

Utilization of Local Plant Resources as Medicine by Tribal Communities in Mulchera Tehsil of Gadchiroli District in Maharashtra, India

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ABSTRACT

Ethnic groups usually depend on plant resources for treatment of different ailments. Usually they do not visit any doctor or a medical store asking for allopathic medicines. A survey has been conducted during last winter and summer seasons to collect the information from tribal people using different plants that commonly occur in this area for the treatment of various diseases. The data collected was obtained through personal interviews with elderly people and other local inhabitants during field survey. About 30 plants were observed to be in use for major diseases like jaundice, insomnia, white discharge, menstrual problems and kidney stones besides diabetes and common cold.

Key words: Tribal community, Ethnobotanical study, plant uses.

I. INTRODUCTION

India is one of the rich biodiversity spots of the world. About 43% of plants from Indian subcontinent (approximately 7,500 species) are reported to have medicinal value (Pushpangadan, 1995). Herbal forms of medicine is believed to be existed in India from thousands of years. It employs various techniques like leaf juices, bark and root powders etc, and uses different parts of plants to control many types of diseases. Native or local plants of an area support human livelihoods in various ways and help to solve locale problem by utilization of them. There is a significant relationship between ecosystem services of vegetation to human well-being (Patil et. al. 2015).

Use of plants as medicine is not a new concept. Since ages we Indians are using plants as medicines which is present in the Ayurved system. The use of plants for treatment in ailments in India dates back to prehistoric times. Ayurveda, an ancient traditional system of medicine that has been practiced in India since 200 B.C., employs a large number of medicinal plants used in prevention and treatment of wide number of diseases. (Deodhar and Shinde, 2015). A brief ethnobotanical survey of Gond and Halbi the tribes of Chandrapur and Gadchiroli districts has been conducted by Tiwari and Padhye (1993) and Tiwari (1994). Phanikumar and Chaturvedi (2010) published a work on ethnobotanical observations of Euphorbiaceae from Vidarbha region of Maharashtra.

Different plants and their parts are used in various ways like direct chewing of plant parts, juices, decoctions, solely or in combination with other plants or plant parts and honey. The tribal community of this area use different plants to treat various diseases. This traditional knowledge of herbal treatment to cure various diseases has been passed from generation to generation (Savithamma et.al., 2013).

The various tribal sects of India are repositories of rich knowledge on various uses of plant genetic resources, which have hitherto remained unknown (Khoshoo, 1996). Many diseases are being treated by herbal remedies. In many developing countries plant materials continue to play a major role in primary health care as therapeutic remedies (Zakaria, 1991). Tribal communities residing in the hilly areas are solely dependent on these readily available resources due to their traditional knowledge (Patil and Patil, 2012).

The reason why most people face problem for collecting the information from these tribal community is their fear of over exploitation of forest resources by urban population (including multinational companies), and second thing is they also fear of losing earnings due to competition from such learned people and companies.

II. GEOGRAPHICAL DETAILS OF STUDY AREA

Gadchiroli is the tribal and naxal affected remote district of Maharashtra state. Till today there is no connectivity with rail and air from other districts or states of India. A large area of the entire district is occupied by forests and small hillock areas with rich vegetation. Gadchiroli covers about 218,529 Hectares land as reserved and protected forest. Many plants of the district are used as Herbal medicine (Jakhi, PS, 2021).

A brief floristic survey of the district was done by Suresh and Sourav (2013). The other plants which are frequently found in this district include *Diospyros melanoxylon*, *Dioscorea bulbifera*, *Terminalia tomentosa*, *Pterocarpus marsupium*, *Terminalia arjuna*, *Phyllanthus emblica*, *Pongamia pinnata*, *Azadirachta indica*, *Ficus bengalensis*, *Ficus religiosa*, *Ficus racemosa*, *Gloriosa superba*, *Madhuca indica*, *Aegle marmelos*, *Annona squamosa*, *Annona reticulata*, *Bombax ceiba*, *Buchanania lanzan*, *Manilkara hexandra*, *Semecarpus anacardium*, *Limonia acidissima*, *Mangifera indica*, *Momordica dioica*, *Phoenix sylvestris*, *Borassus flabellifer*, *Pithecellobium dulce*, *Ziziphus mauritiana*, *Ziziphus oenoplia*, *Terminalia bellirica*, *Syzygium cumunii*, *Terminalia chebula*, *Gardenia resinifera*, *Clerodendron species*, *Terminalia indica*, *Vitex nigundo*.

Mulchera Tehsil is in Gadchiroli district of Maharashtra state in India. It is located at 19° 39' 32.508" N latitude and 79° 54' 51.984" E longitude and it's altitude is 200 msl. The temperature goes to about 47 degrees in summer and falls to 6 degrees in winter. The average humidity is about 65%.

The population of Mulchera tehsil is dominated by tribal people, with about 61.2% come under Scheduled Tribe as per 2011 census data. Total number of villages in this Taluka is 68. The Languages spoken in this locality are Marathi and Hindi, gondi, bengali, Telugu.

Mulchera tehsil, in particular, is surrounded by large forest land. The weather mostly remains dry and hot throughout the year, having total average rainfall approximately 200 mm, therefore major forest type is dry deciduous in which Teak (*Tectona grandis*) is dominant species.

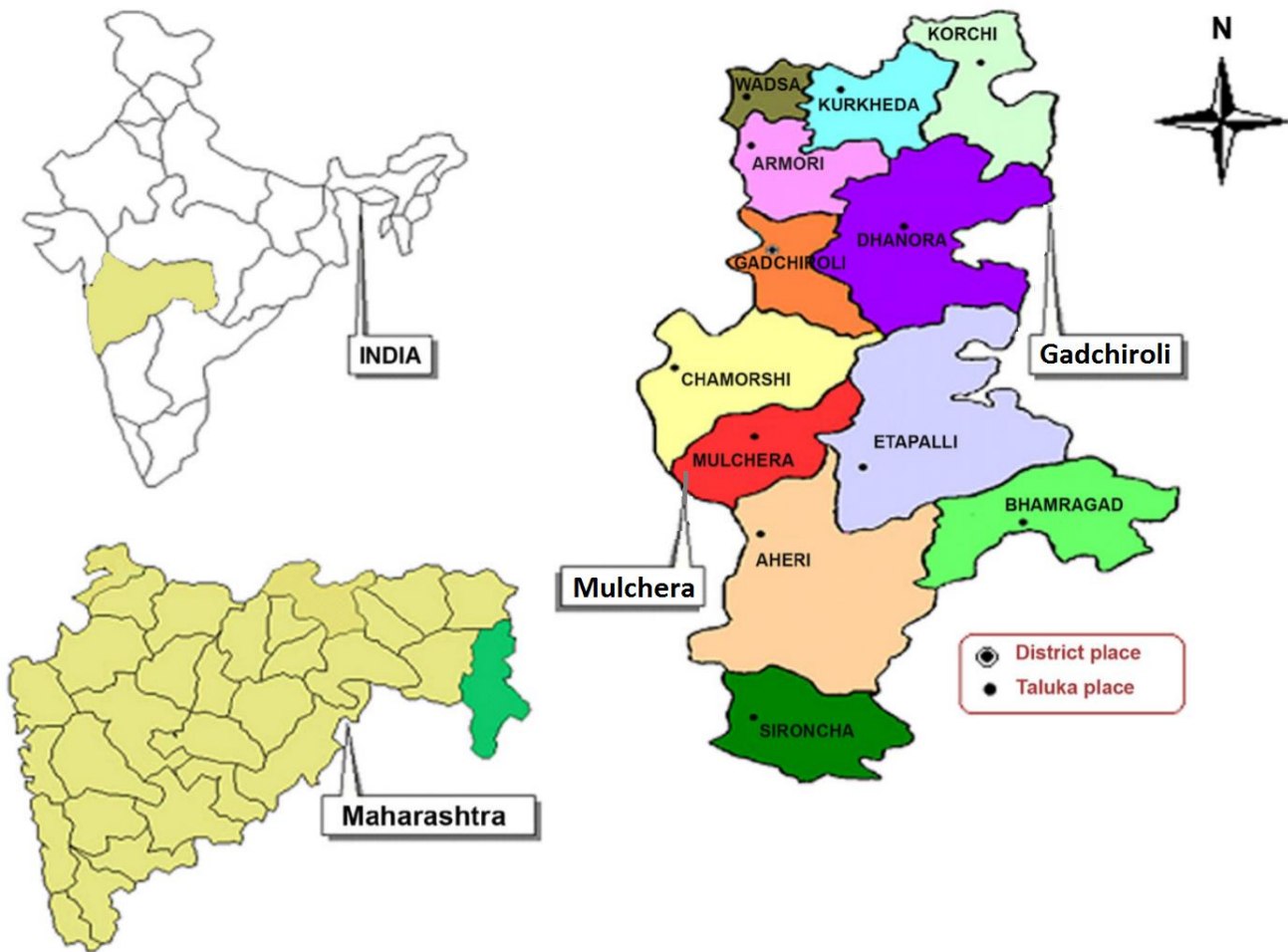


Fig.1: MAP OF STUDY AREA

III. METHODOLOGY

The information on herbal remedies was obtained from tribal communities in this tehsil area. A survey has been conducted during various field trips, and information was gathered from elderly people, village heads, medicine men and other knowledgeable persons through semi-structured questionnaire, personal interviews.

Ethnobotanical Studies:

Plants are being used as medicine since ancient times and are being used in several systems of medicine like Ayurveda, Homoeopathy and Unani. Even in this modern times there are several tribal communities who depend on many common and wild plants for the treatment of various ailments. Maharashtra is one of the states which inhabit tribes like Bhil, Gond, Madia, Halbi, Katkari (Kathodi), Koli, Kavar, Arakh, and Andh. Among these, Halbi and Gond-Madia are major inhabitants of Gadchiroli district.

The leaves of *Bryophyllum* are chewed in the treatment of Kidney stones. One leaf per day for at least one month. The stem juice (5 ml) of *Euphorbia nerifolia* is used to treat white discharge in women. About 10ml of leaf juice of *Cayratia trifolia* is taken directly to cure menstrual related problems. The entire plant of *Spermacoce hispida* is crushed and the fresh juice is poured on the spot of snake bite. The leaf juice of

Achyranthes aspera is used for snake bite. The locals believe that growing *Aristolochia indica* plant in the house keeps the snakes away. The ash made from the stem parts of *Butea monosperma* is mixed with hot cow ghee and is taken for piles. A medium sized leaf of *Ricinus communis* is baked on pan and it is eaten to control blood piles, but only one leaf per day is to be used. Various ethnomedicinal uses of this plant in India was reviewed by Manpreet Rana et. al., (2012) and in Pakistan by Srfaraz Khan et.al., (2017). The dried flowers of *Butea* and dried ginger (usually called sounth in local language and is available commercially) are boiled in water to make decoction, which is used in stomachic troubles. The dried The flowers are also used to cure kidney stones. The decoction made from about 15-20 leaves of *Commelina benghalensis* are used to control acidity. One spoon full leaf juice of *Costus speciosus* is used to control high fever.

Five ml leaf juice of *Justicia adhatoda* (Adulsa/ Vasaka) and 5ml ginger juice is mixed with 5ml honey is taken for cold and cough. In some areas old and yellow leaves are boiled in water to make decoction and is used for the treatment of cold. The leaf juice of *Hygrophila spinosa* (Gokulakanta) is taken on empty stomach early in the morning which increases hemoglobin content of RBC. It is supposed to be best for liver health also. Interestingly, the tribes believe strongly that keeping the short and young branches or leaves of *Ageratum conizoides* under the pillow is very much helpful to control insomnia. The stem epidermal peel of young branches of *Oroxylum indicum* is crushed to make juice and is used for Jaundice and Hepatitis C diseases.

The bark of *Terminalia arjuna* is dried and powdered, one spoon of which is mixed with 2 cups of water to make a decoction, and it is used in heart problems. The leaf juice (5ml) of *Nyctanthes arbortristis* is used to treat Malaria and Typhoid fevers. The leaves of *Andrographis paniculata* are used to cure fevers. The leaf juice of *Azadiracta indica* is mixed with turmeric powder and is applied on affected parts to treat allergies. *Carica papaya* leaf juice is used in Dengue fever, which is believed to increase platelets. Little mustard oil is applied on the leaves of *Calotropis procera* and is baked on pan, and then these leaves are tied with a cloth on knees. It is believed to get relief from knee joint pains. It is a known fact that the latex of this plant causes blindness if it comes in contact with the eyes. However, it is used to cure insect bites in this area. Whole plant of *Euphorbia hirta* is used in wound healing and asthma, the leaf to cure boils on skin.

The leaves of *Tridax procumbance* are crushed with bare hands and is applied on cuts and wounds. The leaves of *Achyranthes aspara* and *Cynodon dactylon* are also used to stop bleeding from cuts and wounds. *Achyranthes aspara* seeds are dried and powdered. This powder is used by tribals to cure toothache. In many villages, even today tooth paste is not used, rather they prefer twigs of some plants like neem (*Azadiracta indica*), pomegranate (*Punica granatum*), Aghada (*Achyranthus aspara*). Some tribals prepare their own tooth powder from ash of Brick Furnace and mix the dried seed powder of *Achyranthus aspara*. It relieves all types of tooth pains. The juice made from young branches (looks like compound leaves) of *Phyllanthus niruri* are used in diabetes. High levels of blood sugar are brought down in no time, as told by some patients. The leaves of *Tinospora cordifolia* are used to control diabetes. Two to three fresh leaves are eaten raw daily early in the morning. The leaves of *Vinca rosea* are chewed in the morning to control diabetes (blood sugar).

The research reveals that ingestion of *Heliotropium* plant is dangerous (Wongsatit Chuakul, 1999), however the tribal use the root of this plant to control blood sugar. *Stevia rebaudiana* leaves are used by these tribals as sweetener. It is best for diabetic patients. Recent research has revealed that *Stevia* plant in spite of containing more sweet, do not increase blood sugar levels and did not cause significant changes in the lipid profile of diabetic patients (Marjan A et.al. 2020).

TABLE 1: LIST OF PLANTS USED BY LOCAL TRIBAL COMMUNITY FOR MEDICINAL USE

Sr. No.	Name of plant	Family	Part used	Medicinal use
1	<i>Achyranthus aspara</i>	Amaranthaceae	Seeds, Leaves	Tooth pain; Stop bleeding from cuts Snake bite
2	<i>Adathoda vasica</i> (Syn. <i>Justicia adhatoda</i>)	Acanthaceae	Leaves	Cold and cough
3	<i>Ageratum conizoides</i>	Asteraceae	Young branches / Leaves	Insomnia
4	<i>Alternanthera paronychioides</i>	Amaranthaceae	Root	Tooth brush
5	<i>Andrographis paniculata</i>	Acanthaceae	Leaves	Fever
6	<i>Aristolochia indica</i>	Aristolochiaceae	Leaves	Snake bite
7	<i>Azadiracta indica</i>	Meliaceae	Root, Leaves, bark	Allergy
8	<i>Bryophyllum pinnatum</i>	Crassulaceae	Leaves	Kidney stones
9	<i>Butea monosperma</i>	Fabaceae	Stem, Flowers	Kidney stones, Piles, Stomachic
10	<i>Calotropis procera</i>	Asclepiadaceae	Leaves, latex	Joint pains
11	<i>Carica papaya</i>	Caricaceae	Leaves	Increases blood platelets
12	<i>Commelina benghalensis</i>	Commelinaceae	Leaves	Acidity
13	<i>Costus speciosus</i>	Costaceae	Leaves	High fever
14	<i>Cynodon dactylon</i>	Poaceae	Leaves	Stop bleeding from cuts Menstrual bleeding
15	<i>Euphorbia hirta</i>	Euphorbiaceae	Whole plant	Wound healing
16	<i>Euphorbia nerifolia</i>	Euphorbiaceae	Stem	White discharge in women
17	<i>Heliotropium indicum</i>	Boraginaceae	Roots	Diabetes
18	<i>Hygrophila spinosa</i>	Acanthaceae	Leaves	Hemoglobin in RBC
19	<i>Nyctanthes arbortristis</i>	Oleaceae	Leaves	Fever
20	<i>Oroxylum indicum</i>	Bignoniaceae	Stem peel	Liver problems & Hepatitis C
21	<i>Phyllanthus niruri</i>	Phyllanthaceae	Young branches	Diabetes
22	<i>Ricinus communis</i>	Euphorbiaceae	Leaves	Piles
23	<i>Spermacoce hispida</i>	Rubiaceae	Whole plant	Snake bite
24	<i>Stevia rebaudiana</i>	Asteraceae	Leaves	Sweetener
25	<i>Terminalia arjuna</i>	Combretaceae	Bark	Heart problems
26	<i>Tinospora cordifolia</i>	Menispermaceae	Leaves	Diabetes
27	<i>Tridax procumbance</i>	Asteraceae	Leaves	Stop bleeding from cuts
28	<i>Vinca rosea</i>	Apocynaceae	Leaves	Diabetes
29	<i>Vitex negundo</i>	Verbanaceae	Leaves	Vaginal discharge
30	<i>Vitis trifolia</i>	Vitaceae	Leaves	Menstrual problems

IV. CONCLUSION

The present ethnobotanical survey is conducted to explore the culture of local Gond tribal community, particularly in relation to use of plants for medicinal purpose. It is observed that the tribal people are losing their traditional identity due to several developmental activities around tribal areas which are not related to their welfare, resulting in a good deal of loss of such treasures of plant genetic resources (Shankar, 1995). However, the fact, the worlds don't know is that tribal people are known for their love to nature and they never destroy forests and use plant resources sustainably. Tribal community is the repository of traditional knowledge which they pass on to their own progeny by verbal communication only. No written documents are there. The plants used by these tribal people are mostly wild and foolproof in curing various ailments. The patients from nearby urban areas are also visiting for medication.

The authors also feel a lot of survey and research is yet to be taken to explore more plants having ethno botanical value. We strongly feel that it is the responsibility of the government to protect these tribal communities and their cultures. It is a known fact that they neither mingle with urban culture nor allow others to enter into their own culture.

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Fig. 2: Local plants used as medicines by tribal community in Mulchera tehsil

