CHAPTER 4

CONCLUSION

4.1 Conclusion

The Flow Injection Dichlorophenolindophenol precipitation (FI-DCIP) system for hemoglobin E screening has been developed. Even though the conventional DCIP that is normally used for hemoglobin E screening test in the hospital is simple and low cost, it requires experienced operators to translate the result which is normally observed with bare eyes. Long time incubation is also inconvenience and may cause fluctuation of temperature control of the water bath which effect precision of the analysis. In addition, conventional method has the risk of the operator having direct contact with blood samples. Therefore, the flow injection DCIP precipitation system has been developed to make DCIP precipitation process more precise, automated and rapid. The proposed system offers shorter incubation time (3 min vs. 25 min – 1 h. per sample), lower amount of blood sample consumption (less than 10 μL vs.20 μL), more precise translation of the result by using a spectrophotometer (600 nm), easier operation with the use of computer control solenoid valves which were placed to control the direction of solution and safer for the operator by reducing the chance of direct contact with blood samples. The results obtained from the FI-DCIP precipitation system are correlated with those obtained from the anion exchange microcolumn. The flow based system can differentiate hemoglobin E patient from

healthy people. Therefore, this system has a potential to be used as an automated technique for routine hemoglobin E screening.

4.2 Further work

The possible ways to improve the proposed system are as follows,

- Development of higher degree of automation using auto-injection of blood sample and reagent
- Determination of cut off value using more number of samples and chemometries