

**DISTRIBUTION AND POTENTIAL ORIGIN OF HEAVY
METALS AIR POLLUTION AROUND *GEBENG INDUSTRIAL
AREA***

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ABSTRACT

DISTRIBUTION AND POTENTIAL ORIGIN OF HEAVY METALS AIR POLLUTION AROUND GEBENG INDUSTRIAL AREA

The identification of air pollution status in the Gebeng industrial area, Pahang was conducted by evaluating the distribution pattern and possible origin of heavy metals such as Fe, Zn, Cu, Mn, Ni and Pb which have been deposited in the area. Moss is very flexible indicator for the analysis of air pollution as well as requiring minimum cost compared to the conventional methods. Moss is a reliable indicator due to their special physical characteristics which are very suitable to study air pollution. This study is further strengthened by the use of multivariate statistical methods (cluster analysis and principal component analysis). The results of multivariate analysis showed that the total heavy metal concentrations in moss samples increase in the order of Pb, Ni, Cu, Mn, Zn and Fe. The total heavy metal concentrations in the moss samples were found significantly depends on the position of sampling location. The concentration of Zn, Cu and Mn were found higher at the sampling station close to the industrial compound which was recorded as 462.75, 45.18 and 323.28 mg/kg respectively. Meanwhile, the higher concentration of Fe and Ni were measured in moss samples which was collected at 6.8 km in western part of the Gebeng industrial area with 14,317.50 and 19.55 mg/kg respectively, and the high concentration of element Pb was found in the northern region with 19.45 mg/kg. All the multivariate analysis results showed that the metal Zn, Cu, Mn and Pb were originated from anthropogenic activities such as industries and transportations. Meanwhile, Fe and Ni are associated with the natural resources such as dust and soil. In general, industrial activities operating in Gebeng Industrial Area have contributed to some amount of heavy metal pollutants to the surrounding area. This study has provided some of the important information about the concentrations and possible sources of heavy metals which may possibly cause some health risks to surrounding residents.