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Ethnobotany of Valuable Medicinal Plants Available in Chhattisgarh Plain Region of Balaghat District, Madhya Pradesh

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ABSTRACT

Background: Balaghat district of Madhya Pradesh is one of the largest tribal dominated district in Central India. *Baiga* and *Gond* are the main two tribes of the Baihar, Birsa, Paraswada, Langi, Kirnapur, Katangi, Balaghat, Waraseoni and Lalbarra tehsils of Balaghat district. These tribes have enormous knowledge about medicinal properties of the plant species available in natural ecosystems (forests and grasslands). Therefore, the study aimed to investigate the plants used by these tribes for seminal debility and other diseases.

Methods: Survey was carried out during 2019-20 in Biahar, Birsa, Paraswada, Langi, Kirnapur, Katangi, Lalburra and Waraseoni tehsils of the district Balaghat. Judgmental/purposive sampling method used to collect the required information from the tribes of the locality.

Result: Total 35 most important plants were used for curing various diseases and injuries. Along with their botanical description, we explained the method of intake of the plant medicines to cure the diseases. Around 39% of the plants used to cure seminal debility comes under herb category whereas shrub (28%), climber (11%), grass (6%), twiner (6%), small tree (5%) and big tree (5%). Whereas, 76% herbs utilized for curing other diseases, followed by shrub (18%) and twiner (6%).

Key words: Ayurveda, Ethnobotany, Seminal debility, Medicinal plants, Tribes.

INTRODUCTION

In India, references to curative properties of some herbs in the *Rig Veda* seem to be the earliest records of use of plants in medicine (Vedavathy, 2003). The identity of several plants referred to in the Suktas of the Rig Veda can be fixed with reasonable certainty, *e.g*. of Semal, Pithwan, Palash and Pipal. However, references to plants in the *Rig Veda* were very brief. More account that is detailed available in the *Atharva Veda*. The period of *Rig Veda* is estimated to be between 3500 and 1800 B.C. After the Vedas, there is no information on the development of this science in India for a period of about 1,000 years (Khare, 2007; Tripathi and Mishra, 1971).

Then appeared the two most important works on Indian system of medicine, the works of *Charak* and *Susruta*, namely, the *charak-Samhita* and *Susruta-Samhita*. *Susruta-Samhita* deals with about 700 drugs, some of these are not indigenous to India. With the passing of time, more and more plants found entry into native medicine, taking the number of Indian medicinal herbs to about 1,500 (Humaira *et al*., 2021; Balkrishna *et al*., 2019; Chandra *et al*., 2017; Aniwal *et al*., 2006; Katewa and Galav, 2005; Kunhikannan *et al*., 1993).

India has one of the richest ethno botanical traditions in the world, it has been estimated that about 7,000 species of the plants are used for medicine in India in the traditional system of medicine because plants form the main resources base of traditional medicine. Among the Indian system of medicine, Ayurveda, the most prevalent system in the country, uses about 700 species of plants, Unani 400 species and Aamchior Tibetan system about 300 species. The folklore system plans an important role in meeting the health care needs of the rural community in India and use more number of plants than in the India systems of medicine (Elakkiya *et al*., 2020; Malik *et al*., 2020; Jadhav *et al*., 2016; Kala, 2017 and Thakur *et al*., 2015).

The state of Madhya Pradesh situated between latitudes 17° to 26° and longitudes 74° to 84° with average elevation 50° m in the heart of India.

Balaghat district is in the southeastern portion of the state. Balaghat is situated between 21°.19′to 22°. 24′ North latitudes and 79°.31′ to 81°.33′ East longitudes with average elevation 288 m. It is the fifth largest district in the State, occupying an area of 9229 Sq. Km. The forest area of district is 4997 Sq. Km constituting 54% of the total geographical

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area. Total population of district is about 17 lakhs out of which 22.5% are tribes. The districthas varying soil types, ranging from alluvial to medium and shallow black, mixed red and black, mixed red yellow and sandy loam. The annual rainfall is about 1600 mm. Thus, the district comprises a rich flora consisting plants of medicinal and aromatic importance. The districtis blessed with large natural resources particularly for medicinal plants species available in the dense tribal in habited forests. *Baiga* and *Gond* are the main tribes of district Balaghat. These tribes mainly occur in Biahar, Birsa, Paraswada, Langi, Kirnapur, Katangi, Lalburra and Waraseoni tehsils. These tribes have vast knowledge of medicinal properties of the plant species available near their surroundings, which they use to treat the various ailments. It is observed that such knowledge acquired by a quack tribe during his lifetime goes in vain if it is not transferred to next generation (Deva and Shrivatsva, 1978; Sarvade, 2014; Sarvade *et al*., 2020).

Materials and Methods

Study was carried out by scientists of College of Agriculture, Murjhad Farm Waraseoni tehsil of Balaghat district, Madhya Pradesh during 2019-20. Biahar, Birsa, Paraswada, Langi, Kirnapur, Katangi, Lalburra and Waraseoni tehsils of the district Balaghat were selected to conduct survey work. Judgmental/ purposive sampling method was used for sample collection (Muller-Dombois and Ellenberg, 1974). Samples were collected from the forest and grasslands ecosystems of the study sites (Champion and Seth, 1968; Deva and Shrivastava, 1978; Mishra, 1968). Several plant species were observed to be used by local tribes to treat the seminal debility. Plant sample collection and identification was done by the scientists involved in the research. Plant specific information on ethno medicinal values was collected through discussion with the local tribe and users of the area.

Results and Discussion

Total 35 medicinal plants were identified from the tribes of Balaghat district used for curing problems related to the seminal debility (18 species) and other diseases (17 species from 9 plant families) (Fig 1 and 3). Plant from the 14 families were recorded to cure seminal debility. Fabaceae family comprised 3 species, Malvaceae and Asparagaceae family comprised 2 species each and in rest of 11 family comprises 1 species each (Fig 1). Around 39% of the plants used to cure seminal debility comes under herb category of plant habit. It was followed by shrub (28%), climber (11%), grass (6%), twiner (6%), small tree (5%) and big tree (5%) (Fig 2). Another study in Balaghat scientists reported 43%tree species followed by herbs 26%, shrub 24% and climber 7% the total medicinal plants (Gwalwanshi and Bishwas, 2017).

Plants used for curing other diseases 17 species from 9 families were identified by the tribes of Balaghat. Among these families Asteraceae family was dominant with 5 plant species, followed by Malvaceae (2), Lamiaceae (2) and Convolvulaceae. Whereas rest 5 plant families comprised 1 species each (Fig 3). Herb category plants (76%) were mostly utilized for curing other diseases, followed by shrub (18%) and twiner (6%) (Fig 4). Knowledge of ethnic healers on medicinal plants in Balaghat district was identified 33 plantsbelonging to 32 genera and 20 families (Gwalwanshi and Bishwas, 2016).

In one study in Balaghat 2011, identified 50 medicinal plant species from 50 genera and 31 families used to cure refractory diseases such as cancer, malaria, rheumatism, liver disorder and respiratory diseases (Jain *et al*., 2011).

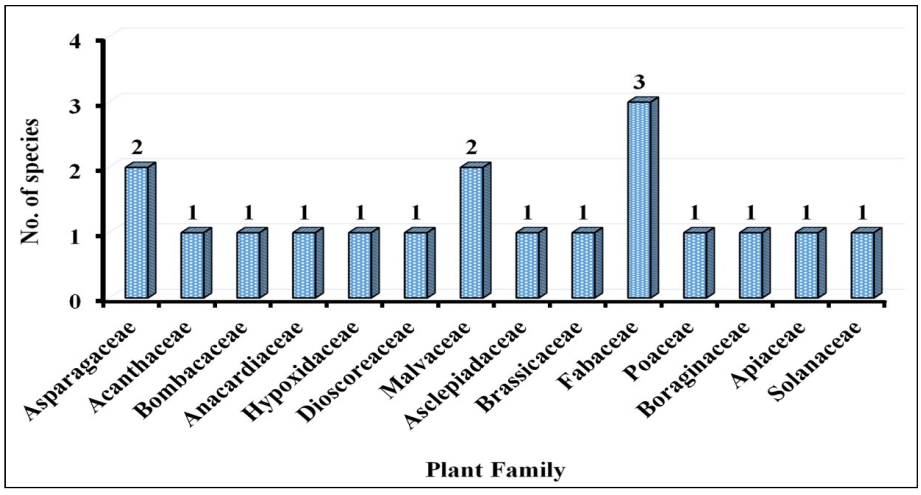


Fig 1: Plant species used by tribes of Balaghat to treat seminal disability.

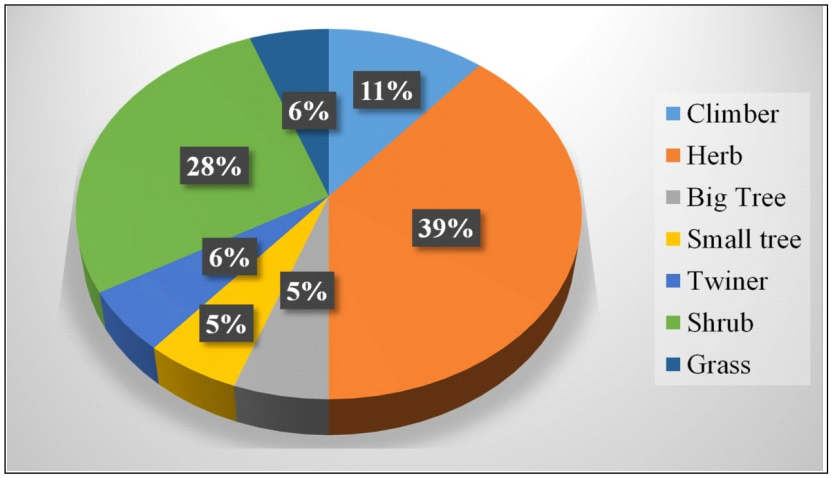


Fig 2: Habit of the plant species used to treat seminal disability.

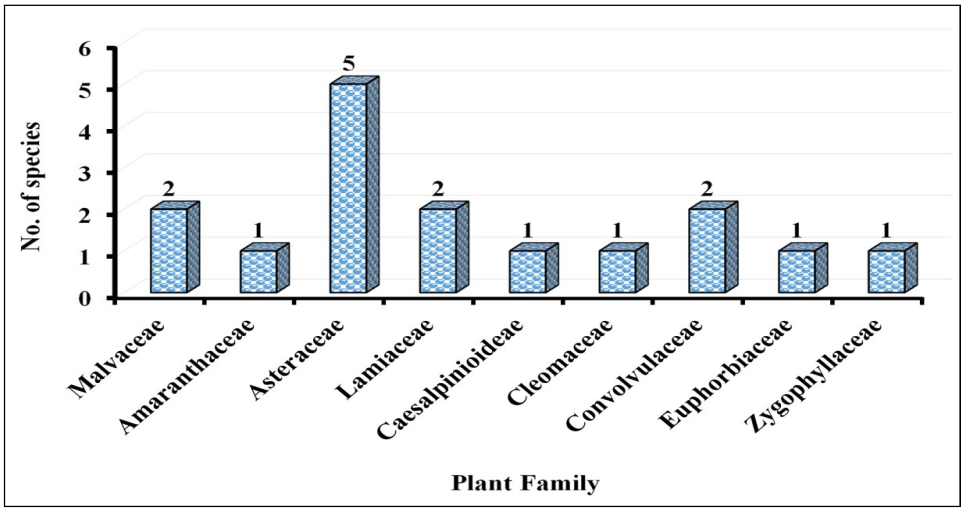


Fig 3: Plant species used by tribes of Balaghat to treat different diseases.

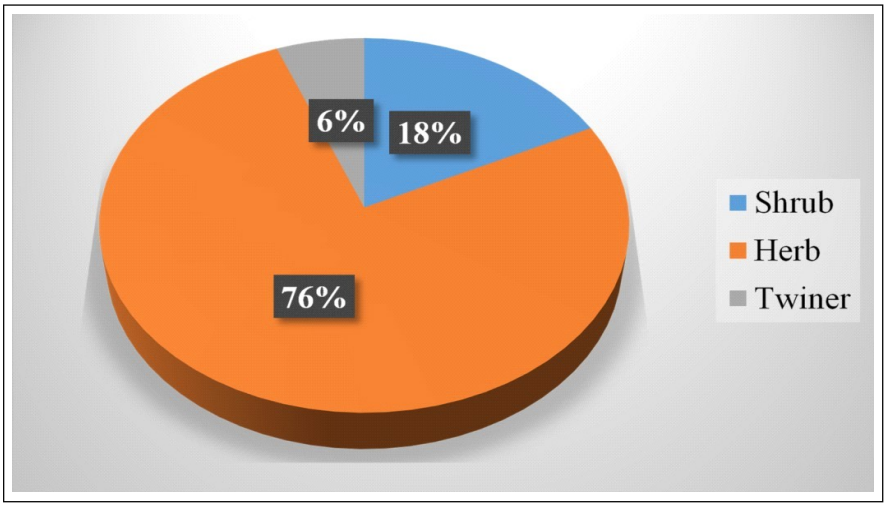


Fig 4: Habit of the plant species used to treat different diseases.

A. The following medicinal plants are found to be used in seminal debility by tribes of Balaghat District

1	Botanical name	*Asparagus racemosus Wild*
	Local name	Satawar
	Family	Asparagaceae
	Habit	Climber
	Part used	Flashy roots
	Use	About 50 gm. fleshy roots are given orally per day for a week.
	Fruiting and flowering season	June to December
	Mode of regenerate	by seeds / by tubers
2	Botanical name	*Chlorophytum tuberosum Baker*
	Local name	Safed Musli, Mulsii Kand
	Family	Asparagaceae
	Habit	Herb
	Part used	Roots
	Use	Root powder fried in ghee and taken orally with diet at one day interval for the treatment of seminal debility.
	Fruiting and flowering season	June to October
	Mode of regenerate	By rhizome disc/by seeds
3	Botanical name	*Asteracantha longifolia Nees*
	Local name	Talmakhana
	Family	Acanthaceae
	Habit	A spiny herb
	Part used	Seeds
	Use	About 10 gm mature seeds are given orally with sugar or gur daily for 8 to 10 days
	Fruiting and flowering season	September to June
	Mode of regenerate	By seeds
4	Botanical name	*Bombax ceiba L*
	Local name	Semal, Sawar
	Family	Bombacaceae
	Habit	A tall deciduous tree
	Part used	Young roots
	Use	Young roots of one year age plant are chewed twice a day for 3 to 4 days.
	Fruiting and flowering season	March to June
	Mode of regenerate	By seeds
5	Botanical name	*Buchanania lanzan Spreng*
	Local name	Achar, Chirongi
	Family	Anacardiaceae
	Habit	A medium sized tree
	Part used	Seeds
	Use	Seeds, about 10 gm are given daily with diet for the treatment of seminal debility
	Fruiting and flowering season	January to June
	Mode of regenerate	By seeds
6	Botanical name	*Curculigo orchioides Gaertn*
	Local name	Kali musli
	Family	Hypoxidaceae
	Habit	A small perennial herb
	Part used	Roots
	Use	About 25 gm small pieces of roots are given orally with sugar or gur daily, for a week.
	Fruiting and flowering season	August to September
	Mode of regenerate	By seeds/rhizome discs.
7	Botanical name	*Dioscorea hispida Dennst Schl.*
	Local name	Baichand
	Family	Dioscoraceae

	Habit	A extensively prickly twiner
	Part used	Tubers
	Use	Dried tuber chips are given as a special diet.
	Fruiting and flowering season	September to May
	Mode of regenerate	By rhizome.
8	Botanical name	*Hibiscus lobatus* (Murr) *Kuntze*.
	Local name	Jungli Bhindi, Kamraj
	Family	Malvaceae
	Habit	Slightly branched annual herb
	Part used	Root and leaves
	Use	Roots are use in dysentery and stomachache, leaves paste used to cattle for anorexia
	Fruiting and flowering season	July to January
	Mode of regenerate	By seeds
9	Botanical name	*Leptadenia reticulate W* & *A*
	Local name	Jiwanti, Dodi mirch
	Family	Asclepiadaceae
	Habit	A branched twining shrub
	Part used	Root
	Use	Small pieces of roots are taken orally with milk.
	Fruiting and flowering season	August to October
	Mode of regenerate	By seeds
10	Botanical name	*Lepidium sativum* L.
	Local name	Chandvasure, Hallow
	Family	Brassicaceae
	Habit	Cultivated herb
	Part used	Seeds
	Use	Boil the seeds about 20 gm and taken with sugar daily
	Fruiting and flowering season	November to February
	Mode of regenerate	By seeds
11	Botanical name	*Mucuna pruriens* (L.) D.C.
	Local name	Kimach
	Family	Fabaceae
	Habit	An annual climbing shrub
	Part used	Seeds
	Use	Powder of seeds mixed with honey or ghee and given orally
	Fruiting and flowering season	October to February.
	Mode of regenerate	By seeds
12	Botanical name	*Pueraria tuberosa* D.C.
	Local name	Bidarikand, PatalKumhda
	Family	Fabaceae
	Habit	Tuberous herbaceous climber
	Part used	Tuberous roots
	Use	Boiled tuber is eaten with sugar or Gur as a special diet to control the seminal debility.
	Fruiting and flowering season	April to June
	Mode of regenerate	By tuberous roots / By seeds.
13	Botanical name	*Saccharum spontaneum* L.
	Local name	Kans
	Family	Poaceae
	Habit	Erect tall grass with stout root stock
	Part used	Roots
	Use	Juice of fresh roots taken orally
	Fruiting and flowering season	August to October
	Mode of regenerate	By seeds / By roots stock

14	Botanical name	*Sida acuta Burm* f.
	Local name	Bala, Kharenti
	Family	Malvaceae
	Habit	Much branched subshrub
	Part used	Fresh roots
	Use	Fresh roots are crushed, ground and mixed with sugar or gur and taken orally with diet.
	Fruiting and flowering season	August to January
	Mode of regenerate	By seeds
15	Botanical name	*Cynoglossum lanceolatum Stapf* & *Drummond*
	Local name	Balraj
	Family	Boraginaceae
	Habit	Herb
	Part used	Roots
	Use	Fresh roots are eaten with milk.
	Fruiting and flowering season	October to January
	Mode of regenerate	By Suckers / By seeds.
16	Botanical name	*Flemingia bracteata* L.
	Local name	Bhainsa Toad
	Family	Fabaceae
	Habit	Shrub
	Part used	Root
	Use	Small pieces of young roots are eaten with gur or sugar.
	Fruiting and flowering season	October to December
	Mode of regenerate	By seed
17	Botanical name	*Peucedanum dhana* Ham.
	Local name	Tejraj
	Family	Apiaceae
	Habit	Herb
	Part used	Root
	Use	Fresh roots are chewed with Piper betle.
	Fruiting and flowering season	October to January
	Mode of regenerate	By seed
18	Botanical name	*Datura metel* L.
	Local name	Kala Dhatura
	Family	Solanaceae
	Habit	A small shrub
	Part used	Anthers
	Use	3-4 anthers of flower are eaten daily with mishri for a week.
	Fruiting and flowering season	August to January
	Mode of regenerate	By seed

B. The following medicinal plants are used by tribes for treatment of various diseases.

19	Botanical name	*Abutilon indicum* (L.) Sweet
	Local name	Kanghi
	Family	Malvaceae
	Habit	Small Shrub
	Part used	Bark, root, leaves, seed and flower
	Use	Decoction of leaves used to treat fever, anti-inflammatory and in urinary troubles. Bark is astringent and diuretic. Roots are used as a nerve tonic and also used in piles. Flowers are used to increase semen in men.
	Fruiting and flowering season	September to February
	Mode of regenerate	By seed
20	Botanical name	*Achyranthes aspera* Linn.
	Local name	latjeera/andhijara
	Family	Amaranthaceae
	Habit	A wild, perennial, erect herb
	Part used	Whole plant

	Use	Ash of plant with honey twice a day used to treat cough. Seed are used as a tonic. Extraction of roots taken at night of menstrual disorders. Root and stem ash is used for treatment of toothache and pyorrhea.
	Fruiting and flowering season	September to February
	Mode of regenerate	By seed
21	Botanical name	*Ageratum conyzoides* Linn.
	Local name	Mahkua
	Family	Asteraceae
	Habit	Annual herb
	Part used	Seed, leaf and whole plant
	Use	Is used in piles, colic pain, boils, cough and fever. Seed are used as a tonic.
	Fruiting and flowering season	January to March
	Mode of regenerate	Seed
22	Botanical name	*Anisomeles indica* Ktze
	Local name	Bhandari
	Family	Lamiaceae
	Habit	Perennial herb
	Part used	Whole plant specially leavesand root
	Use	Has carminative, astringent and toxic properties. The essential oil of this plant is used in uterine affections. An infusion of the aromatic bitter leaves is in common use in affections of the stomach and bowels, ca tarrhal affections and intermittent fevers.
	Fruiting and fFlowering season	Throughout the year when enough water is available.
	Mode of regenerate	Seed
23	Botanical name	*Blumea lacera* DC.
	Local name	kakronda, kakarchhidi
	Family	Asteraceae
	Habit	Leafy annual herb
	Part used	Leaf and flower
	Use	Is used in cases of dermatitis and its infusion is claimed to be very effective anthelmintic. The leaves are frequently used by the folk to check the profuse bleeding from the injured organs.
	Fruiting and flowering season	All year round
	Mode of regenerate	Seed
24	Botanical name	*Cassia tora* Linn.
	Local name	Chakavad/chakra mard
	Family	Caesalpinioideae
	Habit	Perennial herb/ subshrub
	Part used	Seed, leaves, whole plant
	Use	Treats eye and skin diseases by its dry leaves. Treatment of gastrointes tinal disorders improves digestion and removes constipation. Seeds are rottened in curd and applied on leprotic skin with lemon juice.
	Fruiting and flowering season	August to November
	Mode of regenerate	Seed
25	Botanical name	*Cleome viscose* Linn.
	Local name	Hurhur/ Hulhul
	Family	Cleomaceae
	Habit	Annual, sticky herb
	Part used	Whole plant (seeds, leaves and roots)
	Use	Corrects digestive problems of animals by used of its seeds.
	Fruiting and flowering season	July to October
	Mode of regenerate	Seed
26	Botanical name	*Convolvulus microphyllus* Sieb.
	Local name	Sankhpushpi
	Family	Convolvulaceae
	Habit	Fulvous hairy herb
	Part used	Whole plant (seeds, leaves and roots)

	Use	Is an important indigenous drug (young leaf, flower and seed) used as laxative and brain tonic
	Fruiting and flowering season	October to December
	Mode of regenerate	Seed
27	Botanical name	*Euphorbia thymifolia* Linn.
	Local name	Chhotidudhi
	Family	Euphorbiaceae
	Habit	Softly hispid prostrate herb
	Part used	Latex, Seed and leaves
	Use	Yields aromatic and astringent leaves and seeds used in indigenous medicine for diarroea and dysentery in children. The milky juice is a violent purgative used to cure ringworm
	Fruiting and flowering season	Whole year
	Mode of regenerate	Seed
28	Botanical name	*Ipomoea pestigridis* Linn.
	Local name	Ghiabati, Panch-patri.
	Family	Convolvulaceae
	Habit	Twining, herbaceous, hairy, annual vine
	Part used	Root
	Use	The root of this plant is usedas a perfect laxative and leaves are used to heal Sores and Boils
	Fruiting and flowering season	September to December
	Mode of regenerate	Seed
29	Botanical name	*Ocimumcanum Sime*
	Local name	Ramtulsi, rantulsi, vantulsi
	Family	Lamiaceae
	Habit	Herb
	Part used	Leaves and seed
	Use	Provides leaves and seeds for curing liver and asthmatic problems and dysentery. The decoction of leaves is used in malarial and intermittent fevers. The roots along with the bark of neem (*Azadirachta indica*) in the form of poultice are used in cases of scabies and ringworm.
	Fruiting and flowering season	August - November
	Mode of regenerate	Seed
30	Botanical name	*Sida cordifolia* Linn.
	Local name	Bala
	Family	Malvaceae
	Habit	perennial subshrub
	Part used	Root
	Use	Provides roots exhibiting astringent, diuretic and stimulant curing urinary troubles, strangury and hematuria, hemiplegia sciatica and facial paralysis. Roots are used in combination with asafetida and rock salt. Powdered roots are given with milk in leucorrhoea and micturition. Seeds are aphrodisiac and also used in colic pains.
	Fruiting and flowering season	September to December
	Mode of regenerate	Seed
31	Botanical name	*Sphaeranthus indicus* Linn.
	Local name	Mundi, gorakhmundi
	Family	Asteraceae
	Habit	Herb
	Part used	Root, Leaf and flower
	Use	Provides the root decoction for treatment of rheumatism and leaf paste for ringworm. The decoction of flowers heads along with honey is re garded as blood purifier and general tonic.
	Fruiting and flowering season	November to March
	Mode of regenerate	Seed

32	Botanical name	*Spilanthes acmella* Murr.
	Local name	Akarkara
	Family	Asteraceae
	Habit	Herb
	Part used	Flower and leaves
	Use	Relieves toothache through chewing its pungent flower heads. Poor people chew its seeds instead of pepper to provoke salivation in their dry mouth. The plant is sometimes administered to women after child birth.
	Fruiting and flowering season	March- April
	Mode of regenerate	Seed
33	Botanical name	*Tribulus terrestris* Linn.
	Local name	Chhotagokhru
	Family	Zygophyllaceae
	Habit	Annual Herb
	Part used	Whole plant
	Use	Possesses fruits, which help remove kidney stones. Decoction of whole plant is given with almonds in impotency. It is regarded as cooling, di uretic tonic and aphrodisiac.
	Fruiting and flowering season	August to October
	Mode of regenerate	Seed
34	Botanical name	*Vernonia cinerea* (L) Less
	Local name	Sahadevi
	Family	Asteraceae
	Habit	Annual herb
	Part used	Whole plant
	Use	Decoction of plant given in diarrhea, stomachache and for cough and colic
	Fruiting and flowering season	Throughout the year
	Mode of regenerate	Seed
35	Botanical name	*Xanthium strumarium* Linn.
	Local name	aadha-shishi
	Family	Asteraceae
	Habit	Annual herb
	Part used	Seed
	Use	Possesses seeds which cure a migraine pain, adha-shishi.
	Fruiting and flowering season	August to November
	Mode of regenerate	Seed

CONCLUSION

The research workers in Botany, Ayurveda, Chemistry, herbal practitioner, students as well as sufferer will find this type of study useful. Balaghat district of M.P. state, blessed with natural vegetation consisting of a large number of important medicinal plants in the post. Due to the human intervention most of these valuable plants are in the path of threatened category. If proper measures are not taken for the conservation of these valuable plant species, these species will be extinct in a near future.

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Conflict of interest

All authors declare that they have no conflict of interest.

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