Investigation of lead (Pb) content in *Ipomea aquatica* (Kankun) grown in the area around Matara

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The aquatic plant water spinach, *Ipomea aquatica* either wild or cultivated, is a widely consumed vegetable throughout the Southeast Asia. Due to the unplanned dumping of the garbage to the environment, industrialization and with automobile discharge, a heavy metal, lead which is toxic to the human being enters to the environment and plants like *I. aquatica* has the ability to absorb and accumulate lead which can then be entered to human body via consuming it as a food.

This work mainly focused on the investigation of lead (Pb) content of *I. aquatica* around the area in Matara and determined the lead absorption pattern of this plant. The wild and cultivated *I. aquatica* samples from different sites in Matara were used for the analysis. Plant parts at each site were separated into leaves, stems and roots. After washing (two methods of washing; with EDTA and without EDTA), plant parts were subjected to acid digestion and then the concentration of lead was measured using atomic absorption spectrophotometer. Moreover, the pH and the lead concentration of the soil samples at these sites were measured. Hydroponics of *I. aquatica* was used to monitor the lead absorption ability with the different concentration of lead and with time.

The findings of this study indicated that *I. aquatica* grown in a ditch near to the main road, in a water stream in Walgama area and in the garden located at the coastal area, and the respective soil samples contained higher concentrations of lead compared to the remaining localities. It was also found that the lead accumulation ability of the root of *I. aquatica* increases with the increasing lead

concentration. This gives the possibility of using *I. aquatica* to identify the lead polluted areas as well as to remove lead from the polluted areas (phytoremediation).

Key words: *Hydroponics, Ipomea aquatica, Lead, Phytoremediation*