

CHAPTER - I

INTRODUCTION AND BRIEF DESCRIPTION

1. INTRODUCTION

The history of medicine in India can be traced to the remote past. The earliest mention of the medicinal use of plants is found in the Rig Veda. In the works which followed, particularly Ayurveda, the properties of various drugs have been given in detail. Susruta Samhita which was written not later than 1000 B.C. contains a comprehensive chapter on therapeutics and Charaka Samhita, written about the same period gives a remarkable description of the materia medica as it was known to ancient Hindus.

During the centuries that have gone by, the materia medica of the indigenous systems of medicine has become extensive and heterogeneous. Information on the use of medicinal plants is scattered and most of it is found in books and periodicals. Based on the informations available, resources survey of medicinal plants were carried out in the tribal and other areas in the North and South Chhotanagpur Divisions and also in the districts of Gaya (old), Santhal Paraganas (old) and Munger district. The "Tribal Area" consists of Ranchi, Gumla, Lohardaga, Singhbhum as well as Dumka districts and also Latehar subdivision of Palamu district. The remaining areas where resources survey of medicinal plants were done fall under "Other Areas".

The geographical area, the forest area and the per capita forest areas of the districts surveyed, are given in Table-I whereas Table-II relates to the General, Schedule Caste, and Schedule Tribe populations of the surveyed district according to the 1981 Census reports. Table-III shows the average annual rain fall in mm districtwise of the areas surveyed as per Bihar H - and Book of statistics, 1984.

Table-I

Name of Districts		Land area in Sq. Km. *	Forest area in Sq. Km.**	Per capita forest area in hec.
1. Gaya	} Gaya (old)	6545.00	717.03	0.022
2. Nawadah		2494.00	568.40	0.052
3. Aurangabad		3305.00	210.28	0.017
4. Munger		7908.00	1291.00	0.039
5. Hazaribagh		11165.00	5278.94	0.240
6. Giridih		6892.00	2289.30	0.132
7. Dhanbad		2996.00	263.80	0.012
8. Palamu		12749.00	5559.73	0.290
9. Ranchi	} Ranchi (old)	1564.87		
10. Gumla		18266.00	1503.75	0.110
11. Lohardaga			300.00	
12. Singhbhum		13440.00	4464.00	0.155
13. Santhal	Paraganas (old)	14206.00	1923.89	0.052

* Bihar through figures, 1983.

** Annual administrative report cum statistical glimpses 1985-86

and working plan of Gaya division 1980-81 to 1999-2000

Table-II

District	General Population	Schedule Caste	Schedule Tribe	Total
1. Gaya	2332351	800563	1261	3134175
2. Nawadah	828443	269501	1233	1099177
3. Aurangabad	953698	282985	389	1237072

District	General Population	Schedule Caste	Schedule Tribe	Total
4. Munger	2731252	523324	60851	3315427
5. Hazaribagh	1584547	414971	198792	2198310
6. Giridih	1280591	225993	224878	1731462
7. Dhanbad	1591466	330767	192777	1731462
8. Palamau	1087871	478225	351432	1917528
9. Ranchi				
10. Gumla	1180301	158099	1732032	3070432
11. Lohardaga				
12. Singhbhum	1463240	137055	1261504	2861799
13. Santhal Parganas (old)	2037859	311801	1367868	3717528
Total :-	17071619	3933284	5393017	26397920

Table-III

Name of District	Average Annual Normal Rainfall in mm
1. Gaya	1150.8
2. Nawadah	1047.5
3. Aurangabad	1236.7
4. Munger	1206.7
5. Hazaribagh	1284.5
6. Giridih	1210.8
7. Dhanbad	1310.7
8. Palamau	1335.1
9. Ranchi	
10. Gumla	1482.6
11. Lohardaga	
12. Singhbhum	1438.6
13. Santhal Paragans	1377.2

2. OBJECT

The main object of the survey is to study the potentiality and availability of various medicinal plant species in the forests of North and South Chhotanagpur Division and also in Gaya (old), Munger, and Santhal Parganas (old) districts. This survey would also enable us to find out the medicinal species which are rare in the forests and may become endangered if they are exploited. It would also enable us to determine the species, the requirement of which could be made by raising plantations.

3. BRIEF DESCRIPTION

a) Gaya, Nawadah and Aurangabad districts (old Gaya) :-

The districts of Gaya, Nawadah and Aurangabad which lie on the north-eastern & southern part of Bihar comprising a compact block are situated between 24°17' and 25°19' N latitudes and 84° and 86° E longitude.

The districts of Gaya, Nawadah and Aurangabad, that is, old Gaya are bounded on the east by old Shahabad district, on the west by Munger, on the north by old Patna district and on the south by Hazaribagh & Palamu districts.

The principal rivers of these districts are the Sone, Bahamen, Punpun, Adni, Morhar, Sorhar, Lilajan, Mohane, Tilaiya, Dhanjari & Sokari. Most of the rivers are hill streams and originate from the high lands of the Chhotanagpur plateau. They flow from south to north in almost parallel courses.

The district headquarters are respectively located at Gaya, Nawadah & Aurangabad. Gaya has two subdivisions with headquarters at Gaya & Jahanabad. Aurangabad and Nawadah has only one subdivision with headquarters at

Aurangabad and Nawadah respectively.

A wide alluvial plain stretches away to the north, broken here and there by groups of low ranges of hills or isolated peaks springing abruptly from the level country. The altitude varies between 100 m to 700 m above the mean sea level.

The districts are mainly served by G.T. Road. The G.T. Road passes through Gaya and the heart of Aurangabad district, whereas the main Ranchi-Patna road passes through the Nawadah district. The most important railway station through which all the mails and express pass, is Gaya. The important railway stations from where the forest produce are despatched and imports are made, fall in the districts of Gaya, Nawadah & Aurangabad.

The mica schists are found in the south of the districts and consist mainly of quartz, felspar, muscovite and biotite.

The Jurisdiction of Gaya Territorial Division extends to all the three districts of Gaya, Nawadah & Aurangabad.

b) Munger and old Santhal Parganas Districts :—

The districts of Munger & Santhal Paragnas (old) lie on the North-East part of Bihar and are situated between 23°45' to 26°16' N latitude and 85°45' to 87°55' E longitude.

Munger & Santhal Paraganas districts are bounded on the east by districts of West Bengal, on the west by Patna and Gaya districts, on the north by the river Ganges and on the south by Hazaribagh, Giridih and Dhanbad districts.

The forests of Munger districts are located on the hills and undulating tract lying south of the river Ganga and extend to the somewhat flat top of the chakai plateau. The hilly tract covered by the forests comprises a number of low ranges and isolated peaks and outlines of the Vindhya series which enter the district from the south and gradually converge towards Munger town where they dip under the Ganga. Kharagpur hills are the most important and extensive hill range in the region, extending over 676 sq. km. In the valleys and the foot hills are several hot springs of which the finest are those of Bhimbandh, though those at **Sitakund** and **Risikund** are better known.

To the south-west of the kharagpur hill there is another block of hills which are known locally as the Gidheshwar hills or Gidhaur hills.

The principal river of Munger districts is the Ganga which flows on the northern edge of the tract dealt with above the mean sea level though some hills attain an altitude of 457 metres and one or two of them such as Mahuagarhi rise to 503 metres among the smaller rivers that pass through the forest area are the Keul and Mani.

The district headquarters are located at Munger. There are four subdivisions namely Munger Sadar, Jamui, Lakhisarai & Sekhpura in Munger district. The entire forest area of the district of Munger are located in Munger and Jamui Afforestation Divisions. Dumka forest division is a part of Santhal Paraganas district. The elevation in general varies from 152 metres to 244 metres.

All the nalas including big rivers like **Gumani** and the **Kajhia** originate from the central ridge draining to Dumka and Godda districts.

Except the big valley of the Brahminis, small valleys are enclosed by forest covered hills. Several hills are found rising from 76 metres to 274 metres above sea level. Among the hills mention may be made of the Belbani Papar, Gawra Pahar and Donia Pahar which form important land marks in the locality.

The Railways in Santhal Parganas districts terminate on the fringe of the district. However, practically all the important railway stations like Pakur, Sahebganj, Maheshpur, Rampurhat, Suri, Barharwa etc. are linked by tarred roads. Pitched roads from Dumka to Sahebganj and from Godda to Sahebganj via Simra Pirpaiti are intersected by a number of kaccha roads. All the important railways pass through the Jashidih junction of old Santhal Parganas district.

c) Hazaribagh, Giridih (old Hazaribagh) and Dhanbad districts :—

The districts of Hazaribagh, Giridih & Dhanbad comprising north-eastern portion of Chhotanagpur plateau are located between 24°50' and 23°30' N latitude and 86°50' and 84°27' E longitude.

The district of Hazaribagh, Giridih & Dhanbad are bounded on the east by Bankura district (West Bengal) on the west by Palamu district (Bihar), on the north by Nawadah and Gaya districts (Bihar) and on the south by Ranchi district (Bihar). These districts form part of north eastern fringe of the Chhotanagpur plateau, mainly the hilly portion tract. The elevation varies from 300 metres to 1366 metres which is the height of the Parasnath Hill. Incidentally this hill is the highest in Bihar.

The principal rivers of these districts are Damodar, Barakar, Konar, Usri and Lilajan. All these rivers are rain fed and not navigable. There are various resources located on Damodar, Barakar and Konar rivers namely Panchet and Tenughat on Damodar, Konar on river Konar and Tilaiya as well as Maithan on Barakar.

The district headquarters are located at Hazaribagh, Giridih and Dhanbad. Hazaribagh has three subdivisions with headquarters at Hazaribagh, Chatra & Koderma. Giridih has two subdivisions with headquarters at Giridih & Bermo. Dhanbad has also two subdivisions with headquarters at Dhanbad & Bagmara. Giridih and Dhanbad districts are honeycombed by coal mines specially in Dhanbad district. Hazaribagh has also got a large number of coal mines, specially in the southern part adjoining Ramgarh.

The districts are served by G.T. Road, Assam access Road, Dumri-Bhagalpur, Tori-Chatra-Gaya Road and N.H. 33 passing through Ramgarh, Hazaribagh, Koderma etc. The districts are also served by Grand chord railway line, Barkakana-Gomoh railway line and various branch lines. There is occurrence of mica in Koderma and Giridih. The big steel industry of Bokaro is located in Dhanbad district.

d) Ranchi, Gumla and Lohardaga Districts (old Ranchi) :—

The districts of Ranchi, Lohardaga & Gumla are located between 22°20' and 23°35' N latitude and 80°0' and 80°53' E longitude.

The districts of Ranchi, Gumla & Lohardaga i.e. Ranchi (old) are bound by the forests of Palamu and Hazaribagh districts of the north and by the forests of Singhbhum districts on the South. In the east, lie the Purulia district of West Bengal and Singhbhum district whereas in the west lies the Palamu district. The configuration of the plateau varies considerably from place to place. Towards the west, it is hilly and some of the hills are steep to precipitous rising up to 1069 m above M.S.L. Northern & Southern areas are also hilly. The altitude varies from about 213 m to 1068 m. Sal is the major crop of the forests of Ranchi district. Except for small areas like the forests of Durgo, Pesrar, Kham, Pahardam, Tataro, etc. where the crop finds to be moist, the forests in the northern, southern central and eastern areas are predominantly dry deciduous. The soil is red ferruginous loam and bouldary with several water springs even on higher slopes. Shifting cultivation was earlier practised in all the hilly areas without hindrance. The effect of shifting cultivation is visible in many hilly forests. It has resulted in many blank patches or the ousting of sal by miscellaneous species like kend, piyar or thorny species.

e) Singhbhum District :—

The Singhbhum district lies between 21°58' and 23°36' N latitude and between 85°0' and 86°54' E longitude.

As regards Singhbhum district, it is bounded on the east by Midnapur district of West Bengal, on the north by Ranchi district and part of West Bengal and on the south by Orissa state. The district comprises the southern part of the Chhotanagpur plateau and is a hilly upland tract. The elevation varies from 122 metres to 927 metres above M.S.L. There are several many hilly peaks which are above 600 metres in height. The principal rivers of the district are Subarnrekha, Karo, South Koel, Deo etc. All the rivers are rainfed and they remain dry for most part of the year except during the rains. The rivers are not navigable due to barrier of rock in river beds and irregular supply of adequate water. The district headquarters is at Chaibasa and there are four subdivisions in the district i.e. Sadar, Saraikela, Chakradharpur and Dhalbhum. Jamshedpur, which is the subdivision headquarter of Dhalbhum, is the principal town of the district and it is one of the most populous city of Bihar State.

The various silvicultural systems being followed in Singhbhum under different working plans are conversion to uniform, selection and coppice with standard systems.

f) Palamu District :—

The district of Palamu which forms the north west portion of the Chhotanagpur plateau lies between 23°20' and 24°39' N latitude and between 83°22' E and 85° longitude.

The district is bounded on the north by districts of Shahabad (old) and Gaya (old), on the east by districts of Gaya (old) and Hazaribagh, on the South by the district of Ranchi (old) and on the west by Sarguja district of Madhya Pradesh and Mirzapur district of Uttar Pradesh. The district is cut into two approximately equal parts by the river koel which after flowing from east to west in the south of the district, turns north and eventually enters the Sone at the northern boundary of the district. The tract is hilly, the elevation varying from 700 ft. above M.S.L. in the north to 3820 above M.S.L. in the South, the average elevation of the district being 1200 M.S.L.

The district headquarters is at Daltonganj and there are three subdivisions in this district Sadar, Latehar and Garhwa. The district is served by grand Dehri-on-Sone branch of the Eastern Railway and also Garhwa Road Chunar branch of the same railway. It has also a network of P.W.D. District board and Forest Department roads.

4. Method of Survey

Medicinal plant survey was conducted under the following districts of "Tribal Area"

1. Ranchi
2. Gumla
3. Lohardaga
4. Singhbhum
5. Palamu district (Latehar subdivision only)
6. Santhal Parganas (old)

(old Ranchi)

Whereas the undermentioned district were surveyed in "Other Area".

1. Hazaribagh
2. Giridih
3. Dhanbad
4. Palamu (Except Latehar subdivision)
5. Gaya
6. Nawadah
7. Aurangabad
8. Munger

To start with forests of the above districts were visited by the Divisional Forest Officer and the field staff of the division. Thereafter, the representative areas were selected for laying out of survey plots. Plots were selected randomly in the field and each plot of 10 hectares was laid out with the object to find out the potential yield of medicinal plants & herbs etc. After the plots were laid out enumeration of all the available medicinal plants etc. were done and recorded. Yield of fruits and also the various parts of plant of medicinal use available were also assessed and calculated. The data so collected were analysed and processed in simple random sample method and the potential yield was arrived at. The result of data so collected is placed district wise in appendices in the last chapter.

The number of plots laid out in each of the Forest Divisions of Bihar in Tribal as well as other areas are listed below :-

Tribal Sub-plan Area		In other Areas	
1. Latehar Division	— 10	1. Garhwa South	— 13
2. Dumka Division	— 18	2. Garhwa North	— 14
3. Deoghar Division	— 02	3. Daltonganj North	— 14
4. Chaibasa South	— 10	4. Daltonganj South	— 14
5. Kohan Division	— 10	5. Hazaribagh East	— 12
6. Porhat Divisio	— 10	6. Hazaribagh West	— 12
7. Saranda Division	— 10	7. Koderma	— 12
8. Chaibasa North	— 10	8. Chatra North	— 12
9. Dhalbhum	— 10	9. Chatra South	— 12
10. Ranchi East	— 20	10. Giridih	— 12
11. Ranchi West	— 20	11. Dhanbad	— 05
12. Gumla	— 20	12. Munger	— 12
	— 150	13. Jamui Afforn.	— 12
		14. Gaya	— 12
			168