



## CHAPTER 5

### CONCLUSION

It is evident from the results in Tables 4.1-4.4 that the most suitable shaking times used for microextraction of PAHs, e.g., fluorene, anthracene, fluoranthene and pyrene are 20 min and 30 min for the sample to solvent ratios of 10:1 and 50:1 respectively with toluene, hexane and methylene chloride as the extracting solvents.

The overall percent recovery of PAHs, depended on various parameters, e.g., extracting solvents, sample to solvent ratios and salting out effect, as studied with two different concentrations of standard aqueous solutions i.e., 1.00 ppm and 50.00 ppb. The UV wavelengths used as the optimum wavelengths for each PAH were 260.4, 254.0, 286.4 and 272.4 nm for fluorene, anthracene, fluoranthene and pyrene, respectively and the effect of these wavelengths on the sensitivity are also investigated. The percent recoveries of 3.14-110.66 with RSD 0.33-9.26 % are

shown in Tables 4.5-4.20. The best combination for microextraction of PAHs is 50:1 sample to solvent ratio with toluene as a suitable solvent and sodium sulfate as an added salt, giving % recoveries of 76.54-100.30 with RSD 0.91-5.15%.

The minimum detectable level of PAHs is 10.00-0.10 ppb for single component solution and 50.00-0.10 ppb for mixture. Therefore, it will be able to detect the sub-ppb level of PAHs in a real water samples by the reverse-phase HPLC and UV detector. The procedure are not only very sensitive but accurate as well. It can be seen from Table 4.22 that % error of PAHs ranged from 0.33-3.28% using the procedure as specified in testing for the accuracy of the microextraction method. This procedure was applied for 4 water samples, three of them collected from the intake of Samsaen station where have been water for the Bangkokian and fortunately, the results showed that there was no evidence of PAHs found in these samples.

This study can solve some problems which was found using packed column GC-FID for the microextraction of high

molecular weight PAHs because there is no condensation at the detector, give good separation with appropriate analysis time, high sensitivity and high accuracy. In future, the determination of PAHs levels in various environmental samples by this procedure should be improved in the advent of photodiode array detector as well as the more sensitive fluorescence detector.