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Arsenic (As) distribution in tissues from Swiss mice chronically exposed to rice containing As

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Statement of the Problem: Arsenic (As) is a toxic element that is widely distributed in the Earth's crust and may be found in a variety of chemical forms, including organic and inorganic species. Rice (*Oryza sativa L*.) is global staple food that can be accumulated more than other commodities. Studies have demonstrated the toxic effects of As due to exposure and accumulation of this element through rice consumption. The purpose of this study was to evaluate the As species found in a Brazilian cultivar and As distribution in animals after consumption of rice containing As.

Methodology: The BR IRGA 409 rice cultivar was planted in soil contaminated with As at 10 ppm concentration; A control rice cultivar was planted without addition of As in soil. After analyzing the As concentration in rice and speciation, Swiss mice were divided into 2 groups and chronically treated with As through the diet. The tissue concentration was realized by ICP-MS.

Findings: The mean of As rice concentration in control cultivar was 55 ± 0.01 ng g⁻¹ of As, while the concentration of this element in exposed cultivar was 426 ng g⁻¹. The chemical species present in the highest concentration were As³⁺ and DMA. We observed higher concentrations of these species in exposed cultivar (172 and 218 ng g⁻¹) compared to control cultivar (40.4 and 17.7 ng g⁻¹). The highest concentration of As in the group treated with rice contending As was found in testicles followed by skin and hair.

Conclusion & Significance: The preliminary results of this study indicate that after rice consumption, testicles were the organ with highest concentration of As. Future studies on the speciation of As in this tissue will be performed.

Biography

Airton da Cunha Martins Jr. is a PhD student from School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo. He has experience in toxicology, with emphasis in toxicology of metals.

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