

CHAPTER V

CONCLUSION AND SUGGESTION

5.1 Conclusion

The objective of this research was to synthesize monoester as a synthetic lubricating base oil. Transesterification process was to synthesize monoester from rice bran oil by reaction with an alcohol such as 1-butanol, 1-hexanol, 1-octanol, 2-ethyl-1-hexanol and 4-methyl-2-pentanol, using concentrated sulfuric acid as a catalyst at reaction time of 2, 3 and 4 hours.

From the test results and discussion, long reaction time for synthesizing the monoester had no influence on the monoester products. Synthesis each monoester was completed after 2 hours of reaction time. It was concluded that the monoester, which had suitable properties to be a synthetic base oil, was 2-ethyl-1-hexyl ester because it had a high viscosity index, low pour point, good oxidation stability and low % oxidative compounds when compared with other monoesters. The result is similar to those of other researches with different vegetable oil.^[21, 22, 23, 24]

When it was blended with lubricating base oil, the viscosity index of the blended oil was increased. This confirmed that 2-ethyl-1-hexyl ester can be used as synthetic base oil and with high viscosity index, it can also be used as a viscosity index improver.

5.2 Suggestion

According to this research work, the properties of 2-ethyl-1-hexyl ester can be used as lubricating base oil and a viscosity index improver. In order to develop the synthetic lubricants, it is suggested that blending the synthetic base oil with additives by ratio variation and studying their physical, chemical properties and performance should be done to achieve synthetic or semi-synthetic lubricants, which are suitable for application.