

# STEVIA A NATURAL SWEETENER: MEDICINAL AND ETHNOMEDICINAL EFFECT

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## INTRODUCTION

*Stevia rebaudiana* (Bert.) is a herbaceous perennial plant, commonly known in Sanskrit as “madhu patra,” meaning sweet leaf is a natural and healthy alternative to sugar and artificial sweeteners belonging to the family Asteraceae. The crop is native to Paraguay and by mid 1970s, standardised extract and pure stevioside was utilized commercially in Japan for sweetening and flavouring foods and beverage as a replacement for many synthetic sweeteners. Leaves of this plant contain zero-calorie ent-kaurene diterpene glycosides, a non-nutritive, high-potency sweetener, and alternative to sucrose, being 300 times sweeter than sucrose. It is recommended for diabetes besides extensively tested on animals and has been used by humans with no side effects. It is extensively grown in the subtropical regions, and has been available since decades for its wide use as a sweetener in beverages and to mask the bitter taste of certain herbal medicinal plants in several countries like Brazil, Japan, and Paraguay. It has also been reported that stevia as the first natural non-calorie sweetener used in medicinal green teas for the treatment of heartburn and other ailments, rebaudiana, even though there are more than 200 species of the genus *Stevia*, only *S. rebaudiana* offers the sweetest essence.

Today, in countries like China, Korea, Thailand, Brazil it is widely cultivated. In addition to its sweetness, stevioside has many therapeutic benefits together with associated compounds including rebaudioside A and steviol, including antihypertensive, antidiabetic, anti-inflammatory, anti-tumor, antioxidant, and immunomodulatory behaviour.



## MEDICINAL AND ETHNOMEDICINAL APPLICATIONS

Due to its various mode of behaviour such as, sweetener, hypoglycemic, hypotensive (lowers blood pressure), cardiogenic (tones, balances and strengthens the heart), antimicrobial activities, stevia is used in many industries. Different research and documents proved that stevia has its own and natural constituents which are very much beneficial for human health. The primary use of stevia is sweetener, among different applications. Some ethnological uses have been recorded which are enlisted in the table

Country	Ethnomedicinal uses
Brazil	Usually used for cavities, depression, diabetes, fatigue, heart support, hypertension, hyperglycemia, infections, obesity, sweet cravings, tonic, urinary insufficiency, wounds
Paraguay	Diabetes
South America	diabetes, hypertension, infections, obesity
United States	candida, diabetes, hypertension, hyperglycemia, infections, and as a vasodilator

### ANTI-HYPERGLYCEMIC EFFECT

Stevia has a revitalizing effect on the beta cells of pancreas, also increases insulin sensitivity and encourages additional insulin production. Many research showed that stevioside was able to control blood glucose levels by improving not only insulin secretion but also insulin utilization in insulin deficit rats. Stevioside lowers the levels of postprandial blood glucose.

### ANTI HYPERTENSIVE EFFECT

Physiological and Pharmacological studies have indicated that stevioside from the leaves of stevia act as a traditional systemic vasodilator. Studies have shown that *Stevia rebaudiana* leaf stevioside in both mild and hypertensive rats causes hypotension, diuresis and natriuresis. Stevioside 750-1500 mg / day was indicated to decrease systolic blood pressure by 10-11 mmHg and diastolic blood pressure by 6-14 mmHg within one week of initiation of treatment.

## ANTI- OXIDANT EFFECT

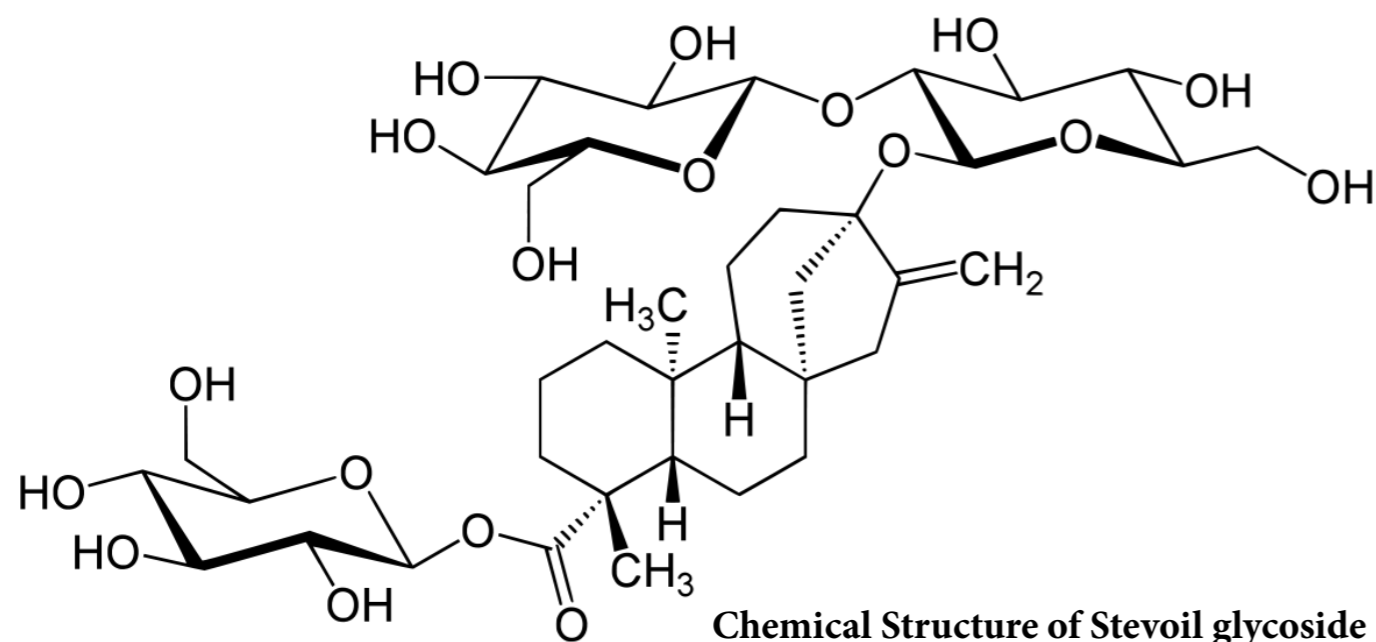
Varieties of antioxidants were obtained from the extracts of *Stevia rebaudiana*, they include, opigenin, kaempferol and quereitrin that inhibited DNA strand damage. It could be beneficial in a variety of diseases like cancer, reproductive problems and developmental defects.

## HYPOGLYCAEMIC ACTION

The existence of the steviosides themselves is possibly what has made stevia productive for hypoglycemic action. Hypoglycemia is known as low blood sugar is when drops to below average and symptoms include clumsiness, trouble communicating, and confusion, loss of consciousness, seizures, or death. Stevia is thought to be effective for diabetes and hypoglycemia because it nourishes the pancreas and thus helps to restore normal pancreatic function.

## CONCLUSION

For its medicinal values and stimulating actions, stevia is now being used worldwide. Life styles of present days alarmingly increase the incidence of diabetes, hypertension and obesity especially affecting the young adults. These are to be addressed properly or a serious consequence is inevitable. Among various chemical constituents of stevia, stevioside has a potential mode of actions in controlling type 2 diabetes. It has also drawn all the attention of individuals so that it can be used safely. The huge demand prompts biotechnology companies to develop stevia on a commercial scale through tissue culture and to sell stevia in various forms, such as leaf powder, liquid and fresh leaves.



## ANTIMICROBIAL EFFECT

The ability of Stevia to inhibit bacteria and other infectious organisms' growth and reproduction is significant in at least two respects. First, it can help to examine a lower incidence of colds and flues in enhanced products, and second, it has facilitated the invention of a variety of products for mouthwash and toothpaste

## ADVERSE EFFECTS

\* Stevia is considered to be safe, with minimal side effects that include; nausea, abdominal fullness, myalgia, muscle weakness, dizziness, asthenia and allergy and also used with caution in diabetes as it is known to reduce the blood sugar levels.

\* In hypertensive patients it is used with caution as it is likely to reduce the blood pressure.

\* With lack of evidence for its effect on pregnancy and lactation. Stevia is not recommended during pregnancy and lactation.

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