

Short Communication

Species composition and medicinal importance of Pteridophytes in Paderu forest region, Eastern Ghats of India.

G.M.Narasimha Rao¹, S.V.V.S.N.Dora¹ and K.Vijaya Lakshmi²

¹Department of Botany, Andhra University, Visakhapatnam-530 003, Andhra Pradesh, India

²Lecturer in Botany, Govt. Degree College, Paderu, Visakhapatnam District, Andhra Pradesh, India

*Corresponding author

Dr. G.M.Narasimha Rao

Email: gmnrao_algae@hotmail.com

Abstract: Some species of Pteridophytes are used as food, fodder and Bio-fertilizer, besides some species are used for treating the several ailments by the tribal people of our forest zones. Studies were made for a period of one year from January to December 2012 on species abundance and composition of Pteridophytes in different parts of Paderu forest division. A total of 15 species belongs to 10 families were recorded in this investigation. Medicinal value of these species was discussed. Quadrature study was used to collect the quantitative data on density of different species of Pteridophytes. Maximum density was reported for the species *Adiantum caudatum*, *Selaginella involvense* and *Heminitis arifolia*.

Keywords: Pteridophytes, density, Medicinal importance, Paderu forest division.

INTRODUCTION

Several authors [1-4] studied the distribution, density and medicinal importance of Pteridophytes in different parts of India. Numerical study on Pteridophytes of Punyagiri Hill near Vizianagaram and G.Madugula Mandal, Visakhapatnam of Eastern Ghats of India were studied [5, 6]. Several species of Pteridophytes were utilized for medicinal applications. In the present study, numerical data was collected on composition and density of Pteridophytes and its medical importance of Paderu forest division of Visakhapatnam.

STUDY SITES AND METHODS

Paderu is located nearly 120 KM away from the Visakhapatnam city at latitudes 18.08°N and longitudes

82.66° E. 1.0X 1.0 M quadrature was used for collection of data. Quadrates were randomly and count the number of individual plant species present in each quadrature. A total of 60 quadrature samples were collected in three different seasons. Environmental parameters such as Air Temperature and Humidity were measured by the thermometer and hygrometer respectively and rainfall data was collected from the cyclone warning centre Visakhapatnam. Information on Ethno medicinal practices by the tribes was collected through the interviewing the herbal practitioners, elderly people and vaidyas of this region. The values of frequency, density and abundance were calculated by the following formulas [7, 8].

$$\text{Frequency (\%)} = \frac{\text{The number of quadrates in which the species occur}}{\text{Total number of quadrates studied}} \times 100$$

$$\text{Density} = \frac{\text{Total number of individuals of a species in all quadrates}}{\text{Total number of quadrates studied}}$$

$$\text{Abundance} = \frac{\text{Total number of individuals of a species in all quadrates}}{\text{Total number of quadrates in which the species occurred}}$$

RESULTS AND DISCUSSION

Environmental features of the paderu forest region (Table 1) reveals that throughout the year climate is cool and mild with moderate rainfall and low humidity. Air temperature ranges from 22.4 to 31.5°C and humidity varied from 59 to 86%. Maximum rainfall was recorded in the month of September (246 mm) and

minimum (0 mm) rainfall in the months of February, March and April (Table 1). In fact there are several perennial streams which flows continuously and provide the cool and wet atmosphere and which is responsible for good growth of pteridophytes in this region.

Table.1: Environmental features of the Paderu during January to December 2012

Sl. No	Month	Humidity (%)	Rainfall (mm)	Temperature (°C)
1	January	65	74	23.5
2	February	59	00	25.8
3	March	72	00	27.2
4	April	68	00	29.7
5	May	79	92	31.5
6	June	86	124	30.8
7	July	82	212	27.6
8	August	76	168	26.5
9	September	62	246	24.6
10	October	64	98	23.8
11	November	62	102	22.6
12	December	63	24	22.4

Table 2 shows the total number of Pteridophytic flora present in the forest region of the paderu, a total of 15 species of pteridophytes were recorded in the quadrat samples and they are belonging to 11 genera and 10 families. Frequency, density and abundance of these species were presented in Table.3. Maximum frequency was reported to the species *Adiantum caudatum* and minimum frequency was reported for the species *Cyathea gigantea*. Information was collected regarding the medicinal applications of this flora of Pteridophytes of this region. *Adiantum caudatum* has been used in traditional herbal healing as either an antispasmodic or an antiasthmatic. Aerial parts have been used in herbal medicine preparations. Leaf juice of *Adiantum lunulatum* used in to treat boils, cuts and also decoction of this species applied externally to get the relief from body pains. Juice prepared from the leaves of *Blechnum*

orientale used to cure intestinal wounds. *Hemionites orfolia* a folklore anti-diabetic fern was evaluated for its hypoglycaemic and anti-diabetic properties. Species of *Lygodium flexiosim*, *Lygodium scandens* were used in wound healing, eczema and treatment of jaundice. Leaves of *Marsilia quadrifolia* are mixed with garlic and make it a paste. This paste used to treat cold and cough. *Nephrolepsis cordifolia* is used as diuretic, contraceptive and in liver disorders.

Research on economic utility and medicinal applications of Pteridophytes is limited and it is right time to explore the beautiful flora and further investigations on its medicinal importance is a need for discover of innovative drugs to fight against deadly diseases.

Table 2: Flora of Pteridophytes in Paderu forest division, Eastern Ghats of India

Sl. No.	Name of the plant	Family
1	<i>Adiantum caudatum</i> Linn	Adiantaceae
2	<i>Adiantum lunulatum</i> Burm	Adiantaceae
3	<i>Blechnum orientalae</i> Linn	Blechnaceae
4	<i>Cyathea gigantea</i> (Wall.ex Hook) Holttum	Cyatheaceae
5	<i>Hemionitis artifolia</i> Moore	Adiantaceae
6	<i>Lygodium flexiosim</i> Linn	Schizaceae
7	<i>Lygodium scandens</i> Linn	Schizaceae
8	<i>Marsilia quadrifolia</i> Linn	Marseliaceae
9	<i>Nephrolepsis cordifolia</i>	Nephrolepidaceae
10	<i>Ophioglossum pendunculossu</i> Desv. Berl	Ophioglossaceae
11	<i>Pleopeltis pallida</i> Linn	Polypodiaceae
12	<i>Pleopeltis macrocarpa</i> Kaulf.	Polypodiaceae
13	<i>Pteris pellucid</i> Presl	Pteridaceae
14	<i>Pteris vittata</i> Linn	Pteridaceae
15	<i>Selaginella involvens</i> Sw.in Bull	Selaginellaceae

Table 3: Quantitative data on Pteridophytes of Paderu forest region in Eastern Ghats

Sl. No.	Name of the species	Frequency (%)	Density	Abundance
1	<i>Adiantum caudatum</i> Linn	86	5.4	6.1
2	<i>Adiantum lunulatum</i> Burm	74	4.9	5.1
3	<i>Blechnum orientatae</i> Linn	62	4.2	4.6
4	<i>Cyathea gigantea</i> (Wall.ex Hook) Holttum	38	2.7	2.9
5	<i>Hemionitis artifolia</i>	80	4.5	5.6
6	<i>Lygodium flexiosim</i> Linn	62	4.0	4.8
7	<i>Lygodium scandens</i> Linn	64	4.2	5.0
8	<i>Marsilia quadrifolia</i> Linn	52	3.2	4.1
9	<i>Nephrolepis cordifolia</i>	54	3.4	4.3
10	<i>Ophioglossum pendunculossium</i> Desv. Berl	48	2.9	3.2
11	<i>Pleopeltis pallida</i> Linn	78	4.9	5.3
12	<i>Pleopeltis macrocarpa</i> Kaulf.	53	3.7	4.7
13	<i>Pteris pellucid</i> Presl	65	4.3	5.9
14	<i>Pteris vittata</i> Linn	71	4.8	5.2
15	<i>Selaginella involvens</i> Sw.in Bull	82	4.8	5.3

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