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Bioavailability of major and trace elements in paddy soils from different climatic zones of Sri Lanka

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Trace metal pollution in paddy soil due to fertilization in highly paddy cultivated areas in Sri Lanka is great concern because of long term sink of potential toxic elements in soil. Accumulation of these metals in human body with entering via various agricultural products has been given high attention recently due to their possible health impacts. As the bioavailable fraction of metals is very important to predict the risk of the metal to human body, this study was focused to study the distribution of bioavailable fraction of trace and major elements in paddy soils from different climatic zones in Sri Lanka. Total of 120 soil samples were collected from wet, dry, and intermediate zone. Soil pH, Ec were measured by potable multiparameter and bio-available amounts of As^{3+}, Zn^{2+},Cu^{2+}, Pb^{2+},$Cr^{3+}Na^{+}$, K^{+}, Ca^{2+}, Mg^{2+}, Mn^{2+} and Fe^{3+}metals were measured using Atomic Absorption Spectrometer (AAS). Chemical results revealed that wet zone paddy soil were slightly acidic (mean pH=5.05) compared to the dry zone (pH=7). Electrical conductivity (EC) values range from 40.1 to 276, 19 to 800, and 16.4 to 800 µS/cm in wet zone, intermediate zone and dry zone respectively. The results indicated that the availability of trace metal distribution from intermediate and wet zones are much higher compared to that of the dry zone. Major metals of Na^{+}, Ca^{2+}, Mg^{2+}, Mn^{2+} higher in dry zone and Fe^{3+} and K^{+} concentrations are high in wet zone region due to contamination of paddy soil by agricultural activities.

Biography

R T Rubasinghe obtained her BSc special degree in Environmental Science from Sabaragamuwa University of Sri Lanka and pursuing her MPhil degree in University of Peradeniya. This abstract is a part of her MPhil research which was granted from National Research Council in Sri Lanka.

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