EFSA CONTAM Panel (EFSA Panel on Contaminants in the Food Chain), 2015. Scientific Opinion on the risks to public health related to the presence of nickel in food and drinking water - DTU Orbit (09/12/2018)

EFSA received a request from the Hellenic Food Authority (EFET) for a scientific opinion on the risk to human health from the presence of nickel (Ni) in food, particularly in vegetables. The EFSA Panel on Contaminants in the Food Chain (CONTAM Panel) decided to extend the risk assessment also to drinking water. The reproductive and developmental toxicity in experimental animals was selected as the critical effect for the assessment of chronic effects of Ni. A tolerable daily intake of 2.8 µg Ni/kg body weight (b.w.) per day was derived from a lower 95 % confidence limit for a benchmark dose at 10 % extra risk (BMDL10) of 0.28 mg/kg b.w. for post-implantation fetal loss in rats. The current dietary exposure to Ni raises concern when considering the mean and 95th percentile chronic exposure levels for all different age groups. The systemic contact dermatitis (SCD) elicited in Ni-sensitive humans after oral exposure to Ni was selected as the critical effect suitable for the assessment of acute effects of Ni. A lowest BMDL10 of 1.1 µg Ni/kg b.w. was derived for the incidence of SCD following oral exposure to Ni of human volunteers. The CONTAM Panel applied a margin of exposure (MOE) approach and considered an MOE of 10 to be indicative of a low health concern. The MOEs calculated considering the estimated mean and the 95th percentile acute exposure levels were considerably below 10 for all age groups. Overall, the CONTAM Panel concluded that, at the current levels of acute dietary exposure to Ni, there is a concern that Ni-sensitized individuals may develop eczematous flare-up skin reactions. The CONTAM Panel noted the need for mechanistic studies to assess the human relevance of the effects on reproduction and development observed in experimental animals and for additional studies on human absorption of nickel from food, for example in combination with duplicate diet studies.

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