

## CHAPTER V

### CONCLUSIONS

1. Various kinds of material can be filled into hard gelatin capsule. Generally, highly hygroscopic excipients should be avoided due to they are not compatible with capsule shell or should be used at the lowest concentration.

2. Dissolution of 100 mg ketoprofen from the formula with Tween 60<sup>®</sup>, Tween 80<sup>®</sup> or DMI was increased by using higher concentration of these solvents from 10% to 30%.

3. Two formulations of coated ketoprofen rectal capsule with 20% Tween 80<sup>®</sup> and with 20% DMI conformed to the British Pharmacopoeia 1993 specification for content uniformity. The release profile of ketoprofen from all coated capsules exhibited a characteristic lag time. The comparative disintegration of uncoated and coated rectal capsules from both formulations was slightly different.

4. Stability study indicated that the selected formulae were stable for at least 3 months. The coated capsules display no cracking or wrinking of capsule shell. Liquid system did not leak out of capsule shell but the color of coated film and liquid system became darkened when stored for 3 months. For drug content, it remained in the range of 92.5 - 107.5%, which still met the British Pharmacopoeia 1993 specification.

5. *In vivo* studies of coated ketoprofen rectal capsule formulation with 20% Tween 80<sup>®</sup> and that with 20% DMI were performed using twelve white New Zealand rabbits. Ketoprofen was shown to be well absorbed from the coated rectal capsule into systemic circulation. The corresponding pharmacokinetics parameters obtained from this two formulations were not statistically significant difference except the  $C_{max}$  value.

The relative bioavailability of ketoprofen following rectal administration of each formulation was 127 and 107% compared to intramuscular injection formulation (Oruvail®), respectively. This demonstrated that the extents of absorption of ketoprofen from both coated rectal capsule formulations were superior to the intramuscular injection form (Oruvail®).

Ketoprofen liquid filled in coated hard gelatin capsule for rectal use may be an alternative form of administering ketoprofen to patient having difficulty of administration with any existed dosage forms. However, further study should be done in terms of modification of this formulation for good physical appearances and chemical stability as well as its availability in human subjects.



ศูนย์วิจัยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย