

Full Length Research Paper

Ethnobotanical importance and herbal medicine in Vindhya region of Eastern Uttar Pradesh, India

Dharm Narayan and Pramod Kumar Singh*

Department of Botany, Udai Pratap Autonomous College- 221002, Mahatma Gandhi Kashi Vidhyapeeth University, Varanasi-221002, India.

Received 9 February, 2017; Accepted 11 March, 2017

Vindhya region is one of the less studied areas and characterized for rich vegetations of India. The plants species observed in the area have immense potential for the management and treatment of various ailments. The present paper reports to the documentation and conservation of ethnomedicinal plants of Sonebhadra district and their socio- economic relationship with the forest and its resources. The ethnobotanical data were collected using interviews, with local medicine man and field observations. Correct identity of the plants were done with the help of botanical survey of India (B.S.I). Important medicinal plants belonging to different families are documented in the present ethnobotanical study. During survey it was found that many plants were very rare viz *Gymnema sylvestre*, *Withania somnifera*, *Curculigo orchoides*, *Chlorophytum tuberosum*, *Plumbago zeylanica*, *Acorus calamus*, *Celastrus paniculatus* etc. The main causes of raring of plants are deforestation, over grazing and increasing population. Due to scarcity of government health facilities in the district the peoples were largely dependent on traditional health care system.

Key words: Ethnomedicinal plants, extinction ranking, Sonebhadra forest, Eastern Uttar Pradesh

INTRODUCTION

Plants have been used in traditional medicine for thousands of years (Abu-Rabia, 2005). During last few decades there has been an increasing interest in the study of medicinal plants and their traditional use for the development of new drugs. Many reports have been furnished on the use plants in traditional healing either by tribal peoples or indigenous communities of India. The knowledge of medicinal plants has accumulated over the course of many centuries and has been documented in different medicinal system such as Ayurveda, Unani and

Siddha.

The World Health Organization (WHO) estimated that about 80% of the population of most developing countries relies on herbal medicine for their primary health care (Azaizeh et al., 2003). In India, it is reported that traditional healers use 2500 plant species while 100species of plants serve as regular source of medicine (Pei, 2001). Documenting the indigenous knowledge through ethno botanical studies is important for the conserving and utilization of biological recourses. The

*Corresponding author. E-mail: drpksinghupc@gmail.com Tel: 9415388189. Fax: 2281799.

ethnobotany of Vindhya region is a very important and acknowledgeable all over the world. This science showed healthy relationship between human and nature and provides possibilities of finding new user for medicinal plants and can be used to discover new medicines derived from plant origin (Henrich, 2000).

In India there are 550 tribal's communities covered under 227 ethnic groups residing in about 5000 villages in different forest and vegetation type (Sikarwar, 2002). India with its glorious past to the traditional medical system and use pattern of different plants is one of eight major centers of the origin and diversification of domesticated taxa having rich biodiversity.

Sonebhadra district of Vindhya region is one of the less studied regions of India for its ethnobotanical values and therapeutic importance. Local herbs and other plants resources found in that area are the principal sources of medicine for the treatment of various diseases. Local tribal peoples and vaidyas have great knowledge of plants and plant parts for the treatment of diseases. But due to increasing population, over grazing, industrialization many plant become rare in this area. Present study report shows that the area needs conservation and regeneration strategies of the rare medicinal plants and their pharmacological importance in modern medicine system.

MATERIALS AND METHODS

Study area

The area under investigation for ethnomedicinal studies falls under district Sonebhadra, U.P. India and came into existence in 1989 after division of district Mirzapur (Figure 1). It is the largest district of Uttar Pradesh in area. It is situated on Vindhyan plateau and Kaimur range lying between 24°42' N to 25°3'55' N and 83°3' 24" E to 83°22'55" E, covering an area of 6788 km. It is present in the extreme south east of the state and is bound by Mirzapur district to the northwest, Chandauli district to north, Bihar state to the northeast, Jharkhand State to the east, Chhattisgarh State to the south and Madhya Pradesh State to the west.

Climatically, the area is dry tropical type. The summer temperature ranges between 22.8 to 42°C and winter between 8 to 17.5°C. The temperature in summer may reach up to 45°C and in winter below 5°C (up to 2°C). The average annual rainfall is 1065 mm. The forest is of tropical dry deciduous type covering an area of 2447 km² (Dense Forest – 1078 km² open Forest – 1369 km²).

Population of the area was 5.46 km² and population density was 4,094.9 inh/km². The tribal inhabitants of this area are Agaria, Baiga, Dhangar, Chero, Painika, Gond, Kharwar, Dharkar and Kol.

The earlier work in Vindhya region was done by Maheshwari et al. (1981), Singh and Maheshwari (1989), Jain (1991), Singh and Prakash (1996), Upadhyay and Singh (2005), Singh et al. (1991), Singh and Singh (2009), Prakash (2011), Mourya et al. (2015) and Singh and Shukla (2017).

Approach

The extensive ethnobotanical studies of the area were conducted during the period 2012 to 2016 with the help of tribal people and village medicine-men. Regular trips of the area were made during in

summer, monsoon and winter season for collection and observation of different ethnomedicinally important plants. Information regarding ethnomedicinal plants of the area was collected through interviews with many persons who had the traditional knowledge of these medicinal plants (Xavier et al., 2014).

The methods used for ethnobotanical data collection were semi-structured interviews with the questionnaire based upon health problems, diagnosis and treatment methods, local name of medicinal plants, plant parts used methods of application, threats to medicinal plants and conservation practices were carefully recorded. During field survey, observation on the habit, habitat, flowering time, fruiting time, fragrance and colour of bark was recorded in the field diary. It has also noticed that which parts of plants is useful for medicine. The medicinal plants were identified photographed and sample specimen was collected for the preparation of herbarium. The status of all the medicinal plants was recorded as abandoned and rare as per healer's perception during the semi structures interview.

Data analyses

Ethnobotanical data were analyzed and summarized by using Microsoft Excel and Ms Word. It has been also indicated that study area, dominating families and other ethnobotanical values of the plants.

RESULTS

Data collected through ethnobotanical survey include plants species with their vernaculars uses. The tribes of Sonebhadra district were using 171 plants belonging to 77 families. The most commonly represented families are Fabaceae, Malvaceae, Asteraceae, Zingiberaceae, Convolvulaceae, Solanaceae, Acanthaceae, Rutaceae, Apocynaceae, Moraceae, Euphorbiaceae and Liliaceae (Figure 2). The present report on medicinal plants showed that shrubs made up the highest proportion being represented with herbs (62) Shrubs (38) Trees (54) and Climbers (17). The plant parts used widely to treat human and livestock health problems included root, stem, bark and other parts. The plant parts used by tribes to treat the various ailments in the area were leaves.

Though more than 45 different types of diseases were recorded as human health problems in the district. The medicinal plants were generally used for diarrhea, dysentery, snake bite, skin diseases, cough, stomach pain, and kidney disorder leucorrhoea and pulmonary troubles.

The presence of a large number of ethnomedicinal plant species which indicates the area has a very high diversity of medicinal plants and it is a site for various indigenous knowledge. But many plants have been found rare in many areas such as *Gymnema sylvestri*, *Withania somnifera*, *Raulwolfia serpentina*, *Plumbago zeylanica*, *Curculigo orchoides*, *Chlorophytum tuberosum*, *Tinospora cardifolia*, *Hemidesmus indicus*, *Acorus calamus*, e.t.c. Therefore there is an urgent need for the conservation of these plants. In all these plants, *W. somnifera*, *G. sylvestri*, *C. orchoides* are in critical condition (Figure 3). The main cause of rarity of these

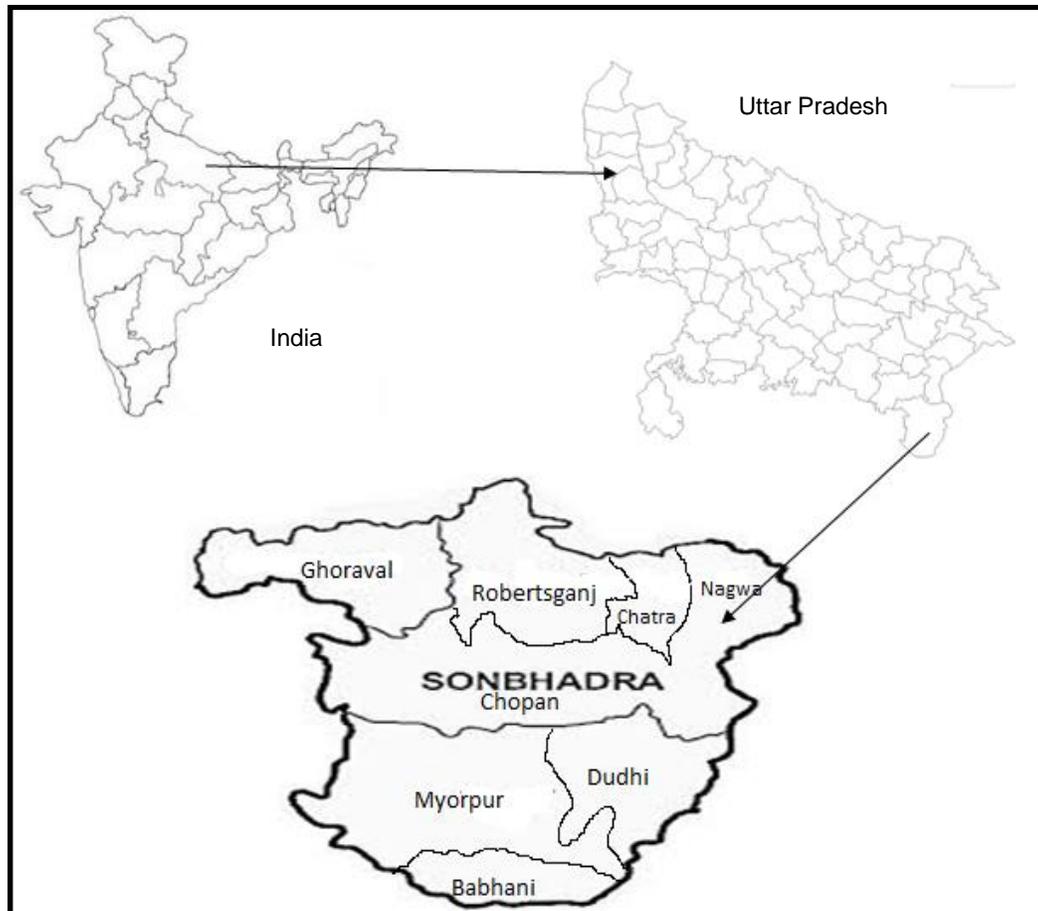


Figure 1. Map showing the study sites of District Sonbhadra, Eastern U.P.

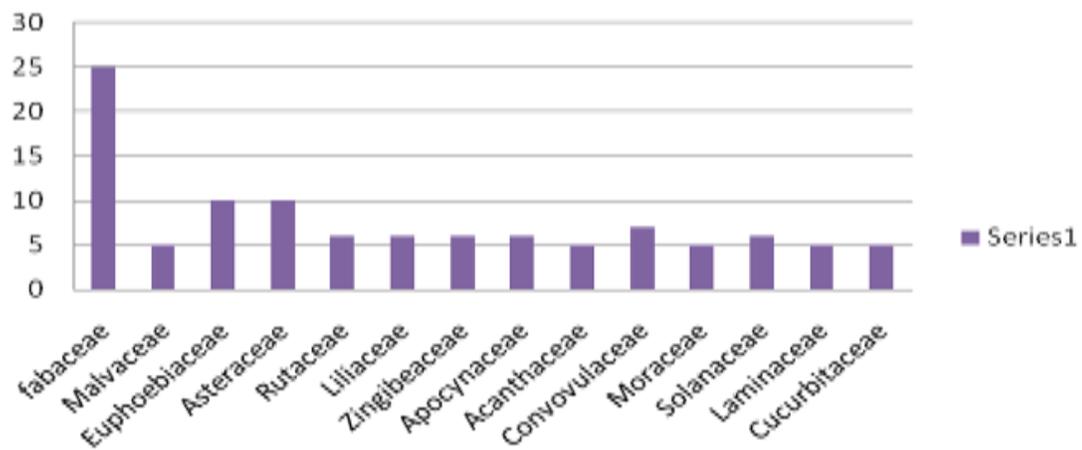


Figure 2. Chart showing the plants dominating family use in Sonbhadra District.

plants are deforestation, over grazing, increasing population, uneducation, migration towards the city of youth etc. Due to lack of interest among the younger

generation of tribes as well as their tendency to migrate to city for lucrative jobs, the area faces the possibility of losing this wealth of knowledge.

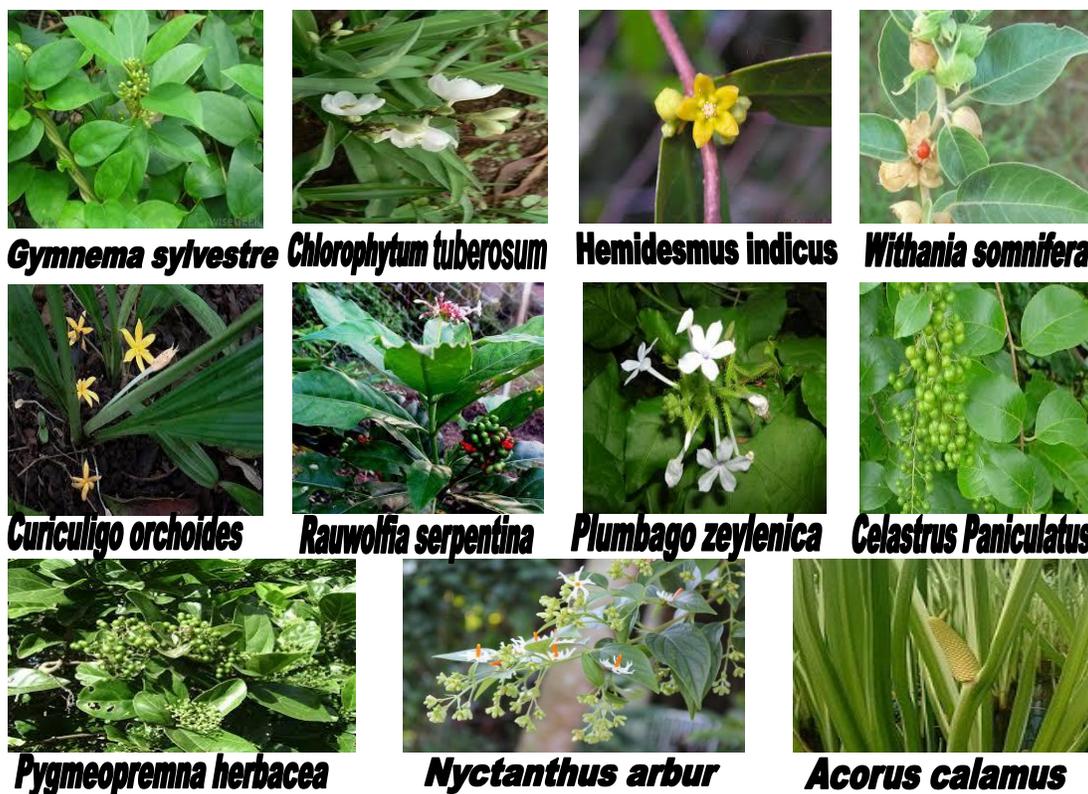


Figure 3. Some endangered ethnomedicinal plants of Sonbhadra district of Eastern Uttar Pradesh.

DISCUSSION

The study area is very diversified and rich with strong ethnobotanical traditional among tribes and ethnic communities. Very large number of medicinal plants and their preparations were used for the treatment of various diseases by local herbal medicine man. Thus the study indicates that the ethnic peoples of the area largely depend on the wild medicinal plants for cure of their ailments. Due to the lack of the government health facilities in the district, the peoples are largely dependent on the traditional health care system. This practice would definitely affect the availability of these plants and some of the plants would become threatened in the future. Thus, the area faces over exploitation and over population. Moreover, some factors viz. deforestation, agricultural expansion, overgrazing and frequent drought were observed by the researcher as main cause for the reduction in growth of medicinal plants. The effort to conserve medicinal plants in this district of central India was observed to be very poor. Hence, efforts must be taken to protect these species in this area involving the local communities in preservation and conservation aspects; otherwise there would be the possibility of losing the wealth of ethnomedicinally and globally important plants in future. Although, some traditional practitioners have started to conserve medicinal plants by cultivating

at home gardens and their effort was minimal. Moreover, due to lack of interest among the younger generation of tribes as well as their tendency to migrate to cities for lucrative jobs, this wealth of knowledge on ethno medicinal plants of the area may be lost. Hence, proper attention is urgently required to scientifically validate the information gathered on ethno medicinal plants of the area through pharmacological and reverse pharmacological investigations. The local peoples should also aware about the nature.

The survey report presented in Table 1 also emphasizes that the tribal peoples of the area mostly uses leaves of the ethnomedicinal plants as source of medicine.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENT

The authors are grateful to the inhabitants of Sonbhadra district for providing the traditional knowledge. Special thanks go to the tribals and vaidas because without their support it was impossible to collect the information.

Table 1. List of Important medicinal plants distributed in Vindhya region of Eastern, Uttar Pradesh.

S/No.	Plants Name	Vernacular name	Family	Habit	Plants parts	Pharmacological Values
1	<i>Abrus precatorious</i> (Linn.)	Ratti /Gumachi	Fabaceae	Climber	Seed Powder	Seed are made into powder and given in small dose to subside pain due to asthma.
2	<i>Acorus calamus</i> (Linn.)	Ghorbach	Areceae	Herb	Leaf	10 to 20 leaves paste are mixed with water and form Kara for cough. Leaves paste are also used in snake biting area and for bronchitis.
3	<i>Abutilon indicum</i> (Linn) Sweet.	Kanghi	Malvaceae	Herb	Root and Bark	Root and bark powder is given with honey once a day for safe pregnancy.
4	<i>Acacia catechu</i> (Linn.f.)Willd.	Khair, Katha	Fabaceae	Tree	Bark	Bark is used in antistingrent used in leprosy. Wood is used for digestive and respiratory disease.
5	<i>Acacia leucophloea</i> (Roxb.)Wild.	Rewenja	Mimosae	Tree	Bark	Bark decoction is given with water twice a day to treat diarrhea.
6	<i>Acacia sinuata</i> (Lour.)Merr.	Shikakai	Fabaceae	Shrub	Fruit	Fruits are expectorant. It is used in Cough and Jaundice.
7	<i>Acacia nilotica</i> (Linn.)	Babul	Fabaceae	Tree	Bark	Bark powder mix with neem and eaten twice a day to remove diabetes.
8	<i>Allium cepa</i> (Linn.)	Piyaj	Apiaceae	Herb	Bulb	Juice of bulb given orally twice a day to remove ophthalmic disease.
9	<i>Aesculus indica</i> (Colebr.ex.Comb.)	Pangar	Hippocastanaceae	Herb	Seed powder	Seed powder, half teaspoon is given twice a day for a month to treat Leucorrhoea.
10	<i>Acalypha hispida</i> (Burm.)	Kuppi	Euphorbiceae	Herb	Leaf	Leaf Paste with black pepper powder is made into tablets and given for cold and cough.
11	<i>Achyranthes aspera</i> (Linn.)	Chichidi	Amaranthaceae	Herb	Root and Leaf	The root of the paste is used by some tribes for easy delivery. Leaves juices are taken twice to remove bronchitis disease.
12	<i>Adina cordifolia</i> (Roxb.)HK.f.ExBradis	Haldu	Rubiaceae	Tree	Stem	Stem bark is used in malaria fever, abdominal disorder, inflammation, wound and ulcer.
13	<i>Ageratum conyzoides</i> (Linn.)	Koobhi	Asteraceae	Herb	Leaf	Leaves juices is taken internally in leprosy and other skin diseases.
14	<i>Agave americana</i> (Linn.)	Hathichingara	Agaveceae	Tree	Leaf	Leaves paste are used in cancer, ulcer and Syphilis.
15	<i>Aegle marmelos</i> (Linn.)Corr.	Shilphar	Rutaceae	Tree	Leaf and Fruit	Ripe fruits pulp is given in the morning twice a day for 2-3 days to improve digestive disorder.
16	<i>Allium sativum</i> (Linn.)	Lahsun	Liliaceae	Herb	Bulb	Paste of bulb is applied to remove ringworm.
17	<i>Albizia lebeck</i> (Linn.)Benth.	Siris	Fabaceae	Tree	Bark and Leaf	Bark paste is applied on leucoderma. Leaves juices are used to cure night blindness.
18	<i>Aloe barbadensis</i> (Mill.)	Ghrit Kumari	Liliaceae	Herb	Pulp	Pulp of paste used as ant diabetic. Pulp is used to remove acne and pimples.
19	<i>Alpinia galanga</i> (Willd.)	Kulinjan	Zingiberaceae	Herb	Root and Leaf	Root and Leaves are used in rheumatic pain ,cough and cold
20	<i>Alstonia scholaris</i> (R.Br.)	Saptaparni	Apocynaceae	Tree	Bark	The bark powder is taken for rheumatic pain.
21	<i>Amaranthus blitum</i> (Linn.)	Chaurai	Amaranthaceae	Herb	Leaf	Leaves are used as gastric disorder. It is also used in blood purifier.
22	<i>Amaranthus spinosus</i> (Linn.)	Kately	Amaranthaceae	Shrub	Leaf and root	Boiled leaves and root are given to children as laxative. Fresh root collected and given in the morning for spermatohoea.
23	<i>Amorphophallus companulatus</i> (Blume.)	Suran	Araceae	Herb	Rhizome	Rhizome is used in gastric troubles and rheumatic pain.
24	<i>Andrographis paniculata</i> (Nees.)	Kalmegh	Acanthaceae	Herb	Leaf	Leaves juices are used to drink as blood purifier, skin diseases and malaria.
25	<i>Annona squamosa</i> (Linn.)	Sharifa	Annonaceae	Tree	Leaf and Fruit	Leaf Juice is used as an antiseptic in animal wounds. Fruits are also useful in treatment of ulcer and cancer.
26	<i>Anogeissus latifolia</i> (Roxb.)Wall.exBedd.	Dhaura	Combretaceae	Tree	Root and Bark	Root is used in scorpion bite. Powder of bark is given orally twice a day in diarrhea.
28	<i>Anthocephalus cadamba</i> (miq.)ex.Walp.	Kadam	Rubiaceae	Tree	Bark and Stem	Stem bark paste with mustard oil is messaged over rheumatic affected body parts.

Table 1 cont'd

29	<i>Argemone mexicana</i> (Linn.)	Styanashi	Papaveraceae	Herb	Root and Seed	Root decoction is used to test gonorrhoea. Seed paste is applied externally in body pain.
30	<i>Argyreia speciosa</i> (Sweet.)	Convovulaceae	Samudrasokh	Shrub	Leaf and Stem	Leaves are used to make kada for cough. Stem is used in skin diseases.
31	<i>Artocarpus heterophyllus</i> (Lamk.)	Kathal	Moraceae	Shrub	Root and Leaf	Root paste is used in asthma. Leaves are used in Wound healing.
32	<i>Asparagus recemosus</i> (Willd.)	Shatawar	Liliaceae	Shrub	Root	Root powder is taken orally with water or milk to remove leucorrhoea.
33	<i>Asphodelus tenuifolius</i> (cav.)	Banpyaz	Liliaceae	Herb	Seed and Root	5 to 10 seeds as used daily to remove toothache. Root paste is used as remove toothache.
34	<i>Azadirachata indica</i> (Juss.)	Neem	Meliaceae	Tree	Leaf	Leaves juice is used as blood purifier.
35	<i>Bacopa monneiri</i> (Linn) Pennell.	Chhoti Bramhi	Poaceae	Herb	Leaf	Dried leaf powder is given internally in the treatment of asthma.
36	<i>Bambusa arundinacea</i> (Retz.)Willd.	Bans	Poaceae	Shrub	Leaf	Leaves paste is used as healing of wounds.
37	<i>Barleria prionitis</i> (Linn.)	Vajradanti	Acanthaceae	Shrub	Leaf	Leaves are chewed to cure toothache.
38	<i>Basella alba</i> (Linn.)	Poi	Basallaceae	Herb	Leaf and Fruit	Leaves are used in constipation and gonorrhoea. Fruits juice is used in conjuncunctivis.
39	<i>Bauhinia variegata</i> (Linn.)	Kachnar	Fabaceae	Tree	Flower	The flower is used with sugar as gentle laxative. The root decoction is given in dyspepsia.
40	<i>Biophytum sensitivum</i> (Linn.)D.C.	Lajwanti	Oxalidaceae	Herb	Root	Root decoction is given in fever and urinary troubles.
41	<i>Blumea lacera</i> (Lour.)Merrill.	Kukarundha	Asteraceae	Shrub	Leaf	Leaf paste with black pepper powder is given in dog bite. Leaf juice is given to relives piles.
42	<i>Boerhaavia diffusa</i> (Linn.)	Gadahpunha	Nyctaginaceae	Herb	Leaf and Root	Leaves are used against snake bite. Decoction of root is used in the treatment to jaundice and eye disease.
43	<i>Bombax ceiba</i> (Linn.)	Semal	Bombaceae	Tree	Bark and Leaf	Bark is boiled with water and extract is taken as analgesic and in hemorrhage. Leaves paste is applied in bitten spot in case of snake bite.
44	<i>Boswellia serrata</i> (Roxb.)ex.Colebr.	Salai	Bursaraceae	Tree	Seed and Bark	Seed are used in snake bite. Bark is used in diarrhea.
45	<i>Buchanania lanzan</i> (Spr.)	Chironji	Anacardaceae	Tree	Bark and Seed	Bark is used in cut and wound. Gum is used in diarrhea.
46	<i>Butea monosperma</i> (Roxb.)	Plas	Fabaceae	Tree	Root and Leaf	Extract of root is given as eye drop in night blindness. Fresh leaves coated with mustard oil wound are bandage in rheumatic pain.
47	<i>Caesalpinia bonduc</i> (Linn.)Roxb.	Karanji	Fabaceae	Shrub	Seed	The seed powder is given to ladies against bleeding.
48	<i>Caesalpinia crista</i> (Linn.)	Katila	Ceaslapiniaceae	Climber	Seed	Seeds are given orally in cough, cold and skin disease.
49	<i>Calotropis procera</i> (Ait.)R.Br.	Madar	Asclepidaceae	Shrub	Latex	Latex applied on skin directly to cure from scabies. Ash of root is used to remove pus from wound.
50	<i>Cannabis sativa</i> (Linn.)	Bhang	Cannabinaceae	Herb	Leaf	Leaf powder with Ajvain is given to relives dysentery. Leaf paste with little amount of milk is applied in piles.
51	<i>Canna indica</i> (Linn.)	Baijanti	Cannaceae	Shrub	Rhizome	Rhizome is used to reduce blood pressure. It is also used in inflammatory agents.
52	<i>Capparis decidua</i> (Forsk.)Edgew.	Kareel	Capparaceae	Shrub	Leaf	Leaves are used in wound healing. Seeds are used as antidote to snake bite.
53	<i>Carica papaya</i> (Linn.)	Papita	Caricaceae	Tree	Fruit	Ripe fruit pulp is given twice a day for 2-3 days to improve digestive disorder.
54	<i>Carissa carandas</i> (Linn.)	Karonda	Apocynaceae	Shrub	Fruit	Fruits are eaten to promote appetite.

Table 1. Cont'd

55	<i>Casia fistula</i> (Linn.)	Amaltas	Fabaceae	Tree	Leaf and Root	Paste of root is chew twice for 3 days against stomachache. Root pulp is used for asthma respiratory disorder.
56	<i>Casia obtusifolia</i> (Linn.)	Panwad	Fabaceae	Shrub	Leaf	5-7 leaves are crushed and water extract is prepared filtered 3-4 drops are added in both nostril at night time for asthma.
57	<i>Cassia occidentalis</i> (Linn.)	Kasondhi	Fabaceae	Shrub	Whole Plant	Consume 60 ml of the decoction of the plants thrice a day against bronchial asthma.
58	<i>Cassia tora</i> (Linn.)	Chakwar	Fabaceae	Herb	Seed and Root	Seed powder and leaf juice is taken as remedy for flatulence and abdominal pain from intestinal worms.
59	<i>Celastrus paniculatus</i> (Linn.)	Kakundan	Celastraceae	Shrub	Leaf and Seed	Leaf juice is used in tumor and cancer. Seed oil is massaged in joint pain.
60	<i>Chenopodium album</i> (Linn.)	Bathua	Chenopodiaceae	Herb	Whole Plant	Leaf powder with mishari is taken in cholera. Leaf paste is rubbed on scorpion bite and honeybee bite.
61	<i>Catharanthus roseus</i> (Linn.)	Sadabahar	Apocynaceae	Herb	Leaf and Flower	Leaf extract mixed with bark and flower extract of <i>Madhuca Langifolia</i> is given on cup twice a day for Asthma.
62	<i>Chlorophytum tuberosum</i> (Baker.)	Safed musli	Liliaceae	Herb	Root and Leaf	Roots are used in diuretic. Leaves are used in diarrhea and leucorrhoea.
63	<i>Citrullus colocynthis</i> (Linn.)	Indrayan	Cucurbitaceae	Climber	Fruit	Fruits are used in constipation. Root is used in skin diseases.
64	<i>Citrus medica</i> (Linn.)	Neebu	Rutaceae	Tree	Fruit	Fruits juices are used in loo. Juices are used in digestion.
65	<i>Cleome gynandra</i> (Linn.)	Hulia	Cleomaceae	Herb	Leaf and Seed	Leaves are used in treatment of rheumatism. Seeds are used in skin diseases, cough and headache.
66	<i>Citrus sinensis</i> (Wild.)	Khatta	Ritaceae	Tree	Leaf and Fruit	Juices are used in pimples itching and digestive disorder.
67	<i>Cordia myxa</i> (Roxb.)	Lisora	Boraginaceae	Tree	Leaf	Leaves are used in colic pain and whooping cough.
68	<i>Cleome viscosa</i> (Linn.)	Hur-Hur	Cleomaceae	Herb	Seed	The dried seed powder is mixed with sugar and administered orally twice a day for 7 days to relieve body pain.
69	<i>Clitoria ternatea</i> (Linn.)	Aparajita	Fabaceae	Climber	Root	Roots are used in headache. Powder of leaves is used in urinary troubles.
70	<i>Coccinia grandis</i> (Linn.)Voigt.	Kundaru	Cucurbitaceae	Climber	Leaf	Paste of root is used as eye drop once a day for three days for beauty sight.
71	<i>Convolvulus arvensis</i> (Linn.)	Hirni	Convolvulaceae	Climber	Root powder	Root powder is used in constipation as purgatives.
72	<i>Convolvulus microphyllus</i> (Sieb.ex.spreng.)	Sankhpushapi	Convolvulaceae	Climber	Whole plant	Ash of whole plant is used locally in skin disease.
73	<i>Curculigo orchioides</i> (Gaertn.)	Kali musli	Hypoxydaceae	Herb	Rhizome	The dried rhizome powder is mixed with honey and given to male to improve semen production.
74	<i>Curcuma longa</i> (Linn.)	Haldi	Zingibearceae	Herb	Rhizome	Powder rhizome with milk is given in internal injuries. Dried rhizome is used in cough and cold.
75	<i>Cuscuta reflexa</i> (Roxb.)	Amarbel	Convolvulaceae	Climber	Bark and Leaf	Plant juices warmed with mustard oil and wheat flour is applied on joint pain.
76	<i>Cynodon dactylon</i> (Linn.)Pers.	Doob	Poaceae	Herb	Root	Root is used in fever and in intestinal injury.
77	<i>Cyprus rotundus</i> (Linn.)	Mootha	Poaceae	Herb	Whole plant	The whole plant along with young leaves of neem, black pepper and leaves of tulsi is made into decoction. The decoction vapors are inhaled for treating malaria fever.
78	<i>Datura innoxia</i> (Mill.)	Dhatura	Solanaceae	Shrub	Leaf	The leaves are gently heated on flame and applied on the face to remove pimples.
79	<i>Datura metel</i> (Linn.)	Kala Dhatura	Solanaceae	Shrub	Leaf and Fruits	Make the juice of leaves and paste of the fruite.mix with gingili oil and consume 6 drop at bed time for bronchial asthma.

Table 1. Cont'd

80	<i>Dendrophthoe falcata</i> (Linn.)	Banda	Loranthaceae	Herb	Root and Stem	Root is used in skin disease. Crushed stem is used as brain tonic and in menstrual disorder.
81	<i>Desmodium gangeticum</i> (Linn.) D.C.	Salpami	Fabaceae	Shrub	Root and Leaf	Root paste mixed with water is given in dysentery up to three times a day. Paste of leaves is used in hair fall.
82	<i>Dioscoera bulbifera</i> (Linn.)	Ratalu	Dioscoraceae	Climber	Root and Leaf	Boiled root tuber is taken orally to reduce body heat. Leaf Powder and black pepper is given in cold and cough.
83	<i>Diospyros melanoxylon</i> (Roxb.)	Tendu	Ebenaceae	Tree	Stem and Fruit	A piece of stem bark is chewed thrice a day to remove throat infection. Few ripen fruits are eaten to remove cough.
84	<i>Drypetes roxburghii</i> (Wall.)Huru.	Putrajivi	Euphorbiaceae	Tree	Leaf	Leaves juices are used in wash on affected wound.
85	<i>Echinops echinatus</i> (Roxb.)	Gokrul	Asteraceae	Herb	Root and Stem	The root or stem 8 cm long crushed and the paste mixed with water is given once to pregnant ladies for easy delivery.
86	<i>Eclipta prostrata</i> (Linn.)	Bhringraj	Asteraceae	Herb	Leaf	Leaves paste with black pepper powder is given as blood purifier and in piles.
87	<i>Euphorbia hirta</i> (Linn.)	Dudhi	Euphorbiaceae	Herb	Leaf	Leaf paste with ghee is applied on wound. Leaf juices are given to check vomiting.
88	<i>Emblca officinalis</i> (Gaertn.)	Awla	Euphorbiaceae	Tree	Leaf and Fruit	Leaf juices are used in dysentery and gonorrhoea. The fruits are used in treatment of diabetes.
89	<i>Euphorbia indica</i> (Lamk.)	Chhoti dudhi	Euphorbiaceae	Herb	Leaf and Root	Leaves are used in diarrhea and dysentery. Root is used in leucorrhoea.
90	<i>Euphorbia ligularia</i> (Roxb.)	Sehund	Euphorbiaceae	Herb	Leaf	Leaf paste with ghee and powder of black pepper is given in snakebite.
91	<i>Ficus benghalensis</i> (Linn.)	Baru	Moraceae	Tree	Latex	The latex is used to treat dysentery, diarrhea and piles.
92	<i>Ficus cairica</i> (Linn.)	Anjir	Moraceae	Tree	Leaf	Leaves are used in liver tonic. It is also used in respiratory troubles.
93	<i>Ficus recemosa</i> (Linn.)	Gular	Moraceae	Tree	Leaf and Fruit	Fresh juice of leaf is given with water for about 10 days to treat gastrointestinal problems. Dried fruits taken with warm water are helpful in diabetes.
94	<i>Ficus religiosa</i> (Linn.)	Pipal	Moraceae	Tree	Bark	Bark 50 g crushed with 5 g curcuma domestica powder is applied externally for skin disorder.
95	<i>Ficus glomerata</i> (Linn.)	Gular	Moraceae	Tree	Bark and Fruit	Bark Paste is used in dysentery. Fruit is used in heart disease.
96	<i>Fumaria indica</i> (Hauensk.)Pug.	Pitapara	Fumaraceae	Herb	Root	The root paste is applied externally in skin disease.
97	<i>Flacourtia indica</i> (Burm.f.)		Flacourtiaceae	Tree	Leaf and Root	The leaf is used in Jaundice and the roots are used diuretic disease.
98	<i>Gloriosa superba</i> (Linn.)	Kariyar	Liliaceae	Climber	Rhizome and Root	Rhizome is used as antidote to snake bite. Root is used in rheumatic pain.
99	<i>Gossypium herbaceum</i> (Linn.)	Kapas	Malveceae	Tree	Root	Root powder is given in menstrual problems. Seed powder is given to increase lactation.
100	<i>Grewia asiatica</i> (Auct.)	Phalsa	Tiliaceae	Tree	Fruit and Bark	Fruits juice is digestive. Bark is used in rheumatic pain and fever.
101	<i>Gymnema sylevestre</i> (Retz.)R.Br.	Gulmarg	Asclepiadaceae	Climber	Leaf	Consume 5 g of dried leaf in 50 ml of cow's milk twice a day for diabetes.
102	<i>Helictres isora</i> (Linn.)	Maror phali	Sterculaceae	Shrub	Whole plant	The aqueous extract of the seed in small amount is given to children in dysentery.
103	<i>Hibiscus rosa sinensis</i> (Linn.)	Gurhal	Malveceae	Shrub	Fruit	Boils equal amount of crushed root, leaf and bark bud in half glass of water. It is given to control dermatitis.
104	<i>Hordeum vulgare</i> (Linn.)	Jau	Poaceae	Herb	Seed and Leaf	Seed is used in stomach disorder. Leaf juices are used as rejuvenator.
105	<i>Hemidesmus indicus</i> (Linn.)R.Br.	Ananathmool	Asclepiadaceae	Shrub	Leaf	The leaves paste are used in Cough and skin disease.
106	<i>Holarrhena antidysenterica</i> (Wall.)	Khirmi	Apocynaceae	Tree	Fruit	The fruits paste is given in stomachache.
107	<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Chil bil	Ulmaceae	Tree	Bark and Root	Leaves are made into paste and applied over the body to remove ringworm.
108	<i>Hygrophila auriculata</i> (Schum.) Heine.	Talmakhana	Acanthaceae	Herb	Whole plant	Whole plants are applied to treat body swelling.

Table 1. Cont'd

109	<i>Hyptis suaveolens</i> (Linn.)Poit.	Bantulsi	Laminaceae	Herb	Leaf and Root	Leaves are used in wound healing. Roots are used as antidote to snake bite.
110	<i>Ipomoea aquatica</i> (Forsk.)	Karemu	Convolvulaceae	Herb	Leaf	Leaves paste is applied over the body to cure itching.
111	<i>Jatropha gossypifolia</i> (Linn.)	Banren	Euphorbiaceae	Herb	Whole plant	Twig is used as toothbrush to cure toothache.
112	<i>Jacaranda mimosifolia</i> (Don.)	Gulmohar	Bignoniaceae	Tree	Bark and Leaf	Bark is used in skin problems. Leaves are used in syphilis and gonorrhoea.
113	<i>Justicia adhatoda</i> (Linn.)	Adusa	Acanthaceae	Shrub	Leaf and Root	10 g the fresh leaves made into a paste is externally applied twice a day to treat ringworms.
114	<i>Lablab purpureus</i> (Linn.)	Sem	Fabaceae	Climber	Root	Roots are used as anthelmintic. Leaves are used in cough and skin diseases.
115	<i>Lawsonia inermis</i> (Linn.)	Mehndi	Lytharaceae	Shrub	Leaf	Leaf paste is applied for leprosy burn and skin diseases.
116	<i>Leucas cephalotus</i> (Roth.)Spreng.	Khumbi	Laminaceae	Herb	Leaf	Leaves are chewed and paste is massaged over gums and teeth to cure mouth ulcer. Leaf decoction is applied over forehead to get relieves from headache.
117	<i>Limonia acidissima</i> (Linn.)	Kaitha	Rutaceae	Tree	Fruit	Fruits pulp is given in diarrhea and dysentery.
118	<i>Linum usatissimum</i> (Linn.)	Tisi	Linaseae	Herb	Seed	Crushed seeds are used as poultice on wound and carbuncles. Sweet cakes made from seeds are given to the women after childbirth.
119	<i>Loranthus longifolia</i> (Wall.)	Banda	Loranthaceae	Shrub	Root and Leaf	Root is used in menstrual disorder. Leaves are used in wound and ulcer
120	<i>Luffa acutangula</i> (Linn.)	Jangali torai	Cucurbitaceae	Climber	Seed and Fruit	Seeds are used in constipation. Fruits are used in jaundice.
121	<i>Madhuca longifolia</i> (Koen.)Mac.Br.	Mahua	Sapotaceae	Tree	Seed	The seeds oil is used for cooking food. Decoction of flower boiled in water is given twice a day against cold cough and headache.
122	<i>Mentha spicata</i> (Linn.)	Poodina	Laminaceae	Herb	Leaf	Leaves extract is given in vomiting and indigestion.
123	<i>Mimosa pudica</i> (Linn.)	Chhuimui	Fabaceae	Shrub	Leaf and Root	10 g of the leaves paste is externally applied three a day to treat eczema. Extract of root and leaves is used as drug for intestinal problems.
124	<i>Momordica dioica</i> (Roxb.)ex.Wild.	Kheksa	Cucurbitaceae	Climber	Leaf	Leaves paste are applied in body swelling.
125	<i>Moringa oleifera</i> (Lamk.)	Saijan	Moringaceae	Tree	Leaf	Young leaves are taken before breakfast for diabetes.
126	<i>Mucuna pruriense</i> (Linn.)D.C.	Kevanch	Fabaceae	Climber	Fruit and Seed	Fruits are used in worm affections. Seeds are used as aphrodisiac.
127	<i>Murraya koenigii</i> (Linn.)Spreng.	Meethi Neem	Rutaceae	Shrub	Leaf	Leaves and bark are used in cough, rheumatism and hysteria.
128	<i>Magnifera indica</i> (Linn.)	Aam	Anacardiaceae	Tree	Seed and Leaf	One teaspoon seed powder is taken in empty stomach for 21 days for diabetes. Leaves Paste is use daily to increase sperm formation.
129	<i>Musa paradisiaca</i> (Auct.)	Kela	Musaceae	Herb	Fruit and Flower	Fruits with black pepper are taken in respiratory problems. Flower is used in diabetes and genital disorder.
130	<i>Nelumbo nucifera</i> (Willd.)	Kamal	Nelumbonaceae	Herb	Fruit	Crushed fruits are given with water three times a day to check vomiting in children.
131	<i>Nerium indicum</i> (Mill.)	Kaner	Apocynaceae	Herb	Seed	Seeds are burnt to ashes, mixed with mustard oil and it is applied over wound.
132	<i>Nyctanthes arbor</i> (Linn.)	Harsingar	Oliaceae	Tree	Seed	Seeds paste is applied over scalp in baldness.
133	<i>Ocimum sanctum</i> (Linn.)	Tulsi	Laminaceae	Herb	Leaf	Juice of leaves is applied externally in case of night blindness. Leaf juices are dropped in ear to relives earache. Leaf is also used for cough.
134	<i>Ocimum basilicum</i> (Linn.)	Kali tulsi	Laminaceae	Herb	Leaf	Heat the leaf with coconut oil and apply the oil as ear drop. Leaves are used to form kada in cough and cold.
135	<i>Oxalis debilis</i> (D.C.)	Khatti Booti	Oxalidaceae	Herb	Leaf	Leaves are used in diarrhea, fever, scurvy and piles.
136	<i>Phyllanthus emblica</i> (Linn.)	Awla	Euphorbiaceae	Tree	Leaf and Fruit	Leaves juices are used in diarrhea and dysentery. Fruits are used in constipation and diabetes.
137	<i>Psidium gujava</i> (Linn.)	Amrud	Myrtaceae	Tree	Leaf and Fruit	Leaves and fruited are used in mouth ulcer, Sore throat, and diarrhea.

Table 1. Cont'd

138	<i>Phyllanthus</i> (Webst.)	<i>fraternus</i>	Bhui	Euphorbiaceae	Herb	whole plant	About 10 g paste of whole plant is given thrice daily for one week for both infective hepatitis and chronic liver problems.
139	<i>Pterocarpus</i> (Roxb.)	<i>marsupium</i>	Vijay sal	Fabaceae	Tree	Stem	Dried stem powder are used in tuberculosis and asthma.
140	<i>Physalis minima</i> (Linn.)		Rasbhari	Solanaceae	Herb	Leaf	Powdered leaves are given with cow milk to cure leucorrhoea.
141	<i>Plumbago zeylanica</i> (Linn.)		Chitrak	Plumbaginaceae	Shrub	Root	Decoction of root is given in urinary troubles.
142	<i>Pueraria</i> (Wild.)D.C.	<i>tuberosa</i>	Pataalkumhara	Fabaceae	Climber	Tubor	Tuber increase lactation in females.
143	<i>Pygmeoperma</i> (Roxb.)Mold.	<i>herbacea</i>	Gathiavaad	Verbanaceae	Shrub	Root	Root paste is applied for arthritis. Whole plant make into pills and given three times for rheumatism.
144	<i>Rauwolfia</i> Linn.)Benth.	<i>serpentina</i>	Sparghandha	Apocynaceae	Shrub	Root	Root powder is mixed with black pepper and one teaspoon is taken with a cup of water is given in labor pain.
145	<i>Ricinus communis</i> (Linn.)		Arandi	Euphorbiaceae	Shrub	Seed oil	Leaf juice mixed with 7 cumin seed is used internally for jaundice.
146	<i>Rumex dentatus</i> (Linn.)		Jangali palak	Polygoniaceae	Herb	Whole plant	Whole plant decoction is used against sunstroke giving cooling effect to body.
147	<i>Sesamum indicum</i> (Linn.)		Tilli	Pedialaceae	Tree	Seed	Seed oil are given a day in urinary troubles.
148	<i>Shorea robusta</i> (Gaertn.f.)		Sekhua	Diptercarpaceae	Tree	Seed	Seeds powdered are given internally for stomach pain. Gum mixed with curd is given in dysentery.
149	<i>Sida cardifolia</i> (Linn.)		Khareti	Malvaceae	Herb	Root, Bark and Seed	Root and bark decoction is given with milk and sugar during frequent maturation. Seeds are used in leucorrhoea.
150	<i>Solanum nigrum</i> (Linn.)		Makoy	Solanaceae	Shrub	Leaf	The paste of leaves is used with aloe vera for rheumatism and skin disease. Fresh leaves juice twice a day for jaundice.
151	<i>Solanum</i> (Burm.f.)	<i>surattense</i>	Pili Bhattkatia	Solanaceae	Shrub	Root	Decoction of root in given in urinary disease. Root extract is used in cough. Extract of whole plant is used to check hair falling.
152	<i>Sphaeranthus indicus</i> (Linn.)		Mundi	Astearceae	Herb	Flower	Plant extract with castor oil and cumin seed taken for bleeding piles.
153	<i>Syzygium cuminii</i> (Linn.)		Jamun	Myrtaceae	Tree	Bark and Leaf	Fresh juice of bark is given with goat's milk in diarrhea.
154	<i>Stercularia urens</i> (Roxb.)		Katera	Sterculaceae	Tree	Root	Root powder is given in malaria fever.
155	<i>Tagetes erecta</i> (Linn.)		Genda	Asteraceae	Herb	Leaf	Leaves are used in cut and wound. Leaf juice is used in earache.
156	<i>Tamarindus indica</i> (Linn.)		Imli	Fabaceae	Tree	Bark and Leaf	Its leaves are used along with Curcuma longa and allium cepa to cure injury.
157	<i>Tephrosia</i> (Linn.)Pers.	<i>purpurea</i>	Sarpunkha	Fabaceae	Herb	Seed Powder	Seed powder is used as antihelmenthic. Seed oil is applied externally in skin disease. Extract of whole plant is used in liver and spleen disorder.
158	<i>Terminalia</i> (Gaertn.)Roxb.	<i>bellerica</i>	Bahera	Combretaceae	Tree	Fruit	Fruits are used as trifla churna as an ayurvedic medicine for stomach.
159	<i>Terminalia chebula</i> (Retz.)		Harra	Combretaceae	Tree	Fruit	One teaspoon of ground powder of fruits is given internally with water with once daily before going to bed to cure chaste pain.
160	<i>Terminalia</i> (Roxb.ex.D.C.)	<i>arjuna</i>	Kahua	Combretaceae	Tree	Bark	Bark is boiled with water and after boiling water is taken internally in empty stomach for heart and liver.
161	<i>Tinospora</i> (Linn.)Merr.	<i>cardifolia</i>	Giloy	Menispermaceae	Climber	Whole plant	Whole plant decoction is taken internally for rheumatism. Plant juice is taken against stomach disorder.
162	<i>Tridax procumbens</i> (Linn.)		Phulni	Asteraceae	Herb	Whole plant	The paste of whole plant is used to stop bleeding caused by outer stroke.

Table 1. Cont'd

163	<i>Tribulus terrestris</i> (Linn.)	Gokhru	Zygophyllaceae	Herb	Leaf	The leaves are used in renal and urinary Disorder.
164	<i>Trigonella foenum graecum</i> (Linn.)	Menthi	Fabaceae	Tree	Seed	Seeds powder is used in rheumatism and diabetes.
165	<i>Viola betonicifolia</i> (J.Smith.)	Vanfsa	Violaceae	Shrub	Whole plant	Extract of whole plant is given approximately half teaspoon twice a day early in morning and night for 14 days to treatment of leucorrhoea.
166	<i>Vanda tesselata</i> (Roxb.)Hook.ex.G.Don.	Van aadi	Orchidaceae	Herb	Leaf and Root	Leaves juice is used in the treatment of earache. Roots are touched to the body during childbirth for easier delivery.
167	<i>Withania somnifera</i> (Linn.)Dunal.	Ashwagandha	Solanaceae	Shrub	Root Powder	Dry root powder with cow milk is taken daily for one month to increase the fertility in women for conception.
168	<i>Xanthium strumarium</i> (Linn.)	Chirchita	Asteraceae	Shrub	Leaf	Leaf juice is applied externally in skin disease. Decoction of whole plant is given in leucorrhoea.
169	<i>Zizypus mauritiana</i> (Lamk.)	Bair	Rhamnaceae	Tree	Leaf	Leaves paste is applied on burn seed powder is given in conjunctivitis.
170	<i>Ziziphus nummularia</i> (Burm.f.)Wt.andAm.	Jharberry	Rhamnaceae	Shrub	Bark and Fruit	Decoction of bark is used in dysentery. Fruits are used in digestive problems.
171	<i>Zingiber officinale</i> Roxb.)	Jangaliaadaa	Zingiberaceae	Herb	Rhizome	Rhizome is used in relives of tonsil, headache, cough and cold.

REFERENCES

- Abu-Rabia A (2005). Urinary disorder ethnobotany among nomads in the Middle East. *J. Ethnobiol. Ethnomed.* 2005:1-4.
- Azaizeh H, Fulder S, Khalil K, Said O (2003). Ethnomedicinal knowledge of local Arab practitioners in the Middle East region. *Filotropia* 74:98-108.
- Henrich M (2000). Ethnobotany and its role in drugs development. *Phytother. Res.* 14:479-488.
- Jain SK (1991). Dictionary of Indian folk medicine and Ethnobotany, Deep publication New Delhi.
- Maheshwari JK, Singh KK, Saha S (1981). Ethnobotany of the Tharus of Kheri District, Uttar Pradesh. Available at: <http://agris.fao.org/agrissearch/search.do?recordID=US201300362080>
- Mourya SK, Seth A, Gautam DN, Singh AK (2015). Biodiversity and indigenous uses of medicinal plant in the chandra prabha wild life sanctuary Chandauli district Uttar Pradesh. *Int. J. Biodivers.* 2015:394307.
- Pei SJ (2001). Ethnobotanical approaches of traditional medicine studies. Some experience from Asia. *Pharm. Biol.* 39:74-79.
- Prakash A (2011). Uses of some threatened and potential ethnomedicinal plant among the tribals of Uttar Pradesh and Uttarakhand in India. pp. 93-99.
- Sikarwar RLS (2002). Ethnobotanical uses of plants new to India. *Ethnobotany* 14:112-115.
- Singh A, Singh PK (2009). An ethnomedicinal study of medicinal plants in Chandauli district of Uttar Pradesh India. *J. Ethnopharmacol.* 121:324-329.
- Singh JS, Singh KP, Agrawal M (1991). Environmental degradation of obra-renukoot singarauli area, India and its impact on natural and derived ecosystem. *Environmentalist* 11:171-180.
- Singh KK, Maheshwari JK (1989). Traditional herbal remedies among the tharus of Baharich district U. P. India. *Ethnobotany* 1:51-56.
- Singh KK, Prakash A (1996). Observations on ethnobotany of the Kol tribe of Varanasi district, Uttar Pradesh, India. pp. 133-137.
- Singh R, Shukla LN (2017). Ecological investigation of some selected medicinal plants with special reference to phytosociological aspect in anpara region of sonbhadra district. *Indian J. Sci. Res.* 7(2):159-162. Available at: http://www.ijsr.in/upload/1934635250Chapter_27.pdf
- Upadhyay R, Singh J (2005). Ethnobotanical uses of plants from tikri forest of Gonda district Uttar Pradesh. *Ethnobotany* 17:167-170.
- Xavier TF, Kannan M, Liza L, Auxillia A, Rose AKF, Kumar SS (2014). Ethnobotanical study of Kani tribes in Thoduhills of Kerala, South India. *J. Ethnopharmacol.* 152:78-90.