

ETHNOBOTANICAL STUDIES OF BHADRAWATI TAHSIL OF CHANDRAPUR DISTRICT, MAHARASHTRA STATE

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Abstract: An aboriginal tribe dwells in Bhadrawati tahsil of Chandrapur district. So far very few ethno-botanical studies are conducted in this area. Therefore, a detailed study on tribal medicine in this area is undertaken from April 2016 to March 2018. During this work 25 species are collected having remedial effect belonging to 17 families of dicotyledons and monocotyledons were documented. The family Fabaceae is dominant family with four species followed by family Verbenaceae and Combretaceae with three species each, family Anacardiaceae with two species and Acanthaceae, Ebenaceae, Euphorbiaceae, Flindersiaceae, Hypoxidaceae, Lamiaceae, Liliaceae, Meliaceae, Mimosaceae, Myrtaceae, Rubiaceae, Rutaceae, and Sterculiaceae represented by one species each. The plant parts used for treatment reveals that leaves and stem bark of 08 Plants were used followed by whole 7 plants, fruits of 6 plants, roots of 4 plants, flowers of 2 plants, seeds, gums, petiole, stem juice, fruit oil, and heart wood of one plant. The diseases treated reveals that maximum 8 plants used for Fever, 6 plants for inflammation, 5 for skin diseases, 3 for Diabetes, cough, gastritis, and eye cleaning each, 2 for high blood pressure, Diarrhoea, boils, liver disorders, vitiligo, rejuvenative, analgesic, respiratory infection, epilepsy, crack heal, leucorrhoea, urinary stone and astringent each were treated by tribals of Bhadrawati tahsil of Chandrapur district.

IndexTerms - remedies, ethnomedicinal, families, tribals

I. INTRODUCTION

Plants are the great source of medicine especially in traditional medicine, which was useful in the treatment of various diseases (Bako, *et al.*, 2005). Ethnobotany has emerged as an important branch of study which focuses on the utility of different plant species and their properties as food, medicine and for other uses (Allen *et al.*, 1990, Cotton, 1997). An aboriginal tribe called Adivasi dwells in taluka. In spite of the community being drifted from the natural way of life due to agro-rural development activities a few aged tribal men are still able to furnish traditional ethno-medicinal data.

The use of plant species of the Himalaya, as medicine has been known for long time and about 1748 medicinal plants were reported from Indian Himalaya (Samant *et al.*, 1998). Tiwari, V.J. (2017) reported the ethnopharmacological study of Baiga Tribe of Madhya Pradesh reveals that *Flacourtia indica* syn. *F. ramontchi* fruit is used to cure liver disorders and its bark is used to cure malarial fever.

Phani Kumar, G. *et al.*, (2010) reported ethnobotanical observations of Euphorbiaceae species from Vidarbha region of Maharashtra state. Tiwari, V.J. (2016) reported the ethnopharmacological survey of Gond Tribe of Gondia district of Maharashtra State and reveals that seeds of *Trichosanthes cucumerina* var. *cucumerina* (TCC) are used to cure tonsillitis and fever. Tiwari, V.J. (2017) reported the ethnopharmacological study of Madia-Gond Tribe of Gadchiroli district of Maharashtra State reveals that fourteen ethnomedicinal plants are used to cure various ailments. Acharya, R.M., (1985) reported the medicinal plants which was used for primary health care in rural areas in Wardha district.

Harney, N.V. (2013) reported ethnomedicinal plant diversity of Bhadrawati tahsil of Chandrapur district in which he reported 62 plant species. Bodele, S.K., *et al.*, (2015) reported 49 plant species belonging to 49 genera and 30 families from Chimur tahsil of Chandrapur district. Harney N. V. (2015) reported ethnomedicinally important 62 plant species of Moharly village of Chandrapur district. Reddy M.B. (2012) reported 61 wild edible plants of Chandrapur district. Rajurkar, B.M.(2018) reported 23 plants used in various ailment from Warora tahsil of Chandrapur District.

Bhadrawati tahsil in Chandrapur District of Maharashtra State is sandwiched between Warora tahsil in the West-North and Chandrapur tahsil in the east-south. Its East-North boundary attached with Chimur and Sindewahi tahsil. The tahsil is located on 20°6'35"N 79°7'12"E. The population of Bhadrawati Tahsil, is about 1.6 lakh. There are 115 villages, among them Ghodpeth is the most populous village with population of 3244 and Chichghat Rith is the least populous village with population of 2. Bhadrawati tahsil place is situated on Chennai-new Delhi trunk line. Each village of tahsil, is inhabited with 2 to 3 families belongs to Adivasi community. Some of the villages like Chandankheda, and Moharley showing dominant inhabitant belong to Mana community. An aboriginal tribe called Adivasi dwells in taluka. In spite of the community being drifted from the natural way of life due to agro-rural development activities a few aged tribal men are still able to furnish traditional ethno-medicinal data.

Demography of Bhadrawati Tahsil

As of 2001 India census, The tahsil is home to about 1.6 lakh people, among them about 82 thousand (52%) are male and about 77 thousand (48%) are female. 66% of the whole population are from general caste, 16% are from schedule caste and 18% are schedule tribes. Child (aged under 6 years) population of Bhadravati tahsil is 10%, among them 52% are boys and 48% are girls. There are about 38 thousand households in the sub district and an average 4 persons live in every family. The majority of the population, nearly 53% (about 84 thousand) live in Bhadrawati Sub District rural part and 47% (about 74 thousand) population live in the Bhadravati Sub District urban part.



Figure: 1 Map of Maharashtra State



Figure: 2 Map of Chandrapur District



Figure: 3 Map of Bhadrawati Tahsil District

II. MATERIALS AND METHODS

The Survey of different localities of Bhadrawati tahsil was conducted during April 2016 to March 2018 at regular intervals and information of the plants regarding their medicinal uses were recorded from 'Vaidus' (medicine-man), elderly person, shepherds, and the uses of plants in specific rituals and the custom traditions were noted as per the methodology suggested by Lipp, (1989). Regular periodical field work is conducted covering all the seasons so as not to miss seasonal elements having pharmaceutical value and collected number of specimens. Ample field notes recorded pertaining to morphological characters. Local tribal men are contacted to record data related to medicinal uses, drug preparation and mode of administration etc. After identification, samples are properly processed, mounted on herbarium boards and deposited in herbarium of R. S. Bidkar College, Hinganghat. The collected plants were identified with the help of flora of Nagpur district (Ugemuge, 1986), flora of Maharashtra (Almeda, 1996).

III. OBSERVATIONS

Table: 1 Enumeration of data collected

Sr. No	Botanical Name	Family	Vern Name	Habit	Parts used	Method
1.	<i>Clerodendrum infortunatum</i> L.	Verbenaceae	Khanduchaka	Shrub	Whole plant, Leaves	Fever: Whole plant parts are ground with water to prepare a paste which is applied to cure fever, Diabetes, high blood pressure and asthma: Leaves are taken raw or are mixed with vegetable for curing diabetes, high blood pressure and asthma.
2.	<i>Terminalia bellerica</i> Roxb.	Combretaceae	Baheda	Tree	Fruits	Astringent and laxative: It is used as an astringent and a laxative tonic. Purgative: The fruits are used as purgative. Appetite: It cures loss of appetite. Diarrhoea: It is anti-diarrheal.
3.	<i>Terminalia chebula</i> Retz. &	Combretaceae	Hirada	Tree	Fruit	Cough and fever: Fruit powder is mixed with the water or milk and

	Willd.					taken internally for Cough and fever.
4.	<i>Aegle marmelos</i> (L.) Correa Ex. Schultz	Rutaceae	Bel	Tree	The fruit, leaves	Diarrhoea: taking tender fruits with honey or butter milk Jaundice: Intake leaves juice mixed with <i>Piper longum</i> , <i>Piper nigrum</i> , <i>Zingiber officinale</i> . Vomiting: Cooled decoction added with honey should be taken.
5.	<i>Andrographis paniculata</i> (Burm.F.)Wallich Ex Nees.	Acanthaceae	Kalmegh		Whole plant	Fever: The whole plant is used in the form of powder and decoction to treat fever. Oedema: Paste of whole plant and <i>Zingiber officinale</i> destroys chronic oedema.
6.	<i>Gloriosa superba</i> L.	Liliaceae	Bachnag		Whole plant	Piles: Paste mixed with seeds of <i>Albizia lebbek</i> should be applied on the haemorrhoids. Boils: Root or seeds are pounded with sour gruel and the paste is applied locally. Scrofula: Oil cooked with one-fourth paste of tuber and four times <i>Vitex negundo</i> juice should be taken as snuff and applied externally to destroy scrofula.
7.	<i>Phyllanthus niruri</i> Senu Hook.F.Non Linn.	Euphorbiaceae	Bhuiavala		Whole plant	Liver and kidney: The medicine is also useful in relieving liver and kidney problems. Bacterial infections: The <i>Phyllanthus niruri</i> is also used to relieve bacterial infections such as prostatitis, venereal diseases, urinary tract problems as well as cystitis. Anemia, hypertension and diabetes: The <i>Phyllanthus niruri</i> also helps in reducing anemia symptoms, hypertension and diabetes.
8.	<i>Psoralea corylifolia</i> L	Fabaceae	Bavachi		Whole plant	Kustha: An ointment with the powder mixed with <i>Zingiber officinale</i> destroys severe and chronic kustha Vitiligo: Decoction of <i>Phyllanthus emblica</i> , acacia catechu added with bavachi powder should be used regularly keeping on wholesome diet to alleviates vitiligo
9.	<i>Curculigo orchioides</i> Gaertn.	Hypoxidaceae	Kalimusli		Roots	Urinary Problems: The tuberous root of musali is used in the form of powder and decoction. Rejuvenative: <i>Asparagus racemosus</i> , <i>Sphaeranthus indicus</i> , <i>Tinospora cordifolia</i> , <i>Butea monosperma</i> and musali all in equal parts are powdered. It is mixed with ghee or honey and taken. It acts as rejuvenative and promotes body tissues and strength. Aphrodisiac: Regular use of the powder of musali mixed with ghee acts as aphrodisiac

10.	<i>Hyptis suaveolens</i> Poit.	Lamiaceae	Vilayati Tulsi		Whole plant	Inflammation and gastritis: It is used to treat inflammation, gastric ulcer and infection and also as a crude drug to relieve symptoms related with gastric ulcer or gastritis. Analgesic and decongestant: Parts of the plant were used as analgesic and decongestant, Fever: It is used to avoid fever and to fuel blood circulation with a sour, minty and sweet-smelling flavour.
11.	<i>Lantana camara</i> L.	Verbenaceae	Ghaneri		Leaves	Skin diseases: It is used to treat various diseases like cancer, skin itching, leprosy, rabies, chickenpox, measles, asthma and ulcers. Swellings: The extract can reduce the development of purulent swelling. Respiratory infections: It is used to treat respiratory infections.
12.	* <i>Diospyros ebenum</i> Koenig	Ebenaceae	Tendu	Tree	Whole plant	Strengthen the body: In the preparation of Catechu Powder of whole plant is taken along with the leaves and fruits of <i>Trichopus zeylanicus</i> , rhizome of <i>Curculigo orchioides</i> , fruits of <i>Phyllanthus emblica</i> , <i>Terminalia bellirica</i> and honey to strengthen the body
13.	* <i>Chloroxylon swietenia</i> DC.	Flindersiaceae	Bheria	Tree	Leaves, stem bark	Rheumatism: Leaves used in Rheumatism. Fever and epilepsy: Stem bark for fever and epilepsy. Chest pain: leaves used for chest pain.
14.	* <i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Bija	Tree	Heart wood	Obesity: In obesity, a decoction of the heartwood should be taken mixed with honey Skin diseases: Decoction of the heartwood is useful in skin
15.	<i>Sterculia urens</i> Roxb.	Sterculiaceae	Karu	Tree	Bark	Crack heals: The foot is rubbed on the bark of plant to prevent crack heals.
16.	<i>Lannea coromandelica</i> (Houtt.) Merrill	Anacardiaceae	Khirni	Tree	Stem bark	Wound: The wound is washed with a decoction of the powder from the bark (stem) followed by application of the dry powder
17.	<i>Gardenia turgida</i> Roxb.	Rubiaceae	Phetra	Tree	Whole plant	Traditional healers use this herb for a variety of ailments such as Leucorrhoea, Dog bite, Scorpion string, Epilepsy, Stone, stomachache, Snake bite, Diminished breast milk secretion, Tuberculosis and Gout.
18.	<i>Soymdia febrifuga</i> (Roxb.) A.Juss.	Meliaceae	Rohan	Tree	Roots, Gums	Eye cleaning: Decoction of roots is used as an eye drop for eye cleaning & redness of eye. Gum is used as kajal for eye cleaning.
19.	<i>Albizia lebeck</i>	Mimosaceae	Kala siris	Tree	Leaves	Astringent: Lebeck is an astringent.

	(L.) Benth.				and stem bark	<p>Boils, cough, eye, flu, gingivitis, lung, pectoral: It is used by some cultures to treat boils, cough, to treat the eye, flu, gingivitis, lung problems, pectoral problems.</p> <p>Abdominal tumors: It is used as a tonic, and is used to treat abdominal tumors.</p> <p>Inflammation and psychoactive: The bark is used medicinally to treat inflammation.</p>
20.	<i>Eugenia jambolana</i> Lam.	Myrtaceae	Jambul	Tree	bark, fruit, seed and leaf	<p>Astringent, refrigerant, carminative, diuretic, digestive, diabetes, leucorrhoea, gastric disorder: The plant parts such as bark, fruit, seed and leaf are used as astringent, sweet, sour, acrid, refrigerant, carminative, diuretic, digestive, in diabetes, leucorrhoea, gastric disorder,</p>
21.	<i>Gmelina arborea</i> L.	Verbenaceae	Shivan	Tree	Fruits, Roots	<p>Fever, burning sensation, painful urination, and heart diseases: The fruits are given in case of fever, excess pitta, burning sensation, excessive thirst, painful urination, and heart diseases.</p> <p>Hair and rejuvenating: The fruits are promoter of good hair, rejuvenating and promoter of intellect.</p> <p>Anthelmintic and hemorrhoids: Roots are described as acrid, bitter, anthelmintic, galactagogue, laxative, stomachic, tonic, useful in burning sensation, dyspepsia, fever, hemorrhoids, hallucination, fever, indigestion, anasarca etc.</p>
22.	<i>Semecarpus anacardium</i> L. F.	Anacardiaceae	Bibba	Tree	The nuts, oil and flowers	<p>Skin diseases: The nuts, oil and flowers of Bibba is used in the form of paste and oil to treat skin diseases, piles, guineaworm, splenomegaly, scrofula, rheumatism, as aphrodisiac, alopecia, worms, poisoning, malarial fever.</p> <p>Chronic skin diseases: Food and preparations of ghee containing bibba, <i>Phyllanthus emblica</i>, <i>Terminalia chebula</i>, <i>Terminalia bellerica</i>, and <i>Azadirachta indica</i> should be used in case of chronic skin diseases.</p> <p>Vitiligo: Bibba nuts should be crushed kept overnight in cow-urine and then dried. This is repeated thrice. Then it is pounded finely and made into a paste which, mixed with <i>Euphorbia neriifolia</i> latex, is applied on the spot.</p>
23.	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Palas	Tree	Roots, stem bark, stem	<p>Impotency: Roots against impotency.</p> <p>Body swelling: Stem bark against body swelling.</p>

					juice, petiole, leaves, flowers	Goiter: Stem juice against goiter. Cough, and cold: Petiole for cough, cold, stomach disorders; Conjunctivitis, diabetes, sore throat, bleeding in menstruation; leaves for conjunctivitis, diabetes, sore throat, bleeding menstruation. Chronic fever: flowers for reducing body heat against chronic fever. Urinary stone: Seeds for urinary stone. Foot cracks and dysentery: Gum for foot cracks and against dysentery.
24.	<i>Erythrina variegata</i> L	Fabaceae	Pangara	Tree	bark and leaves	Stomach disorders, anti-abortion treatment, malarial fever and liver problems: The bark and leaves is used in stomach disorders, anti-abortion treatment, malarial fever and liver problems. Antibacterial, Antioxidant, Analgesic & Anti-inflammatory: It is used as Antibacterial, Antioxidant, Analgesic & Anti-inflammatory.
25.	<i>Anogeissus latifolia</i> Wall. Ex. Guill. & Perr.	Combretaceae	Dhauda	Tree	Stem Bark	Skin diseases: Bark is made into a paste and applied on affected parts. Ear inflammation: Oil prepared with the bark is used as an ear drop in case of ear inflammation.

Table: 2 Details of medicinal use of plant parts.

Sr. No.	Part used	Number of Plants
1	Leaves	08
2	Roots	04
3	Stem bark	08
4	Seeds	01
5	Fruits	06
6	Flowers	02
7	Entire plant	07
8	Gums	01
9	Petiole	01
10	Stem Juice	01
11	Oil	01
12	Heart wood	01

IV. RESULTS AND DISCUSSION

During this work 25 species are collected having remedial effect belonging to 17 families of dicotyledons and monocotyledons were documented. The family Fabaceae is dominant family with four species followed by family Verbenaceae and Combretaceae with three species each, family Anacardiaceae with two species and Acanthaceae, Ebenaceae, Euphorbiaceae, Flindersiaceae, Hypoxidaceae, Lamiaceae, Liliaceae, Meliaceae, Mimosaceae, Myrtaceae, Rubiaceae, Rutaceae, and Sterculiaceae represented by one species each (Table: 2).

The analysis of plant parts used for treatment reveals that leaves and stem bark of 08 Plants were used followed by whole plant of 07 plants, fruits of 06 plants, roots of 04 plants, flowers of 2 plants, seeds, gums, petiole, stem juice, fruit oil, and heart wood of one plant each were employed by tribals of Bhadrawati tahsil of Chandrapur district (Table: 2).

The analysis of diseases treated reveals that maximum 08 plants used for Fever, 06 plants for inflammation, 05 for skin diseases, 03 for Diabetes, cough, gastritis, and eye cleaning each, 02 for high blood pressure, Diarrhoea, boils, liver disorders, vitiligo, rejuvenative, analgesic, respiratory infection, epilepsy, crack heal, leucorrhoea, urinary stone and astringent each. Asthma, Astringent and laxative, Purgative, Appetite, Jaundice, vomiting, Piles, Boils, Scrofula, Oedema, kidney, Bacterial infections, Anemia, Kustha, Urinary Problems, Rejuvenative, Aphrodisiac, Obesity, Wound, Dog bite, Scorpion sting, stomachache, Snake

bite, Tuberculosis, Gout, lung, pectoral, psychoactive, refrigerant, carminative, diuretic, digestive, burning sensation, painful urination, and heart diseases, Hair, Anthelmintic and hemorrhoids, Impotency, Goiter, sore throat, bleeding in menstruation, Foot cracks, dysentery, Analgesic and decongestant, Rheumatism, and anti-abortion treatment.

During these studies a good number of ethno-medicinal plants are collected. However in this article 25 species having remedial effect are enumerated due to frequent use of plants by the tribals. Latest name followed by relevant synonyms if any, local name and collection number are given. Habit and ethno-medicinal data are furnished for each species. *Clerodendrum infortunatum* L and *Sterculia urens* Roxb, are under threatened condition owing to excess use, degradation of scrub jungles, removal of countryside natural hedges and implementation of agro-rural development schemes correlated with the report of Bharath Kumar *et al.*, (2010). *Pterocarpus marsupium* Roxb. of family Fabaceae commonly known as Bibba fruits were frequently used and practiced by some traditional healer in this area to cure skin diseases correlated with the report of Katrahali, K.S. (2011).

These observations were well supported by the previous studies of Kimiyme *et al.*, (2011) who stated that the plants had a medicinal value and cure diseases. Bhogaonkar *et al.*, (2010) documented 42 plant species belonging to 23 families consumed by the tribal and Dhore *et al.*, (2010) explored 25 wild edible plants species belonging to 15 families. Mali *et al.*, (2006) have reported 20 angiosperm species. Phani, and Ashok Kumar., (2009) reported 25 medicinal plants. Ramteke, *et al.*, (2016) have reported electronic data base of 329 medicinal plants belonging to 76 families used for numerous health ailments from Wardha district.

V. CONCLUSION

A critical study of 25 plants having medicinal properties collected from Bhadrawati tahsil revealed that 03 plants represented by asteric (*) *Diospyros ebenum* Koenig, used for strengthened the body, *Pterocarpus marsupium* Roxb as skin diseases controlling plants and *Chloroxylon swietenia* DC used for rheumatism is first hand report by local ethnic tribe. In addition to the already known conventional uses for these 03 plants additional pharmaceutical uses as reported by tribals also are given. Two species i.e. *Clerodendrum infortunatum* L and *Sterculia urens* Roxb are under threatened state (Bharath Kumar *et al.*, 2010). They need to be conserved in this area and propagated for their proper utilization and to prevent further exploitation.

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