



# AN ETHNOBOTANICAL STUDY TO DOCUMENT THE ROLE OF FOREST PLANT RESOURCES IN NUTRITION, HEALTH AND LIVELIHOOD OF TRIBAL COMMUNITIES OF JABALPUR, MADHYA PRADESH, INDIA.

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## INTRODUCTION:

Madhya Pradesh is the second largest state of India. It is situated in central India. Largest tribal population resides in Madhya Pradesh. Madhya Pradesh has 9 National Parks, 6 Tiger Reserves and 25 Wildlife Sanctuaries and three biosphere reserves-Pachmarhi, Achanakmar-Amarkantak and Panna.

In Madhya Pradesh, total population according to the last census 2011 is 72,597,565 and tribal population is 15316784. Many tribal communities are found in M.P., namely Kol, Maadia, Agaria, Panika, Bhil, Kakuro, Baiga, Gond, Khairwar and Bharia. Since early civilization tribes of the central Indian region have been using plants as a traditional way in their life.

This large state has been divided into 52 districts and these are under 10 divisions:

1. Bhopal division (5 districts), 2. Chambal division (3 districts),
3. Gwalior division (5 districts), 4. Indore division (8 districts),
5. **Jabalpur division (8 districts)**, 6. Narmadapuram division (3 districts),
7. Rewa division (4 districts), 8. Sagar division (6 districts),
9. Shahdol division (3 districts), 10. Ujjain division (7 districts).

Total population of Jabalpur is 24, 63,289 and the tribal population is 3, 75,231 according to the 2011 census. Jabalpur division is geographically situated in the central part of the state and is commonly known as Mahakaushal. Jabalpur division has 8 districts - *Jabalpur, Katni, Narsinghpur, Mandla, Seoni, Balaghat, Chhindwara, and Dindori*.

The researcher has chosen Jabalpur division for an ethno botanical study because Jabalpur is floristically very rich and provides a range of biodiversity. The tribal people inhabiting the region have traditional knowledge of herbs and spices, powders and potions which they use to heal various

ailments from the common cold to aches and pains, indigestion to allergies, depression to diabetes. The traditional healers called Bhumka have a cure for every ailment, extracted from nature.

Tribal and rural populations are dependent on the forests for their livelihood and basic needs. Tribal villages have traditional knowledge regarding the use of plants as a source of medicine, food, livelihood etc. Plants are an integral part of their magic-religious beliefs. These nature worshipping communities provide protection to biodiversity. The native tribes of Jabalpur believe that Gods/Goddesses and deities reside in the forest, so they conserve the plant species.

Madhya Pradesh has a subtropical climate. The average annual precipitation is nearly 1,386 mm (54.6 in). Winter begins in late November and lasts until early March. There are a variety of soils ranging from rich clayey to gravelly. In Jabalpur black cotton soil is found. Water resources spread across the entire land surface. Main rivers of M.P are Narmada, Kshipra, Chambal, Betwa, Son, Tapti, Mahi and Godavari are the major rivers. There are many lakes in Jabalpur and the city is situated on the bank of Narmada River.

M.P. has the largest forest cover in the country and occupies 25.11% of the total geographical area of the state. Total forest cover of Jabalpur division is 1,113.93 Sq. Km. and the total area of Jabalpur division is 5,211 Sq. Km. The forest is a tropical dry deciduous

## REVIEW OF LITRATURE:

The term ethno botany was given by American botanist John William Hershberger in 1896. It is a discipline which deals with the uses of the plants traditionally for food, medicine, fodder, fibre, dyes, tannin, resin and gum etc. by the society. Traditional uses of plants in treatment of various ailments is known as ethno-medicine. Ethno botanical studies give us a glimpse of relationships between nature and people. Herbal healers understood their surrounding flora and fauna. The culture of tribal, lifestyle, and their traditions have remained unchanged for many years. The knowledge gathered by native people during hundreds of years, through a long series of observations and practice was transferred from one generation to another verbally. The documentation of indigenous knowledge is important for sustainable management and conservation of natural resources.

There are several plants which are used by the tribes of the region of Jabalpur, Madhya Pradesh but till now no comprehensive work has been done on forest plant resource utilization by various tribes residing in Jabalpur division. Statistical tools have not been applied in some of the reported uses of plants. Harvesting practices, processing, quality parameters and marketing strategies of forest produce have not been reported.

The proposed research work will fill the existing gaps and the findings will be useful in documentation of valuable traditional knowledge.

## OBJECTIVES:

1. To document ethno botanical knowledge on plant resource utilization in nutrition, health and livelihood by tribal communities of Jabalpur.
2. To register demographic information of the participants of tribal communities.
3. Taxonomic validation of the reported plants.

4. Statistical analysis of the data in terms of relative frequency of citation (RFC), use values (UV) and fidelity level (FL) for the reported plants to establish their importance.
5. Study on harvesting practices, processing, quality parameters and marketing of selected ethno medicinal plants with high informant consensus factor, use value and fidelity level.

## **NATIONAL AND INTERNATIONAL STATUS:**

### **National status:**

According to botanical history since the 19th century this central Indian region is botanically explored by workers. Victor Vincelas Jacquemont botanist and geologist was the first to do exploration in the undivided Madhya Pradesh. He collected plants from Siddhi, Rewa, Panna and Satna in 1830.

Major Nathaniel Vicary collected plants from central India Bundelkhand, Sagar and Jabalpur during 1833.

Major Beddome made botanical collections in Jabalpur during 1848.

Jain (1963, 2006). Published a few valuable publications on ethno botany and folklore medicines in India. He worked on the tribes of Madhya Pradesh, Bihar and Assam.

Ethno botanical work in relation to primitive tribes was done by several workers like Shrivastava (1985) on the Bhil tribe of Madhya Pradesh, Mishra and Tiwari (1999) on Kol tribe of Madhya Pradesh.

Maheshwari (1986) conducted an ethno-medico-botanical survey in the tribal blocks. Viz. Kathwari, Alirajpur and Sodhwa blocks of Jhabua district, M. P. The authors gathered information on seventy - five plant species and their mode of therapeutic uses from the tribal medicine men 'Badwa' and other experienced tribal.

Samvatsar & Diwanji (2000) conducted a survey of the tribal of Western Madhya Pradesh of India for the treatment of jaundice and reported 13 plants. Part of the plant used, dosage and duration of treatment was reported by them.

### **International status:**

R.E Schultes (1988) studied the use of plants in tropical rain forests of Amazon by the native people. The Amazon supports 80,000 species of higher plants and a diverse Indian population. According to Schultes, focusing attention on those plants used as medicines by indigenous peoples is the most efficient way of identifying the plants that contain bioactive compounds. There is an urgent need for more ethno botanists and ethno pharmacologists to be trained to document as much information as possible before the plants are lost through destruction of the rainforest and acculturation of the indigenous peoples.

John Pearn (2005) reported herbal medicinal practices of aboriginal people of Australia in the treatment of sick and injured children. Traditional tribal healers, called 'Nungungi' in some language

groups of Central Australia, were identified at a young age and were given special education in the healing arts, especially that of medical ethno botany, by older healers.

María Eugenia Suárez (2019) reported ethno botany of wild medicinal plants in the pharmacopoeia of the Wichí people of Salta province (Argentina).

Shan Li (2020) conducted an ethno botanical study of plant use in Mêdog (Pemako) country, South-east Tibet, China. One hundred ninety-four plant species belonging to 82 families and 158 genera were recorded and collected.

### **METHODOLOGY and SYSTEM APPROACH:**

1. Field explorations will be carried out in the tribal areas of Jabalpur. Data will be collected through semi structured questionnaires and observations during the field visits. The questionnaire will consist of two parts- the first part will document the demographic information of the participants, whereas the questions in the second part will focus on gathering information about the plants which are used. Based on the questionnaire, respondents will be interviewed in their local language at their place. The participants will be briefed about the objective of research before the interview to get their informed consent and build their interest in giving complete and reliable information.

2. Data regarding use of plants as food, fodder, fuel for cooking, fibres for clothing; timbers, ropes, barks, wood, bamboo, and grasses for housing and farming; herbal medicines for health, and economic goods like gums, resins, waxes, honey, several other valuable forest produce will be collected.

3. The plant specimens will be collected from the field during the fruiting and flowering period with the help of healers and local people. The photographs of each specimen will be captured, and traditional knowledge regarding the use of plants will be recorded.

4. The collected plants will be identified by the taxonomists and confirmed with those available literature. Thereafter, all the specimens will be labelled with a specific voucher number and preserved in the herbarium of the Department of Botany, R.D.V.V, and Jabalpur.

5. Quantitative data will be further analysed statistically to determine relative frequency of citation (RFC), use values (UV) and fidelity level (FL) for the reported plants and their use to establish their importance.

The plants with high informant consensus factor, use value and fidelity level will be reported.

6. Study on harvesting practices, processing and quality parameters will be conducted for the selected ethno medicinal plants with high informant consensus factor, use value and fidelity level.



7. Following quality parameters of herbal raw materials of selected ethno medicinal plants will be tested- Foreign matter, organoleptic evaluation, Microbial contamination, chromatographic and spectroscopic evaluation.

### **EXPECTED OUTCOME:**

1. The aim of the present study is to place the traditional knowledge of the use of forest plant resources in nutrition, health and livelihood of tribal communities of Jabalpur in the public domain as evidence to protect patent claims by pharmaceutical companies and the corporate sector.
2. Indigenous tribal healthcare systems may provide health security to underprivileged populations who cannot bear the cost of modern healthcare practices.
3. Indigenous use of plants in different ailments can lead to drug discovery.
4. Uncontrolled collection and trading of large quantities of plant material from the forest has led to devastation of many forest plants. The study will report the critically endangered plants.
5. Training in harvest, postharvest technology, quality check, marketing and commercial cultivation of endangered plants will help in better financial returns to the tribal people.
6. The data of the proposed study will be useful for the government and non-government bodies for the improvement of the condition of the tribal people in Jabalpur and safeguarding the biodiversity.

Traditional knowledge of the remedies is passed down through oral traditions without any written document. This traditional knowledge is however, currently threatened mainly due to acculturation and deforestation. Therefore, documenting medicinal plants and associated indigenous knowledge can be used as a basis for developing management plans for conservation and sustainable use of medicinal plants of the study area.

In addition, findings of this study can be used as an ethno pharmacological basis for selecting plants for future phytochemical and pharmaceutical studies.

### **SIGNIFICANCE OF THE PROPOSED WORK:**

Jabalpur division of Madhya Pradesh state will be selected as a study area for the proposed work. The location of Jabalpur is 23°10` North and 79°59` East latitude and longitude respectively. It is a religious city and is inhabited by indigenous communities, some members have amalgamated in the modern society too. It has a quiet and peaceful environment. Good climatic conditions favour different types of vegetation and the forested areas provide shelter to many tribal people. The proposed work will document the traditional knowledge of the tribal communities of Jabalpur regarding forest plant resources and their use as food, medicine, clothing, livelihood and religious beliefs.

Erosion of traditional beliefs and practices is observed in the younger population of these tribal communities. Therefore, ethno botanical studies have great significance in preserving this valuable knowledge and in safeguarding the rights of tribal populations.

#### ●REFERENCES:

- Beddome, R.H.** The ferns of British India. Vol. 1. Oxford & IBH Publishing Company New Delhi, 1973.
- Beddome R.H.** The ferns of Southern India. Edna 2, **Bishen Singh Mahendra Pal Singh**, Dehradun, 1983.
- Bhatt, S.C. & Bhargava, G.K.** 2006a. Land and People of Indian States and Union Territories. Madhya Pradesh. Vol. 15. Kalpaz Publications, Delhi.
- Forsyth, J.** 1871. The Highlands of Central India; Notes on their Forests and Wild Tribes, Natural History and Sports. Chapman & Hall, London.
- FSI**, 2017. India State of Forest Report 2017. Forest Survey of India (FSI), Dehradun.
- Hooker, J.D.** 1872–1987. The Flora of British India. 7 Vols. L. Reeve & Co., London.
- Jain SK (edited).** Glimpse of Indian Ethno botany. New Delhi: Oxford and I.B.H Pub, 1981.
- Jain SK.** Observation on Ethno botany of tribal of M.P. Vanyajati, 1981:11(4):177-187. International Journal of Botany Studies www.botanyjournals.com 172
- Jain SK.** Ethno botany of Central India Tribal. J. Indian. Bot. Soc. Abstract, 1975:1(6):63.
- Li S, Zhang Y, Guo Y, Yang L, Wang Y.** Monpa, memory, and change: an ethno botanical study of plant use in Mêdog County, South-east Tibet, China. J Ethnobiol Ethnomed. 2020 Jan 30; 16(1):5.
- Maheshwari JK, Kalakoti BS, Lal B.** Ethno medicine of bhil tribe of Jhabua District, M. P. Anc Sci Life. 1986 Apr; 5(4):255-61.
- Maheshwari JK.** Case study of three primitive tribes of M.P. (Abujhmarias, Baiga, and Bharia) of Central India. In Methods and Approaches in Central India. Society of Ethno-botanists Lucknow, 1989, 187-188
- Pearn J.** The world's longest surviving paediatric practices: some themes of Aboriginal medical ethno botany in Australia. J Paediatric Child Health. 2005 May-Jun; 41(5-6):284-90.
- Rai R, Nath V, Shukla PK.** Ethno-medicinal studies on Bhariaa Tribes in Satpura plateau of Madhya Pradesh. Agriculturist, 2002:13(1-2):109-114.
- Rai R, Nath V, Shukla PK.** 2003. Ethno biology of Hill Korwa Tribes Chhattisgarh Journal of Tropical Forestry, SFRI, Jabalpur, 2003:19(1-2):35-46.
- Rai R, Nath V, Shukla PK.** (c). Ethno biological studies on Bhariaa tribes of Madhya Pradesh J. of Tropical Forestry, 2004:20(1):150-160.
- Rai R.** Madhya Pradesh ke adivasi Van aushadhi ka prayog, Arnayotsav: 19-20
- Rai R, Nath V, Shukla PK.** 2004(a). Ethno botanical studies in Patakot Valley in Chhindwara district of Madhya Pradesh Journal of Tropical Forestry, SFRI, Jabalpur, 2004(a):20(2):38-50.
- Samvatsar S, V B Diwanji.** Plant sources for the treatment of jaundice in the tribals of Western Madhya Pradesh of India. J Ethnopharmacol. 2000 Nov; 73(1-2):313-6.
- Saxena HO, Shukla CS.** Medicinal Plants of Patakot, Chhindwara. Tech Bull No 13, Pub SFRI, Jabalpur, 1971.
- Schultes, R. E.** (1988). Where the Gods Reign: Plants and Peoples of the Colombian Amazon. Oracle, Ariz.: Synergetic Press. ISBN 0-907791-13-1.
- Sinha, R. K.** “Tools of investigation. In Ethno botany: The Renaissance of Traditional Herbal Medicine”, INA Shree publication, Jaipur, (1998), 194-202.
- Stewart, J.L. & Brandis, D.** 1874. The Forest Flora of North-west and Central India. A Handbook of the Indigenous Trees and Shrubs of those countries. W.H. Allen & Co., London.
- Suárez ME.** Medicines in the forest: Ethno botany of wild medicinal plants in the pharmacopeia of the Wichí people of Salta province (Argentina). J Ethnopharmacol. 2019