

6. CONCLUSION AND RECOMMENDATIONS

There is a heavy air lead pollution problem in Chiang Mai City which is caused mainly by motor traffic. However, the distribution of lead contamination in plants in different sites is not uniform since the emission is closely related the density of traffic at specific sites. This is clearly shown by the results of plant samples analysis.

The results of the comparative analysis of samples collected from thirteen sites indicate that leaves are capable of accumulating the heavy metal, Pb. Species *Bougainvillea* has the highest capacity of lead accumulation among the five species studied. The difference in concentration between the dry and rainy season was not observed.

There is a high level of lead in plants at most study sites. The concentration of lead in the analyzed plant leaves depended on the species as well as on the location of the plant in the city. The highest concentration of Pb is in *Bougainvillea* from a super highway junction, being up to 66 mg/kg in December. Due to the roughness of the outer surface of the leaves, the contents of Pb in non-washed samples were different from those in washed samples.

Bougainvillea is suggested to be good indicator for airborne lead monitoring due to its highest capacity for accumulation of lead.

Lead hydride generation system was applied in this research in order to obtain high sensitivity of lead. This method gave a high stability and reliability when tested by analysing certified reference materials.

RECOMMENDATIONS

- (1) Plant materials from different individuals of the same species at the same site must be analyzed in order to find out the reproducibility and repeatability of the results for lead measurement.
- (2) Different leaves from different positions on the plants should be tested to discover the best area in which the highest leaf accumulations occur.
- (3) Sampling should be done more than once in the same season to reduce the random sampling error.
- (4) Various washing methods must be tested to identify the best solvent since particles which are trapped on plant surfaces are difficult to remove and this will subsequently influence the final results.
- (5) A distance-concentration relationship in different species with respect to sites should be evaluated accurately by detailed testing.
- (6) Other plant species should also be studied.