HEAVY METALS ACCUMULATION IN TOPSOIL SURROUNDING TEMERLOH INDUSTRIAL AREA

NUR IZATUL NABILA BT MOHD ALI HANAFIAH

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ABSTRACT

HEAVY METALS ACCUMULATION IN TOPSOIL SURROUNDING TEMERLOH INDUSTRIAL AREA

There are various types of heavy metal that may contain in the topsoil. Heavy metal is the metal that can give adverse effect to human health and environment. The objectives of this study are to determine the concentration of heavy metal that present in the topsoil obtained from the distance near to Malaysian Newsprint Industries in Temerloh Industrial Area, to determine the level/degree of airborne heavy metals contamination and also to study the long term effects of heavy metals accumulation in the topsoil. Heavy metal that were analyzed were zinc (Zn), copper (Cu), cadmium (Cd), iron (Fe) and lead (Pb). In this study, after the samples had been air dried and grinded, the samples were extracted using Acid Digestion Method, then these heavy metals concentrations in the sample were determined using Atomic Absorption Spectroscopy (AAS). Concentration of Zn, Pb, Cu and Fe in the samples were determined using Flame Atomic Absorption Spectroscopy (FAAS) while the concentration of Cd in the sample was determined using Graphite Furnace Atomic Absorption Spectroscopy (GFAAS). The mean concentration obtained for the whole sampling site were found in the range of 0.060 to 0.240 mg/kg for Cd, 2970.00 to 4540.00 mg/kg for Fe, 230.00 to 918.00 mg/kg for Zn, 5.00 to 40.00 mg/kg for Pb and 6.00 to 37.00 mg/kg for Cu. In conclusion, Zn had the highest concentration compared to Fe, Cu, Cd and Pb in the topsoil and this heavy metal distribution data is under USEPA Standard and is very useful to be a good reference and guideline for soil remediation. Based on the statistical analysis using the contamination factor and ecological risk factor, the studied area is moderately polluted by the heavy metal. This study also shows that the effects of pollution to the surrounding area possess a moderate health effect to the surrounding area.