CHAPTER V

CONCLUSIONS

The release of nifedipine from Pluronic F-127 gels containing various concentrations of certain surfactants was evaluated. Three types of surfactants, nonionic surfactants; Brij 35 and Tween 80, cationic surfactants; benzalkonium chloride and chlorhexidine diacetate, and anionic surfactants; dioctyl sodium sulfosuccinate and sodium lauryl sulfate were used to enhance the release rate constant of nifedipine from Pluronic F-127 gels. The results obtained from this study, the following conclusion could be drawn ;

1. All surfactants at 1, 3, and 5%W/Wconcentrations had no effects on the physical appearances of nifedipine Pluronic F-127 gels except at 5%W/W benzalkonium chloride, the gel were translucent.

2. The highest average percentage of nifedipine release from Pluronic F-127 at 24 hours period was 47.17% obtained from the preparation containing 5%W/W benzalkonium chloride, while the praparation without surfactants showed only 33.67%.

3. The coefficient of determination of amount drug release-time profile of nifedipine showed that the release kinetics of nifedipine from various preparations of Pluronic F-127 gels studied were found to be zero-order kinetics.

4. All concentrations studied of Brij 35 and Tween 80 which were nonionic surfactants did not enhance the release rate constant of nifedipine from preparations.

5. Cationic surfactants showed different effects, chlorhexidine diacetate seemed to reduced the release rate constant while, 5%W/W benzalkonium chloride enhanced the release rate constant of nifedipine from Pluronic F-127 gels.

6. Sodium lauryl sulfate and dioctyl sodium sulfosuccinate which were anionic surfactants at certain concentrations increased the release rate constant of nifedipine from the preparations.

7. The concentrations of dioctyl sodium sulfosuccinate, sodium lauryl sulfate, and benzalkonium chloride positively correlated with the release rate constants of nifedipine from Pluronic F-127 gels.

8. The release rate constant of nifedipine from Pluronic F-127 gels could be enhanced to some extent by addition of dioctyl sodium sulfosuccinate, sodium lauryl sulfate, and benzalkonium chloride at appropriate concentration.

9. Nifedipine transdermal preparation could be developed via matrix diffusion using the hydrophillic polymers for controlling drug release in the period of 24 hours as required.