

Examining Ayurvedic Plant Remedies' Socio-Economic Dynamics in the Shivalik Hills, Western Himalayas, India

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Abstract

The socioeconomic dynamics of Ayurvedic plant treatments in the Shivalik Hills, Western Himalayas, India, are examined in this research. It examines the customs and knowledge that the local populations have long held about therapeutic plants and evaluates their financial worth. The study places the significance of Ayurvedic herbal medicine within the larger discourse of climate change, biodiversity protection, and sustainable development in the Himalayan area by a thorough assessment of the literature. In order to chronicle traditional herbal remedies and their potential for commercial gain, a thorough study of forty villages in the Hamirpur area of Himachal Pradesh was conducted using medico-ethno botanical surveys and data gathering techniques. In comparison to regular crops, the findings show how abundant and valuable medicinal plants are economically, indicating large potential for job creation and revenue generating. To guarantee long-term sustainability, awareness-raising and appropriate cultivation techniques are necessary, since there are worries about unsustainable exploitation. The research highlights the economic possibilities of Ayurvedic plant treatments and the significance of biodiversity protection in the area, and also promotes entrepreneurship among local farmers and youngsters.

Keywords: Ayurvedic medicine, Medicinal plants, Socio-economic dynamics, Shivalik Hills, Western Himalayas, Indigenous healthcare.

1. INTRODUCTION

One of the oldest, most elaborate, and most distinctive social norms pertaining to the use of medicinal herbs is found in India. Traditional knowledge is based on thousands of years of clinical study and is the use of herbal plants by ancient people passed down from one generation to the next. Thus, it has undergone extensive testing and verification. Ethno-prescription comprises the study of customs, beliefs, knowledge, and facts from ethnic groups of indigenous and non-indigenous people in order to prevent, mitigate, and cure various illnesses. Considering the poverty and lack of available remedies in many countries and among indigenous populations, it is estimated that between 70 and 80 percent of people globally rely on neighboring restorative plants as their primary source of clinical treatment. WHO, 2022. Old and often not documented in writing, ancestral practitioners have their own system of prescriptions. Traditional prescriptions work well for organizing domestically produced medications to enhance people's health (Negi, 2002). Several scholars from different parts of Himachal Pradesh have documented the ethnobotanical and restorative benefits of different kinds of herbal plants based on information provided by the ethnic people living in the vicinity. It is one of India's Himalayan regions, which is said to have the most biodiversity of any area. The use of Ayurvedic herbal medicine in traditional healthcare methods opens up new research and biodiversity conservation avenues.

2. LITERATURE REVIEW

Chandra, A., et.al., (2021) The Himalayas are most sensitive to climate change, especially high rainfall events that cause soil erosion, landslides, and flash floods, making them an excellent place to study its consequences. The IPCC has often noted the Himalaya's vulnerability. Conserving natural resources, maintaining sustainable agriculture and animal production systems, and maintaining stability for future food security and societal health are essential due to climate change. Mountain people depend on natural ecosystem services, which climate change affects. The Himalayas are rising faster than the world average, reducing glacier area and mass. This chapter examines sustainable development problems, which help explain "the impact of climate change". This review examines Himalayan biodiversity and climate change's impact.

Kulnu, A. S., et.al., (2021) The indigenous Nagaland people of India depend on livestock and agriculture. Piggy farming has improved people's socioeconomic standing. Wokha and Zunheboto districts of Nagaland have several wild fodder plants (WFPs). Women were

heavily involved in backyard piggery raising, according to the poll. 64 WFPs from 33 households were recorded, recognized, and evaluated. WFPs came mostly from woods (31%) and secondary succession fields (23%). Mostly plants (56%) and bushes (26%) were WFPs' habits. The plant components utilized were mostly leaves (36%). Normalized Difference Vegetation Index showed 51.9% and 59.14% thick vegetation and 90% and 87.5% accuracy for Wokha and Zunheboto. Pervasive WFP distribution in a high-vegetation environment gives great potential for indigenous people's sustainability and socioeconomic advancement.

Hussain, S., et.al., (2021) The Indian Himalayan region (IHR) is struggling to provide many ecological services due to climate change. Temperature and precipitation patterns are changing rapidly in the IHR, known for its biodiversity and water supplies. Several studies have shown a considerable decrease in temperature and precipitation throughout geographical and time scales, resulting in lower snow cover, increased glacier melting, changed hydrological regimes, and species distribution and behavior changes. Climate change affects ecosystem services in several ways. Streamflow fluctuations, decreased water availability, and changing water quality influence water resources, an essential ecosystem function. Reduced snow cover and changed precipitation patterns threaten subsistence agriculture and local livelihoods. As animals struggle to adapt to climate change, biodiversity is endangered. These influences have major effects on IHR human well-being. Water shortages influence home, agricultural, and industrial water supplies, causing disputes and socioeconomic disturbances. Community food insecurity may rise with agricultural production and livelihood changes. Forest ecosystem and biodiversity disturbances may affect ecological stability, cultural heritage, and ecotourism. Sustainable water resource management, climate-smart agriculture, ecosystem conservation and restoration, community-based adaptation, and integrated landscape management are needed to solve these concerns. To comprehend climate change implications and make evidence-based decisions, research and monitoring should be improved. This chapter explains how Indian Himalayan ecosystems, which provide ecosystem services, may survive climate change and land use changes.

Dhyani, S. (2021) Despite being a biodiversity and endemism hotspot, the Himalayas' natural habitats are fast declining. Diverse causes endanger Himalayan natural ecosystems, increasing the likelihood of endemic species extinction and ecological collapse. This analysis emphasizes the urgent need for a national and regional strategy and support for IUCN's Red List of Ecosystems (RLE) implementation at the biome and national levels. Natural ecosystems face escalating risks from population growth and different stakeholder interests for subsistence, economic, and strategic requirements. Unsustainable harvesting, development projects, urbanization, commercial tourism, pollution, and climate change are causing unprecedented deforestation and forest degradation. With the recent exception of Nepal, Bhutan, China, India, Myanmar, and Pakistan are fast losing their natural forest cover, ecosystem structure, and services to monoculture agriculture and commercial plantations. Wild life trafficking and transboundary illicit commerce as mega-drivers have destroyed even the most fragile and valuable high-altitude alpine meadows and timberline ecosystems. This analysis discusses multiple loss factors and their major influence on ecological and socioeconomic issues that affect transboundary regions and downstream Asian people beyond Himalayas. It outlines present and rising dangers that suggest many Himalayan ecosystems are in trouble. The Kunming-Montreal Global Biodiversity Framework (GBF) for Goal A and the UN System of Environmental Economic Accounting (SEEA) integrate RLE as a headline indicator for data-driven, evidence-based decision making. Thus, RLE is essential for climate adaption, conservation, conflict resolution, and restoration planning in the area. It is essential to assist governments prioritize strategic steps to stop and reverse Himalayan ecological deterioration.

3. RESEARCH METHODOLOGY

3.1. Study Area

A comprehensive study was undertaken in 40 randomly chosen villages of the six development blocks in Himachal Pradesh's Hamirpur district.

3.2. Methods of Collection of Data

The survey of traditional herb knowledge among the people used a well-designed questionnaire and extensive methodology.



Figure 1:Local Healer Identifies and Gathers Medicinal Herbs.



Figure 2:Locals Drying and Packing Unprocessed Herbal Products.

3.3. Medico - Ethno Botanical (MEB) Survey:

Based on a scientifically devised questionnaire, traditional healers and the local population provided information and statistics on traditional herbal remedies (Figs. 1 and 2), which were then grouped and scientifically recorded in the record. The information they exchanged along with appropriate photos when needed, audio-video recordings of the informants were also made. For this, 229 individuals (both male and female) were questioned across three age groups: 20–40 years old, 40–60 years old, and above 60 years old. A total of 94 persons over 60 years old, 82 individuals in the 40–60 age range, and 53 people in the 20–40 age range were chosen and questioned (Figure 1). The proportion of time that various plant components are used by persons in their herbal medication (Figure 2).

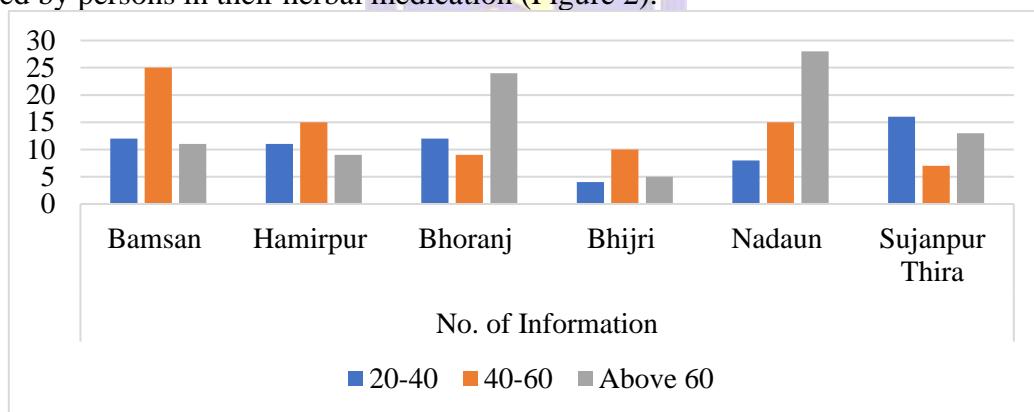


Figure 1:Participants of different age groups were interviewed.

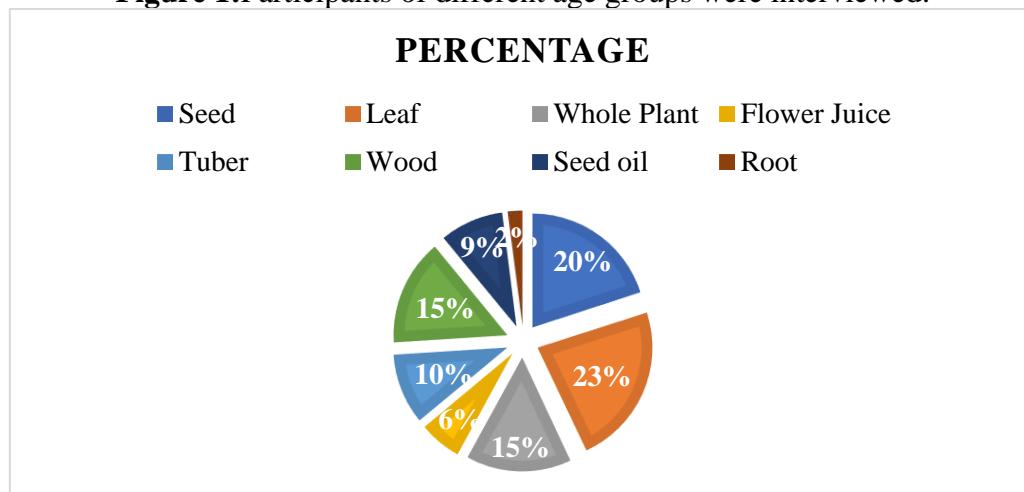


Figure 2:proportion of each plant component that is used to make herbal remedies.

3.4. Collection and Preservation of Plants Specimens:

They recognized in their natural environment the plants and their components (seeds, roots, bark, tubers, leaves, fruits, and flowers) that the local people utilized in herbal medicine. In a Career Point University lab, plant specimens gathered during the MEB study were carefully conserved.

3.5. Identification of Plants Specimens:

With the use of a herbarium repository at Career Point University in Hamirpur, the gathered plant specimens were recognized scientifically. Afterwards, the specimens were treated and maintained in accordance with the guidelines provided by Jain and Rao (1978). Afterwards, it was turned in and placed at the Career Point University-Hamirpur herbarium of the Department of Bio-Sciences.).

4. RESULTS

The following provides details on the plants that were recorded and used by the locals in the research region to make their different traditional herbal remedies:

➤ **Acacia catechu (L.) Wild.**

Common Name: Khair, Khadir, Black Catechu.

Family: Fabaceae.

Flowering Month: May-December.

Longitude: 76°39'40" E;

Latitude: 31°39'59" N.;

Elevation: 894m.

Parts Used in Traditional Medicine: Bark, Heartwood, Katha, flower, Extract (Katha)

Current Market Price: Rs. 300-400/Kg (Katha).

➤ **Acorus calamus L.**

Common Name: Barya, Baryan. Bach.

Family: Araceae.

Flowering Month: April-August.

Longitude: 76°35'21"E;

Latitude: 31°37'47"N.;

Elevation: 845m. Part Used in Tradition Medicine: Rhizome, roots.

Current Market Price: Rs. 45-50/Kg (leaves).

5. DISCUSSION

These herb plants thrive in deserts and wastelands where traditional agricultural plants fail. These plants demand less maintenance than cultivated crops.

This research compares normal crops to wild herbal plants in the study region for economic worth and financial potential. Figure 3 displays farmers' revenue index (Rs./quintal) from normal crops grown on their field. Herbal medicinal plants' commercial worth and economic potential are shown in Figure 4. Some or all parts of these herbal plants are used to cure diseases. The value of therapeutic plants increases because of this.

Nowadays, these individuals cure many ailments for free by linking them with charity and service to God, believing this ancient herbal knowledge is a gift from God. They don't realize these herbs' sales potential. Today, these individuals must be sensitized, informed, and inspired to comprehend its economic potential to better their quality of life and socioeconomic standing by accepting it as an extra source of income and profession. The attitude of these folks must be molded into entrepreneurship. This research emphasizes local farmers and kids using herbs responsibly. The research suggests that folks grow these plants commercially for extra revenue. Daily demand for natural remedies is rising. Each day, people are growing more aware of allopathy's health and negative effects, strengthening their trust in herbal treatment. Awareness, cultivation, marketing, and commercialization of wild plants are needed. Its huge potential may benefit any state or nation's economy. To turn this ancient herbal remedy into a multibillion-dollar enterprise



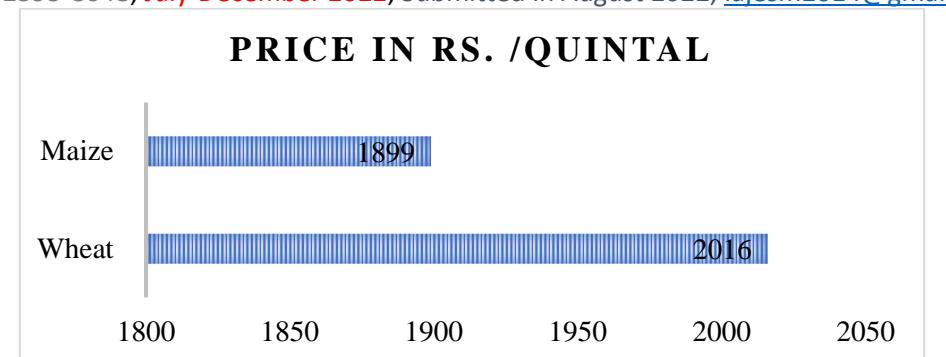


Figure 3:Crop Income Index. Minimum Support Prices (MSP), 2021–2022 (Rs./Quintal);
 (Source: Indian government's Farmers Portal).

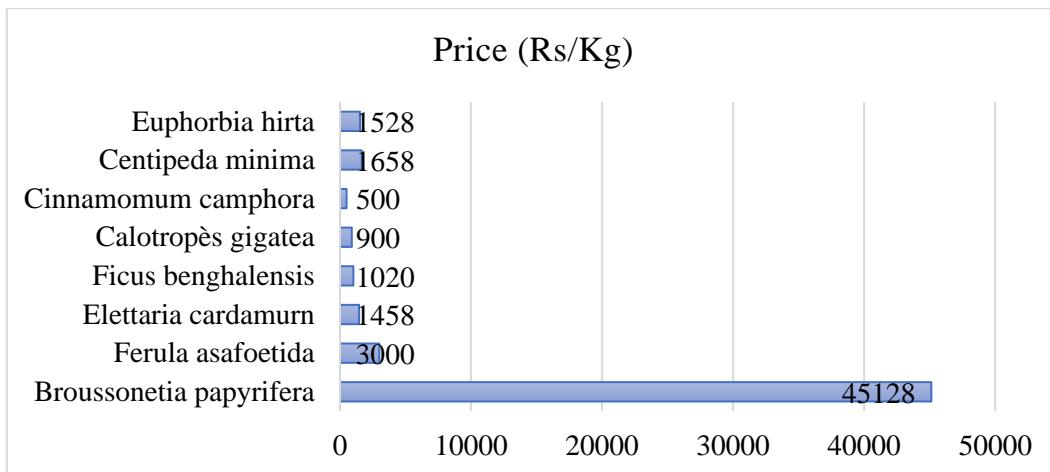


Figure 4. Selling Cost per Kilogram of Medicinal Herbs);

6. CONCLUSION

The Shivalik Hills' Ayurvedic plant medicines' socioeconomic dynamics highlight the intricate relationship that exists between traditional knowledge, sustainability, and commercial viability. In comparison to regular crops, the research shows the enormous economic potential of medicinal plants, indicating chances for local people to diversify their sources of income and improve their standard of living. Sustainable measures are, therefore, desperately needed to guard against overuse and guarantee the long-term availability of these priceless resources. To promote business and socioeconomic development in the area, it is imperative to educate farmers and young people about the economic value of Ayurvedic plant treatments and the relevance of biodiversity protection. Utilizing the abundance of traditional knowledge and resources found in the Himalayas, it is possible to grow the herbal medicine industry into a multibillion-dollar industry that protects the Western Himalayan region's delicate ecosystems while also enhancing local livelihoods and national economic growth.

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