

DEPLETING MEDICINAL AND AROMATIC PLANTS OF JHARKHAND STATE

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A B S T R A C T

The newly created state of Jharkhand is very rich in the plant wealth and other natural resources. The area has maximum concentration of tribal population in North India. The forests have several medicinal and aromatic plants that are being used as a source of medicines in various systems viz., Ayurveda, Siddha Unani and Homoeopathy. Due to continuous habitat destruction fragmentation of forests, urbanization coupled with population explosion and agricultural growth, there is unprecedented pressure on plants wealth culminating into loss of biodiversity at an alarming rate. The authors have regularly been surveying the state for the last fifteen years. Based on the field survey literature and screening ca 24 medicinal plants whose populations have been continuously depleting are identified and reported in the present communication.

INTRODUCTION

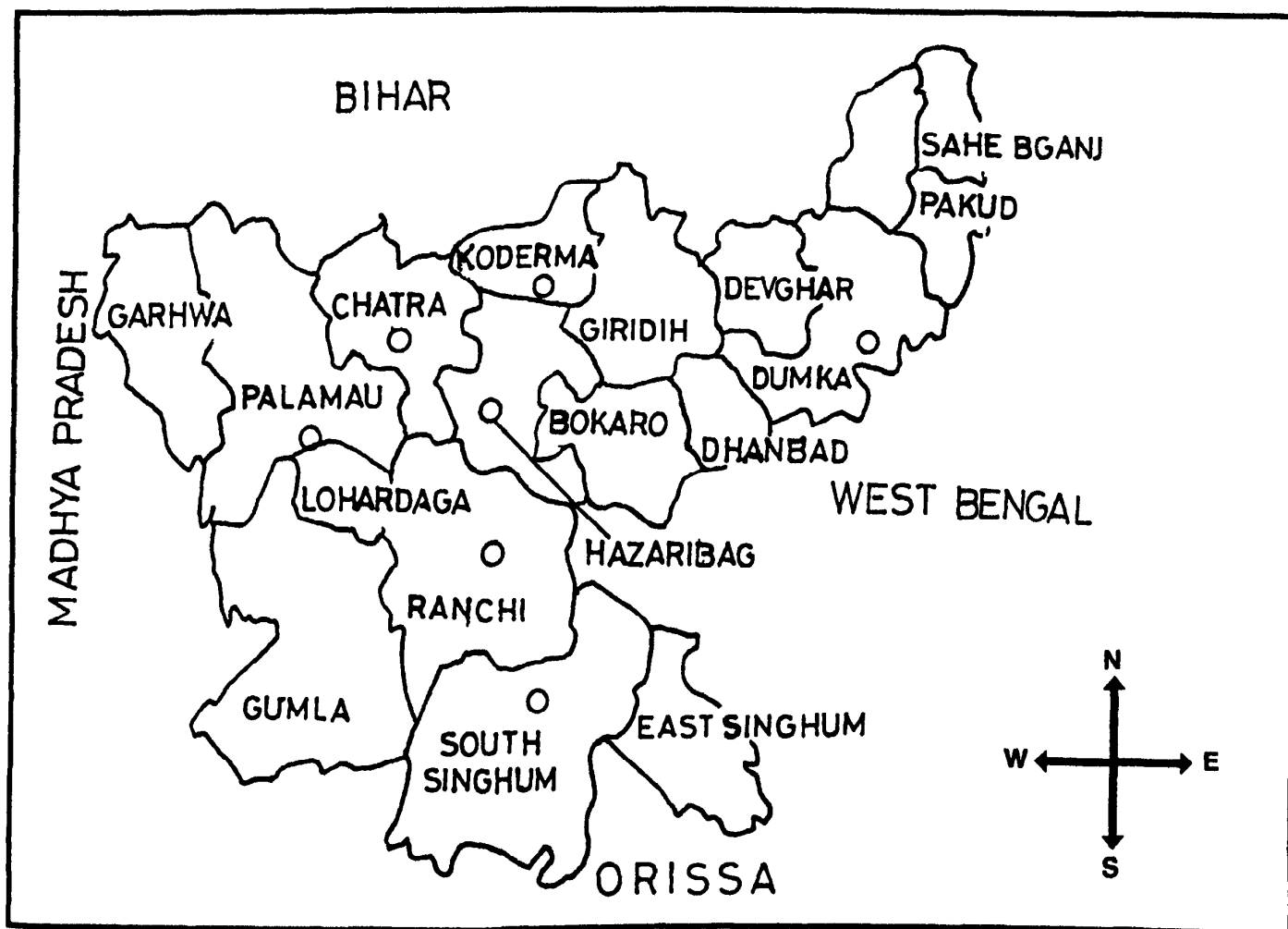
One of India's greatest natural wealth is her medicinal and aromatic herbs, which have been used in medicine and perfumery since times immemorial. India has unique position in the world for a number of indigenous or traditional systems of medicine for health care management and in spite of the tremendous development in modern medicine a sizeable portion (about 80%) of population still depends upon traditional form of medicine. Due to high demand in the indigenous industry and for export purposes, many medicinal plants have become scarce to such extent that in near future they are feared to become extinct or endangered in their natural habitats resulting in decline in genetic diversity. Although, a lot of floristic and ethnobotanical work has been carried by many workers (Paria & Chatopadhyaya, 2000; Verma, *et al.*, 1999; Jain, 1989; Sahoo & Mudgal, 1993; Haines, 1921-24) but the assessment of the availability of medicinal plants in Jharkhand state has not been carried out so far.

Jharkhand state possesses a rich resource of botanical wealth. The medicinal and aromatic plants of economic value constitute a significant proportion of this botanical wealth. It lies between 21°58'10" to 25°19'15" North latitude and 83°20'50" to 88°4'40"

E and surrounded on the North by Bihar in south by Orissa, in east by West Bengal and west by Madhaya Pradesh and Uttar Prasesh. There are tropical dry deciduous forest to pure sal forest, chir forest and miscellaneous forests. Some decades ago the state had *ca* 80% of forest cover in the whole, but now it has been reduced upto 20 -30%, due to one or the other as. The factor which have contributed for an alarming situation in depletion of botanical wealth are industrialization, urbanization, destruction of habitat and cleaning of land for various construction, etc. In view of this state of affair, it was considered necessary to identify and inventorise high value medicinal and aromatic plants, whose natural populations have been considerably reduced reasons and to suggest measures for their conservation. In this attempt twenty four medicinal and aromatic plants have been identified as threatened based on field explorations and literature survey.

MATERIAL AND METHODS

Extensive surveys were undertaken by the authors in the various forest divisions of Jharkhand covering Chatra Dhanbad, Dumka, Hazaribagh, Palamau Ranchi, Singhbhum, Tatanagar districts during the year 1986-2000. The areas surveyed were shown in the map of the state. The collection and processing of specimens have been made according



Map of Jharkhand state

to the standard methods (Jain and Rao, 1977). Plants specimens collected have been critically identified and deposited in the Herbarium of Central Institute of Medicinal and Aromatic Plants, Lucknow with the field number and collector's name. During plant exploration, attempts have also been made to record distribution and present status of medicinal plant growing within the area, distributional pattern of population size, causes of rarity each species, etc. The medicinal properties have been recorded, based on literature studied and consultation of herbaria. (Chopra *et al*, 1956; Kumar, *et al*, 1993; Thakur, *et al* 1989; Jain, *et al*, 1990, 1996). The plant species have been listed in alphabetical order of their botanical name alongwith their family name in parenthesis/parts used, important medicinal uses and conservation status. The pertinent observations have been provided in the Table.

CONSERVATION MEASURES

Being an agricultural state, much attention has not been paid for conservation of wild flora, causing much harm to vegetation. Although some efforts have been made by state forest department and some NGOs have taken up afforestation programme within the state for cultivation of important economic and medicinal plants. Recently two parks viz., Betla National Park and Hazaribagh National Park have been declared for *in-situ* conservation of the plant wealth. However, following suggestions are made for conservation of high valued medicinal plants.

- (1) To conserve threatened medicinal plants effectively, it is vital to identify medicinal plants, their distribution, status, scarcity or abundance for prioritization. Therefore an extensive botanical exploration of the area is required on urgent basis.
- (2) Developmental activities and exploitation of medicinal plants should be judiciously regulated.
- (3) Medicinal and aromatic plants should be brought under cultivation to maintain constant supply of quality materials and thus reducing pressure on the wild populations.
- (4) Steps should be taken for *in-situ* and *ex-situ* conservation of highly endangered medicinal and aromatic plant species.

CONCLUSION

In the present time a considerable number of medicinal and aromatic plants of commercial importance are facing genetic erosion and are on the verge of extinction due to various biotic and abiotic factors. Therefore, there is an urgent need for more intensive management of such population for their survival. Although, too much emphasis has been given for search of new drug molecules, yet little or no concerted efforts have been made for the conservation of endangered or threatened species. The state of Jharkhand provides natural habitat for many valuable medicinal plants which cater the needs of indigenous pharmaceutical industries by providing raw materials for production of medicines. Some of the medicinal plants are extensively exploited and have reached one or another categories

Table : Depleting medicinal and aromatic plants of Jharkhand

Sl. No.	Name of Plant Species	Parts used	Local name	Common Medicinal uses	Threatened status
1	<i>Abelmoschus moschatus</i> Medic. (Malvaceae)	Sd, Pl	Mushkdana	Tonic, stimulant, aphrodisiac	— Rare; earlier it was reported from different areas but now only known from few wild and scattered populations in the state.
2	<i>Acorus calamus</i> L. (Araceae)	Rh	Buch	Bitter, stomachic tonic and tranquillizer	Rare in the areas of Singhbhum and Santal-Paragana.
3	<i>Andrographis paniculata</i> L. (Acanthaceae)	Wh.	Kalmegh, Chiratya, Biremali	Liver tonic, malaria, bronchitis, anthelmintic	Endangered; populations in the areas of Palamau, Santal pargana, Ranchi, and Singhbhum have been considerably reduced.
4	<i>Curculigo orchoides</i> Gaertn. (Hypoxidaceae)	Rh	Kalimusli	Tonic, aphrodisiac, used in Dysentery, diarrhoea	Rare in Hazaribagh, Singhbhum and Dumka districts.
5	<i>Chlorophytum arundinaceum</i> Baker (Liliaceae)	Rt	Safed Musli	Tonic, aphrodisiac	Rare in Hazaribagh, Singhbhum and Dumka districts.
6	<i>Centratherum anthelminticum</i> (L.) Kuntze (Asteraceae)	Sd	Saoraj, Kalizeri	Used as anthelmintic tonic and stomachic	Earlier it was common in Singhbhum, Ranchi and Neterhat but now its natural populations have been decreased considerably.

Sl. No.	Name of Plant Species	Parts used	Local name	Common Medicinal uses	Threatened status
7	<i>Clausena excavata</i> (L.) Burm.f. (Rutaceae)	Rt	Aganijard	Plant diuretic, useful for digestion	Endangered because of over exploitation.
8	<i>Clerodendrum serratum</i> (L.) Spreng. (Verbenaceae)	Rt	Bharangi	Root used as antiasthmatic and in snakebite	Endangered in Ranchi and Singhbhum districts.
9	<i>Cryptolepis buchananii</i> R.& S. (Asclepidaceae)	Rt	Dudhla, Baridudhi	Blood purifier, stomachic in dysentery and tonic	Rare in Ranchi, Singhbhum and Palamau districts.
10	<i>Costus speciosus</i> (Koenig.) Smith (Zingiberaceae)	Rh	Arod	Used in tuber- culosis by the local people	Rare in Palamau and Ranchi districts.
11	<i>Croton roxburghii</i> Balak. (Euphorbiaceae)	Sd, Rt	Putri, Miridi	Used in rheuma- tic pain and dysentery	Rare in Ranchi and Singhbhum.
12	<i>Drimia indica</i> (Roxb.) Jessop (Liliaceae)	Bu	Vanpsiyaz	Expectorant diuretic, antirheumatic	Rare in Ranchi.
13	<i>Euphorbia tirucalli</i> L. (Euphorbiaceae)	Wh	Harjora	In bone fracture	Endangered in Singhbhum.

Sl. No.	Name of Plant Species	Parts used	Local name	Common Medicinal uses	Threatened status
14	<i>Gymnema sylvestre</i> (Retz.) R. Br. (Asclepiadaceae)	Lv	Gurmar	In diabetes, bronchitis	Extremely rare in Hazaribagh and Santal Pargana.
15	<i>Hemidesmus indicus</i> (L.) R.Br. (Asclepiadaceae)	Wh	Anantmul, Papun	Blood purifier, stomach disorder	Rare occurrence in Ranchi and Singhbhum districts.
16	<i>Hedychium spicatum</i> Smith (Zingiberaceae)	Rh	Kapur Karchri	Used as carminative, in stomach-ache	Over exploitation in Palamau and Singhbhum districts.
17	<i>Gloriosa superba</i> L. (Liliaceae)	Rh	Kalihari	Use for abortion and in gonorrhoea	Endangered in Ranchi and Palamau districts.
18	<i>Leea macrophylla</i> L. (Leeaceae)	Rt	Hathikan	Used in hydrophobia and body pain	Natural populations in areas of occurrence depleted.
19	<i>Oroxylum indicum</i> (L.) Venten (Bignoniaceae)	Sb	Sonopats	Spleen disorders, paralysis	Populations depleted in areas of occurrence.
20	<i>Plumbago zeylanica</i> L. (Plumbaginaceae)	Rt	Chitrak mool	Digestive, abortifacient	Endangered in Ranchi and Palamau districts.
21	<i>Pueraria tuberosa</i> (Roxb.) DC. (Papilionaceae)	Rt	Vidarikund path, Kohrema	Tonic as, aphrodisiac	Endangered in Ranchi, Palamau and Singhbhum districts.

Sl. No.	Name of Plant Species	Parts used	Local name	Common Medicinal uses	Threatened status
22	<i>Rauvolfia serpentina</i> (L.) Benth. (Apocynaceae)	Rt	Sargandha	Antidote to snakebite, used in insomnia and to reduce blood pressure	Endangered in Ranchi, Palamau and Singhbhum districts.
23	<i>Vitex peduncularis</i> Wall. (Verbenaceae)	Rt, Sb	Singanga, murgideda	Used in malaria, and black water fever	Endangered, presently known from scattered populations only.
24	<i>Withania somnifera</i> (L.) Dunal	Rt	Ashwa-gandha	Tonic general debility and in arthritis	Highly endangered and very narrow range of occurrence.

Abbreviations used in the table: Sb = Stem bark; Sd = Seeds

Rt = Root; Rh = Rhizome; Bu = Bulb; L = Leaves; Wh = Whole plant

of thereat. In the present study twenty four medicinal and aromatic plants species have been identified as thereatened from this region. For prevention of further genetic erosion of these species, the development and adoption of appropriate conservational strategies is very much warranted.

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REFERENCES

- CHOPRA, R.N., S.N. NAYAR AND I.C. CHOPRA. Glossary of Indian Medicinal Plants. CSIR, New Delhi. 1956.
- HAINES, H.H. Botany of Bihar and Orissa. Vol. 1-2. London 1921- 24.
- JAIN, S.P. Tribal remedies from Saranda forest, Bihar-1. *Int. J. Crude Drug. Res.* 27 (1) 29-31. 1989.
- JAIN, S.P., S.C. SINGH AND H.S. PURI. Medicinal plants of Neterhat, Jharkhand. *Int. J. Pharmco.* 32.(1)44-50. 1996.
- JAIN, S.P., Z. ABRAHM AND N.C. SHAH. Herbal medicine among HO. Tribes. In : Contr. to Indian Ethnobotany (Ed. S.K. Jain). 115-122. 1990.
- JAIN, S.K. AND R.R. RAO. Hand Book of Field and Herbarium Methods. Today and Tomorrows Publishers. New Delhi. 1977.
- KUMAR, S., J. SINGH, N.C. SHAH AND VINAY RANJAN. Indian Medicinal and Aromatic plants. Facing Genetic erosion. Central Institute of medicinal and Aromatic Plants. Lucknow. 1993.
- NAYAR, M.P. AND A.R.K. SASTRY. Red data book of Indian plants. Vol. 1. Botanical Survey of India. Calcutta. 1983.
- PARIA ,N.D. AND S.P. CHATOPADYA. Flora of Hazaribagh Distt. Botanical Survey of India. Calcutta. 2000.
- SAHOO, A.K. AND V. MUDGAL. Ethnobotany of South Chota Nagpur. Jharkhand. 1993.
- THAKUR, R.S., H.S. PURI AND AKHTAR HUSAIN. Major Medicinal plants of India CIMAP. Luckow. 1989.
- VERMA, S.K., D.K. SRIVASTAVA AND A.K. PANDEY, Ethnobotany of Santal Pargana. Narendra Publisher. Delhi. 1999.