

Lifestyle & Culture



Stevia – sweeter than sugar but not only



PROF. RENALD BLUNDELL & ANDREA WERONIKA GIELETA

What is stevia?

Stevia is an intense natural sweetener and sugar substitute obtained from the leaves of the *Stevia rebaudiana* (Bertoni) plant, native to Paraguay and Brazil. It contains active compounds collectively called steviol glycosides (primarily stevioside and rebaudioside) which show approximately 50 to 300 greater sweetness to that of sugar. Moreover, steviol glycosides are heat stable, pH stable and are non-fermentable. It is shown that the human body is not able to metabolize glycosides included in stevia making it a “zero-calorie” non-nutritive sweetener. Regarding taste of stevia, it presents with a slower onset and a longer duration with comparison to that of sugar. Additionally, at greater concentrations some of its extracts leave a particular aftertaste expressed as licorice-like or bitter. The primary usage of stevia is linked to foods and beverages with reduced sugar and calorie amounts.

Benefits of stevia

Control of Diabetes The most appreciated aspect of stevia

with regards to human health is its ability to regulate and maintain sugar levels. Such a trait makes it a perfect substitute for normal sugar for diabetics as well as people following carbohydrate-controlled diets.

Aid in weight loss: Stevia contains a low number of calories and is 40-300 times sweeter than sugar. This allows for people to consume highly palatable foods such as cakes, cookies and candies and maintaining adequate calorie intake which would not interfere with keeping healthy weight. Furthermore, this can help with control of excess sugar in children’s diet.

Blood pressure regulation: Glycosides such as stevioside relax blood vessels, increase urination and help excretion of sodium from the body. Overall, this puts less pressure on cardiovascular system and leads to drop in blood pressure which has a protective effect on health (prevention of conditions such as atherosclerosis, stroke and heart attacks).

Anticancer potential: Certain glycoside compounds found in stevia such as quercetin and kaempferol help with free radical elimination, hence preventing healthy cells from being mutated into abnormal (malignant) cells. Moreover, antioxidants show antiaging properties, prevention from cognitive malfunction and other conditions including heart disease.

Decrease of cholesterol levels: Stevia consumption shows a significant drop in bad LDL cholesterol and triglyceride levels as well as elevation in HDL cholesterol levels which is the “good” cholesterol.

Oral health: Stevia became a popular additive in toothpaste and mouthwash as it decreases bacterial formation within oral cavity. Additionally, it prevents from cavities and gingivitis.

It is eco-friendly: In addition of presenting multiple benefits on the human health and body, growing of stevia is also eco-friendlier and sustainable when compared to the sugarcane industry. Manufacturing of stevia has a relatively low effect on the environment. With comparison to other sugar products, it uses only about one fifth of land and significantly lower amounts of water (5% of water which is used for sugarcane cultivation).

Risks and side effects

The Food and Drug Administration (FDA), EFSA (European Food Safety Authority) and FAO (Food Agriculture Organisation)/WHO (World Health Organisation) Committee on Food Additives (JECFA) independently from each other determined the permissible daily amount for steviol glycosides is 4 milligrams (4mg) per kilogram of body weight. This comes up to an acceptable daily intake of approximately 12mg of

high purity stevia per kilogram of body weight daily. In 2010 EFSA included this food additive to the official EU list of authorised food additives with E960 number.

Stevia used as a sweetener or flavour food additive is not considered to cause adverse side effects. However, possible side effects related to stevia consumption involve:

Kidney damage: Stevia shows that it works in a very similar way to diuretics meaning that it increases the urine output and the rate at which the body gets rid of water and electrolytes in the form of urine. Kidneys are primarily responsible for urine formation thus it is believed that prolonged stevia consumption can lead to organ destruction.

Gastrointestinal symptoms: Certain stevia products include sugar alcohols which can lead to unpleasant symptoms especially in individuals with a greater sensitivity towards chemicals.

Even though hypersensitivity towards sugar alcohol happens to be sporadic, its symptoms are as follows: vomiting, nausea, indigestion, cramping and bloating.

Allergic reaction: With regards to stevia allergy only very few cases were reported so far. The FDA, together with the European Commission, stated that the number of individuals who show hypersensitivity or are at actual risk of having an allergic

reaction is extremely low.

Low blood pressure: Stevia is known for its vasodilatory actions leading to widening of blood vessels. This leads to overall decrease in blood pressure. Anything, that actively decreases blood pressure can lead to complications and risks related to long-term use. People suffering from chronic low blood pressure values are advised to consult a medical doctor with regards to prolonged stevia use.

Key facts on stevia

- Main countries responsible for stevia cultivation include Paraguay, Brazil, Japan and China respectively.
- This natural sweetener is 200-300 times sweeter than table sugar.
- Stevia is categorised as “zero-calorie” due to such a low number of calories.
- It has the potential to be a beneficial sugar replacement for individuals with diabetes.

Renald Blundell is a biochemist and biotechnologist with a special interest in Natural and Alternative Medicine. He is a professor at the Faculty of Medicine and Surgery, University of Malta.

Andrea Weronika Gieleta is a registered nurse and is currently a medical student at the University of Malta