

Thesis Title : Monitoring of Heavy Metal Concentrations in the Bangkok Metropolitan Area using Nuan Noi Grass (*Zeysia mattrella Merr.*) as Bioindicator

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Abstract

In this research work, a monitoring network to measure heavy metal concentrations in the ambient air is established in the Bangkok Metropolitan Area using Nuan Noi Grass (*Zeysia mattrella Merr.*) as bioindicator. The study has been carried out for six months during June to November 1997 at 36 sampling sites. The mean values of various parameters were in the following range : chromium 0.75–7.05 $\mu\text{g/g}$ dry weight, copper 1.38–10.58 $\mu\text{g/g}$ dry weight, zinc 1.53–13.09 $\mu\text{g/g}$ dry weight, cadmium 0.39 – 5.77 and lead 0.10 – 1.56 $\mu\text{g/g}$ dry weight. In addition , the results where compared with reference samples in unpolluted air at the King Mongkut's Institute of Technology Ladkrabang.It was found that the heavy metal concentration in Bangkok was 5,4,5,7 and 7 times higher than at the reference site. Assessment of toxic levels in heavy metal on the tropic state indicated that cadmium, chromium with copper, zinc wiht lead were high to extermely high, low to modulate and low level respectively.The relationship of heavy metal was polynomial of third order.The results show that the developed method is well suitable to monitoring the heavy metal concentrations in the ambient air of cities in tropical countries like Thailand.The easy application and low costs make it a useful tool for city administrations to monitor the ambient air quality.Only a continuous overview over the levels of heavy metal in the ambient air at various location, distributed over Bangkok make it possible to estimate the extent of air pollution, identify sources of air pollution, identify trends and control the effect of pollution reduction measures.