

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The effect of electrolytes has been examined in order to study the influence on the adsorption and adsolubilization of acetophenone into CTAB adsorbed on precipitated silica. The presence of electrolytes resulted in a shift of the CTAB adsorption isotherm to lower equilibrium CTAB concentrations if the CTAB equilibrium concentration was lower than its CMC. It was presumably because anions of electrolyte decreased repulsion between head groups of cationic surfactants. The divalent anions had more degree of binding than the monovalent anions leading to an increase of CTAB adsorption. Additionally, In the presence of electrolytes caused the reduction of maximum CTAB adsorption possibly due to the competitive adsorption between the cation of surfactant and the cation of electrolyte onto the negatively charged sites of the silica. The divalent cations adsorbed at the surface of silica more than the monovalent cation, resulting in a decrease of the maximum CTAB adsorption.

Furthermore, the presence of electrolytes caused an increase of adsolubilization of acetophenone possibly because anions of electrolyte reduced the repulsion between head groups of cationic surfactants. The soft anion could bind head groups of cationic surfactants more than the hard anion leading to an increase of the adsolubilization of acetophenone.

Moreover, the CTAB adsorption increased with increasing electrolyte concentration. However, electrolyte concentration had insignificant effect on the adsolubilization of acetophenone presumably because the adsolubilization of acetophenone seemed to depend mainly on the CTAB adsorption onto silica surface.

5.2 Recommendations

For further study, it is interesting to study effect of electrolytes on adsolubilization isotherm. Furthermore, it is supposed that effect of electrolytes on

solubilization should be investigated and then compare with adsolubilization. Other organic solutes should also be studied. Further study using optical reflectometry (OR) and atomic force microscopy (AFM) may be used to explore this issue because it is not easy to describe what really happens without knowing the characteristics of the surfactant adsorbed on the solid surface.