



Risk Assessments of Aspartame, Acesulfame K, Sucralose and Benzoic Acid from Soft Drinks, “Saft”, Nectar and Flavoured Water

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Authors' contributions

This work was carried out in collaboration among all authors. The opinion has been assessed and approved by the Panel on Food Additives, Flavourings, Processing Aids, Materials in Contact with Food and Cosmetics of VKM. All authors read and approved the final manuscript.

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Grey Literature

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ABSTRACT

The Norwegian Scientific Committee for Food Safety (Vitenskapskomiteen for mattrygghet, VKM), Panel on Food Additives, Flavourings, Processing Aids, Materials in Contact with Food and Cosmetics, has at the request of the Norwegian Food Safety Authority (Mattilsynet) conducted a risk assessment of the intense sweeteners aspartame, acesulfame K and sucralose and the preservative benzoic acid from soft drinks, “saft”, nectar and flavoured water. The risk assessment includes exposure assessments and the calculated exposures are compared to the acceptable daily intake (ADI) for the respective sweeteners and benzoic acid. VKM was also requested to

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compare the current calculated intake of aspartame, acesulfame K and benzoic acid to the calculated intake reported by VKM in 2007 (from the VKM report «Impact on health when sugar is replaced with intense sweeteners in soft drinks, «saft» and nectar») (VKM, 2007).

Exposure calculations were made for four different scenarios with varying concentrations of added sweeteners (either the average concentration or the highest reported concentration for the respective sweetener) and varying consumption of beverages with sweeteners (either the actual reported consumption of beverages added sweetener or the assumption that all reported beverages were added sweeteners). Scenario 1 gives the best estimate of the current situation in the population (average content of sweeteners/benzoic acid, actual reported consumption), scenarios 2-4 is based on one or both of the following assumptions: only beverages added sweeteners are consumed, the beverages consumed are added the highest reported value of the sweeteners (scenario 2: average content of sweeteners/benzoic acid, all consumed beverages contain sweeteners; scenario 3: highest reported content of sweeteners/benzoic acid, actual reported consumption; scenario 4: highest reported content of sweeteners/benzoic acid, all consumed beverages contain sweeteners).

In the current risk assessment, the intake of sweeteners and benzoic acid for two-year-old children and 18-70 year old men and women were calculated. Due to lack of new dietary surveys, the other age groups of children and adolescents were excluded. The estimated intake of aspartame, acesulfame K and sucralose was below the ADI for all age groups, both for mean and high consumers in all scenarios. When it comes to benzoic acid, the calculated mean and high intake for adults was below the ADI in all scenarios. The mean intake for 2-year-olds was below ADI in all scenarios, as was the intake for high consumers among the 2-year-olds in scenarios 1 and 2. However, high consumers among the two-year-old children in scenario 3 and 4 reached the ADI.

Due to differences in the way the calculations were done in the current opinion and in 2007, it was not possible to compare the current calculated intake of aspartame, acesulfame K and benzoic acid to the calculated intakes reported by VKM in 2007.

VKM concludes that for all age groups in all scenarios the intake of sweeteners is well below the established ADI values, thus, there is no concern related to the intake of the sweeteners aspartame, acesulfame K or sucralose.

VKM further concludes that the benzoic acid intake in 2-year-old-children, in scenarios 3 and 4, is of concern as it reaches ADI for high consumers of soft drinks, “saft” and flavoured water, although the ADI is not a threshold for toxicity. For the other age groups, there is no concern related to the intake of benzoic acid from beverages. However, it should be noted that a considerable intake of benzoic acid also is expected from other sources such as food and cosmetics. High consumers of soft drinks, “saft” or flavoured water in all age groups could be at risk for approaching or exceeding ADI if the exposures from foods are taken into account.

This is especially of concern for 2-year-old children, since high consumers of soft drinks and “saft” already have reached the ADI.

Keywords: Acesulfame K; aspartame; benzoic acid; flavoured water; risk assessment; sucralose.

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NOTE:

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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