### Research on the Commercial Model of Medicinal and Edible Plants: A Case Study of Gynura Bicolor

Shujun He<sup>1,\*</sup>, Shumei Xiao<sup>1</sup>, Qiaoying Lin<sup>1</sup>, Hong Wu<sup>2</sup>, Shufen Xiao<sup>2</sup>, Tingwei Deng<sup>3</sup>

<sup>1</sup>Guangdong Technology College, Zhaoqing, Guangdong, China <sup>2</sup>Zhongkai University of Agriculture and Engineering, Guangzhou, Guangdong, China <sup>3</sup>Guangling College, Yangzhou University, Yangzhou, Jiangsu, China

Abstract: With the escalating emphasis on healthy lifestyles, the commercial potential of medicinal and edible plants has drawn considerable attention. This paper centers on Gynura bicolor, dissecting its growth traits, nutritional worth, and market demand, while delving into its potential applications in landscape architecture. Through a meticulous assessment of its cultivation techniques and ecological value, the study accentuates the plant's adaptability to diverse environments and its potential contribution to enhancing urban green spaces. The paper puts forward a dual strategy that integrates ecological aesthetics with a commercial model to attain sustainable development, guaranteeing that the utilization of the plant contributes to both ecological balance and economic feasibility. By incorporating the plant's ecological and aesthetic attributes into landscape design, this approach conforms to the rising demand for natural and sustainable products. The findings provide valuable theoretical insights and practical references for landscape architects, urban planners, and researchers in plant applications, clearing the path for the commercialization and sustainable utilization of medicinal and edible plants in various industries.

Keywords: Medicinal and Edible Plants; Gynura Bicolor; Commercial Model; Medicinal Herb Drinks; Sustainable Development

#### 1. Introduction

In traditional Chinese culture, the concept of "food and medicine sharing the same origin" is deeply ingrained, with many plants offering both edible and medicinal values<sup>[1]</sup>. Gynura bicolor is a representative example of such a dual-purpose plant. It not only holds a prominent position in regional culinary culture but has also gained

significant attention due to its remarkable health benefits. According to the "2024-2029 In-Depth Analysis and Development Plan for the Chinese Medicinal Health Beverage Industry" report, the scale of China's health and wellness market has surpassed one trillion RMB. Within the health product market, traditional Chinese medicine (TCM)-based health products have gradually become a consumption hotspot. Herbal products derived from natural plants are increasingly favored by the market, positioning them as one of China's industries with vast market potential and significant growth prospects. The "Gen Z Nutrition Consumption Trends Report" indicates that 83.7% of health and wellness consumers in China are aged between 18 and 35, with "food and medicine sharing the same origin" and tonic products becoming key consumption trends among the vounger generation. Given the substantial market potential of Purple Back Tian Kui-related products, this paper aims to explore the growth characteristics of Gynura bicolor and its applications in landscape architecture. Additionally, it seeks to analyze the construction of its business model, providing theoretical insights for further research and practical applications in related fields.

# 2. Growth Characteristics and Cultivation Techniques of Gynura Bicolor

#### 2.1 Distribution and Characteristics

Gynura bicolor is primarily distributed in the southern regions of China, particularly in provinces such as Guangdong and Hainan. This plant thrives in warm, humid climates, making it well-suited to grow on slopes, in valleys, and on moist stone cliffs. Gynura bicolor not only exhibits remarkable ecological adaptability but also demonstrates unique physiological characteristics during its growth process<sup>[2]</sup>. Mature plants typically reach a height of 45-60 centimeters, with leaves that are broadly lanceolate in shape. These leaves are not only visually distinctive but also rich in essential nutrients. Particularly in environments with abundant sunlight, the growth of Gynura bicolor is more vigorous, displaying enhanced vitality<sup>[3]</sup>. Additionally, the plant's distinctive purple underside gives it considerable ornamental value in landscape design, allowing it to create strong visual contrasts with other plants, thereby adding depth and aesthetic appeal to the landscape.

#### 2.2 High-Yield Cultivation Techniques

(1) Seedling Propagation: To ensure high-yield cultivation of Gynura bicolor, cutting propagation is an effective method. Specifically, the top shoots of healthy mother plants are selected for cutting and treated to maintain a high rooting and survival rate for the cuttings<sup>[4]</sup>. To improve the success rate of growth, the optimal time for cutting is in the spring, when the climate is warm and the humidity is moderate, which favors the growth and development of the cuttings.

(2) Planting and Management: When selecting a planting site, priority should be given to soils rich in organic matter with good drainage. To ensure soil fertility, it is recommended to apply an appropriate amount of organic fertilizer, such as well-decomposed cow manure or chicken manure, per square meter<sup>[5]</sup>. After planting, regular watering and fertilization should be carried out, particularly during the growing season, to maintain soil moisture while avoiding waterlogging to prevent root rot and other diseases. This ensures healthy plant growth<sup>[6]</sup>.

(3) Harvesting and Utilization: The ideal harvesting period for Gynura bicolor is generally between March and October each year, as the leaves harvested during this time are tender and have higher nutritional value. During harvesting, it is important to leave several leaves near the base of the plant to promote the growth of new shoots, thus increasing overall yield. Through proper harvesting and utilization, the economic and ornamental value of Gynura bicolor can be maximized.

#### 3. Value and Application of Gynura Bicolor

#### **3.1 Medicinal Components and Their Effects**

Gynura bicolor, as an ornamental plant, also possesses significant medicinal value. Its leaves are rich in active compounds such as flavonoids and polyphenols, which exhibit multiple biological activities, including antioxidant, anti-inflammatory, and blood sugar-lowering effects. According to traditional Chinese medicine (TCM), Gynura bicolor is considered to have a cool nature and a sweet taste, with the ability to clear heat, detoxify, cool the blood, and stop bleeding<sup>[7]</sup>. It is commonly used to treat symptoms such as sore throat, heat-induced ulcers, and coughing up blood. Modern pharmacological studies further confirm its potential in anti-tumor and antiviral applications.

#### **3.2 Nutritional Value**

Gynura bicolor is rich in vitamins A, C, E, as well as various minerals such as calcium, iron, and zinc. Its medicinal value primarily lies in its ability to clear heat, detoxify, promote blood circulation, dispel blood stasis, reduce swelling, and relieve pain<sup>[8]</sup>. Research has shown that Gynura bicolor also has auxiliary therapeutic effects for respiratory diseases such as bronchitis and pneumonia. Furthermore, the flavonoid compounds in Gynura bicolor exhibit significant antioxidant activity.

#### **3.3 Ecological Value**

The application of Gynura bicolor in landscape architecture significantly enhances biodiversity and ecosystem services. As a plant with both edible and medicinal properties, it not only provides aesthetic landscape effects but also improves soil quality, increases air humidity, and creates a favorable ecological environment for the growth of other plants. Additionally, Gynura bicolor can absorb airborne pollutants and release oxygen, improving the surrounding air quality. In urban green spaces, planting Gynura bicolor can attract insects and birds, thus enhancing the vitality of the ecosystem. According to relevant studies, the diversified planting of plants can reduce the PM2.5 concentration in urban areas by 15%-30%.

#### **3.4 Application and Development Prospects**

With the increasing research into the medicinal value of Gynura bicolor, its application prospects in the pharmaceutical, health supplement, and cosmetic industries are expanding. Oral formulations, such as tablets and capsules, can be developed from Gynura bicolor extracts for the auxiliary treatment of related diseases. Additionally, extracts from Gynura bicolor can be used as natural antioxidants and anti-inflammatory agents in skincare products to improve skin conditions. In the cosmetic industry, its distinctive purple pigment can also be utilized as a natural colorant, adding a natural hue to products.

# **3.5 Promotion of Cultivation and Market Outlook**

Given the multiple values of Gynura bicolor, promoting its cultivation has significant economic and social benefits. In suitable regions, cultivation bases for Gynura bicolor can be scientific cultivation established using techniques to improve yield and quality. By collaborating with pharmaceutical, health supplement, and cosmetic companies, the cultivation of Gynura bicolor can be integrated with product development to form an industry chain, promoting local economic development. With the growing focus on health and natural products, the market prospects for Gynura bicolor are very promising.

## 4. Commercial Market Analysis and Construction

#### 4.1 Market Analysis

According to data provided by Qichacha, as of the end of October 2023, the number of enterprises related to milk tea and tea beverages in China has reached an astonishing 400,000. These businesses are mainly concentrated in provinces such as Guangdong, Jiangsu, Guangxi, and Hunan. In the first three quarters of 2023, the registration of milk tea and tea-related companies increased by 4.76%, with a total of 53,000 new businesses. Meanwhile, the market for health-focused tea beverages also showed significant growth, particularly in Guangdong and Shandong. In Guangdong Province, the number of health beverage enterprises registered in the first three quarters of 2023 was 2.25 times that of the same period last year. In this market context, Gynura bicolor-based beverages, as an emerging product in a niche market, exhibit and tremendous market potential broad development prospects<sup>[9]</sup>.

#### 4.2 SWOT Analysis

(1) Strengths: Gynura bicolor beverages integrate the essence of traditional Chinese medicine, with a rich cultural heritage that easily resonates with consumers. Additionally, the unique health benefits of Gynura bicolor beverages align well with modern consumers' pursuit of healthy lifestyles. Currently, there are few products on the market similar to Gynura bicolor beverages, which provides a strong competitive edge through differentiation.

(2) Weaknesses: Compared to well-established brands, Gynura bicolor beverages have relatively low market awareness, which may pose challenges for market promotion. Furthermore, the difficulty in standardizing production could affect the stability of product quality. Building consumer trust in a new brand is also a challenge that Gynura bicolor beverages must overcome during the market promotion process.

(3) Opportunities: With the increasing policy support from the government for the TCM beverage market, especially under the "Healthy China" initiative, the market space for Gynura bicolor beverages is expected to expand further. By leveraging online marketing channels and social media to increase brand exposure, consumer awareness of Gynura bicolor beverages can be boosted, thereby driving market share growth.

(4) Challenges: As market competition intensifies, Gynura bicolor beverages will need to strengthen their brand promotion to avoid being squeezed out by other beverage brands. Additionally, changes in consumer preferences and the continuous emergence of new products may affect the market share of Gynura bicolor beverages<sup>[10]</sup>.

#### 4.3 Business Model Construction

To ensure the success of Gynura bicolor beverages in the market, this study proposes a series of business model strategies aimed at enhancing product competitiveness and consumer appeal through innovation and diversification. The following are specific strategic recommendations:

(1) Product Innovation Strategy: Given the unique nutritional value and health benefits of Gynura bicolor, we recommend developing a range of innovative beverages to meet the needs of different consumer groups. This includes, but is not limited to, Gynura bicolor milk tea, health juices, and refreshing drinks. A diversified product line will help attract a broader consumer base, particularly younger people, thereby effectively expanding market share. Additionally, product innovation can be achieved through the continuous introduction of new flavors and packaging, keeping the brand vibrant and appealing.

(2) Online-Offline Integration Sales Strategy: To

broaden sales channels and reach a wider consumer base, we recommend adopting a combined sales model that integrates online e-commerce platforms and offline physical stores. Through online platforms, consumers can conveniently purchase and make reservations, while offline stores offer opportunities for in-person experiences and immediate consumption. Meanwhile, leveraging social media for market promotion can attract the attention of younger consumers more precisely and enhance brand awareness through interactive marketing campaigns. The integration of online and offline channels will allow for a more comprehensive coverage of different consumer groups, boosting sales performance and market share.

(3) Brand Alliance Strategy: To enhance brand market penetration, influence and we recommend forming strategic partnerships with other health food brands to jointly develop co-branded products. For example, collaborations with well-known tea beverage brands could be undertaken to conduct joint campaigns, attracting marketing more consumers. Through brand alliances, we can leverage the brand effect and market resources of partners to increase the market recognition and consumer trust of Gynura bicolor beverages. Additionally, brand alliances can help share sales channels and marketing resources, reducing marketing costs and improving overall market competitiveness.

### 5. Brand Image and Cultural Communication

### 5.1 Brand Building

In the process of brand construction, it is essential to highlight the natural and healthy attributes of Gynura bicolor. Through meticulously designed packaging and marketing strategies, the core concept of "medicinal and edible plants" should be emphasized to enhance brand recognition and market influence. Simultaneously, by incorporating eco-friendly materials, the brand can project a sustainable development image, appealing to consumer groups highly concerned with environmental issues.

# 5.2 Cultural and Creative Product Development

Leveraging the rich cultural connotations of Gynura bicolor, a series of cultural and creative

products can be developed, such as handicrafts themed around Chinese medicinal herbs, health teas, and nutritious snacks. By utilizing both online and offline channels, the growing, diverse demand for health products can be met. Additionally, the introduction of books and manuals related to Gynura bicolor's health benefits can help promote a healthy eating culture.

#### 5.3 Education and Popular Science Communication

Educational and popular science activities related to medicinal and edible plants should be launched to raise public awareness of Gynura bicolor and enhance its cultural value. Various forms of events, such as lectures and hands-on activities, can promote greater understanding and acceptance of Gynura bicolor beverages. Collaborations with educational institutions and community organizations to hold relevant health knowledge seminars and practical sessions can further spread the concept of "medicinal and edible plants."

#### 6. Conclusion and Outlook

Plants that serve both medicinal and dietary purposes, such as Gynura bicolor, demonstrate significant potential for application in landscape architecture. By integrating ecological design principles with business operation models, the economic value of the plant can be effectively enhanced, while enriching the cultural depth of gardens. For future research directions, further academic exploration of medicinal and edible plants is recommended, alongside fostering their innovative application in landscape architecture achieve synergistic benefits for to both environmental protection ecological and economic development. With the growing public awareness of health and the widespread promotion of traditional Chinese medicine culture, the market prospects for Gynura bicolor are expected to expand. By establishing a mature business model and creating a unique brand image, Gynura bicolor is poised to capture a significant market share in the medicinal and edible plant market. It is anticipated that the widespread use of Gynura bicolor in landscape architecture will provide the public with a healthier and higher-quality living experience.

#### **Funding Projects**

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Guangdong Polytechnic University 2024 Annual "Quality Engineering" Course Assessment Reform Project "Urban and Rural Green Space System Planning" (KCKHGG202421);

Guangdong Polytechnic University 2024 Annual "Textbook Construction" Project "Urban and Rural Green Space System Planning and Design" (JCJS2024067).

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