

INVESTMENTS IN CULTIVATION AND PROCESSING OF STEVIA.

Stevia is a genus of about 240 species of herbs and shrubs in the sunflower family (Asteraceae), native to subtropical and tropical regions from western North America to South America. The species *Stevia rebaudiana*, commonly known as sweetleaf, sweet leaf, sugarleaf, or simply stevia, is widely grown for its sweet leaves. As a sweetener and sugar substitute, stevia's taste has a slower onset and longer duration than that of sugar, although some of its extracts may have a bitter or licorice-like aftertaste at high concentrations.



With its extracts having up to 300 times the sweetness of sugar, stevia has garnered attention with the rise in demand for low-carbohydrate, low-sugar food alternatives. Medical research has also shown possible benefits of stevia in treating obesity and high blood pressure. Because stevia has a negligible effect on blood glucose, it is attractive as a natural sweetener to people on carbohydrate-controlled diets.

The availability of stevia varies from country to country. In a few countries, it has been available as a sweetener for decades or centuries; for example, stevia is widely used as a sweetener in Japan where it has been available for decades. In some countries, stevia is restricted or banned. In other countries, health concerns and political controversies have limited its availability; for example, the United States banned stevia in the early 1990s unless labeled as a supplement, but in 2008 approved rebaudioside-A extract as a food additive. Over the years, the number of countries in which stevia is available as a sweetener has been increasing.

Today, stevia is cultivated and used in food elsewhere in East Asia, including in China (since 1984), Korea, Taiwan, Thailand, and Malaysia. It can also be found in Saint Kitts and Nevis, in parts of South America (Brazil, Colombia, Peru, Paraguay, and Uruguay) and in Israel. China is the world's largest exporter of stevioside.

Stevia species are found in the wild in semiarid habitats ranging from grassland to mountain terrain. They do produce seeds, but only a small percentage of them germinate. Planting cloned stevia is a more effective method of reproduction.

Medicinal use of stevia.

For centuries, the Guaraní tribes of Paraguay, Bolivia and Brazil used stevia as a sweetener in yerba mate and medicinal teas for treating heartburn and other ailments. More recent medical

research has shown promise in treating obesity and hypertension. Stevia has a negligible effect on blood glucose, even enhancing glucose tolerance; therefore, it is attractive as a natural sweetener to diabetics and others on carbohydrate-controlled diets.

Possible treatment of osteoporosis has been suggested by the patent application claim that eggshell breakage can be reduced by 75 % by adding a small percentage of stevia leaf powder to chicken feed. It has also been suggested that pigs fed stevia extract had twice as much calcium content in their meat, but these claims no have been verified.

CULTIVATION AND PROCESSING OF STEVIA.

Stevia cultivation.

- ✓ Peculiarities of cultivation of stevia.
- ✓ Methods of cultivation of stevia.
- ✓ Production and biochemical characteristics of stevia with using of various conditions of cultivation.
- ✓ Accumulation of stevioside in different periods of growing season of stevia.
- ✓ Stevioside accumulation depending on influence of spectral composition of light.
- ✓ Production technology of bakery products with use of stevia.
- ✓ Use of stevia in manufacture of soft drinks.
- ✓ Technical and economic indicators.

Technology of production of concentrates made from stevia.

- ✓ Technology of production of concentrates made from stevia.
- ✓ Technological scheme of extraction of glycosides.
- ✓ Purification of extract without use of organic solvents.
- ✓ Purification of extract with use of aluminum salts.
- ✓ Purification of extract with use of lime, carbon dioxide and ion-exchange resins.
- ✓ Technological scheme of purification of extract.
- ✓ Technical and economic indicators.

Dry purified extract made from leaves of stevia.

- ✓ Sweet glycosides of stevia.
- ✓ Structure and chemical properties of stevioside.
- ✓ Obtaining of stevioside and sweet glycosides.
- ✓ Chemical modification.

- ✓ Fermentative modification.
- ✓ Pharmacological properties of glycosides.
- ✓ Biological activity of extracts made from stevia.
- ✓ Pharmacodynamic properties of extracts made from stevia.
- ✓ Application of glycosides.
- ✓ Obtaining of dry purified extract made from stevia leaves.
- ✓ Technical and economic indicators.

Production of flour confectionery products with use of stevia.

- ✓ Features of use of processed products of stevia in food products.
- ✓ Technologies of production of flour confectionery products with use of stevia.
- ✓ Technical and economic indicators.

Production of bakery products with use of stevioside.

- ✓ Comparative characteristics of sweeteners.
- ✓ Technologies of production of bakery products with use of stevioside.
- ✓ Effect of stevioside on the properties of flour.
- ✓ Effect of stevioside on the quality of gluten.
- ✓ Effect of stevioside on the enzyme activity of wheat flour.
- ✓ Technical and economic indicators.

Use of stevia for feeding of cattle.

- ✓ Feeding of cows.
- ✓ Basic requirements of feeds.
- ✓ Feeding technology.
- ✓ Physiological role of antioxidants.
- ✓ Impact of pulp and stevia extract on cows organism.

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Commercial offers.

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