

Traditional Ethnomedicinal Knowledge Confined to the Pawra Tribe of Satpura Hills, Maharashtra, India

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Abstract

Ethnobotanical surveys can potentially bring out many different clues for the development of safe, effective and inexpensive indigenous remedies. Present study has been focussed on Pawra tribe of Nandurbar district of Maharashtra, India. Field surveys of this area were carried out during 2000–2005 through several field visits and interviews. The aim of the present study was primarily to evaluate and inventory medicinal uses of the plants known to Pawras and to encourage preservation of their culture, conservation and sustainable utilization of the plant wealth. After an extensive comparison with literature, about 80 unique or less known uses of 79 plant species belonging to 59 families are described. The documented ethnomedicinal usage of plants mostly pertains to cure asthma, inflammation, lactation, menstrual problems, poisonous bites, skin problems, stomach ache and tooth ache. We found that the study area is rich in ethnic and biodiversity and the tribe possesses a valuable treasure of ethnobotanical knowledge. This wisdom available with the tribe is transmitted only through oral communication in locally-spoken, script-less language and therefore needs conservation. The plants used by the Pawra tribe are arranged alphabetically followed by family name, herbarium number, local name, parts used, mode of preparation and medicinal uses.

Key words: Pawra tribe, Less known, Ethnomedicine and Nandurbar district.

Introduction

India is well known for its plants diversity and is rich in medicinal plant wealth. India has the second largest tribal population in the world after Africa. As per the 1991 census of India, the total tribal population is 8% of country's population of which Maharashtra has 47 scheduled tribe communities with 9.27% of the total population of the state (Kshirsagar and Singh, 2000). The traditional medical practices are an important part of the primary healthcare system in the developing world (Ghosh, 2003). According to the World Health Organization (WHO) as much as 80% of world's population depends on traditional medicine for their primary health care needs (Azaizeh et al., 2003). The tribals have good traditional knowledge about the plants and their medicinal uses. This knowledge is transmitted exclusively through oral communication from one generation to next using a scriptless language. The valuable knowledge is therefore, in an unwritten form and requires urgent measures of conservation.

The ethnobotanical survey can bring out many different clues for the development of drugs to treat human diseases. Safe, effective, and inexpensive indigenous remedies are gaining popularity equally among the people of both the urban and rural areas, especially in India and China (Katewa et al., 2004). Review of literature revealed that, there were few efforts dedicated to document the ethnobotanical information of the tribes, to quote a few, Karnik, (1966): from Satpura mountains, Yadav and Bhamre, (1989): ethnomedico-botanical study of Dhule forests, Rajput and Yadav, (1998): Medico-Botanical and Phytochemical studies on medicinal plants of Dhule and Nandurbar, Yadav and Patil, (2001): traditional medicines and healthcare system of Tribals of Satpura region, Sharma and Mujumdar, (2003): traditional knowledge on plants from Toranmal Plateau, while Patil, (2004): ethnomedicines for human skin diseases from Tribal areas of Nandurbar District.

Despite of these reports, the aim of the present study was to evaluate and inventorize some less known medicinal uses of the plants known to Pawra tribe and to encourage preservation of their culture, conservation and sustainable utilization of the plant wealth. In the present paper, we report for the first time, some new or less known ethnomedicinal uses for treatment of different ailments by the Pawra's of Nandurbar district of Maharashtra, India.

Study area

Maharashtra is a central western part of India, located in the south of Madhya Pradesh. The study area comprises the Nandurbar district of Satpura range (Fig. 1). The Satpura is a broad belt of mountainous land stretching east west in a wall like manner on the northern side of the river Tapi. Satpura Mountain forms about seven major folds with an average height of 600 m above sea level and slope down steeply towards river Narmada in North. Two of

these ranges of hills unite at Toranmal and enclose an irregular tableland of about 50 km long and 25 km broad. Northern part of this area occupies dry deciduous type of forest while, the southern fertile plains towards river Tapi is predominantly agricultural. The Western Satpura lies between 73⁰ 59' to 75⁰ 12' east longitude and 21⁰ 14' to 22⁰ 02' north latitude and forms Nandurbar district of Maharashtra state. It comprises of four talukas namely Akrani, Taloda, Akkalkua and Shahada. The area lies near the tri junction of the boundaries of Gujarat, Madhya Pradesh and Maharashtra state. The western talukas of Akkalkuwa, Taloda and Dhadgaon are rather more rugged compared to Shahada taluka in the west, which comprises of undulating low hillocks.

Pawra tribe

The four main tribes that reside in Nandurbar district are Bhilla, Pawra, Padvi and Naik, of which, Pawra is the third most dominant tribe. Pawras usually reside in remote areas of the forests and are indiscriminately scattered in small villages known as 'padas' typically of 2 to 10 houses (Fig. 2). The distance between each 'pada' is about 1 km, a group of which forms a village. In some places, villages are of closely situated houses surrounded by farmland. Houses of Pawra are typical, low costing and facing north south, constructed by using locally available material.

They are mainly dependent on forest and agricultural produce. Major occupations are collection of plant part like fruit, edible tubers, gums, nuts, and leafy vegetables etc. from forest. In hilly area, agriculture is completely dependent on rainfall where as in plains, where facility is available, irrigated crops are also cultivated. Since this tribe usually resides in the interior and hilly regions, they are more prone to suffer from many ailments because of poor nutrition, and starvation. Habit of smoking and chewing of tobacco and consuming local liquor are very common. Frequency of suffering from skin diseases like scabies, eczema, fungal infections etc is quite high. Water borne diseases like diarrhoea and dysentery are also common. The accessibility of health centre in some areas is difficult hence, the rate of mortality due to curable diseases is high. The usual tendency is to avoid going to the primary health centre and reliance on traditional practices is common. Snakebite, insect bites and attacks of wild animals are common causes of accidental deaths .

Methodology

Season wise frequent field visits were organized between the period of February 2002 to May 2006 in the different villages of the study area. The local, efficient, knowledgeable and bilingual mediators were identified in order to understand and collect the traditional information of the medicinal plants from the "Bhagats" who are traditional medical practitioners among the Pawra population. Information was collected through interviews by using a questionnaire. Informed consents of interviewed individuals were obtained. Plants or plant parts enlisted

by at least three Bhagats were emphasized. Interviews of minimum two and maximum of five patients who had taken treatment from the Bhagat for various health problems were also considered for authentication of collected information and incorporated in the present study. Collected data confirmed and compiled by repeated visits.

Members of the Pawra community accompanied collection tours of the voucher specimens, which helped getting first-hand knowledge of each plant and/ or plant part used by them. The information of medicinal plants and their properties was confirmed by referring previous literature on medicinal plants (Anonymous, 1948–1992; Dey, 1973; Kirtikar and Basu, 1975; Jain, 1991; Jain and Rao, 1983; Jain and Philipps, 1991; Husain et al., 1992) and ethnoveterinary plants (Jain and Shrivastava, 1999). For more recent literature survey, database available on published information at Medicinal Plants Conservation Centre (MPCC), Pune and FRLHT, Bangalore was referred. The identification of the collected plants was confirmed by using *Flora of Dhule and Nandurbar Districts* (Patil, 2003), *Flora of Maharashtra State, Monocotyledons* (Sharma et al., 1996) and *Flora of Maharashtra State, Dicotyledons, Vol. 1 and 2* (Singh and Karthikeyan 2000; Singh et al., 2001) and by referring herbaria at Botanical Survey of India (BSI), Western Circle, Pune. The specimens were deposited in herbarium of Medicinal Plant Conservation Centre – Rural Communes (MPCC-RC), Pune. The enumeration includes botanical name, authority, herbarium number, family, local name and use of plants.

Results and discussion

The present investigation revealed that the Pawras know over thousand usages of more than 500 plants out of which this paper reports 80 unique or less known usages of 79 species belonging to 59 families (Table 1). These 79 plants comprise 33 herbs, 7 shrubs, 26 trees, 12 climbers and 01 grass. Usage of these plants mainly is to treat asthma, inflammation, disorders associated with lactation, menstrual problems, poisonous bites, skin problems, stomach ache and tooth ache, etc.

In the dosage preparations, either single plant part or a combination of plant parts was used. Sometimes, combination of two or more different plants is also administered. Materials of animal origin were also used along with the plants in a few preparations. The dosage forms include inhalation, oral administration and topical applications. Most of the ailments such as stomach ache, menstrual problems, infertility, urinary problems, jaundice, and diarrhea can be cured by oral administration while most of the skin diseases, wounds, body swelling, tonsils, hair growth, tumors, pneumonia, piles and encephalitis can be cured by topical application while, animal bites and muscular problems were treated usually by both ways.

The commercial exploitation of important species like *Celastrus paniculatus*, *Chlorophytum borivilianum*, *Dendrocalamus strictus*, *Ceropegia occulata* var. *satpudensis* is restricted by creating awareness among the tribals. An attempt was made to convince and explain the importance of such species, which need to be conserved, and judiciously utilized. The study revealed that medicinal plants play a vital role in primary healthcare

of the Pawras and the knowledge received from them will be very useful in further research. Important finding of our study is the new report of *Ceropegia oculata* var *satpudensis* Jagtap & Punekar, first time report of *Mucuna prurince* var *utilis* Benth. for Maharashtra state and 73 plants were additions to *The Flora of Dhule and Nandurbar Districts* (Patil, 2003), which are useful for further researchers in the field of ethnobotany. Further, ethno-pharmacological studies would sustain these observations in order to evaluate their effectiveness.

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References

- Anonymous, 1948–1992. Wealth of India – Raw Materials, Vol. I–X. Council for Scientific and Industrial Research, New Delhi, India.
- Azaizeh, H., Fulder, S., Khalil, K., Said, O., 2003. Ethnomedicinal knowledge of local Arab practitioners in the Middle East Region. *Fitoterapia* 74, 98–108.
- Dey, K.L., 1973. The Indigenous drugs of India. Pama Primlane, The Chronica Botanica, New Delhi, India.
- Ghosh, A., 2003. Herbal folk remedies of Bankura and Medinipur districts, West Bengal (India). *Indian Journal of Traditional Knowledge* 2, 393–396.
- Husain, A., Vismani, O.P., Popli, S.P., Misra, L.N., Gupta, M.M., Srivastava, G.N., Abraham, Z., Singh, A.K., 1992. Dictionary of Indian Medicinal Plants. Central Institute of Medicinal and Aromatic Plants, Lucknow, Uttar Pradesh, India.
- Jain, S.K., 1991. Dictionary of Indian Folk Medicine and Ethnobotany. Deep Publications, New Delhi, India.
- Jain, S.K., Rao, R.R., 1983. Ethnobotany in India – An overview. Botanical Survey of India, Calcutta, India.
- Jain, S.K., Srivastava, S., 1999. Dictionary of Ethnoveterinary plants of India. Deep Publications, New Delhi, India.
- Jain, S.K., De Filippis, R.A., 1991. Medicinal Plants of India, vol. I–II. Reference Publications Inc, Algonac, Michigan.
- Karnik, C.R., 1966. Some medicinal plants from Satpura mountains. *Indian forester* 62, 173-183.

- Katewa, S.S., Chaudhary, B. L., Jain Anita., 2004. Folk herbal medicines from tribal area of Rajasthan, India. *Journal of Ethnopharmacology* 92, 41–46.
- Kirtikar, K.R., Basu, B.D., 1975. *Indian Medicinal Plants*, vol. 1–4. Periodical Experts, Delhi, India.
- Kshirsagar, R.D., Singh, N.P., 2000. Less-known ethnomedicinal uses of plants in Coorg District of Karnataka state, Southern India. *Ethnobotany* 12, 12–16.
- Patil, D.A., 2003. *Flora of Dhule & Nandurbar District, Maharashtra*. Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
- Patil, M.B., Ramajah, P. V., 2004. Ethnomedicines for Human skin diseases from Tribal areas of Nandurbar District of Maharashtra, India. *Proceedings of the National Seminar on Ethnobotany and Sacred Groves*, Agharkar Research Institute, Pune, India, Pp. 218-222.
- Rajput, A.P., Yadav, S. S., 1998. Medico-Botanical and Phytochemical studies on medicinal plants of Dhule and Nandurbar Districts of Maharashtra State. *J Phytol Res.* 13(2) 161.
- Sharma, B.D., Karthikeyan, S., Singh, N.P., 1996. *Flora of Maharashtra State– Monocotyledons*. Botanical Survey of India (BSI), Calcutta, India.
- Sharma, P.P., Mujumdar, A.M., 2003. Traditional knowledge on plants from Toranmal Plateau of Maharashtra. *Indian Journal of Traditional Knowledge* 2, 292–296.
- Singh, N.P., Karthikeyan, S., 2000. *Flora of Maharashtra State–Dicotyledons, Vol. I*, Botanical Survey of India (BSI), Calcutta, India.
- Singh, N.P., Lakshminarasimhan, P., Karthikeyan, S., Prasanna, P.V., 2001. *Flora of Maharashtra State– Dicotyledons, Vol. II*, Botanical Survey of India (BSI), Calcutta, India.
- Yadav, S.S., Bhamre P. B., 1989. Ethnomedico-Botanical studies of Dhule forests in Maharashtra State. *J. Econ. Tax. Bot.* 13(2), 455-460.
- Yadav, S.S., Patil, S. H., 2001. Traditional Medicines and Healthcare System of Tribals of Satpura Region, Maharashtra State. *Plant Archives* 1 (1&2), 111-118.

Table 1. Ethnomedicinal plants, local name, mode of preparation and uses by Pawra tribe.

Botanical name	Family	Herbarium No	Local name	Parts used, mode of preparation, ethnomedical uses and some other plants used as ingredients
<i>Abelmoschus manihot</i> (L.) Medik ssp. <i>tetraphyllus</i> (Roxb ex Horn) Borss var. <i>tetraphyllus</i>	Malvaceae	MPCC 3544	Ranbhendi,	Skin burning: Root paste is made in coconut oil and applied over affected part.
<i>Acacia pennata</i> (L.) Willd.	Mimosaceae	MPCC 1988	Chilati	Massage: Seed oil used for massage of body.
<i>Actinopteris radiata</i> (Swartz) Link	Pteridaceae	MPCC 3432	Bhui tad	Stomach ache: Fresh rhizomes are crushed in water and glass of water is taken thrice after ten minute time interval.
<i>Aeginetia indica</i> L.	Orobanchaceae	MPCC 1062	Shatkanya	Wound healing: Powder of whole plant is applied thrice a day
<i>Aegle marmelos</i> (L.) Corr.	Rutaceae	MPCC 3547	Bel	Laryngitis: Fresh mature leaves are chewed during early morning for five days.
<i>Aerva lanata</i> (L.) Juss. ex Schult.	Amaranthaceae	MPCC 2724	Bhuvacha pala	Eruptive disorders in children: Root paste is applied on mouth, once in a day for three days.
<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	MPCC 2613	Olau	Body pain: Fresh bark is boiled in water and water is used for bath.
<i>Albizia odoratissima</i> (L. f.) Bth. in Hook.	Mimosaceae	MPCC 772	-	Hair loss (Chai): Paste of root is applied once in a day for fifteen days.
<i>Amorphophallus commutatus</i> Engl.	Araceae	MPCC 3553	Mogri kand	Scabies: Paste of tubers is applied locally till cure.
<i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guill. & Perr.	Combrataceae	MPCC 2068	Dhawdo	Lactation: Approximately 5 gm gum is taken with a cup of tea or milk during early morning.
<i>Apium graveolens</i> L.	Apiaceae	MPCC 3556	-	Stomach swelling: One cup of fresh root juice is taken as a single dose.
<i>Argyreia sericea</i> Dalz. & Gibs.	Convolvulaceae	MPCC 1040	Gavli vel	1) Lactation: a) Leaves are eaten as raw. b) Fresh roots are eaten as raw.
<i>Arisaema murrayi</i> Hook.	Araceae	MPCC 3558	Chandya kand	Skin diseases: Paste of tuber is applied locally.
<i>Asparagus racemosus</i> Willd. var. <i>racemosus</i>	Liliaceae	MPCC 3405	Adkatya, Hohlayn charo	Swelling in mouth: Approximately 9 gm of root powder is taken with glass of water during early morning for three days.
<i>Balanites aegyptiaca</i> (L.) Del.	Balanitaceae	MPCC 3559	Hingan bet	Asthma: Approximately 10 gm of seed powder is taken with glass of water in the morning for 10 days.
<i>Barleria prattensis</i> Sant.	Acanthaceae	Not collected	Mothi karav	Paralysis: Paste of whole plant is applied over affected portion.
<i>Begonia trichocarpa</i> Dalz.	Begoniaceae	MPCC 2519	Khatadya	Opacity: 1or 2 drops of leaf juice are dropped in eyes for one time.
<i>Blainvillea acmella</i> (L.) Philipson	Asteraceae	MPCC 1885	Fangla	Alcohol deaddiction: One cup of fresh leaf juice is given during morning for 10 days.
<i>Boerhavia repens</i> L.	Nyctaginaceae	MPCC 288	Dagad phodya	Anaemia: One cup decoction of leaves is given once in a day.

<i>Boswellia serrata</i> Roxb. ex Colebr.	Burseraceae	MPCC 3440	Halayo	Ricket: Gum is burned in fire to create smoke, which is taken on to skin.
<i>Bridelia retusa</i> (L.) Spreng.	Euphorbiaceae	MPCC 2516	Agan	Measles: Bark is crushed and added in water, such water is boiled and used for taking a bath, and one glass of such water is also taken orally.
<i>Buchanania cochinchinensis</i> (Lour.) Almeida	Anacardiaceae	MPCC 2023	Char	Sprain: Gum is soaked in water for overnight and rubbed to get paste and is applied over affected part until cure.
<i>Calotropis gigantean</i> (L.) Ait.	Asclepiadaceae	MPCC 2525	Akav	Herpes: Root paste is applied locally until cure.
<i>Capparis decidua</i> (Forssk.) Edgew.	Capparaceae	MPCC 3565	Yelya haran	Heat: Bark is crushed in water and a cup of water is given to drink during early morning for seven days.
<i>Carissa congesta</i> Wight var. <i>congesta</i>	Apocynaceae	MPCC 160	Korvanda	Wound healing: Root paste is applied locally until cure
<i>Casearia graveolens</i> Dalz.	Flacourtiaceae	MPCC 60	Manza	Strongness: Approximately 5gm gum is chewed per day.
<i>Cassine glauca</i> (Rottb.) O. Ktze.	Celastraceae	MPCC 1894	Niru	Menstrual disorders: Roots are soaked in water for overnight and a half cup of such water is taken orally for seven days.
<i>Celosia argentea</i> L. var. <i>cristata</i> (L.) O. Ktze.	Amaranthaceae	MPCC 2548	Rukada	White discharge: Approximately 20 gms of powder of whole plant is given with cup of milk during night for seven days.
<i>Ceropegia hirsute</i> Wight & Arn.	Asclepiadaceae	MPCC 2747	Khotti	Stomachache: Three to five fresh leaves are chewed.
<i>Chirita hamosa</i> R. Br.	Gesneriaceae	MPCC 3515	Khatadya	Wound infection: Two leaves are chewed and applied locally.
<i>Cissus quadrangularis</i> L. Mant.	Vitaceae	MPCC 3569	Kandvel	Abortifacient: One spoon paste of stem is administrated orally as a single dose.
<i>Clitoria biflora</i> Dalz.	Fabaceae	MPCC 2513	--	Fertility: Mature fruits are cooked and consumed for five days.
<i>Corallocarpus epigaeus</i> (Rottl.) C. B. Cl.	Cucurbitaceae	MPCC 3322	Mirchi kanda'	White discharge: Approximately 10 gms of powder of tuber is given with one spoon sugar, during morning for seven days.
<i>Corchorus olitorius</i> L.	Tiliaceae	MPCC 2420	--	Skink poison: Mature seeds are crushed in glass of water and taken orally for one time.
<i>Cordia macleodii</i> (Griff.) Hook. f.	Boraginaceae	MPCC 257	Kassamar	Vermifuge: Stem bark is crushed in water and half a glass of water is given orally during night for one time.
<i>Costus speciosus</i> (Koen.) Sm.	Zinziberaceae	MPCC 1974	Pewo	Swelling in testis of children: Root paste is applied over swollen part.
<i>Curcuma inodora</i> Blatt.	Zinziberaceae	MPCC 3659	Wedi haldyo	Non injured muscular pain: Tubers are rubbed with water to form paste and is applied locally.
<i>Cynodon dactylon</i> Pers.	Poaceae	MPCC 3661	Tikhadi zara	Asthma: Half a glass juice of whole plant with two spoon honey is given orally during early morning for 10 days.

<i>Cynoglossum zeylancium</i> (Vahl ex Hornem.) Thunb. ex Lehm.	Boraginaceae	MPCC 3577	--	Scabby: Leaf paste is applied locally until cure.
<i>Desmodium velutinum</i> (Willd.) DC.	Fabaceae	MPCC 83	Lepati	Stomatitis: Tooth are brushed by young branches and also bark is chewed for some time during early morning.
<i>Ehretia laevis</i> Roxb.	Boraginaceae	MPCC 441	Tambavlya	Toothache: Young branches are used as a tooth brush.
<i>Ensete superbum</i> Cheesm.	Musaceae	MPCC 3584	Jangli kela	Stomach ache: Approximately 5 gm seeds are crushed and taken with glass of water.
<i>Erythrina stricta</i> Roxb.	Fabaceae	MPCC NA	Kuchlya	Lice destruction: Stem bark is crushed in water and applied locally.
<i>Eulophia ochreatea</i> Lindl.	Orchidaceae	MPCC 3125	Singadya kand	Strongness: Powder of tuber is mixed with equal proportion of jagaree and taken daily as a tonic.
<i>Ficus benghalensis</i> L.	Moraceae	MPCC 3590	Wad	Stomach ache: Tender aerial roots are chewed.
<i>Girardinia diversifolia</i> (Link) Friis	Ulmaceae	MPCC 2531	Thoar	Scabby: Paste of fresh leaf is applied locally until cure.
<i>Grewia tiliifolia</i> Vahl	Tiliaceae	MPCC 297	Dhamnij	Urinary problems: Bark is chewed and the paste made in mouth is applied on the navel.
<i>Habenaria marginata</i> Coleb. Var. <i>marginata</i>	Orchidaceae	MPCC 989	--	Swelling of testis: Tuber paste is applied externally.
<i>Haldina cordifolia</i> (Roxb.) Ridsd.	Rubiaceae	MPCC 2510	Kelom	Tooth ache: Tooth is brushed with young branches.
<i>Holarrhena pubescens</i> (Buch.–Ham.) Wall. ex G. Don	Apocynaceae	MPCC 1890	Dudhkudi	Easy delivery: Approximately 10 gms of bark powder is given with cup of water before delivery.
<i>Hymenodictyon orixense</i> (Roxb.) Mabb.	Rubiaceae	MPCC 1972	Borsal	Infection in hair gland: Tumours on stem bark are burned to ash and applied locally.
<i>Lagenaria siceraria</i> (Mol.) Standl.	Cucurbitaceae	MPCC 3607	Tumbdo	White discharge through male genital organ: Half cup of root juice is mixed with equal amount of root juice of <i>Bauhinia racemosa</i> and taken during morning for five days.
<i>Lagerstroemia parviflora</i> Roxb.	Lythraceae	MPCC 265	Bondaro	Kidney stone: Roots are soaked in a glass of water for a night and taken during morning for seven days.
<i>Lantana camara</i> L. var. <i>aculeata</i> (L.) Moldenke	Verbenaceae	MPCC 2034	Ganeri	Red discharge: Approximately 20 gm leaf powder is given with glass of water orally for 15 days during early morning.
<i>Lavandula bipinnata</i> O. Ktze. Var. <i>rothiana</i> O. Ktze.	Lamiaceae	MPCC 3406	Gond	Diarrhoea: Stem is crushed in water and half glass of water is given orally.
<i>Leea macrophylla</i> Roxb. ex Horn.	Leeaceae	MPCC 1971	Motha dini	Snake bite (Viper snake): Seeds are crushed in water and given orally till the patient causes omitting.
<i>Martynia annua</i> L.	Myrtyniaceae	MPCC 2938	Wagh nakhyo	Nail pain: Fruits are rubbed with water to make paste and is applied locally.
<i>Melia azedarach</i> L.	Meliaceae	MPCC 3677	Nimbdo	Dog bite: One cup of root juice is taken orally thrice a day for three and half days.
<i>Morinda pubescens</i> J. E. Sm.	Rubiaceae	MPCC 154	Alo	Scorpion bite: Approximately 10 gm of gum is given orally.

<i>Mukia leiosperma</i> (Wight & Arn.) Wight	Cucurbitaceae	MPCC 249	Ghugar vel	Hair growth: Seeds are crushed to make paste and applied to hairs.
<i>Oxystelma esculentum</i> (L. f.) R. Br.	Asclepiadaceae	MPCC 3513	---	Asthama: Two spoons of root juice is given during morning for 10 days.
<i>Pancreatium parvum</i> Dalz.	Liliaceae	MPCC 3619	--	Epilepsy: Smell of the bulb is given for inhalation.
<i>Phyllanthus amarus</i> Schum & Thonn.	Euphorbiaceae	MPCC 3620	Korelawa	Omitting: Five fresh leaves are chewed.
<i>Pterocarpus marsupium</i> Roxb. var. marsupium	Fabaceae	MPCC 3624	Bio	To increase potency of liquor: To increases medicinal properties of liquor, it is stored in glass of stem wood.
<i>Rivea laotica</i> Ooststr	Convolvulaceae	MPCC 3688	--	Headache: Leaf paste is applied on forehead.
<i>Schrebera swietenoides</i> Roxb.	Oleaceae	MPCC 3629	Mukheda	Nasal obstruction of respiratory tract: Root paste is applied on throat and chest.
<i>Securinega leucopyrus</i> (Willd.) Muell.-Arg.	Euphorbiaceae	MPCC 725	Shini	Uterine polyp: Approximately 20 gm bark powder is mixed with equal amount bark powder of <i>Woodfordia fruticosa</i> . The mixture is crushed and added in roti (Indian bread) and given to eat twice in a day.
<i>Senecio hewrensis</i> (Dalz.) Hook, f.	Asteraceae	MPCC 3630	--	Heat: Roots are soaked in water for overnight and a glass of such water is given during morning.
<i>Solanum seaforthianum</i> Andr.	Solanaceae	MPCC 2403	--	Stomach ache: Juice of 2 ½ leaf is mixed with approximately 50 ml of cow milk and is taken thrice a day for seven days.
<i>Sterculia urens</i> Roxb.	Sterculiaceae	MPCC 3692	Kadai	Tuberculosis: Approximately 2 gm of bark powder is taken orally with honey.
<i>Striga gesnerioides</i> (Willd.) Vatke var. gesnerioides	Scrophulariaceae	MPCC 3108	Deo karav	Swelling of testis: Paste of fresh tuber is applied locally.
<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	MPCC 315	Jamno	Liver swelling: Approximately gm of seed powder is taken with cup of water for five days.
<i>Tectona grandis</i> L. f.	Verbenaceae	MPCC 413	Hag	Pural: Affected skin is scratched by leaves and the paste made from leaves of <i>Acacia catechu</i> with salt is applied.
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combrataceae	MPCC 231	Bedo	Excessive heat: Seed oil is taken in daily food and also applied on head.
<i>Triumfetta annua</i> L.	Tiliaceae	MPCC 2933	Leptya	Fever: Decoction of seeds is given orally.
<i>Ventilago maderaspatana</i> Gaertn. var. maderaspatana	Rhamnaceae	MPCC 3317	Gawlya	Vertigo: A ring is made from tender branch and tied around finger.
<i>Xanthium indicum</i> Koen.	Asteraceae	MPCC 1100	Kutri	Dysentery: Roots are crushed in water and cup of mixture is given orally.
<i>Zingiber neesatum</i> (Grah.) Ramam.	Zinziberaceae	Not collected	Ambe haldi	Wound: Paste of tuber is applied locally.
<i>Ziziphus rugosa</i> Lam. Var. rugosa	Rhamnaceae	MPCC 3640	Khate haldi	Bone crack: Tuber powder is mixed with coconut oil and is applied locally until cure.





Fig. 1. : Location map of the study area in Nandurbar district, Maharashtra, India

Fig. 2.1: Tribal hamlet



Fig. 2.2. Tribal House.



Fig. 2.3: Pawra Family

