

HEAVY METAL ANALYSIS IN SELECTED VEGETABLES AND SOIL SAMPLES COLLECTED FROM KALUTHAVALAI, BATTICALOA

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Heavy metals refer to any metallic chemical element which has a relatively higher density (greater than 5g/cm^3) and is toxic at low concentrations. Common heavy metals include lead (Pb), mercury (Hg), cadmium (Cd) chromium (Cr) etc. The contents of Pb, Hg, Cd and Cr were assessed using atomic absorption spectrometry (AAS) in four vegetables (long bean, red onion, chili and brinjal) and three soil samples, obtained from the agricultural fields of Kaluthavalai. Among the vegetables, the highest accumulation of Pb was found in long bean (0.833 mg kg^{-1}), Cd in red onion (3.5 mg kg^{-1}) and Cr in brinjal (10 mg kg^{-1}). In soil analysis, the highest accumulations of Pb and Cd were found to be in the soil samples taken from red onion fields (3.833 mg kg^{-1} and 2 mg kg^{-1} respectively), whereas the highest amount of Cr was recorded in soil samples taken from long bean fields (7 mg kg^{-1}). Except for Hg, all other heavy metals in the analyzed vegetables were above the recommended maximum acceptable limits proposed by the Joint FAO/WHO (Food and Agriculture Organization/World Health Organization) Expert Committee on Food Standards, whereas metals in the analyzed soil samples were lower than the standard soil guideline values. It is presumed that long term consumption of vegetables loaded with metals could pose a health risk to the public.