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Dietary exposure of Sorbates (E 200 – 202) and Benzoates (E 210 – 213) for the Belgian population

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Sorbates (E 200 – 202) and benzoates (E 210 - 213) are commonly used food additives (FAs). They act as bacteriostatic and fungistatic, and they ensure product quality. Also, they contribute to reducing food waste by extending the shelf-life of perishable items. However, Regulation (EC) No 1333/2008 requires the Member States to monitor the consumption and use of FAs using a risk-based approach and communicate the results to the European Commission and the National authorities. So, this study assessed the analytical concentration of sorbates (SA) and benzoates (BA) in food and beverages from the Belgian market. Subsequently, the exposure of different consumer populations to these FAs was estimated.

Three matrix-matched analytical methods were developed using ion chromatography coupled with conductivity detection. The methods were validated in-house and applied to 387 samples covering 32 Food (sub)Categories. SA and BA were mentioned on the label of 367 and 111 samples, respectively. SA were quantified in 97% of these samples, while BA were present in 86%. The concentrations varied widely due to the nature of the food/beverage and the specific Maximum Permitted Levels (MPLs) defined by Regulation (EC) No 1333/2008. MPLs were exceeded in 17 samples, while composite foods showed average concentrations higher than in previous studies.

A refined exposure assessment revealed no risk related to dietary exposure to SA or BA in 3 Belgian population groups (children, adolescents and adults). The occurrence data from the chemical analyses were combined with consumption data from the most recent Belgian food consumption survey reflecting the consumer's consumption patterns and frequencies. Mean exposure estimates ranged from 8 to 19% of the Allowed Daily Intakes (ADIs) (i.e. 11 and 5 mg/kg bw per day for SA and BA, respectively), and 95th percentile exposures ranged from 24 to 36% of the ADIs. Flavoured drinks were the major contributing food group, accounting on average for 21 to 39% of the exposure to SA and 31 to 44% of the exposure to BA (depending on the population group).
In conclusion, although a few products surpassed the allowed levels of targeted FAs, the estimated risk related to dietary exposure to SA or BA for Belgian children, adolescents or adults was low.

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