



Preliminary survey of Phyto-diversity in Katangi block of Balaghat district (Madhya Pradesh), India

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Abstract

Phyto-diversity is the range of differences of variances along the same set of entities, thus refers to verity within the plant kingdom. In this article, we describe a phyto-diversity that serves as a framework for analyzing biodiversity of this area. Katangi block is comes under of Balaghat district in southern part of Jabalpur division and situated on the south-east side of Satpura range and major portion falls in the upper part of Wainganga river valley. It is surrounded by Vindhyan ranges up to Katangi and called it lower Bhandar ranges and slope encircling the Sirampur land locked valley and its hill ranges are called Kaimur ranges. The Kaimur –Bhandar ranges make its treasure house of floristic wealth. An extensive and intensive plant survey was carried out from 2020 to 2021.preliminary study of Katangi block shows rich plant diversity in respect to 44 families and 130 species along with 123 genera. Phytodiversitycally Katangi block of Balaghat district of Madhya Pradesh is very rich. Present study records a total of 130 Plants species which are distributed in 123 genera and 44 Families. Different life forms diversity is Herbs (80), Shrubs (13), Trees (24) and climbers (13). The outcome of this work will be valuable document for Botanist and taxonomical study and other researcher investigating in different fields.

Key words: Phyto-diversity, Katangi, Biodiversity, Wainganga River, Kaimur –Bhandar ranges.

Introduction

Millions of species are grown in our planet. The biodiversity found on earth today consisting of many millions of distinct biological species which is the product of nearly 3.5 billion years of evolution and came into existence, flourished and vanished due to various reasons (Sainkhediya and Ray, 2014). Phyto-diversity of Katangi block is represent the richness of varied life form and situated Kaimur –Bhandar ranges. It laid between 21⁰19 to 22⁰24' North Latitude and 79⁰31 to 81⁰3' East Longitude and its area is 9245 Km² and its elevation are 442m from Mean Sea Level along with the population is 16146 (Census 2011).

Literature survey

It seems from above interpretation that although the district has rich vegetation but very little floristic work has been undertaken so far visited Jain *et. al.* 2011, Tiwari and Tiwari 2014, Gaikwad *et. al.* 2014, Bramhe 2015, and Gwalwanshi 2017 and no consolidate efforts have been made to work out the diversity of the district as a whole. Keeping these points in view an assessment of phyto-diversity of Katangi block was done in 2020-2021 in the preparation of flora of the area an account of 130 texa as a precursor to the area of Katangi block of Balaghat district (Madhya Pradesh), India has been dealt in the present paper.

Methodology

Intensive and extensive plant survey was carried out during the year 2020-2021.Exploration work is done in each season. All habitats surveyed carefully. The vegetation and distribution pattern of the plants were studied. Plant collection and herbarium preparation is done by method suggested by Jain and Rao, 1977. Plant

material is preserving mercuric chloride and alcohol and dried plant is mounted on herbarium sheet with the help of fevicol. Identification of plants done with the help of flora (Verma et.al., 1993; Sing et al., 2001; Mudgal et. al.,1997; Khanna et. al., 2001;Shah, 1978; Duthi, 1960; Gamble, 1915; Hains, 1921-1924; Cook, 1903; Hooker, 1872-1897; Naik, 1998) and other taxonomic literature. The entire plant specimen was deposited in herbarium of Govt. P. G. College Sendhwa, Madhya Pradesh.

Plan of work

Katangi block of Balaghat district are selected because of thick population are presented and village wise study is conducted whereas the deep forest areas and these area are selected randomly. Plants related information is obtained and detailed discussion is note down on filed dairy. During the study villagers interviewed are arranges with senior persons who is aware about vegetation pattern of the area and diversity survey of different targeted sites of Katangi block were selected. For this 25 filed trips are made and field's sites were frequently visited for diversity studies. The plant specimens are collected into different time and seasonal data are gathered and climatological data like temperature, humidity etc. recorded. Filed notes have been also noted in field dairy. Family's area arranges according to Bantam and Hooker (1862-1883) system of classification. Corrected author citation are given of listed texa is provided. Current nomenclature of ICBN is fallowed and botanical as well as families changed name advance classification of APG-IV has been followed.

Result & discussion

Present study reports 130 plant species which is distributed in 44 families 123 genera. Dicotyledons consist of 104 species with 100 genera and 36 families and monocotyledons consists 26 species, 23 genera and 8 families (Table-1). Our study reports 130 species and 123 genera which appear to be a good representation of the flora for a small region. Out of the 44 families123 genera and130 species monocotyledons share 8 families (15 %), 23 genera (41 %) and 26 species (44 %) and Dicotyledons share 36 families (15%), 100 genera (42%) and 104 species (43%,Table-2 & fig.-1). Life form diversity is presented in figure -2. The vegetation structure of the area is remarkably changing due to anthropogenic pressure and urbanization. The biodiversity of the world is reducing 10% due to eradication. For this action and care should taking to conserve of taxa. Table-3 showed the Phyto-diversity of Katangi block of Balaghat district.

Conclusion

The present study assessment of phyto-diversity of Katangi block of Balaghat district is first study in District which shows the importance of the area in terms of phyto-diversity. Species number is very high compared to others district flora of Madhya Pradesh. It is only possible due to various habitats present with particular. Our study is recorded the phyto-diversity of different habitat here is the some glimpse of this region. In this area some taxa are left unrecorded so it is need of hour to study long term comprehensive study to document.

Acknowledgement

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Table-1: Distribution of taxa

Angiosperm		Species	Genera	Families
	Polypetalae	57	56	21
Dicotyledons	Gamopetalae	38	36	11
	Monochlamydeae	9	8	4
	Total	104	100	36
Monocotyledons		26	23	8
	Grand total	130	123	44

Table-2: Phyto-diversity in Katangi block of Balaghat district

sn	Life forms	No. of species
1)	Climbing herbs	13
2)	Herbs	80
3)	Shrubs	13
4)	Trees	24

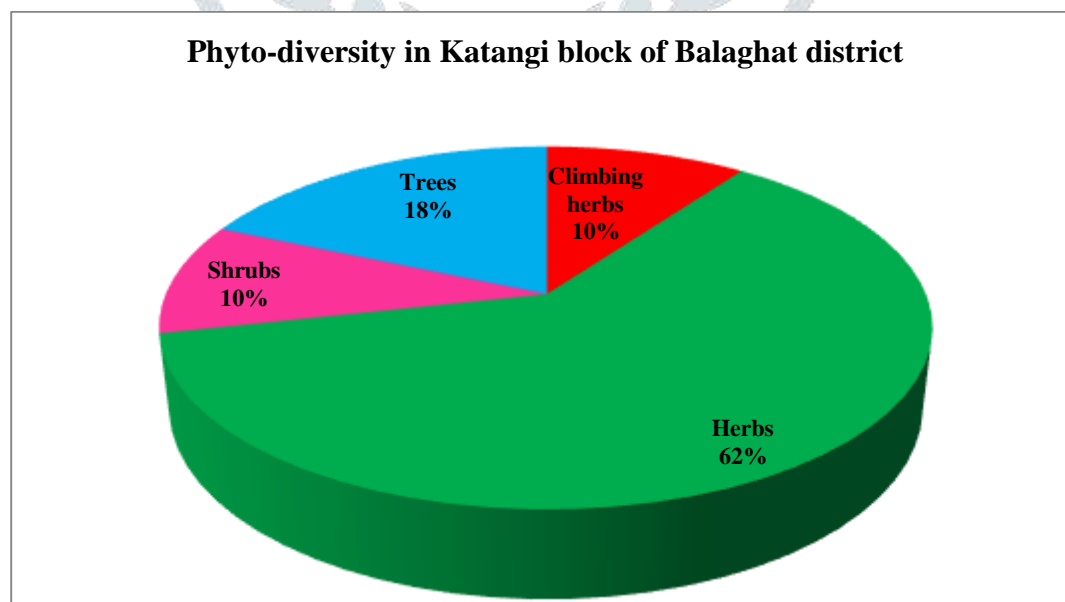


Fig.-1: Life forms in Katangi block of Balaghat district

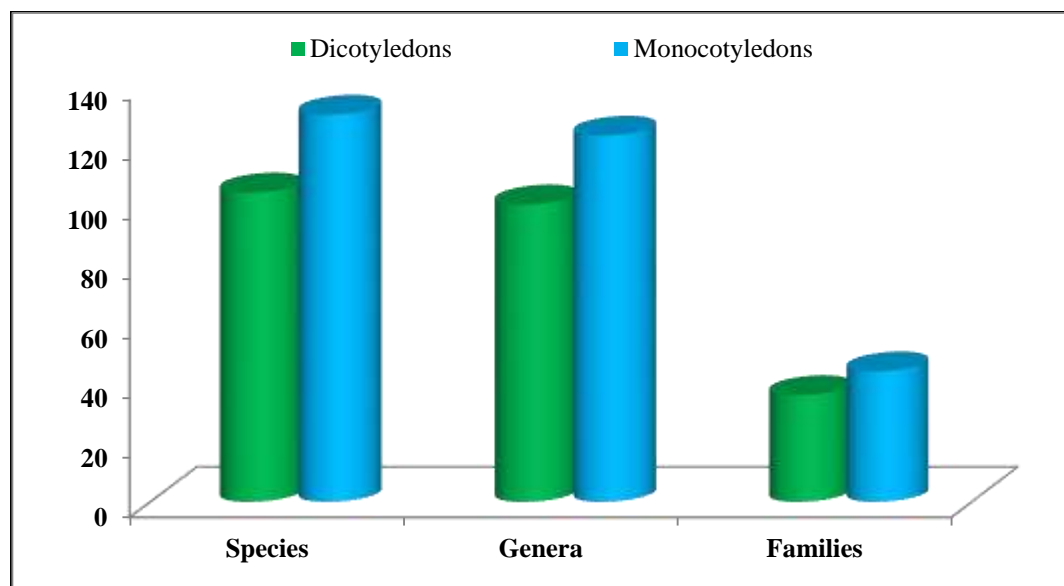


Fig.-2: Distribution of taxa in Dicotyledons and monocotyledons

Table-3: List of flowering plants

S.N.	Families	Botanical name	Habitat
1.	Menispermaceae	<i>Cocculus hirsutus (L.) Theob.</i>	CH
2.		<i>Tinospora sinensis (Lour.) Merr.</i>	CH
3.	Papaveraceae	<i>Argemone Mexicana L.</i>	H
4.	Capparaceae	<i>Capparis decidua (Forssk.) Edgew.</i>	CH
5.	Cleomaceae	<i>Cleome gynandra L.</i>	H
6.	Polygalaceae	<i>Polygala arvensis Willd.</i>	H
7.	Dipterocarpaceae	<i>Shorea robusta Gaerth f.</i>	T
8.		<i>Abutilon indicum (L.) Sweet</i>	H
9.		<i>Bombax ceiba L.</i>	T
10.		<i>Corchorus olerius L.</i>	H
11.		<i>Sida acuta Burm. F.</i>	H
12.		<i>Triumfetta malebarica J.Koenig ex Rottb.</i>	H
13.	Malpighiaceae	<i>Hiptage benghalensis (L.) Kurz</i>	H
14.	Zygophyllaceae	<i>Tribulus terrestris L.</i>	H
15.	Oxalidaceae	<i>Biophytum reinwardtii (Zucc.) Klotzsch.</i>	H
16.		<i>Oxalis corniculata L.</i>	H
17.	Rutaceae	<i>Aegle marmelos (L.) Correa</i>	T
18.		<i>Murraya paniculata (L.) Jack</i>	H
19.	Simaroubaceae	<i>Ailanthus excelsa Roxb.</i>	T
20.	Meliaceae	<i>Azadirachta indica A.Juss.</i>	T
21.		<i>Melia azedarach L.</i>	T
22.	Rhamnaceae	<i>Ventilago denticulata Willd.</i>	H
23.		<i>Ziziphus jujuba Mill</i>	T
24.	Vitaceae	<i>Ampelocissus latifolia (Roxb.) Planch.</i>	CH

25.	<i>Sapindaceae</i>	<i>Cardiospermum halicacabum L.</i>	CH
26.	<i>Anacardiaceae</i>	<i>Mangifera indica L.</i>	T
27.	<i>Leguminosae</i>	<i>Abrus precatorius L.</i>	CH
28.		<i>Aeschynomene aspera L.</i>	H
29.		<i>Alysicarpus bupleurifolius (L.) DC.</i>	H
30.		<i>Butea monosperma (Lam.) Taub.</i>	T
31.		<i>Cajanus scarabaeoides (L.) Thouars</i>	CH
32.		<i>Clitoria ternatea L.</i>	CH
33.		<i>Crotalaria albida Roth .</i>	H
34.		<i>Dalbergia sissoo DC.</i>	T
35.		<i>Desmodium scorpiurus (Sw.) Desv.</i>	H
36.		<i>Indigofera tinctoria L.</i>	H
37.		<i>Lathyrus aphaca L.</i>	H
38.		<i>Pongamia pinnata (L.) Pierre</i>	T
39.		<i>Rhynchosia minima (L.) DC.</i>	H
40.		<i>Tephrosia purpurea (L.) Pers.</i>	H
41.		<i>Zornia gibbosa Span.</i>	H
42.		<i>Bauhinia purpurea L.</i>	T
43.		<i>Caesalpinia bonduc (L.) Roxb.</i>	S
44.		<i>Cassia fistula L.</i>	T
45.		<i>Senna alata (L.) Roxb.</i>	H
46.		<i>Tamarindus indica L.</i>	T
47.		<i>Acacia leucophloea (Roxb.) Willd.</i>	T
48.		<i>Acacia nilotica (L.) Delile ssp. indica (Benth.) Brenon</i>	T
49.		<i>Albizia lebbeck (L.) Benth.</i>	T
50.		<i>Mimosa rubicaulis Lam.</i>	H
51.		<i>Pithecellobium dulce (Roxb.) Benth.</i>	T
52.	<i>Myrtaceae</i>	<i>Syzygium cumini (L.) Skeels</i>	T
53.	<i>Onagraceae</i>	<i>Ludwigia octovalvis (Jacq.) P.H.Raven</i>	H
54.	<i>Cucurbitaceae</i>	<i>Citrullus colocynthis (L.) Schrad.</i>	CH
55.		<i>Coccinia grandis (L.) Voigt</i>	CH
56.		<i>Ctenolepis garcini (L.) C.B. Clarke</i>	CH
57.	<i>Apiaceae</i>	<i>Centella asiatica (L.) Urb.</i>	H
58.	<i>Rubiaceae</i>	<i>Spermacoce articularis L.f.</i>	H
59.		<i>Spermadictyon suaveolens Roxb.</i>	H
60.	<i>Compositae</i>	<i>Ageratum conyzoides (L.) L.</i>	H
61.		<i>Blumea fistulosa (Roxb.) Kurz</i>	H
62.		<i>Conyza japonica (Thunb.) Less. ex Less.</i>	H
63.		<i>Cyathocline purpurea (Buch.-Ham. ex D.Don) Kuntze</i>	H
64.		<i>Eclipta prostrata (L.) L.</i>	H
65.		<i>Sonchus asper (L.) Hill</i>	H
66.		<i>Tridax procumbens (L.) L.</i>	H
67.		<i>Xanthium strumarium L.</i>	H
68.	<i>Sapotaceae</i>	<i>Madhuca longifolia var. latifolia (Roxb.) A.Chev.</i>	T
69.	<i>Oleaceae</i>	<i>Nyctanthes arbor-tristis L.</i>	S
70.	<i>Apocynaceae</i>	<i>Nerium oleander L.</i>	S
71.		<i>Tabernaemontana divericata (L.) R.Br.ex Roem. & Sch.</i>	S
72.		<i>Hemidesmus indicus (L.) R. Br. ex Schult.</i>	CH
73.		<i>Calotropis gigantea (L.) Dryand.</i>	S
74.		<i>Calotropis procera (Aiton) Dryand.</i>	S
75.	<i>Gentianaceae</i>	<i>Canscora diffusa (Vahl) R.Br. ex Roem. & Schult.</i>	H

76.		<i>Enicostema axillare</i> (Poir. ex Lam.) A.Raynal	H
77.		<i>Exacum tetragonum</i> Roxb.	H
78.		<i>Hoppea dichotoma</i> Willd.	H
79.	Convolvulaceae	<i>Ipomoea hederifolia</i> L.	H
80.	Solanaceae	<i>Datura stramonium</i> L.	H
81.		<i>Physalis minima</i> L.	H
82.		<i>Solanum incanum</i> L.	H
83.		<i>Withania somnifera</i> (L.) Dunal	S
84.	Acanthaceae	<i>Barleria cristata</i> L.	S
85.		<i>Gantelbua urens</i> (Heyne ex Roxb.) Bremek.	H
86.		<i>Haplantodes tentaculatus</i> (L.) Majumdar	H
87.		<i>Hemigraphis hirta</i> (Vahl) T.Anderson	H
88.		<i>Rungia pectinata</i> (L.) Nees	H
89.		<i>Rungia repens</i> (L.) Nees	H
90.		<i>Thunbergia fragrans</i> Roxb.	H
91.	Verbenaceae	<i>Lantana aculeata</i> L.	S
92.	Lamiaceae	<i>Hyptis suaveolens</i> (L.) Poit.	H
93.		<i>Leucas aspera</i> (Willd.) Link	H
94.		<i>Leucas biflora</i> (Vahl) Sm.	H
95.		<i>Ocimum basilicum</i> L.	H
96.	Nyctaginaceae	<i>Boerhavia diffusa</i> L.	H
97.	Amaranthaceae	<i>Achyranthes aspera</i> L.	H
98.		<i>Aerva lanata</i> (L.) Juss.	H
99.		<i>Amaranthus viridis</i> L.	H
100.		<i>Celosia argentea</i> L.	H
101.	Euphorbiaceae	<i>Euphorbia caducifolia</i> Haines	S
102.		<i>Euphorbia hirta</i> L.	H
103.		<i>Jatropha gossypifolia</i> L.	S
104.	Phyllanthaceae	<i>Phyllanthus emblica</i> L.	T
105.	Moraceae	<i>Ficus hispida</i> L.f.	T
106.		<i>Ficus religiosa</i> L.	T
107.	Hypoxidaceae	<i>Curculigo orchoides</i> Gaertn.	H
108.	Asparagaceae	<i>Asparagus racemosus</i> Willd.	CH
109.	Commelinaceae	<i>Commelina diffusa</i> Burm.f.	H
110.	Arecaceae	<i>Phoenix sylvestris</i> (L.) Roxb.	T
111.	Araceae	<i>Amorphophallus bulbifer</i> (Roxb.) Blume	H
112.	Cyperaceae	<i>Bulbostylis barbata</i> (Rottb.) C.B.Clarke	H
113.		<i>Cyperus alopecuroides</i> Rottb.	H
114.		<i>Cyperus rotundus</i> L.	H
115.	Poaceae	<i>Alloteropsis cimicina</i> (L.) Stapf	H
116.		<i>Andropogon pumilus</i> Roxb.	H
117.		<i>Apluda mutica</i> L.	H
118.		<i>Arundo donax</i> L.	H
119.		<i>Bambusa bambos</i> (L.) Voss	S
120.		<i>Cynodon dactylon</i> (L.) Pers.	H
121.		<i>Cynodon barberi</i> Rang. & Tadul.	H
122.		<i>Dactyloctenium aegyptium</i> (L.) Willd.	H
123.		<i>Digitaria ciliaris</i> (Retz.) Koeler	H
124.		<i>Dinebra retroflexa</i> (Vahl) Panz.	H
125.		<i>Echinochloa colona</i> (L.) Link	H
126.		<i>Eragrostis ciliaris</i> (L.) R.Br.	H

127.		<i>Heteropogon contortus (L.) Beauv. ex Roem. & Schult.</i>	H
128.		<i>Isachne globosa (Thunb.) Kuntze</i>	H
129.		<i>Sorghum halepense (L.) Pers.</i>	S
130.		<i>Tripogon jacquemontii Stapf</i>	H

Abr.:CH=Climbing herbs, H=Herbs,S=Shrubs, T= Trees

