

Opinion

The Challenges and Opportunities of Nutraceutical and Health Food Industry in China

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Abstract: The nutraceutical and health food industry in China, rooted in a 5000-year tradition of medicinal foods, has yet to reach its trillion-dollar potential due to a limited consumer group (mainly the elderly) and a failure to attract younger people. Currently, China's nutraceutical and health food sector remains fragmented, constrained by regulatory barriers, lack of industrialization, and with limited product innovation. This opinion paper discusses the history, status, challenges, and opportunities of the nutraceutical and health food industry in China. Through analyzing three successful industrial cases, we propose several strategies for the transformation of this industry to reach a more sustainable development.

Keywords: food supplements; food industry; medicinal food; food innovation

1. Introduction

The concept of “medicinal foods” in China has a history of over 5000 years, with many of these raw materials also cultivated for thousands of years (Figure 1). Well-known examples, such as lingzhi (*Reishi mushroom*), jujube, mulberry, ginseng, goji berry, and rose, have been cultivated for over 4000 years. Others, such as donkey hide gelatin, honey, black sesame seeds, kudzu root, honeysuckle, *Poria cocos*, and hawthorn, have a cultivation history of over 2000 years.

Despite their profound historical roots, the sustainable utilization and productivity of these medicinal foods are intrinsically linked to the conservation of traditional knowledge and ecological practices. This knowledge system, honed over millennia, encompasses not only the identification and cultivation of these unique species but also their harvesting, processing, and application based on the principles of traditional Chinese medicine (TCM). The preservation of this biocultural heritage is crucial, as it represents a sustainable model of natural resource use that emphasizes harmony between human health and the environment. However, this knowledge and its associated practices face the erosion risk due to the rapid modernization and a shift in consumer preferences, highlighting the guarantee for strategies that can preserve the core tenets of this ancient wisdom during the industrialization. Figure 1 not only illustrates typical examples but also symbolizes this enduring, yet vulnerable, synergy between sustainable productivity and conserved knowledge.

However, despite their long cultivation history, why has the concept of food as medicine not yet developed into a trillion-dollar industry? The key lies in the lack of wide consumptions. That is, the traditional concept of medicinal and edible herbs and the underlying principles of traditional Chinese medicine for health preservation have primarily targeted the elder population, failing to gain widespread acceptance and application among younger generations, including middle-aged and even younger adults. In the meantime, the supplemental nutrition industry led by the western industry players is booming among the middle-aged and young populations [1]. This means that the medicinal and edible herb industry has not tapped into the most vibrant and demand-driven consumers, leading to a limited market scale, insufficient product innovation, and rigid business models. Defining the market scope is critical.



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Under the scope of vitamins and dietary supplements (VDS)/health food (with a “blue-cap” in China), reputable industry sources estimate China’s 2023 retail market at roughly over 350 billion RMB, with a compound annual growth rate (CAGR) of over 10% between 2019 and 2023. The cross-border e-commerce raises the number modestly, while a broader “functional health foods” scope (e.g., functional beverages, fortified dairy, and traditional tonics) can have a substantially larger market, while the exact totals depend on category inclusion and should be interpreted with caution. In major e-commerce channels (e.g., Tmall/Jingdong), consumers aged 26–45 typically account for more than 40% of purchases in the health supplement category, but their market share is lower in offline channels. The market remains fragmented, with the Concentration Ratio (CR)₁₀ generally below 40% in the VDS scope [2]. These factors directly hinder the industry’s upgrading and its ability to drive broader economic growth.

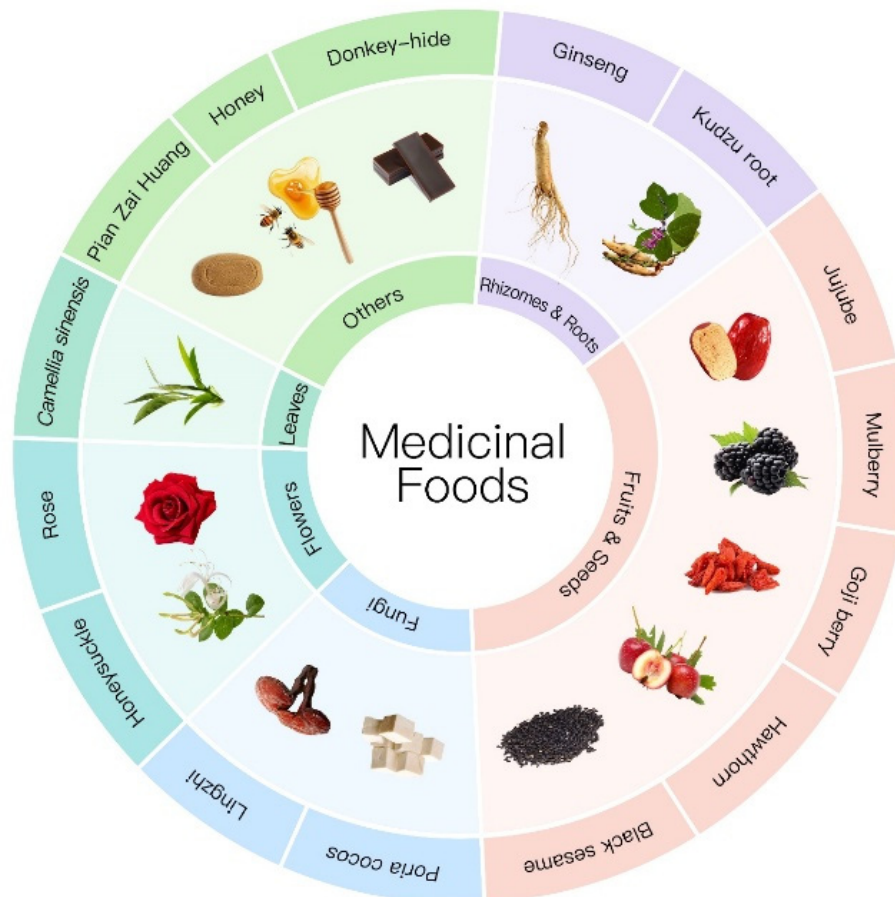


Figure 1. Typical examples of medicinal food in China.

For instance, traditional ingredients like the goji berries and ginseng depicted in Figure 1 are increasingly leveraged in modern products. Targeting this growth segment, their market penetration remains below 30% among youth due to persistent stereotypes. From the industrialization point of view, the nutraceutical and health food industry in China is still a fragmented market with many small players, limited supply, and lack of industrialization [3]. The consumers prefer traditional preparations with the help of easy access to local pharmacies. In the meantime, there are regulatory barriers against using health claims that make it difficult for companies to scale up quickly. In recent decades, the market growth and industrialization have been led by western supplements with plenty of global capital investment in R & D and manufacturing. Although like this, there are still several successful cases in China worth our deep thinking and learning from, like the Pian Zai Huang, Zao Kang Goji Berries, and Fucha Town, which are briefly discussed below.

2. The Case of Pian Zai Huang

Pian Zai Huang has successfully evolved from a traditional Chinese medicine (TCM) brand into a pioneering force in modern pharmaceuticals, demonstrating how traditional brands can innovate while retaining core medical credibility [4]. Its unique dual-drive model—integrating “medical IP + high-end consumer goods”—has enabled the company to sustain an impressive price-to-earnings (P/E) ratio of over 70, far surpassing Yunnan Baiyao’s P/E

at about 30, by blending scientific rigor with premium branding. This achievement is rooted in several strategies, including (1) substantial investment in clinical research for liver disease treatment with validated therapeutic efficacy through peer-reviewed studies, reinforcing its reputation as a science-backed TCM leader; (2) creating a pharma-cosmetic synergy by expanding into the beauty field with Queen's Brand cosmetics, merging TCM ingredients with modern skincare science to access high-margin markets; (3) fostering global research collaborations that accelerate R & D innovation, enhance credibility, and open overseas opportunities; (4) exerting supply chain control by monopolizing rare raw materials like the musk to ensure stability and create barriers for competitors; and (5) elevating brand status through targeted capital operations, high-end marketing, and strategic acquisitions that position Pian Zai Huang as a luxury health brand. Critically, Pian Zai Huang's dual-drive model thrives on clinical translation (with R & D spend at 3% of their revenue) and indication expansion, proving that TCM-derived products can command pharmaceutical-level premiums. This case suggests that the nutraceutical and health food industry may experience a similar growth by adopting a pharma-functional food synergy model, integrating medical validation with consumer's appeal to reshape market perceptions and unlock long-term values.

2. The case of Zao Kang Goji Berries

In addition, the Zao Kang Goji Berries company serves as a prime example of the successful industry transformation of traditional Chinese herbal medicine. By adopting a model that integrates “standardized cultivation, innovative deep processing, and health-conscious consumption upgrades”, the company has achieved a significant leap in the industrial value. The company first established Good Agricultural Practices (GAP)-certified planting bases in Ningxia, China, and established a traceability system to ensure raw material quality [5,6]. In terms of products, it combines consumer preferences with goji berries and other popular ingredients, such as pomegranate, blueberry, and ginseng, to develop a variety of product forms including puree, dried fruits, freeze-dried products, and gift boxes. Its products also include honey, brown sugar, and enzymes, maximizing the alignment with consumer needs and preferences. For example, it utilizes the freeze-drying technology to develop high value-added products such as goji berry puree and enzymes, jumping out of the traditional dried fruit-based product forms. Additionally, it collaborates with top research institutions like the Jiangnan University, a world-top university in the field of food science, to conduct research on bioactive components such as goji berry polysaccharides, supporting the development of functional foods [7]. Ultimately, through a “medicinal and edible” positioning and omnichannel marketing, it successfully transformed into a health-related consumer product provider, with its gross margin increasing over 40%. This case reveals three pivotal points. First, it is important to foster robust collaborations among industry, academia and/or research institutions to advance efficacy studies. Second, it is essential to drive product innovation through new formulation technologies in the space of health care and skin care, etc. [8]. Finally, it is critical to reinforce the “medical plus consumer” dual-drive model. The example of Zao Kang Goji illustrates that to achieve the transformative breakthrough, traditional Chinese medicine companies must evolve from the suppliers of raw materials into comprehensive providers of health solutions [9].

4. The Case of Fucha Town

Another example is the Fucha Town in Xi'an, China, where has an exciting development of the medicinal and edible herb industry, vividly demonstrating the collaborative role of the government and financial institutions in driving the transformation and upgrading the traditional industries. The government has incorporated the Fucha Town into the regional key industrial chain through top-level design, providing support in terms of land and policies and leading infrastructure upgrades and brand promotion to create a national 4A-level tourist attraction and the industrial brand of “China's Fucha Capital” [10]. Additionally, the Qinchuangyuan Innovation Center has been established in the Fucha Town to promote industry-academia-research collaboration, extending the product lines to include medicinal and edible products such as Jin Hua White Tea and Fucha food products. Financial institutions have provided six billion RMB in project financing to support core infrastructure construction, offer financial guarantees for tea enterprise upgrade and start-up initiation, and develop specialty financial products to support emerging industries. The combined efforts have not only increased the industrial value by attracting four million visitors annually with comprehensive revenue of 1.4 billion RMB, but also driven regional livelihood improvements, doubling local people's *per capita* income and creating over 3000 jobs. This model of “policy guidance + financial support + industrial integration” has successfully transformed the traditional Fucha industry into a dynamic economic sector that blends culture, tourism, and healthcare [11]. Overall, it offers a replicable pathway for the innovative development of medicinal and edible products, serving as a valuable blueprint for the broader industry.

These successful cases demonstrate feasible pathways for industry transformation. Pian Zai Huang leveraged a “medical IP + high-end consumer goods” model, combining clinical research, cosmetic synergies, and premium branding to achieve high market valuation. Zao Kang Goji Berries adopted standardized cultivation, deep processing, and health-focused product diversification, boosting gross margins over 40%. Additionally, the Fucha Town showcased how government policy, financial support, and industrial integration can revitalize traditional industries through tourism and R & D collaboration [12].

5. Perspectives

Looking forward, the evolution of China’s nutraceutical industry holds significant implications for achieving several Sustainable Development Goals (SDGs) in China. By transitioning from a fragmented, raw-material-centric model to a modernized, value-added industry, it can directly contribute to SDG 3 (Good Health and Well-being) by providing accessible, science-backed health products to a broader demographic, including the youth. Furthermore, the industrialization and premiumization of medicinal plants, as seen in the cases of Zao Kang and Fucha Town, can enhance agricultural productivity and create sustainable economic growth (SDG 8: Decent Work and Economic Growth), particularly in rural regions where many of these medicinal plants are cultivated. This development, if managed responsibly, also promotes SDG 2 (Zero Hunger) and SDG 12 (Responsible Consumption and Production) by promoting sustainable agricultural practices, reducing waste through advanced processing, and fostering a circular economy. Therefore, revitalizing this industry is not merely an economic opportunity but also a strategic move towards sustainable and inclusive development in China.

In the future, it is vital to change the consumer’s mindset or stereotypical impression on the nutraceuticals/health foods and drive long-term development of the industry. To reach this goal, several strategies are proposed. First, substantial R & D investment is essential for long-term growth and product innovation. This will enable scientific validation and strengthen clinical research to validate health claims. In the meantime, product development innovation is a must, which is to modernize formulations to appeal younger consumers and drive product premiumization. Second, application of the dual-drive model can leverage the medical credibility to provide halo effects to the branding, which is key to drive scale-up and industrialization. Third, the government policy & financial support is also critical for success. The industrialization requires capital and talents, and the government support can encourage public-private partnerships for upscaling the industry. In conclusion, by changing perceptions through evidence-based innovation and strategic positioning, the nutraceutical and health food industry in China can unlock broader values, with great economic potential.

Author Contributions

M.W.: conceptualization, writing—original draft preparation, visualization, and validation; Y.K.: conceptualization, writing—original draft preparation, and validation; R.-Y.G.: writing—reviewing and editing, supervision, validation. All authors have read and agreed to the published version of the manuscript.

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Use of AI and AI-assisted Technologies

No AI tools were utilized for this paper.

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