

Use of medicinal plants among tribes in Satpuda region of Dhule and Jalgaon districts of Maharashtra—An ethnobotanical survey

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An ethnobotanical survey was carried out on the use of medicinal plants in Satpuda region of Dhule and Jalgaon districts of Maharashtra. The information was gathered from *Pawara*, *Bhil* and *Pardhi* tribes using an integrated approach of botanical collections, group discussions and interviews with questionnaire during 2004-2005. Among 50 informants interviewed, 8 were tribal practitioners. A total of 67 medicinal plant species distributed in 37 families are documented. In most of the cases, fresh part of the plant was used for the preparation of medicine. These tribal people still depend on the medicinal plants to cure their diseases and disorders in Satpuda forest region. The documented ethnomedicinal plants were mostly used to cure wound infections, skin infections, stomachache, fever, cough, diabetes, diuretics, diarrhoea, eye infections and general weakness.

Keywords: Ethnomedicine, Medicinal plants, *Pawara* tribe, *Bhil* tribe, *Pardhi* tribe, Maharashtra

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Traditional medicine is widely used and accounts for around 40% of all health care delivered¹. Herbal medicines have good values in treatment. In many countries, scientific investigations of medicinal plants have been initiated because of their potential². About 85% of traditional medicines are plant derived³. Traditional medicine and ethnobotanical information play an important role in scientific research^{4,5}. Scientific interest in traditional medicine in India has continuously been increasing. Among the medicinal plants used in Ayurvedic medicines for their therapeutic action, some of these have been thoroughly investigated⁶. Central India is known for its richness of medicinal flora. Plants, of immense medicinal value are abundantly found in Satpuda, Vindhya, Aravali ranges, Bailadilla Hills, Abhujmar, Khurchel valleys, Kanger Reserve, Amarkantak, Pachmarhi and Patalkot areas. Central India is covered with tropical forests, which are rich in biodiversity. However subtropical hill forests are found in few areas. Of about 500 species of medicinal plants found some of the economically important medicinal plants are on the verge of extinction⁷. The

objective was to assess the richness of medicinal plant species and traditional medical practices used by the *Pawara*, *Bhil* and *Pardhi* tribes in Satpuda forest region of Dhule and Jalgaon districts of Maharashtra. Conservation of biological resources as well as their sustainable use is important in preservation of traditional knowledge.

There are several types of tribes in the studied region, but majority of them belong to *Pawara*, *Bhil* and *Pardhi* tribes. These groups remain isolated, living in remote forest and hilly areas far from civilization. Majority of them have poor health status, peculiar health needs and a wide prevalence of disorders that complicates their health problems further. Moreover, inadequate health infrastructure in tribal areas to deal with such complicated health problems is a matter of grave concern. Ninety-eight per cent of the *Pawari* practice ethnic religions. They are dependent on rainfall to water their crops, since the ground is not very fertile⁸. There are two divisions of *Bhil*: the Central or *pure Bhil*, and the Eastern or *part-Rajput Bhil*. The Central *Bhil* lives in the mountain regions of India, particularly in the states of Madhya Pradesh, Gujarat, and Rajasthan and speak *Bhili*, which is an Indo-Aryan language⁹. The *Pardhi*

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Bhils are a migrant people, scattered over a wide area of central India in the states of Andhra Pradesh, Madhya Pradesh, Gujarat, and Maharashtra. Their language, *Pardhi*, is one of the *Bhil* languages. The *Pardhi Bhil* consists of many distinctive sub-groups. Ninety-five percent of the *Pardhi* practice ethnic religions¹⁰.

Methodology

In North-western side of Maharashtra state, Dhule district is located between Latitude 20 38' to 21 61' N and Longitude 73 50' to 75 11' E while Jalgaon district is located between Latitude 20 to 21 N and Longitude 74 55' to 76 28' E. Both the districts are bounded by Satpuda hill ranges in the North. Crossing the ranges Gujarat and Madhya Pradesh states are located. The study area concentrates in and around both district forest areas having elevations from 300 m to 700 m MSL. There are number of hill ranges in the study area. The area of investigation approximately lies between Latitude 20 40' to 21 0' N and Longitude 74 0' to 75 50' E. Temperature ranges from 10°C to 40°C and averages between 16°C in winter and 39°C in summer. The average rainfall is 592 mm. Among 25 villages visited, every village has

at least one of the tribes. The fieldwork in 25 villages around the forest area was conducted during November 2004-December 2005 to study the medicinal plants used by these tribes. More than 650 families and 3,500 members of these communities are found in this area. There were 50 informants (36 males and 14 females) between the ages of 35-76 yrs and among them, males were farmers and females were housewives. Among the males, 8 were regular tribal practitioners as well as farmers. Ethnobotanical data were collected by the suggested methodology¹¹. The data including local name, mode of preparation, medicinal uses, parts used were collected using interview, questionnaire, collecting samples and discussions with the practitioners. Nomenclature of the specimens deposited in the Pharmacognosy and Phytochemistry department of MAEER's Maharashtra Institute of Pharmacy, Pune were ascertained¹²⁻¹⁶.

Results and discussion

In the study, 67 plant species of 37 families have been recorded (Table 1). Significant scientific evaluation of some species has been done using various modern techniques. It was observed that

Table 1—Medicinal plants used by *Pawara*, *Bhil* and *Pardhi* tribes

Plant name/ Family	Local name	Uses
<i>Acacia arabica</i> (Lamk.) Willd Mimosaceae	<i>Babul</i>	Leaves are astringent; fruit coagulant; gum astringent, cooling and healing. It stops bleeding and cures dysentery, and diarrhoea. Bark extract mixed with honey is used in eyes to relieve conjunctivitis. Bark is good for gums and ulcers.
<i>Acacia chundra</i> Willd Mimosaceae	<i>Khair</i>	During dysentery concentrated bark extract is given twice a day for 2-3 days.
<i>Achranthes aspera</i> L. Amaranthaceae	<i>Chirchita</i>	Cures eye disorders, cough, worms and indigestion. Used in snakebite.
<i>Adhatoda vasica</i> L. Acanthaceae	<i>Adusa</i>	Used in asthma, diarrhoea and dysentery, checks bleeding, throat emollient. Flowers are used in eye disorders. Root extract is used in stiffness of neck.
<i>Aegle marmelos</i> Correa Rutaceae	<i>Bel</i>	Used in dysentery, diarrhoea; root checks vomiting; leaves cure fever, piles and diabetes; fruits as brain tonic.
<i>Ageratum conyzoides</i> L. Asteraceae	<i>Ajgadha</i>	Used in stomach disorder and as a tonic.
<i>Allium sativum</i> L. Liliaceae	<i>Lahsun</i>	Used as laxative, strength promoter, aphrodisiac, carminative, cures cough, skin troubles, chronic fever, piles, relieves breathing problems, heart troubles.
<i>Amaranthus viridis</i> L. Amaranthaceae	<i>Choulaee</i>	Used as blood purifier, in piles, as digestive agent.
<i>Anogeissus latifolia</i> Bedd Combretaceae	<i>Dhawada</i>	During vomiting bark extract is given twice at the interval of 6-8 hrs.

Table 1—Medicinal plants used by *Pawara, Bhil and Pardhi* tribes

Plant name/ Family	Local name	Uses
<i>Argemone mexicana</i> L. Papaveraceae	<i>Pili Kateri</i>	Root powder mixed with sugar is taken with water for curing skin diseases.
<i>Asparagus racemosus</i> Willd Liliaceae	<i>Naarbod</i>	Root-powder is used to increase vigour and strength.
<i>Atylosia volubilis</i> Gamble Fabaceae	<i>Walmohida</i>	Bark extract is used in dysentery and stomach pain.
<i>Azadirachta indica</i> Juss. syn. <i>Melia azadirachta</i> L. Meliaceae	<i>Neem</i>	Seeds are used in skin diseases and rheumatism; bark in malarial fever; dry fruits are used as tonic and stomachic. Tender twigs are used as tooth brush.
<i>Berberis aristata</i> (L.) DC. Berberidaceae	<i>Daru Haridra</i>	Used in inflammation. Root bark extract is used to heal ulcer.
<i>Buchanania lanzan</i> Spr., Anacardiaceae	<i>Charoli</i>	Seed paste is rubbed over the infected body parts.
<i>Butea frondosa</i> Roxb. Papilionaceae	<i>Palaas</i>	Seeds are used to cure ringworm. Petioles are chewed during heat in urination.
<i>Caesalpinia bonducella</i> (L.) Roxb. Caesalpiniaceae	<i>Gatran</i>	Powder for digestion.
<i>Calotropis procera</i> R. Br. Asclepiadaceae	<i>Madaar</i>	Used in boils and to remove the thorn from the body.
<i>Cardiospermum halicacabum</i> L. Sapindaceae	<i>Phatakadi</i>	Seeds are eaten as tonic.
<i>Carica papaya</i> L. Caricaceae	<i>Papeeta</i>	Used as digestive, anthelmintic, laxative, tonic, nutritive and diuretic.
<i>Cassia fistula</i> L. Caesalpiniaceae	<i>Amaltas</i>	Leaves and flowers are used in ringworm and other skin infections; roots in fever. Pulp is purgative and used in all intestinal disorders. Bark is laxative and astringent.
<i>Cassia tora</i> L. Fabaceae	<i>Titi</i>	Dry seed powder is used in asthma.
<i>Celosia argentea</i> L. Amaranthaceae	<i>Ukhawada</i>	Root paste is applied on wounds.
<i>Citrullus aromaticus</i> Salisb Cucurbitaceae	<i>Kachariya</i>	Fruits are used in stomach troubles.
<i>Clerodendrum multiflorum</i> (L.) Moon. Verbanaceae	<i>Arnya</i>	During constipation in cattle, leaves are fed or leaf extract is given once a day for few days.
<i>Cocculus hirsutus</i> Diels. Syn. <i>C. villosus</i> . DC. Menispermaceae	<i>Jal Jamani</i>	Leaves are used to cure leucorrhoea.
<i>Coriandrum sativum</i> L. Umbelliferae	<i>Dhania</i>	Seeds are carminative, stomachic. Leaves of are given to check blood in stool. Extract is useful in conjunctivitis.
<i>Cuscuta reflexa</i> Roxb. Convolvulaceae	<i>Amarbel</i>	Plant extract is applied to get rid of dandruff.
<i>Datura stramonium</i> L. Solanaceae	<i>Dhatura</i>	Fruits are used in skin related disorders, ulcers and worms. Plant is antidote.
<i>Delbergia sisoo</i> Roxb. Fabaceae	<i>Shisham</i>	Used in gonorrhoea.
<i>Emblica officinalis</i> Gaertn. syn. <i>Phyllanthus emblica</i> L. Euphorbiaceae	<i>Amla</i>	Used to cure dandruff.

Table 1—Medicinal plants used by *Pawara, Bhil and Pardhi* tribes

Plant name/ Family	Local name	Uses
<i>Enicostema axillare</i> Raynal Euphorbiaceae	<i>Kadunay</i>	During fever, leaf paste is applied over forehead and other body parts to reduce temperature; in vomiting and loose motions, plant extract is given twice for 2 days.
<i>Euphorbia hirta</i> L. Euphorbiaceae	<i>Dudhi</i>	Used in the treatment of cough, asthma, diarrhoea, piles and semen debility. It is aphrodisiac and enriches blood.
<i>Ficus bengalensis</i> L. Moraceae	<i>Bad, Bargad, Vat</i>	Plant latex is good in curing diarrhoea, dysentery, piles, teeth decay, rheumatism and leucorrhoea.
<i>Ficus religiosa</i> L. Moraceae	<i>Peepal</i>	Used in leucorrhoea, impotency, astringent, expectorant, laxative, conceptive, asthma, whooping cough and genital-urinary troubles.
<i>Hibiscus rosa-sinensis</i> Malvaceae	<i>Gurhal</i>	Aphrodisiac; leaves are used for curing boils; flowers are laxative.
<i>Hygrophylla auriculata</i> (Schum.) Heine Acanthaceae	<i>Talimkhana</i>	During headache, leaf paste applied over forehead.
<i>Jatropha curcus</i> L. Euphorbiaceae	<i>Chadrajot, Ratanjot</i>	Seed are used in dysentery, stomach disorders, toothache, rheumatism, gum ache and as antidote for poisoning.
<i>Lagenaria siceraria</i> Standal Cucurbitaceae	<i>Dudhi-bhopla</i>	In cattle, during constipation, green fruits are fed while in foot and mouth disease, green fruit slices are rubbed inside mouth.
<i>Launaea acaulis</i> Asteraceae	<i>Musakani</i>	Nutritive, diuretic, stomachic and blood purifier, antidote for poisoning, roots relieve jaundice and skin disorders. Leaves and roots are given in leprosy and leucorrhoea.
<i>Leucas zeylanica</i> R.Br. Labiatae	<i>Gooma, Gatta</i>	Used in fever, scorpion and snakebite. Leaves and flower are good in jaundice.
<i>Mangifera indica</i> L. Anacardiaceae	<i>Aam</i>	Leaves are used in eruptions of the tongue. Plant bark is aphrodisiac, cardiac, appetizer and astringent. Roots relieve jaundice and skin disorders.
<i>Mentha arvensis</i> L. Labiatae	<i>Podina</i>	Used as stomachic, anthelmintic and diuretic. It cures bad taste of mouth, indigestion, constipation and worms.
<i>Moringa oleifera</i> Lam Moringaceae	<i>Sahjan</i>	Leaf juice is used in eye diseases. Whole plant is abortifacient, digestive, diuretic, anthelmintic, carminative and stomachic; used in epilepsy and hysteria.
<i>Mucuna prurita</i> Hook. syn. <i>M. pruriens</i> (L.) DC. Papilionaceae	<i>Kapikachu</i>	Seeds are used as aphrodisiac.
<i>Ocimum americanum</i> L. Lamiaceae	<i>Gandhanya gavat</i>	For parasitic flies, leaves are rubbed over body of cattle and leaf juice is applied on cuts and wounds.
<i>Ocimum sanctum</i> L. Lamiaceae	<i>Tulsi</i>	Leaves are used against skin diseases.
<i>Phyllanthus niruri</i> L. Euphorbiaceae	<i>Bhui-aonla</i>	Whole plant is diuretic, liver tonic, given in jaundice and urino-genital infections.
<i>Plumbago auriculata</i> L. Plumbaginaceae	<i>Kali chitrak</i>	During acidity, root juice or extract is taken before each meal for a week.
<i>Punica granatum</i> L. Punicaceae	<i>Anaar</i>	Used as an anthelmintic, improving memory, brain and strength. Cures fever, burning, heart diseases and disease of throat. It is laxative and astringent.
<i>Ricinus communis</i> L. Euphorbiaceae	<i>Arandi</i>	Used as purgative, carminative, aphrodisiac and in urinary disorders.

Table 1—Medicinal plants used by *Pawara, Bhil and Pardhi* tribes

Plant name/ Family	Local name	Uses
<i>Rosa damascena</i> Mill. Rosaceae	<i>Gulab</i>	Used as purgative, in the treatment of ulcer, conjunctivitis and headache.
<i>Ruta graveolens</i> L. Rutaceae	<i>Shitab</i>	Juice of leaves is used as carminative.
<i>Semecarpus anacardium</i> L. Anacardiaceae	<i>Bhilwa</i>	Seed oil is applied on the painful spot.
<i>Salmalia malabarica</i> (DC.) Schoit and Endl. Malvaceae	<i>Semur, Semul</i>	Plant gum is used for curing kidney troubles, leucorrhoea and tuberculosis. Flowers and barks for curing conjunctivitis.
<i>Solanum xanthocarpum</i> Schard & Wendl Solanaceae	<i>Bhat Kataiyan</i>	Used in respiratory diseases, gonorrhoea, dropsy, throat disorders and snakebite.
<i>Syzygium cumini</i> L. (Skeils.) Myrtaceae	<i>Jamun</i>	Seed powder is useful in diarrhoea, dysentery and diabetes. Bark is used for mouth washes.
<i>Sonchus arvensis</i> L. Asteraceae	<i>Sahdehi</i>	Used in body pain, diarrhoea, dysentery, fever, leucorrhoea, leprosy, white spots of skin and ringworm.
<i>Tamarindus indica</i> L. Fabaceae	<i>Imli</i>	Laxative, dry bark power relieves gastric pain, as aphrodisiac, tonic and hair tonic. Leaf plaster is applied for curing acne, inflammation and blood disorders.
<i>Terminalia arjuna</i> (Roxb.) W. & A. Combretaceae	<i>Arjun, Kahuaa</i>	Bark decoction is used as tea in heart troubles and as stomachic.
<i>Terminalia bellerica</i> Roxb. Combretaceae	<i>Beheda</i>	Fruit epicarp mixed with <i>Harada</i> is used in indigestion. Seeds mixed with <i>Buchammia</i> seeds are taken in eruption of mouth.
<i>Terminalia chebula</i> Combretaceae	<i>Harada</i>	Used as gargle in inflammation of mucous membrane, astringent, purgative, laxative and stomachic; used in asthma, piles, cough, healing of wounds and scalds.
<i>Tinospora cordifolia</i> (Lour.) Miers Menispermaceae	<i>Gurvail</i>	Juice with sugar is good after malarial and typhoid fevers.
<i>Trigonella foenumgraecum</i> L. Fabaceae	<i>Methi</i>	Used as aphrodisiac, stomachic, laxative, carminative, in abscess, pigmentation and discolouration of the face.
<i>Vernonia cinerea</i> L. Asteraceae	<i>Sahdevi</i>	Whole plant is taken in fever.
<i>Ziziphus jujuba</i> Lamk. Rhamnaceae	<i>Ber</i>	Used in diarrhoea and fever; as blood purifier.
<i>Ziziphus rugosa</i> Lamk. Rhamnaceae	<i>Bor</i>	During loose motions, bark extract is given twice.

medicinal preparations practiced were freshly prepared. The knowledge of certain herbs, animals and minerals that have curative and palliative effects were transmitted from generation to generations. The traditional herbalists are integral part of the community and take care of the common ailments of the folk in their home setting¹⁷. The contribution made by the traditional medicine to modern system of medicine is worth noting. Many drugs have been developed by the scientists after analysing the

chemical constituents of plants traditionally used by tribals and villagers. The claims local healers to offer drugs for conditions such as HIV/AIDS, cancer, herpes zoster, psoriasis, hypertension, bronchial asthma, jaundice, tuberculosis, leprosy, rheumatism, etc., have been clinically examined by number of researchers in pilot trials. Attempts are in progress to prepare a compendium of household remedies from different parts of India, for the treatment of common ailments. The efforts of World Health Organization

(WHO) in compiling a global inventory of medicinal plants are note worthy and if adopted by the primary healthcare (PHC) as strategy, it could provide the people of all nations especially in the developing countries, with comprehensive healthcare.

Conclusion

The study concludes that the role of herbal medicine for the treatment of various diseases and disorders among the tribes is crucial. They use many different forest plants, weeds, flowers, seeds, bark in their traditional treatment. Beyond documented plants, these people use several other plants for non medicinal purposes. The collected information not only shows that many preparations are made from single plant but rarely mixture of several plants is used. Majority of the preparations are taken orally and applied on the skin. In the studied area, many people still have faith in the herbal remedy which play an important role in the life of these communities.

References

- 1 Anonymous, Traditional medicine strategy, WHO, 2002-2005, WHO/EDM/ TRM/2002.1 [<http://www.who.int/medicines/publications/traditionalpolicy/en/index.html>]
- 2 Patrick OE, Herbal medicines: Challenges, *Tropical J Pharmaceut Res*, 1 (2) (2002) 53-54.
- 3 Fransworth NR, Screening plants for new medicines, In: *Biodiversity*, edited by Wilson EO, (National Academy Press, Washington DC) 1988, 83-97.
- 4 Awadh A, Ali N, Al-rahwi IK & Lindequist U, Some medicinal plants used in Yemeni herbal medicine to treat malaria, *Afr J Traditional Complement Alt Med*, 1 (2004) 72-76.
- 5 Kala CP, Ethnomedicinal botany of the *Apatani* in the Eastern Himalayan region of India, *J Ethnobiol Ethnomed*, 1(11) 2005, [<http://www.ethnobiomed.com/content/1/1/11>].
- 6 Scartezzini P & Speroni E, Review on some plants of Indian traditional medicine with antioxidant activity, *J Ethnopharmacol*, 71 (1-2) (2000) 23-43.
- 7 Deepak A, Medicinal plants in urban area of Chhindwara town: A survey based report, [<http://www.selfgrowth.com/articles/Acharya11.html>].
- 8 Anonymous, Joshua Project, (Ministry of the US Center for World Mission report), [<http://www.joshuaproject.net/peopctry.php?rop3=113337&rog3=IN>].
- 9 Anonymous, Joshua Project, (Ministry of the US Center for World Mission report), [<http://www.joshuaproject.net/peopctry.php>].
- 10 Anonymous, Joshua Project, (Ministry of the US Center for World Mission report), [<http://www.joshuaproject.net/peopctry.php>].
- 11 Jain SK, The role of botanist in folklore research, *Folklore*, 5 (4) (1964) 145-150.
- 12 Nadkarni KM, *Indian Materia Medica*, (Bombay Popular Prakashan, Bombay), 2002.
- 13 Thakur RS, Major Medicinal Plants of India, (Central Institute of Medicinal and Aromatic Plants, Lucknow), 1989.
- 14 Anonymous, *Selected Medicinal Plants of India*, (Bhartiya Vidya Bhavan's Swami Prakashanand Ayurveda Research Centre, & CHEMEXCIL, Bombay), 1992
- 15 Agharkar SP, *Medicinal Plants of Bombay Presidency*, (Scientific Publishers, Jodhpur), 1991.
- 16 Jain SK, *Bibliography of Indian Ethnobotany*, (Scientific Publishers, Jodhpur), 2002.
- 17 Jain SK, *Glimpses of Indian Ethnobotany*, (Oxford IBH Publishing Co, New Delhi), 1981.