

Indigenous traditional knowledge (ITK) from forest dwellers of Gondia district, Maharashtra

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Abstract

Indians have great knowledge of phytomedicines. This valuable knowledge has been conserved in the living folk traditions in ethnic communities. An attempt has been made to explore traditional medicinal knowledge of plant materials, available in forest villages of Goregaon and Deori forest range of Gondia district, Maharashtra state. Gondia is one of the prominently categorized districts with maximum tribal population in Maharashtra which includes mostly *Gond*, *Gowari*, *Halbi*, *Manah* tribes with great numbers. In this study we documented about 49 plant species of various families which are commonly used by the tribal people to cure some common diseases viz. Dysentery, acute headache, toothache and carries, urinary troubles, skin diseases, antidote against snake bite, vomiting and many more. Ethnobotanical information were gathered through several visits, group discussions and cross checked with traditional medical practitioner of the study area.

Keywords: Indigenous Traditional Knowledge (ITK), Diseases, Tribals, Goregaon and Deori Forest; Gondia.

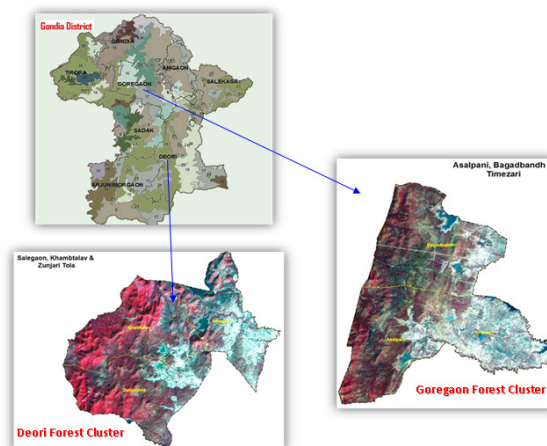
INTRODUCTION

The traditional communities in the world over are the treasure trove of accumulated knowledge and wisdom particularly about their natural resources. In recent years, the plants used traditionally for curative purpose, the traditional knowledge system handed over from generation to generation by traditional communities by oral method is still continuing in many developing countries, have attracted attention of the research areas [1, 2, 3]. Most of the plants compounds employed in modern medicine were first discovered through Ethnobotanical investigations. There are some 130 plants derived compounds which currently used in western medicine and 74% of these have been discovered through follow up research work to verify the authenticity of the information concerning the folk/ethnomedical use of plants [4]. The medicinal properties of a plant are due to the presence of certain chemical constituents. These chemical constituents, responsible for the specific physiological action, in the plant, have in many cases been isolated, purified and identified as definite chemical compounds.

Quite a large number of plants are known to be of medicinal use remains uninvestigated and this is particularly the case with the Indian flora. Furthermore, a growing world-wide interest in the use of phytopharmaceuticals as complementary or alternative medicine, either to prevent or to ameliorate many diseases, has been noted in recent years. Therefore documentation of the indigenous knowledge through Ethnobotanical studies is important for both viz, conservation

and initialization of biological resources [5]. The present study includes the plants traditionally used in the treatment of various diseases, parts of use and the local names of the plants.

MATERIALS AND METHODS



The present study was undertaken in the six forests villages of Goregaon and Deori forest clusters of the Gondia district. Of which *Asalpani* (N 21° 21' 16" E 80° 00' 53.8" Elevation 1196 ft), *Bagadband* (N 21° 21' 46" E 80° 06' 50.8" Elevation 1153 ft) and *Gondi-Timezari* (N 21° 20' 21.9" E 80° 06' 31.7" Elevation 1170 ft) villages come under Goregaon forest clusters while *Salegaon* (N 21° 10' 29.887" E 80° 21' 53.749" Elevation 1008 ft), *Zunjaritola* (N 21° 08' 43.694" E 80° 20' 28.087" Elevation 1100 ft) and *Khambtalav* (N 21° 10' 04.872" E 80° 20' 27.306" Elevation 1118 ft) of Deori forest clusters. Plant specimens were identified and confirmed with the help of the herbarium at Department of Botany, RTM Nagpur University, Nagpur. For the present investigation, *Gond*, *Gowari*, *Manah* and *Halbi* tribes were selected for all the six villages of two forest clusters.

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The methods adopted for investigations are those of Schultes [6], Jain [7], and Jain [8].

RESULTS AND DISCUSSION

During the survey, about 49 plant species of different families has been recorded. Among which some are marketed by local peoples. The prevalence of the practices of folk medicine is generally found at the places where the amenities of modern society are not available. Many natural barriers or poor economical background force them to depend on herbal healing and forest resources. It is evident that many valuable herbal drugs have been discovered by knowing that particular plant was used by the ancient folk healers for the treatment of some kind of ailment [9]. In the present investigation, ethnobotanical observations of tribal areas of Goregaon and Deori forest clusters of Gondia district of Maharashtra State were listed in Table-1.

In the present investigation it is observed that the same plants or parts of plants used for different purposes by local tribes. *Euphorbia hirta*, *E. thymifolia*, *Cleistanthus collinus* are found to be used as an anti-inflammatory, antiseptic, antidysentrics, for curing scabies, antidote for snake bite, astringent, anthelmatic and against ringworm. It is used as a laxative for children and applied on bone dislocation of animals. The result is supported by the findings of Binoj Kumar *et al* [10], Kumar & Chaturvedi [11]. Similar observations have been reported by Chaturvedi and Diwanji [12]. While comparing with the standard protocol of the Indian Materia Medica [13], Indian medicinal plants [14, 15, 16], Indian Pharmacopiea, some new information collected from these forest aboriginals; which are not documented in these protocols. Nowadays this information is applied in many pharma industries. Antidiabetic activity of whole plant, leaf, stem, bark of *Catharanthus roseus*, *Gymnema sylvestre*, *Acalypha indica* [12] and *Azadirachta indica* respectively is not reported in earlier work. Toothache (Bleeding) & carries from *Achyranthes aspera* (root), *Pergularia daemia* (Vegetative bud) and *Solanum nigrum* (Fruit); skin disease from latex of *Calotropis gigantiana*, rhizome of *Curculigo orchioides*, fruits of *Helictres isora*. Some minor

problems like cold, headache, injuries, cough, eye inflammation, body pain, pimples, boils are cure from *Spilanthus calva* (Roots), stem & bark of *Cassia fistula*, bark of *Tamarindus indicus*, fruits of *Terminalia chebula*, whole plant of *Solanum surrattense*, rhizomes of *Costus speciosus*, latex of *Pedilanthus tithymaloides*, roots of *Hemidesmus indicus*, twig of *Cissus quadrangularis*, bark of *Murraya koenigii*, leaf of *Gmelina arborea* used for fever. Leaf of *Phoenix sylvestris* used in eye inflammation while roots of *Datura metel* for pimples & boils. Rhizomes of *Costus speciosus* and roots of *Vitex negundo* acts as an antiasthmatics in nature. Apart from these, Euphorbiaceae members are reported as folk medicines [17, 18, 19].

Many other diseases like eye inflammation and anti dysentrics, cold, urinary troubles, skin diseases and anti asthmatics, anaemia, piles, antidiabetic, dermatitis, vomiting, antidiabetics, jaundice, anti inflammatory, piles and skin diseases, antidysentrics and body pain, snake bites and antidysentrics, jaundice, antidysentrics and against scabies, anti rheumatics, cough and anti asthmatics treated by herbal formulations of various plants. (see Table No.1).

Abrus precatorius, *Erythrina variegata* and *Pterocarpus marsupium* investigated as abortifacience, indigestion, stomach ache and 3 species of Solanaceae used against pimples, toothache and cough, whereas 3 species of Verbenaceae used in the treatment of anti dote against snake bite, delivery tonic and asthma. 2 species of each Convolvulaceae, Rutaceae used in hair growth and antihepatics, antiplague and fever. The earlier work done for the investigation of traditional uses of ethnomedicinal plants by several workers supported to the above findings [20, 21, 22, 12].

The documentation of the ethnic uses of plant resources is very important for a variety of reasons. The basic data, provided for economically important plants should encourage further studies aiming at their large scale cultivation and economic welfare. The facts and figures in case of ethnomedicinally important plants should be pursued for further studies including chemical and pharmacognostic analysis [23].

Plate 1



Table 1. Ethno botanical Observations Of Some Important Plants From Goregaon and Deori clusters of Gondia District.

S.No	Botanical name	Family	Local Name	Availability	Part used	Medicinal Uses	
						Local Knowledge	Indian Materia Medica
1	<i>Achyranthes aspera</i> L.	Amaranthaceae	Kuthri	C	Root	Toothache (Bleeding)	Cough, Bowel complaints
					Seeds	Cough, Cold	Piles
					Leaf		antidysenteric, antidiarrhoea, Stomach ache
2	<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	Sadafuli	C	Whole plant	Anti diabetic	--
3	<i>Phoenix sylvestris</i> Roxb	Araceae	Sindhi	O	Leaf	Eye inflammation	--
4	<i>Calotropis gigantiana</i> (L) R Br	Asclepiadaceae	Rui	O	Roots	Anti dysenteric	Same
					Latex	Skin diseases	Abortifacient
5	<i>Pergularia daemia</i> (Forsk) Chior	Asclepiadaceae	Kavali	S	Vegetative bud	Toothache & caries	--
6	<i>Gymnema sylvestre</i> (Retz) R. Br. Ex Schultes.	Asclepiadaceae	Gulvel	S	Leaf	Anti diabetics	Same
7	<i>Spilanthes calva</i> DC	Asteraceae	Akkalkara	C	Roots	Cold	Headache, cough
8	<i>Cassia fistula</i> L.	Caesalpinaceae	Amaltas	O	Stem & Bark	Headache	Cardiac problems
9	<i>Tamarindus indicus</i> L.	Caesalpinaceae	Chinch	O	Bark	Injuries	Astringent & tonic
10	<i>Terminalia chebula</i> Retz.	Combretaceae	Hirda	C	Fruits	Cough	Fever, asthma & urinary
11	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	Shanka veli	C	Whole plant	Hair growth	Diarrhoea
12	<i>Ipomoea obscura</i> (L) Ker-Gawl	Convolvulaceae	Pingali	C	Leaf	Anti hepatic	
13	<i>Citrullus colocynthis</i> (L)	Cucurbitaceae	Indraban	O	Fruit, Leaf	Delivery tonic	--
14	<i>Diospyros melanoxylon</i> Roxb	Ebenaceae	Tendu	C	Bark, Leaf & Flower	Cures urinary troubles	Antidysenteric, antidiarrhoea, dyspepsia
15	<i>Acalypha indica</i> L.	Euphorbiaceae	Kupi	O	Leaf	Anti diabetic, against rheumatism	Anthelmintic
16	<i>Cleistanthus collinus</i> (Roxb) Benth.	Euphorbiaceae	Garadi	O	Leaf	Antidote against snake bite	--
					Leaf & Stem	Insecticide, fish poison	Fish poison (stem)
17	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Dudhanali	C	Leaf	Urinary disorders, itches, gonorrhoea	--
					Latex	Remove warts	Same
					Whole plant	Cure scabies (Skin diseases), burns, antiseptic, antidysenteric, antidiarrhoea	
18	<i>Euphorbia thymifolia</i> L	Euphorbiaceae	Sher	O	Whole plant	Relieve joint pains, anti-inflammatory agent, applied on bone dislocation of animals	Vermifuge
					Leaves	Antidote for snake bite, astringent, anti thelmatic, against ring worm	Anti worms & gonorrhoea
					Seeds	Laxative for children	--
19	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Ratanjyot	C	Whole plant	Purgative & Stomach ache	Boils & itches
20	<i>Pedilanthus tithymaloides</i> (L) Poir	Euphorbiaceae	Vilayati sher	O	Latex	External pain	--
21	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Awala	O	Fruit	Used in general weakness, cure night blindness, cough, control vomiting, removing dandruff	--
					Leaf	Antibacterial & antiviral	
					Stem	Anti-inflammatory agent	
					Bark	Cure diarrhoea & dysentery	
22	<i>Abrus precatorius</i> L.	Fabaceae	Gunj	S	Root	Abortifacient	Cough
23	<i>Erythrina variegata</i> L.	Fabaceae	Panjara	O	Stem bark	Indigestion.	--
24	<i>Pterocarpus marsupium</i> Roxb	Fabaceae	Bibla	O	Stem bark root paste	Stomach ache	Cure diarrhoea, pyrosis

					Leaf	Boils	--
25	<i>Curculigo orchioides</i> Gaertn.	Hypoxidaceae	Jangli Halad	O	Rhizomes	Skin diseases, Antiasthematics	Piles, jaundice, diarrhoea
26	<i>Leucas aspera</i> (Willd.) Spreng.	Lamiaceae	Kumbi	O	Whole plant, Flower	Anaemia	Cold, scabies, snake bites
27	<i>Gloriosa superba</i> L.	Liliaceae	Kal lavi	S	Roots	Piles	Abortifacient
28	<i>Hibiscus sabdariffa</i> L.	Malvaceae	Ambadi	O	Whole plant	Jaundice	Carries, dyspepsia
29	<i>Azadirachta indica</i> A. Juss	Meliaceae	Kaduneem	C	Stem & Bark	Dermatitis, Antidiabitics	Anthelmatic, stomach ache
30	<i>Tinospora cordifolia</i> (Willd) Hook. f. & Thoms.	Menispermaceae	Gulvel	S	Whole plant	Vomiting	Fever, dyspepsia, leprosy, gout.
31	<i>Ficus benghalensis</i> L.	Moraceae	Wad	C	Bark	Antidiabetics	Astringent
32	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Punamava	C	Roots	Jaundice	Rheumatism
33	<i>Vanda tessellate</i> (Roxb) Hooker	Orchidaceae	Vanda	O	Leaf	Antiinflammatory	--
34	<i>Oxalis corniculata</i> L.	Oxalidaceae	Tipani	C	Whole plant, Leaf	Piles, Skin diseases	Skin diseases, dysentery
35	<i>Hemidesmus indicus</i> (L.) Schult.	Periplocaceae	Anantvel	C	Root	Antidysentrics, Body pain.	Skin diseases
36	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Chitrak	O	Leaf	Snake bite, Indigestion & Antidysentrics	Same
37	<i>Aegle marmalos</i> (L) Corr.	Rutaceae	Bel	O	Leaves & Fruit pulps	Anti plague	Antipyretic, laxative, stomachache, digestive
38	<i>Murraya koenigii</i> Spreng.	Rutaceae	Kadipatta	O	Bark	Fever	Stomachache, purgative, vomiting
39	<i>Madhuca indica</i> (Koenig) Macb	Sapotaceae	Mahua	C	Vegetative bud	Anti dysentrics	--
40	<i>Bacopa monnieri</i> (L.) Penn.	Schrophulariaceae	Brahmi	S	Whole plant	Jaundice	--
41	<i>Datura metel</i> L.	Solanaceae	Dhotra	C	Root	Pimples, Boils	--
42	<i>Solanum nigrum</i> L.	Solanaceae	Ranvanga	C	Fruit	Toothache	Heart diseases
43	<i>Solanum surattense</i> Bum. f.	Solanaceae	Bhui ringni	C	Whole plant	Cough	--
44	<i>Helictres isora</i> L.	Sterculiaceae	Muradsheng	O	Fruits	Anti dysentrics, Cure scabies (Skin diseases)	Antidiarrhoea, Stomach ache
45	<i>Gmelina arborea</i> Roxb.	Verbenaceae	Shiwan	C	Leaf	Antidote against snake bite, Fevers	Headache
46	<i>Phyla nodiflora</i> (L) Green	Verbenaceae	Gour mundi	C	Whole plant	Delivery tonic	--
47	<i>Vitex negundo</i> L.	Verbenaceae	Nirgudi	O	Roots	Anti asthematics	Tonic, diuretic, expectorent
48	<i>Cissus quadrangularis</i> L.	Vitaceae	Harsankar	C	Twig	Rheumatic pain	Cuts, fractures, blood purifier
49	<i>Costus speciosus</i> (Koenig) Sm	Zingiberaceae	Kadu Kanda	S	Rizomes	Cough, and Anti asthematics	Anthelmatic, astringent, digestive, aphrodisiac

Note: C: Common, O: Often, S: Seldom, --: Not Known

CONCLUSION

The importance of these traditional medicines has been realized world wide as some of them proved to be very effective and some other prescriptions of these traditional healers may be of benefits to human kind when through scientific analysis is conducted into their properties. At the same time the complications caused by some of the medicines prescribed by the traditional healers should also be taken into considerations. Herbal therapy is not only cost effective but also provides means for the treatment of many diseases, which are considered to be incurable in other system of medicines. From the foregoing account it is very clear that the tribes of

Goregaon and Deori Forest clusters of Gondia district are using number of medicines of plant origin. They are consuming various species of different families for various diseases. It is thus important that modern scientific studies be done on these medicinal plants so that the plants may be used as remedies in a more rational and scientific manner. In this way such ethnobotanical studies enable the transfer of knowledge on plant based treatment (our natural inheritance) to the future generation.

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REFERENCES

- [1] Kargiöglu M, Cenkeci S, Serteser A, Evliyaöglu N, Konuk M, Kok MS, Bagci Y 2008. An ethnobotanical survey of inner-West Anatolia, Turkey. *Hum. Ecol.* 36: 763-777.
- [2] Simsek I, Aytekin F, Yesilada E, Yildirimli S. 2004. An ethnobotanical survey of the Beypazarı, Ayas, and GÜdül district towns of Ankara province (Turkey). *Econ. Bot.* 58: 705-720.
- [3] Ozgen U, Kaya Y, Coskun M. 2004. Ethnobotanical studies in the villages of the district of Ilıca (Province Erzurum), Turkey. *Econ. Bot.* 58: 691-696.
- [4] Farnsworth N R. 1988. Screening of plants for new medicine. In: Biodiversity. Wilson E. O. (Ed) *National Acad. Press. Washington.* 63-97.
- [5] Muthu C, Ayyanar M, Raja N, Ignacimuthu S 2006. Medicinal plants used by traditional healers in Kancheepuram district of Tamil Nadu, India. *J. Ethnobiol. Ethnomed.* 2: 43
- [6] Schultes, R.E. 1962. The role of ethnobotanist in the search for new medicinal plants *Lloydia* 25: 7-266.
- [7] Jain, S.P. 1984. Ethnobotany of Morni and Kalesar (District Ambala, Haryana) *Journal of Economic and Taxonomic Botany*, 5: 809-813.
- [8] Jain, S.K. 1991. Dictionary of Indian folk-medicine and ethnobotany. *Deep Publications.* New Delhi.
- [9] Ekka, R N. and Dixit, V.K. 2007. Ethno-pharmacognostical studies of medicinal plants of Jashpur district, Chattisgarh, *International Journal of Green Pharmacy.* 1(1): 2-4.
- [10] Binoj kumar, M.S. and Balakrishnan, N.P. 1996. Ethnobotanical studies of the genus *Euphorbia* L. (Euphorbiaceae) *J Econ Taxon Bot.* Additional series, 12, Maheshwari JK (Ed) *Ethnobotany in South Asia Scientific Publishers, Jodhpur (India)* 46-49.
- [11] Phani Kumar and Chaturvedi A, 2010. Ethnobotanical Observations of Euphorbiaceae Species from Vidarbha region, Maharashtra, India. *Ethnobotanical Leaflets* 14:674-80.
- [12] Chaturvedi, A. and Diwanji, B.B. 1995. Medicinal value of some weed plants of Ratlam District, MP In: Padhye MD, Mukherjee PK and Khalatkar AS (ed) *Botany towards 2000 AD Datson's Publishers Nagpur.* 139-146.
- [13] Nandkarni, A.K. 1954. *Indian Materia Medica Vol I and II Popular Prakashan Publication, Bombay.*
- [14] Kirtikar, K.R. and Basu, B.D. 1975. *Indian medicinal plants Vol: I-IV, Second Edition M/s Bishan Singh Mahendrapal Singh, New Delhi.*
- [15] Ambasta, S.P. (ED) 1986. *The useful plants of India C.S.I.R. New Delhi.*
- [16] Chopra, R.N., Nayar, S.L. and Chopra, I.C. 1992. *Glossary of Indian Medicinal plants CSIR New Delhi.*
- [17] Siwakoti, M. and Varma, S.K. 1996. Medicinal plants of the Terai of Eastern Nepal *J Econ Taxon Bot Additional series, 12, Maheshwari JK (Ed) Ethnobotany in South Asia Scientific Publishers, Jodhpur (India)* 423-438.
- [18] Nawaz A.H. Md. Mahabub, Maruf Hossain, Masud Karim, Mujib Khan, Rownak Jahan, Mohammed Rahmatullah. 2009. An ethnobotanical survey of Rajshahi district in Rajshahi division, Bangladesh *American-Eurasian Journal of Sustainable Agriculture*, 3(2): 143-150
- [19] Cakılcıoğlu U, Sengün M. T. and Turkoglu D. 2010. An ethnobotanical survey of medicinal plants of Yazıkönak and Yurtbaşı districts of Elazığ province, Turkey *Journal of Medicinal Plants Research* Vol. 4(7), 567-572.
- [20] Prakash V & Agrawal A. 2010. Traditional uses of ethnomedicinal plants of lower foot hills of Himachal Pradesh- I, *Indian Journal of Traditional Knowledge* Vol. 9(3) pp 519-521.
- [21] Jayakumar G, Ajithabai MD, Sreedevi S, Viswanathan PK and Remeshkumar B, 2010. Ethnobotanical survey of the plants used in the treatment of diabetes. *Indian Journal of Traditional Knowledge* Vol. 9(1) pp 100-104.
- [22] Meena K.L & Yadav B.L., 2010. Some traditional ethnomedicinal plants of southern Rajasthan. *Indian Journal of Traditional Knowledge* Vol. 9(3) pp 471-474.
- [23] Rai S.K. and Bhujel R.B. 2002. Ethnic uses of some monocotyledonous plants in the Darjeeling Himalaya region, *Proceeding Perspectives of Plant Biodiversity, Bishen Singh Mahendra Pal Singh, Dehradun.*