SECTION E_2

840/E2

Determination of the levels of Heavy Metals (Cu, Pb & Cd) in *Lasia spinosa* (Kohila)

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Aquatic plants have the ability to accumulate heavy metals from the environment where they grow. *Lasia spinosa* is grown in aquatic environments with different water qualities. High level of heavy metal accumulation in edible aquatic plants like *L. spinosa* causes health hazards. Therefore, the objective of this study was to measure the level of absorption of three selected heavy metals (Cu, Pb and Cd) in rhizomes of *L. spinosa* and to find out suitability of L. spinosa as a vegetable in Sri Lankan meals. *L. spinosa* rhizomes were obtained from five different environmental conditions (industrial sewage, agricultural land using organic fertilizer, pesticides applied on green leafy vegetables, domestic waste and control). The level of absorption was measured by Atomic Absorption Spectrometry (AAS) for duplicates of *L. spinosa* rhizomes and soil samples from each environmental condition. The control samples were obtained from a site located around abandoned water well in a home garden, closed from top with concrete, avoiding the water being polluted externally. Dried ground *L. spinosa* samples were digested with 65% HNO_3 and 30% H_2O_2 and soil samples with 65% HNO_3, 40% HF and 35% HCl. Cu concentration of each digested sample (both *L. spinosa* and soil) was measured using Flame AAS, whereas Graphite Furnace AAS was used for measuring Cd and Pb concentrations. Results revealed that Cu accumulation in all sites were far below the provisional tolerable daily intake level of 0.5 mg kg^{-1} per body weight whereas Pb accumulation is beyond the provisional tolerable weekly intake level (PTWI) of 25 µg kg^{-1} per body weight except the control. Industrial sewage and domestic wastes were the observed sources of Pb. Study further showed that domestic waste added to the water sources leads to accumulate Pb and Cd in rhizomes beyond their PTWI levels. The control samples revealed to possess the least accumulation levels for all three heavy metals. A strong correlation existed for Cu and Pb accumulation in *L. spinosa* rhizomes and soil samples. But no such correlation existed for Cadmium.

Key Words: Cadmium, Copper, Heavy Metals, *Lasia spinosa,* Lead.

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