Biological effects of the popular artificial sweetener Sucralose

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The artificial sweetener Sucralose is a biologically active compound according to an extensive review published by Taylor & Francis in the recent issue of *Journal of Toxicology and Environmental Health*, Part B: Critical Reviews. "Sucralose, A Synthetic Organochlorine Sweetener: Overview Of Biological Issues" authored by Susan S. Schiffman, PhD, an internationally known sweetener researcher and Kristina I. Rother, MD, MHSc, of the National Institutes of Health (NIH), summarizes the biological properties of sucralose based on hundreds of archival, peer-reviewed scientific journal publications. Some of the biological effects of sucralose described by Schiffman and Rother include:

- alterations in insulin, blood glucose, and glucagon-like peptide 1 (GLP-1) levels,
- metabolism of sucralose in the gastrointestinal tract to metabolites whose identity and safety profile are unknown,
- induction of cyctochrome P450 and P-glycoprotein in the gastrointestinal tract to levels that may limit the bioavailability of therapeutic drugs,
- reduction in the number and balance of beneficial bacteria in the gastrointestinal tract,
- histopathological findings in gastrointestinal tract including lymphocytic infiltrates into epithelium, epithelial scarring, mild depletion of goblet cells and glandular disorganization in the colon,
- decomposition and generation of chloropropanols (a potentially toxic class of compounds) during baking, and

- mutagenic alterations using several types of biological assays

Schiffman and Rother present scientific evidence from numerous laboratories that most of these biological effects occur at sucralose dosages approved for use in the food supply by global health authorities. Overall, the scientific data presented in the review indicate that sucralose possesses many characteristics in common with other organochlorine compounds such as organochlorine drugs, pesticides, and industrial chemicals. The authors conclude that a careful reassessment of safety is needed regarding the use of sucralose by the general population, particularly special populations such as children, elderly, nursing mothers, persons with diabetes, cancer patients, and persons taking multiple medications.

More information: Sucralose, A Synthetic Organochlorine Sweetener: Overview Of Biological Issues, Susan S. Schiffman and Kristina I. Rother, *Journal of Toxicology and Environmental Health*, Part B: Critical Reviews. Volume 16, Issue 7, pages 399-451. DOI: 10.1080/10937404.2013.842523

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