

## **CHAPTER 5**

### **CONCLUSION**

Pentoxifylline is a water soluble drug and has a very short half life. These properties are not desired for production of conventional tablets due to frequency dosing required. Using hydrophilic polymers to control the release of this drug would be preferable. The results show that hydrophilic polymer is a suitable polymer to retard the release of pentoxifylline. The swelling property of polymers used in this study were tested for a period of 24 hour. The water penetrated into the outer layer of HPMC rapidly and formed a protective layer, then the water will slowly pass through this gel layer barrier into the core tablet. For this reason, the drug will slowly released from the HPMC matrix tablet.

HEC WP40, HEC QP52000, HEC M<sub>v</sub>90000 HPMC E4M and HPMC F4M were used in preliminary study. These polymers are different in molecular weight and viscosity. The sustained release ability of these polymers were compared with lactose. All types of polymers in this study influenced the rates of pentoxifylline released from the matrix tablets. HPMC E4M and HPMC F4M have the most retarding effect to the release rate.

Formulation with HPMC E4M was chosen to modified the release profile by adding PVP K15, PVP K25 and PVP K30. All types of PVP used in this study can increase the drug release. However, PVP K30 and PVP K25 showed a similar drug release profile. Further in increased in PVP K25 concentration from 5 to 10 % did not effect on the release profile. All the drug release profiles followed Higuchi square root time kinetic model.

### **SUGGESTION FOR THE FUTURE STUDY**

The effect of hydrophilic polymers to the pentoxifylline release was studied. However, there are the other type of polymers that can be used for sustained release tablets. The polymer blends would be an interesting topic for the future study.