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## MEDICINAL PLANTS OF JHARKHAND

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### ABSTRACT

Jharkhand is biodiversity rich in medicinal plants. Undoubtly, the flora of Jharkhand is rich and much more diverse as compared to some other states. The forest area is about 40% of the total area of Jharkhand. A number of herbs, shrubs and medicinal plants are seen here, to which tribal and local peoples have a lot of acquaintance. About 32 tribal communities are found in Jharkhand. These people commonly use medicinal plants by their traditional knowledge. Traditional medicinal practitioners are the primary health care providers in rural Jharkhand. An attempt was made with the objective to study and get a preliminary idea about the various medicinal plants mostly used by peoples of Jharkhand. How to conserve these natural resources is also very important. All people should know about our natural resources & its importance in their life. These medicinal plants are not only used to cure various diseases, but also are grown or cultivated in homes and in fields as ornamental plants, shade giving plants, timber yielding plants, home construction plants, medicinal plants, vegetable, fruits *etc.* The various plant part used by common peoples and others includes whole plants, leaves, stems, roots, tuber, barks, flower, fruits & seeds. Traditional and ethnic knowledge generated from such leads has played most significant role in the discovery of novel product as well as newer ideas about conservation of natural resources. The tribal as well as some local peoples of Jharkhand depend on traditional medicine not only for health care but also for various ailments. Documentation of plants used for medicinal purpose is not new in India.

**KEYWORDS:** acquaintance, communities, natural resources, conservation, documentation.

### INTRODUCTION

The impact of various anthropogenic activities on the environment is well marked with the catastrophic consequences. Due to adverse human activities, not only the flora but also the fauna is affected. Vast areas, rather in hectares, tropical forest are being destroyed due to modernization and various anthropogenic activities. We are losing several hectares of forests every minute throughout the world. A large number of plant species has already become extinct and many more are on the verge of extinction. It has been estimated that out of the Indian rich floral wealth of 50,000 species, about 10% has already extinct and another 10% are on the road of extinction. The process of extinction is largely based on environmental factors, biological factors, ecological substitutes, pathological causes and habitat destruction. A number of matters regarding loss of biodiversity and to the environment are discussed day to day on various scientific and social platforms to get free exchange of views. Species are nominated into the appropriate category which involves:

**Extinct:** The taxon species which are no longer present in the world are kept in this category. Searches of localities where they were once found and of other possible sites have failed to detect the species.

**Endangered:** The taxon species whose numbers have been reduced to a critical level due to habitat destruction leading to immediate danger of extinction. These are those species that have a high likelihood of going extinct in the near future.

**Vulnerable:** Species whose numbers are decreasing due to over exploitation, extensive destruction of habitat and other environmental disturbances and till now no assured security measure applied to arrest the adverse throughout the district and is facing high risk of extinction in medium from future.

**Rare:** The species which are small in number but has no immediate threat on the size of population in the district are kept in this category.

**Out of Danger:** The species, whose numbers are relatively secured due to application of various conservation measures kept in this category.

The term ethnobotany was coined by J.W. Harshberger (1895) to “the study of plants used by primitive and aboriginal people”. At present the subject has been variously defined and interpreted by different peoples as its discipline began to follow multidisciplinary approach combining a diversity of knowledge bases and methods through the use of anthropological methods. In India, the use of various parts of plants is being used since ancient times to cure specific diseases. Some drugs from ayurveda approaching modern diseases are already available in the market. Since long time, plants have been used for food, fodder, clothing and medicine. The tribals of India have great love and knowledge of medicinal plants. They use them for wide range of health related problems. Since ancient histories a number of information's have already been gathered for human survival (Joao B. Calixto<sup>[19]</sup> 2005). The process has continued till date for various reasons. Botanists and local peoples including the ayurveda, acharyas have still preserved the knowledge

about the local medicinal plants. Quite a significant number of surveys and documentation has already been done in different regions of India related to existing status of medicinal plants (Jain S.K. & Mudgal V<sup>[22]</sup> 1999), (Jain S.K. & Rao R.R.<sup>[23]</sup> 1976). The state of Jharkhand lies in the eastern part of India spreading over an area of 7.97 million hectares, with a population of over 2, 69, 09428. Out of this total population, 28% belongs to the schedule tribes. The state has the Chhotanagpur Plateau, which forms the North Eastern portion of peninsular plateau of India (Bhatt S.C.<sup>[5]</sup> 2002). Almost 29% of the total geographical area is occupied by forest. The huge forest cover signified the name Jharkhand, most commonly known as “*the region of forest.*”

Plants are the basis of life on earth and are central to people's livelihood. Glimpses of our knowledge in ethno-medicine are available to Vedic text and there is a very deep relationship between indigenous culture and biodiversity as areas of high biodiversity are often found on indigenous community's lands. In a broader way, it involves the reciprocal and dynamic aspect interaction of indigenous people, mainly the local peoples and the botanists with the plants. Due to tremendous industrialization, globalization and changes in sustenance economy, there is a great requirement of these peoples, so that the plants are properly documented and conserved for the benefit of the present as well as for future generations. Depending on locally available resources individual groups offer their traditional plant-based knowledge on healthcare. This traditional treasure of knowledge is still being disseminated for centuries largely by trial and error methods and are passed to subsequent generation orally. This enriched knowledge is currently viewed as extremely indispensable source of information to develop plant-based medication for various diseases. Plants identified with medicinal properties are extensively used directly as folklore medicine or indirectly utilized in modern drug manufacturing. These plants contain numerous biological substances, particularly secondary metabolites and essential oils that are believed to act as the potential cure to various genetic and chronic disease/disorders in humans. Because of their safety, easy availability, economical and high effectiveness with negligible side-effects plants are widely used as therapeutic medicine in the livelihoods of nearly 80% of the population of developing countries worldwide. In particular, a majority of population living in rural area can only afford to traditional medicine, making it even more valuable. Even today some of the health problems that are considered complex by the wide-spread accepted western/modern medicine find a fruitful remedy with plant-based treatment.

India is mega-diverse in vegetation and the history of identifying and using medicinal plant in the form of systemic medicine stretches back to 5000 B.C. India harbors roughly about 15 percent (3000 – 3500) medicinal plants, out of 20,000 medicinal plants recorded worldwide. Such endowment of flora must have led to the development of ancient Indian medical systems namely: the Ayurveda, the Siddha and the Unani or Graeco-Arabic medicine that are officially practiced throughout the country even today. Also, several time-tested indigenous

treatments exist in various isolated communities, especially in tribal population. It has been estimated that there are 6,737 crore tribal people residing in 537 tribal groups throughout the country (Indian census–2001). Traditional healers in India are believed to have knowledge of using 2500 plant species, of which roughly about 100 species are more often used. However, the crucial knowledge of which plant is valuable to therapeutic medicine is disappearing at an alarming rate because of modernization and lack of interest among young generation. Jharkhand is very rich in the plant wealth and other natural resources. It has a maximum number of tribal populations in North India. The forests have a several number of medicinal plants that are being used as a source of medicines for various systems like Ayurveda, Siddha, Unani and Homeopathy. Because of rigorous habitat destruction, fragmentation of forests, urbanization coupled with population explosion and agricultural growth, there is an unlimited pressure on plants wealth which ultimately results in loss of biodiversity at an alarming rate.

Jharkhand is the 28<sup>th</sup> State of the Indian Republic, formed by its separation from Bihar on November 15, 2000. It lies between 22° 00' and 24° 37' N latitude and 83° 15' and 87° 01' E longitude. The state is bounded by, West Bengal on the East, Chattisgarh in the West, Bihar in the North and Orissa on the South with 79,714 sq. km. geographical area. The phisography of the state is hills, valley, and plateau with altitude ranging from 1000 to over 4000 feet. Jharkhand is the home of many tribal communities along with a dynamic floristic diversity (Vidhyarthi, Anil Kumar & Gupta H.S. 2004)<sup>[50]</sup>. The scheduled tribe population of Jharkhand is 26.30% of the total population of the state. There are all together 29 scheduled tribe in the state, but the largest tribal group are Munda (Hembrom, P.P. & Goel, A.K.<sup>[17]</sup> 2005), Oraon, Kharia, Ho and Santhal. The tribes are mainly concentrating in Chhotanagpur Plateau (Gupta, S.P.<sup>[14]</sup>1963), (Hembrom, P.P.<sup>[15]</sup>,<sup>[16]</sup> 1991, 1996) and Santhal Parganas (Bodding, P.O.<sup>[2]</sup>1925), (Goel, A.K., Sahoo, A.K. & Mudgal, V.<sup>[11]</sup> 1987), (Guha, U.<sup>[13]</sup> 1957), (Singh, C.B.<sup>[41]</sup> 2003), (Srivastawa, D.K. & Verma, S.K.<sup>[46]</sup> 1981), (Tarafdar C.R.<sup>[48]</sup> 1986), (Paul, S.R.<sup>[30]</sup>,1977), Hazaribagh (Prasad, A.N., Singh, B.K. and Dangi, M.K.<sup>[31]</sup> 1998), Godda (Singh, L.B., Verma, A.K. & Sinha, S.S.N. <sup>[44]</sup>1992), Pakud, Dumka, Singhbhum (Girach, R.D. & Aminuddin<sup>[9]</sup> 1995), (Mahto Rameshwar & Sahu H.B.<sup>[27]</sup> 2007), (Pal, D.C. & Srivastava, J.N.<sup>[28]</sup> 1976), (Pandey, B.N., Das, P.K., Jha, A.K. & Ojha, A.K.<sup>[29]</sup> 1998), Giridih, Dhanbad, Ranchi, Gumla, Lohardaga, Sahibganj (Singh, L.B. & Sinha, S.K.<sup>[43]</sup> 1991), and Deoghar (Singh, L.B. & Singh, C.L.<sup>[42]</sup> 1992) districts. Due to close association of forest, the tribes possess a unique knowledge about the medicinal uses of plant wealth of their surroundings from many generations (Lal H. & Singh <sup>[25]</sup> 2012).

A numbers of plants are used by the tribals in some form or other for the treatment of their various ailments. Haines (1925) in his book referred the local uses of plants. Hoffman <sup>[18]</sup>, 1950 in his “Encyclopedia Mundarica” and Bressers<sup>[8]</sup> (1951) in his “Botany of Ranchi Districts” has mentioned the tribal uses of various plants of Chotanagpur. Ghosh<sup>[12]</sup> (1971) in his floristic study of

“Ranchi District” and Sahu<sup>[36]</sup> (1986) in his “Ethnobotanical and ethnomedicobotanical studies of some plants of Santhal Pargana and Chotanagpur” have mentioned various uses of plants. Rabish Chandra, Malti Mahto, Mandal S.C., Kamini Kumar & Jyoti Kumar<sup>[32]</sup> (2007) have done extensive work on the Ethnomedical formulations used by traditional herbal practitioners of Ranchi, Jharkhand. R.L. Ram and V. Saha<sup>[33]</sup> (1998) have also worked on the ethnobotanical wealth of Ranchi district, Bihar. Sandhya Rani & G.D. Mishra<sup>[34]</sup> (2002) had worked on the medicinal plants used by the tribes of Jharkhand. M.P. Singh<sup>[45]</sup> (1987)<sup>[45]</sup> did some work on the tribal medicinal plants used in animals diseases of Chotanagpur. Saren, A.M., Halder, A.C. & Singh, Harish<sup>[38]</sup> (2006) did some work on the ethnomedicinal plants of Mahilong Forest Range in Ranchi District. Sarkar, P.K. & Agarwal, V.S.<sup>[39]</sup> (1978) added a brief note on *Pholidota imbricate* Lindl. (Orchidaceae) and its local uses in Ranchi district, Bihar. Sharma, P.C. & Sinha, G.N.<sup>[40]</sup> (1980) worked on folklore medicinal plants of Ranchi district (Bihar). A comprehensive investigation has been carried out in the area and the medicinal uses have been correlated with the uses in various parts of the country (Jain<sup>[21]</sup> 1991; Badoni<sup>[3]</sup> 1995). More than 70% of the total population of the state is exclusively dependent on the herbs and traditional healers for maintaining a reasonable level of health (Tomar<sup>[49]</sup>, 2002). The state is very much rich in biodiversity of medicinal plants and their traditional uses (Mairh et al.<sup>[26]</sup>], 2010, Lal and Singh<sup>[25]</sup>, 2012).

About 70% of the total population of Jharkhand completely depends upon the herbs and traditional healers for maintaining a reasonable level of health (Tomar<sup>[49]</sup>, 2002). It is mainly due to improper medical facilities in the remote areas and also in some of the forest areas. Due to personal interest of family tradition, the traditional healers are local persons who acquire these things as a custom. Common peoples such as vaidyas or other local peoples derive their knowledge and wisdom from the local available plants.

A sufficient number of ethno-medico-botanical works on diverse aspects of ethnobotany has been done by a large number of ethnobotanists within and outside Jharkhand also (Baveja S.K., Bondya, S.L., Choudhary A.K. & Sahu H.B. 2008; Ranga Rao K.V. & Arora J. 1989 Jain S.K. 1991; Roy Choudhuri, 1963; Sahu, H.B., Bondya, S.L., Kumar, J. & Sharma, H.P. 2003; Chandra, 1995; Chandra et al., 1985,1987; Islam & Jha, 2003; Jain, and Tarafder, 1970; Jain et al., 1990, 1994; Jaipurari, 2003; Jha et al., 1997; Jha and Verma, 1996; Kumar,1997; Kumar and Goel, 1998; Kumar,1992; Kumari et al.,1991; Mahato et al.,1996, 1992; Manna and Samaddar, 1984; Pal, 1980; Pal and Jain, 1998; Pal and Srivastava, 1976; Pandey et al., 1998; Prasad, 1988; Raghav et al.,2005; Ram and Saha, 1998; Sharma 1988; Shukla and Verma 1996; Singh and Sinha, 1991, Singh, 1955; Sinha et al., 1981; Sinha and Nathwat, 1989,1989, 1991; Tarafder & Chaudhuri, 1981; Topno, 1997; Trebedi, 1986; Trevedi et al., 1985, 1987; Uniyal, 1995; Upadhyay et al., 1998; Verma and Pandey, 1990; Verma et al., 1999).

A vast number of medicinal plants are already available in Jharkhand. These medicinal plants are used for the treatment of a number of ailments related to our body. Prominent among these are: *Acacia nilotica* Linn,

*Acalypha indica* Linn, *Adhotoda vasica* Linn, *Achyranthes aspera* Linn., *Piper longum* (pipli) for arthritis, *Terminalaria chebura*, *Embllica officinalis* & *Solanum xanthocarpum* for asthma, *Embllica officinalis* for blood cancer also, *Canavalia virosa* (*jaharmora*) for body pain, *Marsilia minuta* for burning while urinating (susani), *Magnifera indica* (mango) & *Piper nigrum* (golaki) for cholera, *Euphorbia nerifoia* (*seej*) for cough, *Momordia charantia* (karela) for constipation, *Aegle marmelos* (bael) for diabetes, eye ailments, dysentery, diabetes, *Carica papaya* (papita) for eczema, *Ocimum sanctum* (tulsi) & *Cynodon dactylon* (doob grass) for epilepsy, *Ocimum sanctum* (tulsi) for fever, *Calotropis procera* (akwan) & *Piper nigrum* (golaki) for gonorrhoea, *Gloriosa superba* (kalihari) & mustard oil for headache, *Achyranthes aspera* L. (*Apamarga*) for fever, asthma, poisonous bites, abscess, *Alstonia scholaris* L. (*Chatwan*) for headache, fever, stomachache, joint pain, *Argemone Mexicana* L. (Satyanasi) for fever, itching, eczema, *Bombax ceiba* L. (Semal) for gynaecological disorder, *Butea monosperma* (*Palash*) for cut and wounds, intestinal worms, *Centella asiatica* L. (Brahmi) for jaundice, anorexia and skin diseases, *Datura metel* L. (Dhatura) for asthma, stomachache, arthritis and backache, *Leucas aspera* Spr. (Guma) for migraine, *Pongamia pinnata* L. (Karanz) for toothache, fever, inflammation and skin diseases, *Solanum nigrum* L. (Makoi) for nasal bleeding. The list overall includes a number of medicinal plants which cover a large forest area of Jharkhand. Similar works have also been done related to some other medicinal plants by Anand, Raushan & Anil<sup>[1]</sup> (2014). They have worked on the ethnobotany and pharmacological perspectives of *Gloriosa superba* L. (Liliaceae) of Sitamarhi district of North Bihar.

As far as medicinal importance of *Gloriosa superba* L. is concerned, the roots of the *Gloriosa superba* are used to induce abortion. *G. superba* being such an ayurvedic medicinal herb has a vast number of important pharmacological properties. It is a valuable tropical medicinal plant used in indigenous systems of medicines with different uses in ayurveda. More research is needed to be done to improve the quality and effectiveness of these medicines in different parts of the country. A wide diversity of these perspectives can be found in the same plant found in different parts of India and all over the world. Different chemicals are present in different parts of the plants especially in the tuber, seeds and leaves. Due to overexploitation, this plant is facing local extinction in the different areas of Bihar and also in other parts of the country. It is confirmed as an endangered plant by IUCN. Therefore, there is a need to conserve the plant by *in situ* and *ex situ* multiplication in general and micro propagation in particular, to fulfill the increasing demand of the plant always from the industries.

## CONCLUSION

There is a wealth of traditional knowledge about the medicinal uses of local flora of Jharkhand. Also there is a continuous risk of being distorted or being extinct for all these plants. Although the common peoples are much aware as well as conscious about these traditional wealth, but then although most of the people are still unaware with the potentials and applications, especially the therapeutic

potentials of these medicinal plants. The traditional healers are the main source of knowledge on medicinal plants. This ethnomedicinal knowledge has been transmitted orally from generation to generation. Overall medicinal plants play an important role in providing knowledge to the researchers in the field of ethno-botany and ethnopharmacology. Not only the botanists, but also the phytochemists and pharmacologists can further critically investigate about the medicinal plants of Jharkhand. Proper taxonomic identification and documentation for these medicinal plants is also to be studied. Conducive literature as well as knowledge still remains under expressed due to these concerns. The indigenous knowledge related to these medicinal plants and their proper knowledge and use can definitely be a great boon against various human ailments. It can be concluded by saying that medicinal plants are of immense importance to mankind and have a vast therapeutic potential as compared to other alternative systems of medicine.

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