

STEVIA LEAVES- A HEALTHY SWEETENED LEAVES

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INTRODUCTION

Stevia, also known as *Stevia rebaudiana* Bertoni, is a bushy shrub that is part of the sunflower family. There are 150 species of stevia, all native to North and South America. The plant is originally native to Paraguay and Brazil but is now also grown in Japan and China. It is used as a non-nutritive sweetener and herbal supplement. China is the current leading exporter of stevia products. However, stevia is now produced in many countries. The plant can often be purchased at garden centers for home growing. As stevia is 200 to 300 times sweeter than table sugar.

The term “stevia” will be used to refer to steviol glycosides and reb A. These are extracted through a process of harvesting the leaves, then drying, water extraction, and purification. Crude stevia, the processed product before it is purified, often carries a bitter taste and foul smell until it is bleached

or decolorized. It takes roughly 40 steps to process the final stevia extract. A non-nutritive sweetener is one that contains little to no calories. Stevia is used as a healthful alternative to added sugar in many meals and beverages.

Stevia contains eight glycosides. These are the sweet components isolated and purified from the leaves of stevia. These glycosides include Trusted Source: stevioside, rebaudiosides A, C, D, E, and F, steviolbioside, dulcoside -A and Stevioside and rebaudioside A (reb A) are the most plentiful of these components. Some of the common trade names for stevia sweeteners are: Enliten, PureVia, Rebiana, Stevia, Steviacane, Stevia Extract in the raw and Sweet Leaf

The United States Food and Drug Administration (FDA) banned the marketing of stevia as a food additive in 1987. However, stevia regained its status as a sweet, sustainable dietary ingredient in 1995. The sweetener has since soared in popularity, with a 58 percent boost in new products that contain stevia.



METABOLISM OF STEVIOL GLYCOSIDES

Steviol glycosides are undigested in the upper gastrointestinal tract. They are hydrolyzed or degraded only when they come into contact with microbiota in the colon that cleave the glycosidic linkages, removing the sugar moieties, leaving behind the steviol backbone that is absorbed systemically, glucuronidated in the liver, and excreted via urine in humans and via feces in rats.

In vitro studies show that human saliva, salivary α -amylase, pepsin, pancreatin, and pancreatic α -amylase, as well as jejunal brush border enzymes of mice, rats, and hamsters, are not able to hydrolyze the glycosidic bonds present in stevioside. However, the gut microbiota of humans, rodents, and hamsters are able to degrade stevioside to steviol

Evidence from in vitro investigations are consistent with human metabolism studies that showed no detectable presence of the glycosides in plasma, suggesting no uptake from the gut and little or no stevioside or Reb A in urine or feces. These studies also showed that steviol is absorbed quickly and transported to the liver where it is conjugated with glucuronic acid to form steviol glucuronide, which, in humans, is excreted in urine. Figure 1 summarizes the absorption, metabolism, and excretion pathway of steviol glycosides in humans.



EFFECT OF STEVIA LEAVES ON DIFFERENT DISEASE CONDITIONS



1) Diabetes

Research has shown that stevia sweeteners do not contribute calories or carbohydrates to the diet. They have also demonstrated no effect on blood glucose or insulin response. This allows people with diabetes to eat a wider variety of foods and comply with a healthful meal plan.

Another review of five randomized controlled trials compared the effects of stevia on metabolic outcomes with the effects of placebos. The study concluded that stevia showed minimal to no effects on blood glucose, insulin levels, blood pressure, and body weight.

In one of these studies, subjects with type 2 diabetes reported that stevia triggered significant reductions in blood glucose and glucagon response after a meal. Glucagon is a hormone that regulates glucose levels

in the blood, and the mechanism that secretes glucagon is often faulty in people with diabetes. Glucagon drops when blood glucose climbs. This regulates the glucose level.

2) Weight control

There are many causes of overweight and obesity, such as physical inactivity and increased intake of energy-dense foods that are high in fat and added sugars. The intake of added sugars has been shown to contribute an average of 16 percent of the total calories in the American diet. Stevia contains no sugar and very few, if any, calories. It can be part of a well-balanced diet to help reduce energy intake without sacrificing taste.

3) Pancreatic cancer

Stevia contains many sterols and antioxidant compounds, including kaempferol.

4) Blood pressure

Certain glycosides in stevia extract have been found to dilate blood vessels. They can also increase sodium excretion and urine output. A 2003 study showed that stevia could potentially help lower blood pressure. The study suggested that the stevia plant might have cardiotoxic actions. Cardiotoxic actions normalize blood pressure and regulate the heartbeat.

However, more recent studies have shown that stevia does not seem to impact blood pressure. Further research is required to confirm this benefit of stevia.

5) Children's diets

Foods and beverages containing stevia can play an important role in decreasing calories from unwanted sweeteners in the diets of children. There are now thousands of products on the market containing naturally-sourced stevia, ranging from salad dressings to snack bars. This availability allows children to consume sweet foods and drinks without the added calories while transitioning to a lower sugar diet.

6) Allergies

In 2010, the European Food Safety Committee (EFSA) reviewed existing literature to determine if there was any cause for concern regarding the potential for allergic reactions to stevia. The reviewers concluded that "steviol glycosides are not reactive and are not metabolized to reactive compounds, therefore, it is unlikely that the steviol glycosides under evaluation should cause by themselves allergic reactions when consumed in foods."

Even the highly purified forms of stevia extract are highly unlikely to cause an allergic reaction.



CONCLUSION

In conclusion, Stevia leaves are a natural sweetener that offer a healthier alternative to sugar and artificial sweeteners. They are rich in steviol glycosides, which provide sweetness without any calories or carbohydrates. Stevia leaves can be used in various forms, such as whole leaves, powdered extracts, and liquid drops, making it easy to incorporate them into cooking and baking.

While stevia leaves are generally considered safe for consumption, it is important to note that some people may experience allergic reactions or other side effects. Furthermore, the use of stevia as a sweetener is still a matter of debate, and further research is needed to determine its long-term effects on human health.

Overall, Stevia leaves are a promising alternative to traditional sweeteners, and their popularity is likely to continue growing as more people seek out healthier options for sweetening their food and beverages.