

AN ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS IN HARYANA: CHALLENGES AND OPPORTUNITIES

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Abstract

Ethnobotany is a distinct branch of natural science dealing with various aspects such as anthropology, archaeology, botany, ecology, economics, and medicine, religious, cultural and several other disciplines. Ethnobotany is usually defined as anthropological approach to botany. There are several methods of ethnobotanical research and those relevant to medicinal plants are archaeological search in literature, herbaria and the field studies. Recently ethno-botanical studies have gained importance during recent years. In the present research ethnobotanical studies have been conducted on some plants of Haryana. Yamuna Nagar district of Haryana is very less explored for ethnobotanical studies. Therefore many survey of Yamuna Nagar district have been conducted for the documentation of ethnobotanical data and exploration of floristic diversity during the year 2011-2012. Field surveys were carried out throughout the district to collect ethnobotanical data (traditional use of plants, local name, plant parts used, medicinal value). Over all 73 species of flowering plants were collected during the field survey, out of which 46 species of ethnobotanical value belonging to 42 genera and 26 families have been recorded.

1. OVERVIEW

Historically indigenous people with the inheritance of traditional and cultural legacy were protecting the sacred groves with the act of nature worship. Notably, rural inhabitants of the creating countries have been using herbal medicine as healthcare to a degree of 80% worldwide population.

In India, studies on sacred groves concerning ethnomedicinal plants emphasized the local use of this deeply rooted custom. Based on the review of contemporary works such as published literature, exertion has been made to keep up and manage the collected records and information in consolidated structure towards reviewing various aspects of ethnomedicinal plants.

A large number of rural people use local herbal medicines for the treatment of their domestic animals, and the role of ethnoveterinary medicine in livestock development is past dispute. Haryana being an agricultural state with the power of the rural population and henceforth

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animals, particularly cattle, assume an extraordinary role in the economy and social welfare. Pastoralists and farmers of Haryana need to treat their animals with traditional medicines in spite of the accessibility of a large number of veterinary dispensaries and veterinary hospitals, essentially because of significant expense of allopathic medicines and their associated side effects, cultural preferences and inaccessibility of required medicines in veterinary dispensaries and hospitals. However, some ethnobotanical studies have been conducted in Haryana yet little information is available with respect to ethnoveterinary medicine for Haryana in general and Tosham block in particular [1-3].

The present research reveals that the plants are still a major source of medicine for the people of the research area, and are used to cure several human health problems. The information given could be useful for researchers in the field of ethnobotany, taxonomy, and pharmacology. The modern generation is inclined towards the use of allopathic medicines, and it seems that traditional knowledge of medicinal plants could be lost. There is a threat of losing this wealth of knowledge shortly. The awareness and documentation about the medicinal floristic wealth of plant medicinal values will help in the preservation of traditional medicinal practices and the plant wealth of the concerned site. The traditional medicinal knowledge not only plays a vital role in community health care but is also important for the present and plans for drug development. The present research revealed that traditional medicines were still in common use by the Kani tribal communities and accurate knowledge of the plants and their medicinal properties were held by only a few individuals in this community.

Hence a need for detailed investigation of ethnobotanical knowledge held by each tribal community is required before such valuable knowledge vanishes. Thus, our work would be useful in preventing the loss of ethnomedicinal traditions of Kani tribal communities. The new claims which are recorded from the research area showed that still much could be learned from investigating herbals available abundantly in the forests. The plants with the highest fidelity level and use values in the present research may indicate the possible occurrence of valuable phytochemical compounds, and it requires a search for potential new drugs to treat various ailments.

The efficacy and safety of all the reported ethnomedicinal plants needs to be evaluated for phytochemical and pharmacological studies, especially the plants with high informant consensus factor, use-value, fidelity level and relative importance should be given priority to carry out bioassay and toxicity studies.

As a result of the research we are suggesting the plants *A. galanga*, *A. indica*, *C. inophyllum*, *G. sylvestre*, *L. aspera*, *M. azedarach*, *M. nudicaulis*, *O. tenuiflorum*, *S. cumini*, *T. chebula* and *T.*

terrestris for further ethnopharmacological studies, since these plants had the high UV and RI values. Of the newly reported claims in the present research B. arundinacea, D. metel, E. nummularius, O. dilleni and P. minima had the highest FL of 100% for specific ailments, and these plants can also be further analyzed for the associated pharmacological studies.

2. DEVELOPING THE MEDICINAL PLANT SECTOR IN NORTHERN INDIA: CHALLENGES AND OPPORTUNITIES

The medicinal properties of plant species have made an outstanding contribution to the origin and evolution of many traditional herbal therapies. These traditional knowledge systems have started to disappear with time due to the scarcity of written documents and relatively low income in these traditions. Over the past few years, however, the medicinal plants have regained wide recognition due to an escalating faith in herbal medicine given its lesser side effects compared to allopathic medicine, also the necessity of meeting the requirements of medicine for an increasing human population[4-5].

Through the realization of the continuous erosion of traditional knowledge of plants used for medicine in the past and the renewed interest at present, a need existed to review this valuable knowledge of medicinal plants to develop medicinal plant sectors across the different states in India. Therefore, were to explore the potential in medicinal plants resources, to understand the challenges and opportunities with the medicinal plants sector, and also to suggest recommendations based upon the present state of knowledge for the establishment and smooth functioning of the medicinal plants sector along with improving the living standards of the underprivileged communities.

The review reveals that northern India harbors a rich diversity of valuable medicinal plants, and attempts are being made at different levels for sustainable utilization of this resource to develop the medicinal plant's sector. Forests have played key roles in the lives of people living in both mountains and lowland areas by supplying freshwater and oxygen as well as providing a diversity of valuable forest products for food and medicine.

Use and diversity in medicinal plants

In India, of the 17,000 species of higher plants, 7500 are known for medicinal uses. This extent of medicinal plants is the greatest extent of plants known for their medical purposes in any country of the world for the existing greenery of that respective country. Ayurveda, the oldest medical system in Indian sub-mainland, has alone reported roughly 2000 medicinal plant species, trailed by Siddha and Unani. The CharakSamhita, a well established composed document on

herbal therapy, reports on the production of 340 herbal drugs and their indigenous uses. Currently, roughly 25% of drugs are derived from plants, and many others are synthetic analogs based on model compounds isolated from plant species in present-day pharmacopeia.

Challenges in medicinal plants sector

The continuous increase in human population is one of the causes for concern in meeting the daily requirements of food and medicine as the economy and livelihoods of human societies living in developing countries primarily depend on forest products.

This phenomenon is leading to continuous erosion of forest and the forest products, thus making challenge to meet the requirements as well as to conserve useful bio-resources. More and more species are being gradually added in the MateriaMedica; however, the standards of their purity and correct identification do not keep pace with the process of expansion. The market prices for medicinal plants and derived materials provide only a limited insight into the workings of the market, and not on the precise information of profits, supply and demand.

Rising demand

The World Health Organization (WHO) has estimated the present demand for medicinal plants is around the US \$14 billion per year. The demand for medicinal plant-based crude materials is developing at the pace of 15 to 25% every year, and according to an estimate of WHO, the demand for medicinal plants is probably going to increase more than the US \$5 trillion out of 2050. In India, the medicinal plant-related exchange is estimated to be roughly US \$1 billion per year. According to an estimate, the quantity of the export of Ayurvedic products produced in India has significantly increased between the last two money-related years.

Cultivation of medical plants

Information on the propagation of medicinal plants is available for less than 10% and agro-technology is available only for 1% of the total known plants globally. This trend shows that developing agro-technology should be one of the thrust areas for research. Furthermore, in order to meet the escalating demand of medicinal plants, farming of these plant species is imperative.

Strengthening legalized market system

Besides government agencies, there are numbers of stakeholders ranging from herb gatherers, local middlemen, urban traders, wholesalers, manufacturers, exporters and herbal healers in the medicinal plants trade sector. The marketing system in medicinal plants sector is largely

unregulated and inequitable. The medicinal plant collectors are generally the marginal farmers and laborers. They get cash income to meet their basic requirements for food, health and children education by selling medicinal plants. They are often unaware about the real market prices of many medicinal plant species.

Opportunities in developing the medicinal plants sector

For developing the 'herbal industries', the northern India possesses a rich diversity of medicinal plant species across the various forest types along an altitudinal gradient (as discussed in the use and diversity of medicinal plants). Such a high diversity of medicinal plants would be helpful for further scientific research on exploring their medical efficacy, value addition, and use in curing various old and new diseases. India has already established a reputation as a low-cost manufacturer of high quality generic drugs in the global market.

Existing policies

In the National Five Year Plans of India, the medicinal plant's sector has been identified as an integral part of the Indian System of Medicine and Homeopathy. In 1983, the National Health Policy recognized that the large stock of health man power in Ayurveda, Siddha, Unani, Homeopathy and Naturopathy had not been adequately utilized; therefore, steps need to be taken to move towards meaningful integration of the indigenous and modern systems of medicine.

Institutional support

In India, many government and non-government organizations have had the focused attention on improving the medicinal plants sector. Opportunities for funding have been created to assist the person who is willing to work and to build capacity of the medicinal plants sector. According to the mandate of NMPB, the projects may be submitted for funding within two major schemes: *viz.*, a promotional scheme and a commercial scheme.

3. CONCLUSION

Over all 73 species of flowering plants were collected during the field survey, out of which 46 species of ethnobotanical value belonging to 42 genera and 26 families have been recorded.

Among all families, Leguminosae and Solanaceae are the more dominant. Most commonly used plant parts are leaves 30.43%, whole plants 26.08%, fruits 13.04%, bark 17.39%, seed 21.73%, roots 10.86%, flowers 8.70% and others 10.86%. They are used by the rural peoples for the treatment of various disease like diarrhoea, dysentery, male and female sexual diseases,

cardiovascular diseases, headache, asthma, toothache, acne, diabetes, gonorrhoea, skin disease, kidney stone, hyperthyroidism, piles, cancer.

It may be concluded from the survey mentioned above and study that the Bhiwani district (Haryana) has a valuable wealth of flowering plant as well as a rich tradition and folk knowledge of medicinal uses of the plant. The people cure themselves with the help of plants. This richness in biodiversity and ethnobotany is going to decline now a day's due to unawareness and proper documentation. Therefore, it becomes necessary today to document these and to spread awareness among people to preserve. The present research revealed that females are the actual carriers of traditional ethnomedicinal knowledge, but their knowledge is going unacknowledged [6, 7].

It is various essential oils to create an environment that bacteria find inhospitable and can be used for a large number of everyday challenges, especially in restoring comfort, health, and balance of the skin, respiratory, and digestive systems. Many of the common aromatic culinary herbs and spices have significant therapeutic value and are used throughout the world in traditional medical systems such as Ayurveda.

4. RECOMMENDATIONS

- In the future, it will be important to mainstream medicinal plants into natural resource management and development programs. To boost the quality of plant resource management and increase supplies of these resources:
- Agricultural support agencies should strengthen extension efforts to farmers.
- Research institutions need to improve basic knowledge about cultivation practices and dissemination of medicinal plant species.
- Conservation agencies and NGOs should promote conservation of vulnerable species at the grass-roots level
- Community organizations need to adopt sustainable collection and management practices on public lands.
- Profitable private enterprises for processing, transporting, and marketing must be developed.
- Government institutions need to be strengthened to regulate these important resources and, at the same time, foster their sustainable development and conservation.
- Future initiatives should also link the management and conservation of medicinal plants with the commercial development of these resources.

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