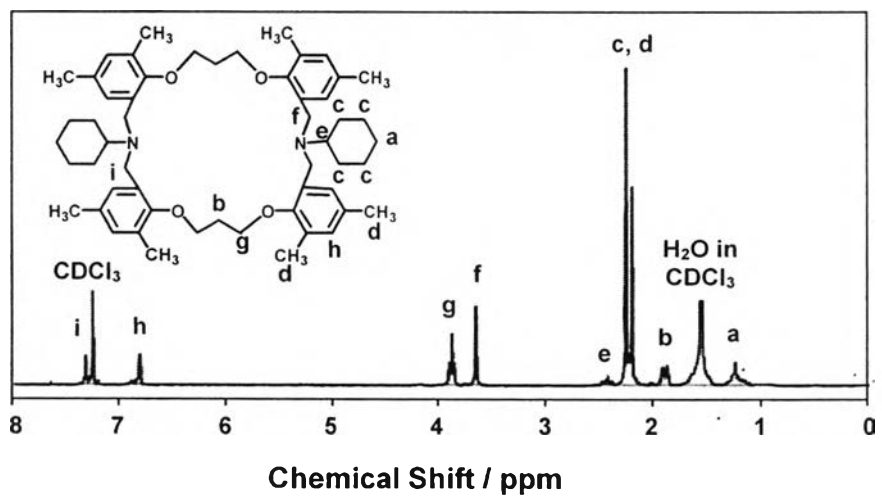

Figure G2 ^{1}H-NMR Spectrum of [2+2] difunctional 24-membered macrocyclic ethers.

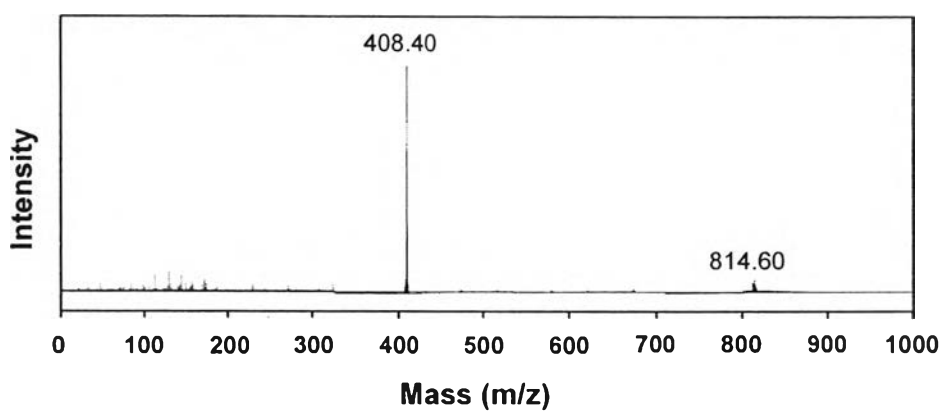

Figure G3 MALDI-TOF Mass spectrum of [2+2] difunctional 24-membered macrocyclic ethers.

Appendix H Characterization of [2+2] difunctional 26-membered macrocyclic ethers

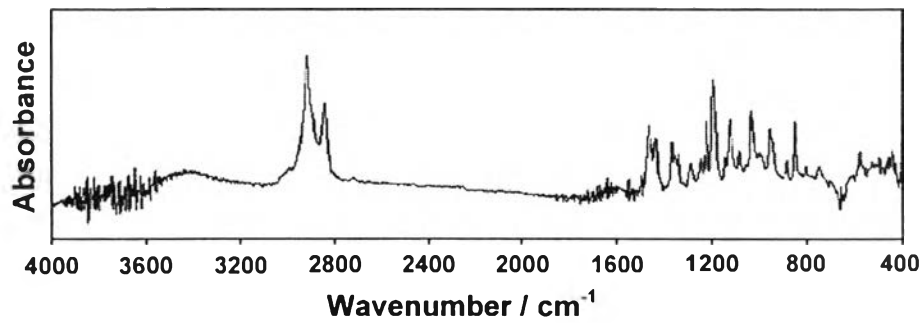

Figure H1 FTIR Spectrum of [2+2] difunctional 26-membered macrocyclic ethers.

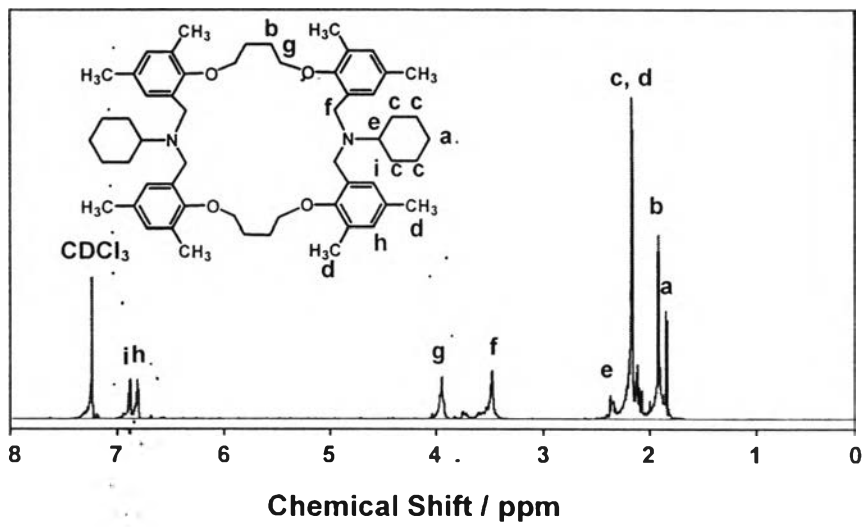

Figure H2 ^{1}H-NMR Spectrum of [2+2] difunctional 26-membered macrocyclic ethers.

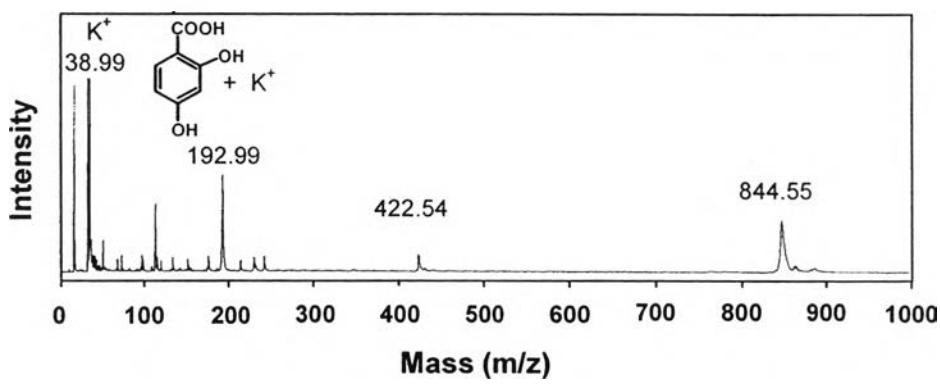

Figure H3 MALDI-TOF Mass spectrum of [2+2] difunctional 26-membered macrocyclic ethers.

Appendix I Characterization of [2+2] difunctional 34-membered macrocyclic ethers

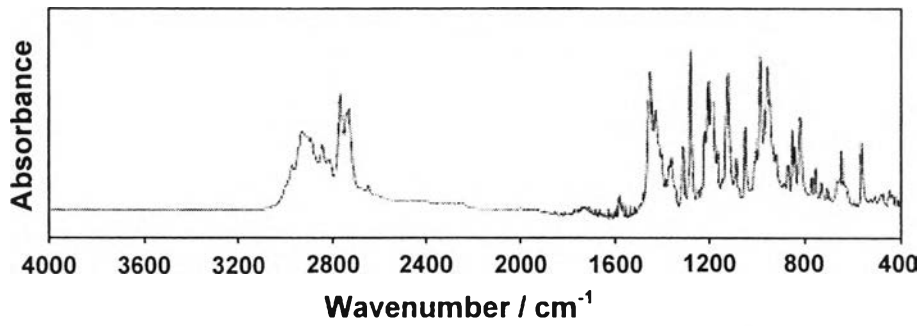

Figure I1 FTIR Spectrum of [2+2] difunctional 34-membered macrocyclic ethers.

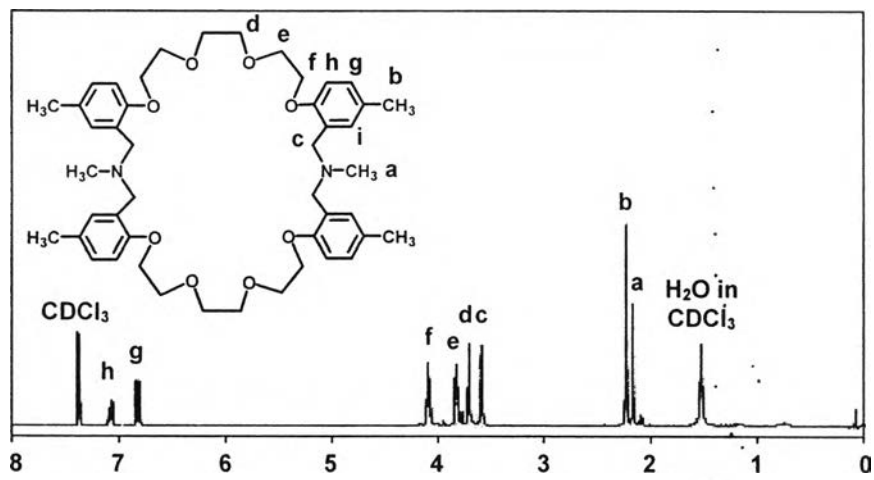

Figure I2 ^{1}H-NMR Spectrum of [2+2] difunctional 34-membered macrocyclic ethers.

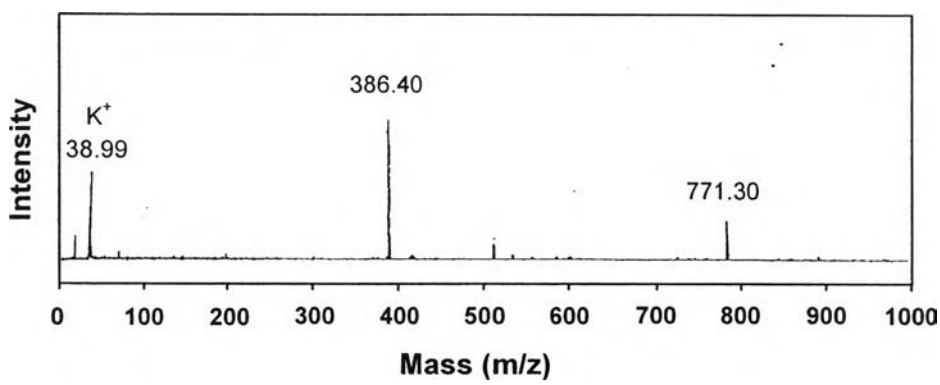

Figure I3 MADI-TOF Mass spectrum of [2+2] difunctional 34-membered macrocyclic ethers.

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3. Partial Research Grant, The 232nd ACS National Meeting, San Francisco, CA, The Petroleum and Petrochemical College, Chulalongkorn University (2006)
4. Master-Ph.D. Scholarship, Royal Golden Jubilee, Thailand Research Fund (2004-2008)
5. Full Scholarship Polymer Science Program, The Petroleum and Petrochemical College, Chulalongkorn University (2003-2005)
6. Second Class Honor, Department of Material Science, Faculty of Science, Chulalongkorn University (2003)
7. Best Student Award, Department of Material Science, Faculty of Science, Chulalongkorn University (2003)
8. Best Performance Student Award, Tab Foundation, (2003)
9. Partial Scholarship Polymer Science Program, The Siam Cement Public Company Limited (2002)

International Publications:

1. Chirachanchai, S., Phongtamrug, S., and Rungsimanon, T. (2008) Synergistic effects of a specific metal template and H-bonds in controlling macrocyclization: a simple, selective, and effective cyclization from *N,N*-bis(2-hydroxybenzyl)alkylamine derivatives. *Tetrahedron Lett.*, 49, 3181-3184.
2. Rungsimanon, T., Laobuthee, A., Miyata, M., and Chirachanchai, S. (2008) Guest entrapment via type and size of dibenzo-monoaza-crowns based *N,N*-bis(2-hydroxyalkylbenzyl)alkylamine host, *Chem. Lett.*, 37(11), 1108-1109 .
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