CHAPTER V
CONCLUSIONS AND RECOMMEMDATIONS

5.1 Conclusions

An addition of NaCl in microemulsion with mixed surfactants (SDS and $NP(EO)_{10}$) could enhance the formation of the middle phase. A high amount of NaCl was required for a low mixed surfactants concentration to increase the volume of middle phase but for a high mixed surfactants concentration, the solution needed a small amount of NaCl to extend the volume of middle phase. Moreover, excess amount of NaCl caused the inversion of solution from Winsor type III to Winsor type II. The system was more hydrophilic as NaCl concentration increased.

At 5 wt. % mixed surfactants concentration, it gave higher the ODCB removal than 3 wt. % for all systems (w-m, w-o and w-m-o systems). The ODCB removal increased as Xsds increased. The ODCB removal in the w-m-o system was higher than the w-o and w-m systems for Xsds = 0.4 to 0.8 but the ODCB removal in w-o system was higher than w-m-o and w-m systems for Xsds = 0.2. At 0.5 wt. % NaCl in 3 wt. % mixed surfactants concentration, and Xsds = 0.6, the w-m-o system gave the maximum ODCB removal. As the volume of the oil phase decreased and the volume of the water phase increased in the w-o system, the ODCB removal decreased as well as when the volume of the middle phase increased and the volume of the water phase decreased in the w-m system, the ODCB removal increased.

5.2 Recommendations

Based on these experimental results, the following recommendations are suggested:

1. to study the interfacial tension between each phase of microemulsion system such as the interfacial tension between water and middle phases and middle and oil phases.
2. to study the relationship between the interfacial tension and salt concentration of microemulsion system.
3. to study the removal efficiency of oil from water using froth flotation operated with continuous mode.