

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In this research Phet wax was purified by crystallization and supercritical fluid CO₂ extraction processes. It can be concluded that a purified wax obtained from crystallization process had a purity of over 98% when using mixed solvent with MEK to toluene ratio of 50:50 vol/vol%, and solvent to wax ratio of 50:1 vol/wt%. While a purified wax obtained from supercritical fluid CO₂ extraction had a purity of over 95% when operating at a pressure and CO₂ flow rate of 250 bar and 3 g/min, respectively. Moreover, the extraction time was the main factor affecting on the percentage of remaining oil, which was statistically significant at the 5% level.

5.2 Recommendations

It is generally accepted that a crystallization process was simple and considerably cost-effective for the wax purification. However, the supercritical fluid CO₂ extraction is an attractive alternating method with some advantages, such as no liquid-based solvent used and an abundance of CO₂. Therefore, the wax purification of supercritical CO₂ extraction should be further examined. In order to enhance the purification efficiency, study of using supercritical CO₂ extraction with co-solvents, such as toluene, and methyl ethyl ketone, should be investigated.