

Determination of the lead and cadmium concentrations in some selected leafy vegetables

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The three toxic metals, lead (Pb), cadmium (Cd), and mercury (Hg), human have no nutritional requirement, and at any level of tissue concentration, there is some toxic effect. The most significant sources of lead and cadmium are, food including leafy green vegetables, cereals and grains. Therefore, the present work was carried out to determine the levels of the cadmium and lead of some selected green leafy vegetables *Ipomea aquatica* (Kankun), *Trianthema decandra* (Sarana) and *Lasia spinosa* (Kohila roots and Kohila leaves); soil and water collected from different locations; Lunawa, Wattala, Orugodawatta and Madiwela by means of flame atomic absorption spectroscopy (FAAS). The average values of lead for water were 0.78 ppm, 1.04 ppm, 1.54 ppm and 0.62 ppm; for soil were 3.52 ppm, 3.30 ppm, 3.23 ppm and 4.01 ppm at Lunawa, Wattala, Orugodawatta and Madiwela respectively. The concentrations of lead in *Ipomea aquatica* (Kankun), *Trianthema decandra* (Sarana) and *Lasia spinosa* (Kohila) leaves varied between 2.14 to 3.27 ppm, 2.16 to 3.05 ppm and 1.96 to 3.15 ppm respectively and the highest concentrations were recorded at Lunawa sampling location. The concentration of lead in *Lasia spinosa* (Kohila) roots varied between 2.23 to 3.23 ppm and the highest concentration was found at Wattala sampling location. The mean values of cadmium in water were 0.0002 ppm at Lunawa and 0.008 ppm at Orugodawatta but not detected at Wattala and Madiwela sampling locations. Soil cadmium varied between 0.20 ppm to 0.25 ppm. The levels of cadmium in *Ipomea aquatica*, *Trianthema decandra*, and *Lasia spinosa* roots varied between 0.13 to 0.21 ppm, 0.15 to 0.22 ppm and 0.15 to 0.18 ppm respectively. The highest cadmium concentration in vegetables was found at Wattala. The mean concentrations of lead (1.0 ppm) and cadmium (0.0025 ppm) in water, soil (Pb-3.52 ppm; Cd-0.29 ppm) and vegetables (Pb-2.08-3.12 ppm; Cd-0.13-0.24 ppm) remained greater than the legal limit recommended by the Central Environment Authority, for discharge of effluent into inland waters (lead-0.1 mg/l, cadmium-0.1 mg/l). Exposures to the daily low doses of lead and cadmium may lead to chronic or long-term toxicity. Thus, Continuous monitoring is needed to evaluate the levels of lead and cadmium in areas where leafy vegetables get into the local markets, as in the modern society there is a growing concern to be a "vegetarian" and vegetables are considered as high fiber and low calorie diet.