

4th International Conference and Exhibition on

Food Processing & Technology

August 10-12, 2015 London, UK

Cumulative risk assessment on the dietary exposure of Finnish children to heavy metals

Johanna Suomi, Pirkko Tuominen and Kirsti Savola
Finnish Food Safety Authority Evira, Finland

Cadmium, lead, mercury, and arsenic are toxic to humans, affecting many processes of the same organs in the body. These elements are found as contaminants in practically all food items, but the concentrations vary between foods. Simultaneous exposure to several heavy metals may cause additive damage compared to the effect of a single compound. Cumulative risk assessment has mainly been applied to pesticides, and hardly any research has been carried out on cumulative risks of heavy metal exposure. Interaction of the heavy metals was considered to induce harmful effects on the kidney and on the nervous system. This study concentrates on the cumulative risks of heavy metals among Finnish children of 1, 3 and 6 years and the contribution of heavy metals on nephrotoxicity and neurotoxicity. We have determined the levels and the main sources of Cd, Pb, Hg and As exposure. Furthermore, the contribution of these compounds on the cumulative exposure was assessed. Concentration data of the heavy metals in a wide range of foodstuffs as well as individual Finnish consumption data were used to assess the heavy metal intake. Probabilistic exposure assessment was performed with MCRA 8. Further research on the cumulative effects of heavy metals, using the same toxicological endpoint, are needed in the future to check the validity of the assumptions made in this study.

Biography

Johanna Suomi has completed her PhD from University of Helsinki and worked nine years as senior Lecturer at Helsinki University of Technology/Aalto University. Since 2011 she has been working as senior researcher at the Risk Assessment Research Unit of the Finnish Food Safety Authority Evira. Her specialty is risk assessment of chemical hazards in food. She also holds title of Associate Professor at the University of Helsinki. She has published 25 articles in refereed journals as well as scientific reports, monographs and invited articles in books. She is member of an EFSA network.

johanna.suomi@evira.fi

Notes: