



A Taxonomic account on the Monocotyledonous Plants from Khanpur Taluka of Mahisagar District, Gujarat, India

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Abstract

Angiosperms plants are divided into two groups, the monocotyledons (monocots) and the dicotyledons (dicots). The present study was carried out for floristic survey of monocotyledonous plants in the Khanpur taluka of Mahisagar district (Gujarat) of western India. Floristic survey is useful to maintenance of rare, endangered & threatened plant species. Presented research paper gives an account of 101 species of 12 different monocot families. By the present study an attempt has been made to evaluate the diversity of monocots.

Keywords: Gujarat, Khanpur, Mahisagar, Monocotyledonous plant, species, Taxonomic.

Introduction

The monocotyledons are one of the major radiations of angiosperms and have been recognized as a separate group since John Ray, 1682 and 1703. Major differences between monocots and other angiosperms they have the presence of a single cotyledon (Dhyani, *et al.*, 2018). Poaceae is a large family of monocotyledonous flowering plants of economic and ecological importance. Monocots were good soil binder grasses. They are wall grasses, aquatic and wet land grasses, poisonous grasses, fodder grasses, cultivated grasses, and medicinal grasses. The study of grasses especially in India, is a neglected subject. This is mainly because it is a difficult group for identification, the small size of the floral organs and complex structure of the spikelet inflorescence (Mondal and Chatterjee,

2020). The present study attempts to highlight the diversity of monocot plant resource in a conservation perspective has and to document the diversity of monocot flora in Khanpur taluka of Mahisagar district in Gujarat of India.

Materials and Method

The area was frequently visited according to the different seasons in the Khanpur taluka of the area to study the floristic diversity, so that the vegetation diversity could be studied according to the season. This survey was conducted during the year 2020 to 2022. The study included photographs taken during the plant survey, as well as the identification and classification of different plants with the help of relevant literature and various floras.

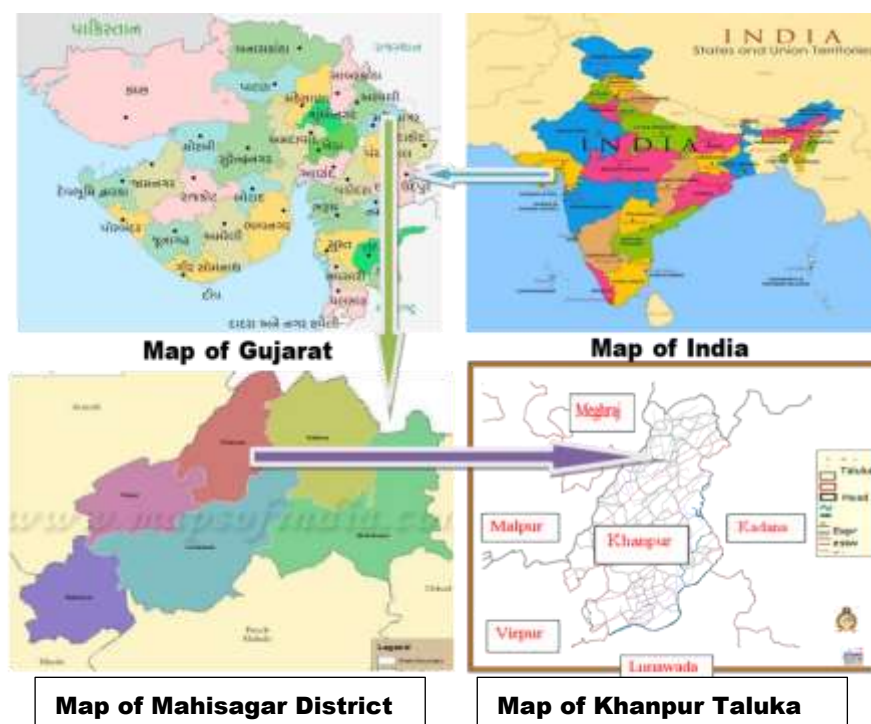


Fig: 1 Location map of study area

The study area Khanpur taluka is a present in Mahisagar District of Gujarat State. Lunawada city, Modasa city, Sagwara city, Godhra city are the nearby cities to Khanpur. Khanpur is located at 23.28° N latitude and 73.18° E longitude. Khanpur taluka has semi-arid climatic conditions and has “tropical warm to hot and semi-arid monsoon” weather.

Results and Discussion

After field visits it is observed that study area inhabited by a large number of monocot species. A total 101 species of monocots belonging to 63 genera and 12 different families from Khanpur taluka. Collec-

tion of some monocot species belonging to families Amaryllidaceae, Arecaceae, Asparagaceae, Commelinaceae, Cyperaceae, Dioscoreaceae, Hydrocharitaceae, Liliaceae, Orchidaceae, Poaceae, Typhaceae and Zingiberaceae. Poaceae was the largest family of monocot in the study area with 58 species while cyperaceae representing with 18 species. Poaceae is a dominant family in the study area (Fig -2). According to IUCN (International Union for Conservation of Nature) category, 46 species are LC (Least Concern) and 55 species are NE (Not Evaluated) in this study (Table - 1).

Table 1: checklist of monocot plant species in Khanpur taluka of Mahisagar district (GU) India

No.	Scientific Name	Vernacular Name	Family	Habit	Habitat	IUCN Categories
1	<i>Agave americana</i> L.	-	Asparagaceae	S	Silty	LC
2	<i>Allium cepa</i> L.	Dungri	Liliaceae	H	Loamy	NE
3	<i>Allium sativum</i> L.	Lasan	Liliaceae	H	Loamy	NE
4	<i>Alloteropsis cimbicina</i> (L.) Stapf	-	Poaceae	H	Rocky	NE
5	<i>Aloe vera</i> (L.) Burm.f.	Kunvarpathu	Liliaceae	H	Loamy	NE
6	<i>Apluda mutica</i> L.	-	Poaceae	H	Rocky	NE

7	<i>Acrachne racemosa</i> (Heyne ex. R. & S.) ohwl.	-	Poaceae	H	Rocky	NE
8	<i>Aristida adscensionis</i> L.	-	Poaceae	H	Rocky	NE
9	<i>Aristida hystrix</i> L.f.	-	Poaceae	H	Silty	NE
10	<i>Arthraxon lancifolius</i> (Trin) hochst.	-	Poaceae	H	Rocky	NE
11	<i>Arthraxon prionodes</i> (Steud.) Dandy	-	Poaceae	H	Rocky	NE
12	<i>Arundinella metzii</i> Hochst.	-	Poaceae	H	Silty	NE
13	<i>Asparagus racemosus</i> Willd.	Shatavari, Ekalkanto	Asparagaceae	C	Loamy	NE
14	<i>Asphodelus tenuifolius</i> Cav.	Dungro	Liliaceae	H	Silty	NE
15	<i>Avena sterillis</i> L. var. <i>Culta</i>	-	Poaceae	H	Rocky	LC
16	<i>Bambusa vulgaris</i> Schrader	-	Poaceae	G	Rocky	NE
17	<i>Bulbostylis barbata</i> (Roxb.) Cl	-	Cyperaceae	H	Loamy	LC
18	<i>Bulbostylis densa</i> (Wall. ex Roxb.) Hand. Maz	-	Cyperaceae	H	Loamy	LC
19	<i>Calamus rotang</i> L.	Cane palm	Arecaceae	T	Loamy	NE
20	<i>Cenchrus biflorus</i> Roxb.	-	Poaceae	H	Rocky	NE
21	<i>Cenchrus ciliaris</i> L.	-	Poaceae	G	Rocky	LC
22	<i>Chloris barbata</i> Sw.	Shiyal punch	Poaceae	G	Loamy	NE
23	<i>Chloris virgata</i> Sw.	Mindiyana ni jat	Poaceae	G	Loamy	NE
24	<i>Cocos nucifera</i> L.	Nariyel	Arecaceae	T	Rocky	NE
25	<i>Commelina benghalensis</i> L.	Motu shishmudiyu	Commelinaceae	H	Loamy	LC
26	<i>Commelina diffusa</i> Burm. F.	-	Commelinaceae	H	Rocky	LC
27	<i>Commelina erecta</i> L.	-	Commelinaceae	H	Rocky	LC
28	<i>Crinum asiaticum</i> L.	-	Amaryllidaceae	H	Loamy	NE
29	<i>Crinum viviparum</i> (Lam.) R.Ansari & V.J.Nair.	Gavarikand, nagarikand	Amaryllidaceae	H	Marshy	LC
30	<i>Curcuma pseudomontana</i> J. Graham	-	Zingiberaceae	H	Loamy	NE
31	<i>Cyanotis cristata</i> (L.) Schult. f.	-	Commelinaceae	H	Loamy	LC
32	<i>Cynodon dactylon</i> (L.) Pers.	Dharo	Poaceae	G	Rocky	NE
33	<i>Cyperus articulatus</i> L.	-	Cyperaceae	H	Rocky	LC

34	<i>Cyperus bulbosus</i> Vahl	-	Cyperaceae	H	Rocky	LC
35	<i>Cyperus castaneus</i> Willd.	-	Cyperaceae	H	Silty	LC
36	<i>Cyperus compressus</i> L.	-	Cyperaceae	H	Marshy	LC
37	<i>Cyperus corymbosus</i> Rottb.	-	Cyperaceae	H	Marshy	LC
38	<i>Cyperus esculentus</i> L.	-	Cyperaceae	H	Loamy	LC
39	<i>Cyperus fuscus</i> L.	-	Cyperaceae	G	Marshy	LC
40	<i>Cyperus iria</i> L.	-	Cyperaceae	H	Rocky	LC
41	<i>Cyperus michelianus</i> (L.) Link sub spp. Pygmaeus.	-	Cyperaceae	H	Marshy	LC
42	<i>Cyperus niveus</i> Retz.	-	Cyperaceae	H	Rocky	NE
43	<i>Cyperus rotundus</i> L.	Chiyo	Cyperaceae	H	Loamy	LC
44	<i>Dactyloctenium aegypticum</i> (L.) Willd.	Tarakiyu	Poaceae	G	Marshy	NE
45	<i>Dendrocalamus strictus</i> (Roxb.) Nees	Manvel vans	Poaceae	G	Loamy	NE
46	<i>Desmostachya bipinnata</i> (L.) Stapf	Darbh	Poaceae	H	Silty	LC
47	<i>Dichanthium annulatum</i> (Forssk.) Stapf.	-	Poaceae	G	Loamy	NE
48	<i>Dinebra retroflexa</i> (Vahl) Panz.	-	Poaceae	H	Rocky	NE
49	<i>Dioscorea bulbifera</i> L.	Wild yam varakand, Jagli Kanda	Dioscoreaceae	C	Rocky	NE
50	<i>Drimia indica</i> (Roxb.) Jessop.	Jungali kando	Asparagaceae	H	Rocky	NE
51	<i>Echinochloa colona</i> (L.) Link	Samo	Poaceae	G	Loamy	LC
52	<i>Eragrostis cilianensis</i> (all.) Vignolo	Stink grass	Poaceae	G	Silty	NE
53	<i>Eragrostis ciliaris</i> (L.) R.Br.	-	Poaceae	G	Rocky	NE
54	<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult.	-	Poaceae	H	Rocky	NE
55	<i>Eragrostis unioides</i> (Retz.) Nees ex Steud.	-	Poaceae	H	Rocky	LC
56	<i>Fimbristylis cymosa</i> R.Br.	-	Cyperaceae	H	Marshy	LC
57	<i>Fimbristylis dichotoma</i> (L.) Vahl	-	Cyperaceae	H	Loamy	LC
58	<i>Gloriosa superba</i> L.	Dudhio, Vacchonag	Liliaceae	C	Rocky	LC
59	<i>Heteropogon contortus</i> (L.) P. Beauv. ex	-	Poaceae	H	Rocky	NE

	Roem. & Schult.					
60	<i>Hydrilla verticillata</i> (L.f.) Royle	-	Hydrocharitaceae	Aquatic Herb	Aquatic	LC
61	<i>Kyllinga brevifolia</i> Rottb.	-	Cyperaceae	H	Marshy	LC
62	<i>Kyllinga bulbosa</i> Beauv.	-	Cyperaceae	H	Marshy	LC
63	<i>Kyllinga nemoralis</i> (J.R.Forst & G.Forst)	-	Cyperaceae	SE	Marshy	LC
64	<i>Melanocenchris jaquemontii</i> Jaub. & Spach	-	Poaceae	G	Silty	NE
65	<i>Murdannia nudiflora</i> (L.) Brenan	-	Commelinaceae	H	Loamy	NE
66	<i>Oplismenus burmanii</i> (Retz) P. Beauv.	-	Poaceae	G	Silty	NE
67	<i>Oplismenus compositus</i> (L.) P. Beauv.	-	Poaceae	G	Silty	LC
68	<i>Oryza sativa</i> L.	Bhat, Chokha	Poaceae	G	Loamy	LC
69	<i>Panicum maximum</i> Jacq.	-	Poaceae	G	Silty	NE
70	<i>Panicum miliaceum</i> L.	-	Poaceae	G	Rocky	NE
71	<i>Paspalidium flavidum</i> (Retz.) A. Camus	Jinko-samo	Poaceae	G	Silty	LC
72	<i>Paspalidium germinatum</i> (Forsk.) Staf.	-	Poaceae	G	Silty	LC
73	<i>Pennisetum glaucum</i> (L.) R.Br.	Bajara	Poaceae	G	Loamy	LC
74	<i>Pennisetum pedicellatum</i> Trin.	-	Poaceae	G	Rocky	LC
75	<i>Phoenix dactylifera</i> L.	Date palm , Khajur	Arecaceae	T	Sandy	LC
76	<i>Phragmites karka</i> (Retz.) Trin.	-	Poaceae	G	Loamy	LC
77	<i>Polypogon monspeliensis</i> (L.) Desf.	-	Poaceae	G	Silty	LC
78	<i>Prospero autumnale</i> (L.) Speta	-	Asparagaceae	H	Rocky	NE
79	<i>Roystonea regia</i> (Kunth) O.F.Cook	Bottla palm	Arecaceae	T	Silty	LC
80	<i>Saccharum officinarum</i> L.	Sherdi	Poaceae	G	Loamy	NE
81	<i>Saccharum spontaneum</i> L.	Kansado	Poaceae	H	Silty	LC
82	<i>Sacciolepis interrupta</i> (Willd.) Staf.	-	Poaceae	G	Loamy	NE

83	<i>Sehima sulcatum</i> (Hack) A. camus.	-	Poaceae	G	Silty	NE
84	<i>Setaria glauca</i> (L.) Beauv.	-	Poaceae	G	Silty	NE
85	<i>Setaria intermedia</i> Roem. & Schult.	-	Poaceae	G	Rocky	NE
86	<i>Setaria pumila</i> (Poir.) Roem. & Schult.	-	Poaceae	G	Marshy	NE
87	<i>Setaria verticillata</i> (L.) P. Beauv.	-	Poaceae	G	Loamy	NE
88	<i>Setaria viridis</i> (L.) P. Beauv.	-	Poaceae	G	Loamy	NE
89	<i>Sorghum bicolor</i> (L.) Moench.	Juwar	Poaceae	G	Loamy	LC
90	<i>Sorghum halepense</i> (L.) Pers.	Baru	Poaceae	G	Silty	NE
91	<i>Spodiopogon rhizophorus</i> (Steud.) Pilger.	-	Poaceae	G	Loamy	NE
92	<i>Sporobolus coromandelianus</i> (Retz.) Kunth.	-	Poaceae	G	Silty	NE
93	<i>Tetrapogon tenellus</i> (Roxb.) Chiov.	-	Poaceae	G	Silty	NE
94	<i>Themeda quadrivalvis</i> (L.) O. Kuntze	-	Poaceae	G	Loamy	NE
95	<i>Themeda triandra</i> Forsk.	-	Poaceae	G	Silty	NE
96	<i>Triticum aestivum</i> L.	Ghahun	Poaceae	G	Loamy	NE
97	<i>Typha angustifolia</i> L.	Ghabajariu	Typhaceae	G	Aquatic	LC
98	<i>Urochloa deflexa</i> (Schumach.) H.Scholz	-	Poaceae	H	Marshy	NE
99	<i>Urochloa panicoides</i> P. Beauv. Var. Pubescens (Kunth.) Bor.	-	Poaceae	H	Loamy	LC
100	<i>Vanda tessellata</i> (Roxb.) Hook. ex. G. Don	Vanda Orchid	Orchidaceae	Epiphyte	-	LC
101	<i>Zea mays</i> L.	Makai	Poaceae	G	Silty	LC

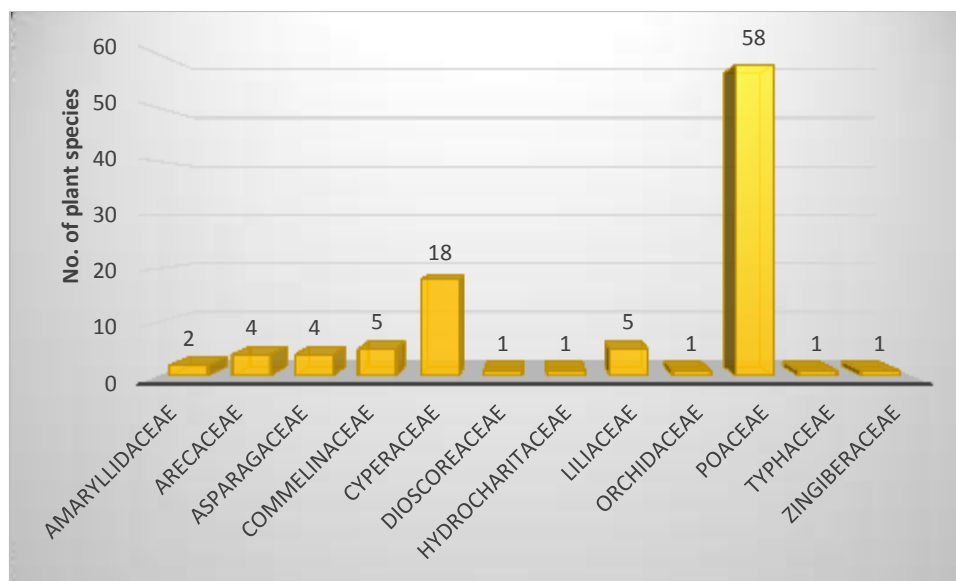
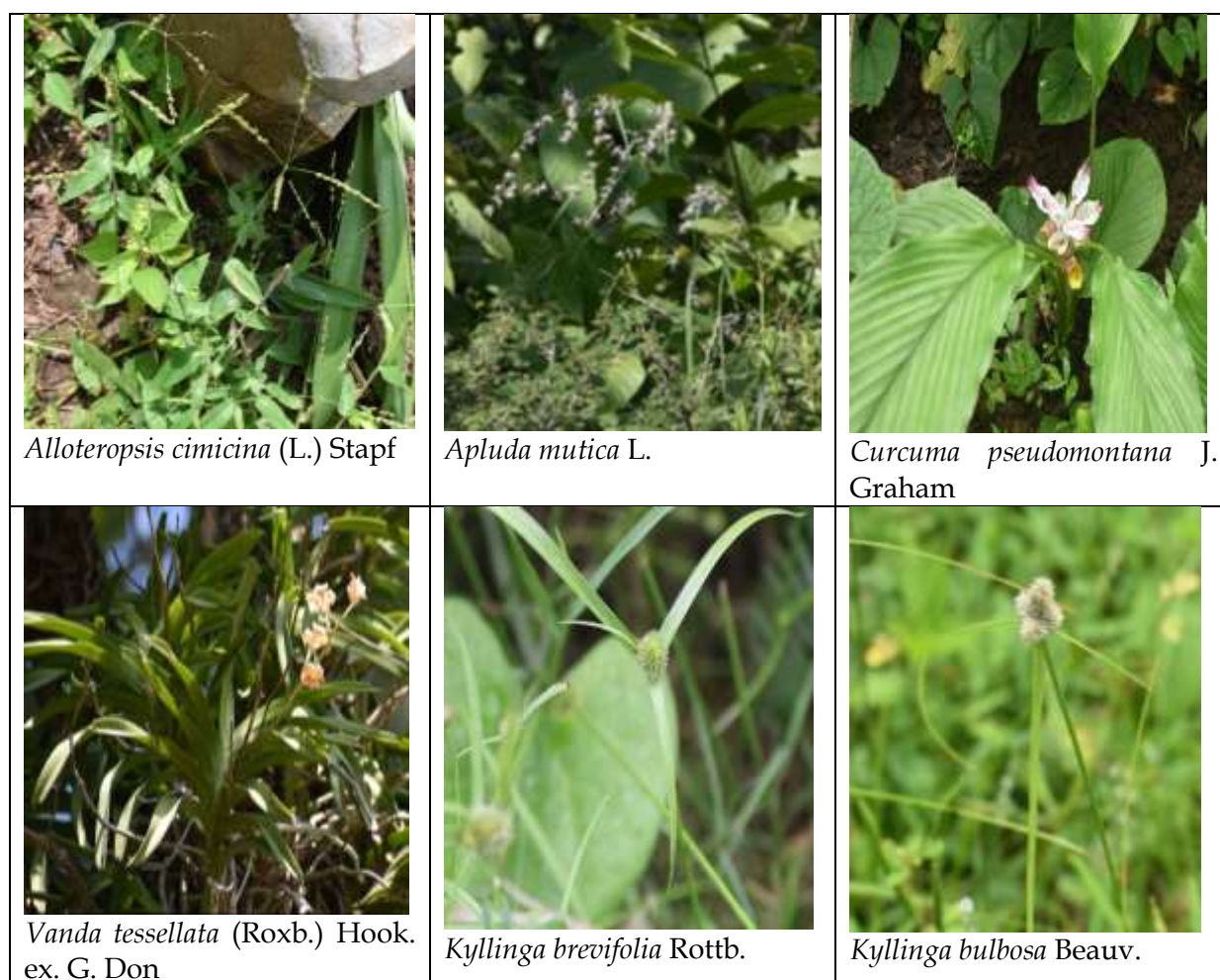


Fig 2: Family wise distribution of monocot species in Khanpur taluka of Mahisagar district



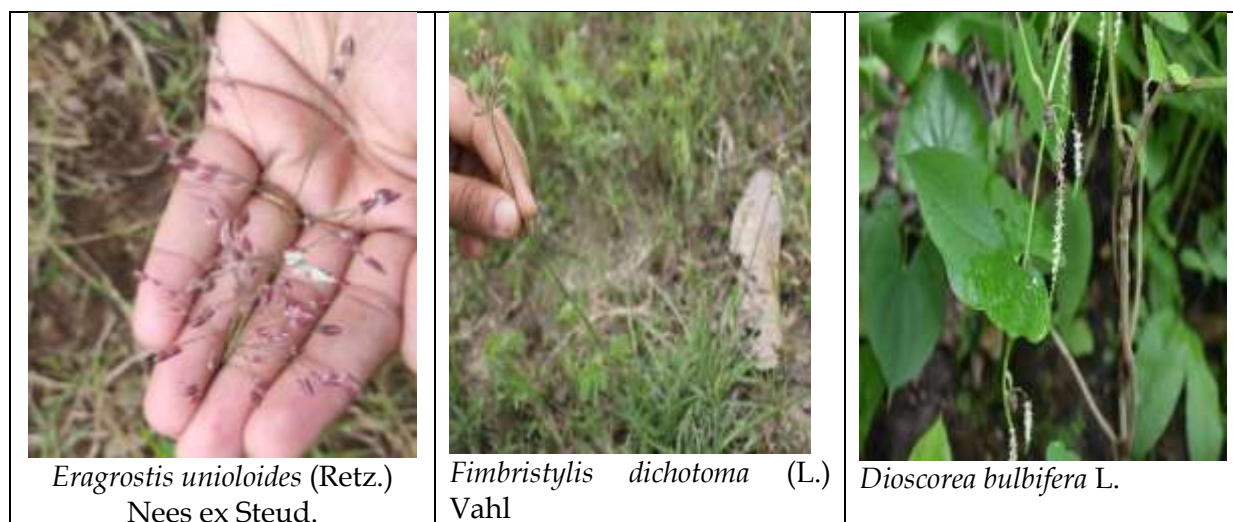


Plate 1: the photographs of monocot captured during the field work

Conclusion

Floristic research plays a very important role in understanding the interactions between species and provides better knowledge about species. Floristic composition of every community can vary from place to place and time to time. It depends on geographical distribution, topography, soil characteristics, climatic conditions and biotic interference of the locality. This study was provided monocot species distribution in Khanpur taluka of Mahisagr district, Gujarat, India.

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References

1. Bhatt, R.G. "A contribution to the floristics and phytosociology of the Panchmahal districts in Gujarat." *Ph.D. Thesis, Sardar Patel University, Vallabh Vidyanagar* (1975).
2. Cooke, T. "The Flora of Bombay Presidency." London 2 (1901-08).
3. Dhyan, S., Saini, N. and Tiwari, N. "Floral Biology of Monocot Families from a Sub-tropical Swamp Forest, Dehradun, Uttarakhand." *International Journal of Recent Scientific Research* 9.3 (2018).
4. Kamble, V.V. and Yele, R.B. "Floristic Survey of Monocotyledonous Plants from Man Tehsil of Satara District (Maharashtra) India." *Journal of Global Biosciences* 9.4 (2020):7149-7159.
5. Malik, V. "A Checklist of Grasses (Poaceae) of Saharanpur Forest Division." *Indian Journal of Fundamental and Applied Life Sciences* 5.2 (2015):74-80.
6. Mondal, K. and Chatterjee, S. "Taxonomic Survey and Morphological Studies on Some Monocot in Panchal Forest area." *International Journal of Advanced Research in Biological Sciences* 7.3 (2020):23-29.
7. Patel, R.I. "Forest Flora of Gujarat State." *Forest Dept. Gujarat State. Baroda* (1971).
8. Patel, Y.S. "Contribution to the Floristic and Phytosociology of Banni Region Kachchh District Gujarat, India." *Ph.D. Thesis, Shri Jagdishprasad Jhabarmal Tibarewala University, Rajasthan, India* (2013).
9. Qureshimatva, U.M., Maurya, R.R., Gamit, S.B. and Solanki, H.A. "Check list of Flowering Plants in Panchmahal District, Gujarat, India." *Forest Res.* 5.2 (2016):176.
10. Shah, G. L. "The Flora of Gujarat State. Part 1 & 2 Sardar Patel University." *Sardar Patel University press, Vallabh Vidyanagar* (1978).

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