



602/E2

Hidden evils in paddy fields

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Heavy metal pollution has become a topic of debate in Sri Lanka because scientists are of the view that it is one of the leading causes of the kidney disease prevalent in the Central Province of Sri Lanka. Some heavy metals such as lead and cadmium are hazardous to plants and animals even at very low concentrations, whereas others become toxic once thresholds are exceeded. A study was conducted to assess whether paddy field associated soil, water, plants and animals contain heavy metals, and if so, at what levels. The paddy fields that were selected were located in the Kurunegala district. Soil, water, tissues of plants and animals were collected from these sites and tested for lead, cadmium and zinc.

The study indicated that the soil has high levels of zinc and lead, whereas no cadmium was detected. Water spinach, which is a popular vegetable, also had high levels of both lead and zinc suggesting that consuming leafy vegetables from paddy fields would be risky for humans. Levels of the heavy metals were greater in animal tissues indicating accumulation along food chains. Heavy metal contamination in paddy fields is most likely influenced by the use of Triple Super Phosphate (TSP) and zinc sulphate ($ZnSO_4$). The levels of heavy metals recorded in the paddy fields could be detrimental to animals. It also shows that consuming paddy, other plants, and animals from such contaminated fields could also expose humans to many adverse impacts, particularly over the long term.

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