Study finds **stevia consumption has no significant impact** on the human gut microbiome

With stevia-based sweeteners gaining popularity as solutions for sugar reduction – and limited knowledge about these sweeteners' effects on the human gut microbiome – Cargill nutrition scientists set out to understand the effect of a daily beverage with stevia on the human gut microflora.

Forecasted growth for NA stevia market:

+10%

CAGR through 2028[1]

(Includes leaf-based; sweeteners produced via fermentation)

CONTEXT FOR THE RESEARCH

1. The human **gut microbiome plays a critical role in human health & can be impacted by diet**[2]
2. **The effects of high-intensity sweeteners** on the human gut microbiome are not well understood

OBJECTIVE

Evaluate the effects of steviol glycosides on the human gut microbiome profile & function compared to sucrose

STUDY DESIGN

59 participants, aged 22–40

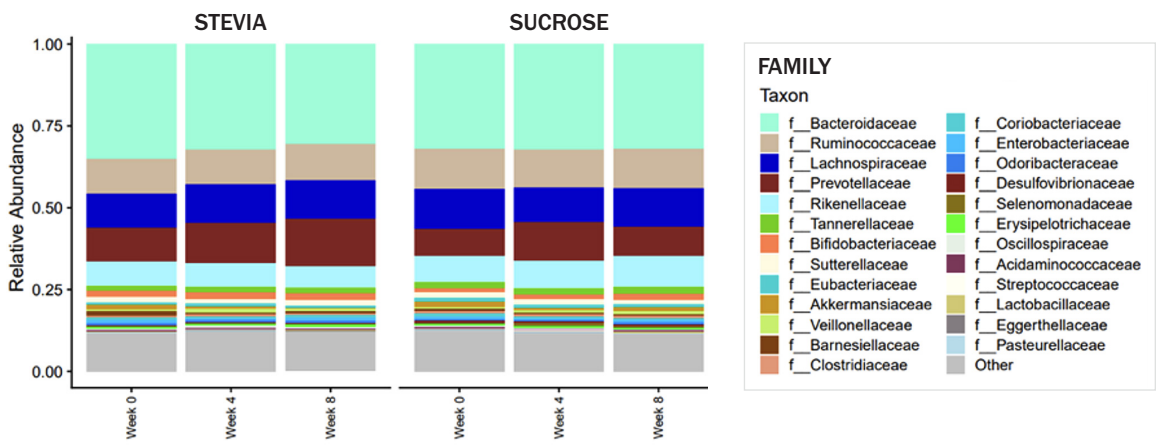
Healthy BMI (22.6 ± 1.7kg/m^2)

Consumed 25% ADI of stevia or 30g sucrose in a beverage daily for 4 weeks

RESULTS

Stevia consumption over four weeks showed **no significant effects on the relative abundance of gut microflora** at all levels (Phylum/Family/Genus/Species)

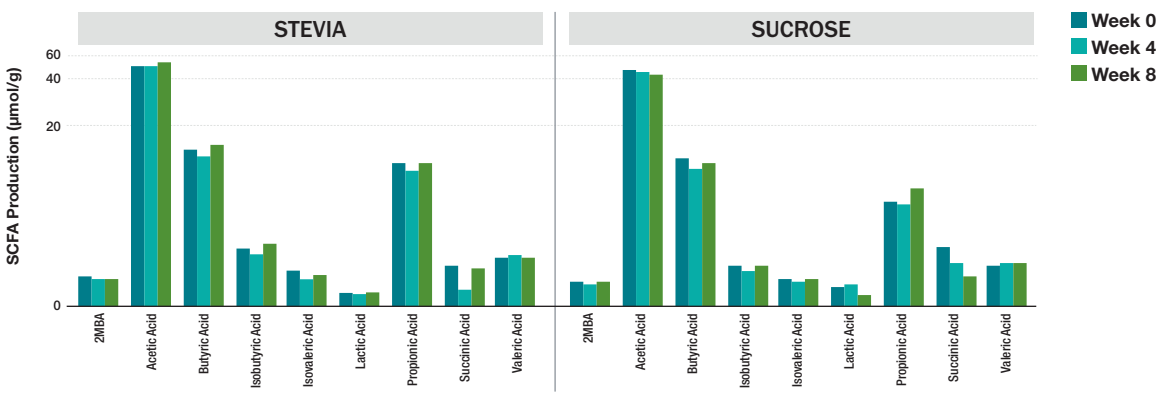
Figure 1. Relative abundance of gut microflora (Family level)



Normal gut microflora play important roles in metabolizing nutrients & foreign substances, maintaining the gut mucosal barrier & protecting against pathogens.[3]

Stevia consumption showed **no significant effects on microbial production of short-chain fatty acids (SCFA).**

Figure 2. Short chain fatty acid production by gut microflora



Short-chain fatty acids are produced by microbiota during fermentation in the gut, supporting health with anti-inflammatory, immunity & other benefits.[4]

CONCLUSION

Stevia sweeteners not only provide sweet, sugar-like taste without sugar or calories; this peer-reviewed study found that daily stevia consumption within acceptable daily levels showed no significant impact on the gut microbiome.

LEARN MORE about Cargill stevia sweeteners and sugar reduction expertise.

Read the full study in *The Journal of Nutrition*.

SOURCES:

This research was funded by Cargill.

[1] The Insight Partners. "Stevia Market to Reach $965.82M Globally by 2028." *Globe Newswire,* August 24, 2023.

[2] Williams, GM; Tapsell, LC; Beck, EJ. "Gut Health, the Microbiome and Dietary Choices: An Exploration of Consumer Perspectives. *Nutrition and Dietetics.* 2023 Feb;80(1):85-94. doi: 10.1111/1747-0080.12769. Epub 2022 Oct 11. PMID: 36221861; PMCID: PMC10092166.

[3] Jandhyala, SM; Talukdar, R; Subramanyam, C; Vuyyuru, H; Sasikala, M; Nageshwar, Reddy D. "Role of the Normal Gut Microbiota." *World Journal of Gastroenterology.* 2015 Aug 7;21(29):8787-803. doi: 10.3748/wjg.v21.i29.8787. PMID: 26269668; PMCID: PMC4528021.

[4] Xiong, RG; Zhou, DD; Wu, SX; Huang, SY; Saimaiti, A; Yang, ZJ; Shang, A; Zhao, CN; Gan, RY; Li, HB. "Health Benefits and Side Effects of Short-Chain Fatty Acids." *Foods.* 2022 Sep 15;11(18):2863. doi: 10.3390/foods11182863. PMID: 36140990; PMCID: PMC9498509.

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