

## **ARSENIC AND OTHER HEAVY METALS IN RICE FROM SRI LANKA- PRELIMINARY RESULTS WITH ICP-MS**

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As in most of Asian countries, rice is the main food in Sri Lanka and the cultivation of rice is deeply enmeshed with the culture and traditions of the country. Paddy cultivation is widespread throughout the island and nearly 8,350 km<sup>2</sup> of paddy land are scattered in the island providing 86% of the annual requirements. In recent years, there are some claims that rice consumed in Sri Lanka is contaminated with some toxic heavy metals including arsenic due to excessive use of contaminated fertilisers and pesticides. Most of the elements in rice grains and plants should be related to those in the soil and other associated environments. Sri Lanka is one of the major rice growing countries in which rice is the staple food crop consequently, accumulation of contaminants in rice grains could lead to trace element imbalance in consumers.

In this study, rice samples from various locations in certain parts of Sri Lanka were analysed for their heavy metal contents. In order to obtain a generalised idea of the geographical distribution pattern of the heavy metals in Sri Lanka, 23 rice samples were collected from the dry zone (Padaviya, Medawachchiya, Anuradhapura, Samanturai and Ambalantota) and wet zone (Colombo, Bombuwala, Labuduwa and Bathalagoda) regions, and analysed for As, Cd, Hg, Pb, Zn, Cu, Al, Mn, Ni, U, Cr and Se contents using ICP-MS techniques with appropriate quality control.

The arsenic content in rice varies from 10 to 90 µg/kg dw while the total Hg content is less than 10 µg/kg dw in all samples. There is no significant difference in the arsenic content in rice between dry and wet zones. The Cd content ranged between < 10 µg/kg dw to 40 µg/kg dw while the maximum Zn, Cu and Al contents were 30, 3.5 and 8.5 mg/kg dw, respectively. Compared to rice from other Asian countries and with recommended levels, Sri Lankan rice does not show high amounts of toxic heavy metals.