CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This work was to study some basic properties, phase behavior and detergency performance of oleic acid based nonionic gemini surfactants with 20 and 30 polyoxyethylene headgroups (FE-1020E, FE-1030E), methyl ester sulfonates anionic surfactants (MES) with different alkyl chain lengths (MES-14C, MES-16C and MES-18C) and methyl ester ethoxylates nonionic surfactants (MEE) with different ethylene oxide groups (MEE-8EO, MEE-14EO and MEE-18EO). The experimental results indicated that all surfactants except MES-16C and MES-18C are suitable to be used in the part of detergency application in term of solubility in water. In phase behavior and detergency performance, MEE-8EO showed the highest oil removal greater than 54% as compared to 38% for the commercial grade liquid detergence. Moreover, it was confirmed that the lowest oil re-deposition value corresponded to the highest oil removal. In addition, comparing between single and mixed surfactant systems, the result indicated that single surfactant system provided the better detergency performance in term of oil removal and re-deposition. Therefore, MEE-8EO is the most suitable for palm oil removal compared with commercial grade liquid detergence and the others.

5.2 Recommendations

For further study research, third surfactants should be used to form microemulsion system which providing the ultralow interfacial tension (IFT) and then investigated detergency performance under microemulsion condition.

Other oil types should be studied.