



DOCUMENTATION OF WILD GRASSES IN F.M.K.M.C COLLEGE CAMPUS, MADIKERI, KODAGU, KARNATAKA, INDIA

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Abstract: The present survey was taken up to document the grass diversity in the college campus which shares its landscape with the Western Ghats. Grasses are the important flowering plants, under the family Poaceae and form the fourth largest group of flowering plants, but its minute morphological features make it difficult in their identification. Most literature focuses the documentation, diversity and taxonomic studies of dicotyledonous plants in the Western Ghats as compared to some study on monocotyledonous plants. Field Marshal K. M. Cariappa College, Madikeri, Kodagu is the oldest premier institution of higher education in the hilly district of Kodagu in Karnataka state. It is built up in an area of 14,089.41 sq mts, comprise semi-managed grassland patches dominated by variety of grass species.

Index Terms - Documentation, F.M.K.M.C. College, Grasses, Kodagu, Poaceae.

I. INTRODUCTION

Grasses are of great economic potential and practically it is difficult to live without them, serving mankind as a main food source, fodder for the cattle, medicines etc. (Yogeesh Naik and Krishnamurthy, 2019). Its size ranges from few inches up to 130 feet tall (Giant Bamboos) (Abhijit et. al., 2016).

There have been 10,550 grass species under 715 genera across the world (Pathak, 2013, Abhijit et. al., 2016), whereas recent recordings show there are 12,500 grass species under 780 genera of Poaceae distributed all over the world except Antarctica (Yogeesh Naik and Krishnamurthy, 2019).

In India there are 1200 grass species from 268 genera have been recorded (Abhijit and Krishnamurthy, 2020). Many workers have surveyed and prepared floras for wild grasses for different regions of Karnataka and India (Cooke, 1903; Sharma et al., 1984; Sreekumar and Nair, 1991; Cook, 1996; Bhat and Nagendran, 2001). Recently more grass species were added to the list of Karnataka flora by Udayan et al., 2004 and Ravikumar et al., 2005.

Recent discovery of new grass species records for Karnataka from Uttara Kannada (Rao et al., 2011), Shimogga (Yogeesh Naik and Krishnamurthy, 2019) districts, highlights the need for making intensive efforts for locating, documenting such species. Main Campus of Field Marshal K. M. Cariappa College encompasses 33.36 acres of land. Campus is in the lap of lush picturesque local. Campus is well suited for growth of variety of grass species.

II. METHODOLOGY:

2.1 Study area:

F.M.K.M.C College Campus is located 3 km from Madikeri taluk centre. Madikeri is the headquarters of Kodagu district in Karnataka state, India, which is found at the elevation of 1,170 m (3,840 ft). Kodagu is part of Western Ghat (one among 34 bio-diversity hotspot). The college geographical coordinates are 12° 25' 56" North, 75° 43' 30" East. There is only a short dry season. The climate of the campus is warm and humid. Madikeri, the average annual temperature is 20.5°C. Precipitation here

averages 2783mm. Evergreen Forest, montane shola and grassland vegetation dominates the sanctuary. Satellite map showing campus location and photo image of front view of the college campus is shown in the Fig (1).

2.2 Field Survey:

Field survey was carried out at different sites of the college campus as mentioned in the Table 1. Sample collection was done between September 2020 and December 2021. The herbaria specimens were prepared following the standard method of Jain and Rao, 1977. The grass species were identified with the help of regional floras, mainly Flora of Coorg (Kodagu), Karnataka, India (Murthy & Yoganarasimhan, 1990), Poaceae of Karnataka state (Singh *et al.*, 1976) and Flora of South Kanara (Dakshina Kannada and Udupi districts of Karnataka) (Bhat, 2014). Dr K.G. Bhat helped in the identification process.

2.3 Herbarium Deposition:

The voucher specimens were compared with those at the herbarium of Dept. of Botany, Mysore University, Manasagangotri, Mysore, Karnataka, India and the specimens were deposited in the above herbarium with their specific Voucher Number as mentioned in the Table (1).

III. RESULTS AND DISCUSSION:

Table 1: List of grass species documented from F.M.K.M.C College campus, Madikeri taluk, Kodagu district, Karnataka, India.

Sl. No.	Grass specimens code	Tribe / Scientific Name of the Grass specimens	Voucher Number	Site of collection	Period/Month of collection
1	FG3	Andropogoneae <i>Arthraxon hispidus</i>	UOM BOT22G03	Play Ground	September 2021
2	FG34	Andropogoneae <i>Chrysopogon zizanioides</i>	UOM BOT22G14	Garden	December 2020
3	FG53	Andropogoneae <i>Dimeria ornithopoda</i>	UOM BOT22G20	Play Ground	October 2021
4	FG101	Andropogoneae <i>Heteropogon contortus</i>	UOM BOT22G30	Near Throwball court	October 2020
5	FG179	Andropogoneae <i>Pseudanthistiria umbellata</i>	UOM BOT22G47	Near Throwball court	October 2020
6	FG232	Andropogoneae <i>Themeda triandra</i>	UOM BOT22G59	Near Green House	December 2020
7	FG7	Arundinelleae <i>Arundinella pumila</i>	UOM BOT22G06	Play Ground	October 2021
8	FG6	Arundinelleae <i>Arundinella purpurea</i>	UOM BOT22G05	Play Ground	October 2020
9	FG8	Arundinelleae <i>Arundinella setosa</i>	UOM BOT22G07	Near Canteen	September 2020
10	FG35	Cynodonteae <i>Cynodon dactylon</i>	UOM BOT22G15	Staff quarters	October 2020
11	FG72	Eragrostideae <i>Eleusine indica</i>	UOM BOT22G23	Near Basketball court	October 2020
12	FG73	Eragrostideae <i>Eragrostis tenella</i>	UOM BOT22G24	Forest area	November 2020
13	FG74	Eragrostideae <i>Eragrostis tenuifolia</i>	UOM BOT22G25	Near Green House	December 2020
14	FG75	Eragrostideae <i>Eragrostis uniloides</i>	UOM BOT22G26	Play Ground	December 2020
15	FG9	Paspaleae <i>Axonopus compressus</i>	UOM BOT22G08	Boys Hostel	September 2020

16	FG52	Paniceae <i>Digitaria ciliaris</i>	UOM BOT22G19	Near Throwball court	November 2020
17	FG142	Paniceae <i>Melinis repens</i>	UOM BOT22G36	Play Ground	November 2021
18	FG152	Paniceae <i>Oplismenus composites</i>	UOM BOT22G38	Forest area	September 2020
19	FG172	Paniceae <i>Panicum psilopodium</i>	UOM BOT22G41	Near Green House	October 2021
20	FG212	Paniceae <i>Sacciolepis indica</i>	UOM BOT22G50	Ladies lounge	October 2020
21	FG213	Paniceae <i>Setaria intermedia</i>	UOM BOT22G51	Play Ground	November 2021
22	FG218	Zoysieae <i>Sporobolus diander</i>	UOM BOT22G55	Garden	November 2020
23	FG23	Unidentified	-	Near Bike Stand	November 2021
24	FG24	Unidentified	-	Near Throwball court	November 2021

Arundinella and *Eragrostis* genera constitute top genera in F.M.K.M.C Campus comprising 3 species respectively namely *Arundinella. pururea*, *A. pumila* and *A. setosa* and *Eragrostis tenella*, *E. tenuifolia* and *E. uniloides*. 22 different grass species were identified, but two species out of 24 specimens were unidentified and hence its herbaria were prepared for its identification in future. *Chrysopogon zizanioides* was found to be the only cultivated variety, whereas all other 23 species were wild varieties.

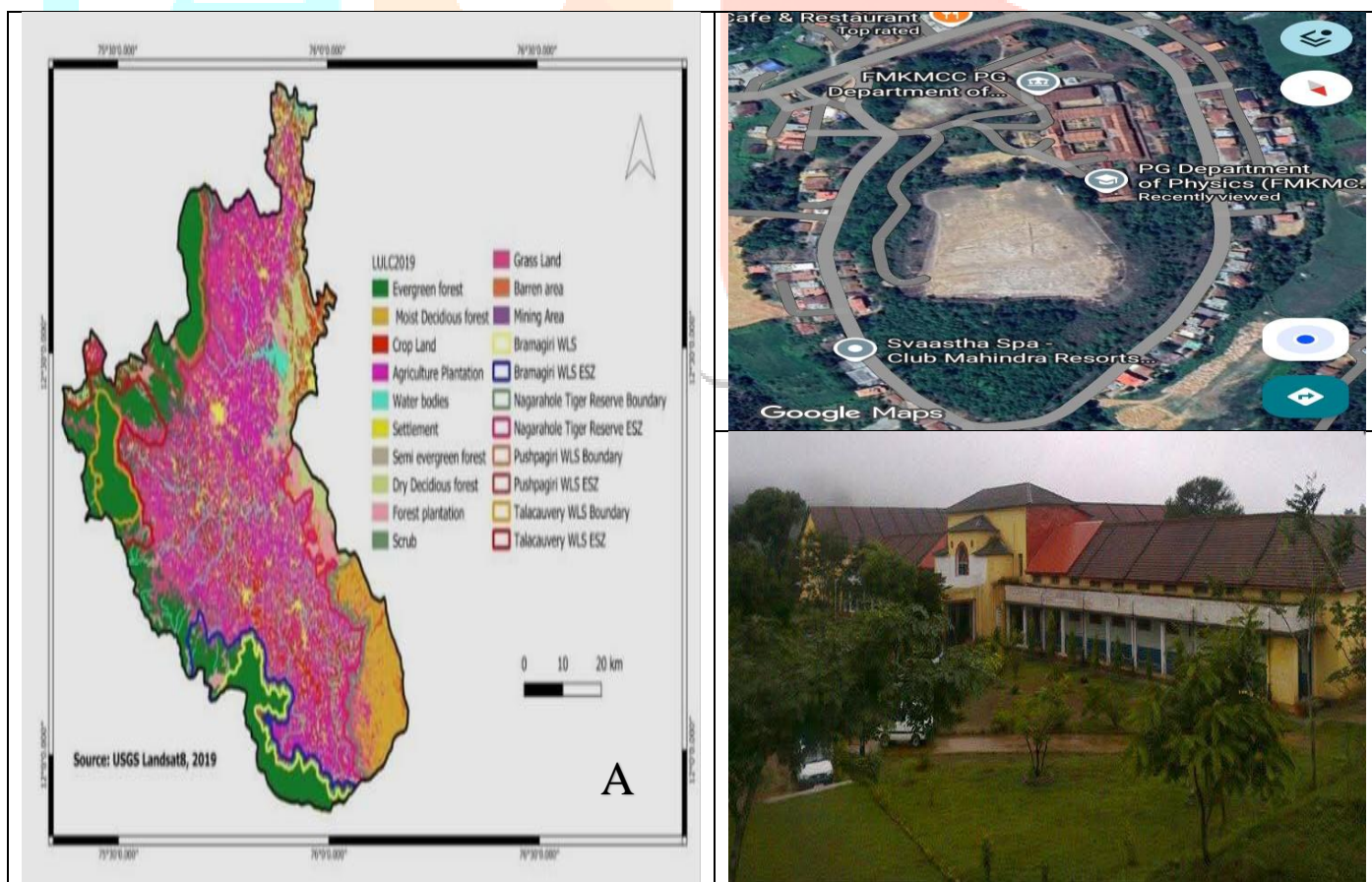


Figure 1: A. Kodagu district map showing distribution of Agriculture Plantation area at our study location. B. Satellite image of F.M.K.M.C College Campus. C. Front side view of F.M.K.M.C College Campus

Table 2: Relative abundance of identified grass species at F.M.K.M.C College Campus, Madikeri Taluk.

Sl. No.	Tribe	No. of Genera	Relative abundance %	No. of Species	Relative abundance %
1	Andropogoneae	6	33.33	6	27.27
2	Arundinelleae	1	5.55	3	13.63
3	Cynodonteae	1	5.55	1	4.54
4	Eragrostideae	2	11.11	4	18.18
5	Paniceae	6	33.33	6	27.27
6	Paspaleae	1	5.55	1	4.54
7	Zoysieae	1	5.55	1	4.54
	Total	18	100	22	100

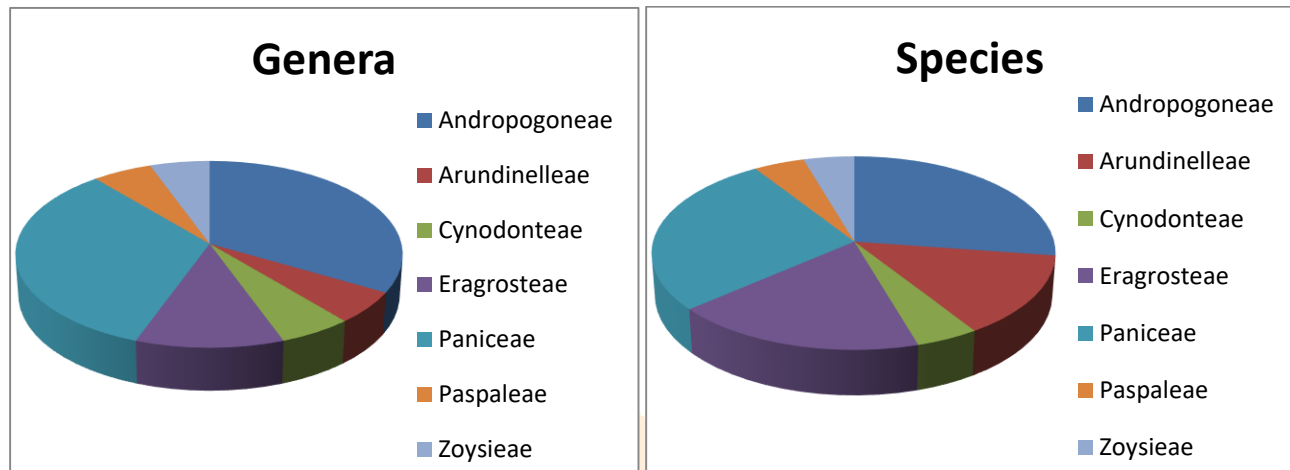


Figure 2: Relative abundance of Grass species in F.M.K.M.C College Campus, Madikeri Taluk.

Out of 22 identified grass species under 18 genera belong to 7 varied tribe of Poaceae. It is evident that highest genera bearing tribe is Andropogoneae and Paniceae, showing about 34% of its relative abundance with respect to all seven tribes.



Figure 3: Grasses of F.M.K.M.C. College, Madikeri Taluk, Kodagu.

- A. *Arthraxon hispidus*. B. *Arundinella pumila*. C. *Arundinella purpurea*. D. *Arundinella setosa*.
 E. *Axonopus compressus*. F. *Chrysopogon zizanioides*. G. *Cynodon dactylon*. H. *Digitaria ciliaris*.
 I. *Dimeria ornithopoda*. J. *Eleusine indica*. K. *Eragrostis tenella*. L. *Eragrostis tenuifolia*.



Figure 4: Grasses of F.M.K.M.C. College, Madikeri Taluk, Kodagu.

M. *Eragrostis uniloides*. N. *Heteropogon contortus*. O. *Melinis repens*. P. *Oplismenus composites*. Q. *Panicum psilopodium*. R. *Pseudanthistiria umbellata*. S. *Sacciolepis indica*. T. *Setaria intermedia*. U. *Sporobolus diander*. V. *Themeda triandra*. W: Unidentified species 1. X: Unidentified species 2.

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Statement of Competing Interests:

The authors have no competing interests.

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