CHAPTER V

CONCLUSIONS

1. The solubility of fixolide increased with increasing concentrations of methyl-βCD and HP-βCD, the soluble inclusion complexes were formed. The phase solubility diagrams were of the A_L- and A_N-type for methyl-βCD and HP-βCD, respectively. On the other hand, solubility curve of fixolide in the presence of βCD showed the B_S-type which suggests the formation of insoluble complex at higher βCD concentration.

2. The DSC and FTIR spectrum support that fixolide : CDs (βCD, methyl-βCD, HP-βCD) inclusion complexes were formed in solid state by co-precipitation, kneading, and freeze-drying methods. Formation of inclusion complex of fixolide : βCD of 1:2 mole ratio by co-precipitation at stirring time of 24 hours gave the most effective complex formation system because it provided the highest amount of fixolide retained and complete complex formation.

3. βCD could protect the fixolide from thermal and photodegradation by formation of an inclusion complex. The stability studies showed that degradation of free fixolide by heat at 35, 50, and 80 °C and by UV light was about 15-30 %, while was less than 10 % when complexed with βCD.

4. The degradation reaction for fixolide in the studies of effects of temperature at 35, 50, and 80 °C and photochemical degradation followed first-order kinetics Moreover, βCD did not influence the degradation kinetics of those reactions.

5. Fixolide-βCD and fixolide-methyl-βCD solid complexes had higher dissolution and faster dissolution rate than free fixolide.

6. βCD could prevent the fixolide from thermal and photodegradation when the fragrance was added in fabric softener. The stability studies exhibited that degradation of fixolide in the complex form with βCD at 50, 80 °C and under UV light was about 8-13 %, while the loss of free fixolide was 17-53 %.