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Management and Application of Medicinal Plants in my Local Community

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Abstract

Man has relied on plants to meet all of his requirements, including those for food, clothing, medicine, flavors and scents, and shelter. Plant materials often have positive therapeutic properties because of a mixture of secondary products.Medicine is derived from the plant in many parts of the world. Indigenous peoples still retain a significant quantity of conventionalinformation regarding the usage of many medicinal plant species that is passed down by words. Most of the allopathic medications currently in use are based on plant-based chemicals, and many others are synthetic counterparts developed from basic compounds identified from plant species. As sources of unique meals and treatments, plants continue to hold people's curiosity. Various tree species' fruit and leaves, both wild and cultivated, are crucial for reducing food insecurity and human health issues, particularly in poor countries. Almost all societies have employed medicinal plants as a source of medicine from the dawn of mankind. For more than half of the population, medicinal plant is suitable, inexpensive, and accessible sources of basic healthcare. The majority of people in developing nations live in rural areas that are regarded to be impoverished and rely on medicinal herbs. An important part of the nutritional makeup is provided by the medicinal plants themselves. It also has the ability to act as an antioxidant and an antibacterial agent in addition to these advantages. Due to factors like human encroachment, rising population, and others, these therapeutic plants are challenged. A large number of stalk holders contribute significantly to managing and conserving the therapeutic plants through various means.

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INTRODUCTION

In addition to shelter, clothing, food, flavours, fragrances, and medicine, plants have provided mankind with everything they need. A sophisticated Traditional Medicine (TM) system has evolved from plants over thousands of years and continues to offer mankind new treatments. Known for their rich and well-defined herbal pharmacopoeias, ancient cultures collect systematic information about herbs. Medicinal and aromatic plants (MAPs) have been attributed therapeutic properties for centuries, many of which have been proven false over the last century. These plants are becoming increasingly popular as raw materials for pharmaceuticals and traditional health care systems [1, 2]. Herbal medicines account for more than 85% of traditional health care systems' revenue [3]. MAP species are, however, becoming scarcer as a result of indiscriminate, overharvesting, and indiscriminate collection from their natural habitats.

Target species must be assessed in terms of their distribution and abundance for Medicinal plants from wild populations can be used sustainably. A misunderstood and poorly understood concept in conservation is sustainability in harvesting wild populations. A description of ecosystem properties and their related benefits to humans. As a general rule, Subsistence farmers, rural's poor, and the traditional societies as well as those most dependent on eco-system service are the most vulnerable to biodiversity loss when it comes to medicinal plants [4]. Preliminary research indicates that the Swat District is home to a number of medicinal and aromatic plants, but they are removed from fields and pastures through the slash and burn method.The same environment also proved to be ideal for a number of other MAP species of more financial values [5]. By cultivating medicinal plants, wild populations can be reduced and uniformity can be maintained. As well as protecting the environment, the approach prevents loss of genetic variation in the wild [6]. We will discuss how medicinal plants can be applied and managed for the local community's livelihood in this paper.

Use of Medicinal Plants

For millennia, Indian forests have been a source of traditional medicines. In India, there are more than 17,000 higher plant species, and 7500 of them are medicinal purposes.Charak Samhita, a text written about 300 BC about herbal therapy, describes the production and indigenous use of 340 herbal drugs. A moderate cost and increasing faith in herbal medicine are driving the use of alternative medicine. Herbal medicines have fewer side-effects than allopathic medicines, which can be used to treat a wide variety of diseases, but are more expensive and have a wider range of side effects [7].

The majority of allopathic medications are synthesized from approved compounds isolated from plants, which constitute approximately 25% of allopathic drugs [8]. It is estimated that 80% of the world's population receives primary health care from traditional medicine [9]. As a result of its unique geography and ecological marginal conditions, the trans-Himalayan region supports only about 337 medicinal plant species, which is a minimal number when comparing with various parts of the Himalaya [10]. Medicinal plants have been heavily exploited across the globe due to a sudden increase in demand for herbal products and plant-based medicines. As a result of habitat degradation, unsustainable harvesting, and overexploitation for the illicit medicinal plant trade, 150 plant species have already disappeared from the wild [11]. Ninety percent of wild plant species are harvested for herbal purposes, and 70 percent of Himalayan medicinal plants are destroyed in destructive harvesting methods. Subalpine and alpine regions are the predominant habitats for these plants [12].

Knowledge of Medicinal Plants

In addition to improving blood circulation, preventing diabetes, and reducing obesity, cancer, and heart disease risks, according to [13] Jeambey et al., fruit from trees can also reduce the risk of heart disease. For most of the population of developing nations, traditional herbs form the basis of their medicinal care system. There are 500 million people living in South Asian countries who use plants as a source of health security [14]. As the population grows and the human population grows, modern medicine is often inadequately provided [14].

Plants and animals have been gathered since time immemorial for human consumption. As well as using Fruits, Nuts, Herbs, Spices, Gums, Nuts, Mushrooms, Fodder and Fibres for building, clothing and utensils. There was also the use of herbs, cosmetics and cultural products derived from plants or animals. Hundreds of millions of people, mostly in developing countries, depend on gathering plant and animal products for subsistence and income.In developed countries, mushrooms (morels, matsutakes, and truffles) as well as medicinal plants (ginseng, black cohosh, and goldenseal) are collected [15]. As a result of derogatory attitudes toward traditional medicine practitioners, healers were forced to conceal their knowledge and practices. Thus, medicinal plants are also disappearing at an alarming rate due to their indigenous use and conservation.

Medicine has been derived from medicinal plants for millennia in virtually all cultures. Almost all known civilizations had their own healthcare systems in the past, such as those of the Egyptians, Babylonians, Jews, Chinese, and Indus Valley. Since ancient times, Indian civilizations have also taken the advantages offered by medicinal and aromatic plants to secure their health.

Role of Medicinal Plants for Human Health

A traditional medicine with a culturally familiar, technically simple, financially affordable, and generally effective formula is essential to marginalized groups who cannot access formal healthcare systems. Indigenous systems of medicine are used in several countries in South and East Asia to treat malaria, stomach ulcers, and other illnesses. Protecting and promoting traditional medicine's cultural and spiritual values is a strong and sustained

Table 1: Plants and its Therapeutic Uses

Name of the Plant	Part Used	Chemical Constituents	Therapeutic Uses
Asparagus racemosus (Asparagaceae)	Rhizomes	Asparagin, arginine, tyrosine, flavonoids, resin, tannin	Aphrodisiac, epilepsy
Cinnamomum tamala (Lauraceae)	Leaf, barks	Cinnamic-aldehyde, Linapool	Heart and Throat complaint, diarrhoea
Cymbopogon flexuosus(Poaceae)	Leaf	Myrcene, citronellol, geranyl acetat, nerol, citrol, limonene	Common cold, headaches, Stress
Hedychium spicatum (Zingiberaceae)	Rhizomes	Ethyl ester of p-methoxy cinnamic acid	Dyspepsia, Asthma, Vomiting, diarrhoea
Matricaria chamomilla(Asteraceae)	Flowers	α-bisabolol oxide A and b, bisabolol oxide B	Stomach ache, Aromatherapy
Ocimum basilicum(Lamiaceae)	Whole plants	Pinene, myrcene, limonene, linalool, terpenol, citronellol	Fever, bronchitis, cough and cold, toothache, urinary disorder
Origanum vulgare(Lamiaceae)	Whole plants	Pinenes, dipentene, linalool, sesquiterpenes	Anti-septic, Stomach ache, Impotency, Respiratory-disorder
Rosmarinus officinalis(Lamiaceae)	Leaf	Borneol, camphor, Borngeacetate, limonenes, pinenes	Headache, Boils, skin disease
Sapindus mukorossi (Sapindaceae)	Fruit	Saponins, Sapindoside A and B, Kaempferol, Oleic acid, Glycerides, Stearic acid	Snake bites, Freckles, eczema
Valeriana jatamansi(Valerianaceae)	Rhizomes, leaf	Limonene, cineole, borneol, nerolidol	Epilepsy, Cholera, Asthma, Dysentery
Withania somnifera (Solanaceae)	Roots, Leaves, Seeds	Withasomine, withaferin A, withanolide	Rheumatism, Ulcer, Carbuncles, Epilepsy, Cough, Cold

public priority throughout the region [16].

Primarily, medicinal plants are used to provide primary health care in marginal communities around the world. In addition to having pharmacologically important photo chemicals, medicinal plants each have unique nutrient compositions. Physiological functions of the body are dependent on these nutrients. In order for humans to function properly, carbohydrates, fats, and proteins contain essential nutrients and biochemicals [17].

The Hibiscus genus (family Malvaceae) contains hundreds of species of annuals and perennials. Known also as Roselle or red sorrel, they are commonly found in garden settings. There are many medicinal uses for Hibiscus sabdariffa L. This northeastern Indian plant is native to the Brahmaputra Valley and is widely grown there. Calyces, as well as leaves, have traditionally been utilized as diuretics, choleretics, febrifugal agents, and hypotensive agents that are beneficial in decreasing blood viscosity, stimulating intestinal peristalsis, and avoiding hypotension. As well as treating cardiac disease, nerve disorders, cancer, and liver toxicity, it has other uses as well. In addition to its use as a food and traditional medicine, it is also used in industrially produced teas and beverages [18]. Curries and salads use young leaves and stems as seasoning. You can also make soups, sauces, pickles, puddings and jellies from fresh calyx, in addition to adding flavor to cake recipes. In salads, the calyx (outer part of the flower) is eaten raw, and it is also used to flavor cakes when cooked [19].

By enzymatic and non-enzymatic mechanisms, antioxidants counteract free-radical and other oxidant in the human body.Antioxidants in dietary supplements can help protect against free radicals. Antioxidant activity of plant materials is positively correlated with phytophenol content [20]. In fruits, vegetables, seeds, tea, wines, and juices, phenol compounds, particularly phenol acids and flavonoids, are ubiquitous; therefore, they are an essential part of human nutrition.

Health care has been impacted by them in a positive way. A nutritious and antioxidant-rich diet is important to support our body defense mechanisms.

In comparison to commercially available antioxidants, eating antioxidant-rich foods boosts our immune system more effectively and is more affordable.Several synthetic analogues are derived from prototype compounds in modern pharmacopoeia, and over 25 percent of the drugs are derived from plants. A wide range of antioxidants are found in hibiscus [21]. It is estimated that India and China produce 40 percent of the world's biodiversity and have an abundance of rare species [22]. They are also known for producing aromatic and medicinal plants, which are used in the pharmaceutical, cosmetic, fragrance, and flavour industries. UN reports have indicated that 33 percent of drugs derived directly from higher plants are consumed in highly industrialized countries [23] [Table 1].

Through onsite training, 132 households in ten villages of all three village clusters could be motivated to cultivate MAP as an additional income source, and raise awareness about cultivation, harvest, grading, packaging, and marketing. According to cultivation feasibility and market demand, only 11 economically high-value plants were selected at the outset by researchers and farmers:A. racemosus, C. tamala, C. flexuosus, H. spicatum, M. chamomilla, O. basilicum, O. vulgare, R. officinalis, S. mukorossi, V. jatamansi, and W. somnifera. Based on feasible climatic conditions and high demand, Rosmarinus officinalis ranks first and S. mukorossi ranks last in cultivation.

Management of Medicinal Plants

Ecosystems and their constituent plants are shaped and influenced by the dialectical relationship between ethnobiology and local practices. The perspectives of local communities on ecosystem components and biodiversity conservation are contrasted with scientific understanding of ecosystem dynamics and global perceptions of biodiversity conservation. Science and local knowledge must be analysed and understood thoroughly in order to develop appropriate management practices [15].

In addition to demonstrating how local knowledge and practices are capable of dealing with uncertainty and responding to ecosystem change, recent studies have shown that they are similar to complex adaptive systems. Research experiments relevant to management can be developed by incorporating local knowledge and practices into scientific research. There has been a lack of research regarding knowledge variation within and between cultures, nor has it been studied in relation to the goals and behaviours of individuals who hold knowledge [24].

Challenges

In most growing nation, particularly in remote areas where more than eighty percent of the population lives, modern medicine has barely advanced, and most people still resort to Traditional Medicine (TRM) to provide their primary healthcare. Ninety-five percent of the total components of TRM come from medicinal plants [9]. This is primarily because there are no medical facilities, medical personnel, drugs, or other supplies to support the use of TRM in these countries.Wild herbs are most often collected. A community's culture and taboos are intertwined with TRM and its practitioners [24].

As the population grows, sacred forests are being encroached on, including those that were culturally forbidden and had medicinal plants. In addition to formatambiko (traditional sacrifices), sacred forests are used for other purposes as well. Furthermore, many developing countries are introducing large farms, road construction, and railway construction companies. Medical plants, TRM's primary resource base, have been impacted by numerous human socioeconomic activities.Further factor contributing to deforestation and biodiversity loss in Africa is bushfires, lumbering, and bioprospecting.Approximately 15.4 million hectares of tropical forests were lost between 1980 and 1990 (8% annual deforestation rate) in the world, according to a recent study by the Food and Agriculture Organization. There are more deforestation incidents in Africa than reforestation incidents worldwide. There are estimates that Tanzania is depleting 3 to 4 lakhs hectares of forest every year [25].

CONCLUSION

The demand for traditional plants has the potential to generate income and employment for poor rural communities.A constant supply of medicinal plants to the pharmaceutical industry and the prevention of environmental degradation are dependent on increasing MAP cultivation efficiency.A participatory action research framework approach in

socio-economic development would benefit farmers, traders, scientists, and policymakers.As a result of cultivating a wide range of species, the government and communities will be able to gather funds without having to harvest a few high-value (some endangered) species.

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Conflict of Interest

The author declares that there is no conflict of interest.

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