China's Position and Core Market Advantages in the Global Mulberry Leaf Extract Supply Chain

Overview

Mulberry leaf extract takes **1-Deoxynojirimycin (DNJ)**, flavonoids and polysaccharides as its core active ingredients, and is widely used in food and beverages, pharmaceuticals, healthcare and other fields. Its supply chain covers the entire process of planting, primary processing, refined extraction, testing and distribution.

At present, China has established itself as a **core hub** of the global mulberry leaf extract supply chain, building a complete and highly competitive supply chain system, and realizing an upgrade from primary processing to a core manufacturing center and strategic raw material base. Relying on five core advantages including large-scale planting and technological iteration, China has firmly remained the world's largest producer and supplier, deeply dominating the global supply scale, quality standards and price trends. Under the global trend of natural plant-based consumption, its core position continues to stand out.

I. China's Core Position in the Global Mulberry Leaf Extract Supply Chain

(I) Global Industrial Layout and Scale: Leading Supply and Consolidating the Foundation

China serves as the **supply cornerstone** and core manufacturing center of the global mulberry leaf extract industry, holding absolute dominance in the global market. In 2024, the global output of mulberry leaf extract reached 1,440 tons, of which China produced 650 tons, accounting for more than 45%. China's exports accounted for over 60% of total global trade, covering more than 80% of mainstream markets.

Among the world's top 20 leading enterprises in related fields, 13 take China as their core raw material supply base. The global sales of high-purity and customized products from domestic leading enterprises account for more than 55% of similar products. With the promotion of the "medicinal and edible homology" policy and the expansion of dedicated varieties, China's industrial scale continues to expand, further consolidating its leading position.

(II) Supply Chain Integrity: Full-Chain Independent Control and Barrier Building

China is one of the few countries in the world that has achieved **independent and closed-loop control** over the entire "planting-processing-testing-distribution" chain.

Upstream, relying on four major producing areas in East, South, North and Southwest China, a large-scale mulberry planting pattern has been formed; midstream, the refined processing technology has reached international advanced levels; downstream, a global distribution network has been established, supported by a complete testing and logistics system, realizing full-process controllability.

The integrated "planting-processing" layout ensures self-sufficiency in raw materials and provides **one-stop raw material solutions** with irreplaceable core value. For example, the Jiangsu-Zhejiang region in East China has built

a complete industrial chain, with raw materials processed within only 10 hours after harvesting, maximizing the retention of active ingredients and ensuring export efficiency.

(III) Industrial Discourse Power and Value Upgrading: From Passive Participation to Active Leadership

China has gradually grasped the **core pricing power and standard discourse power** of the global supply chain, completing the transformation from "export of rough processed products" to "export of high value-added products". Domestically, a three-tier system of "national standards + industry standards + enterprise standards" has been formed, and standard implementation is promoted through digital supervision of the entire chain. The product standards of leading enterprises have become global industry benchmarks, and China's mulberry leaf raw material price index directly influences global market trends.

The quality standard for high-purity DNJ (≥92%) led by Chinese enterprises has been adopted by most global pharmaceutical companies. Extraction technologies from enterprises such as Shaanxi Huike have become industry benchmarks, continuously enhancing discourse power in the mid-to-high end sector.

(IV) Industrial Upgrading: From Low-End Supporting to High-End Supply

China's mulberry leaf extract industry has achieved a profound transformation of export products. The proportion of primary products has shrunk significantly, while high-purity extracts, customized products and terminal derivatives have become the main export forces. In 2024, pharmaceutical-grade product exports accounted for more than 50% of the global similar market.

At present, differentiated products can be customized for pharmaceuticals, food, feed and other scenarios, with product added value increased by 3–5 times compared with the early stage. Domestic enterprises continue to extend the industrial chain and expand to terminal products, gradually grasping the mid-to-high end of the global value chain.

II. China's Core Advantages in the Global Mulberry Leaf Extract Supply Chain

(I) Upstream Planting: Large-Scale Layout with Controllable Quality and Cost

China's mulberry planting is concentrated in four major producing areas, accounting for more than 95% of the national planting area. The Jiangsu-Zhejiang region in East China contributes over 38% of the output, with DNJ content in mulberry leaves stably above 0.35% in core areas, ensuring quality controllability.

Leading enterprises implement standardized and organic planting, with intelligent irrigation and blockchain traceability introduced in some bases, and raw materials obtaining triple organic certifications. The "company + cooperative + farmer" model achieves intensive management, with raw material procurement costs **30%–50% lower** than those in India and Vietnam.

In 2024, China's total mulberry leaf output reached 1.8 million tons, with a per unit yield of 1.6 tons per hectare,

ensuring stable and sufficient raw material supply.

(II) Midstream Processing: Technology Leadership and Prominent Scale Effect

China's refined processing technology has reached international advanced levels, with green processes such as supercritical CO_2 extraction and enzymatic hydrolysis coupling widely applied. The DNJ extraction rate has increased from 2.8% to 3.5%, the active ingredient retention rate exceeds 92%, and environmental protection costs have been reduced by 12%.

There are currently more than 60 processing enterprises in China, including over 8 large-scale ones, with a single factory annual capacity of 100-ton level. East and South China gather 83% of the country's processing enterprises, with an order delivery cycle of 5–10 days, far below the international average.

At present, the industry faces a shortboard in high-end single active ingredient separation technology, and the process for high-purity DNJ (≥98%) has not yet achieved full independent breakthrough, becoming a key focus of industrial upgrading.

(III) Quality Control: Complete Standards and Testing Aligned with International Norms

China has established a full-chain quality control system and a three-tier standard system. The internal control standards of some enterprises have reached international advanced levels, leading or participating in the formulation of international standards such as ISO/TS 23876:2025.

Leading enterprises are equipped with advanced testing equipment, capable of accurately detecting key indicators such as DNJ and heavy metals with precision at the ppm level, complying with major global regulatory requirements.

A full-process traceability system is implemented, and products have obtained international certifications such as US GRAS and EU ECOCERT, effectively breaking trade technical barriers.

(IV) Cost and Supply Chain Efficiency: Full-Chain Coordination with Outstanding Cost Performance

China's comprehensive cost is **40%–60% lower** than that of European and American enterprises. The "company + cooperative + farmer" model, intelligent production and policy tax reductions further lower costs. In 2024, the average raw material price was 8.5 CNY/kg, **30%–50% lower** than international producing areas.

The supply chain features efficient coordination: raw materials are processed within 10 hours after harvesting, and the cold chain coverage rate in core producing areas exceeds 90%. Full-specification products with DNJ content ranging from 0.5% to 10% are available, holding a market share of over 80% in emerging markets and continuously increasing penetration in European and American markets.

(V) Industrial Cluster and Policy Advantages: Collaborative Empowerment and Consolidating the Foundation

Four major industrial clusters gather core factors such as raw materials and technology, forming an ecology of

"leading enterprises driving, complete supporting facilities". In-depth cooperation between universities and enterprises promotes application innovation.

At the policy level, plans such as "Healthy China 2030" include mulberry leaves in the "medicinal and edible homology" catalog. The government provides financial subsidies and tax reductions, encouraging enterprises to participate in international standard formulation and certification, supporting the standardized and global development of the industry.

III. Global Market Structure and Supply Chain Risk Resilience

(I) Market Structure: Regional Differentiation with Barriers to Break

China's mulberry leaf extract market presents a pattern of **"strength in emerging markets, difficulties in breaking through mature markets"**.

In emerging markets (Southeast Asia, South America, etc.), Chinese products account for over 80% and are the preferred raw materials locally. In mature markets (Europe, America, Japan and South Korea), due to strict standards and technical barriers, Chinese products are mostly concentrated in the mid-to-low end, with weak high-end breakthroughs.

The domestic market has huge potential, with an estimated scale of 3.5 billion CNY in 2025, while insufficient popularization has become a constraint on growth.

(II) Risk Resilience: Full-Chain Layout with Controllable Risks

The overall external dependence of the supply chain is low, featuring strong resilience, but structural risks exist:

1. The process for high-purity DNJ (≥98%) has not been fully breakthrough, with a small amount relying on imports;
2. Fluctuations in international trade policies affect exports to Europe and America;
3. The planting sector is affected by climate and pests, and the risk resistance of some varieties needs improvement.

Relying on full-chain independent layout, strategic deployment of leading enterprises and industry-university-research cooperation, the industry possesses strong buffer capacity, consolidating its position as the "cornerstone" of the global supply chain.

IV. Conclusion and Outlook

China has established an irreplaceable core position in the global mulberry leaf extract supply chain, leading the global industrial development with five core advantages. Meanwhile, it faces up to the shortcomings in high-end technologies, features a differentiated market layout, and maintains sufficient supply chain resilience.

In the future, China will focus on breakthroughs in high-end processes, industrial upgrading, standard

internationalization, full-chain coordination and market optimization, promoting the industry's leap from a **"major raw material supplier" to a "global industrial power"**, and continuously leading the high-quality development of the global mulberry leaf extract industry.