

CHAPTER VI

CONCLUSION

6.1 CONCLUSIONS

Referring to the all specific objectives, it was conclude that:

- i. Analysis of GC-FID data by using QUEST modeling were identified a relevant standard retention time that represent the chemical fingerprint RON 95 petrol of Petronas was at 5.25, 6.20, 9.20, 10.25, and 22.95 min. Identified chemical fingerprint for RON 95 petrol of Shell was at 5.25, 5.60, 6.20, 9.20, 10.25, and 22.95 min. While a relevant retention time for RON 95 petrol of BHP has been identify at 5.60, 6.70, and 10.25 min.
- ii. There is no result obtained to identify the differences in petrol composition of RON 95 from various Petronas petrol stations.
- iii. Based on the chi-square analysis, a total of 93 peaks were identified as a potential retention time to identify the differences petrol composition RON 95 of Shell petrol and a total of 16 standard retention times for BHP petrol. However, no positive results obtained from PCA analysis to determine the chemical composition of Shell and BHP petrol from different service location.

In conclusion, chemometric analysis has the potential to identify chemical fingerprint of RON 95 commercial petrol in Malaysia using just GC-FID data.

6.2 SUGGESTION FOR FUTURE STUDY

Several suggestions were recommended for further study to improve the quality of the result in the future research. Sample extraction can be replaced using Solid Phase Microextraction (SPME). This procedure is simple and no solvent required for hydrocarbon extraction. This technique will produce better chromatogram of the samples.

Besides that, larger sample size is recommended by increasing the number of samples at least 10 samples for each parameter to obtain consistent data set so that data can be analysed using principle component analysis (PCA).

Analysis of the peaks obtained from GC-FID using gas chromatography-mass spectrometer to identify the compounds of the sample as a component for determination of chemical fingerprint for the RON 95.

Study on the degree of evaporation of RON 95 commercial petrol in Malaysia. So that, the chemical fingerprint of evaporated and unevaporated automotive gasoline can be identified.