

Sweet and Safe: Overview of the Risk Assessment of Stevia Extract Sweeteners

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Dr. Magnuson is an internationally recognized food toxicologist. She holds degrees in food science, nutrition and toxicology. She worked in the food industry in quality assurance and product development before undertaking graduate training in food toxicology and cancer research. Dr. Magnuson was a full-time professor for over 15 years, at the Universities of Idaho and Maryland, conducting research and teaching food, nutrition and toxicology courses. Dr. Magnuson then returned to Canada to do food safety and regulatory consulting and teach food regulatory courses at the University of Toronto. As a consultant, she provides expertise in food regulations, nutrition and toxicology to food, beverage, and dietary supplement manufacturers and ingredient industries, as well as health professional and consumer associations. Dr. Magnuson has extensive experience and expertise in food additive safety, including low calorie sweeteners, and serves as an expert advisor and speaker on this topic around the world. She has published numerous peer-reviewed articles, book chapters, and professional articles, served on the editorial board of two journals, and is an active member of various professional association.

Abstract

High purity stevia extract sweeteners have been approved for use in foods and beverages by major regulatory agencies around the globe. This is the result of years of safety assessment research on the naturally sourced low calorie sweetener. The objective of this presentation is to provide an overview of the process of risk assessment of low calorie sweeteners and a summary of key findings from safety research. The results of extensive studies on the absorption, metabolism, distribution and excretion of stevia extract sweetener compounds, and on studies conducted in animals and clinical research, will be reviewed and compared to reported and predicted intakes using well-accepted risk assessment approaches. The sweetener compounds in stevia extract sweeteners are steviol glycosides, which vary only in the number and location of glycosidic linkages. All are metabolized to steviol in all species evaluated, including humans, and excreted. Steviol glycosides have been shown to have no effects on genetic material and to not induce significant adverse effects in animals at doses much higher than human consumption levels. Multi-generation studies have demonstrated no effect on pregnancy outcomes or growth and development of offspring. Human clinical studies have determined that chronic consumption of steviol extract sweeteners are well tolerated, do not affect glucose homeostasis and have no pharmacological or adverse effects. Steviol glycosides have little potential to result in development of allergies. A recent meta-analysis of nine human clinical trials on the effect of steviol glycosides and cardiovascular risk factors reported that consumption of steviol glycosides was associated with potentially beneficial effects on blood pressure and fasting blood glucose and with no significant effect on blood lipid profiles. Extensive past and on-going research on stevia extract sweeteners continue to support the safety of use of this low calorie natural origin sweetener by all members of the population.

Notes

