

CHAPTER IV

CONCLUSION

The liquid-liquid microextraction procedure described in this study appears to represent a convenient and efficient method for the determination of volatile halogenated compounds and the other volatile compounds.

According to Table 3.16-3.51, the percent recovery is in the range of 31.05-107.99% and the percent RSD is in the range of 0.05-10.67%. The sample to solvent ratio of 9:1 is considered to be the most suitable ratio to be used in the microextraction due to the highest precision and the halogenated alkanes studied are concentrated into the organic solvent. The percent recoveries of the halogenated alkanes in the extraction can be further improved by adding sodium sulfate or sodium chloride salt. However, sodium sulfate can be used to increase the percent recoveries of halogenated alkanes to higher than sodium chloride can. The isooctane is also selected as the suitable extracting solvent for this study due to this solvent can be used to improve the MDL of the halogenated alkanes.

Therefore, the sample-to-solvent ratio of 9:1, sodium sulfate and isooctane would be the best combination to be used in the microextraction for the analysis of halogenated alkanes in the water samples. This combination is used to analyze the synthetic

unknown mixture solution for determining the accuracy of the method and the percent error is in the range of 1.00-5.46% as shown in the Table 3.53. Moreover, this combination is also used in the analysis of halogenated alkanes in real water samples collected from various places and the results of the analysis is shown in Table 3.54 .

For the further work, the capillary column should be used instead of the packed column to improve the chromatographic resolution and the analysis time . It is because the capillary column will have less effect on column bleeding in the temperature program of gas chromatograph than the packed column and therefore the temperature program can improve the separation and reduce the analysis time. In addition, the problem of high response of negative peak of hydrocarbon, used as extracting solvent, that gives interference to the adjacent peaks of halogenated alkanes can be eliminated by means of the replacement of N_2 -carrier gas with 5-10% methane in argon.