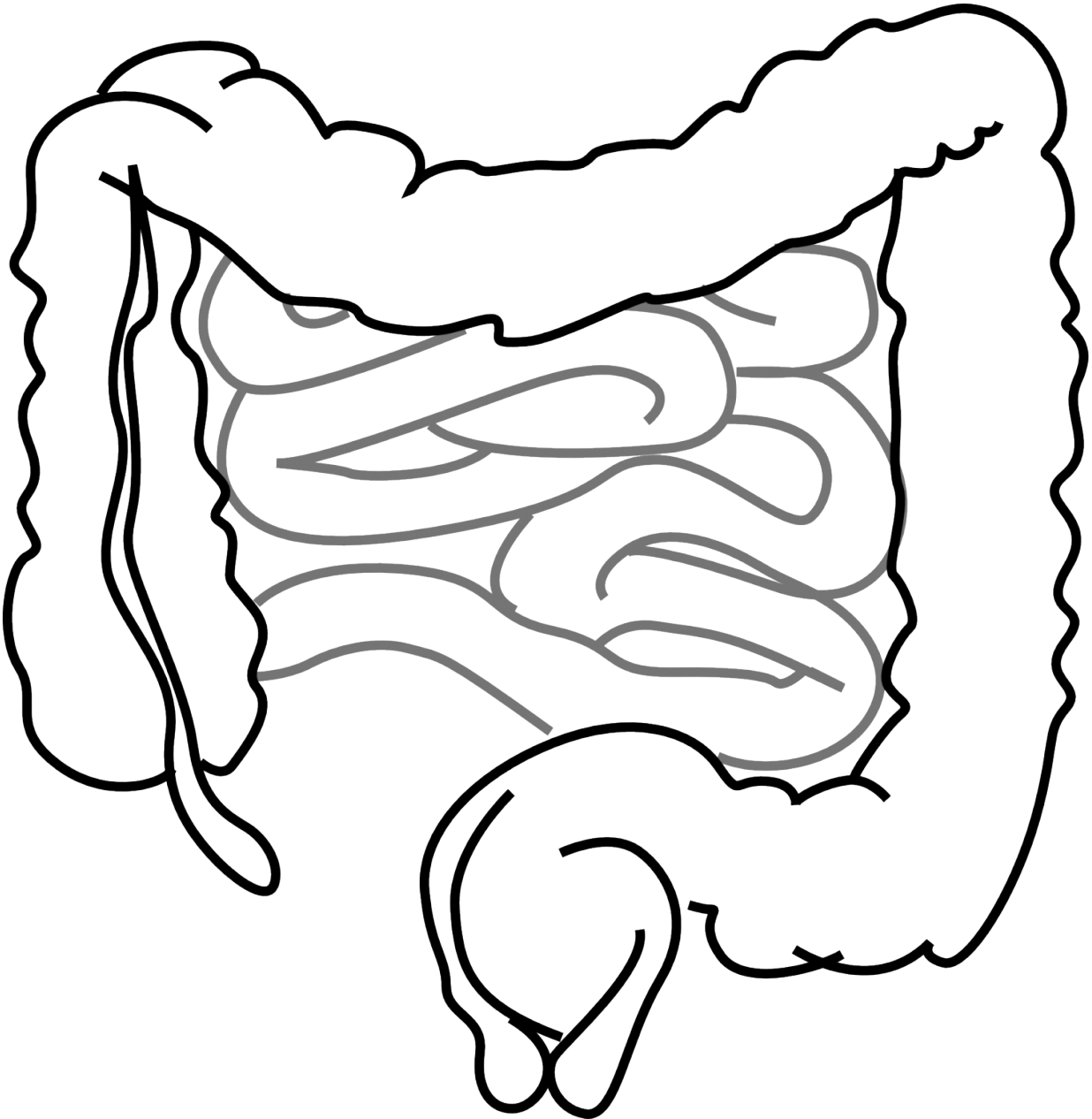


More bad news for artificial sweetener users

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Credit: CC0 Public Domain

FDA-approved artificial sweeteners and sport supplements were found to be toxic to digestive gut microbes, according to a new paper published in *Molecules* by researchers at Ben-Gurion University of the Negev (BGU) in Israel and Nanyang Technological University in Singapore.

The collaborative study indicated relative toxicity of six artificial sweeteners (aspartame, sucralose, saccharine, neotame, advantame, and acesulfame potassium-k) and 10 sport supplements containing these artificial sweeteners. The bacteria found in the digestive system became toxic when exposed to concentrations of only one mg./ml. of the artificial sweeteners.

"We modified bioluminescent *E. coli* bacteria, which luminesce when they detect toxicants and act as a sensing model representative of the complex microbial system," says Prof. Ariel Kushmaro, John A. Ungar Chair in Biotechnology in the Avram and Stella Goldstein-Goren Department of Biotechnology Engineering, and member of the Ilse Katz Institute for Nanoscale Science and Technology and the National Institute for Biotechnology in the Negev. "This is further evidence that consumption of artificial sweeteners adversely affects gut microbial activity which can cause a wide range of health issues."

Artificial sweeteners are used in countless food products and soft drinks with reduced sugar content. Many people consume this added ingredient without their knowledge. Moreover, artificial sweeteners have been identified as emerging environmental pollutants, and can be found in drinking and surface water, and groundwater aquifers.

"The results of this study might help in understanding the relative

toxicity of artificial sweeteners and the potential of negative effects on the gut microbial community as well as the environment.

Furthermore, the tested bioluminescent bacterial panel can potentially be used for detecting [artificial sweeteners](#) in the environment," says Prof. Kushmaro.

More information: Dorin Harpaz et al, Measuring Artificial Sweeteners Toxicity Using a Bioluminescent Bacterial Panel, *Molecules* (2018). [DOI: 10.3390/molecules23102454](https://doi.org/10.3390/molecules23102454)

Provided by American Associates, Ben-Gurion University of the Negev

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