CHAPTER- I

INTRODUCTION
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Man has been depending upon the plants from the time immemorial. Primitive human societies have realized the varied economic uses of plants. The study of ancient history of India will show the relationship of plants and human beings. Since ancient times man was familiar with the properties of plants and their uses. These traditional systems rely, to a very large extent, on native plant species for harmony with the nature. For various needs of rural people like food, shelter and medicine they largely depend upon plants. Ethnobotany has attracted much attention not only due to its great academic or historic importance but also due to its many applications (Ved et al., 1998).

The importance of the medicinal plants sector can be gauged from the fact that herbal medicines serve the healthcare needs of about 87 percent of the world’s population (WHO, 2004). In India, with approximately eight percent of world’s biodiversity including plant genetic diversity with medicinal properties has the potential of becoming a major global player in market for medical plants-baised herbal formulations and products (Singh, 2006).

Demand for medicinal plant is increasing in both developing and developed countries due to growing recognition of natural products, being non-narcotic, having no side-effects, easily available at affordable price and sometime the only source of
health care available to the poor. Medicinal plant sector has traditionally occupied an important position in the socio cultural, spiritual and medicinal arena of rural and tribal lives of India.

Human have used plants as medicine since the beginning of civilization. People of all continents have used hundreds to thousands of indigenous plants for treatment of ailments since prehistoric times. A discussion of human life on this planet would not be complete without a look at the role of plants. Perhaps as early as Neanderthal man, plants were believed to have healing powers. The earliest recorded uses are found in Babylon circa 1770 BC in the Code of Hammurabi and in ancient Egypt circa 1550 B.C (Dubey et al., 2004). Ayurveda, Siddha, Unani and Folk (tribal) medicines are the major systems of indigenous medicines. Among these systems, Ayurveda is most developed and widely practiced in India. Ayurveda dating back to 1500-800 BC has been an integral part of Indian culture. The term comes from the Sanskrit root Au (life) and Veda (knowledge). As the name implies it is not only the science of treatment of the ill but covers the whole gamut of happy human life involving the physical, metaphysical and the spiritual aspects.

It has been estimated that in developed countries such as United States, plant drugs constitute as much as 25% of the total drugs, while in fast developing countries such as China and India, the contribution is as much as 80% (Joy et al., 2001). Thus, the economic importance of medicinal plants is much more to countries such as India than to rest of the world. These countries provide two third of the plants used in modern system of medicine and the health care system of rural population depend on indigenous systems of medicine. Of the 2,50,000 higher plant species on earth, more than 80,000 are medicinal. India is one of the world’s 12 biodiversity centers with the presence of over 45000 different plant species. India’s diversity is unmatched due to
the presence of 16 different agro-climatic zones, 10 vegetation zones, 25 biotic provinces and 426 biomes (Mukherjee et al., 1998).

However, only 7000-7500 species are used for their medicinal values by traditional communities. In India, drugs of herbal origin have been used in traditional systems of medicines such as Unani and Ayurveda since ancient times. The Ayurveda system of medicine uses about 700 species, Unani 700, Siddha 600, Amchi 600 and modern medicine around 30 species (Mukherjee et al., 1998). The drugs are derived either from the whole plant or from different organs, like leaves, stem, bark, root, flower, seed, etc. Some drugs are prepared from excretory plant product such as gum, resins and latex. Even the Allopathic system of medicine has adopted a number of plant-derived drugs which form an important segment of the modern pharmacopoeia. Some important chemical intermediates needed for manufacturing the modern drugs are also obtained from plants (Eg. diosgenin, solasodine, ß-ionone). Not only, that plant-derived drug offers a stable market worldwide, but also plants continue to be an important source for new drugs (Joy et al., 2001).

Among ancient civilizations, India has been known to be rich repository of medicinal plants. The forest in India is the principal repository of large number of medicinal and aromatic plants, which are largely collected as raw materials for manufacture of drugs and perfumery products. About 8,000 herbal remedies have been codified in Ayurveda. The Rig-Veda (5000 BC) has recorded 67 medicinal plants, Yajurveda (1000-600 BC) 81 species, Atharvaveda (4500-2500 BC) 290 species, Charak Samhita (700 BC) and Sushrut Samhita (200 BC) had described properties and uses of 1100 and 1270 species respectively, in compounding of drugs and these are still used in the classical formulations, in the Ayurveda system of medicine (Thomas, 1997). Unfortunately, much of the ancient knowledge and many
valuable plants are being lost at an alarming rate. With the rapid depletion of forests, impairing the availability of raw drugs, Ayurveda, like other systems of herbal medicines has reached a very critical phase. About 50% of the tropical forests, the treasure house of plant and animal diversity have already been destroyed. In India, forest cover is disappearing at an annual rate 1.5mha/yr (Thomas, 1997). Many valuable medicinal plants are under the verge of extinction. The Red Data Book of India has 427 entries of endangered species of which 28 are considered extinct, 124 endangered, 81 vulnerable, 100 rare and 34 insufficiently known species (Thomas, 1997).

Chhattisgarh State is larger than 16 other Indian states. The state covers 4.4% of the total geographical area of the country. Over 0.59 lakh sq. km area in the State is under forest constituting about 44% of its geographical area. Agro-climatically the entire State falls in the category of Zone- VII (Eastern Plateau and Hills Zone) and can be sub divided into three sub agro climatic zones, namely, the Chhattisgarh Plains, the Northern Hills of Chhattisgarh, and the Bastar Plateau. Chhattisgarh is very rich in terms of its natural wealth.

The forests of Chhattisgarh have become a large store house of varieties of medicinal and aromatic plants and to sustain the lives of large population of forest dependent rural communities through addressing their food, health and livelihood issues (Action Plan 2010-11). In view of its extremely rich and unique Bio-cultural-diversity of state, the Government has resolved to develop Chhattisgarh as Herbal State. Through the state lead initiatives on In-situ conservation, Ex-situ cultivation and propagation, capacity building of local communities, development of processing technologies and emphasis on value addition on herbal product. As a part of this endeavor, the Chhattisgarh State Medicinal Plants Board (C.G.SMPB) has been
constituted on 28th July 2004. The State Government of Chhattisgarh has recently taken a unique initiative named Ayurveda Gram Yojana to make 25 villages of the state as Ayurvedic Villages. Under this initiative, the villagers of these villages are being motivated to take up cultivation of herbal medicines. The selected villages are located in the districts like Raipur, Durg, Bilaspur and Janjgir-Champa. The main objective of the initiative is to properly utilize the rich amount of herbal medicines.

Forest provides several essential services to mankind. Forests are the sources of number of food item, fuel wood, fodder and timber. Other economic uses include providing raw material for forest based industries like medicine & drugs industries and other pharmaceutical industries. Some of the minor forest produce includes gum, fruits, honey etc. Forest performs important ecological function such as maintaining delicate ecological balance, conserving soil and water, and controlling floods, drought and pollution. Forest provides habitat for innumerable plants, animals and microorganisms. The State of Chhattisgarh although endowed with fairly large natural resources, has a long way to go for unlocking these resources for the economic, social, and cultural well being of its population.

The state of Chhattisgarh being placed in Deccan bio-geographical area. The forests of the state fall under two major forest types, i.e., Tropical Moist Deciduous forest and the Tropical Dry Deciduous forest. The state of Chhattisgarh is endowed with about 22 varied forest sub-types existing in the state Sal (Shorea robusta) and Teak (Tectona grandis) are the two major tree species in the state. Other notable over storey species are Bija (Pterocarpus marsupium), Saja (Terminalia tomentosa), Dhawra (Anogeissus latifolia), Mahua (Madhuca indica), Tendu (Diospyros melanoxylon) etc. Amla (Embilica officinalis), Karra (Cleistanthus collinus) and Bamboo (Dendrocalamus strictus) constitute a significant chunk of middle canopy of
the state's forests. Apart from the species diversity, the state is also endowed with rich genetic diversity. The variation in the genetic composition of individuals within or among floristic and faunal species is large.

About 95% of the interior population on herbal medicine and nearly 98% of raw materials are harvested from the wild plants resources without replenishing the growing stocks (Sharma and Tiwari, 2006). The village herbal preparation includes uprooting of the plants which is detrimental to the individuals or sub populations. As a result commonly used and effective gerbil plants become rare and endangered species and some plants are on the verge of extinction unless conservation measures are taken up for revival.

The tribes of India have preserved a large bulk of traditional knowledge of medicinal uses of plants growing around them. This knowledge is handed down to generations through word of mouth and is extensively used for the treatment of common diseases and conditions. Herbs are mines of useful drugs. Medicinal plants have always been the principle sources of medicine in India. Since ancient past and presently they are becoming popular. There has been a rapid extension of allopathic system of medical treatment in our country during the past century (Dwivedi et al., 2007).

However, these drugs have adverse effect and people are going back to nature with hope of safety and security. On the other hand, herbs are safe, cheaper, easily available and with no fear of any side effects. It is evident that many valuable herbal drugs have been discovered by knowing that particular plant was used by the ancient folk healers for the treatment of some kind of ailment (Ekka & Dixit, 2007).

The general attitude of secrecy in the transactions of medicinal plant materials posses problems in gathering realistic and dependable data on trade. This is further
complicated due to inadequate availability of reliable correlation between the trade names of plant raw drugs in different regions and their botanical sources. A systematic and comprehensive assessment of plant entities in trade, as plant raw drugs, in India is not available. An attempt to arrive at a reasonable enlistment of medicinal plant species in commercial trade in India has been undertaken by FRLHT through a survey of major plant raw drug markets in the country during 1998 to 2002, supplemented by information obtained from various relevant published sources. Based on these studies involving compilation and assessment of both the primary and secondary sources a total of 930 plant entities. This comparison has resulted in enlistment of 341 botanical names (312 species) of medicinal plants of state, 75 commercially important medicinal plants and 66 have been recorded as wild in Chhattisgarh state (FRLHT).

It is estimated that world market for plant derived drugs may account for about Rs.2,00,000 crores. Presently, Indian contribution is less than Rs.2000 Crores. Indian export of raw drugs has steadily grown at 26% to Rs.165 crores in 1994-95 from Rs.130 crores in 1991-92. The annual production of medicinal and aromatic plant’s raw material is worth about Rs.200 crores. This is likely to touch US $1150 by the year 2000 and US $5 trillion by 2050 (Joy et al., 1998).

In India exploitation of herbal wealth from natural resources of forests is an old practice because the traditional Indian Ayurvedic system of medicines prescribed the health treatments which utilizes 80 percent of the material derived out of plants. According to a survey report by WHO, in 2004 about 25 percent of prescribed human medicines are derived from plants and 80 percent people still depend on traditional systems of medicines. There are 2500 plants species in India have been documented for medicinal value, majority of them are growing as wild, whereas only a few are
cultivated (Rao et al., 2005). Valuable medicinal and aromatic herbs are getting exhausted very fast due to increasing demand by the pharmaceutical industries and illegal export. To keep balance between production and demand it is necessary that the cultivation of medicinal and aromatic plant species in various agroforestry systems is needed to be exploited at large scale (Thakur & Dutt, 2007).

In some cases, the crude extract of medicinal plants may be used as medicaments. On the other hand, the isolation and identification of the active principles and elucidation of the mechanism of action of a drug is of paramount importance. Hence, works in both mixture of traditional medicine and single active compounds are very important. Where the active molecule cannot be synthesized economically, the product must be obtained from the cultivation of plant material. The scientific study of traditional medicines, derivation of drugs through bioprospecting and systematic conservation of the concerned medicinal plants are thus of great importance.

Despite the diverse nature of crops grown in the country and the existence of a fast growing pharmaceutical sector, the share of India in world trade is quite insignificant considering the large geographical area. However, this is bound to rise rapidly with better research inputs and efficient management of the farm sector. So far, India has been involved in the export of only large volume raw material. To achieve competitive advantage we need to resort to low volume high cost (value) trade through value addition to the raw and unfinished products. It is therefore, necessary to develop genetically superior planting material for assured uniformity and desired quality and resort to organised cultivation to ensure the supply of raw material at grower’s end. Post harvest storage and process technologies need to be developed
to produce the value added finished products that may be directly utilized by the industry.

A major lacuna in Ayurveda is the lack of drug standardization, information and quality control. Most of the Ayurvedic medicines are in the form of crude extracts which are a mixture of several ingredients and the active principles when isolated individually fail to give desired activity. This implies that the activity of the extract is the synergistic effect of its various components.

Studies can show that the toxic effects of radiations and chemotherapy in cancer treatment could be reduced by Ayurvedic medications and similarly surgical wound healing could be accelerated by Ayurvedic medicines (Sharma, 2009). Modern science and technology have an essential role to play in the process. An integrated approach for the cultivation, conservation and preservation of important plant species through plant molecular biology, plant tissue culture; research on the rationale and methodology of Ayurvedic medical practice; isolation of active constituents and their development into new therapeutics; standardisation and validation of known herbal medicines and other related aspects need to be focused upon (Sharma, 1997).

Medicinal plants as a group comprise approximately 800 species and account for around 50% of all the higher plant species of India (C.G.SMPB). In recent years, the growing demand for herbal product has led to a quantum jump in volume of plant material traded within and across the countries. An estimate of the EXIM Bank puts the international market of medicinal plants related trade at US$ 60 billion per year growing at the rate of 7%. Through India has a rich biodiversity, the growing demand is putting a heavy strain on the existing recourses (Kala and Sawan, 2007).
It is unfortunate that while the demand for plant materials is huge and growing, many of the plant resources are dwindling and threatening both health care practices and local livelihoods. Consumption and commercial trade of wild plants and their parts/products is not detrimental in itself, but poses a major problem if the demand exceeds supply and if it involves overexploitation (Tiwari, 2006). The user groups at various levels are now conscious of the decline and non-availability and factors like short supply, high price and a forced substitution of certain species, signaling that medicinal plants are getting endangered. While the demand for medicinal plants is growing, some of them are increasingly being threatened in their natural habitat. For meeting the future needs cultivation of medical plants has to be encouraged (Ved et al., 1998).

Cultivation of commercially valuable medicinal and aromatic plants under tree plantations as agroforestry practice will immensely increase employment potential throughout the year rather cultivation of tree crop alone and it will also be effective to increase total production per unit area in same area of the farm, as well as to meet out the increasing demand of raw material for pharmaceutical and cosmetic industries with reducing pressure on natural resources and forests, which are consistently threatened due to unscientific management for collection and exploitation (Sajiwan Kumar, 2011).

The traditional uses of medicinal plants in healthcare practices are providing clues to new areas of research. Hence its importance is now well recognized. However information on uses of indigenous rare medicinal plants for medicine is not well documented from many rural areas of Chhattisgarh. The present study aims to select some rare medicinal plants of selected district of Chhattisgarh to take the task of identification & documentation of traditional knowledge of folk healers.
The main objectives of the present study:-

1. To identify indigenous medicinal plants used by Baigas (Vaidyha) & local population for various disorders occurring in their locality by conducting exclusive survey.

2. To document and highlight the local utilization and indigenous knowledge provided by ethnic group.

3. To record the crude herbal drug preparation methods of different folk healers.

4. To study the mode of administration of various disease by the folk healers.

5. To investigate and confirm the collected information of medicinal plants used for specific diseases with published literature.