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Floristic survey of dicotyledonous angiospermic flora of Kelaghagh Dam Road, Simdega block in Jharkhand

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Abstract- The current floristic survey of dicotyledonous plants was conducted from March to October 2021 along the Kelaghagh Dam Road in Simdega, Jharkhand. In this survey, dicotyledonous plants were evaluated because they are crucial for food, shelter, and biodiversity both in dicot and, eventually, angiosperm flora. Twenty-four extensive field surveys resulted in the identification of 82 dicot plant species across 33 families. All the species were classified into 77 genera.

Key words: Floristic, Dicotyledonous, Angiosperms, Simdega

INTRODUCTION

The variety and variability of plants in a specific area is known as floral diversity. Floristic diversity can be evaluated on any scale, from the global level through toward an ecosystem, community, or even at solitary species level. The largest global, most successful, and most diversified main group that contributes to the earth's predominant vegetation is the angiosperms. The monocotyledons (monocots) and the dicotyledons are the two major classes, within which the angiosperms had conventionally been completely separated (dicots).[1]

Identification of various species of plants and their nomenclature is a crucial task of the taxonomists.

Simdega district is located between latitudes of 220'20" to 220'51" North, and between longitudes of 840' 01" with 850' 05" East. Simdega, Kurdeg, Bolba, Thethaitangar, Kolebira, Bano, Jaldega, Pakartanr, Bansjore, and Kersai comprise the ten blocks or circles that make up this district, which has 94 Panchayats. In the summer, the maximum temperature ranged from 38ºC to 42ºC, and in the winter, it was somewhere around 25ºC and 28ºC. The total average annual rainfall is 473 mm.[2] Due to persistent drought-prone conditions in the region and unfavorable geographic conditions, however little known about the diversity of plants. The goal of the current study is to document the diversity of dicot flora along Kelaghagh dam road and to emphasize the diversity of dicot plant resources from a conservation perspective.

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Study Area

The study area is Kelaghagh dam road Simdega block in Jharkhand (Map 1).

MATERIAL & METHODS

In 2021, frequent surveys and explorations monitoring the growth during the wet winter and hot summer months were conducted. On the basis of its physical and reproductive characteristics, plant samples were gathered. By reviewing all of the literature that has been accessible, a list of the species from the Kelaghagh Dam Road was constructed. The Flora of Ranchi District[3], A supplement

Source: https://www.sameti.org/Soil_Inventory/Simdega_Soil_Analysis.pdf

Map 1- Location map of study area

to the botany of Bihar and Orissa[4], and The Botany of Bihar and Orissa[5], all of which are available in the University Department of Botany's Library as well as in the Central Library of Ranchi University, were utilized to confirm the identification of the majority of the specimens. The University Department of Botany at Ranchi University of Ranchi's taxonomists also authenticated the specimens of collected plants, and a herbarium was constructed. International Plant Name Index (IPNI)[6] and e-flora of Botanical Survey of India[7] were also used to check authenticity.

RESULTS

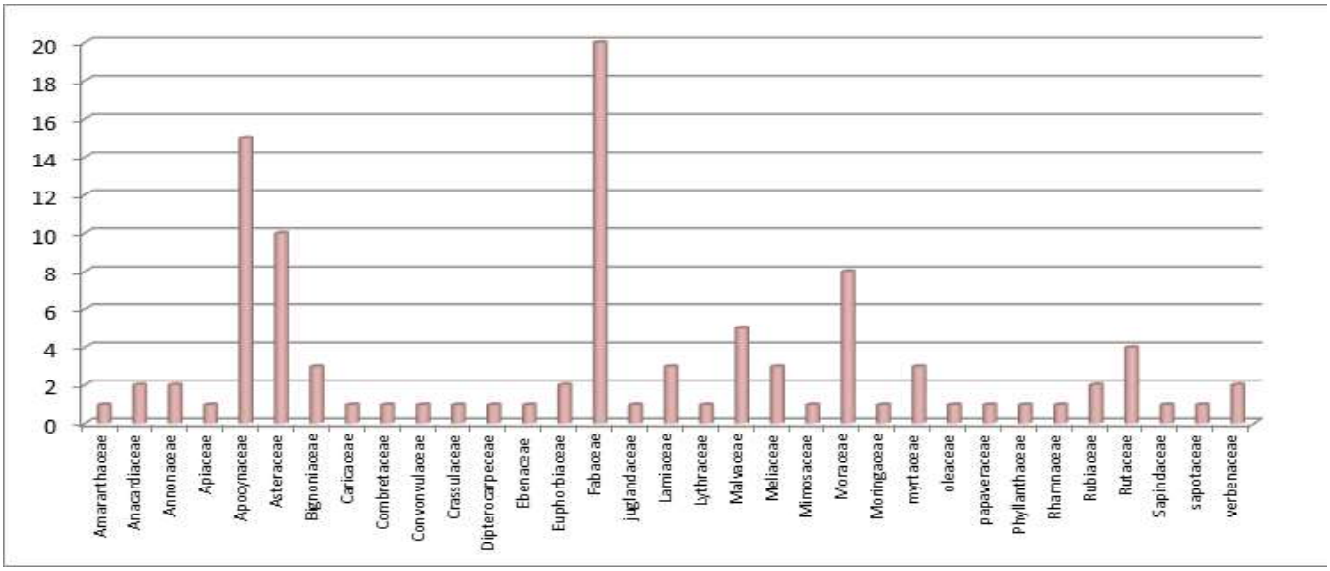
The findings shown in Table no. 1 demonstrate that the dicot plants in the research area were diverse. There seem to be 33 families including 82 species of dicot plants across all. There are 77 genera for all the species.

Fabaceae was the largest family with 16 species, Apocynaceae represented by 9 species with second largest number and it was followed by Asteraceae and Moraceae.

Table 1. Checklist of dicotyledonous angiospermic plants species in Kelaghagh dam road Simdega

Sl. No.	Botanical name	Family	Date of collection	Common Name	Fig. No
1.	*Amaranthus virdis* L.	Amaranthaceae	13.04.2021	Bhajisaag	
2.	*Mangifera indica* L.	Anacardiaceae	03.04.2021	Aam	14
3.	*Buchanania lanzan* Spreng.	Anacardiaceae	01.04.2021	Chironji	
4.	*Annona reticulata* L.	Annonaceae	31.03.2021	Sitafal	
5.	*Annona squamosa* L	Annonaceae	31.03.2021	Sarifa	
6.	*Polyalthia longifolia* (Sonn.) Benth.& Hook.f. ex Thwaites	Annonaceae	03.04.2021	Ashoka	15
7.	*Centella asiatica* (L.) Urb.	Apiaceae	31.03.2021	Brahmi	
8.	*Catharanthus roseus* (L) G. Don	Apocynaceae	13.04.2021	Sadabahar	10
9.	*Calotropis gigantea* (L.) W. T. Aiton	Apocynaceae	31.03.2021	Akwan	19
10.	*Plumeria rubra* L.	Apocynaceae	30.03.2021	Gulaichi	
11.	*Calotropis procera* (Aiton)W.T.Aiton	Apocynaceae	30.03.2021	Aak	
12.	*Plumeria alba* L.	Apocynaceae	03.04.2021	Safed gulaichi	
13.	*Thevetia peruviana* (Pers.) K.Schum.	Apocynaceae	01.04.2021	Peelakaner	8
14.	*Alstonia scholaris* (L.) R.Br.	Apocynaceae	01.04.2021	Chatwan	
15.	*Sphaeranthus indicus* L.	Asteraceae	30.03.2021	Gorakhmundi	7
16.	*Chromolaena odorata* (L.) R.M.King & H.Rob.	Asteraceae	11.08.2021	Tivragandha	
17.	*Parthenium hysterophorus* L.	Asteraceae	13.04.2021	Gajarghash	
18.	*Xanthium stramarium* L.	Asteraceae	15.10.2021	Chotadhatura	
19.	*Cosmos sulphureus* Cav.	Asteraceae	15.10.2021	Yellow cosmos	17
20.	*Pyrostegia venusta* (kerGawl) Miers	Bignoniaceae	30.03.2021	Jallebibali	
21.	*Tecoma stans* (L.) Juss. ex Kunth	Bignoniaceae	15.10.2021	Champa	20
22.	*Cordia myxa* L.	Boraginaceae	30.03.2021	Lasoda	
23.	*Terminalia chebula* Retz.	Combretaceae	07.05.2021	Harra	13
24.	*Carica papaya* L.	Caricaceae	03.04.2021	Papita	
25.	*Cascuta reflexa* Roxb.	Convonvulaceae	13.04.2021	Amarbel	
26.	*Bryophyllum pinnatum* (Lam.) Oken	Crassulaceae	13.04.2021	Patharchoor	

27.	*Coccinia grandis* (L.) Voigt	Cucurbitaceae	03.04.2021	Kundri	
28.	*Shorea robusta* C.F.Gaertn.	Dipterocarpeceae	01.04.2021	Sal	16
29.	*Diospyros malanoxylon* Roxb.	Ebenaceae	01.04.2021	Kusum	
30.	*Ricinus communis* L.	Euphorbiaceae	13.04.2021	Arandi	
31.	*Euphorbia hirta* L.	Euphorbiaceae	23.07.2021	Bada dudhi	
32.	*Senna alata* (L.) Roxb.	Fabaceae	15.10.2021	Dadmurdan	
33.	*Albizia lebbeck* (L.) Benth.	Fabaceae	30.03.2021	Safed siris	
34.	*Crotalaria pallida* Aiton.	Fabaceae	10.11.2021	Jungli tag	4
35.	*Dalbergia sisso* Roxb. ex DC.	Fabaceae	15.10.2021	Sheesham	
36.	*Leucaena leucocephala* (Lam.) de Wit.	Fabaceae	30.03.2021	Subabool	1
37.	*Bauhinia variegate* L.	Fabaceae	15.10.2021	Koinar	
38.	*Peltoforum pterocarpum* (DC.) K.Heyne	Fabaceae	30.03.2021	Peela gulmohar	
39.	*Pongamia pinnata* (L.) Pierre	Fabaceae	31.03.2021	Karanj	5
40.	*Senna tora* L.	Fabaceae	15.10.2021	Chakod	
41.	*Cajanus cajan* (L.) Huth	Fabaceae	03.04.2021	Arhar	
42.	*Tephrosia purpurea* (L.) Pers.	Fabaceae	11.08.2021	Sharpunkha	11
43.	*Lablab purpureous* (L.) Sweet	Fabaceae	03.04.2021	Sem	
44.	*Cassia fistula* L.	Fabaceae	01.04.2021	Amaltash	
45.	*Tamarindus indica* L.	Fabaceae	15.10.2021	Imli	3
46.	*Butea monosperma* (Lam.) Kuntze	Fabaceae	15.10.2021	Palash	2
47.	*Delonix regia* (bojer) Raf	Fabaceae	15.10.2021	Gulmohar	
48.	*Juglans regia* L	Juglandaceae	31.03.2021	Akhrot	
49.	*Gmelina arborea* Roxb. ex Sm.	Lamiaceae	01.04.2021	Gamhar	
50.	*Tectona grandis* L.	Lamiaceae	30.03.2021	Sagwan	
51.	*Leucas cephalotes* (Roth) Spreng.	Lamiaceae	12.08.2021	Goma	
52.	*Punica granatum* L.	Lythraceae	13.04.2021	Annar	
53.	*Bombax cieba* L.	Malvaceae	13.04.2021	Green Semal	
54.	*Hibiscus sabdariffa* L.	Malvaceae	10.11.2021	Kudrum	18
55.	*Melia azedarach* L.	Meliaceae	30.03.2021	Bakain	
56.	*Azadirachta indica* A.Juss.	Meliaceae	03.04.2021	Neem	
57.	*Samanea saman* (Jacq.) Merr.	Mimosaceae	13.04.2021	Gulabi siris	
58.	*Ficus benghalensis* L.	Moraceae	30.03.2021	Banyan tree	12
59.	*Ficus recemosa* L.	Moraceae	03.04.2021	Gullar	
60.	*Ficus religiosa* L.	Moraceae	03.04.2021	Peepal	
61.	*Artocarpus heterophyllus* Lam.	Moraceae	03.04.2021	Kathal	
62.	*Ficus geniculata* Kurz.	Moraceae	13.04.2021	Putkal	
63.	*Artocarpus lacucha* Buch.-Ham.	Moraceae	13.04.2021	Barhar	
64.	*Morus nigra* L.	Moraceae	13.04.2021	Shahtut	
65.	*Moringa oleifera* Lam.	Moringaceae	30.03.2021	Munga	
66.	*Syzygium cumini* (L.) Skeels	Myrtaceae	01.04.2021	Jamun	
67.	*Eucalyptus dalrympleana* Maiden	Myrtaceae	01.04.2021	Eucalyptus	
68.	*Psidium guajava* L.	Myrtaceae	30.03.2021	Amrood	
69.	*Jasminum sambac* (L.) Aiton	Oleaceae	13.04.2021	Bela	
70.	*Argemone mexicana* L.	Papaveraceae	30.03.2021	Satyanshi	
71.	*Phyllanthus acidus* (L.) Skeels.	Phyllanthaceae	30.03.2021	Harpharauri	
72.	*Ziziphus jujuba* mill.	Rhamnaceae	30.03.2021	Ber	
73.	*Adina cordifolia* (Roxb.) Brandis	Rubiaceae	01.04.2021	Karam	
74.	*Mitracarpus hirtus* (L) DC.	Rubiaceae	11.08.2021	Gothaigobi	
75.	*Murraya koenigii* J.Koenig ex L.	Rutaceae	30.03.2021	Curry leaf	
76.	*Aegle marmelous* (L.) Correa	Rutaceae	30.03.2021	Bel	
77.	*Citrus limon* (L.) Osbeck	Rutaceae	31.03.2021	Nimbu	
78.	*Citrus maxima* (Burm.) Merr.	Rutaceae	13.04.2021	Dambha	6
79.	*Litchi chinensis* Sonn.	Sapindaceae	31.03.2021	Lychee	
80.	*Madhuca indica* (J.Koenig ex L.) J.F.Macbr	Sapotaceae	01.04.2021	Mahua	9
81.	*Lantana camara L.*	Verbenaceae	30.03.2021	Putush	
82.	*Vitex negundo* L.	Verbenaceae	30.03.2021	Sindwar	



Graph 1- Family-wise distribution of dicot species in Kelaghagh Dam Road of Simdega district.

Fig. 1
Leucaena leucocephala
(Lam.) de Wit.

Fig. 2
Butea monosperma
(Lam.) Kuntze

Fig. 3
***Tamarindus indica* L.**

Fig. 4
***Crotalaria pallida* Aiton.**

Fig. 5
Pongamia pinnata
(L.) Pierre

Fig. 6
Citrus maxima
(Burm.) Merr.

Fig. 7
Sphaeranthus indicus
L.

Fig. 8
Thevetia peruviana
(Pers.)K.Schum.

Fig. 9
***Madhuca indica* (J.Koenig**
ex L.) J.F.Macbr

Fig. 10
Catharanthus roseus
(L) G. Don

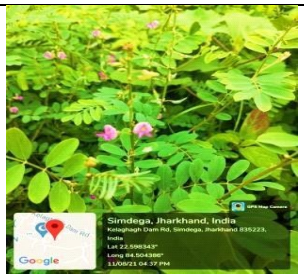


Fig. 11
Tephrosia purpurea
(L.) Pers.

Fig. 12
***Ficus benghalensis* L.**
(Moraceae)

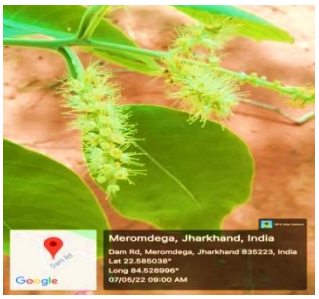


Fig. 13
Terminalia chebula Retz.

Fig. 14
Mangifera indica L.

Fig. 15
Polyalthia longifolia (Sonn.) Benth. & Hook.f. ex

Fig. 16
Shorea robusta C.F.Gaertn.

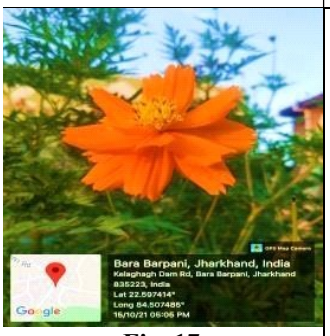


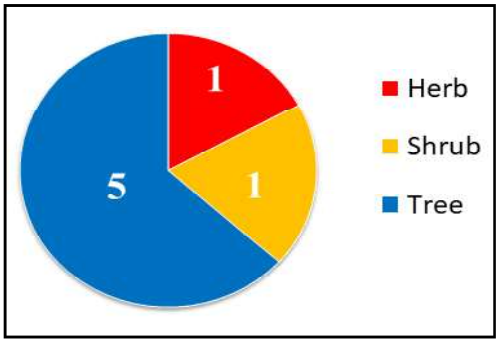
Fig. 17
Cosmos sulphureus Cav.

Fig. 18
Hibiscus sabdariffa L.

Fig. 19
Calotropis gigantea

Fig. 20
Tecoma stans

Habit		
Herb	Shrub	Tree
14	16	52



Pie chart 1- Diagram showing habit of Dicotyledonous angiospermic Plants

DISCUSSION

To enhance the conservation of rare, threatened, vulnerable and endangered plants species, dicotyledonous angiospermic plants species should indeed be documented, and a floristic survey must be performed to acquire more concerning the local flora. This research study is based on observations of floristic diversity. Although as indigenous societies become more industrialized and many species are currently on the threat of extinction. As a consequence, there is an urgent need to explore and document dicotyledenous angiospermic plant species. As many plant species are rare, threatened, vulnerable, endangered, or extinct, efforts must be made to preserve and conserve the forest area.

CONCLUSION

Present study deals with collecting evidences of certain extinct species of the Kelaghagh Dam Road of Simdega, and this survey includes floristic research of the region. The preparation of the herbarium is essential for the conservation of the endangered species. It also provides significant scientific support to the Department of Forest and Environment in the Simdega district as well as the Department of Botany at Ranchi University, Ranchi. Simdega has a tremendously diverse range of flora, but as of now, we have only encountered 33 families, 77 genera, and 82 species, with the Fabaceae family dominating all of these plant species and *Buchanania lanzan* is the dominant species from this region and the seed of *Buchanania lanzan* used as commercialization purpose by tribal people of that region. Kendu (*Diospyros melanoxylon*) is used to be a minor forest product in this region, commercialization of its leaves for making bidi, a traditional cigarette can turn out to be a boon for local tribal people of that region.

Seeds yield fatty oils of *Pongamia pinnata* is used in tanning industry. It is also used in the preparation of washing soaps and candles. Traditionally, wood of *Pongamia pinnata,* with a calorific value of 4600 Kcal/ Kg is used as a fuel in rural areas. *Tamarindus indica* has exported to different state for making sauces, chutneys, drinks and desserts. Seeds of *Schleichera oleosa* are used for production of biodiesel. *Butea monosperma* tree is used as a host of lac insects for the production of Rangeeni lac, which is an important source of income for tribal people of this region. Dicotyledonous angiospermic plants have not yet been the focus of any research in this region, as far as we were aware. The main goal of this research seems to be to identify new species of dicotyledonous angiospermic plants and to explore the flora along the Kelaghagh Dam Road in Simdega district.

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