



## CHAPTER V

### CONCLUSIONS

The drug release characteristics of salicylic acid and theophylline from crosslinked CM-chitin, chitosan, and their blends with PVA and PVP were investigated by using a modified Franz diffusion cell. The drug releases from the CM-chitin and chitosan films depends on drug concentration and crosslinking agent concentrations. The molecular weight of the drug and the interaction between the drug and the polymer matrix affects the drug release characteristics of the films. In this study, the levels of drug release correlate to the swelling behavior of the films. The higher the degree of swelling, the higher the amount of drug release obtained. It may therefore be concluded that the release of model drugs from the films occurred via a swelling-controlled release mechanism. However, the release of model drugs from the films is also facilitated by an erosion process, because of partial dissolution of the films was observed during swelling. For CM-chitin/PVA and chitosan/PVA blend films, the amount of drug released depends on the blend composition. In the case of CM-chitin/PVP blends, the film with 1:1 ratio of CM-chitin and PVP gave the highest amount of released salicylic acid. Increasing the blend composition of PVP to 75% resulted in a decrease of drug release. In the case of chitosan/PVP blends, the presence of PVP increases the release rate of the drug as compared to pure chitosan film. The effect of both PVA and PVP on drug release of the blend films can be explained in terms of their effect on the degree of swelling of the films.