CHAPTER 4

CONCLUSION

The main purpose of this research was to determine of levoglucosan and 2-methoxyphenol concentrations in indoor PM_{10} samples collected in houses which had indoor biomass burning. The PM_{10} samples were collected using personal air sampler and performed for 12 hr (06.00 pm to 06.00 am of next morning) for 3 days a week on Monday, Wednesday, and Friday in 15 houses which consisted of 14 studied houses and 1 control house. The PM_{10} concentration of each household was obtained by the mean concentration of 3-day collection.

Mean concentrations of PM_{10} in studied houses measured in wet and dry seasons were 124.8±70.1 and 162.5±56.5 $\mu g/m^3$, respectively. There are no significant difference between the mean PM_{10} concentrations in wet and dry seasons ($p=0.126$). Mean concentrations of levoglucosan in studies houses measured in wet and dry seasons were 6.2±7.1 and 8.7±6.9 $\mu g/m^3$, respectively. There are also no significant difference between mean levoglucosan concentrations in wet and dry seasons ($p=0.354$) levoglucosan concentration had good correlation with PM_{10} concentrations ($r=0.57$). Mean concentrations of 2-methoxyphenol in studied houses measured in wet and dry seasons were 20.7±7.4 and 14.7±6.6 ng/m^3, respectively. There are significant difference between mean 2-methoxyphenol concentrations in wet and dry seasons ($p<0.05$) and the levels of 2-methoxyphenol showed poor correlation with PM_{10}

concentration (0.22). This compound did not show to be a tracer for wood smoke. This is might be a rather small sample size.

Recommendation for further work

1) The impact of indoor wood burning on human health and the biomarker of exposure in human i.e. levoglucosan and 2-methoxyphenol in the urine should be worth to investigate. Although levoglucosan and 2-methoxyphenol are not found the evidence of their toxicity, many epidemiological studies found that indoor air pollution from household solid fuel use in developing countries had significant health effects.

2) Although KCK village may be the good site for studying indoor biomass burning, the control house in present study was too few. Increasing number of the control houses might show the obvious difference of the results between the study and control group with statistically significance.