Core Competitive Advantages and Market Development Outlook of Stevia Glycosides

Overview

Stevia Glycosides are natural high-potency sweeteners produced from stevia leaves through water extraction, resin adsorption, refining and crystallization. With core barriers of zero-calorie & high sweetness, natural origin, metabolic friendliness and processing stability, it highly conforms to the global mainstream consumption trends including sugar reduction & calorie control, clean label, natural health and sugar-free beverages. It effectively solves the industry pain points of traditional sweeteners such as **high calorie, rapid blood sugar elevation, artificial synthesis, abnormal taste and poor processing stability**.

Relying on five major strengths including natural attributes, ultra-high sweetness, full-scenario processing adaptability, global compliance endorsement and high cost-effectiveness, stevia glycosides have become the core functional sweetening solution in sugar-free beverages, dairy products, baked foods, candies & chocolates, oral care and pharmaceutical preparations. The global market **CAGR** reached 6.3%—6.6% from 2025 to 2031. As the world's largest production and supply base, China accounts for over 70% of global production capacity with a market growth rate exceeding 12.5%. It is a high-quality track with both certainty and growth potential in the natural sugar substitute industry.

I. Core Competitive Advantages

(I) Health & Functional Barriers: Natural Zero-Calorie · Multi-Dimensional Health Value

1. Physiological Metabolic Superiority

- Ultra-high sweetness: Its sweetness is 200—450 times that of sucrose. High-purity **Reb M** features pure taste, no obvious after-bitterness and sucrose-like sweetness, with better compatibility than most high-potency sweeteners.
- Zero calorie & sugar control: The calorie is close to 0kcal/g; it does not participate in human metabolism with **GI≈0**. Metabolism is completely insulin-independent, causing no fluctuations in postprandial blood glucose and insulin levels, suitable for diabetics, obese groups and sugar-controlling populations.
- Powerful dental protection: It cannot be fermented and utilized by oral bacteria, thus preventing acid production and enamel corrosion. It inhibits the formation of streptococcus mutans and dental plaque, reducing the incidence of dental caries by more than 40% with long-term consumption, and is recognized by dental associations worldwide.
- Metabolic safety: It is not absorbed or accumulated in the small intestine. The daily intake for adults **≤4mg/kg (calculated as steviol)** causes no liver and kidney burden, with better tolerance than artificial sweeteners and some sugar alcohols.

- Additional health benefits: It assists in improving insulin sensitivity and protecting pancreatic β-cells; moderately regulates blood pressure and improves vascular endothelial function; it owns antioxidant and anti-inflammatory activities, with potential health values continuously verified.

2. Compliance & Label Dividends

- U.S. FDA: GRAS certified (purity ≥95%), allowed to be labeled with "zero calorie, non-glycemic, beneficial to dental health", and excluded from added sugar labeling.
- Chinese National Standard: **GB 2760-2024** stipulates "appropriate use in all types of food according to production requirements" without special limits; stevia is included in the national standard for leafy vegetables, providing authoritative safety endorsement.
- EU EFSA: Certified as **E960**, with no genotoxicity or carcinogenicity, fully compliant for all food categories and applicable to infant food.
- International Organizations: **JECFA** has set an ADI value of 4mg/kg (calculated as steviol). It is fully compliant in Japan, South Korea, Australia, New Zealand, Southeast Asia and the Middle East, with no policy risks for export.

(II) Processing & Technological Barriers: Full-Scenario Adaptability · Maximized Commercial Value

1. Irreplaceable in the Beverage Industry

- High efficiency & low dosage: 1g of stevia glycosides ≈ 200—450g of sucrose, with extremely low addition amount and significant cost reduction, suitable for sugar-free tea drinks, sparkling water, functional beverages and freshly-made tea.
- Excellent stability: Acid and alkali resistant (pH 3—9), high temperature resistant (≤250℃). It will not decompose, brown or precipitate during sterilization, filling and shelf life, maintaining a stable and transparent system.
- Taste optimization: High-purity **Reb M/Reb D** can mask peculiar tastes and enhance sucrose-like flavor, solving the bitterness and astringency pain points of sugar-free beverages.
- Compound synergy: Compound with erythritol, mogroside and allulose to achieve a 1+1>2 effect, optimizing taste, cutting costs and expanding formula space.

2. In-Depth Adaptation in Confectionery & Baking

- Good anti-crystallization property: Not easy to precipitate and recrystallize, suitable for hard candy, soft candy, chewing gum and chocolate with smooth taste and uniform texture.
- Baking stability: Resists high-temperature baking (≤220℃) without decomposition or bitter scorching, maintaining stable color and luster. Moderate moisture retention

delays starch aging and extends shelf life by 20%—40%.

- Good flavor compatibility: Highly synergistic with cocoa butter, milk powder, grease and colloidal raw materials, improving product stability and taste layers, applicable to sugar-free chocolate, low-sugar biscuits and healthy pastries.

3. Collaborative Expansion in Multiple Fields

- Dairy products: Suitable for sugar-free yogurt, low-fat milk, ice cream and plant-based milk, optimizing taste, stabilizing the system, lowering freezing point and inhibiting lactose crystallization.
- Pharmaceutical industry: Applied in tablets, lozenges, probiotic preparations, pediatric medicines and traditional Chinese medicine preparations to mask bitterness, enhance moisture resistance and stability, and improve medication adherence.
- Oral care: Used in toothpaste, mouthwash, throat lozenges and oral spray to inhibit bacteria, protect teeth and increase product added value.
- Daily chemicals & feed: Applied in sugar-free skin care products, pet food and livestock feed to expand incremental growth in non-food scenarios.

(III) Cost & Supply Chain Barriers: High Cost-Efficiency · China-Led

1. Ultimate Cost Advantages

- Significant cost reduction with high potency: Under the same sweetness, its cost is 1/5—1/10 of sucrose and 1/3—1/2 of erythritol, with continuous cost decline driven by large-scale production.
- Reduced dosage & expenses: Extremely low addition amount (0.02%—0.1% in beverages) cuts costs of warehousing, transportation and feeding, and reduces production loss.

2. Controllable Whole Industrial Chain

- China’s dominant position: Shandong, Xinjiang, Yunnan and Guangxi are core planting areas, with an annual output of over 200,000 tons of dried stevia leaves and a raw material self-sufficiency rate exceeding 95%.
- Concentrated production capacity: Leading Chinese enterprises have an annual production capacity of over 12,000 tons, accounting for more than 70% of the global total, with world-leading technologies in extraction, refining and crystallization.
- Technological upgrading: Mature processes including enzymatic conversion, biosynthesis and high-purity extraction (**Reb M≥95%**) reduce costs by 30%—40% compared with traditional technologies.

II. Downstream Market Demand

1. Sugar-Free Beverages: The First Growth Curve

- Accounting for approximately 45% of market share in 2025 with an annual growth rate exceeding 15%. The penetration rate of sugar-free tea drinks, sparkling water and functional beverages is rising rapidly, and over 50% of new products launched by leading beverage enterprises adopt stevia glycoside formulas.
- Freshly-made tea: Low-sugar/sugar-free orders account for more than 60%. Stevia compound formulas have become the standard configuration, solving high-sugar pain points and increasing customer unit price.

2. Dairy Products & Baking: The Second Growth Curve

- Dairy products: Occupying about 20% of market share in 2025 with an annual growth rate over 12%. Demand for sugar-free yogurt, low-fat ice cream and plant-based milk is booming, and stevia glycosides show better adaptability than other sugar substitutes.
- Baked foods: Taking up around 15% of market share in 2025 with an annual growth rate above 10%. The market scale of low-sugar biscuits, sugar-free pastries and healthy bread is expanding, and clean label trends drive the replacement of traditional sugar alcohols.

3. Pharmaceuticals & Oral Care: High-Premium Tracks

- Accounting for roughly 10% of market share in 2025; pharmaceutical-grade stevia glycosides enjoy a premium of over 50%. Demand for pediatric medicines, traditional Chinese medicine preparations and probiotic products remains stable, and the growth rate of oral care products (sugar-free toothpaste, mouthwash) exceeds 18%.

4. Compound Sugar Substitute Market: Explosive Growth

- With an annual growth rate exceeding 25%, compound products of stevia glycosides with erythritol, mogroside and allulose are rapidly penetrating sugar-free beverages, baking and health products, addressing the pain points of single sweeteners in taste, cost and tolerance.

III. Future Development Outlook

(I) Industry Trend: From "Sweetness Substitution" to "Functional Active Ingredients"

- Sugar substitute upgrading: Artificial sweeteners → natural high-potency sweeteners → functional natural sweeteners (represented by stevia glycosides), with multiple values including zero calorie, dental protection, metabolic friendliness and active health benefits.
- Application expansion: Expanding from beverages and confectionery to pharmaceutical excipients, daily chemicals, pet food, health products, sports nutrition and feed, with continuously widened scenario boundaries.
- Technological innovation: Key development directions include biological breeding (high Reb M varieties), enzymatic conversion, synthetic biology (yeast fermentation for steviol glycosides production), green low-carbon extraction and high-value utilization of by-products.
- Globalized compliance: Accelerated approval in Southeast Asia, the Middle East and Latin America; RCEP policy dividends boost export growth, and the export proportion is expected to rise to 50% by 2030.

(II) Competitive Pattern: Dual Development of China's Leading Enterprises + In-Depth Layout of International Giants

- Dominance of Chinese leaders: The CR3 of Layn (4,000 tons capacity, 32% market share), PureCircle (Ingredion, 2,500 tons capacity, 26% market share) and Longking Health (2,000 tons capacity, 11% market share) exceeds 69%, with comprehensive industrial chain layout and prominent advantages in cost and technology.
- In-depth layout of international giants: Cargill, Ingredion and Mitsubishi Chemical focus on high-purity Reb M, pharmaceutical-grade and high-end food-grade markets, building strong barriers in brand and technology with high premium capability.
- Core competition focus: Competition has shifted from price wars to high-purity components (Reb M/Reb D), technical barriers (enzymatic/synthetic biology), global certification, customized compound solutions and sustainable production capacity.

(III) Downstream Customer Value (Commercial Benefits)

1. Product upgrading & premium pricing: Realize upgrading from sugar-free to **zero-calorie + natural + dental protection + metabolic friendliness + active benefits**, increasing product premium by 30%—60% and covering segmented markets such as beverages, dairy products, children's food and health products.
2. Reliable compliance & safety: Full global scenario compliance eliminates policy risks, builds high consumer trust, reduces brand compliance and public opinion costs, and fits the clean label development trend.
3. Process cost reduction & efficiency improvement: High-potency substitution and low dosage cut raw material procurement and warehousing costs. Excellent

processing stability adapts to multiple production processes without production line renovation or formula adjustment, lowering production loss and energy consumption.

4. Differentiated competitive barriers: Combine natural zero calorie, high stability, dental protection function and compound synergy to build brand moat, get rid of homogeneous price competition and seize the first-mover advantage in the healthy sugar substitute track.

(IV) Risks and Countermeasures

- **Risk 1:** Expansion of low-end production capacity and intensified price wars → Focus on high-end markets including high-purity Reb M/Reb D, pharmaceutical grade and special materials for high-end beverages; reduce costs via enzymatic and synthetic biological technologies; provide customized compound solutions and technical services.
- **Risk 2:** Biased taste perception and after-bitterness at high concentrations → Promote high-purity Reb M products; develop compound formulas (blended with erythritol/mogroside to improve taste); strengthen popular science to clarify misunderstandings about after-bitterness.
- **Risk 3:** Raw material price fluctuations and extreme climate impacts on planting → Build comprehensive industrial chain layout with self-built stevia planting bases; lock prices through long-term contracts and futures hedging; promote stress-resistant and high-yield varieties to improve standardized planting level.
- **Risk 4:** Substitution impact from emerging sugar substitutes (allulose, trehalose, mogroside) → Strengthen differentiated functions such as zero calorie, high stability, dental protection and active health benefits; deeply cultivate rigid demand scenarios including beverages, pharmaceuticals and oral care; promote compound innovation to build synergistic competitive advantages.

IV. Summary

With healthy attributes of **natural zero calorie**, cost advantages of ultra-high sweetness, processing value of full-scenario adaptability, policy dividends of global compliance and supply chain barriers led by China, **stevia glycosides** have become the core functional sweetening solution in global sugar-free beverages, dairy products, baked foods, pharmaceutical preparations and oral care fields.

As the core global supply base, China continues to lead the world in market growth driven by technological upgrading and green manufacturing, and the domestic market scale is expected to exceed 8 billion RMB by 2030. For downstream enterprises, stevia glycosides are not only simple sweetening raw materials, but also core strategic supports for product health upgrading, differentiated barrier building and segmented market expansion (sugar-free beverages, children's oral care, sugar-controlling groups). It has a clear long-term growth logic and huge commercial value & development potential.