Review Article *Shukla et al.*, 10(11-12): Nov/Dec, 2019:6410-6413]
CODEN (USA): IJPLCP ISSN: 0976-7126

INTERNATIONAL JOURNAL OF PHARMACY & LIFE SCIENCES
(Int. J. of Pharm. Life Sci.)

Ethnobotany and its connection with Medical sciences and Public health

Smruti Sohani[1] and Sumeet Dwivedi[2]
[1]Institute of Biological Science, SAGE University, Indore (M.P.) - India
[2]Department of Pharmacognosy, Oriental College of Pharmacy & Research, Oriental University, Indore (M.P.) – India

Abstract

Ethnobotany is an interdisciplinary science which investigates the relationships between plants and human societies. Plants sources have served not only for the primary human needs but also for health care, since time immemorial. Indigenous knowledge is being recognized worldwide owing to their intrinsic value as well as potential instrumental connotation to phytodiversity conservation and modern drug development. Ethnobotany has played important role in the development of new medicine for many centuries and becoming increasingly important in defining strategies and actions for conservation or recuperation of residual forests. There is great interest in ethnobotany today, than at any time in the discipline's history. This review article analyses the relevance of ethnobotany in current scenario. It is anticipated that, in the future, ethnobotany may play an increasingly important role in sustainable development and human health.

Keywords: Ethnobotany, Drug development, Conservation, Benefit sharing

Introduction

People of all cultures have always depended on plants for their primary needs (food, shelter, warmth, medicines, etc.), and have naturally learned diverse applications of plants. In the course of nomadic roaming, this knowledge was exchanged with neighboring tribes, friends and foe, and was gradually expanded upon. Thus, plant knowledge has been passed around the world since the beginning of time, and frequently, the actual plants themselves have spread along as well. The investigation of plants and their uses is one of the most primary human concerns and has been practiced by all cultures since generations, though it wasn't called 'Ethnobotany'. The term "Ethnobotany" was coined by US botanist John William Harshberger in 1895.

*** Corresponding Author**
E.mail: smrutisohani@gmail.com

Throughout human history, people used various materials from nature to cure their illnesses and improved their health. Substances were derived from flora, fauna and mineral sources located in people's immediate surroundings but also in remote areas [1]. Nature has been the source of medicinal agents for thousands of years, and an impressive number of modern drugs have been isolated from natural sources, many based on their use in traditional medicine. These plant based traditional medical systems continue to play an essential role in health care, with about 80% of the world's inhabitants relying mainly on traditional medicines for their primary health care [2], though medicinal plants form the principle component of traditional medicine.

In recent years, we have called attention to the lack of information on the relative importance of a medicinal plant (or other useful plants) within a culture and the need for comparing the use of plants inter-culturally. Such studies have important implications for research in the field of natural products, since these ethnobotanical studies point out to the species which most urgently should be studied phytochemically and which we consider them to be the most likely ones to contain bioactive compounds. Indigenous people use a wide range of plants therapeutically to maintain their health. There is great promise for new drug

discovery based on traditional plant uses. Also, plants may be used as food, and it is difficult to draw a line between these two groups; food may be medicine and vice versa [3].

The discipline of ethnobotany is a much broader discipline which is interested in all studies about the relationship between people and plants. Ethnobotany focuses not only on medicinal plants, but also on other natural products derived from nature, such as: food, plants used in rituals, coloring agents, fiber plants, poisons, fertilizers, building materials for houses, household items, boat, etc. [4].

Because plants play an important role in almost every realm of human activity, ethnobotany encompasses many fields including botany, biochemistry, pharmacognosy, toxicology, medicine, nutrition, agriculture, ecology, evolution, comparative religion, sociology, anthropology, linguistics, cognitive studies, history and archeology. The multidisciplinary nature of ethnobotany allows for a wide array of approaches and applications and leaves the way open for many scientists to study the plant uses in different ways [5]. But medicinal plants have always been the main research interests of ethnobotany and the study of these resources has also made significant contributions to the theoretical development of the field [6,7].

Ethnobotany today

Ethnobotany is a rapidly growing science, attracting people with widely varying academic background and interests. It is still predominantly linked to Economic Botany, and thus pursued to determine the potential economic value of various plants. There is a romantic allure to the life of an explorer and the promise of finding 'gold' in the form of plants or animals as potential sources for lifesaving drugs that could become important in the treatment of serious diseases such as AIDS and cancer. Plant ethno medicinal findings may set the stage for targeting materials which can be meaningfully analysed for chemical activity using appropriate bio directed assays. This approach in search of new pharmaceuticals is woefully underutilized today to the detriment of human health and a number of new strategies should be considered for future advancements in drug discovery.

Today the field of ethnobotany requires a variety of skills: botanical training for the identification and preservation of plant specimens; anthropological training to understand the cultural concepts around the perception of plants; linguistic training, at least enough to transcribe local terms and understand native morphology, syntax and semantics. Native healers are often reluctant to accurately share their knowledge to outsiders. In interaction with the traditional areas of science, ethnobotany gives out several interrelated and interdisciplinary subjects involving aspects like, ethnomedicine, ethnoarchaeology ethnobryology, ethnoecology, ethnoagriculture, ethnonarcotics , ethnopharmacology, etc.

Ethnobotany and Traditional medicine system

The Indian subcontinent, with the history of one of the oldest civilization, harbors many traditional health care systems. Besides Ayurveda, other traditional and folklore systems of health care were developed in the different time periods in the subcontinent, where more than 7500 plant species were used. According to a WHO estimate, about 80% of the world population relies on traditional systems of medicines for primary health care, where plants form the dominant component over other natural resources. The forests have been the source of invaluable medicinal plants since the time man realized the preventive and curative properties of plants and started using them for human healthcare. Tropical forests are particularly endowed with plants possessing curative properties. These richly biodiverse environments provide a veritable trove of flora containing compounds of medicinal value which indigenous people have utilized and benefited from for centuries.

Traditional medicine based on herbal remedies has always played a key role in the health systems of many countries. In India the native people are exploiting a variety of herbals for effective curing of various ailments. The plant parts used, preparation, and administration of drugs vary from one place to other. However, the knowledge of herbal medicines is gradually perishing, although some of the traditional herbal men are still practicing the art of herbal healing effectively. These plants are frequently used by the local inhabitants of the area for treatment of various diseases. The traditional knowledge, skill and practices thus developed are freely exchanged cared for and nourished as a common property of the communities [8, 9]. Investigations into traditional use and management of local flora have demonstrated the existence of extensive local knowledge of not only about the physical and chemical properties of many plant species, but also the phenological and ecological features in the case of domesticated species.

Conclusion

Ethnobotanical research can provide a wealth of information regarding both past and present relationships between plants and the traditional societies. Ethnobotany may also prove an important tool in the search of new pharmaceuticals. In addition to its traditional roles in economic botany and exploration of human cognition, ethnobotanical research may be applied to current areas of study such as biodiversity prospecting and vegetation management. It is hoped that, in the future, ethnobotany may play an increasingly important role in sustainable development and biodiversity conservation.

Reference

1. Lev E, Amar Z. Ethnopharamcological survey of traditional drugs sold in Israel at the end of 20th century. *J Ethnopharmacol* 2000; 72: 191-205.
2. World Health Organization. WHO Traditional Medicine Strategy 2002-2005. Geneva. http://www.who.int/medicines/library/trm/trm_str at_eng.pdf.
3. Anyinam C. Ecology and Ethnomedicine: Exploring links between current environmental crisis and indigenous medical practices. *Soc Sci Med* 1995; 4: 321-9.
4. Cordell G. Biodiversity and drug discovery: A symbiotic relationship. *Phytochemistry* 2000; 55: 463-80.
5. Pieroni A. Medicinal plants and food medicines in the folk traditions of the upper Lucca Province, Italy. *J Ethnopharmacol* 2000; 70: 235–73.
6. Heinrich M, Barnes J, Gibbons S, Williamson EM. *Fundamental pharmacognosy phytotherapy*. London: Churchill Livingstone, 2004; pp. 24-5.
7. Alexiades NM. Selected guidelines for ethnobotanical research: a field manual. New York: The New York Botanical Garden, 1996.
8. Patwardhan B, Warude D, Pushpangadan P, and Bhatt N. Ayurveda and traditional Chinese medicine: A comparative overview. eCAM 2005; 2(4):465-473.
9. Pushpangadan P, and Kumar B. Ethnobotany, CBD, WTO and the Biodiversity Act of India. Ethnobotany, 2005; 17:2-12.
10. Bradley C Bennett. Ethnobotany Education, Opportunities, and Needs in the U.S. Ethnobotany Research and Applications 2005; 3:113-121.
11. Bussmann RW. Ethnobotany and biodiversity conservation. in *Modern Trends in Applied Terrestrial Ecology*. Edited by R.S. Ambasht & N.K. Ambasht. Kluwer publishers, New York. 2002, 345-362.
12. Farnsworth NR, Akerele O, Bingel AS, Soejarto DD, Guo Z. Medicinal plants in therapy. World Health Organization 1985; 63:965-981.
13. Iwu MM. Ethnobotanical approach to pharmaceutical drug discovery: strengths and limitations Advances in Phytomedicine 2002; 1:309-320.
14. Jain SK. Credibility of traditional knowledge criterion of multilocational and multiethnic use, Indian J Traditional Knowledge, 2004; (3):137-153
15. Martin G. Ethnobotany– a Method Manual. Chapman and Hall, London, 1995, 268.
16. Mehrotra S, and Mehrotra BN. Role of traditional and folklore herbals in the development of new drugs. Ethnobotany 2005; 17:104-111.
17. Michael H. Ethnobotany and its role in drug development. Phytotherapy Research 2000; 14(7):479-488.
18. Mukherjee PK, and Wahile A. Integrated approaches towards drug development from Ayurveda and other Indian system of medicines. Journal of Ethnopharmacology, 2006; 103:25-35.
19. Pandey AK, Patra AK, Shukla PK. Medicinal plants in Satpura Plateau of Madhya Pradesh: Current Status and Future Prospects. Indian Forester 2005; 131(7):857-883.
20. Pandey AK, and Bisaria AK. Rational Utilization of important medicinal plants: A tool for conservation. Indian Forester 1997, 124 (4): 197-206.
21. Pandey AK. Strategies for Effective Conservation of Medicinal Plants. In Integrated Management of Plant Resources, Ed. Rai, M.K., Verma Ajit and Rajak, R.C., Scientific Publishers (India), 2000, 68-74.
22. Pandey AK, and Shukla PK. Role of Medicinal Plants in Health Care and Rural Economy in the Tribals of central India. Indian Forester, 2008; 134(11):1438-1446.
23. Pandey AK. Sustainable Harvesting Standards and Limits: Medicinal Plants in Central India, Community Forestry, 2009, 4-10.
24. Pandey AK, and Shackleton C. The effect of harvesting approaches on fruit yield, embelin concentration and regrowth dynamics of the forest shrub, *Embelia tsjeriam-cottam*, in central India. Forest Ecology and Management 2012; 266:180–186.
25. Pandey AK, and Mandal AK. Sustainable Harvesting of *Terminalia arjuna* (Roxb.) Wight &

Amot (Arjuna) and *Litsea glutinosa* (Lour.) Robinson (Maida) bark in central India. Journal of Sustainable Forestry 2012; 31(3):294-309.

26. Patwardhan B, Warude D, Pushpangadan P, and Bhatt N. Ayurveda and traditional Chinese medicine: A comparative overview. eCAM 2005; 2(4):465-473.

27. Pushpangadan P, and Kumar B. Ethnobotany, CBD, WTO and the Biodiversity Act of India. Ethnobotany, 2005; 17:2-12.

28. Balick MJ, Cox PA. *Plants, people, and culture: the science of ethnobotany*. *Scientific American Library series 60*. New York: Scientific American Library, 1996; pp. 2-3.

How to cite this article

Sohani S. and Dwivedi S. (2019). Ethnobotany and its connection with Medical sciences and Public health. Int. *J. Pharm. Life Sci.*, 10(11-12):6410-6413.

Source of Support: Nil; Conflict of Interest: None declared

Received: 20.10.19; Revised: 20.11.19; Accepted: 15.12.19