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

I. Core Status: The "Chinese Ballast Stone" of the Global Supply Chain

China has become the absolute core supplier and stable growth pole of the global **Xylitol** supply chain. It has built an industrial ecosystem featuring absolutely leading production capacity, independently controllable technologies, global export coverage and full-industry-chain autonomy. It has driven the formation of a stable global industrial pattern of **"China-led and globally supported"**, serving as an indispensable core pillar for the global sugar reduction industry.

1. Production Capacity Scale and Supply Capacity

- **Absolute Dominance in Production Capacity:**

  By the end of 2025, China's total xylitol production capacity reached 120,000 tons, accounting for more than 65% of the global total, ranking first worldwide. It is estimated that the production capacity will expand to 150,000 tons in 2026, covering full-specification products including food-grade, pharmaceutical-grade and crystal-grade xylitol. It can fully meet global rigid demand and maintain sufficient reserve capacity.

- **Leadership of Leading Enterprise Clusters:**

  Top enterprises such as Zhejiang Huakang Pharmaceutical, Shandong Lvjian Biology, Shandong Longli Biology, Hebei Shengxue Glucose and Henan Yuxin Sugar Alcohol have built 10,000-ton intelligent production lines. The combined production capacity of the top five manufacturers accounts for over 70% of China's total domestic capacity. Among them, Huakang Co., Ltd. boasts the world's largest single-plant production capacity with a domestic market share of 55%. Industrial clusters in Shandong and Henan provinces maintain a leading global production capacity, and industry concentration continues to rise.

- **Extremely Strong Supply Chain Resilience:**

  Relying on functional sugar industrial clusters in Yucheng and Binzhou of Shandong, Puyang of Henan, Quzhou of Zhejiang and other regions, a complete closed-loop industrial chain of **corncob / bagasse — xylose — hydrogenation — xylitol — purification — crystallization** has been formed, with the raw material self-sufficiency rate exceeding 90%. Enterprises within the cluster realize raw material sharing, energy supporting and logistics coordination, ensuring long-term stable and bulk delivery for global customers with world-leading risk resistance.

2. Global Market and Export Pattern

• Leading Export Scale:

China's xylitol export volume hit 41,000 tons in 2025, a year-on-year increase of 5.4%; export value exceeded 200 million US dollars (approximately 1.45 billion RMB), with a year-on-year growth of 6%, accounting for over 60% of the total global xylitol trade volume. China is the world's largest xylitol exporter.

• Extensive Global Coverage:

Products are sold to more than 70 countries and regions including the European Union (37%), Southeast Asia (24%), North America (21%), Japan, South Korea, the Middle East and Latin America. The EU and North America are core high-end markets, while Southeast Asia and the Middle East are emerging growth markets. The international channel network achieves in-depth coverage with strong customer stickiness.

• Complete International Qualifications:

All leading domestic enterprises have passed mainstream global regulatory certifications including US FDA GRAS, EU EFSA Novel Food, South Korea KFDA, Japan Ministry of Health, Labour and Welfare, JECFA, Halal/Kosher and other authoritative certifications. The global recognition of product compliance realizes the goal of **"one certification for global circulation"**.

3. Domestic Industrial Policy Support

• Strong Policy Support:

Xylitol industry is included in the key supported fields of the **14th Five-Year Plan for Bioeconomic Development** and the **Healthy China 2030 Outline**. The National Health Commission clearly defines xylitol as a safe and legal food additive applicable to all categories of food and beverages, with continuous release of policy dividends.

• Sound Standard System:

The national standard **Xylitol (GB/T 23533-2024)** was officially implemented in 2024, clarifying core indicators such as purity ≥ 99.5%, heavy metals and microorganisms. A three-level standard system led by national standards, supplemented by group standards and refined by enterprise standards has been established to standardize the high-quality development of the industry.

II. Core Competitive Advantages: Seven Major Barriers to Build a Global Moat

The competitive advantages of Chinese xylitol stem from the in-depth coordination of seven dimensions: technology & craftsmanship, cost control, industrial chain, compliance, application innovation, production capacity expansion and international layout, forming unparalleled comprehensive competitiveness that cannot be replicated by global peers.

1. Technological & Craftsmanship Advantages: World-Class Biomanufacturing

• Independently Controllable Core Technologies:

Leading enterprises including Huakang Co., Ltd. and Shandong Lvjian Biology have independently developed integrated technologies combining biological enzymatic conversion, continuous hydrogenation, membrane separation and continuous crystallization, breaking overseas technological monopolies. The xylose conversion rate has increased from 75% of traditional processes to 88%-92%, reaching 95% in some top enterprises, maintaining an absolute leading position worldwide.

• World-Leading Process Routes:

● Green Enzymatic Process: Leading enterprises pioneered low-temperature enzymatic hydrolysis and continuous ion exchange purification technology, reducing reaction temperature by 15℃ and energy consumption by 18%, with product purity stably above **99.8%** and meeting pharmaceutical-grade standards.

● Continuous Intelligent Production: Huakang Co., Ltd. has launched the fourth-generation continuous crystallization production line, cutting steam consumption per ton from 3.2 tons to 2.1 tons, lowering power consumption by 18% and increasing production efficiency by 40%, achieving intelligent manufacturing, green and low-carbon development.

• Global Patent Layout:

Leading domestic enterprises have applied for more than 200 xylitol-related patents covering the whole industrial chain including strain breeding, process optimization, equipment innovation and application technology. Among them, the **Shengquan Method biological solvent refining technology is unique in the world with a straw utilization rate of over 95%**, obtaining international carbon footprint certification.

2. Cost Control Advantages: Scale Effect and Full-Chain Cost Reduction

• Remarkable Raw Material Cost Advantages:

China’s annual corncob output exceeds 50 million tons with abundant resources and low prices. The raw material procurement cost is 25%-30% lower than that of Finland, Russia and other countries. Industrial clusters in Shandong and Henan integrate raw material supply networks within a 200-kilometer radius to further reduce logistics costs.

• Cost Dilution by Scale Effect:

The 10,000-ton-level production capacity of leading enterprises realizes large-scale production and intensive management, with unit fixed costs 20%-25% lower than overseas small and medium-sized manufacturers. Rising industry concentration promotes cost reduction and efficiency improvement in procurement, production and logistics links.

• Energy and Labor Cost Advantages:

Domestic industrial electricity and natural gas prices are lower than those in European and American countries. Combined with the replacement of labor by intelligent equipment, the comprehensive production cost per ton is 15%-20% lower than global peers, delivering unrivaled cost performance worldwide.

3. Full Industrial Chain Advantages: Closed-Loop Ecology and Independent Control

• World's No.1 Industrial Chain Completeness:

A full closed-loop industrial chain of agricultural and forestry waste (corncob / bagasse) — xylose — xylitol — food / pharmaceutical / daily chemical products has been established. Core equipment, catalysts and strains are all independently produced without bottleneck links, ensuring secure and controllable supply chains.

• Outstanding Industrial Cluster Synergy:

Industrial agglomeration areas such as Yucheng of Shandong and Puyang of Henan gather **40+** upstream and downstream enterprises, forming a collaborative ecosystem integrating raw materials, production, equipment, R&D and logistics. Enterprises share infrastructure, technological achievements and market information, with overall competitiveness far exceeding individual enterprises.

• Maximized Comprehensive Raw Material Utilization Value:

Residual residues after xylose extraction from corncobs can be used for biomass power generation, feed and organic fertilizer, realizing waste recycling and further reducing comprehensive costs while improving environmental benefits.

4. Compliance System Advantages: Global Certification and Chinese Endorsement

• Full Coverage of International Qualifications:

Products of leading enterprises have obtained all mainstream global authoritative certifications including FDA GRAS, EFSA, JECFA and Halal/Kosher. Some enterprises have acquired EU pharmaceutical-grade certification and US USP Pharmacopoeia certification, granting direct access to high-end global food and pharmaceutical markets.

• Domestic Standards Aligned with International Norms:

Core indicators of China's national xylitol standard (GB/T 23533-2024) are superior to international standards, with a purity requirement of ≥ 99.5% and stricter limits on

heavy metals and microorganisms. It provides strong Chinese compliance endorsement for export products and greatly enhances global customer trust.

• **One-Stop Compliance Services:**

Enterprises provide supporting documents including toxicological reports, process compliance statements, label compliance plans and impurity detection reports, meeting global customers' compliance needs in one stop and reducing customers' compliance costs and risks.

5. Application Innovation Advantages: Full-Scenario Adaptation and Customized Services

• **Irreplaceable Functional Properties:**

Xylitol has a sweetness equivalent to 90% of sucrose with only 60% of sucrose calories. It features zero blood sugar elevation, no insulin stimulation, anti-caries performance, high stability and refreshing taste, perfectly adapting to the global sugar reduction and healthy consumption trend, and serving as a premium star product in the sugar substitute industry.

• **In-Depth Full-Scenario Penetration:**

Widely applied in sugar-free chewing gum (40%+ market share), sugar-free beverages (25%+ market share), baked food, dairy products, confectionery, health products, oral care, pet food, pharmaceutical excipients and other fields. In the pharmaceutical sector, it is applicable to special diabetic meals and sugar-free pharmaceuticals; in oral care, it prevents dental caries; in pet food, it meets low-allergen and low-calorie demands.

• **Customized Solution Services:**

Tailored compound formulas (xylitol + erythritol / steviol glycoside), flavor optimization, stability improvement and cost reduction plans are provided for different product categories and customer demands, helping customers develop differentiated products and form a positive cycle of application, production capacity and technology.

6. Production Capacity Expansion and Capital Advantages: Continuous Consolidation of Global Supply

• **Strong Capital Strength of Leading Enterprises:**

Listed companies such as Huakang Co., Ltd., Shandong Lvjian Biology and Shandong Longli Biology boast sufficient capital and low asset-liability ratios. In 2025, leading enterprises invested over 300 million RMB in capacity expansion, technological R&D and green upgrading to continuously consolidate production capacity advantages.

• **Accelerated Capacity Integration:**

Huakang Co., Ltd. acquired Henan Yuxin Sugar Alcohol, raising its domestic market share to 55% and further strengthening its leading position. Accelerated industry mergers and acquisitions drive capacity concentration among top enterprises and improve overall industrial competitiveness.

• Precise Matching Between Production Capacity and Market Demand:

The rapid release of domestic production capacity and steady growth of global demand (with a CAGR of approximately 7.5%-8% from 2025 to 2030) form a virtuous cycle, supporting China's long-term core position in the global supply chain.

7. International Layout Advantages: Dual Leadership in Global Channels and Brand Influence

• In-Depth Development of Global Channels:

Leading enterprises have established **12+** overseas offices and subsidiaries in North America, Europe, Asia-Pacific, the Middle East, Latin America and other regions, building localized sales and technical service teams to deliver one-stop full-process services including raw material supply, application support, compliance consultation and logistics distribution.

• Deepened International Cooperation:

Strategic partnerships have been established with global food and pharmaceutical giants such as Mars, Coca-Cola, Nestlé, Bayer and Johnson & Johnson, as well as regional distributors, enabling rapid access to mainstream global supply chains. In-depth cooperation with DuPont, DSM and other enterprises in strain research and application technology improves global technological collaboration.

• Prominent International Brand Influence:

Through global industry exhibitions including FIC, IFT, HiFi and Anuga, Chinese xylitol technologies and products are fully displayed, shaping an international brand image of **Chinese intelligent manufacturing, cost performance, compliance reliability and green low-carbon development**, with continuously rising global recognition.

III. Global Supply Chain Value: Core Contributions of China

1. Supply Stabilizer: With over 65% of global production capacity, China meets more than 55% of global xylitol demand, stabilizes the supply chain of the global sugar reduction industry, and avoids global market shortages and drastic price fluctuations.
2. Price Ballast Stone: Driven by technological cost reduction, scale effect and full-industry-chain advantages, China promotes the rational regression of global xylitol prices, accelerates the global popularization of healthy sugar substitutes, cuts production costs for downstream enterprises and benefits consumers worldwide.
3. Technology Enabler: China independently exports proprietary strains, green enzymatic processes, continuous crystallization technologies, compliance systems and application solutions worldwide, driving technological upgrading of the global xylitol industry and improving the overall efficiency and green manufacturing level of the global sector.

4. Market Pioneer: Through export business and overseas capacity layout, China deeply explores emerging markets in Southeast Asia, the Middle East and Latin America, expands global application scenarios of xylitol, fuels the sustained growth of the global sugar reduction industry scale and boosts the development of global health undertakings.

IV. Summary and Outlook

Relying on seven core competitive strengths covering technology, cost, industrial chain, compliance, application, production capacity and internationalization, Chinese xylitol has become the absolute core supplier, technology leader and rule participant in the global supply chain. In the future, with the further release of domestic production capacity, the implementation of overseas capacity layout, continuous upgrading of green and low-carbon technologies and improvement of the global compliance system, China will further consolidate its global leading position. It will promote xylitol to become a mainstream healthy sugar substitute worldwide, provide **Chinese solutions** and contribute **Chinese strength** to the global sugar reduction initiative and the development of the health industry.