P17: KEY METROLOGICAL ISSUES FOR THE ESTIMATION OF DIETARY INTAKES OF MANGANESE AND COPPER FROM PORTUGUESE TOTAL DIET STUDY

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Manganese and Copper are two essential micronutrients required for several vital functions. Recently EFSA reviewed adequate intake values for these nutrients. AIs of 1.6 mg/day for copper [1], and 3 mg/day for manganese were established for adults [2].

This work aims at evaluating the contents of Mn and Cu in foods collect during the Portuguese Total Diet Study (TDS). One thousand one hundred and fifty two foods were prepared as consumed and analysed in ninety six pooled laboratory samples. Samples were digested with nitric acid and hydrogen peroxide in a microwave assisted digestion and analysed by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Analytical procedures were carried out under rigorous metrological control and traceable to SI units.

The following food groups were analysed: dairy products, meat, fish, cereals, pulses, bread, potatoes and juices. The lowest amounts of Mn and Cu were found in milk with 27 ± 0.9 µg/kg and 42 ± 4.5 µg/kg, respectively. The highest concentration of Mn was present in pulses 12541 ± 237 µg/kg while the maximum value of Cu was observed in cereals 2451 ± 52 µg/kg.

The assessment of different food groups to overall AIs was based on combination of analytical data with consumption data from national food survey. Our results, showed that a diet including only these food groups is not sufficient to suppress the AIs of Mn or Cu for Portuguese adult population. Metrological tools were crucial to guarantee consistency conclusions.

References:

[1] EFSA "Scientific Opinion on Dietary Reference Values for copper" *EFSA J.*, vol. 13, no. 10, pp 4253, 2015.

[2] EFSA "Scientific Opinion on Dietary Reference Values for manganese" *EFSA J.*, vol. 11, no. 11, pp 3419, 2013.

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