# CHAPTER VII
# CONCLUSIONS AND RECOMMENDATIONS

A series of crown ether based macrocycles, i.e., [1+1] and [2+2] dibenzo-monoaza-crowns, were carried out from the simple, effective, and selective macrocyclization of *N,N*-bis(2-hydroxyalkylbenzyl)alkylamine derivatives (HBA) with ditosylated alkyl ethers. From the systematically structural variation of HBA and ditosylated alkyl ether, the structural characterizations and crystallographic data indicated that (i) synergism of hydrogen bond network and metal template influences the [1+1] macrocyclization (ii) the ortho-substituted group of HBA induces the [1+1] macrocyclization (iii) bulkiness of aza-substituted group of HBA favors to the [2+2] macrocyclization (iv) atomic chain lengths and chain flexibilities of ditosylated alkyl ether lead to both [1+1] and [2+2] macrocyclization depending on the structure of HBA.

The inclusion phenomena of macrocycles were studied by Pedersen's and molar ratio techniques. The studies indicated that type and size of macrocycle are the key factors to control the ion acceptance abilities. The alkali metal ion guest inclusion to be 2:1 for [2+2] and 5:2 for [1+1] macrocycles derived from ditosylated alkyl glycol. For [1+1] macrocycles derived from ditosylated oxyalkane, 12-membered macrocycle showed the perchlorate anion guest inclusion to be 1:1.

Here, the work should be extended to the inclusion phenomena of macrocycles with various kinds of guest species, such as cations, anions, and neutral molecules.