CHAPTER V

CONCLUSION

Proven by the IR spectroscopic method, the interaction between cholic acid and the drugs molecules did not occurred in physical mixture. This result indicated that dissolution rate of the drugs from this mixture was controlled by the surface existing component and the micelle solubilization of cholic acid

Consequently, the existence of cholic acid at the outersurface layer in pH 1.30 medium leaded to reduce the dissolution rate and show matrix release profiles in the physical mixture, while, due to the existence of the drug component at the surface layer, micelle of cholic acid in pH 7.60 medium would enhance the dissolution rate of most drug, exception for chlorpropamide and sulfamethoxazole. For chlorpropamide and sulfamethoxazole, the existence of cholic acid at the outersurface layer brought about the absent from micellar solubilization effect.

In glass mixture, excluding the dissolution of perphenazine in pH 1.30 medium, the releasing rate of the drugs from this mixture were lower than the rate from their relative physical mixture and their profiles showed matrix release pattern in both pH 1.30 and 7.60 medium. These characters reflected to the occurence of possible

intereaction between cholic acid-cholic acid and also cholic acid-drug molecules during the glass preparating process. The evidence from IR spectroscopic method could be supported this consideration.

There were polar-polar interactions among cholic acid molecules in the glassy state. Due to rapid cool of the melted component, the cholic acid-drug interaction in this mixture was in partial form. Thus, it could be believed that the polar interaction among cholic acid molecules would play a major role in retarding the dissolution rate of the drugs from their respective glass mixture in both pH 1.30 and 7.60 medium.

As mention in Chapter IV, besides the polar-polar interactions among cholic acid molecules in the glassy state, cholic acid was able to interact with the polar groups in the drugs molecules. The polar interactions between cholic acid-drug in the glass mixture were as followed.

For the acidic drugs, The result from IR determination indicated that the polar interactions between cholic acid and the acidic drug molecules were occurred by the help of hydrogen bonding between both hydroxyl and carboxyl group of cholic acid and the sulfonyl group and sulfonamide N-H part of sulfamethoxazole and chlorpropamide molecules.

Regarding to acid-base property of both cholic acid and the basic drugs, it could beleive that, besides the hydrogen bond formation between cholic acid and the basic drug and also between cholic acid and cholic acid molecules, the formation of cholic acid-drug salt may occurre the glass mixture. Respecting to the dissolution results of the two basic drugs, it could be concluded that the more basic functional groups, the more effect of salt formation. Hence, the formation of salt would bring the larger effect on the dissolution of the glass mixture of perphenazine which had three basic functional groups. As observed from the dissolution result in both pH 1.30 and 7.60 medium, the larger effect of salt formation leaded to show greater dissolution rate in the cholic acid-perphenazine glass mixture, when compared with the rate of pure drug. Alternatively, the decreasing in the rate from the glass mixture of haloperidol reflected to the less effect of salt, but large effect of polar-polar interaction in the glass mixture.