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Determination of selected heavy metals in airborne particles in industrial area: A baseline study

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Abstract

This study focuses on airborne heavy metal pollution in the industrial area. Eight points from Paka and Gebeng Industrial Area respectively were selected for this study within two monsoon seasons. The samples were analysed for heavy metals (Cd, As, Cu, Fe, Ni, Pb, and Zn) by using inductively coupled plasma mass spectrometry (ICP-MS). The results showed that the mean concentration value of As, Pb and Cd for Paka were 0.005 mg/L +/- 0.001, 0.107 mg/L +/- 0.088, and 0.010 mg/L +/- 0.008, respectively and Gebeng were 0.004 mg/L +/- 0.002, 0.069 mg/L +/- 0.059 and 0.005 mg/L +/- 0.004, respectively in the southwest monsoon - much higher than the target value by European Commission in Directive 2004/107/EC and Directive 2008/50/EC. It could be concluded that the industrial and transportation emission were the major source of heavy metals in the atmosphere along the Paka and Gebeng Industrial Area.

Keywords

Author Keywords: Airborne pollution; heavy metal pollution; industrial area; ICP-MS; industrial emission

KeyWords Plus: CARCINOMA HEPG(2) CELLS; HUMAN LEUKEMIA HL-60; TRANSCRIPTIONAL ACTIVATION; STRESS GENES; CHEMOMETRIC TECHNIQUES; INDUCED CYTOTOXICITY; ARSENIC TRIOXIDE; URBAN ATMOSPHERE; AIR-POLLUTION; BAHRAIN

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