

**ANALYSIS OF THE ECONOMIC INDICATORS OF THE MEDICINAL PLANT RESOURCE BASE AND PROCESSING ACTIVITIES IN UZBEKISTAN**

**Usmonov Mirg‘ulom Xoshim og‘li**

Tashkent State University of Economics

PhD Associate Professor, Department of Industrial Economics

**Abstract.** This study examines the current state, development trends, and economic, social, and ecological significance of medicinal plant cultivation and processing in Uzbekistan. The country possesses rich natural flora, with hundreds of medicinal and aromatic plant species widely used in healthcare, pharmaceuticals, cosmetics, and food industries. The research analyzes the raw material base of medicinal plants, their role in public health improvement, employment generation, and export development. Special attention is given to processing efficiency, value addition, and the importance of standardization and quality control in enhancing competitiveness in international markets. The study also highlights existing challenges, including limited processing capacity and unequal distribution of added value, while emphasizing the need for investment in research, modern technologies, and market expansion. The findings confirm that the intensive development of medicinal plant cultivation and processing can significantly contribute to sustainable economic growth, environmental protection, and the strengthening of Uzbekistan’s agricultural and pharmaceutical sectors.

**Keywords.** medicinal plants, processing efficiency, pharmaceutical industry, economic development, Uzbekistan, export potential.

**Introduction.** Uzbekistan is one of the regions rich in natural resources and flora, where hundreds of medicinal and aromatic plants grow naturally. These plants are widely used not only in traditional medicine but also in the pharmaceutical, cosmetic, food, and fragrance industries. Medicinal plants play a crucial role in strengthening human health, preventing diseases, supporting the immune system, and treating various ailments. Therefore, establishing an effective system for collecting, cultivating, storing, and processing these plants is important both for the country’s economy and for public health.

Uzbekistan has undertaken comprehensive efforts to develop the cultivation of medicinal plants and expand their raw material base. Large plantations are being established to meet the demands of the pharmaceutical industry, supply essential medicines to the domestic market, and enhance export potential. At the same time, the number of farmers and entrepreneurs engaged in the collection of wild medicinal plants is increasing, contributing to employment and additional income sources for the population. The economic value of medicinal plants is not limited to their sale as raw materials; it is also realized through processing. They serve as primary raw materials for pharmaceutical products, teas, vitamin complexes, essential oils, and cosmetic products. Therefore, the integrated processing of medicinal plants, production of high-quality raw materials, standardization, and preparation for export significantly contribute to the national economy.

Cultivating and processing medicinal plants has ecological importance. The creation of managed plantations enables sustainable use of natural resources, protection of plant species, and preservation of biodiversity. This supports ecological balance and environmental conservation. Analyses in this field help to determine the economic potential of medicinal plants, production volumes, processing levels, and export opportunities. They also allow for the assessment of their role in domestic and international markets, profitability, and contribution to the country’s economy.

This study examines Uzbekistan’s medicinal plant raw material base, opportunities for cultivation and processing, and analyzes relevant economic indicators. Based on this analysis, the development prospects of the medicinal plant industry and its role in the national economy are clarified.

**Analysis of Literature on the Topic.** The cultivation, processing, and economic significance of medicinal plants have been widely studied by researchers across the fields of agriculture, pharmacology, economics, and environmental sciences. Existing literature emphasizes that medicinal plants represent an important link between traditional knowledge and modern healthcare systems, particularly in countries with rich natural biodiversity. Scholars note that plant-based medicines remain a vital source of therapeutic substances, as a significant share of modern pharmaceuticals is derived directly or indirectly from botanical raw materials.

Numerous studies highlight the growing global demand for natural and plant-based medicinal products, driven by increasing awareness of preventive healthcare, side effects of synthetic drugs, and the popularity of alternative and complementary medicine. According to the literature, developing countries with favorable climatic conditions and diverse flora possess strong competitive advantages in medicinal plant production. Researchers stress that effective organization of cultivation and sustainable harvesting practices is essential to ensure long-term resource availability and ecological balance.

Economic analyses in the literature focus on the value chain of medicinal plants, from raw material collection to final product processing. Many authors argue that exporting unprocessed or minimally processed plant materials limits income generation for producers and reduces national economic benefits. Instead, integrated processing, standardization, and certification are identified as key factors for increasing added value and strengthening market competitiveness. Studies also indicate that inadequate processing infrastructure and limited access to modern technologies remain major constraints in many regions.

The role of medicinal plants in rural development is another widely discussed topic. Research findings show that cultivation and collection activities provide employment opportunities, especially in rural and mountainous areas, contributing to income diversification and poverty reduction. Literature also points out that small-scale producers often receive a disproportionately low share of final product value due to weak market access, limited bargaining power, and insufficient knowledge of quality requirements. From a healthcare perspective, scientific publications emphasize that although traditional medicine relies on a large number of plant species, only a limited proportion has been formally integrated into evidence-based medical practice. Researchers caution against the uncontrolled harvesting and domestic preparation of medicinal plants, noting risks related to misidentification, toxicity, and improper dosage. This has led to increased attention in the literature to quality control, safety standards, and regulatory frameworks governing medicinal plant use.

**Research Methodology.** This study employs a комплекс and systematic research methodology aimed at analyzing the current state, efficiency, and development prospects of medicinal plant cultivation and processing in Uzbekistan. The methodological framework is based on the integration of qualitative and quantitative research approaches, allowing for a comprehensive assessment of economic, social, and ecological aspects of the sector.

**Analysis and results.** In the current era, with the increasing prevalence of various diseases worldwide, improving the efficiency of medicinal plant production and processing has become increasingly important and remains one of the major global challenges. Addressing these issues is closely linked to creating stability and prosperity within countries.

Although the systematic production of medicinal plants and their provision to the population as natural remedies has received considerable attention in the economy, challenges related to human health continue to be a topic of discussion and concern. In Uzbekistan, the most commonly found

medicinal plants include pomegranate, bitter almond, almond, medicinal marigold, walnut, jag-jag, zubtutum, isiriq, itsigek, omonqora, pistachio, sachratqi, choyo't, shildirbosh, sweet almond, shuvoq, yantoq, red beet, qoqio't, and many others. From these plants, various active compounds are extracted for medicinal purposes. For example, paxikarnin is obtained from bitter almond, garmin from isiriq, anabasin from itsigek, galantamine from omonqora, and sferofizin alkaloids from shildirbosh. Pomegranate peel is used to prepare anti-parasitic and extract-based remedies. Preparations from medicinal marigold act as expectorants and softening agents, while jag-jag and lagoxilus are used to stop bleeding. Pistachio and choyo't-based remedies are traditionally used to treat digestive system disorders.

Out of the numerous plants used in folk medicine, only about 100 species have been incorporated into formal scientific medicine. When examining plants used in traditional medicine, it becomes evident that only some possess genuinely therapeutic properties. People often harvest medicinal plants and prepare remedies at home; however, this practice can be risky. Preparing medicine without proper knowledge of the plant may lead to adverse effects, especially because some toxic plants closely resemble medicinal species in appearance.

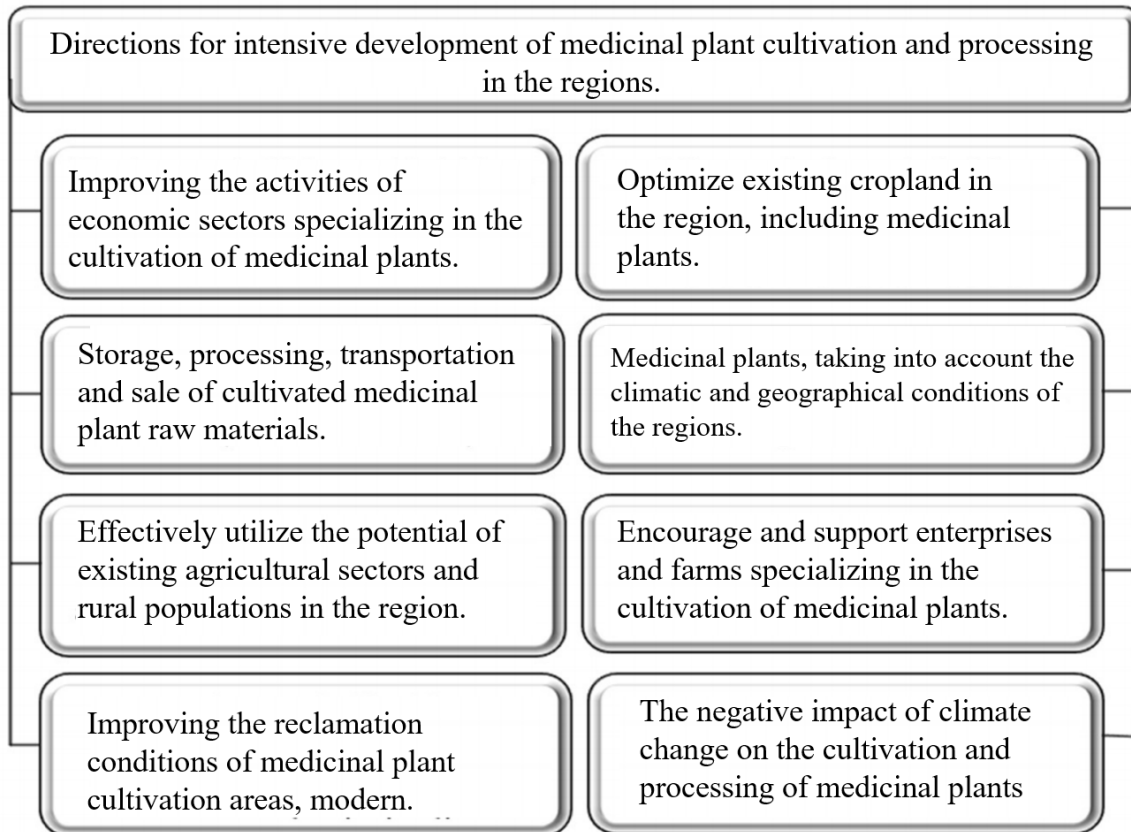
Before collecting medicinal plants, it is essential to understand their botanical characteristics and the proper time for harvesting to ensure safe and effective use.

Currently, more than one-third of over 900 medicines used in modern healthcare are derived from medicinal plants. For example, 77% of drugs used to treat heart diseases, 74% of those for liver and gastrointestinal disorders, and 80% of medications for uterine conditions are prepared from therapeutic plants.

Medicinal infusions and herbal teas consist of a mixture of coarsely ground parts of several plants, specifically intended to treat certain ailments. These infusions are generally not strictly dosed, meaning they are consumed in approximate amounts rather than precise measurements. Because of this, they are usually not made from highly toxic or potent plants.

In Tashkent, chemical and pharmaceutical factories produce a variety of medicines from both wild and cultivated medicinal plants found in Uzbekistan. For instance, the roots and fruits of white willow are used to treat digestive disorders. In addition to traditional medicines long used in patient care, modern phytopreparations are also produced from medicinal plants for therapeutic purposes. At present, large-scale state support measures are being implemented in Uzbekistan to ensure the effective organization of medicinal plant cultivation and processing processes. Currently, 4,230 plant species are distributed across the territory of the Republic, representing 138 families and 1,028 genera. Among these, 577 species are classified as medicinal plants. A number of state programs have been developed to increase the export potential of medicinal plants, improve productivity indicators, and stimulate and develop different categories of enterprises operating in this sector.

The collection and sale of medicinal plants cultivated in rural areas provide an additional source of income for the rural population. However, despite the fact that processed medicinal products can have very high added value in their final form, producers usually receive only a small share of this value. This is mainly due to their inability to supply products to the market in the forms demanded by buyers. In recent years, the cultivation and processing of medicinal plants in Uzbekistan have achieved significant progress due to both internal efforts and growing global demand for natural health products. Through the use of improved seed varieties, sustainable farming practices, and modern processing technologies, Uzbekistan is gradually becoming an important participant in the global medicinal plant market. Nevertheless, to fully realize the sector's potential, additional investments are required in research, quality control, and market expansion. Addressing these challenges will allow Uzbekistan to continue developing the medicinal plant industry and strengthen its contribution to the agricultural and pharmaceutical sectors.



**1-figure. Directions for intensive development of medicinal plant cultivation and processing in the regions.**

Medicinal plants are among the most essential products for improving human health and cannot be replaced by other alternatives. In Uzbekistan, improving public health and ensuring the continuous supply of the population with natural medicines is regarded as a priority task. In this regard, special attention has been paid in recent years to expanding the cultivation of medicinal plants on both rain-fed and irrigated lands in order to use land and water resources more efficiently. The primary objectives of increasing medicinal plant cultivation include the rational use of existing land and water resources, strengthening public health through natural remedies, ensuring access to safe and natural medicinal products, expanding export volumes, organizing the optimal placement of medicinal crops, and ensuring the economic and financial stability of producers.

*2-table.*

***Economic and Social Importance of Medicinal Plants in Uzbekistan***

Aspect	Description
Role in Healthcare	Prevention of diseases, strengthening of the immune system, and treatment of various illnesses
Economic Importance	Raw materials for the pharmaceutical, cosmetic, food, and perfumery industries
Social Impact	Employment opportunities for rural populations and an additional source of income
Export Potential	Creation of high value-added products through processing

One of the key challenges in the medicinal plant industry is maintaining consistency in product quality and therapeutic effectiveness. To address this issue, standardization protocols regulating the processing and packaging of medicinal plant products have been introduced in Uzbekistan. These standards are aligned with international pharmaceutical requirements and enhance the competitiveness of Uzbek products in global markets. Given the growing global demand for plant-based and natural medicines, Uzbekistan has significant opportunities to expand its export markets. Achieving this goal requires not only compliance with international standards but also the development of effective marketing strategies to promote Uzbek medicinal plant products abroad.

**Conclusion.** Uzbekistan possesses a rich diversity of medicinal and aromatic plants, which play a vital role in public health, the pharmaceutical industry, and the broader economy. The country has made significant strides in developing both the cultivation and processing of these plants, establishing large plantations, modern processing facilities, and supportive state programs. These efforts not only contribute to the production of high quality raw materials for pharmaceuticals, teas, essential oils, and cosmetics but also generate employment and additional income for rural populations.

The ecological significance of medicinal plant cultivation is also notable, as managed plantations promote sustainable resource use, protect plant species, and preserve biodiversity. Furthermore, medicinal plants in Uzbekistan provide essential raw materials for a large proportion of modern medicines, emphasizing their therapeutic and economic importance. Despite the progress, challenges remain, including ensuring consistent product quality, expanding export markets, and securing adequate investment in research, quality control, and marketing. Addressing these challenges will strengthen Uzbekistan's position in the global medicinal plant market and enhance the sector's contribution to national health, economy, and sustainable development. The strategic development of medicinal plant cultivation and processing in Uzbekistan presents a unique opportunity to improve public health, generate economic growth, and foster ecological sustainability. With continued investment, standardization, and market expansion, the medicinal plant industry is poised to become a cornerstone of the country's agricultural and pharmaceutical sectors.

#### References:

1. Abdurakhmonov, I. Y., & Abdukarimov, A. (2015). Medicinal plants of Uzbekistan: Biodiversity, cultivation, and uses. *Journal of Medicinal Plants Research*, 9(12), 341–353. <https://doi.org/10.5897/JMPR2015.5654>
2. Akramov, D., & Khamidov, A. (2021). Economic potential of medicinal plant cultivation in Uzbekistan. *Central Asian Journal of Agricultural Economics*, 4(2), 45–58.
3. Khodjaev, A., & Rakhmonov, B. (2019). Phytochemistry and pharmacological potential of native medicinal plants in Uzbekistan. *Pharmacognosy Reviews*, 13(25), 78–89.
4. Ministry of Health of the Republic of Uzbekistan. (2023). National program on medicinal plant development. Tashkent: Government Publication.
5. Mirzaev, T., & Yusupov, F. (2020). Sustainable harvesting and processing of medicinal plants in Uzbekistan. *International Journal of Plant Sciences*, 11(3), 122–136.
6. Palash, S., et al. (2021). Challenges and opportunities in the medicinal plant industry: Global perspectives. *Journal of Herbal Medicine*, 28, 100456. <https://doi.org/10.1016/j.hermed.2021.100456>
7. Sun, Y., & Shahrajabian, M. H. (2023). The role of medicinal plants in human health and economic development. *Journal of Medicinal Plant Research*, 17(1), 12–25.
8. Wu, L., et al. (2025). Global trends in medicinal plant cultivation and industrial applications. *Frontiers in Pharmacology*, 16, 114872. <https://doi.org/10.3389/fphar.2025.114872>
9. Ziyadov, R., & Tashpulatov, K. (2022). Processing, standardization, and export of medicinal plants in Uzbekistan. *Uzbek Journal of Biotechnology*, 10(4), 65–80.