
ETHNOBOTANICAL AND ANTIBACTERIAL STUDY OF SOME
SELECTED MEDICINAL PLANTS IN HARYANA

Anup Singh¹, Dr. Krishan Pal²

Department of Botany

^{1,2}OPJS University, Churu (Rajasthan)

Abstract

India has a rich abundance of medicinal plants and is remarkable in that these plants are used by all sections of people either straightforwardly as society remedies or in various indigenous systems of medicine or in a roundabout way in the pharmaceutical preparations of current medicine. The knowledge of medicinal plants has been gathered in many centuries based on various Indian systems of medicine such as Ayurveda, Unani, and Siddha. WHO has listed more than 21000 plant species used far and wide for medicinal purposes? In India, about 2500 plant species are being used in indigenous systems of medicine. There are two types of sensitivity tests i.e., diffusion and dilution methods used to determine the antibacterial potential of the preparations of solvent extracts. Based on the diameter of the zone of diffusion (inhibition) method represents a qualitative test that designates the classification of bacterial species either sensitive or resistant on tested the sample of plant extract.

1. OVERVIEW

The word “Ethnobotany” was first introduced by John W. Harshberger, in 1895 a botany professor at the University of Pennsylvania to designate plants used by primitive and aboriginal people: From “ethno” means - the research of people and “botany” means the research of plants. For the research of plant used in traditional groups, Stephan Powers (1875) invented the word “aboriginal botany”.

The modern-day ethnobotanical research began with their work. With the development of ethnobotany, many workers define ethnobotany, from time to time in various ways. Few important definitions are cited underneath:

1. The research which deals the utilization of plants by primitive and aboriginal people
2. The research of the interaction between plants and primitive humans
3. The relationship which exists between people of primitive societies and their plant environment is called as Ethnobotany

¹Anup Singh, Research Scholar, Deptt of Botany, OPJS University, Churu, Rajasthan

4. The direct interaction amongst human and plants
5. It is a complex relationship of present and past societies to plants
6. It is the science of people's interactions with plants
7. All studies which describe the interaction between local people and natural environment, regarding plants.
8. The research of the influence of plants on human culture including the interactions of plants and people
9. The mutual relationship between traditional peoples and plants is known as ethnobotany
10. An anthropocentric approach to botany and is essentially concerned with use of plants and gathering information on plants
11. Study of total natural and traditional interrelationships between man and plants and his domesticated animals

Ethnobotany deals with the impact of plant environment on humans and the research and evaluation among plant and human relationships in all stages. Civilization The ethnobotany has now emerged as an interdisciplinary science which involved anthropology, botany, sociology, archeology, ecology, folklore, mythology, economics, medicine, linguistics, forestry, agriculture, phytochemistry, pharmacology and economic botany. Since the human race originated, Man's need for plants for the requirements of his existence has been of utmost importance in his life. Other than food and a little shelter, the primitive man probably had few requirements[1-4].

2. AN ETHNOBOTANICAL STUDY OF PLANTS OF SOUTH HARYANA

Ethnobotany word is made from two words ethno and botany and the term was coined by John William Harshberger in the 1890. Ethnobotany is the research of people and research of plants; this is represented good relationship between wild plants (Herbs, Shrubs and Trees) and tribal's. Ethnobotany is the branch of Ethnobiology and complete information about plants and their medicinal uses is given by ethnobotanical studies.

Plants represent an enormous pool of natural resources that can produce various products and chemicals for the advantage of all other life forms and ethnobotany reveals historical and present plant use to fulfill a wide variety of human needs, so the documentation of ethnobotanical knowledge is important for species conservation and sustainable use of resources.

Furthermore, such studies are often significant in revealing locally important plant species, sometimes leading to the discovery of crude drugs. The World Health Organization (W.H.O.)

reported that 80 % of the world population relies chiefly on indigenous medicine and that the majority of traditional therapies involve the use of plant extracts or of their active constituents.

There are more than 20,000 species of wild edible plants in the world, yet less than 20 species presently provide 90% of our food. The use of plants for medicinal purposes in India has been documented long back in ancient literature because they are essential for human survival.

South Haryana is less investigated for ethnobotanical studies. In this way, many surveys have been conducted for the documentation of ethnobotanical information and exploration of floristic diversity during the year 2015-2018. The personal connection between the human and plant world has advanced over generations of experience and practices. The term 'Ethnobotany' denotes the total relationship between man and vegetation.

3. FLOWERING PLANT DIVERSITY OF DISTRICT KARNAL, HARYANA

In the course of floristic studies, plant taxonomists are engaged in collecting information about the diversity and distribution of plants throughout the world. Floristic studies record the enumeration, distribution, ecological status, and association of plant species over different geographic areas. The research of the socio-economical significance of plant diversity is, however, of much greater importance than of diversity alone. This is a fact that we get enormous benefits from plants and they fulfill almost all our requirements in the form of food, fodder, fuel, medicine, timber, and resins, etc. Due to large scale anthropogenic disturbances in the form of exclusive agricultural practices, industrialization, livestock feed, fuel-wood collection and forest fires, the floral as well as faunal diversity of our planet is facing threats of extinction, which will eventually lead to losses of genetic diversity. This is much needed to defend this valuable wealth for the interests of our own and of upcoming generations. Detailed studies are required for every terrestrial and aquatic habitat for proper documentation of species diversity. For an accurate and near to complete assessment, smaller areas provide better outputs as they can be thoroughly investigated.

Keeping in view these points, an extensive research of the Karnal district of Haryana, India, has been conducted for accurate documentation of angiosperm diversity of the area. Floristic diversity generally refers to the variety and variability of plants in a given area. Floristic diversity deals with the enumeration of plant species growing in a particular region in a specific time.

4. ETHNOMEDICINAL AND ECOLOGICAL STATUS OF PLANTS, INDIA

The medicinal plants treated various ailments. These included diarrhea, dysentery, bronchitis, menstrual disorders, gonorrhea, pulmonary affections, migraines, leprosy. The ecological studies showed that the tree density and total basal cover increased from the tropical region to sub-tropical and temperate regions. The species composition changed with climatic conditions.

Among the localities used for data collection in each climatic region, many had inferior vegetation cover. The herbaceous layer decreased with increasing altitude, which might be an indication that communities at higher elevations were harvesting more herbaceous medicinal plants, due to the lack of primary health care facilities. Therefore, special attention needs to be given to the conservation of medicinal plants to ensure their long-term availability to the local inhabitants. Data on the use of individual species of medicinal plants are needed to provide an in-depth assessment of the plants available to design conservation strategies to protect different species. The Indian Himalayan Region (IHR) has long been a source of medicine for the millions of people of this region, as well as people living in other parts of India. At present, the pharmaceutical sector in India is making use of 280 medicinal plant species, of which 175 are found in the IHR. The northern part of India harbors a great diversity of medicinal plants because of the majestic Himalayan range.

So far, about 8000 species of angiosperms, 44 species of gymnosperms, and 600 species of pteridophytes have been reported in the Indian Himalaya. Of these, 1748 species are used as medicinal plants, and the maximum number of species used as medicines has been reported from Uttarakhand. Of these, sixty-two are endemic to the Himalaya. In India, the native people exploit a variety of herbals for the effective treatment of various ailments. The plant parts used, preparation and administration of drugs vary from place to place. Indigenous knowledge is as old as human civilization[4].

5. ROLE OF ETHNOBOTANY IN PHARMACEUTICAL RESEARCH

Medicinal plants were the basis for medicinal therapies for thousands of years, and still is an important piece of essential health care for a large part of the world. Traditional origin of several ordinary medicinal products has been hidden in the medication development process, such as medication aspirin of the bark of the willow plant (*Salix* sp.), reserpine for hypertension from the Indian snakeroot (*Rauwolfia serpentina*) and D-tubocurarine, extensively used to the relaxant of muscle during operation, bolt poisons (*Chondodendron tomentosum*). The medicinal plants used in traditional medicine needs to proceed with the supply to the industry as crude materials and new ideas. Of the frequently cited twenty-five percentage of prescription drugs sold in North America that contain dynamic principles derived from the medicinal plants, seventy-five percent toward the starting acknowledged through the industry, due to the consumption of their uses in traditional medications.

The recent directions in the industry, be that as it may, are less determined by swashbuckling histories, as by which screening methodologies generate the best new medication leads. Ethnobotany is just a single strategy for discovering new medicinal substances, also have chosen to focus on leads from traditional medicines based on its decision of altruism. To test this methodology, a hypothesis of species sampling described as the ethnic-coordinated sampling hypothesis was proposed.

It maintains that using the combination of indigenous knowledge and ethnobotanical documentation as a pre-screen will enable the researcher to get a higher number of leads in a pool of medicinal plant samples contrasted and a gathering of plants selected indiscriminately. Introductory test hypothesis, samples of helpful plants from Belize and Honduras has been subjected to screen the Human Immunodeficiency Virus (HIV) in the National Cancer Institute (NCI).

Plant extracts as potentially antibacterial substances

Medicines obtained from the plants can be used as a crude structure for example: collection and drying of plant materials (leaves, stem, root, flower, and so forth.) Those are consumed as a crude or crude medication.

The dynamic components or principles can be separated through the various chemical cleaning processes, which are designated as medicaments or medicines. For making the chemically synthetic drugs, dynamic constituents, or principles having indistinguishable construction as well as actions are synthesized chemically used in allopathic or present-day types of medicaments. Intensive phytochemical and pharmacological research efforts are in progress worldwide to screen plants for dynamic compounds and to grow new pharmaceutical products[5-7].

6. CONCLUSION

The prefix "ethno-" is used in various contests identified with the ethnic groups, to deal with their traditional culture, covering all aspects of their lives such as gods, rituals and festivals, customs, language, dress, agriculture, food, medicine, dwellings, and so on. Ethnic races inhabit in five continents out of six continents of the world. In Asia, about 150 million people reside in forest areas. At the same time, the Indian subcontinent is inhabited by more than 53 million tribal people belonging to more than 550 tribal communities that belong to 227 ethnic groups.

These constitute about 7.7% of India's population. Tribal communities are living in remote and inaccessible parts of the country. Tribes are distinct ethnic groups, usually limited to positive geographical areas with a typical tongue, are culturally homogeneous, and embrace a bringing together social organization. Ethnic groups or tribes known everywhere throughout the world have their very own culture, customs, social and religious rights, taboos, totem, legends, old stories, society stories, songs, rituals, myths, food, and medical practices. Forests and plants play an important and indispensable role in their lifestyle.

Plant extracts have direct and indirect antibacterial activities. Direct activities show an impact on bacterial divisions as well as metabolism, while in-direct actions as modifications of the substances essential to develop the antibiotic-resistant, and also increase the efficiency when used in combination with antibiotics. Through the literature, numerous reports about the screening of antibacterial property of various plants, crude as well as purified extracts have been published. According to reported data, extracts from plants, activity in respect of various

bacterial species, including gram-positive as well as gram-negative pathogens. Extracts prepared from plant parts by applying traditional methods of extraction (maceration, Soxhlet extraction, and percolation). In the extraction process, plant materials dispersed in the solvents and extracted the compounds based on their polarity.

REFERENCES

- [1].Yadav SS, Bhandoria MS. Ethnobotanical exploration in Mahendergarh district of Haryana (India). *Journal of medicinal Plants Research*.2013; 7(18):1263-1271.
- [2].Parkash V, Aggarwal A. Traditional use of ethnomedicinal plants of lower foot-hills of Himachal Pradesh-I. *Indian Journal of Traditional Knowledge*.2010; 9(3):519-521.
- [3].Sandhya B, Thomas S, Isabel W, Shenbagarathai R. Ethnomedicinal plants used by the Valaiyan community of Piranmalai hills (Reserved forest), Tamilnadu, India. - A pilot study. *Afr. J. Tradit Complementary Altern Med*. 2006; 3(1):101-114.
- [4].Bhushan, B., Kumar, M. “Ethnobotanically important medicinal plants of tehsil Billawar, District Kathua, J&K, India”, *International Journal of Pharmacognosy and Phytochemical Research*, 2013; 2(4): 14-21
- [5].Ushimaru, P.I., da Silva, M.T.N., Di Stasi, L.C., Barbosa, L. and Junior, A.f. (2007). Antibacterial activity of medicinal plant extracts. *Brazilian Journal of Microbiology*, 38: 717-719
- [6].Girish, H.V. and Satish, S. (2008). Antibacterial activity of important medicinal plants on human pathogenic bacteria-a comparative analysis. *World Applied Sciences Journal*, 5(3): 267-271.
- [7].Satish, S., Raghavendra, M.P. and Raveesha, K.A. (2008). Evaluation of the antibacterial potential of some plants against human pathogenic bacteria. *Advances in Biological Research*, 2(3-4): 44-48.
- [8].Singh, Anup. (2015).An ethnobotanical study of medicinal plants in Bhiwani district of Haryana, India. *Journal of Medicinal Plants Studies*. 2016; 4(2): 212-215.