

Trans-continental scientific cooperation on risk assessment: chronic dietary exposure assessment on sweeteners in food consumed by the Chilean population, feeding risk management decisions

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INTRODUCTION

In 2020, the Chilean Food Safety Agency (ACHIPIA) conducted a chronic dietary exposure assessment, requested by the Ministry of Health of Chile (MINSAL), with the objective of quantifying a chronic dietary exposure assessment of four sweeteners in food consumed by the Chilean population and comparing it with the respective Adequate Daily Intake (ADI). The underlying concern for this assessment was that of estimating whether the ADI was exceeded in any population group, considering the impact of a recent update to the food labelling regulation in Chile. The regulation triggered the replacement of added sugar by sweeteners in most processed sweet food. Furthermore, the regulation does not establish maximum limits for the authorised sweeteners in Chile.

For that reason, ACHIPIA requested scientific support concerning the definition of the methodology for conducting this assessment from its scientific partners, the European Food Safety Authority (EFSA) and the German Federal Institute for Risk Assessment (BfR), under the framework of a scientific cooperation agreement signed between ACHIPIA and the two organisations in 2016 and 2018.

METHODOLOGY

Four sweeteners were assessed (acesulfame K, aspartame, sucralose and steviol glycosides), all authorised by the Chilean regulation having no maximum limits until the date of the assessment. The sources of consumption data were i) the National Food Consumption Survey (ENCA 2010), which considers 4 920 people between 2 and 75 years old and includes questions on the consumption of 457 different foods in the last month before the survey, complemented with ii) experts' consultation on food consumption levels for the food categories with no data available. Occurrence data came from the Surveillance Programme for Food Additives carried out by MINSAL between 2018 and 2019, where 151 processed food products were sampled. All sweeteners in the samples were quantified. A tiered approach was applied, assessing four exposure scenarios (two conventional and two

refined scenarios reflecting consumption patterns and brand loyalty), with scenarios 3 and 4 reflecting the most exposed population groups.

RESULTS

Results show that none of the exposures estimated for the four assessed sweeteners exceeded its ADI in any of the four population groups or the four exposure scenarios evaluated. The highest ADI percentage was for sucralose: 56 % of its ADI for 2-year old infants, at the high consumption level, considering brand loyalty. The food categories that contributed the most to sucralose's ADI were reconstituted powdered juice, soft drinks, liquid milk and yoghurt, which are widely consumed by children between the ages of 2 and 9 years. Overall, this study concludes that the likelihood of exceeding the ADI for the four sweeteners is very low for the populations and scenarios considered. These results, along with the increased consumption of sweeteners as there is a lack of products with no sweeteners on the market, suggests the need to continue monitoring sweeteners in food consumed by the Chilean population. It is also considered that exposure assessments for the most exposed groups, children aged 1-9 years with diabetes, phenylketonuria, and/or obesity, would be relevant as their consumption patterns have not been reflected in this assessment.

DISCUSSION

The results of this assessment provided scientific evidence for risk managers to make informed decisions about the establishment of maximum limits for sweeteners in Chilean regulations and consumption recommendations for the population in 2021. This is a successful example of a systems-based approach to food safety risk assessments aiming to protect public health, joining forces not only at national level with various ministries (ACHIPIA-Ministry of Agriculture and the Ministry of Health of Chile), but also internationally, with the scientific support of the BfR and EFSA to conduct these assessments. International scientific cooperation played a fundamental role in capacity building in ACHIPIA, by supporting this study, and in turn, disseminating and harmonising methodologies across continents. It also gave autonomy to conduct ACHIPIA's assessments, which will make it possible to replicate this cooperation scheme with other homologous agencies within the Latin American region to amplify the positive impact of this virtuous circle.