

Risk associated with the consumption of nitrates and nitrites in the French population: an exposure assessment approach

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The presence of nitrates and nitrites in food is due to the contamination of water by human activities, results from bioaccumulation in plants or intentional use as additives in mainly meat products.

Based on the available data on nitrate and nitrite concentrations in water and food between 2010 and 2019, data on food consumption in the French population (adults and children over 3 years of age) and data on the presence of nitrate and nitrite additives in food products sold on the French market, the dietary exposure was calculated. The results showed that vegetables are the major contributors of nitrates (75-80%) with a contribution of additives lower than 4%. For nitrites, the major contributors are food, largely represented by processed meat products with a contribution of the additives between 45-65%.

EFSA currently recommends using separated acceptable daily intakes (ADIs) for nitrates of 3.7 mg nitrate ions (kg bw)⁻¹ d⁻¹, and for nitrites of 0.07 mg nitrite ions (kg bw)⁻¹ d⁻¹ without taking into account nitrosocompounds. Based on these ADIs recommended by Efsa, the risk was characterized and showed that less than 1.5% and 0.4% of the population exceeds the ADI for nitrates and nitrites, respectively.

Thus, we simulated scenarios to suggest recommendations in order to reduce the exposure to nitrates and nitrites.

Keywords: Nitrates, nitrites, water, food, dietary exposure, risk characterisation, health-based guidance value.

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References

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