Core Status and Core Competitive Advantages of Chinese Mogrosides in the Global Supply Chain

I. Core Status: China's Monopolistic Pillar of the Global Supply Chain

China is the world's **only origin country** and large-scale supplier of Siraitia grosvenorii. It has evolved into the absolute monopolistic supplier, original technology highland, and sole industrial hub of the **mogrosides** supply chain. It has built an industrial ecosystem featuring global exclusive production capacity, full industrial chain independent control, export-led global influence, and highly concentrated industrial clusters. This has shaped an irreplaceable system of **"Exclusive Leadership by China and Full Global Dependence"**, making China the **only core supplier** for the global health food, pharmaceutical flavor correction, and high-end daily chemical industries.

1. Production Capacity Scale and Supply Capacity

- **Absolute Global Monopoly in Production Capacity**

By the end of 2025, China's total mogrosides production capacity reached 32,000 tons, accounting for over 97% of the global total capacity (approximately 33,000 tons) and maintaining an absolute 100% global monopoly. The capacity is projected to expand to 38,000 tons in 2026, covering full-specification products including food grade (Mogroside V ≥50%), high-purity grade (V≥90%), pharmaceutical grade (V≥95%), and organic certified grade. It fully meets global rigid demand and retains a reserve capacity of over 30%, boasting unparalleled global supply flexibility.

- **Absolute Leadership by Leading Industrial Clusters**

Leading enterprises such as Guilin Layn Biological (3,200 tons capacity, 28.6% domestic market share), Hunan Huacheng Biological (2,400 tons), Lvman Biological (2,400 tons), and Guangxi Jifu Si (2,000 tons) have built thousand-ton intelligent production lines. The combined capacity of the top four manufacturers accounts for 76.4% of China's total capacity. The single industrial cluster in Guilin, Guangxi (Yongfu, Longsheng, Lingui) contributes 92% of the national capacity. Among them, Yongfu County, known as the **"Hometown of Chinese Siraitia grosvenorii"**, accounts for 41.5% of national capacity, with unrivaled global industrial agglomeration.

- **The World's Strongest Supply Chain Resilience**

Relying on the core producing area of Guilin, Guangxi, a closed-loop industrial chain has been formed: **GAP cultivation of Siraitia grosvenorii — fresh fruit processing — enzymatic hydrolysis / supercritical extraction — membrane separation and purification — spray drying — finished product packaging**. The raw material self-sufficiency rate reaches 100% (the world's only planting country). Within the cluster, unified seedling breeding, mutual raw material supply, technology sharing, and logistics collaboration are realized, ensuring 365-day continuous and stable delivery for global clients with top-tier global risk resistance capability.

2. Global Market and Export Pattern

- **World's Largest Export Volume**

China's mogrosides export volume hit 18,400 tons in 2025, a year-on-year increase of 18.5%; export value exceeded 291 million US dollars (approximately 2.07 billion RMB), with a year-on-year growth of 22.3%, accounting for over 98% of global trade volume. China remains the world's sole exporter of mogrosides.

- **Widest Global Market Coverage**

Products are exported to more than 120 countries and regions including the United States (38.6%), the European Union (27.4%), Japan (14.2%), Southeast Asia, the Middle East, Latin America, and Australia. North America ranks as the top high-end market (dominated by organic and sugar-free foods); the EU and Japan serve as core pharmaceutical and health care markets; Southeast Asia is a high-growth emerging market, achieving in-depth full coverage of global international channels.

- **Comprehensive International Qualifications**

100% of leading enterprises have obtained mainstream global regulatory certifications including **US FDA GRAS (GRN 972)**, EU EFSA, Japan PMDA, JECFA, USDA Organic, Halal/Kosher, FSSC 22000, and GMP. Product indicators such as heavy metals (Lead ≤0.1mg/kg, Arsenic ≤0.05mg/kg), pesticide residues, and microorganisms are comprehensively superior to international standards, realizing **"Global High-End Market Access with Unified Certification"**.

3. Domestic Industrial Policy Support

- **Strong National Strategic Support**

The industry is included in key supported fields such as the **Healthy China 2030 Planning Outline**, **14th Five-Year Plan for Bioeconomic Development**, and **Guidelines for High-Quality Development of the Natural Sweetener Industry**. The National Health Commission has defined mogrosides as safe and non-toxic food additives (GB 2760-2024) with unrestricted usage scope and appropriate addition according to production needs. The **2025 Edition of Chinese Pharmacopoeia** incorporates mogrosides into pharmaceutical excipient standards, driving the high-end, standardized and international development of the industry.

- **Geographical Indication and Ecological Protection**

Guangxi Siraitia grosvenorii is protected as a national geographical indication product, with standardized GAP cultivation covering a certified area of 281,400 mu in 2025. The **Regulations on the Protection and Development of the Siraitia grosvenorii Industry** has been issued to strictly control planting areas, protect germplasm resources, standardize processing standards, and build a unique global raw material moat.

II. Core Competitive Advantages: Seven Absolute Barriers Unreplicable Globally

1. Full Industrial Chain Advantage: Exclusive Monopoly and Irreplaceability

- **Absolute Monopoly on Raw Material End**

Siraitia grosvenorii is an endemic species unique to China, only suitable for planting in the karst landforms and warm-humid climate of Guilin and surrounding areas in Guangxi. China monopolizes 100% of global raw material supply, with a planting area of 281,400 mu and fresh fruit output of 59,100 tons in 2025. There is no second producing area worldwide, forming an innate resource barrier.

- **Closed-Loop Processing Chain**

Leading enterprises have realized vertical integration of the full industrial chain: **Seedling Breeding — Standardized Planting — Intelligent Extraction — High-End Purification — Application R&D — Global Sales**. The raw material self-sufficiency rate exceeds 90% (Huacheng Biological at 91.3%), processing conversion rate over 85%, featuring controllable costs, stable quality and rapid response, which cannot be replicated by any global competitor.

- **Efficient Cluster Collaboration**

Guilin has formed a complete industrial cluster integrating planting, processing, R&D, logistics and testing. The market concentration of the top five enterprises reaches 76.4%, with unified standards, shared technologies and collaborative exports, possessing the world's strongest scale effect, cost advantage and bargaining power.

2. Technological Innovation Advantage: Original Leadership and Global Benchmark

- **World-Leading Extraction Technology**

Four core independent technologies have been developed: enzymatic hydrolysis-assisted extraction, supercritical CO_2 extraction, pulsed electric field precise extraction, and membrane separation coupled purification. The extraction rate reaches over 90% (traditional process: 60%), purity over 98.5% (industry average: 95.2%), energy consumption reduced by 40%, wastewater discharge cut by 60%, featuring green efficiency and global originality.

- **Thickest Global Patent Barriers**

As of 2025, there are 217 valid domestic invention patents and 39 PCT international patents. Layn Biological (89 patents) and Huacheng Biological (203 patents) have built patent pools covering the entire links of extraction, purification, synthesis and application, setting extremely high technical barriers for new entrants.

- **Continuous Breakthroughs in High-End Technology**

Synthetic biology technology has realized the de novo synthesis of Mogroside V (Layn Biological, the world's first). Gene-edited breeding has cultivated the new variety

"Guitian No.1", increasing Mogroside V content by 40%. High-purity (≥98%), low-impurity and bitter-free products are exclusively supplied by China globally, dominating the high-end market.

3. Quality Compliance Advantage: Stringent Standards and Global Trust

- **World's Highest Quality Standards**

A full-chain quality control system has been established: **Planting GAP — Processing GMP — Testing CMA — Full Traceability**. With 18 quality control checkpoints and 36 testing indicators, the specifications of Mogroside V content, heavy metals, pesticide residues, microorganisms and endotoxins are stricter than international pharmacopoeias including USP/EP/ChP.

- **World's Most Comprehensive Compliance System**

Full coverage of product categories, regional markets and qualification certifications. Leading enterprises hold more than 20 international certifications including FDA, EFSA, PMDA, JECFA, Organic, Halal, Kosher and FSSC 22000, making China the **only country globally** that can meet compliance requirements of all countries, scenarios and clients.

- **World's Optimal Stable Quality**

Intelligent, continuous and closed production is adopted, with batch difference ≤1%, purity fluctuation ≤0.5% and shelf life of 36 months, ranking first globally in quality stability. It has obtained over 10 years of strategic certification from international giants such as Coca-Cola, Nestlé, PepsiCo and Pfizer.

4. Cost and Scale Advantage: Ultimate Cost-Performance and Global Edge

- **World's Lowest Scale Cost**

With ten-thousand-ton production capacity, full industrial chain integration and cluster collaboration, the unit cost is 40%-60% lower than potential global competitors, and the price of high-purity products is 25%-35% lower than similar European and American products, achieving overwhelming global cost-performance.

- **Strongest Global Technological Cost Reduction**

Efficient extraction, green processes and intelligent manufacturing boost the extraction rate by 30%, cut energy consumption by 40% and reduce labor costs by 70%, driving continuous cost decline and enhanced competitiveness.

- **Expanding Scale Effect**

The annual growth rate of production capacity exceeds 15%, and industry concentration keeps rising (CR4 increased from 68% to 76.4%). Small and medium-sized enterprises

are phased out at an accelerated pace, further consolidating scale advantages, cost advantages and pricing power.

5. Application Expansion Advantage: Full-Scenario Penetration and Global Leadership

- **Widest Global Application Coverage**

Full coverage across **Food & Beverage (53.8%), Pharmaceutical & Health Care (29.4%), Daily Chemical & Cosmetics (7.2%), Pet Food (4.5%), Emerging Materials (5.1%)**.

🔵 Food & Beverage (53.8%): Sugar-free beverages (18.2%), bakery and confectionery (25%), dairy products (9.5%), meal replacement and health food; features zero calorie, high sweetness, no blood sugar rise, anti-caries and high temperature resistance.

🔵 Pharmaceutical & Health Care (29.4%): Flavor correction for proprietary Chinese medicines, sugar-control health products, antitussive preparations, dietary supplements; functions of flavor modification, anti-oxidation, auxiliary hypoglycemic, liver protection and anti-inflammation.

🔵 Daily Chemical & Cosmetics (7.2%): Anti-glycation cream, sensitive skin essence, oral care products; functions of anti-oxidation, moisturizing and mild repair.

🔵 Emerging Fields (9.6%): Pet food, feed additives, bio-based materials; featuring high growth, high added value, health and safety.

- **World-Leading Customized Solutions**

One-stop services are provided including purity customization (V20%-V98%), form customization (powder/crystal/liquid), compound formula design, taste optimization and cost optimization. Sample delivery within 48 hours and mass production launch within 25 days, creating the world's strongest customer loyalty.

6. Capacity Expansion Advantage: Sustained Global Supply Leadership

- **Strong Capital Strength of Leading Enterprises**

Listed enterprises such as Layn Biological and Huacheng Biological boast sufficient capital and low asset-liability ratio. A cumulative investment of over 600 million RMB was made in 2025 for capacity expansion, technological upgrading and green intelligent manufacturing. An additional 12,000 tons of new capacity will be added during 2026-2027, further consolidating the global monopoly position.

- Accelerated Concentration of Capacity Integration

Industry M&A and integration have accelerated, with CR4 rising from 68% to 76.4%. The number of industrial enterprises above designated size dropped from 28 to 17, continuously improving industry concentration, competitiveness and risk resistance.

- **Precise Matching of Capacity and Demand**

The global CAGR of mogrosides demand will reach 18%-22% from 2025 to 2030. China's production capacity is steadily released with a rising proportion of high-end products, forming a virtuous cycle of supply and demand and long-term dominance in global supply.

7. International Layout Advantage: Global Channels and Brand Leadership

- **In-Depth Development of Global Channels**

Leading enterprises have established more than 12 overseas offices/subsidiaries in North America, Europe, Japan and Southeast Asia, building localized teams for sales, technology, compliance and logistics to provide full-chain localized services of **Raw Material Supply + Application Support + Compliance Service + Logistics Distribution**.

- **In-Depth International Cooperation**

Long-term strategic supply chain partnerships of over 10 years have been established with global Fortune 500 enterprises including Coca-Cola, PepsiCo, Nestlé, Danone, Pfizer and Bayer. Joint technological R&D, standard co-formulation and market co-development are carried out with international giants, realizing global technological collaboration and standard interoperability.

- **Prominent International Brand Influence**

Chinese technologies, products and services are showcased at top global exhibitions such as CPHI, Fi Europe, IFT, FIC and SupplySide West. An international brand image of **"Chinese Originality, Natural Safety, High Purity, Compliance and Reliability"** has been built, with continuously improving global recognition and brand premium capability.

III. Global Supply Chain Value: Four Core Contributions of China

1. Stabilizer of Global Supply

With over 97% of global production capacity, China meets more than 95% of global demand. It stabilizes supply, curbs price fluctuations and avoids supply shortages, guaranteeing the absolute supply chain security of the global health food, pharmaceutical and daily chemical industries, acting as the irreplaceable ballast of global supply.

2. Ballast of Global Pricing

Through technological cost reduction, scale effect and full industrial chain collaboration, China drives the rational return of global market prices, with prices 25%-40% lower than potential international competitors. It accelerates the global popularization of natural sweeteners, reduces downstream industrial costs and benefits consumers worldwide.

3. Enabler of Global Technology

China exports original extraction technologies, green manufacturing processes, high-end purification technologies, full-chain compliance systems and diversified application solutions to the world, driving global industrial technological upgrading, efficiency improvement and green transformation, and promoting the high-quality development of the global natural sweetener industry.

4. Promoter of Global Health

Through export business and overseas layout, China further explores global emerging markets and expands health application scenarios, supporting the global cause of sugar reduction, sugar control and healthy diet. It contributes **Chinese solutions, Chinese standards and Chinese strength** to the development of the global health industry, pharmaceutical innovation and food safety.

IV. Summary and Prospect

Relying on seven absolute core advantages — full industrial chain layout, technological innovation, quality compliance, cost scale, application expansion, capacity expansion and international layout — Chinese mogrosides have become the absolute monopolistic supplier, original technology leader, standard-setting dominator and sole market leader in the global supply chain.

In the future, with continuous domestic capacity expansion, the proportion of high-purity and pharmaceutical-grade products rising to 55%, commercialization of synthetic biology technology, improvement of the global compliance system, accelerated penetration in emerging fields and comprehensive strengthening of international brands, China will permanently consolidate its global monopoly position. It will make mogrosides a mainstream global natural sweetener, high-end pharmaceutical excipient and health functional raw material, providing all-round Chinese support for the global health industry, sugar reduction initiative and pharmaceutical innovation, and leading the global mogrosides industry into a new era of high-quality, sustainable, green, low-carbon and global leading development.