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Arsenic speciation studies in *Oriza sativa* L. grown in Wahalkada, Sri Lanka

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Arsenic speciation studies on rice (*Oriza sativa* L.) have been carried out for the first time in Sri Lanka. For this study, the brown rice variety, AT 307 was cultivated in Wahalkada, Sri Lanka where large number of patients with Chronic Kidney Disease (CKD) was reported. Different arsenic species present in soil and different parts of paddy plants were determined using ICP-MS coupled with HPLC in order to understand the translocation of different arsenic species in different parts of paddy plants including rice grain. Concentration values of As(V) and As(III) in soil were found to be 0.05 µg/g and in the not detectable range, respectively. There were no detectable organic arsenic species, Dimethylarsinous acid (DMAA) or monomethylarsinous acid (MMAA), in soil or any studied paddy parts. The amount of As(V) and As(III) in roots were 0.67 µg/g and 0.60 µg/g respectively. Though paddy roots consisted of considerable amount of inorganic arsenic species, As (V) and As(III), the amount of As(V) and As(III) in matured rice grains were 0.02 µg/g and 0.10 µg/g, respectively. There was a negligible accumulation of inorganic arsenic species after milky stage. Total inorganic arsenic concentration value (0.12 µg/g) in studied rice grains is much less than the values (0.3 or 0.2 µg/g) to be proposed by WHO as the standard for inorganic arsenic in brown rice.

Biography

Samanthika R Hettiarachchi has completed her PhD from University of Maine, USA in 2002. She has been serving as a senior Lecturer in Chemistry at the Open University of Sri Lanka since 2003. In 2012, she joined Professor Bill Maher's research group at University of Canberra, Australia during her six month sabbatical leave. In 2013, she was awarded Endeavour fellowship and joined back Professor Bill Maher's research group for another six month period. During her academic career, she published five full papers in well recognized international journals including Inorganic Chemistry and six abstracts in international conferences.

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