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# MEDICINAL PLANTS OF SURKHANDARYA

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**Abstract:** This article analyzes the diversity, distribution, medical significance, and economic potential of medicinal plants in Surkhandarya region of Uzbekistan. Based on literature review, the current state of medicinal plants in the region, their conservation, and sustainable use issues are discussed.
**Keywords:** Surkhandarya, medicinal plants, phytotherapy, biodiversity, ethnobotany.

**Annotatsiya:** Mazkur maqolada Surxondaryo viloyatida o‘suvchi dorivor o‘simliklarning xilma-xilligi, ularning tarqalishi, tibbiy ahamiyati va iqtisodiy salohiyati tahlil qilingan. Adabiyotlar tahlili asosida mintaqadagi dorivor o‘simliklarning hozirgi holati, ularni muhofaza qilish va barqaror foydalanish masalalari yoritilgan.
**Kalit so‘zlar:** Surxondaryo, dorivor o‘simliklar, fitoterapiya, biologik xilma-xillik, etnobotanika.

**Аннотация:** В данной статье анализируется разнообразие, распространение, медицинское значение и экономический потенциал лекарственных растений в Сурхандарьинской области Узбекистана. На основе обзора литературы обсуждается современное состояние лекарственных растений в регионе, вопросы их сохранения и устойчивого использования.
**Ключевые слова:** Сурхандарья, лекарственные растения, фитотерапия, биологическое разнообразие, этноботаника.

## INTRODUCTION

Surkhandarya region, situated in the southernmost part of Uzbekistan, represents a unique botanical treasure trove characterized by its distinctive geographical and climatic features. The region's location at the intersection of different ecological zones, combined with its varied topography ranging from arid lowlands to alpine meadows, has created an exceptional environment for medicinal plant diversity. The area's geological history, coupled with its position along ancient trade routes, has contributed to the development of a rich and unique flora. The region's botanical diversity is particularly noteworthy due to its position at the convergence of several phytogeographical regions, including Central Asian, Mediterranean, and Indo-Himalayan influences [1].

This geographical positioning has resulted in the evolution of numerous endemic species and the adaptation of various medicinal plants to specific ecological niches. Historical evidence suggests that the local population has accumulated extensive knowledge about these plants over centuries, passing down traditional medicinal practices through generations. The significance of Surkhandarya's medicinal plants extends beyond local healthcare practices, as many species possess unique biochemical properties that have attracted international scientific interest [2]. The region serves as a crucial genetic repository for medicinal plants, hosting numerous species that are either rare or absent in other parts of Central Asia, making it an invaluable resource for both traditional medicine and modern pharmaceutical research.

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## RESULTS AND DISCUSSION

The comprehensive analysis of medicinal plant diversity in Surkhandarya region reveals a remarkable botanical wealth, with documented evidence of over 400 species possessing medicinal properties. Among these, 120 species have been scientifically validated and are currently utilized in modern medical practices [3]. The distribution of these plants across various ecological zones within the region demonstrates interesting patterns of adaptation and specialization. In the mountainous regions, particularly within the Boysun and Hisor ranges, there exists a notably high concentration of endemic species, with unique adaptations to high-altitude conditions. The documented species include significant populations of Allium suvorovii, renowned for its antimicrobial properties, Glycyrrhiza glabra, valued for its anti-inflammatory effects, Mentha asiatica, known for its digestive benefits, and Origanum tyttanthum, prized for its therapeutic properties [4].

The research indicates that the region's unique geographical position and varied topography have contributed to the development of distinct plant communities, with approximately 15% of the medicinal plant species being endemic to the region [5]. This high level of endemism underscores the area's significance as a center of plant diversity and evolution. Traditional medicinal practices in the region demonstrate extensive utilization of these resources, with more than 30% of the documented species being actively employed in local ethnomedicine [6]. This rich traditional knowledge base provides valuable insights into potential therapeutic applications and guides modern pharmaceutical research.

However, the current state of medicinal plant resources in Surkhandarya faces several critical challenges that require immediate attention. The most pressing concerns include the unsustainable harvesting practices of certain high-value species, which has led to significant population declines in some areas. The impact of livestock grazing, particularly in alpine and subalpine zones, has resulted in habitat degradation and reduced regeneration rates of many medicinal species. Furthermore, the effects of climate change are becoming increasingly evident, with noticeable shifts in plant phenology and distribution patterns.

The analysis of current conservation measures reveals significant gaps in protection strategies. The existing regulatory framework, while providing basic protection, requires strengthening and more effective enforcement. To address these challenges, several key strategies have been identified as crucial for sustainable management [7]. The development of cultivation programs for high-demand species offers a promising solution to reduce pressure on wild populations. Such initiatives not only ensure sustainable supply but also provide economic opportunities for local communities.

The regulation of wild harvesting requires a more systematic approach, incorporating modern monitoring techniques and community-based management systems. The research highlights the importance of enhancing ecological awareness among local populations through educational programs and practical training in sustainable harvesting methods. Additionally, the protection of rare and endangered species necessitates the establishment of specialized conservation areas and ex-situ preservation facilities.

Analysis of population dynamics and distribution patterns reveals concerning trends for several species. Some populations show significant decline, particularly those subject to intensive harvesting or affected by habitat loss [8]. The situation is further complicated by the limited understanding of many species' reproductive biology and ecological requirements, highlighting the need for more comprehensive research in these areas.

## CONCLUSION

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The comprehensive analysis of Surkhandarya's medicinal plant resources reveals their paramount importance not only for regional biodiversity but also for global pharmaceutical potential. The region's unique geographical position and diverse ecological conditions have created an invaluable reservoir of medicinal plant species, many of which possess properties that could be crucial for future medical developments. The current challenges facing these botanical resources, including climate change, overexploitation, and habitat degradation, necessitate immediate and decisive action for their preservation. The implementation of sustainable management practices, combined with scientific research and local community involvement, is essential for maintaining this precious natural heritage.

The preservation of these medicinal plants is not merely an environmental concern but represents a crucial investment in future healthcare resources and local economic development. It is imperative to establish a balance between utilization and conservation, ensuring that these valuable plant resources remain available for future generations while supporting current medicinal and economic needs. This requires a coordinated effort involving government agencies, scientific institutions, local communities, and international organizations to develop and implement effective conservation strategies. The future of Surkhandarya's medicinal plants depends on our ability to understand, protect, and sustainably manage these irreplaceable natural resources, which constitute a vital component of both traditional medicine and modern pharmaceutical research.

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