CHAPTER IV

CONCLUSION

Heterology principle was successfully applied for the detection of amphetamine, methamphetamine and ephedrine utilizing polyclonal antibody. Bridge and bridge-hapten heterologous combinations could significantly enhance both sensitivity and specificity of amphetamine, methamphetamine and ephedrine detection. The selective detection of methamphetamine and ephedrine was from using bridge-hapten heterologous combinations, antiserum from 4-ABE and enzyme-labeled 3-APM. Amphetamine could be detected by using bridge heterologous combination of antiserum from 4-ABA and enzyme-labeled 3-APA.

Only antibody from 4-ABA could be cloned as monoclonal antibody. Nevertheless, this monoclonal antibody seems to more specific to plate-coated hapten than to amphetamine, methamphetamine and ephedrine, thus, affecting the sensitivity of method. The more selection of clone cell would be suggested. However, the highlight of using monoclonal antibody is the cross-reaction effect from other compounds were minimized to less than 1.0%.

The lateral flow immunoassay for detection of methamphetamine and ephedrine was developed with the cut-off value at 1,000 µg/L and 500 µg/L, respectively. The created membrane immunoassay could detect methamphetamine in urine at the cut-off value of 1,000 µg/L that follows the Mandatory Guidelines for Federal Workplace Drug Testing Programs, proposed by The National Institute on Drug Abuse (NIDA) and The Substance Abuse and Mental Health Services Administration (SAMHSA).

Suggestion for further study

This lateral flow membrane immunoassay has to further technical modification for practical use in methamphetamine and ephedrine detection. The validation of this membrane immunoassay was also required for verifying.