DOCUMENTATION AND ETHNOBOTANICAL IMPORTANCE OF MEDICINAL PLANTS FOUND IN SARGUJA DISTRICT

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Abstract: Chhattisgarh known as the "Herbal state" in India is a rich center of biodiversity. Among the diversity of species, medicinal plants diversity is of great importance. Medicinal plants provide livelihood support as well as medicine to nearly 80% of forest dwelling communities in Chhattisgarh. Protection and conservation of rare, endangered and threatened medicinal plants is a serious concern. Despite accessibility to modern allopathic medicines for treatment of various diseases, tribals in Chhattisgarh still depend on medicinal plants and the village's 'Medicine Man' to treat themselves for various ailments. However, with younger generations opting for work outside, this 'Art' is facing a threat of extinction. Sarguja district of Chhattisgarh has rich resource of medicinal plants, which is dominated by the tribal people. Generally, the sources of income in this region besides the agriculture are forest products including the medicinal plants. Therefore, it is prime aspect of conservation of these biological resources for sustainable use.

Keyword: Medicinal plant, Ethnobotany, Biological resources, Sustainable use

INTRODUCTION

In the last few decades, there has been renewed attention and interest in the use of traditional medicine globally (Sheldon *et al*., 2000; Bhatt *et al*., 2000; Rajasab and Isaq, 2004). The WHO (World Health Organization) has pointed out that traditional medicine has an important role in health care goals. According to the WHO, near about 80% of the world's population depends on traditional medicine to help care needs (Bhandary and Chandrashekhar, 2002). Thus, traditional medicine practices can serve as an effective basis for the discovery and development of modern therapeutic drugs. There are considerable substantial economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of various diseases. Herbal medicines are comparatively safer than synthetic drugs. Plant-based traditional knowledge has become a recognized tool in search for new sources of drugs (Sharma and Majumdar, 2003).

India is a one of the rich and diverse centre of different medicinal and aromatic plants. Around 45,000 plant species found in India nearly 15,000 plant species are used for their specific medicinal value that shows the remarkable diverse nature of plant species. Documentation is needful aspect for sustain utilization and conservation of medicinal plants (Patel, 2012). Assessments of these diverse composition with knowledge of their medicinal properties are very essential for survival of tribal people who mainly depends on forests for their subsistence. Chhattisgarh is rich in forest resources, about 44% of the total area of the state is under forest cover. Sal, Dhawra, Teak, Saja, Bamboo etc. are major woody perennial tree species found in large number. Among these woody perennial tree species herb and shrub plants are also diversified.

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The large numbers of important plants are being exploited from wild for commercial use. Populations of most of taxa are decreasing because of over exploitation, extensive destruction of habitat or other environmental disturbances. There are about 42 tribes in Chhattisgarh, principal among them being the Gond tribe. Besides, a large population of Kanwar, Brinjhwar, Bhaina, Bhatra, Uraon, Munda, Kamar, Halba, Baiga, Sanwra, Korwa, Bharia, Nageshia, Manghwar, Kharia and Dhanwar are also found in the State. Sarguja is one of such area in Chhattisgarh, where tribal people live with nature in total harmony. They know the importance of plants and forests for their survival, hence practicing sustainable use of these resource. The paper is focused to document the medicinal plants found in and around Chendra forest of Sarguja.

MATERIAL AND METHOD

The present investigation is carried out to examine the medicinal plants diversity in and around the Chendra forest of Sarguja forest division. Surguja district is located in the northern part of Chhattisgarh State of India. Borders of Uttar Pradesh, Jharkhand, Orissa and Madhya Pradesh States are adjoining to the district. This district has over extension between south-eastern parts of Vindhyachal-Baghelkhand region of peninsular India. It lies between 23^{o}37'25'' to 24^{o} 6'17'' north latitude and 81^{o}31'40" to 84^{o}4'40''east longitude. 244.62 km long east to west and 167.37 broad norths to south, this land has an area of about 16359 sq. km.

The Sarguja district represented by very rich vegetation and biological diversity (Sinha *et al*., 2014 & 2015). About 58% of the area in the district lies under forests. The flora of Nazzul and other areas are changing frequently with the human activities and

land-use. The physiographic division of the regions are: highlands, uplands and central plain. Main rivers of the district are Kanhar, Moran, Rihand and Mahan. The climate of district is characterized by a hot summer and well distributed rainfall during the monsoon season. Soil of Surguja district can be broadly classified in four major classes: Red and Yellow Soils, Alluvial Soils, Laterite Soils and Medium blue Soils, respectively.

Extensive survey was carried out through the length and breadth of Chendra forest for the collection & identification of medicinal plants. All the medicinal plants encountered during the survey were documented. The specimens of some important species for herbarium preparation were collected. Specimen of unidentified medicinal plants were collected and photographed for identification with aid of local flora. Local people along with the traditional healers also shared their experiences regarding various aspects of medicinal plants of the region. The species were observed and identified with the help of local and tribals people. The confirmation of the species is also done with the help of flora of Chhattisgarh & Madhya Pradesh, Handbook of Weeds of Chhattisgarh, flora/encyclopedia by Hooker's (1875); Sharma (2003); De (2005); Trivedi (2006) and Pullaiah (2006). Finally, plants were documented by following their local name, botanical name, habits, parts used and uses of the individual plants etc.

RESULT AND DISCUSSION

A large number of traditional healers belonging to the tribal community are utilizing local plants in ethno-medicinal practices. A total of 75 medicinal plant species with varied families (40) with different habits, mode of propagation, flowering time, native place, medicinal use and plant parts use for economic purposes were recorded in and around the Chendra forest. Out of these plant species, trees (29), herbs (29), shrubs (12) and climbers (5) were noticed. The Chendra forest area did not show uniform distribution pattern of medicinal plant species viz., trees, shrubs, herb and climbers.

Table 1 shows the habit of various species, while Table 2 presents the family wise distributions of plants and Table 3 enlists the different plant species recorded in the study site. Maximum plant species were recorded for Fabaceae family, whereas 25 families include only single species over the enumerated site. According to the habit of medicinal plants concerned, the tree and herb are most frequently recorded as they cover a largest proportion in total (each having 29 species of 38.67%) followed by shrub (12 species of 16%) and climber is least among them (5 species of 6.66%).

As per family wise distribution of medicinal plants, most frequent families were found in the order of Fabaceae (11 species of 14.67%) >Euphorbiaceae (6 species of 8.00%) >Apocynaceae, Combretaceae (each 4 species of 5.33%) >Anacardiaceae, Moraceae, Zingiberaceae (each 3 species of 4.00%) >Acanthaceae, Asclepiadaceae, Asteraceae, Liliaceae, Myrtaceae, Poaceae, Rubiaceae, Solanaceae (each 2 species of 2.67%) >Agavaceae, Amaranthaceae, Amaryllidaceae, Annonaceae, Araceae, Bixaceae, Bombacaceae, Brassicaceae, Capparaceae, Convolvulaceae, Cyperaceae, Dioscoreaceae, Dipterocarpaceae, Ebenaceae, Limiaceae (Labiatae), Lythraceae, Malvaceae, Meliaceae, Menispermaceae, Oxalidaceae, Rhamnaceae, Sapindaceae, Sapotaceae, Scrophuraliaceae, Verbenaceae (1 species of 1.33%).

The study aims to acquire and preserve the traditional system of herbal medicine by documenting and identifying the plants and specimens used for treatments in these areas. It revealed that tribal areas have plenty of medicinal plants to treat a wide spectrum of human ailments. Earlier various studies on traditional medicinal plants have also revealed that the economically backward local and tribal people prefer folk medicine due to low cost and sometimes as it is a part of their social life and culture. The study site is rich in diversity. But one third of the species representing singly under the family class (25 families include only single species). Protection of such species in natural habitat sustainable method of harvesting should be the best management aspect and affords should be carried out for assisted natural regeneration which will help in restoration of viable stand of these species.

CONCLUSION

Medicinal plant wealth is our national heritage and it seems to be the first and foremost line of defense for the treatment of various diseases mostly in tribal and rural communities. The over exploration and unsustainable use of medicinal and aromatic plants from the wild is causing long term negative impact on environment and availability of certain medicinal plant species. Due to this many plant species have become endangered, vulnerable, rare etc. Conservation of plants used in traditional medicinal is another major requirement along with documentation of traditional knowledge otherwise whole traditional knowledge and healing system deprived.

A good number of healers carry on promising local practices that render miraculous cure too many chronic diseases. But these practices are not legalized. These practices have vast opportunities to explore health tourism and fetch lucrative foreign investment in this sector. The examination of validity and usefulness medicinal plants is a serious concern. The rural communities need to be sensitized on harvesting and cultivation of rare and endangered medicinal plants.

Destruction of the natural habitat, over-exploitation, non-technical collection, developmental activities

etc. are responsible for loss of the medicinal plants. So, it is necessary for assessment of plant diversity, so that it can be made effort to conserve the needful bio-species. The conservation of medicinal and aromatic plant resources includes their augmentation safe holding for preservation or protection in natural habitat. Hence, *In situ* and *Ex situ* conservation, domestication, propagation, non-destructive harvest, characterization and strategic cultivation of medicinal plant species will help in maintaining ecological balance so that this heritage can be used and exploited wisely through judicious management for future generation.

Table 1. Distribution of flora as per their habit in Chendra forest

Habit	**No. of Species**	**Distribution Percentage**
Tree	29	38.67
Herbs	29	38.67
Shrubs	12	16.00
Climbers	5	6.66
Total	**75**	**100.00**

Table 2. Distribution of flora according to their families in Chendra forest

S.No.	**Family**	**No. of species**	**Percentage**
1	Acanthaceae	2	2.67
2	Agavaceae	1	1.33
3	Amaranthaceae	1	1.33
4	Amaryllidaceae	1	1.33
5	Anacardiaceae	3	4.00
6	Annonaceae	1	1.33
7	Apocynaceae	4	5.33
8	Araceae	1	1.33
9	Asclepiadaceae	2	2.67
10	Asteraceae	2	2.67
11	Bixaceae	1	1.33
12	Bombacaceae	1	1.33
13	Brassicaceae	1	1.33
14	Capparaceae	1	1.33
15	Combretaceae	4	5.33
16	Convolvulaceae	1	1.33
17	Cyperaceae	1	1.33
18	Dioscoreaceae	1	1.33
19	Dipterocarpaceae	1	1.33
20	Ebenaceae	1	1.33
21	Euphorbiaceae	6	8.00
22	Fabaceae	11	14.67
23	Liliaceae	2	2.67
24	Limiaceae (Labiatae)	1	1.33
25	Lythraceae	1	1.33
26	Malvaceae	1	1.33
27	Meliaceae	1	1.33
28	Menispermaceae	1	1.33
29	Moraceae	3	4.00
30	Myrtaceae	2	2.67
31	Oxalidaceae	1	1.33
32	Poaceae	2	2.67
33	Rhamnaceae	1	1.33
34	Rubiaceae	2	2.67
35	Sapindaceae	1	1.33
36	Sapotaceae	1	1.33
37	Scrophuraliaceae	1	1.33
38	Solanaceae	2	2.67
39	Verbenaceae	1	1.33
40	Zingiberaceae	3	4.00
Total		**75**	**100.00**

Table 3. Medicinal Plants in Chendra forest in Sarguja Forest Division

Common Name	Botanical Name	Family	Habit	Parts Used	Propagation	Flowering	Native	Medicinal Uses/Ethnobotany
Khair	*Acacia catechu (L.F.)*	Fabaceae	Tree	Leaf	Seed	Rainy season & fruiting during Nov-Jan	India, Myanmar, Nepal, Pakistan, Thailand	Toothache, headache, diarrhoea, cough, digestive
Babool	*Acacia nilotica (L.)*	Fabaceae	Tree	Leaf, bark, stem	Seed	Nov-Dec	Africa	Toothache, dysentery, antiseptic for wounds
Latjeera	*Achyranthus aspera*	Amaranthaceae	Herb	Leaf, seed, root	Seed	Jul-Sept & seeds ripen in October	Asia, India	Antidiabitic, bleeding control, diuretic, antidote, toothache, boils, wound healing
Buch	*Acorus calamus*	Araceae	Herb	Rhizome	Rhizome	July–Aug	Egypt	Stomachic, purgative, anthelmintic, fever, gastric, urinary problem
Adhusa	*Adhatoda vasica*	Acanthaceae	Shrub	Leaf	Stem cutting	Feb-March	India	Asthma, bronchitis, inflammation, bleeding, cough, eye disease, diarrhoea
Haldu	*Adina cordifolia*	Rubiaceae	Tree	Bark	Seed	June-Aug	Areas in the world south of the equator	Bark for dysentery ,bruises and wounds
Beal	*Aegle marmelos*	Myrtaceae	Tree	Stem, bark, leaves, fruit, flower	Seed	May- July	Central & southern India, Pakistan, Bangladesh & Burma	Stomatic, piles, cardiotonic, laxative, antiinflammatory, jaundice, urinary trouble, diabetes
Sisal	*Agave sisalana*	Agavaceae	Herb	Pulp	Bud	Summer	Central America	Arthritis, fever, skin disease
Siris	*Albizia lebbek*	Fabaceae	Tree	Leaf, seed	Seed	April-Sept	Indomalaya	Antidote, asthma, piles, diarrhoea
Akarkara	*Anacylus pyrethrum*	Asteraceae	Herb	Roots	Seed, division of roots	Summer & late spring	Arabia & Syria, also found in the India	Relieves toothache, aphrodisiac. Generally known to be a Tonic to the nervous system and an aid in digestion
Kalmegh	*Andrographis paniculata*	Acanthaceae	Herb	Whole Plant	Seeds, cuttings and layering	Monsoon season	South India Srilanka	Blood purifier, jaundice, fever, diabetes
Sitafal	*Annona squamosa*	Annonaceae	Tree	Fruits, leaves, seeds, root	Seed	Spring-early summer	Tropical Americas	Constipation, vomiting, cough, purgative
Dhawada	*Anogeissus latifolia*	Combretaceae	Tree	Leaf, bark, root	Seed	July-Sep	Central America	Cardie disorder, UTI infection, skin disease, fever, epileptic fits, liver complaints
Satwar	*Asparagus racemosus*	Liliaceae	Climber	Root	Seed, tuber	July	Africa	Tonic for bronchitis, weakness, diuretic, antidiarrheal
Neem	*Azadirachta indica*	Meliaceae	Tree	Leaves, bark, flower, seed,	Seed	January -May	India	Skin disease, toothache, antidote, fever, wound, ulcer,

				oil				fever, worms, cough, diabetic
Kachnar	*Bauhinia variegata L.*	Fabaceae	Herb	Leaf, seed	Seed	Early summer	India, China	Diarrhoea, diabetes, piles, worm, inflammation
Lajalu, Jharera	*Biophytum sensitivum*	Oxalidaceae	Herb	Leaf	Seed	Summer	Tropical Africa and tropical Asia	Asthma, stomach pain, urinary problem
Sinduri	*Bixa orellana Linn.*	Bixaceae	Shrub	Root, Bark, Seeds	Seeds, stem cuttings	July-Oct	Tropical America	Dysentery, fever, dye from seeds
Semal	*Bombax ceiba*	Bombacaceae	Tree	Leaf, seed, bark, flower, gum	Seed	Late winter to early spring	India	Dysentery, antidote, laxative, tonic
Wild mustard	*Brassica arvensis*	Brassicaceae	Herb	Seed, leaf	Seed	June-Sep	Central Europe & southeast	For heating and blood vessel dilating properties
Char	*Buchanania lanzam*	Anacardiaceae	Tree	Seed, root	Seeds	Jan-March	South & southeast Asia, mainly India	Tonic, astringent, colling, depurative, constipating
Palas	*Butea monosperma*	Fabaceae	Tree	Leave, bark, seeds, flower,gum	Seeds	Feb- April	India, most common in central India and the western ghats	Urinary disorder, worms, diabetes, inflammation, astringent, cosmetic, flatulence, piles
Oank	*Calotropis gigantia*	Asclepiadaceae	Shrub	Leaf, root, flower, bark	Seed	Hot season	India	Boil, swelling, scorpion bite, laxative
Sarvajjaya	*Canna indica*	Zingiberaceae	Herb	Whole plant	Rhizome	Aug -Oct	Tropical America	Diarrhoea, diuretic, stimulant, carminative
Karonda	*Carissa carandas*	Apocynaceae	Shrub	Fruit	Cuttings	March-July	India	It sometimes used in treatment of anaemia antiscorbutic
Amaltas	*Cassia fistula*	Fabaceae	Tree	Bark, fruit, leaves, seed, pulp	Cuttings, seed	April-Sep	South East Asia, from southern Pakistan east through India to Myanmar and south to Sri Lanka	Bark for glands, laxative, leprosy, skin disease, purgative, antiviral, tonic, boil, ringworm
Charota	*Cassia tora*	Fabaceae	Herb	Leaf, seed	Seed	Mansoon sea son	South Asia	Dermatiosis, cough and respiratory disease, skin disease
Safed musli	*Cholorophytum borivilianum*	Liliaceae	Herb	Leaf, root	Rhizome/Tuber	Rainy season	Africa	Root for tonic, face cleaning, eruptions, weakness, diabetes, nerve complaints
Jangli urd	*Cleoma viscosa*	Capparaceae	Herb	Leaves	Micropropagatio n method and seed	Rainy season	Tropical Africa	Leaf power for mental tonic
Keukand	*Costus speciosus*	Zingiberaceae	Herb	Root, rhizome	Seed	Oct-Dec	Malay Peninsula of Southeast Asia	Burning, stimulant, skin disease, bronchitis, fever
Kali musli	*Curculigo orchiodes*	Amaryllidaceae	Herb	Rhizome	Budding	July	Nepal & India	Root for tonic
Tikhur	*Curcuma*	Zingiberaceae	Herb	Rhizome	Rhizome	July-Aug	Indian subcontinent	Blood purification, skin

	angustifolia							disease, leprosy longevity, urine troubles
Dub ghas	*Cynodon dactylon*	Poaceae	Herb	Leaf, root	Seed or vegetatively (turfs or stolon/ rhizome)	March-Sep	Eastern Africa	Haemostatic,diuretic, vomiting, bleeding, diarrhea and tonic
Nagar motha	*Cyprus rotandus*	Cyperaceae	Herb	Aerial parts, rhizome	Seed, root tuber	March-Sep	Tropical Eurasia	As tonic, cooling, intellect promoting, skin, urinary, diarrhoea, stomachic, diuretic, perfume
Shisham	*Dalbergia sissoo*	Fabaceae	Tree	Leaf, bark, pods	Seed	March-April	Indian Sub-continent, Myanmar	Skin disease, gonorrhoea, dysentery, itching
Datura	*Datura metal*	Solanaceae	Herb	Leaf , seed	Seed	July-Oct	India & southeast Asia	Necrotic, asthma, leprosy
Bans	*Dendrocalamus strictus*	Poaceae	Shrub	Stem, root	Seed	Flowering cycle of bamboo varies from 7 years to 60 years	Central Thailand	Antifertility agent, astringent
Kudaliya	*Desmodium trifolium*	Fabaceae	Herb	Leaf	Seed	Aug-Nov	Florida, Hawaii	Antidote, diuretic, carminative, tonic, wounds
Zimikand	*Dioscoria bulbifera*	Dioscoreaceae	Herb/ Climber	Tuber	Tuber	Late spring (April/May)	Asia and Africa	Diabetes, skin disease, worm killer
Tendu	*Diospyros melonoxylon*	Ebenaceae	Tree	Fruit	Seeds	April-June	India and Sri Lanka	Gum useful for eye disease
Aonla	*Emblica officinalis*	Euphorbiaceae	Tree	Fruit, bark, flower	Seed	March-April	Tropical south-eastern Asia particularly central	Digestion,diabetes, diuretic, carminative, stomachic, antidiarrheal, jaundice, laxative,
Jamun	*Eugenia jambolina*	Myrtaceae	Tree	Leaf, fruit	Seed	March-April	India, Burma	Antidiabetic, digestive, diarrhoea, asthma, blood purifier, anthelmintic
Bara dudhi	*Euphorbia hirta*	Euphorbiaceae	Herb	Bark, leaf, root	Seed	Sep-Oct	India	Boil, antiasthmatic, cough, dysentery
Shankh-pushpi	*Evolvulus alsinoides*	Convolvulaceae	Herb	Leaf	Seed	Nov-April	South America	Brain tonic, antidysentric, antiasthmatic, bronchitis
Bargad	*Ficus bengalensis*	Moraceae	Tree	Milky latex	Seed	Aug- Sept	India & Pakistan	Asthma, diabetes, pain, burn
Goolar	*Ficus glomarata*	Moraceae	Tree	Milky latex	Seed	Aug-Early Nov	Nepal, India	Asthma, ulcer, skin disease, leucoderma, urinary problem
Pipal	*Ficus religeosa*	Moraceae	Tree	Milky latex	Seed	February, fruits in May to June	India& Bangladesh	Diarrhoea, piles, eye trouble, mouth ulcer
Flemingia	*Flemingia vestita*	Fabaceae	Herb	Tuber root	Seed, vegetative	Aug-Sep	India	Epilepsy, dysentery
Dikamali	*Gardenia gummifera*	Rubiaceae	Shrub	Flower	Seeds	Summer season	India	Treating digestive problems including dyspepsia and diarrhea; or used as an

								astringent
Gamhar	*Gmelina arboria*	Verbenaceae	Tree	Leaf, bark, root	Seed	Mid March- end of May	India, Bangladesh, Sri-Lanka, Myanmar	Antidote, anti-gonorrhea, ulcer, stomachic
Gudmar	*Gymnema sylvestris*	Asclepiadaceae	Herb/ climber	Leaf, root	Stem cutting/Seed	Rainy season	Central & western India	Diabetes, stomach pain, urine problem, respiratory disorder, swelling, snake bite, dysentery, join pain, lever tonic
Anant mool	*Hemedesmus indicus*	Apocynaceae	Herb/ climber	Root	Seed	Nov-Feb	The plain & hill forests of eastern & southern India	Blood purifier, skin disease, bronchitis, asthma, dysentery, arthritis, burn,
Gurhal	*Hibiscus rosa sinenses*	Malvaceae	Shrub	Leaf , flower	Stem cutting	Year-round	China, India, but globally pandemic in temperate & tropical areas	Alopecia, burn
Ratanjot	*Jatropha carcus*	Euphorbiaceae	Shrub	Leaves, fruit, seeds, bark, latex	Stem cutting	April-June, July-Nov	Central America	Ulcer, tumor, constipation, scabies, would healing, malaria, veterinary uses
Gunja	*Lannea coromandelica*	Anacardiaceae	Tree	Bark	Hardwood cuttings	March	Southeast Asia	Diabetes
Mehendi	*Lawsonia inermis*	Lythraceae	Shrub	Leaves, flower, seed, root	Seed	Late spring/ early summer	North Africa, Asia and Australia	Skin disease, hair tonic, burning
Mahua	*Madhuca latifolia*	Sapotaceae	Tree	Flower, Fruit	Seeds. cuttings, marcotting, approach graft, tip graft	Feb-April	India	Leprosy and peptic ulcer
Mango	*Mangifera indica*	Anacardiaceae	Tree	Fruit	Seed	March -early April	Southern Asia	Dysentery, digestive, vitamin A, tonic
Lajwanti	*Mimosa pudica*	Fabaceae	Herb	Whole plant	Seed	Mid summer	South America & Central America	Allergy, asthma, ulcer, bleeding
Kaner	*Nerium indicum*	Apocynaceae	Shrub	Leaf, seed	Stem cutting/ seed	April	Northern Africa	Anthelmintic, swelling, skin disease, bronchitis, ulcer
Tulsi	*Ocimum sanctum*	Limiaceae (Labiatae)	Herb	Leaves	Seed	Feb-June	India	Roots for cancer and seeds for tonic
Hazardana	*Phyllanthus niruri*	Euphorbiaceae	Herb	Whole plant	Seed	Summer after the rainy season	China, India & South/Central America	Liver disorder, diabetes, urinary problem
Castor	*Ricinus communis*	Euphorbiaceae	Shrub	Seed	Cuttings	Late summer to early fall	Central & north central regions Africa	Warts, cold, laxative, purgative, contraceptive
Sarpagandha	*Roulfia serpentina*	Apocynaceae	Herb	Root	Seed	April-July	India	Blood pressure, malaria, ulcer, snake bite, joint pain, fever
Kusum	*Schleichera oleosa*	Sapindaceae	Tree	Bark	Seeds, root	June-Aug	India	Analgesic, antibiotic,

					cuttings			dysentery, tonic, fever, edible oil
Goatweed	*Scoparia dulce*	Scrophuraliaceae	Herb	Whole plants	Roots	Year round	Britain	Swelling, arthritis, cough, asthma, skin disease
Sal	*Shorea robusta*	Dipterocarpaceae	Tree	Resin, Seed	Seed	Onset of leaf fall in winter	India	Fruit for dysentery and scorpion sting
Arjun	*Terminalia arjuna*	Combretaceae	Tree	Bark	Seed nodal	April-July	India and Sri Lanka	For snake bites, cardio vascular diseases, congestive heart diseases
Baheda	*Terminalia bellirica*	Combretaceae	Tree	Fruit/ Pulp	Seeds	April-May	North east India	For digestive trouble
Harra	*Terminalia chebula*	Combretaceae	Tree	Fruit	Grafting/budding techniques	April-July	North east India	Seeds for leucorrhea and indigestion
Giloy	*Tinospora cordifolia*	Menispermaceae	Herb/ climber	Fruit, stem, root	Stem cutting/ seed	March-June	India, China & South/Central America	Antigonorrhoeic, skin disease, urinary disease, piles, jaundice, dysentery
Tund	*Vernicia fordii*	Euphorbiaceae	Tree	Seed, root	Rhizome cuttings	Late winter/ Early spring	Myanmar, Thailand	The tung tree is poisonous in all of its parts, including the fruit and the seeds
Ashwagandh**a**	*Withania somnifera*	Solanaceae	Herb	Leaf, root	Seed	July-Oct	India, parts of Africa & Mediterranean	Ulcer, female disorder, nerve problem, diuretic, cough
Chhota dhatura	*Xanthium strumarium*	Asteraceae	Herb	Root, fruit	Seed	July-Oct	Eastern North America	Skin disease, bleeding, diuretic, insect bite, urinary problem
Ber	*Zizyphus jujube*	Rhamnaceae	Shrub	Fruit	Budding	July-October	Southern Asia & eastern Africa	Fruit for bile disease and cough

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