



Ethnomedicinal importance of the Plants of Amarkantak region, Madhya Pradesh, India

Anupam SRIVASTAVA, Shambhu P. PATEL, Rajesh K. MISHRA, Rajiv K. VASHISTHA*,
Ajay SINGH, Ashok K. PUSKAR

Ayurveda Research and Development Department, Patanjali Yogpeeth, Maharishi Dayanand Gram, Near Bahadrabad, Haridwar- 249405, Uttarakhand, India

Article History: Received 14th December 2011, Revised 19th January 2012, Accepted 19th January 2012.

Abstract: The present study was carried out in the Amarkantak, region of Madhya Pradesh, India, to document the ethno medicinal uses of plants. A total of 135 species belonging to 115 genera and 63 families have been reported. Plant species commonly used by local people for food, fodder, medicine and in other fields of their lives are enumerated. A list of plant species along with their local names, plant parts used and mode of application has been given. Ethnomedicinally most important families are Zingiberaceae and Fabaceae with 8 species followed by Rubiaceae, Vitaceae and Liliaceae with 7 species. These plant species are utilized by local peoples against various ailments such as cuts and wounds, fever, joints pain, constipation, diarrhoea, eye disorders, skin ailments, cough and cold, antidote for poisonous insects, stomach disorders, urinary troubles, liver complaints, digestive problems, jaundice, asthma, bronchitis, etc. Indigenous knowledge of rural or cultural groups has great significance in formulating applicable strategy for the development of any region. This scattered, secretive, fast eroding highly valuable knowledge needs proper documentation. The present study signifies ethnomedicinal values of the plants species occur in Amarkantak region.

Keywords: Ethnomedicinal survey; Amarkantaka, indigenous knowledge; herbs and medicine.

Introduction

Amarkantak is known as an immense holy pilgrim centre for the Hindus and is the origin place of the rivers Narmada and Sone, situated in Anuppur district of Madhya Pradesh, India. It is located between 22°44' North latitude and 81°54' East longitude, at the meeting point of the Vindhya and the Satpura mountain ranges amongst sylvan surroundings, at an altitude of 1065 m asl. The Narmada River flows to the west from Amarkantak whereas the Sone flows towards the East. Amarkantak is glorified by nature having various holy ponds and elevated hills. The entire forest area, exquisite waterfalls and rich biodiversity make this place a great destination for both religious-minded people and the researchers.

Floristic survey in this state has been undertaken by Jain (1962), Bhalla et al. (1986), Jain (1988), Jayson (1991), Jain and Patole (2001), Jain and Vairale (2007), Dubey et al. (2008 a and b), Wagh and Jain (2010), Kala (2010 and 2011) etc. Information published on the utiliza-

tion of plant species by these workers did not cover all the species present in the area. The present exploration has resulted in gathering information on plants used as medicine and in religious practices.

Materials and Methods

Field study was conducted in the Amarkantak near Narmada Kund and temple, Sonemuda, Mai ki Bagiya, Kapil Dhara, Kabir Chabutra, Doodhdhara, Shambudhara, Bhagdinala and Shri Jwaleshwar Mahadev and their adjacent areas during the year 2010 - 2011. Ethnomedicinal information on the plant species was collected through interviewing local communities. The informants were *Vaidhyas*, *Priests* and village headmen. The main tribal groups in this region are Gond, Bhil, Baiga, Korku, Bhadia, Halba, Kaul, Mariya who commonly communicate through Hindi, Bagheli, Bundeli and Chatisgadi. A structured questionnaire was used to collect data on local plant names, uses, parts used, and mode of application. Recorded plant species

were identified with the help of Herbarium of the Botanical Survey of India, Northern Circle, Dehradun (BSD), local floras and previous works of Hooker (1875), Kirtikar and Basu (1999), Dubey et al. (2008 a and b). The voucher specimens have been deposited in the Patanjali Yogpeeth, Haridwar.

Result and Discussion

The present communication documented 135 plant species belonging to 61 families under 115 genera that are being traditionally used in the area. The herbal remedies are effective against cuts and wounds, fever, joint pain, headache, constipation, diarrhoea, eye disorders, skin ailments, cough and cold, antidote for poisonous insects, stomach disorders, urinary troubles, liver complaints, digestive problems, jaundice, asthma, bronchitis, inflammations and anemia, piles, mental disorder, abdominal pain and bone fracture, paralysis, epilepsy, impotency, general weakness etc. In general, *Adiantum philippense*, *Asparagus racemosus*, *Pueraria tuberosa*, *Costus speciosus*, *Terminalia chebula* are used in the treatment of leprosy. *Eryngium foetidum* and *Antidesma zeylanicum* are used in snake bite, *Terminalia chebula*, *Elaeocarpus sphaericus* and *Caesalpinia bonduc* are used for the treatment of jaundice. *Clerodendron serratum*, *Cur-*

cuma angustifolia, *Sida cordata*, *Celastrus paniculatus* are used for the treatment of *leucoderma* (Table 1). Among the selected species ethnomedicinally the maximum contribution was recorded for herbs with 70 species (52%) followed by trees with 26 species (19%), shrubs with 22 species (16%) and climbers with 16 species (12%, Figure 1). Among the selected species, parts used wise contribution was maximum for whole plant with 42 species (31%) followed by roots with 31 species (23%), leaves with 30 species (22%), bark with 20 species (15%) and seeds with 5 species (4%, Figure 2). This survey revealed that the tribal and other inhabitants of the area have sound knowledge about the uses of medicinal plants available in the region. Unfortunately, the tribal communities are not concerned to share their traditional knowledge with others and their knowledge is limited with their own community and ends with the end of their life. In the present study, a brief account on ethnomedicinal uses of documented plant species has been verified by *Vaidhyas*, knowledgeable persons and experienced informant of the area, even then further exploration on pharmaceuticals, therapeutic as well as safety features like toxicity studies are very much required for human benefit and sustaining the knowledge of tribal communities.

Table 1: Ethnomedicinally important species in Amarkantaka region, MP.

S.No.	Botanical name	Local name	Family	Habit	Uses
1.	<i>Abelmoschus moschatus</i> Medik.	Kasturi bhindi	Malvaceae	H	A paste of its leaves is applied on the cuts, wounds and sprains. Seeds are used in aromatherapy for the treatment of depression and anxiety, cramps, poor circulation and aching joint.
2.	<i>Abrus precatorius</i> Linn.	Ghumchi	Fabaceae	C	Seeds are used in cellulites, gangrene, gastritis, nephritis, ulcers, typhoid and cholera.
3.	<i>Acanthospermum hispidum</i> DC.	Gokharu	Asteraceae	H	Paste of whole plants is used to treat skin disease and leaf juice is used to relieve fever.
4.	<i>Adina cordifolia</i> (Willd. ex Roxb.)Hook.f.ex Brandis	Haldu	Rubiaceae	T	Stem bark is used in malarial fever, abdominal disorder, inflammation, wounds and ulcers.
5.	<i>Adiantum philippense</i> Linn.	Hansraj	Adiantaceae	H	Full teaspoon of its extract of whole plant is used in fever, asthma, bronchitis, dysentery, leprosy and ulcers. Powder of rhizome is given as an antidote against dog bite and snake bite.
6.	<i>Allium tuberosum</i> Roxb.	Ban lahsun	Liliaceae	H	The leaves and bulbs are applied to insect bites, cuts, and wounds, while the seeds are used to treat kidney, liver, and upset digestive system.
7.	<i>Alternanthera sessilis</i> (Linn.) R.Br. ex DC.	Gudari shak	Amaranthaceae	H	The whole plant is used for burning sensation, diarrhoea, skin disease, dyspepsia, hemorrhoids, liver and spleen diseases and fever.
8.	<i>Altermenthera pungens</i> Kunth.	Katua shak	Amaranthaceae	H	Decoction of its leaves is taken to treat gonorrhoea.
9.	<i>Amaranthus spinosus</i> Linn.	Chaulai	Amaranthaceae	H	Traditionally, leaves are used to treat scorpion sting and snake bite.
10.	<i>Ammomum aromaticum</i> Roxb.	Kali elaichi	Zingiberaceae	H	Decoction of whole plants is used as a gargle in dental or gum problems. Its seed oil is used in vomiting, indigestion, abdomen pain and rectal disease.
11.	<i>Ampelocissus tomentosa</i> (Roth.)Planch.	Ulat bel , Bamaru	Vitaceae	C	It is used for the treatment of dysentery, fever, fistula and tuberculosis.
12.	<i>Antidesma zeylanicum</i> Lam.	Amti	Euphorbiaceae	S	Leaves are used as an antidote for snake bite.
13.	<i>Antigonon leptopus</i> Hook. & Arn.		Polygonaceae	Climbing shrub	Paste of fresh leaves applied externally in skin disorders.
14.	<i>Arsaema tortuosum</i> (Wall.) Schott	Ban makka, Sigta kanda	Araceae	H	Tubers are taken with black pepper in cold and cough.
15.	<i>Asparagus racemosus</i> Willd.	Satavar	Liliaceae	C	Roots are used for the treatment of nervous disorders, diarrhoea, dysentery, tumor, inflammation, tuberculosis, leprosy, fatigue.
16.	<i>Basella rubra</i> Linn.	Poi	Basellaceae	C	Leaf juice is useful in biliousness, dysentery and leprosy. A paste of root

17.	<i>Begonia</i> sps.		Begoniaceae	H	applied in swelling.
18.	<i>Begonia picta</i> Linn.	Patharchatta	Begoniaceae	H	Its leaves used as a tea in cold and cough. The juice of the whole plant is taken to relieve headaches. The crushed leaves are used as a poultice on sore nipples. The root juice is used as eye-wash to treat conjunctivitis. It is also consumed in the treatment of peptic ulcers.
19.	<i>Belamcanda chinensis</i> (Linn.) DC.	Tiger lily	Iridaceae	H	It is used in the treatment of acute laryngitis, acute tonsillitis, oedema of the glottis and cough with profuse sputum. Root juice is used to treat liver complaints.
20.	<i>Bergenia</i> sps.	Patharchur	Saxifragaceae	H	A juice or powder of the whole plant is used to treat urinary troubles. The root is used in the treatment of fever.
21.	<i>Boerhavia procumbens</i> Banks ex Roxb.	Bishkhapra, Patharchata	Nyctaginaceae	H	Infusion of the herb is useful in dropsy, menstrual flow regulation & gonorrhoea.
22.	<i>Bridelia montana</i> Willd.	Ekdaniya	Euphorbiaceae	T	Bark and roots are used in the treatment of worm infection and bone fracture.
23.	<i>Bridelia retusa</i> (Linn.) Spreng.	Kasai, Jamalvati	Phyllanthaceae	T	The bark is useful in lumbago and hemiplegia and bark is also used for the treatment of rheumatism and diabetes.
24.	<i>Butea superba</i> Roxb.	Chi-ula, Palash bel	Fabaceae	C	The seeds are used for the treatment of herpes, skin disease, ringworm, round worm, arthritis, flatulence and constipation.
25.	<i>Caesalpinia bonduc</i> (Linn.) Roxb. emend. Dandy & Exell.	Ga-tayan, Sagar gota	Caesalpinia-ceae	S	The leaves, seeds and roots are used for the treatment of amenorrhoea, dysmenorrhoea, fever, cough, worms, dyspepsia, jaundice and arthritis.
26.	<i>Carissa opaca</i> Stapf ex Haines	Jangali karaunda	Apocynaceae	S	Leaves are useful in cardiac disorders. Fruits are also used in digestive problems.
27.	<i>Casuarina equisetifolia</i> Linn.	Banya suru	Casuarinaceae	T	Its bark and woods are used in beri-beri, colic, cough, diarrhoea, dysentery, headache, pimples, sore, stomachache, swelling and toothache. Seeds are also used in bloody diarrhoea.
28.	<i>Catunaregam nilotica</i> (Stapf) Tirveng.	Kharhar, Gadpidar	Rubiaceae	S	Decoction of seeds is used in headache. Its stem bark is used in treating joints and muscles affections.
29.	<i>Catunaregam spinosum</i> (Thunb.) Tiryeng.	Mainhar	Rubiaceae	S	Bark is used internally for fever and insomnia and used externally for rheumatism and bruises. Roots are used for the treatment of gonorrhoea, diarrhoea, colic, fever and phlegmatic swelling.
30.	<i>Cayratia auriculata</i> (Wall.) Gamble	Jangali angoor	Vitaceae	C	The plant is useful in cough, cold, hydrocele, wound, abscess, intestinal worm and rheumatism.
31.	<i>Cayratia trifolia</i> (Linn.) Domin.	Tripatti	Vitaceae	C	The root grounded with black pepper is applied to boils.
32.	<i>Celastrus paniculatus</i> Willd.	Malkangani	Celastraceae	C	Seeds are useful in abdominal disorders, leprosy, skin diseases, paralysis, asthma, leucoderma, cardiac debility, inflammation, amenorrhoea, dysmenorrhoea and fever and for stimulating the intellect and sharpening the memory.
33.	<i>Celtis australis</i> Linn.	Khirk	Ulmaceae	T	Decoction of both leaves and fruit is used in the treatment of amenorrhoea, heavy menstrual and intermenstrual bleeding and colic.
34.	<i>Ceiba pentandra</i> (Linn.) Gaertn.	Safed Semal, Semra	Bombacaceae	T	Root decoction is used in diarrhoea and dysentery. Stem bark decoction is used in mouth wash for treating toothache and mouth problems, and is taken to treat stomach problems, diarrhoea, hernia, gonorrhoea, heart trouble, oedema, fever, asthma and rickets.
35.	<i>Centella asiatica</i> (Linn.) Urban	Mandukparni	Apiaceae	H	Whole plant is used as brain tonic and in nerve disorders. A poultice of leaves is used to treat open sores.
36.	<i>Chlorophytum arundinaceum</i> Baker	Safed musli	Liliaceae	H	Roots are used in diabetes, spermaturia, leucorrhoea and general weakness.
37.	<i>Chrysalidocarpus lutescens</i> H. Wendl.	Areca palm	Arecaceae	T	Paste of stem bark and leaf is useful in wound healing and peptic ulcers. Root bark and fruit is used for arthritis and fractures.
38.	<i>Clematis smilacifolia</i> Wall.	Gajprasarni	Ranunculaceae	C	Leaves are useful in cold.
39.	<i>Clerodendrum indicum</i> (Linn.) Kuntze	Bharangi	Verbenaceae	H	The roots and bark of its plant is used to treat cough, cold bronchitis, hic-cough and asthma.
40.	<i>Clerodendrum philippinum</i> Schauer	Bhant	Verbenaceae	H	The plant is used externally as a poultice, for rheumatism. Decoction of leaves used for scabies.
41.	<i>Clerodendrum serratum</i> (Linn.) Moon	Bhran-gi, Babhaneti	Verbenaceae	H	It is used for the treatment of inflammation, anorexia, dyspepsia, flatulence, cough, asthma, bronchitis, hiccough, leucoderma, leprosy and fever.
42.	<i>Coleus forskohlii</i> Briq.	Garmar	Lamiaceae	H	The plant is used in fever, burning sensation, inflammation, muscular spasm, hypertension, diabetes, cardiac debility, allergy and bronchial asthma.
43.	<i>Colocasia esculenta</i> (Linn.) Schott.	Ghuia, Ruia	Araceae	H	Tuber is used to treat constipation, stomatitis, hemorrhoids, cancer and general weakness.
44.	<i>Commelina diffusa</i> Burm.f.	Kanchat, Kankana	Commelina-ceae	H	The plant is used by tribes in fever and inflammation. Leaf-sap used for abscesses and headache.
45.	<i>Cordia macleodii</i> (Griff.) Hook. f. & Thoms.	Dahiman	Boraginaceae	T	The bark is used for the treatment of jaundice.
46.	<i>Costus speciosus</i> (Koen. ex Retz.) Sm.	Kev-kand, kebuk	Zingiberaceae	H	Rhizomes are useful in burning sensation, constipation, leprosy, worm infection, skin diseases, fever, asthma, bronchitis, inflammations and anemia.
47.	<i>Crossandra infundibuliformis</i> (Linn.) Nees	Lalmurga	Acanthaceae	H	Flowers are grounded with pepper and the paste is applied for wounds.
48.	<i>Curculigo capitulata</i> (Lour.) Kuntze.	Jangali musali	Liliaceae	H	Paste of fresh rhizome is used to stop the bleeding of a cut area. Some time dried rhizome powder is directly used on boils for quick healing.
49.	<i>Curculigo orchoides</i> Gaertn.	Kali musali	Liliaceae	H	Roots are useful in piles, fatigue, blood disorders and general weakness.
50.	<i>Curcuma amada</i> Roxb.	Amahaldi	Zingiberaceae	H	Commonly used to treat pimples, acne and black heads and also used for the treatment of inflammatory conditions and leprosy.
51.	<i>Curcuma angustifolia</i> Roxb.	Tikhur	Zingiberaceae	H	It is used traditionally in indigestion, skin diseases, cough, bronchitis, allergy, leucoderma, and as general tonic. It is extremely beneficial in diarrhoea, dysentery and colitis.
52.	<i>Curcuma aromatica</i> Salisb.	Jangali haldi	Zingiberaceae	H	It is used to treat gastrointestinal and upper respiratory disorders, along with headache, and skin inflammation and infection.
53.	<i>Cymbopogon schoenanthus</i> (Linn.) Spreng.	Rousaghash	Poaceae	H	Tea from leaves is used (1-4 cups per day) to relieve congestion, coughing, bladder disorders, headaches, fever, stomach aches, digestive problems, diarrhoea, gas, bowel spasms, vomiting, and flu symptoms.

54.	<i>Cynoglossum lanceolatum</i> Forsk.	Kamraj	Boraginaceae	H	Its root is used for the treatment of eye troubles and also used in fever.
55.	<i>Cyperus platyphyllus</i> Roem. & Schult.	Jalmotha,	Cyperaceae	H	It is used for the treatment of fever and abdomen disease.
56.	<i>Dillenia pentagyna</i> Roxb. (corcat)	Korkat,	Dilleniaceae	T	The plant is used to treat wounds, fistula, diabetic carbuncle, pneumonia and burning sensation.
57.	<i>Dioscorea bulbifera</i> Linn.	Shalyakmi Khanima kand, Gethi kand	Dioscoreaceae	C	Tubers are used in jaundice, dysentery, madness, abdominal pain and bone fracture.
58.	<i>Dioscorea hispida</i> Dennst.	Baichadi,	Dioscoreaceae	C	Tubers are used in ulcer to kill worms in wounds and also used in whitlow, sores, boils and bites of rabbit, jackal or dog.
59.	<i>Duranta repens</i> Linn.	Kirchi kand Neelkanta	Verbenaceae	S	Fruits are used in fever and intestinal worms. Leaves used for treatment of abscesses.
60.	<i>Elephantopus scaber</i> Linn.	Gojihva,	Asteraceae	H	Roots and leaves are used for dysuria, diarrhoea, dysentery, swelling and stomach pain. Leaves are also used in applications for eczema and ulcers.
61.	<i>Elaeocarpus sphaericus</i> (Gaertn.) K.Schum.	Rudraksha	Elaeocarpaceae	T	It is used in mental disorders, nervine disease, headache, hypertension, liver problems, jaundice, fever and blood disease.
62.	<i>Emilia sonchifolia</i> (Linn.) DC.	Hirankhuri	Asteraceae	H	Fresh whole plant juice is given in the dose of 5 – 10 ml daily for three days to cure intestinal worms. The decoction of the whole plant is very effective for fever.
63.	<i>Embelia ribes</i> Burm. f.	Vaibidang, Bevrang	Myrsinaceae	S	Fruits are useful in piles, sore throat and dyspepsia.
64.	<i>Eryngium foetidum</i> Linn.	Jangali dhania	Apiaceae	H	The plant is used for treatment of burns, earache, fever, hypertension, constipation, fits, asthma, stomach ache, worms, infertility complications, snake bites, diarrhoea and malaria.
65.	<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch	Ponsetia	Euphorbiaceae	S	Used in skin diseases and warts.
66.	<i>Evolvulus alsinoides</i> (Linn.) Linn.	Neeli sankhpushpi	Convolvulaceae	H	The leaves are used in chronic bronchitis and asthma. The root is used for childhood fever, and the oil stimulates the growth of hair. Using the whole plant in the form of a decoction with cumin and milk is used to treat fever.
67.	<i>Evolvulus nummularius</i> (Linn.) Linn.	Musakani, Bhuichipki	Convolvulaceae	H	Whole plant is used to treat paralysis, epilepsy, convulsions, and spasm.
68.	<i>Ficus racemosa</i> Linn.	Gular, Ubar	Moraceae	T	The decoction prepared from the bark of the tree is used in the treatment of syphilis.
69.	<i>Ficus semicordata</i> Ham. ex J.E. Sm.	Ghei, Khi- unau	Moraceae	T	A bath made from the fruit and bark is a cure for leprosy. The root juice is given in bladder complaints; fresh stem applied on tiger-bite to avoid septic.
70.	<i>Flemingia macrophylla</i> (Willd.) Prain ex Merrill	Bara, Bara salpan	Fabaceae	S	Root juice of this plant along with tuber of <i>Staphania japonica</i> is used to treat asthma. Powder of the root is used in the treatment of menstrual irregularities.
71.	<i>Galactia tenuiflora</i> (Willd.) Wight & Arn.	Mashpatri	Fabaceae	H	Its leaf and seeds are very useful in worm infection.
72.	<i>Gardenia latifolia</i> Ait.	Papda, Paniha	Rubiaceae	T	This plant is used to treat skin disease, diarrhoea and dysentery.
73.	<i>Flemingia nana</i> Roxb.	Mankand	Fabaceae	S	Its roots are used for the treatment of ulcers and swellings.
74.	<i>Glochidion lanceolarium</i> (Roxb.) Dalz.	Kaluchua	Euphorbiaceae	T	The bark is given in stomach ailments. Extract of aerial parts is used to cure, hypertension and hypoglycaemia.
75.	<i>Grewia hirsuta</i> Vahl	Gurshakri, Kukurand	Tiliaceae	S	Its root powder (3 gm) is useful along with milk in weakness. Its juice is also helpful in healing. In cardiac disorders, its root powder is useful with Arjuna powder. In diarrhoea, decoction of its leaves is useful.
76.	<i>Grewia tiliaefolia</i> Vahl	Dhankat, Dharman	Tiliaceae	T	The herb is used in cough and bronchitis. Gum is also used for infections of upper respiratory tract.
77.	<i>Hydrangea macrophylla</i> (Thunb.) Ser.		Saxifragaceae	S	Leaves, roots and flowers of its plant is used to treat fever, inflammation and urinary problems.
78.	<i>Hydrocotyle sibthorpioides</i> Lam.	Khulkhuri	Apiaceae	H	The juice of the plant is used in the treatment of fevers. A paste made from the plant is applied externally to wounds and boils. Decoction of whole plant used in the treatment of abscesses, boils, cirrhosis, cold, cough, hepatitis, itching, jaundice, sinusitis and sore throat.
79.	<i>Hygrophila auriculata</i> (K. Schum.) Heine	Talmakha- na, Kulia kanta	Acanthaceae	H	Leaves are useful in the cough and urethral discharges, diarrhoea, dysentery, thirst, urinary calculi, urinary discharges, inflammations, anemia and constipation. Seeds are useful in the venereal diseases. Decoction of the root is used as a diuretic in dropsy.
80.	<i>Hyptis suaveolens</i> (Linn.) Poit.	Bilayti tulsi, Dona	Lamiaceae	H	Extracts of its plant used to treat skin disease.
81.	<i>Impatiens balsamina</i> Linn.	Gulmehndi	Balsaminaceae	H	It is used for the treatment of inflammation, burns, ulcers, constipation, arthritis and urinary retention.
82.	<i>Ixora coccinea</i> Linn.	Rukmani	Rubiaceae	S	The plant is used to treat skin diseases, colic, flatulence, diarrhoea, indigestion, ulcers and wounds.
83.	<i>Jatropha curcas</i> Linn.	Vyaghra erand	Euphorbiaceae	S	The stems of young leaves useful in urinary infections. Tea made from the bark of <i>Jatropha</i> is useful in rheumatism leprosy, fevers and will also help with jaundice and gonorrhoea.
84.	<i>Jatropha podagrica</i> Hook.	Jangali arandi	Euphorbiaceae	S	The seed oil of the plant used for the treatment of rheumatism, itching, skin disease, fever, jaundice and gonorrhoea.
85.	<i>Lannea coromandelica</i> (Houtt.) Merr.	Gurja, Sa- bayakarni, Jhingan	Anacardiaceae	T	Decoction of bark used in toothache, wounds, bruises, sores, ulcers and sore eyes.
86.	<i>Leea crispa</i> Linn.	Vanchalita	Vitaceae	S	The leaves paste useful in wounds.
87.	<i>Leea macrophylla</i> Roxb. ex Hornem.	Hathphan, Hathikan	Vitaceae	S	It is applied externally to treat pain and to stop the effusion of blood.
88.	<i>Leea robusta</i> Roxb.	Haramacha	Vitaceae	S	Root paste useful in body ache.
89.	<i>Leonotis nepetaefolia</i> R. Br.	Ukmad, Bara guma	Lamiaceae	H	The leaves used for the treatment of fever and cough. It is also used in case of a snake bite.
90.	<i>Leucas aspera</i> Spreng.	Guma	Lamiaceae	H	Leaf juice applied in scabies, psoriasis and skin ailments.
91.	<i>Litsea glutinosa</i> (Lour.) C.B.Robins.	Maida, Jor,	Lauraceae	T	Poultice of roots and leaves used for sprains and bruises. Leaves are used for

	Menda			diarrhoea and dysentery. Decoction of bark applied on sores and scabies.
92. <i>Ludwigia prostrata</i> Roxb.	Bhulabang	Onagraceae	S	Leaves of its plant used in toothache.
93. <i>Lygodium flexuosum</i> (Linn.) Sw.	Badi bhulan, Kali bhulan	Lygodiaceae	H	Infusion of the plant is used in menorrhagia. Fresh plant juice used in insect bite. The fresh root boiled with mustard oil is applied externally in rheumatism, sprains, scabies, ulcers, eczema, cut and wounds. It is particularly useful as a local application to carbuncles.
94. <i>Mariscus sumatrensis</i> (Retz.) J. Raynal.	Jungli motha	Cyperaceae	H	Stem bark of its plant is used in gonorrhoea and wound.
95. <i>Michelia champaca</i> Linn.	Champa	Magnoliaceae	T	Flowers are used to reduce burning sensation, cure skin disease and ulcer. Decoction of its bark used in amenorrhoea.
96. <i>Mimosa pudica</i> Linn.	Chuimui, Lajbanti	Mimosaceae	H	It is very useful in diarrhoea, amoebic dysentery and bleeding piles and also used in bronchitis, gynecological disorders, and general weakness and impotence.
97. <i>Mirabilis jalapa</i> Linn.	Gulabbas	Nyctaginaceae	H	A decoction of leaves is used to treat abscesses. Leaf juice used to treat wounds. Roots are used in inflammation and dropsy.
98. <i>Opuntia dillenii</i> Haw.	Kanthari, Nagphani	Cactaceae	S	The plant is used to treat asthma, whooping cough, fever, constipation, conjunctivitis, boils, ulcers, edema, leucorrhoea and menorrhagia.
99. <i>Ougeinia oojenensis</i> (Roxb.) Hochr.	Tinlsa, Raktal, Shadan	Fabaceae	T	Bark of its plant is used to treat diarrhoea and dysentery.
100. <i>Oxalis corniculata</i> Linn.	Tinpatiya	Oxalidaceae	H	Whole plant used in dyspepsia, hemorrhoids, dysentery, diarrhoea, dysmenorrhoea, amenorrhoea, hepatitis and burning sensation.
101. <i>Pandanus odoratissimus</i> Roxb.	Kevda, Keora	Pandanaceae	T	The plant is used to treat skin disease, headache, earache, wounds, flatulence, colic, arthritis, cervical spondylitis, fever, diabetes, infertility, habitual abortion and general debility.
102. <i>Passiflora edulis</i> Sims.	Rakhiphul	Passifloraceae	H	Flower of its plant is used in insomnia, anxiety and nervous disorders.
103. <i>Piper longum</i> Linn.	Pippali	Piperaceae	H	The fruits and roots used for the treatment of cough, bronchitis and asthma. Applied locally for muscular pains and inflammation, in dysentery and leprosy.
104. <i>Polygonum hydropiper</i> Linn.	Gondali	Polygonaceae	H	Decoction of the whole plant used in the treatment of diarrhoea, dyspepsia, itching, excessive menstrual bleeding and hemorrhoids, poultice of the plant is used in treating swollen and inflamed areas.
105. <i>Psoralea corylifolia</i> Linn.	Babchi, Bakuchi	Fabaceae	H	It is used in the treatment of febrile diseases, premature ejaculation, impotence, lower back pains, frequent urination, incontinence, bed wetting.
106. <i>Pueraria tuberosa</i> (Roxb. ex Willd.) DC.	Bidarikand, Patal kohda	Fabaceae	C	Tubers are used in the treatment of constipation, dysuria, cough, rheumatism, erysipelas, malarial fever, sexual problems and general weakness. The root is used for treating dental caries. It is also used externally to treat various skin ailments including leprosy, leucoderma and hair loss.
107. <i>Radermachera xylocarpa</i> (Roxb.) K. Schum.	Garun briksha, Jay-mangal	Bignoniaceae	T	It is used to treat skin disease and abdominal disorders. Its fruit is also used in snake bite.
108. <i>Remusatia vivipara</i> (Roxb.) Schott	Laxman kand	Araceae	H	Tuber is used for the treatment of cancer and arthritic pain.
109. <i>Rubia cordifolia</i> Linn.	Manjistha	Rubiaceae	C	The roots are used to treat rheumatism, ulcers, inflammation, skin disease, leucoderma, diarrhoea, dysentery, chronic fever and urinary problems.
110. <i>Ruta graveolens</i> Linn.	Sitab	Rutaceae	H	This plant is used for worm infections, spasmodic pain, epilepsy and amenorrhoea.
111. <i>Sauromatum venosum</i> (W. Ait.) Kunth	Bhasm kand	Araceae	H	The paste of tuber is applied on the affected part in case of snake bite
112. <i>Scoparia dulcis</i> Linn.	Mithibuti	Scrophulariaceae	H	Leaves are used in treatment of fever, cough, bronchitis and dental trouble. Leaves and stems are also used for diabetes.
113. <i>Semecarpus anacardium</i> Linn.f.	Bhilava, Bhelma	Anacardiaceae	T	The oil of its fruit mixed with coconut oil, is applied on wounds and sore to prevent the pus formation. Internally the plant is used to treat piles, colitis, diarrhoea, dyspepsia, sciatica, paralysis, epilepsy, rheumatic condition and worms.
114. <i>Sida cordata</i> (Burm. f.) Borssum	Rajbala, Vishkhapri	Malvaceae	H	Leaves are used for the treatment of bleeding piles, rheumatism, and gonorrhoea. Infusion of its root is very useful in cystitis, strangury, haematuria, chronic dysentery, leucorrhoea, and gonorrhoea.
115. <i>Smilax zeylanica</i> Linn.	Chop chini	Liliaceae	C	The plant is used to treat insanity, colic, diarrhoea, syphilis, gonorrhoea, leucorrhoea, arthritis, fever, impotency, skin disease and general weakness.
116. <i>Solanum indicum</i> Linn.	Badi kateri	Solanaceae	S	The root is used for bronchitis, itching, body aches and toothache. A decoction of its root juice and leaves used in ring worms, gout and earache.
117. <i>Solanum violaceum</i> Ortega.	Ban bhanta, Anjad	Solanaceae	S	It is useful in asthma, dry cough and chronic febrile infections.
118. <i>Spathiphyllum wallisii</i> Regal	Safed anturum	Araceae	H	It is used for the treatment of constipation, bronchitis, eczema, psoriasis and diabetes.
119. <i>Spermacoce hispida</i> Linn.	Madanghanti	Rubiaceae	H	Decoction of the plant used for arthritis, colic, dyspepsia and general debility.
120. <i>Stachytarpheta indica</i> (Linn.) Vahl	Kariyartharani	Verbenaceae	H	Decoction of leaves used for intestinal worms. Bruised leaves rubbed in sprain and bruises. Infusion of roots used for gonorrhoea.
121. <i>Sterculia urens</i> Roxb.	Kullu, Kate- ra Gond	Sterculiaceae	T	Bark used for constipation, liver disease and skin disorders.
122. <i>Swertia angustifolia</i> Buch.- Ham ex D. Don.	Pahari chirayata	Gentianaceae	H	Its leaves are used to treat fever, abdominal disorders, nausea, indigestion, constipation, dyspepsia, skin disease, cancer and liver.
123. <i>Tacca leontopetaloides</i> (Linn.) O. Kuntze	Mitha teliya kand	Taccaceae	H	Tuber of its plant used for stomach problems, diarrhoea and dysentery.
124. <i>Terminalia alata</i> Heyne ex Roth	Saaja , Sadad	Combretaceae	T	The bark of its plant is used in diarrhoea.
125. <i>Terminalia chebula</i> (Gaertn.) Retz.	Harre, Harra	Combretaceae	T	Harra is used for the treatment of anorexia, cough, hiccough, flatulence, hemorrhoids, jaundice, renal calculi, epilepsy, intermittent fever, leprosy, cardiac disorders, somatitis, wound ulcers, inflammation and general debility.
126. <i>Thalictrum foliosum</i> DC.	Mameera,	Ranunculaceae	H	Roots are used for dyspepsia, fever, indigestion, ulcers and hemorrhoids.

127. <i>Trema orientalis</i> (Linn.) Blume	Pili Jadi Jivaniti bhed	Ulmaceae	T	Leaf juice is applied on boils and pimples. Leaves and bark of its plant is very useful in cough, sore throats, asthma, bronchitis, gonorrhoea, toothache and dysentery.
128. <i>Tylophora rotundifolia</i> Buch.-Ham. ex Wight	Dambuti	Asclepiadaceae	C	Root extract is used for chest pain, indigestion and insect bite.
129. <i>Urginea indica</i> (Roxb.) Kunth	Van piyaj, Banpalandu	Liliaceae	H	Bulb is used in cardiac problems, inflammation, and ulcers and oil extract of the tuber is useful in sinus.
130. <i>Vetiveria zizanioides</i> (Linn.) Nash	Khas	Poaceae	H	Its root is useful in burning sensation, ulcer, skin disease, vomiting, nausea, flatulence, dyspepsia, colic, cough, fever, back pain, headache and general debility.
131. <i>Vitis vinifera</i> Linn.	Angoor	Vitaceae	C	Angoor is used in burning sensation, constipation, hemorrhoids, anemia, skin disease, colic, jaundice, vomiting, arthritis and general weakness.
132. <i>Zea mays</i> Linn.	Makai, Makka	Poaceae	H	Decoction of the leaves and roots is used for the treatment of strangury, and dysuria. Corn is used in diabetes, constipation, gout and gonorrhoea. A decoction of the corn is used in the treatment of nose bleeding. The seed is good for ulcers, swellings and rheumatic pains.
133. <i>Zingiber capitatum</i> Roxb.	Vach Kanda	Zingiberaceae	H	It is very useful in stomachache, nausea, diarrhoea, cholera, bleeding piles, asthma, heart problems and respiratory disorders.
134. <i>Zingiber cassumunar</i> Roxb.	Jangali Adrak,	Zingiberaceae	H	Rhizome is used to treat indigestion and inflammation.
135. <i>Zingiber zerumbet</i> (Linn.) Roscoe ex Sm.	Narkachur	Zingiberaceae	H	Rosted Rhizome used to treat indigestion, toothache, stomachache and Cough. Rhizome juice used for diarrhoea and dysentery.

*Abbreviations used: H- Herb; S- Shrub T- Tree; C- Climber

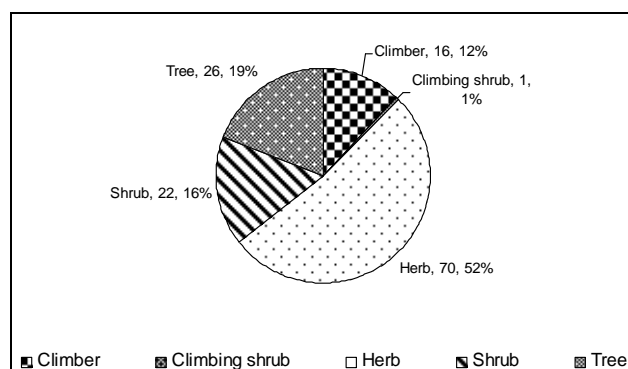


Figure 1: Habit pattern of different plant species.

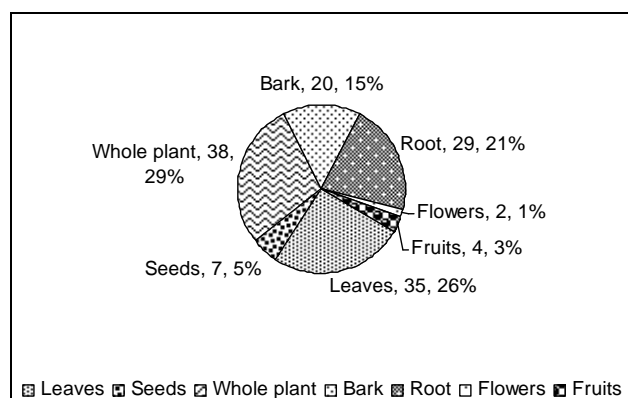


Figure 2: Plant part's used pattern of different plant species.

Conclusion

The present study provides information on ethnomedicinal uses of plant species in Amarkantak region. It is clear from the investigation that the local people have great expertise with the plants of their own environment. The occurrence of a number of economically important species

has enhanced the conservation as well as socio-economic values of the area particularly in view of religious aspect of the area. Furthermore, the over-exploitation of species for fuel, fodder, medicine, wild edibles and house building may lead to decline of these species from the area. Conservation and cultivation of these plant species will help to maintain the ecological balance, traditional knowledge as well as livelihood security of local inhabitants.

Acknowledgements: We are highly grateful to Parma Pujya Swami Ramdev Ji and Acharya Balkrishna Ji, Patanjali Yogpeeth, Haridwar for providing necessary facilities and encouragement.

References

- Bhalla, N.P., Sahu, T.R., Mishra, G.P., Dakwale, R.N. 1986. Traditional plant medicines of Sagar district, M.P. India. *Journal of Economic and Taxonomic Botany*, **3** (1): 23 - 32.
- Dubey, P.C., Khanna, K.K., Sikerwar, R.L.S., Sexena, R.N., Pandey, B.L., Tiwari, P. Arjun. 2008 a. Vindhya Ki Vanspatiyan Ka Paramparic Gyan. *Van Vibhag Anusandhan Avem Vistar Vritt Riva (Madhya Pradesh)*.
- Dubey, P.C., Sikerwar, R.L.S., Khanna, K.K., Sexena, R.N., Tiwari, P. Arjun. 2008 b. Vindhya Ki Ausidiya Avem Durlav Vanspatiyan. *Van Vibhag Anusandhan Avem Vistar Vritt Riva (Madhya Pradesh)*.

- Hooker, J.D. 1875-1897. *Flora of British India*. (1992-2005, Reprint), Bishen Singh Mahendra Pal Singh 23-A, New Connaught place, Dehradun, 248001, India. Vol. **I-VII**.
- Jain, A.K. 1988. Tribal clans in Central India and their role in conservation. *Environmental conservation*, **15(1)**: 368.
- Jain, A.K., Patole, S.N. 2001. Some Threatened Plants of Pachmarhi Bioreserve of Madhya Pradesh. *Journal of the Indian Botanical society*, **80**: 151-155.
- Jain, A.K., Vairale, M.G. 2007. Some Threatened Angiospermic Taxa of Chambal Eco-region. *Phytotaxonomy*, **07**: 107-110.
- Jain, S.K. 1962. Studies in ethnobotany - Plants used in medicine by the tribals of Madhya Pradesh. *Bull.reg.Res, Lab. Jammu*, **1(2)**: 126-128.
- Jayson, E.A. 1990. An ecological survey at Satpura national park, Pachmarhi and Bori sanctuaries, Madhya Pradesh. *Indian Journal of Forestry*, **13(4)**:288-294.
- Kala, C.P.2010. Home gardens and management of key species in the Pachmarhi Biosphere Reserve of India. *Journal of Biodiversity*, **1(2)**:111-117.
- Kala, C.P.2011. Indigenous uses and sustainable harvesting of trees by local people in Pachmarhi Biosphere Reserve of India. *International Journal of Medicinal and Aromatic Plants*, **1(2)**: 153-161.
- Kirtikar, K.R., Basu, B.D.1999. *Indian Medicinal Plants*. International Book Distributors Booksellers & Publishers 9/3, Rajpur road (Ist floor) Dehradun, 248001, India. Vol. **I-IV**.
- Wagh, V. Vijay., Jain, K. Ashok. 2010. Ethnomedicinal observations among the Bheel and Bhilal tribe of Jhabua district, Madhya Pradesh, India. *Ethnobotanical Leaflets*, **14**:715-20.