Abstract

The study of environmental pathways and human exposure to Manganese (Mn) in Southern Brazil was performed using two steps. The first step consisted of taking water samples from the surface of the Pardinho River. The average results from this technique showed a significant increase of pollutants, including increased levels of Mn, above the environmentally acceptable standard recommended by the Brazilian National Environment Council. Additionally, 64 soil samples were taken from areas with and without agricultural activity. Many results were above the mean crust and did not indicate significant differences of Mn levels between the sampled areas. For the second step, 12 families were selected and assessed for exposure to Mn in a region with high levels of Mn in the soil. Most of the analyzed foods contained amounts of Mn above the reference values, indicating that food can be an important source of exposure. The Mn content from the hair of most subjects studied was also high compared to reference values from non-exposed populations. Although the contamination appeared to come from a natural origin, the results found in the present study showed that the Mn levels present in the Pardinho River Basin are a relevant public health issue.

Keywords

Manganese, human exposure, environmental levels, Mn.