

## CHAPTER IV

### CONCLUSION

In this studies cephalixin microcapsules were prepared by 3 different microencapsulation techniques which are coacervation, fluidization and spray-drying technique. Three polymers were investigated, ethylcellulose, Eudragit RL 100<sup>®</sup> and Eudragit RS 100<sup>®</sup>, and the appropriate plasticizer was studied and selected to plasticize those membranes. Diffusion studies were done to predict the release characteristics of those membranes. The good barrier membranes were selected to be the wall of microcapsule by using 3 microencapsulation techniques. Received microcapsules from microencapsulation process were studied of their release pattern by dissolution test method.

Thirty percent of triacetin is the most appropriate plasticizer for ethylcellulose because it give a good physical characteristics such as good flexibility and transparency. The most appropriate plasticizer for Eudragit is 20% triacetin because it give the best membrane characteristics. Examination of both release rate and physical property, 30% triacetin is selected to be a plasticizer of ethylcellulose and 20% triacetin is selected to be a plasticizer of Eudragit with the ratio of 3:2 and 2:3 RL:RS were used in microencapsulation process.

Fluidization is the most convenient process and easy to produce a large batch of microcapsules because from this technique one can get a high percentage of microcapsule yield. From this process, it gives a good flow powder but about

the release rate only ethylcellulose microcapsules can response to the objective. About the coating property of three types of wall, there are indistinguishably complete coated among them when study in the scanning electron micrograph.

Coacervation technique gives the lowest release rate of cephalexin from microcapsules when compare to another techniques but this effect should be depend on the particle size which coalesce together on the drying process so this technique is not the good technique for preparing large batch of microcapsules because it is hard to control the particle size in this process. From this technique ethylcellulose give more completely coated than the Eudragit one.

Although spray drying technique give a good characteristics of microcapsules but the lowest in percentage of microcapsule yield and difficulty of this process make this technique not appropriate for producing large batch. Both 3:2 and 2:3 Eudragit wall give a better coating properties than ethylcellulose. To compare the coating property from this technique, increasing the amount of wall material should be done to achieve the complete coated of microcapsules when prepared by this technique.

The release pattern of microcapsules seem to fit the Higuchi's model ethylcellulose give the lowest release rate because of its hydrophobicity. The increment of amount of wall materials should decrease the release rate. Eudragit RL 100 : RS 100 in 2 ratios give the higher release rate because of its water permeability that make them less suitable to produce sustained release of water soluble drug as cephalexin.