



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF  
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology  
Vol. 14, Issue, 10, pp. 12723-12727, October, 2023

## RESEARCH ARTICLE

# PTERIDOPHYTIC DISTRIBUTION IN THE FOREST REGION OF YELLAPUR TALUK, UTTARA KANNADA DISTRICT, KARNATAKA

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### ARTICLE INFO

#### Article History:

Received 18<sup>th</sup> July, 2023

Received in revised form

17<sup>th</sup> August, 2023

Accepted 11<sup>th</sup> September, 2023

Published online 27<sup>th</sup> October, 2023

#### Keywords:

Angod, Distribution, Exotic, Families,  
Pteridophytes, Rare, Yellapur taluk.

### ABSTRACT

Yellapur taluk comes in Uttar Kannada district and is one of the biodiversity richest places of Western Ghats and includes many flora and fauna. Present work includes the distribution of Pteridophytes of Yellapura taluk. It includes 28 species of Pteridophytes of 17 families. Pteridophyte work is a new addition to Yellapur taluk, Uttara Kannada district, Karnataka.

**Citation:** Shreyas Betageri *et al.* 2023. "Pteridophytic distribution in the forest region of yellapur taluk, utara kannada district, india", *Asian Journal of Science and Technology*, 14, (10), 12723-12727.

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## INTRODUCTION

Pteridophytes are widely distributed throughout the world. They show luxuriant growth from sea level to the highest mountains in moist and shady tropical and temperate forests. The Western Ghats region of Peninsular India is considered rich in species diversity of Pteridophytes. Pteridophytes are represented globally by 12,000 species of which 1000 species are distributed in 70 families and 192 genera are likely to occur in India (Dixit, 2000). From the evolutionary point of view, pteridophytes are quite important for their evolutionary trend of the vascular system and for portraying the succession of seed habitat in the plants (Nadra, 2018). Pteridophytes are vascular cryptogams. Devonian, Mississippian and Pennsylvanian periods of the late Paleozoic are considered the "Age of Pteridophyta". The land plants have complex internal organization and pteridophytes occupy an intermediate position between bryophytes and higher land plants (gymnosperms and angiosperms). The pteridophytes resemble bryophytes and higher land plants (gymnosperms and angiosperms). The pteridophytes resemble bryophytes, in having similar events and requirements of life cycle. The sexual generation-gametophyte-of bryophyte and pteridophytes are dependent on water for fertilization. However, the asexual generation-sporophyte-of Pteridophytes are increasingly able to cope with the aerial environment. Pteridophytes resemble higher plants in having a complex internal organization, vascular elements, but differ from them in lacking the seed habit and pteridophytes of the past had seed-like structures (Joseph *et al.*, 2017). Ferns of the Western Ghats and their conservation with economic importance were discussed broad outlook about the pteridophytes, focusing on a global biodiversity hotspot - the Western Ghats.

The pteridophytes form a vital component of the ecosystem and most of them being forest dwellers can be taken as good indicators of the extent of problems like deforestation and habitat destruction (Dudani *et al.*, 2012). Belgaum district includes 49 species of ferns and worked around 44 species of fern spore morphology. Rebutted 90% of total fern taxa while 10% are raised in pots as ornamental plants. Polypodiales stand in larger order in terms of the number of taxa reported. In order of Polypodiales, Pteridaceae is the largest family represented by 14 taxa followed by Polypodiaceae with 05 taxa (Mahamuni, 2012). Mallayya *et al.* worked on Pteridophytic studies of ferns from Sirsi taluk and mentioned 22 genera belonging to 16 families total including 24 species of ferns from the forest in 2014. Deepa *et al.* surveyed the Banajalaya Conserved Forest area of Shimoga district and mentioned 19 species of ferns belonging to 11 families authentically at Sagar, Shimoga district in the year 2014. Enumeration of Pteridophytes in Madhuguni Forest, Central Western Ghats, Karnataka, and South India reported 23 pteridophytes. The majority of the ferns here are terrestrial except for two epiphytes, one scandent and one aquatic fern (Deepa *et al.*, 2011). Pteridophyte Diversity in Wet Evergreen Forests of Sakleshpur in Central Western Ghats reported 45 species of pteridophytes from 19 families were recorded in the study (Dudani *et al.*, 2014). Fatima *et al.* studied Pteridophytes and their Medicinal uses in Mullayyanagiri Chikkamagullur Taluk Karnataka and mentioned 29 species belonging to 22 genera and 14 families were collected at various sites in Mullayyanagiri at an elevation of 6300.17 feet from the mean sea level and are arranged according to the division they belong to in the year 2019. Deepa *et al.*, survey the Kemmangundi forest and noted that 38 species and 28 genera belonging to 18 families were enumerated with the transect method in 2013. Deepa *et al.* worked on pteridophytic distribution in the Kigga forest of the Chikkamagullur

district and mentioned 31 species and their statistical analysis in the year 2013. Nataraj *et al.*, worked on the pteridophytic distribution of the Agumbe forest of central Western Ghats and reported a total of 22 species belonging to 14 families from several regions of the Agumbe forest in the year 2011. The Genus *Ophioglossum* from Western Ghats of India worked on *Ophioglossum* from Western Ghats and reported 8 species with key for identification (Sachin & Meena, 2014).

## MATERIAL AND METHODS

Yellapur taluk is located in the Uttara Kannada district of Karnataka state. Being located in the central part of Western Ghats, it has Evergreen and Semi-evergreen forests. It receives the highest (3554.6 mm annual rainfall) rainfall during the monsoon season. It has an elevation ranging between 150 m to 600 m and is spread over 1313 sq. km. It includes three semi-evergreen forests i.e. Angoda to the north-west, Telgeri to the north-east, and Sahasarahalli to the south-eastwards (Shreyas B. & K. Kotresha, 2022). We survey was conducted from August 2019 to July 2021 during this covid pandemic and noted to get 28 Pteridophytic species.

Pteridophytes were photographed and identified based on the Beddome's volume, Manickam V.S. Volume. The names are updated as per POWO KEW online, 2023.

## RESULTS

The survey includes 28 species from various locations in Yellapura taluk, Uttara Kannada district, Karnataka. They occur in different habitats like evergreen, semi-evergreen and dry deciduous forests. They mainly occur near streams, boulders, forest edges, rocky crevices, on trees, and rarely in grasslands at high altitudes. Out of 28 species they are divided into mainly terrestrial, epiphytic, riparian and aquatic. 28 species are from 17 families (Fig. 1) i.e., Pteridaceae (6), Marattiaceae (1), Polypodiaceae (3), Salviniaceae (1), Blechnaceae (1), Gleicheniaceae (1), Dryopteridaceae (2), Lygodiaceae (2), Dennstaedtiaceae (2), Nephrolepidaceae (1), Osmundaceae (1), Ophioglossaceae (2), Dennstaedtiaceae (1), Selaginellaceae (2), Tectariaceae (1), Thelypteridaceae (1). They are not distributed regularly. Their status is considered as Common, Occasionally and Rare based on occurrence and sighting is different locations (Table-1). Out of 28 species 19 are indigenous, 7 are exotic or alien species and 2 are unknown species.

Table 1. Records the Pteridophytic diversity in Yellapura, Uttara Kannada, District, Karnataka

Sl no.	Scientific name	Family	Location	S.	E./I.	H.
1	<i>Adiantum caudatum</i> L.	Pteridaceae	Angod	C	I	T
2	<i>Adiantum peruvianum</i> Klotzsch	Pteridaceae	Angod	O	E./A.	T
3	<i>Adiantum philippense</i> L.	Pteridaceae	Bisgod	C	I	T
4	<i>Angiopteris evecta</i> (G. Forst.) Hoffm.	Marattiaceae	Angod	R	E./A.	R
5	<i>Azolla pinnata</i> R.Br.	Salviniaceae	Angod	C	I	A
6	<i>Blechnum orientale</i> L.	Blechnaceae	Dehalli	O	I	T
7	<i>Dicranopteris linearis</i> (Burm. f.) Underw.	Gleicheniaceae	Balagar	O	I	T
8	<i>Drynaria quercifolia</i> (L.) J.Sm.	Polypodiaceae	Angod	C	I	E
9	<i>Dryopteris sieboldii</i> (T.Moore) Kuntze	Dryopteridaceae	Satoddi Falls, Dehalli	R	E./A.	T
10	<i>Dryopteris wallichiana</i> (Spreng.) Hyl.	Dryopteridaceae	Balagar	O	I	T
11	<i>Hemionitis tenuifolia</i> (Burm.f.) Christenh.	Pteridaceae	Bisgod	O	I	T
12	<i>Lepisorus nudus</i> (Hook.) Ching	Polypodiaceae	Manchikere	C	I	E
13	<i>Lygodium flexuosum</i> (L.) Sw.	Lygodiaceae	Tatagar	C	I	T
14	<i>Lygodium microphyllum</i> (Cav.) R.Br.	Lygodiaceae	Gullapura	R	I	T
15	<i>Microlepia strigosa</i> (Thunb.) C. Presl	Dennstaedtiaceae	Nandulli	C	I	T
16	<i>Microlepia speluncae</i> (L.) T.Moore	Dennstaedtiaceae	Idagundi	O	I	T
17	<i>Nephrolepis cordifolia</i> (L.) C.Presl	Nephrolepidaceae	Magodfalls, Nandulli	R	I	T
18	<i>Osmunda claytoniana</i> L.	Osmundaceae	Vajralli	O	E./A.	T
19	<i>Ophioglossum reticulatum</i> L.	Ophioglossaceae	Shivapurroad, Dehalli	C	I	T
20	<i>Ophioglossum</i> sp.	Ophioglossaceae	Donigadde, Angod	O	-	T
21	<i>Pityrogramma calomelanos</i> (L.) Link	Pteridaceae	Kannigere	R	E./A.	T
22	<i>Polypodium vulgare</i> L.	Polypodiaceae	Shevakar	O	E./A.	T
23	<i>Pteridium aquilinum</i> (L.) Kuhn	Dennstaedtiaceae	Bedtibridge, Malalgaon	R	E./A.	R
24	<i>Pteris vittata</i> L.	Pteridaceae	Angod	C	I	W
25	<i>Selaginella tenera</i> (Hook. & Grev.) Spring	Selaginellaceae	Angod	C	I	R
26	<i>Selaginella</i> sp.	Selaginellaceae	Savagadde, Angod	O	-	T
27	<i>Tectaria coadunata</i> (J.Sm.) C.Chr.	Tectariaceae	Donagar	O	I	T
28	<i>Thelypteris dentata</i> (Forssk.) E. P. St. John	Thelypteridaceae	Madanur	O	I	T

C-Common, R-Rare, O-Occasional, T-Terrestrial, E-Epiphytic, R-Riparian side by streams, A-Aquatic, H-Habit, S-distributional status, E/I-Exotic or Indigenous, - unknown

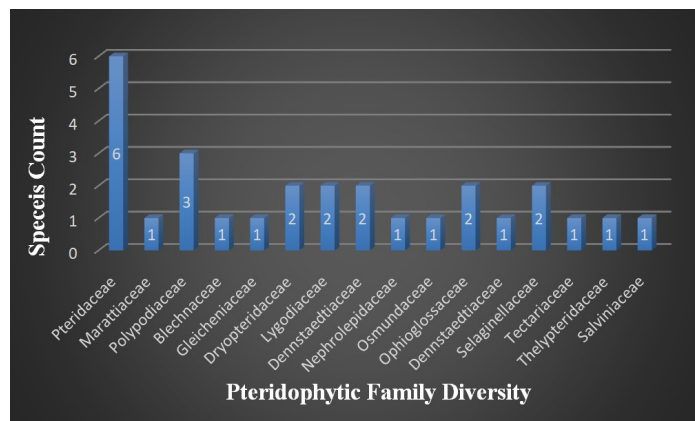


Fig. 1. Pteridophytic family diversity in Yellapur, Uttara Kannada district



**Fig. 2:** A. *Adiantum caudatum* B. *Adiantum pervianum* C. *Adiantum philippense* D. *Angiopteris evecta* E. *Azolla pinnata* F. *Blechnum orientale* G. *Dicranopteris linearis* H. *Drynaria quercifolia* I. *Dryopteris sieboldii*



Fig. 3. A. *Dryopteris wallichiana* B. *Hemionitis tenuifolia* C. *Lepisorus nodus* D. *Lygodium flexuosum* E. *Lygodiummi chrophyllum* F. *Microlepia strigosa* G. *Microlepia speluncae* H. *Nephrolepis scordifolia* I. *Osmunda claytoniana*



Fig. 4. A. *Ophioglossum reticulatum* B. *Pityrogramma calomelanos* C. *Polypodium vulgare* D. *Pteridium aquilinum* E. *Pteris vittata* F. *Selaginella tenera* G. *Tectaria coadunata* H. *Thelypteris dentate*

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