Endangered and Rare Medicinal Plants of Damoh region of Madhya Pradesh

Dr Sandhya Sharma
Department of Botany Govt. College Patharia, Damoh, M.P., India
Author Email: Sandhyasharma83@gmail.com

Abstract—An Ethnobotanical study among the local people of the Damoh region of Madhya Pradesh was carried out from 2019 to 2023. This study mainly focuses on the study of Endangered healing herbs of the Damoh region and their conservation. It is a well-known fact that worldwide thousands of plant species are endangered and facing extinction with the current trend of exploitation and destruction. According to the International Union of Conservation of Nature (IUCN), it is estimated that the studied species extinction rate is 10,000 times higher than other medicinal plants. Medicinal plants are plants with the potential capacity for the treatment of varied diseases and were used by people in the past Hence there is a need for systematic efforts for conservation. It is acknowledged that the future survival of humanity depends on the preservation and protection of natural wealth, and the destruction of a species or a genetic line symbolizes the loss of a unique resource. After a survey of the area, Medicinal plants were collected and categorized based on their related family, and other scientific pieces of information like Botanical name, Family, Parts used, and Phyto-chemicals. The recorded data on Medicinal flora are listed in Tables and discussed further.
Keywords: Biodiversity, Endangered Plants, Ethnobotanical, Phyto-chemicals.

I. INTRODUCTION

Medicinal plants are our national heritage with global importance and India is endowed with a rich wealth of biodiversity. The district is rich in plant resources used in various systems of medicine as well as an indigenous mode of treatment. Excellent work has been done on threatened, endangered, and vanishing medicinal plants (Raizada, 1983; Jain, 1983; Majumdar, 1991; Aswal, 1993; Given, 1996; Kaul, 1996; Sinha, 1996; Shrivastava et al., 1999; Chaudhari and Sarkar, 2003; Ved et al., 2004; Dwivedi et al., 2005, 2006).

Medicinal plants are plants with the potential capacity for the treatment of varied diseases and were used by people in the past// (Rawat and Choudhury 1998). Knowledge of the Medicinal plants provides a new way for modern drug development (Brahman, 2000). It is estimated that around 80 % of people in the world utilize plants as a source of medicine for different diseases (Kamboj, 2000). The diversity of the species on earth regulates the complexity and interaction between nature and species (Mohammed et al, 2000).

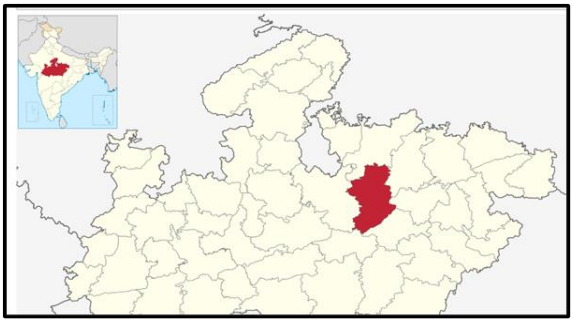
The plant materials and recipes from herbs used traditionally by various human societies are another challenging field of research in ethnobotanical studies. The indigenous system of medicine has its roots in folk medicine still practiced in remote rural and tribal areas and aboriginal societies where modern civilization has not yet made inroads. Some of the tribal medicine and folk medicines got incorporated into the organized system of medicine, but a much larger number of folk medicines remained endemic to certain regions or tribes in the country. Even today, some miraculous medicines are known to the tribals and Aboriginals, and much-acquired knowledge through experience of ages is usually passed on from generation to generation as a guarded secret of certain families. The role of ethno-medico botanical surveys and fieldwork is of crucial importance. The fieldwork is to be followed by laboratory work for a Phytochemical survey of the presence of alkaloids that have been isolated and studied for over 150 years, only about two per cent of all recorded plant species have been tested for alkaloids, and even fewer of the isolated compounds have been carried to the full elucidation of their structures. Schultes (1972) estimated that at least 8,000 new alkaloids remained to be discovered as a result of 20000 species done by an American Pharmaceutical Company. A recent survey enumerates nearly 5,000 alkaloids now known to science.

The science that deals with the study of drugs is called Pharmacology whereas the science that deals with drugs required for the prevention and treatment of diseases are called Pharmacotherapeutics. During the last few decades, modern drugs have saved many lives thus prolonging the life span of man. There has also been a great contribution through antibiotics and chemotherapeutic agents for the control of infection along with vaccination. But inspired by all these developments in modern medicine there is no satisfactory treatment available for many immunological and chronic diseases of man and the role of modern medicine in these disorders is not very evident. As the synthetic chemicals that make synthetic drugs induce cellular changes and act as foreign substances to the body system, they produce several side effects for toxic effects which result in anaphylactic shock, hemorrhage, ulcer, and allergies. There are all the chances that even death may result from these disorders.

India is an oriental country and has a large wealth of medicinal plants which are used for various kinds of ailments since time immemorial 'Ayurved' has a very authentic treasure of drugs that have undergone clinical and pharmacological trials and many of these tested plants are now used in modern medicine. The chemical composition of selected plants that are important has been enumerated here alphabetically, followed by their tribal name after abbreviation in the following text.

II. MATERIALS AND METHODS

The present study is the outcome of an exhaustive field survey undertaken in the Damoh region for the period of 3 years from Jan 2020 to March 2023. The tribal villages of the Damoh region were selected to record floristic diversity and their ethnomedicinal uses.



1. The plants used by the rural and tribal people in the treatment of various diseases were collected by the investigator from the different study sites of Damoh, Madhya Pradesh

2. Field and survey work was made after carefully planned field trips. Knowledgeable persons of tribal communities and traditional herbal healers were contacted and information was collected through interviews, observations, and discussions held during field surveys.

3. Data regarding herbal remedies were collected as a plan suggested by Sinha, R. K. (1998) and Dwivedi, S.N. (2003). PubMed, Google, Google Scholar

4. Voucher specimens were collected from different study sites and preserved as per the standard method and tribal villages were surveyed through periodical tours in various seasons. [10].

5. The plants were identified and Confirmation of the specimen was made with the help of floristic literature especially Oommachan, 1977, the Flora of Madhya Pradesh Vol.-I Verma et al, (1993) and Dictionary of Indian Folk Medicine and Ethnobotany (Jain, 1991) Medicinal herbs are enumerated with botanical name, common name, Family, plant part used, and types of diseases in which plant used.

III. OBSERVATION

Status of medicinal plants of Damoh region.

S. No.	Botanical Name	Local Name	Family	Status	Parts Used	Medicinal Uses
1	Abrus precatorious L	Gughuchi	Fabaceae	VU	Root	Cough & Cold
2	Acorus calamus L.	Bach	Araceae	EN	Rhizome	Stomach disorders
3	Acacia auriculiformis	Gandh babul	Mimosaceae	EN	Leaves	Treat pains, sore eyes, and rheumatism
4	Alangium salvifolium	Ankol	Allangiaceae	EN	Leaves	Antioxidant and anti diabetic
5	Andrographis paniculata Wall ex. Nees	Kalmegh	Acanthaceae	R	Whole Plant	Malaria, Jaundice
6	Amorphophallus paeoniifolius	Jangli suran	Araceae	CR	Corm	asthma, vomiting, and abdominal pain
7	Bixa orellana L.	Sinduri	Bixaceae	R	Leaves	Inflammation
8	Blumea lacera	Jangali muli	Asteraceae	EN	Leaves	anti-diarrheal; antimicrobial; anxiolytic; anti-atherothrombosis
9	Basella alba	Poi	Basellaceae	EN	Leaves	anti cancerous, chemoprotective And anti -neoplastic
10	Boerhaavia diffusa L.	Punarnava	Nyctaginaceae	CR	Root,Leaves	Root -Rheumatoid arthritis,analgesic and laxative leaves-reduce oedema
11	Buchhania lanzan Sprengel.	Chironji	Anacardiaceae	VU	Seeds	acrid, astringent, cooling, depurative and constipating
12	Butea monosperma var. lutea	pila palash	Fabaceae	CR	Flowers ,Leaves	diuretic, aphrodisiac, astringent
13	Caesalpinia cristita L.	Gatayan	Caesalpiniaceae	VU	Seed,Leaves	Malarial fever ,Inflammation
14	Centella asiatica L.	Brahmi	Apiaceae	CR	Leaves	Brain tonic
15	Curcuma amada	Ama haldi	Zingiberaceae	CR	Rhizome	Pulmonary diseases ,Sprain & Swelling

16	Curcuma pseudomontana	Jangali haldi	Zingiberaceae	EN	Rhizome	Pulmonary diseases , Cough, cold, & Swelling
17	Chlorophytum tuberosum Bak.	Safed - mulsi	Liliaceae	EN	Root	Anaemia, Weakness Sexual vitality
18	Cissus quadrangularirs L.	Harjoor	Vitaceae	EN	Stem	Bone fracture
19	Cayratia trifolia	Amalbel	Vitaceae	EN	Root	Root - astringent,antiscorbutic
20	Coleus aromaticus Benth.	Patharchur	Lamiaceae	R	Leaves	Gastric disorders, Urinary diseases
21	Cyperus rotundus L.Sp.	Nagarmotha	Cyperaceae	R	Rhizomes, Tubers	diarrhea, diabetes, pyresis, inflammation, malaria, and stomach and bowel disorders
22	Dillenia pentagyna Roxb.	Karkat	Dilleniaceae	CR	Bark,Fruits	antileukemic, antioxidant, antiproliferative, antidiabetic, antimicrobial, antifungal
23	Dioscorea daemona Roxb.	Barhakanda	Dioscoreaceae	R	Root	Sooth dysmenorrhoea, allay uterine and overine pain.
24	Gardenia gummifera L.	Dikamli	Rubiaceae	EN	Gum	treating digestive problems, including dyspepsia and diarrhea
25	Gloriosa superba L.	Kalihari	Liliaceae	R	Rhizome, Leaves	Leaf extract stings of poisnous insects, extract of rhizome are applied topically during childbirth to reduce labor pain.
26	Hedychium coronarium Koen. ex. Retz.	Gulwakawali	Zingiberaceae	VU	Tepals	The juice of tepals prescribed for the treatment of conjunctivitis.
27	Heliotropium indicum L.	Hanthisur	Heliatropiaceae	VU	whole plant	The plant is used as a local application to boils, sores and stings of insects and reptiles
28	Malotus philipinensis	Sinduri	Euphorbiaceae	R	fruits	anti-fungal, anti-diabetic and anti-bacterial

29	Mucuna pruriens L.	Kemanch	Fabaceae	VU	Seeds	Seeds powder is useful in diabetes and abdominal disorders.
30	Plumbago zeylanica L.	Chitrak	Plumbaginaceae	R	Whole plant	Paste in treatment of chronic skin diseases viz.,ulcers, scabies, ringworm, leucoderma and baldness.
31	Prosopis juliflora (Sw.) DC.	Shami	Mimosaceae	VU	Leaves	Pods Increase lactation, anti-bacterial, antibiotic, antispasmodic and astringent
32	Rauwolfia tetraphylla L.	Barachandrika	Apocynaceae	EN	Root	Remedy for snake and posinous bite, blood pressure ,malaria and in mental disorder
33	Rauwolfia serpentina (L) Benth. ex. Kurz.	Sarpgandha	Apocynaceae	EN	Root	Roots are hypnotic and sedative and is a native remedy for blood pressure and nervous disorders
34	Santalum album L.	Chandan	Santalaceae	EN	Stem	tonic for heart, stomach liver, anti-poison, fever, memory improvement and as a blood purifier
35	Sapindus mukorossi Gaertn.	Ritha	Spindaceae	VU	Fruits	Pulp of dried fruit is used as shampoos to wash the hair
36	Sauromatum venosum (Aiton)	saapke buti	Araceae	EN	Corm	Antidot of snake bite
37	Smilax macrophylla Roxb.	Ramdatun	Smilacaceae	EN	Seeds	Abortificient, used in cholera, fever, measals, gout rhumatism and ulcers, wounds etc.
38	Soymida febrifuga (Roxb.)	Chitrak	Miliaceae	R	Leaves,Gum	Used in abortion and in multiple, bone fracture. The gum of the plant is used in blood pressure, dysentry
39	Spilanthes calva DC.	Akarkara	Asteraceae	R	Flower	Tender shoot and flower heads chewed and put on tooth to alleviate toothache

40	Spigelia Anthelmia (spig.)	Indian Pink	Loganiaceae	NT	Root ,Leaves	Roots and leaves are vermifuge,sap from the leaves is used to treat eye infections, highly toxic. poisonous to cattle, causing death 2 - 3 hours after ingestion
41	Solanum nigrum	Makoi	Solanaceae	NT	Fruits	The fruit are used in fever, diarrhoea and eye diseases. The juice of plant is given in enlargement of liver
42	Stevia reabaudiana	Stevia	Asteraceae	R	Leaves	The leaves are employed as a sweetener and very useful to the patients of diabetes and hypertention
43	Tinospora cordifolia	Giloy	Menispermaceae	EN	Stem	Cold ,Cough,asthuma, skin disease, poisonous insect, snake bite
44	Terminalia bellirica (Gaertn.) Roxb.	Bahera	Combretaceae	R	Fruits	fruits are used in cholera, cold, cool, constipation, cough, cramps, gastric complains
45	Terminalia chebula Retz.	Harra	Combretaceae	R	Fruits	fruits are used in cholera, cold, cool, constipation, leprosy, liver complain
46	Tribulus terrestiris L.	Gokhru	Zygophyllaceae	R	whole plant	The decoction of whole pl beneficial in whooping co
47	Urginea indica	jangali pyaz	Liliaceae	CR	Bulb	It is used as abortificent, fiver, Cardiac problem, hypertension, asthama, cold and cough
48	Wendlandia exserta (Roxb.)	Tilia	Rubiaceae	R	Leaves	treat skin diseases,anti microbal and antioxidant activity
49	Withania somnifera (L.) Dunal.	Ashwagand ha	Solanaceae	EN	Roots	Root powder with milk promote growth and memory in children and retard the aging process in older people
50	Zingiber capitatum Roxb	Van adrakh	Zingiberaceae	CR	Rhizome	Extracts from the rhizomes show antioxidant and

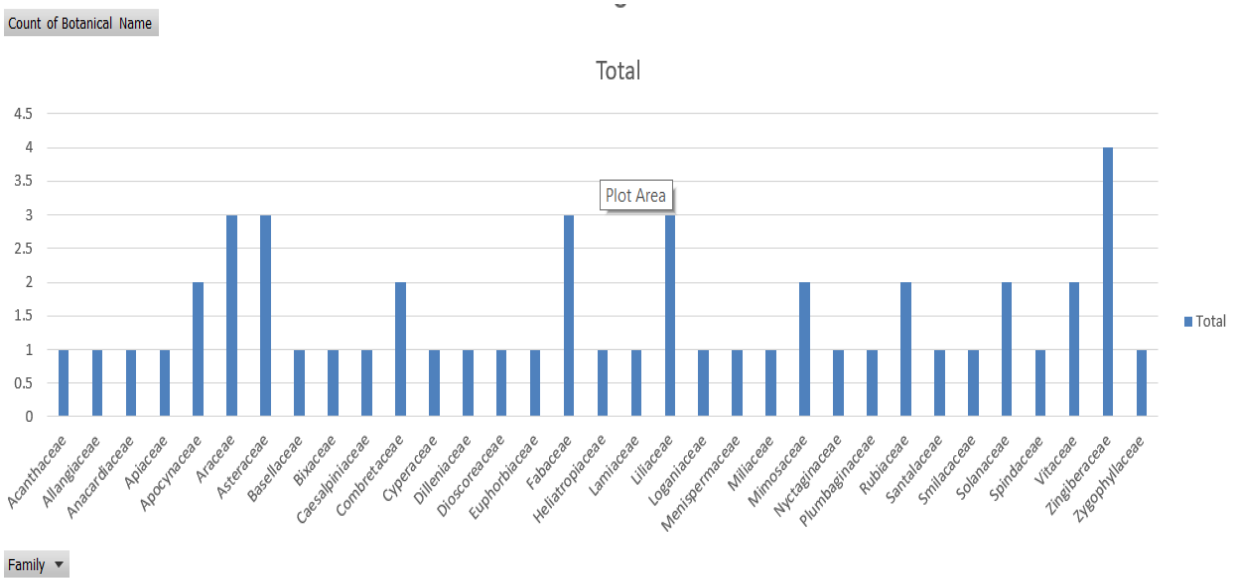
antimicrobial activity
(Jena et al., 2011)

IV. RESULT AND DISCUSSION

From a total 50 plants 08 species viz. (Amorphophallus paeoniifolius, Boerhaavia diffusa L.,Butea monosperma var. Lutea , Centella asiatica L.,Curcuma amada, Dillenia pentagyna Roxb, Urginea indica, Zingiber capitatum Roxb) are Critically endangered.

S.No	Status of Plants	Numbers
1	Critically endangered	8
2	Endangered	17
3	Near Thratand	2
4	Rare	15
5	vulnerable	8
	Sum total	**50**

It is obvious that the biodiversity of the study area is eroded. During field work author found 17 plants which are scare in the area. But to preverse diversity in the area this scarcity needs attention. The endangered and species of the study area are: Acacia auriculiformis (gandh babul), Acorus calamus L.(Bach), Alangium salvifolium, Basella alba (jangali muli), Blumea lacera (poi), Cayratia trifolia, Chlorophytum tuberosum Bak., Cissus quadrangularirs L.(Harjoor), Curcuma pseudomontana, Gardenia gummifera L.,Rauwolfia serpentina (sarpgandha), Rauwolfia tetraphylla L.,Santalum album L.,Sauromatum venosum (Aiton), Smilax macrophylla Roxb.,Tinospora cordifolia (giloy), Withania somnifera (Ashwagandha) are categorised under endangered in wild state but these are abundant in cultivation.Furthermore, In addition to above, author tried to have some idea of **rare** plants in the area and has come across at 15 plants which find mention in recent literature like **Red Data Book** and other publication on rare and threatened plants of India published by BSI (Jain, 1983; Jain and Sastry, 1983; Nayar and Sastry, 1987, 1988, 1990). These are : *Andrographis paniculata (Kalmegh), Bixa orellana (Sinduri) ,Coleus aromaticus (Patharchur), Cyperus rotundus L.Sp. , Dioscorea daemona Roxb., Gloriosa superba (Kalihari), Malotus philipinensis, Plumbago zelylanica (Chitrak), Rauwolfia serpentina (Sarpgandha), Spilanthes calva (Akarkara), Soymida febrifuga (Roxb.), Stevia reabaudiana (Stevia), Terminalia bellirica (Gaertn.) Roxb., Terminalia chebula Retz., Tribulus terrestris (Gokhru).*



The inhabitants of Damoh region do not have any well defined conservational strategy. But they do conserve and protect the plants that are economically, socially, medicinally and culturally significant to them. Moreover, they adopted their own ways and tools for the conservation of the biodiversity. There are a number of medicinally important annual herbs i.e. *Abrus precatorius* (Ratti), *Boerhaavia diffusa* (Punarnaba), *Centella asiatica* (Brahmi), *Phyllanthus niruri* (Bhuamla), *Rauwolfia serpentina* (Sarpagandha), *Withania somnifera* (Ashwagandha) etc. in their home gardens. The farmers are taking keen interest in cultivation of some threatened medicinal plants like *Andrographis paniculata* (Kalmegh), *Clorophytum tuberosum* (Safed-musli), *Coleus aromaticus* (Patharchur), *Gloriosa superba* (Kalihari) etc. These are sincer steps towards the biodiversity conservation. Tribal and rural people are very religious and their conservational strategies have also been depend on faith, tradition, taboos and sacred beliefs. Such as no body can not nor destroyed the plants which have religious aspects.

V. CONSERVATIONAL STRATEGIES REQUIRED.

•Threatened medicinal herbs in addition to traditional crops, Required sincere step towards the conservation of biodiversity.

•The information generated from the present study regarding the medicinal plant use by the tribes need a thorough Phyto-chemical investigation including alkaloid extraction and isolation along with few clinical trials.

•This could help in creating mass awareness mainly for small and marginal farmers, So that they can take up medicinal plants for cultivation ,and also in the promotion of ethno-medico-botany knowledge.

•Contributing to the preservation and enrichment of the gene bank of such economically important species before they are lost forever.

REFERENCES

1. Ommachan, M.(1977). The Flora of Bhopal (Angiosperms).J.K Jain Brothers, Bhopal.
2. Sinha, R. K. (1998). Tools of investigation. In Ethnobotany: The Renaissance of Traditional Herbal Medicine. INA Shree publication, Jaipur, 194-202.
3. Dwivedi, S.N. (1999). Traditional health care among the tribals of Rewa District of Madhya Pradesh with special reference to conservation of endangered and vulnerable species. Econ. Taxon. Bot. 23(2): 315-320.
4. Khan, A.A., Neeta Singh, Rajshree Pandey, Pragyan Singh and Anjna Pandey (2004). Medicinal plants (Wild) of Vindhya Region and their use in various diseases. Journal of Current Bio Science. 2(1) : pp. 37-46.
5. Dwivedi, S.N., Dwivedi, S., Patel P C Medicinal plants used by the rural people of satna district in M P for the treatment of gastrointestinal disease and disorder, Nat Prod.Rad.2006;5(1):60-63.
6. Dwivedi, S.N. (2003). Ethnobotanical studies and conservation strategies of wild and natural resources of Rewa district of Madhya Pradesh. J. Econ. Taxon. Bot. 27(1): 233-244.

7. Dwivedi, S.N.; Shrivastava, Satyendra; Dwivedi, Sangeeta; Dwivedi, Abhishek; Dwivedi, Sumeet and Kaul, Shefali (2007). Relevance of medicinal herbs used in the traditional system of medicine. Farmavita. Net
8. Dwivedi, Sumeet; Shrivastava, Satyendra; Dubey, Darshan; Kapoor, Shweta & Jain, Sanjay (2007). Status and conservation strategies of herbal oral contraceptives. Planta Indica 3(1): 5-7.
9. Ekka, R Neeli and Dixit, V. K. (2007). Ethno-pharmacognostic studies of medicinal plants of Jashpur district, Chattisgarh, Int. Shefali (2007). Scientific evaluation of Antimalarial herbs used in the traditional system of medicine. Farmavita.Net
10. Dwivedi, S. N.; Dwivedi, Sangeeta and Patel, P. C. (2007). Status and conservation of threatened medicinal herbs. In Indian Folk Medicine, Pointer Publication, 313-317.
11. Jeffrey C. Introduction with key to tribes. In: Kadereit JW, Jeffrey C, editors. The families and genera of vascular plants, vol. 8, Flowering plants. eudicots: asterales. Berlin: Springer; 2007 [2006]:61–87.
12. Shrivastava, Satyendra; Dwivedi, Sumeet; Dubey, Darshan & Kapoor, Shweta (2007). Traditional herbal remedies from Madhya Pradesh used as oral contraceptives- A field survey. Int. Jour. of Green Phar. 1(1): 18-22.
13. Dwivedi, Sumeet; Kaul, Shefali; Pandey, Deepak; Shrivastava, Satyendra & Dwivedi, S.N. (2007). Status and conservation strategies of endangered and vulnerable medicinal plants. Planta Indica 3(2): 13-15.
14. Abhyankar RK, Upadhyay R. Ethno medicinal studies of tubers of Hoshangabad, M.P. Bulletin of Environment, Pharmacology and Life Sciences 2011; 1(1):57-59.
15. Dwivedi, S.N.,Sumeet Dwivedi and Abhishek Dwivedi (2015) Herbal Remedies for Respiratory diseases among the Natives of Madhya Pradesh,India,Am.J.Life.Sci.Res. vol.3,Issue 2,158-162,2015