

HEAVY METAL ACCUMULATION BY SOME SELECTED LEAFY VEGETABLES GROWN IN WELLAMPITIYA AREA

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Elevated levels of heavy metals in the environment can pose a human health and ecological risk. Many researches focus on heavy metal contamination of soil and water. Food can be an important source of heavy metals for human. It is well known that leafy vegetables accumulate more heavy metals than other food crops. The objectives of this study were to evaluate the extent of heavy metal contamination, and their potential food chain transfer using some selected locally available leafy vegetables grown in a selected suburban area. Soil and plant samples were collected from different farmer fields located in Wellampitiya area where, farmers grow leafy vegetables for over 10 years. To represent the Wellampitiya area, three sub areas (Sedawatta, Welewatta, Kotuwilla) were selected. Soil samples were analyzed for selected soil properties including total and "plant available" (0.1 N HCl extractable) Zn and Cu. Leafy vegetables collected in this study were: "Kangkung" (*Ipomea aquatica*), "Mukunu-venna" (*Alternanthera sessilis*), "Sarana" (*Trionthema portulacastrum*), "Spinach" (*Bassila alba*), and "Kura Thampala" (*Amaranthus viridis*). Plant samples were acid digested and analyzed for Zn and Cu. The highest Zn and Cu contents were found in Sedawatta area (400 ppm and 92 ppm, respectively). Observed values were higher than the European Community Set Standards in 1986 for the maximum concentrations of Zn and Cu allowed in agricultural soils treated with sewage sludge (150-300 ppm for Zn and 50-150 ppm for Cu). Mukunu-venna had the highest bio-concentration factor (BCF, ratio of metal in plant to metal in soil) for Zn and the lowest BCF for Cu (50.4 and 23.5, respectively). Kangkung showed the highest BCF for Cu (37.3). There was no relationship between total or 0.1 N HCl extractable soil Zn and Cu with the plant metal concentrations. These results emphasize the importance of investigating the extent of contamination of other Sri Lankan soils and food by toxic and trace elements.