Toxic metal absorptivity of agriculture soil

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Abstract

Soil contamination has increased by several folds within the recent past due to various man made activities. Various types of toxics involve in the processes of making contaminated soil profiles. There are many toxic metals and chemical complexes which contaminate soils. When toxic agents contact with soils they may absorb or adsorb in to the soil structure depending on their structural and physical properties. One of the major sources of contaminant is agrochemicals. Due to expansion of agricultural practices and over use of agrochemicals (pesticides, weedicides, insecticides, fungicides and others) the effect has become adverse.

Sri Lanka is covered with versatile range of soils with highly contrast physical properties. In this study, soil samples from different agricultural areas in Badulla district has been used to determine their quantity of toxic metal absorptivity quantitatively.

Five areas were selected where there are many types of agricultural activities. Uncontaminated samples were collected from these farms (Mirigama,Passara, Badulla Bandarawela and Welimada). Soil properties like moisture content, soil pH, bulk density, hydraulic conductivity, soil porosity was studied in order to categorize the soil types.

Soil columns were made for these samples and metal absorptivity was studied by adding *Roundup* pesticide (which is heavily used agrochemical in the area). Concentration of the agrochemical was kept at its normal dosage. Original agrochemical was fully studied with ASS to identify the containing metal ions and the obtained leachates were also measured for the same set of metal ions to confirm there soil absorptivity under specific time period.

Obtained AAS results interpreted to identify the correlations between soil properties and toxic metal absorptivity.