Centella Asiatica Extract: Competitive Advantages and Future Development Prospects

Centella asiatica (L.) Urban, a traditional plant with both medicinal and edible values, its extract is rich in active ingredients such as asiaticoside, madecassoside, and asiatic acid. Boasting multiple efficacies including anti-inflammation, repair, anti-oxidation, and collagen synthesis promotion, it has been widely applied in skincare, pharmaceutical and health products, functional foods and other fields. In recent years, driven by the booming consumption of natural ingredients, the iterative upgrading of production technologies and the expanding demand of downstream markets, the centella asiatica extract industry has entered a period of rapid development with an continuously optimized market competition pattern, while also embracing new development opportunities and challenges. Starting from the core competitive advantages of the product, this paper systematically analyzes its future development trends by combining industry data and market status, providing professional references for industry practitioners and investors, and balancing the professionalism, systematicness and readability of the content.

I. Core Competitive Advantages of Centella Asiatica Extract

The competitive advantages of centella asiatica extract are not merely reflected in its outstanding single-dimensional efficacy, but stem from the synergistic efforts of five core pillars: raw materials, technology, efficacy, cost and compliance, forming a comprehensive competitive barrier featuring "differentiation + large-scale production + high quality". Each advantage is supported by clear data and verified by practical applications, which can be specifically divided into the following five aspects:

1. Raw Material Advantages: Controllable Quality, Sufficient Production Capacity, Laying a Solid Foundation for Products

The quality and supply stability of raw materials are the core prerequisites for the competitiveness of extract products. Centella asiatica extract has prominent advantages in raw material supply, mainly embodied in three aspects: planting layout, active ingredient content and standardized management.

In terms of planting layout, Southwest China (Yunnan, Guangxi and Guizhou provinces) has become the world's core centella asiatica planting base by virtue of its ecological advantages such as humid climate, fertile soil and no industrial pollution. The planting area has expanded from 32,000 mu in 2020 to 65,000 mu in 2024, with an average annual growth rate of 19.2%. Among them, the average asiaticoside content of centella asiatica planted in Wenshan, Honghe and other regions of Yunnan reaches 0.8%–1.2%, significantly higher than the industry

benchmark of 0.5%, providing high-quality raw material support for the production of high-purity extracts. Meanwhile, leading domestic enterprises have gradually established GAP (Good Agricultural Practice) certified planting bases, realizing standardized management of the entire process of centella asiatica planting, picking and primary processing. This effectively avoids problems such as unstable components and excessive pesticide residues in wild raw materials, with the raw material qualification rate reaching over 99.2%, far higher than the industry average of 88.5%.

In terms of production capacity and supply, the annual output of centella asiatica raw materials in China has exceeded 120,000 tons, accounting for more than 78% of the global total output, which can meet over 80% of the global demand for extract production. The raw material supply is sufficient and the price is stable. In 2025, the average price of domestic centella asiatica raw materials remains at 18–22 CNY per kilogram, 15%–20% lower than that in India, Vietnam and other producing areas, bringing cost advantages to the production of downstream extracts. In addition, some enterprises have carried out research on centella asiatica variety improvement, breeding excellent varieties with high active ingredient content, further strengthening the competitive barrier at the raw material end.

2. Technological Advantages: Iterative Upgrading of Processes, Balancing Quality and Efficiency

Extraction processes directly determine the active ingredient content, purity, stability and safety of extracts. In recent years, China's centella asiatica extraction technology has developed rapidly with iterative upgrades, gradually breaking away from the limitations of traditional processes and forming a dual technological advantage of "optimization of traditional processes + application of new technologies", with its technical level ranking among the world's forefront.

In the optimization of traditional processes, improvements have been made to water extraction, alcohol extraction and other traditional processes. By optimizing parameters such as extraction temperature, time and solid-liquid ratio, the extraction rate of active ingredients has been greatly improved. For example, the improved alcohol extraction process can achieve an asiaticoside extraction rate of over 92%, an increase of more than 30% compared with the traditional process, while reducing the solvent residue to ⩽50ppm, which complies with the international pharmacopoeia standard (⩽100ppm).

In the application of new technologies, supercritical CO_2 extraction, enzymatic hydrolysis, nanocarriers, liposome encapsulation and other new technologies have been widely used in the production of centella asiatica extract, forming differentiated technological advantages. Among them, supercritical CO_2 extraction technology can extract active ingredients in a low-temperature and high-pressure environment, avoiding the damage of high temperature to

heat-sensitive components such as asiaticoside. The purity of the extract can reach over 95% with no solvent residue, and the product added value is increased by more than 50% compared with traditional extracts; enzymatic hydrolysis technology can destroy the cell wall structure of centella asiatica, promote the release of active ingredients, improve the extraction efficiency by 40% and shorten the extraction time by 30%, greatly reducing the production cost. In addition, nanocarrier technology can prepare centella asiatica extract into nanoscale particles, increasing the skin penetration rate by more than 60% compared with ordinary extracts, significantly enhancing the skincare efficacy, and thus becoming the core raw material choice for high-end skincare products.

In terms of R&D investment, the average R&D investment intensity of China's centella asiatica extract industry reached 8%–12% in 2025, far exceeding the average level of 4.3% in the plant extract industry. The R&D investment ratio of leading enterprises even reached more than 15%, continuously promoting process upgrading and product innovation, and further expanding the technological competition gap.

3. Efficacy Advantages: Synergistic Multiple Efficacies with Scientific Verification, Meeting Market Demand

The core competitiveness of centella asiatica extract lies in the synergistic multiple efficacies brought by its abundant active ingredients, all of which have been scientifically verified, catering to the current consumers' demand for natural, safe and high-efficiency products. Its efficacy advantages are particularly prominent in the skincare and pharmaceutical fields, which can be specifically divided into four core efficacies supported by clear experimental data:

3.1. Anti-inflammatory and soothing efficacy: Asiaticoside and madecassoside in centella asiatica extract can inhibit the production of inflammatory mediators (IL-1, MMP-1) and the activity of inflammatory response enzymes, alleviate skin inflammatory reactions, and significantly improve problems such as acne, sensitive redness and flushing. Experimental data show that 0.5% centella asiatica extract can inhibit the release of more than 60% of inflammatory factors. After 28 days of using products containing this ingredient, sensitive skin has a 45% reduction in redness area and a 38% decrease in skin sensitivity, which is superior to the anti-inflammatory effect of similar plant extracts (such as licorice extract).

3.2. Skin repair efficacy: Centella asiatica extract can stimulate the proliferation of fibroblasts, activate the SMAD signal transduction pathway, promote the synthesis of type I collagen and hyaluronic acid, and accelerate the repair of the skin barrier, suitable for damaged skin, post-operative repair and other scenarios. Clinical experiments show that repair products containing 1.0% centella asiatica extract can increase the water content of the damaged skin barrier by more than 50%, shorten the repair cycle by 30%, and have an effective rate of over 85% in the

healing of burns and traumas, which have been widely used in post-medical aesthetic repair products.

3.3. Anti-oxidation and anti-aging efficacy: Asiatic acid and madecassic acid in centella asiatica extract have strong antioxidant activity, which can scavenge free radicals, inhibit skin oxidative stress reactions and delay skin aging. Experiments have proved that its antioxidant capacity (ORAC value) reaches 12,000 μmol/g, superior to vitamin C (2,800 μmol/g). It can reduce melanin deposition, improve skin dullness, and long-term use can reduce skin wrinkles by more than 25% and increase skin elasticity by 30%.

3.4. Pharmaceutical and health care efficacy: Centella asiatica extract can be used in the treatment of venous insufficiency, liver cirrhosis, neuroprotection and other diseases in the pharmaceutical field. Among them, asiaticoside has an effective rate of 78% in relieving venous edema and can reduce the degree of liver fibrosis in patients with liver cirrhosis. At the same time, it has a certain antibacterial effect, which can inhibit Staphylococcus aureus and Cutibacterium acnes, further expanding the application scenarios of the product.

In addition, the efficacies of centella asiatica extract are synergistic. A single ingredient can achieve multiple effects of "anti-inflammation + repair + anti-aging" without the need for compounding with multiple ingredients, reducing the R&D cost and formula complexity of downstream products, and thus being highly favored by downstream enterprises. According to data from iResearch, the acceptance of skincare products containing centella asiatica extract reached 82.1% in 2025, ranking first among plant extract ingredients, and more than 78.3% of consumers are willing to pay a premium for skincare products containing this ingredient.

4. Cost and Production Capacity Advantages: Large-scale Production with Outstanding Cost Performance

As the core producing area of centella asiatica raw materials, China, combined with large-scale production and process optimization, has formed significant competitive advantages in the cost and production capacity of centella asiatica extract, becoming the world's major supplier of centella asiatica extract.

In terms of production capacity, the total output of centella asiatica extract in China reached 18,000 tons in 2025, accounting for 82% of the global total output, among which the output of high-purity extract (purity ⩾90%) reached 6,000 tons, accounting for more than 75% of the global high-purity product market. The annual production capacity of a single factory of leading enterprises can reach more than 2,000 tons, with the advantage of large-scale production, which can meet the large-batch procurement needs of downstream large-scale skincare and pharmaceutical enterprises. The order response speed is fast, and the delivery cycle is shortened to 7–15 days, far lower than the 20–30 days of international peer enterprises.

In terms of cost, the production cost of centella asiatica extract in China is 30%–40% lower than that of European, American, Japanese and Korean enterprises, and 15%–20% lower than that of emerging producing areas such as India and Vietnam. The core reasons lie in low raw material cost, mature production technology and reasonable labor cost. In 2025, the average price of domestic ordinary centella asiatica extract (purity 50%–80%) is 180–280 CNY per kilogram, and the average price of high-purity extract (purity ⩾90%) is 600–800 CNY per kilogram, while the average price of similar European and American products is 300–450 CNY per kilogram and 1,000–1,200 CNY per kilogram respectively, showing a prominent cost performance advantage.

In terms of economic benefits, the centella asiatica extract industry has outstanding profitability. In 2025, the average gross profit margin of the industry is about 65%–70%, and the net profit margin reaches 18%–22%, significantly higher than the average level of the traditional chemical raw material industry. The payback period of newly built production lines is usually 2–3 years, and the internal rate of return (IRR) generally exceeds 25%. The return on investment of some technology-leading enterprises can reach more than 30%, attracting a large amount of capital investment and further expanding the production capacity advantage.

5. Compliance and Standardization Advantages: Meeting Global Regulatory Requirements with High Market Recognition

With the continuous improvement of global requirements for the safety and standardization of plant extract products, compliance and standardization have become the core threshold for products to enter the international market. China's centella asiatica extract industry has gradually improved in compliance management and standard construction, forming prominent competitive advantages.

In terms of domestic compliance, centella asiatica extract has been included in the *Cosmetic Safety Technical Specification (2022 Edition)*, which clearly defines its scope of use, maximum use concentration and safety requirements. At the same time, it is listed in the *Catalogue of Substances with Both Medicinal and Edible Values*, and can be legally applied in food and health product fields. Leading domestic enterprises have passed ISO9001 quality management system, ISO22000 food safety management system, GMP (Good Manufacturing Practice) and other certifications. The product quality complies with the regulatory requirements of domestic cosmetics, pharmaceutical and food industries, with a random inspection qualification rate of over 99.5%.

In terms of international compliance, China's centella asiatica extract has passed international authoritative certifications such as EU ECOCERT organic certification, US FDA certification and Japanese JAS organic certification, and can smoothly enter mainstream markets such as Europe, America, Japan and South Korea. Meanwhile, enterprises strictly follow international

pharmacopoeia standards (EP, USP), clarifying the content standards of core active ingredients such as asiaticoside and madecassoside, heavy metal limits (Pb ≤10ppm, As ≤2ppm), microbial limits and other indicators, in line with international standards, with high international market recognition. In 2025, the export volume of China's centella asiatica extract reached 320 million US dollars, a year-on-year increase of 10.3% compared with 2024. The main export destinations include South Korea, Japan, the United States and EU countries, among which South Korea accounts for the highest proportion of 34%, reflecting the international market's recognition of the compliance and quality of China's products.

In addition, domestic industry associations are gradually promoting the improvement of the industry standards for centella asiatica extract, clarifying product classification, technical requirements, detection methods, etc., further standardizing the industry development and enhancing the competitiveness of China's centella asiatica extract in the global market.

II. Industry Status and Competition Pattern of Centella Asiatica Extract

Supported by multiple competitive advantages, China's centella asiatica extract industry has shown a rapid development trend with an continuously expanding market scale and a competition pattern characterized by "concentration at the top and dispersion among small and medium-sized enterprises". At the same time, the industry is facing challenges such as homogeneous competition and raw material price fluctuations, which lay a foundation and point out the optimization direction for future development.

1. Industry Status: Rapid Growth of Market Scale, Continuous Expansion of Application Scenarios

1.1 Market scale: Driven by the demand of downstream skincare, pharmaceutical and health products in recent years, the market scale of China's centella asiatica extract has witnessed explosive growth. Data shows that the market scale of China's centella asiatica extract was 2.01 billion CNY in 2020 and reached 4.28 billion CNY in 2025, with a five-year compound annual growth rate (CAGR) of 16.3%, far exceeding the average 15.2% of the plant extract industry; it is expected to reach 11.85 billion CNY in 2030, with a CAGR of about 18.2% in the next five years, showing a strong growth momentum.

1.2 Application scenarios: The application field is dominated by skincare, with the rapid expansion of pharmaceutical and health products, functional foods and other fields. In 2025, the skincare field accounts for the largest market share of 68.5%, corresponding to a market scale of about 2.93 billion CNY, mainly applied in sensitive skin repair, post-medical aesthetic care, anti-aging and other sub-categories. The cumulative number of filed domestic non-special purpose cosmetics containing centella asiatica extract has exceeded

15,000; the pharmaceutical and health products field accounts for 22.1% with a market scale of about 950 million CNY, used in trauma repair, venous insufficiency, health products and other products; other industrial application fields account for 9.4% with a market scale of about 400 million CNY, applied in feed additives, cosmetic raw materials and other fields.

1.3 Regional distribution: Market consumption shows the characteristics of regional concentration. East China is the largest consumer market, accounting for 35.2% of the national share, mainly due to the high concentration of cosmetic enterprises, strong R&D strength and high consumer acceptance in this region; South China ranks second with a share of 28.7%, closely related to the rapid development of the local medical and health industry; North China accounts for 18.9%, and other regions account for a total of 17.2%.

2. Competition Pattern: Obvious Hierarchical Competition with Prominent Advantages of Leading Enterprises

The market competition of centella asiatica extract in China presents obvious hierarchical characteristics, divided into three competitive echelons, with the industry concentration gradually increasing:

2.1 First echelon (leading enterprises): Represented by Yunnan Taina Bio, Guangxi Huibaoyuan, Guangzhou Hanfang, Xi'an Lvtian Bio and other enterprises, they account for a total market share of 67.8%, among which Yunnan Taina Bio ranks first with a share of 15.3%. Such enterprises have the advantage of the whole industry chain layout, with their own GAP planting bases, advanced extraction processes, improved compliance systems and stable downstream customer resources. They mainly produce high-purity and high value-added products (purity ≥90%), focusing on the high-end skincare and pharmaceutical fields, with a high proportion of product exports and strong brand influence and technical barriers.

2.2 Second echelon (medium-sized enterprises): There are a large number of such enterprises, accounting for a total market share of 22.2%. Without their own planting bases, they mainly purchase raw materials for production with medium-level technology, and their products are mainly medium and low-purity extracts (purity 50%–80%), focusing on the domestic mid-end skincare, feed additive and other fields. The core of competition lies in price and production capacity, with relatively limited profit margins.

2.3 Third echelon (small-sized enterprises): A large number of such enterprises account for a total market share of 10%. With small production scale, backward technology, low product purity (≤50%) and unstable quality, they mainly focus on the regional low-end market, competing mainly by low prices, with weak anti-risk ability and easy to be integrated or eliminated by the industry.

3. Existing Industry Challenges

3.1 Severe homogeneous competition: The mid and low-end market has become a hard-hit area of homogeneous competition. Small-sized enterprises mostly use traditional processes to produce low-purity extracts with little difference in product efficacy and quality, and can only seize the market through low-price competition, resulting in the compression of the overall profit space of the industry.

3.2 Risk of raw material price fluctuations: The price of centella asiatica raw materials is greatly affected by climate, planting area, market supply and demand and other factors. The raw material price fluctuated by 25% from 2023 to 2024, bringing great pressure to enterprises' production cost control, especially for small and medium-sized enterprises without their own planting bases.

3.3 Increasing international standard barriers: European and American, Japanese and Korean countries are constantly raising the import standards for plant extracts, with more stringent requirements for heavy metals, microorganisms, solvent residues and other indicators. Some small and medium-sized enterprises are difficult to enter the international market because they cannot meet the international compliance requirements.

3.4 Insufficient R&D and innovation: Most small and medium-sized enterprises have insufficient R&D investment, lacking the R&D of new extraction processes and new product forms (such as liposomes, microcapsules), with low product added value, and it is difficult for them to meet the market upgrading demand.

III. Future Development Prospects of Centella Asiatica Extract

Combined with the industry status, technical trends and market demand, the centella asiatica extract industry will usher in a new development stage of "quality upgrading, product innovation, scenario expansion and global layout" in the next 5–10 years, with the market scale continuing to expand and the competition pattern gradually optimized. At the same time, it will present five clear development trends with both opportunities and challenges.

1. **Trend 1: Continuous Technological Iteration, High Value-added Products Becoming the Core Growth Driver**

In the future, the technological innovation of centella asiatica extract will focus on four directions: "high-efficiency extraction, precise separation, efficacy enhancement and form optimization", promoting the upgrading of products to high purity and high added value, and gradually breaking away from the predicament of homogeneous competition.

1.1. Upgrading of extraction processes: New processes such as supercritical CO_2 extraction, enzymatic hydrolysis and microwave-assisted extraction will gradually replace

traditional water extraction and alcohol extraction processes and become the industry mainstream. It is expected that the application rate of new processes will reach more than 85% in 2028, further improving product purity and active ingredient retention rate and reducing production costs. At the same time, green extraction processes (such as solvent-free extraction, biological extraction) will become a research hotspot, conforming to the global "double carbon" goal and green consumption trend, reducing environmental pollution in the production process and improving the environmental added value of products.

1.2. **Innovation of product forms**: Develop diversified product forms for different application scenarios, such as liposome-encapsulated centella asiatica extract, nanoscale extract, water-soluble extract, sustained-release extract, etc., to improve the applicability and efficacy of products. For example, liposome encapsulation technology can improve the skin penetration rate and stability of centella asiatica extract, suitable for high-end medical aesthetic skincare products; water-soluble extract can solve the problem of low solubility of traditional extracts in aqueous solution, expanding to functional food fields such as beverages and oral liquids. It is expected that the proportion of new product forms will reach more than 40% in 2030.

1.3. **Precise separation of active ingredients**: With the help of chromatography separation, membrane separation and other technologies, realize the precise separation and purification of single active ingredients such as asiaticoside, madecassoside and asiatic acid, and develop high-purity monomer products (purity ⩾98%). Such products have stronger targeting and higher added value, and can be applied in high-end pharmaceutical, precise skincare and other fields. It is expected that the market scale of high-purity monomer products will account for more than 25% of the overall market in 2030, becoming the core growth driver of the industry.

2. Trend 2: Continuous Expansion of Application Scenarios with Great Potential in Emerging Fields

At present, the application of centella asiatica extract is still concentrated in the skincare and pharmaceutical fields. In the future, it will gradually expand to emerging fields such as functional foods, pet products, beauty and personal care, agriculture, further expanding the market space and forming a pattern of "synergistic development in multiple fields".

1.1. **Functional food field**: With the rise of the oral beauty and big health consumption upsurge, centella asiatica extract will be gradually applied in oral beauty products (such as oral liquids, capsules, meal replacements), functional beverages, health products and other fields, focusing on the efficacies of "internal conditioning and external

nourishment" and "anti-inflammation and beauty". It is predicted that the market scale of centella asiatica extract in the functional food field will reach 2.8 billion CNY in 2030, with a CAGR of more than 22%, becoming the second largest application field after skincare. At present, leading health product enterprises such as By-Health and Infinitus have successively launched products containing centella asiatica ingredients, promoting the rapid development of this field.

1.2. **Pet products field**: Pet skin problems (such as dermatitis, eczema) occur frequently. The anti-inflammatory and repair efficacies of centella asiatica extract can be applied in pet skincare products (such as pet shower gel, skin repair spray), and can also be used as a pet feed additive to improve pet immunity. At present, this field is still in the initial stage with a market penetration rate of less than 5%. It is expected that the penetration rate will rise to more than 20% in the next 5 years, with the market scale exceeding 1 billion CNY, becoming a new growth pole.

1.3. **Emerging pharmaceutical fields**: In addition to traditional applications such as trauma repair and venous insufficiency, the research on centella asiatica extract in neuroprotection, liver cirrhosis treatment, anti-tumor adjuvant treatment and other fields will be gradually in-depth, and it is expected to develop new pharmaceutical products, further improving the pharmaceutical added value of the product. At the same time, under the trend of modernization of traditional Chinese medicine, centella asiatica extract will be compounded with other traditional Chinese medicine extracts to develop traditional Chinese medicine compound products with synergistic efficacies, conforming to the development plan of traditional Chinese medicine.

1.4. **Other fields**: Centella asiatica extract will also be applied in beauty and personal care (such as shampoo and conditioner, focusing on scalp repair), agriculture (such as plant growth regulators, pesticide additives) and other fields, further expanding the application boundary and tapping the market potential.

3. Trend 3: Continuous Improvement of Industry Concentration, Large-scale Production and Standardization Becoming the Mainstream

In the future, with the intensification of industry competition, stricter supervision and increased R&D investment, the centella asiatica extract industry will usher in integration and upgrading with the continuous improvement of industry concentration. Large-scale production, standardization and branding will become the core directions of enterprise development.

3.1. **Intensified industry integration**: Small and medium-sized enterprises will be gradually integrated or eliminated by leading enterprises due to weak R&D capabilities, insufficient compliance and severe homogeneous competition. It is expected that the

total market share of the top 10 enterprises in the industry will rise to more than 80% in 2030, forming a competition pattern of "domination by a few leading enterprises, sub-segment breakthrough by medium-sized enterprises and gradual withdrawal of small-sized enterprises". Leading enterprises will expand production scale and improve the whole industry chain layout through mergers and acquisitions, capacity expansion and other means, further strengthening their competitive advantages.

3.2. **Improvement of standardization system**: China will gradually improve the industry standards for centella asiatica extract, clarifying product classification, technical requirements, detection methods, quality control and other contents, realizing the standardization of the entire process of raw material planting, production and processing, product detection and market circulation, and standardizing industry development. Meanwhile, enterprises will actively participate in the formulation of international standards, enhance China's voice in the global market of centella asiatica extract, and promote China's transformation from a "raw material supplier" to a "standard leader".

3.3. **Accelerated branding development**: With the improvement of downstream market requirements for product quality, centella asiatica extract enterprises will gradually attach importance to brand building, create their own brands, break away from the low-end positioning of "OEM production" and "raw material supplier", and improve profit space through brand premium. Leading enterprises will rely on technological and quality advantages to build high-end centella asiatica extract brands, focus on the high-end downstream market, and enhance brand influence and market recognition.

4. Trend 4: Accelerated Global Market Layout with Sustained Release of Export Potential

Relying on advantages such as cost, quality and production capacity, China's centella asiatica extract has become the world's core supplier. In the future, it will further accelerate the global market layout, expand the international market share, and at the same time cope with the competition and challenges in the international market.

4.1. **Expansion of export markets**: In addition to the traditional European, American, Japanese and Korean markets, it will gradually expand to emerging international markets such as Southeast Asia, the Middle East and Latin America. Such markets have a rapid growth in the consumption demand for natural ingredients with relatively low access thresholds. It is expected that the export volume of China's centella asiatica extract will reach 850 million US dollars in 2030, with a CAGR of more than 21%, and the export proportion will rise to more than 45%. Meanwhile, enterprises will customize and develop products in line with local standards according to the regulatory requirements

and market demand of different countries, improving the adaptability of export products.

4.2. **In-depth international cooperation**: Domestic enterprises will strengthen cooperation with international high-end skincare and pharmaceutical enterprises, establish long-term and stable cooperative relations, participate in the R&D and production of downstream products, and improve the added value of products. At the same time, they will introduce advanced international technologies and management experience, promote the further improvement of product quality and production efficiency, and realize the two-way development of "bringing in and going global".

4.3. **Coping with international competition**: Faced with the competition from emerging producing areas such as India and Vietnam, domestic enterprises will further strengthen their technological, quality and compliance advantages, improve product cost performance, and increase brand promotion efforts to enhance the international market recognition of China's centella asiatica extract and consolidate the status of the world's core supplier.

5. Trend 5: Optimization and Upgrading of the Raw Material End, Ensuring Supply Chain Stability and Quality

As the foundation of the centella asiatica extract industry, the raw material end will gradually realize the upgrading of "large-scale planting, variety improvement and green planting" in the future, ensuring the stability of raw material supply and the improvement of quality, and supporting the high-quality development of the industry.

5.1. **Expansion of large-scale planting**: Leading enterprises will further expand the scale of their own GAP planting bases, focusing on the core producing areas such as Yunnan and Guangxi, to realize self-sufficiency in raw materials and reduce the risk caused by raw material price fluctuations. At the same time, they will promote the cooperation model of "enterprise + base + farmer", drive farmers to carry out standardized planting, expand the planting scale and improve the raw material supply capacity. It is expected that the planting area of centella asiatica in China will exceed 120,000 mu in 2030, with the annual raw material output reaching more than 250,000 tons.

5.2. **Accelerated variety improvement**: Enterprises will increase R&D investment in centella asiatica variety improvement, breed excellent varieties with high active ingredient content, disease and insect pest resistance and strong adaptability, further improving the quality of raw materials and reducing planting costs. For example, through cross breeding, gene editing and other technologies, breed varieties with asiaticoside content ⩾1.5% to improve the quality and added value of extracts.

5.3. **Promotion of green planting**: Conforming to the global green consumption trend, promote the green planting of centella asiatica, reduce the use of pesticides and chemical fertilizers, adopt biological control, organic fertilization and other methods to improve the safety and environmental protection of raw materials, and meet the demand of the downstream high-end market for organic raw materials. At the same time, strengthen the quality control in the process of raw material planting, establish a raw material traceability system, realize the whole-process traceability of raw materials from planting to picking, and ensure the stable quality of raw materials.

IV. Conclusions and Suggestions

As a core category of natural plant extracts, centella asiatica extract has been increasingly widely used in skincare, pharmaceutical and health products and other fields by virtue of its five core competitive advantages in raw materials, technology, efficacy, cost and compliance, and the industry has shown a rapid development trend. The market scale of China's centella asiatica extract reached 4.28 billion CNY in 2025, and it is expected to exceed 11.85 billion CNY in 2030, with huge future growth potential. At the same time, the industry is also facing challenges such as homogeneous competition, raw material price fluctuations and international standard barriers, which require the joint efforts of enterprises, industry associations and the government to promote the high-quality development of the industry.

In general, the centella asiatica extract industry is in a golden period of rapid development. In the future, with technological innovation, scenario expansion and industry integration, it will realize quality upgrading and scale expansion. Leading enterprises with the whole industry chain layout, core technological advantages and strong compliance capabilities will stand out in the industry competition and lead the high-quality development of the industry; at the same time, the industry will gradually realize the transformation from "quantitative growth" to "qualitative improvement", becoming the core growth pole of China's natural plant extract industry and occupying a more important position in the global market.