



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

A self supramolecular structured chitosan was achieved by conjugating polyethyleneglycol monomethylether onto low molecular weight chitosan as confirmed by FT-IR, TGA, and XRD. The product obtained (chitosan-PEG) shows very high swelling ability in water. This might be due to the loss of inter and intramolecular hydrogen bonding. The inclusion property of the product obtained for potassium ion is studied by UV-VIS spectrophotometer. The studies on inclusion phenomena clarify that the inclusion capacity for potassium ion of the product obtained is better than the low molecular weight chitosan. This might be due to the fact that interaction with potassium was enhanced by the ether group of PEG chain. The chitosan-PEG with $m = 6$, and 10 shows the highest ion extraction percentage. Here, it is speculated that the short ethylene glycol chain ($m = 6$, and 10) may form a proper cavity size of pseudocyclic ether for potassium ion more than the long ethylene glycol chain ($m = 23, 43$ and 111). It might also relate to the reaction of mPEG with chitosan which the chain may effectively be grafted on the chitosan. At present, we are studying on the degree of substitution by means of quantitative FT-IR, and elemental analysis.