



## Flora of Bokaro, Jharkhand, India

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### Abstract

The present study on floristic survey of Angiospermic trees of Bokaro District (Jharkhand, India) with special reference to their uses. Jharkhand area is under dense forest cover with high biodiversity, it attracted a number of people from different part of the world for study of flora. In which Bokaro district is also known as steel plant is one of the twenty- four districts of Jharkhand state, India. The vegetation of Bokaro District comes under the tropical moist deciduous forest having various type of plant having economic importance, but due to rapid industrialization Bokaro Steel Limited (BSL) and urbanization its flora has been affected and most of the trees has been lost .In this regard BSL has attempted to restore the atmospheric climatic condition and in this way they have planted many exotic species. Various type of exotic species are found in Bokaro district as follows *Annona reticulata* , *Annona squamosa* , *Azadirachta indica* , *Adansonia digitata* , *Swietenia mahagoni* , *Litchi chinensis* , *Caesalpinia pulcherima* , *Delonix regia* , *Acacia auriculaeformis* etc, is covering the vast land rapidly. *Shorea robusta* is the dominant tree found in large scale in petarwar. *Shorea robusta* Garetn. (Sal, Sakhua) is a tree from which human society gets lots of benefits. The seed of the tree are used for fat extraction. The timber of the tree is of great importance mainly used in railway sleepers, pillars, used in making boats,ships,etc.

### INTRODUCTION

Biodiversity means the variability among living organisms from all sources, including inter alia (among same thing), terrestrial, marine and other aquatic ecosystems and ecological complexes of which they are part of this include diversity within species, between species and of ecosystem. Species content of lands in an area is known as flora. Bokaro is also rich in this respect, but due to rapid industrialization Bokaro Steel Limited (BSL) and urbanization its flora has been affected and most of the trees has been affected and most of the trees has been lost in this regard BSL has attempted to restore the atmospheric climatic condition and in this way they have planted many exotic species. Human life

is intricately linked with the species of plants for food, clothes, building, medicines, oxygen and recreation etc. Therefore, human has takes interest in plants since the dawn of civilization. During the last few centuries human activities has caused habitat destruction for plants which has led to depletion of natural vegetation. Hence, conservation of what remain in the flora assumes great importance and top priority. One cannot conserve what he does not know. Keeping this dictum in mind, in order to conserve we should know what we had, what we have today and what need to be protected. Therefore, the present review work aim at this objective. The literal meaning of Jharkhand is “the region of forest and shrubs”.

Bokaro district is part of Jharkhand are endowed with a rich forest cover. Forest of Bokaro extended over 2861 sq. Km. Flora of Jharkhand has been studies time and again. But flora of Bokaro district not studies till date. The first collection and studies of plants of Jharkhand can be traced back to the year 1848-1851 when J.D. Hooker and T. Thomson collected a large number of plants from different part of India. The outcome of their work was published as “*Flora indica*”(1855) which was later elaborated and revised in the name of “*British india*” (1872- 1897) in seven volumes by J.D.Hooker. Campbell has collected over 30 year in Chotanagpur for his note worthy work, “*The descriptive catalogue of economic products of chutianagpur* (1886)”. Ball (1887) carried out work on various jungle products of Hazaribagh and Manbhum district. Haines (1910) did extensive work in Chotanagpur plateau and published a comprehensive account entitled “*A forest flora of Chotanagpur* “ and later on published “*Botany of Bihar and Orissa*” which appeared in three parts during 1921-25. Mooney (1950), published supplementary lists to the Haines “*Botany of Bihar*

and Orissa” in which some new plants from Jharkhand region were included, Thompson (1951), Bressers (1955), Sanyal (1957), Ara (1960), Jha (1965), Paul (1967), Ghosh (1971), Majumdar and Biswas (1971), Mehr Homji (1971), Mishra (1972), Jain(1973), Verma (1988), Das (1996), Srivastava (2002), Ray (2007) have also contributed towards different aspects of flora of Jharkhand.

**MATERIALS & METHODS**

All the collection was carefully checked poison in saturated solution of mercuric chloride in rectified spirit and pressed subsequently. Efforts were made to identify the plants from fresh materials with the help of different floras. Those which could not be identified were preserved for furture study. However,till date I could not match these specimen with their authentic specimen at the Central National herbarium ‘Howrah’ .Special efforts were made to note the flowering and fruiting time for most of the trees. The dried specimen where mounted on thick 42x28 cm herbarium sheet. The specimen were mounted on the sheet with the help of synthetic resin adhesive (Fevicol) as well as with threads. All such specimen was properly labeled.

S.N O.	FAMILY	BOTANICAL NAME	LOCAL NAME	USES
1	Anacardiaceae	<i>Anacardium occidentale</i>	Caju	The kidney-shaped nut is the commercial cashew nut “ kaju” which is edible and much prized all over the world. The fleshy-orange red ‘apple’ is juice, rich in vitamin C and alcoholic, and makes a beverage called ‘feni’ .
2	Moringanaceae	<i>Moringa olerifera</i>	Munga	The leaves, flowers and young fruits are eaten as a vegetable. The seeds yield an oil similar to ben oil, the product of an African species of <i>Moringa</i> . The wood is spongy, perishable and useless. Root are used in medicine.
3	Fabaceae	<i>Butea monosperma</i>	Palas	Dyes prepared from dried petals. The tree is ornamental only when in flower. It is valuable host for the lac insect. Leaves are harvested for fodder for elephants and also used as wrappers for bidis. It is useful for afforestation of saline region.
4	Fabaceae	<i>Dalbergia sissoo</i>	Shisham	It is timber valuable timber tree after teak. It is hard, heavy, brown in colour with darker streaks. It is also used for spokes of wheels, carts, boats. Prevent skin diseases.
5	Fabaceae	<i>Dalbergia latifolia</i>	Satsar	It is very much valued as timber plant.
6	Caesalpiniaceae	<i>Cassia fistula</i>	Amaltas	It is ornamental tree. The timber is hard and durable. The bark is used for tanning. The timber is used for house posts, agricultural implements and tool handles. The pulp is an ingredient of spiced Indian tobacco.
7	Caesalpiniaceae	<i>Saraca asoka</i>	Ashoka	The seeds are chewed as a substitute for betel nut. Timber is used for house building and ploughs. Buddha was born under an Ashoka tree, hence it is

				sacred to Buddhists. The flowers mixed in water are used in dysentery. A decoction of its bark is used in uterine affections. It providing thick shade.
8	Caesalpinaceae	<i>Tamarindus indica</i>	Imli	The pulp from the pods is used for seasonal curries, chutneys and ice –cream. Pulp is pressed, preserved and sold by weight in markets. Leaves and flowers are also edible. It is valuable timber and fuel; it was major fuel for producer- gas {gasogen} units that powered Indian trucks during Word War 2.
9	Caesalpinaceae	<i>Delonix regia</i>	Gulmohar	It is an ornamental trees, throughout the warmer parts of India and in all tropical countries. One of the most beautiful trees when in full bloom.
10	Caesalpinaceae	<i>Peltophorum pterocarpum</i>	Copperpod	It is an ornamental trees. Planted in road- side trees and also in gardens. The timber is used for making cabinets.
11	Caesalpinaceae	<i>Poinciana pulcherima L.</i>	Krishna chura	It is ornamental trees. The flower is used as remedy in cases of intestinal worms. The leaves have a purgative action and also abortifacient.
12	Caesalpinaceae	<i>Poinciana pulcherima L.</i>	Radhachura	It is ornamental trees. The flower is used as remedy in cases of intestinal worms. The leaves have a purgative action and also abortifacient.
13	Mimosaceae	<i>Pithecellobium dulce</i>	Jungle jilebi	Often cultivated as a hedge plant. An escape from in waste places, road- sides. Fruit edible.
14	Mimosaceae	<i>Samanea saman</i>	Rain tree	The fruit is fleshy pod and sweet to taste. It help in restant from wind. The sweet pulp of pods is readily eaten by cattle and horses. Seeds are generally undigestible. The pods fed to cows are believed to increases the quantity of milk.
15	Combretaceae	<i>Terminalia arjuna</i>	Arjun	An excellent shade tree and often planted on road sides. The bark is used in native medicine as a tonic and astringent. It is also used for tanning for which purpose the outer bark is best. It is carefully removed no injury is done to the tree. Leaves are fed to silkworms. The wood is used in building and in boats.
16	Combretaceae	<i>Terminalia tomentosa</i>	Asan	The timber is very useful and has been largely cut for sleepers.
17	Myrtaceae	<i>Syzygium cumini</i>	Jamun	It is used for shade- tree in parks. The wood is hard and durable and used as fuel and for making agricultural implements. The bark is astringent and is used in the form of decoction for mouth wash and gargle. Fresh bark juice mixed with goat's milk is used to cure the diarrhoea of children. Leaves are used as fodder. Its fruit is also used in the preparation of wine and vinegar.
18	Myrtaceae	<i>Callistemon lenceolata</i>	Bottle brush	It is ornamental tree.
19	Lythraceae	<i>Lagerstromia speciosa</i>	Jarul	It is an ornamental tree. It used for boat building and furniture.
20	Punicaceae	<i>Punica granatum</i>	Anar	It is edible juicy seeds. Peels from the fruits used in diarrhoea and dysentery. The juice of its fruit help to reduce the risk of strokes heart diseases and heart attacks.
21	Rubiaceae	<i>Anthocephalus cheninsis</i>	Kadam	Its pseudocarp is eaten. The acidic but pleasantly flavoured fruit is relished by monkeys., bats and birds which also help in disseminating its minute seeds. The tree is associated with Lord Krishna and is sacred to the Hindus. The flowers are offered in temples. It is valued for matchwood and

				plywood.
22	Sapotaceae	<i>Mimusops eleng L.</i>	Bakul	The fruit is edible. The oil from the flowers is used in perfumery, from the seed in cooking . The wood being very strong is used in bridges and house construction.
23	Ebenaceae	<i>Diospyros embryopteris</i>	Gab[Makarkendu]	Fruits edible but poor in quality. Viscid pulp of the fruit is used for making fishing nets durable. Bark & rind of the fruits are used in diarrhoea & haemorrhage of internal organs.
24	Apocynaceae	<i>Plumeria rubra</i>	Gulanchi	Wood used for making drums and other musical instruments. It is ornamental tree.
25	Apocynaceae	<i>Plumeria acutifolia</i>	Gulanchi	Wood used for making drums and other musical instruments. It is ornamental tree.
26	Apocynaceae	<i>Plumeria alba</i>	Gulanchi	Wood used for making drums and other musical instruments. It is ornamental tree.
27	Apocynaceae	<i>Thevitia peruviana</i>	Pilikaner	It is used in cardiac diseases. It is offered to the Lord. Children eat the pulp of ripe fruit.
28	Apocynaceae	<i>Alstonia scholaris</i>	Chhatim	The soft white wood is used for tea chests, packing cases and match splints. It is very beautiful ornamental tree. The bark of this tree is source of a remedy against malaria, toothache and snake bite. The bark is also used in fever and in skin disease.
29	Bignoniaceae	<i>Jaccaranda mimosifolia</i>	Jacaranda	It is an ornamental plant. It is a timber tree.
30	Bignoniaceae	<i>Spathodea acampanulata</i>	Fountain tree	It is an ornamental trees. The buds are often used by children who play with its ability to squirt the water.
31	Verbenaceae	<i>Tectona grandis</i>	Sagwan[Teak]	The timber uses are well known. The hard knots which develop on trunk and prized for making tobacco pipes. It is widely used for making decks of ships and rightly called ship tree.
32	Nyctaginaceae	<i>Baugainvillia glabra</i>	Kagajphool	It is used as ornamental purpose.
33	Moraceae	<i>Ficus bengalensis</i>	Bargad	The leaves are fodder for elephants and camels. The figs provide food for a variety of animal life, including man in times of adversity. The leaves are made into plates. The leaves are used as fodder for goats, buffaloes, camels and elephants The banyan is sacred to the Hindus. It is used for shade.
34	Moraceae	<i>Ficus religiosa</i>	Pipal	The papal is used almost entirely as a shade tree. Being sacred to Hindus. In the forest it is lopped for feeding goats, buffaloes, elephants and camels.
35	Moraceae	<i>Ficus virens</i>	Pakar	The young shoots are eaten in curries and as pickles. The tree is much lopped to supply fodder for cattle.
36	Moraceae	<i>Ficus heterophylla</i>	Bhuidumar	Its fruits are eaten by even by local people.
37	Moraceae	<i>Ficus hispida</i>	Kat-gular	The young receptacles are used as vegetables. Its fruit are eaten and bark yields fiber.
38	Moraceae	<i>Ficus racemosa L.</i>	Gular	Its fruits are eaten by even by local people. Leaves are eaten by barking deer.
39	Moraceae	<i>Artocarpus integrifolia</i>	Kathal	Fruits aromatic sweet and fleshy and is eaten raw. The pulp and the seeds are also cooked. The fruit is relished by elephants.

## RESULTS AND DISCUSSION

Bokaro District is one of the most industrialised zone in India. Bokaro is very rich in flora, still I have observed 22 families 40 genera and 49 species in which caesalpiniaceae family is mostly found in every place in Bokaro District. *Shorearobusta* Garetn.f (Sal, Sakhua) being the state tree of Jharkhand and is a dominant species. *Shorearobusta* is the dominant tree found in large scale in Petarwar block.

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