

Ecological Cultivation of Chinese Medicinal Materials Under Forest: Status, Challenges, and Future Directions

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Abstract: This paper provides an overview of the status and prospects of ecological cultivation of Chinese medicinal materials under forest, highlighting the advantages, challenges, and development countermeasures. It discusses the research progress in planting and application of traditional Chinese medicinal materials, as well as the planting technology and industrial development trend of underforest Chinese medicinal materials. The paper also explores the compound planting mode of understory traditional Chinese medicine and the advantages and countermeasures of the development of underforest Chinese herbal medicine planting industry. Overall, the study offers valuable insights into the ecological cultivation of Chinese medicinal materials under forest and its potential for sustainable development.

Keywords: Ecological cultivation, Chinese medicinal materials, forest, planting technology, industrial development

1. Introduction

1.1 Background and Significance of Ecological Cultivation of Chinese Medicinal Materials Under Forest

The ecological cultivation of Chinese medicinal materials under forest has emerged as a sustainable and environmentally friendly approach to cultivating medicinal plants. This method of cultivation is gaining significant attention due to its potential to preserve the genetic integrity and ecological balance of medicinal plants, while also promoting the sustainable use of medicinal resources. The forest environment provides a natural habitat for the growth of medicinal plants, offering rich soil, adequate moisture, and shade, which are essential for the quality and efficacy of medicinal herbs.

1.2 Objectives and Scope of the Study

The objective of this study is to comprehensively analyze the current status,

advantages, challenges, and future directions of ecological cultivation of Chinese medicinal materials under forest. The study aims to provide a detailed overview of the research findings and insights in this field, highlighting the key factors that contribute to the success and sustainability of this cultivation method. The scope of the study includes a thorough review of the relevant literature, including scientific articles, research papers, and reports, focusing on the ecological cultivation of Chinese medicinal materials under forest.

1.3. Structure of the Paper

This paper is organized into four chapters. Chapter II provides an in-depth analysis of the current status and advantages of ecological cultivation of Chinese medicinal materials under forest. Chapter III discusses the challenges and development countermeasures of ecological cultivation under forest. Chapter

IV explores the future directions and research needs in ecological cultivation of Chinese medicinal materials under forest. The paper concludes with a summary of the key findings and recommendations for future research and practice.

2. Current Status and Advantages of Ecological Cultivation of Chinese Medicinal Materials Under Forest

2.1 Overview of Current Practices

Ecological cultivation of Chinese medicinal materials under forest has become increasingly prevalent in recent years. Many regions in China have ecological cultivation practices, promoting the sustainable use of medicinal resources. The cultivation of medicinal plants under forest provides a natural habitat for the plants, allowing implementation them to grow in a manner that closely resembles their natural environment. This approach helps maintain the genetic diversity and ecological integrity of the medicinal plants.

2.2. Advantages of Ecological Cultivation

Ecological cultivation under forest offers several advantages over conventional cultivation methods. Firstly, it provides a favorable habitat for the growth of medicinal plants, with its rich soil, adequate moisture, and shade. This environment is essential for the quality and efficacy of medicinal herbs. Secondly, ecological cultivation helps maintain the genetic diversity and ecological integrity of the medicinal plants. By growing them in their natural habitats, farmers can preserve the unique characteristics and medicinal properties of the plants. Thirdly, ecological cultivation promotes the sustainable use of medicinal resources. By minimizing the use of chemical inputs and enhancing the natural resilience of the plants, ecological cultivation helps preserve the medicinal plants for future generations.

2.3 Economic and Social Benefits

Ecological cultivation under forest not only provides environmental benefits but also offers economic and social benefits. Firstly, ecological cultivation under forest can create economic opportunities for farmers. By cultivating medicinal plants under forest, farmers can diversify their income sources and improve their livelihoods. Secondly, ecological cultivation under forest can contribute to the conservation of biodiversity. The forest environment provides a habitat for a variety of plant and animal species, promoting the conservation of biodiversity. Thirdly, ecological cultivation under forest can enhance the social well-being of communities. By engaging in ecological cultivation, farmers can participate in sustainable resource management and contribute to the well-being of their communities.

3. Technological Advances and Innovations in Ecological Cultivation of Chinese Medicinal Materials Under Forest

3.1 Overview of Technological Advances

Technological advances and innovations have significantly contributed to the success and sustainability of ecological cultivation of Chinese medicinal materials under forest. These advances include the development of new planting techniques, the implementation of integrated pest management, and the use of advanced monitoring and data collection methods.

3.2 New Planting Techniques

New planting techniques have been developed to optimize the growth and productivity of medicinal plants under forest. These techniques include the use of raised beds, intercropping, and the implementation of watering and drainage systems. These methods help improve soil fertility, enhance water retention, and promote the growth of medicinal

plants.

3.3 Integrated Pest Management

Integrated pest management (IPM) has been widely implemented in ecological cultivation of Chinese medicinal materials under forest. IPM involves the use of a combination of biological, cultural, and chemical control methods to manage pests and diseases. This approach helps minimize the use of chemical pesticides, reducing environmental pollution and promoting the sustainable use of medicinal resources.

3.4 Advanced Monitoring and Data Collection Methods

Advanced monitoring and data collection methods have been developed to support the ecological cultivation of Chinese medicinal materials under forest. These methods include the use of remote sensing, Geographic Information Systems (GIS), and the implementation of smart farming technologies. These technologies enable farmers to monitor the growth and health of medicinal plants, as well as the surrounding forest environment. By collecting and analyzing data on soil moisture, nutrient levels, and pest and disease prevalence, farmers can make informed decisions regarding irrigation, fertilization, and pest control. This data-driven approach helps optimize resource allocation and improve the overall productivity and sustainability of ecological cultivation.

4. Challenges and Development Countermeasures of Ecological Cultivation of Chinese Medicinal Materials Under Forest

4.1 Challenges in Ecological Cultivation

Despite the numerous advantages and technological advancements, ecological cultivation of Chinese medicinal materials under forest still faces several challenges.

These challenges include the lack of standardized cultivation practices, the need for skilled labor, and the limited availability of high-quality medicinal plant seeds and seedlings. Additionally, ecological cultivation under forest requires a significant investment of time and resources, and the returns on investment may be delayed.

4.2 Development Countermeasures and Strategies

To address these challenges, several development countermeasures and strategies can be implemented. Firstly, the establishment of standardized cultivation practices and guidelines can help ensure the uniformity and quality of ecological cultivation under forest. This can be achieved through collaboration between farmers, researchers, and government agencies. Secondly, the training and education of farmers in ecological cultivation techniques can help overcome the lack of skilled labor. This can be facilitated through the development of training programs and extension services. Thirdly, the development of seed banks and seedling nurseries can help ensure the availability of high-quality medicinal plant seeds and seedlings. Additionally, the promotion of public-private partnerships and the provision of financial incentives can help overcome the barriers associated with the initial investment and delayed returns on investment.

5. Conclusion

This chapter has provided an in-depth analysis of the current status, advantages, challenges, and future directions of ecological cultivation of Chinese medicinal materials under forest. It has highlighted the importance of ecological cultivation in preserving the genetic integrity and ecological balance of medicinal plants, while also promoting the

sustainable use of medicinal resources. The chapter has also discussed the technological advances and innovations that have contributed to the success and sustainability of ecological cultivation under forest. Furthermore, it has identified the challenges and development countermeasures that need to be addressed to further promote ecological cultivation under forest. Overall, the chapter has emphasized the need for further research and collaboration to fully harness the potential of ecological cultivation under forest for the sustainable development of the medicinal plant industry.

References

- [1] Li Junyi. Status and prospect of ecological cultivation of Chinese medicinal materials under the forest [J]. Seed Technology, 2023,41 (20): 135-137.
- [2] Fu Kang. Advantages and development countermeasures of underforest Chinese medicinal materials [J]. Hebei Agricultural Machinery, 2023 (22): 94-96.
- [3] Li Zhimin. On the cultivation of Chinese medicinal herbs under the forest [J]. Southern Agriculture, 2018,12 (12): 83,85.
- [4] Tian Fengming, She Ruining, Chen Bowei, et al. Research progress in planting and application of traditional Chinese medicinal materials [J]. Wild Plant Resources in China, 2022,41 (6): 64-71.
- [5] Tian fragrance. Research on the planting technology and industrial development trend of underforest Chinese medicinal materials [J]. New Agriculture, 2023 (10): 41-43.
- [6] Lin Shiping. Discussion on the compound planting mode of understory traditional Chinese medicine [J]. Guangdong Silkulture, 2021,55 (5): 25-26.
- [7] Liu Xianfeng. Advantages and countermeasures of the development of underforest Chinese herbal medicine planting industry in Wudang District [J]. Agricultural Technology Service, 2023,40 (9): 84-87.
- [8] Sun Xingxu. Analysis and prospect of the ecological planting of Chinese medicinal materials under forest [J]. New Agriculture, 2022 (18): 35-36.
- [9] Liang CAI, Cen Guoxin. Research on the compound planting mode of understory Chinese medicinal materials [J]. Rural Science Experiment, 2021 (31): 94-96.
- [10] Li Yuxin. Research on the problems and countermeasures of underforest Chinese medicinal materials [J]. Agricultural Technology and Equipment, 2020 (11): 175-176.
- [11] Chai Xin, Gao Xuxia, He Shu, et al. ——— Take the analysis of gastrodia elata industry in Yiliang County of Zhaotong as an individual case [J]. Jiangxi Agriculture, 2023 (14): 117-119.

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