

# Sequencing of stevia plant genome revealed for first time

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*Stevia rebaudiana*. Credit: public domain

For the first time, scientists have completed the sequencing of the stevia plant genome. Lead scientists from PureCircle Stevia Institute and KeyGene have unveiled this major breakthrough in research showing the

annotated, high-quality genome sequences of three stevia cultivars.

This achievement provides a better understanding of key enzyme groups used by the stevia plant to produce the steviol glycosides giving stevia its characteristic sweet taste. To enable acceleration of the traditional breeding of the stevia plant, researches identified several million potentially new markers in the assembled genomes.

PureCircle's non-GMO agriculture program is strengthened by these cutting-edge findings. The research helps facilitate optimization of the levels of the best-tasting steviol glycosides, including improvements in the levels of the well-known minor glycosides, Reb D and Reb M.

The data has been integrated into CropPedia, a comprehensive bioinformatics platform developed by KeyGene for visualization and analytics of all available genomic, transcriptomic and metabolomic stevia datasets. CropPedia enables chemists, biochemists, geneticists, and agronomists to better understand the steviol glycoside biosynthesis pathways, and to rapidly create improved stevia varieties using traditional breeding practices.

Stevia is a plant-based, zero-calorie sweetener which has been approved by all major regulatory authorities globally for use in foods and beverages in over 150 countries.

Optimized stevia ingredients developed as a result of this research will enable deeper reductions in sugar and calorie content of foods and beverages, as well as superior tasting products. This greatly benefits consumers around the world by helping them meet dietary guidelines calling for reductions in sugar and calorie intake for improved health.

"PureCircle is committed to strengthening the understanding of the stevia leaf," said Avetik Markosyan, Vice President, Head of Group

Research and Development at PureCircle. "These findings provide strategic enhancements to our breeding and agronomy programs, as well as tremendous utility for scientists, farmers and developers working with stevia as a non-GMO ingredient."

"Having a single high-quality reference genome is generally considered a major step forward for newly domesticated crops, such as stevia," said Arjen van Tunen, CEO of KeyGene. "We have surpassed this benchmark with three independent reference genomes for stevia. This comprehensive understanding of the complexities of the stevia [genome](#) will directly translate to high-value, improved stevia varieties."

**More information:** PureCircle Ltd. and The Coca-Cola Company co-funded this research.

Provided by Purecircle Stevia Institute

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