



Chapter V

Conclusion

The nitrobenzo macrocyclic polyamide compounds (Ia and IIa) could be synthesized from a reaction of corresponding acid chloride and diamine. Ia and IIa were used to prepare corresponding aminobenzo macrocyclic derivatives, Ib and IIb by hydrogenating the reactant with Pd/C catalyst. An attempt to reduce an amide group employing LiAlH_4 as reducing agent was failed to give the polyamine product. All synthesized compounds were characterized spectrometrically and believed to crystallize in a hydrate form. Poor elemental analysis data for IIb indicated some decomposition of the compound at the time of the analysis.

All four small macrocyclic polyamide showed binding affinity for all classes of metal ions. Na(I), Fe(III) and Pb(II) ions were most bound by the macrocycles. This suggests a use of these macrocycles in separating Fe(III) and Pb(II) from most transition metal ions. The complex formation study indicates 1:1 complexes for Pb(II)- and Na(I)-complexes.

From the extraction study data and the design of having $-\text{NH}_2$ group on the benzene ring, it is interesting to synthesize a polyamide crown derivatized silica or a polymer having a polyamide crowns attached to it by using the polyamide crown compounds synthesized in this study as precursors. The obtained crown derivatized silica or

polymer promises binding affinity to Pb(II) and Hg (II) ions which are considered as toxic substance.