

CHAPTER - IX

RARE AND ENDANGERED MEDICINAL PLANT SPECIES OF BIHAR NEEDING SPECIAL ATTENTION FOR PROTECTION

More than 150 species of medicinal importance occur in Bihar but some of the plant species which were reported to occur commonly or abundantly in Bihar about half a century ago have at present become rare or very rare due to over exploitation and have fallen in the category of endangered species. The glaring examples are *Rauvolfia serpentina* (L.) Benth ex kurz. and *Gloriosa superba* L. which are incidentally highly important medicinal plant species. Such plant species whose roots, rhizomes, bark etc. are of medicinal importance deserve maximum attention for their protection as indiscriminate exploitation of such species will adversely effect their natural population in the forest. In view of the above situation, it has become necessary to prepare a list of species which are immediate danger of extinction and need protection/rehabilitation. On the basis of resources survey carried out in South Bihar, specially in Chhotanagpur and Santhal Parganas, the following priorities have been identified :-

- A. Species in immediate danger of extinction.
- B. Species seriously thereatened.
- C. Species of rare occurrence and of unique botanical and medicinal interest.

A. SPECIES IN IMMEDIATE DANGER OF EXTINCTION

(a) *Rauvolfia serpentina* (L) Benth ex kurz. (Apocynaceae) Sarggandha.

It is a pretty glabrous under shrub 30-60 cm. high bright green shining opposite and 3-4 nately whorled oblong or obovate rather membranous leaves 7.5 to 17.5 cm long, and small white flowers with pink tubes in terminal peduncled bright red cymes. Drupes are polished green and finally black 6 mm to 12.5 mm diam.

Its occurrence in Chhotanagpur was occasional in damp places. It was more frequent in moist areas of Singhbhum but it has almost become scarce now. Its root is of high medicinal value. It is hypnotic, sedative, specific for insanity, reduces blood pressure, remedy in painful affections of the bowels, in decoctions employed in labours to increase uterine contractions. Hence this species exploited for its roots for several decades has almost led to its extinction from Bihar Forests. In order to cope with the high demand of its roots under various systems of medicine, the Forest Department, Bihar started regular cultivation of this species about two decades back. *R. serpentina* requires rich soil, moist conditions and partial shade for optimum growth. Under adverse climatic and edaphic conditions, yield of root suffers and plantation becomes uneconomical. Hence *Rauvolfia canescens* L., a harder variety though lower in alkaloid content, has been encouraged and is being successfully grown in Nawadah (Hazaribagh) and Betla (Palamu). However, *Rauvolfia Serpentina* needs rehabilitation in the moist areas of Chhotanagpur forest.

(b) *Gloriosa Superba* L. (Liliaceae) Karihari

This branched herbaceous climber with beautiful flowers, which was in the past commonly found in the hedges and low jungles of Chhotanagpur and Santhal paraganas is getting depleted day by day. The annual aerial shoot reaches a height of 10m. It flowers and fruits during the rainy season. The aerial shoots are annual and die down completely by the end of the cold season. The tip of the ovate lanceolate leaves are modified into tendrils. Flowers are greenish yellow in the beginning and finally they become scarlet or crimson.

The perennial tuberous rhizome is upto 30 cm long and 1.5 cm in diam. About two decades back it was observed to commonly occur in low jungles of Chhotanagpur and Santhal Parganas. It has dwindled now and its occurrence has become rare.

From time immemorial the tuberous rhizome was being used in Indian medicine. It is reported to be a tonic, stomachic and anthelmintic. Around 1940, colchicine was extracted from the tuber of this species for the first time. It is reported to yield 0.3% of colchicine (dry weight). As colchicine is used in plant breeding work and in medicine, this species has gained much more importance in pharmaceutical industry during the last 4 decades resulting in indiscriminate exploitation of its natural population. Due to the removal of tubers, the whole plant is destroyed and as such wild population is getting depleted fast. If the present rate of demand for rhizome continues, the pressure

of exploitation from the interior forest areas diminishes. Hence a proper check needs to be enforced on the exploitation of this species from the natural forest and the industries who are the main users should be urged to raise their own plantation.

B. SPECIES SERIOUSLY THREATENED

Change is the rule of nature and the vegetation of any place is under constant modification, one type leading to another. During the gradual process of evolution of flora it is quite likely that certain species get either eliminated from the area or their domain gets highly shrunk, whereby they have to struggle for their existence. However, this is a long term process. Plant species usually become threatened due to man's influence or stress on the natural flora mainly due to his tendency to exploit the natural resources for his material comforts. Those plant species, whose rhizomes, tubers, bulbs, corms, roots, and bark are of medicinal value are under constant threat of extinction if they are heavily exploited from the natural forest. Certain medicinal plant species which thrive well under total or partial shade also become threatened when the top canopy is removed due to illicit cutting of tree species. Medicinal creepers and climbing shrubs require support for their proper growth. Due to removal of such tree species which provide support to climbers, the medicinal climbers entangle themselves among shrubby species struggling for proper growth and survival.

In order to locate the medicinal species which are likely to be endangered in the near future, it is necessary to find out the forest species whose rhizomes tubers, bulbs, corms, roots, bark etc. are extensively used for medicinal purposes.

(i) Species whose rhizomes, tubers bulbs, corm etc are used medicinally

1. ASPARAGUS RACEMOSUS WILLD. (Liliaceae) Hindi - Satawara In all districts of Chhotanagpur.
2. COSTUS SPECIOSUS Koen. Sm. (Zingiberaceae) Hindi - keu In moist localities in the forest of Chhotanagpur
3. CURCUMA AMADA Roxb. (Zingiberaceae) Hindi - Amhaldi In dense forests of Chhotanagpur
4. CURCUMA ANGUSTIFOLIA Roxb. (Zingiberaceae) Hindi - Tikhur Forest of Chhotanagpur.
5. DISCOREA BULBIFERA Linn. (Dioscoreaceae)
Or. & Hindi - Pita-alu Forests of Chhotanagpur and Santhal Paragnas.
6. DISCOREA PENTAPHYLIA Linn. (Dioscoreaceae) H - Kanta - alu Higher altitude in Ranchi, Koderma forest (Hazaribagh, Palamu and Singhbhum)
7. DISCOREA HISPIDA Dennst. Syn. D. daemona roxb. (Dioscoreaceae) Ghatw-Taina In the damper forest of Hazaribagh and Santhal Parganas.
8. LASIA ACULEATA Lour. Syn. L. spinosa Thue. (Araceae) Swampy areas of Singhbhum specially in Ligirda swamp of Thalkobad.
9. URGINEA INDICA Kunth. (Liliaceae) H - kandri, gangli-piaz Frequent on fire lines in the forest and grassy plateau of Singhbhum, Ranchi & Palamu.
10. ZINGIBER CASSUMNAR Roxb. (Zingiberaceae) H - Ban̄da In damp shady forest of Chhotanagpur. Common in the Betla and Netarhat.

(ii) Species whose roots are of medicinal use :-

1. HEMIDESMUS INDICUS R. Br. (Aselepiadaceae) H - Anant mool Under shade and mostly in moist localities in Chhotanagpur & Santhal Parganas.
2. LEEA ROBUSTA Roxb. (Ampelidaceae) K-Horm, S-Haramda Frequent along nalas or on cool aspects in Chhotanagpur.
3. PUERARIA TUBEROSA DC. (Leguminosae)
H-Ban Kumra Kharw. Patal kohnra Chiefly on the side of rocky streams in Ranchi, Palamu & Hazaribagh and Giridih (Parasnath)
4. SIMILAX ZEYLANICA Linn. Syn. Smilax macrophylla (Liliaceae) Or. Rajdautoni Frequent in damper forests of Chhotanagpur and Santhal Paragnas.

5. SIMILAX PROLIFERA Roxb. as above

More frequent than *S. zeylanica*. In drier localities but prefers the side of streams.

(iii) **Species whose roots, stem and leaves are of medicinal value :-**

1. CISSAMPELOS PAREIRA L. (Menispermaceae) H - Akandi
2. TINOSPORA CORDIFOLIA (Wild.) Miers. (Menispermaceae)

Frequent in open and rocky places.

Not in our area, occasional in Santhal Parganas.

(iv) **Species whose roots and seeds are medicinal :-**

1. MUCCUNA PRURITA Hook. Syn. *M. pruriens* Bak. (Leguminosae)
Hindi - Kawanch

In dry areas, frequent along streams.

(v) **Species whose root, bark and fruit are used medicinally :-**

1. OROXYLUM INDICUM Vent. (Bignoniaceae) H - Sona.

Occasional along streams and moist localities in Chhotanagpur & Santhal Parganas. A few years back its bark was sold but exploitation of bark was not done by the purchasers properly and hence auction sale of bark of this species from the forest has been completely stopped.

REFERENCE

(vi) **Species whose all parts are used medicinally :-**

1. WITHANIA SOMNIFERA Dunal. (Solanaceae) Hindi - Aasgandh

Occasionally found in waste ground.

It is recommended that exploitation of the above medicinal species should be restricted to tribals only for their own medical use and the drug industries who are the major users should raise their own plantations to cope with their requirements.

C. SPECIES OF RARE OCCURRENCE OF UNIQUE BOTANICAL AND MEDICINAL INTEREST :-

Chhotanagpur comprises of two main plateau Ranchi and Hazaribagh, each about 600 m. high. Ranchi plateau, carry, specially on the west, still higher plateau, usually 300 m. higher which are known as 'Pats'. On one of these "pats" on the borders of Ranchi and Palamu, is situated Netarhat.

Similarly, one of the outlying spurs from Tundi hills, extends across the boundary of Dhanbad and Hazaribagh and to the east of Hazaribagh itself, contains the highest hill in the State, Parasnath which now falls in the newly created district of Giridih. Its elevation is about 1340 m. On these hills above 900 m. some species of the Himilayan sub-temperate region occur. Such species are of rare occurrence and of unique botanical and medicinal interest. Incidentally both fall respectively in different sanctuary areas where the natural eco-system has to be protected for preservation of wild life and species of rare occurrence and medicinal importance are also to be preserved. Such species are as follows :-

1. BERBERIS ASIATICA Roxb. (Berberidaceae) Hindi - Sumlu
2. CLEMATIS GOURIANA Roxb. (Ranunculaceae) Ur. - Golarang
3. EQUISETUM DEBILE Roxb. (Equisetaceae) Horse - tail fern.

A pretty shrub with spinose toothed leaves in Parasnath. Roots medicinal.

A climbing shrub in kundrugutu (Singhbhum), Parasnath & Netarhat. Stem and leaves medicinal.

Stems lax scrambling and often attaining 3m. in height. Along shady streams in Singhbhum, Ranchi, ascending to Netarhat. Whole plant medicinal.

4. RANUNCULUS PENNSYLVANICUS Linn.

Along streams in the higher hills of palamu (Ranunculaceae) Hindi - Mamira and Netarhat. Plant medicinal.

5. **RUBUS MOLUCCANA** Linn. (Rosaceae) A shrub with sarmentose prickly branches. In Netarhat. Leaves and fruit medicinal.
6. **RUBIA CORDIFOLIA** Linn. (Rubiaceae) Hindi - Manjit A herb scrambling over bushes by means of its scabrid aculeate stems, petioles and whorled leaves. In Netarhat and Parasnath.
7. **THALICTRUM FOLIOLOSUM** DC. (Ranunculaceae) A fern like erect herb. In Netarhat and Parasnath. Root medicinal.
8. **VIOLA PATRINII** DC. (Violaceae) A herbaceous plant with lilac flowers. In Netarhat. Whole plant and flowers medicinal.

The above rare species of unique botanical and medical interest need complete protection and their collection from natural habitat in Netarhat and Parasnath needs to be complete banned.

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