

Stevia – A Substitute to Sugar

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SUMMARY

There are many artificial zero-calorie sweeteners in the market, such as saccharin, aspartame, cyclamates, and others. Artificial sugar substitutes, on the other hand, have been linked to health complications, and their use has been restricted. As a result, there is a constant search for high intensity low calorie or non-caloric natural sweeteners that are safe for consumption. Stevia, which is used as a non-nutritive natural sweetener, has emerged as a safe sugar substitute that poses no risk to human health. Stevia is known to have antiglycemic, antiseptic, antibacterial, antimicrobial, and anticancer properties, and it can also be used to treat stomach upset, indigestion, weight loss, heartburn, anti-lipid, and anti-obesity, among other things.

INTRODUCTION

Stevia rebaudiana is a herbaceous perennial in the Asteraceae family that is native to South America which is a natural sweetener plant or bio sweetener plant. Stevia can be used as a substitute to sugar because it is extracted from the leaves and is 200 to 300 times sweeter than cane sugar while having no calories or carbohydrates. Diabetic patients who crave sweets can use stevia as a sweet source without experiencing any negative side effects. Stevia is known to have antiglycemic, antiseptic, antibacterial, antimicrobial, and anticancer properties, and it can also be used to treat stomach upset, indigestion, weight loss, heartburn, anti-lipid, and anti-obesity, among other things. Two glycosides in stevia are stevioside (5% - 10%) and rebaudioside-A (5% - 10%). Stevioside's popularity has grown as a result of its non-caloric and sweetening properties. Steviolbioside, rebaudiosides A-E, and dulcoside A are some of the other sweet constituents [Smita, N. T. 2016].



Stevia incorporated products possess better sweetening potency and maximum consumer acceptability, when compared with other sugar substitutes. Stevia is also called as sweet leaf, honey leaf, sweet herb *etc.* There are many artificial zero-calorie sweeteners in the market, such as saccharin, aspartame, acesulfame potassium, cyclamates, and others. Artificial sugar substitutes, on the other hand, have been linked to health complications, and their use has been restricted. As a result, there is a constant search for high intensity low calorie or non-caloric natural sweeteners that are safe for consumption. Stevia, which is used as a non-nutritive natural sweetener, has emerged as a safe sugar substitute that poses no risk to human health [Sukhmani Gandhi *et al.*, 2018]. There are no other side effects associated with consuming stevia in any form. Toxicological studies have shown that the secondary metabolites found in Stevia are non-teratogenic, non-mutagenic, or carcinogenic, and no allergic

reactions have been reported after using it as a sweetener (Pol *et al.*, 2007). Its nutritional value benefits both children and adults. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) currently conducted a thorough scientific review of all available scientific data and concluded Stevia sweeteners are safe for use in foods and beverages, with a recommended acceptable daily intake of steviol glycoside of up to 4 mg/kg of body weight [Ena Gupta *et al.*, 2013].

Benefits of consuming stevia:

- Antihyperglycemic: Diabetes is affecting the majority of the world's population, the extract derived from stevia leaves has been shown to be effective in the treatment of diabetes.
- *Stevia rebaudiana* (Bertoni) Bertoni aerial parts were used to treat diabetes and were packaged for sale in local drug stores and markets in Paraguay [Lewis *et al.*, 2016].
- Antihypertensive: Human blood pressure is normally 120/80, which means 120 mmHg systolic pressure and 80 mmHg diastolic pressure. Hypertension is defined as blood pressure levels that are higher than 120/80. Stevia is well-known for its ability to lower blood pressure. A reduction in blood pressure was discovered after studying the efficacy of stevioside (250 mg three times a day for three months) in human subjects with mild or moderate primary hypertension.
- Antimicrobial effects: It was also discovered that *Stevia rebaudiana* Bertoni leaf extracts have antimicrobial activity against a large number of microorganisms like Streptococcus (n= 12) and Lactobacillus (n= 4) found by using the well diffusion method. *Stevia rebaudiana* leaf extracts demonstrated antibacterial, antifungal, anti-yeast, and antitumor activity. [Sathishkumar Jayaraman *et al.*, 2008]
- Anti-inflammatory and Immune Modulation Actions: Stevia and its polyphenolic compounds, steviol and stevioside, have anti-inflammatory properties in colonic epithelial cells.
- Antiobesity effect: Obesity is a condition in which body weight exceeds 20% of normal. Stevia leaves and extract reduce cravings for sweet and fatty foods and are useful in weight loss programmes (Ena Gupta *et al.*, 2013).
- Anticancer Actions: Stevioside, a diterpene glycoside found in the leaves of *Stevia rebaudiana*, has anticancer properties.
- Oral health: Stevia, as a nonnutritive sweetener, is a zero- or low-calorie alternative to nutritive sweeteners like table sugar. Its bacteriostatic and bacteriocidal properties benefit oral health by removing the cause of dental decay and gingivitis.
- It has shown promising results in treating skin conditions such as dermatitis, eczema, wrinkles, skin blemishes, acne outbreaks, scarring, rashes, and itching (Hossain *et al.*, 2017).

Other uses:

- Substitute to sugar.
- Posses various health properties as compared to cane sugar.
- Functional food ingredient to sweeten a diverse variety of consumer products such as soft drinks, tea, coffee, icecreams, confectionery and bakery.
- Stevia also contains vitamin C, calcium, beta-carotene, niacin, iron, magnesium, potassium, proteins and fiber.
- The by-products can be used as a fertilizer and as an additive for animal food products
- It can safely be used in herbal medicines, tonics for diabetic patients and also in daily usage products such as mouthwashes and toothpastes.

CONCLUSION

Stevia is gaining significant popularity all over the world and is expected to be a major source of high potency sweetener .it's now a hope for diabetic patients who are found of sweets. It also posses various health benefits, so keeping this in mind it can be used as substitute to sugar. Besides it does not possess any side effects, so its consumption should be encouraged among the Population.

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