CHAPTER IV

CONCLUSION

The synthesis of macrocyclic Schiff-base ligands and the corresponding open-chain analogs had been reported. All synthesized compounds were characterized spectrometrically and beleived to be the desired products. Binding affinity for some transition metal ions Cu(II),Cd(II), Cr(III),Mn(II),Pb(II),Ni(II),Co(II) of all four Schiff-base ligands were investigated in pH range of 2.2 to 9.7. It was found that acid hydrolysis occured when the pH was lower than 3 and when the pH was raised to 9,precipitation occured for some metals such as Cr(III), Mn(II). From this work, suitable pH was in the range of 4.5 to 7.2 , and the open ring Schiff-base ligands could extract more metal ions than the macrocyclic ones. The best extracting performance involved Cu-Salen couple.

The complex formations of the Cu(II)-Schiff-base complexes and also stability constants were investigated by using spectrophotometric technique and Job's method in absolute methanol. The experiments indicated 1:1 complex for open ring compounds and 1:2 complex for macrocyclic compounds.

The present study proves the possibility of using Salen as spectrometric reagent for Cu by solvent extraction

,within the working range of 0-55 ppm Cu and pH 4.5 - 7.2. Manganese and cadmium which were most likely present with copper in solder ingot did not show any interfering effect on absorbance of Cu(II)-Salen at 562 nm.

But owing to imine hydrolysis,this can be a problem in modifying Salen in determination of Cu in some samples, especially those dissolved in strong acid. It was suggested that the hydrogenation of the imine linkage of the Schiff-base ligands should be performed with better stability towards acid.