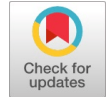


# Biodiversity of Jashpur District Chhattisgarh, India

Ignace Kindo



**Abstract:** The biodiversity of Jashpur district of Chhattisgarh was studied using the methods of Frequency, density and abundance. For sampling Loro Ghat was taken. In the present study, at about 77 deciduous forest trees species belonging to 31 different families, were identified with their botanical name and their possible uses by the local tribes were recorded. It is observed that the family Fabaceae represent maximum number of seventeen species, followed by Moraceae with 7 species, Combretaceae with 06 species, Myrtaceae with 5 species Rutaceae with 4 species, Anacardiaceae Rubiaceae and Euphorbiaceae with 3 species, respectively. Besides, these families Annonaceae, Apocynaceae, Burseraceae, Embenaceae, Lamiaceae and Meliaceae were found with two species of each in the surveyed area. On the basis of data analysis *Butea monosperma* showed their maximum frequency, density and abundance i.e., 0.507, 1.074 and 2.117 respectively, during the sampling, and then followed by *Cassia fistula* and *Shorea robusta* with 0.313 and 0.388, respectively. On the other hand, *Embilica officinalis*, *Ficus bengalensis*, *F. carica*, *F. glomerata*, *Pongamia pinnata* and *Pterocarpus marsupium* showed minimum distribution in the forest. Surprisingly, the species like *Santalum album*, *Mangifera indica* and *Annona reticulata*, *Terminalia arjuna* and *Tectona grandis* were appeared with high abundance.

**Key Words:** Biodiversity, Forest tree, Frequency, density and abundance.

The vegetation of the pharsabaha varies, due to its climatic zone. The vegetation of the region varies. The pharsabaha is also well known for snakes because the climate is very suitable for snakes. iv and Pathalgaon. Pathalgaon includes, Kansabel, Lureg and part of sitapur. Pathalgaon is pleasant cool in winter. The vegetation also varies here. Pathalgaon is very famous for tomatoes due to its climatic zone. Thus each four region of the district is very peculiar in its own way especially in the area of climate and the biodiversity. The literature is a witness to the biodiversity of the region. There has always been a relationship between man and natural resources for various need, be it medicine, flowers, fruits, oil, timber and food. The fish Stupefying plants used by Tribals of Jashpur District (Amia Tirkey 2006 [1]). The medicinal use of local inhabitants of Jashpur district was reported (Amia Ekka 2011[2]) and the use of alcoholic beverages was studied (Amia Ekka 2012 [3][14][15]). Traditional plants used for snakebite by Oraon tribe of Jashpur district (Amia Ekka and Neelam Sanjeev 2013 [4]). The medicinal and aromatic plants of botanical garden Loyola college kunkuri was studied by (Ignace kindo 2022 [6][11][12][13]).

## I. INTRODUCTION

The forest is a natural living home for varieties of life forms including flora such as trees, shrubs, herbs, lions, and creepers so also in Fauna such as animals, birds, reptiles, butterfly and other microorganism which compose megadiversity. India is considered to be as one of the 12th megabio-diversity of the world because of the climatic composition. The climate has a great impact on the phytogeography of Jashpur district. The phytogeography of Jashpur district varies. It can be classified into four different climatic zones. i. Jashpur: it includes samri, padrapat, sunna and kushmi. It is very cold in winter and vegetations thrive suited for it. The vegetation found here are scarcely found elsewhere in the district. ii. Kunkuri: Kunkuri includes Loro doffa, Duldula, and Bandarchua is the hottest in summer and generally cool in winter season. The vegetation of the kunkuri area also varies due to its climatic zone. iii. Pharsabaha: Pharsabaha includes Tapkara, pandripani, and Bagbaha.

## II. STUDY SITE

Jashpur district lies within the north-eastern corner of the kingdom of Chhattisgarh in India adjacent the border of Jharkhand and Odisha. Jashpur nagar is the executive headquarters of the district. It's far presently a part of the purple corridor. During the British Raj Jashpur metropolis turned into the capital of Jashpur nation, one of the princely states of the Jashpur states enterprise. Jashpur became a princely state before independence. The records of the region is quite vague. Local rights here say evidences advise that there has been a dom dynasty ruling the region by means of the centre of 18th century. The last dom ruler Raibhan was defeated and killed by means of the founding father of the existing Jashpur kingdom Sujan Rai. It is stated that Banskawa, a smaller nation in vintage Rajputana province, changed into the local location of Sujan Rai's castors. They hooked up their rule and kingdom in Sonpur. Sujan Rai, being the eldest son of the Suryavanshi king, was on a searching excursion in deep forest, his father (king) died. In view of the culture and requirement of the occasion his more youthful brother changed into coronate, because the throne of king couldn't be saved unoccupied, even for some time. On go back from looking expedition, Sujan Rai became provided and asked to take over the charge of the throne. However he preferred to be a sangasi and took to the wooded area. Wandering approximately he reached Khudia, the capital camp of the dom country. There he found that the subjects have been unhappy and upset with the dom Raja Raibhan and were at the verge of riot.

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\* Correspondence Author (s)

Ignace Kindo\*, Department of Botany, Loyola College Kunkuri, Dt. Jashpur, Chhattisgarh, India. E-mail: [kindoignace37@gmail.com](mailto:kindoignace37@gmail.com). ORCID ID: [0009-0008-4984-7276](https://orcid.org/0009-0008-4984-7276)

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sujan rai led the famous rebellion, defeated the dom raja in a conflict. now, sujan rai have become the king and a new nation 'jashpur' became founded via him. ultra-modern Jashpur royal circle of relatives belongs to that dynasty.

### III. GEOGRAPHY

The north-south length of this district is about 150 km, and its east-west breadth is about 85 km. Its total area is 6,205 km<sup>2</sup>. It is between 22° 17' and 23° 15' North latitude and 83° 30' and 84° 24' East longitude. It is divided geographically into two parts. The northern hilly belt is called the Upper Ghat. The remaining, southern part, is called Nichghat.

### IV. CLIMATE

kunkuri is the hottest region in nichghat during the summer and pandrapat is the coldest region in upper ghat in the winter. it is situated between forests. It is a junction, from Raigarh and from ambikapur or Jashpur all the people need to cross Pathalgaon first.

### V. MATERIAL AND METHODS

In the present study, Phytosociological diversity analysis carried out by quadrat method as suggested by (Mishra 1968[7]); (Cintron and Novelli 1984[5]); (Snedaker and Snedaker 1984[10]). For this, Loro Ghat was selected as the study site, and 67 quadrat of 15 m × 20 m size were laid out at the study sites. Each sites, further divided into five sub segments of 2 km along the road side of Jashpur and Kunkuri. On the basis of the data obtained from the quadrat sampler, the structure distribution of forest trees, were analysed. The parameters such as Frequency, Density and Abundance obtained during the study as suggested by (Phillips 1959 [9]) were calculated from the data, under as follows:

$$\text{Frequency} = \frac{\text{Number of les in which species present}}{\text{Total number of sample studied}}$$

$$\text{Densiity} = \frac{\text{Number fo individual species}}{\text{Total number of sample studied}}$$

$$\text{Abundance} = \text{Number of iduals species}$$

Total number of sample in which species present

### VI. RESULT AND DISCUSSION

In the present investigation, at about 77 deciduous forest trees species belonging to 31 different families, were identified with their botanical name and their possible uses by the local tribes were recorded in **Table 1**. According to (Odum 1971[8]) the distribution of species is found only in very uniform environment and regular distribution occurs, where the severe competition happened between the individual species. From the data obtained through quadrat surveyed of Loro Ghat forest trees, were recorded in **Table 1**. It is observed that the family Fabaceae represent maximum number i.e., seventeen species, followed by Moraceae with 7 species, Combretaceae with 06 species, Myrtaceae with 5 species Rutaceae with 4 species, Anacardiaceae Rubiaceae and Euphorbiaceae with 3 species, respectively. Besides, the families Annonaceae, Apocynaceae, Burseraceae, Embenaceae, Lamiaceae and Meliaceae were found with two species of each in the surveyed area.

The species diversity always depend upon the adaptability and stability of the plant community, hence the Loro Ghat forest trees are also showed mixed community. The date obtained during the survey indicates, nineteen other families are also showed their existence by appearing as single species of each. A total of 77 different plant species belongs to 31 different families are exhibited in the species composition, which complete to each other, prevent extinction and increase their diversity. Structural distribution analysis for each species conducted, by using the parameters such as Frequency, Density and Abundance of each case. On the basis of data analysis *Butea monosperma* showed their maximum frequency, density and abundance i.e., 0.507, 1.074 and 2.117 respectively, during the sampling, and then followed by *Cassia fistula* and *Shorea robusta* with 0.313 and 0.388, respectively. On the other hand, *Embilica officinalis*, *Ficus bengalensis*, *F. carica*, *F. glomerata*, *Pongamia pinnata* and *Pterocarpus marsupium* showed minimum distribution in the forest. Surprisingly, the species like *Santalum album*, *Mangifera indica* and *Annonareticulate*, *Terminalia arjuna* and *Tectona grandis* were appeared with high abundance.

**Table 1: Botanical Name, Family, Local Name and Uses**

S. No.	Name of species	Family	Local name	Uses
1.	<i>Acasia arabica</i>	Fabaceae	Kikar/ abul	Timber wood, medicinal value
2.	<i>Acasia caesia</i>	Fabaceae	Goriar	Timber wood, medicinal value
3.	<i>Acacia catechu</i>	Fabaceae	Khair	Katha production
4.	<i>Adina cordifolia</i>	Rubiaceae	Haldu	Antiseptic, Timber wood
5.	<i>Aegle marmelos</i>	Rutaceae	Bel	Medicinal value, Fruit
6.	<i>Ailangium salvifolium</i>	Cornaceae	Akol	Making kachha house
7.	<i>Albizia lebbek</i>	Fabaceae	Siris	Medicinal value, Timber wood
8.	<i>Alstonia scholaris</i>	Apocynaceae	Chhatrak	Medicinal value
9.	<i>Anogeissus latifolia</i>	Combrataceae	Dhawada	Timber and fuel wood
10.	<i>Annona squamosa</i>	Annonaceae	Sheetaphal	Edible fruit, medicinal value
11.	<i>Annona reticulate</i>	Annonaceae	Ramphal	Edible fruit, medicinal value
12.	<i>Anthocephalus cadamba</i>	Rubiaceae	Kadamb	Medicinal value, timber wood
13.	<i>Azadirachta indica</i>	Meliaceae	Neem	Medicinal value, timber wood
14.	<i>Bambusa arundinaceae</i>	Gramineaceae	Bamboo	Medicinal value
15.	<i>Bauhinia variegata</i>	Fabaceae	Kachnar	Medicinal value, timber wood



16.	<i>Bombax ceiba</i>	Bombaceae	Samel	Fuel wood
17.	<i>Boswellia serrata</i>	Burseraceae	Salai	Fuel wood
18.	<i>Buchania lanzan</i>	Anacardiaceae	Chironjee	Medicinal value, edible fruit
19.	<i>Butea monosperma</i>	Fabaceae	chhoela	Medicinal value
20.	<i>Careya arborea</i>	Myrtaceae	Kumahi	Fuel wood
21.	<i>Caesalpinia bonducella</i>	Fabaceae	Flem	Fuel wood
22.	<i>Carthamus tinctorius</i>	Compositae	Kusum	Fuel wood, edible fruit
23.	<i>Cassia fistula</i>	Fabaceae	Amaltas	Fuel wood
24.	<i>Citrus medica</i>	Rutaceae	Nimbu	Medicinal value, edible fruit
25.	<i>Dalbergia sisso</i>	Fabaceae	Sisham	Timber, medicinal value
26.	<i>Dalbergia paniculata</i>	Fabaceae	Dhobin	Timber, medicinal value
27.	<i>Delonix regia</i>	Fabaceae	Gulmohar	Medicinal value, edible fruit
28.	<i>Diospyrus melanoxylon</i>	Ebenaceae	Tendu	Edible fruit, timber wood
29.	<i>Diospyrus ebenum</i>	Ebenaceae	Makar tendu	Edible fruit, timber wood
30.	<i>Embilica officinalis</i>	Euphorbiaceae	Amla	Edible fruit, timber wood
31.	<i>Erythrina indica</i>	Fabaceae	Munga	Medicinal value, edible fruit
32.	<i>Eucalyptus grandis</i>	Myrtaceae	Neilgiri	Timber wood medicinal value
33.	<i>Eugenia jombolana</i>	Myrtaceae	Jamun	Edible Fruit, medicinal value
34.	<i>Eugenia heyneana</i>	Myrtaceae	Jamti	Fuel wood
35.	<i>Ficus bengalensis</i>	Moraceae	Bargad	Religious tree
36.	<i>Ficus religiosa</i>	Moraceae	Pipal	Religious tree
37.	<i>Ficus carica</i>	Moraceae	Anjeer	Medicinal value
38.	<i>Ficus elastic</i>	Moraceae	Rubber	Economic value
39.	<i>Ficus infectoria</i>	Moraceae	Pakri	Fuel wood
40.	<i>Ficus glomerata</i>	Moraceae	Gular	Medicinal value
41.	<i>Gardenia latifolia</i>	Rubiaceae	Piprol	Medicinal value
42.	<i>Garur pinnata</i>	Burseraceae	Khenkara	Fuel wood
43.	<i>Gmelina arborea</i>	Lamiaceae	Khamer	Timber and fuel wood
44.	<i>Holarrhena hantidysenerica</i>	Apocynaceae	Koriya	Fuel wood
45.	<i>Hardwickia binata</i>	Fabaceae	Anjan	Medicinal value
46.	<i>Jatropha curcus</i>	Euphorbiaceae	Rattanjote	Making biofuel
47.	<i>Lagestoromea lanciota</i>	Malvaceae	Nana	Fuel wood
48.	<i>Laucaenea leucocephala</i>	Fabaceae	Subabul	Medicinal value and fuel wood
49.	<i>Litchi chinensis</i>	Sapindaceae	Litchi	Medicinal value, edible fruit
50.	<i>Litsea chinensis</i>	Lauraceae	Maida	Fuel wood
51.	<i>Maduca indica</i>	Sapotaceae	Mahua	Economic value
52.	<i>Mangifera indica</i>	Anacardiaceae	Aam	Economic value, fuel wood
53.	<i>Morus alba</i>	Moraceae	Mulberry	Medicinal value
54.	<i>Moringa oleifera</i>	Mongiaceae	Senjhra	Medicinal value
55.	<i>Melia azadirachta</i>	Meliaceae	Bachain	Medicinal value
56.	<i>Murraya koenigii</i>	Rutaceae	Mithineem	Timber wood
57.	<i>Ougenia dalbergia</i>	Leguminosae	Tilsa	Fuel wood
58.	<i>Plantanus orientalis</i>	Plantaceae	Chinar	Fuel wood
59.	<i>Pongamia pinnata</i>	Fabaceae	Karanj	Medicinal value
60.	<i>Prunus amygdalus</i>	Rosaceae	Almond	Medicinal value
61.	<i>Psidium guyava</i>	Myrtaceae	Guava	Fruit & fuel wood
62.	<i>Pterocarpus marsupium</i>	Euphorbiaceae	Bija	Timber wood
63.	<i>Randia dumetorum</i>	Rubiaceae	Menda	Fuel wood
64.	<i>Santalum album</i>	Santalaceae	Chandan	Medicinal value
65.	<i>Saraca indica</i>	Fabaceae	Ashoka	Medicinal value
66.	<i>Semecarpus anacardium</i>	Anacardiaceae	Bhelwa	Medicinal value
67.	<i>Shorea robusta</i>	Dipterocarpaceae	Sarai	Timber wood
68.	<i>Soymida febrifuge</i>	Meliaceae	Rohina	Medicinal value, timber wood
69.	<i>Symplocos racemosa</i>	Symplocaceae	Lodh	Fodder, Timber wood
70.	<i>Tamarindus indica</i>	Fabaceae	Imali	Fuel wood
71.	<i>Terminalia arjuna</i>	Combretaceae	Kahua	Timber wood
72.	<i>Terminalia bellerica</i>	Combretaceae	Baihra	Medicinal value
73.	<i>Terminalia chebula</i>	Combretaceae	Harra	Medicine value
74.	<i>Terminalia tomentosa</i>	Combretaceae	Saj	Timber wood
75.	<i>Terminalia eliptica</i>	Combretaceae	asan	Timber wood
76.	<i>Tectona grandis</i>	Verbenaceae	Sagwan	Timber wood, Medicinal value
77.	<i>Zizyphus mauritiana</i>	Rhamnaceae	Ber	Medicinal value & fruit

Table 2: Frequency, Density and Abundance of the Forest Tree

No	Name of Species	Number of Samples in Which Species Present	Total Number of Individual Species Present	Frequency	Density	Abundance
01.	<i>Acacia arabica</i>	07	07	0.104	0.104	1.000
02.	<i>Acacia catechu</i>	11	12	0.164	0.197	1.090
03.	<i>Albizia lebbek</i>	09	12	0.134	0.197	1.333
04.	<i>Anogeissus latifolia</i>	12	16	0.179	0.238	1.333
05.	<i>Azadirachta indica</i>	15	18	0.223	0.268	1.200
06.	<i>Annona reticulate</i>	08	17	0.119	0.253	2.125



## Biodiversity of Jashpur District Chhattisgarh, India

07.	<i>Anthocephalus cadamba</i>	07	10	0.104	0.149	1.428
08.	<i>Bambusa arundinaceae</i>	08	14	0.119	0.208	1.750
09.	<i>Bauhinia variegat</i>	16	21	0.238	0.313	1.312
10.	<i>Bombax ceiba</i>	07	11	0.104	0.164	1.571
11.	<i>Buchania lanzan</i>	13	17	0.194	0.253	1.307
12.	<i>Butea monosperm</i>	34	72	0.507	1.074	2.117
13.	<i>Cassia fistula</i>	21	32	0.313	0.477	1.523
14.	<i>Dalbergia sisso</i>	18	29	0.268	0.432	1.611
15.	<i>Delonix regia</i>	13	15	0.194	0.223	1.153
16.	<i>Diospyrus melanoxylon</i>	08	13	0.119	0.194	1.625
17.	<i>Emblica officinali</i>	05	08	0.074	0.119	1.600
18.	<i>Eucalyptus grandis</i>	17	21	0.253	0.313	1.235
19.	<i>Eugenia jombolana</i>	18	23	0.268	0.343	1.277
20.	<i>Ficus bengalensis</i>	06	08	0.089	0.119	1.333
21.	<i>Ficus religiosa</i>	07	07	0.104	0.104	1.000
22.	<i>Ficus carica</i>	06	06	0.089	0.089	1.000
23.	<i>Ficus glomerata</i>	06	07	0.089	0.104	1.166
24.	<i>Jatropha curcus</i>	20	37	0.298	0.552	1.850
25.	<i>Laucaenea leucocephala</i>	16	22	0.238	0.328	1.375
26.	<i>Maduca indica</i>	18	33	0.268	0.492	1.833
27.	<i>Mangifera indica</i>	17	35	0.253	0.522	2.058
28.	<i>Melia azadirachta</i>	11	17	0.164	0.253	1.545
29.	<i>Ougeinia oujeinensis</i>	16	18	0.238	0.731	1.125
30.	<i>Pongamia pinnata</i>	06	08	0.089	0.119	1.333
31.	<i>Pterocarpusmarsupium</i>	06	07	0.089	0.104	1.166
32.	<i>Santalum album</i>	07	27	0.104	0.402	3.857
33.	<i>Semecarpus anacardium</i>	08	11	0.119	0.164	1.357
34.	<i>Shorea robusta</i>	26	46	0.388	0.686	1.769
35.	<i>Soymida febrifuge</i>	10	13	0.149	0.194	1.300
36.	<i>Tamarindus indica</i>	13	23	0.194	0.343	1.769
37.	<i>Terminalia arjuna</i>	21	44	0.313	0.656	2.095
38.	<i>Terminalia bellerica</i>	16	18	0.238	0.268	1.125
39.	<i>Terminalia chebula</i>	08	11	0.119	0.164	1.375
40.	<i>Terminalia tomentosa</i>	18	34	0.268	0.507	1.888
41.	<i>Tectona grandis</i>	23	49	0.238	0.268	2.130
	Total	532	849			

### VII. CONCLUSION

The forest is the pearl for our future generations but, due to the anthropogenic pressure, overgrazing, exploitation for agriculture and for human settlement, road and industrial units. On the other hand, sizeable- forest land has been diverted to agricultural land or land for building colonies and factories. The present condition of forest is very poor and many species of this region have been disappeared and many other species are endangered and rare. The local pressure including timber wood and fuel wood are cut by villagers and collection of non timber products such as fruits, gum, seeds and leaf, grazing their animals, forest fire and animal hunting make situation more worst since such extraction is not legally permitted, because quantitative estimation of the extraction is not possible. Hence, the distribution and Phytosociological studies clearly indicate that Loro Ghat forest is an extremely important ecosystem by the virtue of richness of forest wealth and diversity of tree species with mixed dominance and favourable regeneration. However, controlled quantities of fuel wood can be removed from the forest. The species those are threaten rare need more attention and care.

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Availability of Data and Material	Not relevant.
Authors Contributions	I am only the sole author of the article

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