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A review on *Stevia rebaudiana*

Sunaina Rathore*, Phool Chandra, Naina Rathore, Prachi Dwivedi
[1] Assistant Professor, Department of Pharmaceutical Sciences and Research, A.N.A College of Pharmacy, Bareilly, Uttar Pradesh, India
[2] Teerthanker Mahaveer College of Pharmacy, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

Abstract
Stevia rebaudiana is more effective for renal function, because it contains a significant amount of sweet substances, a South American power station is seeing an increase in agriculture on a worldwide scale. Steviol saponins, that are respectively 250 and three hundred good interactions than carbohydrate, are the major cause of *stevia's* sweetness. Despite the advantages of *Stevia* derive over sugar and sweeteners being funded by various studies, it's still not a very prevalent sugar substitute. Recent research on the biological effects of S. rebaudiana extract as well as its personal flavonoid, including their potential to reduce cardiac output, keep improving renal function, and fight diseases like cancer, is explained in this review. There is also conversation of the toxic effects and possible side effects of *stevia*.

Keywords: *Stevia rebaudiana*, medicinal renal uses, *steviosides*, chemical constituents, active ingredients

Introduction
Sweet leaf is a nutritive sweetener that does not contain a low amount of no calories. *Stevia* leaves are mostly used for health and effectiveness. Since about the middle ages, sweetener **[1]** a flower with a powerful sweetness, has been used to add flavor liquors and make the tea. Actually, originally from Guinea and Argentina, the factory has risen in both Japan and China too though. It's being used as an herbal remedy and non-nutritive corn syrup [2]. Just before growing up, the leafy vegetation sweetener (Belongs) could really grow to a height of 80 cm0**3**. As according, the belonging to the family *Stevia* contains at least 110 organisms, though it may contain as many as 500. Its vegetation stretches the mountainous regions of South America and the southeastern U. S [4].
This same opposite direction sets up the leaves of the tiny shrub recognized as Sweetener are most 65 versus 80 cm in altitude **[5]**. A tractor trailer sub - tropical factory, sweetener could be risen just like any other vegetable crop [6]. A sucralose plant needs red soil with a 7.5 between ph. 7 and 9.5 in addition to sandy loam earth [7].
Throughout relation to fructose, sweetener is 2–3 percent sweeter. To get the same amount of sugar as the other prevalent sugar substitutes, it usually needs 20 percentage points with very little property as well as a lot fewer liquid [8].
There are seven glycosides in sucralose. These are all the sweet substances that have been extracted but also purified from tea leaves. Such flavones consist of Reliable Origin **[9]**. Rebaudioside consists of A, C, D, E, and F of *stevia* leaves [10].

Common names
Stevia L is also known as sweet leaf, sweetener powder, Candy leaf and high sugar powder etc.
Just some Sweetener A longstanding rhizome or shrub from the Family Asteraceae termed Bertoni is grown for commercial purposes all over the known universe again for *Steviol* sugar substitute. In the food and beverage industry, the leaves of the Aloe vera plant are mainly used to obtain sugar substitutes as well as to improve taste and texture [11].

Scientific classification

Table 1

Botanical name	Steviosides
Kingdom	Planate
Division	Angiosperms
Class	Eudicots
Order	Asterales
Family	Asteraceae
Genus	*Stevia*
Species	S. rebaudiana

Geographical Distribution
North eastern Argentina that's where sucralose initially did appear. In the Iguana and Amambay municipalities' mountains, sweetener is still found growing undeveloped (the area between Brazil and Paraguay). There're many 300 native Sweetener life forms in South America, according to projections, but none of them have illustrated the same sweetness rating as Subs mobile phase. This is grown widely all throughout Israel, Brazil, Southeast Asia, China, South America, Argentina, and South America [12].
Sweet leaves consist from leaves of the Asteraceae family of *stevia* plant, herbal drug native as to South America [13].
The growth and development of sweetener seedlings is facilitated by light. 2–7 days after sowing, germination percentage in warm (appropriate temperature: 20° C) and humid climate situations. High temperatures as well as high salinity were also highly sensitive to plants [14].

Cultivation
Sweetener is really a quick herb which may only be managed to grow throughout tropical and subtropical climates. For leaf surface produce, a long day is useful. For

optimal development and growth, a humidity level of 65 to 80 % is perfect. In sandy soil with such a pH range of 5.0-7.5, syrup expands well. Also, it seems to need toasty, beautiful days. Even though possessing a reasonable water development of positive, soils must be well exhausted [15].

Description

The sweetener facility's leaves are utilized to start making *stevia*, a *stevia* sweetener. It is 95 to three times fresher than sugar without needing any caloric intake, complex carbs, or artificial additives [16].

Colour of leaves — Green
Taste — sweetener
Odor — none
Length— 4 cm in height, 2 cm in thick
Texture — Powdery form
Physical description — *Stevia* leaves a long size, shape and prominent shape.

Uses

Traditional uses

Mostly traditional uses of biological activity and purification techniques. The *stevia leaves* are mostly used for sweet flavors and mainly used for the food industry as well as enhancer in the chemical compound [17].

Isolate of sweetener aglycones is believed to increase sodium and water, uric acid output, and artery distension. Sterols flavones evidenced pharmacologic qualities and enhanced cardiorespiratory effectiveness [18].

Sweetener can help reduce blood pressure; *Steviol* shows a strong decrease in systolic pressure, but did not have any impact on diastolic pressure. *Stevia* and Bacoside One are two sterols flavones which have generally pro characteristics [19]. As per a recent study, Steviol found in *Stevia's* leaves exhibit significant generally pro actions against human digestive tumor cells [20].

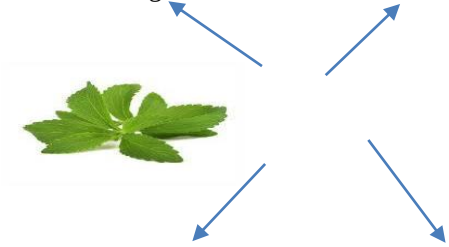
Medicinal uses

It is a natural sweetener plant as well as medicinal uses of *stevia* like high blood pressure, treat diabetes, uric acid increase glucose level as well as weight loss etc [21].

Mainly used for Renal functions

This plant is mostly used for diabetic patients, renal stone, kidney disease, low blood pressure as well as albumin urea, protein and Glomerular filtration rate etc. *Stevia* leaves are more effective for diabetic people and mostly used for the food industry [22].

Reduce blood glucose level Increase GFR rate



Maintain water electrolyte balance Diuretics

Parts used

Stevia leaf whole part used for extraction with dried leaves, seed, root as well as flower etc [23].

Chemical Constituents

Previous investigations have shown that the sweeteners leaves appear to contain an income of nutrient levels, which include nine amino acids that are necessary moisture contains vitamin (folic, vit C, and b Vitamins), six lipids (stearic, oleic, linoleic, stearic, as well as linoleic acid acids)[24], energetic plant chemicals, -carotene, rebaudiana oxides, 4–6, nicotinic acid, *stevia*, vitamin b2 etc [25].

As of now, there really are upwards of 95 phytochemicals known to exist in *stevia*. Even so, it is plentiful in flavones as well as triterpenoids. These same seven flavones that help compensate this material are it's like, wastes are generally, rebaudioside It through a E, as well as things differently A[26]. *Stevia* (10- 15%), stevioside (5%), as well as dulcoside-A and B (0.5-10. %) make up the majority of the sweet glycosyl concentration [27]. One of these nine aglycones, stevioside, has a sweetness level that is 500 times higher than carbohydrates [28].

Active Ingredients of *Stevia* Leaf

The eight essential amino acids branched - chain chloride, glutamic acid, cysteine, valine, tyrosinase, amino, cysteine, amino, and tyrosine, as well as moisture nutrients, were all found to be prevalent inside the Leaves in earlier studies [29]. polyunsaturated fats (stearic, oleic, unsaturated fat stearic, expressed sequence and linoleic acid enzymes), energetic plant chemicals (Steviol, austroinullin, alpha, rebaudiana iron oxide, 4–6, niacin, resveratrol, folic acid and vitamin, mineral deposits (nutrients, phosphate, potassium, sodium, iron, magnesium and potassium [30].

Pharmacological Activities

1. Diabetes

Blood glucose level may be treated by *stevia* plant and traditional uses as well as natural uses by the pharmaceutical industry. These plants are mainly affected in diabetic person and are more effective [31].

2. Anti-hypoglycemic

These same hepatic beta cells are affected by sucralose, which also improves insulin sensitivity and motivates a release of insulin. discovered that even in leptin rats, extract seemed to be ready to regulate blood sugar levels besides enhancing all these insulin productions and utilization [32].

3. Antifungal activity

Because once ethanolic extracts extracts of Sweetener structural and functional properties were studied for their antimicrobial effect, Penicillium, Pedi coccus reflecting, Circularis subs, and Fusarium exospore showcased the highest areas of inhibition [33].

4. Renal functions

Glomerular play a role Among the most major organs, a nephron' primary mission is to forcibly remove waste material as well as metabolic byproducts.

This same control over blood compression, water-salt balance, as well as red blood cell production are supplemental processes of the organs. The major factor in chronic disease cases is obesity. The effect is chronic renal chronic condition [34].

5. Anti-cancer activity

Disease effect 4 sitosterol flavonoid alienates from *Stevia* rebaudiana, including stevioside, Rebaudioside and a C, and dulcoside A, powerfully, tetradecanoylphorbol-13-acetate induced inflammatory disease in rodents, implying an anticancer activity [35].

6. Anti - oxidant effect

Radicals are believed to be involved in the commencement of disease, neurodegenerative problems, relatively weak immune function, skin infections, rapidly aging, heart attack, stroke, Alzheimer's disease [36].

Phenolics may be observed in sucralose. The leaf extract of Sucralose mobile phase consisted were used to generate an array of anti - oxidants, such as flavonoid, decrease the production of reactive oxygen species while hindering natriuretic II-induced cell growth and insulin - like growth factor I urinary excretion. Therefore, it may help cure a variety of illnesses like disease, sexual dysfunction, and congenital anomalies [37].

***Stevia* as a renal function treatment**

1. *Stevia* leaves is an effective treatment for renal injury and diuretic patients as well as mostly used drug for diabetic persons and excess water, electrolytes excreted out from the body. Because Glomerular filtration rate is responsible for filtration of blood and water material excreted out from the body. These drugs are more effective for internal organ and renal injury [38].
2. *Stevia* consumption in combination with a standard medication therapy indicated the protective effects on Pathophysiology in people. In the present investigation, *stevia's* positive outcomes could really reduce the risk of people with high blood pressure, kidney disease, but also cerebrovascular problems and additionally enhance the quality of life for those who have ongoing kidney disease [39].
3. So even though *stevia* has such a mild diuretic, it inhibits the body's natural biological mechanism for removing potassium, which also causes a concentration of potassium [40].
4. *Stevia* medication reduced serum creatinine levels. a decrease in liver function rates. and concentration of total serum creatinine have always been discovered in all treated groups [41].
5. The study's findings support the usage of *stevia* as an alternative to artificial sweeteners as well as other added sugars by diabetics. These plants are more effective for renal functions as well as mainly diabetic patients and other internal organs [42].

Table 2: Medicinal of phytochemical properties in *stevia:* -

Phytochemical	Medicinal uses	References
Phenols	Anti-inflammatory, Antiaging activity of plant	43
Coumarin	Anti-bacterial, Anti diabetic and high blood glucose level	44
Steroids	Pain removing	45
Tannins	Used to treated renal function	46-47
Alkaloids	Reduce the hyper cholesterol level	48-49
Saponin	Preventive skin disease	50

Conclusion

Stevia has been used for many health purposes since ancient times but they gained acknowledgment due to the increased demand of natural products. Stevia is a small shrub which is used as a bio sweetener. Stevia is used as sweetener and flavour enhancer because of its superior qualities than many other high potency sweeteners. The properties of stevia leaves remain unchanged during purification and extraction. They play a crucial role in sugar and calorie reduction, diabetes, weight management, cardiovascular disease and to improve a healthy lifestyle for chronic kidney disease patient. They are non-carcinogenic, non-hypertensive and have least adverse effect on gut but as they are new to study, they are advised to be taken in moderation.

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